Bureau of Air Quality Control
Department of Health and Human Service
City of Houston

Mobile Ambient Air Monitoring Laboratory Analysis Report

Analytical Fractions	Sample ID	Canister No.	Reported	Approval Signature/Date
VOC		4570		Peter Chen 04/02/10

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I. Case Narrative

City of Houston
Bureau of Air Quality Control
Canister Sampling Data Sheet and Chain-of-Custody

Sample ID:	**Canister #:** 4570

Canister Cleaning Information (Laboratory Personnel Only)		
Canister Cleaning Operation	Pressure	Initials / Date
Canister Cleaned and Evacuated	in Hg	
Media Blank Evacuation	in Hg	

Sampling and Analysis Request Information (BAQC Investigator Only)		
Canister Received: (Initials / Date)	Canister Pressure (Upon Receipt): in Hg	
Pre-Sampling Pressure: -28.8 in Hg (* If the difference is greater than ±2 in Hg, do not use the canister for sampling)	Pre-Sampling Leak Test (Circle) Pass / Fail	
Start Time: 16:10 pm	End Time: 17:10 pm	Elapsed Time: 60 min
Post-Sampling Pressure: -8.0 in Hg		
Potential Source (s) (Company's Name): Shell Chemical Co.	Potential Source (s) (Company's) Address (es):	
Sample Collection Address: DOWNWIND OF ACO/BEU	Alleged Chemical (s) (If Known)	
GPS Coordinates: 29.72188N, 95.12305 W	Weather Conditions: WD: ESE WS: 4.2 MPH	
Sample Collected By: Peter Chen	Sample Date: 3/26/10	
Phone Number: 832-393-5622	E-mail: peter.chen@cityofhouston.net	
Site Description and Field Comments:		

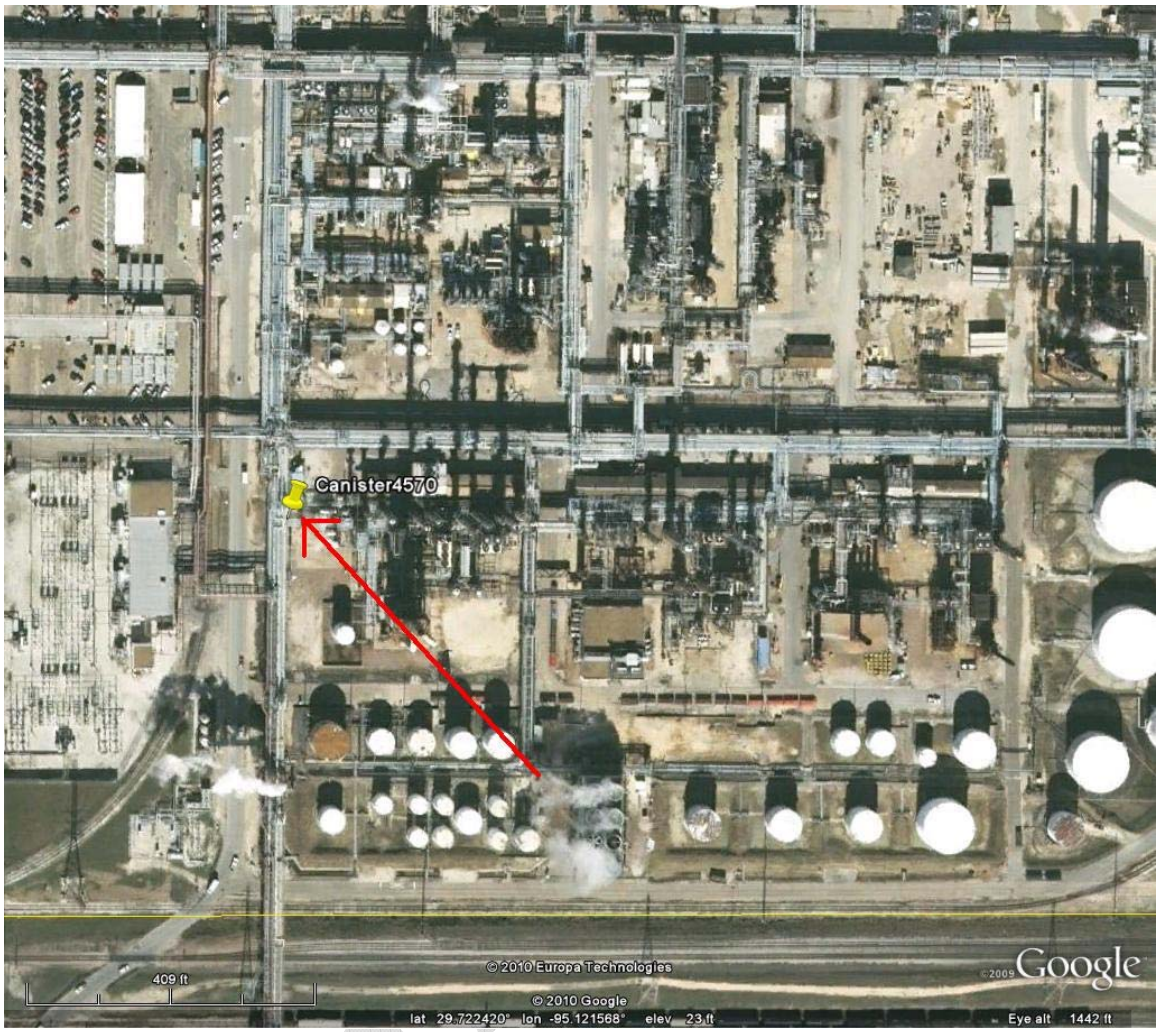
Analysis Method Requested (Circle) VOC's by TO-15 / Other Describe:

Canister Leak Test Information (BAQC Mobile Lab Personnel Only)					
Canister Leak Test	Field Pressure (in Hg)	Lab Pressure (in Hg)	Difference in Pressure	Test Results (Circle)	Initials / Date
Final				Pass / Fail / NA	

Canister Preparation Information (BAQC Mobile Lab Personnel Only)			
Canister Preparation	Dilution 1	Dilution 2	Initials / Date:
Pre-Dilution Pressure	-8 in Hg	in Hg	
Post-Dilution Pressure	14.0 psi	psi	
Dilution Factors	#1 ~~2.2486~~	#2	
Laboratory Comments: 2.808 pc 3/31/10			

Chain of Custody	
Relinquished by: (Signature/Date)	Received by: (Signature/Date)
~~Peter Chen (3/30/10)~~	3/31/10 8:40 Francis Agostini 3/31/10 8:40

Effective Date: 01/23/08


Canister4570
409 ft
© 2010 Europa Technologies
© 2010 Google
lat 29.722420° lon -95.121568° elev 23 ft
Eye alt 1442 ft
Google

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II. Report Summaries

Client Name			BAQC
Sample ID			
Canister No.			4570
Date & Time Collected			3/26/10 17:00
Date & Time Received			3/26/10 17:00
Date & Time Prepared			3/27/10 16:00
Prepared Batch ID			
Pre-Sample Pressure (in Hg)			-28.8
Pre-Dilution Pressure (in Hg)			-8.0
Post-Dilution Pressure (Psia)			14.0
Dilution Factor			2.808
Date & Time Analyzed			3/28/10 1:43
Analysis Batch ID			S032710
Hold Time Spec (Days)	Prepare	Spec	30
		Actual	1
	Analysis	Spec	30
		Actual	3
Analytical Fraction			HR-VOC
Lab Sample ID			Can4570_032710
Sample Matrix			Air
Method Citation			TO15 Ambient
Method Description			VOC Ambient GC/FID/MS

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III. Comments and Flag Definitions

Standard Data Qualifiers

Flag	Definition
B	Analyte detected in method blank above 0.5 ppbv and analysis result is <10 times the value in the method blank
I	Interference or coelution suspected
NA	Not analyzed/Not available
C	Daily calibration sample does not meet the criteria
D	Duplicate calibration sample does not meet the criteria
ND	Not detected
Q	Result does not meet specification
U	Result less than sample specific method detection limit (MDL)
J	Result higher than or equal to MDL and less than the reporting limit (the lowest concentration for initial calibrations – 0.2 ppbv)

Analyst Comments

Through pressurization, the canister sample achieved a dilution factor of 2.808 with a 500cc sample analyzed to report concentrations for all target compounds. Only ethane, ethylene, propane, propylene, and benzene (5.5 ppbv) ranged slightly higher while the others either ranged low or not detected.

Sample Condition Comments

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IV. Analytical Results

Sample ID	
Canister ID	4570
Lab Sample ID	Can4570_032710
Instrument data files	Can4570_032710
Date & Time Prepared	3/27/10 16:00
Pre-Sample Pressure (in Hg)	-28.8
Pre-Dilution Pressure (in Hg)	-8.0
Post-Dilution Pressure (Psia)	14.0
Dilution Factor	2.808
Date & Time Analyzed	3/28/10 1:43
Analysis Batch ID	S032710
Sample Matrix	Air
% Moisture	NA
Instrument	GC/FID/MS
Units	ppbv

Parameter	CAS No.	Concentration	Flag	MDL
Ethane	74-84-0	13.5		0.28
Ethylene	74-85-1	11.1		0.25
Propane	74-98-6	9.7		0.39
Dichlorodifluoromethane	75-71-8	N.D.		0.53
Propylene	115-07-1	9.6		0.34
Acetylene	74-86-2	1.5		0.28
Methyl chloride	74-87-3	N.D.		0.22
1,2-Dichlorotetrafluoroethane	76-14-2	N.D.		0.76
Vinyl chloride	75-01-4	N.D.		0.20
1,3-Butadiene	106-99-0	N.D.		0.25
n-Butane	106-97-8	3.7		0.48
Bromomethane	74-83-9	N.D.		0.06
Ethyl Chloride	75-00-3	N.D.		0.31
Trichlorofluoromethane	75-69-4	N.D.		0.08
n-Pentane	109-66-0	3.1		0.39
1,1-Dichloroethylene	75-35-4	N.D.		0.34
Methylene Chloride	75-09-2	N.D.		0.42
1,1,2-Trichlorotrifluoroethane	76-13-1	N.D.		0.14
1,1-Dichloroethane	75-34-3	N.D.		0.14
2-Methylpentane	107-83-5	2.4		0.39
1-Hexene	592-41-6	N.D.		0.37
Cis-1,2-Dichloroethylene	156-59-2	N.D		0.06
Hexane	110-54-3	2.2		0.22
Chloroform	67-66-3	N.D.		0.17
1,2-Dichloroethane	107-06-2	N.D.		0.14
1,1,1-Trichloroethane	71-55-6	N.D.		0.11
Benzene	71-43-2	5.5		0.08
Carbon Tetrachloride	56-23-5	N.D.		0.20

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1,2-Dichloropropane	78-87-5	N.D.		0.08
Trichloroethylene	79-01-6	N.D.		0.08
Cis-1,3-dichloropropene	10061-01-5	N.D.		0.14
Trans-1,3-Dichloropropene	10061-02-6	N.D.		0.08
1,1,2-Trichloroethane	79-00-5	N.D.		0.14
Toluene	108-88-3	2.2		0.03
1,2-Dibromoethane	106-93-4	N.D.		0.20
Tetrachloroethylene	127-18-4	N.D.		0.20
1,1,1,2-Tetrachloroethane	630-20-6	N.D.		0.17
Chlorobenzene	108-90-7	N.D.		0.08
Ethylbenzene	100-41-4	0.9		0.06
m/p-Xylene	108-38-3 & 106-42-3	0.1		0.06
Styrene	100-42-5	2.4	**B**	0.06
o-Xylene	95-47-6	0.8		0.03
1,1,2,2-Tetrachloroethane	79-34-5	N.D.		0.08
Cumene	98-82-8	N.D.		0.03
1,3,5-Trimethylbenzene	108-67-8	N.D.		0.06
1,2,4-Trimethylbenzene	95-63-6	0.4		0.03
1,3-Dichlorobenzene	541-73-1	0.1		0.06
1,4-Dichlorobenzene	106-46-7	0.6		0.03
1,2-Dichlorobenzene	95-50-1	N.D.		0.06
1,2,4-Trichlorobenzene	120-82-1	N.D.		0.03
Hexachloro-1,3-Butadiene	87-68-3	N.D.		0.08

Surrogate Compound	**% Recovery**	**Limits**	**Flag**
BFB(Bromofluorobenzene)	102.5	60-140	

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V. Calibration and Quality Control Results

Daily Calibration Results

Sample Type	Daily Calibration
Analysis batch ID	S032710
Instrument data file	CX032710A
Date & Time Analyzed	03/27/10 20:25
Instrument	GC/FID/MS
Units	ppbv

Parameter	Reference Value	Measured Conc	% Recovery	Flag	QC Limits
Ethane	5.5	5.0	90.9		70-130
Ethylene	5.5	5.1	92.1		70-130
Propane	5.5	4.9	88.2		70-130
Dichlorodifluoromethane	5.5	5.0	90.1		70-130
Propylene	5.5	4.9	89.3		70-130
Acetylene	5.5	5.0	90.2		70-130
Methyl chloride	5.5	5.0	90.2		70-130
1,2-Dichlorotetrafluoroethane	5.5	5.5	99.9		70-130
Vinyl chloride	5.5	4.8	87.7		70-130
1,3-Butadiene	5.5	5.7	104.3		70-130
n-Butane	5.5	5.4	99.1		70-130
Bromomethane	4.0	4.0	100.2		70-130
Ethyl Chloride	5.5	6.2	112.5		70-130
Trichlorofluoromethane	5.5	5.1	91.8		70-130
n-Pentane	5.5	5.7	103.1		70-130
1,1-Dichloroethylene	5.5	5.2	95.2		70-130
Methylene Chloride	5.5	5.2	94.0		70-130
1,1,2-Trichlorotrifluoethane	5.5	5.5	100.0		70-130
1,1-Dichloroethane	5.5	5.5	100.5		70-130
2-Methylpentane	5.5	5.5	100.7		70-130
1-Hexene	5.5	5.4	98.3		70-130
Cis-1,2-Dichloroethylene	5.5	5.2	94.3		70-130
Hexane	5.5	4.8	86.4		70-130
Chloroform	5.5	4.4	79.6		70-130
1,2-Dichloroethane	5.5	4.3	77.5		70-130
1,1,1-Trichloroethane	5.5	4.4	79.2		70-130
Benzene	5.5	5.0	90.9		70-130
Carbon Tetrachloride	5.5	4.8	87.2		70-130
1,2-Dichloropropane	5.5	5.1	92.0		70-130
Trichloroethylene	5.5	4.5	82.4		70-130
Cis-1,3-dichloropropene	5.5	4.5	82.0		70-130
Trans-1,3-Dichloropropene	5.5	4.5	82.6		70-130
1,1,2-Trichloroethane	5.5	4.8	86.7		70-130
Toluene	5.5	5.0	90.4		70-130
1,2-Dibromoethane	5.5	4.8	87.8		70-130

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Tetrachloroethylene	5.5	5.0	91.4		70-130
1,1,1,2-Tetrachloroethane	5.5	4.6	84.4		70-130
Chlorobenzene	5.5	4.8	87.3		70-130
Ethylbenzene	5.5	4.7	85.1		70-130
m/p-Xylene	11.0	8.8	80.2		70-130
Styrene	5.5	4.7	86.3		70-130
o-Xylene	5.5	4.4	79.7		70-130
1,1,2,2-Tetrachloroethane	5.5	4.7	84.6		70-130
Cumene	5.5	4.5	81.1		70-130
1,3,5-Trimethylbenzene	5.5	4.6	83.3		70-130
1,2,4-Trimethylbenzene	5.5	4.6	83.6		70-130
1,3-Dichlorobenzene	5.5	4.3	78.8		70-130
1,4-Dichlorobenzene	5.5	4.2	75.8		70-130
1,2-Dichlorobenzene	5.5	4.4	79.7		70-130
1,2,4-Trichlorobenzene	5.5	4.5	81.7		70-130
Hexachloro-1,3-Butadiene	5.5	4.7	85.1		70-130

Surrogate Compound	**% Recovery**	**Limits**	**Flag**
BFB(Bromofluorobenzene)	109.2	60-140	

Mass Spectrometer Tune

Mass/Energy	**Ion Abundance Criteria**		**% Relative Abundance**	**Pass or Fail**
	Lower Limit	**Upper Limit**		
50	8.0	40.0	25.6	Pass
75	30.0	66.0	59.0	Pass
95	100.0	100.0	100.0	Pass
96	5.0	9.0	6.3	Pass
173	0.0	2.0	0.0	Pass
174	50.0	120.0	63.1	Pass
175	4.0	9.0	5.7	Pass
176	93.0	101.0	98.5	Pass
177	5.0	9.0	6.8	Pass

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Method Blank Results

Sample Type	Blank
Analysis batch ID	S032710
Matrix	Air
Instrument data file	BX032710b
Date & Time Analyzed	03/27/10 19:25
Instrument	GC/FID/MS
Units	ppbv

Parameter	CAS No.	Concentration	Flag	MDL
Ethane	74-84-0	N.D.		0.10
Ethylene	74-85-1	N.D.		0.09
Propane	74-98-6	N.D.		0.14
Dichlorodifluoromethane	75-71-8	N.D.		0.19
Propylene	115-07-1	0.4		0.12
Acetylene	74-86-2	N.D.		0.10
Methyl chloride	74-87-3	N.D.		0.08
1,2-Dichlorotetrafluoroethane	76-14-2	N.D.		0.27
Vinyl chloride	75-01-4	N.D.		0.07
1,3-Butadiene	106-99-0	N.D.		0.09
n-Butane	106-97-8	N.D.		0.17
Bromomethane	74-83-9	N.D.		0.02
Ethyl Chloride	75-00-3	N.D.		0.11
Trichlorofluoromethane	75-69-4	N.D.		0.03
n-Pentane	109-66-0	N.D.		0.14
1,1-Dichloroethylene	75-35-4	N.D.		0.12
Methylene Chloride	75-09-2	N.D.		0.15
1,1,2-Trichlorotrifluoroethane	76-13-1	N.D.		0.05
1,1-Dichloroethane	75-34-3	N.D.		0.05
2-Methylpentane	107-83-5	N.D.		0.14
1-Hexene	592-41-6	N.D.		0.13
Cis-1,2-Dichloroethylene	156-59-2	N.D.		0.02
Hexane	110-54-3	N.D.		0.08
Chloroform	67-66-3	N.D.		0.06
1,2-Dichloroethane	107-06-2	N.D.		0.05
1,1,1-Trichloroethane	71-55-6	N.D.		0.04
Benzene	71-43-2	N.D.		0.03
Carbon Tetrachloride	56-23-5	N.D.		0.07
1,2-Dichloropropane	78-87-5	N.D.		0.03
Trichloroethylene	79-01-6	N.D.		0.03
Cis-1,3-dichloropropene	10061-01-5	N.D.		0.05
Trans-1,3-Dichloropropene	10061-02-6	N.D.		0.03
1,1,2-Trichloroethane	79-00-5	N.D.		0.05
Toluene	108-88-3	N.D.	B	0.01
1,2-Dibromoethane	106-93-4	N.D.		0.07
Tetrachloroethylene	127-18-4	N.D.		0.07
1,1,1,2-Tetrachloroethane	630-20-6	N.D.		0.06

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Chlorobenzene	108-90-7	N.D.		0.03
Ethylbenzene	100-41-4	N.D.		0.02
m/p-Xylene	108-38-3 & 106-42-3	N.D.		0.02
Styrene	100-42-5	1.2	B	0.02
o-Xylene	95-47-6	N.D.		0.01
1,1,2,2-Tetrachloroethane	79-34-5	N.D.		0.03
Cumene	98-82-8	N.D.		0.01
1,3,5-Trimethylbenzene	108-67-8	N.D.		0.02
1,2,4-Trimethylbenzene	95-63-6	N.D.		0.01
1,3-Dichlorobenzene	541-73-1	N.D.		0.02
1,4-Dichlorobenzene	106-46-7	N.D.		0.01
1,2-Dichlorobenzene	95-50-1	N.D.		0.02
1,2,4-Trichlorobenzene	120-82-1	0.8	B	0.01
Hexachloro-1,3-Butadiene	87-68-3	N.D.		0.03

Surrogate Compound	**% Recovery**	**Limits**	**Flag**
BFB(Bromofluorobenzene)	112.4	60-140	

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Duplicated Calibration Sample Results

Sample Type	Duplicate Calibration Samples
Analysis batch ID	S032710
Instrument data file	Cx032710A, Cx032710B
Date & Time Analyzed	03/27/10 20:25
Instrument	GC/FID/MS
Units	Ppbv

Parameter	Reference Value	Calibration sample	Duplicate Calibration Sample	RPD*	Flag	QC Limits
Ethane	5.5	5.0	4.8	4.5		25
Ethylene	5.5	5.1	5.2	2.2		25
Propane	5.5	4.9	5.0	2.9		25
Dichlorodifluoromethane	5.5	5.0	4.5	9.9		25
Propylene	5.5	4.9	4.9	0.1		25
Acetylene	5.5	5.0	5.1	2.5		25
Methyl chloride	5.5	5.0	5.1	1.8		25
1,2-Dichlorotetrafluoroethane	5.5	5.5	5.2	5.7		25
Vinyl chloride	5.5	4.8	5.0	3.4		25
1,3-Butadiene	5.5	5.7	6.1	5.3		25
n-Butane	5.5	5.4	5.5	1.4		25
Bromomethane	4.0	4.0	3.9	0.5		25
Ethyl Chloride	5.5	6.2	6.1	1.6		25
Trichlorofluoromethane	5.5	5.1	5.1	1.4		25
n-Pentane	5.5	5.7	5.6	1.1		25
1,1-Dichloroethylene	5.5	5.2	5.3	1.0		25
Methylene Chloride	5.5	5.2	5.3	3.1		25
1,1,2-Trichlorotrifluoethane	5.5	5.5	5.4	2.4		25
1,1-Dichloroethane	5.5	5.5	5.8	4.4		25
2-Methylpentane	5.5	5.5	5.8	4.0		25
1-Hexene	5.5	5.4	5.5	2.2		25
Cis-1,2-Dichloroethylene	5.5	5.2	5.4	4.1		25
Hexane	5.5	4.8	4.9	3.0		25
Chloroform	5.5	4.4	4.6	5.7		25
1,2-Dichloroethane	5.5	4.3	4.5	4.9		25
1,1,1-Trichloroethane	5.5	4.4	4.5	3.2		25
Benzene	5.5	5.0	5.1	1.6		25
Carbon Tetrachloride	5.5	4.8	4.8	0.6		25
1,2-Dichloropropane	5.5	5.1	5.1	0.2		25
Trichloroethylene	5.5	4.5	4.8	5.7		25
Cis-1,3-dichloropropene	5.5	4.5	4.8	6.4		25
Trans-1,3-Dichloropropene	5.5	4.5	4.7	3.1		25
1,1,2-Trichloroethane	5.5	4.8	4.9	3.1		25
Toluene	5.5	5.0	5.5	9.2		25

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1,2-Dibromoethane	5.5	4.8	5.3	10.1		25
Tetrachloroethylene	5.5	5.0	5.4	7.7		25
1,1,1,2-Tetrachloroethane	5.5	4.6	5.1	9.9		25
Chlorobenzene	5.5	4.8	5.3	10.6		25
Ethylbenzene	5.5	4.7	5.1	8.5		25
m/p-Xylene	11.0	8.8	9.8	10.8		25
Styrene	5.5	4.7	5.2	9.0		25
o-Xylene	5.5	4.4	4.8	9.2		25
1,1,2,2-Tetrachloroethane	5.5	4.7	5.1	8.9		25
Cumene	5.5	4.5	4.9	10.2		25
1,3,5-Trimethylbenzene	5.5	4.6	5.1	10.1		25
1,2,4-Trimethylbenzene	5.5	4.6	5.1	9.5		25
1,3-Dichlorobenzene	5.5	4.3	5.0	14.7		25
1,4-Dichlorobenzene	5.5	4.2	4.8	13.4		25
1,2-Dichlorobenzene	5.5	4.4	5.1	15.4		25
1,2,4-Trichlorobenzene	5.5	4.5	5.5	19.3		25
Hexachloro-1,3-Butadiene	5.5	4.7	5.0	7.5		25

* RPD = 2*100**abs*(calibration-duplicate calibration)/(calibration+duplicate calibration)

Surrogate Compound	**Calibration Sample**	**Duplicate Calibration Sample**	**Flag**	**Limits**
BFB(Bromofluorobenzene)	109.2	115.0		60-140

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VI. Batch Summaries

Air Server Sampling Report
Carrier Gas = He

Reporting Started on 3/27/2010 5:33:53 PM

Sample Name	Sample Channel	Sampling Start Time	Sampling End Time	Sample Volume	Maximum Flow	Minimum Flow
blka	2	3/27/2010 17:39	3/27/2010 18:19	503	13	10
blkb	2	3/27/2010 18:38	3/27/2010 19:18	503	13	10
qc1	1	3/27/2010 19:57	3/27/2010 20:17	254	13	9
qc2	1	3/27/2010 20:58	3/27/2010 21:18	254	14	10
qc3	1	3/27/2010 21:58	3/27/2010 22:18	254	14	10
qc4	1	3/27/2010 22:58	3/27/2010 23:18	254	14	10
blkc	2	3/27/2010 23:58	3/28/2010 0:39	503	13	10
can4570	6	3/28/2010 0:58	3/28/2010 1:38	503	13	10
can1351	7	3/28/2010 1:58	3/28/2010 2:38	503	13	10

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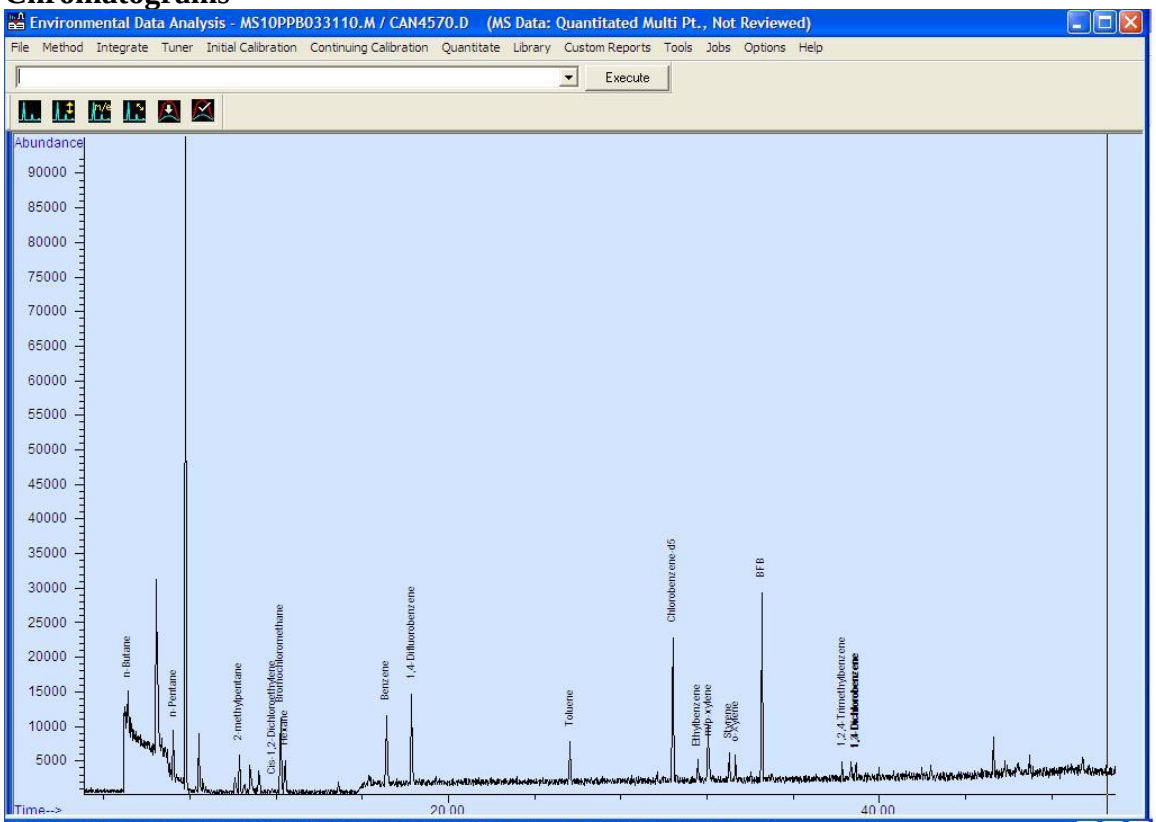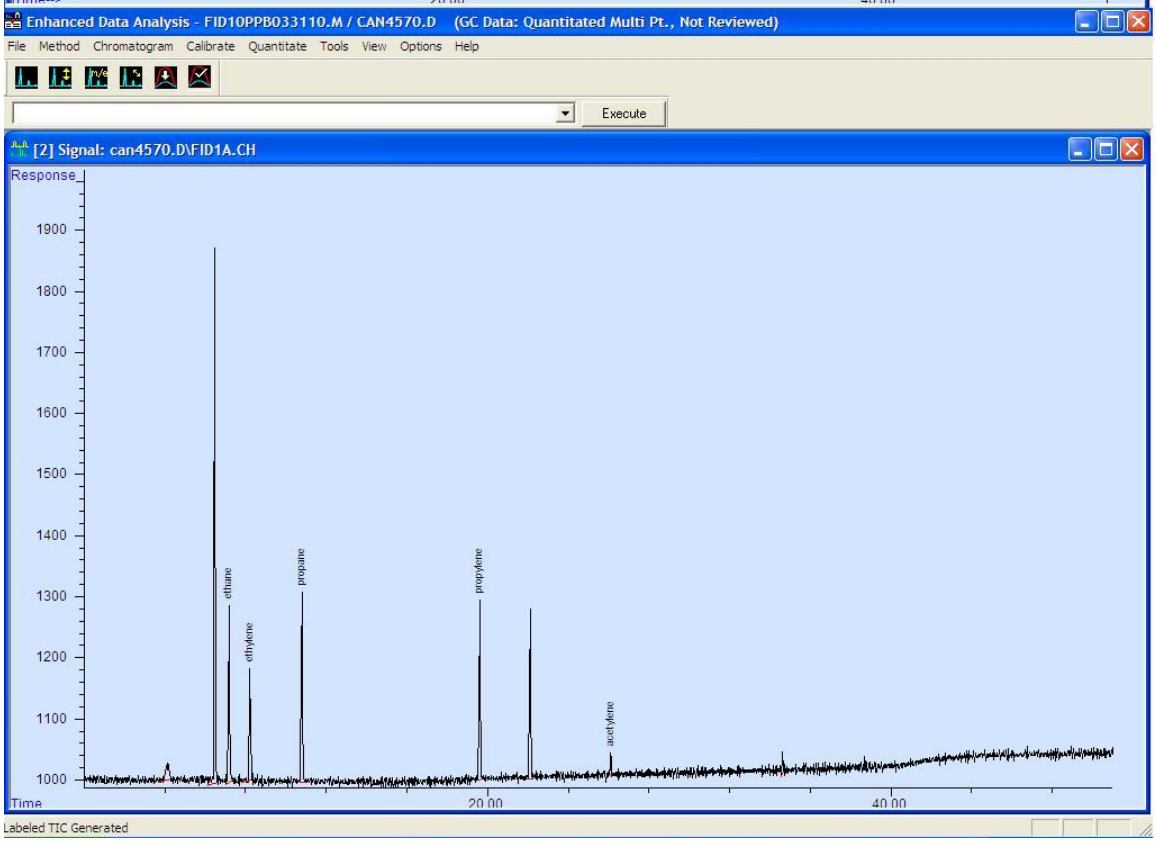
Chromatograms