

June 09, 2009

LABORATORY REPORT

Client:

Cedar Rapids Water Cedar Rapids
7525 Bertram Road, SE
Cedar Rapids, IA 52403
Attn: Mark Ultis

Work Order: LSE0259
Project Name: CRWPC
Project Number: [none]
Date Received: 05/29/09

TestAmerica Los Angeles certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the Corrective Action Report. NELAC Certification Number for TestAmerica Los Angeles is E87652. The test results listed within this Laboratory Report pertain only to the samples tested in the laboratory. This Laboratory Report is confidential and is intended for the sole use of TestAmerica and its client. This report shall not be reproduced, except in full, without written permission from TestAmerica.

The Chain of Custody, 1 page, is included and is an integral part of this report. This entire report was reviewed and approved for release.

If you have any questions relating to this analytical report, please contact your Laboratory Project Manager at 714-258-8610.

Analyses included in this report were performed by the laboratory shown at the top of this report unless otherwise indicated.

Approved By:



Marisol Tabirara
Project Manager

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

3585 Cadillac Avenue, Suite A Costa Mesa, CA 92626 * 714-258-8610 * Fax 714-258-0921

Cedar Rapids Water Cedar Rapids
7525 Bertram Road, SE
Cedar Rapids, IA 52403
Mark Ultis

Work Order: LSE0259
Project: CRWPC
Project Number: [none]

Received: 05/29/09 09:45
Reported: 06/09/09 17:50

SAMPLE IDENTIFICATION

LAB NUMBER

COLLECTION

MATRIX

CONTAINER TYPE

SCRUBBED BIOGAS

LSE0259-01

05/28/09 14:45

Air

Tedlar Bag 1L

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ANALYTICAL REPORT

Analyte	Result	Data Qualifiers	Units	RL	Dilution	Date Analyzed	Instrument	Analyst	QC Batch
Sample ID: LSE0259-01 (SCRUBBED BIOGAS - Air)						Sampled: 05/28/09 14:45			
ASTM D1946 - Fixed Gases									
Carbon dioxide	17		%(v/v)	0.010	1.0	05/29/09 13:16	GC8	ei	9E29003
Carbon monoxide	ND		%(v/v)	0.0010	1.0	05/29/09 13:16	GC8	ei	9E29003
Methane	71		%(v/v)	0.00020	1.0	05/29/09 13:16	GC8	ei	9E29003
Oxygen	2.6		%(v/v)	0.20	1.0	05/29/09 13:16	GC8	ei	9E29003
Nitrogen	11		%(v/v)	1.0	1.0	05/29/09 13:16	GC8	ei	9E29003
ASTM D3588 - Heat of Combustion & Specific Gravity									
Heat of Combustion	710		BTU/ft3	0.10	1.0	05/29/09 13:16	GC7	TD	9F05002
EPA 15/16 - Sulfur Compounds									
Carbon disulfide	4.2		ppmv	0.50	5.0	05/29/09 14:21	GC7	TD	9E30002
Carbonyl sulfide	0.97		ppmv	0.10	1.0	05/29/09 13:35	GC7	TD	9E30002
Dimethyl disulfide	0.43		ppmv	0.10	1.0	05/29/09 13:35	GC7	TD	9E30002
Dimethyl sulfide	ND		ppmv	0.10	1.0	05/29/09 13:35	GC7	TD	9E30002
Hydrogen sulfide	2.6		ppmv	0.50	5.0	05/29/09 14:21	GC7	TD	9E30002
Ethyl mercaptan	0.12		ppmv	0.10	1.0	05/29/09 13:35	GC7	TD	9E30002
Methyl mercaptan	0.70		ppmv	0.10	1.0	05/29/09 13:35	GC7	TD	9E30002
EPA TO3 - Volatile Organic Compounds by GC									
C2	ND		ppmv	0.50	1.0	05/29/09 16:48	GC7	TD	9F05003
C3	1.1		ppmv	0.10	1.0	05/29/09 16:48	GC7	TD	9F05003
C4	0.67		ppmv	0.10	1.0	05/29/09 16:48	GC7	TD	9F05003
C5	0.29		ppmv	0.10	1.0	05/29/09 16:48	GC7	TD	9F05003
C6	0.18		ppmv	0.10	1.0	05/29/09 16:48	GC7	TD	9F05003
C7	ND		ppmv	0.10	1.0	05/29/09 16:48	GC7	TD	9F05003
C8	0.23		ppmv	0.10	1.0	05/29/09 16:48	GC7	TD	9F05003
C9	ND		ppmv	0.10	1.0	05/29/09 16:48	GC7	TD	9F05003
C10+	1.8		ppmv	0.50	1.0	05/29/09 16:48	GC7	TD	9F05003

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PROJECT QUALITY CONTROL DATA

Blank

Analyte	Result	Data Qualifier	Units	RL	Dilution	Date Analyzed	Instrument	Analyst	QC Batch
Sample ID: 9E29003-BLK1 (Blank - Air)									
ASTM D1946 - Fixed Gases									
Carbon dioxide	ND		%(v/v)	0.010	1.00	05/29/09 0:53	GC8	ei	9E29003
Carbon monoxide	ND		%(v/v)	0.0010	1.00	05/29/09 0:53	GC8	ei	9E29003
Methane	ND		%(v/v)	0.00020	1.00	05/29/09 0:53	GC8	ei	9E29003
Oxygen	ND		%(v/v)	0.20	1.00	05/29/09 0:53	GC8	ei	9E29003
Nitrogen	ND		%(v/v)	1.0	1.00	05/29/09 0:53	GC8	ei	9E29003
Sample ID: 9E30002-BLK1 (Blank - Air)									
EPA 15/16 - Sulfur Compounds									
Carbon disulfide	ND		ppmv	0.10	1.00	05/29/09 13:17	GC7	TD	9E30002
Carbonyl sulfide	ND		ppmv	0.10	1.00	05/29/09 13:17	GC7	TD	9E30002
Dimethyl disulfide	ND		ppmv	0.10	1.00	05/29/09 13:17	GC7	TD	9E30002
Dimethyl sulfide	ND		ppmv	0.10	1.00	05/29/09 13:17	GC7	TD	9E30002
Hydrogen sulfide	ND		ppmv	0.10	1.00	05/29/09 13:17	GC7	TD	9E30002
Ethyl mercaptan	ND		ppmv	0.10	1.00	05/29/09 13:17	GC7	TD	9E30002
Methyl mercaptan	ND		ppmv	0.10	1.00	05/29/09 13:17	GC7	TD	9E30002
Sample ID: 9F05003-BLK1 (Blank - Air)									
EPA TO3 - Volatile Organic Compounds by GC									
C2	ND		ppmv	0.50	1.00	05/29/09 16:23	GC7	TD	9F05003
C3	ND		ppmv	0.10	1.00	05/29/09 16:23	GC7	TD	9F05003
C4	ND		ppmv	0.10	1.00	05/29/09 16:23	GC7	TD	9F05003
C5	ND		ppmv	0.10	1.00	05/29/09 16:23	GC7	TD	9F05003
C6	ND		ppmv	0.10	1.00	05/29/09 16:23	GC7	TD	9F05003
C7	ND		ppmv	0.10	1.00	05/29/09 16:23	GC7	TD	9F05003
C8	ND		ppmv	0.10	1.00	05/29/09 16:23	GC7	TD	9F05003
C9	ND		ppmv	0.10	1.00	05/29/09 16:23	GC7	TD	9F05003
C10+	ND		ppmv	0.50	1.00	05/29/09 16:23	GC7	TD	9F05003

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Reported: 06/09/09 17:50

PROJECT QUALITY CONTROL DATA

LCS

Analyte	Result	Data Qualifiers	Units	RL	Dilution	Spike Conc	% Rec	Target Range	Instrument	Date Analyzed	QC Batch
Sample ID: 9E29003-BS1 (LCS - Air)											
ASTM D1946 - Fixed Gases											
Carbon dioxide	1.10		%(v/v)	0.010	1.00	0.998	110%	75 - 125	GC8	05/29/09 00:00	9E29003
Carbon monoxide	0.0485		%(v/v)	0.0010	1.00	0.0455	107%	70 - 130	GC8	05/29/09 00:00	9E29003
Methane	0.0518		%(v/v)	0.00020	1.00	0.0500	104%	75 - 135	GC8	05/29/09 00:00	9E29003
Oxygen	5.35		%(v/v)	0.20	1.00	4.98	107%	70 - 130	GC8	05/29/09 00:00	9E29003
Nitrogen	25.8		%(v/v)	1.0	1.00	24.3	106%	70 - 130	GC8	05/29/09 00:00	9E29003
Sample ID: 9E30002-BS1 (LCS - Air)											
EPA 15/16 - Sulfur Compounds											
Carbon disulfide	0.949		ppmv	0.10	1.00	0.950	100%	70 - 120	GC7	05/29/09 12:41	9E30002
Carbonyl sulfide	1.05		ppmv	0.10	1.00	1.03	102%	75 - 140	GC7	05/29/09 12:41	9E30002
Dimethyl disulfide	0.300		ppmv	0.10	1.00	0.300	100%	70 - 130	GC7	05/29/09 12:41	9E30002
Dimethyl sulfide	0.975		ppmv	0.10	1.00	0.985	99%	70 - 130	GC7	05/29/09 12:41	9E30002
Hydrogen sulfide	0.793		ppmv	0.10	1.00	0.980	81%	60 - 130	GC7	05/29/09 12:41	9E30002
Ethyl mercaptan	0.766		ppmv	0.10	1.00	0.890	86%	70 - 130	GC7	05/29/09 12:41	9E30002
Methyl mercaptan	0.844		ppmv	0.10	1.00	0.930	91%	75 - 130	GC7	05/29/09 12:41	9E30002
Sample ID: 9F05003-BS1 (LCS - Air)											
EPA TO3 - Volatile Organic Compounds by GC											
C2	5.91		ppmv	0.50	1.00	5.57	106%	70 - 130	GC7	05/29/09 15:29	9F05003
C3	3.91		ppmv	0.10	1.00	3.74	105%	70 - 130	GC7	05/29/09 15:29	9F05003
C4	3.00		ppmv	0.10	1.00	2.77	108%	70 - 130	GC7	05/29/09 15:29	9F05003
C5	2.46		ppmv	0.10	1.00	2.27	108%	70 - 130	GC7	05/29/09 15:29	9F05003
C6	2.09		ppmv	0.10	1.00	1.87	112%	70 - 130	GC7	05/29/09 15:29	9F05003
C7	1.72		ppmv	0.10	1.00	1.57	109%	70 - 130	GC7	05/29/09 15:29	9F05003
C8	1.48		ppmv	0.10	1.00	1.39	106%	70 - 130	GC7	05/29/09 15:29	9F05003
C9	0.662		ppmv	0.10	1.00	0.603	110%	70 - 130	GC7	05/29/09 15:29	9F05003
C10+	0.147		ppmv	0.50	1.00	0.137	107%	70 - 130	GC7	05/29/09 15:29	9F05003

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Project Number: [none]

PROJECT QUALITY CONTROL DATA

LCS Dup

Analyte	Result	Data		RL	Dilution	Spike		Target			Date Analyzed	QC Batch
		Qualifiers	Units			Conc	% Rec	Range	RPD	Limit		
Sample ID: 9E29003-BSD1 (LCS Dup - Air)												
ASTM D1946 - Fixed Gases												
Carbon dioxide	1.10		%(v/v)	0.010	1.00	0.998	110%	75 - 125	0.009	20	05/29/09 00:26	9E29003
Carbon monoxide	0.0483		%(v/v)	0.0010	1.00	0.0455	106%	70 - 130	0.3	30	05/29/09 00:26	9E29003
Methane	0.0517		%(v/v)	0.00020	1.00	0.0500	103%	75 - 135	0.3	20	05/29/09 00:26	9E29003
Oxygen	5.34		%(v/v)	0.20	1.00	4.98	107%	70 - 130	0.2	30	05/29/09 00:26	9E29003
Nitrogen	25.8		%(v/v)	1.0	1.00	24.3	106%	70 - 130	0	30	05/29/09 00:26	9E29003
Sample ID: 9E30002-BSD1 (LCS Dup - Air)												
EPA 15/16 - Sulfur Compounds												
Carbon disulfide	0.971		ppmv	0.10	1.00	0.950	102%	70 - 120	2	25	05/29/09 12:59	9E30002
Carbonyl sulfide	1.08		ppmv	0.10	1.00	1.03	105%	75 - 140	2	25	05/29/09 12:59	9E30002
Dimethyl disulfide	0.307		ppmv	0.10	1.00	0.300	102%	70 - 130	3	30	05/29/09 12:59	9E30002
Dimethyl sulfide	1.01		ppmv	0.10	1.00	0.985	102%	70 - 130	3	30	05/29/09 12:59	9E30002
Hydrogen sulfide	0.807		ppmv	0.10	1.00	0.980	82%	60 - 130	2	25	05/29/09 12:59	9E30002
Ethyl mercaptan	0.794		ppmv	0.10	1.00	0.890	89%	70 - 130	4	30	05/29/09 12:59	9E30002
Methyl mercaptan	0.869		ppmv	0.10	1.00	0.930	93%	75 - 130	3	25	05/29/09 12:59	9E30002
Sample ID: 9F05003-BSD1 (LCS Dup - Air)												
EPA TO3 - Volatile Organic Compounds by GC												
C2	5.85		ppmv	0.50	1.00	5.57	105%	70 - 130	0.9	30	05/29/09 15:53	9F05003
C3	3.89		ppmv	0.10	1.00	3.74	104%	70 - 130	0.6	30	05/29/09 15:53	9F05003
C4	3.00		ppmv	0.10	1.00	2.77	108%	70 - 130	0.1	30	05/29/09 15:53	9F05003
C5	2.44		ppmv	0.10	1.00	2.27	107%	70 - 130	0.8	30	05/29/09 15:53	9F05003
C6	2.06		ppmv	0.10	1.00	1.87	110%	70 - 130	2	30	05/29/09 15:53	9F05003
C7	1.68		ppmv	0.10	1.00	1.57	107%	70 - 130	2	30	05/29/09 15:53	9F05003
C8	1.44		ppmv	0.10	1.00	1.39	104%	70 - 130	2	30	05/29/09 15:53	9F05003
C9	0.634		ppmv	0.10	1.00	0.603	105%	70 - 130	4	30	05/29/09 15:53	9F05003
C10+	0.126		ppmv	0.50	1.00	0.137	92%	70 - 130	15	30	05/29/09 15:53	9F05003

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Mark Ultis

Work Order: LSE0259
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DATA QUALIFIERS AND DEFINITIONS

ND Not detected at the reporting limit (or method detection limit if shown)

TestAmerica Los Angeles
 3585 Cadillac Ave., Suite A
 Costa Mesa, CA 92626
 Phone 714-258-8610 Fax 714-258-0921

Canister Samples Chain of Custody Record

TestAmerica
 THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc. assumes no liability with respect to the collection and shipment of these samples.

Client Contact Information		Project Manager: MARK ULTIS			L 5E0259		1 of 1 COCs		
Company: CITY OF CEDAR RAPIDS		Phone: 319-286-5286 x4623			Samples Collected By: MARK ULTIS				
Address: 1525 BERTRAM RD SE		Email: MARKU@CEDAR-RAPIDS.ORG							
City/State/Zip: CEDAR RAPIDS IA 52403		Site Contact:							
Phone:		LAB Contact:							
FAX:		Analysis Turnaround Time							
Project Name: CRWPC		Standard (Specify) X							
Site: Anaerobic		Rush (Specify)							
PO #									
Sample Identification									
Sample Date(s)		Time Start		Time Stop		Canister Vacuum in Field, "Hg (Start)		Canister Vacuum in Field, "Hg (Stop)	
5/28/09		1445		1446					
Scrubbed BIOGAS									
8 of 8									
Special Instructions/QC Requirements & Comments:									
Anaerobic digester BIOGAS Other tests = EPA 15/16 Sulfur only in AIR 72H + BTU calculation									
Samples Shipped by: UPS overnight		Date/Time: 5/28/09 1945		Date/Time: 5/28/09 1945		Samples Received by:		Received by:	
Samples Relinquished by:		Date/Time:		Date/Time:		Relinquished by:		Received by:	
Relinquished by:		Date/Time:		Date/Time:		Relinquished by:		Received by:	