

# Dissolved Gasses

## Case Narrative

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### Colorado Oil & Gas Conservation Commission

#### TBAL

Work Order Number: 1308515

1. This report consists of 3 water samples. The samples were received cool and intact by ALS on 08/29/2013.

All samples were free of headspace prior to analysis.

The sample had a pH > 2 at the time of analysis.

2. These samples were prepared and analyzed according to method RSK-175 procedures and the current revision of SOP 449.
3. The preparation batch included a method blank, laboratory control sample, laboratory control sample duplicate, sample duplicate, and matrix spike. Per method requirements, matrix QC was performed for this analysis. The following is a list of samples used for the matrix QC:

Sample ID	QC Type	Batch ID
1308515-1	DUP	HC130904-9
1308515-3	MS	HC130904-9

Similarity of matrix and therefore relevance of the QC results should not be automatically inferred for any sample other than the native sample selected for QC.

All preparation QC were within the acceptance criteria.

4. All samples are associated with one or more of the following analytical QC: initial calibrations, initial calibration verifications (ICV), and continuing calibration verifications (CCV).
5. All analytical QC were within the acceptance criteria.
6. Sample dilutions were not required for the requested analysis.



7. The samples were prepared and analyzed within the established holding times.
8. Manual integrations are performed when needed to provide consistent and defensible data following the guidelines in the current revision of SOP 939. Whenever manual integrations are performed, before and after chromatograms of the peak that was manually integrated are included in the report along with the reason re-integration was necessary.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Mindy Norton

Mindy Norton  
Organics Primary Data Reviewer

9/9/13

Date

Therese Marshall

Organics Final Data Reviewer

9/9/13

Date



**ALS**  
**Data Qualifier Flags**  
**Chromatography and Mass Spectrometry**

- U or ND:** This flag indicates that the compound was analyzed for but not detected.
- J:** This flag indicates an estimated value. This flag is used as follows : (1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; (2) when the mass spectral and retention time data indicate the presence of a compound that meets the volatile and semivolatile GC/MS identification criteria, and the result is less than the reporting limit (RL) but greater than the method detection limit (MDL); (3) when the data indicate the presence of a compound that meets the identification criteria, and the result is less than the RL but greater than the MDL; and (4) the reported value is estimated.
- B:** This flag is used when the analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user. This flag shall be used for a tentatively identified compound (TIC) as well as for a positively identified target compound.
- E:** This flag identifies compounds whose concentration exceeds the upper level of the calibration range.
- A:** This flag indicates that a tentatively identified compound is a suspected aldol-condensation product.
- X:** This flag indicates that the analyte was diluted below an accurate quantitation level.
- \*:** This flag indicates that a spike recovery is outside the control criteria.
- +:** This flag indicates that the relative percent difference (RPD) exceeds the control criteria.



## **Chain of Custody**

# ALS Environmental -- FC

## Sample Number(s) Cross-Reference Table

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**OrderNum:** 1308515

**Client Name:** Colorado Oil & Gas Conservation Commission

**Client Project Name:** TBAL

**Client Project Number:**

**Client PO Number:** PHA 14-22

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Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
McDonald 1	1308515-1		WATER	28-Aug-13	8:40
McDonald 2	1308515-2		WATER	28-Aug-13	9:10
752787 Earls	1308515-3		WATER	28-Aug-13	9:46



2225 Commerce Drive, Fort Collins, Colorado 80524  
TF: (800) 443-1511 PH: (970) 490-1511 FX: (970) 490-1522

## Chain-of-Custody

Form 202r8

*Time Zone	(Circle)	EST	CST	MST	PST
Matrix:	O = oil	S = soil	NS = non-soil solid	W = water	L = liquid E = extract F = filter

**For metals or anions, please detail analytes below.**

Comments: Analysis = Br, Cl, F, Na, N, S, Se dissolved = filter + precipitate of lead metals list as in other TBAL 6 of 49		QC PACKAGE (check below) LEVEL II (Standard OC) LEVEL III (Std OC + forms) LEVEL IV (Std OC + forms + raw data) <input checked="" type="checkbox"/>	
Preservative Key: 1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-NaHSO4 7-Other 8-4 degrees C 9-5035			

RELINQUISHED BY	SIGNATURE	PRINTED NAME	DATE	TIME
RECEIVED BY	<i>Gene Perry</i>	Jacob Perry	8/29/13	0930
RELINQUISHED BY				
RECEIVED BY				
RELINQUISHED BY				
RECEIVED BY				



ALS Environmental - Fort Collins  
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: COGCC

Workorder No: 1308515

Project Manager: ARW

Initials: JLR Date: 8/29/13

1. Does this project require any special handling in addition to standard ALS procedures?		YES	<input checked="" type="radio"/> NO
2. Are custody seals on shipping containers intact?	NONE	<input checked="" type="radio"/> YES	NO
3. Are Custody seals on sample containers intact?	<input checked="" type="radio"/> NONE	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		<input checked="" type="radio"/> YES	NO
5. Are the COC and bottle labels complete and legible?		<input checked="" type="radio"/> YES	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		<input checked="" type="radio"/> YES	NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	<input checked="" type="radio"/> YES	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	N/A	<input checked="" type="radio"/> YES	NO
9. Are all aqueous non-preserved samples pH 4-9?	N/A	<input checked="" type="radio"/> YES	NO
10. Is there sufficient sample for the requested analyses?		<input checked="" type="radio"/> YES	NO
11. Were all samples placed in the proper containers for the requested analyses?		<input checked="" type="radio"/> YES	NO
12. Are all samples within holding times for the requested analyses?		<input checked="" type="radio"/> YES	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		<input checked="" type="radio"/> YES	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	N/A	<input checked="" type="radio"/> YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	N/A	YES	<input checked="" type="radio"/> NO
16. Were the samples shipped on ice?		<input checked="" type="radio"/> YES	NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 <input checked="" type="radio"/> #4	RAD ONLY	<input checked="" type="radio"/> YES	NO
Cooler #: <u>1</u>			
Temperature (°C): <u>4°C</u>			
No. of custody seals on cooler: <u>2</u>			
External µR/hr reading: <u>11</u>			
Background µR/hr reading: <u>11</u>			
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? <input checked="" type="radio"/> YES / NO / NA (If no, see Form 008.)			

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

If applicable, was the client contacted? YES / NO / ☒ NA Contact: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Project Manager Signature / Date: C. Way 8/29/13

1308515

From: (719) 846-3091  
Peter Gintautas  
Coko. Oil & Gas Cons. Comm.  
213 Corundum RD

Origin ID: PUBA

**FedEx**  
Express



J13201308280326

Trinidad, CO 81082

SHIP TO: (970) 496-1511

BILL SENDER

**Amy Wolf**  
**ALS Laboratory Group**  
**225 COMMERCE DR**

**FORT COLLINS, CO 80524**

Ship Date: 28AUG13  
ActWgt: 46.0 LB  
CAD: 4076443/NET3430

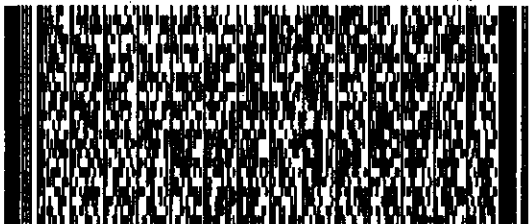
Delivery Address Bar Code



Ref #: Complaint 200247064  
Invoice #  
PO #  
Dept #

**THU - 29 AUG 10:30A**  
**PRIORITY OVERNIGHT**

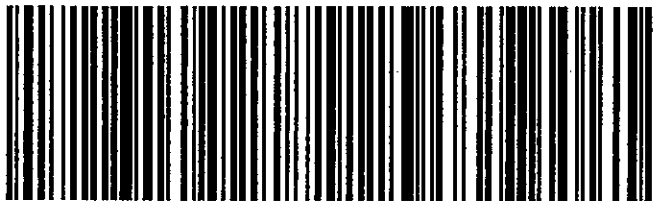
TRK# 7965 6650 5752  
0201



**72 FTCA**

11  
2

**80524**  
CO-US  
**DEN**



51AG1/0969/1AGE





## **Analytical Results**

# Dissolved Gasses

Method RSK175

Method Blank

Lab Name: ALS Environmental -- FC

Work Order Number: 1308515

Client Name: Colorado Oil & Gas Conservation Commission

ClientProject ID: TBAL

Lab ID: HC130904-9AMB

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 04-Sep-13

Date Analyzed: 04-Sep-13

Prep Method: METHOD

Prep Batch: HC130904-9A

QCBatchID: HC130904-9A-2

Run ID: HC130904-99A

Cleanup: NONE

Basis: N/A

File Name: 06032.dat

Sample Aliquot: 38.5 ml

Final Volume: 38.5 ml

Result Units: UG/L

Clean DF: 1

CASNO	Target Analyte	DF	Result	RptLimit LOD/LOQ	Result Qualifier	EPA Qualifier
74-82-8	METHANE	1	1	1	U	
74-84-0	ETHANE	1	2	2	U	
74-98-6	PROPANE	1	1	1	U	

Data Package ID: MEE1308515-1

Date Printed: Monday, September 09, 2013

ALS Environmental -- FC

LIMS Version: 6.658

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# Dissolved Gasses

Method RSK175

## Sample Results

Lab Name: ALS Environmental -- FC

Work Order Number: 1308515

Client Name: Colorado Oil & Gas Conservation Commission

ClientProject ID: TBAL

Field ID:	McDonald 1
Lab ID:	1308515-1

Sample Matrix: WATER

% Moisture: N/A

Date Collected: 28-Aug-13

Date Extracted: 04-Sep-13

Date Analyzed: 04-Sep-13

Prep Method: METHOD

Prep Batch: HC130904-9A

QCBatchID: HC130904-9A-2

Run ID: HC130904-99A

Cleanup: NONE

Basis: As Received

File Name: 06042.dat

Analyst: Dan Sheneman

Sample Aliquot: 38.5 ML

Final Volume: 38.5 ML

Result Units: UG/L

Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	RptLimit\ LOD\LOQ	Result Qualifier	EPA Qualifier
74-82-8	METHANE	1	1.8	1		
74-84-0	ETHANE	1	2	2	U	
74-98-6	PROPANE	1	1	1	U	

Data Package ID: MEE1308515-1

Date Printed: Monday, September 09, 2013

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LIMS Version: 6.658

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# Dissolved Gasses

Method RSK175

## Sample Results

Lab Name: ALS Environmental -- FC

Work Order Number: 1308515

Client Name: Colorado Oil & Gas Conservation Commission

ClientProject ID: TBAL

Field ID:	McDonald 2
Lab ID:	1308515-2

Sample Matrix: WATER

% Moisture: N/A

Date Collected: 28-Aug-13

Date Extracted: 04-Sep-13

Date Analyzed: 04-Sep-13

Prep Method: METHOD

Prep Batch: HC130904-9A

QCBatchID: HC130904-9A-2

Run ID: HC130904-99A

Cleanup: NONE

Basis: As Received

File Name: 06044.dat

Analyst: Dan Sheneman

Sample Aliquot: 38.5 ML

Final Volume: 38.5 ML

Result Units: UG/L

Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	RptLimit\ LOD\LOQ	Result Qualifier	EPA Qualifier
74-82-8	METHANE	1	1	1	U	
74-84-0	ETHANE	1	2	2	U	
74-98-6	PROPANE	1	1	1	U	

Data Package ID: MEE1308515-1

Date Printed: Monday, September 09, 2013

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# Dissolved Gasses

Method RSK175

## Sample Results

Lab Name: ALS Environmental -- FC

Work Order Number: 1308515

Client Name: Colorado Oil & Gas Conservation Commission

ClientProject ID: TBAL

Field ID: 752787 Earls

Lab ID: 1308515-3

Sample Matrix: WATER

% Moisture: N/A

Date Collected: 28-Aug-13

Date Extracted: 04-Sep-13

Date Analyzed: 04-Sep-13

Prep Method: METHOD

Prep Batch: HC130904-9A

QCBatchID: HC130904-9A-2

Run ID: HC130904-99A

Cleanup: NONE

Basis: As Received

File Name: 06045.dat

Analyst: Dan Sheneman

Sample Aliquot: 38.5 ML

Final Volume: 38.5 ML

Result Units: UG/L

Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	RptLimit\ LOD\LOQ	Result Qualifier	EPA Qualifier
74-82-8	METHANE	1	1	1	U	
74-84-0	ETHANE	1	2	2	U	
74-98-6	PROPANE	1	1	1	U	

Data Package ID: MEE1308515-1

Date Printed: Monday, September 09, 2013

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## **Supporting QA/QC Data**

# Dissolved Gasses

## Method RSK175

### Laboratory Control Sample and Laboratory Control Sample Duplicate

Lab Name: ALS Environmental -- FC

Work Order Number: 1308515

Client Name: Colorado Oil & Gas Conservation Commission

ClientProject ID: TBAL

Lab ID: HC130904-9ALCS

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 09/04/2013

Date Analyzed: 09/04/2013

Prep Method: METHOD

Prep Batch: HC130904-9A

QCBatchID: HC130904-9A-2

Run ID: HC130904-99A

Cleanup: NONE

Basis: N/A

File Name: 06031.dat

Sample Aliquot: 38.5 ml

Final Volume: 38.5 ml

Result Units: UG/L

Clean DF: 1

CASNO	Target Analyte	Spike Added	LCS Result	Reporting Limit	Result Qualifier	LCS % Rec.	Control Limits
74-82-8	METHANE	142	158	1		111	80 - 120%
74-84-0	ETHANE	267	293	2		110	80 - 120%
74-98-6	PROPANE	391	416	1		106	80 - 120%

Lab ID: HC130904-9ALCSD

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 09/04/2013

Date Analyzed: 09/04/2013

Prep Method: METHOD

Prep Batch: HC130904-9A

QCBatchID: HC130904-9A-2

Run ID: HC130904-99A

Cleanup: NONE

Basis: N/A

File Name: 06041.dat

Sample Aliquot: 38.5 ml

Final Volume: 38.5 ml

Result Units: UG/L

Clean DF: 1

CASNO	Target Analyte	Spike Added	LCSD Result	Reporting Limit	Result Qualifier	LCSD % Rec.	RPD Limit	RPD
74-82-8	METHANE	142	160	1		112	25	1
74-84-0	ETHANE	267	297	2		111	25	1
74-98-6	PROPANE	391	421	1		107	25	1

Data Package ID: MEE1308515-1

Date Printed: Monday, September 09, 2013

ALS Environmental -- FC

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# Dissolved Gasses

Method RSK175

Matrix Spike

Lab Name: ALS Environmental -- FC

Work Order Number: 1308515

Client Name: Colorado Oil & Gas Conservation Commission

ClientProject ID: TBAL

Field ID: 752787 Earls

LabID: 1308515-3MS

Sample Matrix: WATER

% Moisture: N/A

Date Collected: 28-Aug-13

Date Extracted: 04-Sep-13

Date Analyzed: 04-Sep-13

Prep Batch: HC130904-9A

QCBatchID: HC130904-9A-2

Run ID: HC130904-99A

Cleanup: NONE

Basis: As Received

Sample Aliquot: 38.5 ml

Final Volume: 38.5 ml

Result Units: UG/L

File Name: 06046.dat

CASNO	Target Analyte	Sample Result	Samp Qual	MS Result	MS Qual	Reporting Limit	Spike Added	MS % Rec.	Control Limits
74-82-8	METHANE	1	U	159		1	142	112	70 - 130%
74-84-0	ETHANE	2	U	296		2	267	111	70 - 130%
74-98-6	PROPANE	1	U	423		1	391	108	70 - 130%

Data Package ID: MEE1308515-1

Date Printed: Monday, September 09, 2013

ALS Environmental -- FC

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# Dissolved Gasses

Method RSK175

## Duplicate Sample Results

Lab Name: ALS Environmental -- FC

Work Order Number: 1308515

Client Name: Colorado Oil & Gas Conservation Commission

ClientProject ID: TBAL

Field ID: McDonald 1

Lab ID: 1308515-1D

Sample Matrix: WATER

% Moisture: N/A

Date Collected: 08/28/2013

Date Extracted: 09/04/2013

Date Analyzed: 09/04/2013

Prep Batch: HC130904-9A

QCBatchID: HC130904-9A-2

Run ID: HC130904-99A

Cleanup: NONE

Basis: As Received

File Name: 06043.dat

Sample Aliquot: 38.5 ml

Final Volume: 38.5 ml

Result Units: UG/L

Clean DF: 1

CASNO	Target Analyte	Sample Result	Samp Qual	Duplicate Result	Dup Qual	Reporting Limit	Dilution Factor	RPD	RPD Limit
74-82-8	METHANE	1.8		1.72		1	1		25
74-84-0	ETHANE	2	U	2	U	2	1		25
74-98-6	PROPANE	1	U	1	U	1	1		25

Data Package ID: MEE1308515-1

Date Printed: Monday, September 09, 2013

ALS Environmental -- FC

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# Prep Batch ID: HC130904-9A

Start Date: 09/04/13

End Date: 09/04/13

Concentration Method: NONE

Batch Created By: dms

Start Time: 12:00

End Time: 15:00

Extract Method: METHOD

Date Created: 09/07/13

Prep Analyst: Tyler Knaebel

Initial Volume Units: ml

Time Created: 15:57

Comments:

Final Volume Units: ml

Validated By: dms

Date Validated: 09/07/13

Time Validated: 16:15

QC Batch ID: HC130904-9A-2

Lab ID	QC Type	Field ID	Matrix	Date Collected	Initial Wt/Vol	Final Wt/Vol	Cleanup Method	Cleanup DF	Order Number
HC130904-9A	MB	XXXXXX	WATER	XXXXXX	38.5	38.5	NONE	1	1308515
HC130904-9A	LCS	XXXXXX	WATER	XXXXXX	38.5	38.5	NONE	1	1308515
HC130904-9A	LCSD	XXXXXX	WATER	XXXXXX	38.5	38.5	NONE	1	1308515
1308515-3	MS	752787 Earls	WATER	8/28/2013	38.5	38.5	NONE	1	1308515
1308515-1	DUP	McDonald 1	WATER	8/28/2013	38.5	38.5	NONE	1	1308515
1308462-1	SMP	XXXXXX	WATER	XXXXXX	38.5	38.5	NONE	1	1308462
1308488-1	SMP	XXXXXX	WATER	XXXXXX	38.5	38.5	NONE	1	1308488
1308488-2	SMP	XXXXXX	WATER	XXXXXX	38.5	38.5	NONE	1	1308488
1308488-3	SMP	XXXXXX	WATER	XXXXXX	38.5	38.5	NONE	1	1308488
1308488-4	SMP	XXXXXX	WATER	XXXXXX	38.5	38.5	NONE	1	1308488
1308515-1	SMP	McDonald 1	WATER	8/28/2013	38.5	38.5	NONE	1	1308515
1308515-2	SMP	McDonald 2	WATER	8/28/2013	38.5	38.5	NONE	1	1308515
1308515-3	SMP	752787 Earls	WATER	8/28/2013	38.5	38.5	NONE	1	1308515
1308545-1	SMP	XXXXXX	WATER	XXXXXX	38.5	38.5	NONE	1	1308545
1308545-3	SMP	XXXXXX	WATER	XXXXXX	38.5	38.5	NONE	1	1308545
1308546-1	SMP	XXXXXX	WATER	XXXXXX	38.5	38.5	NONE	1	1308546

QC Types

CAR	Carrier reference sample	DUP	Laboratory Duplicate
LCS	Laboratory Control Sample	LCSD	Laboratory Control Sample Duplicat
MB	Method Blank	MS	Laboratory Matrix Spike
MSD	Laboratory Matrix Spike Duplicate	REP	Sample replicate
RVS	Reporting Level Verification Standar	SMP	Field Sample
SYS	Sample Yield Spike		

# Calibration Report

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Sequence : \\gserver\gcdata\Projects\GC9\Sequence\2012\meep120928.seq  
 User : noltej  
 Printed : 9/28/2012 5:02:46 PM

## Methane (FID 1)

Average RF: 4182.10 RF StDev: 1567.96 RF %RSD: 37.4921  
 Scaling: None LSQ Weighting: 1/Amount Force Through Zero: Off  
 Replicate Mode: Replace  
 Fit Type: Linear  
 $y = 3683.71x + 2371.90$   
 Goodness of fit ( $r^2$ ): 0.999945

	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8	Level 9	Level 10
Amount	0.5691	3.5569	10.6706	35.5687	142.275	355.687	711.374	1422.75	7113.74	28454.9
Area	4748	15803*	38329	117812	543268	1336985	2697589	5121198	2671984	1043345
RF	8342.997	4442.913	3592.019	3312.238	3818.444	3758.882	3792.085	3599.513	3756.091	3666.658
	7156914	7732295	1929226	0070117	1787612	8148809	3110215	9262627	5430744	5345114
	4		1	8	3	6	7	9	2	
Last Area										
Residual	-0.07592	-0.08917	0.909492	4.23071	-4.55987	-6.61447	-20.2847	33.163	-139.133	132.365
	91	9								
Rep										
StDev										
Rep										
%RSD										
Rep 1	4748	15803*	38329	117812	543268	1336985	2697589	5121198	2671984	1043345
Area									1	53

(not used)

## Ethene (FID 1)

Average RF: 2289.92 RF StDev: 149.816 RF %RSD: 6.54243  
 Scaling: None LSQ Weighting: 1/Amount Force Through Zero: Off  
 Replicate Mode: Replace  
 Fit Type: Linear  
 $y = 2283.65x + 40.6353$   
 Goodness of fit ( $r^2$ ): 0.998721

	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8
Amount	0.9959	6.2245	18.6736	62.2452	248.981	622.452	1244.9	2489.81
Area	2471	14591*	39331	130522	599031	1472496	2924981	5537326
RF	2481.172	2344.124	2106.235	2096.900	2405.933	2365.638	2349.564	2223.997
	8085149	0260261	5410847	6445476	4719518	5924179	0666824	7276957
	1	9	4	9	4	2	3	2
Last Area								
Residual	-0.06834	-0.14704	1.46851	5.10794	-13.3147	-22.3304	-35.9157	65.0528
	68	5						
Rep								
StDev								
Rep								
%RSD								
Rep 1	2471	14591*	39331	130522	599031	1472496	2924981	5537326
Area								

(not used)

# Calibration Report

Sequence : \\gcserver\gcdata\Projects\GC9\Sequence\2012\meep120928.seq  
 User : noltej  
 Printed : 9/28/2012 5:02:46 PM

## Ethane (FID 1)

Average RF: 3331.45 RF StDev: 296.992 RF %RSD: 8.91479  
 Scaling: None LSQ Weighting: 1/Amount Force Through Zero: Off  
 Replicate Mode: Replace  
 Fit Type: Linear  
 $y = 3301.37x + 208.802$   
 Goodness of fit ( $r^2$ ): 0.999122

	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8
Amount	1.0671	6.6691	20.0074	66.6913	266.765	666.913	1333.83	2667.65
Area	4121	22629*	59981	200747	925135	2233101	4535931	8624957
RF	3861.868	3393.111	2997.940	3010.092	3467.976	3348.415	3400.693	3233.165
	6158748	5142972	7619180	7707212	1333097	7671611	2241656	7964065
		8	9	2	9	3	2	5
Last Area								
Residual	-0.11792	-0.12208	1.90212	5.94735	-13.3993	-9.44072	-40.0659	55.1744
	3	2						
Rep								
StDev								
Rep								
%RSD								
Rep 1	4121	22629*	59981	200747	925135	2233101	4535931	8624957
Area								

(NOT USED)

## Propane (FID 1)

Average RF: 5590.35 RF StDev: 5911.31 RF %RSD: 105.741  
 Scaling: None LSQ Weighting: 1/Amount Force Through Zero: Off  
 Replicate Mode: Replace  
 Fit Type: Linear  
 $y = 3683.56x + 14240.9$   
 Goodness of fit ( $r^2$ ): 0.998684

	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8	Level 9
Amount	0.9781	5.8688	29.3442	97.8139	391.255	978.139	1956.28	3912.55	7825.11
Area	19762	91371*	87432	317871	1472347	3426675	7203010	13896020	29649557
RF	20204.478	15568.940	2979.5325	3249.7528	3763.1352	3503.2611	3681.9986	3551.6490	3789.0280
	069727	8396947	8224794	46988	8196672	9427247	4518178	1988328	8354562
Last Area									
Residual	-0.520754	-15.0702	9.47455	15.3855	-4.58578	51.7438	4.69714	143.981	-220.176
Rep StDev									
Rep									
%RSD									
Rep 1	19762	91371*	87432	317871	1472347	3426675	7203010	13896020	29649557
Area									

(NOT USED)

# Dissolved Gases (RSK175) Calibration Verification Summary

ALSLG-Fort Collins

Acq. Sequence : \\gcserver\gcdata\Projects\GC9\Sequence\2012\meep120928.seq

Instrument : GC9

Data Acquired By : noltej

Data Processed By : noltej

## Methane

(nom. conc. = 142.275 ppb)

## Ethene

(nom. conc. = 248.981 ppb)

Sample	Filename	Exp. RT (min.)	RT	Dev.	Avg RF	Conc. ug/L	Nom. Conc.	% Rec.	Exp. RT (min.)	RT	Dev.	Avg RF	Conc. ug/L	Nom. Conc.	% Rec.
400uL MEEP ICV	05048.dat	0.488	0.493	0.005	4182.103	291.004	284.549	102	0.548	0.552	0.003	2289.920	509.315	497.961	102
HC120928-9CCSD	05058.dat	0.488	0.492	0.003	4182.103	142.665	142.275	100	0.548	0.550	0.002	2289.920	267.389	248.981	107

## Ethane

(nom. conc. = 266.765 ppb)

## Propane

(nom. conc. = 391.255 ppb)

Sample	Filename	Exp. RT (min.)	RT	Dev.	Avg RF	Conc. ug/L	Nom. Conc.	% Rec.	Exp. RT (min.)	RT	Dev.	Avg RF	Conc. ug/L	Nom. Conc.	% Rec.
400uL MEEP ICV	05048.dat	0.578	0.583	0.005	3331.450	544.339	533.530	102	1.028	1.030	0.002	5590.354	777.835	782.511	99
HC120928-9CCSD	05058.dat	0.578	0.580	0.002	3331.450	283.725	266.765	106	1.028	1.028	0.000	5590.354	405.783	391.255	104

# Dissolved Gases (RSK175) Calibration Verification Summary

ALSLG-Fort Collins

Acq. Sequence : \\gcserver\gcdata\Projects\GC9\Sequence\2013\Meep130904.seq

Instrument : GC9

Data Acquired By : sheneman

Data Processed By : sheneman

## Methane

(nom. conc. = 142.275 ppb)

## Ethene

(nom. conc. = 248.981 ppb)

Sample	Filename	Exp.	RT	Dev.	Avg RF	Conc.	Nom.	% Rec.	Exp.	RT	Dev.	Avg RF	Conc.	Nom.	% Rec.
		RT (min.)					Conc.		RT (min.)					Conc.	
HC130904-9CCS	06031.dat	0.468	0.472	0.003	4182.103	157.759	142.275	111	0.523	0.528	0.005	2289.920	278.910	248.981	112
HC130904-9CCSD	06041.dat	0.468	0.470	0.002	4182.103	160.035	142.275	112	0.523	0.525	0.002	2289.920	285.641	248.981	115
CCV	06054.dat	0.468	0.468	0.000	4182.103	157.722	142.275	111	0.523	0.525	0.002	2289.920	277.779	248.981	112

## Ethane

(nom. conc. = 266.765 ppb)

## Propane

(nom. conc. = 391.255 ppb)

Sample	Filename	Exp.	RT	Dev.	Avg RF	Conc.	Nom.	% Rec.	Exp.	RT	Dev.	Avg RF	Conc.	Nom.	% Rec.
		RT (min.)					Conc.		RT (min.)					Conc.	
HC130904-9CCS	06031.dat	0.552	0.557	0.005	3331.450	293.455	266.765	110	0.982	0.987	0.005	5590.354	415.975	391.255	106
HC130904-9CCSD	06041.dat	0.552	0.553	0.002	3331.450	297.162	266.765	111	0.982	0.982	0.000	5590.354	420.576	391.255	107
CCV	06054.dat	0.552	0.553	0.002	3331.450	291.612	266.765	109	0.982	0.982	0.000	5590.354	407.153	391.255	104



## Supporting Raw Data

Analytical Method : RSK-175 SOP : 449r3

Data Acquired By : noltej

Data Processed By : noltej

Instrument : GC9

(1st file) Acq. Date : 9/28/2012 12:29:09 PM

(1st file) Data Path : \\gcserver\gcddata\Projects\GC9\Data\2012\Meep120928\05034.dat

Sequence File : \\gcserver\gcddata\Projects\GC9\Sequence\2012\meep120928.seq

Acq. Method Path : \\gcserver\gcddata\Projects\GC9\Method\2012\meep120928.met

QC Name	Std ID #	Spike Vol. Added (uL)	Final Std Vol. (uL)
CCV (LCS)	ST120227-4	200	38500
MS	ST120227-4	200	38500
ICV	ST120927-4	400	38500

Temp. = 21.7 °C  
 Atm. Pressure = 850.3 mbar  
 Final Sample Vol. = 38.5 mL  
 Headspace Vol. = 4.0 mL

Data File	Acq. Method	Sample	Head Space?	pH <= 2?	RR?	Comments
05034.dat	meep120928.met	blank run	Y/N	Y/N	Y/N	
05035.dat	meep120928.met	Instrument Blank	Y/N	Y/N	Y/N	
05036.dat	meep120928.met	Instrument Blank	Y/N	Y/N	Y/N	
05037.dat	meep120928.met	4uL MEE, 0.25uL Propane	Y/N	Y/N	Y/N	MEE = ST120227-5, P = ST120227-6
05038.dat	meep120928.met	*25uL MEE, 1.5uL Propane	Y/N	Y/N	Y/N	↓ ↓ ↓ ↓ ↓ (*SEE BELOW)
05039.dat	meep120928.met	15uL MEEP - ICAL	Y/N	Y/N	Y/N	MEEP = ST120227-4
05040.dat	meep120928.met	50uL MEEP - ICAL	Y/N	Y/N	Y/N	
05041.dat	meep120928.met	200uL MEEP - ICAL	Y/N	Y/N	Y/N	
05042.dat	meep120928.met	500uL MEEP - ICAL	Y/N	Y/N	Y/N	
05043.dat	meep120928.met	1000uL MEEP - ICAL	Y/N	Y/N	Y/N	
05044.dat	meep120928.met	2000uL MEEP - ICAL	Y/N	Y/N	Y/N	
05045.dat	meep120928.met	500uL Methane, 200uL Propane	Y/N	Y/N	Y/N	M = ST120227-1, P = ST120227-3
05046.dat	meep120928.met	2000uL Methane - ICAL	Y/N	Y/N	Y/N	
05047.dat	meep120928.met	400uL MEEP ICV	Y/N	Y/N	Y/N	All Passed, but baseline unstable - SEE NEXT FILE
05048.dat	meep120928.met	400uL MEEP ICV	Y/N	Y/N	Y/N	All Pass (MEEP = ST120927-4)
05049.dat	meep120928.met	blank run	Y/N	Y/N	Y/N	< RL
05050.dat	meep120928.met	Instrument Blank	Y/N	Y/N	Y/N	< RL
05051.dat	meep120928.met	HC120928-9MB	Y/N	Y/N	Y/N	< RL
05052.dat	meep120928.met	Ref Blank RU20	Y/N	Y/N	Y/N	< RL
05053.dat	meep120928.met	HC120928-9LCS	Y/N	Y/N	Y/N	Pass
05054.dat	meep120928.met	1209298-2	Y/N	Y/N	Y/N	
05055.dat	meep120928.met	1209298-2MS	Y/N	Y/N	Y/N	
05056.dat	meep120928.met	1209343-2	Y/N	Y/N	Y/N	
05057.dat	meep120928.met	1209395-1	Y/N	Y/N	Y/N	(pH ~ 7)
05058.dat	meep120928.met	HC120928-9CCSD	Y/N	Y/N	Y/N	Pass

\* NOTE : THE SECOND-TO-LOWEST ICAL point (file 05038.dat) was NOT included in the curve - Inspection of the plot showed an ANOMALOUS Recovery for propane, indicating A problem w/ preparation of THAT STANDARD - THIS DATA point WAS REMOVED for ALL TARGETS.

7/9/2012



Analytical Method : RSK-175 SOP : 449r3

Data Acquired By : sheneman  
Data Processed By : sheneman

Instrument : GC9  
(1st file) Acq. Date : 9/4/2013 2:58:36 PM  
(1st file) Data Path : \\gcserver\gcdata\Projects\GC9\Data\2013\Meep130903\06030.dat  
Sequence File : \\gcserver\gcdata\Projects\GC9\Sequence\2013\Meep130904.seq  
Acq. Method Path : \\gcserver\gcdata\Projects\GC9\Method\2012\meep120928f.met

QC Name	Std ID #	Spike Vol. Added (uL)	Final Std Vol. (uL)
CCV (LCS)	ST120227-4	200	38500
MS	ST120227-4	200	38500
ICV	ST120927-4	400	38500

Temp. = 21.0 C  
Atm. Pressure = 851 mba  
Final Sample Vol. = 38.5 mL  
Headspace Vol. = 4.0 mL

Data File	Acq. Method	Sample	Head Space?	pH <= 2?	RR?	Comments
06030.dat	meep120928f.met	Instrument Blank DS	Y/N	Y/N	Y/N	
06031.dat	meep120928f.met	HC130904-9CCS	Y/N	Y/N	Y/N	
06032.dat	meep120928f.met	HC130904-9MB	Y/N	Y/N	Y/N	
06033.dat	meep120928f.met	FRIG. BLANK 11-12-12	Y/N	Y/N	Y/N	
06034.dat	meep120928f.met	1308391-3	Y/N	Y/N	Y/N	
06035.dat	meep120928f.met	1308468-10	Y/N	Y/N	Y/N	
06036.dat	meep120928f.met	1308462-1	Y/N	Y/N	Y/N	
06037.dat	meep120928f.met	1308488-1	Y/N	Y/N	Y/N	
06038.dat	meep120928f.met	1308488-2	Y/N	Y/N	Y/N	
06039.dat	meep120928f.met	1308488-3	Y/N	Y/N	Y/N	
06040.dat	meep120928f.met	1308488-4	Y/N	Y/N	Y/N	
06041.dat	meep120928f.met	HC130904-9CCSD	Y/N	Y/N	Y/N	
06042.dat	meep120928f.met	1308515-1	Y/N	Y/N	Y/N	
06043.dat	meep120928f.met	1308515-1DUP	Y/N	Y/N	Y/N	
06044.dat	meep120928f.met	1308515-2	Y/N	Y/N	Y/N	
06045.dat	meep120928f.met	1308515-3	Y/N	Y/N	Y/N	
06046.dat	meep120928f.met	1308515-3MS	Y/N	Y/N	Y/N	
06047.dat	meep120928f.met	1308545-1	Y/N	Y/N	Y/N	
06048.dat	meep120928f.met	1308545-3	Y/N	Y/N	Y/N	
06049.dat	meep120928f.met	1308546-1	Y/N	Y/N	Y/N	
06050.dat	meep120928f.met	1308401-1	Y/N	Y/N	Y/N	
06051.dat	meep120928f.met	1308401-2	Y/N	Y/N	Y/N	
06052.dat	meep120928f.met	1308401-3	Y/N	Y/N	Y/N	
06053.dat	meep120928f.met	1308401-4	Y/N	Y/N	Y/N	
06054.dat	meep120928f.met	CCV	Y/N	Y/N	Y/N	



## Calibration Raw Data

# Dissolved Gases Quantitation Report

ALS LG-Fort Collins

Sample : 4uL MEE, 0.25uL Propane - ICAL

Filename : \\gcserver\gcdata\Projects\GC9\Data\2012\Meep120928\05037.dat

Acquisition Date : 9/28/2012 12:41:06 PM

Quantitation Date : 9/28/2012 4:54:36 PM

Last Method Update : 9/28/2012 4:53:48 PM

Method : \\gcserver\gcdata\Projects\GC9\Method\2012\meep120928.met

Sequence : \\gcserver\gcdata\Projects\GC9\Sequence\2012\meep120928.seq

Data Description : MEE=ST120227-5, P=ST120227-6

Instrument : GC9

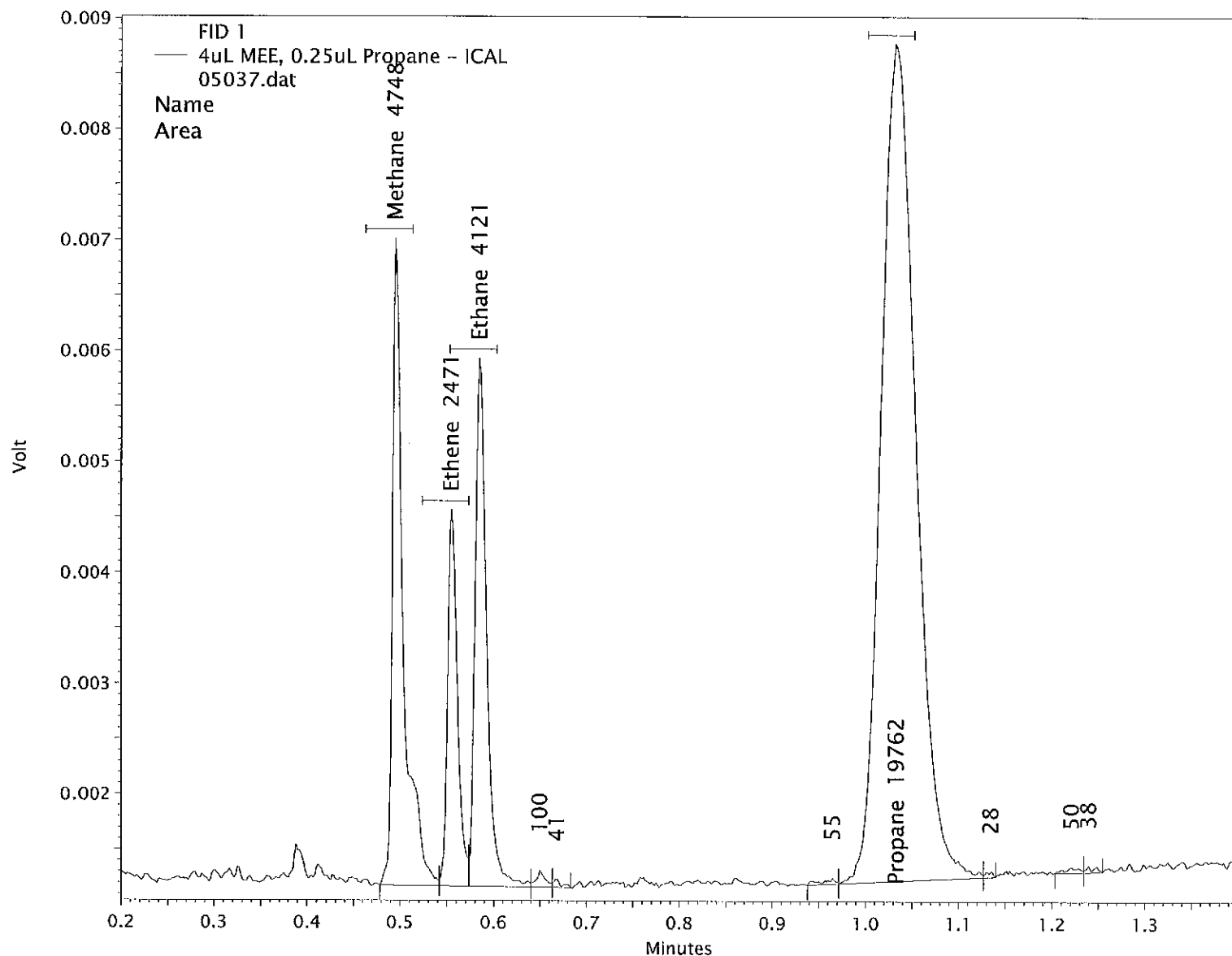
Data Acquired By : noltej

Data Processed By : noltej

Inj. Vol. (uL) : 300

## FID 1 Results

Compound Name	RT	Expected RT	Peak Area	Integration Codes	Concentration	Conc. Units
Methane	0.495	0.488	4748	BV	0.65	ug/L
Ethene	0.555	0.548	2471	VV	1.06	ug/L
Ethane	0.585	0.578	4121	VV	1.19	ug/L
Propane	1.033	1.028	19762	VV	1.50	ug/L



Column : CarbonPLOT

[1st int. code is for peak start, 2nd int code is for peak stop] B=baseline, f=force start or stop, l=ended by int. off event, N=begin negative peak, P=end negative peak, H=forward horiz, h=backward horiz, M=manual baseline or peak, m=move baseline start/stop, S=shoulder, T=tangent skim, V=valley, v=forced valley point, x=split peak, E=end of chromatogram encountered, R=reset baseline, L=lowest point horiz.

Printed On : 9/28/2012 4:54:37 PM

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# Dissolved Gases Quantitation Report

ALS LG-Fort Collins

Sample : 15uL MEEP - ICAL

Filename : \\gcserver\gdata\Projects\GC9\Data\2012\Meep120928\05039.dat

Acquisition Date : 9/28/2012 12:47:18 PM

Quantitation Date : 9/28/2012 4:54:42 PM

Last Method Update : 9/28/2012 4:53:48 PM

Method : \\gcserver\gdata\Projects\GC9\Method\2012\meep120928.met

Sequence : \\gcserver\gdata\Projects\GC9\Sequence\2012\meep120928.seq

Data Description : MEEP=ST120227-4

Instrument : GC9

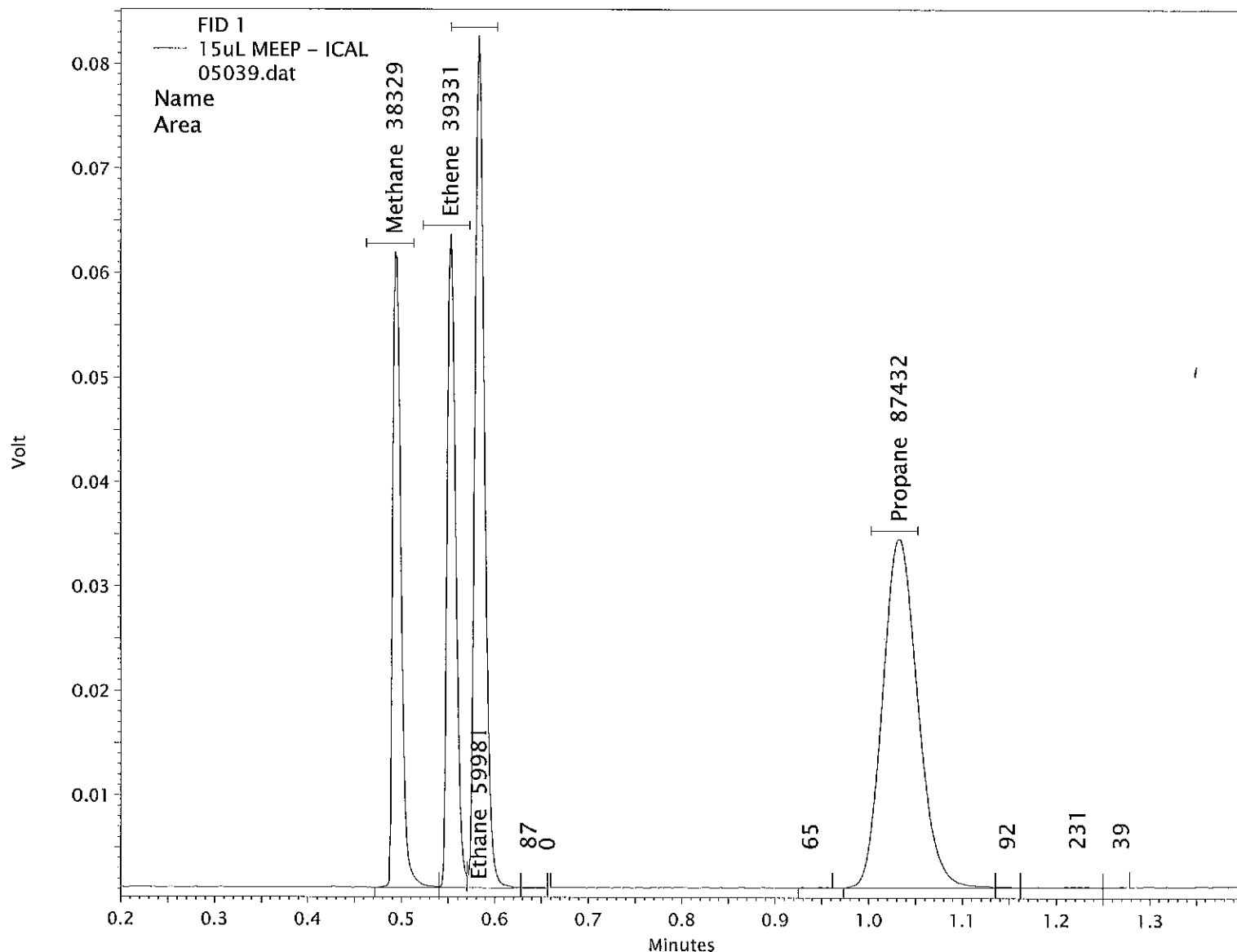
Data Acquired By : noltej

Data Processed By : noltej

Inj. Vol. (uL) : 300

## FID 1 Results

Compound Name	RT	Expected RT	Peak Area	Integration Codes	Concentration	Conc. Units
Methane	0.493	0.488	38329	BV	9.76	ug/L
Ethene	0.553	0.548	39331	VV	17.21	ug/L
Ethane	0.583	0.578	59981	VV	18.11	ug/L
Propane	1.033	1.028	87432	BV	19.87	ug/L



Column : CarbonPLOT

{1st int. code is for peak start, 2nd int code is for peak stop} B=baseline, f=force start or stop, l=ended by int. off event, N=begin negative peak, P=end negative peak, H=forward horiz, h=backward horiz, M=manual baseline or peak, m=move baseline start/stop, S=shoulder, T=tangent skim, V=valley, v=forced valley point, x=split peak, E=end of chromatogram encountered, R=reset baseline, L=lowest point horiz.

Printed On : 9/28/2012 4:54:42 PM

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# Dissolved Gases Quantitation Report

ALSLG-Fort Collins

Sample : 50uL MEEP - ICAL

Filename : \\gcserver\gcdata\Projects\GC9\Data\2012\Meep120928\05040.dat

Acquisition Date : 9/28/2012 12:49:50 PM

Quantitation Date : 9/28/2012 4:54:45 PM

Last Method Update : 9/28/2012 4:53:48 PM

Method : \\gcserver\gcdata\Projects\GC9\Method\2012\meep120928.met

Sequence : \\gcserver\gcdata\Projects\GC9\Sequence\2012\meep120928.seq

Data Description : MEEP=ST120227-4

Instrument : GC9

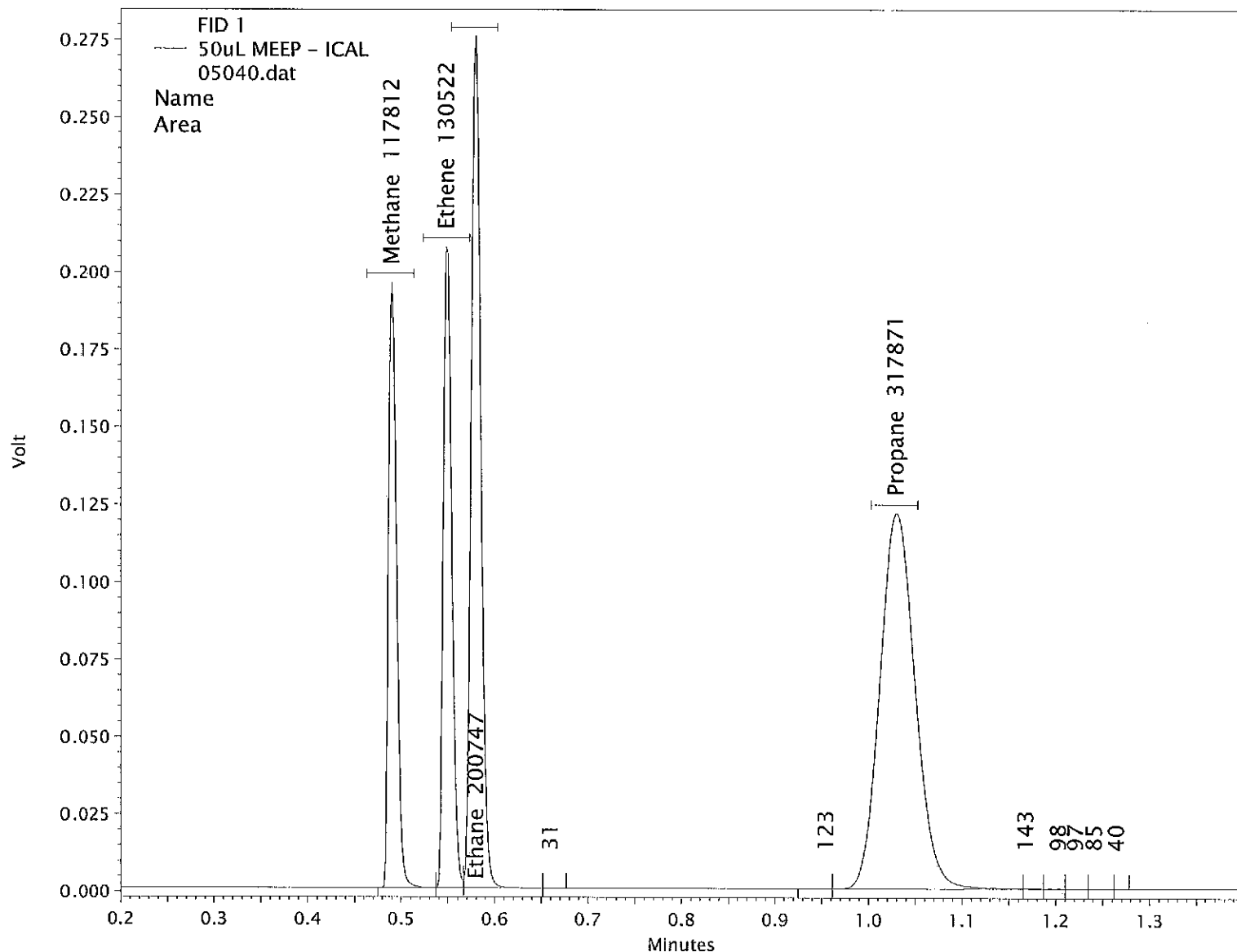
Data Acquired By : noltej

Data Processed By : noltej

Inj. Vol. (uL) : 300

## FID 1 Results

Compound Name	RT	Expected RT	Peak Area	Integration Codes	Concentration	Conc. Units
Methane	0.490	0.488	117812	BV	31.34	ug/L
Ethene	0.548	0.548	130522	VV	57.14	ug/L
Ethane	0.580	0.578	200747	VB	60.74	ug/L
Propane	1.030	1.028	317871	VV	82.43	ug/L



Column : CarbonPLOT

{1st int. code is for peak start, 2nd int code is for peak stop} B=baseline, f=force start or stop, l=ended by int. off event, N=begin negative peak, P=end negative peak, H=forward horiz, h=backward horiz, M=manual baseline or peak, m=move baseline start/stop, S=shoulder, T=tangent skim, V=valley, v=forced valley point, x=split peak, E=end of chromatogram encountered, R=reset baseline, L=lowest point horiz.

Printed On : 9/28/2012 4:54:46 PM

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# Dissolved Gases Quantitation Report

ALS LG-Fort Collins

Sample : 200uL MEEP - ICAL

Filename : \\gcserver\gcdata\Projects\GC9\Data\2012\Meep120928\05041.dat

Acquisition Date : 9/28/2012 12:52:54 PM

Quantitation Date : 9/28/2012 4:54:48 PM

Last Method Update : 9/28/2012 4:53:48 PM

Method : \\gcserver\gcdata\Projects\GC9\Method\2012\meep120928.met

Sequence : \\gcserver\gcdata\Projects\GC9\Sequence\2012\meep120928.seq

Data Description : MEEP=ST120227-4

Instrument : GC9

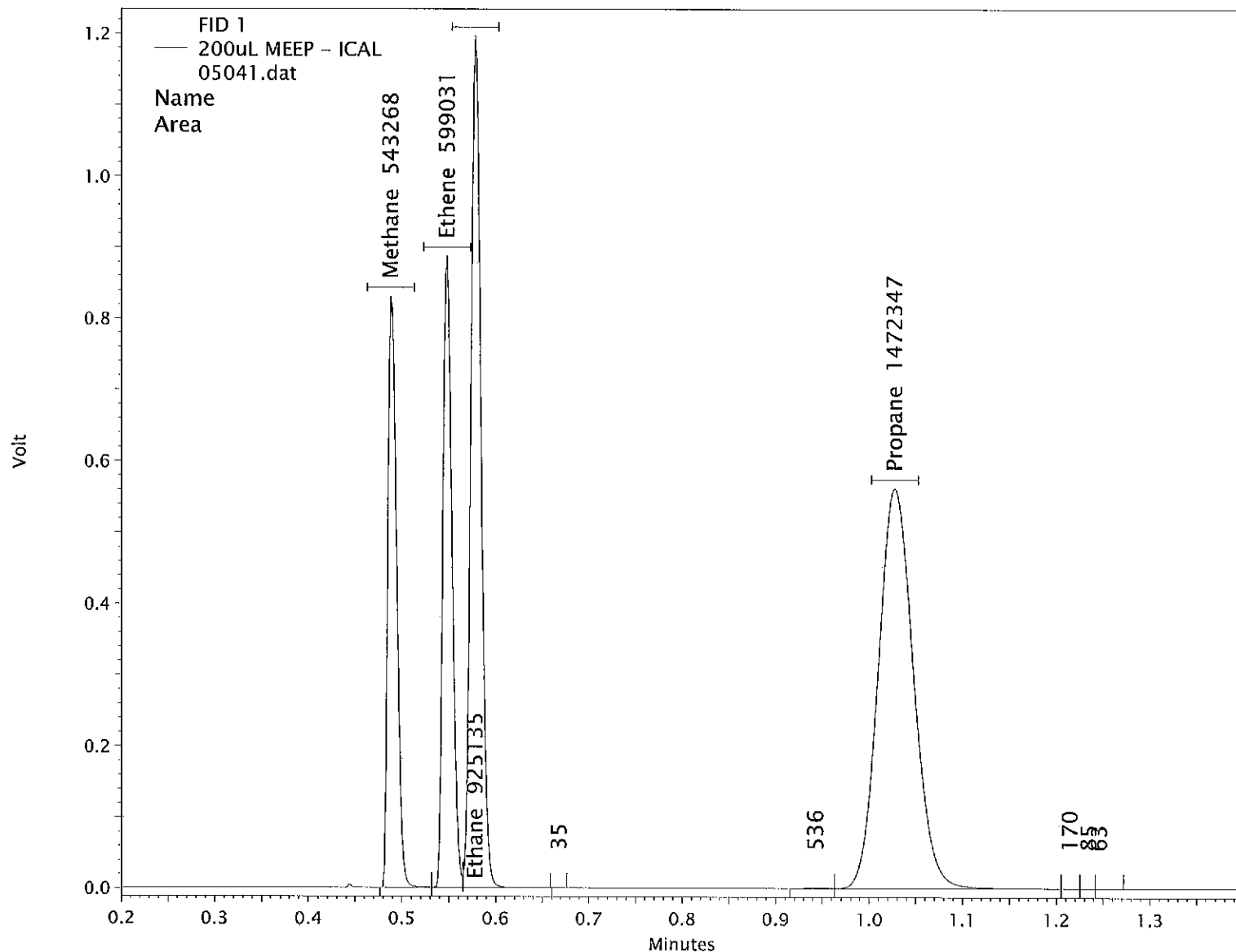
Data Acquired By : noltej

Data Processed By : noltej

Inj. Vol. (uL) : 300

## FID 1 Results

Compound Name	RT	Expected RT	Peak Area	Integration Codes	Concentration	Conc. Units
Methane	0.488	0.488 ✓	543268	BV	146.83	ug/L
Ethene	0.548	0.548 ✓	599031	VV	262.30	ug/L
Ethane	0.578	0.578 ✓	925135	VB	280.16	ug/L
Propane	1.028	1.028 ✓	1472347	VV	395.84	ug/L



Column : CarbonPLOT

(1st int. code is for peak start, 2nd int code is for peak stop) B=baseline, f=force start or stop, l=ended by int. off event, N=begin negative peak, P=end negative peak, H=forward horiz, h=backward horiz, M=manual baseline or peak, m=move baseline start/stop, S=shoulder, T=tangent skim, V=valley, v=forced valley point, x=split peak, E=end of chromatogram encountered, R=reset baseline, L=lowest point horiz.

Printed On : 9/28/2012 4:54:49 PM

# Dissolved Gases Quantitation Report

ALSLG-Fort Collins

Sample : 500uL MEEP - ICAL

Filename : \\gcserver\gcdata\Projects\GC9\Data\2012\Meep120928\05042.dat

Acquisition Date : 9/28/2012 12:57:00 PM

Quantitation Date : 9/28/2012 4:54:51 PM

Last Method Update : 9/28/2012 4:53:48 PM

Method : \\gcserver\gcdata\Projects\GC9\Method\2012\meep120928.met

Sequence : \\gcserver\gcdata\Projects\GC9\Sequence\2012\meep120928.seq

Data Description : MEEP=ST120227-4

Instrument : GC9

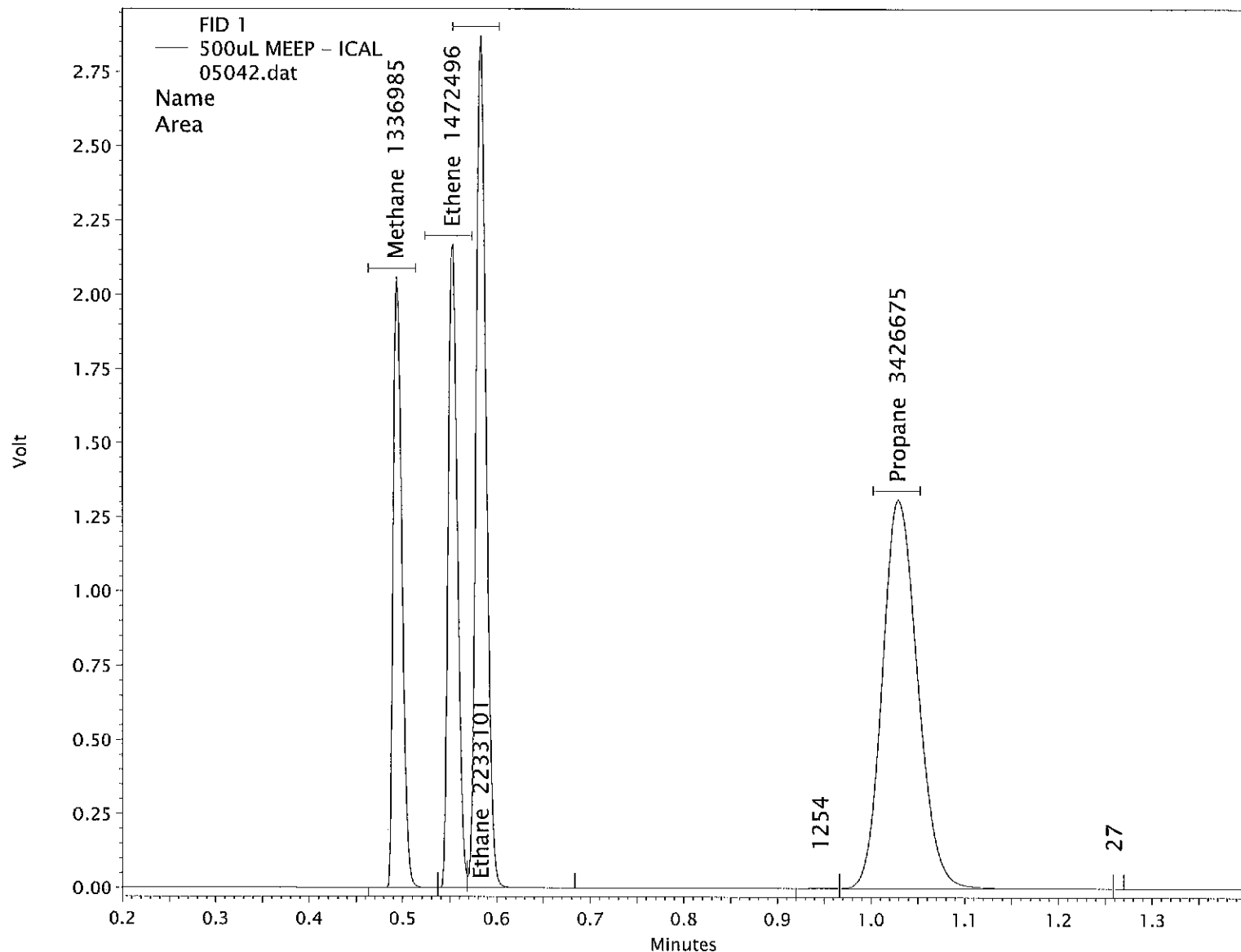
Data Acquired By : noltej

Data Processed By : noltej

Inj. Vol. (uL) : 300

## FID 1 Results

Compound Name	RT	Expected RT	Peak Area	Integration Codes	Concentration	Conc. Units
Methane	0.493	0.488	1336985	BV	362.30	ug/L
Ethene	0.553	0.548	1472496	VV	644.78	ug/L
Ethane	0.583	0.578	2233101	VI	676.35	ug/L
Propane	1.030	1.028	3426675	VV	926.39	ug/L



Column : CarbonPLOT

{1st int. code is for peak start, 2nd int code is for peak stop} 8=baseline, f=force start or stop, l=ended by int. off event, N=begin negative peak, P=end negative peak, H=forward horiz, h=backward horiz, M=manual baseline or peak, m=move baseline start/stop, S=shoulder, T=tangent skim, V=valley, v=forced valley point, x=split peak, E=end of chromatogram encountered, R=reset baseline, L=lowest point horiz.

Printed On : 9/28/2012 4:54:52 PM

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# Dissolved Gases Quantitation Report

ALS LG-Fort Collins

Sample : 1000uL MEEP - ICAL

Filename : \\gcserver\gcdata\Projects\GC9\Data\2012\Meep120928\05043.dat

Acquisition Date : 9/28/2012 1:00:48 PM

Quantitation Date : 9/28/2012 4:54:54 PM

Last Method Update : 9/28/2012 4:53:48 PM

Method : \\gcserver\gcdata\Projects\GC9\Method\2012\meep120928.met

Sequence : \\gcserver\gcdata\Projects\GC9\Sequence\2012\meep120928.seq

Data Description : MEEP=ST120227-4

Instrument : GC9

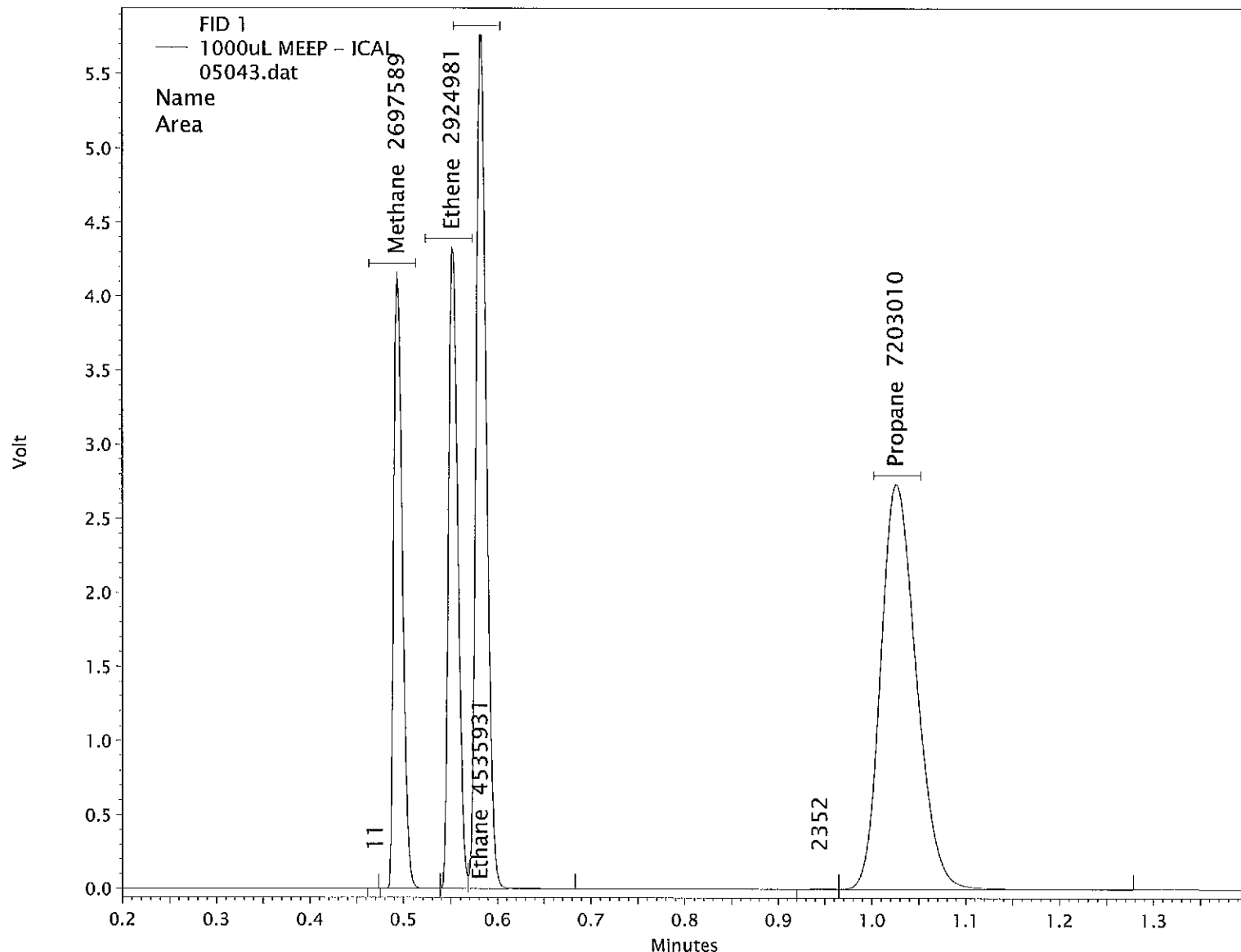
Data Acquired By : noltej

Data Processed By : noltej

Inj. Vol. (uL) : 300

## FID 1 Results

Compound Name	RT	Expected RT	Peak Area	Integration Codes	Concentration	Conc. Units
Methane	0.493	0.488	2697589	BV	731.66	ug/L
Ethene	0.552	0.548	2924981	VV	1280.82	ug/L
Ethane	0.582	0.578	4535931	VI	1373.89	ug/L
Propane	1.027	1.028	7203010	VI	1951.58	ug/L



Column : CarbonPLOT

{1st int. code is for peak start, 2nd int code is for peak stop} B=baseline, f=force start or stop, l=ended by int. off event, N=begin negative peak, P=end negative peak, H=forward horiz, h=backward horiz, M=manual baseline or peak, m=move baseline start/stop, S=shoulder, T=tangent skim, V=valley, v=forced valley point, x=split peak, E=end of chromatogram encountered, R=reset baseline, L=lowest point horiz.

Printed On : 9/28/2012 4:54:55 PM

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# Dissolved Gases Quantitation Report

ALS LG-Fort Collins

Sample : 2000uL MEEP - ICAL

Filename : \\gcserver\gcdata\Projects\GC9\Data\2012\Meep120928\05044.dat

Acquisition Date : 9/28/2012 1:03:59 PM

Quantitation Date : 9/28/2012 4:54:57 PM

Last Method Update : 9/28/2012 4:53:48 PM

Method : \\gcserver\gcdata\Projects\GC9\Method\2012\meep120928.met

Sequence : \\gcserver\gcdata\Projects\GC9\Sequence\2012\meep120928.seq

Data Description : MEEP=ST120227-4

Instrument : GC9

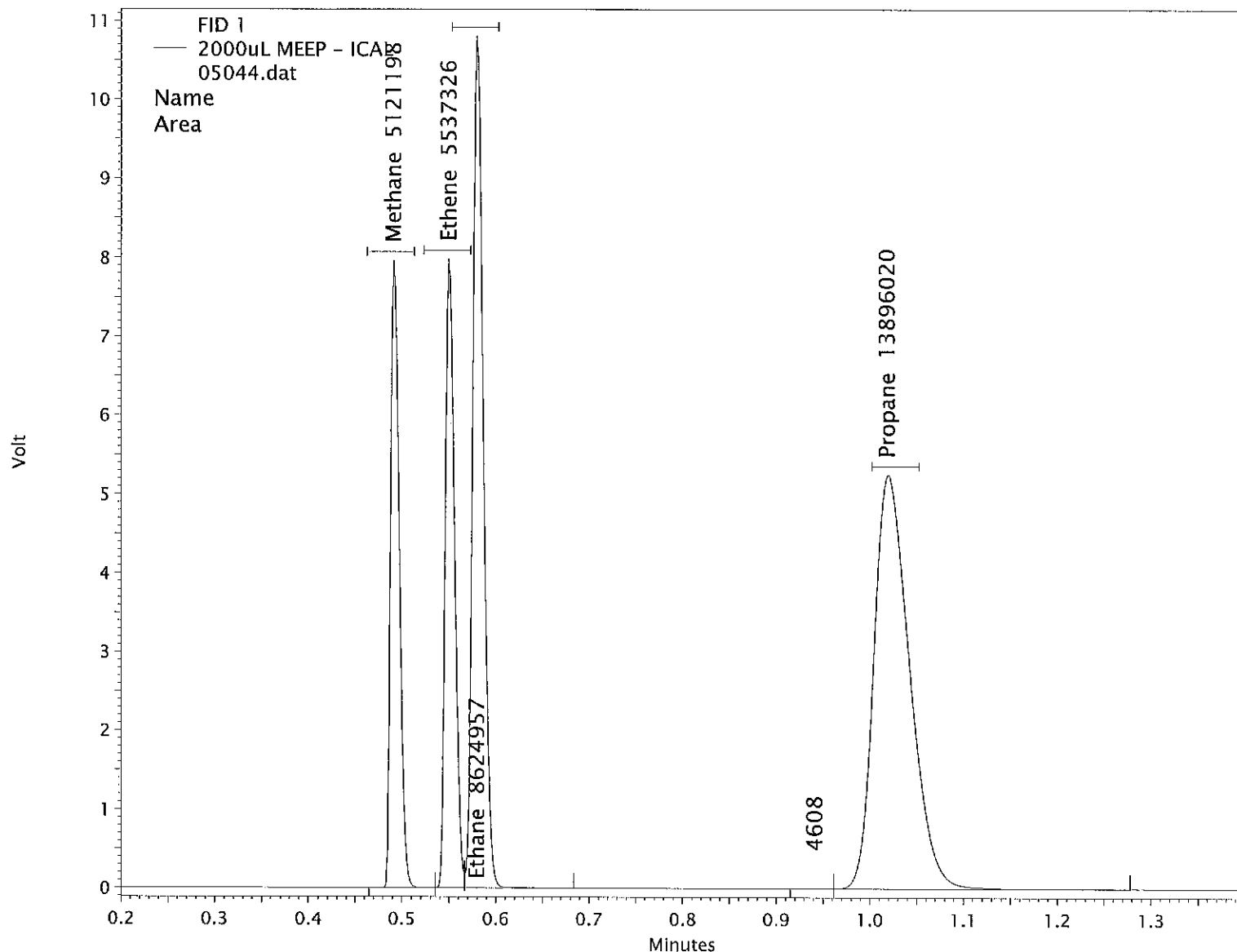
Data Acquired By : noltej

Data Processed By : noltej

Inj. Vol. (uL) : 300

## FID 1 Results

Compound Name	RT	Expected RT	Peak Area	Integration Codes	Concentration	Conc. Units
Methane	0.492	0.488	5121198	BV	1389.58	ug/L
Ethene	0.550	0.548	5537326	VV	2424.75	ug/L
Ethane	0.580	0.578	8624957	VI	2612.48	ug/L
Propane	1.020	1.028	13896020	VI	3768.57	ug/L



Column : CarbonPLOT

[1st int. code is for peak start, 2nd int code is for peak stop] B=baseline, f=force start or stop, l=ended by int. off event, N=begin negative peak, P=end negative peak, H=forward horiz, h=backward horiz, M=manual baseline or peak, m=move baseline start/stop, S=shoulder, T=tangent skim, V=valley, v=forced valley point, x=split peak, E=end of chromatogram encountered, R=reset baseline, L=lowest point horiz.

Printed On : 9/28/2012 4:54:58 PM

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# Dissolved Gases Quantitation Report

ALS LG-Fort Collins

Sample : 500uL Methane, 200uL Propane - ICAL

Filename : \\gcserver\gcdata\Projects\GC9\Data\2012\Meep120928\05045.dat

Acquisition Date : 9/28/2012 1:13:32 PM

Quantitation Date : 9/28/2012 4:55:00 PM

Last Method Update : 9/28/2012 4:53:48 PM

Method : \\gcserver\gcdata\Projects\GC9\Method\2012\meep120928.met

Sequence : \\gcserver\gcdata\Projects\GC9\Sequence\2012\meep120928.seq

Data Description : M=ST120227-1, P=ST120227-3

Instrument : GC9

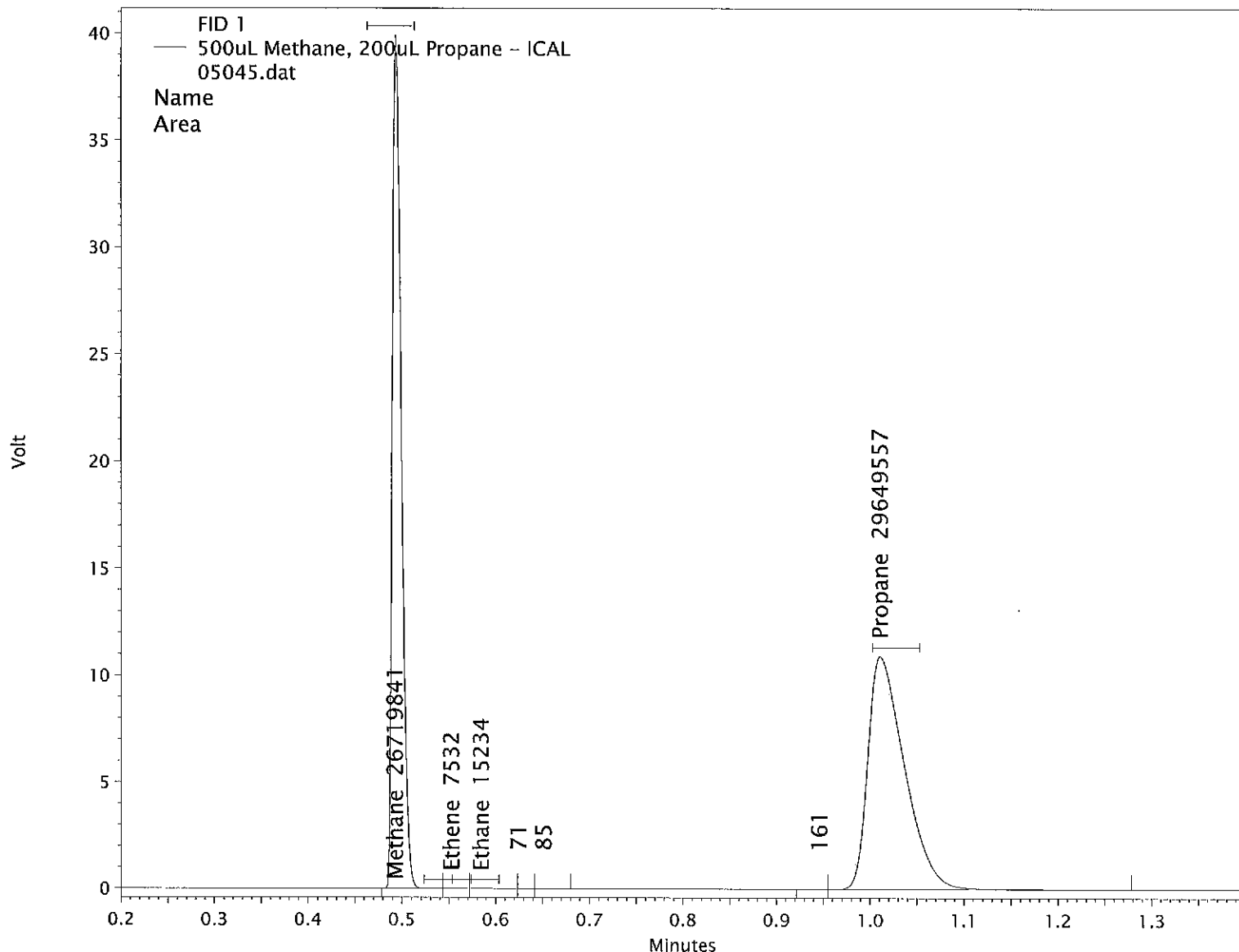
Data Acquired By : noltej

Data Processed By : noltej

Inj. Vol. (uL) : 300

## FID 1 Results

Compound Name	RT	Expected RT	Peak Area	Integration Codes	Concentration	Conc. Units
Methane	0.493	0.488	26719841	BV	7252.87	ug/L
Ethene	0.553	0.548	7532	VV	3.28	ug/L
Ethane	0.585	0.578	15234	VV	4.55	ug/L
Propane	1.012	1.028	29649557	VI	8045.28	ug/L



Column : CarbonPLOT

(1st int. code is for peak start, 2nd int code is for peak stop) B=baseline, f=force start or stop, l=ended by int. off event, N=begin negative peak, P=end negative peak, H=forward horiz, h=backward horiz, M=manual baseline or peak, m=move baseline start/stop, S=shoulder, T=tangent skim, V=valley, v=forced valley point, x=split peak, E=end of chromatogram encountered, R=reset baseline, L=lowest point horiz.

Printed On : 9/28/2012 4:55:01 PM

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# Dissolved Gases Quantitation Report

ALS LG-Fort Collins

Sample : 2000uL Methane - ICAL

Filename : \\gcserver\gcdata\Projects\GC9\Data\2012\Meep120928\05046.dat

Acquisition Date : 9/28/2012 1:16:11 PM

Quantitation Date : 9/28/2012 4:55:03 PM

Last Method Update : 9/28/2012 4:53:48 PM

Method : \\gcserver\gcdata\Projects\GC9\Method\2012\meep120928.met

Sequence : \\gcserver\gcdata\Projects\GC9\Sequence\2012\meep120928.seq

Data Description : M=ST120227-1

Instrument : GC9

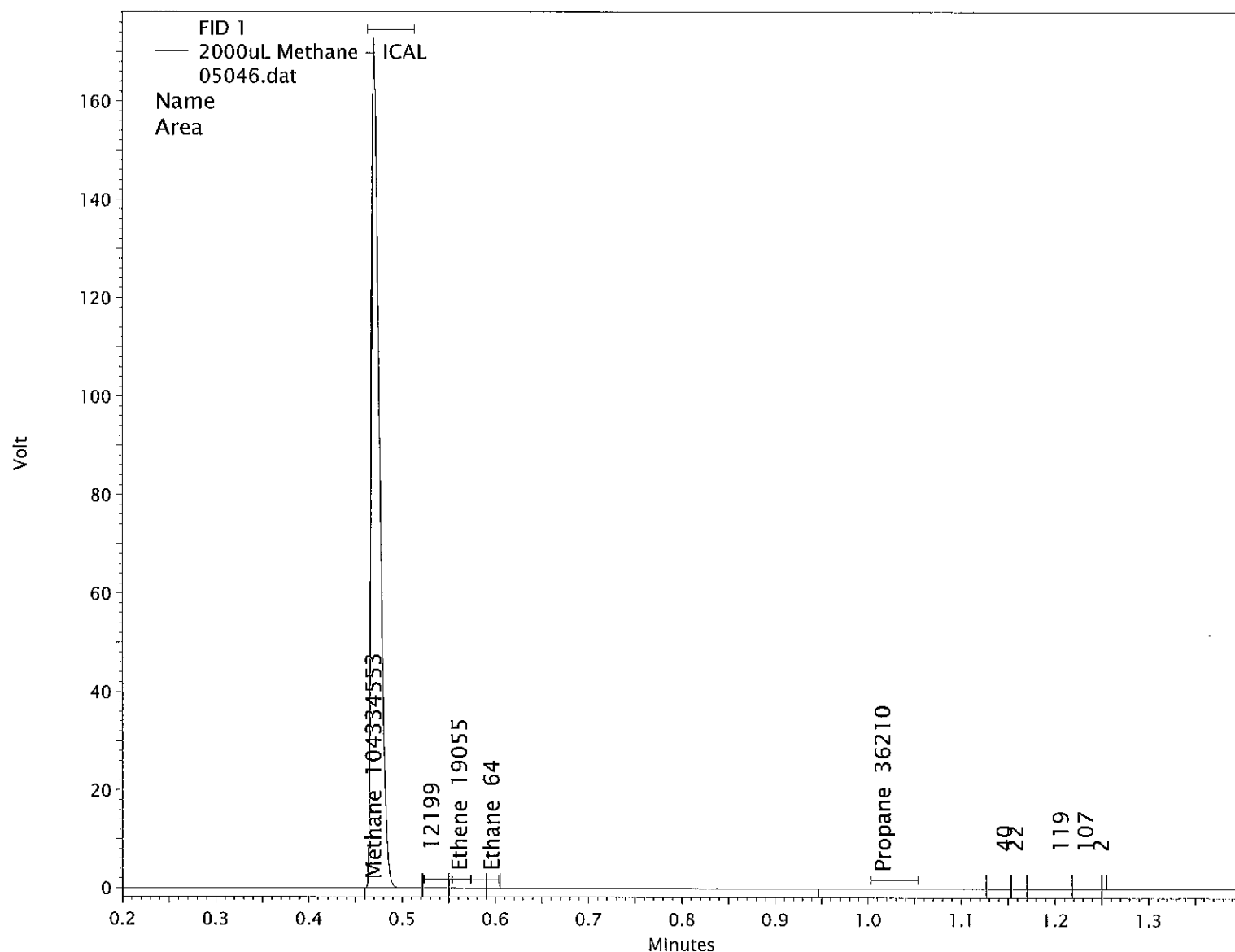
Data Acquired By : noltej

Data Processed By : noltej

Inj. Vol. (uL) : 300

## FID 1 Results

Compound Name	RT	Expected RT	Peak Area	Integration Codes	Concentration	Conc. Units
Methane	0.470	0.488	104334553	IV	28322.58	ug/L
Ethene	0.562	0.548	19055	VV	8.33	ug/L
Ethane	0.597	0.578	64	VB	0.00	ug/L
Propane	1.017	1.028	36210	BB	5.96	ug/L



Column : CarbonPLOT

(1st int. code is for peak start, 2nd int code is for peak stop) B=baseline, f=force start or stop, l=ended by int. off event, N=begin negative peak, P=end negative peak, H=forward horiz, h=backward horiz, M=manual baseline or peak, m=move baseline start/stop, S=shoulder, T=tangent skim, V=valley, v=forced valley point, x=split peak, E=end of chromatogram encountered, R=reset baseline, L=lowest point horiz.

Printed On : 9/28/2012 4:55:04 PM

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# Dissolved Gases Quantitation Report

ALSLG-Fort Collins

Sample : 400uL MEEP ICV

Filename : \\gcserver\gcdata\Projects\GC9\Data\2012\Meep120928\05048.dat

Acquisition Date : 9/28/2012 1:48:16 PM

Quantitation Date : 9/28/2012 4:55:09 PM

Last Method Update : 9/28/2012 4:53:48 PM

Method : \\gcserver\gcdata\Projects\GC9\Method\2012\meep120928.met

Sequence : \\gcserver\gcdata\Projects\GC9\Sequence\2012\meep120928.seq

Data Description : MEEP=ST120927-4

Instrument : GC9

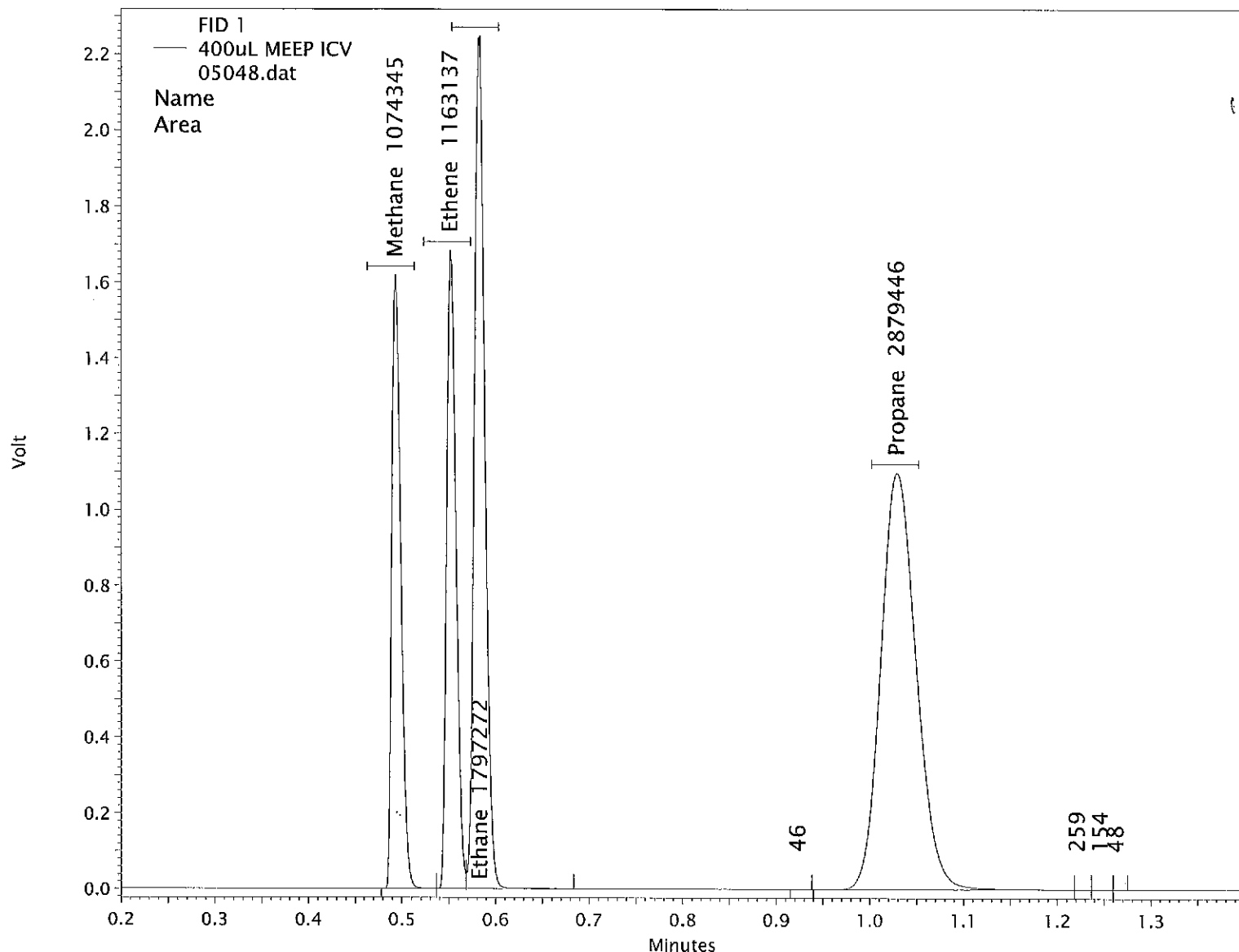
Data Acquired By : noltej

Data Processed By : noltej

Inj. Vol. (uL) : 300

## FID 1 Results

Compound Name	RT	Expected RT	Peak Area	Integration Codes	Concentration	Conc. Units
Methane	0.493	0.488	1074345	BV	291.00	ug/L
Ethene	0.552	0.548	1163137	VV	509.32	ug/L
Ethane	0.583	0.578	1797272	VI	544.34	ug/L
Propane	1.030	1.028	2879446	BV	777.84	ug/L



Column : CarbonPLOT

(1st int. code is for peak start, 2nd int code is for peak stop) B=baseline, f=force start or stop, l=ended by int. off event, N=begin negative peak, P=end negative peak, H=forward horiz, h=backward horiz, M=manual baseline or peak, m=move baseline start/stop, S=shoulder, T=tangent skim, V=valley, v=forced valley point, x=split peak, E=end of chromatogram encountered, R=reset baseline, L=lowest point horiz.

Printed On : 9/28/2012 4:55:10 PM

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# Dissolved Gases Quantitation Report

ALSLG-Fort Collins

Sample : HC130904-9CCS

Filename : \\gcserver\gcdata\Projects\GC9\Data\2013\Meep130903\06031.dat

Acquisition Date : 9/4/2013 3:04:52 PM

Quantitation Date : 9/6/2013 4:41:59 PM

Last Method Update : 9/4/2013 4:22:25 PM

Method : \\gcserver\gcdata\Projects\GC9\Method\2012\meep120928f.met

Sequence : \\gcserver\gcdata\Projects\GC9\Sequence\2013\Meep130904.seq

Data Description : {Data Description}

Instrument : GC9

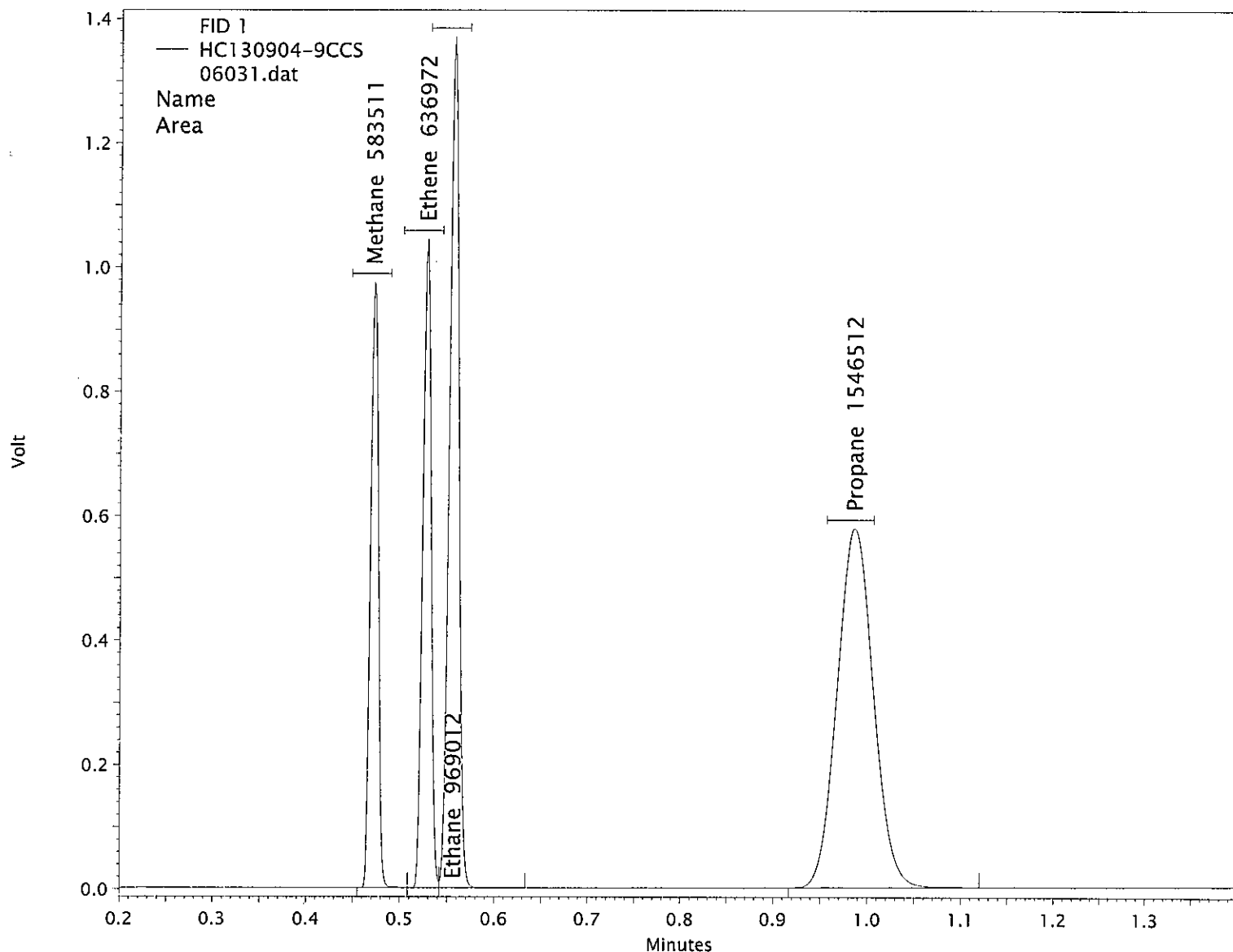
Data Acquired By : sheneman

Data Processed By : sheneman

Inj. Vol. (uL) : 300

## FID 1 Results

Compound Name	RT	Expected RT	Peak Area	Integration Codes	Concentration	Conc. Unit
Methane	0.472	0.468	583511	BV	157.76	ug/L
Ethene	0.528	0.523	636972	VV	278.91	ug/L
Ethane	0.557	0.552	969012	VB	293.45	ug/L
Propane	0.987	0.982	1546512	IB	415.98	ug/L



Column : CarbonPLOT

{1st int. code is for peak start, 2nd int code is for peak stop} B=baseline, f=force start or stop, l=ended by int. off event, N=begin negative peak, P=end negative peak, H=forward horiz, h=backward horiz, M=manual baseline or peak, m=move baseline start/stop, S=shoulder, T=tangent skim, V=valley, v=forced valley point, x=split peak, E=end of chromatogram encountered, R=reset baseline, L=lowest point horiz.

Printed On : 9/6/2013 4:42:00 PM

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# Dissolved Gases Quantitation Report

ALS LG-Fort Collins

Sample : HC130904-9CCSD

Filename : \\gcserver\gcdata\Projects\GC9\Data\2013\Meep130903\06041.dat

Acquisition Date : 9/4/2013 4:03:30 PM

Quantitation Date : 9/6/2013 4:42:35 PM

Last Method Update : 9/4/2013 4:22:25 PM

Method : \\gcserver\gcdata\Projects\GC9\Method\2012\meep120928f.met

Sequence : \\gcserver\gcdata\Projects\GC9\Sequence\2013\Meep130904.seq

Data Description : {Data Description}

Instrument : GC9

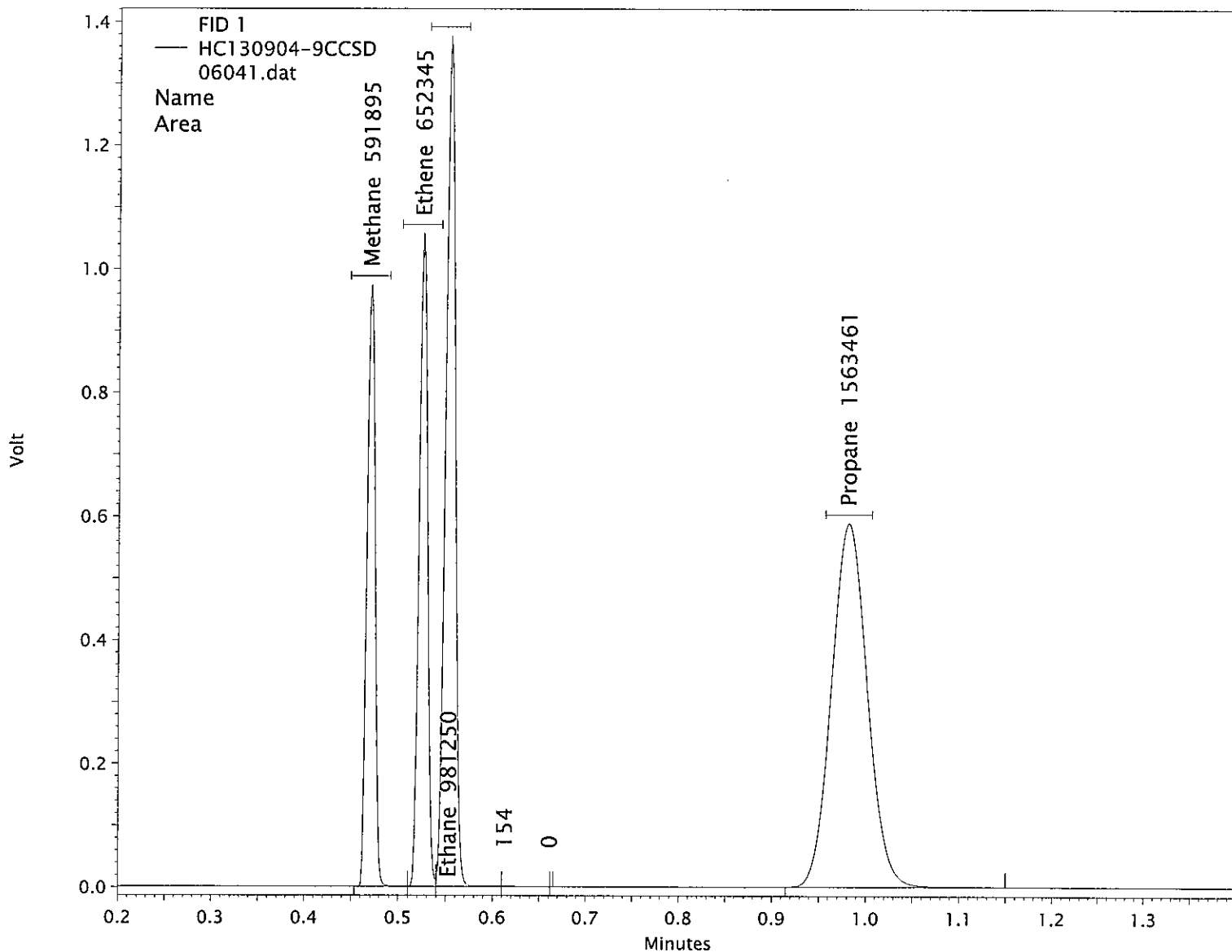
Data Acquired By : sheneman

Data Processed By : sheneman

Inj. Vol. (uL) : 300

## FID 1 Results

Compound Name	RT	Expected RT	Peak Area	Integration Codes	Concentration	Conc. Unit
Methane	0.470	0.468	591895	BV	160.04	ug/L
Ethene	0.525	0.523	652345	VV	285.64	ug/L
Ethane	0.553	0.552	981250	VV	297.16	ug/L
Propane	0.982	0.982	1563461	II	420.58	ug/L



Column : CarbonPLOT

(1st int. code is for peak start, 2nd int code is for peak stop) B=baseline, f=force start or stop, l=ended by int. off event, N=begin negative peak, P=end negative peak, H=forward horiz, h=backward horiz, M=manual baseline or peak, m=move baseline start/stop, S=shoulder, T=tangent skim, V=valley, v=forced valley point, x=split peak, E=end of chromatogram encountered, R=reset baseline, L=lowest point horiz.

Printed On : 9/6/2013 4:42:36 PM

# Dissolved Gases Quantitation Report

ALSLG-Fort Collins

Sample : CCV

Filename : \\gcserver\gcdata\Projects\GC9\Data\2013\Meep130903\06054.dat

Acquisition Date : 9/4/2013 4:48:06 PM

Quantitation Date : 9/6/2013 4:58:08 PM

Last Method Update : 9/4/2013 4:22:25 PM

Method : \\gcserver\gcdata\Projects\GC9\Method\2012\meep120928f.met

Sequence : \\gcserver\gcdata\Projects\GC9\Sequence\2013\Meep130904.seq

Data Description : {Data Description}

Instrument : GC9

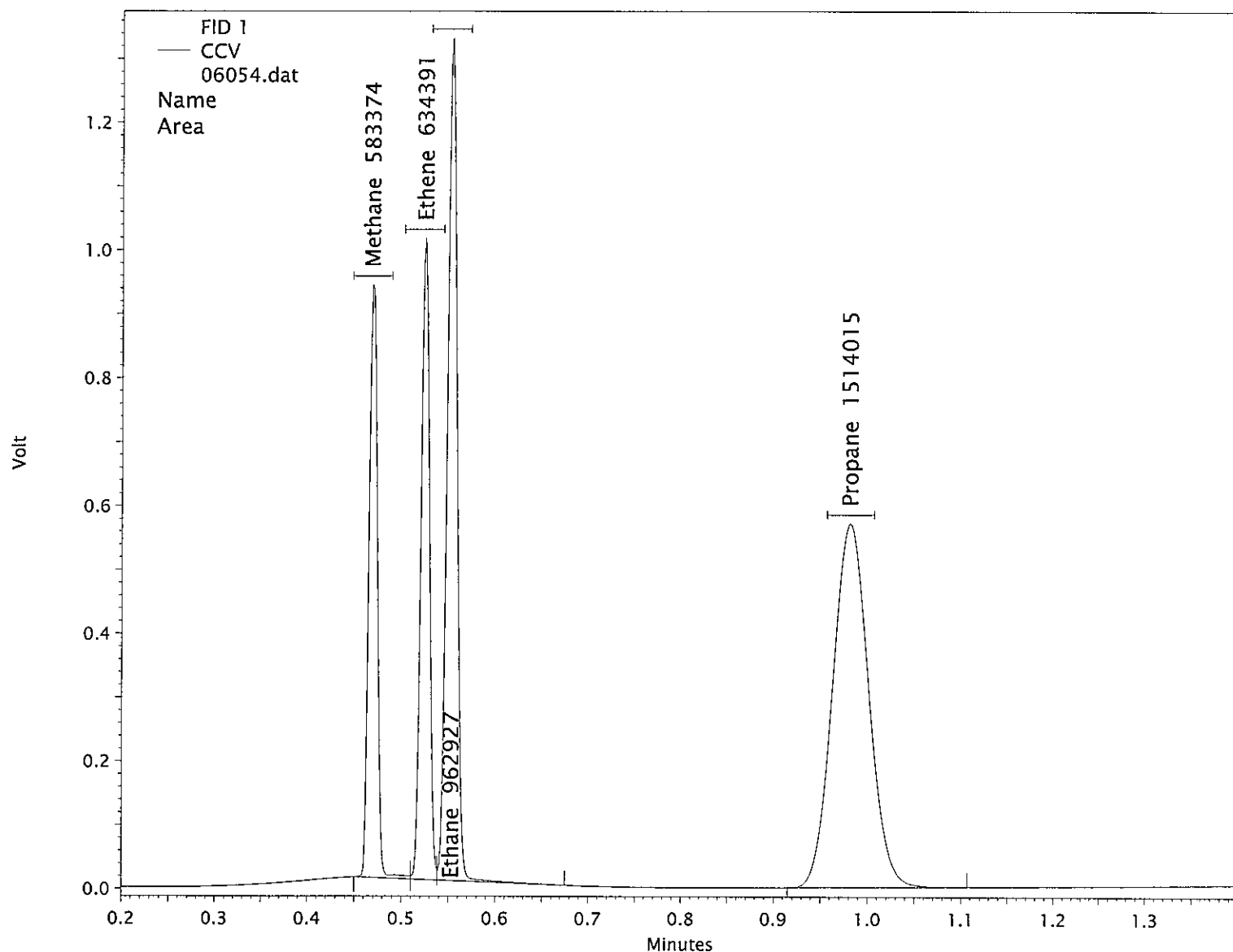
Data Acquired By : sheneman

Data Processed By : sheneman

Inj. Vol. (uL) : 300

## FID 1 Results

Compound Name	RT	Expected RT	Peak Area	Integration Codes	Concentration	Conc. Unit
Methane	0.468	0.468	583374	BV	157.72	ug/L
Ethene	0.525	0.523	634391	VV	277.78	ug/L
Ethane	0.553	0.552	962927	VI	291.61	ug/L
Propane	0.982	0.982	1514015	IB	407.15	ug/L



Column : CarbonPLOT

(1st int. code is for peak start, 2nd int code is for peak stop) B=baseline, f=force start or stop, l=ended by int. off event, N=begin negative peak, P=end negative peak, H=forward horiz, h=backward horiz, M=manual baseline or peak, m=move baseline start/stop, S=shoulder, T=tangent skim, V=valley, v=forced valley point, x=split peak, E=end of chromatogram encountered, R=reset baseline, L=lowest point horiz.

Printed On : 9/6/2013 4:58:09 PM



## Sample Raw Data



# Dissolved Gases Quantitation Report

ALSLG-Fort Collins

Sample : HC130904-9MB

Filename : \\gcserver\gcdata\Projects\GC9\Data\2013\Meep130903\06032.dat

Acquisition Date : 9/4/2013 3:08:53 PM

Quantitation Date : 9/6/2013 4:42:03 PM

Last Method Update : 9/4/2013 4:22:25 PM

Method : \\gcserver\gcdata\Projects\GC9\Method\2012\meep120928f.met

Sequence : \\gcserver\gcdata\Projects\GC9\Sequence\2013\Meep130904.seq

Data Description : {Data Description}

Instrument : GC9

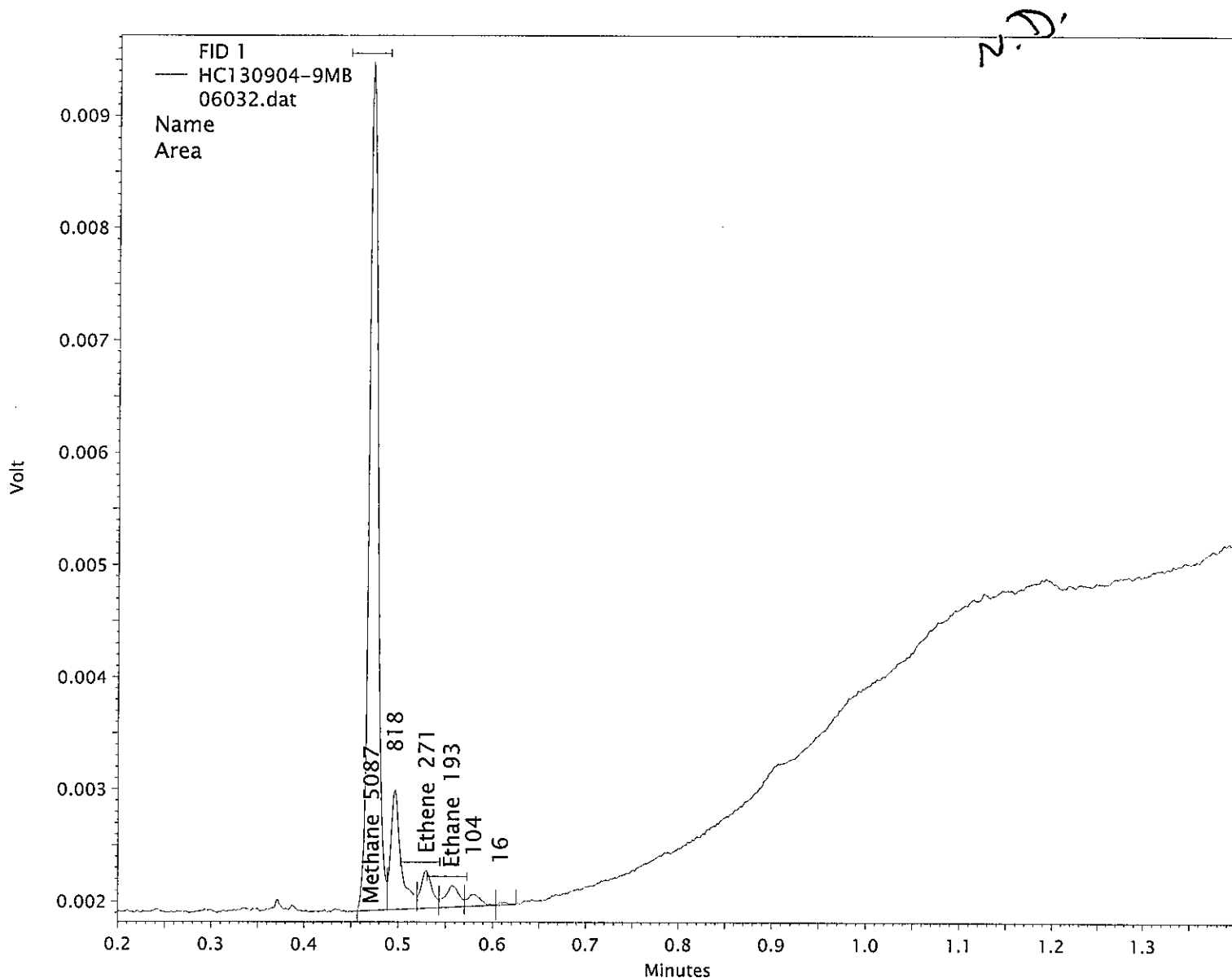
Data Acquired By : sheneman

Data Processed By : sheneman

Inj. Vol. (uL) : 300

## FID 1 Results

Compound Name	RT	Expected RT	Peak Area	Integration Codes	Concentration	Conc. Unit
Methane	0.472	0.468	5087	BV	0.74 <i>&lt; RL</i>	ug/L
Ethene	0.530	0.523	271	VV	0.10	ug/L
Ethane	0.557	0.552	193	VV	0.00	ug/L
Propane		0.982			0.00 BDL	ug/L



Column : CarbonPLOT

(1st int. code is for peak start, 2nd int code is for peak stop) B=baseline, f=force start or stop, l=ended by int. off event, N=begin negative peak, P=end negative peak, H=forward horiz, h=backward horiz, M=manual baseline or peak, m=move baseline start/stop, S=shoulder, T=tangent skim, V=valley, v=forced valley point, x=split peak, E=end of chromatogram encountered, R=reset baseline, L=lowest point horiz.

Printed On : 9/6/2013 4:42:04 PM

# Dissolved Gases Quantitation Report

ALSLG-Fort Collins

Sample : 1308515-1

Filename : \\gcserver\gcdata\Projects\GC9\Data\2013\Meep130903\06042.dat

Acquisition Date : 9/4/2013 4:07:19 PM

Quantitation Date : 9/6/2013 4:57:26 PM

Last Method Update : 9/4/2013 4:22:25 PM

Method : \\gcserver\gcdata\Projects\GC9\Method\2012\meep120928f.met

Sequence : \\gcserver\gcdata\Projects\GC9\Sequence\2013\Meep130904.seq

Data Description : {Data Description}

Instrument : GC9

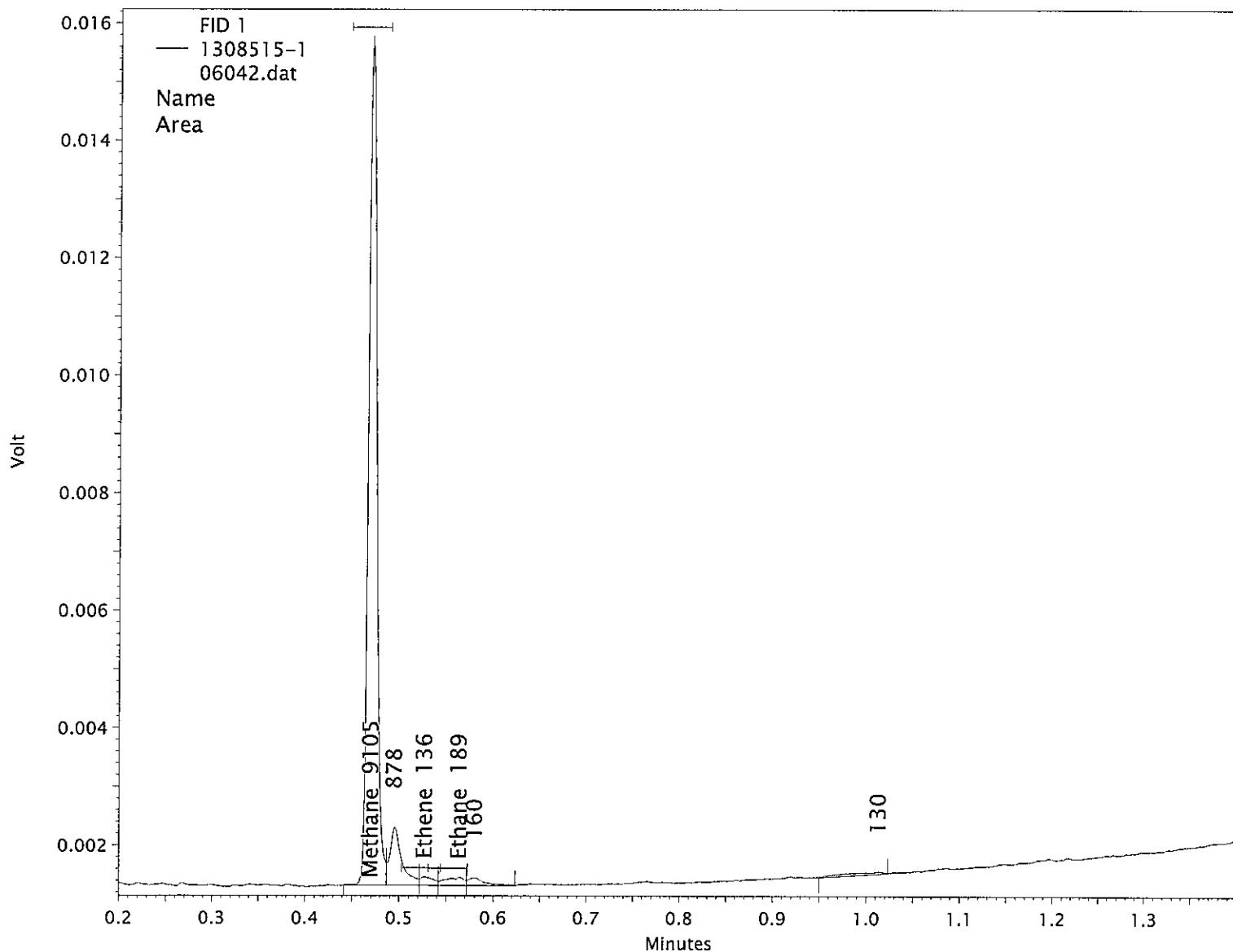
Data Acquired By : sheneman

Data Processed By : sheneman

Inj. Vol. (uL) : 300

## FID 1 Results

Compound Name	RT	Expected RT	Peak Area	Integration Codes	Concentration	Conc. Unit
Methane	0.470	0.468	9105	IV	1.83	ug/L
Ethene	0.527	0.523	136	VV	0.04	ug/L
Ethane	0.563	0.552	189	VV	0.00	ug/L
Propane		0.982			0.00 BDL	ug/L



Column : CarbonPLOT

{1st int. code is for peak start, 2nd int code is for peak stop} B=baseline, f=force start or stop, l=ended by int. off event, N=begin negative peak, P=end negative peak, H=forward horiz, h=backward horiz, M=manual baseline or peak, m=move baseline start/stop, S=shoulder, T=tangent skim, V=valley, v=forced valley point, x=split peak, E=end of chromatogram encountered, R=reset baseline, L=lowest point horiz.

Printed On : 9/6/2013 4:57:27 PM

# Dissolved Gases Quantitation Report

ALSLG-Fort Collins

Sample : 1308515-2

Filename : \\gcserver\gcdata\Projects\GC9\Data\2013\Meep130903\06044.dat

Acquisition Date : 9/4/2013 4:13:04 PM

Quantitation Date : 9/6/2013 4:57:33 PM

Last Method Update : 9/4/2013 4:22:25 PM

Method : \\gcserver\gcdata\Projects\GC9\Method\2012\meep120928f.met

Sequence : \\gcserver\gcdata\Projects\GC9\Sequence\2013\Meep130904.seq

Data Description : {Data Description}

Instrument : GC9

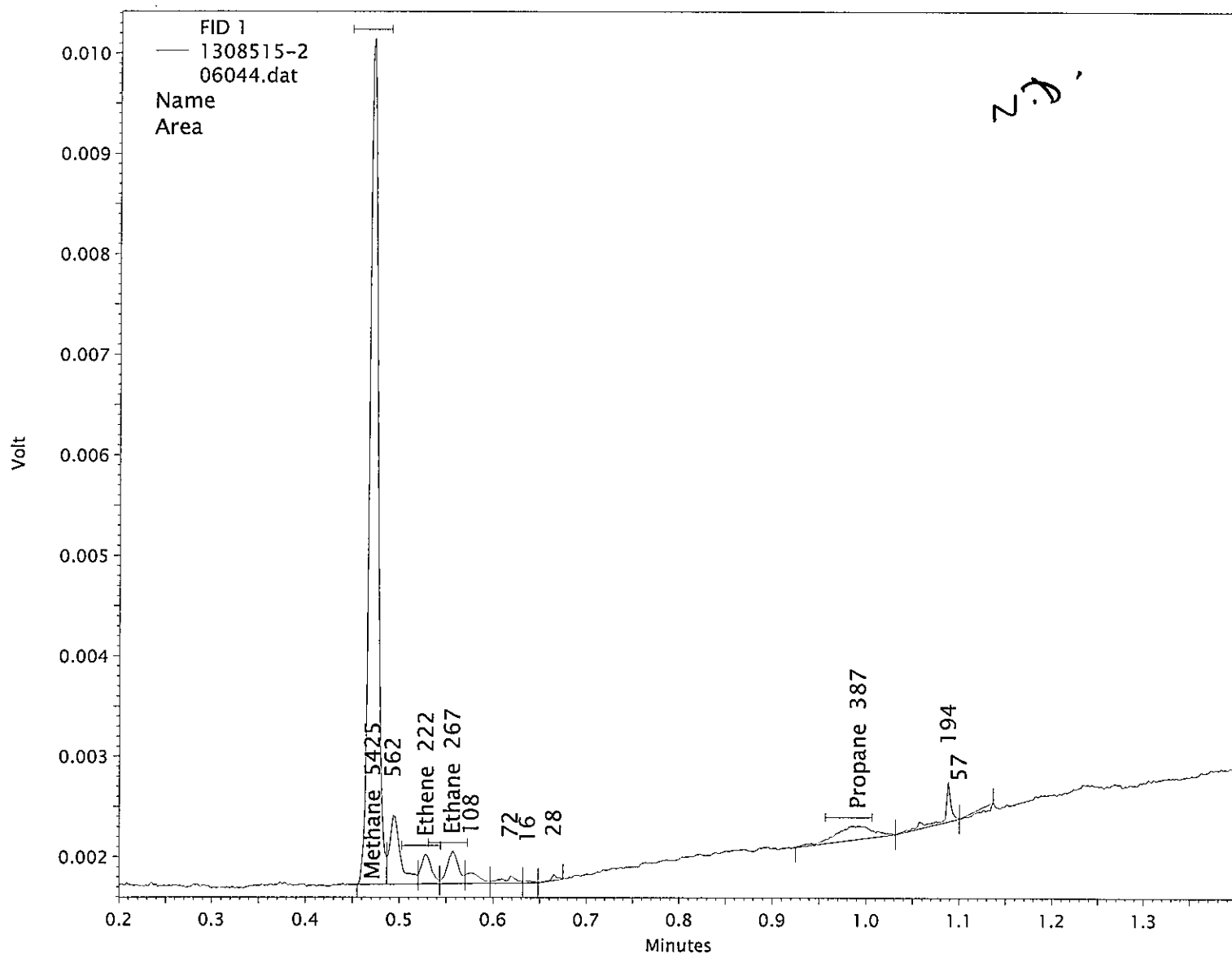
Data Acquired By : sheneman

Data Processed By : sheneman

Inj. Vol. (uL) : 300

## FID 1 Results

Compound Name	RT	Expected RT	Peak Area	Integration Codes	Concentration	Conc. Unit
Methane	0.472	0.468	5425	BV	0.83 <i>LR</i>	ug/L
Ethene	0.528	0.523	222	VV	0.08	ug/L
Ethane	0.557	0.552	267	VV	0.02	ug/L
Propane	0.992	0.982	387	BB	0.00	ug/L



Column : CarbonPLOT

[1st int. code is for peak start, 2nd int code is for peak stop] B=baseline, f=force start or stop, l=ended by int. off event, N=begin negative peak, P=end negative peak, H=forward horiz, h=backward horiz, M=manual baseline or peak, m=move baseline start/stop, S=shoulder, T=tangent skim, V=valley, v=forced valley point, x=split peak, E=end of chromatogram encountered, R=reset baseline, L=lowest point horiz.

Printed On : 9/6/2013 4:57:34 PM

# Dissolved Gases Quantitation Report

ALSLG-Fort Collins

Sample : 1308515-3

Filename : \\gcserver\gcdata\Projects\GC9\Data\2013\Meep130903\06045.dat

Acquisition Date : 9/4/2013 4:17:44 PM

Quantitation Date : 9/6/2013 4:57:37 PM

Last Method Update : 9/4/2013 4:22:25 PM

Method : \\gcserver\gcdata\Projects\GC9\Method\2012\meep120928f.met

Sequence : \\gcserver\gcdata\Projects\GC9\Sequence\2013\Meep130904.seq

Data Description : {Data Description}

Instrument : GC9

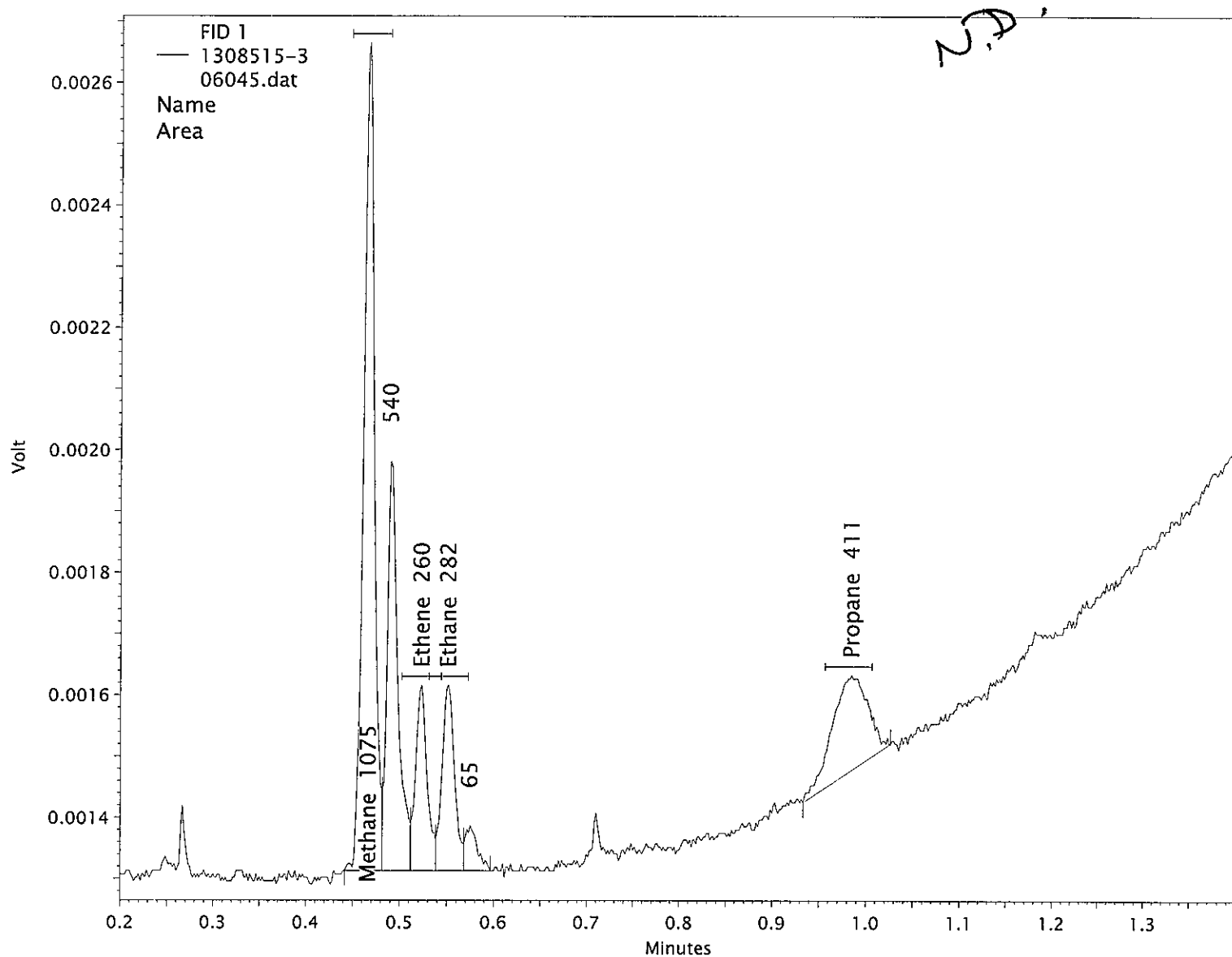
Data Acquired By : sheneman

Data Processed By : sheneman

Inj. Vol. (uL) : 300

## FID 1 Results

Compound Name	RT	Expected RT	Peak Area	Integration Codes	Concentration	Conc. Unit:
Methane	0.467	0.468	1075	IV	0.00	ug/L
Ethene	0.523	0.523	260	VV	0.10	ug/L
Ethane	0.552	0.552	282	VV	0.02	ug/L
Propane	0.985	0.982	411	BB	0.00	ug/L



Column : CarbonPLOT

[1st int. code is for peak start, 2nd int code is for peak stop] B=baseline, f=force start or stop, t=ended by int. off event, N=begin negative peak, P=end negative peak, H=forward horiz, h=backward horiz, M=manual baseline or peak, m=move baseline start/stop, S=shoulder, T=tangent skim, V=valley, v=forced valley point, x=split peak, E=end of chromatogram encountered, R=reset baseline, L=lowest point horiz.

Printed On : 9/6/2013 4:57:38 PM



## **Raw Data Quality Control Samples**

# Dissolved Gases Quantitation Report

ALSLG-Fort Collins

Sample : HC130904-9CCS

Filename : \\gcserver\gcdata\Projects\GC9\Data\2013\Meep130903\06031.dat

Acquisition Date : 9/4/2013 3:04:52 PM

Quantitation Date : 9/6/2013 4:41:59 PM

Last Method Update : 9/4/2013 4:22:25 PM

Method : \\gcserver\gcdata\Projects\GC9\Method\2012\meep120928f.met

Sequence : \\gcserver\gcdata\Projects\GC9\Sequence\2013\Meep130904.seq

Data Description : {Data Description}

Instrument : GC9

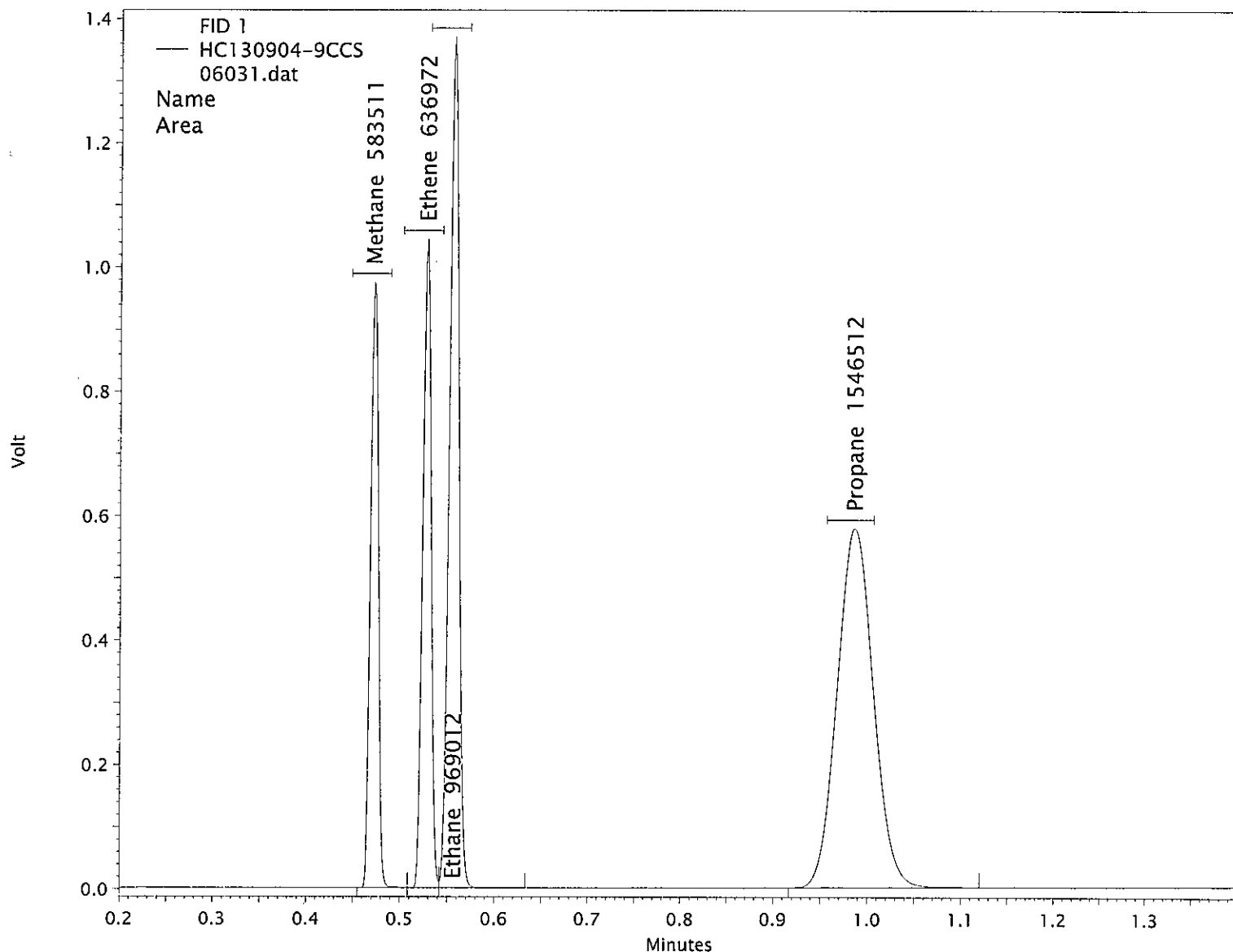
Data Acquired By : sheneman

Data Processed By : sheneman

Inj. Vol. (uL) : 300

## FID 1 Results

Compound Name	RT	Expected RT	Peak Area	Integration Codes	Concentration	Conc. Unit
Methane	0.472	0.468	583511	BV	157.76	ug/L
Ethene	0.528	0.523	636972	VV	278.91	ug/L
Ethane	0.557	0.552	969012	VB	293.45	ug/L
Propane	0.987	0.982	1546512	IB	415.98	ug/L



Column : CarbonPLOT

{1st int. code is for peak start, 2nd int code is for peak stop} B=baseline, f=force start or stop, l=ended by int. off event, N=begin negative peak, P=end negative peak, H=forward horiz, h=backward horiz, M=manual baseline or peak, m=move baseline start/stop, S=shoulder, T=tangent skim, V=valley, v=forced valley point, x=split peak, E=end of chromatogram encountered, R=reset baseline, L=lowest point horiz.

Printed On : 9/6/2013 4:42:00 PM

# Dissolved Gases Quantitation Report

ALS LG-Fort Collins

Sample : HC130904-9CCSD

Filename : \\gcserver\gcdata\Projects\GC9\Data\2013\Meep130903\06041.dat

Acquisition Date : 9/4/2013 4:03:30 PM

Quantitation Date : 9/6/2013 4:42:35 PM

Last Method Update : 9/4/2013 4:22:25 PM

Method : \\gcserver\gcdata\Projects\GC9\Method\2012\meep120928f.met

Sequence : \\gcserver\gcdata\Projects\GC9\Sequence\2013\Meep130904.seq

Data Description : {Data Description}

Instrument : GC9

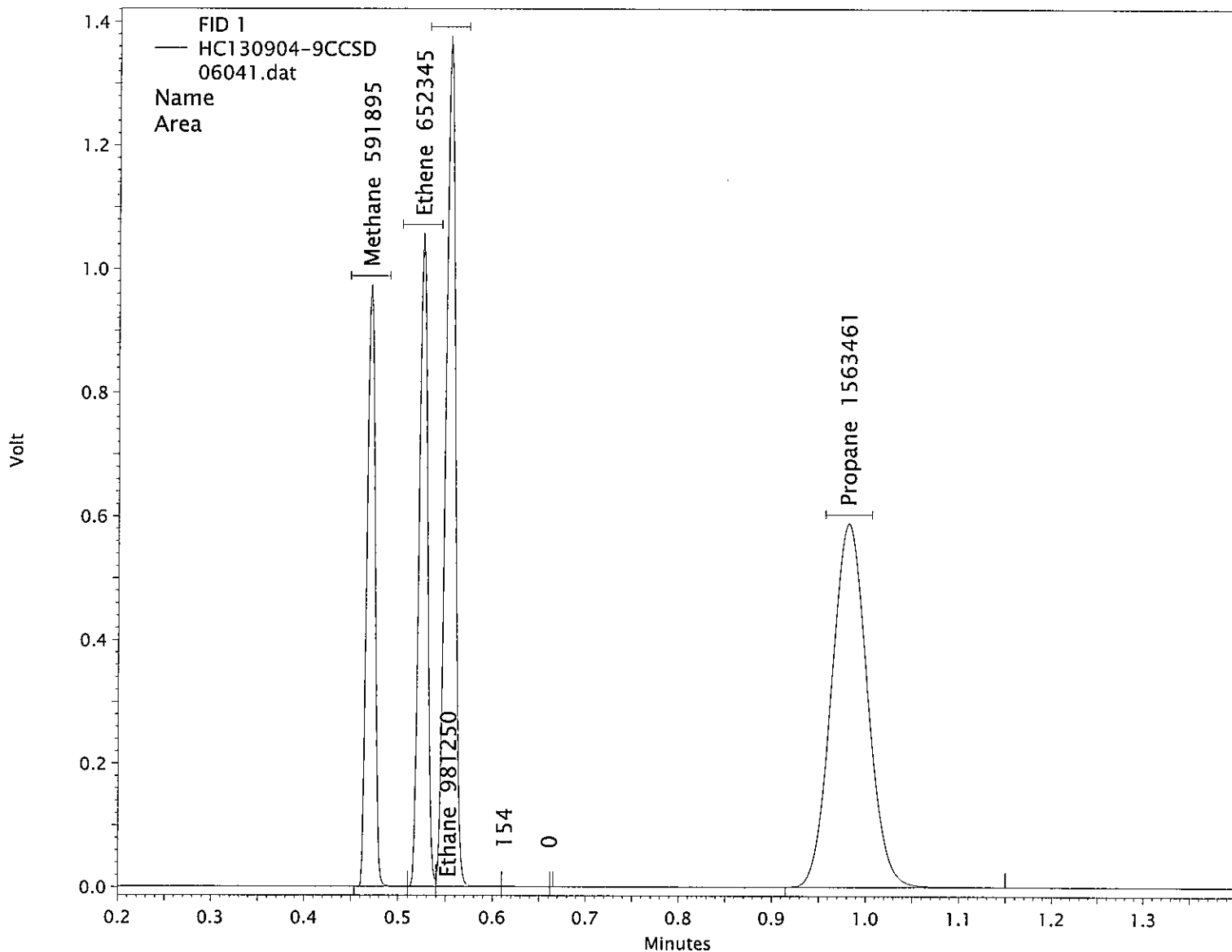
Data Acquired By : sheneman

Data Processed By : sheneman

Inj. Vol. (uL) : 300

## FID 1 Results

Compound Name	RT	Expected RT	Peak Area	Integration Codes	Concentration	Conc. Unit
Methane	0.470	0.468	591895	BV	160.04	ug/L
Ethene	0.525	0.523	652345	VV	285.64	ug/L
Ethane	0.553	0.552	981250	VV	297.16	ug/L
Propane	0.982	0.982	1563461	II	420.58	ug/L



Column : CarbonPLOT

(1st int. code is for peak start, 2nd int code is for peak stop) B=baseline, f=force start or stop, l=ended by int. off event, N=begin negative peak, P=end negative peak, H=forward horiz, h=backward horiz, M=manual baseline or peak, m=move baseline start/stop, S=shoulder, T=tangent skim, V=valley, v=forced valley point, x=split peak, E=end of chromatogram encountered, R=reset baseline, L=lowest point horiz.

Printed On : 9/6/2013 4:42:36 PM

# Dissolved Gases Quantitation Report

ALSLG-Fort Collins

Sample : 1308515-3MS

Filename : \\gcserver\gcdata\Projects\GC9\Data\2013\Meep130903\06046.dat

Acquisition Date : 9/4/2013 4:20:44 PM

Quantitation Date : 9/6/2013 4:57:41 PM

Last Method Update : 9/4/2013 4:22:25 PM

Method : \\gcserver\gcdata\Projects\GC9\Method\2012\meep120928f.met

Sequence : \\gcserver\gcdata\Projects\GC9\Sequence\2013\Meep130904.seq

Data Description : {Data Description}

Instrument : GC9

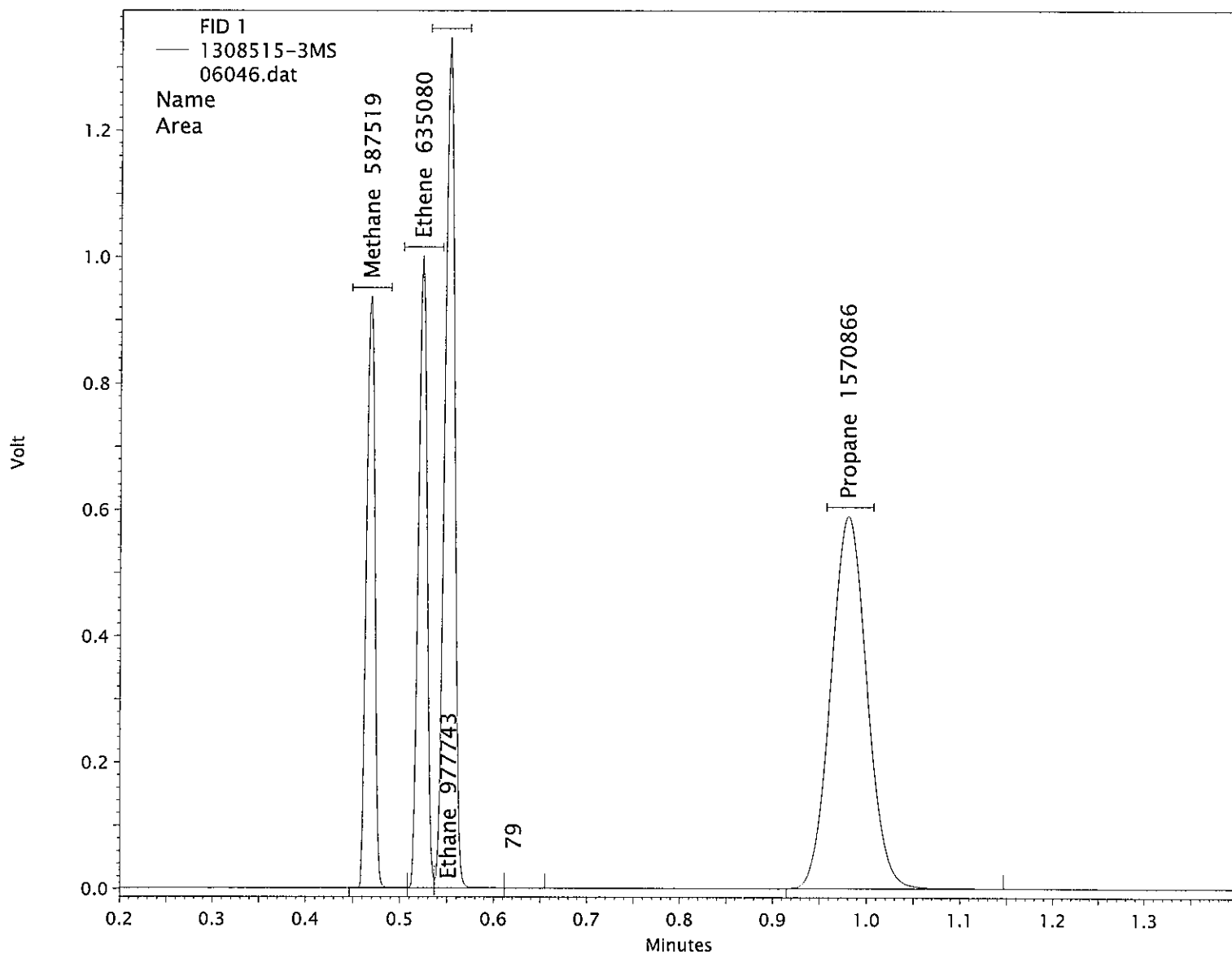
Data Acquired By : sheneman

Data Processed By : sheneman

Inj. Vol. (uL) : 300

## FID 1 Results

Compound Name	RT	Expected RT	Peak Area	Integration Codes	Concentration	Conc. Unit
Methane	0.468	0.468	587519	BV	158.85	ug/L
Ethene	0.523	0.523	635080	VV	278.08	ug/L
Ethane	0.552	0.552	977743	VV	296.10	ug/L
Propane	0.980	0.982	1570866	II	422.59	ug/L



Column : CarbonPLOT

(1st int. code is for peak start, 2nd int code is for peak stop) B=baseline, f=force start or stop, i=ended by int. off event, N=begin negative peak, P=end negative peak, H=forward horiz, h=backward horiz, M=manual baseline or peak, m=move baseline start/stop, S=shoulder, T=tangent skim, V=valley, v=forced valley point, x=split peak, E=end of chromatogram encountered, R=reset baseline, L=lowest point horiz.

Printed On : 9/6/2013 4:57:41 PM



# Dissolved Gases Quantitation Report

ALSLG-Fort Collins

Sample : 1308515-1DUP

Filename : \\gcserver\gcdata\Projects\GC9\Data\2013\Meep130903\06043.dat

Acquisition Date : 9/4/2013 4:09:59 PM

Quantitation Date : 9/6/2013 4:57:30 PM

Last Method Update : 9/4/2013 4:22:25 PM

Method : \\gcserver\gcdata\Projects\GC9\Method\2012\meep120928f.met

Sequence : \\gcserver\gcdata\Projects\GC9\Sequence\2013\Meep130904.seq

Data Description : {Data Description}

Instrument : GC9

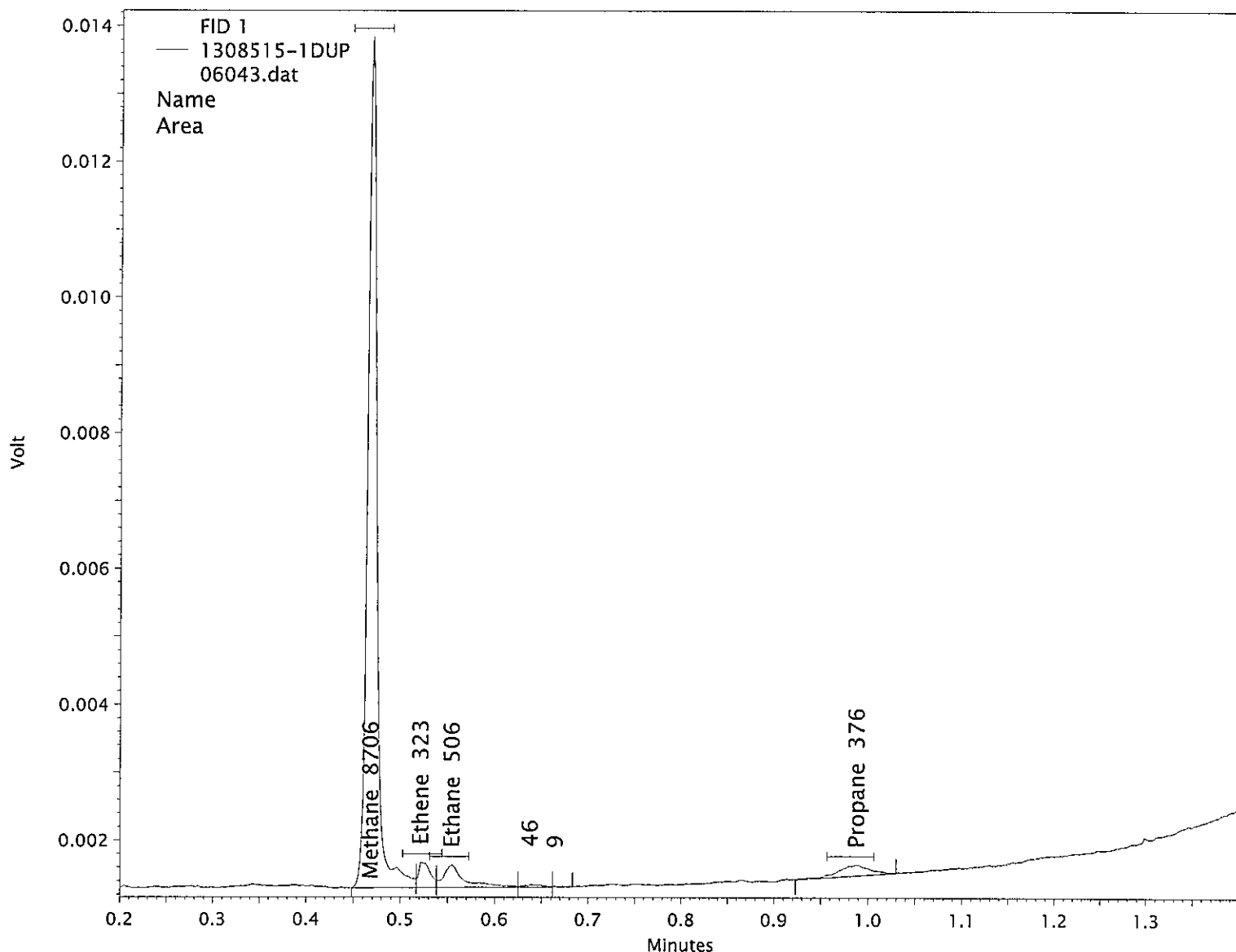
Data Acquired By : sheneman

Data Processed By : sheneman

Inj. Vol. (uL) : 300

## FID 1 Results

Compound Name	RT	Expected RT	Peak Area	Integration Codes	Concentration	Conc. Unit
Methane	0.468	0.468	8706	BV	1.72	ug/L
Ethene	0.522	0.523	323	VV	0.12	ug/L
Ethane	0.555	0.552	506	VV	0.09	ug/L
Propane	0.988	0.982	376	BB	0.00	ug/L



Column : CarbonPLOT

{1st int. code is for peak start, 2nd int code is for peak stop} 8=baseline, f=force start or stop, l=ended by int. off event, N=begin negative peak, P=end negative peak, H=forward horiz, h=backward horiz, M=manual baseline or peak, m=move baseline start/stop, S=shoulder, T=tangent skim, V=valley, v=forced valley point, x=split peak, E=end of chromatogram encountered, R=reset baseline, L=lowest point horiz.

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