



TestAmerica Laboratories, Inc.

## ANALYTICAL REPORT

DRAGOON  
OK001499.2008.00001

Lot #: D8L180314

Eric Rainey

ARCADIS Geraghty & Miller, Inc.  
5100 East Skelly Drive  
Suite 1000  
Tulsa, OK 74135

TestAmerica Laboratories, Inc.

A handwritten signature in dark ink, appearing to read "Donna R. Rydberg".

Donna R. Rydberg  
Project Manager

December 26, 2008

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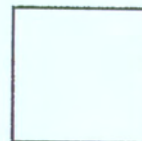
## *Standard Deliverables*

### Report Contents

### Total Number of Pages

#### **Standard Deliverables**

*The Cover Letter and the Report Cover page are considered integral parts of this Standard Deliverable package. This report is incomplete unless all pages indicated in this Table of Contents are included.*



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- Executive Summary – Detection Highlights
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- Method/Analyst Summary
- Lot Sample Summary
- Analytical Results
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## **CASE NARRATIVE**

### **D8L180314**

The following report contains the analytical results for four samples, submitted to TestAmerica by Arcadis from the Dragoon Site. The samples were received December 18, 2008 according to documented sample acceptance procedures.

Dilution factors and footnotes have been provided on each data sheet to assist in the interpretation of the results. In some cases, due to interference or analytes present above the linear calibration curve, samples must be analyzed at a dilution. For samples analyzed at a dilution, the reporting limits are adjusted relative to the dilution required. Dilutions made for reasons other than the presence of target compound(s) are addressed in the Supplemental QC Information section.

TestAmerica utilizes USEPA approved methods in all analytical work. The samples presented in this report were analyzed for the parameters listed on the methods summary page in accordance with the methods indicated. A summary of QC data for these analyses is included near the end of the report.

The results included in this report relate only to the samples in this report, have been reviewed for compliance with the laboratory QA/QC plan and meet all requirements of NELAC. All data have been found to be compliant with laboratory protocol, with the exception of any items noted below.

#### **Supplemental QC Information**

##### **Sample Arrival and Receipt**

The samples presented in this report were received at the laboratory in good condition and at a temperature of 0.3°C.

##### **GC Volatiles – Method 8021B**

There was more than a 40% difference between the primary and confirmation column results for Benzene in samples D8L180314-001, -002, -003 and -004. The lower of the two results were reported as matrix interference was obvious. The data was flagged "COL".

A low level of Benzene was detected in the Method Blank associated with prep batch 8357603. Because the concentration in the method blank is not present at a level greater than the reporting limit, corrective action is deemed unnecessary. Associated results in the analytical report have been flagged with a "B". Usability of the sample data is not compromised.

No other anomalies were observed.



## EXECUTIVE SUMMARY - Detection Highlights

D8L180314

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>ANALYTICAL METHOD</u>
DGMW-9:43.5'-46' 12/16/08 10:50 001				
Benzene	8.3	50	ug/kg	SW846 8021B
	Qualifiers: J,B,COL			
DGMW-12:43.5'-48.5' 12/17/08 09:05 002				
Benzene	8.3	50	ug/kg	SW846 8021B
	Qualifiers: J,B,COL			
DGMW-11:53'-55' 12/17/08 14:25 003				
Benzene	7.9	50	ug/kg	SW846 8021B
	Qualifiers: J,B,COL			
DGMW-10:48'-50' 12/18/08 11:55 004				
Benzene	7.9	50	ug/kg	SW846 8021B
	Qualifiers: J,B,COL			
Xylenes (total)	51	50	ug/kg	SW846 8021B



## METHODS SUMMARY

D8L180314

<u>PARAMETER</u>	<u>ANALYTICAL METHOD</u>	<u>PREPARATION METHOD</u>
Volatiles by GC	SW846 8021B	SW846 5035

### References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

## METHOD / ANALYST SUMMARY

D8L180314

<u>ANALYTICAL METHOD</u>	<u>ANALYST</u>	<u>ANALYST ID</u>
SW846 8021B	Adam Pavlakovich	003128

### References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

## SAMPLE SUMMARY

D8L180314

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
K41AT	001	DGMW-9:43.5'-46'	12/16/08	10:50
K41AV	002	DGMW-12:43.5'-48.5'	12/17/08	09:05
K41AW	003	DGMW-11:53'-55'	12/17/08	14:25
K41AX	004	DGMW-10:48'-50'	12/18/08	11:55

### NOTE(S) :

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.



ARCADIS U.S., Inc.

Client Sample ID: DGMW-9:43.5'-46'

GC Volatiles

Lot-Sample #....: D8L180314-001 Work Order #....: K41AT1AA Matrix.....: SOLID  
 Date Sampled....: 12/16/08 10:50 Date Received...: 12/18/08  
 Prep Date.....: 12/19/08 Analysis Date...: 12/22/08  
 Prep Batch #....: 8357603 Analysis Time...: 13:12  
 Dilution Factor: 1

Method.....: SW846 8021B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzene	8.3 J,B,COL	50	ug/kg	2.5
Ethylbenzene	ND	50	ug/kg	7.4
Toluene	ND	50	ug/kg	2.6
Xylenes (total)	ND	50	ug/kg	12
SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS		
a,a,a-Trifluorotoluene (TFT)	97	(70 - 115)		

NOTE(S) :

J Estimated result. Result is less than RL.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

COL More than 40% RPD between primary and confirmation column results. The lower of the two results is reported.

ARCADIS U.S., Inc.

Client Sample ID: DGMW-12:43.5'-48.5'

GC Volatiles

Lot-Sample #...: D8L180314-002 Work Order #...: K41AV1AA Matrix.....: SOLID  
 Date Sampled...: 12/17/08 09:05 Date Received...: 12/18/08  
 Prep Date.....: 12/19/08 Analysis Date...: 12/22/08  
 Prep Batch #...: 8357603 Analysis Time...: 14:44  
 Dilution Factor: 1

Method.....: SW846 8021B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzene	8.3 J,B,COL	50	ug/kg	2.5
Ethylbenzene	ND	50	ug/kg	7.4
Toluene	ND	50	ug/kg	2.6
Xylenes (total)	ND	50	ug/kg	12
SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS		
a,a,a-Trifluorotoluene (TFT)	105	(70 - 115)		

**NOTE(S) :**

J Estimated result. Result is less than RL.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

COL More than 40% RPD between primary and confirmation column results. The lower of the two results is reported.

ARCADIS U.S., Inc.

Client Sample ID: DGMW-11:53'-55'

GC Volatiles

Lot-Sample #....: D8L180314-003    Work Order #....: K41AW1AA    Matrix.....: SOLID  
 Date Sampled....: 12/17/08 14:25    Date Received...: 12/18/08  
 Prep Date.....: 12/19/08    Analysis Date...: 12/22/08  
 Prep Batch #....: 8357603    Analysis Time...: 15:15  
 Dilution Factor: 1  
 Method.....: SW846 8021B

		REPORTING		
<u>PARAMETER</u>	<u>RESULT</u>	<u>LIMIT</u>	<u>UNITS</u>	<u>MDL</u>
Benzene	7.9 J,B,COL	50	ug/kg	2.5
Ethylbenzene	ND	50	ug/kg	7.4
Toluene	ND	50	ug/kg	2.6
Xylenes (total)	ND	50	ug/kg	12
<u>SURROGATE</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>RECOVERY</u> <u>LIMITS</u>		
a,a,a-Trifluorotoluene (TFT)	102	(70 - 115)		

**NOTE (S) :**

J Estimated result. Result is less than RL.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

COL More than 40% RPD between primary and confirmation column results. The lower of the two results is reported.



ARCADIS U.S., Inc.

Client Sample ID: DGMW-10:48'-50'

GC Volatiles

Lot-Sample #....: D8L180314-004 Work Order #....: K41AX1AA Matrix.....: SOLID  
 Date Sampled....: 12/18/08 11:55 Date Received...: 12/18/08  
 Prep Date.....: 12/19/08 Analysis Date...: 12/22/08  
 Prep Batch #....: 8357603 Analysis Time...: 15:45  
 Dilution Factor: 1

Method.....: SW846 8021B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzene	7.9 J,B,COL	50	ug/kg	2.5
Ethylbenzene	ND	50	ug/kg	7.4
Toluene	ND	50	ug/kg	2.6
Xylenes (total)	51	50	ug/kg	12

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	100	(70 - 115)

**NOTE(S):**

J Estimated result. Result is less than RL.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

COL More than 40% RPD between primary and confirmation column results. The lower of the two results is reported.

## QC DATA ASSOCIATION SUMMARY

D8L180314

Sample Preparation and Analysis Control Numbers

<u>SAMPLE#</u>	<u>MATRIX</u>	<u>ANALYTICAL METHOD</u>	<u>LEACH BATCH #</u>	<u>PREP BATCH #</u>	<u>MS RUN#</u>
001	SOLID	SW846 8021B		8357603	8357400
002	SOLID	SW846 8021B		8357603	8357400
003	SOLID	SW846 8021B		8357603	8357400
004	SOLID	SW846 8021B		8357603	8357400

# METHOD BLANK REPORT

## GC Volatiles

Client Lot #...: D8L180314  
MB Lot-Sample #: D8L220000-603

Work Order #...: K46AC1AA

Matrix.....: SOLID

Analysis Date...: 12/22/08  
Dilution Factor: 1

Prep Date.....: 12/19/08

Prep Batch #...: 8357603

Analysis Time...: 12:31

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Benzene	11 J	50	ug/kg	SW846 8021B
Ethylbenzene	ND	50	ug/kg	SW846 8021B
Toluene	ND	50	ug/kg	SW846 8021B
Xylenes (total)	ND	50	ug/kg	SW846 8021B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	107	(70 - 115)

### NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

J Estimated result. Result is less than RL.



# LABORATORY CONTROL SAMPLE EVALUATION REPORT

## GC Volatiles

Client Lot #...: D8L180314      Work Order #...: K46AC1AC-LCS      Matrix.....: SOLID  
 LCS Lot-Sample#: D8L220000-603      K46AC1AD-LCSD  
 Prep Date.....: 12/19/08      Analysis Date...: 12/22/08  
 Prep Batch #...: 8357603      Analysis Time...: 11:29  
 Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Chlorobenzene	100	(85 - 115)			SW846 8021B
	106	(85 - 115)	5.5	(0-22)	SW846 8021B
Benzene	102	(85 - 115)			SW846 8021B
	111	(85 - 115)	8.8	(0-15)	SW846 8021B
1,3-Dichlorobenzene	100	(85 - 115)			SW846 8021B
	105	(85 - 115)	5.1	(0-18)	SW846 8021B
Ethylbenzene	104	(85 - 115)			SW846 8021B
	108	(85 - 115)	4.0	(0-17)	SW846 8021B
1,4-Dichlorobenzene	101	(85 - 115)			SW846 8021B
	107	(85 - 115)	6.6	(0-18)	SW846 8021B
1,2-Dichlorobenzene	98	(85 - 115)			SW846 8021B
	106	(85 - 115)	8.0	(0-19)	SW846 8021B
Toluene	104	(85 - 115)			SW846 8021B
	109	(85 - 115)	4.8	(0-15)	SW846 8021B
Xylenes (total)	105	(85 - 115)			SW846 8021B
	110	(85 - 115)	4.6	(0-15)	SW846 8021B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	103	(82 - 115)
	106	(82 - 115)

### NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

# LABORATORY CONTROL SAMPLE DATA REPORT

## GC Volatiles

Client Lot #....: D8L180314      Work Order #....: K46AC1AC-LCS      Matrix.....: SOLID  
 LCS Lot-Sample#: D8L220000-603      K46AC1AD-LCSD  
 Prep Date.....: 12/19/08      Analysis Date...: 12/22/08  
 Prep Batch #....: 8357603      Analysis Time...: 11:29  
 Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Chlorobenzene	991	992	ug/kg	100		SW846 8021B
	991	1050	ug/kg	106	5.5	SW846 8021B
Benzene	991	1010	ug/kg	102		SW846 8021B
	991	1100	ug/kg	111	8.8	SW846 8021B
1,3-Dichlorobenzene	991	990	ug/kg	100		SW846 8021B
	991	1040	ug/kg	105	5.1	SW846 8021B
Ethylbenzene	991	1030	ug/kg	104		SW846 8021B
	991	1070	ug/kg	108	4.0	SW846 8021B
1,4-Dichlorobenzene	991	997	ug/kg	101		SW846 8021B
	991	1070	ug/kg	107	6.6	SW846 8021B
1,2-Dichlorobenzene	991	967	ug/kg	98		SW846 8021B
	991	1050	ug/kg	106	8.0	SW846 8021B
Toluene	991	1030	ug/kg	104		SW846 8021B
	991	1080	ug/kg	109	4.8	SW846 8021B
Xylenes (total)	2970	3110	ug/kg	105		SW846 8021B
	2970	3260	ug/kg	110	4.6	SW846 8021B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	103	(82 - 115)
	106	(82 - 115)

### NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.  
 Bold print denotes control parameters

# MATRIX SPIKE SAMPLE EVALUATION REPORT

## GC Volatiles

Client Lot #...: D8L180314      Work Order #...: K41AT1AC-MS      Matrix.....: SOLID  
 MS Lot-Sample #: D8L180314-001      K41AT1AD-MSD  
 Date Sampled...: 12/16/08 10:50      Date Received...: 12/18/08  
 Prep Date.....: 12/19/08      Analysis Date...: 12/22/08  
 Prep Batch #...: 8357603      Analysis Time...: 13:43  
 Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Chlorobenzene	104	(74 - 127)			SW846 8021B
	106	(74 - 127)	1.6	(0-26)	SW846 8021B
Benzene	109	(77 - 119)			SW846 8021B
	111	(77 - 119)	1.8	(0-27)	SW846 8021B
1,3-Dichlorobenzene	103	(71 - 121)			SW846 8021B
	105	(71 - 121)	1.9	(0-41)	SW846 8021B
Ethylbenzene	108	(78 - 116)			SW846 8021B
	112	(78 - 116)	3.8	(0-25)	SW846 8021B
1,4-Dichlorobenzene	106	(72 - 125)			SW846 8021B
	109	(72 - 125)	2.7	(0-32)	SW846 8021B
1,2-Dichlorobenzene	104	(69 - 115)			SW846 8021B
	106	(69 - 115)	1.7	(0-27)	SW846 8021B
Toluene	108	(77 - 117)			SW846 8021B
	110	(77 - 117)	1.6	(0-27)	SW846 8021B
Xylenes (total)	108	(76 - 116)			SW846 8021B
	110	(76 - 116)	1.4	(0-25)	SW846 8021B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	100	(70 - 115)
	102	(70 - 115)

### NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.  
 Bold print denotes control parameters



# MATRIX SPIKE SAMPLE DATA REPORT

## GC Volatiles

Client Lot #...: D8L180314      Work Order #...: K41AT1AC-MS      Matrix.....: SOLID  
 MS Lot-Sample #: D8L180314-001      K41AT1AD-MSD  
 Date Sampled...: 12/16/08 10:50      Date Received...: 12/18/08  
 Prep Date.....: 12/19/08      Analysis Date...: 12/22/08  
 Prep Batch #...: 8357603      Analysis Time...: 13:43  
 Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Chlorobenzene	ND	990	1030	ug/kg	104		SW846 8021B
	ND	990	1050	ug/kg	106	1.6	SW846 8021B
Benzene	8.3	990	1090	ug/kg	109		SW846 8021B
	8.3	990	1100	ug/kg	111	1.8	SW846 8021B
1,3-Dichlorobenzene	ND	990	1020	ug/kg	103		SW846 8021B
	ND	990	1040	ug/kg	105	1.9	SW846 8021B
Ethylbenzene	ND	990	1060	ug/kg	108		SW846 8021B
	ND	990	1110	ug/kg	112	3.8	SW846 8021B
1,4-Dichlorobenzene	ND	990	1050	ug/kg	106		SW846 8021B
	ND	990	1080	ug/kg	109	2.7	SW846 8021B
1,2-Dichlorobenzene	ND	990	1030	ug/kg	104		SW846 8021B
	ND	990	1040	ug/kg	106	1.7	SW846 8021B
Toluene	ND	990	1070	ug/kg	108		SW846 8021B
	ND	990	1090	ug/kg	110	1.6	SW846 8021B
Xylenes (total)	ND	2970	3220	ug/kg	108		SW846 8021B
	ND	2970	3270	ug/kg	110	1.4	SW846 8021B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	100	(70 - 115)
	102	(70 - 115)

### NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.  
 Bold print denotes control parameters



AC  
IR1  
12/18/18

30

THE LEADER IN ENVIRONMENTAL TESTING

Chain of Custody Number  
**110285**

Page 1 of 1Page 1 of 1Special Instructions/  
Conditions of Receipt



by Mel 12/18/03

Possible Hazard Identification		Sample Disposal		(A fee may be assessed if samples are retained longer than 1 month)
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input checked="" type="checkbox"/> Unknown	<input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months			

Turn Around Time Required \_\_\_\_\_

QC Requirements (Specify) \_\_\_\_\_

Date \_\_\_\_\_ Time \_\_\_\_\_

Date	Time
12/8/8	10

Date	Time
------	------

Comments
* RESULTS AND INVOICE TO ERIC RAINY: ARCADIS-US; TUBA, OK, *
DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

## ANALYTICAL REPORT

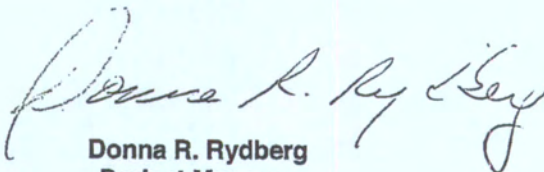
DRAGOON  
OK001499.2008.00001

Lot #: D8L230225

Eric Rainey

ARCADIS Geraghty & Miller, Inc.  
5100 East Skelly Drive  
Suite 1000  
Tulsa, OK 74135

TestAmerica Laboratories, Inc.



Donna R. Rydberg  
Project Manager

January 6, 2009

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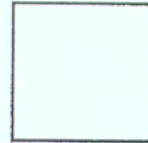
## Standard Deliverables

### Report Contents

### Total Number of Pages

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## **CASE NARRATIVE**

### **D8L230225**

The following report contains the analytical results for four samples, submitted to TestAmerica by Arcadis from the Dragoon Site. The samples were received December 23, 2008 according to documented sample acceptance procedures.

Dilution factors and footnotes have been provided on each data sheet to assist in the interpretation of the results. In some cases, due to interference or analytes present above the linear calibration curve, samples must be analyzed at a dilution. For samples analyzed at a dilution, the reporting limits are adjusted relative to the dilution required. Dilutions made for reasons other than the presence of target compound(s) are addressed in the Supplemental QC Information section.

TestAmerica utilizes USEPA approved methods in all analytical work. The samples presented in this report were analyzed for the parameters listed on the methods summary page in accordance with the methods indicated. A summary of QC data for these analyses is included near the end of the report.

The results included in this report relate only to the samples in this report, have been reviewed for compliance with the laboratory QA/QC plan and meet all requirements of NELAC. All data have been found to be compliant with laboratory protocol, with the exception of any items noted below.

#### **Supplemental QC Information**

##### **Sample Arrival and Receipt**

The samples presented in this report were received at the laboratory in good condition and at a temperature of 0.8°C.

##### **GC Volatiles – Method 8021B**

Samples D8L230225-001, -002 and -003 were analyzed at a dilution to bring target compounds within the instrument calibration range. Reporting limits were raised accordingly.

The percent recovery for surrogate a,a,a-Trifluorotoluene exceeded upper control limits in sample D8L230225-004 due to matrix interference. There were multiple non-target peaks which may have co-eluted with the surrogate causing high recoveries.

The MS/MSD recoveries for MTBE exceeded upper control limits in prep batch 8364180 due to matrix interference. The associated LCS is in control and demonstrates that operating procedures were in control. No further action was required.

No other anomalies were observed.

# EXECUTIVE SUMMARY - Detection Highlights

D8L230225

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
DGMW-9 12/23/08 10:45 001				
Benzene	63	1.2	ug/L	SW846 8021B
Ethylbenzene	7.7	1.2	ug/L	SW846 8021B
Xylenes (total)	24	1.2	ug/L	SW846 8021B
DGMW-10 12/23/08 11:35 002				
Benzene	61	2.5	ug/L	SW846 8021B
Ethylbenzene	92	2.5	ug/L	SW846 8021B
Xylenes (total)	350	2.5	ug/L	SW846 8021B
DGMW-11 12/23/08 12:25 003				
Benzene	120	2.5	ug/L	SW846 8021B
Ethylbenzene	81	2.5	ug/L	SW846 8021B
Xylenes (total)	280	2.5	ug/L	SW846 8021B
DGMW-12 12/23/08 09:45 .004				
Xylenes (total)	1.3	0.50	ug/L	SW846 8021B



## METHODS SUMMARY

D8L230225

<u>PARAMETER</u>	<u>ANALYTICAL METHOD</u>	<u>PREPARATION METHOD</u>
Volatiles by GC	SW846 8021B	SW846 5030

### References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

## METHOD / ANALYST SUMMARY

D8L230225

ANALYTICAL  
METHOD

ANALYST

ANALYST  
ID

SW846 8021B

Adam Pavlakovich

003128

### References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical  
Methods", Third Edition, November 1986 and its updates.

## SAMPLE SUMMARY

D8L230225

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
K47PF	001	DGMW-9	12/23/08	10:45
K47PG	002	DGMW-10	12/23/08	11:35
K47PH	003	DGMW-11	12/23/08	12:25
K47PJ	004	DGMW-12	12/23/08	09:45

### NOTE (S) :

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.



ARCADIS U.S., Inc.

Client Sample ID: DGMW-9

GC Volatiles

Lot-Sample #....: D8L230225-001 Work Order #....: K47PF1AA Matrix.....: WATER  
 Date Sampled....: 12/23/08 10:45 Date Received...: 12/23/08  
 Prep Date.....: 12/26/08 Analysis Date...: 12/26/08  
 Prep Batch #....: 8364180 Analysis Time...: 12:05  
 Dilution Factor: 2.5  
 Method.....: SW846 8021B

PARAMETER	RESULT	REPORTING		
		LIMIT	UNITS	MDL
Benzene	63	1.2	ug/L	0.88
Ethylbenzene	7.7	1.2	ug/L	0.25
Toluene	ND	1.2	ug/L	0.42
Xylenes (total)	24	1.2	ug/L	0.48
SURROGATE		PERCENT RECOVERY	RECOVERY LIMITS	
a,a,a-Trifluorotoluene (TFT)		108	(85 - 115)	

ARCADIS U.S., Inc.

Client Sample ID: DGMW-10

GC Volatiles

Lot-Sample #....: D8L230225-002 Work Order #....: K47PG1AA Matrix.....: WATER  
 Date Sampled....: 12/23/08 11:35 Date Received...: 12/23/08  
 Prep Date.....: 12/30/08 Analysis Date...: 12/30/08  
 Prep Batch #....: 8366186 Analysis Time...: 16:34  
 Dilution Factor: 5  
 Method.....: SW846 8021B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzene	61	2.5	ug/L	1.8
Ethylbenzene	92	2.5	ug/L	0.50
Toluene	ND	2.5	ug/L	0.85
Xylenes (total)	350	2.5	ug/L	0.95

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	115	(85 - 115)

ARCADIS U.S., Inc.

Client Sample ID: DGMW-11

GC Volatiles

Lot-Sample #....: D8L230225-003 Work Order #....: K47PH1AA Matrix.....: WATER  
 Date Sampled....: 12/23/08 12:25 Date Received...: 12/23/08  
 Prep Date.....: 12/30/08 Analysis Date...: 12/30/08  
 Prep Batch #....: 8366186 Analysis Time...: 11:09  
 Dilution Factor: 5  
 Method.....: SW846 8021B

PARAMETER	RESULT	REPORTING		
		LIMIT	UNITS	MDL
Benzene	120	2.5	ug/L	1.8
Ethylbenzene	81	2.5	ug/L	0.50
Toluene	ND	2.5	ug/L	0.85
Xylenes (total)	280	2.5	ug/L	0.95
SURROGATE		PERCENT	RECOVERY	
a,a,a-Trifluorotoluene (TFT)		RECOVERY	LIMITS	
		115	(85 - 115)	



ARCADIS U.S., Inc.

Client Sample ID: DGMW-12

GC Volatiles

Lot-Sample #....: D8L230225-004 Work Order #....: K47PJ1AA Matrix.....: WATER  
 Date Sampled....: 12/23/08 09:45 Date Received...: 12/23/08  
 Prep Date.....: 12/26/08 Analysis Date...: 12/26/08  
 Prep Batch #....: 8364180 Analysis Time...: 19:22  
 Dilution Factor: 1  
 Method.....: SW846 8021B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzene	ND	0.50	ug/L	0.35
Ethylbenzene	ND	0.50	ug/L	0.10
Toluene	ND	0.50	ug/L	0.17
Xylenes (total)	1.3	0.50	ug/L	0.19

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	127 *	(85 - 115)

NOTE(S) :

\* Surrogate recovery is outside stated control limits.

## QC DATA ASSOCIATION SUMMARY

D8L230225

Sample Preparation and Analysis Control Numbers

<u>SAMPLE#</u>	<u>MATRIX</u>	<u>ANALYTICAL METHOD</u>	<u>LEACH BATCH #</u>	<u>PREP BATCH #</u>	<u>MS RUN#</u>
001	WATER	SW846 8021B		8364180	8364126
002	WATER	SW846 8021B		8366186	8366125
003	WATER	SW846 8021B		8366186	8366125
004	WATER	SW846 8021B		8364180	8364126

# METHOD BLANK REPORT

## GC Volatiles

Client Lot #...: D8L230225  
MB Lot-Sample #: D8L290000-180

Work Order #...: K5AXJ1AA

Matrix.....: WATER

Analysis Date...: 12/26/08  
Dilution Factor: 1

Prep Date.....: 12/26/08  
Prep Batch #...: 8364180

Analysis Time...: 11:20

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Benzene	ND	0.50	ug/L	SW846 8021B
Ethylbenzene	ND	0.50	ug/L	SW846 8021B
Toluene	ND	0.50	ug/L	SW846 8021B
Xylenes (total)	ND	0.50	ug/L	SW846 8021B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	105	(85 - 115)

### NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.



# LABORATORY CONTROL SAMPLE EVALUATION REPORT

## GC Volatiles

Client Lot #...: D8L230225      Work Order #...: K5AXJ1AC-LCS      Matrix.....: WATER  
 LCS Lot-Sample#: D8L290000-180      K5AXJ1AD-LCSD  
 Prep Date.....: 12/26/08      Analysis Date...: 12/26/08  
 Prep Batch #...: 8364180      Analysis Time...: 10:19  
 Dilution Factor: 1

PARAMETER	PERCENT	RECOVERY	RPD	RPD	METHOD
	RECOVERY	LIMITS		LIMITS	
Chlorobenzene	97	(81 - 115)			SW846 8021B
	103	(81 - 115)	6.4	(0-35)	SW846 8021B
Benzene	99	(75 - 117)			SW846 8021B
	106	(75 - 117)	6.6	(0-45)	SW846 8021B
1,3-Dichlorobenzene	95	(80 - 115)			SW846 8021B
	102	(80 - 115)	7.0	(0-35)	SW846 8021B
Ethylbenzene	99	(79 - 115)			SW846 8021B
	106	(79 - 115)	6.4	(0-46)	SW846 8021B
1,4-Dichlorobenzene	97	(79 - 115)			SW846 8021B
	105	(79 - 115)	8.4	(0-35)	SW846 8021B
1,2-Dichlorobenzene	96	(80 - 115)			SW846 8021B
	104	(80 - 115)	8.2	(0-35)	SW846 8021B
Toluene	99	(77 - 115)			SW846 8021B
	105	(77 - 115)	6.4	(0-45)	SW846 8021B
Methyl tert-butyl ether	93	(79 - 118)			SW846 8021B
	100	(79 - 118)	7.2	(0-27)	SW846 8021B
Xylenes (total)	100	(79 - 116)			SW846 8021B
	107	(79 - 116)	6.4	(0-46)	SW846 8021B

SURROGATE	PERCENT	RECOVERY
	RECOVERY	LIMITS
a,a,a-Trifluorotoluene	106	(85 - 115)
(TFT)	105	(85 - 115)

### NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

# LABORATORY CONTROL SAMPLE DATA REPORT

## GC Volatiles

Client Lot #...: D8L230225      Work Order #...: K5AXJ1AC-LCS      Matrix.....: WATER  
 LCS Lot-Sample#: D8L290000-180      K5AXJ1AD-LCSD  
 Prep Date.....: 12/26/08      Analysis Date...: 12/26/08  
 Prep Batch #...: 8364180      Analysis Time...: 10:19  
 Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Chlorobenzene	20.0	19.3	ug/L	97		SW846 8021B
	20.0	20.6	ug/L	103	6.4	SW846 8021B
Benzene	20.0	19.9	ug/L	99		SW846 8021B
	20.0	21.2	ug/L	106	6.6	SW846 8021B
1,3-Dichlorobenzene	20.0	19.0	ug/L	95		SW846 8021B
	20.0	20.4	ug/L	102	7.0	SW846 8021B
Ethylbenzene	20.0	19.9	ug/L	99		SW846 8021B
	20.0	21.2	ug/L	106	6.4	SW846 8021B
1,4-Dichlorobenzene	20.0	19.3	ug/L	97		SW846 8021B
	20.0	21.0	ug/L	105	8.4	SW846 8021B
1,2-Dichlorobenzene	20.0	19.2	ug/L	96		SW846 8021B
	20.0	20.9	ug/L	104	8.2	SW846 8021B
Toluene	20.0	19.8	ug/L	99		SW846 8021B
	20.0	21.1	ug/L	105	6.4	SW846 8021B
Methyl tert-butyl ether	20.0	18.6	ug/L	93		SW846 8021B
	20.0	20.0	ug/L	100	7.2	SW846 8021B
Xylenes (total)	60.0	60.0	ug/L	100		SW846 8021B
	60.0	63.9	ug/L	107	6.4	SW846 8021B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	106	(85 - 115)
	105	(85 - 115)

### NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters



# MATRIX SPIKE SAMPLE EVALUATION REPORT

## GC Volatiles

Client Lot #....: D8L230225      Work Order #....: K47W91AC-MS      Matrix.....: WATER  
 MS Lot-Sample #: D8L230241-001      K47W91AD-MSD  
 Date Sampled....: 12/23/08 08:35      Date Received...: 12/23/08  
 Prep Date.....: 12/26/08      Analysis Date...: 12/26/08  
 Prep Batch #....: 8364180      Analysis Time...: 19:52  
 Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Chlorobenzene	108	(81 - 115)			SW846 8021B
	99	(81 - 115)	8.5	(0-35)	SW846 8021B
Benzene	110	(75 - 117)			SW846 8021B
	102	(75 - 117)	7.1	(0-45)	SW846 8021B
1,3-Dichlorobenzene	107	(80 - 115)			SW846 8021B
	99	(80 - 115)	7.6	(0-35)	SW846 8021B
Ethylbenzene	112	(79 - 115)			SW846 8021B
	103	(79 - 115)	7.8	(0-46)	SW846 8021B
1,4-Dichlorobenzene	110	(79 - 115)			SW846 8021B
	101	(79 - 115)	8.8	(0-35)	SW846 8021B
1,2-Dichlorobenzene	110	(80 - 115)			SW846 8021B
	101	(80 - 115)	8.2	(0-35)	SW846 8021B
Toluene	111	(77 - 115)			SW846 8021B
	99	(77 - 115)	11	(0-45)	SW846 8021B
Methyl tert-butyl ether	133 a	(79 - 118)			SW846 8021B
	119 a	(79 - 118)	4.4	(0-27)	SW846 8021B
Xylenes (total)	108	(79 - 116)			SW846 8021B
	99	(79 - 116)	8.5	(0-46)	SW846 8021B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	101	(85 - 115)
	103	(85 - 115)

### NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.



# MATRIX SPIKE SAMPLE DATA REPORT

## GC Volatiles

Client Lot #...: D8L230225      Work Order #...: K47W91AC-MS      Matrix.....: WATER  
 MS Lot-Sample #: D8L230241-001      K47W91AD-MSD  
 Date Sampled...: 12/23/08 08:35      Date Received...: 12/23/08  
 Prep Date.....: 12/26/08      Analysis Date...: 12/26/08  
 Prep Batch #...: 8364180      Analysis Time...: 19:52  
 Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Chlorobenzene	0.22	20.0	21.9	ug/L	108		SW846 8021B
	0.22	20.0	20.1	ug/L	99	8.5	SW846 8021B
Benzene	1.8	20.0	23.9	ug/L	110		SW846 8021B
	1.8	20.0	22.2	ug/L	102	7.1	SW846 8021B
1,3-Dichlorobenzene	ND	20.0	21.3	ug/L	107		SW846 8021B
	ND	20.0	19.7	ug/L	99	7.6	SW846 8021B
Ethylbenzene	ND	20.0	22.3	ug/L	112		SW846 8021B
	ND	20.0	20.7	ug/L	103	7.8	SW846 8021B
1,4-Dichlorobenzene	ND	20.0	22.1	ug/L	110		SW846 8021B
	ND	20.0	20.2	ug/L	101	8.8	SW846 8021B
1,2-Dichlorobenzene	ND	20.0	21.9	ug/L	110		SW846 8021B
	ND	20.0	20.2	ug/L	101	8.2	SW846 8021B
Toluene	0.74	20.0	22.9	ug/L	111		SW846 8021B
	0.74	20.0	20.5	ug/L	99	11	SW846 8021B
Methyl tert-butyl ether	39	20.0	65.8	ug/L	133 a		SW846 8021B
	39	20.0	63.0	ug/L	119 a	4.4	SW846 8021B
Xylenes (total)	1.2	60.0	66.3	ug/L	108		SW846 8021B
	1.2	60.0	60.9	ug/L	99	8.5	SW846 8021B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	101	(85 - 115)
	103	(85 - 115)

### NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

# METHOD BLANK REPORT

## GC Volatiles

Client Lot #...: D8L230225  
MB Lot-Sample #: D8L310000-186

Work Order #...: K5EA11AA

Matrix.....: WATER

Analysis Date...: 12/30/08  
Dilution Factor: 1

Prep Date.....: 12/30/08  
Prep Batch #...: 8366186

Analysis Time...: 10:26

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u>		<u>METHOD</u>
		<u>LIMIT</u>	<u>UNITS</u>	
Benzene	ND	0.50	ug/L	SW846 8021B
Ethylbenzene	ND	0.50	ug/L	SW846 8021B
Toluene	ND	0.50	ug/L	SW846 8021B
Xylenes (total)	ND	0.50	ug/L	SW846 8021B

<u>SURROGATE</u>	<u>PERCENT</u>	<u>RECOVERY</u>
	<u>RECOVERY</u>	<u>LIMITS</u>
a,a,a-Trifluorotoluene (TFT)	104	(85 - 115)

### NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

# LABORATORY CONTROL SAMPLE EVALUATION REPORT

## GC Volatiles

Client Lot #....: D8L230225      Work Order #....: K5EA11AC-LCS      Matrix.....: WATER  
 LCS Lot-Sample#: D8L310000-186      K5EA11AD-LCSD  
 Prep Date.....: 12/30/08      Analysis Date...: 12/30/08  
 Prep Batch #....: 8366186      Analysis Time...: 09:25  
 Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Chlorobenzene	108	(81 - 115)			SW846 8021B
	99	(81 - 115)	8.2	(0-35)	SW846 8021B
Benzene	111	(75 - 117)			SW846 8021B
	102	(75 - 117)	8.5	(0-45)	SW846 8021B
1,3-Dichlorobenzene	106	(80 - 115)			SW846 8021B
	102	(80 - 115)	4.6	(0-35)	SW846 8021B
Ethylbenzene	110	(79 - 115)			SW846 8021B
	101	(79 - 115)	8.5	(0-46)	SW846 8021B
1,4-Dichlorobenzene	110	(79 - 115)			SW846 8021B
	105	(79 - 115)	4.5	(0-35)	SW846 8021B
1,2-Dichlorobenzene	107	(80 - 115)			SW846 8021B
	103	(80 - 115)	3.6	(0-35)	SW846 8021B
Toluene	110	(77 - 115)			SW846 8021B
	101	(77 - 115)	8.5	(0-45)	SW846 8021B
Methyl tert-butyl ether	106	(79 - 118)			SW846 8021B
	97	(79 - 118)	8.6	(0-27)	SW846 8021B
Xylenes (total)	112	(79 - 116)			SW846 8021B
	103	(79 - 116)	7.8	(0-46)	SW846 8021B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	102	(85 - 115)
	105	(85 - 115)

### NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.  
 Bold print denotes control parameters



# LABORATORY CONTROL SAMPLE DATA REPORT

## GC Volatiles

Client Lot #....: D8L230225      Work Order #....: K5EA11AC-LCS      Matrix.....: WATER  
 LCS Lot-Sample#: D8L310000-186      K5EA11AD-LCSD  
 Prep Date.....: 12/30/08      Analysis Date...: 12/30/08  
 Prep Batch #....: 8366186      Analysis Time...: 09:25  
 Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Chlorobenzene	20.0	21.6	ug/L	108		SW846 8021B
	20.0	19.9	ug/L	99	8.2	SW846 8021B
Benzene	20.0	22.1	ug/L	111		SW846 8021B
	20.0	20.3	ug/L	102	8.5	SW846 8021B
1,3-Dichlorobenzene	20.0	21.3	ug/L	106		SW846 8021B
	20.0	20.3	ug/L	102	4.6	SW846 8021B
Ethylbenzene	20.0	22.1	ug/L	110		SW846 8021B
	20.0	20.3	ug/L	101	8.5	SW846 8021B
1,4-Dichlorobenzene	20.0	22.0	ug/L	110		SW846 8021B
	20.0	21.1	ug/L	105	4.5	SW846 8021B
1,2-Dichlorobenzene	20.0	21.4	ug/L	107		SW846 8021B
	20.0	20.7	ug/L	103	3.6	SW846 8021B
Toluene	20.0	22.0	ug/L	110		SW846 8021B
	20.0	20.2	ug/L	101	8.5	SW846 8021B
Methyl tert-butyl ether	20.0	21.2	ug/L	106		SW846 8021B
	20.0	19.5	ug/L	97	8.6	SW846 8021B
Xylenes (total)	60.0	67.0	ug/L	112		SW846 8021B
	60.0	62.0	ug/L	103	7.8	SW846 8021B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	102	(85 - 115)
	105	(85 - 115)

### NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

# MATRIX SPIKE SAMPLE EVALUATION REPORT

## GC Volatiles

Client Lot #....: D8L230225      Work Order #....: K47WV1AE-MS      Matrix.....: WATER  
 MS Lot-Sample #: D8L230240-001      K47WV1AF-MSD  
 Date Sampled...: 12/23/08 11:50      Date Received...: 12/23/08  
 Prep Date.....: 12/30/08      Analysis Date...: 12/30/08  
 Prep Batch #....: 8366186      Analysis Time...: 12:40  
 Dilution Factor: 25

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Chlorobenzene	103	(81 - 115)			SW846 8021B
	103	(81 - 115)	0.23	(0-35)	SW846 8021B
Benzene	99	(75 - 117)			SW846 8021B
	98	(75 - 117)	0.35	(0-45)	SW846 8021B
1,3-Dichlorobenzene	102	(80 - 115)			SW846 8021B
	101	(80 - 115)	0.61	(0-35)	SW846 8021B
Ethylbenzene	104	(79 - 115)			SW846 8021B
	104	(79 - 115)	0.51	(0-46)	SW846 8021B
1,4-Dichlorobenzene	106	(79 - 115)			SW846 8021B
	106	(79 - 115)	0.03	(0-35)	SW846 8021B
1,2-Dichlorobenzene	107	(80 - 115)			SW846 8021B
	107	(80 - 115)	0.04	(0-35)	SW846 8021B
Toluene	105	(77 - 115)			SW846 8021B
	105	(77 - 115)	0.23	(0-45)	SW846 8021B
Methyl tert-butyl ether	103	(79 - 118)			SW846 8021B
	105	(79 - 118)	1.3	(0-27)	SW846 8021B
Xylenes (total)	105	(79 - 116)			SW846 8021B
	105	(79 - 116)	0.33	(0-46)	SW846 8021B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	106	(85 - 115)
	103	(85 - 115)

### NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters



# MATRIX SPIKE SAMPLE DATA REPORT

## GC Volatiles

Client Lot #....: D8L230225      Work Order #....: K47WV1AE-MS      Matrix.....: WATER  
 MS Lot-Sample #: D8L230240-001      K47WV1AF-MSD  
 Date Sampled....: 12/23/08 11:50      Date Received...: 12/23/08  
 Prep Date.....: 12/30/08      Analysis Date...: 12/30/08  
 Prep Batch #....: 8366186      Analysis Time...: 12:40  
 Dilution Factor: 25

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Chlorobenzene	ND	500	515	ug/L	103		SW846 8021B
	ND	500	514	ug/L	103	0.23	SW846 8021B
Benzene	510	500	1010	ug/L	99		SW846 8021B
	510	500	1000	ug/L	98	0.35	SW846 8021B
1,3-Dichlorobenzene	ND	500	509	ug/L	102		SW846 8021B
	ND	500	506	ug/L	101	0.61	SW846 8021B
Ethylbenzene	ND	500	522	ug/L	104		SW846 8021B
	ND	500	519	ug/L	104	0.51	SW846 8021B
1,4-Dichlorobenzene	ND	500	528	ug/L	106		SW846 8021B
	ND	500	528	ug/L	106	0.03	SW846 8021B
1,2-Dichlorobenzene	ND	500	537	ug/L	107		SW846 8021B
	ND	500	537	ug/L	107	0.04	SW846 8021B
Toluene	13	500	537	ug/L	105		SW846 8021B
	13	500	536	ug/L	105	0.23	SW846 8021B
Methyl tert-butyl ether	190	500	709	ug/L	103		SW846 8021B
	190	500	718	ug/L	105	1.3	SW846 8021B
Xylenes (total)	10	1500	1590	ug/L	105		SW846 8021B
	10	1500	1580	ug/L	105	0.33	SW846 8021B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	106	(85 - 115)
	103	(85 - 115)

### NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.  
 Bold print denotes control parameters





TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

## ANALYTICAL REPORT

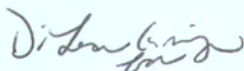
DRAGOON  
OK001499.2008.00001

Lot #: D8J100394

Eric Rainey

ARCADIS Geraghty & Miller, Inc.  
5100 East Skelly Drive  
Suite 1000  
Tulsa, OK 74135

TestAmerica Laboratories, Inc.



Donna R. Rydberg  
Project Manager

October 22, 2008

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- Chain-of-Custody



## **CASE NARRATIVE**

### **D8J100394**

The following report contains the analytical results for eight samples, submitted to TestAmerica by Arcadis from the Dragoon Site. The samples were received October 10, 2008 according to documented sample acceptance procedures.

Dilution factors and footnotes have been provided on each data sheet to assist in the interpretation of the results. In some cases, due to interference or analytes present above the linear calibration curve, samples must be analyzed at a dilution. For samples analyzed at a dilution, the reporting limits are adjusted relative to the dilution required. Dilutions made for reasons other than the presence of target compound(s) are addressed in the Supplemental QC Information section.

TestAmerica utilizes USEPA approved methods in all analytical work. The samples presented in this report were analyzed for the parameters listed on the methods summary page in accordance with the methods indicated. A summary of QC data for these analyses is included near the end of the report.

The results included in this report relate only to the samples in this report, have been reviewed for compliance with the laboratory QA/QC plan and meet all requirements of NELAC. All data have been found to be compliant with laboratory protocol, with the exception of any items noted below.

#### **Supplemental QC Information**

##### **Sample Arrival and Receipt**

The samples presented in this report were received at the laboratory in good condition and at a temperature of 3.1°C.

##### **GC Volatiles – Method 8021B**

Samples D8J100394-001, -006, and -007, were analyzed at a dilution due to high analyte content. The reporting limits were raised accordingly.

There was more than a 40% difference between the primary and confirmation column results for Benzene and/or Toluene in samples D8J100394-004, -006 and -007. The lower of the two results were reported as matrix interference was obvious. The data was flagged "COL".

The Continuing Calibration Verification (CCV) standard(s) associated with samples D8J100394-003 (DGMW-3), -004 (DGMW-4), and -006 (DGMW-6) in batch 8289420 exhibited %Difference (%D) values out of range for Toluene. The overall mean %D is within control limits; therefore, method criteria have been met and corrective action is deemed unnecessary.

No other anomalies were observed.

## EXECUTIVE SUMMARY - Detection Highlights

D8J100394

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
DGMW-1 10/10/08 08:55 001				
Benzene	160	2.5	ug/L	SW846 8021B
Ethylbenzene	11	2.5	ug/L	SW846 8021B
Toluene	110	2.5	ug/L	SW846 8021B
Xylenes (total)	99	2.5	ug/L	SW846 8021B
DGMW-3 10/10/08 10:10 003				
Xylenes (total)	1.5	0.50	ug/L	SW846 8021B
DGMW-4 10/10/08 10:50 004				
Benzene	48	0.50	ug/L	SW846 8021B
Toluene	1.9 COL	0.50	ug/L	SW846 8021B
Xylenes (total)	5.5	0.50	ug/L	SW846 8021B
DGMW-6 10/10/08 08:05 006				
Benzene	29 COL	1.0	ug/L	SW846 8021B
Ethylbenzene	86	1.0	ug/L	SW846 8021B
Xylenes (total)	250	1.0	ug/L	SW846 8021B
DGMW-7 10/10/08 11:30 007				
Benzene	110	1.2	ug/L	SW846 8021B
Ethylbenzene	12	1.2	ug/L	SW846 8021B
Toluene	6.3 COL	1.2	ug/L	SW846 8021B
Xylenes (total)	46	1.2	ug/L	SW846 8021B

## METHODS SUMMARY

D8J100394

<u>PARAMETER</u>	<u>ANALYTICAL METHOD</u>	<u>PREPARATION METHOD</u>
Volatiles by GC	SW846 8021B	SW846 5030

### References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.



## METHOD / ANALYST SUMMARY

D8J100394

<u>ANALYTICAL METHOD</u>	<u>ANALYST</u>	<u>ANALYST ID</u>
SW846 8021B	Adam Pavlakovich	003128

### References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

## SAMPLE SUMMARY

D8J100394

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
K0MCQ	001	DGMW-1	10/10/08	08:55
K0MCT	002	DGMW-2	10/10/08	09:35
K0MCV	003	DGMW-3	10/10/08	10:10
K0MCW	004	DGMW-4	10/10/08	10:50
K0MCX	005	DGMW-4A	10/10/08	07:30
K0MC0	006	DGMW-6	10/10/08	08:05
K0MC1	007	DGMW-7	10/10/08	11:30
K0MC2	008	TRIP BLANK	10/10/08	

### NOTE (S) :

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

ARCADIS U.S., Inc.

Client Sample ID: DGMW-1

GC Volatiles

Lot-Sample #....: D8J100394-001 Work Order #....: KOMCQ1AA Matrix.....: WATER  
 Date Sampled....: 10/10/08 08:55 Date Received...: 10/10/08  
 Prep Date.....: 10/13/08 Analysis Date...: 10/13/08  
 Prep Batch #....: 8288365 Analysis Time...: 22:51  
 Dilution Factor: 5  
 Method.....: SW846 8021B

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>UNITS</u>	<u>MDL</u>
Benzene	160	2.5	ug/L	1.8
Ethylbenzene	11	2.5	ug/L	0.50
Toluene	110	2.5	ug/L	0.85
Xylenes (total)	99	2.5	ug/L	0.95

<u>SURROGATE</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>RECOVERY</u> <u>LIMITS</u>
a,a,a-Trifluorotoluene (TFT)	101	(85 - 115)



ARCADIS U.S., Inc.

Client Sample ID: DGMW-2

GC Volatiles

Lot-Sample #....: D8J100394-002    Work Order #....: KOMCT1AA    Matrix.....: WATER  
 Date Sampled....: 10/10/08 09:35    Date Received...: 10/10/08  
 Prep Date.....: 10/13/08    Analysis Date...: 10/13/08  
 Prep Batch #....: 8288365    Analysis Time...: 23:15  
 Dilution Factor: 1  
 Method.....: SW846 8021B

PARAMETER	RESULT	REPORTING		
		LIMIT	UNITS	MDL
Benzene	ND	0.50	ug/L	0.35
Ethylbenzene	ND	0.50	ug/L	0.10
Toluene	ND	0.50	ug/L	0.17
Xylenes (total)	ND	0.50	ug/L	0.19
SURROGATE		PERCENT	RECOVERY	
		RECOVERY	LIMITS	
a,a,a-Trifluorotoluene (TFT)		106	(85 - 115)	

ARCADIS U.S., Inc.

Client Sample ID: DGMW-3

GC Volatiles

Lot-Sample #...: D8J100394-003    Work Order #...: KOMCV1AA    Matrix.....: WATER  
 Date Sampled...: 10/10/08 10:10    Date Received...: 10/10/08  
 Prep Date.....: 10/14/08    Analysis Date...: 10/14/08  
 Prep Batch #...: 8289420    Analysis Time...: 16:17  
 Dilution Factor: 1  
 Method.....: SW846 8021B

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u>		
		<u>LIMIT</u>	<u>UNITS</u>	<u>MDL</u>
Benzene	ND	0.50	ug/L	0.35
Ethylbenzene	ND	0.50	ug/L	0.10
Toluene	ND	0.50	ug/L	0.17
Xylenes (total)	1.5	0.50	ug/L	0.19

<u>SURROGATE</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>RECOVERY</u> <u>LIMITS</u>
a,a,a-Trifluorotoluene (TFT)	101	(85 - 115)

ARCADIS U.S., Inc.

Client Sample ID: DGMW-4

GC Volatiles

Lot-Sample #....: D8J100394-004    Work Order #....: KOMCW1AA    Matrix.....: WATER  
 Date Sampled....: 10/10/08 10:50    Date Received...: 10/10/08  
 Prep Date.....: 10/14/08    Analysis Date...: 10/14/08  
 Prep Batch #....: 8289420    Analysis Time...: 16:40  
 Dilution Factor: 1  
 Method.....: SW846 8021B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzene	48	0.50	ug/L	0.35
Ethylbenzene	ND	0.50	ug/L	0.10
Toluene	1.9 COL	0.50	ug/L	0.17
Xylenes (total)	5.5	0.50	ug/L	0.19

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	106	(85 - 115)

NOTE(S) :

COL More than 40% RPD between primary    and confirmation column results. The lower of the two results is reported.



ARCADIS U.S., Inc.

Client Sample ID: DGMW-4A

GC Volatiles

Lot-Sample #....: D8J100394-005    Work Order #....: KOMCX1AA    Matrix.....: WATER  
 Date Sampled....: 10/10/08 07:30    Date Received...: 10/10/08  
 Prep Date.....: 10/13/08    Analysis Date...: 10/14/08  
 Prep Batch #....: 8288365    Analysis Time...: 00:47  
 Dilution Factor: 1  
 Method.....: SW846 8021B

PARAMETER	RESULT	REPORTING		
		LIMIT	UNITS	MDL
Benzene	ND	0.50	ug/L	0.35
Ethylbenzene	ND	0.50	ug/L	0.10
Toluene	ND	0.50	ug/L	0.17
Xylenes (total)	ND	0.50	ug/L	0.19
SURROGATE		PERCENT	RECOVERY	
		RECOVERY	LIMITS	
a,a,a-Trifluorotoluene (TFT)		109	(85 - 115)	

ARCADIS U.S., Inc.

Client Sample ID: DGMW-6

GC Volatiles

Lot-Sample #...: D8J100394-006 Work Order #...: KOMC01AA Matrix.....: WATER  
 Date Sampled...: 10/10/08 08:05 Date Received...: 10/10/08  
 Prep Date.....: 10/14/08 Analysis Date...: 10/14/08  
 Prep Batch #...: 8289420 Analysis Time...: 17:03  
 Dilution Factor: 2  
 Method.....: SW846 8021B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzene	29 COL	1.0	ug/L	0.70
Ethylbenzene	86	1.0	ug/L	0.20
Toluene	ND	1.0	ug/L	0.34
Xylenes (total)	250	1.0	ug/L	0.38

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	92	(85 - 115)

**NOTE(S):**

COL More than 40% RPD between primary and confirmation column results. The lower of the two results is reported.

ARCADIS U.S., Inc.

Client Sample ID: DGMW-7

GC Volatiles

Lot-Sample #...: D8J100394-007 Work Order #...: KOMC11AA Matrix.....: WATER  
 Date Sampled...: 10/10/08 11:30 Date Received...: 10/10/08  
 Prep Date.....: 10/13/08 Analysis Date...: 10/14/08  
 Prep Batch #...: 8288365 Analysis Time...: 01:34  
 Dilution Factor: 2.5  
 Method.....: SW846 8021B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzene	110	1.2	ug/L	0.88
Ethylbenzene	12	1.2	ug/L	0.25
Toluene	6.3 COL	1.2	ug/L	0.42
Xylenes (total)	46	1.2	ug/L	0.48

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	105	(85 - 115)

NOTE(S):

COL More than 40% RPD between primary and confirmation column results. The lower of the two results is reported.



ARCADIS U.S., Inc.

Client Sample ID: TRIP BLANK

GC Volatiles

Lot-Sample #....: D8J100394-008    Work Order #....: KOMC21AA    Matrix.....: WATER  
 Date Sampled....: 10/10/08    Date Received...: 10/10/08  
 Prep Date.....: 10/13/08    Analysis Date...: 10/14/08  
 Prep Batch #....: 8288365    Analysis Time...: 01:57  
 Dilution Factor: 1  
 Method.....: SW846 8021B

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>MDL</u>
Benzene	ND	0.50	ug/L	0.35
Ethylbenzene	ND	0.50	ug/L	0.10
Toluene	ND	0.50	ug/L	0.17
Xylenes (total)	ND	0.50	ug/L	0.19

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
a,a,a-Trifluorotoluene (TFT)	107	(85 - 115)

## QC DATA ASSOCIATION SUMMARY

D8J100394

Sample Preparation and Analysis Control Numbers

<u>SAMPLE#</u>	<u>MATRIX</u>	<u>ANALYTICAL METHOD</u>	<u>LEACH BATCH #</u>	<u>PREP BATCH #</u>	<u>MS RUN#</u>
001	WATER	SW846 8021B		8288365	8288240
002	WATER	SW846 8021B		8288365	8288240
003	WATER	SW846 8021B		8289420	8289261
004	WATER	SW846 8021B		8289420	8289261
005	WATER	SW846 8021B		8288365	8288240
006	WATER	SW846 8021B		8289420	8289261
007	WATER	SW846 8021B		8288365	8288240
008	WATER	SW846 8021B		8288365	8288240

# METHOD BLANK REPORT

## GC Volatiles

Client Lot #...: D8J100394  
MB Lot-Sample #: D8J140000-365

Work Order #...: K07NK1AA

Matrix.....: WATER

Analysis Date...: 10/13/08

Prep Date.....: 10/13/08

Analysis Time...: 19:43

Dilution Factor: 1

Prep Batch #...: 8288365

PARAMETER	RESULT	REPORTING		
		LIMIT	UNITS	METHOD
Benzene	ND	0.50	ug/L	SW846 8021B
Ethylbenzene	ND	0.50	ug/L	SW846 8021B
Toluene	ND	0.50	ug/L	SW846 8021B
Xylenes (total)	ND	0.50	ug/L	SW846 8021B

SURROGATE	PERCENT	RECOVERY
	RECOVERY	LIMITS
a,a,a-Trifluorotoluene (TFT)	104	(85 - 115)

### NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.



# METHOD BLANK REPORT

## GC Volatiles

Client Lot #...: D8J100394  
 MB Lot-Sample #: D8J150000-420

Work Order #...: K0W451AA

Matrix.....: WATER

Analysis Date...: 10/14/08  
 Dilution Factor: 1

Prep Date.....: 10/14/08

Analysis Time...: 15:23

Prep Batch #...: 8289420

PARAMETER	RESULT	REPORTING		
		LIMIT	UNITS	METHOD
Benzene	ND	0.50	ug/L	SW846 8021B
Ethylbenzene	ND	0.50	ug/L	SW846 8021B
Toluene	ND	0.50	ug/L	SW846 8021B
Xylenes (total)	ND	0.50	ug/L	SW846 8021B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	100	(85 - 115)

### NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

# LABORATORY CONTROL SAMPLE EVALUATION REPORT

## GC Volatiles

Client Lot #...: D8J100394      Work Order #...: K0TNK1AC-LCS      Matrix.....: WATER  
 LCS Lot-Sample#: D8J140000-365      K0TNK1AD-LCSD  
 Prep Date.....: 10/13/08      Analysis Date...: 10/13/08  
 Prep Batch #...: 8288365      Analysis Time...: 18:57  
 Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Chlorobenzene	98	(81 - 115)			SW846 8021B
	96	(81 - 115)	2.1	(0-35)	SW846 8021B
Benzene	96	(75 - 117)			SW846 8021B
	95	(75 - 117)	1.3	(0-45)	SW846 8021B
1,3-Dichlorobenzene	102	(80 - 115)			SW846 8021B
	99	(80 - 115)	3.4	(0-35)	SW846 8021B
Ethylbenzene	102	(79 - 115)			SW846 8021B
	100	(79 - 115)	2.5	(0-46)	SW846 8021B
1,4-Dichlorobenzene	100	(79 - 115)			SW846 8021B
	97	(79 - 115)	3.4	(0-35)	SW846 8021B
1,2-Dichlorobenzene	100	(80 - 115)			SW846 8021B
	99	(80 - 115)	1.3	(0-35)	SW846 8021B
Toluene	98	(77 - 115)			SW846 8021B
	95	(77 - 115)	3.5	(0-45)	SW846 8021B
Methyl tert-butyl ether	97	(79 - 118)			SW846 8021B
	95	(79 - 118)	2.8	(0-27)	SW846 8021B
Xylenes (total)	103	(79 - 116)			SW846 8021B
	100	(79 - 116)	3.3	(0-46)	SW846 8021B
Naphthalene	108	(70 - 130)			SW846 8021B
	105	(70 - 130)	3.1	(0-20)	SW846 8021B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	110	(85 - 115)
	106	(85 - 115)

### NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.  
 Bold print denotes control parameters

# LABORATORY CONTROL SAMPLE DATA REPORT

## GC Volatiles

Client Lot #....: D8J100394      Work Order #....: K0TNK1AC-LCS      Matrix.....: WATER  
 LCS Lot-Sample#: D8J140000-365      K0TNK1AD-LCSD  
 Prep Date.....: 10/13/08      Analysis Date...: 10/13/08  
 Prep Batch #....: 8288365      Analysis Time...: 18:57  
 Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Chlorobenzene	20.0	19.6	ug/L	98		SW846 8021B
	20.0	19.2	ug/L	96	2.1	SW846 8021B
Benzene	20.0	19.3	ug/L	96		SW846 8021B
	20.0	19.0	ug/L	95	1.3	SW846 8021B
1,3-Dichlorobenzene	20.0	20.4	ug/L	102		SW846 8021B
	20.0	19.8	ug/L	99	3.4	SW846 8021B
Ethylbenzene	20.0	20.5	ug/L	102		SW846 8021B
	20.0	20.0	ug/L	100	2.5	SW846 8021B
1,4-Dichlorobenzene	20.0	20.1	ug/L	100		SW846 8021B
	20.0	19.4	ug/L	97	3.4	SW846 8021B
1,2-Dichlorobenzene	20.0	20.1	ug/L	100		SW846 8021B
	20.0	19.8	ug/L	99	1.3	SW846 8021B
Toluene	20.0	19.6	ug/L	98		SW846 8021B
	20.0	18.9	ug/L	95	3.5	SW846 8021B
Methyl tert-butyl ether	20.0	19.5	ug/L	97		SW846 8021B
	20.0	19.0	ug/L	95	2.8	SW846 8021B
Xylenes (total)	60.0	62.0	ug/L	103		SW846 8021B
	60.0	60.0	ug/L	100	3.3	SW846 8021B
Naphthalene	20.0	21.7	ug/L	108		SW846 8021B
	20.0	21.0	ug/L	105	3.1	SW846 8021B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	110	(85 - 115)
	106	(85 - 115)

### NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.  
 Bold print denotes control parameters



# LABORATORY CONTROL SAMPLE EVALUATION REPORT

## GC Volatiles

Client Lot #...: D8J100394      Work Order #...: KOW451AC-LCS      Matrix.....: WATER  
 LCS Lot-Sample#: D8J150000-420      KOW451AD-LCSD  
 Prep Date.....: 10/14/08      Analysis Date...: 10/14/08  
 Prep Batch #...: 8289420      Analysis Time...: 14:36  
 Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Chlorobenzene	101	(81 - 115)			SW846 8021B
	93	(81 - 115)	8.3	(0-35)	SW846 8021B
Benzene	100	(75 - 117)			SW846 8021B
	89	(75 - 117)	11	(0-45)	SW846 8021B
1,3-Dichlorobenzene	106	(80 - 115)			SW846 8021B
	96	(80 - 115)	9.8	(0-35)	SW846 8021B
Ethylbenzene	105	(79 - 115)			SW846 8021B
	95	(79 - 115)	9.9	(0-46)	SW846 8021B
1,4-Dichlorobenzene	101	(79 - 115)			SW846 8021B
	95	(79 - 115)	6.5	(0-35)	SW846 8021B
1,2-Dichlorobenzene	103	(80 - 115)			SW846 8021B
	97	(80 - 115)	5.5	(0-35)	SW846 8021B
Toluene	100	(77 - 115)			SW846 8021B
	91	(77 - 115)	10	(0-45)	SW846 8021B
Methyl tert-butyl ether	100	(79 - 118)			SW846 8021B
	94	(79 - 118)	6.7	(0-27)	SW846 8021B
Xylenes (total)	104	(79 - 116)			SW846 8021B
	96	(79 - 116)	8.8	(0-46)	SW846 8021B
Naphthalene	118	(70 - 130)			SW846 8021B
	109	(70 - 130)	7.9	(0-20)	SW846 8021B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	107	(85 - 115)
	108	(85 - 115)

### NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.  
 Bold print denotes control parameters

# LABORATORY CONTROL SAMPLE DATA REPORT

## GC Volatiles

Client Lot #...: D8J100394      Work Order #...: KOW451AC-LCS      Matrix.....: WATER  
 LCS Lot-Sample#: D8J150000-420      KOW451AD-LCSD  
 Prep Date.....: 10/14/08      Analysis Date...: 10/14/08  
 Prep Batch #...: 8289420      Analysis Time...: 14:36  
 Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Chlorobenzene	20.0	20.2	ug/L	101		SW846 8021B
	20.0	18.6	ug/L	93	8.3	SW846 8021B
Benzene	20.0	19.9	ug/L	100		SW846 8021B
	20.0	17.8	ug/L	89	11	SW846 8021B
1,3-Dichlorobenzene	20.0	21.1	ug/L	106		SW846 8021B
	20.0	19.1	ug/L	96	9.8	SW846 8021B
Ethylbenzene	20.0	21.1	ug/L	105		SW846 8021B
	20.0	19.1	ug/L	95	9.9	SW846 8021B
1,4-Dichlorobenzene	20.0	20.2	ug/L	101		SW846 8021B
	20.0	19.0	ug/L	95	6.5	SW846 8021B
1,2-Dichlorobenzene	20.0	20.6	ug/L	103		SW846 8021B
	20.0	19.5	ug/L	97	5.5	SW846 8021B
Toluene	20.0	20.1	ug/L	100		SW846 8021B
	20.0	18.1	ug/L	91	10	SW846 8021B
Methyl tert-butyl ether	20.0	20.1	ug/L	100		SW846 8021B
	20.0	18.8	ug/L	94	6.7	SW846 8021B
Xylenes (total)	60.0	62.6	ug/L	104		SW846 8021B
	60.0	57.3	ug/L	96	8.8	SW846 8021B
Naphthalene	20.0	23.6	ug/L	118		SW846 8021B
	20.0	21.8	ug/L	109	7.9	SW846 8021B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	107	(85 - 115)
	108	(85 - 115)

### NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters



# MATRIX SPIKE SAMPLE EVALUATION REPORT

## GC Volatiles

Client Lot #...: D8J100394      Work Order #...: K0CVT1AE-MS      Matrix.....: WATER  
 MS Lot-Sample #: D8J070301-017      K0CVT1AF-MSD  
 Date Sampled...: 10/06/08 12:25      Date Received...: 10/07/08  
 Prep Date.....: 10/13/08      Analysis Date...: 10/13/08  
 Prep Batch #...: 8288365      Analysis Time...: 21:18  
 Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Chlorobenzene	93	(81 - 115)			SW846 8021B
	96	(81 - 115)	3.6	(0-35)	SW846 8021B
Benzene	92	(75 - 117)			SW846 8021B
	95	(75 - 117)	4.2	(0-45)	SW846 8021B
1,3-Dichlorobenzene	89	(80 - 115)			SW846 8021B
	91	(80 - 115)	2.6	(0-35)	SW846 8021B
Ethylbenzene	98	(79 - 115)			SW846 8021B
	99	(79 - 115)	1.7	(0-46)	SW846 8021B
1,4-Dichlorobenzene	95	(79 - 115)			SW846 8021B
	97	(79 - 115)	2.3	(0-35)	SW846 8021B
1,2-Dichlorobenzene	95	(80 - 115)			SW846 8021B
	99	(80 - 115)	5.0	(0-35)	SW846 8021B
Toluene	92	(77 - 115)			SW846 8021B
	97	(77 - 115)	5.0	(0-45)	SW846 8021B
Methyl tert-butyl ether	95	(79 - 118)			SW846 8021B
	97	(79 - 118)	2.0	(0-27)	SW846 8021B
Xylenes (total)	97	(79 - 116)			SW846 8021B
	100	(79 - 116)	3.3	(0-46)	SW846 8021B
Naphthalene	115	(70 - 130)			SW846 8021B
	119	(70 - 130)	2.9	(0-20)	SW846 8021B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	107	(85 - 115)
	108	(85 - 115)

### NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters



# MATRIX SPIKE SAMPLE DATA REPORT

## GC Volatiles

Client Lot #...: D8J100394      Work Order #...: K0CVT1AE-MS      Matrix.....: WATER  
 MS Lot-Sample #: D8J070301-017      K0CVT1AF-MSD  
 Date Sampled...: 10/06/08 12:25      Date Received...: 10/07/08  
 Prep Date.....: 10/13/08      Analysis Date...: 10/13/08  
 Prep Batch #...: 8288365      Analysis Time...: 21:18  
 Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECVRY	RPD	METHOD
Chlorobenzene	ND	20.0	18.6	ug/L	93		SW846 8021B
	ND	20.0	19.3	ug/L	96	3.6	SW846 8021B
Benzene	ND	20.0	18.3	ug/L	92		SW846 8021B
	ND	20.0	19.1	ug/L	95	4.2	SW846 8021B
1,3-Dichlorobenzene	1.4	20.0	19.2	ug/L	89		SW846 8021B
	1.4	20.0	19.7	ug/L	91	2.6	SW846 8021B
Ethylbenzene	ND	20.0	19.5	ug/L	98		SW846 8021B
	ND	20.0	19.8	ug/L	99	1.7	SW846 8021B
1,4-Dichlorobenzene	ND	20.0	19.0	ug/L	95		SW846 8021B
	ND	20.0	19.4	ug/L	97	2.3	SW846 8021B
1,2-Dichlorobenzene	ND	20.0	18.9	ug/L	95		SW846 8021B
	ND	20.0	19.9	ug/L	99	5.0	SW846 8021B
Toluene	ND	20.0	18.5	ug/L	92		SW846 8021B
	ND	20.0	19.4	ug/L	97	5.0	SW846 8021B
Methyl tert-butyl ether	ND	20.0	18.9	ug/L	95		SW846 8021B
	ND	20.0	19.3	ug/L	97	2.0	SW846 8021B
Xylenes (total)	ND	60.0	58.0	ug/L	97		SW846 8021B
	ND	60.0	59.9	ug/L	100	3.3	SW846 8021B
Naphthalene	ND	20.0	23.0	ug/L	115		SW846 8021B
	ND	20.0	23.7	ug/L	119	2.9	SW846 8021B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	107	(85 - 115)
	108	(85 - 115)

### NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.  
 Bold print denotes control parameters

# MATRIX SPIKE SAMPLE EVALUATION REPORT

## GC Volatiles

Client Lot #....: D8J100394      Work Order #....: KOMD21AC-MS      Matrix.....: WATER  
 MS Lot-Sample #: D8J100398-010      KOMD21AD-MSD  
 Date Sampled....: 10/09/08 13:45      Date Received...: 10/10/08  
 Prep Date.....: 10/14/08      Analysis Date...: 10/14/08  
 Prep Batch #....: 8289420      Analysis Time...: 20:10  
 Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Chlorobenzene	93	(81 - 115)			SW846 8021B
	87	(81 - 115)	6.9	(0-35)	SW846 8021B
Benzene	95	(75 - 117)			SW846 8021B
	89	(75 - 117)	6.5	(0-45)	SW846 8021B
1,3-Dichlorobenzene	97	(80 - 115)			SW846 8021B
	88	(80 - 115)	9.6	(0-35)	SW846 8021B
Ethylbenzene	95	(79 - 115)			SW846 8021B
	88	(79 - 115)	8.1	(0-46)	SW846 8021B
1,4-Dichlorobenzene	94	(79 - 115)			SW846 8021B
	88	(79 - 115)	6.9	(0-35)	SW846 8021B
1,2-Dichlorobenzene	97	(80 - 115)			SW846 8021B
	89	(80 - 115)	9.0	(0-35)	SW846 8021B
Toluene	91	(77 - 115)			SW846 8021B
	87	(77 - 115)	5.2	(0-45)	SW846 8021B
Methyl tert-butyl ether	98	(79 - 118)			SW846 8021B
	92	(79 - 118)	6.0	(0-27)	SW846 8021B
Xylenes (total)	96	(79 - 116)			SW846 8021B
	89	(79 - 116)	7.2	(0-46)	SW846 8021B
Naphthalene	117	(70 - 130)			SW846 8021B
	102	(70 - 130)	13	(0-20)	SW846 8021B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	106	(85 - 115)
	104	(85 - 115)

### NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.  
 Bold print denotes control parameters



# MATRIX SPIKE SAMPLE DATA REPORT

## GC Volatiles

Client Lot #...: D8J100394      Work Order #...: KOMD21AC-MS      Matrix.....: WATER  
 MS Lot-Sample #: D8J100398-010      KOMD21AD-MSD  
 Date Sampled...: 10/09/08 13:45      Date Received...: 10/10/08  
 Prep Date.....: 10/14/08      Analysis Date...: 10/14/08  
 Prep Batch #...: 8289420      Analysis Time...: 20:10  
 Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Chlorobenzene	ND	20.0	18.6	ug/L	93		SW846 8021B
	ND	20.0	17.4	ug/L	87	6.9	SW846 8021B
Benzene	ND	20.0	18.9	ug/L	95		SW846 8021B
	ND	20.0	17.7	ug/L	89	6.5	SW846 8021B
1,3-Dichlorobenzene	ND	20.0	19.4	ug/L	97		SW846 8021B
	ND	20.0	17.6	ug/L	88	9.6	SW846 8021B
Ethylbenzene	ND	20.0	19.1	ug/L	95		SW846 8021B
	ND	20.0	17.6	ug/L	88	8.1	SW846 8021B
1,4-Dichlorobenzene	ND	20.0	18.8	ug/L	94		SW846 8021B
	ND	20.0	17.5	ug/L	88	6.9	SW846 8021B
1,2-Dichlorobenzene	ND	20.0	19.4	ug/L	97		SW846 8021B
	ND	20.0	17.7	ug/L	89	9.0	SW846 8021B
Toluene	ND	20.0	18.2	ug/L	91		SW846 8021B
	ND	20.0	17.3	ug/L	87	5.2	SW846 8021B
Methyl tert-butyl ether	ND	20.0	19.5	ug/L	98		SW846 8021B
	ND	20.0	18.4	ug/L	92	6.0	SW846 8021B
Xylenes (total)	ND	60.0	57.6	ug/L	96		SW846 8021B
	ND	60.0	53.7	ug/L	89	7.2	SW846 8021B
Naphthalene	ND	20.0	23.3	ug/L	117		SW846 8021B
	ND	20.0	20.5	ug/L	102	13	SW846 8021B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	106	(85 - 115)
	104	(85 - 115)

### NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.  
 Bold print denotes control parameters