Air Toxics LTD.

Laboratory Services Since 1989

Electronic Comprehensive Validation Package (eCVP)

AN ENVIRONMENTAL ANALYTICAL LABORATORY

COMPREHENSIVE VALIDATION PACKAGE

Modified ASTM D-1946

INVENTORY SHEET

Work Order #: 1009578B

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Comments:

Completed by:

Kara McKiernan	Kara McKiernan / Document Control	9/30/10
(Signature)	(Print Name & Title)	(Date)

Air Toxics LTD.
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WORK ORDER #: 1009578B

Work Order Summary

CLIENT:	Ms. Jessica Vickers Tetra Tech EM, Inc. 1955 Evergreen Blvd. Bldg. 200, Suite 300 Duluth, GA 30096	**BILL TO:**	Ms. Jessica Vickers Tetra Tech EM, Inc. 1955 Evergreen Blvd. Bldg. 200, Suite 300 Duluth, GA 30096
PHONE:	678-775-3080	**P.O. #**	
FAX:		**PROJECT #**	TTEMF-45-001-0136 Maynard Terrace
DATE RECEIVED:	09/25/2010	**CONTACT:**	Ausha Scott
DATE COMPLETED:	09/28/2010		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A(cancelled)	MTM-A-08	Modified ASTM D-1946	28.5 "Hg	5 psi
02A(cancelled)	MTM-A-09	Modified ASTM D-1946	28.5 "Hg	5 psi
03A(cancelled)	MTM-A-10	Modified ASTM D-1946	23.0 "Hg	5 psi
04A(cancelled)	MTM-A-11	Modified ASTM D-1946	29.0 "Hg	5 psi
05A	MTM-A-FB2	Modified ASTM D-1946	29.5 "Hg	5 psi
06A	Lab Blank	Modified ASTM D-1946	NA	NA
07A	LCS	Modified ASTM D-1946	NA	NA
07AA	LCSD	Modified ASTM D-1946	NA	NA

CERTIFIED BY: Linda J. Freeman

Laboratory Director

DATE: 09/28/10

Certfication numbers: CA NELAP - 02110CA, LA NELAP/LELAP- AI 30763,
NY NELAP - 11291, UT NELAP - 9166389892, AZ Licensure AZ0719
Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,
Accreditation number: E87680, Effective date: 07/01/09, Expiration date: 06/30/10
Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Air Toxics Ltd.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified ASTM D-1946
Tetra Tech EM, Inc.
Workorder# 1009578B

Five 6 Liter Summa Canister (100% Certified) samples were received on September 25, 2010. The laboratory performed analysis via Modified ASTM Method D-1946 for Methane in air using GC/FID. The method involves direct injection of 1.0 mL of sample.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

Requirement	***ASTM D-1946***	***ATL Modifications***
Calibration	A single point calibration is performed using a reference standard closely matching the composition of the unknown.	A 3-point calibration curve is performed. Quantitation is based on a daily calibration standard which may or may not resemble the composition of the associated samples.
Reference Standard	The composition of any reference standard must be known to within 0.01 mol % for any component.	The standards used by ATL are blended to a >/= 95% accuracy.
Sample Injection Volume	Components whose concentrations are in excess of 5 % should not be analyzed by using sample volumes greater than 0.5 mL.	The sample container is connected directly to a fixed volume sample loop of 1.0 mL on the GC. Linear range is defined by the calibration curve. Bags are loaded by vacuum.
Normalization	Normalize the mole percent values by multiplying each value by 100 and dividing by the sum of the original values. The sum of the original values should not differ from 100% by more than 1.0%.	Results are not normalized. The sum of the reported values can differ from 100% by as much as 15%, either due to analytical variability or an unusual sample matrix.
Precision	Precision requirements established at each concentration level.	Duplicates should agree within 25% RPD for detections > 5 X's the RL.

Receiving Notes

The Chain of Custody was missing method information. ATL proceeded with the analysis as per the original contract or verbal agreement.

Samples MTM-A-08, MTM-A-09, MTM-A-10 and MTM-A-11 were received with significant

vacuum remaining in the canister. The residual canister vacuum resulted in elevated reporting limits.

Samples MTM-A-08, MTM-A-09, MTM-A-10 and MTM-A-11 were cancelled on September 27th, 2010 per client's request.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Seven qualifiers may have been used on the data analysis sheets and indicate as follows:
B - Compound present in laboratory blank greater than reporting limit.
J - Estimated value.
E - Exceeds instrument calibration range.
S - Saturated peak.
Q - Exceeds quality control limits.
U - Compound analyzed for but not detected above the detection limit.
M - Reported value may be biased due to apparent matrix interferences.
File extensions may have been used on the data analysis sheets and indicates as follows:
a-File was requantified
b-File was quantified by a second column and detector
r1-File was requantified for the purpose of reissue

Table 1

Client Sample ID	Lab Sample ID	Date Collected	Date Received	Date Extracted	Sample Holding Time (Days)	Sample Extract Date Analyzed	Sample Extract Holding Time (Days)	Sample Condition
MTM-A-FB2	1009578B-05A	9/24/2010	9/25/2010	NA	1	9/25/2010	NA	Good
Lab Blank	1009578B-06A	NA	NA	NA	NA	9/25/2010	NA	Good
LCS	1009578B-07A	NA	NA	NA	NA	9/25/2010	NA	Good
LCSD	1009578B-07AA	NA	NA	NA	NA	9/25/2010	NA	Good

Sample Results and Raw Data

Summary of Detected Compounds
NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

Client Sample ID: MTM-A-FB2

Lab ID#: 1009578B-05A

No Detections Were Found.

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Client Sample ID: MTM-A-FB2

Lab ID#: 1009578B-05A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9092511**	**Date of Collection:**	**9/24/10 12:00:00 PM**
Dil. Factor:	**1.00**	**Date of Analysis:**	**9/25/10 01:05 PM**

Compound	**Rpt. Limit (%)**	**Amount (%)**
Methane	0.00010	Not Detected

Container Type: 6 Liter Summa Canister (100% Certified)

Air Toxics Ltd.

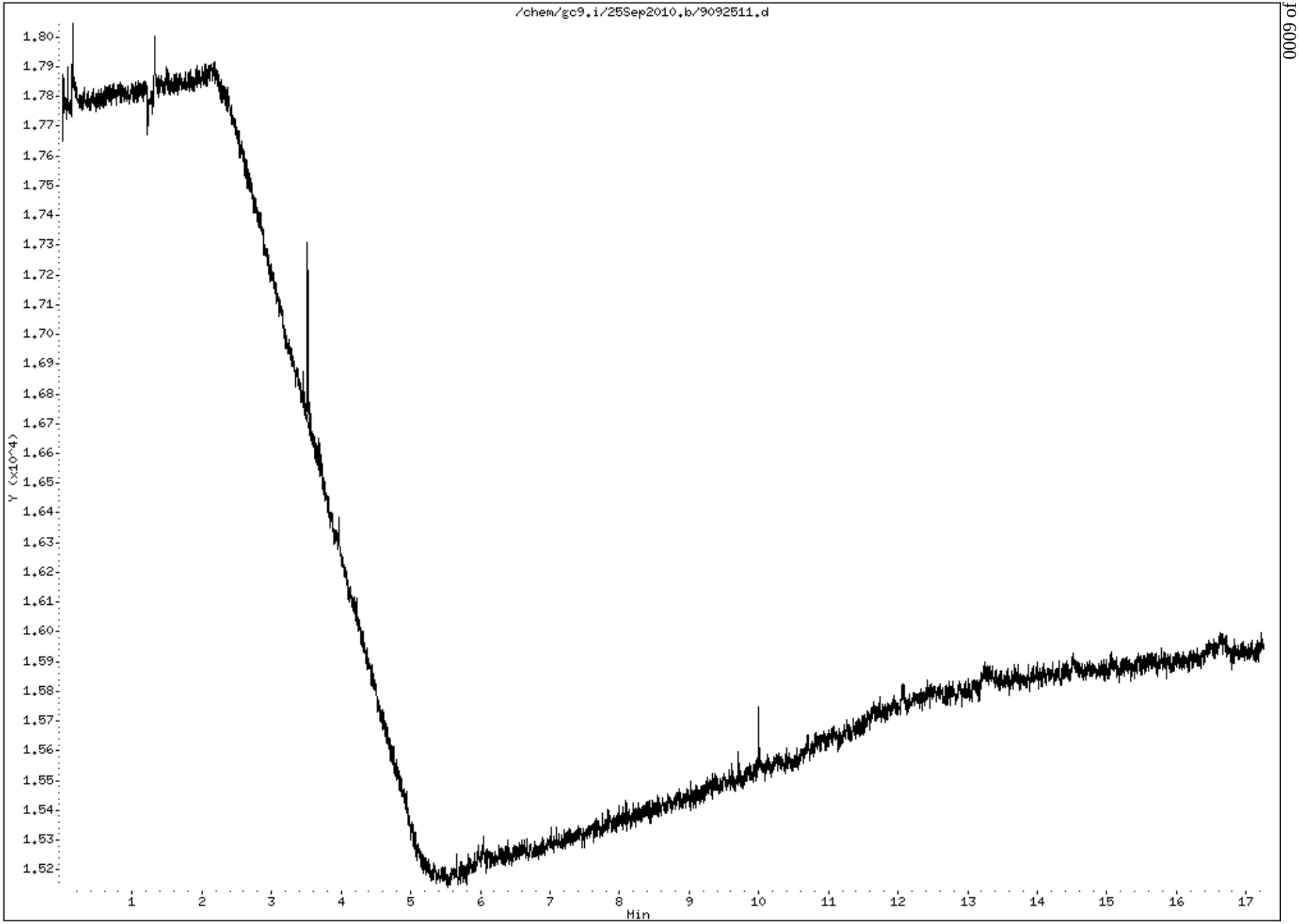
Modified ASTM-1945 Analysis

Data file : /chem/gc9.i/25Sep2010.b/9092511.d
Lab Smp Id: 1009578B-05A
Inj Date : 25-SEP-2010 13:05
Operator : ly Inst ID: gc9.i
Smp Info : 1.0ml,25300
Misc Info : 29.5"Hg>5.0psi, Tetra Tech
Comment : GC FID
Method : /chem/gc9.i/25Sep2010.b/910n0430.m
Meth Date : 25-Sep-2010 09:49 lyohanne Quant Type: ESTD
Cal Date : 25-SEP-2010 09:11 Cal File: 9092501.d
Als bottle: 1
Dil Factor: 1.00000
Integrator: HP Genie Compound Sublist: ch4.sub
Target Version: 3.50
Processing Host: eeyore

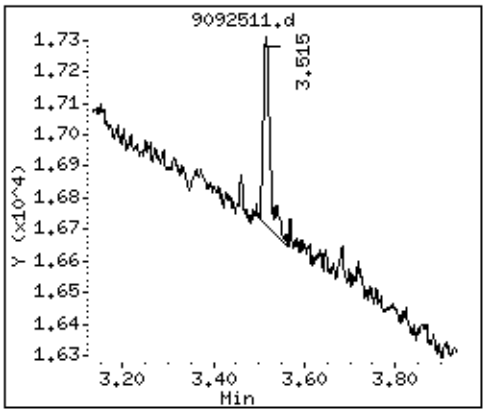
Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (%)	CONCENTRATIONS FINAL (%)
2 Methane	Compound Not Detected.					


/chem/gc9.i/25Sep2010.b/9092511.d
Y (x10^4)
1.80
1.79
1.78
1.77
1.76
1.75
1.74
1.73
1.72
1.71
1.70
1.69
1.68
1.67
1.66
1.65
1.64
1.63
1.62
1.61
1.60
1.59
1.58
1.57
1.56
1.55
1.54
1.53
1.52
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
Min

2 Methane (Undetected)



QC Results and Raw Data

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Client Sample ID: Lab Blank

Lab ID#: 1009578B-06A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9092505**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 9/25/10 10:44 AM**	

Compound	**Rpt. Limit (%)**	**Amount (%)**
Methane	0.00010	Not Detected

Container Type: NA - Not Applicable

Air Toxics Ltd.

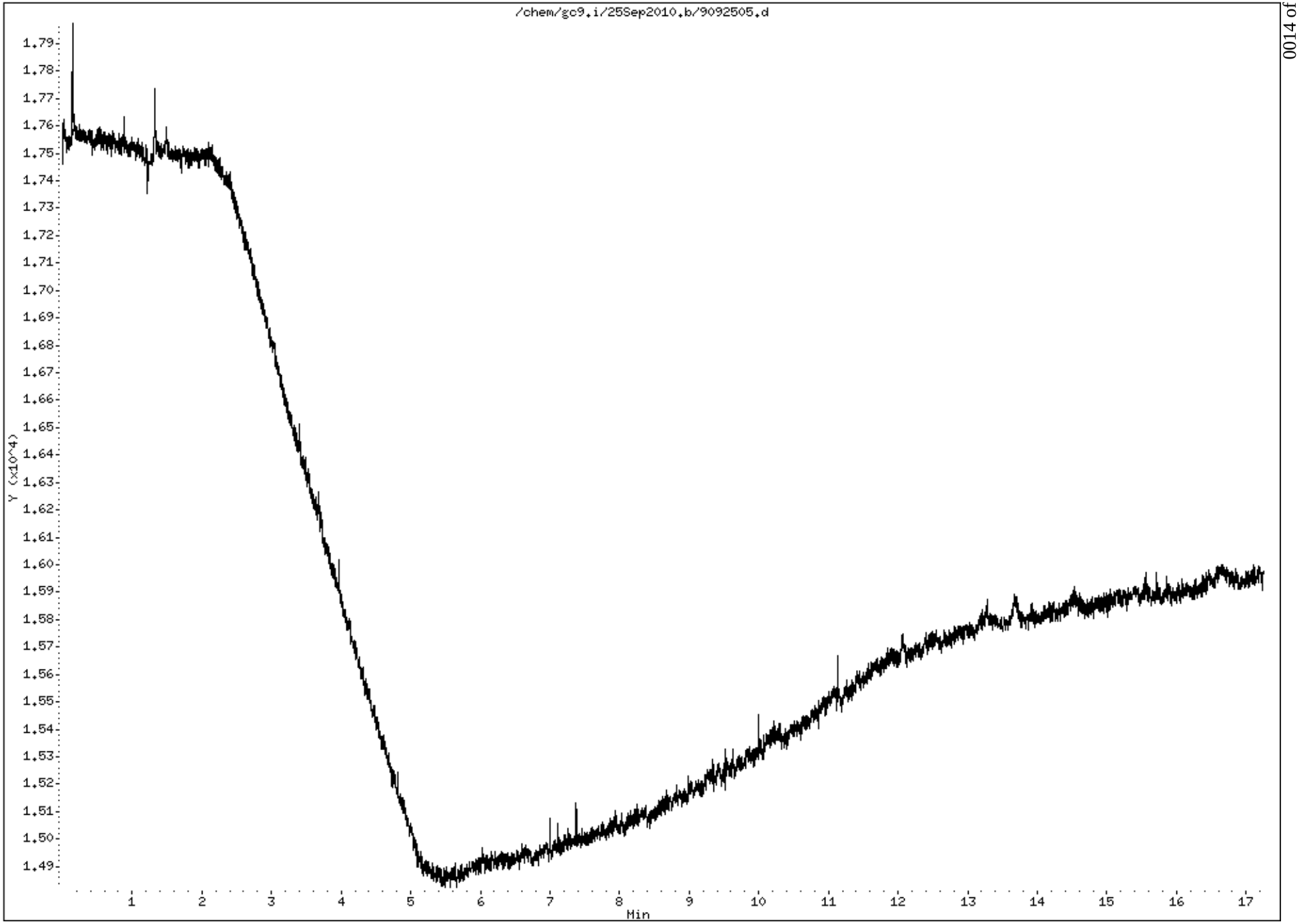
Modified ASTM-1945 Analysis

Data file : /chem/gc9.i/25Sep2010.b/9092505.d
Lab Smp Id: He Lab Blank Client Smp ID: Lab Blank
Inj Date : 25-SEP-2010 10:44
Operator : ly Inst ID: gc9.i
Smp Info : 1.0ml,14014;He Lab Blank;Lab Blank;
Misc Info : He
Comment : GC FID
Method : /chem/gc9.i/25Sep2010.b/910n0430.m
Meth Date : 25-Sep-2010 09:49 lyohanne Quant Type: ESTD
Cal Date : 25-SEP-2010 09:11 Cal File: 9092501.d
Als bottle: 1
Dil Factor: 1.00000
Integrator: HP Genie Compound Sublist: ngas.sub
Target Version: 3.50
Processing Host: eeyore

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

	Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (%)	CONCENTRATIONS FINAL (%)
	2 Methane	Compound Not Detected.					
	3 ethane	Compound Not Detected.					
	4 ethene	Compound Not Detected.					
	5 propane	Compound Not Detected.					
	7 acetylene	Compound Not Detected.					
	8 iso-butane	Compound Not Detected.					
	10 n-butane	Compound Not Detected.					
	15 neo-pentane	Compound Not Detected.					
	16 isopentane	Compound Not Detected.					
	17 pentane	Compound Not Detected.					
M	37 C6+ Hydrocarbons	Compound Not Detected.					
S	22 c6-c7	Compound Not Detected.					
S	36 c8+	Compound Not Detected.					


/chem/gc9.i/25Sep2010.b/9092505.d
Y (x10^4)
1.79
1.78
1.77
1.76
1.75
1.74
1.73
1.72
1.71
1.70
1.69
1.68
1.67
1.66
1.65
1.64
1.63
1.62
1.61
1.60
1.59
1.58
1.57
1.56
1.55
1.54
1.53
1.52
1.51
1.50
1.49
1
2
3
4
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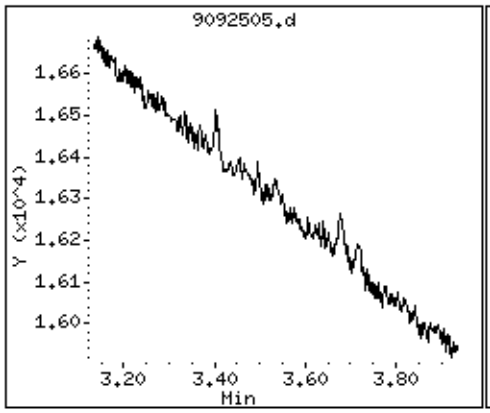
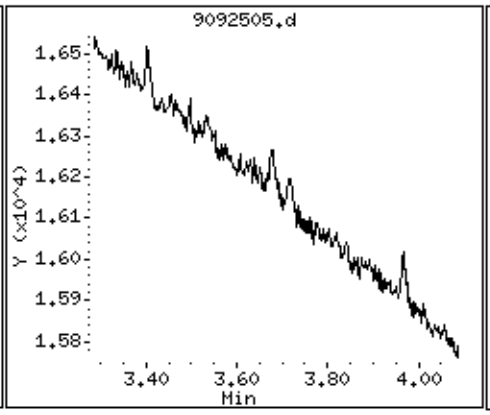
6
7
8
9
10
11
12
13
14
15
16
17
Min

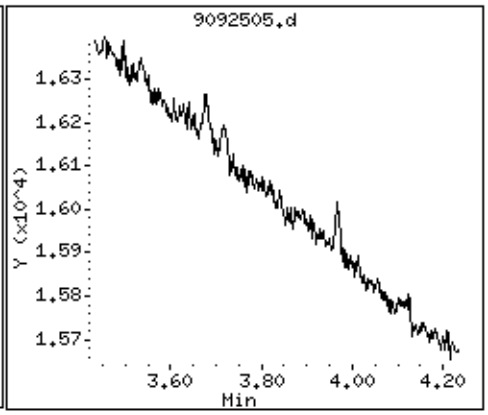
2 Methane (Undetected)



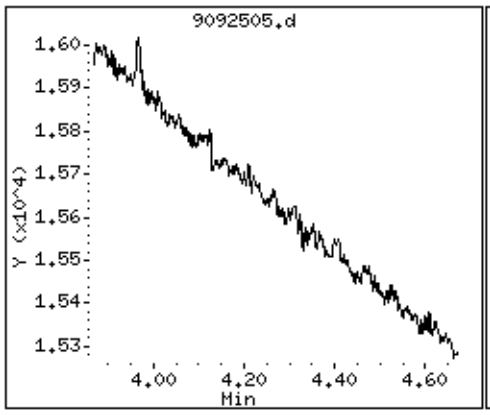
3 ethane (Undetected)



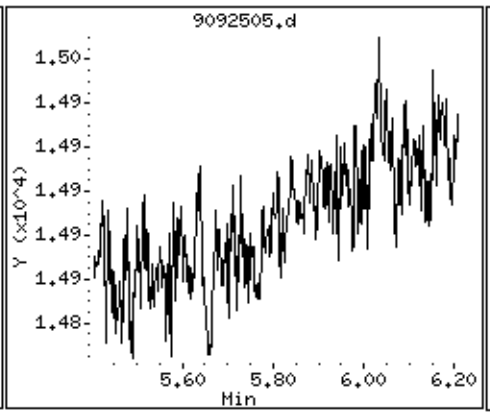
4 ethene (Undetected)



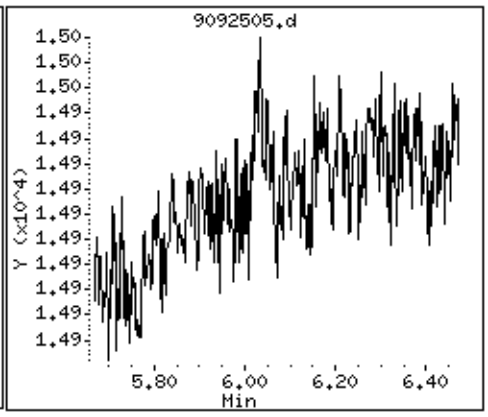
5 propane (Undetected)



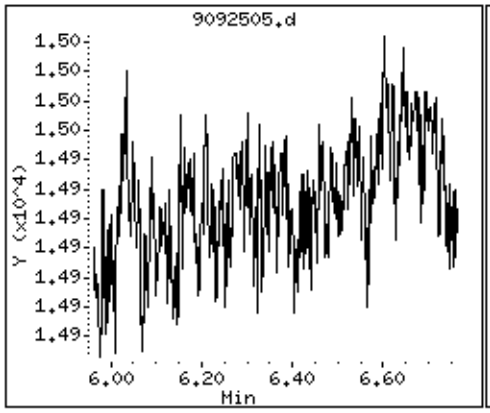
7 acetylene (Undetected)



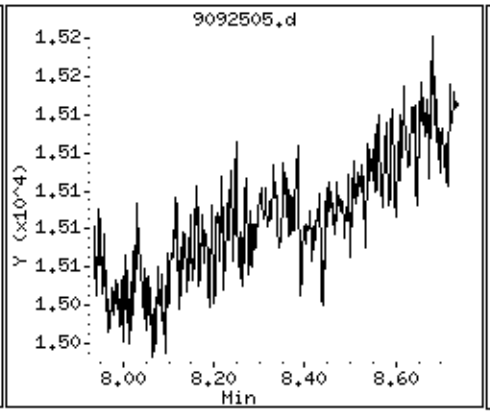
8 iso-butane (Undetected)



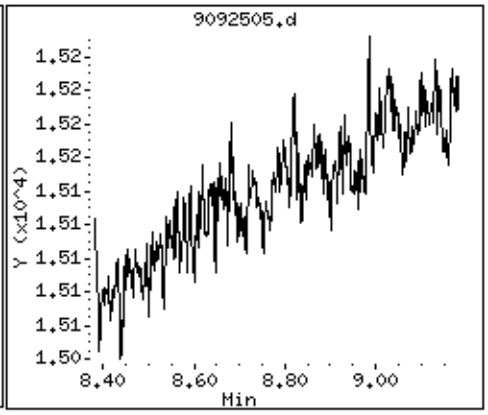
10 n-butane (Undetected)



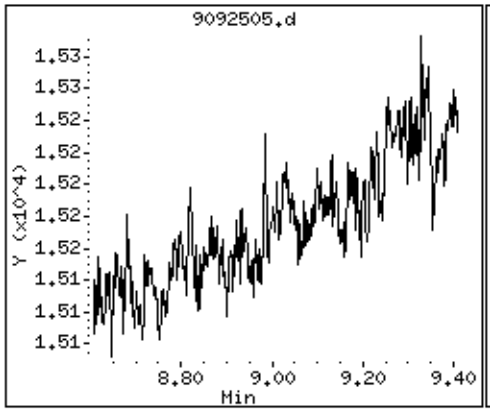
15 neo-pentane (Undetected



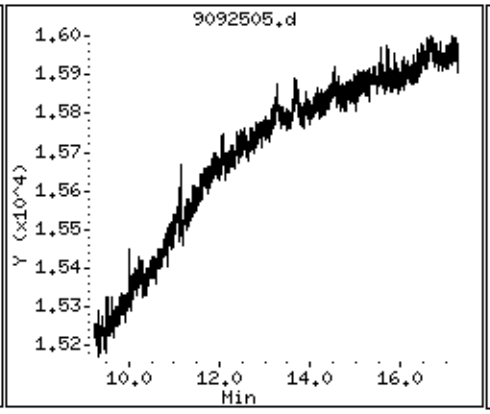
16 isopentane (Undetected)



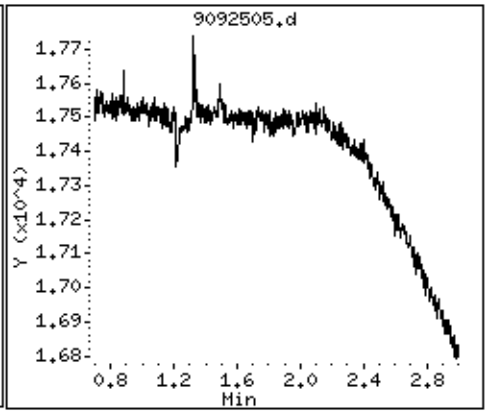
17 pentane (Undetected)



S 22 c6-c7 (Undetected)



S 36 c8+ (Undetected)



SAMPLE RESULTS/SAMPLE RESULTS DUPLICATE

Lab Name: Air Toxics Ltd.

Lab File ID: 9092518.d & 9092502.d

Lab Sample ID: &

Dilution: 1.00 & 1.00

Client Sample ID: LCS & lcsd

Date Analyzed: 9/25/10 & 9/25/10

CAS Number	Compound	Original Amount	Original Flags	Duplicate Amount	Duplicate Flags	RPD	Result Less Than 5X RL
74-82-8	Methane	97		99		2.0	

Note: The results appearing in the Amount columns are the raw, unrounded numbers acquired from the instrument.

Air Toxics Ltd.

INITIAL CALIBRATION DATA

Start Cal Date : 30-APR-2010 09:54
End Cal Date : 30-APR-2010 17:55
Quant Method : ESTD
Origin : Disabled
Target Version : 3.50
Integrator : HP Genie
Method file : /var/chem/gc9.i/30Apr2010.b/910n0430.m
Cal Date : 03-May-2010 11:56 tstriepe
Curve Type : Average

Calibration File Names:
Level 1: /chem/gc9.i/30Apr2010.b/9043002.d
Level 2: /chem/gc9.i/30Apr2010.b/9043003a.d
Level 3: /chem/gc9.i/30Apr2010.b/9043004a.d
Level 4: /chem/gc9.i/30Apr2010.b/9043005a.d
Level 5: /chem/gc9.i/30Apr2010.b/9043006a.d
Level 6: /chem/gc9.i/30Apr2010.b/9043015.d

		0.000e+00	0.000e+00	0.000e+00	0.000e+00	0.000e+00	0.000e+00	___	
	Compound	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	RRF	% RSD
	2 Methane	202080000	153736294	155083221	164416716	152510874	+++++	165565421	12.651
	3 ethane	+++++	298674490	300191532	318558652	298734521	306748072	304581453	2.788
	4 ethene	+++++	294083838	295770942	314597500	294555688	295628733	298927340	2.940
	5 propane	+++++	444823000	453448907	481920337	452081585	478780558	462210877	3.660
	7 acetylene	+++++	359859596	367637600	394417525	372723723	+++++	373659611	3.965
	8 iso-butane	+++++	586741414	602800200	641421360	603314068	+++++	608569261	3.814
	10 n-butane	+++++	589788889	601382966	642135900	606050212	697960475	627463688	7.012
	15 neo-pentane	+++++	784290000	802413690	848947248	800882990	+++++	809133482	3.434
	16 isopentane	+++++	746938000	758502381	802097129	758571360	666396985	746501171	6.630
	17 pentane	+++++	752239000	764838889	810372376	768282568	769758534	773098274	2.839
	39 Hexane	+++++	901288000	913222709	972456653	920953817	+++++	926980295	3.385
	40 Heptane	+++++	1.028e+09	1.048e+09	1.148e+09	1.079e+09	+++++	1.076e+09	4.870
S	22 c6-c7	+++++	+++++	983751953	1.070e+09	1.010e+09	+++++	1.021e+09	4.327
M	37 C6+ Hydrocarbons	+++++	+++++	+++++	+++++	+++++	+++++	1.021e+09	+++++
S	36 c8+	+++++	+++++	+++++	+++++	+++++	+++++	1.021e+09	+++++

Calibration History

Method : /var/chem/gc9.i/30Apr2010.b/910n0430.m
Start Cal Date: 30-APR-2010 09:54
End Cal Date : 30-APR-2010 17:55

Initial Calibration

Injection Date	Sublist	Calibration File
Cal Level: 1 , Cal Amount: 0.00000		
30-APR-2010 09:54	ch4	/chem/gc9.i/30Apr2010.b/9043002.d

Injection Date	Sublist	Calibration File
Cal Level: 2 , Cal Amount: 0.00000		
30-APR-2010 10:17	HexHep	/chem/gc9.i/30Apr2010.b/9043003a.d
30-APR-2010 10:17	ngas	/chem/gc9.i/30Apr2010.b/9043003.d

Injection Date	Sublist	Calibration File
Cal Level: 3 , Cal Amount: 0.00000		
30-APR-2010 10:42	HexHep	/chem/gc9.i/30Apr2010.b/9043004a.d
30-APR-2010 10:42	ngas	/chem/gc9.i/30Apr2010.b/9043004.d

Injection Date	Sublist	Calibration File
Cal Level: 4 , Cal Amount: 0.00000		
30-APR-2010 11:13	HexHep	/chem/gc9.i/30Apr2010.b/9043005a.d
30-APR-2010 11:13	ngas	/chem/gc9.i/30Apr2010.b/9043005.d

Injection Date	Sublist	Calibration File
Cal Level: 5 , Cal Amount: 0.00000		
30-APR-2010 11:37	HexHep	/chem/gc9.i/30Apr2010.b/9043006a.d
30-APR-2010 11:37	ngas	/chem/gc9.i/30Apr2010.b/9043006.d

Injection Date	Sublist	Calibration File
Cal Level: 6 , Cal Amount: 0.00000		
30-APR-2010 17:55	isopentane	/chem/gc9.i/30Apr2010.b/9043015.d
30-APR-2010 15:55	Butane	/chem/gc9.i/30Apr2010.b/9043012.d
30-APR-2010 15:29	propane	/chem/gc9.i/30Apr2010.b/9043011.d
30-APR-2010 15:02	ehtene	/chem/gc9.i/30Apr2010.b/9043010.d
30-APR-2010 14:28	ehtane	/chem/gc9.i/30Apr2010.b/9043009.d
30-APR-2010 13:54	Pentane	/chem/gc9.i/30Apr2010.b/9043008.d

Report Date : 03-May-2010 11:58

GC-9
FID-Curve

Air Toxics Ltd.

INITIAL CALIBRATION DATA

Start Cal Date : 30-APR-2010 09:54
End Cal Date : 30-APR-2010 17:55
Quant Method : ESTD
Origin : Disabled
Target Version : 3.50
Integrator : HP Genie
Method file : /var/chem/gc9.i/30Apr2010.b/910n0430.m
Cal Date : 03-May-2010 11:56 tstriepe
Curve Type : Average

5/3/10

Calibration File Names: See Calibration History
Level 1: /chem/gc9.i/30Apr2010.b/9043002.d
Level 2: /chem/gc9.i/30Apr2010.b/9043003a.d
Level 3: /chem/gc9.i/30Apr2010.b/9043004a.d
Level 4: /chem/gc9.i/30Apr2010.b/9043005a.d
Level 5: /chem/gc9.i/30Apr2010.b/9043006a.d
Level 6: /chem/gc9.i/30Apr2010.b/9043015.d

gm 5/3/10

Based on 1.0mL loop load - Second Sourcefile # 9043016

Compound	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	RRF	% RSD
	0.000e+00	0.000e+00	0.000e+00	0.000e+00	0.000e+00	0.000e+00		
2 Methane	202080000	153736294	155083221	164416716	152510874	+++++	165565421	12.651
3 ethane	+++++	298674490	300191532	318558652	298734521	306748072	304581453	2.788
4 ethene	+++++	294083838	295770942	314597500	294555688	295628733	298927340	2.940
5 propane	+++++	444823000	453448907	481920337	452081585	478780558	462210877	3.660
7 acetylene	+++++	359859596	367637600	394417525	372723723	+++++	373659611	3.965
8 iso-butane	+++++	586741414	602800200	641421360	603314068	+++++	608569261	3.814
10 n-butane	+++++	589788889	601382966	642135900	606050212	697960475	627463688	7.012
15 neo-pentane	+++++	784290000	802413690	848947248	800882990	+++++	809133482	3.434
16 isopentane	+++++	746938000	758502381	802097129	758571360	666396985	746501171	6.630
17 pentane	+++++	752239000	764838889	810372376	768282568	769758534	773098274	2.839
39 Hexane	+++++	901288000	913222709	972456653	920953817	+++++	926980295	3.385
40 Heptane	+++++	1.028e+09	1.048e+09	1.148e+09	1.079e+09	+++++	1.076e+09	4.870
S 22 c6-c7	+++++	+++++	983751953	1.070e+09	1.010e+09	+++++	1.021e+09	4.327
M 37 C6+ Hydrocarbons	+++++	+++++	+++++	+++++	+++++	+++++	1.021e+09	+++++
S 36 c8+	+++++	+++++	+++++	+++++	+++++	+++++	1.021e+09	+++++

gm 5/3/10

Compound	Level1(%)	Level 2(%)	Level 3(%)	Level 4(%)	Level 5(%)	Level 6(%)
Methane	0.00010	0.01970	0.09935	0.9950	9.950	NA
Ethane	NA	0.00098	0.00496	0.0497	0.497	24.975
Ethene	NA	0.00099	0.00499	0.0500	0.500	24.875
Propane	NA	0.00100	0.00503	0.0504	0.504	19.900
Acetylene	NA	0.00099	0.00500	0.0501	0.501	NA
iso-Btuane	NA	0.00099	0.00499	0.0500	0.500	NA
n-Butane	NA	0.00099	0.00499	0.0500	0.500	9.990
neo-Pentane	NA	0.00100	0.00504	0.0505	0.505	NA
iso-Pentane	NA	0.00100	0.00504	0.0505	0.505	4.950
n-Pentane	NA	0.00100	0.00504	0.0505	0.505	9.990
Hexane	NA	0.00050	0.00251	0.0251	0.251	NA
C6-C7	NA	NA	0.00512	0.0512	0.512	NA

@Air Toxics Ltd. **GC-9** **Logbook #: 1969**

Method: ASTM 1945/1946 **Leak Test :** cy

	USE	File #	Sample Name/Client ID	Can #	Pressure	Amt	DF	Date	Time	Review Init.	Comments
1	✓	9043001	System Blank	14014	NA	1.0 ml	1.00	4/30/10	0918	cy	
2	✓	02	1830 - 35	34368					0954		Level 1
3	✓	03	-34	13671					1017		2
4	✓	04	-33	4267					1042		3
5	✓	05	1544 - 365 B Ngas	34219		(10:100) 1.0 ml			1113		4
6	✓	06				1.0 ml			1137		5
7	X	07	843 - 2965	NA	CH4 99.0%	(25:50) 1.0 ml			1234		Not used, Bad STD
8	✓	08	1476 - 910		Pentane 99.9%	(10:100) 1.0 ml			1354		Level 6
9	✓	09	1476 - 438		Ethane 99.9%	(12.5:50) 1.0 ml			1428		6
10	✓	10	1476 - 437		~~Propane~~ Ethane 99.5%				1502	gd	6
11	✓	11	843 - 471		Propane 99.5%	(10:50) 1.0 ml			1529		6
12	✓	12	1476 - 897		Butane 99.9%	(5:50) 1.0 ml			1555		6
13	X	13	843 - 2965		Methane 99%	(25:50) 1.0 ml			1646		Not used, Bad STD
14	X	14	843 - 2965			1.0 ml			1719		
15	✓	15	1476 - 898		Isopentane 99%	(5:100) 1.0 ml			1755		Level - 6

Calculation Check: File ID: 9043006C Compound: Propane Initials: gm

Sample Amt = $\frac{\text{Area Counts Sample}}{\text{RF}}$ × Dilution Factor = $\frac{(227849119)}{(46221087)}$ × (1.00) = 0.493 %

Reported Result: 0.493 %

gm 5/3/10

Signed Date

 Revised 04/05

@Air Toxics Ltd. **GC-9** **Logbook #: 1969**

Method: ASTM 1945/1946 **Leak Test :** gd

0021 of 0103

	USE	File #	Sample Name/Client ID	Can #	Pressure	Amt	DF	Date	Time	Review Init.	Comments
1	/	90430 16	1476 - 1477 N2 QC	NA	NA	1.0 ml	1.00	4/30/10	1826	gd	LCS
2	/	17	1476 - 977 H2	↓					1916		CCV
3	/	18	N2 Lab Blank	33868					1942		
4	/	19	He Lab Blank	14014					2004		
5	/	20	100 4650 -01A	Bag	11 00406 203 Div then ox				2028		↑ Isobutane
6	X	21	-01A	↓	↓				2054		carryover
7	X	22	He System Blank	14014	NA				2116		
8	/	23	↓	14014	↓	↓			2141		
9	/	24	100 4650 - 01B	Bag	11 00406 203 Div then ox	5.50 1.0 ml	10.0		2203		Isobutane only
10	/	25	He System Blank	~~3~~ 14014	NA	1.0 ml			2227		
11	/	26	100 4650 -02A	4/30/10 Bag	11 00406 423 Div then ox				2250		↑ Isobutane
12	/	27	He System Blank	14014	NA	↓			2318		
13	/	28	100 4650 - 02B	Bag	11 00406 423 Div then ox	(10.60) 1.0 ml	6.00	↓	2341	↓	Isobutane only
14	/	29	100 4634 B -01AA		# Residence South Outdoor	1.0 ml		5/01/10	0005	lg	
15	/	30	-01A		↓	↓	↓	↓	0734	↓	

Calculation Check: File ID: 90430 16 C Compound: Pentane Initials: gm

Sample Amt = $\frac{\text{Area Counts Sample}}{\text{RF}}$ × Dilution Factor = $\frac{(384483557)}{(768282569)}$ × (1.00) = **0.500 %**

Reported Result: **0.500 %**

gm 5/3/10

Signed Date

 Revised 04/05

Air Toxics Ltd.

Modified ASTM-1945 Analysis

Data file : /chem/gc9.i/30Apr2010.b/9043016.d
Lab Smp Id: 1476-1477 Client Smp ID: LCS
Inj Date : 30-APR-2010 18:26
Operator : gd Inst ID: gc9.i
Smp Info : 1.0mL,
Misc Info : LCS
Comment : GC FID
Method : /chem/gc9.i/30Apr2010.b/910n0430.m
Meth Date : 03-May-2010 12:03 gmash Quant Type: ESTD
Cal Date : 30-APR-2010 11:37 Cal File: 9043006a.d
Als bottle: 1 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP Genie Compound Sublist: ngas.sub
Target Version: 3.50
Processing Host: eeyore

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

	Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (%)	FINAL (%)
2	Methane	3.537	3.536	0.001	1535970513	9.27712	9.28
3	ethane	3.688	3.688	0.000	151041695	0.49590	0.496
4	ethene	3.833	3.833	0.000	149589597	0.50042	0.500
5	propane	4.267	4.267	0.000	225369165	0.48759	0.488
7	acetylene	5.789	5.792	-0.003	194864021	0.52150	0.522(A)
8	iso-butane	6.049	6.049	0.000	302158117	0.49651	0.496
10	n-butane	6.342	6.342	0.000	296019102	0.47177	0.472
15	neo-pentane	8.310	8.309	0.001	406364666	0.50222	0.502
16	isopentane	8.755	8.754	0.001	383359393	0.51354	0.514
17	pentane	8.983	8.981	0.002	384483557	0.49733	0.497
M 37	C6+ Hydrocarbons				524049634	0.51322	0.513
S 22	c6-c7	9.250-17.250			522490758	0.51169	0.512
S 36	c8+	0.700-3.000			1558876	0.00153	0.00153

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.

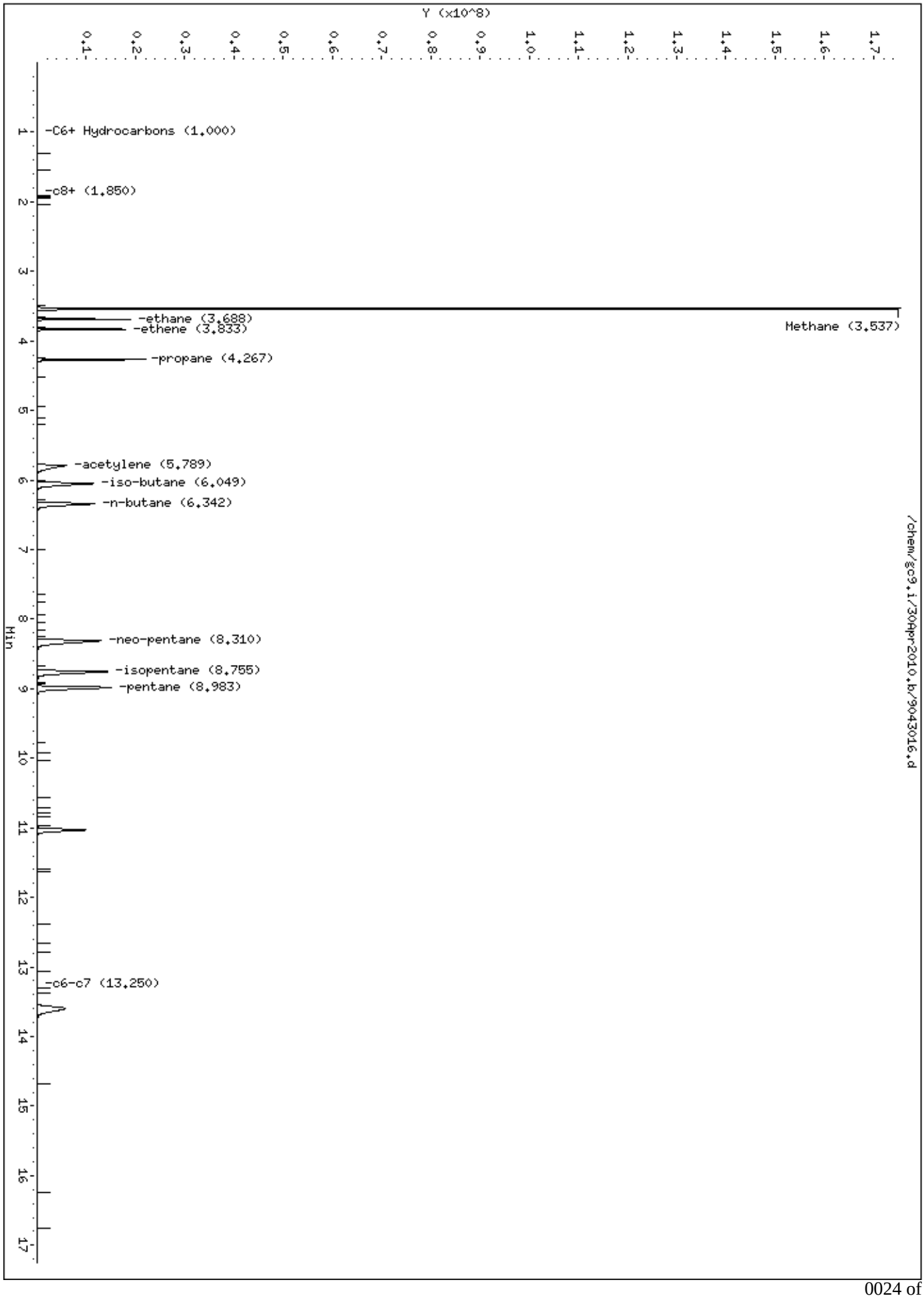
Report Date: 03-May-2010 12:04

Air Toxics Ltd.

RECOVERY REPORT

Client Name:
Client SDG: 30Apr2010
Sample Matrix: GAS
Fraction: Atm Gas
Lab Smp Id: 1476-1477
Client Smp ID: LCS
Level: LOW
Operator: gd
Data Type: GC DATA
SampleType: LCS
SpikeList File: 1476-1477.spk
Quant Type: ESTD
Sublist File: ngas.sub
Method File: /chem/gc9.i/30Apr2010.b/910n0430.m
Misc Info: LCS

	SPIKE COMPOUND	CONC ADDED %	CONC RECOVERED %	% RECOVERED	LIMITS
	2 Methane	9.99	9.28	92.86	85-115
	3 ethane	0.498	0.496	99.58	85-115
	4 ethene	0.500	0.500	100.08	85-115
	5 propane	0.499	0.488	97.71	85-115
	7 acetylene	0.500	0.522	104.30	85-115
	8 iso-butane	0.500	0.496	99.30	85-115
	10 n-butane	0.498	0.472	94.73	85-115
	15 neo-pentane	0.510	0.502	98.47	85-115
	16 isopentane	0.505	0.514	101.69	85-115
	17 pentane	0.503	0.497	98.87	85-115
M	37 C6+ Hydrocarbons	0.516	0.513	99.46	85-115

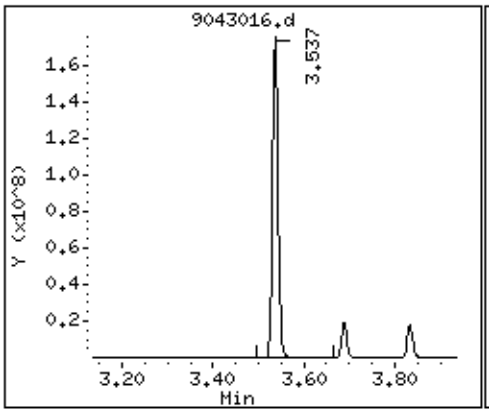


Data File: /chem/gc9.i/30Apr2010.b/9043016.d

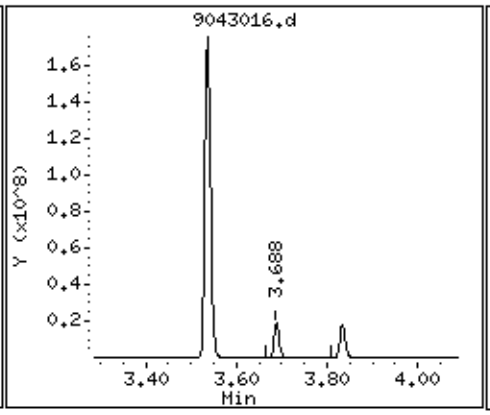
/chem/gc9.i/30Apr2010.b/9043016.d

Page 1

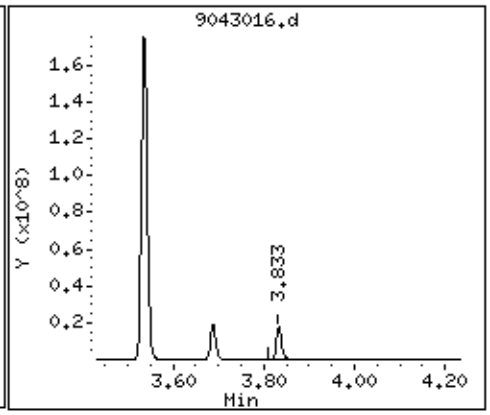
2 Methane



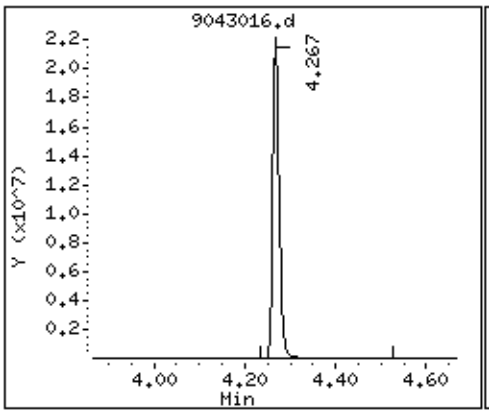
3 ethane



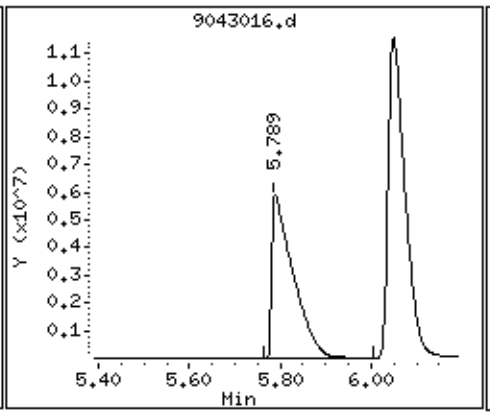
4 ethene



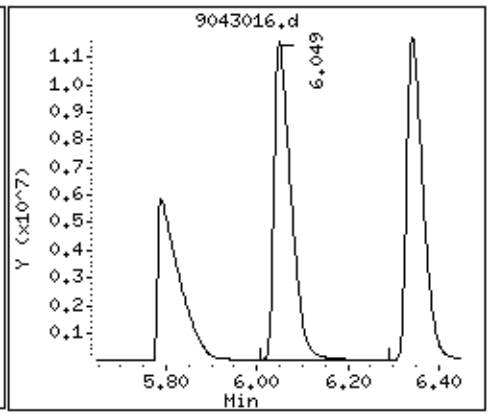
5 propane



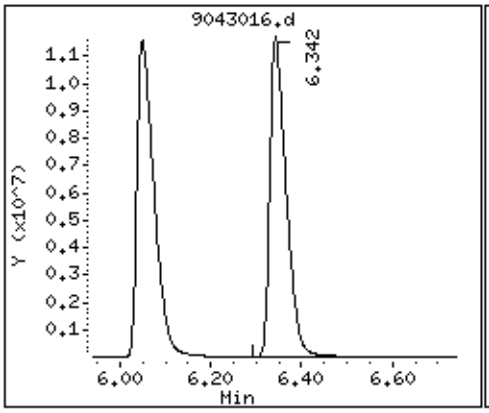
7 acetylene



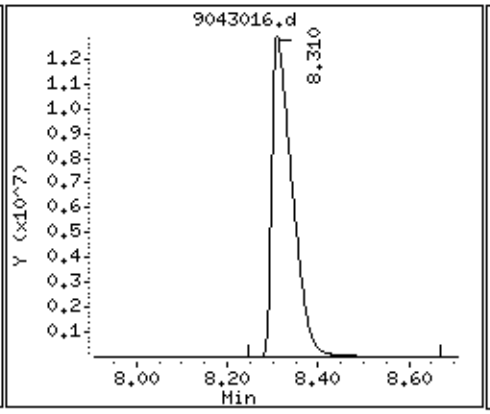
8 iso-butane



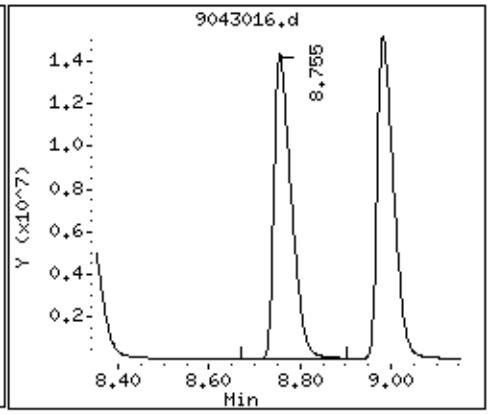
10 n-butane



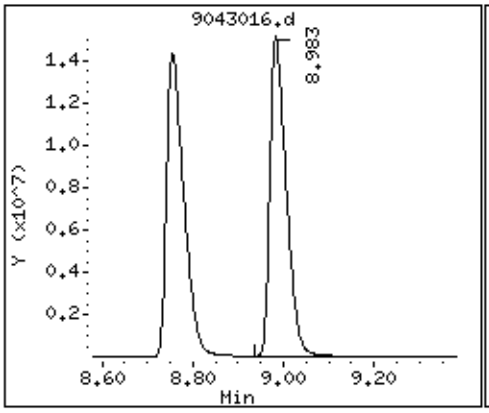
15 neo-pentane



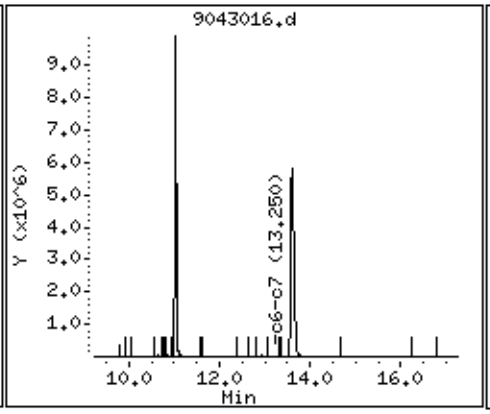
16 isopentane



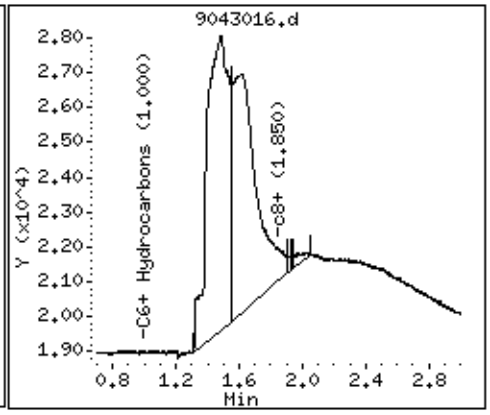
17 pentane



S 22 c6-c7



S 36 c8+



Air Toxics Ltd.

Modified ASTM-1945 Analysis

Data file : /chem/gc9.i/30Apr2010.b/9043016a.d
Lab Smp Id: 1476-1477 Client Smp ID: LCS
Inj Date : 30-APR-2010 18:26
Operator : gd Inst ID: gc9.i
Smp Info : 1.0mL,
Misc Info : LCS
Comment : GC FID
Method : /chem/gc9.i/30Apr2010.b/910n0430.m
Meth Date : 03-May-2010 12:06 gmash Quant Type: ESTD
Cal Date : 30-APR-2010 11:37 Cal File: 9043006a.d
Als bottle: 1 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP Genie Compound Sublist: HexHep.sub
Target Version: 3.50
Processing Host: eeyore

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (%)	FINAL (%)
39 Hexane	11.029	11.098	-0.069	236087796	0.25468	0.255(A)
40 Heptane	13.598	13.593	0.005	282444526	0.26247	0.262(A)

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.

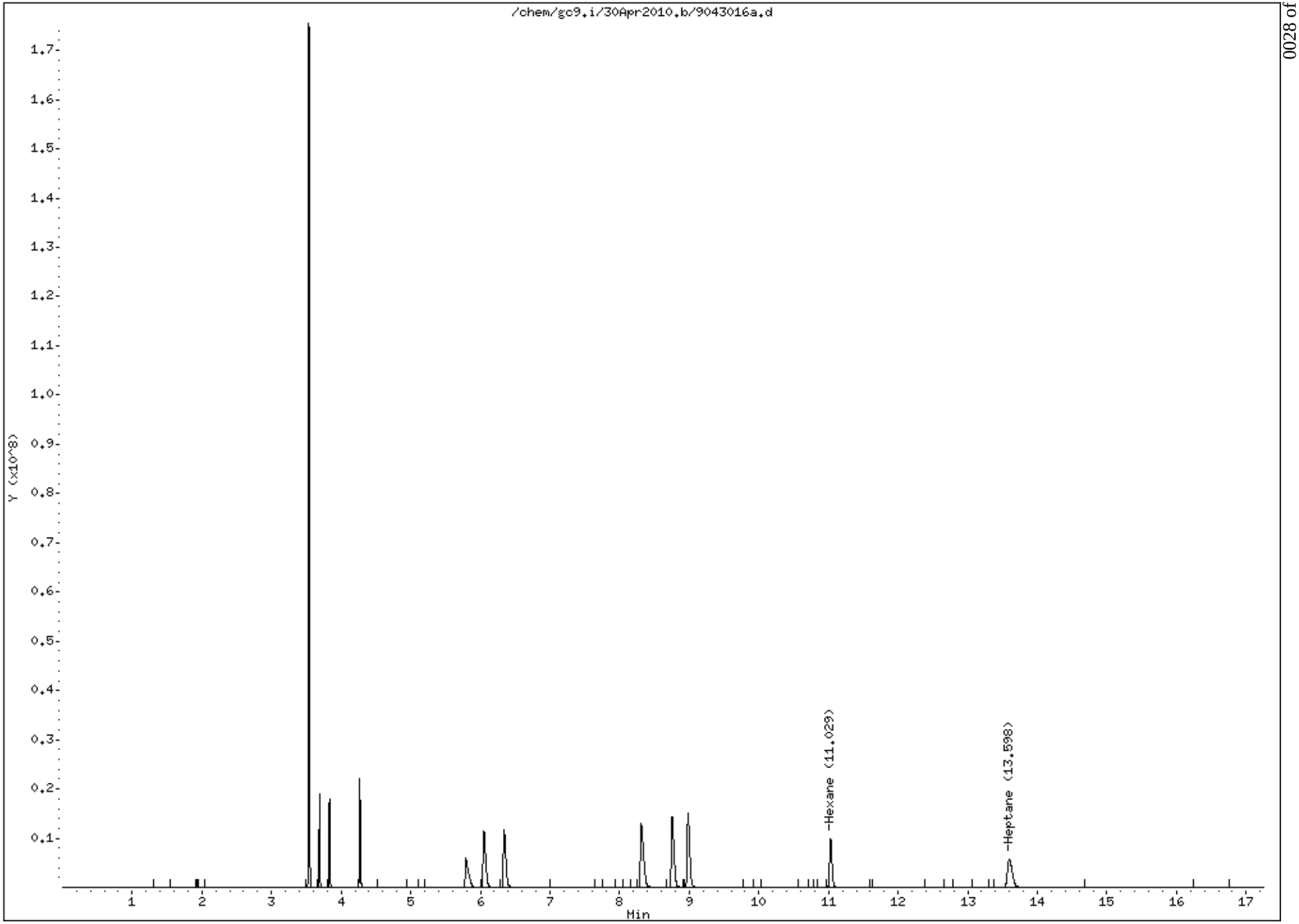
Report Date: 03-May-2010 12:06

Air Toxics Ltd.

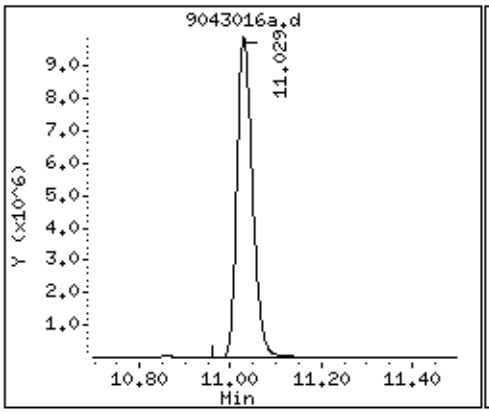
RECOVERY REPORT

Client Name:
Client SDG: 30Apr2010
Sample Matrix: GAS
Fraction: Atm Gas
Lab Smp Id: 1476-1477
Client Smp ID: LCS
Level: LOW
Operator: gd
Data Type: GC DATA
SampleType: LCS
SpikeList File: HexHep.spk
Quant Type: ESTD
Sublist File: HexHep.sub
Method File: /chem/gc9.i/30Apr2010.b/910n0430.m
Misc Info: LCS

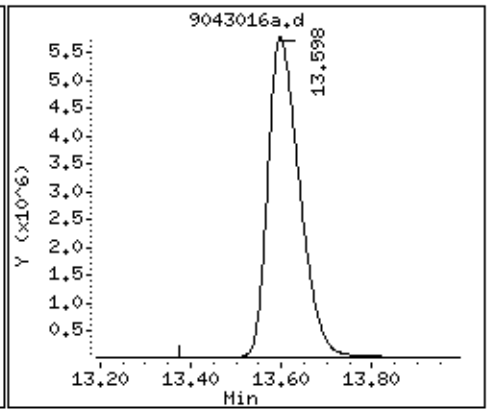
SPIKE COMPOUND	CONC ADDED %	CONC RECOVERED %	% RECOVERED	LIMITS
39 Hexane	0.257	0.255	99.10	85-115
40 Heptane	0.259	0.262	101.34	85-115


/chem/gc9.i/30Apr2010.b/9043016a.d
Y (x10^8)
1.7
1.6
1.5
1.4
1.3
1.2
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
-Hexane (11.029)
-Heptane (13.598)
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
Min

39 Hexane



40 Heptane



Air Toxics Ltd.

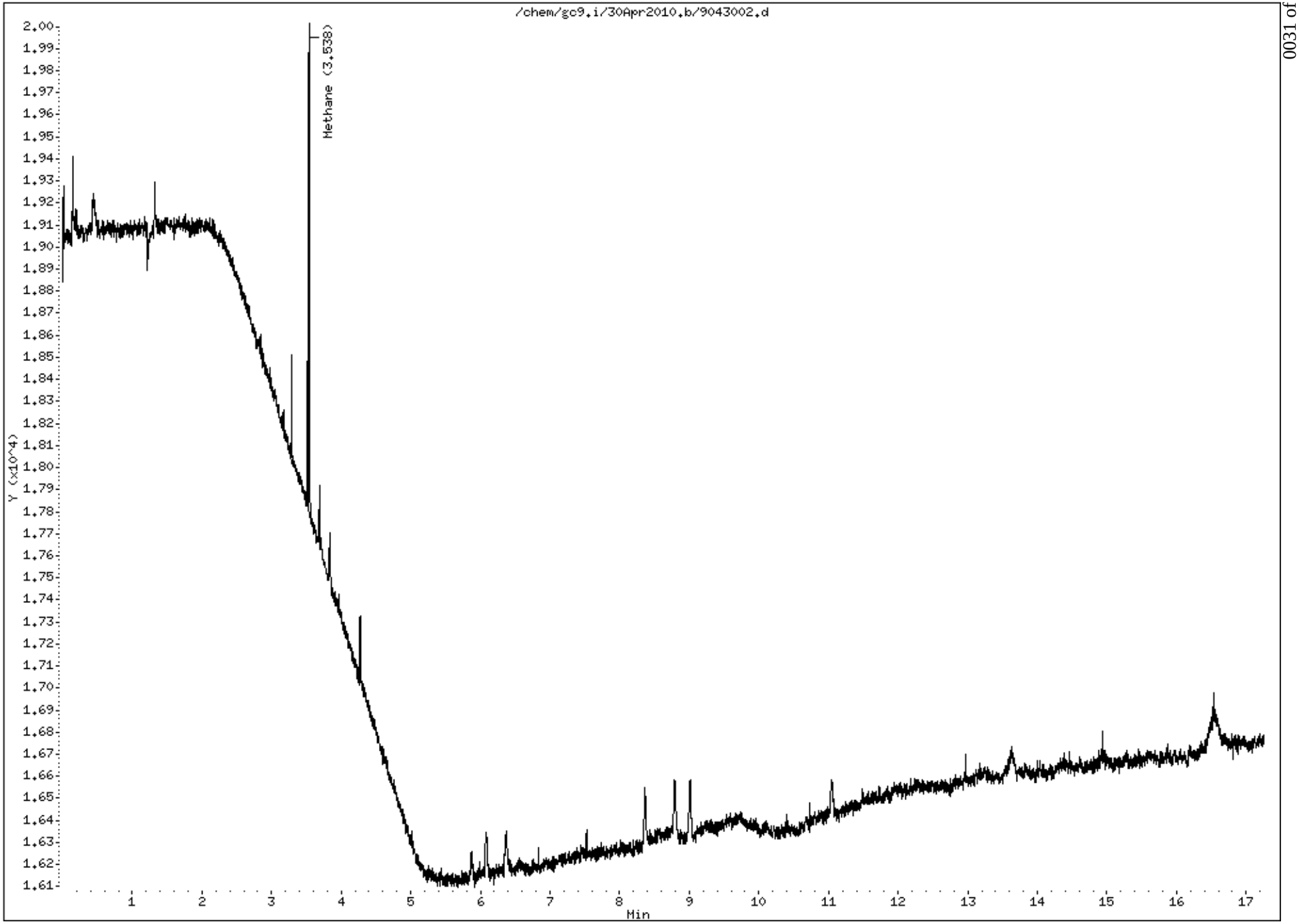
Modified ASTM-1945 Analysis

Data file : /chem/gc9.i/30Apr2010.b/9043002.d
Lab Smp Id: 1830-35 Client Smp ID: Level-1:
Inj Date : 30-APR-2010 09:54
Operator : ly Inst ID: gc9.i
Smp Info : 1.0mL,34368
Misc Info : CH4
Comment : GC FID
Method : /chem/gc9.i/30Apr2010.b/910n0430.m
Meth Date : 03-May-2010 11:40 gmash Quant Type: ESTD
Cal Date : 30-APR-2010 09:54 Cal File: 9043002.d
Als bottle: 1 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: HP Genie Compound Sublist: ch4.sub
Target Version: 3.50
Processing Host: eeyore

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (%)	AMOUNTS ON-COL (%)
2 Methane	3.538	3.536	0.002	20208	0.00010	0.000100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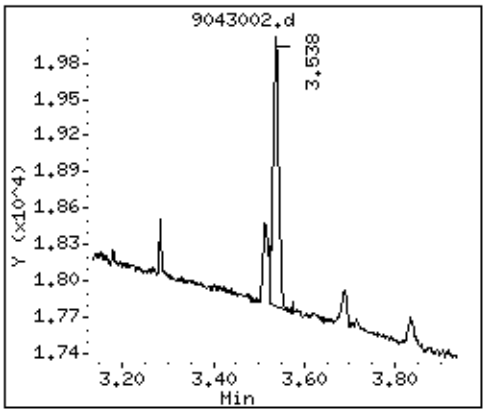
Methane (3.538)
Y (x10^4)
2.00
1.99
1.98
1.97
1.96
1.95
1.94
1.93
1.92
1.91
1.90
1.89
1.88
1.87
1.86
1.85
1.84
1.83
1.82
1.81
1.80
1.79
1.78
1.77
1.76
1.75
1.74
1.73
1.72
1.71
1.70
1.69
1.68
1.67
1.66
1.65
1.64
1.63
1.62
1.61
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
Min

2 Methane


9043002.d
3.538
1.98
1.95
1.92
1.89
1.86
1.83
1.80
1.77
1.74
Y (x10^4)
3.20
3.40
3.60
3.80
Min

Air Toxics Ltd.

Modified ASTM-1945 Analysis

Data file : /chem/gc9.i/30Apr2010.b/9043003a.d
Lab Smp Id: 1830-34 Client Smp ID: Level-2:
Inj Date : 30-APR-2010 10:17
Operator : ly Inst ID: gc9.i
Smp Info : 1.0mL,13671
Misc Info : C1-C6
Comment : GC FID
Method : /chem/gc9.i/30Apr2010.b/910n0430.m
Meth Date : 03-May-2010 11:43 gmash Quant Type: ESTD
Cal Date : 30-APR-2010 10:17 Cal File: 9043003a.d
Als bottle: 1 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP Genie Compound Sublist: HexHep.sub
Target Version: 3.50
Processing Host: eeyore

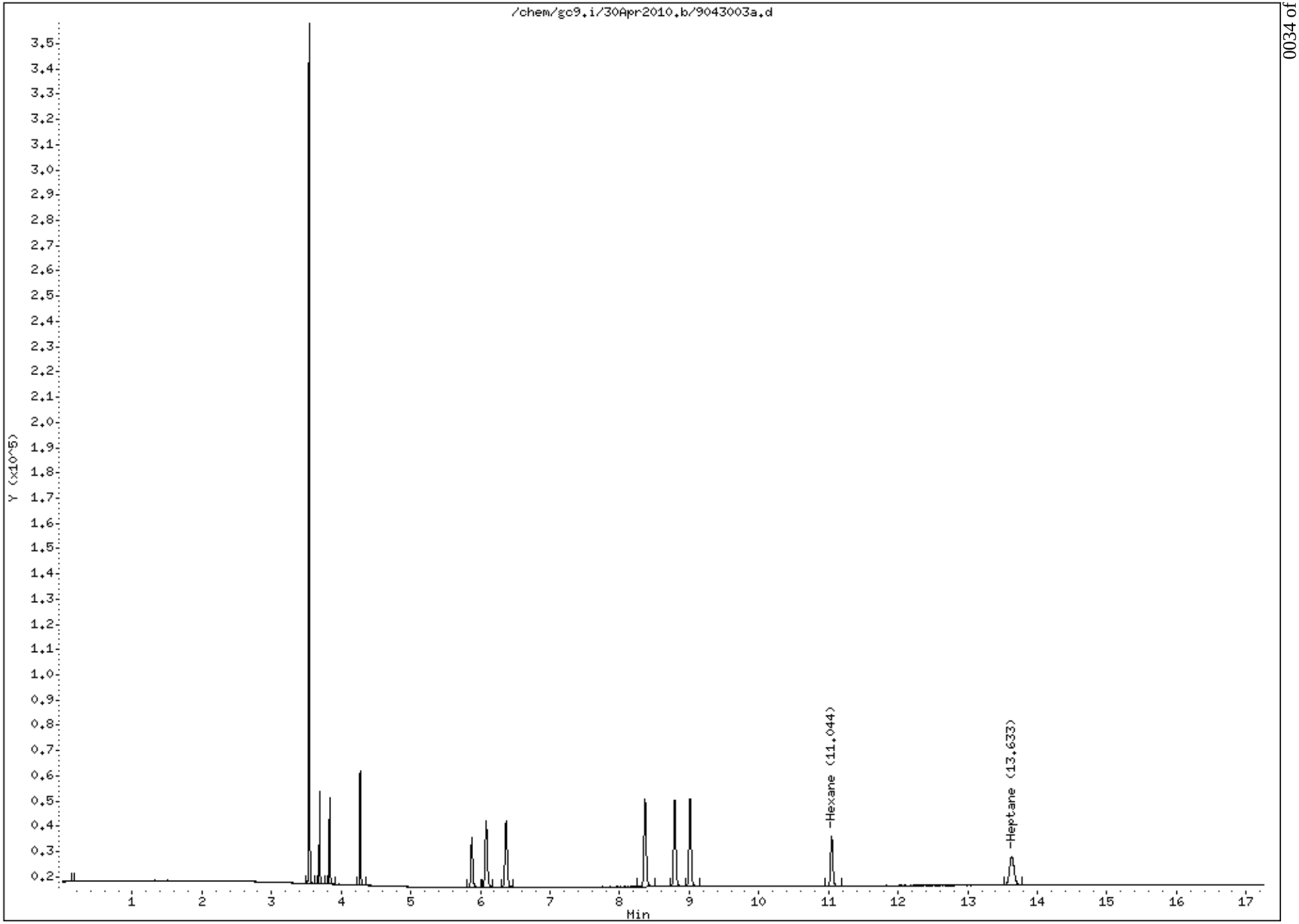
Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

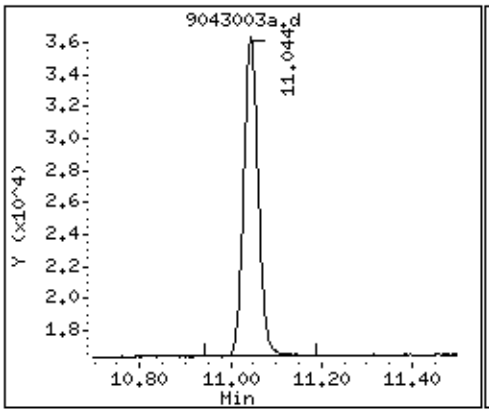
Compounds	RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (%)	AMOUNTS ON-COL (%)
39 Hexane	11.044	11.098	-0.054	450644	0.00050	0.000486(a)
40 Heptane	13.633	13.593	0.040	534811	0.00052	0.000497(a)

QC Flag Legend

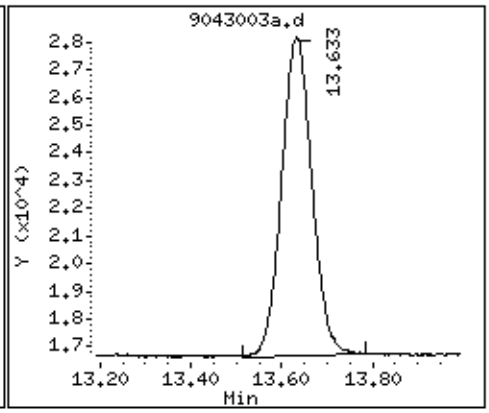
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).


/chem/gc9.i/30Apr2010.b/9043003a.d
Y (x10^5)
3.5
3.4
3.3
3.2
3.1
3.0
2.9
2.8
2.7
2.6
2.5
2.4
2.3
2.2
2.1
2.0
1.9
1.8
1.7
1.6
1.5
1.4
1.3
1.2
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
-Hexane (11.044)
-Heptane (13.633)
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
Min

39 Hexane



40 Heptane



Air Toxics Ltd.

Modified ASTM-1945 Analysis

Data file : /chem/gc9.i/30Apr2010.b/9043003.d
Lab Smp Id: 1830-34 Client Smp ID: Level-2:
Inj Date : 30-APR-2010 10:17
Operator : ly Inst ID: gc9.i
Smp Info : 1.0mL,13671
Misc Info : C1-C6
Comment : GC FID
Method : /chem/gc9.i/30Apr2010.b/910n0430.m
Meth Date : 03-May-2010 11:40 gmash Quant Type: ESTD
Cal Date : 30-APR-2010 10:17 Cal File: 9043003.d
Als bottle: 1 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP Genie Compound Sublist: ngas.sub
Target Version: 3.50
Processing Host: eeyore

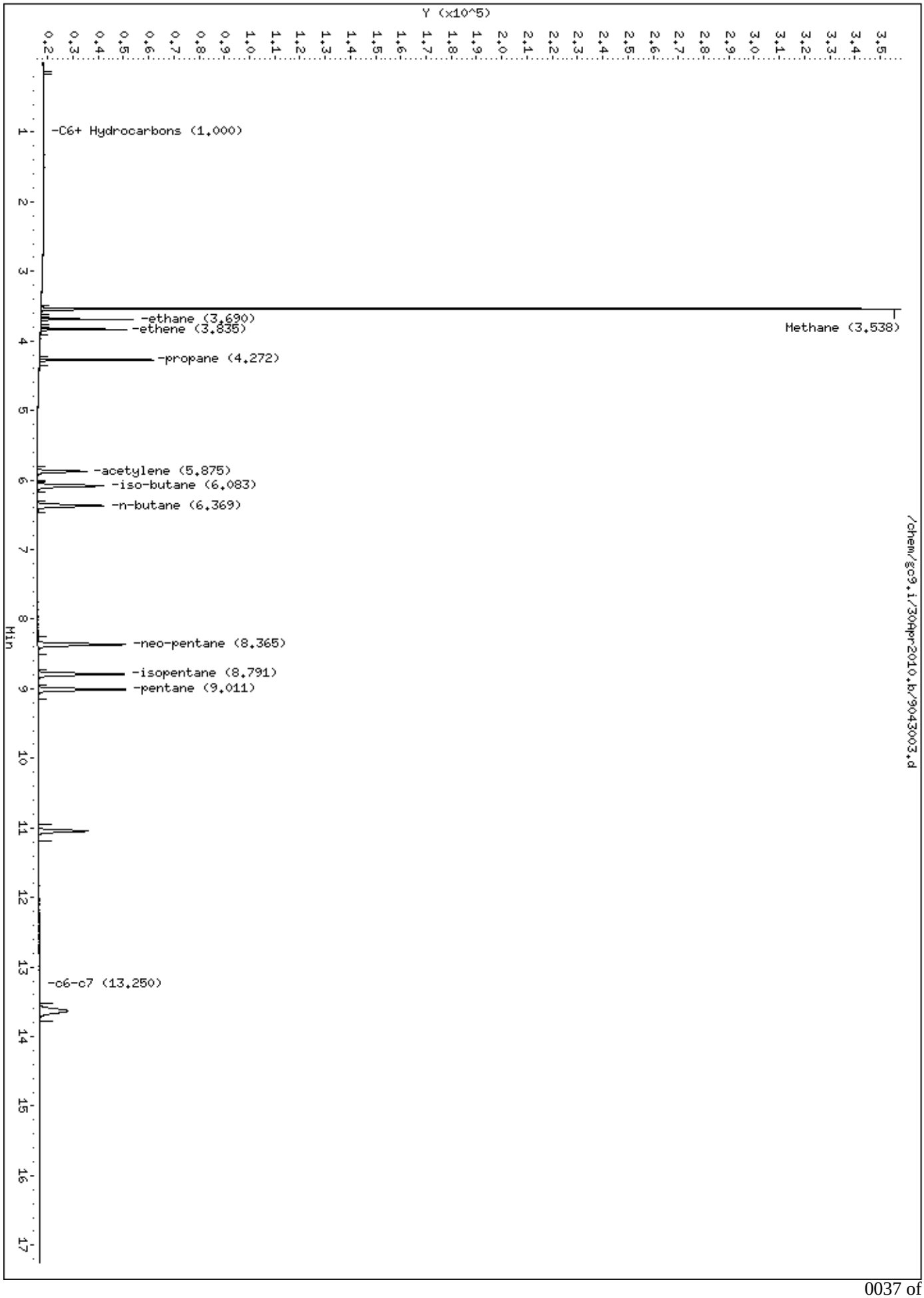
Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (%)	AMOUNTS ON-COL (%)
2 Methane	3.538	3.536	0.002	3028605	0.01970	0.0170
3 ethane	3.690	3.688	0.002	292701	0.00098	0.000980(a)
4 ethene	3.835	3.833	0.002	291143	0.00099	0.000990(a)
5 propane	4.272	4.267	0.005	444823	0.00100	0.00100
7 acetylene	5.875	5.792	0.083	356261	0.00099	0.000990(a)
8 iso-butane	6.083	6.049	0.034	580874	0.00099	0.000990(a)
10 n-butane	6.369	6.342	0.027	583891	0.00099	0.000990(a)
15 neo-pentane	8.365	8.309	0.056	784290	0.00100	0.00100
16 isopentane	8.791	8.754	0.037	746938	0.00100	0.00100
17 pentane	9.011	8.981	0.030	752239	0.00100	0.00100
S 36 c8+	Compound Not Detected.					

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

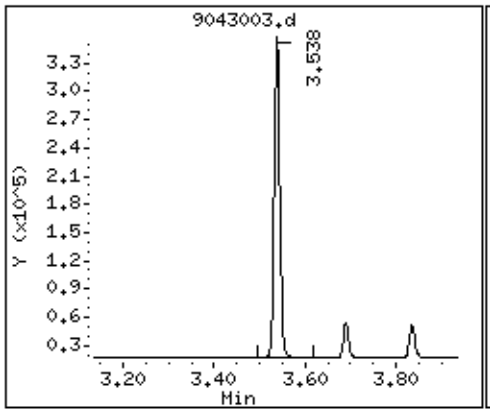


Data File: /chem/gc9.i/30Apr2010.b/9043003.d

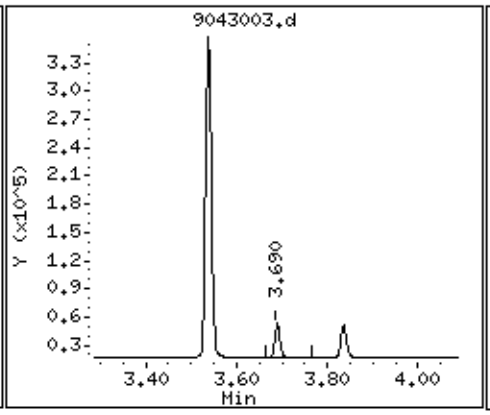
/chem/gc9.i/30Apr2010.b/9043003.d

Page 1

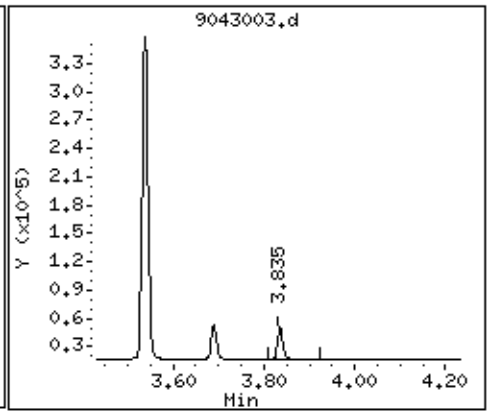
2 Methane



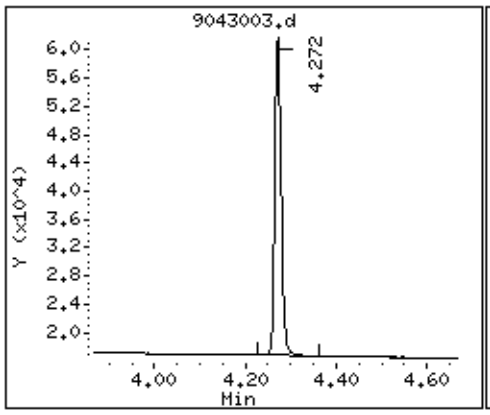
3 ethane



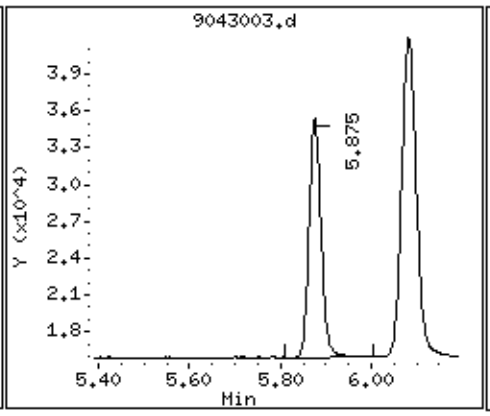
4 ethene



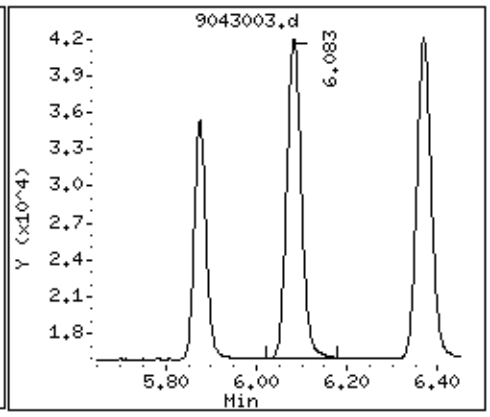
5 propane



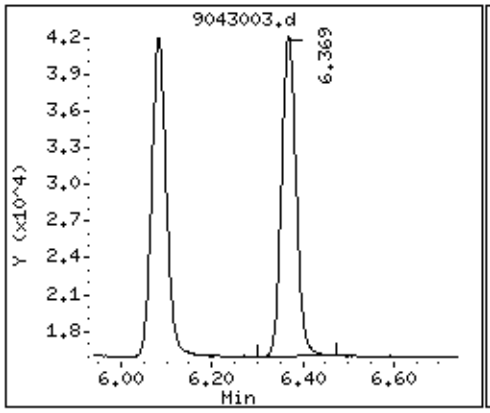
7 acetylene



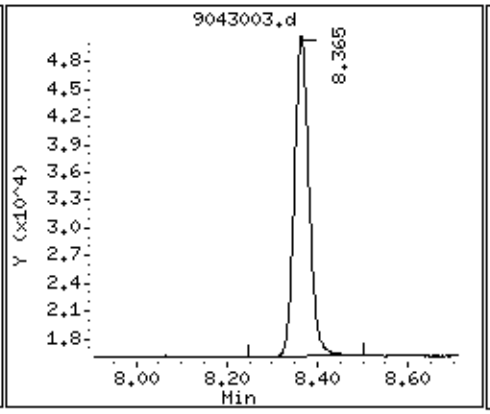
8 iso-butane



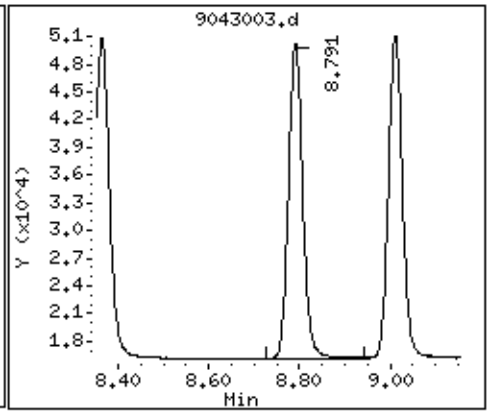
10 n-butane



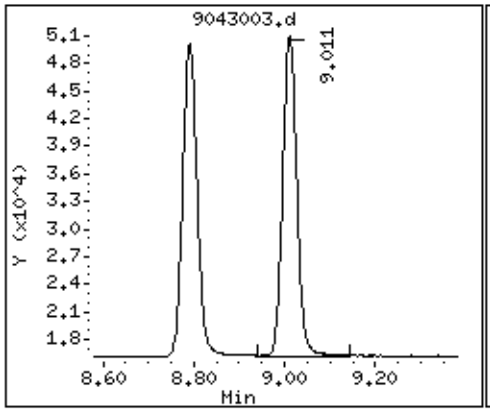
15 neo-pentane



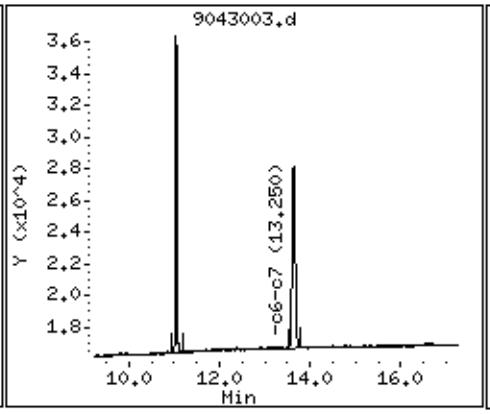
16 isopentane



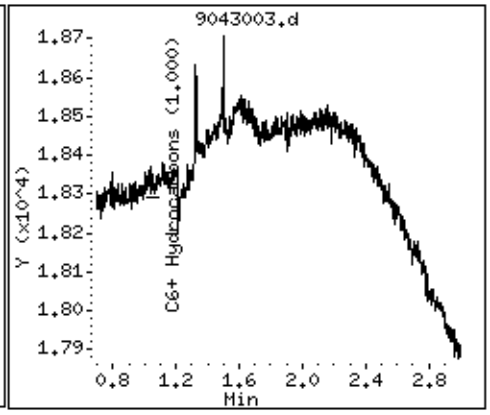
17 pentane



S 22 c6-c7



S 36 c8+ (Undetected)



Air Toxics Ltd.

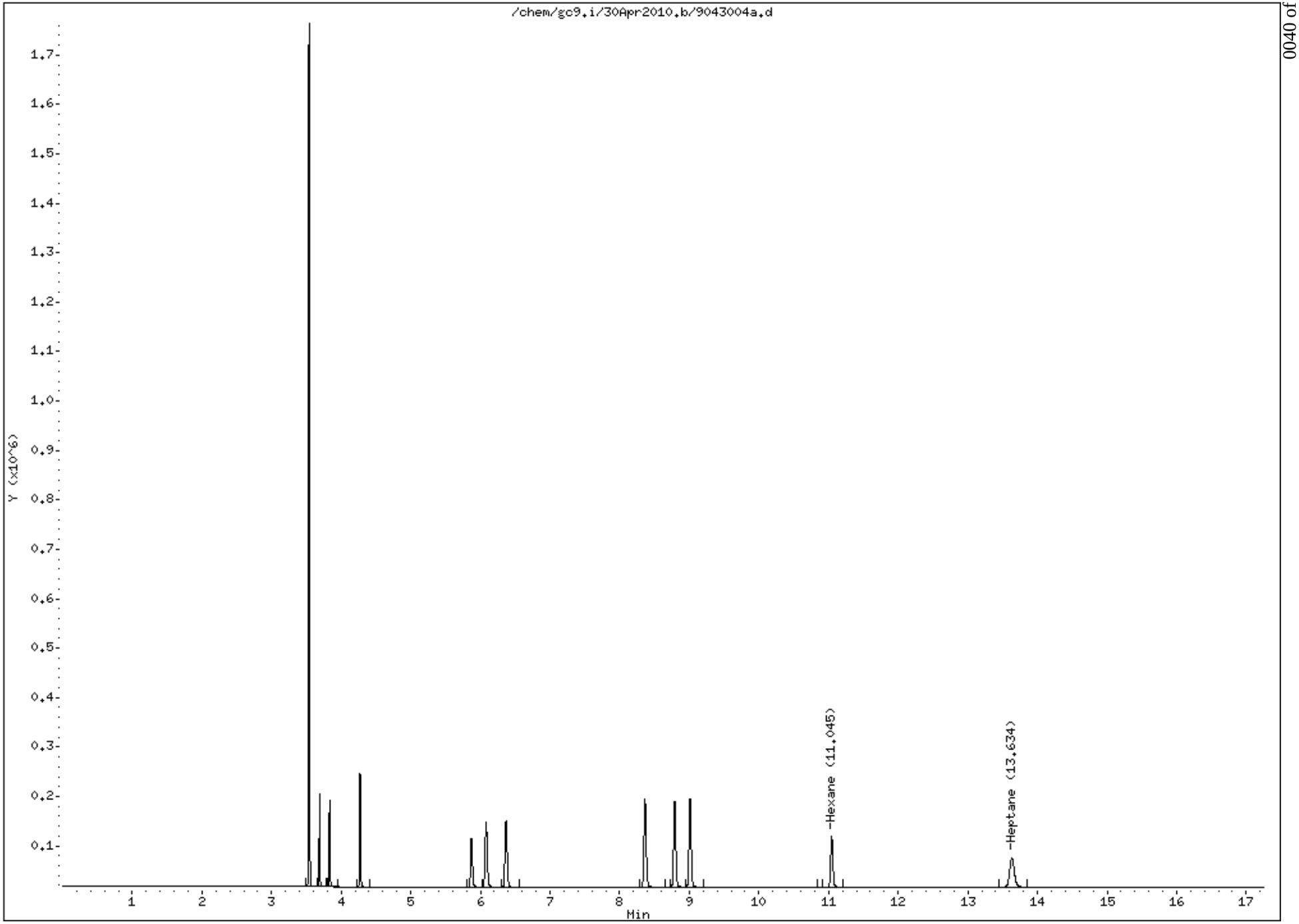
Modified ASTM-1945 Analysis

Data file : /chem/gc9.i/30Apr2010.b/9043004a.d
Lab Smp Id: 1830-33 Client Smp ID: Level-3:
Inj Date : 30-APR-2010 10:42
Operator : ly Inst ID: gc9.i
Smp Info : 1.0mL,4267
Misc Info : C1-C6
Comment : GC FID
Method : /chem/gc9.i/30Apr2010.b/910n0430.m
Meth Date : 03-May-2010 11:43 gmash Quant Type: ESTD
Cal Date : 30-APR-2010 10:42 Cal File: 9043004a.d
Als bottle: 1 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP Genie Compound Sublist: HexHep.sub
Target Version: 3.50
Processing Host: eeyore

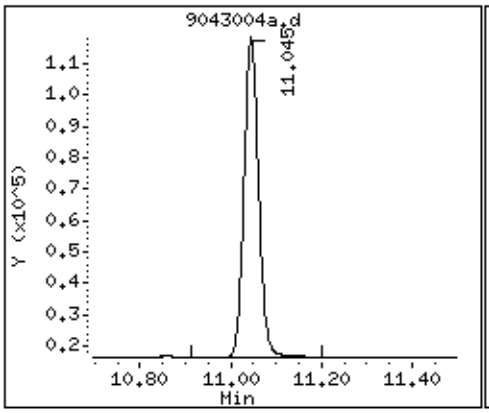
Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

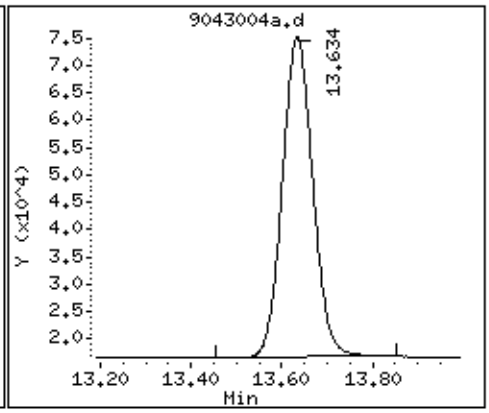
Compounds	RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (%)	AMOUNTS ON-COL (%)
39 Hexane	11.045	11.098	-0.053	2292189	0.00251	0.00247
40 Heptane	13.634	13.593	0.041	2735957	0.00261	0.00254


/chem/gc9.i/30Apr2010.b/9043004a.d
Y (x10^6)
1.7
1.6
1.5
1.4
1.3
1.2
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
-Hexane (11.045)
-Heptane (13.634)
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
Min

39 Hexane



40 Heptane



Air Toxics Ltd.

Modified ASTM-1945 Analysis

Data file : /chem/gc9.i/30Apr2010.b/9043004.d
Lab Smp Id: 1830-33 Client Smp ID: Level-3:
Inj Date : 30-APR-2010 10:42
Operator : ly Inst ID: gc9.i
Smp Info : 1.0mL,4267
Misc Info : C1-C6
Comment : GC FID
Method : /chem/gc9.i/30Apr2010.b/910n0430.m
Meth Date : 03-May-2010 11:40 gmash Quant Type: ESTD
Cal Date : 30-APR-2010 10:42 Cal File: 9043004.d
Als bottle: 1 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP Genie Compound Sublist: ngas.sub
Target Version: 3.50
Processing Host: eeyore

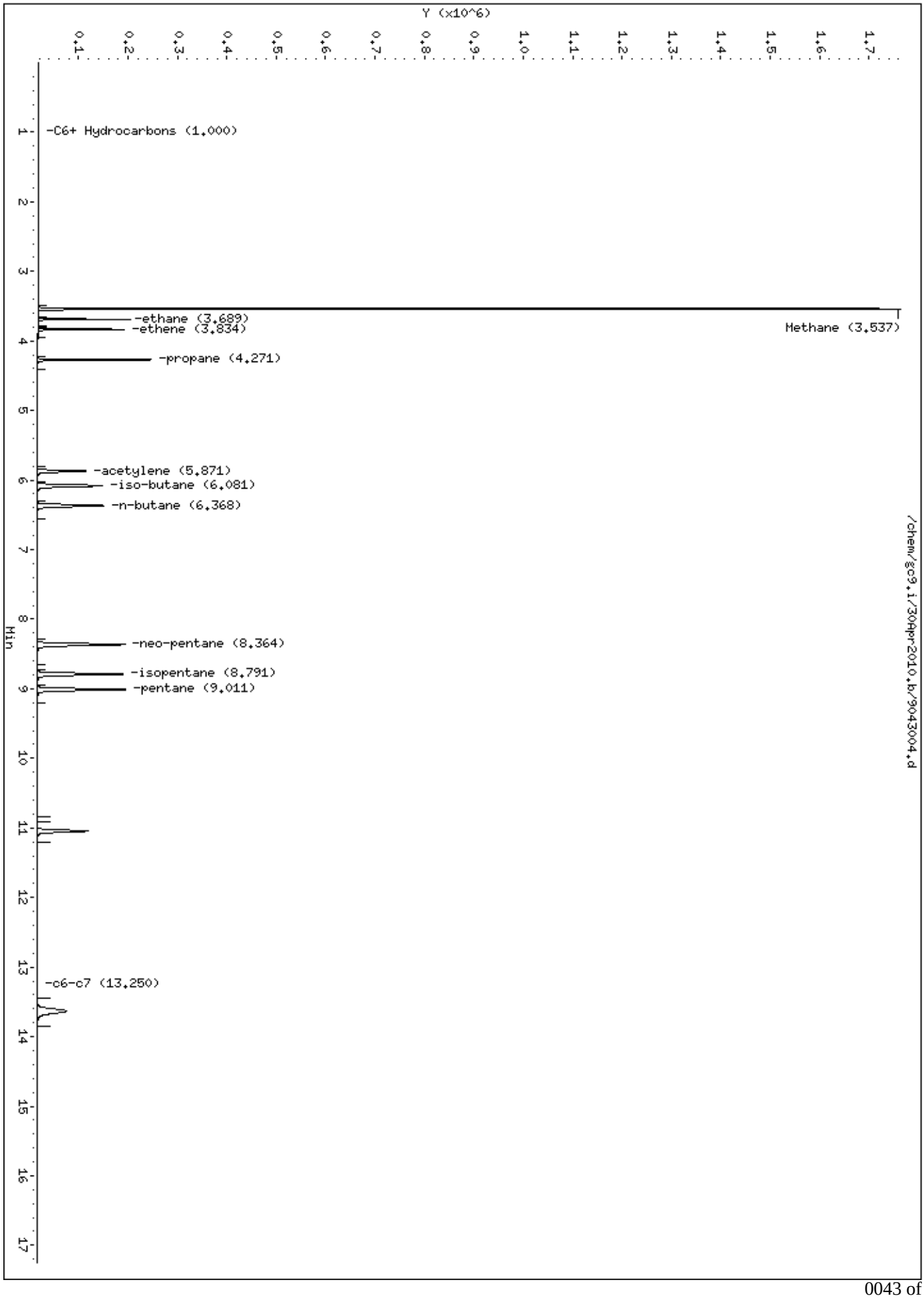
Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

					AMOUNTS CAL-AMT (%)	AMOUNTS ON-COL (%)
Compounds	RT	EXP RT	DLT RT	RESPONSE		
2 Methane	3.537	3.536	0.001	15407518	0.09935	0.0905
3 ethane	3.689	3.688	0.001	1488950	0.00496	0.00497
4 ethene	3.834	3.833	0.001	1475897	0.00499	0.00500
5 propane	4.271	4.267	0.004	2280848	0.00503	0.00508
7 acetylene	5.871	5.792	0.079	1838188	0.00500	0.00505
8 iso-butane	6.081	6.049	0.032	3007973	0.00499	0.00506
10 n-butane	6.368	6.342	0.026	3000901	0.00499	0.00504
15 neo-pentane	8.364	8.309	0.055	4044165	0.00504	0.00510
16 isopentane	8.791	8.754	0.037	3822852	0.00504	0.00508
17 pentane	9.011	8.981	0.030	3854788	0.00504	0.00508
M 37 C6+ Hydrocarbons				5036810	0.00507	0.00512(a)
S 22 c6-c7	9.250-17.250			5036810	0.00512	0.00512
S 36 c8+	Compound Not Detected.					

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

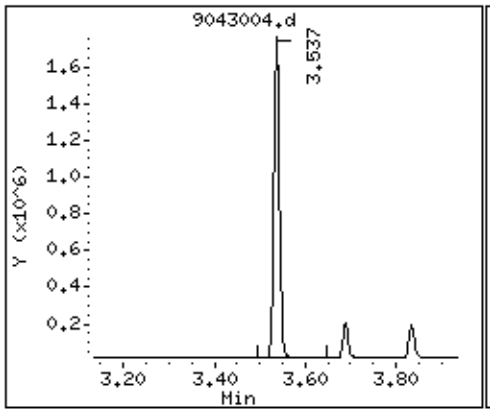


Data File: /chem/gc9.i/30Apr2010.b/9043004.d

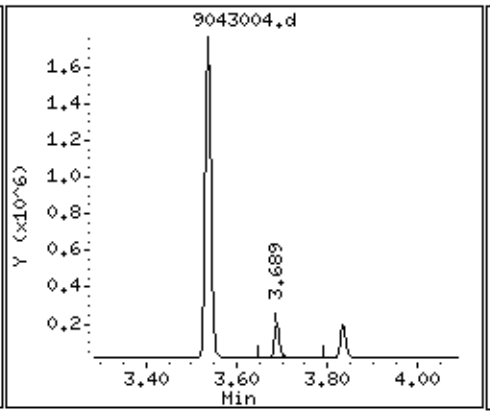
/chem/gc9.i/30Apr2010.b/9043004.d

Page 1

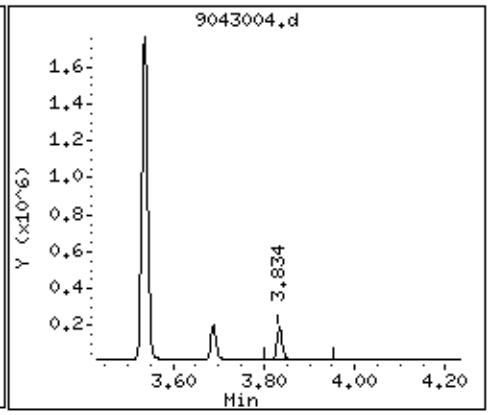
2 Methane



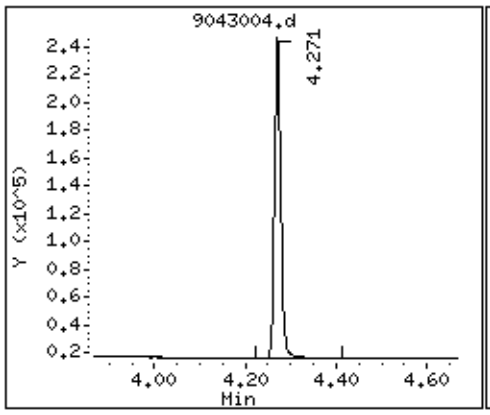
3 ethane



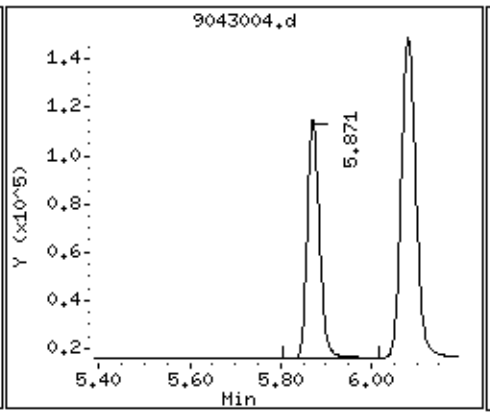
4 ethene



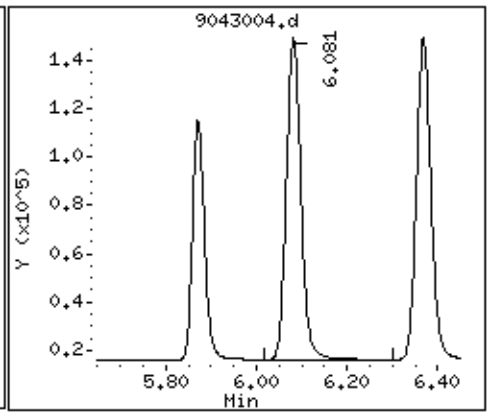
5 propane



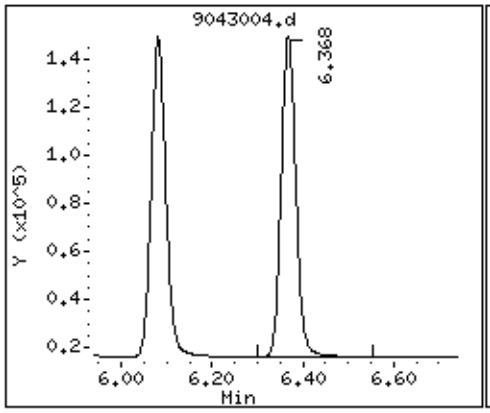
7 acetylene



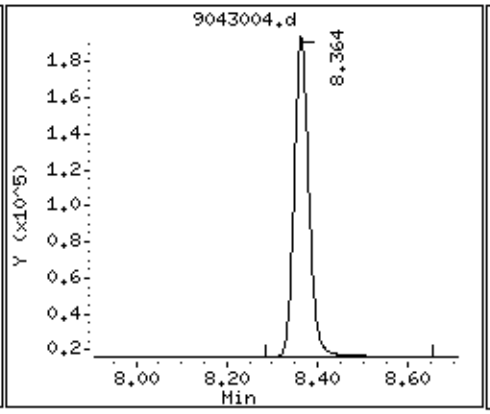
8 iso-butane



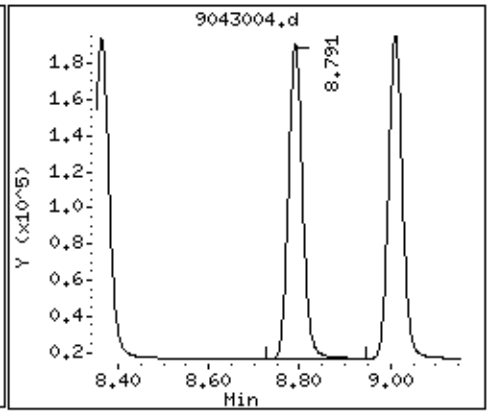
10 n-butane



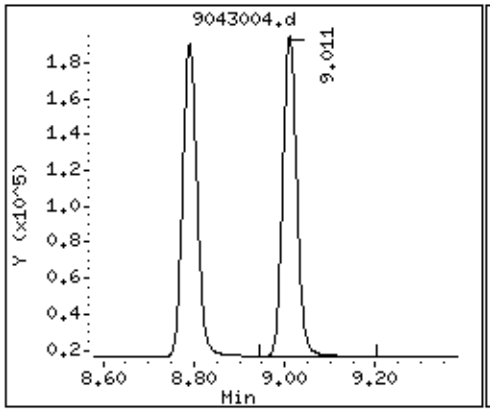
15 neo-pentane



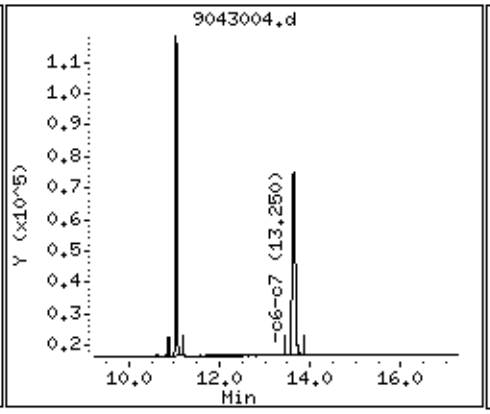
16 isopentane



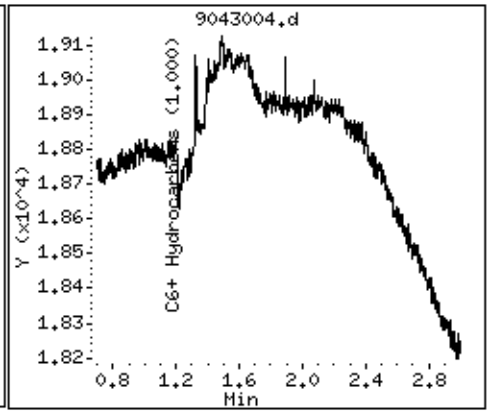
17 pentane



S 22 c6-c7



S 36 c8+ (Undetected)



Air Toxics Ltd.

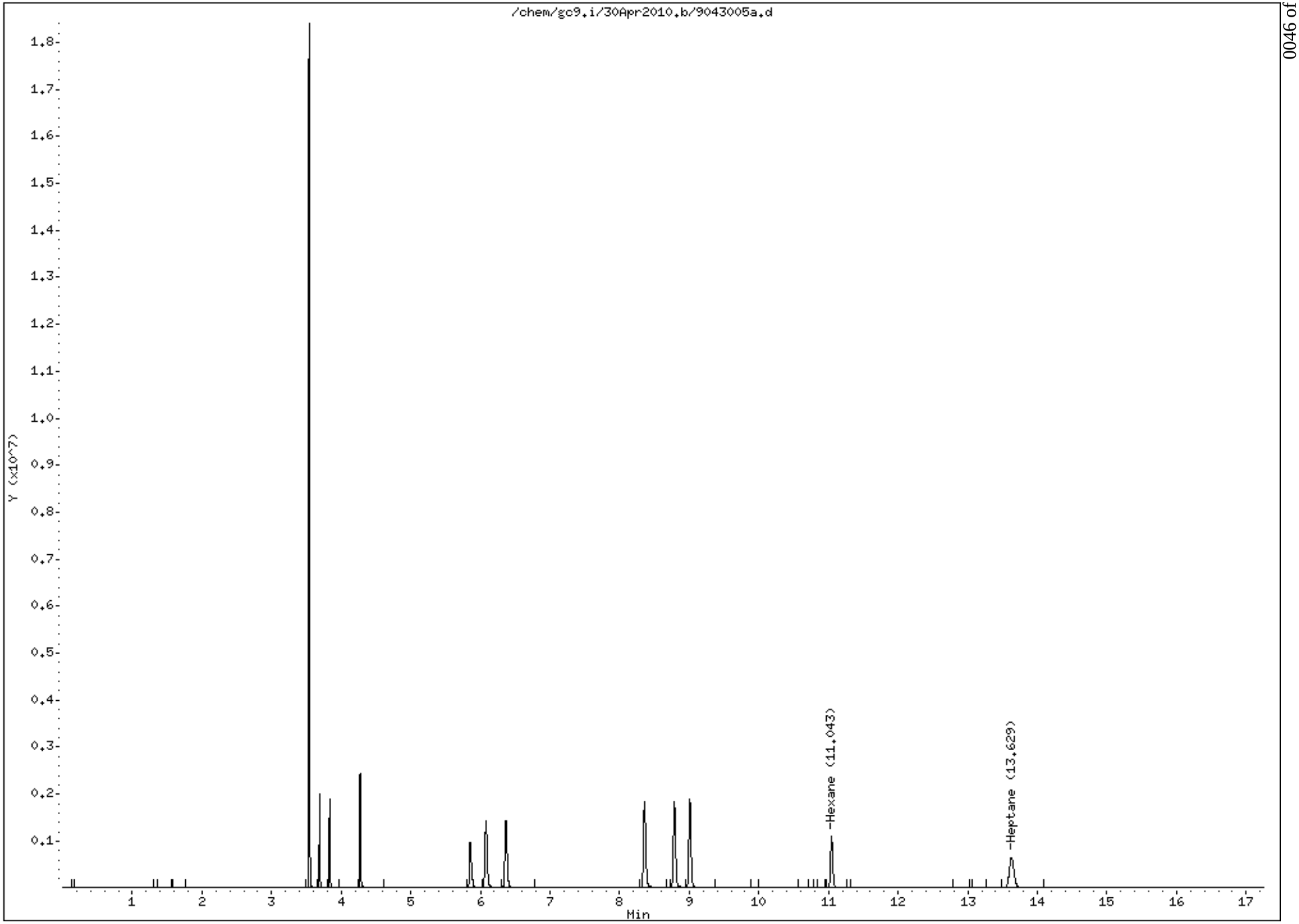
Modified ASTM-1945 Analysis

Data file : /chem/gc9.i/30Apr2010.b/9043005a.d
Lab Smp Id: 1544-365B Client Smp ID: Level-4:
Inj Date : 30-APR-2010 11:13
Operator : ly Inst ID: gc9.i
Smp Info : 1.0mL,34219
Misc Info : C1-C6
Comment : GC FID
Method : /chem/gc9.i/30Apr2010.b/910n0430.m
Meth Date : 03-May-2010 11:43 gmash Quant Type: ESTD
Cal Date : 30-APR-2010 11:13 Cal File: 9043005a.d
Als bottle: 1 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP Genie Compound Sublist: HexHep.sub
Target Version: 3.50
Processing Host: eeyore

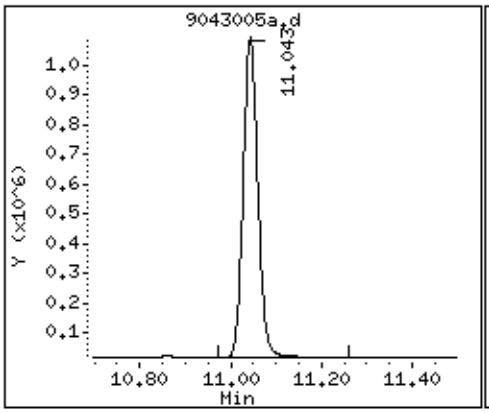
Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

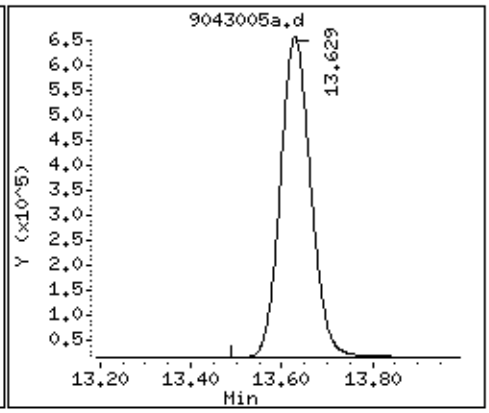
Compounds	RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (%)	AMOUNTS ON-COL (%)
39 Hexane	11.043	11.098	-0.055	24408662	0.02510	0.0263
40 Heptane	13.629	13.593	0.036	29965543	0.02610	0.0278


/chem/gc9.i/30Apr2010.b/9043005a.d
Y (x10^7)
1.8
1.7
1.6
1.5
1.4
1.3
1.2
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
-Hexane (11.043)
-Heptane (13.629)
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
Min

39 Hexane



40 Heptane



Air Toxics Ltd.

Modified ASTM-1945 Analysis

Data file : /chem/gc9.i/30Apr2010.b/9043005.d
Lab Smp Id: 1544-365B Client Smp ID: Level-4:
Inj Date : 30-APR-2010 11:13
Operator : ly Inst ID: gc9.i
Smp Info : 1.0mL,34219
Misc Info : C1-C6
Comment : GC FID
Method : /chem/gc9.i/30Apr2010.b/910n0430.m
Meth Date : 03-May-2010 11:40 gmash Quant Type: ESTD
Cal Date : 30-APR-2010 11:13 Cal File: 9043005.d
Als bottle: 1 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP Genie Compound Sublist: ngas.sub
Target Version: 3.50
Processing Host: eeyore

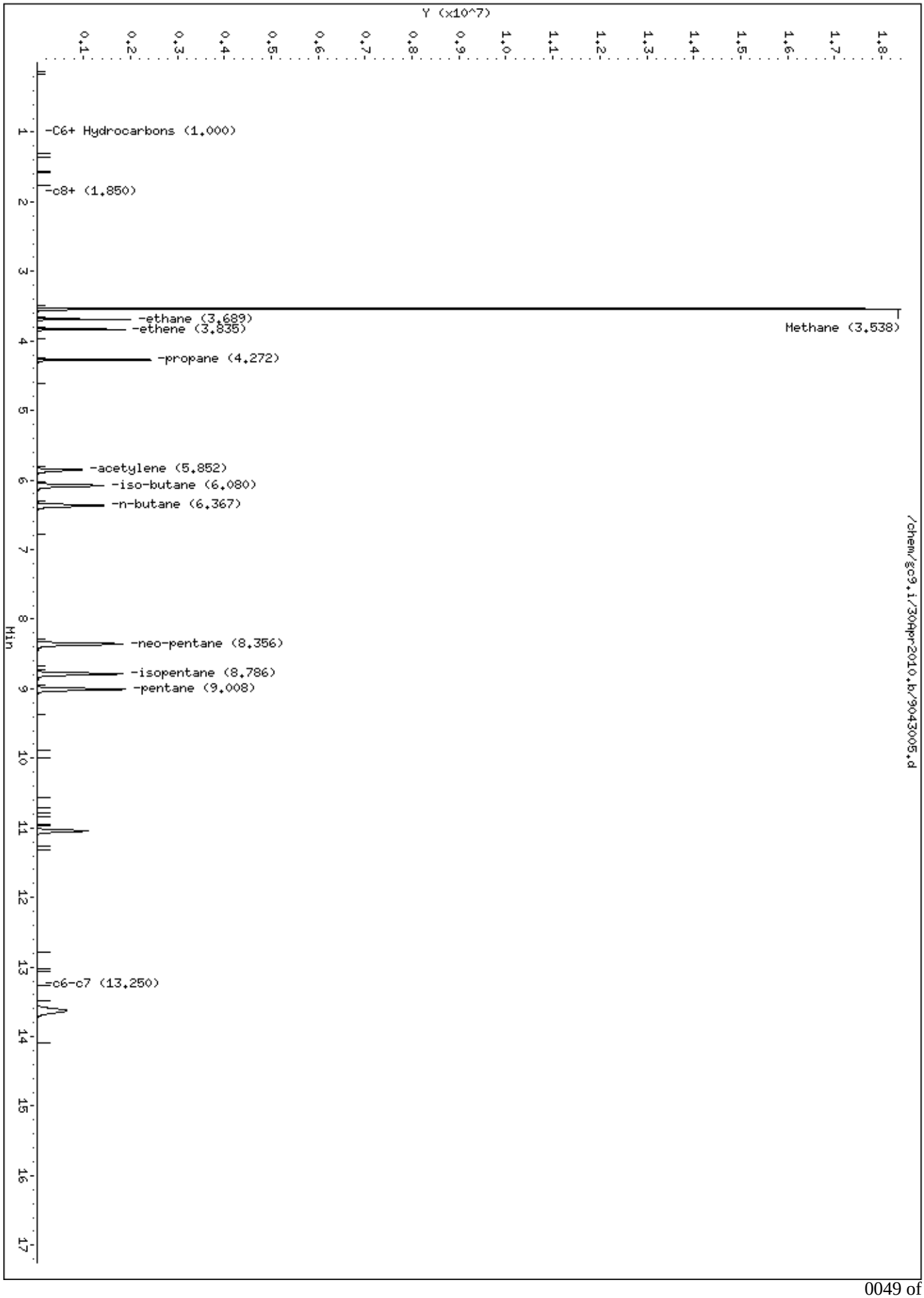
Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

					AMOUNTS CAL-AMT (%)	AMOUNTS ON-COL (%)
Compounds	RT	EXP RT	DLT RT	RESPONSE		
2 Methane	3.538	3.536	0.002	163594632	0.99500	0.969
3 ethane	3.689	3.688	0.001	15832365	0.04970	0.0518
4 ethene	3.835	3.833	0.002	15729875	0.05000	0.0522
5 propane	4.272	4.267	0.005	24288785	0.05040	0.0528
7 acetylene	5.852	5.792	0.060	19760318	0.05010	0.0528
8 iso-butane	6.080	6.049	0.031	32071068	0.05000	0.0525
10 n-butane	6.367	6.342	0.025	32106795	0.05000	0.0525
15 neo-pentane	8.356	8.309	0.047	42871836	0.05050	0.0528
16 isopentane	8.786	8.754	0.032	40505905	0.05050	0.0527
17 pentane	9.008	8.981	0.027	40923805	0.05050	0.0527
M 37 C6+ Hydrocarbons				55003418	0.50700	0.0533
S 22 c6-c7	9.250-17.250			54778043	0.05120	0.0533
S 36 c8+	0.700-3.000			225375	0.02000	(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

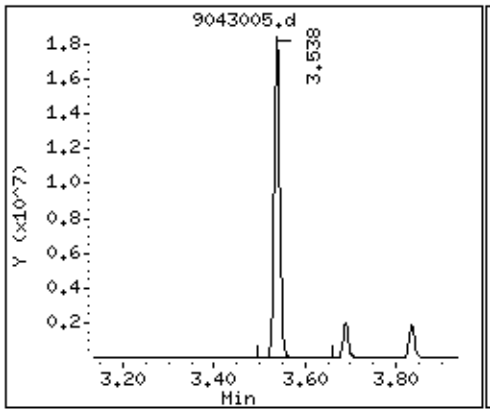


Data File: /chem/gc9.i/30Apr2010.b/9043005.d

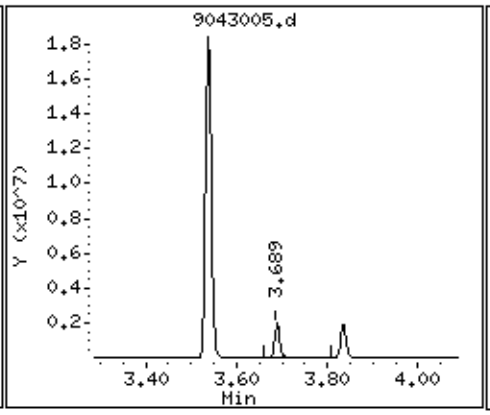
/chem/gc9.i/30Apr2010.b/9043005.d

Page 1

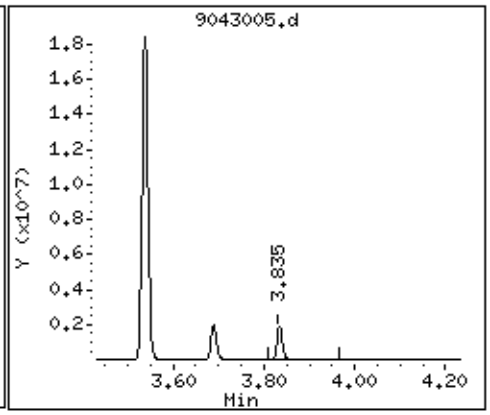
2 Methane



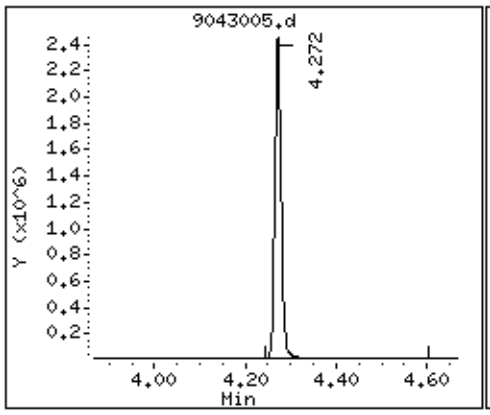
3 ethane



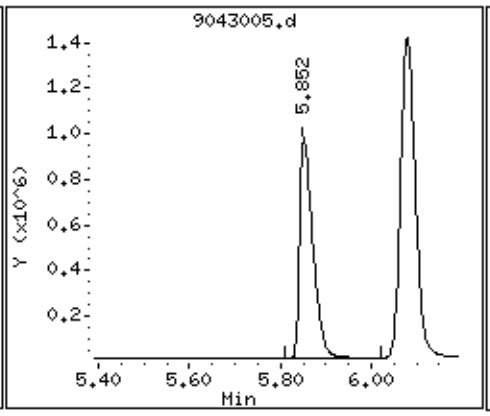
4 ethene



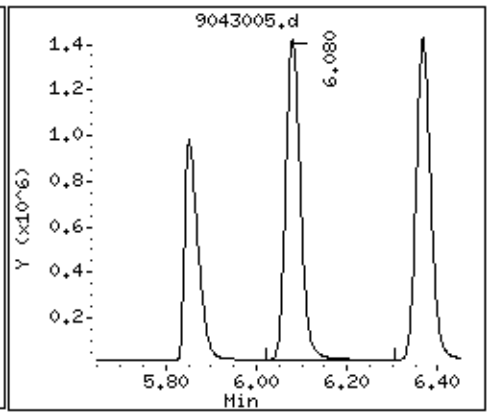
5 propane



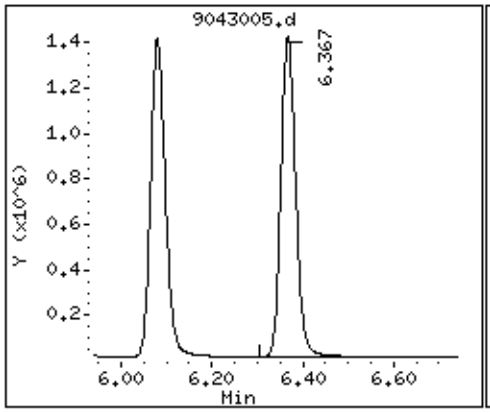
7 acetylene



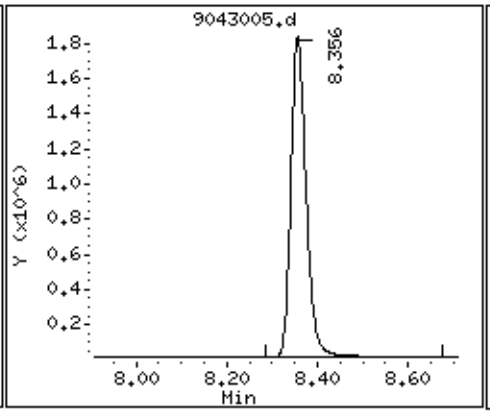
8 iso-butane



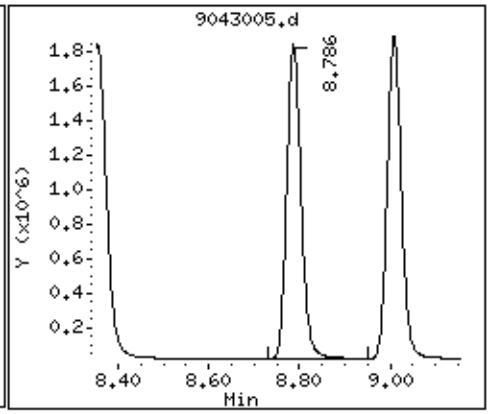
10 n-butane



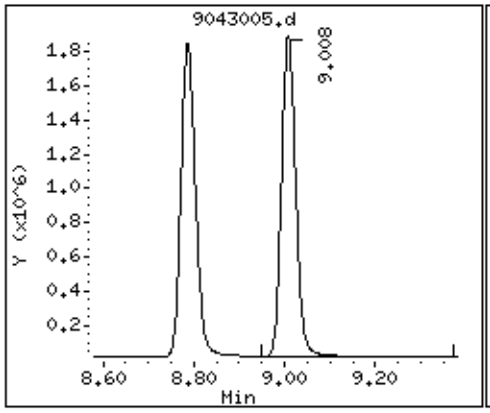
15 neo-pentane



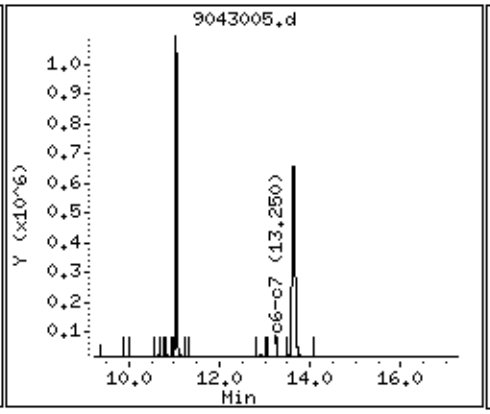
16 isopentane



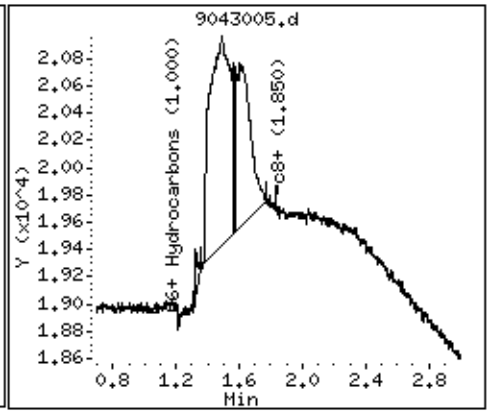
17 pentane



S 22 c6-c7



S 36 c8+



Air Toxics Ltd.

Modified ASTM-1945 Analysis

Data file : /chem/gc9.i/30Apr2010.b/9043006a.d
Lab Smp Id: 1544-365B Client Smp ID: Level-5:
Inj Date : 30-APR-2010 11:37
Operator : ly Inst ID: gc9.i
Smp Info : 1.0mL,34219
Misc Info : C1-C6
Comment : GC FID
Method : /chem/gc9.i/30Apr2010.b/910n0430.m
Meth Date : 03-May-2010 11:43 gmash Quant Type: ESTD
Cal Date : 30-APR-2010 11:37 Cal File: 9043006a.d
Als bottle: 1 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP Genie Compound Sublist: HexHep.sub
Target Version: 3.50
Processing Host: eeyore

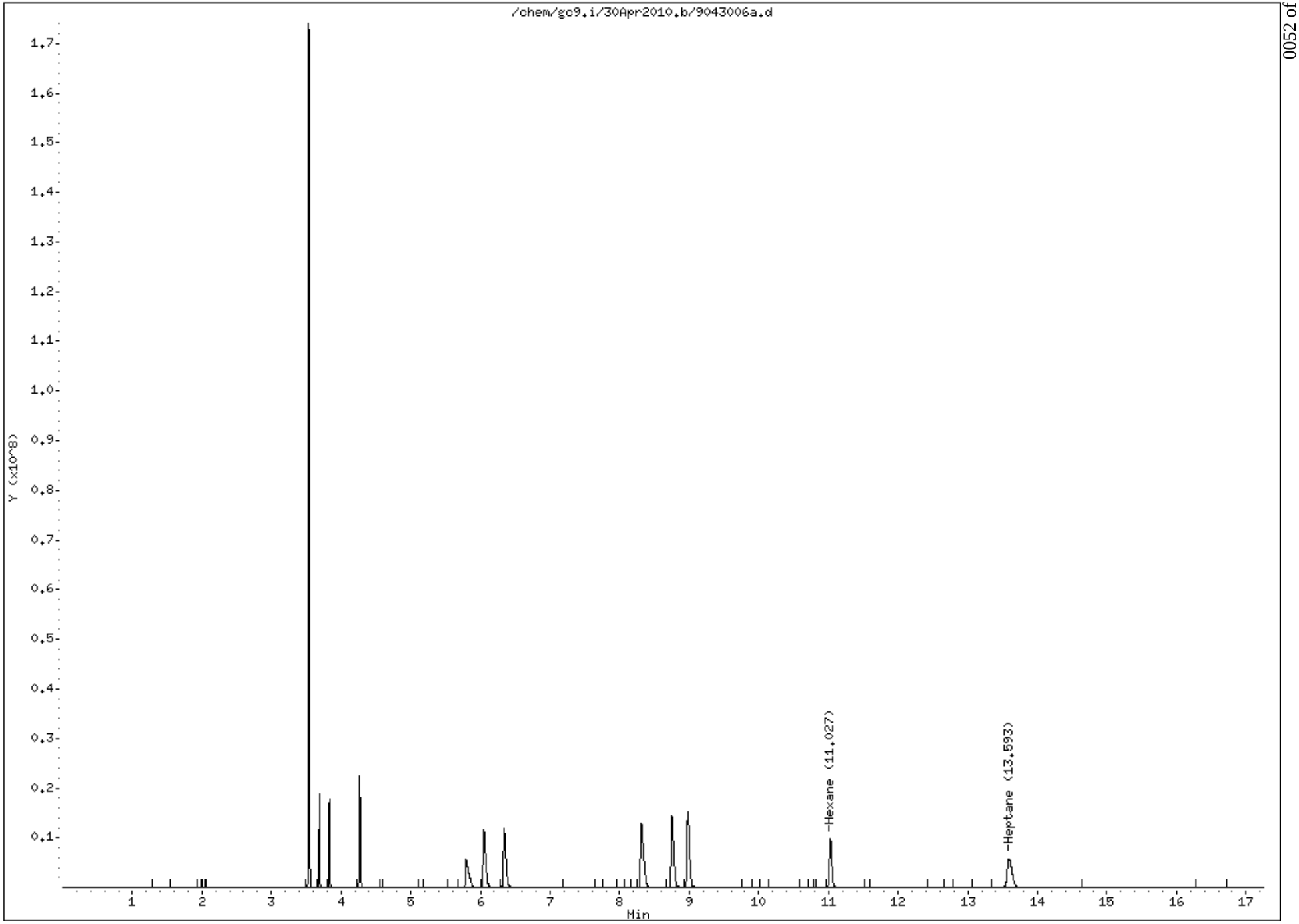
Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

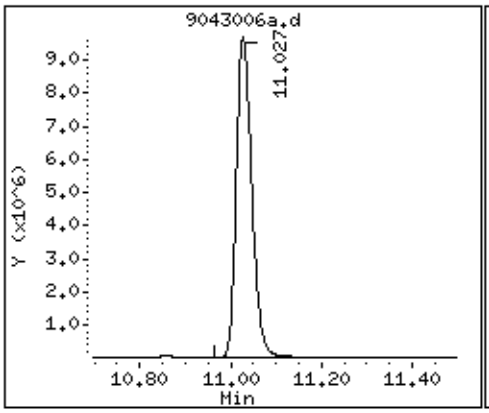
Compounds	RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (%)	AMOUNTS ON-COL (%)
39 Hexane	11.027	11.098	-0.071	231159408	0.25100	0.249
40 Heptane	13.593	13.593	0.000	281747777	0.26100	0.262(A)

QC Flag Legend

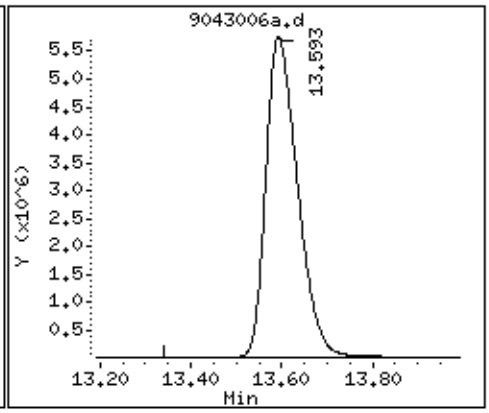
A - Target compound detected but, quantitated amount exceeded maximum amount.


/chem/gc9.i/30Apr2010.b/9043006a.d
Y (x10^8)
1.7
1.6
1.5
1.4
1.3
1.2
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
-Hexane (11.027)
-Heptane (13.593)
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
Min

39 Hexane



40 Heptane



Air Toxics Ltd.

Modified ASTM-1945 Analysis

Data file : /chem/gc9.i/30Apr2010.b/9043006.d
Lab Smp Id: 1544-365B Client Smp ID: Level-5:
Inj Date : 30-APR-2010 11:37
Operator : ly Inst ID: gc9.i
Smp Info : 1.0mL,34219
Misc Info : C1-C6
Comment : GC FID
Method : /chem/gc9.i/30Apr2010.b/910n0430.m
Meth Date : 03-May-2010 11:40 gmash Quant Type: ESTD
Cal Date : 30-APR-2010 11:37 Cal File: 9043006.d
Als bottle: 1 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP Genie Compound Sublist: ngas.sub
Target Version: 3.50
Processing Host: eeyore

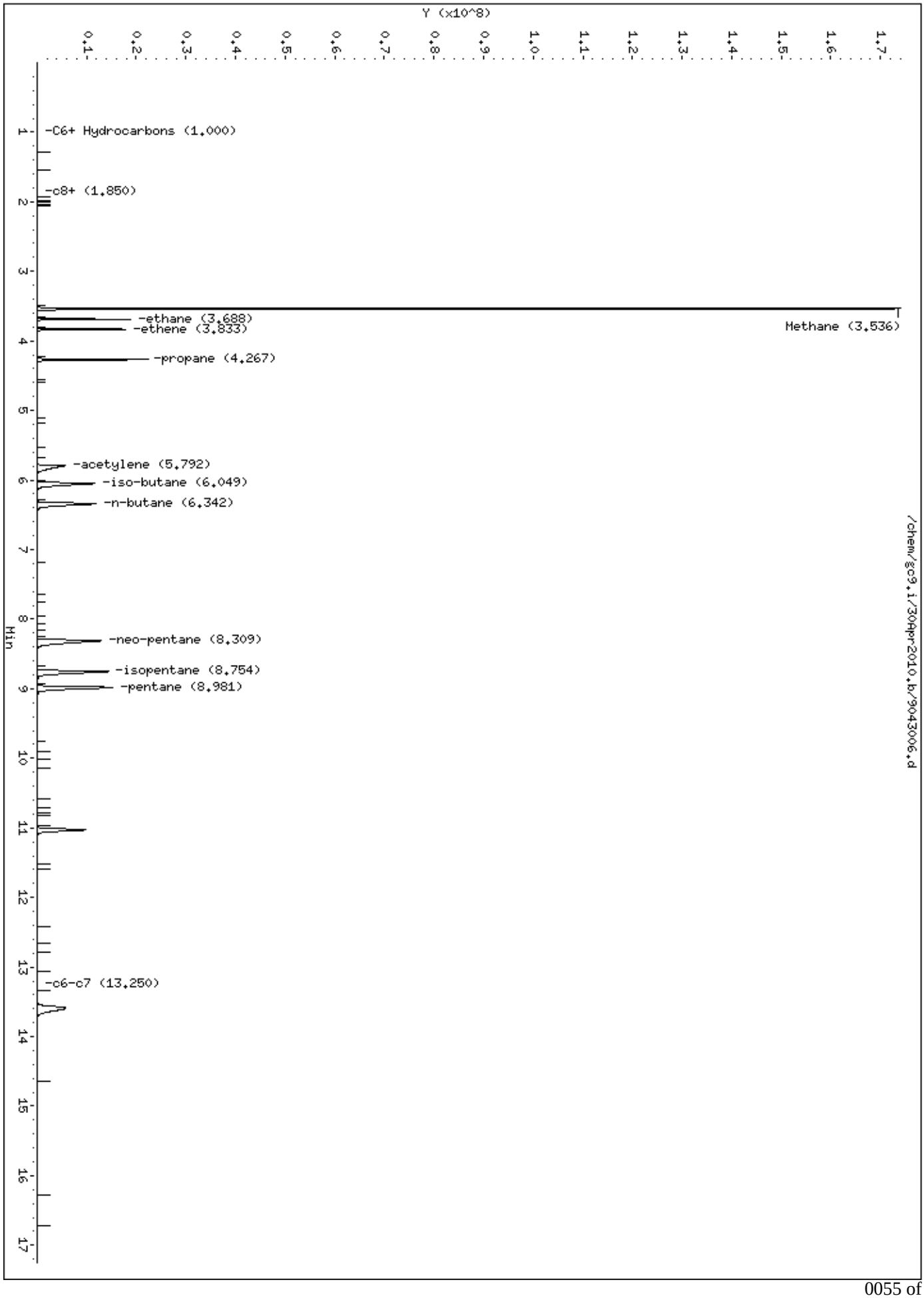
Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

					AMOUNTS CAL-AMT (%)	AMOUNTS ON-COL (%)
Compounds	RT	EXP RT	DLT RT	RESPONSE		
2 Methane	3.536	3.536	0.000	1517483193	9.95000	9.16
3 ethane	3.688	3.688	0.000	148471057	0.49700	0.488
4 ethene	3.833	3.833	0.000	147277844	0.50000	0.491
5 propane	4.267	4.267	0.000	227849119	0.50400	0.497
7 acetylene	5.792	5.792	0.000	186734585	0.50100	0.500
8 iso-butane	6.049	6.049	0.000	301657034	0.50000	0.496
10 n-butane	6.342	6.342	0.000	303025106	0.50000	0.497
15 neo-pentane	8.309	8.309	0.000	404445910	0.50500	0.500
16 isopentane	8.754	8.754	0.000	383078537	0.50500	0.500
17 pentane	8.981	8.981	0.000	387982697	0.50500	0.501
M 37 C6+ Hydrocarbons				518462389	0.50000	0.506
S 22 c6-c7	9.250-17.250			516959851	0.51200	0.506
S 36 c8+	0.700-3.000			1502538	0.00000	(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

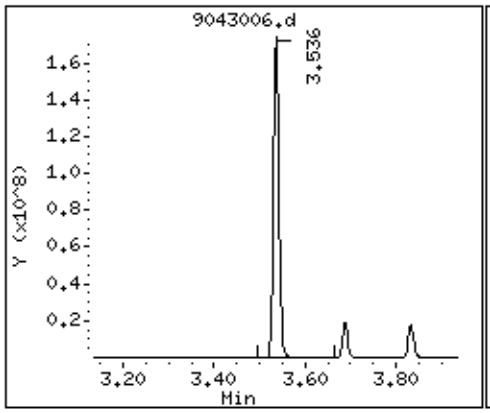


Data File: /chem/gc9.i/30Apr2010.b/9043006.d

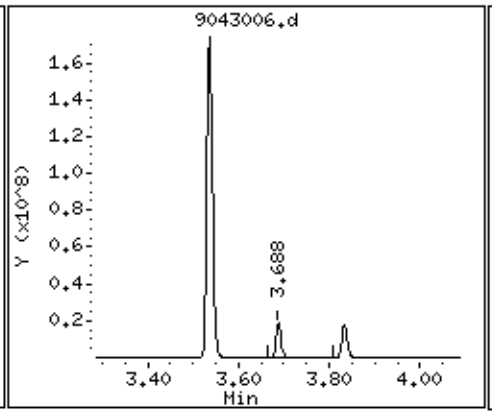
/chem/gc9.i/30Apr2010.b/9043006.d

Page 1

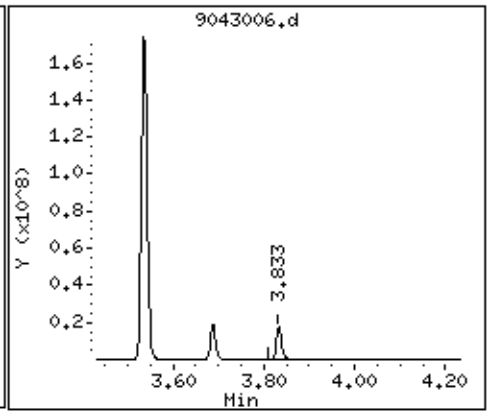
2 Methane



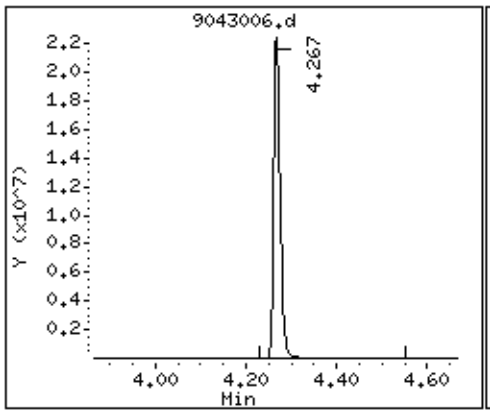
3 ethane



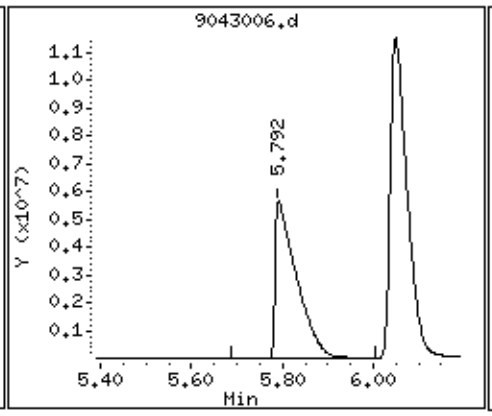
4 ethene



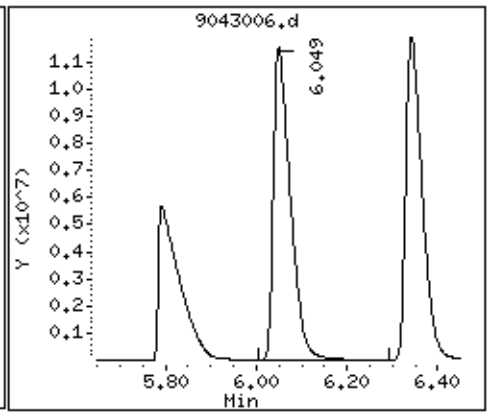
5 propane



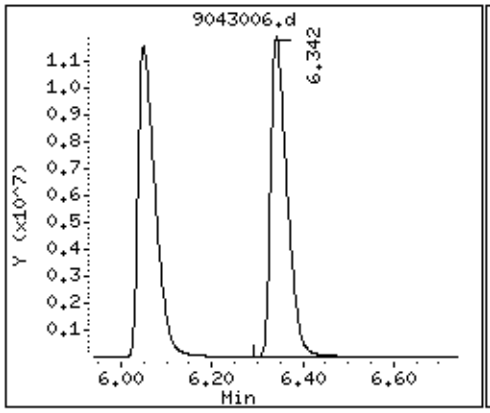
7 acetylene



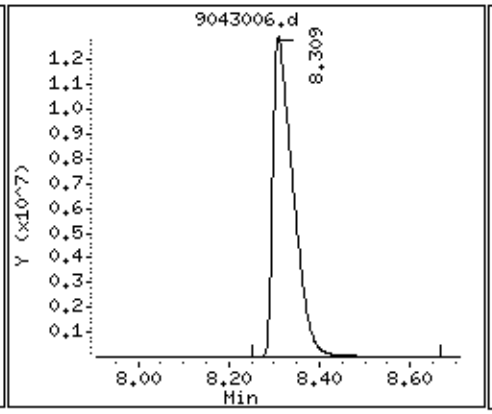
8 iso-butane



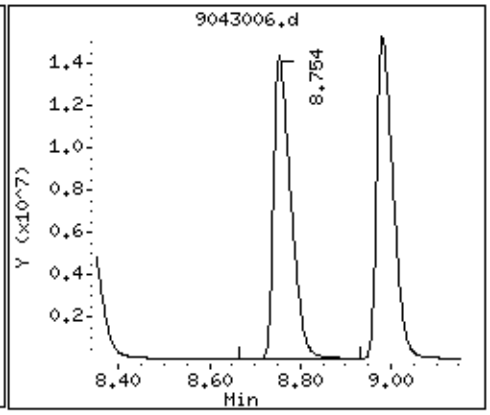
10 n-butane



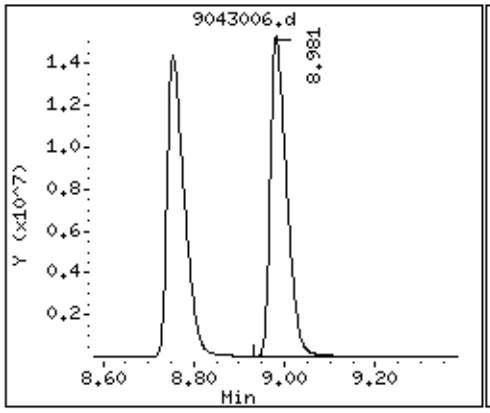
15 neo-pentane



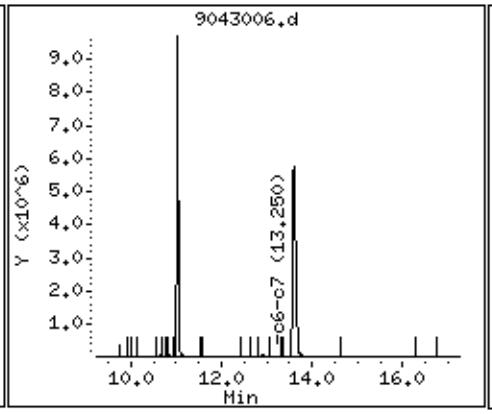
16 isopentane



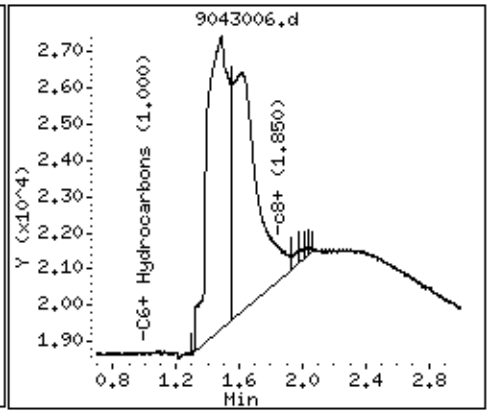
17 pentane



S 22 c6-c7



S 36 c8+



Air Toxics Ltd.

Modified ASTM-1945 Analysis

Data file : /chem/gc9.i/30Apr2010.b/9043015.d
Lab Smp Id: 1476-898 Client Smp ID: Level-6
Inj Date : 30-APR-2010 17:55
Operator : gd Inst ID: gc9.i
Smp Info : 1.0mL(5:100),
Misc Info : Isopentane
Comment : GC FID
Method : /chem/gc9.i/30Apr2010.b/910n0430.m
Meth Date : 03-May-2010 11:40 gmash Quant Type: ESTD
Cal Date : 30-APR-2010 17:55 Cal File: 9043015.d
Als bottle: 1 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP Genie Compound Sublist: isopentane.sub
Target Version: 3.50
Processing Host: eeyore

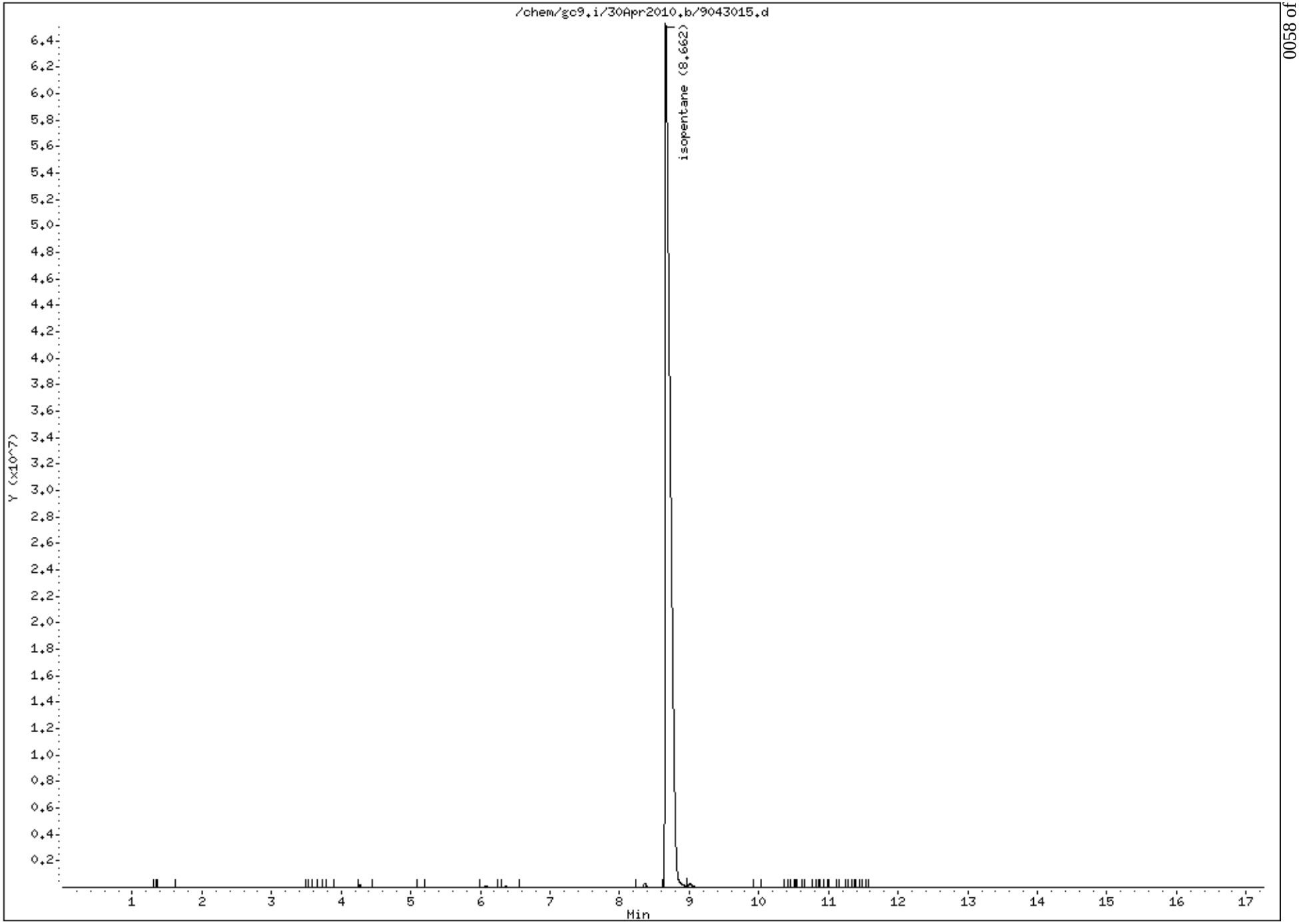
Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

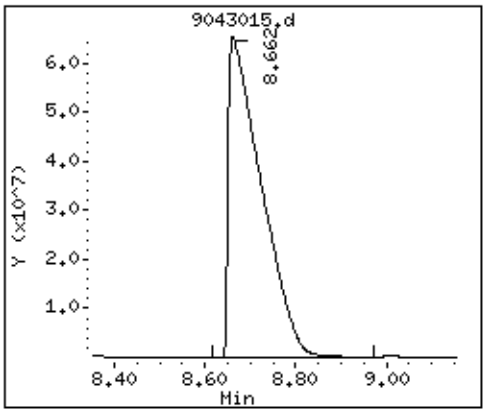
Compounds	RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (%)	AMOUNTS ON-COL (%)
16 isopentane	8.662	8.754	-0.092	3298665077	4.95000	4.42(A)

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.


/chem/gc9.i/30Apr2010.b/9043015.d
isopentane (8.662)
Y (x10^7)
6.4
6.2
6.0
5.8
5.6
5.4
5.2
5.0
4.8
4.6
4.4
4.2
4.0
3.8
3.6
3.4
3.2
3.0
2.8
2.6
2.4
2.2
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
Min

16 isopentane



Air Toxics Ltd.

Modified ASTM-1945 Analysis

Data file : /chem/gc9.i/30Apr2010.b/9043012.d
Lab Smp Id: 1476-897 Client Smp ID: Level-6
Inj Date : 30-APR-2010 15:55
Operator : gd Inst ID: gc9.i
Smp Info : 1.0mL(5:50),
Misc Info : Butane
Comment : GC FID
Method : /chem/gc9.i/30Apr2010.b/910n0430.m
Meth Date : 03-May-2010 11:40 gmash Quant Type: ESTD
Cal Date : 30-APR-2010 15:55 Cal File: 9043012.d
Als bottle: 1 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP Genie Compound Sublist: Butane.sub
Target Version: 3.50
Processing Host: eeyore

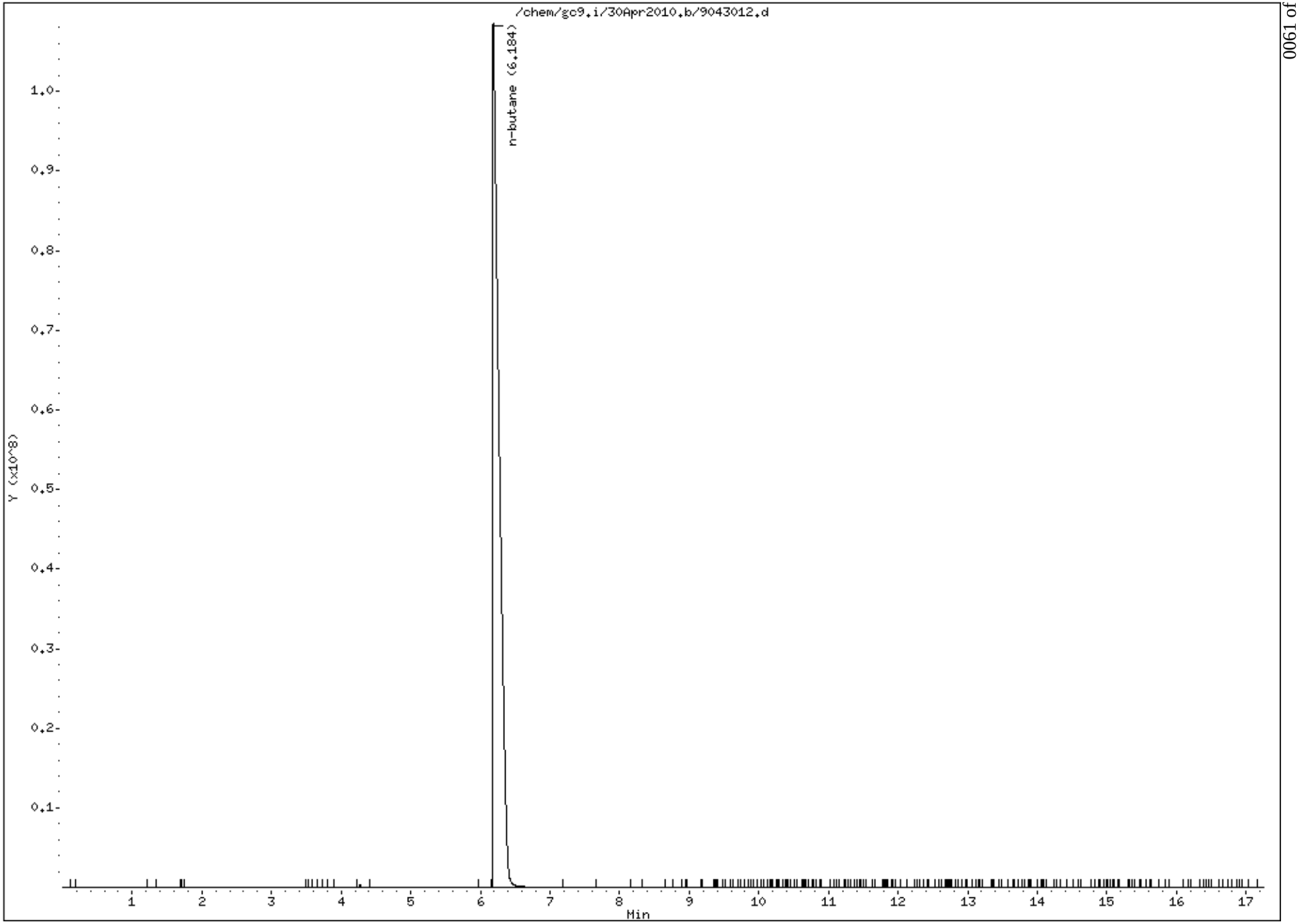
Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

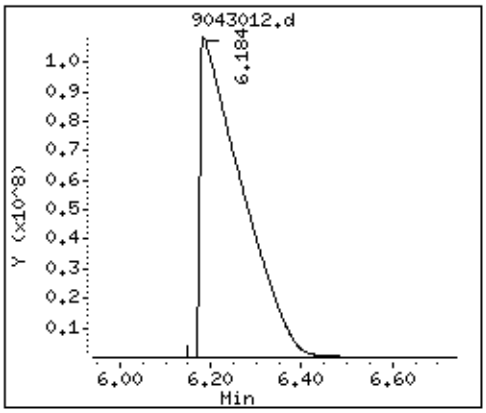
Compounds	RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (%)	AMOUNTS ON-COL (%)
10 n-butane	6.184	6.342	-0.158	6972625144	9.99000	11.1(A)

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.


/chem/gc9.i/30Apr2010.b/9043012.d
n-butane (6.184)
Y (x10^8)
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
Min

10 n-butane


9043012.d
6.184
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
Y (x10^8)
6.00
6.20
6.40
6.60
Min

Air Toxics Ltd.

Modified ASTM-1945 Analysis

Data file : /chem/gc9.i/30Apr2010.b/9043011.d
Lab Smp Id: 843-471 Client Smp ID: Level-6
Inj Date : 30-APR-2010 15:29
Operator : gd Inst ID: gc9.i
Smp Info : 1.0mL(10:50),
Misc Info : Propane
Comment : GC FID
Method : /chem/gc9.i/30Apr2010.b/910n0430.m
Meth Date : 03-May-2010 11:40 gmash Quant Type: ESTD
Cal Date : 30-APR-2010 15:29 Cal File: 9043011.d
Als bottle: 1 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP Genie Compound Sublist: propane.sub
Target Version: 3.50
Processing Host: eeyore

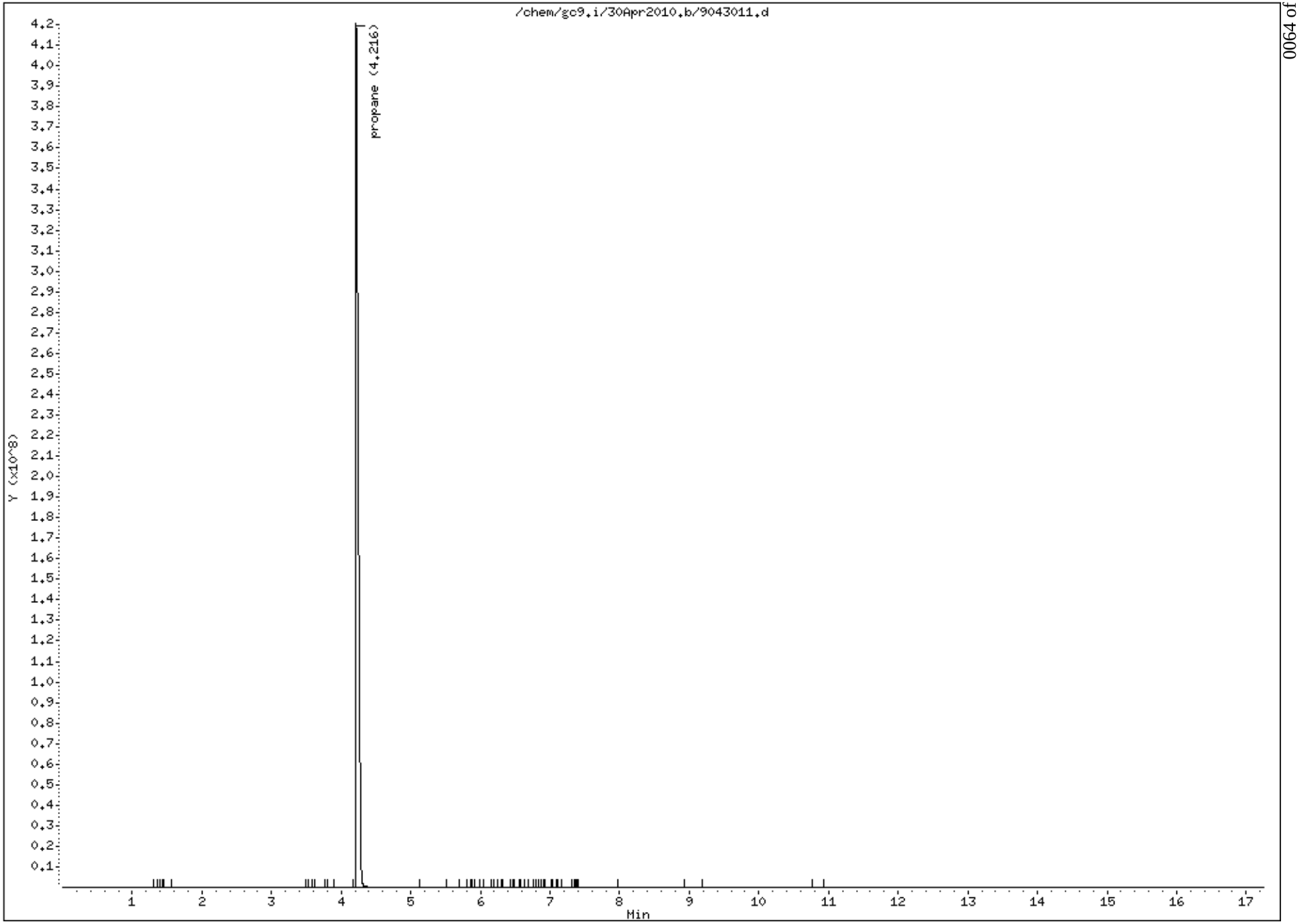
Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

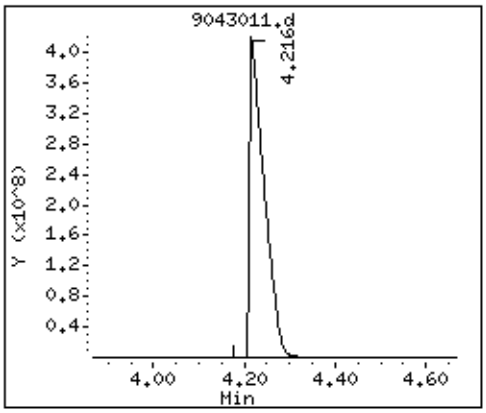
Compounds	RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (%)	AMOUNTS ON-COL (%)
5 propane	4.216	4.267	-0.051	9527733099	19.9000	20.6(A)

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.


/chem/gc9.i/30Apr2010.b/9043011.d
propane (4.216)
Y (x10^8)
Min

5 propane


9043011.d
4.216d
4.0
3.6
3.2
2.8
2.4
2.0
1.6
1.2
0.8
0.4
Y (x10^8)
4.00
4.20
4.40
4.60
Min

Air Toxics Ltd.

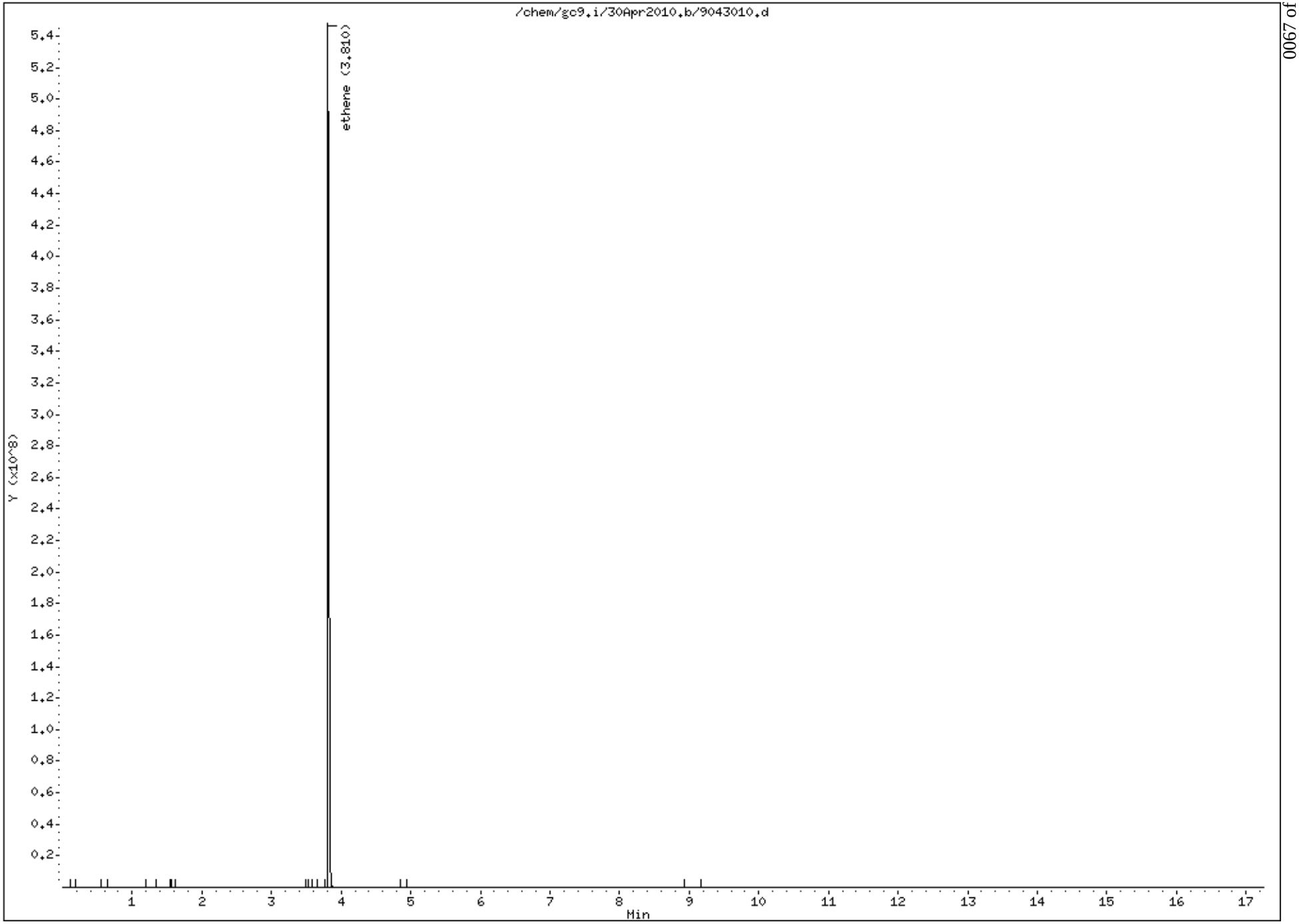
Modified ASTM-1945 Analysis

Data file : /chem/gc9.i/30Apr2010.b/9043010.d
Lab Smp Id: 1476-437 Client Smp ID: Level-6
Inj Date : 30-APR-2010 15:02
Operator : gd Inst ID: gc9.i
Smp Info : 1.0mL(12.5:50),
Misc Info : Ethene
Comment : GC FID
Method : /chem/gc9.i/30Apr2010.b/910n0430.m
Meth Date : 03-May-2010 11:40 gmash Quant Type: ESTD
Cal Date : 30-APR-2010 15:02 Cal File: 9043010.d
Als bottle: 1 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP Genie Compound Sublist: ehtene.sub
Target Version: 3.50
Processing Host: eeyore

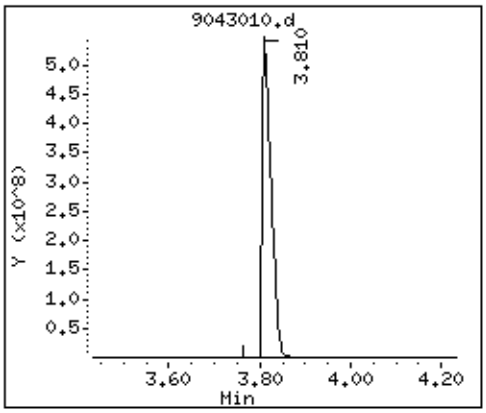
Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (%)	AMOUNTS ON-COL (%)
4 ethene	3.810	3.833	-0.023	7353764724	24.8750	24.6


/chem/gc9.i/30Apr2010.b/9043010.d
ethene (3.810)
Y (x10^8)
5.4
5.2
5.0
4.8
4.6
4.4
4.2
4.0
3.8
3.6
3.4
3.2
3.0
2.8
2.6
2.4
2.2
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
Min

4 ethene


9043010.d
3.810
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
Y (x10^8)
3.60
3.80
4.00
4.20
Min

Air Toxics Ltd.

Modified ASTM-1945 Analysis

Data file : /chem/gc9.i/30Apr2010.b/9043009.d
Lab Smp Id: 1476-438 Client Smp ID: Level-6:
Inj Date : 30-APR-2010 14:28
Operator : ly Inst ID: gc9.i
Smp Info : 1.0mL(12.5:50),
Misc Info : Ethane
Comment : GC FID
Method : /chem/gc9.i/30Apr2010.b/910n0430.m
Meth Date : 03-May-2010 11:40 gmash Quant Type: ESTD
Cal Date : 30-APR-2010 14:28 Cal File: 9043009.d
Als bottle: 1 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP Genie Compound Sublist: ehtane.sub
Target Version: 3.50
Processing Host: eeyore

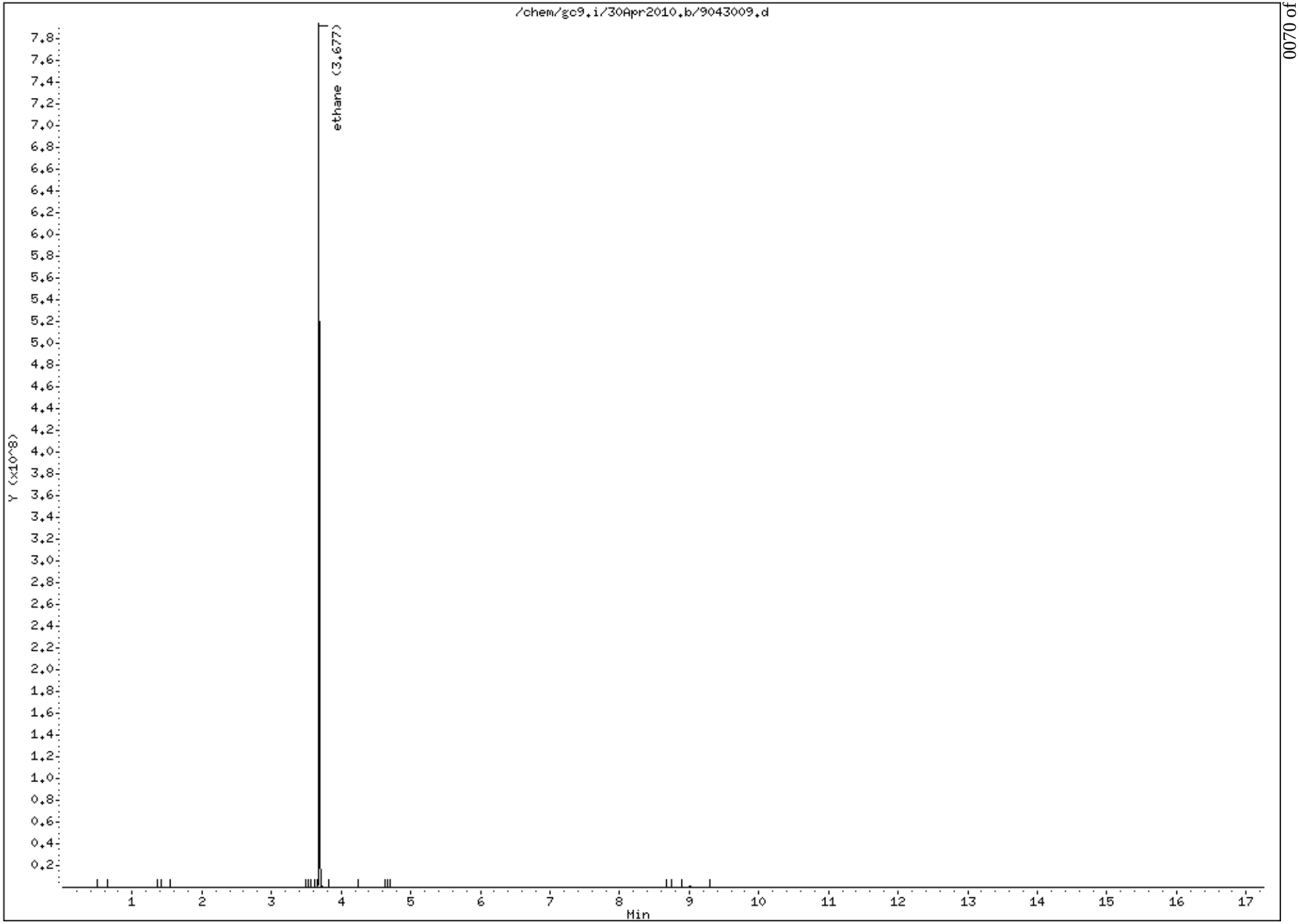
Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

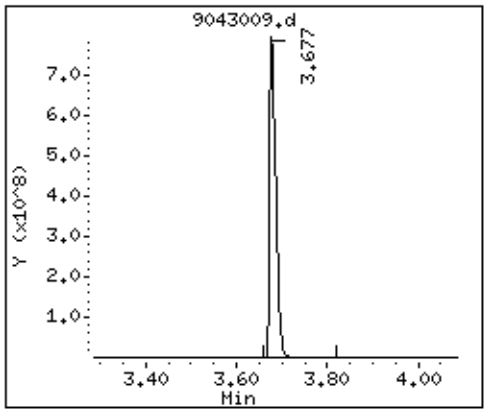
Compounds	RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (%)	AMOUNTS ON-COL (%)
3 ethane	3.677	3.688	-0.011	7661033105	24.9750	25.2(A)

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.


/chem/gc9.i/30Apr2010.b/9043009.d
ethane (3.677)
Y (x10^8)
Min

3 ethane



Air Toxics Ltd.

Modified ASTM-1945 Analysis

Data file : /chem/gc9.i/30Apr2010.b/9043008.d
Lab Smp Id: 1476-910 Client Smp ID: Level-6:
Inj Date : 30-APR-2010 13:54
Operator : ly Inst ID: gc9.i
Smp Info : 1.0mL,
Misc Info : Pentane
Comment : GC FID
Method : /chem/gc9.i/30Apr2010.b/910n0430.m
Meth Date : 03-May-2010 11:40 gmash Quant Type: ESTD
Cal Date : 30-APR-2010 13:54 Cal File: 9043008.d
Als bottle: 1 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP Genie Compound Sublist: Pentane.sub
Target Version: 3.50
Processing Host: eeyore

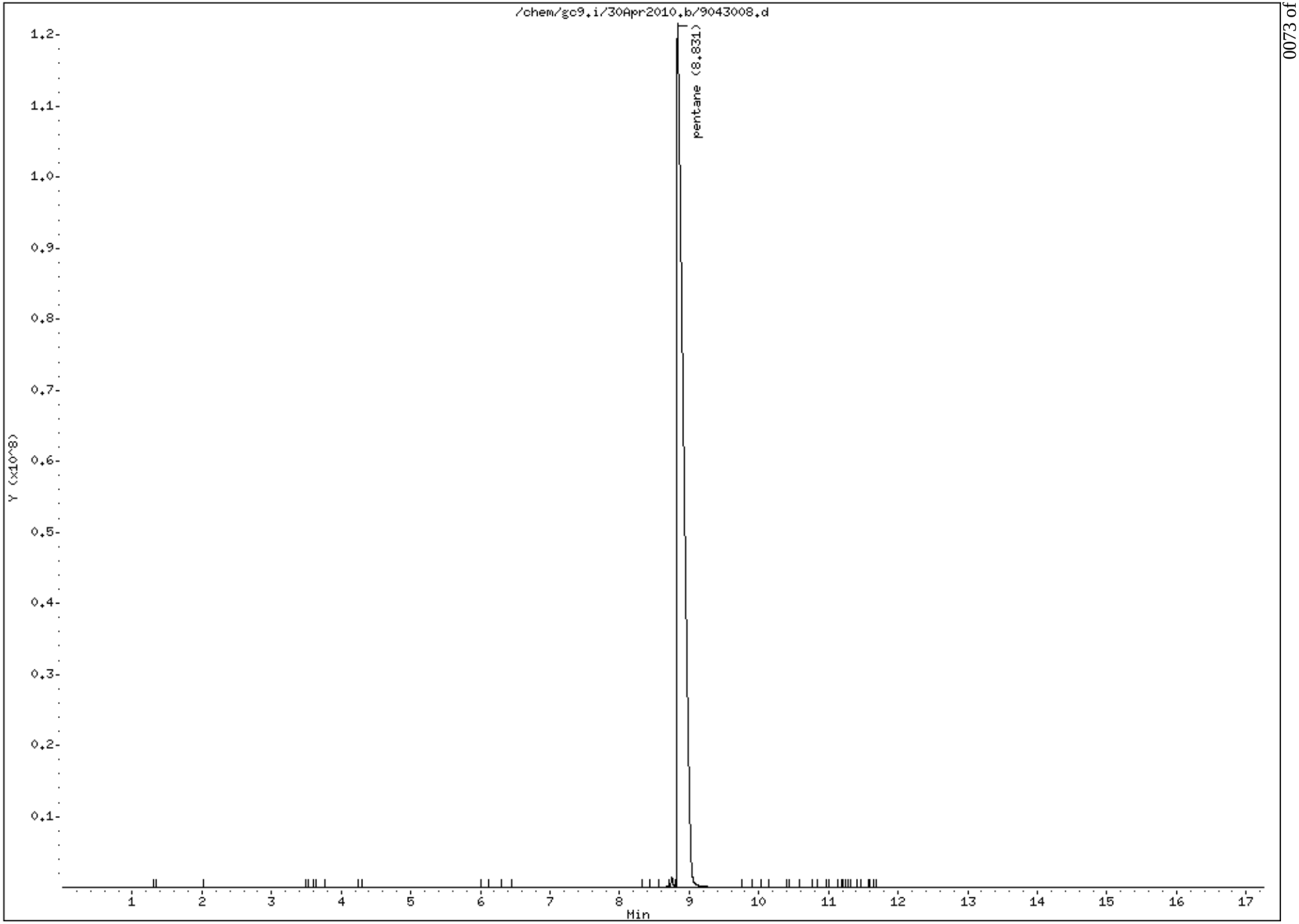
Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

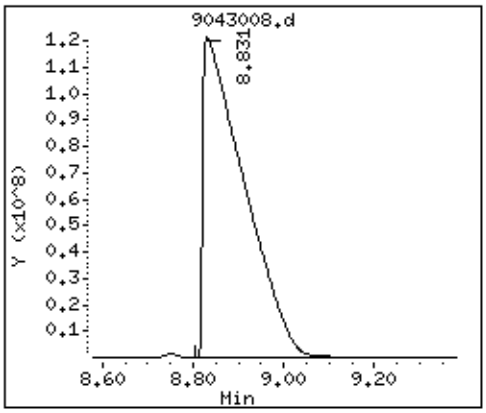
Compounds	RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (%)	AMOUNTS ON-COL (%)
17 pentane	8.831	8.981	-0.150	7689887757	9.99000	9.95(A)

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.


/chem/gc9.i/30Apr2010.b/9043008.d
pentane (8.831)
Y (x10^8)
1.2
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
Min

17 pentane


9043008.d
8.831
Y (x10^8)
1.2
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
8.60
8.80
9.00
9.20
Min

Air Toxics Ltd.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: gc9.i Injection Date: 25-SEP-2010 09:11
Lab File ID: 9092501.d Init. Cal. Date(s): 30-APR-2010 30-APR-2010
Analysis Type: AIR Init. Cal. Times: 09:54 17:55
Lab Sample ID: 1476-1939 ngas Quant Type: ESTD
Method: /chem/gc9.i/25Sep2010.b/910n0430.m

	COMPOUND	RRF / AMOUNT	RF0.000	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE	
	2 Methane	165565421	152562734	0.010	7.85350	15.00000	Averaged	
	3 ethane	304581453	295976775	0.010	2.82508	15.00000	Averaged	
	4 ethene	298927340	292639140	0.010	2.10359	15.00000	Averaged	
	5 propane	462210877	432748413	0.010	6.37425	15.00000	Averaged	
	7 acetylene	373659611	377209172	0.010	-0.94994	15.00000	Averaged	
	8 iso-butane	608569261	583932370	0.010	4.04833	15.00000	Averaged	
	10 n-butane	627463688	591632046	0.010	5.71055	15.00000	Averaged	
	15 neo-pentane	809133482	785050881	0.010	2.97634	15.00000	Averaged	
	16 isopentane	746501171	739552220	0.010	0.93087	15.00000	Averaged	
	17 pentane	773098274	751389846	0.010	2.80798	15.00000	Averaged	
M	37 C6+ Hydrocarbons	1.021e+09	1.003e+09	0.010	1.79744	15.00000	Averaged	
S	22 c6-c7	1.021e+09	999651922	0.010	2.10122	15.00000	Averaged	
S	36 c8+	1.021e+09	++++	0.010	++++	15.00000	Averaged	<-

Air Toxics Ltd.

Modified ASTM-1945 Analysis

Data file : /chem/gc9.i/25Sep2010.b/9092501.d
Lab Smp Id: 1476-1939 ngas Client Smp ID: CCV
Inj Date : 25-SEP-2010 09:11
Operator : ly Inst ID: gc9.i
Smp Info : 1.0ml,
Misc Info : CCV
Comment : GC FID
Method : /chem/gc9.i/25Sep2010.b/910n0430.m
Meth Date : 25-Sep-2010 09:26 lyohanne Quant Type: ESTD
Cal Date : 25-SEP-2010 09:11 Cal File: 9092501.d
Als bottle: 1 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP Genie Compound Sublist: ngas.sub
Target Version: 3.50
Processing Host: eeyore

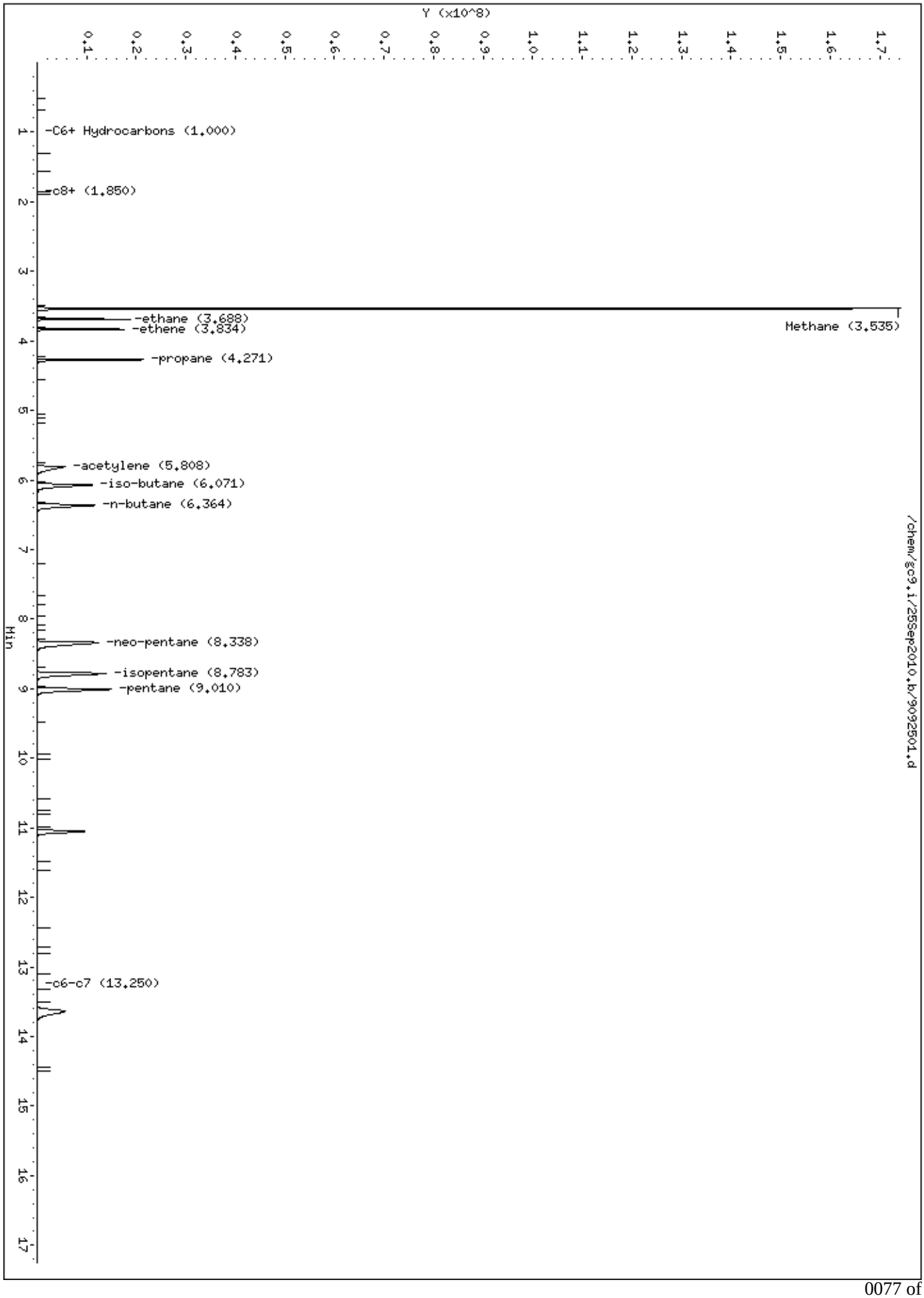
Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

						AMOUNTS CAL-AMT (%)	AMOUNTS ON-COL (%)
Compounds	RT	EXP RT	DLT RT	RESPONSE			
2 Methane	3.535	3.535	0.000	1517999206		9.95000	9.17
3 ethane	3.688	3.688	0.000	147100457		0.49700	0.483
4 ethene	3.834	3.834	0.000	146319570		0.50000	0.489
5 propane	4.271	4.271	0.000	218105200		0.50400	0.472
7 acetylene	5.808	5.808	0.000	188981795		0.50100	0.506(A)
8 iso-butane	6.071	6.071	0.000	291966185		0.50000	0.480
10 n-butane	6.364	6.364	0.000	295816023		0.50000	0.471
15 neo-pentane	8.338	8.338	0.000	396450695		0.50500	0.490
16 isopentane	8.783	8.783	0.000	373473871		0.50500	0.500
17 pentane	9.010	9.010	0.000	379451872		0.50500	0.491
M 37 C6+ Hydrocarbons				513409934		0.51200	0.503
S 22 c6-c7	9.250-17.250			511821784		0.51200	0.501
S 36 c8+	0.700-3.000			1588150		0.00000	0.00156

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.

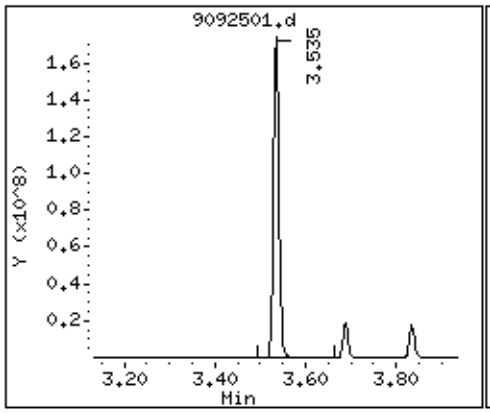


Data File: /chem/gc9.i/25Sep2010.b/9092501.d

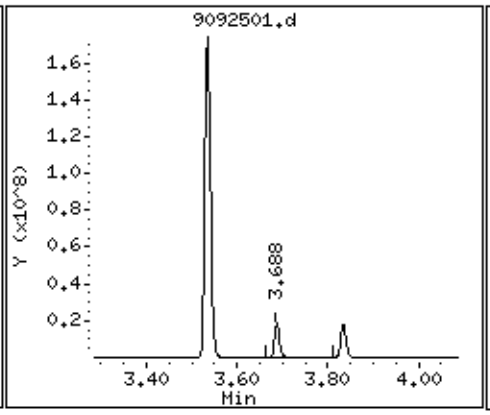
/chem/gc9.i/25Sep2010.b/9092501.d

Page 1

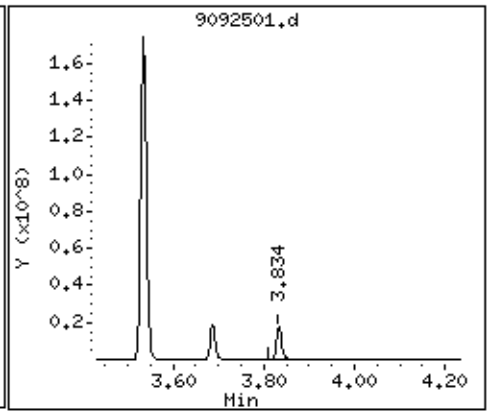
2 Methane



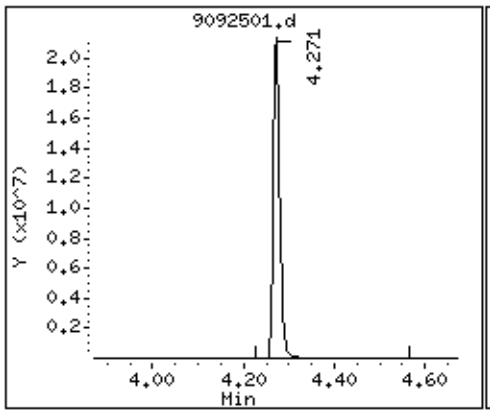
3 ethane



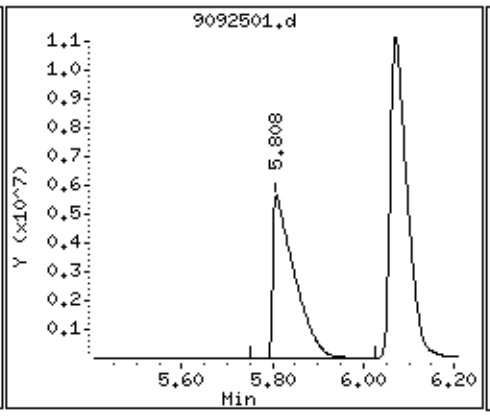
4 ethene



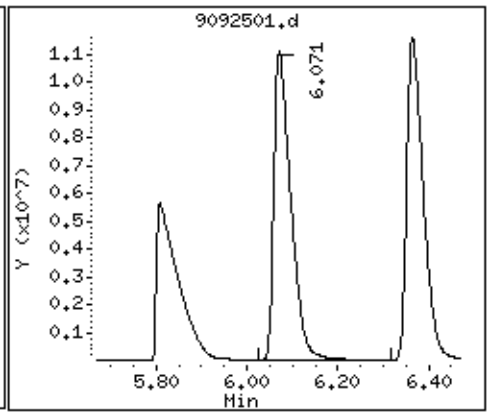
5 propane



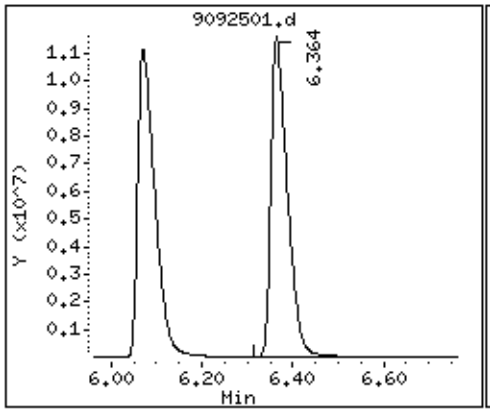
7 acetylene



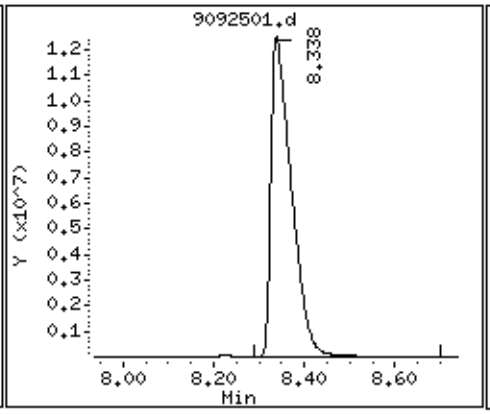
8 iso-butane



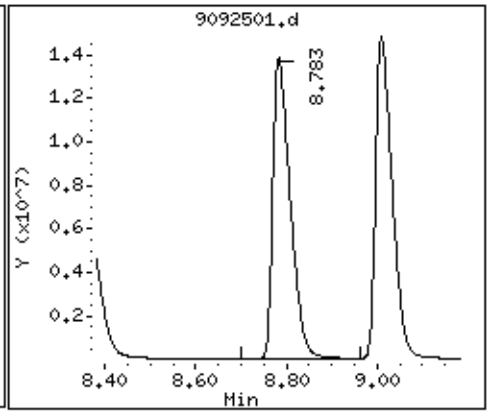
10 n-butane



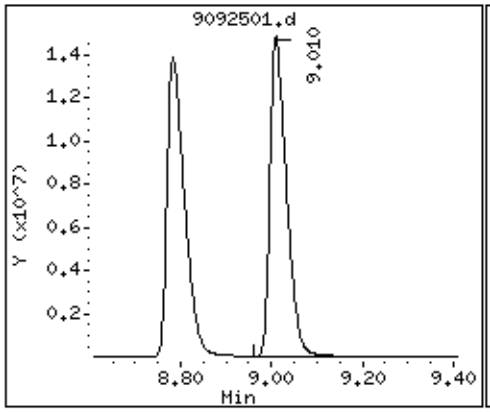
15 neo-pentane



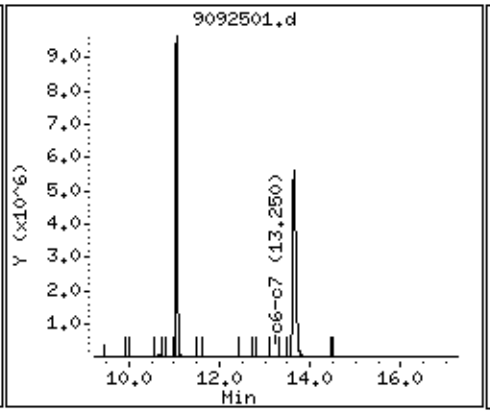
16 isopentane



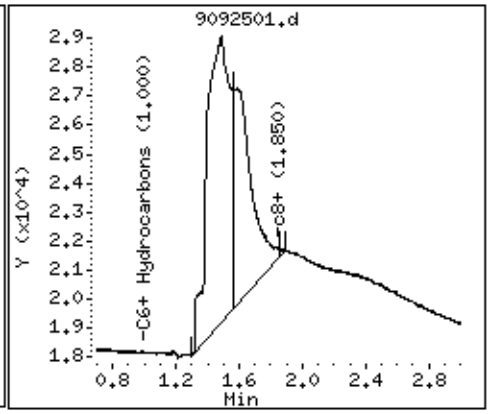
17 pentane



S 22 c6-c7



S 36 c8+



Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: LCS

Lab ID#: 1009578B-07A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9092502**	**Date of Collection: NA**
Dil. Factor:	**1.00**	**Date of Analysis: 9/25/10 09:35 AM**

Compound	%Recovery
Methane	97

Container Type: NA - Not Applicable

Report Date: 25-Sep-2010 09:50

Air Toxics Ltd.

RECOVERY REPORT

Client Name:
Client SDG: 25Sep2010
Sample Matrix: GAS
Fraction: Atm Gas
Lab Smp Id: 1476-1477 ngas
Client Smp ID: LCS
Level: LOW
Operator: ly
Data Type: GC DATA
SampleType: LCS
SpikeList File: 1476-1477.spk
Quant Type: ESTD
Sublist File: ngas.sub
Method File: /chem/gc9.i/25Sep2010.b/910n0430.m
Misc Info: LCS

	SPIKE COMPOUND	CONC ADDED %	CONC RECOVERED %	% RECOVERED	LIMITS
	2 Methane	9.99	9.70	97.11	85-115
	3 ethane	0.498	0.492	98.83	85-115
	4 ethene	0.500	0.493	98.52	85-115
	5 propane	0.499	0.502	100.62	85-115
	7 acetylene	0.500	0.494	98.77	85-115
	8 iso-butane	0.500	0.500	99.93	85-115
	10 n-butane	0.498	0.484	97.29	85-115
	15 neo-pentane	0.510	0.506	99.32	85-115
	16 isopentane	0.505	0.508	100.65	85-115
	17 pentane	0.503	0.502	99.83	85-115
M	37 C6+ Hydrocarbons	0.516	0.514	99.71	85-115

Air Toxics Ltd.

Modified ASTM-1945 Analysis

Data file : /chem/gc9.i/25Sep2010.b/9092502.d
Lab Smp Id: 1476-1477 ngas Client Smp ID: LCS
Inj Date : 25-SEP-2010 09:35
Operator : ly Inst ID: gc9.i
Smp Info : 1.0ml,
Misc Info : LCS
Comment : GC FID
Method : /chem/gc9.i/25Sep2010.b/910n0430.m
Meth Date : 25-Sep-2010 09:49 lyohanne Quant Type: ESTD
Cal Date : 25-SEP-2010 09:11 Cal File: 9092501.d
Als bottle: 1 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP Genie Compound Sublist: ngas.sub
Target Version: 3.50
Processing Host: eeyore

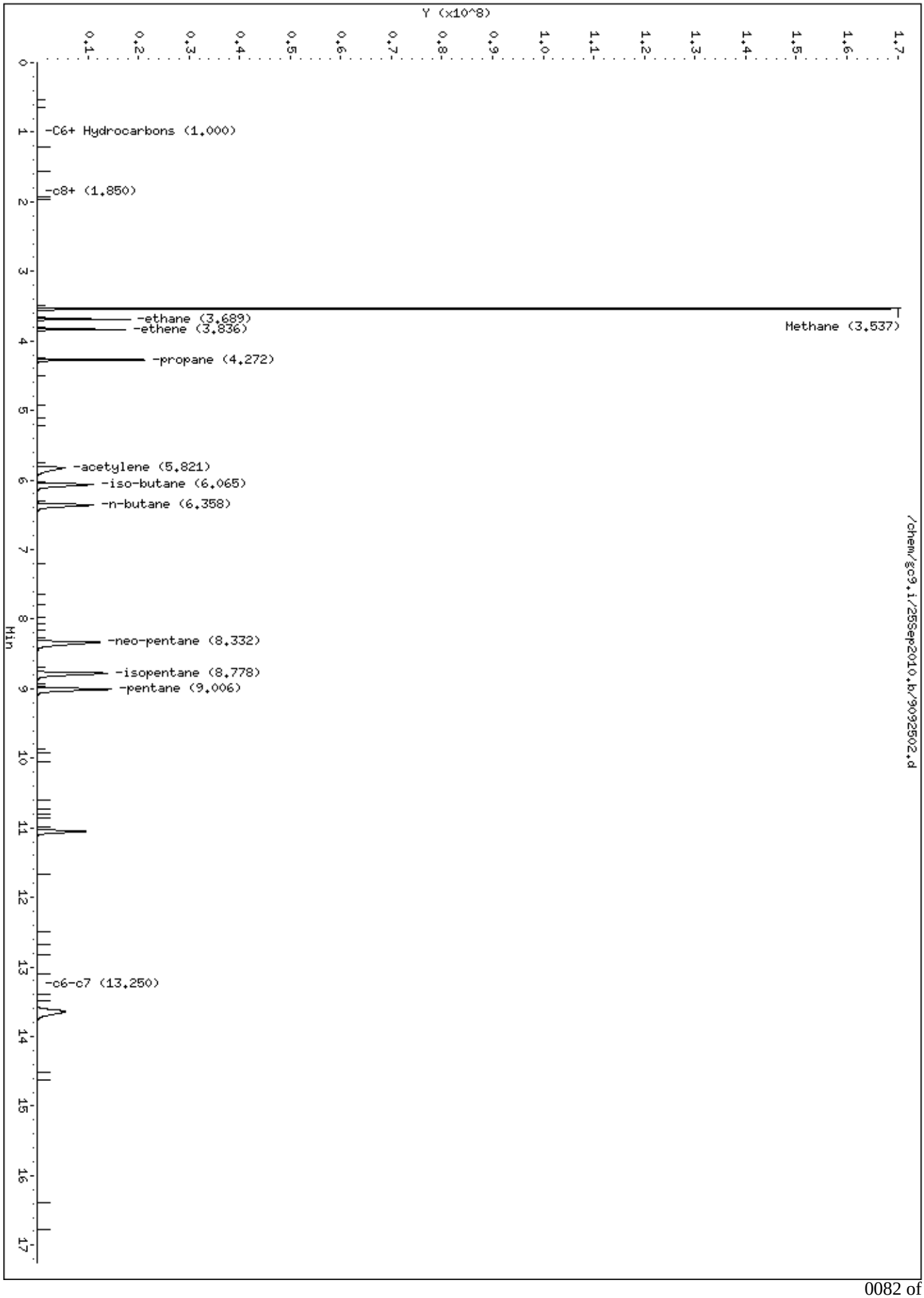
Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

	Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (%)	FINAL (%)
	2 Methane	3.537	3.535	0.002	1480091731	9.70153	9.70
	3 ethane	3.689	3.688	0.001	145673480	0.49218	0.492
	4 ethene	3.836	3.834	0.002	144157972	0.49261	0.493
	5 propane	4.272	4.271	0.001	217272422	0.50208	0.502
	7 acetylene	5.821	5.808	0.013	186275821	0.49383	0.494
	8 iso-butane	6.065	6.071	-0.006	291768466	0.49966	0.500
	10 n-butane	6.358	6.364	-0.006	286639539	0.48449	0.484
	15 neo-pentane	8.332	8.338	-0.006	397658737	0.50654	0.506(A)
	16 isopentane	8.778	8.783	-0.005	375920006	0.50831	0.508
	17 pentane	9.006	9.010	-0.004	377309679	0.50215	0.502
M	37 C6+ Hydrocarbons				514332535	0.51449	0.514
S	22 c6-c7	9.250-17.250			512602202	0.51276	0.513
S	36 c8+	0.700-3.000			1730332	0.00173	0.00173

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.

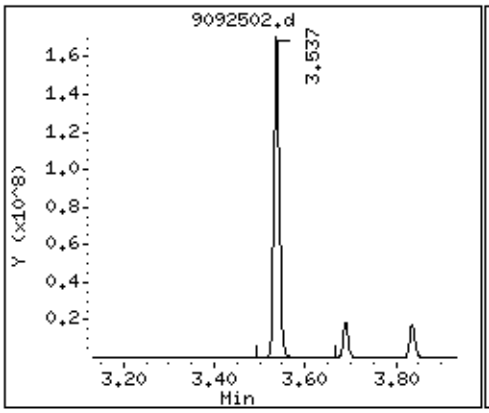


Data File: /chem/gc9.i/25Sep2010.b/9092502.d

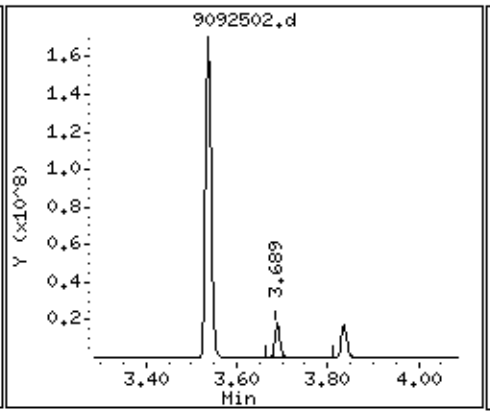
/chem/gc9.i/25Sep2010.b/9092502.d

Page 1

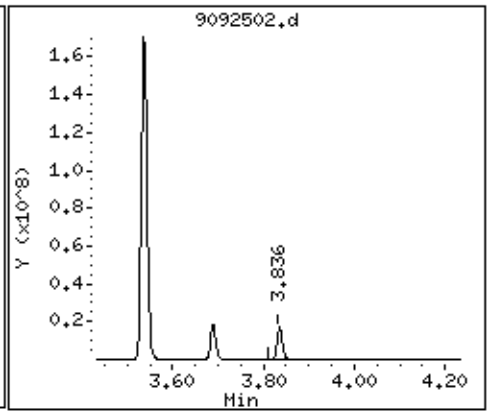
2 Methane



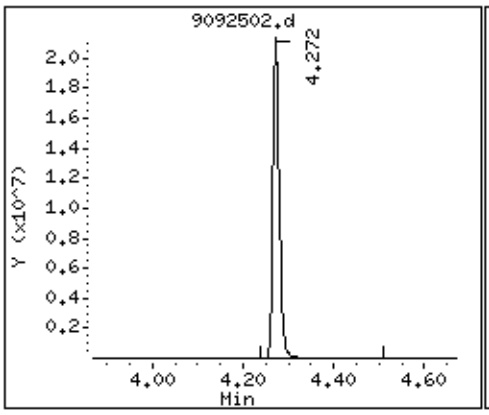
3 ethane



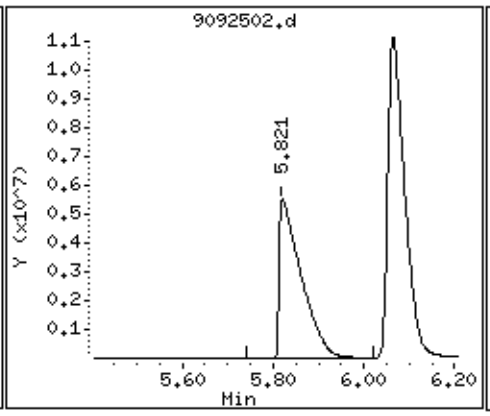
4 ethene



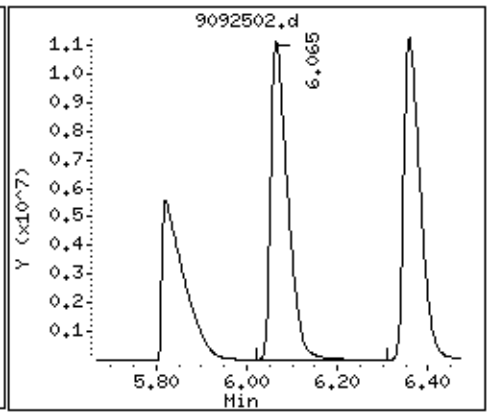
5 propane



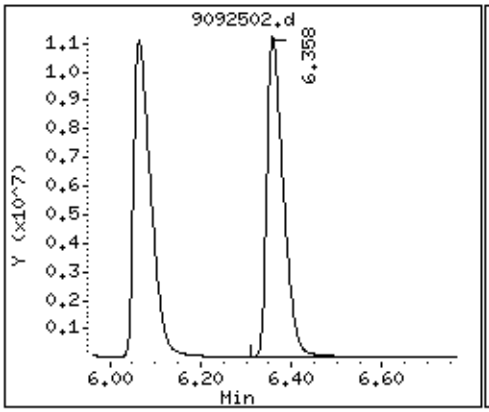
7 acetylene



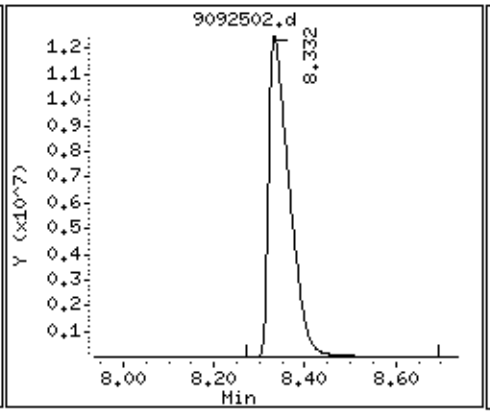
8 iso-butane



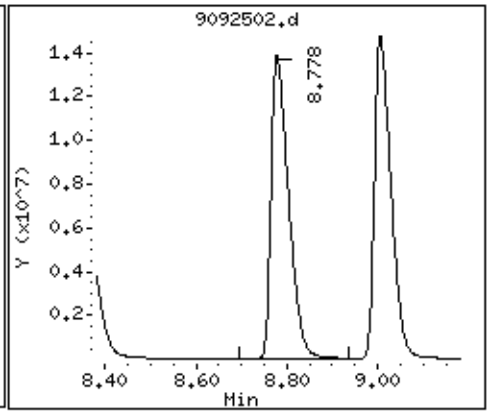
10 n-butane



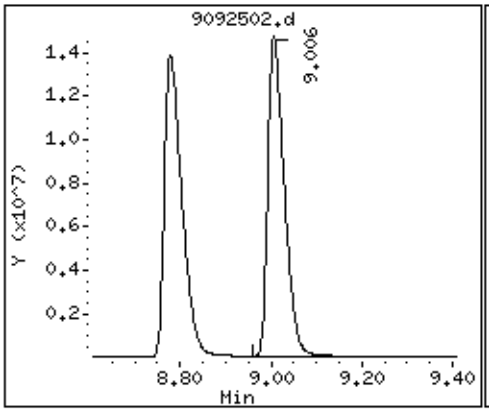
15 neo-pentane



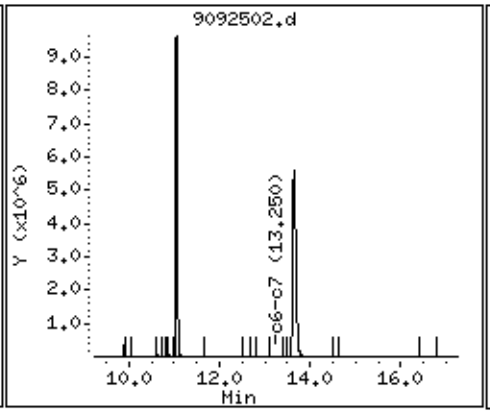
16 isopentane



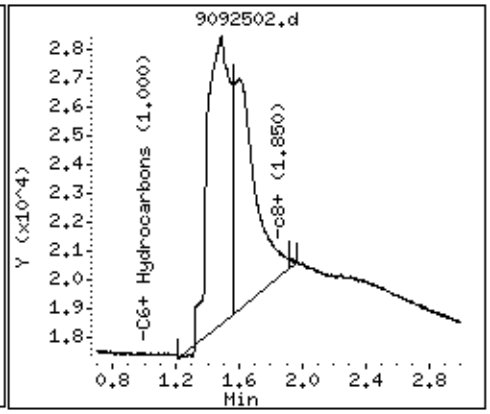
17 pentane



S 22 c6-c7



S 36 c8+



Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: LCSD

Lab ID#: 1009578B-07AA

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9092518**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 9/25/10 04:26 PM**	

Compound	**%Recovery**
Methane	99

Container Type: NA - Not Applicable

Report Date: 25-Sep-2010 16:42

Air Toxics Ltd.

RECOVERY REPORT

Client Name:
Client SDG: 25Sep2010
Sample Matrix: GAS
Fraction: Atm Gas
Lab Smp Id: 1476-1477
Client Smp ID: lcsd
Level: LOW
Operator: ll
Data Type: GC DATA
SampleType: LCSD
SpikeList File: 1476-1477.spk
Quant Type: ESTD
Sublist File: ngas.sub
Method File: /chem/gc9.i/25Sep2010.b/910n0430.m
Misc Info: Bag

SPIKE COMPOUND	CONC ADDED %	CONC RECOVERED %	% RECOVERED	LIMITS
2 Methane	9.99	9.90	99.09	85-115
3 ethane	0.498	0.502	100.73	85-115
4 ethene	0.500	0.501	100.30	85-115
5 propane	0.499	0.512	102.63	85-115
7 acetylene	0.500	0.506	101.26	85-115
8 iso-butane	0.500	0.510	101.95	85-115
10 n-butane	0.498	0.493	99.09	85-115
15 neo-pentane	0.510	0.513	100.57	85-115
16 isopentane	0.505	0.514	101.87	85-115
17 pentane	0.503	0.508	101.11	85-115
M 37 C6+ Hydrocarbons	0.516	0.521	101.05	85-115

Air Toxics Ltd.

Modified ASTM-1945 Analysis

Data file : /chem/gc9.i/25Sep2010.b/9092518.d
Lab Smp Id: 1476-1477 Client Smp ID: lcsd
Inj Date : 25-SEP-2010 16:26
Operator : ll Inst ID: gc9.i
Smp Info : 1.0ml,
Misc Info : Bag
Comment : GC FID
Method : /chem/gc9.i/25Sep2010.b/910n0430.m
Meth Date : 25-Sep-2010 09:49 lyohanne Quant Type: ESTD
Cal Date : 25-SEP-2010 09:11 Cal File: 9092501.d
Als bottle: 1 QC Sample: LCSD
Dil Factor: 1.00000
Integrator: HP Genie Compound Sublist: ngas.sub
Target Version: 3.50
Processing Host: eeyore

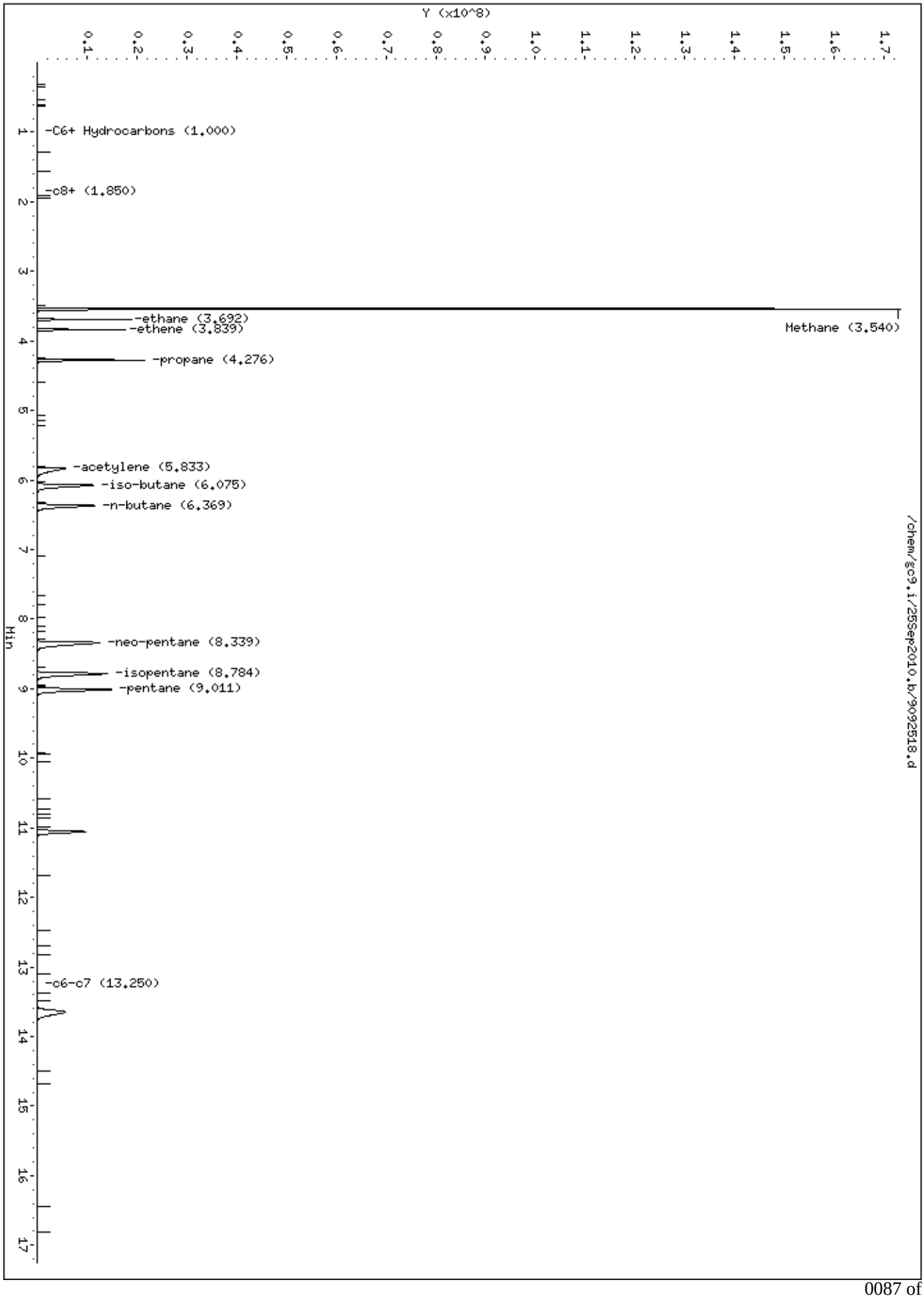
Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

						CONCENTRATIONS ON-COLUMN (%)	FINAL (%)
Compounds	RT	EXP RT	DLT RT	RESPONSE			
2 Methane	3.540	3.535	0.005	1510271281		9.89935	9.90
3 ethane	3.692	3.688	0.004	148473193		0.50164	0.502
4 ethene	3.839	3.834	0.005	146756554		0.50149	0.501
5 propane	4.276	4.271	0.005	221625132		0.51213	0.512
7 acetylene	5.833	5.808	0.025	190987903		0.50632	0.506(A)
8 iso-butane	6.075	6.071	0.004	297660464		0.50975	0.510(A)
10 n-butane	6.369	6.364	0.005	291960137		0.49348	0.493
15 neo-pentane	8.339	8.338	0.001	402673713		0.51293	0.513(A)
16 isopentane	8.784	8.783	0.001	380452501		0.51444	0.514
17 pentane	9.011	9.010	0.001	382150548		0.50859	0.508
M 37 C6+ Hydrocarbons				521236175		0.52139	0.521
S 22 c6-c7	9.250-17.250			519459375		0.51962	0.520
S 36 c8+	0.700-3.000			1776799		0.00178	0.00178

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.

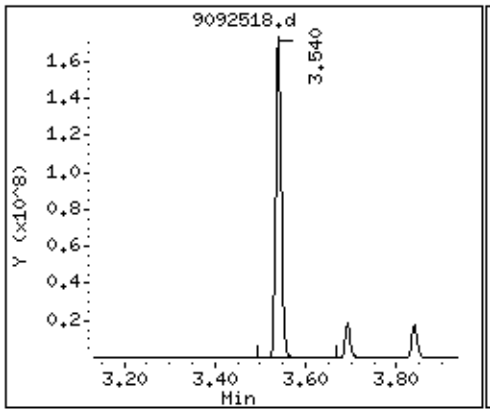


Data File: /chem/gc9.i/25Sep2010.b/9092518.d

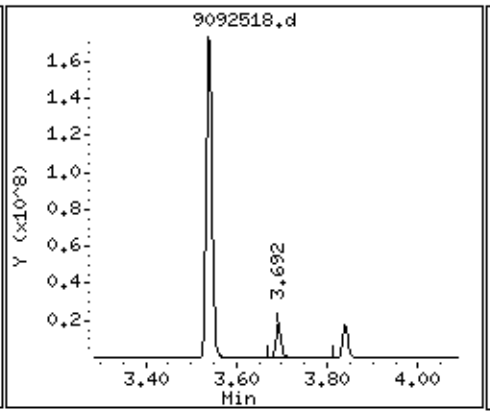
/chem/gc9.i/25Sep2010.b/9092518.d

Page 1

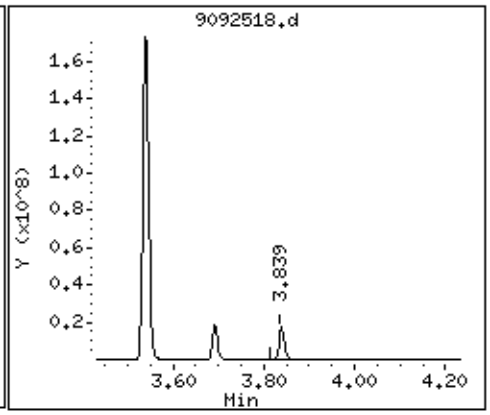
2 Methane



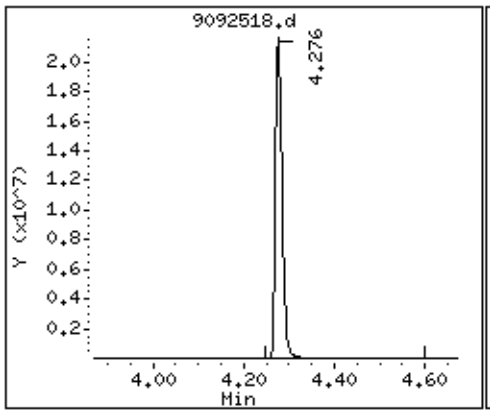
3 ethane



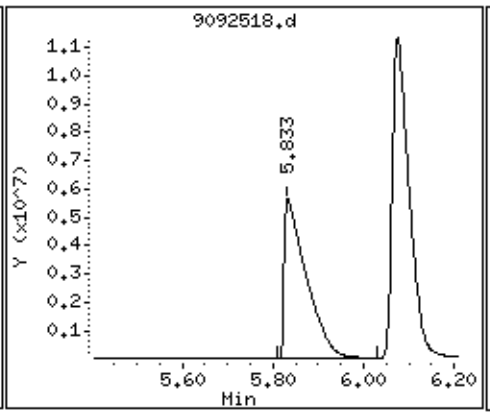
4 ethene



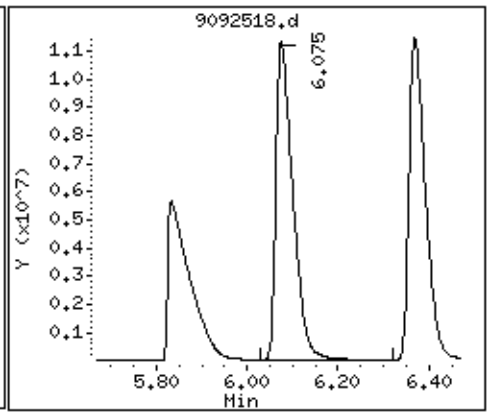
5 propane



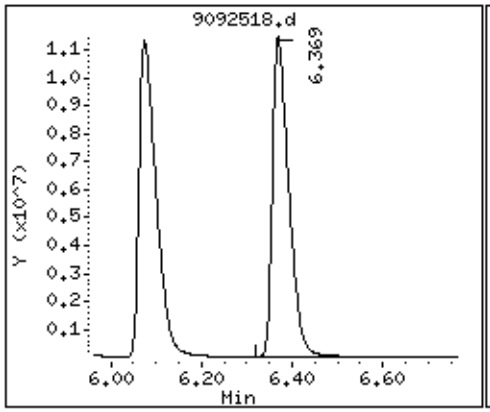
7 acetylene



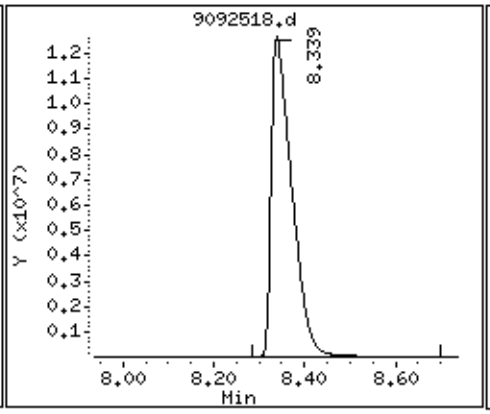
8 iso-butane



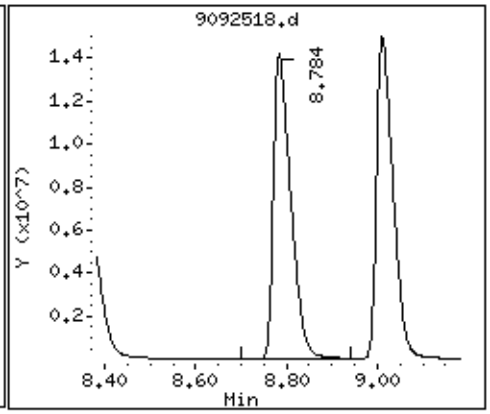
10 n-butane



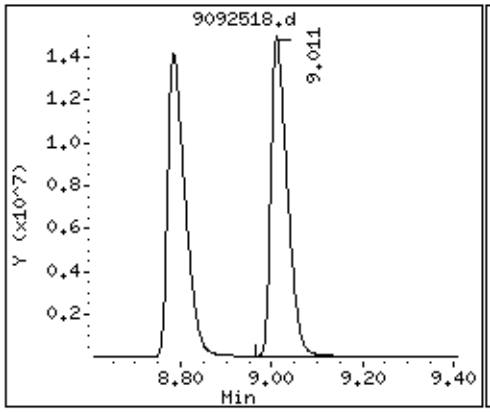
15 neo-pentane



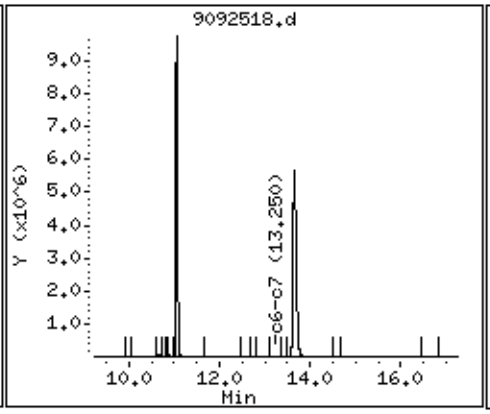
16 isopentane



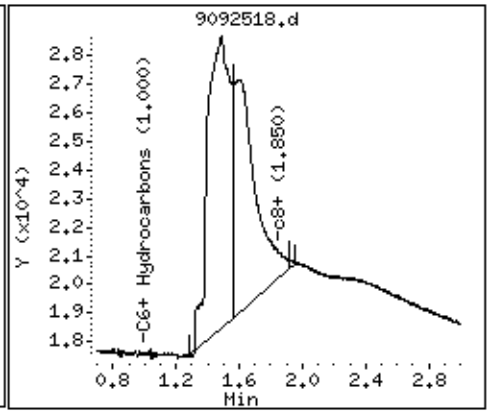
17 pentane



S 22 c6-c7



S 36 c8+



@Air Toxics Ltd.
Method: ASTM 1945/1946

GC-9

Logbook #: 2023
Leak Test : cy

	USE	File #	Sample Name/Client ID	Can #	Pressure	Amt	DF	Date	Time	Review Init.	Comments
1	✓	9092501	1476-1939 Ngas	NA	NA	1.0 mL	1.00	9/25/10	0911	cy	CCV
2	/	02	1476-1477 Ngas						0935		CCS
3	/	03	1476-977						0958		CCV
4	/	04	N_2 Lab Blank	33868					1022		
5	/	05	He Lab Blank	14014					1044		
6	/	06	1009528B -01A	2145	29.0"Hg → 15psi				1110		
7	/	07	1009578B -01A	34211	28.5"Hg → 5psi		26.8		1133		
8	/	08	-02A	05406			↓		1156		
9	/	09	-03A	05362	23.0"Hg → 5psi		5.74		1218		
10	/	10	-04A	12687	29.0"Hg → 5psi		40.2		1240		
11	/	11	-05A	25300	29.5"Hg → 5psi		1.00		1305		
12	/	12	1009529C -01A	2136	4.0"Hg → 15psi		2.33		1329		
13	/	13	-02A	12366	3.5"Hg → 15psi		2.29		1351		
14	/	14	1009537 -02A	Bag	SG 61-20-SE-8A		1.00		1449		
15		15	-03A	Bag	SG-61-20-SE-8B				1512		

Calculation Check: File ID: 9092507 Compound: CH4 Initials: cy

Sample Amt = $\frac{\text{Area Counts Sample}}{\text{RF}}$ × Dilution Factor = $\frac{(277883399)}{(152562734)}$ × (26.8) = **48.8**

Reported Result: **48.8**

Signed: [signature] Date: 9/25/10

Revised 04/05

@Air Toxics Ltd. **GC-9** **Logbook #: 2023**

Method: ASTM 1945/1946 Leak Test : LL

0090 of 0103

	USE	File #	Sample Name/Client ID	Can #	Pressure	Amt	DF	Date	Time	Review Init.	Comments
1	✓	90925 31	1476-450 H2	NA	NA	1.0mL	1.00	9/25/10	2204	LL/JW	H2 LCSD
2	X	32	1476-1939 N2gas						2233		oxygen ↑ CCV (end check)
3	✓	33	1476-1939 N2gas						2300		CCV
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											LL 9/25/10

Calculation Check: File ID: _____ Compound: _____ Initials: _____

Sample Amt = $\frac{\text{Area Counts Sample}}{\text{RF}}$ × Dilution Factor = $\frac{(\quad)}{(\quad)}$ × ( ) = [redacted]

JW 9/26/10

Reported Result: [redacted]

Leshi Pam 9/25/10

Signed Date

Revised 04/05

Shipping/ Receiving Documents

Air Toxics LTD.
Laboratory Services Since 1989

Air Toxics Ltd. Sample Receipt Confirmation Cover Page

Thank you for choosing Air Toxics Ltd. We have received your samples and have listed any Sample Receipt Descrepancies below.

In order to expedite analysis and reporting, please review the attached information for

For corrections ca **Ausha Scott at 916-985-1000**

ATL will proceed with the analysis as specified on the Chain of Custody and Sample Receipt Summary page.

Please note : The Sample Receipt Confirmation, including the total workorder charge, is subject to change upon secondary review. Our aim is to provide a confirmation to you in a timely manner. Sample Receipt Discrepancies, if any, may not include discrepancies regarding sample receipt pressure(s). Additionally, the Chain of Custody (COC) will be provided with the final report.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630

(916) 985-1000 .FAX (916) 985-1020
Hours 6:30 A.M to 5:30 P.M. PST

Air Toxics LTD.

CHAIN-OF-CUSTODY RECORD

Sample Transportation Notice
Relinquishing signature on this document indicates that sample is being shipped in compliance with all applicable local, State, Federal, national, and international laws, regulations and ordinances of any kind. Air Toxics Limited assumes no liability with respect to the collection, handling or shipping of these samples. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Air Toxics Limited against any claim, demand, or action, of any kind, related to the collection, handling, or shipping of samples. D.O.T. Hotline (800) 467-4922

180 BLUE RAVINE ROAD, SUITE B
FOLSOM, CA 95630-4719
(916) 985-1000 FAX (916) 985-1020

Page 1 of 1

Project Manager: Jessica Vickers (TtEMI)
Collected by: (Print and Sign) Brian Croft
Company: Tetra Tech EMI — Email: jessica.vickers@tetratech.com; brian.croft@tetratech.com
Address: 1955 Evergreen Blvd, Duluth, GA 30096 — City: Duluth — State: GA — Zip: 30096
Phone: 678.775.3104 — Fax: 678.775.3139

Project Info:
P.O. #
Project # TtEMI-65-001-01316
Project Name: Maynard Terrace

Turn Around Time:
☐ Normal
☒ Rush — 24 hr results due on Monday 9-27 (specify)

Lab Use Only
Pressurized by:
Date:
Pressurization Gas: N_2 He

Lab I.D.	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Canister Pressure/Vacuum Initial	Final	Receipt	Final (psi)
01A	MTM-A-08	34211	9-24-10	1535		-30			
02A	MTM-A-09	05406	9-24-10	1600		-29			
03A	MTM-A-10	05362	9-24-10	1640		-30			
04A	MTM-A-11	12687	9-24-10	1730		-30			
05A	MTM-A-FB2	25300	9-24-10	1200		-30			

Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time
Brian Croft	9-24-10 / 1900	FedEx	9-24-10 / 1900
FedEx		[illegible]	9/25/10 0910

Notes:

Lab Use Only	Shipper Name	Air Bill #	Temp (°C)	Condition	Custody Seals Intact?	Work Order #
	Fedex		NA	good	Yes No None	1009578

Form 1293 rev.11

Air Toxics LTD.
Laboratory Services Since 1989

SAMPLE RECEIPT SUMMARY

WORKORDER 1009578B

Client

Ms. Jessica Vickers
Tetra Tech EM, Inc.
1955 Evergreen Blvd.
Bldg. 200, Suite 300
Duluth, GA 30096

Sales Rep: TL

Phone

678-775-3080

Fax

Date Promised: 09/27/10 12:00 pm
Date Completed: 9/28/10
Date Received: 9/25/10
PO#:
Project#: TTEMF-45-001-0136 Maynard Terrace

Total $: $ 445.00
Logged By: MW

Fraction	Sample #	Analysis	Collected	Receipt Vac./Pres.	Amount$
01A(cancelled	MTM-A-08	Modified ASTM D-1946	9/24/2010	28.5 "Hg	$0.00
02A(cancelled	MTM-A-09	Modified ASTM D-1946	9/24/2010	28.5 "Hg	$0.00
03A(cancelled	MTM-A-10	Modified ASTM D-1946	9/24/2010	23.0 "Hg	$0.00
04A(cancelled	MTM-A-11	Modified ASTM D-1946	9/24/2010	29.0 "Hg	$0.00
05A	MTM-A-FB2	Modified ASTM D-1946	9/24/2010	29.5 "Hg	$120.00
06A	Lab Blank	Modified ASTM D-1946	NA	NA	$0.00
07A	LCS	Modified ASTM D-1946	NA	NA	$0.00
07AA	LCSD	Modified ASTM D-1946	NA	NA	$0.00

Misc. Charges	eCVP (1) @ $5.00 each.	$5.00
	Other (4) @ $80.00 each., Expedited Analytical fee	$320.00

Note: Samples received after 3 P.M. PST are considered to be received on the following work day.
Atlas Project Name/Profile#: EPA START/14921

BILL TO: Ms. Jessica Vickers
Tetra Tech EM, Inc.
1955 Evergreen Blvd.
Bldg. 200, Suite 300
Duluth, GA 30096

Analysis Code: ASTM

REMARKS: A 100% surcharge is applied for a 24 hour turnaround time.

TERMS:

Reporting Method: Modified ASTM D-1946 (Sh)-CH4 only

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

Sample Discrepancy Report

Identification

Initiated By: MW **Project ID:**14921 **PM**: AS **Date:** 9/25/2010 **Discrepancy Type:** ☐ **1.** ☒ **2.** ☐ **3.**

Workorder(s) affected:1009578 **Sample(s) affected:** all

1. Sample Receipt Discrepancies

Narration Not Required:

1.1. ☐ Sample container (cartridge/tube/VOA vial) was received broken, however sample was intact.

1.2. ☐ No brass cap on canister.

1.3. ☐ Date of Collection noted on first sample, but no arrow down to indicate all samples.

Notify Lab for further determination:

1.4. ☐ Tedlar bag received with minimal volume.

Initials: _____ Date: _____

Narration Required in Lab Narrative and Sample Confirmation:

1.5. ☐ COC was not filled out in ink.

1.6. ☐ COC improperly relinquished / received.

1.7. ☐ Sample tags / can numbers do not match the COC.

1.8. ☐ Sample date ☐ error / ☐ missing on COC but noted on sample tag (check one).

1.9. ☐ Custody Seal on the outside of the container was ☐ broken / ☐ improperly placed (check one).

1.10. ☐ ID-none on the sample Tag/Blank

1.11. ☐ Other (describe below).

Describe the Discrepancy: _____

2. Sample Receipt/Screening Discrepancies requiring PM notification

Document on Cover Page of Sample Receipt Confirmation and in Receiving Notes of Lab Narrative

If Section II. is filled out PM must be notified within 24 hrs of initiation

2.1. ☐ COC was not received with samples.

2.2. ☒ Analysis method(s) is ☒ not specified / ☐ incorrectly specified (check one) on the COC.

2.3. ☐ Incorrect sampling media / container for analysis requested.

2.4. ☐ Number of samples on the COC does not match the number of samples that were received.

2.5. ☐ Samples were received expired.

2.6. ☐ Sampling date (time for sulfur) is not documented for ☐ *some* / ☐ *any* samples (check one).

2.7. ☐ Sample received with amount of H_2O in the Tedlar Bag.

2.8. ☐ Sample cannot be analyzed. Container was ☐ received broken / ☐ leaking / ☐ flat / ☐ defective.

2.9. ☐ Tedlar bag / canister received emitting a strong odor; Sample ☐ can / ☐ cannot (check one) be analyzed.

2.10. ☐ Tedlar Bag for Sulfur analysis has metal fitting.

2.11. ☐ Environmental Supply Company valves

2.12. ☐ Sorbent samples-sampling volume was not provided

2.13. ☐ Flow controller used – canister samples received at ambient or under pressure.

2.14. ☐ Canister was at ambient pressure at time of pressurization and (check all that apply):

- ☐ Canister failed leak check on two manifolds,
- ☐ Canister valve was open,
- ☐ Brass nut was loose/not present.
- ☐ Sample can be analyzed
- ☐ Cannot be analyzed

2.15. ☐ Canister sample received with a vacuum difference >5.0"Hg between the receipt vac. And the final vac. reported on the COC, indicating loss of vacuum.

2.16. ☒ Canister sample received at >15"Hg (*not* identified as a Trip/Field Blank).

2.17. ☐ Canister Trip Blank received at low vacuum (< 25"Hg).

2.18. ☐ Sorbent Sample received outside method required temperature of 2°C to 6°C; ☐ ice / ☐ blue ice (check one) was present. A temp. Blank ☐ was / ☐ was not present (check one).

2.19. ☐ Other (describe below)

Initials: _____ **Date:** _____ **Notify Receiving:** ☐ **Notify PM:** ☐

Describe the Discrepancy: 01A-04A: all high vac: 28.5"Hg, 28.5"Hg, 23.0"Hg and 29.0"Hg

3. Lab Discrepancies requiring Team Leader/PM notification

Document in Analytical Notes of Lab Narrative

If Section III. is filled out PM must be notified within 24 hrs of initiation

3.1. ☐ Tedlar Bag found to be leaking at the time of analysis; sample ☐ can / ☐ cannot (check one) be analyzed.

3.2. ☐ Tedlar Bag found to be flat/low volume; sample cannot be analyzed.

3.3. ☐ Sulfur samples received with insufficient time to analyze prior to expiration.

3.4. ☐ Canister found to be leaking at the time of analysis.

3.5. ☐ VOST tube saturated; bag dilution necessary.

3.6. ☐ Sample loss due to instrument malfunction / broken glassware.

3.7. ☐ Low/high surrogate recoveries noted in QC/sample(s) for extractable samples.

3.8. ☐ Reporting Limit was raised.

3.9. ☐ Post weight > Pre weight in field/lab Blank for PM10/TSP samples.

3.10. ☐ Other (describe below).

Initials: _____ **Date:** _____ **Notify Receiving:** ☐ **Notify PM:** ☐ _____

Team Lead Initials: _____ **Date:** _____

Describe the Discrepancy: _____

_____

_____

How Does this Affect Client: _____

_____

_____

Project Manager Use Only

Project Manager Notification ☒ **Section 2 Complete** ☐ **Section 3 Complete**

Action:

☐ It is not necessary to notify the client. Narrate the discrepancy in Receiving Notes/Analytical Notes of Lab Narrative.

PM Initials:_____ Date: _____

☒ Client notification required. See attached client contact / email, or comments below:

Client Notification:

PM Initials:AS Person notified: J. Vickersl Date: 9/27/2010

☐ Waiting for Client Reply

Comments: **Client instructed to cancel analysis of 01A-04A**

_____

☐ Notify Lab Name: _____ Date: _____ **Notify Receiving:** ☐

☐ **Additional notifications attached.**

Additional Comments:

_____

Other Records

DILUTION FACTORS

$$\text{Dilution Factor} = \frac{\text{Final Pressure}}{\text{Initial Vacuum}} = \frac{\text{14.7 psi + Final Pressure (psi)}}{\text{14.7 psi - [(Initial Pressure ("Hg)) (14.7 psi / 30 "Hg)]}}$$

$$\text{Dilution Factor} = \frac{\text{Final Pressure}}{\text{Initial Pressure}} = \frac{\text{14.7 psi + Final Pressure (psi)}}{\text{14.7 psi + Initial Pressure (psi)}}$$

Initial Vacuum ("Hg)	**5 psi** Final Press. Dil. Factor	**10 psi** Final Press. Dil. Factor	**15 psi** Final Press. Dil. Factor
0.0	1.34	1.68	2.02
0.5	1.36	1.71	2.05
1.0	1.39	1.74	2.09
1.5	1.41	1.77	2.13
2.0	1.44	1.80	2.16
2.5	1.46	1.83	2.20
3.0	1.49	1.87	2.24
3.5	1.52	1.90	2.29
4.0	1.55	1.94	2.33
4.5	1.58	1.98	2.38
5.0	1.61	2.02	2.42
5.5	1.64	2.06	2.47
6.0	1.68	2.10	2.53
6.5	1.71	2.15	2.58
7.0	1.75	2.19	2.64
7.5	1.79	2.24	2.69
8.0	1.83	2.29	2.76
8.5	1.87	2.34	2.82
9.0	1.91	2.40	2.89
9.5	1.96	2.46	2.96
10.0	2.01	2.52	3.03
10.5	2.06	2.59	3.11
11.0	2.12	2.65	3.19
11.5	2.17	2.72	3.28
12.0	2.23	2.80	3.37
12.5	2.30	2.88	3.46
13.0	2.36	2.97	3.57
13.5	2.44	3.06	3.67
14.0	2.51	3.15	3.79
14.5	2.59	3.25	3.91
15.0	2.68	3.36	4.04
15.5	2.77	3.48	4.18
16.0	2.87	3.60	4.33
16.5	2.98	3.73	4.49
17.0	3.09	3.88	4.66
17.5	3.22	4.03	4.85
18.0	3.35	4.20	5.05
18.5	3.50	4.38	5.27
19.0	3.65	4.58	5.51
19.5	3.83	4.80	5.77
20.0	4.02	5.04	6.06
20.5	4.23	5.31	6.38

Initial Vacuum ("Hg)	**5 psi** Final Press. Dil. Factor	**10 psi** Final Press. Dil. Factor	**15 psi** Final Press. Dil. Factor
21.0	4.47	5.60	6.73
21.5	4.73	5.93	7.13
22.0	5.03	6.30	7.58
22.5	5.36	6.72	8.08
23.0	5.74	7.20	8.66
23.5	6.19	7.76	9.32
24.0	6.70	8.40	10.10
24.5	7.31	9.17	11.02
25.0	8.04	10.08	12.12
25.5	8.93	11.20	13.47
26.0	10.05	12.60	15.15
26.5	11.49	14.40	17.32
27.0	13.40	16.80	20.20
27.5	16.08	20.16	24.24
28.0	20.10	25.20	30.31
28.5	26.80	33.61	40.41
29.0	40.20	50.41	60.61

Initial Pressure (psi)	**5 psi** Final Press. Dil. Factor	**10 psi** Final Press. Dil. Factor	**15 psi** Final Press. Dil. Factor
0.0	1.34	1.68	2.02
0.2	1.32	1.66	1.99
0.4	1.30	1.64	1.97
0.6	1.29	1.61	1.94
0.8	1.27	1.59	1.92
1.0	1.25	1.57	1.89
1.2	1.24	1.55	1.87
1.4	1.22	1.53	1.84
1.6	1.21	1.52	1.82
1.8	1.19	1.50	1.80
2.0	1.18	1.48	1.78
2.2	1.17	1.46	1.76
2.4	1.15	1.44	1.74
2.6	1.14	1.43	1.72
2.8	1.13	1.41	1.70
3.0	1.11	1.40	1.68
3.2	1.10	1.38	1.66
3.4	1.09	1.36	1.64
3.6	1.08	1.35	1.62
3.8	1.06	1.34	1.61
4.0	1.05	1.32	1.59

DILUTION FACTORS

$$\text{Dilution Factor} = \frac{\text{Final Pressure}}{\text{Initial Pressure}} = \frac{14.7\text{ psi} + \text{Final Pressure (psi)}}{14.7\text{ psi} + \text{Initial Pressure (psi)}}$$

Initial Pressure (psi)	**5 psi** Final Press. Dil. Factor	**10 psi** Final Press. Dil. Factor	**15 psi** Final Press. Dil. Factor
0.0	1.34	1.68	2.02
0.2	1.32	1.66	1.99
0.4	1.30	1.64	1.97
0.6	1.29	1.61	1.94
0.8	1.27	1.59	1.92
1.0	1.25	1.57	1.89
1.2	1.24	1.55	1.87
1.4	1.22	1.53	1.84
1.6	1.21	1.52	1.82
1.8	1.19	1.50	1.80
2.0	1.18	1.48	1.78
2.2	1.17	1.46	1.76
2.4	1.15	1.44	1.74
2.6	1.14	1.43	1.72
2.8	1.13	1.41	1.70
3.0	1.11	1.40	1.68
3.2	1.10	1.38	1.66
3.4	1.09	1.36	1.64
3.6	1.08	1.35	1.62
3.8	1.06	1.34	1.61
4.0	1.05	1.32	1.59
4.2	1.04	1.31	1.57
4.4	1.03	1.29	1.55
4.6	1.02	1.28	1.54
4.8	1.01	1.27	1.52
5.0	1.00	1.25	1.51
5.2	NA	1.24	1.49
5.4	NA	1.23	1.48
5.6	NA	1.22	1.46
5.8	NA	1.20	1.45
6.0	NA	1.19	1.43
6.2	NA	1.18	1.42
6.4	NA	1.17	1.41
6.6	NA	1.16	1.39
6.8	NA	1.15	1.38
7.0	NA	1.14	1.37
7.2	NA	1.13	1.36
7.4	NA	1.12	1.34

Initial Pressure (psi)	**5 psi** Final Press. Dil. Factor	**10 psi** Final Press. Dil. Factor	**15 psi** Final Press. Dil. Factor
7.6	NA	1.11	1.33
7.8	NA	1.10	1.32
8.0	NA	1.09	1.31
8.2	NA	1.08	1.30
8.4	NA	1.07	1.29
8.6	NA	1.06	1.27
8.8	NA	1.05	1.26
9.0	NA	1.04	1.25
9.2	NA	1.03	1.24
9.4	NA	1.02	1.23
9.6	NA	1.02	1.22
9.8	NA	1.01	1.21
10.0	NA	1.00	1.20
10.2	NA	NA	1.19
10.4	NA	NA	1.18
10.6	NA	NA	1.17
10.8	NA	NA	1.16
11.0	NA	NA	1.16
11.2	NA	NA	1.15
11.4	NA	NA	1.14
11.6	NA	NA	1.13
11.8	NA	NA	1.12
12.0	NA	NA	1.11
12.2	NA	NA	1.10
12.4	NA	NA	1.10
12.6	NA	NA	1.09
12.8	NA	NA	1.08
13.0	NA	NA	1.07
13.2	NA	NA	1.06
13.4	NA	NA	1.06
13.6	NA	NA	1.05
13.8	NA	NA	1.04
14.0	NA	NA	1.03
14.2	NA	NA	1.03
14.4	NA	NA	1.02
14.6	NA	NA	1.01
14.8	NA	NA	1.01

Compound List

Modified ASTM D-1946 (Sh)-CH4 only

CAS Number	Compound	Detection Limit %	Type
74-82-8	Methane	0.00010	

DATA REVIEW CHECKLIST

Work Order #: 10095788

A_1	A_2	W	T	R	Q	
☑	☐	☑	☐	☐	☐	Analysis/Reporting vs. Project Profile/SOP requirements checked (i.e. 100% Dups, J-Flag to MDL, etc)
		☑	☐	☐	☐	The final report has the correct reporting list, special units, and header info.
NA	☐	NA				Non-Standard sublist printed/verified, LOQ and LOD verified
		☑	☐	☐	☐	Lab Narrative is correct (proper method & description/Receiving & Analytical notes correct)
		☑	☐	☐	☐	Sample Discrepancy Report (SDR) is completed
NA	☐	NA	☐	☐	☐	Corrective Action issued - #
☐	☐	☐	☐		☐	Unusual circumstances have been documented in the notes section below

LUMEN *validation report present and initialed* ***CIRCLE (YES / NO)***

☑	☐	☑	☐	☐	☐	Lab Blank, CCV, LCS and DUP met QC criteria
☑	☐	☑	☐	☐	☐	Hold time is met for all samples
		NA	☐	☐	☐	Appropriate data qualifier flags are applied
		☐	☐	☐	☐	Manual integrations for samples and QC are properly documented
☑	☐	☑	☐		☐	Samples analyzed within the project or method specific clock
		☑	☐			Retention times have been verified
☑	☐	☑	☐		☐	Appropriate ICAL(s) included, %RSD Recalculation
		☑	☐		☐	At least one result per sample is verified against the target quant sheets/raw data
☑	☐	☑	☐		☐	Dilution factor correctly calculated (sample load volume, syringe and bag dilutions, can pressurization(s))
☑	☐	☑	☐			Correct amount of sample analyzed (i.e. sample not over-diluted)
	NA		☐			Spectra verified - documentation of spectral defense included (Section 5A of eCVP pkg)
		☐	☐			TICs resemble reference spectra
		☐	☐			TICs between duplicate samples are consistent
☑	☐	☑	☑	☐	☐	Checked samples for trends (i.e. Influent vs. Effluent, Field Dups, Field/Trip Blank, etc.)
NA	☐	NA	☐			Data for multiple analyses of sample(s) has been evaluated for comparability of results
		☐	☐			Special units for all samples in the final report are correctly calculated
		☐	☐			Manually entered results checked (i.e. TPH/NMOC)
☑	☐	☑				Chain of Custody verified for any special comments (i.e. different compounds/RLs, action levels)
		☑				Chain of Custody scanned correctly
					☐	Verify sample id's vs. chain of custody
☑	☐	☑				Date MDL(s) performed per instrument(s) 10/14/09
☑	☐	☑				Samples pressurized w/ appropriate gas (N_2 or He) ☐ Other (i.e. Tedlar bag, cartridge, sorbent)
☑	☐	☑				Final pressure consistent with canister size (6L vs. 1L)
NA	☐	☑				Verify receipt pressures
☐	☐	☑				Verify canister ID #'s
		☑	☐	☐		Final invoice amount correct (adjusted for TAT, Penalties, Re-issue Charges etc.)
		☑	☐	☐		Final PDF report reviewed for correctness

Notes: (to include: noting samples with QA/QC problems, Blanks with positive hits, narratives, etc.)

A/R:

T/Q:

A_1/A_2 (Analytical Review/Date)	W/T (Write-up/Tech Review/Date)	R* (Report Review/Date)	Q (QA Review/Date)
A_1: 4/9/28/10	W: 4/9/28/10	R:	
A_2:	T:		

Note (1): Please check all the appropriate boxes. Indicate "NA" for any statement that does not apply.
Note (2): Report reviewer and write-up reviewer must be separate individuals for DoD & Client Specific projects.
*** Report Review is completed for DoD & Client Specific projects only.**

Not Applicable