IEA
An Aquarion Company

Sample Summary

IEA-Illinois

Laboratory ID	Client ID
L72960749-001	JLM032-1
L72960749-002	TB 5396

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Client Name: Burns & McDonnell
IEA Project #: L72960749
Client Project ID: 95-465-4-501

PROJECT NARRATIVE

GC Volatiles Analysis--Xylenes

Sample JLM032-1 is nonhomogeneous; sample was anaylzed twice, and different results were obtained. Both analyses are reported. Sample also had a high content of moisture (49% Solids).

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Client: Burns & McDonnell
IEA Job#: L72960749
Project ID: 95-465-4-501
Matrix: Soil
Method: 8020A

Purgeable Aromatic Compounds--BTEX
GC Volatiles Analysis
µg/Kg - Dry Weight

Analyte / Lab ID						PQL
Percent Solids	49%	49%	100%	100%		
Dilution Factor	1	5	1	1		
Method Blank	VR051096	VR051396	VR051096	VR051396		
Client ID	JLM032-1	JLM032-1	Method Blank	Method Blank		
Lab ID	001	001DL	VR051096	VR051396		
Total Xylenes	1300 E	630	U	U		2
Surrogate Recovery	93%	90%	112%	125%		65-135 %
Date Sampled	5/3/96	5/3/96	---	---		
Date Analyzed	5/10/96	5/13/96	5/10/96	5/13/96		

PQL = Practical Quantitation Limit
To obtain the sample-specific quantitation limit, multiply the PQL by the Dilution Factor.

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IEA
An Aquarion Company

Client: Burns & McDonnell
IEA Job#: L72960749
Project ID: 95-465-4-501
Matrix: Water
Method: 8020A

Purgeable Aromatic Compounds--BTEX
GC Volatiles Analysis
µg/L

Analyte / Lab ID						PQL
Dilution Factor	1	1				
Method Blank	VR051096	VR051096				
Client ID	TB 5396	Method Blank				
Lab ID	002	VR051096				
Total Xylenes	U	U				2
Surrogate Recovery	96%	112%				75-125%
Date Sampled	5/3/96	---				
Date Analyzed	5/10/96	5/10/96				

PQL = Practical Quantitation Limit
To obtain the sample-specific quantitation limit, multiply the PQL by the Dilution Factor.

Purgeable Aromatics
Matrix Spike/Matrix Spike Duplicate

Matrix: Soil

Date Analyzed: 5/11/96
IEA Sample ID: L72960749-001

Compound	Spike Added (ug/Kg)	Sample Concentration (ug/Kg)	Matrix Spike Concentration (ug/Kg)	% Recovery
Benzene	50	3	55	104%
Toluene	50	6	58	104%

Compound	Spike Added (ug/Kg)	Matrix Spike Dup Concentration (ug/Kg)	% Recovery	% Difference
Benzene	50	63	120%	14%
Toluene	50	101	190%	59%

% Recovery Limits: 65-135 %
% Difference Limits: +/- 20 %

COMMENTS: The MS/MSD was out due to matrix interference. It will be rerun along with a BS/BSD to confirm this.

Response Factor Report GC

Method : K:\CHEMSTN\GCR\METHODS\CALCURVS\042996.M
Title : PVOC in Soil; Calib. Date: 4/29/96
Last Update : Mon Apr 29 15:46:37 1996
Response via : Initial Calibration

Calibration Files
2ppb =GCR2526.D 5 =GCR2527.D 10 =GCR2528.D
50 =GCR2529.D 100 =GCR2530.D

	RT	Compound	2ppb	5	10	50	100	Avg		%RSD
1)	1.74	MTBE	33.5	30.2	30.0	27.3	26.2	29.4	E3	9.71
2)	2.90	BENZENE	589.2	540.0	537.0	510.8	485.5	532.5	E3	7.25
3)	4.04	aaa-Trifluorotoluene	212.2	182.0	171.7	174.0	165.1	181.0	E3	10.19
4)	5.54	TOLUENE	487.6	442.2	436.4	441.0	424.3	446.3	E3	5.41
5)	8.36	ETHYLBENZENE	451.2	405.2	399.3	399.4	382.1	407.4	E3	6.37
6)	8.60	M-PXYLENE	544.3	501.7	504.0	495.6	474.7	504.1	E3	5.02
7)	9.29	0-XYLENE	468.9	434.1	438.0	443.3	426.1	442.1	E3	3.68
8)	10.20	BROMOFLUOROBENZENE	475.1	426.2	415.8	406.4	388.6	422.4	E3	7.70
9)	11.44	135-TRIMETHYLBENZENE	644.2	589.9	575.5	580.7	555.7	589.2	E3	5.64
10)	12.12	124-TRIMETHYLBENZENE	671.3	454.4	496.6	470.4	451.1	508.8	E3	18.21

(#) = Out of Range

042996.M Wed May 22 09:39:26 1996

Response Factor Report GC

Method : K:\CHEMSTN\GCR\METHODS\CALCURVS\051396.M
Title : PVOC in Soil; Calib. Date: 5/13/96
Last Update : Wed May 22 10:53:56 1996
Response via : Initial Calibration

Calibration Files
2ppb =GCR2878.D 5 =GCR2845.D 10 =GCR2846.D
50 =GCR2843.D 100 =GCR2847.D

	RT	Compound	2ppb	5	10	50	100	Avg		%RSD
1)	1.72	MTBE	46.6	41.0	38.3	39.4	36.7	40.4	E3	9.41
2)	2.84	BENZENE	891.6	714.4	672.6	714.4	634.5	725.5	E3	13.59
3)	3.94	aaa-Trifluorotoluene	266.1	259.8	242.1	258.7	238.9	253.1	E3	4.72
4)	5.44	TOLUENE	628.0	600.4	566.7	603.2	539.4	587.5	E3	5.90
5)	8.26	ETHYLBENZENE	562.1	541.1	501.7	529.8	475.4	522.0	E3	6.51
6)	8.50	M-PXYLENE	677.9	696.9	644.0	673.5	597.6	658.0	E3	5.88
7)	9.19	0-XYLENE	592.7	603.6	567.0	599.2	538.7	580.2	E3	4.69
8)	10.09	BROMOFLUOROBENZENE	582.4	533.3	516.3	517.2	494.6	528.8	E3	6.24
9)	11.33	135-TRIMETHYLBENZENE	792.5	824.1	754.2	779.5	694.4	768.9	E3	6.33
10)	12.02	124-TRIMETHYLBENZENE	626.1	718.5	632.3	633.8	570.4	636.2	E3	8.32

(#) = Out of Range

051396.M Wed May 22 10:55:18 1996

Evalua . Continuing Calibration R ort

Data File : K:\CHEMSTN\GCR\DATA\QR1131\GCR2860.D Vial: 15
Acq On : 13 May 96 11:28 PM Operator: JBRIESE
Sample : CCV#2-BTEXM-50PPB Inst : GCR
Misc : GCV-0101;VR051396 Multiplr: 1.00

Method : K:\CHEMSTN\GCR\METHODS\CALCURVS\051396.M
Title : PVOC in Soil; Calib. Date: 5/13/96
Last Update : Wed May 22 11:01:00 1996
Response via : Multiple Level Calibration

		Compound	AvgRF	CCRF		%Dev
1	t	MTBE	40.387	29.154	E3	27.8#
2	T	BENZENE	725.502	713.030	E3	1.7
3	S	aaa-Trifluorotoluene	253.105	255.393	E3	-0.9
4	T	TOLUENE	587.545	594.518	E3	-1.2
5	T	ETHYLBENZENE	522.045	511.000	E3	2.1
6	T	M-PXYLENE	657.987	638.952	E3	2.9
7	T	0-XYLENE	580.226	565.860	E3	2.5
8	S	BROMOFLUOROBENZENE	528.786	481.311	E3	9.0
9	T	135-TRIMETHYLBENZENE	768.947	699.862	E3	9.0
10	T	124-TRIMETHYLBENZENE	636.247	557.778	E3	12.3

(#) = Out of Range SPCC's out = 0 CCC's out = 0
GCR2843.D 051396.M Wed May 22 11:01:14 1996

Purgeable Aromatics--Xylenes
Matrix Spike/Matrix Spike Duplicate

Matrix: Soil

Date Analyzed: 5/11/96
IEA Sample ID: L72960749-001

Compound	Spike Added (ug/Kg)	Sample Concentration (ug/Kg)	Matrix Spike Concentration (ug/Kg)	% Recovery
Total Xylenes	150	638	825	125%

Compound	Spike Added (ug/Kg)	Matrix Spike Dup Concentration (ug/Kg)	% Recovery	% Difference
Total Xylenes	150	1000	241%	64%

% Recovery Limits: 65-135 %
% Difference Limits: +/- 20 %

Comments: QC limits were not achieved due to sample nonhomogeneity.

Purgeable Aromatics
Blank Spike/Blank Spike Duplicate

Matrix: Soil

Date Analyzed: 5/13/96
IEA Sample ID: VR051396

Compound	Spike Added (ug/Kg)	Blank Concentration (ug/Kg)	Blank Spike Concentration (ug/Kg)	% Recovery
Benzene	50	<1	48	96%
Toluene	50	<1	49	98%

Compound	Spike Added (ug/Kg)	Blank Spike Dup Concentration (ug/Kg)	% Recovery	% Difference
Benzene	50	43	86%	11%
Toluene	50	44	88%	11%

% Recovery Limits: 65-135 %
% Difference Limits: +/- 20 %

Purgeable Aromatics
Matrix Spike/Matrix Spike Duplicate

Matrix: Water

Date Analyzed: 5/11/96
IEA Sample ID: L72960788-002

Compound	Spike Added (ug/L)	Sample Concentration (ug/L)	Matrix Spike Concentration (ug/L)	% Recovery
Benzene	50	<1	50	100%
Toluene	50	2	48	92%

Compound	Spike Added (ug/L)	Matrix Spike Dup Concentration (ug/L)	% Recovery	% Difference
Benzene	50	54	108%	8%
Toluene	50	52	100%	8%

% Recovery Limits: 75-125%
% Difference Limits: +/- 20 %

Request for Chemical Analysis and Chain of Custody Record

Burns & McDonnell
Waste Consultants, Inc.
10881 Lowell Avenue, Suite 200
Overland Park, Kansas 66210
Tel: (816) 333-8787
Fax: (816) 822-3463

Laboratory: IEA Inc.
Address: 126 W. Center Court
City/State/Zip: Schaumburg IL 60195
Telephone: 708/705 0740

Document Control No.:
Lab. Reference No. or Episode No.:

Attention: Mr Greg Niemann
Project Number: Amoco Xylene GESD
Project ~~Name:~~ # 95-465-4-501
Site, Group, or SWMU Name:

Sample Number: Sample Point	Sample Number: Sample Designator	Sample Event: Round	Sample Event: Year	Sample Depth (in feet): From	Sample Depth (in feet): To	Samples Collected: Date	Samples Collected: Time	Sample Type: Matrix: Liquid	Matrix: Solid	Matrix: Gas	Composite	Grab	Number of Containers	Analysis: Xylene 8020						Remarks
JLM032	-1	-	1996	1	3	5/3/96	1030		X			X	1	X						
JLM032	-1MSD	-	1996	1	3	5/3/96	1030		X			X	2	X						for MS/MSD Analysis
TB 5396		-	1996	NA	NA	5/3/96		X				X	2	X						Trip Blank

5/3/96

Sampler (signature):
Sampler (signature):

Special Instructions:

Relinquished By:	Date/Time	Received By:	Date/Time
1. (signature)	5/3/96 2000	(signature)	5-4-96 1000
2. (signature)	Date/Time	(signature)	Date/Time

Condition of Shipping Container: Good [X] Fair [ ] Poor [ ]
Ice Present in Container: Yes [X] No [ ]
Comments: RECEIVED ON ICE AT 4°C

Burns & McDonnell Waste Consultants, Inc.
022194 form WCI-OP1

IEA
An Aquarion Company

126 West Center Court
Schaumburg, Illinois 60195

Phone 1·800·933·2580
Fax 847·705·1567

June 05, 1996

Burns & McDonnell
Scott Kolb
999 Oakmont Plaza Drive

Westmont, IL 60559

Dear Scott Kolb:

Please find enclosed the analytical results of the samples received at our laboratory on May 10, 1996. This report contains sections addressing the following information at a minimum:

- -Definitions
- -Analytical Methodology
- -State certifications
- -Analytical Results
- -Chain-of-custody (if applicable)

IEA Project#: L72960796 Client Project: 95-465-4-501

Purchase Order#:

IEA Quote#: Site:

Copies of this analytical report and supporting data are maintained in our files for three years; samples are retained for two weeks unless special arrangements have been made. Unless specifically indicated, all analytical testing was performed at this laboratory and no portion of the testing was subcontracted.

We appreciate your selection of our services and welcome any questions or suggestions you may have relative to this report. Please contact Jim Dowse at (800) 933-2580 for any additional information. Thank you for utilizing our services, we hope you will consider us for your future analytical needs.

I have reviewed and approved the enclosed data for final release.

Sincerely

Larry D. Lewis
Director of Operations
IEA-Illinois Laboratory

IEA
An Aquarion Company

Definitions of Data Qualifiers

Organic Analysis

B - This analyte was detected in the method blank associated with this sample. The concentration reported in the method blank is suspected to contribute to the reported concentration of the analyte in the sample.

E - The concentration reported for this compound exceeds the calibration range of the instrument.

H - This sample had one or more surrogate recoveries above the acceptance criteria due to coelution with a nontarget compound.

J - The reported concentration for this compound is an estimated value. When associated with tentatively identified compounds (TICs), the result is quantitated based on a response factor of 1. When the flag is associated with a calibrated target compound, the compound has been positively identified and the reported concentration is above the method detection limit (MDL), but below the practical quantitation limit (PQL).

L - This sample had one or more surrogate recoveries below the acceptance criteria due to matrix effects. This effect was confirmed through a second analysis of the sample.

LI - The recovery of the internal standard corresponding to this compound did not meet the acceptance criteria due to matrix effects. This effect was confirmed through a second analysis of the sample.

T1 - The chromatographic profile of this sample does not match that of a gasoline standard. Another unidentifiable petroleum product is present in this sample. Quantitation is based on a gasoline standard calibration.

T2 - The chromatographic profile of this sample does not match that of a diesel fuel standard. Another petroleum product is present in this sample. Quantitation is based on a diesel fuel standard calibration.

U - This compound was not detected in the sample above the PQL.

UD - This compound was not detected above the elevated PQL in this diluted analysis.

Inorganic Analysis

E - The reported value was estimated due to the presence of interference.

M - Duplicate injection precision was not met.

N - Spiked sample recovery was not within control limits.

S - The reported value was determined by the Method of Standard Additions(MSA).

W - Post digestion spike for Furnace AA analysis is out of control limits (85-115%), while sample absorbance is less than 50% of spike absorbance.

* - Duplicate analysis was not within control limits.

+ - Correlation Coefficient for the MSA is less than 0.995.

printed on recycled paper

IEA
An Aquarion Company

Sample Summary

IEA-Illinois

Laboratory ID	Client ID
L72960796-001	MW-JLM030/GW-1
L72960796-002	MW-JLM031/GW-1
L72960796-003	MW-JLM032/GW-1
L72960796-004	MW-PZX1/GW-1
L72960796-005	MW-PZX0/GW-1
L72960796-006	MW-JLM031/GW-ERB
L72960796-007	TB 5-8-96

IEA
An Aquarion Company

Client: Burns & McDonnell
IEA Job#: L72960796
Project ID: 95-465-4-501
Matrix: Water
Method: 8020A

Purgeable Aromatic Compounds--BTEX
GC Volatiles Analysis
µg/L

Analyte	Dilution Factor	1	1	1	2	1	PQL
	Method Blank	VV052296	VV052296	VR051396	VV052296	VV052296	
	Client ID	MW-JLM030 GW-1	MW-JLM031 GW-1	MW-JLM032 GW-1	MW-PZX1 GW-1	MW-PZX0 GW-1	
	Lab ID	001	002	003	004	005	
Total Xylenes		53	110	U	220	52	2
Surrogate Recovery		116%	105%	90%	90%	121%	75-125 %
	Date Sampled	5/8/96	5/8/96	5/8/96	5/8/96	5/8/96	
	Date Analyzed	5/22/96	5/22/96	5/13/96	5/22/96	5/22/96	

Analyte	Dilution Factor	1	1	1	1		PQL
	Method Blank	VR051396	VR051396	VR051396	VR051496		
	Client ID	MW-JLM031 GW-ERB	TB 5-8-96	Method Blank	Method Blank		
	Lab ID	006	007	VR051396	VR051496		
Total Xylenes		U	U	U	U		2
Surrogate Recovery		111%	114%	125%	106%		75-125 %
	Date Sampled	5/8/96	5/8/96	---	---		
	Date Analyzed	5/14/96	5/14/96	5/13/96	5/14/96		

PQL = Practical Quantitation Limit
To obtain the sample-specific quantitation limit, multiply the PQL by the Dilution Factor.

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Purgeable Aromatics--Xylenes
Matrix Spike/Matrix Spike Duplicate

Matrix: Water

Date Analyzed: 5/14/96
IEA Sample ID: L72960796-003

Compound	Spike Added (ug/L)	Sample Concentration (ug/L)	Matrix Spike Concentration (ug/L)	% Recovery
Total Xylenes	150	5	124.7	80%

Compound	Spike Added (ug/L)	Matrix Spike Dup Concentration (ug/L)	% Recovery	% Difference
Total Xylenes	150	117.34	75%	6%

% Recovery Limits: 75-125%
% Difference Limits: +/- 20 %

Response Factor Report GC

Method : K:\CHEMSTN\GCR\METHODS\CALCURVS\051396.M
Title : PVOC in Soil; Calib. Date: 5/13/96
Last Update : Wed May 22 10:53:56 1996
Response via : Initial Calibration

Calibration Files
2ppb =GCR2878.D 5 =GCR2845.D 10 =GCR2846.D
50 =GCR2843.D 100 =GCR2847.D

RT	Compound	2ppb	5	10	50	100	Avg		%RSD
1)1.72	MTBE	46.6	41.0	38.3	39.4	36.7	40.4	E3	9.41
2)2.84	BENZENE	891.6	714.4	672.6	714.4	634.5	725.5	E3	13.59
3)3.94	aaa-Trifluorotoluene	266.1	259.8	242.1	258.7	238.9	253.1	E3	4.72
4)5.44	TOLUENE	628.0	600.4	566.7	603.2	539.4	587.5	E3	5.90
5)8.26	ETHYLBENZENE	562.1	541.1	501.7	529.8	475.4	522.0	E3	6.51
6)8.50	M-PXYLENE	677.9	696.9	644.0	673.5	597.6	658.0	E3	5.88
7)9.19	0-XYLENE	592.7	603.6	567.0	599.2	538.7	580.2	E3	4.69
8)10.09	BROMOFLUOROBENZENE	582.4	533.3	516.3	517.2	494.6	528.8	E3	6.24
9)11.33	135-TRIMETHYLBENZENE	792.5	824.1	754.2	779.5	694.4	768.9	E3	6.33
10)12.02	124-TRIMETHYLBENZENE	626.1	718.5	632.3	633.8	570.4	636.2	E3	8.32

(#) = Out of Range

051396.M Wed May 22 10:55:18 1996

Evalua' Continuing Calibration Re ort

Data File : K:\CHEMSTN\GCR\DATA\QR1131\GCR2860.D Vial: 15
Acq On : 13 May 96 11:28 PM Operator: JBRIESE
Sample : CCV#2-BTEXM-50PPB Inst : GCR
Misc : GCV-0101;VR051396 Multiplr: 1.00

Method : K:\CHEMSTN\GCR\METHODS\CALCURVS\051396.M
Title : PVOC in Soil; Calib. Date: 5/13/96
Last Update : Wed May 22 11:01:00 1996
Response via : Multiple Level Calibration

		Compound	AvgRF	CCRF		%Dev
1	t	MTBE	40.387	29.154	E3	27.8#
2	T	BENZENE	725.502	713.030	E3	1.7
3	S	aaa-Trifluorotoluene	253.105	255.393	E3	-0.9
4	T	TOLUENE	587.545	594.518	E3	-1.2
5	T	ETHYLBENZENE	522.045	511.000	E3	2.1
6	T	M-PXYLENE	657.987	638.952	E3	2.9
7	T	0-XYLENE	580.226	565.860	E3	2.5
8	S	BROMOFLUOROBENZENE	528.786	481.311	E3	9.0
9	T	135-TRIMETHYLBENZENE	768.947	699.862	E3	9.0
10	T	124-TRIMETHYLBENZENE	636.247	557.778	E3	12.3

(#) = Out of Range SPCC's out = 0 CCC's out = 0
GCR2843.D 051396.M Wed May 22 11:01:14 1996