MONTGOMERY WATSON

JUN 1 6 1997

June 9, 1997

Mr. Michael E. Bellot
Remedial Project Manager
U.S. EPA - Region 5
77 West Jackson Boulevard, SR-6J
Chicago, Illinois 60604-3590

Re: Manhole MH-3 Groundwater Sample Results
Blackwell Landfill/Response Actions
DuPage County, Illinois

Dear Mr. Bellot:

During an April 23, 1997 meeting between the U.S. EPA, IEPA, the Forest Preserve District (FPD) of DuPage County, PRC Environmental, and Montgomery Watson, the U.S. EPA and IEPA requested that a groundwater sample be collected and analyzed from the north stormwater pipeline on the Blackwell Landfill. On April 24, 1997, we collected this sample from manhole MH-3 following the FPD's removal and disposal of approximately 10,000 gallons of water. The FPD disposed of this water at the Wheaton Sanitary District treatment facilities.

We collected the groundwater sample in accordance with the August 1996 Field Sampling Plan (FSP) for Predesign Investigative Activities. In all, we collected one groundwater sample, and associated quality assurance samples (duplicate, field blank and trip blank) from manhole MH-3. The samples were analyzed by First Environmental Laboratories, Inc. for TCL VOCs, TCL SVOCs, TAL metals and cyanide, and major ions in accordance with the August 1996 Quality Assurance Project Plan (QAPP) for Predesign Investigative Activities. Subsequently, we validated the analytical results in accordance with the QAPP. A summary of detected analytical results (excluding major minerals) is provided in the attached Table 1. For comparison purposes, we have also summarized the most recent MCLs. The analytical data are provided in Appendix A, and the validation results are provided in Appendix B.

EPA Region 5 Records Ctr.
248039

2100 Corporate Drive
Addison, Illinois
60101

Tel 630 691 5000
Fax 630 691 5133

If you have any questions or comments about this letter or the attached results, please contact me at (630) 691-5000.

Sincerely,

MONTGOMERY WATSON

Walter G. Buettner, P.E.
Supervising Engineer

Enclosures: Table 1 - Manhole MH-3 Groundwater Analytical Results
Appendix A - Analytical Laboratory Data
Appendix B - Validation Results

cc: Mr. Joseph Benedict, Forest Preserve District
Mr. Rick Lanham, IEPA
Mr. Kurt Lindland, U.S. EPA Assistant Regional Counsel (without Appendixes)

TJK/tjk/WGB
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Table 1
Manhole MH-3 Groundwater Detected Analytical Results
Blackwell Landfill
DuPage County, Illinois

Analyte	BW-GW MH3-01 (sample)	BW-GW MH3-91 (duplicate)	BW-TB MH3-01 (trip blank)	BW-FB MH3-01 (field blank)	MCLs (1)
Metals	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)
Barium	0.202	0.205	-	<0.001	2
Iron	**16**	**16.3**	-	<0.1	0.3
Manganese	**0.272**	**0.277**	-	<0.001	0.05
Nickel	0.004	0.004	-	<0.001	0.1
Cyanide	<0.005	<0.005	<0.005	<0.005	0.2
VOCs	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)
Benzene	**5.31**	**8J**	<5.0	<5.0	5
Chlorobenzene	80.6J	**132**	<5.0	<5.0	100
1,2 DCE (total)	7	5.6	<5.0	<5.0	70
Ethyl Benzene	<5.0	7.8J	<5.0	<5.0	700
SVOCs	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)
1,4 DCB	16	15	-	<10	75
	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)
Sulfate	25	26	<15	<15	250
					Secondary MCLs (1)
Indicators					(mg/l)
Chloride	98	104	<5	<5	250
TDS	**1130**	**1130**	<1	<1	500

Note:
(1) Bolded and shaded value indicates exceedance of MCL.
(2) Inorganic detections listed exclude major minerals.
J - detection is qualified estimated
Footnote:
(1) MCL = Maximum Contaminant Levels - U.S. Office of Water, Drinking Water Regulation and Health Advisory, October 1996.

TJK/BPG/jmm/WGB
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Appendix A

Analytical Laboratory Data

First Environmental Laboratories, Inc.
1600 Shore Road • Naperville, Illinois 60563 • Phone (630) 778-1200 • Fax (630) 778-1233
IEPA Certification #100292

Analytical Report

Client:	MONTGOMERY WATSON		
Project ID:	1252008.04090045	Date Received:	04/24/97
Sample Number:	37299	Date Taken:	04/24/97
Sample Description:	BW-GW MH3-01	Date Reported:	05/02/97

Analyte	Result	Units	Date Analyzed	Method
Cyanide	<0.005	mg/L	04/30/97	9010A
Sulfate	25	mg/L	04/30/97	9038
Chloride	98	mg/L	04/28/97	9252
Total Dissolved Solids	1,130	mg/L	04/29/97	160.1
pH @ 25°C	6.9	units	04/25/97	9045C
Conductivity	1,860	umhos/cm	.05/02/97	120.1
Turbidity	88	NTU	04/25/97	180.1
Dissolved Oxygen	4.20	mg/L	04/24/97	4500-O G

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Project ID:	1252008.04090045	Date Received:	04/24/97
Sample Number:	37299	Date Taken:	04/24/97
Sample Description:	BW-GW MH3-01	Date Reported:	05/02/97

Analyte		Result	Units	Date Analyzed	Method
Aluminum	UJ	<0.2	mg/L	04/28/97	6010A
Antimony		<0.01	mg/L	04/28/97	6010A
Arsenic		<0.002	mg/L	04/28/97	6010A
Barium		0.202	mg/L	04/28/97	6010A
Beryllium		<0.001	mg/L	04/28/97	6010A
Cadmium		<0.001	mg/L	04/28/97	6010A
Calcium		157	mg/L	04/28/97	6010A
Chromium		<0.001	mg/L	04/28/97	6010A
Cobalt		<0.001	mg/L	04/28/97	6010A
Copper		<0.001	mg/L	04/28/97	6010A
Iron		16.0	mg/L	04/28/97	6010A
Lead		<0.002	mg/L	04/28/97	6010A
Magnesium		97.4	mg/L	04/28/97	6010A
Manganese		0.272	mg/L	04/28/97	6010A
Mercury		<0.0005	mg/L	04/25/97	7470A
Nickel		0.004	mg/L	04/28/97	6010A
Potassium		25.4	mg/L	04/28/97	6010A
Selenium		<0.002	mg/L	04/28/97	6010A
Silver		<0.001	mg/L	04/28/97	6010A
Sodium		124	mg/L	04/28/97	6010A
Thallium		<0.01	mg/L	04/28/97	6010A
Vanadium		<0.01	mg/L	04/28/97	6010A
Zinc		<0.005	mg/L	04/28/97	6010A

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Project ID:	1252008.04090045	Date Received:	04/24/97
Sample Number:	37299	Date Taken:	04/24/97
Sample Description:	BW-GW MH3-01	Date Reported:	05/05/97

Volatile Organic Compounds Method 8260A
Analysis Date: 05/01/97

Analyte		Result	Units	Flags
Acetone		< 10.0	ug/L	
Benzene	J	5.2	ug/L	
Bromodichloromethane		< 5.0	ug/L	
Bromoform		< 5.0	ug/L	
Bromomethane		< 10.0	ug/L	
2-Butanone		< 10.0	ug/L	
Carbon disulfide		< 5.0	ug/L	
Carbon tetrachloride		< 5.0	ug/L	
Chlorobenzene	J	80.6	ug/L	
Chlorodibromomethane		< 5.0	ug/L	
Chloroethane		< 10.0	ug/L	
Chloroform		< 5.0	ug/L	
Chloromethane		< 10.0	ug/L	
1,1-Dichloroethane		< 5.0	ug/L	
1,2-Dichloroethane		< 5.0	ug/L	
1,1-Dichloroethene		< 5.0	ug/L	
1,2-Dichloroethene (total)		7.0	ug/L	
1,2-Dichloropropane		< 5.0	ug/L	
cis-1,3-Dichloropropene		< 5.0	ug/L	
trans-1,3-Dichloropropene		< 5.0	ug/L	
Ethyl benzene		< 5.0	ug/L	
2-Hexanone		< 10.0	ug/L	
4-Methyl-2-pentanone		< 10.0	ug/L	
Methylene chloride		< 5.0	ug/L	
Styrene		< 5.0	ug/L	
1,1,2,2-Tetrachloroethane		< 5.0	ug/L	
Tetrachloroethene	UJ	< 5.0	ug/L	

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Sample Number:	37299	Date Taken:	04/24/97
Sample Description:	BW-GW MH3-01	Date Reported:	05/05/97

Analyte	Result	Units	Flags
Toluene	< 5.0	ug/L	
1,1,1-Trichloroethane	< 5.0	ug/L	
1,1,2-Trichloroethane	< 5.0	ug/L	
Trichloroethene	< 5.0	ug/L	
Vinyl Acetate	< 10.0	ug/L	
Vinyl Chloride	< 10.0	ug/L	
Xylenes (total)	< 5.0	ug/L	

Base-Neutral/Acid Compounds Method 8270B

Preparation Date: 04/25/97
Analysis Date: 04/28/97

Acenaphthene		< 10	ug/L	
Acenaphthylene		< 10	ug/L	
Anthracene		< 10	ug/L	
Benzidine		< 10	ug/L	
Benzo[a]anthracene		< 10	ug/L	
Benzo[b]fluoranthene	UJ	< 10	ug/L	
Benzo[k]fluoranthene	UJ	< 10	ug/L	
Benzo[g,h,i]perylene		< 10	ug/L	
Benzo[a]pyrene		< 10	ug/L	
Benzoic Acid	UJ	< 50	ug/L	
Benzyl Alcohol		< 20	ug/L	
bis(2-chloroethoxy)methane		< 10	ug/L	
bis(2-chloroethyl)ether		< 10	ug/L	
bis(2-chloroisopropyl)ether		< 10	ug/L	
bis(2-ethylhexyl)phthalate		< 10	ug/L	
4-Bromophenyl-phenylether		< 10	ug/L	
Butylbenzylphthalate		< 10	ug/L	
4-Chloroaniline		< 10	ug/L	

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Sample Number:	37299	Date Taken:	04/24/97
Sample Description:	BW-GW MH3-01	Date Reported:	05/02/97

Analyte	Result	Units	Flags
4-Chloro-3-methylphenol	< 20	ug/L	
2-Chloronaphthalene	< 10	ug/L	
2-Chlorophenol	< 10	ug/L	
4-Chlorophenyl-phenylether	< 10	ug/L	
Chrysene	< 10	ug/L	
Dibenz[a,h]anthracene	< 10	ug/L	
Dibenzofuran	< 10	ug/L	
1,2-Dichlorobenzene	< 10	ug/L	
1,3-Dichlorobenzene	< 10	ug/L	
1,4-Dichlorobenzene	16	ug/L	
3,3-Dichorobenzidine	< 20	ug/L	
2,4-Dichlorophenol	< 10	ug/L	
Diethylphthalate	< 10	ug/L	
2,4-Dimethylphenol	< 10	ug/L	
Dimethylphthalate	< 10	ug/L	
Di-n-butylphthalate	< 10	ug/L	
4,6-Dinitro-2-methylphenol	< 50	ug/L	
2,4-Dinitrophenol	< 50	ug/L	
2,4-Dinitrotoluene	< 10	ug/L	
2,6-Dinitrotoluene	< 10	ug/L	
Di-n-octylphthalate	< 10	ug/L	
Fluoranthene	< 10	ug/L	
Fluorene	< 10	ug/L	
Hexachlorobenzene	< 10	ug/L	
Hexachlorobutadiene	< 10	ug/L	
Hexachlorocyclopentadiene	< 10	ug/L	
Hexachloroethane	< 10	ug/L	
Indeno[1,2,3-cd]pyrene	< 10	ug/L	
Isophorone	< 10	ug/L	
2-Methylnaphthalene	< 10	ug/L	

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Sample Number:	37299	Date Taken:	04/24/97
Sample Description:	BW-GW MH3-01	Date Reported:	05/02/97

Analyte	Result	Units	Flags
2-Methylphenol	< 10	ug/L	
3&4-Methylphenol	< 10	ug/L	
Naphthalene	< 10	ug/L	
2-Nitroaniline	< 50	ug/L	
3-Nitroaniline	< 50	ug/L	
4-Nitroaniline	< 20	ug/L	
Nitrobenzene	< 10	ug/L	
2-Nitrophenol	< 10	ug/L	
4-Nitrophenol	< 50	ug/L	
N-Nitrosodimethylamine	< 10	ug/L	
N-Nitroso-di-n-propylamine	< 10	ug/L	
n-Nitrosodiphenylamine	< 10	ug/L	
Pentachlorophenol	< 50	ug/L	
Phenanthrene	< 10	ug/L	
Phenol	< 10	ug/L	
Pyrene	< 10	ug/L	
1,2,4-Trichlorobenzene	< 10	ug/L	
2,4,5-Trichlorophenol	< 10	ug/L	
2,4,6-Trichlorophenol	< 10	ug/L	

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Analytical Report

Clie	ONTGOMERY WATSON		
Proj	2008.04090045	Date Received:	04/24/97
Sam	00	Date Taken:	04/24/97
Sam	-GW MH3-91	Date Reported:	05/02/97

Analyte		Result	Units	Date Analyzed	Method
Aluminum	UJ	<0.2	mg/L	04/28/97	6010A
Antimony		<0.01	mg/L	04/28/97	6010A
Arsenic		<0.002	mg/L	04/28/97	6010A
Barium		0.205	mg/L	04/28/97	6010A
Beryllium		<0.001	mg/L	04/28/97	6010A
Cadmium		<0.001	mg/L	04/28/97	6010A
Calcium		160	mg/L	04/28/97	6010A
Chromium		<0.001	mg/L	04/28/97	6010A
Cobalt		<0.001	mg/L	04/28/97	6010A
Copper		<0.001	mg/L	04/28/97	6010A
Iron		16.3	mg/L	04/28/97	6010A
Lead		<0.002	mg/L	04/28/97	6010A
Magnesium		99.3	mg/L	04/28/97	6010A
Manganese		0.277	mg/L	04/28/97	6010A
Mercury		<0.0005	mg/L	04/25/97	7470A
Nickel		0.004	mg/L	04/28/97	6010A
Potassium		25.6	mg/L	04/28/97	6010A
Selenium		<0.002	mg/L	04/28/97	6010A
Silver		<0.001	mg/L	04/28/97	6010A
Sodium		126	mg/L	04/28/97	6010A
Thallium		<0.01	mg/L	04/28/97	6010A
Vanadium		<0.01	mg/L	04/28/97	6010A
Zinc		<0.005	mg/L	04/28/97	6010A

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Analytical Report

Client:	MONTGOMERY WATSON		
Project ID:	1252008.04090045	Date Received:	04/24/97
Sample Number:	37300	Date Taken:	04/24/97
Sample Description:	BW-GW MH3-91	Date Reported:	05/02/97

Analyte	Result	Units	Date Analyzed	Method
Cyanide	<0.005	mg/L	04/30/97	9010A
Sulfate	26	mg/L	04/30/97	9038
Chloride	104	mg/L	04/28/97	9252
Total Dissolved Solids	1,130	mg/L	04/29/97	160.1
pH @ 25°C	6.9	units	04/25/97	9045C
Conductivity	1,848	umhos/cm	05/02/97	120.1
Turbidity	90	NTU	04/25/97	180.1
Dissolved Oxygen	4.20	mg/L	04/24/97	4500-O G

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Analytical Report

Client:	MONTGOMERY WATSON		
Project ID:	1252008.04090045	Date Received:	04/24/97
Sample Number:	37300	Date Taken:	04/24/97
Sample Description:	BW-GW MH3-91	Date Reported:	05/02/97

Volatile Organic Compounds Method 8260A
Analysis Date: 05/01/97

Analyte	Flags	Result	Units
Acetone		< 10.0	ug/L
Benzene	J	8.0	ug/L
Bromodichloromethane		< 5.0	ug/L
Bromoform		< 5.0	ug/L
Bromomethane		< 10.0	ug/L
2-Butanone		< 10.0	ug/L
Carbon disulfide		< 5.0	ug/L
Carbon tetrachloride		< 5.0	ug/L
Chlorobenzene	J	132	ug/L
Chlorodibromomethane		< 5.0	ug/L
Chloroethane		< 10.0	ug/L
Chloroform		< 5.0	ug/L
Chloromethane		< 10.0	ug/L
1,1-Dichloroethane		< 5.0	ug/L
1,2-Dichloroethane		< 5.0	ug/L
1,1-Dichloroethene		< 5.0	ug/L
1,2-Dichloroethene (total)		5.6	ug/L
1,2-Dichloropropane		< 5.0	ug/L
cis-1,3-Dichloropropene		< 5.0	ug/L
trans-1,3-Dichloropropene		< 5.0	ug/L
Ethyl benzene	J	7.8	ug/L
2-Hexanone		< 10.0	ug/L
4-Methyl-2-pentanone		< 10.0	ug/L
Methylene chloride		< 5.0	ug/L
Styrene		< 5.0	ug/L
1,1,2,2-Tetrachloroethane		< 5.0	ug/L
Tetrachloroethene	UJ	< 5.0	ug/L

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Project ID:	1252008.04090045	Date Received:	04/24/97
Sample Number:	37300	Date Taken:	04/24/97
Sample Description:	BW-GW MH3-91	Date Reported:	05/02/97

Analyte		Result	Units	Flags
Toluene		< 5.0	ug/L	
1,1,1-Trichloroethane		< 5.0	ug/L	
1,1,2-Trichloroethane		< 5.0	ug/L	
Trichloroethene		< 5.0	ug/L	
Vinyl Acetate		< 10.0	ug/L	
Vinyl Chloride		< 10.0	ug/L	
Xylenes (total)		< 5.0	ug/L	

Base-Neutral/Acid Compounds Method 8270B

Preparation Date: 04/25/97
Analysis Date: 04/28/97

Acenaphthene		< 10	ug/L	
Acenaphthylene		< 10	ug/L	
Anthracene		< 10	ug/L	
Benzidine		< 10	ug/L	
Benzo[a]anthracene		< 10	ug/L	
Benzo[b]fluoranthene	UJ	< 10	ug/L	
Benzo[k]fluoranthene	UJ	< 10	ug/L	
Benzo[g,h,i]perylene		< 10	ug/L	
Benzo[a]pyrene		< 10	ug/L	
Benzoic Acid	UJ	< 50	ug/L	
Benzyl Alcohol		< 20	ug/L	
bis(2-chloroethoxy)methane		< 10	ug/L	
bis(2-chloroethyl)ether		< 10	ug/L	
bis(2-chloroisopropyl)ether		< 10	ug/L	
bis(2-ethylhexyl)phthalate		< 10	ug/L	
4-Bromophenyl-phenylether		< 10	ug/L	
Butylbenzylphthalate		< 10	ug/L	
4-Chloroaniline		< 10	ug/L	

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Project ID:	1252008.04090045	Date Received:	04/24/97
Sample Number:	37300	Date Taken:	04/24/97
Sample Description:	BW-GW MH3-91	Date Reported:	05/02/97

Analyte		Result	Units	Flags
4-Chloro-3-methylphenol		< 20	ug/L	
2-Chloronaphthalene		< 10	ug/L	
2-Chlorophenol		< 10	ug/L	
4-Chlorophenyl-phenylether		< 10	ug/L	
Chrysene		< 10	ug/L	
Dibenz[a,h]anthracene		< 10	ug/L	
Dibenzofuran		< 10	ug/L	
1,2-Dichlorobenzene		< 10	ug/L	
1,3-Dichlorobenzene		< 10	ug/L	
1,4-Dichlorobenzene		15	ug/L	
3,3-Dichorobenzidine		< 20	ug/L	
2,4-Dichlorophenol	UJ	< 10	ug/L	
Diethylphthalate		< 10	ug/L	
2,4-Dimethylphenol		< 10	ug/L	
Dimethylphthalate		< 10	ug/L	
Di-n-butylphthalate		< 10	ug/L	
4,6-Dinitro-2-methylphenol		< 50	ug/L	
2,4-Dinitrophenol		< 50	ug/L	
2,4-Dinitrotoluene		< 10	ug/L	
2,6-Dinitrotoluene		< 10	ug/L	
Di-n-octylphthalate		< 10	ug/L	
Fluoranthene		< 10	ug/L	
Fluorene		< 10	ug/L	
Hexachlorobenzene		< 10	ug/L	
Hexachlorobutadiene		< 10	ug/L	
Hexachlorocyclopentadiene		< 10	ug/L	
Hexachloroethane		< 10	ug/L	
Indeno[1,2,3-cd]pyrene		< 10	ug/L	
Isophorone		< 10	ug/L	
2-Methylnaphthalene		< 10	ug/L	

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Sample Number:	37300	Date Taken:	04/24/97
Sample Description:	BW-GW MH3-91	Date Reported:	05/02/97

Analyte	Result	Units	Flags
2-Methylphenol	< 10	ug/L	
3&4-Methylphenol	< 10	ug/L	
Naphthalene	< 10	ug/L	
2-Nitroaniline	< 50	ug/L	
3-Nitroaniline	< 50	ug/L	
4-Nitroaniline	< 20	ug/L	
Nitrobenzene	< 10	ug/L	
2-Nitrophenol	< 10	ug/L	
4-Nitrophenol	< 50	ug/L	
N-Nitrosodimethylamine	< 10	ug/L	
N-Nitroso-di-n-propylamine	< 10	ug/L	
n-Nitrosodiphenylamine	< 10	ug/L	
Pentachlorophenol	< 50	ug/L	
Phenanthrene	< 10	ug/L	
Phenol	< 10	ug/L	
Pyrene	< 10	ug/L	
1,2,4-Trichlorobenzene	< 10	ug/L	
2,4,5-Trichlorophenol	< 10	ug/L	
2,4,6-Trichlorophenol	< 10	ug/L	

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Analytical Report

Client:	MONTGOMERY WATSON		
Project ID:	1252008.04090045	Date Received:	04/24/97
Sample Number:	37301	Date Taken:	04/24/97
Sample Description:	BW-TB MH3-01	Date Reported:	05/02/97

Volatile Organic Compounds Method 8260A
Analysis Date: 05/01/97

Analyte	Result	Units	Flags
Acetone	< 10.0	ug/L	
Benzene	< 5.0	ug/L	
Bromodichloromethane	< 5.0	ug/L	
Bromoform	< 5.0	ug/L	
Bromomethane	< 10.0	ug/L	
2-Butanone	< 10.0	ug/L	
Carbon disulfide	< 5.0	ug/L	
Carbon tetrachloride	< 5.0	ug/L	
Chlorobenzene	< 5.0	ug/L	
Chlorodibromomethane	< 5.0	ug/L	
Chloroethane	< 10.0	ug/L	
Chloroform	< 5.0	ug/L	
Chloromethane	< 10.0	ug/L	
1,1-Dichloroethane	< 5.0	ug/L	
1,2-Dichloroethane	< 5.0	ug/L	
1,1-Dichloroethene	< 5.0	ug/L	
1,2-Dichloroethene (total)	< 5.0	ug/L	
1,2-Dichloropropane	< 5.0	ug/L	
cis-1,3-Dichloropropene	< 5.0	ug/L	
trans-1,3-Dichloropropene	< 5.0	ug/L	
Ethyl benzene	< 5.0	ug/L	
2-Hexanone	< 10.0	ug/L	
4-Methyl-2-pentanone	< 10.0	ug/L	
Methylene chloride	< 5.0	ug/L	

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Analytical Report

Client:	MONTGOMERY WATSON		
Project ID:	1252008.04090045	Date Received:	04/24/97
Sample Number:	37301	Date Taken:	04/24/97
Sample Description:	BW-TB MH3-01	Date Reported:	05/02/97

Analyte		Result	Units	Flags
Styrene		< 5.0	ug/L	
1,1,2,2-Tetrachloroethane		< 5.0	ug/L	
Tetrachloroethene	UJ	< 5.0	ug/L	
Toluene		< 5.0	ug/L	
1,1,1-Trichloroethane		< 5.0	ug/L	
1,1,2-Trichloroethane		< 5.0	ug/L	
Trichloroethene		< 5.0	ug/L	
Vinyl Acetate		< 10.0	ug/L	
Vinyl Chloride		< 10.0	ug/L	
Xylenes (total)		< 5.0	ug/L	

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Analytical Report

Client:	MONTGOMERY WATSON		
Project ID:	1252008.04090045	Date Received:	04/24/97
Sample Number:	37302	Date Taken:	04/24/97
Sample Description:	BW-FB MH3-01	Date Reported:	05/02/97

Analyte	Result	Units	Date Analyzed	Method
Cyanide	<0.005	mg/L	04/30/97	9010A
Sulfate	<15	mg/L	04/30/97	9038
Chloride	<5	mg/L	04/28/97	9252
Total Dissolved Solids	<1	mg/L	04/29/97	160.1
pH @ 25°C	8.62	units	04/25/97	9045C
Conductivity	<1	umhos/cm	05/02/97	120.1
Turbidity	<0.1	NTU	04/25/97	180.1
Dissolved Oxygen	8.60	mg/L	04/24/97	4500-O G

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Analytical Report

Client:	MONTGOMERY WATSON		
Project ID:	1252008.04090045	Date Received:	04/24/97
Sample Number:	37302	Date Taken:	04/24/97
Sample Description:	BW-FB MH3-01	Date Reported:	05/02/97

Analyte		Result	Units	Date Analyzed	Method
Aluminum	UJ	<0.2	mg/L	04/28/97	6010A
Antimony		<0.01	mg/L	04/28/97	6010A
Arsenic		<0.002	mg/L	04/28/97	6010A
Barium		<0.001	mg/L	04/28/97	6010A
Beryllium		<0.001	mg/L	04/28/97	6010A
Cadmium		<0.001	mg/L	04/28/97	6010A
Calcium		<0.5	mg/L	04/28/97	6010A
Chromium		<0.001	mg/L	04/28/97	6010A
Cobalt		<0.001	mg/L	04/28/97	6010A
Copper		<0.001	mg/L	04/28/97	6010A
Iron		<0.1	mg/L	04/28/97	6010A
Lead		<0.002	mg/L	04/28/97	6010A
Magnesium		<0.5	mg/L	04/28/97	6010A
Manganese		<0.001	mg/L	04/28/97	6010A
Mercury		<0.0005	mg/L	04/25/97	7470A
Nickel		<0.001	mg/L	04/28/97	6010A
Potassium		<0.1	mg/L	04/28/97	6010A
Selenium		<0.002	mg/L	04/28/97	6010A
Silver		<0.001	mg/L	04/28/97	6010A
Sodium		<0.5	mg/L	04/28/97	6010A
Thallium		<0.01	mg/L	04/28/97	6010A
Vanadium		<0.01	mg/L	04/28/97	6010A
Zinc		<0.005	mg/L	04/28/97	6010A

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Analytical Report

Client:	MONTGOMERY WATSON		
Project ID:	1252008.04090045	Date Received:	04/24/97
Sample Number:	37302	Date Taken:	04/24/97
Sample Description:	BW-FB MHE-01	Date Reported:	05/02/97

Volatile Organic Compounds Method 8260A
Analysis Date: 05/01/97

Analyte		Result	Units	Flags
Acetone		< 10.0	ug/L	
Benzene		< 5.0	ug/L	
Bromodichloromethane		< 5.0	ug/L	
Bromoform		< 5.0	ug/L	
Bromomethane		< 10.0	ug/L	
2-Butanone		< 10.0	ug/L	
Carbon disulfide		< 5.0	ug/L	
Carbon tetrachloride		< 5.0	ug/L	
Chlorobenzene		< 5.0	ug/L	
Chlorodibromomethane		< 5.0	ug/L	
Chloroethane		< 10.0	ug/L	
Chloroform		< 5.0	ug/L	
Chloromethane		< 10.0	ug/L	
1,1-Dichloroethane		< 5.0	ug/L	
1,2-Dichloroethane		< 5.0	ug/L	
1,1-Dichloroethene		< 5.0	ug/L	
1,2-Dichloroethene (total)		< 5.0	ug/L	
1,2-Dichloropropane		< 5.0	ug/L	
cis-1,3-Dichloropropene		< 5.0	ug/L	
trans-1,3-Dichloropropene		< 5.0	ug/L	
Ethyl benzene		< 5.0	ug/L	
2-Hexanone		< 10.0	ug/L	
4-Methyl-2-pentanone		< 10.0	ug/L	
Methylene chloride		< 5.0	ug/L	
Styrene		< 5.0	ug/L	
1,1,2,2-Tetrachloroethane		< 5.0	ug/L	
Tetrachloroethene	uJ	< 5.0	ug/L	

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Analytical Report

Client:	MONTGOMERY WATSON		
Project ID:	1252008.04090045	Date Received:	04/24/97
Sample Number:	37302	Date Taken:	04/24/97
Sample Description:	BW-FB MHE-01	Date Reported:	05/02/97

Analyte		Result	Units	Flags
Toluene		< 5.0	ug/L	
1,1,1-Trichloroethane		< 5.0	ug/L	
1,1,2-Trichloroethane		< 5.0	ug/L	
Trichloroethene		< 5.0	ug/L	
Vinyl Acetate		< 10.0	ug/L	
Vinyl Chloride		< 10.0	ug/L	
Xylenes (total)		< 5.0	ug/L	

Base-Neutral/Acid Compounds Method 8270B

Preparation Date: 04/25/97
Analysis Date: 04/28/97

Acenaphthene		< 10	ug/L
Acenaphthylene		< 10	ug/L
Anthracene		< 10	ug/L
Benzidine		< 10	ug/L
Benzo[a]anthracene		< 10	ug/L
Benzo[b]fluoranthene	UJ	< 10	ug/L
Benzo[k]fluoranthene	UJ	< 10	ug/L
Benzo[g,h,i]perylene		< 10	ug/L
Benzo[a]pyrene		< 10	ug/L
Benzoic Acid	UJ	< 50	ug/L
Benzyl Alcohol		< 20	ug/L
bis(2-chloroethoxy)methane		< 10	ug/L
bis(2-chloroethyl)ether		< 10	ug/L
bis(2-chloroisopropyl)ether		< 10	ug/L
bis(2-ethylhexyl)phthalate		< 10	ug/L
4-Bromophenyl-phenylether		< 10	ug/L
Butylbenzylphthalate		< 10	ug/L
4-Chloroaniline		< 10	ug/L

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Analytical Report

Client:	MONTGOMERY WATSON		
Project ID:	1252008.04090045	Date Received:	04/24/97
Sample Number:	37302	Date Taken:	04/24/97
Sample Description:	BW-FB MHE-01	Date Reported:	05/02/97

Analyte		Result	Units	Flags
4-Chloro-3-methylphenol		< 20	ug/L	
2-Chloronaphthalene		< 10	ug/L	
2-Chlorophenol		< 10	ug/L	
4-Chlorophenyl-phenylether		< 10	ug/L	
Chrysene		< 10	ug/L	
Dibenz[a,h]anthracene		< 10	ug/L	
Dibenzofuran		< 10	ug/L	
1,2-Dichlorobenzene		< 10	ug/L	
1,3-Dichlorobenzene		< 10	ug/L	
1,4-Dichlorobenzene		< 10	ug/L	
3,3-Dichorobenzidine		< 20	ug/L	
2,4-Dichlorophenol		< 10	ug/L	
Diethylphthalate		< 10	ug/L	
2,4-Dimethylphenol		< 10	ug/L	
Dimethylphthalate		< 10	ug/L	
Di-n-butylphthalate		< 10	ug/L	
4,6-Dinitro-2-methylphenol		< 50	ug/L	
2,4-Dinitrophenol	UJ	< 50	ug/L	
2,4-Dinitrotoluene		< 10	ug/L	
2,6-Dinitrotoluene		< 10	ug/L	
Di-n-octylphthalate		< 10	ug/L	
Fluoranthene		< 10	ug/L	
Fluorene		< 10	ug/L	
Hexachlorobenzene		< 10	ug/L	
Hexachlorobutadiene		< 10	ug/L	
Hexachlorocyclopentadiene		< 10	ug/L	
Hexachloroethane		< 10	ug/L	
Indeno[1,2,3-cd]pyrene		< 10	ug/L	
Isophorone		< 10	ug/L	
2-Methylnaphthalene		< 10	ug/L	

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Analytical Report

Client:	MONTGOMERY WATSON		
Project ID:	1252008.04090045	Date Received:	04/24/97
Sample Number:	37302	Date Taken:	04/24/97
Sample Description:	BW-FB MHE-01	Date Reported:	05/02/97

Analyte	Result	Units	Flags
2-Methylphenol	< 10	ug/L	
3&4-Methylphenol	< 10	ug/L	
Naphthalene	< 10	ug/L	
2-Nitroaniline	< 50	ug/L	
3-Nitroaniline	< 50	ug/L	
4-Nitroaniline	< 20	ug/L	
Nitrobenzene	< 10	ug/L	
2-Nitrophenol	< 10	ug/L	
4-Nitrophenol	< 50	ug/L	
N-Nitrosodimethylamine	< 10	ug/L	
N-Nitroso-di-n-propylamine	< 10	ug/L	
n-Nitrosodiphenylamine	< 10	ug/L	
Pentachlorophenol	< 50	ug/L	
Phenanthrene	< 10	ug/L	
Phenol	< 10	ug/L	
Pyrene	< 10	ug/L	
1,2,4-Trichlorobenzene	< 10	ug/L	
2,4,5-Trichlorophenol	< 10	ug/L	
2,4,6-Trichlorophenol	< 10	ug/L	

Appendix B

Validation Results

VALIDATION NARRATIVE

Project Name **Blackwell** Inorganics and Indicators in groundwater

Project Number 1252008.0409.0045 May 28, 1997

This data narrative covers the analysis of 3 groundwater samples from Blackwell for analysis of TAL inorganics, sulfate, chloride, TDS, pH, conductivity, turbidity, and dissolved oxygen. The data was validated/reviewed according to the *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (2/94) with modifications for the project specific QC.

This data is acceptable for use in site evaluation with the following comments:

Holdtimes - All holdtimes were met.

Calibration - Initial and continuing calibration criteria for aluminum were very low, but all other QC recoveries were within acceptable range. Data is qualified UJ, estimated detection limit, because aluminum was not detected. There was a slightly high recovery for antimony in continuing calibration because nothing was detected no qualifier is required.

Blanks - All blanks were acceptable.

Spikes - All spike results were within acceptable QC limits.

Duplicates - Laboratory duplicate results were all within acceptable QC limits.

Sample Result Verification - All results were acceptable.

ICP QC Samples - ICP Serial dilution % difference criteria and Interference check standard recovery criteria were within acceptable QC limits.

Laboratory Control Sample - All recoveries were acceptable.

Overall - These sample results are acceptable for use in site evaluation.

SGW/jsgw
J:\0-TEMP\SGW\BWDVIN.DOC

VALIDATION NARRATIVE

Blackwell VOCs and SVOCs in groundwater
Project 1252008.0409.0045

Validated By: SGW Date: 5/28/97

This narrative covers the validation/review of 4 groundwater samples from Blackwell; for VOC and SVOC analysis by First Environmental laboratories. Validation was performed using the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Analysis Review* (2/94) and project specific QC found in the QAPP. The data is validated/reviewed as acceptable for use in site evaluation with the following comments:

Hold Times - All hold times were met.

Calibration - All VOC instrument tuning and calibration criteria was acceptable except for tetrachloroethene, carbazole, benzoic acid, 2,4-dinitrophenol, benzo(b)flouranthene, and benzo(k)flouranthene. For these compounds, the percent difference criteria was exceeded in the continuing calibration. All associated sample results are qualified as estimated quantitation limit ("UJ") if the compounds were not detected, and estimated (J) if the compounds were detected.

Blanks -A trip blank and field blank were analyzed and nothing was detected.

Internal Standards - All internal standard results were within acceptable validation limits.

Surrogates - All surrogate recoveries were within QC limits.

Matrix Spikes - Pentachlorophenol had a slightly high spike recovery. A laboratory control spike was analyzed and all recoveries were acceptable.

Field Duplicates - Field duplicate RPDs were greater than 25% for benzene, ethylbenzene, and chlorobenzene and these compounds are qualified, J, estimated.

SGW/sgw
J:\0-TEMP\SGW\BWDVORG.DOC
1252008.0409.0045

ORGANICS
DATA VALIDATION NARRATIVE

Site Name Blackwell Project # 1252008.0409.0045

SMO Case # (SAS #) _____ #Samples/Matrix 4/GW

Laboratory First Environmental Hours for Review _____

SOW # _____ EPA Validation Guidelines # see QAPP

Sample Numbers MH3, MH3 dup, trip blank, field blank

Validated By Steve Wiskes Date 5/27/97

Reviewed By _____ Date _____

SUMMARY OF REVIEW:

The data is quantitative and acceptable with few limitations

- Tetrachloroethene in continuing calibration exceeded %D criteria - if detected in samples this qualified (J) estimated - if not detected qualifier is (UJ) estimated quantitation limit.

- Carbazole, benzoic acid, 2,4 Dinitrophenol, benzo(b)fluoranthene, and benzo(k) fluoranthene exceeded %D criteria in continuing calibration - if detected cpd is qualified (J) estimated, if not detected, qualified (UJ) estimated quantitation limit.

- Benzene, chlorobenzene, + ethylbenzene had >25% RPD between sample + field dup - cpd.s are qualified (J) estimated.

Review Date: Reviewed by:

Review of Contract Data; SMO Case No. _____
Site Name: Blackwell Contract Lab: First Environmental
Contract No.: _____ Project No.: _____
SMO Traffic No's: _____
Sample Matrix: Low Level X Med. Level ____ High Level ____ Soil/Seq ____
Water X Waste ____

I. HOLDING TIMES

Water: VOA A SV A PEST ____
Sed/Soil: VOA ____ SV ____ PEST ____

A - Acceptable - All contract and 40 CFR 136 holding times met.
P - Provisional - Some contract and 40 CFR 136 holding times exceeded.
U - Unacceptable - All holding times exceeded.

REMARKS: samples were analyzed within hold time

II. GC/MS TUNING AND PERFORMANCE

Water: VOA (BFB) A SV (DFTPP) A
Sed/Soil: VOA (BFB) ____ SV (DFTPP) ____

A - Acceptable - All criteria met, spectra of good quality.
P - Provisional - All criteria not met, spectra of reasonable quality; date usable.
U - Unacceptable - Criteria not met, spectra of poor quality, data unusable.

SMO Case No.: _____ Contract Lab: _____

V. SURROGATE SPIKE RESULTS

Water: VOA A SV A PEST ____
Sed/Soil: VOA ____ SV ____ PEST ____

NOTE: Sample data flagged on individual basis.

A. Individual sample flagging criteria.

Acceptable - All surrogate recoveries within criteria.
Suspect - Any surrogate recoveries outside criteria and/or recoveries of <10% substantiated as a matrix effect.
Invalid - Any recoveries of <10% that are unsubstantiated as a matrix effect.

		No. Samples	No. Suspect	No. Invalid
Water:	VOA	7	0	0
	SV	7	0	0
	PEST			
Sed/Soil:	VOA			
	SV			
	PEST			

B. Summary of Surrogates

A - Acceptable - <10% of samples reported as suspect.
P - Provisional - >10% but <50% of samples reported as suspect.
U - Unacceptable - >50% of samples reported as suspect and/or >10% samples reported as invalid.

REMARKS:
VOCs- 0 of 21 out of QC
SVOCs- 0 of 42 recoveries out of QC

SMO Case No.: _____ Contract Lab: _____

III. INITIAL AND CONTINUING CALIBRATION CHECKS

Water: VOA P SV P PEST ____
Sed/Soil: VOA ____ SV ____ PEST ____

A - Acceptable - All criteria met.
P - Provisional - Some criteria not met, data usable, see remarks.
U - Unacceptable - Criteria not met, data unusable, see remarks.

REMARKS:
VOC - Tetrachloroethene 56% %D w cont. cal - (J) if detected, UJ if N.D.
SVOC - several cpds. 2,4-Dinitrophenol, carbazole, benzo(b)fluoranthene + benzo(k)fluoranthene and benzoic acid, %D outside criteria - (J) if detected, (UJ) if not detected

IV. BLANK ANALYSIS

Water: VOA A SV A PEST ____
Sed/Soil: VOA ____ SV ____ PEST ____

A - Acceptable - No contaminants above minimum detection limit, no interference with sample results, appropriate blank for each GC/MS system and extraction method.

P - Provisional - Contaminants present but minimal interference with sample results.

U - Unacceptable - Gross contamination, too much interference to use data for certain components or the entire fraction, appropriate blanks not analyzed.

- No lab VBLK or SBLK data available,
- TB - N.D.
- FB - N.D.

SMO Case No.: _____ Contract Lab: _____

VI. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

A. MATRIX SPIKE RESULTS:

Water: VOA A SV A PEST ____
Sed/Soil: VOA ____ SV ____ PEST ____

NOTE: No action taken on Matrix Spike Results alone.

A - Acceptable - <10% of compounds outside criteria.
P - Provisional - >10% but <50% of compounds outside criteria.
U - Unacceptable - >50% of compounds outside criteria and/or >10% of compounds with recoveries of <10%.

		No. Compounds	No. Outside Criteria	No. <10% Recovery
Water:	VOA	10	0	0
	SV	22	2	0
	PEST			
Sed/Soil:	VOA			
	SV			
	PEST			

B. DUPLICATE RESULTS

Water: VOA A SV A PEST ____
Sed/Soil: VOA ____ SV ____ PEST ____

A - Acceptable - <10% of compounds outside criteria.
P - Provisional - >10% but <50% of compounds outside criteria.
U - Unacceptable - >50% of compounds outside criteria and/or >10% of compounds with recoveries of <10%.

		No. Compounds	No. Outside Criteria
Water:	VOA	5	0
	SV	11	0
	PEST		
Sed/Soil:	VOA		
	SV		
	PEST		

REMARKS:
- all recoveries acceptable
- pentachlorophenol slightly high recovery - LCS RUN - ok

SMO Case No.: _____ Contract Lab: _____

VII. FIELD DUPLICATES

Water: VOA P SV A PEST NA
Sed/Soil: VOA ____ SV ____ PEST ____

A - Acceptable - All compounds are within 25% of each other for waters or within 50% of each other for soils.

P - Provisional - Some compounds are greater than 25% RPD for waters and greater than 50% RPD for soils, see remarks.

U - Unacceptable - Professional judgement, see remarks.

REMARKS:

		MH3	MH3 dup	~~Qualifier~~ RPD	Qualifier
	benzene	5.2	8.0	35%	J
	chlorobenzene	80	132	40	J
	1,2 DCE	7.0	5.6	20%	—
	ethylbenzene	N.D	7.8	60	J
	1,4 DCB	16	15	6%	—

SMO Case No.: _____ Contract Lab: _____

VIII. INTERNAL STANDARD PERFORMANCE

Water: VOA A SV A PEST ____
Sed/Soil: VOA ____ SV ____ PEST ____

A - Acceptable - Is area counts between - 50% to +100% from associated calibration standard and ±30 seconds from associated calibration standards.

P - Provisional - Most all area counts between -50% to +100% and ±30 seconds, from associated calibration standard, see remarks.

U - Unacceptable - Extremely low area counts or major abrupt drop-off of sensitivity or greater than ±30 second time shift, see remarks.

REMARKS:

IX. COMPOUND IDENTIFICATION Not Applicable for Review

Water: VOA ____ SV ____ PEST ____
Sed/Soil: VOA ____ SV ____ PEST ____

A - Acceptable - All compounds within retention time windows, spectral criteria met.
P - Provisional - Some criteria not met, data usable, see remarks.
U - Unacceptable - Criteria not met, data unusable, see remarks.

REMARKS:

Volatile TCLs
Calibration Outliers

CASE/SDG _____ CONTRACTOR _____

Instrument C	Init Cal			Cont. Cal			Cont. Cal			Cont. Cal			Cont. Cal		
Date	5/22			5/1/97											
	RF	RSD	*	RF	%D		RF	%D		RF	%D		RF	%D	
Chloromethane															
Bromomethane															
Vinyl chloride															
Chloroethane															
Methylene chloride															
Acetone															
Carbon disulfide															
1,1-Dichloroethene															
1,1-Dichloroethane															
1,2-Dichloroethene (total)															
Chloroform															
1,2-Dichloroethane															
2-Butanone															
1,1,1-Trichloroethane															
Carbon tetrachloride															
Bromodichloromethane															
1,2-Dichloropropane															
cis-1,3-Dichloropropene															
Trichloroethene															
Dibromochloromethane															
1,1,2-Trichloroethane															
Benzene															
trans-1,3-Dichloropropene															
Bromoform															
4-Methyl-2-pentanone															
2-Hexanone															
Tetrachloroethene					56	J									
Toluene															
1,1,2,2-Tetrachloroethane															
Chlorobenzene															
Ethylbenzene															
Styrene															
Xylenes (total)															

Init. Cal.	Std 50			
std 5	MK3			
10	MK3dup			
20	TB			
50	FR			
100	ms/msD			
200				

CASE/SDG _____ CONTRACTOR _____

Instrument 4 11 B	Init Cal			Cont. Cal			Cont. Cal			Cont. Cal			Cont. Cal		
Date 1/30/97 ~~4/27/97~~ 823				5/10/97											
	RF	RSD	*	RF	%D		RF	%D		RF	%D		RF	%D	
Phenol															
bis(2-chloroethyl) ether															
2-Chlorophenol															
1,3-Dichlorobenzene															
1,4-Dichlorobenzene															
1,2-Dichlorobenzene															
2-Methylphenol															
2,2-oxybis 1-chloropropane															
4-Methylphenol															
N-Nitroso-di-n-propylamine															
Hexachloroethane															
Nitrobenzene															
Isophorone															
2-Nitrophenol															
2,4-Dimethylphenol															
bis(2-chloroethoxy)methane															
2,4-Dichlorophenol															
1,2,4-Trichlorobenzene															
Naphthalene															
4-Chloroaniline															
Hexachlorobutadiene															
4-Chloro-3-methylphenol															
2-Methylnaphthalene															
Hexachlorocyclopentadiene															
2,4,6-Trichlorophenol															
2,4,5-Trichlorophenol															
2-Chloronaphthalene															
2-Nitroaniline															
Dimethylphthalate															
Acenaphthene															
2,6-Dinitrotoluene															
3-Nitroaniline															
Acenaphthene															
2,4-Dinitrophenol					32	J									
4-Nitrophenol															
Dibenzofuran															

	Init. Cal
20	Std 50
50	SBK1
80	MH3
80	MS/MSD
~~50~~	MHS dup
100	~~PB~~
	PB
120	LCS
160	

Semivolatiles TCLs
Calibration Outliers

CASE/SDG _____ CONTRACTOR _____

Instrument (B)	Init Cal			Cont. Cal			Cont. Cal			Cont. Cal			Cont. Cal		
Date	1/30/97			4/24/97											
	RF	RSD	*	RF	%D		RF	%D		RF	%D		RF	%D	
2,4-Dinitrotoluene															
Diethylphthalate															
4-Chlorophenylphenyl ether															
Fluorene															
4-Nitroaniline															
4,6-Dinitro-2-methylphenol															
N-Nitrosodiphenylamine															
4-Bromophenyl phenyl ether															
Hexachlorobenzene															
Pentachlorophenol															
Phenanthrene															
Anthracene															
Carbazole					426	J									
Di-n-butylphthalate															
Fluoranthene															
Pyrene															
Butylbenzylphthalate															
3,3'-Dichlorobenzidine															
Benzo(a)anthracene															
Chrysene															
bis(2-ethylhexyl)phthalate															
Di-n-octylphthalate															
Benzo(b)fluoranthene					68	J									
Benzo(k)fluoranthene					130	J									
Benzo(a)pyrene															
Indeno(1,2,3-cd)anthracene															
Dibenz(g,h,i)perylene															

Blackwell

GW-MH3-01 + MH3 dup, Trip blank, field blank

TB - N.D.

FB - N.D.

Field dup -

metals - all within 25% RPD

indicators - all within 25% RPD

VOCs

		sample	dup	%RPD
	benzene	5.2 J	8.0 J	35%
	chlorobenzene	80 J	132 J	40%
	1,2DCE	7.0	5.6	ok
	ethylbenzene	N.D.	7.8 J	60%
SVOC	1,4DCB	16	15	ok

Indicators

Initial + Continuing Cal

CN ✓

Sulfate ✓

Chloride ✓

TDS ✓

Conductivity ✓

Initial Blank

CN - ND

SO_4 - N.D

CL - N.D.

Spike Recovery

CN - ✓

SO_4 - ✓

CL - ✓

Lab dup ±20%

CN ✓

SO_4 ✓

CL ✓

TDS ✓

Cond ✓

Turb ✓

LCS

CN - ok

2

Metals

Initial Calibration

AL 80% Recovery value outside ~~value~~ QC limits

Continuing Cal

AL -79% Recovery - outside QC limits -

Sb 123% slightly high - if N.D. no qual. if detected (J)

if N.D. UJ (all other QC ok) if detected (J)

Blanks

Initial - ok

Continuing - ok

Prep. Blank - ok

ICP - ICS

all recoveries acceptable

Spike Recovery

ok

Lab Dup.

all RPD within ± 20%

LCS

all Recoveries ✓

Conventionals Analysis QA/QC Summary

Montgomery Watson
Blackwell Landfill
1252008.04090045

First Environmental Laboratories, Inc.
Naperville, Illinois

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FORM II

INORGANICS INITIAL and CONTINUING CALIBRATION VERIFICATION

Client: Montgomery Watson	Project ID: 1252008.04090045
Lab Name: First Environmental	

Concentration Units: mg/L

ANALYTE	INITIAL CALIBRATION			CONTINUING CALIBRATION					
	TRUE	FOUND	%R	TRUE	FOUND	%R	FOUND	%R	M
Cyanide	0.810	0.660	81.5	0.500	0.458				310.1
Sulfate	114	126	110.5	40	36				350.2
Chloride	208	200	96.2	100	100				9252
TDS	173	168	97.1	NA					9010
pH	NA			7.00	7.00				353.3
Conductivity	1,042	1,048	100.6	1,413	1,390				354.1
Turbidity	NA			*					9038

* 1 NTU primary standard used to calibrate intrument

Initial calibration source is APG. This source is different than the source used to prepare calibration curves.

Continuing calibration source is the same as the source used to prepare calibration curves.

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FORM III

INORGANIC BLANK ANALYSIS DATA SHEET

Client: Montgomery Watson	Project ID: 1252008.04090045
Lab Name: First Environmental	Batch No.: NA
Preparation Blank Matrix (soil/water): Water	Preparation Blank Concentration Units mg/L

ANALYTE	INITIAL CAL. BLANK (mg/L)		CONTINUING CALIBRATION BLANK						PREPARATION BLANK		
		C	1	C	2	C	3	C		C	M
Cyanide	0.005	U									310.1
Sulfate	15	U									350.2
Chloride	5	U									9252
TDS	NA										9010
pH	NA										353.3
Conductivity	NA										354.1
Turbidity	NA										9038

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FORM V

INORGANIC SPIKE SAMPLE RECOVERY

Client: Montgomery Watson	Project ID: 1252008.04090045
Lab Name: First Environmental	Batch No.: NA
Lab Sample ID: See Notes	Concentration Units: mg/L
Matrix: Water	

ANALYTE	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q
Cyanide	75-125	0.181		0	U	0.200	90.5	
Sulfate	75-125	25		47		20	110.0	
Chloride	75-125	206		104		100	102.0	
TDS	75-125	NA						
pH	75-125	NA						
Conductivity	75-125	NA						
Turbidity	75-125	NA						

Sample No. Cyanide Spike: 37302
Sample No. Sulfate Spike: 37299
Sample No. Chloride Spike: 37300

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FORM VI

INORGANIC DUPLICATE SAMPLE RECOVERY

Client: Montgomery Watson	Project ID: 1252008.04090045
Lab Name: First Environmental	Batch No.: NA
Lab Sample ID:	Concentration Units: mg/L
Matrix: Water	

ANALYTE	Sample No.	Control Limit	Sample Result (Smp)	C	Duplicate Sample Result (Dup)	C	RPD	Q
Cyanide	37302	80-120	0.005	U	0.005	U	0.0	
Sulfate	37299	80-120	25		26		3.9	
Chloride	37299	80-120	98		98		0.0	
TDS	37299	80-120	1,130		1,140		0.9	
pH	37300	80-120	6.91		6.900		0.1	
Conductivi	37299	80-120	1,860		1,904		2.3	
Turbidity	37299	80-120	88		88		0.0	

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FORM VII

INORGANIC LABORATORY CONTROL SAMPLE RECOVERY

Client: Montgomery Watson	Project ID: 1252008.04090045
Lab Name: First Environmental	Batch No.: NA
	Concentration Units: mg/L

	AQUEOUS (ug/L)			SOLID (mg/kg)				
ANALYTE	TRUE	FOUND	%R	TRUE	FOUND	%R	LIMITS	C
Cyanide	1.000	0.925	92.5					
Sulfate	NA							
Chloride	NA							
TDS	NA							
pH	NA							
Conductivity	NA							
Turbidity	NA							

Metals Analysis QA/QC Summary

Montgomery Watson
Blackwell Landfill
1252008.04090045

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Naperville, Illinois

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FORM II
INORGANICS INITIAL and CONTINUING CALIBRATION VERIFICATION

Project No.1252008.04090045	SITE NAME: Blackwell
Lab Name: First Environmental	Batch No.: 042897

Concentration Units: ug/L

ANALYTE	INITIAL CALIBRATION			CONTINUING CALIBRATION					
	TRUE	FOUND	%R	TRUE	FOUND	%R	FOUND	%R	M
Arsenic	1,000	998	99.8	500	523	104.5		0.0	6010A
Aluminum	250,000	19,970	8.0	125,000	9,932	7.9		0.0	6010A
Barium	1,000	1,000	100.0	500	524	104.9		0.0	6010A
Beryllium	1,000	1,007	100.7	500	526	105.2		0.0	6010A
Cadmium	1,000	997	99.7	500	520	103.9		0.0	6010A
Cobalt	1,000	1,000	100.0	500	512	102.3		0.0	6010A
Chromium	1,000	1,001	100.1	500	517	103.3		0.0	6010A
Copper	1,000	992	99.2	500	471	94.2		0.0	6010A
Iron	8,000	8,240	103.0	4,000	4,242	106.1		0.0	6010A
Lead	1,000	1,003	100.3	500	500	99.9		0.0	6010A
Manganese	1,000	1,000	100.0	500	519	103.8		0.0	6010A
Nickel	1,000	1,001	100.1	500	516	103.2		0.0	6010A
Selenium	1,000	1,004	100.4	500	495	99.0		0.0	6010A
Antimony	1,000	1,026	102.6	500	615	123.0		0.0	6010A
Silver	1,000	1,005	100.5	500	519	103.9		0.0	6010A
Thallium	1,000	1,003	100.3	500	500	100.0		0.0	6010A
Vanadium	1,000	998	99.8	500	500	100.0		0.0	6010A
Zinc	1,000	1,000	100.0	500	518	103.5		0.0	6010A
Calcium	20,000	20,130	100.7	10,000	9,593	95.9		0.0	6010A
Magnesium	20,000	20,120	100.6	10,000	10,070	100.7		0.0	6010A
Sodium	25,000	25,090	100.4	12,500	13,150	105.2		0.0	6010A
Potassium	25,000	25,000	100.0	12,500	12,210	97.7		0.0	6010A
Mercury	2.5	2.3	92.4	2.5	2.1	84.8		0.0	7470

Control Limits: ICV +/- 5% of True Value
CCV +/- 10% of True Value
Hg CCV +/- 20% of True Value

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FORM III

IEPA PRE-NOTICE SITE CLEANUP PROGRAM

INORGANIC BLANK ANALYSIS DATA SHEET

Project No.1252008.04090045	SITE NAME: Blackwell
Lab Name: First Environmental	Batch No.: 042897
Preparation Blank Matrix (soil/water):	Preparation Blank Concentration Units (ug/L)

ANALYTE	INITIAL CAL. BLANK (ug/L)		CONTINUING CALIBRATION BLANK						PREPARATION BLANK		
		C	1	C	2	C	3	C		C	M
Arsenic	2	U	10	U					2	U	6010A
Aluminum	200	U	200	U					200	U	6010A
Barium	1	U	200	U					1	U	6010A
Beryllium	1	U	5	U					1	U	6010A
Cadmium	1	U	5	U					1	U	6010A
Cobalt	1	U	50	U					1	U	6010A
Chromium	1	U	10	U					1	U	6010A
Copper	1	U	25	U					1	U	6010A
Iron	10	U	100	U					10	U	6010A
Lead	2	U	3	U					2	U	6010A
Manganese	1	U	15	U					1	U	6010A
Nickel	1	U	40	U					1	U	6010A
Selenium	2	U	5	U					2	U	6010A
Antimony	10	U	60	U					10	U	6010A
Silver	1	U	10	U					1	U	6010A
Thallium	10	U	10	U					10	U	6010A
Vanadium	10	U	50	U					10	U	6010A
Zinc	5	U	20	U					5	U	6010A
Calcium	5,000	U	5,000	U					5,000	U	6010A
Magnesium	5,000	U	5,000	U					5,000	U	6010A
Sodium	5,000	U	5,000	U					5,000	U	6010A
Potassium	5,000	U	5,000	U					5,000	U	6010A
Mercury	0.5	U	0.5	U					0.2	U	7470

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FORM IV
INORGANIC ICP INTERFERENCE CHECK SAMPLE

Project No.1252008.04090045	SITE NAME: Blackwell
Lab Name: First Environmental	Batch No.: 042897

Concentration Units: (ug/L)

ANALYTE	TRUE		INITIAL FOUND			FINAL FOUND		
	SOL A	SOL. AB	SOL A	SOL AB	%R	SOL A	SOL AB	%R
Aluminum	500,000	500,000	484,100	488,800	97.8	480,300	484,700	96.9
Barium		500		476	95.2		479	95.8
Beryllium		500		460	92.0		461	92.3
Cadmium		1,000		855	85.5		855	85.5
Cobalt		500		434	86.8		433	86.6
Chromium		500		432	86.4		434	86.7
Copper		500		493	98.6		464	92.8
Iron	200,000	200,000	177,600	178,700	89.4	177,100	178,500	89.3
Lead		1,000		881	88.1		873	87.3
Manganese		500		452	90.5		451	90.1
Nickel		1,000		864	86.4		867	86.7
Silver		1,000		973	97.3		969	96.9
Vanadium		500		459	91.7		453	90.6
Zinc		1,000		943	94.3		942	94.2
Calcium	500,000	500,000	454,100	457,800	91.6	448,000	453,200	90.6
Magnesium	500,000	500,000	504,800	507,200	101.4	501,400	505,100	101.0

Control Limits: All elements +/- 20% of True Value

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FORM V

INORGANIC SPIKE SAMPLE RECOVERY

Project No.1252008.04090045	SITE NAME: Blackwell
Lab Name: First Environmental	Batch No.: 042897
Lab Sample ID: 37299	Concentration Units: ug/L
Matrix: Water	

ANALYTE	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q
Arsenic	80-120	98		2	U	100	97.7	
Aluminum	80-120	10,190		200	U	10,000	101.9	
Barium	80-120	311		202		100	108.9	
Beryllium	80-120	95		1	U	100	94.8	
Cadmium	80-120	90		1	U	100	90.1	
Cobalt	80-120	91		1	U	100	91.0	
Chromium	80-120	92		1	U	100	91.8	
Copper	80-120	91		1	U	100	91.1	
Iron	80-120	20,700		15,990		4,000	117.8	
Lead	80-120	91		2	U	100	91.3	
Manganese	80-120	382		272		100	109.8	
Nickel	80-120	95		4		100	91.1	
Selenium	80-120	94		2	U	100	94.4	
Antimony	80-120	115		10	U	100	114.9	
Silver	80-120	18		1	U	20	90.0	
Thallium	80-120	82		10	U	100	81.7	
Vanadium	80-120	92		10	U	100	92.4	
Zinc	80-120	99		5	U	100	99.1	
Calcium	80-120	NA		NA		NA		
Magnesium	80-120	NA		NA		NA		
Sodium	80-120	NA		NA		NA		
Potassium	80-120	NA		NA		NA		
Mercury (7470)	80-120	2		0.5	U	2	100.0	

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FORM VI

INORGANIC DUPLICATE SAMPLE RECOVERY

Project No.1252008.04090045	SITE NAME: Blackwell
Lab Name: First Environmental	Batch No.: 042897
Lab Sample ID: 37299	Concentration Units: ug/L
Matrix: Water	

ANALYTE	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q
Arsenic	< ± 20	2	U	2	U	0.0	
Aluminum	< ± 20	200	U	200	U	0.0	
Barium	< ± 20	202		209		3.5	
Beryllium	< ± 20	1	U	1	U	0.0	
Cadmium	< ± 20	1	U	1	U	0.0	
Cobalt	< ± 20	1	U	1	U	0.0	
Chromium	< ± 20	1	U	1	U	0.0	
Copper	< ± 20	1	U	1	U	0.0	
Iron	< ± 20	15,990		16,580		3.6	
Lead	< ± 20	2	U	2	U	0.0	
Manganese	< ± 20	272		282		3.5	
Nickel	< ± 20	4		4		8.0	
Selenium	< ± 20	2	U	2	U	0.0	
Antimony	< ± 20	10	U	10	U	0.0	
Silver	< ± 20	1	U	1	U	0.0	
Thallium	< ± 20	10	U	10	U	0.0	
Vanadium	< ± 20	10	U	10	U	0.0	
Zinc	< ± 20	5	U	5	U	0.0	
Calcium	< ± 20	157,200		162,900		3.6	
Magnesium	< ± 20	97,420		101,100		3.7	
Sodium	< ± 20	124,500		128,400		3.1	
Potassium	< ± 20	25,440		26,470		4.0	
Mercury (7470)	< ± 20	0.5	U	0.5	U	0.0	

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FORM VII

INORGANIC LABORATORY CONTROL SAMPLE RECOVERY

Project No.1252008.04090045	SITE NAME: Blackwell
Lab Name: First Environmental	Batch No. 042897
	Concentration Units:

	AQUEOUS (ug/L)							
ANALYTE	TRUE	FOUND	%R					C
Arsenic	100	99	98.6					
Aluminum	10,000	10,310	103.1					
Barium	100	95	95.0					
Beryllium	100	97	96.8					
Cadmium	100	95	94.8					
Cobalt	100	95	94.8					
Chromium	100	94	94.1					
Copper	100	92	91.9					
Iron	4,000	3,875	96.9					
Lead	100	95	95.2					
Manganese	100	95	94.9					
Nickel	100	95	94.7					
Selenium	100	95	94.8					
Antimony	100	115	114.7					
Silver	20	18	92.0					
Thallium	100	89	89.1					
Vanadium	100	93	93.3					
Zinc	100	99	98.6					
Calcium	10,000	9,437	94.4					
Magnesium	10,000	9,416	94.2					
Sodium	25,000	28,320	113.3					
Potassium	25,000	30,070	120.3					
Mercury	2.5	2.3	92.4					

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FORM X

INORGANIC INSTRUMENT DETECTION LIMITS

Project No.1252008.04090045	SITE NAME: Blackwell
Lab Name: First Environment	ICP CN by Spectrophotometer (Circle the appropriate method type)

ANALYTE	DETECTION LIMITS (ug/L)	METHOD TYPE
Arsenic	1.5	ICP
Aluminum	0.10	ICP
Barium	0.8	ICP
Beryllium	0.1	ICP
Cadmium	0.2	ICP
Cobalt	0.5	ICP
Chromium	0.5	ICP
Copper	2.3	ICP
Iron	0.8	ICP
Lead	1.2	ICP
Manganese	2.1	ICP
Nickel	0.9	ICP
Selenium	2.5	ICP
Antimony	1.8	ICP
Silver	0.4	ICP
Thallium	2.2	ICP
Vanadium	0.7	ICP
Zinc	5.6	ICP
Calcium	28	ICP
Magnesium	3.3	ICP
Sodium	39	ICP
Potassium	12	ICP
Mercury	0.2	CVAA
Cyanide	1.4	CN by Spectrophotometer

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FORM XI

INORGANIC PREPARATION LOG

Project No.1252008.04090045	SITE NAME: Blackwell
Lab Name: First Environmental	Matrix (soil/water): Water
Prep. Method No.: 3010	

SAMPLE NO.	PREPARATION DATE	Initial Weight/Volume	Final Volume (mL)
Preparation Blank	4/28/97	50	50
LCS	4/28/97	50	50
37299	4/28/97	50	50
37299DU	4/28/97	50	50
37299MS	4/28/97	50	50
37300	4/28/97	50	50
37303	4/28/97	50	50

VOAs Method 8260 Analysis QA/QC Summary

Montgomery Watson
Blackwell Landfill
1252008.04090045

First Environmental Laboratories, Inc.
Naperville, Illinois

2A

WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: First Environmental Contract: MONTGOMERY

Lab Code: _____ Case No.: 1252008. SAS No.: _____ SDG No.: _____

	EPA SAMPLE NO.	SMC1 #	SMC2 #	SMC3 #	TOT OUT
01	VBLK01	93	95	102	0
02	BW-FBMH3-01	94	93	102	0
03	BW-FBMH3-01MS	97	95	100	0
04	BW-FBMH3-01MS	96	93	99	0
05	BW-GWMH3-91	92	95	102	0
06	BW-TBMH3-01	92	96	101	0
07	BW-GWMH3-01	95	97	105	0

			QC LIMITS
SMC1	=	1,2-Dichloroethane-d4	(76-114)
SMC2	=	d8-Toluene	(88-110)
SMC3	=	4-Bromofluorobenzene	(86-115)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

3A

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: First Environmental Contract: MONTGOMERY

Lab Code: _____ Case No.: 1252008. SAS No.: _____ SDG No.: _____

Matrix Spike - EPA Sample No. BW-FBMH3-01

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	50	0.0	51	102	61 - 145
Benzene	50	0.0	40	80	76 - 127
Trichloroethene	50	0.0	43	86	71 - 120
Toluene	50	0.0	42	84	76 - 125
Chlorobenzene	50	0.0	44	88	75 - 130

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	50	47	94	8	14	61 - 145
Benzene	50	39	78	3	11	76 - 127
Trichloroethene	50	41	82	5	14	71 - 120
Toluene	50	40	80	5	13	76 - 125
Chlorobenzene	50	42	84	5	13	75 - 130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 5 outside limits

Spike Recovery: 0 out of 10 outside limits

COMMENTS: _____

4A

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLK01

Lab Name: First Environmental Contract: MONTGOM

Lab Code: Case No.: 1252008. SAS No.: SDG No.:

Lab File ID: C12293.D Lab Sample ID: VBLK01

Date Analyzed: 05/01/97 Time Analyzed: 00:51

GC Column: HP-624 ID: 0.2 (mm) Heated Purge: (Y/N) N

Instrument ID: "C"

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	BW-FBMH3-01	37302	C12298.D	03:29
02	BW-FBMH3-01MS	37299MS	C12299.D	04:00
03	BW-FBMH3-01MSD	37299MSD	C12300.D	04:32
04	BW-GWMH3-91	37300	C12301.D	05:03
05	BW-TBMH3-01	37301	C12302.D	05:35
06	BW-GWMH3-01	37299	C12303.D	06:06

COMMENTS:

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

BROMOFLUOROBENZENE (BFB)

Lab Name: First Environmental Contract: MONTGOM

Lab Code: Case No.: 1252008. SAS No.: SDG No.:

Lab File ID: C12291.D BFB Injection Date: 04/30/97

Instrument ID: "C" BFB Injection Time: 23:47

GC Column: HP-624 ID: 0.20 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	24.6
75	30.0 - 66.0% of mass 95	56.2
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.6
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	50.0 - 120.0% of mass 95	66.1
175	4.0 - 9.0% of mass 174	4.4 (6.7)1
176	93.0 - 101.0% of mass 174	64.5 (97.6)1
177	5.0 - 9.0% of mass 176	4.1 (6.4)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD050	VSTD050	C12292.D	05/01/97	00:19
02	VBLK01	VBLK01	C12293.D	05/01/97	00:51
03	BW-FBMH3-01	37302	C12298.D	05/01/97	03:29
04	BW-FBMH3-01MS	37299MS	C12299.D	05/01/97	04:00
05	BW-FBMH3-01MSD	37299MSD	C12300.D	05/01/97	04:32
06	BW-GWMH3-91	37300	C12301.D	05/01/97	05:03
07	BW-TBMH3-01	37301	C12302.D	05/01/97	05:35
08	BW-GWMH3-01	37299	C12303.D	05/01/97	06:06

Response Factor Report GCMS C

Method : D:\METHODS\C8240W.M (RTE Integrator)
Title : Volatile Organic Analysis; Method 8240 Aqueous
Last Update : Tue Apr 22 08:23:36 1997
Response via : Initial Calibration

Calibration Files
5 =C11977.D 10 =C11976.D 20 =C11975.D
50 =C11974.D 100 =C11973.D 200 =C11972.D

		Compound	5	10	20	50	100	200	Avg	%RSD
1)	I	Bromochloromethane	----------	----------	----------	ISTD	----------	----------	----------	
2)	T	Dichlorodifluoromet	1.924	1.794	1.925	2.094	2.193	2.207	2.023	8.26
3)	P	Chloromethane	3.373	3.168	3.036	3.022	3.123	3.172	3.149	4.04
4)	C	Vinyl Chloride	2.823	2.561	2.652	2.508	2.625	2.717	2.648	4.25
5)	T	Bromomethane	1.820	1.778	1.576	1.120	0.921		1.443	27.92
6)	T	Chloroethane	1.662	1.621	1.574	1.645	1.522		1.605	3.56
7)	T	Trichlorofluorometh	2.916	2.724	2.841	3.141	3.270	3.246	3.023	7.52
8)	T	Acrolein	0.529	0.520	0.529	0.553	0.576	0.539	0.541	3.[illegible]
9)	T	Acetone		0.992	0.785	0.717	0.698	0.711	0.781	15.[illegible]
10)	M	1,1-Dichloroethene	2.933	3.128	2.994	3.177	3.356	3.386	3.162	5.83
11)	T	Acetonitrile	4.069	4.647	4.095	4.533	4.759	4.714	4.469	6.93
12)	T	Iodomethane	2.719	2.860	2.800	2.992	3.173	3.114	2.943	6.12
13)	T	Allyl chloride	4.069	4.647	4.095	4.533	4.759	4.714	4.469	6.93
14)	T	Methylene chloride		2.139	2.042	2.118	2.208	2.165	2.134	2.87
15)	T	Acrylonitrile	1.196	1.203	1.138	1.176	1.201	1.130	1.174	2.76
16)	T	Carbon disulfide	5.031	5.178	4.885	5.218	5.533	5.363	5.201	4.44
17)	T	Methyl-t-butyl ethe	6.038	6.117	5.837	6.156	6.392	6.133	6.112	2.95
18)	T	Hexane	3.044	3.281	3.138	3.251	3.472	3.313	3.250	4.55
19)	T	trans-1,2-Dichloroe	1.735	1.729	1.701	1.769	1.881	1.807	1.770	3.69
20)	T	Vinyl Acetate	4.894	5.521	5.103	5.380	5.714	5.585	5.366	5.80
21)	P	1,1-Dichloroethane	3.973	4.059	3.885	3.987	4.272	4.191	4.061	3.58
22)	T	Propionitrile	0.211	0.245	0.250	0.206	0.248	0.240	0.233	8.37
23)	T	Methacrylonitrile	2.008	1.733	1.773	1.795	1.840	1.756	1.817	5.51
24)	C	Chloroform	3.413	3.402	3.306	3.386	3.563	3.486	3.426	2.59
25)	S	1,2-Dichloroethane-	0.484	0.455	0.457	0.449	0.475	0.466	0.464	2.[illegible]
26)	T	1,1,1-Trichloroetha	2.554	2.675	2.551	2.664	2.786	2.752	2.664	3.66
27)	I	1,4-Difluorobenzene	----------	----------	----------	ISTD	----------	----------	----------	
28)	T	2-Butanone	0.029	0.032	0.035	0.034	0.036	0.033	0.033	6.72
29)	T	Carbon tetrachlorid	0.311	0.320	0.326	0.343	0.350	0.348	0.333	4.82
30)	T	1,2-Dichloroethane	0.529	0.513	0.491	0.499	0.509	0.504	0.507	2.57
31)	M	Benzene	1.270	1.253	1.209	1.253	1.267	1.258	1.252	1.77
32)	T	Heptane	0.194	0.242	0.245	0.241	0.253	0.238	0.235	8.79
33)	M	Trichloroethene	0.290	0.302	0.284	0.303	0.305	0.298	0.297	2.80
34)	T	Methyl methacrylate	0.250	0.287	0.300	0.260	0.261	0.246	0.267	8.00
35)	C	1,2-Dichloropropane	0.418	0.402	0.383	0.405	0.393	0.389	0.398	3.16
36)	T	Bromodichloromethan	0.369	0.375	0.364	0.389	0.389	0.394	0.380	3.23
37)	T	Dibromomethane	0.241	0.230	0.209	0.222	0.212	0.208	0.220	5.93
38)	T	2-Chloroethyl vinyl	0.237	0.237	0.249	0.256	0.260	0.254	0.249	3.86
39)	T	cis-1,3-Dichloropro	0.500	0.538	0.521	0.558	0.563	0.562	0.540	4.79
40)	M	Toluene	0.677	0.697	0.669	0.708	0.709	0.689	0.692	2.38
41)	T	trans-1,3-Dichlorop	0.471	0.486	0.475	0.502	0.512	0.512	0.493	3.68
42)	T	1,1,2-Trichloroetha	0.245	0.238	0.228	0.244	0.239	0.231	0.237	2.92

(#) = Out of Range

Response Factor Report GCMS C

Method : D:\METHODS\C8240W.M (RTE Integrator)
Title : Volatile Organic Analysis; Method 8240 Aqueous
Last Update : Tue Apr 22 08:23:36 1997
Response via : Initial Calibration

Calibration Files
5 =C11977.D 10 =C11976.D 20 =C11975.D
50 =C11974.D 100 =C11973.D 200 =C11972.D

		Compound	5	10	20	50	100	200	Avg	%RSD
43)	S	d8-Toluene	1.189	1.184	1.186	1.186	1.189	1.184	1.186	0.19
44)	T	1,2-Dibromoethane	0.267	0.274	0.270	0.286	0.284	0.279	0.277	2.71
45)	T	Bromoform	0.172	0.176	0.177	0.192	0.198	0.196	0.185	6.30
46)	S	4-Bromofluorobenzen	0.471	0.482	0.470	0.474	0.476	0.479	0.476	1.01
47)	T	1,4-Dichloro-2-bute	0.127	0.142	0.132	0.143	0.146	0.143	0.139	5.44
48)	I	d5-Chlorobenzene	----------	----------	----------	ISTD	----------	----------	----------	
49)	T	4-Methyl-2-pentanon	0.512	0.514	0.561	0.545	0.542	0.503	0.530	4.32
50)	T	Ethyl methacrylate	0.705	0.578	0.616	0.596	0.601	0.580	0.613	7.70
51)	T	2-Hexanone	0.359	0.364	0.355	0.370	0.366	0.339	0.359	3.01
52)	T	Tetrachloroethene	0.392	0.343	0.347	0.321	0.311	0.297	0.335	10.05
53)	T	Chlorodibromomethan	0.302	0.312	0.323	0.345	0.348	0.344	0.329	5.93
54)	M	Chlorobenzene	0.841	0.883	0.847	0.873	0.874	0.853	0.862	1.95
55)	C	Ethyl benzene	1.571	1.622	1.550	1.604	1.612	1.561	1.587	1.87
56)	T	m&p-Xylene	0.287	0.287	0.276	0.288	0.294	0.280	0.285	2.23
57)	T	o-Xylene	0.536	0.551	0.536	0.551	0.557	0.542	0.546	1.63
58)	T	Styrene	0.965	0.988	0.973	1.014	1.019	0.998	0.993	2.18
59)	T	1,1,1,2-Tetrachloro	0.316	0.332	0.303	0.326	0.316	0.311	0.317	3.27
60)	T	Isopropyl benzene	1.345	1.429	1.360	1.396	1.401	1.351	1.380	2.42
61)	P	1,1,2,2-Tetrachloro	0.423	0.443	0.424	0.443	0.438	0.415	0.431	2.80
62)	T	1,2,3-Trichloroprop	0.104	0.107	0.108	0.109	0.111	0.104	0.107	2.51
63)	T	Bromobenzene	0.337	0.343	0.327	0.345	0.346	0.340	0.340	2.10
64)	T	Pentachloroethane		0.143	0.140	0.172	0.190	0.191	0.167	14.67
65)	T	1,3-Dichlorobenzene	0.592	0.608	0.594	0.616	0.627	0.601	0.606	2.26
66)	T	1,4-Dichlorobenzene	0.620	0.620	0.623	0.646	0.649	0.637	0.632	2.12
67)	T	Benzyl chloride		0.605	0.647	0.743	0.779	0.785	0.712	11.45
68)	T	1,2-Dichlorobenzene	0.575	0.583	0.565	0.595	0.587	0.573	0.580	1.85
69)	T	1,2-Dibromo-3-chlor	0.077	0.080	0.076	0.082	0.081	0.077	0.079	3.21

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : D:\DATA\970430\C12292.D
Acq On : 1 May 97 12:19 am
Sample : VSTD050
Misc : 5.0mLs Purged, 1.0uL 1197
MS Integration Params: rteint.p

Vial: 24
Operator: NEAL
Inst : GCMS C
Multiplr: 1.00

Method : D:\METHODS\C8240W.M (RTE Integrator)
Title : Volatile Organic Analysis; Method 8240 Aqueous
Last Update : Tue Apr 22 08:26:06 1997
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 30% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Bromochloromethane	1.000	1.000	0.0	67	0.03
2	T	Dichlorodifluoromethane	2.023	2.227	-10.1	71	0.00
3	P	Chloromethane	3.149	2.493	20.8	55	0.00
4	C	Vinyl Chloride	2.648	2.211	16.5	59	0.02
5	T	Bromomethane	1.443	1.213	15.9	73	0.02
6	T	Chloroethane	1.605	1.522	5.2	62	0.00
7	T	Trichlorofluoromethane	3.023	3.761	-24.4	80	0.00
8	T	Acrolein	0.541	0.433	20.0	53	0.02
9	T	Acetone	0.781	0.932	-19.3	87	0.02
10	M	1,1-Dichloroethene	3.162	3.351	-6.0	71	0.02
11	T	Acetonitrile	4.469	4.166	6.8	62	0.02
12	T	Iodomethane	2.943	2.948	-0.2	66	0.02
13	T	Allyl chloride	4.469	4.166	6.8	62	0.02
14	T	Methylene chloride	2.134	2.067	3.1	66	0.03
15	T	Acrylonitrile	1.174	1.114	5.1	64	0.03
16	T	Carbon disulfide	5.201	4.736	8.9	61	0.02
17	T	Methyl-t-butyl ether (MTBE)	6.112	6.382	-4.4	70	0.02
18	T	Hexane	3.250	2.590	20.3	54	0.03
19	T	trans-1,2-Dichloroethene	1.770	1.728	2.4	66	0.03
20	T	Vinyl Acetate	5.366	2.574	52.0#	32	0.03
21	P	1,1-Dichloroethane	4.061	4.128	-1.6	70	0.03
22	T	Propionitrile	0.233	0.189	18.9	62	0.05
23	T	Methacrylonitrile	1.817	1.583	12.9	59	0.03
24	C	Chloroform	3.426	3.622	-5.7	72	0.03
25	S	1,2-Dichloroethane-d4	0.464	0.449	3.2	67	0.03
26	T	1,1,1-Trichloroethane	2.664	3.047	-14.4	77	0.03
27	I	1,4-Difluorobenzene	1.000	1.000	0.0	69	0.03
28	T	2-Butanone	0.033	0.032	3.0	65	0.02
29	T	Carbon tetrachloride	0.333	0.387	-16.2	78	0.03
30	T	1,2-Dichloroethane	0.507	0.563	-11.0	78	0.03
31	M	Benzene	1.252	1.094	12.6	60	0.03
32	T	Heptane	0.235	0.159	32.3#	46	0.03
33	M	Trichloroethene	0.297	0.339	-14.1	77	0.03
34	T	Methyl methacrylate	0.267	0.227	15.0	60	0.02
35	C	1,2-Dichloropropane	0.398	0.323	18.8	55	0.02
36	T	Bromodichloromethane	0.380	0.399	-5.0	71	0.03
37	T	Dibromomethane	0.220	0.220	0.0	69	0.03
38	T	2-Chloroethyl vinyl ether	0.249	0.218	12.4	59	0.03
39	T	cis-1,3-Dichloropropene	0.540	0.481	10.9	60	0.03
40	M	Toluene	0.692	0.654	5.5	64	0.03

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : D:\DATA\970430\C12292.D
Acq On : 1 May 97 12:19 am
Sample : VSTD050
Misc : 5.0mLs Purged, 1.0uL 1197
MS Integration Params: rteint.p

Vial: 24
Operator: NEAL
Inst : GCMS C
Multiplr: 1.00

Method : D:\METHODS\C8240W.M (RTE Integrator)
Title : Volatile Organic Analysis; Method 8240 Aqueous
Last Update : Tue Apr 22 08:26:06 1997
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 30% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
41	T	trans-1,3-Dichloropropene	0.493	0.459	6.9	63	0.03
42	T	1,1,2-Trichloroethane	0.237	0.224	5.5	63	0.03
43	S	d8-Toluene	1.186	1.134	4.4	66	0.03
44	T	1,2-Dibromoethane	0.277	0.279	-0.7	67	0.03
[illegible]	T	Bromoform	0.185	0.196	-5.9	71	0.03
[illegible]	S	4-Bromofluorobenzene	0.476	0.500	-5.0	73	0.03
47	T	1,4-Dichloro-2-butene	0.139	0.127	8.6	61	0.02
48	I	d5-Chlorobenzene	1.000	1.000	0.0	70	0.03
49	T	4-Methyl-2-pentanone	0.530	0.488	7.9	63	0.02
50	T	Ethyl methacrylate	0.613	0.536	12.6	63	0.02
51	T	2-Hexanone	0.359	0.334	7.0	63	0.03
52	T	Tetrachloroethene	0.335	0.523	-56.1#	114	0.03
53	T	Chlorodibromomethane	0.329	0.350	-6.4	71	0.03
54	M	Chlorobenzene	0.862	0.827	4.1 ✓	66	0.03
55	C	Ethyl benzene	1.587	1.539	3.0 ✓	67	0.02
56	T	m&p-Xylene	0.285	0.264	7.4	64	0.03
57	T	o-Xylene	0.546	0.522	4.4	66	0.03
58	T	Styrene	0.993	0.970	2.3	67	0.03
59	T	1,1,1,2-Tetrachloroethane	0.317	0.309	2.5	66	0.03
60	T	Isopropyl benzene	1.380	1.371	0.7	69	0.02
[illegible]	P	1,1,2,2-Tetrachloroethane	0.431	0.347	19.5	55	0.03
62	T	1,2,3-Trichloropropane	0.107	0.120	-12.1	77	0.02
63	T	Bromobenzene	0.340	0.346	-1.8	70	0.02
64	T	Pentachloroethane	0.167	0.001	99.4#	0#	0.00
65	T	1,3-Dichlorobenzene	0.606	0.606	0.0	69	0.02
66	T	1,4-Dichlorobenzene	0.632	0.631	0.2	68	0.02
67	T	Benzyl chloride	0.712	0.429	39.7#	40	0.02
68	T	1,2-Dichlorobenzene	0.580	0.581	-0.2	68	0.02
69	T	1,2-Dibromo-3-chloropropane	0.079	0.090	-13.9	77	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: First Environmental Contract: MONTGOMERY

Lab Code: _____ Case No.: 1252008. SAS No.: _____ SDG No.: _____

Lab File ID (Standard): C12292.D Date Analyzed: 05/01/97

Instrument ID: "C" Time Analyzed: 00:19

GC Column: HP-624 ID: 0.20 (mm) Heated Purge: (Y/N) N

		IS1 AREA #	RT #	IS2 AREA #	RT #	IS3 AREA #	RT #
	12 HOUR STD	45428	6.46	275177	8.26	234629	13.50
	UPPER LIMIT	90856	5.96	550354	7.76	469258	13.00
	LOWER LIMIT	22714	6.96	137589	8.76	117315	14.00
	EPA SAMPLE NO.						
01	VBLK01	44480	6.46	271428	8.26	229395	13.50
02	BW-FBMH3-01	45144	6.45	274129	8.25	231112	13.49
03	BW-FBMH3-01MS	43783	6.46	274769	8.25	232164	13.48
04	BW-FBMH3-01MS	44567	6.45	275362	8.24	231400	13.48
05	BW-GWMH3-91	44037	6.45	272170	8.25	241282	13.48
06	BW-TBMH3-01	44010	6.44	268454	8.24	230000	13.48
07	BW-GWMH3-01	42990	6.44	262085	8.24	227329	13.48

IS1 = Bromochloromethane
IS2 = 1,4-Difluorobenzene
IS3 = d5-Chlorobenzene

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

BNAs Method 8270 Analysis QA/QC Summary

Montgomery Watson
Blackwell Landfill
1252008.04090045

First Environmental Laboratories, Inc.
Naperville, Illinois

2C

WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: FIRST ENVIRONMENTAL Contract: MONT WATSON

Project No.: 1252008 Site: BLACKWELL Location: _____ Group: _____

	SAMPLE NO.	S1 (2FP) #	S2 (PHL) #	S3 (NBZ) #	S4 (FBP) #	S5 (TBP) #	S6 (TPH) #	#	#	TOT OUT
01	SBLK01	59	41	109	98	93	93			0
02	BW-GWMH3-01	45	34	81	87	105	91			0
03	BW-GWMH3-01	52	37	92	92	107	93			0
04	BW-GWMH3-01	48	33	87	87	107	93			0
05	BW-GWMH3-91	43	32	81	87	104	87			0
06	BW-FBMH3-01	58	42	101	92	97	92			0
07	LCS	60	41	108	101	106	97			0
08										
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	QC LIMITS
S1 (2FP) = 2-Fluorophenol	(21-110)
S2 (PHL) = Phenol-d5	(10-110)
S3 (NBZ) = Nitrobenzene-d5	(34-114)
S4 (FBP) = 2-Fluorobiphenyl	(43-116)
S5 (TBP) = 2,4,6-Tribromophenol	(10-123)
S6 (TPH) = Terphenyl-d14	(33-141)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogate diluted out

3C

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: FIRST ENVIRONMENTAL Contract: MONT WATSON

Project No.: 1252008 Site: BLACKW Location: _____ Group: _____

Matrix Spike - Sample No.: BW-GWMH3-01

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC. LIMITS REC.
Phenol	200	0	75	38	(12-110)
2-Chlorophenol	200	0	150	75	(27-123)
1,4-Dichlorobenzene	100	16	85	69	(36-97)
N-Nitroso-di-n-propylamine	100	0	76	76	(41-116)
1,2,4-Trichlorobenzene	100	0	80	80	(39-98)
4-Chloro-3-methylphenol	200	0	190	95	(23-97)
Acenaphthene	100	0	85	85	(46-118)
2,4-Dinitrotoluene	100	0	93	93	(24-96)
4-Nitrophenol	200	0	100	50	(10-80)
Pentachlorophenol	200	0	230	115 *	(9-103)
Pyrene	100	0	84	84	(26-127)

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Phenol	200	68	34	10	42	(12-110)
2-Chlorophenol	200	140	70	7	40	(27-123)
1,4-Dichlorobenzene	100	83	72	4	28	(36-97)
N-Nitroso-di-n-propylamine	100	72	72	5	38	(41-116)
1,2,4-Trichlorobenzene	100	78	78	3	28	(39-98)
4-Chloro-3-methylphenol	200	180	90	5	42	(23-97)
Acenaphthene	100	82	82	4	31	(46-118)
2,4-Dinitrotoluene	100	91	91	2	38	(24-96)
4-Nitrophenol	200	100	50	0	50	(10-80)
Pentachlorophenol	200	230	115 *	0	50	(9-103)
Pyrene	100	83	83	1	31	(26-127)

(1) N-Nitroso-di-n-propylamine

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 11 outside limits

Spike Recovery: 2 out of 22 outside limits

Comments: HIGH PENTACHLOROPHENOL RECOVERY VALUES, THEREFORE LABORATORY CONTROL SPIKE (LCS) WAS ANALYZED. ALL LCS QCI'S IN CONTROL

Spike Recovery and RPD Summary Report - WATER

Method : D:\METHODS\8270A.M
Title : Semi-Volatile Analysis by Method 8270/625
Last Update : Tue Apr 22 17:00:47 1997
Response via : Initial Calibration

Non-Spiked Sample: B16465.D LABORATORY CONTROL SPIKE.

	Spike Sample		Spike Duplicate Sample	
File ID :	B16464.D		B16464.D	
Sample :	BNA LCS	BNA SEPF 4-25-97	BNA LCS	BNA SEPF 4-2
Acq Time:	28 Apr 97	8:18 pm	28 Apr 97	8:18 pm

Compound	Sample Conc	Spike Added	Spike Res	Dup Res	Spike %Rec	Dup %Rec	RPD	QC Limits RPD	QC Limits % Rec
Phenol	0.0	200	80	80	40	40	0	42	12-110
2-Chlorophenol	0.1	200	166	166	83	83	0	40	27-123
1,4-Dichlorobenzene	0.0	100	79	79	79	79	0	28	36- 97
N-Nitroso-di-n-propy	0.0	100	88	88	88	88	0	38	41-116
1,2,4-Trichlorobenze	0.0	100	89	89	89	89	0	28	39- 98
4-Chloro-3-methylphe	0.0	200	166	166	83	83	0	42	23- 97
Acenaphthene	0.0	100	84	84	84	84	0	31	46-118
2,4-Dinitrotoluene	0.0	100	89	89	89	89	0	38	24- 96
4-Nitrophenol	0.0	200	85	85	42	42	0	50	10- 80
Pentachlorophenol	0.0	200	187	187	93	93	0	50	9-103
Pyrene	0.0	100	83	83	83	83	0	31	26-127

4B

SAMPLE NO.

SEMIVOLATILE METHOD BLANK SUMMARY

SBLK01

Lab Name: FIRST ENVIRONMENTAL Contract: MONT WATSON

Project No.: 1252008 Site: BLACKWELL Location: Group:

Lab File ID: B16451.D Lab Sample ID: SBLK01

Instrument ID: "B" Date Extracted: 4/25/97

Matrix: (soil/water) WATER Date Analyzed: 4/28/97

Level: (low/med) Time Analyzed: 1117

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	BW-GWMH3-01	S299	B16459.D	04/28/97
02	BW-GWMH3-01MS	S299MS	B16460.D	04/28/97
03	BW-GWMH3-01MSD	S299MSD	B16461.D	04/28/97
04	BW-GWMH3-91	S300	B16462.D	04/28/97
05	BW-FBMH3-01	S302	B16463.D	04/28/97
06	LCS	LCS	B16464.D	04/28/97
07				
08				
09				
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COMMENTS:

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name : FIRST ENVIRONMENTAL Contract: MONT WATSON

Project No.: 1252008 Site: BLACKWELL Location: _____ Group: _____

Lab File ID: B16449.D DFTPP Injection Date: 4/28/97

Instrument ID: "B" DFTPP Injection Time: 1018

m/e	ION ABUNDANCE CRITERIA	%RELATIVE ABUNDANCE
51	30.0 - 80.0% of mass 198	55.2
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	65.6
70	Less than 2.0% of mass 69	0.2 (0.3)1
127	25.0 - 75.0% of mass 198	50.6
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100 % relative abundance	100.0
199	5.0 - 9.0% of mass 198	6.8
275	10.0 - 30.0% of mass 198	21.7
365	Greater than 0.75% of mass 198	2.8
441	Present, but less than mass 443	8.3
442	40.0 - 110.0% of mass 198	75.7
443	15.0 - 24.0% of mass 442	14.5 (19.1)2

1-Value is % mass 69 2-Value is % mass 442

This check applies to the following SAMPLES, MS, MSD, BLANKS and STANDARDS:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD050	SSTD050	B16450.D	4/28/97	1037
02	SBLK01	SBLK01	B16451.D	4/28/97	1117
03	BW-GWMH3-01	S299	B16459.D	4/28/97	1644
04	BW-GWMH3-01	S299MS	B16460.D	4/28/97	1726
05	BW-GWMH3-01	S299MSD	B16461.D	4/28/97	1808
06	BW-GWMH3-91	S300	B16462.D	4/28/97	1851
07	BW-FBMH3-01	S302	B16463.D	4/28/97	1934
08	LCS	LCS	B16464.D	4/28/97	2018
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

INITIAL CALIBRATION

Response Factor Report GCMS B

Method : D:\METHODS\8270A.M
Title : Semi-Volatile Analysis by Method 8270/625
Last Update : ~~Fri May 16 13:03:46 1997~~ RT updtd.
Response via : Initial Calibration

CALIBRATION DATE = 1/30/97

Calibration Files

20	=B15697.D	50	=B16685.D	80	=B15695.D
100	=B15694.D	120	=B15693.D	160	=B15692.D

		Compound	20	50	80	100	120	160	Avg	%RS
1)	I	1,4-Dichlorobenzene-d	----------	----------	----------	ISTD	----------	----------		
2)	T	Pyridine	1.515	1.439	1.586	1.481	1.581	1.497	1.5	3.7
3)	T	N-Nitrosodimethylam	0.890	0.823	0.887	0.841	0.888	0.849	0.9	3.3
4)	S	2-Fluorophenol	1.646	1.586	1.783	1.677	1.806	1.727	1.7	4.9
5)	T	bis(2-Chloroethyl)e	1.811	1.696	1.907	1.675	1.767	1.589	1.7	6.4
6)	S	Phenol-d5	2.096	1.919	2.054	1.872	1.980	1.799	2.0	5.7
7)	CM	Phenol	2.049	1.862	1.956	1.749	1.833	1.646	1.8	7.7
8)	M	2-Chlorophenol	1.579	1.486	1.600	1.458	1.549	1.419	1.5	4.7
9)	T	1,3-Dichlorobenzene	1.505	1.385	1.535	1.364	1.421	1.276	1.4	6.7
10)	CM	1,4-Dichlorobenzene	1.652	1.536	1.650	1.498	1.582	1.488	1.6	4.6
11)	T	1,2-Dichlorobenzene	1.545	1.414	1.558	1.414	1.483	1.371	1.5	5.2
12)	T	Benzyl alcohol	1.126	1.039	1.125	1.052	1.128	1.078	1.1	3.6
13)	T	bis(2-chloroisoprop	2.031	1.821	1.968	1.794	1.908	1.758	1.9	5.6
14)	T	2-Methylphenol	1.550	1.380	1.463	1.354	1.426	1.287	1.4	6.5
15)	T	Hexachloroethane	0.796	0.734	0.782	0.700	0.727	0.661	0.7	6.8
16)	PM	N-Nitroso-di-n-prop	1.097	0.971	1.041	0.954	1.035	1.112	1.0	6.1
17)	T	4-Methylphenol	1.617	1.501	1.569	1.439	1.528	1.416	1.5	5.0
18)	I	Naphthalene-d8	----------	----------	----------	ISTD	----------	----------		
19)	S	Nitrobenzene-d5	0.450	0.399	0.445	0.420	0.443	0.419	0.4	4.5
20)	T	Nitrobenzene	0.429	0.404	0.436	0.425	0.442	0.432	0.4	3.0
21)	T	Isophorone	0.953	0.821	0.914	0.893	0.942	0.893	0.9	5.2
22)	C	2-Nitrophenol	0.248	0.227	0.248	0.237	0.245	0.225	0.2	4.3
23)	T	2,4-Dimethylphenol	0.450	0.409	0.439	0.411	0.434	0.408	0.4	4.2
24)	T	bis(2-Chloroethoxy)	0.629	0.544	0.605	0.554	0.575	0.539	0.6	6.3
25)	C	2,4-Dichlorophenol	0.329	0.293	0.313	0.287	0.292	0.259	0.3	8.1
26)	T	Benzoic Acid	0.128	0.152	0.178	0.176	0.186	0.189	0.2	13.9
27)	M	1,2,4-Trichlorobenz	0.340	0.305	0.332	0.301	0.307	0.278	0.3	7.2
28)	T	Naphthalene	1.222	1.014	1.085	0.970	0.995	0.902	1.0	10.7
29)	T	4-Chloroaniline	0.511	0.425	0.413	0.468	0.487	0.468	0.5	8.0
30)	C	Hexachlorobutadiene	0.208	0.190	0.208	0.191	0.199	0.183	0.2	5.3
31)	CM	4-Chloro-3-methylph	0.409	0.362	0.391	0.366	0.386	0.363	0.4	5.0
32)	T	2-Methylnaphthalene	0.730	0.619	0.663	0.601	0.622	0.566	0.6	8.9
33)	I	Acenaphthene-d10	----------	----------	----------	ISTD	----------	----------		
34)	P	Hexachlorocyclopent	0.284	0.308	0.342	0.320	0.335	0.320	0.3	6.5
35)	C	2,4,6-Trichlorophen	0.438	0.388	0.416	0.368	0.380	0.344	0.4	8.6
36)	T	2,4,5-Trichlorophen	0.476	0.417	0.443	0.382	0.390	0.335	0.4	12.1
37)	S	2-Fluorobiphenyl	1.331	1.109	1.156	1.002	1.023	0.909	1.1	13.5
38)	T	2-Chloronaphthalene	1.223	1.053	1.121	0.994	1.028	0.939	1.1	9.4
39)	T	2-Nitroaniline	0.438	0.391	0.421	0.396	0.415	0.389	0.4	4.7
40)	T	Acenaphthylene	2.043	1.740	1.841	1.628	1.665	1.490	1.7	11.0
41)	T	Dimethylphthalate	1.529	1.348	1.447	1.338	1.393	1.299	1.4	6.0

(#) = Out of Range

Response Factor Report GCMS B

Method : D:\METHODS\8270A.M
Title : Semi-Volatile Analysis by Method 8270/625
Last Update : Fri May 16 13:03:46 1997
Response via : Initial Calibration

Calibration Files
20 =B15697.D 50 =B16685.D 80 =B15695.D
100 =B15694.D 120 =B15693.D 160 =B15692.D

		Compound	20	50	80	100	120	160	Avg	%RS
42)	T	2,6-Dinitrotoluene	0.370	0.347	0.370	0.342	0.356	0.326	0.4	4.8
43)	CM	Acenaphthene	1.281	1.086	1.138	1.002	1.022	0.920	1.1	11.6
44)	T	3-Nitroaniline	0.404	0.325	0.237	0.297	0.322	0.327	0.3	16.9
45)	P	2,4-Dinitrophenol	0.157	0.200	0.228	0.230	0.245	0.231	0.2	15.0
46)	T	Dibenzofuran	1.701	1.419	1.499	1.339	1.366	1.275	1.4	10.5
47)	M	2,4-Dinitrotoluene	0.495	0.443	0.466	0.441	0.459	0.430	0.5	5.1
48)	PM	4-Nitrophenol	0.187	0.196	0.206	0.206	0.218	0.213	0.2	5.6
49)	T	Fluorene	1.379	1.175	1.228	1.102	1.137	1.026	1.2	10.3
50)	T	4-Chlorophenyl-phen	0.682	0.582	0.610	0.537	0.556	0.496	0.6	11.1
51)	T	Diethylphthalate	1.677	1.460	1.542	1.399	1.449	1.315	1.5	8.4
52)	T	4-Nitroaniline	0.249	0.235	0.278	0.262	0.274	0.261	0.3	6.0
53)	I	Phenanthrene-d10	----------	----------	----------	ISTD	----------	----------		
54)	T	4,6-Dinitro-2-methy	0.182	0.194	0.196	0.181	0.182	0.140	0.2	11.3
55)	C	n-Nitrosodiphenylam	0.571	0.487	0.452	0.385	0.383	0.340	0.4	19.3
56)	S	2,4,6-Tribromopheno	0.164	0.158	0.157	0.143	0.146	0.135	0.2	7.2
57)	T	4-Bromophenyl-pheny	0.225	0.214	0.215	0.196	0.205	0.191	0.2	6.0
58)	T	Hexachlorobenzene	0.302	0.281	0.278	0.253	0.260	0.240	0.3	8.2
59)	CM	Pentachlorophenol	0.136	0.160	0.159	0.157	0.166	0.164	0.2	7.0
60)	T	Phenanthrene	1.151	1.016	0.995	0.888	0.925	0.860	1.0	10.9
61)	T	Anthracene	1.186	1.049	1.014	0.905	0.918	0.835	1.0	12.7
62)	T	Carbazole	0.797	0.692	0.434	0.438	0.472	0.463	0.5	28.3
63)	T	Di-n-butylphthalate	1.751	1.573	1.549	1.388	1.428	1.307	1.5	10.5
64)	C	Fluoranthene	1.296	1.129	1.096	0.981	1.009	0.906	1.1	12.8
65)	I	Chrysene-d12	----------	----------	----------	ISTD	----------	----------		
66)	I	Benzidine	0.132	0.104	0.115	0.128	0.133	0.122	0.1	9.1
67)	M	Pyrene	1.573	1.292	1.359	1.228	1.238	1.203	1.3	10.4
68)	S	Terphenyl-d14	1.008	0.859	0.905	0.836	0.846	0.816	0.9	7.9
69)	T	Butylbenzylphthalat	0.972	0.819	0.873	0.779	0.810	0.757	0.8	9.3
70)	T	3,3'-Dichlorobenzid	0.444	0.367	0.321	0.290	0.296	0.273	0.3	19.2
71)	T	Benzo[a]anthracene	1.424	1.164	1.228	1.112	1.132	1.092	1.2	10.3
72)	T	Chrysene	1.292	0.959	1.025	0.851	0.888	0.769	1.0	19.0
73)	T	bis(2-Ethylhexyl)ph	1.344	1.078	1.116	0.954	0.963	0.888	1.1	15.5
74)	I	Perylene-d12	----------	----------	----------	ISTD	----------	----------		
75)	C	Di-n-octylphthalate	2.138	1.659	1.712	1.421	1.355	1.244	1.6	20.3
76)	T	Benzo[b]fluoranthen	1.232	1.097	1.365	1.083	0.958	0.902	1.1	15.5
77)	T	Benzo[k]fluoranthen	1.180	0.849	0.705	0.682	0.777	0.669	0.8	23.8
78)	C	Benzo[a]pyrene	1.115	0.943	0.989	0.900	0.903	0.846	0.9	9.9
79)	T	Indeno[1,2,3-cd]pyr	0.954	0.999	1.047	1.032	1.051	1.023	1.0	3.5
80)	T	Dibenz[a,h]anthrace	0.964	0.878	0.958	0.876	0.895	0.841	0.9	5.4
81)	T	Benzo[g,h,i]perylen	0.921	0.863	0.961	0.910	0.953	0.920	0.9	3.7

(#) = Out of Range

7B

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: FIRST ENVIRONMENTAL Contract: MONT WATSON

Project No. 1252008 Site: BLACKWELL Location: Group:

Instrument ID: "B" Calibration Date: 4/28/97 Time: 1037

Lab File ID: B16450.D Init. Calib. Date(s): 4/28/97 1/0/00

Init. Calib. Times: 1037 0000

COMPOUND	$\overline{RRF}$	RRF50	MIN RRF	%D	MAX %D
N-Nitrosodimethylamine	0.863	0.697		19.2	
bis(2-Chloroethyl)ether	1.741	1.682		3.4	
Phenol	1.849	1.891		-2.3	30.0
2-Chlorophenol	1.515	1.404		7.3	
1,3-Dichlorobenzene	1.414	1.337		5.4	
1,4-Dichlorobenzene	1.568	1.431		8.7	30.0
1,2-Dichlorobenzene	1.464	1.366		6.7	
Benzyl alcohol	1.091	1.030		5.6	
bis(2-chloroisopropyl)ether	1.880	1.768		6.0	
2-Methylphenol	1.410	1.374		2.6	
Hexachloroethane	0.733	0.733		0.0	
N-Nitroso-di-n-propylamine	1.035	0.952	0.050	8.0	
4-Methylphenol	1.512	1.535		-1.5	
Nitrobenzene	0.428	0.439		-2.6	
Isophorone	0.903	0.888		1.7	
2-Nitrophenol	0.239	0.236		1.3	30.0
2,4-Dimethylphenol	0.425	0.420		1.2	
bis(2-Chloroethoxy)methane	0.574	0.581		-1.2	
2,4-Dichlorophenol	0.296	0.284		4.1	30.0
Benzoic Acid	0.168	0.102		39.3	
1,2,4-Trichlorobenzene	0.311	0.311		0.0	
Naphthalene	1.031	1.018		1.3	
4-Chloroaniline	0.462	0.469		-1.5	
Hexachlorobutadiene	0.196	0.219		-11.7	30.0
4-Chloro-3-methylphenol	0.379	0.404		-6.6	30.0
2-Methylnaphthalene	0.633	0.635		-0.3	
Hexachlorocyclopentadiene	0.318	0.294	0.050	7.5	
2,4,6-Trichlorophenol	0.389	0.377		3.1	30.0
2,4,5-Trichlorophenol	0.407	0.396		2.7	
2-Chloronaphthalene	1.060	0.943		11.0	
2-Nitroaniline	0.408	0.378		7.4	
Acenaphthylene	1.734	1.589		8.4	
Dimethylphthalate	1.392	1.225		12.0	
2,6-Dinitrotoluene	0.352	0.306		13.1	
Acenaphthene	1.075	0.981		8.7	30.0
3-Nitroaniline	0.319	0.331		-3.8	
2,4-Dinitrophenol	0.215	0.146	0.050	32.1	

All other compounds must meet a minimum RRF of 0.010.

7B

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: FIRST ENVIRONMENTAL Contract: MONT WATSON

Project No. 1252008 Site: BLACKWELL Location: Group:

Instrument ID: "B" Calibration Date: 4/28/97 Time: 1037

Lab File ID: B16450.D Init. Calib. Date(s): 4/28/97 1/0/00

Init. Calib. Times: 1037 0000

COMPOUND	$\overline{RRF}$	RRF50	MIN RRF	%D	MAX %D
Dibenzofuran	1.433	1.337		6.7	
2,4-Dinitrotoluene	0.455	0.410		9.9	
4-Nitrophenol	0.204	0.171	0.050	16.2	
Fluorene	1.174	1.072		8.7	
4-Chlorophenyl-phenylether	0.577	0.576		0.2	
Diethylphthalate	1.474	1.354		8.1	
4-Nitroaniline	0.260	0.310		-19.2	
4,6-Dinitro-2-methylphenol	0.179	0.168		6.1	
n-Nitrosodiphenylamine	0.436	0.410		6.0	30.0
4-Bromophenyl-phenylether	0.208	0.198		4.8	
Hexachlorobenzene	0.269	0.266		1.1	
Pentachlorophenol	0.157	0.134		14.6	30.0
Phenanthrene	0.973	0.905		7.0	
Anthracene	0.984	0.936		4.9	
Carbazole	0.549	0.783		-42.6	
Di-n-butylphthalate	1.499	1.388		7.4	
Fluoranthene	1.069	1.098		-2.7	30.0
Benzidine	0.122	0.028		77.0	
Pyrene	1.315	1.113		15.4	
Butylbenzylphthalate	0.835	0.659		21.1	
3,3'-Dichlorobenzidine	0.332	0.388		-16.9	
Benzo[a]anthracene	1.192	1.028		13.8	
Chrysene	0.964	0.947		1.8	
bis(2-Ethylhexyl)phthalate	1.057	0.890		15.8	
Di-n-octylphthalate	1.588	1.397		12.0	30.0
Benzo[b]fluoranthene	1.106	1.861		-68.3	
Benzo[k]fluoranthene	0.810	1.862		-129.9	
Benzo[a]pyrene	0.950	0.874		8.0	30.0
Indeno[1,2,3-cd]pyrene	1.018	0.933		8.3	
Dibenz[a,h]anthracene	0.902	0.848		6.0	
Benzo[g,h,i]perylene	0.921	0.880		4.5	

All other compounds must meet a minimum RRF of 0.010.

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: FIRST ENVIRONMENTAL Contract: MONT WATSON

Project No.: 1252008 Site: BLACKWELL Location: Group:

Lab File ID (Standard): B16450.D Date Analyzed: 4/28/97

Instrument ID: "B" Time Analyzed: 1037

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	323369	7.80	1070334	11.01	681802	15.12
	UPPER LIMIT	646738	8.30	2140668	11.51	1363604	15.62
	LOWER LIMIT	161685	7.30	535167	10.51	340901	14.62
	SAMPLE NO.						
01	SBLK01	484043	7.79	1604287	11.01	936174	15.12
02	BW-GWMH3-01	376295	7.82	1261416	11.01	710372	15.12
03	BW-GWMH3-01MS	343118	7.82	1211105	11.02	707849	15.13
04	BW-GWMH3-01MSD	359912	7.82	1273304	11.02	738089	15.12
05	BW-GWMH3-91	389348	7.82	1292585	11.00	732657	15.12
06	BW-FBMH3-01	398956	7.82	1357540	11.01	788980	15.12
07	LCS	282784	7.81	1019687	11.01	596673	15.11
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09							
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22							

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: FIRST ENVIRONMENTAL Contract: MONT WATSON

Project No.: 1252008 Site: BLACKWELL Location: Group:

Lab File ID (Standard): B16450.D Date Analyzed: 4/28/97

Instrument ID: "B" Time Analyzed: 1037

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	1122790	18.45	1105124	23.69	1198619	25.43
	UPPER LIMIT	2245580	18.95	2210248	24.19	2397238	25.93
	LOWER LIMIT	561395	17.95	552562	23.19	599310	24.93
	SAMPLE NO.						
01	SBLK01	1555176	18.45	1584954	23.68	1762196	25.43
02	BW-GWMH3-01	1111815	18.45	1097378	23.68	1200163	25.43
03	BW-GWMH3-01MS	1112666	18.47	1079229	23.69	1178445	25.44
04	BW-GWMH3-01MSD	1144454	18.46	1121143	23.68	1177564	25.42
05	BW-GWMH3-91	1137366	18.45	1074218	23.68	1114542	25.43
06	BW-FBMH3-01	1227372	18.44	1193093	23.67	1276455	25.42
07	LCS	952694	18.45	905705	23.67	997997	25.42
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22							

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.