

Atmospheric Analysis & Consulting, Inc.

CLIENT : SWAPE
PROJECT NAME : Bridgeton Sanitary Landfill Quality Assessment
AAC PROJECT NO. : 131183
REPORT DATE : 09/03/2013

On August 30, 2013, Atmospheric Analysis & Consulting, Inc. received four (4) Six-Liter Summa Canisters for 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)
U-1 FR Series Canister	131183-66022	649.7
U-2 W6 Canister	131183-66023	610.8
D-1 W4 Canister	131183-66024	685.7
D-2 K Canister	131183-66025	600.4

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-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

This report consists of 36 pages.





SAMPLE RECEIPT / LOG-IN REPORT

AAC Project 131183

Received By: J. Zachman

<u>Sample Receipt Date</u>	<u>Project Desc</u>	<u>Clients ID</u>	<u>Matrix</u>	<u>Sampling Date/Time</u>	<u>Sampled By</u>	<u>Sample #</u>	<u>Analysis Requested</u>
8/30/2013 1130	Soil Water Air Protection Enterprise (SWAPE) Bridgeton Sanitary Landfill Air Quality Assesment	U-1 Fr Service Canister	Summa Canister	8/26/2013	Client	66022	TO15 ASTM D5504
8/30/2013 1130	Soil Water Air Protection Enterprise (SWAPE) Bridgeton Sanitary Landfill Air Quality Assesment	U-2 W6 Canister	Summa Canister	8/26/2013	Client	66023	TO15 ASTM D5504
8/30/2013 1130	Soil Water Air Protection Enterprise (SWAPE) Bridgeton Sanitary Landfill Air Quality Assesment	D-1 W4 Canister	Summa Canister	8/26/2013	Client	66024	TO15 ASTM D5504
8/30/2013 1130	Soil Water Air Protection Enterprise (SWAPE) Bridgeton Sanitary Landfill Air Quality Assesment	D-2 K Canister	Summa Canister	8/26/2013	Client	66025	TO15 ASTM D5504

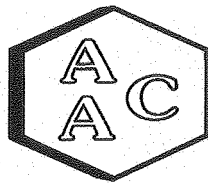
TURN AROUND TIME: Normal (10days)

Lab Due Date: 9/6/2013

Total Samples: 4

REMARKS:

Client returned 4 x Summa Cannisters + 4 x Flows.



CANISTER PRESSURE LOG

Client: Soil Water Air Protection Ent Project No.: 131183
Date: 8/30/2013

Canister #	Sample #	Initial Pressure	Final Pressure
802	66022	649.7	1024.9
729	66023	610.8	1021.1
576	66024	685.7	1017.4
732	66025	600.4	1017.9

AAE# 131183

CHAIN OF CUSTODY RECORD / ANALYTICAL REQUEST FORM

Client Name: SOIL / WATER AIR PROTECTION ENTERPRISE
 Telephone No. / Fax No.: (310) 434-0110 / (310) 434-0011
 Project Manager: PAUL ROSENFELD, PH.D.
 Address: 1640 FIFTH STREET, SUITE 204, SANTA MONICA, CA 90401
 Project Name and Location: BRIDGETON SANITARY LANDFILL AIR QUALITY ASSESSMENT
 Date: August 26th 2013 Page 1 of 1

REQUESTED TESTS / ANALYSES

LAB ID	SAMPLE ID NUMBER	Canister	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	Flow Control #
46022	U-1 Fr Service	Canister		August 26th	430 min	X	X												Canister # 802
66023	U-2 W6	Canister		August 26th	240 min	X	X												Canister # 729
66024	D-1 W4	Canister		August 26th	272 min	X	X												Canister # 576
66025	D-2 K	Canister		August 26th	192 min	X	X												Canister # 732

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: John Blank	Date: August 26th	12 Noon	Received By:	Date: 8/30/13	Time: 1130
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

Cans: 7958 2160 2459
 Flows: 7958 2160 2465

Atmospheric Analysis and Consulting Inc.

Canister Sampling Field Data Sheet

GENERAL INFORMATION

Project Name and/or ID No.: **Bridgeton Sanitary Landfill**

Site Address and/or ID No: **13570 St Charles Rock Rd, Bridgeton, MO 63044**

Sample Name and/or ID No.: **U- 1 FR Service** **Canister # 802** **Flow Control # 717**

AAC Batch ID: 131183 AAC Sample ID: 66022

SAMPLING INFORMATION

Start Date/Time: **Aug 26th, 2013 – 12:05 AM** Stop Date/Time: **Aug 26th, 2013 – 19:15 PM**

Start Temp/Pressure*: **32 C / 30.22 inHg** Stop Temp/Pressure*: **35 C / 30.10 inHg**

Initial Can Pressure**: **-31 inHg** Final Can Pressure**: **-5 inHg**

* Ambient Barometric Reading where sample is being taken (C / inHg) ** Flow Controller Gauge Reading (inHg)

Comments: _____



John Blank
Sampler Name (Print)

August 26th, 2013
Sampler Signature/Date

LABORATORY INFORMATION

Canister Size: 6 – Liter

Sampling Period: **430 Minutes**

Canister Serial No.: **802**

Flow Controller Serial No: **717**

Initial Pressure: 4.8 mmHg A

Certified Flow Rate: 25.0 mL/Hg A

Return Pressure: 649.7 mmHg A

Certified By/Date: WJF / 8/20/13

Final Pressure: 1024.9 mmHg A

Flow Rate upon Return: 17.9 mL/min

Date Shipped From Lab: 8/20/13

Shipped By: WJF

Date Returned to Lab: 8/30/13

Received By: WJF

Flow Controller Certification File ID: 4503/08161311

Canister Certification File ID: 4503/08151304

Certification Type: SIM _____ SCAN NJLL _____ PAMS _____ Other _____

[Signature] 09/03/13
Chemist Signature/Date

[Signature] 9/3/13
Lab Manager Signature/Date

Sampler is required to fill out all highlighted sections during sampling.
All remaining sections will be completed upon return by the laboratory.

Atmospheric Analysis and Consulting Inc.

Canister Sampling Field Data Sheet

GENERAL INFORMATION

Project Name and/or ID No.: **Bridgeton Sanitary Landfill**

Site Address and/or ID No: **13570 St Charles Rock Rd, Bridgeton, MO 63044**

Sample Name and/or ID No.: **U-2 W6** **Canister # 729** **Flow Control # 710**

AAC Batch ID: 131183 AAC Sample ID: 66023

SAMPLING INFORMATION

Start Date/Time: **Aug 26th, 2013 – 12:23 AM** Stop Date/Time: **Aug 26th, 2013 – 16:23 PM**

Start Temp/Pressure*: **32 C / 30.22 inHg** Stop Temp/Pressure*: **35 C / 30.10 inHg**

Initial Can Pressure***: **-30 inHg** Final Can Pressure***: **-5 inHg**

* Ambient Barometric Reading where sample is being taken (C / inHg) ** Flow Controller Gauge Reading (inHg)

Comments: _____



John Blank
Sampler Name (Print)

August 26th, 2013
Sampler Signature/Date

LABORATORY INFORMATION

Canister Size: 6 – Liter

Sampling Period: 240 Minutes

Canister Serial No.: **729**

Flow Controller Serial No: **710**

Initial Pressure: 5.4 mmHg A

Certified Flow Rate: 25.0 ml/min

Return Pressure: 610.8 mmHg A

Certified By/Date: WJF / 8/20/13

Final Pressure: 1021.1 mmHg A

Flow Rate upon Return: 27.1 ml/min

Date Shipped From Lab: 8/20/13

Shipped By: WJF

Date Returned to Lab: 8/30/13

Received By: WJF

Flow Controller Certification File ID: MS03/08161311

Canister Certification File ID: MS03/08151304

Certification Type: SIM _____ SCAN _____ NJLL _____ PAMS _____ Other _____


Chemist Signature/Date 09/03/13


Lab Manager Signature/Date 9/3/13

**Sampler is required to fill out all highlighted sections during sampling.
All remaining sections will be completed upon return by the laboratory.**

Atmospheric Analysis and Consulting Inc.

Canister Sampling Field Data Sheet

GENERAL INFORMATION

Project Name and/or ID No.: **Bridgeton Sanitary Landfill**

Site Address and/or ID No: **13570 St Charles Rock Rd, Bridgeton, MO 63044**

Sample Name and/or ID No.: **D-1 W4** **Canister # 576** **Flow Control # 805**

AAC Batch ID: 131183 AAC Sample ID: 66024

SAMPLING INFORMATION


Start Date/Time: **Aug 26th, 2013 – 11:20 AM** Stop Date/Time: **Aug 26th, 2013 – 15:52 PM**

Start Temp/Pressure*: **32 C / 30.22 inHg** Stop Temp/Pressure*: **35 C / 30.10 inHg**

Initial Can Pressure**: **-31 inHg** Final Can Pressure**: **-5 inHg**

* Ambient Barometric Reading where sample is being taken (C / inHg) ** Flow Controller Gauge Reading (inHg)

Comments: _____



John Blank
Sampler Name (Print)

August 26th, 2013
Sampler Signature/Date

LABORATORY INFORMATION

Canister Size: 6 – Liter

Sampling Period: 272 Minutes

Canister Serial No.: **576**

Flow Controller Serial No: **805**

Initial Pressure: 5.3 mmHg A

Certified Flow Rate: 25.0 ml/min

Return Pressure: 685.7 mmHg A

Certified By/Date: WJF 8/20/13

Final Pressure: 1017.4 mmHg A

Flow Rate upon Return: 26.0 ml/min

Date Shipped From Lab: 8/20/13

Shipped By: WJF

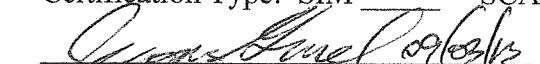
Date Returned to Lab: 8/30/13

Received By: WJF

Flow Controller Certification File ID: M503/08161311

Canister Certification File ID: M503/08161304

Certification Type: SIM _____ SCAN _____ NJLL _____ PAMS _____ Other _____


Chemist Signature/Date

MM 9/3/13
Lab Manager Signature/Date

**Sampler is required to fill out all highlighted sections during sampling.
All remaining sections will be completed upon return by the laboratory.**

Atmospheric Analysis and Consulting Inc.

Canister Sampling Field Data Sheet

GENERAL INFORMATION

Project Name and/or ID No.: **Bridgeton Sanitary Landfill**

Site Address and/or ID No.: **13570 St Charles Rock Rd, Bridgeton, MO 63044**

Sample Name and/or ID No.: **D-2 K**

Canister #**732**

Flow Control # **806**

AAC Batch ID: 131183

AAC Sample ID: 66025

SAMPLING INFORMATION

Start Date/Time: **Aug 26th, 2013 - 11:40 AM**

Stop Date/Time: **Aug 26th, 2013 - 14:52 PM**

Start Temp/Pressure*: **32 C / 30.22 inHg**

Stop Temp/Pressure*: **35 C / 30.10 inHg**

Initial Can Pressure**: **-30 inHg**

Final Can Pressure**: **-5 inHg**

* Ambient Barometric Reading where sample is being taken (C / inHg) ** Flow Controller Gauge Reading (inHg)

Comments: _____



John Blank

Sampler Name (Print)

August 26th, 2013

Sampler Signature/Date

LABORATORY INFORMATION

Canister Size: 6 - Liter

Sampling Period: 192 Minutes

Canister Serial No.: 732

Flow Controller Serial No: 806

Initial Pressure: 4.8 mmHg A

Certified Flow Rate: 25.0 ml/min

Return Pressure: 1000.4 mmHg A

Certified By/Date: WJF / 8/26/13

Final Pressure: 1017.9 mmHg A

Flow Rate upon Return: 29.2 ml/min

Date Shipped From Lab: 8/20/13

Shipped By: WJF

Date Returned to Lab: 8/30/13

Received By: WJF

Flow Controller Certification File ID: MS03/08/16/1311

Canister Certification File ID: MS03/08/16/1304

Certification Type: SIM _____

SCAN

NJLL _____

PAMS _____

Other _____

[Signature] 8/30/13
Chemist Signature/Date

[Signature] 9/3/13
Lab Manager Signature/Date

**Sampler is required to fill out all highlighted sections during sampling.
All remaining sections will be completed upon return by the laboratory.**



American Environmental Laboratories
ISO 9001:2000 Certification #A1836US

MDNR Bridgeton Landfill
Chain of Custody Weekly Sampling Event

Date: August 26th

Air Sampler calibrated for 1 Liter per Minute Flow Rate
Flow Rate calibrated with BIOS - Defender 510M - S/N 131756
SUMMA Canister with a 4 hour flow valve

Temperature

Start	32 C
Stop	35 C

Barometric Pressure

Start	30.22 inHg
Stop	30.10 inHg

Sample Point ID U-1 FR Service

Canister Serial #	802
Flow Control #	717
Sample Pump #	59912
Sample Tube	226-20
Sample Tube #	444006010705

Canister Time	Start 12:05	Stop 19:15	Total Time 430 min
Vacuum	-31 inHg	-5 inHg	
Flow Rate	1.035 L/M	0.989 L/M	1.012 Average L/M
Tube Time	12:05	16:20	240 min
Total Liters Sampled / Tube			242.88 Liters

Sample Point ID U-2 W6

Canister Serial #	729
Flow Control #	710
Sample Pump #	67835
Sample Tube	226-20
Sample Tube #	444006010708

Time	Start 12:23	Stop 16:23	Total Time 240 min
Vacuum	-30 inHg	-5 inHg	
Flow Rate	1.055 L/M	1.04 L/M	1.0475 Average L/M
Tube Time	12:23	16:23	240 min
Total Liters Sampled / Tube			251.40 Liters

Sample Point ID D-1 W4

Canister Serial #	576
Flow Control #	805
Sample Pump #	67992
Sample Tube	226-20
Sample Tube #	444006010719

Time	Start 11:20	Stop 15:52	Total Time 272 min
Vacuum	-31 inHg	-5 inHg	
Flow Rate	1.034 L/M	1.094 L/M	1.064 Average L/M
Tube Time	11:20	15:20	240 min
Total Liters Sampled / Tube			255.36 Liters

Sample Point ID D-2 K

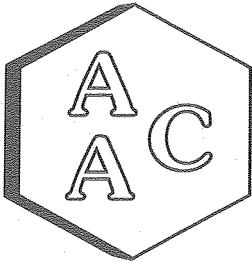
Canister Serial #	732
Flow Control #	806
Sample Pump #	67385
Sample Tube	226-20
Sample Tube #	444006010650

Time	Start 11:40	Stop 14:52	Total Time 192 min
Vacuum	-30 inHg	-5 inHg	
Flow Rate	1.057 L/M	1.105 L/M	1.081 Average L/M
Tube Time	11:40	15:40	240 min
Total Liters Sampled / Tube			259.44 Liters

Possible Sample Point ID W1 - W2 - W3 - W4 - W5 - W6 - W7

Prepared by: *[Signature]*

Results



Atmospheric Analysis & Consulting, Inc.

LABORATORY ANALYSIS REPORT

CLIENT : SWAPE
 PROJECT NO. : 131183
 MATRIX : AIR
 UNITS : ppbV

SAMPLING DATE : 08/26/2013
 RECEIVING DATE : 08/30/2013
 ANALYSIS DATE : 08/30-09/03/2013
 REPORT DATE : 09/03/2013

Sulfur Compounds by ASTM D-5504

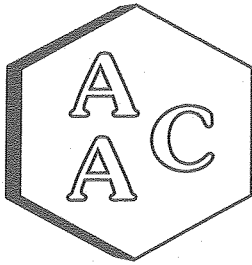
Client ID	U-1 FR Series Canister	U-2 W6 Canister	D-1 W4 Canister	D-2 K Canister
AAC ID	131183-66022	131183-66023	131183-66024	131183-66025
Canister Dil. Fac.	1.58	1.67	1.48	1.70
Analyte	Result	Result	Result	Result
Hydrogen Sulfide	< 15.8	< 16.7	< 14.8	< 17.0
Carbonyl Sulfide	< 15.8	< 16.7	< 14.8	< 17.0
Sulfur Dioxide	< 15.8	< 16.7	< 14.8	< 17.0
Methyl Mercaptan	< 15.8	< 16.7	< 14.8	< 17.0
Ethyl Mercaptan	< 15.8	< 16.7	< 14.8	< 17.0
Dimethyl Sulfide	< 15.8	< 16.7	< 14.8	< 17.0
Carbon Disulfide	< 7.9	< 8.4	< 7.4	< 8.5
Isopropyl Mercaptan	< 15.8	< 16.7	< 14.8	< 17.0
tert-Butyl Mercaptan	< 15.8	< 16.7	< 14.8	< 17.0
n-Propyl Mercaptan	< 15.8	< 16.7	< 14.8	< 17.0
Methylethylsulfide	< 15.8	< 16.7	< 14.8	< 17.0
sec-Butyl Mercaptan	< 15.8	< 16.7	< 14.8	< 17.0
Thiophene	< 15.8	< 16.7	< 14.8	< 17.0
iso-Butyl Mercaptan	< 15.8	< 16.7	< 14.8	< 17.0
Diethyl Sulfide	< 15.8	< 16.7	< 14.8	< 17.0
n-Butyl Mercaptan	< 15.8	< 16.7	< 14.8	< 17.0
Dimethyl Disulfide	< 7.9	< 8.4	< 7.4	< 8.5
2-Methylthiophene	< 15.8	< 16.7	< 14.8	< 17.0
3-Methylthiophene	< 15.8	< 16.7	< 14.8	< 17.0
Tetrahydrothiophene	< 15.8	< 16.7	< 14.8	< 17.0
Bromothiophene	< 15.8	< 16.7	< 14.8	< 17.0
Thiophenol	< 15.8	< 16.7	< 14.8	< 17.0
Diethyl disulfide	< 7.9	< 8.4	< 7.4	< 8.5
Total Unidentified Sulfur	< 15.8	< 16.7	< 14.8	< 17.0

All unidentified sulfur compound's concentrations expressed in terms of μS
 Sample Quantitation Limit (SQL) is equal to the Quantitation Limit x Canister Dil. Fac. x Analysis Dil. Fac.



 Marcus Hueppe
 Laboratory Director





Atmospheric Analysis & Consulting, Inc.

LABORATORY ANALYSIS REPORT

CLIENT : SWAPE
 PROJECT NO. : 131183
 MATRIX : AIR
 UNITS : ug/m³

SAMPLING DATE : 08/26/2013
 RECEIVING DATE : 08/30/2013
 ANALYSIS DATE : 08/30-09/03/2013
 REPORT DATE : 09/03/2013

Sulfur Compounds by ASTM D-5504

Client ID	U-1 FR Series Canister	U-2 W6 Canister	D-1 W4 Canister	D-2 K Canister
AAC ID	131183-66022	131183-66023	131183-66024	131183-66025
Canister Dil. Fac.	1.58	1.67	1.48	1.70
Analyte	Result	Result	Result	Result
Hydrogen Sulfide	< 22.0	< 23.3	< 20.7	< 23.6
Carbonyl Sulfide	< 38.8	< 41.1	< 36.5	< 41.7
Sulfur Dioxide	< 41.3	< 43.8	< 38.9	< 44.4
Methyl Mercaptan	< 31.0	< 32.9	< 29.2	< 33.4
Ethyl Mercaptan	< 40.1	< 42.5	< 37.7	< 43.1
Dimethyl Sulfide	< 40.1	< 42.5	< 37.7	< 43.1
Carbon Disulfide	< 24.6	< 26.0	< 23.1	< 26.4
Isopropyl Mercaptan	< 49.1	< 52.1	< 46.2	< 52.8
tert-Butyl Mercaptan	< 58.2	< 61.7	< 54.7	< 62.5
n-Propyl Mercaptan	< 49.1	< 52.1	< 46.2	< 52.8
Methylethylsulfide	< 49.1	< 52.1	< 46.2	< 52.8
sec-Butyl Mercaptan	< 58.2	< 61.7	< 54.7	< 62.5
Thiophene	< 54.3	< 57.5	< 51.1	< 58.3
iso-Butyl Mercaptan	< 58.2	< 61.7	< 54.7	< 62.5
Diethyl Sulfide	< 58.2	< 61.7	< 54.7	< 62.5
n-Butyl Mercaptan	< 58.2	< 61.7	< 54.7	< 62.5
Dimethyl Disulfide	< 30.4	< 32.2	< 28.6	< 32.7
2-Methylthiophene	< 63.3	< 67.1	< 59.6	< 68.1
3-Methylthiophene	< 63.3	< 67.1	< 59.6	< 68.1
Tetrahydrothiophene	< 56.9	< 60.3	< 53.5	< 61.1
Bromothiophene	< 105	< 111	< 98.9	< 113
Thiophenol	< 71.1	< 75.3	< 66.9	< 76.4
Diethyl disulfide	< 39.4	< 41.8	< 37.1	< 42.4
Total Unidentified Sulfur	< 22.0	< 23.3	< 20.7	< 23.6

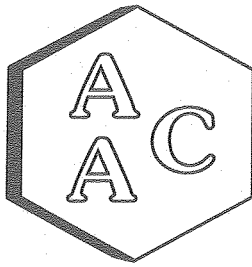
All unidentified sulfur compound's concentrations expressed in terms of μS
 Sample Quantitation Limit (SQL) is equal to the Quantitation Limit x Canister Dil. Fac. x Analysis Dil. Fac.



 Marcus Hueppe
 Laboratory Director



QA/QC Summary



Atmospheric Analysis & Consulting, Inc.

Quality Control/Quality Assurance Report ASTM D-5504

Date Analyzed: 08/30/13
Analyst: DH

Instrument ID: SCD#10
Calb. Date: 5/14/2013

Opening Calibration Verification Standard

	Resp. (area)	Result (ppbV)	% Rec *	% RPD ****
Initial	16952	503	100.6	NA
Duplicate	17076	506	101.3	0.7
Triplicate	17124	508	101.6	1.0

Method Blank

Analyte	Result
H2S	ND

Matrix Spike & Duplicate

Sample ID 131169-65982 x1000

Analyte	Sample Conc.	Spike Added	MS Result	MSD Result	MS % Rec **	MSD % Rec **	% RPD ***
H2S	75.1	250.0	321.4	325.9	98.9	100.2	1.4

Duplicate Analysis

Sample ID 131169-65982

Analyte	Sample Result	Duplicate Result	Mean	% RPD ***
H2S	74725	75506	75115	1.0

Closing Calibration Verification Standard

Analyte	Std. Conc.	Result	%Recovery **
H2S	500	493.4	98.7

* Must be 95-105%

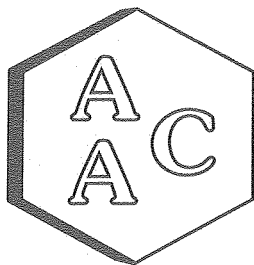
** Must be 90-110%

*** Must be < 10%

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

Marcus Hueppe
Laboratory Director





Atmospheric Analysis & Consulting, Inc.

Quality Control/Quality Assurance Report ASTM D-5504

Date Analyzed: 09/03/13
Analyst: DH

Instrument ID: SCD#10
Calb. Date: 5/14/2013

Opening Calibration Verification Standard

	Resp. (area)	Result (ppbV)	% Rec *	% RPD ****
Initial	17338	514	102.8	NA
Duplicate	17528	520	104.0	1.1
Triplicate	17382	516	103.1	0.3

Method Blank

Analyte	Result
H2S	ND

Matrix Spike & Duplicate

Sample ID 131183-66025 x2

Analyte	Sample Conc.	Spike Added	MS Result	MSD Result	MS % Rec **	MSD % Rec **	% RPD ***
H2S	0.0	250.0	243.6	248.9	97.4	99.5	2.2

Duplicate Analysis

Sample ID 131183-66022

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

Closing Calibration Verification Standard


Analyte	Std. Conc.	Result	%Recovery **
H2S	500	486.5	97.3

* Must be 95-105%

** Must be 90-110%

*** Must be < 10%

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



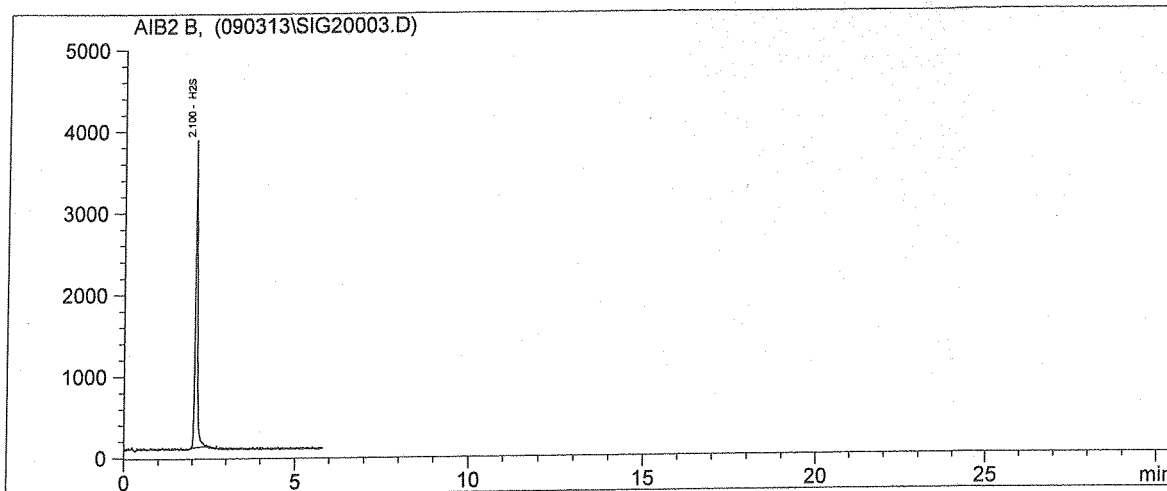
 Marcus Hueppe
 Laboratory Director



Raw Data

Customized Report: D5504

Injection Date : 9/3/2013 6:49:27 AM Seq. Line : 3
 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\D051413.M



Uncalibrated Peaks : using compound H2S

Ret Time [min]	Area	Amount [ppbV]	Name
2.100	17528	519.847	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	Diethyl Disulfide
0.000	0	0.000	n-Hexyl Mercaptan
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

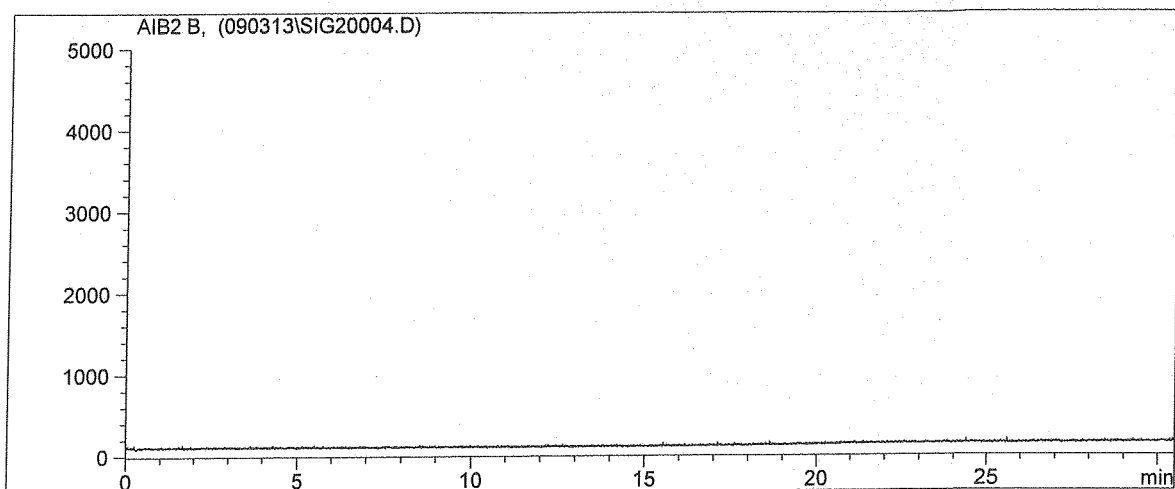
Totals: 519.847

*** End of Report ***

Page 19

Customized Report: D5504

Injection Date : 9/3/2013 7:01:24 AM Seq. Line : 4
 Sample Name : ~~GCW 500ppbv cp 550677~~ *DH* ->Inj. Vol. : Manually
 Multiplier : 1.00
 Dilution : 1.00 *Method Blank*
 Acq Operator : DH
 Acq. Instrument : GC/SCD #10
 Acq. Method : ASTM5504.M
 Analysis Method : C:\HPCHEM\1\METHODS\DO51413.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	Diethyl Disulfide
0.000	0	0.000	n-Hexyl Mercaptan
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

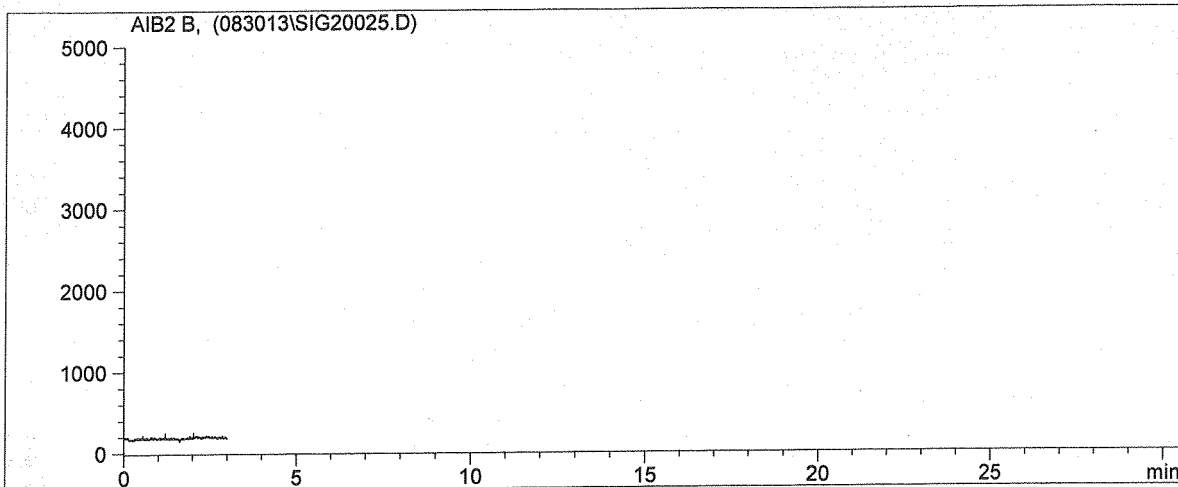
Totals: 0.000

*** End of Report ***

Page 21

Customized Report: D5504

Injection Date : 8/30/2013 3:28:30 PM Seq. Line : 25
 Sample Name : 131183-66022 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\D051413.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	Diethyl Disulfide
0.000	0	0.000	n-Hexyl Mercaptan
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

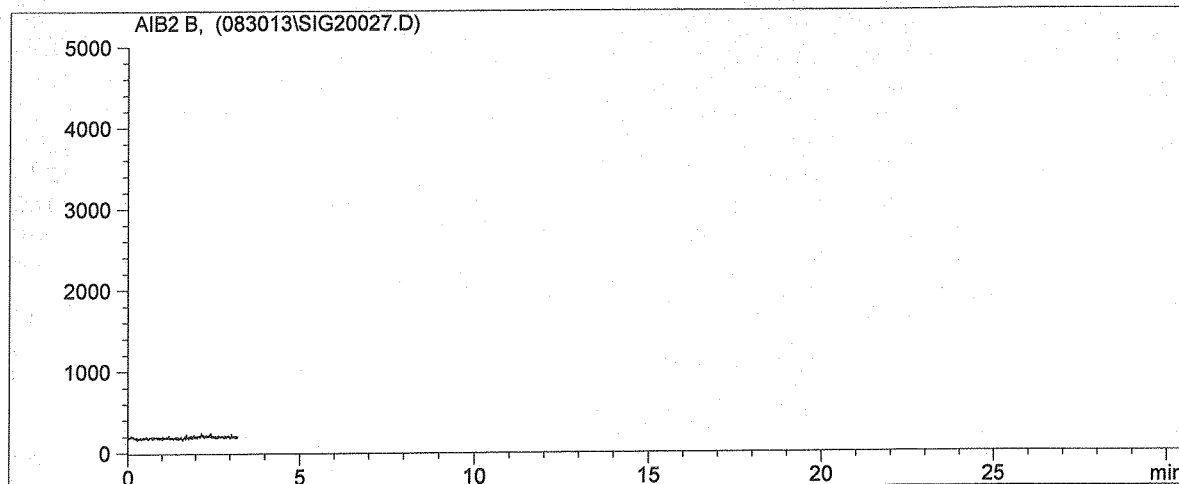
Totals: 0.000

*** End of Report ***

Page 23

Customized Report: D5504

Injection Date : 8/30/2013 3:36:21 PM Seq. Line : 27
 Sample Name : 131183-66024 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\D051413.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	Diethyl Disulfide
0.000	0	0.000	n-Hexyl Mercaptan
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

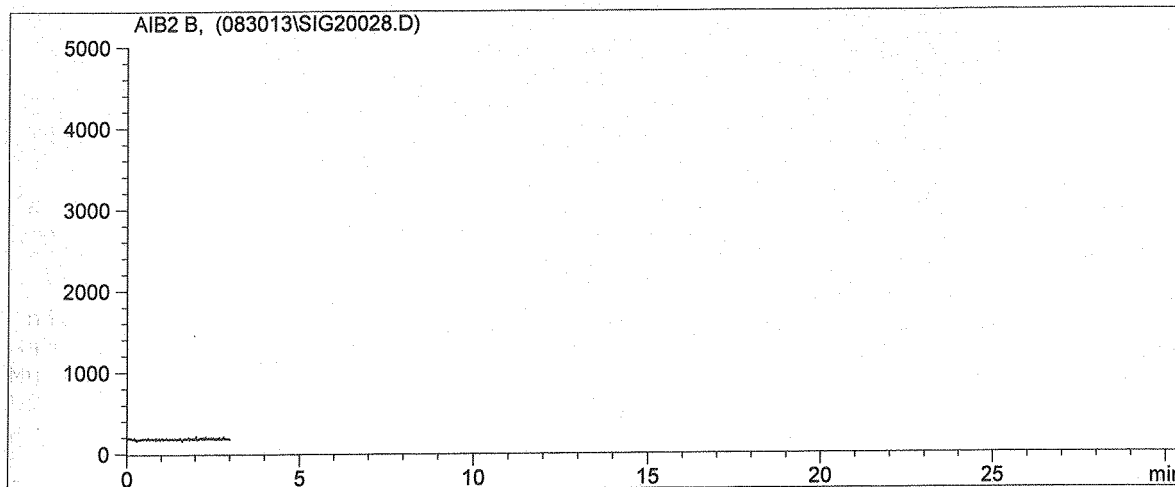
Totals: 0.000

*** End of Report ***

Page 27

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 Customized Report: D5504

Injection Date : 8/30/2013 3:40:25 PM Seq. Line : 28
 Sample Name : 131183-66025 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\D051413.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	Diethyl Disulfide
0.000	0	0.000	n-Hexyl Mercaptan
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

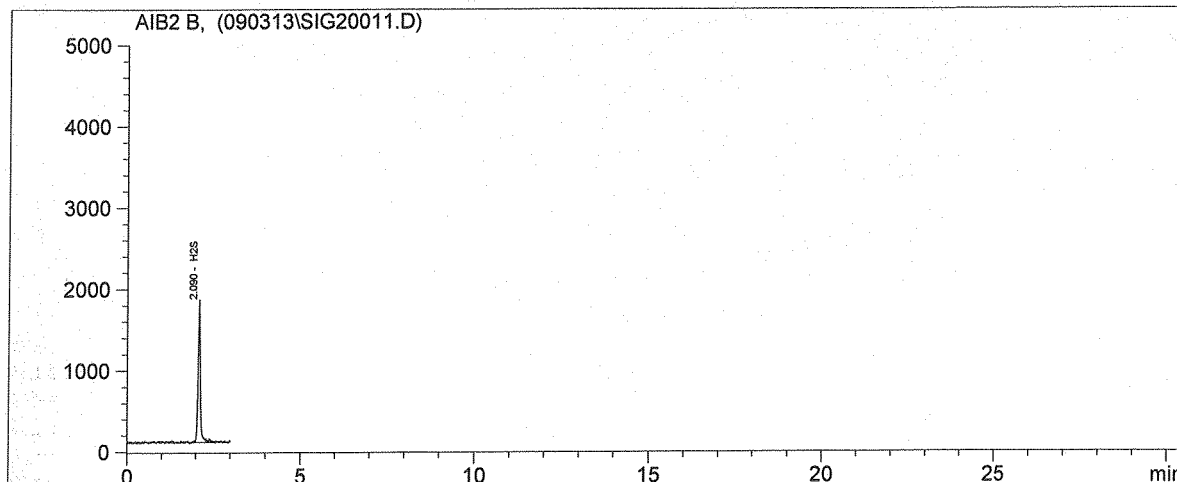
Totals: 0.000

*** End of Report ***

2/8/13

Customized Report: D5504

Injection Date : 9/3/2013 10:05:26 AM Seq. Line : 11
 Sample Name : MS 66025 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\D051413.M



Uncalibrated Peaks : using compound H2S

Ret Time [min]	Area	Amount [ppbV]	Name
2.090	8212	243.566	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	Diethyl Disulfide
0.000	0	0.000	n-Hexyl Mercaptan
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: 243.566

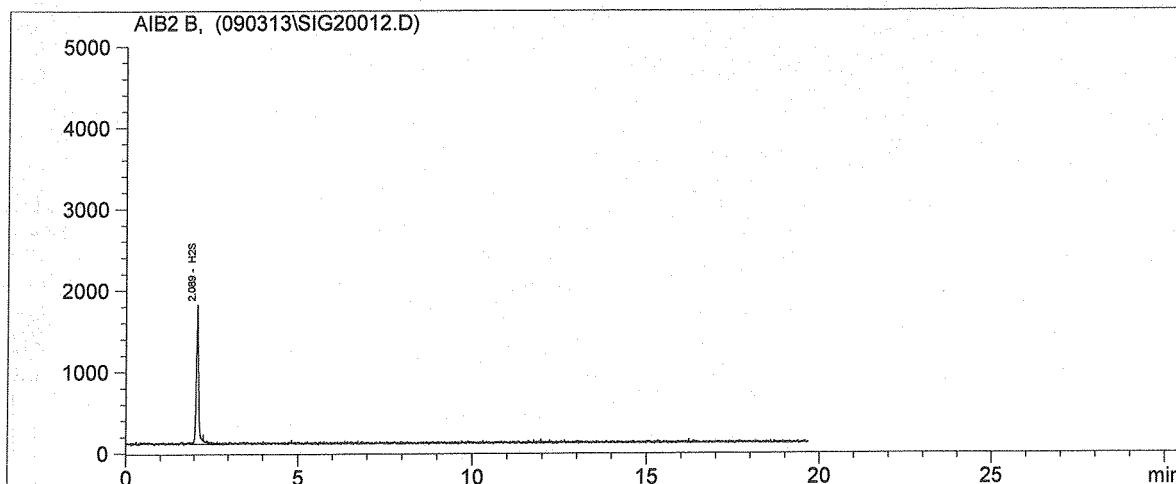
*** End of Report ***

Page 31

49/3/13

Customized Report: D5504

Injection Date : 9/3/2013 10:09:06 AM Seq. Line : 12
 Sample Name : MSD 66025 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\D051413.M



Uncalibrated Peaks : using compound H2S

Ret Time [min]	Area	Amount [ppbV]	Name
2.089	8391	248.869	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	Diethyl Disulfide
0.000	0	0.000	n-Hexyl Mercaptan
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: 248.869

*** End of Report ***

Page 32

Calibration Summary

SCAQMD 307.91 / ASTM D-5504 INITIAL CALIBRATION SUMMARY

Analysis Date: 5/14/2013

Analyst: DHMH

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	0.0	0	0.0	0.0
0.0	0.00	0	0.0	0	0.0	0	0.0	0.0
0.0	0.00	0	0.0	0	0.0	0	0.0	0.0
25.0	2.096	836	0.0					
25.0	2.094	855	2.2	12	25.0	842	25.0	99.9
25.0	2.093	834	0.2					
100.0	2.091	3222						
100.0	2.090	3374	4.6	82	100.0	3316	98.4	98.4
100.0	2.091	3353	4.0					
500.0	2.091	17233						
500.0	2.090	17453	1.3	272	500.0	17486	518.6	103.7
500.0	2.089	17773	3.1					
2500.0	2.087	85533						
2500.0	2.088	83551	2.3	1182	2500.0	84170	2496.3	99.9
2500.0	2.087	83425	2.5					
Avg. Ret: 2.091								

Calibration Verification Check Standards:

Check Standard Concentration: 500 ppbv

	Resp. (area)	Result (ppbv)	% Rec *	% RPD
Initial	17273	512.3	102.5	NA
Duplicate	17117	507.7	101.5	0.9
Triplicate	17378	515.4	103.1	0.6

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

Linear Slope: X = Y/ 33.7172
 R2 value: 0.9999 Must be > 0.990

 Laboratory Director (signature/date) 5/14/13

SCAQMD 307.91/ASTM D-5504 INITIAL CALIBRATION SUMMARY

Area (mean) vs. Conc. (theor)

$y = 33.7172x$
 $R^2 = 0.9999$

