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Automated Report

Technical Report for

Anderson, Mulholland & Associates

BMSMC, Building 5 Area, PR

SM04.00.06

SGS Accutest Job Number: JC19214T

Sampling Date: 04/26/16

Report to:

Anderson, Mulholland & Associates
2700 Westchester Avenue Suite 417
Purchase, NY 10577
ttaylor@amaiconsult.com

ATTN: Terry Taylor

Total number of pages in report: 92

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Nancy Cole
Laboratory Director

Client Service contact: Tammy McCloskey 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, DE, FL, IL, IN, KS, KY, LA, MA, MD, MI, MT, NC, OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA, RI, SC, TN, TX, VA, WV, DoD ELAP (L-A-B L2248)

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SGS Accutest

Sample Summary

Anderson, Mulholland & Associates

Job No: JC19214T

BMSMC, Building 5 Area, PR
Project No: SM04.00.06

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JC19214-1T	04/26/16	13:35	TT	04/28/16	AQ	Ground Water	RA17-GWD

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	Anderson, Mulholland & Associates	**Job No**	JC19214T
Site:	BMSMC, Building 5 Area, PR	**Report Date**	6/17/2016 12:01:14 P

On 04/28/2016, 1 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at SGS Accutest at a maximum corrected temperature of 5.4 C. Samples were intact and chemically preserved, unless noted below. A SGS Accutest Job Number of JC19214T was assigned to the project. Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Volatiles by GC By Method SW846-8015C (DAI)

Matrix: AQ **Batch ID:** GGH5320

- All method blanks for this batch meet method specific criteria.
- Sample(s) JC18649-1TMS, JC18649-1TMSD were used as the QC samples indicated.
- The following samples for method SW846-8015C (DAI): JC19214-1T Sample analyzed outside the holding time per client's request.

SGS Accutest certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting the Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

SGS Accutest is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. Data release is authorized by SGS Accutest indicated via signature on the report cover

Summary of Hits

Job Number: JC19214T
Account: Anderson, Mulholland & Associates
Project: BMSMC, Building 5 Area, PR
Collected: 04/26/16

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JC19214-1T	**RA17-GWD**					

No hits reported in this sample.

Sample Results

Report of Analysis

SGS Accutest

Report of Analysis

Client Sample ID:	RA17-GWD		
Lab Sample ID:	JC19214-1T	**Date Sampled:**	04/26/16
Matrix:	AQ - Ground Water	**Date Received:**	04/28/16
Method:	SW846-8015C (DAI)	**Percent Solids:**	n/a
Project:	BMSMC, Building 5 Area, PR		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	GH105452.D	1	06/13/16	XPL	n/a	n/a	GGH5320
Run #2							

CAS No.	Compound	Result	RL	MDL	Units	Q
67-63-0	Isopropyl Alcohol	ND	100	68	ug/l	
78-92-2	sec-Butyl Alcohol	ND	100	66	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
111-27-3	Hexanol	97%		56-145%
111-27-3	Hexanol	98%		56-145%

(a) Sample analyzed outside the holding time per client's request.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- Sample Tracking Chronicle
- Internal Chain of Custody

SGS ACCUTEST - NJ

CHAIN OF CUSTODY

SGS Accutest - Dayton
2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200 FAX: 732-329-3499/3480
www.accutest.com

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801219536132

Bottle Order Control #

SGS Accutest Quote #

SGS Accutest Job # JC19214

Client / Reporting Information

Company Name: Anderson Mulholland Assc. Inc.
Street Address: 2700 Westchester
City State Zip: Purchase NY
Project Contact: Terry Taylor
E-mail:
Phone #: 914-251-0400
Fax #:
Sampler(s) Name(s): N. Rivera, T. Taylor, D. Lindstrand, R. O'Reilly
Phone #:

Project Information

Project Name: BMS Release Assessment
Street:
City State: Humacao PR
Project #:
Client Purchase Order #:
Project Manager:

Billing Information (if different from Report to)
Company Name:
Street Address:
City State Zip:
Attention:

Requested Analysis (see TEST CODE sheet)

SGS Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	SVOC - Method 8270D	LMA - Method 8015B	Pesticides - Method 8081B	1,4 Dioxane + Naphthalene by Method 8270D SIM	2 x 500 mL AMBER FOC RL 4-28-16						LAB USE ONLY
-1	RA17-GWD		4/26/16	1335	TT	GW	7	3				4				X	X	X	X							E47
-2	RA17-GWS		4/27/16	1130	TT	GW	7	3				4				X	X	X	X							V1164

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL- Sludge; SED-Sediment; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid; WP - Wipe; FB-Field Blank; EB-Equipment Blank; RB- Rinse Blank; TB-Trip Blank

INITIAL ASESSMENT RL 2B

LABEL VERIFICATION

Turnaround Time (Business days)

- [x] Std. 10 Business Days For Soil
- [ ] 5 Day RUSH
- [ ] 3 Day RUSH
- [ ] 2 Day RUSH
- [x] 1 Day RUSH For Aqueous
- [ ] other

Approved By (SGS Accutest PM): / Date:

Emergency & Rush T/A data available VIA Lablink

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [x] FULLT1 (Level 3+4)
- [ ] NJ Reduced
- [ ] Commercial "C"
- [ ] NJ Data of Known Quality Protocol Reporting
- [ ] NYASP Category A
- [ ] NYASP Category B
- [ ] State Forms
- [ ] EDD Format
- [ ] Other

Commercial "A" = Results Only, Commercial "B" = Results + QC Summary
NJ Reduced = Results + QC Summary + Partial Raw data

Comments / Special Instructions

Add to Report: 1-methyl naphthalene with SVOC by Method 8270D

Sample inventory is verified upon receipt in the Laboratory

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	[signature]	4/27/16 1500	Fed EX	FEDEX	4-28-16 950	[signature]
2						
3						
4						
5						

Custody Seal # 632 [x] Intact [ ] Not intact

Preserved where applicable [ ]

On Ice [x]

Cooler Temp. 5.0° FP

JC19214T: Chain of Custody
Page 1 of 4

SGS Accutest Sample Receipt Summary

Job Number: JC19214 **Client:** _____ **Project:** _____

Date / Time Received: 4/28/2016 9:50:00 AM **Delivery Method:** _____ **Airbill #'s:** _____

Cooler Temps (Raw Measured) °C: Cooler 1: (5.0);

Cooler Temps (Corrected) °C: Cooler 1: (5.4);

Cooler Security	Y	N		Y	N
1. Custody Seals Present:	☑	☐	3. COC Present:	☑	☐
2. Custody Seals Intact:	☑	☐	4. Smpl Dates/Time OK	☑	☐

Cooler Temperature	Y	N
1. Temp criteria achieved:	☑	☐
2. Cooler temp verification:	IR Gun	
3. Cooler media:	Ice (Bag)	
4. No. Coolers:	1	

Quality Control Preservation	Y	N	N/A
1. Trip Blank present / cooler:	☐	☑	☐
2. Trip Blank listed on COC:	☐	☑	☐
3. Samples preserved properly:	☑	☐	
4. VOCs headspace free:	☑	☐	☐

Sample Integrity - Documentation	Y	N
1. Sample labels present on bottles:	☑	☐
2. Container labeling complete:	☑	☐
3. Sample container label / COC agree:	☑	☐

Sample Integrity - Condition	Y	N
1. Sample recvd within HT:	☑	☐
2. All containers accounted for:	☑	☐
3. Condition of sample:	Intact	

Sample Integrity - Instructions	Y	N	N/A
1. Analysis requested is clear:	☑	☐	
2. Bottles received for unspecified tests	☐	☑	
3. Sufficient volume recvd for analysis:	☑	☐	
4. Compositing instructions clear:	☐	☐	☑
5. Filtering instructions clear:	☐	☐	☑

Comments

5.1

5

JC19214T: Chain of Custody

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Job Change Order: JC19214

Requested Date:	5/23/2016	**Received Date:**	4/28/2016
Account Name:	Anderson, Mulholland & Associate	**Due Date:**	4/29/2016
Project Description:	BMSMC, Building 5 Area, PR	**Deliverable:**	FULT1
CSR:	tammym	**TAT (Days):**	3

==========

Sample #: JC19214-2A

Dept:

TAT: 3

RA17-GWS

Change:

5/20/16 pm - 1 x 40ml received from SGS Accutest Orlando FL. Relog for D8015SBA, DGC+IPA. Ok out of hold time.

==========

Above Changes Per: Terry Taylor

Date/Time: 5/23/2016 9:04:10 AM

To Client: This Change Order is confirmation of the revisions, previously discussed with the SGS Accutest Client Service Representative.

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Job Change Order: JC19214

Requested Date:	6/9/2016	**Received Date:**	4/28/2016
Account Name:	Anderson, Mulholland & Associate	**Due Date:**	4/29/2016
Project Description:	BMSMC, Building 5 Area, PR	**Deliverable:**	FULT1
CSR:	tammym	**TAT (Days):**	3

==========

Sample #: JC19214-1

Dept:

TAT: 3

RA17-GWD

Change:

relog for D8015SBA, DGC+IPA, ok out of hold and ok from previously opened vials (no remaining unopened vials)

==========

Above Changes Per: Addison Rice / Terry Taylor

Date/Time: 6/9/2016 11:20:55 AM

To Client: This Change Order is confirmation of the revisions, previously discussed with the SGS Accutest Client Service Representative.

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Internal Sample Tracking Chronicle

Anderson, Mulholland & Associates

Job No: JC19214T

BMSMC, Building 5 Area, PR
Project No: SM04.00.06

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JC19214-1T	Collected: 26-APR-16 13:35 By: TT		Received: 28-APR-16 By: RL			
RA17-GWD						
JC19214-1T	SW846-8015C (DAI)	13-JUN-16 16:10	XPL			D8015SBA,DGC + IPA

SGS Accutest Internal Chain of Custody

Job Number: JC19214T
Account: AMANYWP Anderson, Mulholland & Associates
Project: BMSMC, Building 5 Area, PR
Received: 04/28/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC19214-1.1	Secured Storage	Nicholas Goydish	04/28/16 12:13	Retrieve from Storage
JC19214-1.1	Bruce Scholz		04/30/16 10:05	Depleted
Analyst unavailable for custody transfer.				
JC19214-1.1.1	Nicholas Goydish	Organics Prep	04/28/16 12:14	Extract from JC19214-1.1
JC19214-1.1.1	Organics Prep	Yaw Britwum	04/28/16 15:14	Extract from JC19214-1.1
JC19214-1.1.1	Yaw Britwum	Extract Storage	04/28/16 15:14	Return to Storage
JC19214-1.1.1	Extract Storage	Julius Johnson	04/28/16 23:46	Retrieve from Storage
JC19214-1.1.1	Julius Johnson	GCMSF	04/28/16 23:46	Load on Instrument
JC19214-1.1.1	GCMSF	Ashley Dye	04/29/16 11:11	Unload from Instrument
JC19214-1.1.1	Ashley Dye	GCMS3M	04/29/16 11:11	Load on Instrument
JC19214-1.1.1	GCMS3M	Linsey Kirschmann	05/02/16 14:15	Unload from Instrument
JC19214-1.1.1	Linsey Kirschmann	Extract Freezer	05/02/16 14:15	Return to Storage
JC19214-1.1.1	Extract Freezer		06/08/16 09:00	Disposed
JC19214-1.4	Secured Storage	Ryan Fantasia	04/28/16 15:03	Retrieve from Storage
JC19214-1.4	Ryan Fantasia		04/28/16 23:09	Depleted
JC19214-1.4.1	Ryan Fantasia	Organics Prep	04/28/16 15:30	Extract from JC19214-1.4
JC19214-1.4.1	Organics Prep	Stephen Domke	04/28/16 22:47	Extract from JC19214-1.4
JC19214-1.4.1	Stephen Domke	Extract Storage	04/28/16 22:47	Return to Storage
JC19214-1.4.1	Extract Storage	Brittany Piercy	04/29/16 09:52	Retrieve from Storage
JC19214-1.4.1	Brittany Piercy	GC1G	04/29/16 09:52	Load on Instrument
JC19214-1.4.1	GC1G	Brittany Piercy	05/04/16 09:21	Unload from Instrument
JC19214-1.4.1	Brittany Piercy	Extract Freezer	05/04/16 09:21	Return to Storage
JC19214-1.4.1	Extract Freezer		06/08/16 09:00	Disposed
JC19214-1.5	Secured Storage	Robert Lofrano	04/28/16 14:47	Retrieve from Storage
JC19214-1.5	Robert Lofrano		04/28/16 14:50	Subcontract
JC19214-1.6	Secured Storage	Robert Lofrano	04/28/16 14:47	Retrieve from Storage
JC19214-1.6	Robert Lofrano		04/28/16 14:50	Subcontract
JC19214-1.7	Secured Storage	Robert Lofrano	04/28/16 14:47	Retrieve from Storage
JC19214-1.7	Robert Lofrano		04/28/16 14:50	Subcontract
JC19214-1.8	Secured Storage	Xu Liu	06/10/16 07:07	Retrieve from Storage
JC19214-1.8	Xu Liu	Secured Storage	06/10/16 14:02	Return to Storage
JC19214-1.8	Secured Storage	Xu Liu	06/13/16 08:12	Retrieve from Storage
JC19214-1.8	Xu Liu	Secured Storage	06/13/16 14:37	Return to Storage

GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- GC Identification Summaries (Hits)
- Surrogate Recovery Summaries
- GC Surrogate Retention Time Summaries
- Initial and Continuing Calibration Summaries

Method Blank Summary

Job Number: JC19214T
Account: AMANYWP Anderson, Mulholland & Associates
Project: BMSMC, Building 5 Area, PR

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGH5320-MB3	GH105451.D	1	06/13/16	XPL	n/a	n/a	GGH5320

The QC reported here applies to the following samples: **Method:** SW846-8015C (DAI)

JC19214-1T

CAS No.	Compound	Result	RL	MDL	Units	Q
67-63-0	Isopropyl Alcohol	ND	100	68	ug/l	
78-92-2	sec-Butyl Alcohol	ND	100	66	ug/l	

CAS No.	Surrogate Recoveries		Limits
111-27-3	Hexanol	80%	56-145%
111-27-3	Hexanol	79%	56-145%

Method Blank Summary

Job Number: JC19214T
Account: AMANYWP Anderson, Mulholland & Associates
Project: BMSMC, Building 5 Area, PR

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGH5320-MB1	GH105436.D	1	06/13/16	XPL	n/a	n/a	GGH5320

The QC reported here applies to the following samples: **Method:** SW846-8015C (DAI)

GGH5320-BS

CAS No.	Compound	Result	RL	MDL	Units	Q
67-63-0	Isopropyl Alcohol	ND	100	68	ug/l	
78-92-2	sec-Butyl Alcohol	ND	100	66	ug/l	

CAS No.	Surrogate Recoveries		Limits
111-27-3	Hexanol	95%	56-145%
111-27-3	Hexanol	95%	56-145%

Method Blank Summary

Job Number: JC19214T
Account: AMANYWP Anderson, Mulholland & Associates
Project: BMSMC, Building 5 Area, PR

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGH5320-MB2	GH105446.D	1	06/13/16	XPL	n/a	n/a	GGH5320

The QC reported here applies to the following samples: **Method:** SW846-8015C (DAI)

JC18649-1TMS, JC18649-1TMSD

CAS No.	Compound	Result	RL	MDL	Units	Q
67-63-0	Isopropyl Alcohol	ND	100	68	ug/l	
78-92-2	sec-Butyl Alcohol	ND	100	66	ug/l	

CAS No.	Surrogate Recoveries		Limits
111-27-3	Hexanol	80%	56-145%
111-27-3	Hexanol	78%	56-145%

Blank Spike Summary

Job Number: JC19214T
Account: AMANYWP Anderson, Mulholland & Associates
Project: BMSMC, Building 5 Area, PR

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGH5320-BS	GH105437.D	1	06/13/16	XPL	n/a	n/a	GGH5320

The QC reported here applies to the following samples: **Method:** SW846-8015C (DAI)

JC19214-1T

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
67-63-0	Isopropyl Alcohol	5000	4710	94	76-121
78-92-2	sec-Butyl Alcohol	5000	4700	94	74-118

CAS No.	Surrogate Recoveries	BSP	Limits
111-27-3	Hexanol	83%	56-145%
111-27-3	Hexanol	82%	56-145%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JC19214T
Account: AMANYWP Anderson, Mulholland & Associates
Project: BMSMC, Building 5 Area, PR

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JC18649-1TMS	GH105447.D	1	06/13/16	XPL	n/a	n/a	GGH5320
JC18649-1TMSD	GH105448.D	1	06/13/16	XPL	n/a	n/a	GGH5320
JC18649-1T [a]	GH105438.D	1	06/13/16	XPL	n/a	n/a	GGH5320

The QC reported here applies to the following samples: **Method:** SW846-8015C (DAI)

JC19214-1T

CAS No.	Compound	JC18649-1T ug/l	Q	Spike ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
67-63-0	Isopropyl Alcohol	ND		5000	4280	86	5000	5370	107	23	70-133/28
78-92-2	sec-Butyl Alcohol	ND		5000	5370	107	5000	5550	111	3	64-136/25

CAS No.	Surrogate Recoveries	MS	MSD	JC18649-1T	Limits
111-27-3	Hexanol	83%	86%	97%	56-145%
111-27-3	Hexanol	86%	89%	96%	56-145%

(a) Sample analyzed outside the holding time per client's request.

* = Outside of Control Limits.

GC Identification Summary

Job Number: JC19214T
Account: AMANYWP Anderson, Mulholland & Associates
Project: BMSMC, Building 5 Area, PR

Check Std:	GGH5320-CC5288	**Injection Date:**	06/13/16
Lab File ID:	GH105435.D	**Injection Time:**	11:16
Instrument ID:	GCGH	**Method:**	SW846-8015C (DAI)

Sample ID:	GGH5320-BS	**Injection Date:**	06/13/16
Lab File ID:	GH105437.D	**Injection Time:**	11:49
Client ID:	Blank Spike		

Compound	Column	RT	StdRT	Conc	Q	Units	RPD Conc
Isopropyl Alcohol	1	1.72	1.71	5130		ug/l	8.5
Isopropyl Alcohol	2 [a]	1.39	1.39	4710		ug/l	
sec-Butyl Alcohol	1	2.90	2.90	5210		ug/l	10.3
sec-Butyl Alcohol	2 [a]	2.54	2.54	4700		ug/l	

(a) QC results reported from this column.

GC Identification Summary

Job Number: JC19214T
Account: AMANYWP Anderson, Mulholland & Associates
Project: BMSMC, Building 5 Area, PR

Check Std:	GGH5320-CC5288	**Injection Date:**	06/13/16
Lab File ID:	GH105445.D	**Injection Time:**	13:59
Instrument ID:	GCGH	**Method:**	SW846-8015C (DAI)

Sample ID:	JC18649-1TMS	**Injection Date:**	06/13/16
Lab File ID:	GH105447.D	**Injection Time:**	14:48
Client ID:	Matrix Spike		

Compound	Column	RT	StdRT	Conc	Q	Units	RPD Conc
Isopropyl Alcohol	1	1.73	1.73	5490		ug/l	24.8
Isopropyl Alcohol	2 [a]	1.39	1.38	4280		ug/l	
sec-Butyl Alcohol	1	2.91	2.91	5380		ug/l	0.2
sec-Butyl Alcohol	2 [a]	2.54	2.54	5370		ug/l	

(a) QC results reported from this column.

GC Identification Summary

Job Number: JC19214T
Account: AMANYWP Anderson, Mulholland & Associates
Project: BMSMC, Building 5 Area, PR

Check Std:	GGH5320-CC5288	**Injection Date:**	06/13/16
Lab File ID:	GH105445.D	**Injection Time:**	13:59
Instrument ID:	GCGH	**Method:**	SW846-8015C (DAI)

Sample ID:	JC18649-1TMSD	**Injection Date:**	06/13/16
Lab File ID:	GH105448.D	**Injection Time:**	15:04
Client ID:	Matrix Spike Duplicate		

Compound	Column	RT	StdRT	Conc	Q	Units	RPD Conc
Isopropyl Alcohol	1	1.73	1.73	5590		ug/l	4.0
Isopropyl Alcohol	2 [a]	1.39	1.38	5370		ug/l	
sec-Butyl Alcohol	1	2.91	2.91	5510		ug/l	0.7
sec-Butyl Alcohol	2 [a]	2.54	2.54	5550		ug/l	

(a) QC results reported from this column.

Volatile Surrogate Recovery Summary

Job Number: JC19214T
Account: AMANYWP Anderson, Mulholland & Associates
Project: BMSMC, Building 5 Area, PR

Method: SW846-8015C (DAI) **Matrix:** AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1 [a]	S1 [b]
JC19214-1T	GH105452.D	97	98
GGH5320-BS	GH105437.D	83	82
GGH5320-MB3	GH105451.D	80	79
JC18649-1TMS	GH105447.D	83	86
JC18649-1TMSD	GH105448.D	86	89
GGH5320-MB1	GH105436.D	95	95
GGH5320-MB2	GH105446.D	80	78

Surrogate Compounds	Recovery Limits
S1 = Hexanol	56-145%

(a) Recovery from GC signal #2
(b) Recovery from GC signal #1

GC Surrogate Retention Time Summary

Job Number: JC19214T
Account: AMANYWP Anderson, Mulholland & Associates
Project: BMSMC, Building 5 Area, PR

Check Std:	GGH5320-CC5288	**Injection Date:**	06/13/16
Lab File ID:	GH105435.D	**Injection Time:**	11:16
Instrument ID:	GCGH	**Method:**	SW846-8015C (DAI)

	S1 [a] RT	S1 [b] RT
Check Std	5.44	5.55

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 [a] RT	S1 [b] RT
GGH5320-MB1	GH105436.D	06/13/16	11:32	5.44	5.54
GGH5320-BS	GH105437.D	06/13/16	11:49	5.44	5.55
JC18649-1T	GH105438.D	06/13/16	12:05	5.44	5.54
ZZZZZZ	GH105442.D	06/13/16	13:10	5.44	5.55
ZZZZZZ	GH105443.D	06/13/16	13:26	5.44	5.55
ZZZZZZ	GH105444.D	06/13/16	13:43	5.44	5.55

Surrogate Compounds

S1 = Hexanol

(a) Retention time from GC signal #2
(b) Retention time from GC signal #1

GC Surrogate Retention Time Summary

Job Number: JC19214T
Account: AMANYWP Anderson, Mulholland & Associates
Project: BMSMC, Building 5 Area, PR

Check Std:	GGH5320-CC5288	**Injection Date:**	06/13/16
Lab File ID:	GH105445.D	**Injection Time:**	13:59
Instrument ID:	GCGH	**Method:**	SW846-8015C (DAI)

	S1 [a] RT	S1 [b] RT
Check Std	5.43	5.55

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 [a] RT	S1 [b] RT
GGH5320-MB2	GH105446.D	06/13/16	14:32	5.44	5.55
JC18649-1TMS	GH105447.D	06/13/16	14:48	5.44	5.55
JC18649-1TMSD	GH105448.D	06/13/16	15:04	5.44	5.55
ZZZZZZ	GH105449.D	06/13/16	15:21	5.44	5.55

Surrogate Compounds

S1 = Hexanol

(a) Retention time from GC signal #2
(b) Retention time from GC signal #1

GC Surrogate Retention Time Summary

Job Number: JC19214T
Account: AMANYWP Anderson, Mulholland & Associates
Project: BMSMC, Building 5 Area, PR

Check Std:	GGH5320-CC5288	**Injection Date:**	06/13/16
Lab File ID:	GH105450.D	**Injection Time:**	15:37
Instrument ID:	GCGH	**Method:**	SW846-8015C (DAI)

	S1 [a] RT	S1 [b] RT
Check Std	5.43	5.55

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 [a] RT	S1 [b] RT
GGH5320-MB3	GH105451.D	06/13/16	15:54	5.44	5.55
JC19214-1T	GH105452.D	06/13/16	16:10	5.44	5.55
ZZZZZZ	GH105453.D	06/13/16	16:26	5.44	5.55
ZZZZZZ	GH105454.D	06/13/16	16:43	5.44	5.55
ZZZZZZ	GH105455.D	06/13/16	16:59	5.44	5.55
ZZZZZZ	GH105456.D	06/13/16	17:15	5.43	5.55
ZZZZZZ	GH105457.D	06/13/16	17:32	5.43	5.55
ZZZZZZ	GH105458.D	06/13/16	17:48	5.44	5.56

Surrogate Compounds

S1 = Hexanol

(a) Retention time from GC signal #2
(b) Retention time from GC signal #1

Initial Calibration Summary

Job Number: JC19214T
Account: AMANYWP Anderson, Mulholland & Associates
Project: BMSMC, Building 5 Area, PR
Sample: GGH5288-ICC5288
Lab FileID: GH105020.D

Response Factor Report GCGH

Method : C:\HPCHEM\1\METHODS\MGH5288.M (Chemstation Integrator)
Title : METHOD SW846-8015C (DAI)
Last Update : Wed May 18 08:55:49 2016
Response via : Initial Calibration

Calibration Files
0.5 =GH105018.D 1 =GH105019.D 5 =GH105020.D 10 =GH105021.D
50 =GH105022.D 100 =GH105023.D 0.1 =GH105017.D =

Compound	0.5	1	5	10	50	100	0.1	Avg	%RSD
1) Methanol	1.474	1.617	1.549	1.574	1.441	1.381	1.784	1.546 E1	8.59
2) Ethanol	1.481	1.886	1.989	2.027	1.870	1.914	2.099	1.895 E1	10.57
3) Tert-Butyl A	2.644	2.895	2.860	2.948	2.724	2.958	2.806	2.833 E1	4.12
4) 1-Propanol	2.265	2.525	2.568	2.579	2.395	2.511	2.187	2.433 E1	6.38
5) 2-Propanol	1.765	2.050	2.101	2.139	1.981	2.028	1.888	1.993 E1	6.50
6) Isobutanol	2.804	2.950	2.948	2.988	2.739	2.927	2.784	2.877 E1	3.42
7) 1-Butanol	2.898	2.941	2.862	2.890	2.632	2.755	3.014	2.856 E1	4.42
8) 2-Butanol	2.368	2.558	2.588	2.626	2.424	2.540	2.840	2.563 E1	5.95
9) Hexanol	6.661	6.854	6.904	7.104	6.883		6.152	6.760 E1	4.87

Signal #2

1) Methanol	3.395	2.969	3.474	3.464	3.153	3.141	2.982	3.225 E1	6.76
2) Ethanol	4.063	3.635	4.347	4.327	3.993	4.176	3.361	3.986 E1	9.18
3) Tert-Butyl A	6.528	6.375	6.640	6.640	6.134	6.562	5.629	6.358 E1	5.79
4) 1-Propanol	5.216	5.281	5.494	5.499	5.155	5.488	3.458	5.084 E1	14.38
5) 2-Propanol	4.929	4.342	4.733	4.727	4.363	4.597	4.004	4.528 E1	6.88
6) Isobutanol	6.364	5.960	6.233	6.327	5.766	6.160	6.044	6.122 E1	3.48
7) 1-Butanol	7.458	7.365	6.389	6.043	5.678	5.940	7.445	6.617 E1	11.83
8) 2-Butanol	5.511	5.860	5.620	5.660	5.265	5.573	4.510	5.428 E1	8.15
9) Hexanol	1.546	1.555	1.589	1.628	1.578		1.424	1.553 E2	4.50

(#) = Out of Range ### Number of calibration levels exceeded format ###

MGH5288.M Wed May 18 09:03:27 2016 GCGH

Initial Calibration Verification

Job Number: JC19214T
Account: AMANYWP Anderson, Mulholland & Associates
Project: BMSMC, Building 5 Area, PR
Sample: GGH5288-ICV5288
Lab FileID: GH105024.D

Evaluate Continuing Calibration Report

```
Data File : C:\HPCHEM\1\DATA\GH105024.D\FID1A.CH        Vial: 9
Acq On    : 17 May 2016   6:02 pm                   Operator: XULIU
Sample    : ICV5288-5000                            Inst    : GCGH
Misc      : GC48422,GGH5288,5.0,,,,1                Multiplr: 1.00
IntFile   : AUTOINT1.E

Data File : C:\HPCHEM\1\DATA\GH105024.D\FID2B.CH        Vial: 9
Acq On    : 17 May 2016   6:24 pm                   Operator: XULIU
Sample    : ICV5288-5000                            Inst    : GCGH
Misc      : GC48422,GGH5288,5.0,,,,1                Multiplr: 1.00
IntFile   : autoint2.e

Method       : C:\HPCHEM\1\METHODS\MGH5288.M (Chemstation Integrator)
Title        : METHOD SW846-8015C (DAI)
Last Update  : Wed May 18 08:55:49 2016
Response via : Multiple Level Calibration

Min. RRF     :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 150%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	RT Window
1	Methanol	15.459	13.025	15.7	84	0.00	1.09- 1.15
2	Ethanol	18.950	20.029	-5.7	101	0.00	1.41- 1.50
3	Tert-Butyl Alcohol	28.335	29.971	-5.8	105	0.00	1.96- 2.08
4	1-Propanol	24.326	25.536	-5.0	99	0.00	2.46- 2.58
5	2-Propanol	19.931	21.074	-5.7	100	0.00	1.71- 1.80
6	Isobutanol	28.771	30.222	-5.0	103	0.00	3.27- 3.36
7	1-Butanol	28.561	29.118	-2.0	102	0.00	3.73- 3.79
8	2-Butanol	25.634	26.603	-3.8	103	0.00	2.89- 3.01
9 S	Hexanol	67.597	69.942	-3.5	101	0.00	5.54- 5.60
*****	Signal #2 *****						
1	Methanol	32.254	34.546	-7.1	99	0.00	0.87- 0.93
2	Ethanol	39.861	45.328	-13.7	104	0.00	1.13- 1.19
3	Tert-Butyl Alcohol	63.583	66.584	-4.7	100	0.00	1.63- 1.69
4	1-Propanol	50.842	57.021	-12.2	104	0.01	1.99- 2.06
5	2-Propanol	45.279	47.646	-5.2	101	0.00	1.38- 1.44
6	Isobutanol	61.221	66.607	-8.8	107	0.00	2.91- 2.97
7	1-Butanol	66.170	65.238	1.4	102	0.01	3.39- 3.45
8	2-Butanol	54.284	60.860	-12.1	108	0.00	2.54- 2.60
9 S	Hexanol	155.348	158.160	-1.8	100	0.00	5.47- 5.53

(#) = Out of Range SPCC's out = 0 CCC's out = 0
GH105020.D MGH5288.M Wed May 18 09:09:59 2016 GCGH

Continuing Calibration Summary

Job Number: JC19214T
Account: AMANYWP Anderson, Mulholland & Associates
Project: BMSMC, Building 5 Area, PR
Sample: GGH5320-CC5288
Lab FileID: GH105435.D

Evaluate Continuing Calibration Report

```
Data File : C:\HPCHEM\1\DATA\GH105435.D\FID1A.CH        Vial: 92
Acq On    : 13 Jun 2016  11:16 am                   Operator: XULIU
Sample    : CC5288-5000                             Inst    : GCGH
Misc      : GC48265,GGH5320,5.0,,,,1                Multiplr: 1.00
IntFile   : AUTOINT1.E

Data File : C:\HPCHEM\1\DATA\GH105435.D\FID2B.CH        Vial: 92
Acq On    : 13 Jun 2016  11:32 am                   Operator: XULIU
Sample    : CC5288-5000                             Inst    : GCGH
Misc      : GC48265,GGH5320,5.0,,,,1                Multiplr: 1.00
IntFile   : autoint2.e

Method       : C:\HPCHEM\1\METHODS\MGH5288.M (Chemstation Integrator)
Title        : METHOD SW846-8015C (DAI)
Last Update  : Mon May 23 10:02:11 2016
Response via : Multiple Level Calibration

Min. RRF     :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 150%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	RT Window
1	Methanol	15.459	16.248	-5.1	105	0.00	1.07- 1.13
2	Ethanol	18.950	20.580	-8.6	103	0.00	1.38- 1.47
3	Tert-Butyl Alcohol	28.335	25.686	9.3	90	0.00	1.91- 2.03
4	1-Propanol	24.326	26.093	-7.3	102	0.00	2.41- 2.53
5	2-Propanol	19.931	21.598	-8.4	103	0.00	1.67- 1.76
6	Isobutanol	28.771	30.584	-6.3	104	0.00	3.23- 3.32
7	1-Butanol	28.561	28.866	-1.1	101	0.00	3.71- 3.77
8	2-Butanol	25.634	26.667	-4.0	103	0.00	2.84- 2.96
9 S	Hexanol	67.597	55.213	18.3	80	0.00	5.52- 5.58
*****	Signal #2 *****						
1	Methanol	32.254	32.216	0.1	93	0.00	0.85- 0.91
2	Ethanol	39.861	40.932	-2.7	94	0.00	1.10- 1.16
3	Tert-Butyl Alcohol	63.583	69.139	-8.7	104	0.00	1.60- 1.66
4	1-Propanol	50.842	52.983	-4.2	96	0.00	1.94- 2.01
5	2-Propanol	45.279	47.375	-4.6	100	0.00	1.36- 1.42
6	Isobutanol	61.221	58.659	4.2	94	0.00	2.88- 2.94
7	1-Butanol	66.170	59.959	9.4	94	0.00	3.36- 3.42
8	2-Butanol	54.284	57.132	-5.2	102	0.00	2.51- 2.57
9 S	Hexanol	155.348	132.670	14.6	83	0.00	5.41- 5.47

(#) = Out of Range SPCC's out = 0 CCC's out = 0
GH105020.D MGH5288.M Mon Jun 13 13:31:16 2016 GCGH

Continuing Calibration Summary

Job Number: JC19214T
Account: AMANYWP Anderson, Mulholland & Associates
Project: BMSMC, Building 5 Area, PR
Sample: GGH5320-CC5288
Lab FileID: GH105445.D

Evaluate Continuing Calibration Report

```
Data File : C:\HPCHEM\1\DATA\GH105445.D\FID1A.CH        Vial: 95
Acq On    : 13 Jun 2016   1:59 pm                   Operator: XULIU
Sample    : CC5288-10000                            Inst    : GCGH
Misc      : GC48265,GGH5320,5.0,,,,1                Multiplr: 1.00
IntFile   : AUTOINT1.E

Data File : C:\HPCHEM\1\DATA\GH105445.D\FID2B.CH        Vial: 95
Acq On    : 13 Jun 2016   2:15 pm                   Operator: XULIU
Sample    : CC5288-10000                            Inst    : GCGH
Misc      : GC48265,GGH5320,5.0,,,,1                Multiplr: 1.00
IntFile   : autoint2.e

Method       : C:\HPCHEM\1\METHODS\MGH5288.M (Chemstation Integrator)
Title        : METHOD SW846-8015C (DAI)
Last Update  : Mon May 23 10:02:11 2016
Response via : Multiple Level Calibration

Min. RRF     :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 150%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	RT Window
1	Methanol	15.459	16.085	-4.0	102	0.00	1.08- 1.14
2	Ethanol	18.950	18.433	2.7	91	0.00	1.39- 1.48
3	Tert-Butyl Alcohol	28.335	29.035	-2.5	98	0.00	1.93- 2.05
4	1-Propanol	24.326	26.910	-10.6	104	0.00	2.42- 2.54
5	2-Propanol	19.931	23.888	-19.9	112	0.00	1.68- 1.77
6	Isobutanol	28.771	32.510	-13.0	109	0.00	3.24- 3.33
7	1-Butanol	28.561	30.754	-7.7	106	0.00	3.70- 3.76
8	2-Butanol	25.634	27.561	-7.5	105	0.00	2.85- 2.97
9 S	Hexanol	67.597	65.210	3.5	92	0.00	5.52- 5.58
*****	Signal #2 *****						
1	Methanol	32.254	35.724	-10.8	103	0.00	0.85- 0.91
2	Ethanol	39.861	43.819	-9.9	101	0.00	1.10- 1.16
3	Tert-Butyl Alcohol	63.583	72.474	-14.0	109	0.00	1.59- 1.65
4	1-Propanol	50.842	57.233	-12.6	104	0.00	1.93- 2.00
5	2-Propanol	45.279	49.928	-10.3	106	0.00	1.35- 1.41
6	Isobutanol	61.221	64.593	-5.5	102	0.00	2.88- 2.94
7	1-Butanol	66.170	64.345	2.8	106	0.00	3.36- 3.42
8	2-Butanol	54.284	59.418	-9.5	105	0.00	2.50- 2.57
9 S	Hexanol	155.348	150.216	3.3	92	0.00	5.40- 5.46

(#) = Out of Range SPCC's out = 0 CCC's out = 0
GH105021.D MGH5288.M Mon Jun 13 15:19:16 2016 GCGH

Continuing Calibration Summary

Job Number: JC19214T
Account: AMANYWP Anderson, Mulholland & Associates
Project: BMSMC, Building 5 Area, PR
Sample: GGH5320-CC5288
Lab FileID: GH105450.D

Evaluate Continuing Calibration Report

```
Data File : C:\HPCHEM\1\DATA\GH105450.D\FID1A.CH        Vial: 95
Acq On    : 13 Jun 2016   3:37 pm                   Operator: XULIU
Sample    : CC5288-5000                             Inst    : GCGH
Misc      : GC48265,GGH5320,5.0,,,,1                Multiplr: 1.00
IntFile   : AUTOINT1.E

Data File : C:\HPCHEM\1\DATA\GH105450.D\FID2B.CH        Vial: 95
Acq On    : 13 Jun 2016   3:54 pm                   Operator: XULIU
Sample    : CC5288-5000                             Inst    : GCGH
Misc      : GC48265,GGH5320,5.0,,,,1                Multiplr: 1.00
IntFile   : autoint2.e

Method       : C:\HPCHEM\1\METHODS\MGH5288.M (Chemstation Integrator)
Title        : METHOD SW846-8015C (DAI)
Last Update  : Mon May 23 10:02:11 2016
Response via : Multiple Level Calibration

Min. RRF     :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 150%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	RT Window
1	Methanol	15.459	14.527	6.0	94	0.00	1.08- 1.14
2	Ethanol	18.950	21.675	-14.4	109	0.00	1.39- 1.48
3	Tert-Butyl Alcohol	28.335	30.668	-8.2	107	0.00	1.92- 2.04
4	1-Propanol	24.326	27.290	-12.2	106	0.00	2.42- 2.54
5	2-Propanol	19.931	22.595	-13.4	108	0.00	1.68- 1.77
6	Isobutanol	28.771	31.135	-8.2	106	0.00	3.24- 3.33
7	1-Butanol	28.561	29.818	-4.4	104	0.00	3.70- 3.76
8	2-Butanol	25.634	27.528	-7.4	106	0.00	2.85- 2.97
9 S	Hexanol	67.597	70.631	-4.5	102	0.00	5.52- 5.58
*****	Signal #2 *****						
1	Methanol	32.254	32.777	-1.6	94	0.00	0.85- 0.91
2	Ethanol	39.861	40.446	-1.5	93	0.00	1.10- 1.16
3	Tert-Butyl Alcohol	63.583	65.048	-2.3	98	0.00	1.60- 1.66
4	1-Propanol	50.842	54.837	-7.9	100	0.00	1.93- 2.00
5	2-Propanol	45.279	45.694	-0.9	97	0.00	1.36- 1.42
6	Isobutanol	61.221	61.816	-1.0	99	0.00	2.88- 2.94
7	1-Butanol	66.170	59.893	9.5	94	0.00	3.36- 3.42
8	2-Butanol	54.284	56.458	-4.0	100	0.00	2.50- 2.56
9 S	Hexanol	155.348	163.548	-5.3	103	0.00	5.40- 5.46

(#) = Out of Range SPCC's out = 0 CCC's out = 0
GH105020.D MGH5288.M Tue Jun 14 08:05:05 2016 GCGH

Continuing Calibration Summary

Job Number: JC19214T
Account: AMANYWP Anderson, Mulholland & Associates
Project: BMSMC, Building 5 Area, PR
Sample: GGH5320-CC5288
Lab FileID: GH105459.D

Evaluate Continuing Calibration Report

```
Data File : C:\HPCHEM\1\DATA\GH105459.D\FID1A.CH        Vial: 90
Acq On    : 13 Jun 2016   6:05 pm                   Operator: XULIU
Sample    : CC5288-10000                            Inst    : GCGH
Misc      : GC48582,GGH5320,5.0,,,,1                Multiplr: 1.00
IntFile   : AUTOINT1.E

Data File : C:\HPCHEM\1\DATA\GH105459.D\FID2B.CH        Vial: 90
Acq On    : 13 Jun 2016   6:21 pm                   Operator: XULIU
Sample    : CC5288-10000                            Inst    : GCGH
Misc      : GC48582,GGH5320,5.0,,,,1                Multiplr: 1.00
IntFile   : autoint2.e

Method       : C:\HPCHEM\1\METHODS\MGH5288.M (Chemstation Integrator)
Title        : METHOD SW846-8015C (DAI)
Last Update  : Mon May 23 10:02:11 2016
Response via : Multiple Level Calibration

Min. RRF     :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 150%
```

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	RT Window
1	Methanol	15.459	16.983	-9.9	108	0.00	1.07- 1.13
2	Ethanol	18.950	21.406	-13.0	106	0.00	1.38- 1.48
3	Tert-Butyl Alcohol	28.335	30.836	-8.8	105	0.00	1.92- 2.04
4	1-Propanol	24.326	26.648	-9.5	103	0.00	2.42- 2.54
5	2-Propanol	19.931	22.220	-11.5	104	0.00	1.68- 1.77
6	Isobutanol	28.771	31.830	-10.6	107	0.00	3.24- 3.33
7	1-Butanol	28.561	30.497	-6.8	106	0.00	3.70- 3.76
8	2-Butanol	25.634	30.600	-19.4	117	0.00	2.85- 2.97
9 S	Hexanol	67.597	64.250	5.0	90	0.00	5.52- 5.58
*****	Signal #2 *****						
1	Methanol	32.254	37.186	-15.3	107	0.00	0.86- 0.92
2	Ethanol	39.861	42.665	-7.0	99	0.00	1.11- 1.17
3	Tert-Butyl Alcohol	63.583	70.114	-10.3	106	0.00	1.60- 1.66
4	1-Propanol	50.842	55.456	-9.1	101	0.00	1.94- 2.01
5	2-Propanol	45.279	48.300	-6.7	102	0.00	1.36- 1.42
6	Isobutanol	61.221	63.139	-3.1	100	0.00	2.88- 2.94
7	1-Butanol	66.170	61.779	6.6	102	0.00	3.36- 3.42
8	2-Butanol	54.284	58.514	-7.8	103	0.00	2.51- 2.57
9 S	Hexanol	155.348	145.546	6.3	89	0.00	5.41- 5.47

(#) = Out of Range SPCC's out = 0 CCC's out = 0
GH105021.D MGH5288.M Tue Jun 14 08:44:21 2016 GCGH

GC Volatiles

Raw Data

Quantitation Report (QT Reviewed)

```
Data File : C:\HPCHEM\1\DATA\GH105452.D\FID1A.CH        Vial: 1
Acq On    : 13 Jun 2016   4:10 pm                   Operator: XULIU
Sample    : JC19214-1T                              Inst    : GCGH
Misc      : GC48485,GGH5320,5.0,,,,1                Multiplr: 1.00
IntFile   : AUTOINT1.E

Data File : C:\HPCHEM\1\DATA\GH105452.D\FID2B.CH        Vial: 1
Acq On    : 13 Jun 2016   4:26 pm                   Operator: XULIU
Sample    : JC19214-1T                              Inst    : GCGH
Misc      : GC48485,GGH5320,5.0,,,,1                Multiplr: 1.00
IntFile   : autoint2.e
Quant Time: Jun 14  8:21 2016  Quant Results File: MGH5288.RES

Quant Method : C:\HPCHEM\1\METHODS\MGH5288.M (Chemstation Integrator)
Title        : METHOD SW846-8015C (DAI)
Last Update  : Tue Jun 14 08:00:26 2016
Response via : Initial Calibration
DataAcq Meth : MGH5288.M

Volume Inj.     : 2ul
Signal #1 Phase : ZB-624            Signal #2 Phase: RTX-1
Signal #1 Info  : 30mx0.53mmx3um    Signal #2 Info : 30mx0.32mmx3um

 Compound          RT#1   RT#2    Resp#1   Resp#2     PPB       PPB
---------------------------------------------------------------------

System Monitoring Compounds
9) S   Hexanol           5.55   5.44    332389   751912 4917.242  4840.193
 Spiked Amount   5000.000                 Recovery     =   98.34%    96.80%

Target Compounds
```

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

GH105452.D MGH5288.M Tue Jun 14 08:21:29 2016 GCGH Page 1

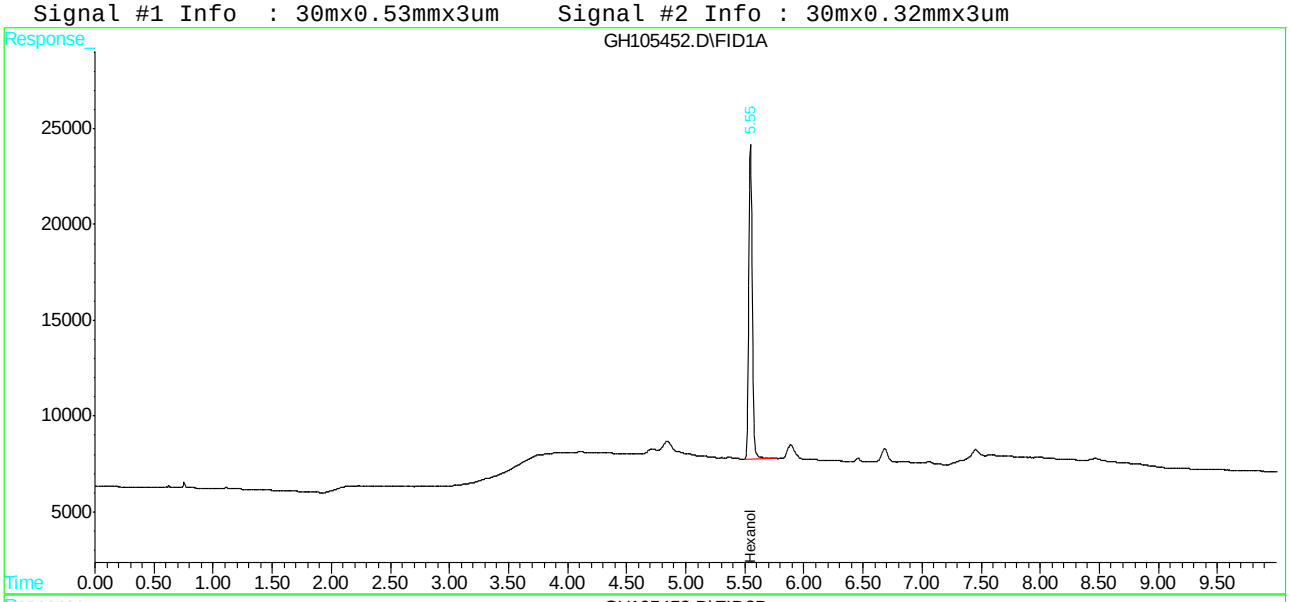
Quantitation Report (QT Reviewed)

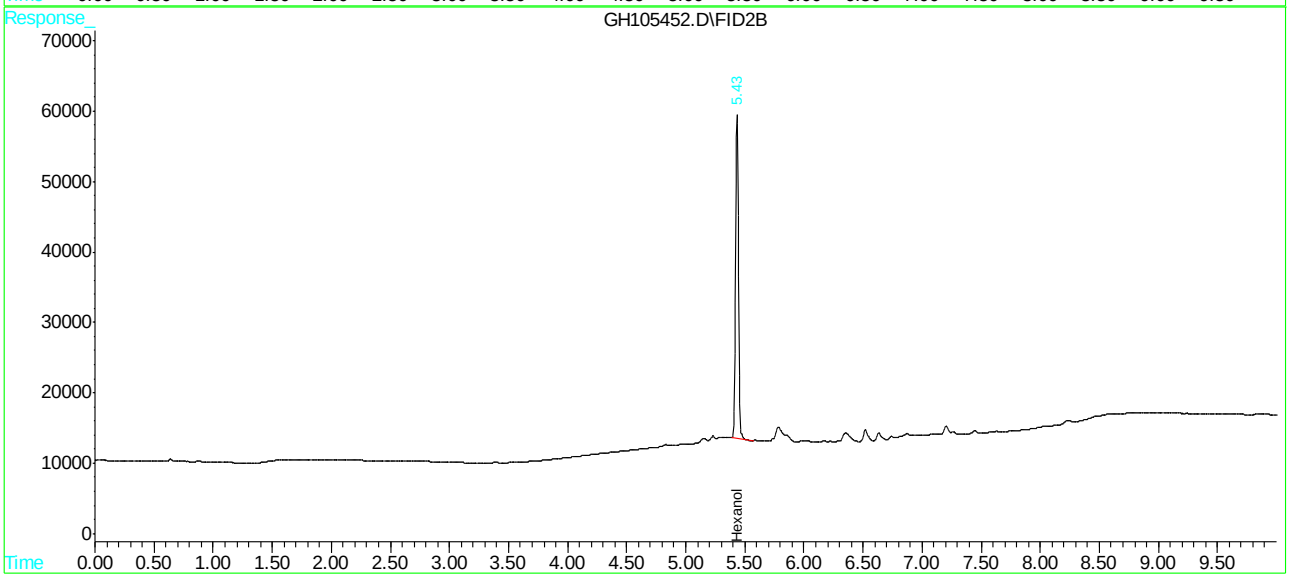
```
Data File : C:\HPCHEM\1\DATA\GH105452.D\FID1A.CH          Vial: 1
Acq On    : 13 Jun 2016   4:10 pm                     Operator: XULIU
Sample    : JC19214-1T                                Inst    : GCGH
Misc      : GC48485,GGH5320,5.0,,,,1                  Multiplr: 1.00
IntFile   : AUTOINT1.E

Data File : C:\HPCHEM\1\DATA\GH105452.D\FID2B.CH          Vial: 1
Acq On    : 13 Jun 2016   4:26 pm                     Operator: XULIU
Sample    : JC19214-1T                                Inst    : GCGH
Misc      : GC48485,GGH5320,5.0,,,,1                  Multiplr: 1.00
IntFile   : autoint2.e
Quant Time: Jun 14  8:21 2016  Quant Results File: MGH5288.RES

Quant Method : C:\HPCHEM\1\METHODS\MGH5288.M (Chemstation Integrator)
Title        : METHOD SW846-8015C (DAI)
Last Update  : Tue Jun 14 08:00:26 2016
Response via : Multiple Level Calibration
DataAcq Meth : MGH5288.M

Volume Inj.     : 2ul
Signal #1 Phase : ZB-624            Signal #2 Phase: RTX-1
Signal #1 Info  : 30mx0.53mmx3um    Signal #2 Info : 30mx0.32mmx3um
```





Quantitation Report (QT Reviewed)

```
Data File : C:\HPCHEM\1\DATA\GH105451.D\FID1A.CH          Vial: 91
Acq On    : 13 Jun 2016   3:54 pm                     Operator: XULIU
Sample    : MB3                                       Inst    : GCGH
Misc      : GC48485,GGH5320,5.0,,,,1                  Multiplr: 1.00
IntFile   : AUTOINT1.E

Data File : C:\HPCHEM\1\DATA\GH105451.D\FID2B.CH          Vial: 91
Acq On    : 13 Jun 2016   4:10 pm                     Operator: XULIU
Sample    : MB3                                       Inst    : GCGH
Misc      : GC48485,GGH5320,5.0,,,,1                  Multiplr: 1.00
IntFile   : autoint2.e
Quant Time: Jun 14  8:15 2016  Quant Results File: MGH5288.RES

Quant Method : C:\HPCHEM\1\METHODS\MGH5288.M (Chemstation Integrator)
Title        : METHOD SW846-8015C (DAI)
Last Update  : Tue Jun 14 08:00:26 2016
Response via : Initial Calibration
DataAcq Meth : MGH5288.M

Volume Inj.     : 2ul
Signal #1 Phase : ZB-624            Signal #2 Phase: RTX-1
Signal #1 Info  : 30mx0.53mmx3um    Signal #2 Info : 30mx0.32mmx3um

 Compound          RT#1   RT#2    Resp#1   Resp#2     PPB       PPB
---------------------------------------------------------------------

System Monitoring Compounds
9) S   Hexanol           5.55   5.44    268508   622422 3972.212  4006.639
 Spiked Amount   5000.000                  Recovery     =   79.44%    80.13%

Target Compounds
```

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

GH105451.D MGH5288.M Tue Jun 14 08:21:01 2016 GCGH Page 1

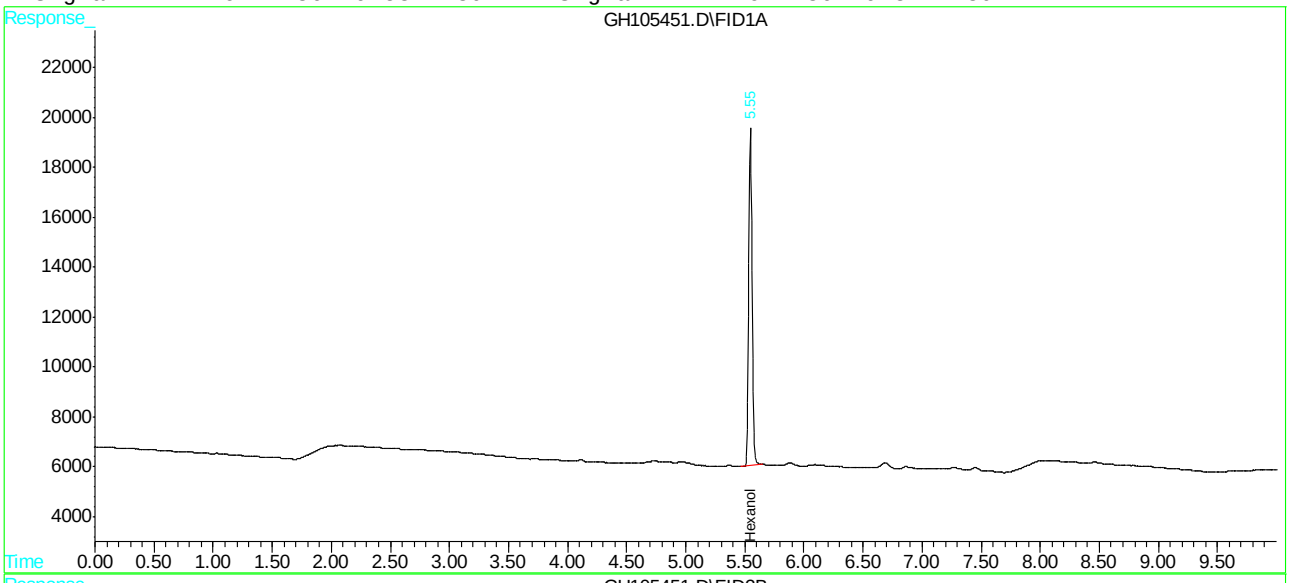
Quantitation Report (QT Reviewed)

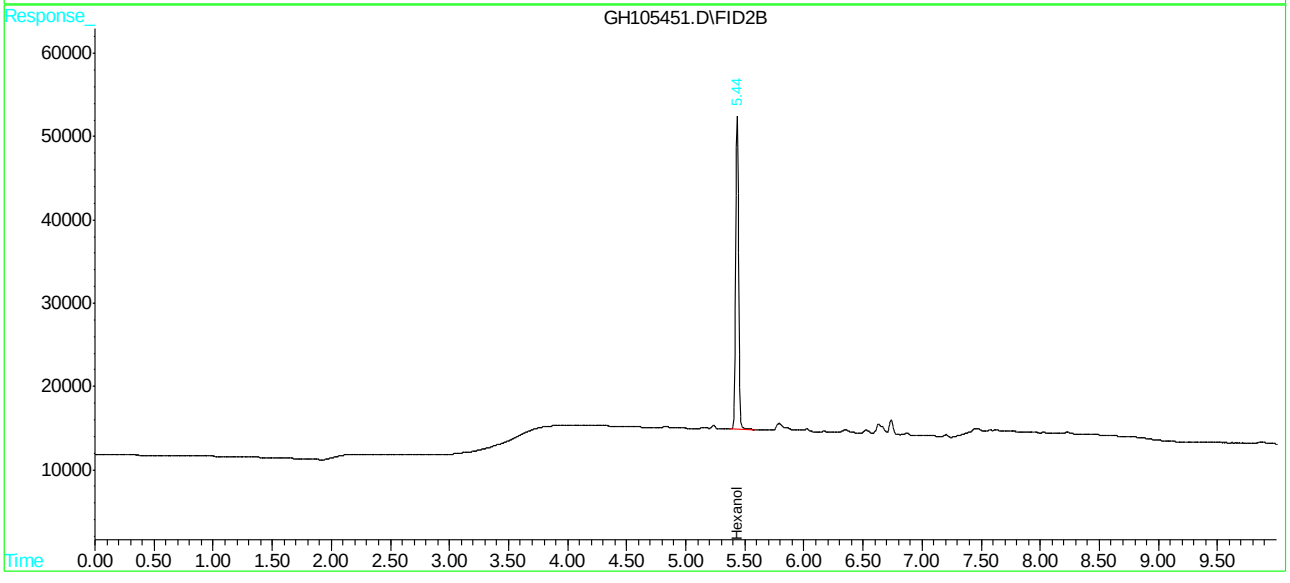
```
Data File : C:\HPCHEM\1\DATA\GH105451.D\FID1A.CH          Vial: 91
Acq On    : 13 Jun 2016   3:54 pm                     Operator: XULIU
Sample    : MB3                                       Inst    : GCGH
Misc      : GC48485,GGH5320,5.0,,,,1                  Multiplr: 1.00
IntFile   : AUTOINT1.E

Data File : C:\HPCHEM\1\DATA\GH105451.D\FID2B.CH          Vial: 91
Acq On    : 13 Jun 2016   4:10 pm                     Operator: XULIU
Sample    : MB3                                       Inst    : GCGH
Misc      : GC48485,GGH5320,5.0,,,,1                  Multiplr: 1.00
IntFile   : autoint2.e
Quant Time: Jun 14  8:15 2016  Quant Results File: MGH5288.RES

Quant Method : C:\HPCHEM\1\METHODS\MGH5288.M (Chemstation Integrator)
Title        : METHOD SW846-8015C (DAI)
Last Update  : Tue Jun 14 08:00:26 2016
Response via : Multiple Level Calibration
DataAcq Meth : MGH5288.M

Volume Inj.     : 2ul
Signal #1 Phase : ZB-624            Signal #2 Phase: RTX-1
Signal #1 Info  : 30mx0.53mmx3um    Signal #2 Info : 30mx0.32mmx3um
```





Quantitation Report (QT Reviewed)

```
Data File : C:\HPCHEM\1\DATA\GH105436.D\FID1A.CH        Vial: 93
Acq On    : 13 Jun 2016  11:32 am                   Operator: XULIU
Sample    : MB1                                     Inst    : GCGH
Misc      : GC48265,GGH5320,5.0,,,,1                Multiplr: 1.00
IntFile   : AUTOINT1.E

Data File : C:\HPCHEM\1\DATA\GH105436.D\FID2B.CH        Vial: 93
Acq On    : 13 Jun 2016  11:49 am                   Operator: XULIU
Sample    : MB1                                     Inst    : GCGH
Misc      : GC48265,GGH5320,5.0,,,,1                Multiplr: 1.00
IntFile   : autoint2.e
Quant Time: Jun 13 12:59 2016  Quant Results File: MGH5288.RES

Quant Method : C:\HPCHEM\1\METHODS\MGH5288.M (Chemstation Integrator)
Title        : METHOD SW846-8015C (DAI)
Last Update  : Mon Jun 13 12:57:40 2016
Response via : Initial Calibration
DataAcq Meth : MGH5288.M

Volume Inj.     : 2ul
Signal #1 Phase : ZB-624            Signal #2 Phase: RTX-1
Signal #1 Info  : 30mx0.53mmx3um    Signal #2 Info : 30mx0.32mmx3um

 Compound          RT#1   RT#2    Resp#1   Resp#2     PPB       PPB
---------------------------------------------------------------------

System Monitoring Compounds
9) S   Hexanol           5.54   5.44    320855   736363 4746.614  4740.100
 Spiked Amount   5000.000                 Recovery     =   94.93%    94.80%

Target Compounds
```

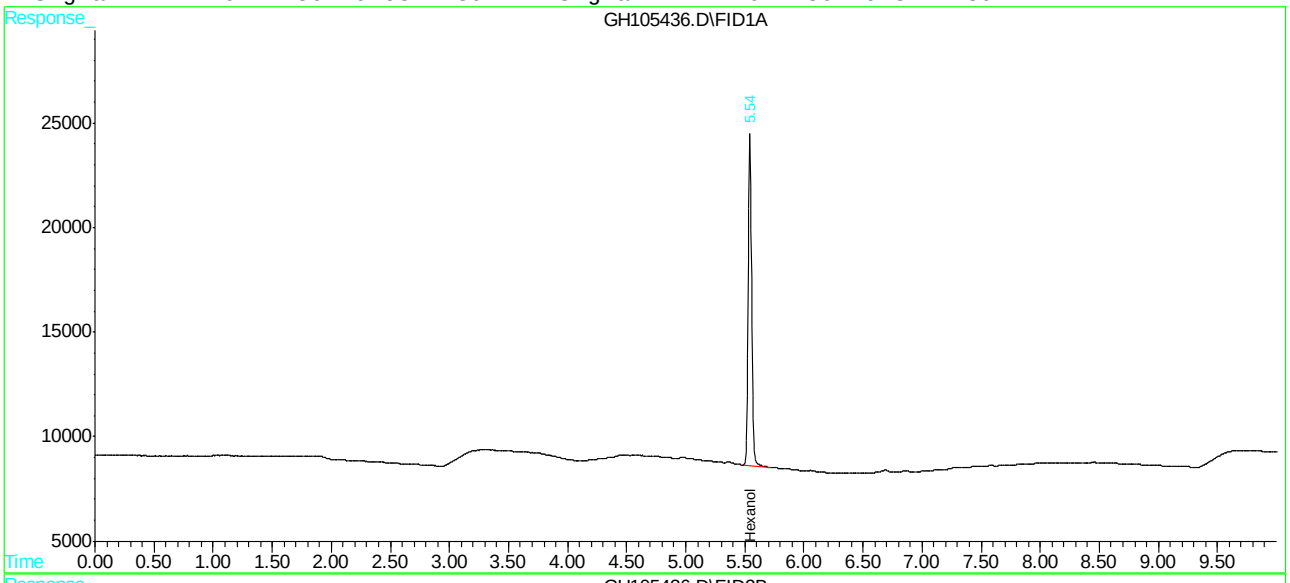
Quantitation Report (QT Reviewed)

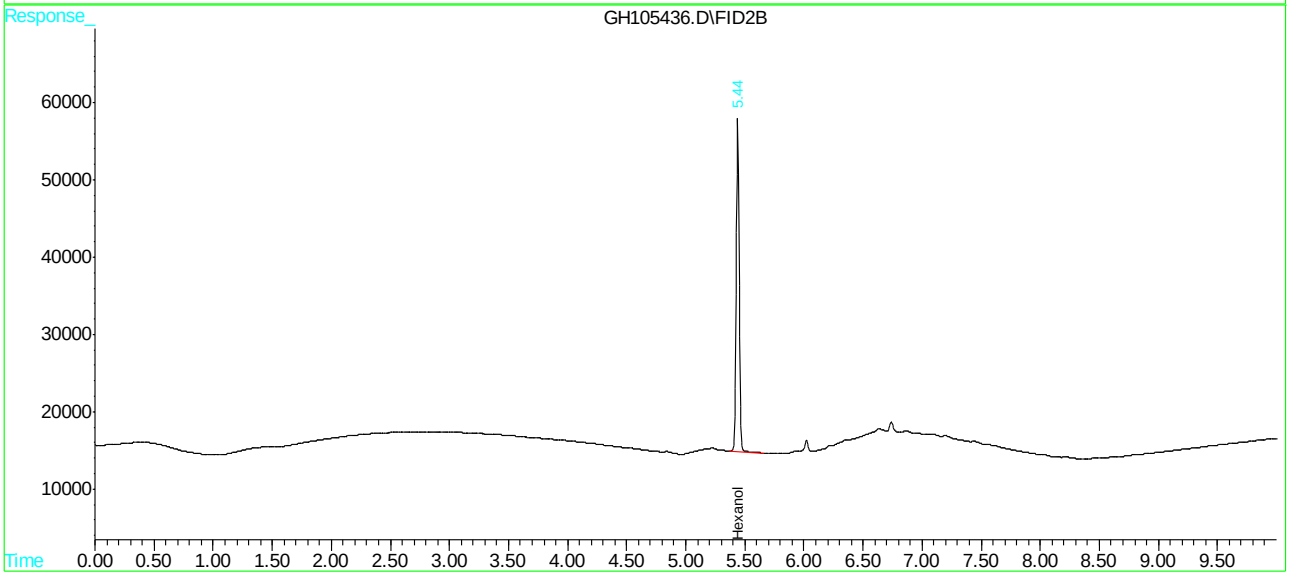
```
Data File : C:\HPCHEM\1\DATA\GH105436.D\FID1A.CH          Vial: 93
Acq On    : 13 Jun 2016  11:32 am                     Operator: XULIU
Sample    : MB1                                       Inst    : GCGH
Misc      : GC48265,GGH5320,5.0,,,,1                  Multiplr: 1.00
IntFile   : AUTOINT1.E

Data File : C:\HPCHEM\1\DATA\GH105436.D\FID2B.CH          Vial: 93
Acq On    : 13 Jun 2016  11:49 am                     Operator: XULIU
Sample    : MB1                                       Inst    : GCGH
Misc      : GC48265,GGH5320,5.0,,,,1                  Multiplr: 1.00
IntFile   : autoint2.e
Quant Time: Jun 13 12:59 2016  Quant Results File: MGH5288.RES

Quant Method : C:\HPCHEM\1\METHODS\MGH5288.M (Chemstation Integrator)
Title        : METHOD SW846-8015C (DAI)
Last Update  : Mon Jun 13 12:57:40 2016
Response via : Multiple Level Calibration
DataAcq Meth : MGH5288.M

Volume Inj.     : 2ul
Signal #1 Phase : ZB-624            Signal #2 Phase: RTX-1
Signal #1 Info  : 30mx0.53mmx3um    Signal #2 Info : 30mx0.32mmx3um
```





SGS ACCUTEST JC19214T

Quantitation Report (QT Reviewed)

```
Data File : C:\HPCHEM\1\DATA\GH105446.D\FID1A.CH          Vial: 91
Acq On    : 13 Jun 2016   2:32 pm                     Operator: XULIU
Sample    : MB2                                       Inst    : GCGH
Misc      : GC48265,GGH5320,5.0,,,,1                  Multiplr: 1.00
IntFile   : AUTOINT1.E

Data File : C:\HPCHEM\1\DATA\GH105446.D\FID2B.CH          Vial: 91
Acq On    : 13 Jun 2016   2:48 pm                     Operator: XULIU
Sample    : MB2                                       Inst    : GCGH
Misc      : GC48265,GGH5320,5.0,,,,1                  Multiplr: 1.00
IntFile   : autoint2.e
Quant Time: Jun 13 15:23 2016  Quant Results File: MGH5288.RES

Quant Method : C:\HPCHEM\1\METHODS\MGH5288.M (Chemstation Integrator)
Title        : METHOD SW846-8015C (DAI)
Last Update  : Mon Jun 13 15:08:03 2016
Response via : Initial Calibration
DataAcq Meth : MGH5288.M

Volume Inj.     : 2ul
Signal #1 Phase : ZB-624            Signal #2 Phase: RTX-1
Signal #1 Info  : 30mx0.53mmx3um    Signal #2 Info : 30mx0.32mmx3um

 Compound          RT#1   RT#2    Resp#1   Resp#2     PPB       PPB
---------------------------------------------------------------------

System Monitoring Compounds
9) S   Hexanol           5.55   5.44    263917   621941 3904.295  4003.546
 Spiked Amount   5000.000                 Recovery     =   78.09%    80.07%

Target Compounds
```

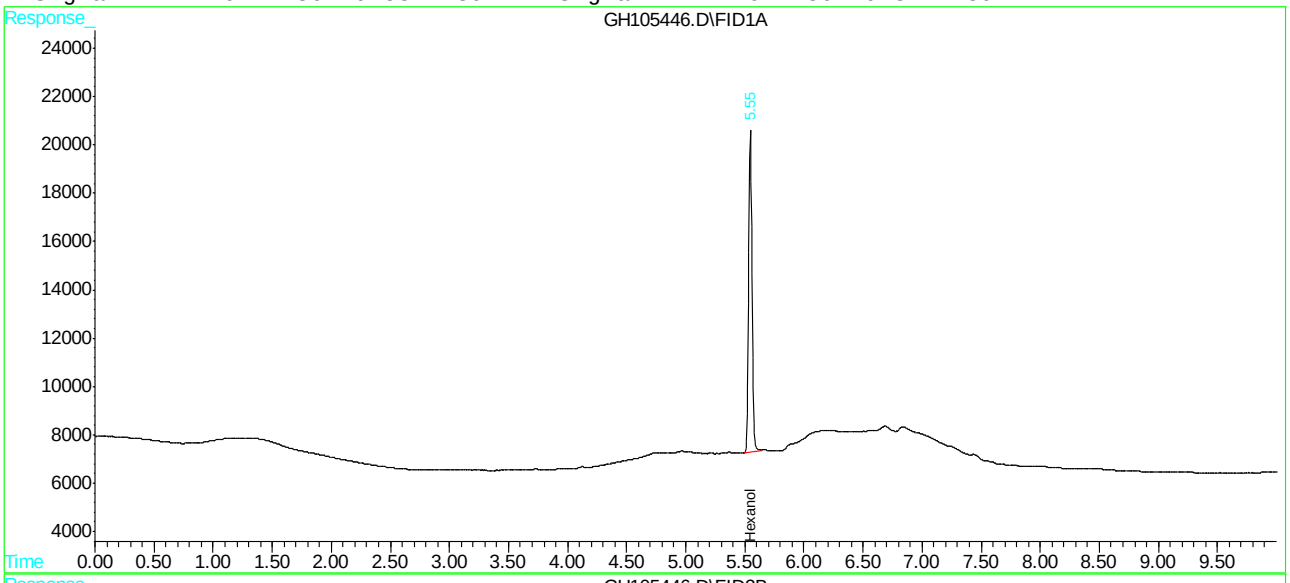
Quantitation Report (QT Reviewed)

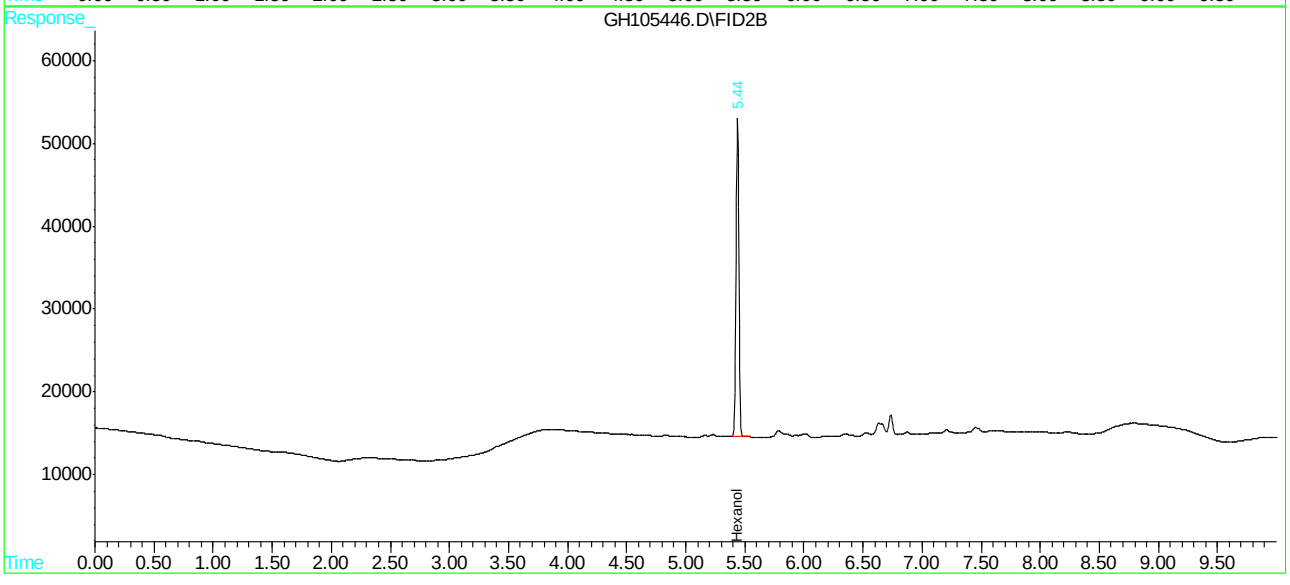
```
Data File : C:\HPCHEM\1\DATA\GH105446.D\FID1A.CH          Vial: 91
Acq On    : 13 Jun 2016   2:32 pm                     Operator: XULIU
Sample    : MB2                                       Inst    : GCGH
Misc      : GC48265,GGH5320,5.0,,,,1                  Multiplr: 1.00
IntFile   : AUTOINT1.E

Data File : C:\HPCHEM\1\DATA\GH105446.D\FID2B.CH          Vial: 91
Acq On    : 13 Jun 2016   2:48 pm                     Operator: XULIU
Sample    : MB2                                       Inst    : GCGH
Misc      : GC48265,GGH5320,5.0,,,,1                  Multiplr: 1.00
IntFile   : autoint2.e
Quant Time: Jun 13 15:23 2016  Quant Results File: MGH5288.RES

Quant Method : C:\HPCHEM\1\METHODS\MGH5288.M (Chemstation Integrator)
Title        : METHOD SW846-8015C (DAI)
Last Update  : Mon Jun 13 15:08:03 2016
Response via : Multiple Level Calibration
DataAcq Meth : MGH5288.M

Volume Inj.     : 2ul
Signal #1 Phase : ZB-624            Signal #2 Phase: RTX-1
Signal #1 Info  : 30mx0.53mmx3um    Signal #2 Info : 30mx0.32mmx3um
```





SGS ACCUTEST JC19214T

Quantitation Report (QT Reviewed)

```
Data File : C:\HPCHEM\1\DATA\GH105437.D\FID1A.CH          Vial: 94
Acq On    : 13 Jun 2016  11:49 am                     Operator: XULIU
Sample    : BS                                        Inst    : GCGH
Misc      : GC48265,GGH5320,5.0,,,,1                  Multiplr: 1.00
IntFile   : AUTOINT1.E

Data File : C:\HPCHEM\1\DATA\GH105437.D\FID2B.CH          Vial: 94
Acq On    : 13 Jun 2016  12:05 pm                     Operator: XULIU
Sample    : BS                                        Inst    : GCGH
Misc      : GC48265,GGH5320,5.0,,,,1                  Multiplr: 1.00
IntFile   : autoint2.e
Quant Time: Jun 13 13:05 2016  Quant Results File: MGH5288.RES

Quant Method : C:\HPCHEM\1\METHODS\MGH5288.M (Chemstation Integrator)
Title        : METHOD SW846-8015C (DAI)
Last Update  : Mon Jun 13 13:02:20 2016
Response via : Initial Calibration
DataAcq Meth : MGH5288.M

Volume Inj.     : 2ul
Signal #1 Phase : ZB-624            Signal #2 Phase: RTX-1
Signal #1 Info  : 30mx0.53mmx3um    Signal #2 Info : 30mx0.32mmx3um
```

	Compound	RT#1	RT#2	Resp#1	Resp#2	PPB	PPB
	System Monitoring Compounds						
9) S	Hexanol	5.55	5.44	276145	642728	4085.182	4137.355
Spiked Amount	5000.000			Recovery	=	81.70%	82.75%
	Target Compounds						
1)	Methanol	1.11	0.89	65431	143987	4232.597	4464.132
2)	Ethanol	1.43	1.14	104068	169875	5491.654	4261.691
3)	Tert-Butyl Alcoh	1.97	1.63	145637	307893	5139.878	4842.384
4)	1-Propanol	2.47	1.97	130848	216286	5378.909	4254.038
5)	2-Propanol	1.72	1.39	102322	213423	5133.812	4713.497
6)	Isobutanol	3.28	2.91	150281	296262	5223.338	4839.207
7)	1-Butanol	3.74	3.39	144099	297807	5045.375	4500.630
8)	2-Butanol	2.90	2.54	133430	255273	5205.124	4702.516

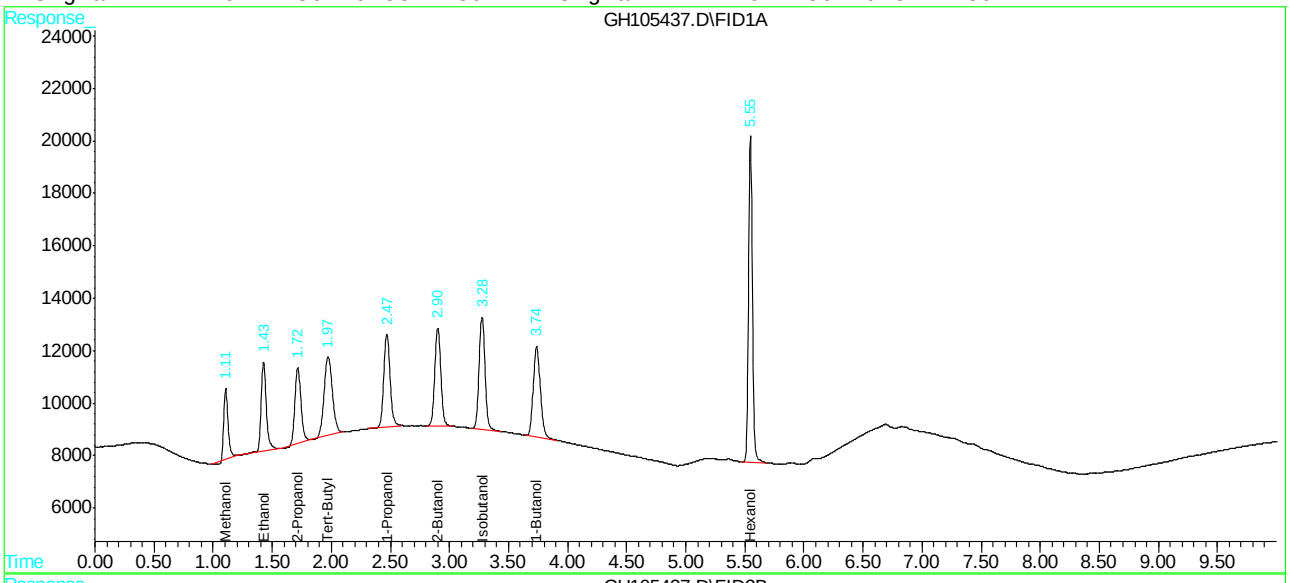
Quantitation Report (QT Reviewed)

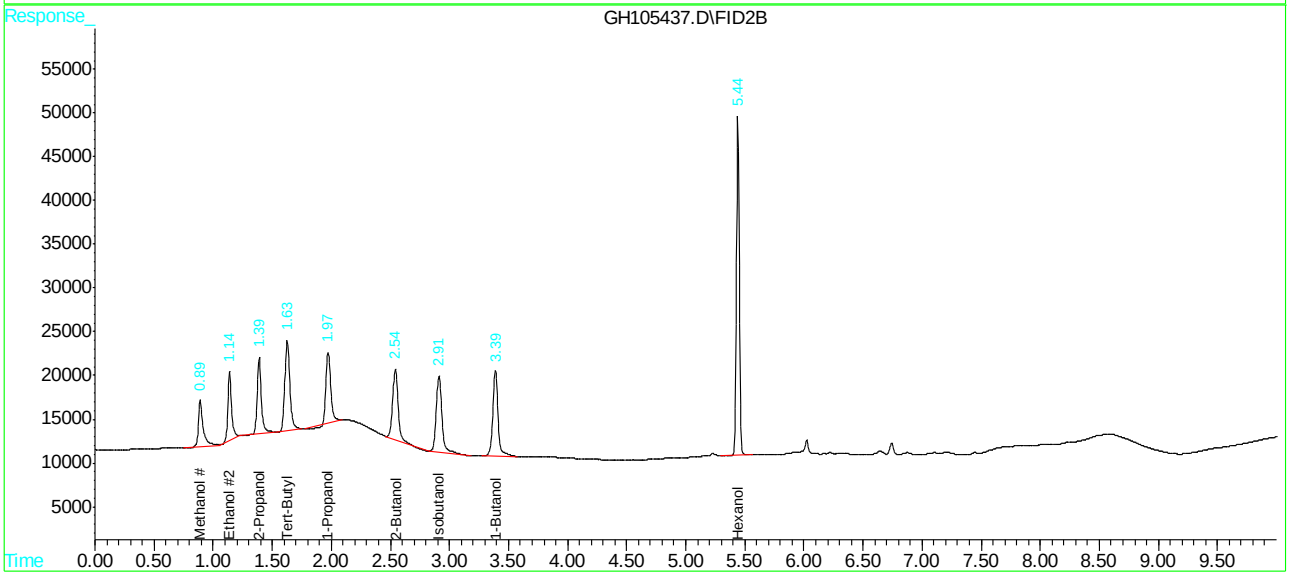
```
Data File : C:\HPCHEM\1\DATA\GH105437.D\FID1A.CH          Vial: 94
Acq On    : 13 Jun 2016  11:49 am                     Operator: XULIU
Sample    : BS                                        Inst    : GCGH
Misc      : GC48265,GGH5320,5.0,,,,1                  Multiplr: 1.00
IntFile   : AUTOINT1.E

Data File : C:\HPCHEM\1\DATA\GH105437.D\FID2B.CH          Vial: 94
Acq On    : 13 Jun 2016  12:05 pm                     Operator: XULIU
Sample    : BS                                        Inst    : GCGH
Misc      : GC48265,GGH5320,5.0,,,,1                  Multiplr: 1.00
IntFile   : autoint2.e
Quant Time: Jun 13 13:05 2016  Quant Results File: MGH5288.RES

Quant Method : C:\HPCHEM\1\METHODS\MGH5288.M (Chemstation Integrator)
Title        : METHOD SW846-8015C (DAI)
Last Update  : Mon Jun 13 13:02:20 2016
Response via : Multiple Level Calibration
DataAcq Meth : MGH5288.M

Volume Inj.     : 2ul
Signal #1 Phase : ZB-624            Signal #2 Phase: RTX-1
Signal #1 Info  : 30mx0.53mmx3um    Signal #2 Info : 30mx0.32mmx3um
```





Manual Integrations APPROVED (compounds with "m" flag)
Dana Tryon
06/14/16 09:41

Quantitation Report (QT Reviewed)

```
Data File : C:\HPCHEM\1\DATA\GH105447.D\FID1A.CH          Vial: 28
Acq On    : 13 Jun 2016   2:48 pm                     Operator: XULIU
Sample    : JC18649-1TMS                              Inst    : GCGH
Misc      : GC48265,GGH5320,5.0,,,,1                  Multiplr: 1.00
IntFile   : AUTOINT1.E

Data File : C:\HPCHEM\1\DATA\GH105447.D\FID2B.CH          Vial: 28
Acq On    : 13 Jun 2016   3:04 pm                     Operator: XULIU
Sample    : JC18649-1TMS                              Inst    : GCGH
Misc      : GC48265,GGH5320,5.0,,,,1                  Multiplr: 1.00
IntFile   : autoint2.e
Quant Time: Jun 14  8:03 2016  Quant Results File: MGH5288.RES

Quant Method : C:\HPCHEM\1\METHODS\MGH5288.M (Chemstation Integrator)
Title        : METHOD SW846-8015C (DAI)
Last Update  : Tue Jun 14 07:56:34 2016
Response via : Initial Calibration
DataAcq Meth : MGH5288.M

Volume Inj.     : 2ul
Signal #1 Phase : ZB-624            Signal #2 Phase: RTX-1
Signal #1 Info  : 30mx0.53mmx3um    Signal #2 Info : 30mx0.32mmx3um
```

	Compound	RT#1	RT#2	Resp#1	Resp#2	PPB	PPB
	System Monitoring Compounds						
9) S	Hexanol	5.55	5.44	289690	642830	4285.571	4138.012
	Spiked Amount 5000.000			Recovery	=	85.71%	82.76%
	Target Compounds						
1)	Methanol	1.11	0.90	82826	127804	5357.906	3962.400m
2)	Ethanol	1.43	1.14	103792	169318	5477.101	4247.711
3)	Tert-Butyl Alcoh	1.99	1.63	143949	324376	5080.281	5101.619
4)	1-Propanol	2.48	1.98	143698	273001	5907.129	5369.536
5)	2-Propanol	1.73	1.39	109496	193918	5493.746	4282.729
6)	Isobutanol	3.29	2.92	142247	333059	4944.099	5440.265
7)	1-Butanol	3.73	3.39	171405	313889	6001.451	4743.679
8)	2-Butanol	2.91	2.54	137845	291672	5377.334	5373.026

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
GH105447.D MGH5288.M Tue Jun 14 08:03:32 2016 GCGH

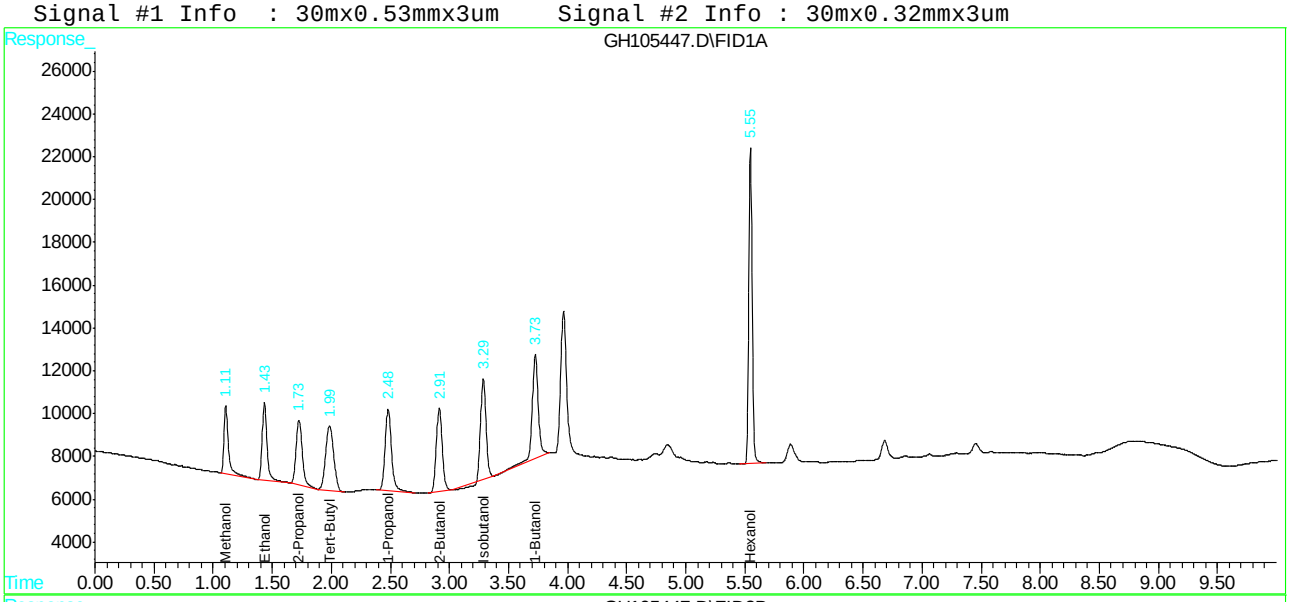
Quantitation Report (QT Reviewed)

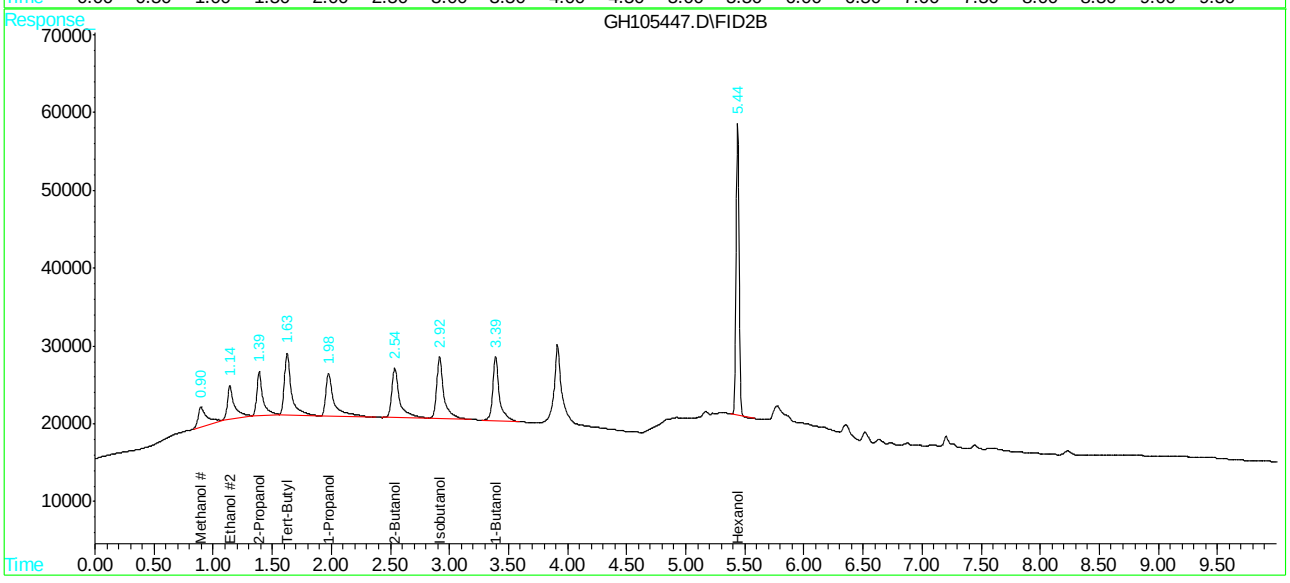
```
Data File : C:\HPCHEM\1\DATA\GH105447.D\FID1A.CH          Vial: 28
Acq On    : 13 Jun 2016   2:48 pm                     Operator: XULIU
Sample    : JC18649-1TMS                              Inst    : GCGH
Misc      : GC48265,GGH5320,5.0,,,,1                  Multiplr: 1.00
IntFile   : AUTOINT1.E

Data File : C:\HPCHEM\1\DATA\GH105447.D\FID2B.CH          Vial: 28
Acq On    : 13 Jun 2016   3:04 pm                     Operator: XULIU
Sample    : JC18649-1TMS                              Inst    : GCGH
Misc      : GC48265,GGH5320,5.0,,,,1                  Multiplr: 1.00
IntFile   : autoint2.e
Quant Time: Jun 14  8:03 2016  Quant Results File: MGH5288.RES

Quant Method : C:\HPCHEM\1\METHODS\MGH5288.M (Chemstation Integrator)
Title        : METHOD SW846-8015C (DAI)
Last Update  : Tue Jun 14 07:56:34 2016
Response via : Multiple Level Calibration
DataAcq Meth : MGH5288.M

Volume Inj.     : 2ul
Signal #1 Phase : ZB-624            Signal #2 Phase: RTX-1
Signal #1 Info  : 30mx0.53mmx3um    Signal #2 Info : 30mx0.32mmx3um
```





SGS ACCUTEST JC19214T

Manual Integration Approval Summary

Sample Number:	JC18649-1TMS	**Method:**	SW846-8015C (DAI)
Lab FileID:	GH105447.D	**Analyst approved:**	06/14/16 08:12 Xu Liu
Injection Time:	06/13/16 14:48	**Supervisor approved:**	06/14/16 09:41 Dana Tryon

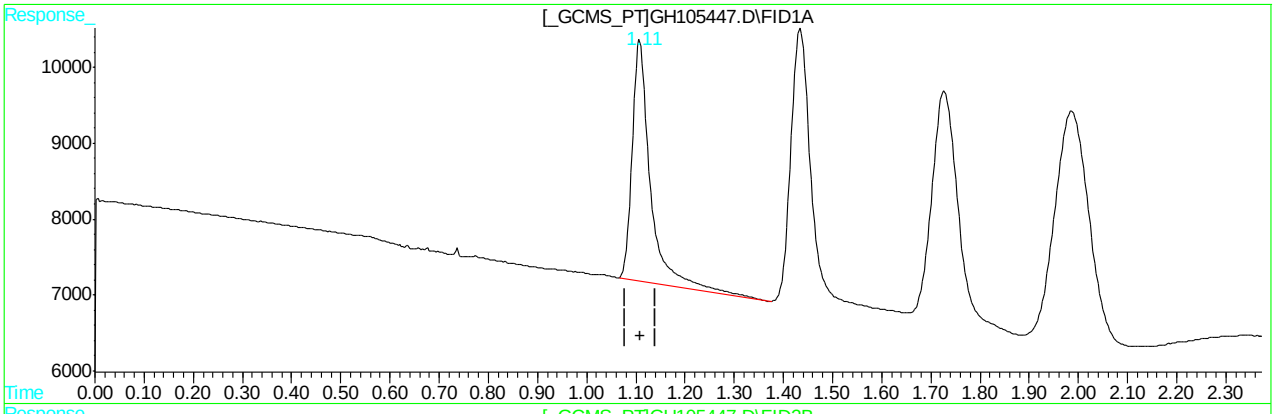
Parameter	CAS	Sig#	R.T. (min.)	Reason
Methanol	67-56-1	2	0.90	Missed peak

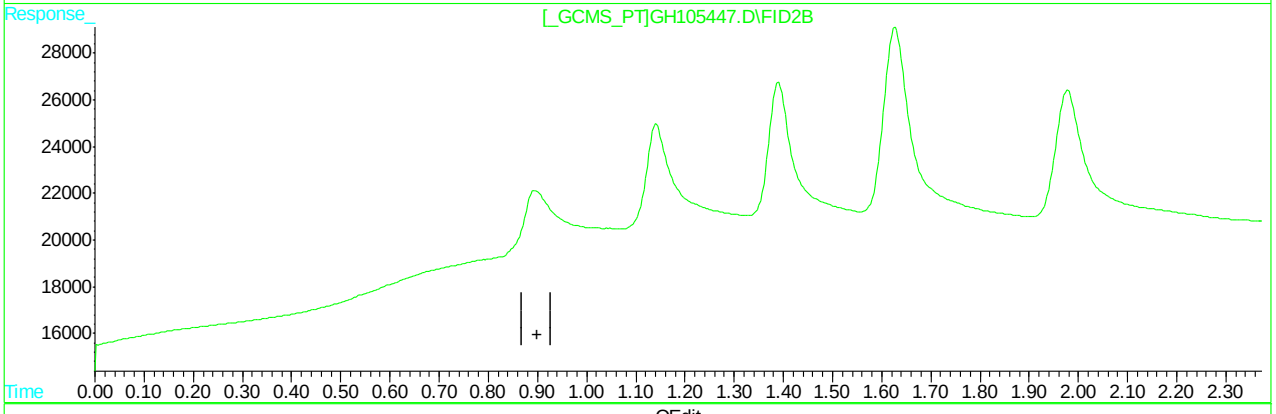
Quantitation Report (Qedit)

```
Data File : C:\HPCHEM\1\DATA\GH105447.D\FID1A.CH          Vial: 28
Acq On    : 13 Jun 2016   2:48 pm                     Operator: XULIU
Sample    : JC18649-1TMS                              Inst    : GCGH
Misc      : GC48265,GGH5320,5.0,,,,1                  Multiplr: 1.00
IntFile   : AUTOINT1.E

Data File : C:\HPCHEM\1\DATA\GH105447.D\FID2B.CH          Vial: 28
Acq On    : 13 Jun 2016   3:04 pm                     Operator: XULIU
Sample    : JC18649-1TMS                              Inst    : GCGH
Misc      : GC48265,GGH5320,5.0,,,,1                  Multiplr: 1.00
IntFile   : autoint2.e
Quant Time: Jun 14  7:57 2016  Quant Results File: MGH5288.RES


Method       : C:\HPCHEM\1\METHODS\MGH5288.M (Chemstation Integrator)
Title        : METHOD SW846-8015C (DAI)
Last Update  : Tue Jun 14 08:00:26 2016
Response via : Multiple Level Calibration
```





QEdit

(1) Methanol

1.11min 5357.906PPB

response 82826

(1) Methanol #2

0.90min -49469.687PPB

response -1595607

(+) = Expected Retention Time

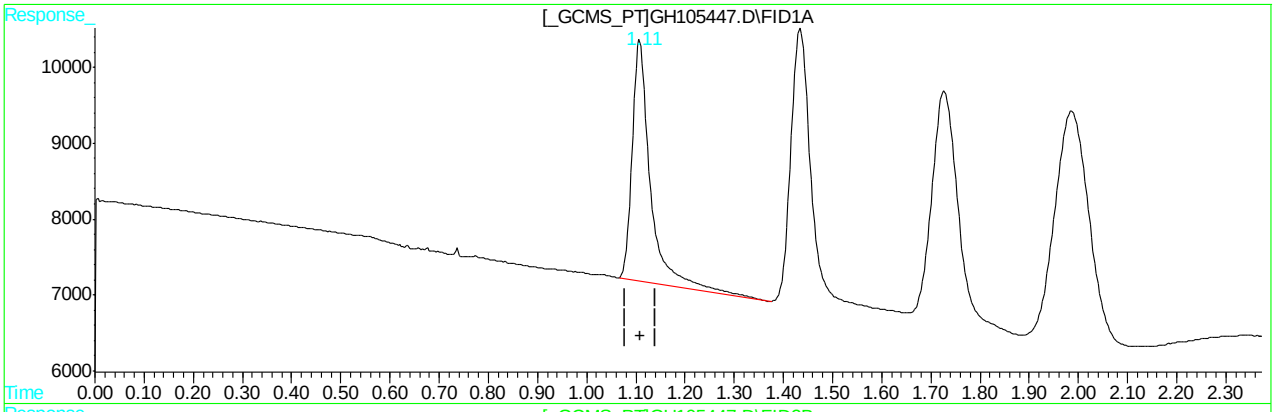
GH105447.D MGH5288.M Tue Jun 14 08:02:34 2016 GCGH

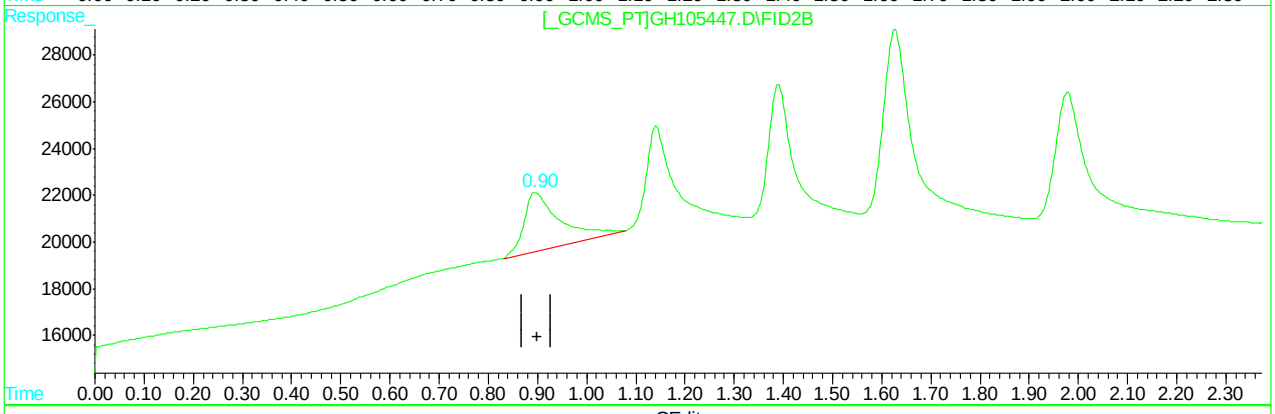
Quantitation Report (Qedit)

```
Data File : C:\HPCHEM\1\DATA\GH105447.D\FID1A.CH          Vial: 28
Acq On    : 13 Jun 2016   2:48 pm                     Operator: XULIU
Sample    : JC18649-1TMS                              Inst    : GCGH
Misc      : GC48265,GGH5320,5.0,,,,1                  Multiplr: 1.00
IntFile   : AUTOINT1.E

Data File : C:\HPCHEM\1\DATA\GH105447.D\FID2B.CH          Vial: 28
Acq On    : 13 Jun 2016   3:04 pm                     Operator: XULIU
Sample    : JC18649-1TMS                              Inst    : GCGH
Misc      : GC48265,GGH5320,5.0,,,,1                  Multiplr: 1.00
IntFile   : autoint2.e
Quant Time: Jun 14  7:57 2016  Quant Results File: MGH5288.RES


Method       : C:\HPCHEM\1\METHODS\MGH5288.M (Chemstation Integrator)
Title        : METHOD SW846-8015C (DAI)
Last Update  : Tue Jun 14 08:00:26 2016
Response via : Multiple Level Calibration
```





QEdit

(1) Methanol

1.11min 5357.906PPB

response 82826

(1) Methanol #2

0.90min 3962.400PPB m

response 127804

(+) = Expected Retention Time

GH105447.D MGH5288.M Tue Jun 14 08:03:26 2016 GCGH

SGS ACCUTEST JC19214T

Quantitation Report (QT Reviewed)

```
Data File : C:\HPCHEM\1\DATA\GH105448.D\FID1A.CH          Vial: 29
Acq On    : 13 Jun 2016   3:04 pm                     Operator: XULIU
Sample    : JC18649-1TMSD                             Inst    : GCGH
Misc      : GC48265,GGH5320,5.0,,,,1                  Multiplr: 1.00
IntFile   : AUTOINT1.E

Data File : C:\HPCHEM\1\DATA\GH105448.D\FID2B.CH          Vial: 29
Acq On    : 13 Jun 2016   3:21 pm                     Operator: XULIU
Sample    : JC18649-1TMSD                             Inst    : GCGH
Misc      : GC48265,GGH5320,5.0,,,,1                  Multiplr: 1.00
IntFile   : autoint2.e
Quant Time: Jun 13 15:33 2016  Quant Results File: MGH5288.RES

Quant Method : C:\HPCHEM\1\METHODS\MGH5288.M (Chemstation Integrator)
Title        : METHOD SW846-8015C (DAI)
Last Update  : Mon Jun 13 15:08:03 2016
Response via : Initial Calibration
DataAcq Meth : MGH5288.M

Volume Inj.     : 2ul
Signal #1 Phase : ZB-624            Signal #2 Phase: RTX-1
Signal #1 Info  : 30mx0.53mmx3um    Signal #2 Info : 30mx0.32mmx3um
```

	Compound	RT#1	RT#2	Resp#1	Resp#2	PPB	PPB
	System Monitoring Compounds						
9) S	Hexanol	5.55	5.44	302032	669681	4468.144	4310.860
Spiked Amount	5000.000			Recovery	=	89.36%	86.22%
	Target Compounds						
1)	Methanol	1.10	0.90	78508	165682	5078.536	5136.764
2)	Ethanol	1.43	1.14	104031	206583	5489.703	5182.604
3)	Tert-Butyl Alcoh	1.99	1.63	155987	356767	5505.139	5611.050
4)	1-Propanol	2.48	1.98	136075	297281	5593.784	5847.097
5)	2-Propanol	1.73	1.39	111428	243201	5590.696	5371.148
6)	Isobutanol	3.28	2.92	166483	337194	5786.475	5507.808
7)	1-Butanol	3.73	3.39	153928	316343	5389.509	4780.757
8)	2-Butanol	2.91	2.54	141171	301300	5507.090	5550.398

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

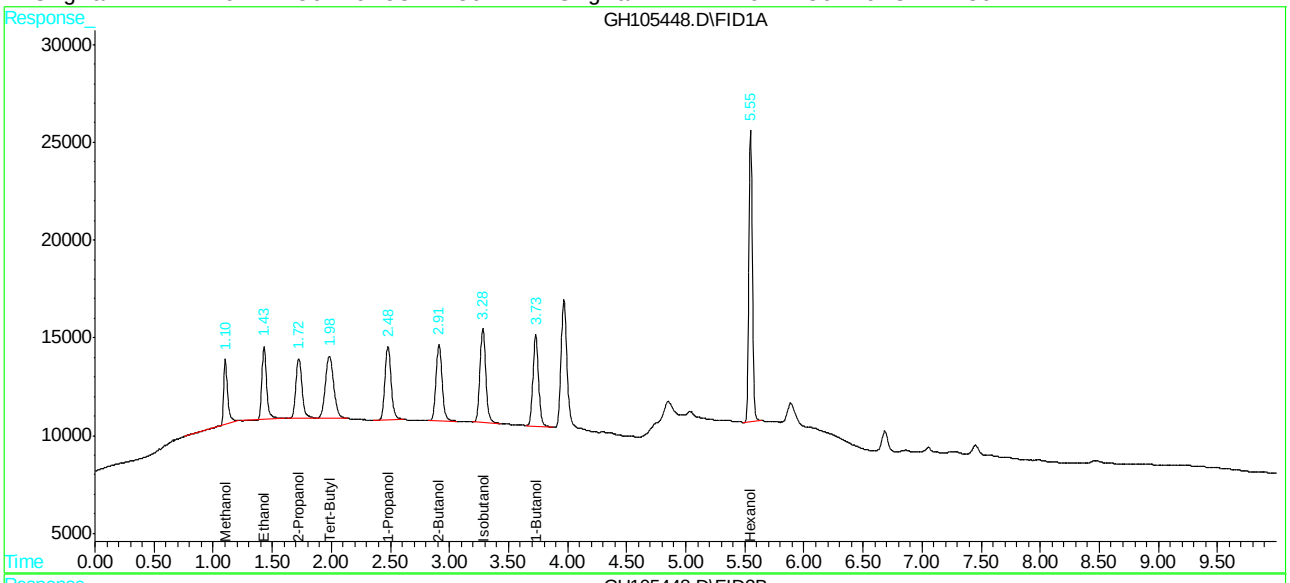
Quantitation Report (QT Reviewed)

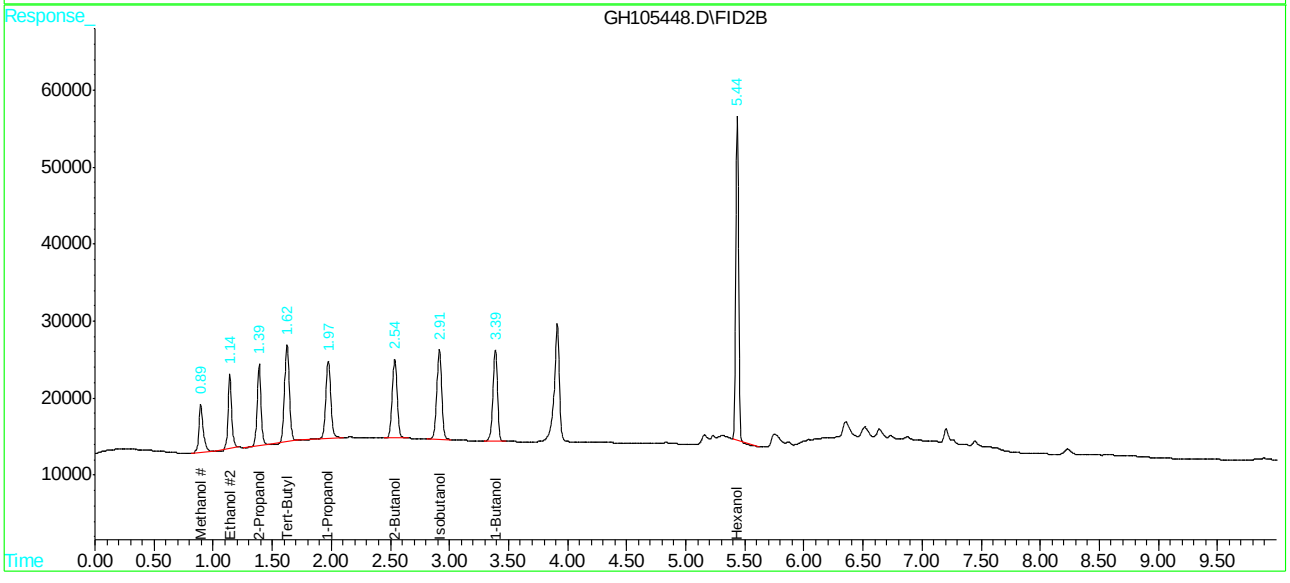
```
Data File : C:\HPCHEM\1\DATA\GH105448.D\FID1A.CH          Vial: 29
Acq On    : 13 Jun 2016   3:04 pm                     Operator: XULIU
Sample    : JC18649-1TMSD                             Inst    : GCGH
Misc      : GC48265,GGH5320,5.0,,,,1                  Multiplr: 1.00
IntFile   : AUTOINT1.E

Data File : C:\HPCHEM\1\DATA\GH105448.D\FID2B.CH          Vial: 29
Acq On    : 13 Jun 2016   3:21 pm                     Operator: XULIU
Sample    : JC18649-1TMSD                             Inst    : GCGH
Misc      : GC48265,GGH5320,5.0,,,,1                  Multiplr: 1.00
IntFile   : autoint2.e
Quant Time: Jun 13 15:33 2016  Quant Results File: MGH5288.RES

Quant Method : C:\HPCHEM\1\METHODS\MGH5288.M (Chemstation Integrator)
Title        : METHOD SW846-8015C (DAI)
Last Update  : Mon Jun 13 15:08:03 2016
Response via : Multiple Level Calibration
DataAcq Meth : MGH5288.M

Volume Inj.     : 2ul
Signal #1 Phase : ZB-624            Signal #2 Phase: RTX-1
Signal #1 Info  : 30mx0.53mmx3um    Signal #2 Info : 30mx0.32mmx3um
```





Manual Integrations APPROVED (compounds with "m" flag)
Owen McKenna
05/18/16 09:16

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\GH105017.D\FID1A.CH Vial: 2
Acq On : 17 May 2016 4:14 pm Operator: XULIU
Sample : IC5288-100 Inst : GCGH
Misc : GC48422,GGH5288,5.0,,,,1 Multiplr: 1.00
IntFile : AUTOINT1.E

Data File : C:\HPCHEM\1\DATA\GH105017.D\FID2B.CH Vial: 2
Acq On : 17 May 2016 4:28 pm Operator: XULIU
Sample : IC5288-100 Inst : GCGH
Misc : GC48422,GGH5288,5.0,,,,1 Multiplr: 1.00
IntFile : autoint2.e
Quant Time: May 18 8:50 2016 Quant Results File: MGH5288.RES

Quant Method : C:\HPCHEM\1\METHODS\MGH5288.M (Chemstation Integrator)
Title : METHOD SW846-8015C (DAI)
Last Update : Wed May 18 07:34:35 2016
Response via : Initial Calibration
DataAcq Meth : MGH5288.M

Volume Inj. : 2ul
Signal #1 Phase : ZB-624 Signal #2 Phase: RTX-1
Signal #1 Info : 30mx0.53mmx3um Signal #2 Info : 30mx0.32mmx3um

	Compound	RT#1	RT#2	Resp#1	Resp#2	PPB	PPB
	System Monitoring Compounds						
9) S	Hexanol	5.57	5.50	49213	113892	786.392	792.225
Spiked Amount	5000.000			Recovery	=	15.73%	15.84%
	Target Compounds						
1)	Methanol	1.12	0.89f	1784	2982	115.427	93.713m
2)	Ethanol	1.45	1.15	2099	3361	110.763	84.901m
3)	Tert-Butyl Alcoh	2.01	1.66	2806	5629	99.020	88.524
4)	1-Propanol	2.52	2.03	2187	3458	89.885	69.117m
5)	2-Propanol	1.75	1.41	1888	4004	94.702	88.437
6)	Isobutanol	3.32	2.95f	2784	6044	96.777	98.728
7)	1-Butanol	3.76	3.42	3014	7445	105.546	113.606m
8)	2-Butanol	2.95	2.57	2840	4510	121.739m	83.638m

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
GH105017.D MGH5288.M Wed May 18 08:50:53 2016 GCGH

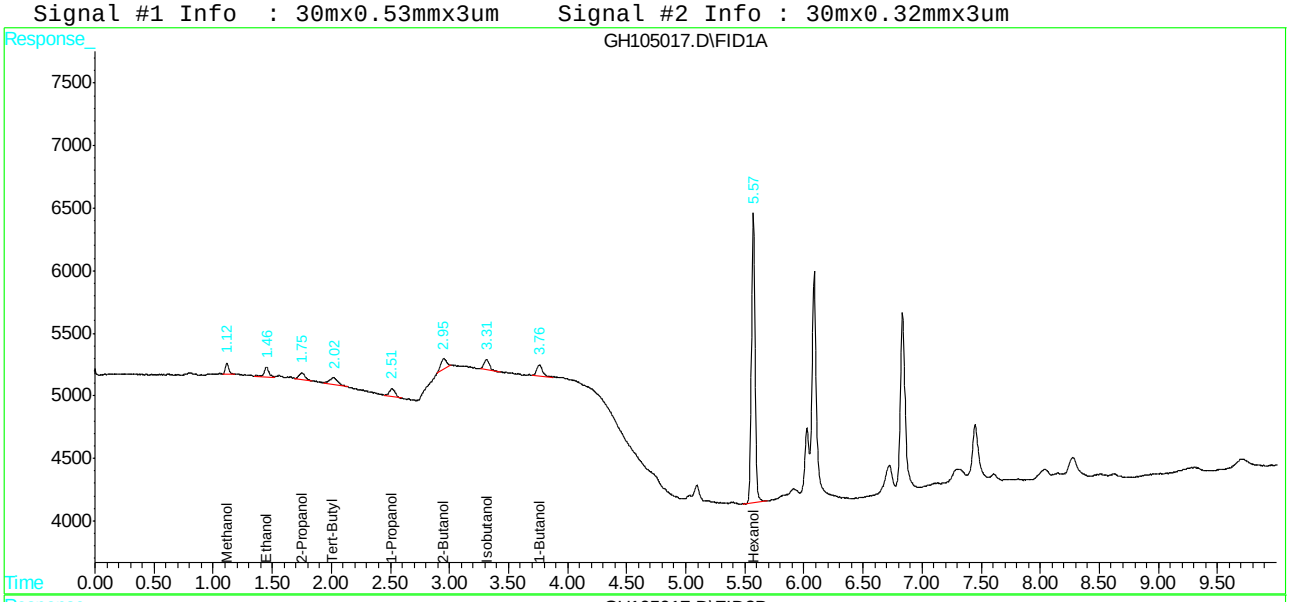
Quantitation Report (QT Reviewed)

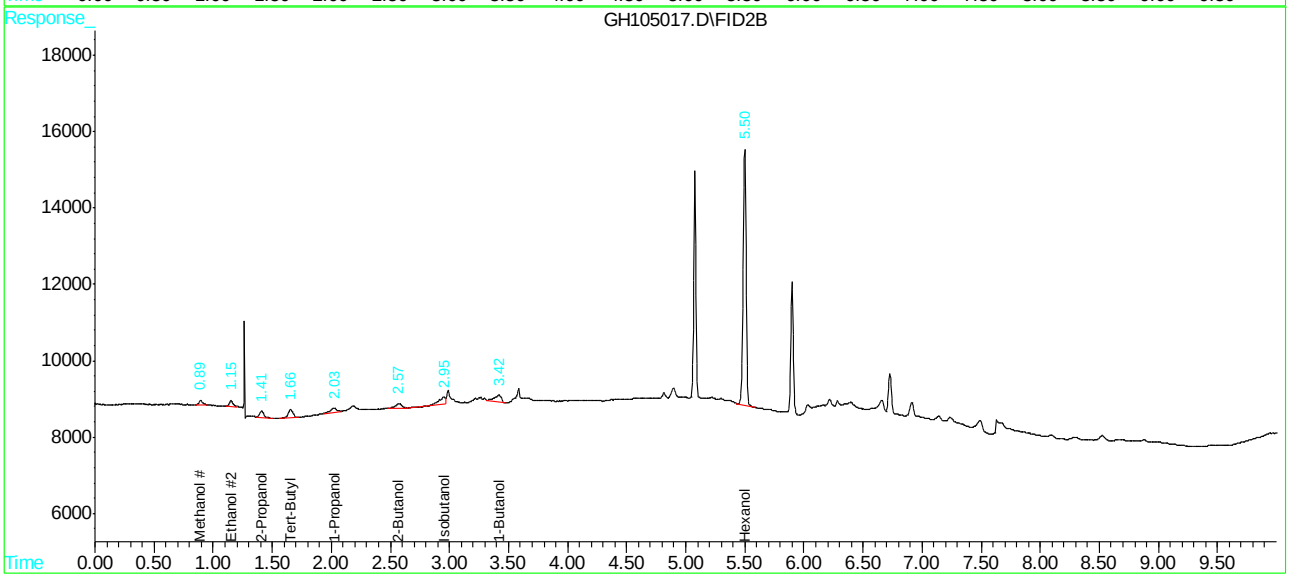
```
Data File : C:\HPCHEM\1\DATA\GH105017.D\FID1A.CH          Vial: 2
Acq On    : 17 May 2016   4:14 pm                     Operator: XULIU
Sample    : IC5288-100                                Inst    : GCGH
Misc      : GC48422,GGH5288,5.0,,,,1                  Multiplr: 1.00
IntFile   : AUTOINT1.E

Data File : C:\HPCHEM\1\DATA\GH105017.D\FID2B.CH          Vial: 2
Acq On    : 17 May 2016   4:28 pm                     Operator: XULIU
Sample    : IC5288-100                                Inst    : GCGH
Misc      : GC48422,GGH5288,5.0,,,,1                  Multiplr: 1.00
IntFile   : autoint2.e
Quant Time: May 18  8:50 2016  Quant Results File: MGH5288.RES

Quant Method : C:\HPCHEM\1\METHODS\MGH5288.M (Chemstation Integrator)
Title        : METHOD SW846-8015C (DAI)
Last Update  : Wed May 18 07:34:35 2016
Response via : Multiple Level Calibration
DataAcq Meth : MGH5288.M

Volume Inj.      : 2ul
Signal #1 Phase : ZB-624            Signal #2 Phase: RTX-1
Signal #1 Info  : 30mx0.53mmx3um    Signal #2 Info : 30mx0.32mmx3um
```





SGS ACCUTEST JC19214T

Manual Integration Approval Summary

Sample Number:	GGH5288-IC5288	**Method:**	SW846-8015C (DAI)
Lab FileID:	GH105017.D	**Analyst approved:**	05/18/16 09:10 Xu Liu
Injection Time:	05/17/16 16:14	**Supervisor approved:**	05/18/16 09:16 Owen McKenna

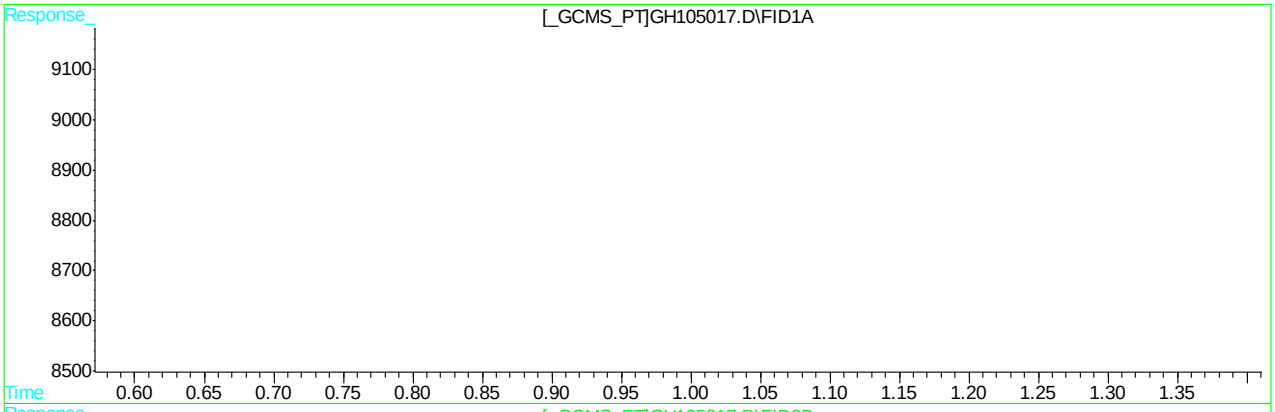
Parameter	CAS	Sig#	R.T. (min.)	Reason
Methanol	67-56-1	2	0.89	Poor instrument integration
Ethanol	64-17-5	2	1.15	Poor instrument integration
n-Propyl Alcohol	71-23-8	2	2.03	Poor instrument integration
sec-Butyl Alcohol	78-92-2	2	2.57	Poor instrument integration
sec-Butyl Alcohol	78-92-2	1	2.95	Poor instrument integration
n-Butyl Alcohol	71-36-3	2	3.42	Poor instrument integration

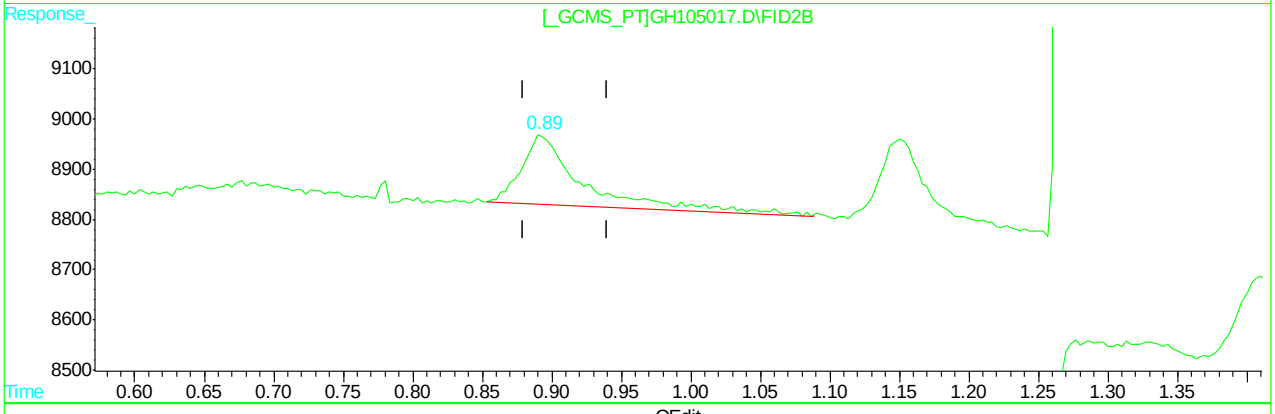
Quantitation Report (Qedit)

```
Data File : C:\HPCHEM\1\DATA\GH105017.D\FID1A.CH          Vial: 2
Acq On    : 17 May 2016   4:14 pm                     Operator: XULIU
Sample    : IC5288-100                                Inst    : GCGH
Misc      : GC48422,GGH5288,5.0,,,,1                  Multiplr: 1.00
IntFile   : AUTOINT1.E

Data File : C:\HPCHEM\1\DATA\GH105017.D\FID2B.CH          Vial: 2
Acq On    : 17 May 2016   4:28 pm                     Operator: XULIU
Sample    : IC5288-100                                Inst    : GCGH
Misc      : GC48422,GGH5288,5.0,,,,1                  Multiplr: 1.00
IntFile   : autoint2.e
Quant Time: May 18  7:37 2016  Quant Results File: MGH5288.RES


Method       : C:\HPCHEM\1\METHODS\MGH5288.M (Chemstation Integrator)
Title        : METHOD SW846-8015C (DAI)
Last Update  : Wed May 18 07:34:35 2016
Response via : Multiple Level Calibration
```





QEdit

(1) Methanol

1.12min 115.427PPB

response 1784

(1) Methanol #2

0.89min 132.645PPB

response 4221

(+) = Expected Retention Time

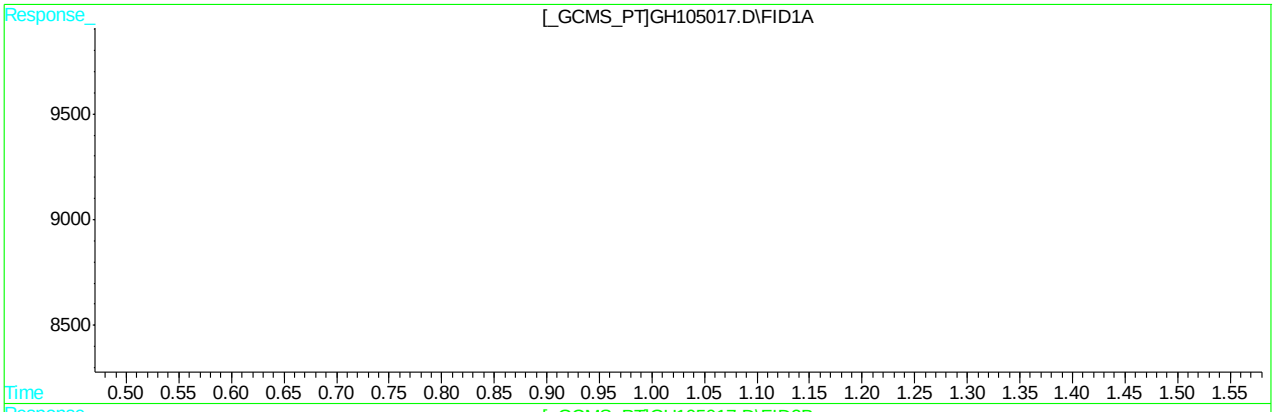
GH105017.D MGH5288.M Wed May 18 08:43:56 2016 GCGH

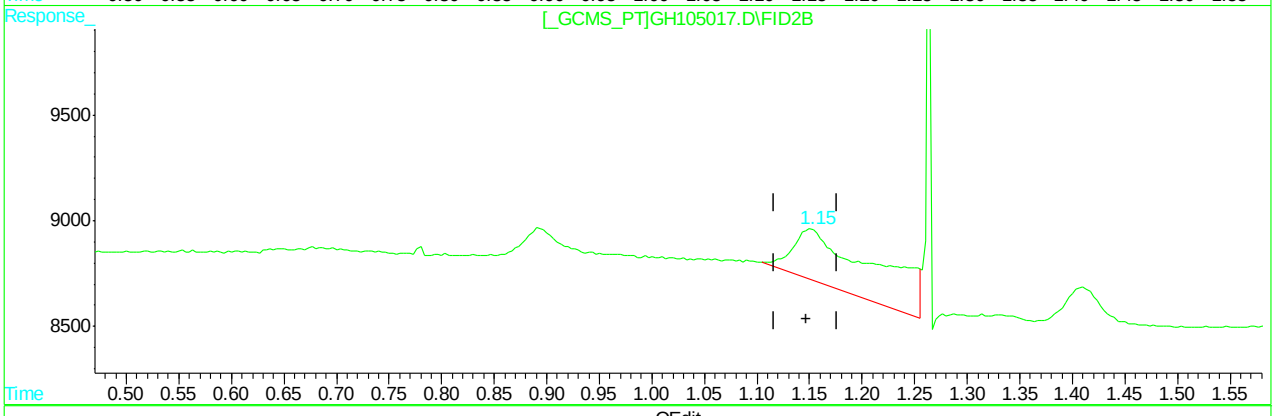
Quantitation Report (Qedit)

```
Data File : C:\HPCHEM\1\DATA\GH105017.D\FID1A.CH          Vial: 2
Acq On    : 17 May 2016   4:14 pm                     Operator: XULIU
Sample    : IC5288-100                                Inst    : GCGH
Misc      : GC48422,GGH5288,5.0,,,,1                  Multiplr: 1.00
IntFile   : AUTOINT1.E

Data File : C:\HPCHEM\1\DATA\GH105017.D\FID2B.CH          Vial: 2
Acq On    : 17 May 2016   4:28 pm                     Operator: XULIU
Sample    : IC5288-100                                Inst    : GCGH
Misc      : GC48422,GGH5288,5.0,,,,1                  Multiplr: 1.00
IntFile   : autoint2.e
Quant Time: May 18  7:37 2016  Quant Results File: MGH5288.RES


Method       : C:\HPCHEM\1\METHODS\MGH5288.M (Chemstation Integrator)
Title        : METHOD SW846-8015C (DAI)
Last Update  : Wed May 18 07:34:35 2016
Response via : Multiple Level Calibration
```





QEdit

(2) Ethanol

1.45min 110.763PPB

response 2099

(2) Ethanol #2

1.15min 367.751PPB

response 14557

(+) = Expected Retention Time

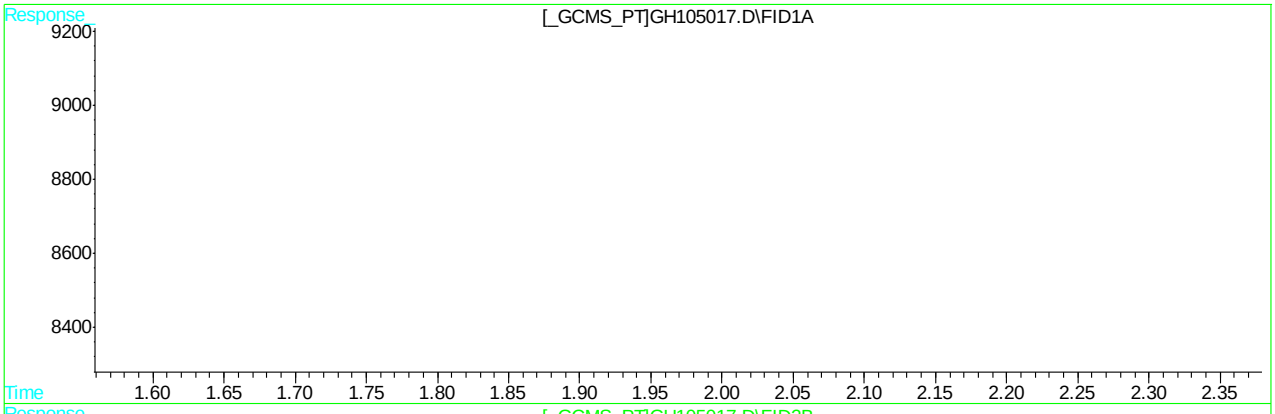
GH105017.D MGH5288.M Wed May 18 08:44:26 2016 GCGH

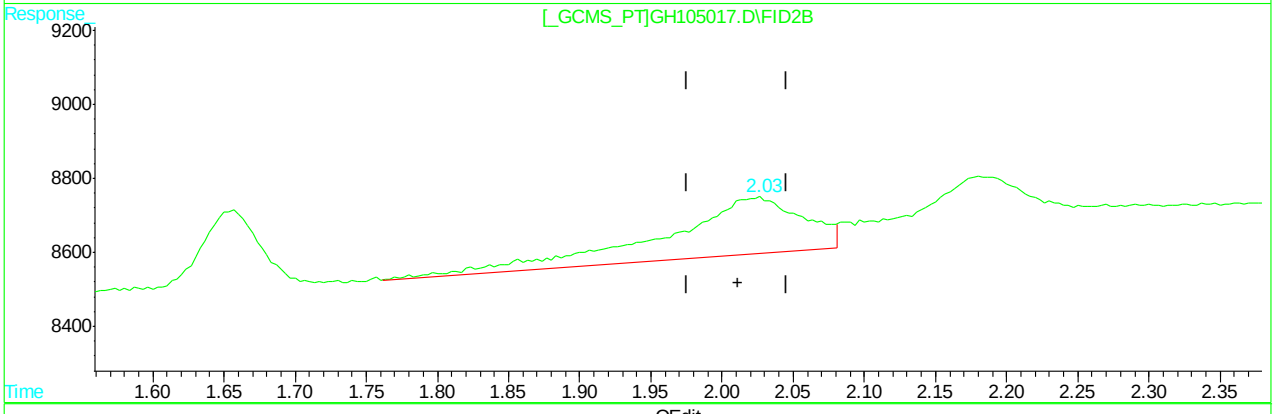
Quantitation Report (Qedit)

```
Data File : C:\HPCHEM\1\DATA\GH105017.D\FID1A.CH          Vial: 2
Acq On    : 17 May 2016   4:14 pm                     Operator: XULIU
Sample    : IC5288-100                                Inst    : GCGH
Misc      : GC48422,GGH5288,5.0,,,,1                  Multiplr: 1.00
IntFile   : AUTOINT1.E

Data File : C:\HPCHEM\1\DATA\GH105017.D\FID2B.CH          Vial: 2
Acq On    : 17 May 2016   4:28 pm                     Operator: XULIU
Sample    : IC5288-100                                Inst    : GCGH
Misc      : GC48422,GGH5288,5.0,,,,1                  Multiplr: 1.00
IntFile   : autoint2.e
Quant Time: May 18  7:37 2016  Quant Results File: MGH5288.RES


Method       : C:\HPCHEM\1\METHODS\MGH5288.M (Chemstation Integrator)
Title        : METHOD SW846-8015C (DAI)
Last Update  : Wed May 18 07:34:35 2016
Response via : Multiple Level Calibration
```





QEdit

(4) 1-Propanol

2.52min 89.885PPB

response 2187

(4) 1-Propanol #2

2.03min 209.050PPB

response 10460

(+) = Expected Retention Time

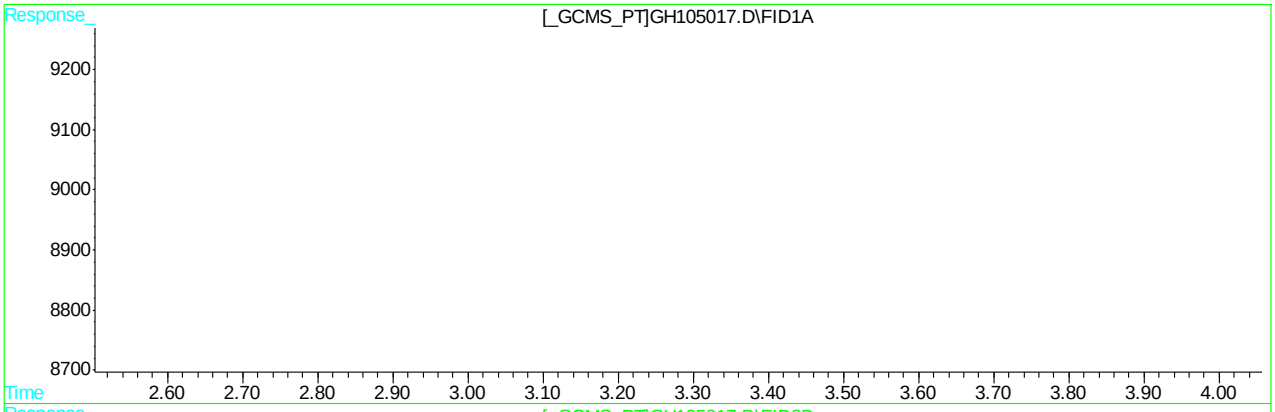
GH105017.D MGH5288.M Wed May 18 08:44:42 2016 GCGH

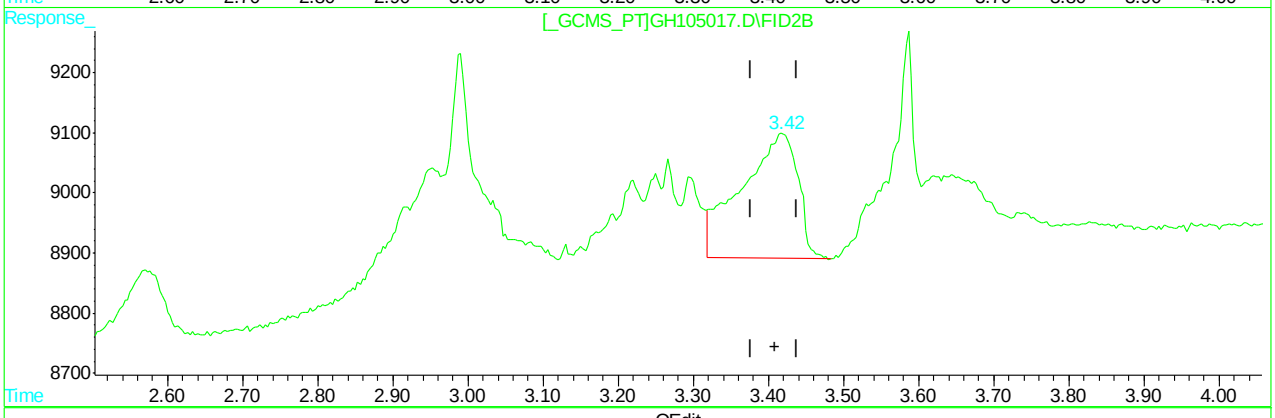
Quantitation Report (Qedit)

```
Data File : C:\HPCHEM\1\DATA\GH105017.D\FID1A.CH          Vial: 2
Acq On    : 17 May 2016   4:14 pm                     Operator: XULIU
Sample    : IC5288-100                                Inst    : GCGH
Misc      : GC48422,GGH5288,5.0,,,,1                  Multiplr: 1.00
IntFile   : AUTOINT1.E

Data File : C:\HPCHEM\1\DATA\GH105017.D\FID2B.CH          Vial: 2
Acq On    : 17 May 2016   4:28 pm                     Operator: XULIU
Sample    : IC5288-100                                Inst    : GCGH
Misc      : GC48422,GGH5288,5.0,,,,1                  Multiplr: 1.00
IntFile   : autoint2.e
Quant Time: May 18  7:37 2016  Quant Results File: MGH5288.RES


Method       : C:\HPCHEM\1\METHODS\MGH5288.M (Chemstation Integrator)
Title        : METHOD SW846-8015C (DAI)
Last Update  : Wed May 18 07:34:35 2016
Response via : Multiple Level Calibration
```





QEdit

(7) 1-Butanol

3.76min 105.546PPB

response 3014

(7) 1-Butanol #2

3.42min 167.388PPB

response 10970

(+) = Expected Retention Time

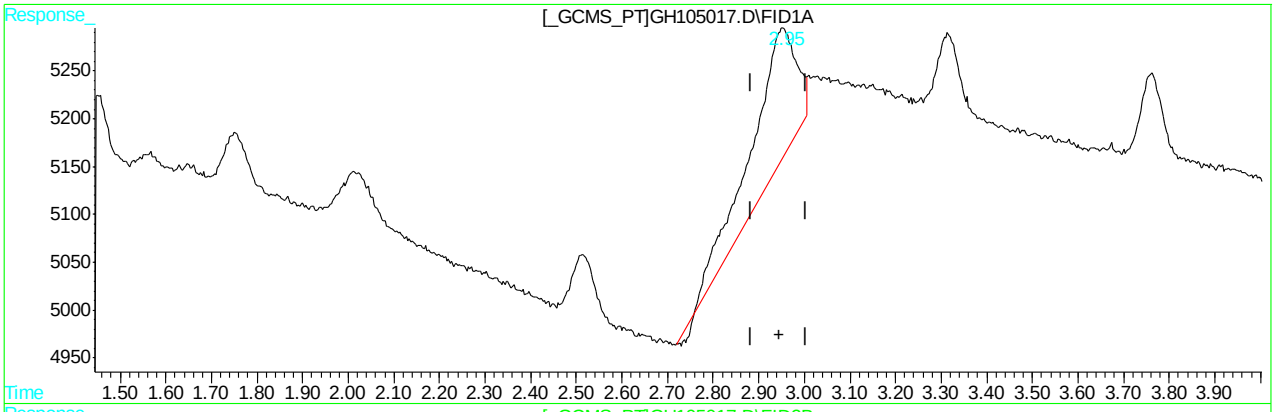
GH105017.D MGH5288.M Wed May 18 08:45:02 2016 GCGH

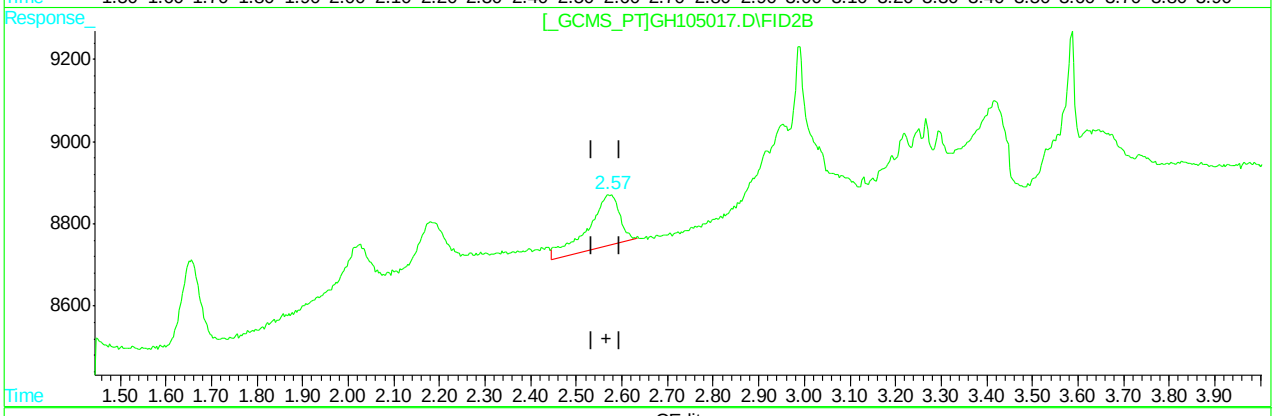
Quantitation Report (Qedit)

```
Data File : C:\HPCHEM\1\DATA\GH105017.D\FID1A.CH          Vial: 2
Acq On    : 17 May 2016   4:14 pm                     Operator: XULIU
Sample    : IC5288-100                                Inst    : GCGH
Misc      : GC48422,GGH5288,5.0,,,,1                  Multiplr: 1.00
IntFile   : AUTOINT1.E

Data File : C:\HPCHEM\1\DATA\GH105017.D\FID2B.CH          Vial: 2
Acq On    : 17 May 2016   4:28 pm                     Operator: XULIU
Sample    : IC5288-100                                Inst    : GCGH
Misc      : GC48422,GGH5288,5.0,,,,1                  Multiplr: 1.00
IntFile   : autoint2.e
Quant Time: May 18  7:37 2016  Quant Results File: MGH5288.RES


Method       : C:\HPCHEM\1\METHODS\MGH5288.M (Chemstation Integrator)
Title        : METHOD SW846-8015C (DAI)
Last Update  : Wed May 18 07:34:35 2016
Response via : Multiple Level Calibration
```





QEdit

(8) 2-Butanol

2.95min 395.696PPB

response 9232

(8) 2-Butanol #2

2.57min 109.800PPB

response 5921

(+) = Expected Retention Time

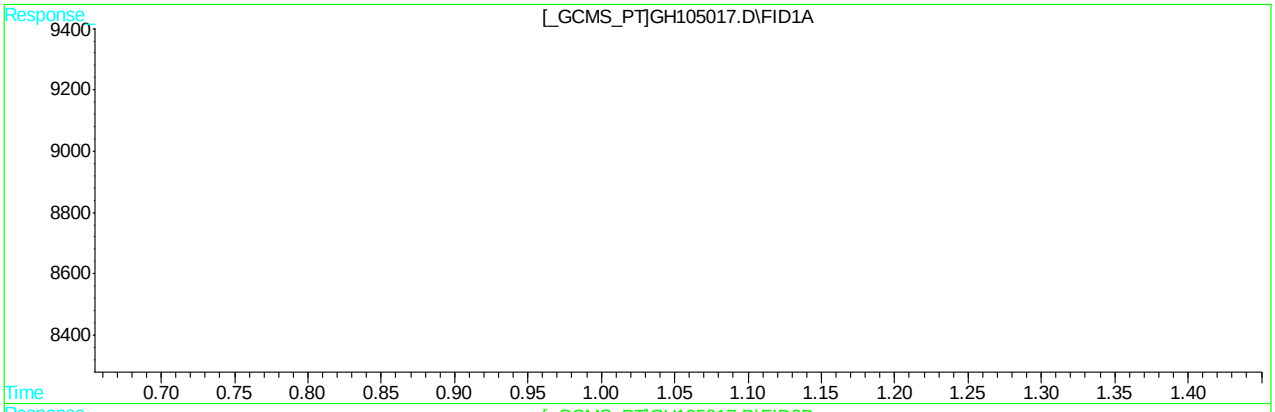
GH105017.D MGH5288.M Wed May 18 08:45:09 2016 GCGH

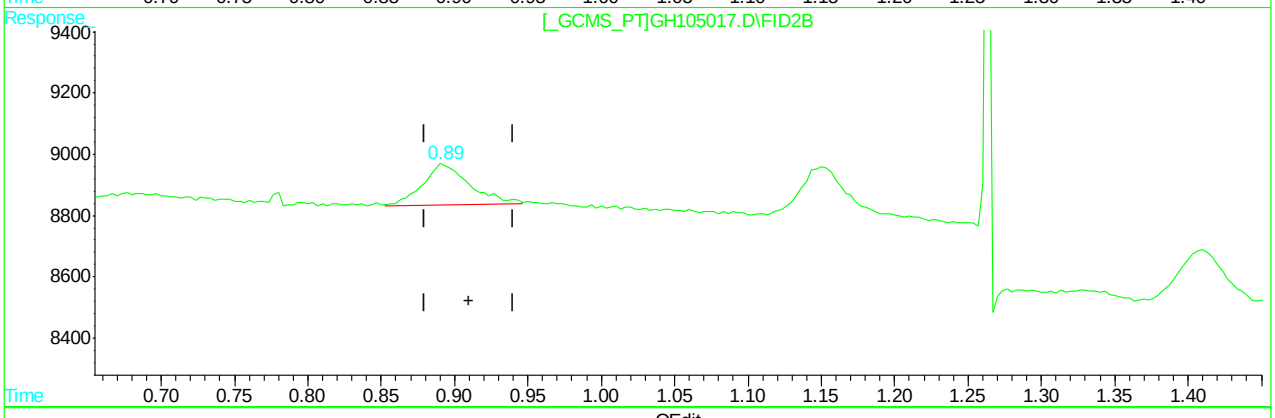
Quantitation Report (Qedit)

```
Data File : C:\HPCHEM\1\DATA\GH105017.D\FID1A.CH          Vial: 2
Acq On    : 17 May 2016   4:14 pm                     Operator: XULIU
Sample    : IC5288-100                                Inst    : GCGH
Misc      : GC48422,GGH5288,5.0,,,,1                  Multiplr: 1.00
IntFile   : AUTOINT1.E

Data File : C:\HPCHEM\1\DATA\GH105017.D\FID2B.CH          Vial: 2
Acq On    : 17 May 2016   4:28 pm                     Operator: XULIU
Sample    : IC5288-100                                Inst    : GCGH
Misc      : GC48422,GGH5288,5.0,,,,1                  Multiplr: 1.00
IntFile   : autoint2.e
Quant Time: May 18  7:37 2016  Quant Results File: MGH5288.RES


Method       : C:\HPCHEM\1\METHODS\MGH5288.M (Chemstation Integrator)
Title        : METHOD SW846-8015C (DAI)
Last Update  : Wed May 18 07:34:35 2016
Response via : Multiple Level Calibration
```





QEdit

(1) Methanol

1.12min 115.427PPB

response 1784

(1) Methanol #2

0.89min 93.713PPB m

response 2982

(+) = Expected Retention Time

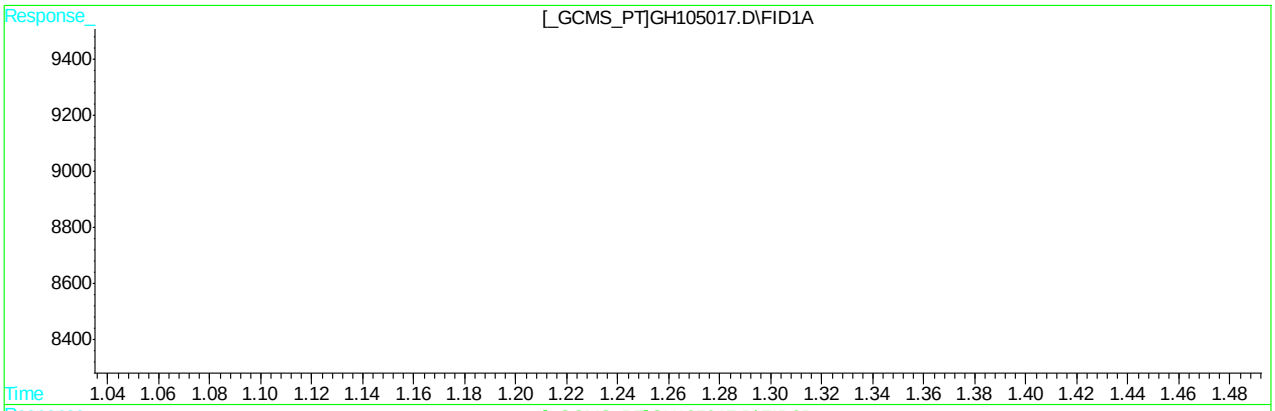
GH105017.D MGH5288.M Wed May 18 08:46:19 2016 GCGH

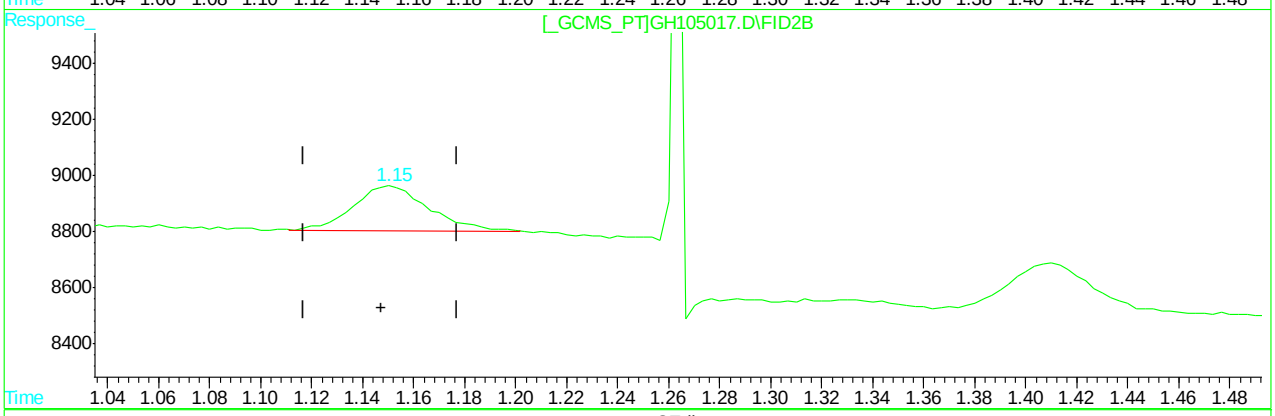
Quantitation Report (Qedit)

```
Data File : C:\HPCHEM\1\DATA\GH105017.D\FID1A.CH          Vial: 2
Acq On    : 17 May 2016   4:14 pm                     Operator: XULIU
Sample    : IC5288-100                                Inst    : GCGH
Misc      : GC48422,GGH5288,5.0,,,,1                  Multiplr: 1.00
IntFile   : AUTOINT1.E

Data File : C:\HPCHEM\1\DATA\GH105017.D\FID2B.CH          Vial: 2
Acq On    : 17 May 2016   4:28 pm                     Operator: XULIU
Sample    : IC5288-100                                Inst    : GCGH
Misc      : GC48422,GGH5288,5.0,,,,1                  Multiplr: 1.00
IntFile   : autoint2.e
Quant Time: May 18  7:37 2016  Quant Results File: MGH5288.RES


Method       : C:\HPCHEM\1\METHODS\MGH5288.M (Chemstation Integrator)
Title        : METHOD SW846-8015C (DAI)
Last Update  : Wed May 18 07:34:35 2016
Response via : Multiple Level Calibration
```





QEdit

(2) Ethanol

1.45min 110.763PPB

response 2099

(2) Ethanol #2

1.15min 84.901PPB m

response 3361

(+) = Expected Retention Time

GH105017.D MGH5288.M Wed May 18 08:46:55 2016 GCGH

7.5.1.8

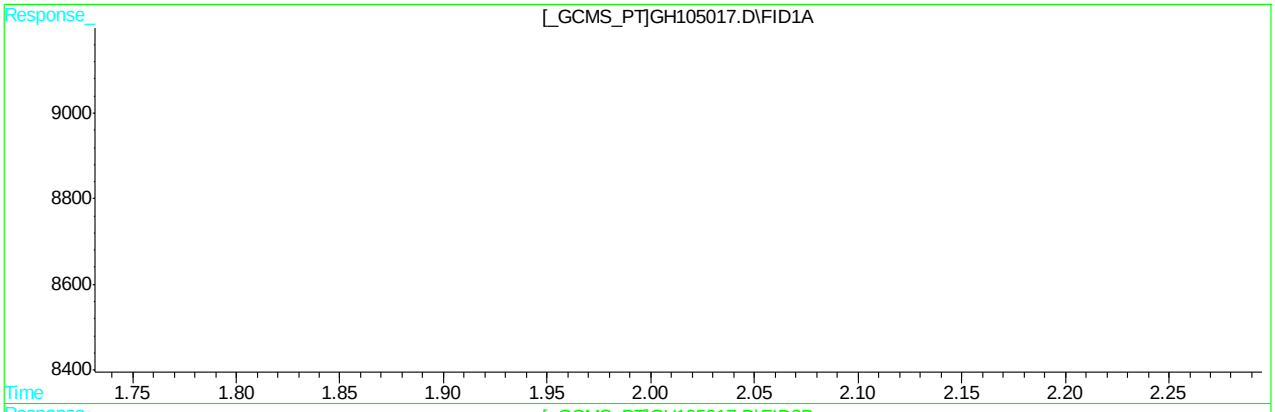
7

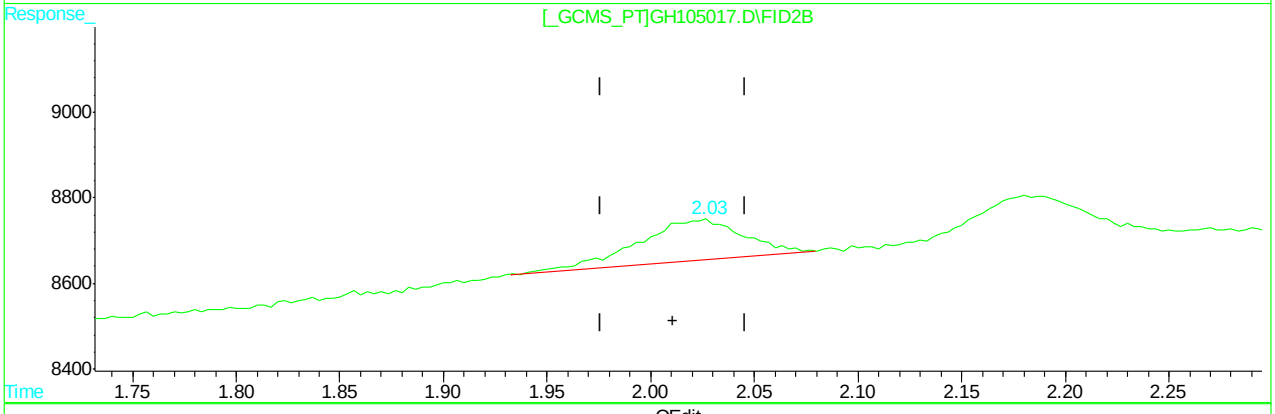
Quantitation Report (Qedit)

```
Data File : C:\HPCHEM\1\DATA\GH105017.D\FID1A.CH          Vial: 2
Acq On    : 17 May 2016   4:14 pm                     Operator: XULIU
Sample    : IC5288-100                                Inst    : GCGH
Misc      : GC48422,GGH5288,5.0,,,,1                  Multiplr: 1.00
IntFile   : AUTOINT1.E

Data File : C:\HPCHEM\1\DATA\GH105017.D\FID2B.CH          Vial: 2
Acq On    : 17 May 2016   4:28 pm                     Operator: XULIU
Sample    : IC5288-100                                Inst    : GCGH
Misc      : GC48422,GGH5288,5.0,,,,1                  Multiplr: 1.00
IntFile   : autoint2.e
Quant Time: May 18  7:37 2016  Quant Results File: MGH5288.RES


Method       : C:\HPCHEM\1\METHODS\MGH5288.M (Chemstation Integrator)
Title        : METHOD SW846-8015C (DAI)
Last Update  : Wed May 18 07:34:35 2016
Response via : Multiple Level Calibration
```





QEdit

(4) 1-Propanol

2.52min 89.885PPB

response 2187

(4) 1-Propanol #2

2.03min 69.117PPB m

response 3458

(+) = Expected Retention Time

GH105017.D MGH5288.M Wed May 18 08:48:45 2016 GCGH

7.5.1.9

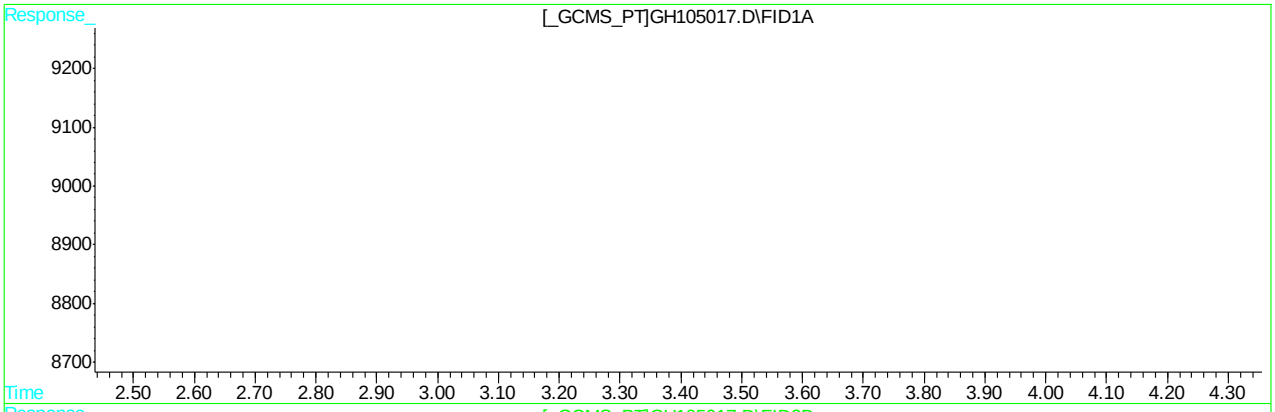
7

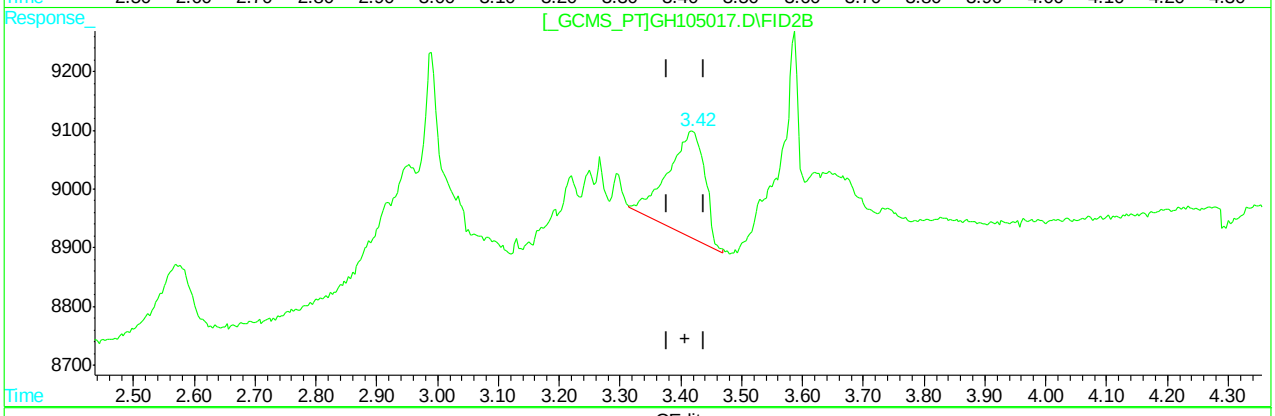
Quantitation Report (Qedit)

```
Data File : C:\HPCHEM\1\DATA\GH105017.D\FID1A.CH          Vial: 2
Acq On    : 17 May 2016   4:14 pm                     Operator: XULIU
Sample    : IC5288-100                                Inst    : GCGH
Misc      : GC48422,GGH5288,5.0,,,,1                  Multiplr: 1.00
IntFile   : AUTOINT1.E

Data File : C:\HPCHEM\1\DATA\GH105017.D\FID2B.CH          Vial: 2
Acq On    : 17 May 2016   4:28 pm                     Operator: XULIU
Sample    : IC5288-100                                Inst    : GCGH
Misc      : GC48422,GGH5288,5.0,,,,1                  Multiplr: 1.00
IntFile   : autoint2.e
Quant Time: May 18  7:37 2016  Quant Results File: MGH5288.RES


Method       : C:\HPCHEM\1\METHODS\MGH5288.M (Chemstation Integrator)
Title        : METHOD SW846-8015C (DAI)
Last Update  : Wed May 18 07:34:35 2016
Response via : Multiple Level Calibration
```





QEdit

(7) 1-Butanol

3.76min 105.546PPB

response 3014

(7) 1-Butanol #2

3.42min 113.606PPB m

response 7445

(+) = Expected Retention Time

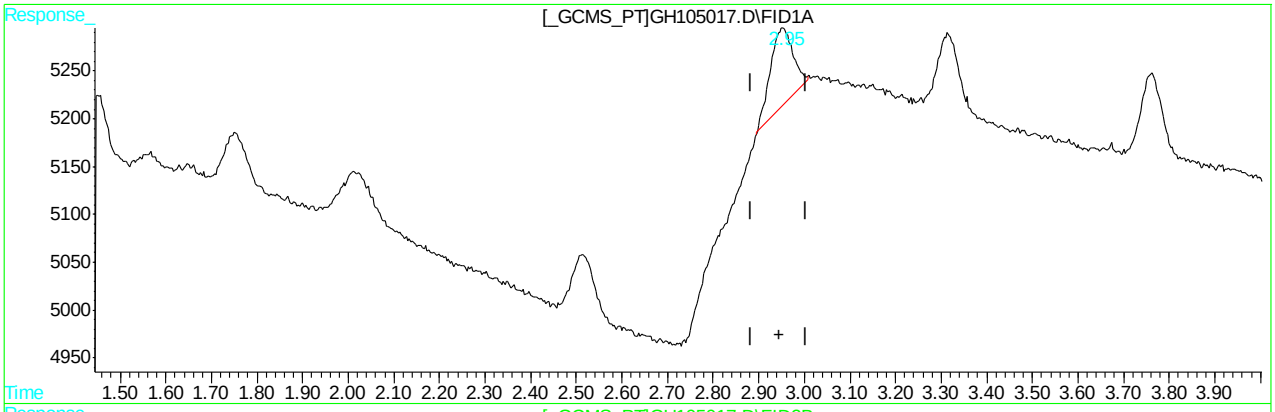
GH105017.D MGH5288.M Wed May 18 08:49:10 2016 GCGH

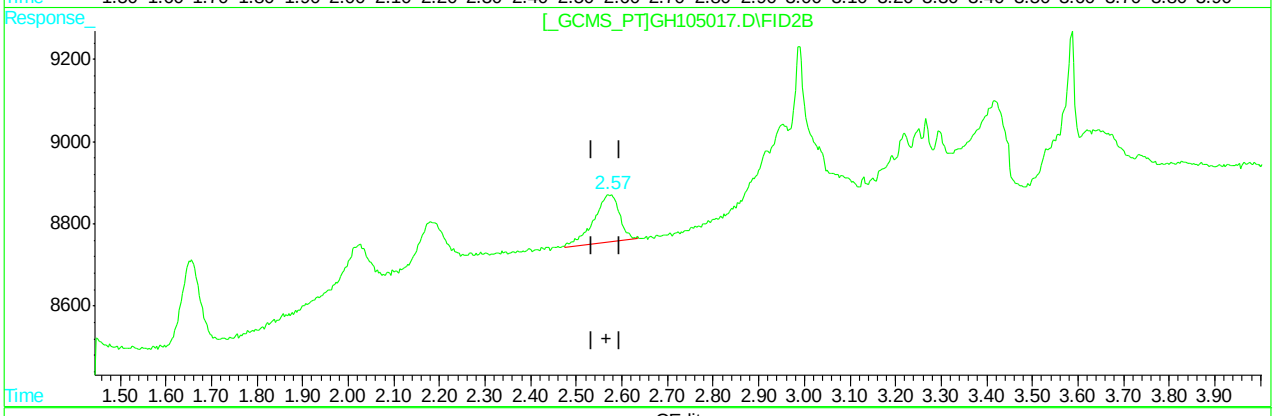
Quantitation Report (Qedit)

```
Data File : C:\HPCHEM\1\DATA\GH105017.D\FID1A.CH          Vial: 2
Acq On    : 17 May 2016   4:14 pm                     Operator: XULIU
Sample    : IC5288-100                                Inst    : GCGH
Misc      : GC48422,GGH5288,5.0,,,,1                  Multiplr: 1.00
IntFile   : AUTOINT1.E

Data File : C:\HPCHEM\1\DATA\GH105017.D\FID2B.CH          Vial: 2
Acq On    : 17 May 2016   4:28 pm                     Operator: XULIU
Sample    : IC5288-100                                Inst    : GCGH
Misc      : GC48422,GGH5288,5.0,,,,1                  Multiplr: 1.00
IntFile   : autoint2.e
Quant Time: May 18  7:37 2016  Quant Results File: MGH5288.RES


Method       : C:\HPCHEM\1\METHODS\MGH5288.M (Chemstation Integrator)
Title        : METHOD SW846-8015C (DAI)
Last Update  : Wed May 18 07:34:35 2016
Response via : Multiple Level Calibration
```





QEdit

(8) 2-Butanol

2.95min 121.739PPB m

response 2840

(8) 2-Butanol #2

2.57min 83.638PPB m

response 4510

(+) = Expected Retention Time

GH105017.D MGH5288.M Wed May 18 08:50:46 2016 GCGH

7.5.1.11

7

Quantitation Report (QT Reviewed)

```
Data File : C:\HPCHEM\1\DATA\GH105018.D\FID1A.CH          Vial: 3
Acq On    : 17 May 2016   4:28 pm                     Operator: XULIU
Sample    : IC5288-500                                Inst    : GCGH
Misc      : GC48422,GGH5288,5.0,,,,1                  Multiplr: 1.00
IntFile   : AUTOINT1.E

Data File : C:\HPCHEM\1\DATA\GH105018.D\FID2B.CH          Vial: 3
Acq On    : 17 May 2016   4:43 pm                     Operator: XULIU
Sample    : IC5288-500                                Inst    : GCGH
Misc      : GC48422,GGH5288,5.0,,,,1                  Multiplr: 1.00
IntFile   : autoint2.e
Quant Time: May 18  7:23 2016  Quant Results File: MGH5288.RES

Quant Method : C:\HPCHEM\1\METHODS\MGH5288.M (Chemstation Integrator)
Title        : METHOD SW846-8015C (DAI)
Last Update  : Wed May 18 07:22:56 2016
Response via : Initial Calibration
DataAcq Meth : MGH5288.M

Volume Inj.     : 2ul
Signal #1 Phase : ZB-624            Signal #2 Phase: RTX-1
Signal #1 Info  : 30mx0.53mmx3um    Signal #2 Info : 30mx0.32mmx3um
```

	Compound	RT#1	RT#2	Resp#1	Resp#2	PPB	PPB
	System Monitoring Compounds						
9) S	Hexanol	5.57	5.50	133226	309222	2149.239	2179.587
Spiked Amount	5000.000			Recovery	=	42.98%	43.59%
	Target Compounds						
1)	Methanol	1.12	0.90	7371	16974	487.375	523.867
2)	Ethanol	1.45	1.15	7403	20315	382.175	495.986
3)	Tert-Butyl Alcoh	2.02	1.65	13219	32642	459.462	504.499
4)	1-Propanol	2.52	2.01	11323	26078	450.160	484.442
5)	2-Propanol	1.75	1.41	8826	24643	428.510	541.309
6)	Isobutanol	3.32	2.95f	14018	31821	481.673	522.579
7)	1-Butanol	3.76	3.41	14489	37291	514.513	593.512
8)	2-Butanol	2.95	2.57	11839	27554	464.803	492.431

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

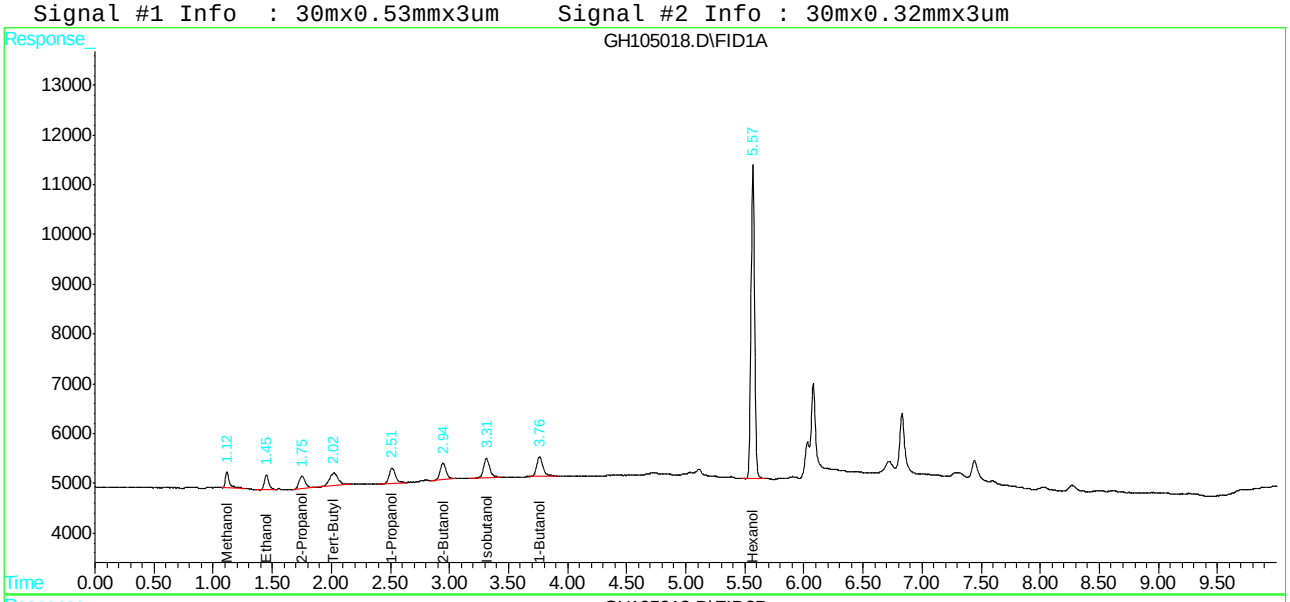
Quantitation Report (QT Reviewed)

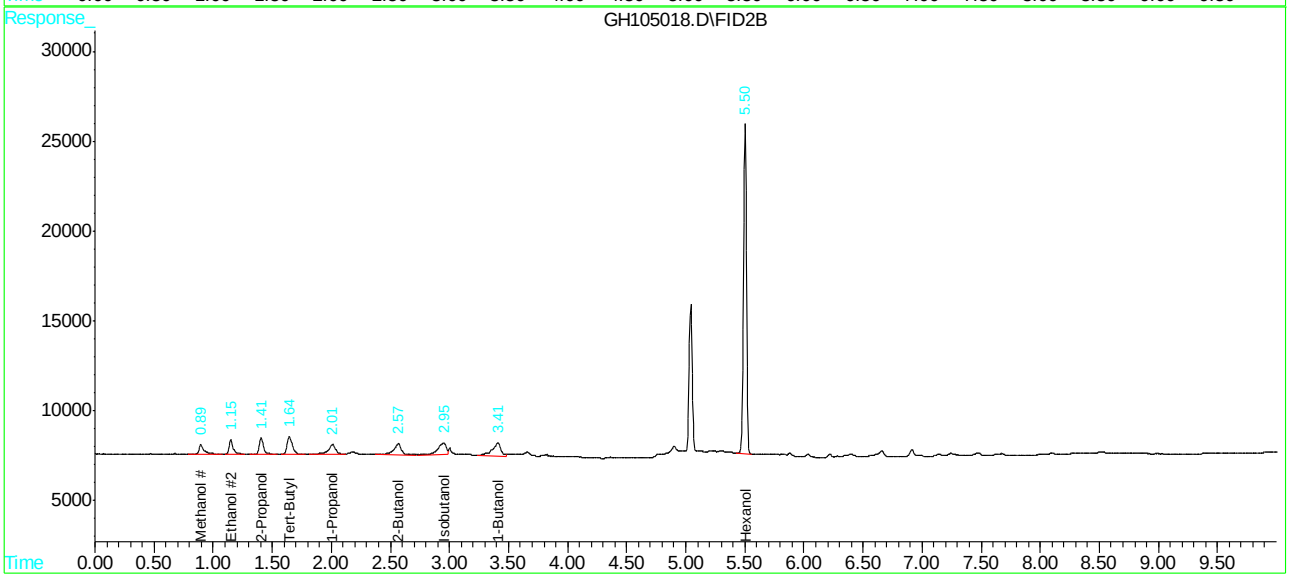
```
Data File : C:\HPCHEM\1\DATA\GH105018.D\FID1A.CH          Vial: 3
Acq On    : 17 May 2016   4:28 pm                     Operator: XULIU
Sample    : IC5288-500                                Inst    : GCGH
Misc      : GC48422,GGH5288,5.0,,,,1                  Multiplr: 1.00
IntFile   : AUTOINT1.E

Data File : C:\HPCHEM\1\DATA\GH105018.D\FID2B.CH          Vial: 3
Acq On    : 17 May 2016   4:43 pm                     Operator: XULIU
Sample    : IC5288-500                                Inst    : GCGH
Misc      : GC48422,GGH5288,5.0,,,,1                  Multiplr: 1.00
IntFile   : autoint2.e
Quant Time: May 18  7:23 2016  Quant Results File: MGH5288.RES

Quant Method : C:\HPCHEM\1\METHODS\MGH5288.M (Chemstation Integrator)
Title        : METHOD SW846-8015C (DAI)
Last Update  : Wed May 18 07:22:56 2016
Response via : Multiple Level Calibration
DataAcq Meth : MGH5288.M

Volume Inj.     : 2ul
Signal #1 Phase : ZB-624            Signal #2 Phase: RTX-1
Signal #1 Info  : 30mx0.53mmx3um    Signal #2 Info : 30mx0.32mmx3um
```





SGS ACCUTEST JC19214T

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\GH105019.D\FID1A.CH Vial: 4
Acq On : 17 May 2016 4:43 pm Operator: XULIU
Sample : IC5288-1000 Inst : GCGH
Misc : GC48422,GGH5288,5.0,,,,1 Multiplr: 1.00
IntFile : AUTOINT1.E

Data File : C:\HPCHEM\1\DATA\GH105019.D\FID2B.CH Vial: 4
Acq On : 17 May 2016 4:57 pm Operator: XULIU
Sample : IC5288-1000 Inst : GCGH
Misc : GC48422,GGH5288,5.0,,,,1 Multiplr: 1.00
IntFile : autoint2.e
Quant Time: May 18 7:22 2016 Quant Results File: MGH5288.RES

Quant Method : C:\HPCHEM\1\METHODS\MGH5288.M (Chemstation Integrator)
Title : METHOD SW846-8015C (DAI)
Last Update : Wed May 18 07:22:21 2016
Response via : Initial Calibration
DataAcq Meth : MGH5288.M

Volume Inj. : 2ul
Signal #1 Phase : ZB-624 Signal #2 Phase: RTX-1
Signal #1 Info : 30mx0.53mmx3um Signal #2 Info : 30mx0.32mmx3um

	Compound	RT#1	RT#2	Resp#1	Resp#2	PPB	PPB
	System Monitoring Compounds						
9) S	Hexanol	5.57	5.51	274171	622051	4543.104	4492.586
Spiked Amount	5000.000			Recovery	=	90.86%	89.85%
	Target Compounds						
1)	Methanol	1.12	0.92	16166	29685	1087.516	897.349
2)	Ethanol	1.45	1.17f	18855	36354	966.928	863.337
3)	Tert-Butyl Alcoh	2.01	1.66	28949	63750	1007.774	981.673
4)	1-Propanol	2.51	2.02	25248	52807	1004.669	976.309
5)	2-Propanol	1.75	1.42	20497	43421	993.892	942.889
6)	Isobutanol	3.31	2.94	29498	59602	1017.007	973.641
7)	1-Butanol	3.76	3.42	29408	73648	1055.991	1224.889
8)	2-Butanol	2.94	2.57	25576	58599	1005.126	1059.749

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
GH105019.D MGH5288.M Wed May 18 08:51:52 2016 GCGH

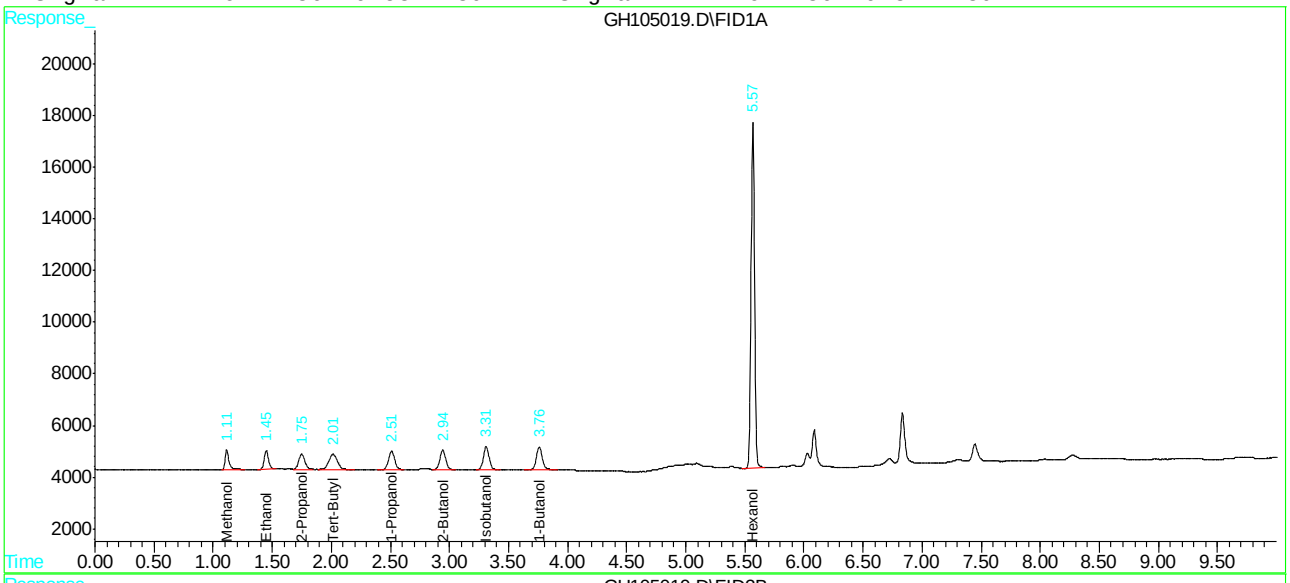
Quantitation Report (QT Reviewed)

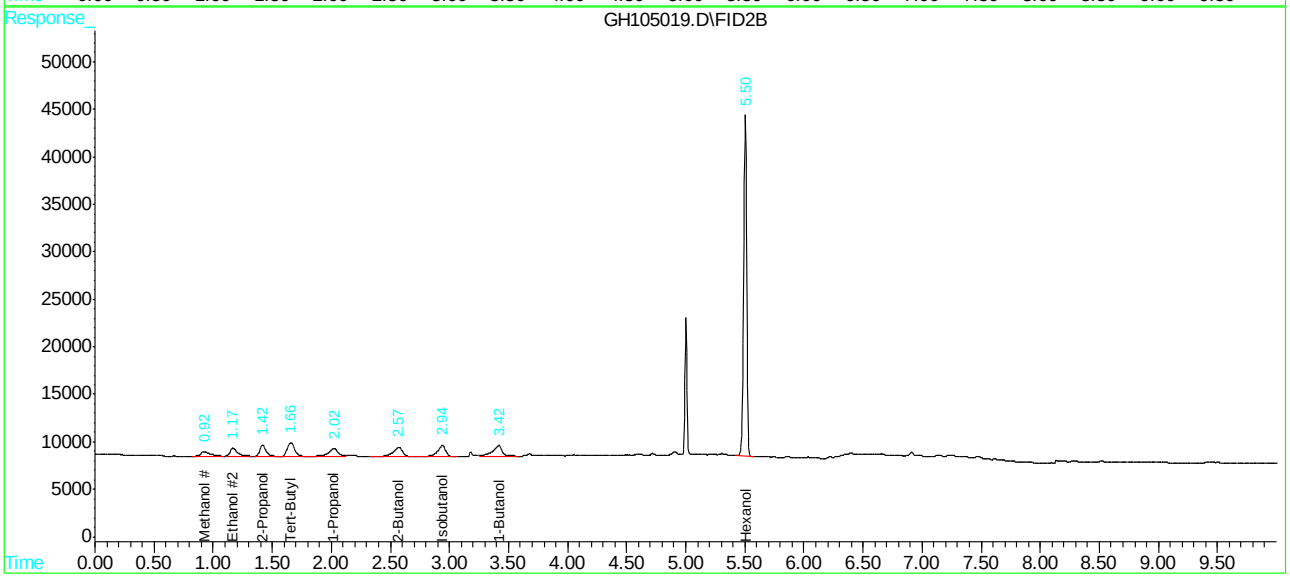
```
Data File : C:\HPCHEM\1\DATA\GH105019.D\FID1A.CH          Vial: 4
Acq On    : 17 May 2016   4:43 pm                     Operator: XULIU
Sample    : IC5288-1000                               Inst    : GCGH
Misc      : GC48422,GGH5288,5.0,,,,1                  Multiplr: 1.00
IntFile   : AUTOINT1.E

Data File : C:\HPCHEM\1\DATA\GH105019.D\FID2B.CH          Vial: 4
Acq On    : 17 May 2016   4:57 pm                     Operator: XULIU
Sample    : IC5288-1000                               Inst    : GCGH
Misc      : GC48422,GGH5288,5.0,,,,1                  Multiplr: 1.00
IntFile   : autoint2.e
Quant Time: May 18  7:22 2016  Quant Results File: MGH5288.RES

Quant Method : C:\HPCHEM\1\METHODS\MGH5288.M (Chemstation Integrator)
Title        : METHOD SW846-8015C (DAI)
Last Update  : Wed May 18 07:22:21 2016
Response via : Multiple Level Calibration
DataAcq Meth : MGH5288.M

Volume Inj.     : 2ul
Signal #1 Phase : ZB-624            Signal #2 Phase: RTX-1
Signal #1 Info  : 30mx0.53mmx3um    Signal #2 Info : 30mx0.32mmx3um
```





Quantitation Report (QT Reviewed)

```
Data File : C:\HPCHEM\1\DATA\GH105020.D\FID1A.CH          Vial: 5
Acq On    : 17 May 2016   4:57 pm                     Operator: XULIU
Sample    : ICC5288-5000                              Inst    : GCGH
Misc      : GC48422,GGH5288,5.0,,,,1                  Multiplr: 1.00
IntFile   : AUTOINT1.E

Data File : C:\HPCHEM\1\DATA\GH105020.D\FID2B.CH          Vial: 5
Acq On    : 17 May 2016   5:19 pm                     Operator: XULIU
Sample    : ICC5288-5000                              Inst    : GCGH
Misc      : GC48422,GGH5288,5.0,,,,1                  Multiplr: 1.00
IntFile   : autoint2.e
Quant Time: May 18  7:09 2016  Quant Results File: MGH5288.RES

Quant Method : C:\HPCHEM\1\METHODS\MGH5288.M (Chemstation Integrator)
Title        : METHOD SW846-8015C (DAI)
Last Update  : Tue May 17 15:45:13 2016
Response via : Initial Calibration
DataAcq Meth : MGH5288.M

Volume Inj.     : 2ul
Signal #1 Phase : ZB-624            Signal #2 Phase: RTX-1
Signal #1 Info  : 30mx0.53mmx3um    Signal #2 Info : 30mx0.32mmx3um
```

	Compound	RT#1	RT#2	Resp#1	Resp#2	PPB	PPB
	System Monitoring Compounds						
9) S	Hexanol	5.57	5.50	345209	794669	4511.712	4828.644
Spiked Amount	5000.000			Recovery	=	90.23%	96.57%
	Target Compounds						
1)	Methanol	1.12	0.89	77443	173699	5243.603	8544.414 #
2)	Ethanol	1.45	1.15	99445	217347	5314.412	6840.346
3)	Tert-Butyl Alcoh	2.01	1.65	142996	332018	5237.321	5085.028
4)	1-Propanol	2.51	2.01	128385	274702	5760.408	5575.380
5)	2-Propanol	1.75	1.41	105046	236654	5062.425	5660.735
6)	Isobutanol	3.31	2.94	147383	311633	5362.003	5023.429
7)	1-Butanol	3.76	3.42	143097	319465	5843.923	6171.241
8)	2-Butanol	2.94	2.57	129413	280976	5135.753	5686.138

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

SGS ACCUTEST JC19214T

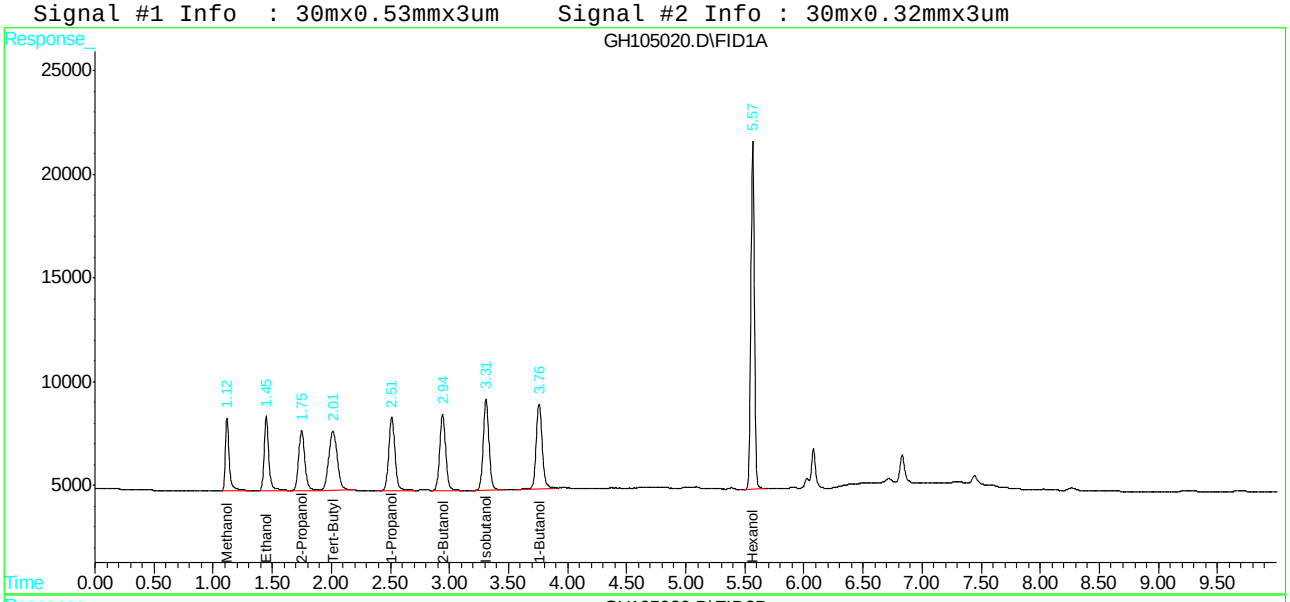
Quantitation Report (QT Reviewed)

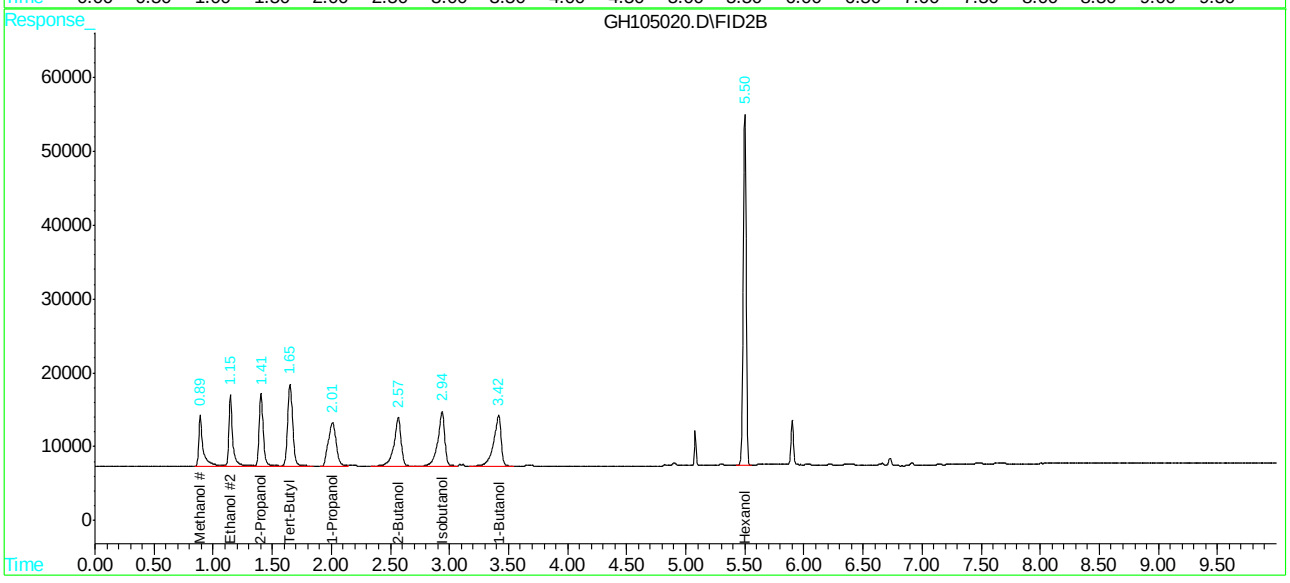
```
Data File : C:\HPCHEM\1\DATA\GH105020.D\FID1A.CH          Vial: 5
Acq On    : 17 May 2016   4:57 pm                     Operator: XULIU
Sample    : ICC5288-5000                              Inst    : GCGH
Misc      : GC48422,GGH5288,5.0,,,,1                  Multiplr: 1.00
IntFile   : AUTOINT1.E

Data File : C:\HPCHEM\1\DATA\GH105020.D\FID2B.CH          Vial: 5
Acq On    : 17 May 2016   5:19 pm                     Operator: XULIU
Sample    : ICC5288-5000                              Inst    : GCGH
Misc      : GC48422,GGH5288,5.0,,,,1                  Multiplr: 1.00
IntFile   : autoint2.e
Quant Time: May 18  7:09 2016  Quant Results File: MGH5288.RES

Quant Method : C:\HPCHEM\1\METHODS\MGH5288.M (Chemstation Integrator)
Title        : METHOD SW846-8015C (DAI)
Last Update  : Tue May 17 15:45:13 2016
Response via : Multiple Level Calibration
DataAcq Meth : MGH5288.M

Volume Inj.     : 2ul
Signal #1 Phase : ZB-624            Signal #2 Phase: RTX-1
Signal #1 Info  : 30mx0.53mmx3um    Signal #2 Info : 30mx0.32mmx3um
```





Quantitation Report (QT Reviewed)

```
Data File : C:\HPCHEM\1\DATA\GH105021.D\FID1A.CH          Vial: 6
Acq On    : 17 May 2016   5:19 pm                     Operator: XULIU
Sample    : IC5288-10000                              Inst    : GCGH
Misc      : GC48422,GGH5288,5.0,,,,1                  Multiplr: 1.00
IntFile   : AUTOINT1.E

Data File : C:\HPCHEM\1\DATA\GH105021.D\FID2B.CH          Vial: 6
Acq On    : 17 May 2016   5:33 pm                     Operator: XULIU
Sample    : IC5288-10000                              Inst    : GCGH
Misc      : GC48422,GGH5288,5.0,,,,1                  Multiplr: 1.00
IntFile   : autoint2.e
Quant Time: May 18  7:09 2016  Quant Results File: MGH5288.RES

Quant Method : C:\HPCHEM\1\METHODS\MGH5288.M (Chemstation Integrator)
Title        : METHOD SW846-8015C (DAI)
Last Update  : Tue May 17 15:45:13 2016
Response via : Initial Calibration
DataAcq Meth : MGH5288.M

Volume Inj.     : 2ul
Signal #1 Phase : ZB-624            Signal #2 Phase: RTX-1
Signal #1 Info  : 30mx0.53mmx3um    Signal #2 Info : 30mx0.32mmx3um
```

	Compound	RT#1	RT#2	Resp#1	Resp#2	PPB	PPB	
	System Monitoring Compounds							
9) S	Hexanol	5.57	5.50	355196	814101	4642.238	4946.724	
	Spiked Amount 5000.000			Recovery	=	92.84%	98.93%	
	Target Compounds							
1)	Methanol	1.12	0.89	157448	346407	10660.697	17040.107	#
2)	Ethanol	1.45	1.15	202728	432745	10833.939	13619.358	
3)	Tert-Butyl Alcoh	2.02	1.65	294805	663970	10797.389	10169.042	
4)	1-Propanol	2.51	2.02	257894	549862	11571.266	11160.064	
5)	2-Propanol	1.75	1.41	213932	472748	10309.866	11308.075	
6)	Isobutanol	3.31	2.95	298782	632695	10870.134	10198.859	
7)	1-Butanol	3.76	3.41	289038	604299	11803.967	11673.499	
8)	2-Butanol	2.94	2.57	262599	566046	10421.277	11455.123	

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

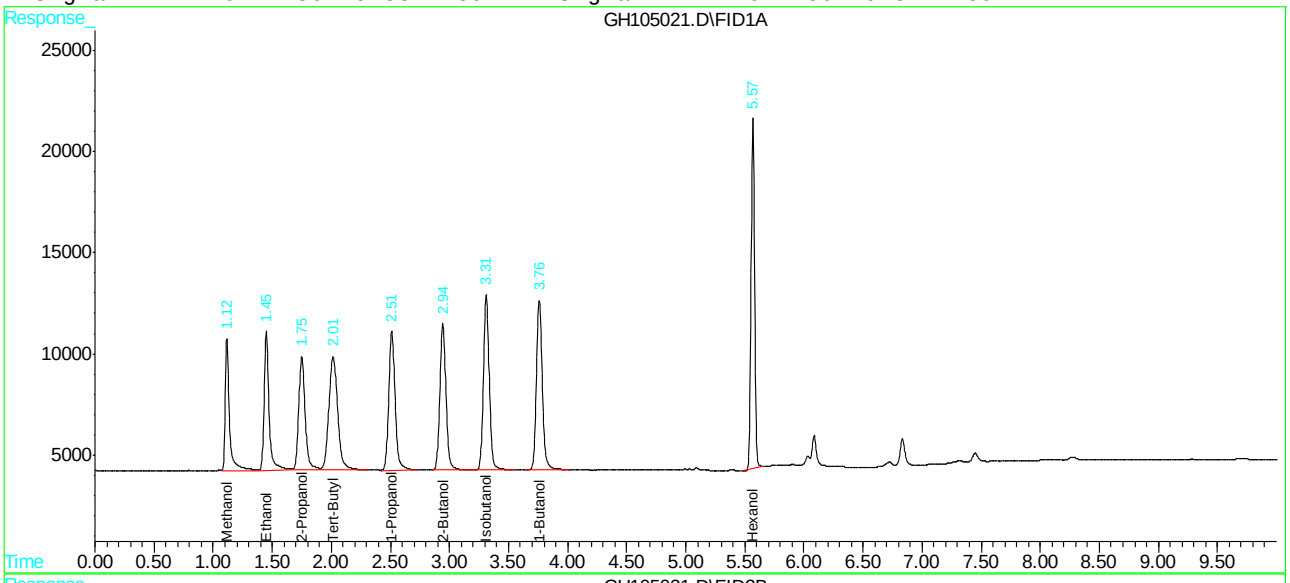
Quantitation Report (QT Reviewed)

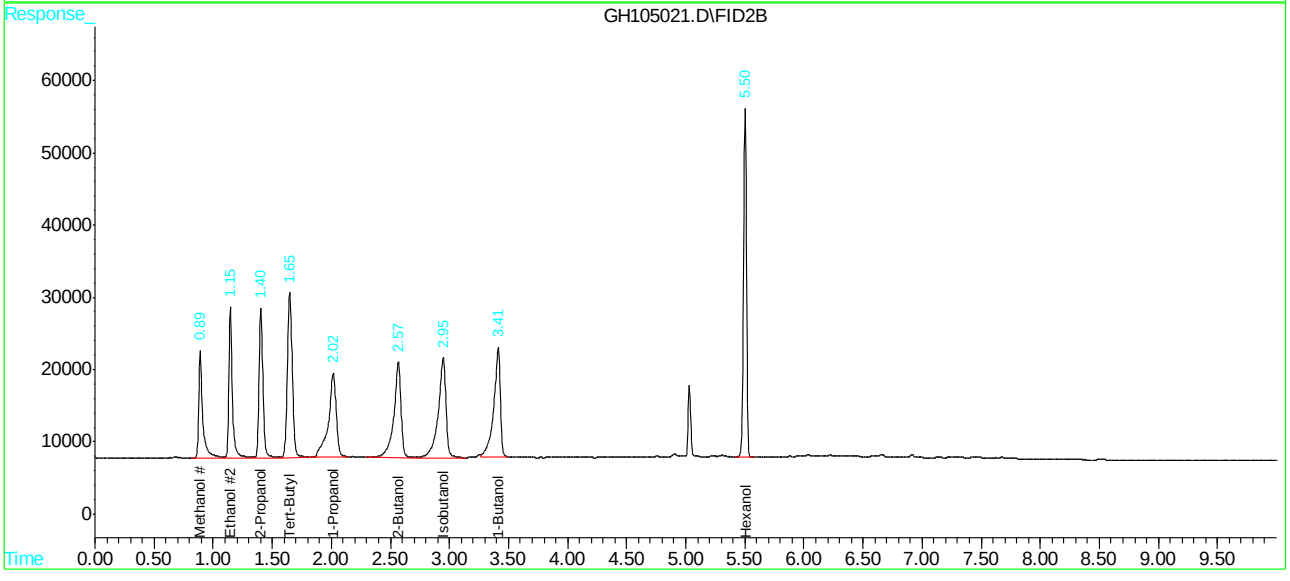
```
Data File : C:\HPCHEM\1\DATA\GH105021.D\FID1A.CH          Vial: 6
Acq On    : 17 May 2016   5:19 pm                     Operator: XULIU
Sample    : IC5288-10000                              Inst    : GCGH
Misc      : GC48422,GGH5288,5.0,,,,1                  Multiplr: 1.00
IntFile   : AUTOINT1.E

Data File : C:\HPCHEM\1\DATA\GH105021.D\FID2B.CH          Vial: 6
Acq On    : 17 May 2016   5:33 pm                     Operator: XULIU
Sample    : IC5288-10000                              Inst    : GCGH
Misc      : GC48422,GGH5288,5.0,,,,1                  Multiplr: 1.00
IntFile   : autoint2.e
Quant Time: May 18  7:09 2016  Quant Results File: MGH5288.RES

Quant Method : C:\HPCHEM\1\METHODS\MGH5288.M (Chemstation Integrator)
Title        : METHOD SW846-8015C (DAI)
Last Update  : Tue May 17 15:45:13 2016
Response via : Multiple Level Calibration
DataAcq Meth : MGH5288.M

Volume Inj.     : 2ul
Signal #1 Phase : ZB-624            Signal #2 Phase: RTX-1
Signal #1 Info  : 30mx0.53mmx3um    Signal #2 Info : 30mx0.32mmx3um
```





SGS ACCUTEST JC19214T

Quantitation Report (QT Reviewed)

```
Data File : C:\HPCHEM\1\DATA\GH105022.D\FID1A.CH          Vial: 7
Acq On    : 17 May 2016   5:33 pm                     Operator: XULIU
Sample    : IC5288-50000                              Inst    : GCGH
Misc      : GC48422,GGH5288,5.0,,,,1                  Multiplr: 1.00
IntFile   : AUTOINT1.E

Data File : C:\HPCHEM\1\DATA\GH105022.D\FID2B.CH          Vial: 7
Acq On    : 17 May 2016   5:48 pm                     Operator: XULIU
Sample    : IC5288-50000                              Inst    : GCGH
Misc      : GC48422,GGH5288,5.0,,,,1                  Multiplr: 1.00
IntFile   : autoint2.e
Quant Time: May 18  7:10 2016  Quant Results File: MGH5288.RES

Quant Method : C:\HPCHEM\1\METHODS\MGH5288.M (Chemstation Integrator)
Title        : METHOD SW846-8015C (DAI)
Last Update  : Tue May 17 15:45:13 2016
Response via : Initial Calibration
DataAcq Meth : MGH5288.M

Volume Inj.     : 2ul
Signal #1 Phase : ZB-624            Signal #2 Phase: RTX-1
Signal #1 Info  : 30mx0.53mmx3um    Signal #2 Info : 30mx0.32mmx3um
```

	Compound	RT#1	RT#2	Resp#1	Resp#2	PPB	PPB	
	System Monitoring Compounds							
9) S	Hexanol	5.57	5.50	412961	947054	5397.192	5754.582	
	Spiked Amount 5000.000			Recovery	=	107.94%	115.09%	
	Target Compounds							
1)	Methanol	1.12	0.89	720543	1576706	48787.500	77559.774	#
2)	Ethanol	1.45	1.15	934936	1996365	49963.655	62829.557	
3)	Tert-Butyl Alcoh	2.02	1.65	1362114	3066977	49888.133	46972.339	
4)	1-Propanol	2.51	2.02	1197382	2577415	53724.608	52311.489	
5)	2-Propanol	1.75	1.41	990575	2181490	47738.100	52180.934	
6)	Isobutanol	3.31	2.94	1369639	2883211	49829.464	46476.511	
7)	1-Butanol	3.76	3.42	1316221	2839006	53752.804	54842.255	
8)	2-Butanol	2.94	2.57	1212229	2632402	48107.436	53272.148	

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

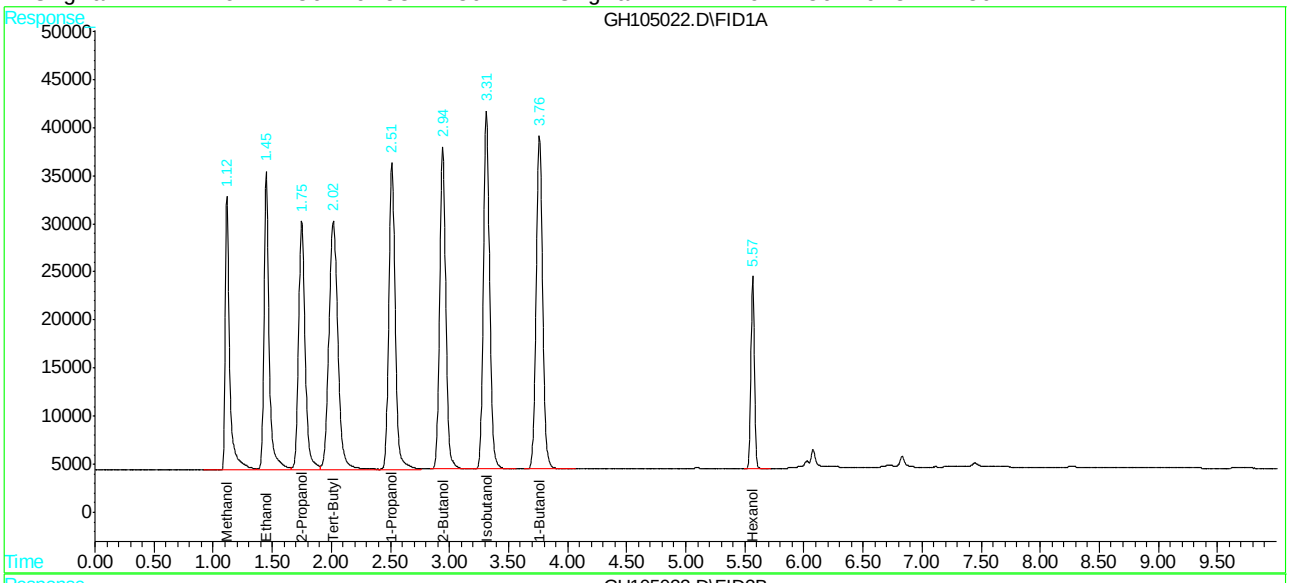
Quantitation Report (QT Reviewed)

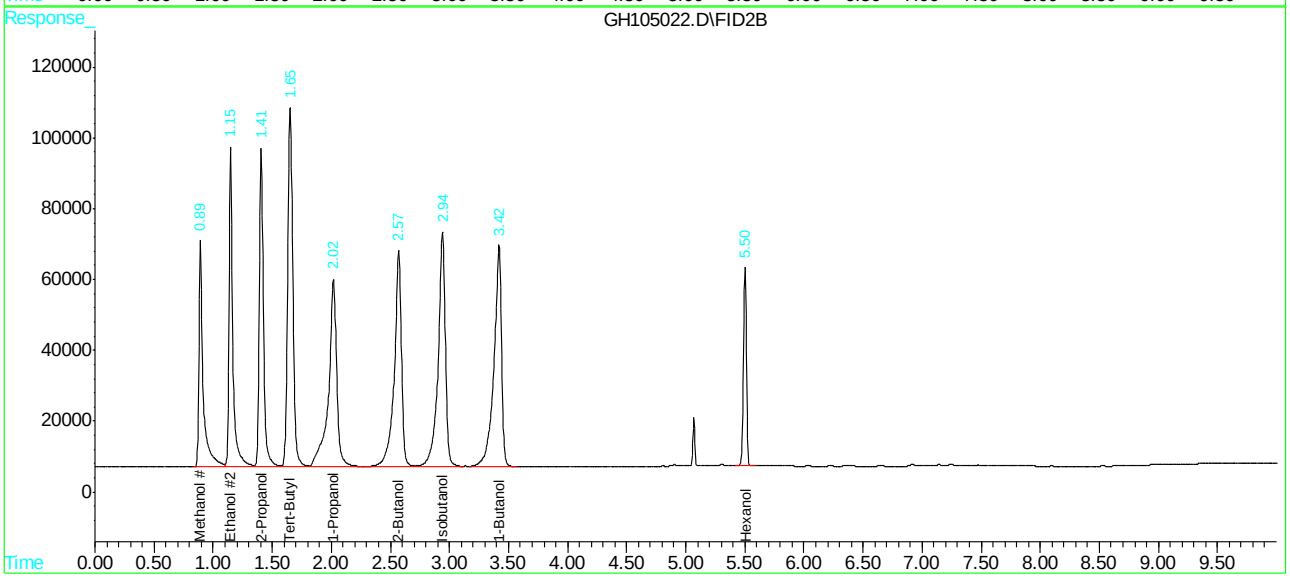
```
Data File : C:\HPCHEM\1\DATA\GH105022.D\FID1A.CH          Vial: 7
Acq On    : 17 May 2016   5:33 pm                     Operator: XULIU
Sample    : IC5288-50000                              Inst    : GCGH
Misc      : GC48422,GGH5288,5.0,,,,1                  Multiplr: 1.00
IntFile   : AUTOINT1.E

Data File : C:\HPCHEM\1\DATA\GH105022.D\FID2B.CH          Vial: 7
Acq On    : 17 May 2016   5:48 pm                     Operator: XULIU
Sample    : IC5288-50000                              Inst    : GCGH
Misc      : GC48422,GGH5288,5.0,,,,1                  Multiplr: 1.00
IntFile   : autoint2.e
Quant Time: May 18  7:10 2016  Quant Results File: MGH5288.RES

Quant Method : C:\HPCHEM\1\METHODS\MGH5288.M (Chemstation Integrator)
Title        : METHOD SW846-8015C (DAI)
Last Update  : Tue May 17 15:45:13 2016
Response via : Multiple Level Calibration
DataAcq Meth : MGH5288.M

Volume Inj.     : 2ul
Signal #1 Phase : ZB-624            Signal #2 Phase: RTX-1
Signal #1 Info  : 30mx0.53mmx3um    Signal #2 Info : 30mx0.32mmx3um
```





Quantitation Report (QT Reviewed)

```
Data File : C:\HPCHEM\1\DATA\GH105023.D\FID1A.CH          Vial: 8
Acq On    : 17 May 2016   5:48 pm                     Operator: XULIU
Sample    : IC5288-100000                             Inst    : GCGH
Misc      : GC48422,GGH5288,5.0,,,,1                  Multiplr: 1.00
IntFile   : AUTOINT1.E

Data File : C:\HPCHEM\1\DATA\GH105023.D\FID2B.CH          Vial: 8
Acq On    : 17 May 2016   6:02 pm                     Operator: XULIU
Sample    : IC5288-100000                             Inst    : GCGH
Misc      : GC48422,GGH5288,5.0,,,,1                  Multiplr: 1.00
IntFile   : autoint2.e
Quant Time: May 18  7:10 2016  Quant Results File: MGH5288.RES

Quant Method : C:\HPCHEM\1\METHODS\MGH5288.M (Chemstation Integrator)
Title        : METHOD SW846-8015C (DAI)
Last Update  : Tue May 17 15:45:13 2016
Response via : Initial Calibration
DataAcq Meth : MGH5288.M

Volume Inj.     : 2ul
Signal #1 Phase : ZB-624            Signal #2 Phase: RTX-1
Signal #1 Info  : 30mx0.53mmx3um    Signal #2 Info : 30mx0.32mmx3um
```

	Compound	RT#1	RT#2	Resp#1	Resp#2	PPB	PPB
	System Monitoring Compounds						
9) S	Hexanol	5.57	5.50	259897	594005	3396.729	3609.352
	Spiked Amount 5000.000			Recovery	=	67.93%	72.19%
	Target Compounds						
1)	Methanol	1.12	0.89	1381464	3140971	93538.113	154507.580 #
2)	Ethanol	1.45	1.15	1913963	4176473	102283.537	131441.900
3)	Tert-Butyl Alcoh	2.02	1.66	2957875	6562015	108333.721	100500.651
4)	1-Propanol	2.51	2.03	2510870	5487726	112658.677	111379.470
5)	2-Propanol	1.76	1.41	2027830	4596795	97725.857	109954.692
6)	Isobutanol	3.32	2.96f	2927116	6160124	106492.774	99299.394
7)	1-Butanol	3.76	3.42	2754661	5940276	112496.937	114750.761
8)	2-Butanol	2.95	2.57	2539551	5573181	100782.352	112784.937

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

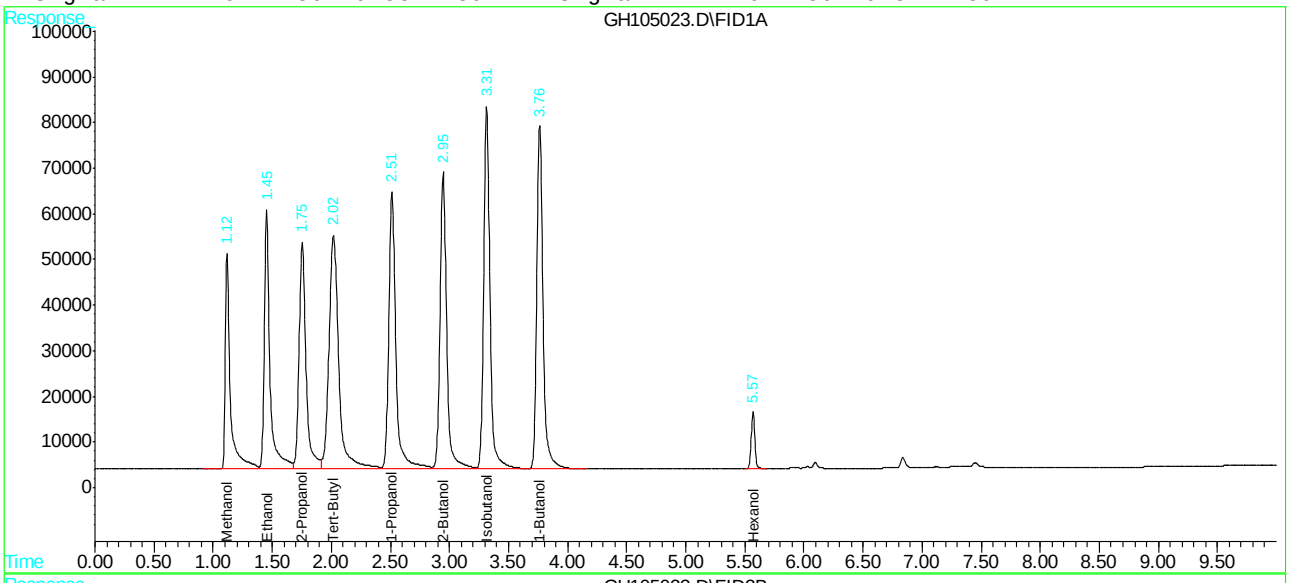
Quantitation Report (QT Reviewed)

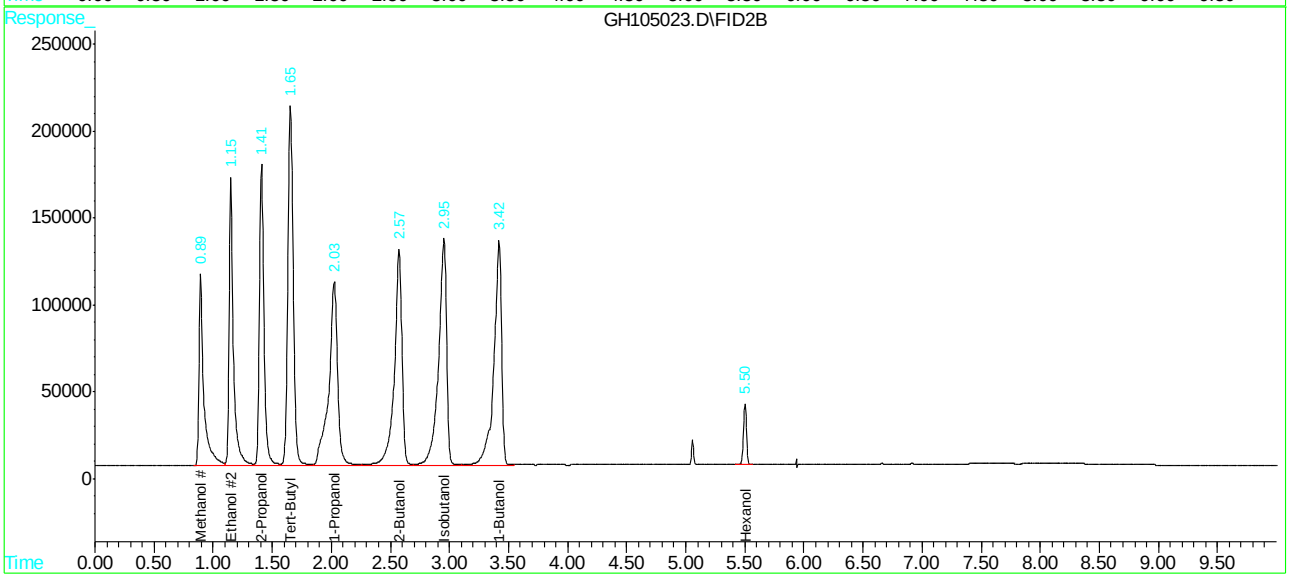
```
Data File : C:\HPCHEM\1\DATA\GH105023.D\FID1A.CH          Vial: 8
Acq On    : 17 May 2016   5:48 pm                     Operator: XULIU
Sample    : IC5288-100000                             Inst    : GCGH
Misc      : GC48422,GGH5288,5.0,,,,1                  Multiplr: 1.00
IntFile   : AUTOINT1.E

Data File : C:\HPCHEM\1\DATA\GH105023.D\FID2B.CH          Vial: 8
Acq On    : 17 May 2016   6:02 pm                     Operator: XULIU
Sample    : IC5288-100000                             Inst    : GCGH
Misc      : GC48422,GGH5288,5.0,,,,1                  Multiplr: 1.00
IntFile   : autoint2.e
Quant Time: May 18  7:10 2016  Quant Results File: MGH5288.RES

Quant Method : C:\HPCHEM\1\METHODS\MGH5288.M (Chemstation Integrator)
Title        : METHOD SW846-8015C (DAI)
Last Update  : Tue May 17 15:45:13 2016
Response via : Multiple Level Calibration
DataAcq Meth : MGH5288.M

Volume Inj.     : 2ul
Signal #1 Phase : ZB-624            Signal #2 Phase: RTX-1
Signal #1 Info  : 30mx0.53mmx3um    Signal #2 Info : 30mx0.32mmx3um
```





SGS ACCUTEST JC19214T

Quantitation Report (QT Reviewed)

```
Data File : C:\HPCHEM\1\DATA\GH105024.D\FID1A.CH          Vial: 9
Acq On    : 17 May 2016   6:02 pm                     Operator: XULIU
Sample    : ICV5288-5000                              Inst    : GCGH
Misc      : GC48422,GGH5288,5.0,,,,1                  Multiplr: 1.00
IntFile   : AUTOINT1.E

Data File : C:\HPCHEM\1\DATA\GH105024.D\FID2B.CH          Vial: 9
Acq On    : 17 May 2016   6:24 pm                     Operator: XULIU
Sample    : ICV5288-5000                              Inst    : GCGH
Misc      : GC48422,GGH5288,5.0,,,,1                  Multiplr: 1.00
IntFile   : autoint2.e
Quant Time: May 18  9:07 2016  Quant Results File: MGH5288.RES

Quant Method : C:\HPCHEM\1\METHODS\MGH5288.M (Chemstation Integrator)
Title        : METHOD SW846-8015C (DAI)
Last Update  : Wed May 18 08:55:49 2016
Response via : Initial Calibration
DataAcq Meth : MGH5288.M

Volume Inj.     : 2ul
Signal #1 Phase : ZB-624            Signal #2 Phase: RTX-1
Signal #1 Info  : 30mx0.53mmx3um    Signal #2 Info : 30mx0.32mmx3um
```

	Compound	RT#1	RT#2	Resp#1	Resp#2	PPB	PPB
	System Monitoring Compounds						
9) S	Hexanol	5.57	5.50	349710	790800	5173.481	5090.525
Spiked Amount	5000.000			Recovery	=	103.47%	101.81%
	Target Compounds						
1)	Methanol	1.12	0.90	65127	172731	4212.940	5355.287
2)	Ethanol	1.45	1.16	100143	226641	5284.554	5685.787
3)	Tert-Butyl Alcoh	2.02	1.66	149854	332921	5288.674	5236.015
4)	1-Propanol	2.52	2.02	127682	285106	5248.735	5607.628
5)	2-Propanol	1.75	1.41	105368	238229	5286.625	5261.345
6)	Isobutanol	3.31	2.94	151110	333033	5252.180	5439.828
7)	1-Butanol	3.76	3.42	145592	326188	5097.649	4929.542
8)	2-Butanol	2.95	2.57	133016	304299	5188.956	5605.638

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

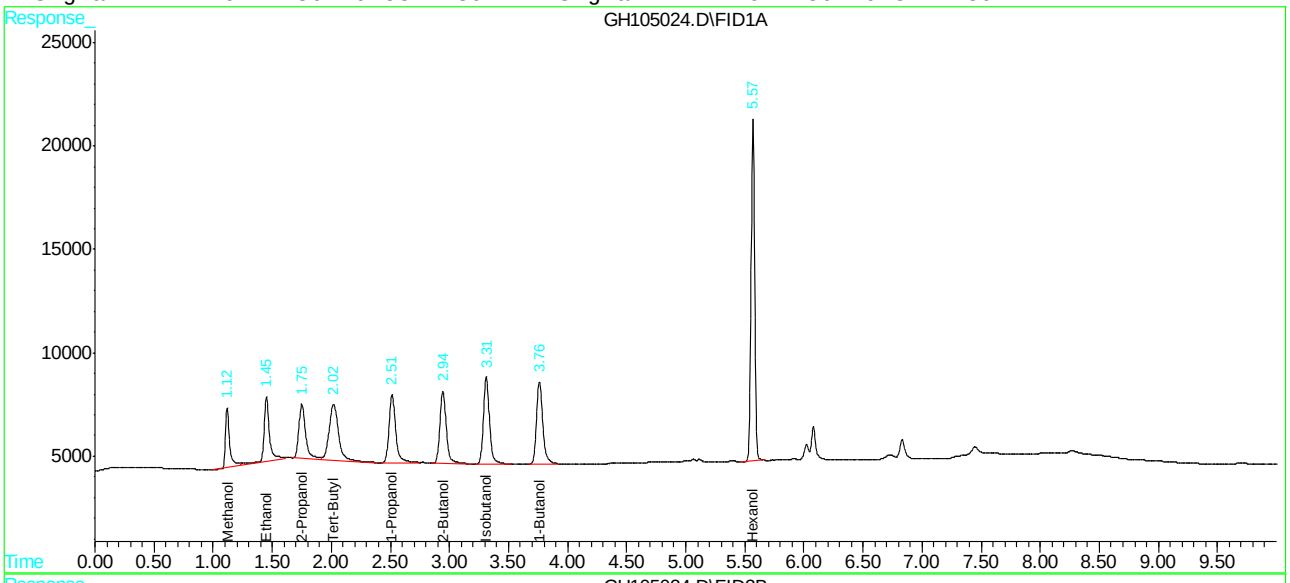
Quantitation Report (QT Reviewed)

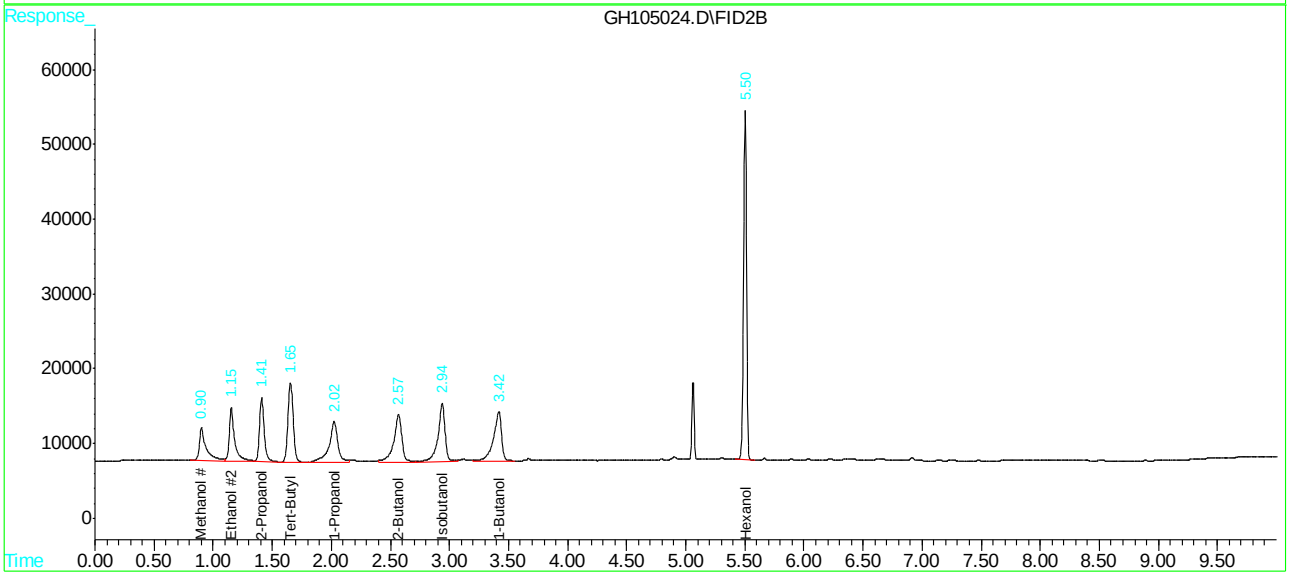
```
Data File : C:\HPCHEM\1\DATA\GH105024.D\FID1A.CH          Vial: 9
Acq On    : 17 May 2016   6:02 pm                     Operator: XULIU
Sample    : ICV5288-5000                              Inst    : GCGH
Misc      : GC48422,GGH5288,5.0,,,,1                  Multiplr: 1.00
IntFile   : AUTOINT1.E

Data File : C:\HPCHEM\1\DATA\GH105024.D\FID2B.CH          Vial: 9
Acq On    : 17 May 2016   6:24 pm                     Operator: XULIU
Sample    : ICV5288-5000                              Inst    : GCGH
Misc      : GC48422,GGH5288,5.0,,,,1                  Multiplr: 1.00
IntFile   : autoint2.e
Quant Time: May 18  9:07 2016  Quant Results File: MGH5288.RES

Quant Method : C:\HPCHEM\1\METHODS\MGH5288.M (Chemstation Integrator)
Title        : METHOD SW846-8015C (DAI)
Last Update  : Wed May 18 08:55:49 2016
Response via : Multiple Level Calibration
DataAcq Meth : MGH5288.M

Volume Inj.     : 2ul
Signal #1 Phase : ZB-624            Signal #2 Phase: RTX-1
Signal #1 Info  : 30mx0.53mmx3um    Signal #2 Info : 30mx0.32mmx3um
```





SGS ACCUTEST JC19214T

Manual Integrations
APPROVED
(compounds with "m" flag)
Dana Tryon
06/14/16 09:41

Quantitation Report (QT Reviewed)

```
Data File : C:\HPCHEM\1\DATA\GH105435.D\FID1A.CH          Vial: 92
Acq On    : 13 Jun 2016  11:16 am                     Operator: XULIU
Sample    : CC5288-5000                               Inst    : GCGH
Misc      : GC48265,GGH5320,5.0,,,,1                  Multiplr: 1.00
IntFile   : AUTOINT1.E

Data File : C:\HPCHEM\1\DATA\GH105435.D\FID2B.CH          Vial: 92
Acq On    : 13 Jun 2016  11:32 am                     Operator: XULIU
Sample    : CC5288-5000                               Inst    : GCGH
Misc      : GC48265,GGH5320,5.0,,,,1                  Multiplr: 1.00
IntFile   : autoint2.e
Quant Time: Jun 13 13:30 2016  Quant Results File: MGH5288.RES

Quant Method : C:\HPCHEM\1\METHODS\MGH5288.M (Chemstation Integrator)
Title        : METHOD SW846-8015C (DAI)
Last Update  : Mon Jun 13 13:02:20 2016
Response via : Initial Calibration
DataAcq Meth : MGH5288.M

Volume Inj.     : 2ul
Signal #1 Phase : ZB-624            Signal #2 Phase: RTX-1
Signal #1 Info  : 30mx0.53mmx3um    Signal #2 Info : 30mx0.32mmx3um
```

Compound	RT#1	RT#2	Resp#1	Resp#2	PPB	PPB
System Monitoring Compounds						
9) S Hexanol	5.55	5.44	276066	663350	4084.022	4270.100
Spiked Amount 5000.000			Recovery	=	81.68%	85.40%
Target Compounds						
1) Methanol	1.10	0.88	81239	161080	5255.253	4994.088
2) Ethanol	1.42	1.13	102901	204662	5430.059	5134.397
3) Tert-Butyl Alcoh	1.97	1.63	128431	345697	4532.634	5436.947
4) 1-Propanol	2.47	1.97	130466	264917	5363.180m	5210.545
5) 2-Propanol	1.71	1.39	107991	236874	5418.211	5231.415
6) Isobutanol	3.27	2.91	152921	293295	5315.130	4790.741
7) 1-Butanol	3.74	3.39	144329	299797	5053.417	4530.705
8) 2-Butanol	2.90	2.54	133337	285659	5201.489	5262.261

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
GH105435.D MGH5288.M Mon Jun 13 13:30:52 2016 GCGH

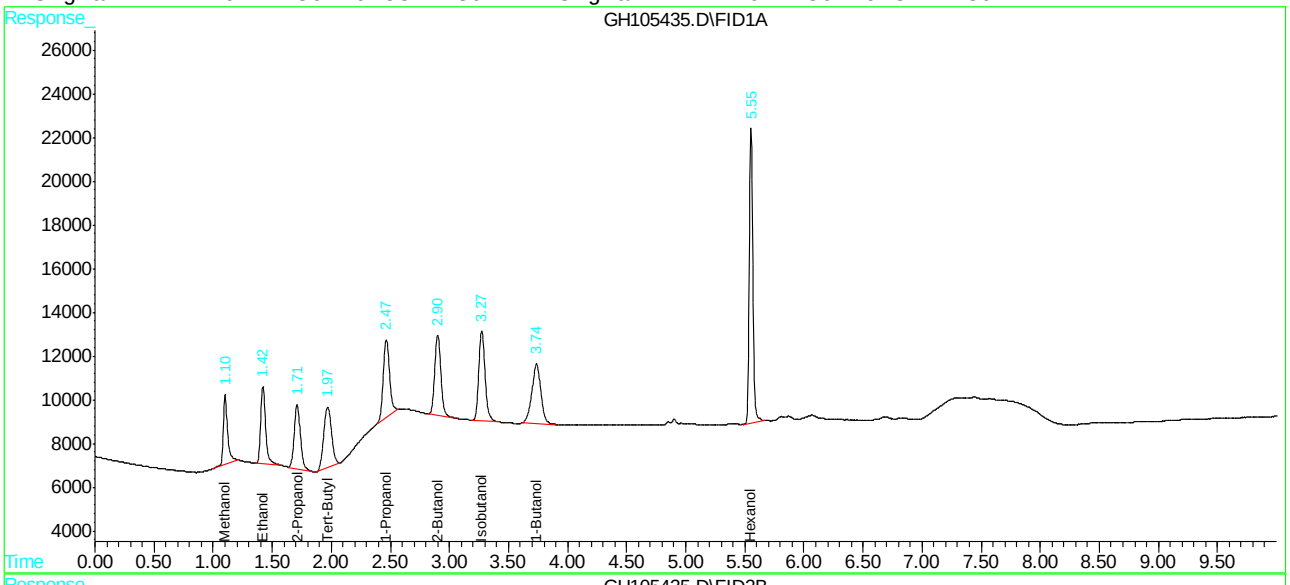
Quantitation Report (QT Reviewed)

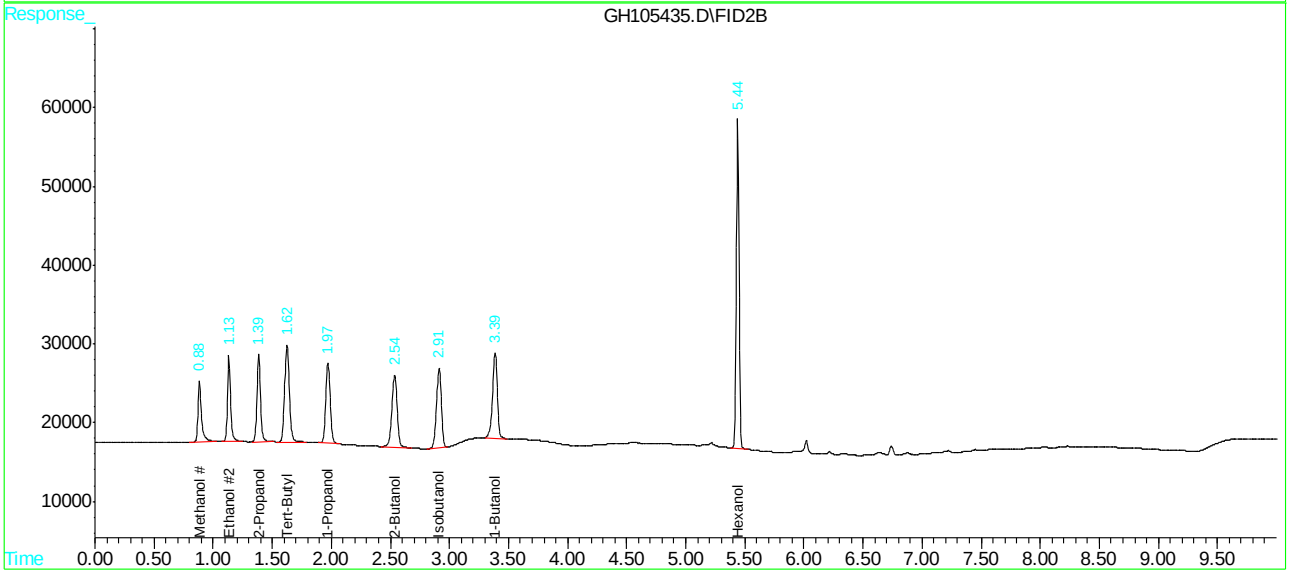
```
Data File : C:\HPCHEM\1\DATA\GH105435.D\FID1A.CH          Vial: 92
Acq On    : 13 Jun 2016  11:16 am                     Operator: XULIU
Sample    : CC5288-5000                               Inst    : GCGH
Misc      : GC48265,GGH5320,5.0,,,,1                  Multiplr: 1.00
IntFile   : AUTOINT1.E

Data File : C:\HPCHEM\1\DATA\GH105435.D\FID2B.CH          Vial: 92
Acq On    : 13 Jun 2016  11:32 am                     Operator: XULIU
Sample    : CC5288-5000                               Inst    : GCGH
Misc      : GC48265,GGH5320,5.0,,,,1                  Multiplr: 1.00
IntFile   : autoint2.e
Quant Time: Jun 13 13:30 2016  Quant Results File: MGH5288.RES

Quant Method : C:\HPCHEM\1\METHODS\MGH5288.M (Chemstation Integrator)
Title        : METHOD SW846-8015C (DAI)
Last Update  : Mon Jun 13 13:02:20 2016
Response via : Multiple Level Calibration
DataAcq Meth : MGH5288.M

Volume Inj.     : 2ul
Signal #1 Phase : ZB-624            Signal #2 Phase: RTX-1
Signal #1 Info  : 30mx0.53mmx3um    Signal #2 Info : 30mx0.32mmx3um
```





Manual Integration Approval Summary

Sample Number:	GGH5320-CC5288	**Method:**	SW846-8015C (DAI)
Lab FileID:	GH105435.D	**Analyst approved:**	06/14/16 08:12 Xu Liu
Injection Time:	06/13/16 11:16	**Supervisor approved:**	06/14/16 09:41 Dana Tryon

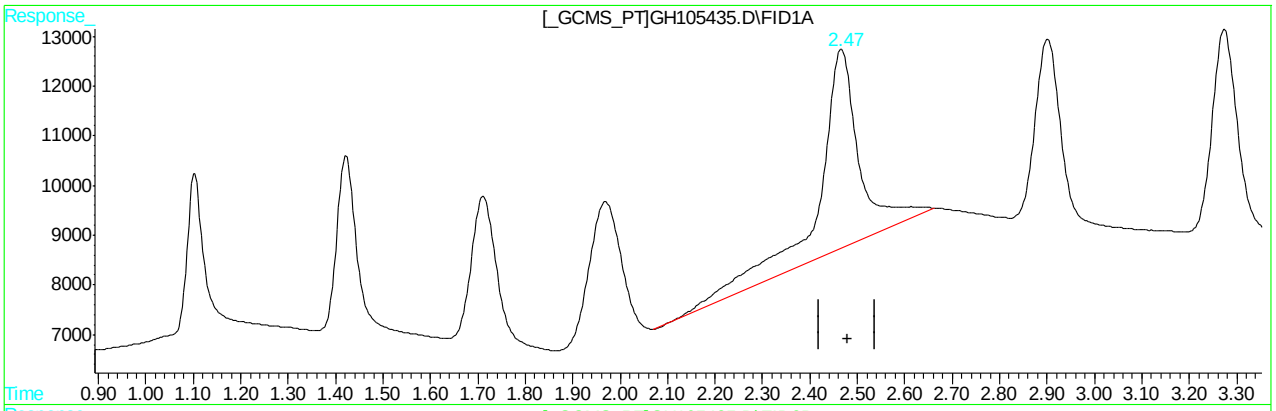
Parameter	CAS	Sig#	R.T. (min.)	Reason
n-Propyl Alcohol	71-23-8	1	2.47	Poor instrument integration

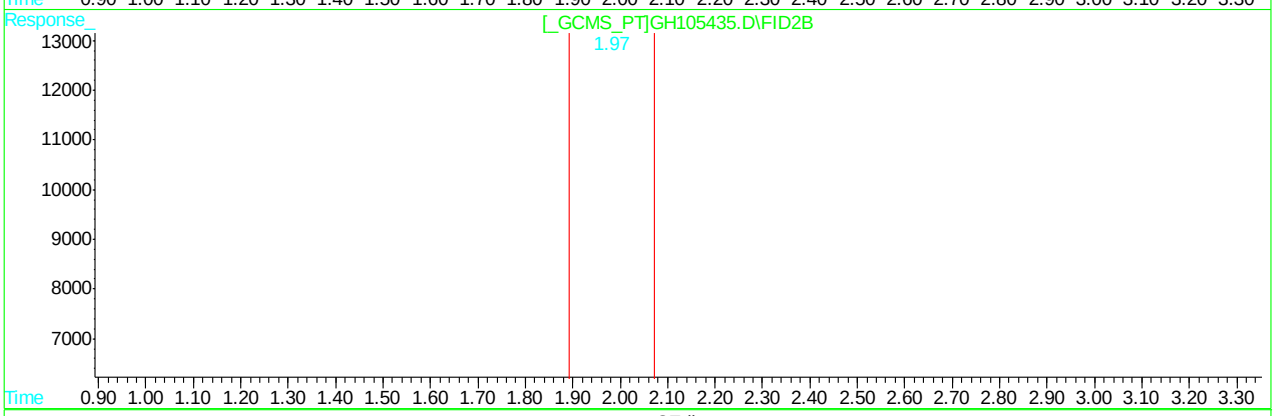
Quantitation Report (Qedit)

```
Data File : C:\HPCHEM\1\DATA\GH105435.D\FID1A.CH          Vial: 92
Acq On    : 13 Jun 2016  11:16 am                     Operator: XULIU
Sample    : CC5288-5000                               Inst    : GCGH
Misc      : GC48265,GGH5320,5.0,,,,1                  Multiplr: 1.00
IntFile   : AUTOINT1.E

Data File : C:\HPCHEM\1\DATA\GH105435.D\FID2B.CH          Vial: 92
Acq On    : 13 Jun 2016  11:32 am                     Operator: XULIU
Sample    : CC5288-5000                               Inst    : GCGH
Misc      : GC48265,GGH5320,5.0,,,,1                  Multiplr: 1.00
IntFile   : autoint2.e
Quant Time: Jun 13 13:04 2016  Quant Results File: MGH5288.RES


Method       : C:\HPCHEM\1\METHODS\MGH5288.M (Chemstation Integrator)
Title        : METHOD SW846-8015C (DAI)
Last Update  : Mon Jun 13 13:15:41 2016
Response via : Multiple Level Calibration
```





QEdit

(4) 1-Propanol

2.47min 9766.926PPB

response 237592

(4) 1-Propanol #2

1.97min 5210.545PPB

response 264917

(+) = Expected Retention Time

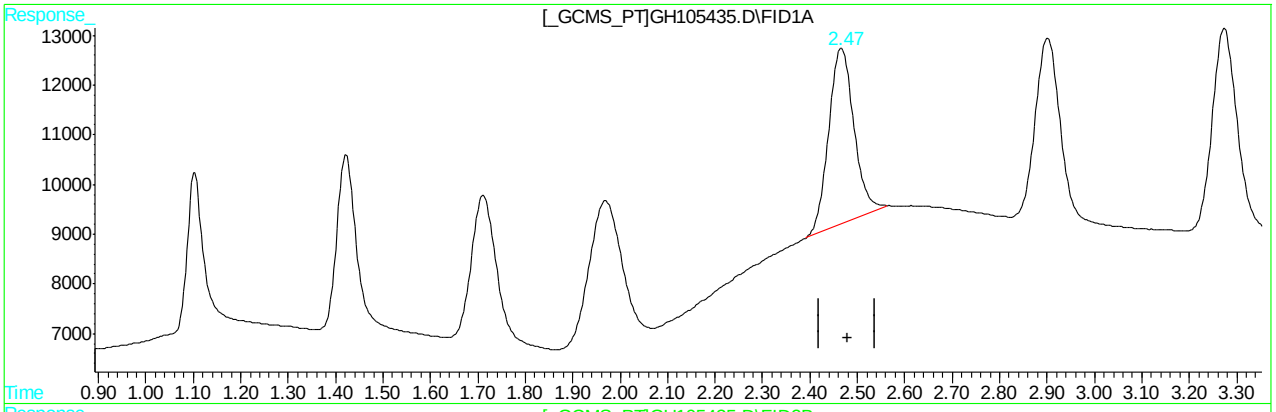
GH105435.D MGH5288.M Mon Jun 13 13:29:41 2016 GCGH

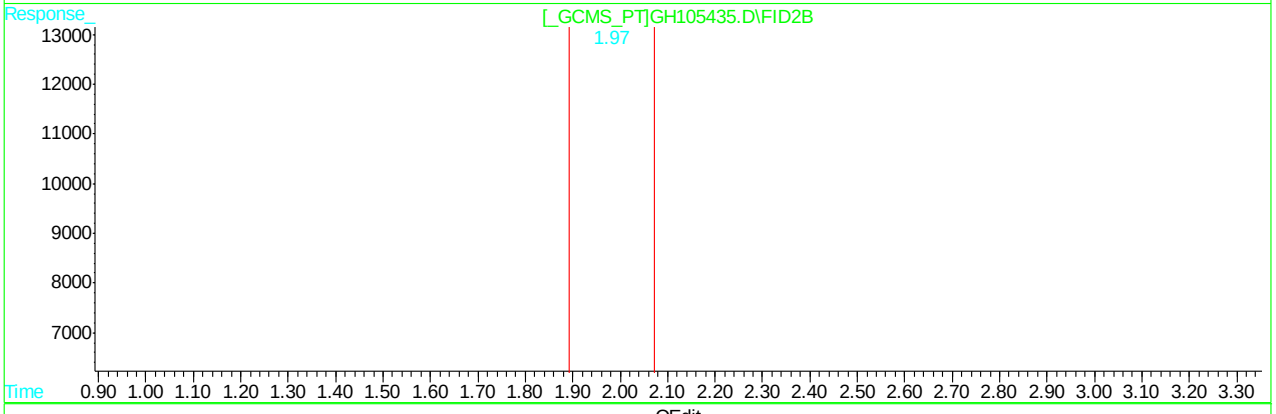
Quantitation Report (Qedit)

```
Data File : C:\HPCHEM\1\DATA\GH105435.D\FID1A.CH          Vial: 92
Acq On    : 13 Jun 2016  11:16 am                     Operator: XULIU
Sample    : CC5288-5000                               Inst    : GCGH
Misc      : GC48265,GGH5320,5.0,,,,1                  Multiplr: 1.00
IntFile   : AUTOINT1.E

Data File : C:\HPCHEM\1\DATA\GH105435.D\FID2B.CH          Vial: 92
Acq On    : 13 Jun 2016  11:32 am                     Operator: XULIU
Sample    : CC5288-5000                               Inst    : GCGH
Misc      : GC48265,GGH5320,5.0,,,,1                  Multiplr: 1.00
IntFile   : autoint2.e
Quant Time: Jun 13 13:04 2016  Quant Results File: MGH5288.RES


Method       : C:\HPCHEM\1\METHODS\MGH5288.M (Chemstation Integrator)
Title        : METHOD SW846-8015C (DAI)
Last Update  : Mon Jun 13 13:15:41 2016
Response via : Multiple Level Calibration
```





QEdit

(4) 1-Propanol

2.47min 5363.180PPB m

response 130466

(4) 1-Propanol #2

1.97min 5210.545PPB

response 264917

(+) = Expected Retention Time

GH105435.D MGH5288.M Mon Jun 13 13:30:47 2016 GCGH

Quantitation Report (QT Reviewed)

```
Data File : C:\HPCHEM\1\DATA\GH105445.D\FID1A.CH          Vial: 95
Acq On    : 13 Jun 2016   1:59 pm                     Operator: XULIU
Sample    : CC5288-10000                              Inst    : GCGH
Misc      : GC48265,GGH5320,5.0,,,,1                  Multiplr: 1.00
IntFile   : AUTOINT1.E

Data File : C:\HPCHEM\1\DATA\GH105445.D\FID2B.CH          Vial: 95
Acq On    : 13 Jun 2016   2:15 pm                     Operator: XULIU
Sample    : CC5288-10000                              Inst    : GCGH
Misc      : GC48265,GGH5320,5.0,,,,1                  Multiplr: 1.00
IntFile   : autoint2.e
Quant Time: Jun 13 15:10 2016  Quant Results File: MGH5288.RES

Quant Method : C:\HPCHEM\1\METHODS\MGH5288.M (Chemstation Integrator)
Title        : METHOD SW846-8015C (DAI)
Last Update  : Mon Jun 13 15:08:03 2016
Response via : Initial Calibration
DataAcq Meth : MGH5288.M

Volume Inj.     : 2ul
Signal #1 Phase : ZB-624            Signal #2 Phase: RTX-1
Signal #1 Info  : 30mx0.53mmx3um    Signal #2 Info : 30mx0.32mmx3um
```

Compound	RT#1	RT#2	Resp#1	Resp#2	PPB	PPB
System Monitoring Compounds						
9) S Hexanol	5.55	5.43f	326050	751081	4823.459	4834.842
Spiked Amount 5000.000			Recovery	=	96.47%	96.70%
Target Compounds						
1) Methanol	1.11	0.88	160849	357240	10405.071	11075.749
2) Ethanol	1.43	1.13	184335	438190	9727.315	10992.977
3) Tert-Butyl Alcoh	1.99	1.62	290353	724742	10247.213	11398.380
4) 1-Propanol	2.48	1.97	269100	572332	11062.178	11256.961
5) 2-Propanol	1.73	1.38	238883	499279	11985.487	11026.691
6) Isobutanol	3.28	2.91	325097	645927	11299.470	10550.709
7) 1-Butanol	3.73	3.39	307539	643448	10767.908	9724.160
8) 2-Butanol	2.91	2.54	275612	594180	10751.616	10945.690

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

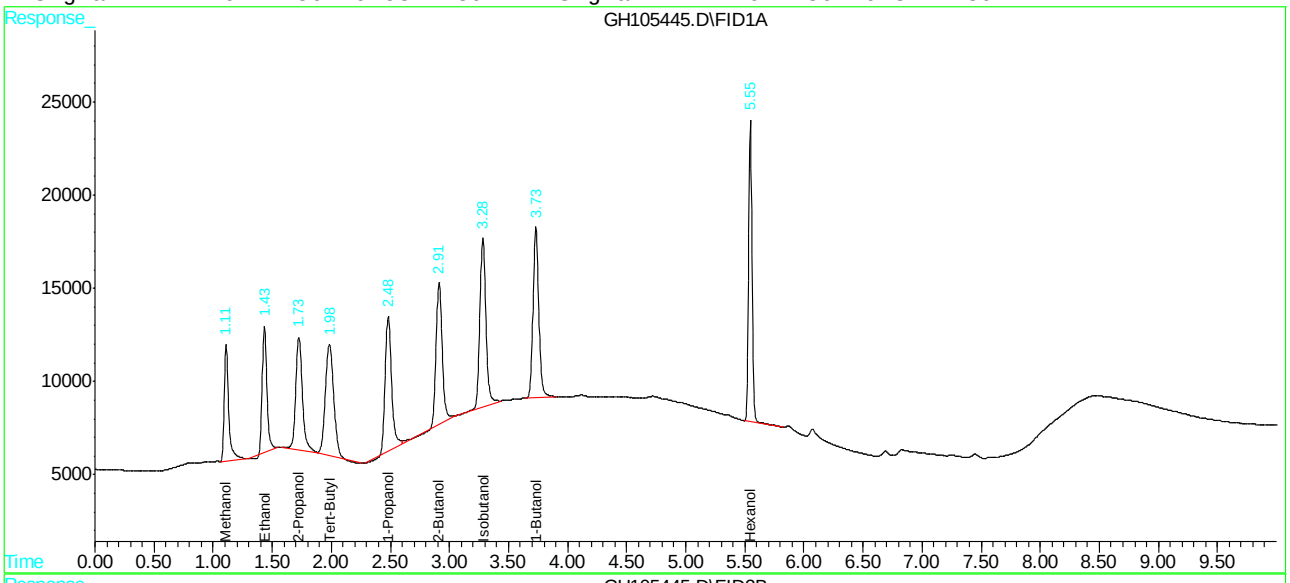
Quantitation Report (QT Reviewed)

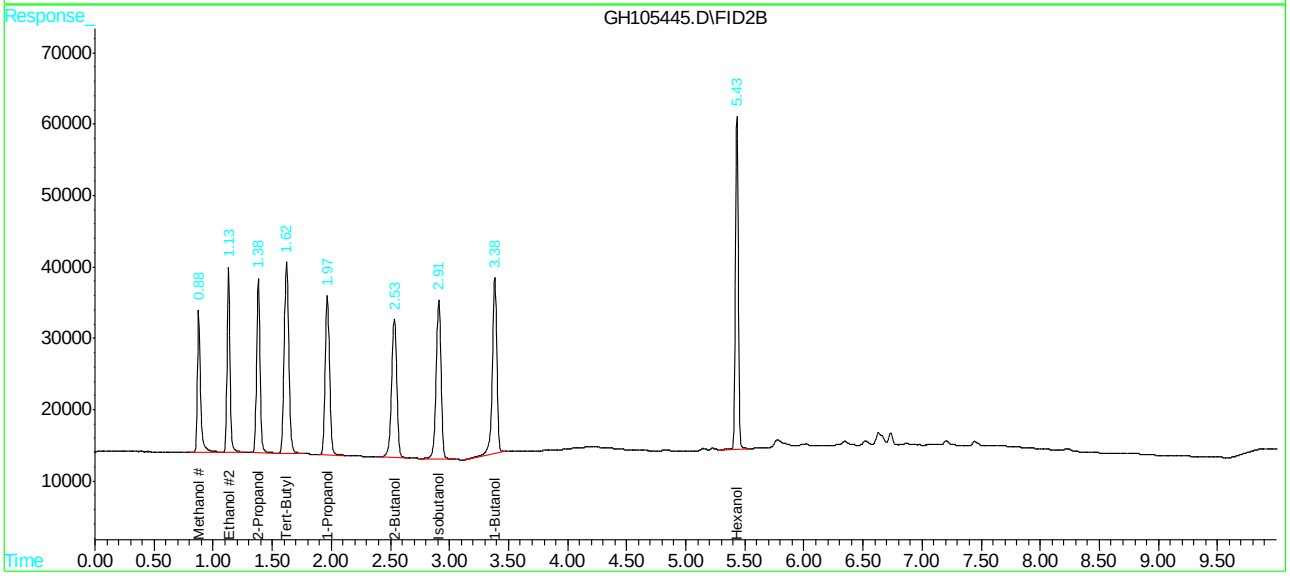
```
Data File : C:\HPCHEM\1\DATA\GH105445.D\FID1A.CH          Vial: 95
Acq On    : 13 Jun 2016   1:59 pm                     Operator: XULIU
Sample    : CC5288-10000                              Inst    : GCGH
Misc      : GC48265,GGH5320,5.0,,,,1                  Multiplr: 1.00
IntFile   : AUTOINT1.E

Data File : C:\HPCHEM\1\DATA\GH105445.D\FID2B.CH          Vial: 95
Acq On    : 13 Jun 2016   2:15 pm                     Operator: XULIU
Sample    : CC5288-10000                              Inst    : GCGH
Misc      : GC48265,GGH5320,5.0,,,,1                  Multiplr: 1.00
IntFile   : autoint2.e
Quant Time: Jun 13 15:10 2016  Quant Results File: MGH5288.RES

Quant Method : C:\HPCHEM\1\METHODS\MGH5288.M (Chemstation Integrator)
Title        : METHOD SW846-8015C (DAI)
Last Update  : Mon Jun 13 15:08:03 2016
Response via : Multiple Level Calibration
DataAcq Meth : MGH5288.M

Volume Inj.     : 2ul
Signal #1 Phase : ZB-624            Signal #2 Phase: RTX-1
Signal #1 Info  : 30mx0.53mmx3um    Signal #2 Info : 30mx0.32mmx3um
```





SGS ACCUTEST JC19214T

Quantitation Report (QT Reviewed)

```
Data File : C:\HPCHEM\1\DATA\GH105450.D\FID1A.CH          Vial: 95
Acq On    : 13 Jun 2016   3:37 pm                     Operator: XULIU
Sample    : CC5288-5000                               Inst    : GCGH
Misc      : GC48265,GGH5320,5.0,,,,1                  Multiplr: 1.00
IntFile   : AUTOINT1.E

Data File : C:\HPCHEM\1\DATA\GH105450.D\FID2B.CH          Vial: 95
Acq On    : 13 Jun 2016   3:54 pm                     Operator: XULIU
Sample    : CC5288-5000                               Inst    : GCGH
Misc      : GC48265,GGH5320,5.0,,,,1                  Multiplr: 1.00
IntFile   : autoint2.e
Quant Time: Jun 14  8:00 2016  Quant Results File: MGH5288.RES

Quant Method : C:\HPCHEM\1\METHODS\MGH5288.M (Chemstation Integrator)
Title        : METHOD SW846-8015C (DAI)
Last Update  : Tue Jun 14 08:00:26 2016
Response via : Initial Calibration
DataAcq Meth : MGH5288.M

Volume Inj.     : 2ul
Signal #1 Phase : ZB-624            Signal #2 Phase: RTX-1
Signal #1 Info  : 30mx0.53mmx3um    Signal #2 Info : 30mx0.32mmx3um
```

Compound	RT#1	RT#2	Resp#1	Resp#2	PPB	PPB
System Monitoring Compounds						
9) S Hexanol	5.55	5.43	353155	817742	5224.437	5263.954
Spiked Amount 5000.000			Recovery	=	104.49%	105.28%
Target Compounds						
1) Methanol	1.11	0.88	72636	163885	4698.710	5081.040
2) Ethanol	1.43	1.13	108376	202230	5718.985	5073.395
3) Tert-Butyl Alcoh	1.98	1.63	153338	325240	5411.651	5115.210
4) 1-Propanol	2.48	1.97	136452	274186	5609.258	5392.857
5) 2-Propanol	1.72	1.39	112977	228469	5668.373	5045.797
6) Isobutanol	3.28	2.91	155674	309080	5410.785	5048.588
7) 1-Butanol	3.73	3.39	149091	299464	5220.164	4525.671
8) 2-Butanol	2.91	2.53	137642	282288	5369.410	5200.176

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
GH105450.D MGH5288.M Tue Jun 14 08:04:27 2016 GCGH

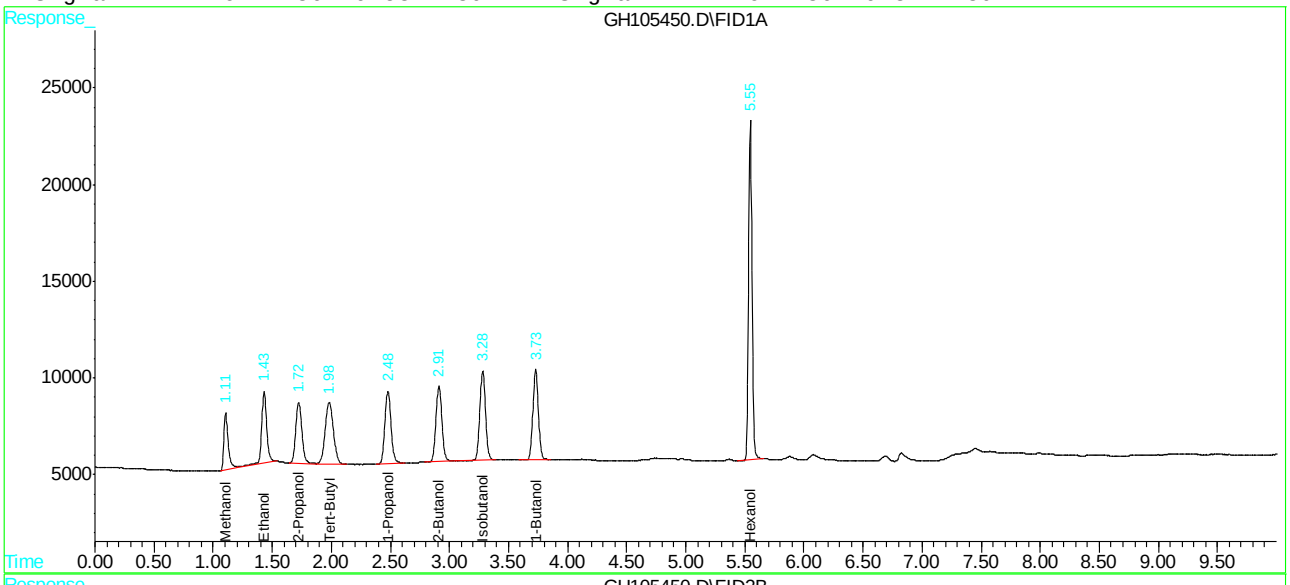
Quantitation Report (QT Reviewed)

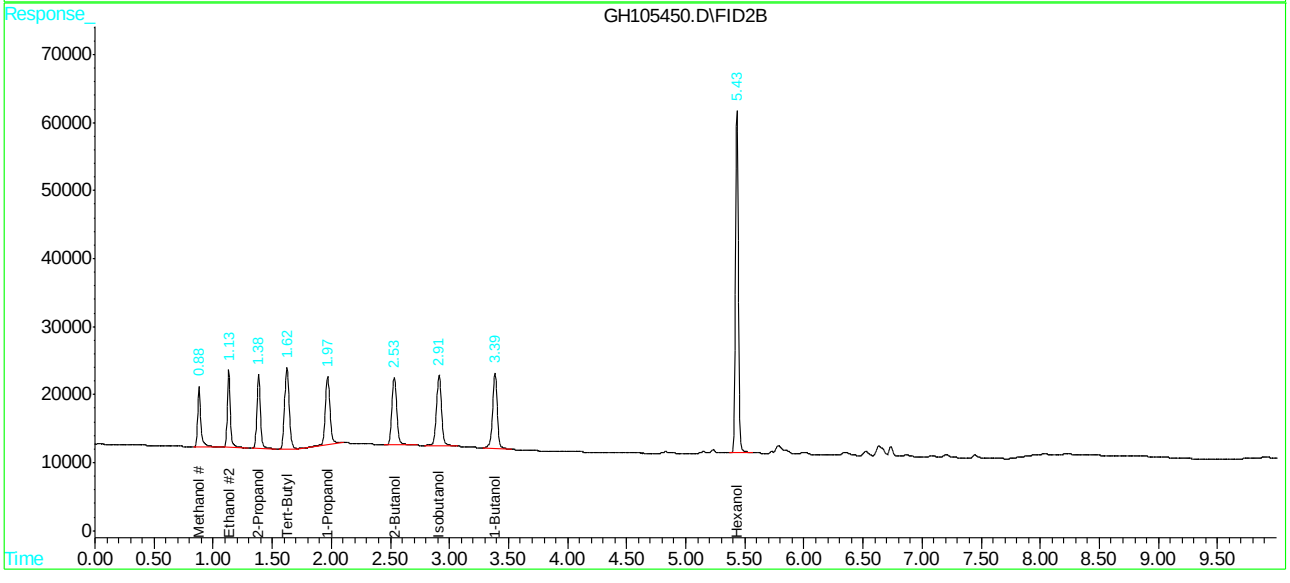
```
Data File : C:\HPCHEM\1\DATA\GH105450.D\FID1A.CH          Vial: 95
Acq On    : 13 Jun 2016   3:37 pm                     Operator: XULIU
Sample    : CC5288-5000                               Inst    : GCGH
Misc      : GC48265,GGH5320,5.0,,,,1                  Multiplr: 1.00
IntFile   : AUTOINT1.E

Data File : C:\HPCHEM\1\DATA\GH105450.D\FID2B.CH          Vial: 95
Acq On    : 13 Jun 2016   3:54 pm                     Operator: XULIU
Sample    : CC5288-5000                               Inst    : GCGH
Misc      : GC48265,GGH5320,5.0,,,,1                  Multiplr: 1.00
IntFile   : autoint2.e
Quant Time: Jun 14  8:00 2016  Quant Results File: MGH5288.RES

Quant Method : C:\HPCHEM\1\METHODS\MGH5288.M (Chemstation Integrator)
Title        : METHOD SW846-8015C (DAI)
Last Update  : Tue Jun 14 08:00:26 2016
Response via : Multiple Level Calibration
DataAcq Meth : MGH5288.M

Volume Inj.     : 2ul
Signal #1 Phase : ZB-624            Signal #2 Phase: RTX-1
Signal #1 Info  : 30mx0.53mmx3um    Signal #2 Info : 30mx0.32mmx3um
```





SGS ACCUTEST JC19214T

Quantitation Report (QT Reviewed)

```
Data File : C:\HPCHEM\1\DATA\GH105459.D\FID1A.CH          Vial: 90
Acq On    : 13 Jun 2016   6:05 pm                     Operator: XULIU
Sample    : CC5288-10000                              Inst    : GCGH
Misc      : GC48582,GGH5320,5.0,,,,1                  Multiplr: 1.00
IntFile   : AUTOINT1.E

Data File : C:\HPCHEM\1\DATA\GH105459.D\FID2B.CH          Vial: 90
Acq On    : 13 Jun 2016   6:21 pm                     Operator: XULIU
Sample    : CC5288-10000                              Inst    : GCGH
Misc      : GC48582,GGH5320,5.0,,,,1                  Multiplr: 1.00
IntFile   : autoint2.e
Quant Time: Jun 14  8:18 2016  Quant Results File: MGH5288.RES

Quant Method : C:\HPCHEM\1\METHODS\MGH5288.M (Chemstation Integrator)
Title        : METHOD SW846-8015C (DAI)
Last Update  : Tue Jun 14 08:00:26 2016
Response via : Initial Calibration
DataAcq Meth : MGH5288.M

Volume Inj.     : 2ul
Signal #1 Phase : ZB-624            Signal #2 Phase: RTX-1
Signal #1 Info  : 30mx0.53mmx3um    Signal #2 Info : 30mx0.32mmx3um
```

Compound	RT#1	RT#2	Resp#1	Resp#2	PPB	PPB
System Monitoring Compounds						
9) S Hexanol	5.55	5.44	321250	727731	4752.451	4684.535
Spiked Amount 5000.000			Recovery	=	95.05%	93.69%
Target Compounds						
1) Methanol	1.10	0.89	169834	371858	10986.322	11528.957
2) Ethanol	1.43	1.14	214063	426646	11296.089	10703.375
3) Tert-Butyl Alcoh	1.98	1.63	308356	701137	10882.596	11027.123
4) 1-Propanol	2.48	1.97	266479	554557	10954.419	10907.351
5) 2-Propanol	1.72	1.39	222205	482998	11148.689	10667.114
6) Isobutanol	3.28	2.91	318305	631394	11063.389	10313.326
7) 1-Butanol	3.73	3.39	304968	617786	10677.921	9336.343
8) 2-Butanol	2.91	2.54	306003	585143	11937.200	10779.218

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

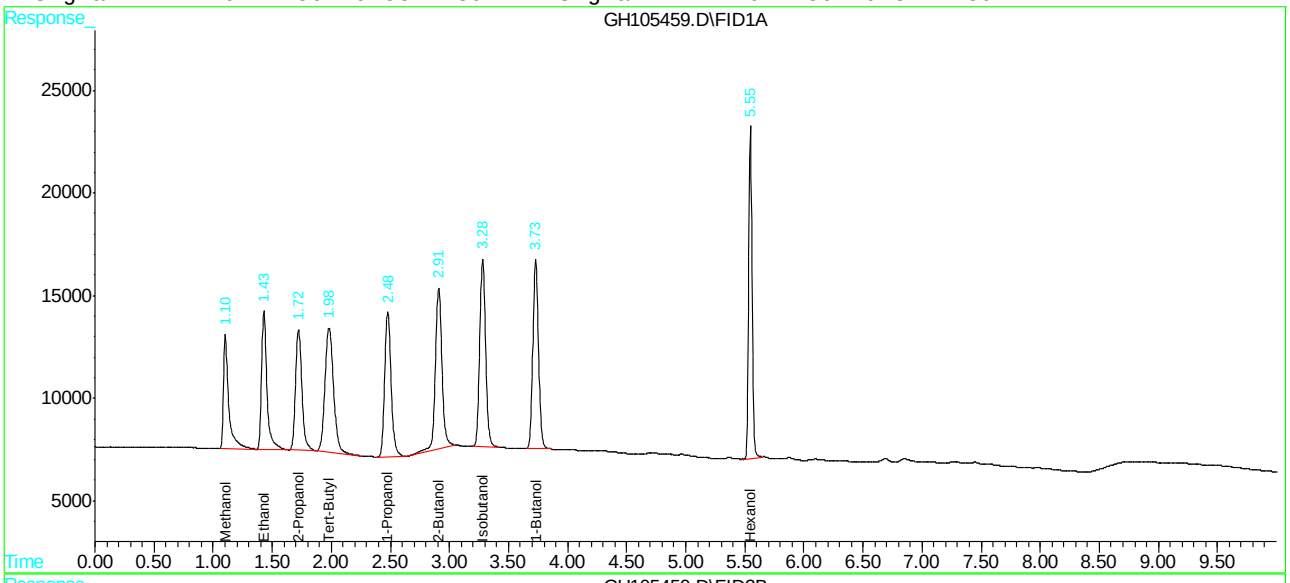
Quantitation Report (QT Reviewed)

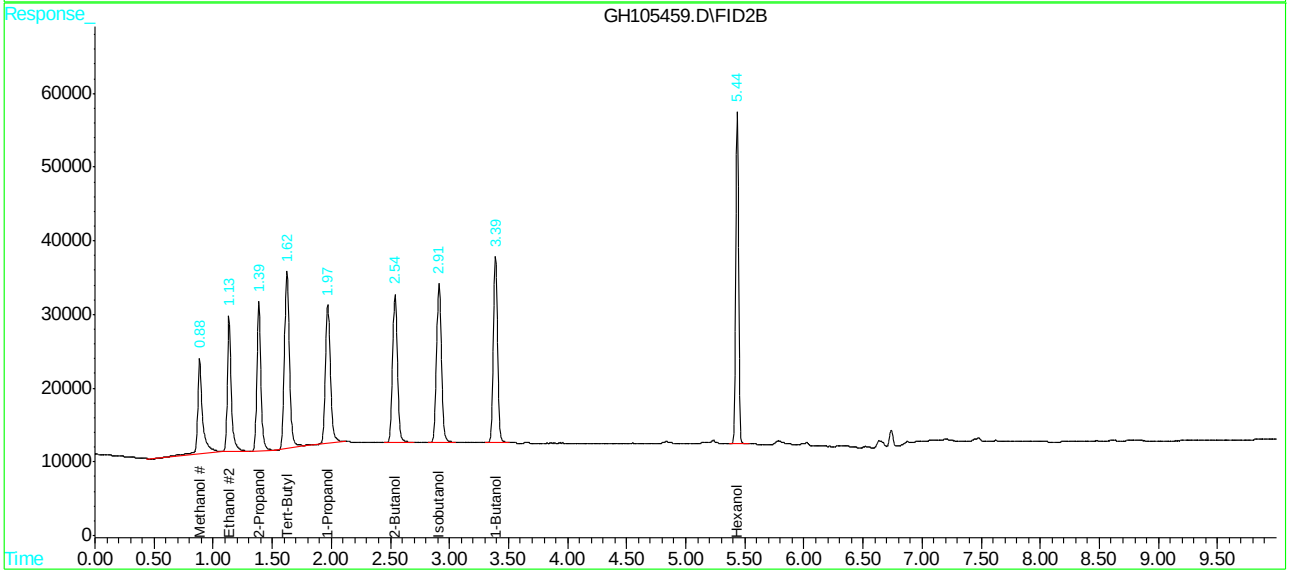
```
Data File : C:\HPCHEM\1\DATA\GH105459.D\FID1A.CH          Vial: 90
Acq On    : 13 Jun 2016   6:05 pm                     Operator: XULIU
Sample    : CC5288-10000                              Inst    : GCGH
Misc      : GC48582,GGH5320,5.0,,,,1                  Multiplr: 1.00
IntFile   : AUTOINT1.E

Data File : C:\HPCHEM\1\DATA\GH105459.D\FID2B.CH          Vial: 90
Acq On    : 13 Jun 2016   6:21 pm                     Operator: XULIU
Sample    : CC5288-10000                              Inst    : GCGH
Misc      : GC48582,GGH5320,5.0,,,,1                  Multiplr: 1.00
IntFile   : autoint2.e
Quant Time: Jun 14  8:18 2016  Quant Results File: MGH5288.RES

Quant Method : C:\HPCHEM\1\METHODS\MGH5288.M (Chemstation Integrator)
Title        : METHOD SW846-8015C (DAI)
Last Update  : Tue Jun 14 08:00:26 2016
Response via : Multiple Level Calibration
DataAcq Meth : MGH5288.M

Volume Inj.     : 2ul
Signal #1 Phase : ZB-624            Signal #2 Phase: RTX-1
Signal #1 Info  : 30mx0.53mmx3um    Signal #2 Info : 30mx0.32mmx3um
```





SGS ACCUTEST

VOLATILE ANALYSIS LOG

Batch ID: GGH 5288

Print Analyst Name: Xu Gu

Date: 5/17/16

Analyst Signature:

Columns: ZB624 / RTX-1 (30m x0.53mm x3μm) (30m x0.32mm x3μm)

Method 8015C ALL

Initial Cal. Method mCal 5288

Standard Data

Lot #	Description	Conc.

Standard Data

Lot #	Description	Conc.
015M4128	ALL SUR (5/15)	2000 ppm
015M4510	ALL STD (5/15)	100 ppm
015M4130	ALL SD012 (5/15)	100 ppm

Manually integrated chromatographic peaks in the following reportable files have been reviewed and verified to comply with the criteria of Accutest SOP EQA044.

Supervisor Signature: **Date:** 5/19/16

R	Data File	Sample ID	Test	MTX	Vial #	ALS #	Samp. Amt (ml or g)	MOH amt. (ul)	Secondary dilution	L+	IS	SU	Status (Data)	Comments	pH* < 2
	CAL 105015	ZB					1					✓	not well		
	105016	ZB					1					✓	ok		
	105017	ZC5288-100					1					✓	ok	10μl STD, 4μl SW / 10ml	
	105018	ZC5288-500					1					✓	ok	5μl STD, 1μl SW / 10ml	
	105019	ZC5288-1000					1					✓	ok	10μl STD, 2.5μl SW / 10ml	
	105020	ZC5288-5000					1					✓	ok	50μl STD, 2.5μl SW / 10ml	
	105021	ZC5288-10,000					1					✓	ok	100μl STD, 2.5μl SW / 10ml	
	105022	ZC5288-50,000					1					✓	ok	500μl STD, 3μl SW / 10ml	
	105023	ZC5288-100,000					1					✓	ok	1000μl STD, 4μl SW / 10ml	
	105024	ZC5288-5000					1					✓	ok	50μl STD (1:10) 2.5μl SW / 10ml	

5/17

MTX = Matrix Designate W for water, S for soil, O for oil. L+ =Library Search. IS = Internal Standard Area. SU = Surrogate.
Sample Amt = Volume (ML) or Weight (g); MOH amt.= volume (ul) extract injected * IF pH > 2, comment on sample result.
All strike outs must be initialed, dated and reason code applied as follows: 1 = reviewer correction error; 2 = transcription error; 3 = computer miscalculation; 4 = analyst's correction error

Form: OR001-10
Rev. Date: 1/19/16

SGS ACCUTEST

VOLATILE ANALYSIS LOG

Batch ID: GGH5320

Print Analyst Name: Xulu

Date: 6/13/16

Analyst Signature:

Columns: 2BGNL / 1R7X-1 (30mx0.53mmx3um) (30mx0.32mmx2um)

Method 8015C ALL

Initial Cal. Method MGH5288

Standard Data

Lot #	Description	Conc.

Standard Data

Lot #	Description	Conc.
015GNX013	ALL SUR 6/13	2000ppm
015GNX013	ALL SID 6/13	100 ppm
015GNX013	ALL SID(2) 6/13	100 ppm

Manually integrated chromatographic peaks in the following reportable files have been reviewed and verified to comply with the criteria of Accutest SOP EQA044.

Supervisor Signature: **Date:** 6/14/16

R	Data File	Sample ID	Test	MTX	Vial #	ALS #	Samp. Amt (ml or g)	MOH amt. (ul)	Secondary dilution	L+	IS	SU	Status (Data)	Comments	pH* < 2
	GH105434	IB					1					✓	OK		
	105435	CC5288-5000					1					✓	OK	50µl SID/ml H2O	
	105436	MB1					1					✓	OK		
	105437	BS					1					✓	OK	50µl SID(2)/ml H2O	
	105438	JC18649-1T	48265 SBA-IPA	GW	8		1					✓	OK		✓
	105439	JC18649-1TMS	✓	GW	8		1						RR	Back Injector lost control of syringe 50µl SID(2)/ml sample	✓
	105440	JC18649-1TMSD	✓	GW	8		1						RR	50µl SID(2)/ml sample	✓
	105441	JC18649-2T	✓	GW	8		1						RR	Back Injector lost control	✓
	105442	JC18649-3T 4	✓ 06/13	GW	8		1					✓	OK		✓
	105443	JC18649-5T	✓	GW	8		1					✓	OK		✓
	105444	JC18972-4T	48485 SBA IPA	GW	8		1					✓	OK	The only vial spiked for MS	✓
	105445	CC5288-10,000					1					✓	OK	10µl SID/ml H2O	
	105446	MB2					1					✓	OK		
R	105447	JC18649-1TMS	48265 IPA SBA	GW	8		1					✓	OK	50µl SID(2)/ml sample	✓
R	105448	JC18649-1TMSD	✓	GW	8		1					✓	OK	50µl SID(2)/ml sample	✓
R	105449	JC18649-2T	✓	GW	8		1					✓	OK		✓
	105450	CC5288-5000					1					✓	OK	50µl SID/ml H2O	

MTX = Matrix Designate W for water, S for soil, O for oil. L+ =Library Search. IS = Internal Standard Area. SU = Surrogate.
S Sample Amt = Volume (ML) or Weight (g); MOH amt.= volume (ul) extract injected * IF pH > 2, comment on sample result.
All strike outs must be initialed, dated and reason code applied as follows: 1 = reviewer correction error; 2 = transcription error; 3 = computer miscalculation; 4 = analyst's correction error

245

Form: OR001-10
Rev. Date: 1/19/16

7.6.2

7

SGS ACCUTEST

VOLATILE ANALYSIS LOG

Batch ID: GGH5320

Print Analyst Name: Xulin

Analyst Signature:

Date: 6/13/16

Columns: ZB624 / RTX-1 (30m x0.53mm x3um) (30m x0.32mm x1um)

Method 8015 CALL

Initial Cal. Method MGH5288

Standard Data		
Lot #	Description	Conc.

Standard Data		
Lot #	Description	Conc.
	Pg 245	

Manually integrated chromatographic peaks in the following reportable files have been reviewed and verified to comply with the criteria of Accutest SOP EQA044.

Supervisor Signature: Alan Date: 6/14/16

R	Data File	Sample ID	Test	MTX	Vial #	ALS #	Samp. Amt (ml or g)	MOH amt. (ul)	Secondary dilution	L+	IS	SU	Status (Data)	Comments	pH* < 2
	GH105451	MB3					1						✓ok		
	105452	JC18214-1T	48485 SBA-2PA	W	8		1						✓ok		✓
	105453	JC18516-1T	48214 SBA 2PA	W	8		1						✓ok		✓
	105454	JC18516-4T	✓	W	8		1						✓ok		✓
	105455	JC21006-1	48582 Meth	W W	1	6/13	50ml/mlw 10ml/mlw		X2000				✓ok	Turbidity + resin	6
	105456	JC21007-1	✓	W W	1		50ml/mlw 10ml/mlw		X2000				✓ok	✓	9
	105457	JC21008-1	✓	W W	1		50ml/mlw 10ml/mlw		X2000				✓ok	✓	9
	105458	JC21009-1	✓	W W	1		50ml/mlw 10ml/mlw		X2000				✓ok	✓	6
	105459	CC5288-10,000											✓ok	100ml/mlw	

6/13

MTX = Matrix Designate W for water, S for soil, O for oil. L+ =Library Search. IS = Internal Standard Area. SU = Surrogate.
Sample Amt = Volume (ML) or Weight (g); MOH amt.= volume (ul) extract injected * IF pH > 2, comment on sample result.
All strike outs must be initialed, dated and reason code applied as follows: 1 = reviewer correction error; 2 = transcription error; 3 = computer miscalculation; 4 = analyst's correction error

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Form: OR001-10
Rev. Date: 1/19/16

7.6.2

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