# RTI LABORATORIES, INC.

Analytical Report

Level IV Data Package
RTI Work Order 1103158-Revised

Prepared by:

RTI Laboratories, Inc.
31628 Glendale
Livonia, MI 48150

Shaw Environmental & Infrastructure, Inc
Ms. Pamela Moss
74604 Technology Way
Denver, CO 80237

Project: Kirtland AFB
Task Order: 02

Reviewed and Approved By: _____ Date: April 21, 2011
Charles O'Bryan, Director Quality Management

31628 Glendale Street • Livonia, Michigan 48150-1827
Phone (734) 422-8000 • Fax (734) 422-5342
Website www.rtilab.com

**TABLE OF CONTENTS**
**Shaw Environmental & Infrastructure, Inc.**
**Project: Kirtland AFB**
**Task Order: 02**
**RTI Laboratories, Inc. Project # 1103158**


| | | | |
|---|---|---|---|
| I | Case Narrative | | 1-2 |
| II | Chain of Custody/Sample Receiving Documents | | 3-7 |
| III | Work Order Sample Summary | | 8 |
| IV | Dates Report | | 9-10 |
| V | Analytical Report | | 11-24 |
| VI | QC Summary Report | | 25-29 |
| VII | Petroleum Hydrocarbons Analyses | | |
| | 1. | Prep Batch Report 3/16/2011 | 30 |
| | 2. | Analytical Sequence Log 3/17/2011 (Run No. 39411) | 31 |
| | 3. | Analytical Run Summary | 32-36 |
| | 4. | Surrogate Recovery | 37 |
| | 5. | Spikes Report | 38 |
| | 6. | Method Blank Contamination Report | 39 |
| | 7. | Run Log/Raw Data | 40-89 |
| | 8. | Run Log/Calibration Curves Report/Standards | 90-112 |
| VIII | Fixed Gases Analyses | | |
| | 1. | Analytical Sequence Log 3/10/2011 (Run No. 39440) | 113 |
| | 2. | Analytical Run Summary | 114-121 |
| | 3. | Spikes Report | 122-123 |
| | 4. | Method Blank Contamination Report | 124 |
| | 5. | Run Log/Raw Data | 125-172 |
| | 6. | Analytical Sequence Log 3/11/2011 (Run No. 39441) | 173-177 |
| | 7. | Spikes Report | 178 |
| | 8. | Run Log/Raw Data | 179-208 |
| | 9. | Run Log/Response Factor Report/ICAL/Standards | 209-231 |

## RTI Laboratories, Inc.

**Date:** *15-Apr.-11*

**CLIENT:** Shaw Environmental & Infrastructure, Inc.
**Project:** Kirtland AFB
**Task Order:** 02
**Lab Order:** 1103158

# CASE NARRATIVE

SAMPLE RECEIPT:
Samples were received at the RTI Laboratory, Livonia, MI via commercial delivery on 3/4/2011. Samples were received in good condition. The sample set consisted of 14 air samples.

SAMPLE ANALYSIS:
Samples were analyzed at the RTI Livonia Laboratory for:
Petroleum Hydrocarbons (TPH as Diesel) – EPA Methods 3540/TO13
Fixed Gases (Noncondensable Gases/Light Hydrocarbons) – ASTM D-2504

QUALITY CONTROL:

**Petroleum Hydrocarbons (TPH as Diesel) Analyses:**

All sample analyses included a Method Blank, LCS, LCSD and MS/MSD, where applicable. All QC parameters were within established control limits except where noted on the QC summary forms or below. Initial and continuing calibration results were within method specifications.

Comments for SW_3540, Sample 1103158-002B: Sample tube had viscous liquid inside with a solvent type odor.

Batch ID 21419:

- Analytical Comments for METHOD EPA_TO13-TPH, SAMPLE 1103158-002b, Batch ID 21419: Elevated surrogate recovery due to matrix interference.

**Fixed Gases (Noncondensable Gases/Light Hydrocarbons) Analyses:**

All sample analyses included a Method Blank, LCS, LCSD and Duplicate, where applicable. All QC parameters were within established control limits except where noted on the QC summary forms or below. Initial and continuing calibration results were within method specifications.

Samples collected in Tedlar bags have a limited holding time as specified by the manufacturer for the collection of volatile organic compounds. There is no known stability data for the analytes of interest for this project collected in Tedlar bags. The standard holding time is 48 hours for Tedlar bags. Due to the nature of the project sample analysis within 48 hours was not feasible.

**RTI Laboratories, Inc.**

**Date:** *15-Apr.-11*

**CLIENT:** Shaw Environmental & Infrastructure, Inc.
**Project:** Kirtland AFB
**Task Order:** 02
**Lab Order:** 1103158

## CASE NARRATIVE

No other problems were noted during the analytical events associated with this project.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted has been authorized by the Laboratory Director or his designee, as verified by the following signature.

Signed: Charles O'Bryan
Charles O'Bryan, Director, Quality Management

Date: 4/15/2011

1103158

Shaw
Shaw E & I, Inc.

# ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Reference Document No. 140706-SV
Page 1 of 2

Project Number: 140706
Project Name: Kirtland AFB
Sample Coordinator: Mark Lyon
Turnaround Time:

Samples Shipment Date: 25 FEB 2011
Lab Destination: RTI Laboratories
Lab Contact: Mike Truchan
Project Contact: Pamela Moss
Carrier/Waybill No.: UPS#1Z66V6900396530612

Bill To: Shaw Environmental Inc - Accounts P
PO Box 96519
Baton Rouge LA 70884

Report To: Pamela Moss
7604 Technology Way, Suite 300
Denver CO 80237

Special Instructions:

Possible Hazard Indentification:
Non-hazard X Flammable Skin Irritant Poison B Radiological Unknown

Sample Disposal:
Return to Client Disposal by Lab X Archive (mos.)

1. Relinquished By (Signature/Affiliation): Mark Lyon. Shaw Environmental — Date: 2-25-11 Time: 1630
2. Relinquished By (Signature/Affiliation) — Date: Time:
3. Relinquished By (Signature/Affiliation) — Date: Time:

1. Received By (Signature/Affiliation): Kelly Jones / RTI Labs — Date: Time:
2. Received By (Signature/Affiliation) — Date: Time:
3. Received By (Signature/Affiliation) — Date: Time:

Comments: UPS GROUND SERVICE
Rec'd Tedlar Bags + XAD tubes only - Ambient vac's arrived 3/3/11

| Sample No | Sample Name | Sample Date | Sample Time | Container | Ctr Qty | Preservative | Requested Testing Program | Sample Vol | Units | Fil | CID | Condition On Receipt |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| VA9001 TB | FIELDQC AQ VA9001 TB 1E | 24 FEB 2011 | 09:00 | 1 L BOTTLEVAC | 1 | None Required | VOCs / TPH by TO-15 | | | N | | |
| VA9001 | STACK IN GS VA9001 REG | 24 FEB 2011 | 13:30 | 1 L BOTTLEVAC | 1 | None Required | VOCs / TPH by TO-15 | | | N | | |
| VA9001 | STACK IN GS VA9001 REG | 24 FEB 2011 | 13:30 | 1 L Tedlar Bag | 1 | None Required | Fixed Gases by ASTM D2504 | | | N | | |
| VA9001 | STACK IN GS VA9001 REG | 24 FEB 2011 | 13:30 | 2 In OVS XAD-2 | 1 | None Required | TPH as Diesel by SW846 8015B | | | N | | |
| VA9002 | STACK IN GS VA9002 FG | 24 FEB 2011 | 16:00 | 1 L BOTTLEVAC | 1 | None Required | VOCs / TPH by TO-15 | | | N | | |
| VA9002 | STACK IN GS VA9002 FG | 24 FEB 2011 | 16:00 | 1 L Tedlar Bag | 1 | None Required | Fixed Gases by ASTM D2504 | | | N | | |
| VA9002 | STACK IN GS VA9002 FG | 24 FEB 2011 | 16:00 | 2 In OVS XAD-2 | 1 | None Required | TPH as Diesel by SW846 8015B | | | N | | |
| VA9003 | STACK IN DISTRICT GS VA9003 | 24 FEB 2011 | 10:10 | 1 L BOTTLEVAC | 1 | None Required | VOCs / TPH by TO-15 | | | N | | |

Shaw
Shaw E & I, Inc.

# ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

1103158

Reference Document No 140705-SV



| | Sample No | Sample Name | Sample Date | Sample Time | Container | | Preservative | Requested Testing Program | Sample Vol | Units | Fil | CID | Condition On Receipt |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | VA9003 | [illegible] | 24 FEB 2011 | 10 10 | 1 L Tedlar Bag | 1 | None Required | Fixed Gases by ASTM D2504 | | | N | | |
| | VA9004 | [illegible] | 24 FEB 2011 | 10 15 | 1 L BOTTLEVAC | 1 | None Required | VOCs / TPH by TO-15 | | | N | | |
| 4 | VA9004 | [illegible] | 24 FEB 2011 | 10 15 | 1 L Tedlar Bag | 1 | None Required | Fixed Gases by ASTM D2504 | | | N | | |
| 5 | VA9005 | KAFB1005-IN-GS-VA9005-REG | 25 FEB 2011 | 10 45 | 1 L Tedlar Bag | 1 | None Required | Fixed Gases by ASTM D2504 | | | N | | |
| 5 | VA9005 | KAFB1005-IN-GS-VA9005-REG | 25 FEB 2011 | 10 45 | 2 In OV5 XAD-2 | 1 | None Required | TPH as Diesel by SW846 8015B | | | N | | |
| | VA9005 | KAFB1005-IN-GS-VA9005-REG | 25 FEB 2011 | 10 45 | 1 L BOTTLEVAC | 1 | None Required | VOCs / TPH by TO-15 | | | N | | |
| | VA9005 | KAFB1005-POST01-GS-VA9005-REG | 25 FEB 2011 | 10 15 | 1 L BOTTLEVAC | 1 | None Required | VOCs / TPH by TO-15 | | | N | | |
| 6 | VA9006 | KAFB1005-POST01-GS-VA9006-REG | 25 FEB 2011 | 10 15 | 1 L Tedlar Bag | 1 | None Required | Fixed Gases by ASTM D2504 | | | N | | |
| | VA9007 | KAFB1005-POST02-GS-VA9007-REG | 25 FEB 2011 | 10 30 | 1 L BOTTLEVAC | 1 | None Required | VOCs / TPH by TO-15 | | | N | | |
| 7 | VA9007 | KAFB1005-POST02-GS-VA9007-REG | 25 FEB 2011 | 10 30 | 1 L Tedlar Bag | 1 | None Required | Fixed Gases by ASTM D2504 | | | N | | |
| | VA9008 | KAFB1005-IN-GS-VA9008-REG | 24 FEB 2011 | 12 10 | 1 L BOTTLEVAC | 1 | None Required | VOCs / TPH by TO-15 | | | N | | |
| 8 | VA9008 | KAFB1005-IN-GS-VA9008-REG | 24 FEB 2011 | 12 10 | 1 L Tedlar Bag | 1 | None Required | Fixed Gases by ASTM D2504 | | | N | | |
| 8 | VA9008 | KAFB1005-IN-GS-VA9008-REG | 24 FEB 2011 | 12 10 | 2 In OV5 XAD-2 | 1 | None Required | TPH as Diesel by SW846 8015B | | | N | | |
| | VA9009 | KAFB1005-POST01-GS-VA9009-REG | 24 FEB 2011 | 11 25 | 1 L BOTTLEVAC | 1 | None Required | VOCs / TPH by TO-15 | | | N | | |
| 9 | VA9009 | KAFB1005-POST01-GS-VA9009-REG | 24 FEB 2011 | 11.25 | 1 L Tedlar Bag | 1 | None Required | Fixed Gases by ASTM D2504 | | | N | | |
| 10 | VA9010 | KAFB1005-POST02-GS-VA9010-REG | 24 FEB 2011 | 11 35 | 1 L Tedlar Bag | 1 | None Required | Fixed Gases by ASTM D2504 | | | N | | |
| | VA9010 | KAFB1005-POST02-GS-VA9010-REG | 24 FEB 2011 | 11 35 | 1 L BOTTLEVAC | 1 | None Required | VOCs / TPH by TO-15 | | | N | | |
| | VA9011 | KAFB1005-POST02-GS-VA9011-FD | 24 FEB 2011 | 11 45 | 1 L BOTTLEVAC | 1 | None Required | VOCs / TPH by TO-15 | | | N | | |
| 11 | VA9011 | KAFB1005-POST02-GS-VA9011-FD | 24 FEB 2011 | 11 45 | 1 L Tedlar Bag | 1 | None Required | Fixed Gases by ASTM D2504 | | | N | | |
| | VA9012 | KAFB1005-IN-GS-VA9012-REG | 25 FEB 2011 | 09 25 | 1 L BOTTLEVAC | 1 | None Required | VOCs / TPH by TO-15 | | | N | | |
| 12 | VA9012 | KAFB1005-IN-GS-VA9012-REG | 25 FEB 2011 | 09 25 | 1 L Tedlar Bag | 1 | None Required | Fixed Gases by ASTM D2504 | | | N | | |
| 12 | VA9012 | KAFB1005-IN-GS-VA9012-REG | 25 FEB 2011 | 09.25 | 2 In OV5 XAD-2 | 1 | None Required | TPH as Diesel by SW846 8015B | | | N | | |
| | VA9013 | KAFB1005-POST01-GS-VA9013-REG | 25 FEB 2011 | 08 45 | 1 L BOTTLEVAC | 1 | None Required | VOCs / TPH by TO-15 | | | N | | |
| 13 | VA9013 | KAFB1005-POST01-GS-VA9013-REG | 25 FEB 2011 | 08 45 | 1 L Tedlar Bag | 1 | None Required | Fixed Gases by ASTM D2504 | | | N | | |
| | VA9014 | KAFB1005-POST02-GS-VA9014-REG | 25 FEB 2011 | 09 05 | 1 L BOTTLEVAC | 1 | None Required | VOCs / TPH by TO-15 | | | N | | |
| 14 | VA9014 | KAFB1005-POST02-GS-VA9014-REG | 25 FEB 2011 | 09 05 | 1 L Tedlar Bag | 1 | None Required | Fixed Gases by ASTM D2504 | | | N | | |

DATE 3/25/11
SIGNATURE

T - 10 Door: 1249
UPST 342649 MI 48150-1827
MI 482 9-02

UPS GROUND

1Z66V6900398535912

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

# Sample Receipt Checklist

Client Name: **SHA04**

Date and Time Received: **3/4/2011 10:05:00 AM**

Work Order Number **1103158** RcptNo: **1**

Received by: **Katherine Jones**

Completed by: Katherine Jones

Reviewed by:

Completed Date: 3/4/2011 4:03:37 PM

Reviewed Date:

Carrier name: UPS

| | | | | |
|---|---|---|---|---|
| Chain of custody present? | Yes ☑ | No ☐ | | |
| Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ | | |
| Chain of custody agrees with sample labels? | Yes ☑ | No ☐ | Not Present | ☐ |
| Are matrices correctly identified on Chain of custody? | Yes ☑ | No ☐ | | |
| Is it clear what analyses were requested? | Yes ☑ | No ☐ | | |
| Custody seals intact on sample bottles? | Yes ☐ | No ☐ | Not Present | ☑ |
| Samples in proper container/bottle? | Yes ☑ | No ☐ | | |
| Were correct preservatives used and noted? | Yes ☑ | No ☐ | | |
| Sample containers intact? | Yes ☑ | No ☐ | | |
| Sufficient sample volume for indicated test? | Yes ☑ | No ☐ | | |
| Were container lables complete (ID, Pres, Date)? | Yes ☑ | No ☐ | | |
| All samples received within holding time? | Yes ☑ | No ☐ | | |
| Was an attempt made to cool the samples? | Yes ☑ | No ☐ | | |
| All samples received at a temp. of > 0° C to 6.0° C? | Yes ☐ | No ☑ | | |
| Response when temperature is outside of range: | Not required | | | |
| Preservative added to bottles: | | | | |
| Sample Temp. taken and recorded upon receipt? | Yes ☐ | No ☑ | To | °C |
| Water - Were bubbles absent in VOC vials? | Yes ☐ | No ☐ | No Vials | ☑ |
| Water - Was there Chlorine Present? | Yes ☐ | No ☐ | NA | ☑ |
| Water - pH acceptable upon receipt? | Yes ☐ | No ☐ | No Water | ☑ |
| Are Samples considered acceptable? | Yes ☑ | No ☐ | | |
| Custody Seals present? | Yes ☑ | No ☐ | | |
| Traffic Report or Packing Lists present? | Yes ☑ | No ☐ | | |
| Airbill or Sticker? | Air Bill ☑ | Sticker ☐ | Not Present | ☐ |
| Airbill No: | 1z66V6900398535912 | | | |
| Sample Tags Present? | Yes ☐ | No ☑ | | |
| Sample Tags Listed on COC? | Yes ☐ | No ☑ | | |
| Tag Numbers: | | | | |
| Sample Condition? | Intact ☑ | Broken ☐ | Leaking | ☐ |

Case Number: SDG: SAS:

Adjusted? _____ Checked by

Any No and/or NA (not applicable) response must be detailed in the comments section below.

| SampID | ContainerID | Type | Org pH | Adj pH | Req Min pH | Req Max pH |
|---|---|---|---|---|---|---|
| 1103158-004A | Container-01 of 01 | Bottle | | | | |
| 1103158-002B | Container-01 of 01 | Bottle | | | | |
| 1103158-009A | Container-01 of 01 | Bottle | | | | |
| 1103158-002A | Container-01 of 01 | Bottle | | | | |
| 1103158-010A | Container-01 of 01 | Bottle | | | | |
| 1103158-005B | Container-01 of 01 | Bottle | | | | |
| 1103158-005A | Container-01 of 01 | Bottle | | | | |
| 1103158-011A | Container-01 of 01 | Bottle | | | | |
| 1103158-012B | Container-01 of 01 | Bottle | | | | |
| 1103158-003A | Container-01 of 01 | Bottle | | | | |
| 1103158-014A | Container-01 of 01 | Bottle | | | | |
| 1103158-012A | Container-01 of 01 | Bottle | | | | |
| 1103158-008B | Container-01 of 01 | Bottle | | | | |
| 1103158-001B | Container-01 of 01 | Bottle | | | | |
| 1103158-006A | Container-01 of 01 | Bottle | | | | |
| 1103158-001A | Container-01 of 01 | Bottle | | | | |
| 1103158-013A | Container-01 of 01 | Bottle | | | | |
| 1103158-007A | Container-01 of 01 | Bottle | | | | |
| 1103158-008A | Container-01 of 01 | Bottle | | | | |

Adjusted? _____ Checked by _____

Any No and/or NA (not applicable) response must be detailed in the comments section below.

Client Contacted? ☐ Yes ☑ No ☐ NA Person Contacted:

Contact Mode: ☐ Phone: ☐ Fax: ☐ Email: ☐ In Person:

Client Instructions:

Date Contacted: Contacted By:

Regarding:

CorrectiveAction:

Comments:
Bottle Vac's rec'd 3/3/11 on WO 1103120

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

# Workorder Sample Summary

WO#: 1103158

28-Mar-11

**CLIENT:** Shaw Environmental & Infrastructure, Inc
**Project:** Kirtland AFB

| Lab SampleID | Client Sample ID | Tag No | Date Collected | Date Received | Matrix |
|---|---|---|---|---|---|
| 1103158-001 | ST106-IN-GS-VA9001-REG | | 2/24/2011 1:30:00 PM | 3/4/2011 10:05:00 AM | Air |
| 1103158-001 | ST106-IN-GS-VA9001-REG | | 2/24/2011 1:30:00 PM | 3/4/2011 10:05:00 AM | Air |
| 1103158-002 | ST-106-IN-GS-VA9002-FD | | 2/24/2011 4:00:00 PM | 3/4/2011 10:05:00 AM | Air |
| 1103158-002 | ST-106-IN-GS-VA9002-FD | | 2/24/2011 4:00:00 PM | 3/4/2011 10:05:00 AM | Air |
| 1103158-003 | ST106-POSTC1-GS-VA9003-REG | | 2/24/2011 10:10:00 AM | 3/4/2011 10:05:00 AM | Air |
| 1103158-004 | ST106-POSTC2-GS-VA9004-REG | | 2/24/2011 10:15:00 AM | 3/4/2011 10:05:00 AM | Air |
| 1103158-005 | KAFB1065-IN-GS-VA9005-REG | | 2/24/2011 10:45:00 AM | 3/4/2011 10:05:00 AM | Air |
| 1103158-005 | KAFB1065-IN-GS-VA9005-REG | | 2/24/2011 10:45:00 AM | 3/4/2011 10:05:00 AM | Air |
| 1103158-006 | KAFB1065-POSTC1-GS-VA9006-REG | | 2/24/2011 10:15:00 AM | 3/4/2011 10:05:00 AM | Air |
| 1103158-007 | KAFB1065-POSTC2-GS-VA9007-REG | | 2/24/2011 10:30:00 AM | 3/4/2011 10:05:00 AM | Air |
| 1103158-008 | KAFB1066-IN-GS-VA9008-REG | | 2/24/2011 12:10:00 PM | 3/4/2011 10:05:00 AM | Air |
| 1103158-008 | KAFB1066-IN-GS-VA9008-REG | | 2/24/2011 12:10:00 PM | 3/4/2011 10:05:00 AM | Air |
| 1103158-009 | KAFB1066-POSTC1-GS-VA9009-REG | | 2/24/2011 11:25:00 AM | 3/4/2011 10:05:00 AM | Air |
| 1103158-010 | KAFB1066-POSTC2-GS-VA9010-REG | | 2/24/2011 11:35:00 AM | 3/4/2011 10:05:00 AM | Air |
| 1103158-011 | KAFB1066-POSTC2-GS-VA9011-FD | | 2/24/2011 11:45:00 AM | 3/4/2011 10:05:00 AM | Air |
| 1103158-012 | KAFB1068-IN-GS-VA9012-REG | | 2/25/2011 9:25:00 AM | 3/4/2011 10:05:00 AM | Air |
| 1103158-012 | KAFB1068-IN-GS-VA9012-REG | | 2/25/2011 9:25:00 AM | 3/4/2011 10:05:00 AM | Air |
| 1103158-013 | KAFB1068-POSTC1-GS-VA9013-REG | | 2/25/2011 8:45:00 AM | 3/4/2011 10:05:00 AM | Air |
| 1103158-014 | KAFB1068-PSOTC2-GS-VA9014-REG | | 2/25/2011 9:05:00 AM | 3/4/2011 10:05:00 AM | Air |

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

# DATES REPORT

WO#: 1103158

28-Mar-11

**Client:** Shaw Environmental & Infrastructure, Inc

**Project:** Kirtland AFB

| Sample ID | Client Sample ID | Collection Date | Matrix | Test Name | TCLP Date | Prep Date | Analysis Date |
|---|---|---|---|---|---|---|---|
| 1103158-001A | ST106-IN-GS-VA9001-REG | 2/24/2011 1:30:00 PM | Air | Noncondensable Gases and Light Hydrocarbons | | | 3/11/2011 3:15:00 AM |
| 1103158-001B | | | | Petroleum Hydrocarbons | | 3/16/2011 | 3/18/2011 1:22:22 AM |
| | | | | Petroleum Hydrocarbons | | 3/16/2011 | 3/18/2011 12:36:17 AM |
| 1103158-002A | ST-106-IN-GS-VA9002-FD | 2/24/2011 4:00:00 PM | | Noncondensable Gases and Light Hydrocarbons | | | 3/11/2011 3:37:00 AM |
| 1103158-002B | | | | Petroleum Hydrocarbons | | 3/16/2011 | 3/18/2011 2:08:18 AM |
| | | | | Petroleum Hydrocarbons | | 3/16/2011 | 3/18/2011 2:54:16 AM |
| 1103158-003A | ST106-POSTC1-GS-VA9003-REG | 2/24/2011 10:10:00 AM | | Noncondensable Gases and Light Hydrocarbons | | | 3/11/2011 4:01:00 AM |
| 1103158-004A | ST106-POSTC2-GS-VA9004-REG | 2/24/2011 10:15:00 AM | | Noncondensable Gases and Light Hydrocarbons | | | 3/11/2011 4:21:00 AM |
| 1103158-005A | KAFB1065-IN-GS-VA9005-REG | 2/24/2011 10:45:00 AM | | Noncondensable Gases and Light Hydrocarbons | | | 3/11/2011 5:03:00 AM |
| 1103158-005B | | | | Petroleum Hydrocarbons | | 3/16/2011 | 3/18/2011 10:35:22 AM |
| | | | | Petroleum Hydrocarbons | | 3/16/2011 | 3/18/2011 3:40:16 AM |
| 1103158-006A | KAFB1065-POSTC1-GS-VA9006-REG | 2/24/2011 10:15:00 AM | | Noncondensable Gases and Light Hydrocarbons | | | 3/11/2011 5:30:00 AM |
| 1103158-007A | KAFB1065-POSTC2-GS-VA9007-REG | 2/24/2011 10:30:00 AM | | Noncondensable Gases and Light Hydrocarbons | | | 3/11/2011 5:51:00 AM |
| 1103158-008A | KAFB1066-IN-GS-VA9008-REG | 2/24/2011 12:10:00 PM | | Noncondensable Gases and Light Hydrocarbons | | | 3/11/2011 6:12:00 AM |
| 1103158-008B | | | | Petroleum Hydrocarbons | | 3/16/2011 | 3/18/2011 4:26:09 AM |
| | | | | Petroleum Hydrocarbons | | 3/16/2011 | 3/18/2011 5:12:03 AM |
| 1103158-009A | KAFB1066-POSTC1-GS-VA9009-REG | 2/24/2011 11:25:00 AM | | Noncondensable Gases and Light Hydrocarbons | | | 3/11/2011 6:36:00 AM |
| 1103158-010A | KAFB1066-POSTC2-GS-VA9010-REG | 2/24/2011 11:35:00 AM | | Noncondensable Gases and Light Hydrocarbons | | | 3/11/2011 6:58:00 AM |
| 1103158-011A | KAFB1066-POSTC2-GS-VA9011-FD | 2/24/2011 11:45:00 AM | | Noncondensable Gases and Light Hydrocarbons | | | 3/12/2011 5:16:00 AM |

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

# DATES REPORT

WO#: 1103158

28-Mar-11

**Client:** Shaw Environmental & Infrastructure, Inc

**Project:** Kirtland AFB

| Sample ID | Client Sample ID | Collection Date | Matrix | Test Name | TCLP Date | Prep Date | Analysis Date |
|---|---|---|---|---|---|---|---|
| 1103158-012A | KAFB1068-IN-GS-VA9012-REG | 2/25/2011 9:25:00 AM | Air | Noncondensable Gases and Light Hydrocarbons | | | 3/12/2011 5:38:00 AM |
| 1103158-012B | | | | Petroleum Hydrocarbons | | 3/16/2011 | 3/18/2011 6:43:42 AM |
| | | | | Petroleum Hydrocarbons | | 3/16/2011 | 3/18/2011 5:57:57 AM |
| 1103158-013A | KAFB1068-POSTC1-GS-VA9013-REG | 2/25/2011 8:45:00 AM | | Noncondensable Gases and Light Hydrocarbons | | | 3/12/2011 5:59:00 AM |
| 1103158-014A | KAFB1068-PSOTC2-GS-VA9014-REG | 2/25/2011 9:05:00 AM | | Noncondensable Gases and Light Hydrocarbons | | | 3/12/2011 6:19:00 AM |

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

# Analytical Report

(consolidated)

WO#: 1103158

Date Reported: 3/28/2011

**CLIENT:** Shaw Environmental & Infrastructure, Inc **Collection Date:** 2/24/2011 1:30:00 PM

**Project:** Kirtland AFB

**Lab ID:** 1103158-001 **Matrix:** AIR

**Client Sample ID** ST106-IN-GS-VA9001-REG

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **PETROLEUM HYDROCARBONS** | | | | **TO-13A** | **SW3540C** | Analyst: **MB** |
| Hydrocarbons C12-C28 | 6,900 | 800 | | µg, total | 4 | 3/18/2011 1:22:22 AM |
| **NONCONDENSABLE GASES AND LIGHT HYDROCARBONS** | | | | **ASTM-D2504** | | Analyst: **MB** |
| Carbon dioxide | 1.5 | 0.30 | | % | 1 | 3/11/2011 3:15:00 AM |
| Carbon Monoxide | ND | 0.14 | | % | 1 | 3/11/2011 3:15:00 AM |
| Methane | ND | 0.090 | | % | 1 | 3/11/2011 3:15:00 AM |
| Nitrogen | 77 | 1.4 | | % | 1 | 3/11/2011 3:15:00 AM |
| Oxygen | 17 | 0.080 | | % | 1 | 3/11/2011 3:15:00 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| */X | Value exceeds Maximum Contaminant Level | B | Analyte detected in the associated Method Blank |
| E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| J | Estimated concentration | M | Manual Integration used to determine area response |
| ND | Not Detected at the Reporting Limit | PL | Permit Limit |
| RL | Reporting Limit | S | Spike Recovery outside accepted recovery limits |

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

# Analytical Report

(consolidated)

WO#: 1103158

Date Reported: 3/28/2011

**CLIENT:** Shaw Environmental & Infrastructure, Inc **Collection Date:** 2/24/2011 4:00:00 PM

**Project:** Kirtland AFB

**Lab ID:** 1103158-002 **Matrix:** AIR

**Client Sample ID** ST-106-IN-GS-VA9002-FD

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **PETROLEUM HYDROCARBONS** | | | | **TO-13A** | **SW3540C** | Analyst: **MB** |
| Hydrocarbons C12-C28 | 8,900 | 800 | | µg, total | 4 | 3/18/2011 2:54:16 AM |
| **NONCONDENSABLE GASES AND LIGHT HYDROCARBONS** | | | | **ASTM-D2504** | | Analyst: **MB** |
| Carbon dioxide | 1.4 | 0.30 | | % | 1 | 3/11/2011 3:37:00 AM |
| Carbon Monoxide | ND | 0.14 | | % | 1 | 3/11/2011 3:37:00 AM |
| Methane | ND | 0.090 | | % | 1 | 3/11/2011 3:37:00 AM |
| Nitrogen | 77 | 1.4 | | % | 1 | 3/11/2011 3:37:00 AM |
| Oxygen | 18 | 0.080 | | % | 1 | 3/11/2011 3:37:00 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| *X | Value exceeds Maximum Contaminant Level | B | Analyte detected in the associated Method Blank |
| E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| J | Estimated concentration | M | Manual Integration used to determine area response |
| ND | Not Detected at the Reporting Limit | PL | Permit Limit |
| RL | Reporting Limit | S | Spike Recovery outside accepted recovery limits |

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

# Analytical Report

(consolidated)

WO#: 1103158

Date Reported: 3/28/2011

**CLIENT:** Shaw Environmental & Infrastructure, Inc **Collection Date:** 2/24/2011 10:10:00 AM

**Project:** Kirtland AFB

**Lab ID:** 1103158-003 **Matrix:** AIR

**Client Sample ID** ST106-POSTC1-GS-VA9003-REG

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **NONCONDENSABLE GASES AND LIGHT HYDROCARBONS** | | | | **ASTM-D2504** | | Analyst: **MB** |
| Carbon dioxide | 9.3 | 0.30 | | % | 1 | 3/11/2011 4:01:00 AM |
| Carbon Monoxide | 0.16 | 0.14 | | % | 1 | 3/11/2011 4:01:00 AM |
| Methane | ND | 0.090 | | % | 1 | 3/11/2011 4:01:00 AM |
| Nitrogen | 85 | 1.4 | | % | 1 | 3/11/2011 4:01:00 AM |
| Oxygen | 3.3 | 0.080 | | % | 1 | 3/11/2011 4:01:00 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| */X | Value exceeds Maximum Contaminant Level | B | Analyte detected in the associated Method Blank |
| E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| J | Estimated concentration | M | Manual Integration used to determine area response |
| ND | Not Detected at the Reporting Limit | PL | Permit Limit |
| RL | Reporting Limit | S | Spike Recovery outside accepted recovery limits |

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

# Analytical Report

(consolidated)

WO#: 1103158

Date Reported: 3/28/2011

**CLIENT:** Shaw Environmental & Infrastructure, Inc **Collection Date:** 2/24/2011 10:15:00 AM

**Project:** Kirtland AFB

**Lab ID:** 1103158-004 **Matrix:** AIR

**Client Sample ID** ST106-POSTC2-GS-VA9004-REG

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **NONCONDENSABLE GASES AND LIGHT HYDROCARBONS** | | | | **ASTM-D2504** | | Analyst: **MB** |
| Carbon dioxide | 9.5 | 0.30 | | % | 1 | 3/11/2011 4:21:00 AM |
| Carbon Monoxide | 0.074 | 0.14 | J | % | 1 | 3/11/2011 4:21:00 AM |
| Methane | ND | 0.090 | | % | 1 | 3/11/2011 4:21:00 AM |
| Nitrogen | 84 | 1.4 | | % | 1 | 3/11/2011 4:21:00 AM |
| Oxygen | 3.7 | 0.080 | | % | 1 | 3/11/2011 4:21:00 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| */X | Value exceeds Maximum Contaminant Level | B | Analyte detected in the associated Method Blank |
| E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| J | Estimated concentration | M | Manual Integration used to determine area response |
| ND | Not Detected at the Reporting Limit | PL | Permit Limit |
| RL | Reporting Limit | S | Spike Recovery outside accepted recovery limits |

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

# Analytical Report

(consolidated)

WO#: 1103158

Date Reported: 3/28/2011

**CLIENT:** Shaw Environmental & Infrastructure, Inc **Collection Date:** 2/24/2011 10:45:00 AM

**Project:** Kirtland AFB

**Lab ID:** 1103158-005 **Matrix:** AIR

**Client Sample ID** KAFB1065-IN-GS-VA9005-REG

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **PETROLEUM HYDROCARBONS** | | | | **TO-13A** | **SW3540C** | Analyst: **MB** |
| Hydrocarbons C12-C28 | 22,000 | 800 | | µg, total | 4 | 3/18/2011 10:35:22 AM |
| **NONCONDENSABLE GASES AND LIGHT HYDROCARBONS** | | | | **ASTM-D2504** | | Analyst: **MB** |
| Carbon dioxide | ND | 0.30 | | % | 1 | 3/11/2011 5:03:00 AM |
| Carbon Monoxide | ND | 0.14 | | % | 1 | 3/11/2011 5:03:00 AM |
| Methane | ND | 0.090 | | % | 1 | 3/11/2011 5:03:00 AM |
| Nitrogen | 76 | 1.4 | | % | 1 | 3/11/2011 5:03:00 AM |
| Oxygen | 20 | 0.080 | | % | 1 | 3/11/2011 5:03:00 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| */X | Value exceeds Maximum Contaminant Level | B | Analyte detected in the associated Method Blank |
| E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| J | Estimated concentration | M | Manual Integration used to determine area response |
| ND | Not Detected at the Reporting Limit | PL | Permit Limit |
| RL | Reporting Limit | S | Spike Recovery outside accepted recovery limits |

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

# Analytical Report

(consolidated)

WO#: **1103158**

Date Reported: **3/28/2011**

**CLIENT:** Shaw Environmental & Infrastructure, Inc **Collection Date:** 2/24/2011 10:15:00 AM

**Project:** Kirtland AFB

**Lab ID:** 1103158-006 **Matrix:** AIR

**Client Sample ID** KAFB1065-POSTC1-GS-VA9006-REG

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **NONCONDENSABLE GASES AND LIGHT HYDROCARBONS** | | | | **ASTM-D2504** | | Analyst: **MB** |
| Carbon dioxide | 5.0 | 0.30 | | % | 1 | 3/11/2011 5:30:00 AM |
| Carbon Monoxide | 0.17 | 0.14 | | % | 1 | 3/11/2011 5:30:00 AM |
| Methane | ND | 0.090 | | % | 1 | 3/11/2011 5:30:00 AM |
| Nitrogen | 81 | 1.4 | | % | 1 | 3/11/2011 5:30:00 AM |
| Oxygen | 10 | 0.080 | | % | 1 | 3/11/2011 5:30:00 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| */X | Value exceeds Maximum Contaminant Level | B | Analyte detected in the associated Method Blank |
| E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| J | Estimated concentration | M | Manual Integration used to determine area response |
| ND | Not Detected at the Reporting Limit | PL | Permit Limit |
| RL | Reporting Limit | S | Spike Recovery outside accepted recovery limits |

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

# Analytical Report

(consolidated)

WO#: 1103158

Date Reported: 3/28/2011

**CLIENT:** Shaw Environmental & Infrastructure, Inc **Collection Date:** 2/24/2011 10:30:00 AM

**Project:** Kirtland AFB

**Lab ID:** 1103158-007 **Matrix:** AIR

**Client Sample ID** KAFB1065-POSTC2-GS-VA9007-REG

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **NONCONDENSABLE GASES AND LIGHT HYDROCARBONS** | | | | **ASTM-D2504** | | Analyst: **MB** |
| Carbon dioxide | 9.1 | 0.30 | | % | 1 | 3/11/2011 5:51:00 AM |
| Carbon Monoxide | 0.26 | 0.14 | | % | 1 | 3/11/2011 5:51:00 AM |
| Methane | ND | 0.090 | | % | 1 | 3/11/2011 5:51:00 AM |
| Nitrogen | 82 | 1.4 | | % | 1 | 3/11/2011 5:51:00 AM |
| Oxygen | 4.0 | 0.080 | | % | 1 | 3/11/2011 5:51:00 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| */X | Value exceeds Maximum Contaminant Level | B | Analyte detected in the associated Method Blank |
| E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| J | Estimated concentration | M | Manual integration used to determine area response |
| ND | Not Detected at the Reporting Limit | PL | Permit Limit |
| RL | Reporting Limit | S | Spike Recovery outside accepted recovery limits |

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

# Analytical Report

(consolidated)

WO#: 1103158

Date Reported: 3/28/2011

**CLIENT:** Shaw Environmental & Infrastructure, Inc **Collection Date:** 2/24/2011 12:10:00 PM

**Project:** Kirtland AFB

**Lab ID:** 1103158-008 **Matrix:** AIR

**Client Sample ID** KAFB1066-IN-GS-VA9008-REG

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **PETROLEUM HYDROCARBONS** | | | | **TO-13A** | **SW3540C** | Analyst: **MB** |
| Hydrocarbons C12-C28 | 4,000 | 800 | | µg, total | 4 | 3/18/2011 5:12:03 AM |
| **NONCONDENSABLE GASES AND LIGHT HYDROCARBONS** | | | | **ASTM-D2504** | | Analyst: **MB** |
| Carbon dioxide | 1.7 | 0.30 | | % | 1 | 3/11/2011 6:12:00 AM |
| Carbon Monoxide | ND | 0.14 | | % | 1 | 3/11/2011 6:12:00 AM |
| Methane | ND | 0.090 | | % | 1 | 3/11/2011 6:12:00 AM |
| Nitrogen | 80 | 1.4 | | % | 1 | 3/11/2011 6:12:00 AM |
| Oxygen | 14 | 0.080 | | % | 1 | 3/11/2011 6:12:00 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| */X | Value exceeds Maximum Contaminant Level | B | Analyte detected in the associated Method Blank |
| E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| J | Estimated concentration | M | Manual Integration used to determine area response |
| ND | Not Detected at the Reporting Limit | PL | Permit Limit |
| RL | Reporting Limit | S | Spike Recovery outside accepted recovery limits |

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

# Analytical Report

(consolidated)

WO#: 1103158

Date Reported: 3/28/2011

**CLIENT:** Shaw Environmental & Infrastructure, Inc **Collection Date:** 2/24/2011 11:25:00 AM

**Project:** Kirtland AFB

**Lab ID:** 1103158-009 **Matrix:** AIR

**Client Sample ID** KAFB1066-POSTC1-GS-VA9009-REG

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **NONCONDENSABLE GASES AND LIGHT HYDROCARBONS** | | | | **ASTM-D2504** | | Analyst: **MB** |
| Carbon dioxide | 8.0 | 0.30 | | % | 1 | 3/11/2011 6:36:00 AM |
| Carbon Monoxide | 0.44 | 0.14 | | % | 1 | 3/11/2011 6:36:00 AM |
| Methane | ND | 0.090 | | % | 1 | 3/11/2011 6:36:00 AM |
| Nitrogen | 83 | 1.4 | | % | 1 | 3/11/2011 6:36:00 AM |
| Oxygen | 4.2 | 0.080 | | % | 1 | 3/11/2011 6:36:00 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| */X | Value exceeds Maximum Contaminant Level | B | Analyte detected in the associated Method Blank |
| E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| J | Estimated concentration | M | Manual Integration used to determine area response |
| ND | Not Detected at the Reporting Limit | PL | Permit Limit |
| RL | Reporting Limit | S | Spike Recovery outside accepted recovery limits |

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

# Analytical Report

(consolidated)

WO#: **1103158**

Date Reported: **3/28/2011**

**CLIENT:** Shaw Environmental & Infrastructure, Inc **Collection Date:** 2/24/2011 11:35:00 AM

**Project:** Kirtland AFB

**Lab ID:** 1103158-010 **Matrix:** AIR

**Client Sample ID** KAFB1066-POSTC2-GS-VA9010-REG

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **NONCONDENSABLE GASES AND LIGHT HYDROCARBONS** | | | | **ASTM-D2504** | | Analyst: **MB** |
| Carbon dioxide | 8.7 | 0.30 | | % | 1 | 3/11/2011 6:58:00 AM |
| Carbon Monoxide | 0.37 | 0.14 | | % | 1 | 3/11/2011 6:58:00 AM |
| Methane | ND | 0.090 | | % | 1 | 3/11/2011 6:58:00 AM |
| Nitrogen | 84 | 1.4 | | % | 1 | 3/11/2011 6:58:00 AM |
| Oxygen | 3.0 | 0.080 | | % | 1 | 3/11/2011 6:58:00 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| */X | Value exceeds Maximum Contaminant Level | B | Analyte detected in the associated Method Blank |
| E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| J | Estimated concentration | M | Manual Integration used to determine area response |
| ND | Not Detected at the Reporting Limit | PL | Permit Limit |
| RL | Reporting Limit | S | Spike Recovery outside accepted recovery limits |

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

# Analytical Report

(consolidated)

WO#: 1103158

Date Reported: 3/28/2011

**CLIENT:** Shaw Environmental & Infrastructure, Inc **Collection Date:** 2/24/2011 11:45:00 AM

**Project:** Kirtland AFB

**Lab ID:** 1103158-011 **Matrix:** AIR

**Client Sample ID** KAFB1066-POSTC2-GS-VA9011-FD

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **NONCONDENSABLE GASES AND LIGHT HYDROCARBONS** | | | | **ASTM-D2504** | | Analyst: **MB** |
| Carbon dioxide | 8.3 | 0.30 | | % | 1 | 3/12/2011 5:16:00 AM |
| Carbon Monoxide | 0.32 | 0.14 | | % | 1 | 3/12/2011 5:16:00 AM |
| Methane | ND | 0.090 | | % | 1 | 3/12/2011 5:16:00 AM |
| Nitrogen | 83 | 1.4 | | % | 1 | 3/12/2011 5:16:00 AM |
| Oxygen | 4.3 | 0.080 | | % | 1 | 3/12/2011 5:16:00 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| */X | Value exceeds Maximum Contaminant Level | B | Analyte detected in the associated Method Blank |
| E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| J | Estimated concentration | M | Manual Integration used to determine area response |
| ND | Not Detected at the Reporting Limit | PL | Permit Limit |
| RL | Reporting Limit | S | Spike Recovery outside accepted recovery limits |

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

# Analytical Report

(consolidated)

WO#: 1103158

Date Reported: 3/28/2011

**CLIENT:** Shaw Environmental & Infrastructure, Inc **Collection Date:** 2/25/2011 9:25:00 AM

**Project:** Kirtland AFB

**Lab ID:** 1103158-012 **Matrix:** AIR

**Client Sample ID** KAFB1068-IN-GS-VA9012-REG

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **PETROLEUM HYDROCARBONS** | | | | **TO-13A** | **SW3540C** | Analyst: **MB** |
| Hydrocarbons C12-C28 | ND | 200 | | µg, total | 1 | 3/18/2011 5:57:57 AM |
| **NONCONDENSABLE GASES AND LIGHT HYDROCARBONS** | | | | **ASTM-D2504** | | Analyst: **MB** |
| Carbon dioxide | ND | 0.30 | | % | 1 | 3/12/2011 5:38:00 AM |
| Carbon Monoxide | ND | 0.14 | | % | 1 | 3/12/2011 5:38:00 AM |
| Methane | ND | 0.090 | | % | 1 | 3/12/2011 5:38:00 AM |
| Nitrogen | 78 | 1.4 | | % | 1 | 3/12/2011 5:38:00 AM |
| Oxygen | 21 | 0.080 | | % | 1 | 3/12/2011 5:38:00 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| */X | Value exceeds Maximum Contaminant Level | B | Analyte detected in the associated Method Blank |
| E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| J | Estimated concentration | M | Manual Integration used to determine area response |
| ND | Not Detected at the Reporting Limit | PL | Permit Limit |
| RL | Reporting Limit | S | Spike Recovery outside accepted recovery limits |

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

# Analytical Report

(consolidated)

WO#: 1103158

Date Reported: 3/28/2011

**CLIENT:** Shaw Environmental & Infrastructure, Inc **Collection Date:** 2/25/2011 8:45:00 AM

**Project:** Kirtland AFB

**Lab ID:** 1103158-013 **Matrix:** AIR

**Client Sample ID** KAFB1068-POSTC1-GS-VA9013-REG

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **NONCONDENSABLE GASES AND LIGHT HYDROCARBONS** | | | | **ASTM-D2504** | | Analyst: **MB** |
| Carbon dioxide | 8.2 | 0.30 | | % | 1 | 3/12/2011 5:59:00 AM |
| Carbon Monoxide | 0.64 | 0.14 | | % | 1 | 3/12/2011 5:59:00 AM |
| Methane | ND | 0.090 | | % | 1 | 3/12/2011 5:59:00 AM |
| Nitrogen | 83 | 1.4 | | % | 1 | 3/12/2011 5:59:00 AM |
| Oxygen | 3.3 | 0.080 | | % | 1 | 3/12/2011 5:59:00 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| */X | Value exceeds Maximum Contaminant Level | B | Analyte detected in the associated Method Blank |
| E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| J | Estimated concentration | M | Manual Integration used to determine area response |
| ND | Not Detected at the Reporting Limit | PL | Permit Limit |
| RL | Reporting Limit | S | Spike Recovery outside accepted recovery limits |

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

# Analytical Report

(consolidated)

WO#: 1103158

Date Reported: 3/28/2011

**CLIENT:** Shaw Environmental & Infrastructure, Inc **Collection Date:** 2/25/2011 9:05:00 AM

**Project:** Kirtland AFB

**Lab ID:** 1103158-014 **Matrix:** AIR

**Client Sample ID** KAFB1068-PSOTC2-GS-VA9014-REG

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **NONCONDENSABLE GASES AND LIGHT HYDROCARBONS** | | | | **ASTM-D2504** | | Analyst: **MB** |
| Carbon dioxide | 6.3 | 0.30 | | % | 1 | 3/12/2011 6:19:00 AM |
| Carbon Monoxide | 0.61 | 0.14 | | % | 1 | 3/12/2011 6:19:00 AM |
| Methane | ND | 0.090 | | % | 1 | 3/12/2011 6:19:00 AM |
| Nitrogen | 82 | 1.4 | | % | 1 | 3/12/2011 6:19:00 AM |
| Oxygen | 6.4 | 0.080 | | % | 1 | 3/12/2011 6:19:00 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| */X | Value exceeds Maximum Contaminant Level | B | Analyte detected in the associated Method Blank |
| E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| J | Estimated concentration | M | Manual Integration used to determine area response |
| ND | Not Detected at the Reporting Limit | PL | Permit Limit |
| RL | Reporting Limit | S | Spike Recovery outside accepted recovery limits |

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

# QC SUMMARY REPORT

WO#: 1103158
21-Apr-11

**Client:** Shaw Environmental & Infrastructure, Inc
**Project:** Kirtland AFB
**BatchID:** 21419

Sample ID: lcs-21419 | SampType: LCS | TestCode: EPA_TO13-T | Units: µg, total | Prep Date: 3/16/2011 | RunNo: 39411
Client ID: ZZZZZZ | Batch ID: 21419 | TestNo: TO-13A | SW3540C | Analysis Date: 3/17/2011 | SeqNo: 747728

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hydrocarbons C12-C28 | 940 | 200 | 1,000 | 0 | 93.7 | 70 | 130 | | | | |

Sample ID: lcsd-21419 | SampType: LCSD | TestCode: EPA_TO13-T | Units: µg, total | Prep Date: 3/16/2011 | RunNo: 39411
Client ID: ZZZZZZ | Batch ID: 21419 | TestNo: TO-13A | SW3540C | Analysis Date: 3/17/2011 | SeqNo: 747729

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hydrocarbons C12-C28 | 870 | 200 | 1,000 | 0 | 87.0 | 70 | 130 | 937.0 | 7.41 | 20 | |

Sample ID: mb-21419 | SampType: MBLK | TestCode: EPA_TO13-T | Units: µg, total | Prep Date: 3/16/2011 | RunNo: 39411
Client ID: ZZZZZZ | Batch ID: 21419 | TestNo: TO-13A | SW3540C | Analysis Date: 3/17/2011 | SeqNo: 747730

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hydrocarbons C12-C28 | ND | 200 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| *X | Value exceeds Maximum Contaminant Level | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| J | Estimated concentration | M | Manual Integration used to determine area response | ND | Not Detected at the Reporting Limit |
| R | RPD outside accepted recovery limits | RL | Reporting Limit | S | Spike Recovery outside accepted recovery limits |

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

# QC SUMMARY REPORT

WO#: 1103158
21-Apr-11

**Client:** Shaw Environmental & Infrastructure, Inc
**Project:** Kirtland AFB
**BatchID:** R39440

Sample ID: lcs | SampType: LCS | TestCode: ASTM-D2504 | Units: % | Prep Date: | RunNo: 39440
Client ID: ZZZZZZ | Batch ID: R39440 | TestNo: ASTM-D2504 | Analysis Date: 3/11/2011 | SeqNo: 748286

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon dioxide | 2.3 | 0.10 | 2.500 | 0 | 91.4 | 70 | 130 | | | | |
| Carbon Monoxide | 2.4 | 0.10 | 2.500 | 0 | 97.0 | 70 | 130 | | | | |
| Methane | 1.9 | 0.50 | 2.000 | 0 | 96.6 | 70 | 130 | | | | |
| Nitrogen | 2.7 | 0.10 | 2.500 | 0 | 107 | 70 | 130 | | | | |
| Oxygen | 2.3 | 0.10 | 2.500 | 0 | 92.4 | 70 | 130 | | | | |

Sample ID: lcsd | SampType: LCSD | TestCode: ASTM-D2504 | Units: % | Prep Date: | RunNo: 39440
Client ID: ZZZZZZ | Batch ID: R39440 | TestNo: ASTM-D2504 | Analysis Date: 3/11/2011 | SeqNo: 748287

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon dioxide | 2.3 | 0.10 | 2.500 | 0 | 91.6 | 70 | 130 | 2.286 | 0.218 | 20 | |
| Carbon Monoxide | 2.4 | 0.10 | 2.500 | 0 | 97.5 | 70 | 130 | 2.426 | 0.452 | 20 | |
| Methane | 2.0 | 0.50 | 2.000 | 0 | 97.7 | 70 | 130 | 1.932 | 1.13 | 20 | |
| Nitrogen | 2.7 | 0.10 | 2.500 | 0 | 107 | 70 | 130 | 2.667 | 0.710 | 20 | |
| Oxygen | 2.3 | 0.10 | 2.500 | 0 | 93.2 | 70 | 130 | 2.310 | 0.862 | 20 | |

Sample ID: mb | SampType: MBLK | TestCode: ASTM-D2504 | Units: % | Prep Date: | RunNo: 39440
Client ID: ZZZZZZ | Batch ID: R39440 | TestNo: ASTM-D2504 | Analysis Date: 3/11/2011 | SeqNo: 748288

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon dioxide | ND | 0.30 | | | | | | | | | |
| Carbon Monoxide | ND | 0.14 | | | | | | | | | |
| Methane | ND | 0.090 | | | | | | | | | |
| Nitrogen | ND | 1.4 | | | | | | | | | |
| Oxygen | ND | 0.080 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| **/X* | Value exceeds Maximum Contaminant Level | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| J | Estimated concentration | M | Manual Integration used to determine area response | ND | Not Detected at the Reporting Limit |
| R | RPD outside accepted recovery limits | RL | Reporting Limit | S | Spike Recovery outside accepted recovery limits |

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

# QC SUMMARY REPORT

WO#: 1103158
21-Apr-11

**Client:** Shaw Environmental & Infrastructure, Inc
**Project:** Kirtland AFB
**BatchID:** R39440

Sample ID: 1103158-007Adup SampType: DUP TestCode: ASTM-D2504 Units: % Prep Date: RunNo: 39440
Client ID: KAFB1065-POSTC2- Batch ID: R39440 TestNo: ASTM-D2504 Analysis Date: 3/11/2011 SeqNo: 748299

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon dioxide | 9.2 | 0.30 | | | | | | 9.138 | 0.197 | 20 | |
| Carbon Monoxide | 0.28 | 0.14 | | | | | | 0.2590 | 6.72 | 20 | |
| Methane | ND | 0.090 | | | | | | 0 | 0 | 20 | |
| Nitrogen | 82 | 1.4 | | | | | | 82.30 | 0.199 | 20 | |
| Oxygen | 4.1 | 0.080 | | | | | | 4.018 | 2.31 | 20 | |

Sample ID: 1103158-014Adup SampType: DUP TestCode: ASTM-D2504 Units: % Prep Date: RunNo: 39441
Client ID: KAFB1068-PSOTC2- Batch ID: R39440 TestNo: ASTM-D2504 Analysis Date: 3/12/2011 SeqNo: 748310

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon dioxide | 6.3 | 0.30 | | | | | | 6.311 | 0.413 | 20 | |
| Carbon Monoxide | 0.61 | 0.14 | | | | | | 0.6090 | 0.164 | 20 | |
| Methane | ND | 0.090 | | | | | | 0 | 0 | 20 | |
| Nitrogen | 83 | 1.4 | | | | | | 81.82 | 0.940 | 20 | |
| Oxygen | 6.5 | 0.080 | | | | | | 6.432 | 1.05 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| */X | Value exceeds Maximum Contaminant Level | E | Value above quantitation range | H | Holding times for preparation or analysis exceeds |
| J | Estimated concentration | M | Manual Integration used to determine area response | ND | Not Detected at the Reporting Limit |
| R | RPD outside accepted recovery limits | RL | Reporting Limit | S | Spike Recovery outside accepted recovery limits |

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

# QC SUMMARY REPORT

WO#: 1103158
21-Apr-11

**Client:** Shaw Environmental & Infrastructure, Inc
**Project:** Kirtland AFB
**BatchID:** R39440

Sample ID: lcs | SampType: LCS | TestCode: ASTM-D2504 | Units: % | Prep Date: | RunNo: 39440
Client ID: ZZZZZZ | Batch ID: R39440 | TestNo: ASTM-D2504 | Analysis Date: 3/11/2011 | SeqNo: 748286

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon dioxide | 2.3 | 0.10 | 2.500 | 0 | 91.4 | 70 | 130 | | | | |
| Carbon Monoxide | 2.4 | 0.10 | 2.500 | 0 | 97.0 | 70 | 130 | | | | |
| Methane | 1.9 | 0.50 | 2.000 | 0 | 96.6 | 70 | 130 | | | | |
| Nitrogen | 2.7 | 0.10 | 2.500 | 0 | 107 | 70 | 130 | | | | |
| Oxygen | 2.3 | 0.10 | 2.500 | 0 | 92.4 | 70 | 130 | | | | |

Sample ID: lcsd | SampType: LCSD | TestCode: ASTM-D2504 | Units: % | Prep Date: | RunNo: 39440
Client ID: ZZZZZZ | Batch ID: R39440 | TestNo: ASTM-D2504 | Analysis Date: 3/11/2011 | SeqNo: 748287

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon dioxide | 2.3 | 0.10 | 2.500 | 0 | 91.6 | 70 | 130 | 2.286 | 0.218 | 20 | |
| Carbon Monoxide | 2.4 | 0.10 | 2.500 | 0 | 97.5 | 70 | 130 | 2.426 | 0.452 | 20 | |
| Methane | 2.0 | 0.50 | 2.000 | 0 | 97.7 | 70 | 130 | 1.932 | 1.13 | 20 | |
| Nitrogen | 2.7 | 0.10 | 2.500 | 0 | 107 | 70 | 130 | 2.667 | 0.710 | 20 | |
| Oxygen | 2.3 | 0.10 | 2.500 | 0 | 93.2 | 70 | 130 | 2.310 | 0.862 | 20 | |

Sample ID: mb | SampType: MBLK | TestCode: ASTM-D2504 | Units: % | Prep Date: | RunNo: 39440
Client ID: ZZZZZZ | Batch ID: R39440 | TestNo: ASTM-D2504 | Analysis Date: 3/11/2011 | SeqNo: 748288

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon dioxide | ND | 0.30 | | | | | | | | | |
| Carbon Monoxide | ND | 0.14 | | | | | | | | | |
| Methane | ND | 0.090 | | | | | | | | | |
| Nitrogen | ND | 1.4 | | | | | | | | | |
| Oxygen | ND | 0.080 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| */X | Value exceeds Maximum Contaminant Level | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| J | Estimated concentration | M | Manual Integration used to determine area response | ND | Not Detected at the Reporting Limit |
| R | RPD outside accepted recovery limits | RL | Reporting Limit | S | Spike Recovery outside accepted recovery limits |

RTI LABORATORIES, INC.

RTI
31628 Glendale St.
Livonia, MI 48150
TEL: 7344228000 FAX: 7344225342
Website: www.rtilabs.com

# QC SUMMARY REPORT

WO#: 1103158
21-Apr-11

**Client:** Shaw Environmental & Infrastructure, Inc
**Project:** Kirtland AFB
**BatchID:** R39440

Sample ID: 1103158-007Adup SampType: DUP TestCode: ASTM-D2504 Units: % Prep Date: RunNo: 39440
Client ID: KAFB1065-POSTC2- Batch ID: R39440 TestNo: ASTM-D2504 Analysis Date: 3/11/2011 SeqNo: 748299

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon dioxide | 9.2 | 0.30 | | | | | | 9.138 | 0.197 | 20 | |
| Carbon Monoxide | 0.28 | 0.14 | | | | | | 0.2590 | 6.72 | 20 | |
| Methane | ND | 0.090 | | | | | | 0 | 0 | 20 | |
| Nitrogen | 82 | 1.4 | | | | | | 82.30 | 0.199 | 20 | |
| Oxygen | 4.1 | 0.080 | | | | | | 4.018 | 2.31 | 20 | |

Sample ID: 1103158-014Adup SampType: DUP TestCode: ASTM-D2504 Units: % Prep Date: RunNo: 39441
Client ID: KAFB1068-PSOTC2- Batch ID: R39440 TestNo: ASTM-D2504 Analysis Date: 3/12/2011 SeqNo: 748310

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon dioxide | 6.3 | 0.30 | | | | | | 6.311 | 0.413 | 20 | |
| Carbon Monoxide | 0.61 | 0.14 | | | | | | 0.6090 | 0.164 | 20 | |
| Methane | ND | 0.090 | | | | | | 0 | 0 | 20 | |
| Nitrogen | 83 | 1.4 | | | | | | 81.82 | 0.940 | 20 | |
| Oxygen | 6.5 | 0.080 | | | | | | 6.432 | 1.05 | 20 | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| **/X* | Value exceeds Maximum Contaminant Level | E | Value above quantitation range | H | Holding times for preparation or analysis exceeds |
| J | Estimated concentration | M | Manual Integration used to determine area response | ND | Not Detected at the Reporting Limit |
| R | RPD outside accepted recovery limits | RL | Reporting Limit | S | Spike Recovery outside accepted recovery limits |

# RTI Laboratories

# PREP BATCH REPORT



Prep Start Date: **3/16/2011**
Prep End Date: **3/17/2011**

Prep Factor Units: **mL / g**

Prep Batch ID: **21419** Prep Code: **SW_3540** Technician: **Mike Budziak**

Initial Temp: **44 °C** Final Temp **44 °C**

| Sample ID | ClientSampleID | Matrix | pH1 | pH2 | SampAmt | Sol Added | Sol Recov | Fin Vol | factor | PrepStart | PrepEnd |
|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-21419 | | Solid | | | 1 | 0 | 0 | 2 | 2.000 | 3/16/2011 | 3/17/2011 |
| LCSD-21419 | | Solid | | | 1 | 0 | 0 | 2 | 2.000 | 3/16/2011 | 3/17/2011 |
| MB-21419 | | Solid | | | 1 | 0 | 0 | 2 | 2.000 | 3/16/2011 | 3/17/2011 |
| 1103158-001B | ST106-IN-GS-VA9001 | Air | | | 1 | 0 | 0 | 2 | 2.000 | 3/16/2011 | 3/17/2011 |
| 1103158-002B | ST-106-IN-GS-VA900 | Air | | | 1 | 0 | 0 | 2 | 2.000 | 3/16/2011 | 3/17/2011 |
| 1103158-005B | KAFB1065-IN-GS-VA | Air | | | 1 | 0 | 0 | 2 | 2.000 | 3/16/2011 | 3/17/2011 |
| 1103158-008B | KAFB1066-IN-GS-VA | Air | | | 1 | 0 | 0 | 2 | 2.000 | 3/16/2011 | 3/17/2011 |
| 1103158-012B | KAFB1068-IN-GS-VA | Air | | | 1 | 0 | 0 | 2 | 2.000 | 3/16/2011 | 3/17/2011 |

| Type | Chemical / Reagent ID | Chemical / Reagent Name | Container# | Container ID | Amount Added | Amount Unit |
|---|---|---|---|---|---|---|
| Chemical | 654 | methylene chloride | 2934 | Container-25 of 40 | 200 | mL |

| Spike ID | Spike Name | Samp Type | Container# | Container ID | Amount Added | Amount Unit |
|---|---|---|---|---|---|---|

**RTI Laboratories**

**Run ID:** GC-FID-NPD_110317A **Run No.:** 39411

**Analytical Run Date:** 3/17/2011 **InstrumentID:** GC-FID-NPD

**Analyst:** Mike Budziak **Column:** GC-FID-NPD

**Calibration ID:** **Column ID:** 0.53mm 1.0um cat10255 serri

**Column Length:** 30m

| SampID | TestCode | SampType | Batch ID | Analysis Date/Time | QA By | Q | Comments |
|---|---|---|---|---|---|---|---|
| icb | EPA_TO13-TPH | CCB | R39411 | 3/17/2011 7:13:59 PM | Charles O'Bryan | | |
| retention time mix | EPA_TO13-TPH | SAMP | R39411 | 3/17/2011 8:00:02 PM | Charles O'Bryan | | |
| crql std 100ppm a | EPA_TO13-TPH | CRQL | R39411 | 3/17/2011 8:46:15 PM | Charles O'Bryan | | |
| ccv std 1000ppm a | EPA_TO13-TPH | CCV | R39411 | 3/17/2011 9:32:16 PM | Charles O'Bryan | | |
| lcs-21419 | EPA_TO13-TPH | LCS | 21419 | 3/17/2011 10:18:21 PM | Charles O'Bryan | | |
| lcsd-21419 | EPA_TO13-TPH | LCSD | 21419 | 3/17/2011 11:04:20 PM | Charles O'Bryan | | |
| mb-21419 | EPA_TO13-TPH | MBLK | 21419 | 3/17/2011 11:50:19 PM | Charles O'Bryan | | |
| 1103158-001b | EPA_TO13-TPH | SAMP | 21419 | 3/18/2011 12:36:17 AM | Charles O'Bryan | | |
| 1103158-001b | EPA_TO13-TPH | SAMP | 21419 | 3/18/2011 1:22:22 AM | Charles O'Bryan | | |
| 1103158-002b | EPA_TO13-TPH | SAMP | 21419 | 3/18/2011 2:08:18 AM | Charles O'Bryan | | |
| 1103158-002b | EPA_TO13-TPH | SAMP | 21419 | 3/18/2011 2:54:16 AM | Charles O'Bryan | | |
| 1103158-005b | EPA_TO13-TPH | SAMP | 21419 | 3/18/2011 3:40:16 AM | Charles O'Bryan | | |
| 1103158-008b | EPA_TO13-TPH | SAMP | 21419 | 3/18/2011 4:26:09 AM | Charles O'Bryan | | |
| 1103158-008b | EPA_TO13-TPH | SAMP | 21419 | 3/18/2011 5:12:03 AM | Charles O'Bryan | | |
| 1103158-012b | EPA_TO13-TPH | SAMP | 21419 | 3/18/2011 5:57:57 AM | Charles O'Bryan | | |
| 1103158-012b | EPA_TO13-TPH | SAMP | 21419 | 3/18/2011 6:43:42 AM | Charles O'Bryan | | |
| ccb b | EPA_TO13-TPH | CCB | R39411 | 3/18/2011 7:29:40 AM | Charles O'Bryan | | |
| crql std 100ppm b | EPA_TO13-TPH | CRQL | R39411 | 3/18/2011 8:15:23 AM | Charles O'Bryan | | |
| ccv std 1000ppm b | EPA_TO13-TPH | CCV | R39411 | 3/18/2011 9:01:13 AM | Charles O'Bryan | | |
| 1103158-005b | EPA_TO13-TPH | SAMP | 21419 | 3/18/2011 10:35:22 AM | Charles O'Bryan | | |
| ccb c | EPA_TO13-TPH | CCB | R39411 | 3/18/2011 11:21:12 AM | Charles O'Bryan | | |
| crql std 100ppm c | EPA_TO13-TPH | CRQL | R39411 | 3/18/2011 12:07:14 PM | Charles O'Bryan | | |
| ccv std 1000ppm c | EPA_TO13-TPH | CCV | R39411 | 3/18/2011 12:53:20 PM | Charles O'Bryan | | |

# RTI Laboratories

# ANALYTICAL RUN Summary

*29-Mar-11*

**RunNo** 39411

| Seq No | Sample ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 747727 | icb | EPA_TO13-TPH | CCB | | 3/17/2011 7:13:5 | 1 | R39411 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hydrocarbons C12-C28 | A | ug/ml | | 0 | | 0 | 0 | 0 | 75 | 200 | 0 | 0% | 0 | 0 | 0% | |

| Seq No | Sample ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 747731 | retention time mix | EPA_TO13-TPH | SAMP | | 3/17/2011 8:00:0 | 1 | R39411 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hydrocarbons C12-C28 | A | ug/ml | | 0 | | 0 | 0 | 0 | 75 | 200 | 0 | 0% | 0 | 0 | 0% | |

| Seq No | Sample ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 747724 | crql std 100ppm a | EPA_TO13-TPH | CRQL | | 3/17/2011 8:46:1 | 1 | R39411 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hydrocarbons C12-C28 | A | ug/ml | 80.783859 | 80.783859 | | 100 | 0 | 0 | 75 | 200 | 0 | 81% | 70 | 130 | 0% | |

| Seq No | Sample ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 747721 | ccv std 1000ppm a | EPA_TO13-TPH | CCV | | 3/17/2011 9:32:1 | 1 | R39411 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hydrocarbons C12-C28 | A | ug/ml | 913.659668 | 913.659668 | | 1000 | 0 | 0 | 75 | 200 | 0 | 91% | 85 | 115 | 0% | |

| Seq No | Sample ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 747728 | lcs-21419 | EPA_TO13-TPH | LCS | | 3/17/2011 10:18: | 1 | 21419 | 3/16/2011 | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hydrocarbons C12-C28 | A | µg, total | 468.518677 | 937.037354 | | 1000 | 0 | 0 | 75 | 200 | 0 | 94% | 70 | 130 | 0% | |

*1*

| Seq No | Sample ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 747729 | lcsd-21419 | EPA_TO13-TPH | LCSD | | 3/17/2011 11:04: | 1 | 21419 | 3/16/2011 | 0 | 747728 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hydrocarbons C12-C28 | A | µg, total | 435.041931 | 870.083862 | | 1000 | 0 | 937.03735 | 75 | 200 | 0 | 87% | 70 | 130 | 7% | |

| Seq No | Sample ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 747730 | mb-21419 | EPA_TO13-TPH | MBLK | | 3/17/2011 11:50: | 1 | 21419 | 3/16/2011 | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hydrocarbons C12-C28 | A | µg, total | 7.079749 | 0 | | 0 | 0 | 0 | 75 | 200 | 0 | 0% | 0 | 0 | 0% | |

| Seq No | Sample ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 747709 | 1103158-001b (Container-01 of 01) | EPA_TO13-TPH | SAMP | | 3/18/2011 12:36: | 1 | 21419 | 3/16/2011 | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hydrocarbons C12-C28 | A | µg, total | 3549.66016 | 7099.32031 | | 0 | 0 | 0 | 75 | 200 | 0 | 0% | 0 | 0 | 0% | |

| Seq No | Sample ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 747710 | 1103158-001b (Container-01 of 01) | EPA_TO13-TPH | SAMP | | 3/18/2011 1:22:2 | 4 | 21419 | 3/16/2011 | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hydrocarbons C12-C28 | A | µg, total | 860.949768 | 6887.59814 | | 0 | 0 | 0 | 300 | 800 | 0 | 0% | 0 | 0 | 0% | |

| Seq No | Sample ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 747711 | 1103158-002b (Container-01 of 01) | EPA_TO13-TPH | SAMP | | 3/18/2011 2:08:1 | 1 | 21419 | 3/16/2011 | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hydrocarbons C12-C28 | A | µg, total | 4943.29395 | 9886.58789 | | 0 | 0 | 0 | 75 | 200 | 0 | 0% | 0 | 0 | 0% | |

| Seq No | Sample ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 747712 | 1103158-002b (Container-01 of 01) | EPA_TO13-TPH | SAMP | | 3/18/2011 2:54:1 | 4 | 21419 | 3/16/2011 | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hydrocarbons C12-C28 | A | µg, total | 1117.48401 | 8939.87207 | | 0 | 0 | 0 | 300 | 800 | 0 | 0% | 0 | 0 | 0% | |

| Seq No | Sample ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 747713 | 1103158-005b (Container-01 of 01) | EPA_TO13-TPH | SAMP | | 3/18/2011 3:40:1 | 1 | 21419 | 3/16/2011 | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hydrocarbons C12-C28 | A | µg, total | 13106.3037 | 26212.6074 | | 0 | 0 | 0 | 75 | 200 | 0 | 0% | 0 | 0 | 0% | |

| Seq No | Sample ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 747715 | 1103158-008b (Container-01 of 01) | EPA_TO13-TPH | SAMP | | 3/18/2011 4:26:0 | 1 | 21419 | 3/16/2011 | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hydrocarbons C12-C28 | A | µg, total | 2079.31567 | 4158.63135 | | 0 | 0 | 0 | 75 | 200 | 0 | 0% | 0 | 0 | 0% | |

| Seq No | Sample ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 747716 | 1103158-008b (Container-01 of 01) | EPA_TO13-TPH | SAMP | | 3/18/2011 5:12:0 | 4 | 21419 | 3/16/2011 | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hydrocarbons C12-C28 | A | µg, total | 497.868805 | 3982.95044 | | 0 | 0 | 0 | 300 | 800 | 0 | 0% | 0 | 0 | 0% | |

| Seq No | Sample ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 747717 | 1103158-012b (Container-01 of 01) | EPA_TO13-TPH | SAMP | | 3/18/2011 5:57:5 | 1 | 21419 | 3/16/2011 | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hydrocarbons C12-C28 | A | µg, total | 32.353279 | 0 | | 0 | 0 | 0 | 75 | 200 | 0 | 0% | 0 | 0 | 0% | |

| Seq No | Sample ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 747718 | 1103158-012b (Container-01 of 01) | EPA_TO13-TPH | SAMP | | 3/18/2011 6:43:4 | 4 | 21419 | 3/16/2011 | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hydrocarbons C12-C28 | A | µg, total | 0 | 0 | | 0 | 0 | 0 | 300 | 800 | 0 | 0% | 0 | 0 | 0% | |

| Seq No | Sample ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 747719 | ccb b | EPA_TO13-TPH | CCB | | 3/18/2011 7:29:4 | 1 | R39411 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hydrocarbons C12-C28 | A | ug/ml | | 0 | | 0 | 0 | 0 | 75 | 200 | 0 | 0% | 0 | 0 | 0% | |

| Seq No | Sample ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 747725 | crql std 100ppm b | EPA_TO13-TPH | CRQL | | 3/18/2011 8:15:2 | 1 | R39411 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hydrocarbons C12-C28 | A | ug/ml | 81.646652 | 81.646652 | | 100 | 0 | 0 | 75 | 200 | 0 | 82% | 70 | 130 | 0% | |

| Seq No | Sample ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 747722 | ccv std 1000ppm b | EPA_TO13-TPH | CCV | | 3/18/2011 9:01:1 | 1 | R39411 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hydrocarbons C12-C28 | A | ug/ml | 854.175171 | 854.175171 | | 1000 | 0 | 0 | 75 | 200 | 0 | 85% | 85 | 115 | 0% | |

| Seq No | Sample ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 747714 | 1103158-005b (Container-01 of 01) | EPA_TO13-TPH | SAMP | | 3/18/2011 10:35: | 4 | 21419 | 3/16/2011 | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hydrocarbons C12-C28 | A | µg, total | 2791.27441 | 22330.1953 | | 0 | 0 | 0 | 300 | 800 | 0 | 0% | 0 | 0 | 0% | |

| Seq No | Sample ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 747720 | ccb c | EPA_TO13-TPH | CCB | | 3/18/2011 11:21: | 1 | R39411 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| Seq No | Sample ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 747720 | ccb c | EPA_TO13-TPH | CCB | | 3/18/2011 11:21: | 1 | R39411 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hydrocarbons C12-C28 | A | ug/ml | | 0 | | 0 | 0 | 0 | 75 | 200 | 0 | 0% | 0 | 0 | 0% | |

| Seq No | Sample ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 747726 | crql std 100ppm c | EPA_TO13-TPH | CRQL | | 3/18/2011 12:07: | 1 | R39411 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hydrocarbons C12-C28 | A | ug/ml | 84.216454 | 84.216454 | | 100 | 0 | 0 | 75 | 200 | 0 | 84% | 70 | 130 | 0% | |

| Seq No | Sample ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 747723 | ccv std 1000ppm c | EPA_TO13-TPH | CCV | | 3/18/2011 12:53: | 1 | R39411 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hydrocarbons C12-C28 | A | ug/ml | 871.523804 | 871.523804 | | 1000 | 0 | 0 | 75 | 200 | 0 | 87% | 85 | 115 | 0% | |

**Surrogate Recovery - Analytical Sequence ID 39411**

| Sample ID | Actual | Result | % Rec. | Control Limits |
|---|---|---|---|---|
| icb | 12.5 | 10.6381 | 85.10 | |
| crql std 100ppm a | 2.5 | 2.2082 | 88.33 | |
| ccv std 1000ppm a | 20 | 17.6782 | 88.39 | |
| lcs-21419 | 12.5 | 12.7113 | 101.69 | |
| lcsd-21419 | 12.5 | 10.662 | 85.30 | |
| mb-21419 | 12.5 | 11.4485 | 91.59 | |
| 1103158-001b | 12.5 | 12.2839 | 98.27 | |
| 1103158-001b-4 | 12.5 | 12.1432 | 97.15 | |
| 1103158-002b | 12.5 | 57.3144 | 458.52 | |
| 1103158-002b-4 | 12.5 | 52.9208 | 423.37 | |
| 1103158-005b | 12.5 | 10.8491 | 86.79 | |
| 1103158-008b | 12.5 | 13.2316 | 105.85 | |
| 1103158-008b-4 | 12.5 | 11.7268 | 93.81 | |
| 1103158-012b | 12.5 | 11.8051 | 94.44 | |
| 1103158-012b-4 | 12.5 | 10.3884 | 83.11 | |
| ccb b | 12.5 | 10.3986 | 83.19 | |
| crql std 100ppm b | 2.5 | 2.1599 | 86.40 | |
| ccv std 1000ppm b | 20 | 17.1445 | 85.72 | |
| 1103158-005b-4 | 12.5 | 9.7452 | 77.96 | |
| ccb c | 12.5 | 10.624 | 84.99 | |
| crql std 100ppm c | 2.5 | 2.1418 | 85.67 | |
| ccv std 1000ppm c | 20 | 17.7739 | 88.87 | |

# Spikes and Surrogates Report

**RunID:** GC-FID-NPD_110317A **Analyst:** Mike Budziak

**RunNo:** 39411

## Spikes

| SeqNo | SampID | TestCode | SampType | BatchID | DF | Duplicate Of |
|---|---|---|---|---|---|---|
| 747721 | ccv std 1000ppm a | EPA_TO13-TPH | CCV | R39411 | 1 | |

| Rpt | Analyte | SpkVal | CalcVal | REC | LowLimit | HighLimit | Rec Out | Qual |
|---|---|---|---|---|---|---|---|---|
| ☑ | Hydrocarbons C12-C28 | 1000 | 913.66 | 91.37% | 85 | 115 | | |

**Total Recoveries Out:** 0

| SeqNo | SampID | TestCode | SampType | BatchID | DF | Duplicate Of |
|---|---|---|---|---|---|---|
| 747722 | ccv std 1000ppm b | EPA_TO13-TPH | CCV | R39411 | 1 | |

| Rpt | Analyte | SpkVal | CalcVal | REC | LowLimit | HighLimit | Rec Out | Qual |
|---|---|---|---|---|---|---|---|---|
| ☑ | Hydrocarbons C12-C28 | 1000 | 854.175 | 85.42% | 85 | 115 | | |

**Total Recoveries Out:** 0

| SeqNo | SampID | TestCode | SampType | BatchID | DF | Duplicate Of |
|---|---|---|---|---|---|---|
| 747723 | ccv std 1000ppm c | EPA_TO13-TPH | CCV | R39411 | 1 | |

| Rpt | Analyte | SpkVal | CalcVal | REC | LowLimit | HighLimit | Rec Out | Qual |
|---|---|---|---|---|---|---|---|---|
| ☑ | Hydrocarbons C12-C28 | 1000 | 871.524 | 87.15% | 85 | 115 | | |

**Total Recoveries Out:** 0

| SeqNo | SampID | TestCode | SampType | BatchID | DF | Duplicate Of |
|---|---|---|---|---|---|---|
| 747724 | crql std 100ppm a | EPA_TO13-TPH | CRQL | R39411 | 1 | |

| Rpt | Analyte | SpkVal | CalcVal | REC | LowLimit | HighLimit | Rec Out | Qual |
|---|---|---|---|---|---|---|---|---|
| ☑ | Hydrocarbons C12-C28 | 100 | 80.7839 | 80.78% | 70 | 130 | | |

**Total Recoveries Out:** 0

| SeqNo | SampID | TestCode | SampType | BatchID | DF | Duplicate Of |
|---|---|---|---|---|---|---|
| 747725 | crql std 100ppm b | EPA_TO13-TPH | CRQL | R39411 | 1 | |

| Rpt | Analyte | SpkVal | CalcVal | REC | LowLimit | HighLimit | Rec Out | Qual |
|---|---|---|---|---|---|---|---|---|
| ☑ | Hydrocarbons C12-C28 | 100 | 81.6467 | 81.65% | 70 | 130 | | |

**Total Recoveries Out:** 0

| SeqNo | SampID | TestCode | SampType | BatchID | DF | Duplicate Of |
|---|---|---|---|---|---|---|
| 747726 | crql std 100ppm c | EPA_TO13-TPH | CRQL | R39411 | 1 | |

| Rpt | Analyte | SpkVal | CalcVal | REC | LowLimit | HighLimit | Rec Out | Qual |
|---|---|---|---|---|---|---|---|---|
| ☑ | Hydrocarbons C12-C28 | 100 | 84.2165 | 84.22% | 70 | 130 | | |

**Total Recoveries Out:** 0

| SeqNo | SampID | TestCode | SampType | BatchID | DF | Duplicate Of |
|---|---|---|---|---|---|---|
| 747728 | lcs-21419 | EPA_TO13-TPH | LCS | 21419 | 1 | |

| Rpt | Analyte | SpkVal | CalcVal | REC | LowLimit | HighLimit | Rec Out | Qual |
|---|---|---|---|---|---|---|---|---|
| ☑ | Hydrocarbons C12-C28 | 1000 | 937.037 | 93.70% | 70 | 130 | | |

**Total Recoveries Out:** 0

| SeqNo | SampID | TestCode | SampType | BatchID | DF | Duplicate Of |
|---|---|---|---|---|---|---|
| 747729 | lcsd-21419 | EPA_TO13-TPH | LCSD | 21419 | 1 | 747728 |

| Rpt | Analyte | SpkVal | CalcVal | REC | LowLimit | HighLimit | Rec Out | RPD | RPD Limit | RPD Out | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ☑ | Hydrocarbons C12-C28 | 1000 | 870.084 | 87.01% | 70 | 130 | | 7.41% | 20 | | |

**Total Recoveries Out:** 0 **Total RPD Out:** 0

# Method Blank Contamination Report

**Blank ID:** mb-21419

SeqNo: 747730

**Analysis Date:** 3/17/2011 11:50:19 PM

**Analyst:** Mike Budziak

**Batch ID:** 21419

**TestCode:** EPA_TO13-TPH

**RunID:** GC-FID-NPD_110317A

**InstrumentID:** GC-FID-NPD

## No Contaminants Were Found in this Blank

The following Samples are associated with this blank:

| Sample ID | SeqNo | TestCode | SampType | RunID | BatchID | AnalDate | DF |
|---|---|---|---|---|---|---|---|
| 1103158-001b | 747709 | EPA_TO13-TPH | SAMP | GC-FID-NPD_110317A | 21419 | 3/18/2011 12:36:17 AM | 1 |
| 1103158-001b | 747710 | EPA_TO13-TPH | SAMP | GC-FID-NPD_110317A | 21419 | 3/18/2011 1:22:22 AM | 4 |
| 1103158-002b | 747711 | EPA_TO13-TPH | SAMP | GC-FID-NPD_110317A | 21419 | 3/18/2011 2:08:18 AM | 1 |
| 1103158-002b | 747712 | EPA_TO13-TPH | SAMP | GC-FID-NPD_110317A | 21419 | 3/18/2011 2:54:16 AM | 4 |
| 1103158-005b | 747713 | EPA_TO13-TPH | SAMP | GC-FID-NPD_110317A | 21419 | 3/18/2011 3:40:16 AM | 1 |
| 1103158-005b | 747714 | EPA_TO13-TPH | SAMP | GC-FID-NPD_110317A | 21419 | 3/18/2011 10:35:22 AM | 4 |
| 1103158-008b | 747715 | EPA_TO13-TPH | SAMP | GC-FID-NPD_110317A | 21419 | 3/18/2011 4:26:09 AM | 1 |
| 1103158-008b | 747716 | EPA_TO13-TPH | SAMP | GC-FID-NPD_110317A | 21419 | 3/18/2011 5:12:03 AM | 4 |
| 1103158-012b | 747717 | EPA_TO13-TPH | SAMP | GC-FID-NPD_110317A | 21419 | 3/18/2011 5:57:57 AM | 1 |
| 1103158-012b | 747718 | EPA_TO13-TPH | SAMP | GC-FID-NPD_110317A | 21419 | 3/18/2011 6:43:42 AM | 4 |
| lcs-21419 | 747728 | EPA_TO13-TPH | LCS | GC-FID-NPD_110317A | 21419 | 3/17/2011 10:18:21 PM | 1 |
| lcsd-21419 | 747729 | EPA_TO13-TPH | LCSD | GC-FID-NPD_110317A | 21419 | 3/17/2011 11:04:20 PM | 1 |

Varian Star Workstation - Generic SampleList  Tue Mar 29 11:02:16 2011

SampleList:  D:\star\Hp6890 GC\031711-c12-28.smp

Created:  Thu Mar 17 12:05:39 2011
Modified:  Fri Mar 18 12:47:31 2011

**********

| Line | Sample Name | Inj. | Multiplier |
|---|---|---|---|
| 1 | icb | 1 | 1 |
| 2 | retention time mix | 1 | 1 |
| 3 | crql std 100ppm a | 1 | 1 |
| 4 | ccv std 1000ppm a | 1 | 1 |
| 5 | lcs-21419 | 1 | 1 |
| 6 | lcsd-21419 | 1 | 1 |
| 7 | mb-21419 | 1 | 1 |
| 8 | 1103158-001b | 1 | 1 |
| 9 | 1103158-001b1-4 | 1 | 1 |
| 10 | 1103158-002b | 1 | 1 |
| 11 | 1103158-002b1-4 | 1 | 1 |
| 12 | 1103158-005b | 1 | 1 |
| 13 | 1103158-008b | 1 | 1 |
| 14 | 1103158-008b1-4 | 1 | 1 |
| 15 | 1103158-012b | 1 | 1 |
| 16 | 1103158-012b1-4 | 1 | 1 |
| 17 | ccb b | 1 | 1 |
| 18 | crql std 100ppm b | 1 | 1 |
| 19 | ccv std 1000ppm b | 1 | 1 |
| 20 | 1103158-005b1-4 | 1 | 1 |
| 21 | ccb c | 1 | 1 |
| 22 | crql std 100ppm c | 1 | 1 |
| 23 | ccv std 1000ppm c | 1 | 1 |

Directory for Data Files: d:\star\data\hp6890 gc\2011-03\0317-c12-28

Data File Names: %s

Append to an existing RecalcList: d:\star\hp6890 gc\031711-c12-28.rcl.

Title : DRO / ORO
Run File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\icb.run
Method File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\hydrocarbons c12-28.mt
Sample ID : icb

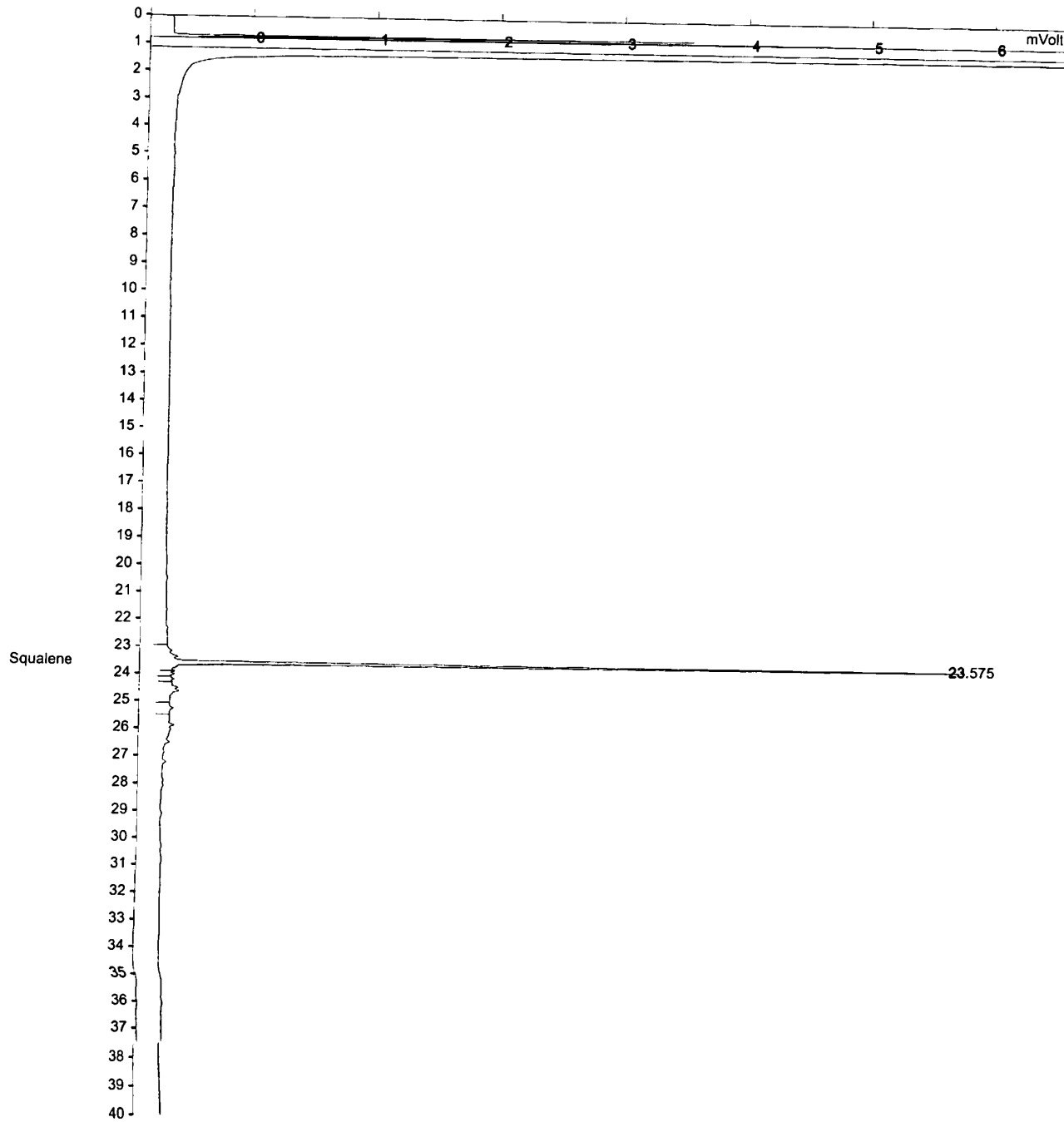
Injection Date: 3/17/11 7:13 PM  Calculation Date: 3/18/11 10:19 AM

Operator : M. Budziak
Workstation:
Instrument : HP 6890 GC#16
Channel : B = B

Detector Type: ADCB (1 Volt)
Bus Address : 16
Sample Rate : 10.00 Hz
Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Chart Speed = 0.49 cm/min  Attenuation = 30  Zero Offset = 11%
Start Time = 0.000 min  End Time = 40.002 min  Min / Tick = 1.00



Print Date: Tue Mar 29 11:11:01 2011 Page 1 of 1

Title : DRO / ORO
Run File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\icb.run
Method File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\hydrocarbons c12-28.mth
Sample ID : icb

Injection Date: 3/17/11 7:13 PM Calculation Date: 3/18/11 10:19 AM

Operator : M. Budziak
Workstation:
Instrument : HP 6890 GC#16
Channel : B = B

Detector Type: ADCB (1 Volt)
Bus Address : 16
Sample Rate : 10.00 Hz
Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Run Mode : Analysis
Peak Measurement: Peak Area
Calculation Type: External Standard

| Peak No. | Peak Name | Result (ug/ml) | Ret. Time (min) | Time Offset (min) | Area (counts) | Sep. Code | Width 1/2 (sec) | Group | Status Codes |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Squalene | 10.6381 | 23.575 | 0.006 | 27610 | BV | 4.1 | 0 | |
| | Group 0 | 10.6381 | | 0.006 | 27610 | | | | |
| | Totals: | 10.6381 | | 0.006 | 27610 | | | | |

Total Unidentified Counts : 0 counts

Detected Peaks: 5 Rejected Peaks: 4 Identified Peaks: 1

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -653 microVolts

Noise (used): 10 microVolts - fixed value
Noise (monitored before this run): 4 microVolts

Manual injection

**********

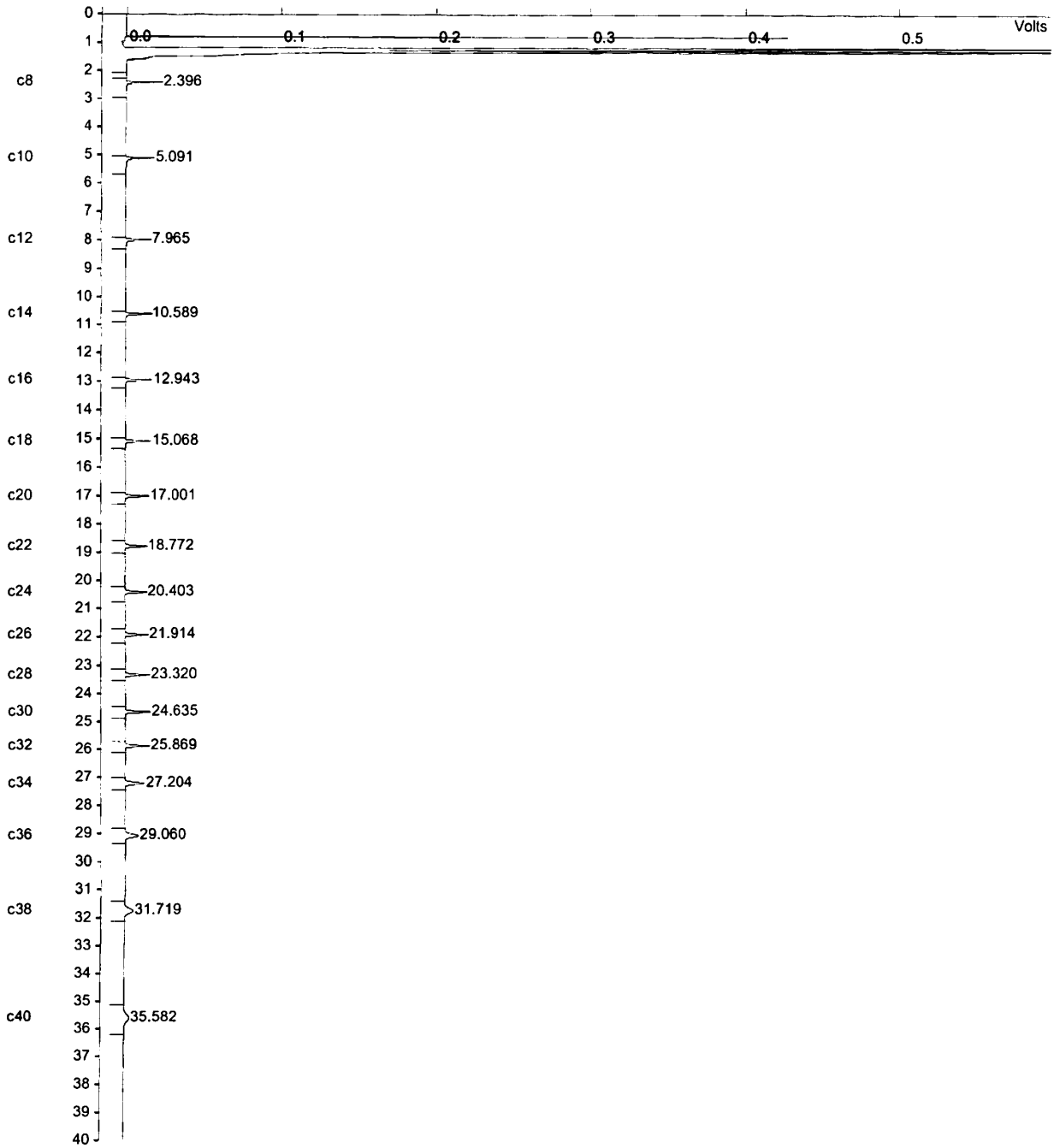
Title : DRO / ORO
Run File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\retention time mix.ru
Method File : d:\star\hp6890 gc\hydrocarbons-c10-40id.mth
Sample ID : retention time mix

Injection Date: 3/17/11 8:00 PM  Calculation Date: 3/23/11 5:29 PM

Operator : M. Budziak  Detector Type: ADCB (1 Volt)
Workstation:  Bus Address : 16
Instrument : HP 6890 GC#16  Sample Rate : 10.00 Hz
Channel : B = B  Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Chart Speed = 0.49 cm/min  Attenuation = 2523  Zero Offset = 2%
Start Time = 0.000 min  End Time = 40.002 min  Min / Tick = 1.00



Print Date: Tue Mar 29 11:11:06 2011 

Title : DRO / ORO
Run File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\retention time mix.run
Method File : d:\star\hp6890 gc\hydrocarbons-c10-40id.mth
Sample ID : retention time mix

Injection Date: 3/17/11 8:00 PM Calculation Date: 3/23/11 5:29 PM

Operator : M. Budziak
Workstation:
Instrument : HP 6890 GC#16
Channel : B = B

Detector Type: ADCB (1 Volt)
Bus Address : 16
Sample Rate : 10.00 Hz
Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Run Mode : Analysis
Peak Measurement: Peak Area
Calculation Type: External Standard

| Peak No. | Peak Name | Result (ug/ml) | Ret. Time (min) | Time Offset (min) | Area (counts) | Sep. Code | Width 1/2 (sec) | Group | Status Codes |
|---|---|---|---|---|---|---|---|---|---|
| 1 | c8 | 58.7279 | 2.396 | 0.016 | 64836 | PB | 2.4 | 0 | |
| 2 | c10 | 55.6300 | 5.091 | 0.019 | 60153 | BB | 2.5 | 0 | |
| 3 | c12 | 53.9463 | 7.965 | 0.018 | 57793 | BB | 2.8 | 0 | |
| 4 | c14 | 53.8930 | 10.589 | 0.017 | 58554 | BB | 2.9 | 0 | |
| 5 | c16 | 54.5739 | 12.943 | 0.015 | 59133 | BB | 3.0 | 0 | |
| 6 | c18 | 53.8685 | 15.068 | 0.013 | 58676 | BB | 3.2 | 0 | |
| 7 | c20 | 54.1172 | 17.001 | 0.011 | 58443 | BB | 3.4 | 0 | |
| 8 | c22 | 55.6839 | 18.772 | 0.010 | 59066 | BB | 3.6 | 0 | |
| 9 | c24 | 57.6661 | 20.403 | 0.008 | 58339 | BB | 3.6 | 0 | |
| 10 | c26 | 59.1238 | 21.914 | 0.006 | 60661 | BB | 3.7 | 0 | |
| 11 | c28 | 60.7296 | 23.320 | 0.005 | 63145 | BB | 3.7 | 0 | |
| 12 | c30 | 61.4104 | 24.635 | 0.002 | 66372 | BB | 3.8 | 0 | |
| 13 | c32 | 60.6223 | 25.869 | 0.002 | 67069 | BB | 3.9 | 0 | |
| 14 | c34 | 57.8871 | 27.204 | 0.002 | 71670 | BB | 5.4 | 0 | |
| 15 | c36 | 56.3449 | 29.060 | -0.001 | 71972 | BB | 7.9 | 0 | |
| 16 | c38 | 53.6395 | 31.719 | -0.002 | 69213 | BB | 11.7 | 0 | |
| 17 | c40 | 29.1966 | 35.582 | -0.003 | 63207 | BB | 17.7 | 0 | |
| | Group 0 | 937.0610 | | 0.138 | 1068302 | | | | |
| | Totals: | 937.0610 | | 0.138 | 1068302 | | | | |

Total Unidentified Counts : 403 counts

Detected Peaks: 18 Rejected Peaks: 0 Identified Peaks: 17

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -639 microVolts

Noise (used): 30 microVolts - fixed value
Noise (monitored before this run): 5 microVolts

Manual injection

**********

Title : DRO / ORO
Run File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\crql std 100ppm a.run
Method File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\hydrocarbons c12-28.mt
Sample ID : crql std 100ppm a

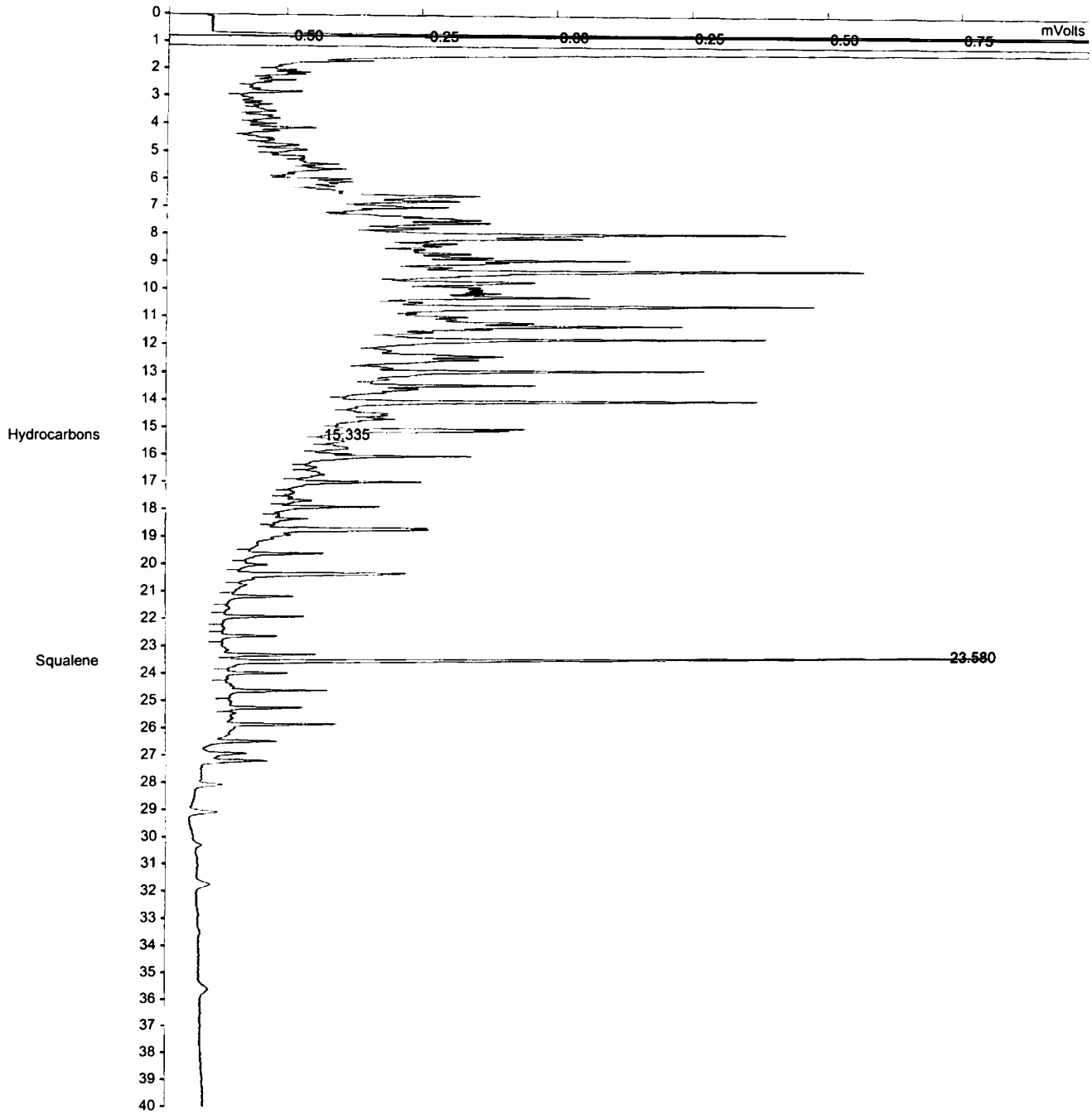
Injection Date: 3/17/11 8:46 PM  Calculation Date: 3/18/11 10:20 AM

Operator : M. Budziak
Workstation:
Instrument : HP 6890 GC#16
Channel : B = B

Detector Type: ADCB (1 Volt)
Bus Address : 16
Sample Rate : 10.00 Hz
Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Chart Speed = 0.49 cm/min  Attenuation = 7  Zero Offset = 42%
Start Time = 0.000 min  End Time = 40.002 min  Min / Tick = 1.00



Verification Report

Title : DRO / ORO
Run File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\crql std 100ppm a.run
Method File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\hydrocarbons c12-28.mth
Sample ID : crql std 100ppm a

Injection Date: 3/17/11 8:46 PM Calculation Date: 3/18/11 10:20 AM

Operator : M. Budziak
Workstation:
Instrument : HP 6890 GC#16
Channel : B = B

Detector Type: ADCB (1 Volt)
Bus Address : 16
Sample Rate : 10.00 Hz
Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Run Mode : Verification
Peak Measurement: Peak Area
Calculation Type: External Standard
Level : 2
Tolerance : 20.0%

| Peak No. | Peak Name | Expected Result (ug/ml) | Calculated Result (ug/ml) | Dev. % | Ret. Time (min) | Time Offset (min) | Area (counts) | Group | Status Codes |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Hydrocarbons | 100.0000 | 80.7839 | 19.2 | 15.335 | 0.000 | 237251 | 0 | |
| 2 | Squalene | 2.5000 | 2.2082 | 11.7 | 23.580 | 0.011 | 6014 | 0 | |
| | Group 0 | | 82.9921 | | | 0.011 | 243265 | | |
| | Totals: | | 82.9921 | | | 0.011 | 243265 | | |

Total Unidentified Counts : 14859 counts

Detected Peaks: 60 Rejected Peaks: 15 Identified Peaks: 2

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -638 microVolts

Noise (used): 10 microVolts - fixed value
Noise (monitored before this run): 5 microVolts

Manual injection

**********

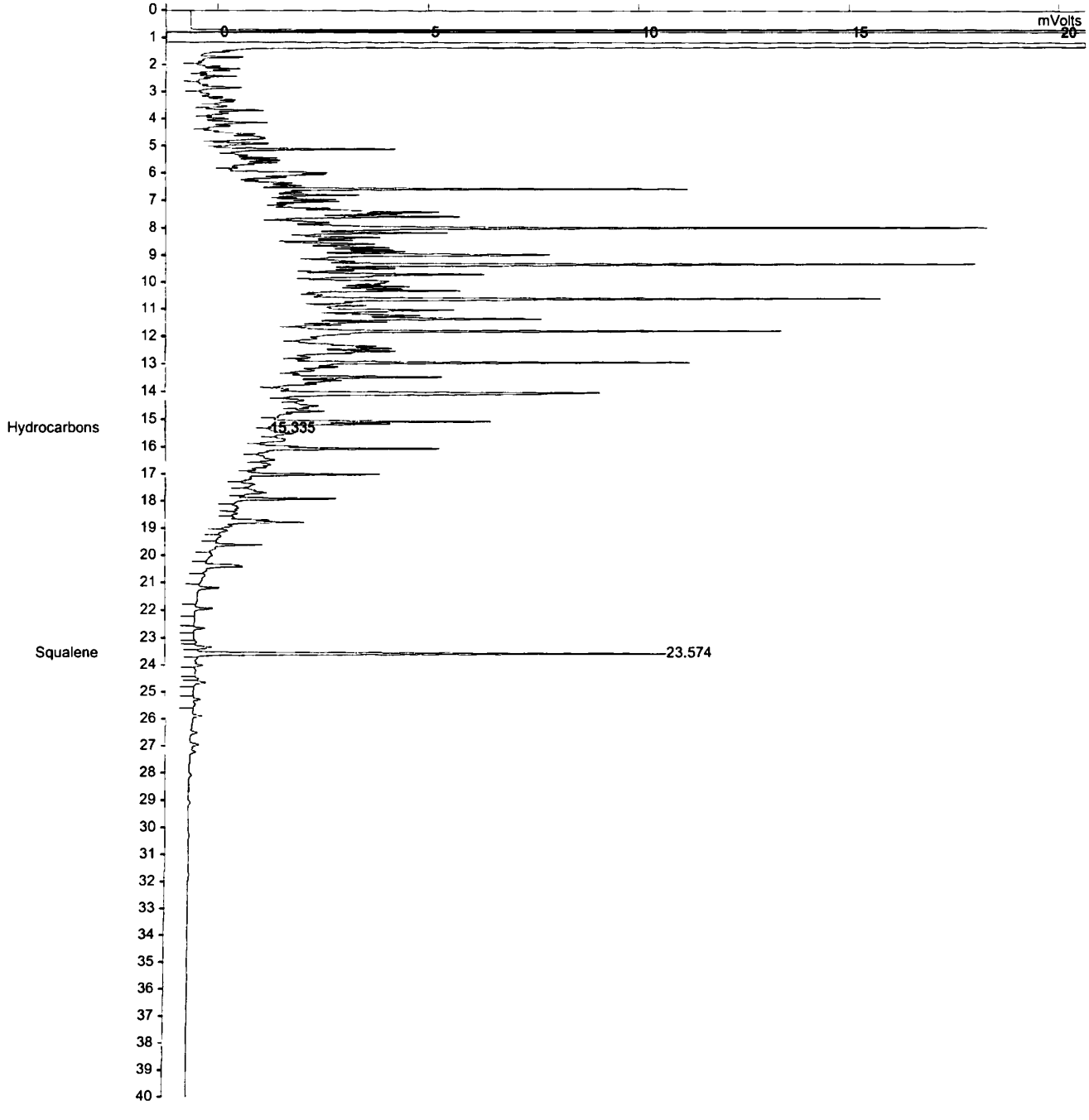
Title : DRO/ORO
Run File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\ccv std 1000ppm a.run
Method File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\hydrocarbons c12-28.mt
Sample ID : ccv std 1000ppm a

Injection Date: 3/17/11 9:32 PM  Calculation Date: 3/18/11 10:21 AM

Operator : M. Budziak  Detector Type: ADCB (1 Volt)
Workstation:  Bus Address : 16
Instrument : HP 6890 GC#16  Sample Rate : 10.00 Hz
Channel : B = B  Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Chart Speed = 0.49 cm/min  Attenuation = 89  Zero Offset = 5%
Start Time = 0.000 min  End Time = 40.002 min  Min / Tick = 1.00



# Verification Report

Title : DRO/ORO
Run File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\ccv std 1000ppm a.run
Method File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\hydrocarbons c12-28.mth
Sample ID : ccv std 1000ppm a

Injection Date: 3/17/11 9:32 PM Calculation Date: 3/18/11 10:21 AM

Operator : M. Budziak
Workstation:
Instrument : HP 6890 GC#16
Channel : B = B

Detector Type: ADCB (1 Volt)
Bus Address : 16
Sample Rate : 10.00 Hz
Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Run Mode : Verification
Peak Measurement: Peak Area
Calculation Type: External Standard
Level : 8
Tolerance : 20.0%

| Peak No. | Peak Name | Expected Result (ug/ml) | Calculated Result (ug/ml) | Dev. % | Ret. Time (min) | Time Offset (min) | Area (counts) | Group | Status Codes |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Hydrocarbons | 1000.0000 | 913.6597 | 8.6 | 15.335 | 0.000 | 2293962 | 0 | |
| 2 | Squalene | 20.0000 | 17.6782 | 11.6 | 23.574 | 0.005 | 45326 | 0 | |
| | Group 0 | | 931.3379 | | | 0.005 | 2339288 | | |
| | Totals: | | 931.3379 | | | 0.005 | 2339288 | | |

Total Unidentified Counts : 347383 counts

Detected Peaks: 66 Rejected Peaks: 5 Identified Peaks: 2

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -644 microVolts

Noise (used): 10 microVolts - fixed value
Noise (monitored before this run): 5 microVolts

Manual injection

Requested Curve Type : quadratic
Requested Origin : ignore
Calibration Type : External Standard Analysis

Method Detector Type : ADC Board
Method Bus Address : 16
Method Channel : B

Calibration Dates
Last Injection Date : 3/16/11 11:59 PM

Last Recalculation Date : 3/17/11 3:35 PM

| Retention Time (min) | Peak Name | Curve\ Origin | $X^3$ | $X^2$ | X | C | $r^2$ | Cal.No. of Range Points | Edit Codes |
|---|---|---|---|---|---|---|---|---|---|
| 15.335 | Hydrocarbons C12- | 2 IG | | -3.4203e-002 | +2.5034e+003 | +3.5238e+004 | +9.9994e-001 | 2-7 6 | |
| 23.569 | Squalene | 2 IG | | -2.9256e+000 | +2.5994e+003 | +2.8820e+002 | +9.9995e-001 | 2-7 6 | |

| Curve Codes | Origin Codes | Edit Codes |
|---|---|---|
| 1 linear | I include | 1 curve |
| 2 quadratic | IG ignore | 2 origin |
| 3 cubic | F force | 3 coefficient |

Ret. Time: 15.335 min. Peak Measurement: Area
Peak Name: Hydrocarbons C12-28 Curve\Origin: 2 IG

| Level | Amount | Replicate No. | Response | Avg. Response | Std. Dev. |
|---|---|---|---|---|---|
| 2 | 100.000000 | 1 | 283957 | 283957.0 | # |
| 3 | 200.000000 | 1 | 514918 | 514917.6 | # |
| 4 | 500.000000 | 1 | 1267060 | 1267060.1 | # |
| 5 | 1000.000000 | 1 | 2568985 | 2568985.0 | # |
| 6 | 2000.000000 | 1 | 4869749 | 4869748.5 | # |
| 7 | 5000.000000 | 1 | 11700516 | 11700516.0 | # |

Ret. Time: 23.569 min. Peak Measurement: Area
Peak Name: Squalene Curve\Origin: 2 IG

| Level | Amount | Replicate No. | Response | Avg. Response | Std. Dev. |
|---|---|---|---|---|---|
| 2 | 2.500000 | 1 | 7133 | 7132.7 | # |
| 3 | 5.000000 | 1 | 12739 | 12738.8 | # |
| 4 | 10.000000 | 1 | 26093 | 26093.0 | # |
| 5 | 20.000000 | 1 | 50935 | 50935.1 | # |
| 6 | 25.000000 | 1 | 63643 | 63643.1 | # |
| 7 | 50.000000 | 1 | 122921 | 122920.8 | # |

# = Too few points to calculate.

| Peak Name | Level | Rep. | Injection Date Time | Run Files |
|---|---|---|---|---|
| Hydrocarbons C12-28 | 2 | 1 | 3/16/11 8:09 PM | d:\star\data\hp6890 gc\2011-03\0316-c12-28\std 100.run |
| | 3 | 1 | 3/16/11 8:55 PM | d:\star\data\hp6890 gc\2011-03\0316-c12-28\std 200.run |
| | 4 | 1 | 3/16/11 9:41 PM | d:\star\data\hp6890 gc\2011-03\0316-c12-28\std 500.run |
| | 5 | 1 | 3/16/11 10:27 PM | d:\star\data\hp6890 gc\2011-03\0316-c12-28\std 1000.run |
| | 6 | 1 | 3/16/11 11:13 PM | d:\star\data\hp6890 gc\2011-03\0316-c12-28\std 2000.run |
| | 7 | 1 | 3/16/11 11:59 PM | d:\star\data\hp6890 gc\2011-03\0316-c12-28\std 5000.run |
| Squalene | 2 | 1 | 3/16/11 8:09 PM | d:\star\data\hp6890 gc\2011-03\0316-c12-28\std 100.run |
| | 3 | 1 | 3/16/11 8:55 PM | d:\star\data\hp6890 gc\2011-03\0316-c12-28\std 200.run |
| | 4 | 1 | 3/16/11 9:41 PM | d:\star\data\hp6890 gc\2011-03\0316-c12-28\std 500.run |
| | 5 | 1 | 3/16/11 10:27 PM | d:\star\data\hp6890 gc\2011-03\0316-c12-28\std 1000.run |
| | 6 | 1 | 3/16/11 11:13 PM | d:\star\data\hp6890 gc\2011-03\0316-c12-28\std 2000.run |
| | 7 | 1 | 3/16/11 11:59 PM | d:\star\data\hp6890 gc\2011-03\0316-c12-28\std 5000.run |

**********

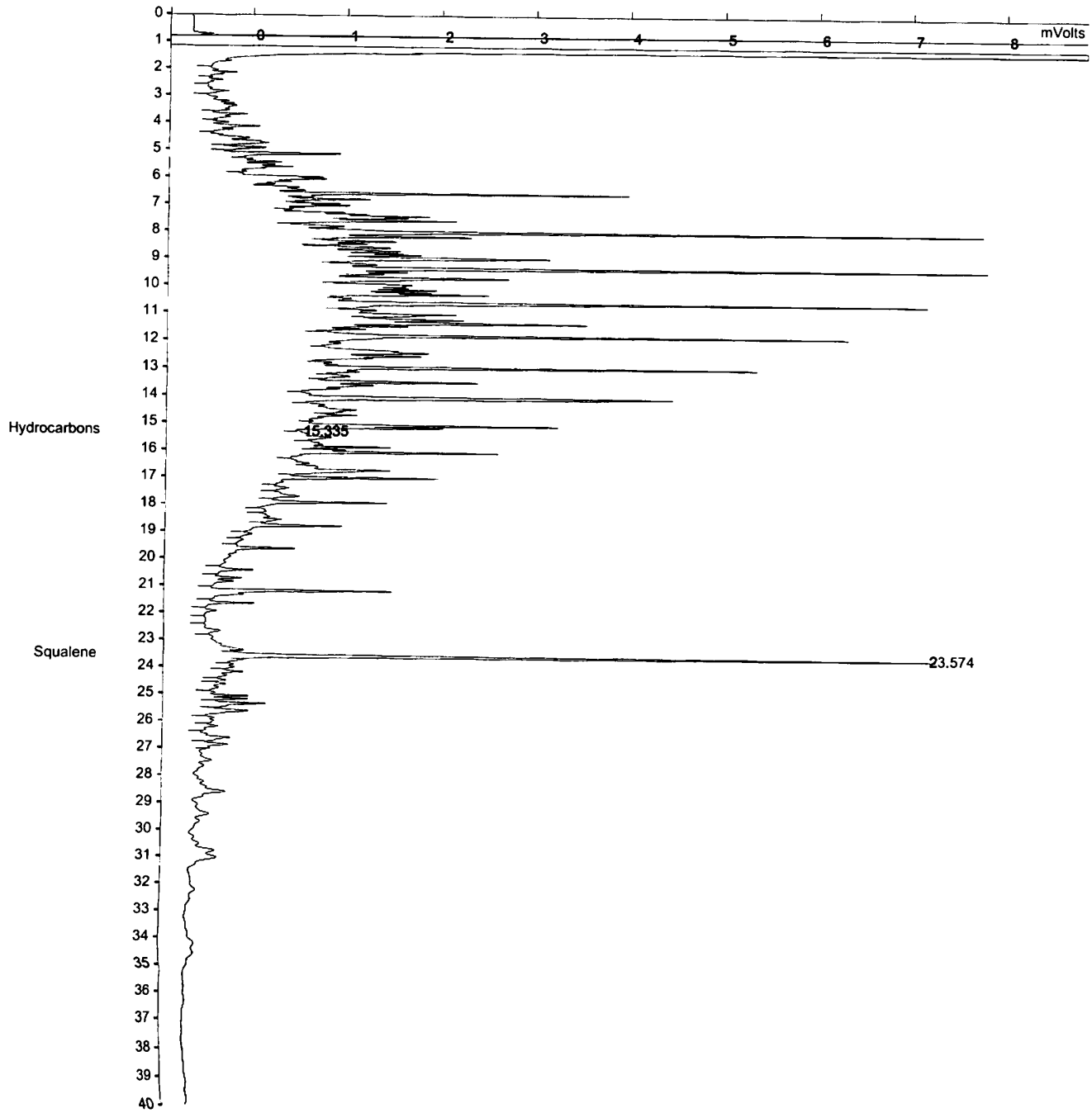
Title : DRO / ORO
Run File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\lcs-21419.run
Method File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\hydrocarbons c12-28.mt
Sample ID : lcs-21419

Injection Date: 3/17/11 10:18 PM  Calculation Date: 3/23/11 5:44 PM

Operator : M. Budziak  Detector Type: ADCB (1 Volt)
Workstation:  Bus Address : 16
Instrument : HP 6890 GC#16  Sample Rate : 10.00 Hz
Channel : B = B  Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Chart Speed = 0.49 cm/min  Attenuation = 39  Zero Offset = 9%
Start Time = 0.000 min  End Time = 40.002 min  Min / Tick = 1.00



Print Date: Tue Mar 29 11:11:18 2011 Page 1 of 1

Title : DRO / ORO
Run File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\lcs-21419.run
Method File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\hydrocarbons c12-28.mth
Sample ID : lcs-21419

Injection Date: 3/17/11 10:18 PM Calculation Date: 3/23/11 5:44 PM

Operator : M. Budziak Detector Type: ADCB (1 Volt)
Workstation: Bus Address : 16
Instrument : HP 6890 GC#16 Sample Rate : 10.00 Hz
Channel : B = B Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Run Mode : Analysis
Peak Measurement: Peak Area
Calculation Type: External Standard

| Peak No. | Peak Name | Result (ug/ml) | Ret. Time (min) | Time Offset (min) | Area (counts) | Sep. Code | Width 1/2 (sec) | Group | Status Codes |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Hydrocarbons | 468.5187 | 15.335 | 0.000 | 1200630 | GR | 0.0 | 0 | |
| 2 | Squalene | 12.7133 | 23.574 | 0.005 | 32862 | VV | 0.0 | 0 | |
| | Group 0 | 481.2320 | | 0.005 | 1233492 | | | | |
| | Totals: | 481.2320 | | 0.005 | 1233492 | | | | |

Total Unidentified Counts : 141080 counts

Detected Peaks: 70 Rejected Peaks: 16 Identified Peaks: 2

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -647 microVolts

Noise (used): 10 microVolts - fixed value
Noise (monitored before this run): 7 microVolts

Manual injection

**********

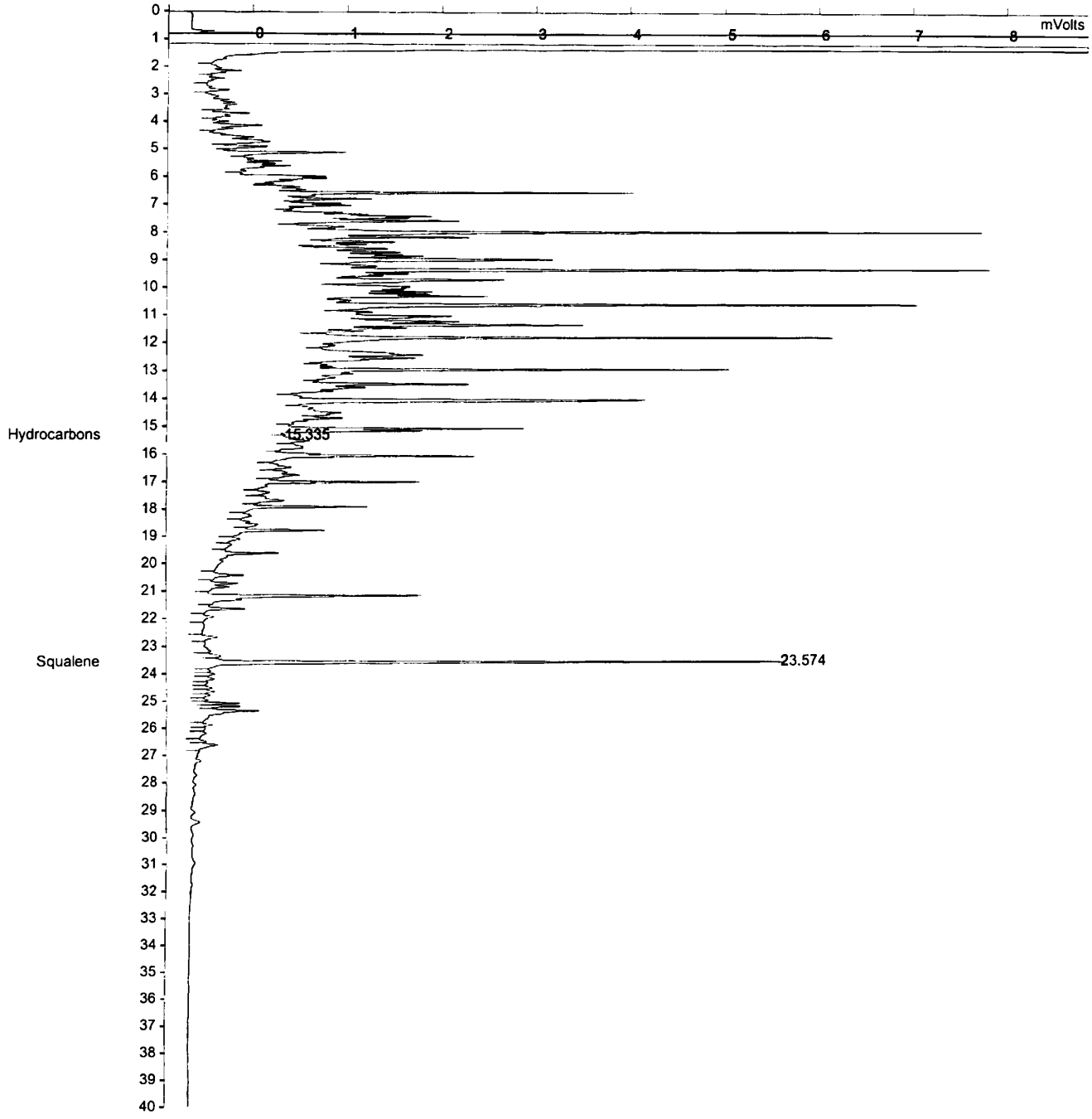
Title : DRO / ORO
Run File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\lcsd-21419.run
Method File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\hydrocarbons c12-28.mt
Sample ID : lcsd-21419

Injection Date: 3/17/11 11:04 PM  Calculation Date: 3/23/11 5:43 PM

Operator : M. Budziak  Detector Type: ADCB (1 Volt)
Workstation:  Bus Address : 16
Instrument : HP 6890 GC#16  Sample Rate : 10.00 Hz
Channel : B = B  Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Chart Speed = 0.49 cm/min  Attenuation = 40  Zero Offset = 9%
Start Time = 0.000 min  End Time = 40.002 min  Min / Tick = 1.00



Print Date: Tue Mar 29 11:11:25 2011 Page 1 of 1

Title : DRO / ORO
Run File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\lcsd-21419.run
Method File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\hydrocarbons c12-28.mth
Sample ID : lcsd-21419

Injection Date: 3/17/11 11:04 PM Calculation Date: 3/23/11 5:43 PM

Operator : M. Budziak Detector Type: ADCB (1 Volt)
Workstation: Bus Address : 16
Instrument : HP 6890 GC#16 Sample Rate : 10.00 Hz
Channel : B = B Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Run Mode : Analysis
Peak Measurement: Peak Area
Calculation Type: External Standard

| Peak No. | Peak Name | Result (ug/ml) | Ret. Time (min) | Time Offset (min) | Area (counts) | Sep. Code | Width 1/2 (sec) | Group | Status Codes |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Hydrocarbons | 435.0419 | 15.335 | 0.000 | 1117858 | GR | 0.0 | 0 | |
| 2 | Squalene | 10.6620 | 23.574 | 0.005 | 27670 | VV | 3.9 | 0 | |
| | Group 0 | 445.7039 | | 0.005 | 1145528 | | | | |
| | Totals: | 445.7039 | | 0.005 | 1145528 | | | | |

Total Unidentified Counts : 147228 counts

Detected Peaks: 74 Rejected Peaks: 18 Identified Peaks: 2

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -652 microVolts

Noise (used): 10 microVolts - fixed value
Noise (monitored before this run): 6 microVolts

Manual injection

**********

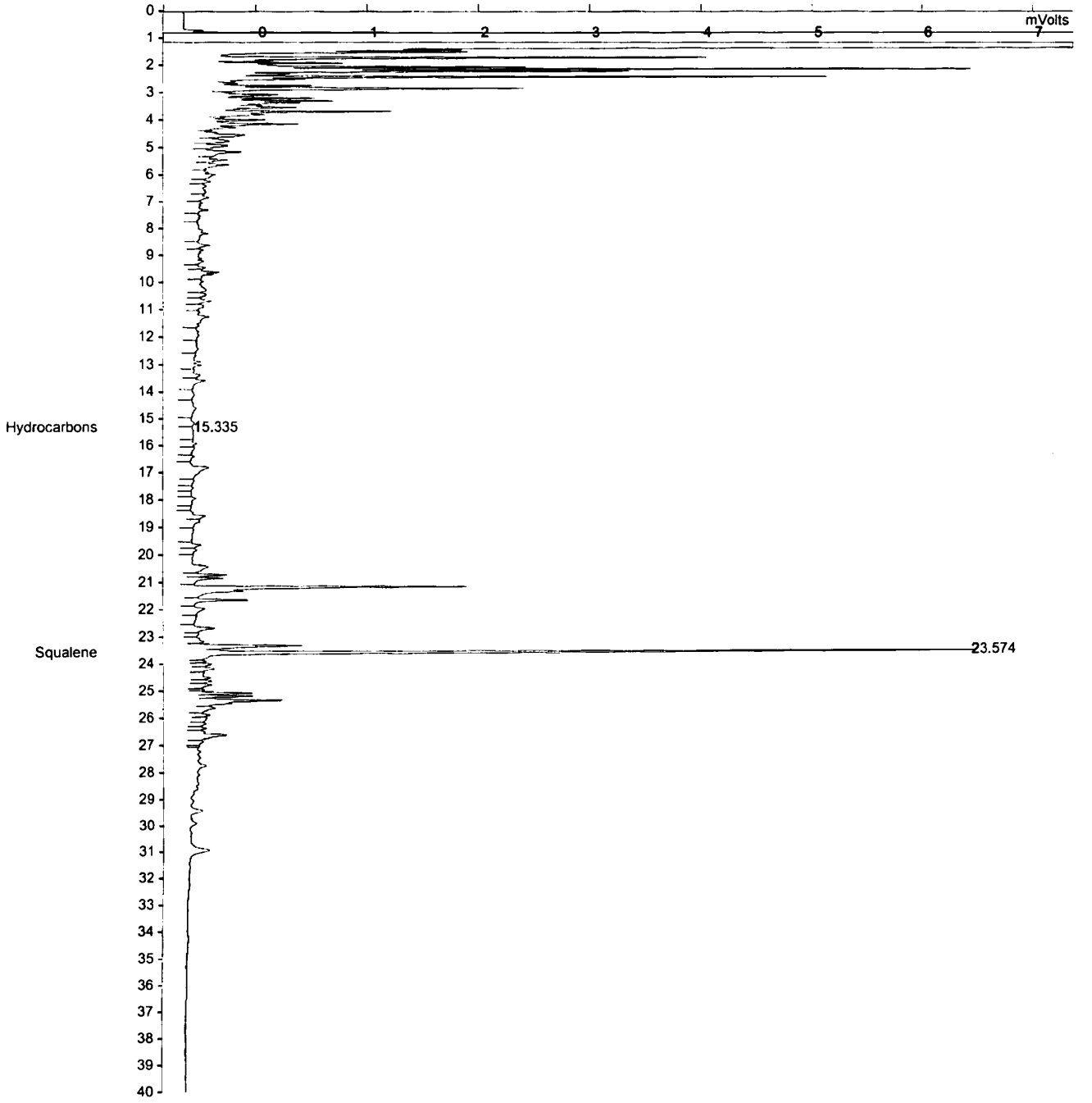
Title : DRO / ORO
Run File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\mb-21419.run
Method File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\hydrocarbons c12-28.mt
Sample ID : mb-21419

Injection Date: 3/17/11 11:50 PM  Calculation Date: 3/22/11 5:12 PM

Operator : M. Budziak  Detector Type: ADCB (1 Volt)
Workstation:  Bus Address : 16
Instrument : HP 6890 GC#16  Sample Rate : 10.00 Hz
Channel : B = B  Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Chart Speed = 0.49 cm/min  Attenuation = 33  Zero Offset = 10%
Start Time = 0.000 min  End Time = 40.002 min  Min / Tick = 1.00



Print Date: Tue Mar 29 11:11:30 2011 Page 1 of 1

Title : DRO / ORO
Run File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\mb-21419.run
Method File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\hydrocarbons c12-28.mth
Sample ID : mb-21419

Injection Date: 3/17/11 11:50 PM Calculation Date: 3/22/11 5:12 PM

Operator : M. Budziak Detector Type: ADCB (1 Volt)
Workstation: Bus Address : 16
Instrument : HP 6890 GC#16 Sample Rate : 10.00 Hz
Channel : B = B Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Run Mode : Analysis
Peak Measurement: Peak Area
Calculation Type: External Standard

| Peak No. | Peak Name | Result (ug/ml) | Ret. Time (min) | Time Offset (min) | Area (counts) | Sep. Code | Width 1/2 (sec) | Group | Status Codes |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Hydrocarbons | 7.0797 | 15.335 | 0.000 | 52960 | GR | 0.0 | 0 | |
| 2 | Squalene | 11.4485 | 23.574 | 0.005 | 29664 | VV | 3.8 | 0 | |
| | Group 0 | 18.5282 | | 0.005 | 82624 | | | | |
| | Totals: | 18.5282 | | 0.005 | 82624 | | | | |

Total Unidentified Counts : 39798 counts

Detected Peaks: 77 Rejected Peaks: 30 Identified Peaks: 2

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -654 microVolts

Noise (used): 10 microVolts - fixed value
Noise (monitored before this run): 6 microVolts

Manual injection

**********

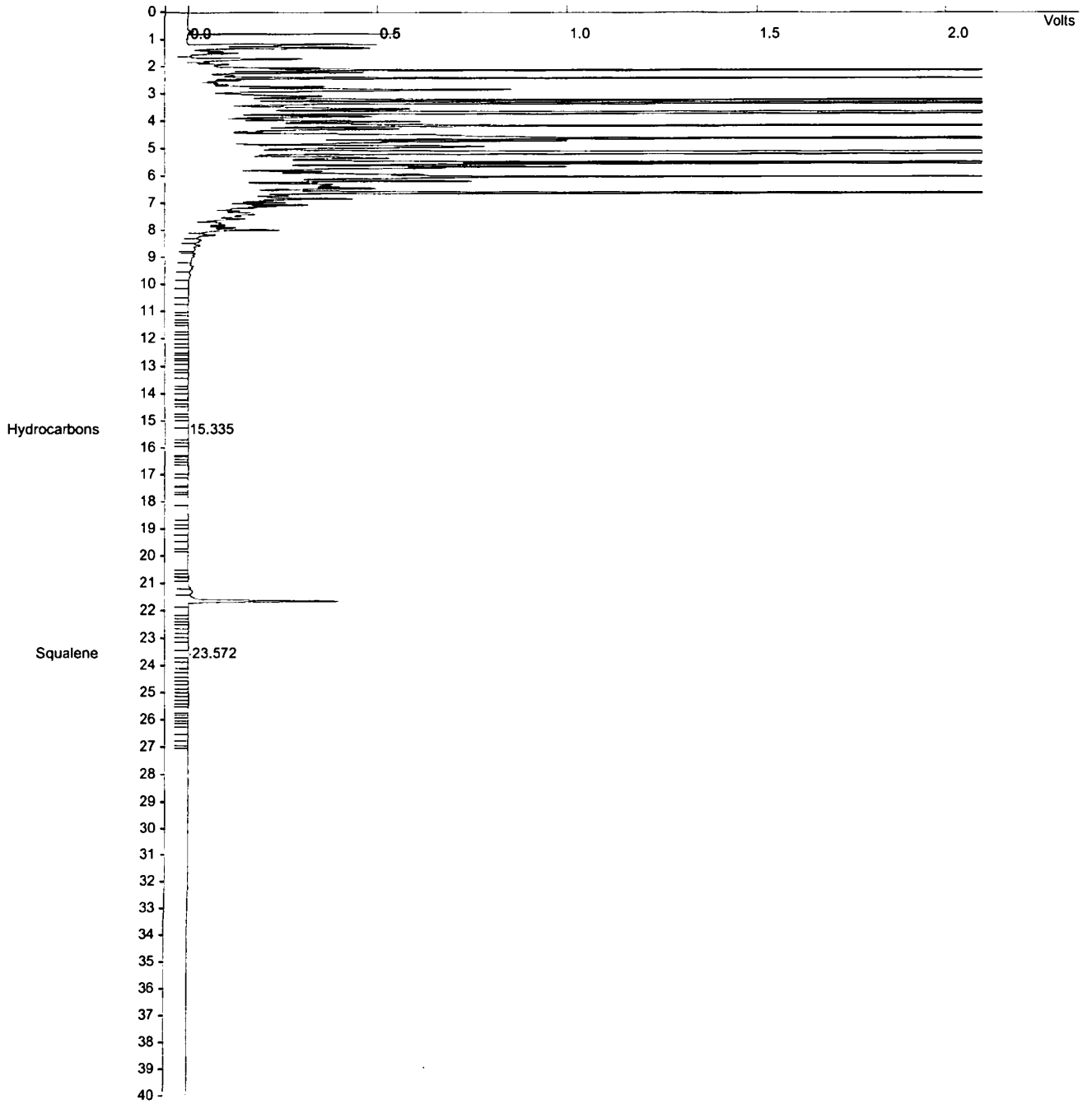
Title : DRO / ORO
Run File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\1103158-001b.run
Method File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\hydrocarbons c12-28.mt
Sample ID : 1103158-001b

Injection Date: 3/18/11 12:36 AM  Calculation Date: 3/23/11 5:46 PM

Operator : M. Budziak  Detector Type: ADCB (1 Volt)
Workstation:  Bus Address : 16
Instrument : HP 6890 GC#16  Sample Rate : 10.00 Hz
Channel : B = B  Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Chart Speed = 0.49 cm/min  Attenuation = 9918  Zero Offset = 2%
Start Time = 0.000 min  End Time = 40.002 min  Min / Tick = 1.00



Print Date: Tue Mar 29 11:11:36 2011 Page 1 of 1

Title : DRO / ORO
Run File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\1103158-001b.run
Method File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\hydrocarbons c12-28.mth
Sample ID : 1103158-001b

Injection Date: 3/18/11 12:36 AM Calculation Date: 3/23/11 5:46 PM

Operator : M. Budziak Detector Type: ADCB (1 Volt)
Workstation: Bus Address : 16
Instrument : HP 6890 GC#16 Sample Rate : 10.00 Hz
Channel : B = B Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Run Mode : Analysis
Peak Measurement: Peak Area
Calculation Type: External Standard

| Peak No. | Peak Name | Result (ug/ml) | Ret. Time (min) | Time Offset (min) | Area (counts) | Sep. Code | Width 1/2 (sec) | Group | Status Codes |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Hydrocarbons | 3549.6602 | 15.335 | 0.000 | 8490572 | GR | 0.0 | 0 | |
| 2 | Squalene | 12.2839 | 23.572 | 0.003 | 31777 | VV | 3.8 | 0 | |
| | Group 0 | 3561.9441 | | 0.003 | 8522349 | | | | |
| | Totals: | 3561.9441 | | 0.003 | 8522349 | | | | |

Total Unidentified Counts : 121712224 counts

Detected Peaks: 102 Rejected Peaks: 20 Identified Peaks: 2

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -659 microVolts

Noise (used): 10 microVolts - fixed value
Noise (monitored before this run): 8 microVolts

Manual injection

**********

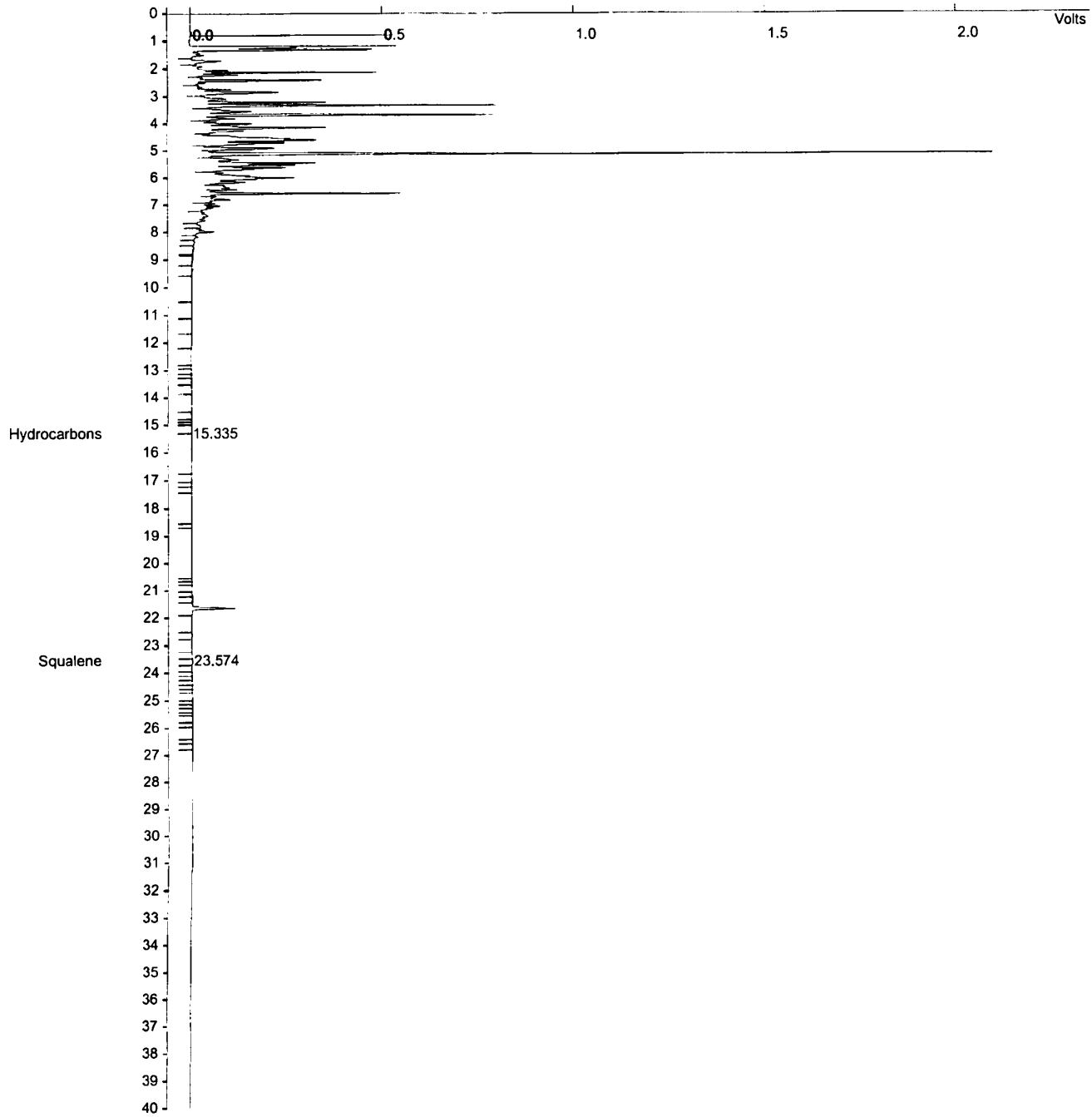
Title : DRO / ORO
Run File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\1103158-001b1-4.run
Method File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\hydrocarbons c12-28.mt
Sample ID : 1103158-001b1-4

Injection Date: 3/18/11 1:22 AM  Calculation Date: 3/23/11 5:46 PM

Operator : M. Budziak  Detector Type: ADCB (1 Volt)
Workstation:  Bus Address : 16
Instrument : HP 6890 GC#16  Sample Rate : 10.00 Hz
Channel : B = B  Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Chart Speed = 0.49 cm/min  Attenuation = 9919  Zero Offset = 2%
Start Time = 0.000 min  End Time = 40.002 min  Min / Tick = 1.00



Print Date: Tue Mar 29 11:11:42 2011 Page 1 of 1

Title : DRO / ORO
Run File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\1103158-001b1-4.run
Method File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\hydrocarbons c12-28.mth
Sample ID : 1103158-001b1-4

Injection Date: 3/18/11 1:22 AM Calculation Date: 3/23/11 5:46 PM

Operator : M. Budziak
Workstation:
Instrument : HP 6890 GC#16
Channel : B = B

Detector Type: ADCB (1 Volt)
Bus Address : 16
Sample Rate : 10.00 Hz
Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Run Mode : Analysis
Peak Measurement: Peak Area
Calculation Type: External Standard

| Peak No. | Peak Name | Result (ug/ml) | Ret. Time (min) | Time Offset (min) | Area (counts) | Sep. Code | Width 1/2 (sec) | Group | Status Codes |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Hydrocarbons | 860.9498 | 15.335 | 0.000 | 2165206 | GR | 0.0 | 0 | |
| 2 | Squalene | 3.0358 | 23.574 | 0.005 | 8153 | VB | 3.7 | 0 | |
| | Group 0 | 863.9856 | | 0.005 | 2173359 | | | | |
| | Totals: | 863.9856 | | 0.005 | 2173359 | | | | |

Total Unidentified Counts : 35266776 counts

Detected Peaks: 57 Rejected Peaks: 12 Identified Peaks: 2

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -660 microVolts

Noise (used): 10 microVolts - fixed value
Noise (monitored before this run): 7 microVolts

Manual injection

**********

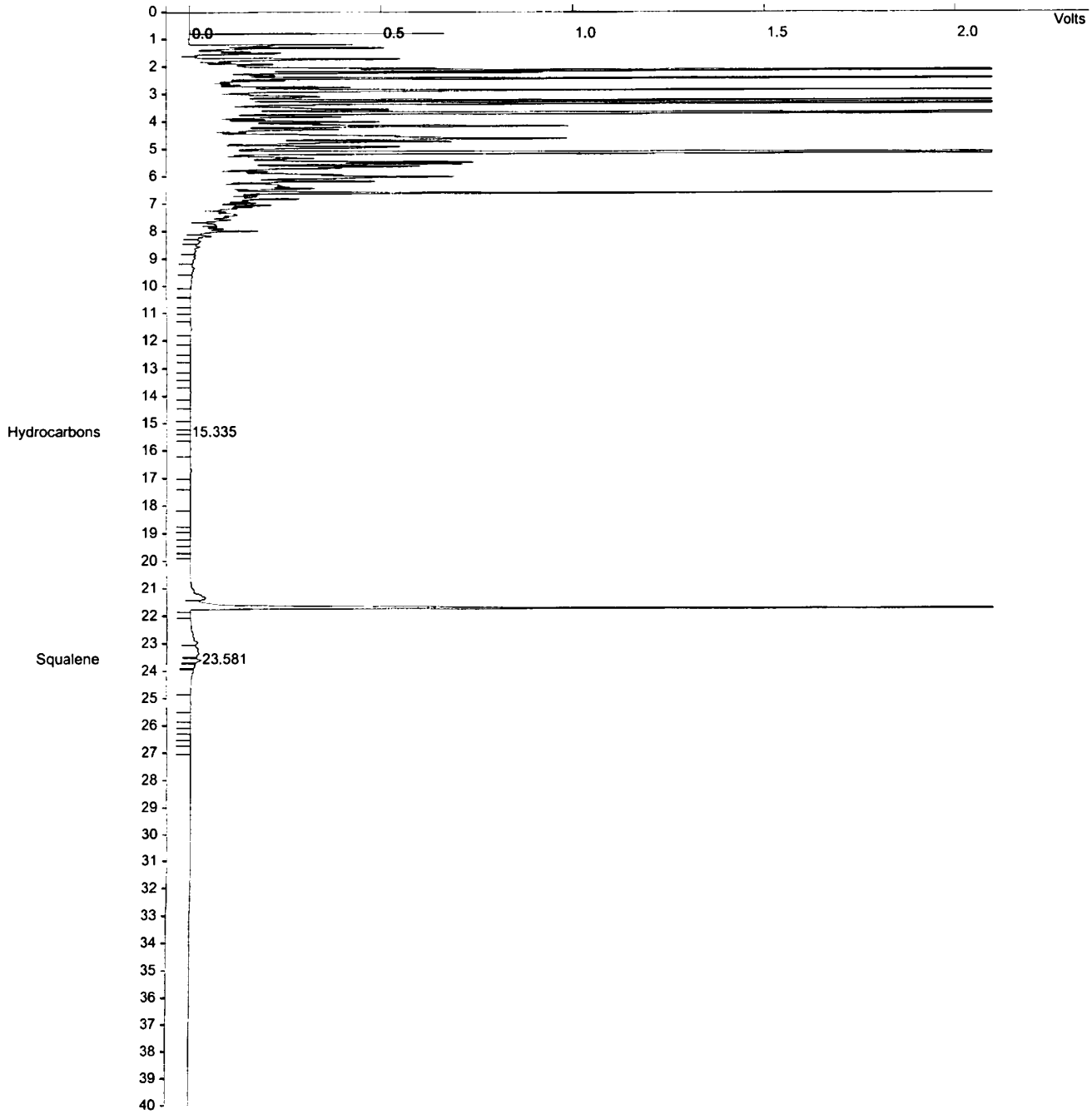
Title : DRO / ORO
Run File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\1103158-002b.run
Method File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\hydrocarbons c12-28.mt
Sample ID : 1103158-002b

Injection Date: 3/18/11 2:08 AM  Calculation Date: 3/23/11 6:09 PM

Operator : M. Budziak  Detector Type: ADCB (1 Volt)
Workstation:  Bus Address : 16
Instrument : HP 6890 GC#16  Sample Rate : 10.00 Hz
Channel : B = B  Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Chart Speed = 0.49 cm/min  Attenuation = 9918  Zero Offset = 2%
Start Time = 0.000 min  End Time = 40.002 min  Min / Tick = 1.00



Print Date: Tue Mar 29 11:11:49 2011 Page 1 of 1

Title : DRO / ORO
Run File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\1103158-002b.run
Method File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\hydrocarbons c12-28.mth
Sample ID : 1103158-002b

Injection Date: 3/18/11 2:08 AM Calculation Date: 3/23/11 6:09 PM

Operator : M. Budziak
Workstation:
Instrument : HP 6890 GC#16
Channel : B = B

Detector Type: ADCB (1 Volt)
Bus Address : 16
Sample Rate : 10.00 Hz
Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Run Mode : Analysis
Peak Measurement: Peak Area
Calculation Type: External Standard

| Peak No. | Peak Name | Result (ug/ml) | Ret. Time (min) | Time Offset (min) | Area (counts) | Sep. Code | Width 1/2 (sec) | Group | Status Codes |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Hydrocarbons | 4943.2939 | 15.335 | 0.000 | 11574594 | GR | 0.0 | 0 | |
| 2 | Squalene | 57.3144 | 23.581 | 0.012 | 139660 | VV | 0.0 | 0 | |
| | Group 0 | 5000.6083 | | 0.012 | 11714254 | | | | |
| | Totals: | 5000.6083 | | 0.012 | 11714254 | | | | |

Total Unidentified Counts : 92011368 counts

Detected Peaks: 65 Rejected Peaks: 6 Identified Peaks: 2

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -660 microVolts

Noise (used): 10 microVolts - fixed value
Noise (monitored before this run): 5 microVolts

Manual injection

**********

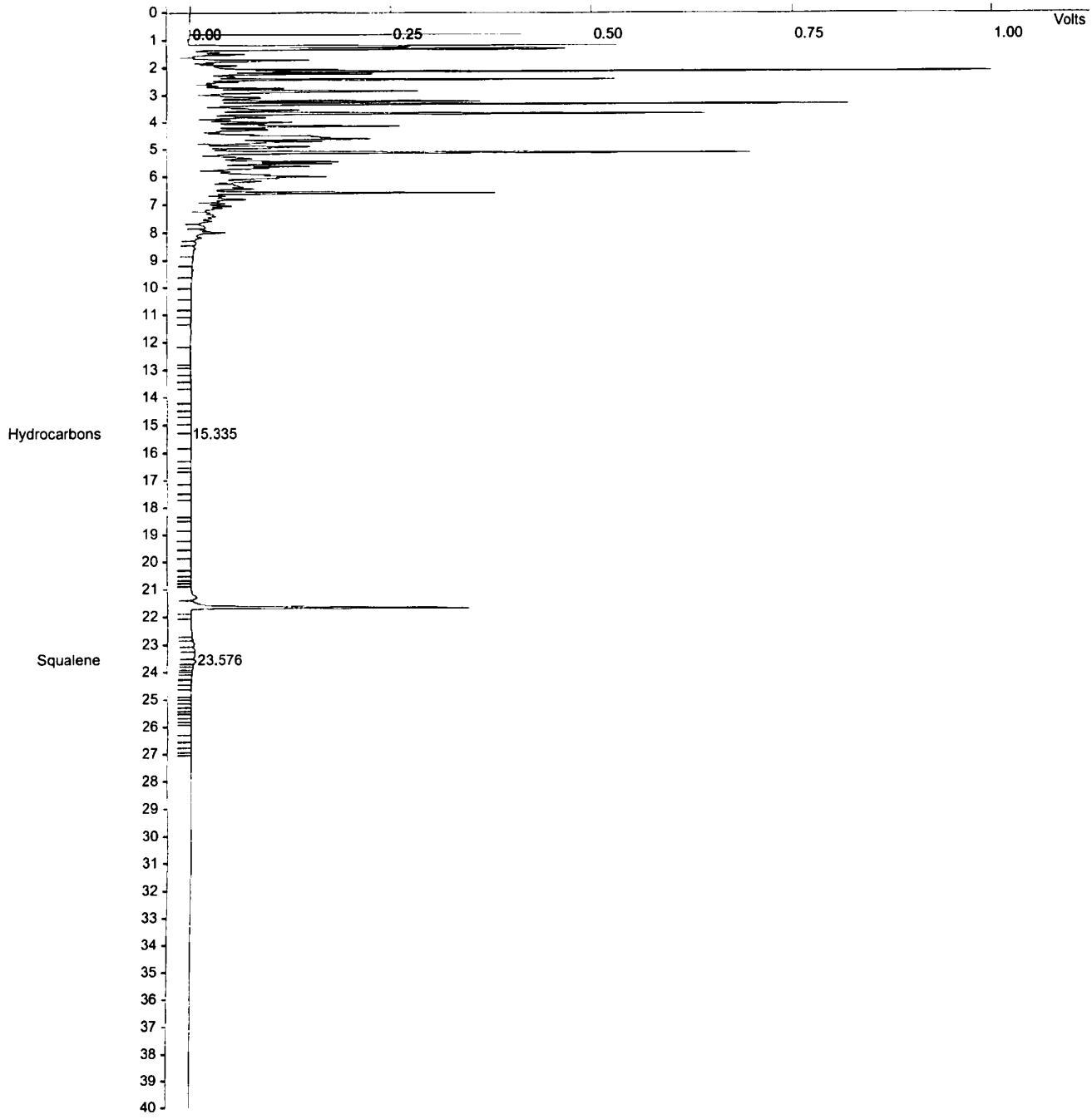
Title : DRO / ORO
Run File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\1103158-002b1-4.run
Method File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\hydrocarbons c12-28.mt
Sample ID : 1103158-002b1-4

Injection Date: 3/18/11 2:54 AM  Calculation Date: 3/23/11 6:08 PM

Operator : M. Budziak  Detector Type: ADCB (1 Volt)
Workstation:  Bus Address : 16
Instrument : HP 6890 GC#16  Sample Rate : 10.00 Hz
Channel : B = B  Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Chart Speed = 0.49 cm/min  Attenuation = 4731  Zero Offset = 2%
Start Time = 0.000 min  End Time = 40.002 min  Min / Tick = 1.00



Print Date: Tue Mar 29 11:11:55 2011 Page 1 of 1

Title : DRO / ORO
Run File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\1103158-002b1-4.run
Method File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\hydrocarbons c12-28.mth
Sample ID : 1103158-002b1-4

Injection Date: 3/18/11 2:54 AM Calculation Date: 3/23/11 6:08 PM

Operator : M. Budziak
Workstation:
Instrument : HP 6890 GC#16
Channel : B = B

Detector Type: ADCB (1 Volt)
Bus Address : 16
Sample Rate : 10.00 Hz
Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Run Mode : Analysis
Peak Measurement: Peak Area
Calculation Type: External Standard

| Peak No. | Peak Name | Result (ug/ml) | Ret. Time (min) | Time Offset (min) | Area (counts) | Sep. Code | Width 1/2 (sec) | Group | Status Codes |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Hydrocarbons | 1117.4840 | 15.335 | 0.000 | 2790060 | GR | 0.0 | 0 | |
| 2 | Squalene | 13.2302 | 23.576 | 0.007 | 34167 | VV | 0.0 | 0 | |
| | Group 0 | 1130.7142 | | 0.007 | 2824227 | | | | |
| | Totals: | 1130.7142 | | 0.007 | 2824227 | | | | |

Total Unidentified Counts : 25745560 counts

Detected Peaks: 80 Rejected Peaks: 22 Identified Peaks: 2

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -665 microVolts

Noise (used): 10 microVolts - fixed value
Noise (monitored before this run): 5 microVolts

Manual injection

**********

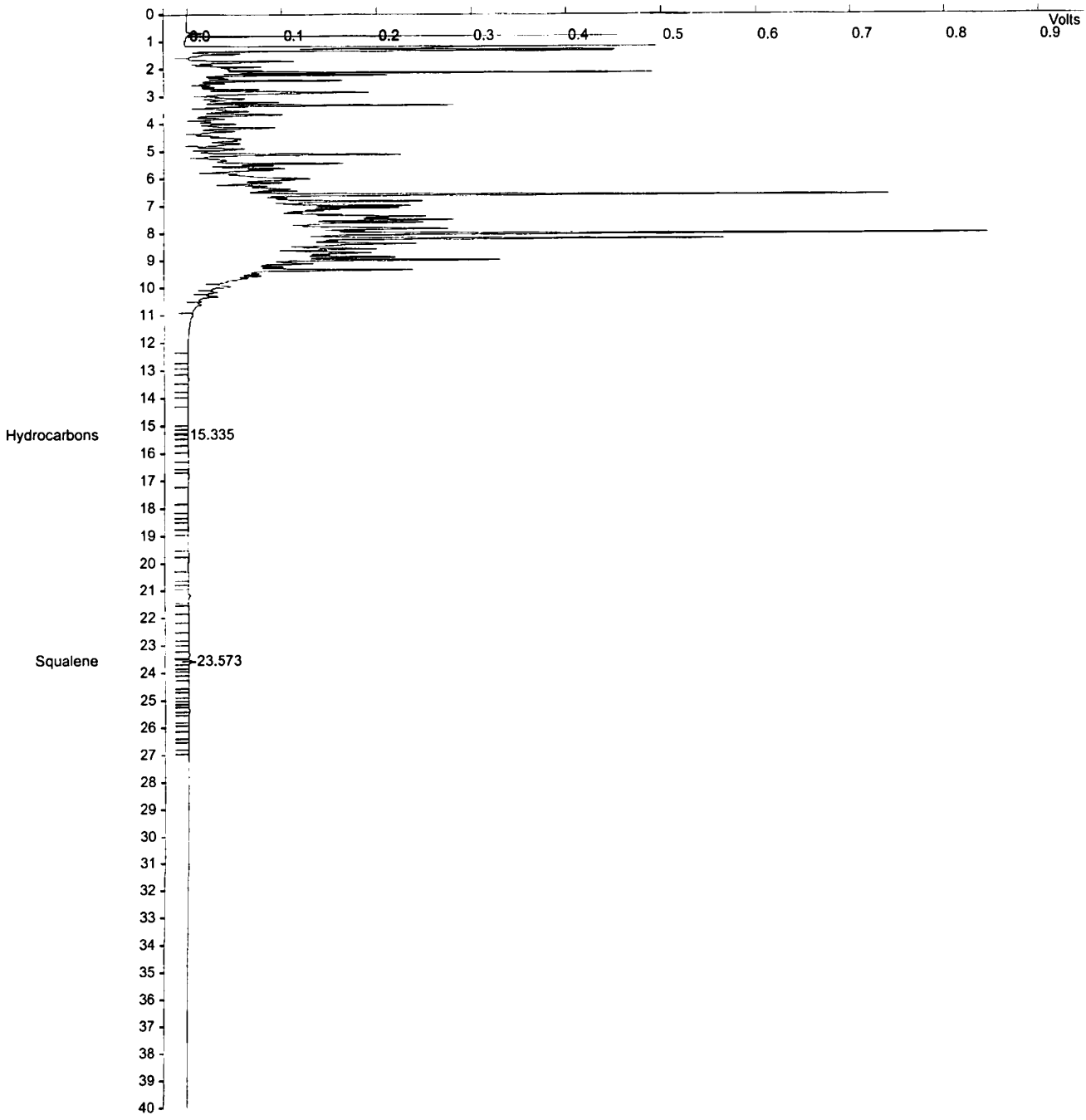
Title : DRO / ORO
Run File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\1103158-005b.run
Method File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\hydrocarbons c12-28.mt
Sample ID : 1103158-005b

Injection Date: 3/18/11 3:40 AM  Calculation Date: 3/23/11 5:55 PM

Operator : M. Budziak  Detector Type: ADCB (1 Volt)
Workstation:  Bus Address : 16
Instrument : HP 6890 GC#16  Sample Rate : 10.00 Hz
Channel : B = B  Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Chart Speed = 0.49 cm/min  Attenuation = 4001  Zero Offset = 2%
Start Time = 0.000 min  End Time = 40.002 min  Min / Tick = 1.00



Print Date: Tue Mar 29 11:12:01 2011 Page 1 of 1

Title : DRO / ORO
Run File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\1103158-005b.run
Method File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\hydrocarbons c12-28.mth
Sample ID : 1103158-005b

Injection Date: 3/18/11 3:40 AM Calculation Date: 3/23/11 5:55 PM

Operator : M. Budziak
Workstation:
Instrument : HP 6890 GC#16
Channel : B = B

Detector Type: ADCB (1 Volt)
Bus Address : 16
Sample Rate : 10.00 Hz
Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Run Mode : Analysis
Peak Measurement: Peak Area
Calculation Type: External Standard

| Peak No. | Peak Name | Result (ug/ml) | Ret. Time (min) | Time Offset (min) | Area (counts) | Sep. Code | Width 1/2 (sec) | Group | Status Codes |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Hydrocarbons | no result | 15.335 | 0.000 | 26970584 | GR | 0.0 | 0 | C* |
| 2 | Squalene | 10.8491 | 23.573 | 0.003 | 28145 | BB | 3.6 | 0 | |
| | Group 0 | 13117.1528 | | 0.003 | 26998729 | | | | |
| | Totals: | 10.8491 | | 0.003 | 26998729 | | | | |

Status Codes:
* - No result could be calculated; check calibration curve
C - Out of calibration range

Total Unidentified Counts : 19885448 counts

Detected Peaks: 79 Rejected Peaks: 18 Identified Peaks: 2

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -664 microVolts

Noise (used): 10 microVolts - fixed value
Noise (monitored before this run): 6 microVolts

Manual injection

Data Handling: At Least One Curve has Improper Solution!
Calib. out of range; No Recovery Action Specified

**********

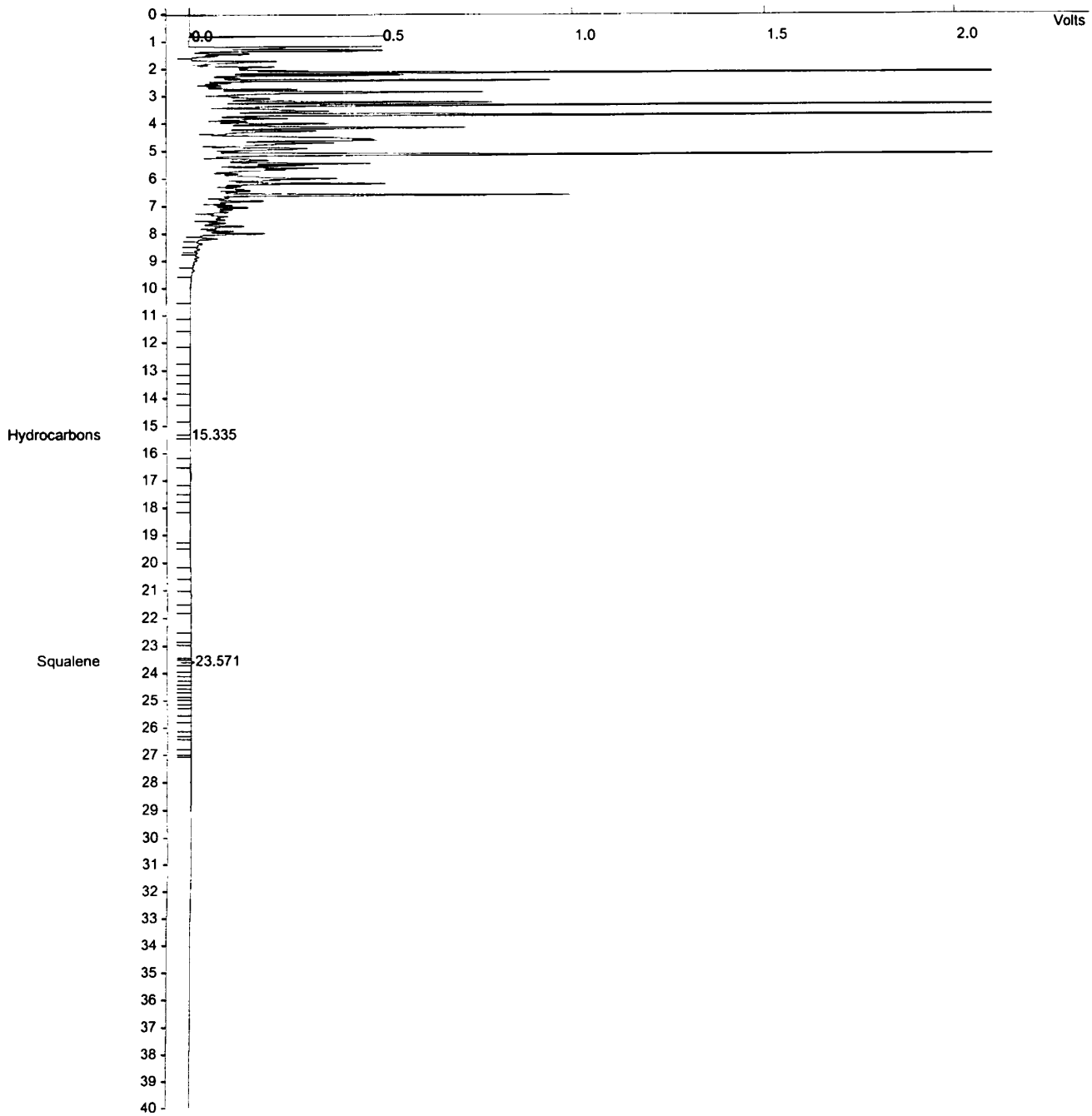
Title : DRO / ORO
Run File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\1103158-008b.run
Method File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\hydrocarbons c12-28.mt
Sample ID : 1103158-008b

Injection Date: 3/18/11 4:26 AM  Calculation Date: 3/23/11 5:53 PM

Operator : M. Budziak  Detector Type: ADCB (1 Volt)
Workstation:  Bus Address : 16
Instrument : HP 6890 GC#16  Sample Rate : 10.00 Hz
Channel : B = B  Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Chart Speed = 0.49 cm/min  Attenuation = 9918  Zero Offset = 2%
Start Time = 0.000 min  End Time = 40.002 min  Min / Tick = 1.00



Print Date: Tue Mar 29 11:12:07 2011 Page 1 of 1

Title : DRO / ORO
Run File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\1103158-008b.run
Method File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\hydrocarbons c12-28.mth
Sample ID : 1103158-008b

Injection Date: 3/18/11 4:26 AM Calculation Date: 3/23/11 5:53 PM

Operator : M. Budziak
Workstation:
Instrument : HP 6890 GC#16
Channel : B = B

Detector Type: ADCB (1 Volt)
Bus Address : 16
Sample Rate : 10.00 Hz
Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Run Mode : Analysis
Peak Measurement: Peak Area
Calculation Type: External Standard

| Peak No. | Peak Name | Result (ug/ml) | Ret. Time (min) | Time Offset (min) | Area (counts) | Sep. Code | Width 1/2 (sec) | Group | Status Codes |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Hydrocarbons | 2079.3157 | 15.335 | 0.000 | 5092763 | GR | 0.0 | 0 | |
| 2 | Squalene | 13.2316 | 23.571 | 0.002 | 34170 | BB | 3.6 | 0 | |
| | Group 0 | 2092.5473 | | 0.002 | 5126933 | | | | |
| | Totals: | 2092.5473 | | 0.002 | 5126933 | | | | |

Total Unidentified Counts : 62529196 counts

Detected Peaks: 71 Rejected Peaks: 16 Identified Peaks: 2

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -667 microVolts

Noise (used): 10 microVolts - fixed value
Noise (monitored before this run): 4 microVolts

Manual injection

**********

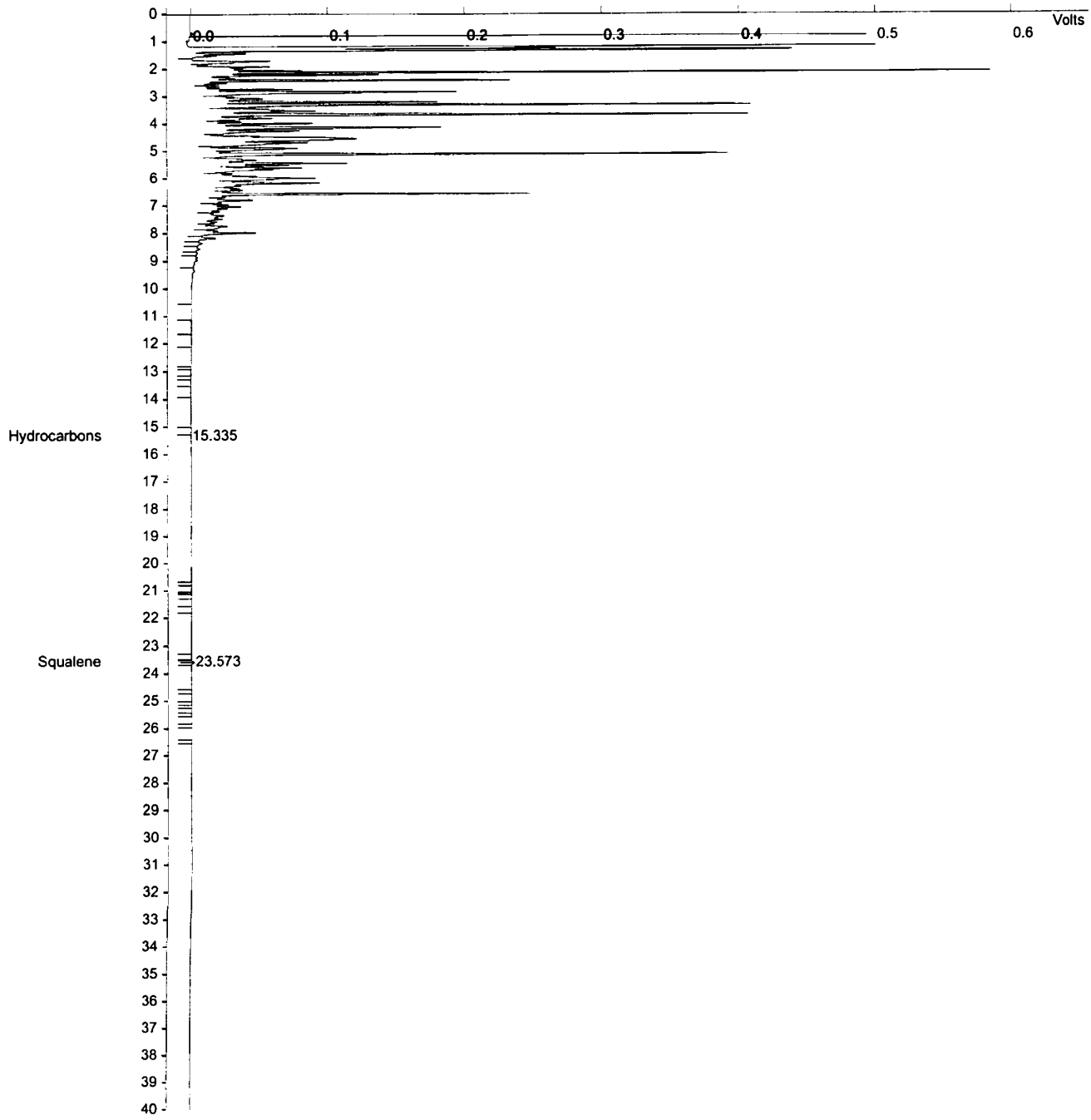
Title : DRO / ORO
Run File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\1103158-008b1-4.run
Method File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\hydrocarbons c12-28.mt
Sample ID : 1103158-008b1-4

Injection Date: 3/18/11 5:12 AM  Calculation Date: 3/23/11 5:52 PM

Operator : M. Budziak  Detector Type: ADCB (1 Volt)
Workstation:  Bus Address : 16
Instrument : HP 6890 GC#16  Sample Rate : 10.00 Hz
Channel : B = B  Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Chart Speed = 0.49 cm/min  Attenuation = 2768  Zero Offset = 2%
Start Time = 0.000 min  End Time = 40.002 min  Min / Tick = 1.00



Print Date: Tue Mar 29 11:12:13 2011 Page 1 of 1

Title : DRO / ORO
Run File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\1103158-008b1-4.run
Method File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\hydrocarbons c12-28.mth
Sample ID : 1103158-008b1-4

Injection Date: 3/18/11 5:12 AM Calculation Date: 3/23/11 5:52 PM

Operator : M. Budziak
Workstation:
Instrument : HP 6890 GC#16
Channel : B = B

Detector Type: ADCB (1 Volt)
Bus Address : 16
Sample Rate : 10.00 Hz
Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Run Mode : Analysis
Peak Measurement: Peak Area
Calculation Type: External Standard

| Peak No. | Peak Name | Result (ug/ml) | Ret. Time (min) | Time Offset (min) | Area (counts) | Sep. Code | Width 1/2 (sec) | Group | Status Codes |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Hydrocarbons | 497.8688 | 15.335 | 0.000 | 1273135 | GR | 0.0 | 0 | |
| 2 | Squalene | 2.9317 | 23.573 | 0.003 | 7884 | BB | 3.6 | 0 | |
| | Group 0 | 500.8005 | | 0.003 | 1281019 | | | | |
| | Totals: | 500.8005 | | 0.003 | 1281019 | | | | |

Total Unidentified Counts : 15708819 counts

Detected Peaks: 47 Rejected Peaks: 8 Identified Peaks: 2

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -673 microVolts

Noise (used): 10 microVolts - fixed value
Noise (monitored before this run): 6 microVolts

Manual injection

**********

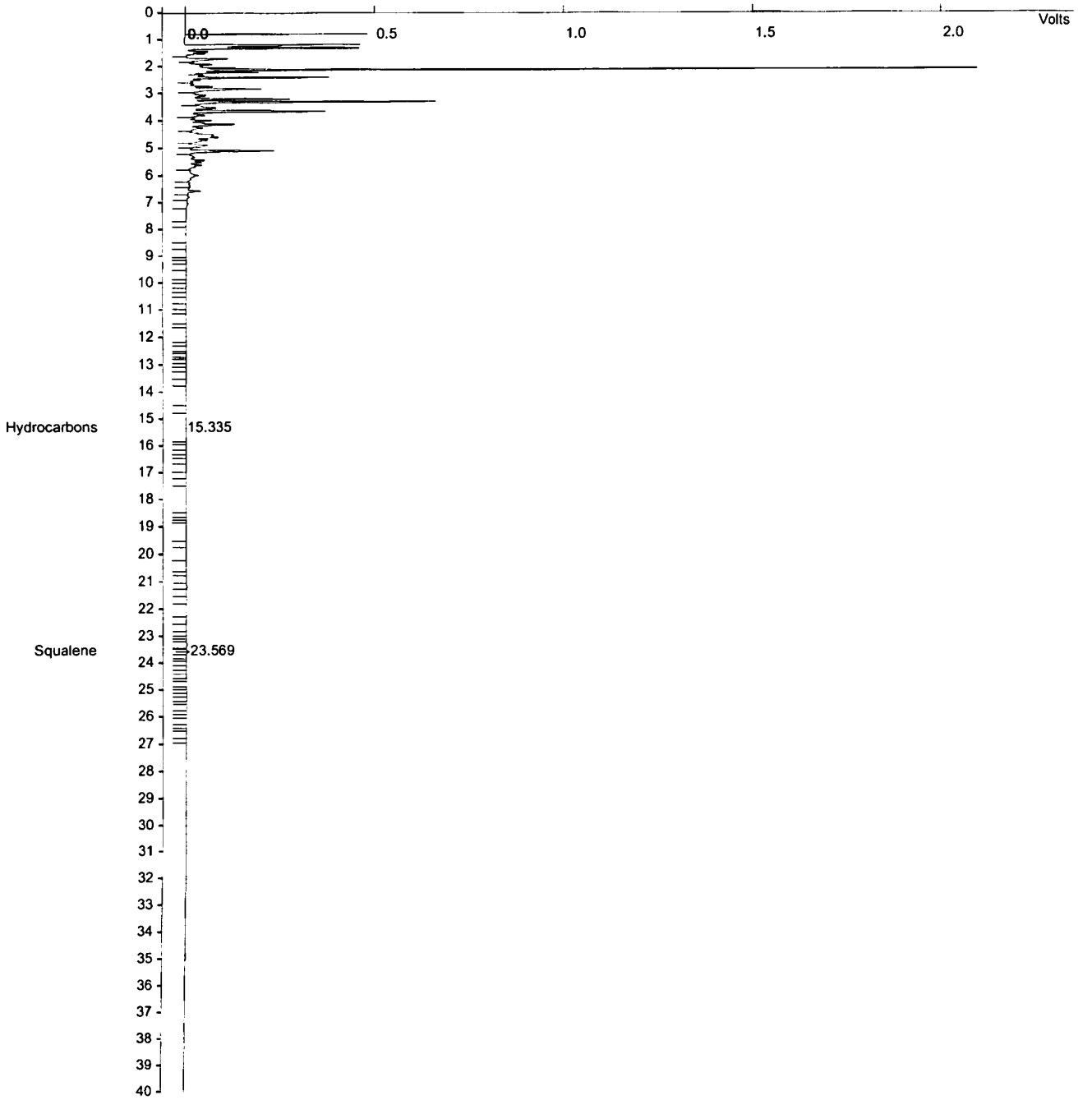
Title : DRO / ORO
Run File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\1103158-012b.run
Method File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\hydrocarbons c12-28.mt
Sample ID : 1103158-012b

Injection Date: 3/18/11 5:57 AM  Calculation Date: 3/23/11 5:53 PM

Operator : M. Budziak  Detector Type: ADCB (1 Volt)
Workstation:  Bus Address : 16
Instrument : HP 6890 GC#16  Sample Rate : 10.00 Hz
Channel : B = B  Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Chart Speed = 0.49 cm/min  Attenuation = 9919  Zero Offset = 2%
Start Time = 0.000 min  End Time = 40.002 min  Min / Tick = 1.00



Print Date: Tue Mar 29 11:12:19 2011 Page 1 of 1

Title : DRO / ORO
Run File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\1103158-012b.run
Method File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\hydrocarbons c12-28.mth
Sample ID : 1103158-012b

Injection Date: 3/18/11 5:57 AM Calculation Date: 3/23/11 5:53 PM

Operator : M. Budziak
Workstation:
Instrument : HP 6890 GC#16
Channel : B = B

Detector Type: ADCB (1 Volt)
Bus Address : 16
Sample Rate : 10.00 Hz
Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Run Mode : Analysis
Peak Measurement: Peak Area
Calculation Type: External Standard

| Peak No. | Peak Name | Result (ug/ml) | Ret. Time (min) | Time Offset (min) | Area (counts) | Sep. Code | Width 1/2 (sec) | Group | Status Codes |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Hydrocarbons | 32.3533 | 15.335 | 0.000 | 116196 | GR | 0.0 | 0 | |
| 2 | Squalene | 11.8051 | 23.569 | 0.000 | 30567 | BB | 3.6 | 0 | |
| | Group 0 | 44.1584 | | 0.000 | 146763 | | | | |
| | Totals: | 44.1584 | | 0.000 | 146763 | | | | |

Total Unidentified Counts : 11130213 counts

Detected Peaks: 80 Rejected Peaks: 20 Identified Peaks: 2

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -689 microVolts

Noise (used): 10 microVolts - fixed value
Noise (monitored before this run): 6 microVolts

Manual injection

**********

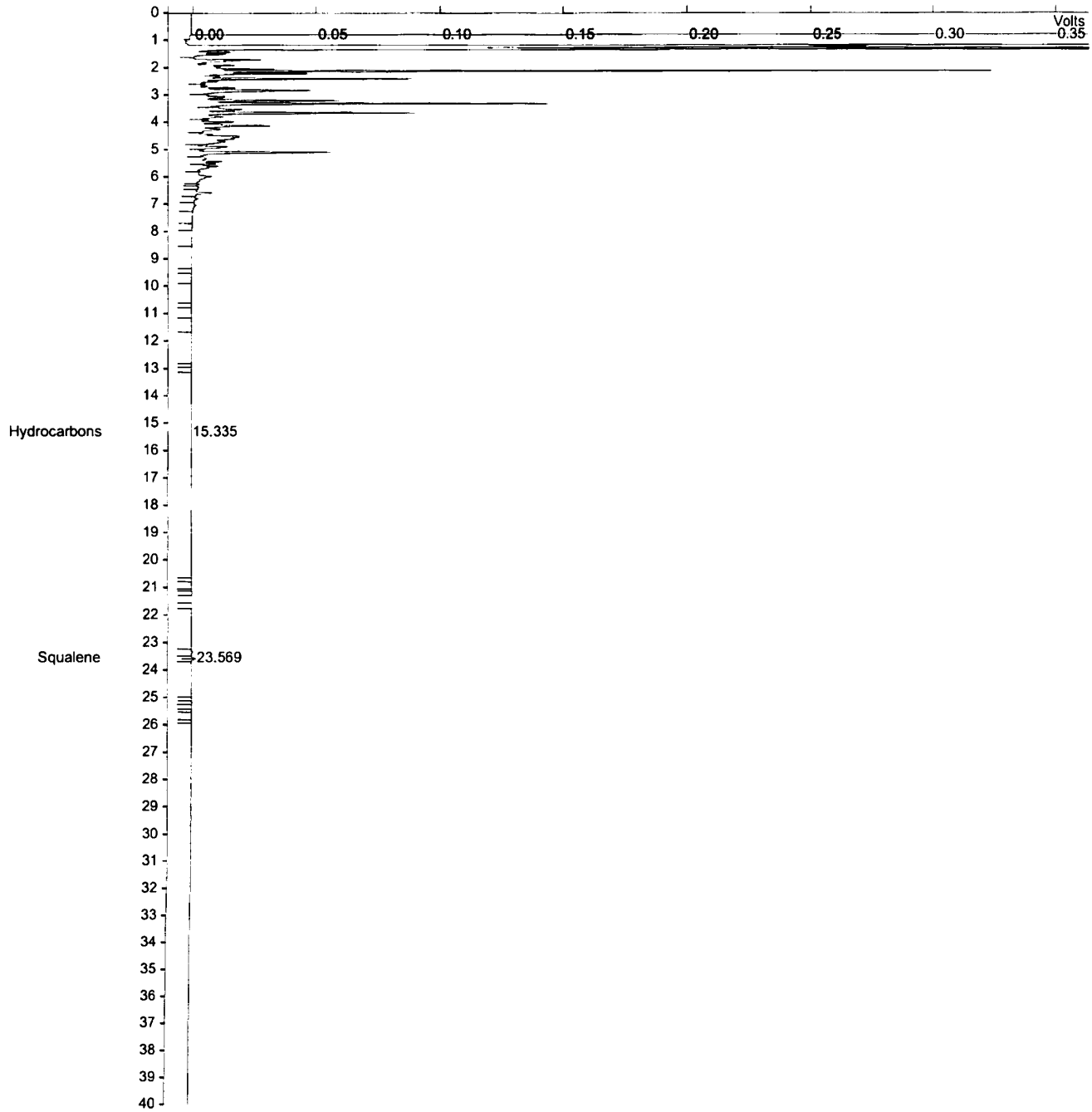
Title : DRO / ORO
Run File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\1103158-012b1-4.run
Method File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\hydrocarbons c12-28.mt
Sample ID : 1103158-012b1-4

Injection Date: 3/18/11 6:43 AM  Calculation Date: 3/23/11 5:53 PM

Operator : M. Budziak  Detector Type: ADCB (1 Volt)
Workstation:  Bus Address : 16
Instrument : HP 6890 GC#16  Sample Rate : 10.00 Hz
Channel : B = B  Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Chart Speed = 0.49 cm/min  Attenuation = 1533  Zero Offset = 2%
Start Time = 0.000 min  End Time = 40.002 min  Min / Tick = 1.00



Print Date: Tue Mar 29 11:12:25 2011 Page 1 of 1

Title : DRO / ORO
Run File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\1103158-012b1-4.run
Method File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\hydrocarbons c12-28.mth
Sample ID : 1103158-012b1-4

Injection Date: 3/18/11 6:43 AM Calculation Date: 3/23/11 5:53 PM

Operator : M. Budziak
Workstation:
Instrument : HP 6890 GC#16
Channel : B = B

Detector Type: ADCB (1 Volt)
Bus Address : 16
Sample Rate : 10.00 Hz
Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Run Mode : Analysis
Peak Measurement: Peak Area
Calculation Type: External Standard

| Peak No. | Peak Name | Result (ug/ml) | Ret. Time (min) | Time Offset (min) | Area (counts) | Sep. Code | Width 1/2 (sec) | Group | Status Codes |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Hydrocarbons | no result | 15.335 | 0.000 | 18318 | GR | 0.0 | 0 | C* |
| 2 | Squalene | 2.5971 | 23.569 | 0.000 | 7019 | BB | 3.6 | 0 | |
| | Group 0 | 73201.9565 | | 0.000 | 25337 | | | | |
| | Totals: | 2.5971 | | 0.000 | 25337 | | | | |

Status Codes:
* - No result could be calculated; check calibration curve
C - Out of calibration range

Total Unidentified Counts : 2728574 counts

Detected Peaks: 36 Rejected Peaks: 5 Identified Peaks: 2

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -694 microVolts

Noise (used): 10 microVolts - fixed value
Noise (monitored before this run): 7 microVolts

Manual injection

Data Handling: At Least One Curve has Improper Solution!
Calib. out of range; No Recovery Action Specified

**********

Title : DRO / ORO
Run File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\ccb b.run
Method File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\hydrocarbons c12-28.mt
Sample ID : ccb b

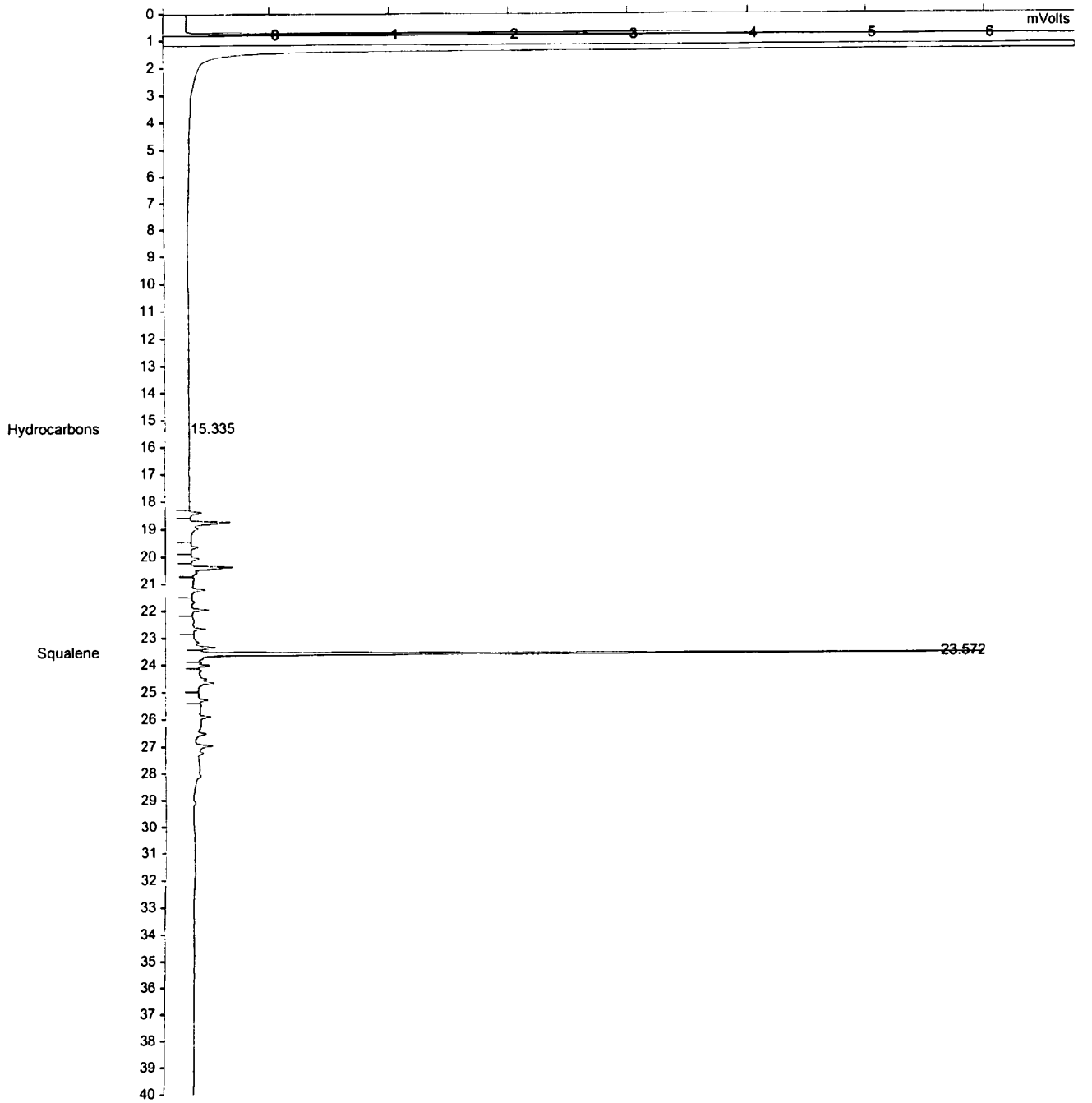
Injection Date: 3/18/11 7:29 AM  Calculation Date: 3/18/11 10:20 AM

Operator : M. Budziak
Workstation:
Instrument : HP 6890 GC#16
Channel : B = B

Detector Type: ADCB (1 Volt)
Bus Address : 16
Sample Rate : 10.00 Hz
Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Chart Speed = 0.49 cm/min  Attenuation = 31  Zero Offset = 11%
Start Time = 0.000 min  End Time = 40.002 min  Min / Tick = 1.00



Print Date: Tue Mar 29 11:12:31 2011 Page 1 of 1

Title : DRO / ORO
Run File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\ccb b.run
Method File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\hydrocarbons c12-28.mth
Sample ID : ccb b

Injection Date: 3/18/11 7:29 AM Calculation Date: 3/18/11 10:20 AM

Operator : M. Budziak
Workstation:
Instrument : HP 6890 GC#16
Channel : B = B

Detector Type: ADCB (1 Volt)
Bus Address : 16
Sample Rate : 10.00 Hz
Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Run Mode : Analysis
Peak Measurement: Peak Area
Calculation Type: External Standard

| Peak No. | Peak Name | Result (ug/ml) | Ret. Time (min) | Time Offset (min) | Area (counts) | Sep. Code | Width 1/2 (sec) | Group | Status Codes |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Hydrocarbons | no result | 15.335 | 0.000 | 10436 | GR | 0.0 | 0 | C* |
| 2 | Squalene | 10.3986 | 23.572 | 0.003 | 27002 | VV | 4.1 | 0 | |
| | Group 0 | 73212.9064 | | 0.003 | 37438 | | | | |
| | Totals: | 10.3986 | | 0.003 | 37438 | | | | |

Status Codes:
* - No result could be calculated; check calibration curve
C - Out of calibration range

Total Unidentified Counts : 0 counts

Detected Peaks: 13 Rejected Peaks: 3 Identified Peaks: 2

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -695 microVolts

Noise (used): 10 microVolts - fixed value
Noise (monitored before this run): 6 microVolts

Manual injection

Data Handling: At Least One Curve has Improper Solution!
Calib. out of range; No Recovery Action Specified

**********

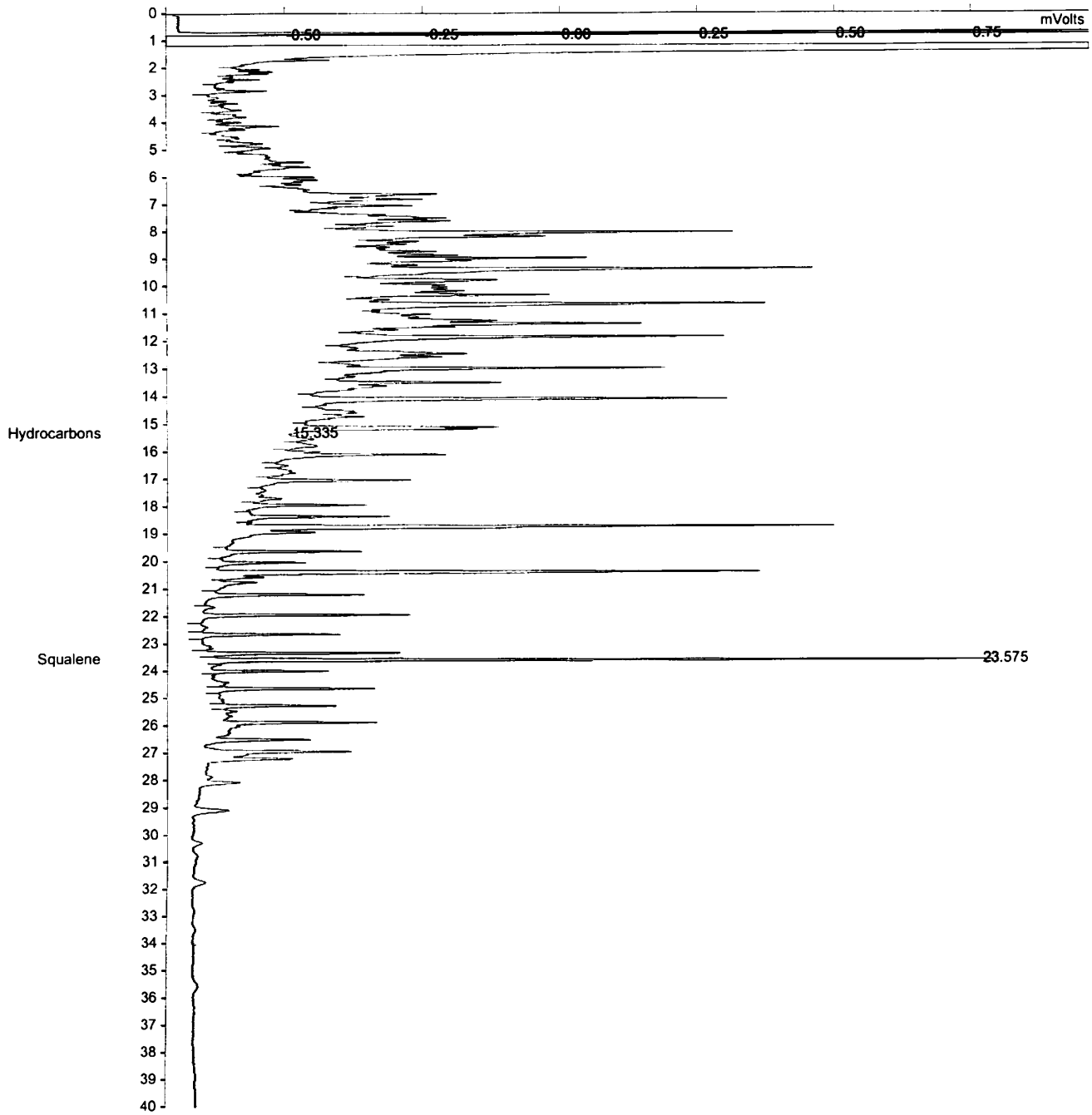
Title : DRO / ORO
Run File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\crql std 100ppm b.run
Method File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\hydrocarbons c12-28.mt
Sample ID : crql std 100ppm b

Injection Date: 3/18/11 8:15 AM  Calculation Date: 3/18/11 10:19 AM

Operator : M. Budziak  Detector Type: ADCB (1 Volt)
Workstation:  Bus Address : 16
Instrument : HP 6890 GC#16  Sample Rate : 10.00 Hz
Channel : B = B  Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Chart Speed = 0.49 cm/min  Attenuation = 6  Zero Offset = 48%
Start Time = 0.000 min  End Time = 40.002 min  Min / Tick = 1.00



Verification Report

Title : DRO / ORO
Run File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\crql std 100ppm b.run
Method File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\hydrocarbons c12-28.mth
Sample ID : crql std 100ppm b

Injection Date: 3/18/11 8:15 AM Calculation Date: 3/18/11 10:19 AM

Operator : M. Budziak
Workstation:
Instrument : HP 6890 GC#16
Channel : B = B

Detector Type: ADCB (1 Volt)
Bus Address : 16
Sample Rate : 10.00 Hz
Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Run Mode : Verification
Peak Measurement: Peak Area
Calculation Type: External Standard
Level : 2
Tolerance : 20.0%

| Peak No. | Peak Name | Expected Result (ug/ml) | Calculated Result (ug/ml) | Dev. % | Ret. Time (min) | Time Offset (min) | Area (counts) | Group | Status Codes |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Hydrocarbons | 100.0000 | 81.6467 | 18.4 | 15.335 | 0.000 | 239406 | 0 | |
| 2 | Squalene | 2.5000 | 2.1599 | 13.6 | 23.575 | 0.006 | 5889 | 0 | |
| | Group 0 | | 83.8066 | | | 0.006 | 245295 | | |
| | Totals: | | 83.8066 | | | 0.006 | 245295 | | |

Total Unidentified Counts : 10319 counts

Detected Peaks: 55 Rejected Peaks: 15 Identified Peaks: 2

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -695 microVolts

Noise (used): 10 microVolts - fixed value
Noise (monitored before this run): 6 microVolts

Manual injection

**********

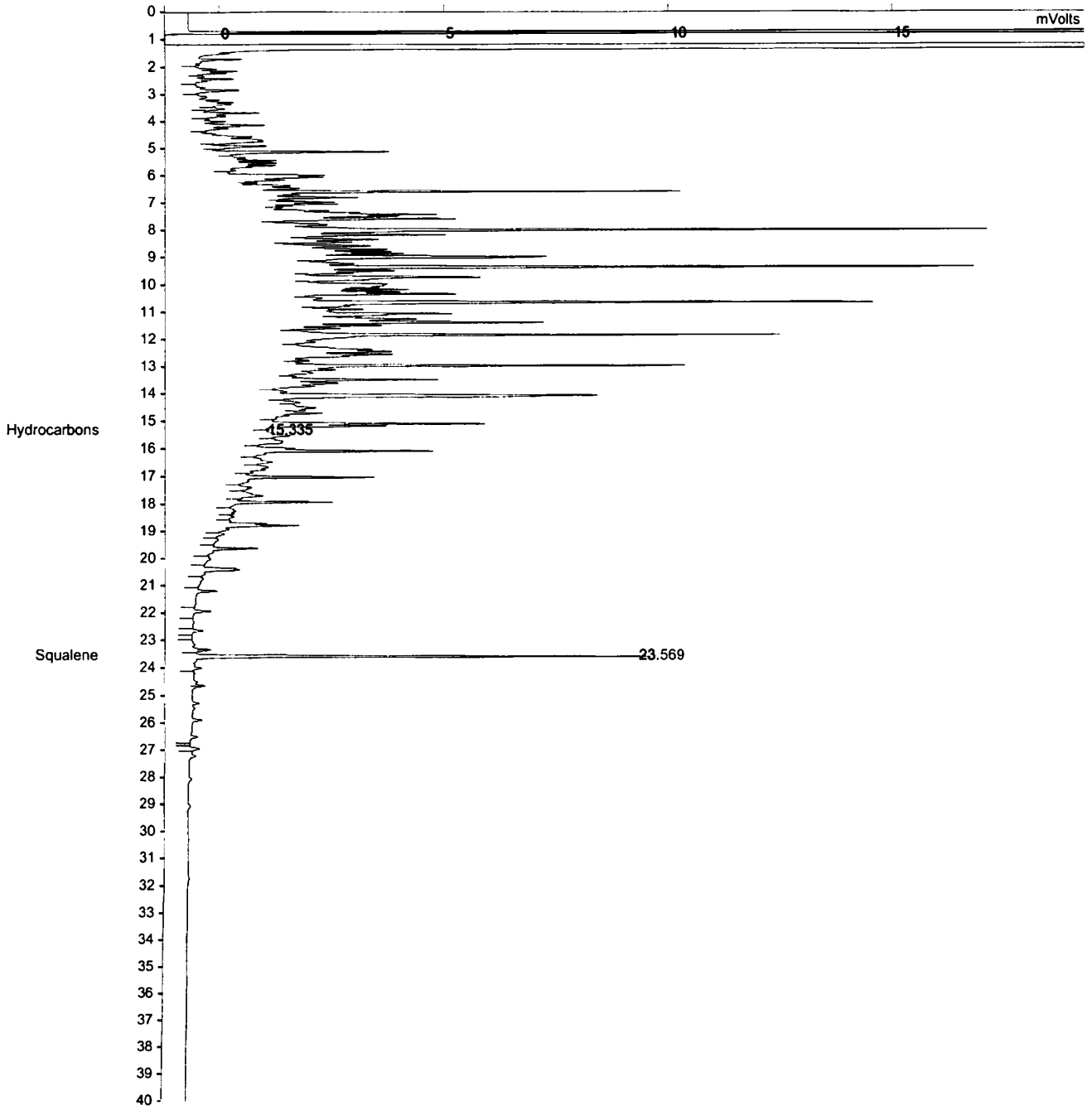
Title : DRO/ORO
Run File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\ccv std 1000ppm b.run
Method File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\hydrocarbons c12-28.mt
Sample ID : ccv std 1000ppm b

Injection Date: 3/18/11 9:01 AM  Calculation Date: 3/18/11 10:23 AM

Operator : M. Budziak  Detector Type: ADCB (1 Volt)
Workstation:  Bus Address : 16
Instrument : HP 6890 GC#16  Sample Rate : 10.00 Hz
Channel : B = B  Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Chart Speed = 0.49 cm/min  Attenuation = 84  Zero Offset = 5%
Start Time = 0.000 min  End Time = 40.002 min  Min / Tick = 1.00



# Verification Report

Title : DRO/ORO
Run File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\ccv std 1000ppm b.run
Method File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\hydrocarbons c12-28.mth
Sample ID : ccv std 1000ppm b

Injection Date: 3/18/11 9:01 AM Calculation Date: 3/18/11 10:23 AM

Operator : M. Budziak
Workstation:
Instrument : HP 6890 GC#16
Channel : B = B

Detector Type: ADCB (1 Volt)
Bus Address : 16
Sample Rate : 10.00 Hz
Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Run Mode : Verification
Peak Measurement: Peak Area
Calculation Type: External Standard
Level : 8
Tolerance : 20.0%

| Peak No. | Peak Name | Expected Result (ug/ml) | Calculated Result (ug/ml) | Dev. % | Ret. Time (min) | Time Offset (min) | Area (counts) | Group | Status Codes |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Hydrocarbons | 1000.0000 | 854.1752 | 14.6 | 15.335 | 0.000 | 2148644 | 0 | |
| 2 | Squalene | 20.0000 | 17.1445 | 14.3 | 23.569 | 0.000 | 43993 | 0 | |
| | Group 0 | | 871.3197 | | | 0.000 | 2192637 | | |
| | Totals: | | 871.3197 | | | 0.000 | 2192637 | | |

Total Unidentified Counts : 338261 counts

Detected Peaks: 64 Rejected Peaks: 2 Identified Peaks: 2

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -692 microVolts

Noise (used): 10 microVolts - fixed value
Noise (monitored before this run): 5 microVolts

Manual injection

Requested Curve Type : quadratic
Requested Origin : ignore
Calibration Type : External Standard Analysis

Method Detector Type : ADC Board
Method Bus Address : 16
Method Channel : B

Calibration Dates
Last Injection Date : 3/16/11 11:59 PM

Last Recalculation Date : 3/17/11 3:35 PM

| Retention Time (min) | Peak Name | Curve\ Origin | $X^3$ | $X^2$ | X | C | $r^2$ | Cal.Range | No. of Points | Edit Codes |
|---|---|---|---|---|---|---|---|---|---|---|
| 15.335 | Hydrocarbons C12- | 2 IG | -3.4203e-002 | +2.5034e+003 | +3.5238e+004 | +9.9994e-001 | | 2-7 | 6 | |
| 23.569 | Squalene | 2 IG | -2.9256e+000 | +2.5994e+003 | +2.8820e+002 | +9.9995e-001 | | 2-7 | 6 | |

| Curve Codes | Origin Codes | Edit Codes |
|---|---|---|
| 1 linear | I include | 1 curve |
| 2 quadratic | IG ignore | 2 origin |
| 3 cubic | F force | 3 coefficient |

Ret. Time: 15.335 min. Peak Measurement: Area
Peak Name: Hydrocarbons C12-28 Curve\Origin: 2 IG

| Level | Amount | Replicate No. | Response | Avg. Response | Std. Dev. |
|---|---|---|---|---|---|
| 2 | 100.000000 | 1 | 283957 | 283957.0 | # |
| 3 | 200.000000 | 1 | 514918 | 514917.6 | # |
| 4 | 500.000000 | 1 | 1267060 | 1267060.1 | # |
| 5 | 1000.000000 | 1 | 2568985 | 2568985.0 | # |
| 6 | 2000.000000 | 1 | 4869749 | 4869748.5 | # |
| 7 | 5000.000000 | 1 | 11700516 | 11700516.0 | # |

Ret. Time: 23.569 min. Peak Measurement: Area
Peak Name: Squalene Curve\Origin: 2 IG

| Level | Amount | Replicate No. | Response | Avg. Response | Std. Dev. |
|---|---|---|---|---|---|
| 2 | 2.500000 | 1 | 7133 | 7132.7 | # |
| 3 | 5.000000 | 1 | 12739 | 12738.8 | # |
| 4 | 10.000000 | 1 | 26093 | 26093.0 | # |
| 5 | 20.000000 | 1 | 50935 | 50935.1 | # |
| 6 | 25.000000 | 1 | 63643 | 63643.1 | # |
| 7 | 50.000000 | 1 | 122921 | 122920.8 | # |

# = Too few points to calculate.

| Peak Name | Level | Rep. | Injection Date Time | Run Files |
|---|---|---|---|---|
| Hydrocarbons C12-28 | 2 | 1 | 3/16/11 8:09 PM | d:\star\data\hp6890 gc\2011-03\0316-c12-28\std 100.run |
| | 3 | 1 | 3/16/11 8:55 PM | d:\star\data\hp6890 gc\2011-03\0316-c12-28\std 200.run |
| | 4 | 1 | 3/16/11 9:41 PM | d:\star\data\hp6890 gc\2011-03\0316-c12-28\std 500.run |
| | 5 | 1 | 3/16/11 10:27 PM | d:\star\data\hp6890 gc\2011-03\0316-c12-28\std 1000.run |
| | 6 | 1 | 3/16/11 11:13 PM | d:\star\data\hp6890 gc\2011-03\0316-c12-28\std 2000.run |
| | 7 | 1 | 3/16/11 11:59 PM | d:\star\data\hp6890 gc\2011-03\0316-c12-28\std 5000.run |
| Squalene | 2 | 1 | 3/16/11 8:09 PM | d:\star\data\hp6890 gc\2011-03\0316-c12-28\std 100.run |
| | 3 | 1 | 3/16/11 8:55 PM | d:\star\data\hp6890 gc\2011-03\0316-c12-28\std 200.run |
| | 4 | 1 | 3/16/11 9:41 PM | d:\star\data\hp6890 gc\2011-03\0316-c12-28\std 500.run |
| | 5 | 1 | 3/16/11 10:27 PM | d:\star\data\hp6890 gc\2011-03\0316-c12-28\std 1000.run |
| | 6 | 1 | 3/16/11 11:13 PM | d:\star\data\hp6890 gc\2011-03\0316-c12-28\std 2000.run |
| | 7 | 1 | 3/16/11 11:59 PM | d:\star\data\hp6890 gc\2011-03\0316-c12-28\std 5000.run |

**********

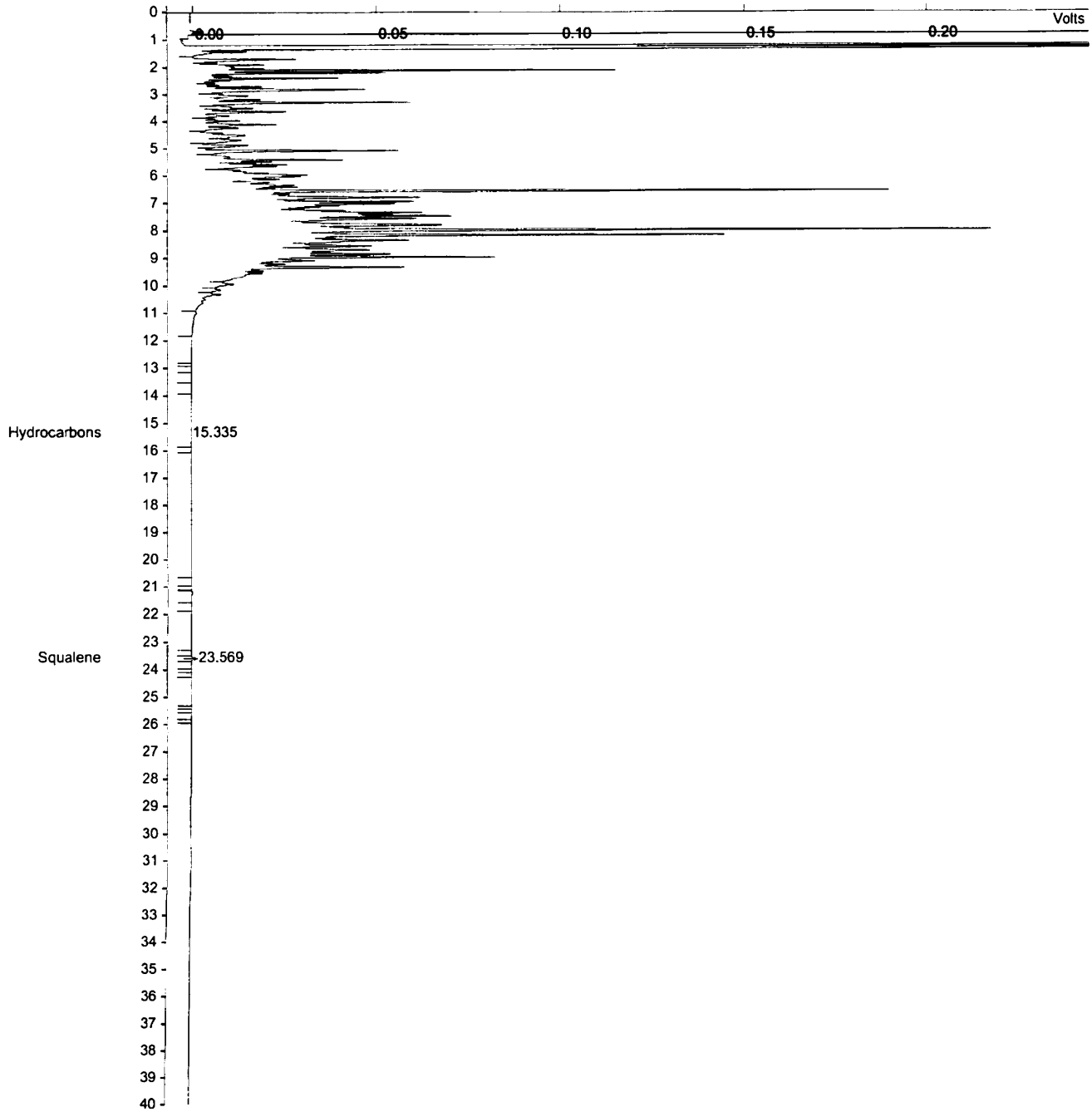
Title : DRO / ORO
Run File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\1103158-005b1-4.run
Method File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\hydrocarbons c12-28.mt
Sample ID : 1103158-005b1-4

Injection Date: 3/18/11 10:35 AM  Calculation Date: 3/23/11 5:55 PM

Operator : M. Budziak  Detector Type: ADCB (1 Volt)
Workstation:  Bus Address : 16
Instrument : HP 6890 GC#16  Sample Rate : 10.00 Hz
Channel : B = B  Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Chart Speed = 0.49 cm/min  Attenuation = 1032  Zero Offset = 2%
Start Time = 0.000 min  End Time = 40.002 min  Min / Tick = 1.00



Print Date: Tue Mar 29 11:12:43 2011 Page 1 of 1

Title : DRO / ORO
Run File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\1103158-005b1-4.run
Method File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\hydrocarbons c12-28.mth
Sample ID : 1103158-005b1-4

Injection Date: 3/18/11 10:35 AM Calculation Date: 3/23/11 5:55 PM

Operator : M. Budziak
Workstation:
Instrument : HP 6890 GC#16
Channel : B = B

Detector Type: ADCB (1 Volt)
Bus Address : 16
Sample Rate : 10.00 Hz
Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Run Mode : Analysis
Peak Measurement: Peak Area
Calculation Type: External Standard

| Peak No. | Peak Name | Result (ug/ml) | Ret. Time (min) | Time Offset (min) | Area (counts) | Sep. Code | Width 1/2 (sec) | Group | Status Codes |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Hydrocarbons | 2791.2744 | 15.335 | 0.000 | 6756492 | GR | 0.0 | 0 | |
| 2 | Squalene | 2.4363 | 23.569 | 0.000 | 6604 | BB | 3.6 | 0 | |
| | Group 0 | 2793.7107 | | 0.000 | 6763096 | | | | |
| | Totals: | 2793.7107 | | 0.000 | 6763096 | | | | |

Total Unidentified Counts : 5003395 counts

Detected Peaks: 46 Rejected Peaks: 6 Identified Peaks: 2

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -709 microVolts

Noise (used): 10 microVolts - fixed value
Noise (monitored before this run): 4 microVolts

Manual injection

**********

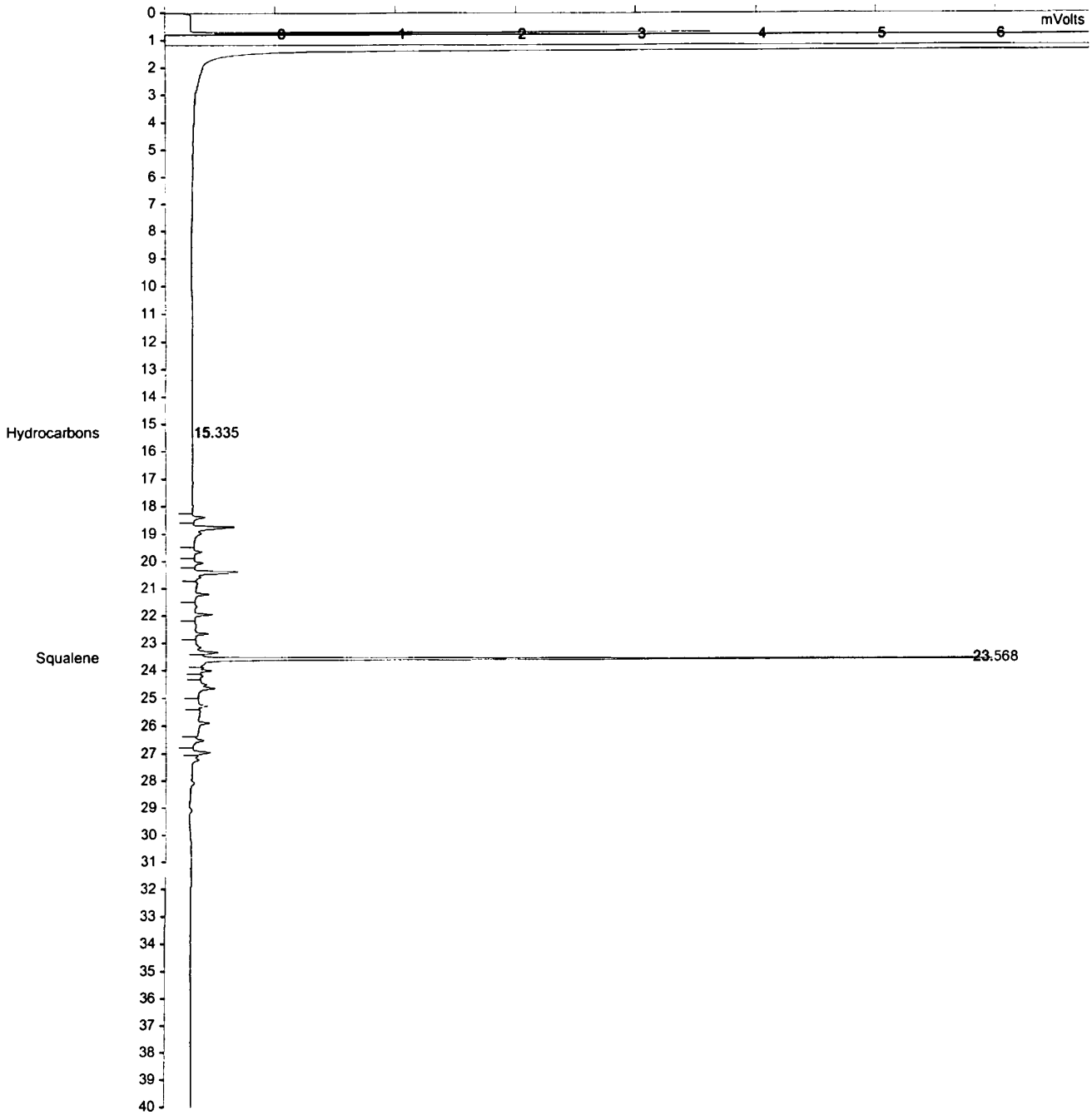
Title : DRO / ORO
Run File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\ccb c.run
Method File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\hydrocarbons c12-28.mt
Sample ID : ccb c

Injection Date: 3/18/11 11:21 AM  Calculation Date: 3/23/11 5:41 PM

Operator : M. Budziak  Detector Type: ADCB (1 Volt)
Workstation:  Bus Address : 16
Instrument : HP 6890 GC#16  Sample Rate : 10.00 Hz
Channel : B = B  Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Chart Speed = 0.49 cm/min  Attenuation = 31  Zero Offset = 12%
Start Time = 0.000 min  End Time = 40.002 min  Min / Tick = 1.00



Print Date: Tue Mar 29 11:12:49 2011 Page 1 of 1

Title : DRO / ORO
Run File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\ccb c.run
Method File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\hydrocarbons c12-28.mth
Sample ID : ccb c

Injection Date: 3/18/11 11:21 AM Calculation Date: 3/23/11 5:41 PM

Operator : M. Budziak
Workstation:
Instrument : HP 6890 GC#16
Channel : B = B

Detector Type: ADCB (1 Volt)
Bus Address : 16
Sample Rate : 10.00 Hz
Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Run Mode : Analysis
Peak Measurement: Peak Area
Calculation Type: External Standard

| Peak No. | Peak Name | Result (ug/ml) | Ret. Time (min) | Time Offset (min) | Area (counts) | Sep. Code | Width 1/2 (sec) | Group | Status Codes |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Hydrocarbons | no result | 15.335 | 0.000 | 12682 | GR | 0.0 | 0 | C* |
| 2 | Squalene | 10.6240 | 23.568 | -0.001 | 27574 | VV | 4.0 | 0 | |
| | Group 0 | 73212.2334 | | -0.001 | 40256 | | | | |
| | Totals: | 10.6240 | | -0.001 | 40256 | | | | |

Status Codes:
* - No result could be calculated; check calibration curve
C - Out of calibration range

Total Unidentified Counts : 0 counts

Detected Peaks: 17 Rejected Peaks: 7 Identified Peaks: 2

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -705 microVolts

Noise (used): 10 microVolts - fixed value
Noise (monitored before this run): 5 microVolts

Manual injection

Data Handling: At Least One Curve has Improper Solution!
Calib. out of range; No Recovery Action Specified

**********

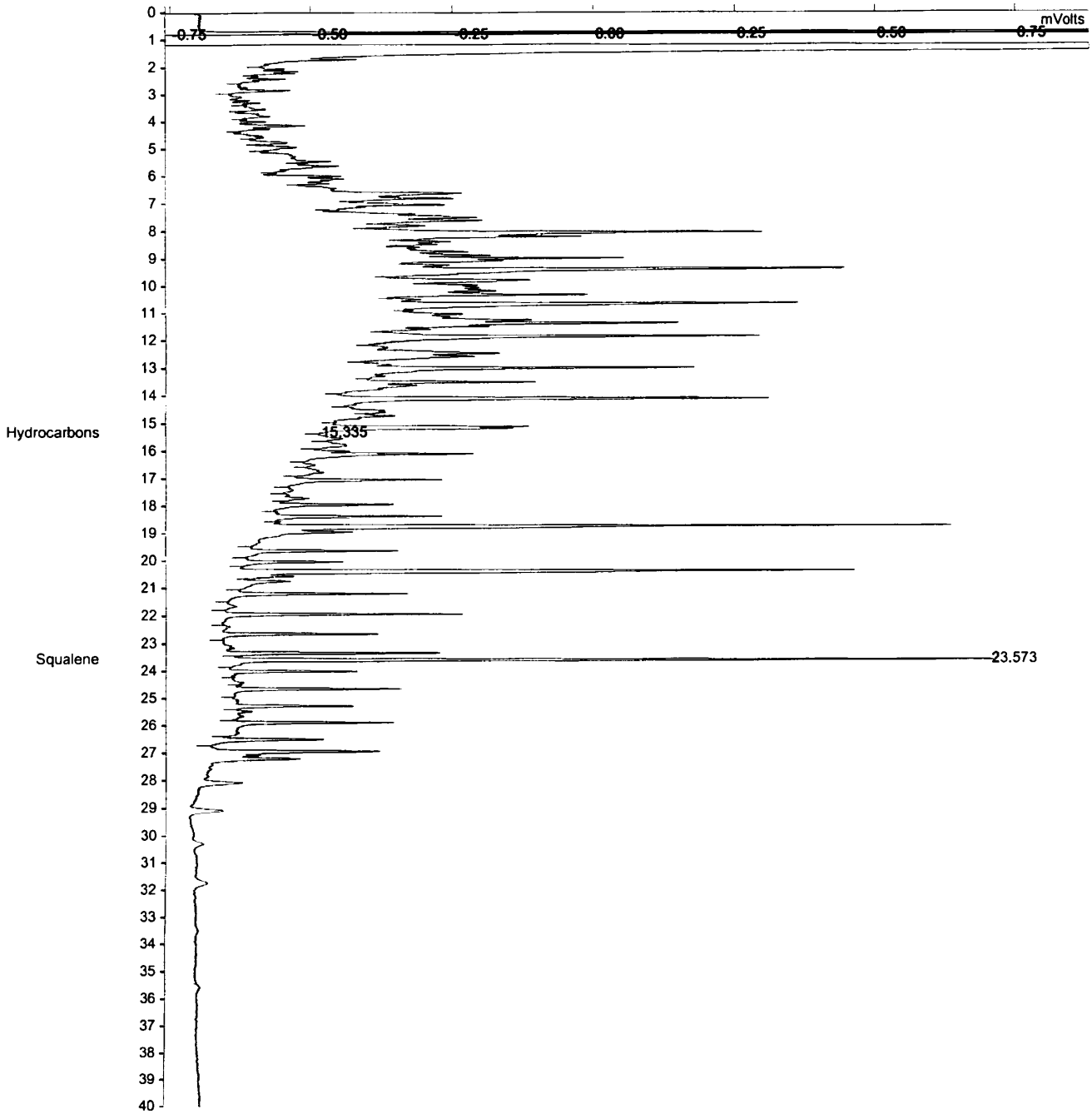
Title : DRO / ORO
Run File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\crql std 100ppm c.run
Method File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\hydrocarbons c12-28.mt
Sample ID : crql std 100ppm c

Injection Date: 3/18/11 12:07 PM  Calculation Date: 3/18/11 1:37 PM

Operator : M. Budziak  Detector Type: ADCB (1 Volt)
Workstation:  Bus Address : 16
Instrument : HP 6890 GC#16  Sample Rate : 10.00 Hz
Channel : B = B  Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Chart Speed = 0.49 cm/min  Attenuation = 6  Zero Offset = 51%
Start Time = 0.000 min  End Time = 40.002 min  Min / Tick = 1.00



Verification Report

Title : DRO / ORO
Run File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\crql std 100ppm c.run
Method File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\hydrocarbons c12-28.mth
Sample ID : crql std 100ppm c

Injection Date: 3/18/11 12:07 PM Calculation Date: 3/18/11 1:37 PM

Operator : M. Budziak Detector Type: ADCB (1 Volt)
Workstation: Bus Address : 16
Instrument : HP 6890 GC#16 Sample Rate : 10.00 Hz
Channel : B = B Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Run Mode : Verification
Peak Measurement: Peak Area
Calculation Type: External Standard
Level : 2
Tolerance : 20.0%

| Peak No. | Peak Name | Expected Result (ug/ml) | Calculated Result (ug/ml) | Dev. % | Ret. Time (min) | Time Offset (min) | Area (counts) | Group | Status Codes |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Hydrocarbons | 100.0000 | 84.2165 | 15.8 | 15.335 | 0.000 | 245824 | 0 | |
| 2 | Squalene | 2.5000 | 2.1418 | 14.3 | 23.573 | 0.004 | 5842 | 0 | |
| | Group 0 | | 86.3583 | | | 0.004 | 251666 | | |
| | Totals: | | 86.3583 | | | 0.004 | 251666 | | |

Total Unidentified Counts : 10427 counts

Detected Peaks: 61 Rejected Peaks: 19 Identified Peaks: 2

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -698 microVolts

Noise (used): 10 microVolts - fixed value
Noise (monitored before this run): 5 microVolts

Manual injection

**********

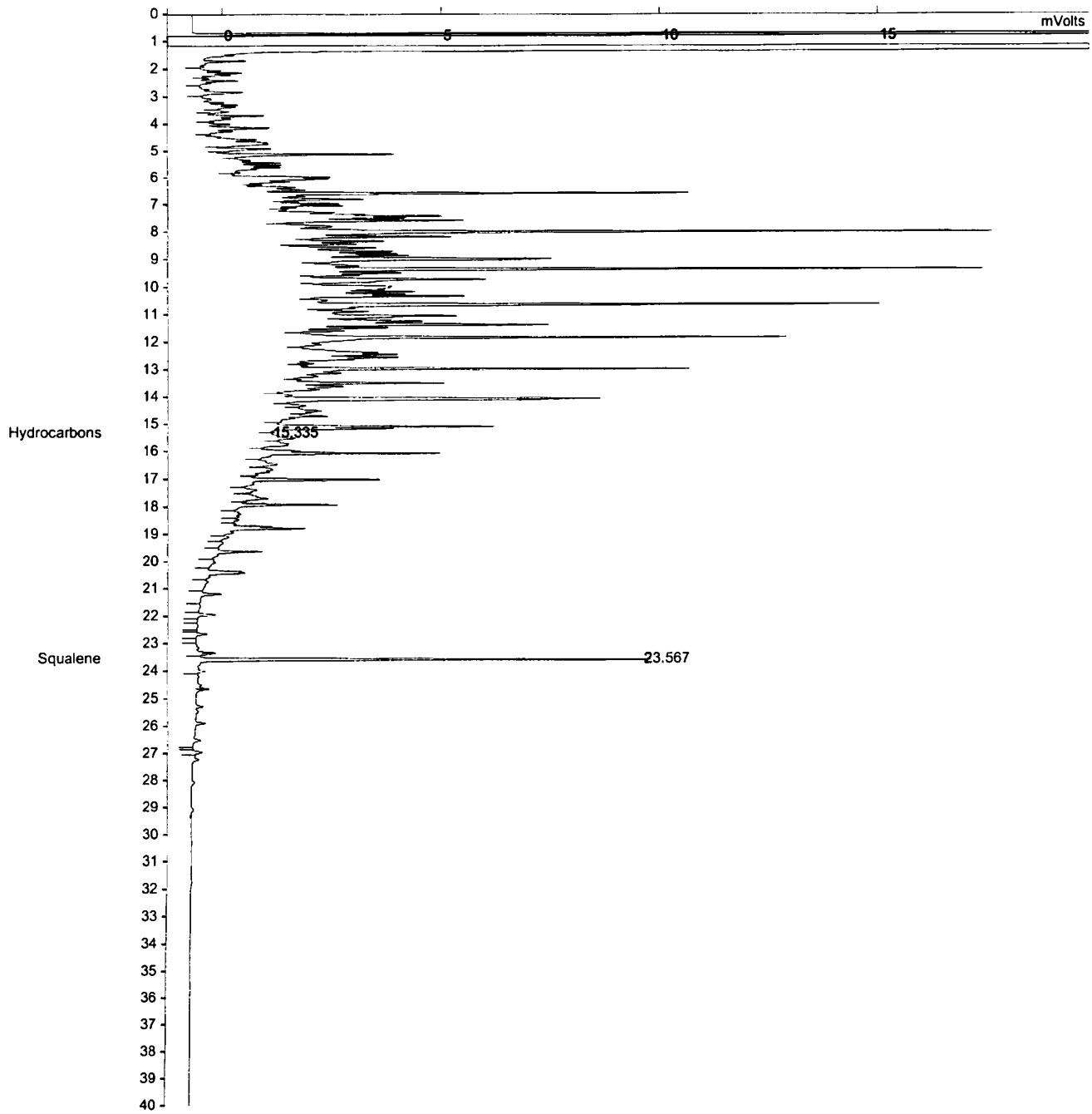
Title : DRO/ORO
Run File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\ccv std 1000ppm c.run
Method File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\hydrocarbons c12-28.mt
Sample ID : ccv std 1000ppm c

Injection Date: 3/18/11 12:53 PM  Calculation Date: 3/18/11 1:36 PM

Operator : M. Budziak  Detector Type: ADCB (1 Volt)
Workstation:  Bus Address : 16
Instrument : HP 6890 GC#16  Sample Rate : 10.00 Hz
Channel : B = B  Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Chart Speed = 0.49 cm/min  Attenuation = 86  Zero Offset = 6%
Start Time = 0.000 min  End Time = 40.002 min  Min / Tick = 1.00



# Verification Report

Title : DRO/ORO
Run File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\ccv std 1000ppm c.run
Method File : d:\star\data\hp6890 gc\2011-03\0317-c12-28\hydrocarbons c12-28.mth
Sample ID : ccv std 1000ppm c

Injection Date: 3/18/11 12:53 PM Calculation Date: 3/18/11 1:36 PM

Operator : M. Budziak Detector Type: ADCB (1 Volt)
Workstation: Bus Address : 16
Instrument : HP 6890 GC#16 Sample Rate : 10.00 Hz
Channel : B = B Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Run Mode : Verification
Peak Measurement: Peak Area
Calculation Type: External Standard
Level : 8
Tolerance : 20.0%

| Peak No. | Peak Name | Expected Result (ug/ml) | Calculated Result (ug/ml) | Dev. % | Ret. Time (min) | Time Offset (min) | Area (counts) | Group | Status Codes |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Hydrocarbons | 1000.0000 | 871.5238 | 12.8 | 15.335 | 0.000 | 2191051 | 0 | |
| 2 | Squalene | 20.0000 | 17.7739 | 11.1 | 23.567 | -0.002 | 45565 | 0 | |
| | Group 0 | | 889.2977 | | | -0.002 | 2236616 | | |
| | Totals: | | 889.2977 | | | -0.002 | 2236616 | | |

Total Unidentified Counts : 346443 counts

Detected Peaks: 65 Rejected Peaks: 2 Identified Peaks: 2

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -686 microVolts

Noise (used): 10 microVolts - fixed value
Noise (monitored before this run): 6 microVolts

Manual injection

Requested Curve Type : quadratic
Requested Origin : ignore
Calibration Type : External Standard Analysis

Method Detector Type : ADC Board
Method Bus Address : 16
Method Channel : B

Calibration Dates
Last Injection Date : 3/16/11 11:59 PM

Last Recalculation Date : 3/17/11 3:35 PM

| Retention Time (min) | Peak Name | Curve\ Origin | $X^3$ | $X^2$ | X | C | $r^2$ | Cal.Range | No. of Points | Edit Codes |
|---|---|---|---|---|---|---|---|---|---|---|
| 15.335 | Hydrocarbons C12- | 2 IG | -3.4203e-002 | +2.5034e+003 | +3.5238e+004 | +9.9994e-001 | | 2-7 | 6 | |
| 23.569 | Squalene | 2 IG | -2.9256e+000 | +2.5994e+003 | +2.8820e+002 | +9.9995e-001 | | 2-7 | 6 | |

| Curve Codes | Origin Codes | Edit Codes |
|---|---|---|
| 1 linear | I include | 1 curve |
| 2 quadratic | IG ignore | 2 origin |
| 3 cubic | F force | 3 coefficient |

Ret. Time: 15.335 min. Peak Measurement: Area
Peak Name: Hydrocarbons C12-28 Curve\Origin: 2 IG

| Level | Amount | Replicate No. | Response | Avg. Response | Std. Dev. |
|---|---|---|---|---|---|
| 2 | 100.000000 | 1 | 283957 | 283957.0 | # |
| 3 | 200.000000 | 1 | 514918 | 514917.6 | # |
| 4 | 500.000000 | 1 | 1267060 | 1267060.1 | # |
| 5 | 1000.000000 | 1 | 2568985 | 2568985.0 | # |
| 6 | 2000.000000 | 1 | 4869749 | 4869748.5 | # |
| 7 | 5000.000000 | 1 | 11700516 | 11700516.0 | # |

Ret. Time: 23.569 min. Peak Measurement: Area
Peak Name: Squalene Curve\Origin: 2 IG

| Level | Amount | Replicate No. | Response | Avg. Response | Std. Dev. |
|---|---|---|---|---|---|
| 2 | 2.500000 | 1 | 7133 | 7132.7 | # |
| 3 | 5.000000 | 1 | 12739 | 12738.8 | # |
| 4 | 10.000000 | 1 | 26093 | 26093.0 | # |
| 5 | 20.000000 | 1 | 50935 | 50935.1 | # |
| 6 | 25.000000 | 1 | 63643 | 63643.1 | # |
| 7 | 50.000000 | 1 | 122921 | 122920.8 | # |

# = Too few points to calculate.

| Peak Name | Level | Rep. | Injection Date Time | Run Files |
|---|---|---|---|---|
| Hydrocarbons C12-28 | 2 | 1 | 3/16/11 8:09 PM | d:\star\data\hp6890 gc\2011-03\0316-c12-28\std 100.run |
| | 3 | 1 | 3/16/11 8:55 PM | d:\star\data\hp6890 gc\2011-03\0316-c12-28\std 200.run |
| | 4 | 1 | 3/16/11 9:41 PM | d:\star\data\hp6890 gc\2011-03\0316-c12-28\std 500.run |
| | 5 | 1 | 3/16/11 10:27 PM | d:\star\data\hp6890 gc\2011-03\0316-c12-28\std 1000.run |
| | 6 | 1 | 3/16/11 11:13 PM | d:\star\data\hp6890 gc\2011-03\0316-c12-28\std 2000.run |
| | 7 | 1 | 3/16/11 11:59 PM | d:\star\data\hp6890 gc\2011-03\0316-c12-28\std 5000.run |
| Squalene | 2 | 1 | 3/16/11 8:09 PM | d:\star\data\hp6890 gc\2011-03\0316-c12-28\std 100.run |
| | 3 | 1 | 3/16/11 8:55 PM | d:\star\data\hp6890 gc\2011-03\0316-c12-28\std 200.run |
| | 4 | 1 | 3/16/11 9:41 PM | d:\star\data\hp6890 gc\2011-03\0316-c12-28\std 500.run |
| | 5 | 1 | 3/16/11 10:27 PM | d:\star\data\hp6890 gc\2011-03\0316-c12-28\std 1000.run |
| | 6 | 1 | 3/16/11 11:13 PM | d:\star\data\hp6890 gc\2011-03\0316-c12-28\std 2000.run |
| | 7 | 1 | 3/16/11 11:59 PM | d:\star\data\hp6890 gc\2011-03\0316-c12-28\std 5000.run |

**********

```
************************************************************************

Varian Star Workstation - Generic SampleList  Tue Mar 29 11:01:39 2011

SampleList:   D:\star\Hp6890 GC\031611-c12-28.smp

Created:      Wed Mar 16 12:48:24 2011
Modified:     Wed Mar 23 17:14:15 2011

************************************************************************
```

| Line | Sample Name | Inj. | Multiplier |
|---|---|---|---|
| 1 | icb | 1 | 1 |
| 2 | retention time mix | 1 | 1 |
| 3 | std 100 | 1 | 1 |
| 4 | std 200 | 1 | 1 |
| 5 | std 500 | 1 | 1 |
| 6 | std 1000 | 1 | 1 |
| 7 | std 2000 | 1 | 1 |
| 8 | std 5000 | 1 | 1 |
| 9 | crql std 100 | 1 | 1 |
| 10 | icv std 1000 | 1 | 1 |
| 11 | mb | 1 | 1 |
| 12 | idmp-1 | 1 | 1 |
| 13 | idmp-2 | 1 | 1 |
| 14 | idmp-3 | 1 | 1 |
| 15 | idmp-4 | 1 | 1 |
| 16 | lod | 1 | 1 |
| 17 | ccb | 1 | 1 |
| 18 | crql std 100ppm a | 1 | 1 |
| 19 | ccv std 1000ppm a | 1 | 1 |

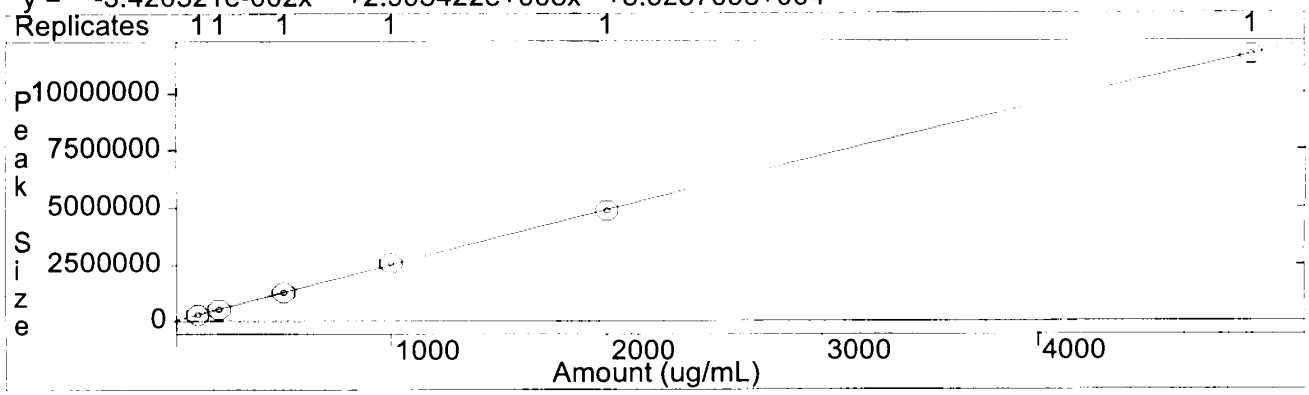
```
Directory for Data Files: d:\star\data\hp6890 gc\2011-03\0316-c12-28

         Data File Names: %s


Create and update a new RecalcList: d:\star\hp6890 gc\031611-c12-28.rcl.
```

Print Date: 29 Mar 2011 11:03:04
Calibration Curves Report
File: d:\star\data\hp6890 gc\2011-03\0316-c12-28\hydrocarbons c12-28.mth
Detector: ADC Board, Address: 16, Channel ID: B

Hydrocarbons C12-28

External Standard Analysis
Curve Type: Quadratic
Origin: Ignore
$y = -3.420321e-002x^2 + 2.503422e+003x + 3.523765e+004$

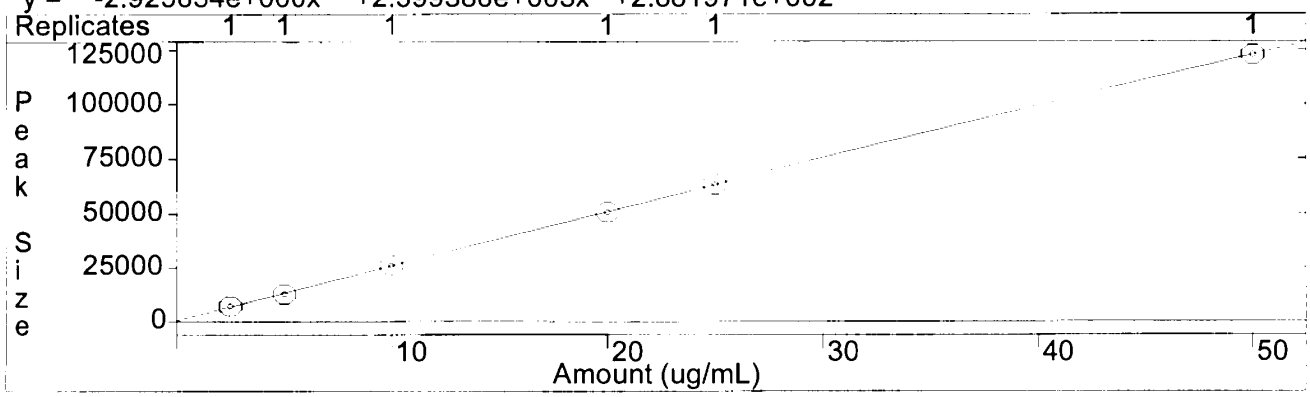
Resp. Fact. RSD: 6.621%
Coeff. Det.($r^2$): 0.999937




Squalene

External Standard Analysis
Curve Type: Quadratic
Origin: Ignore
$y = -2.925634e+000x^2 + 2.599388e+003x + 2.881971e+002$

Resp. Fact. RSD: 5.243%
Coeff. Det.($r^2$): 0.999953



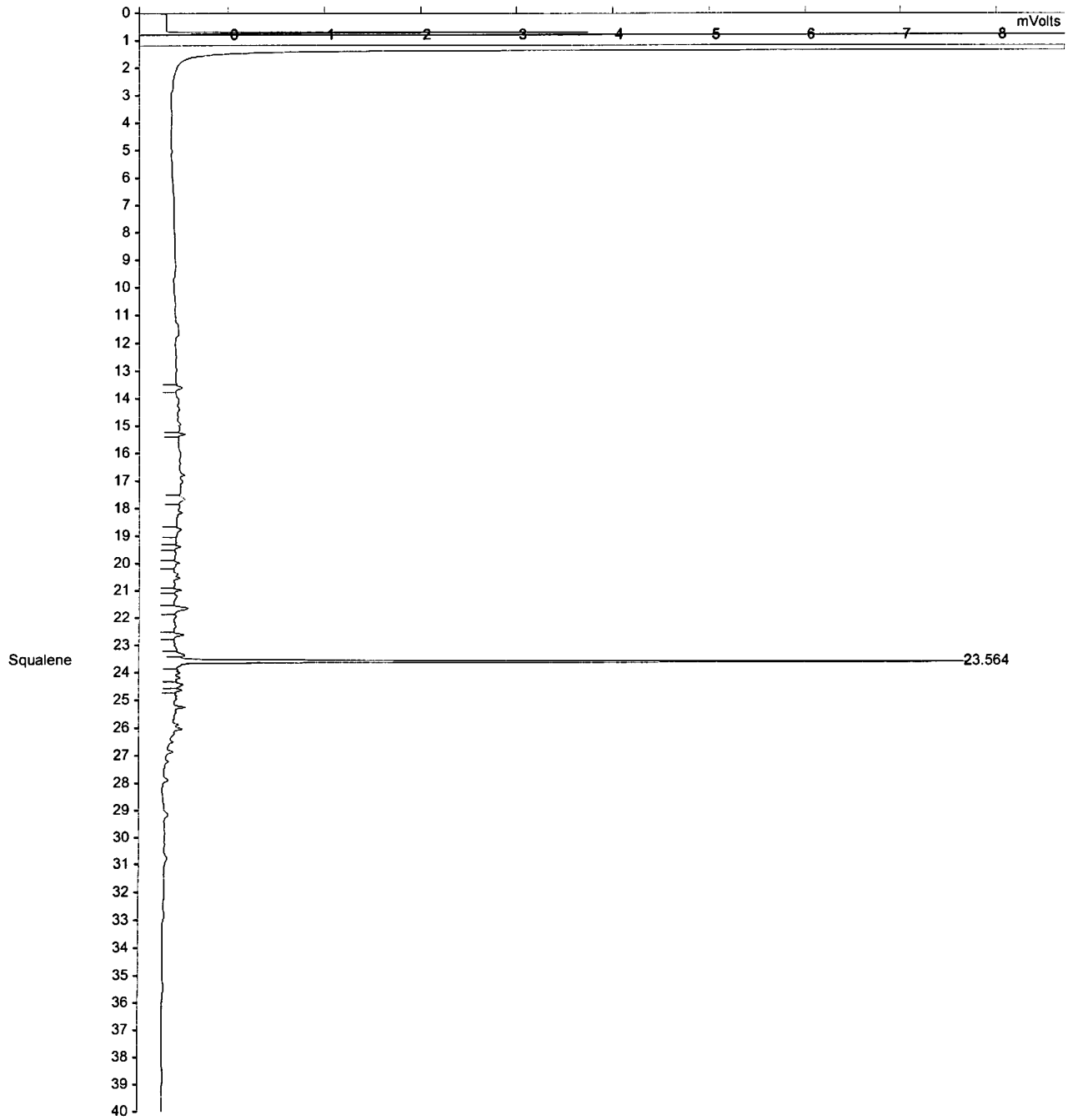
Title : DRO / ORO
Run File : d:\star\data\hp6890 gc\2011-03\0316-c12-28\icb.run
Method File : d:\star\data\hp6890 gc\2011-03\0315-c12-28\hydrocarbons c12-28.mt
Sample ID : icb

Injection Date: 3/16/11 5:50 PM  Calculation Date: 3/17/11 10:39 AM

Operator : M. Budziak  Detector Type: ADCB (1 Volt)
Workstation:  Bus Address : 16
Instrument : HP 6890 GC#16  Sample Rate : 10.00 Hz
Channel : B = B  Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Chart Speed = 0.49 cm/min  Attenuation = 39  Zero Offset = 9%
Start Time = 0.000 min  End Time = 40.002 min  Min / Tick = 1.00



Print Date: Tue Mar 29 11:10:00 2011 Page 1 of 1

Title : DRO / ORO
Run File : d:\star\data\hp6890 gc\2011-03\0316-c12-28\icb.run
Method File : d:\star\data\hp6890 gc\2011-03\0315-c12-28\hydrocarbons c12-28.mth
Sample ID : icb

Injection Date: 3/16/11 5:50 PM Calculation Date: 3/17/11 10:39 AM

Operator : M. Budziak
Workstation:
Instrument : HP 6890 GC#16
Channel : B = B

Detector Type: ADCB (1 Volt)
Bus Address : 16
Sample Rate : 10.00 Hz
Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Run Mode : Analysis
Peak Measurement: Peak Area
Calculation Type: External Standard

| Peak No. | Peak Name | Result (ug/ml) | Ret. Time (min) | Time Offset (min) | Area (counts) | Sep. Code | Width 1/2 (sec) | Group | Status Codes |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Squalene | 14.2060 | 23.564 | -0.004 | 33421 | VB | 3.7 | 0 | |
| | Group 0 | 14.2060 | | -0.004 | 33421 | | | | |
| | Totals: | 14.2060 | | -0.004 | 33421 | | | | |

Total Unidentified Counts : 0 counts

Detected Peaks: 12 Rejected Peaks: 4 Identified Peaks: 1

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -640 microVolts

Noise (used): 25 microVolts - fixed value
Noise (monitored before this run): 5 microVolts

Manual injection

**********

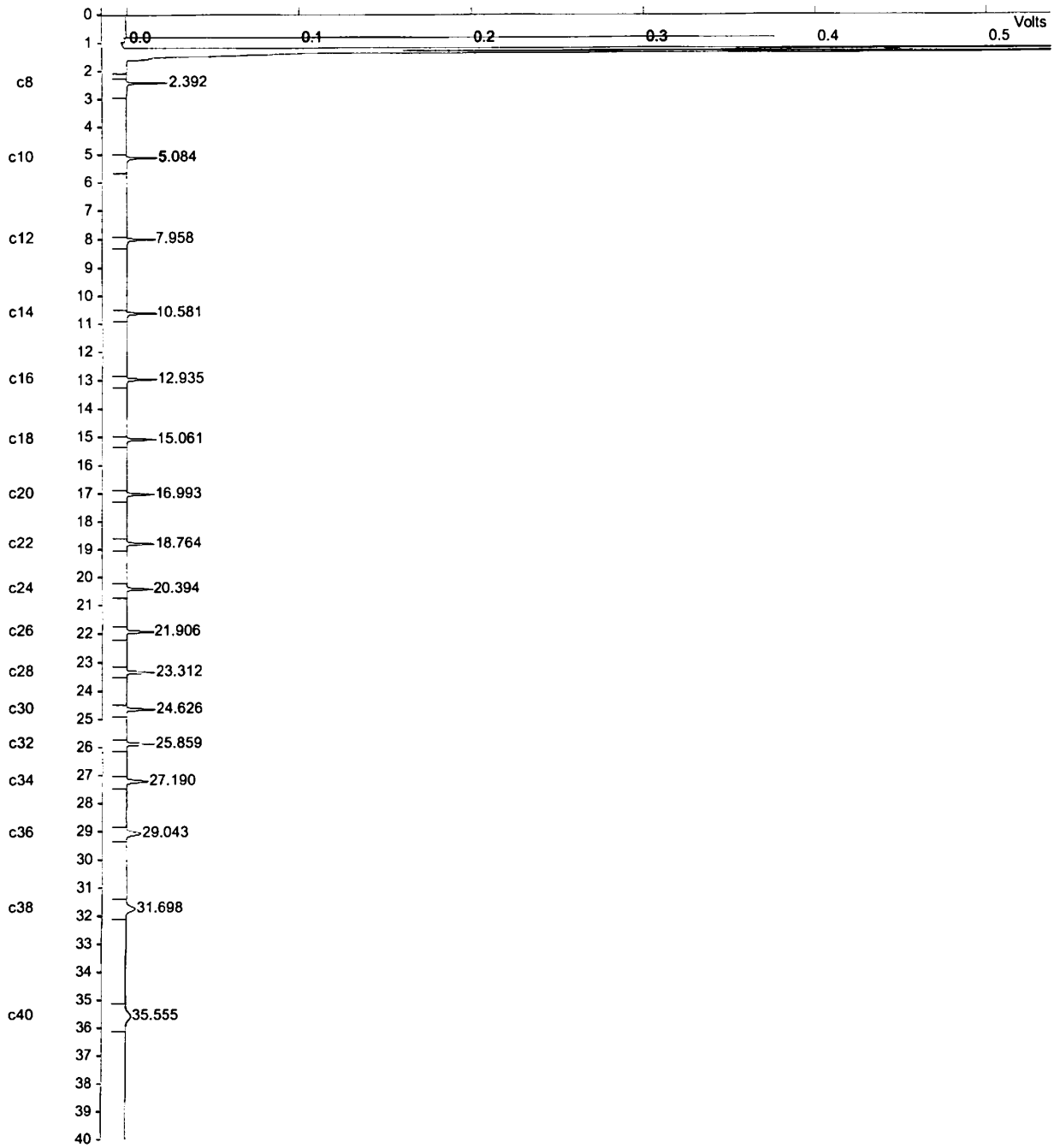
Title : DRO / ORO
Run File : d:\star\data\hp6890 gc\2011-03\0316-c12-28\retention time mix.ru
Method File : d:\star\hp6890 gc\hydrocarbons-c10-40id.mth
Sample ID : retention time mix

Injection Date: 3/16/11 7:23 PM  Calculation Date: 3/23/11 5:26 PM

Operator : M. Budziak  Detector Type: ADCB (1 Volt)
Workstation:  Bus Address : 16
Instrument : HP 6890 GC#16  Sample Rate : 10.00 Hz
Channel : B = B  Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Chart Speed = 0.49 cm/min  Attenuation = 2267  Zero Offset = 2%
Start Time = 0.000 min  End Time = 40.002 min  Min / Tick = 1.00



Print Date: Tue Mar 29 11:10:05 2011 Page 1 of 1

Title : DRO / ORO
Run File : d:\star\data\hp6890 gc\2011-03\0316-c12-28\retention time mix.run
Method File : d:\star\hp6890 gc\hydrocarbons-c10-40id.mth
Sample ID : retention time mix

Injection Date: 3/16/11 7:23 PM Calculation Date: 3/23/11 5:26 PM

Operator : M. Budziak
Workstation:
Instrument : HP 6890 GC#16
Channel : B = B

Detector Type: ADCB (1 Volt)
Bus Address : 16
Sample Rate : 10.00 Hz
Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Run Mode : Analysis
Peak Measurement: Peak Area
Calculation Type: External Standard

| Peak No. | Peak Name | Result (ug/ml) | Ret. Time (min) | Time Offset (min) | Area (counts) | Sep. Code | Width 1/2 (sec) | Group | Status Codes |
|---|---|---|---|---|---|---|---|---|---|
| 1 | c8 | 58.3198 | 2.392 | 0.012 | 64385 | PB | 2.3 | 0 | |
| 2 | c10 | 55.2223 | 5.084 | 0.012 | 59712 | BB | 2.5 | 0 | |
| 3 | c12 | 54.0352 | 7.958 | 0.011 | 57888 | BB | 2.8 | 0 | |
| 4 | c14 | 54.4828 | 10.581 | 0.009 | 59195 | BB | 2.9 | 0 | |
| 5 | c16 | 55.8015 | 12.935 | 0.007 | 60463 | BB | 3.0 | 0 | |
| 6 | c18 | 55.6219 | 15.061 | 0.006 | 60586 | BB | 3.2 | 0 | |
| 7 | c20 | 56.3917 | 16.993 | 0.003 | 60899 | BB | 3.4 | 0 | |
| 8 | c22 | 58.2384 | 18.764 | 0.002 | 61775 | BB | 3.5 | 0 | |
| 9 | c24 | 60.8483 | 20.394 | -0.001 | 61559 | BB | 3.6 | 0 | |
| 10 | c26 | 62.4747 | 21.906 | -0.002 | 64099 | BB | 3.7 | 0 | |
| 11 | c28 | 63.2965 | 23.312 | -0.003 | 65814 | BB | 3.7 | 0 | |
| 12 | c30 | 62.9514 | 24.626 | -0.007 | 68038 | BB | 3.8 | 0 | |
| 13 | c32 | 61.7613 | 25.859 | -0.008 | 68329 | BB | 3.9 | 0 | |
| 14 | c34 | 58.2884 | 27.190 | -0.012 | 72167 | BB | 5.3 | 0 | |
| 15 | c36 | 55.3257 | 29.043 | -0.018 | 70670 | BB | 7.9 | 0 | |
| 16 | c38 | 50.8337 | 31.698 | -0.023 | 65592 | BB | 11.7 | 0 | |
| 17 | c40 | 26.9635 | 35.555 | -0.030 | 58373 | BB | 17.9 | 0 | |
| | Group 0 | 950.8571 | | -0.042 | 1079544 | | | | |
| | Totals: | 950.8571 | | -0.042 | 1079544 | | | | |

Total Unidentified Counts : 412 counts

Detected Peaks: 18 Rejected Peaks: 0 Identified Peaks: 17

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -612 microVolts

Noise (used): 30 microVolts - fixed value
Noise (monitored before this run): 7 microVolts

Manual injection

**********

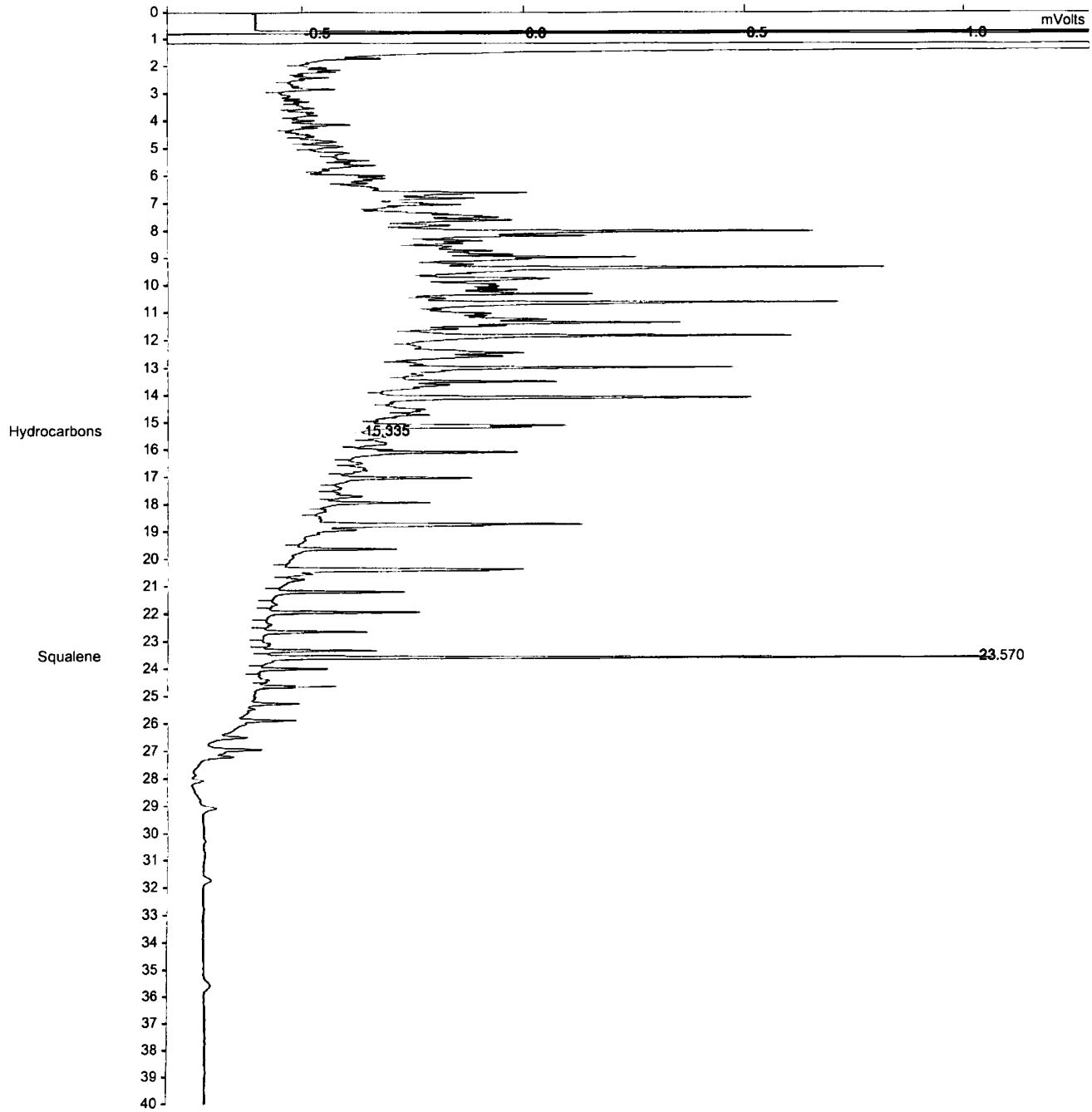
Title : DRO / ORO
Run File : d:\star\data\hp6890 gc\2011-03\0316-c12-28\std 100.run
Method File : d:\star\data\hp6890 gc\2011-03\0315-c12-28\hydrocarbons c12-28.mt
Sample ID : std 100

Injection Date: 3/16/11 8:09 PM  Calculation Date: 3/17/11 3:35 PM

Operator : M. Budziak  Detector Type: ADCB (1 Volt)
Workstation:  Bus Address : 16
Instrument : HP 6890 GC#16  Sample Rate : 10.00 Hz
Channel : B = B  Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Chart Speed = 0.49 cm/min  Attenuation = 8  Zero Offset = 41%
Start Time = 0.000 min  End Time = 40.002 min  Min / Tick = 1.00



Print Date: Tue Mar 29 11:10:11 2011 Page 1 of 1

Title : DRO / ORO
Run File : d:\star\data\hp6890 gc\2011-03\0316-c12-28\std 100.run
Method File : d:\star\data\hp6890 gc\2011-03\0315-c12-28\hydrocarbons c12-28.mth
Sample ID : std 100

Injection Date: 3/16/11 8:09 PM Calculation Date: 3/17/11 3:35 PM

Operator : M. Budziak
Workstation:
Instrument : HP 6890 GC#16
Channel : B = B

Detector Type: ADCB (1 Volt)
Bus Address : 16
Sample Rate : 10.00 Hz
Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Run Mode : Calibration
Peak Measurement: Peak Area
Calculation Type: External Standard
Level : 2

| Peak No. | Peak Name | Ret. Time (min) | Time Offset (min) | Area (counts) | Sep. Code | Width 1/2 (sec) | Group | Status Codes |
|---|---|---|---|---|---|---|---|---|
| 1 | Hydrocarbons | 15.335 | 0.000 | 283957 | GR | 0.0 | 0 | |
| 2 | Squalene | 23.570 | 0.001 | 7133 | VV | 3.9 | 0 | |
| | Group 0 | | 0.001 | 291090 | | | | |
| | Totals: | | 0.001 | 291090 | | | | |

Total Unidentified Counts : 17151 counts

Detected Peaks: 62 Rejected Peaks: 15 Identified Peaks: 2

Multiplier: N/A Divisor: N/A Unidentified Peak Factor: 0

Baseline Offset: -608 microVolts

Noise (used): 25 microVolts - fixed value
Noise (monitored before this run): 7 microVolts

Manual injection

**********

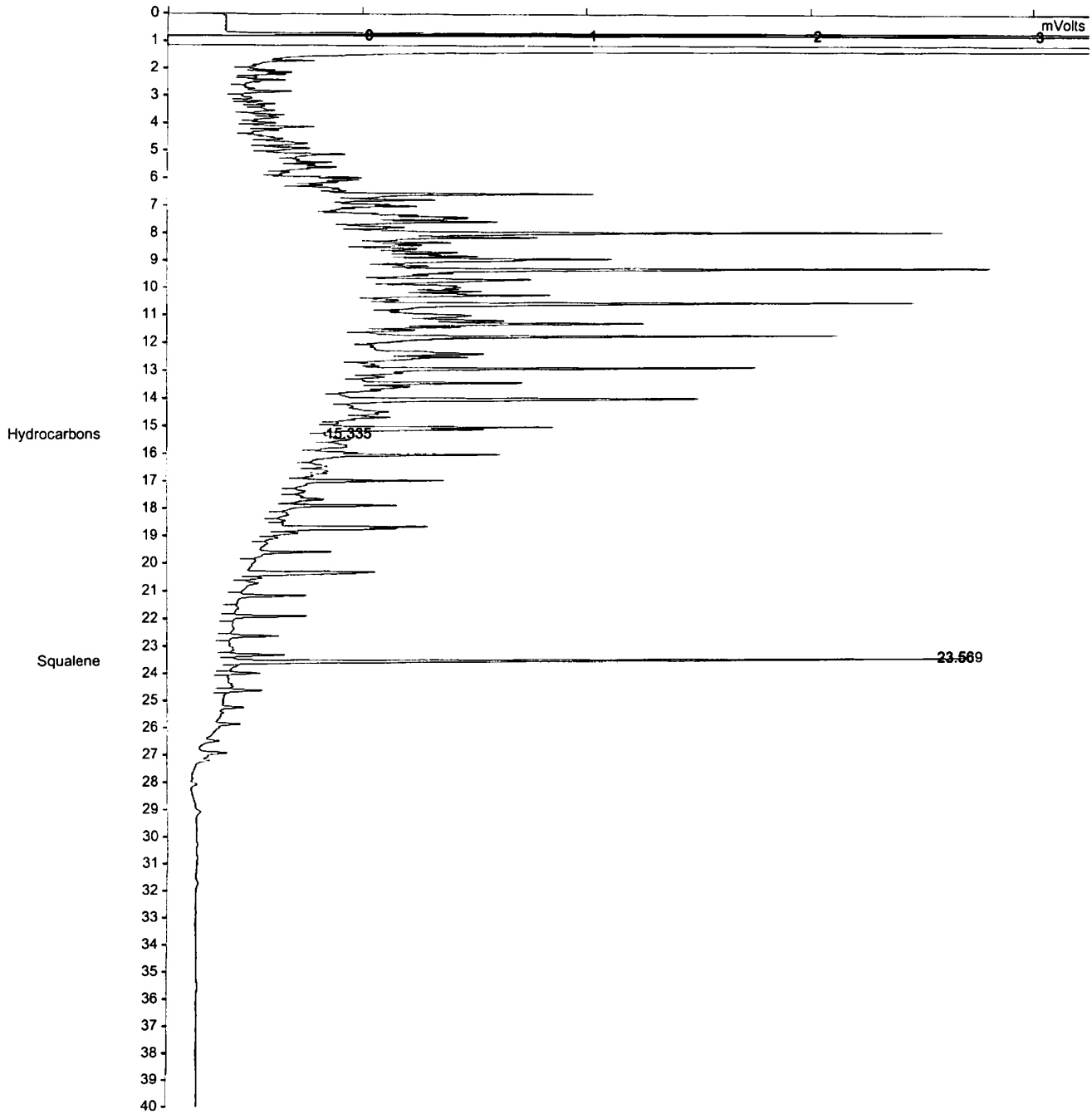
Title : DRO / ORO
Run File : d:\star\data\hp6890 gc\2011-03\0316-c12-28\std 200.run
Method File : d:\star\data\hp6890 gc\2011-03\0315-c12-28\hydrocarbons c12-28.mt
Sample ID : std 200

Injection Date: 3/16/11 8:55 PM  Calculation Date: 3/17/11 3:33 PM

Operator : M. Budziak  Detector Type: ADCB (1 Volt)
Workstation:  Bus Address : 16
Instrument : HP 6890 GC#16  Sample Rate : 10.00 Hz
Channel : B = B  Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Chart Speed = 0.49 cm/min  Attenuation = 16  Zero Offset = 22%
Start Time = 0.000 min  End Time = 40.002 min  Min / Tick = 1.00



Print Date: Tue Mar 29 11:10:17 2011 

Title : DRO / ORO
Run File : d:\star\data\hp6890 gc\2011-03\0316-c12-28\std 200.run
Method File : d:\star\data\hp6890 gc\2011-03\0315-c12-28\hydrocarbons c12-28.mth
Sample ID : std 200

Injection Date: 3/16/11 8:55 PM Calculation Date: 3/17/11 3:33 PM

Operator : M. Budziak
Workstation:
Instrument : HP 6890 GC#16
Channel : B = B

Detector Type: ADCB (1 Volt)
Bus Address : 16
Sample Rate : 10.00 Hz
Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Run Mode : Calibration
Peak Measurement: Peak Area
Calculation Type: External Standard
Level : 3

| Peak No. | Peak Name | Ret. Time (min) | Time Offset (min) | Area (counts) | Sep. Code | Width 1/2 (sec) | Group | Status Codes |
|---|---|---|---|---|---|---|---|---|
| 1 | Hydrocarbons | 15.335 | 0.000 | 514918 | GR | 0.0 | 0 | |
| 2 | Squalene | 23.569 | 0.003 | 12739 | VB | 3.6 | 0 | |
| | Group 0 | | 0.003 | 527657 | | | | |
| | Totals: | | 0.003 | 527657 | | | | |

Total Unidentified Counts : 46126 counts

Detected Peaks: 88 Rejected Peaks: 20 Identified Peaks: 2

Multiplier: N/A Divisor: N/A Unidentified Peak Factor: 0

Baseline Offset: -609 microVolts

Noise (used): 25 microVolts - fixed value
Noise (monitored before this run): 4 microVolts

Manual injection

**********

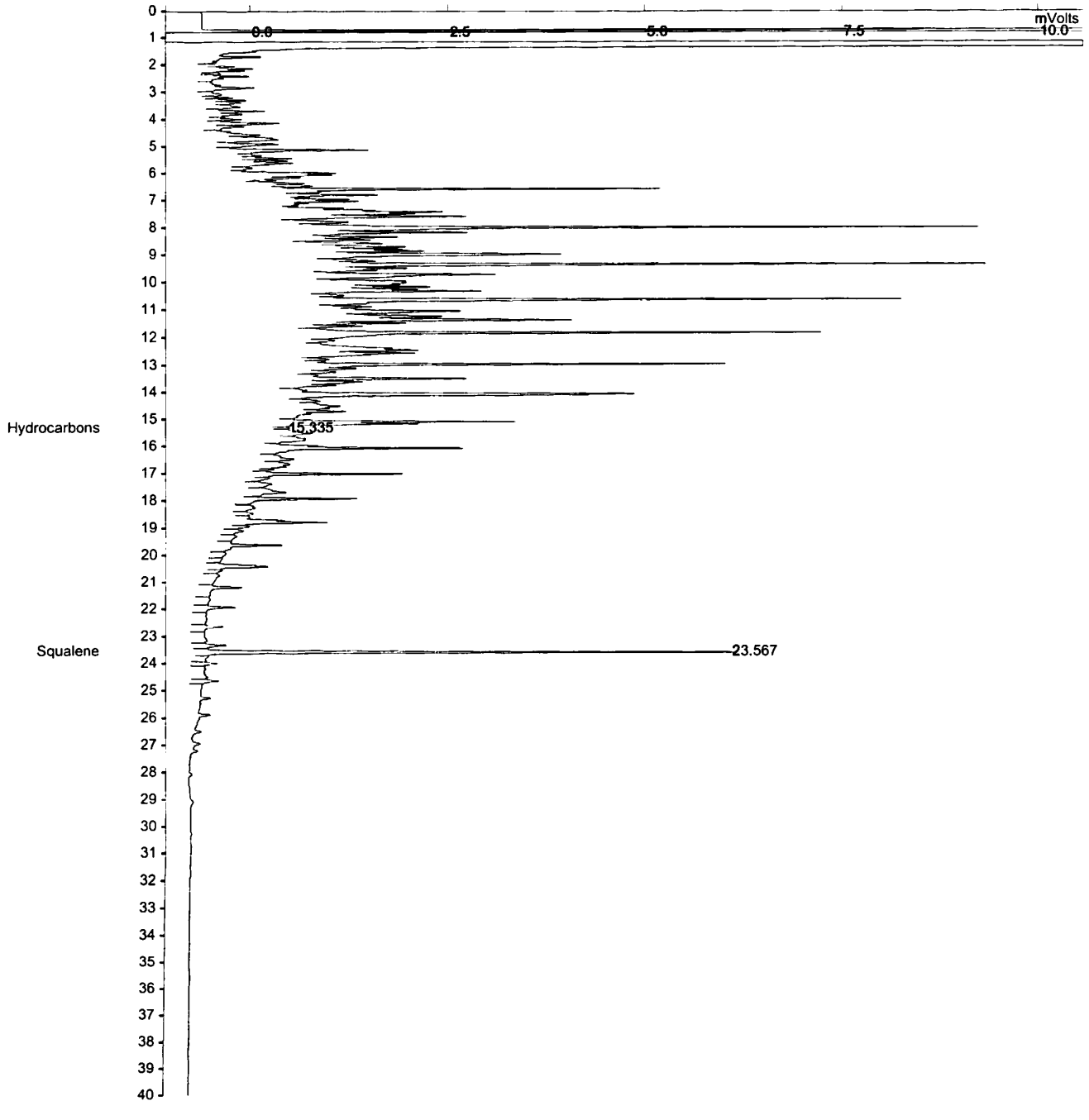
Title : DRO / ORO
Run File : d:\star\data\hp6890 gc\2011-03\0316-c12-28\std 500.run
Method File : d:\star\data\hp6890 gc\2011-03\0315-c12-28\hydrocarbons c12-28.mt
Sample ID : std 500

Injection Date: 3/16/11 9:41 PM  Calculation Date: 3/17/11 3:33 PM

Operator : M. Budziak  Detector Type: ADCB (1 Volt)
Workstation:  Bus Address : 16
Instrument : HP 6890 GC#16  Sample Rate : 10.00 Hz
Channel : B = B  Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Chart Speed = 0.49 cm/min  Attenuation = 47  Zero Offset = 9%
Start Time = 0.000 min  End Time = 40.002 min  Min / Tick = 1.00



Print Date: Tue Mar 29 11:10:23 2011 Page 1 of 1

Title : DRO / ORO
Run File : d:\star\data\hp6890 gc\2011-03\0316-c12-28\std 500.run
Method File : d:\star\data\hp6890 gc\2011-03\0315-c12-28\hydrocarbons c12-28.mth
Sample ID : std 500

Injection Date: 3/16/11 9:41 PM Calculation Date: 3/17/11 3:33 PM

Operator : M. Budziak
Workstation:
Instrument : HP 6890 GC#16
Channel : B = B

Detector Type: ADCB (1 Volt)
Bus Address : 16
Sample Rate : 10.00 Hz
Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Run Mode : Calibration
Peak Measurement: Peak Area
Calculation Type: External Standard
Level : 4

| Peak No. | Peak Name | Ret. Time (min) | Time Offset (min) | Area (counts) | Sep. Code | Width 1/2 (sec) | Group | Status Codes |
|---|---|---|---|---|---|---|---|---|
| 1 | Hydrocarbons | 15.335 | 0.000 | 1267060 | GR | 0.0 | 0 | |
| 2 | Squalene | 23.567 | 0.001 | 26093 | VB | 3.6 | 0 | |
| | Group 0 | | 0.001 | 1293153 | | | | |
| | Totals: | | 0.001 | 1293153 | | | | |

Total Unidentified Counts : 155629 counts

Detected Peaks: 101 Rejected Peaks: 15 Identified Peaks: 2

Multiplier: N/A Divisor: N/A Unidentified Peak Factor: 0

Baseline Offset: -625 microVolts

Noise (used): 25 microVolts - fixed value
Noise (monitored before this run): 6 microVolts

Manual injection

**********

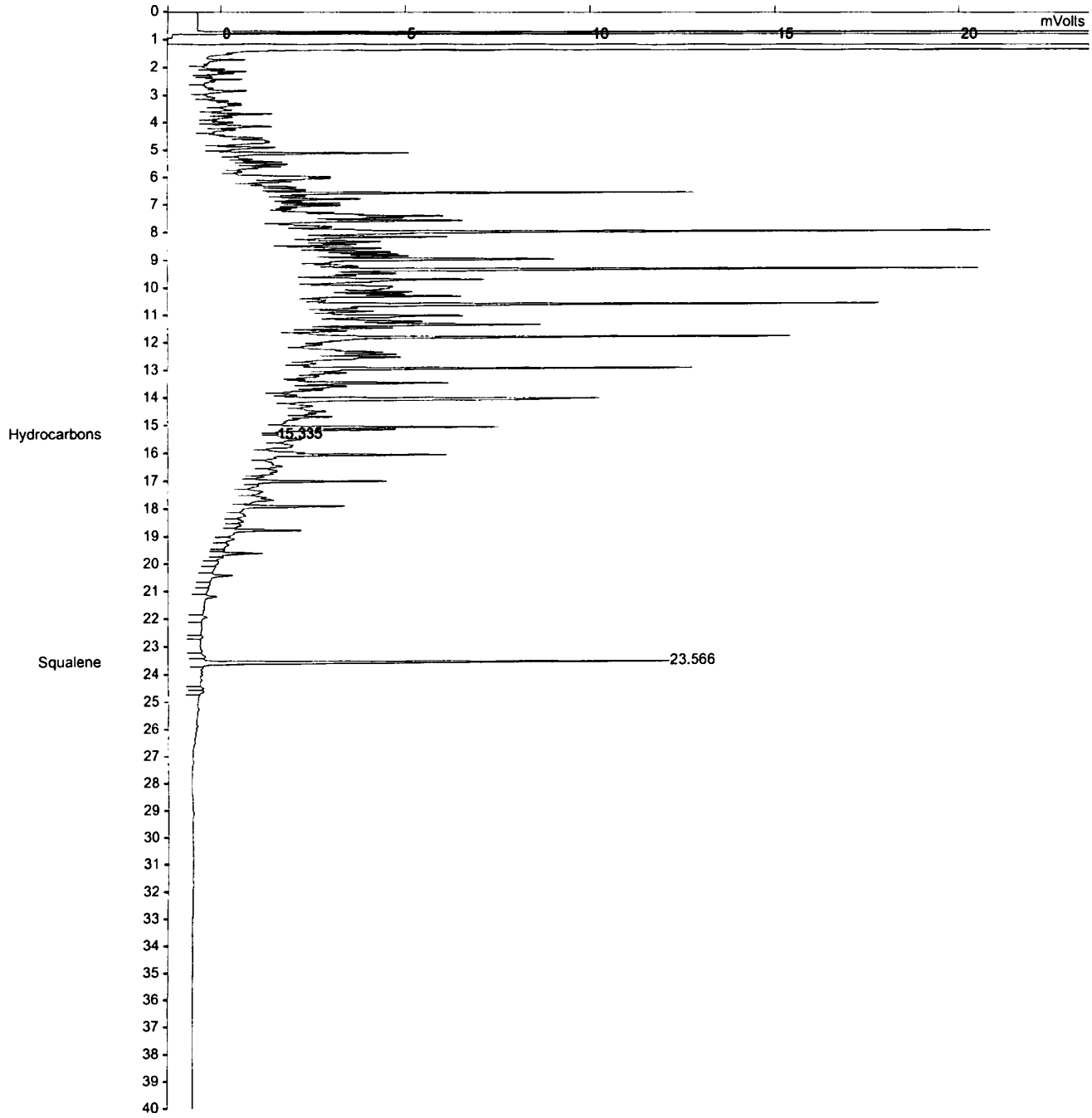
Title : DRO / ORO
Run File : d:\star\data\hp6890 gc\2011-03\0316-c12-28\std 1000.run
Method File : d:\star\data\hp6890 gc\2011-03\0315-c12-28\hydrocarbons c12-28.mt
Sample ID : std 1000

Injection Date: 3/16/11 10:27 PM  Calculation Date: 3/17/11 3:33 PM

Operator : M. Budziak  Detector Type: ADCB (1 Volt)
Workstation:  Bus Address : 16
Instrument : HP 6890 GC#16  Sample Rate : 10.00 Hz
Channel : B = B  Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Chart Speed = 0.49 cm/min  Attenuation = 102  Zero Offset = 5%
Start Time = 0.000 min  End Time = 40.002 min  Min / Tick = 1.00



Print Date: Tue Mar 29 11:10:29 2011 Page 1 of 1

Title : DRO / ORO
Run File : d:\star\data\hp6890 gc\2011-03\0316-c12-28\std 1000.run
Method File : d:\star\data\hp6890 gc\2011-03\0315-c12-28\hydrocarbons c12-28.mth
Sample ID : std 1000

Injection Date: 3/16/11 10:27 PM Calculation Date: 3/17/11 3:33 PM

Operator : M. Budziak Detector Type: ADCB (1 Volt)
Workstation: Bus Address : 16
Instrument : HP 6890 GC#16 Sample Rate : 10.00 Hz
Channel : B = B Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Run Mode : Calibration
Peak Measurement: Peak Area
Calculation Type: External Standard
Level : 5

| Peak No. | Peak Name | Ret. Time (min) | Time Offset (min) | Area (counts) | Sep. Code | Width 1/2 (sec) | Group | Status Codes |
|---|---|---|---|---|---|---|---|---|
| 1 | Hydrocarbons | 15.335 | 0.000 | 2568985 | GR | 0.0 | 0 | |
| 2 | Squalene | 23.566 | -0.001 | 50935 | VB | 3.8 | 0 | |
| | Group 0 | | -0.001 | 2619920 | | | | |
| | Totals: | | -0.001 | 2619920 | | | | |

Total Unidentified Counts : 399150 counts

Detected Peaks: 108 Rejected Peaks: 4 Identified Peaks: 2

Multiplier: N/A Divisor: N/A Unidentified Peak Factor: 0

Baseline Offset: -619 microVolts

Noise (used): 25 microVolts - fixed value
Noise (monitored before this run): 6 microVolts

Manual injection

**********

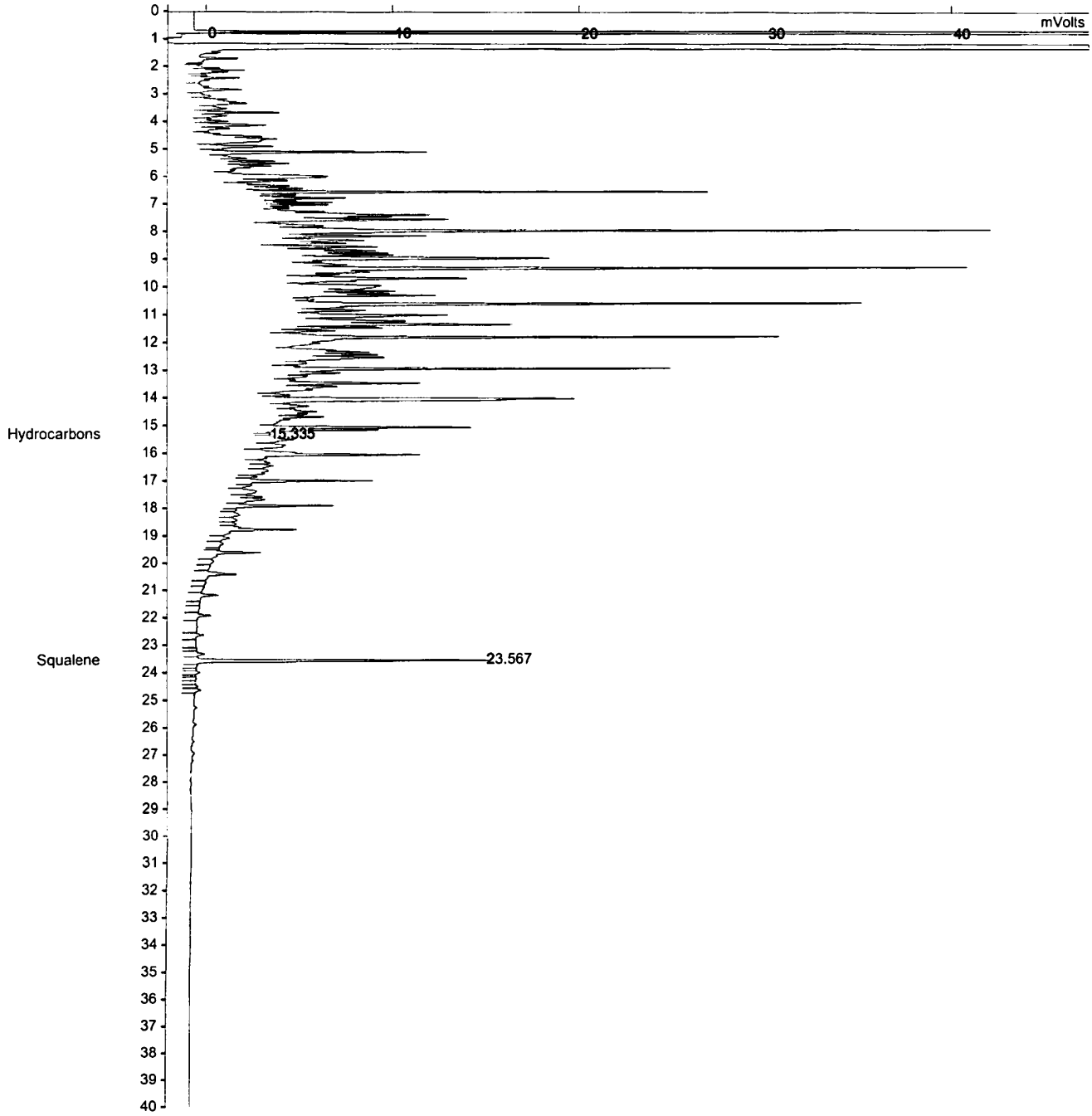
Title : DRO / ORO
Run File : d:\star\data\hp6890 gc\2011-03\0316-c12-28\std 2000.run
Method File : d:\star\data\hp6890 gc\2011-03\0315-c12-28\hydrocarbons c12-28.mt
Sample ID : std 2000

Injection Date: 3/16/11 11:13 PM  Calculation Date: 3/17/11 3:33 PM

Operator : M. Budziak  Detector Type: ADCB (1 Volt)
Workstation:  Bus Address : 16
Instrument : HP 6890 GC#16  Sample Rate : 10.00 Hz
Channel : B = B  Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Chart Speed = 0.49 cm/min  Attenuation = 202  Zero Offset = 4%
Start Time = 0.000 min  End Time = 40.002 min  Min / Tick = 1.00



Print Date: Tue Mar 29 11:10:35 2011 Page 1 of 1

Title : DRO / ORO
Run File : d:\star\data\hp6890 gc\2011-03\0316-c12-28\std 2000.run
Method File : d:\star\data\hp6890 gc\2011-03\0315-c12-28\hydrocarbons c12-28.mth
Sample ID : std 2000

Injection Date: 3/16/11 11:13 PM Calculation Date: 3/17/11 3:33 PM

Operator : M. Budziak Detector Type: ADCB (1 Volt)
Workstation: Bus Address : 16
Instrument : HP 6890 GC#16 Sample Rate : 10.00 Hz
Channel : B = B Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Run Mode : Calibration
Peak Measurement: Peak Area
Calculation Type: External Standard
Level : 6

| Peak No. | Peak Name | Ret. Time (min) | Time Offset (min) | Area (counts) | Sep. Code | Width 1/2 (sec) | Group | Status Codes |
|---|---|---|---|---|---|---|---|---|
| 1 | Hydrocarbons | 15.335 | 0.000 | 4869749 | GR | 0.0 | 0 | |
| 2 | Squalene | 23.567 | 0.001 | 63643 | VV | 3.8 | 0 | |
| | Group 0 | | 0.001 | 4933392 | | | | |
| | Totals: | | 0.001 | 4933392 | | | | |

Total Unidentified Counts : 778203 counts

Detected Peaks: 113 Rejected Peaks: 6 Identified Peaks: 2

Multiplier: N/A Divisor: N/A Unidentified Peak Factor: 0

Baseline Offset: -622 microVolts

Noise (used): 25 microVolts - fixed value
Noise (monitored before this run): 6 microVolts

Manual injection

**********

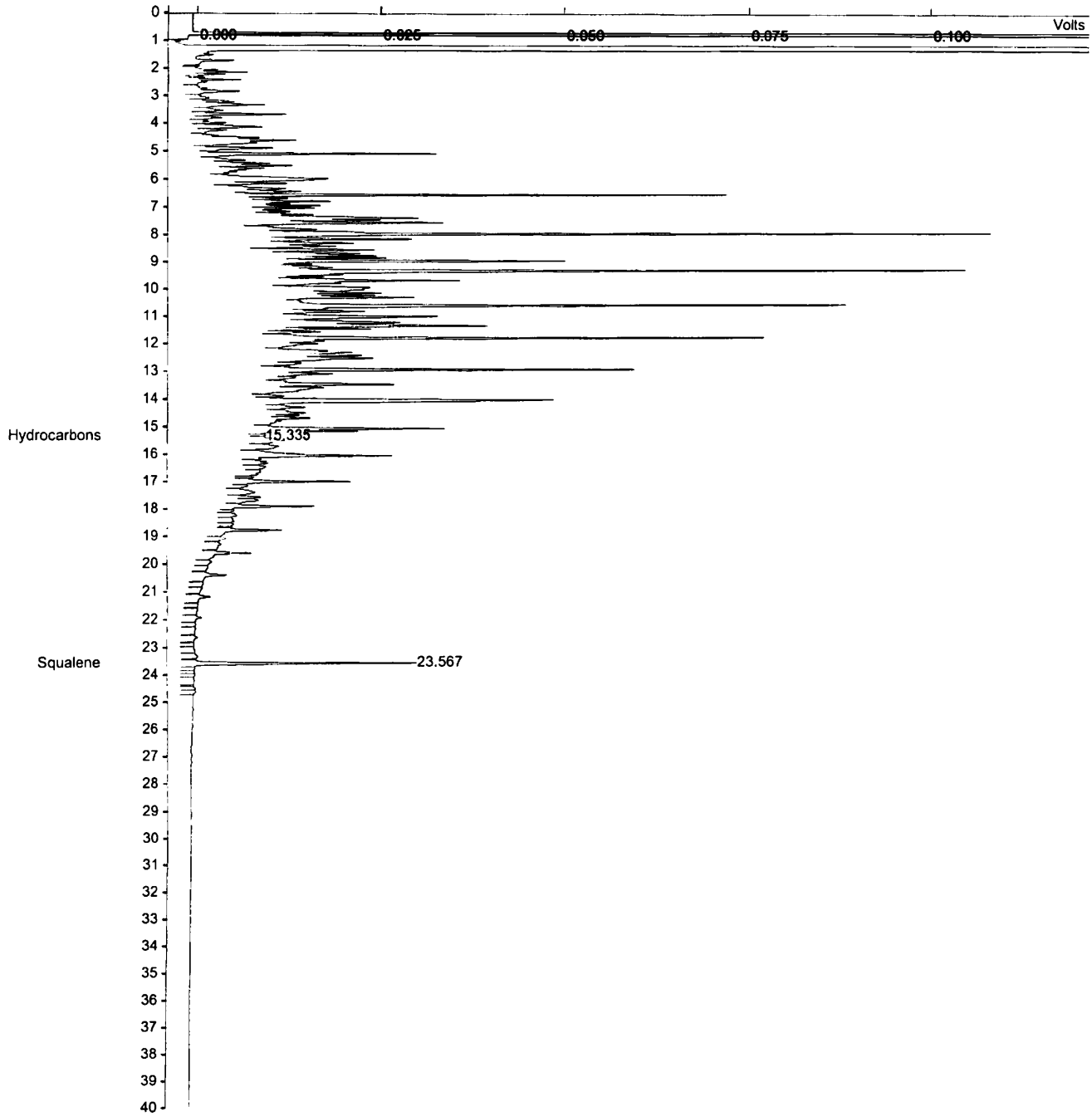
Title : DRO / ORO
Run File : d:\star\data\hp6890 gc\2011-03\0316-c12-28\std 5000.run
Method File : d:\star\data\hp6890 gc\2011-03\0315-c12-28\hydrocarbons c12-28.mt
Sample ID : std 5000

Injection Date: 3/16/11 11:59 PM  Calculation Date: 3/17/11 3:33 PM

Operator : M. Budziak  Detector Type: ADCB (1 Volt)
Workstation:  Bus Address : 16
Instrument : HP 6890 GC#16  Sample Rate : 10.00 Hz
Channel : B = B  Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Chart Speed = 0.49 cm/min  Attenuation = 515  Zero Offset = 3%
Start Time = 0.000 min  End Time = 40.002 min  Min / Tick = 1.00



Print Date: Tue Mar 29 11:10:41 2011 Page 1 of 1

Title : DRO / ORO
Run File : d:\star\data\hp6890 gc\2011-03\0316-c12-28\std 5000.run
Method File : d:\star\data\hp6890 gc\2011-03\0315-c12-28\hydrocarbons c12-28.mth
Sample ID : std 5000

Injection Date: 3/16/11 11:59 PM Calculation Date: 3/17/11 3:33 PM

Operator : M. Budziak Detector Type: ADCB (1 Volt)
Workstation: Bus Address : 16
Instrument : HP 6890 GC#16 Sample Rate : 10.00 Hz
Channel : B = B Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Run Mode : Calibration
Peak Measurement: Peak Area
Calculation Type: External Standard
Level : 7

| Peak No. | Peak Name | Ret. Time (min) | Time Offset (min) | Area (counts) | Sep. Code | Width 1/2 (sec) | Group | Status Codes |
|---|---|---|---|---|---|---|---|---|
| 1 | Hydrocarbons | 15.335 | 0.000 | 11700516 | GR | 0.0 | 0 | |
| 2 | Squalene | 23.567 | 0.001 | 122921 | VV | 3.7 | 0 | |
| | Group 0 | | 0.001 | 11823437 | | | | |
| | Totals: | | 0.001 | 11823437 | | | | |

Total Unidentified Counts : 2011078 counts

Detected Peaks: 119 Rejected Peaks: 6 Identified Peaks: 2

Multiplier: N/A Divisor: N/A Unidentified Peak Factor: 0

Baseline Offset: -624 microVolts

Noise (used): 25 microVolts - fixed value
Noise (monitored before this run): 5 microVolts

Manual injection

**********

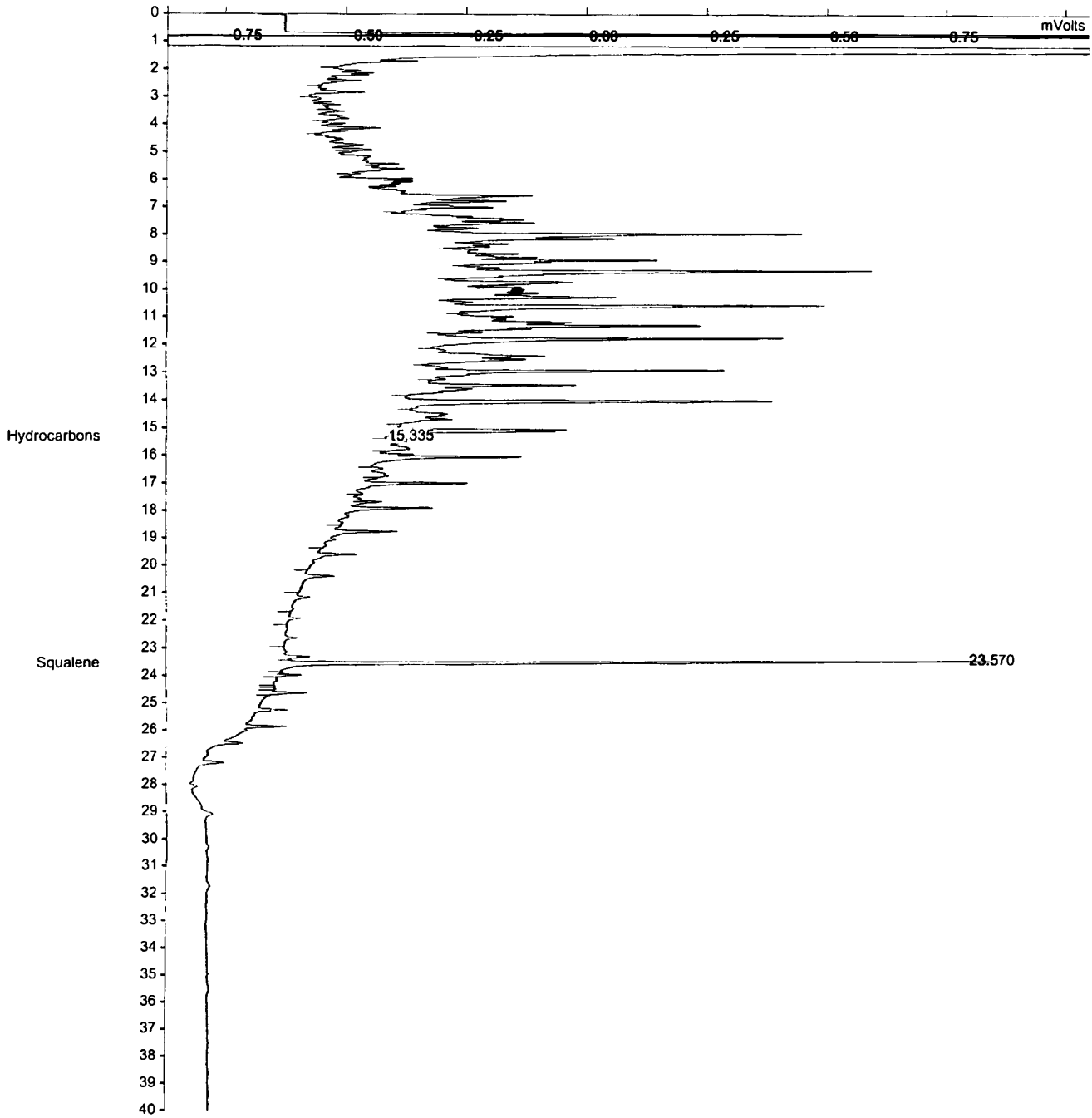
Title : DRO / ORO
Run File : d:\star\data\hp6890 gc\2011-03\0316-c12-28\crql std 100.run
Method File : d:\star\data\hp6890 gc\2011-03\0315-c12-28\hydrocarbons c12-28.mt
Sample ID : crql std 100

Injection Date: 3/17/11 12:45 AM  Calculation Date: 3/17/11 3:38 PM

Operator : M. Budziak  Detector Type: ADCB (1 Volt)
Workstation:  Bus Address : 16
Instrument : HP 6890 GC#16  Sample Rate : 10.00 Hz
Channel : B = B  Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Chart Speed = 0.49 cm/min  Attenuation = 7  Zero Offset = 51%
Start Time = 0.000 min  End Time = 40.002 min  Min / Tick = 1.00



Verification Report

Title : DRO / ORO
Run File : d:\star\data\hp6890 gc\2011-03\0316-c12-28\crql std 100.run
Method File : d:\star\data\hp6890 gc\2011-03\0315-c12-28\hydrocarbons c12-28.mth
Sample ID : crql std 100

Injection Date: 3/17/11 12:45 AM Calculation Date: 3/17/11 3:38 PM

Operator : M. Budziak Detector Type: ADCB (1 Volt)
Workstation: Bus Address : 16
Instrument : HP 6890 GC#16 Sample Rate : 10.00 Hz
Channel : B = B Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Run Mode : Verification
Peak Measurement: Peak Area
Calculation Type: External Standard
Level : 2
Tolerance : 20.0%

| Peak No. | Peak Name | Expected Result (ug/ml) | Calculated Result (ug/ml) | Dev. % | Ret. Time (min) | Time Offset (min) | Area (counts) | Group | Status Codes |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Hydrocarbons | 100.0000 | 81.9999 | 18.0 | 15.335 | 0.000 | 240288 | 0 | |
| 2 | Squalene | 2.5000 | 2.2989 | 8.0 | 23.570 | 0.001 | 6248 | 0 | |
| | Group 0 | | 84.2988 | | | 0.001 | 246536 | | |
| | Totals: | | 84.2988 | | | 0.001 | 246536 | | |

Total Unidentified Counts : 24711 counts

Detected Peaks: 41 Rejected Peaks: 9 Identified Peaks: 2

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -626 microVolts

Noise (used): 15 microVolts - fixed value
Noise (monitored before this run): 6 microVolts

Manual injection

**********

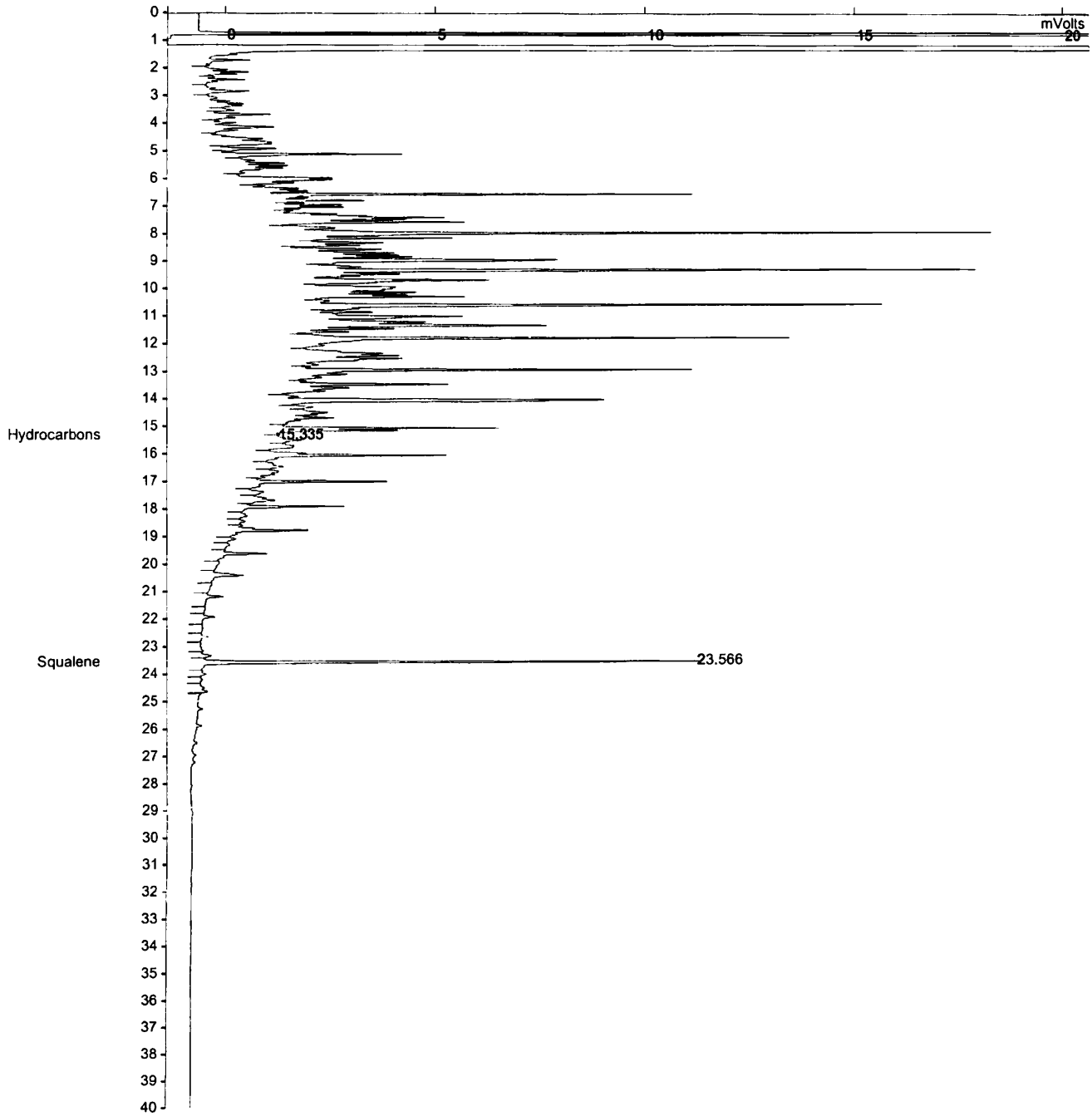
Title : DRO/ORO
Run File : d:\star\data\hp6890 gc\2011-03\0316-c12-28\icv std 1000.run
Method File : d:\star\data\hp6890 gc\2011-03\0315-c12-28\hydrocarbons c12-28.mt
Sample ID : icv std 1000

Injection Date: 3/17/11 1:31 AM  Calculation Date: 3/17/11 3:35 PM

Operator : M. Budziak  Detector Type: ADCB (1 Volt)
Workstation:  Bus Address : 16
Instrument : HP 6890 GC#16  Sample Rate : 10.00 Hz
Channel : B = B  Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Chart Speed = 0.49 cm/min  Attenuation = 90  Zero Offset = 6%
Start Time = 0.000 min  End Time = 40.002 min  Min / Tick = 1.00



# Verification Report

Title : DRO/ORO
Run File : d:\star\data\hp6890 gc\2011-03\0316-c12-28\icv std 1000.run
Method File : d:\star\data\hp6890 gc\2011-03\0315-c12-28\hydrocarbons c12-28.mth
Sample ID : icv std 1000

Injection Date: 3/17/11 1:31 AM Calculation Date: 3/17/11 3:35 PM

Operator : M. Budziak
Workstation:
Instrument : HP 6890 GC#16
Channel : B = B

Detector Type: ADCB (1 Volt)
Bus Address : 16
Sample Rate : 10.00 Hz
Run Time : 40.002 min

** Star Chromatography Workstation Version 5.3 ** 00778-3168-5cf-21c0 **

Run Mode : Verification
Peak Measurement: Peak Area
Calculation Type: External Standard
Level : 8
Tolerance : 20.0%

| Peak No. | Peak Name | Expected Result (ug/ml) | Calculated Result (ug/ml) | Dev. % | Ret. Time (min) | Time Offset (min) | Area (counts) | Group | Status Codes |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Hydrocarbons | 1000.0000 | 923.0215 | 7.7 | 15.335 | 0.000 | 2316810 | 0 | |
| 2 | Squalene | 20.0000 | 19.1272 | 4.4 | 23.566 | -0.003 | 48937 | 0 | |
| | Group 0 | | 942.1487 | | | -0.003 | 2365747 | | |
| | Totals: | | 942.1487 | | | -0.003 | 2365747 | | |

Total Unidentified Counts : 347371 counts

Detected Peaks: 69 Rejected Peaks: 4 Identified Peaks: 2

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -630 microVolts

Noise (used): 25 microVolts - fixed value
Noise (monitored before this run): 4 microVolts

Manual injection

Requested Curve Type : quadratic
Requested Origin : ignore
Calibration Type : External Standard Analysis

Method Detector Type : ADC Board
Method Bus Address : 16
Method Channel : B

Calibration Dates
Last Injection Date : 3/16/11 11:59 PM

Last Recalculation Date : 3/17/11 3:35 PM

| Retention Time (min) | Peak Name | Curve\ Origin | $X^3$ | $X^2$ | X | C | $r^2$ | Cal.Range | No. of Points | Edit Codes |
|---|---|---|---|---|---|---|---|---|---|---|
| 15.335 | Hydrocarbons C12- | 2 IG | -3.4203e-002 | +2.5034e+003 | +3.5238e+004 | +9.9994e-001 | | 2-7 | 6 | |
| 23.569 | Squalene | 2 IG | -2.9256e+000 | +2.5994e+003 | +2.8820e+002 | +9.9995e-001 | | 2-7 | 6 | |

| Curve Codes | Origin Codes | Edit Codes |
|---|---|---|
| 1 linear | I include | 1 curve |
| 2 quadratic | IG ignore | 2 origin |
| 3 cubic | F force | 3 coefficient |

Ret. Time: 15.335 min. Peak Measurement: Area
Peak Name: Hydrocarbons C12-28 Curve\Origin: 2 IG

| Level | Amount | Replicate No. | Response | Avg. Response | Std. Dev. |
|---|---|---|---|---|---|
| 2 | 100.000000 | 1 | 283957 | 283957.0 | # |
| 3 | 200.000000 | 1 | 514918 | 514917.6 | # |
| 4 | 500.000000 | 1 | 1267060 | 1267060.1 | # |
| 5 | 1000.000000 | 1 | 2568985 | 2568985.0 | # |
| 6 | 2000.000000 | 1 | 4869749 | 4869748.5 | # |
| 7 | 5000.000000 | 1 | 11700516 | 11700516.0 | # |

Ret. Time: 23.569 min. Peak Measurement: Area
Peak Name: Squalene Curve\Origin: 2 IG

| Level | Amount | Replicate No. | Response | Avg. Response | Std. Dev. |
|---|---|---|---|---|---|
| 2 | 2.500000 | 1 | 7133 | 7132.7 | # |
| 3 | 5.000000 | 1 | 12739 | 12738.8 | # |
| 4 | 10.000000 | 1 | 26093 | 26093.0 | # |
| 5 | 20.000000 | 1 | 50935 | 50935.1 | # |
| 6 | 25.000000 | 1 | 63643 | 63643.1 | # |
| 7 | 50.000000 | 1 | 122921 | 122920.8 | # |

# = Too few points to calculate.

| Peak Name | Level | Rep. | Injection Date Time | Run Files |
|---|---|---|---|---|
| Hydrocarbons C12-28 | 2 | 1 | 3/16/11 8:09 PM | d:\star\data\hp6890 gc\2011-03\0316-c12-28\std 100.run |
| | 3 | 1 | 3/16/11 8:55 PM | d:\star\data\hp6890 gc\2011-03\0316-c12-28\std 200.run |
| | 4 | 1 | 3/16/11 9:41 PM | d:\star\data\hp6890 gc\2011-03\0316-c12-28\std 500.run |
| | 5 | 1 | 3/16/11 10:27 PM | d:\star\data\hp6890 gc\2011-03\0316-c12-28\std 1000.run |
| | 6 | 1 | 3/16/11 11:13 PM | d:\star\data\hp6890 gc\2011-03\0316-c12-28\std 2000.run |
| | 7 | 1 | 3/16/11 11:59 PM | d:\star\data\hp6890 gc\2011-03\0316-c12-28\std 5000.run |
| Squalene | 2 | 1 | 3/16/11 8:09 PM | d:\star\data\hp6890 gc\2011-03\0316-c12-28\std 100.run |
| | 3 | 1 | 3/16/11 8:55 PM | d:\star\data\hp6890 gc\2011-03\0316-c12-28\std 200.run |
| | 4 | 1 | 3/16/11 9:41 PM | d:\star\data\hp6890 gc\2011-03\0316-c12-28\std 500.run |
| | 5 | 1 | 3/16/11 10:27 PM | d:\star\data\hp6890 gc\2011-03\0316-c12-28\std 1000.run |
| | 6 | 1 | 3/16/11 11:13 PM | d:\star\data\hp6890 gc\2011-03\0316-c12-28\std 2000.run |
| | 7 | 1 | 3/16/11 11:59 PM | d:\star\data\hp6890 gc\2011-03\0316-c12-28\std 5000.run |

**********

**RTI Laboratories**



**Run ID:** GC-TCD 1_110310B **Run No.:** 39440

**Analytical Run Date:** 3/10/2011 **InstrumentID:** GC-TCD 1

**Analyst:** Mike Budziak **Column:**

**Calibration ID:** **Column ID:**

**Column Length:**

| SampID | TestCode | SampType | Batch ID | Analysis Date/Time | QA By | Q | Comments |
|---|---|---|---|---|---|---|---|
| icb | ASTM-D2504 | ICB | R39440 | 3/11/2011 12:55:00 AM | Robert Lynch | | |
| ccv std 1-2 a | ASTM-D2504 | CCV | R39440 | 3/11/2011 1:17:00 AM | Robert Lynch | | |
| crql std 2% a | ASTM-D2504 | CRQL | R39440 | 3/11/2011 1:39:00 AM | Robert Lynch | | |
| lcs | ASTM-D2504 | LCS | R39440 | 3/11/2011 2:08:00 AM | Robert Lynch | | |
| lcsd | ASTM-D2504 | LCSD | R39440 | 3/11/2011 2:31:00 AM | Robert Lynch | | |
| mb | ASTM-D2504 | MBLK | R39440 | 3/11/2011 2:50:00 AM | Robert Lynch | | |
| 1103158-001A | ASTM-D2504 | SAMP | R39440 | 3/11/2011 3:15:00 AM | Robert Lynch | | |
| 1103158-002A | ASTM-D2504 | SAMP | R39440 | 3/11/2011 3:37:00 AM | Robert Lynch | | |
| 1103158-003A | ASTM-D2504 | SAMP | R39440 | 3/11/2011 4:01:00 AM | Robert Lynch | | |
| 1103158-004A | ASTM-D2504 | SAMP | R39440 | 3/11/2011 4:21:00 AM | Robert Lynch | | |
| 1103158-005A | ASTM-D2504 | SAMP | R39440 | 3/11/2011 5:03:00 AM | Robert Lynch | | |
| 1103158-006A | ASTM-D2504 | SAMP | R39440 | 3/11/2011 5:30:00 AM | Robert Lynch | | |
| 1103158-007A | ASTM-D2504 | SAMP | R39440 | 3/11/2011 5:51:00 AM | Robert Lynch | | |
| 1103158-008A | ASTM-D2504 | SAMP | R39440 | 3/11/2011 6:12:00 AM | Robert Lynch | | |
| 1103158-009A | ASTM-D2504 | SAMP | R39440 | 3/11/2011 6:36:00 AM | Robert Lynch | | |
| 1103158-010A | ASTM-D2504 | SAMP | R39440 | 3/11/2011 6:58:00 AM | Robert Lynch | | |
| 1103158-007Adup | ASTM-D2504 | DUP | R39440 | 3/11/2011 7:19:00 AM | Robert Lynch | | |
| LOD | ASTM-D2504 | SAMP | R39440 | 3/11/2011 8:11:00 AM | Robert Lynch | | |
| crql std 2% b | ASTM-D2504 | CCV | R39440 | 3/11/2011 9:31:00 AM | Charles O'Bryan | | |
| ccv std 1-2 b | ASTM-D2504 | CCV | R39440 | 3/11/2011 9:57:00 AM | Robert Lynch | | |

# RTI Laboratories

# ANALYTICAL RUN Summary

*21-Apr-11*

**RunNo** 39440

| Seq No | Sample ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 748283 | icb | ASTM-D2504 | ICB | .TA\031011\0310 | 3/11/2011 12:55: | 1 | R39440 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| Seq No | Sample ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 748284 | ccv std 1-2 a | ASTM-D2504 | CCV | .TA\031011\0310 | 3/11/2011 1:17:0 | 1 | R39440 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon dioxide | A | % | 2.319 | 2.319 | | 2.5 | 0 | 0 | 0.025 | 0.1 | 0 | 93% | 85 | 115 | 0% | |
| Carbon Monoxide | A | % | 2.591 | 2.591 | | 2.5 | 0 | 0 | 0.025 | 0.1 | 0 | 104% | 85 | 115 | 0% | |
| Ethane | A | % | | 0 | | 1 | 0 | 0 | 0.025 | 0.5 | 0 | 0% | 85 | 115 | 0% | S |
| Hydrogen | A | % | | 0 | | 1 | 0 | 0 | 0.025 | 0.5 | 0 | 0% | 85 | 115 | 0% | S |
| Methane | A | % | 1.961 | 1.961 | | 2 | 0 | 0 | 0.025 | 0.5 | 0 | 98% | 85 | 115 | 0% | |
| Nitrogen | A | % | 2.662 | 2.662 | | 2.5 | 0 | 0 | 0.025 | 0.1 | 0 | 106% | 85 | 115 | 0% | |
| Oxygen | A | % | 2.356 | 2.356 | | 2.5 | 0 | 0 | 0.025 | 0.1 | 0 | 94% | 85 | 115 | 0% | |

| Seq No | Sample ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 748285 | crql std 2% a | ASTM-D2504 | CRQL | .TA\031011\0310 | 3/11/2011 1:39:0 | 1 | R39440 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon dioxide | A | % | 0.28 | 0.28 | | 0.3 | 0 | 0 | 0.025 | 0.1 | 0 | 93% | 80 | 120 | 0% | |
| Carbon Monoxide | A | % | 0.136 | 0.136 | | 0.14 | 0 | 0 | 0.025 | 0.1 | 0 | 97% | 80 | 120 | 0% | |
| Ethane | A | % | | 0 | | 0.025 | 0 | 0 | 0.025 | 0.5 | 0 | 0% | 80 | 120 | 0% | S |
| Hydrogen | A | % | | 0 | | 0.025 | 0 | 0 | 0.025 | 0.5 | 0 | 0% | 80 | 120 | 0% | S |
| Methane | A | % | 0.09 | 0.09 | | 0.09 | 0 | 0 | 0.025 | 0.5 | 0 | 100% | 80 | 120 | 0% | |
| Nitrogen | A | % | 1.356 | 1.356 | | 1.39 | 0 | 0 | 0.025 | 0.1 | 0 | 98% | 80 | 120 | 0% | |
| Oxygen | A | % | 0.094 | 0.094 | | 0.08 | 0 | 0 | 0.025 | 0.1 | 0 | 118% | 80 | 120 | 0% | |

| Seq No | Sample ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 748286 | lcs | ASTM-D2504 | LCS | .TA\031011\0310 | 3/11/2011 2:08:0 | 1 | R39440 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| Seq No | Sample ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 748286 | lcs | ASTM-D2504 | LCS | .TA\031011\0310 | 3/11/2011 2:08:0 | 1 | R39440 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon dioxide | A | % | 2.286 | 2.286 | | 2.5 | 0 | 0 | 0.025 | 0.1 | 0 | 91% | 70 | 130 | 0% | |
| Carbon Monoxide | A | % | 2.426 | 2.426 | | 2.5 | 0 | 0 | 0.025 | 0.1 | 0 | 97% | 70 | 130 | 0% | |
| Ethane | A | % | | 0 | | 1 | 0 | 0 | 0.025 | 0.5 | 0 | 0% | 70 | 130 | 0% | S |
| Hydrogen | A | % | | 0 | | 1 | 0 | 0 | 0.025 | 0.5 | 0 | 0% | 70 | 130 | 0% | S |
| Methane | A | % | 1.932 | 1.932 | | 2 | 0 | 0 | 0.025 | 0.5 | 0 | 97% | 70 | 130 | 0% | |
| Nitrogen | A | % | 2.667 | 2.667 | | 2.5 | 0 | 0 | 0.025 | 0.1 | 0 | 107% | 70 | 130 | 0% | |
| Oxygen | A | % | 2.31 | 2.31 | | 2.5 | 0 | 0 | 0.025 | 0.1 | 0 | 92% | 70 | 130 | 0% | |

| Seq No | Sample ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 748287 | lcsd | ASTM-D2504 | LCSD | .TA\031011\0310 | 3/11/2011 2:31:0 | 1 | R39440 | | 0 | 748286 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon dioxide | A | % | 2.291 | 2.291 | | 2.5 | 0 | 2.286 | 0.025 | 0.1 | 0 | 92% | 70 | 130 | 0% | |
| Carbon Monoxide | A | % | 2.437 | 2.437 | | 2.5 | 0 | 2.426 | 0.025 | 0.1 | 0 | 97% | 70 | 130 | 0% | |
| Ethane | A | % | | 0 | | 1 | 0 | 0 | 0.025 | 0.5 | 0 | 0% | 70 | 130 | 0% | S |
| Hydrogen | A | % | | 0 | | 1 | 0 | 0 | 0.025 | 0.5 | 0 | 0% | 70 | 130 | 0% | S |
| Methane | A | % | 1.954 | 1.954 | | 2 | 0 | 1.932 | 0.025 | 0.5 | 0 | 98% | 70 | 130 | 1% | |
| Nitrogen | A | % | 2.686 | 2.686 | | 2.5 | 0 | 2.667 | 0.025 | 0.1 | 0 | 107% | 70 | 130 | 1% | |
| Oxygen | A | % | 2.33 | 2.33 | | 2.5 | 0 | 2.31 | 0.025 | 0.1 | 0 | 93% | 70 | 130 | 1% | |

| Seq No | Sample ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 748288 | mb | ASTM-D2504 | MBLK | .TA\031011\0310 | 3/11/2011 2:50:0 | 1 | R39440 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon dioxide | A | % | 0 | 0 | | 0 | 0 | 0 | 0.13 | 0.3 | 0 | 0% | 0 | 0 | 0% | |
| Carbon Monoxide | A | % | 0 | 0 | | 0 | 0 | 0 | 0.066 | 0.14 | 0 | 0% | 0 | 0 | 0% | |
| Ethane | A | % | | 0 | | 0 | 0 | 0 | 0.025 | 0.5 | 0 | 0% | 0 | 0 | 0% | |
| Hydrogen | A | % | | 0 | | 0 | 0 | 0 | 0.025 | 0.5 | 0 | 0% | 0 | 0 | 0% | |
| Methane | A | % | 0 | 0 | | 0 | 0 | 0 | 0.043 | 0.09 | 0 | 0% | 0 | 0 | 0% | |
| Nitrogen | A | % | 0 | 0 | | 0 | 0 | 0 | 0.63 | 1.39 | 0 | 0% | 0 | 0 | 0% | |
| Oxygen | A | % | 0 | 0 | | 0 | 0 | 0 | 0.03 | 0.08 | 0 | 0% | 0 | 0 | 0% | |

| Seq No | Sample ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 748289 | 1103158-001A (Container-01 of 01) | ASTM-D2504 | SAMP | .TA\031011\0310 | 3/11/2011 3:15:0 | 1 | R39440 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon dioxide | A | % | 1.46 | 1.46 | | 0 | 0 | 0 | 0.13 | 0.3 | 0 | 0% | 0 | 0 | 0% | |
| Carbon Monoxide | A | % | 0 | 0 | | 0 | 0 | 0 | 0.066 | 0.14 | 0 | 0% | 0 | 0 | 0% | |
| Ethane | A | % | | 0 | | 0 | 0 | 0 | 0.025 | 0.5 | 0 | 0% | 0 | 0 | 0% | |
| Hydrogen | A | % | | 0 | | 0 | 0 | 0 | 0.025 | 0.5 | 0 | 0% | 0 | 0 | 0% | |
| Methane | A | % | 0 | 0 | | 0 | 0 | 0 | 0.043 | 0.09 | 0 | 0% | 0 | 0 | 0% | |
| Nitrogen | A | % | 76.918 | 76.918 | | 0 | 0 | 0 | 0.63 | 1.39 | 0 | 0% | 0 | 0 | 0% | |
| Oxygen | A | % | 17.277 | 17.277 | | 0 | 0 | 0 | 0.03 | 0.08 | 0 | 0% | 0 | 0 | 0% | |

| Seq No | Sample ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 748290 | 1103158-002A (Container-01 of 01) | ASTM-D2504 | SAMP | .TA\031011\0310 | 3/11/2011 3:37:0 | 1 | R39440 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon dioxide | A | % | 1.397 | 1.397 | | 0 | 0 | 0 | 0.13 | 0.3 | 0 | 0% | 0 | 0 | 0% | |
| Carbon Monoxide | A | % | 0 | 0 | | 0 | 0 | 0 | 0.066 | 0.14 | 0 | 0% | 0 | 0 | 0% | |
| Ethane | A | % | | 0 | | 0 | 0 | 0 | 0.025 | 0.5 | 0 | 0% | 0 | 0 | 0% | |
| Hydrogen | A | % | | 0 | | 0 | 0 | 0 | 0.025 | 0.5 | 0 | 0% | 0 | 0 | 0% | |
| Methane | A | % | 0 | 0 | | 0 | 0 | 0 | 0.043 | 0.09 | 0 | 0% | 0 | 0 | 0% | |
| Nitrogen | A | % | 77.241 | 77.241 | | 0 | 0 | 0 | 0.63 | 1.39 | 0 | 0% | 0 | 0 | 0% | |
| Oxygen | A | % | 17.634 | 17.634 | | 0 | 0 | 0 | 0.03 | 0.08 | 0 | 0% | 0 | 0 | 0% | |

| Seq No | Sample ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 748291 | 1103158-003A (Container-01 of 01) | ASTM-D2504 | SAMP | .TA\031011\0310 | 3/11/2011 4:01:0 | 1 | R39440 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon dioxide | A | % | 9.279 | 9.279 | | 0 | 0 | 0 | 0.13 | 0.3 | 0 | 0% | 0 | 0 | 0% | |
| Carbon Monoxide | A | % | 0.165 | 0.165 | | 0 | 0 | 0 | 0.066 | 0.14 | 0 | 0% | 0 | 0 | 0% | |
| Ethane | A | % | | 0 | | 0 | 0 | 0 | 0.025 | 0.5 | 0 | 0% | 0 | 0 | 0% | |
| Hydrogen | A | % | | 0 | | 0 | 0 | 0 | 0.025 | 0.5 | 0 | 0% | 0 | 0 | 0% | |
| Methane | A | % | 0.014 | 0 | | 0 | 0 | 0 | 0.043 | 0.09 | 0 | 0% | 0 | 0 | 0% | |

| Seq No | Sample ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 748291 | 1103158-003A (Container-01 of 01) | ASTM-D2504 | SAMP | .TA\031011\0310 | 3/11/2011 4:01:0 | 1 | R39440 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrogen | A | % | 85.336 | 85.336 | | 0 | 0 | 0 | 0.63 | 1.39 | 0 | 0% | 0 | 0 | 0% | |
| Oxygen | A | % | 3.346 | 3.346 | | 0 | 0 | 0 | 0.03 | 0.08 | 0 | 0% | 0 | 0 | 0% | |

| Seq No | Sample ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 748292 | 1103158-004A (Container-01 of 01) | ASTM-D2504 | SAMP | .TA\031011\0310 | 3/11/2011 4:21:0 | 1 | R39440 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon dioxide | A | % | 9.505 | 9.505 | | 0 | 0 | 0 | 0.13 | 0.3 | 0 | 0% | 0 | 0 | 0% | |
| Carbon Monoxide | A | % | 0.074 | 0.074 | | 0 | 0 | 0 | 0.066 | 0.14 | 0 | 0% | 0 | 0 | 0% | J |
| Ethane | A | % | | 0 | | 0 | 0 | 0 | 0.025 | 0.5 | 0 | 0% | 0 | 0 | 0% | |
| Hydrogen | A | % | | 0 | | 0 | 0 | 0 | 0.025 | 0.5 | 0 | 0% | 0 | 0 | 0% | |
| Methane | A | % | 0.015 | 0 | | 0 | 0 | 0 | 0.043 | 0.09 | 0 | 0% | 0 | 0 | 0% | |
| Nitrogen | A | % | 84.29 | 84.29 | | 0 | 0 | 0 | 0.63 | 1.39 | 0 | 0% | 0 | 0 | 0% | |
| Oxygen | A | % | 3.729 | 3.729 | | 0 | 0 | 0 | 0.03 | 0.08 | 0 | 0% | 0 | 0 | 0% | |

| Seq No | Sample ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 748293 | 1103158-005A (Container-01 of 01) | ASTM-D2504 | SAMP | .TA\031011\0310 | 3/11/2011 5:03:0 | 1 | R39440 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon dioxide | A | % | 0.054 | 0 | | 0 | 0 | 0 | 0.13 | 0.3 | 0 | 0% | 0 | 0 | 0% | |
| Carbon Monoxide | A | % | 0 | 0 | | 0 | 0 | 0 | 0.066 | 0.14 | 0 | 0% | 0 | 0 | 0% | |
| Ethane | A | % | | 0 | | 0 | 0 | 0 | 0.025 | 0.5 | 0 | 0% | 0 | 0 | 0% | |
| Hydrogen | A | % | | 0 | | 0 | 0 | 0 | 0.025 | 0.5 | 0 | 0% | 0 | 0 | 0% | |
| Methane | A | % | 0 | 0 | | 0 | 0 | 0 | 0.043 | 0.09 | 0 | 0% | 0 | 0 | 0% | |
| Nitrogen | A | % | 75.701 | 75.701 | | 0 | 0 | 0 | 0.63 | 1.39 | 0 | 0% | 0 | 0 | 0% | |
| Oxygen | A | % | 20.345 | 20.345 | | 0 | 0 | 0 | 0.03 | 0.08 | 0 | 0% | 0 | 0 | 0% | |

| Seq No | Sample ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 748294 | 1103158-006A (Container-01 of 01) | ASTM-D2504 | SAMP | .TA\031011\0310 | 3/11/2011 5:30:0 | 1 | R39440 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon dioxide | A | % | 5.045 | 5.045 | | 0 | 0 | 0 | 0.13 | 0.3 | 0 | 0% | 0 | 0 | 0% | |
| Carbon Monoxide | A | % | 0.174 | 0.174 | | 0 | 0 | 0 | 0.066 | 0.14 | 0 | 0% | 0 | 0 | 0% | |
| Ethane | A | % | | 0 | | 0 | 0 | 0 | 0.025 | 0.5 | 0 | 0% | 0 | 0 | 0% | |
| Hydrogen | A | % | | 0 | | 0 | 0 | 0 | 0.025 | 0.5 | 0 | 0% | 0 | 0 | 0% | |
| Methane | A | % | 0.002 | 0 | | 0 | 0 | 0 | 0.043 | 0.09 | 0 | 0% | 0 | 0 | 0% | |
| Nitrogen | A | % | 80.758 | 80.758 | | 0 | 0 | 0 | 0.63 | 1.39 | 0 | 0% | 0 | 0 | 0% | |
| Oxygen | A | % | 10.402 | 10.402 | | 0 | 0 | 0 | 0.03 | 0.08 | 0 | 0% | 0 | 0 | 0% | |

| Seq No | Sample ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 748295 | 1103158-007A (Container-01 of 01) | ASTM-D2504 | SAMP | .TA\031011\0310 | 3/11/2011 5:51:0 | 1 | R39440 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon dioxide | A | % | 9.138 | 9.138 | | 0 | 0 | 0 | 0.13 | 0.3 | 0 | 0% | 0 | 0 | 0% | |
| Carbon Monoxide | A | % | 0.259 | 0.259 | | 0 | 0 | 0 | 0.066 | 0.14 | 0 | 0% | 0 | 0 | 0% | |
| Ethane | A | % | | 0 | | 0 | 0 | 0 | 0.025 | 0.5 | 0 | 0% | 0 | 0 | 0% | |
| Hydrogen | A | % | | 0 | | 0 | 0 | 0 | 0.025 | 0.5 | 0 | 0% | 0 | 0 | 0% | |
| Methane | A | % | 0.011 | 0 | | 0 | 0 | 0 | 0.043 | 0.09 | 0 | 0% | 0 | 0 | 0% | |
| Nitrogen | A | % | 82.298 | 82.298 | | 0 | 0 | 0 | 0.63 | 1.39 | 0 | 0% | 0 | 0 | 0% | |
| Oxygen | A | % | 4.018 | 4.018 | | 0 | 0 | 0 | 0.03 | 0.08 | 0 | 0% | 0 | 0 | 0% | |

| Seq No | Sample ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 748296 | 1103158-008A (Container-01 of 01) | ASTM-D2504 | SAMP | .TA\031011\0310 | 3/11/2011 6:12:0 | 1 | R39440 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon dioxide | A | % | 1.694 | 1.694 | | 0 | 0 | 0 | 0.13 | 0.3 | 0 | 0% | 0 | 0 | 0% | |
| Carbon Monoxide | A | % | 0 | 0 | | 0 | 0 | 0 | 0.066 | 0.14 | 0 | 0% | 0 | 0 | 0% | |
| Ethane | A | % | | 0 | | 0 | 0 | 0 | 0.025 | 0.5 | 0 | 0% | 0 | 0 | 0% | |
| Hydrogen | A | % | | 0 | | 0 | 0 | 0 | 0.025 | 0.5 | 0 | 0% | 0 | 0 | 0% | |
| Methane | A | % | 0 | 0 | | 0 | 0 | 0 | 0.043 | 0.09 | 0 | 0% | 0 | 0 | 0% | |

| Seq No | Sample ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 748296 | 1103158-008A (Container-01 of 01) | ASTM-D2504 | SAMP | .TA\031011\0310 | 3/11/2011 6:12:0 | 1 | R39440 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrogen | A | % | 79.596 | 79.596 | | 0 | 0 | 0 | 0.63 | 1.39 | 0 | 0% | 0 | 0 | 0% | |
| Oxygen | A | % | 14.266 | 14.266 | | 0 | 0 | 0 | 0.03 | 0.08 | 0 | 0% | 0 | 0 | 0% | |

| Seq No | Sample ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 748297 | 1103158-009A (Container-01 of 01) | ASTM-D2504 | SAMP | .TA\031011\0310 | 3/11/2011 6:36:0 | 1 | R39440 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon dioxide | A | % | 7.998 | 7.998 | | 0 | 0 | 0 | 0.13 | 0.3 | 0 | 0% | 0 | 0 | 0% | |
| Carbon Monoxide | A | % | 0.437 | 0.437 | | 0 | 0 | 0 | 0.066 | 0.14 | 0 | 0% | 0 | 0 | 0% | |
| Ethane | A | % | | 0 | | 0 | 0 | 0 | 0.025 | 0.5 | 0 | 0% | 0 | 0 | 0% | |
| Hydrogen | A | % | | 0 | | 0 | 0 | 0 | 0.025 | 0.5 | 0 | 0% | 0 | 0 | 0% | |
| Methane | A | % | 0.011 | 0 | | 0 | 0 | 0 | 0.043 | 0.09 | 0 | 0% | 0 | 0 | 0% | |
| Nitrogen | A | % | 83.44 | 83.44 | | 0 | 0 | 0 | 0.63 | 1.39 | 0 | 0% | 0 | 0 | 0% | |
| Oxygen | A | % | 4.21 | 4.21 | | 0 | 0 | 0 | 0.03 | 0.08 | 0 | 0% | 0 | 0 | 0% | |

| Seq No | Sample ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 748298 | 1103158-010A (Container-01 of 01) | ASTM-D2504 | SAMP | .TA\031011\0310 | 3/11/2011 6:58:0 | 1 | R39440 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon dioxide | A | % | 8.741 | 8.741 | | 0 | 0 | 0 | 0.13 | 0.3 | 0 | 0% | 0 | 0 | 0% | |
| Carbon Monoxide | A | % | 0.37 | 0.37 | | 0 | 0 | 0 | 0.066 | 0.14 | 0 | 0% | 0 | 0 | 0% | |
| Ethane | A | % | | 0 | | 0 | 0 | 0 | 0.025 | 0.5 | 0 | 0% | 0 | 0 | 0% | |
| Hydrogen | A | % | | 0 | | 0 | 0 | 0 | 0.025 | 0.5 | 0 | 0% | 0 | 0 | 0% | |
| Methane | A | % | 0.013 | 0 | | 0 | 0 | 0 | 0.043 | 0.09 | 0 | 0% | 0 | 0 | 0% | |
| Nitrogen | A | % | 83.896 | 83.896 | | 0 | 0 | 0 | 0.63 | 1.39 | 0 | 0% | 0 | 0 | 0% | |
| Oxygen | A | % | 3.033 | 3.033 | | 0 | 0 | 0 | 0.03 | 0.08 | 0 | 0% | 0 | 0 | 0% | |

| Seq No | Sample ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 748299 | 1103158-007Adup | ASTM-D2504 | DUP | .TA\031011\0310 | 3/11/2011 7:19:0 | 1 | R39440 | | 0 | 748295 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon dioxide | A | % | 9.156 | 9.156 | | 0 | 0 | 9.138 | 0.13 | 0.3 | 0 | 0% | 0 | 0 | 0% | |
| Carbon Monoxide | A | % | 0.277 | 0.277 | | 0 | 0 | 0.259 | 0.066 | 0.14 | 0 | 0% | 0 | 0 | 7% | |
| Ethane | A | % | | 0 | | 0 | 0 | 0 | 0.025 | 0.5 | 0 | 0% | 0 | 0 | 0% | |
| Hydrogen | A | % | | 0 | | 0 | 0 | 0 | 0.025 | 0.5 | 0 | 0% | 0 | 0 | 0% | |
| Methane | A | % | 0.01 | 0 | | 0 | 0 | 0 | 0.043 | 0.09 | 0 | 0% | 0 | 0 | 0% | |
| Nitrogen | A | % | 82.134 | 82.134 | | 0 | 0 | 82.298 | 0.63 | 1.39 | 0 | 0% | 0 | 0 | 0% | |
| Oxygen | A | % | 4.112 | 4.112 | | 0 | 0 | 4.018 | 0.03 | 0.08 | 0 | 0% | 0 | 0 | 2% | |

| Seq No | Sample ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 748300 | LOD | ASTM-D2504 | SAMP | .TA\031011\0310 | 3/11/2011 8:11:0 | 1 | R39440 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon dioxide | A | % | 0.115 | 0 | | 0 | 0 | 0 | 0.13 | 0.3 | 0 | 0% | 0 | 0 | 0% | |
| Carbon Monoxide | A | % | 0.055 | 0 | | 0 | 0 | 0 | 0.066 | 0.14 | 0 | 0% | 0 | 0 | 0% | |
| Ethane | A | % | | 0 | | 0 | 0 | 0 | 0.025 | 0.5 | 0 | 0% | 0 | 0 | 0% | |
| Hydrogen | A | % | | 0 | | 0 | 0 | 0 | 0.025 | 0.5 | 0 | 0% | 0 | 0 | 0% | |
| Methane | A | % | 0.036 | 0 | | 0 | 0 | 0 | 0.043 | 0.09 | 0 | 0% | 0 | 0 | 0% | |
| Nitrogen | A | % | 0.599 | 0 | | 0 | 0 | 0 | 0.63 | 1.39 | 0 | 0% | 0 | 0 | 0% | |
| Oxygen | A | % | 0.057 | 0.057 | | 0 | 0 | 0 | 0.03 | 0.08 | 0 | 0% | 0 | 0 | 0% | J |

| Seq No | Sample ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 748301 | crql std 2% b | ASTM-D2504 | CCV | .TA\031011\0310 | 3/11/2011 9:31:0 | 1 | R39440 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon dioxide | A | % | 0.332 | 0.332 | | 0.3 | 0 | 0 | 0.025 | 0.1 | 0 | 111% | 85 | 115 | 0% | |
| Carbon Monoxide | A | % | 0.15 | 0.15 | | 0.14 | 0 | 0 | 0.025 | 0.1 | 0 | 107% | 85 | 115 | 0% | |
| Ethane | A | % | | 0 | | 0.025 | 0 | 0 | 0.025 | 0.5 | 0 | 0% | 85 | 115 | 0% | S |
| Hydrogen | A | % | | 0 | | 0.025 | 0 | 0 | 0.025 | 0.5 | 0 | 0% | 85 | 115 | 0% | S |
| Methane | A | % | 0.099 | 0.099 | | 0.09 | 0 | 0 | 0.025 | 0.5 | 0 | 110% | 85 | 115 | 0% | |
| Nitrogen | A | % | 1.456 | 1.456 | | 1.39 | 0 | 0 | 0.025 | 0.1 | 0 | 105% | 85 | 115 | 0% | |
| Oxygen | A | % | 0.073 | 0.073 | | 0.08 | 0 | 0 | 0.025 | 0.1 | 0 | 91% | 85 | 115 | 0% | |

| Seq No | Sample ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 748302 | ccv std 1-2 b | ASTM-D2504 | CCV | .TA\031011\0310 | 3/11/2011 9:57:0 | 1 | R39440 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon dioxide | A | % | 2.47 | 2.47 | | 2.5 | 0 | 0 | 0.025 | 0.1 | 0 | 99% | 85 | 115 | 0% | |
| Carbon Monoxide | A | % | 2.512 | 2.512 | | 2.5 | 0 | 0 | 0.025 | 0.1 | 0 | 100% | 85 | 115 | 0% | |
| Ethane | A | % | | 0 | | 1 | 0 | 0 | 0.025 | 0.5 | 0 | 0% | 85 | 115 | 0% | S |
| Hydrogen | A | % | | 0 | | 1 | 0 | 0 | 0.025 | 0.5 | 0 | 0% | 85 | 115 | 0% | S |
| Methane | A | % | 1.967 | 1.967 | | 2 | 0 | 0 | 0.025 | 0.5 | 0 | 98% | 85 | 115 | 0% | |
| Nitrogen | A | % | 2.69 | 2.69 | | 2.5 | 0 | 0 | 0.025 | 0.1 | 0 | 108% | 85 | 115 | 0% | |
| Oxygen | A | % | 2.387 | 2.387 | | 2.5 | 0 | 0 | 0.025 | 0.1 | 0 | 95% | 85 | 115 | 0% | |

# Spikes and Surrogates Report

**RunID:** GC-TCD 1_110310B **Analyst:** Mike Budziak

**RunNo:** 39440

## Spikes

| SeqNo | SampID | TestCode | SampType | BatchID | DF | Duplicate Of |
|---|---|---|---|---|---|---|
| 748284 | ccv std 1-2 a | ASTM-D2504 | CCV | R39440 | 1 | |

| Rpt | Analyte | SpkVal | CalcVal | REC | LowLimit | HighLimit | Rec Out | Qual |
|---|---|---|---|---|---|---|---|---|
| ☑ | Carbon Monoxide | 2.5 | 2.591 | 103.64% | 85 | 115 | | |
| ☐ | Ethane | 1 | 0 | 0.00% | 85 | 115 | * | S |
| ☐ | Hydrogen | 1 | 0 | 0.00% | 85 | 115 | * | S |
| ☑ | Methane | 2 | 1.961 | 98.05% | 85 | 115 | | |
| ☑ | Nitrogen | 2.5 | 2.662 | 106.48% | 85 | 115 | | |
| ☑ | Oxygen | 2.5 | 2.356 | 94.24% | 85 | 115 | | |
| ☑ | Carbon dioxide | 2.5 | 2.319 | 92.76% | 85 | 115 | | |

**Total Recoveries Out:** 2

| SeqNo | SampID | TestCode | SampType | BatchID | DF |
|---|---|---|---|---|---|
| 748285 | crql std 2% a | ASTM-D2504 | CRQL | R39440 | 1 |

| Rpt | Analyte | SpkVal | CalcVal | REC | LowLimit | HighLimit | Rec Out | Qual |
|---|---|---|---|---|---|---|---|---|
| ☐ | Ethane | 0.025 | 0 | 0.00% | 80 | 120 | * | S |
| ☑ | Oxygen | 0.08 | 0.094 | 117.50% | 80 | 120 | | |
| ☑ | Nitrogen | 1.39 | 1.356 | 97.55% | 80 | 120 | | |
| ☐ | Hydrogen | 0.025 | 0 | 0.00% | 80 | 120 | * | S |
| ☑ | Carbon Monoxide | 0.14 | 0.136 | 97.14% | 80 | 120 | | |
| ☑ | Carbon dioxide | 0.3 | 0.28 | 93.33% | 80 | 120 | | |
| ☑ | Methane | 0.09 | 0.09 | 100.00% | 80 | 120 | | |

**Total Recoveries Out:** 2

| SeqNo | SampID | TestCode | SampType | BatchID | DF |
|---|---|---|---|---|---|
| 748286 | lcs | ASTM-D2504 | LCS | R39440 | 1 |

| Rpt | Analyte | SpkVal | CalcVal | REC | LowLimit | HighLimit | Rec Out | Qual |
|---|---|---|---|---|---|---|---|---|
| ☑ | Nitrogen | 2.5 | 2.667 | 106.68% | 70 | 130 | | |
| ☑ | Oxygen | 2.5 | 2.31 | 92.40% | 70 | 130 | | |
| ☑ | Carbon dioxide | 2.5 | 2.286 | 91.44% | 70 | 130 | | |
| ☑ | Carbon Monoxide | 2.5 | 2.426 | 97.04% | 70 | 130 | | |
| ☐ | Ethane | 1 | 0 | 0.00% | 70 | 130 | * | S |
| ☐ | Hydrogen | 1 | 0 | 0.00% | 70 | 130 | * | S |
| ☑ | Methane | 2 | 1.932 | 96.60% | 70 | 130 | | |

**Total Recoveries Out:** 2

| SeqNo | SampID | TestCode | SampType | BatchID | DF | Duplicate Of |
|---|---|---|---|---|---|---|
| 748287 | lcsd | ASTM-D2504 | LCSD | R39440 | 1 | 748286 |

| Rpt | Analyte | SpkVal | CalcVal | REC | LowLimit | HighLimit | Rec Out | RPD | RPD Limit | RPD Out | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ☑ | Carbon Monoxide | 2.5 | 2.437 | 97.48% | 70 | 130 | | 0.45% | 20 | | |
| ☐ | Ethane | 1 | 0 | 0.00% | 70 | 130 | * | 0.00% | 20 | | S |
| ☐ | Hydrogen | 1 | 0 | 0.00% | 70 | 130 | * | 0.00% | 20 | | S |
| ☑ | Methane | 2 | 1.954 | 97.70% | 70 | 130 | | 1.13% | 20 | | |
| ☑ | Nitrogen | 2.5 | 2.686 | 107.44% | 70 | 130 | | 0.71% | 20 | | |
| ☑ | Oxygen | 2.5 | 2.33 | 93.20% | 70 | 130 | | 0.86% | 20 | | |
| ☑ | Carbon dioxide | 2.5 | 2.291 | 91.64% | 70 | 130 | | 0.22% | 20 | | |

**Total Recoveries Out:** 2 **Total RPD Out:** 0

# Spikes and Surrogates Report

**RunID:** GC-TCD 1_110310B **Analyst:** Mike Budziak

**RunNo:** 39440

## Spikes

| SeqNo | SampID | TestCode | SampType | BatchID | DF | Duplicate Of |
|---|---|---|---|---|---|---|
| 748301 | crql std 2% b | ASTM-D2504 | CCV | R39440 | 1 | |

| Rpt | Analyte | SpkVal | CalcVal | REC | LowLimit | HighLimit | Rec Out | Qual |
|---|---|---|---|---|---|---|---|---|
| ☐ | Ethane | 0.025 | 0 | 0.00% | 85 | 115 | * | S |
| ✓ | Oxygen | 0.08 | 0.073 | 91.25% | 85 | 115 | | |
| ☑ | Nitrogen | 1.39 | 1.456 | 104.75% | 85 | 115 | | |
| ☐ | Hydrogen | 0.025 | 0 | 0.00% | 85 | 115 | * | S |
| ☑ | Carbon Monoxide | 0.14 | 0.15 | 107.14% | 85 | 115 | | |
| ☑ | Carbon dioxide | 0.3 | 0.34 | 113.33% | 85 | 115 | | |
| ☑ | Methane | 0.09 | 0.099 | 110.00% | 85 | 115 | | |

**Total Recoveries Out:** 2

| SeqNo | SampID | TestCode | SampType | BatchID | DF | Duplicate Of |
|---|---|---|---|---|---|---|
| 748302 | ccv std 1-2 b | ASTM-D2504 | CCV | R39440 | 1 | |

| Rpt | Analyte | SpkVal | CalcVal | REC | LowLimit | HighLimit | Rec Out | Qual |
|---|---|---|---|---|---|---|---|---|
| ☑ | Oxygen | 2.5 | 2.387 | 95.48% | 85 | 115 | | |
| ☑ | Carbon dioxide | 2.5 | 2.47 | 98.80% | 85 | 115 | | |
| ☑ | Carbon Monoxide | 2.5 | 2.512 | 100.48% | 85 | 115 | | |
| ☐ | Ethane | 1 | 0 | 0.00% | 85 | 115 | * | S |
| ☐ | Hydrogen | 1 | 0 | 0.00% | 85 | 115 | * | S |
| ☑ | Methane | 2 | 1.967 | 98.35% | 85 | 115 | | |
| ☑ | Nitrogen | 2.5 | 2.69 | 107.60% | 85 | 115 | | |

**Total Recoveries Out:** 2

# Method Blank Contamination Report

**Blank ID:** mb

SeqNo: 748288

**Analysis Date:** 3/11/2011 2:50:00 AM

**Analyst:** Mike Budziak

**Batch ID:** R39440

**TestCode:** ASTM-D2504

**RunID:** GC-TCD 1_110310B

**InstrumentID:** GC-TCD 1

## No Contaminants Were Found in this Blank

The following Samples are associated with this blank:

| Sample ID | SeqNo | TestCode | SampType | RunID | BatchID | AnalDate | DF |
|---|---|---|---|---|---|---|---|
| icb | 748283 | ASTM-D2504 | ICB | GC-TCD 1_110310B | R39440 | 3/11/2011 12:55:00 AM | 1 |
| ccv std 1-2 a | 748284 | ASTM-D2504 | CCV | GC-TCD 1_110310B | R39440 | 3/11/2011 1:17:00 AM | 1 |
| crql std 2% a | 748285 | ASTM-D2504 | CRQL | GC-TCD 1_110310B | R39440 | 3/11/2011 1:39:00 AM | 1 |
| lcs | 748286 | ASTM-D2504 | LCS | GC-TCD 1_110310B | R39440 | 3/11/2011 2:08:00 AM | 1 |
| lcsd | 748287 | ASTM-D2504 | LCSD | GC-TCD 1_110310B | R39440 | 3/11/2011 2:31:00 AM | 1 |
| 1103158-001A | 748289 | ASTM-D2504 | SAMP | GC-TCD 1_110310B | R39440 | 3/11/2011 3:15:00 AM | 1 |
| 1103158-002A | 748290 | ASTM-D2504 | SAMP | GC-TCD 1_110310B | R39440 | 3/11/2011 3:37:00 AM | 1 |
| 1103158-003A | 748291 | ASTM-D2504 | SAMP | GC-TCD 1_110310B | R39440 | 3/11/2011 4:01:00 AM | 1 |
| 1103158-004A | 748292 | ASTM-D2504 | SAMP | GC-TCD 1_110310B | R39440 | 3/11/2011 4:21:00 AM | 1 |
| 1103158-005A | 748293 | ASTM-D2504 | SAMP | GC-TCD 1_110310B | R39440 | 3/11/2011 5:03:00 AM | 1 |
| 1103158-006A | 748294 | ASTM-D2504 | SAMP | GC-TCD 1_110310B | R39440 | 3/11/2011 5:30:00 AM | 1 |
| 1103158-007A | 748295 | ASTM-D2504 | SAMP | GC-TCD 1_110310B | R39440 | 3/11/2011 5:51:00 AM | 1 |
| 1103158-008A | 748296 | ASTM-D2504 | SAMP | GC-TCD 1_110310B | R39440 | 3/11/2011 6:12:00 AM | 1 |
| 1103158-009A | 748297 | ASTM-D2504 | SAMP | GC-TCD 1_110310B | R39440 | 3/11/2011 6:36:00 AM | 1 |
| 1103158-010A | 748298 | ASTM-D2504 | SAMP | GC-TCD 1_110310B | R39440 | 3/11/2011 6:58:00 AM | 1 |
| 1103158-007Adup | 748299 | ASTM-D2504 | DUP | GC-TCD 1_110310B | R39440 | 3/11/2011 7:19:00 AM | 1 |
| LOD | 748300 | ASTM-D2504 | SAMP | GC-TCD 1_110310B | R39440 | 3/11/2011 8:11:00 AM | 1 |
| crql std 2% b | 748301 | ASTM-D2504 | CCV | GC-TCD 1_110310B | R39440 | 3/11/2011 9:31:00 AM | 1 |
| ccv std 1-2 b | 748302 | ASTM-D2504 | CCV | GC-TCD 1_110310B | R39440 | 3/11/2011 9:57:00 AM | 1 |
| 1103158-011A | 748306 | ASTM-D2504 | SAMP | GC-TCD 1_110311A | R39440 | 3/12/2011 5:16:00 AM | 1 |
| 1103158-012A | 748307 | ASTM-D2504 | SAMP | GC-TCD 1_110311A | R39440 | 3/12/2011 5:38:00 AM | 1 |
| 1103158-013A | 748308 | ASTM-D2504 | SAMP | GC-TCD 1_110311A | R39440 | 3/12/2011 5:59:00 AM | 1 |
| 1103158-014A | 748309 | ASTM-D2504 | SAMP | GC-TCD 1_110311A | R39440 | 3/12/2011 6:19:00 AM | 1 |
| 1103158-014Adup | 748310 | ASTM-D2504 | DUP | GC-TCD 1_110311A | R39440 | 3/12/2011 6:48:00 AM | 1 |

# Injection Log

Directory: C:\HPCHEM\2\DATA\031011

| Line | Vial | FileName | Multiplier | SampleName | Misc Info | Injected |
|---|---|---|---|---|---|---|
| 1 | 1 | 03101101.D | 1. | icb | ICB ASTM-D2504 | 11 Mar 2011 00:55 |
| 2 | 1 | 03101102.D | 1. | ccv std 1-2 a | CCV ASTM-D2504 | 11 Mar 2011 01:17 |
| 3 | 1 | 03101103.D | 1. | crql std 2% a | CRQL ASTM-D2504 | 11 Mar 2011 01:39 |
| 4 | 1 | 03101104.D | 1. | lcs | LCS ASTM-D2504 | 11 Mar 2011 02:08 |
| 5 | 1 | 03101105.D | 1. | lcsd | LCSD ASTM-D2504 | 11 Mar 2011 02:31 |
| 6 | 1 | 03101106.D | 1. | mb | MBLK ASTM-D2504 | 11 Mar 2011 02:50 |
| 7 | 1 | 03101107.D | 1. | 1103158-001A | SAMP ASTM-D2504 | 11 Mar 2011 03:15 |
| 8 | 1 | 03101108.D | 1. | 1103158-002A | SAMP ASTM-D2504 | 11 Mar 2011 03:37 |
| 9 | 1 | 03101109.D | 1. | 1103158-003A | SAMP ASTM-D2504 | 11 Mar 2011 04:01 |
| 10 | 1 | 03101110.D | 1. | 1103158-004A | SAMP ASTM-D2504 | 11 Mar 2011 04:21 |
| 11 | 1 | 03101111.D | 1. | 1103158-005A | SAMP ASTM-D2504 | 11 Mar 2011 05:03 |
| 12 | 1 | 03101112.D | 1. | 1103158-006A | SAMP ASTM-D2504 | 11 Mar 2011 05:30 |
| 13 | 1 | 03101113.D | 1. | 1103158-007A | SAMP ASTM-D2504 | 11 Mar 2011 05:51 |
| 14 | 1 | 03101114.D | 1. | 1103158-008A | SAMP ASTM-D2504 | 11 Mar 2011 06:12 |
| 15 | 1 | 03101115.D | 1. | 1103158-009A | SAMP ASTM-D2504 | 11 Mar 2011 06:36 |
| 16 | 1 | 03101116.D | 1. | 1103158-010A | SAMP ASTM-D2504 | 11 Mar 2011 06:58 |
| 17 | 1 | 03101117.D | 1. | 1103158-007Adup | DUP ASTM-D2504 | 11 Mar 2011 07:19 |
| 18 | 1 | 03101118.d | 1. | LOD | SAMP ASTM-D2504 | 11 Mar 2011 08:11 |
| 19 | 1 | 03101119.d | 1. | crql std 2% b | CCV ASTM-D2504 | 11 Mar 2011 09:31 |
| 20 | 1 | 03101120.d | 1. | ccv std 1-2 b | CCV ASTM-D2504 | 11 Mar 2011 09:57 |

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031011\03101101.D Vial: 1
Acq On : 11 Mar 2011 12:55 am Operator:
Sample : icb Inst : GC/TCD
Misc : ICB ASTM-D2504 Multiplr: 1.00
IntFile : events.e
Quant Time: Mar 12 4:57 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Sat Mar 12 04:49:32 2011
Response via : Initial Calibration
DataAcq Meth : TCD.M

Volume Inj. :
Signal Phase :
Signal Info :

| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| | Target Compounds | | | | |
| 1) | Oxygen | 0.00 | 0 | N.D. | % |
| 2) | Nitrogen | 0.00 | 0 | N.D. | % |
| 3) | Carbon Monoxide | 0.00 | 0 | N.D. | % |
| 4) | Methane | 0.00 | 0 | N.D. | % |
| 5) | Carbon dioxide | 0.00 | 0 | N.D. | % |

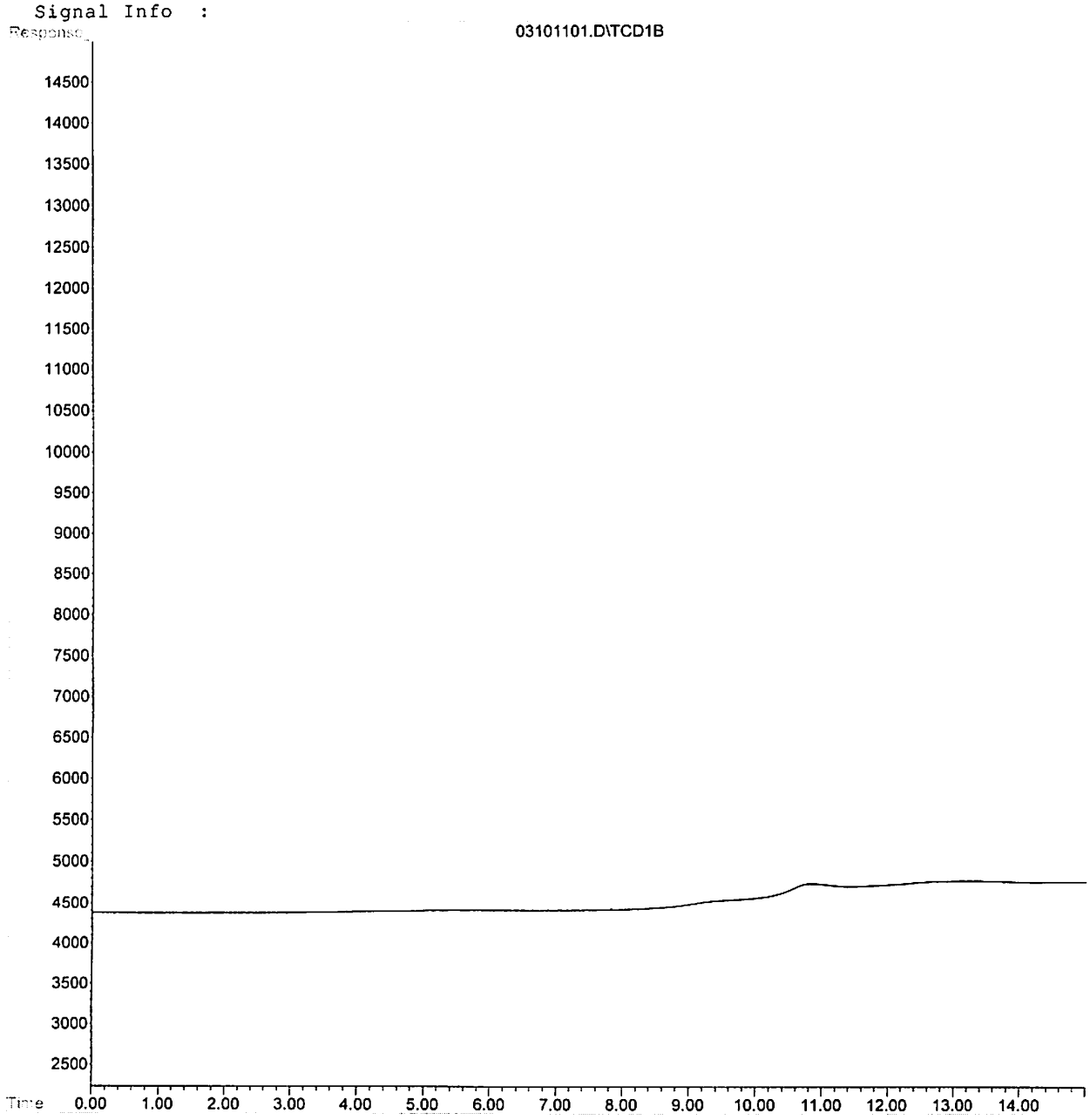
(f)=RT Delta > 1/2 Window (m)=manual int.
03101101.D 030511.M Tue Mar 29 09:54:28 2011 Page 1

Quantitation Report

Data File : C:\HPCHEM\2\DATA\031011\03101101.D  Vial: 1
Acq On : 11 Mar 2011 12:55 am  Operator:
Sample : icb  Inst : GC/TCD
Misc : ICB ASTM-D2504  Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Mar 12 4:57 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Sat Mar 12 04:49:32 2011
Response via : Multiple Level Calibration
DataAcq Meth : TCD.M

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031011\03101102.D Vial: 1
Acq On : 11 Mar 2011 1:17 am Operator:
Sample : ccv std 1-2 a Inst : GC/TCD
Misc : CCV ASTM-D2504 Multiplr: 1.00
IntFile : events.e
Quant Time: Mar 11 1:34 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Wed Mar 09 10:39:51 2011
Response via : Initial Calibration
DataAcq Meth : TCD.M

Volume Inj. :
Signal Phase :
Signal Info :

| | Compound | R.T. | Response | Conc Units |
|---|---|---|---|---|
| | Target Compounds | | | |
| 1) | Oxygen | 2.13 | 368265 | 2.356 % |
| 2) | Nitrogen | 2.32 | 463181 | 2.662 % |
| 3) | Carbon Monoxide | 3.01 | 425973 | 2.591 % |
| 4) | Methane | 6.22 | 270108 | 1.961 % |
| 5) | Carbon dioxide | 11.15 | 474685 | 2.319 % |

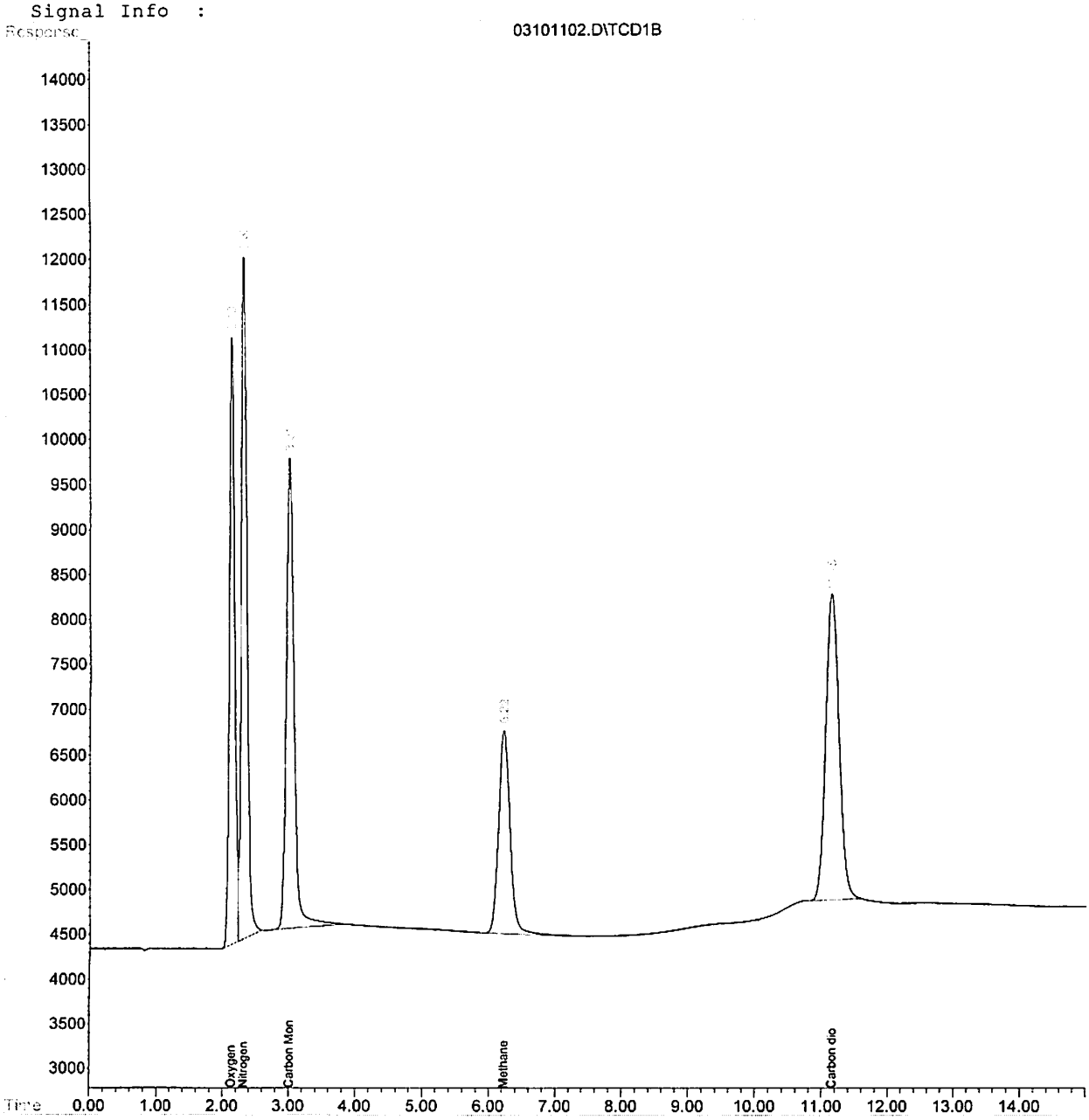
(f)=RT Delta > 1/2 Window (m)=manual int.
03101102.D 030511.M Tue Mar 29 09:54:44 2011 Page 1

Quantitation Report

Data File : C:\HPCHEM\2\DATA\031011\03101102.D  Vial: 1
Acq On : 11 Mar 2011 1:17 am  Operator:
Sample : ccv std 1-2 a  Inst : GC/TCD
Misc : CCV ASTM-D2504  Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Mar 11 1:34 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Wed Mar 09 10:39:51 2011
Response via : Multiple Level Calibration
DataAcq Meth : TCD.M

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031011\03101103.D Vial: 1
Acq On : 11 Mar 2011 1:39 am Operator:
Sample : crql std 2% a Inst : GC/TCD
Misc : CRQL ASTM-D2504 Multiplr: 1.00
IntFile : events.e
Quant Time: Mar 11 2:07 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Wed Mar 09 10:39:51 2011
Response via : Initial Calibration
DataAcq Meth : TCD.M

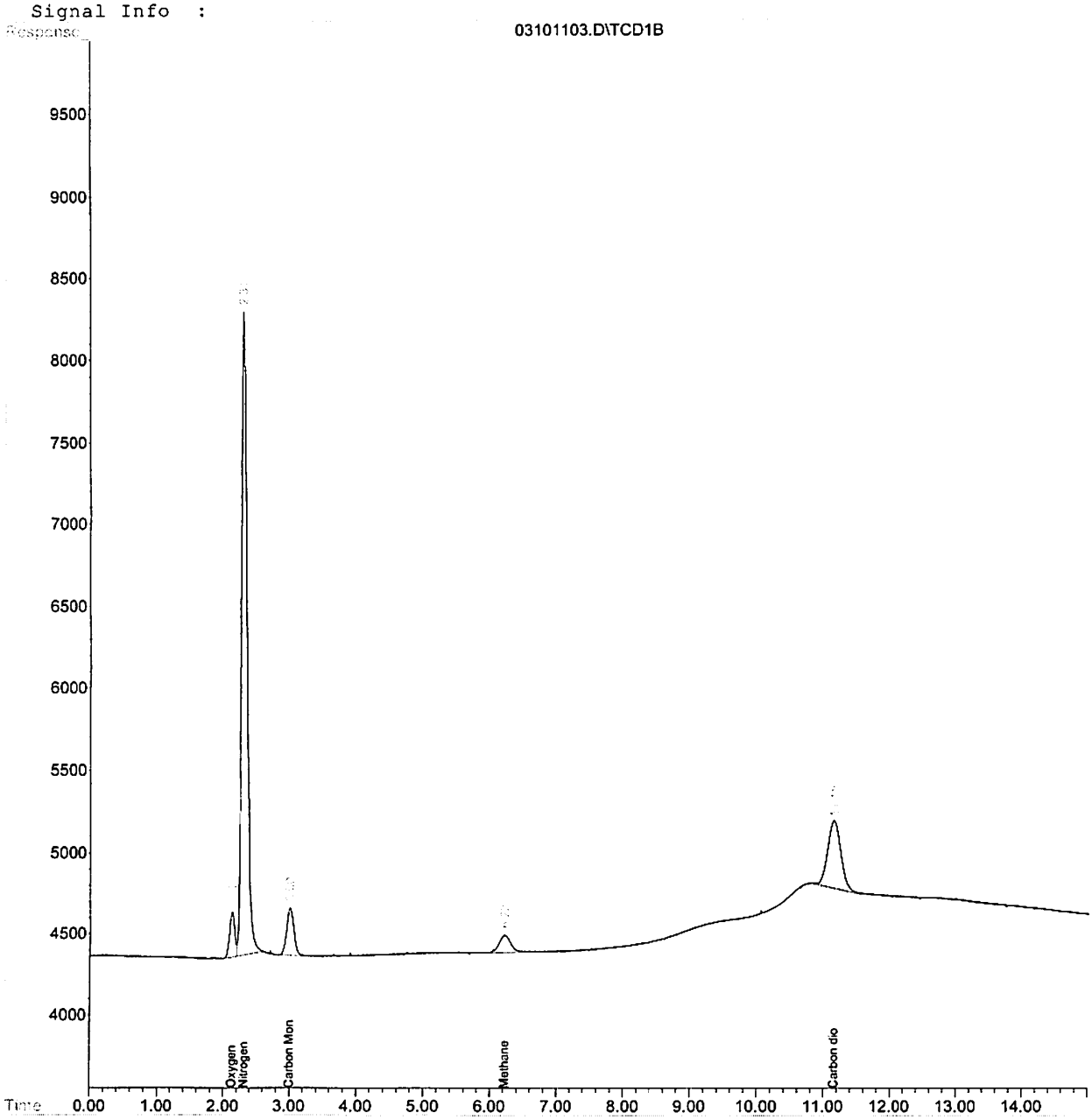
Volume Inj. :
Signal Phase :
Signal Info :

| | Compound | R.T. | Response | Conc Units |
|---|---|---|---|---|
| | Target Compounds | | | |
| 1) | Oxygen | 2.12 | 14753 | 0.094 % |
| 2) | Nitrogen | 2.31 | 235875 | 1.356 % |
| 3) | Carbon Monoxide | 3.00 | 22373 | 0.136 % |
| 4) | Methane | 6.22 | 12387 | 0.090 % |
| 5) | Carbon dioxide | 11.16 | 57380 | 0.280 % |

(f)=RT Delta > 1/2 Window (m)=manual int.
03101103.D 030511.M Tue Mar 29 09:55:01 2011 Page 1

Quantitation Report

```
Data File : C:\HPCHEM\2\DATA\031011\03101103.D          Vial: 1
Acq On    : 11 Mar 2011   1:39 am                    Operator:
Sample    : crql std 2% a                            Inst    : GC/TCD
Misc      : CRQL ASTM-D2504                          Multiplr: 1.00
IntFile   : EVENTS.E
Quant Time: Mar 11  2:07 2011  Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title        :
Last Update  : Wed Mar 09 10:39:51 2011
Response via : Multiple Level Calibration
DataAcq Meth : TCD.M

Volume Inj.  :
Signal Phase :
Signal Info  :
```



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031011\03101104.D Vial: 1
Acq On : 11 Mar 2011 2:08 am Operator:
Sample : lcs Inst : GC/TCD
Misc : LCS ASTM-D2504 Multiplr: 1.00
IntFile : events.e
Quant Time: Mar 12 4:58 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Sat Mar 12 04:49:32 2011
Response via : Initial Calibration
DataAcq Meth : TCD.M

Volume Inj. :
Signal Phase :
Signal Info :

| | Compound | R.T. | Response | Conc Units |
|---|---|---|---|---|
| | Target Compounds | | | |
| 1) | Oxygen | 2.13 | 361147 | 2.310 % |
| 2) | Nitrogen | 2.32 | 464044 | 2.667 % |
| 3) | Carbon Monoxide | 3.01 | 398945 | 2.426 % |
| 4) | Methane | 6.22 | 266041 | 1.932 % |
| 5) | Carbon dioxide | 11.15 | 467868 | 2.286 % |

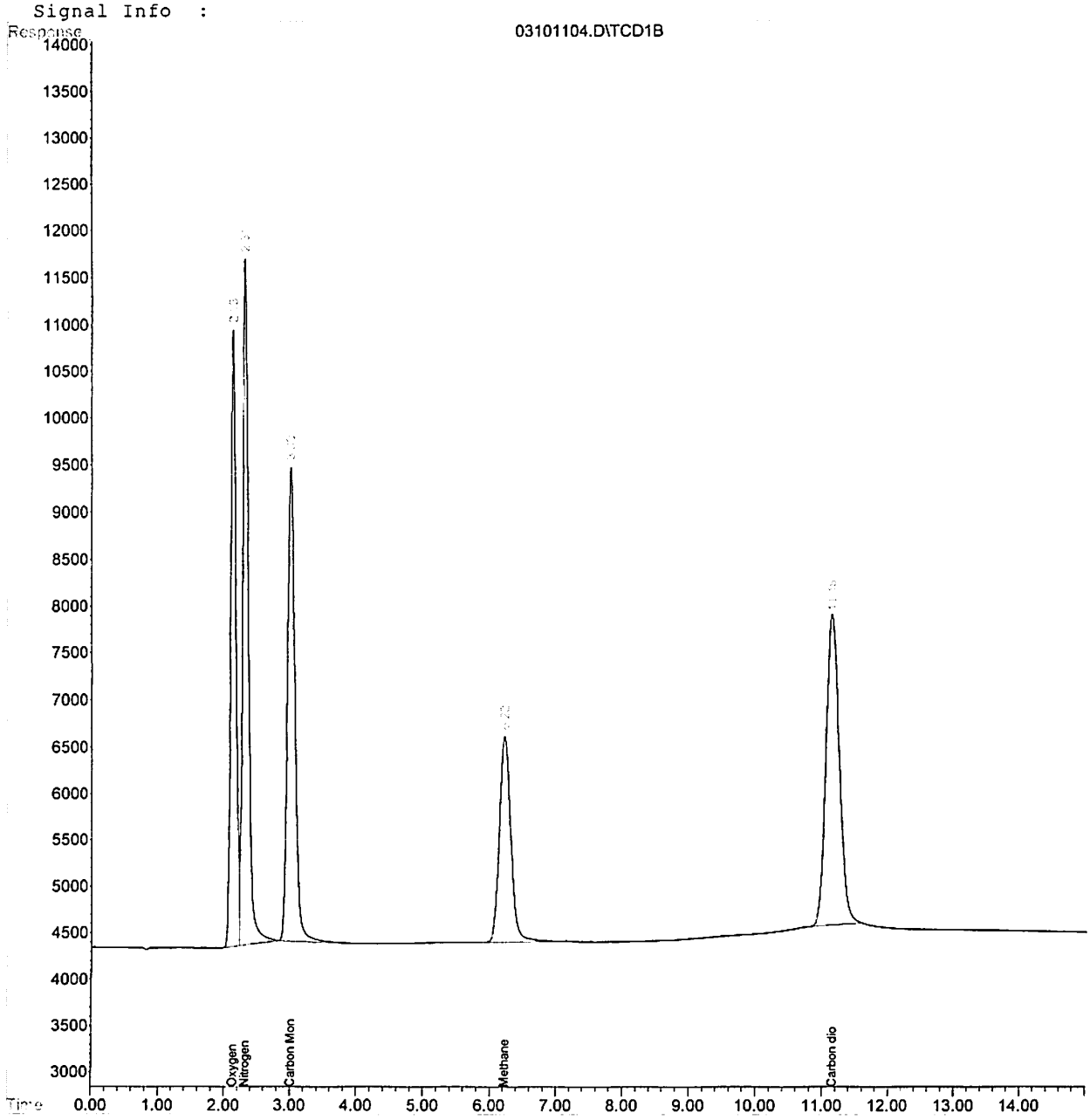
(f)=RT Delta > 1/2 Window (m)=manual int.
03101104.D 030511.M Tue Mar 29 09:55:06 2011 Page 1

Quantitation Report

Data File : C:\HPCHEM\2\DATA\031011\03101104.D  Vial: 1
Acq On : 11 Mar 2011 2:08 am  Operator:
Sample : lcs  Inst : GC/TCD
Misc : LCS ASTM-D2504  Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Mar 12 4:58 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Sat Mar 12 04:49:32 2011
Response via : Multiple Level Calibration
DataAcq Meth : TCD.M

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031011\03101105.D Vial: 1
Acq On : 11 Mar 2011 2:31 am Operator:
Sample : lcsd Inst : GC/TCD
Misc : LCSD ASTM-D2504 Multiplr: 1.00
IntFile : events.e
Quant Time: Mar 12 4:58 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Sat Mar 12 04:49:32 2011
Response via : Initial Calibration
DataAcq Meth : TCD.M

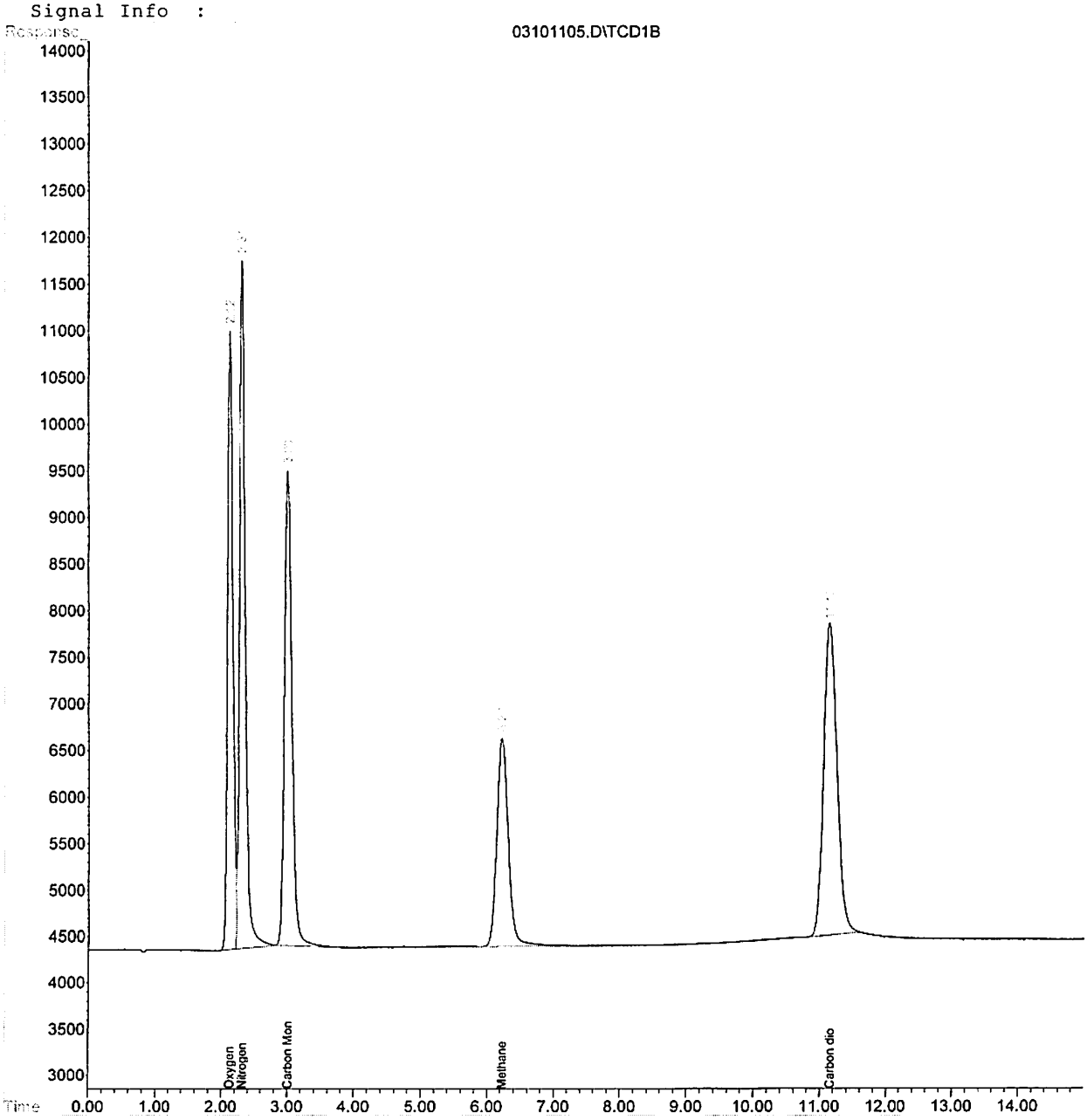
Volume Inj. :
Signal Phase :
Signal Info :

| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| | Target Compounds | | | | |
| 1) | Oxygen | 2.13 | 364238 | 2.330 | % |
| 2) | Nitrogen | 2.31 | 467429 | 2.686 | % |
| 3) | Carbon Monoxide | 3.00 | 400677 | 2.437 | % |
| 4) | Methane | 6.22 | 269074 | 1.954 | % |
| 5) | Carbon dioxide | 11.16 | 468957 | 2.291 | % |

(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report

```
Data File : C:\HPCHEM\2\DATA\031011\03101105.D          Vial: 1
Acq On    : 11 Mar 2011   2:31 am                   Operator:
Sample    : lcsd                                    Inst    : GC/TCD
Misc      : LCSD ASTM-D2504                         Multiplr: 1.00
IntFile   : EVENTS.E
Quant Time: Mar 12  4:58 2011  Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title        :
Last Update  : Sat Mar 12 04:49:32 2011
Response via : Multiple Level Calibration
DataAcq Meth : TCD.M

Volume Inj.  :
Signal Phase :
Signal Info  :
```



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031011\03101106.D Vial: 1
Acq On : 11 Mar 2011 2:50 am Operator:
Sample : mb Inst : GC/TCD
Misc : MBLK ASTM-D2504 Multiplr: 1.00
IntFile : events.e
Quant Time: Mar 12 4:59 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Sat Mar 12 04:49:32 2011
Response via : Initial Calibration
DataAcq Meth : TCD.M

Volume Inj. :
Signal Phase :
Signal Info :

| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| | Target Compounds | | | | |
| 1) | Oxygen | 0.00 | 0 | N.D. | % |
| 2) | Nitrogen | 0.00 | 0 | N.D. | % |
| 3) | Carbon Monoxide | 0.00 | 0 | N.D. | % |
| 4) | Methane | 0.00 | 0 | N.D. | % |
| 5) | Carbon dioxide | 0.00 | 0 | N.D. | % |

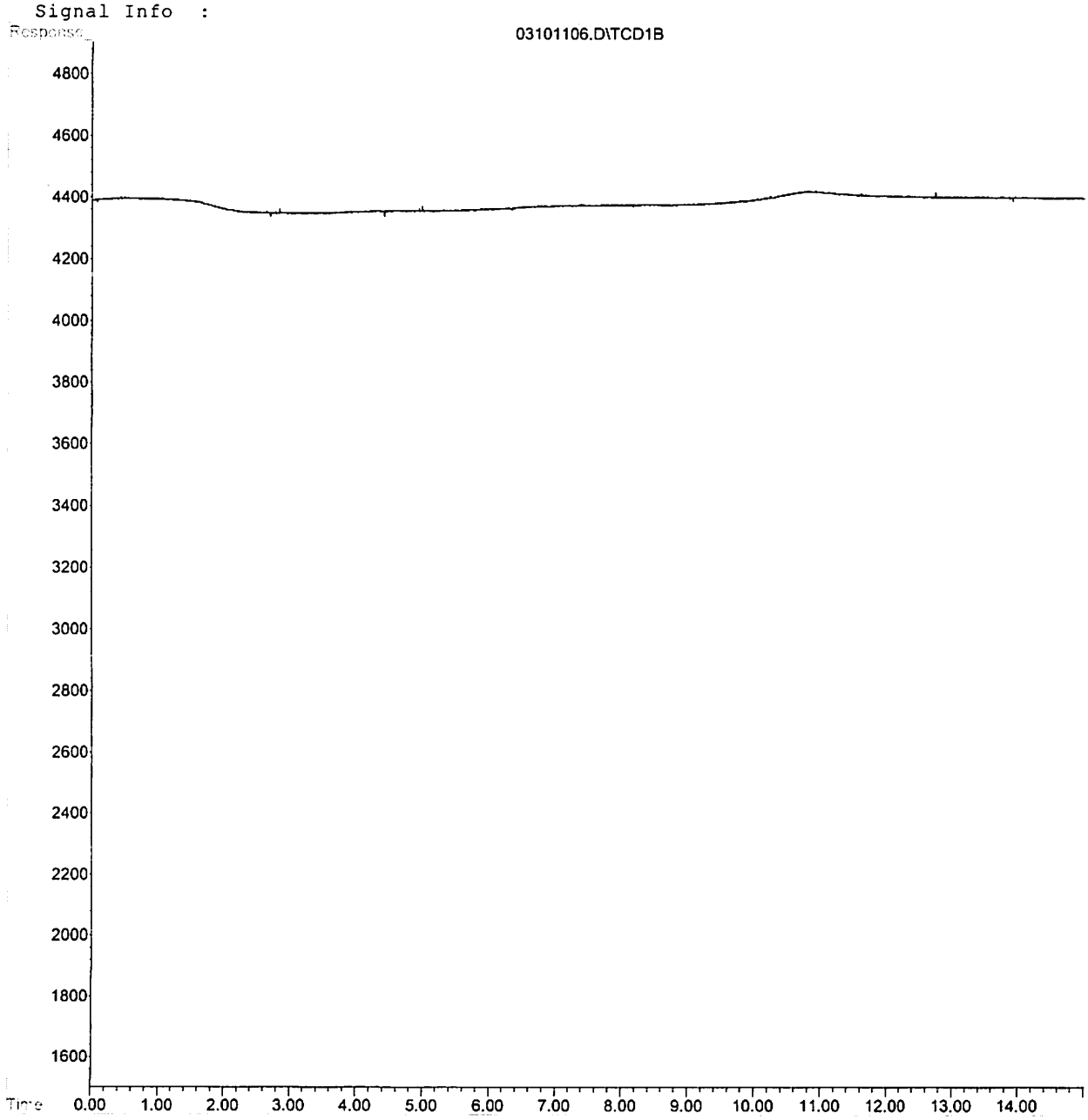
(f)=RT Delta > 1/2 Window (m)=manual int.
03101106.D 030511.M Tue Mar 29 09:55:26 2011 Page 1

Quantitation Report

Data File : C:\HPCHEM\2\DATA\031011\03101106.D  Vial: 1
Acq On : 11 Mar 2011 2:50 am  Operator:
Sample : mb  Inst : GC/TCD
Misc : MBLK ASTM-D2504  Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Mar 12 4:59 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Sat Mar 12 04:49:32 2011
Response via : Multiple Level Calibration
DataAcq Meth : TCD.M

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031011\03101107.D Vial: 1
Acq On : 11 Mar 2011 3:15 am Operator:
Sample : 1103158-001A Inst : GC/TCD
Misc : SAMP ASTM-D2504 Multiplr: 1.00
IntFile : events.e
Quant Time: Mar 11 6:03 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Fri Mar 11 05:59:54 2011
Response via : Initial Calibration
DataAcq Meth : TCD.M

Volume Inj. :
Signal Phase :
Signal Info :

| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| | Target Compounds | | | | |
| 1) | Oxygen | 2.11 | 2700552 | 17.277 | % |
| 2) | Nitrogen | 2.27 | 13384307 | 76.918 | % |
| 3) | Carbon Monoxide | 0.00 | 0 | N.D. | % |
| 4) | Methane | 0.00 | 0 | N.D. | % |
| 5) | Carbon dioxide | 11.16 | 298899 | 1.460 | % |

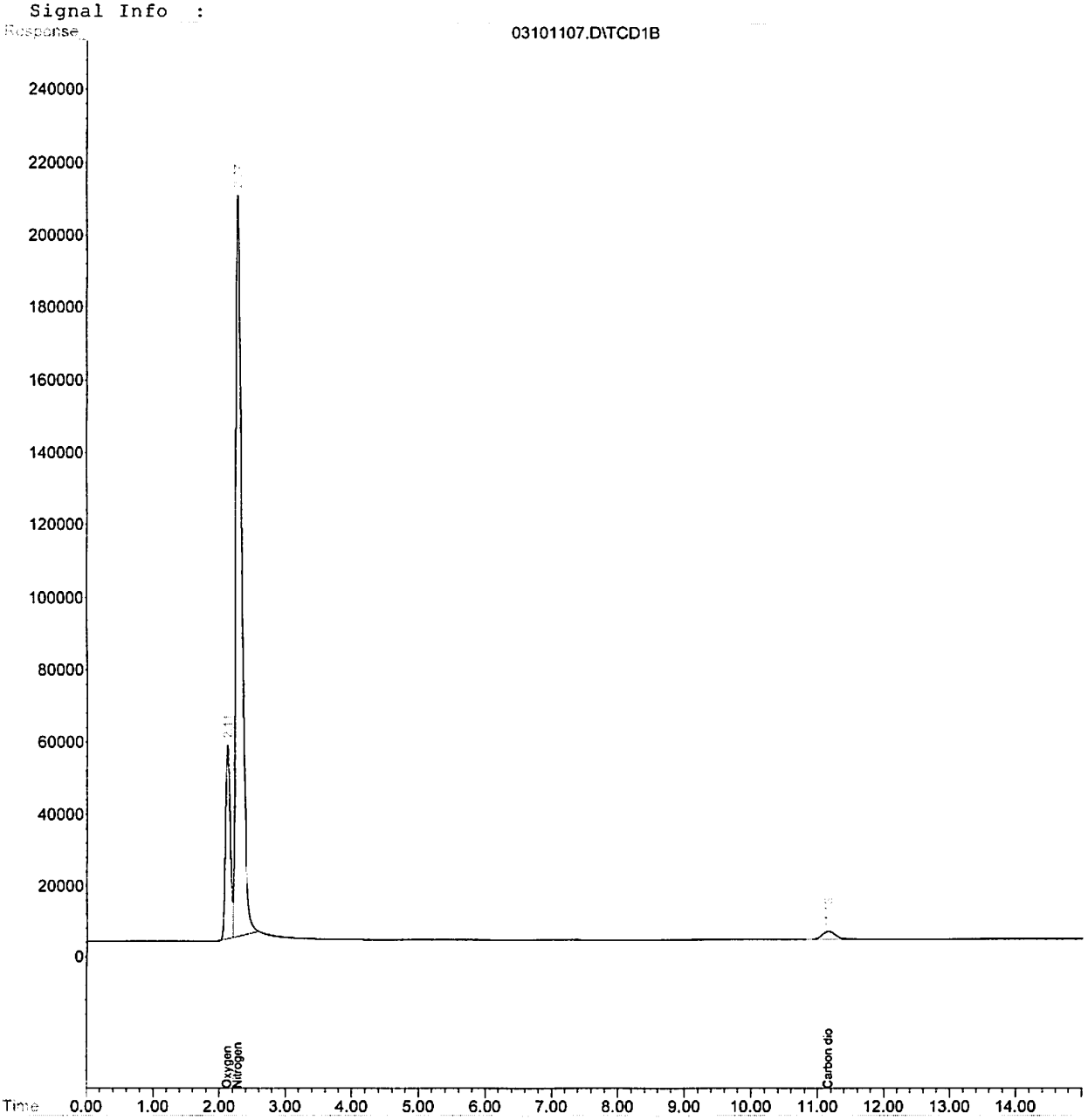
(f)=RT Delta > 1/2 Window (m)=manual int.
03101107.D 030511.M Tue Mar 29 09:55:42 2011 Page 1

Quantitation Report

Data File : C:\HPCHEM\2\DATA\031011\03101107.D  Vial: 1
Acq On : 11 Mar 2011 3:15 am  Operator:
Sample : 1103158-001A  Inst : GC/TCD
Misc : SAMP ASTM-D2504  Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Mar 11 6:03 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Fri Mar 11 05:59:54 2011
Response via : Multiple Level Calibration
DataAcq Meth : TCD.M

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031011\03101108.D Vial: 1
Acq On : 11 Mar 2011 3:37 am Operator:
Sample : 1103158-002A Inst : GC/TCD
Misc : SAMP ASTM-D2504 Multiplr: 1.00
IntFile : events.e
Quant Time: Mar 12 5:00 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Sat Mar 12 04:49:32 2011
Response via : Initial Calibration
DataAcq Meth : TCD.M

Volume Inj. :
Signal Phase :
Signal Info :

| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| | Target Compounds | | | | |
| 1) | Oxygen | 2.11 | 2756432 | 17.634 | % |
| 2) | Nitrogen | 2.27f | 13440636 | 77.241 | % |
| 3) | Carbon Monoxide | 0.00 | 0 | N.D. | % |
| 4) | Methane | 0.00 | 0 | N.D. | % |
| 5) | Carbon dioxide | 11.16 | 286050 | 1.397 | % |

(f)=RT Delta > 1/2 Window (m)=manual int.
03101108.D 030511.M Tue Mar 29 09:55:48 2011 Page 1

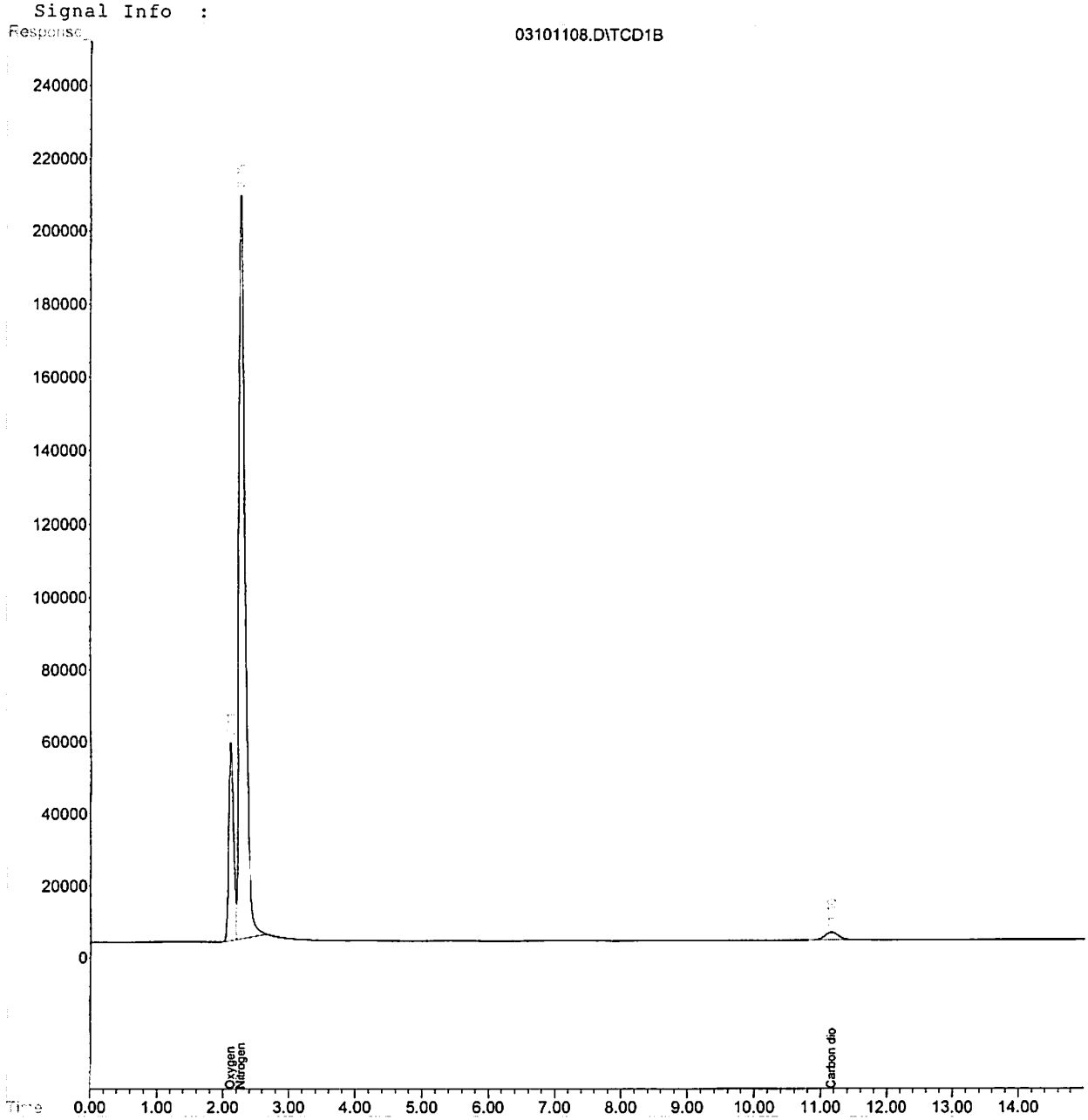
Quantitation Report

Data File : C:\HPCHEM\2\DATA\031011\03101108.D
Acq On : 11 Mar 2011 3:37 am
Sample : 1103158-002A
Misc : SAMP ASTM-D2504
IntFile : EVENTS.E
Quant Time: Mar 12 5:00 2011 Quant Results File: 030511.RES

Vial: 1
Operator:
Inst : GC/TCD
Multiplr: 1.00

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Sat Mar 12 04:49:32 2011
Response via : Multiple Level Calibration
DataAcq Meth : TCD.M

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031011\03101109.D Vial: 1
Acq On : 11 Mar 2011 4:01 am Operator:
Sample : 1103158-003A Inst : GC/TCD
Misc : SAMP ASTM-D2504 Multiplr: 1.00
IntFile : events.e
Quant Time: Mar 12 5:05 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Sat Mar 12 05:03:19 2011
Response via : Initial Calibration
DataAcq Meth : TCD.M

Volume Inj. :
Signal Phase :
Signal Info :

| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| | Target Compounds | | | | |
| 1) | Oxygen | 2.12 | 522972 | 3.346 | % |
| 2) | Nitrogen | 2.27f | 14849239 | 85.336 | % |
| 3) | Carbon Monoxide | 3.00 | 27142 | 0.165 | % |
| 4) | Methane | 6.23 | 1934 | 0.014 | % |
| 5) | Carbon dioxide | 11.14 | 1899342 | 9.279 | % |

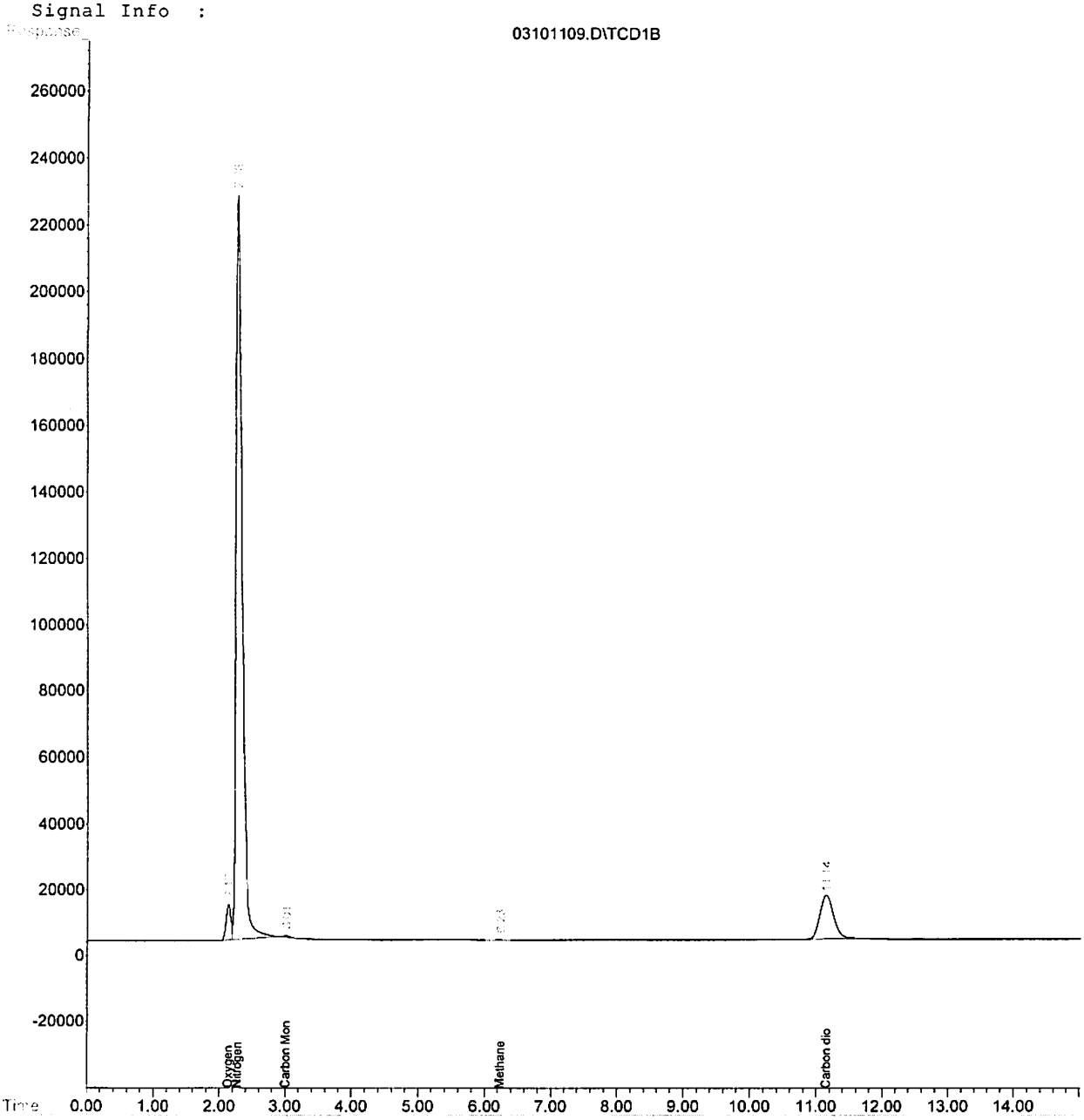
(f)=RT Delta > 1/2 Window (m)=manual int.
03101109.D 030511.M Tue Mar 29 09:55:56 2011 Page 1

Quantitation Report

Data File : C:\HPCHEM\2\DATA\031011\03101109.D  Vial: 1
Acq On : 11 Mar 2011 4:01 am  Operator:
Sample : 1103158-003A  Inst : GC/TCD
Misc : SAMP ASTM-D2504  Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Mar 12 5:05 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Sat Mar 12 05:03:19 2011
Response via : Multiple Level Calibration
DataAcq Meth : TCD.M

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031011\03101110.D
Acq On : 11 Mar 2011 4:21 am
Sample : 1103158-004A
Misc : SAMP ASTM-D2504
IntFile : events.e
Quant Time: Mar 24 14:47 2011 Quant Results File: 030511.RES

Vial: 1
Operator:
Inst : GC/TCD
Multiplr: 1.00

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Sat Mar 12 05:03:19 2011
Response via : Initial Calibration
DataAcq Meth : TCD.M

Volume Inj. :
Signal Phase :
Signal Info :

| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| Target Compounds | | | | | | |
| 1) | Oxygen | 2.12 | 582835 | 3.729 | % | |
| 2) | Nitrogen | 2.27f | 14667188 | 84.290 | % | |
| 3) | Carbon Monoxide | 2.99 | 12134 | 0.074 | % | |
| 4) | Methane | 6.24 | 2025 | 0.015 | % | m |
| 5) | Carbon dioxide | 11.14 | 1945789 | 9.505 | % | |

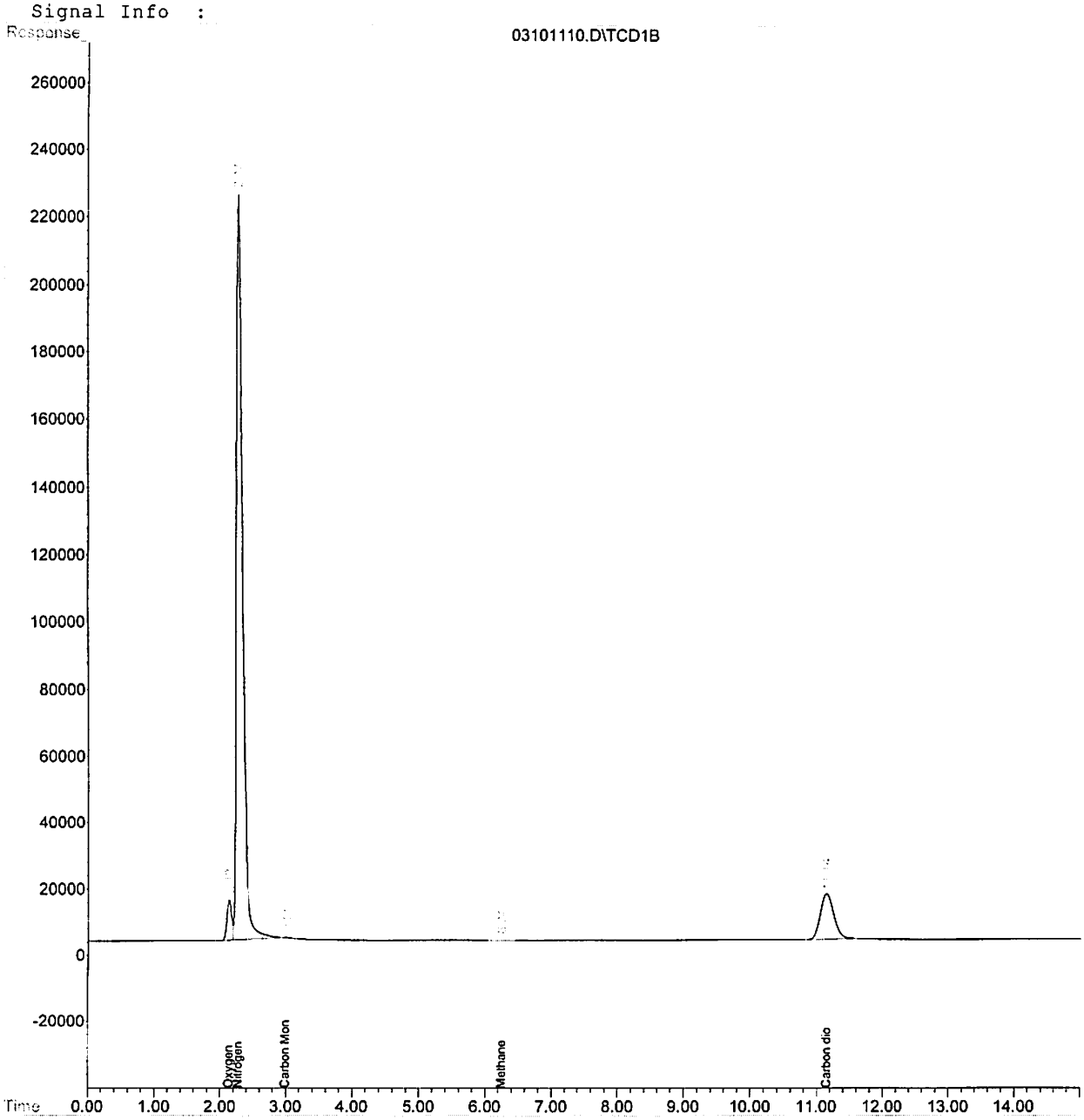
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report

Data File : C:\HPCHEM\2\DATA\031011\03101110.D  Vial: 1
Acq On : 11 Mar 2011 4:21 am  Operator:
Sample : 1103158-004A  Inst : GC/TCD
Misc : SAMP ASTM-D2504  Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Mar 24 14:47 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Sat Mar 12 05:03:19 2011
Response via : Multiple Level Calibration
DataAcq Meth : TCD.M

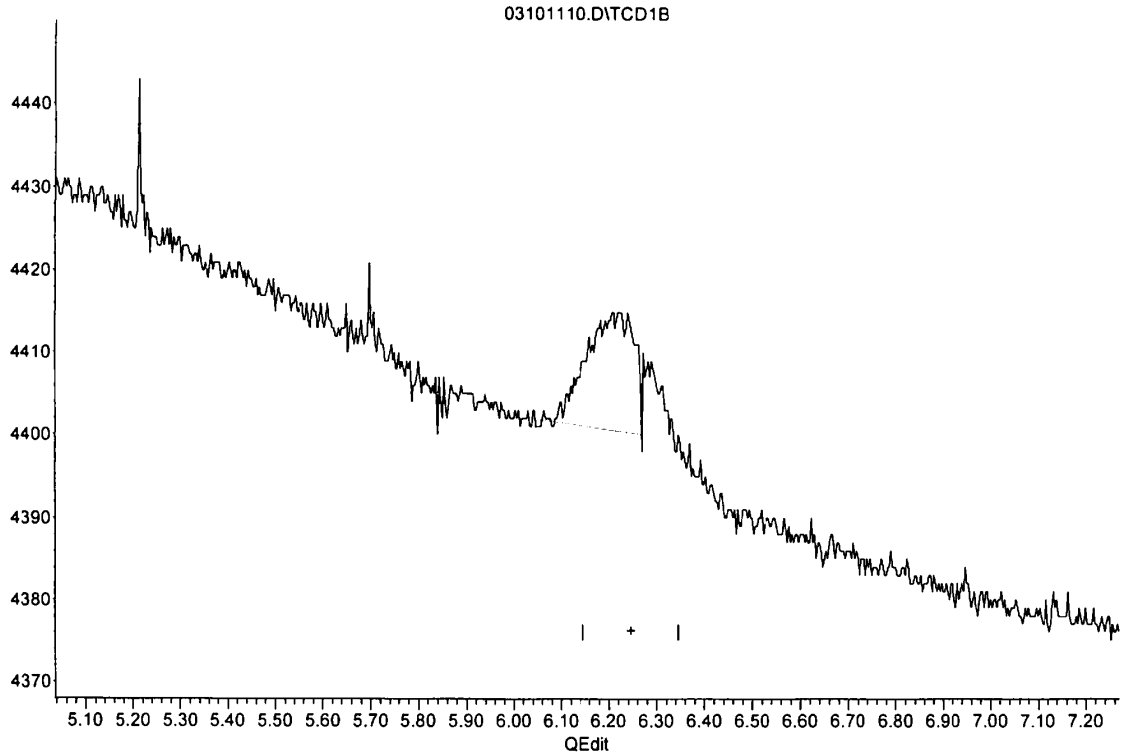
Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (Qedit)

Data File : C:\HPCHEM\2\DATA\031011\03101110.D Vial: 1
Acq On : 11 Mar 2011 4:21 am Operator:
Sample : 1103158-004A Inst : GC/TCD
Misc : SAMP ASTM-D2504 Multiplr: 1.00
IntFile : events.e
Quant Time: Mar 22 0:33 2011 Quant Results File: 030511.RES

Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Fri Mar 11 05:59:54 2011
Response via : Multiple Level Calibration



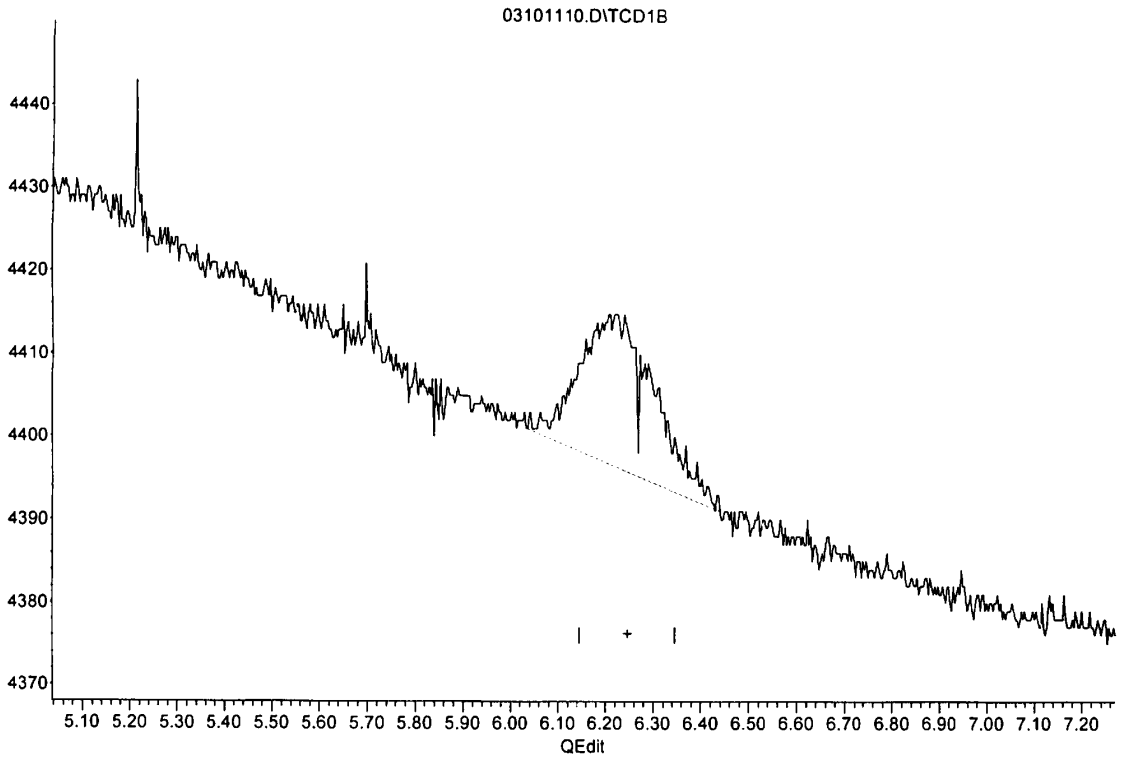

(4) Methane
6.24min 0.008%
response 1036

(+) = Expected Retention Time
03101110.D 030511.M Thu Mar 24 14:47:49 2011

Quantitation Report (Qedit)

Data File : C:\HPCHEM\2\DATA\031011\03101110.D Vial: 1
Acq On : 11 Mar 2011 4:21 am Operator:
Sample : 1103158-004A Inst : GC/TCD
Misc : SAMP ASTM-D2504 Multiplr: 1.00
IntFile : events.e
Quant Time: Mar 22 0:33 2011 Quant Results File: 030511.RES

Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Fri Mar 11 05:59:54 2011
Response via : Multiple Level Calibration




(4) Methane
6.24min 0.015% m
response 2025

(+) = Expected Retention Time
03101110.D 030511.M Thu Mar 24 14:47:59 2011

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031011\03101111.D Vial: 1
Acq On : 11 Mar 2011 5:03 am Operator:
Sample : 1103158-005A Inst : GC/TCD
Misc : SAMP ASTM-D2504 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Mar 24 14:53 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Fri Mar 11 05:59:54 2011
Response via : Initial Calibration
DataAcq Meth : TCD.M

Volume Inj. :
Signal Phase :
Signal Info :

| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| | Target Compounds | | | | |
| 1) | Oxygen | 2.08 | 3180146 | 20.345 | % |
| 2) | Nitrogen | 2.24 | 13172553 | 75.701 | % |
| 3) | Carbon Monoxide | 0.00 | 0 | N.D. | % |
| 4) | Methane | 0.00 | 0 | N.D. | % |
| 5) | Carbon dioxide | 11.15 | 11059 | 0.054 | % |

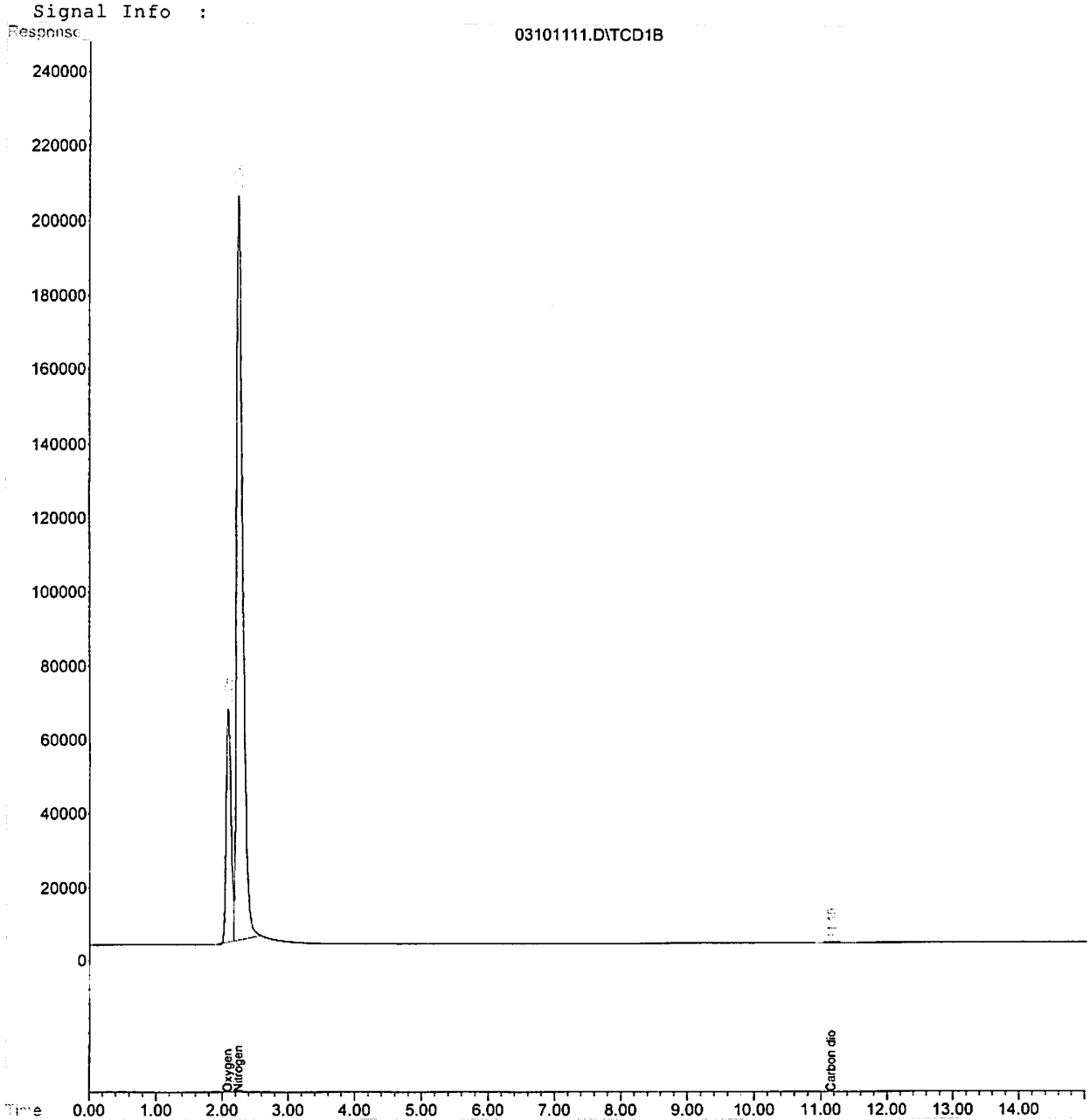
(f)=RT Delta > 1/2 Window (m)=manual int.
03101111.D 030511.M Tue Mar 29 09:56:08 2011 Page 1

Quantitation Report

Data File : C:\HPCHEM\2\DATA\031011\03101111.D  Vial: 1
Acq On : 11 Mar 2011 5:03 am  Operator:
Sample : 1103158-005A  Inst : GC/TCD
Misc : SAMP ASTM-D2504  Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Mar 24 14:53 2011  Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Fri Mar 11 05:59:54 2011
Response via : Multiple Level Calibration
DataAcq Meth : TCD.M

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031011\03101112.D Vial: 1
Acq On : 11 Mar 2011 5:30 am Operator:
Sample : 1103158-006A Inst : GC/TCD
Misc : SAMP ASTM-D2504 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Mar 24 14:55 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Thu Mar 24 14:54:59 2011
Response via : Initial Calibration
DataAcq Meth : TCD.M

Volume Inj. :
Signal Phase :
Signal Info :

| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| | Target Compounds | | | | |
| 1) | Oxygen | 2.10 | 1625922 | 10.402 | % |
| 2) | Nitrogen | 2.26 | 14052601 | 80.758 | % |
| 3) | Carbon Monoxide | 2.99 | 28540 | 0.174 | % |
| 4) | Methane | 6.18f | 216 | 0.002 | % |
| 5) | Carbon dioxide | 11.15 | 1032683 | 5.045 | % |

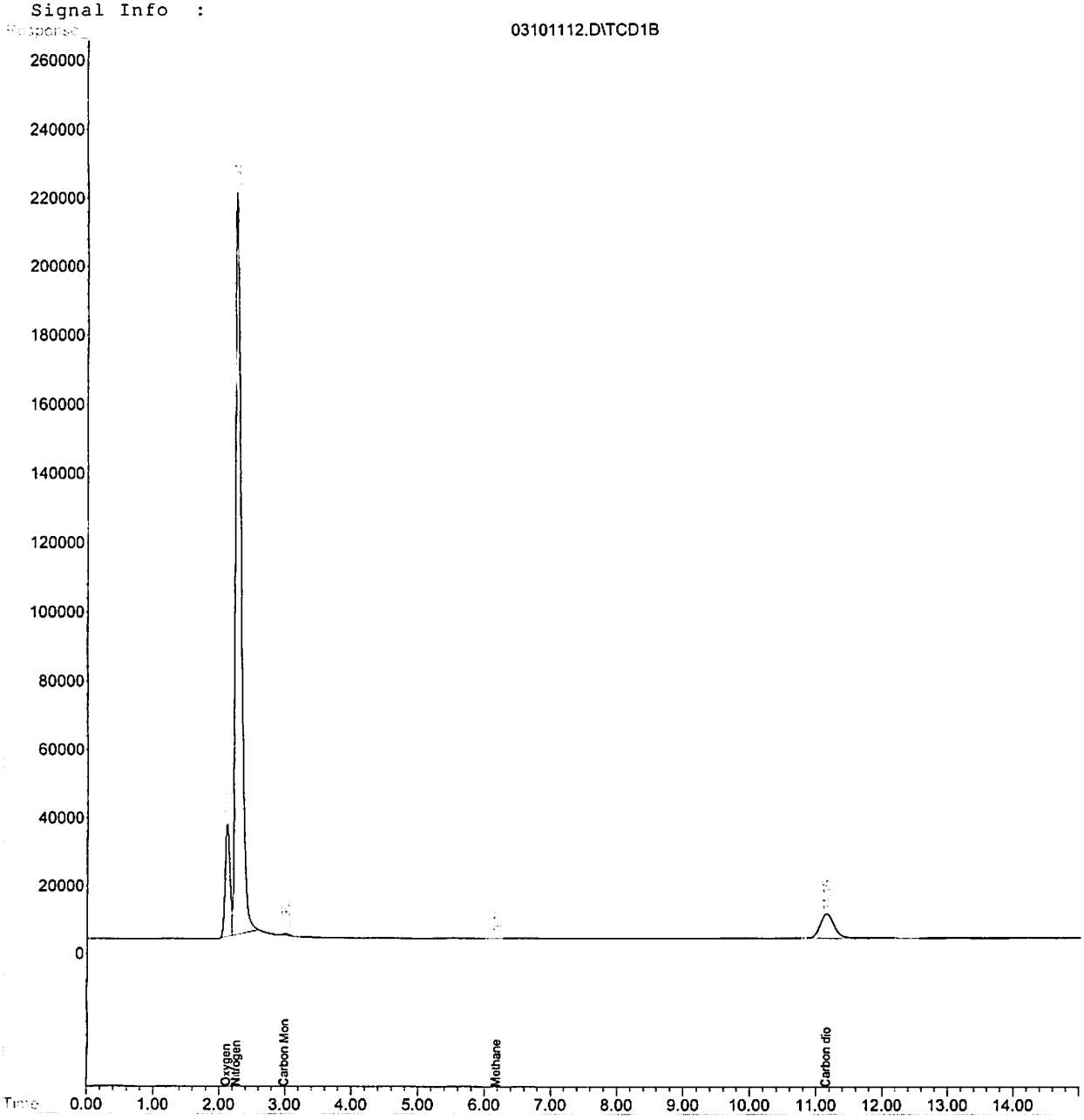
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report

Data File : C:\HPCHEM\2\DATA\031011\03101112.D  Vial: 1
Acq On : 11 Mar 2011 5:30 am  Operator:
Sample : 1103158-006A  Inst : GC/TCD
Misc : SAMP ASTM-D2504  Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Mar 24 14:55 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Thu Mar 24 14:54:59 2011
Response via : Multiple Level Calibration
DataAcq Meth : TCD.M

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031011\03101113.D Vial: 1
Acq On : 11 Mar 2011 5:51 am Operator:
Sample : 1103158-007A Inst : GC/TCD
Misc : SAMP ASTM-D2504 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Mar 24 14:56 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Thu Mar 24 14:54:59 2011
Response via : Initial Calibration
DataAcq Meth : TCD.M

Volume Inj. :
Signal Phase :
Signal Info :

| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| | Target Compounds | | | | | |
| 1) | Oxygen | 2.11 | 628122 | 4.018 | % | |
| 2) | Nitrogen | 2.26 | 14320574 | 82.298 | % | |
| 3) | Carbon Monoxide | 2.99 | 42577 | 0.259 | % | |
| 4) | Methane | 6.21 | 1524 | 0.011 | % | m |
| 5) | Carbon dioxide | 11.14 | 1870520 | 9.138 | % | |

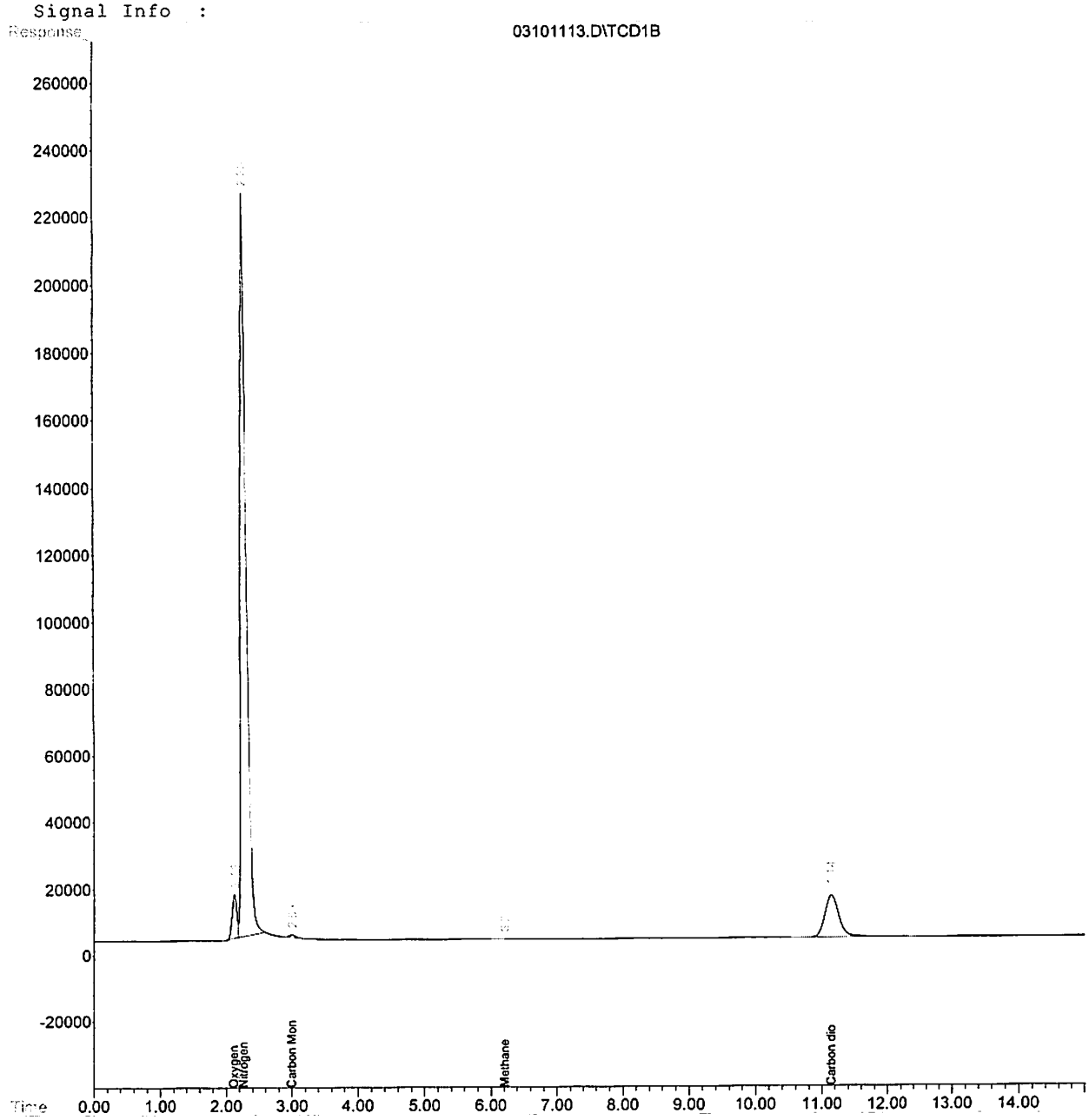
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report

Data File : C:\HPCHEM\2\DATA\031011\03101113.D  Vial: 1
Acq On : 11 Mar 2011 5:51 am  Operator:
Sample : 1103158-007A  Inst : GC/TCD
Misc : SAMP ASTM-D2504  Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Mar 24 14:56 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Thu Mar 24 14:54:59 2011
Response via : Multiple Level Calibration
DataAcq Meth : TCD.M

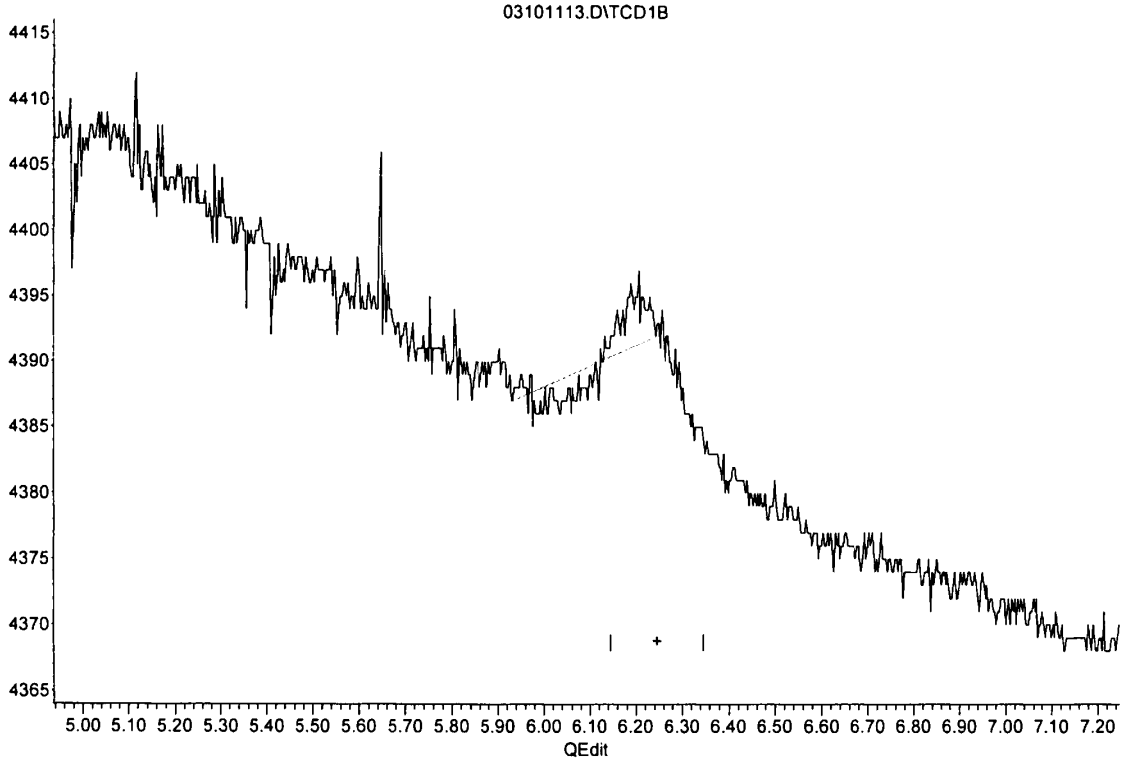
Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (Qedit)

Data File : C:\HPCHEM\2\DATA\031011\03101113.D Vial: 1
Acq On : 11 Mar 2011 5:51 am Operator:
Sample : 1103158-007A Inst : GC/TCD
Misc : SAMP ASTM-D2504 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Mar 24 14:56 2011 Quant Results File: 030511.RES

Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Thu Mar 24 14:54:59 2011
Response via : Multiple Level Calibration



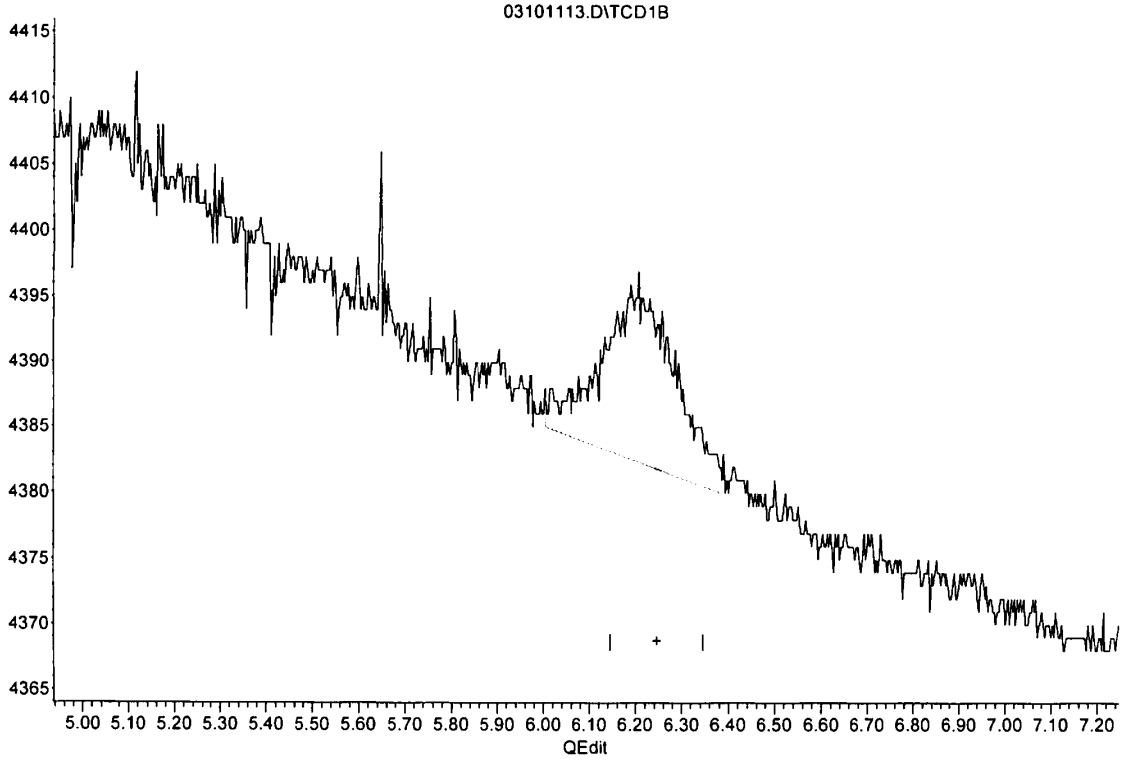

(4) Methane
6.21min 0.000%
response 6

(+) = Expected Retention Time
03101113.D 030511.M Thu Mar 24 14:56:48 2011

Quantitation Report (Qedit)

Data File : C:\HPCHEM\2\DATA\031011\03101113.D Vial: 1
Acq On : 11 Mar 2011 5:51 am Operator:
Sample : 1103158-007A Inst : GC/TCD
Misc : SAMP ASTM-D2504 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Mar 24 14:56 2011 Quant Results File: 030511.RES

Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Thu Mar 24 14:54:59 2011
Response via : Multiple Level Calibration




(4) Methane
6.21min 0.011% m
response 1524

(+) = Expected Retention Time
03101113.D 030511.M Thu Mar 24 14:56:55 2011

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031011\03101114.D Vial: 1
Acq On : 11 Mar 2011 6:12 am Operator:
Sample : 1103158-008A Inst : GC/TCD
Misc : SAMP ASTM-D2504 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Mar 24 14:57 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Thu Mar 24 14:54:59 2011
Response via : Initial Calibration
DataAcq Meth : TCD.M

Volume Inj. :
Signal Phase :
Signal Info :

| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| | Target Compounds | | | | |
| 1) | Oxygen | 2.11 | 2229890 | 14.266 | % |
| 2) | Nitrogen | 2.27 | 13850457 | 79.596 | % |
| 3) | Carbon Monoxide | 0.00 | 0 | N.D. | % |
| 4) | Methane | 0.00 | 0 | N.D. | % |
| 5) | Carbon dioxide | 11.16 | 346711 | 1.694 | % |

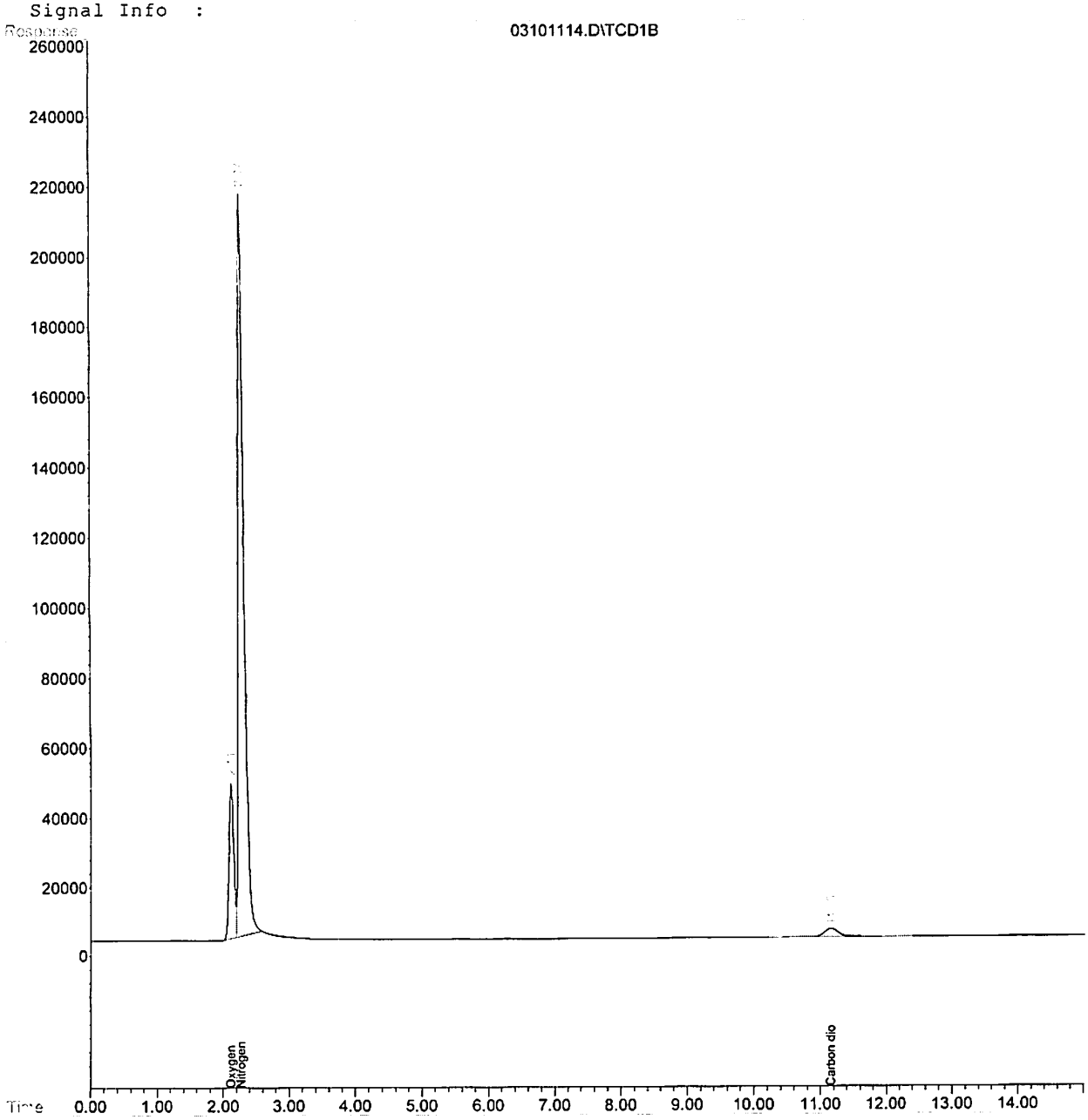
(f)=RT Delta > 1/2 Window (m)=manual int.
03101114.D 030511.M Tue Mar 29 09:56:24 2011 Page 1

Quantitation Report

Data File : C:\HPCHEM\2\DATA\031011\03101114.D  Vial: 1
Acq On : 11 Mar 2011 6:12 am  Operator:
Sample : 1103158-008A  Inst : GC/TCD
Misc : SAMP ASTM-D2504  Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Mar 24 14:57 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Thu Mar 24 14:54:59 2011
Response via : Multiple Level Calibration
DataAcq Meth : TCD.M

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031011\03101115.D Vial: 1
Acq On : 11 Mar 2011 6:36 am Operator:
Sample : 1103158-009A Inst : GC/TCD
Misc : SAMP ASTM-D2504 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Mar 24 14:58 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Thu Mar 24 14:54:59 2011
Response via : Initial Calibration
DataAcq Meth : TCD.M

Volume Inj. :
Signal Phase :
Signal Info :

| | Compound | R.T. | Response | Conc Units |
|---|---|---|---|---|
| | Target Compounds | | | |
| 1) | Oxygen | 2.12 | 658048 | 4.210 % |
| 2) | Nitrogen | 2.27 | 14519330 | 83.440 % |
| 3) | Carbon Monoxide | 3.01 | 71824 | 0.437 % |
| 4) | Methane | 6.24 | 1489 | 0.011 % |
| 5) | Carbon dioxide | 11.15 | 1637145 | 7.998 % |

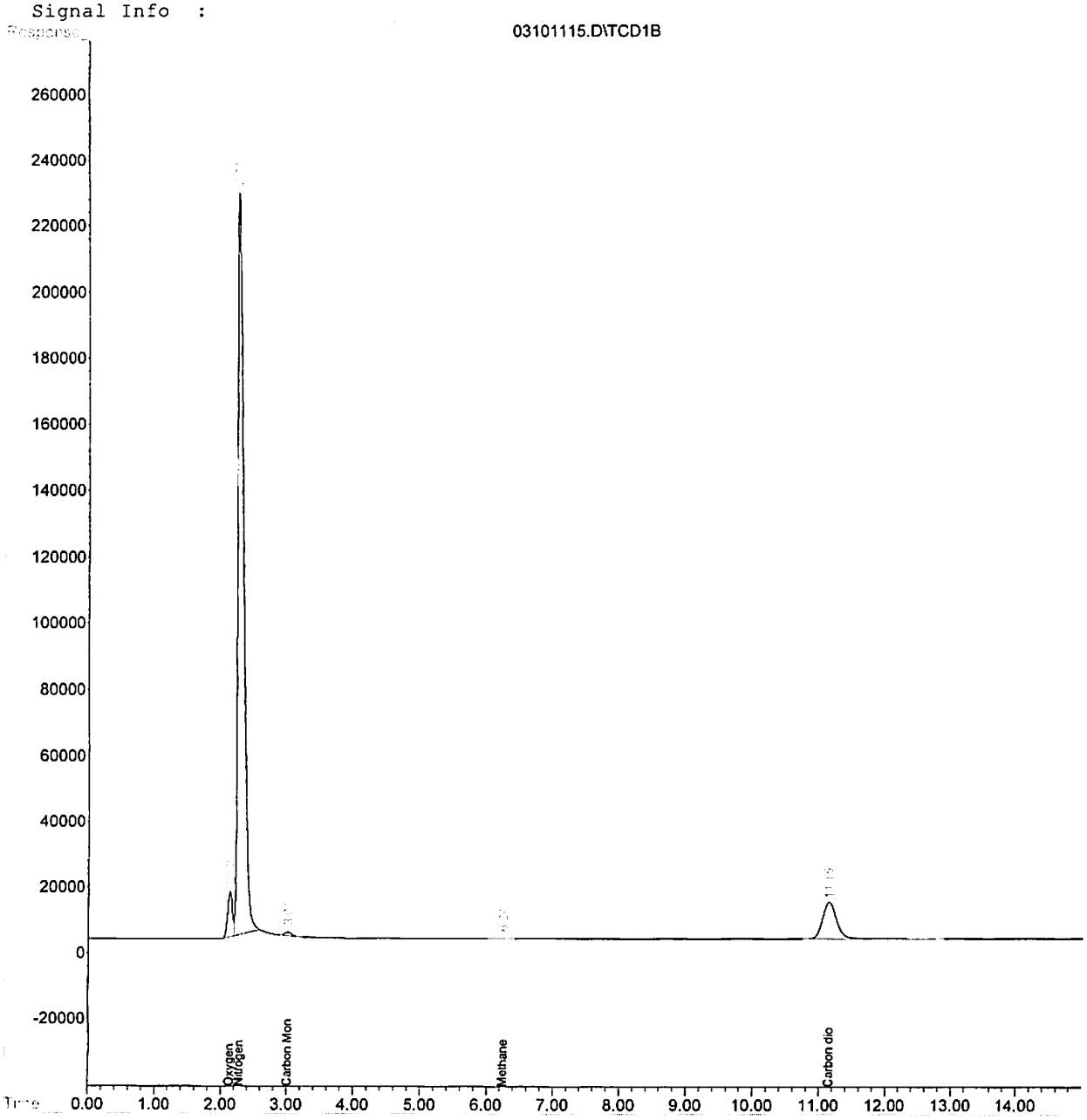
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report

Data File : C:\HPCHEM\2\DATA\031011\03101115.D  Vial: 1
Acq On : 11 Mar 2011 6:36 am  Operator:
Sample : 1103158-009A  Inst : GC/TCD
Misc : SAMP ASTM-D2504  Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Mar 24 14:58 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Thu Mar 24 14:54:59 2011
Response via : Multiple Level Calibration
DataAcq Meth : TCD.M

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031011\03101116.D Vial: 1
Acq On : 11 Mar 2011 6:58 am Operator:
Sample : 1103158-010A Inst : GC/TCD
Misc : SAMP ASTM-D2504 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Mar 24 14:59 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Thu Mar 24 14:54:59 2011
Response via : Initial Calibration
DataAcq Meth : TCD.M

Volume Inj. :
Signal Phase :
Signal Info :

| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| | Target Compounds | | | | | |
| 1) | Oxygen | 2.13 | 474071 | 3.033 | % | |
| 2) | Nitrogen | 2.27 | 14598582 | 83.896 | % | |
| 3) | Carbon Monoxide | 3.01 | 60785 | 0.370 | % | |
| 4) | Methane | 6.24 | 1844 | 0.013 | % | m |
| 5) | Carbon dioxide | 11.15 | 1789358 | 8.741 | % | |

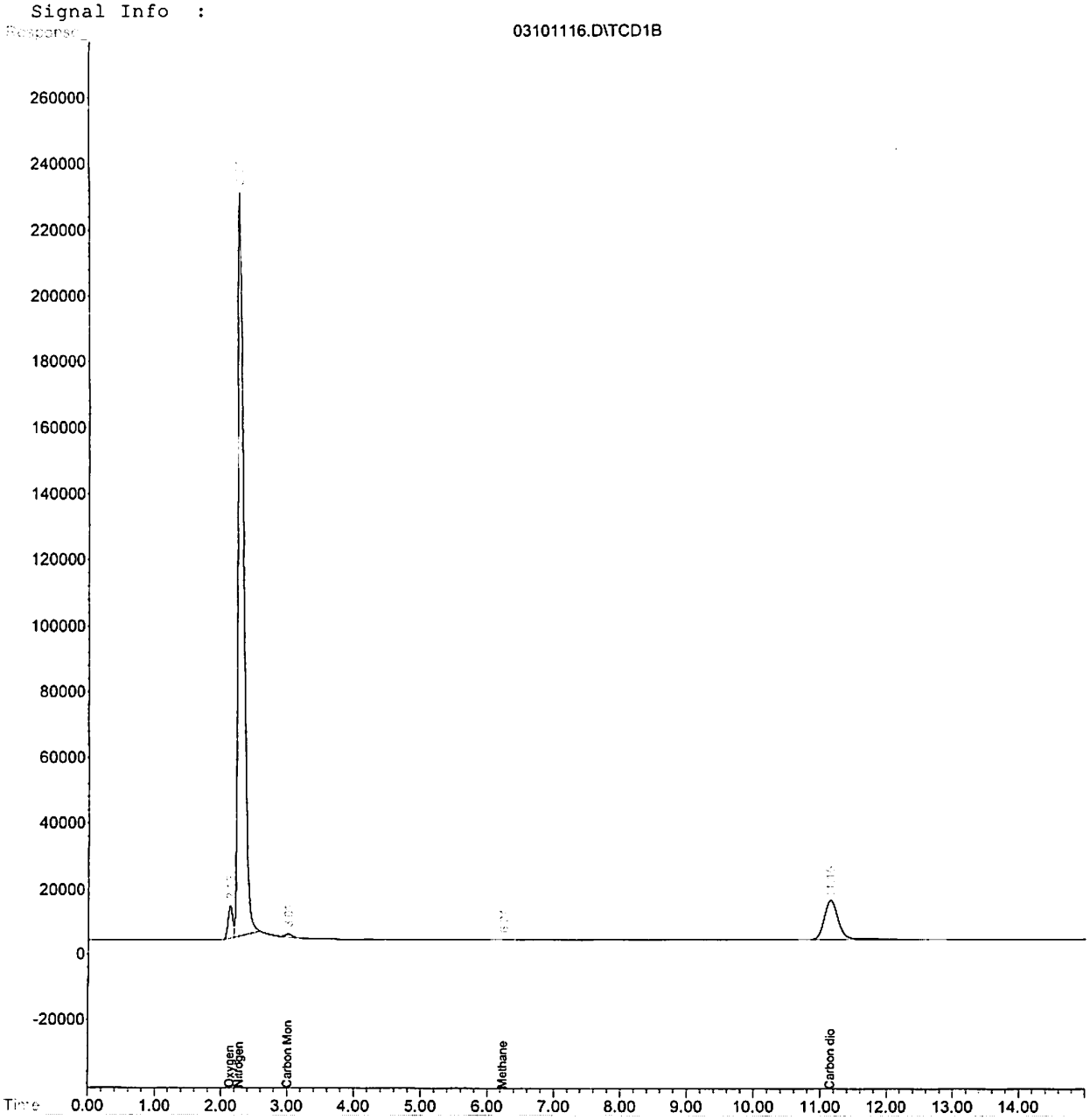
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report

Data File : C:\HPCHEM\2\DATA\031011\03101116.D  Vial: 1
Acq On : 11 Mar 2011 6:58 am  Operator:
Sample : 1103158-010A  Inst : GC/TCD
Misc : SAMP ASTM-D2504  Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Mar 24 14:59 2011  Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Thu Mar 24 14:54:59 2011
Response via : Multiple Level Calibration
DataAcq Meth : TCD.M

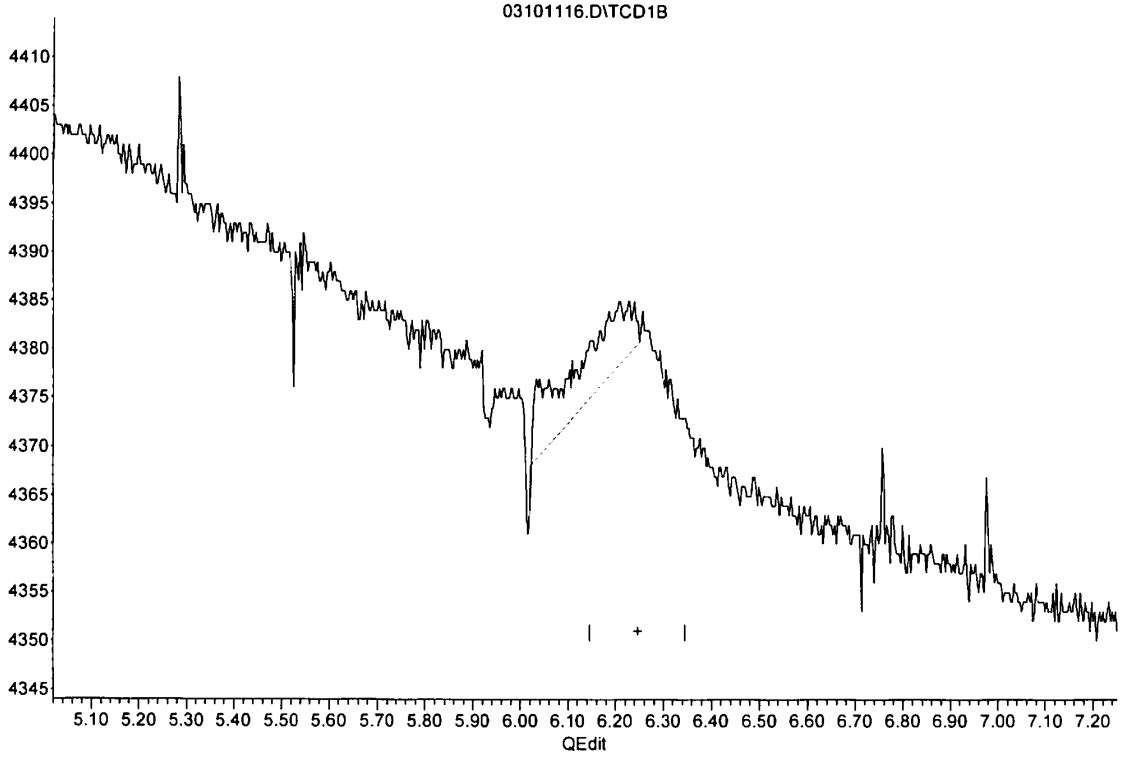
Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (Qedit)

Data File : C:\HPCHEM\2\DATA\031011\03101116.D Vial: 1
Acq On : 11 Mar 2011 6:58 am Operator:
Sample : 1103158-010A Inst : GC/TCD
Misc : SAMP ASTM-D2504 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Mar 24 14:59 2011 Quant Results File: 030511.RES

Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Thu Mar 24 14:54:59 2011
Response via : Multiple Level Calibration



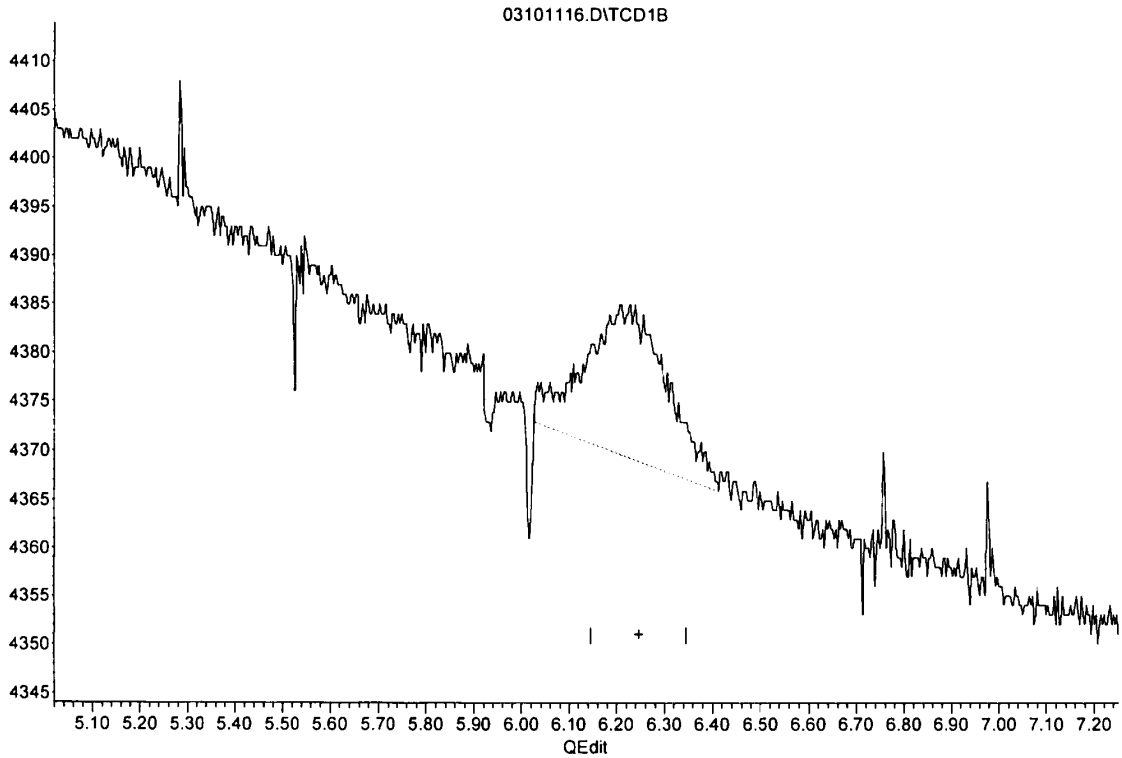

(4) Methane
6.21min 0.004%
response 519

(+) = Expected Retention Time
03101116.D 030511.M Thu Mar 24 14:59:27 2011

Quantitation Report (Qedit)

Data File : C:\HPCHEM\2\DATA\031011\03101116.D Vial: 1
Acq On : 11 Mar 2011 6:58 am Operator:
Sample : 1103158-010A Inst : GC/TCD
Misc : SAMP ASTM-D2504 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Mar 24 14:59 2011 Quant Results File: 030511.RES

Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Thu Mar 24 14:54:59 2011
Response via : Multiple Level Calibration




(4) Methane
6.24min 0.013% m
response 1844

(+) = Expected Retention Time
03101116.D 030511.M Thu Mar 24 14:59:50 2011

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031011\03101117.D Vial: 1
Acq On : 11 Mar 2011 7:19 am Operator:
Sample : 1103158-007Adup Inst : GC/TCD
Misc : DUP ASTM-D2504 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Mar 24 15:00 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Thu Mar 24 14:54:59 2011
Response via : Initial Calibration
DataAcq Meth : TCD.M

Volume Inj. :
Signal Phase :
Signal Info :

| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| | Target Compounds | | | | |
| 1) | Oxygen | 2.12 | 642699 | 4.112 | % |
| 2) | Nitrogen | 2.27 | 14292015 | 82.134 | % |
| 3) | Carbon Monoxide | 3.00 | 45566 | 0.277 | % |
| 4) | Methane | 6.20 | 1397 | 0.010 | % |
| 5) | Carbon dioxide | 11.15 | 1874354 | 9.156 | % |

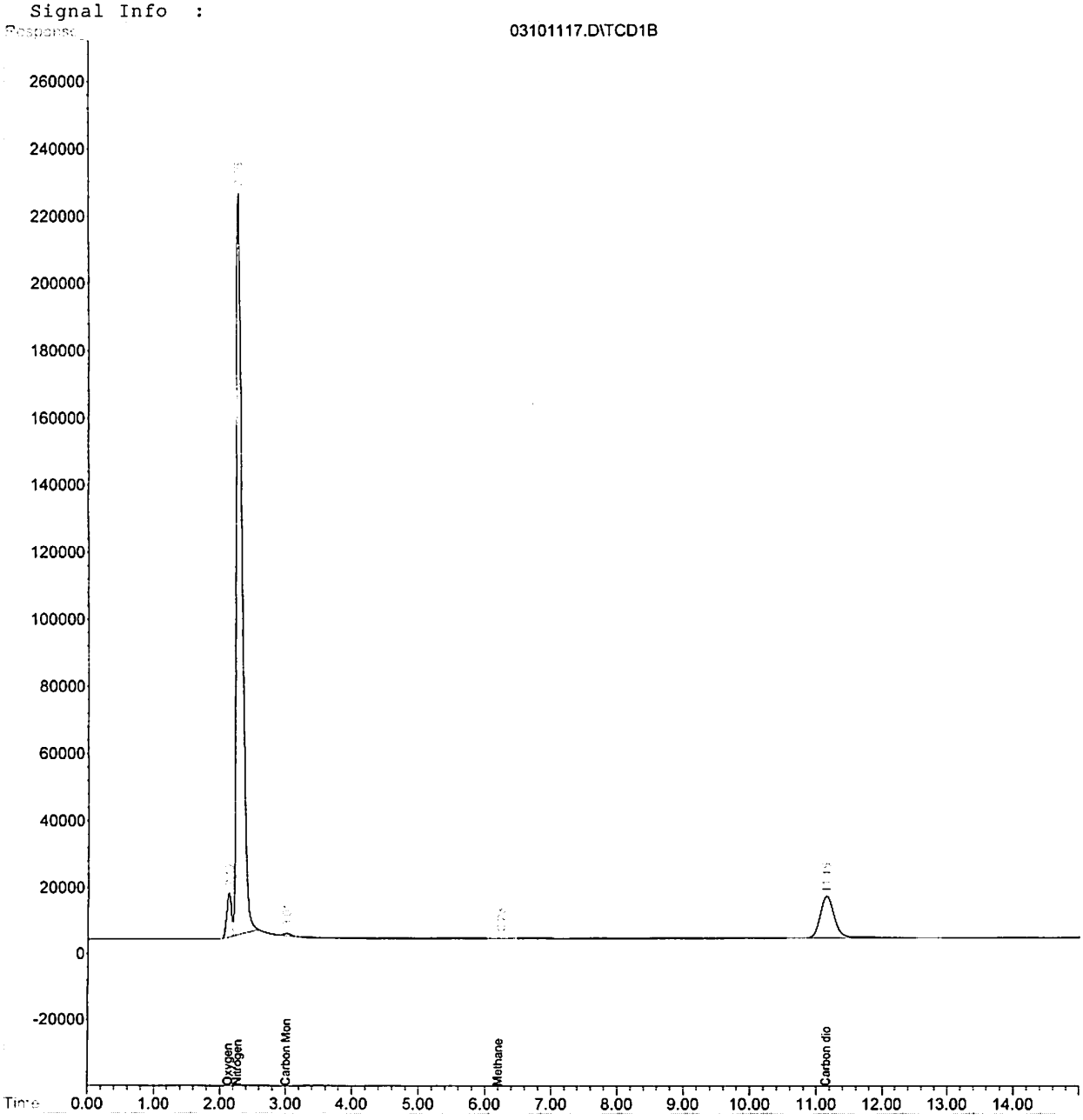
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report

Data File : C:\HPCHEM\2\DATA\031011\03101117.D  Vial: 1
Acq On : 11 Mar 2011 7:19 am  Operator:
Sample : 1103158-007Adup  Inst : GC/TCD
Misc : DUP ASTM-D2504  Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Mar 24 15:00 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Thu Mar 24 14:54:59 2011
Response via : Multiple Level Calibration
DataAcq Meth : TCD.M

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031011\03101118.D Vial: 1
Acq On : 11 Mar 2011 8:11 am Operator:
Sample : LOD Inst : GC/TCD
Misc : SAMP ASTM-D2504 Multiplr: 1.00
IntFile : events.e
Quant Time: Mar 11 8:26 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Fri Mar 11 06:05:17 2011
Response via : Initial Calibration
DataAcq Meth : TCD.M

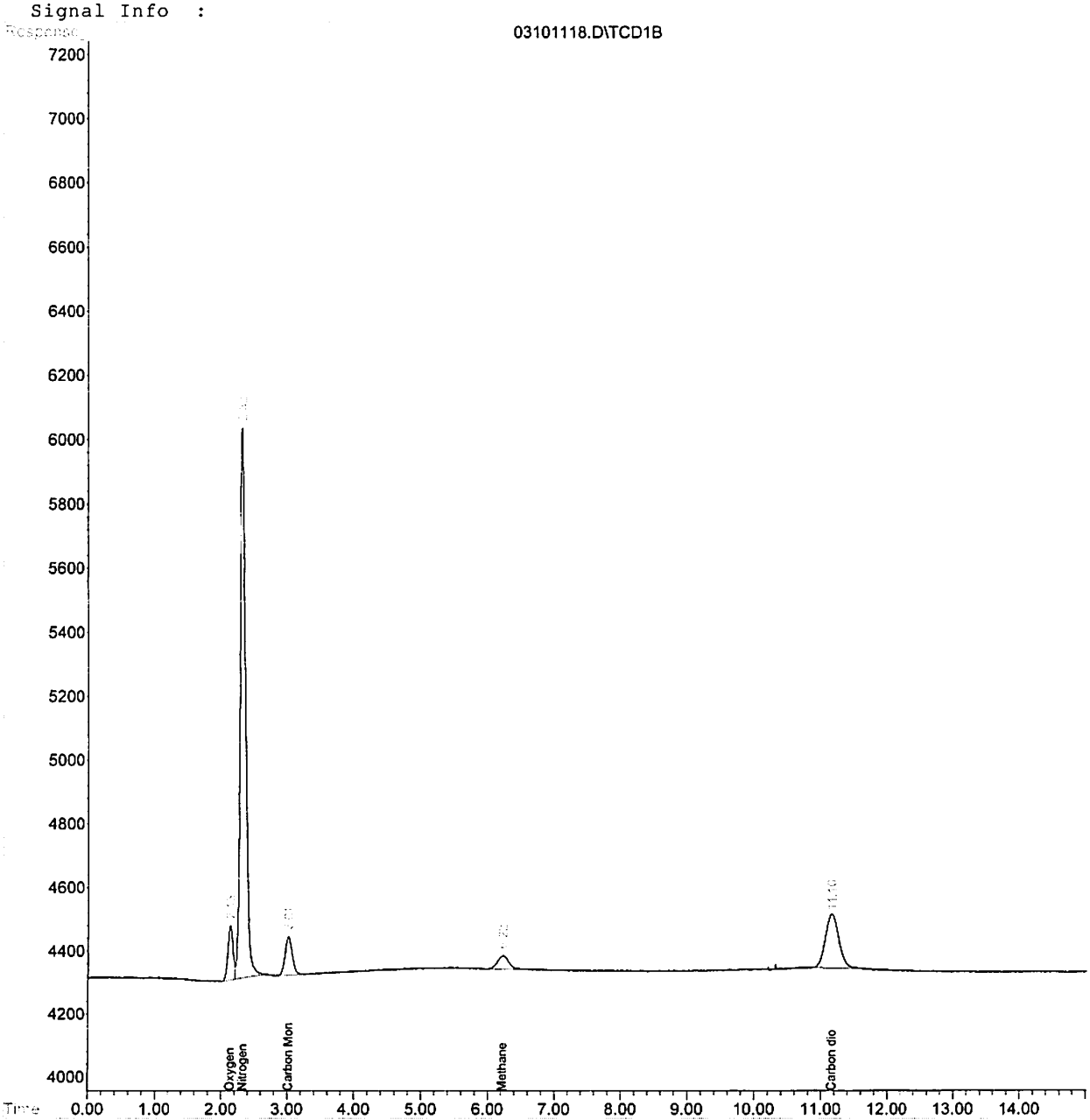
Volume Inj. :
Signal Phase :
Signal Info :

| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| | Target Compounds | | | | |
| 1) | Oxygen | 2.13 | 8948 | 0.057 | % |
| 2) | Nitrogen | 2.32 | 104149 | 0.599 | % |
| 3) | Carbon Monoxide | 3.01 | 8997 | 0.055 | % |
| 4) | Methane | 6.23 | 5017 | 0.036 | % |
| 5) | Carbon dioxide | 11.16 | 23543 | 0.115 | % |

(f)=RT Delta > 1/2 Window (m)=manual int.
03101118.D 030511.M Tue Mar 29 09:56:46 2011 Page 1

Quantitation Report

```
Data File : C:\HPCHEM\2\DATA\031011\03101118.D          Vial: 1
Acq On    : 11 Mar 2011   8:11 am                   Operator:
Sample    : LOD                                     Inst    : GC/TCD
Misc      : SAMP ASTM-D2504                         Multiplr: 1.00
IntFile   : EVENTS.E
Quant Time: Mar 11  8:26 2011  Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title        :
Last Update  : Fri Mar 11 06:05:17 2011
Response via : Multiple Level Calibration
DataAcq Meth : TCD.M

Volume Inj.  :
Signal Phase :
Signal Info  :
```



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031011\03101119.D Vial: 1
Acq On : 11 Mar 2011 9:31 am Operator:
Sample : crql std 2% b Inst : GC/TCD
Misc : CCV ASTM-D2504 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Mar 29 14:14 2011 Quant Results File: 030511A.RES

Quant Method : C:\HPCHEM\2\METHODS\030511A.M (Chemstation Integrator)
Title :
Last Update : Thu Mar 24 15:04:37 2011
Response via : Initial Calibration
DataAcq Meth : TCD.M

Volume Inj. :
Signal Phase :
Signal Info :

| | Compound | R.T. | Response | Conc Units |
|---|---|---|---|---|
| | Target Compounds | | | |
| 1) | Oxygen | 2.13 | 11458 | 0.073 % |
| 2) | Nitrogen | 2.32 | 253403 | 1.456 % |
| 3) | Carbon Monoxide | 3.01 | 24673 | 0.150 % |
| 4) | Methane | 6.22 | 13575 | 0.099 % |
| 5) | Carbon dioxide | 11.16 | 67873 | 0.332 % |

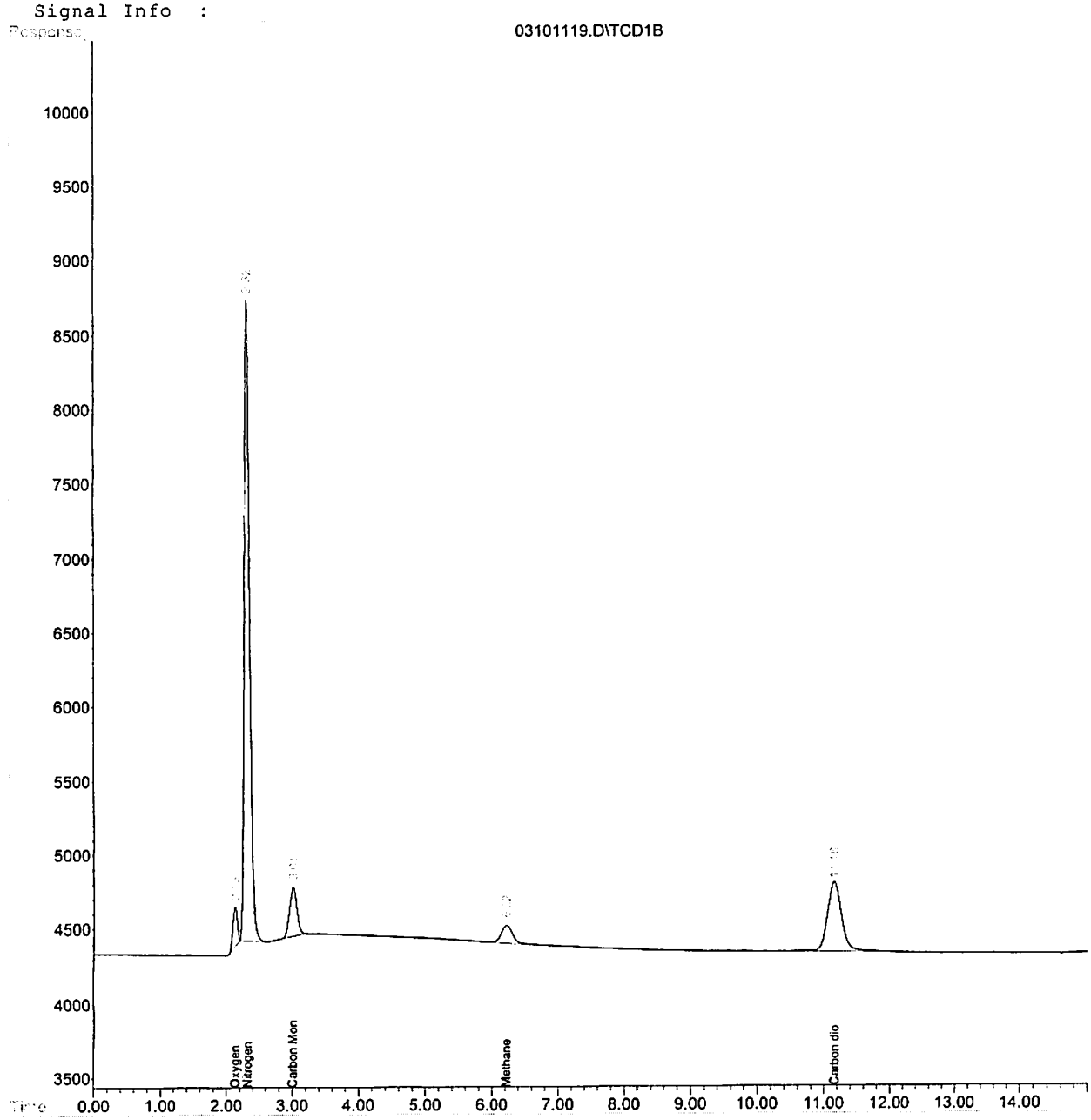
(f)=RT Delta > 1/2 Window (m)=manual int.
03101119.D 030511A.M Tue Mar 29 14:14:46 2011 Page 1

Quantitation Report

Data File : C:\HPCHEM\2\DATA\031011\03101119.D  Vial: 1
Acq On : 11 Mar 2011 9:31 am  Operator:
Sample : crql std 2% b  Inst : GC/TCD
Misc : CCV ASTM-D2504  Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Mar 29 14:14 2011 Quant Results File: 030511A.RES

Quant Method : C:\HPCHEM\2\METHODS\030511A.M (Chemstation Integrator)
Title :
Last Update : Thu Mar 24 15:04:37 2011
Response via : Multiple Level Calibration
DataAcq Meth : TCD.M

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031011\03101120.D Vial: 1
Acq On : 11 Mar 2011 9:57 am Operator:
Sample : ccv std 1-2 b Inst : GC/TCD
Misc : CCV ASTM-D2504 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Mar 24 15:06 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Thu Mar 24 15:04:37 2011
Response via : Initial Calibration
DataAcq Meth : TCD.M

Volume Inj. :
Signal Phase :
Signal Info :

| | Compound | R.T. | Response | Conc Units |
|---|---|---|---|---|
| | Target Compounds | | | |
| 1) | Oxygen | 2.13 | 373040 | 2.387 % |
| 2) | Nitrogen | 2.32 | 468166 | 2.690 % |
| 3) | Carbon Monoxide | 3.01 | 412979 | 2.512 % |
| 4) | Methane | 6.23 | 270877 | 1.967 % |
| 5) | Carbon dioxide | 11.16 | 505559 | 2.470 % |

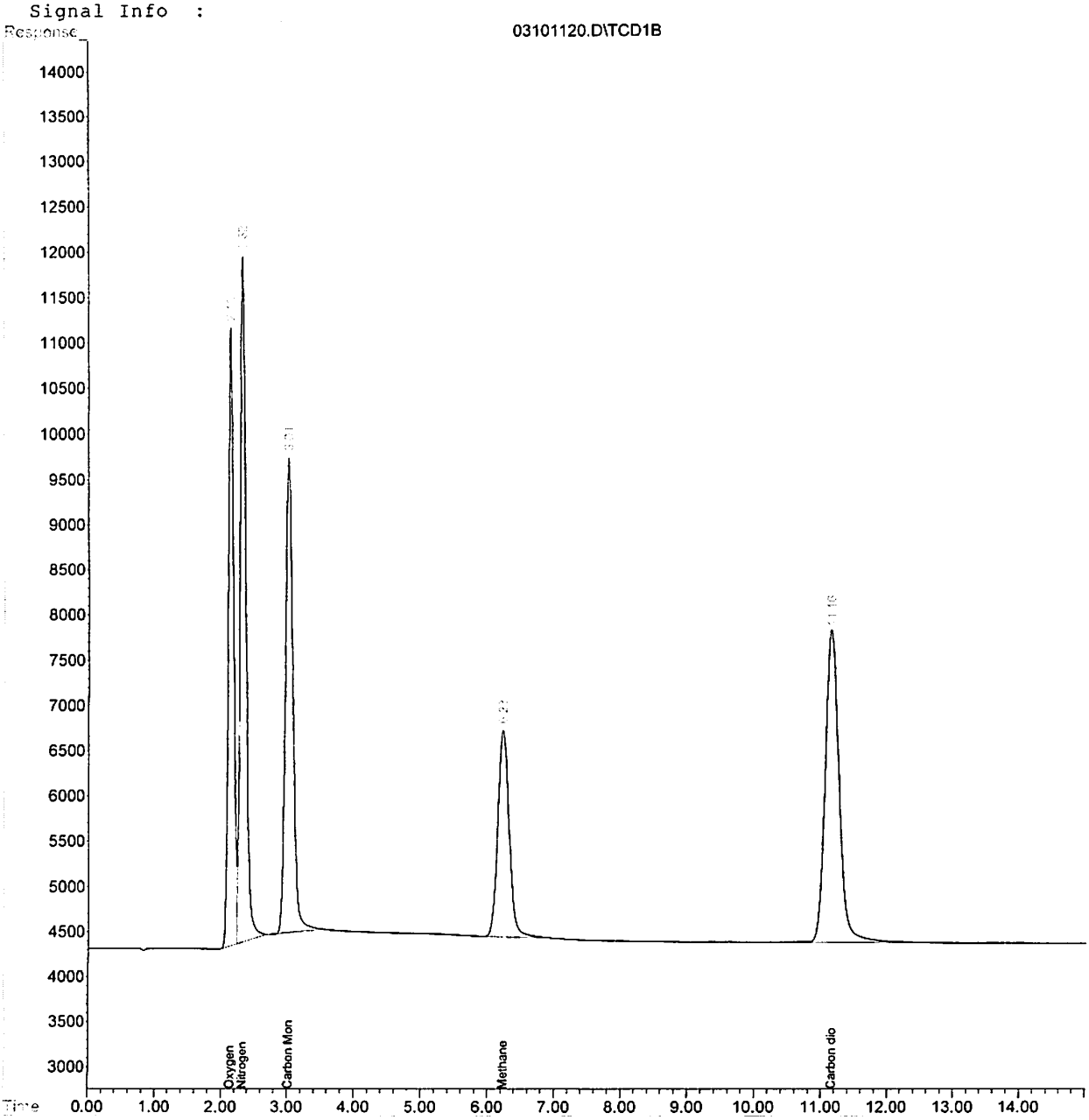
(f)=RT Delta > 1/2 Window (m)=manual int.
03101120.D 030511.M Tue Mar 29 09:56:59 2011 Page 1

Quantitation Report

Data File : C:\HPCHEM\2\DATA\031011\03101120.D  Vial: 1
Acq On : 11 Mar 2011 9:57 am  Operator:
Sample : ccv std 1-2 b  Inst : GC/TCD
Misc : CCV ASTM-D2504  Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Mar 24 15:06 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Thu Mar 24 15:04:37 2011
Response via : Multiple Level Calibration
DataAcq Meth : TCD.M

Volume Inj. :
Signal Phase :
Signal Info :



## MANUAL INTEGRATION SUMMARY

**Analyst: Michael Budziak**
**Instrument: GC-TCD**
**Sequence: 39440**
**Run Date: 3-10-11**

**Routine Manual Integrations**

N/A

**Non-Routine Manual Integrations**

1103158-011a, 1103158-012a, 1103158-013a, and 1103158-014a.

Methane peak was manually integrated due to peak in samples below calibration level and not picked up by Chemstation software.

**RTI Laboratories**



**Run ID:** GC-TCD 1_110311A **Run No.:** 39441

**Analytical Run Date:** 3/11/2011 **InstrumentID:** GC-TCD 1

**Analyst:** Mike Budziak **Column:**

**Calibration ID:** **Column ID:**

**Column Length:**

| SampID | TestCode | SampType | Batch ID | Analysis Date/Time | QA By | Q | Comments |
|---|---|---|---|---|---|---|---|
| icb | ASTM-D2504 | ICB | R39441 | 3/12/2011 3:21:00 AM | Robert Lynch | | |
| ccv std 1-2 a | ASTM-D2504 | CCV | R39441 | 3/12/2011 4:09:00 AM | Robert Lynch | | |
| crql std 2% a | ASTM-D2504 | CRQL | R39441 | 3/12/2011 4:53:00 AM | Robert Lynch | | |
| 1103158-011A | ASTM-D2504 | SAMP | R39440 | 3/12/2011 5:16:00 AM | Robert Lynch | | |
| 1103158-012A | ASTM-D2504 | SAMP | R39440 | 3/12/2011 5:38:00 AM | Robert Lynch | | |
| 1103158-013A | ASTM-D2504 | SAMP | R39440 | 3/12/2011 5:59:00 AM | Robert Lynch | | |
| 1103158-014A | ASTM-D2504 | SAMP | R39440 | 3/12/2011 6:19:00 AM | Robert Lynch | | |
| 1103158-014Adup | ASTM-D2504 | DUP | R39440 | 3/12/2011 6:48:00 AM | Robert Lynch | | |
| crql std 2% b | ASTM-D2504 | CRQL | R39441 | 3/12/2011 7:13:00 AM | Robert Lynch | | |
| ccv std 1-2 b | ASTM-D2504 | CCV | R39441 | 3/12/2011 7:39:00 AM | Robert Lynch | | |

# RTI Laboratories

# ANALYTICAL RUN Summary

*21-Apr-11*

RunNo 39441

| Seq No | Sample ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 748303 | icb | ASTM-D2504 | ICB | .TA\031111\0311 | 3/12/2011 3:21:0 | 1 | R39441 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| Seq No | Sample ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 748304 | ccv std 1-2 a | ASTM-D2504 | CCV | .TA\031111\0311 | 3/12/2011 4:09:0 | 1 | R39441 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon dioxide | A | % | 2.452 | 2.452 | | 2.5 | 0 | 0 | 0.025 | 0.1 | 0 | 98% | 85 | 115 | 0% | |
| Carbon Monoxide | A | % | 2.655 | 2.655 | | 2.5 | 0 | 0 | 0.025 | 0.1 | 0 | 106% | 85 | 115 | 0% | |
| Ethane | A | % | | 0 | | 1 | 0 | 0 | 0.025 | 0.5 | 0 | 0% | 85 | 115 | 0% | S |
| Hydrogen | A | % | | 0 | | 1 | 0 | 0 | 0.025 | 0.5 | 0 | 0% | 85 | 115 | 0% | S |
| Methane | A | % | 2.083 | 2.083 | | 2 | 0 | 0 | 0.025 | 0.5 | 0 | 104% | 85 | 115 | 0% | |
| Nitrogen | A | % | 2.848 | 2.848 | | 2.5 | 0 | 0 | 0.025 | 0.1 | 0 | 114% | 85 | 115 | 0% | |
| Oxygen | A | % | 2.549 | 2.549 | | 2.5 | 0 | 0 | 0.025 | 0.1 | 0 | 102% | 85 | 115 | 0% | |

| Seq No | Sample ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 748305 | crql std 2% a | ASTM-D2504 | CRQL | .TA\031111\0311 | 3/12/2011 4:53:0 | 1 | R39441 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon dioxide | A | % | 0.324 | 0.324 | | 0.3 | 0 | 0 | 0.025 | 0.1 | 0 | 108% | 80 | 120 | 0% | |
| Carbon Monoxide | A | % | 0.148 | 0.148 | | 0.14 | 0 | 0 | 0.025 | 0.1 | 0 | 106% | 80 | 120 | 0% | |
| Ethane | A | % | | 0 | | 0.025 | 0 | 0 | 0.025 | 0.5 | 0 | 0% | 80 | 120 | 0% | S |
| Hydrogen | A | % | | 0 | | 0.025 | 0 | 0 | 0.025 | 0.5 | 0 | 0% | 80 | 120 | 0% | S |
| Methane | A | % | 0.101 | 0.101 | | 0.09 | 0 | 0 | 0.025 | 0.5 | 0 | 112% | 80 | 120 | 0% | |
| Nitrogen | A | % | 1.541 | 1.541 | | 1.39 | 0 | 0 | 0.025 | 0.1 | 0 | 111% | 80 | 120 | 0% | |
| Oxygen | A | % | 0.091 | 0.091 | | 0.08 | 0 | 0 | 0.025 | 0.1 | 0 | 114% | 80 | 120 | 0% | |

| Seq No | Sample ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 748306 | 1103158-011A (Container-01 of 01) | ASTM-D2504 | SAMP | .TA\031111\0311 | 3/12/2011 5:16:0 | 1 | R39440 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| Seq No | Sample ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 748306 | 1103158-011A (Container-01 of 01) | ASTM-D2504 | SAMP | .TA\031111\0311 | 3/12/2011 5:16:0 | 1 | R39440 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon dioxide | A | % | 8.276 | 8.276 | | 0 | 0 | 0 | 0.13 | 0.3 | 0 | 0% | 0 | 0 | 0% | |
| Carbon Monoxide | A | % | 0.32 | 0.32 | | 0 | 0 | 0 | 0.066 | 0.14 | 0 | 0% | 0 | 0 | 0% | |
| Ethane | A | % | | 0 | | 0 | 0 | 0 | 0.025 | 0.5 | 0 | 0% | 0 | 0 | 0% | |
| Hydrogen | A | % | | 0 | | 0 | 0 | 0 | 0.025 | 0.5 | 0 | 0% | 0 | 0 | 0% | |
| Methane | A | % | 0.009 | 0 | | 0 | 0 | 0 | 0.043 | 0.09 | 0 | 0% | 0 | 0 | 0% | |
| Nitrogen | A | % | 83.157 | 83.157 | | 0 | 0 | 0 | 0.63 | 1.39 | 0 | 0% | 0 | 0 | 0% | |
| Oxygen | A | % | 4.334 | 4.334 | | 0 | 0 | 0 | 0.03 | 0.08 | 0 | 0% | 0 | 0 | 0% | |

| Seq No | Sample ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 748307 | 1103158-012A (Container-01 of 01) | ASTM-D2504 | SAMP | .TA\031111\0311 | 3/12/2011 5:38:0 | 1 | R39440 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon dioxide | A | % | 0.059 | 0 | | 0 | 0 | 0 | 0.13 | 0.3 | 0 | 0% | 0 | 0 | 0% | |
| Carbon Monoxide | A | % | 0 | 0 | | 0 | 0 | 0 | 0.066 | 0.14 | 0 | 0% | 0 | 0 | 0% | |
| Ethane | A | % | | 0 | | 0 | 0 | 0 | 0.025 | 0.5 | 0 | 0% | 0 | 0 | 0% | |
| Hydrogen | A | % | | 0 | | 0 | 0 | 0 | 0.025 | 0.5 | 0 | 0% | 0 | 0 | 0% | |
| Methane | A | % | 0 | 0 | | 0 | 0 | 0 | 0.043 | 0.09 | 0 | 0% | 0 | 0 | 0% | |
| Nitrogen | A | % | 78.197 | 78.197 | | 0 | 0 | 0 | 0.63 | 1.39 | 0 | 0% | 0 | 0 | 0% | |
| Oxygen | A | % | 20.688 | 20.688 | | 0 | 0 | 0 | 0.03 | 0.08 | 0 | 0% | 0 | 0 | 0% | |

| Seq No | Sample ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 748308 | 1103158-013A (Container-01 of 01) | ASTM-D2504 | SAMP | .TA\031111\0311 | 3/12/2011 5:59:0 | 1 | R39440 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon dioxide | A | % | 8.193 | 8.193 | | 0 | 0 | 0 | 0.13 | 0.3 | 0 | 0% | 0 | 0 | 0% | |
| Carbon Monoxide | A | % | 0.641 | 0.641 | | 0 | 0 | 0 | 0.066 | 0.14 | 0 | 0% | 0 | 0 | 0% | |
| Ethane | A | % | | 0 | | 0 | 0 | 0 | 0.025 | 0.5 | 0 | 0% | 0 | 0 | 0% | |
| Hydrogen | A | % | | 0 | | 0 | 0 | 0 | 0.025 | 0.5 | 0 | 0% | 0 | 0 | 0% | |
| Methane | A | % | 0.019 | 0 | | 0 | 0 | 0 | 0.043 | 0.09 | 0 | 0% | 0 | 0 | 0% | |

| Seq No | Sample ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 748308 | 1103158-013A (Container-01 of 01) | ASTM-D2504 | SAMP | .TA\031111\0311 | 3/12/2011 5:59:0 | 1 | R39440 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrogen | A | % | 83.452 | 83.452 | | 0 | 0 | 0 | 0.63 | 1.39 | 0 | 0% | 0 | 0 | 0% | |
| Oxygen | A | % | 3.27 | 3.27 | | 0 | 0 | 0 | 0.03 | 0.08 | 0 | 0% | 0 | 0 | 0% | |

| Seq No | Sample ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 748309 | 1103158-014A (Container-01 of 01) | ASTM-D2504 | SAMP | .TA\031111\0311 | 3/12/2011 6:19:0 | 1 | R39440 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon dioxide | A | % | 6.311 | 6.311 | | 0 | 0 | 0 | 0.13 | 0.3 | 0 | 0% | 0 | 0 | 0% | |
| Carbon Monoxide | A | % | 0.609 | 0.609 | | 0 | 0 | 0 | 0.066 | 0.14 | 0 | 0% | 0 | 0 | 0% | |
| Ethane | A | % | | 0 | | 0 | 0 | 0 | 0.025 | 0.5 | 0 | 0% | 0 | 0 | 0% | |
| Hydrogen | A | % | | 0 | | 0 | 0 | 0 | 0.025 | 0.5 | 0 | 0% | 0 | 0 | 0% | |
| Methane | A | % | 0.019 | 0 | | 0 | 0 | 0 | 0.043 | 0.09 | 0 | 0% | 0 | 0 | 0% | |
| Nitrogen | A | % | 81.818 | 81.818 | | 0 | 0 | 0 | 0.63 | 1.39 | 0 | 0% | 0 | 0 | 0% | |
| Oxygen | A | % | 6.432 | 6.432 | | 0 | 0 | 0 | 0.03 | 0.08 | 0 | 0% | 0 | 0 | 0% | |

| Seq No | Sample ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 748310 | 1103158-014Adup | ASTM-D2504 | DUP | .TA\031111\0311 | 3/12/2011 6:48:0 | 1 | R39440 | | 0 | 748309 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon dioxide | A | % | 6.285 | 6.285 | | 0 | 0 | 6.311 | 0.13 | 0.3 | 0 | 0% | 0 | 0 | 0% | |
| Carbon Monoxide | A | % | 0.608 | 0.608 | | 0 | 0 | 0.609 | 0.066 | 0.14 | 0 | 0% | 0 | 0 | 0% | |
| Ethane | A | % | | 0 | | 0 | 0 | 0 | 0.025 | 0.5 | 0 | 0% | 0 | 0 | 0% | |
| Hydrogen | A | % | | 0 | | 0 | 0 | 0 | 0.025 | 0.5 | 0 | 0% | 0 | 0 | 0% | |
| Methane | A | % | 0.022 | 0 | | 0 | 0 | 0 | 0.043 | 0.09 | 0 | 0% | 0 | 0 | 0% | |
| Nitrogen | A | % | 82.591 | 82.591 | | 0 | 0 | 81.818 | 0.63 | 1.39 | 0 | 0% | 0 | 0 | 1% | |
| Oxygen | A | % | 6.5 | 6.5 | | 0 | 0 | 6.432 | 0.03 | 0.08 | 0 | 0% | 0 | 0 | 1% | |

| Seq No | Sample ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 748311 | crql std 2% b | ASTM-D2504 | CRQL | .TA\031111\0311 | 3/12/2011 7:13:0 | 1 | R39441 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon dioxide | A | % | 0.3 | 0.3 | | 0.3 | 0 | 0 | 0.025 | 0.1 | 0 | 100% | 80 | 120 | 0% | |
| Carbon Monoxide | A | % | 0.129 | 0.129 | | 0.14 | 0 | 0 | 0.025 | 0.1 | 0 | 92% | 80 | 120 | 0% | |
| Ethane | A | % | | 0 | | 0.025 | 0 | 0 | 0.025 | 0.5 | 0 | 0% | 80 | 120 | 0% | S |
| Hydrogen | A | % | | 0 | | 0.025 | 0 | 0 | 0.025 | 0.5 | 0 | 0% | 80 | 120 | 0% | S |
| Methane | A | % | 0.087 | 0.087 | | 0.09 | 0 | 0 | 0.025 | 0.5 | 0 | 97% | 80 | 120 | 0% | |
| Nitrogen | A | % | 1.477 | 1.477 | | 1.39 | 0 | 0 | 0.025 | 0.1 | 0 | 106% | 80 | 120 | 0% | |
| Oxygen | A | % | 0.091 | 0.091 | | 0.08 | 0 | 0 | 0.025 | 0.1 | 0 | 114% | 80 | 120 | 0% | |

| Seq No | Sample ID | Test Code | Sample Typ | File ID | Analysis Date | DF | Batch ID | Prep Date | SPKref | RPDref | pmoist |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 748312 | ccv std 1-2 b | ASTM-D2504 | CCV | .TA\031111\0311 | 3/12/2011 7:39:0 | 1 | R39441 | | 0 | 0 | |

| Analyte | T | Units | RAW | Final | Text | Spike | SPKref | RPDref | MDL | PQL | UQL | %REC | LOW | HIGH | %RPD | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon dioxide | A | % | 2.435 | 2.435 | | 2.5 | 0 | 0 | 0.025 | 0.1 | 0 | 97% | 85 | 115 | 0% | |
| Carbon Monoxide | A | % | 2.578 | 2.578 | | 2.5 | 0 | 0 | 0.025 | 0.1 | 0 | 103% | 85 | 115 | 0% | |
| Ethane | A | % | | 0 | | 1 | 0 | 0 | 0.025 | 0.5 | 0 | 0% | 85 | 115 | 0% | S |
| Hydrogen | A | % | | 0 | | 1 | 0 | 0 | 0.025 | 0.5 | 0 | 0% | 85 | 115 | 0% | S |
| Methane | A | % | 2.011 | 2.011 | | 2 | 0 | 0 | 0.025 | 0.5 | 0 | 101% | 85 | 115 | 0% | |
| Nitrogen | A | % | 2.845 | 2.845 | | 2.5 | 0 | 0 | 0.025 | 0.1 | 0 | 114% | 85 | 115 | 0% | |
| Oxygen | A | % | 2.548 | 2.548 | | 2.5 | 0 | 0 | 0.025 | 0.1 | 0 | 102% | 85 | 115 | 0% | |

# Spikes and Surrogates Report

**RunID:** GC-TCD 1_110311A **Analyst:** Mike Budziak

**RunNo:** 39441

## Spikes

| SeqNo | SampID | TestCode | SampType | BatchID | DF | Duplicate Of |
|---|---|---|---|---|---|---|
| 748304 | ccv std 1-2 a | ASTM-D2504 | CCV | R39441 | 1 | |

| Rpt | Analyte | SpkVal | CalcVal | REC | LowLimit | HighLimit | Rec Out | Qual |
|---|---|---|---|---|---|---|---|---|
| ✔ | Carbon Monoxide | 2.5 | 2.655 | 106.20% | 85 | 115 | | |
| ☐ | Ethane | 1 | 0 | 0.00% | 85 | 115 | * | S |
| ☐ | Hydrogen | 1 | 0 | 0.00% | 85 | 115 | * | S |
| ☑ | Methane | 2 | 2.083 | 104.15% | 85 | 115 | | |
| ☑ | Nitrogen | 2.5 | 2.848 | 113.92% | 85 | 115 | | |
| ☑ | Oxygen | 2.5 | 2.549 | 101.96% | 85 | 115 | | |
| ☑ | Carbon dioxide | 2.5 | 2.452 | 98.08% | 85 | 115 | | |

**Total Recoveries Out:** 2

| SeqNo | SampID | TestCode | SampType | BatchID | DF |
|---|---|---|---|---|---|
| 748305 | crql std 2% a | ASTM-D2504 | CRQL | R39441 | 1 |

| Rpt | Analyte | SpkVal | CalcVal | REC | LowLimit | HighLimit | Rec Out | Qual |
|---|---|---|---|---|---|---|---|---|
| ☑ | Oxygen | 0.08 | 0.091 | 113.75% | 80 | 120 | | |
| ☑ | Carbon dioxide | 0.3 | 0.324 | 108.00% | 80 | 120 | | |
| ☑ | Carbon Monoxide | 0.14 | 0.148 | 105.71% | 80 | 120 | | |
| ☐ | Ethane | 0.025 | 0 | 0.00% | 80 | 120 | * | S |
| ☐ | Hydrogen | 0.025 | 0 | 0.00% | 80 | 120 | * | S |
| ☑ | Methane | 0.09 | 0.101 | 112.22% | 80 | 120 | | |
| ☑ | Nitrogen | 1.39 | 1.541 | 110.86% | 80 | 120 | | |

**Total Recoveries Out:** 2

| SeqNo | SampID | TestCode | SampType | BatchID | DF |
|---|---|---|---|---|---|
| 748311 | crql std 2% b | ASTM-D2504 | CRQL | R39441 | 1 |

| Rpt | Analyte | SpkVal | CalcVal | REC | LowLimit | HighLimit | Rec Out | Qual |
|---|---|---|---|---|---|---|---|---|
| ☑ | Carbon Monoxide | 0.14 | 0.129 | 92.14% | 80 | 120 | | |
| ☐ | Ethane | 0.025 | 0 | 0.00% | 80 | 120 | * | S |
| ☐ | Hydrogen | 0.025 | 0 | 0.00% | 80 | 120 | * | S |
| ☑ | Methane | 0.09 | 0.087 | 96.67% | 80 | 120 | | |
| ☑ | Nitrogen | 1.39 | 1.477 | 106.26% | 80 | 120 | | |
| ☑ | Oxygen | 0.08 | 0.091 | 113.75% | 80 | 120 | | |
| ☑ | Carbon dioxide | 0.3 | 0.3 | 100.00% | 80 | 120 | | |

**Total Recoveries Out:** 2

| SeqNo | SampID | TestCode | SampType | BatchID | DF |
|---|---|---|---|---|---|
| 748312 | ccv std 1-2 b | ASTM-D2504 | CCV | R39441 | 1 |

| Rpt | Analyte | SpkVal | CalcVal | REC | LowLimit | HighLimit | Rec Out | Qual |
|---|---|---|---|---|---|---|---|---|
| ☑ | Oxygen | 2.5 | 2.548 | 101.92% | 85 | 115 | | |
| ☑ | Carbon dioxide | 2.5 | 2.435 | 97.40% | 85 | 115 | | |
| ☑ | Carbon Monoxide | 2.5 | 2.578 | 103.12% | 85 | 115 | | |
| ☐ | Ethane | 1 | 0 | 0.00% | 85 | 115 | * | S |
| ☐ | Hydrogen | 1 | 0 | 0.00% | 85 | 115 | * | S |
| ☑ | Methane | 2 | 2.011 | 100.55% | 85 | 115 | | |
| ☑ | Nitrogen | 2.5 | 2.845 | 113.80% | 85 | 115 | | |

**Total Recoveries Out:** 2

# Injection Log

Directory: C:\HPCHEM\2\DATA\031111

| Line | Vial | FileName | Multiplier | SampleName | Misc Info | Injected |
|---|---|---|---|---|---|---|
| 1 | 1 | 03111101.D | 1. | icb | ICB ASTM-D2504 | 12 Mar 2011 03:21 |
| 2 | 1 | 03111102.D | 1. | ccv std 1-2 a | CCV ASTM-D2504 | 12 Mar 2011 04:09 |
| 3 | 1 | 03111103.d | 1. | crql std 2% a | SAMP ASTM-D2504 | 12 Mar 2011 04:53 |
| 4 | 1 | 03111104.d | 1. | 1103158-011A | SAMP ASTM-D2504 | 12 Mar 2011 05:16 |
| 5 | 1 | 03111105.D | 1. | 1103158-012A | SAMP ASTM-D2504 | 12 Mar 2011 05:38 |
| 6 | 1 | 03111106.D | 1. | 1103158-013A | SAMP ASTM-D2504 | 12 Mar 2011 05:59 |
| 7 | 1 | 03111107.D | 1. | 1103158-014A | SAMP ASTM-D2504 | 12 Mar 2011 06:19 |
| 8 | 1 | 03111108.D | 1. | 1103158-014Adup | DUP ASTM-D2504 | 12 Mar 2011 06:48 |
| 9 | 1 | 03111109.D | 1. | crql std 2% b | CRQL ASTM-D2504 | 12 Mar 2011 07:13 |
| 10 | 1 | 03111110.D | 1. | ccv std 1-2 b | CCV ASTM-D2504 | 12 Mar 2011 07:39 |

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031111\03111101.D Vial: 1
Acq On : 12 Mar 2011 3:21 am Operator:
Sample : icb Inst : GC/TCD
Misc : ICB ASTM-D2504 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Mar 24 15:09 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Thu Mar 24 15:04:37 2011
Response via : Initial Calibration
DataAcq Meth : TCD.M

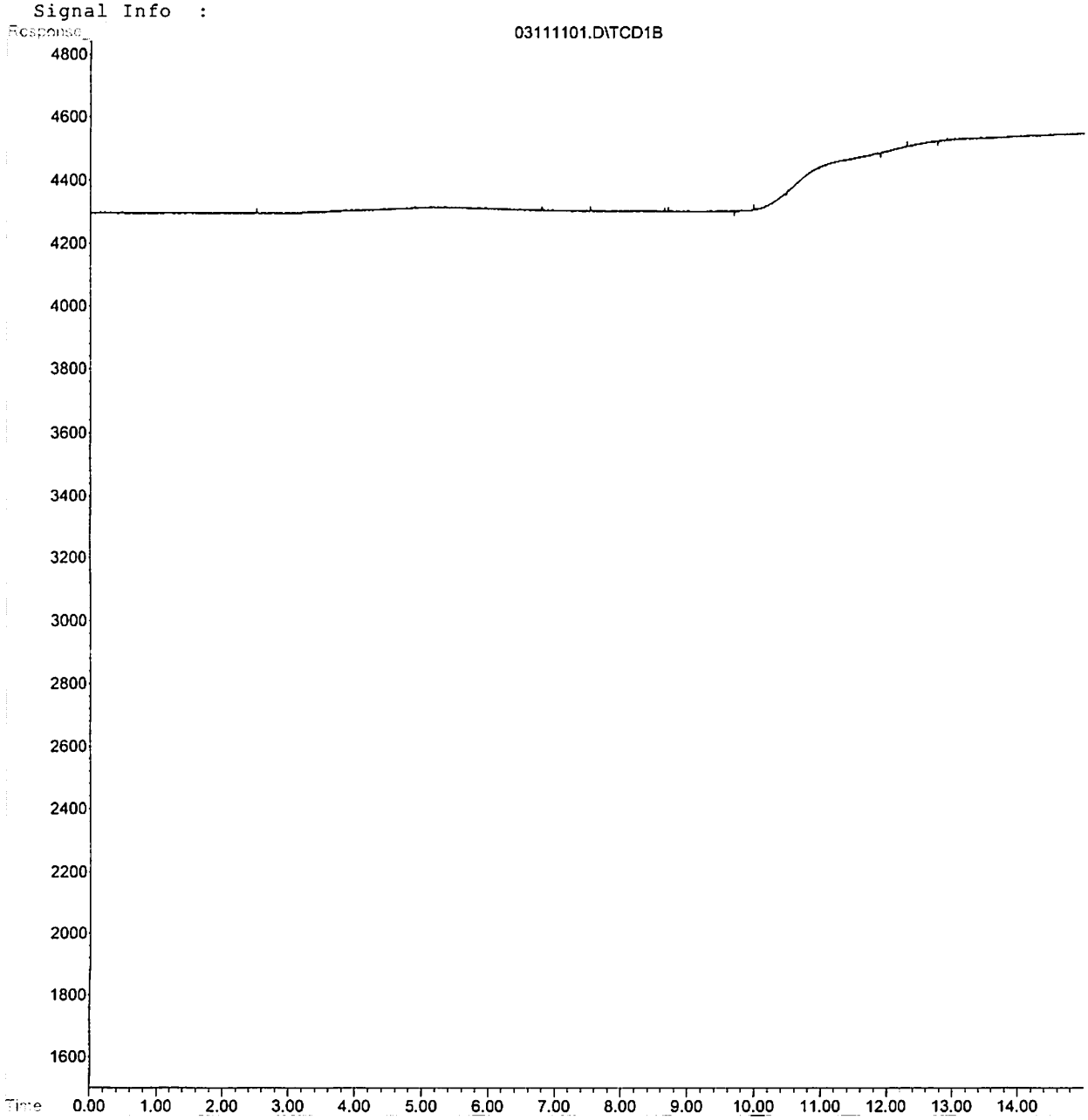
Volume Inj. :
Signal Phase :
Signal Info :

| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| | Target Compounds | | | | |
| 1) | Oxygen | 0.00 | 0 | N.D. | % |
| 2) | Nitrogen | 0.00 | 0 | N.D. | % |
| 3) | Carbon Monoxide | 0.00 | 0 | N.D. | % |
| 4) | Methane | 0.00 | 0 | N.D. | % |
| 5) | Carbon dioxide | 0.00 | 0 | N.D. | % |

(f)=RT Delta > 1/2 Window (m)=manual int.
03111101.D 030511.M Tue Mar 29 09:57:29 2011 Page 1

Quantitation Report

```
Data File : C:\HPCHEM\2\DATA\031111\03111101.D          Vial: 1
Acq On    : 12 Mar 2011   3:21 am                   Operator:
Sample    : icb                                     Inst    : GC/TCD
Misc      : ICB  ASTM-D2504                         Multiplr: 1.00
IntFile   : EVENTS.E
Quant Time: Mar 24 15:09 2011  Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title        :
Last Update  : Thu Mar 24 15:04:37 2011
Response via : Multiple Level Calibration
DataAcq Meth : TCD.M

Volume Inj.  :
Signal Phase :
Signal Info  :
```



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031111\03111102.D Vial: 1
Acq On : 12 Mar 2011 4:09 am Operator:
Sample : ccv std 1-2 a Inst : GC/TCD
Misc : CCV ASTM-D2504 Multiplr: 1.00
IntFile : events.e
Quant Time: Mar 12 4:54 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Sat Mar 12 04:49:32 2011
Response via : Initial Calibration
DataAcq Meth : TCD.M

Volume Inj. :
Signal Phase :
Signal Info :

| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| | Target Compounds | | | | |
| 1) | Oxygen | 2.13 | 398388 | 2.549 | % |
| 2) | Nitrogen | 2.32 | 495516 | 2.848 | % |
| 3) | Carbon Monoxide | 3.01 | 436533 | 2.655 | % |
| 4) | Methane | 6.23 | 286842 | 2.083 | % |
| 5) | Carbon dioxide | 11.15 | 502032 | 2.452 | % |

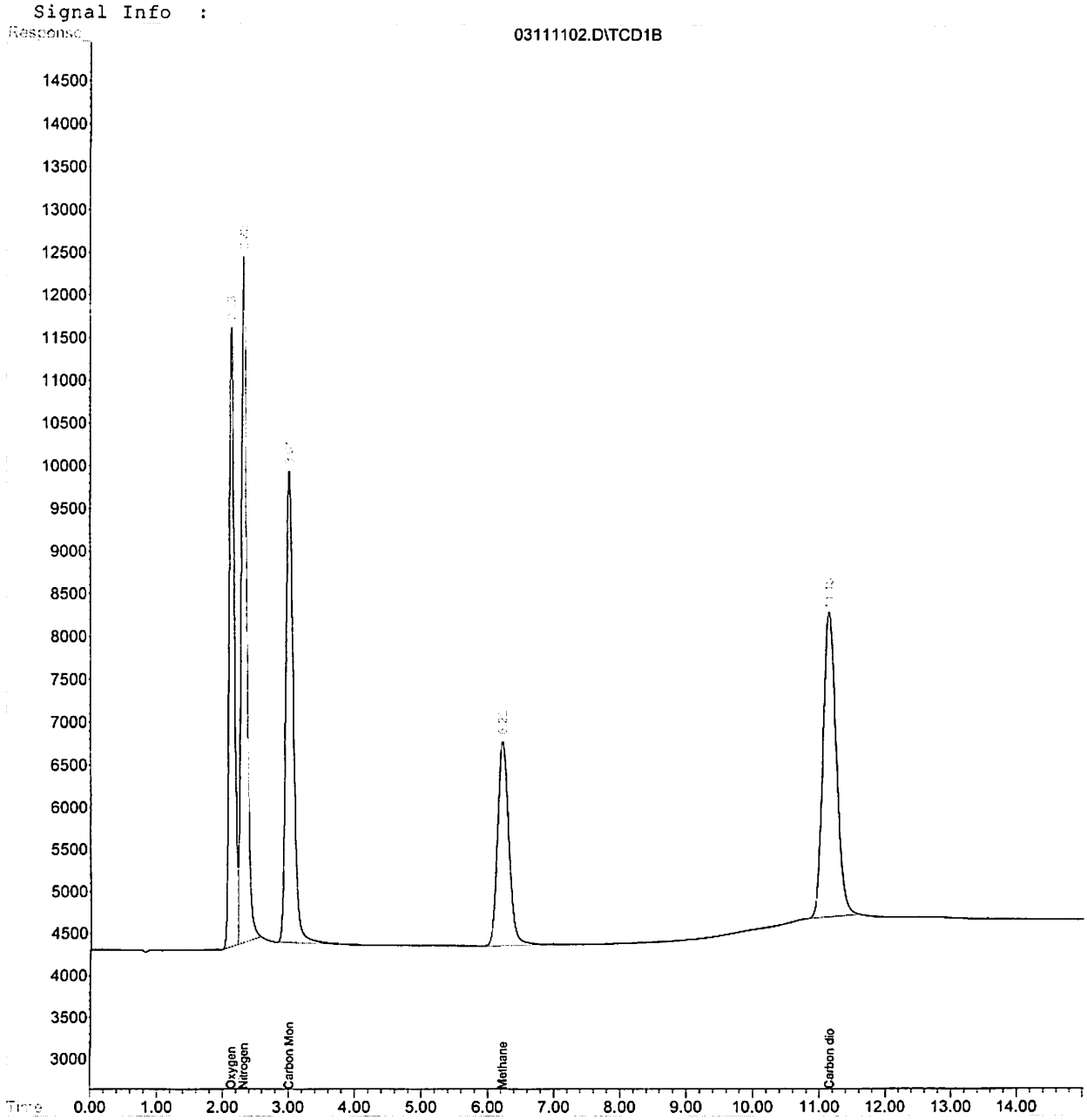
(f)=RT Delta > 1/2 Window (m)=manual int.
03111102.D 030511.M Tue Mar 29 09:57:45 2011 Page 1

Quantitation Report

Data File : C:\HPCHEM\2\DATA\031111\03111102.D  Vial: 1
Acq On : 12 Mar 2011 4:09 am  Operator:
Sample : ccv std 1-2 a  Inst : GC/TCD
Misc : CCV ASTM-D2504  Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Mar 12 4:54 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Sat Mar 12 04:49:32 2011
Response via : Multiple Level Calibration
DataAcq Meth : TCD.M

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031111\03111103.D Vial: 1
Acq On : 12 Mar 2011 4:53 am Operator:
Sample : crql std 2% a Inst : GC/TCD
Misc : SAMP ASTM-D2504 Multiplr: 1.00
IntFile : events.e
Quant Time: Mar 12 5:11 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Sat Mar 12 05:03:19 2011
Response via : Initial Calibration
DataAcq Meth : TCD.M

Volume Inj. :
Signal Phase :
Signal Info :

| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| | Target Compounds | | | | |
| 1) | Oxygen | 2.13 | 14278 | 0.091 | % |
| 2) | Nitrogen | 2.32 | 268212 | 1.541 | % |
| 3) | Carbon Monoxide | 3.01 | 24313 | 0.148 | % |
| 4) | Methane | 6.23 | 13949 | 0.101 | % |
| 5) | Carbon dioxide | 11.16 | 66360 | 0.324 | % |

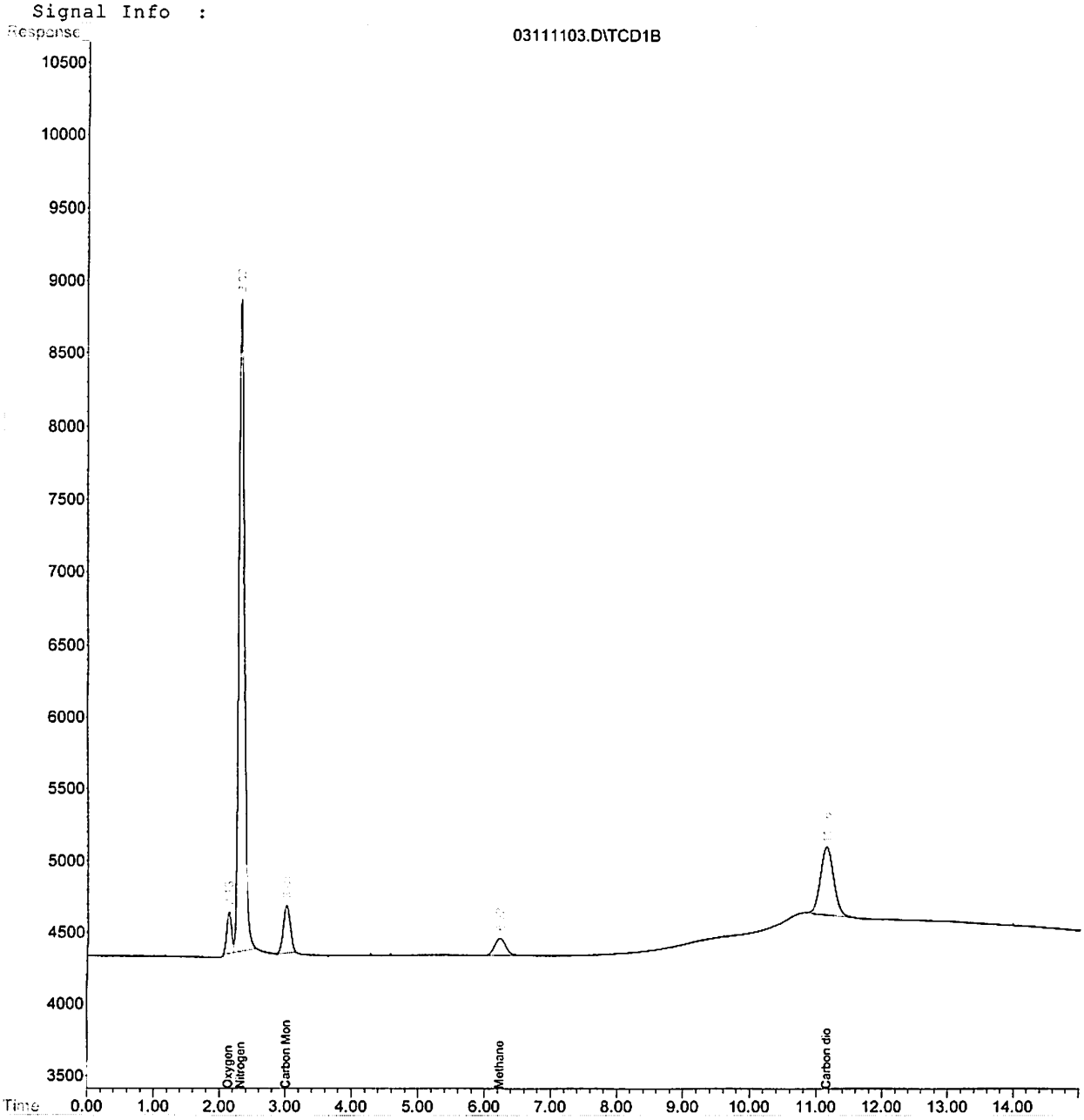
(f)=RT Delta > 1/2 Window (m)=manual int.
03111103.D 030511.M Tue Mar 29 09:57:50 2011 Page 1

Quantitation Report

Data File : C:\HPCHEM\2\DATA\031111\03111103.D  Vial: 1
Acq On : 12 Mar 2011 4:53 am  Operator:
Sample : crql std 2% a  Inst : GC/TCD
Misc : SAMP ASTM-D2504  Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Mar 12 5:11 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Sat Mar 12 05:03:19 2011
Response via : Multiple Level Calibration
DataAcq Meth : TCD.M

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031111\03111104.D Vial: 1
Acq On : 12 Mar 2011 5:16 am Operator:
Sample : 1103158-011A Inst : GC/TCD
Misc : SAMP ASTM-D2504 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Mar 24 15:14 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Thu Mar 24 15:04:37 2011
Response via : Initial Calibration
DataAcq Meth : TCD.M

Volume Inj. :
Signal Phase :
Signal Info :

| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| | Target Compounds | | | | | |
| 1) | Oxygen | 2.12 | 677397 | 4.334 | % | |
| 2) | Nitrogen | 2.27 | 14470106 | 83.157 | % | |
| 3) | Carbon Monoxide | 3.00 | 52640 | 0.320 | % | |
| 4) | Methane | 6.21 | 1277 | 0.009 | % | m |
| 5) | Carbon dioxide | 11.15 | 1694064 | 8.276 | % | |

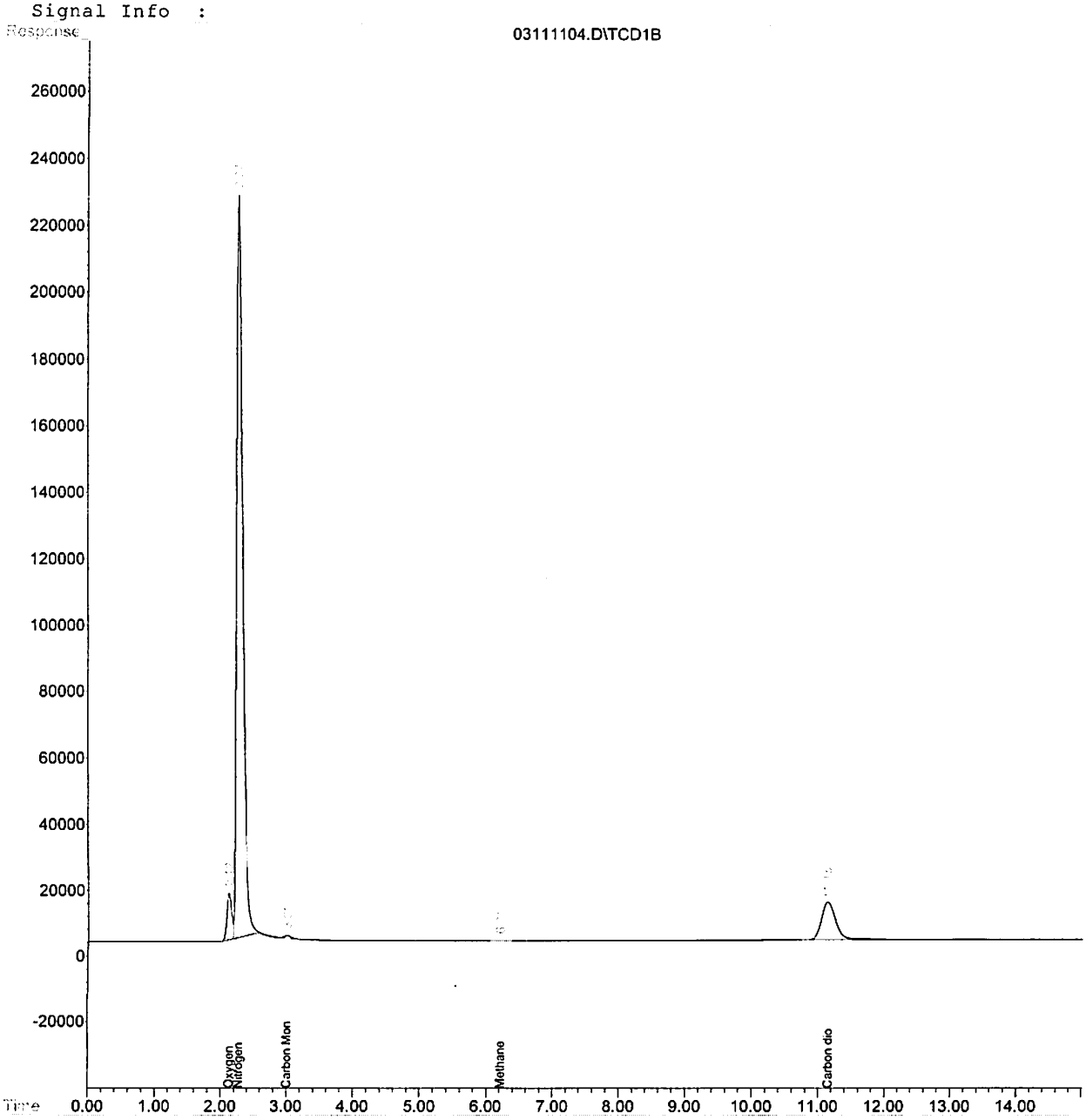
(f)=RT Delta > 1/2 Window (m)=manual int.
03111104.D 030511.M Tue Mar 29 09:57:54 2011 Page 1

Quantitation Report

Data File : C:\HPCHEM\2\DATA\031111\03111104.D  Vial: 1
Acq On : 12 Mar 2011 5:16 am  Operator:
Sample : 1103158-011A  Inst : GC/TCD
Misc : SAMP ASTM-D2504  Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Mar 24 15:14 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Thu Mar 24 15:04:37 2011
Response via : Multiple Level Calibration
DataAcq Meth : TCD.M

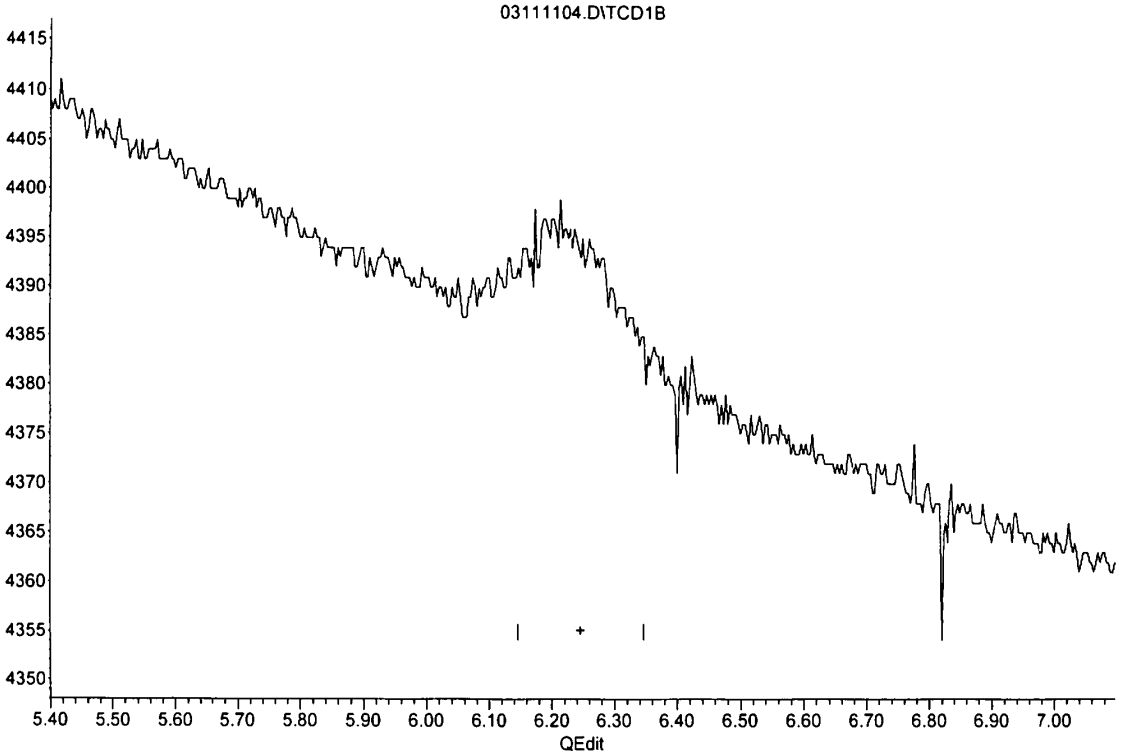
Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (Qedit)

Data File : C:\HPCHEM\2\DATA\031111\03111104.D Vial: 1
Acq On : 12 Mar 2011 5:16 am Operator:
Sample : 1103158-011A Inst : GC/TCD
Misc : SAMP ASTM-D2504 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Mar 24 15:13 2011 Quant Results File: 030511.RES

Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Thu Mar 24 15:04:37 2011
Response via : Multiple Level Calibration



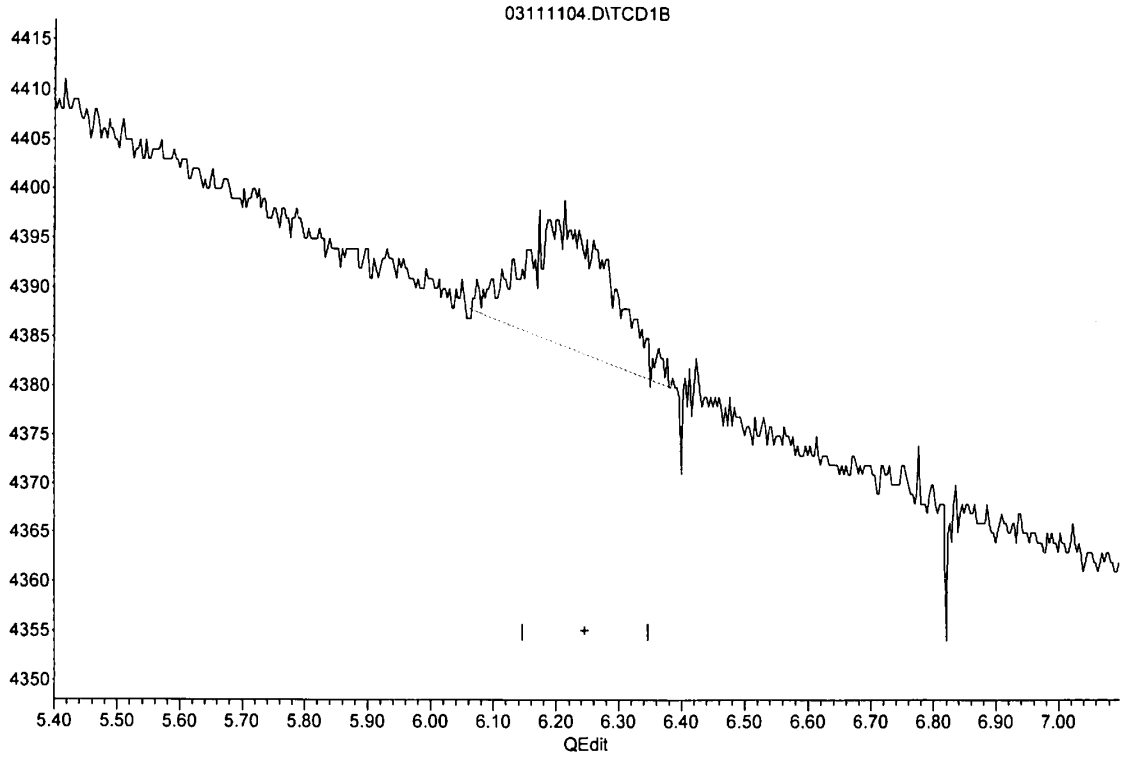

(4) Methane
6.25min 0.000%
response 0

(+) = Expected Retention Time
03111104.D 030511.M Thu Mar 24 15:14:31 2011

Quantitation Report (Qedit)

Data File : C:\HPCHEM\2\DATA\031111\03111104.D Vial: 1
Acq On : 12 Mar 2011 5:16 am Operator:
Sample : 1103158-011A Inst : GC/TCD
Misc : SAMP ASTM-D2504 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Mar 24 15:13 2011 Quant Results File: 030511.RES

Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Thu Mar 24 15:04:37 2011
Response via : Multiple Level Calibration




(4) Methane
6.21min 0.009% m
response 1277

(+) = Expected Retention Time
03111104.D 030511.M Thu Mar 24 15:14:40 2011

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031111\03111105.D Vial: 1
Acq On : 12 Mar 2011 5:38 am Operator:
Sample : 1103158-012A Inst : GC/TCD
Misc : SAMP ASTM-D2504 Multiplr: 1.00
IntFile : events.e
Quant Time: Mar 12 7:18 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Sat Mar 12 05:03:19 2011
Response via : Initial Calibration
DataAcq Meth : TCD.M

Volume Inj. :
Signal Phase :
Signal Info :

| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| | Target Compounds | | | | |
| 1) | Oxygen | 2.11 | 3233766 | 20.688 | % |
| 2) | Nitrogen | 2.27 | 13606964 | 78.197 | % |
| 3) | Carbon Monoxide | 0.00 | 0 | N.D. | % |
| 4) | Methane | 0.00 | 0 | N.D. | % |
| 5) | Carbon dioxide | 11.16 | 12011 | 0.059 | % |

(f)=RT Delta > 1/2 Window (m)=manual int.
03111105.D 030511.M Tue Mar 29 09:57:59 2011 Page 1

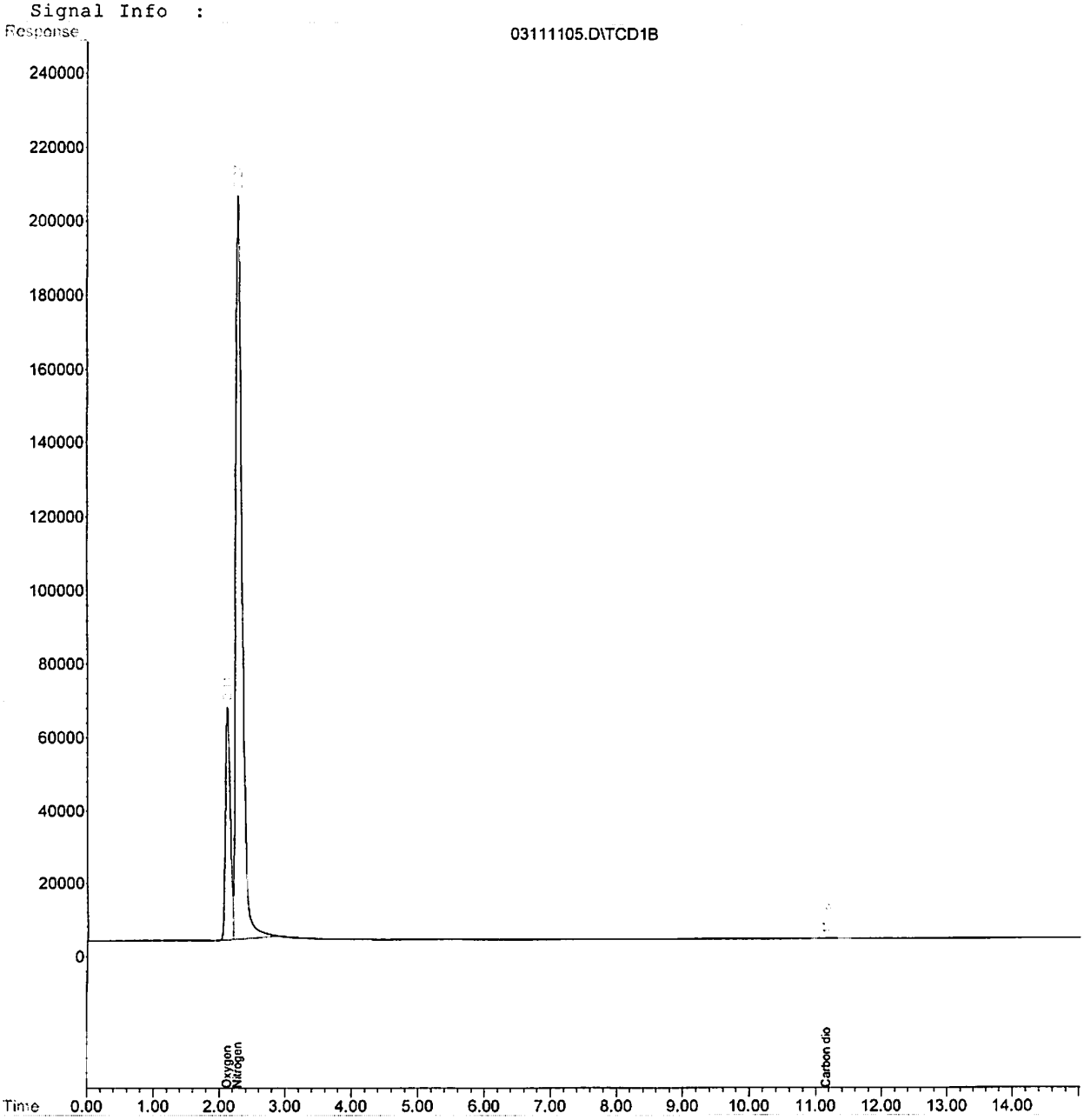
Quantitation Report

Data File : C:\HPCHEM\2\DATA\031111\03111105.D
Acq On : 12 Mar 2011 5:38 am
Sample : 1103158-012A
Misc : SAMP ASTM-D2504
IntFile : EVENTS.E
Quant Time: Mar 12 7:18 2011 Quant Results File: 030511.RES

Vial: 1
Operator:
Inst : GC/TCD
Multiplr: 1.00

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Sat Mar 12 05:03:19 2011
Response via : Multiple Level Calibration
DataAcq Meth : TCD.M

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031111\03111106.D Vial: 1
Acq On : 12 Mar 2011 5:59 am Operator:
Sample : 1103158-013A Inst : GC/TCD
Misc : SAMP ASTM-D2504 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Mar 24 15:17 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Thu Mar 24 15:04:37 2011
Response via : Initial Calibration
DataAcq Meth : TCD.M

Volume Inj. :
Signal Phase :
Signal Info :

| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| | Target Compounds | | | | | |
| 1) | Oxygen | 2.13 | 511090 | 3.270 | % | |
| 2) | Nitrogen | 2.27 | 14521370 | 83.452 | % | |
| 3) | Carbon Monoxide | 3.01 | 105398 | 0.641 | % | |
| 4) | Methane | 6.22 | 2653 | 0.019 | % | m |
| 5) | Carbon dioxide | 11.15 | 1677153 | 8.193 | % | |

(f)=RT Delta > 1/2 Window (m)=manual int.
03111106.D 030511.M Tue Mar 29 09:58:04 2011 Page 1

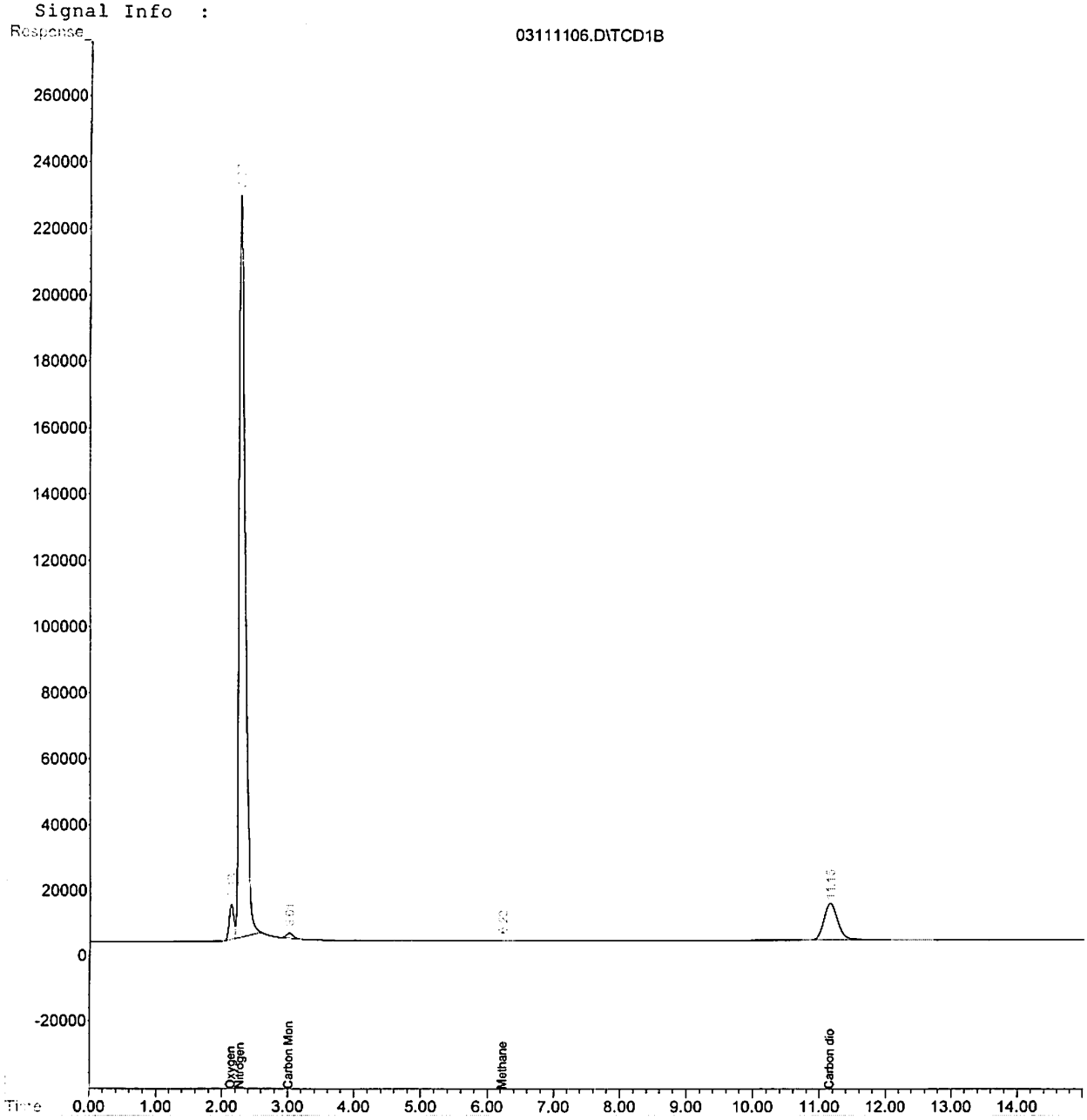
Quantitation Report

Data File : C:\HPCHEM\2\DATA\031111\03111106.D
Acq On : 12 Mar 2011 5:59 am
Sample : 1103158-013A
Misc : SAMP ASTM-D2504
IntFile : EVENTS.E
Quant Time: Mar 24 15:17 2011 Quant Results File: 030511.RES

Vial: 1
Operator:
Inst : GC/TCD
Multiplr: 1.00

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Thu Mar 24 15:04:37 2011
Response via : Multiple Level Calibration
DataAcq Meth : TCD.M

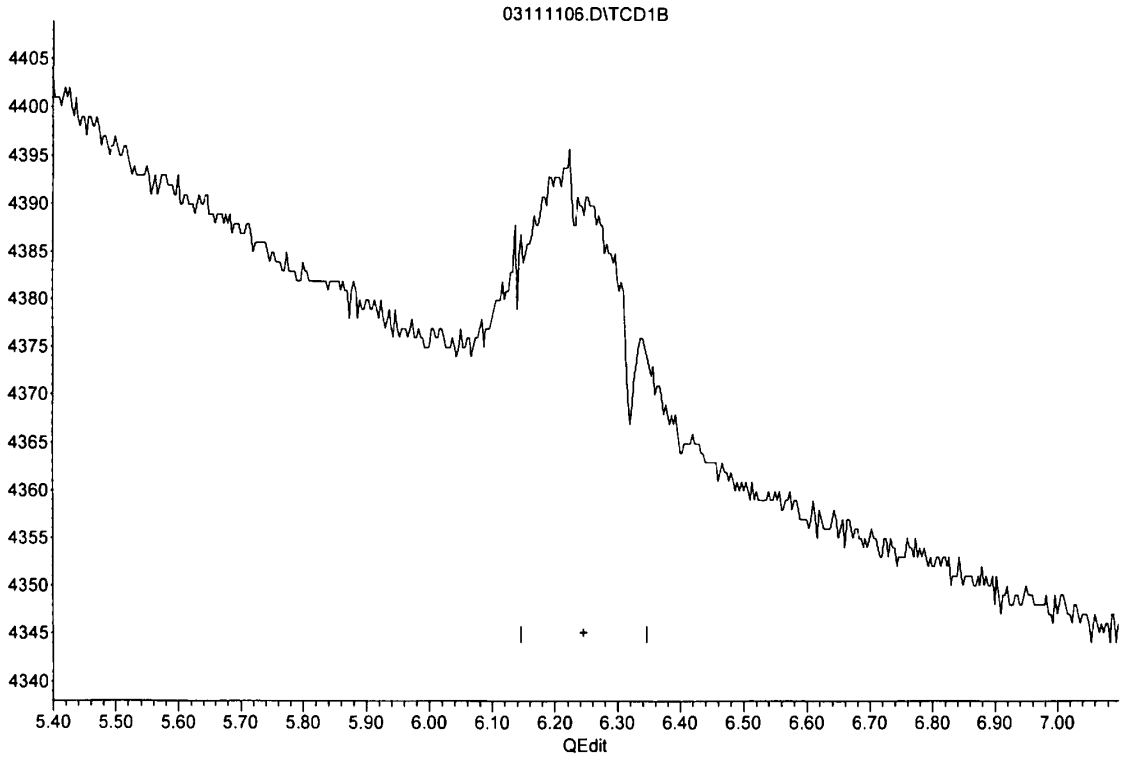
Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (Qedit)

Data File : C:\HPCHEM\2\DATA\031111\03111106.D Vial: 1
Acq On : 12 Mar 2011 5:59 am Operator:
Sample : 1103158-013A Inst : GC/TCD
Misc : SAMP ASTM-D2504 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Mar 24 15:17 2011 Quant Results File: 030511.RES

Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Thu Mar 24 15:04:37 2011
Response via : Multiple Level Calibration



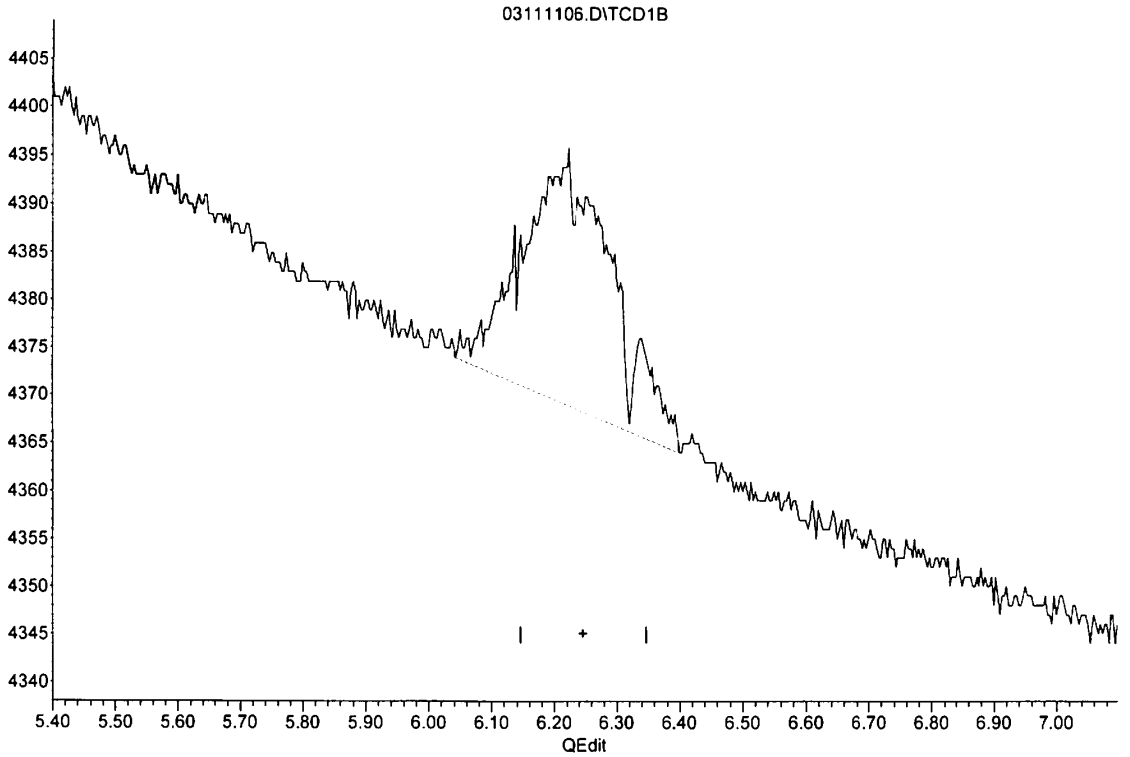

(4) Methane
6.25min 0.000%
response 0

(+) = Expected Retention Time
03111106.D 030511.M Thu Mar 24 15:17:31 2011

Quantitation Report (Qedit)

Data File : C:\HPCHEM\2\DATA\031111\03111106.D Vial: 1
Acq On : 12 Mar 2011 5:59 am Operator:
Sample : 1103158-013A Inst : GC/TCD
Misc : SAMP ASTM-D2504 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Mar 24 15:17 2011 Quant Results File: 030511.RES

Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Thu Mar 24 15:04:37 2011
Response via : Multiple Level Calibration




(4) Methane
6.22min 0.019% m
response 2653

(+) = Expected Retention Time
03111106.D 030511.M Thu Mar 24 15:17:37 2011

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031111\03111107.D Vial: 1
Acq On : 12 Mar 2011 6:19 am Operator:
Sample : 1103158-014A Inst : GC/TCD
Misc : SAMP ASTM-D2504 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Mar 24 15:18 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Thu Mar 24 15:04:37 2011
Response via : Initial Calibration
DataAcq Meth : TCD.M

Volume Inj. :
Signal Phase :
Signal Info :

| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| | Target Compounds | | | | | |
| 1) | Oxygen | 2.12 | 1005384 | 6.432 | % | |
| 2) | Nitrogen | 2.27 | 14236996 | 81.818 | % | |
| 3) | Carbon Monoxide | 3.01 | 100116 | 0.609 | % | |
| 4) | Methane | 6.25 | 2675 | 0.019 | % | m |
| 5) | Carbon dioxide | 11.16 | 1291784 | 6.311 | % | |

(f)=RT Delta > 1/2 Window (m)=manual int.
03111107.D 030511.M Tue Mar 29 09:58:09 2011 Page 1

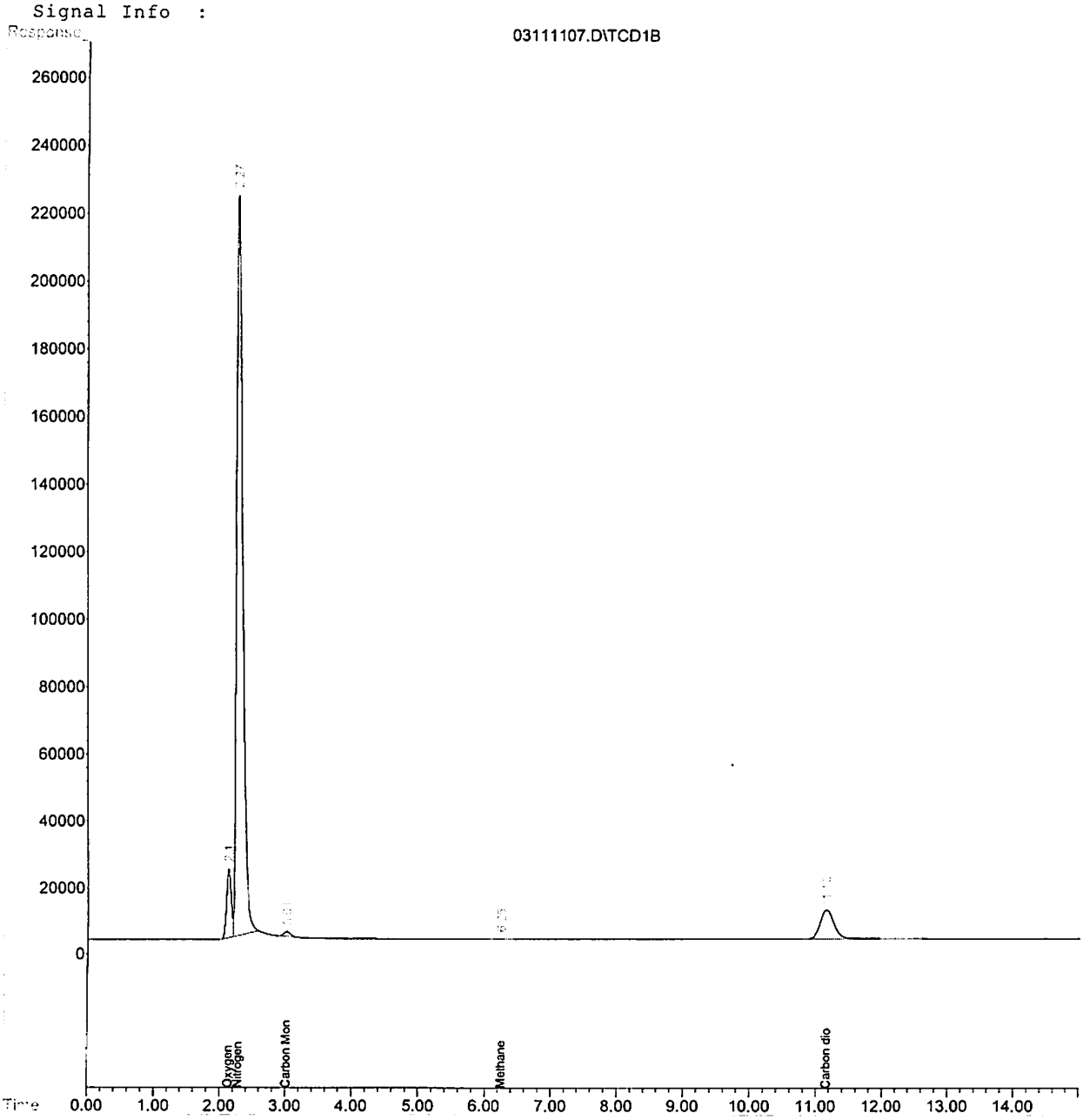
Quantitation Report

Data File : C:\HPCHEM\2\DATA\031111\03111107.D
Acq On : 12 Mar 2011 6:19 am
Sample : 1103158-014A
Misc : SAMP ASTM-D2504
IntFile : EVENTS.E
Quant Time: Mar 24 15:18 2011 Quant Results File: 030511.RES

Vial: 1
Operator:
Inst : GC/TCD
Multiplr: 1.00

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Thu Mar 24 15:04:37 2011
Response via : Multiple Level Calibration
DataAcq Meth : TCD.M

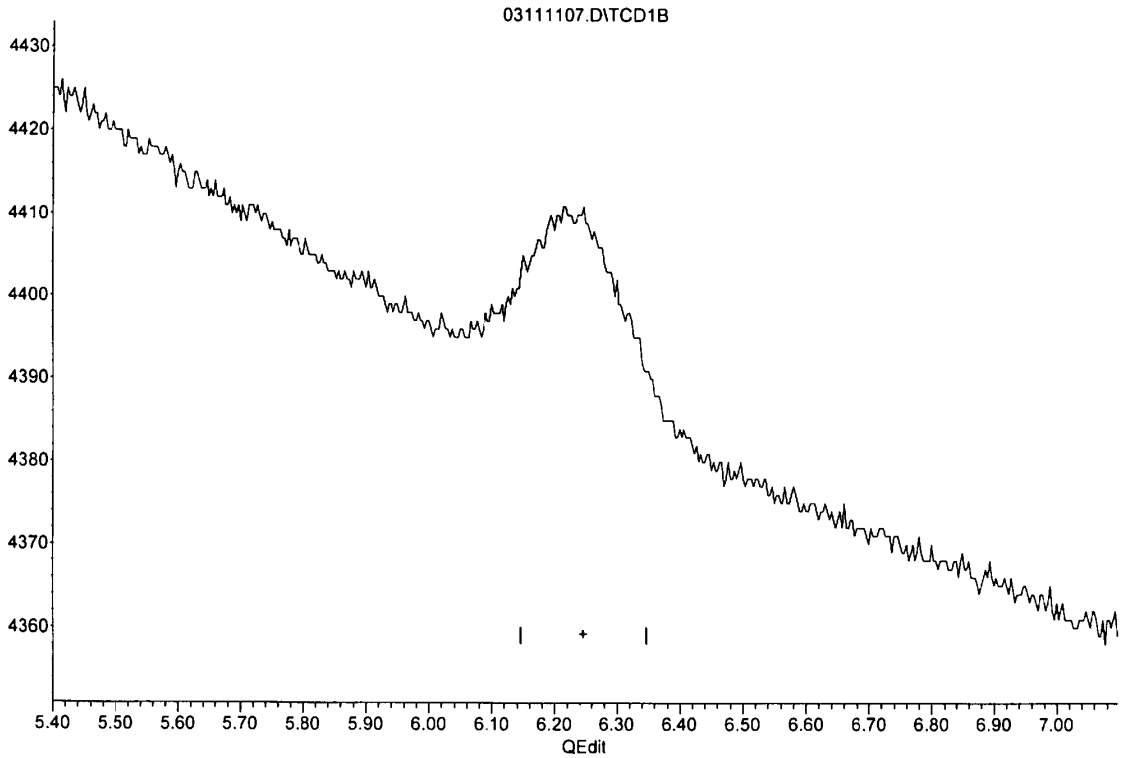
Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (Qedit)

Data File : C:\HPCHEM\2\DATA\031111\03111107.D Vial: 1
Acq On : 12 Mar 2011 6:19 am Operator:
Sample : 1103158-014A Inst : GC/TCD
Misc : SAMP ASTM-D2504 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Mar 24 15:18 2011 Quant Results File: 030511.RES

Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Thu Mar 24 15:04:37 2011
Response via : Multiple Level Calibration



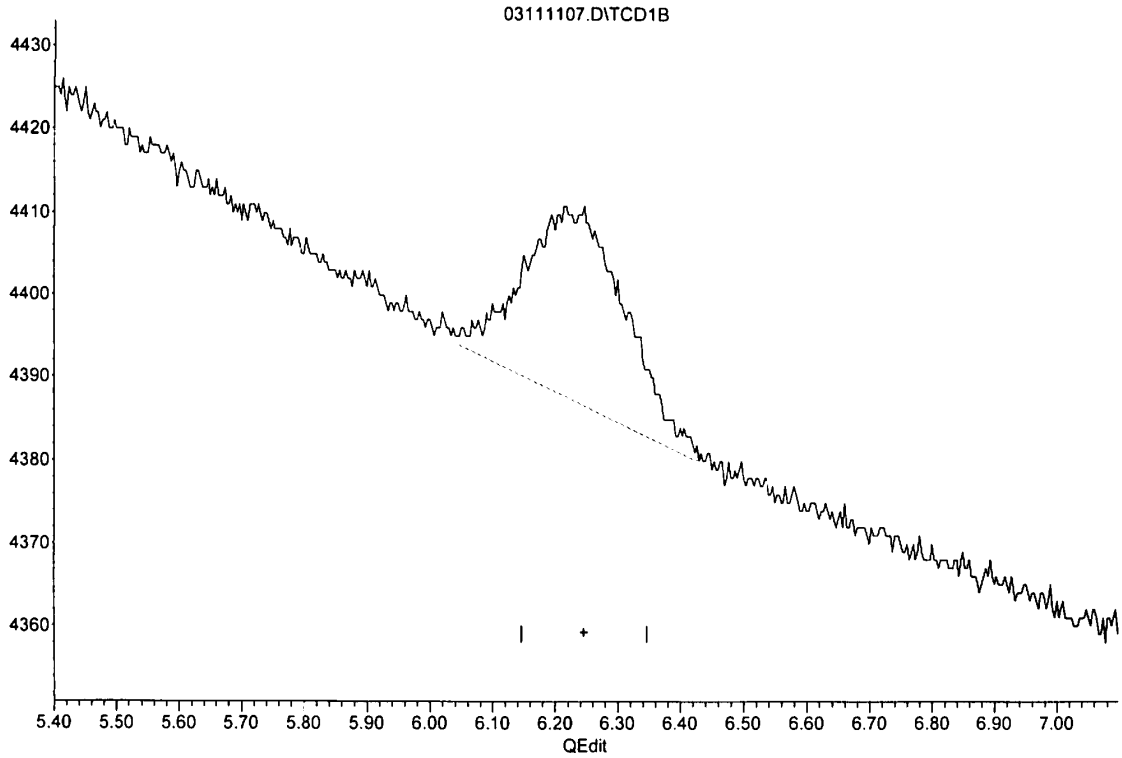

(4) Methane
6.25min 0.000%
response 0

(+) = Expected Retention Time
03111107.D 030511.M Thu Mar 24 15:18:22 2011

Quantitation Report (Qedit)

Data File : C:\HPCHEM\2\DATA\031111\03111107.D Vial: 1
Acq On : 12 Mar 2011 6:19 am Operator:
Sample : 1103158-014A Inst : GC/TCD
Misc : SAMP ASTM-D2504 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Mar 24 15:18 2011 Quant Results File: 030511.RES

Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Thu Mar 24 15:04:37 2011
Response via : Multiple Level Calibration




(4) Methane
6.25min 0.019% m
response 2675

(+) = Expected Retention Time
03111107.D 030511.M Thu Mar 24 15:18:29 2011

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031111\03111108.D Vial: 1
Acq On : 12 Mar 2011 6:48 am Operator:
Sample : 1103158-014Adup Inst : GC/TCD
Misc : DUP ASTM-D2504 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Mar 24 15:19 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Thu Mar 24 15:04:37 2011
Response via : Initial Calibration
DataAcq Meth : TCD.M

Volume Inj. :
Signal Phase :
Signal Info :

| | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|
| | Target Compounds | | | | | |
| 1) | Oxygen | 2.12 | 1016037 | 6.500 | % | |
| 2) | Nitrogen | 2.27 | 14371562 | 82.591 | % | |
| 3) | Carbon Monoxide | 3.01 | 99895 | 0.608 | % | |
| 4) | Methane | 6.24 | 3086 | 0.022 | % | m |
| 5) | Carbon dioxide | 11.15 | 1286488 | 6.285 | % | |

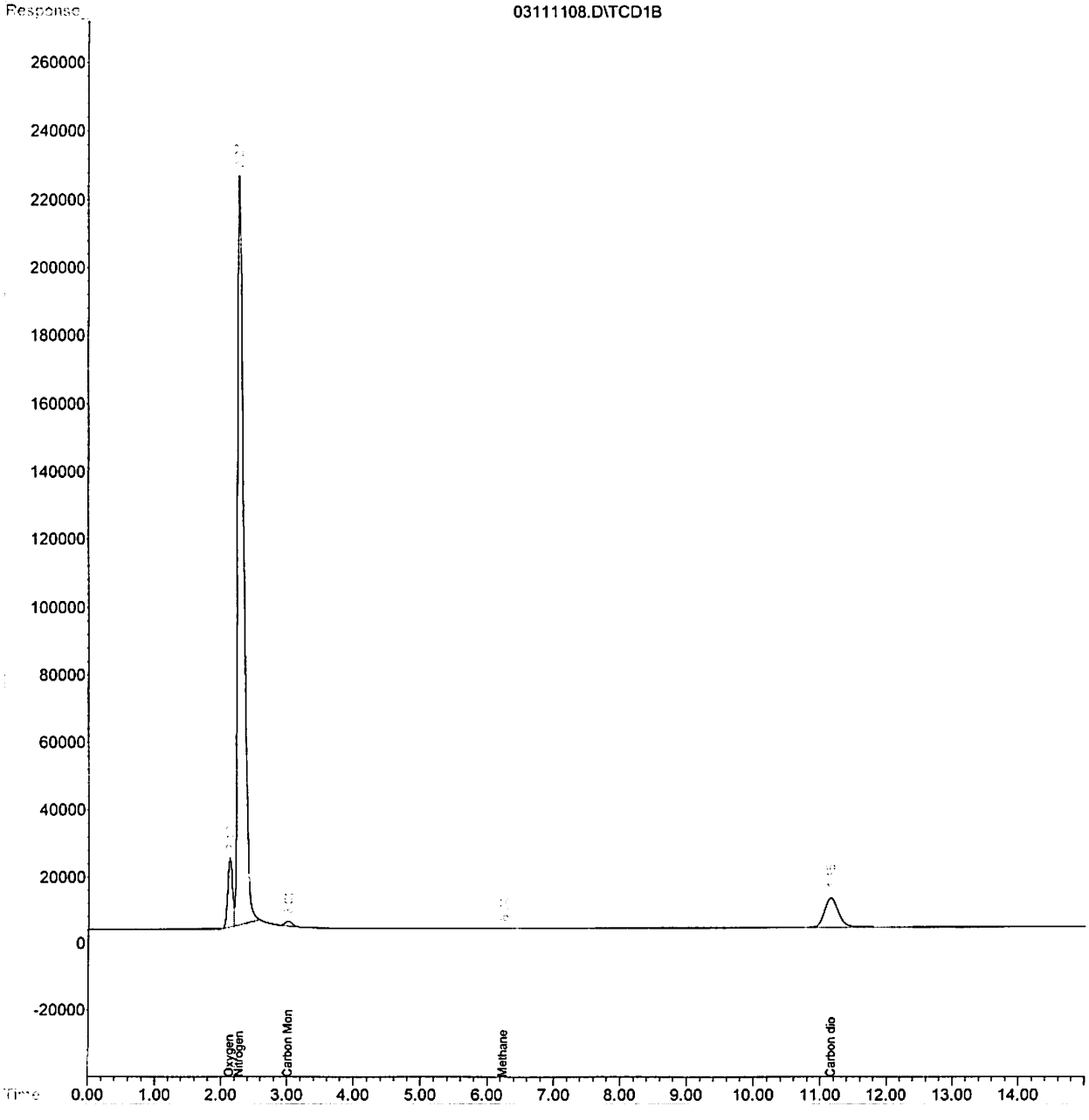
(f)=RT Delta > 1/2 Window (m)=manual int.
03111108.D 030511.M Tue Mar 29 09:58:15 2011 Page 1

Quantitation Report

Data File : C:\HPCHEM\2\DATA\031111\03111108.D  Vial: 1
Acq On : 12 Mar 2011 6:48 am  Operator:
Sample : 1103158-014Adup  Inst : GC/TCD
Misc : DUP ASTM-D2504  Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Mar 24 15:19 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Thu Mar 24 15:04:37 2011
Response via : Multiple Level Calibration
DataAcq Meth : TCD.M

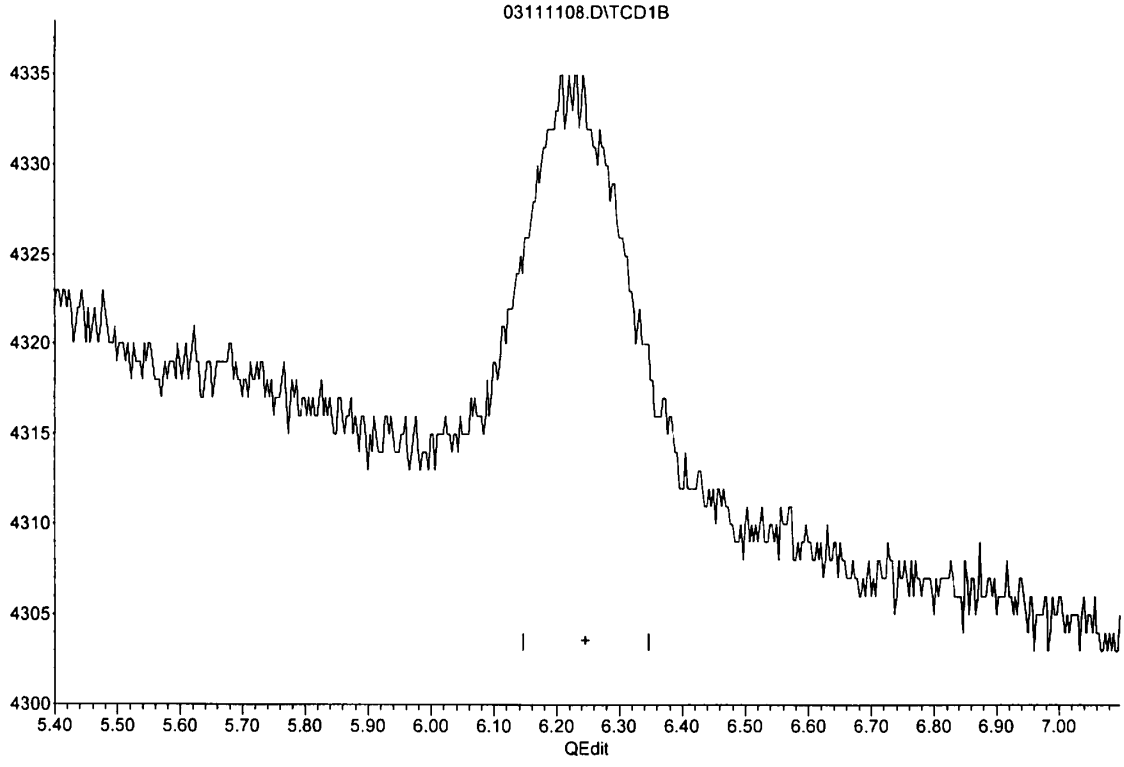
Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (Qedit)

Data File : C:\HPCHEM\2\DATA\031111\03111108.D Vial: 1
Acq On : 12 Mar 2011 6:48 am Operator:
Sample : 1103158-014Adup Inst : GC/TCD
Misc : DUP ASTM-D2504 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Mar 24 15:19 2011 Quant Results File: 030511.RES

Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Thu Mar 24 15:04:37 2011
Response via : Multiple Level Calibration



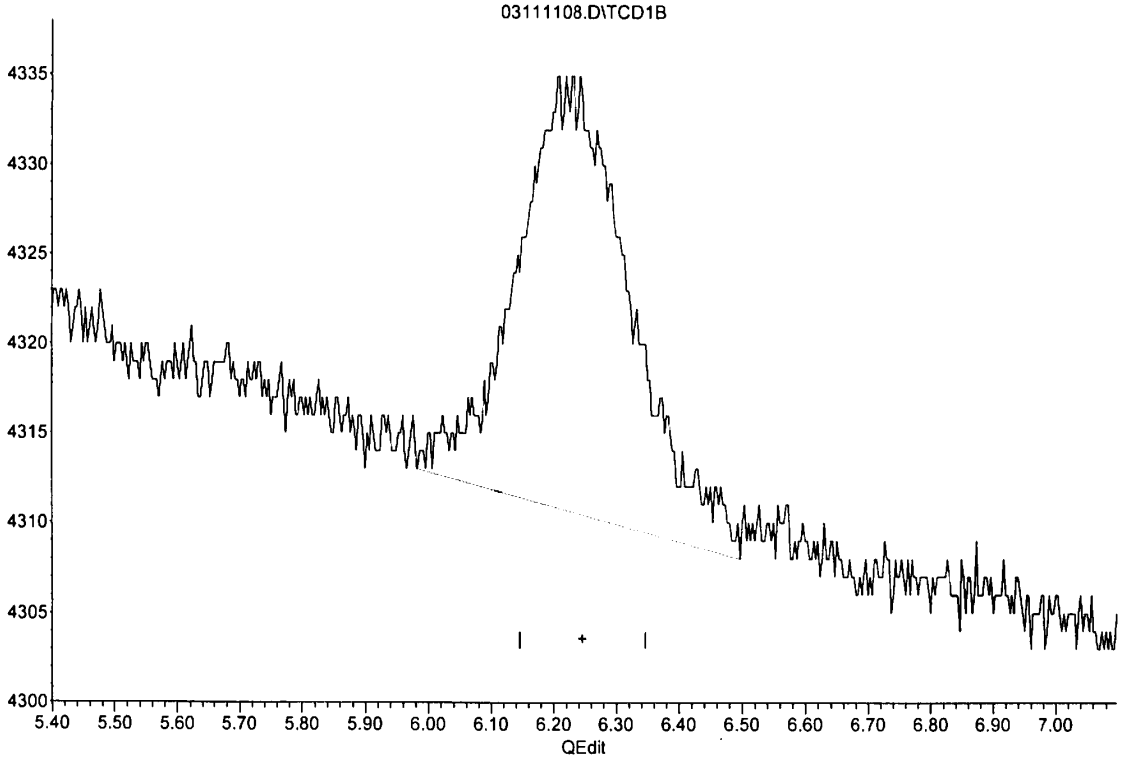

(4) Methane
6.25min 0.000%
response 0

(+) = Expected Retention Time
03111108.D 030511.M Thu Mar 24 15:19:28 2011

Quantitation Report (Qedit)

Data File : C:\HPCHEM\2\DATA\031111\03111108.D Vial: 1
Acq On : 12 Mar 2011 6:48 am Operator:
Sample : 1103158-014Adup Inst : GC/TCD
Misc : DUP ASTM-D2504 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Mar 24 15:19 2011 Quant Results File: 030511.RES

Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Thu Mar 24 15:04:37 2011
Response via : Multiple Level Calibration




(4) Methane
6.24min 0.022% m
response 3086

(+) = Expected Retention Time
03111108.D 030511.M Thu Mar 24 15:19:34 2011

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031111\03111109.D Vial: 1
Acq On : 12 Mar 2011 7:13 am Operator:
Sample : crql std 2% b Inst : GC/TCD
Misc : CRQL ASTM-D2504 Multiplr: 1.00
IntFile : events.e
Quant Time: Mar 12 7:34 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Sat Mar 12 05:03:19 2011
Response via : Initial Calibration
DataAcq Meth : TCD.M

Volume Inj. :
Signal Phase :
Signal Info :

| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| | Target Compounds | | | | |
| 1) | Oxygen | 2.13 | 14198 | 0.091 | % |
| 2) | Nitrogen | 2.32 | 257029 | 1.477 | % |
| 3) | Carbon Monoxide | 3.01 | 21285 | 0.129 | % |
| 4) | Methane | 6.22 | 11938 | 0.087 | % |
| 5) | Carbon dioxide | 11.16 | 61368 | 0.300 | % |

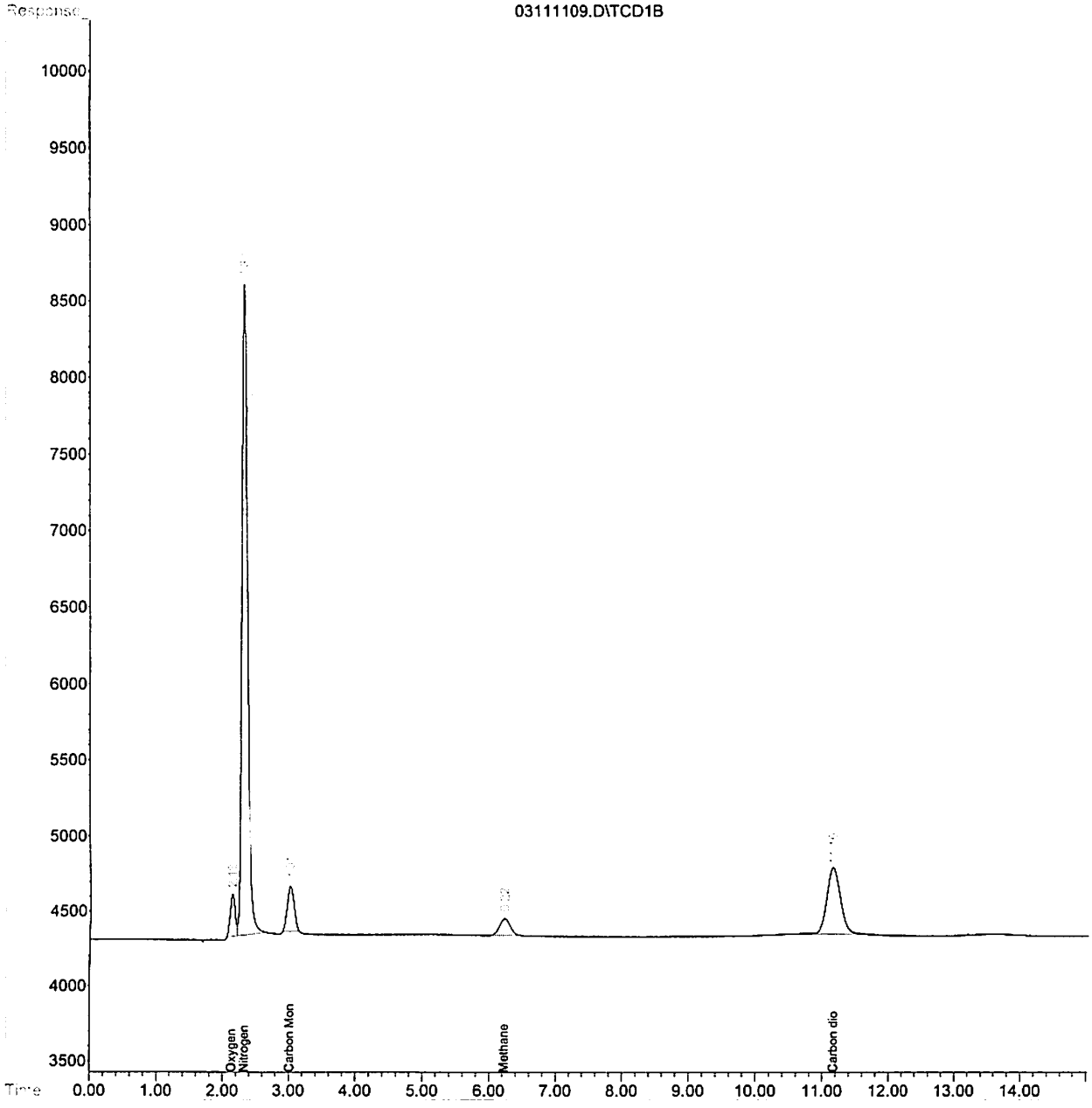
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report

Data File : C:\HPCHEM\2\DATA\031111\03111109.D  Vial: 1
Acq On : 12 Mar 2011 7:13 am  Operator:
Sample : crql std 2% b  Inst : GC/TCD
Misc : CRQL ASTM-D2504  Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Mar 12 7:34 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Sat Mar 12 05:03:19 2011
Response via : Multiple Level Calibration
DataAcq Meth : TCD.M

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031111\03111110.D Vial: 1
Acq On : 12 Mar 2011 7:39 am Operator:
Sample : ccv std 1-2 b Inst : GC/TCD
Misc : CCV ASTM-D2504 Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Mar 24 15:10 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Thu Mar 24 15:04:37 2011
Response via : Initial Calibration
DataAcq Meth : TCD.M

Volume Inj. :
Signal Phase :
Signal Info :

| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| | Target Compounds | | | | |
| 1) | Oxygen | 2.13 | 398296 | 2.548 | % |
| 2) | Nitrogen | 2.32 | 495012 | 2.845 | % |
| 3) | Carbon Monoxide | 3.01 | 423952 | 2.578 | % |
| 4) | Methane | 6.23 | 276918 | 2.011 | % |
| 5) | Carbon dioxide | 11.16 | 498476 | 2.435 | % |

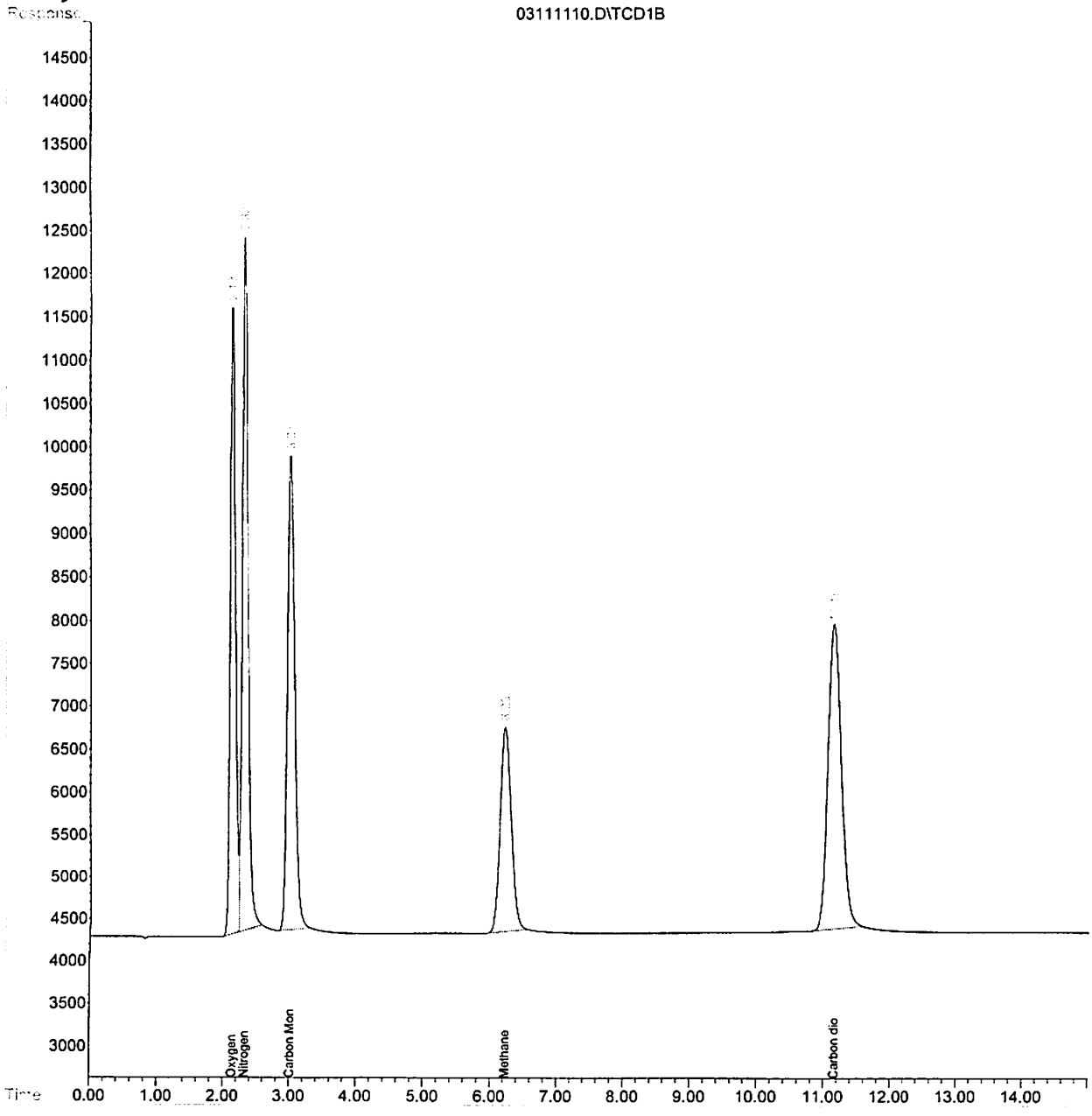
(f)=RT Delta > 1/2 Window (m)=manual int.
03111110.D 030511.M Tue Mar 29 09:58:28 2011 Page 1

Quantitation Report

Data File : C:\HPCHEM\2\DATA\031111\03111110.D  Vial: 1
Acq On : 12 Mar 2011 7:39 am  Operator:
Sample : ccv std 1-2 b  Inst : GC/TCD
Misc : CCV ASTM-D2504  Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Mar 24 15:10 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Thu Mar 24 15:04:37 2011
Response via : Multiple Level Calibration
DataAcq Meth : TCD.M

Volume Inj. :
Signal Phase :
Signal Info :



## MANUAL INTEGRATION SUMMARY

**Analyst: Michael Budziak**
**Instrument: GC-TCD**
**Sequence: 39441**
**Run Date: 3-11-11**

**Routine Manual Integrations**

N/A

**Non-Routine Manual Integrations**

1103158-004a, 1103158-007a, and 1103158-010a.

Methane peak was manually integrated due to peak in samples below calibration level and not picked up by Chemstation software.

# Injection Log

Directory: C:\HPCHEM\2\DATA\030511

| Line | Vial | FileName | Multiplier | SampleName | Misc Info | Injected |
|---|---|---|---|---|---|---|
| 1 | 2 | 03051101.d | 1. | icb | ICB ASTM-D2504 | 5 Mar 2011 01:04 |
| 2 | 2 | 03051102.D | 1. | STD 100% | ICAL ASTM-D2504 | 5 Mar 2011 01:52 |
| 3 | 3 | 03051103.D | 1. | STD 80% | ICAL ASTM-D2504 | 5 Mar 2011 02:17 |
| 4 | 4 | 03051104.D | 1. | STD 60% | ICAL ASTM-D2504 | 5 Mar 2011 02:43 |
| 5 | 5 | 03051105.D | 1. | STD 40% | ICAL ASTM-D2504 | 5 Mar 2011 03:10 |
| 6 | 6 | 03051106.D | 1. | STD 20% | ICAL ASTM-D2504 | 5 Mar 2011 03:31 |
| 7 | 10 | 03051107.d | 1. | STD 2% | ICAL ASTM-D2504 | 5 Mar 2011 05:40 |
| 8 | 1 | 03051108.d | 1. | N2 100% | ICAL ASTM-D2504 | 5 Mar 2011 06:29 |
| 9 | 1 | 03051109.d | 1. | O2 50% | ICAL ASTM-D2504 | 5 Mar 2011 07:41 |
| 10 | 1 | 03051110.d | 1. | ICV STD 1-2 | ICAL ASTM-D2504 | 5 Mar 2011 08:05 |
| 11 | 2 | 03051111.D | 1. | OFF | ICAL ASTM-D2504 | 5 Mar 2011 08:33 |

Response Factor Report GC/TCD

Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Thu Mar 24 15:04:37 2011

Calibration Files
1 =03051102.D 2 =03051103.D 3 =03051104.D
4 =03051105.D 5 =03051106.D 6 =03051107.D

| | Compound | 1 | 2 | 3 | 4 | 5 | 6 | Avg | | %RSD |
|---|---|---|---|---|---|---|---|---|---|---|
| 1) | Oxygen | 1.450 | 1.444 | 1.427 | 1.365 | 1.324 | 1.502 | 1.440 | E5 | 5.59 |
| 2) | Nitrogen | 1.748 | 1.695 | 1.678 | 1.586 | 1.522 | 1.436 | 1.635 | E5 | 7.62 |
| 3) | Carbon Monoxide | 1.690 | 1.628 | 1.621 | 1.517 | 1.472 | 1.346 | 1.546 | E5 | 8.17 |
| 4) | Methane | 1.422 | 1.364 | 1.344 | 1.267 | 1.212 | 1.113 | 1.287 | E5 | 8.76 |
| 5) | Carbon dioxide | 2.121 | 2.009 | 2.012 | 1.874 | 1.813 | 1.946 | 1.963 | E5 | 5.60 |

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

030511.M Tue Mar 29 09:52:14 2011

Compound List Report GC/TCD

Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Thu Mar 24 15:04:37 2011
Response via : Initial Calibration
Total Cpnds : 5

| PK# | Type | Compound Name | Exp_RT | Rel_RT | Cal | A/H | ID |
|---|---|---|---|---|---|---|---|
| 1 | | Oxygen | 2.10 | 1.000 | LO | A | R |
| 2 | | Nitrogen | 2.29 | 1.000 | LO | A | R |
| 3 | | Carbon Monoxide | 2.99 | 1.000 | LO | A | R |
| 4 | | Methane | 6.25 | 1.000 | LO | A | R |
| 5 | | Carbon dioxide | 11.18 | 1.000 | LO | A | R |

Cal A = Average L = Linear LO = Linear w/origin Q = Quad QO = Quad w/origin
A/H = Area or Height
ID R = R.T. B = R.T. & Q Q = Qvalue L = Largest A = All

030511.M Tue Mar 29 09:53:41 2011

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\2\DATA\030511\03051101.D Vial: 2
Acq On : 5 Mar 2011 1:04 am Operator:
Sample : icb Inst : GC/TCD
Misc : ICB ASTM-D2504 Multiplr: 1.00
IntFile : events.e
Quant Time: Mar 5 1:19 2011 Quant Results File: TCD.RES

Quant Method : C:\HPCHEM\2\METHODS\TCD.M (Chemstation Integrator)
Title :
Last Update : Wed Jan 05 02:24:54 2011
Response via : Initial Calibration
DataAcq Meth : TCD.M

Volume Inj. :
Signal Phase :
Signal Info :

| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| | Target Compounds | | | | |
| 1) | Hydrogen | 0.00 | 0 | N.D. | % |
| 2) | Oxygen | 0.00 | 0 | N.D. | % |
| 3) | Nitrogen | 0.00 | 0 | N.D. | % |
| 4) | Carbon Monoxide | 0.00 | 0 | N.D. | % |
| 5) | Methane | 0.00 | 0 | N.D. | % |
| 6) | Carbon dioxide | 0.00 | 0 | N.D. | % |

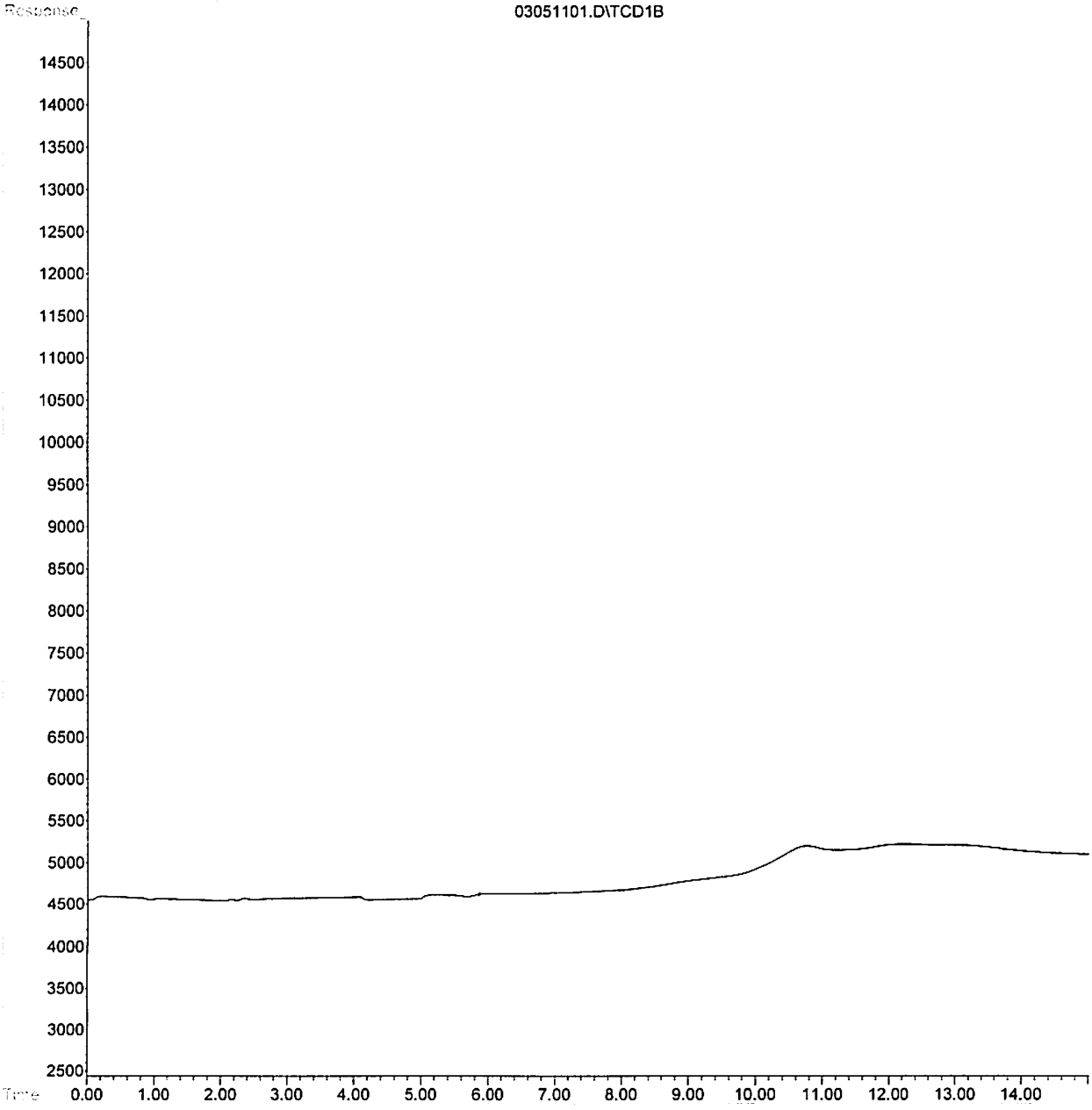
(f)=RT Delta > 1/2 Window (m)=manual int.
03051101.D 030511.M Tue Mar 29 09:49:59 2011 Page 1

Quantitation Report

Data File : C:\HPCHEM\2\DATA\030511\03051101.D  Vial: 2
Acq On : 5 Mar 2011 1:04 am  Operator:
Sample : icb  Inst : GC/TCD
Misc : ICB ASTM-D2504  Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Mar 5 1:19 2011 Quant Results File: TCD.RES

Quant Method : C:\HPCHEM\2\METHODS\TCD.M (Chemstation Integrator)
Title :
Last Update : Wed Jan 05 02:24:54 2011
Response via : Single Level Calibration
DataAcq Meth : TCD.M

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\030511\03051102.D Vial: 2
Acq On : 5 Mar 2011 1:52 am Operator:
Sample : STD 100% Inst : GC/TCD
Misc : ICAL ASTM-D2504 Multiplr: 1.00
IntFile : events.e
Quant Time: Mar 5 2:11 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Sat Mar 05 01:22:06 2011
Response via : Initial Calibration
DataAcq Meth : TCD.M

Volume Inj. :
Signal Phase :
Signal Info :

| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| Target Compounds | | | | | |
| 1) | Oxygen | 2.13 | 581508 | 4.010 | % |
| 2) | Nitrogen | 2.29 | 12144985 | 69.480 | % |
| 3) | Carbon Monoxide | 3.02 | 1184988 | 7.010 | % |
| 4) | Methane | 6.25 | 639702 | 4.500 | % |
| 5) | Carbon dioxide | 11.16 | 3181324 | 15.000 | % |

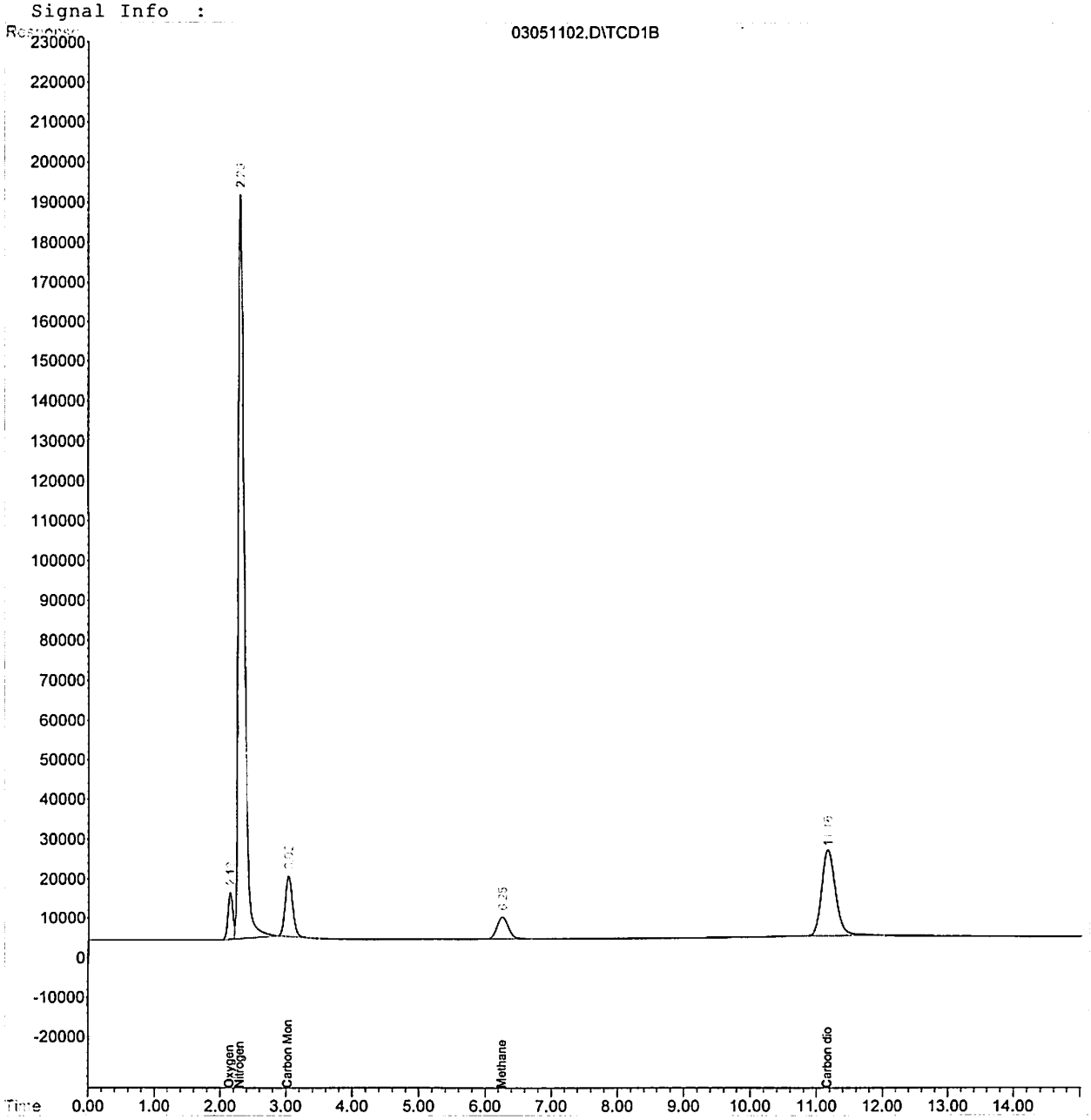
(f)=RT Delta > 1/2 Window (m)=manual int.
03051102.D 030511.M Tue Mar 29 09:50:23 2011 Page 1

Quantitation Report

Data File : C:\HPCHEM\2\DATA\030511\03051102.D  Vial: 2
Acq On : 5 Mar 2011 1:52 am  Operator:
Sample : STD 100%  Inst : GC/TCD
Misc : ICAL ASTM-D2504  Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Mar 5 2:11 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Sat Mar 05 01:22:06 2011
Response via : Multiple Level Calibration
DataAcq Meth : TCD.M

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\030511\03051103.D Vial: 3
Acq On : 5 Mar 2011 2:17 am Operator:
Sample : STD 80% Inst : GC/TCD
Misc : ICAL ASTM-D2504 Multiplr: 1.00
IntFile : events.e
Quant Time: Mar 5 2:38 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Sat Mar 05 01:22:06 2011
Response via : Initial Calibration
DataAcq Meth : TCD.M

Volume Inj. :
Signal Phase :
Signal Info :

| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| | Target Compounds | | | | |
| 1) | Oxygen | 2.13 | 463310 | 3.195 | % |
| 2) | Nitrogen | 2.30 | 9420045 | 53.891 | % |
| 3) | Carbon Monoxide | 3.02 | 913157 | 5.402 | % |
| 4) | Methane | 6.24 | 491119 | 3.455 | % |
| 5) | Carbon dioxide | 11.16 | 2411152 | 11.369 | % |

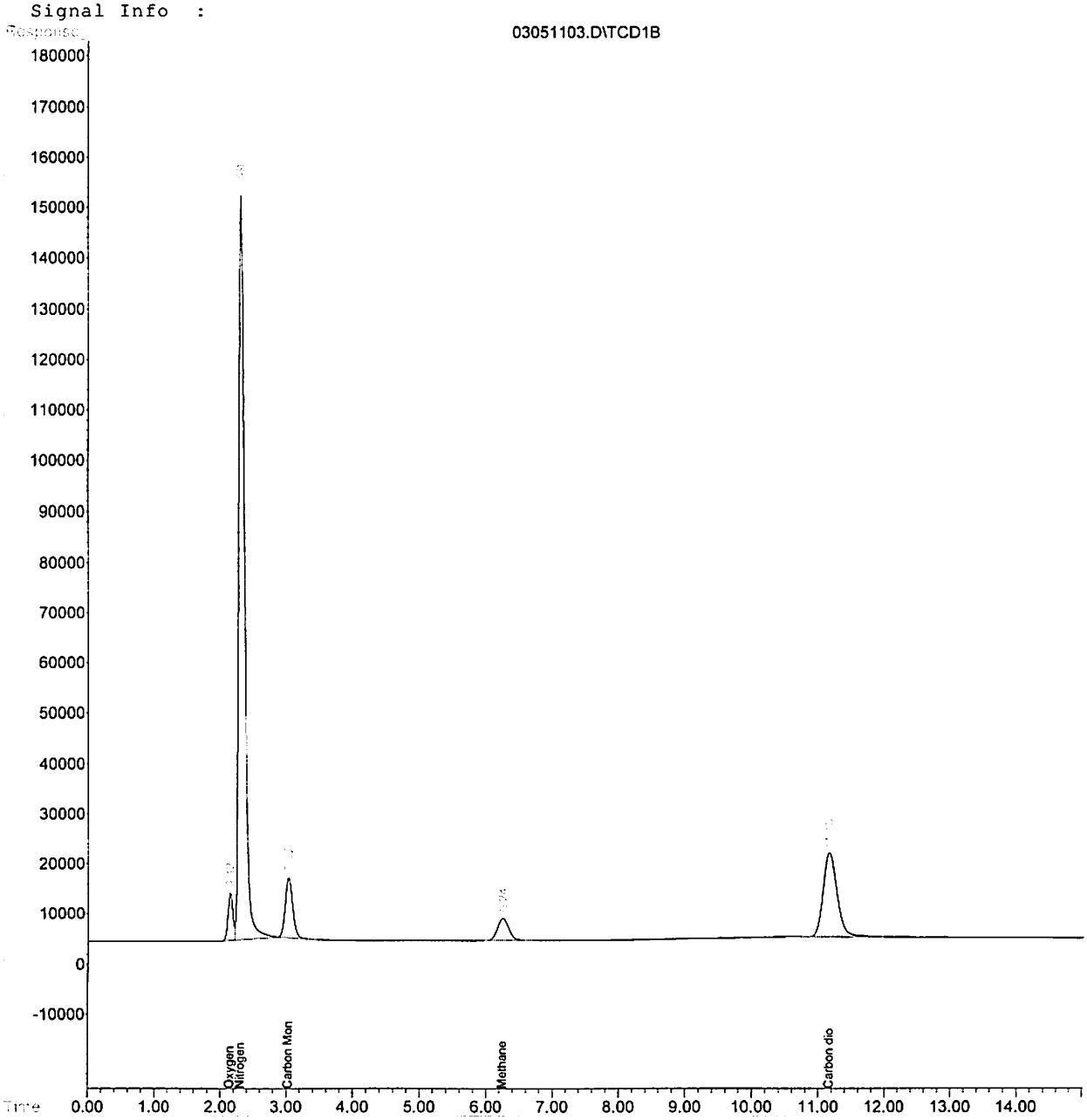
(f)=RT Delta > 1/2 Window (m)=manual int.
03051103.D 030511.M Tue Mar 29 09:50:30 2011 Page 1

Quantitation Report

Data File : C:\HPCHEM\2\DATA\030511\03051103.D  Vial: 3
Acq On : 5 Mar 2011 2:17 am  Operator:
Sample : STD 80%  Inst : GC/TCD
Misc : ICAL ASTM-D2504  Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Mar 5 2:38 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Sat Mar 05 01:22:06 2011
Response via : Multiple Level Calibration
DataAcq Meth : TCD.M

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\030511\03051104.D Vial: 4
Acq On : 5 Mar 2011 2:43 am Operator:
Sample : STD 60% Inst : GC/TCD
Misc : ICAL ASTM-D2504 Multiplr: 1.00
IntFile : events.e
Quant Time: Mar 5 3:05 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Sat Mar 05 01:22:06 2011
Response via : Initial Calibration
DataAcq Meth : TCD.M

Volume Inj. :
Signal Phase :
Signal Info :

| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| | Target Compounds | | | | |
| 1) | Oxygen | 2.13 | 343431 | 2.368 | % |
| 2) | Nitrogen | 2.30 | 6993706 | 40.010 | % |
| 3) | Carbon Monoxide | 3.01 | 681654 | 4.032 | % |
| 4) | Methane | 6.24 | 362878 | 2.553 | % |
| 5) | Carbon dioxide | 11.16 | 1810908 | 8.538 | % |

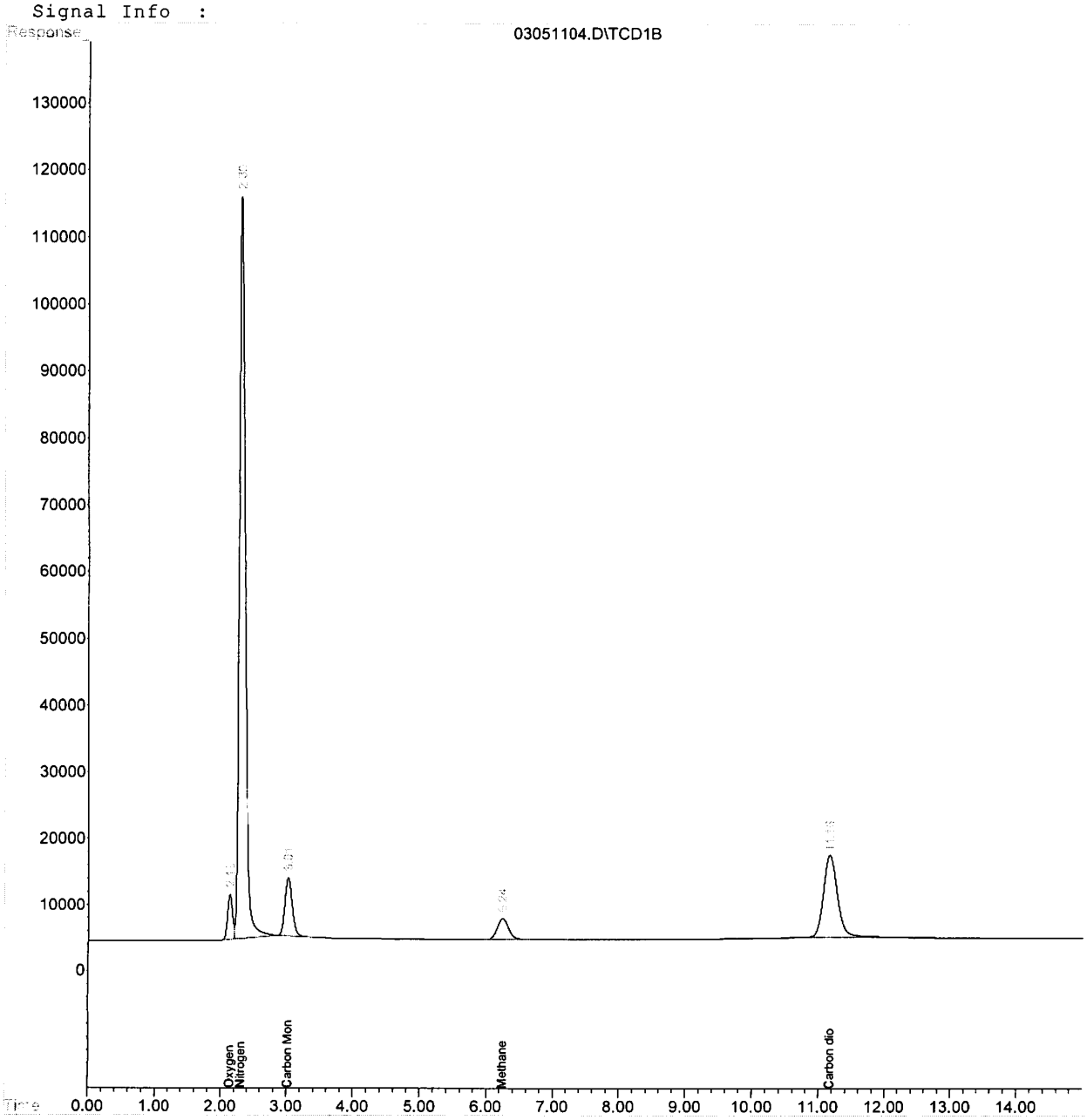
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report

Data File : C:\HPCHEM\2\DATA\030511\03051104.D  Vial: 4
Acq On : 5 Mar 2011 2:43 am  Operator:
Sample : STD 60%  Inst : GC/TCD
Misc : ICAL ASTM-D2504  Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Mar 5 3:05 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Sat Mar 05 01:22:06 2011
Response via : Multiple Level Calibration
DataAcq Meth : TCD.M

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\030511\03051105.D Vial: 5
Acq On : 5 Mar 2011 3:10 am Operator:
Sample : STD 40% Inst : GC/TCD
Misc : ICAL ASTM-D2504 Multiplr: 1.00
IntFile : events.e
Quant Time: Mar 5 3:26 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Sat Mar 05 01:22:06 2011
Response via : Initial Calibration
DataAcq Meth : TCD.M

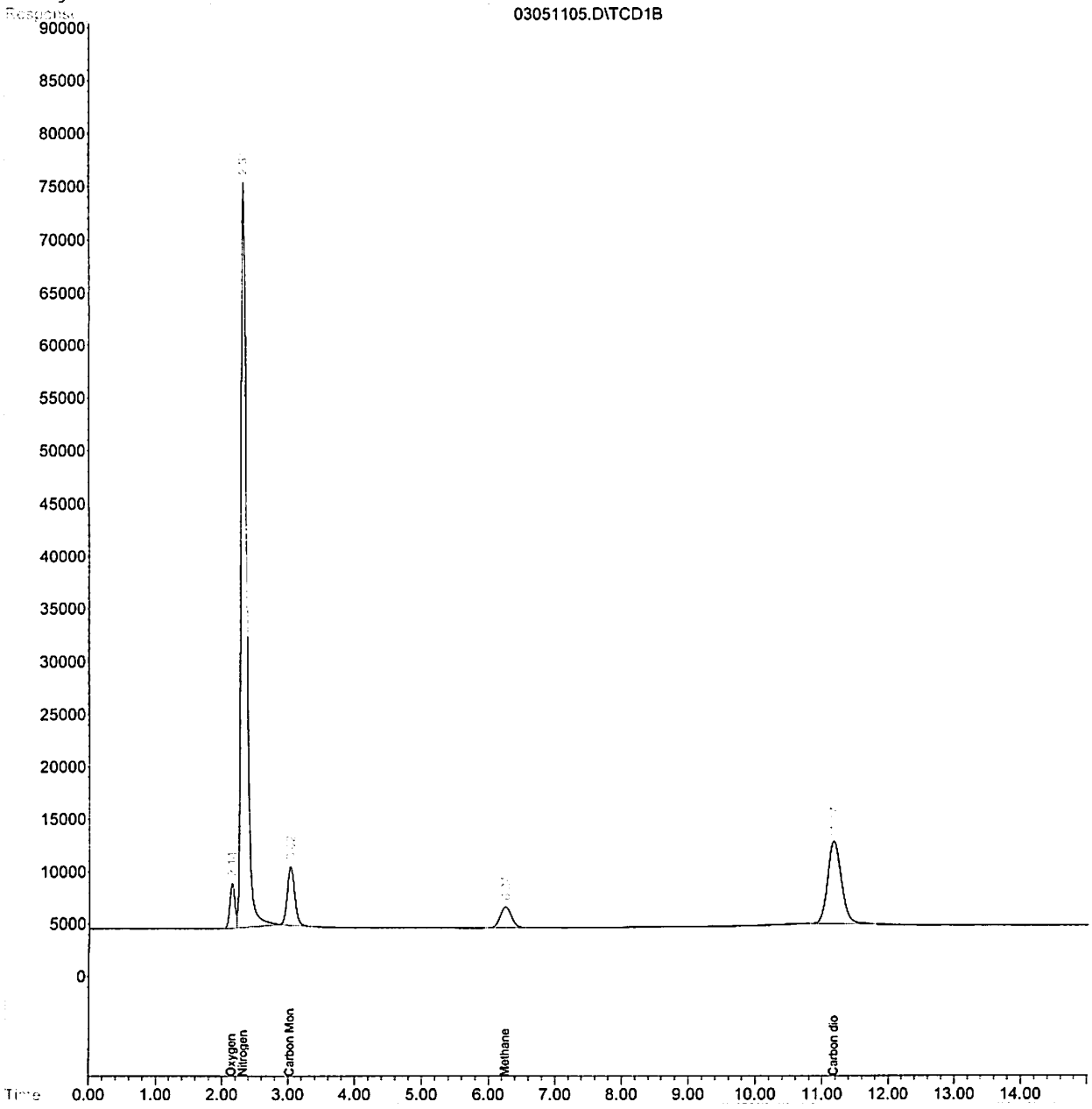
Volume Inj. :
Signal Phase :
Signal Info :

| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| | Target Compounds | | | | |
| 1) | Oxygen | 2.14 | 218905 | 1.510 | % |
| 2) | Nitrogen | 2.31 | 4406717 | 25.210 | % |
| 3) | Carbon Monoxide | 3.02 | 425448 | 2.517 | % |
| 4) | Methane | 6.24 | 227971 | 1.604 | % |
| 5) | Carbon dioxide | 11.17 | 1124243 | 5.301 | % |

(f)=RT Delta > 1/2 Window (m)=manual int.
03051105.D 030511.M Tue Mar 29 09:50:41 2011 Page 1

Quantitation Report

```
Data File : C:\HPCHEM\2\DATA\030511\03051105.D          Vial: 5
Acq On    :  5 Mar 2011   3:10 am                    Operator:
Sample    : STD 40%                                  Inst    : GC/TCD
Misc      : ICAL ASTM-D2504                          Multiplr: 1.00
IntFile   : EVENTS.E
Quant Time: Mar  5  3:26 2011  Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title        :
Last Update  : Sat Mar 05 01:22:06 2011
Response via : Multiple Level Calibration
DataAcq Meth : TCD.M

Volume Inj.  :
Signal Phase :
Signal Info  :
```



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\030511\03051106.D Vial: 6
Acq On : 5 Mar 2011 3:31 am Operator:
Sample : STD 20% Inst : GC/TCD
Misc : ICAL ASTM-D2504 Multiplr: 1.00
IntFile : events.e
Quant Time: Mar 5 3:47 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Sat Mar 05 01:22:06 2011
Response via : Initial Calibration
DataAcq Meth : TCD.M

Volume Inj. :
Signal Phase :
Signal Info :

| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| | Target Compounds | | | | |
| 1) | Oxygen | 2.14 | 106219 | 0.732 | % |
| 2) | Nitrogen | 2.33 | 2115642 | 12.103 | % |
| 3) | Carbon Monoxide | 3.03 | 206340 | 1.221 | % |
| 4) | Methane | 6.25 | 109069 | 0.767 | % |
| 5) | Carbon dioxide | 11.18 | 543812 | 2.564 | % |

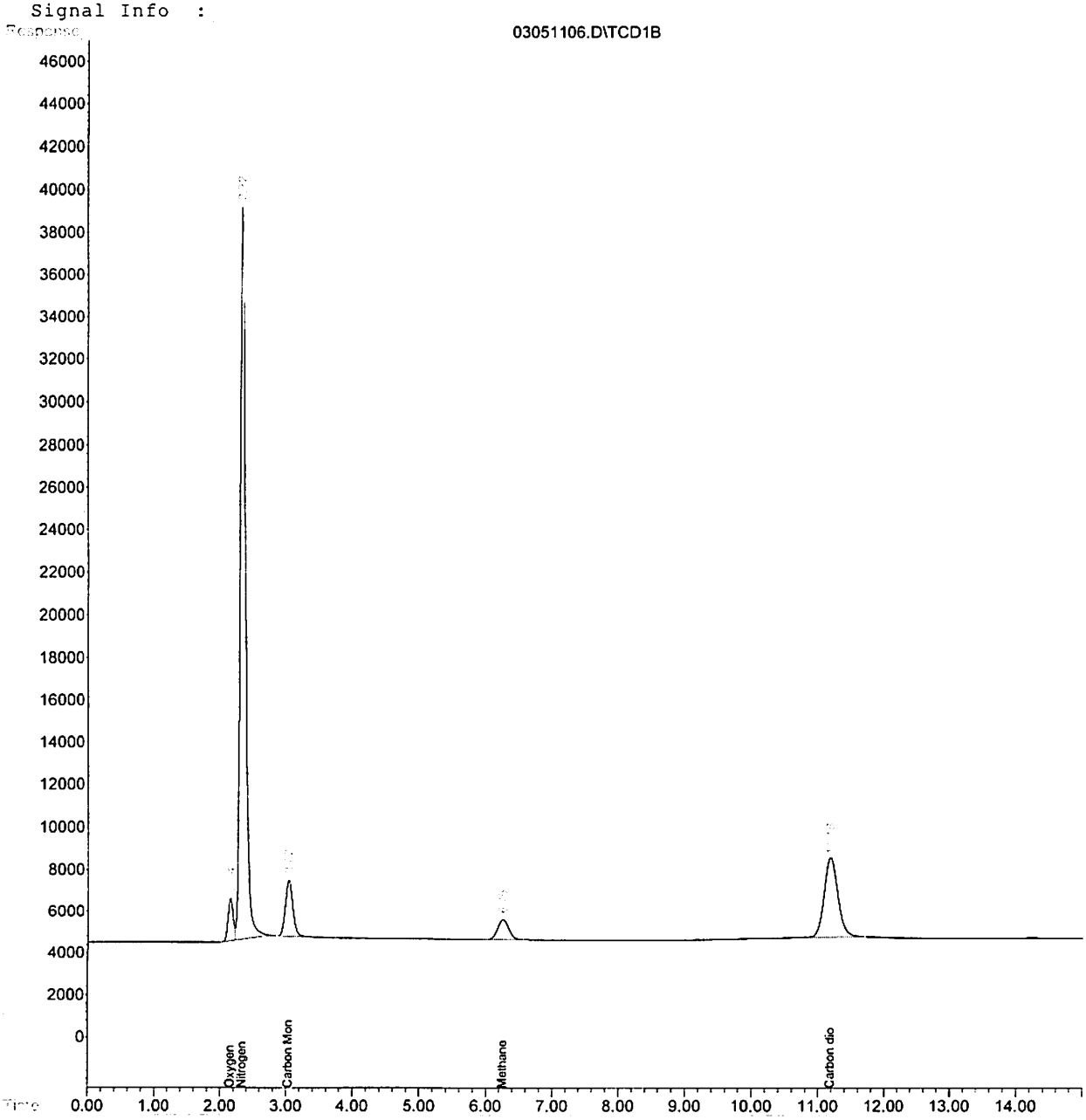
(f)=RT Delta > 1/2 Window (m)=manual int.
03051106.D 030511.M Tue Mar 29 09:50:48 2011 Page 1

Quantitation Report

Data File : C:\HPCHEM\2\DATA\030511\03051106.D  Vial: 6
Acq On : 5 Mar 2011 3:31 am  Operator:
Sample : STD 20%  Inst : GC/TCD
Misc : ICAL ASTM-D2504  Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Mar 5 3:47 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Sat Mar 05 01:22:06 2011
Response via : Multiple Level Calibration
DataAcq Meth : TCD.M

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\030511\03051107.D Vial: 10
Acq On : 5 Mar 2011 5:40 am Operator:
Sample : STD 2% Inst : GC/TCD
Misc : ICAL ASTM-D2504 Multiplr: 1.00
IntFile : events.e
Quant Time: Mar 5 6:17 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Sat Mar 05 04:19:26 2011
Response via : Initial Calibration
DataAcq Meth : TCD.M

Volume Inj. :
Signal Phase :
Signal Info :

| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| | Target Compounds | | | | |
| 1) | Oxygen | 2.14 | 12019 | 0.084 | % |
| 2) | Nitrogen | 2.33 | 199576 | 1.170 | % |
| 3) | Carbon Monoxide | 3.02 | 18840 | 0.115 | % |
| 4) | Methane | 6.25 | 10019 | 0.073 | % |
| 5) | Carbon dioxide | 11.18 | 58393 | 0.285 | % |

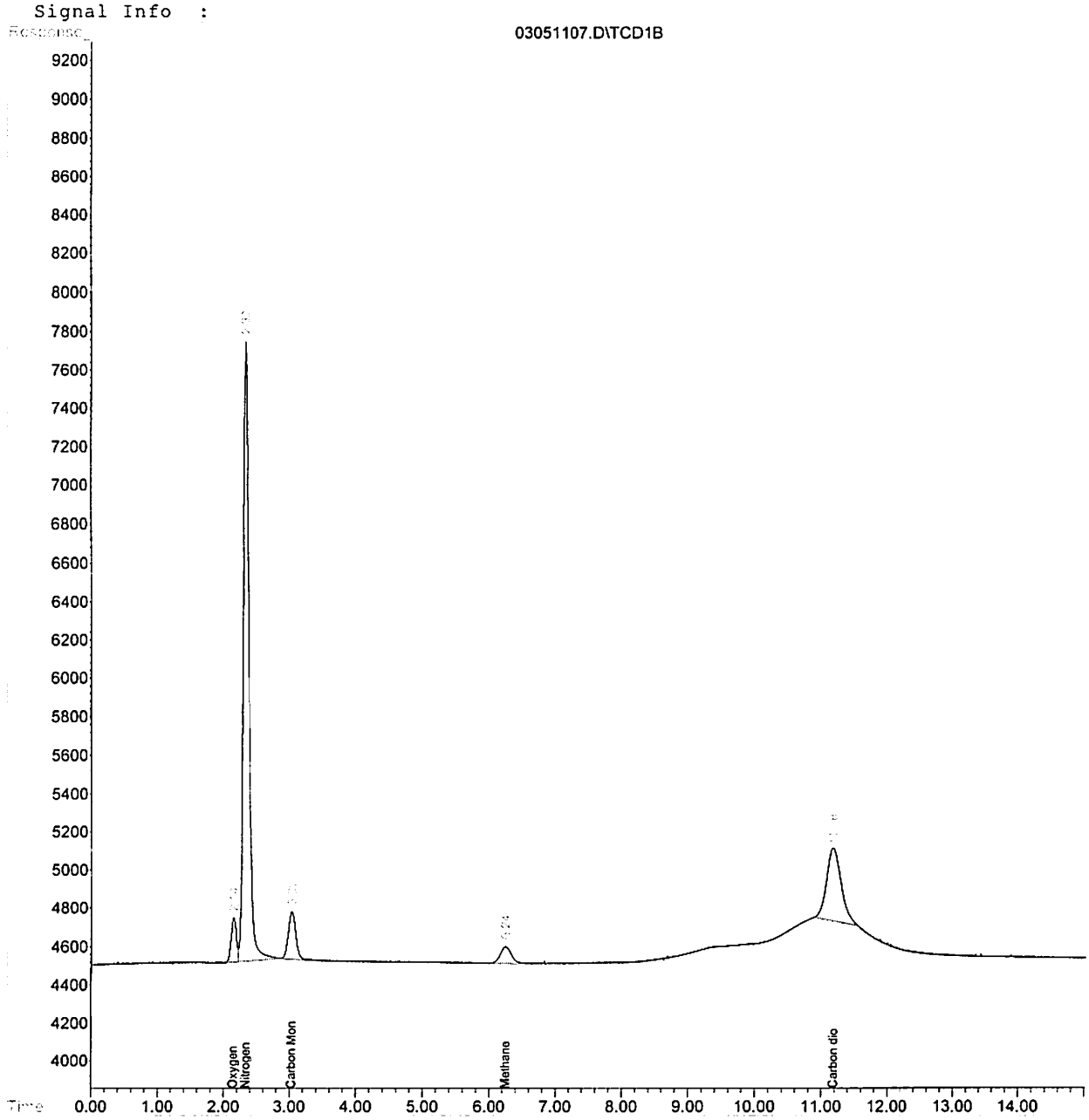
(f)=RT Delta > 1/2 Window (m)=manual int.
03051107.D 030511.M Tue Mar 29 09:50:53 2011 Page 1

Quantitation Report

Data File : C:\HPCHEM\2\DATA\030511\03051107.D  Vial: 10
Acq On : 5 Mar 2011 5:40 am  Operator:
Sample : STD 2%  Inst : GC/TCD
Misc : ICAL ASTM-D2504  Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Mar 5 6:17 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Sat Mar 05 04:19:26 2011
Response via : Multiple Level Calibration
DataAcq Meth : TCD.M

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\030511\03051108.D Vial: 1
Acq On : 5 Mar 2011 6:29 am Operator:
Sample : N2 100% Inst : GC/TCD
Misc : ICAL ASTM-D2504 Multiplr: 1.00
IntFile : events.e
Quant Time: Mar 5 7:02 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Sat Mar 05 07:02:15 2011
Response via : Initial Calibration
DataAcq Meth : TCD.M

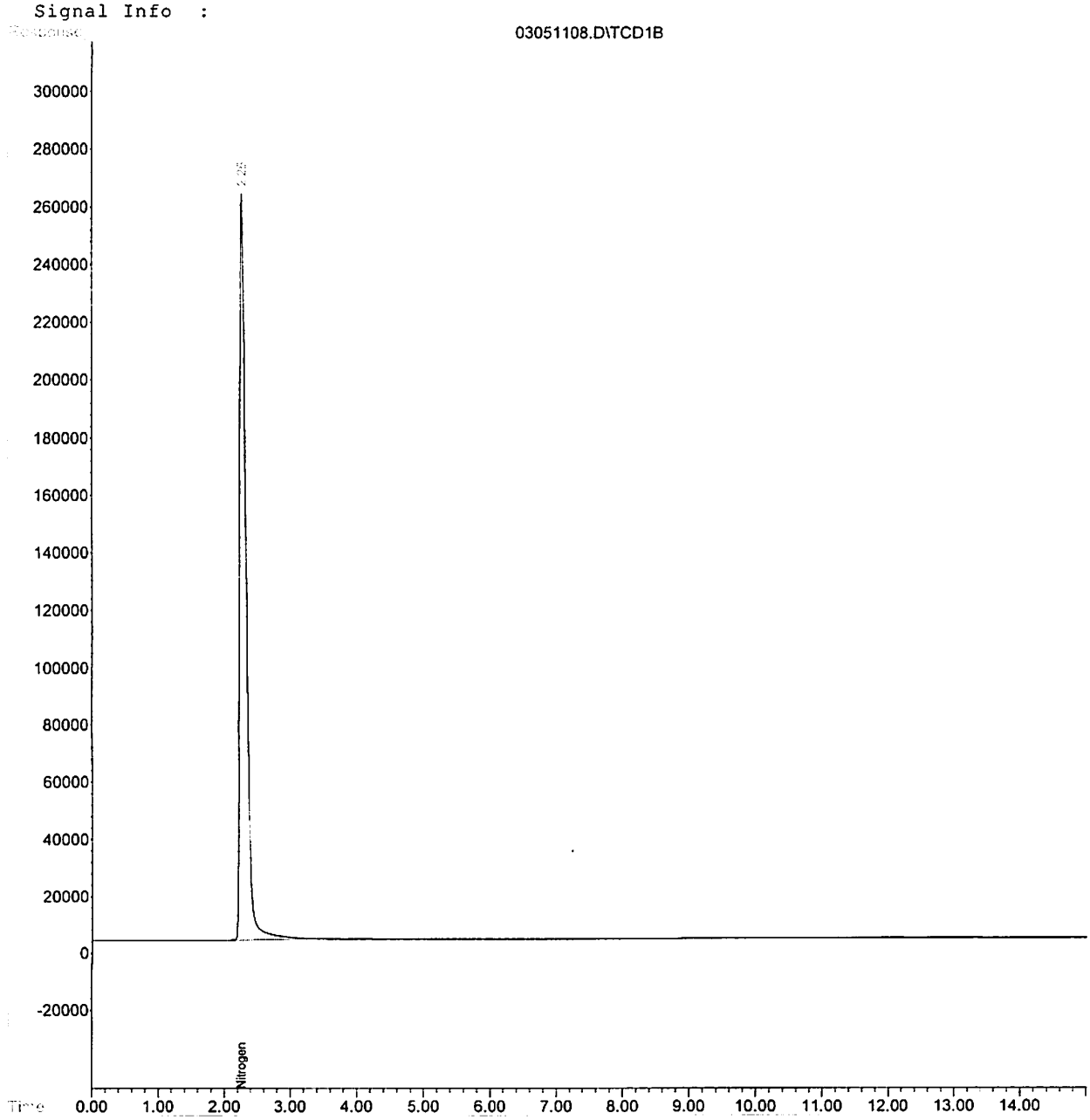
Volume Inj. :
Signal Phase :
Signal Info :

| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| | Target Compounds | | | | |
| 1) | Oxygen | 0.00 | 0 | N.D. | % |
| 2) | Nitrogen | 2.25 | 17773276 | 104.238 | % |
| 3) | Carbon Monoxide | 0.00 | 0 | N.D. | % |
| 4) | Methane | 0.00 | 0 | N.D. | % |
| 5) | Carbon dioxide | 0.00 | 0 | N.D. | % |

(f)=RT Delta > 1/2 Window (m)=manual int.
03051108.D 030511.M Tue Mar 29 09:51:04 2011 Page 1

Quantitation Report

```
Data File : C:\HPCHEM\2\DATA\030511\03051108.D          Vial: 1
Acq On    :  5 Mar 2011   6:29 am                    Operator:
Sample    : N2 100%                                  Inst    : GC/TCD
Misc      : ICAL ASTM-D2504                          Multiplr: 1.00
IntFile   : EVENTS.E
Quant Time: Mar  5  7:02 2011  Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title        :
Last Update  : Sat Mar 05 07:02:15 2011
Response via : Multiple Level Calibration
DataAcq Meth : TCD.M

Volume Inj.  :
Signal Phase :
Signal Info  :
```



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\030511\03051109.D Vial: 1
Acq On : 5 Mar 2011 7:41 am Operator:
Sample : O2 50% Inst : GC/TCD
Misc : ICAL ASTM-D2504 Multiplr: 1.00
IntFile : events.e
Quant Time: Mar 5 7:57 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Sat Mar 05 07:02:15 2011
Response via : Initial Calibration
DataAcq Meth : TCD.M

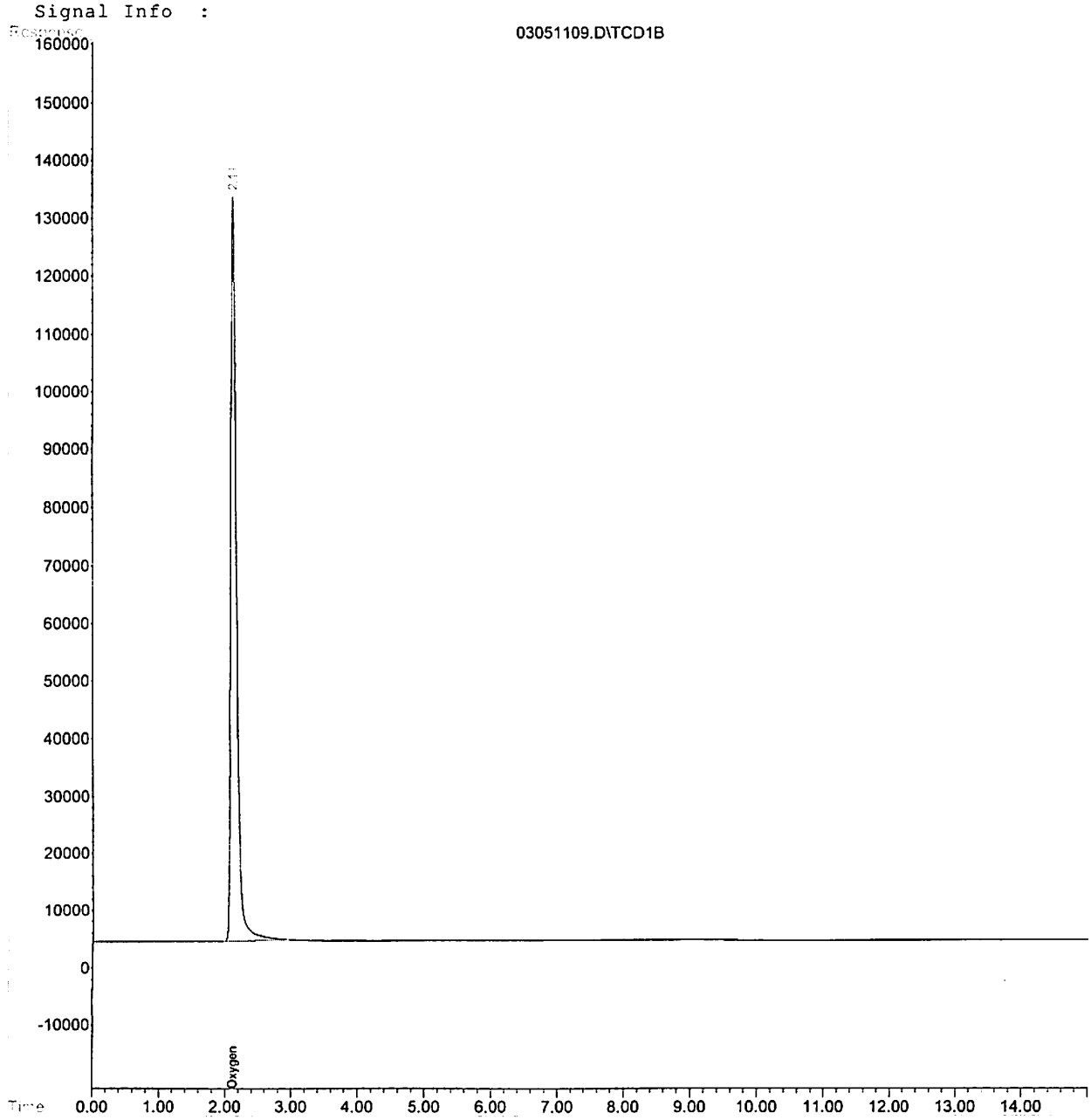
Volume Inj. :
Signal Phase :
Signal Info :

| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| Target Compounds | | | | | |
| 1) | Oxygen | 2.11 | 7824603 | 54.481 | % |
| 2) | Nitrogen | 0.00 | 0 | N.D. | % |
| 3) | Carbon Monoxide | 0.00 | 0 | N.D. | % |
| 4) | Methane | 0.00 | 0 | N.D. | % |
| 5) | Carbon dioxide | 0.00 | 0 | N.D. | % |

(f)=RT Delta > 1/2 Window (m)=manual int.
03051109.D 030511.M Tue Mar 29 09:51:09 2011 Page 1

Quantitation Report

```
Data File : C:\HPCHEM\2\DATA\030511\03051109.D          Vial: 1
Acq On    :  5 Mar 2011   7:41 am                   Operator:
Sample    : O2 50%                                  Inst    : GC/TCD
Misc      : ICAL ASTM-D2504                         Multiplr: 1.00
IntFile   : EVENTS.E
Quant Time: Mar  5  7:57 2011  Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title        :
Last Update  : Sat Mar 05 07:02:15 2011
Response via : Multiple Level Calibration
DataAcq Meth : TCD.M

Volume Inj.  :
Signal Phase :
Signal Info  :
```



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\030511\03051110.D Vial: 1
Acq On : 5 Mar 2011 8:05 am Operator:
Sample : ICV STD 1-2 Inst : GC/TCD
Misc : ICAL ASTM-D2504 Multiplr: 1.00
IntFile : events.e
Quant Time: Mar 5 8:23 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Sat Mar 05 07:02:15 2011
Response via : Initial Calibration
DataAcq Meth : TCD.M

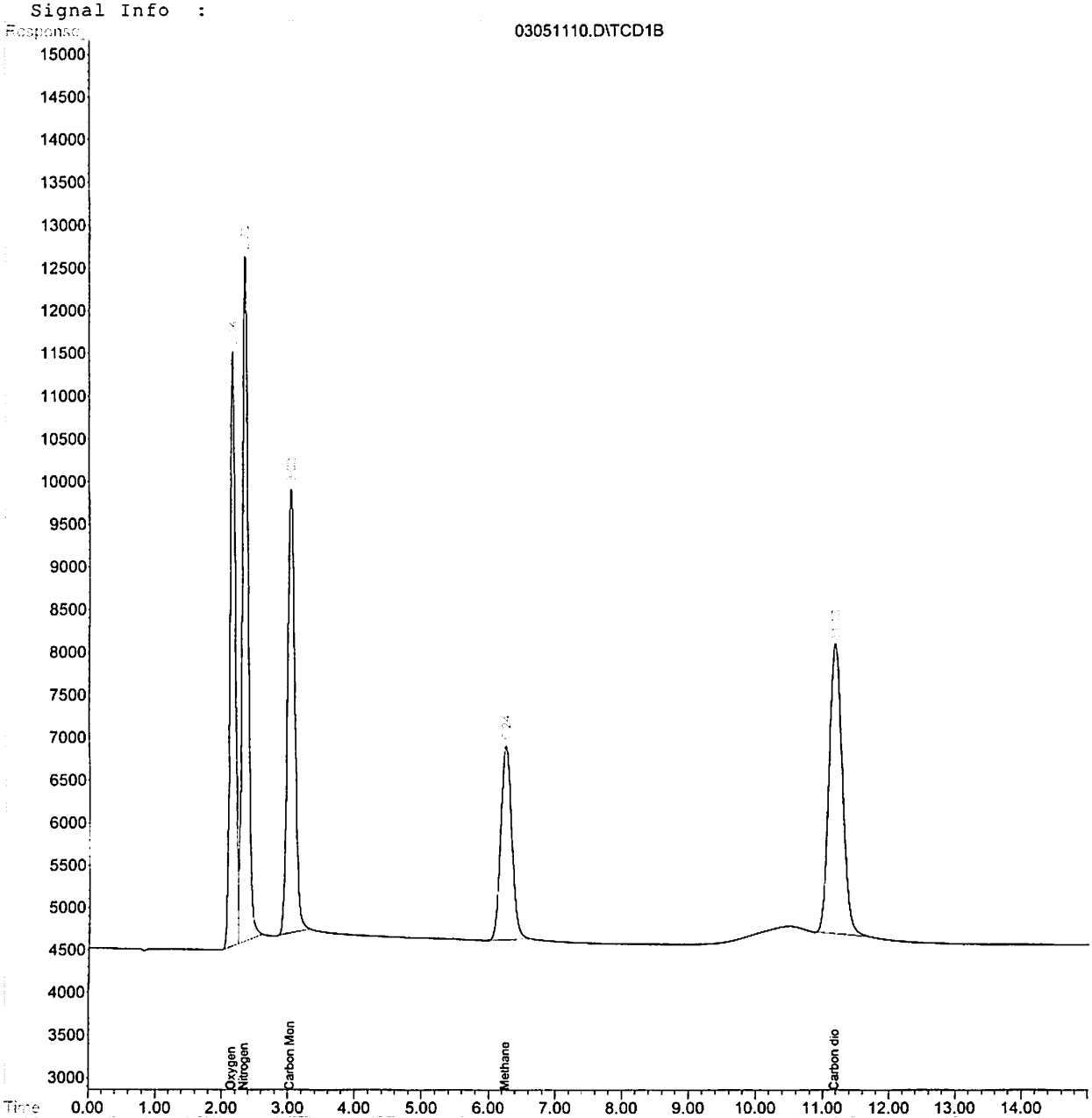
Volume Inj. :
Signal Phase :
Signal Info :

| | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|
| | Target Compounds | | | | |
| 1) | Oxygen | 2.14 | 381287 | 2.655 | % |
| 2) | Nitrogen | 2.33f | 493949 | 2.897 | % |
| 3) | Carbon Monoxide | 3.02 | 402767 | 2.449 | % |
| 4) | Methane | 6.25 | 263844 | 1.916 | % |
| 5) | Carbon dioxide | 11.18 | 477323 | 2.332 | % |

(f)=RT Delta > 1/2 Window (m)=manual int.
03051110.D 030511.M Tue Mar 29 09:51:16 2011 Page 1

Quantitation Report

Data File : C:\HPCHEM\2\DATA\030511\03051110.D  Vial: 1
Acq On : 5 Mar 2011 8:05 am  Operator:
Sample : ICV STD 1-2  Inst : GC/TCD
Misc : ICAL ASTM-D2504  Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Mar 5 8:23 2011 Quant Results File: 030511.RES

Quant Method : C:\HPCHEM\2\METHODS\030511.M (Chemstation Integrator)
Title :
Last Update : Sat Mar 05 07:02:15 2011
Response via : Multiple Level Calibration
DataAcq Meth : TCD.M

Volume Inj. :
Signal Phase :
Signal Info :