Atmospheric Analysis & Consulting, Inc.

CLIENT	: Swape
PROJECT NAME	: Bridgeton Sanitary Landfill Quality Assessment
AAC PROJECT NO.	: 130456
REPORT DATE	: 04/23/2013

On April 17, 2013, Atmospheric Analysis & Consulting, Inc. received four (4) Six-Liter Summa Canisters for Fixed Gases analysis by EPA 3C and Total Reduced Sulfur analysis by ASTM D-5504. Upon receipt, the samples were assigned unique Laboratory ID numbers as follows:

Client ID	Lab No.	Return Pressure (mmHgA)
BZ-1-Canister	130456-62447	567.5
F-1-Canister	130456-62456	684.4
F-2-Canister	130456-62465	783.0
F-3-Canister	130456-62474	706.4

EPA 3C Analysis - An aliquot of the gaseous sample is injected into the GC/TCD for analysis following EPA 3C as specified in the SOW.

ASTM D-5504 Analysis - Up to a 1 mL aliquot of sample is injected into the GC/SCD for analysis following ASTM D-5504 as specified in the SOW.

No problems were encountered during receiving, preparation, and/ or analysis of these samples. The test results included in this report meet all requirements of the NELAC Standards and/or AAC SOP# AACI-EPA 3C and ASTM D-5504.

I certify that this data is technically accurate, complete, and in compliance with the terms and conditions of the contract. The Laboratory Director or his designee, as verified by the following signature, has authorized release of the data contained in this hardcopy data package.

If you have any questions or require further explanation of data results, please contact the undersigned.

Marcus Hueppe
Laboratory Director

ACCREDITED IN ACCORDANCE WITH nelac Certificate#E87837

This report consists of 58 pages.

1534 Eastman Ave., Ste. A • Ventura, • CA 93003 www.aaclab.com • (805) 650-1642 • FAX (805) 650-1644

CANISTER PRESSURE LOG

Client: Soil Water Air Protection Ent Project No.: 130456

Date: 4/17/2013

Canister #	Sample #	Initial Pressure	Final Pressure
701	62447	567.5	1015.0
744	62456	684.4	1024.5
787	62465	783.0	1020.8
770	62474	706.4	1021.1

1

AAC# 130456

Amended*

CHAIN OF CUSTODY RECORD / ANALYTICAL REQUEST FORM

Bridgeton Sanitary Landfill Air Quality Assessment

Client Name: SOIL / WATER AIR PROTECTION ENTERPRISE	Telephone No. / Fax No.: (310) 434-0110 / (310) 434-0011
Project Manager: PAUL ROSENFELD, PH.D.	Date: 4/17/13 Page 1 of 4
Address: 1640 FIFTH STREET, SUITE 204. SANTA MONICA, CA 90401	
Project Name and Location: BRIDGETON SANITARY LANDFILL AIR QUALITY ASSESSMENT	
Sampled By:	Sampler Signature:

LAB ID	SAMPLE ID NUMBER	Type	Date	Time	VOCS - EPA TO-15	Reduced Sulfur Compounds - ASTM D5504	Carbonyls - EPA TO-11A	Carboxylic Acids - Tube GC-MS	HCL - NIOSH 7903	Ammonia - OSHA ID-188	SO2 - OSHA ID-200	HCN - NIOSH 6010	Amines - NIOSH 2010M	Fixed Gases - EPA 3C	PAHs / Dioxins EPA TO-13A / 9A	Mercury - NIOSH 6009	Odor Evaluation	Special Instructions / Conditions of Receipt
62447	BZ-1 – Canister		4/16/13	15:48	X	X								X				1 SUMMA
62448	– DNPH			15:56			X											1 TUBE
62449	– Acid			16:01				X										1 TUBE
62450	– HCL			16:02					X									1 TUBE
62451	– Ammonia			15:55						X								1 TUBE
62452	– SO2			16:00							X							1 TUBE
62453	– HCN			16:03								X						1 TUBE
62454	– Amines			15:54									X					1 TUBE
62455	– Mercury		V	15:58												X		1 TUBE

REQUESTED TESTS / ANALYSES

Requested Turnaround Time: Standard turn-around for all analyses. If possible deliver report within 2 weeks.	QC Requirements: Provide Level IV QC Package for all Analyses.

Relinquished By:	Date: 4/17/13	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date: 4/17/13	Time: 940

SOIL / WATER / AIR PROTECTION ENTERPRISE

AAC# 130456

AMENDED *

CHAIN OF CUSTODY RECORD / ANALYTICAL REQUEST FORM

Bridgeton Sanitary Landfill Air Quality Assessment

Client Name: SOIL / WATER AIR PROTECTION ENTERPRISE	Telephone No. / Fax No.: (310) 434-0110 / (310) 434-0011
Project Manager: PAUL ROSENFELD, PH.D.	Date: 4/17/13 Page 2 of 4
Address: 1640 FIFTH STREET, SUITE 204, SANTA MONICA, CA 90401	
Project Name and Location: BRIDGETON SANITARY LANDFILL AIR QUALITY ASSESSMENT	
Sampled By:	Sampler Signature:

LAB ID	SAMPLE ID NUMBER	Type	Date	Time	VOCS - EPA TO-15	Reduced Sulfur Compounds - ASTM D5504	Carbonyls - EPA TO-11A	Carboxlyic Acids - Tube GC-MS	HCL - NIOSH 7903	Ammonia - OSHA ID-188	SO2 - OSHA ID-200	HCN - NIOSH 6010	Amines - NIOSH 2010M	Fixed Gases - EPA 3C	PAHs / Dioxins EPA TO-13A / 9A	Mercury - NIOSH 6009	Odor Evaluation	Special Instructions / Conditions of Receipt
62456	F-1 - Canister		4/16/13	13:12	X	X								X				1 SUMMA
62457	- DNPH			13:36			X											1 TUBE
62458	- Acids			13:30				X										1 TUBE
62459	- HCL			13:34					X									1 TUBE
62460	- Ammonia			13:28						X								1 TUBE
62461	- SO2			13:39							X							1 TUBE
62462	- HCN			13:22								X						1 TUBE
62463	- Amines			13:17									X					1 TUBE
62464	- Mercury		4	13:24												X		1 TUBE

Requested Turnaround Time: Standard turn-around for all analyses. If possible deliver report within 2 weeks.			QC Requirements: Provide Level IV QC Package for all Analyses.	
Relinquished By: *	Date: 4/17/13	Time:	Received By:	Date: / Time:
Relinquished By:	Date:	Time:	Received By:	Date: / Time:
Relinquished By:	Date:	Time:	Received By:	Date: 4/17/13 Time: 0940

AAC# 130456

AMENDED

CHAIN OF CUSTODY RECORD / ANALYTICAL REQUEST FORM

Bridgeton Sanitary Landfill Air Quality Assessment

Client Name: SOIL / WATER AIR PROTECTION ENTERPRISE	Telephone No. / Fax No.: (310) 434-0110 / (310) 434-0011
Project Manager: PAUL ROSENFELD, PH.D.	Date: 4/17/13 Page 3 of 4
Address: 1640 FIFTH STREET, SUITE 204, SANTA MONICA, CA 90401	
Project Name and Location: BRIDGETON SANITARY LANDFILL AIR QUALITY ASSESSMENT	
Sampled By:	Sampler Signature:

LAB ID	SAMPLE ID NUMBER	Type	Date	Time	VOCS - EPA TO-15	Reduced Sulfur Compounds - ASTM D5504	Carbonyls - EPA TO-11A	Carboxlylic Acids - Tube GC-MS	HCL - NIOSH 7903	Ammonia - OSHA ID-188	SO2 - OSHA ID-200	HCN - NIOSH 6010	Amines - NIOSH 2010M	Fixed Gases - EPA 3C	PAHs / Dioxins EPA TO-13A / 9A	Mercury - NIOSH 6009	Odor Evaluation	Special Instructions / Conditions of Receipt
62465	F-2 - Canister		4/16/13	14:12	X	X								X				1 SUMMA
62466	" - DNPH		"	14:23			X											1 TUBE
62467	" - Acids		"	14:19				X										1 TUBE
62468	" - HCL		"	14:39					X									1 TUBE
62469	" - Ammonia		"	14:45						X								1 TUBE
62470	" - SO2		"	14:31							X							1 TUBE
62471	" - HCN		"	14:34								X						1 TUBE
62472	" - Amines		"	14:50									X					1 TUBE
62473	" - Mercury		"	14:43												X		1 TUBE

REQUESTED TESTS / ANALYSES

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Relinquished By:	Date: 4/17/13	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date: 4/17/13	Time: 0940

SOIL / WATER / AIR PROTECTION ENTERPRISE

AAC# 130456

AMENDED*

CHAIN OF CUSTODY RECORD / ANALYTICAL REQUEST FORM

Bridgeton Sanitary Landfill Air Quality Assessment

Client Name: SOIL / WATER AIR PROTECTION ENTERPRISE	Telephone No. / Fax No.: (310) 434-0110 / (310) 434-0011
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Project Name and Location: BRIDGETON SANITARY LANDFILL AIR QUALITY ASSESSMENT	
Sampled By:	Sampler Signature:

LAB ID	SAMPLE ID NUMBER	Type	Date	Time	VOCS - EPA TO-15	Reduced Sulfur Compounds - ASTM D5504	Carbonyls - EPA TO-11A	Carboxylic Acids - Tube GC-MS	HCL - NIOSH 7903	Ammonia - OSHA ID-188	SO2 - OSHA ID-200	HCN - NIOSH 6010	Amines - NIOSH 2010M	Fixed Gases - EPA 3C	PAHs / Dioxins EPA TO-13A / 9A	Mercury - NIOSH 6009	Odor Evaluation	Special Instructions / Conditions of Receipt
62474	F-3 - Canister		4/16/13	15:30	X	X								X				1 SUMMA
62475	" - DNPH		"	15:20			X											1 TUBE
62476	- Acids			15:14				X										1 TUBE
62477	- HCL			15:10					X									1 TUBE
62478	- Ammonia			15:22						X								1 TUBE
62479	- SO2			15:26							X							1 TUBE
62480	- HCN			15:06								X						1 TUBE
62481	- Amines			15:29									X					1 TUBE
62482	" - Mercury		"	15:18												X		1 TUBE

REQUESTED TESTS / ANALYSES

Requested Turnaround Time: Standard turn-around for all analyses. If possible deliver report within 2 weeks.	QC Requirements: Provide Level IV QC Package for all Analyses.

Relinquished By:	Date: 4/17/13	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date: 4/17/13	Time: 0940

AAC# 130456

CHAIN OF CUSTODY RECORD / ANALYTICAL REQUEST FORM

Bridgeton Sanitary Landfill Air Quality Assessment

Client Name: SOIL / WATER AIR PROTECTION ENTERPRISE	Telephone No. / Fax No.: (310) 434-0110 / (310) 434-0011
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Project Name and Location: BRIDGETON SANITARY LANDFILL AIR QUALITY ASSESSMENT	
Sampled By:	Sampler Signature:

LAB ID	SAMPLE ID NUMBER	Type	Date	Time	VOCS - EPA TO-15	Reduced Sulfur Compounds - ASTM D5504	Carbonyls - EPA TO-11A	Carboxylic Acids - Tube GC-MS	HCL - NIOSH 7903	Ammonia - OSHA ID-188	SO2 - OSHA ID-200	HCN - NIOSH 6010	Amines - NIOSH 2010M	Fixed Gases - EPA 3C	PAHs / Dioxins EPA TO-13A / 9A	Mercury - NIOSH 6009	Odor Evaluation	Special Instructions / Conditions of Receipt
62486	ALDEHYDES		4/17/13				X											
62487	AMINES		"										X					
62488	AMMONIA		"							X								
62489	CARBOXYLIC ACIDS		"					X										
62490	HYDROGEN CHLORIDE		"						X									
62491	HYDROGEN CYANIDE		"									X						
62492	MERCURY		"													X		
62493	SULFUR DIOXIDE		"								X							

REQUESTED TESTS / ANALYSES

Requested Turnaround Time: Standard turn-around for all analyses. If possible deliver report within 2 weeks.	QC Requirements: Provide Level IV QC Package for all Analyses.

Relinquished By:	Date:	Time:	Received By:	Date:	Time:
John Black	4/17/13	4 PM			
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date: 4/18/13	Time: 1235

- FEDEX

SOIL / WATER / AIR PROTECTION ENTERPRISE

Results

Atmospheric Analysis & Consulting, Inc.

Laboratory Analysis Report

CLIENT : **SWAPE**
PROJECT NO. : **130456**
MATRIX : **AIR**

SAMPLING DATE : **04/16/2013**
RECEIVING DATE : **04/17/2013**
ANALYSIS DATE : **04/18-19/2013**
REPORT DATE : **04/23/2013**

EPA 3C

Client ID	BZ-1-Canister	F-1-Canister	F-2-Canister	F-3-Canister
AAC ID	130456-62447	130456-62456	130456-62465	130456-62474
Can Dilution Factor	1.79	1.50	1.30	1.45
Analyte	Result	Result	Result	Result
H_2	< 1.8 %	3.0 %	20.9 %	3.0 %
O_2	20.9 %	6.5 %	< 0.13 %	< 0.14 %
N_2	79.1 %	25.0 %	0.56 %	6.2 %
CO	< 0.18 %	< 0.15 %	0.22 %	< 0.14 %
CO_2	0.041 %	51.7 %	66.8 %	59.2 %
CH_4	< 0.18 %	13.7 %	11.4 %	31.4 %

All fixed gases have been normalized to 100% on a dry weight basis
Sample Reporting Limit (SRL) is equal to Reporting Limit x Canister Dil. Fac

Marcus Hueppe
Laboratory Director

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LABORATORY ANALYSIS REPORT

CLIENT	**: SWAPE**	**SAMPLING DATE**	**: 04/16/2013**
PROJECT NO.	**: 130456**	**RECEIVING DATE**	**: 04/17/2013**
MATRIX	**: AIR**	**ANALYSIS DATE**	**: 04/22/2013**
UNITS	**: ppbV**	**REPORT DATE**	**: 04/23/2013**

Sulfur Compounds by ASTM D-5504

Client ID	BZ-1-Canister	F-1-Canister	F-2-Canister	F-3-Canister
AAC ID	130456-62447	130456-62456	130456-62465	130456-62474
Canister Dil. Fac.	1.79	1.50	1.30	1.45
Analyte	Result	Result	Result	Result
Hydrogen Sulfide	< 44.7	4,440	80,415	< 361
Carbonyl Sulfide	< 44.7	< 374	< 326	< 361
Sulfur Dioxide	< 44.7	< 374	< 326	< 361
Methyl Mercaptan	< 44.7	54,655	73,043	2,985
Ethyl Mercaptan	< 44.7	744	2,524	< 361
Dimethyl Sulfide	< 44.7	347,564	1,793,817	586,255
Carbon Disulfide	< 22.4	< 187	< 163	< 181
Isopropyl Mercaptan	< 44.7	562	2,087	< 361
tert-Butyl Mercaptan	< 44.7	< 374	679	< 361
n-Propyl Mercaptan	< 44.7	< 374	831	< 361
Methylethylsulfide	< 44.7	3,589	21,992	4,452
sec-Butyl Mercaptan	< 44.7	< 374	< 326	< 361
Thiophene	< 44.7	5,637	33,342	10,823
iso-Butyl Mercaptan	< 44.7	< 374	< 326	< 361
Diethyl Sulfide	< 44.7	919	2,654	682
n-Butyl Mercaptan	< 44.7	< 374	7,410	1,172
Dimethyl Disulfide	< 22.4	35,362	16,810	128,502
2-Methylthiophene	< 44.7	663	5,208	1,525
3-Methylthiophene	< 44.7	< 374	< 326	< 361
Tetrahydrothiophene	< 44.7	1,247	5,193	2,448
Bromothiophene	< 44.7	< 374	< 326	< 361
Thiophenol	< 44.7	< 374	< 326	< 361
Diethyl disulfide	< 22.4	129	188	362
Total Unidentified Sulfur	< 44.7	56,594	76,835	19,314

All unidentified sulfur compound's concentrations expressed in terms of H_2S
Sample Reporting Limit (SRL) is equal to Reporting Limit x Canister Dil. Fac. x Analysis Dil. Fac.

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Atmospheric Analysis & Consulting, Inc.

LABORATORY ANALYSIS REPORT

CLIENT	**: SWAPE**	**SAMPLING DATE**	**: 04/16/2013**
PROJECT NO.	**: 130456**	**RECEIVING DATE**	**: 04/17/2013**
MATRIX	**: AIR**	**ANALYSIS DATE**	**: 04/22/2013**
UNITS	**: ug/m^3**	**REPORT DATE**	**: 04/23/2013**

Sulfur Compounds by ASTM D-5504

Client ID	BZ-1-Canister	F-1-Canister	F-2-Canister	F-3-Canister
AAC ID	130456-62447	130456-62456	130456-62465	130456-62474
Canister Dil. Fac.	1.79	1.50	1.30	1.45
Analyte	Result	Result	Result	Result
Hydrogen Sulfide	< 62.3	6,189	112,095	< 504
Carbonyl Sulfide	< 110	< 919	< 801	< 888
Sulfur Dioxide	< 117	< 981	< 854	< 947
Methyl Mercaptan	< 88.0	107,544	143,727	5,874
Ethyl Mercaptan	< 114	1,892	6,414	< 918
Dimethyl Sulfide	< 114	883,202	4,558,298	1,489,743
Carbon Disulfide	< 69.6	< 583	< 507	< 563
Isopropyl Mercaptan	< 139	1,752	6,502	< 1,126
tert-Butyl Mercaptan	< 165	< 1,380	2,506	< 1,333
n-Propyl Mercaptan	< 139	< 1,166	2,590	< 1,126
Methylethylsulfide	< 139	11,181	68,505	13,868
sec-Butyl Mercaptan	< 165	< 1,380	< 1,202	< 1,333
Thiophene	< 154	19,398	114,739	37,246
iso-Butyl Mercaptan	< 165	< 1,380	< 1,202	< 1,333
Diethyl Sulfide	< 165	3,389	9,789	2,517
n-Butyl Mercaptan	< 165	< 1,380	27,333	4,325
Dimethyl Disulfide	< 86.1	136,228	64,759	495,037
2-Methylthiophene	< 180	2,661	20,907	6,124
3-Methylthiophene	< 180	< 1,502	< 1,309	< 1,451
Tetrahydrothiophene	< 161	4,497	18,727	8,827
Bromothiophene	< 298	< 2,495	< 2,173	< 2,410
Thiophenol	< 201	< 1,686	< 1,469	< 1,628
Diethyl disulfide	< 111.8	645	940	1,810
Total Unidentified Sulfur	< 62.3	78,889	107,105	26,922

All unidentified sulfur compound's concentrations expressed in terms of H_2S
Sample Reporting Limit (SRL) is equal to Reporting Limit x Canister Dil. Fac. x Analysis Dil. Fac.

Marcus Hueppe
Laboratory Director

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QA/QC Summary

Quality Control/Quality Assurance Report
ASTM D-5504

Date Analyzed: 04/22/13
Analyst: DH

Instrument ID: SCD#10
Calb. Date: 4/22/2013

Opening Calibration Verification Standard

	Resp. (area)	Result (ppbV)	% Rec *	% RPD ****
Initial	7131	488	97.5	NA
Duplicate	7187	491	98.3	0.8
Triplicate	7043	482	96.3	1.2

Method Blank

Analyte	Result
H2S	ND

Matrix Spike & Duplicate **Sample ID 130456-62447**

Analyte	Sample Conc.	Spike Added	MS Result	MSD Result	MS % Rec **	MSD % Rec **	% RPD ***
H2S	0	250	246	249	98.4	99.6	1.1

Duplicate Analysis **Sample ID 130456-62447**

Analyte	Sample Result	Duplicate Result	Mean	% RPD ***
H2S	0	0	0	0.0

Closing Calibration Verification Standard

Analyte	Std. Conc.	Result	%Recovery **
H2S	500	492.8	98.6

** Must be 95-105%*

*** Must be 90-110%*

**** Must be < 10%*

***** must be < 5% RPD from Initial result.*

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Atmospheric Analysis & Consulting, Inc.

Quality Control/Quality Assurance Report

Date Analyzed : 04/18/2013
Analyst : ZG
Units : %

Instrument ID : TCD#1
Calb Date : 04/13/2012
Reporting Limit : 0.1%

I - Opening Continuing Calibration Verification - EPA 3C

AAC ID	Analyte	H_2	O_2	N_2	CO_2	CH_4	CO
CCV	Spike Conc	10.3	10.5	19.6	10.3	9.9	10.3
	Result	11.2	10.4	21.0	10.4	10.1	10.5
	% Rec *	108.8	99.8	106.9	101.9	102.0	101.8

II - Method Blank - EPA 3C

AAC ID	Analyte	H_2	O_2	N_2	CO_2	CH_4	CO
MB	Concentration	ND	ND	ND	ND	ND	ND

III-Laboratory Control Spike & Duplicate - EPA 3C

AAC ID	Analyte	H_2	N_2	CO_2	CH_4	CO	O_2
Lab Control Standards	Sample Conc	0.0	0.0	0.0	0.0	0.0	0.0
	Spike Conc	10.3	19.6	10.3	9.9	10.3	10.5
	LCS Result	11.0	21.3	10.9	10.5	10.9	10.4
	LCSD Result	11.0	21.0	10.7	10.3	10.7	10.4
	LCS % Rec *	107.2	108.4	106.2	105.5	105.6	99.1
	LCSD % Rec *	107.2	107.3	104.2	103.3	103.8	99.6
	% RPD ***	0.0	1.1	1.9	2.1	1.7	0.5

IV-Sample & Sample Duplicate - EPA 3C

AAC ID	Analyte	H_2	O_2	N_2	CO_2	CH_4	CO
130456-62456	Sample	2.0	4.2	16.4	33.6	8.9	0.0
	Sample Dup	2.0	4.2	16.2	33.6	8.9	0.0
	Mean	2.0	4.2	16.3	33.6	8.9	0.0
	% RPD ***	0.9	1.2	1.0	0.2	0.7	0.0

V-Matrix Spike & Duplicate - EPA 3C

AAC ID	Analyte	H_2	N_2	CO_2	CH_4	CO
130456-62456	Sample Conc	1.0	8.1	16.8	4.4	0.0
	Spike Conc	10.3	9.2	10.3	9.9	10.3
	MS Result	12.7	18.9	26.3	14.8	10.8
	MSD Result	12.0	18.4	25.2	13.9	10.2
	MS % Rec **	113.9	117.0	93.0	104.0	104.4
	MSD % Rec **	107.0	111.3	82.3	95.5	98.2
	% RPD ***	6.2	5.0	12.3	8.5	6.1

VI - Closing Continuing Calibration Verification - EPA 3C

AAC ID	Analyte	H_2	O_2	N_2	CO_2	CH_4	CO
CCV	Spike Conc	10.3	10.5	19.6	10.3	9.9	10.3
	Result	11.5	10.8	21.5	10.5	10.2	10.7
	% Rec *	111.9	102.9	109.4	102.1	102.9	103.4

** Must be 85-115%*
*** Must be 75-125%*
**** Must be < 25%*
ND = Not Detected
<RL = less than Reporting Limit

Marcus Hueppe
Laboratory Director

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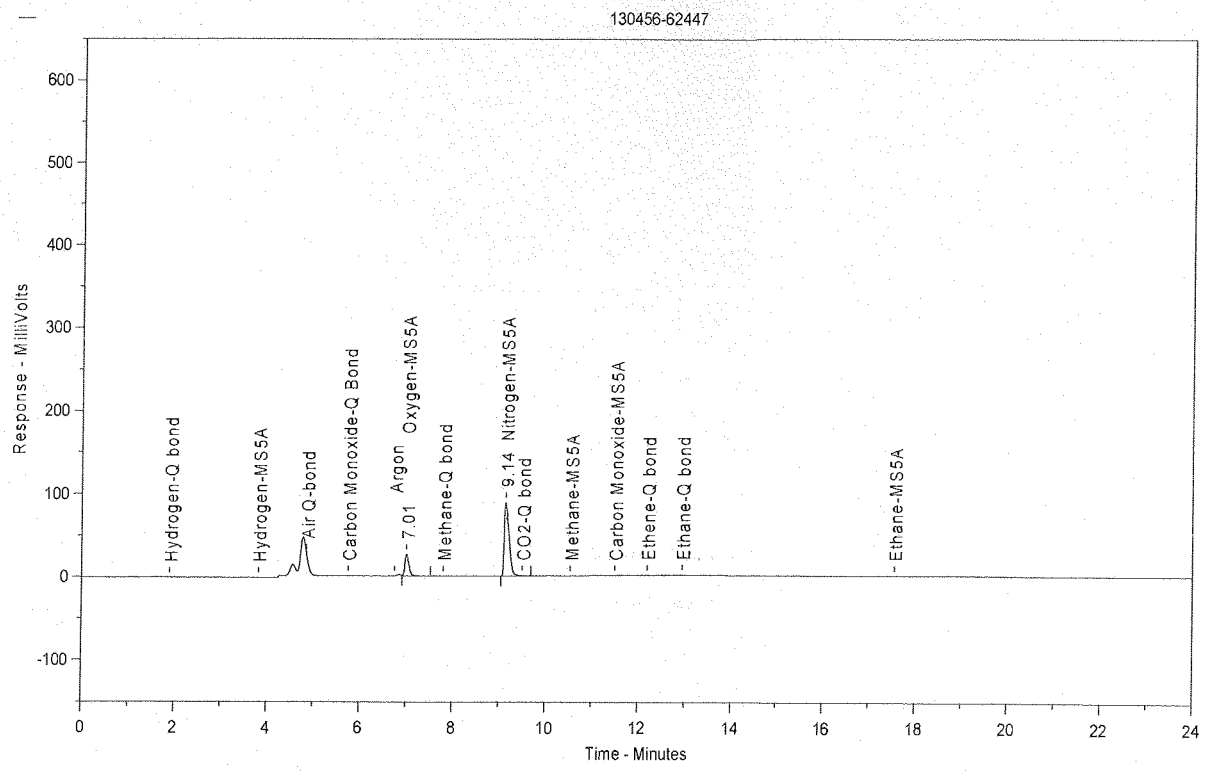
Raw Data



Sample Name = **130456-62447**

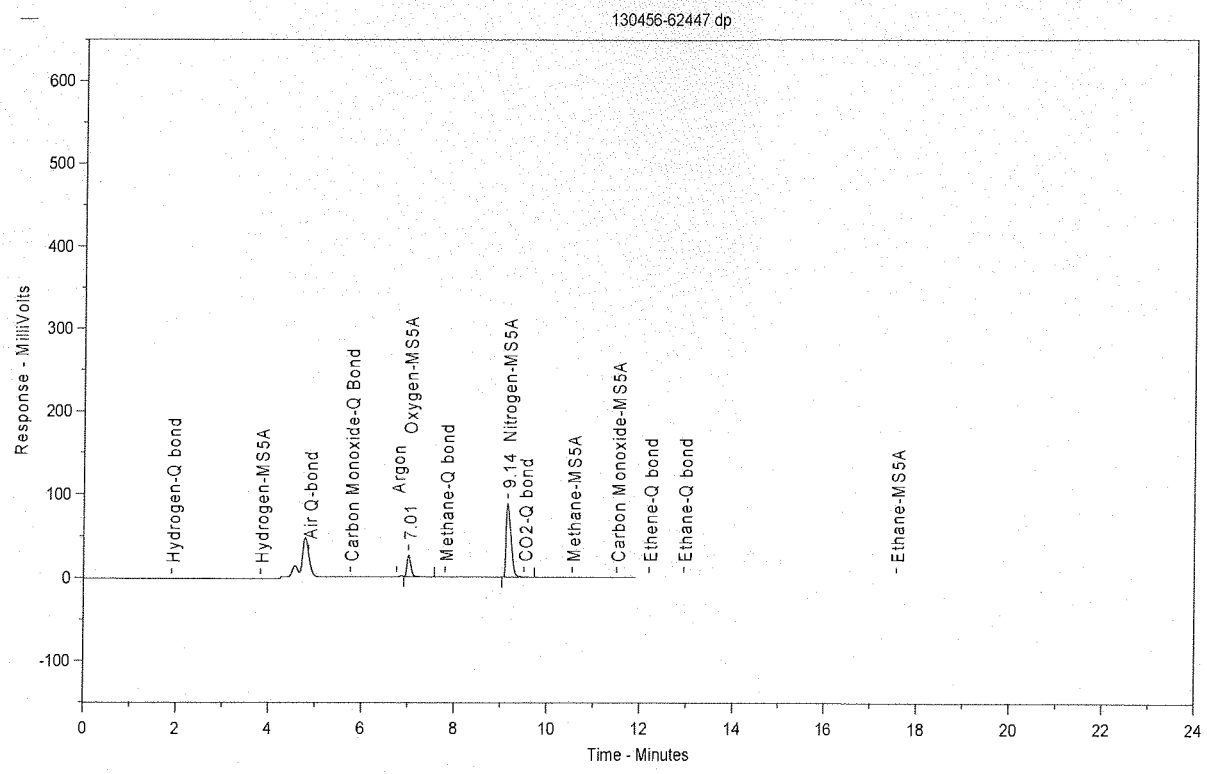
Instrument = TCD #1

Raw File Name = **C:\CPDATA\Inst#01\2013\041813.0012.raw** Date Taken (end) = 4/18/2013 2:39:45 PM
Method File Name = C:\Cpmethods\Inst #01\2012\D1945-D1946-3C.MET Dilution Factor = 1
Calibration File Name = C:\Cpmethods\Inst #01\2012\D1945-D1946-3C-041312-standard.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
1	7.01	Oxygen-MS5A	11.741	20.927	160885	19.926	BB	0.09
2	9.14	Nitrogen-MS5A	44.363	79.073	646548	80.074	BB	0.12

Total Area = 807433.9 Total Height = 114736.9 Total Amount = 56.10402

2941813



Sample Name = **130456-62447 dp**

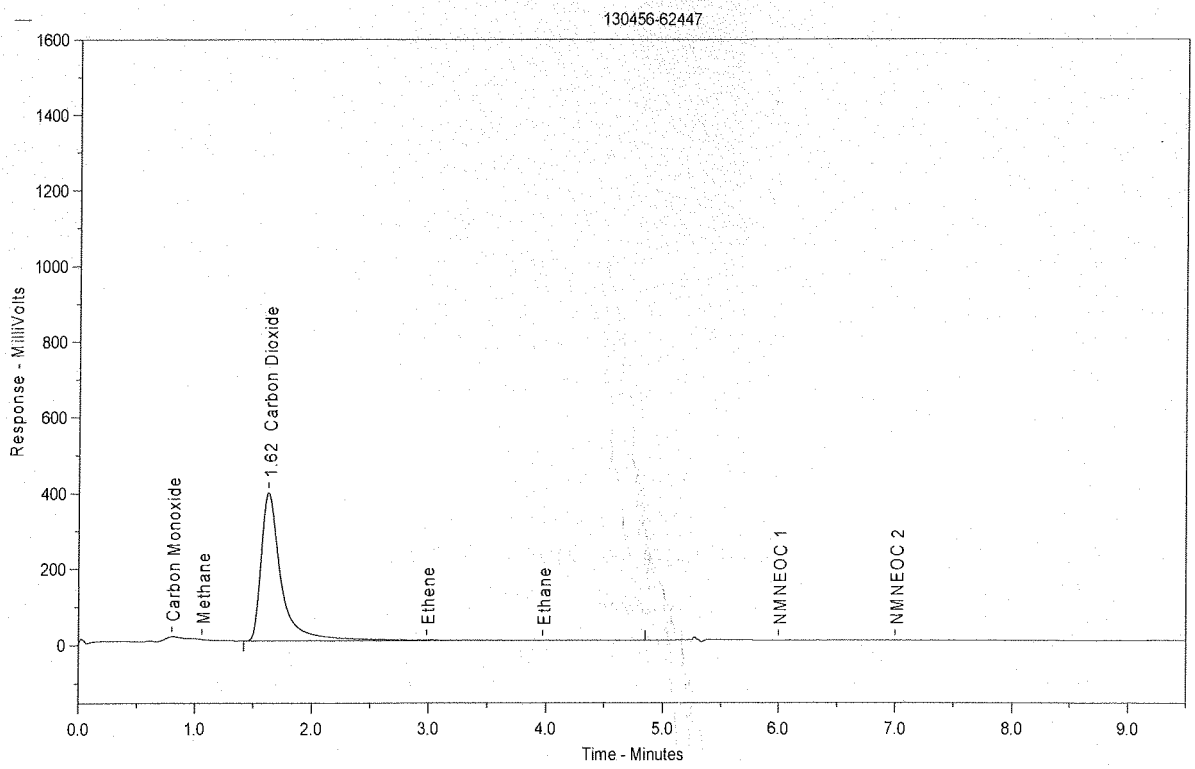
Instrument = TCD #1

Raw File Name = **C:\CPDATA\Inst#01\2013\041813.0013.raw** Date Taken (end) = 4/18/2013 2:56:54 PM
Method File Name = C:\Cpmethods\Inst #01\2012\D1945-D1946-3C.MET Dilution Factor = 1
Calibration File Name = C:\Cpmethods\Inst #01\2012\D1945-D1946-3C-041312-standard.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
1	7.01	Oxygen-MS5A	11.629	20.894	159349	19.893	BB	0.09
2	9.14	Nitrogen-MS5A	44.029	79.106	641675	80.107	BB	0.11

Total Area = 801024.7 Total Height = 114065.5 Total Amount = 55.65755

4/18/13



Sample Name = **130456-62447**

Instrument = FID #4

Raw File Name = **C:\CPDATA\Inst#04\2013\041813.0018.RAW** Date Taken (end) = 4/18/2013 1:55:08 PM
Method File Name = C:\Cpmethods\Inst #04\2013\Method25.1,3.met Dilution Factor = 1
Calibration File Name = C:\Cpmethods\Inst #04\2013\M25.1,3-010813.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
1	1.62	Carbon Dioxide	228.914	100.000	4703713	100.000	BB	0.16

Total Area = 4703713 Total Height = 389981.4 Total Amount = 228.9138

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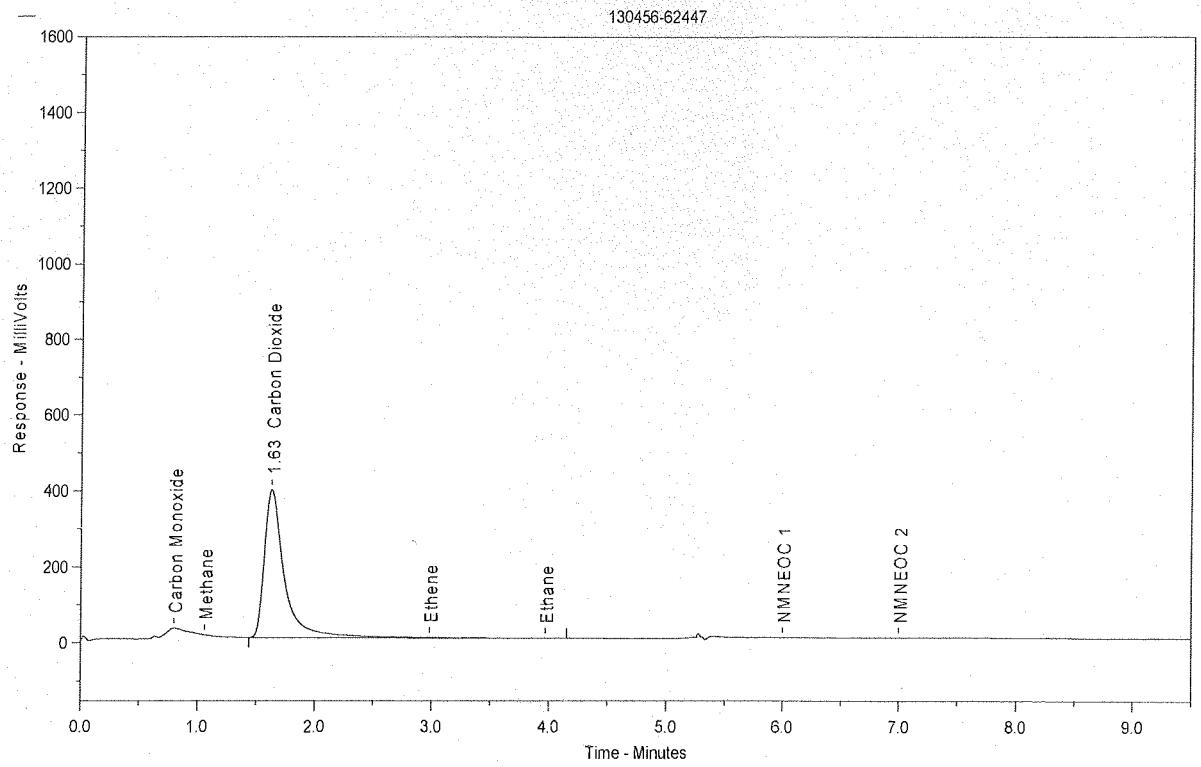

Sample Name = **130456-62447** dp

Instrument = FID #4

Raw File Name = **C:\CPDATA\Inst#04\2013\041913.0024.RAW** Date Taken (end) = 4/19/2013 1:35:03 PM
Method File Name = C:\Cpmethods\Inst #04\2013\Method25.1,3.met Dilution Factor = 1
Calibration File Name = C:\Cpmethods\Inst #04\2013\M25.1,3-010813.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
1	1.63	Carbon Dioxide	227.443	100.000	4673487	100.000	BB	0.16

Total Area = 4673487 Total Height = 388688.2 Total Amount = 227.4428

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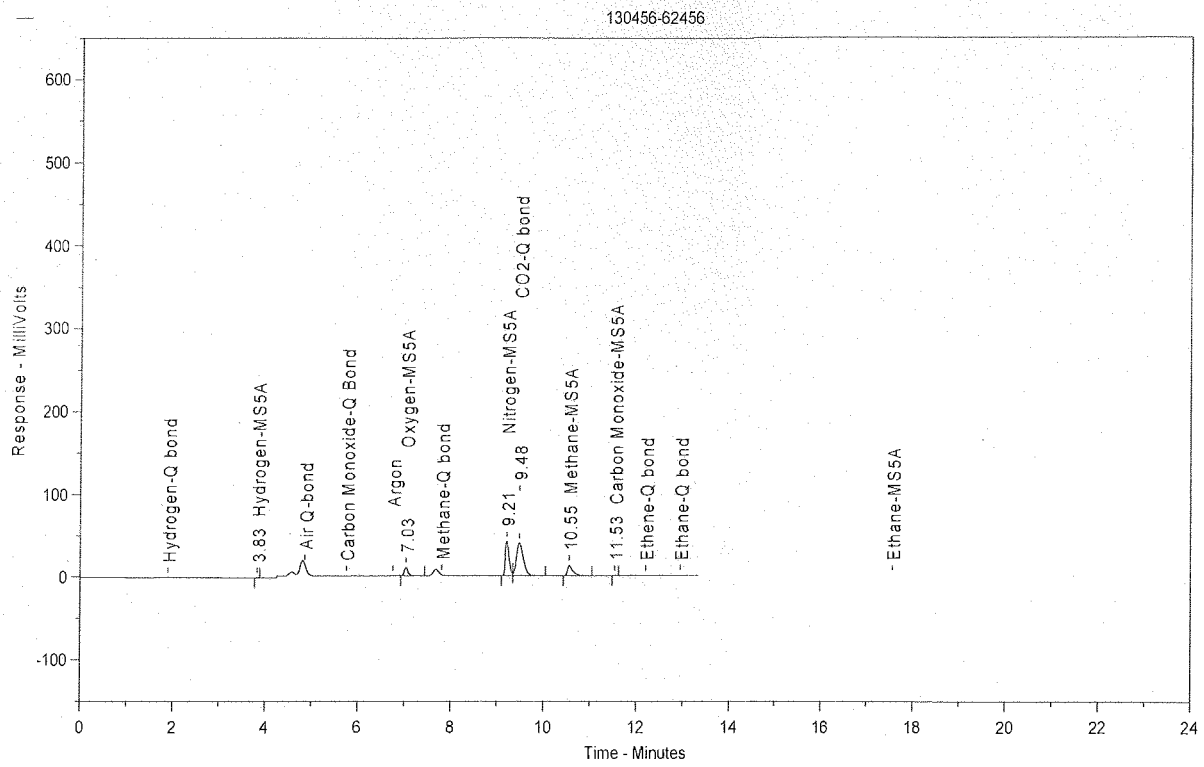


Sample Name = **130456-62456**

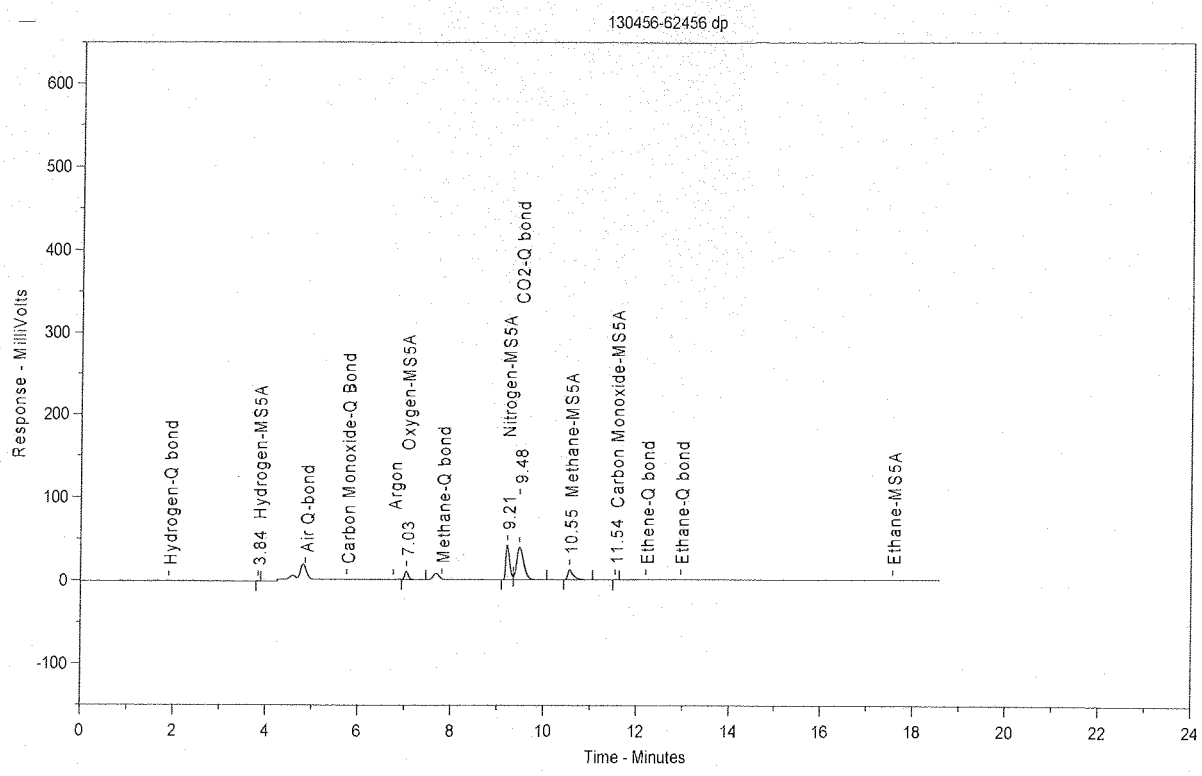
Instrument = TCD #1

Raw File Name = **C:\CPDATA\Inst#01\2013\041813.0006.raw** Date Taken (end) = 4/18/2013 11:47:07 AM
Method File Name = C:\Cpmethods\Inst #01\2012\D1945-D1946-3C.MET Dilution Factor = 1
Calibration File Name = C:\Cpmethods\Inst #01\2012\D1945-D1946-3C-041312-HighCO2.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
1	3.83	Hydrogen-MS5A	1.953	2.997	361	0.044	BB	0.06
2	7.03	Oxygen-MS5A	4.223	6.482	57872	7.117	BB	0.08
3	9.21	Nitrogen-MS5A	16.360	25.109	238426	29.322	BV	0.09
4	9.48	CO2-Q bond	33.648	51.643	414491	50.974	VB	0.16
5	10.55	Methane-MS5A	8.932	13.710	101437	12.475	BB	0.11
6	11.53	Carbon Monoxide-MS5A	0.038	0.059	549	0.068	BB	0.08

Total Area = 813136.8 Total Height = 104959.9 Total Amount = 65.1542

4/18/13



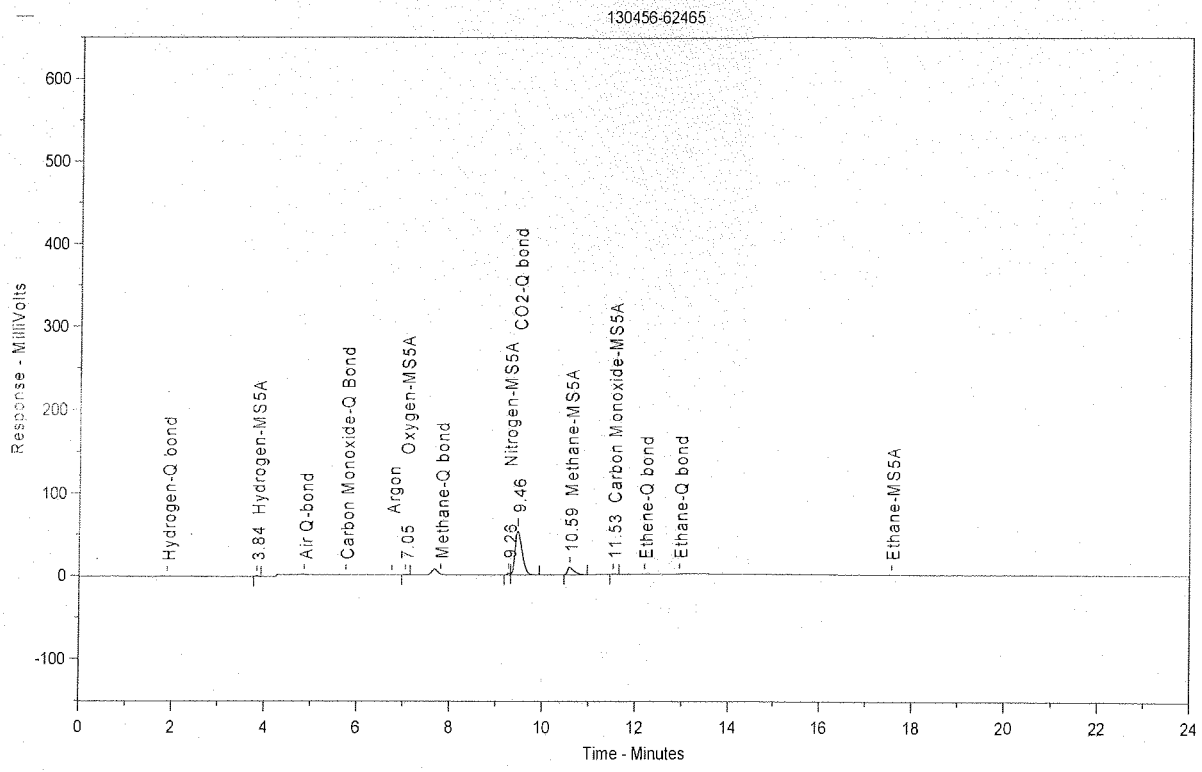
Sample Name = **130456-62456 dp**

Instrument = TCD #1

Raw File Name = **C:\CPDATA\Inst#01\2013\041813.0007.raw** Date Taken (end) = 4/18/2013 12:10:14 PM
Method File Name = C:\Cpmethods\Inst #01\2012\D1945-D1946-3C.MET Dilution Factor = 1
Calibration File Name = C:\Cpmethods\Inst #01\2012\D1945-D1946-3C-041312-HighCO2.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
1	3.84	Hydrogen-MS5A	1.970	3.038	364	0.045	BB	0.05
2	7.03	Oxygen-MS5A	4.173	6.436	57178	7.071	BB	0.08
3	9.21	Nitrogen-MS5A	16.196	24.980	236041	29.190	BV	0.09
4	9.48	CO2-Q bond	33.596	51.816	413849	51.179	VB	0.16
5	10.55	Methane-MS5A	8.866	13.675	100687	12.452	BB	0.11
6	11.54	Carbon Monoxide-MS5A	0.036	0.055	512	0.063	BB	0.10

Total Area = 808629.5 Total Height = 103590.2 Total Amount = 64.83576



Sample Name = **130456-62465**

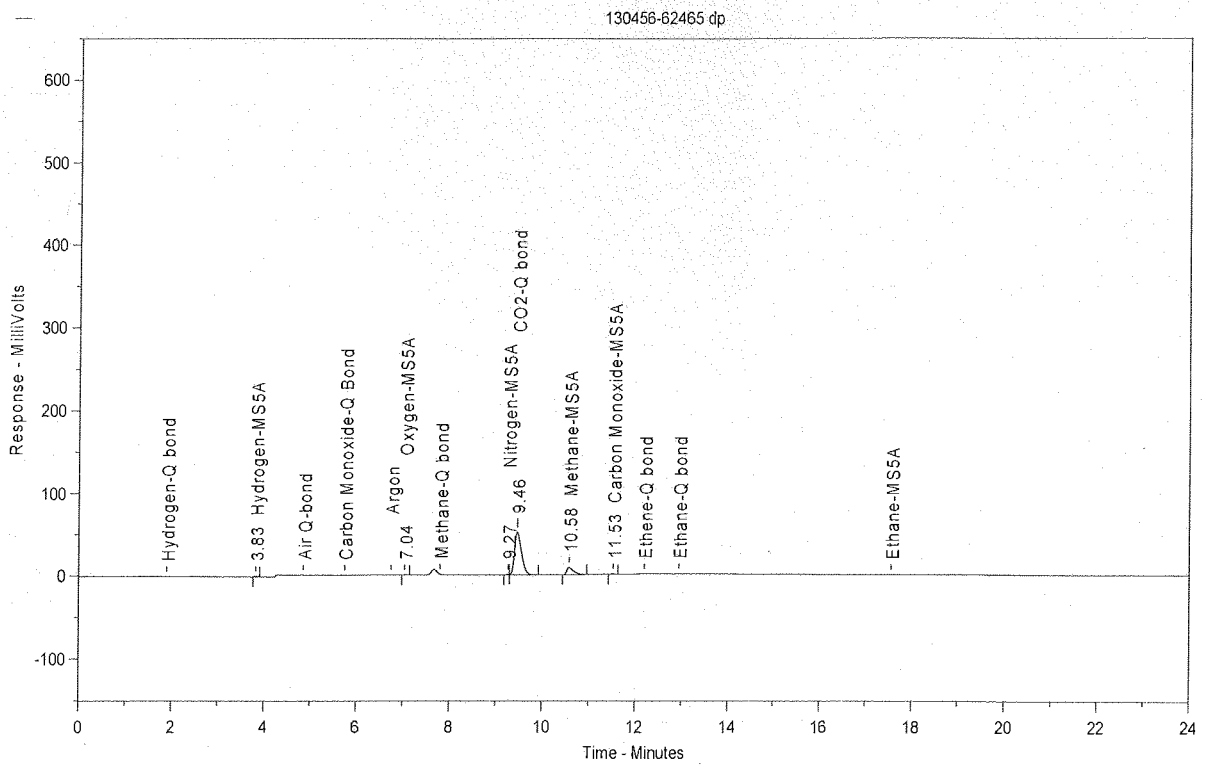
Instrument = TCD #1

Raw File Name = **C:\CPDATA\Inst#01\2013\041813.0008.raw** Date Taken (end) = 4/18/2013 12:44:18 PM
Method File Name = C:\Cpmethods\Inst #01\2012\D1945-D1946-3C.MET Dilution Factor = 1
Calibration File Name = C:\Cpmethods\Inst #01\2012\D1945-D1946-3C-041312-HighCO2.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
1	3.84	Hydrogen-MS5A	14.413	20.957	2665	0.400	BB	0.06
2	7.05	Oxygen-MS5A	0.131	0.190	1794	0.269	BB	0.09
3	9.26	Nitrogen-MS5A	0.526	0.765	7670	1.151	BV	0.07
4	9.46	CO2-Q bond	45.775	66.557	563882	84.602	VB	0.16
5	10.59	Methane-MS5A	7.781	11.313	88356	13.256	BB	0.15
6	11.53	Carbon Monoxide-MS5A	0.149	0.217	2148	0.322	BB	0.07

Total Area = 666514.1 Total Height = 65428.43 Total Amount = 68.7754

294 | 18 | 13



Sample Name = **130456-62465 dp**

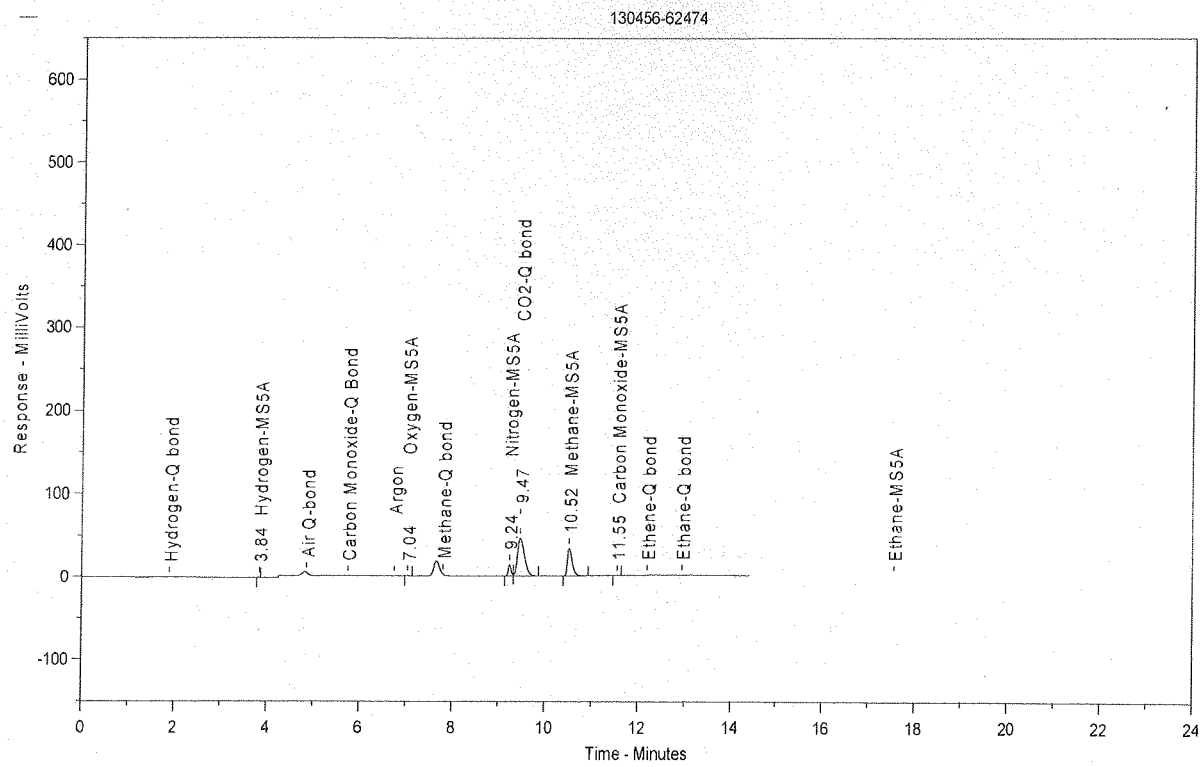
Instrument = TCD #1

Raw File Name = **C:\CPDATA\Inst#01\2013\041813.0009.raw** Date Taken (end) = 4/18/2013 1:12:42 PM
Method File Name = C:\Cpmethods\Inst #01\2012\D1945-D1946-3C.MET Dilution Factor = 1
Calibration File Name = C:\Cpmethods\Inst #01\2012\D1945-D1946-3C-041312-HighCO2.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
1	3.83	Hydrogen-MS5A	13.801	20.941	2551	0.400	BB	0.06
2	7.04	Oxygen-MS5A	0.053	0.081	731	0.115	BB	0.08
3	9.27	Nitrogen-MS5A	0.222	0.337	3240	0.508	BV	0.06
4	9.46	CO2-Q bond	44.158	67.005	543964	85.260	VB	0.16
5	10.58	Methane-MS5A	7.522	11.413	85416	13.388	BB	0.14
6	11.53	Carbon Monoxide-MS5A	0.146	0.222	2104	0.330	BB	0.08

Total Area = 638005.6 Total Height = 62532.47 Total Amount = 65.90242

29/4/18/13



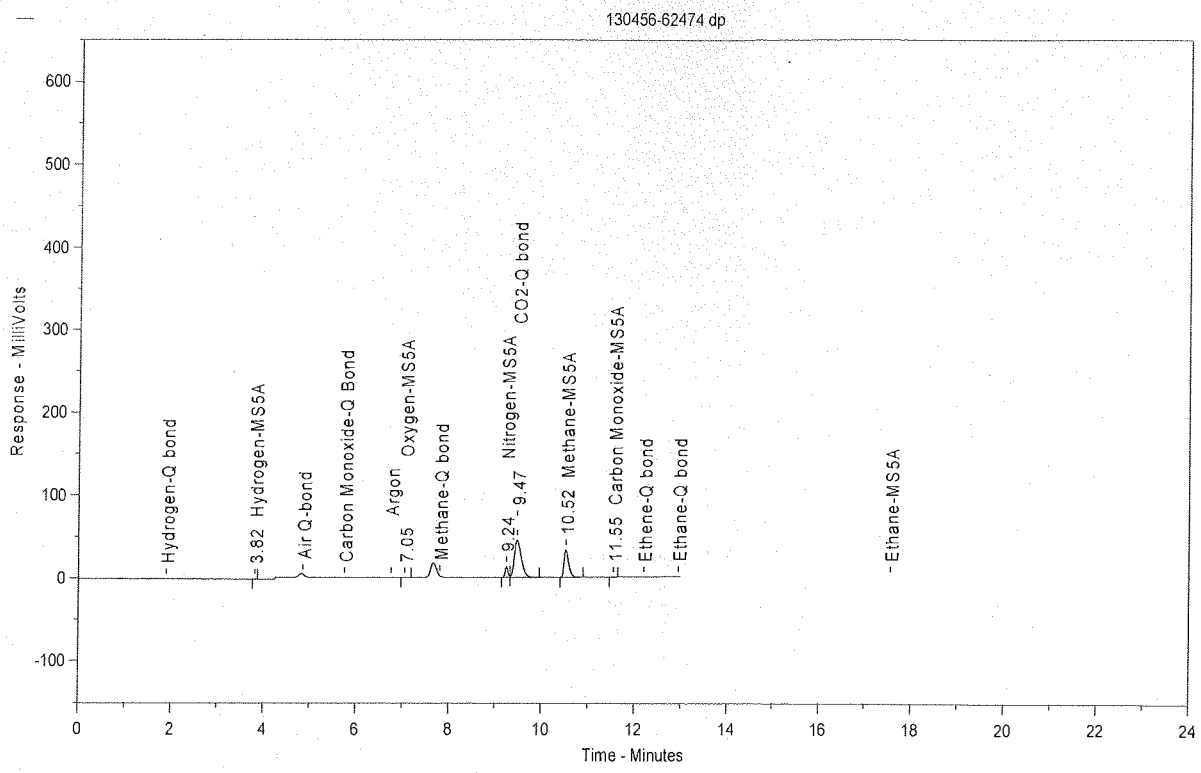
Sample Name = **130456-62474**

Instrument = TCD #1

Raw File Name = **C:\CPDATA\Inst#01\2013\041813.0010.raw** Date Taken (end) = 4/18/2013 1:31:45 PM
Method File Name = C:\Cpmethods\Inst #01\2012\D1945-D1946-3C.MET Dilution Factor = 1
Calibration File Name = C:\Cpmethods\Inst #01\2012\D1945-D1946-3C-041312-HighCO2.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
1	3.84	Hydrogen-MS5A	2.025	3.044	374	0.048	BB	0.06
2	7.04	Oxygen-MS5A	0.065	0.097	885	0.113	BB	0.08
3	9.24	Nitrogen-MS5A	4.178	6.279	60883	7.761	BV	0.07
4	9.47	CO2-Q bond	39.304	59.081	484173	61.722	VB	0.16
5	10.52	Methane-MS5A	20.902	31.418	237357	30.258	BB	0.11
6	11.55	Carbon Monoxide-MS5A	0.054	0.081	772	0.098	BB	0.14

Total Area = 784444.4 Total Height = 93769.81 Total Amount = 66.52676



Sample Name = **130456-62474 dp**

Instrument = TCD #1

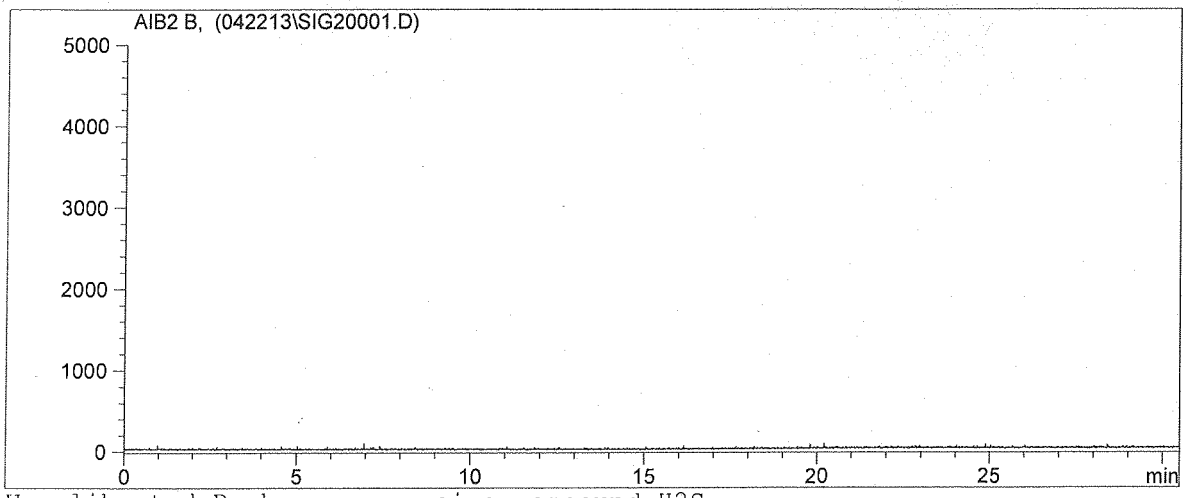
Raw File Name = **C:\CPDATA\Inst#01\2013\041813.0011.raw** Date Taken (end) = 4/18/2013 1:59:18 PM
Method File Name = C:\Cpmethods\Inst #01\2012\D1945-D1946-3C.MET Dilution Factor = 1
Calibration File Name = C:\Cpmethods\Inst #01\2012\D1945-D1946-3C-041312-HighCO2.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
1	3.82	Hydrogen-MS5A	1.938	2.981	358	0.047	BB	0.05
2	7.05	Oxygen-MS5A	0.044	0.068	609	0.079	BB	0.12
3	9.24	Nitrogen-MS5A	3.914	6.019	57038	7.438	BV	0.07
4	9.47	CO2-Q bond	38.624	59.398	475793	62.046	VB	0.16
5	10.52	Methane-MS5A	20.447	31.444	232193	30.279	BB	0.11
6	11.55	Carbon Monoxide-MS5A	0.059	0.090	846	0.110	BB	0.14

Total Area = 766837.4 Total Height = 91689.86 Total Amount = 65.02614

Customized Report: D5504

Injection Date : 4/22/2013 5:51:30 AM Seq. Line : 1
Sample Name : System Blank Inj. Vol. :Manually
Multiplier : 1.00
Dilution : 1.00
Acq Operator : DH
Acq. Instrument : GC/SCD #10
Acq. Method : ASTM5504.M
Analysis Method : C:\HPCHEM\1\METHODS\D041913.M



Uncalibrated Peaks : using compound H2S

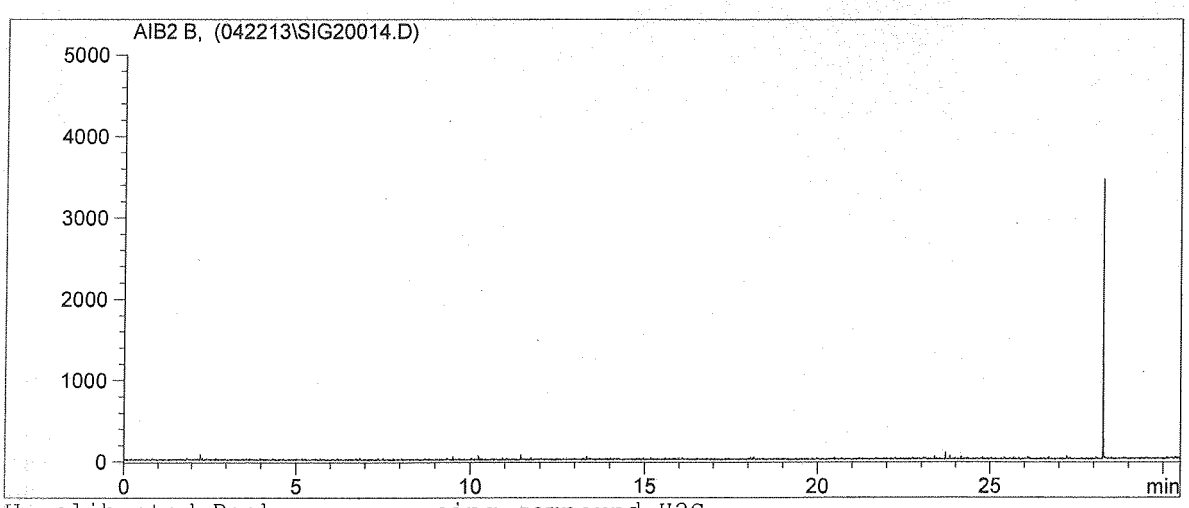
Ret Time [min]	Area	Amount [ppbV]	Name
0.000	0	0.000	H2S
0.000	0	0.000	COS
0.000	0	0.000	Methyl Mercaptan
0.000	0	0.000	Ethyl Mercaptan
0.000	0	0.000	Dimethyl Sulfide
0.000	0	0.000	Carbon Disulfide
0.000	0	0.000	Iso-propyl Mercaptan
0.000	0	0.000	Tert-butyl Mercaptan
0.000	0	0.000	N-propyl Mercaptan
0.000	0	0.000	Ethyl Methyl Sulfide
0.000	0	0.000	Sec-butyl Mercaptan
0.000	0	0.000	Thiophene
0.000	0	0.000	Iso-butyl Mercaptan
0.000	0	0.000	Diethyl Sulfide
0.000	0	0.000	N-butyl Mercaptan
0.000	0	0.000	Dimethyl Disulfide
0.000	0	0.000	2-Methylthiophene
0.000	0	0.000	3-Methylthiophene
0.000	0	0.000	Tetrahydrothiophene
0.000	0	0.000	n-Pentyl Mercaptan
0.000	0	0.000	2-Ethylthiophene
0.000	0	0.000	2,5-Dimethylthiophene
0.000	0	0.000	n-Hexyl Mercaptan
0.000	0	0.000	Diethyl Disulfide
0.000	0	0.000	2-Propylthiophene
0.000	0	0.000	Dimethyl Trisulfide
0.000	0	0.000	n-Heptyl Mercaptan
0.000	0	0.000	2-Butylthiophene
0.000	0	0.000	Dipropyl Disulfide
0.000	0	0.000	n-Octyl Mercaptan
0.000	0	0.000	Dipropyl Trisulfide
Totals:		0.000	

*** End of Report ***

4/22/14

Customized Report: D5504

Injection Date : 4/22/2013 8:31:52 AM Seq. Line : 14
Sample Name : Method Blank Inj. Vol. :Manually
Multiplier : 1.00
Dilution : 1.00
Acq Operator : DH
Acq. Instrument : GC/SCD #10
Acq. Method : ASTM5504.M
Analysis Method : C:\HPCHEM\1\METHODS\D041913.M



Uncalibrated Peaks : using compound H2S

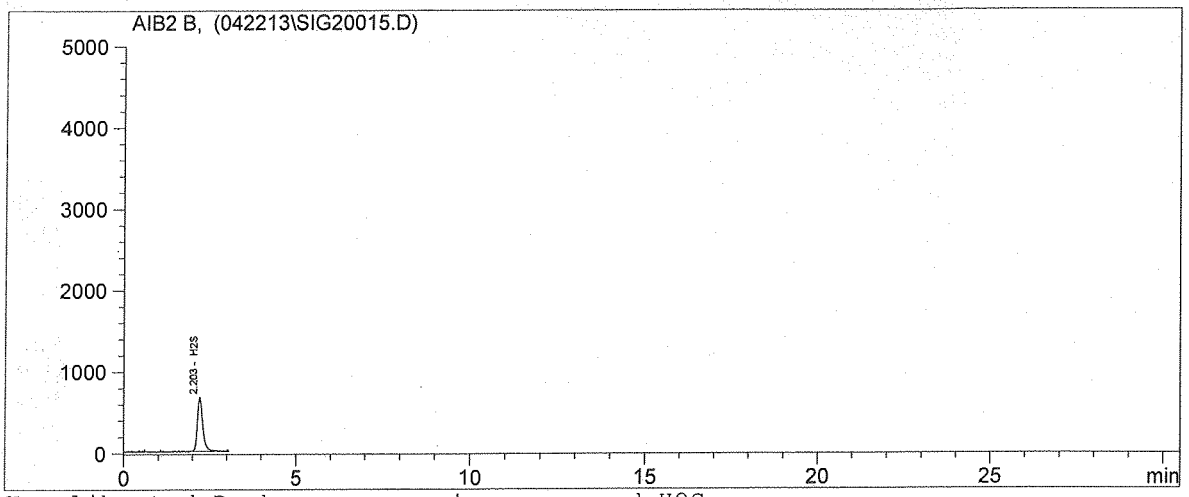
Ret Time [min]	Area	Amount [ppbV]	Name
0.000	0	0.000	H2S
0.000	0	0.000	COS
0.000	0	0.000	Methyl Mercaptan
0.000	0	0.000	Ethyl Mercaptan
0.000	0	0.000	Dimethyl Sulfide
0.000	0	0.000	Carbon Disulfide
0.000	0	0.000	Iso-propyl Mercaptan
0.000	0	0.000	Tert-butyl Mercaptan
0.000	0	0.000	N-propyl Mercaptan
0.000	0	0.000	Ethyl Methyl Sulfide
0.000	0	0.000	Sec-butyl Mercaptan
0.000	0	0.000	Thiophene
0.000	0	0.000	Iso-butyl Mercaptan
0.000	0	0.000	Diethyl Sulfide
0.000	0	0.000	N-butyl Mercaptan
0.000	0	0.000	Dimethyl Disulfide
0.000	0	0.000	2-Methylthiophene
0.000	0	0.000	3-Methylthiophene
0.000	0	0.000	Tetrahydrothiophene
0.000	0	0.000	n-Pentyl Mercaptan
0.000	0	0.000	2-Ethylthiophene
0.000	0	0.000	2,5-Dimethylthiophene
0.000	0	0.000	n-Hexyl Mercaptan
0.000	0	0.000	Diethyl Disulfide
0.000	0	0.000	2-Propylthiophene
0.000	0	0.000	Dimethyl Trisulfide
0.000	0	0.000	n-Heptyl Mercaptan
0.000	0	0.000	2-Butylthiophene
0.000	0	0.000	Dipropyl Disulfide
0.000	0	0.000	n-Octyl Mercaptan
0.000	0	0.000	Dipropyl Trisulfide
Totals:		0.000	

*** End of Report ***

4/22/13

Customized Report: D5504

Injection Date : 4/22/2013 9:19:15 AM Seq. Line : 15
Sample Name : CCV 500ppbV SS0677 ->Inj. Vol. :Manually
Multiplier : 1.00
Dilution : 1.00
Acq Operator : DH
Acq. Instrument : GC/SCD #10
Acq. Method : ASTM5504.M
Analysis Method : C:\HPCHEM\1\METHODS\D042213.M



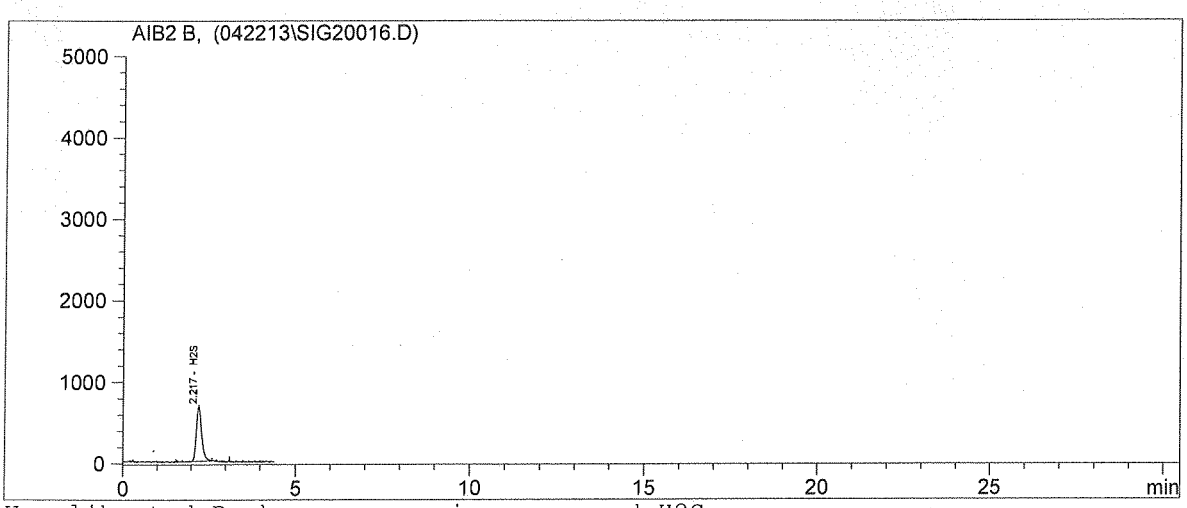
Uncalibrated Peaks : using compound H2S

Ret Time [min]	Area	Amount [ppbV]	Name
2.203	7131	487.533	H2S
0.000	0	0.000	COS
0.000	0	0.000	Methyl Mercaptan
0.000	0	0.000	Ethyl Mercaptan
0.000	0	0.000	Dimethyl Sulfide
0.000	0	0.000	Carbon Disulfide
0.000	0	0.000	Iso-propyl Mercaptan
0.000	0	0.000	Tert-butyl Mercaptan
0.000	0	0.000	N-propyl Mercaptan
0.000	0	0.000	Ethyl Methyl Sulfide
0.000	0	0.000	Sec-butyl Mercaptan
0.000	0	0.000	Thiophene
0.000	0	0.000	Iso-butyl Mercaptan
0.000	0	0.000	Diethyl Sulfide
0.000	0	0.000	N-butyl Mercaptan
0.000	0	0.000	Dimethyl Disulfide
0.000	0	0.000	2-Methylthiophene
0.000	0	0.000	3-Methylthiophene
0.000	0	0.000	Tetrahydrothiophene
0.000	0	0.000	n-Pentyl Mercaptan
0.000	0	0.000	2-Ethylthiophene
0.000	0	0.000	2,5-Dimethylthiophene
0.000	0	0.000	n-Hexyl Mercaptan
0.000	0	0.000	Diethyl Disulfide
0.000	0	0.000	2-Propylthiophene
0.000	0	0.000	Dimethyl Trisulfide
0.000	0	0.000	n-Heptyl Mercaptan
0.000	0	0.000	2-Butylthiophene
0.000	0	0.000	Dipropyl Disulfide
0.000	0	0.000	n-Octyl Mercaptan
0.000	0	0.000	Dipropyl Trisulfide
Totals:		487.533	

*** End of Report ***

Customized Report: D5504

Injection Date : 4/22/2013 9:27:50 AM Seq. Line : 16
Sample Name : CCV 500ppbV dp SS0677 ->Inj. Vol. :Manually
Multiplier : 1.00
Dilution : 1.00
Acq Operator : DH
Acq. Instrument : GC/SCD #10
Acq. Method : ASTM5504.M
Analysis Method : C:\HPCHEM\1\METHODS\D042213.M



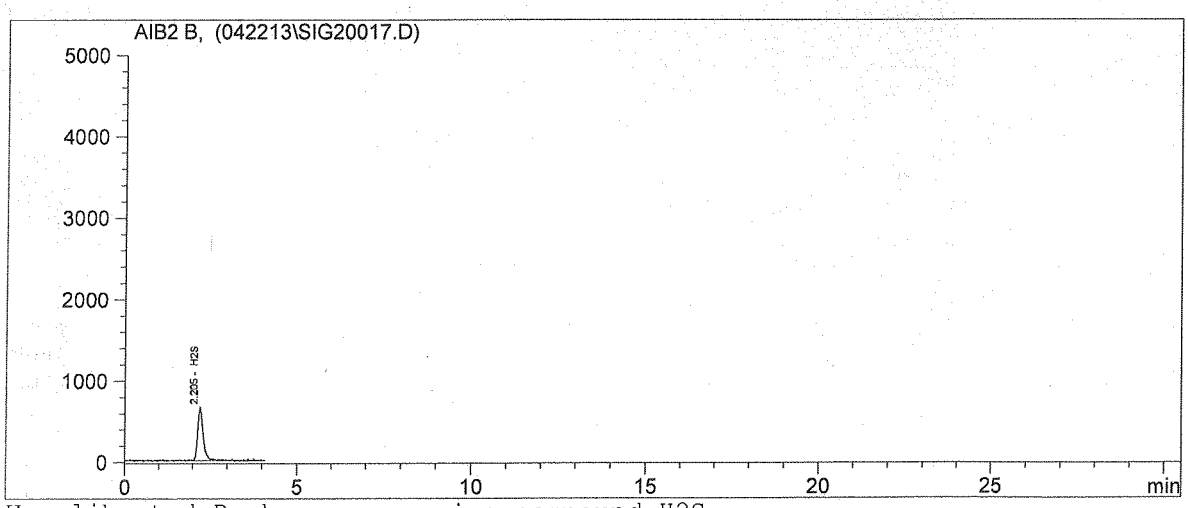
Uncalibrated Peaks : using compound H2S

Ret Time [min]	Area	Amount [ppbV]	Name
2.217	7187	491.352	H2S
0.000	0	0.000	COS
0.000	0	0.000	Methyl Mercaptan
0.000	0	0.000	Ethyl Mercaptan
0.000	0	0.000	Dimethyl Sulfide
0.000	0	0.000	Carbon Disulfide
0.000	0	0.000	Iso-propyl Mercaptan
0.000	0	0.000	Tert-butyl Mercaptan
0.000	0	0.000	N-propyl Mercaptan
0.000	0	0.000	Ethyl Methyl Sulfide
0.000	0	0.000	Sec-butyl Mercaptan
0.000	0	0.000	Thiophene
0.000	0	0.000	Iso-butyl Mercaptan
0.000	0	0.000	Diethyl Sulfide
0.000	0	0.000	N-butyl Mercaptan
0.000	0	0.000	Dimethyl Disulfide
0.000	0	0.000	2-Methylthiophene
0.000	0	0.000	3-Methylthiophene
0.000	0	0.000	Tetrahydrothiophene
0.000	0	0.000	n-Pentyl Mercaptan
0.000	0	0.000	2-Ethylthiophene
0.000	0	0.000	2,5-Dimethylthiophene
0.000	0	0.000	n-Hexyl Mercaptan
0.000	0	0.000	Diethyl Disulfide
0.000	0	0.000	2-Propylthiophene
0.000	0	0.000	Dimethyl Trisulfide
0.000	0	0.000	n-Heptyl Mercaptan
0.000	0	0.000	2-Butylthiophene
0.000	0	0.000	Dipropyl Disulfide
0.000	0	0.000	n-Octyl Mercaptan
0.000	0	0.000	Dipropyl Trisulfide
Totals:		491.352	

*** End of Report ***

Customized Report: D5504

Injection Date : 4/22/2013 9:33:08 AM Seq. Line : 17
Sample Name : CCV 500ppbV tp SS0677 ->Inj. Vol. :Manually
Multiplier : 1.00
Dilution : 1.00
Acq Operator : DH
Acq. Instrument : GC/SCD #10
Acq. Method : ASTM5504.M
Analysis Method : C:\HPCHEM\1\METHODS\D042213.M



Uncalibrated Peaks : using compound H2S

Ret Time [min]	Area	Amount [ppbV]	Name
2.205	7043	481.524	H2S
0.000	0	0.000	COS
0.000	0	0.000	Methyl Mercaptan
0.000	0	0.000	Ethyl Mercaptan
0.000	0	0.000	Dimethyl Sulfide
0.000	0	0.000	Carbon Disulfide
0.000	0	0.000	Iso-propyl Mercaptan
0.000	0	0.000	Tert-butyl Mercaptan
0.000	0	0.000	N-propyl Mercaptan
0.000	0	0.000	Ethyl Methyl Sulfide
0.000	0	0.000	Sec-butyl Mercaptan
0.000	0	0.000	Thiophene
0.000	0	0.000	Iso-butyl Mercaptan
0.000	0	0.000	Diethyl Sulfide
0.000	0	0.000	N-butyl Mercaptan
0.000	0	0.000	Dimethyl Disulfide
0.000	0	0.000	2-Methylthiophene
0.000	0	0.000	3-Methylthiophene
0.000	0	0.000	Tetrahydrothiophene
0.000	0	0.000	n-Pentyl Mercaptan
0.000	0	0.000	2-Ethylthiophene
0.000	0	0.000	2,5-Dimethylthiophene
0.000	0	0.000	n-Hexyl Mercaptan
0.000	0	0.000	Diethyl Disulfide
0.000	0	0.000	2-Propylthiophene
0.000	0	0.000	Dimethyl Trisulfide
0.000	0	0.000	n-Heptyl Mercaptan
0.000	0	0.000	2-Butylthiophene
0.000	0	0.000	Dipropyl Disulfide
0.000	0	0.000	n-Octyl Mercaptan
0.000	0	0.000	Dipropyl Trisulfide
		481.524	

Totals:

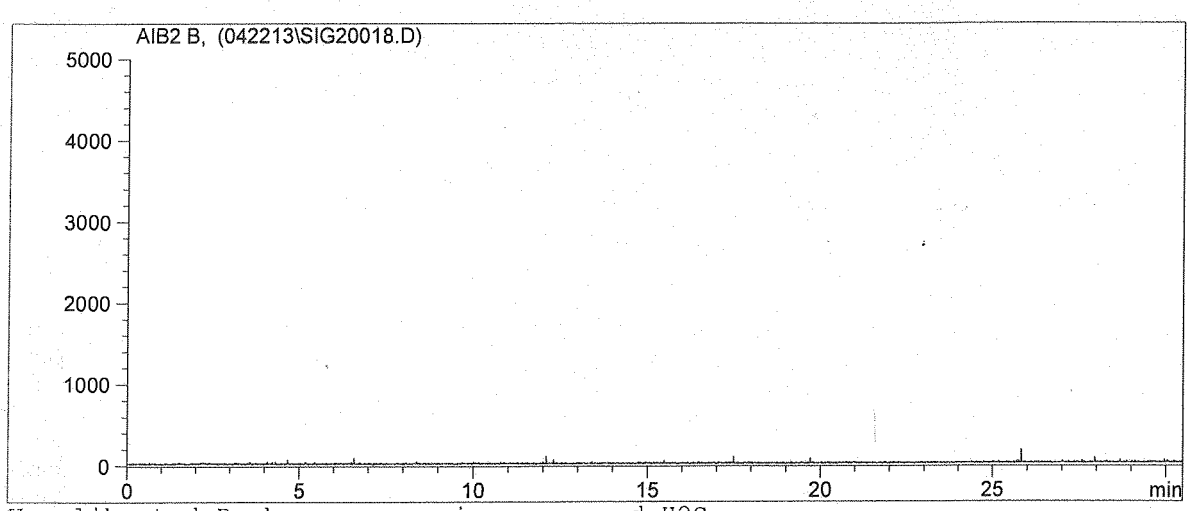
*** End of Report ***

4/22/13

Customized Report: D5504

Injection Date : 4/22/2013 9:43:30 AM
Sample Name : 130456-62447 x1
Multiplier : 1.00
Dilution : 1.00
Acq Operator : DH
Acq. Instrument : GC/SCD #10
Acq. Method : ASTM5504.M
Analysis Method : C:\HPCHEM\1\METHODS\D042213.M

Seq. Line : 18
Inj. Vol. :Manually



Uncalibrated Peaks : using compound H2S

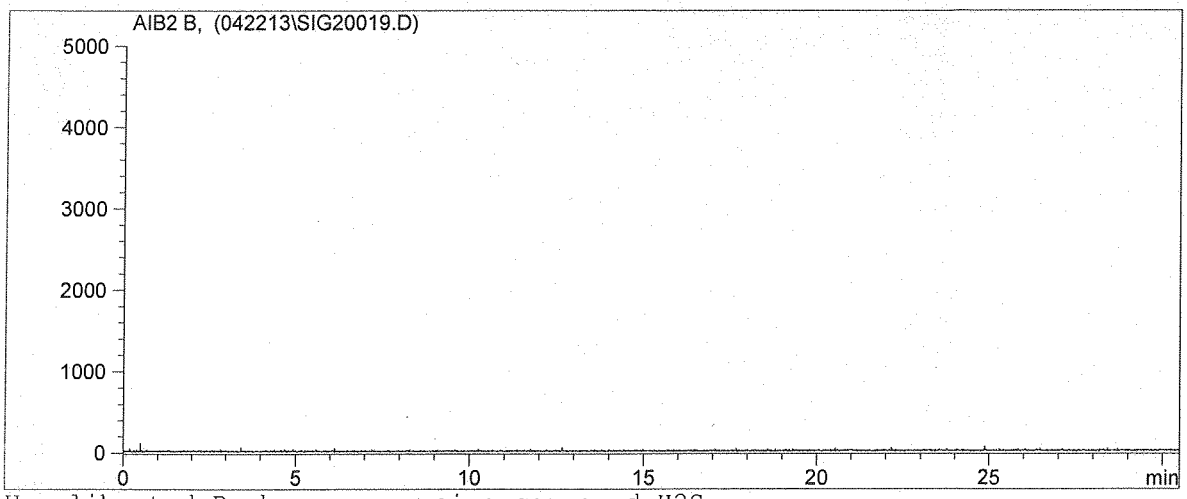
Ret Time [min]	Area	Amount [ppbV]	Name
0.000	0	0.000	H2S
0.000	0	0.000	COS
0.000	0	0.000	Methyl Mercaptan
0.000	0	0.000	Ethyl Mercaptan
0.000	0	0.000	Dimethyl Sulfide
0.000	0	0.000	Carbon Disulfide
0.000	0	0.000	Iso-propyl Mercaptan
0.000	0	0.000	Tert-butyl Mercaptan
0.000	0	0.000	N-propyl Mercaptan
0.000	0	0.000	Ethyl Methyl Sulfide
0.000	0	0.000	Sec-butyl Mercaptan
0.000	0	0.000	Thiophene
0.000	0	0.000	Iso-butyl Mercaptan
0.000	0	0.000	Diethyl Sulfide
0.000	0	0.000	N-butyl Mercaptan
0.000	0	0.000	Dimethyl Disulfide
0.000	0	0.000	2-Methylthiophene
0.000	0	0.000	3-Methylthiophene
0.000	0	0.000	Tetrahydrothiophene
0.000	0	0.000	n-Pentyl Mercaptan
0.000	0	0.000	2-Ethylthiophene
0.000	0	0.000	2,5-Dimethylthiophene
0.000	0	0.000	n-Hexyl Mercaptan
0.000	0	0.000	Diethyl Disulfide
0.000	0	0.000	2-Propylthiophene
0.000	0	0.000	Dimethyl Trisulfide
0.000	0	0.000	n-Heptyl Mercaptan
0.000	0	0.000	2-Butylthiophene
0.000	0	0.000	Dipropyl Disulfide
0.000	0	0.000	n-Octyl Mercaptan
0.000	0	0.000	Dipropyl Trisulfide
Totals:		0.000	

*** End of Report ***

4/22/13

Customized Report: D5504

Injection Date : 4/22/2013 10:20:34 AM Seq. Line : 19
Sample Name : 130456-62447 x1 dp ->Inj. Vol. :Manually
Multiplier : 1.00
Dilution : 1.00
Acq Operator : DH
Acq. Instrument : GC/SCD #10
Acq. Method : ASTM5504.M
Analysis Method : C:\HPCHEM\1\METHODS\D042213.M



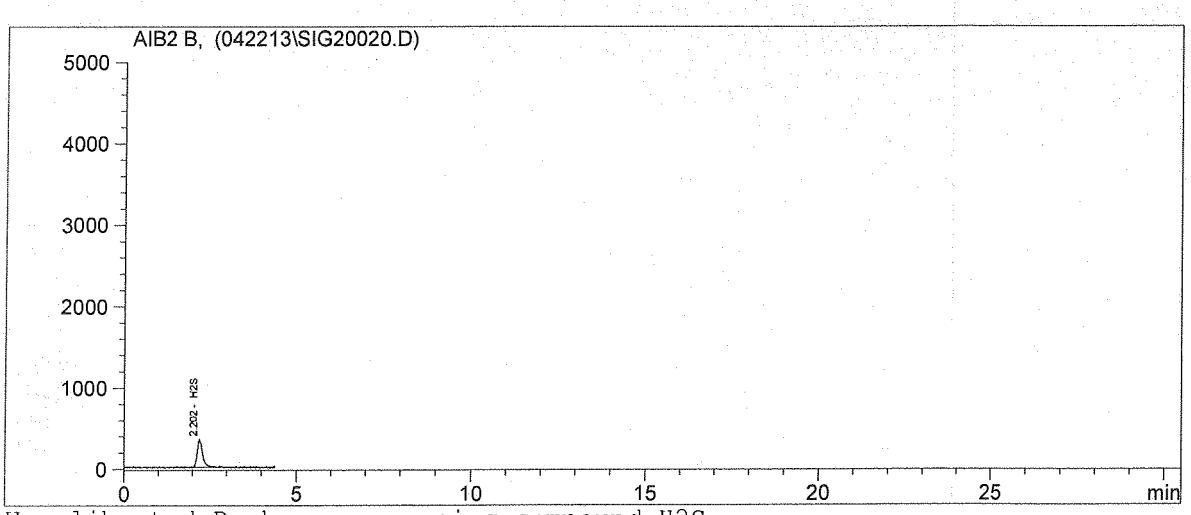
Uncalibrated Peaks : using compound H2S

Ret Time [min]	Area	Amount [ppbV]	Name
0.000	0	0.000	H2S
0.000	0	0.000	COS
0.000	0	0.000	Methyl Mercaptan
0.000	0	0.000	Ethyl Mercaptan
0.000	0	0.000	Dimethyl Sulfide
0.000	0	0.000	Carbon Disulfide
0.000	0	0.000	Iso-propyl Mercaptan
0.000	0	0.000	Tert-butyl Mercaptan
0.000	0	0.000	N-propyl Mercaptan
0.000	0	0.000	Ethyl Methyl Sulfide
0.000	0	0.000	Sec-butyl Mercaptan
0.000	0	0.000	Thiophene
0.000	0	0.000	Iso-butyl Mercaptan
0.000	0	0.000	Diethyl Sulfide
0.000	0	0.000	N-butyl Mercaptan
0.000	0	0.000	Dimethyl Disulfide
0.000	0	0.000	2-Methylthiophene
0.000	0	0.000	3-Methylthiophene
0.000	0	0.000	Tetrahydrothiophene
0.000	0	0.000	n-Pentyl Mercaptan
0.000	0	0.000	2-Ethylthiophene
0.000	0	0.000	2,5-Dimethylthiophene
0.000	0	0.000	n-Hexyl Mercaptan
0.000	0	0.000	Diethyl Disulfide
0.000	0	0.000	2-Propylthiophene
0.000	0	0.000	Dimethyl Trisulfide
0.000	0	0.000	n-Heptyl Mercaptan
0.000	0	0.000	2-Butylthiophene
0.000	0	0.000	Dipropyl Disulfide
0.000	0	0.000	n-Octyl Mercaptan
0.000	0	0.000	Dipropyl Trisulfide
Totals:		0.000	

*** End of Report ***

Customized Report: D5504

Injection Date : 4/22/2013 11:18:23 AM Seq. Line : 20
Sample Name : MS 62447 SS0677 ->Inj. Vol. :Manually
Multiplier : 1.00
Dilution : 1.00
Acq Operator : DH
Acq. Instrument : GC/SCD #10
Acq. Method : ASTM5504.M
Analysis Method : C:\HPCHEM\1\METHODS\D042213.M



Uncalibrated Peaks : using compound H2S

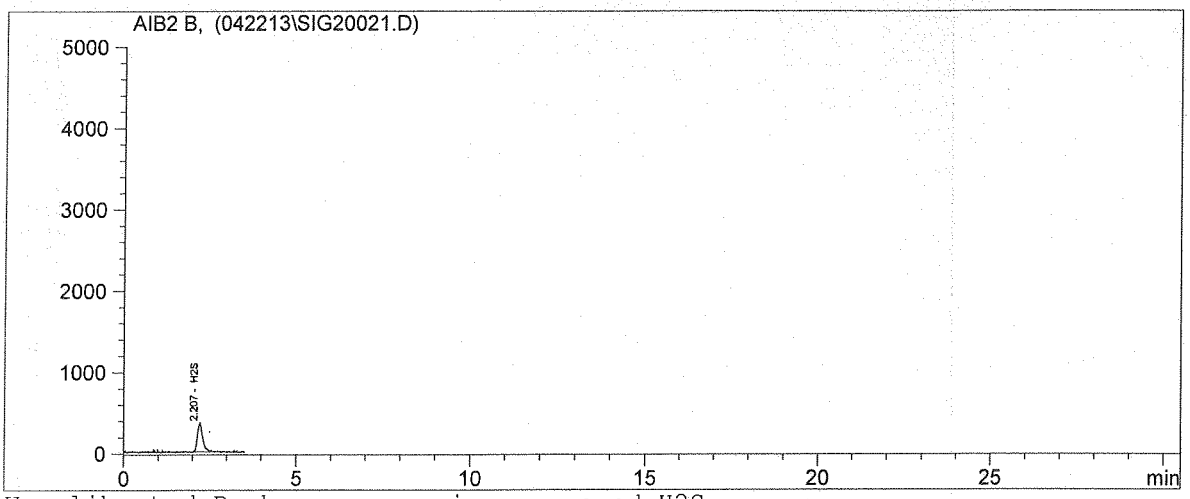
Ret Time [min]	Area	Amount [ppbV]	Name
2.202	3600	246.119	H2S
0.000	0	0.000	COS
0.000	0	0.000	Methyl Mercaptan
0.000	0	0.000	Ethyl Mercaptan
0.000	0	0.000	Dimethyl Sulfide
0.000	0	0.000	Carbon Disulfide
0.000	0	0.000	Iso-propyl Mercaptan
0.000	0	0.000	Tert-butyl Mercaptan
0.000	0	0.000	N-propyl Mercaptan
0.000	0	0.000	Ethyl Methyl Sulfide
0.000	0	0.000	Sec-butyl Mercaptan
0.000	0	0.000	Thiophene
0.000	0	0.000	Iso-butyl Mercaptan
0.000	0	0.000	Diethyl Sulfide
0.000	0	0.000	N-butyl Mercaptan
0.000	0	0.000	Dimethyl Disulfide
0.000	0	0.000	2-Methylthiophene
0.000	0	0.000	3-Methylthiophene
0.000	0	0.000	Tetrahydrothiophene
0.000	0	0.000	n-Pentyl Mercaptan
0.000	0	0.000	2-Ethylthiophene
0.000	0	0.000	2,5-Dimethylthiophene
0.000	0	0.000	n-Hexyl Mercaptan
0.000	0	0.000	Diethyl Disulfide
0.000	0	0.000	2-Propylthiophene
0.000	0	0.000	Dimethyl Trisulfide
0.000	0	0.000	n-Heptyl Mercaptan
0.000	0	0.000	2-Butylthiophene
0.000	0	0.000	Dipropyl Disulfide
0.000	0	0.000	n-Octyl Mercaptan
0.000	0	0.000	Dipropyl Trisulfide
Totals:		246.119	

*** End of Report ***

4/24/13

Customized Report: D5504

Injection Date : 4/22/2013 11:23:57 AM Seq. Line : 21
Sample Name : MSD 62447 SS0677 ->Inj. Vol. :Manually
Multiplier : 1.00
Dilution : 1.00
Acq Operator : DH
Acq. Instrument : GC/SCD #10
Acq. Method : ASTM5504.M
Analysis Method : C:\HPCHEM\1\METHODS\D042213.M



Uncalibrated Peaks : using compound H2S

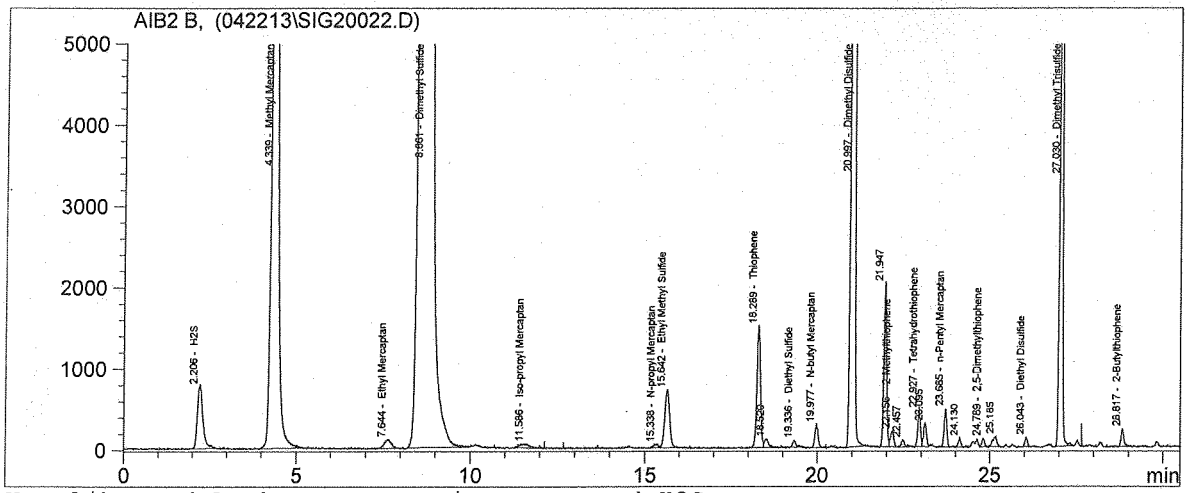
Ret Time [min]	Area	Amount [ppbV]	Name
2.207	3640	248.888	H2S
0.000	0	0.000	COS
0.000	0	0.000	Methyl Mercaptan
0.000	0	0.000	Ethyl Mercaptan
0.000	0	0.000	Dimethyl Sulfide
0.000	0	0.000	Carbon Disulfide
0.000	0	0.000	Iso-propyl Mercaptan
0.000	0	0.000	Tert-butyl Mercaptan
0.000	0	0.000	N-propyl Mercaptan
0.000	0	0.000	Ethyl Methyl Sulfide
0.000	0	0.000	Sec-butyl Mercaptan
0.000	0	0.000	Thiophene
0.000	0	0.000	Iso-butyl Mercaptan
0.000	0	0.000	Diethyl Sulfide
0.000	0	0.000	N-butyl Mercaptan
0.000	0	0.000	Dimethyl Disulfide
0.000	0	0.000	2-Methylthiophene
0.000	0	0.000	3-Methylthiophene
0.000	0	0.000	Tetrahydrothiophene
0.000	0	0.000	n-Pentyl Mercaptan
0.000	0	0.000	2-Ethylthiophene
0.000	0	0.000	2,5-Dimethylthiophene
0.000	0	0.000	n-Hexyl Mercaptan
0.000	0	0.000	Diethyl Disulfide
0.000	0	0.000	2-Propylthiophene
0.000	0	0.000	Dimethyl Trisulfide
0.000	0	0.000	n-Heptyl Mercaptan
0.000	0	0.000	2-Butylthiophene
0.000	0	0.000	Dipropyl Disulfide
0.000	0	0.000	n-Octyl Mercaptan
0.000	0	0.000	Dipropyl Trisulfide
Totals:		248.888	

*** End of Report ***

4/23/13

Customized Report: D5504

Injection Date : 4/22/2013 11:30:36 AM
Sample Name : 130456-62456 x5
Multiplier : 1.00
Dilution : 5.00
Acq Operator : DH
Acq. Instrument : GC/SCD #10
Acq. Method : ASTM5504.M
Analysis Method : C:\HPCHEM\1\METHODS\D042213.M
Seq. Line : 22
Inj. Vol. :Manually



Uncalibrated Peaks : using compound H2S

Ret Time [min]	Area	Amount [ppbV]	Name
2.206	8676	2966.045	H2S
0.000	0	0.000	COS
4.339	112354	38408.955	Methyl Mercaptan NR - over curve see x500
7.644	1455	497.301	Ethyl Mercaptan
8.661	1070150	~~365838.233~~	Dimethyl Sulfide NR peaked out
0.000	0	0.000	Carbon Disulfide
11.586	1099	375.713	Iso-propyl Mercaptan
0.000	0	0.000	Tert-butyl Mercaptan
15.338	407	139.166	N-propyl Mercaptan
15.642	7014	2397.888	Ethyl Methyl Sulfide
0.000	0	0.000	Sec-butyl Mercaptan
18.289	11015	3765.608	Thiophene
18.520	840	287.275	
0.000	0	0.000	Iso-butyl Mercaptan
19.336	480	164.148	Diethyl Sulfide
19.977	1795	613.777	N-butyl Mercaptan
20.997	145935	49888.832	Dimethyl Disulfide NR - over curve see x500
21.947	11200	3828.650	
22.156	1295	442.740	2-Methylthiophene
0.000	0	0.000	3-Methylthiophene
22.457	520	177.886	
22.927	2437	833.139	Tetrahydrothiophene
23.095	1729	590.912	
23.685	2526	863.625	n-Pentyl Mercaptan
24.130	526	179.833	
0.000	0	0.000	2-Ethylthiophene
24.789	540	184.603	2,5-Dimethylthiophene
25.185	1083	370.244	
0.000	0	0.000	n-Hexyl Mercaptan
26.043	504	172.309	Diethyl Disulfide
0.000	0	0.000	2-Propylthiophene
27.030	49541	16935.927	Dimethyl Trisulfide – NR over curve see x500
0.000	0	0.000	n-Heptyl Mercaptan
28.817	1215	415.461	2-Butylthiophene
0.000	0	0.000	Dipropyl Disulfide
0.000	0	0.000	n-Octyl Mercaptan

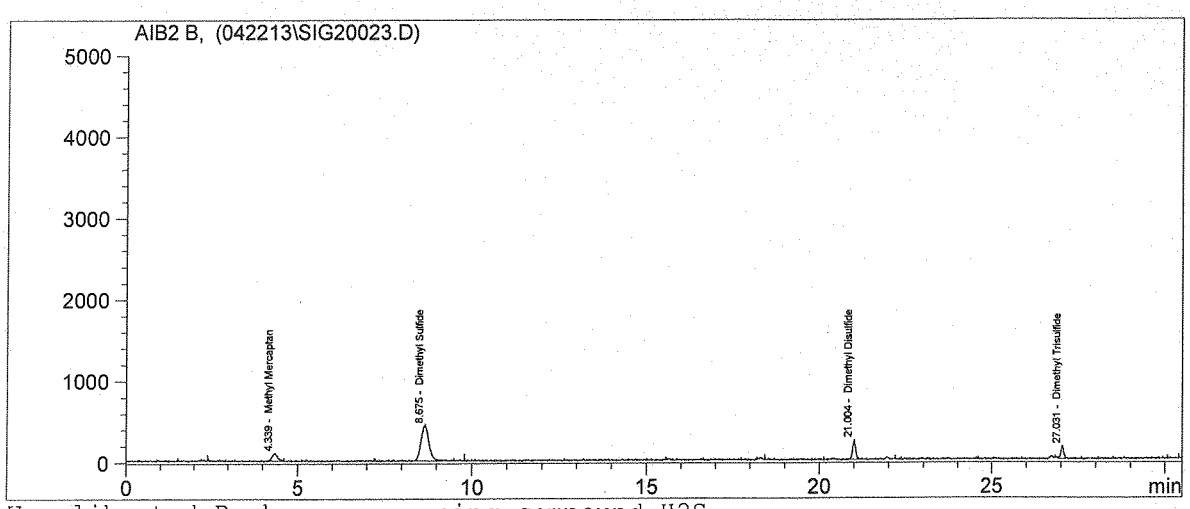
Ret Time [min]	Area	Amount [ppbV]	Name
0.000	0	0.000	Dipropyl Trisulfide
Totals:		490338.268	

*** End of Report ***

4/24/13

Customized Report: D5504

Injection Date : 4/22/2013 1:45:02 PM
Sample Name : 130456-62456x500
Multiplier : 1.00
Dilution : 500.00
Acq Operator : DH
Acq. Instrument : GC/SCD #10
Acq. Method : ASTM5504.M
Analysis Method : C:\HPCHEM\1\METHODS\D042213.M
Seq. Line : 23
Inj. Vol. :Manually



Uncalibrated Peaks : using compound H2S

Ret Time [min]	Area	Amount [ppbV]	Name
0.000	0	0.000	H2S
0.000	0	0.000	COS
4.339	1068	36511.221	Methyl Mercaptan
0.000	0	0.000	Ethyl Mercaptan
8.675	6792	232184.595	Dimethyl Sulfide
0.000	0	0.000	Carbon Disulfide
0.000	0	0.000	Iso-propyl Mercaptan
0.000	0	0.000	Tert-butyl Mercaptan
0.000	0	0.000	N-propyl Mercaptan
0.000	0	0.000	Ethyl Methyl Sulfide
0.000	0	0.000	Sec-butyl Mercaptan
0.000	0	0.000	Thiophene
0.000	0	0.000	Iso-butyl Mercaptan
0.000	0	0.000	Diethyl Sulfide
0.000	0	0.000	N-butyl Mercaptan
21.004	1382	47245.997	Dimethyl Disulfide
0.000	0	0.000	2-Methylthiophene
0.000	0	0.000	3-Methylthiophene
0.000	0	0.000	Tetrahydrothiophene
0.000	0	0.000	n-Pentyl Mercaptan
0.000	0	0.000	2-Ethylthiophene
0.000	0	0.000	2,5-Dimethylthiophene
0.000	0	0.000	n-Hexyl Mercaptan
0.000	0	0.000	Diethyl Disulfide
0.000	0	0.000	2-Propylthiophene
27.031	904	30908.199	Dimethyl Trisulfide
0.000	0	0.000	n-Heptyl Mercaptan
0.000	0	0.000	2-Butylthiophene
0.000	0	0.000	Dipropyl Disulfide
0.000	0	0.000	n-Octyl Mercaptan
0.000	0	0.000	Dipropyl Trisulfide
Totals:		346850.013	

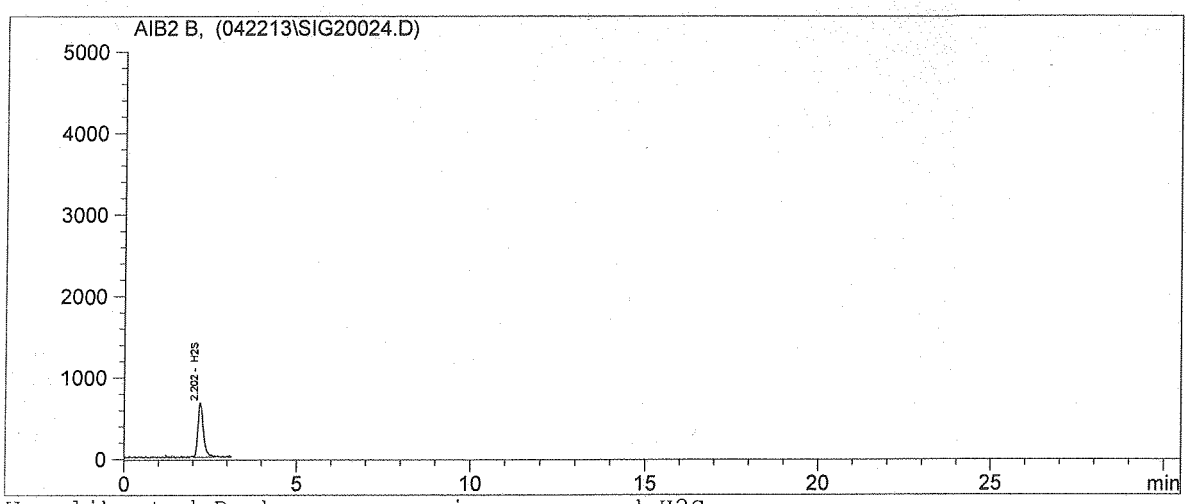
*** End of Report ***

4/22/13

Customized Report: D5504

Injection Date : 4/22/2013 2:26:41 PM
Sample Name : CCV 500ppbV
Multiplier : 1.00
Dilution : 1.00
Acq Operator : DH
Acq. Instrument : GC/SCD #10
Acq. Method : ASTM5504.M
Analysis Method : C:\HPCHEM\1\METHODS\D042213.M

Seq. Line : 24
Inj. Vol. :Manually



Uncalibrated Peaks : using compound H2S

Ret Time [min]	Area	Amount [ppbV]	Name
2.202	7337	501.658	H2S
0.000	0	0.000	COS
0.000	0	0.000	Methyl Mercaptan
0.000	0	0.000	Ethyl Mercaptan
0.000	0	0.000	Dimethyl Sulfide
0.000	0	0.000	Carbon Disulfide
0.000	0	0.000	Iso-propyl Mercaptan
0.000	0	0.000	Tert-butyl Mercaptan
0.000	0	0.000	N-propyl Mercaptan
0.000	0	0.000	Ethyl Methyl Sulfide
0.000	0	0.000	Sec-butyl Mercaptan
0.000	0	0.000	Thiophene
0.000	0	0.000	Iso-butyl Mercaptan
0.000	0	0.000	Diethyl Sulfide
0.000	0	0.000	N-butyl Mercaptan
0.000	0	0.000	Dimethyl Disulfide
0.000	0	0.000	2-Methylthiophene
0.000	0	0.000	3-Methylthiophene
0.000	0	0.000	Tetrahydrothiophene
0.000	0	0.000	n-Pentyl Mercaptan
0.000	0	0.000	2-Ethylthiophene
0.000	0	0.000	2,5-Dimethylthiophene
0.000	0	0.000	n-Hexyl Mercaptan
0.000	0	0.000	Diethyl Disulfide
0.000	0	0.000	2-Propylthiophene
0.000	0	0.000	Dimethyl Trisulfide
0.000	0	0.000	n-Heptyl Mercaptan
0.000	0	0.000	2-Butylthiophene
0.000	0	0.000	Dipropyl Disulfide
0.000	0	0.000	n-Octyl Mercaptan
0.000	0	0.000	Dipropyl Trisulfide
Totals:		501.658	

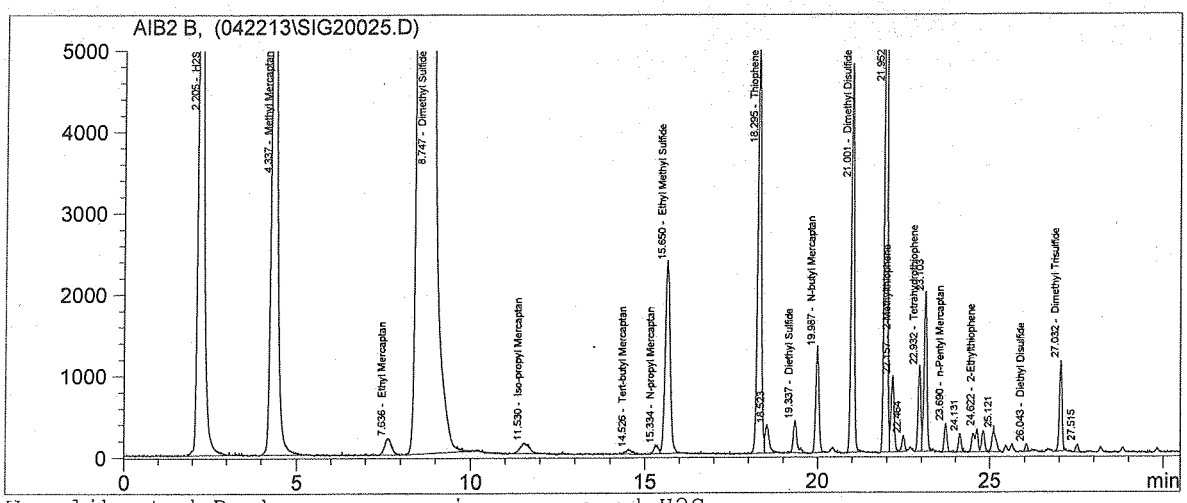
*** End of Report ***

4/22/13

Customized Report: D5504

Injection Date : 4/22/2013 2:31:57 PM
Sample Name : 130456-62465 x10
Multiplier : 1.00
Dilution : 10.00
Acq Operator : DH
Acq. Instrument : GC/SCD #10
Acq. Method : ASTM5504.M
Analysis Method : C:\HPCHEM\1\METHODS\D042213.M

Seq. Line : 25
Inj. Vol. :Manually



Uncalibrated Peaks : using compound H2S

Ret Time [min]	Area	Amount [ppbV]	Name
2.205	89671	61308.794	H2S NR - over curve - see xs00
0.000	0	0.000	COS
4.337	85426	58407.139	Methyl Mercaptan NR - over curve - see xs00
7.636	2832	1935.985	Ethyl Mercaptan
8.747	1555824	~~1063738.291~~	Dimethyl Sulfide NR peaked out.
0.000	0	0.000	Carbon Disulfide
11.530	2342	1601.083	Iso-propyl Mercaptan
14.526	762	521.119	Tert-butyl Mercaptan
15.334	933	637.752	N-propyl Mercaptan
15.650	23075	15776.985	Ethyl Methyl Sulfide
0.000	0	0.000	Sec-butyl Mercaptan
18.295	36387	24878.443	Thiophene NR - over curve - see xs00
18.523	2803	1916.332	
0.000	0	0.000	Iso-butyl Mercaptan
19.337	2977	2035.617	Diethyl Sulfide
19.987	8313	5683.786	N-butyl Mercaptan
21.001	28406	19421.370	Dimethyl Disulfide NR - over curve - see xs00
21.952	48104	32889.112	
22.157	5842	3994.520	2-Methylthiophene
0.000	0	0.000	3-Methylthiophene
22.464	1079	737.559	
22.932	5826	3983.250	Tetrahydrothiophene
23.103	11341	7753.631	
23.690	1956	1337.610	n-Pentyl Mercaptan
24.131	1380	943.549	
24.622	4111	2810.941	2-Ethylthiophene
0.000	0	0.000	2,5-Dimethylthiophene
25.121	2301	1572.886	
0.000	0	0.000	n-Hexyl Mercaptan
26.043	422	288.382	Diethyl Disulfide
0.000	0	0.000	2-Propylthiophene
27.032	5982	4090.273	Dimethyl Trisulfide
27.515	504	344.277	
0.000	0	0.000	n-Heptyl Mercaptan
0.000	0	0.000	2-Butylthiophene
0.000	0	0.000	Dipropyl Disulfide

4/22/13

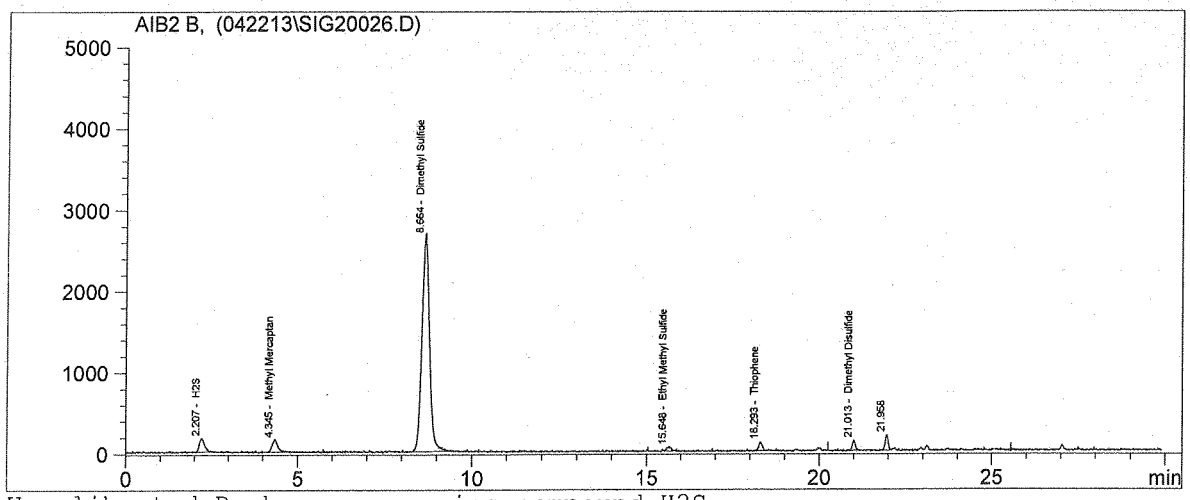
Data file : C:\HPCHEM\1\DATA\042213\SIG20025.D 2

Ret Time [min]	Area	Amount [ppbV]	Name
0.000	0	0.000	n-Octyl Mercaptan
0.000	0	0.000	Dipropyl Trisulfide
Totals:		1318608.687	

*** End of Report ***

Customized Report: D5504

Injection Date : 4/22/2013 3:11:07 PM Seq. Line : 26
Sample Name : 130456-62465x500 Inj. Vol. :Manually
Multiplier : 1.00
Dilution : 500.00
Acq Operator : DH
Acq. Instrument : GC/SCD #10
Acq. Method : ASTM5504.M
Analysis Method : C:\HPCHEM\1\METHODS\D042213.M



Uncalibrated Peaks : using compound H2S

Ret Time [min]	Area	Amount [ppbV]	Name
2.207	1804	61681.913	H2S
0.000	0	0.000	COS
4.345	1639	56027.444	Methyl Mercaptan
0.000	0	0.000	Ethyl Mercaptan
8.664	40249	1375939.038	Dimethyl Sulfide
0.000	0	0.000	Carbon Disulfide
0.000	0	0.000	Iso-propyl Mercaptan
0.000	0	0.000	Tert-butyl Mercaptan
0.000	0	0.000	N-propyl Mercaptan
15.648	525	17961.339	Ethyl Methyl Sulfide
0.000	0	0.000	Sec-butyl Mercaptan
18.293	748	25574.515	Thiophene
0.000	0	0.000	Iso-butyl Mercaptan
0.000	0	0.000	Diethyl Sulfide
0.000	0	0.000	N-butyl Mercaptan
21.013	754	25788.311	Dimethyl Disulfide
21.958	1097	37502.511	
0.000	0	0.000	2-Methylthiophene
0.000	0	0.000	3-Methylthiophene
0.000	0	0.000	Tetrahydrothiophene
0.000	0	0.000	n-Pentyl Mercaptan
0.000	0	0.000	2-Ethylthiophene
0.000	0	0.000	2,5-Dimethylthiophene
0.000	0	0.000	n-Hexyl Mercaptan
0.000	0	0.000	Diethyl Disulfide
0.000	0	0.000	2-Propylthiophene
0.000	0	0.000	Dimethyl Trisulfide
0.000	0	0.000	n-Heptyl Mercaptan
0.000	0	0.000	2-Butylthiophene
0.000	0	0.000	Dipropyl Disulfide
0.000	0	0.000	n-Octyl Mercaptan
0.000	0	0.000	Dipropyl Trisulfide
Totals:		1600475.072	

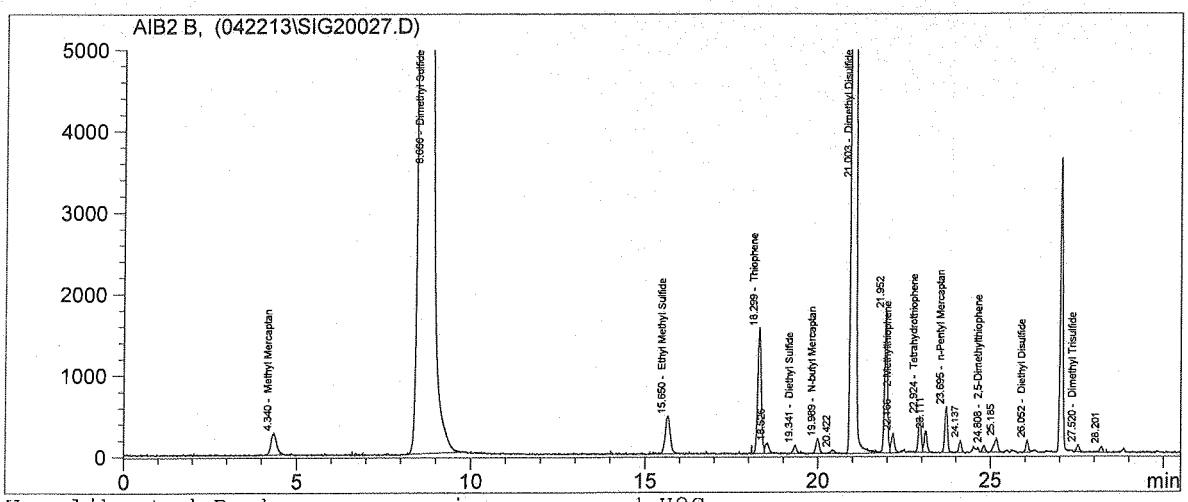
*** End of Report ***

4/22/13

Customized Report: D5504

Injection Date : 4/22/2013 3:47:59 PM
Sample Name : 130456-62474 x10
Multiplier : 1.00
Dilution : 10.00
Acq Operator : DH
Acq. Instrument : GC/SCD #10
Acq. Method : ASTM5504.M
Analysis Method : C:\HPCHEM\1\METHODS\D042213.M

Seq. Line : 27
Inj. Vol. :Manually



Uncalibrated Peaks : using compound H2S

Ret Time [min]	Area	Amount [ppbV]	Name
0.000	0	0.000	H2S
0.000	0	0.000	COS
4.340	3021	2065.233	Methyl Mercaptan
0.000	0	0.000	Ethyl Mercaptan
8.666	859732	~~587810.705~~	Dimethyl Sulfide NR - peeked out.
0.000	0	0.000	Carbon Disulfide
0.000	0	0.000	Iso-propyl Mercaptan
0.000	0	0.000	Tert-butyl Mercaptan
0.000	0	0.000	N-propyl Mercaptan
15.650	4505	3079.996	Ethyl Methyl Sulfide
0.000	0	0.000	Sec-butyl Mercaptan
18.299	10951	7487.581	Thiophene
18.526	1036	708.505	
0.000	0	0.000	Iso-butyl Mercaptan
19.341	691	472.131	Diethyl Sulfide
19.989	1186	811.126	N-butyl Mercaptan
20.422	283	193.738	
21.003	306629	209646.734	Dimethyl Disulfide NR - over curve - see x500
21.952	10157	6944.646	
22.166	1543	1055.219	2-Methylthiophene
0.000	0	0.000	3-Methylthiophene
22.924	2477	1693.373	Tetrahydrothiophene
23.111	1525	1042.363	
23.695	3187	2178.782	n-Pentyl Mercaptan
24.137	751	513.303	
0.000	0	0.000	2-Ethylthiophene
24.808	439	300.202	2,5-Dimethylthiophene
25.185	1339	915.658	
0.000	0	0.000	n-Hexyl Mercaptan
26.052	733	500.973	Diethyl Disulfide
0.000	0	0.000	2-Propylthiophene
27.520	473	323.730	Dimethyl Trisulfide
0.000	0	0.000	n-Heptyl Mercaptan
28.201	351	240.238	
0.000	0	0.000	2-Butylthiophene
0.000	0	0.000	Dipropyl Disulfide

4/22/13

Ret Time [min]	Area	Amount [ppbV]	Name
0.000	0	0.000	n-Octyl Mercaptan
0.000	0	0.000	Dipropyl Trisulfide
Totals:		827984.237	

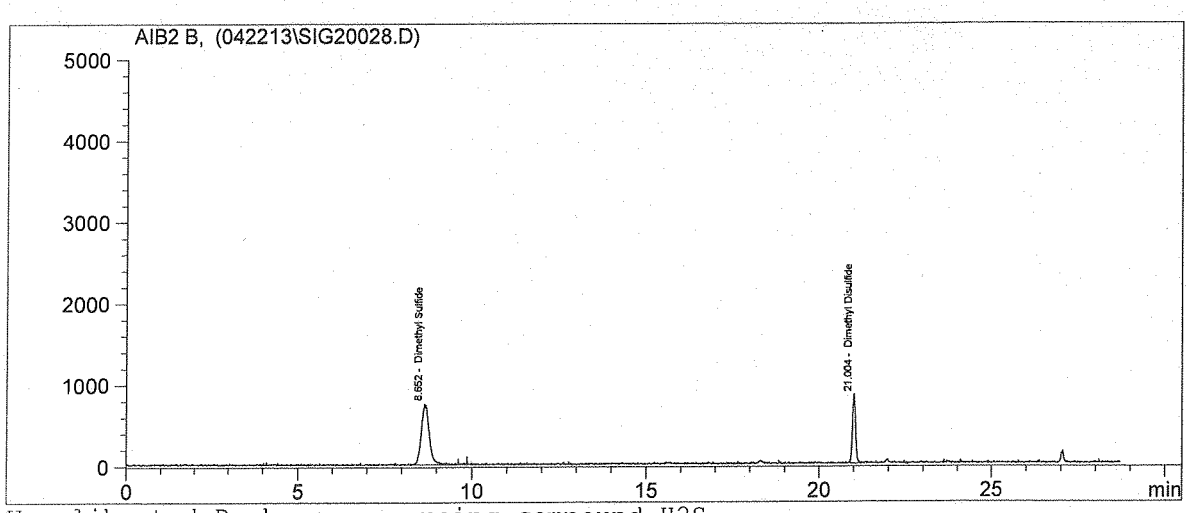
*** End of Report ***

4/22/13

Customized Report: D5504

Injection Date : 4/22/2013 4:24:11 PM
Sample Name : 130456-62465x500
Multiplier : 1.00
Dilution : 500.00
Acq Operator : DH
Acq. Instrument : GC/SCD #10
Acq. Method : ASTM5504.M
Analysis Method : C:\HPCHEM\1\METHODS\D042213.M

Seq. Line : 28
Inj. Vol. :Manually



Uncalibrated Peaks : using compound H2S

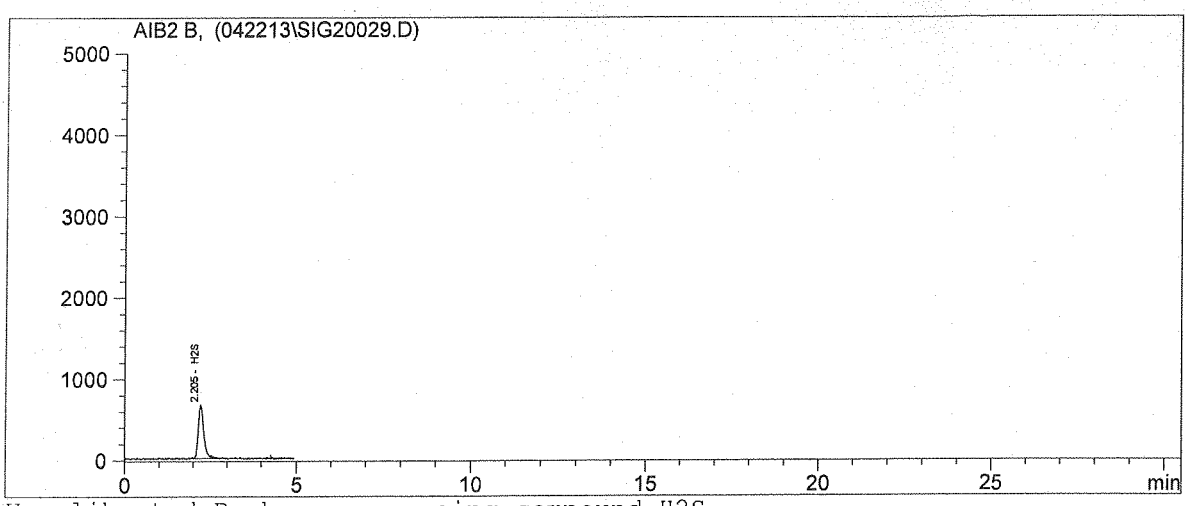
Ret Time [min]	Area	Amount [ppbV]	Name
0.000	0	0.000	H2S
0.000	0	0.000	COS
0.000	0	0.000	Methyl Mercaptan
0.000	0	0.000	Ethyl Mercaptan
8.652	11864	405573.030	Dimethyl Sulfide
0.000	0	0.000	Carbon Disulfide
0.000	0	0.000	Iso-propyl Mercaptan
0.000	0	0.000	Tert-butyl Mercaptan
0.000	0	0.000	N-propyl Mercaptan
0.000	0	0.000	Ethyl Methyl Sulfide
0.000	0	0.000	Sec-butyl Mercaptan
0.000	0	0.000	Thiophene
0.000	0	0.000	Iso-butyl Mercaptan
0.000	0	0.000	Diethyl Sulfide
0.000	0	0.000	N-butyl Mercaptan
21.004	5201	177796.136	Dimethyl Disulfide
0.000	0	0.000	2-Methylthiophene
0.000	0	0.000	3-Methylthiophene
0.000	0	0.000	Tetrahydrothiophene
0.000	0	0.000	n-Pentyl Mercaptan
0.000	0	0.000	2-Ethylthiophene
0.000	0	0.000	2,5-Dimethylthiophene
0.000	0	0.000	n-Hexyl Mercaptan
0.000	0	0.000	Diethyl Disulfide
0.000	0	0.000	2-Propylthiophene
0.000	0	0.000	Dimethyl Trisulfide
0.000	0	0.000	n-Heptyl Mercaptan
0.000	0	0.000	2-Butylthiophene
0.000	0	0.000	Dipropyl Disulfide
0.000	0	0.000	n-Octyl Mercaptan
0.000	0	0.000	Dipropyl Trisulfide
Totals:		583369.166	

*** End of Report ***

NK 4/22/13

Customized Report: D5504

Injection Date : 4/22/2013 5:01:52 PM Seq. Line : 29
Sample Name : CCV 500ppbV SS0677 ->Inj. Vol. :Manually
Multiplier : 1.00
Dilution : 1.00
Acq Operator : DH
Acq. Instrument : GC/SCD #10
Acq. Method : ASTM5504.M
Analysis Method : C:\HPCHEM\1\METHODS\D042213.M



Uncalibrated Peaks : using compound H2S

Ret Time [min]	Area	Amount [ppbV]	Name
2.205	7207	492.764	H2S
0.000	0	0.000	COS
0.000	0	0.000	Methyl Mercaptan
0.000	0	0.000	Ethyl Mercaptan
0.000	0	0.000	Dimethyl Sulfide
0.000	0	0.000	Carbon Disulfide
0.000	0	0.000	Iso-propyl Mercaptan
0.000	0	0.000	Tert-butyl Mercaptan
0.000	0	0.000	N-propyl Mercaptan
0.000	0	0.000	Ethyl Methyl Sulfide
0.000	0	0.000	Sec-butyl Mercaptan
0.000	0	0.000	Thiophene
0.000	0	0.000	Iso-butyl Mercaptan
0.000	0	0.000	Diethyl Sulfide
0.000	0	0.000	N-butyl Mercaptan
0.000	0	0.000	Dimethyl Disulfide
0.000	0	0.000	2-Methylthiophene
0.000	0	0.000	3-Methylthiophene
0.000	0	0.000	Tetrahydrothiophene
0.000	0	0.000	n-Pentyl Mercaptan
0.000	0	0.000	2-Ethylthiophene
0.000	0	0.000	2,5-Dimethylthiophene
0.000	0	0.000	n-Hexyl Mercaptan
0.000	0	0.000	Diethyl Disulfide
0.000	0	0.000	2-Propylthiophene
0.000	0	0.000	Dimethyl Trisulfide
0.000	0	0.000	n-Heptyl Mercaptan
0.000	0	0.000	2-Butylthiophene
0.000	0	0.000	Dipropyl Disulfide
0.000	0	0.000	n-Octyl Mercaptan
0.000	0	0.000	Dipropyl Trisulfide
Totals:		492.764	

*** End of Report ***

Sequence: C:\HPCHEM\1\SEQUENCE\2013\042213.S

Sequence Table (Front Injector):

No entries - empty table!

Sequence Table (Back Injector):

Method and Injection Info Part:

Line	Location	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	Vial 1	System Blank	ASTM5504	1	Sample		
2	Vial 2	C1 500ppbV	ASTM5504	1	Sample		
3	Vial 3	C2 500ppbV	ASTM5504	1	Sample		
4	Vial 4	C3 500ppbV	ASTM5504	1	Sample		
5	Vial 5	C4 100ppbV	ASTM5504	1	Sample		
6	Vial 6	C5 100ppbV	ASTM5504	1	Sample		
7	Vial 7	C6 100ppbV	ASTM5504	1	Sample		
8	Vial 8	C7 25ppbV	ASTM5504	1	Sample		
9	Vial 9	C8 25ppbV	ASTM5504	1	Sample		
10	Vial 10	C9 25ppbV	ASTM5504	1	Sample		
11	Vial 11	C10 2500ppbV	ASTM5504	1	Sample		
12	Vial 12	C11 2500ppbV	ASTM5504	1	Sample		
13	Vial 13	C12 2500ppbV	ASTM5504	1	Sample		
14	Vial 14	Method Blank	ASTM5504	1	Sample		
15	Vial 15	CCV 500ppbV	ASTM5504	1	Sample		
16	Vial 16	CCV 500ppbV dp	ASTM5504	1	Sample		
17	Vial 17	CCV 500ppbV tp	ASTM5504	1	Sample		
18	Vial 18	130456-62447 x1	ASTM5504	1	Sample		
19	Vial 19	130456-62447 x1	ASTM5504	1	Sample		
20	Vial 20	MS 62447	ASTM5504	1	Sample		
21	Vial 21	MSD 62447	ASTM5504	1	Sample		
22	Vial 22	130456-62456 x5	ASTM5504	1	Sample		
23	Vial 23	130456-62456x500	ASTM5504	1	Sample		
24	Vial 24	CCV 500ppbV	ASTM5504	1	Sample		
25	Vial 25	130456-62465 x10	ASTM5504	1	Sample		
26	Vial 26	130456-62465x500	ASTM5504	1	Sample		
27	Vial 27	130456-62474 x10	ASTM5504	1	Sample		
28	Vial 28	130456-62465x500	ASTM5504	1	Sample		
29	Vial 29	CCV 500ppbV	ASTM5504	1	Sample		

Calibration Summary

File Name: C:\Cpmethods\Inst #01\2012\D1945-D1946-3C-041312-standard.CAL
Version: 24

Creator: TT
Description:

Internal standard calibration
No injection volume correction
No sample weight correction
Area reject threshold: 150
Reference peak area reject threshold: 150
Amount units: percent
No default component

Method of calculating data point averages: Equal weight for all updates
No calibration update report

All levels are normal data points.

2 Hydrogen-MS5A

Expected retention time:	3.82 minutes
Search window:	0.2 minutes
No internal standard component	
No retention time reference component	
Group number:	0
High alarm limit:	0
Low alarm limit:	0
Component constant:	0

Single peak quantification by area

Y = 184.8704 X + 0

Linear fit with equal weighting, forced to origin

Coefficient of determination:	0.997054
Average error:	3.173%
Average CF:	184.361
RSD:	4.178%

Level	Amount	Response	Cal Factor	Error, %	Source	Date and time
1	1.027	190	185.0049	0.073	Manual	6/5/2012 11:31:02 AM
2	1.027	193	187.926	1.653	Manual	6/5/2012 11:31:10 AM
3	2.566	495	192.9073	4.347	Manual	6/5/2012 11:31:39 AM
4	2.566	490	190.9587	3.293	Manual	6/5/2012 11:31:52 AM
5	5.133	911	177.4791	-3.998	Manual	6/5/2012 11:43:31 AM
6	5.133	966	188.194	1.798	Manual	6/5/2012 11:43:34 AM
7	10.265	1735	169.0209	-8.573	Manual	6/5/2012 11:44:10 AM
8	10.265	1809	176.2299	-4.674	Manual	6/5/2012 11:44:14 AM
9	20.53	3802	185.1924	0.174	Manual	6/5/2012 11:44:42 AM
10	20.53	3915	190.6965	3.151	Manual	6/5/2012 11:44:46 AM
11	(0)	(0)	--	--	Manual	4/9/2012 2:51:23 PM
12	(0)	(0)	--	--	Manual	4/9/2012 2:51:23 PM

6 Oxygen-MS5A

Expected retention time:	7.01 minutes
Search window:	0.2 minutes

No internal standard component
No retention time reference component

Group number:	0
High alarm limit:	0
Low alarm limit:	0
Component constant:	0

Single peak quantification by area

$Y = 13702.82 X + 0$

Linear fit with equal weighting, forced to origin

Coefficient of determination:	0.999071
Average error:	5.371%
Average CF:	13063.87
RSD:	5.782%

Level	Amount	Response	Cal Factor	Error, %	Source	Date and time
1	0.1036	1259	12152.51	-11.314	Manual	6/5/2012 12:09:28 PM
2	0.1036	1206	11640.93	-15.047	Manual	6/5/2012 11:28:32 AM
3	1.036	13286	12824.32	-6.411	Manual	6/5/2012 12:09:39 PM
4	1.036	14062	13573.36	-0.945	Manual	6/5/2012 12:09:48 PM
5	5.18	66116	12763.71	-6.853	Manual	6/5/2012 12:10:31 PM
6	5.18	67996	13126.64	-4.205	Manual	6/5/2012 12:10:38 PM
7	10.36	127480	12305.02	-10.201	Manual	6/5/2012 12:10:57 PM
8	10.36	135683	13096.82	-4.422	Manual	6/5/2012 12:11:04 PM
9	20	281965	14098.25	2.886	Manual	6/5/2012 12:11:35 PM
10	20	274449	13722.45	0.143	Manual	6/5/2012 12:11:40 PM
11	40	543688	13592.2	-0.807	Manual	6/5/2012 12:11:44 PM
12	40	554808	13870.2	1.222	Manual	6/5/2012 11:29:03 AM

8 Nitrogen-MS5A

Expected retention time:	9.22 minutes
Search window:	0.4 minutes

No internal standard component
No retention time reference component

Group number:	0
High alarm limit:	0
Low alarm limit:	0
Component constant:	0

Single peak quantification by area

$Y = 14574.06 X + 0$

Linear fit with equal weighting, forced to origin

Coefficient of determination:	0.9994987
Average error:	4.726%
Average CF:	15042.66
RSD:	5.285%

Level	Amount	Response	Cal Factor	Error, %	Source	Date and time
1	0.1041	1727	16589.82	13.831	Manual	6/5/2012 12:09:04 PM
2	0.1041	1459	14015.37	-3.833	Manual	6/5/2012 12:09:08 PM
3	1.041	16409	15762.73	8.156	Manual	6/5/2012 12:09:44 PM
4	1.041	16555	15902.98	9.118	Manual	6/5/2012 11:28:37 AM
5	5.21	76781	14737.24	1.120	Manual	6/5/2012 12:10:35 PM
6	5.21	78002	14971.59	2.728	Manual	6/5/2012 12:10:42 PM
7	10.41	160140	15383.29	5.553	Manual	6/5/2012 12:11:00 PM
8	10.41	161428	15507.01	6.401	Manual	6/5/2012 11:28:51 AM
9	25	352089	14083.56	-3.366	Manual	6/5/2012 12:11:16 PM
10	25	357559	14302.36	-1.864	Manual	6/5/2012 12:11:20 PM
11	50	733498	14669.96	0.658	Manual	6/5/2012 12:11:24 PM
12	50	729300	14586	0.082	Manual	6/5/2012 12:11:30 PM

9 CO2-Q bond

Expected retention time:	9.5 minutes
Search window:	0.2 minutes

No internal standard component
No retention time reference component

Group number:	0
High alarm limit:	0
Low alarm limit:	0
Component constant:	0

Single peak quantification by area

$Y = 12006.17 X + 0$

Linear fit with equal weighting, forced to origin

Coefficient of determination:	0.9968426
Average error:	13.133%
Average CF:	11408.35
RSD:	29.225%

Level	Amount	Response	Cal Factor	Error, %	Source	Date and time
1	0.103	1049	10184.47	-15.173	Manual	6/5/2012 12:02:46 PM
2	1.03	1169	1134.952	-90.547	Manual	6/5/2012 12:02:48 PM
3	1.025	12910	12595.12	4.905	Manual	6/5/2012 12:02:54 PM
4	1.025	12823	12510.24	4.198	Manual	6/5/2012 12:02:55 PM
5	2.563	32364	12627.39	5.174	Manual	6/5/2012 12:03:02 PM
6	2.563	33810	13191.57	9.873	Manual	6/5/2012 12:03:03 PM
7	5.125	66272	12931.12	7.704	Manual	6/5/2012 12:03:11 PM
8	5.125	67517	13174.05	9.727	Manual	6/5/2012 12:03:12 PM
9	10.25	128043	12492	4.046	Manual	6/5/2012 12:03:18 PM
10	10.25	127116	12401.56	3.293	Manual	6/5/2012 12:03:19 PM
11	20.5	242402	11824.49	-1.513	Manual	6/5/2012 11:57:05 AM
12	20.5	242582	11833.27	-1.440	Manual	6/5/2012 11:57:06 AM

10 Methane-MS5A

Expected retention time:	10.54 minutes
Search window:	0.2 minutes
No internal standard component	
No retention time reference component	
Group number:	0
High alarm limit:	0
Low alarm limit:	0
Component constant:	0

Single peak quantification by area

$Y = 11355.95 X + 0$

Linear fit with equal weighting, forced to origin

Coefficient of determination:	0.9999504
Average error:	1.404%
Average CF:	11485.02
RSD:	1.852%

Level	Amount	Response	Cal Factor	Error, %	Source	Date and time
1	0.099	1138	11494.95	1.224	Manual	6/5/2012 11:29:59 AM
2	0.099	1169	11808.08	3.981	Manual	6/5/2012 11:42:12 AM
3	0.994	11888	11959.76	5.317	Manual	6/5/2012 11:42:30 AM
4	0.994	11565	11634.81	2.456	Manual	6/5/2012 11:42:43 AM
5	2.484	28339	11408.62	0.464	Manual	6/5/2012 11:43:09 AM
6	2.484	28374	11422.71	0.588	Manual	6/5/2012 11:43:20 AM
7	4.968	56246	11321.66	-0.302	Manual	6/5/2012 11:43:48 AM
8	4.9688	56812	11433.75	0.685	Manual	6/5/2012 11:44:00 AM
9	9.935	111692	11242.27	-1.001	Manual	6/5/2012 11:44:20 AM
10	9.935	112877	11361.55	0.049	Manual	6/5/2012 11:44:29 AM
11	19.87	224961	11321.64	-0.302	Manual	6/5/2012 11:45:14 AM
12	19.87	226726	11410.47	0.480	Manual	6/5/2012 11:45:24 AM

11 Carbon Monoxide-MS5A

Expected retention time:	11.5 minutes
Search window:	0.2 minutes
No internal standard component	
No retention time reference component	
Group number:	0
High alarm limit:	0
Low alarm limit:	0
Component constant:	0

Single peak quantification by area

$Y = 14397.51 X + 0$

Linear fit with equal weighting, forced to origin

Coefficient of determination:	0.9999121
Average error:	3.135%
Average CF:	14181.2
RSD:	6.858%

Level	Amount	Response	Cal Factor	Error, %	Source	Date and time
1	0.103	1538	14932.04	3.713	Manual	6/5/2012 11:30:06 AM
2	0.103	1156	11223.3	-22.047	Manual	6/5/2012 11:42:13 AM
3	1.035	15568	15041.55	4.473	Manual	6/5/2012 11:42:37 AM
4	1.035	14999	14491.79	0.655	Manual	6/5/2012 11:31:49 AM
5	2.586	36454	14096.67	-2.089	Manual	6/5/2012 11:43:13 AM
6	2.586	36908	14272.24	-0.870	Manual	6/5/2012 11:43:23 AM
7	5.173	73898	14285.33	-0.779	Manual	6/5/2012 11:43:51 AM
8	5.173	74701	14440.56	0.299	Manual	4/9/2012 3:05:32 PM
9	10.345	146680	14178.83	-1.519	Manual	6/5/2012 11:44:23 AM
10	10.345	148331	14338.42	-0.410	Manual	4/9/2012 3:05:58 PM
11	20.69	297551	14381.39	-0.112	Manual	6/5/2012 11:45:17 AM
12	20.69	299845	14492.27	0.658	Manual	4/9/2012 3:06:38 PM

File Name: C:\Cpmethods\Inst #01\2012\D1945-D1946-3C-041312-HighCO2.CAL
Version: 3

Creator: TT
Description:

Internal standard calibration
No injection volume correction
No sample weight correction
Area reject threshold: 150
Reference peak area reject threshold: 150
Amount units: percent
No default component

Method of calculating data point averages: Equal weight for all updates
No calibration update report

All levels are normal data points.

9 CO2-Q bond

Expected retention time:	9.5 minutes
Search window:	0.2 minutes
No internal standard component	
No retention time reference component	
Group number:	0
High alarm limit:	0
Low alarm limit:	0
Component constant:	0

Single peak quantification by area

$Y = 12318.56 X + 0$

Linear fit with equal weighting, forced to origin

Coefficient of determination:	0.9985135
Average error:	2.289%
Average CF:	12334.35
RSD:	2.916%

Level	Amount	Response	Cal Factor	Error, %	Source	Date and time
1	(0.103)	(1049)	--	--	Manual	6/5/2012 12:02:46 PM
2	(0.103)	(1169)	--	--	Manual	6/5/2012 12:19:03 PM
3	(1.025)	(12910)	--	--	Manual	6/5/2012 12:02:54 PM
4	(1.025)	(12823)	--	--	Manual	6/5/2012 12:02:55 PM
5	(2.563)	(32364)	--	--	Manual	6/5/2012 12:03:02 PM
6	(2.563)	(33810)	--	--	Manual	6/5/2012 12:03:03 PM
7	(5.125)	(66272)	--	--	Manual	6/5/2012 12:03:11 PM
8	(5.125)	(67517)	--	--	Manual	6/5/2012 12:03:12 PM
9	10.25	128043	12492	1.408	Manual	6/5/2012 12:03:18 PM
10	10.25	127116	12401.56	0.674	Manual	6/5/2012 12:03:19 PM
11	20.5	242402	11824.49	-4.011	Manual	6/5/2012 11:57:05 AM
12	20.5	242582	11833.27	-3.940	Manual	6/5/2012 11:57:06 AM
13	50	632860	12657.2	2.749	Manual	6/5/2012 12:21:48 PM
14	50	647993	12959.86	5.206	Manual	6/5/2012 12:21:52 PM
15	75	942823	12570.97	2.049	Manual	6/5/2012 12:21:56 PM
16	75	923373	12311.64	-0.056	Manual	6/5/2012 12:22:00 PM
17	100	1211967	12119.67	-1.615	Manual	6/5/2012 12:22:04 PM
18	100	1217283	12172.83	-1.183	Manual	6/5/2012 12:22:11 PM

SCAQMD 307.91 / ASTM D-5504 INITIAL CALIBRATION SUMMARY

Analysis Date: 4/22/2013 **Analyst:** DH **Units:** ppbV

CALIBRATION CURVE RAW DATA:

Standard Concentration (ppbV)	Retention time (min)	Response (Area)	RPD from initial result (< 5%)	Std Deviation	Standard Concentration	Mean Response (Area)	Calculated Concentration (From Mean)	Mean % Recovery (+/- 5 %)
0.0	0.00	0						
0.0	0.00	0	0.0	0	0.0	0	0.0	0.0
0.0	0.00	0	0.0					
25.0	2.231	355						
25.0	2.186	349	1.7	7	25.0	349	23.8	95.4
25.0	2.311	342	3.7					
100.0	2.200	1402						
100.0	2.203	1428	1.8	19	100.0	1407	96.2	96.2
100.0	2.220	1392	0.7					
500.0	2.201	6960						
500.0	2.198	7035	1.1	45	500.0	7012	479.4	95.9
500.0	2.200	7042	1.2					
2500.0	2.205	36757						
2500.0	2.209	36629	0.3	130	2500.0	36628	2504.3	100.2
2500.0	2.202	36498	0.7					
Avg. Ret.	2.214							

Calibration Verification Check Standards:

Check Standard Concentration: 500 ppbV

	Resp. (area)	Result (ppbV)	% Rec *	% RPD
Initial	7131	487.5	97.5	NA
Duplicate	7187	491.4	98.3	0.8
Triplicate	7043	481.5	96.3	1.2

** All CV's must have +/- 5 % Recovery and < 5% RPD from Initial result.*

Linear Slope: X = Y/ 14.6262

R2 value: 0.9999 *Must be > 0.990*

Laboratory Director (signature/date) 4/22/13

SCAQMD 307.91/ASTM D-5504 INITIAL CALIBRATION SUMMARY