

## LABORATORY REPORT

September 30, 2009

Brian Baker  
Environmental Health & Engineering, Inc.  
117 Fourth Avenue  
Needham, MA 02494

**RE: 16512**

Dear Brian:

Enclosed are the results of the samples submitted to our laboratory on September 2, 2009. For your reference, these analyses have been assigned our service request number P0903087.

All analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at [www.caslab.com](http://www.caslab.com). Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein. Your report contains **323** pages.

Columbia Analytical Services, Inc. is certified by the California Department of Health Services, NELAP Laboratory Certificate No. 02115CA; Arizona Department of Health Services, Certificate No. AZ0694; Florida Department of Health, NELAP Certification E871020; New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID #CA009; New York State Department of Health, NELAP NY Lab ID No: 11221; Oregon Environmental Laboratory Accreditation Program, NELAP ID: CA20007; The American Industrial Hygiene Association, Laboratory #101661; Department of the Navy (NFESC); Pennsylvania Registration No. 68-03307; TX Commission of Environmental Quality, NELAP ID T104704413-08-TX. Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact me for information corresponding to a particular certification.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

**Columbia Analytical Services, Inc.**



Kate Aguilera  
Project Manager

Client: Environmental Health & Engineering, Inc.  
Project: 16512

CAS Project No: P0903087

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### CASE NARRATIVE

The samples were received intact under chain of custody on September 2, 2009 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

#### Aldehyde Analysis

The samples were analyzed for aldehydes according to EPA Method TO-11A using high performance liquid chromatography (HPLC).

The sample identified as "104196" was submitted as a blank, but it appears to be a real sample. Positive results were seen for various aldehydes when the sample was analyzed on September 14, 2009. Positive results were confirmed on September 17, 2009 when the sample was reanalyzed. The results will be reported in mass/sample since a sample volume is unknown at this time.

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*The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for utilization of less than the complete report.*

Client: Environmental Health & Engineering, Inc.  
Project: 16512

Service Request: P0903087

**SAMPLE CROSS-REFERENCE**

| <u>SAMPLE #</u> | <u>CLIENT SAMPLE ID</u> | <u>DATE</u> | <u>TIME</u> |
|-----------------|-------------------------|-------------|-------------|
| P0903087-001    | 104320                  | 9/1/09      | 00:00       |
| P0903087-002    | 104321                  | 9/1/09      | 00:00       |
| P0903087-003    | 104322                  | 9/1/09      | 00:00       |
| P0903087-004    | 104323                  | 9/1/09      | 00:00       |
| P0903087-005    | 104324                  | 9/1/09      | 00:00       |
| P0903087-006    | 104325                  | 9/1/09      | 00:00       |
| P0903087-007    | 104196                  | 9/1/09      | 00:00       |
| P0903087-008    | 104197                  | 9/1/09      | 00:00       |
| P0903087-009    | 104198                  | 9/1/09      | 00:00       |
| P0903087-010    | 104199                  | 9/1/09      | 00:00       |
| P0903087-011    | 104200                  | 9/1/09      | 00:00       |
| P0903087-012    | 104201                  | 9/1/09      | 00:00       |

FROM: Environmental Health and Engineering, Inc.  
117 Fourth Avenue  
Needham, MA 02494-2725

PO003087

TO: CAS

Please send invoices to ATTN: Accounts Payable  
Please send reports to ATTN: Data Coordinator

In all correspondence regarding this matter, please refer to EH&E Project # 16512

The cost of this analysis will be covered by EH&E Purchase Order # 16512

For EH & E Data Coordinator - URGENT DATA

| SAMPLE ID | SAMPLE TYPE | ANALYTICAL METHOD/NUMBER | OTHER:Time/Date/Vol. |
|-----------|-------------|--------------------------|----------------------|
| ① 104320  | Tube        | Aldehyde TO-11 Full List | 104 (L.)             |
| ② 104321  |             |                          | 106                  |
| ③ 104322  |             |                          | 0                    |
| ④ 104323  |             |                          | 107                  |
| ⑤ 104324  |             |                          | 107                  |
| ⑥ 104325  |             |                          | 102                  |
| ⑦ 104196  |             |                          | 0                    |
| ⑧ 104197  |             |                          | 109                  |
| ⑨ 104198  |             |                          | 108                  |
| ⑩ 104199  |             |                          | 107                  |
| ⑪ 104200  |             |                          | 106                  |
| ⑫ 104201  |             |                          | 105                  |

Special instructions:

- Standard turn around time
- Fax results 781-247-4305
- RETURN SAMPLES
- Additional report recipient m.fingala@ehinc.com
- Rush by \_\_\_\_\_ date/time
- Other \_\_\_\_\_
- Electronic transfer - datacoordinator@ehinc.com

Each signatory please return one copy of this form to the above address

Relinquished by: [Signature] of Environmental Health & Engineering, Inc. Date: 9/1/09  
 Received by: [Signature] of (company name) CAS Date: 9/2/09 0940  
 Relinquished by: \_\_\_\_\_ of (company name) \_\_\_\_\_ Date: \_\_\_\_\_  
 Received by: \_\_\_\_\_ of (company name) \_\_\_\_\_ Date: \_\_\_\_\_  
 Relinquished by: \_\_\_\_\_ of (company name) \_\_\_\_\_ Date: \_\_\_\_\_  
 Received by: \_\_\_\_\_ of (company name) \_\_\_\_\_ Date: \_\_\_\_\_  
 Lab Data  
 Received by: \_\_\_\_\_ of Environmental Health & Engineering, Inc. Date: \_\_\_\_\_

**Columbia Analytical Services, Inc.**  
**Sample Acceptance Check Form**

Client: Environmental Health & Engineering, Inc.

Work order: P0903087

Project: 16512

Sample(s) received on: 09/02/09

Date opened: 09/02/09

by: MZAMORA

**Note:** This form is used for all samples received by CAS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

- |  | <u>Yes</u>                          | <u>No</u>                           | <u>N/A</u>                          |
|--|-------------------------------------|-------------------------------------|-------------------------------------|
| 1 Were <b>sample containers</b> properly marked with client sample ID?   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            |
| 2 Container(s) <b>supplied by CAS</b> ?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| 3 Did <b>sample containers</b> arrive in good condition?   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            |
| 4 Was a <b>chain-of-custody</b> provided?  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            |
| 5 Was the <b>chain-of-custody</b> properly completed?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| 6 Did <b>sample container labels</b> and/or tags agree with custody papers?                                      | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            |
| 7 Was <b>sample volume</b> received adequate for analysis?   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            |
| 8 Are samples within specified holding times?  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            |
| 9 Was proper <b>temperature</b> (thermal preservation) of cooler at receipt adhered to?                          | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            |
| Cooler Temperature <u>4</u> °C    Blank Temperature _____ °C   |                                     |                                     |                                     |
| 10 Was a <b>trip blank</b> received?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| Trip blank supplied by CAS: _____  |                                     |                                     |                                     |
| 11 Were <b>custody seals</b> on outside of cooler/Box?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| Location of seal(s)? _____ Sealing Lid?  | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| Were signature and date included?  | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| Were seals intact?   | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| Were custody seals on outside of sample container?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| Location of seal(s)? _____ Sealing Lid?  | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| Were signature and date included?  | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| Were seals intact?   | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 12 Do containers have appropriate <b>preservation</b> , according to method/SOP or Client specified information? | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| Is there a client indication that the submitted samples are <b>pH</b> preserved?                                 | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| Were <b>VOA vials</b> checked for presence/absence of air bubbles?   | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| Does the client/method/SOP require that the analyst check the sample pH and <u>if necessary</u> alter it?        | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 13 <b>Tubes:</b> Are the tubes capped and intact?  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            |
| Do they contain moisture?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| 14 <b>Badges:</b> Are the badges properly capped and intact?   | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| Are dual bed badges separated and individually capped and intact?  | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |

| Lab Sample ID   | Container Description | Required pH * | Received pH | Adjusted pH | VOA Headspace (Presence/Absence) | Receipt / Preservation Comments |
|-----------------|-----------------------|---------------|-------------|-------------|----------------------------------|---------------------------------|
| P0903087-001.01 | Silica Gel DNPH Tube  |               |             |             |                                  |                                 |
| P0903087-002.01 | Silica Gel DNPH Tube  |               |             |             |                                  |                                 |
| P0903087-003.01 | Silica Gel DNPH Tube  |               |             |             |                                  |                                 |
| P0903087-004.01 | Silica Gel DNPH Tube  |               |             |             |                                  |                                 |
| P0903087-005.01 | Silica Gel DNPH Tube  |               |             |             |                                  |                                 |
| P0903087-006.01 | Silica Gel DNPH Tube  |               |             |             |                                  |                                 |

Explain any discrepancies: (include lab sample ID numbers): \_\_\_\_\_

Chain of Custody is missing time collected

\*Required pH: Phenols/COD/NH3/TOC/TOX/NO3+NO2/TKN/T.PHOS, H2SO4 (pH<2); Metals, HNO3 (pH<2); CN (NaOH or NaOH/Asc Acid) (pH>12);

**Columbia Analytical Services, Inc.**  
**Sample Acceptance Check Form**

Client: Environmental Health & Engineering, Inc.

Work order: P0903087

Project: 16512

Sample(s) received on: 09/02/09

Date opened: 09/02/09

by: MZAMORA

| Lab Sample ID   | Container Description | Required pH * | Received pH | Adjusted pH | VOA Headspace<br>(Presence/Absence) | Receipt / Preservation Comments |
|-----------------|-----------------------|---------------|-------------|-------------|-------------------------------------|---------------------------------|
| P0903087-007.01 | Silica Gel DNPH Tube  |               |             |             |                                     |                                 |
| P0903087-008.01 | Silica Gel DNPH Tube  |               |             |             |                                     |                                 |
| P0903087-009.01 | Silica Gel DNPH Tube  |               |             |             |                                     |                                 |
| P0903087-010.01 | Silica Gel DNPH Tube  |               |             |             |                                     |                                 |
| P0903087-011.01 | Silica Gel DNPH Tube  |               |             |             |                                     |                                 |
| P0903087-012.01 | Silica Gel DNPH Tube  |               |             |             |                                     |                                 |
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|                 |                       |               |             |             |                                     |                                 |

Explain any discrepancies: (include lab sample ID numbers):  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

## RESULTS OF ANALYSIS

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**COLUMBIA ANALYTICAL SERVICES, INC.**

RESULTS OF ANALYSIS

Page 1 of 1

**Client:** Environmental Health & Engineering, Inc.  
**Client Sample ID:** 104320  
**Client Project ID:** 16512

CAS Project ID: P0903087  
 CAS Sample ID: P0903087-001

**Test Code:** EPA Method TO-11A  
**Instrument ID:** HP1050/LC2  
**Analyst:** Madeleine Dangazyan  
**Sampling Media:** Silica Gel DNPH Tube  
**Test Notes:** BC

**Date Collected:** 9/1/09  
**Date Received:** 9/2/09  
**Date Analyzed:** 9/14/09  
**Desorption Volume:** 1.0 ml  
**Volume Sampled:** 104 Liter(s)

| CAS #     | Compound                 | Result<br>ng/Sample | Result<br>µg/m <sup>3</sup> | MRL<br>µg/m <sup>3</sup> | Result<br>ppbV | MRL<br>ppbV | Data<br>Qualifier |
|-----------|--------------------------|---------------------|-----------------------------|--------------------------|----------------|-------------|-------------------|
| 50-00-0   | Formaldehyde             | 380                 | 3.7                         | 0.96                     | 3.0            | 0.78        |                   |
| 75-07-0   | Acetaldehyde             | 160                 | 1.5                         | 0.96                     | 0.85           | 0.53        |                   |
| 123-38-6  | Propionaldehyde          | < 100               | ND                          | 0.96                     | ND             | 0.40        |                   |
| 4170-30-3 | Crotonaldehyde, Total    | < 100               | ND                          | 0.96                     | ND             | 0.34        |                   |
| 123-72-8  | Butyraldehyde            | < 100               | ND                          | 0.96                     | ND             | 0.33        |                   |
| 100-52-7  | Benzaldehyde             | < 100               | ND                          | 0.96                     | ND             | 0.22        |                   |
| 590-86-3  | Isovaleraldehyde         | < 100               | ND                          | 0.96                     | ND             | 0.27        |                   |
| 110-62-3  | Valeraldehyde            | < 100               | ND                          | 0.96                     | ND             | 0.27        |                   |
| 529-20-4  | o-Tolualdehyde           | < 100               | ND                          | 0.96                     | ND             | 0.20        |                   |
| 620-23-5  |                          |                     |                             |                          |                |             |                   |
| 104-87-0  | m,p-Tolualdehyde         | < 200               | ND                          | 1.9                      | ND             | 0.39        |                   |
| 66-25-1   | n-Hexaldehyde            | < 100               | ND                          | 0.96                     | ND             | 0.23        |                   |
| 5779-94-2 | 2,5-Dimethylbenzaldehyde | < 100               | ND                          | 0.96                     | ND             | 0.18        |                   |

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

BC = Results reported are not blank corrected.

Verified By: \_\_\_\_\_ Date: 9/18/09

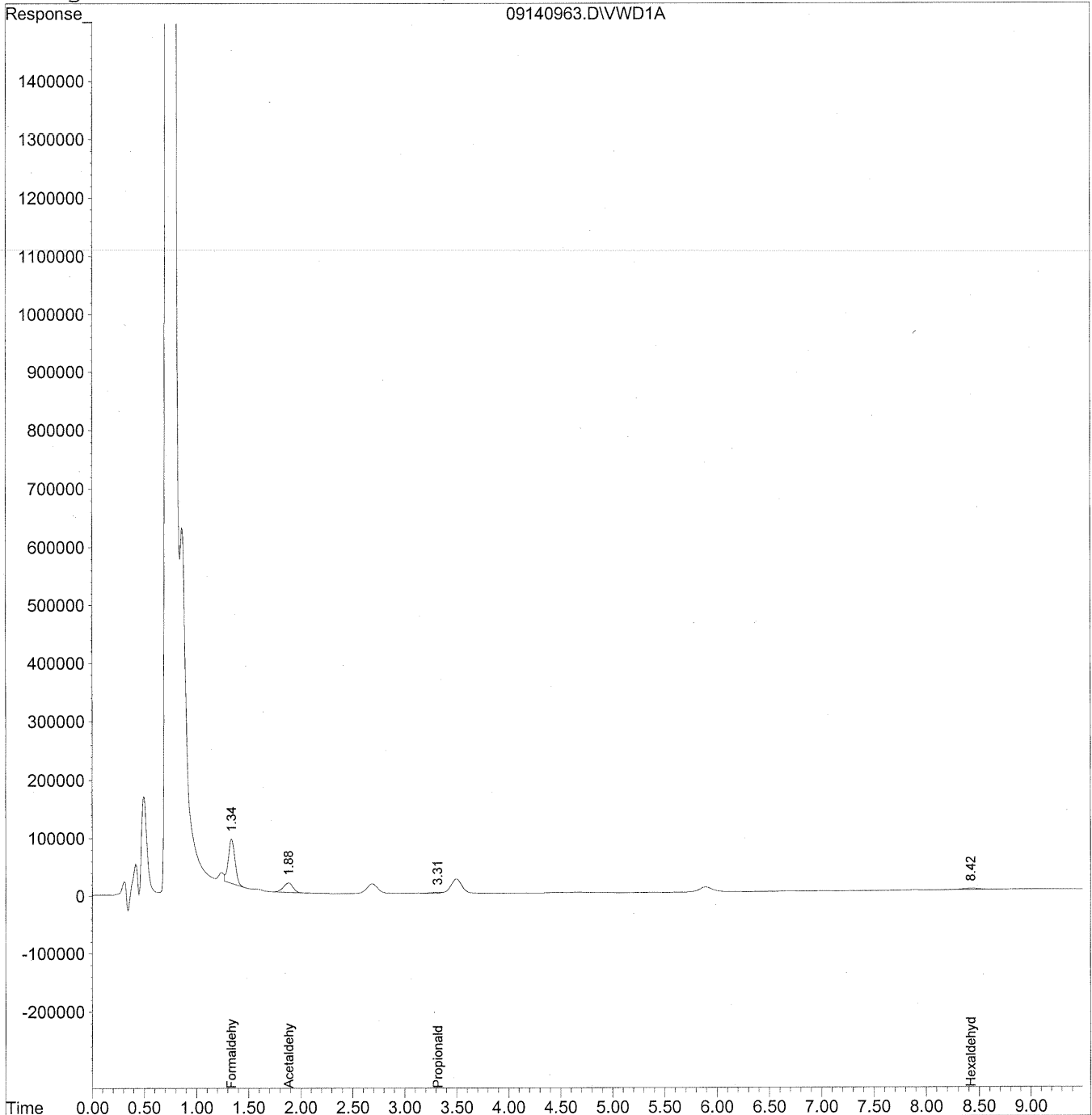


Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140963.D Vial: 129  
Acq On : 14-Sep-2009, 21:53 Operator: MD  
Sample : P0903087-001 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 11:41 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration  
DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
Signal Phase : Supelcosil LC-18  
Signal Info : 3.3cm x 3mm, 3um



Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140963.D Vial: 129  
 Acq On : 14-Sep-2009, 21:53 Operator: MD  
 Sample : P0903087-001 front 1.0ml Inst : VWD  
 Misc : Multiplr: 1.00  
 IntFile : events.e  
 Quant Time: Sep 17 11:41 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
 Title : LC-1050 TO-11A ICAL  
 Last Update : Thu Sep 17 11:23:31 2009  
 Response via : Initial Calibration  
 DataAcq Meth : TO-11A.M

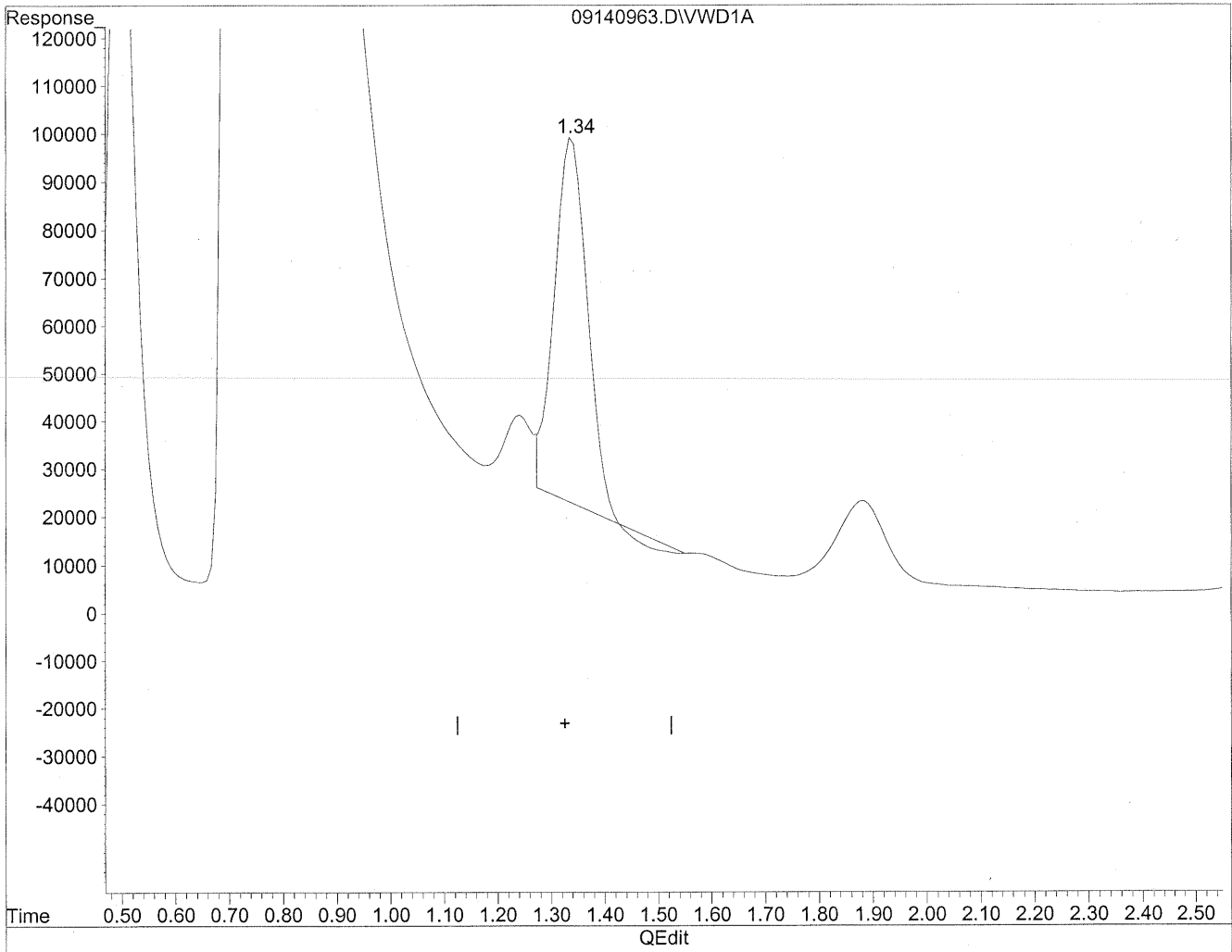
Volume Inj. : 3uL  
 Signal Phase : Supelcosil LC-18  
 Signal Info : 3.3cm x 3mm, 3um

| Compound                     | R.T. | Response | Conc Units     |
|------------------------------|------|----------|----------------|
| -----                        |      |          |                |
| Target Compounds             |      |          |                |
| 1) Formaldehyde              | 1.34 | 3430095  | 383.876 ng/mlm |
| 2) Acetaldehyde              | 1.88 | 1038694  | 159.779 ng/mlm |
| 3) Propionaldehyde           | 3.31 | 74758    | 14.382 ng/mlm  |
| 4) Crotonaldehyde            | 0.00 | 0        | N.D. ng/ml     |
| 5) Butyraldehyde             | 0.00 | 0        | N.D. ng/ml     |
| 6) Benzaldehyde              | 0.00 | 0        | N.D. ng/ml     |
| 7) Isovaleraldehyde          | 0.00 | 0        | N.D. ng/ml     |
| 8) Valeraldehyde             | 0.00 | 0        | N.D. ng/ml     |
| 9) o-Tolualdehyde            | 0.00 | 0        | N.D. ng/ml     |
| 10) m,p-Tolualdehyde         | 0.00 | 0        | N.D. ng/ml     |
| 11) Hexaldehyde              | 8.42 | 223964   | 75.645 ng/ml   |
| 12) 2,5-Dimethylbenzaldehyde | 0.00 | 0        | N.D. ng/ml     |

Quantitation Report

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IntFile : events.e  
Quant Time: Sep 17 11:39 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration

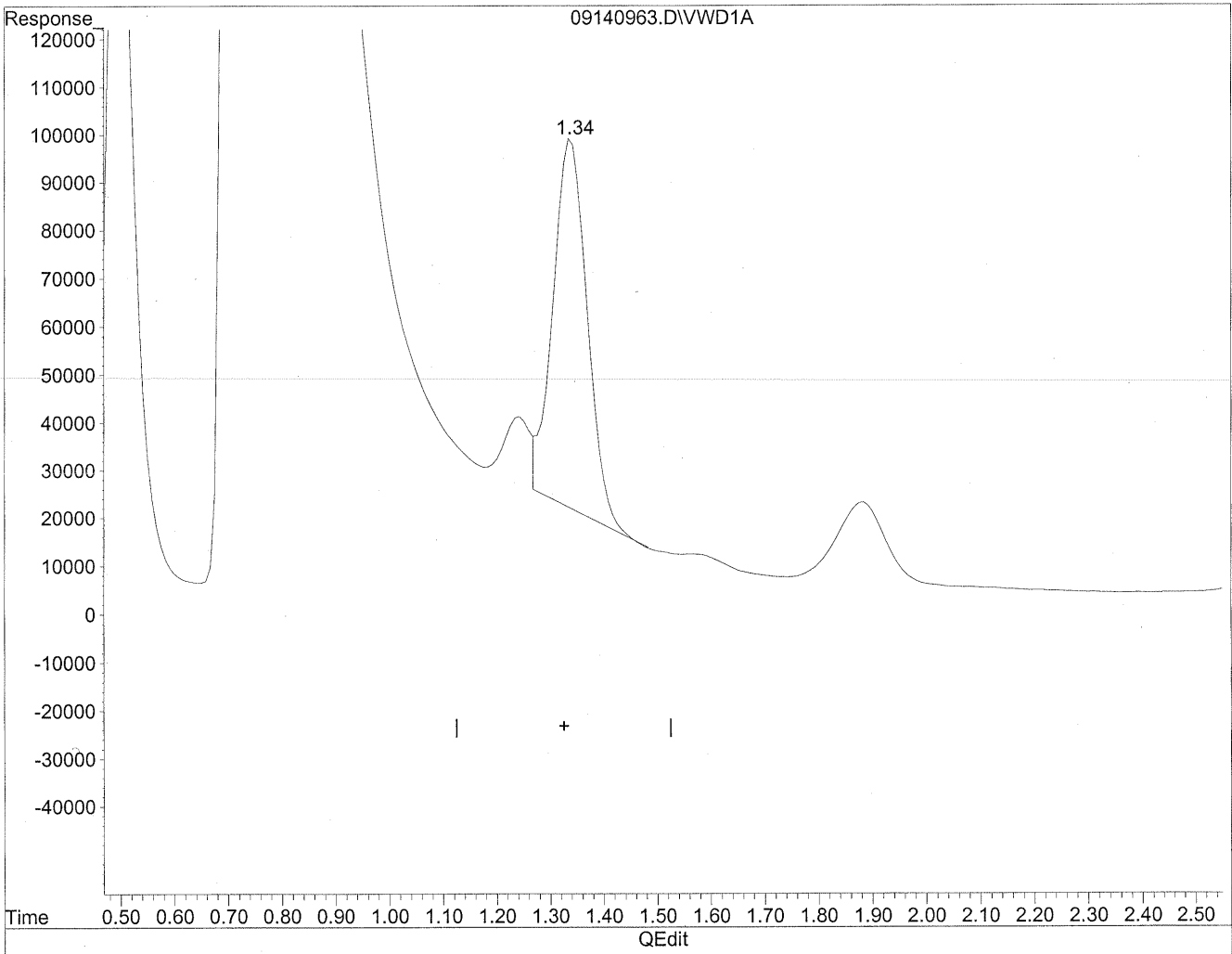


(1) Formaldehyde  
1.34min 363.544ng/ml  
response 3248419

Quantitation Report

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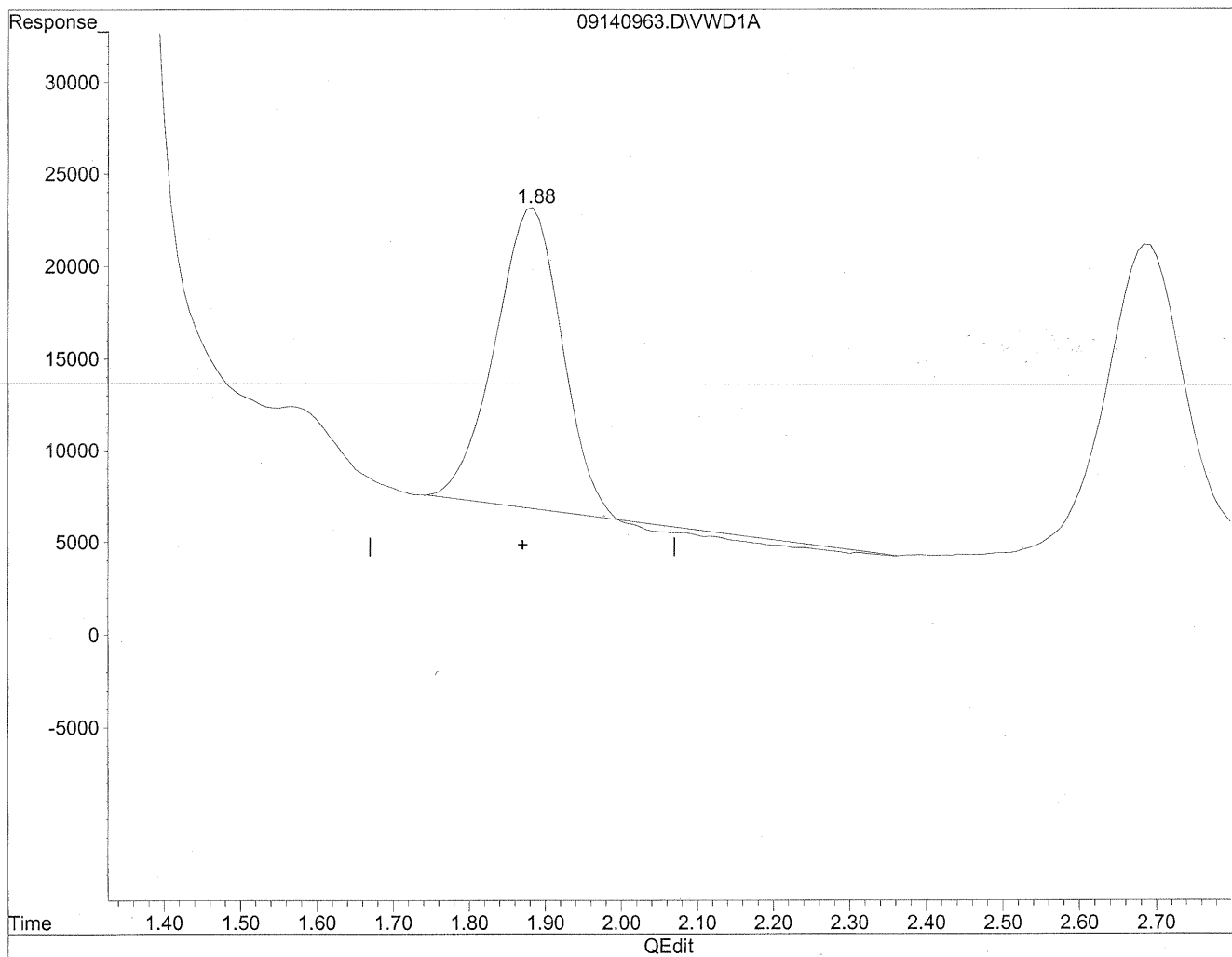
(1) Formaldehyde  
1.34min 383.876ng/ml m  
response 3430095

*MD*  
*9/17/09*  
*BC*  
*HC*  
*9/17/09*

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140963.D Vial: 129  
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Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration

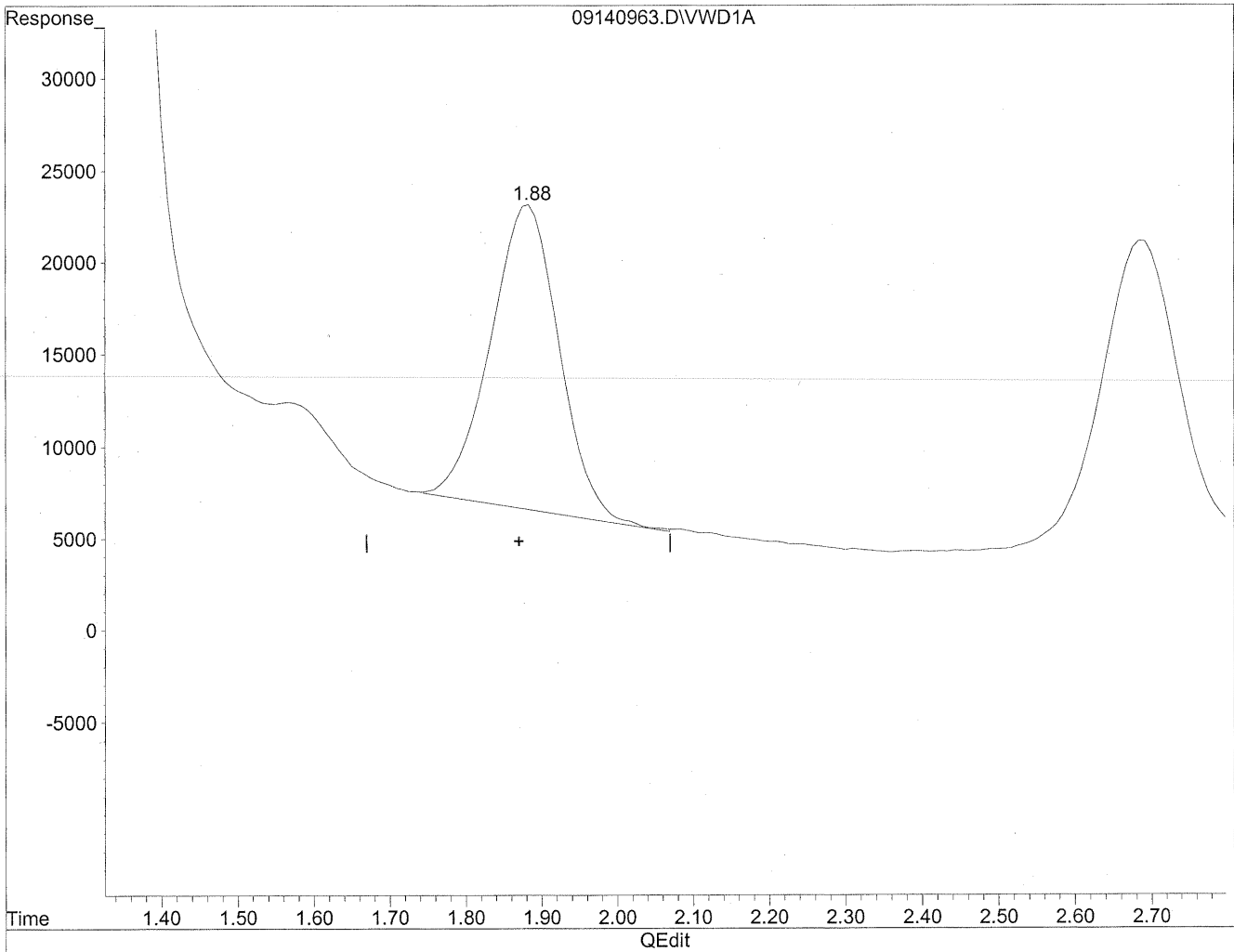


(2) Acetaldehyde  
1.88min 147.395ng/ml  
response 958184

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140963.D Vial: 129  
Acq On : 14-Sep-2009, 21:53 Operator: MD  
Sample : P0903087-001 front 1.0ml Inst : VWD  
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Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
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Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



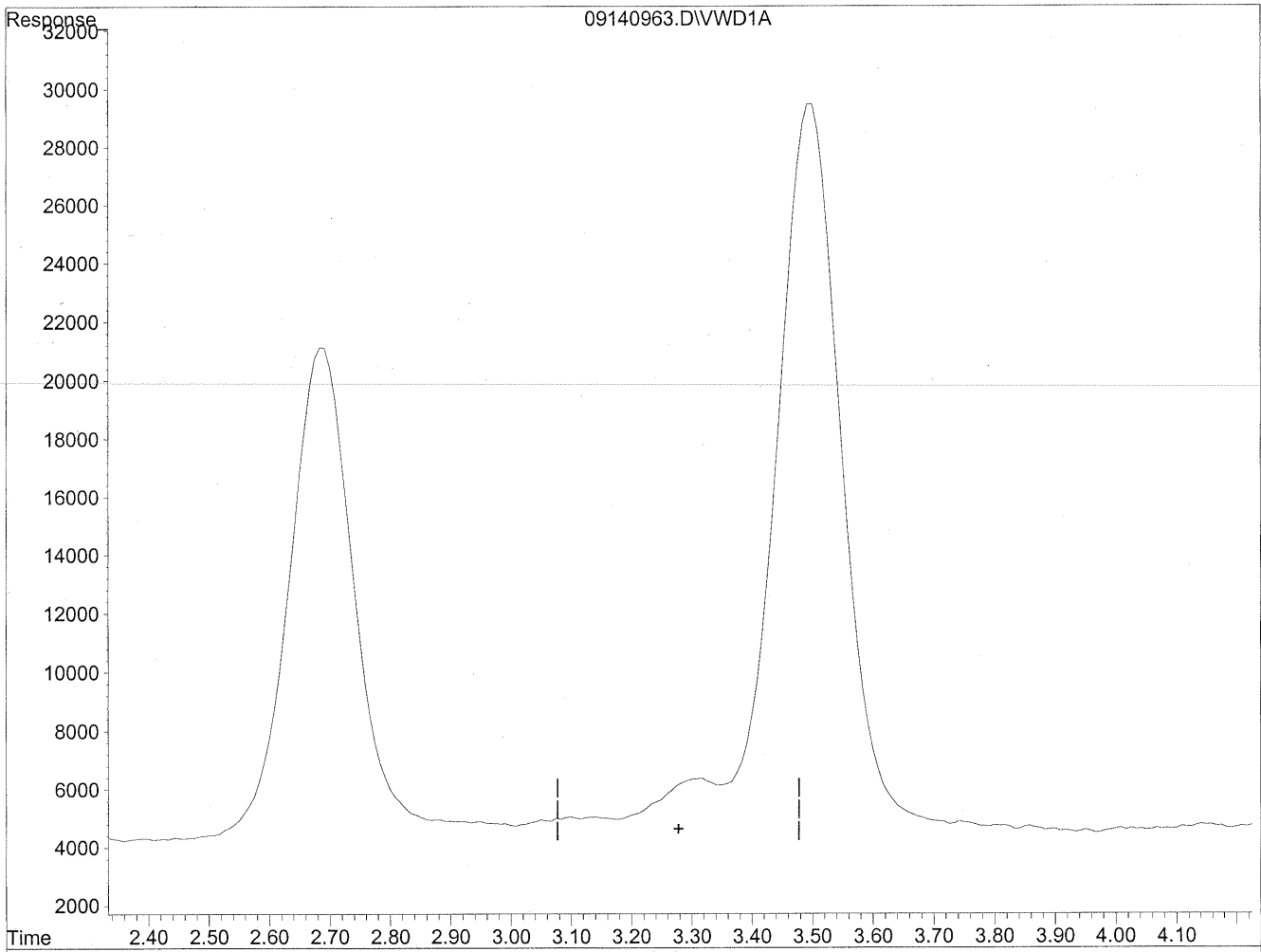
(2) Acetaldehyde  
1.88min 159.779ng/ml m  
response 1038694

*HC*  
*9/17/09*  
*9/17/09*  
*pe*

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140963.D Vial: 129  
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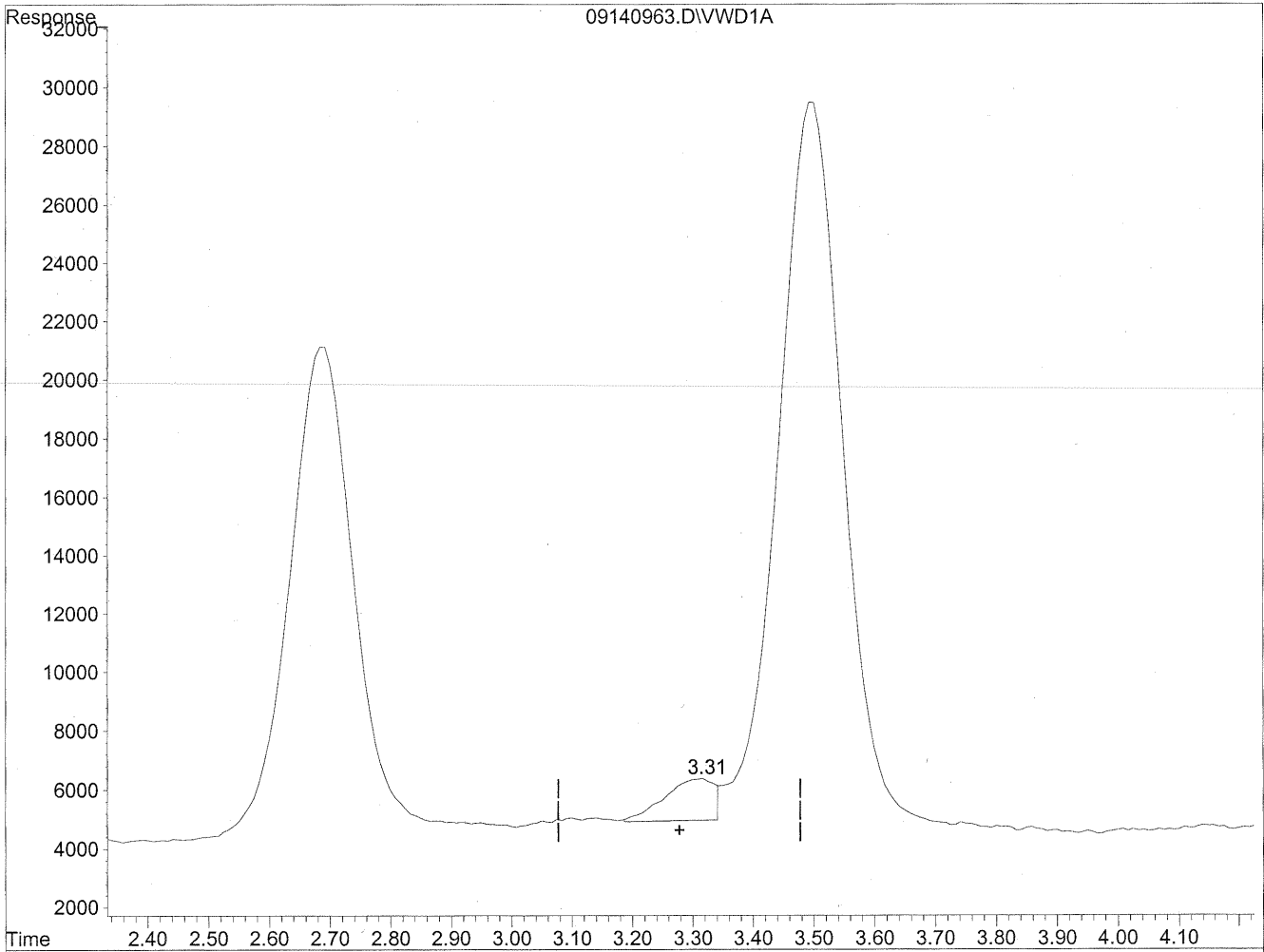


(3) Propionaldehyde  
3.28min 0.000ng/ml  
response 0

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140963.D Vial: 129  
Acq On : 14-Sep-2009, 21:53 Operator: MD  
Sample : P0903087-001 front 1.0ml Inst : VWD  
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Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



(3) Propionaldehyde  
3.31min 14.382ng/ml m  
response 74758

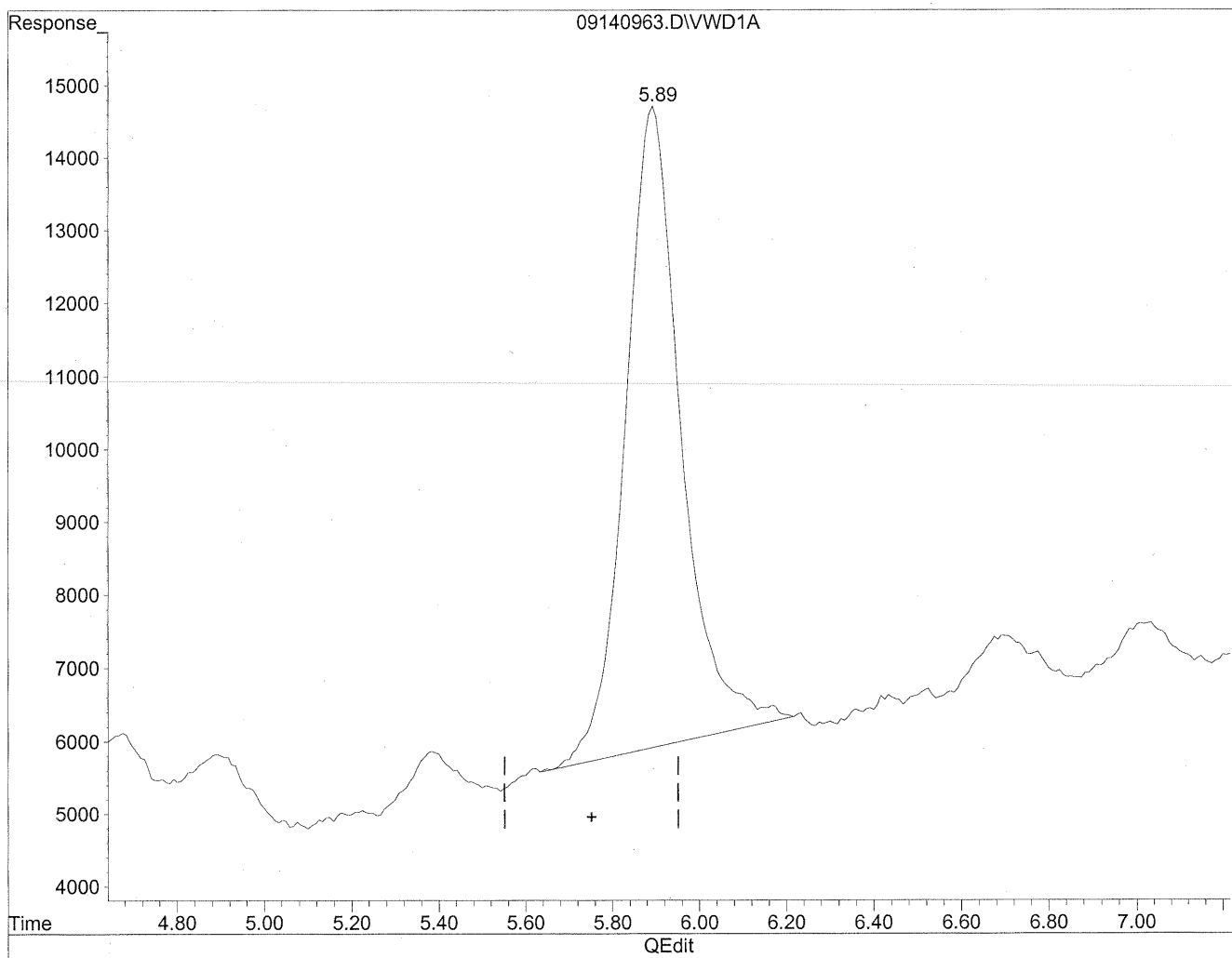
*Handwritten notes:*  
HU  
9/17/09  
FM  
9/17/09  
CPE



Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140963.D Vial: 129  
Acq On : 14-Sep-2009, 21:53 Operator: MD  
Sample : P0903087-001 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 11:40 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration

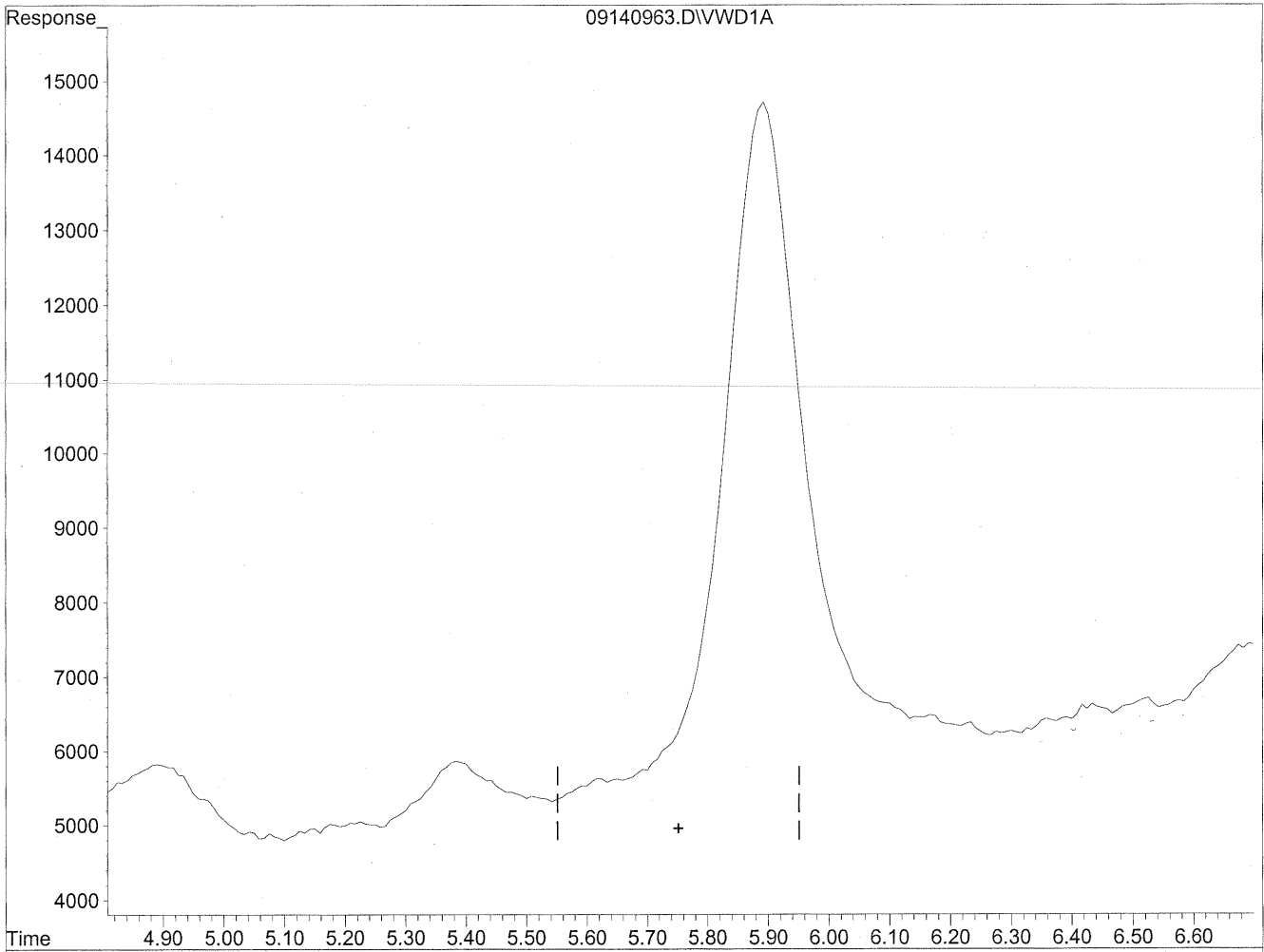


(6) Benzaldehyde  
5.89min 286.441ng/ml  
response 781519

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140963.D Vial: 129  
Acq On : 14-Sep-2009, 21:53 Operator: MD  
Sample : P0903087-001 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 11:40 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



(6) Benzaldehyde  
0.00min 0.000ng/ml d  
response 0

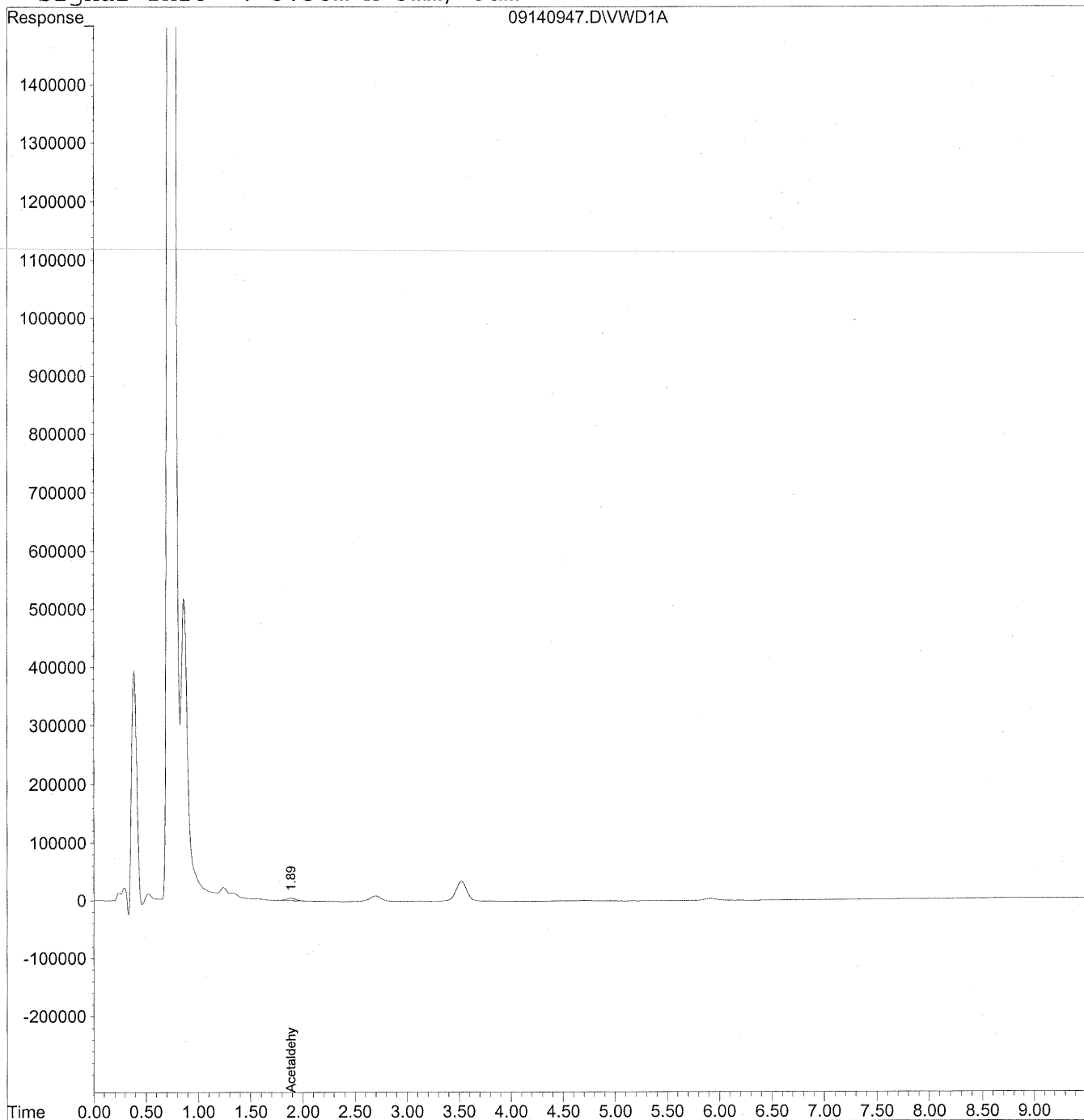
*Handwritten notes:*  
HC  
9/17/09  
MP, RT  
MD (circled)  
9/17/09

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140947.D Vial: 115  
Acq On : 14-Sep-2009, 18:41 Operator: MD  
Sample : P0903087-001 back 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 11:27 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration  
DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
Signal Phase : Supelcosil LC-18  
Signal Info : 3.3cm x 3mm, 3um



Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140947.D Vial: 115  
 Acq On : 14-Sep-2009, 18:41 Operator: MD  
 Sample : P0903087-001 back 1.0ml Inst : VWD  
 Misc : Multiplr: 1.00  
 IntFile : events.e  
 Quant Time: Sep 17 11:27 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
 Title : LC-1050 TO-11A ICAL  
 Last Update : Thu Sep 17 11:23:31 2009  
 Response via : Initial Calibration  
 DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
 Signal Phase : Supelcosil LC-18  
 Signal Info : 3.3cm x 3mm, 3um

| Compound                     | R.T. | Response | Conc   | Units |
|------------------------------|------|----------|--------|-------|
| -----                        |      |          |        |       |
| Target Compounds             |      |          |        |       |
| 1) Formaldehyde              | 0.00 | 0        | N.D.   | ng/ml |
| 2) Acetaldehyde              | 1.89 | 275867   | 42.436 | ng/ml |
| 3) Propionaldehyde           | 0.00 | 0        | N.D.   | ng/ml |
| 4) Crotonaldehyde            | 0.00 | 0        | N.D.   | ng/ml |
| 5) Butyraldehyde             | 0.00 | 0        | N.D.   | ng/ml |
| 6) Benzaldehyde              | 0.00 | 0        | N.D.   | ng/ml |
| 7) Isovaleraldehyde          | 0.00 | 0        | N.D.   | ng/ml |
| 8) Valeraldehyde             | 0.00 | 0        | N.D.   | ng/ml |
| 9) o-Tolualdehyde            | 0.00 | 0        | N.D.   | ng/ml |
| 10) m,p-Tolualdehyde         | 0.00 | 0        | N.D.   | ng/ml |
| 11) Hexaldehyde              | 0.00 | 0        | N.D.   | ng/ml |
| 12) 2,5-Dimethylbenzaldehyde | 0.00 | 0        | N.D.   | ng/ml |

**COLUMBIA ANALYTICAL SERVICES, INC.**

RESULTS OF ANALYSIS

Page 1 of 1

**Client:** Environmental Health & Engineering, Inc.

**Client Sample ID:** 104321

**Client Project ID:** 16512

CAS Project ID: P0903087

CAS Sample ID: P0903087-002

Test Code: EPA Method TO-11A

Instrument ID: HP1050/LC2

Analyst: Madeleine Dangazyan

Sampling Media: Silica Gel DNPH Tube

Test Notes: **BC**

Date Collected: 9/1/09

Date Received: 9/2/09

Date Analyzed: 9/14/09

Desorption Volume: 1.0 ml

Volume Sampled: 106 Liter(s)

| CAS #     | Compound                 | Result<br>ng/Sample | Result<br>µg/m <sup>3</sup> | MRL<br>µg/m <sup>3</sup> | Result<br>ppbV | MRL<br>ppbV | Data<br>Qualifier |
|-----------|--------------------------|---------------------|-----------------------------|--------------------------|----------------|-------------|-------------------|
| 50-00-0   | Formaldehyde             | 5,700               | 54                          | 0.94                     | 44             | 0.77        |                   |
| 75-07-0   | Acetaldehyde             | 1,900               | 18                          | 0.94                     | 10             | 0.52        |                   |
| 123-38-6  | Propionaldehyde          | 220                 | 2.1                         | 0.94                     | 0.87           | 0.40        |                   |
| 4170-30-3 | Crotonaldehyde, Total    | < 100               | ND                          | 0.94                     | ND             | 0.33        |                   |
| 123-72-8  | Butyraldehyde            | 190                 | 1.8                         | 0.94                     | 0.60           | 0.32        |                   |
| 100-52-7  | Benzaldehyde             | 730                 | 6.9                         | 0.94                     | 1.6            | 0.22        | M                 |
| 590-86-3  | Isovaleraldehyde         | 110                 | 1.0                         | 0.94                     | 0.28           | 0.27        | M                 |
| 110-62-3  | Valeraldehyde            | 440                 | 4.1                         | 0.94                     | 1.2            | 0.27        |                   |
| 529-20-4  | o-Tolualdehyde           | < 100               | ND                          | 0.94                     | ND             | 0.19        |                   |
| 620-23-5  |                          |                     |                             |                          |                |             |                   |
| 104-87-0  | m,p-Tolualdehyde         | < 200               | ND                          | 1.9                      | ND             | 0.38        |                   |
| 66-25-1   | n-Hexaldehyde            | 1,500               | 14                          | 0.94                     | 3.4            | 0.23        |                   |
| 5779-94-2 | 2,5-Dimethylbenzaldehyde | < 100               | ND                          | 0.94                     | ND             | 0.17        |                   |

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

BC = Results reported are not blank corrected.

M = Matrix interference; results may be biased high.

Verified By: \_\_\_\_\_

Date: \_\_\_\_\_

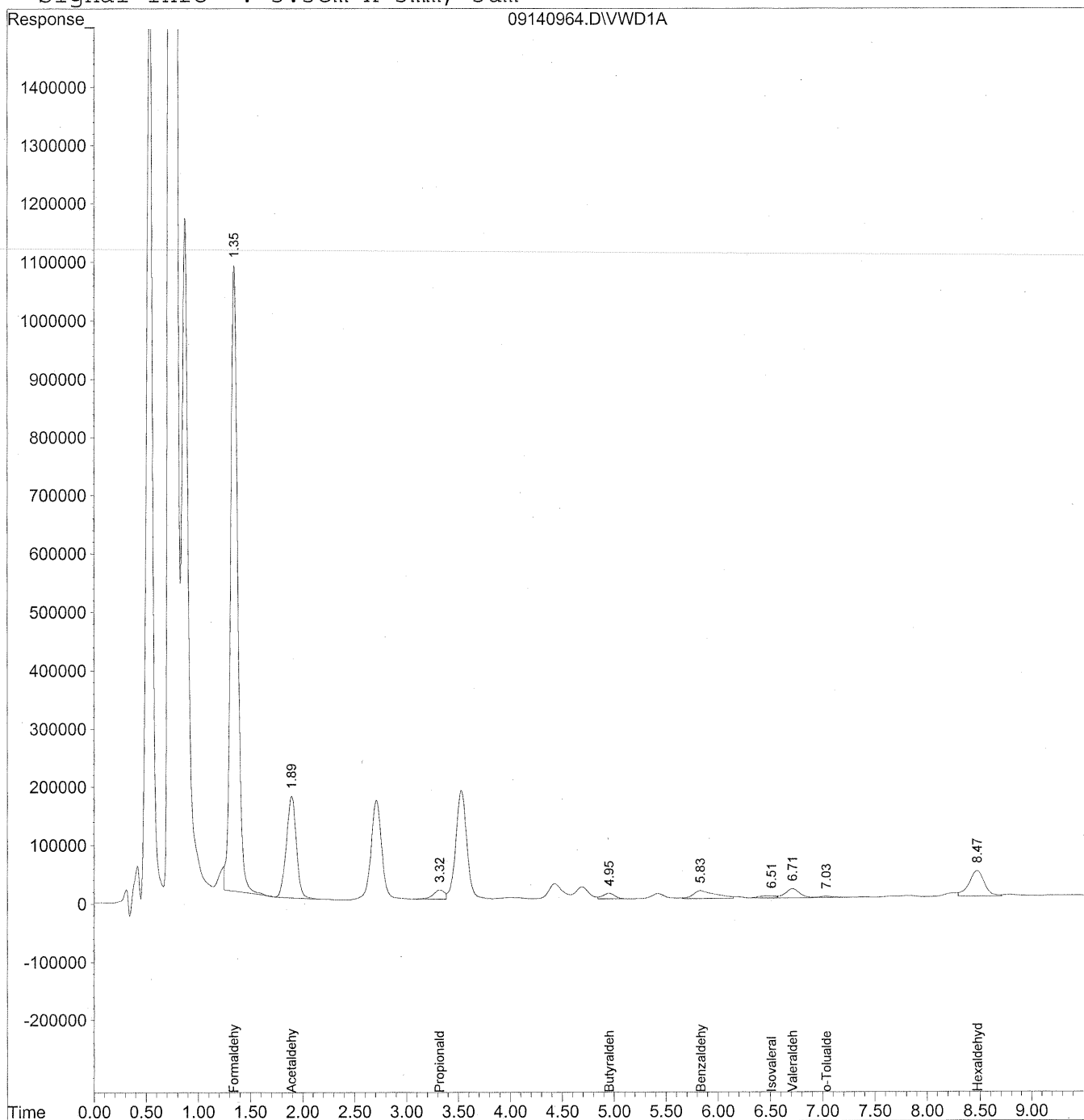
9/18/09

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140964.D Vial: 130  
Acq On : 14-Sep-2009, 22:05 Operator: MD  
Sample : P0903087-002 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 18 8:23 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration  
DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
Signal Phase : Supelcosil LC-18  
Signal Info : 3.3cm x 3mm, 3um



Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140964.D Vial: 130  
 Acq On : 14-Sep-2009, 22:05 Operator: MD  
 Sample : P0903087-002 front 1.0ml Inst : VWD  
 Misc : Multiplr: 1.00  
 IntFile : events.e  
 Quant Time: Sep 18 8:23 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
 Title : LC-1050 TO-11A ICAL  
 Last Update : Thu Sep 17 11:23:31 2009  
 Response via : Initial Calibration  
 DataAcq Meth : TO-11A.M

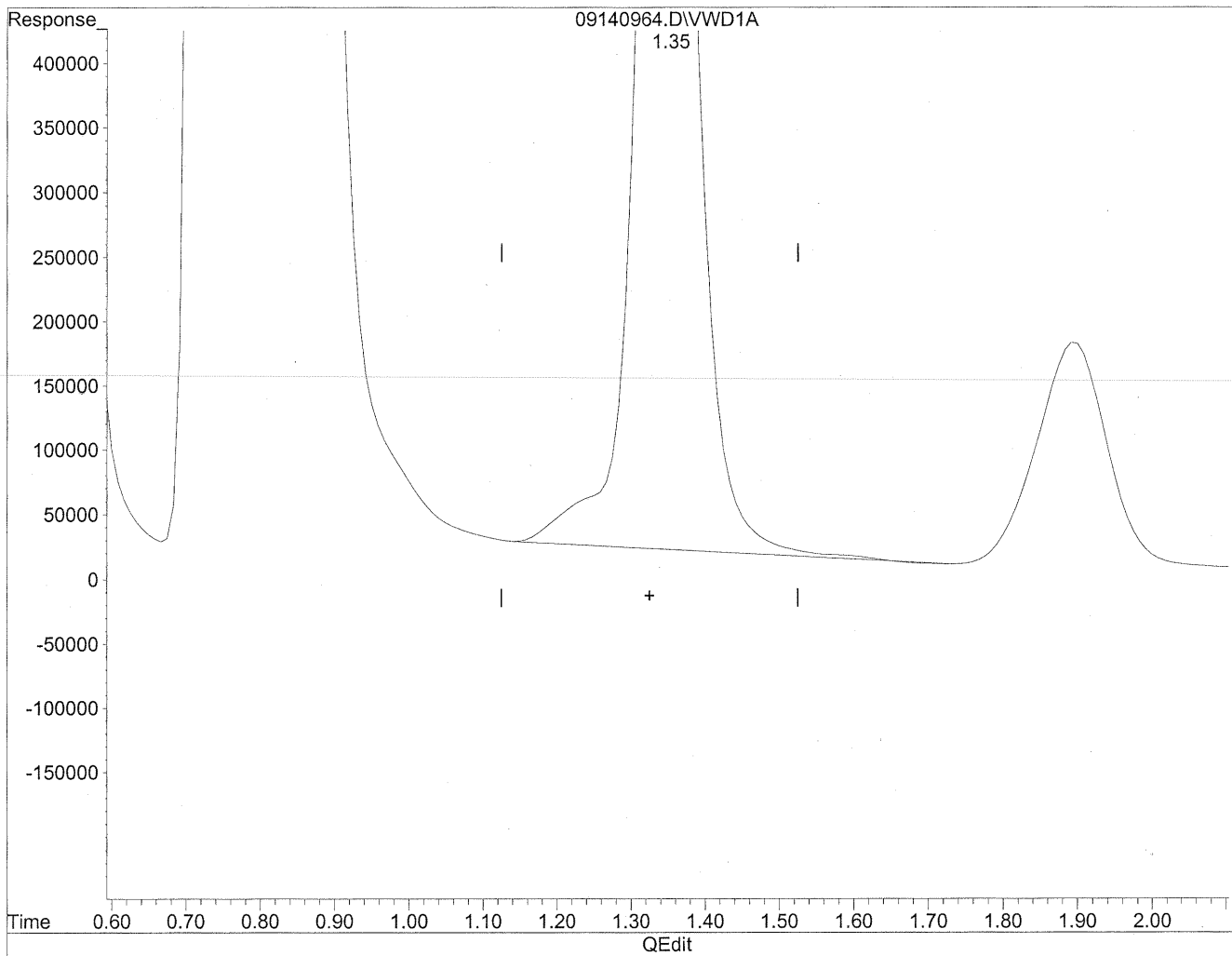
Volume Inj. : 3uL  
 Signal Phase : Supelcosil LC-18  
 Signal Info : 3.3cm x 3mm, 3um

| Compound                     | R.T.              | Response | Conc     | Units      |
|------------------------------|-------------------|----------|----------|------------|
| -----                        |                   |          |          |            |
| Target Compounds             |                   |          |          |            |
| 1) Formaldehyde              | 1.35              | 50919747 | 5698.634 | ng/mlm     |
| 2) Acetaldehyde              | 1.89              | 11489343 | 1767.374 | ng/mlm     |
| 3) Propionaldehyde           | 3.32              | 1136561  | 218.661  | ng/mlm     |
| 4) Crotonaldehyde            | 0.00              | 0        | N.D.     | ng/ml      |
| 5) Butyraldehyde             | 4.95              | 763337   | 188.350  | ng/ml      |
| 6) Benzaldehyde              | 5.83              | 1991858  | 730.052  | ng/mlm     |
| 7) Isovaleraldehyde          | 6.51 <sup>f</sup> | 365649   | 106.238  | ng/mlm * m |
| 8) Valeraldehyde             | 6.71              | 1485393  | 436.927  | ng/mlm     |
| 9) o-Tolualdehyde            | 7.04              | 191658   | 87.333   | ng/ml      |
| 10) m,p-Tolualdehyde         | 0.00              | 0        | N.D.     | ng/ml      |
| 11) Hexaldehyde              | 8.47              | 4414974  | 1491.180 | ng/mlm     |
| 12) 2,5-Dimethylbenzaldehyde | 0.00              | 0        | N.D.     | ng/ml      |

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140964.D Vial: 130  
Acq On : 14-Sep-2009, 22:05 Operator: MD  
Sample : P0903087-002 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 11:41 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



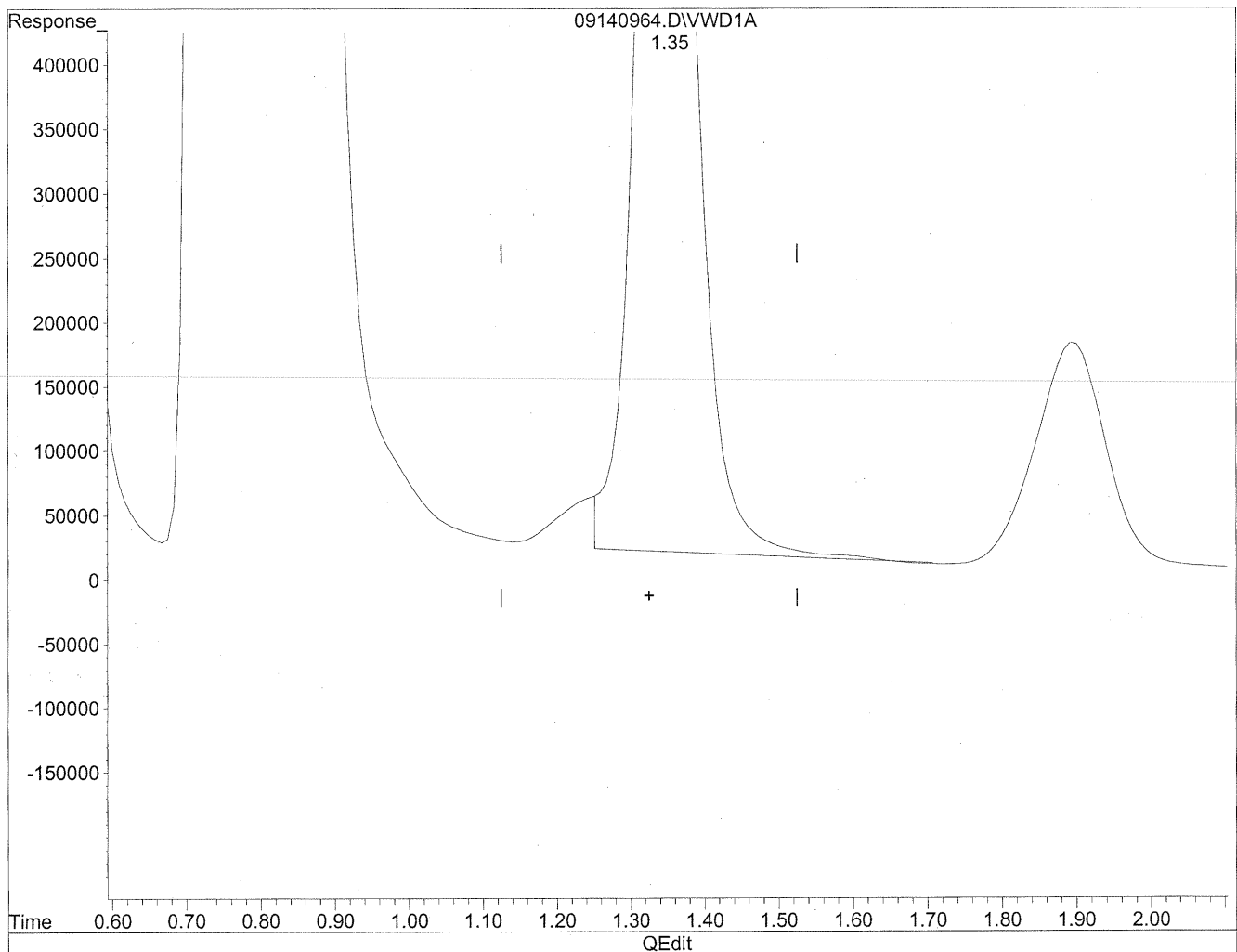
(1) Formaldehyde  
1.35min 5804.333ng/ml  
response 51864218



Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140964.D Vial: 130  
Acq On : 14-Sep-2009, 22:05 Operator: MD  
Sample : P0903087-002 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 11:41 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



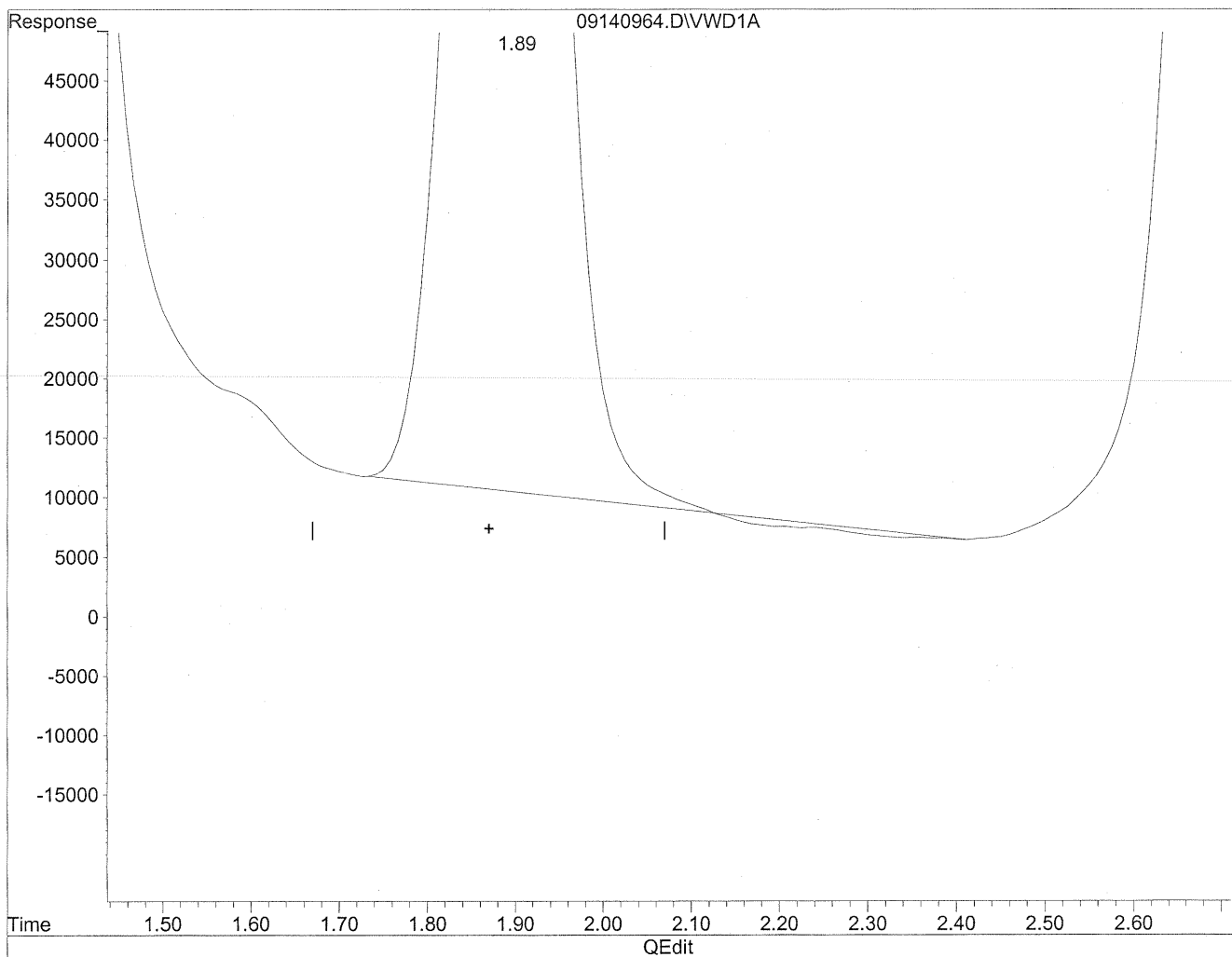
(1) Formaldehyde  
1.35min 5698.634ng/ml m  
response 50919747

*Handwritten notes:*  
HC  
9/17/09  
MD  
9/17/09  
sh

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140964.D Vial: 130  
Acq On : 14-Sep-2009, 22:05 Operator: MD  
Sample : P0903087-002 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 11:41 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration

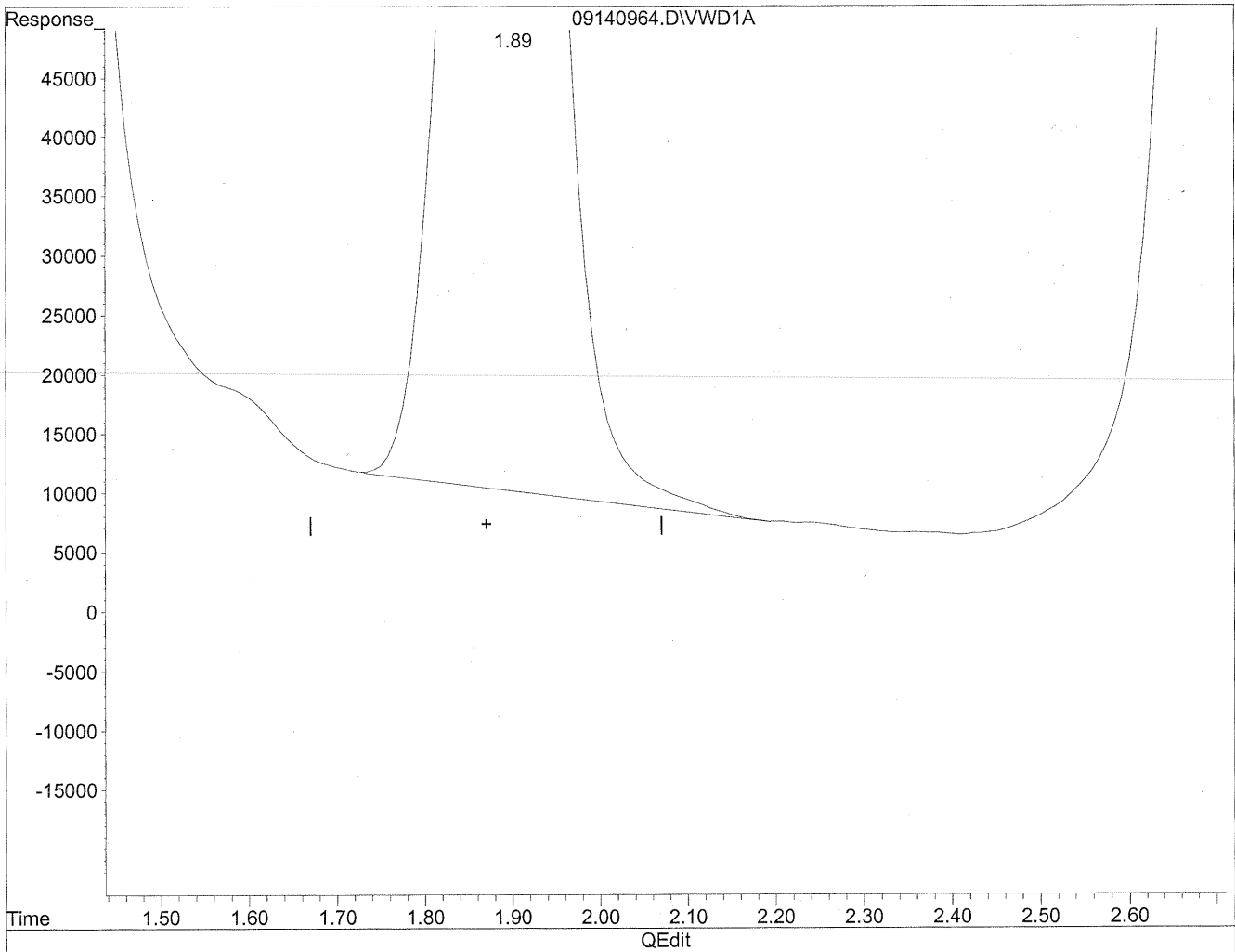


(2) Acetaldehyde  
1.90min 1746.749ng/ml  
response 11355262

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140964.D Vial: 130  
Acq On : 14-Sep-2009, 22:05 Operator: MD  
Sample : P0903087-002 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 11:41 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



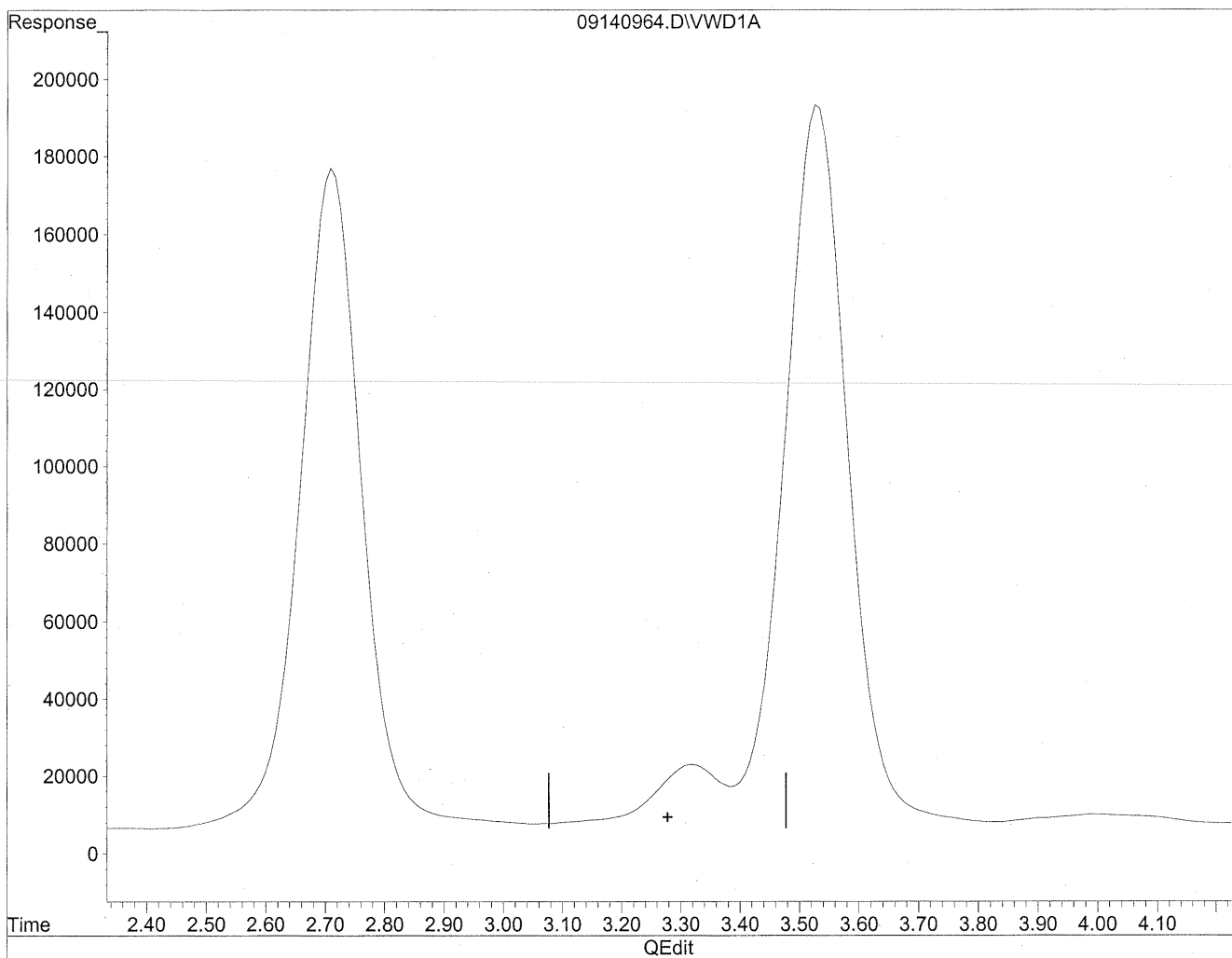
(2) Acetaldehyde  
1.89min 1767.374ng/ml m  
response 11489343

*Handwritten notes:*  
He  
9/17/09  
MD  
9/17/09  
PC

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140964.D Vial: 130  
Acq On : 14-Sep-2009, 22:05 Operator: MD  
Sample : P0903087-002 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 11:41 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration

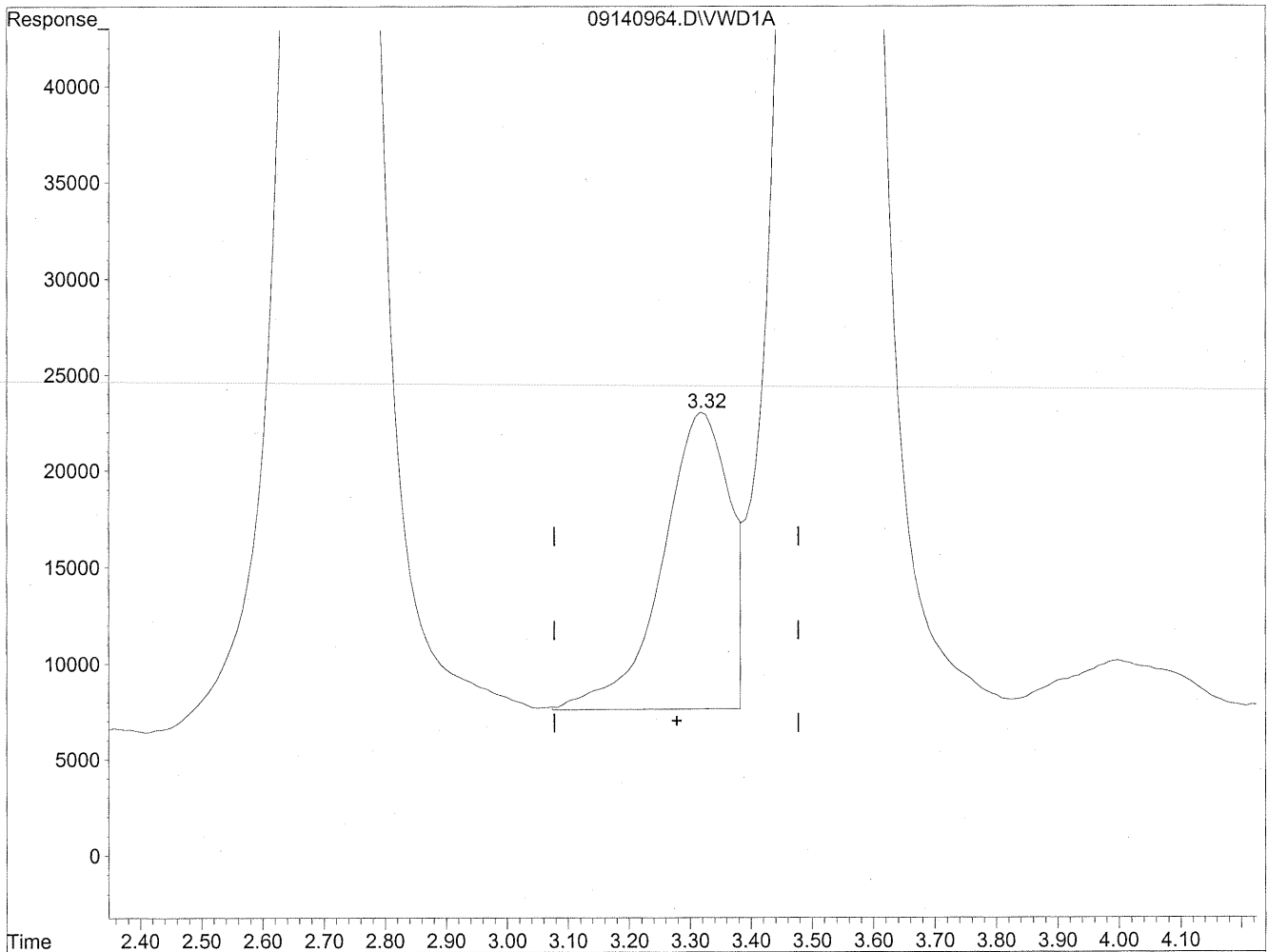


(3) Propionaldehyde  
3.28min 0.000ng/ml  
response 0

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140964.D Vial: 130  
Acq On : 14-Sep-2009, 22:05 Operator: MD  
Sample : P0903087-002 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 11:41 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



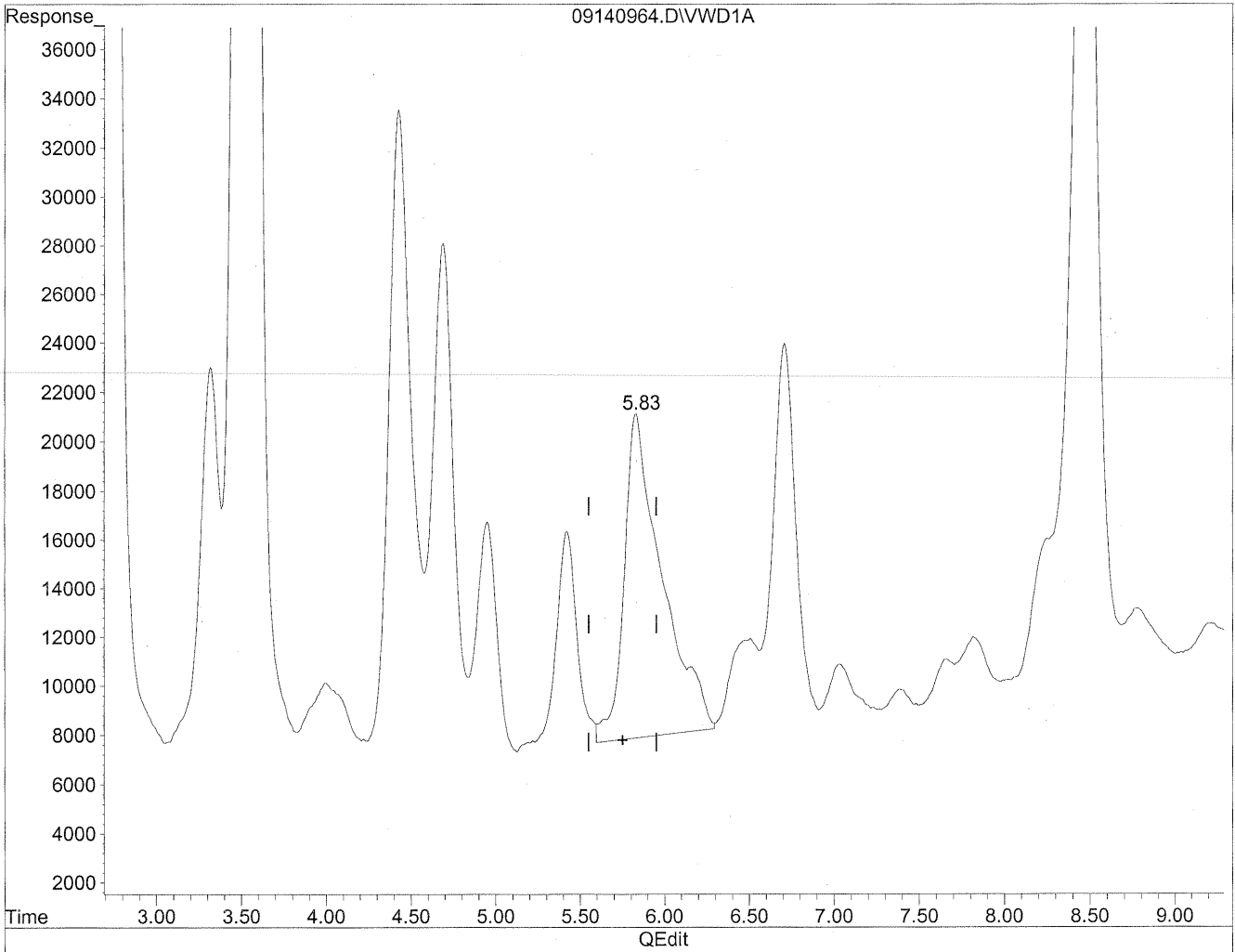
(3) Propionaldehyde  
3.32min 218.661ng/ml m  
response 1136561

*Handwritten notes:*  
He  
9/17/09  
Bui

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140964.D Vial: 130  
Acq On : 14-Sep-2009, 22:05 Operator: MD  
Sample : P0903087-002 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 11:41 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration

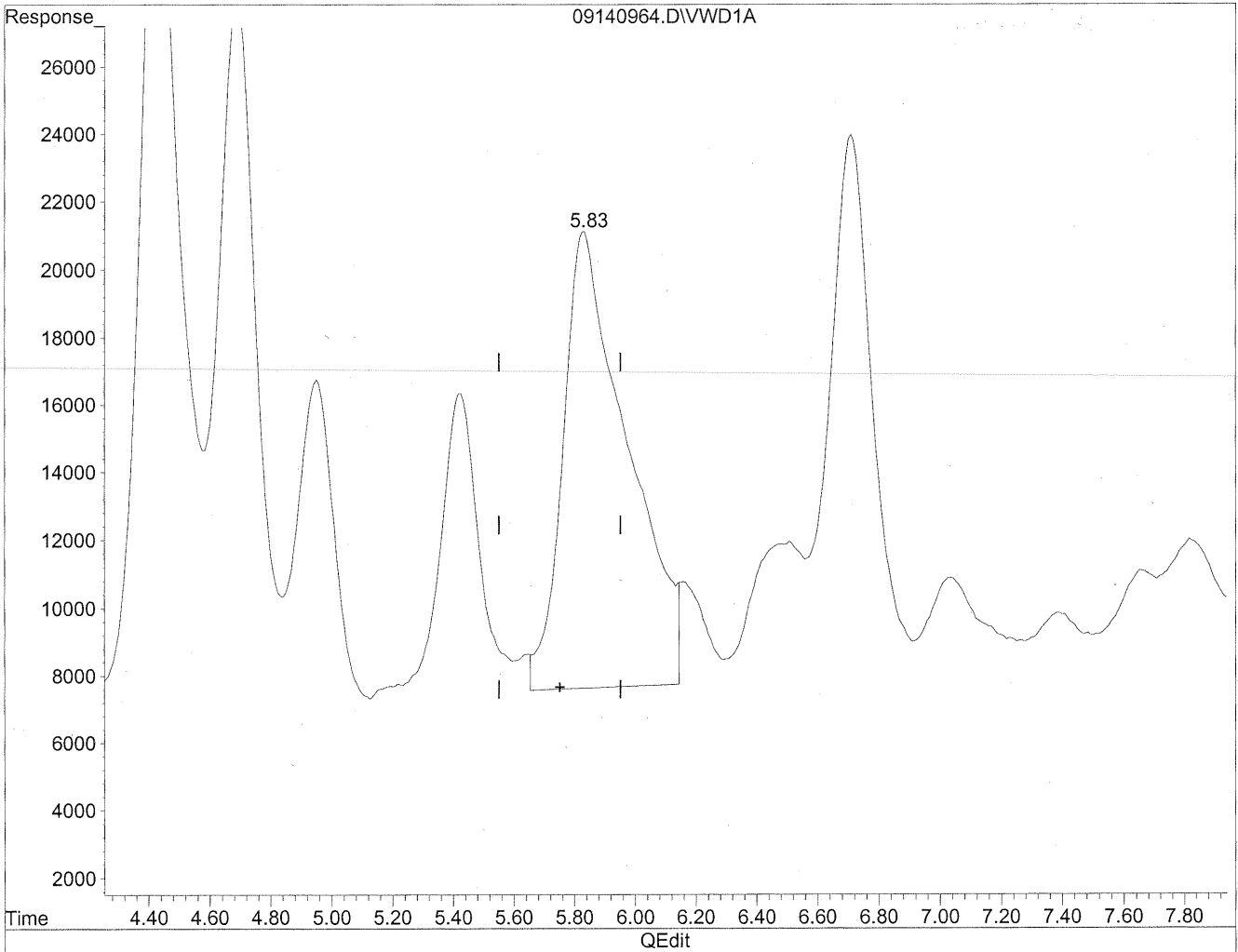


(6) Benzaldehyde  
5.83min 760.179ng/ml  
response 2074057

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140964.D Vial: 130  
Acq On : 14-Sep-2009, 22:05 Operator: MD  
Sample : P0903087-002 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 11:41 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



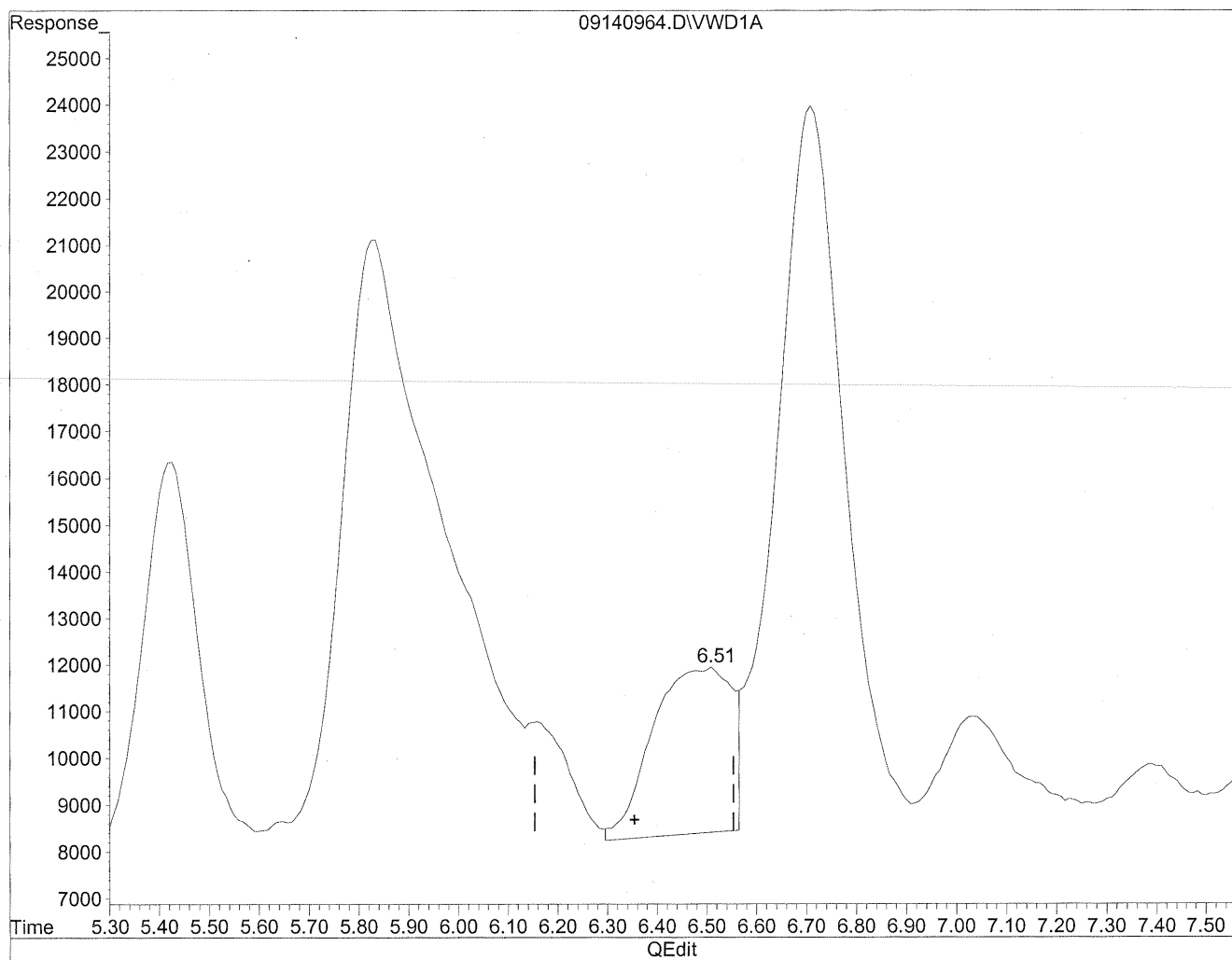
(6) Benzaldehyde  
5.83min 730.052ng/ml m  
response 1991858

*Handwritten notes:*  
mu  
9/17/09  
(m)  
9/17/09  
sh  
(m gray)

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140964.D Vial: 130  
Acq On : 14-Sep-2009, 22:05 Operator: MD  
Sample : P0903087-002 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 11:41 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



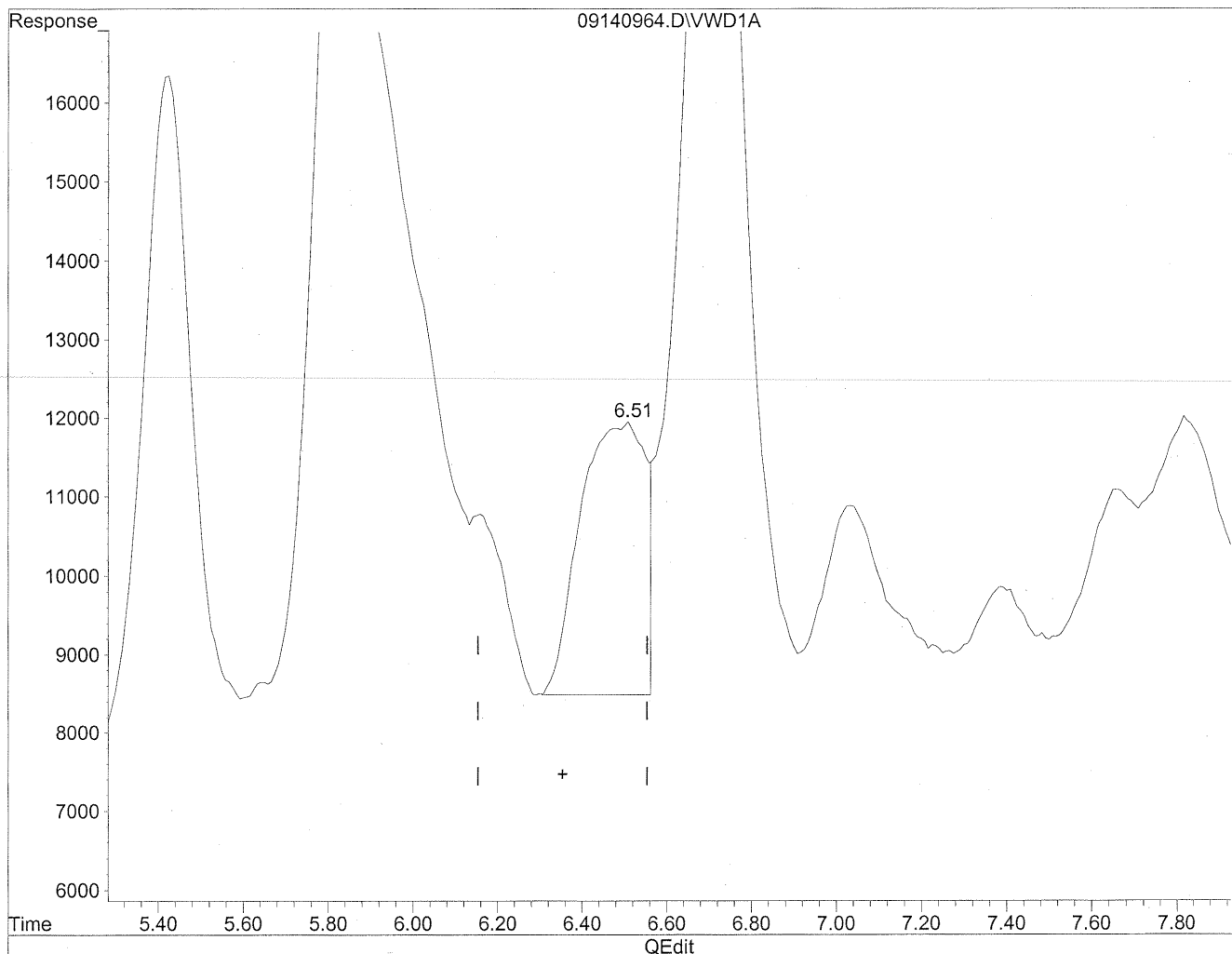
(7) Isovaleraldehyde  
6.51min 111.648ng/ml  
response 384268



Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140964.D Vial: 130  
Acq On : 14-Sep-2009, 22:05 Operator: MD  
Sample : P0903087-002 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 11:44 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 16:12:59 2009  
Response via : Multiple Level Calibration



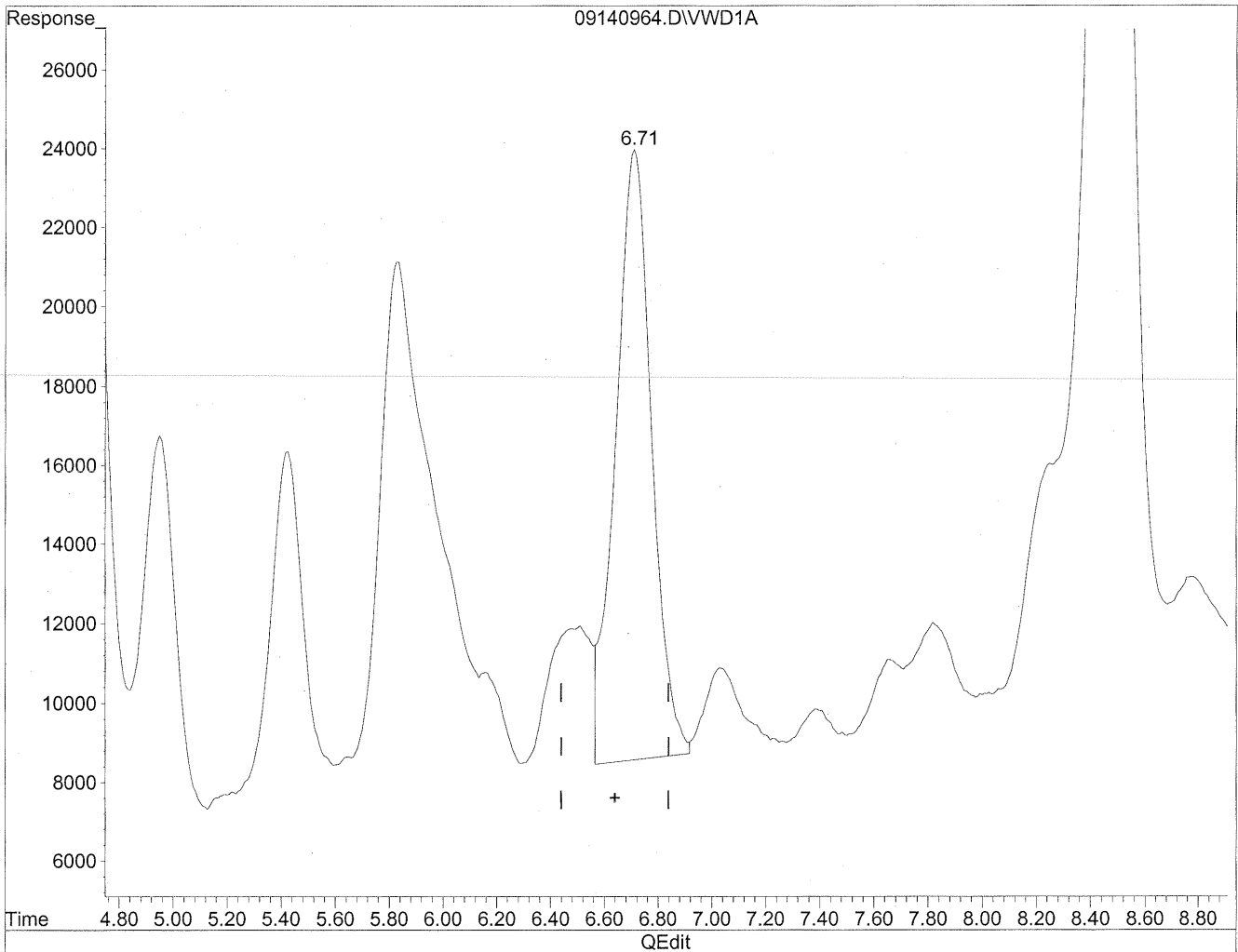
(7) Isovaleraldehyde  
6.51min 106.238ng/ml m  
response 365649

*he*  
*11/18/09*  
*(m)*  
*ic, (m flag)*

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140964.D Vial: 130  
Acq On : 14-Sep-2009, 22:05 Operator: MD  
Sample : P0903087-002 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 11:41 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration

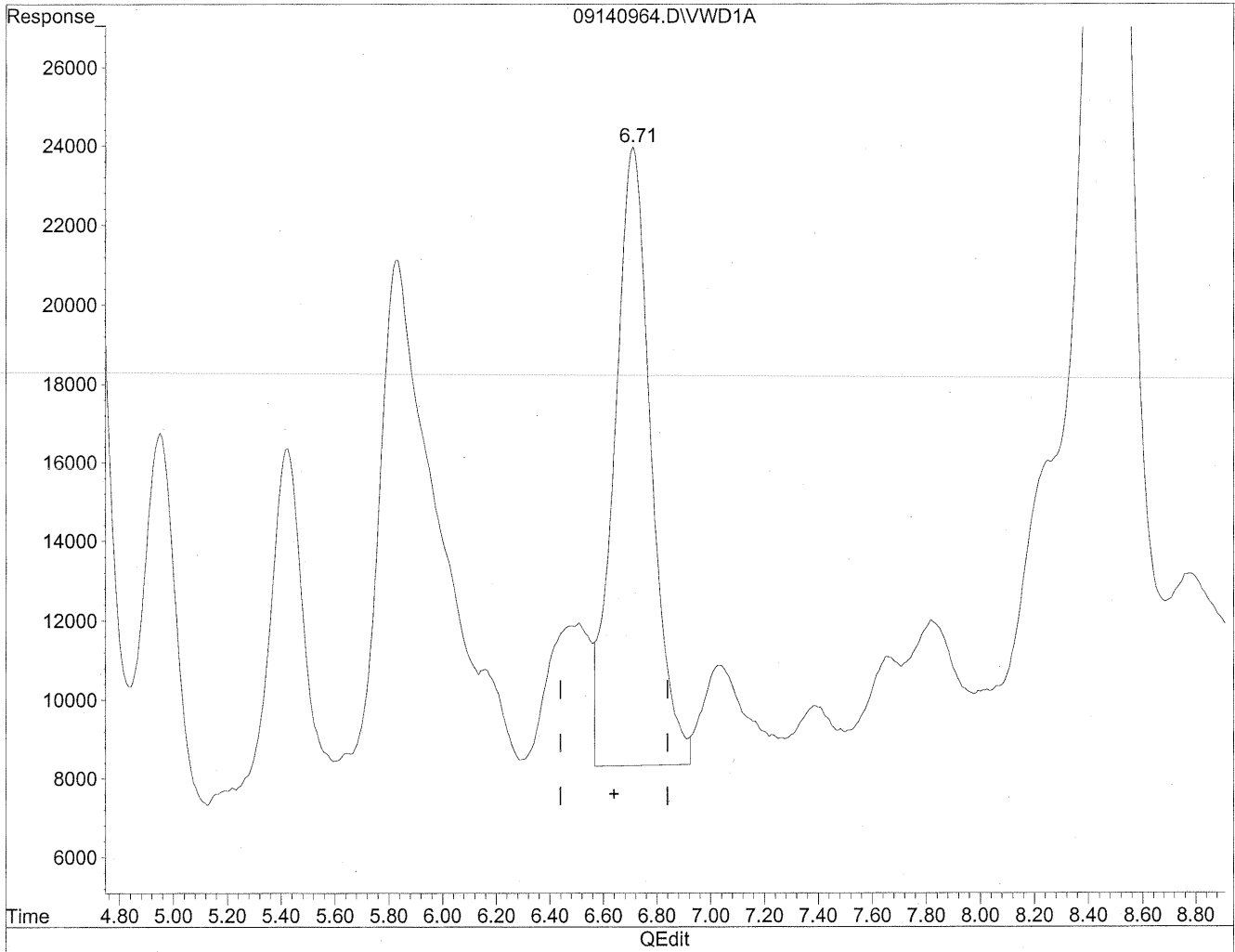


(8) Valeraldehyde  
6.71min 423.741ng/ml  
response 1440567

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140964.D Vial: 130  
Acq On : 14-Sep-2009, 22:05 Operator: MD  
Sample : P0903087-002 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 11:41 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



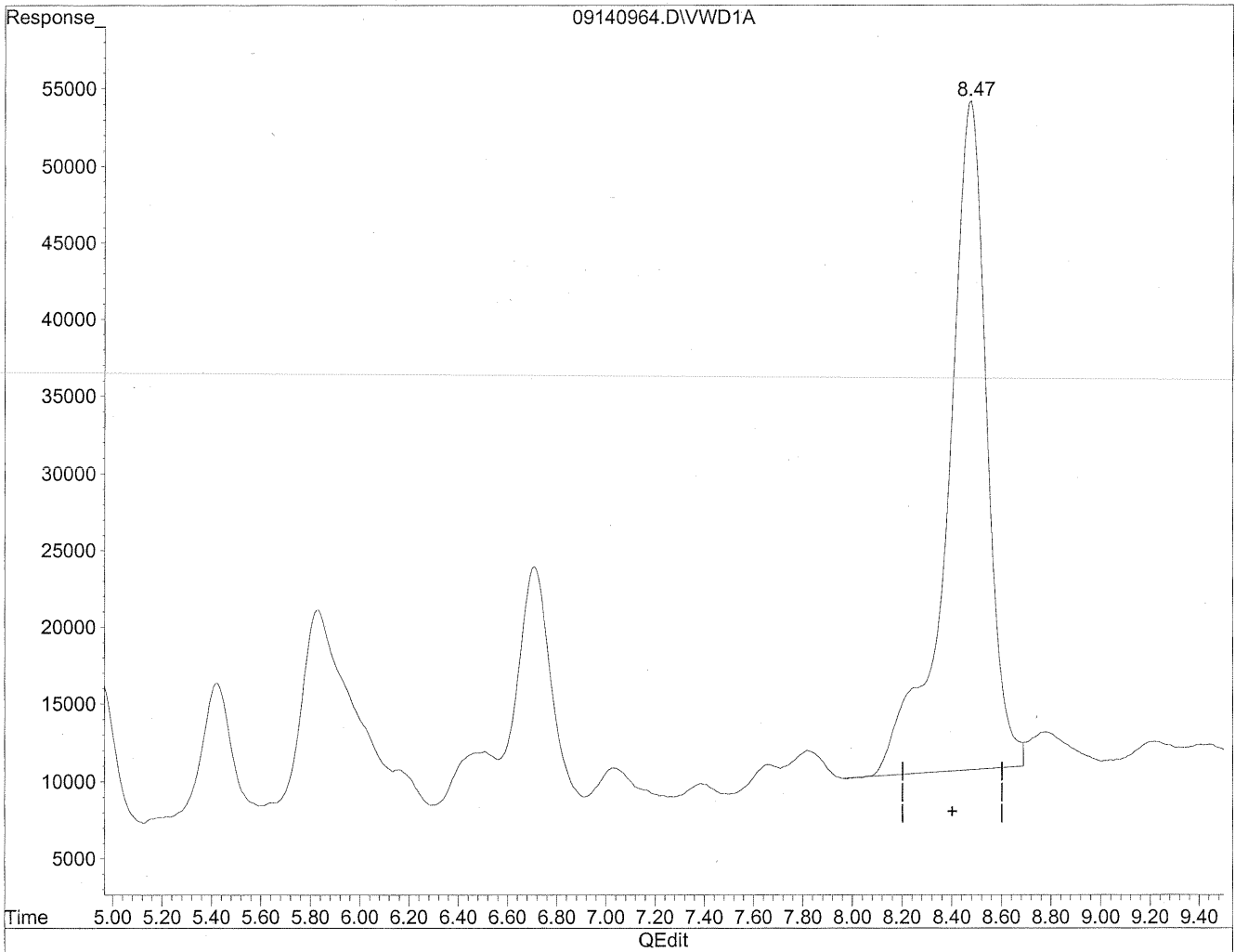
(8) Valeraldehyde  
6.71min 436.927ng/ml m  
response 1485393

*Handwritten notes:*  
m  
9/17/09  
BC  
HU  
9/17/09

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140964.D Vial: 130  
Acq On : 14-Sep-2009, 22:05 Operator: MD  
Sample : P0903087-002 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 11:41 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration

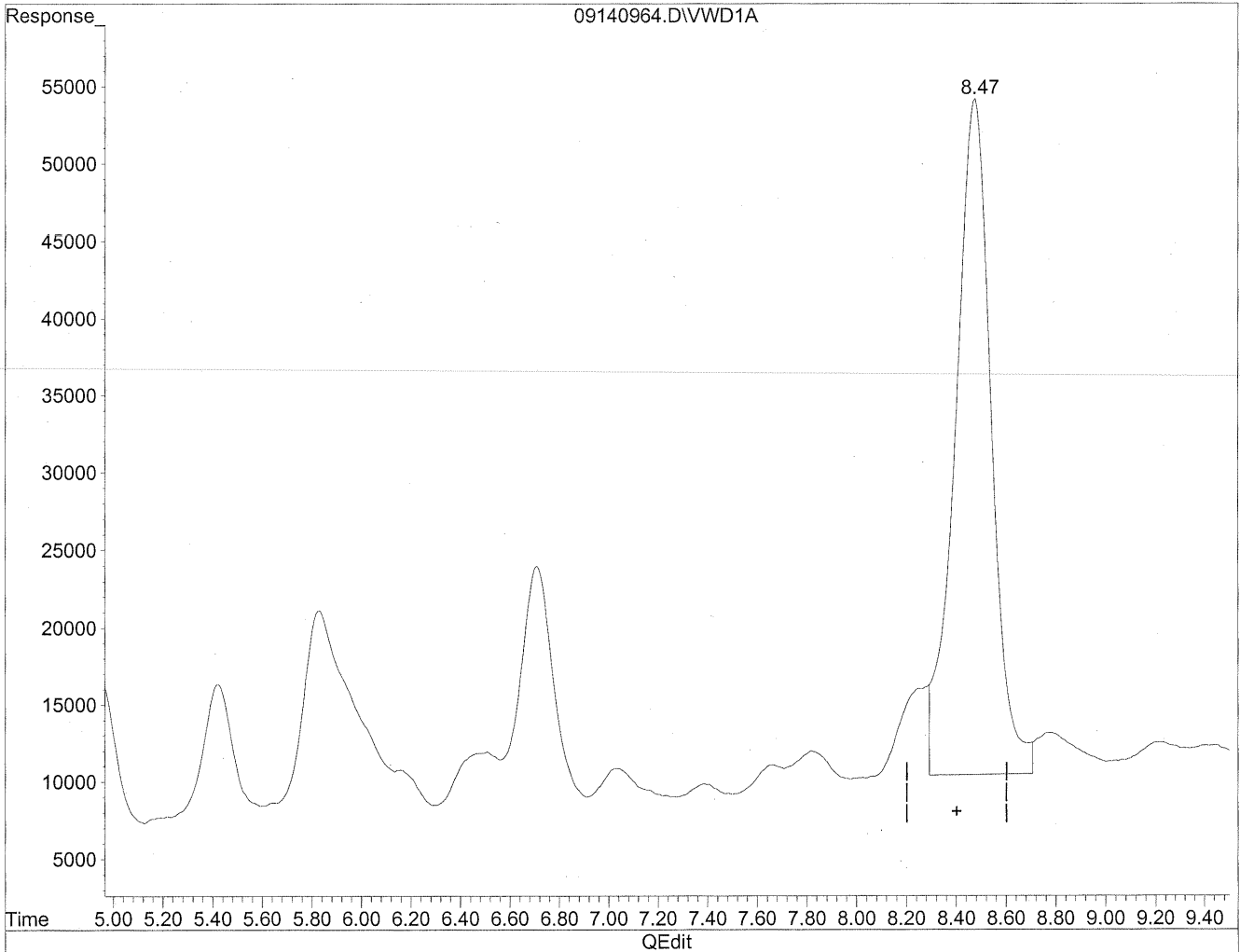


(11) Hexaldehyde  
8.48min 1605.701ng/ml  
response 4754038

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140964.D Vial: 130  
Acq On : 14-Sep-2009, 22:05 Operator: MD  
Sample : P0903087-002 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 11:41 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



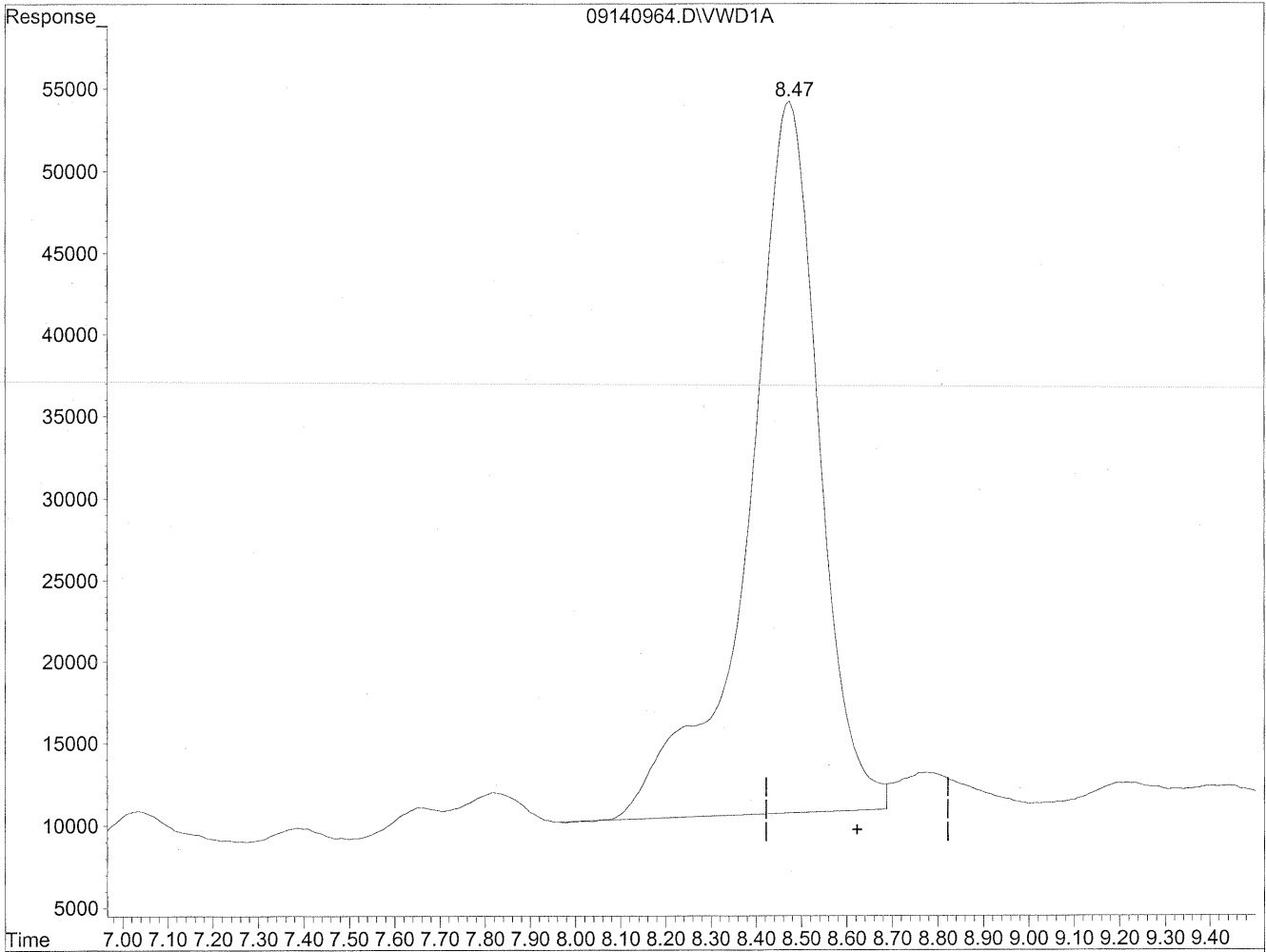
(11) Hexaldehyde  
8.47min 1491.180ng/ml m  
response 4414974

*Handwritten notes:*  
xc  
9/17/09  
MD  
9/17/09  
pc

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140964.D Vial: 130  
Acq On : 14-Sep-2009, 22:05 Operator: MD  
Sample : P0903087-002 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 11:41 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



(12) 2,5-Dimethylbenzaldehyde

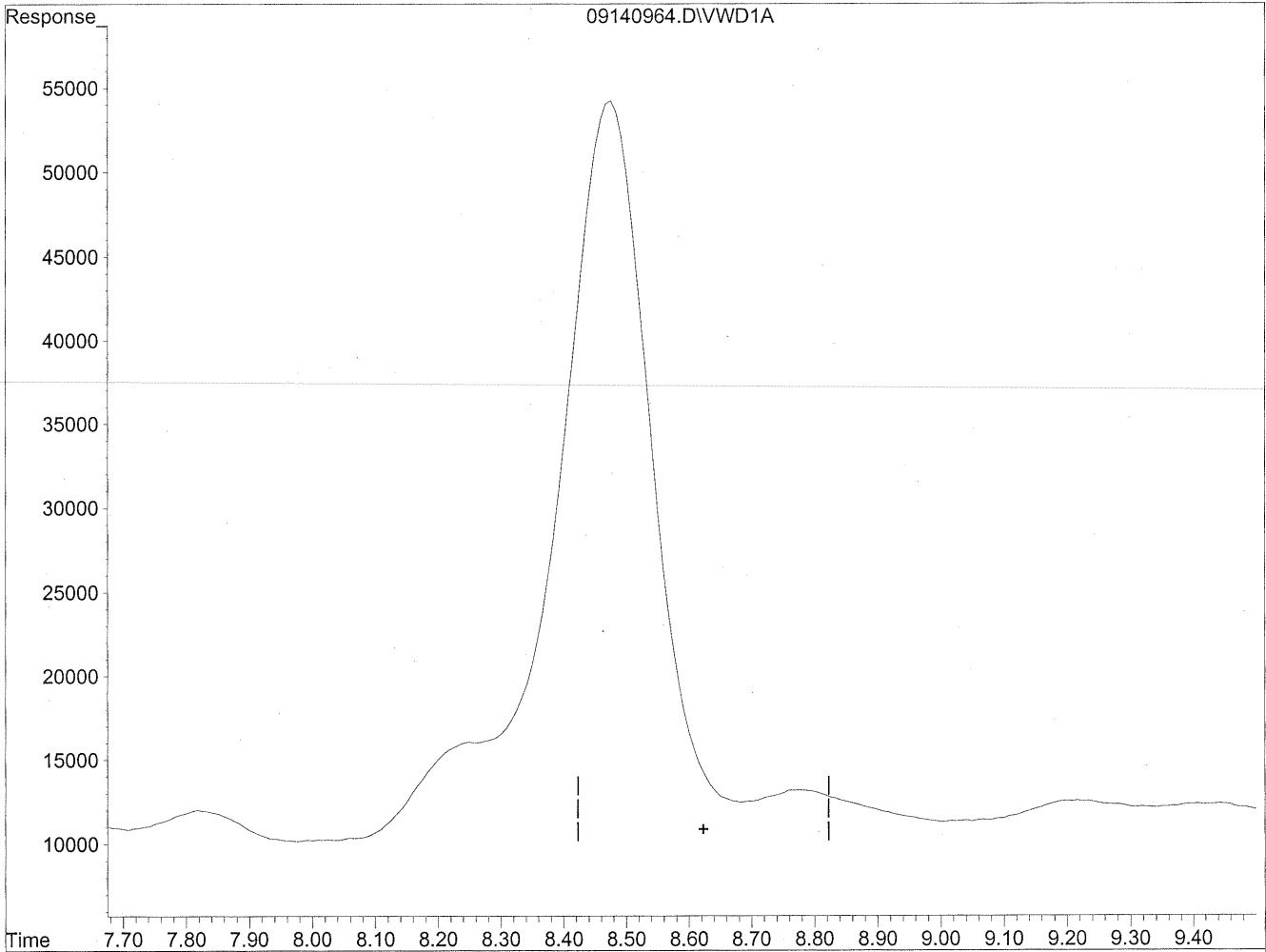
8.48min 2382.389ng/ml

response 4754038

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140964.D Vial: 130  
Acq On : 14-Sep-2009, 22:05 Operator: MD  
Sample : P0903087-002 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 11:41 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



(12) 2,5-Dimethylbenzaldehyde

0.00min 0.000ng/ml d

response 0

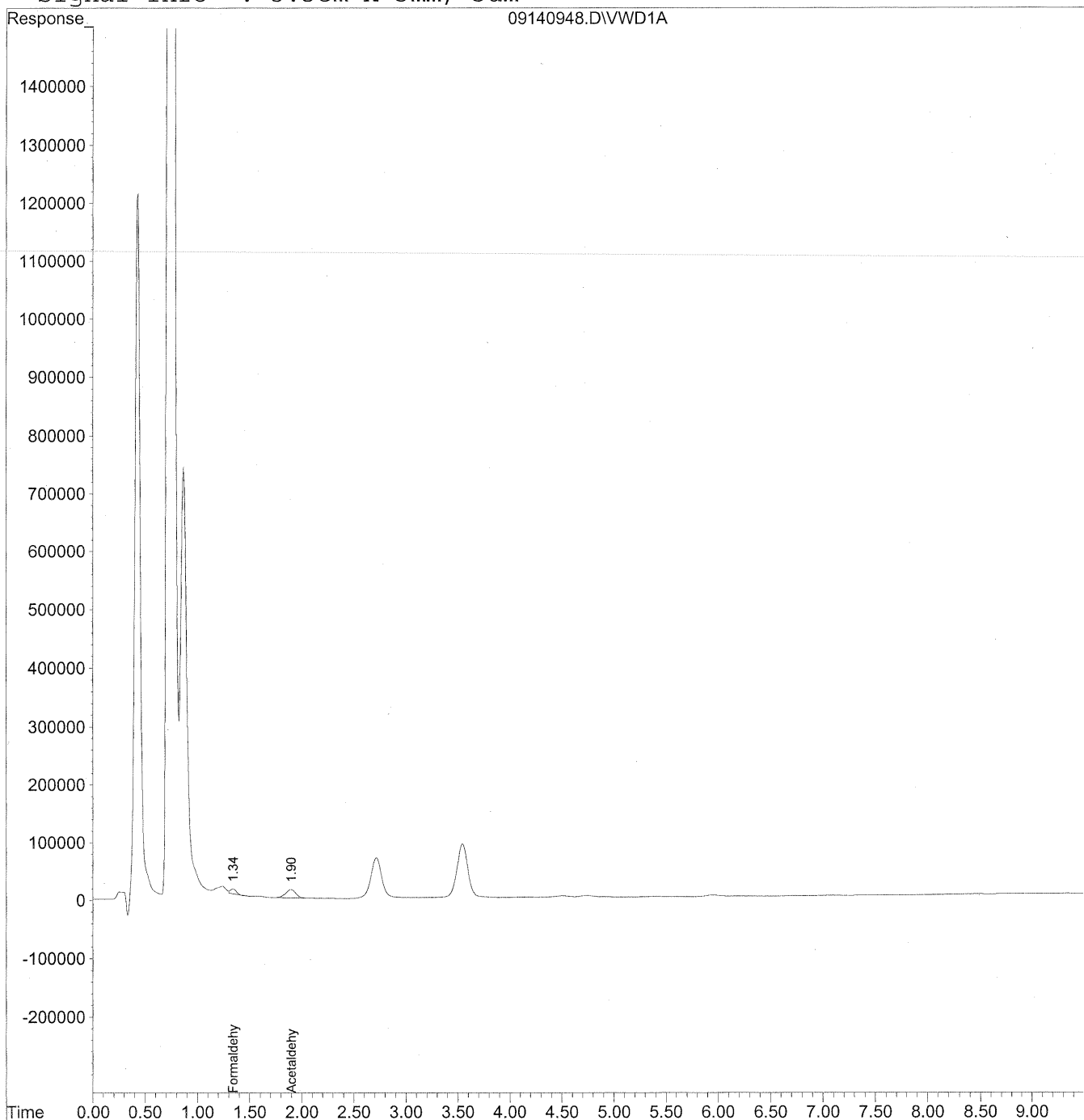
*Handwritten notes:*  
11/17/09  
9/17/09  
mf

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140948.D Vial: 116  
Acq On : 14-Sep-2009, 18:53 Operator: MD  
Sample : P0903087-002 back 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 11:27 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration  
DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
Signal Phase : Supelcosil LC-18  
Signal Info : 3.3cm x 3mm, 3um





Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140948.D Vial: 116  
 Acq On : 14-Sep-2009, 18:53 Operator: MD  
 Sample : P0903087-002 back 1.0ml Inst : VWD  
 Misc : Multiplr: 1.00  
 IntFile : events.e  
 Quant Time: Sep 17 11:27 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
 Title : LC-1050 TO-11A ICAL  
 Last Update : Thu Sep 17 11:23:31 2009  
 Response via : Initial Calibration  
 DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
 Signal Phase : Supelcosil LC-18  
 Signal Info : 3.3cm x 3mm, 3um

| Compound                     | R.T. | Response | Conc Units    |
|------------------------------|------|----------|---------------|
| -----                        |      |          |               |
| Target Compounds             |      |          |               |
| 1) Formaldehyde              | 1.34 | 319214   | 35.725 ng/ml  |
| 2) Acetaldehyde              | 1.90 | 960390   | 147.734 ng/ml |
| 3) Propionaldehyde           | 0.00 | 0        | N.D. ng/ml    |
| 4) Crotonaldehyde            | 0.00 | 0        | N.D. ng/ml    |
| 5) Butyraldehyde             | 0.00 | 0        | N.D. ng/ml    |
| 6) Benzaldehyde              | 0.00 | 0        | N.D. ng/ml    |
| 7) Isovaleraldehyde          | 0.00 | 0        | N.D. ng/ml    |
| 8) Valeraldehyde             | 0.00 | 0        | N.D. ng/ml    |
| 9) o-Tolualdehyde            | 0.00 | 0        | N.D. ng/ml    |
| 10) m,p-Tolualdehyde         | 0.00 | 0        | N.D. ng/ml    |
| 11) Hexaldehyde              | 0.00 | 0        | N.D. ng/ml    |
| 12) 2,5-Dimethylbenzaldehyde | 0.00 | 0        | N.D. ng/ml    |

**COLUMBIA ANALYTICAL SERVICES, INC.**

RESULTS OF ANALYSIS

Page 1 of 1

**Client:** Environmental Health & Engineering, Inc.

**Client Sample ID:** 104322

**Client Project ID:** 16512

CAS Project ID: P0903087

CAS Sample ID: P0903087-003

Test Code: EPA Method TO-11A

Instrument ID: HP1050/LC2

Analyst: Madeleine Dangazyan

Sampling Media: Silica Gel DNPH Tube

Test Notes: **BC**

Date Collected: 9/1/09

Date Received: 9/2/09

Date Analyzed: 9/14/09

Desorption Volume: 1.0 ml

Volume Sampled: NA Liter(s)

| CAS #     | Compound                 | Result<br>ng/Sample | Result<br>µg/m <sup>3</sup> | MRL<br>µg/m <sup>3</sup> | Result<br>ppbV | MRL<br>ppbV | Data<br>Qualifier |
|-----------|--------------------------|---------------------|-----------------------------|--------------------------|----------------|-------------|-------------------|
| 50-00-0   | Formaldehyde             | < 100               | NA                          | NA                       | NA             | NA          |                   |
| 75-07-0   | Acetaldehyde             | < 100               | NA                          | NA                       | NA             | NA          |                   |
| 123-38-6  | Propionaldehyde          | < 100               | NA                          | NA                       | NA             | NA          |                   |
| 4170-30-3 | Crotonaldehyde, Total    | < 100               | NA                          | NA                       | NA             | NA          |                   |
| 123-72-8  | Butyraldehyde            | < 100               | NA                          | NA                       | NA             | NA          |                   |
| 100-52-7  | Benzaldehyde             | < 100               | NA                          | NA                       | NA             | NA          |                   |
| 590-86-3  | Isovaleraldehyde         | < 100               | NA                          | NA                       | NA             | NA          |                   |
| 110-62-3  | Valeraldehyde            | < 100               | NA                          | NA                       | NA             | NA          |                   |
| 529-20-4  | o-Tolualdehyde           | < 100               | NA                          | NA                       | NA             | NA          |                   |
| 620-23-5  |                          |                     |                             |                          |                |             |                   |
| 104-87-0  | m,p-Tolualdehyde         | < 200               | NA                          | NA                       | NA             | NA          |                   |
| 66-25-1   | n-Hexaldehyde            | < 100               | NA                          | NA                       | NA             | NA          |                   |
| 5779-94-2 | 2,5-Dimethylbenzaldehyde | < 100               | NA                          | NA                       | NA             | NA          |                   |

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

BC = Results reported are not blank corrected.

NA = Not applicable.

Verified By: \_\_\_\_\_

Date: \_\_\_\_\_

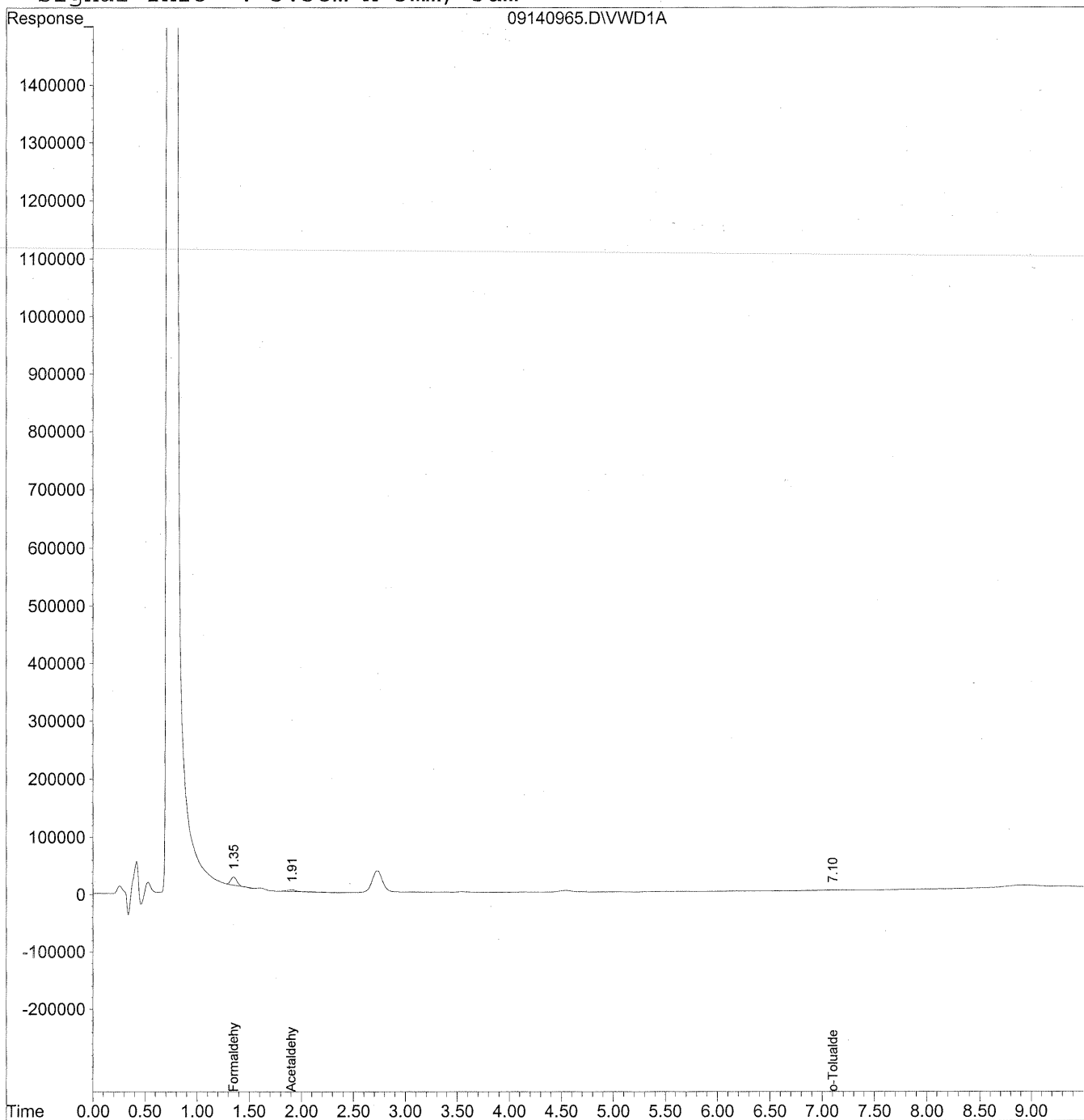
*9/14/09*

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140965.D Vial: 131  
Acq On : 14-Sep-2009, 22:17 Operator: MD  
Sample : P0903087-003 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 11:45 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration  
DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
Signal Phase : Supelcosil LC-18  
Signal Info : 3.3cm x 3mm, 3um



Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140965.D Vial: 131  
 Acq On : 14-Sep-2009, 22:17 Operator: MD  
 Sample : P0903087-003 front 1.0ml Inst : VWD  
 Misc : Multiplr: 1.00  
 IntFile : events.e  
 Quant Time: Sep 17 11:45 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
 Title : LC-1050 TO-11A ICAL  
 Last Update : Thu Sep 17 11:23:31 2009  
 Response via : Initial Calibration  
 DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
 Signal Phase : Supelcosil LC-18  
 Signal Info : 3.3cm x 3mm, 3um

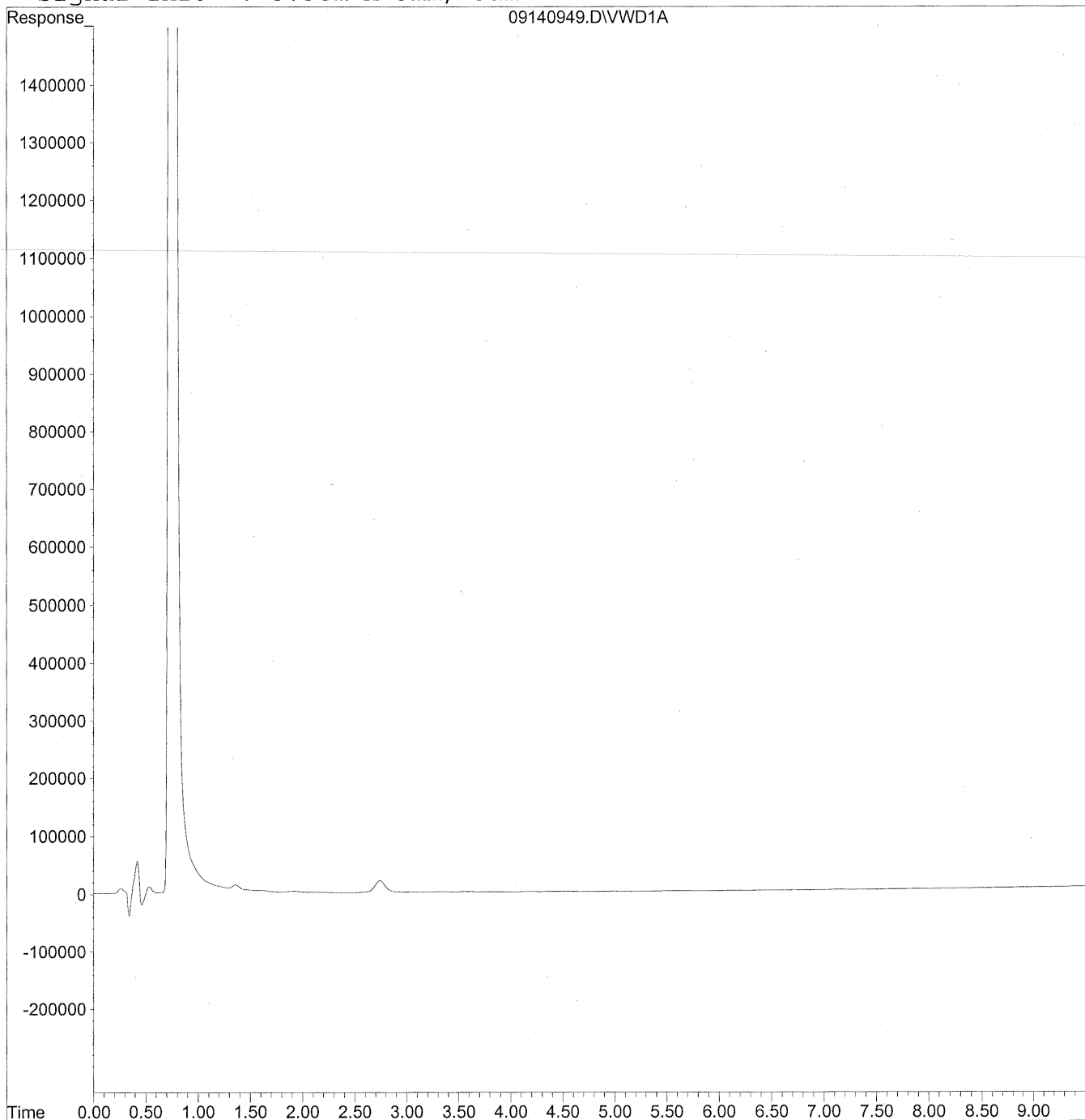
| Compound                     | R.T. | Response | Conc Units   |
|------------------------------|------|----------|--------------|
| -----                        |      |          |              |
| Target Compounds             |      |          |              |
| 1) Formaldehyde              | 1.36 | 562353   | 62.935 ng/ml |
| 2) Acetaldehyde              | 1.90 | 126014   | 19.384 ng/ml |
| 3) Propionaldehyde           | 0.00 | 0        | N.D. ng/ml   |
| 4) Crotonaldehyde            | 0.00 | 0        | N.D. ng/ml   |
| 5) Butyraldehyde             | 0.00 | 0        | N.D. ng/ml   |
| 6) Benzaldehyde              | 0.00 | 0        | N.D. ng/ml   |
| 7) Isovaleraldehyde          | 0.00 | 0        | N.D. ng/ml   |
| 8) Valeraldehyde             | 0.00 | 0        | N.D. ng/ml   |
| 9) o-Tolualdehyde            | 7.10 | 24567    | 11.194 ng/ml |
| 10) m,p-Tolualdehyde         | 0.00 | 0        | N.D. ng/ml   |
| 11) Hexaldehyde              | 0.00 | 0        | N.D. ng/ml   |
| 12) 2,5-Dimethylbenzaldehyde | 0.00 | 0        | N.D. ng/ml   |

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140949.D Vial: 117  
Acq On : 14-Sep-2009, 19:05 Operator: MD  
Sample : P0903087-003 back 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 11:28 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration  
DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
Signal Phase : Supelcosil LC-18  
Signal Info : 3.3cm x 3mm, 3um



Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140949.D Vial: 117  
 Acq On : 14-Sep-2009, 19:05 Operator: MD  
 Sample : P0903087-003 back 1.0ml Inst : VWD  
 Misc : Multiplr: 1.00  
 IntFile : events.e  
 Quant Time: Sep 17 11:28 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
 Title : LC-1050 TO-11A ICAL  
 Last Update : Thu Sep 17 11:23:31 2009  
 Response via : Initial Calibration  
 DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
 Signal Phase : Supelcosil LC-18  
 Signal Info : 3.3cm x 3mm, 3um

| Compound                     | R.T. | Response | Conc | Units |
|------------------------------|------|----------|------|-------|
| -----                        |      |          |      |       |
| Target Compounds             |      |          |      |       |
| 1) Formaldehyde              | 0.00 | 0        | N.D. | ng/ml |
| 2) Acetaldehyde              | 0.00 | 0        | N.D. | ng/ml |
| 3) Propionaldehyde           | 0.00 | 0        | N.D. | ng/ml |
| 4) Crotonaldehyde            | 0.00 | 0        | N.D. | ng/ml |
| 5) Butyraldehyde             | 0.00 | 0        | N.D. | ng/ml |
| 6) Benzaldehyde              | 0.00 | 0        | N.D. | ng/ml |
| 7) Isovaleraldehyde          | 0.00 | 0        | N.D. | ng/ml |
| 8) Valeraldehyde             | 0.00 | 0        | N.D. | ng/ml |
| 9) o-Tolualdehyde            | 0.00 | 0        | N.D. | ng/ml |
| 10) m,p-Tolualdehyde         | 0.00 | 0        | N.D. | ng/ml |
| 11) Hexaldehyde              | 0.00 | 0        | N.D. | ng/ml |
| 12) 2,5-Dimethylbenzaldehyde | 0.00 | 0        | N.D. | ng/ml |

**COLUMBIA ANALYTICAL SERVICES, INC.**

RESULTS OF ANALYSIS

Page 1 of 1

**Client:** Environmental Health & Engineering, Inc.  
**Client Sample ID:** 104323  
**Client Project ID:** 16512

CAS Project ID: P0903087  
 CAS Sample ID: P0903087-004

**Test Code:** EPA Method TO-11A  
**Instrument ID:** HP1050/LC2  
**Analyst:** Madeleine Dangazyan  
**Sampling Media:** Silica Gel DNPH Tube  
**Test Notes:** BC

**Date Collected:** 9/1/09  
**Date Received:** 9/2/09  
**Date Analyzed:** 9/14/09  
**Desorption Volume:** 1.0 ml  
**Volume Sampled:** 107 Liter(s)

| CAS #     | Compound                 | Result<br>ng/Sample | Result<br>µg/m <sup>3</sup> | MRL<br>µg/m <sup>3</sup> | Result<br>ppbV | MRL<br>ppbV | Data<br>Qualifier |
|-----------|--------------------------|---------------------|-----------------------------|--------------------------|----------------|-------------|-------------------|
| 50-00-0   | Formaldehyde             | 4,900               | 46                          | 0.93                     | 38             | 0.76        |                   |
| 75-07-0   | Acetaldehyde             | 1,800               | 16                          | 0.93                     | 9.2            | 0.52        | BT                |
| 123-38-6  | Propionaldehyde          | 200                 | 1.9                         | 0.93                     | 0.80           | 0.39        |                   |
| 4170-30-3 | Crotonaldehyde, Total    | < 100               | ND                          | 0.93                     | ND             | 0.33        |                   |
| 123-72-8  | Butyraldehyde            | 170                 | 1.6                         | 0.93                     | 0.53           | 0.32        |                   |
| 100-52-7  | Benzaldehyde             | 660                 | 6.2                         | 0.93                     | 1.4            | 0.22        | M                 |
| 590-86-3  | Isovaleraldehyde         | < 100               | ND                          | 0.93                     | ND             | 0.27        |                   |
| 110-62-3  | Valeraldehyde            | 390                 | 3.6                         | 0.93                     | 1.0            | 0.27        |                   |
| 529-20-4  | o-Tolualdehyde           | < 100               | ND                          | 0.93                     | ND             | 0.19        |                   |
| 620-23-5  |                          |                     |                             |                          |                |             |                   |
| 104-87-0  | m,p-Tolualdehyde         | < 200               | ND                          | 1.9                      | ND             | 0.38        |                   |
| 66-25-1   | n-Hexaldehyde            | 1,300               | 12                          | 0.93                     | 3.0            | 0.23        |                   |
| 5779-94-2 | 2,5-Dimethylbenzaldehyde | < 100               | ND                          | 0.93                     | ND             | 0.17        |                   |

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

BC = Results reported are not blank corrected.

BT = Results indicated possible breakthrough; back section > 10% front section.

M = Matrix interference; results may be biased high.

Verified By: \_\_\_\_\_

*f*

Date: \_\_\_\_\_

*9/14/09*

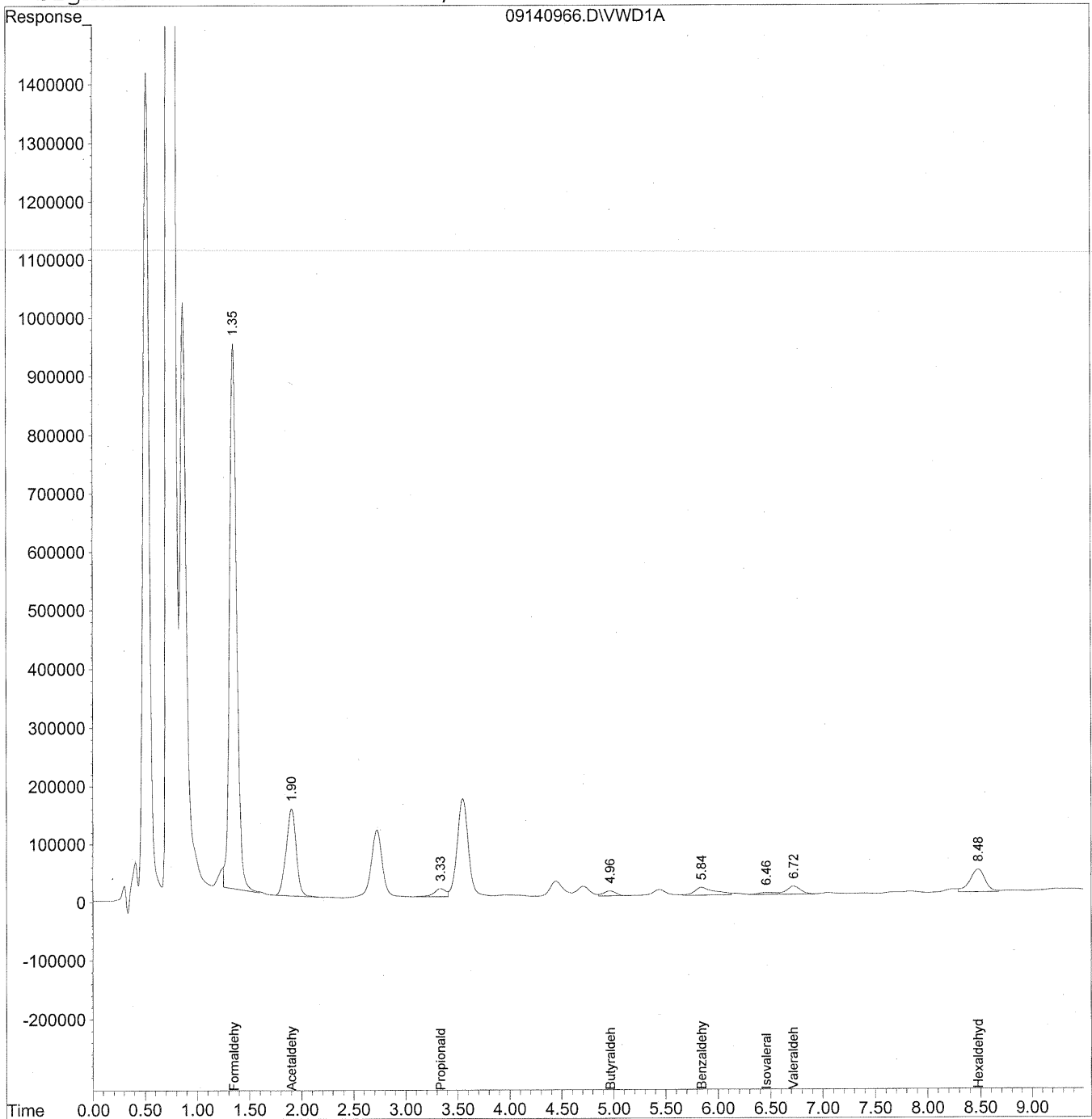
**47**

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140966.D Vial: 132  
Acq On : 14-Sep-2009, 22:29 Operator: MD  
Sample : P0903087-004 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 11:50 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 10:46:08 2009  
Response via : Multiple Level Calibration  
DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
Signal Phase : Supelcosil LC-18  
Signal Info : 3.3cm x 3mm, 3um





Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140966.D Vial: 132  
 Acq On : 14-Sep-2009, 22:29 Operator: MD  
 Sample : P0903087-004 front 1.0ml Inst : VWD  
 Misc : Multiplr: 1.00  
 IntFile : events.e  
 Quant Time: Sep 17 11:50 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
 Title : LC-1050 TO-11A ICAL  
 Last Update : Thu Sep 17 10:46:08 2009  
 Response via : Initial Calibration  
 DataAcq Meth : TO-11A.M

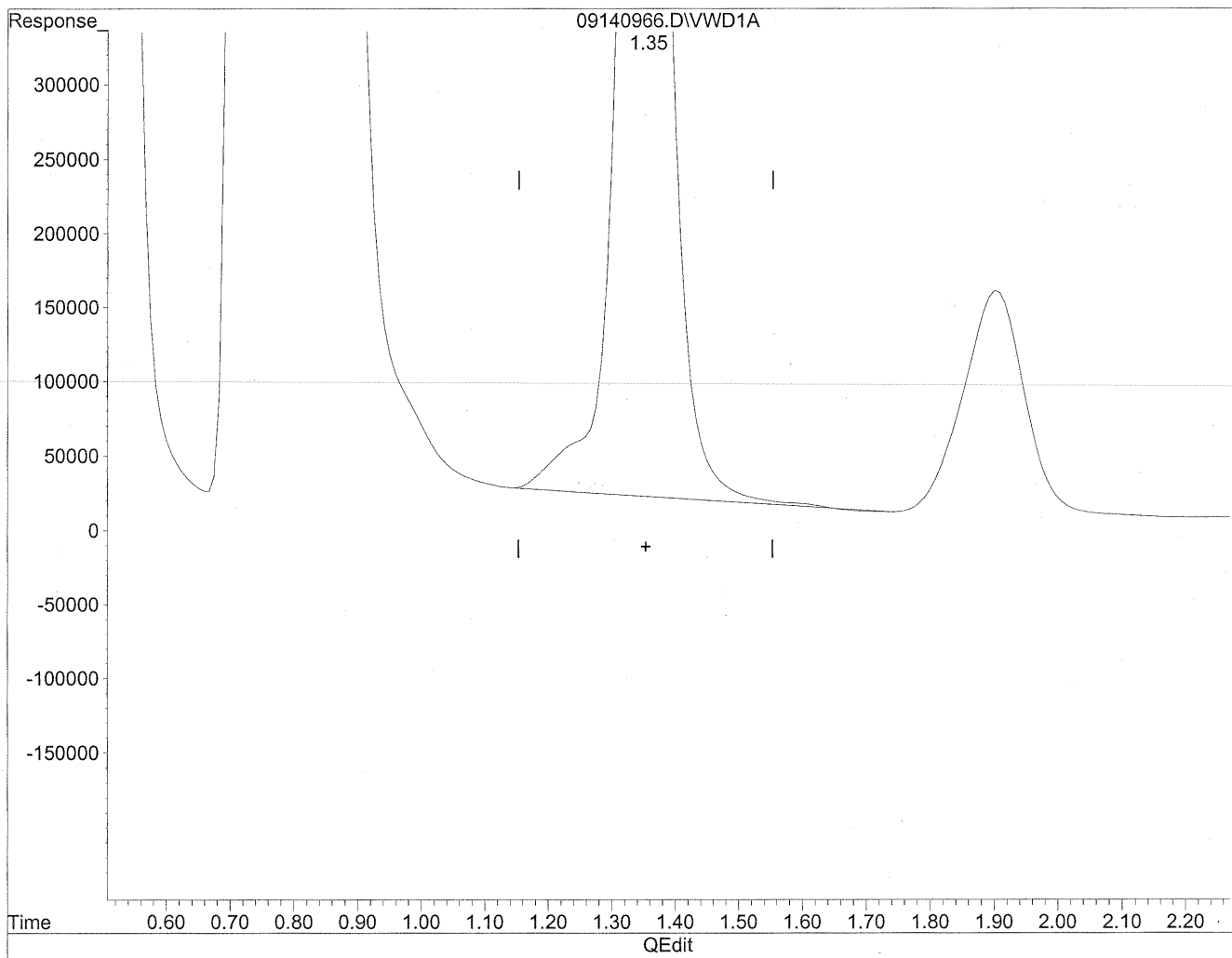
Volume Inj. : 3uL  
 Signal Phase : Supelcosil LC-18  
 Signal Info : 3.3cm x 3mm, 3um

| Compound                     | R.T. | Response | Conc Units      |
|------------------------------|------|----------|-----------------|
| -----                        |      |          |                 |
| Target Compounds             |      |          |                 |
| 1) Formaldehyde              | 1.35 | 44093951 | 4934.731 ng/mlm |
| 2) Acetaldehyde              | 1.91 | 10038939 | 1544.263 ng/ml  |
| 3) Propionaldehyde           | 3.33 | 1053166  | 202.617 ng/mlm  |
| 4) Crotonaldehyde            | 0.00 | 0        | N.D. ng/ml      |
| 5) Butyraldehyde             | 4.97 | 683670   | 168.692 ng/ml   |
| 6) Benzaldehyde              | 5.84 | 1812746  | 664.405 ng/mlm  |
| 7) Isovaleraldehyde          | 6.46 | 337971   | 98.196 ng/ml    |
| 8) Valeraldehyde             | 6.72 | 1319290  | 388.068 ng/mlm  |
| 9) o-Tolualdehyde            | 0.00 | 0        | N.D. ng/ml      |
| 10) m,p-Tolualdehyde         | 0.00 | 0        | N.D. ng/ml      |
| 11) Hexaldehyde              | 8.48 | 3874162  | 1308.518 ng/mlm |
| 12) 2,5-Dimethylbenzaldehyde | 0.00 | 0        | N.D. ng/ml      |

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140966.D Vial: 132  
Acq On : 14-Sep-2009, 22:29 Operator: MD  
Sample : P0903087-004 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 10:59 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration

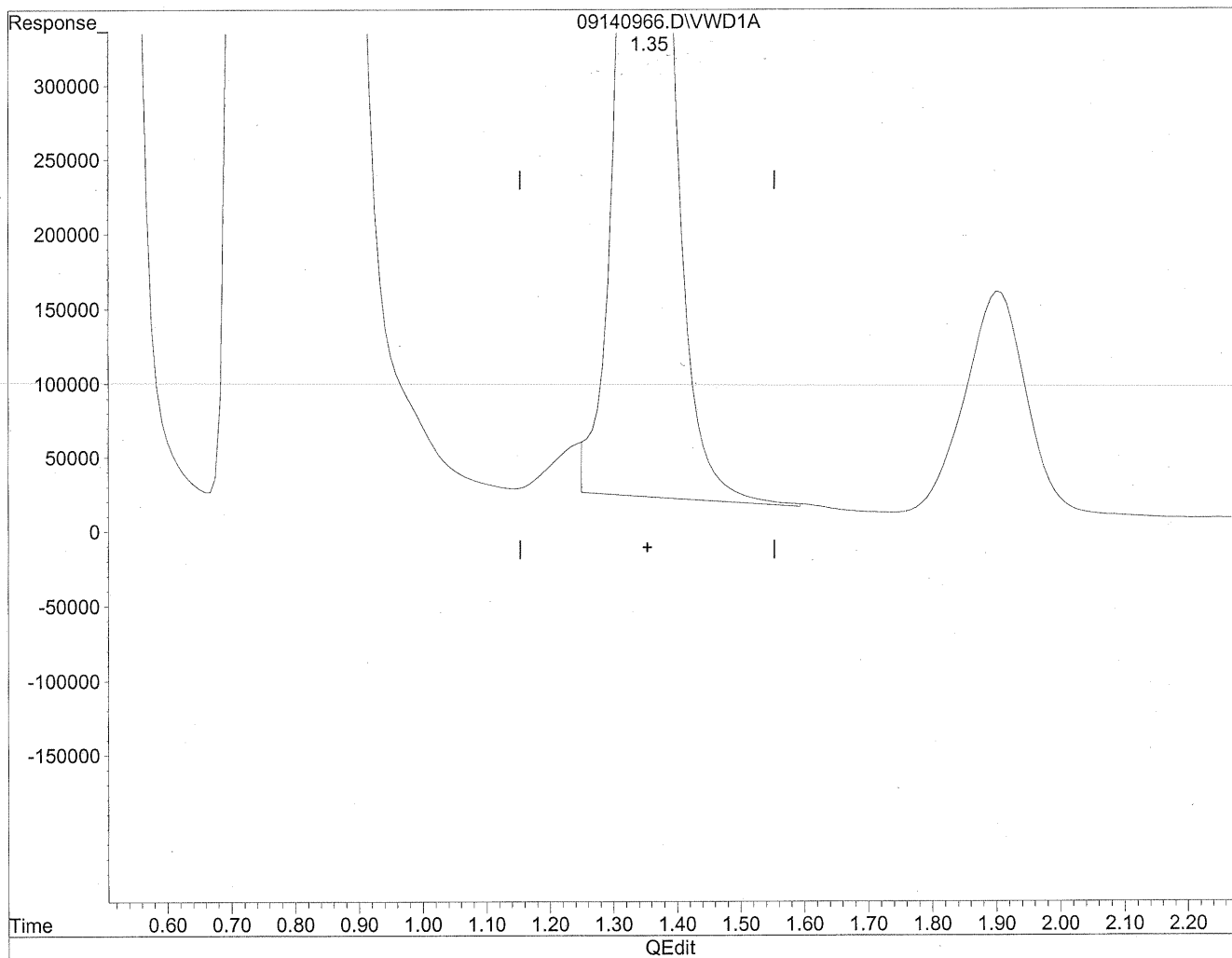


(1) Formaldehyde  
1.35min 5060.758ng/ml  
response 45220050

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140966.D Vial: 132  
Acq On : 14-Sep-2009, 22:29 Operator: MD  
Sample : P0903087-004 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 10:59 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



(1) Formaldehyde  
1.35min 4934.731ng/ml m  
response 44093951

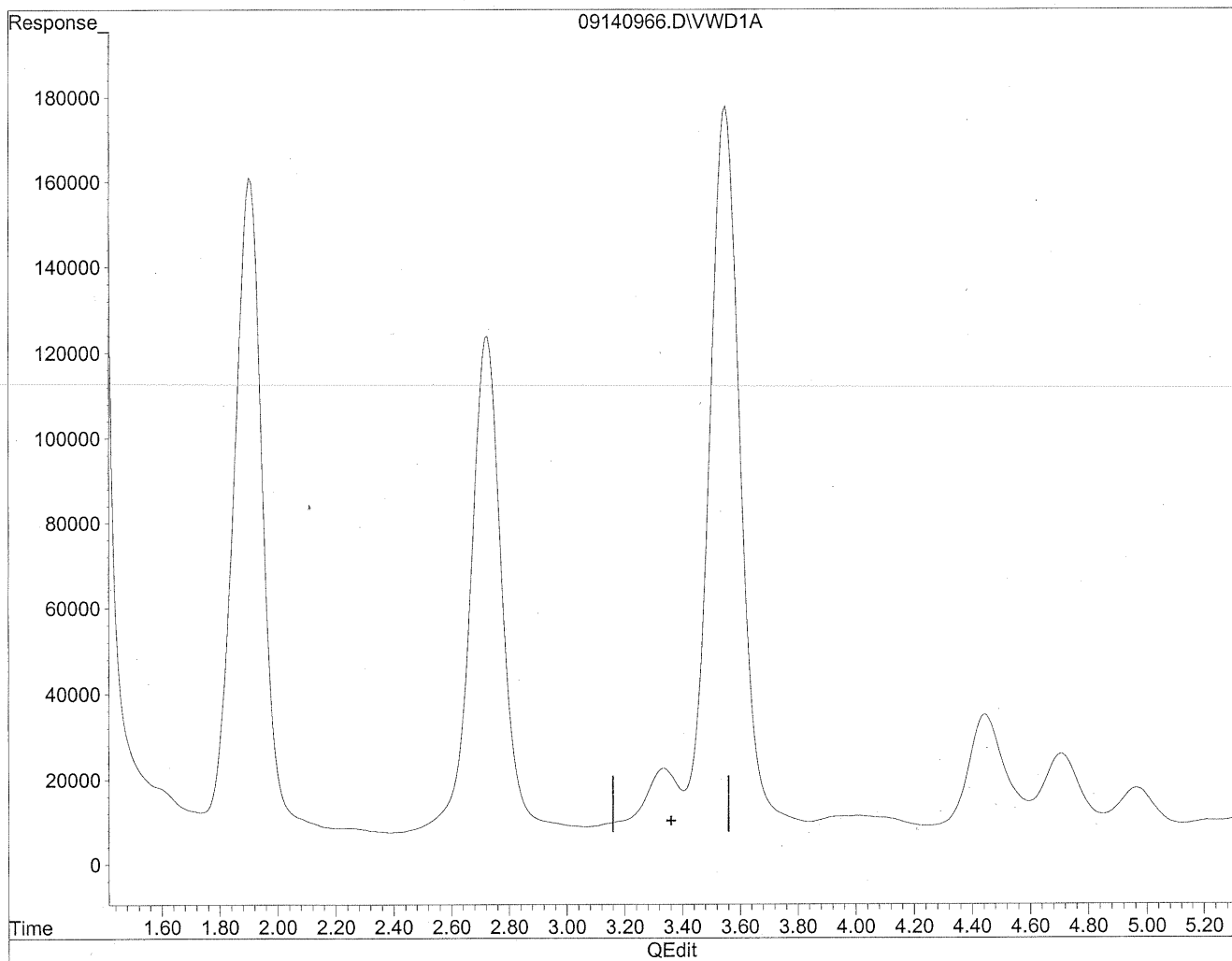
*MD*  
9/17/09  
SH

*MD*  
9/17/09

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140966.D Vial: 132  
Acq On : 14-Sep-2009, 22:29 Operator: MD  
Sample : P0903087-004 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 10:59 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration

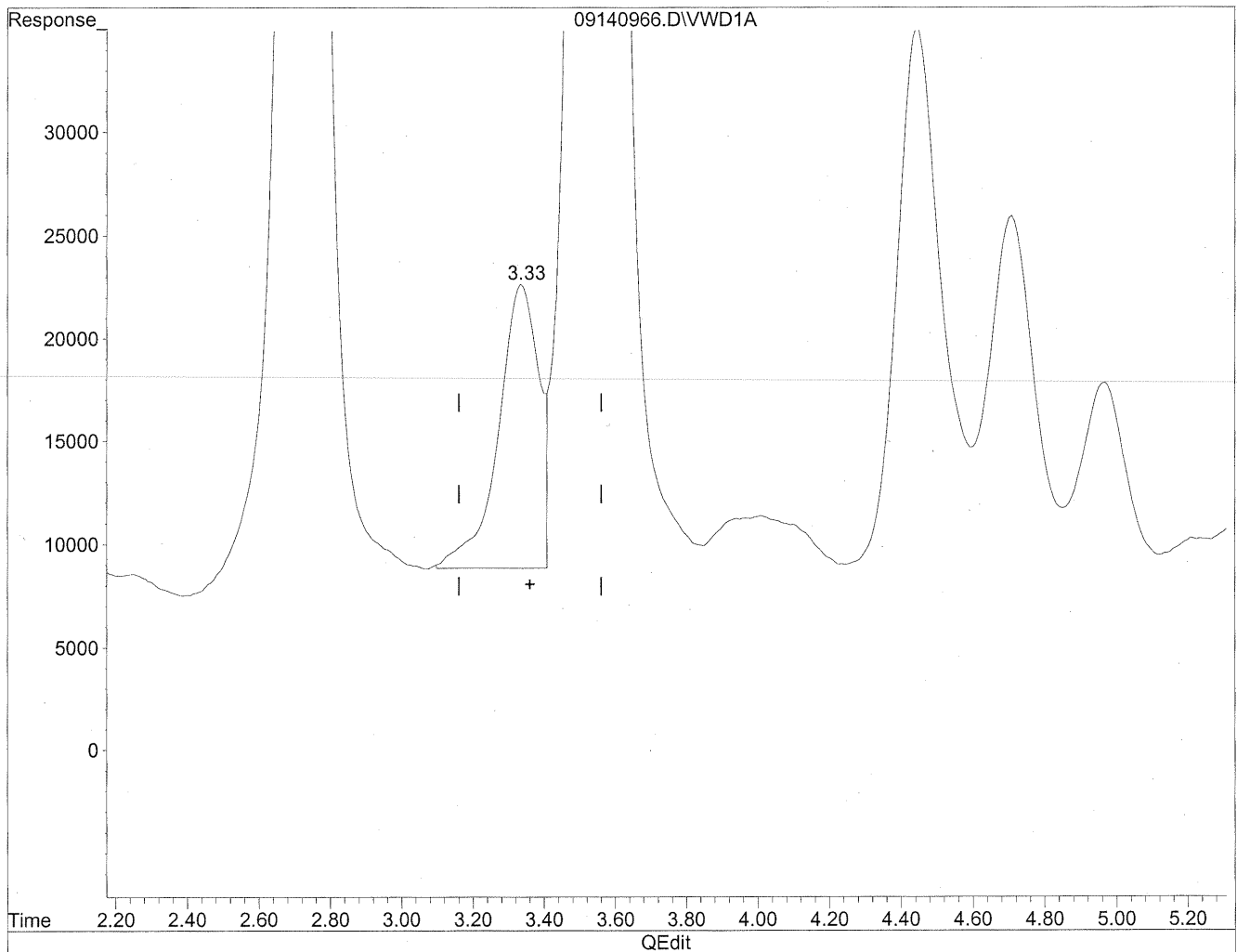


(3) Propionaldehyde  
3.36min 0.000ng/ml  
response 0

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140966.D Vial: 132  
Acq On : 14-Sep-2009, 22:29 Operator: MD  
Sample : P0903087-004 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 10:59 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



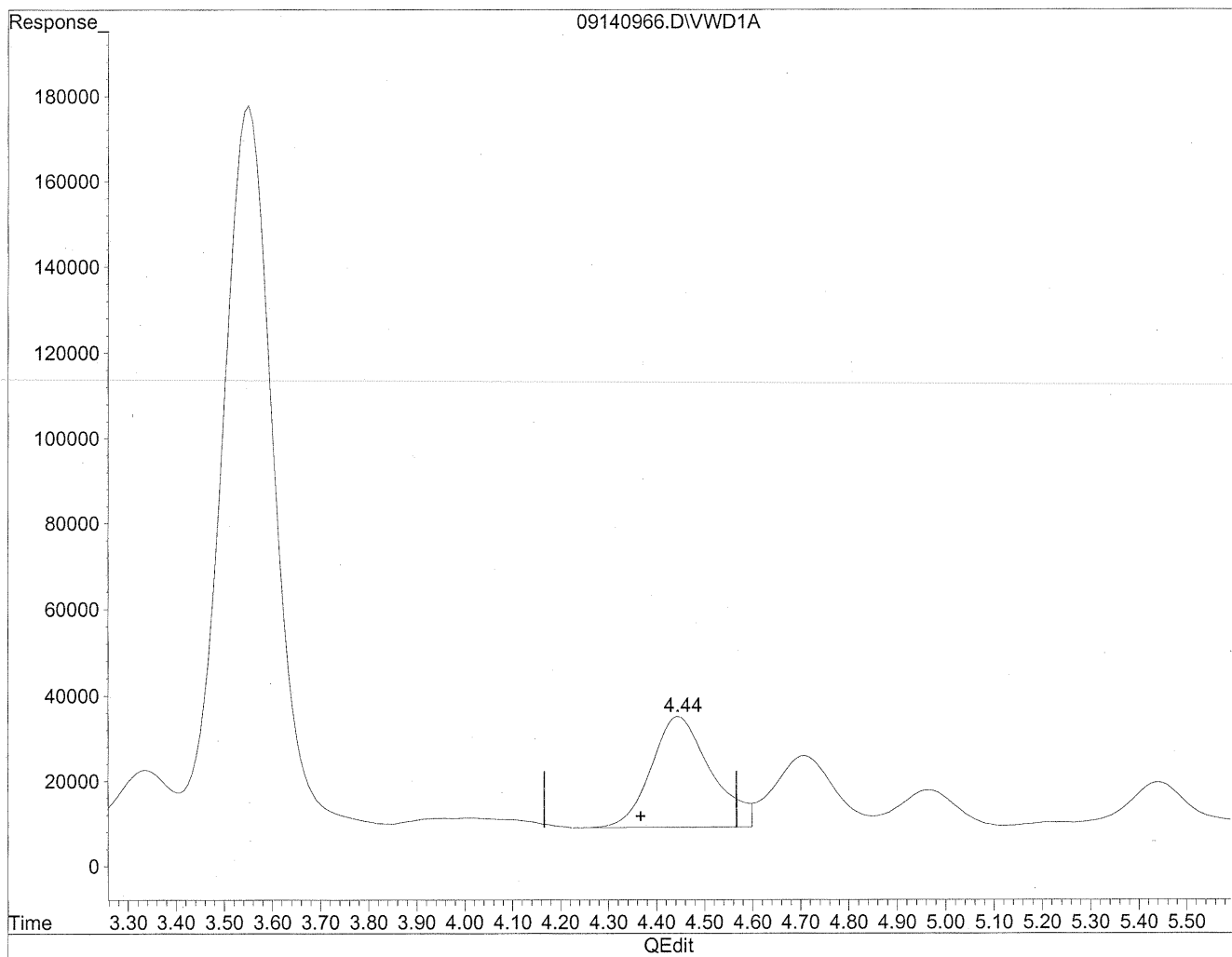
(3) Propionaldehyde  
3.33min 202.617ng/ml m  
response 1053166

*Handwritten notes:*  
SM  
9/17/09  
Bui  
HC  
9/17/09

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140966.D Vial: 132  
Acq On : 14-Sep-2009, 22:29 Operator: MD  
Sample : P0903087-004 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 10:59 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



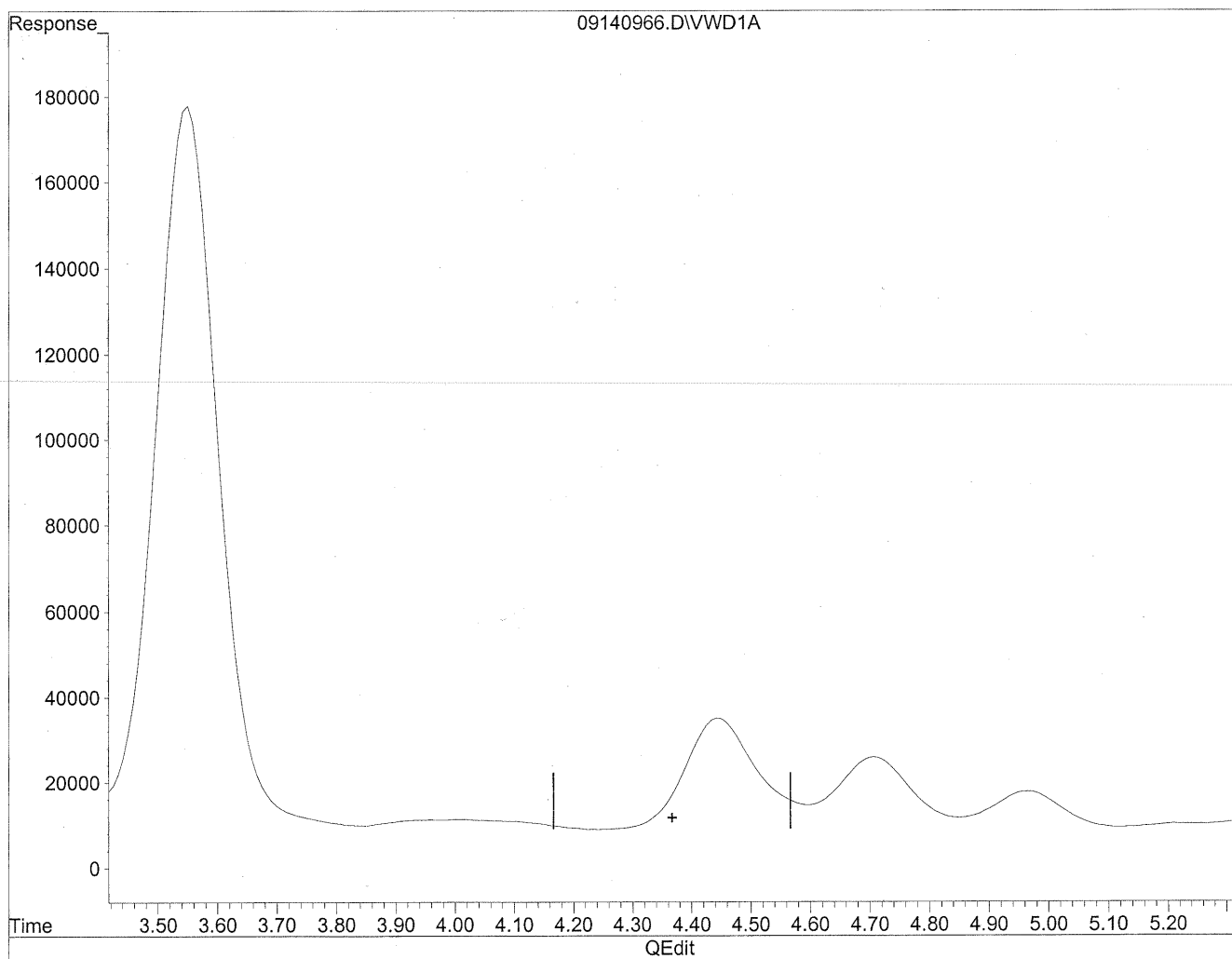
(4) Crotonaldehyde  
4.45min 552.295ng/ml  
response 2242079

(+) = Expected Retention Time

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140966.D Vial: 132  
Acq On : 14-Sep-2009, 22:29 Operator: MD  
Sample : P0903087-004 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 10:59 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



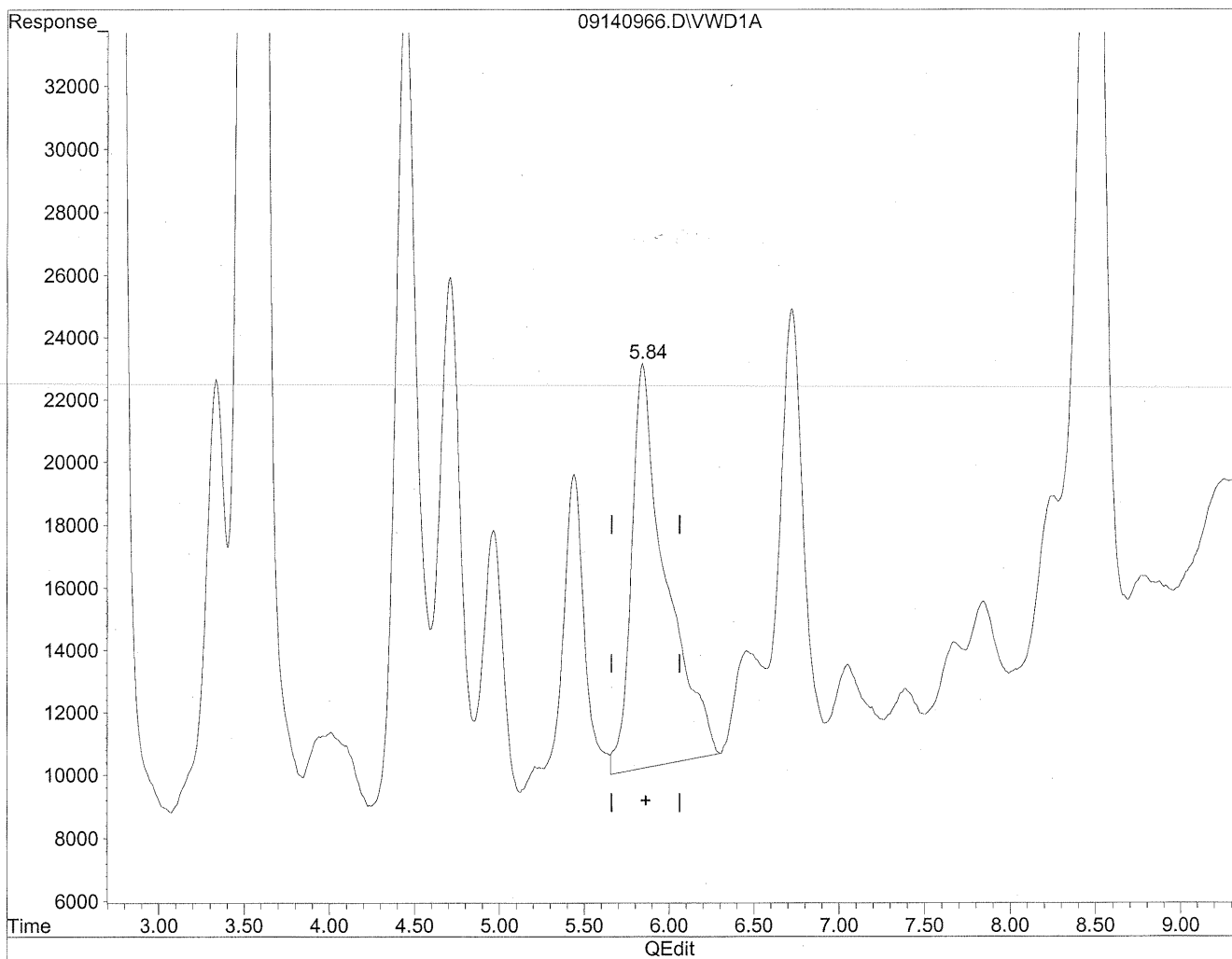
(4) Crotonaldehyde  
0.00min 0.000ng/ml d  
response 0

*MD*  
9/17/09  
MP, RT  
HL  
9/17/09

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140966.D Vial: 132  
Acq On : 14-Sep-2009, 22:29 Operator: MD  
Sample : P0903087-004 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 10:59 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



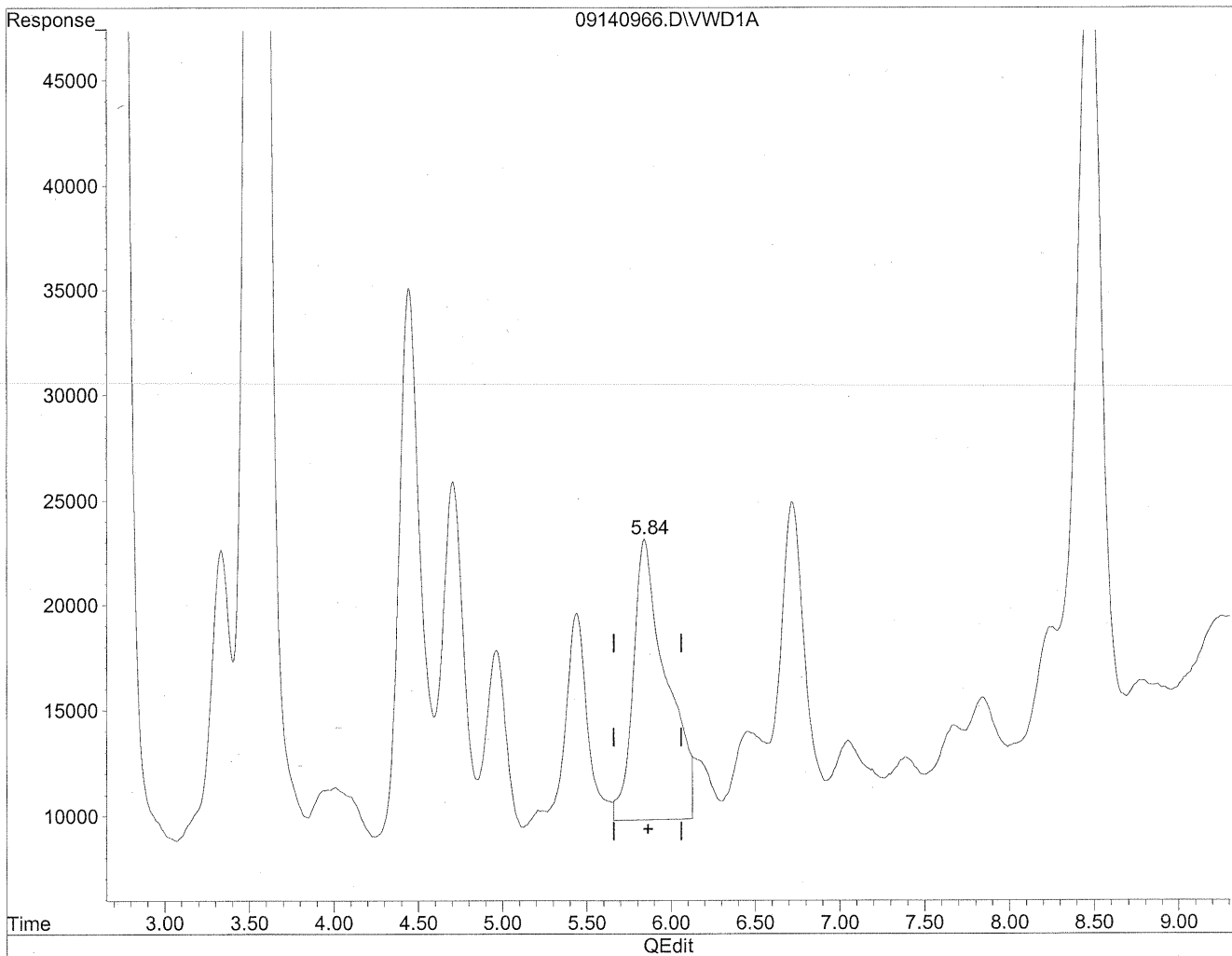
(6) Benzaldehyde  
5.85min 665.973ng/ml  
response 1817027



Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140966.D Vial: 132  
Acq On : 14-Sep-2009, 22:29 Operator: MD  
Sample : P0903087-004 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 10:59 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



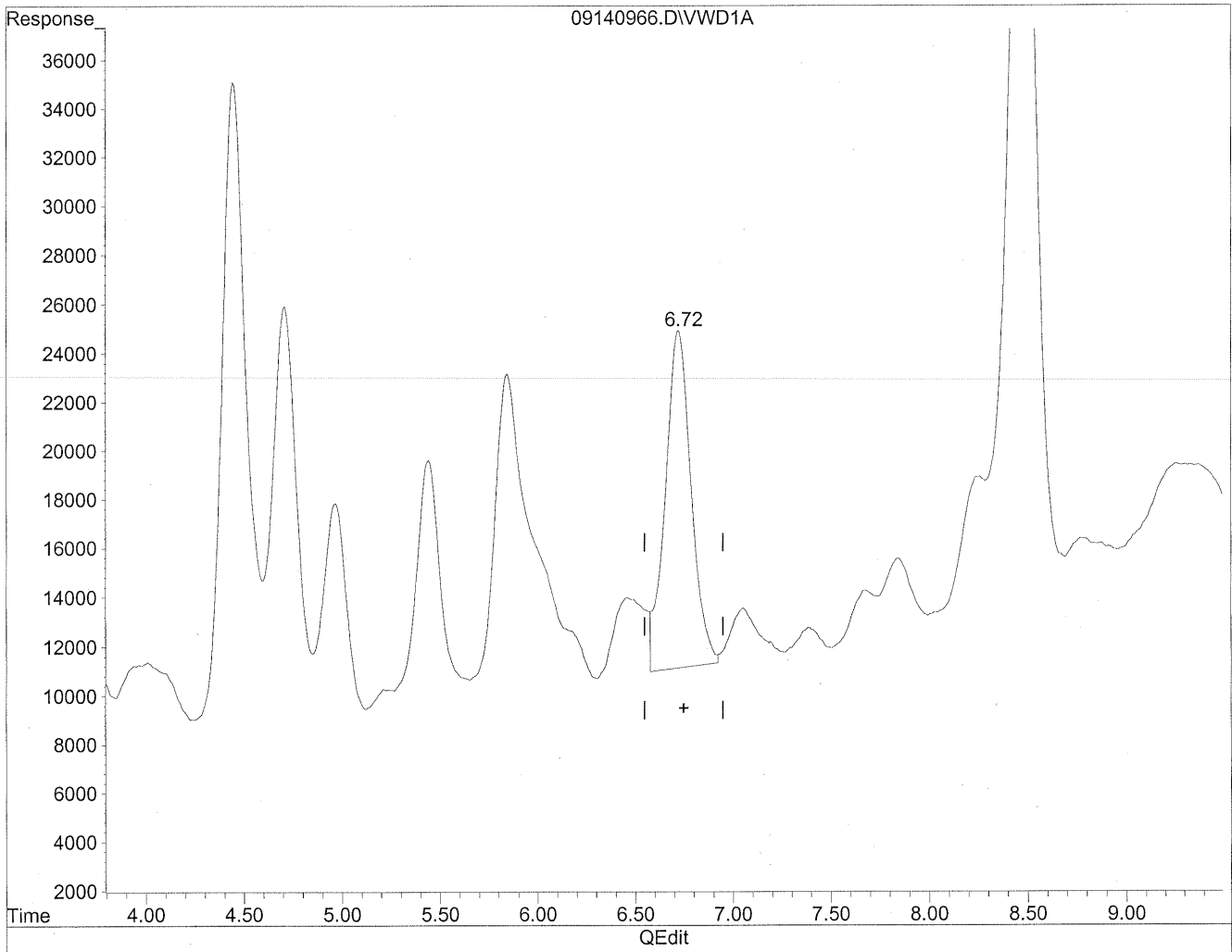
(6) Benzaldehyde  
5.84min 664.405ng/ml m  
response 1812746

*Handwritten notes:*  
+lc  
9/17/09  
sh  
(m frag)

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140966.D Vial: 132  
Acq On : 14-Sep-2009, 22:29 Operator: MD  
Sample : P0903087-004 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 10:59 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration

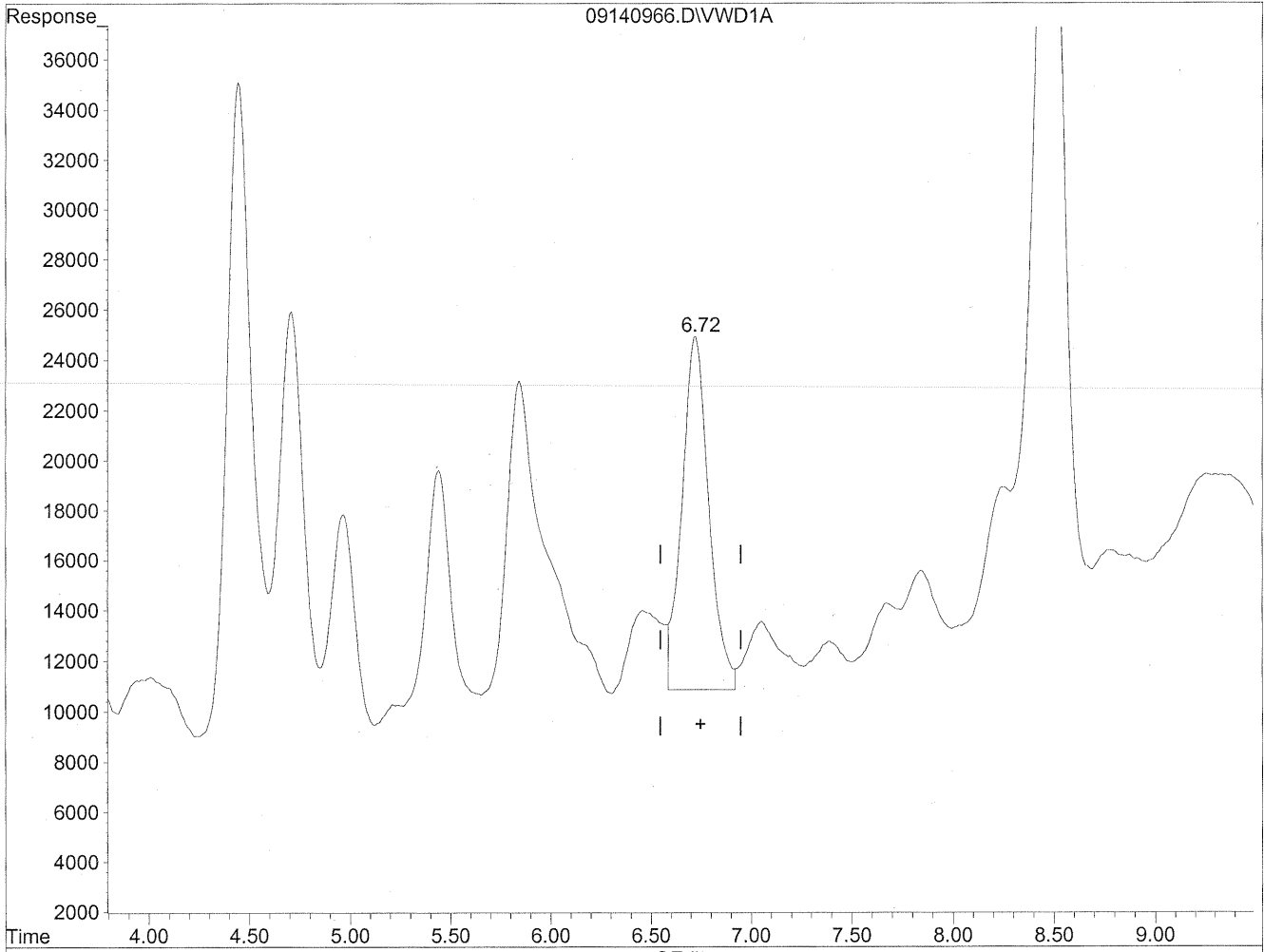


(8) Valeraldehyde  
6.72min 374.719ng/ml  
response 1273908

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140966.D Vial: 132  
Acq On : 14-Sep-2009, 22:29 Operator: MD  
Sample : P0903087-004 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 10:59 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



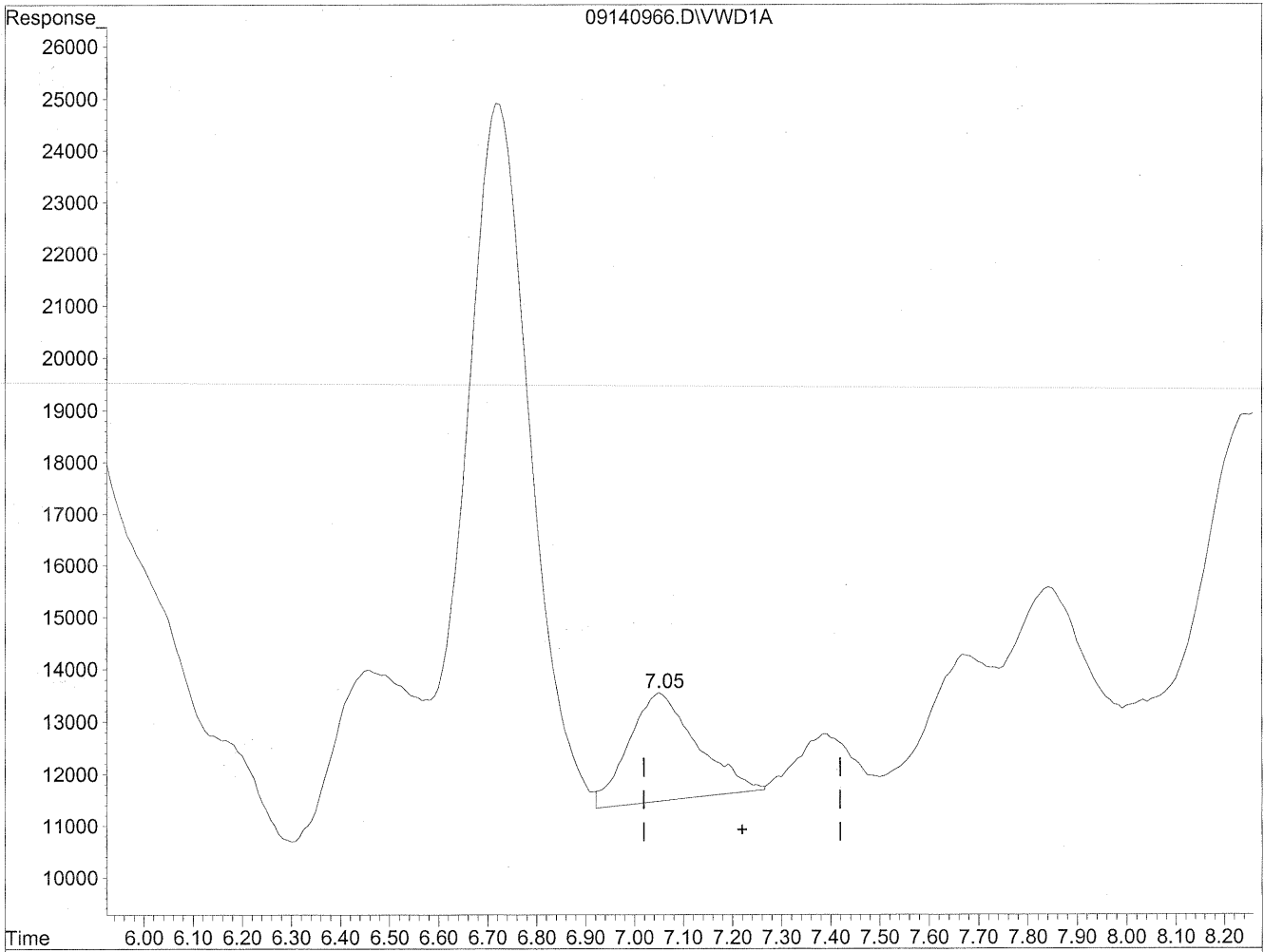
(8) Valeraldehyde  
6.72min 388.068ng/ml m  
response 1319290

*Handwritten notes:*  
the  
9/17/09  
9/17/09  
PC

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140966.D Vial: 132  
Acq On : 14-Sep-2009, 22:29 Operator: MD  
Sample : P0903087-004 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 10:59 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



Time 6.00 6.10 6.20 6.30 6.40 6.50 6.60 6.70 6.80 6.90 7.00 7.10 7.20 7.30 7.40 7.50 7.60 7.70 7.80 7.90 8.00 8.10 8.20

QEdit

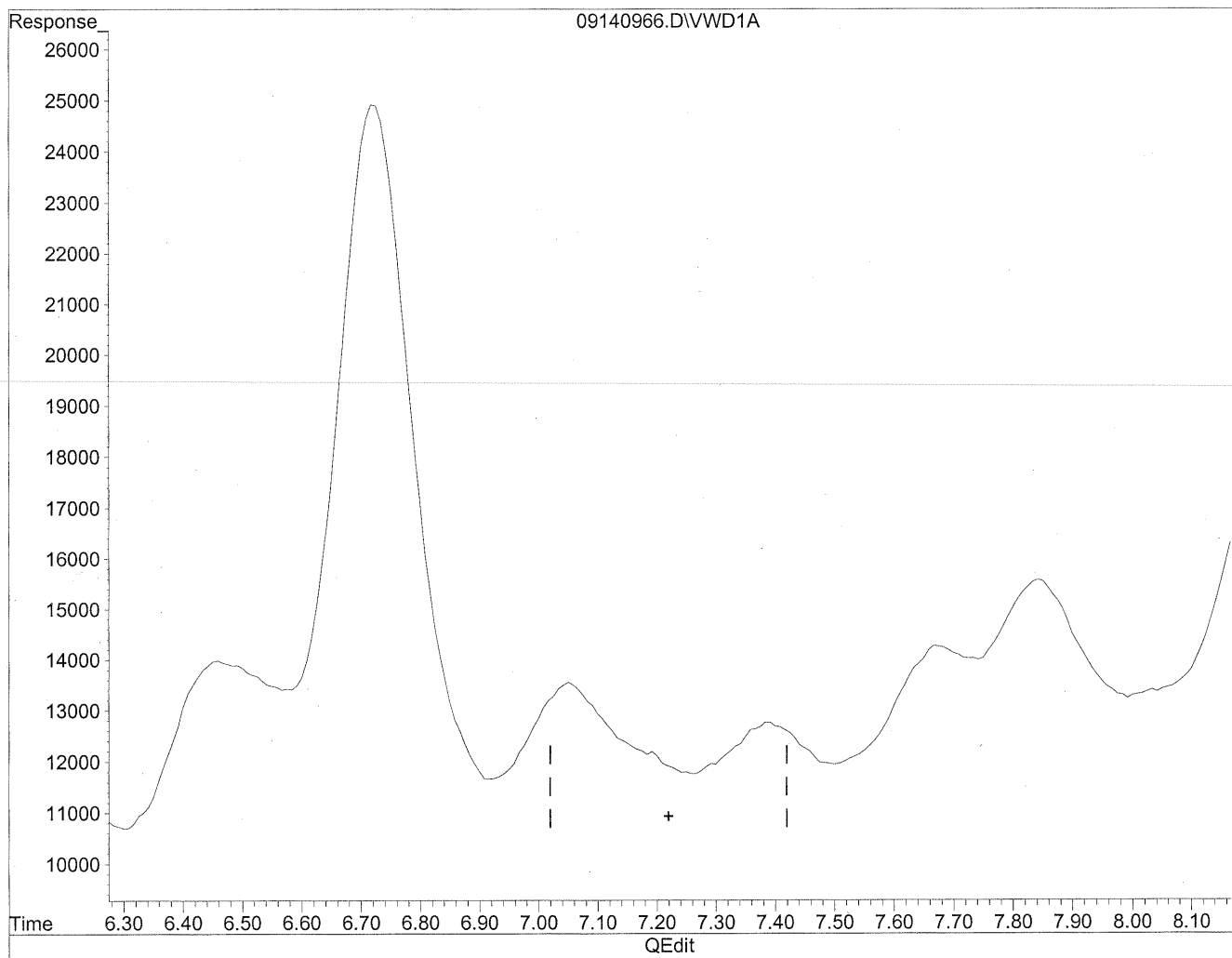
|                     |
|---------------------|
| (9) o-Tolualdehyde  |
| 7.05min 91.149ng/ml |
| response 200033     |

(+) = Expected Retention Time  
09140966.D TO110909.M Thu Sep 17 11:50:03 2009

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140966.D Vial: 132  
Acq On : 14-Sep-2009, 22:29 Operator: MD  
Sample : P0903087-004 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 10:59 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



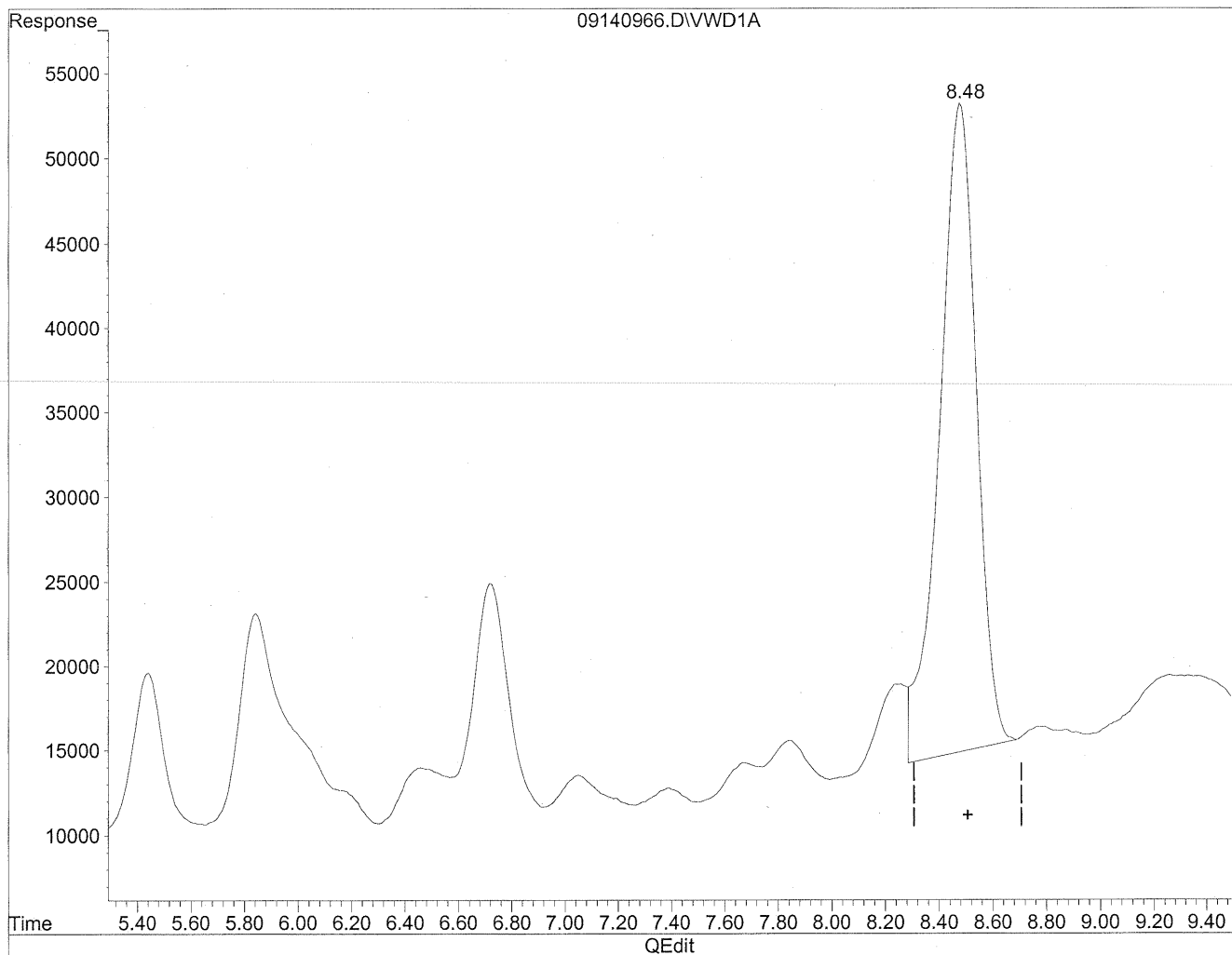
(9) o-Tolualdehyde  
0.00min 0.000ng/ml d  
response 0

*Handwritten notes:*  
HU  
9/17/09  
MP

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140966.D Vial: 132  
Acq On : 14-Sep-2009, 22:29 Operator: MD  
Sample : P0903087-004 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 10:59 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration

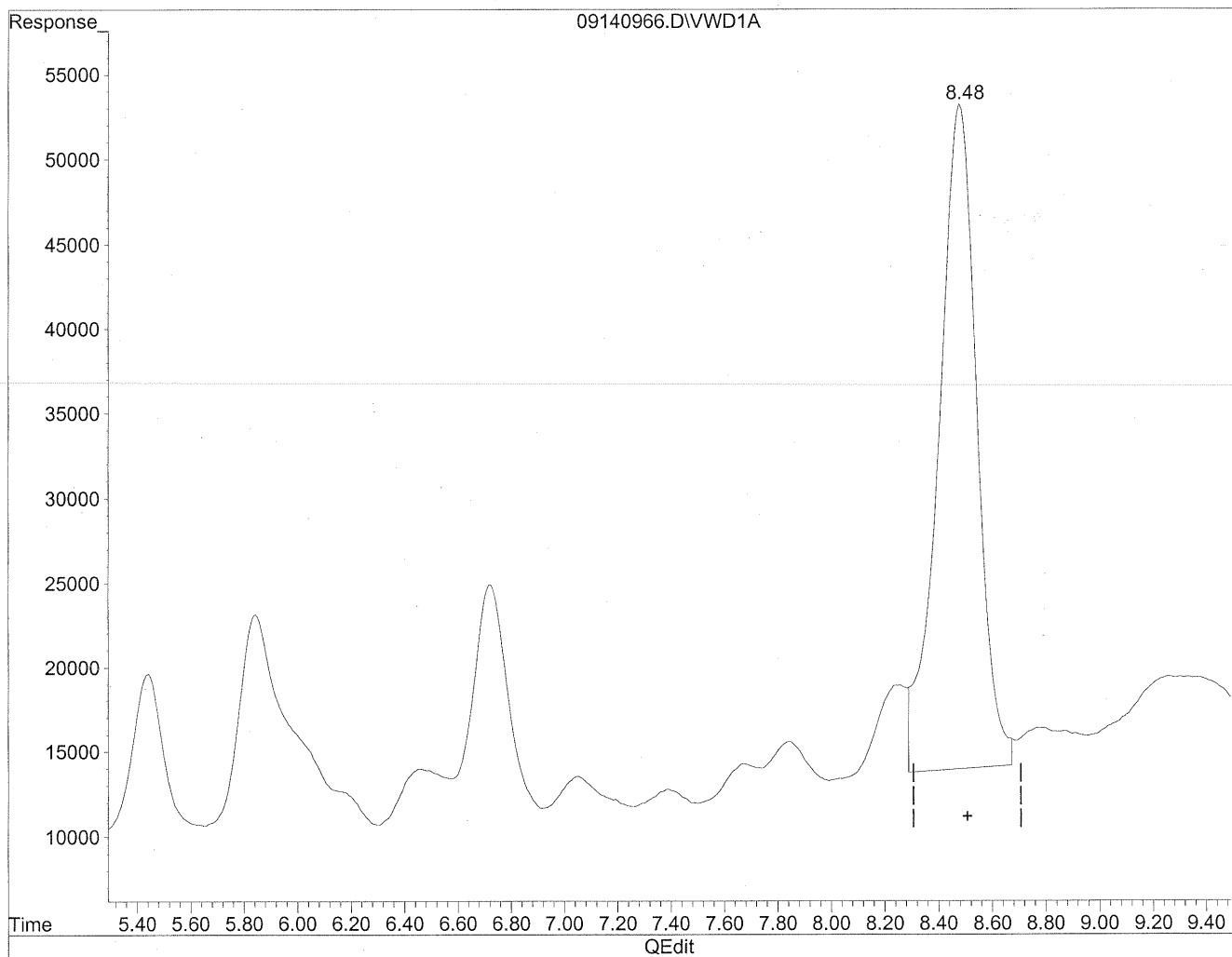


(11) Hexaldehyde  
8.48min 1242.256ng/ml  
response 3677977

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140966.D Vial: 132  
Acq On : 14-Sep-2009, 22:29 Operator: MD  
Sample : P0903087-004 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 10:59 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



(11) Hexaldehyde  
8.48min 1308.518ng/ml m  
response 3874162

*HC*  
*9/17/09*

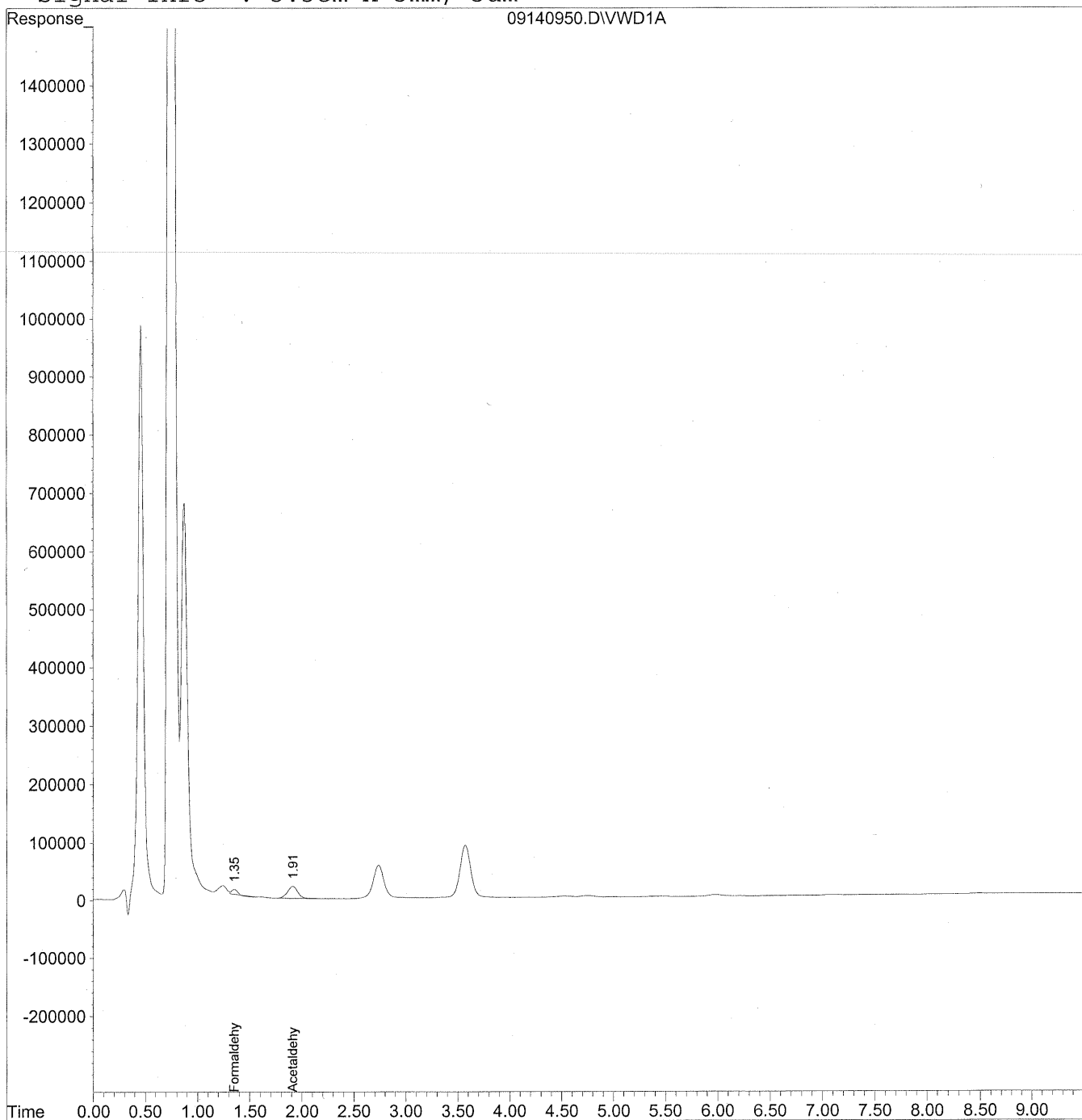
*(Signature)*  
*9/17/09*  
*R*

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140950.D Vial: 118  
Acq On : 14-Sep-2009, 19:17 Operator: MD  
Sample : P0903087-004 back 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 11:28 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration  
DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
Signal Phase : Supelcosil LC-18  
Signal Info : 3.3cm x 3mm, 3um





Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140950.D Vial: 118  
 Acq On : 14-Sep-2009, 19:17 Operator: MD  
 Sample : P0903087-004 back 1.0ml Inst : VWD  
 Misc : Multiplr: 1.00  
 IntFile : events.e  
 Quant Time: Sep 17 11:28 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
 Title : LC-1050 TO-11A ICAL  
 Last Update : Thu Sep 17 11:23:31 2009  
 Response via : Initial Calibration  
 DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
 Signal Phase : Supelcosil LC-18  
 Signal Info : 3.3cm x 3mm, 3um

| Compound                     | R.T. | Response | Conc Units    |
|------------------------------|------|----------|---------------|
| -----                        |      |          |               |
| Target Compounds             |      |          |               |
| 1) Formaldehyde              | 1.35 | 254960   | 28.534 ng/ml  |
| 2) Acetaldehyde              | 1.91 | 1436650  | 220.996 ng/ml |
| 3) Propionaldehyde           | 0.00 | 0        | N.D. ng/ml    |
| 4) Crotonaldehyde            | 0.00 | 0        | N.D. ng/ml    |
| 5) Butyraldehyde             | 0.00 | 0        | N.D. ng/ml    |
| 6) Benzaldehyde              | 0.00 | 0        | N.D. ng/ml    |
| 7) Isovaleraldehyde          | 0.00 | 0        | N.D. ng/ml    |
| 8) Valeraldehyde             | 0.00 | 0        | N.D. ng/ml    |
| 9) o-Tolualdehyde            | 0.00 | 0        | N.D. ng/ml    |
| 10) m,p-Tolualdehyde         | 0.00 | 0        | N.D. ng/ml    |
| 11) Hexaldehyde              | 0.00 | 0        | N.D. ng/ml    |
| 12) 2,5-Dimethylbenzaldehyde | 0.00 | 0        | N.D. ng/ml    |

**COLUMBIA ANALYTICAL SERVICES, INC.**

RESULTS OF ANALYSIS

Page 1 of 1

**Client:** Environmental Health & Engineering, Inc.  
**Client Sample ID:** 104324  
**Client Project ID:** 16512

CAS Project ID: P0903087  
 CAS Sample ID: P0903087-005

**Test Code:** EPA Method TO-11A  
**Instrument ID:** HP1050/LC2  
**Analyst:** Madeleine Dangazyan  
**Sampling Media:** Silica Gel DNPH Tube  
**Test Notes:** BC

**Date Collected:** 9/1/09  
**Date Received:** 9/2/09  
**Date Analyzed:** 9/14/09  
**Desorption Volume:** 1.0 ml  
**Volume Sampled:** 107 Liter(s)

| CAS #     | Compound                 | Result<br>ng/Sample | Result<br>µg/m <sup>3</sup> | MRL<br>µg/m <sup>3</sup> | Result<br>ppbV | MRL<br>ppbV | Data<br>Qualifier |
|-----------|--------------------------|---------------------|-----------------------------|--------------------------|----------------|-------------|-------------------|
| 50-00-0   | Formaldehyde             | 6,000               | 56                          | 0.93                     | 46             | 0.76        |                   |
| 75-07-0   | Acetaldehyde             | 2,000               | 19                          | 0.93                     | 11             | 0.52        |                   |
| 123-38-6  | Propionaldehyde          | 270                 | 2.5                         | 0.93                     | 1.1            | 0.39        |                   |
| 4170-30-3 | Crotonaldehyde, Total    | < 100               | ND                          | 0.93                     | ND             | 0.33        |                   |
| 123-72-8  | Butyraldehyde            | 220                 | 2.0                         | 0.93                     | 0.69           | 0.32        |                   |
| 100-52-7  | Benzaldehyde             | 860                 | 8.0                         | 0.93                     | 1.9            | 0.22        | M                 |
| 590-86-3  | Isovaleraldehyde         | 120                 | 1.2                         | 0.93                     | 0.33           | 0.27        | M                 |
| 110-62-3  | Valeraldehyde            | 450                 | 4.2                         | 0.93                     | 1.2            | 0.27        |                   |
| 529-20-4  | o-Tolualdehyde           | < 100               | ND                          | 0.93                     | ND             | 0.19        |                   |
| 620-23-5  |                          |                     |                             |                          |                |             |                   |
| 104-87-0  | m,p-Tolualdehyde         | < 200               | ND                          | 1.9                      | ND             | 0.38        |                   |
| 66-25-1   | n-Hexaldehyde            | 1,600               | 15                          | 0.93                     | 3.6            | 0.23        |                   |
| 5779-94-2 | 2,5-Dimethylbenzaldehyde | < 100               | ND                          | 0.93                     | ND             | 0.17        |                   |

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

BC = Results reported are not blank corrected.

M = Matrix interference; results may be biased high.

Verified By: \_\_\_\_\_



Date: \_\_\_\_\_

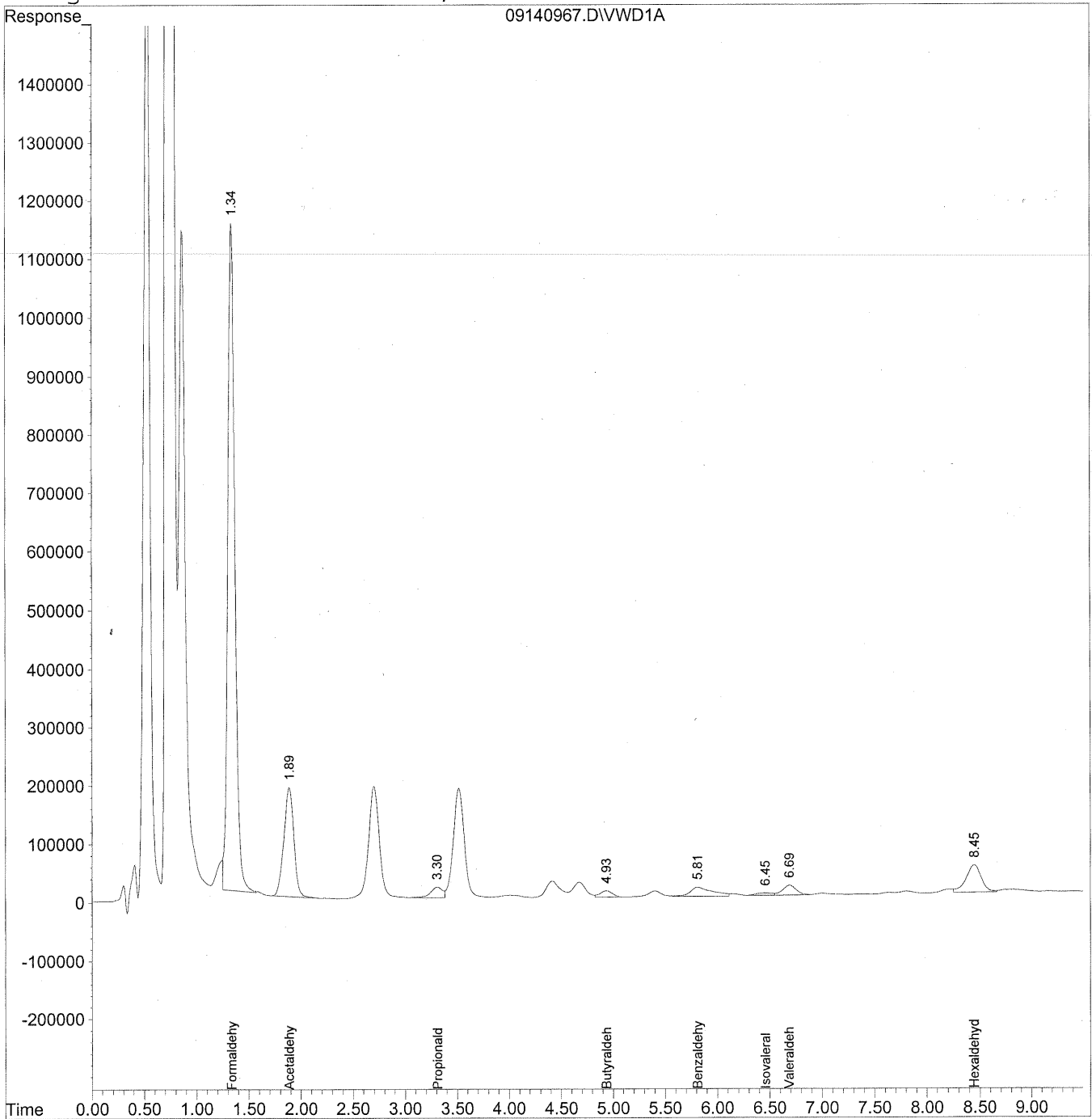
9/14/09

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140967.D Vial: 133  
Acq On : 14-Sep-2009, 22:41 Operator: MD  
Sample : P0903087-005 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:03 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 10 12:03:26 2009  
Response via : Multiple Level Calibration  
DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
Signal Phase : Supelcosil LC-18  
Signal Info : 3.3cm x 3mm, 3um



Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140967.D Vial: 133  
 Acq On : 14-Sep-2009, 22:41 Operator: MD  
 Sample : P0903087-005 front 1.0ml Inst : VWD  
 Misc : Multiplr: 1.00  
 IntFile : events.e  
 Quant Time: Sep 17 12:03 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
 Title : LC-1050 TO-11A ICAL  
 Last Update : Thu Sep 10 12:03:26 2009  
 Response via : Initial Calibration  
 DataAcq Meth : TO-11A.M

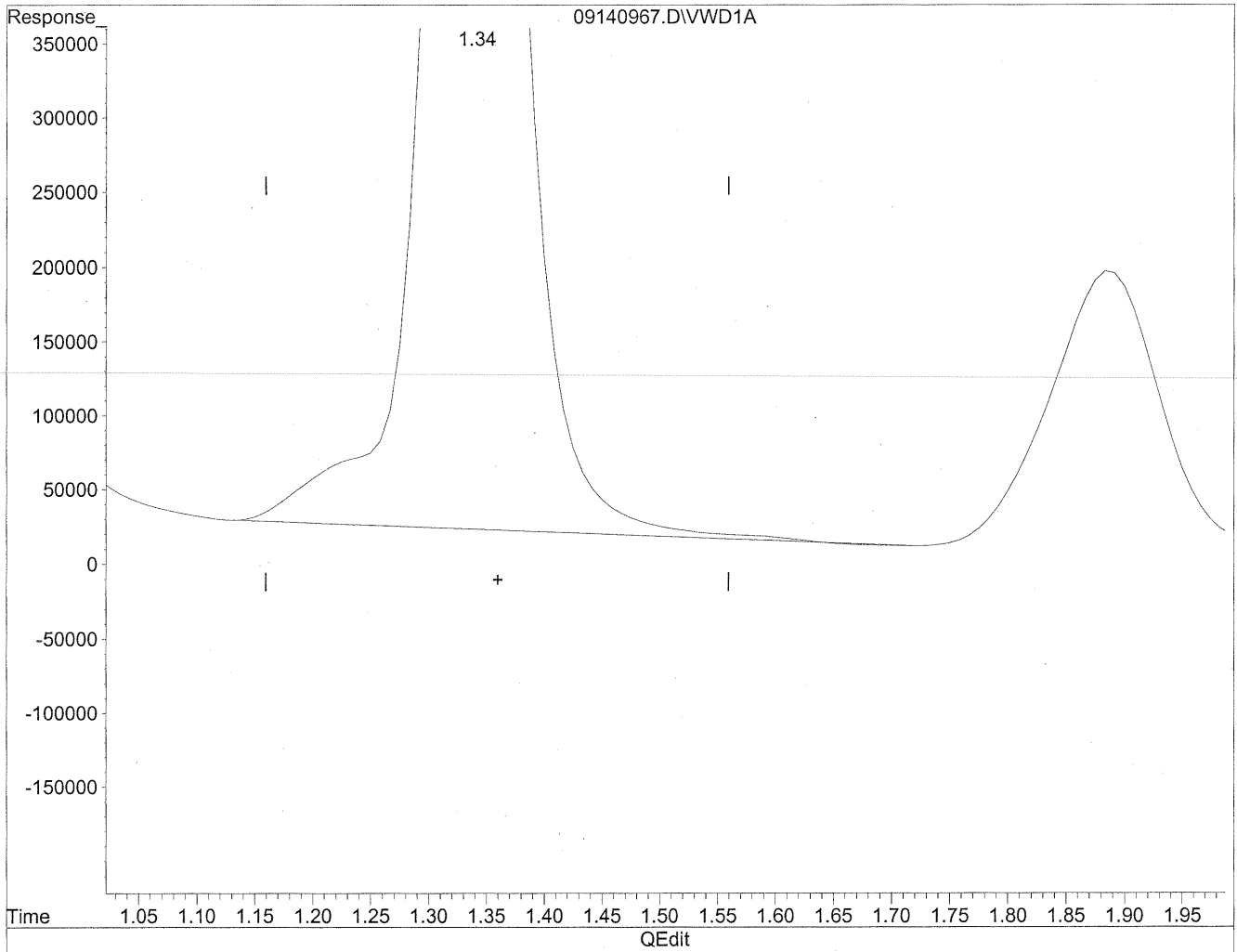
Volume Inj. : 3uL  
 Signal Phase : Supelcosil LC-18  
 Signal Info : 3.3cm x 3mm, 3um

| Compound                     | R.T. | Response | Conc Units      |
|------------------------------|------|----------|-----------------|
| -----                        |      |          |                 |
| Target Compounds             |      |          |                 |
| 1) Formaldehyde              | 1.34 | 53983078 | 6041.463 ng/mlm |
| 2) Acetaldehyde              | 1.89 | 12401024 | 1907.616 ng/ml  |
| 3) Propionaldehyde           | 3.30 | 1397869  | 268.934 ng/mlm  |
| 4) Crotonaldehyde            | 0.00 | 0        | N.D. ng/ml      |
| 5) Butyraldehyde             | 4.94 | 883201   | 217.925 ng/ml   |
| 6) Benzaldehyde              | 5.81 | 2349073  | 860.978 ng/mlm  |
| 7) Isovaleraldehyde          | 6.46 | 423830   | 123.142 ng/ml   |
| 8) Valeraldehyde             | 6.69 | 1541205  | 453.344 ng/ml   |
| 9) o-Tolualdehyde            | 0.00 | 0        | N.D. ng/ml      |
| 10) m,p-Tolualdehyde         | 0.00 | 0        | N.D. ng/ml      |
| 11) Hexaldehyde              | 8.45 | 4630502  | 1563.976 ng/mlm |
| 12) 2,5-Dimethylbenzaldehyde | 0.00 | 0        | N.D. ng/ml      |

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140967.D Vial: 133  
Acq On : 14-Sep-2009, 22:41 Operator: MD  
Sample : P0903087-005 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 15 7:56 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration

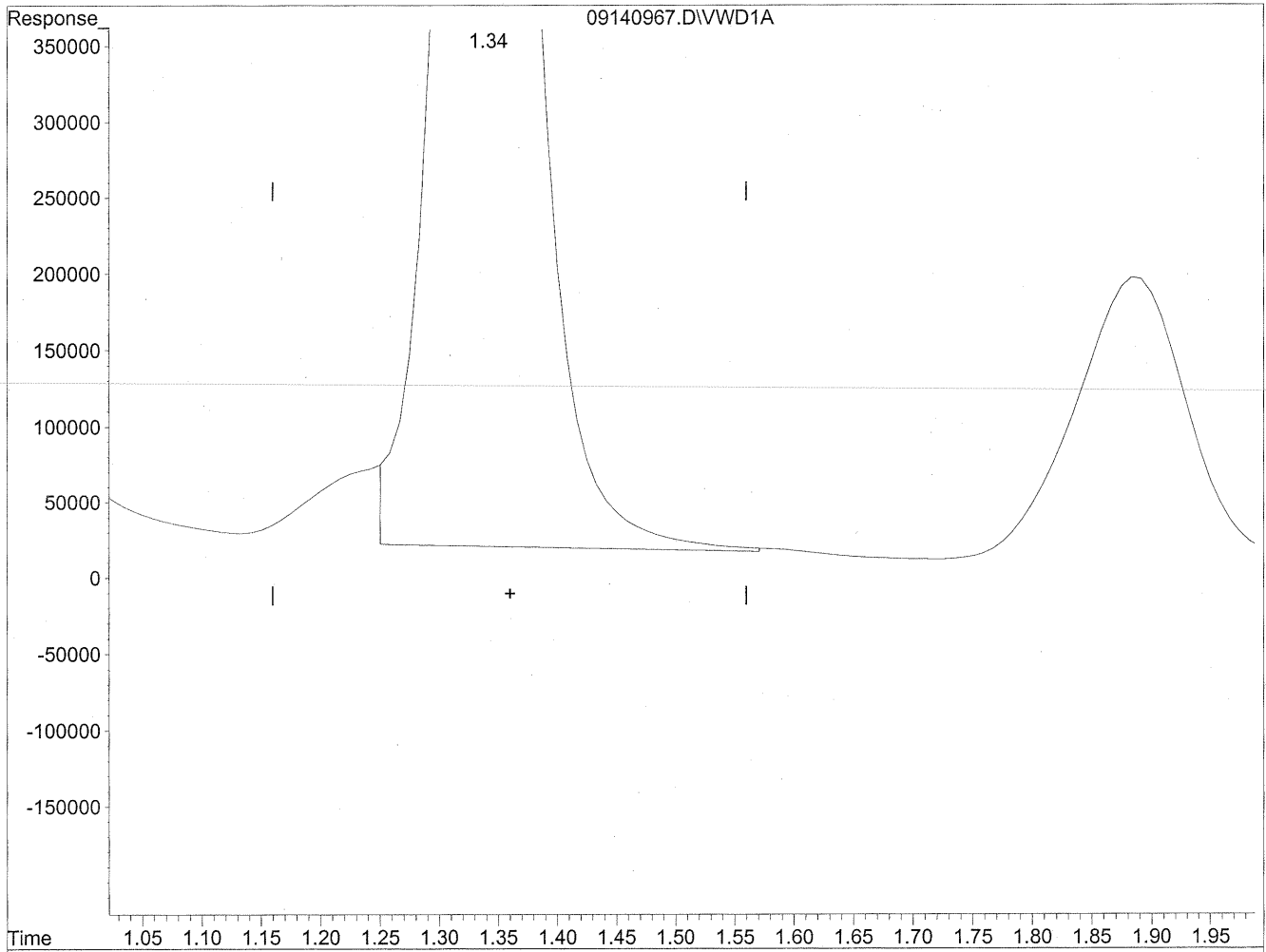


(1) Formaldehyde  
1.34min 6210.044ng/ml  
response 55489423

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140967.D Vial: 133  
Acq On : 14-Sep-2009, 22:41 Operator: MD  
Sample : P0903087-005 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 15 7:56 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



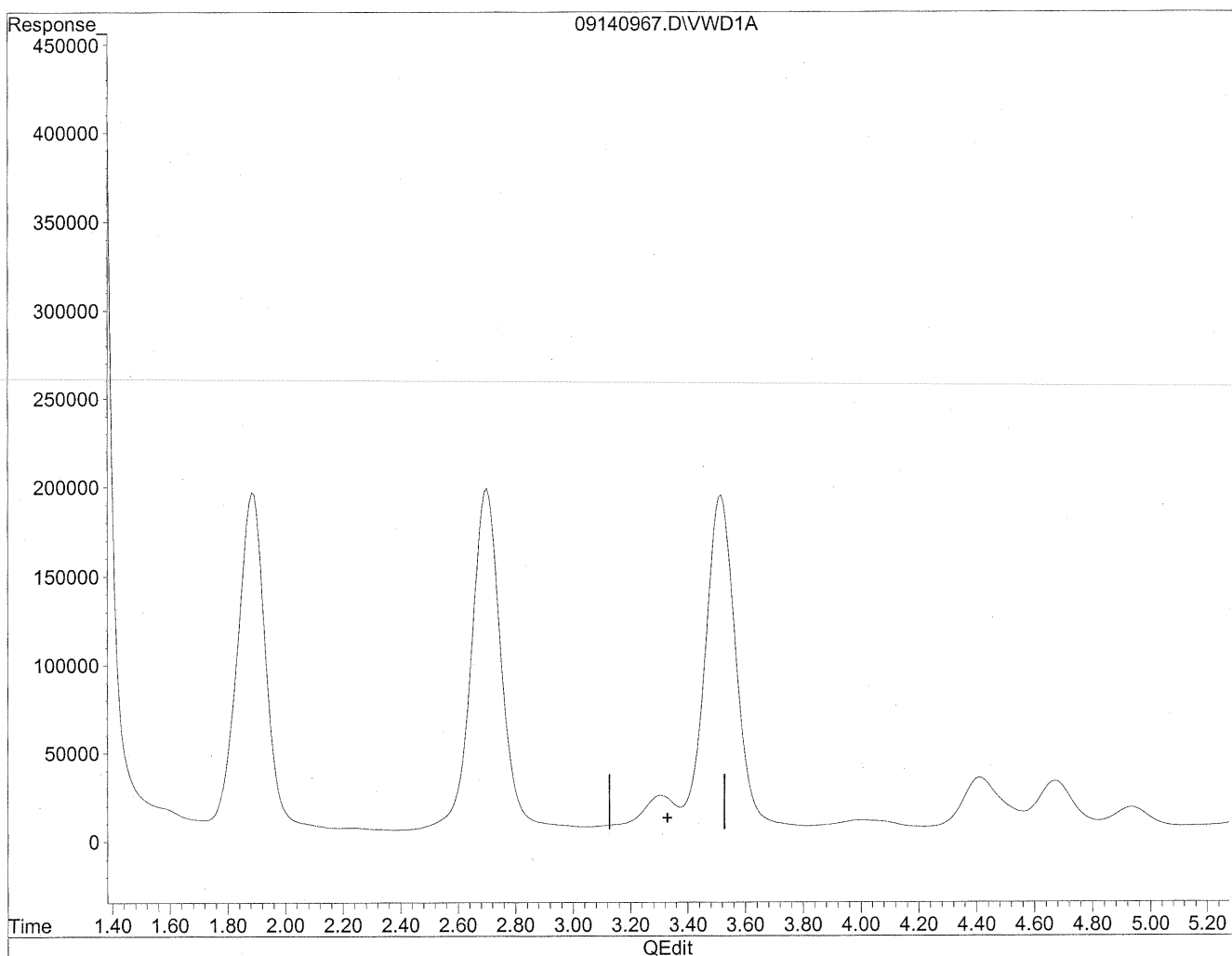
(1) Formaldehyde  
1.34min 6041.463ng/ml m  
response 53983078

*Handwritten notes:*  
HC  
9/17/09  
MD  
9/17/09  
gh

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140967.D Vial: 133  
Acq On : 14-Sep-2009, 22:41 Operator: MD  
Sample : P0903087-005 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 15 7:56 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration

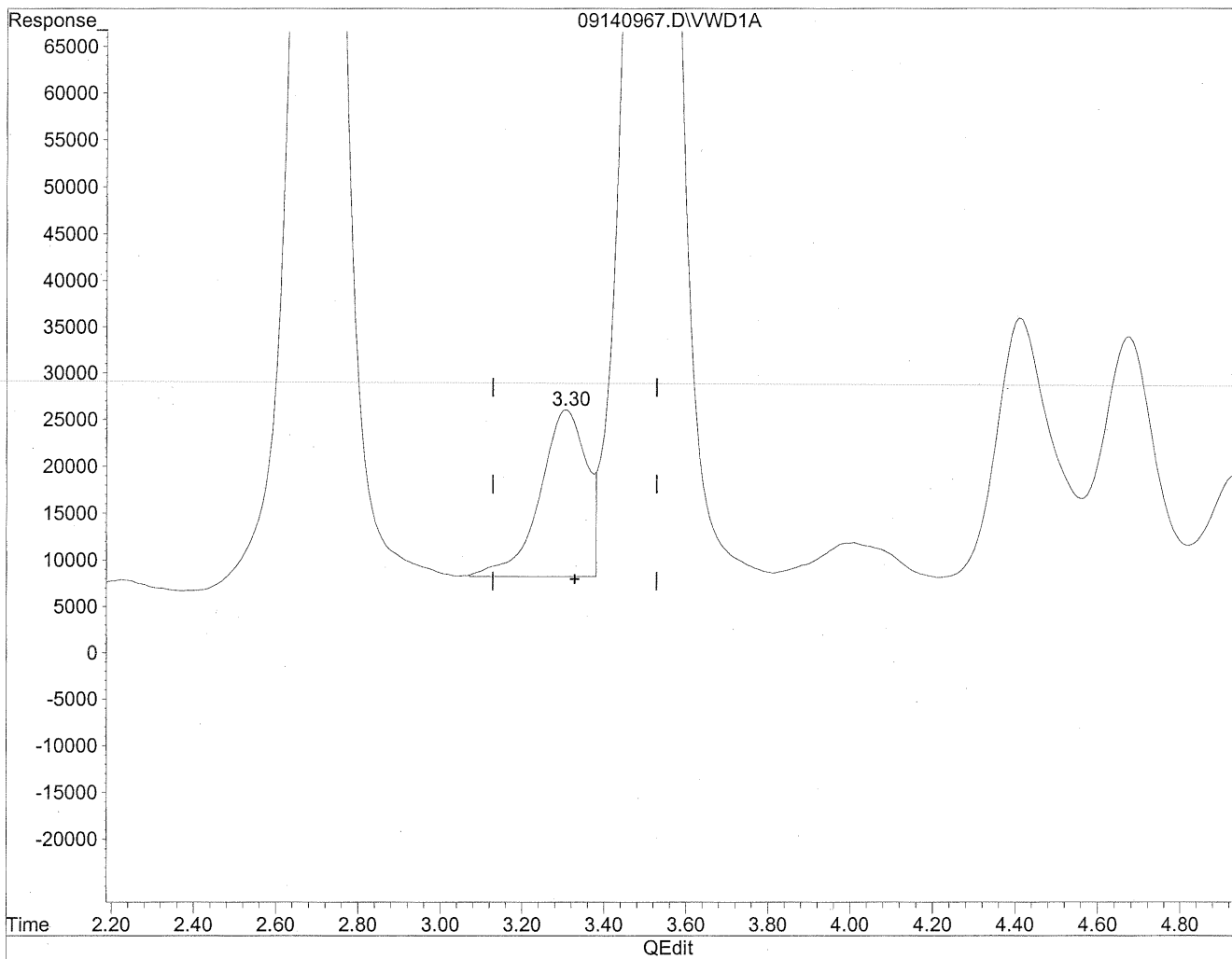


(3) Propionaldehyde  
3.33min 0.000ng/ml  
response 0

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140967.D Vial: 133  
Acq On : 14-Sep-2009, 22:41 Operator: MD  
Sample : P0903087-005 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 15 7:56 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



(3) Propionaldehyde  
3.30min 268.934ng/ml m  
response 1397869

*MD*  
*alms*  
*Bru*

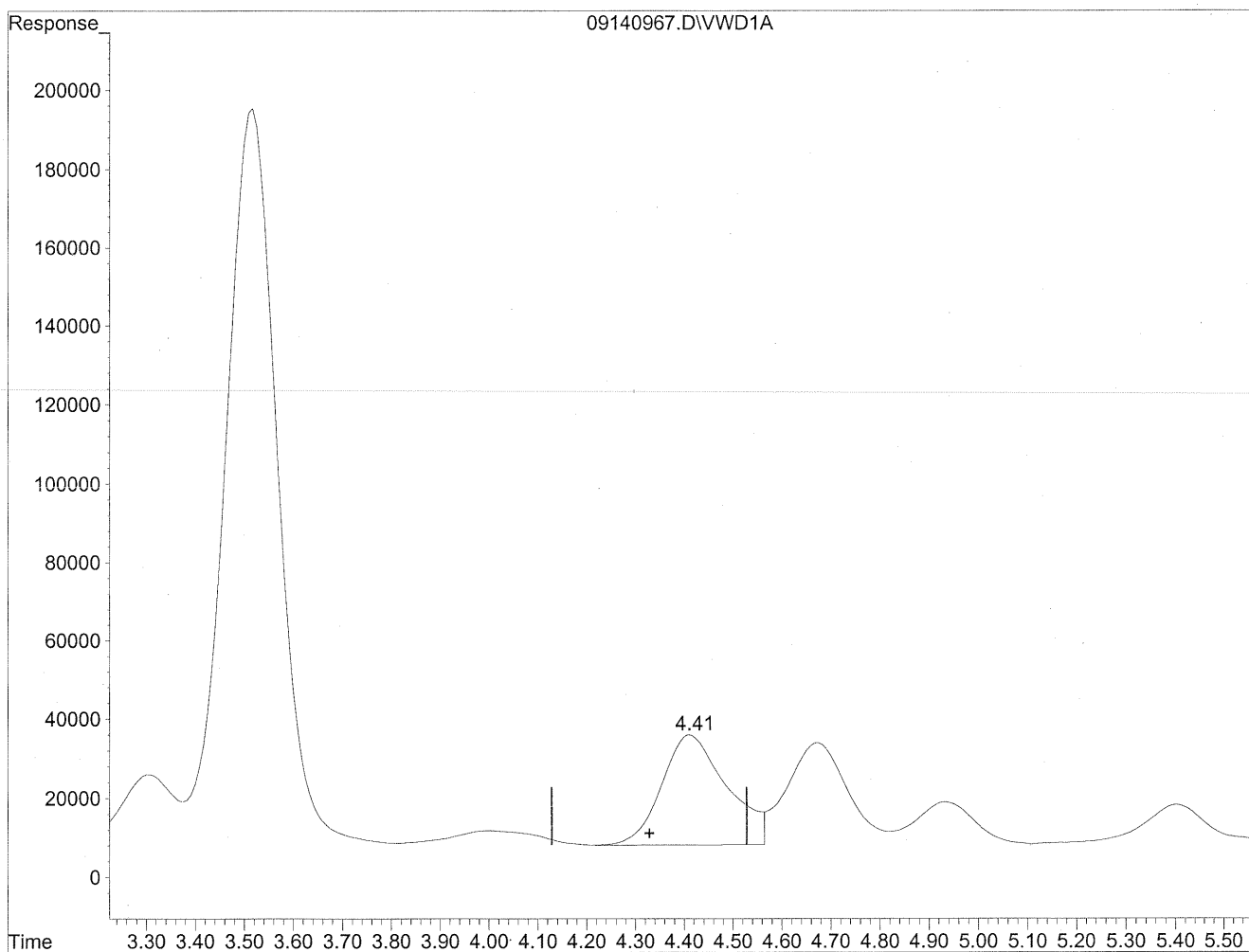
*HC*  
*9/17/09*



Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140967.D Vial: 133  
Acq On : 14-Sep-2009, 22:41 Operator: MD  
Sample : P0903087-005 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 15 7:56 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration

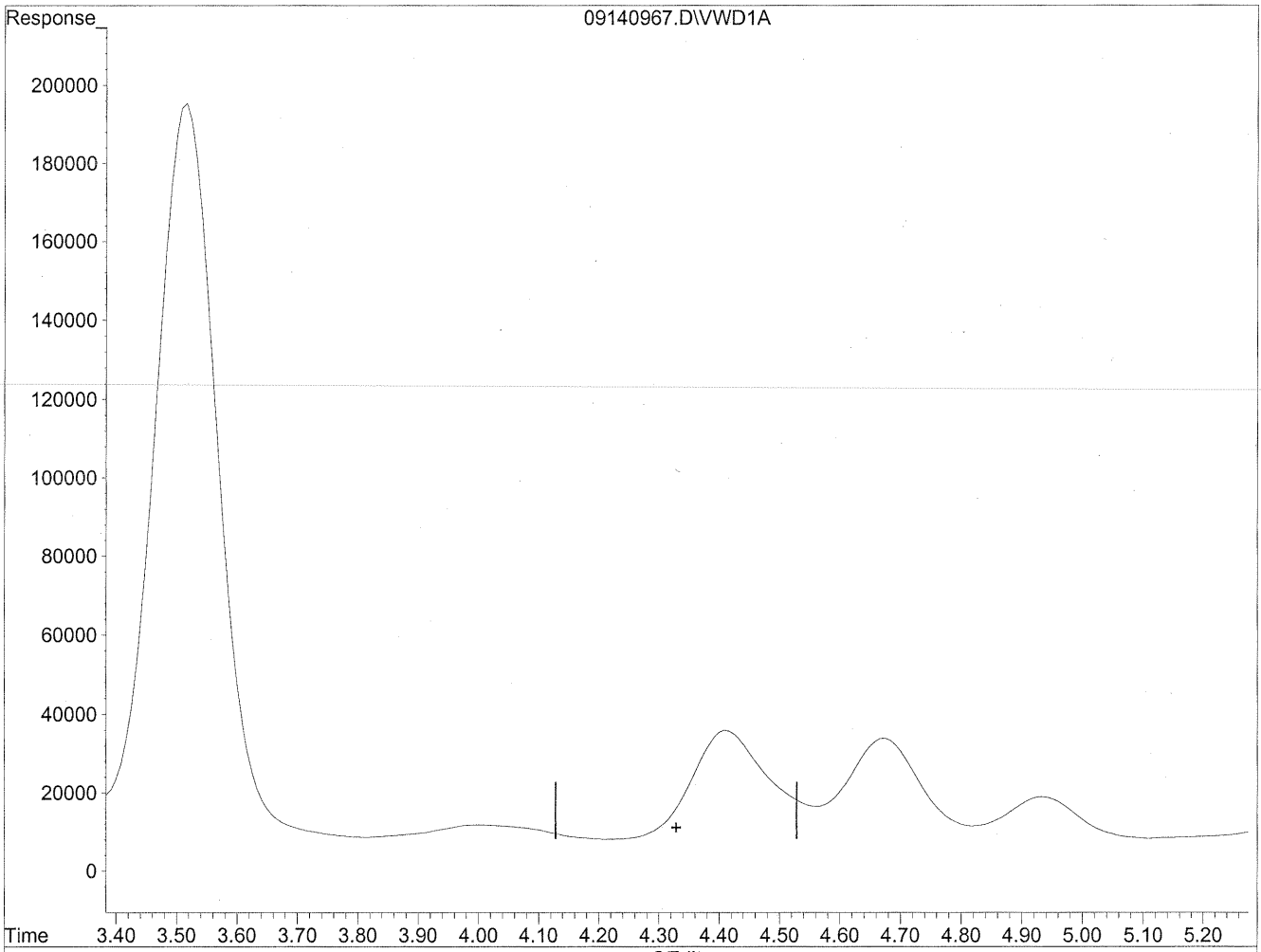


(4) Crotonaldehyde  
4.41min 631.991ng/ml  
response 2565613

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140967.D Vial: 133  
Acq On : 14-Sep-2009, 22:41 Operator: MD  
Sample : P0903087-005 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 15 7:56 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



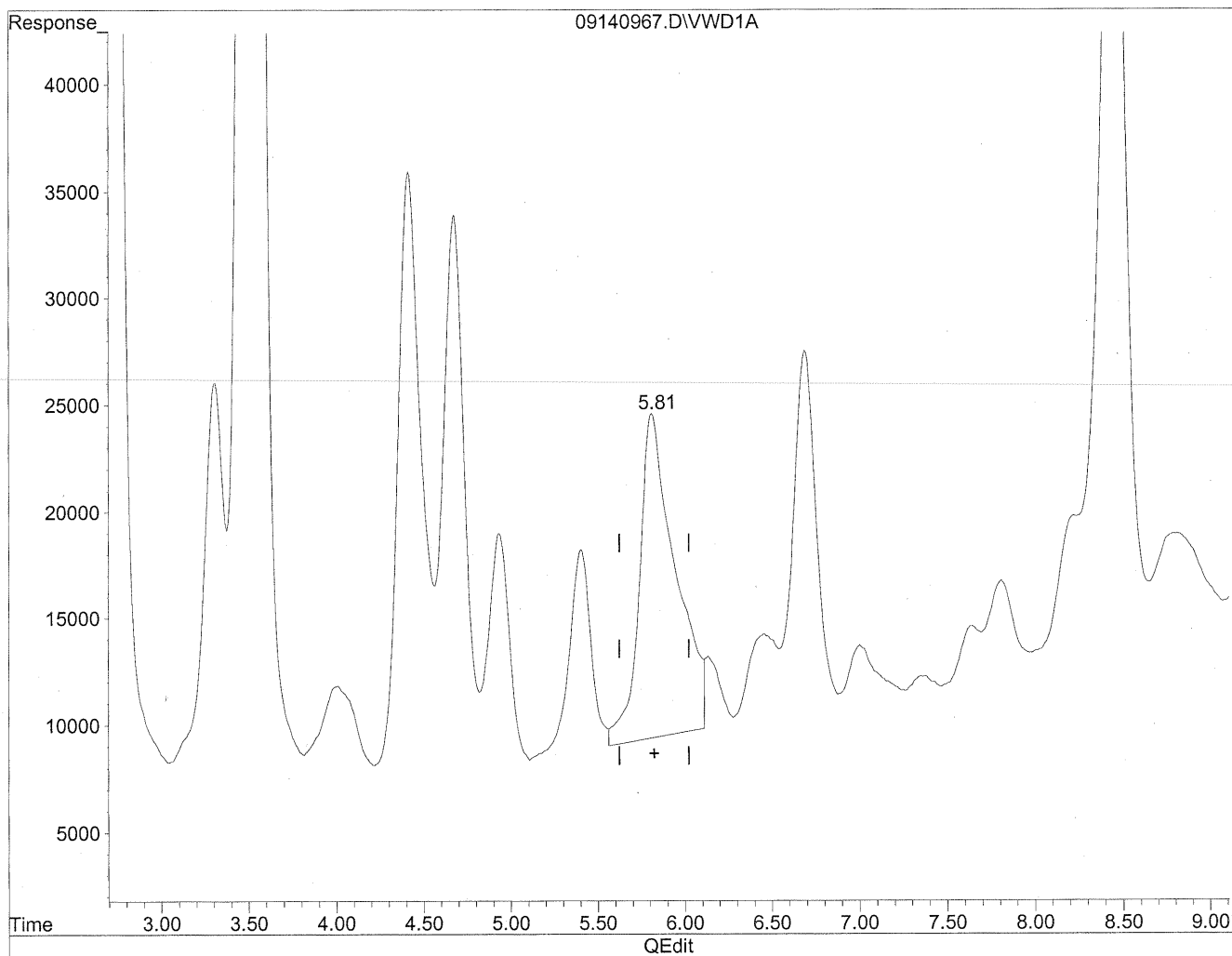
(4) Crotonaldehyde  
0.00min 0.000ng/ml d  
response 0

*Handwritten notes:*  
MC  
9/17/09  
alr/oa  
mf

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140967.D Vial: 133  
Acq On : 14-Sep-2009, 22:41 Operator: MD  
Sample : P0903087-005 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 15 7:56 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration

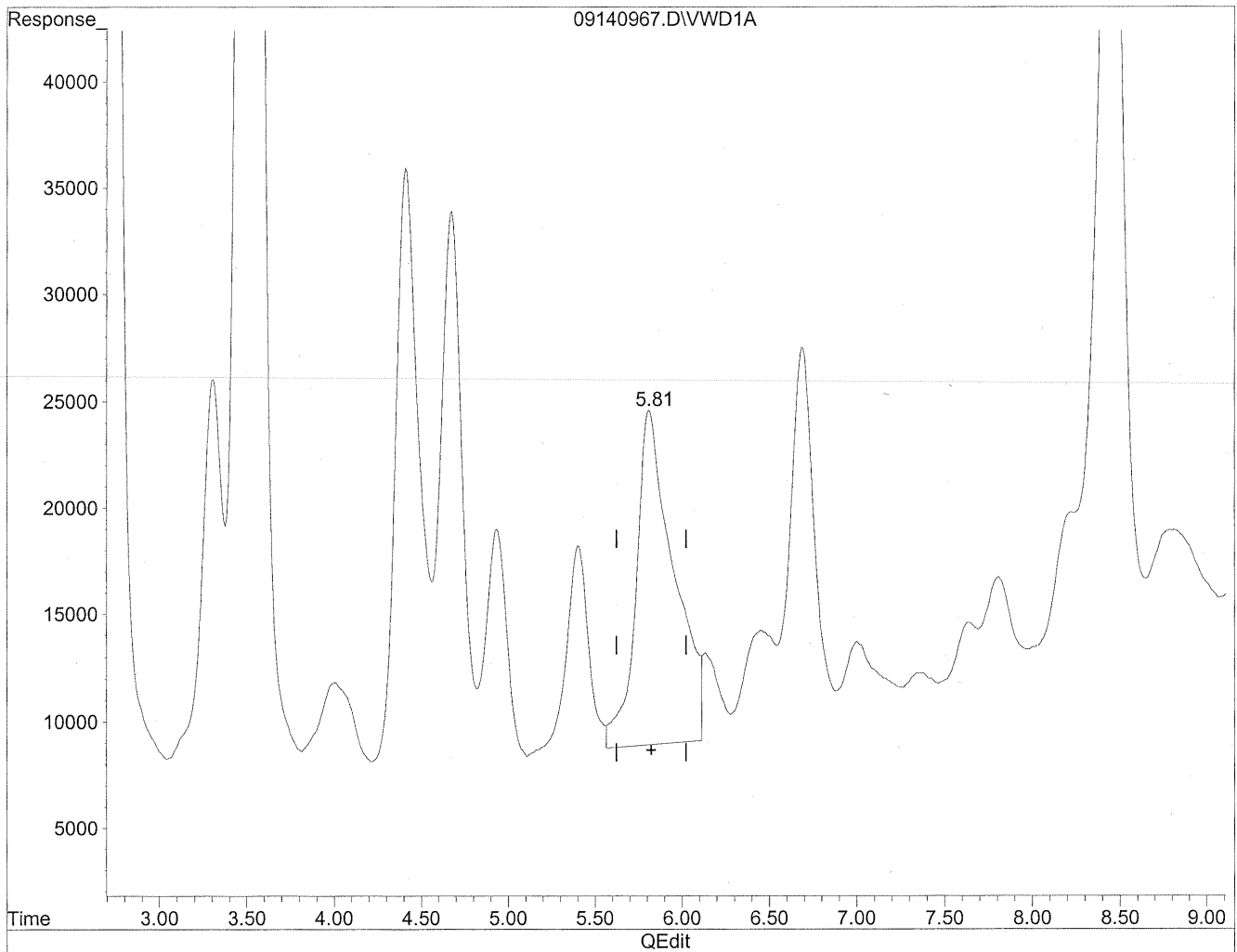


(6) Benzaldehyde  
5.81min 799.208ng/ml  
response 2180542

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140967.D Vial: 133  
Acq On : 14-Sep-2009, 22:41 Operator: MD  
Sample : P0903087-005 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 15 7:56 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



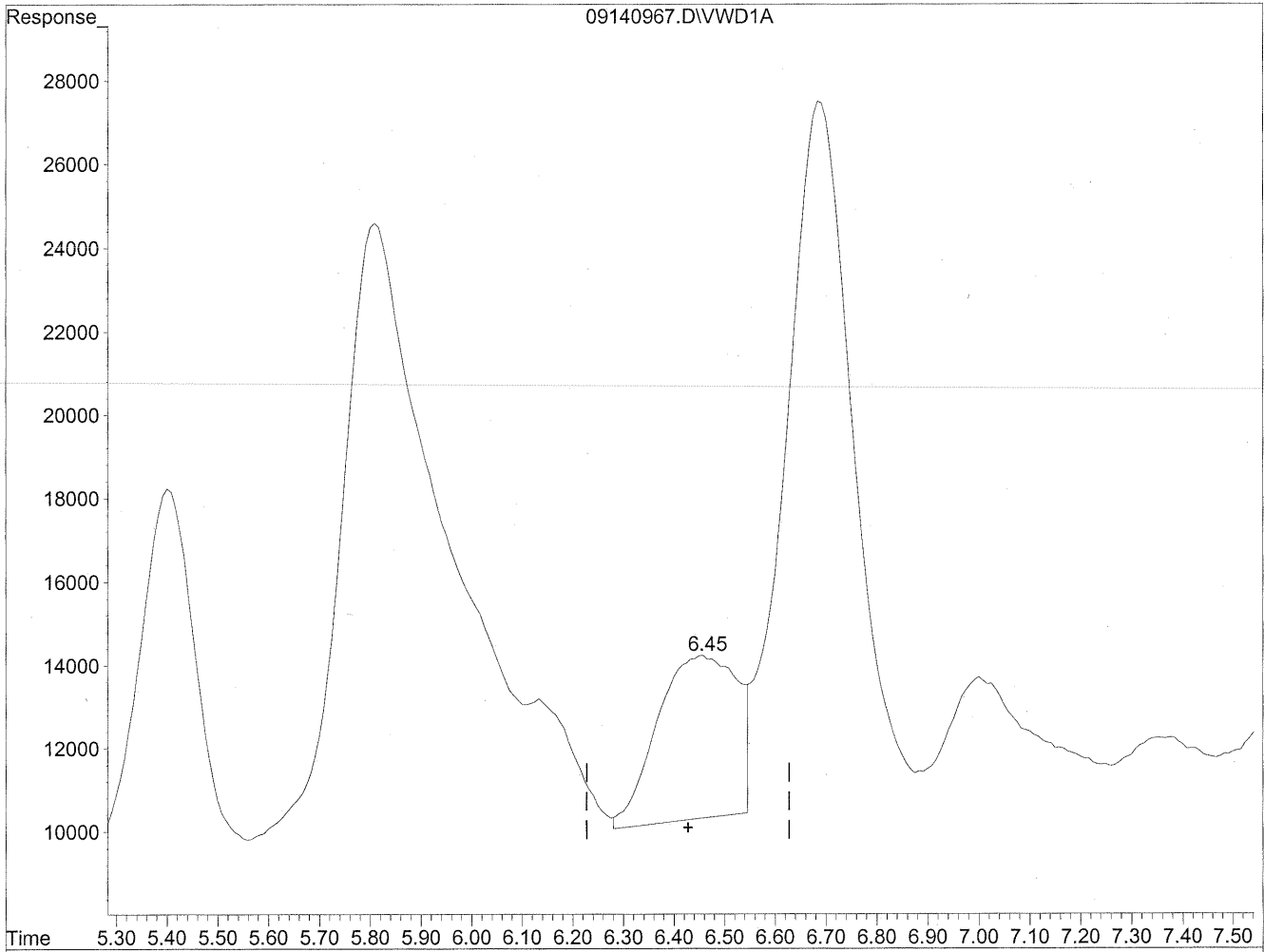
(6) Benzaldehyde  
5.81min 860.978ng/ml m  
response 2349073

*HC*  
*9/17/09*  
*9/17/09*  
*sh pc*  
*(mg/ml)*

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140967.D Vial: 133  
Acq On : 14-Sep-2009, 22:41 Operator: MD  
Sample : P0903087-005 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 15 7:56 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



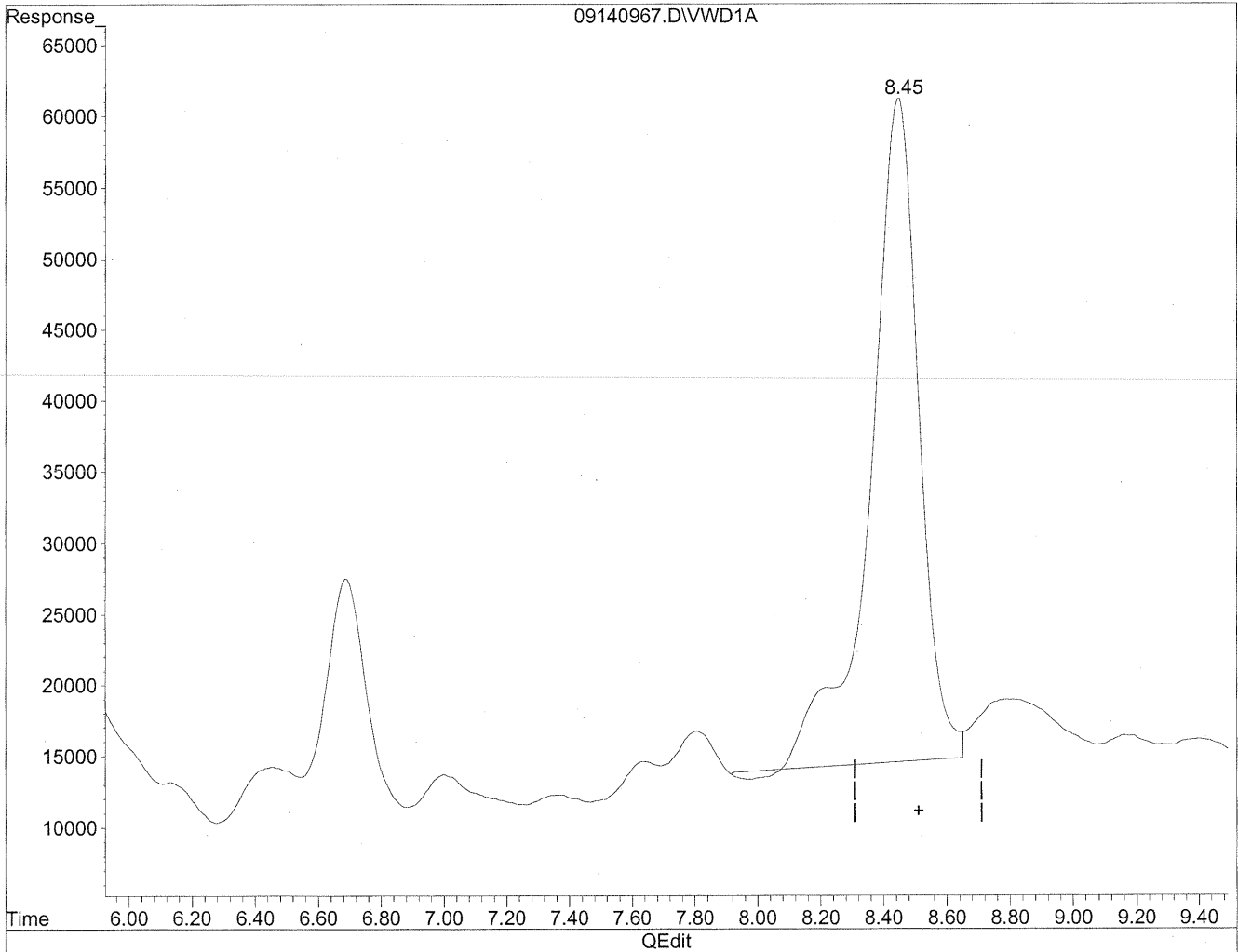
(7) Isovaleraldehyde  
6.46min 123.142ng/ml  
response 423830

*(m ylog)*  
*9/17/09*

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140967.D Vial: 133  
Acq On : 14-Sep-2009, 22:41 Operator: MD  
Sample : P0903087-005 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 15 7:56 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration

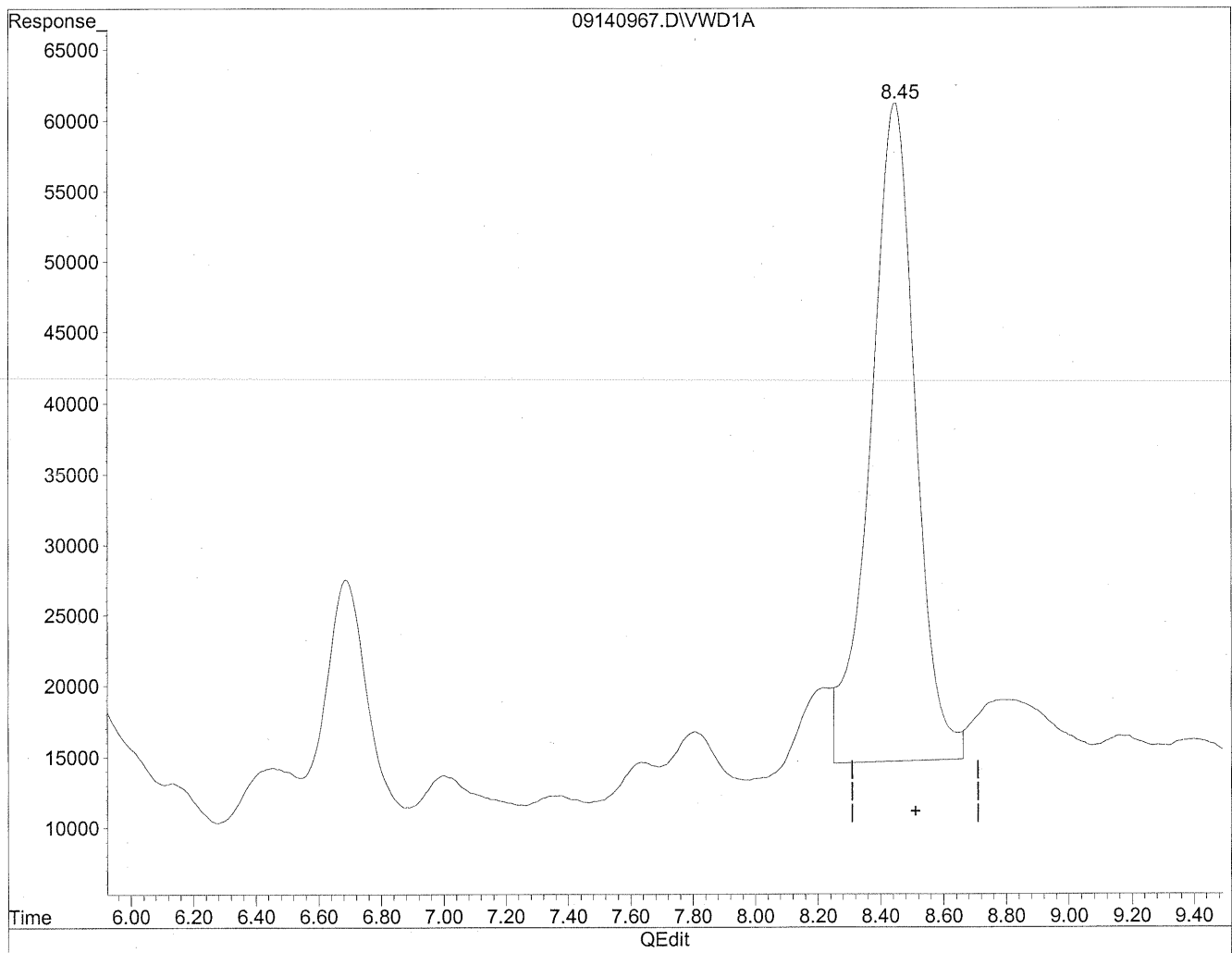


(11) Hexaldehyde  
8.45min 1682.349ng/ml  
response 4980973

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140967.D Vial: 133  
Acq On : 14-Sep-2009, 22:41 Operator: MD  
Sample : P0903087-005 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 15 7:56 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



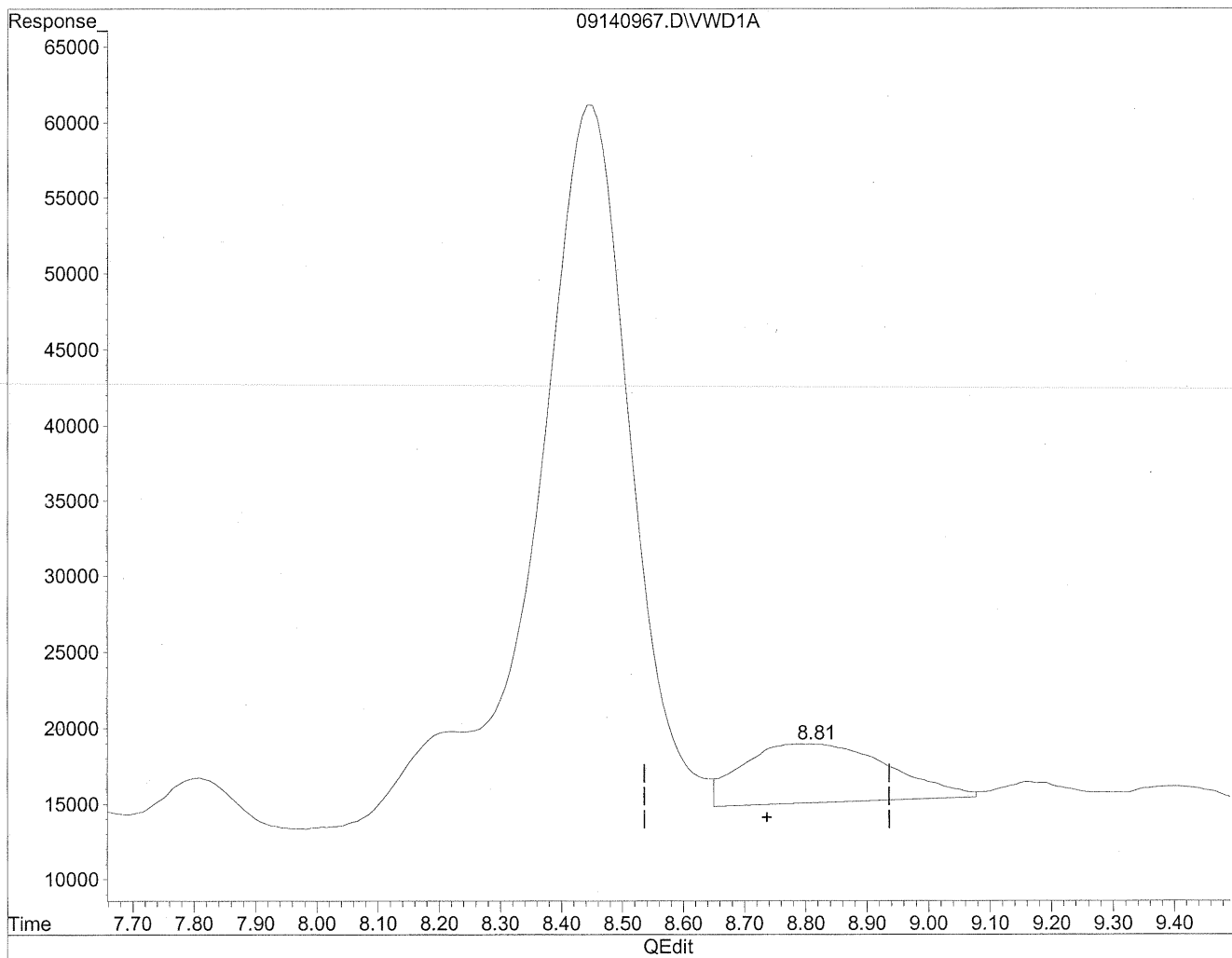
(11) Hexaldehyde  
8.45min 1563.976ng/ml m  
response 4630502

*HC*  
*9/17/09*  
*MD*  
*9/17/09*  
*sh*

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140967.D Vial: 133  
Acq On : 14-Sep-2009, 22:41 Operator: MD  
Sample : P0903087-005 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 15 7:56 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



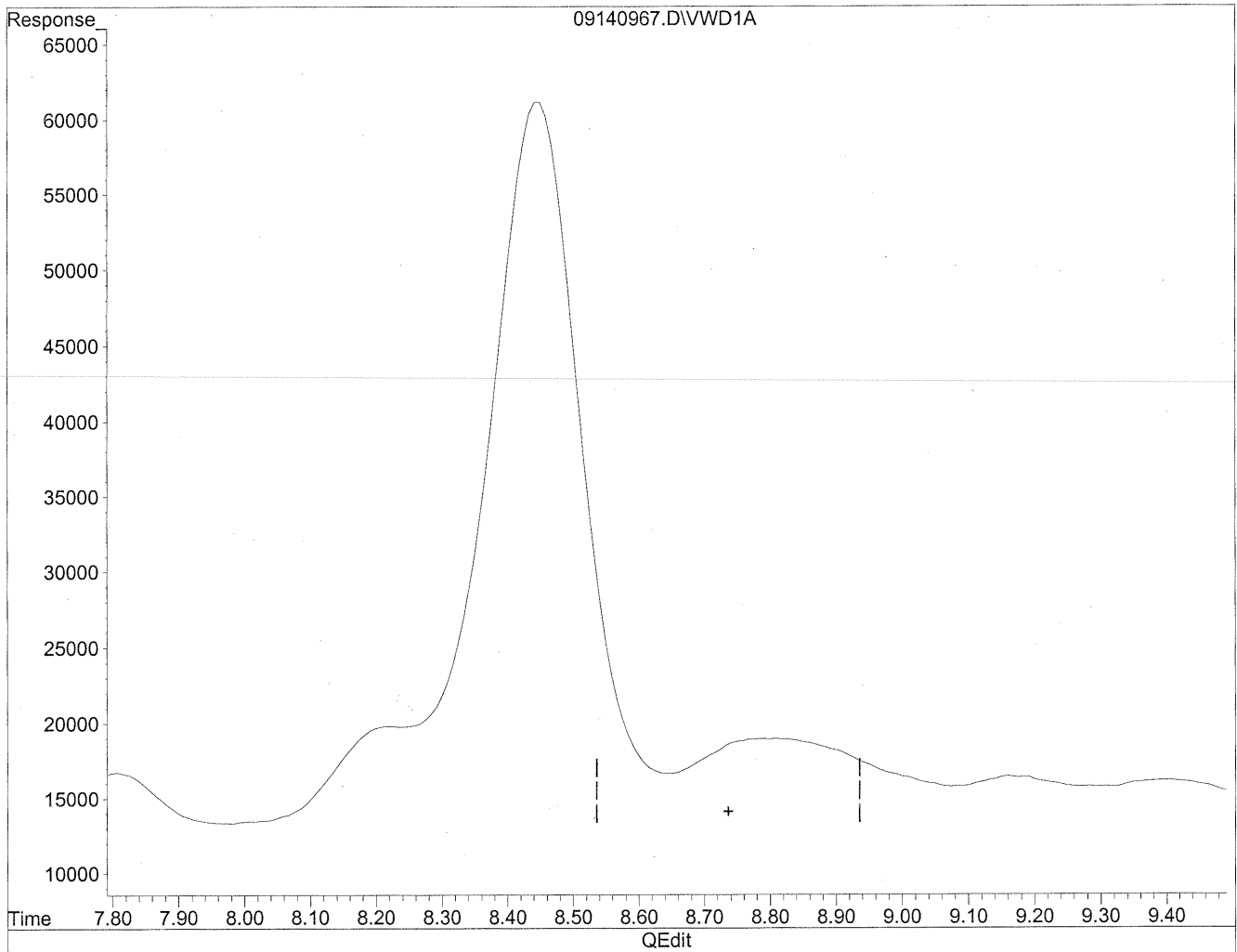
(12) 2,5-Dimethylbenzaldehyde  
8.81min 325.667ng/ml  
response 649867



Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140967.D Vial: 133  
Acq On : 14-Sep-2009, 22:41 Operator: MD  
Sample : P0903087-005 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 15 7:56 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



(12) 2,5-Dimethylbenzaldehyde

0.00min 0.000ng/ml d

response 0

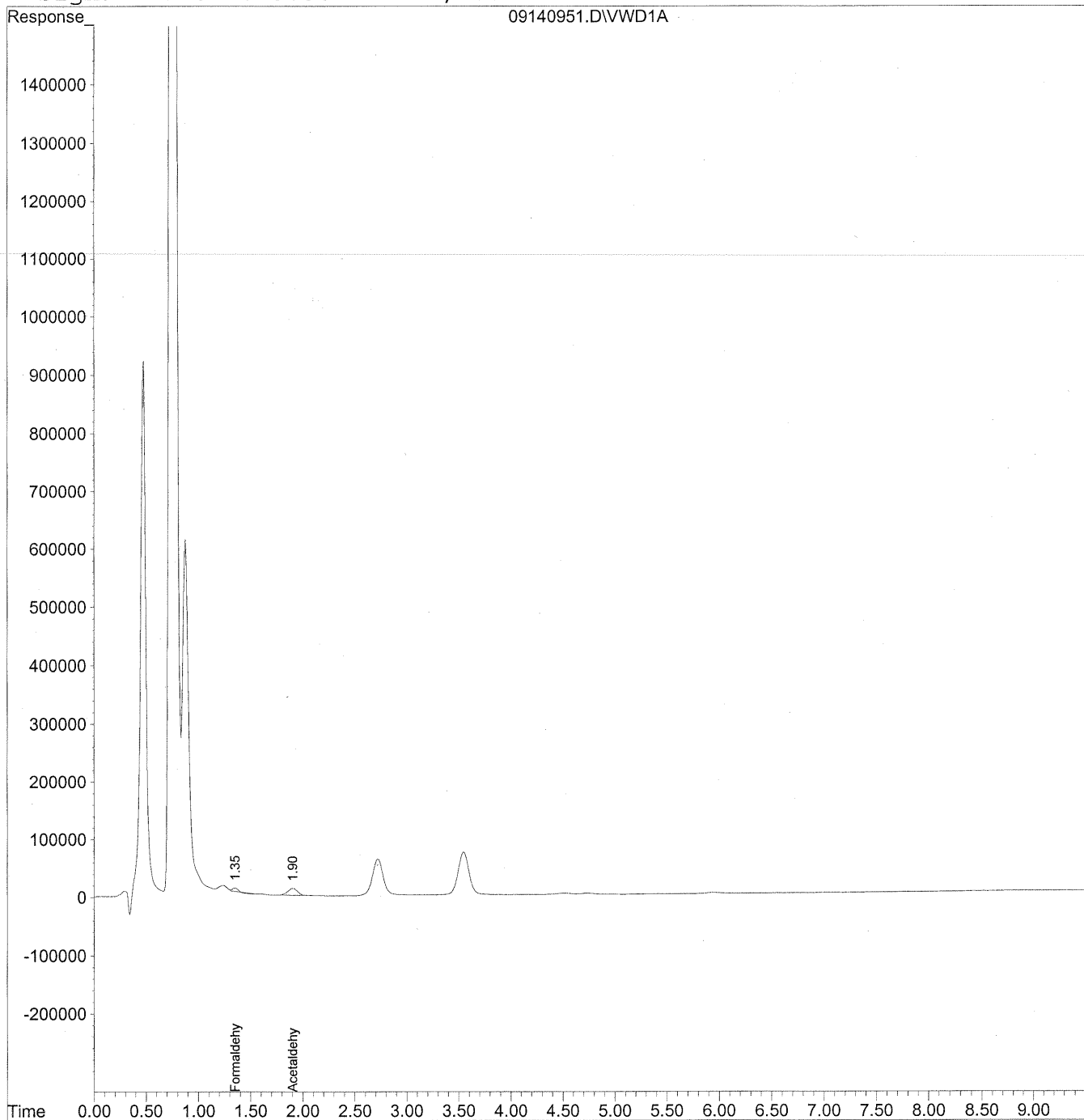
*HL*  
*9/17/09*  
*(MD)*  
*9/17/09*  
*MP, RT*

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140951.D Vial: 119  
Acq On : 14-Sep-2009, 19:29 Operator: MD  
Sample : P0903087-005 back 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 11:29 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration  
DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
Signal Phase : Supelcosil LC-18  
Signal Info : 3.3cm x 3mm, 3um



Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140951.D Vial: 119  
 Acq On : 14-Sep-2009, 19:29 Operator: MD  
 Sample : P0903087-005 back 1.0ml Inst : VWD  
 Misc : Multiplr: 1.00  
 IntFile : events.e  
 Quant Time: Sep 17 11:29 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
 Title : LC-1050 TO-11A ICAL  
 Last Update : Thu Sep 17 11:23:31 2009  
 Response via : Initial Calibration  
 DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
 Signal Phase : Supelcosil LC-18  
 Signal Info : 3.3cm x 3mm, 3um

| Compound                     | R.T. | Response | Conc Units    |
|------------------------------|------|----------|---------------|
| -----                        |      |          |               |
| Target Compounds             |      |          |               |
| 1) Formaldehyde              | 1.35 | 163445   | 18.292 ng/ml  |
| 2) Acetaldehyde              | 1.91 | 795047   | 122.300 ng/ml |
| 3) Propionaldehyde           | 0.00 | 0        | N.D. ng/ml    |
| 4) Crotonaldehyde            | 0.00 | 0        | N.D. ng/ml    |
| 5) Butyraldehyde             | 0.00 | 0        | N.D. ng/ml    |
| 6) Benzaldehyde              | 0.00 | 0        | N.D. ng/ml    |
| 7) Isovaleraldehyde          | 0.00 | 0        | N.D. ng/ml    |
| 8) Valeraldehyde             | 0.00 | 0        | N.D. ng/ml    |
| 9) o-Tolualdehyde            | 0.00 | 0        | N.D. ng/ml    |
| 10) m,p-Tolualdehyde         | 0.00 | 0        | N.D. ng/ml    |
| 11) Hexaldehyde              | 0.00 | 0        | N.D. ng/ml    |
| 12) 2,5-Dimethylbenzaldehyde | 0.00 | 0        | N.D. ng/ml    |

**COLUMBIA ANALYTICAL SERVICES, INC.**

RESULTS OF ANALYSIS

Page 1 of 1

**Client:** Environmental Health & Engineering, Inc.

**Client Sample ID:** 104325

**Client Project ID:** 16512

CAS Project ID: P0903087

CAS Sample ID: P0903087-006

**Test Code:** EPA Method TO-11A

**Instrument ID:** HP1050/LC2

**Analyst:** Madeleine Dangazyan

**Sampling Media:** Silica Gel DNPH Tube

**Test Notes:** BC

Date Collected: 9/1/09

Date Received: 9/2/09

Date Analyzed: 9/14/09

Desorption Volume: 1.0 ml

Volume Sampled: 102 Liter(s)

| CAS #     | Compound                 | Result<br>ng/Sample | Result<br>µg/m <sup>3</sup> | MRL<br>µg/m <sup>3</sup> | Result<br>ppbV | MRL<br>ppbV | Data<br>Qualifier |
|-----------|--------------------------|---------------------|-----------------------------|--------------------------|----------------|-------------|-------------------|
| 50-00-0   | Formaldehyde             | 5,500               | 54                          | 0.98                     | 44             | 0.80        |                   |
| 75-07-0   | Acetaldehyde             | 2,000               | 19                          | 0.98                     | 11             | 0.54        |                   |
| 123-38-6  | Propionaldehyde          | 240                 | 2.3                         | 0.98                     | 0.98           | 0.41        |                   |
| 4170-30-3 | Crotonaldehyde, Total    | < 100               | ND                          | 0.98                     | ND             | 0.34        |                   |
| 123-72-8  | Butyraldehyde            | 200                 | 2.0                         | 0.98                     | 0.67           | 0.33        |                   |
| 100-52-7  | Benzaldehyde             | 790                 | 7.8                         | 0.98                     | 1.8            | 0.23        | M                 |
| 590-86-3  | Isovaleraldehyde         | 100                 | 1.0                         | 0.98                     | 0.29           | 0.28        | M                 |
| 110-62-3  | Valeraldehyde            | 450                 | 4.4                         | 0.98                     | 1.2            | 0.28        |                   |
| 529-20-4  | o-Tolualdehyde           | < 100               | ND                          | 0.98                     | ND             | 0.20        |                   |
| 620-23-5  |                          |                     |                             |                          |                |             |                   |
| 104-87-0  | m,p-Tolualdehyde         | < 200               | ND                          | 2.0                      | ND             | 0.40        |                   |
| 66-25-1   | n-Hexaldehyde            | 1,500               | 15                          | 0.98                     | 3.5            | 0.24        |                   |
| 5779-94-2 | 2,5-Dimethylbenzaldehyde | < 100               | ND                          | 0.98                     | ND             | 0.18        |                   |

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

BC = Results reported are not blank corrected.

M = Matrix interference; results may be biased high.

Verified By: \_\_\_\_\_

*f*

Date: \_\_\_\_\_

9/18/09

TO-11A.XLS - Page No.:

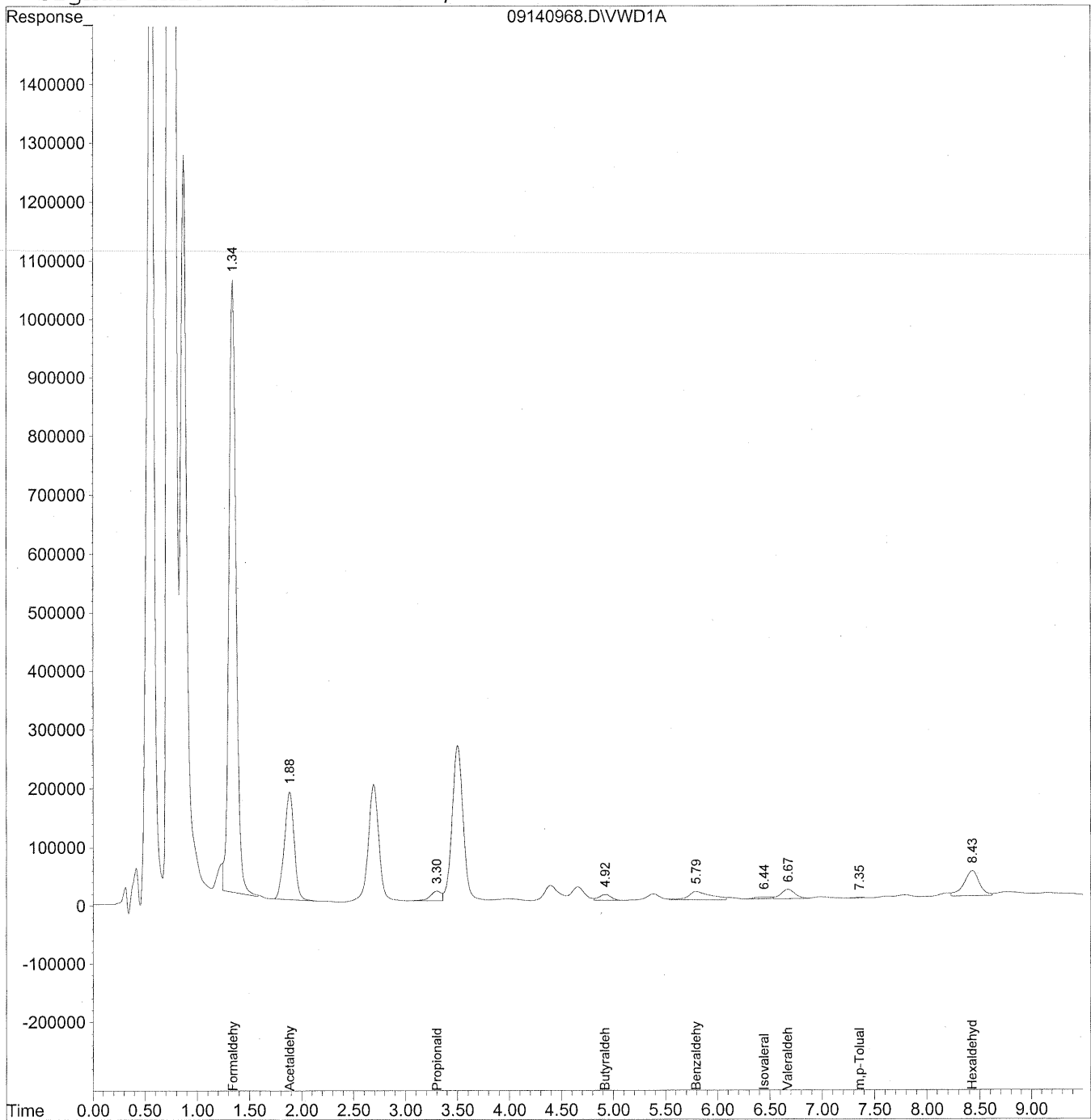
**84**

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140968.D Vial: 134  
Acq On : 14-Sep-2009, 22:53 Operator: MD  
Sample : P0903087-006 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:06 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration  
DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
Signal Phase : Supelcosil LC-18  
Signal Info : 3.3cm x 3mm, 3um



Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140968.D Vial: 134  
 Acq On : 14-Sep-2009, 22:53 Operator: MD  
 Sample : P0903087-006 front 1.0ml Inst : VWD  
 Misc : Multiplr: 1.00  
 IntFile : events.e  
 Quant Time: Sep 17 12:06 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
 Title : LC-1050 TO-11A ICAL  
 Last Update : Thu Sep 17 11:23:31 2009  
 Response via : Initial Calibration  
 DataAcq Meth : TO-11A.M

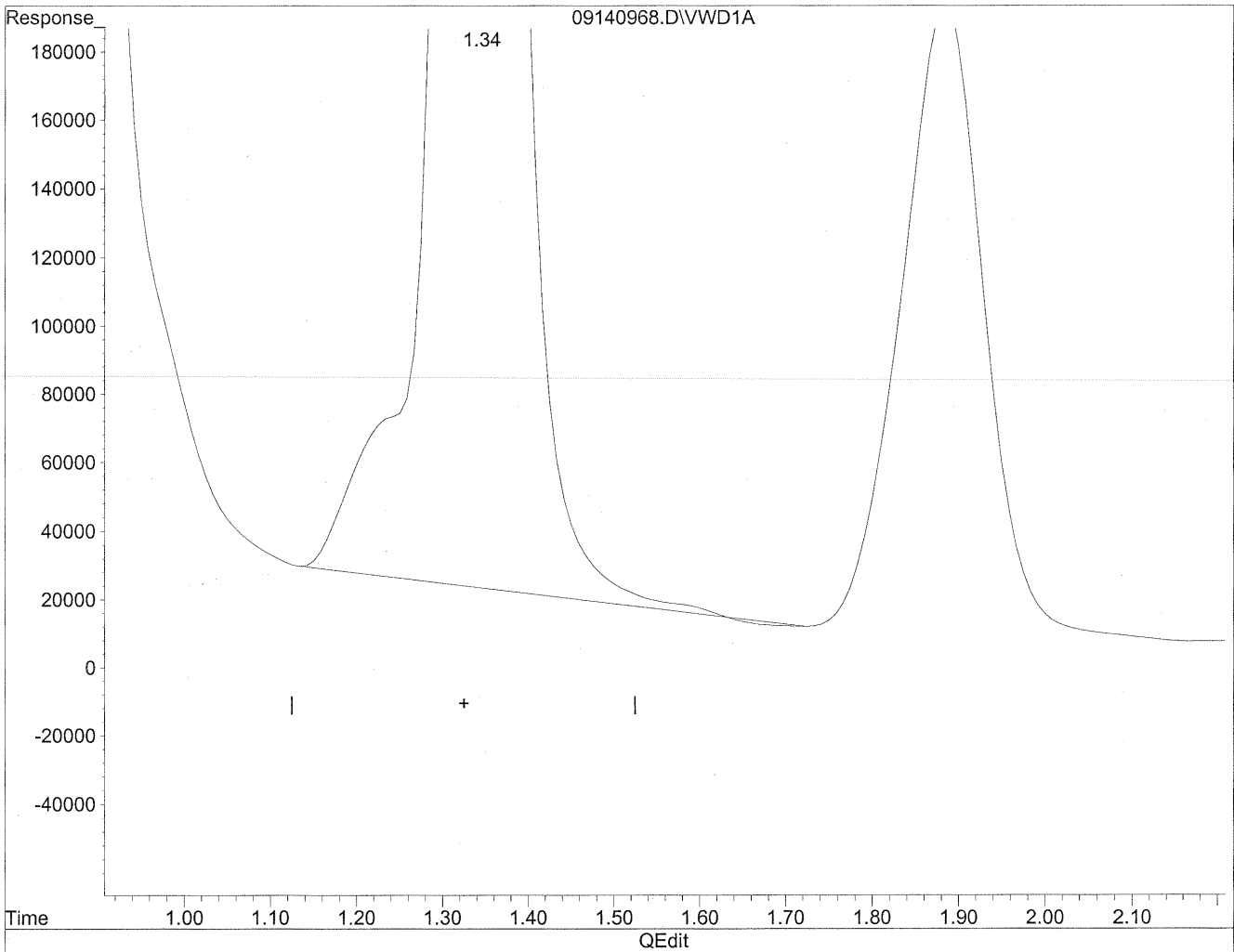
Volume Inj. : 3uL  
 Signal Phase : Supelcosil LC-18  
 Signal Info : 3.3cm x 3mm, 3um

| Compound                     | R.T. | Response | Conc     | Units  |
|------------------------------|------|----------|----------|--------|
| -----                        |      |          |          |        |
| Target Compounds             |      |          |          |        |
| 1) Formaldehyde              | 1.34 | 49242037 | 5510.874 | ng/mlm |
| 2) Acetaldehyde              | 1.89 | 12142455 | 1867.841 | ng/ml  |
| 3) Propionaldehyde           | 3.30 | 1228663  | 236.380  | ng/mlm |
| 4) Crotonaldehyde            | 0.00 | 0        | N.D.     | ng/ml  |
| 5) Butyraldehyde             | 4.92 | 818950   | 202.072  | ng/ml  |
| 6) Benzaldehyde              | 5.79 | 2162615  | 792.638  | ng/mlm |
| 7) Isovaleraldehyde          | 6.45 | 356767   | 103.657  | ng/ml  |
| 8) Valeraldehyde             | 6.67 | 1524229  | 448.350  | ng/mlm |
| 9) o-Tolualdehyde            | 0.00 | 0        | N.D.     | ng/ml  |
| 10) m,p-Tolualdehyde         | 7.35 | 49260    | 21.446   | ng/ml  |
| 11) Hexaldehyde              | 8.43 | 4385736  | 1481.305 | ng/mlm |
| 12) 2,5-Dimethylbenzaldehyde | 0.00 | 0        | N.D.     | ng/ml  |

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140968.D Vial: 134  
Acq On : 14-Sep-2009, 22:53 Operator: MD  
Sample : P0903087-006 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:04 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration

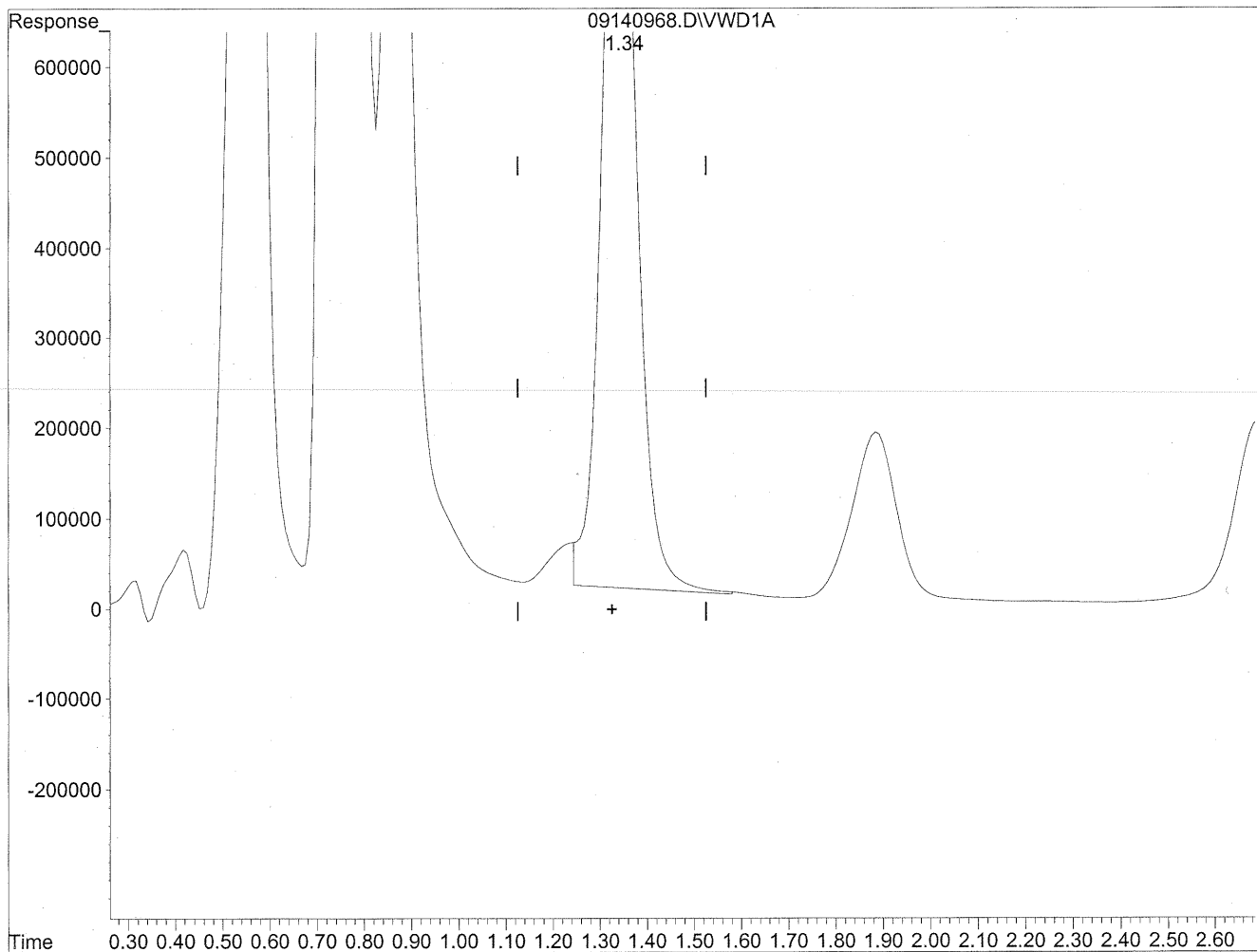


(1) Formaldehyde  
1.34min 5683.043ng/ml  
response 50780435

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140968.D Vial: 134  
Acq On : 14-Sep-2009, 22:53 Operator: MD  
Sample : P0903087-006 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:04 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



(1) Formaldehyde  
1.34min 5510.874ng/ml m  
response 49242037

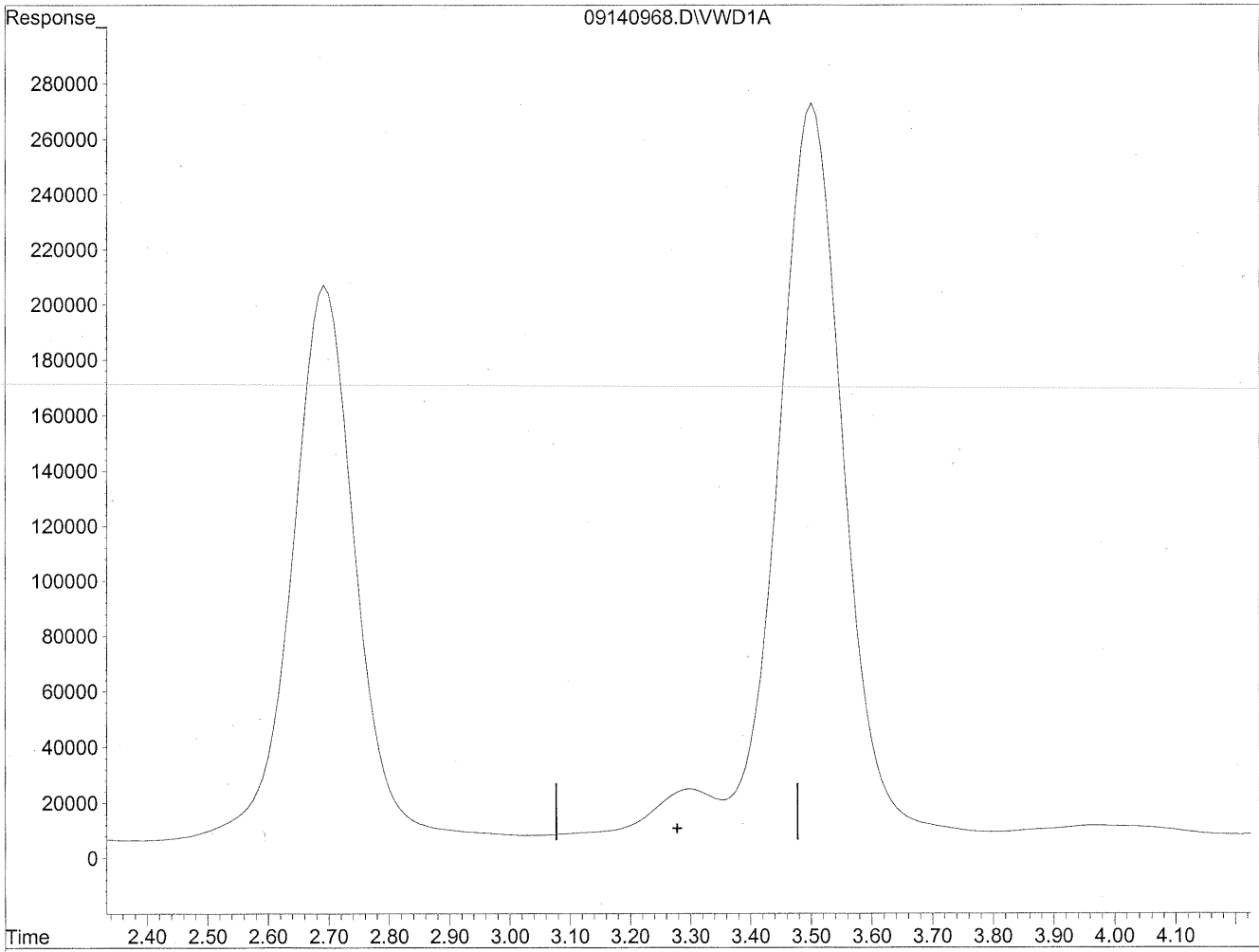
*Handwritten notes:*  
the all data  
9/17/09  
sh



Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140968.D Vial: 134  
Acq On : 14-Sep-2009, 22:53 Operator: MD  
Sample : P0903087-006 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:04 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



(3) Propionaldehyde

3.28min 0.000ng/ml

response 0

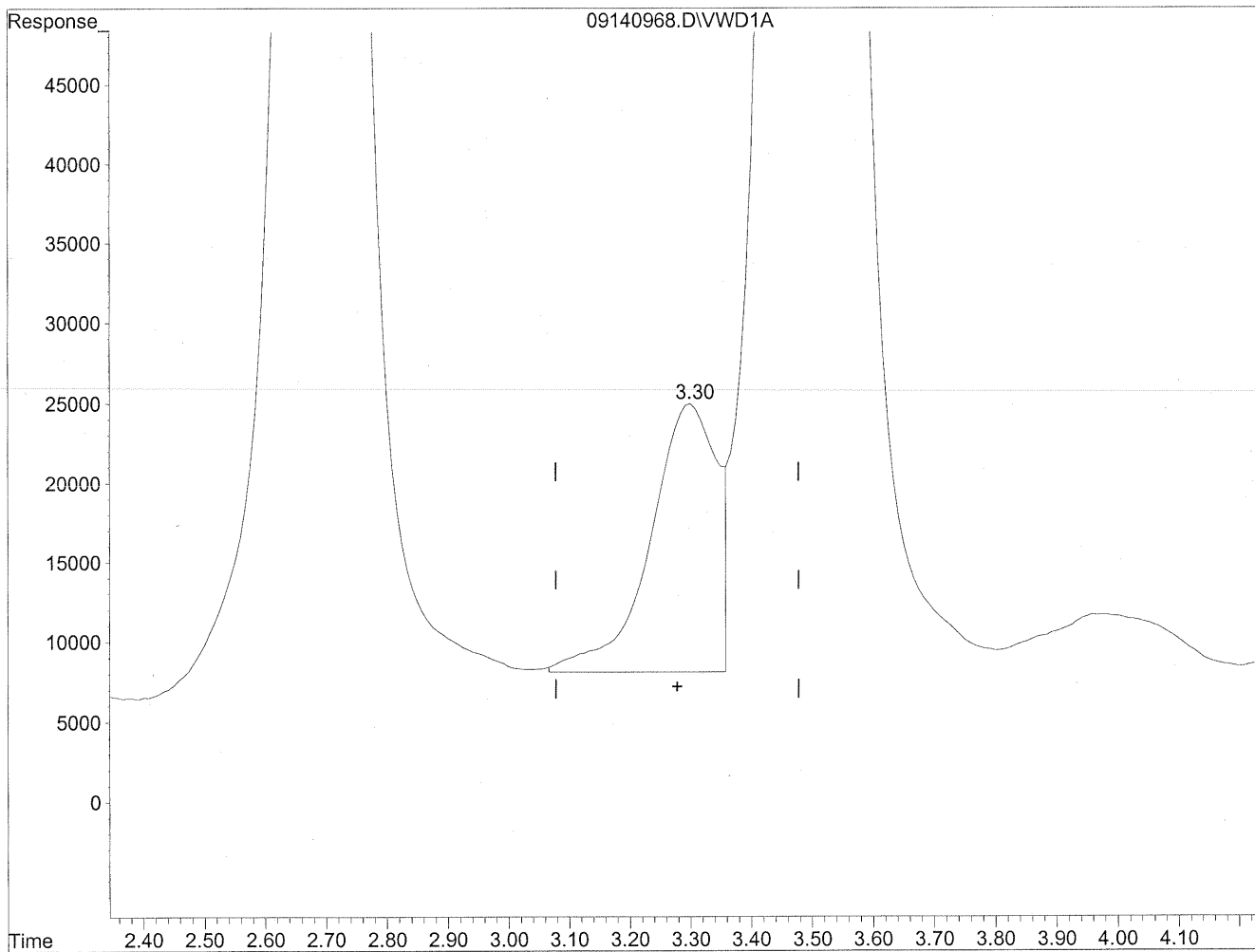
Time 2.40 2.50 2.60 2.70 2.80 2.90 3.00 3.10 3.20 3.30 3.40 3.50 3.60 3.70 3.80 3.90 4.00 4.10  
QEdit

(+) = Expected Retention Time  
09140968.D TO110909.M Thu Sep 17 12:04:28 2009

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140968.D Vial: 134  
Acq On : 14-Sep-2009, 22:53 Operator: MD  
Sample : P0903087-006 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:04 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



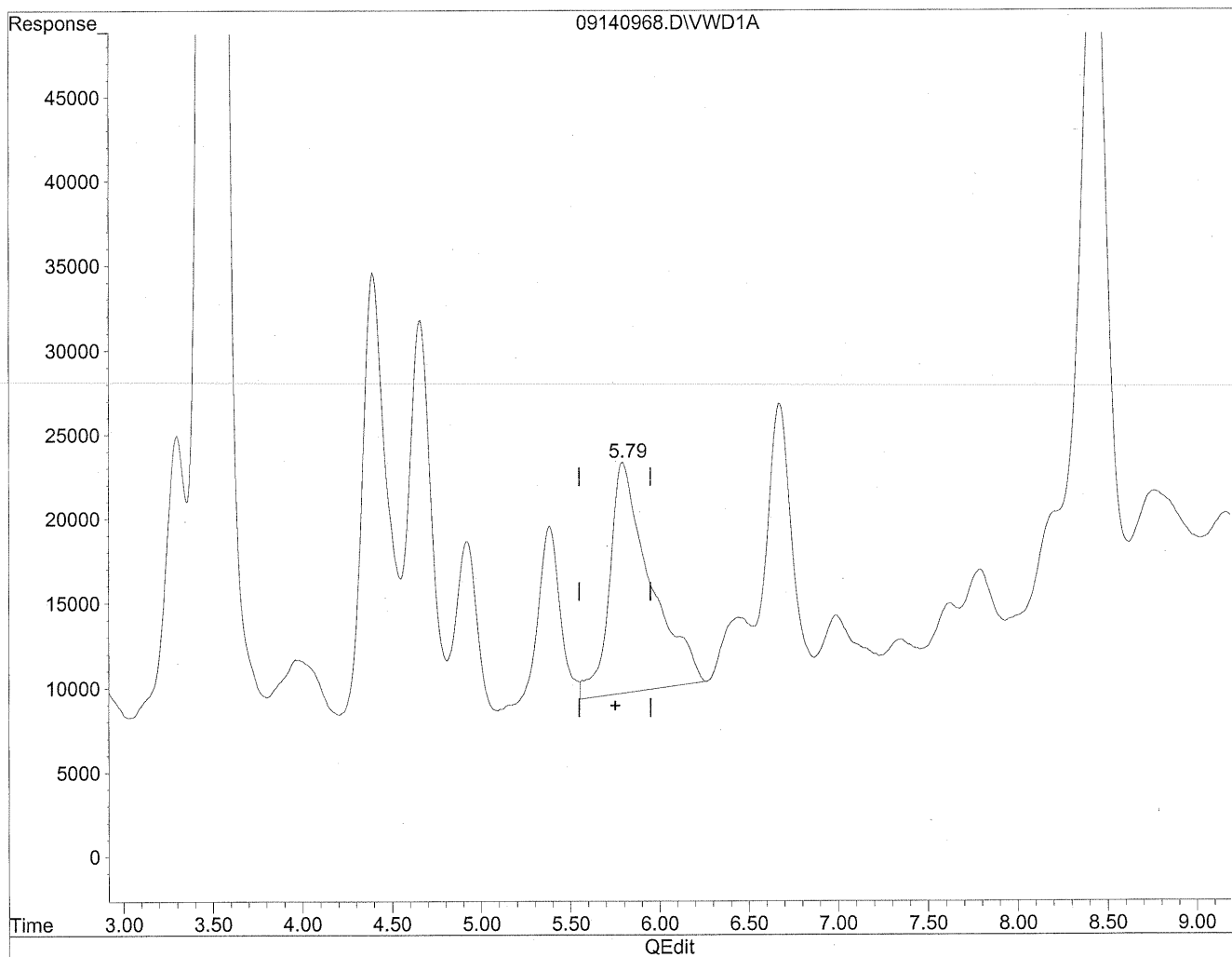
(3) Propionaldehyde  
3.30min 236.380ng/ml m  
response 1228663

*Handwritten notes:*  
HC  
9/17/09  
MD  
9/17/09  
BNI

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140968.D Vial: 134  
Acq On : 14-Sep-2009, 22:53 Operator: MD  
Sample : P0903087-006 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:04 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration

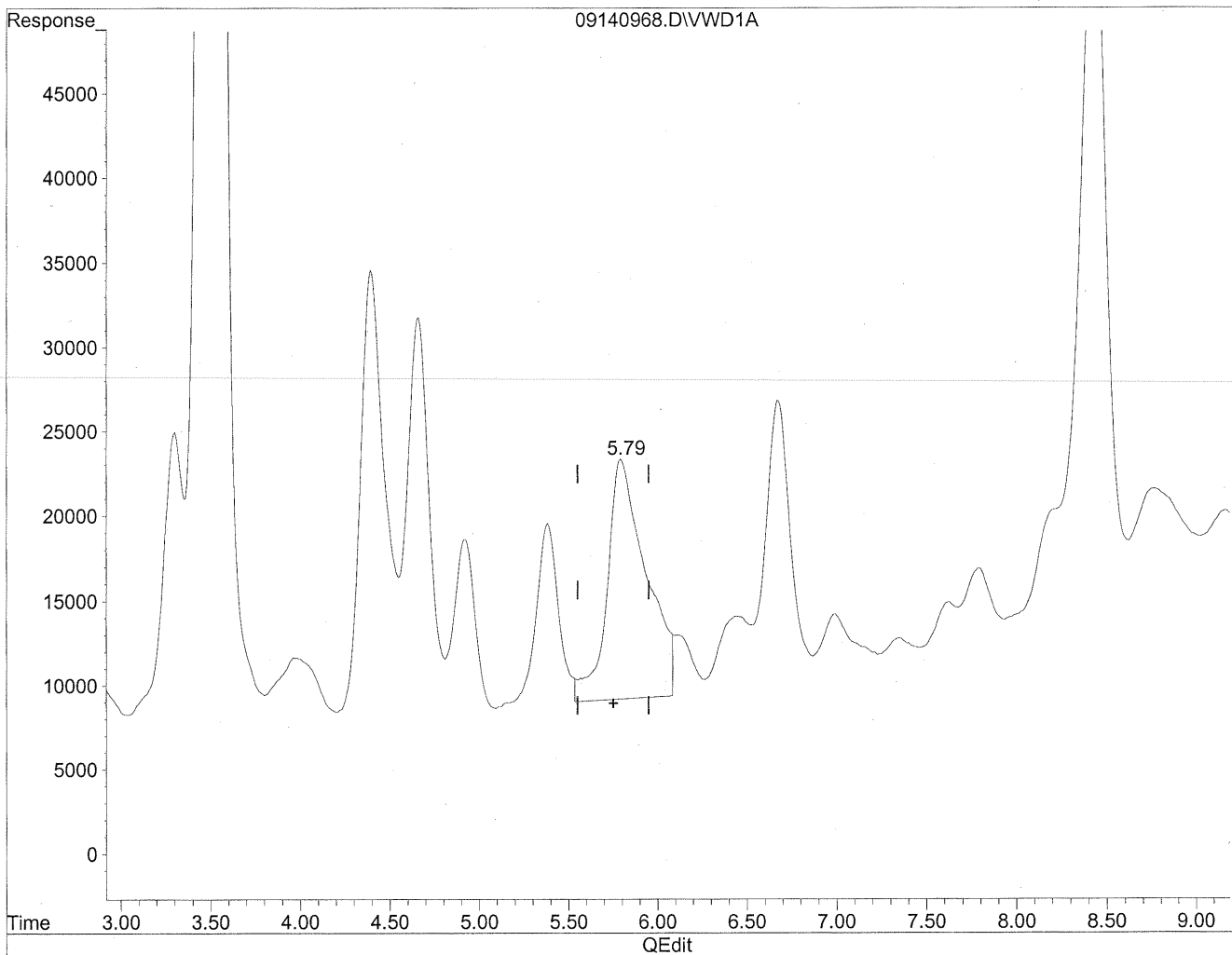


(6) Benzaldehyde  
5.79min 791.079ng/ml  
response 2158361

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140968.D Vial: 134  
Acq On : 14-Sep-2009, 22:53 Operator: MD  
Sample : P0903087-006 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:04 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



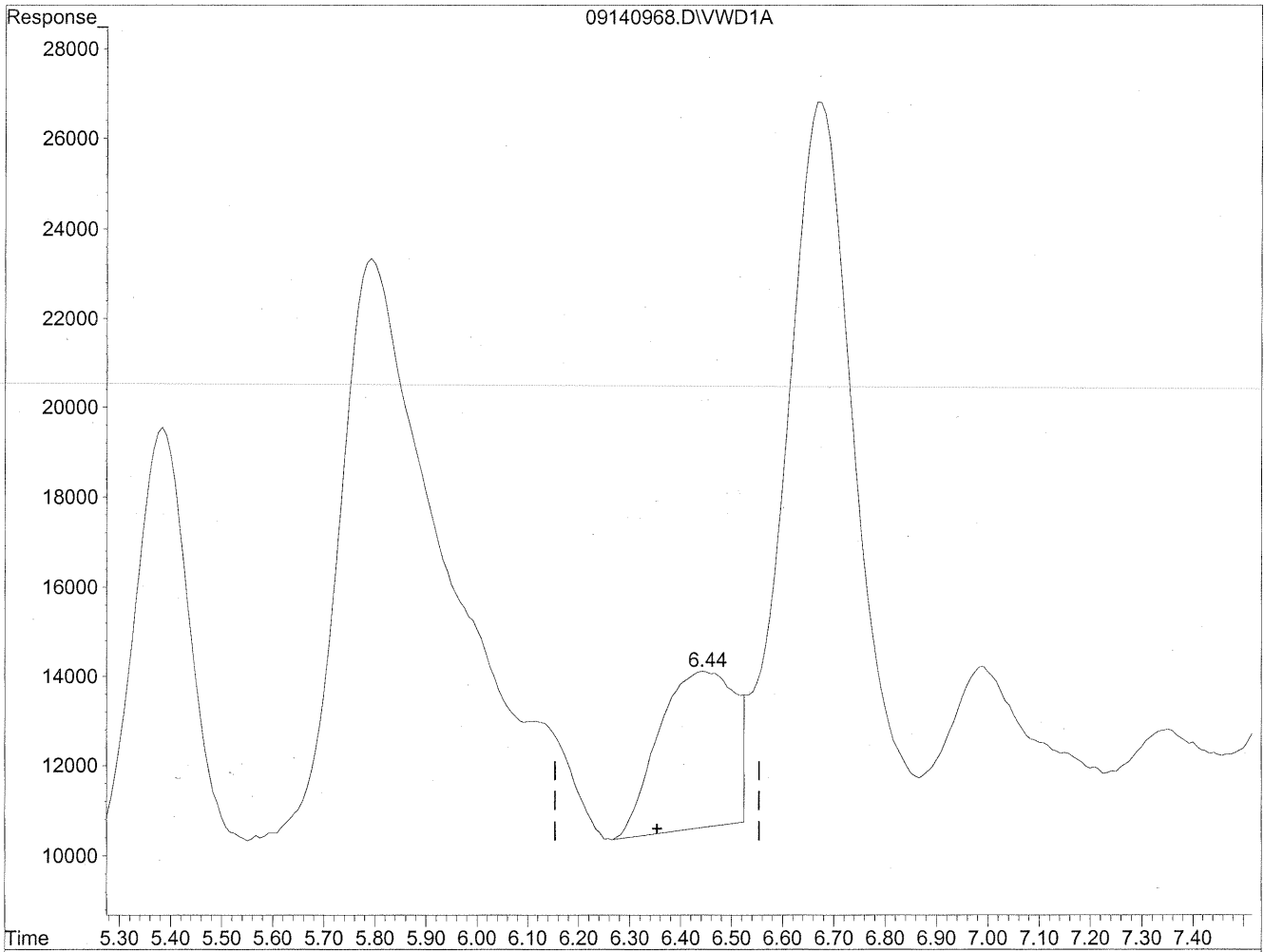
(6) Benzaldehyde  
5.79min 792.638ng/ml m  
response 2162615

*Handwritten notes:*  
HC  
a/17/07  
MD  
a/17/09  
sh  
(m flag)

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140968.D Vial: 134  
Acq On : 14-Sep-2009, 22:53 Operator: MD  
Sample : P0903087-006 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:04 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



Time 5.30 5.40 5.50 5.60 5.70 5.80 5.90 6.00 6.10 6.20 6.30 6.40 6.50 6.60 6.70 6.80 6.90 7.00 7.10 7.20 7.30 7.40  
QEedit

(7) Isovaleraldehyde  
6.45min 103.657ng/ml  
response 356767

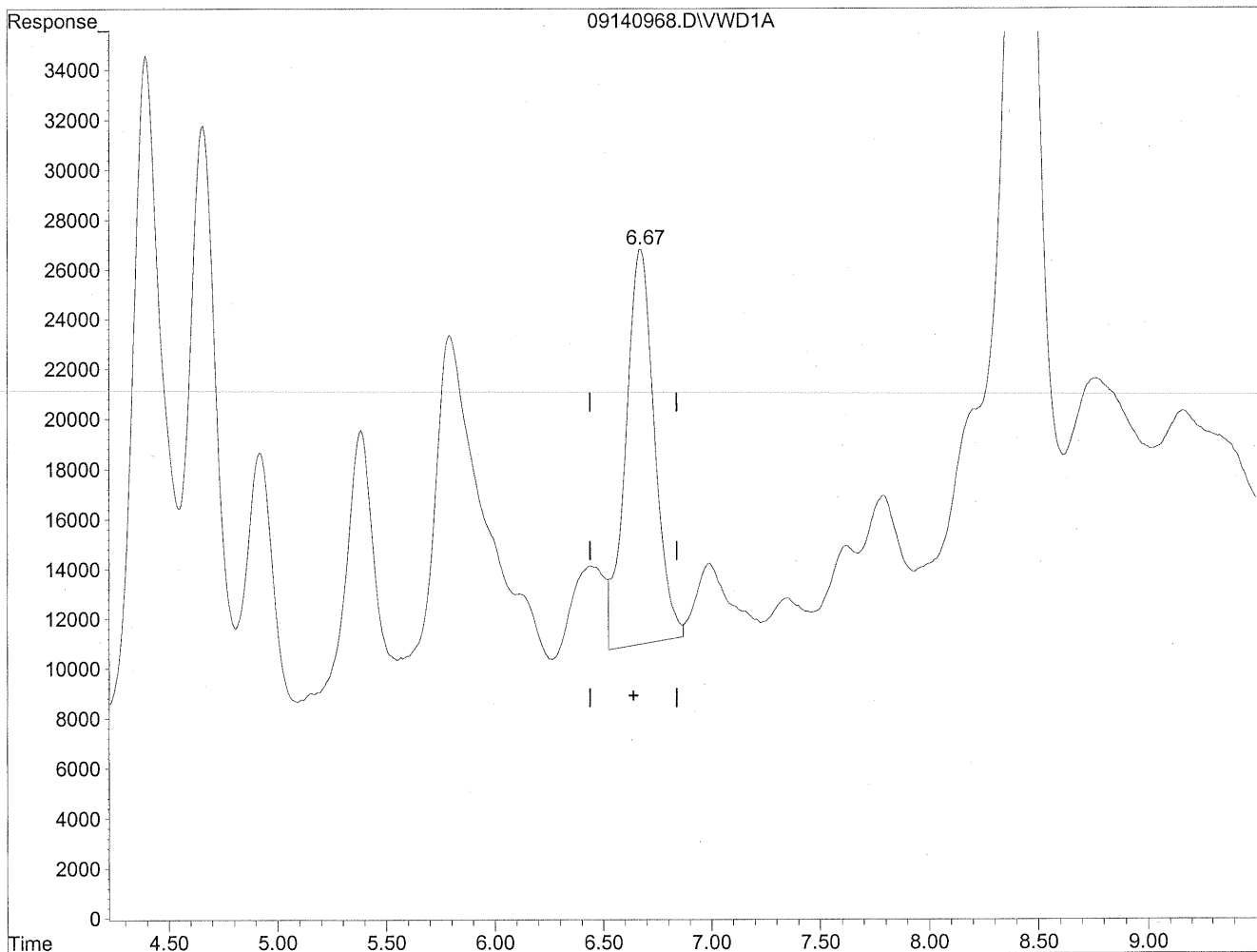
*HC*  
*9/17/09*

*(m plug)*  
*mm*  
*9/17/09*  
*no before*

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140968.D Vial: 134  
Acq On : 14-Sep-2009, 22:53 Operator: MD  
Sample : P0903087-006 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:04 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration

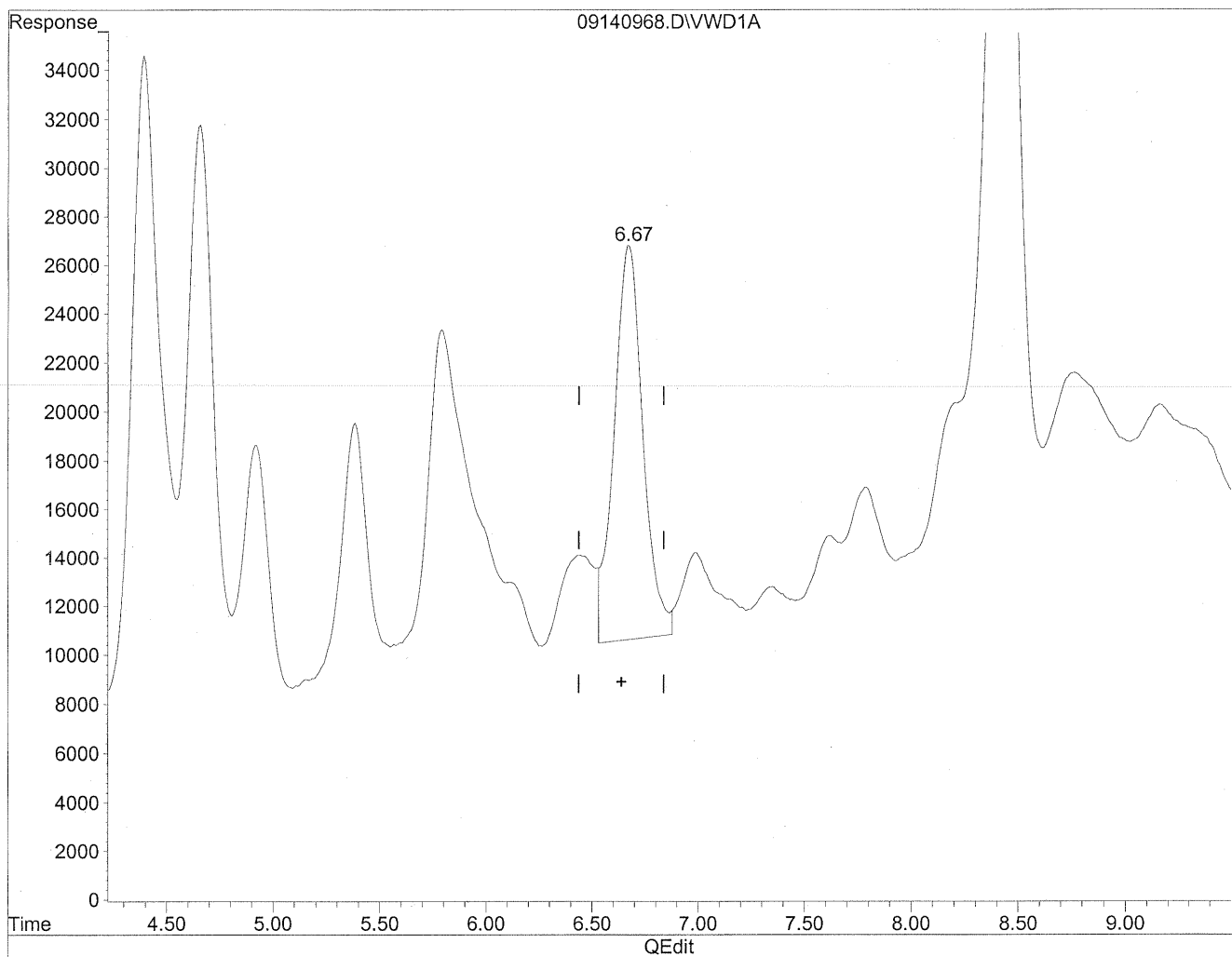


(8) Valeraldehyde  
6.67min 430.514ng/ml  
response 1463592

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140968.D Vial: 134  
Acq On : 14-Sep-2009, 22:53 Operator: MD  
Sample : P0903087-006 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:04 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



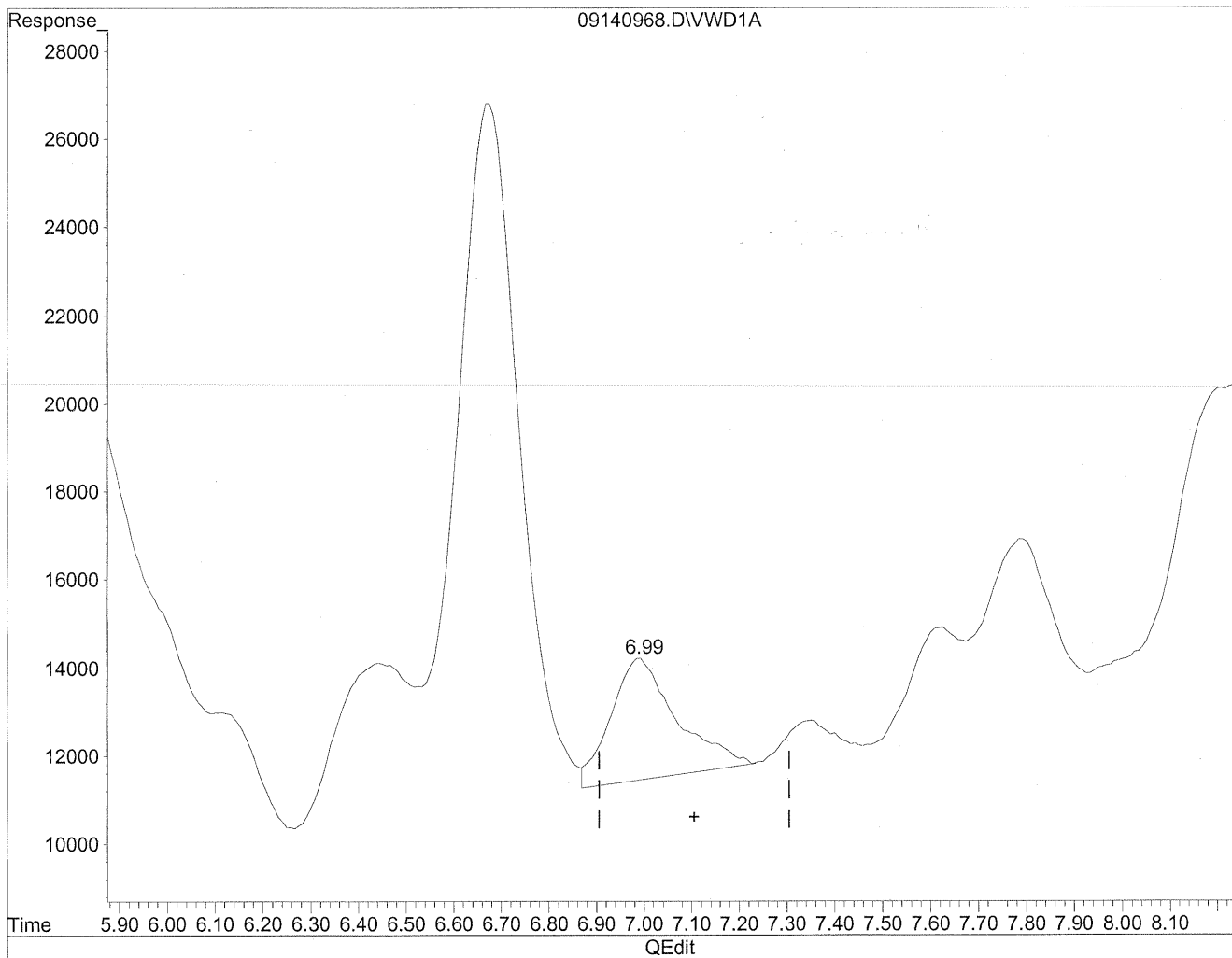
(8) Valeraldehyde  
6.67min 448.350ng/ml m  
response 1524229

*Handwritten notes:*  
HL  
7/17/09  
MD  
9/17/09  
BV

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140968.D Vial: 134  
Acq On : 14-Sep-2009, 22:53 Operator: MD  
Sample : P0903087-006 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:04 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



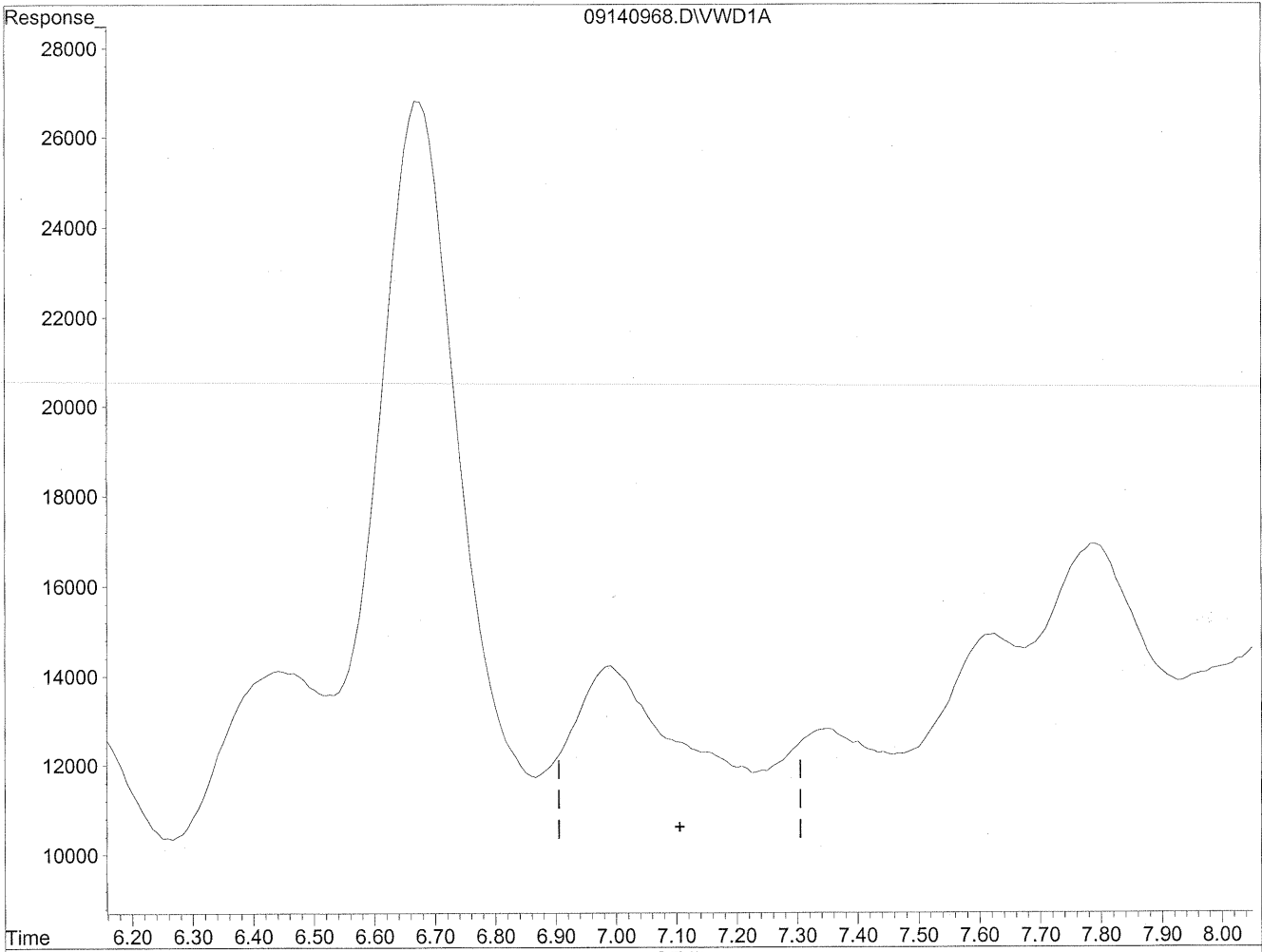
(9) o-Tolualdehyde  
6.99min 121.472ng/ml  
response 266578



Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140968.D Vial: 134  
Acq On : 14-Sep-2009, 22:53 Operator: MD  
Sample : P0903087-006 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:04 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



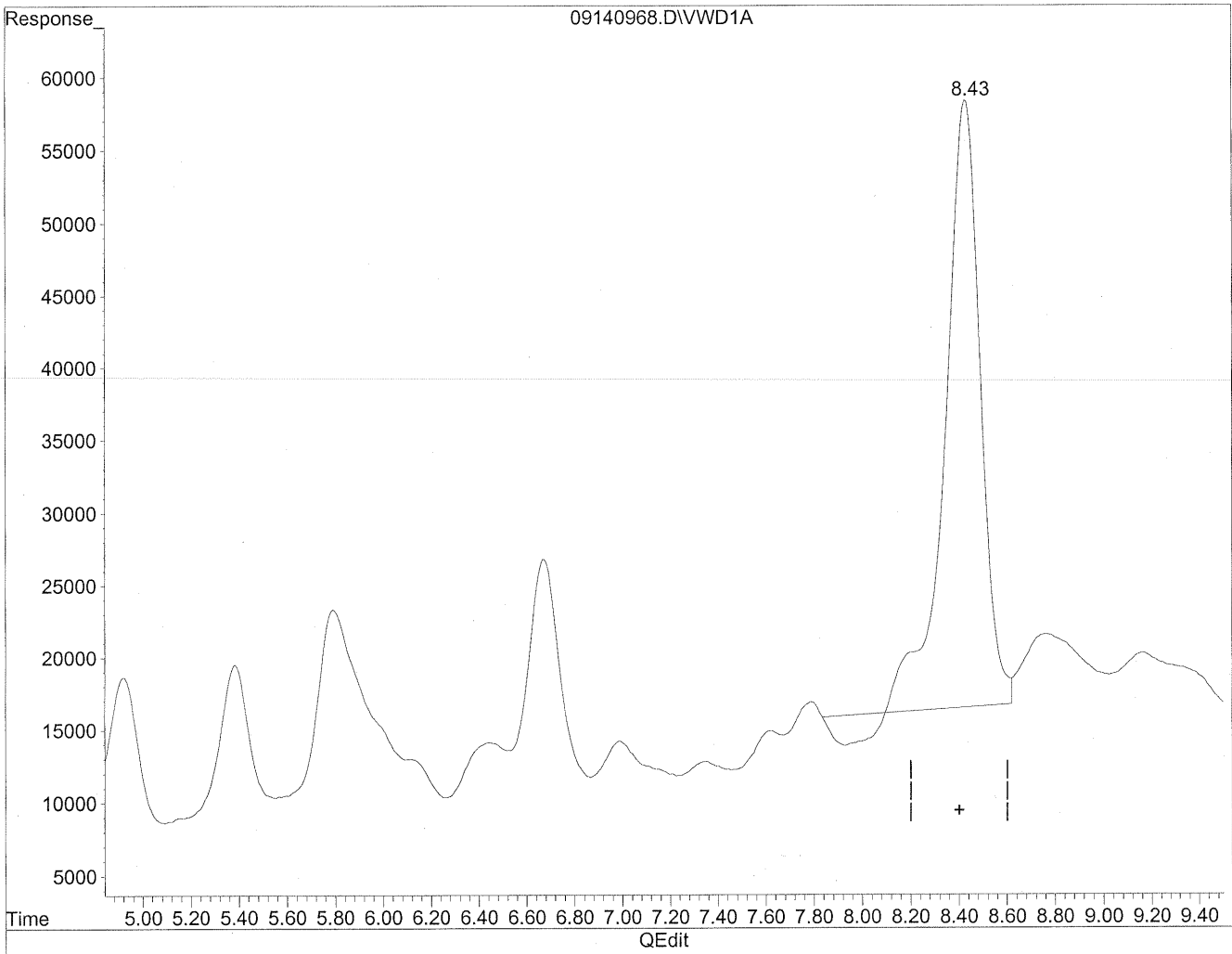
(9) o-Tolualdehyde  
0.00min 0.000ng/ml d  
response 0

*Handwritten notes:*  
the  
9/17/09  
9/17/09  
MP

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140968.D Vial: 134  
Acq On : 14-Sep-2009, 22:53 Operator: MD  
Sample : P0903087-006 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:04 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration

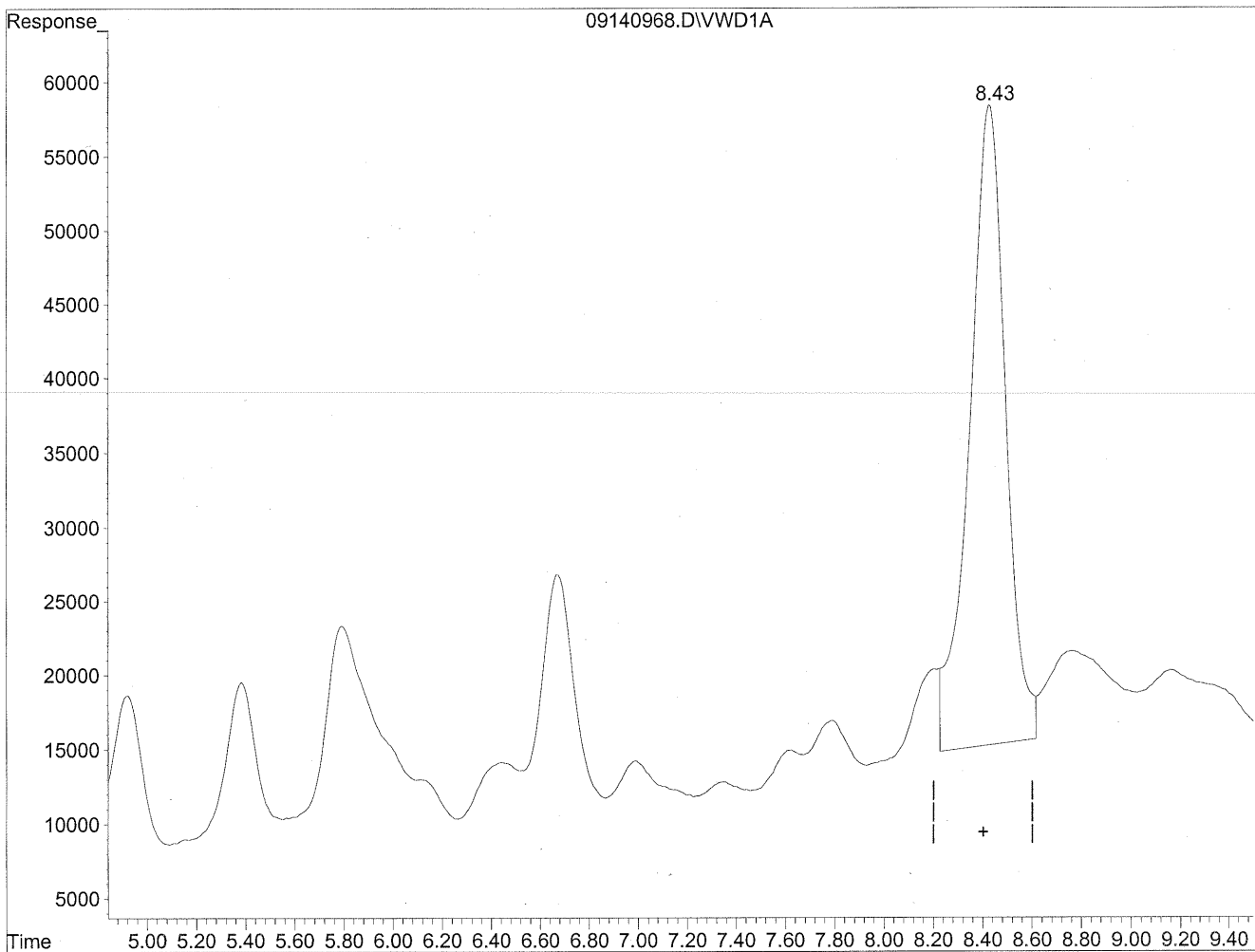


(11) Hexaldehyde  
8.43min 1387.406ng/ml  
response 4107726

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140968.D Vial: 134  
Acq On : 14-Sep-2009, 22:53 Operator: MD  
Sample : P0903087-006 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:04 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



(11) Hexaldehyde

8.43min 1481.305ng/ml m

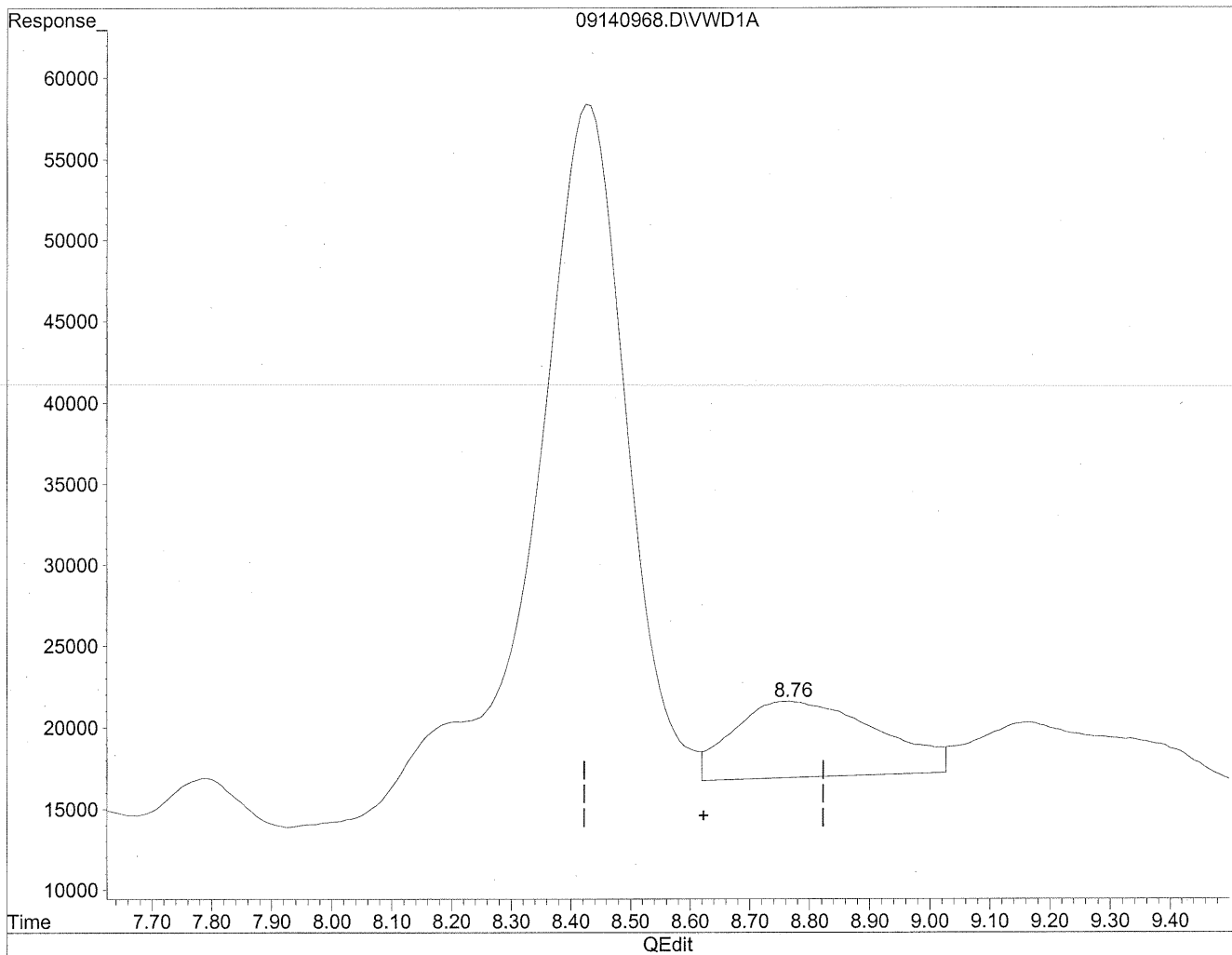
response 4385736

*Handwritten notes:*  
He  
9/17/09  
MD  
9/17/09  
gh

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140968.D Vial: 134  
Acq On : 14-Sep-2009, 22:53 Operator: MD  
Sample : P0903087-006 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:04 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration

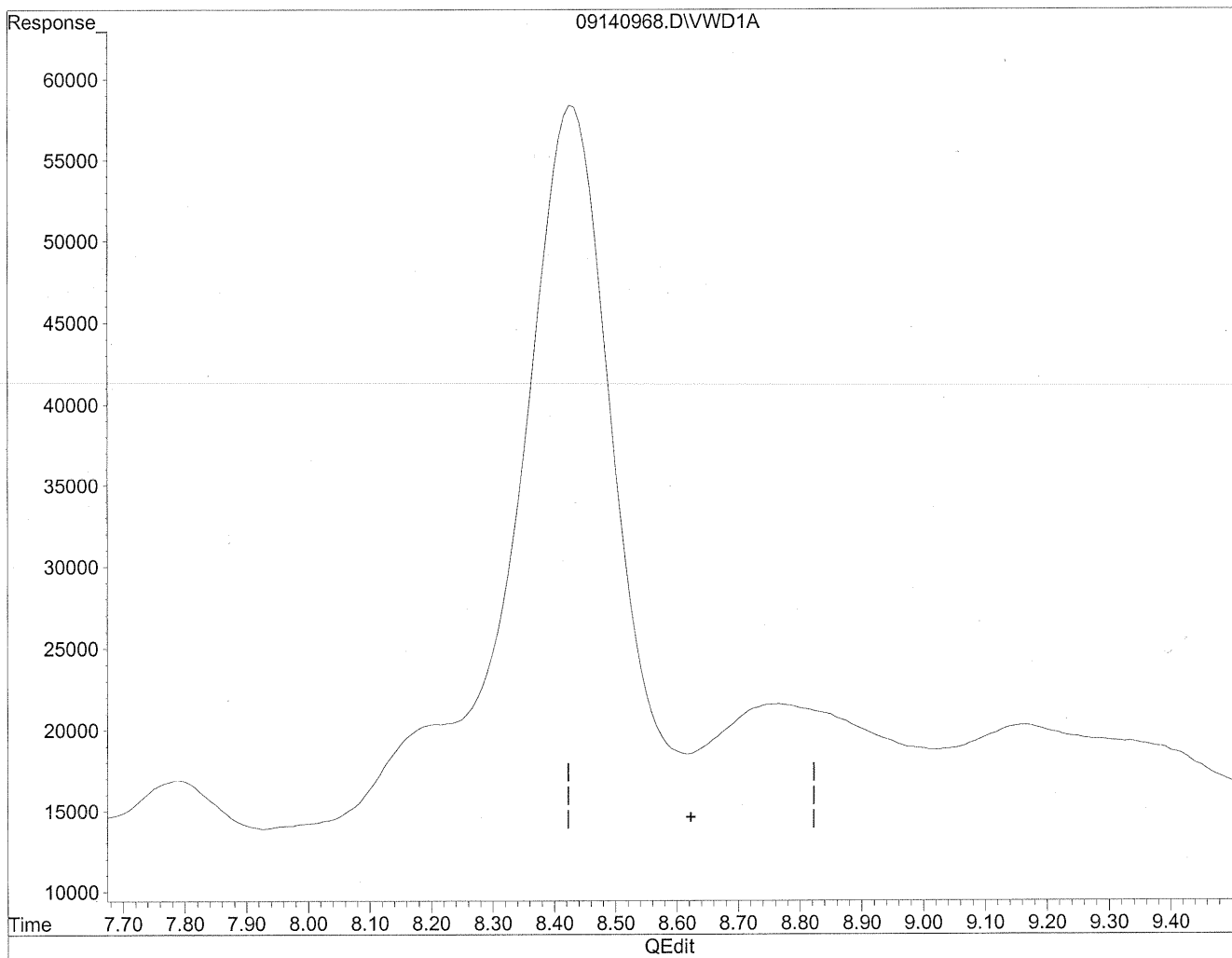


(12) 2,5-Dimethylbenzaldehyde  
8.77min 392.289ng/ml  
response 782809

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140968.D Vial: 134  
Acq On : 14-Sep-2009, 22:53 Operator: MD  
Sample : P0903087-006 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:04 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



(12) 2,5-Dimethylbenzaldehyde

0.00min 0.000ng/ml d

response 0

*HC*  
*9/17/09*

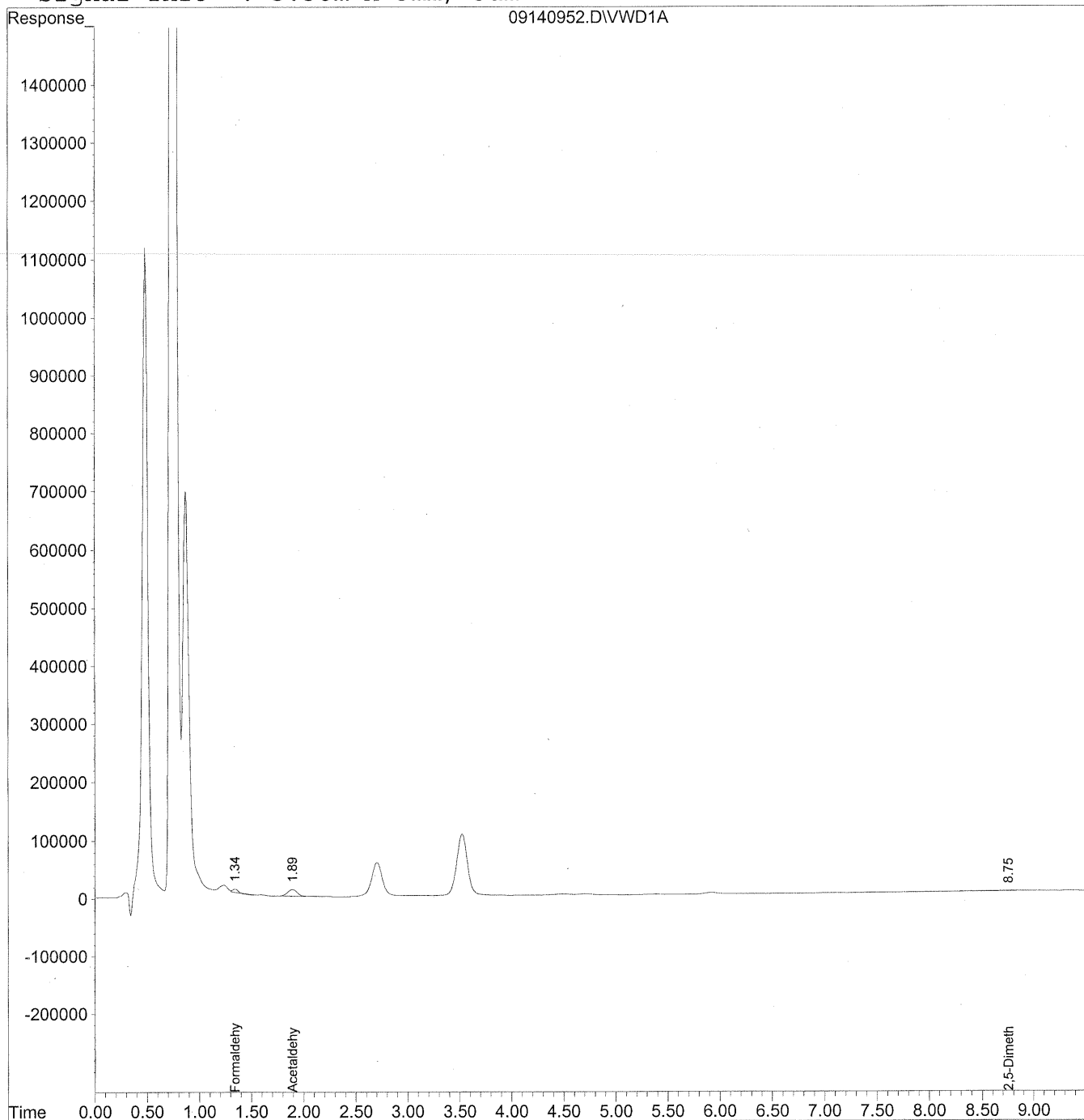
*MP*  
*9/17/09*  
*MP*

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140952.D Vial: 120  
Acq On : 14-Sep-2009, 19:41 Operator: MD  
Sample : P0903087-006 back 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 11:29 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration  
DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
Signal Phase : Supelcosil LC-18  
Signal Info : 3.3cm x 3mm, 3um



Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140952.D Vial: 120  
 Acq On : 14-Sep-2009, 19:41 Operator: MD  
 Sample : P0903087-006 back 1.0ml Inst : VWD  
 Misc : Multiplr: 1.00  
 IntFile : events.e  
 Quant Time: Sep 17 11:29 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
 Title : LC-1050 TO-11A ICAL  
 Last Update : Thu Sep 17 11:23:31 2009  
 Response via : Initial Calibration  
 DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
 Signal Phase : Supelcosil LC-18  
 Signal Info : 3.3cm x 3mm, 3um

| Compound                     | R.T.  | Response | Conc Units    |
|------------------------------|-------|----------|---------------|
| -----                        |       |          |               |
| Target Compounds             |       |          |               |
| 1) Formaldehyde              | 1.34  | 176510   | 19.754 ng/ml  |
| 2) Acetaldehyde              | 1.89  | 758710   | 116.710 ng/ml |
| 3) Propionaldehyde           | 0.00  | 0        | N.D. ng/ml    |
| 4) Crotonaldehyde            | 0.00  | 0        | N.D. ng/ml    |
| 5) Butyraldehyde             | 0.00  | 0        | N.D. ng/ml    |
| 6) Benzaldehyde              | 0.00  | 0        | N.D. ng/ml    |
| 7) Isovaleraldehyde          | 0.00  | 0        | N.D. ng/ml    |
| 8) Valeraldehyde             | 0.00  | 0        | N.D. ng/ml    |
| 9) o-Tolualdehyde            | 0.00  | 0        | N.D. ng/ml    |
| 10) m,p-Tolualdehyde         | 0.00  | 0        | N.D. ng/ml    |
| 11) Hexaldehyde              | 0.00  | 0        | N.D. ng/ml    |
| 12) 2,5-Dimethylbenzaldehyde | 8.75f | 78673    | 39.426 ng/ml  |

**COLUMBIA ANALYTICAL SERVICES, INC.**

RESULTS OF ANALYSIS

Page 1 of 1

**Client:** Environmental Health & Engineering, Inc.  
**Client Sample ID:** 104196  
**Client Project ID:** 16512

CAS Project ID: P0903087  
 CAS Sample ID: P0903087-007

**Test Code:** EPA Method TO-11A  
**Instrument ID:** HP1050/LC2  
**Analyst:** Madeleine Dangazyan  
**Sampling Media:** Silica Gel DNPH Tube  
**Test Notes:** BC

**Date Collected:** 9/1/09  
**Date Received:** 9/2/09  
**Date Analyzed:** 9/14/09  
**Description Volume:** 1.0 ml  
**Volume Sampled:** NA Liter(s)

| CAS #     | Compound                 | Result<br>ng/Sample | Result<br>µg/m <sup>3</sup> | MRL<br>µg/m <sup>3</sup> | Result<br>ppbV | MRL<br>ppbV | Data<br>Qualifier |
|-----------|--------------------------|---------------------|-----------------------------|--------------------------|----------------|-------------|-------------------|
| 50-00-0   | Formaldehyde             | 4,800               | NA                          | NA                       | NA             | NA          |                   |
| 75-07-0   | Acetaldehyde             | 330                 | NA                          | NA                       | NA             | NA          |                   |
| 123-38-6  | Propionaldehyde          | 130                 | NA                          | NA                       | NA             | NA          |                   |
| 4170-30-3 | Crotonaldehyde, Total    | < 100               | NA                          | NA                       | NA             | NA          |                   |
| 123-72-8  | Butyraldehyde            | < 100               | NA                          | NA                       | NA             | NA          |                   |
| 100-52-7  | Benzaldehyde             | 570                 | NA                          | NA                       | NA             | NA          |                   |
| 590-86-3  | Isovaleraldehyde         | < 100               | NA                          | NA                       | NA             | NA          |                   |
| 110-62-3  | Valeraldehyde            | 190                 | NA                          | NA                       | NA             | NA          |                   |
| 529-20-4  | o-Tolualdehyde           | < 100               | NA                          | NA                       | NA             | NA          |                   |
| 620-23-5  |                          |                     |                             |                          |                |             |                   |
| 104-87-0  | m,p-Tolualdehyde         | < 200               | NA                          | NA                       | NA             | NA          |                   |
| 66-25-1   | n-Hexaldehyde            | 890                 | NA                          | NA                       | NA             | NA          |                   |
| 5779-94-2 | 2,5-Dimethylbenzaldehyde | < 100               | NA                          | NA                       | NA             | NA          |                   |

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

BC = Results reported are not blank corrected.

NA = Not applicable.

Verified By:  Date: 9/14/09 **104**

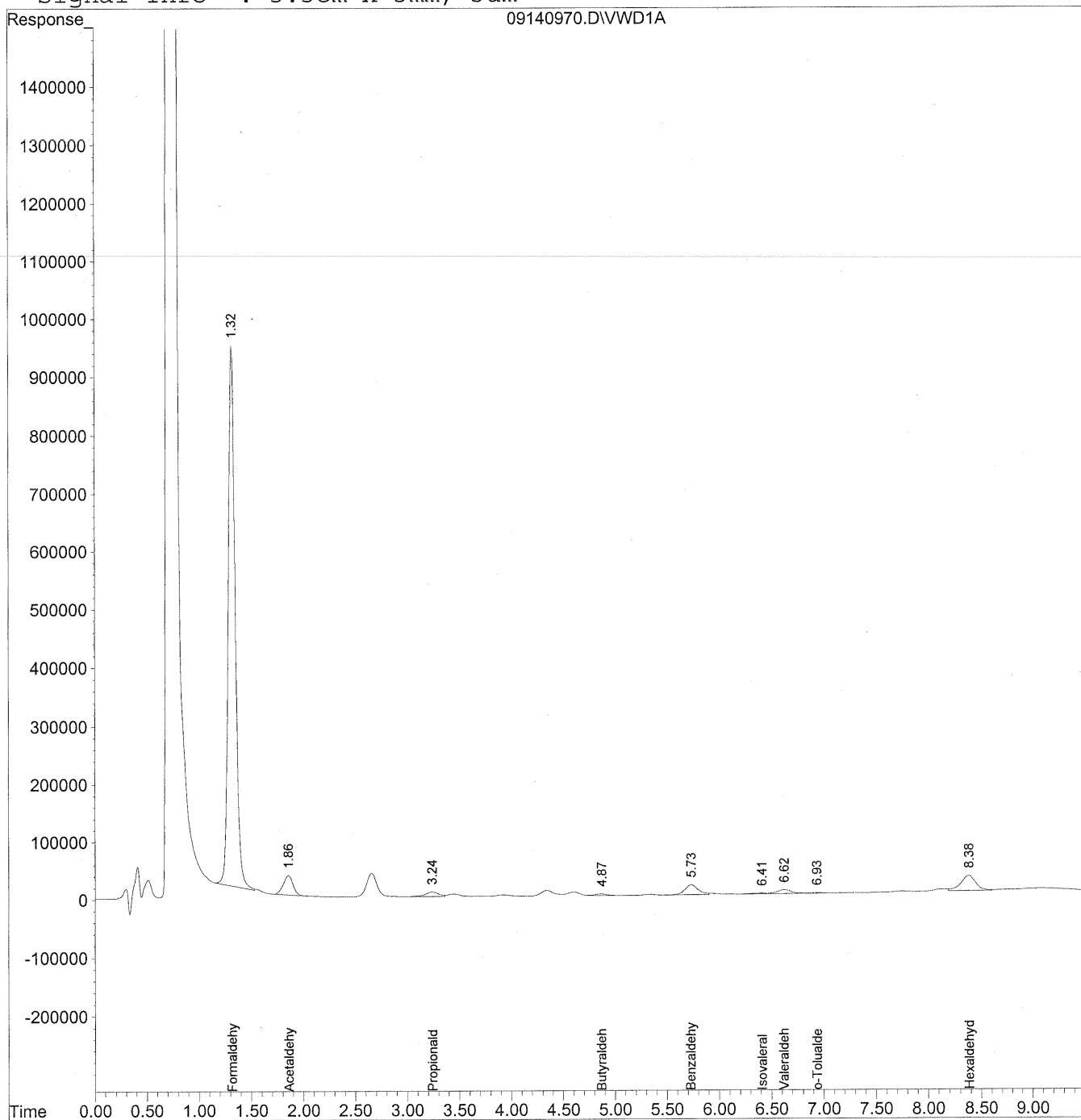


Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140970.D Vial: 135  
Acq On : 14-Sep-2009, 23:17 Operator: MD  
Sample : P0903087-007 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:08 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration  
DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
Signal Phase : Supelcosil LC-18  
Signal Info : 3.3cm x 3mm, 3um



Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140970.D Vial: 135  
 Acq On : 14-Sep-2009, 23:17 Operator: MD  
 Sample : P0903087-007 front 1.0ml Inst : VWD  
 Misc : Multiplr: 1.00  
 IntFile : events.e  
 Quant Time: Sep 17 12:08 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
 Title : LC-1050 TO-11A ICAL  
 Last Update : Thu Sep 17 11:23:31 2009  
 Response via : Initial Calibration  
 DataAcq Meth : TO-11A.M

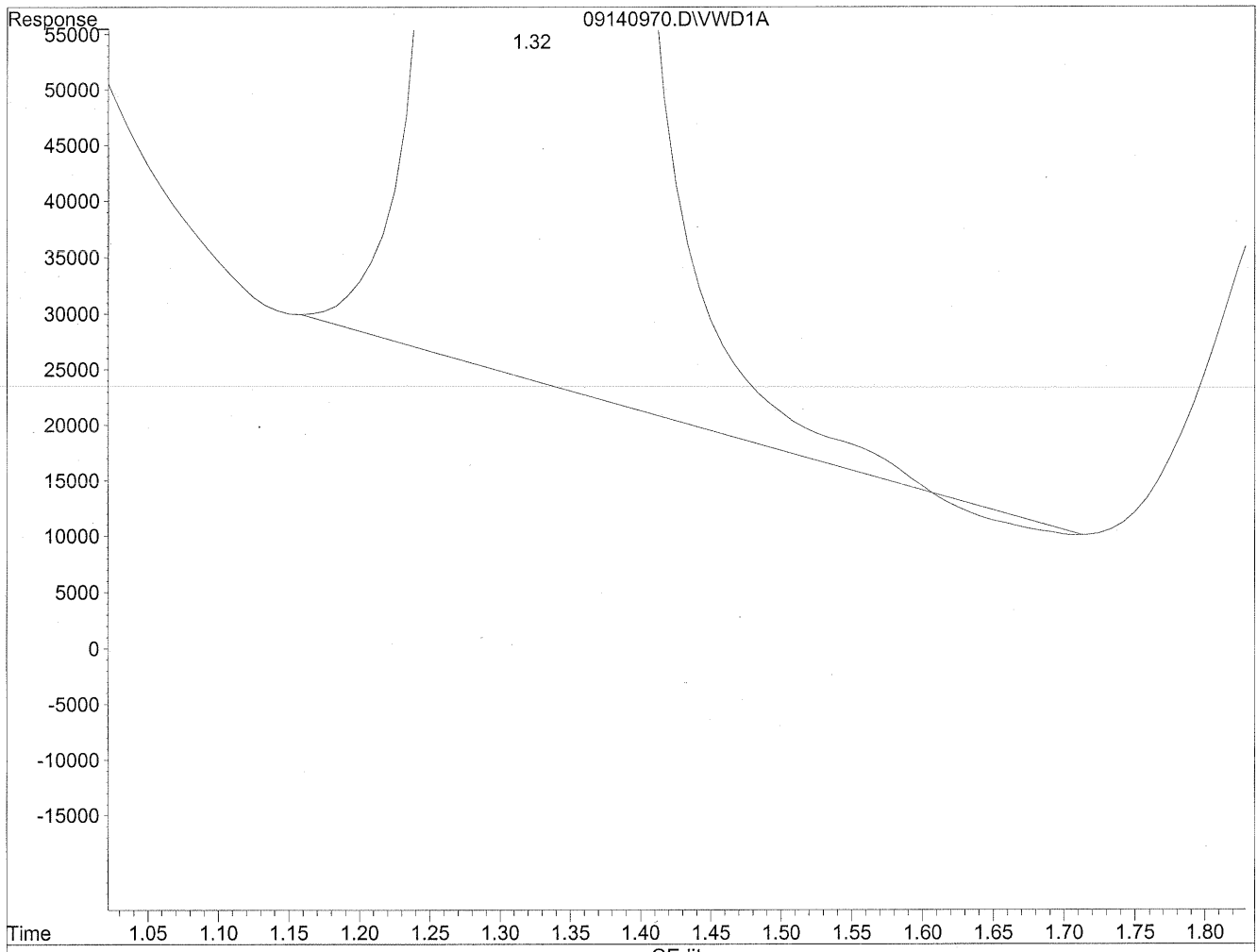
Volume Inj. : 3uL  
 Signal Phase : Supelcosil LC-18  
 Signal Info : 3.3cm x 3mm, 3um

| Compound                     | R.T.  | Response | Conc Units      |
|------------------------------|-------|----------|-----------------|
| -----                        |       |          |                 |
| Target Compounds             |       |          |                 |
| 1) Formaldehyde              | 1.32  | 43207848 | 4835.564 ng/mlm |
| 2) Acetaldehyde              | 1.86  | 2152668  | 331.139 ng/mlm  |
| 3) Propionaldehyde           | 3.24  | 666429   | 128.213 ng/ml   |
| 4) Crotonaldehyde            | 0.00  | 0        | N.D. ng/ml      |
| 5) Butyraldehyde             | 4.87  | 245712   | 60.628 ng/mlm   |
| 6) Benzaldehyde              | 5.73  | 1568453  | 574.866 ng/mlm  |
| 7) Isovaleraldehyde          | 6.41  | 135127   | 39.261 ng/ml    |
| 8) Valeraldehyde             | 6.62  | 642252   | 188.918 ng/ml   |
| 9) o-Tolualdehyde            | 6.93f | 71424    | 32.546 ng/ml    |
| 10) m,p-Tolualdehyde         | 0.00  | 0        | N.D. ng/ml      |
| 11) Hexaldehyde              | 8.38  | 2639379  | 891.464 ng/ml   |
| 12) 2,5-Dimethylbenzaldehyde | 0.00  | 0        | N.D. ng/ml      |

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140970.D Vial: 135  
Acq On : 14-Sep-2009, 23:17 Operator: MD  
Sample : P0903087-007 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:06 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration

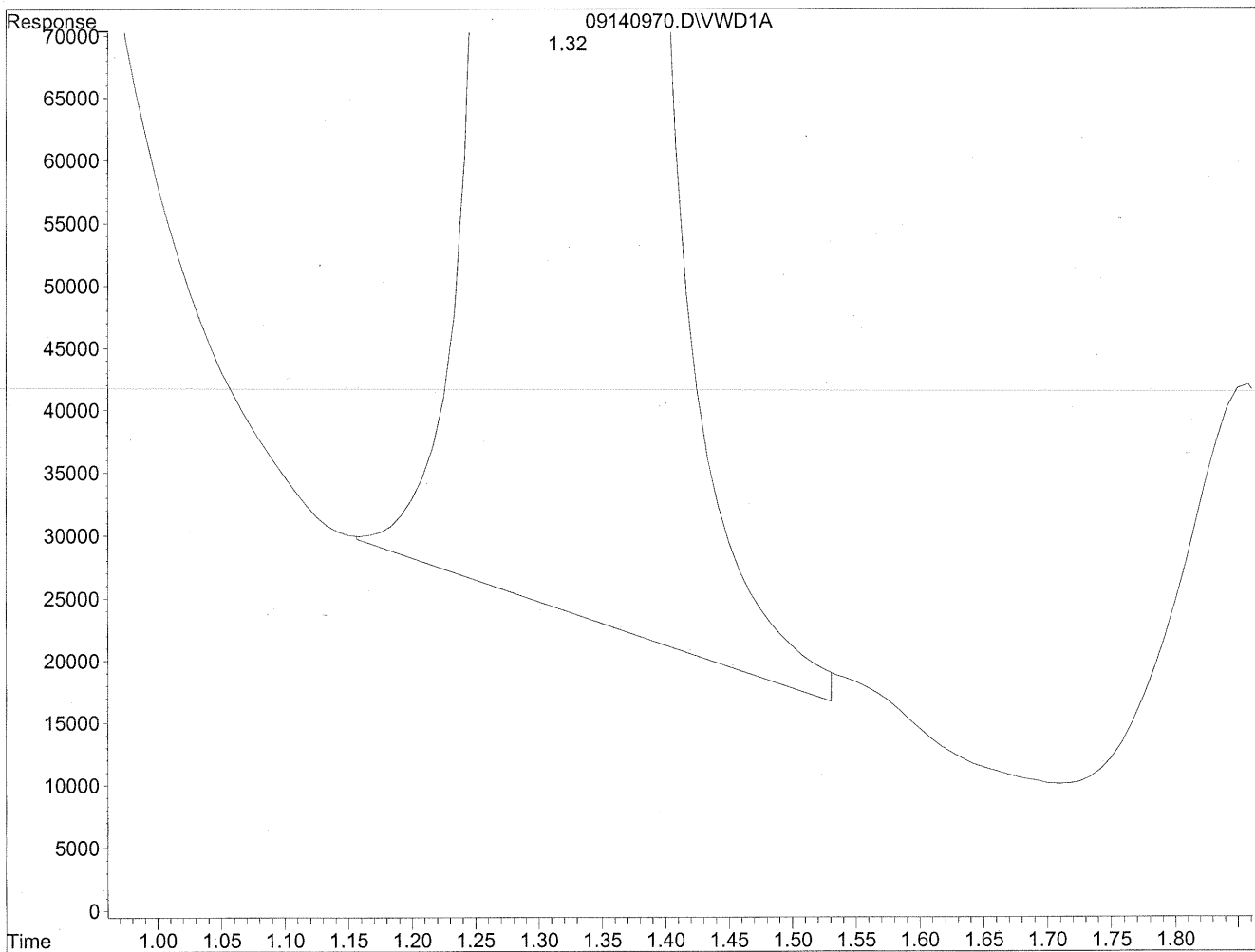


(1) Formaldehyde  
1.32min 4841.821ng/ml  
response 43263757

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140970.D Vial: 135  
Acq On : 14-Sep-2009, 23:17 Operator: MD  
Sample : P0903087-007 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:06 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



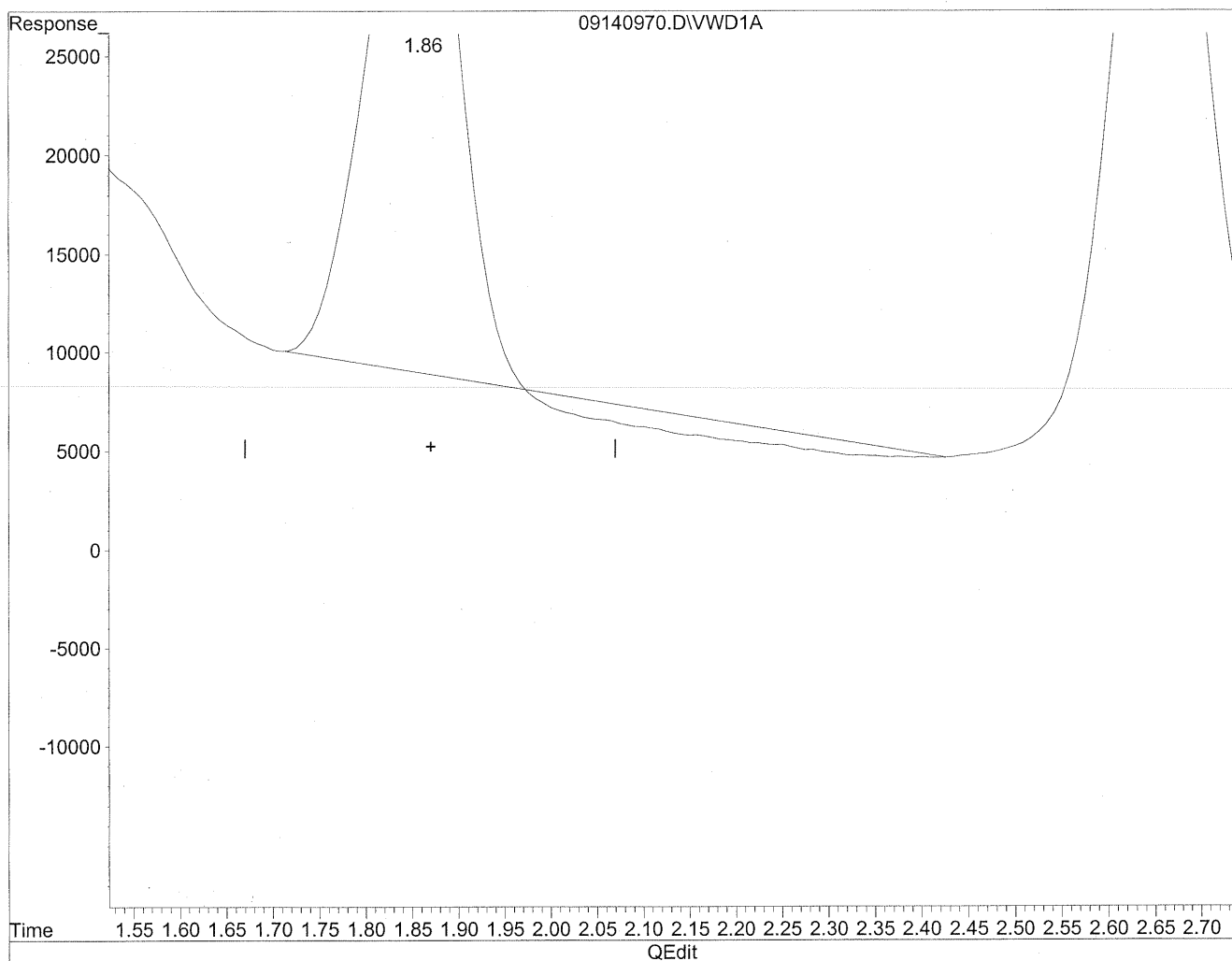
(1) Formaldehyde  
1.32min 4835.564ng/ml m  
response 43207848

*me*  
*9/17/09*  
*sk*  
*HE*  
*9/17/09*

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140970.D Vial: 135  
Acq On : 14-Sep-2009, 23:17 Operator: MD  
Sample : P0903087-007 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:06 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration

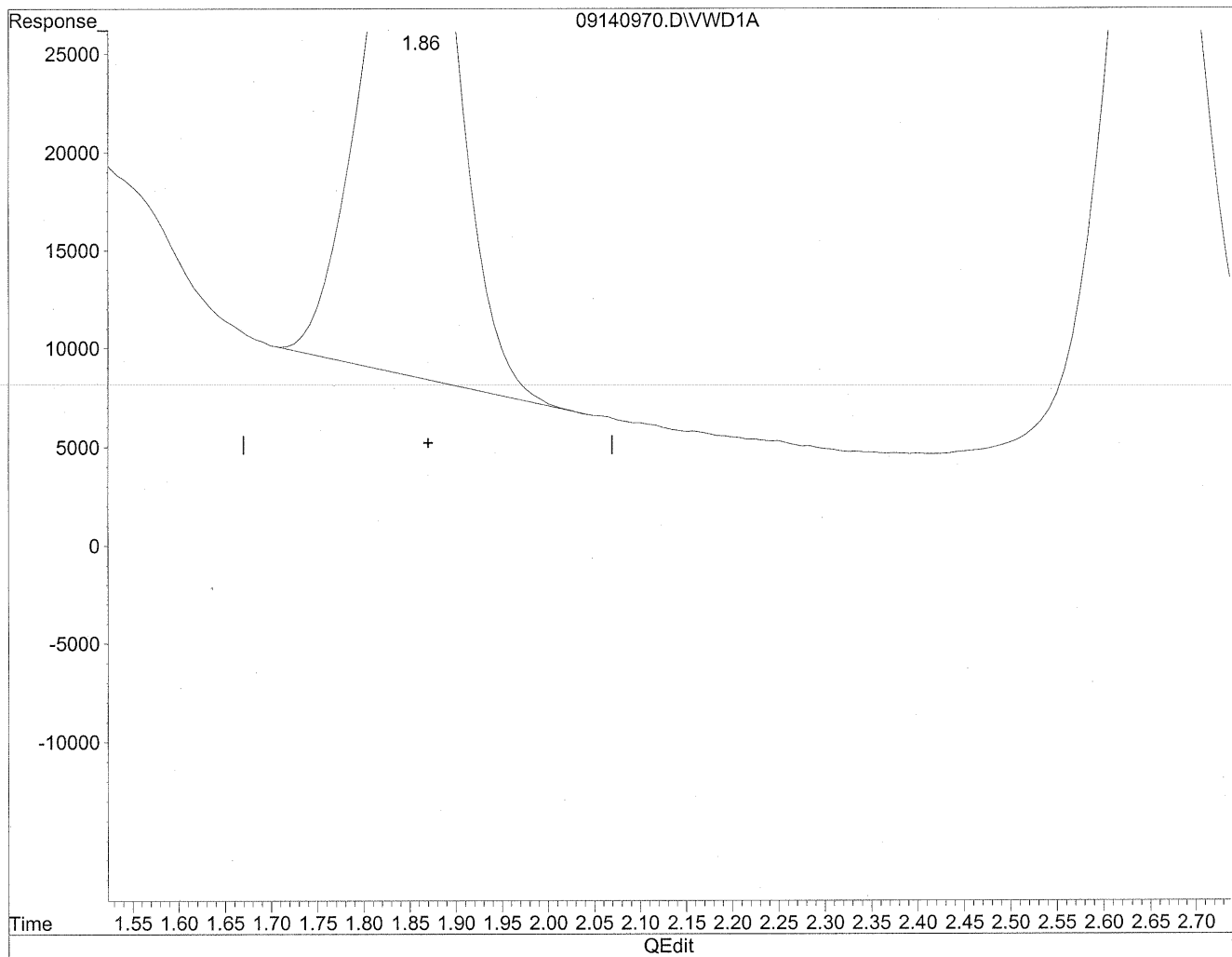


(2) Acetaldehyde  
1.86min 292.675ng/ml  
response 1902619

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140970.D Vial: 135  
Acq On : 14-Sep-2009, 23:17 Operator: MD  
Sample : P0903087-007 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:06 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



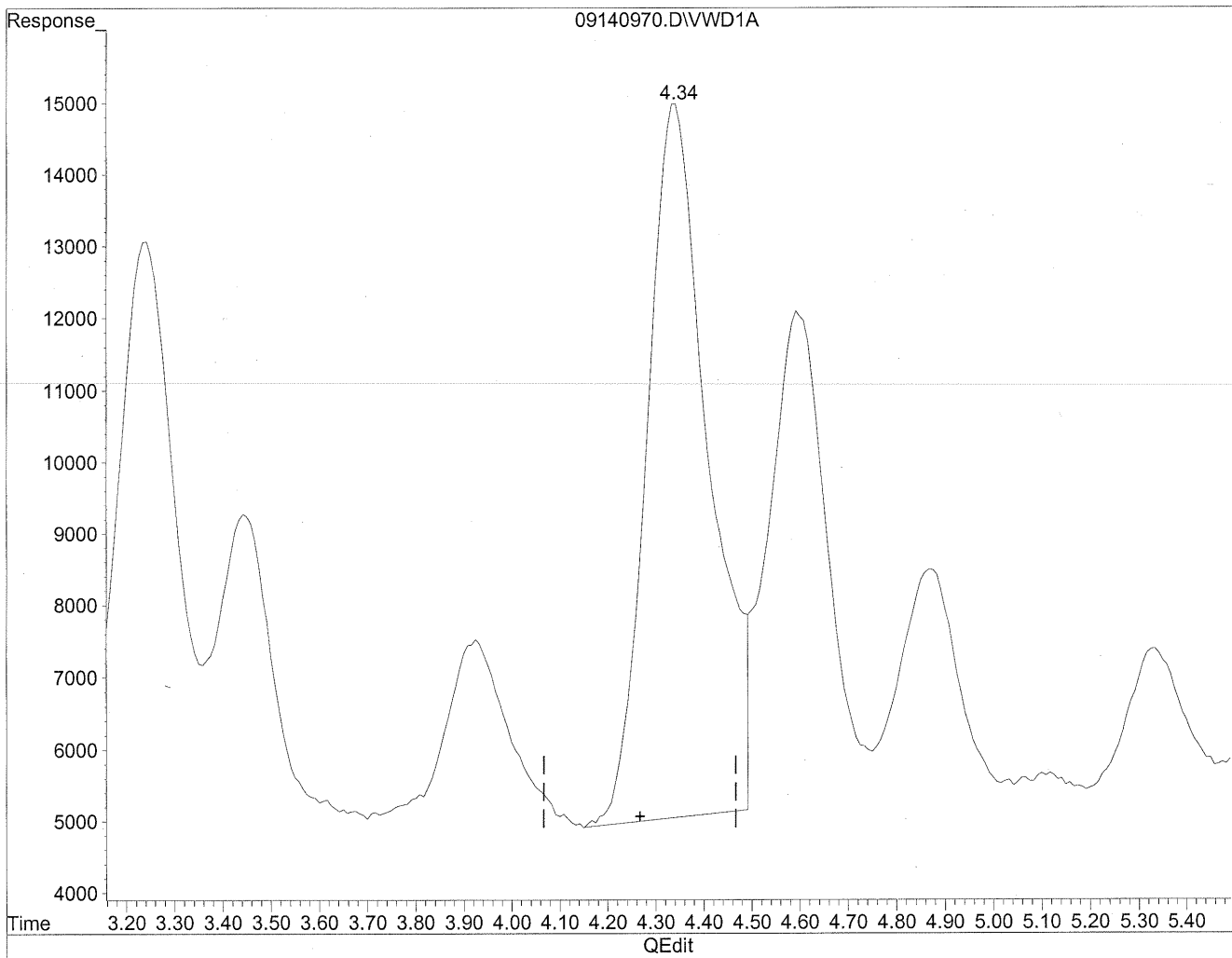
(2) Acetaldehyde  
1.86min 331.139ng/ml m  
response 2152668

*su*  
*9/17/09*  
*mw*  
*9/17/09*  
*rz*

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140970.D Vial: 135  
Acq On : 14-Sep-2009, 23:17 Operator: MD  
Sample : P0903087-007 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:06 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration

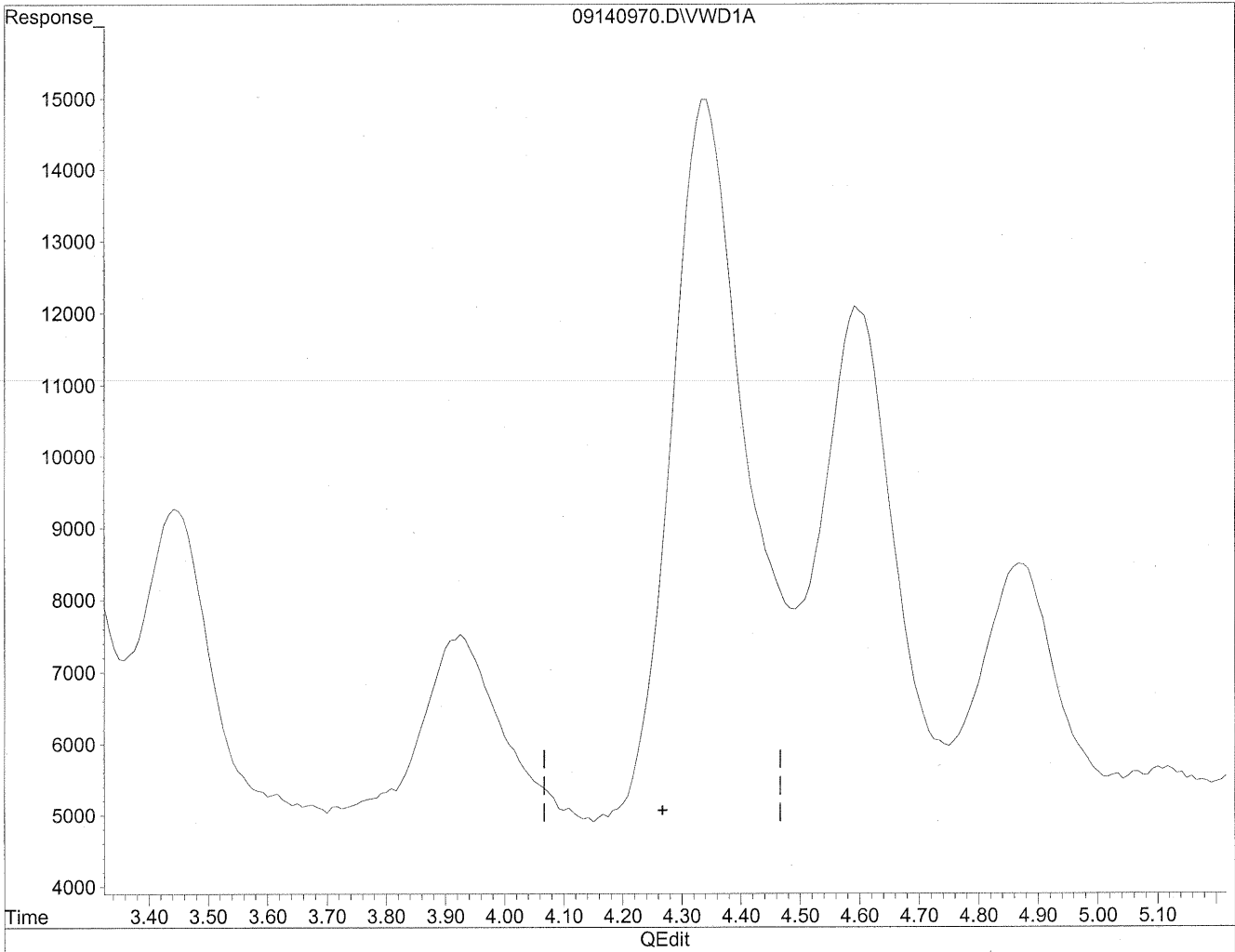


(4) Crotonaldehyde  
4.34min 216.663ng/ml  
response 879560

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140970.D Vial: 135  
Acq On : 14-Sep-2009, 23:17 Operator: MD  
Sample : P0903087-007 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:06 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



(4) Crotonaldehyde  
0.00min 0.000ng/ml d  
response 0

*MC*  
*9/17/09*

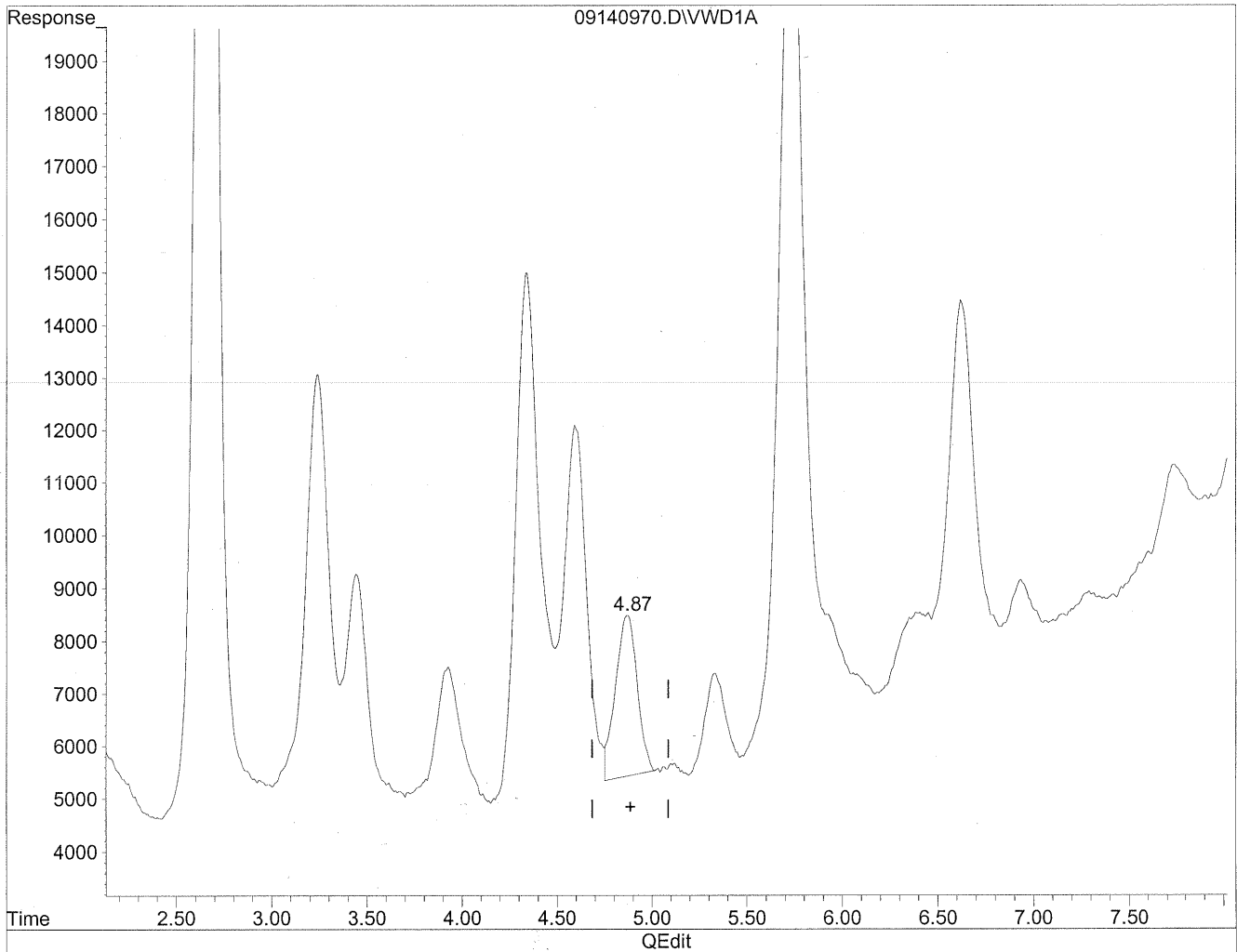
*MD*  
*9/17/09*  
*mp*



Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140970.D Vial: 135  
Acq On : 14-Sep-2009, 23:17 Operator: MD  
Sample : P0903087-007 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:06 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration

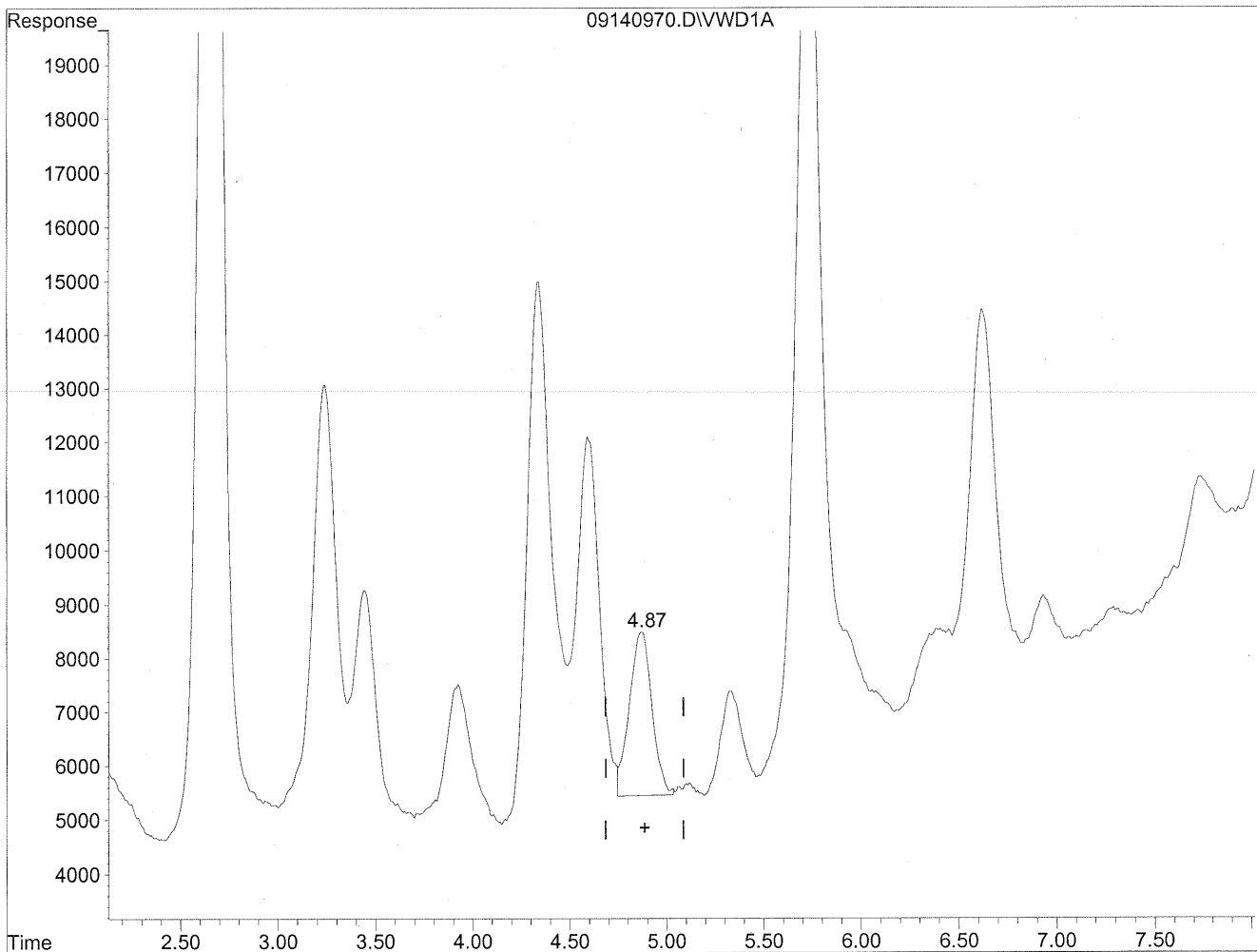


(5) Butyraldehyde  
4.87min 60.605ng/ml  
response 245617

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140970.D Vial: 135  
Acq On : 14-Sep-2009, 23:17 Operator: MD  
Sample : P0903087-007 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:06 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



(5) Butyraldehyde  
4.87min 60.628ng/ml m  
response 245712

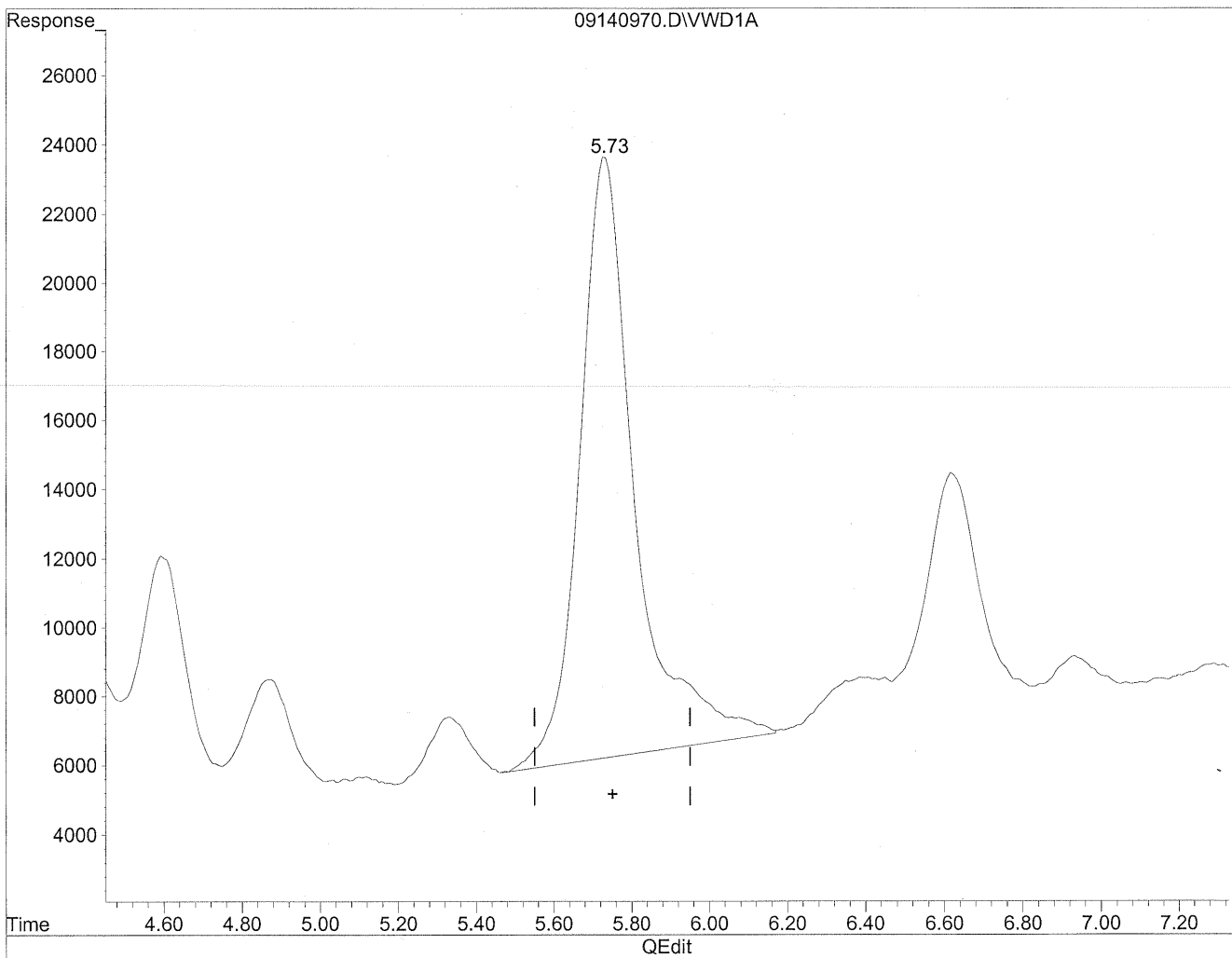
*HL*  
*9/17/09*

*(MD)*  
*9/17/09*  
*CR*

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140970.D Vial: 135  
Acq On : 14-Sep-2009, 23:17 Operator: MD  
Sample : P0903087-007 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:06 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration

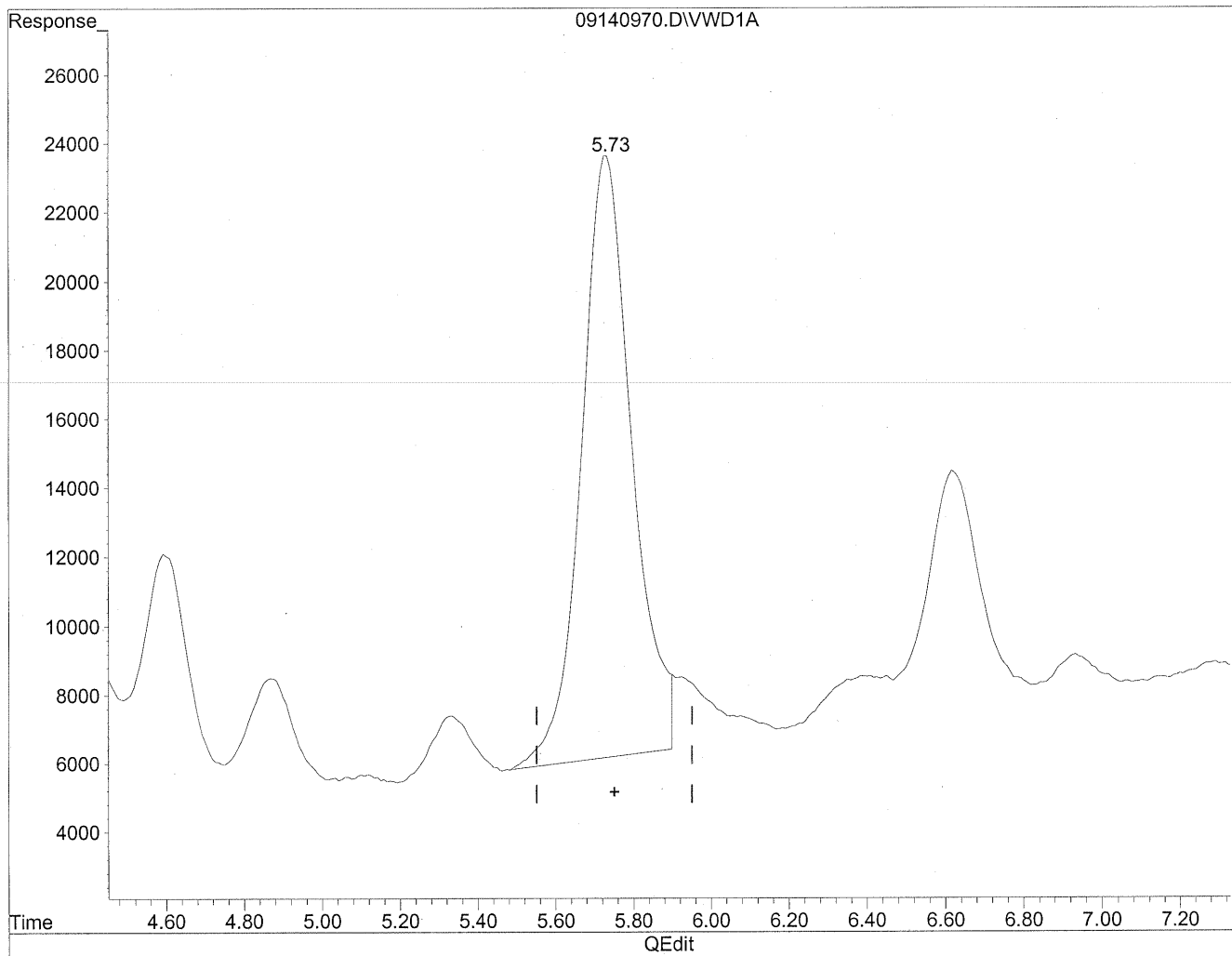


(6) Benzaldehyde  
5.73min 631.549ng/ml  
response 1723103

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140970.D Vial: 135  
Acq On : 14-Sep-2009, 23:17 Operator: MD  
Sample : P0903087-007 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:06 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



(6) Benzaldehyde  
5.73min 574.866ng/ml m  
response 1568453

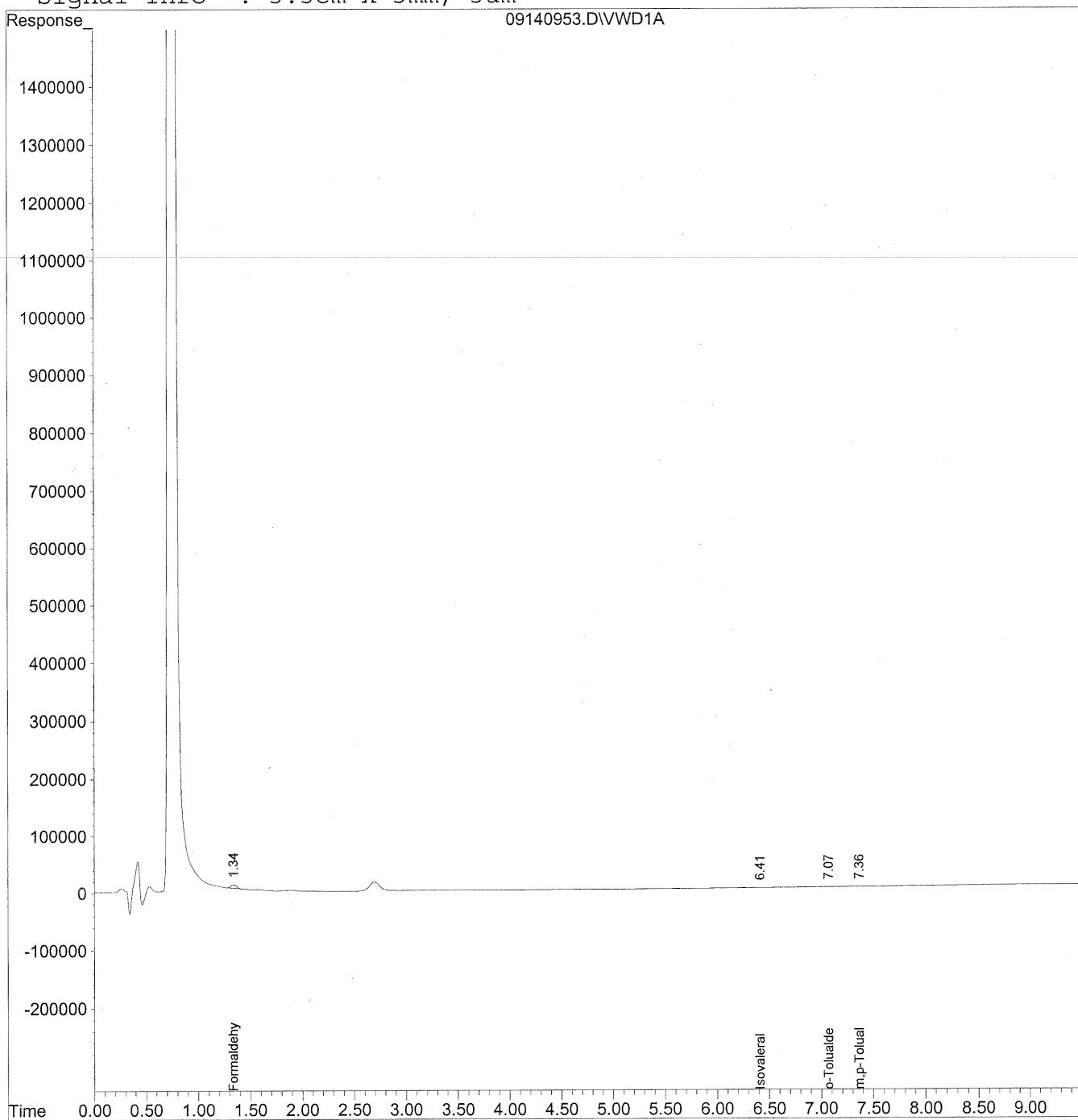
*Handwritten notes:*  
+ve  
all/17/09  
MP  
all/17/09  
sh

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140953.D Vial: 121  
Acq On : 14-Sep-2009, 19:53 Operator: MD  
Sample : P0903087-007 back 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 11:29 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration  
DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
Signal Phase : Supelcosil LC-18  
Signal Info : 3.3cm x 3mm, 3um



Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140953.D Vial: 121  
 Acq On : 14-Sep-2009, 19:53 Operator: MD  
 Sample : P0903087-007 back 1.0ml Inst : VWD  
 Misc : Multiplr: 1.00  
 IntFile : events.e  
 Quant Time: Sep 17 11:29 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
 Title : LC-1050 TO-11A ICAL  
 Last Update : Thu Sep 17 11:23:31 2009  
 Response via : Initial Calibration  
 DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
 Signal Phase : Supelcosil LC-18  
 Signal Info : 3.3cm x 3mm, 3um

| Compound                     | R.T. | Response | Conc Units   |
|------------------------------|------|----------|--------------|
| -----                        |      |          |              |
| Target Compounds             |      |          |              |
| 1) Formaldehyde              | 1.34 | 242713   | 27.163 ng/ml |
| 2) Acetaldehyde              | 0.00 | 0        | N.D. ng/ml   |
| 3) Propionaldehyde           | 0.00 | 0        | N.D. ng/ml   |
| 4) Crotonaldehyde            | 0.00 | 0        | N.D. ng/ml   |
| 5) Butyraldehyde             | 0.00 | 0        | N.D. ng/ml   |
| 6) Benzaldehyde              | 0.00 | 0        | N.D. ng/ml   |
| 7) Isovaleraldehyde          | 6.41 | 34388    | 9.991 ng/ml  |
| 8) Valeraldehyde             | 0.00 | 0        | N.D. ng/ml   |
| 9) o-Tolualdehyde            | 7.07 | 40024    | 18.238 ng/ml |
| 10) m,p-Tolualdehyde         | 7.36 | 6397     | 2.785 ng/ml  |
| 11) Hexaldehyde              | 0.00 | 0        | N.D. ng/ml   |
| 12) 2,5-Dimethylbenzaldehyde | 0.00 | 0        | N.D. ng/ml   |

**COLUMBIA ANALYTICAL SERVICES, INC.**

RESULTS OF ANALYSIS

Page 1 of 1

**Client:** Environmental Health & Engineering, Inc.  
**Client Sample ID:** 104197  
**Client Project ID:** 16512

CAS Project ID: P0903087  
 CAS Sample ID: P0903087-008

**Test Code:** EPA Method TO-11A  
**Instrument ID:** HP1050/LC2  
**Analyst:** Madeleine Dangazyan  
**Sampling Media:** Silica Gel DNPH Tube  
**Test Notes:** BC

**Date Collected:** 9/1/09  
**Date Received:** 9/2/09  
**Date Analyzed:** 9/14/09  
**Desorption Volume:** 1.0 ml  
**Volume Sampled:** 109 Liter(s)

| CAS #     | Compound                 | Result<br>ng/Sample | Result<br>µg/m <sup>3</sup> | MRL<br>µg/m <sup>3</sup> | Result<br>ppbV | MRL<br>ppbV | Data<br>Qualifier |
|-----------|--------------------------|---------------------|-----------------------------|--------------------------|----------------|-------------|-------------------|
| 50-00-0   | <b>Formaldehyde</b>      | <b>2,800</b>        | <b>26</b>                   | 0.92                     | <b>21</b>      | 0.75        |                   |
| 75-07-0   | <b>Acetaldehyde</b>      | <b>700</b>          | <b>6.4</b>                  | 0.92                     | <b>3.6</b>     | 0.51        |                   |
| 123-38-6  | Propionaldehyde          | < 100               | ND                          | 0.92                     | ND             | 0.39        |                   |
| 4170-30-3 | Crotonaldehyde, Total    | < 100               | ND                          | 0.92                     | ND             | 0.32        |                   |
| 123-72-8  | Butyraldehyde            | < 100               | ND                          | 0.92                     | ND             | 0.31        |                   |
| 100-52-7  | <b>Benzaldehyde</b>      | <b>390</b>          | <b>3.6</b>                  | 0.92                     | <b>0.83</b>    | 0.21        |                   |
| 590-86-3  | Isovaleraldehyde         | < 100               | ND                          | 0.92                     | ND             | 0.26        |                   |
| 110-62-3  | <b>Valeraldehyde</b>     | <b>180</b>          | <b>1.7</b>                  | 0.92                     | <b>0.48</b>    | 0.26        |                   |
| 529-20-4  | o-Tolualdehyde           | < 100               | ND                          | 0.92                     | ND             | 0.19        |                   |
| 620-23-5  |                          |                     |                             |                          |                |             |                   |
| 104-87-0  | m,p-Tolualdehyde         | < 200               | ND                          | 1.8                      | ND             | 0.37        |                   |
| 66-25-1   | <b>n-Hexaldehyde</b>     | <b>710</b>          | <b>6.5</b>                  | 0.92                     | <b>1.6</b>     | 0.22        |                   |
| 5779-94-2 | 2,5-Dimethylbenzaldehyde | < 100               | ND                          | 0.92                     | ND             | 0.17        |                   |

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

BC = Results reported are not blank corrected.

Verified By: \_\_\_\_\_

*P*

Date: \_\_\_\_\_

*9/18/09*

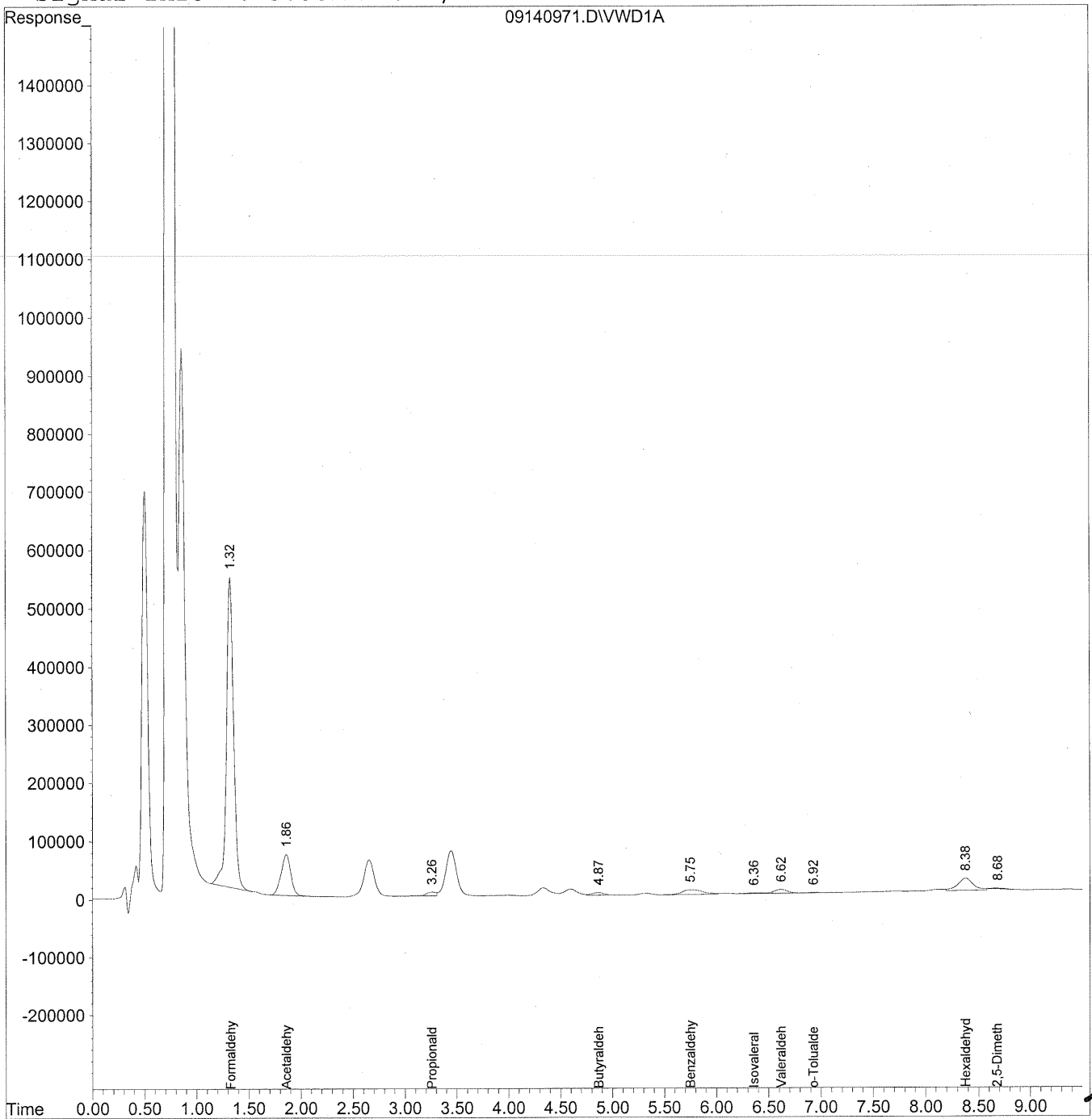
**119**

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140971.D Vial: 136  
Acq On : 14-Sep-2009, 23:29 Operator: MD  
Sample : P0903087-008 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:11 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration  
DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
Signal Phase : Supelcosil LC-18  
Signal Info : 3.3cm x 3mm, 3um



120



Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140971.D Vial: 136  
 Acq On : 14-Sep-2009, 23:29 Operator: MD  
 Sample : P0903087-008 front 1.0ml Inst : VWD  
 Misc : Multiplr: 1.00  
 IntFile : events.e  
 Quant Time: Sep 17 12:11 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
 Title : LC-1050 TO-11A ICAL  
 Last Update : Thu Sep 17 11:23:31 2009  
 Response via : Initial Calibration  
 DataAcq Meth : TO-11A.M

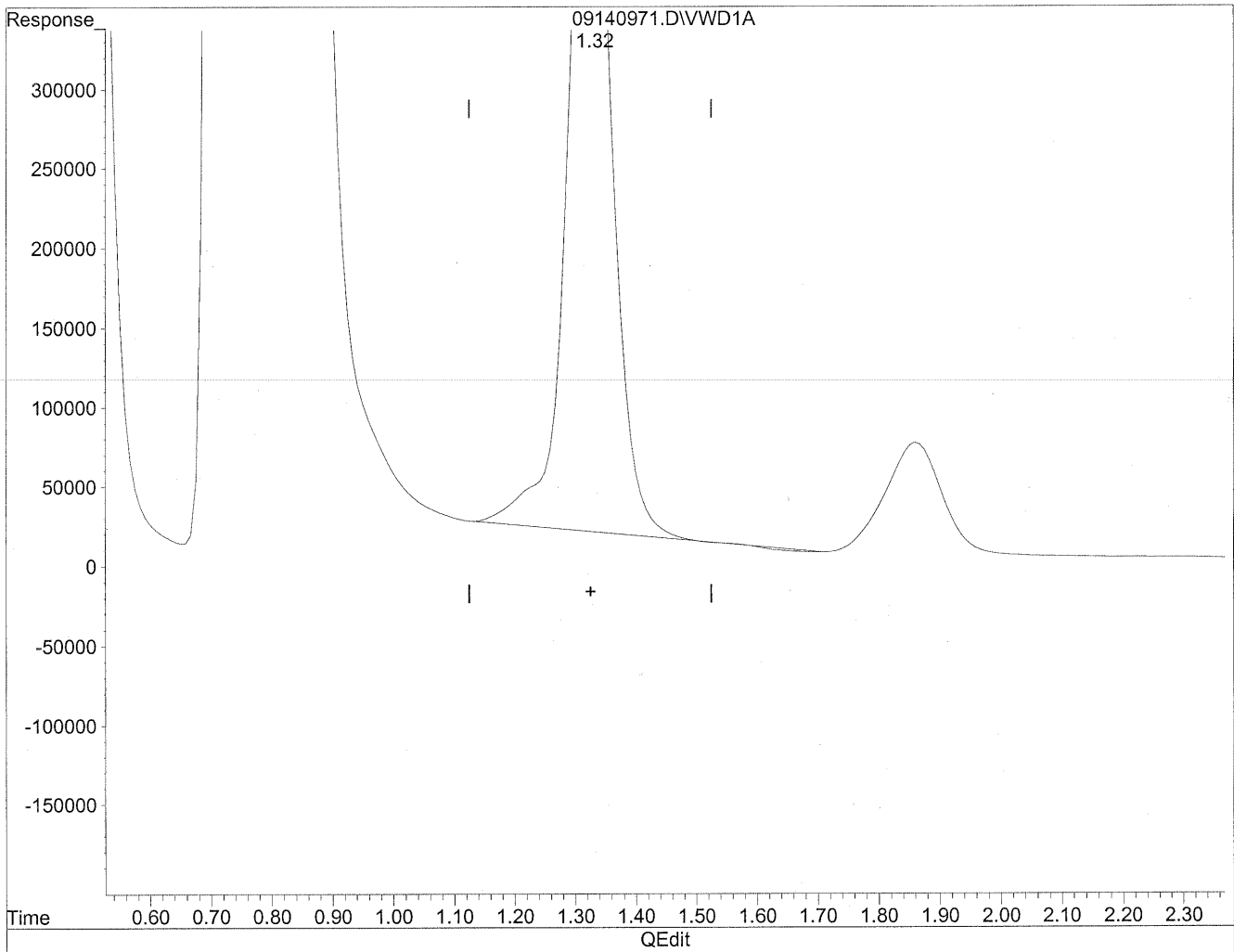
Volume Inj. : 3uL  
 Signal Phase : Supelcosil LC-18  
 Signal Info : 3.3cm x 3mm, 3um

| Compound                     | R.T.  | Response | Conc Units      |
|------------------------------|-------|----------|-----------------|
| -----                        |       |          |                 |
| Target Compounds             |       |          |                 |
| 1) Formaldehyde              | 1.32  | 25296848 | 2831.072 ng/mlm |
| 2) Acetaldehyde              | 1.86  | 4553429  | 700.442 ng/mlm  |
| 3) Propionaldehyde           | 3.26  | 387263   | 74.505 ng/mlm   |
| 4) Crotonaldehyde            | 0.00  | 0        | N.D. ng/ml      |
| 5) Butyraldehyde             | 4.87  | 355214   | 87.647 ng/ml    |
| 6) Benzaldehyde              | 5.75  | 1066036  | 390.721 ng/ml   |
| 7) Isovaleraldehyde          | 6.36  | 127722   | 37.109 ng/ml    |
| 8) Valeraldehyde             | 6.62  | 625722   | 184.055 ng/ml   |
| 9) o-Tolualdehyde            | 6.93f | 61637    | 28.086 ng/ml    |
| 10) m,p-Tolualdehyde         | 0.00  | 0        | N.D. ng/ml      |
| 11) Hexaldehyde              | 8.38  | 2093844  | 707.206 ng/mlm  |
| 12) 2,5-Dimethylbenzaldehyde | 8.68  | 144981   | 72.654 ng/mlm   |

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140971.D Vial: 136  
Acq On : 14-Sep-2009, 23:29 Operator: MD  
Sample : P0903087-008 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:09 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration

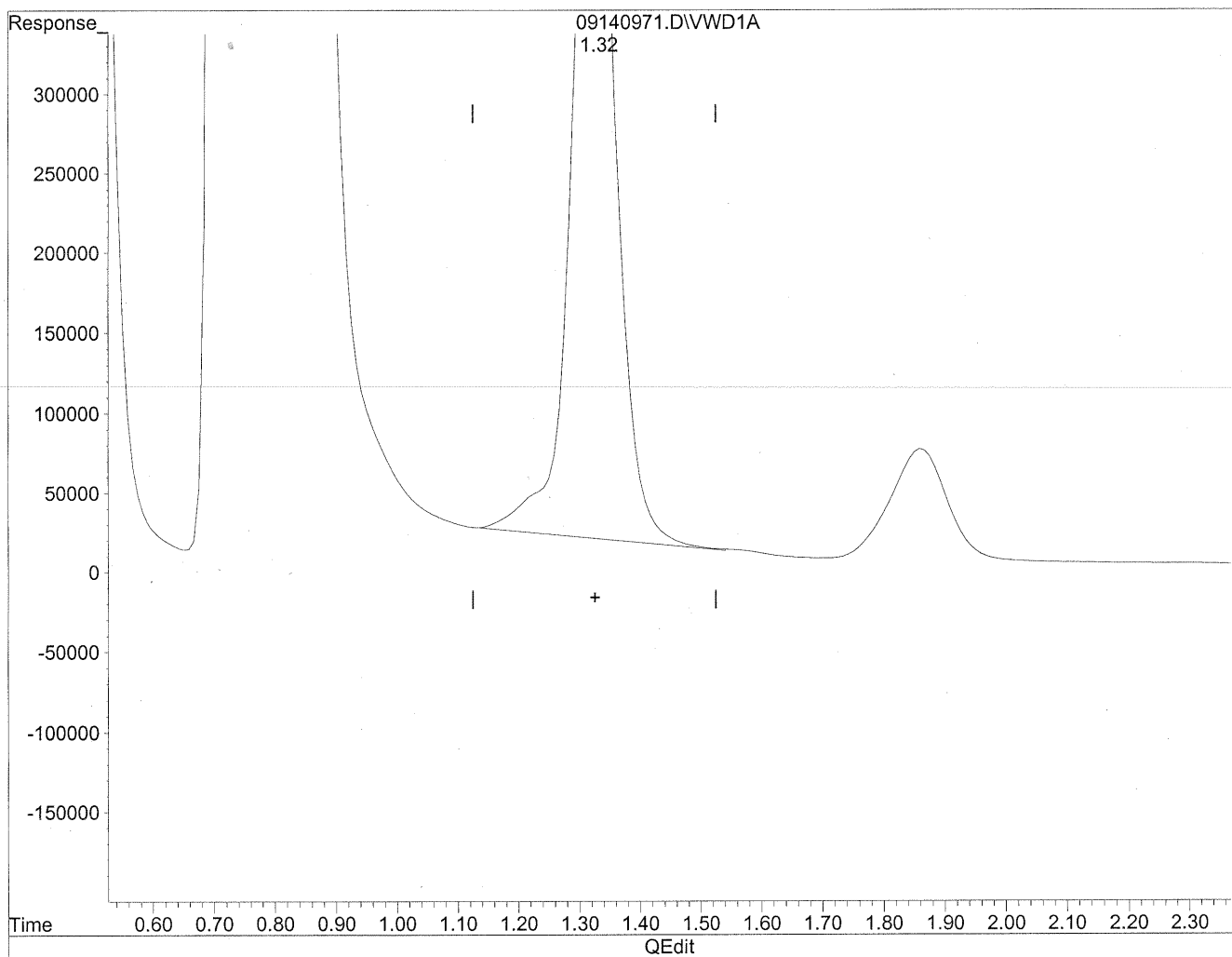


(1) Formaldehyde  
1.33min 2823.509ng/ml  
response 25229273

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140971.D Vial: 136  
Acq On : 14-Sep-2009, 23:29 Operator: MD  
Sample : P0903087-008 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:09 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



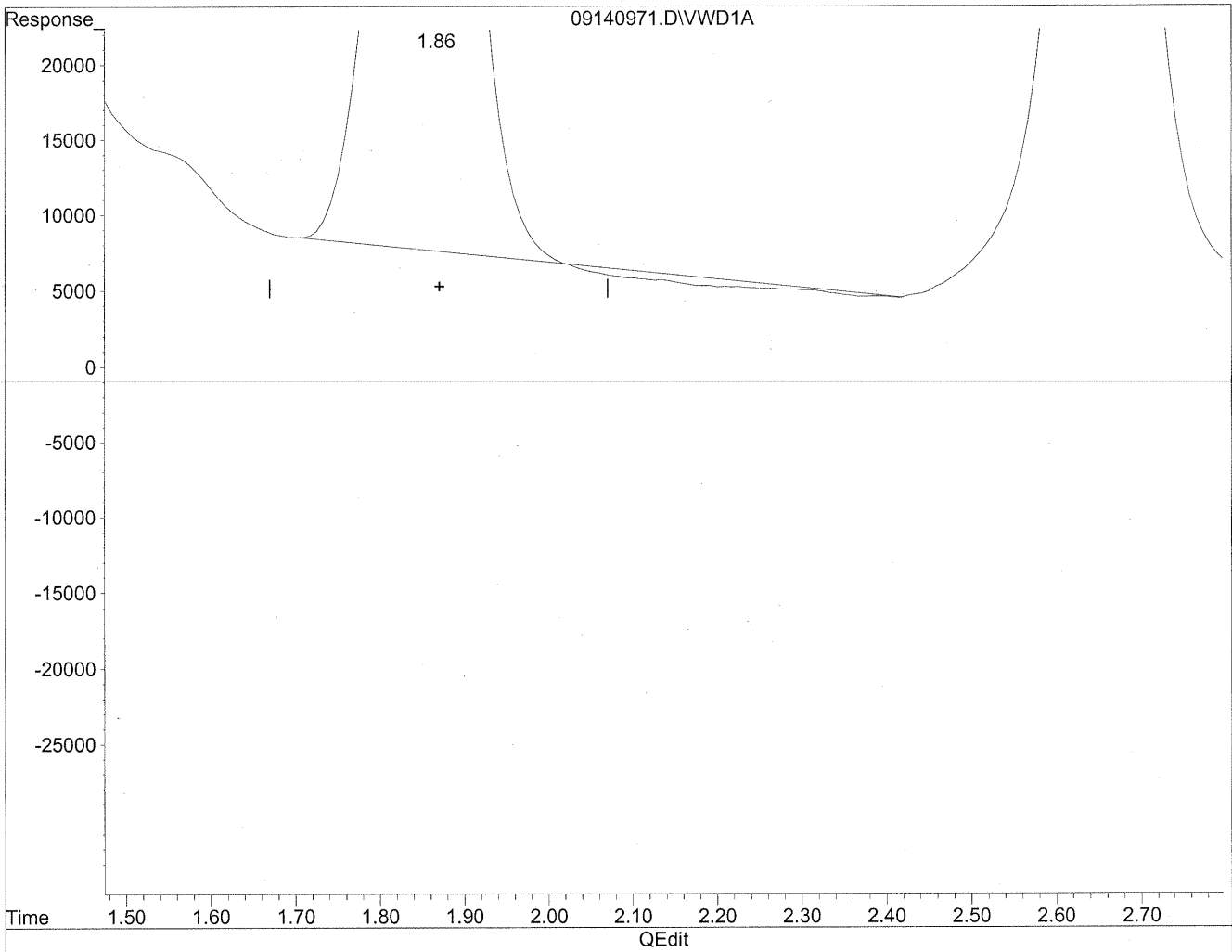
(1) Formaldehyde  
1.32min 2831.072ng/ml m  
response 25296848

*MD*  
9/17/09  
BC  
HC  
9/18/09

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140971.D Vial: 136  
Acq On : 14-Sep-2009, 23:29 Operator: MD  
Sample : P0903087-008 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:09 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration

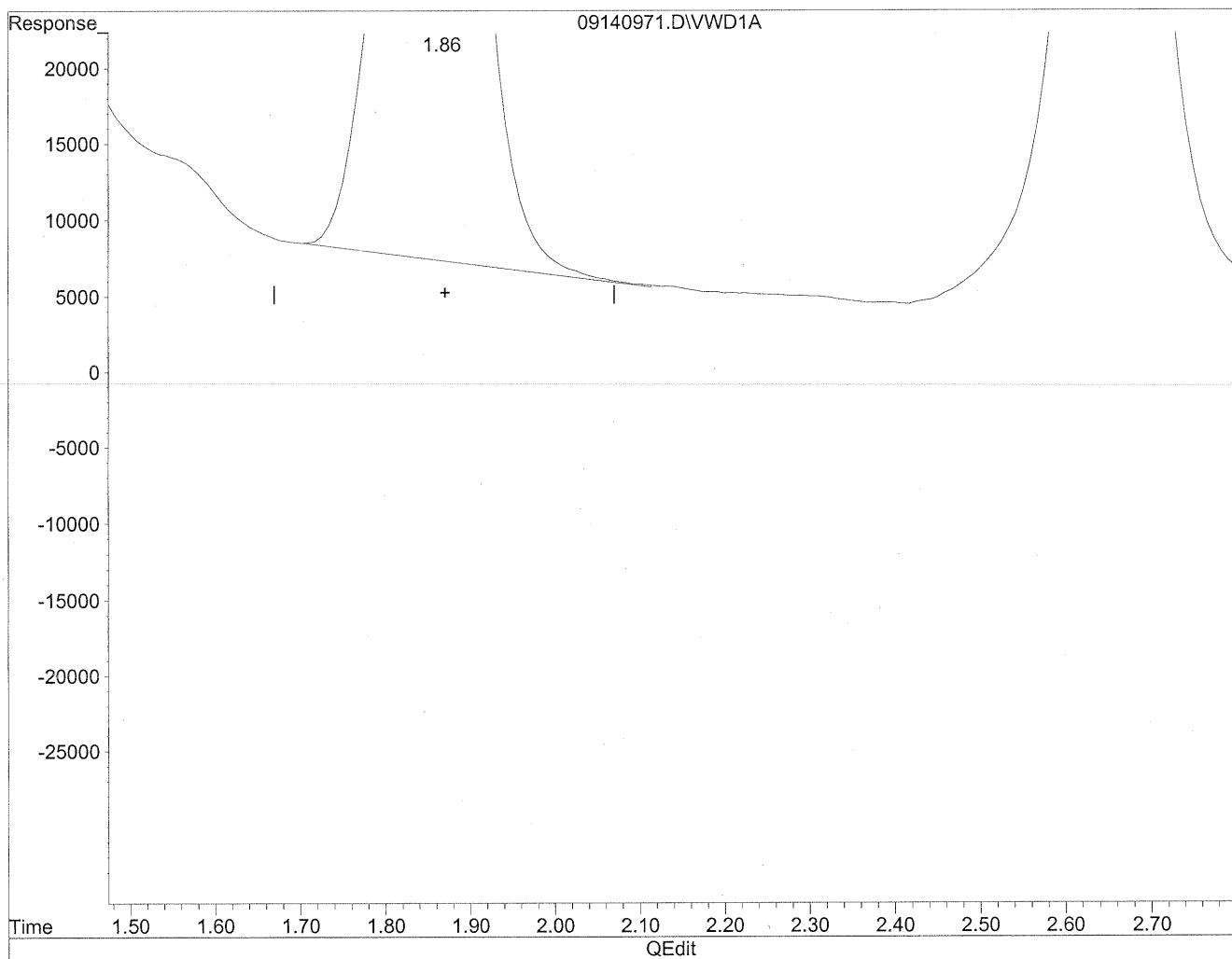


(2) Acetaldehyde  
1.86min 681.190ng/ml  
response 4428281

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140971.D Vial: 136  
Acq On : 14-Sep-2009, 23:29 Operator: MD  
Sample : P0903087-008 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:09 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



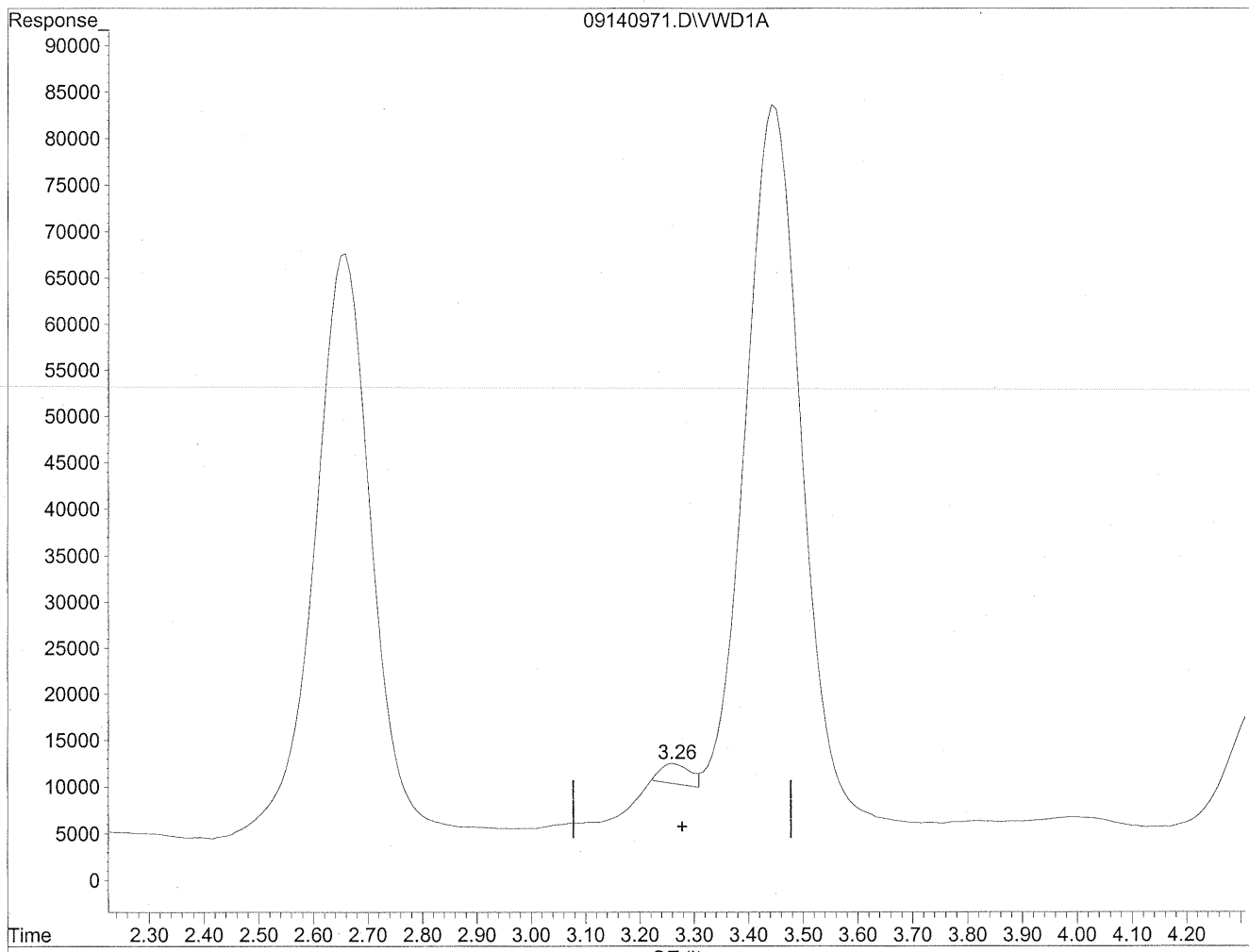
(2) Acetaldehyde  
1.86min 700.442ng/ml m  
response 4553429

*MD*  
*9/17/09*  
*HC*  
*9/17/09*

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140971.D Vial: 136  
Acq On : 14-Sep-2009, 23:29 Operator: MD  
Sample : P0903087-008 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:09 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration

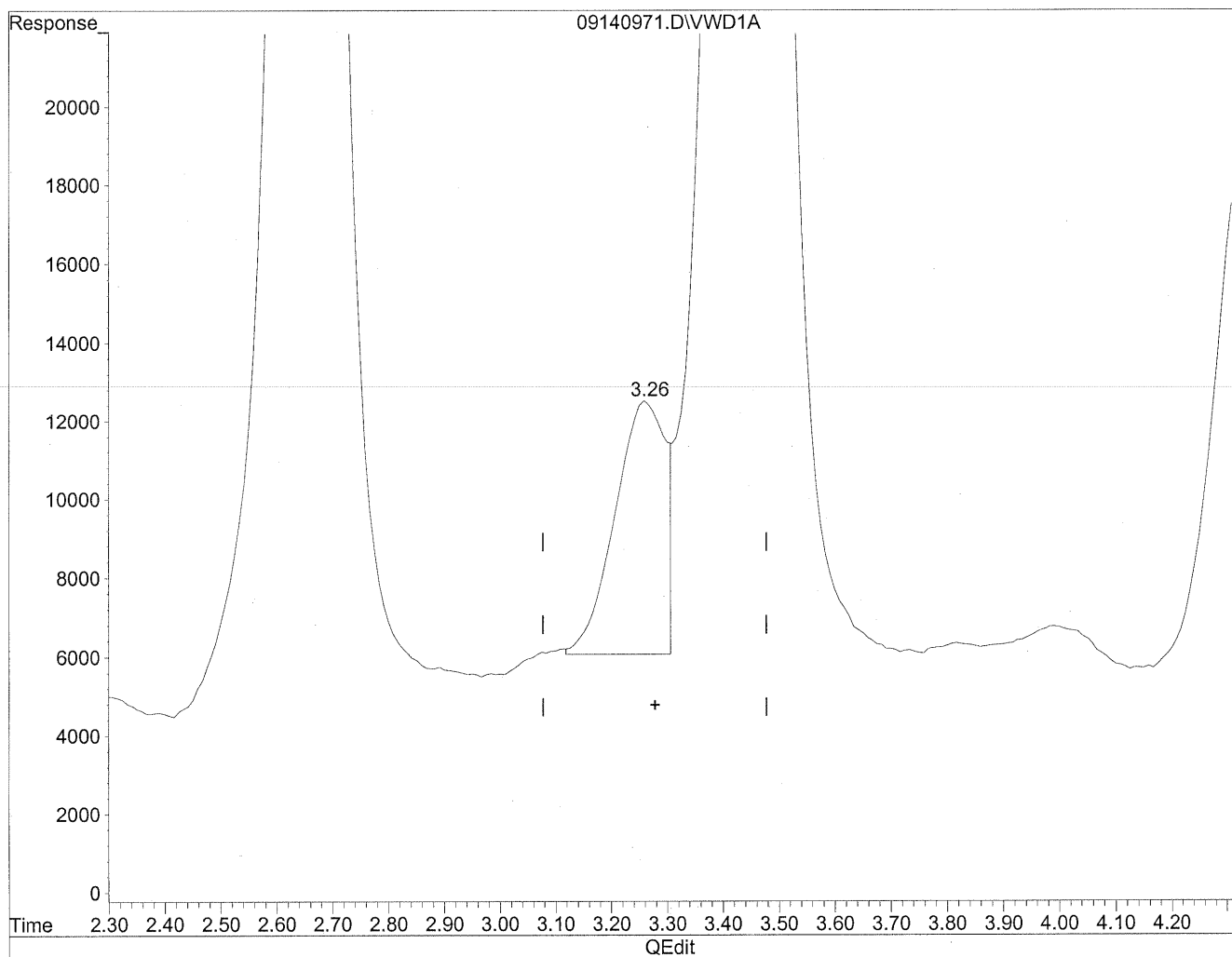


(3) Propionaldehyde  
3.26min 15.612ng/ml  
response 81148

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140971.D Vial: 136  
Acq On : 14-Sep-2009, 23:29 Operator: MD  
Sample : P0903087-008 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:09 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



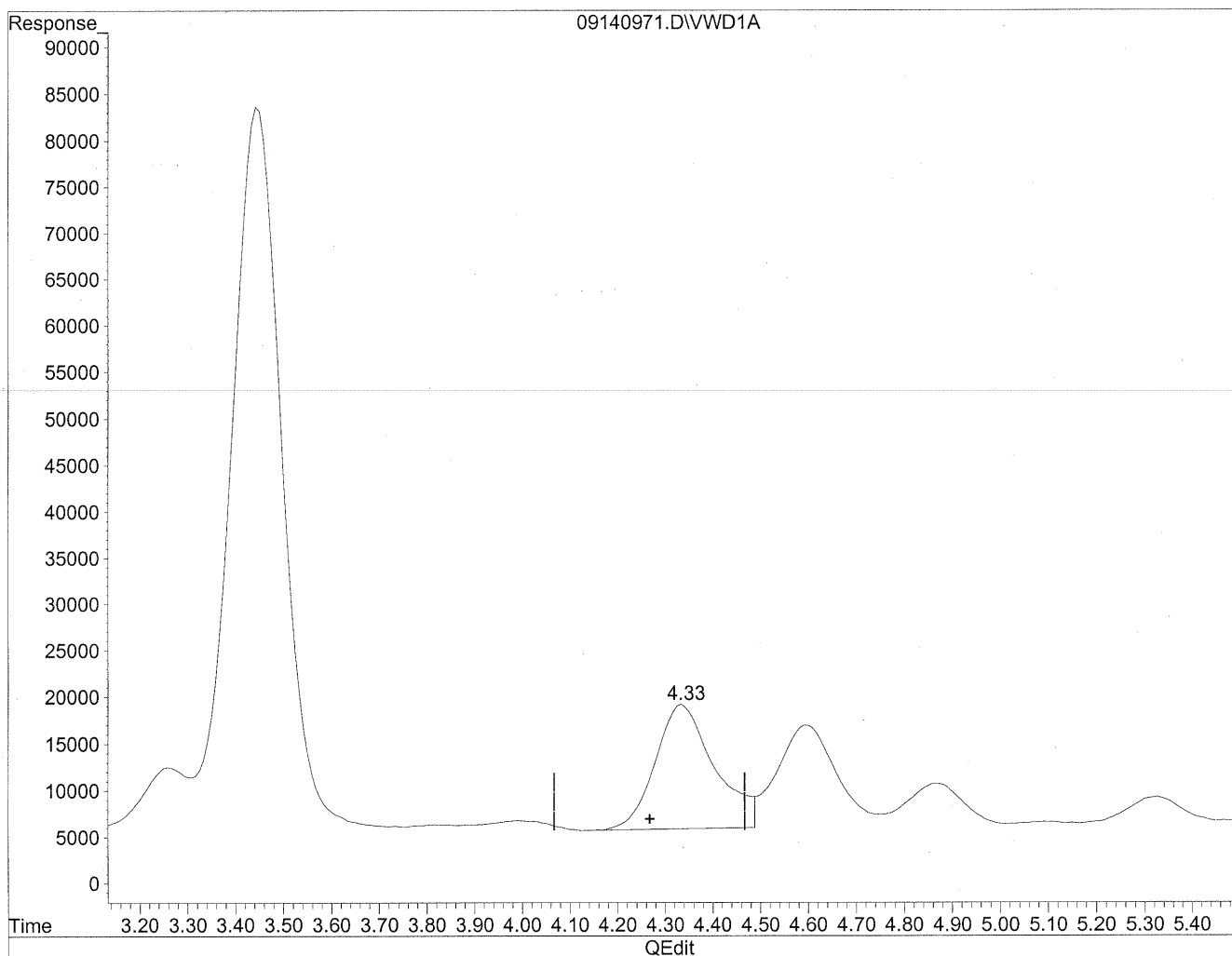
(3) Propionaldehyde  
3.26min 74.505ng/ml m  
response 387263

*(Handwritten signatures and dates)*  
MD 9/17/09  
HC 9/17/09

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140971.D Vial: 136  
Acq On : 14-Sep-2009, 23:29 Operator: MD  
Sample : P0903087-008 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:09 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



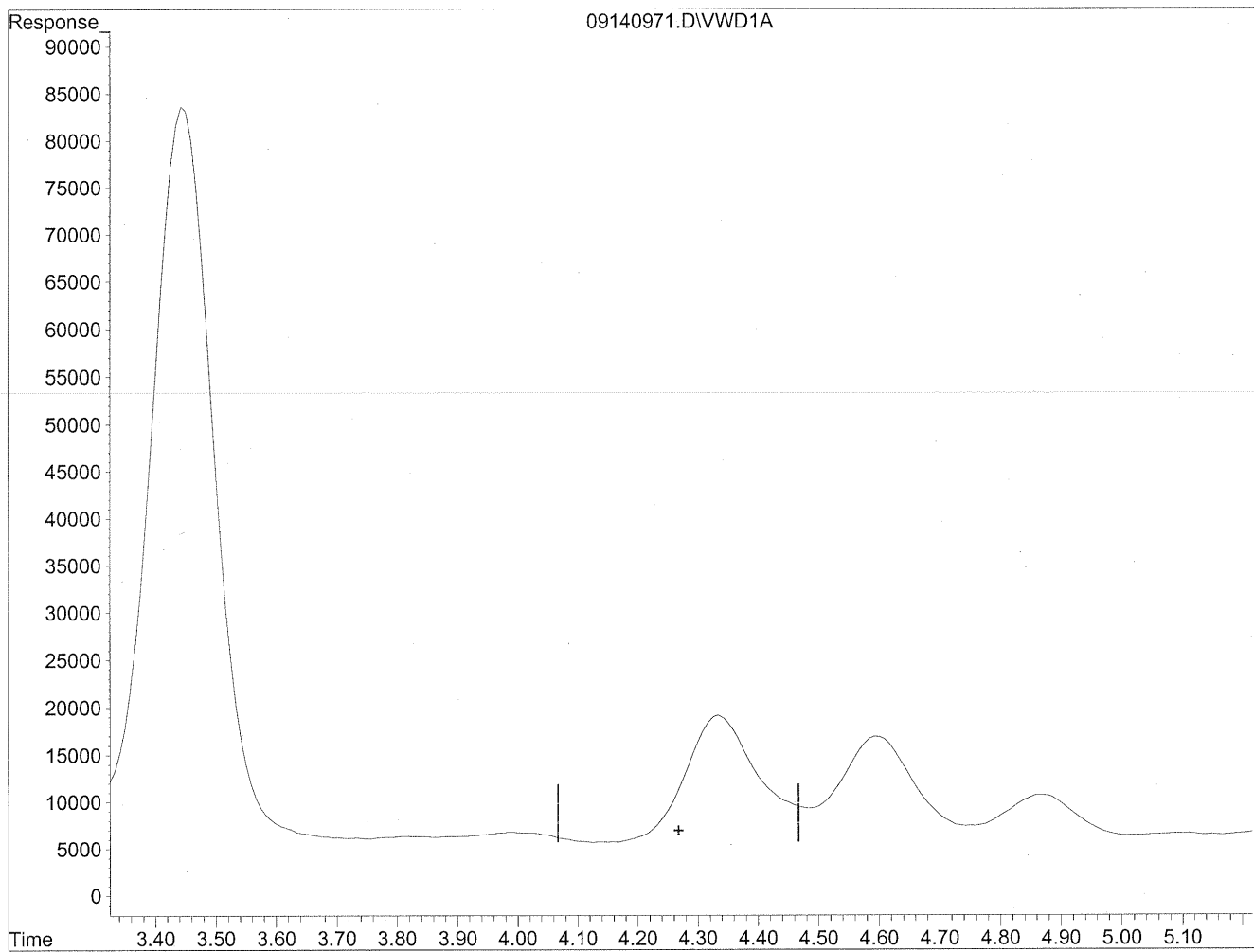
(4) Crotonaldehyde  
4.34min 281.860ng/ml  
response 1144230



Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140971.D Vial: 136  
Acq On : 14-Sep-2009, 23:29 Operator: MD  
Sample : P0903087-008 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:09 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



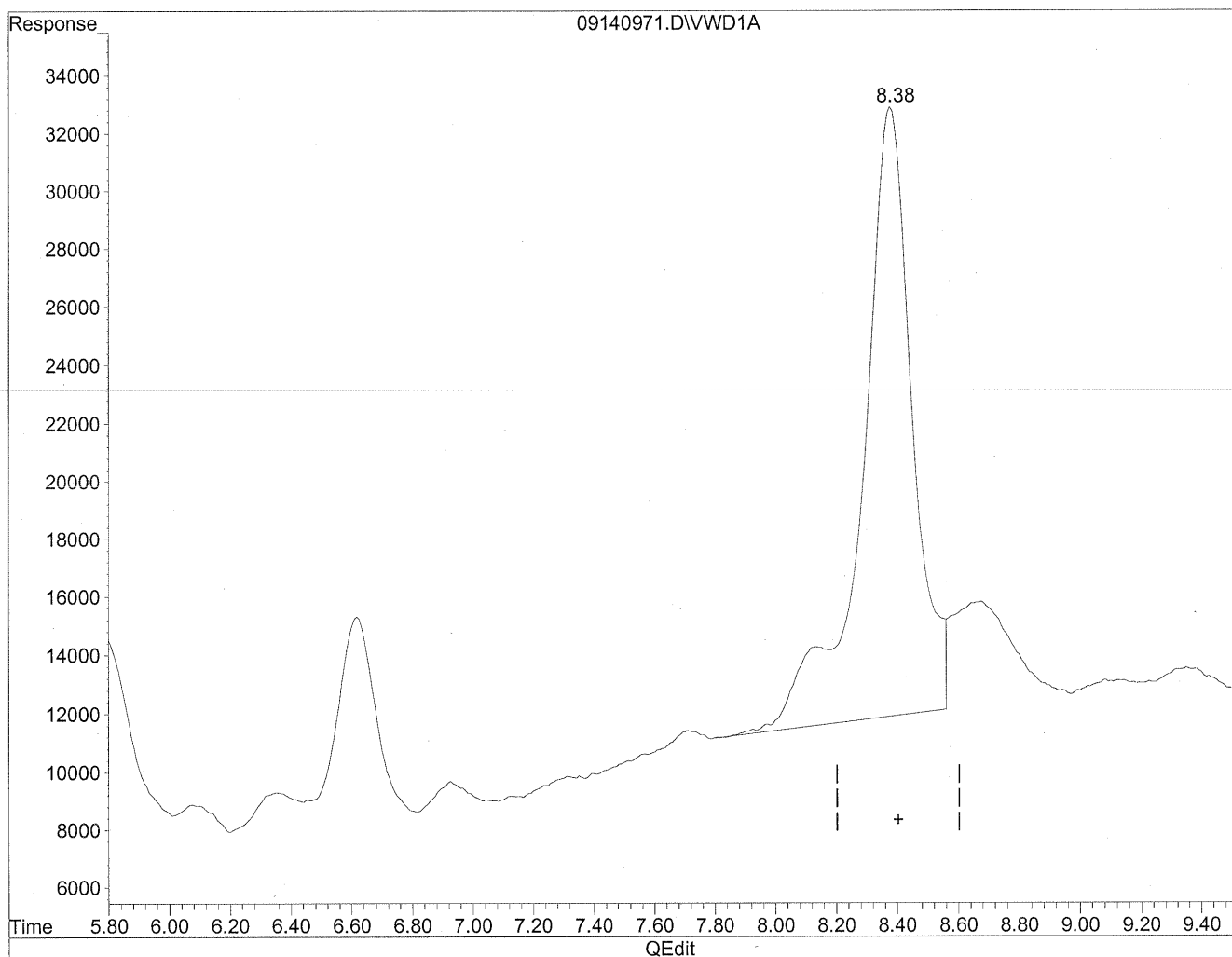
(4) Crotonaldehyde  
0.00min 0.000ng/ml d  
response 0

*MD*  
*9/17/09*  
*MP*  
*HL*  
*9/17/09*

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140971.D Vial: 136  
Acq On : 14-Sep-2009, 23:29 Operator: MD  
Sample : P0903087-008 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:09 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration

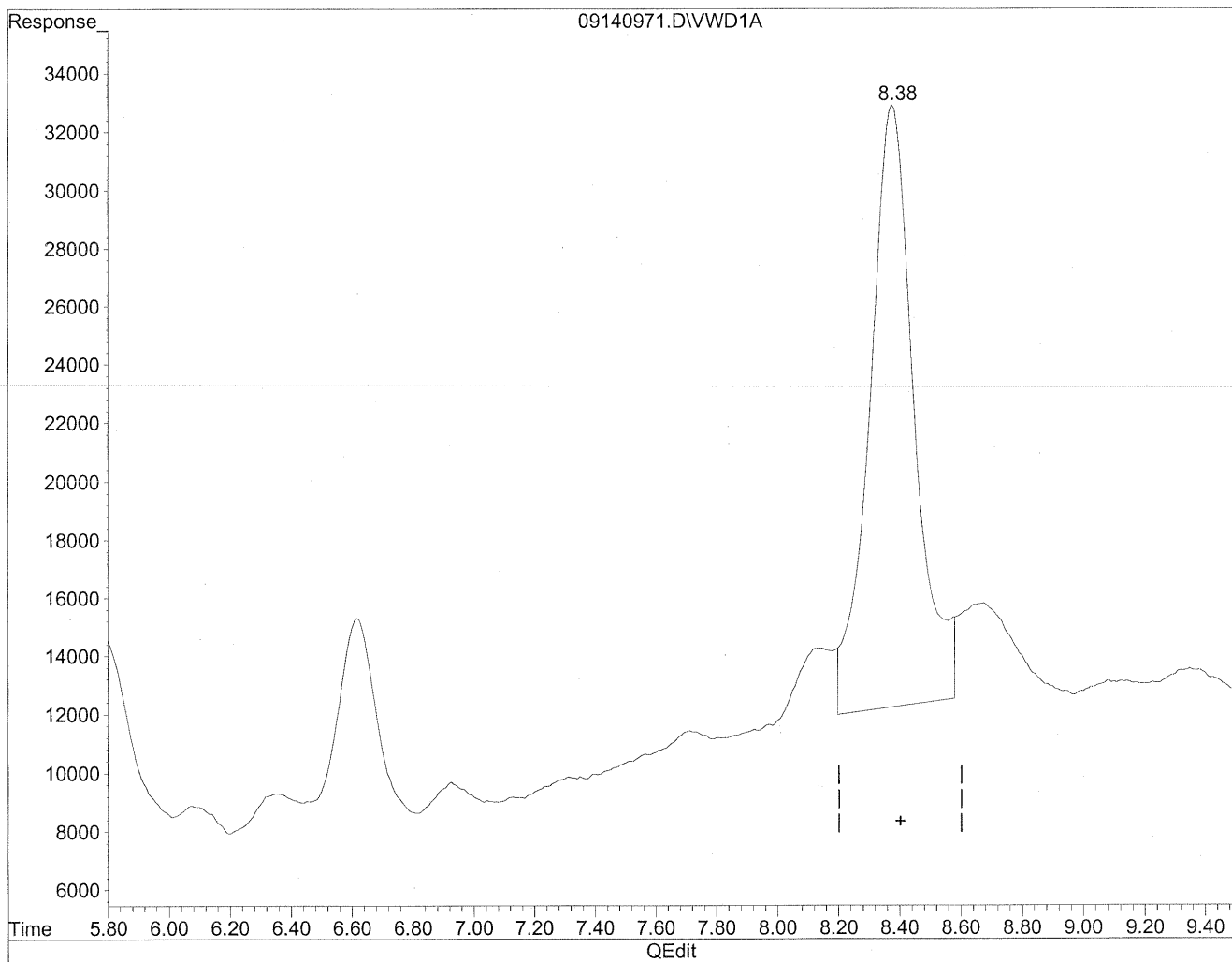


(11) Hexaldehyde  
8.38min 800.404ng/ml  
response 2369775

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140971.D Vial: 136  
Acq On : 14-Sep-2009, 23:29 Operator: MD  
Sample : P0903087-008 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:09 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



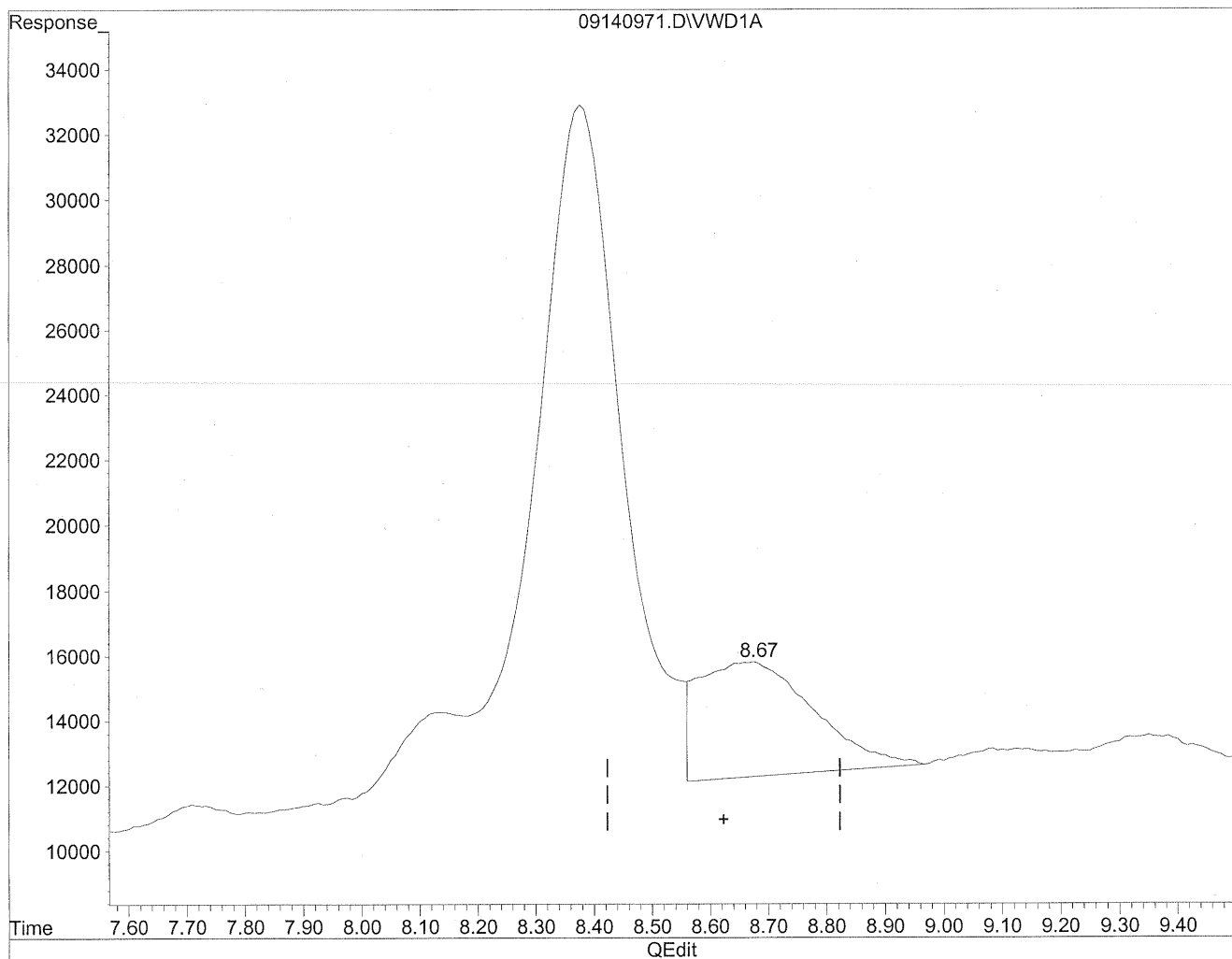
(11) Hexaldehyde  
8.38min 707.206ng/ml m  
response 2093844

*MD*  
*9/17/09*  
*SH*  
*HL*  
*9/17/09*

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140971.D Vial: 136  
Acq On : 14-Sep-2009, 23:29 Operator: MD  
Sample : P0903087-008 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:09 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration

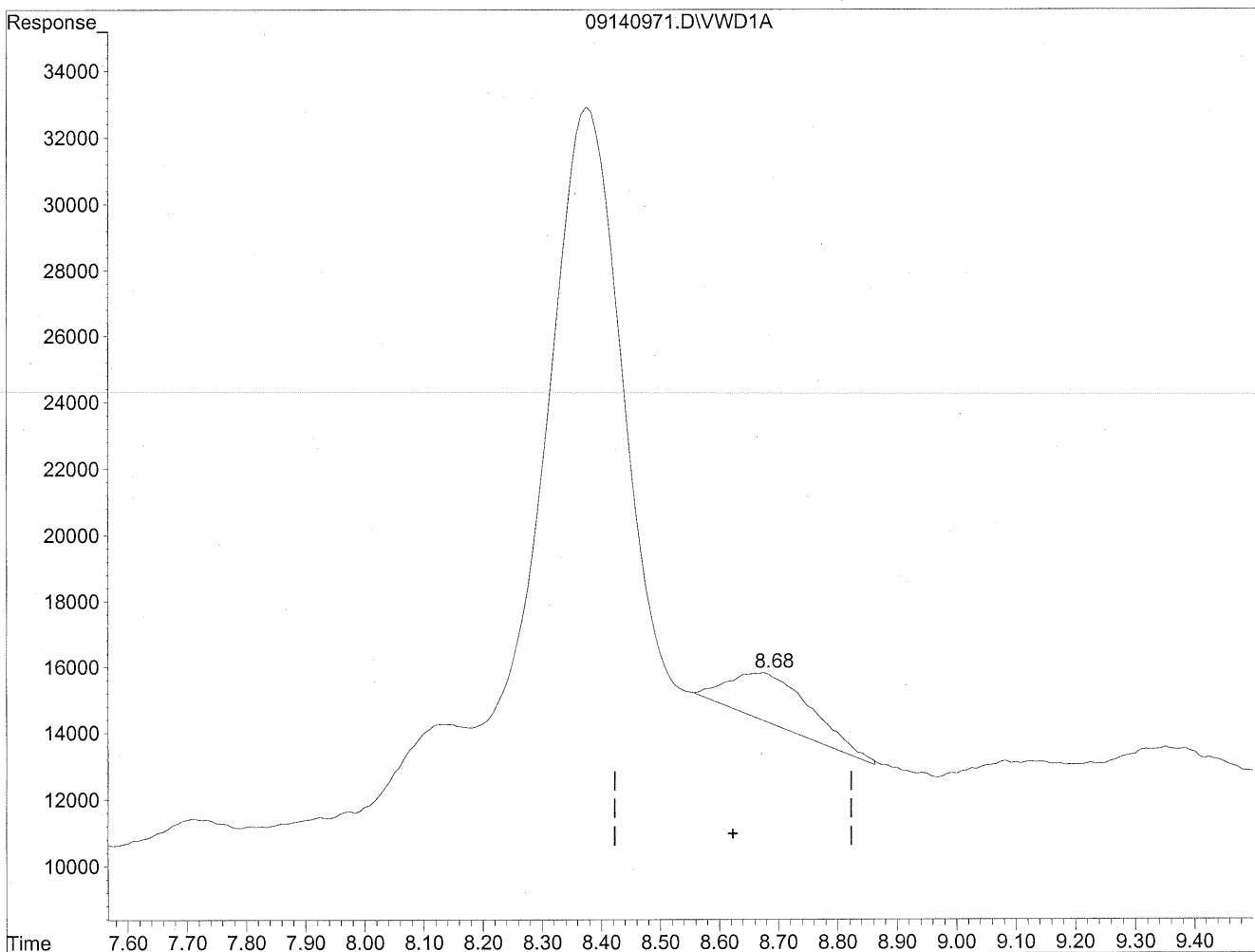


(12) 2,5-Dimethylbenzaldehyde  
8.67min 246.096ng/ml  
response 491082

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140971.D Vial: 136  
Acq On : 14-Sep-2009, 23:29 Operator: MD  
Sample : P0903087-008 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:09 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



(12) 2,5-Dimethylbenzaldehyde

8.68min 72.654ng/ml m

response 144981

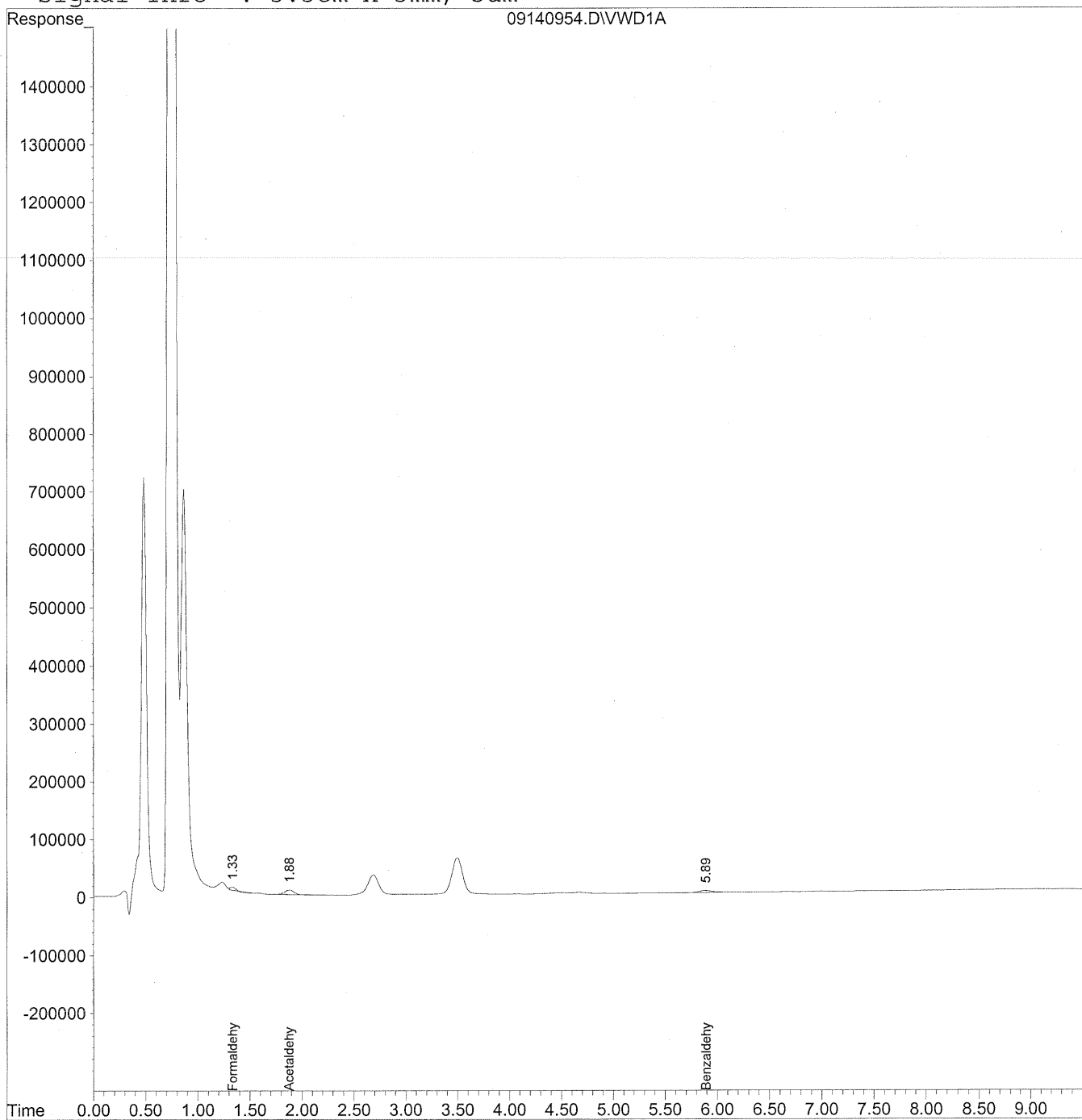
*MD*  
*HL 9/17/09*  
*2/17/09*

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140954.D Vial: 122  
Acq On : 14-Sep-2009, 20:06 Operator: MD  
Sample : P0903087-008 back 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 11:30 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration  
DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
Signal Phase : Supelcosil LC-18  
Signal Info : 3.3cm x 3mm, 3um



Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140954.D Vial: 122  
 Acq On : 14-Sep-2009, 20:06 Operator: MD  
 Sample : P0903087-008 back 1.0ml Inst : VWD  
 Misc : Multiplr: 1.00  
 IntFile : events.e  
 Quant Time: Sep 17 11:30 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
 Title : LC-1050 TO-11A ICAL  
 Last Update : Thu Sep 17 11:23:31 2009  
 Response via : Initial Calibration  
 DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
 Signal Phase : Supelcosil LC-18  
 Signal Info : 3.3cm x 3mm, 3um

| Compound                     | R.T.  | Response | Conc Units   |
|------------------------------|-------|----------|--------------|
| -----                        |       |          |              |
| Target Compounds             |       |          |              |
| 1) Formaldehyde              | 1.34  | 128064   | 14.332 ng/ml |
| 2) Acetaldehyde              | 1.88  | 507206   | 78.022 ng/ml |
| 3) Propionaldehyde           | 0.00  | 0        | N.D. ng/ml   |
| 4) Crotonaldehyde            | 0.00  | 0        | N.D. ng/ml   |
| 5) Butyraldehyde             | 0.00  | 0        | N.D. ng/ml   |
| 6) Benzaldehyde              | 5.89f | 241995   | 88.695 ng/ml |
| 7) Isovaleraldehyde          | 0.00  | 0        | N.D. ng/ml   |
| 8) Valeraldehyde             | 0.00  | 0        | N.D. ng/ml   |
| 9) o-Tolualdehyde            | 0.00  | 0        | N.D. ng/ml   |
| 10) m,p-Tolualdehyde         | 0.00  | 0        | N.D. ng/ml   |
| 11) Hexaldehyde              | 0.00  | 0        | N.D. ng/ml   |
| 12) 2,5-Dimethylbenzaldehyde | 0.00  | 0        | N.D. ng/ml   |

**COLUMBIA ANALYTICAL SERVICES, INC.**

RESULTS OF ANALYSIS

Page 1 of 1

**Client:** Environmental Health & Engineering, Inc.  
**Client Sample ID:** 104198  
**Client Project ID:** 16512

CAS Project ID: P0903087  
 CAS Sample ID: P0903087-009

**Test Code:** EPA Method TO-11A  
**Instrument ID:** HP1050/LC2  
**Analyst:** Madeleine Dangazyan  
**Sampling Media:** Silica Gel DNPH Tube  
**Test Notes:** BC

**Date Collected:** 9/1/09  
**Date Received:** 9/2/09  
**Date Analyzed:** 9/14/09  
**Desorption Volume:** 1.0 ml  
**Volume Sampled:** 108 Liter(s)

| CAS #     | Compound                 | Result<br>ng/Sample | Result<br>µg/m <sup>3</sup> | MRL<br>µg/m <sup>3</sup> | Result<br>ppbV | MRL<br>ppbV | Data<br>Qualifier |
|-----------|--------------------------|---------------------|-----------------------------|--------------------------|----------------|-------------|-------------------|
| 50-00-0   | Formaldehyde             | 1,900               | 18                          | 0.93                     | 15             | 0.75        |                   |
| 75-07-0   | Acetaldehyde             | 560                 | 5.2                         | 0.93                     | 2.9            | 0.51        |                   |
| 123-38-6  | Propionaldehyde          | < 100               | ND                          | 0.93                     | ND             | 0.39        |                   |
| 4170-30-3 | Crotonaldehyde, Total    | < 100               | ND                          | 0.93                     | ND             | 0.32        |                   |
| 123-72-8  | Butyraldehyde            | < 100               | ND                          | 0.93                     | ND             | 0.31        |                   |
| 100-52-7  | Benzaldehyde             | 560                 | 5.2                         | 0.93                     | 1.2            | 0.21        | BT                |
| 590-86-3  | Isovaleraldehyde         | < 100               | ND                          | 0.93                     | ND             | 0.26        |                   |
| 110-62-3  | Valeraldehyde            | 120                 | 1.1                         | 0.93                     | 0.32           | 0.26        |                   |
| 529-20-4  | o-Tolualdehyde           | < 100               | ND                          | 0.93                     | ND             | 0.19        |                   |
| 620-23-5  |                          |                     |                             |                          |                |             |                   |
| 104-87-0  | m,p-Tolualdehyde         | < 200               | ND                          | 1.9                      | ND             | 0.38        |                   |
| 66-25-1   | n-Hexaldehyde            | 410                 | 3.8                         | 0.93                     | 0.93           | 0.23        |                   |
| 5779-94-2 | 2,5-Dimethylbenzaldehyde | < 100               | ND                          | 0.93                     | ND             | 0.17        |                   |

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

BC = Results reported are not blank corrected.

BT = Results indicated possible breakthrough; back section > 10% front section.

*P*

*9/18/09*

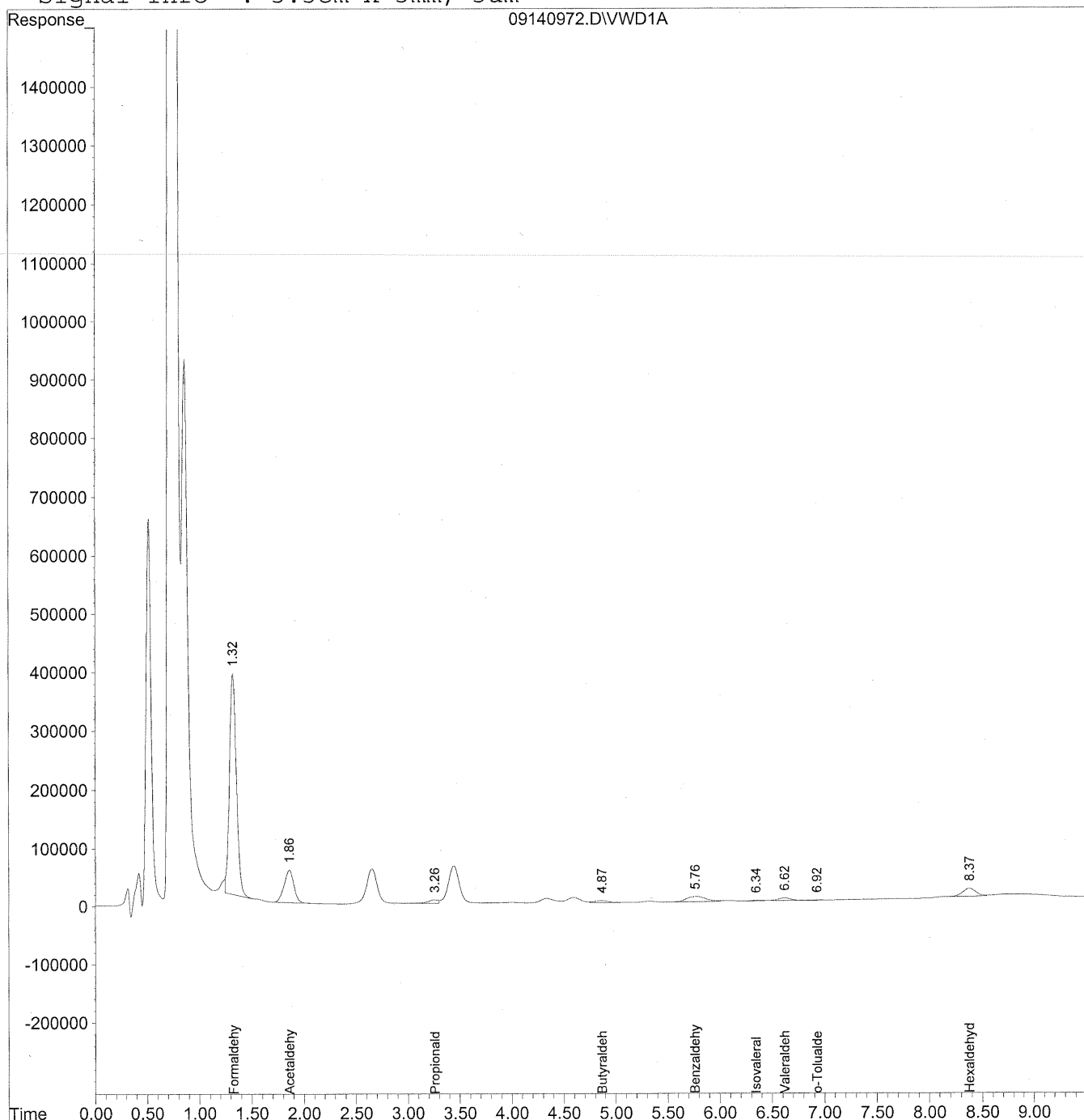


Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140972.D Vial: 137  
Acq On : 14-Sep-2009, 23:41 Operator: MD  
Sample : P0903087-009 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:12 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration  
DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
Signal Phase : Supelcosil LC-18  
Signal Info : 3.3cm x 3mm, 3um



Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140972.D Vial: 137  
 Acq On : 14-Sep-2009, 23:41 Operator: MD  
 Sample : P0903087-009 front 1.0ml Inst : VWD  
 Misc : Multiplr: 1.00  
 IntFile : events.e  
 Quant Time: Sep 17 12:12 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
 Title : LC-1050 TO-11A ICAL  
 Last Update : Thu Sep 17 11:23:31 2009  
 Response via : Initial Calibration  
 DataAcq Meth : TO-11A.M

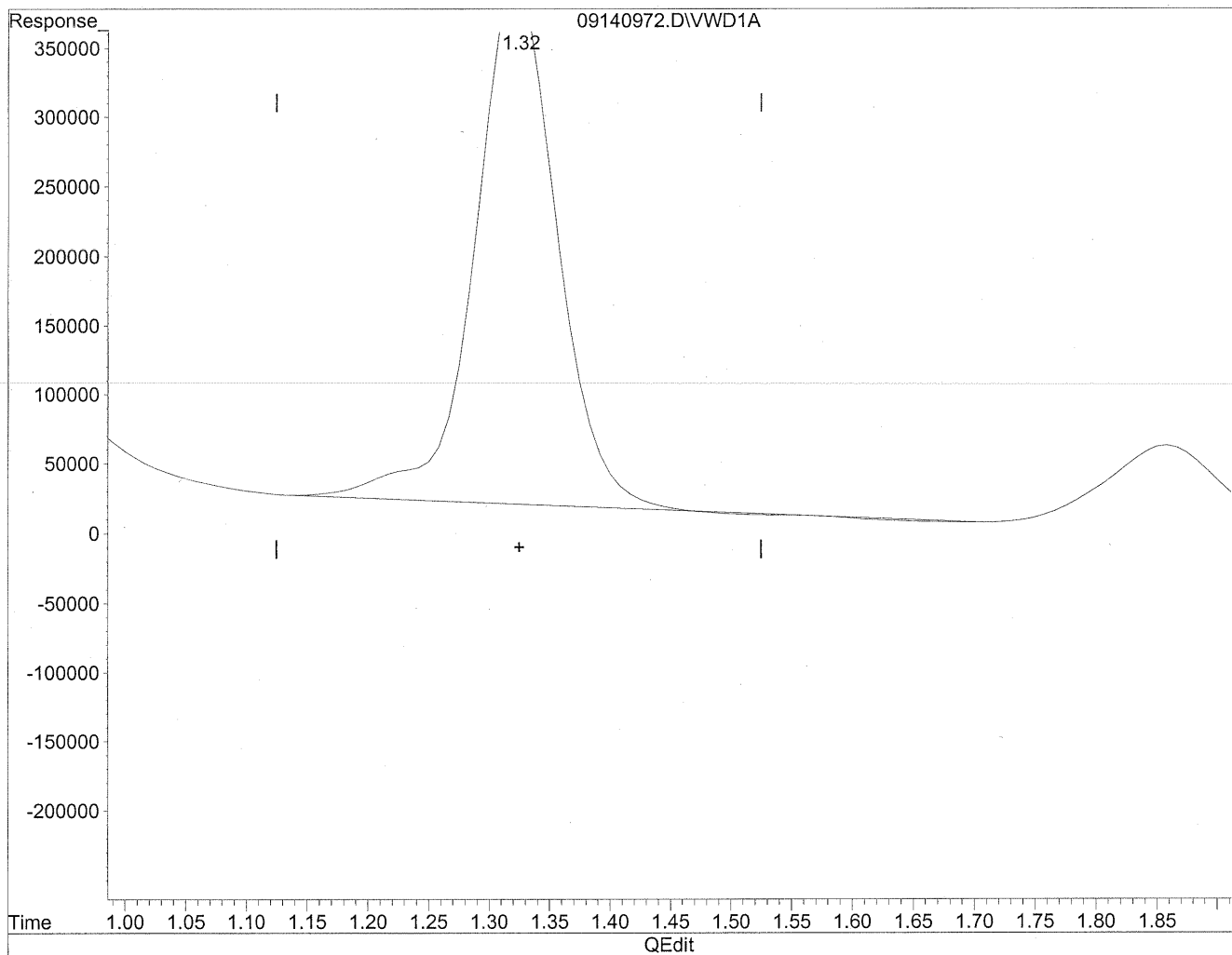
Volume Inj. : 3uL  
 Signal Phase : Supelcosil LC-18  
 Signal Info : 3.3cm x 3mm, 3um

| Compound                     | R.T.  | Response | Conc     | Units  |
|------------------------------|-------|----------|----------|--------|
| -----                        |       |          |          |        |
| Target Compounds             |       |          |          |        |
| 1) Formaldehyde              | 1.32  | 17211288 | 1926.184 | ng/mlm |
| 2) Acetaldehyde              | 1.86  | 3628486  | 558.160  | ng/mlm |
| 3) Propionaldehyde           | 3.26  | 398518   | 76.670   | ng/mlm |
| 4) Crotonaldehyde            | 0.00  | 0        | N.D.     | ng/ml  |
| 5) Butyraldehyde             | 4.87  | 301080   | 74.290   | ng/ml  |
| 6) Benzaldehyde              | 5.76  | 1144561  | 419.503  | ng/ml  |
| 7) Isovaleraldehyde          | 6.35  | 90171    | 26.199   | ng/ml  |
| 8) Valeraldehyde             | 6.62  | 414098   | 121.806  | ng/mlm |
| 9) o-Tolualdehyde            | 6.93f | 39216    | 17.870   | ng/ml  |
| 10) m,p-Tolualdehyde         | 0.00  | 0        | N.D.     | ng/ml  |
| 11) Hexaldehyde              | 8.37  | 1214902  | 410.339  | ng/mlm |
| 12) 2,5-Dimethylbenzaldehyde | 0.00  | 0        | N.D.     | ng/ml  |

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140972.D Vial: 137  
Acq On : 14-Sep-2009, 23:41 Operator: MD  
Sample : P0903087-009 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:11 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration

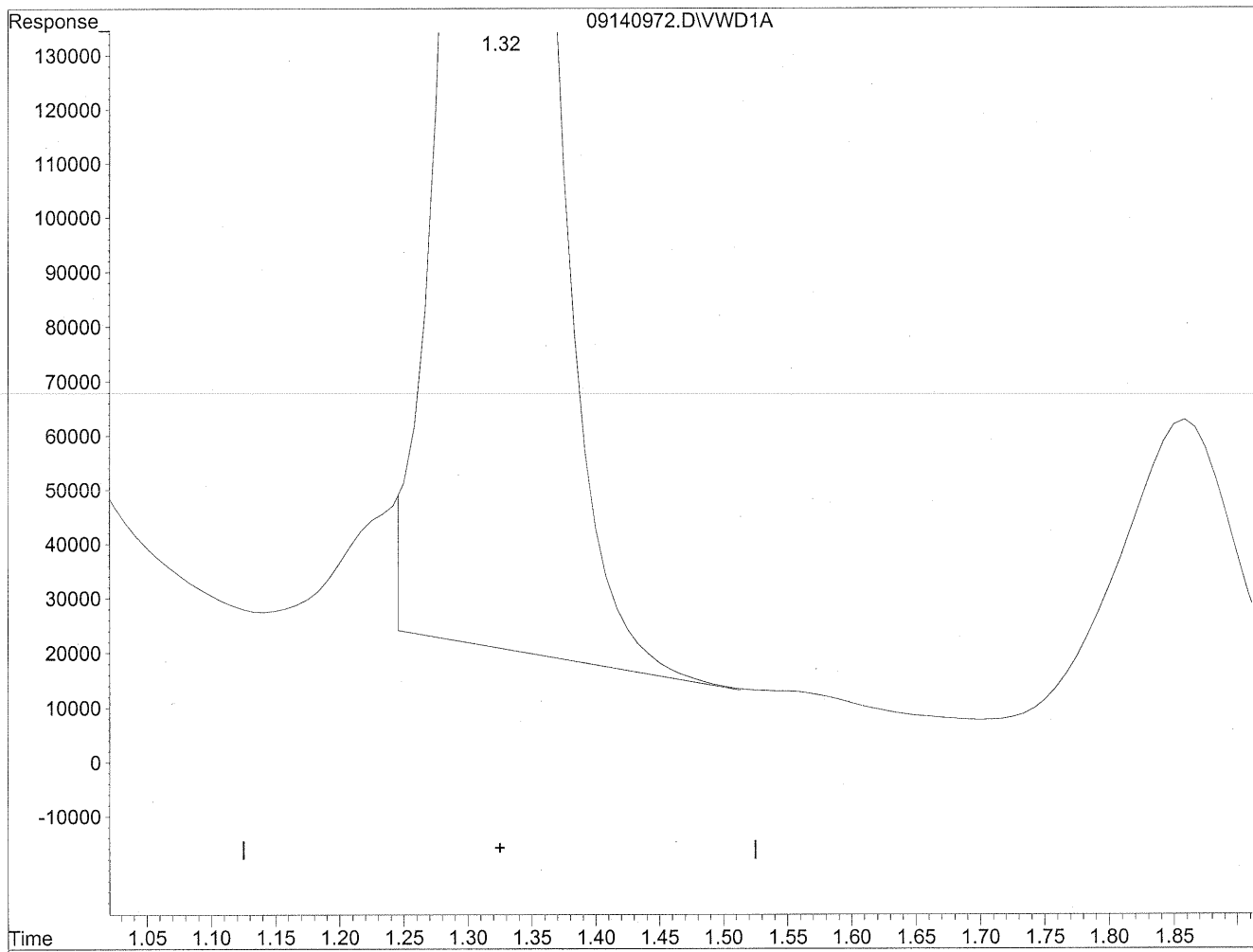


(1) Formaldehyde  
1.33min 1988.426ng/ml  
response 17767443

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140972.D Vial: 137  
Acq On : 14-Sep-2009, 23:41 Operator: MD  
Sample : P0903087-009 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:11 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



(1) Formaldehyde

1.32min 1926.184ng/ml m

response 17211288

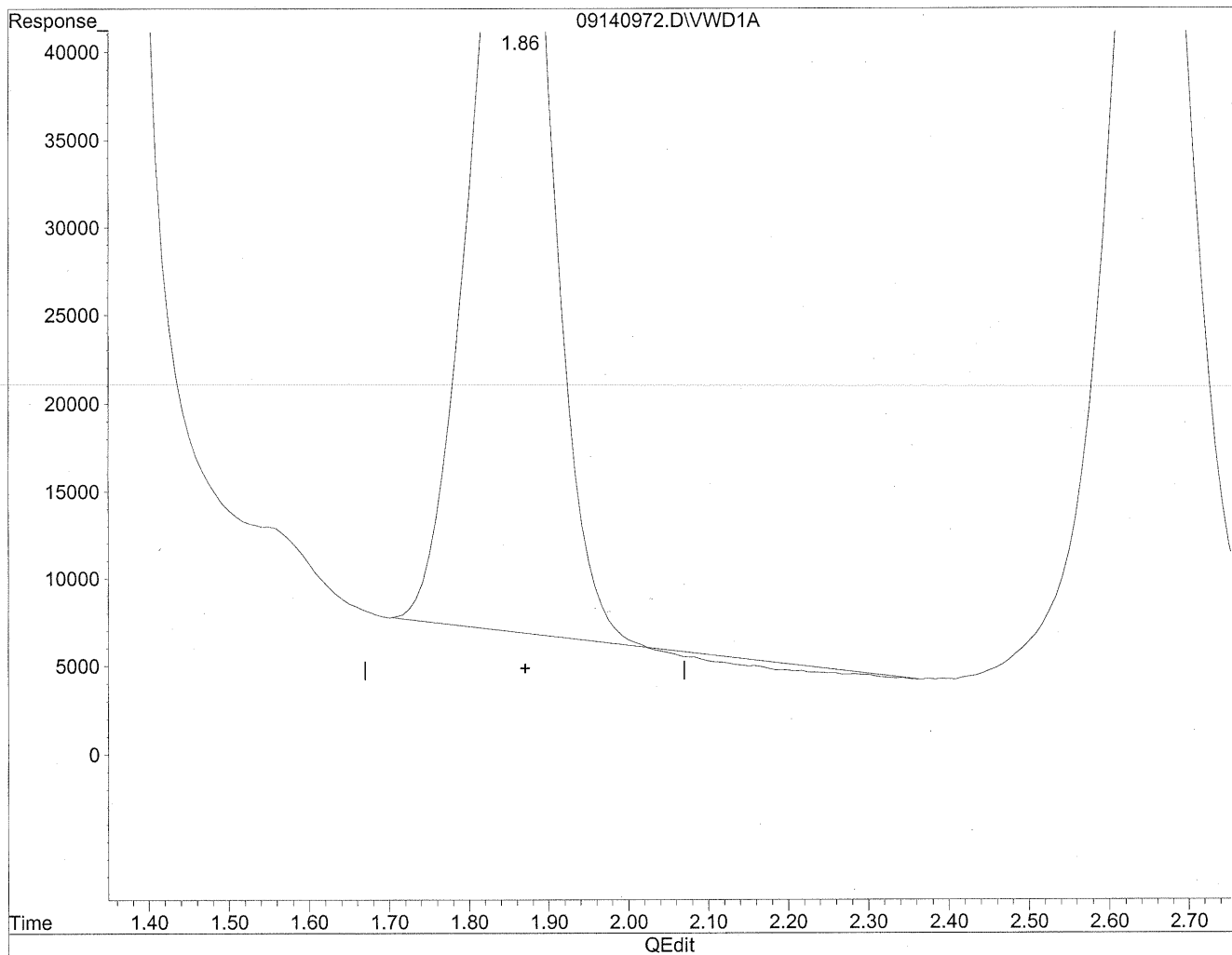
*HL  
9/17/09*

*(MM)  
9/17/09  
SH*

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140972.D Vial: 137  
Acq On : 14-Sep-2009, 23:41 Operator: MD  
Sample : P0903087-009 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:11 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration

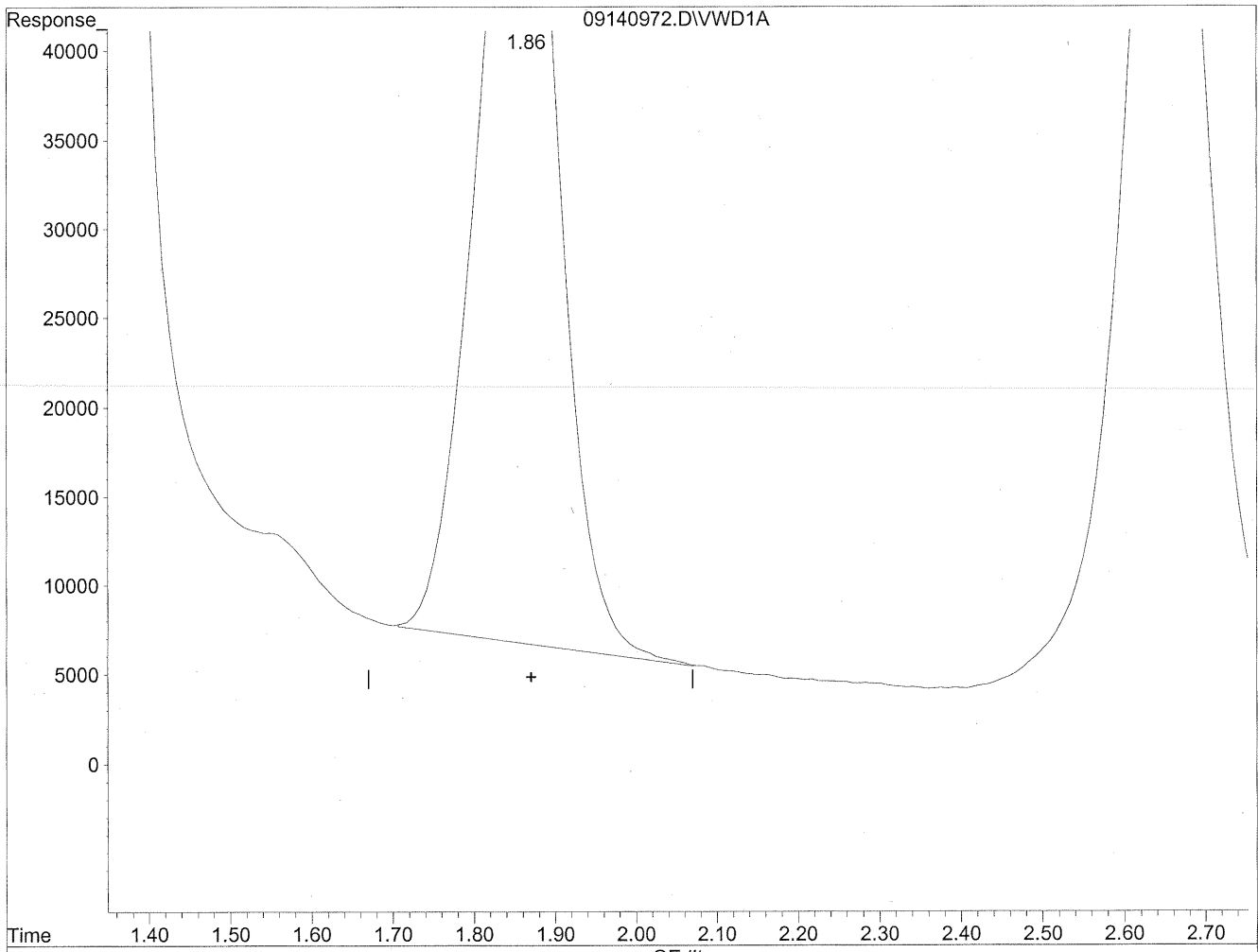


(2) Acetaldehyde  
1.86min 545.868ng/ml  
response 3548574

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140972.D Vial: 137  
Acq On : 14-Sep-2009, 23:41 Operator: MD  
Sample : P0903087-009 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:11 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



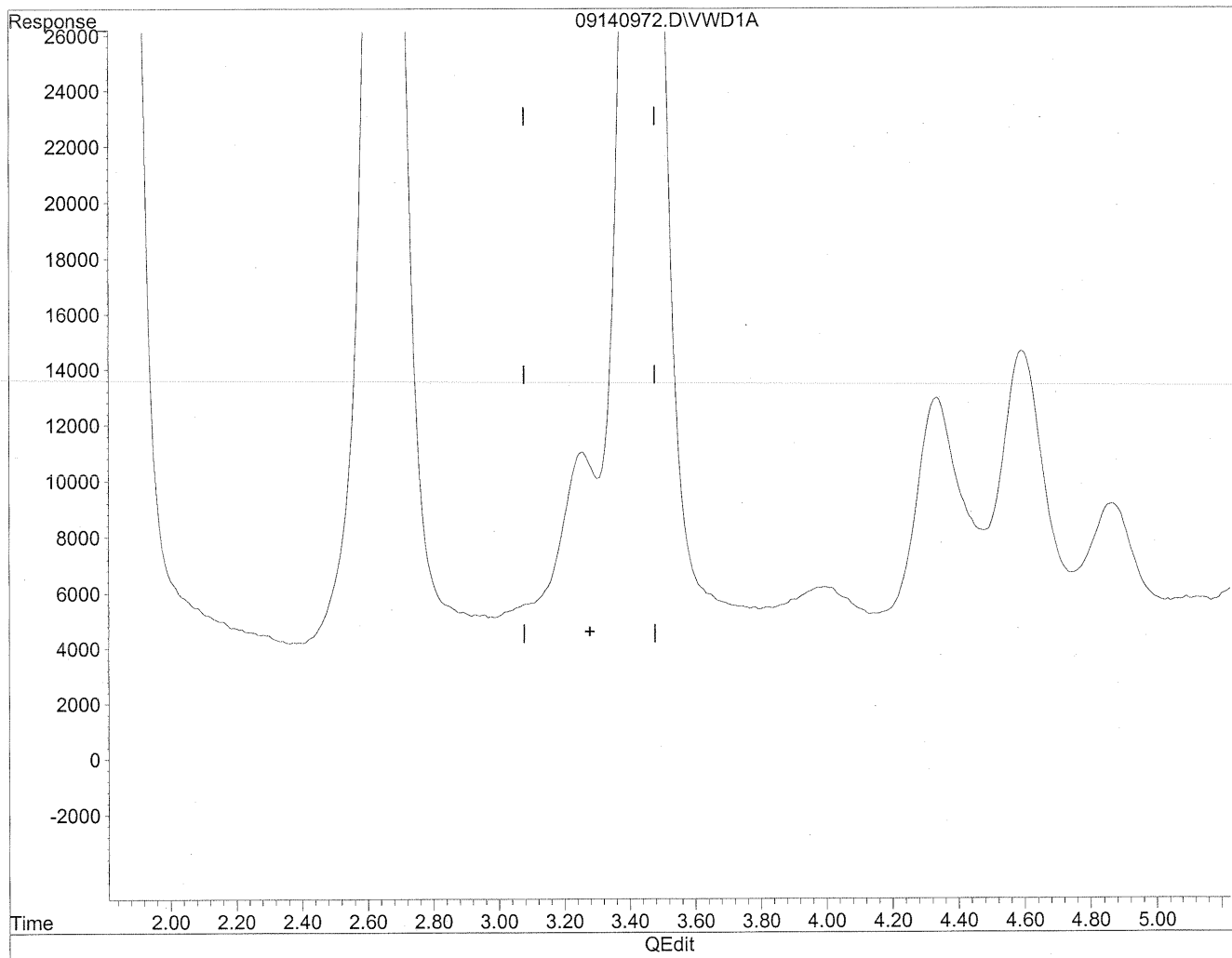
(2) Acetaldehyde  
1.86min 558.160ng/ml m  
response 3628486

*HC  
alcohol*      *(MD)  
alcohol  
ie*

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140972.D Vial: 137  
Acq On : 14-Sep-2009, 23:41 Operator: MD  
Sample : P0903087-009 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:11 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration

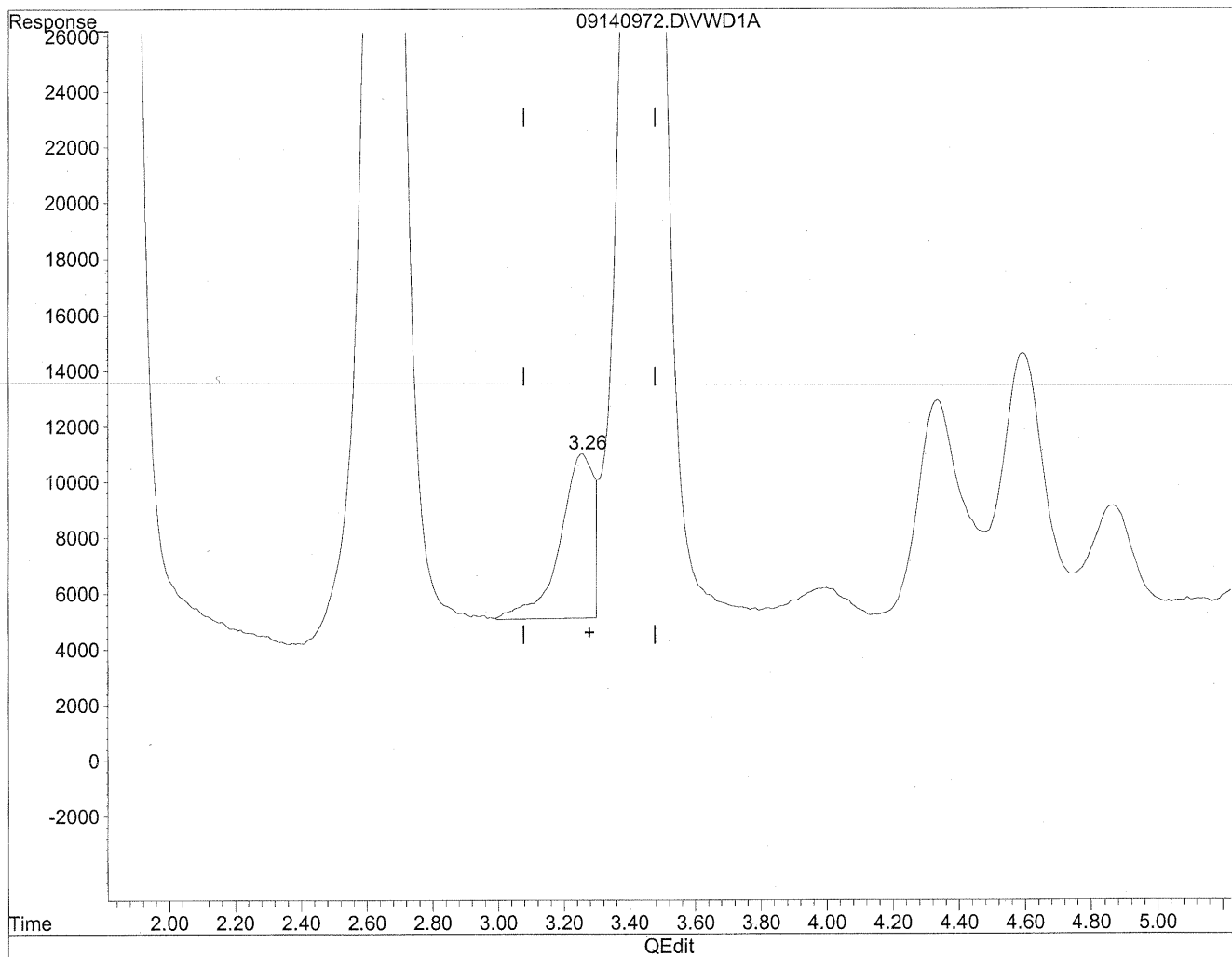


(3) Propionaldehyde  
3.28min 0.000ng/ml  
response 0

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140972.D Vial: 137  
Acq On : 14-Sep-2009, 23:41 Operator: MD  
Sample : P0903087-009 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:11 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



(3) Propionaldehyde  
3.26min 76.670ng/ml m  
response 398518

*HC  
9/17/09*

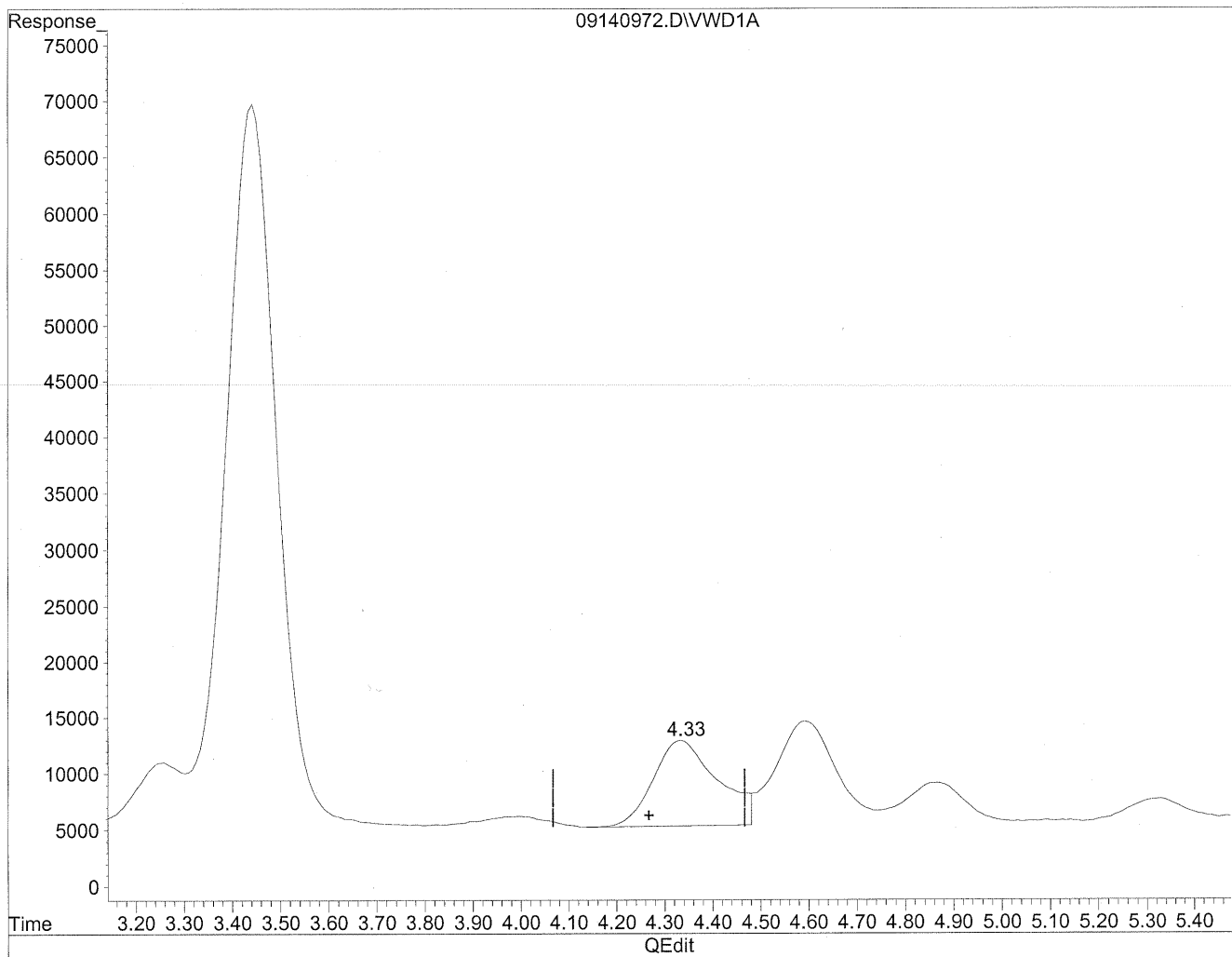
*(MD)  
9/17/09  
LPC*



Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140972.D Vial: 137  
Acq On : 14-Sep-2009, 23:41 Operator: MD  
Sample : P0903087-009 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:11 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration

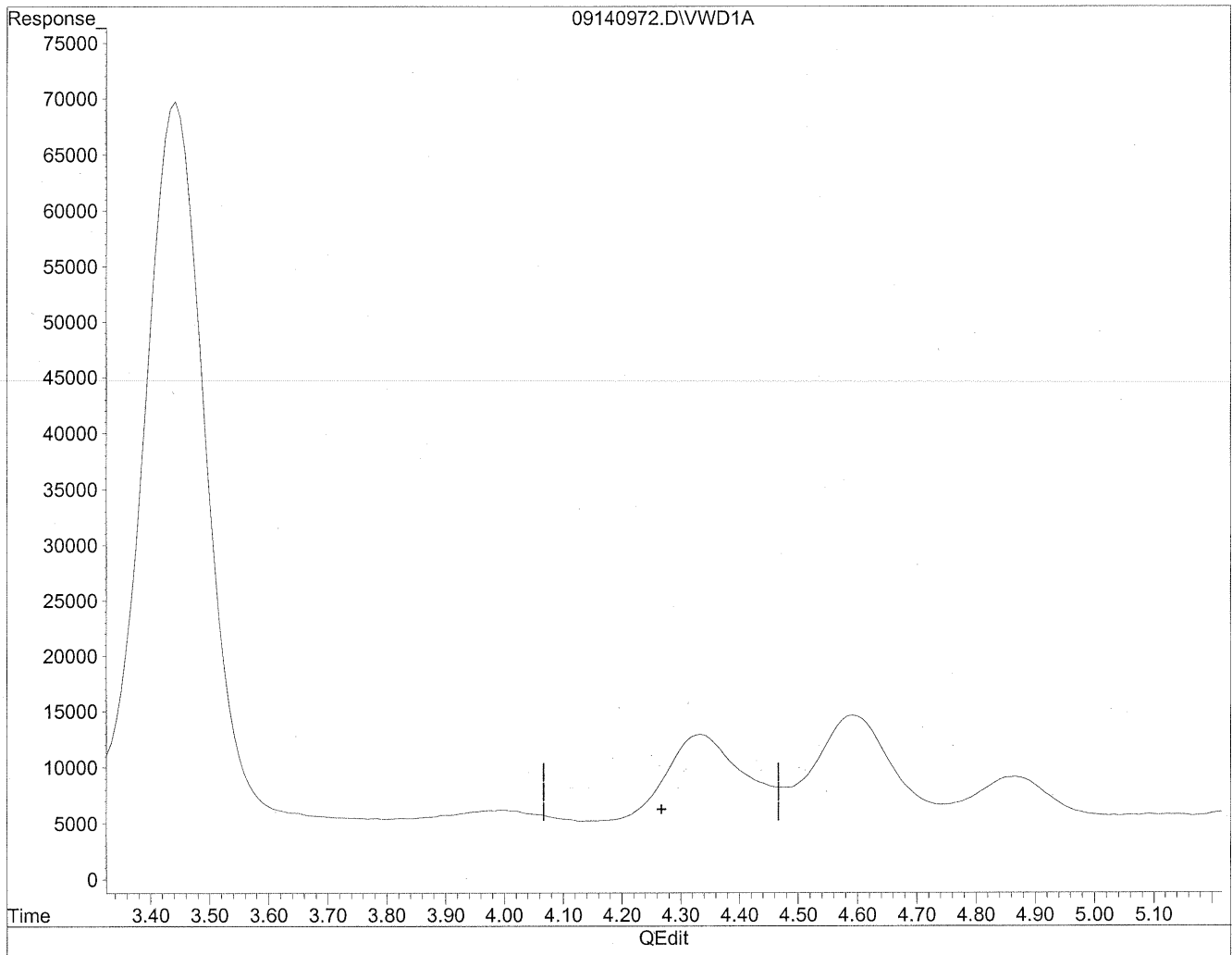


(4) Crotonaldehyde  
4.34min 172.431ng/ml  
response 699995

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140972.D Vial: 137  
Acq On : 14-Sep-2009, 23:41 Operator: MD  
Sample : P0903087-009 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:11 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



(4) Crotonaldehyde  
0.00min 0.000ng/ml d  
response 0

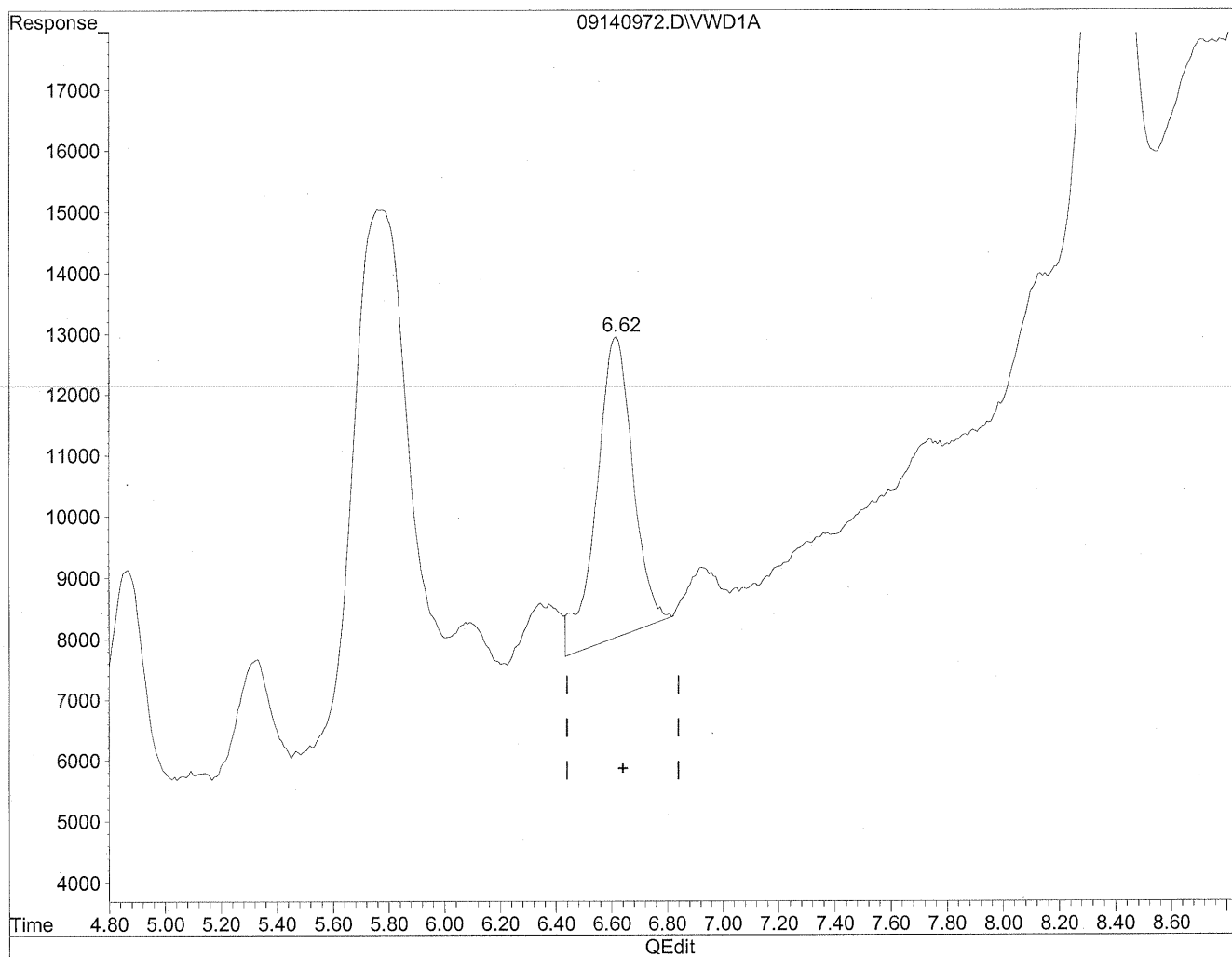
*HC*  
*9/17/09*

*(MD)*  
*9/17/09*  
*mp*

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140972.D Vial: 137  
Acq On : 14-Sep-2009, 23:41 Operator: MD  
Sample : P0903087-009 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:11 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration

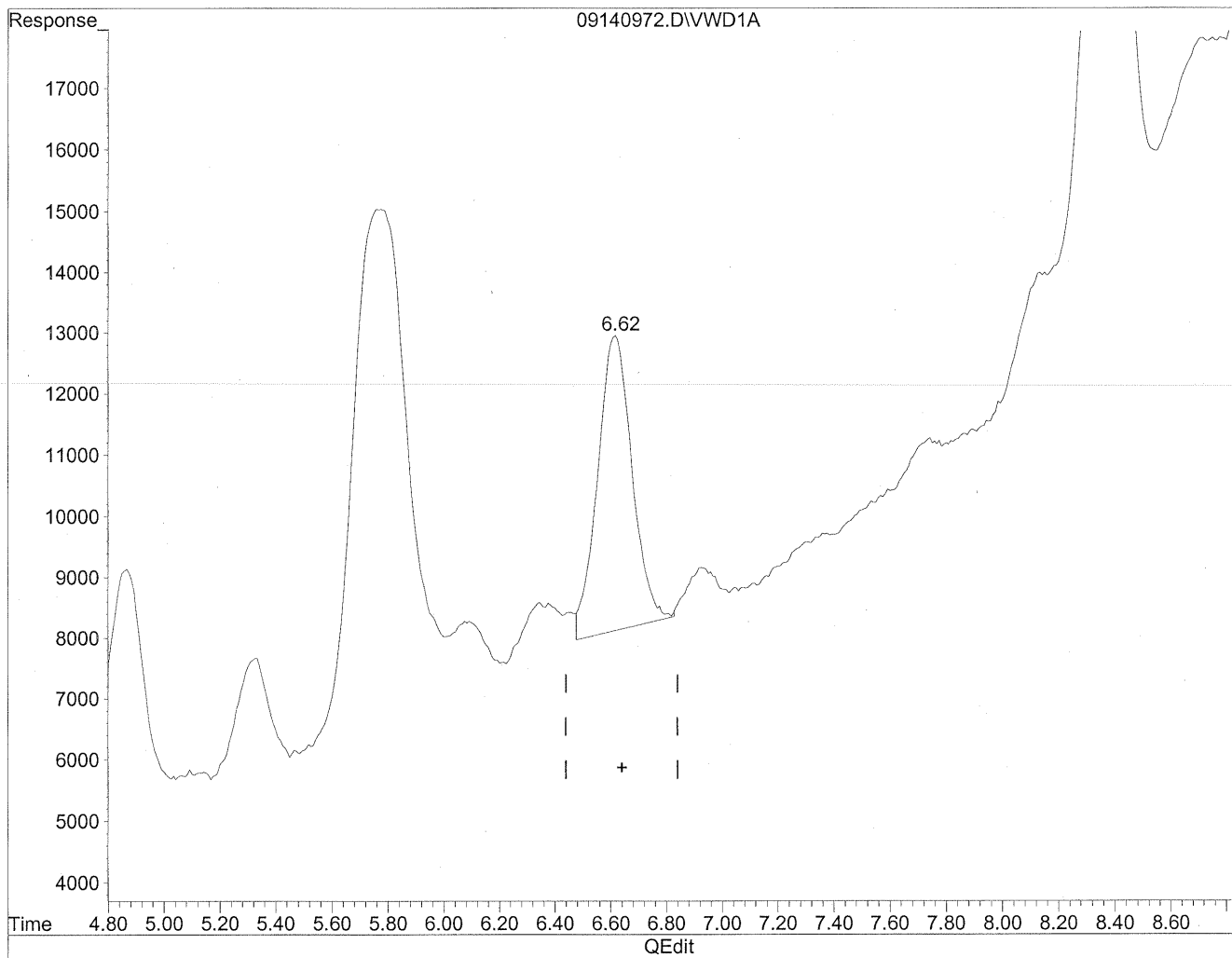


(8) Valeraldehyde  
6.62min 131.699ng/ml  
response 447728

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140972.D Vial: 137  
Acq On : 14-Sep-2009, 23:41 Operator: MD  
Sample : P0903087-009 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:11 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



(8) Valeraldehyde  
6.62min 121.806ng/ml m  
response 414098

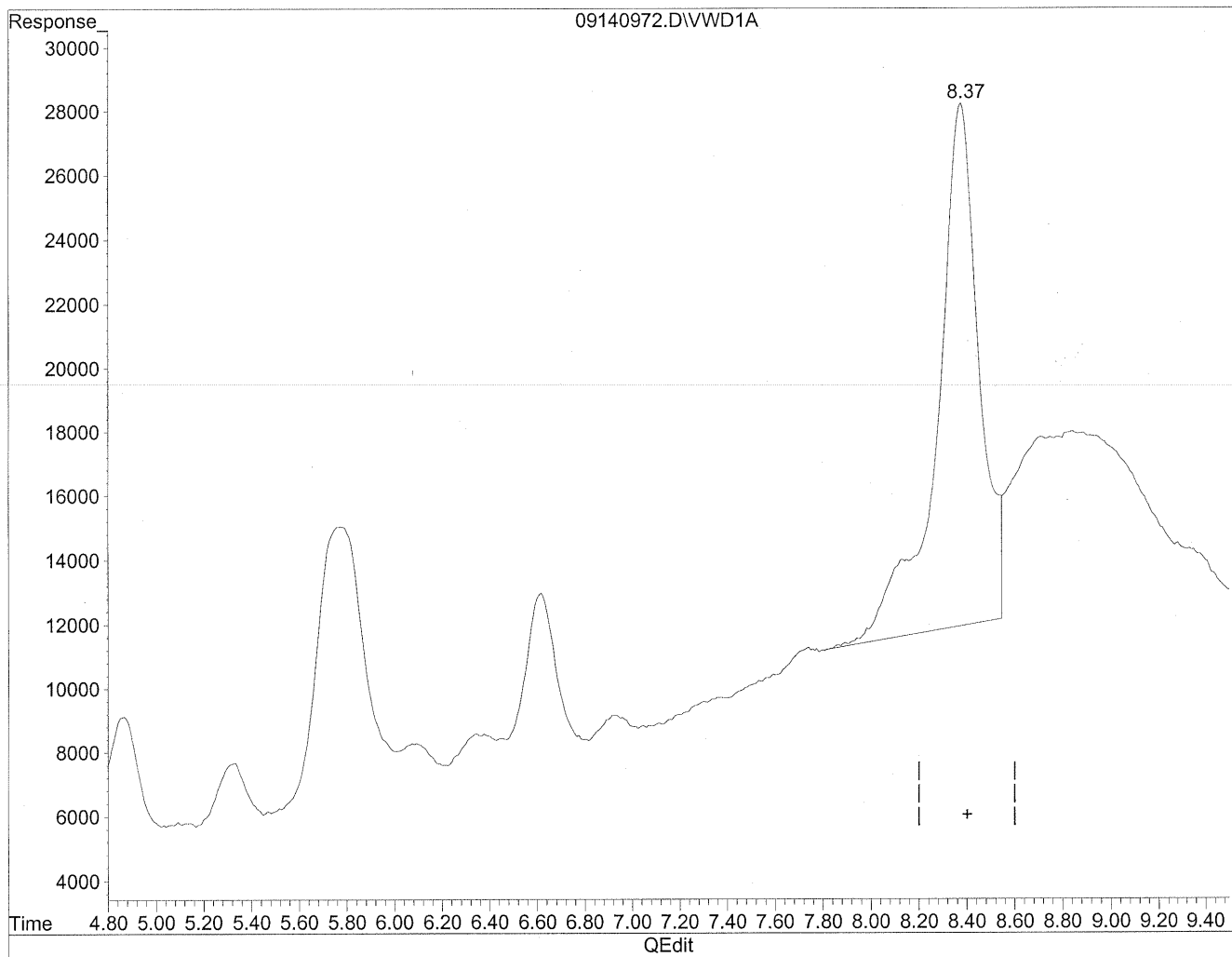
*HC*  
*9/17/09*

*(MD)*  
*9/17/09*  
*R*

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140972.D Vial: 137  
Acq On : 14-Sep-2009, 23:41 Operator: MD  
Sample : P0903087-009 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:11 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration

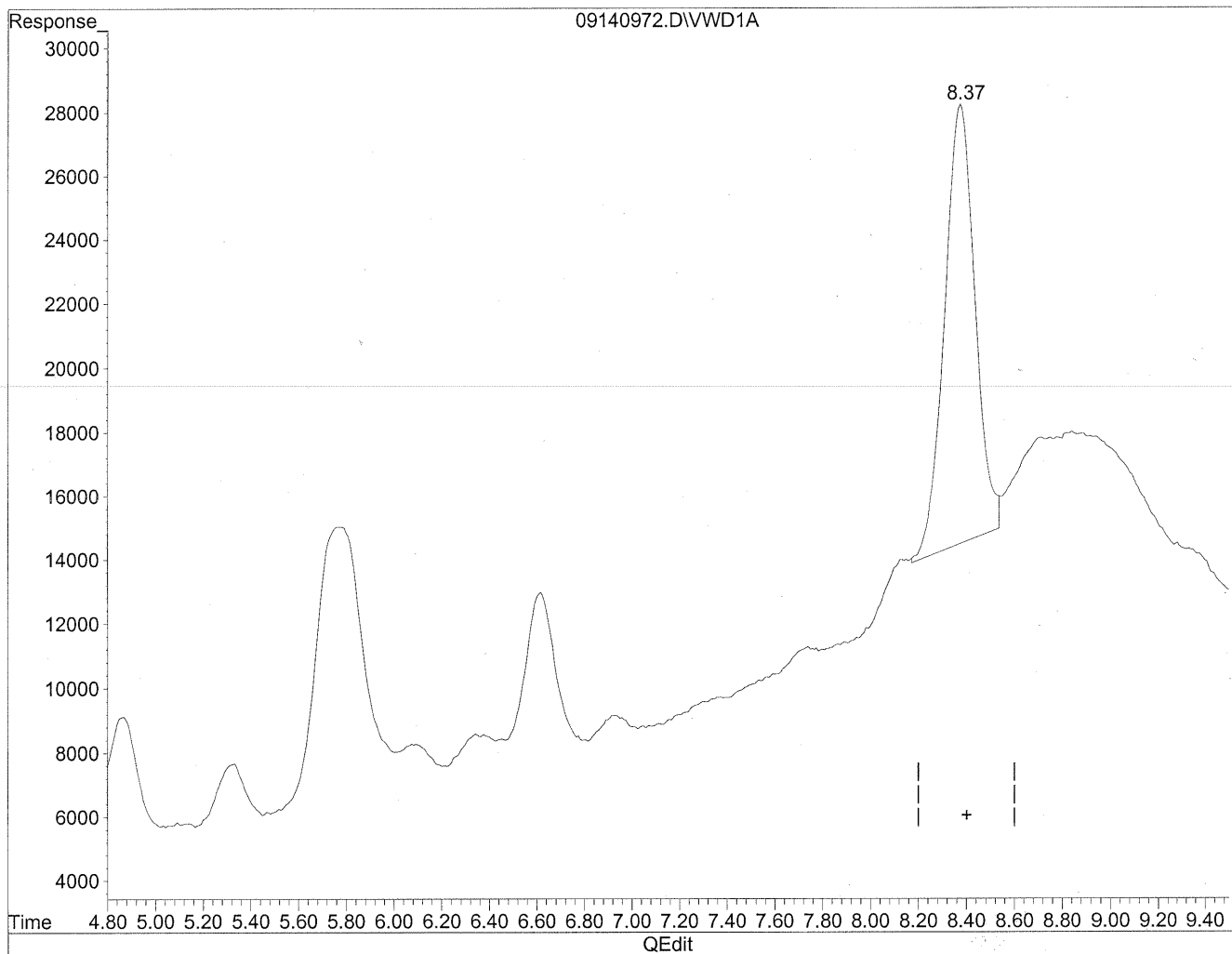


(11) Hexaldehyde  
8.38min 664.351ng/ml  
response 1966960

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140972.D Vial: 137  
Acq On : 14-Sep-2009, 23:41 Operator: MD  
Sample : P0903087-009 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:11 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



(11) Hexaldehyde  
8.37min 410.339ng/ml m  
response 1214902

*Handwritten:* Hc  
9/17/09

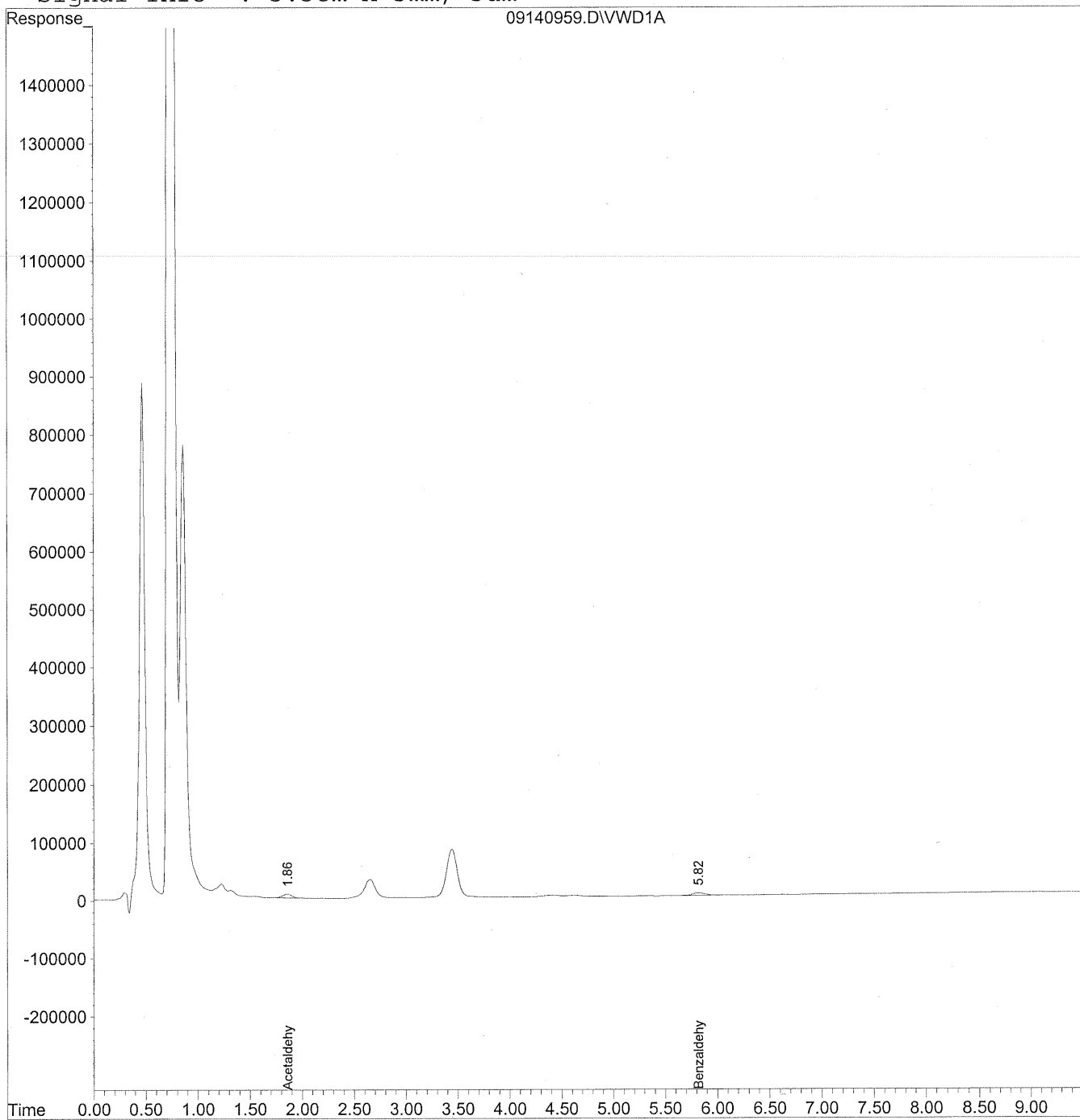
*Handwritten:* (MD)  
9/17/09  
12

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140959.D Vial: 125  
Acq On : 14-Sep-2009, 21:05 Operator: MD  
Sample : P0903087-009 back 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 11:36 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration  
DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
Signal Phase : Supelcosil LC-18  
Signal Info : 3.3cm x 3mm, 3um



Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140959.D Vial: 125  
 Acq On : 14-Sep-2009, 21:05 Operator: MD  
 Sample : P0903087-009 back 1.0ml Inst : VWD  
 Misc : Multiplr: 1.00  
 IntFile : events.e  
 Quant Time: Sep 17 11:36 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
 Title : LC-1050 TO-11A ICAL  
 Last Update : Thu Sep 17 11:23:31 2009  
 Response via : Initial Calibration  
 DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
 Signal Phase : Supelcosil LC-18  
 Signal Info : 3.3cm x 3mm, 3um

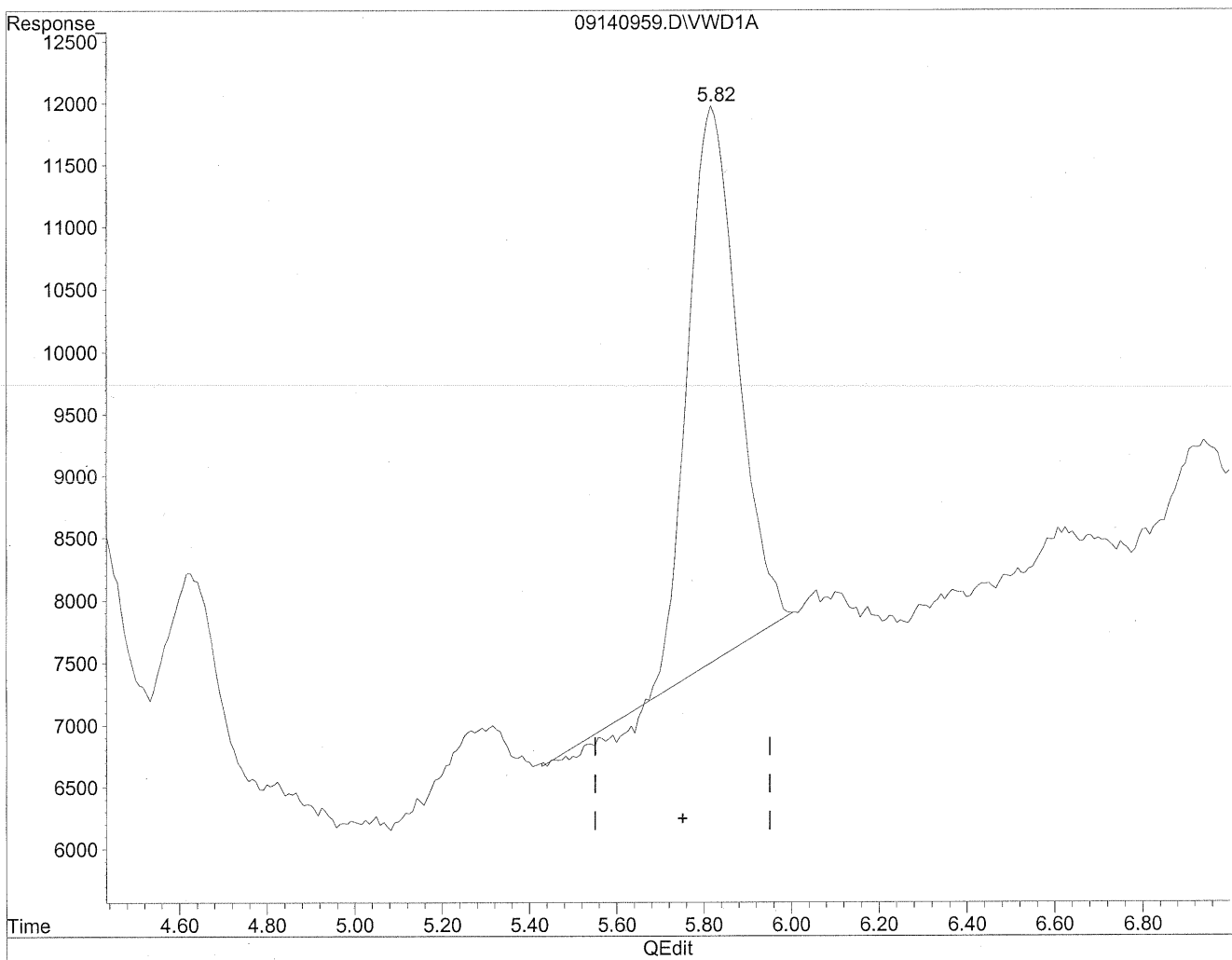
| Compound                     | R.T. | Response | Conc    | Units  |
|------------------------------|------|----------|---------|--------|
| -----                        |      |          |         |        |
| Target Compounds             |      |          |         |        |
| 1) Formaldehyde              | 0.00 | 0        | N.D.    | ng/ml  |
| 2) Acetaldehyde              | 1.86 | 420597   | 64.699  | ng/ml  |
| 3) Propionaldehyde           | 0.00 | 0        | N.D.    | ng/ml  |
| 4) Crotonaldehyde            | 0.00 | 0        | N.D.    | ng/ml  |
| 5) Butyraldehyde             | 0.00 | 0        | N.D.    | ng/ml  |
| 6) Benzaldehyde              | 5.82 | 378310   | 138.657 | ng/mlm |
| 7) Isovaleraldehyde          | 0.00 | 0        | N.D.    | ng/ml  |
| 8) Valeraldehyde             | 0.00 | 0        | N.D.    | ng/ml  |
| 9) o-Tolualdehyde            | 0.00 | 0        | N.D.    | ng/ml  |
| 10) m,p-Tolualdehyde         | 0.00 | 0        | N.D.    | ng/ml  |
| 11) Hexaldehyde              | 0.00 | 0        | N.D.    | ng/ml  |
| 12) 2,5-Dimethylbenzaldehyde | 0.00 | 0        | N.D.    | ng/ml  |



Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140959.D Vial: 125  
Acq On : 14-Sep-2009, 21:05 Operator: MD  
Sample : P0903087-009 back 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 11:31 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration

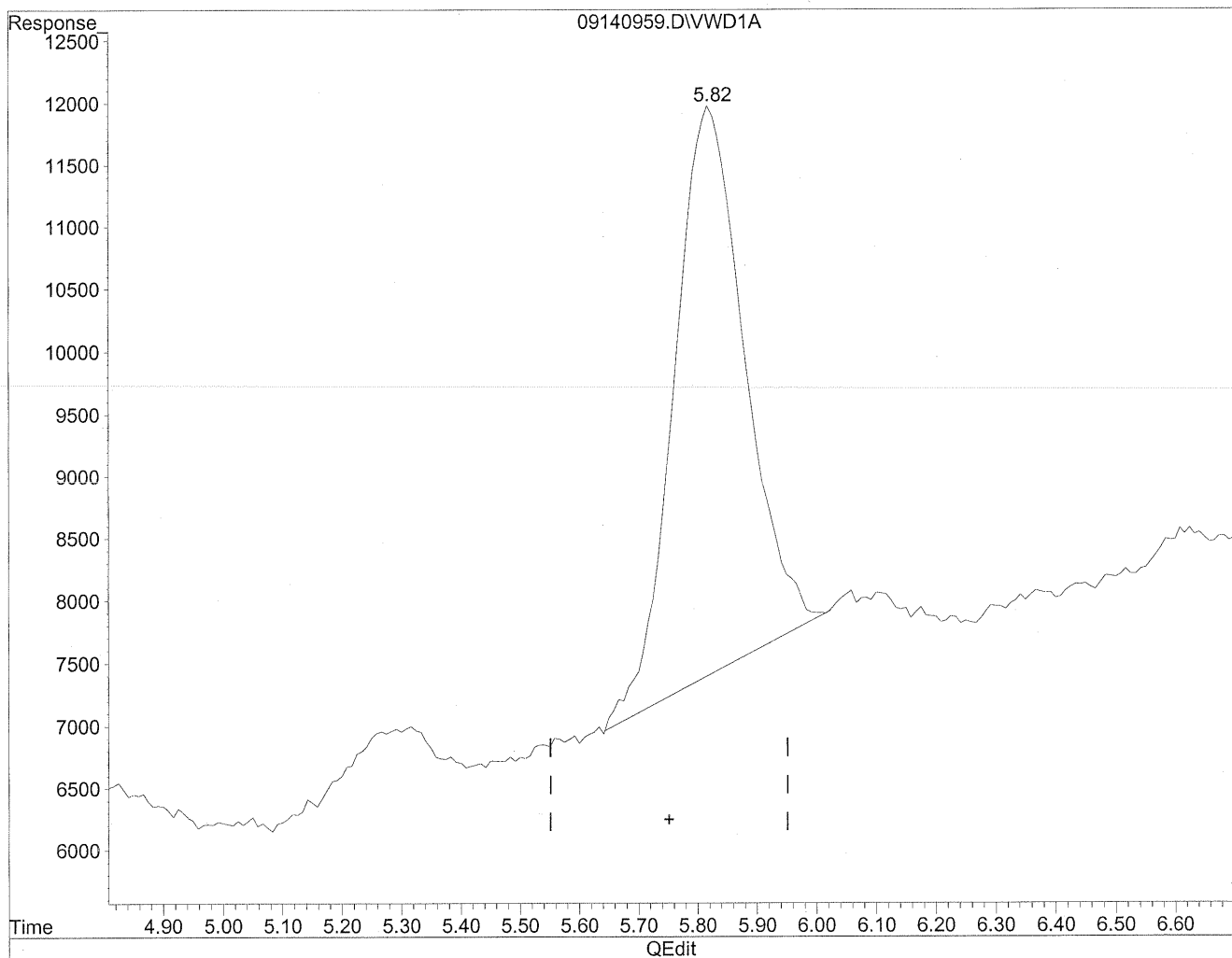


(6) Benzaldehyde  
5.82min 126.443ng/ml  
response 344985

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140959.D Vial: 125  
Acq On : 14-Sep-2009, 21:05 Operator: MD  
Sample : P0903087-009 back 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 11:31 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



(6) Benzaldehyde  
5.82min 138.657ng/ml m  
response 378310

*Handwritten notes:*  
9/17/09  
AC  
9/17/09

**COLUMBIA ANALYTICAL SERVICES, INC.**

RESULTS OF ANALYSIS

Page 1 of 1

**Client:** Environmental Health & Engineering, Inc.  
**Client Sample ID:** 104199  
**Client Project ID:** 16512

CAS Project ID: P0903087  
 CAS Sample ID: P0903087-010

**Test Code:** EPA Method TO-11A  
**Instrument ID:** HP1050/LC2  
**Analyst:** Madeleine Dangazyan  
**Sampling Media:** Silica Gel DNPH Tube  
**Test Notes:** BC

**Date Collected:** 9/1/09  
**Date Received:** 9/2/09  
**Date Analyzed:** 9/14/09  
**Desorption Volume:** 1.0 ml  
**Volume Sampled:** 107 Liter(s)

| CAS #     | Compound                 | Result<br>ng/Sample | Result<br>µg/m <sup>3</sup> | MRL<br>µg/m <sup>3</sup> | Result<br>ppbV | MRL<br>ppbV | Data<br>Qualifier |
|-----------|--------------------------|---------------------|-----------------------------|--------------------------|----------------|-------------|-------------------|
| 50-00-0   | Formaldehyde             | 5,500               | 52                          | 0.93                     | 42             | 0.76        |                   |
| 75-07-0   | Acetaldehyde             | 830                 | 7.8                         | 0.93                     | 4.3            | 0.52        |                   |
| 123-38-6  | Propionaldehyde          | 150                 | 1.4                         | 0.93                     | 0.57           | 0.39        |                   |
| 4170-30-3 | Crotonaldehyde, Total    | < 100               | ND                          | 0.93                     | ND             | 0.33        |                   |
| 123-72-8  | Butyraldehyde            | 120                 | 1.1                         | 0.93                     | 0.38           | 0.32        |                   |
| 100-52-7  | Benzaldehyde             | 730                 | 6.8                         | 0.93                     | 1.6            | 0.22        |                   |
| 590-86-3  | Isovaleraldehyde         | < 100               | ND                          | 0.93                     | ND             | 0.27        |                   |
| 110-62-3  | Valeraldehyde            | 250                 | 2.4                         | 0.93                     | 0.68           | 0.27        |                   |
| 529-20-4  | o-Tolualdehyde           | < 100               | ND                          | 0.93                     | ND             | 0.19        |                   |
| 620-23-5  |                          |                     |                             |                          |                |             |                   |
| 104-87-0  | m,p-Tolualdehyde         | < 200               | ND                          | 1.9                      | ND             | 0.38        |                   |
| 66-25-1   | n-Hexaldehyde            | 930                 | 8.7                         | 0.93                     | 2.1            | 0.23        |                   |
| 5779-94-2 | 2,5-Dimethylbenzaldehyde | < 100               | ND                          | 0.93                     | ND             | 0.17        |                   |

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

BC = Results reported are not blank corrected.

Verified By: \_\_\_\_\_

*f*

Date: \_\_\_\_\_

9/15/09

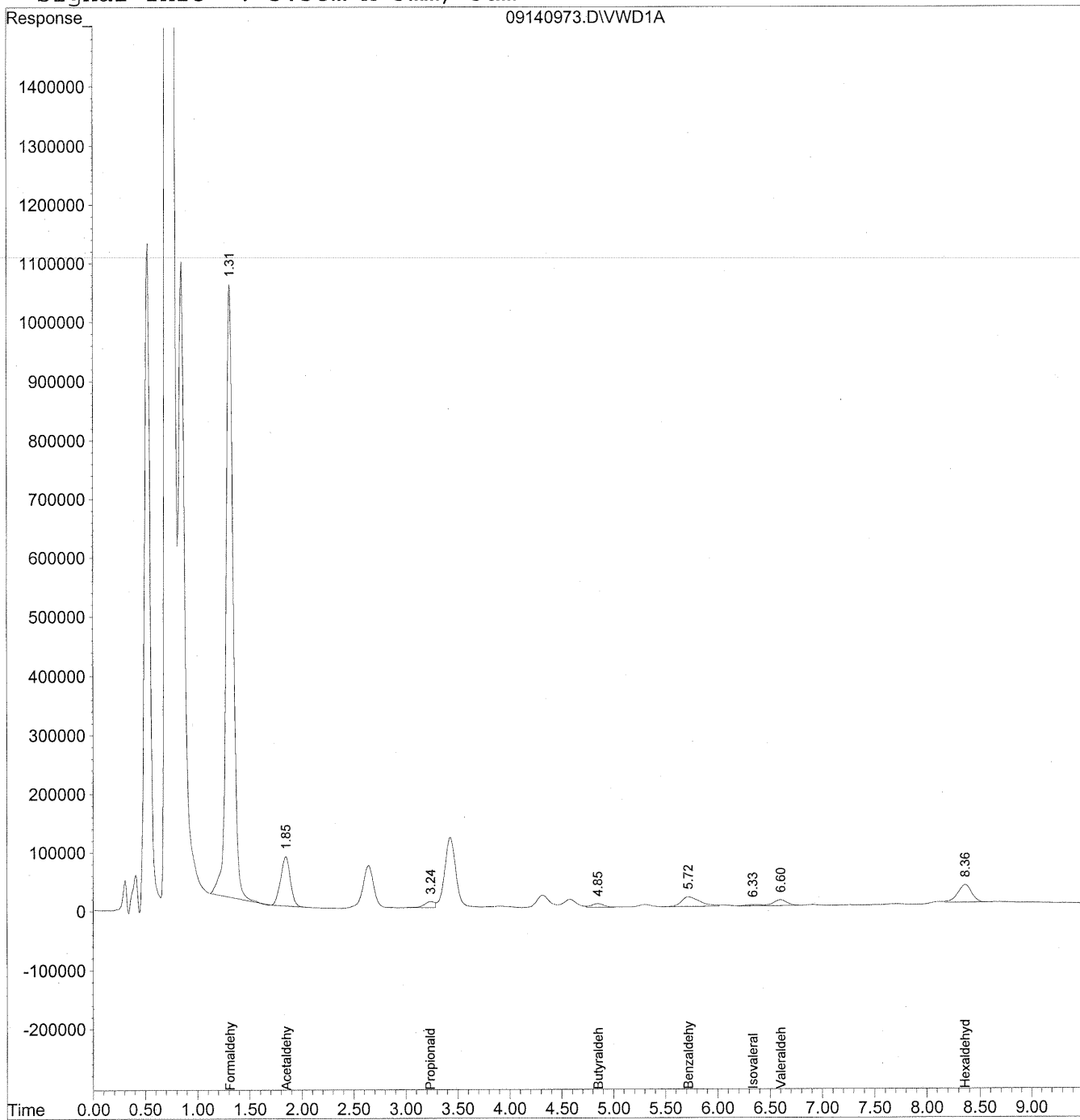
**155**

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140973.D Vial: 138  
Acq On : 14-Sep-2009, 23:53 Operator: MD  
Sample : P0903087-010 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:14 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration  
DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
Signal Phase : Supelcosil LC-18  
Signal Info : 3.3cm x 3mm, 3um



Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140973.D Vial: 138  
 Acq On : 14-Sep-2009, 23:53 Operator: MD  
 Sample : P0903087-010 front 1.0ml Inst : VWD  
 Misc : Multiplr: 1.00  
 IntFile : events.e  
 Quant Time: Sep 17 12:14 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
 Title : LC-1050 TO-11A ICAL  
 Last Update : Thu Sep 17 11:23:31 2009  
 Response via : Initial Calibration  
 DataAcq Meth : TO-11A.M

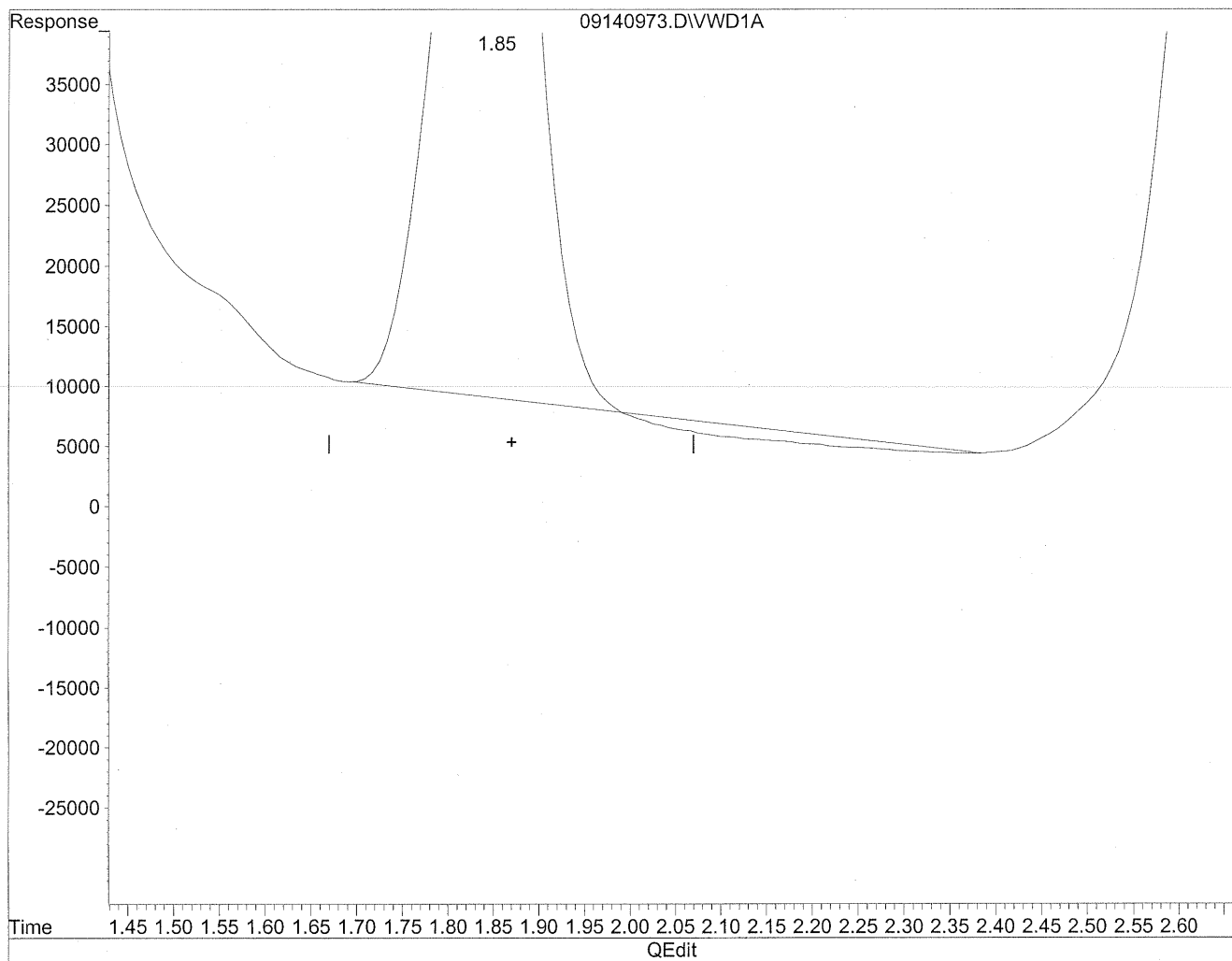
Volume Inj. : 3uL  
 Signal Phase : Supelcosil LC-18  
 Signal Info : 3.3cm x 3mm, 3um

| Compound                     | R.T. | Response | Conc Units     |
|------------------------------|------|----------|----------------|
| -----                        |      |          |                |
| Target Compounds             |      |          |                |
| 1) Formaldehyde              | 1.32 | 49373194 | 5525.553 ng/ml |
| 2) Acetaldehyde              | 1.85 | 5422031  | 834.056 ng/mlm |
| 3) Propionaldehyde           | 3.24 | 757881   | 145.807 ng/mlm |
| 4) Crotonaldehyde            | 0.00 | 0        | N.D. ng/ml     |
| 5) Butyraldehyde             | 4.85 | 486868   | 120.132 ng/ml  |
| 6) Benzaldehyde              | 5.72 | 1985867  | 727.856 ng/ml  |
| 7) Isovaleraldehyde          | 6.34 | 196258   | 57.022 ng/ml   |
| 8) Valeraldehyde             | 6.60 | 865071   | 254.460 ng/ml  |
| 9) o-Tolualdehyde            | 0.00 | 0        | N.D. ng/ml     |
| 10) m,p-Tolualdehyde         | 0.00 | 0        | N.D. ng/ml     |
| 11) Hexaldehyde              | 8.36 | 2744036  | 926.812 ng/mlm |
| 12) 2,5-Dimethylbenzaldehyde | 0.00 | 0        | N.D. ng/ml     |

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140973.D Vial: 138  
Acq On : 14-Sep-2009, 23:53 Operator: MD  
Sample : P0903087-010 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:13 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration

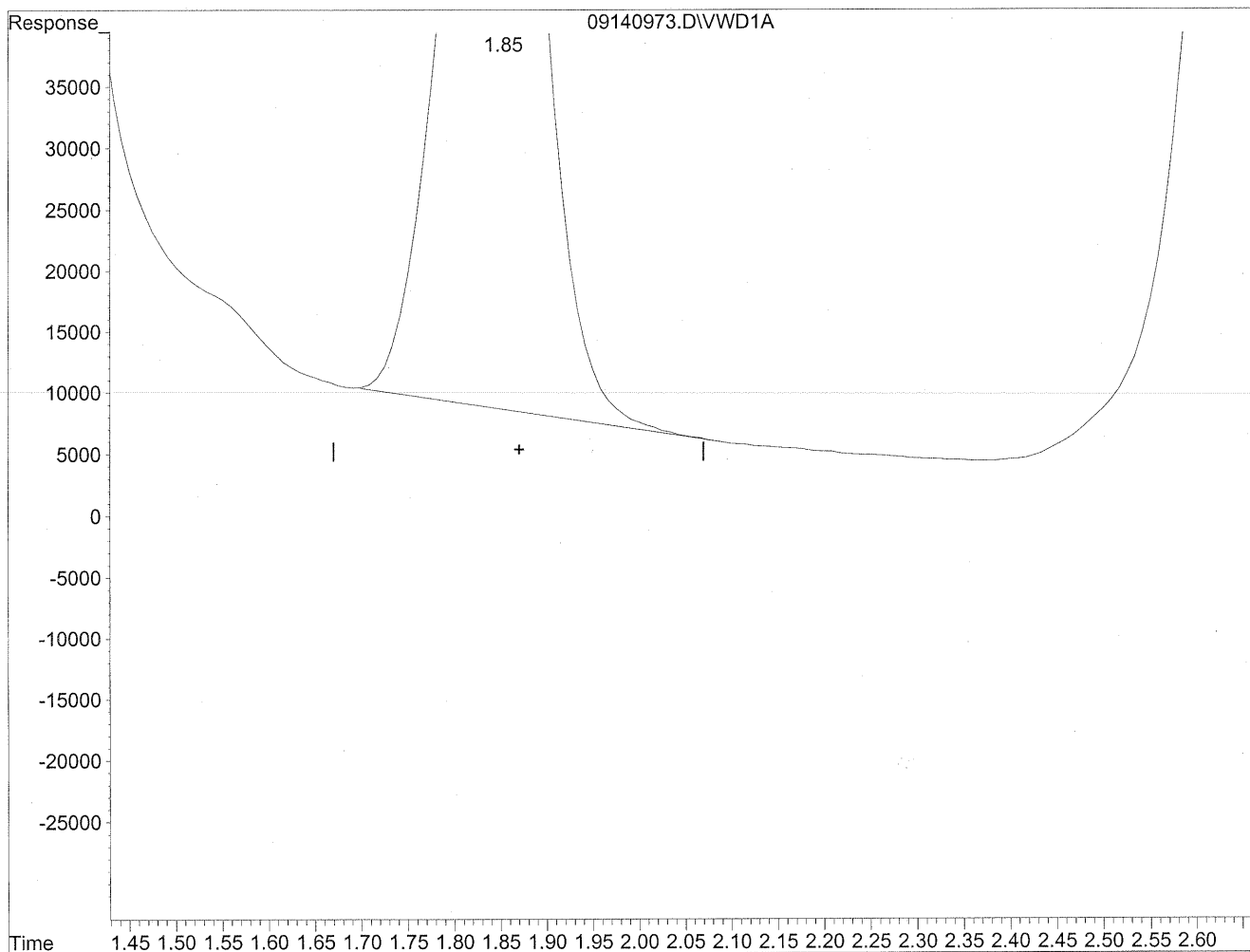


(2) Acetaldehyde  
1.85min 798.917ng/ml  
response 5193600

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140973.D Vial: 138  
Acq On : 14-Sep-2009, 23:53 Operator: MD  
Sample : P0903087-010 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:13 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



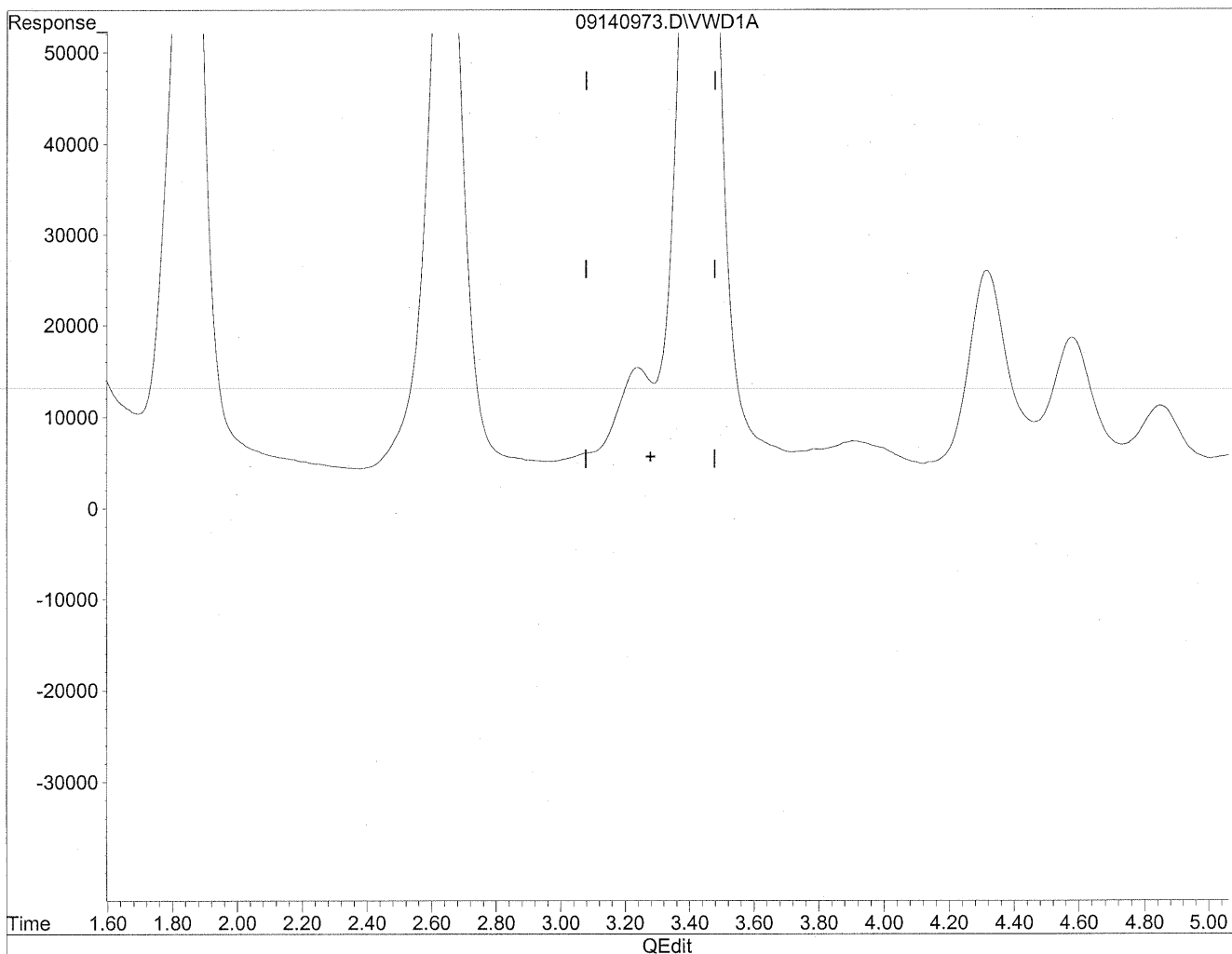
(2) Acetaldehyde  
1.85min 834.056ng/ml m  
response 5422031

*MD*  
*altlog*  
*ic*  
*HE*  
*altlog*

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140973.D Vial: 138  
Acq On : 14-Sep-2009, 23:53 Operator: MD  
Sample : P0903087-010 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:13 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



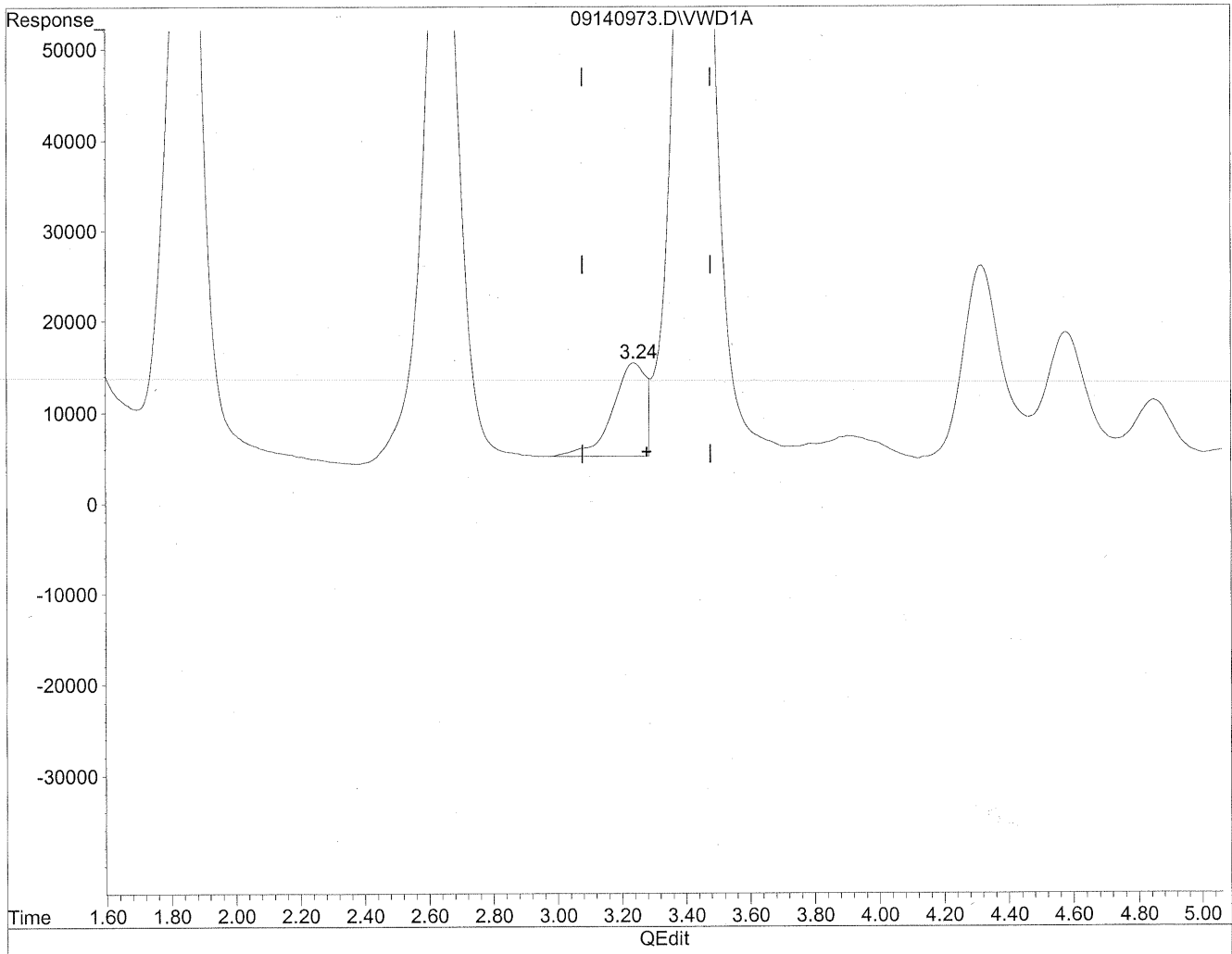
(3) Propionaldehyde  
3.28min 0.000ng/ml  
response 0



Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140973.D Vial: 138  
Acq On : 14-Sep-2009, 23:53 Operator: MD  
Sample : P0903087-010 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:13 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



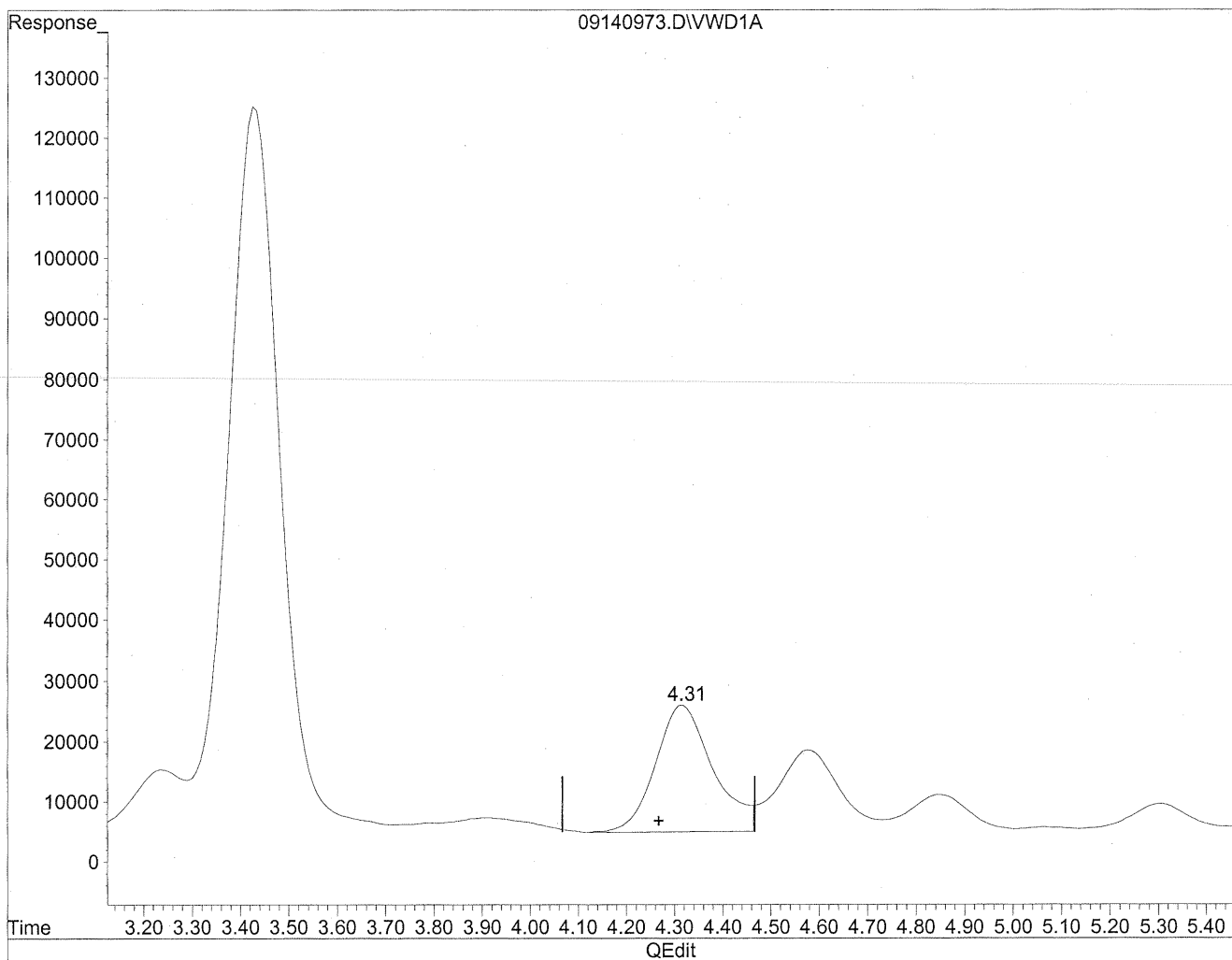
(3) Propionaldehyde  
3.24min 145.807ng/ml m  
response 757881

*Handwritten notes:*  
xlc  
a/p/109  
9/17/09  
Bri

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140973.D Vial: 138  
Acq On : 14-Sep-2009, 23:53 Operator: MD  
Sample : P0903087-010 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:13 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration

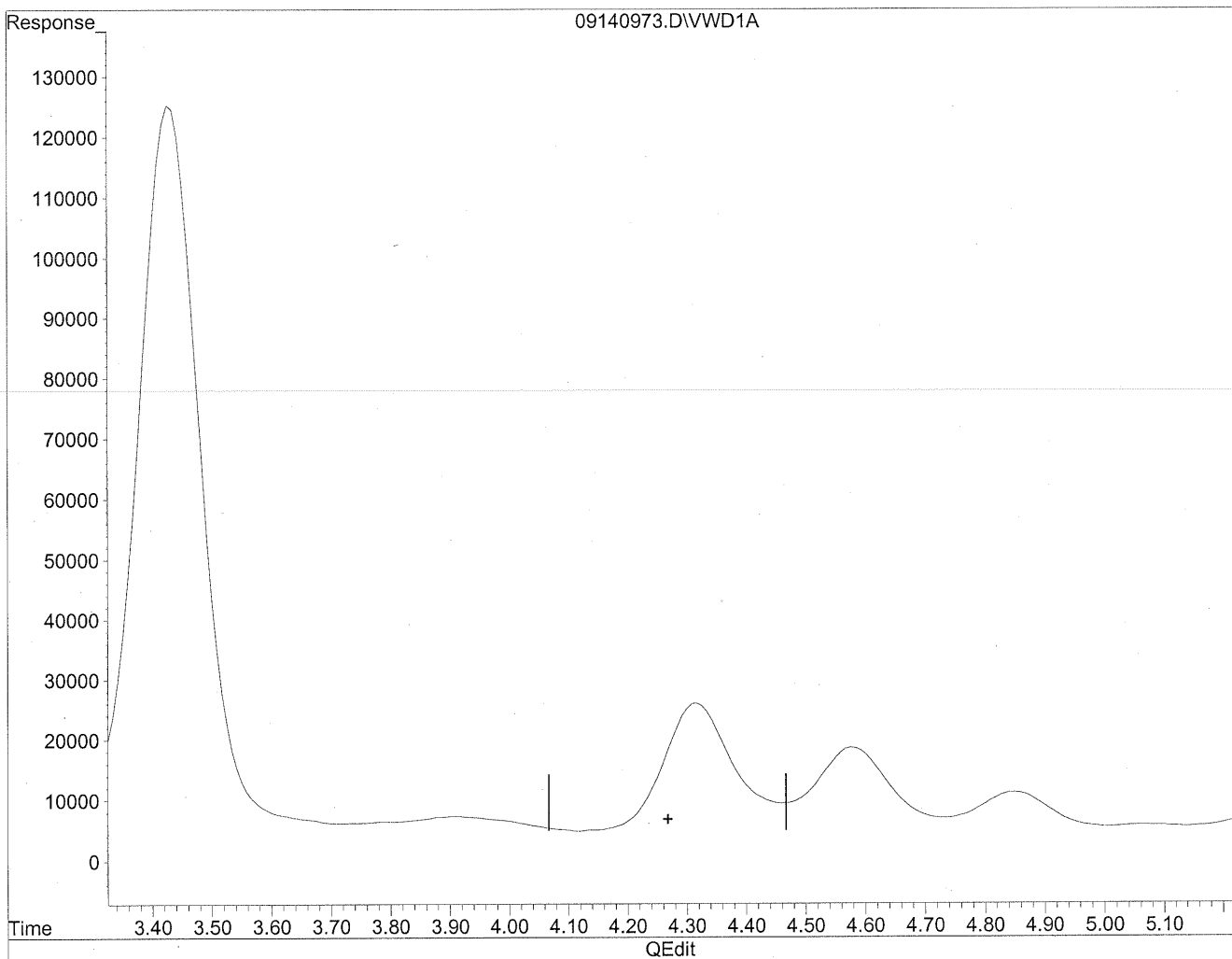


(4) Crotonaldehyde  
4.32min 427.051ng/ml  
response 1733644

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140973.D Vial: 138  
Acq On : 14-Sep-2009, 23:53 Operator: MD  
Sample : P0903087-010 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:13 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



(4) Crotonaldehyde  
0.00min 0.000ng/ml d  
response 0

*HC*  
*9/17/09*

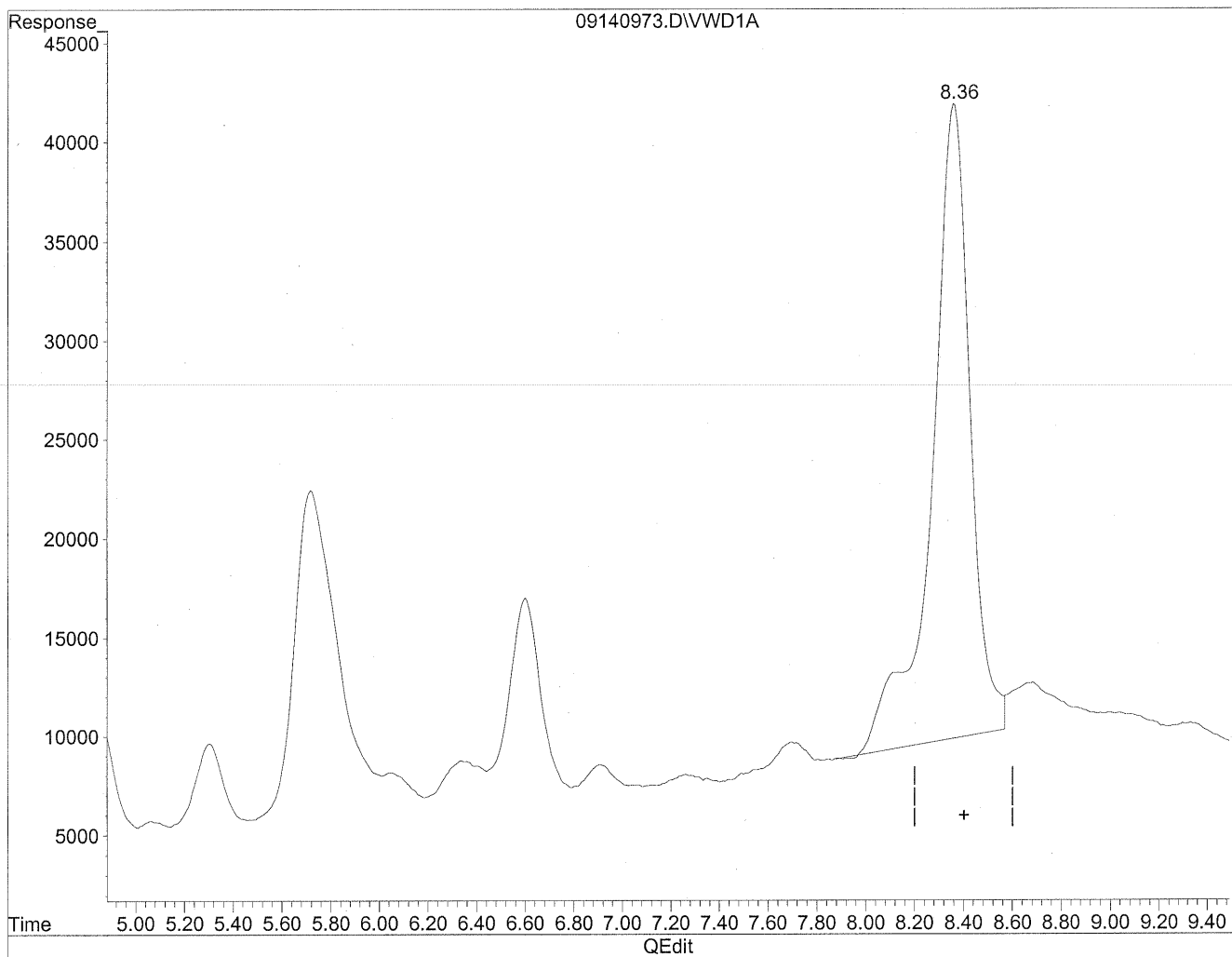
*MD*

*9/17/09*  
*MP*

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140973.D Vial: 138  
Acq On : 14-Sep-2009, 23:53 Operator: MD  
Sample : P0903087-010 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:13 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration

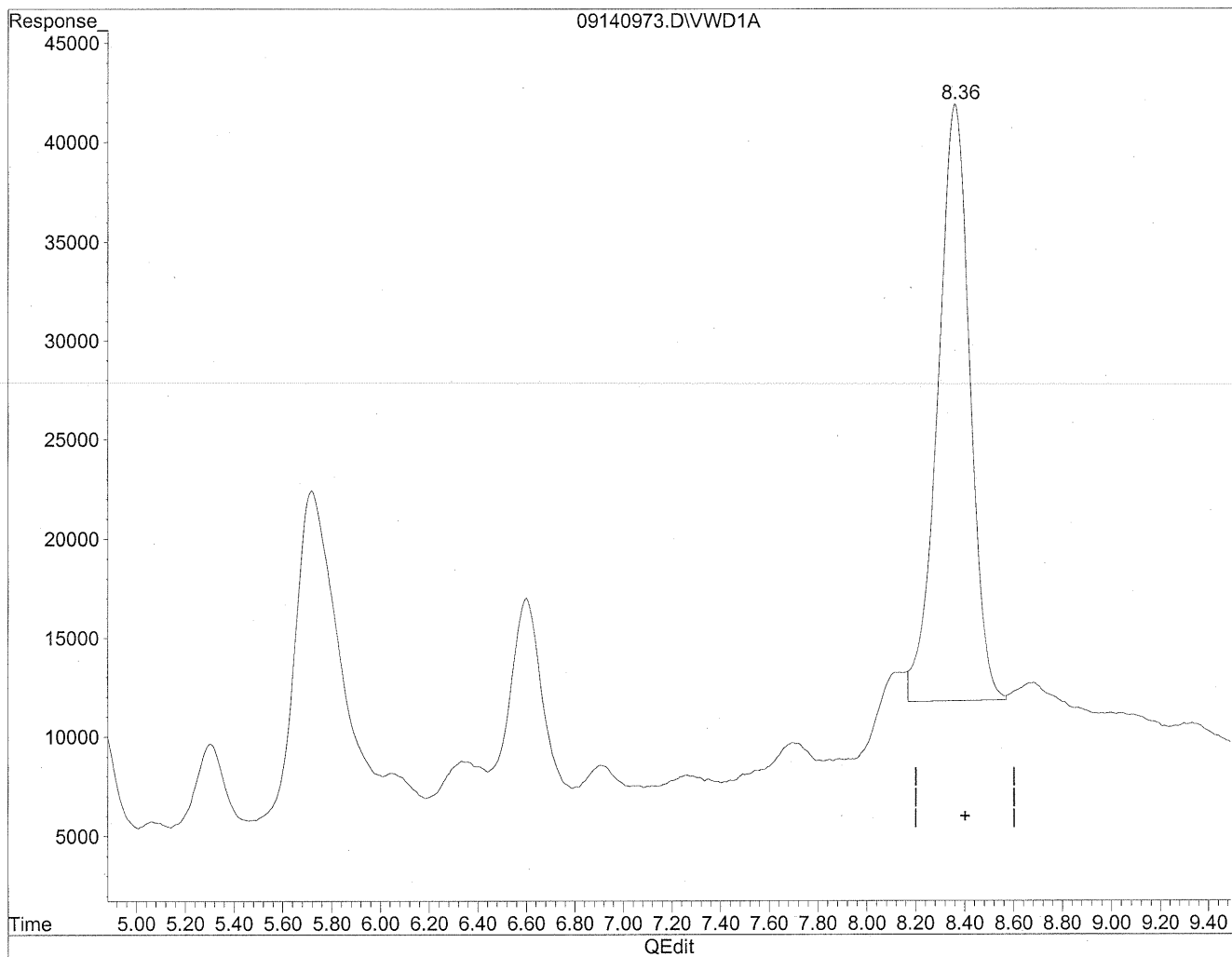


(11) Hexaldehyde  
8.36min 1174.789ng/ml  
response 3478226

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140973.D Vial: 138  
Acq On : 14-Sep-2009, 23:53 Operator: MD  
Sample : P0903087-010 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:13 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



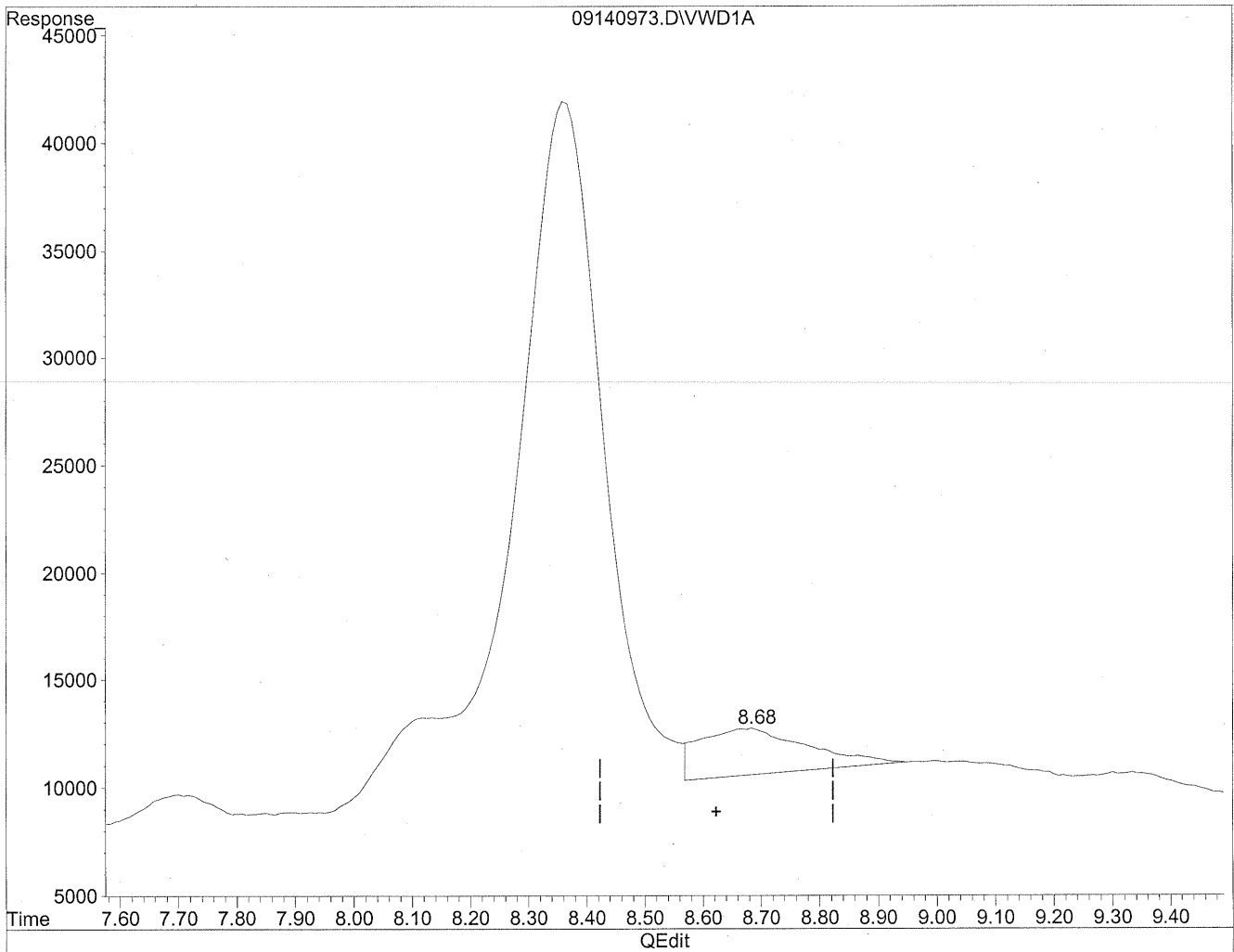
(11) Hexaldehyde  
8.36min 926.812ng/ml m  
response 2744036

*Handwritten notes:*  
HE  
9/18/09  
m  
9/17/09  
JL

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140973.D Vial: 138  
Acq On : 14-Sep-2009, 23:53 Operator: MD  
Sample : P0903087-010 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:13 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration

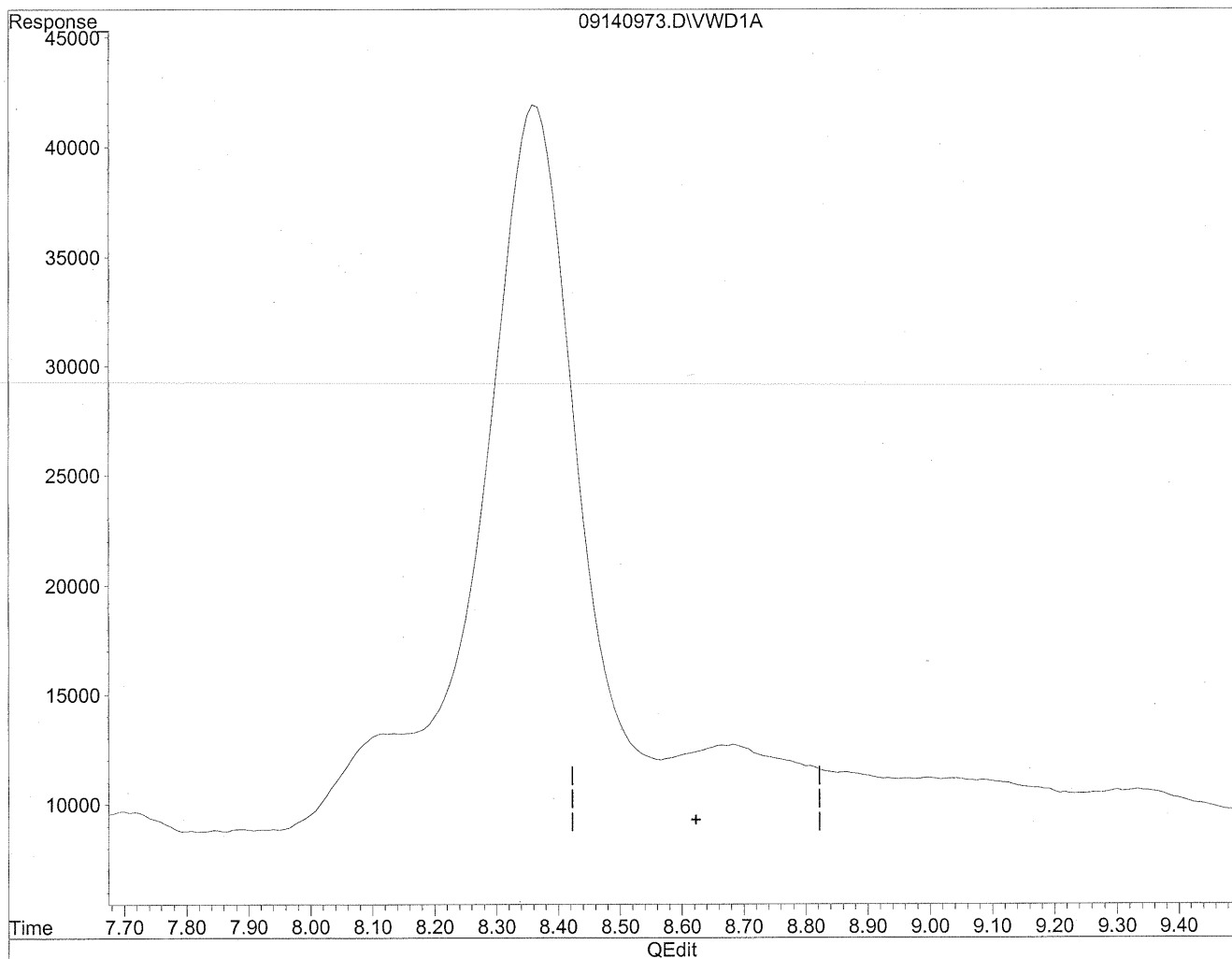


(12) 2,5-Dimethylbenzaldehyde  
8.69min 139.861ng/ml  
response 279091

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140973.D Vial: 138  
Acq On : 14-Sep-2009, 23:53 Operator: MD  
Sample : P0903087-010 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:13 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



(12) 2,5-Dimethylbenzaldehyde  
0.00min 0.000ng/ml d  
response 0

*HC*  
*9/17/09*

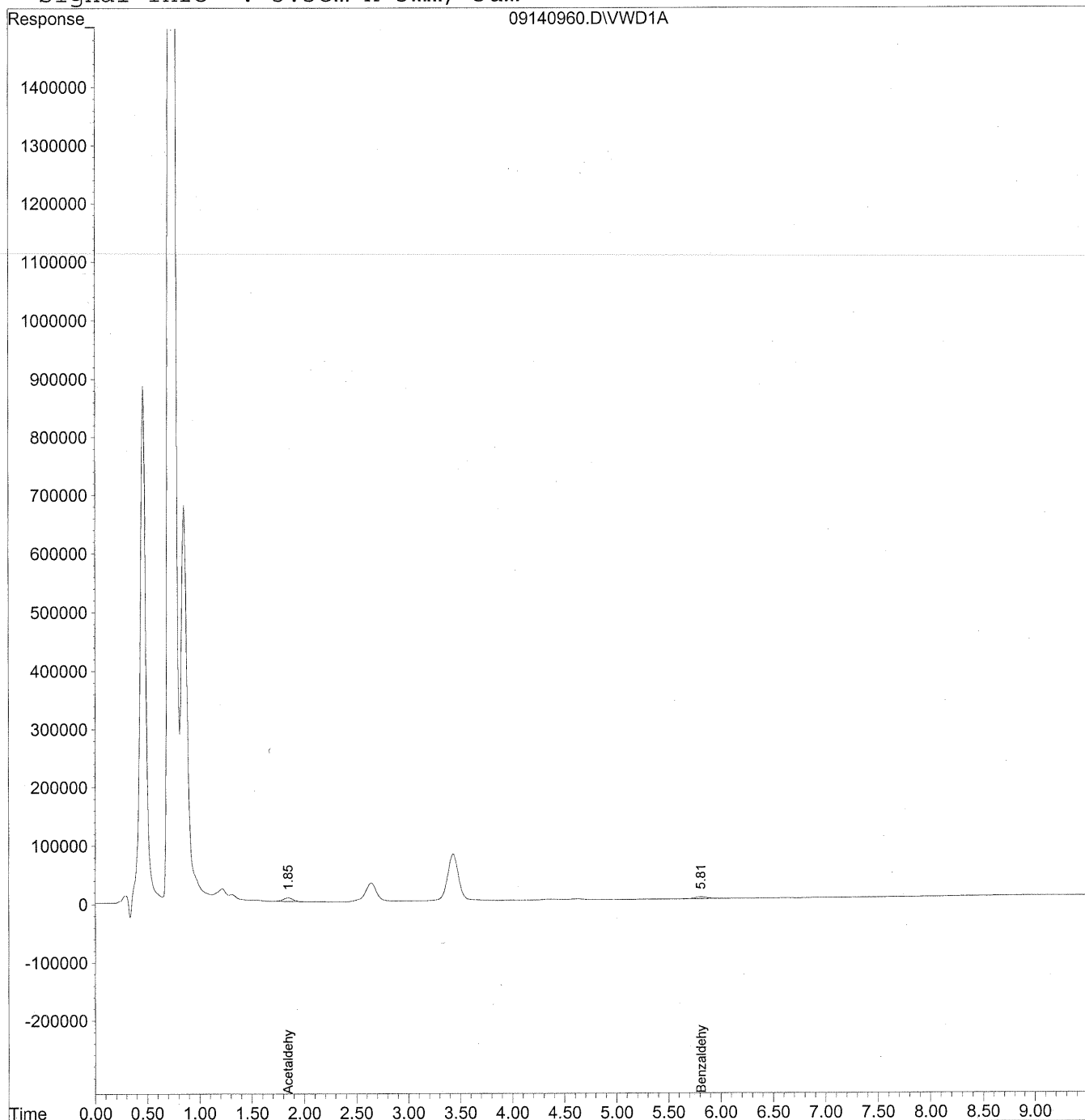
*(M)*  
*9/17/09*  
*mp*

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140960.D Vial: 126  
Acq On : 14-Sep-2009, 21:17 Operator: MD  
Sample : P0903087-010 back 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 11:31 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration  
DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
Signal Phase : Supelcosil LC-18  
Signal Info : 3.3cm x 3mm, 3um





Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140960.D Vial: 126  
 Acq On : 14-Sep-2009, 21:17 Operator: MD  
 Sample : P0903087-010 back 1.0ml Inst : VWD  
 Misc : Multiplr: 1.00  
 IntFile : events.e  
 Quant Time: Sep 17 11:31 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
 Title : LC-1050 TO-11A ICAL  
 Last Update : Thu Sep 17 11:23:31 2009  
 Response via : Initial Calibration  
 DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
 Signal Phase : Supelcosil LC-18  
 Signal Info : 3.3cm x 3mm, 3um

| Compound                     | R.T. | Response | Conc   | Units |
|------------------------------|------|----------|--------|-------|
| -----                        |      |          |        |       |
| Target Compounds             |      |          |        |       |
| 1) Formaldehyde              | 0.00 | 0        | N.D.   | ng/ml |
| 2) Acetaldehyde              | 1.85 | 398989   | 61.375 | ng/ml |
| 3) Propionaldehyde           | 0.00 | 0        | N.D.   | ng/ml |
| 4) Crotonaldehyde            | 0.00 | 0        | N.D.   | ng/ml |
| 5) Butyraldehyde             | 0.00 | 0        | N.D.   | ng/ml |
| 6) Benzaldehyde              | 5.81 | 256597   | 94.047 | ng/ml |
| 7) Isovaleraldehyde          | 0.00 | 0        | N.D.   | ng/ml |
| 8) Valeraldehyde             | 0.00 | 0        | N.D.   | ng/ml |
| 9) o-Tolualdehyde            | 0.00 | 0        | N.D.   | ng/ml |
| 10) m,p-Tolualdehyde         | 0.00 | 0        | N.D.   | ng/ml |
| 11) Hexaldehyde              | 0.00 | 0        | N.D.   | ng/ml |
| 12) 2,5-Dimethylbenzaldehyde | 0.00 | 0        | N.D.   | ng/ml |

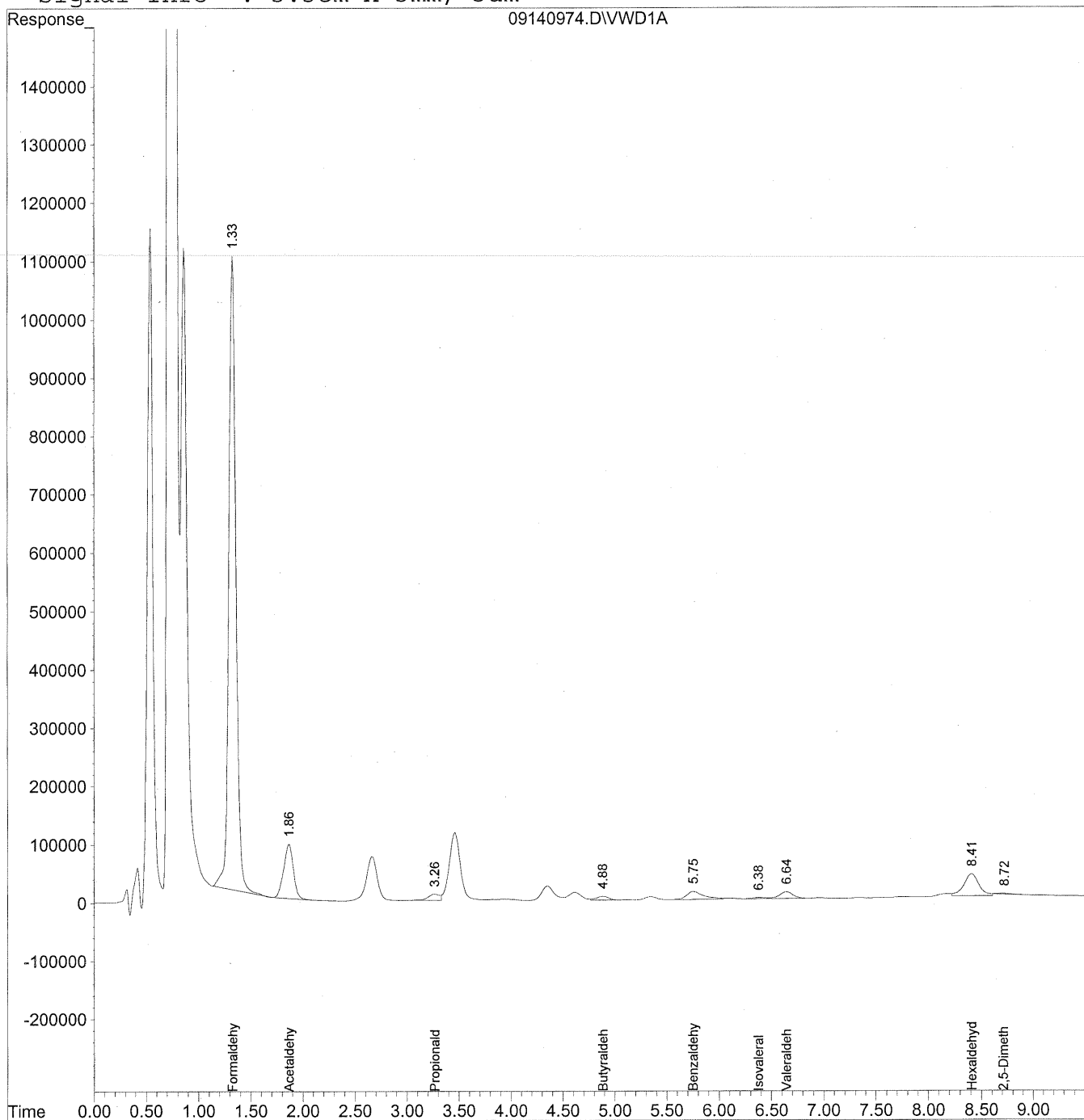


Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140974.D Vial: 139  
Acq On : 15-Sep-2009, 00:05 Operator: MD  
Sample : P0903087-011 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:16 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration  
DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
Signal Phase : Supelcosil LC-18  
Signal Info : 3.3cm x 3mm, 3um



Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140974.D Vial: 139  
 Acq On : 15-Sep-2009, 00:05 Operator: MD  
 Sample : P0903087-011 front 1.0ml Inst : VWD  
 Misc : Multiplr: 1.00  
 IntFile : events.e  
 Quant Time: Sep 17 12:16 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
 Title : LC-1050 TO-11A ICAL  
 Last Update : Thu Sep 17 11:23:31 2009  
 Response via : Initial Calibration  
 DataAcq Meth : TO-11A.M

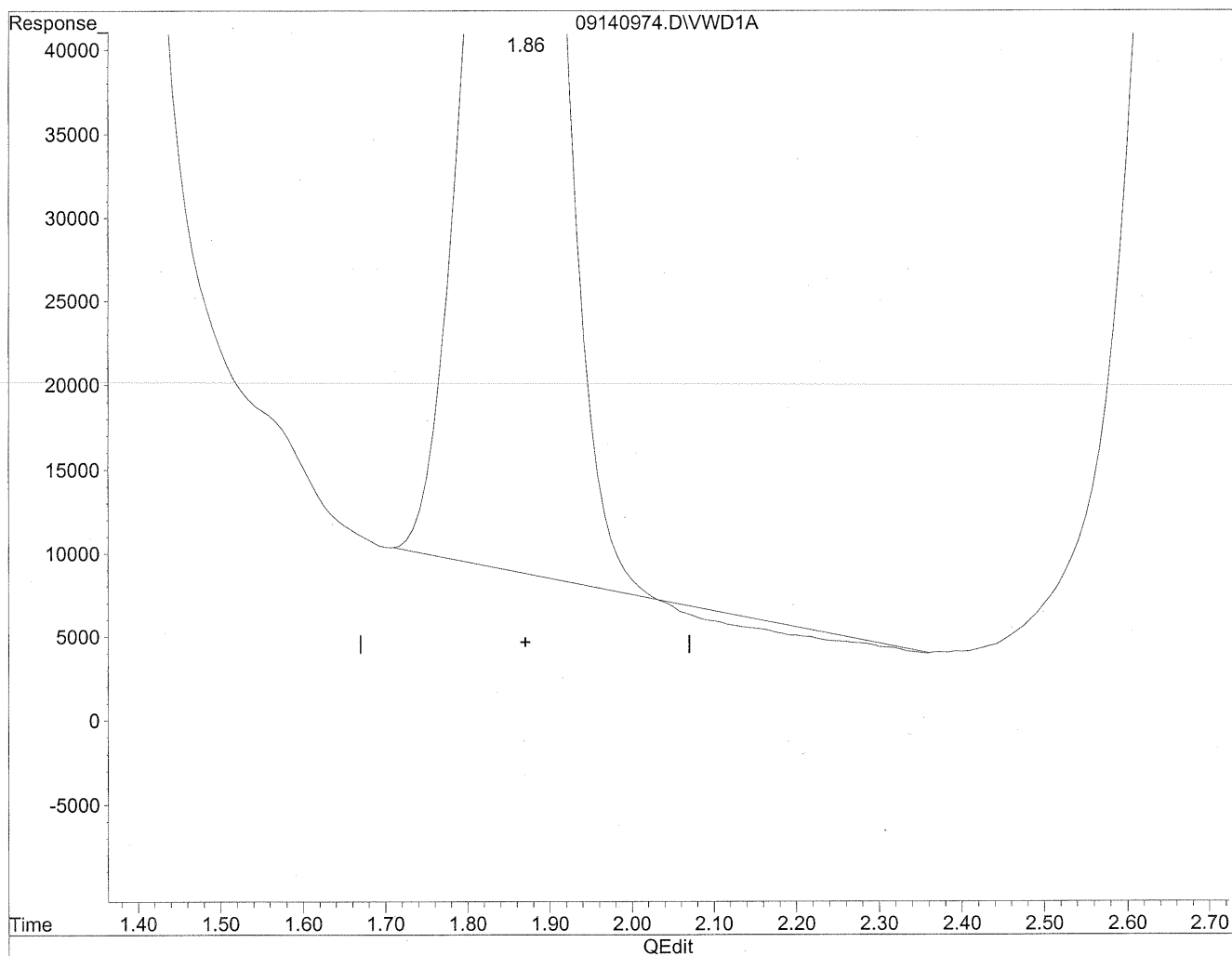
Volume Inj. : 3uL  
 Signal Phase : Supelcosil LC-18  
 Signal Info : 3.3cm x 3mm, 3um

| Compound                     | R.T. | Response | Conc Units      |
|------------------------------|------|----------|-----------------|
| -----                        |      |          |                 |
| Target Compounds             |      |          |                 |
| 1) Formaldehyde              | 1.33 | 50944575 | 5701.412 ng/ml  |
| 2) Acetaldehyde              | 1.86 | 6045590  | 929.977 ng/mlm  |
| 3) Propionaldehyde           | 3.26 | 836322   | 160.899 ng/mlm  |
| 4) Crotonaldehyde            | 0.00 | 0        | N.D. ng/ml      |
| 5) Butyraldehyde             | 4.89 | 518327   | 127.895 ng/ml   |
| 6) Benzaldehyde              | 5.76 | 1521070  | 557.500 ng/ml   |
| 7) Isovaleraldehyde          | 6.38 | 183753   | 53.389 ng/ml    |
| 8) Valeraldehyde             | 6.65 | 1041852  | 306.460 ng/ml   |
| 9) o-Tolualdehyde            | 0.00 | 0        | N.D. ng/ml      |
| 10) m,p-Tolualdehyde         | 0.00 | 0        | N.D. ng/ml      |
| 11) Hexaldehyde              | 8.41 | 3712755  | 1254.002 ng/mlm |
| 12) 2,5-Dimethylbenzaldehyde | 8.72 | 121759   | 61.017 ng/mlm   |

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140974.D Vial: 139  
Acq On : 15-Sep-2009, 00:05 Operator: MD  
Sample : P0903087-011 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:15 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration

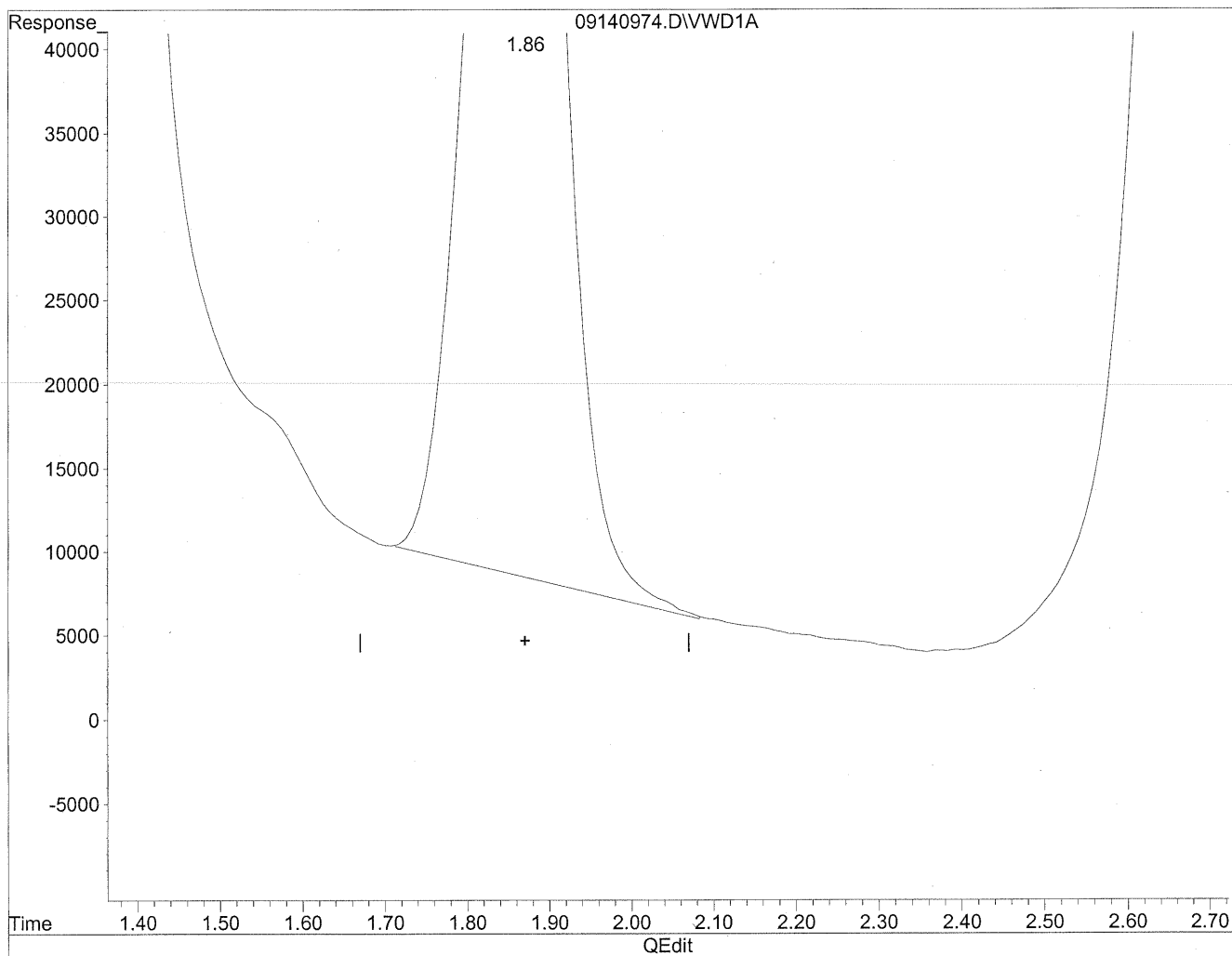


(2) Acetaldehyde  
1.87min 908.736ng/ml  
response 5907509

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140974.D Vial: 139  
Acq On : 15-Sep-2009, 00:05 Operator: MD  
Sample : P0903087-011 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:15 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



(2) Acetaldehyde  
1.86min 929.977ng/ml m  
response 6045590

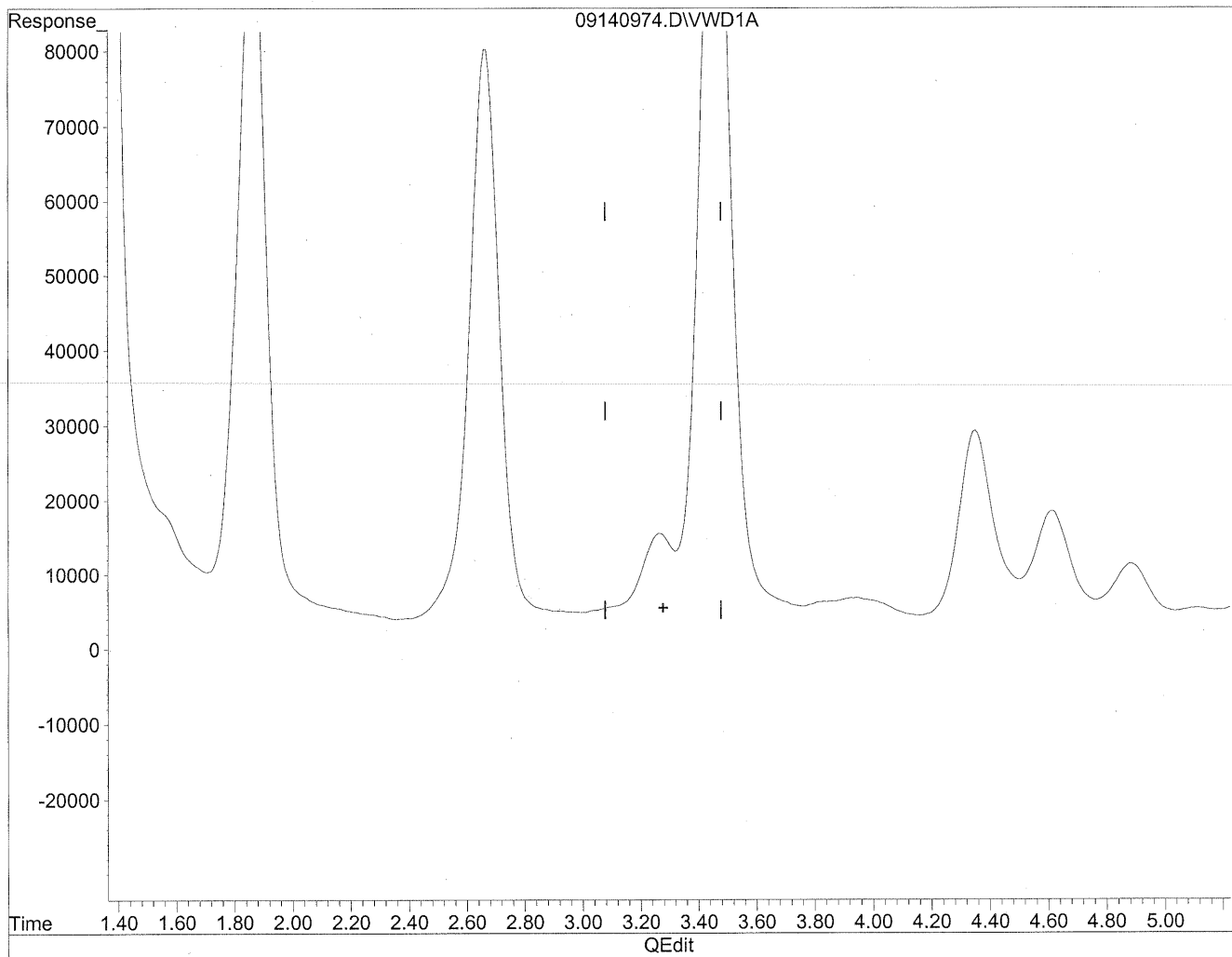
*HC*  
*9/17/09*

*ema*  
*9/17/09*  
*12*

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140974.D Vial: 139  
Acq On : 15-Sep-2009, 00:05 Operator: MD  
Sample : P0903087-011 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:15 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration

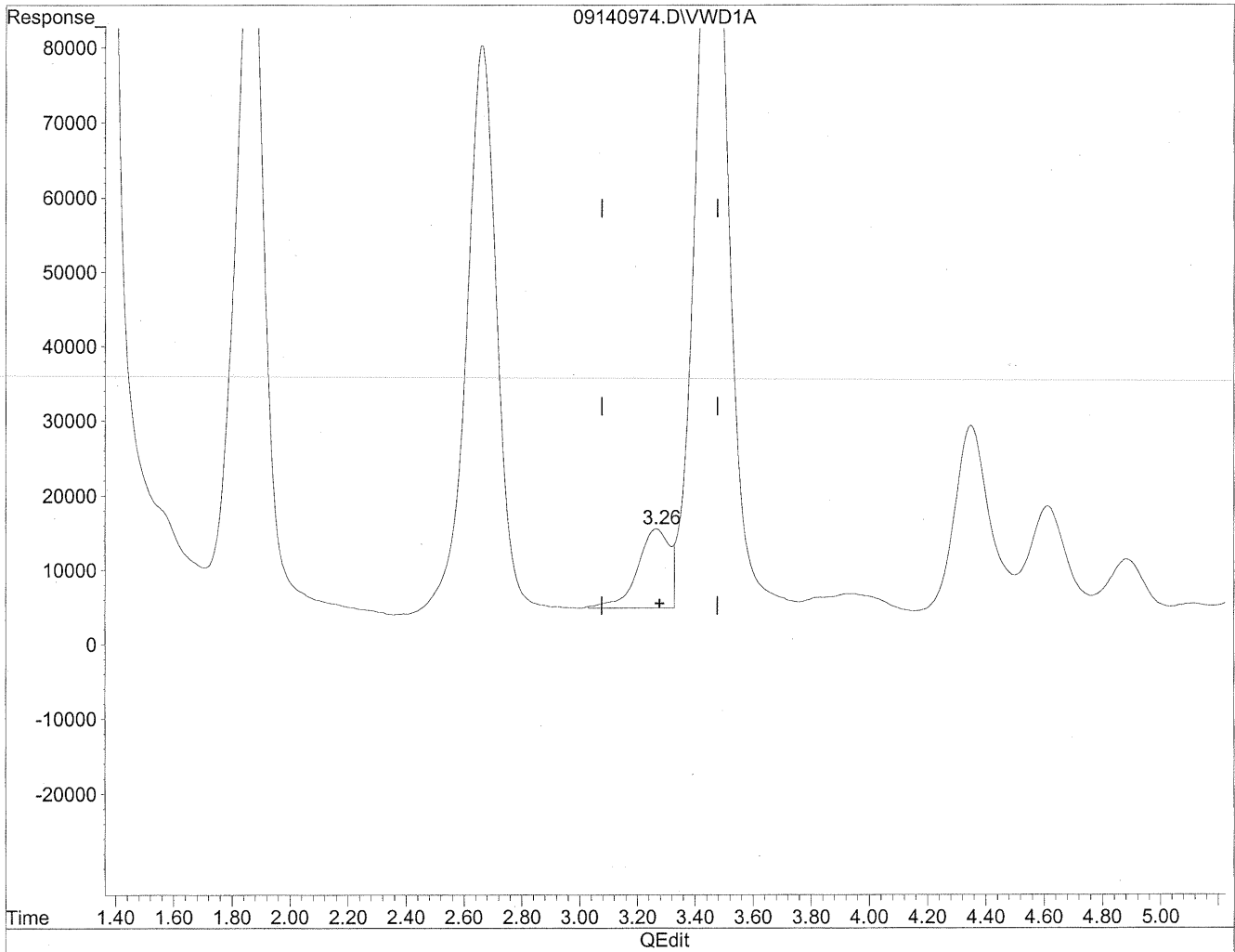


(3) Propionaldehyde  
3.28min 0.000ng/ml  
response 0

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140974.D Vial: 139  
Acq On : 15-Sep-2009, 00:05 Operator: MD  
Sample : P0903087-011 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:15 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



(3) Propionaldehyde  
3.26min 160.899ng/ml m  
response 836322

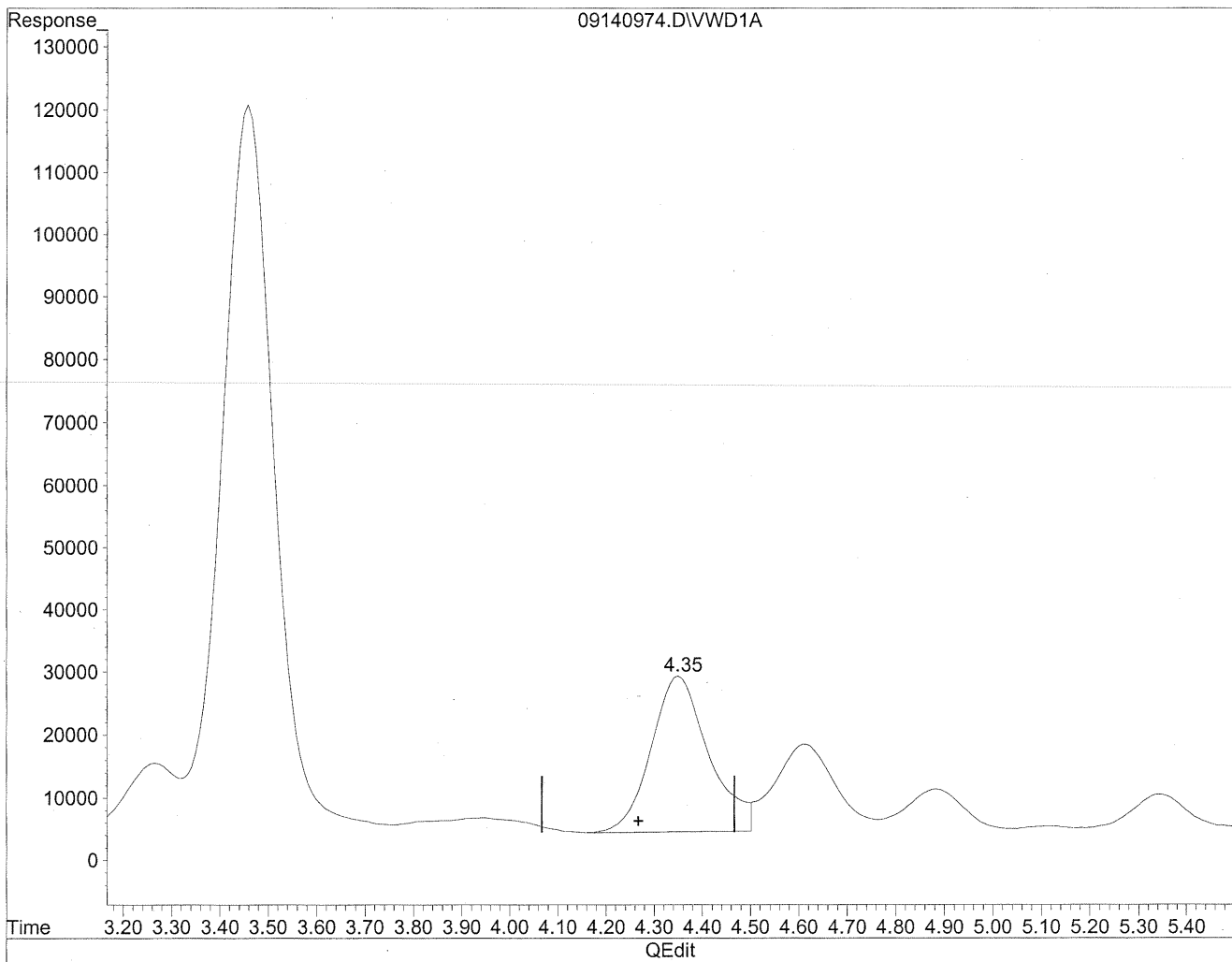
*HC  
9/17/09*      *(MD)  
9/17/09  
Bui*



Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140974.D Vial: 139  
Acq On : 15-Sep-2009, 00:05 Operator: MD  
Sample : P0903087-011 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:15 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration

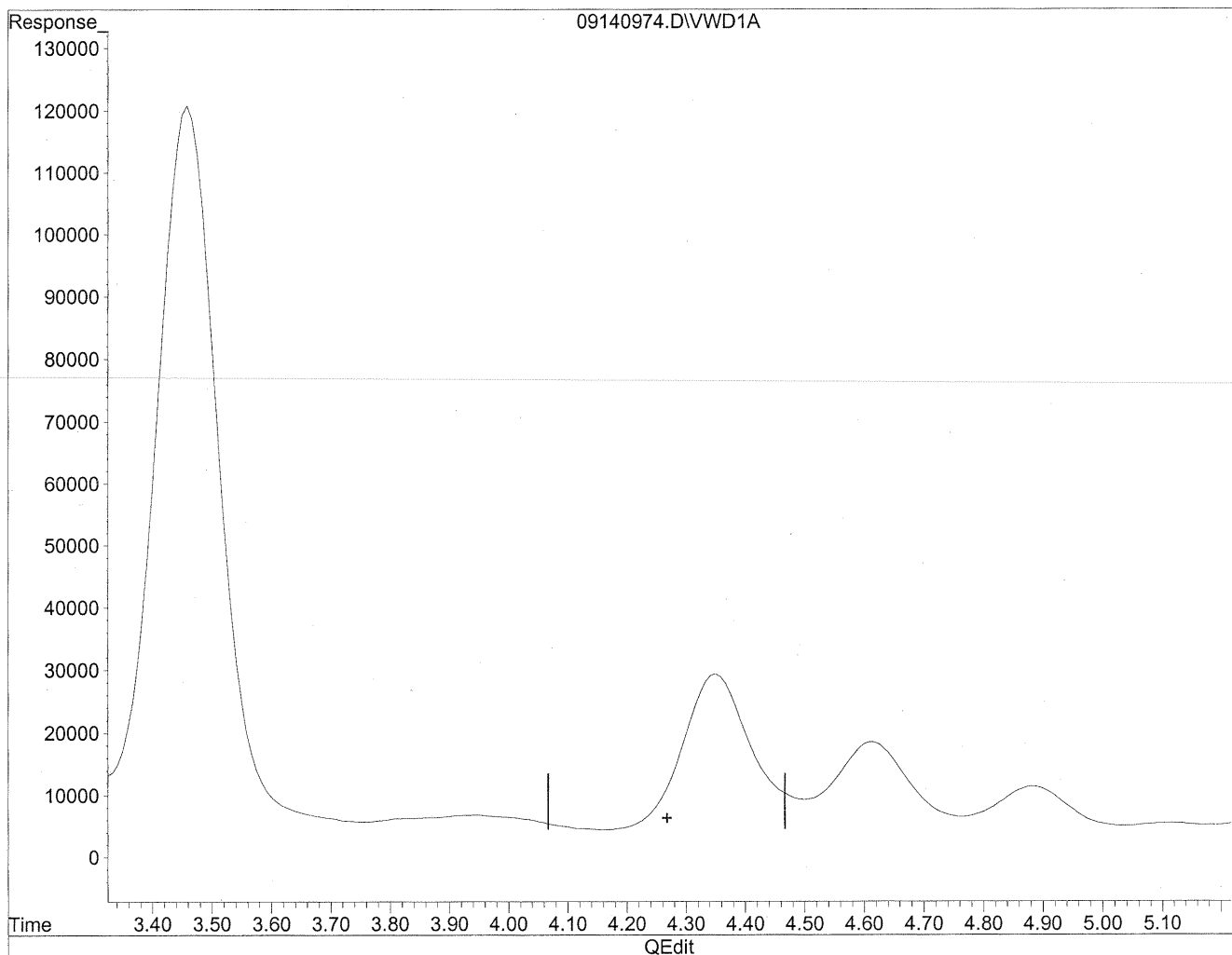


(4) Crotonaldehyde  
4.35min 505.811ng/ml  
response 2053375

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140974.D Vial: 139  
Acq On : 15-Sep-2009, 00:05 Operator: MD  
Sample : P0903087-011 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:15 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



(4) Crotonaldehyde  
0.00min 0.000ng/ml d  
response 0

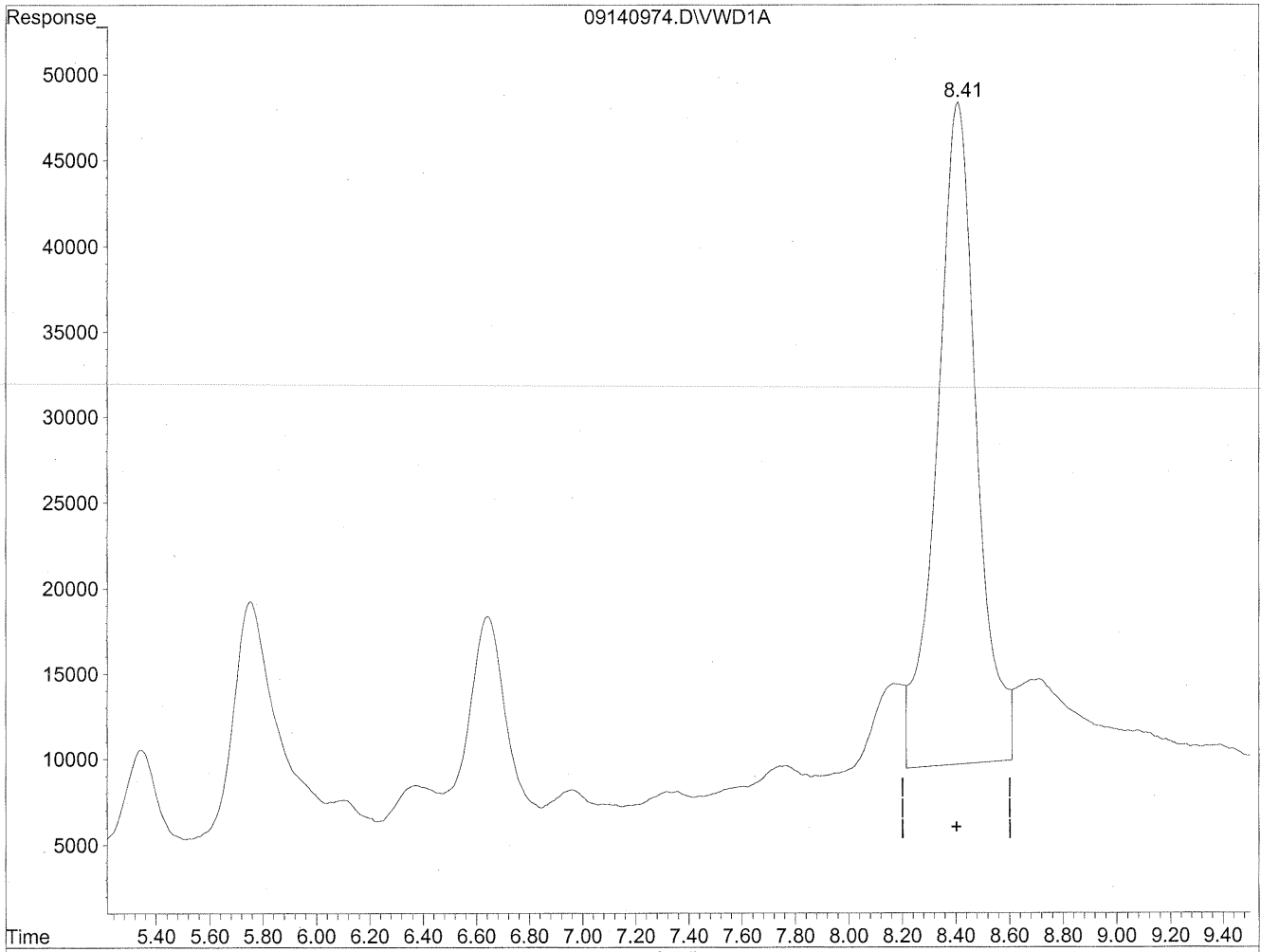
*HC*  
*9/17/09*

*MD*  
*9/17/09*  
*mp*

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140974.D Vial: 139  
Acq On : 15-Sep-2009, 00:05 Operator: MD  
Sample : P0903087-011 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:15 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration

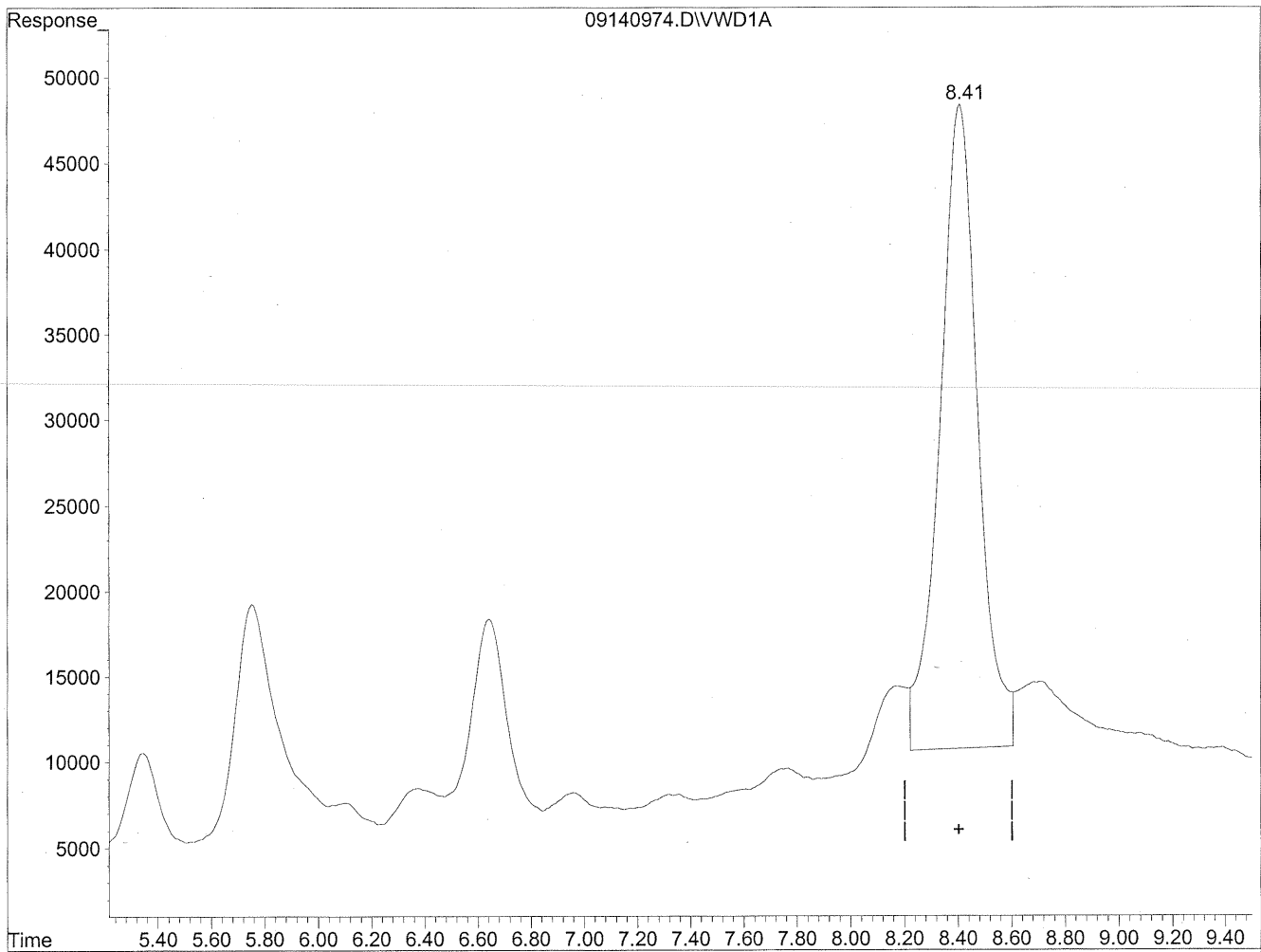


(11) Hexaldehyde  
8.41min 1349.369ng/ml  
response 3995111

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140974.D Vial: 139  
Acq On : 15-Sep-2009, 00:05 Operator: MD  
Sample : P0903087-011 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:15 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



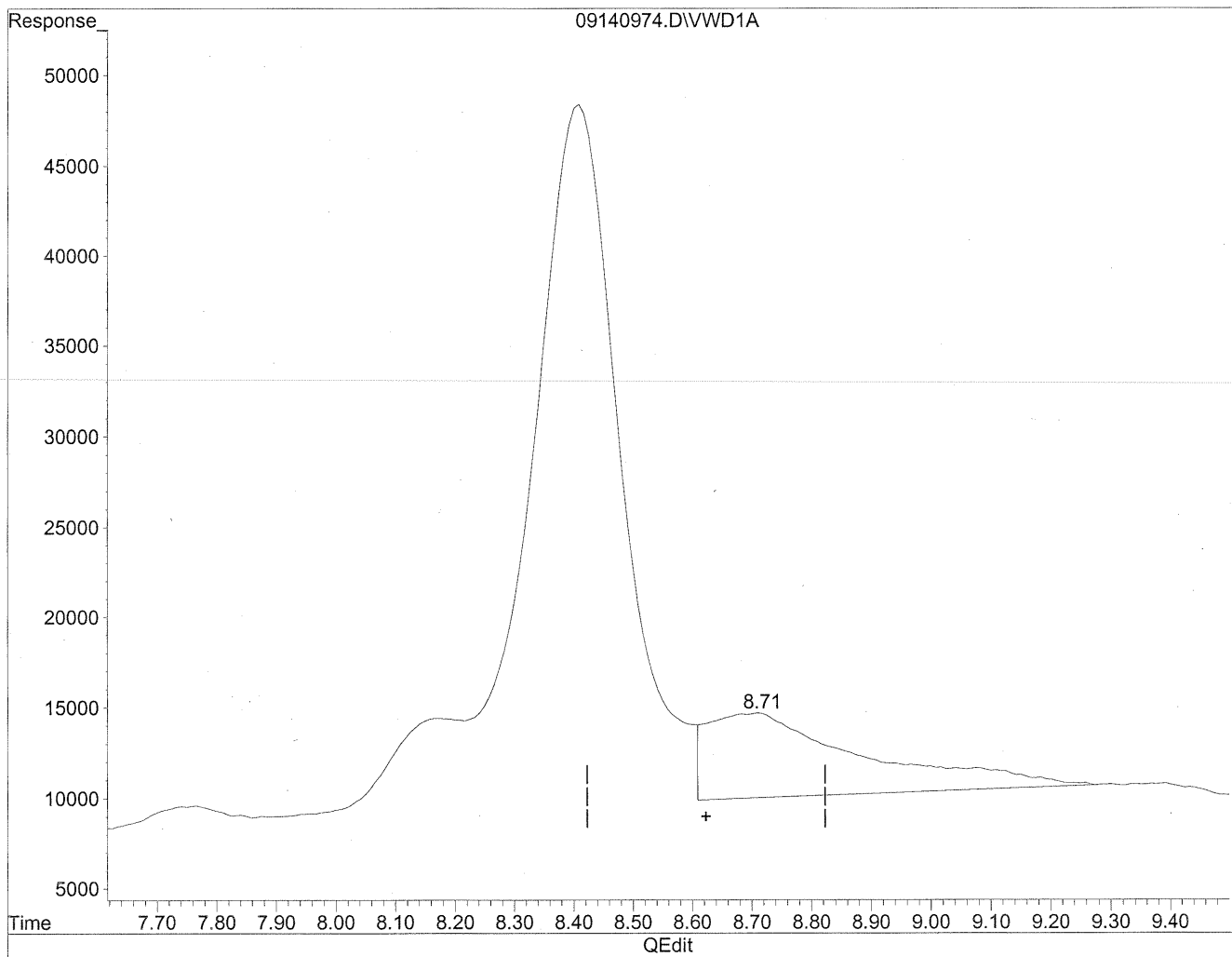
(11) Hexaldehyde  
8.41min 1254.002ng/ml m  
response 3712755

*Handwritten notes:*  
MC  
9/17/09  
MD  
9/17/09  
IC

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140974.D Vial: 139  
Acq On : 15-Sep-2009, 00:05 Operator: MD  
Sample : P0903087-011 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:15 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



(12) 2,5-Dimethylbenzaldehyde

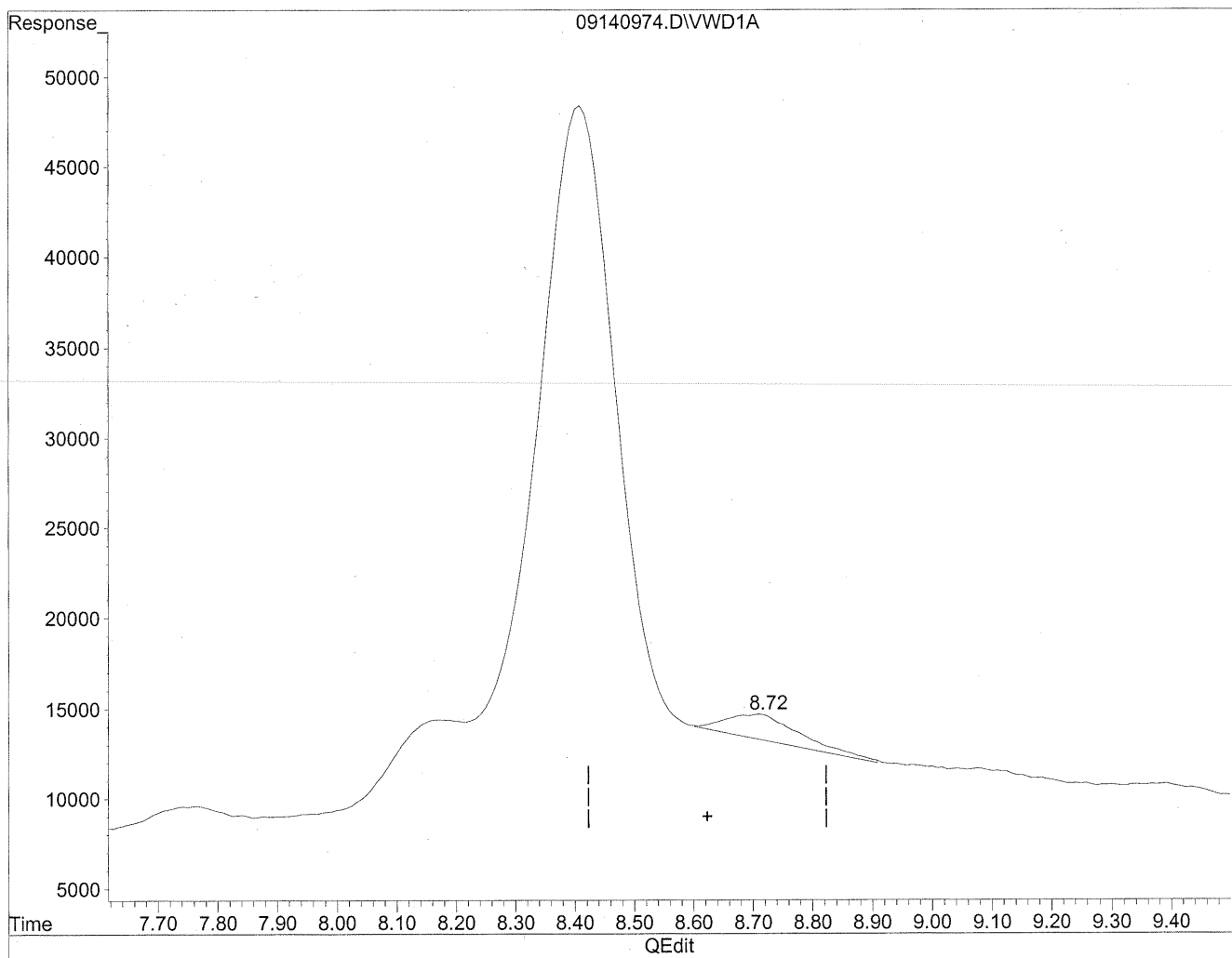
8.71min 426.512ng/ml

response 851102

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140974.D Vial: 139  
Acq On : 15-Sep-2009, 00:05 Operator: MD  
Sample : P0903087-011 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:15 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



(12) 2,5-Dimethylbenzaldehyde  
8.72min 61.017ng/ml m  
response 121759

*tlc*  
*9/17/09*

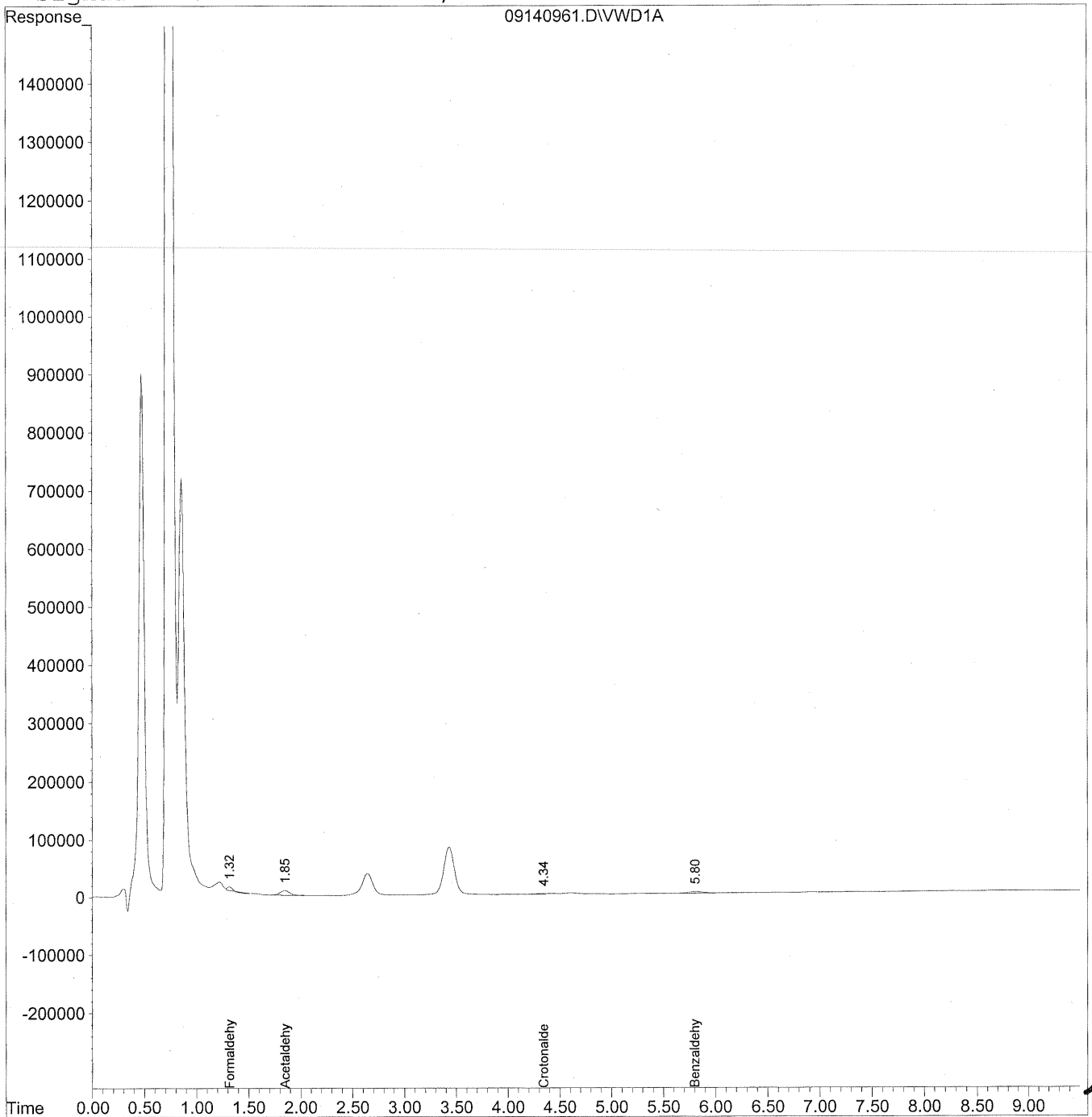
*MD*  
*9/17/09*  
*12*

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140961.D Vial: 127  
Acq On : 14-Sep-2009, 21:29 Operator: MD  
Sample : P0903087-011 back 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 11:37 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration  
DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
Signal Phase : Supelcosil LC-18  
Signal Info : 3.3cm x 3mm, 3um



Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140961.D Vial: 127  
 Acq On : 14-Sep-2009, 21:29 Operator: MD  
 Sample : P0903087-011 back 1.0ml Inst : VWD  
 Misc : Multiplr: 1.00  
 IntFile : events.e  
 Quant Time: Sep 17 11:37 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
 Title : LC-1050 TO-11A ICAL  
 Last Update : Thu Sep 17 11:23:31 2009  
 Response via : Initial Calibration  
 DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
 Signal Phase : Supelcosil LC-18  
 Signal Info : 3.3cm x 3mm, 3um

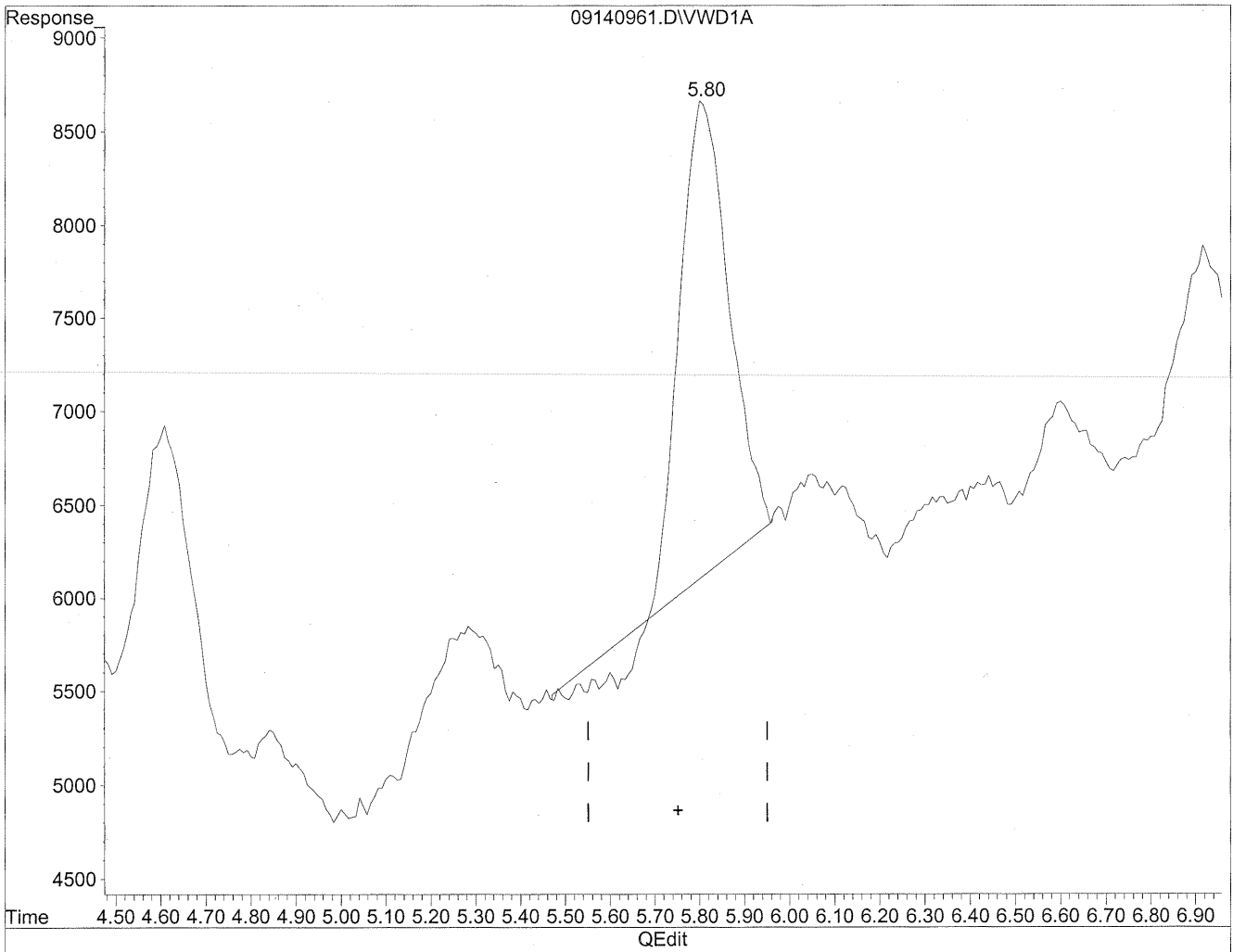
| Compound                     | R.T. | Response | Conc Units    |
|------------------------------|------|----------|---------------|
| -----                        |      |          |               |
| Target Compounds             |      |          |               |
| 1) Formaldehyde              | 1.32 | 127450   | 14.263 ng/ml  |
| 2) Acetaldehyde              | 1.85 | 513287   | 78.958 ng/ml  |
| 3) Propionaldehyde           | 0.00 | 0        | N.D. ng/ml    |
| 4) Crotonaldehyde            | 4.34 | 89508    | 22.049 ng/ml  |
| 5) Butyraldehyde             | 0.00 | 0        | N.D. ng/ml    |
| 6) Benzaldehyde              | 5.80 | 267877   | 98.182 ng/mlm |
| 7) Isovaleraldehyde          | 0.00 | 0        | N.D. ng/ml    |
| 8) Valeraldehyde             | 0.00 | 0        | N.D. ng/ml    |
| 9) o-Tolualdehyde            | 0.00 | 0        | N.D. ng/ml    |
| 10) m,p-Tolualdehyde         | 0.00 | 0        | N.D. ng/ml    |
| 11) Hexaldehyde              | 0.00 | 0        | N.D. ng/ml    |
| 12) 2,5-Dimethylbenzaldehyde | 0.00 | 0        | N.D. ng/ml    |



Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140961.D Vial: 127  
Acq On : 14-Sep-2009, 21:29 Operator: MD  
Sample : P0903087-011 back 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 11:32 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration

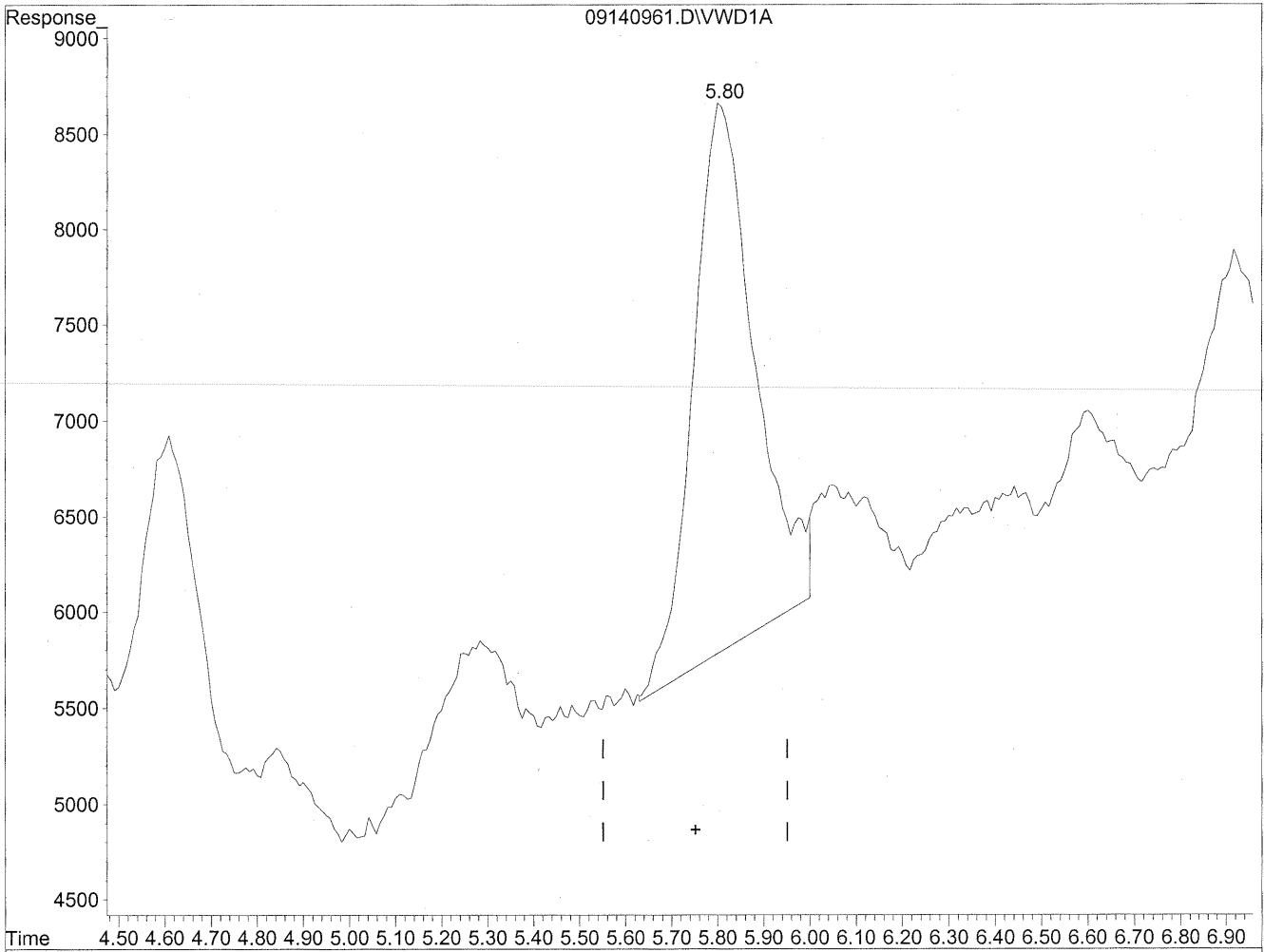


(6) Benzaldehyde  
5.81min 65.820ng/ml  
response 179581

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140961.D Vial: 127  
Acq On : 14-Sep-2009, 21:29 Operator: MD  
Sample : P0903087-011 back 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 11:32 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



(6) Benzaldehyde  
5.80min 98.182ng/ml m  
response 267877

*(Handwritten notes)*  
m  
9/17/09  
ICAL  
9/17/09

**COLUMBIA ANALYTICAL SERVICES, INC.**

RESULTS OF ANALYSIS

Page 1 of 1

**Client:** Environmental Health & Engineering, Inc.

**Client Sample ID:** 104201

**Client Project ID:** 16512

CAS Project ID: P0903087

CAS Sample ID: P0903087-012

Test Code: EPA Method TO-11A

Instrument ID: HP1050/LC2

Analyst: Madeleine Dangazyan

Sampling Media: Silica Gel DNPH Tube

Test Notes: **BC**

Date Collected: 9/1/09

Date Received: 9/2/09

Date Analyzed: 9/14 - 9/15/09

Desorption Volume: 1.0 ml

Volume Sampled: 105 Liter(s)

| CAS #     | Compound                 | Result<br>ng/Sample | Result<br>µg/m <sup>3</sup> | MRL<br>µg/m <sup>3</sup> | Result<br>ppbV | MRL<br>ppbV | Data<br>Qualifier |
|-----------|--------------------------|---------------------|-----------------------------|--------------------------|----------------|-------------|-------------------|
| 50-00-0   | Formaldehyde             | 390                 | 3.7                         | 0.95                     | 3.0            | 0.78        |                   |
| 75-07-0   | Acetaldehyde             | 140                 | 1.3                         | 0.95                     | 0.75           | 0.53        |                   |
| 123-38-6  | Propionaldehyde          | < 100               | ND                          | 0.95                     | ND             | 0.40        |                   |
| 4170-30-3 | Crotonaldehyde, Total    | < 100               | ND                          | 0.95                     | ND             | 0.33        |                   |
| 123-72-8  | Butyraldehyde            | < 100               | ND                          | 0.95                     | ND             | 0.32        |                   |
| 100-52-7  | Benzaldehyde             | 330                 | 3.1                         | 0.95                     | 0.71           | 0.22        | <b>BT</b>         |
| 590-86-3  | Isovaleraldehyde         | < 100               | ND                          | 0.95                     | ND             | 0.27        |                   |
| 110-62-3  | Valeraldehyde            | < 100               | ND                          | 0.95                     | ND             | 0.27        |                   |
| 529-20-4  | o-Tolualdehyde           | < 100               | ND                          | 0.95                     | ND             | 0.19        |                   |
| 620-23-5  |                          |                     |                             |                          |                |             |                   |
| 104-87-0  | m,p-Tolualdehyde         | < 200               | ND                          | 1.9                      | ND             | 0.39        |                   |
| 66-25-1   | n-Hexaldehyde            | < 100               | ND                          | 0.95                     | ND             | 0.23        |                   |
| 5779-94-2 | 2,5-Dimethylbenzaldehyde | < 100               | ND                          | 0.95                     | ND             | 0.17        |                   |

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

BC = Results reported are not blank corrected.

BT = Results indicated possible breakthrough; back section > 10% front section.

Verified By: \_\_\_\_\_

*[Handwritten Signature]*

Date: \_\_\_\_\_

*9/12/09*

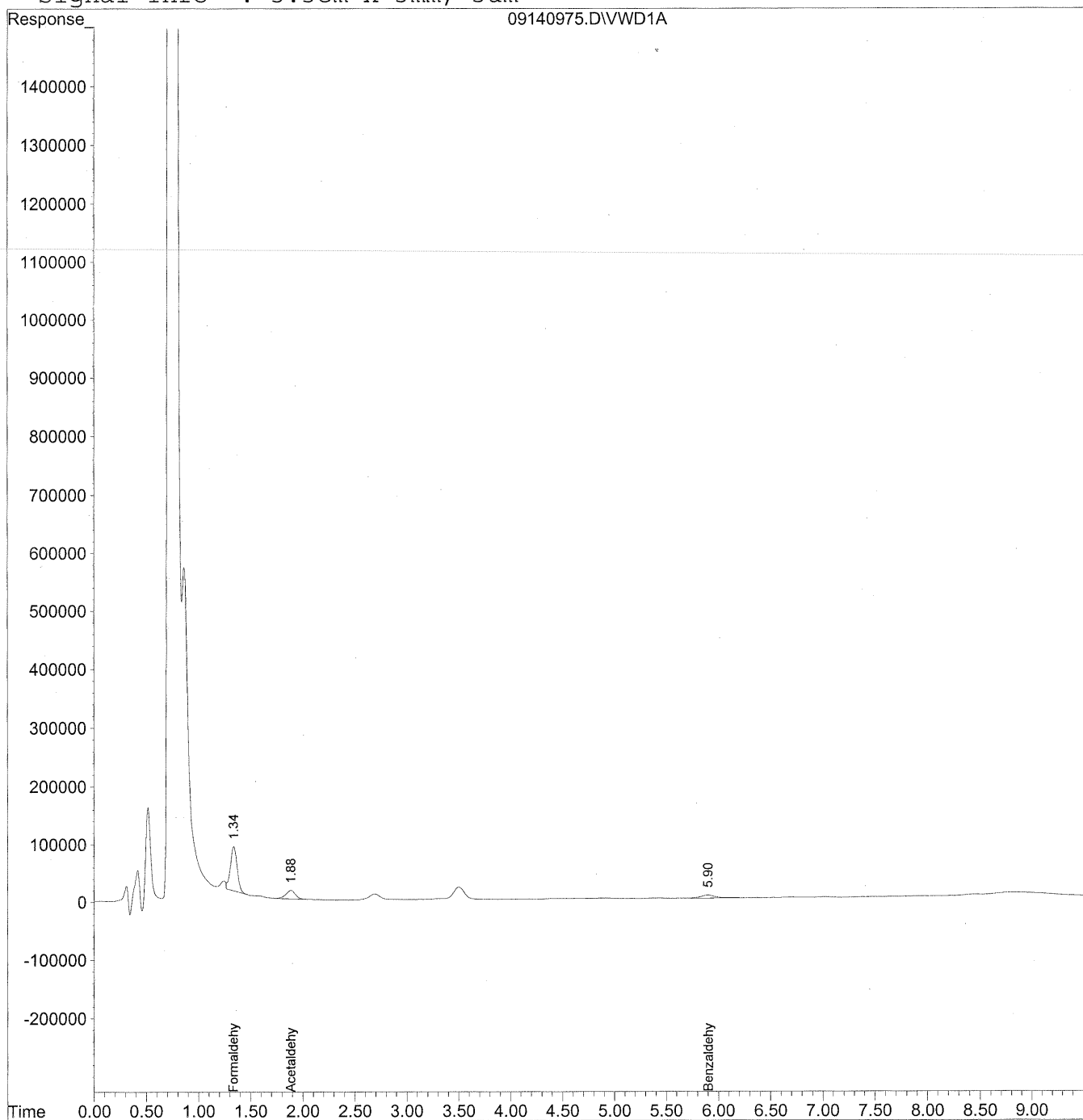
**187**

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140975.D Vial: 140  
Acq On : 15-Sep-2009, 00:17 Operator: MD  
Sample : P0903087-012 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:18 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration  
DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
Signal Phase : Supelcosil LC-18  
Signal Info : 3.3cm x 3mm, 3um



Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140975.D Vial: 140  
 Acq On : 15-Sep-2009, 00:17 Operator: MD  
 Sample : P0903087-012 front 1.0ml Inst : VWD  
 Misc : Multiplr: 1.00  
 IntFile : events.e  
 Quant Time: Sep 17 12:18 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
 Title : LC-1050 TO-11A ICAL  
 Last Update : Thu Sep 17 11:23:31 2009  
 Response via : Initial Calibration  
 DataAcq Meth : TO-11A.M

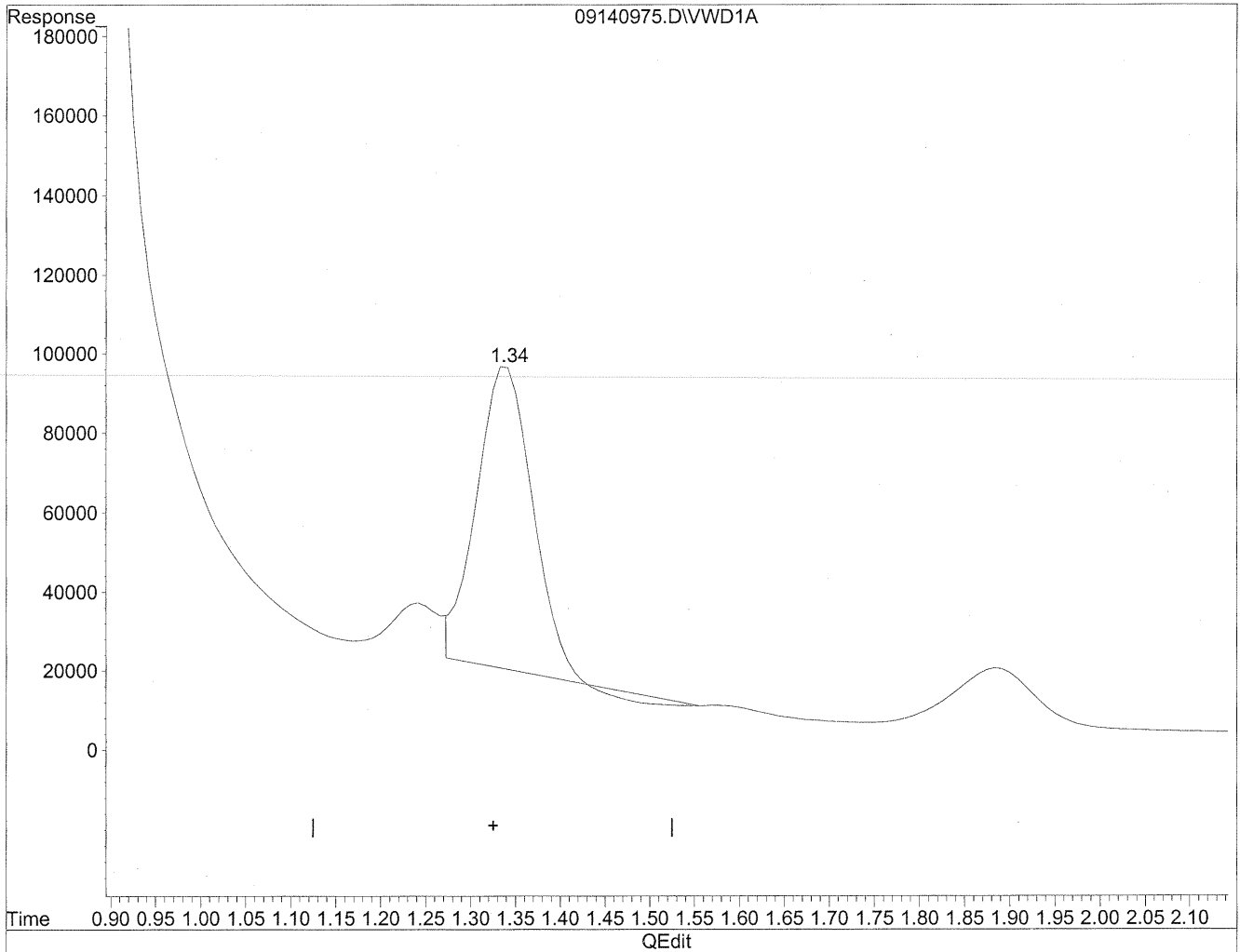
Volume Inj. : 3uL  
 Signal Phase : Supelcosil LC-18  
 Signal Info : 3.3cm x 3mm, 3um

| Compound                     | R.T.  | Response | Conc Units     |
|------------------------------|-------|----------|----------------|
| Target Compounds             |       |          |                |
| 1) Formaldehyde              | 1.34  | 3482620  | 389.754 ng/mlm |
| 2) Acetaldehyde              | 1.88  | 920798   | 141.644 ng/mlm |
| 3) Propionaldehyde           | 0.00  | 0        | N.D. ng/ml     |
| 4) Crotonaldehyde            | 0.00  | 0        | N.D. ng/ml     |
| 5) Butyraldehyde             | 0.00  | 0        | N.D. ng/ml     |
| 6) Benzaldehyde              | 5.90f | 518306   | 189.969 ng/mlm |
| 7) Isovaleraldehyde          | 0.00  | 0        | N.D. ng/ml     |
| 8) Valeraldehyde             | 0.00  | 0        | N.D. ng/ml     |
| 9) o-Tolualdehyde            | 0.00  | 0        | N.D. ng/ml     |
| 10) m,p-Tolualdehyde         | 0.00  | 0        | N.D. ng/ml     |
| 11) Hexaldehyde              | 0.00  | 0        | N.D. ng/ml     |
| 12) 2,5-Dimethylbenzaldehyde | 0.00  | 0        | N.D. ng/ml     |

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140975.D Vial: 140  
Acq On : 15-Sep-2009, 00:17 Operator: MD  
Sample : P0903087-012 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:16 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration

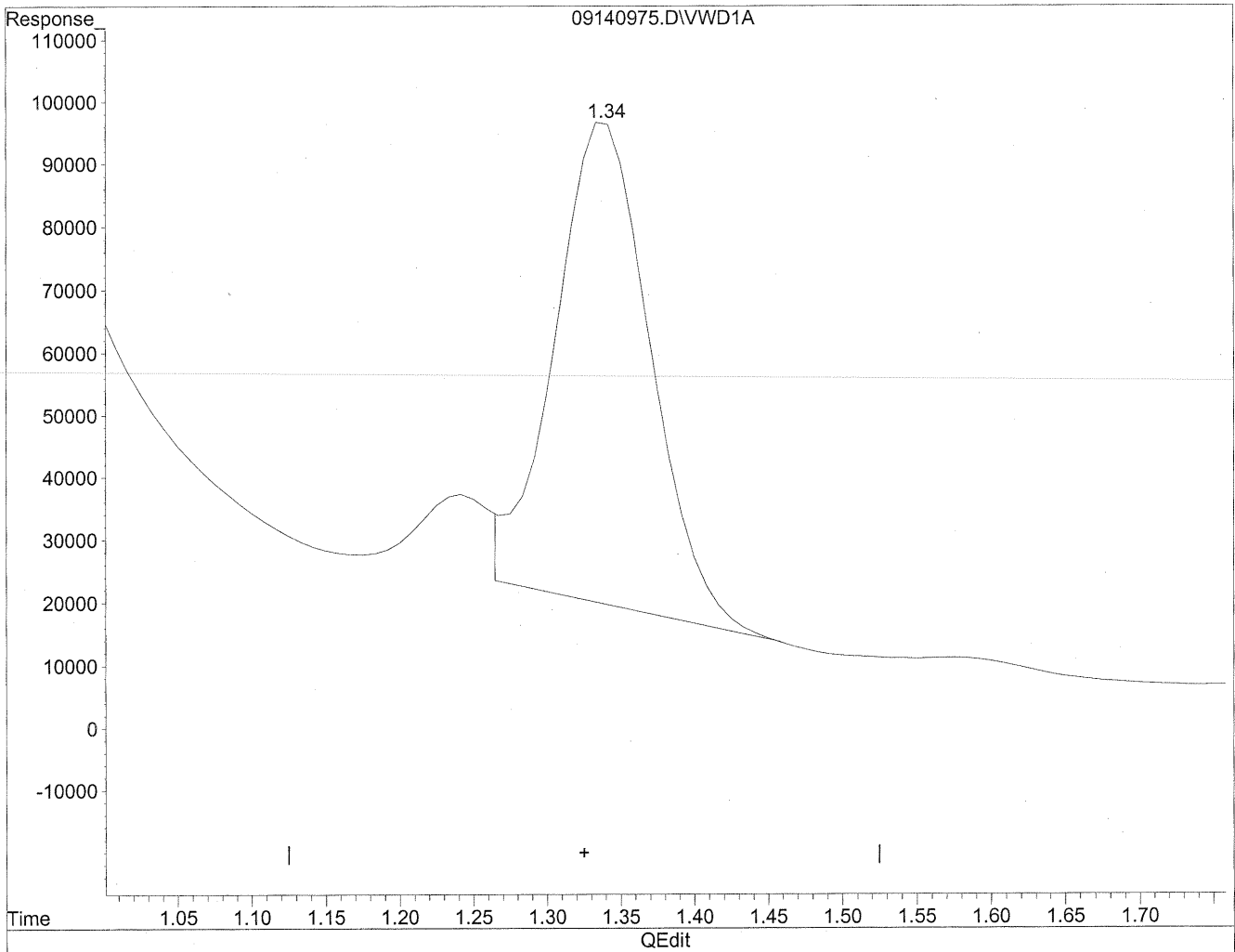


(1) Formaldehyde  
1.34min 369.274ng/ml  
response 3299624

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140975.D Vial: 140  
Acq On : 15-Sep-2009, 00:17 Operator: MD  
Sample : P0903087-012 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:16 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



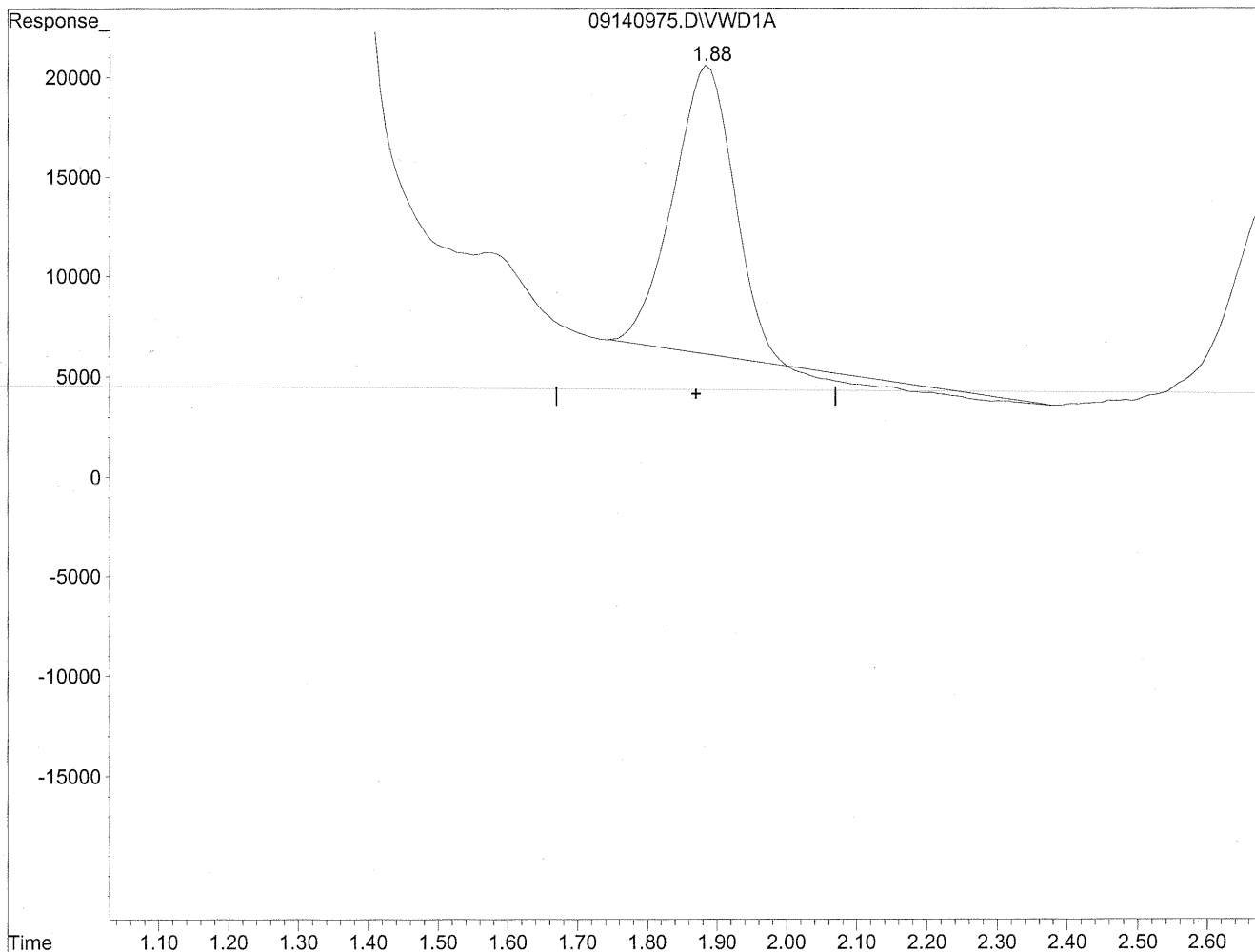
(1) Formaldehyde  
1.34min 389.754ng/ml m  
response 3482620

*Handwritten notes:*  
mm  
9/17/09  
JC  
+16  
9/17/09

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140975.D Vial: 140  
Acq On : 15-Sep-2009, 00:17 Operator: MD  
Sample : P0903087-012 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:16 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



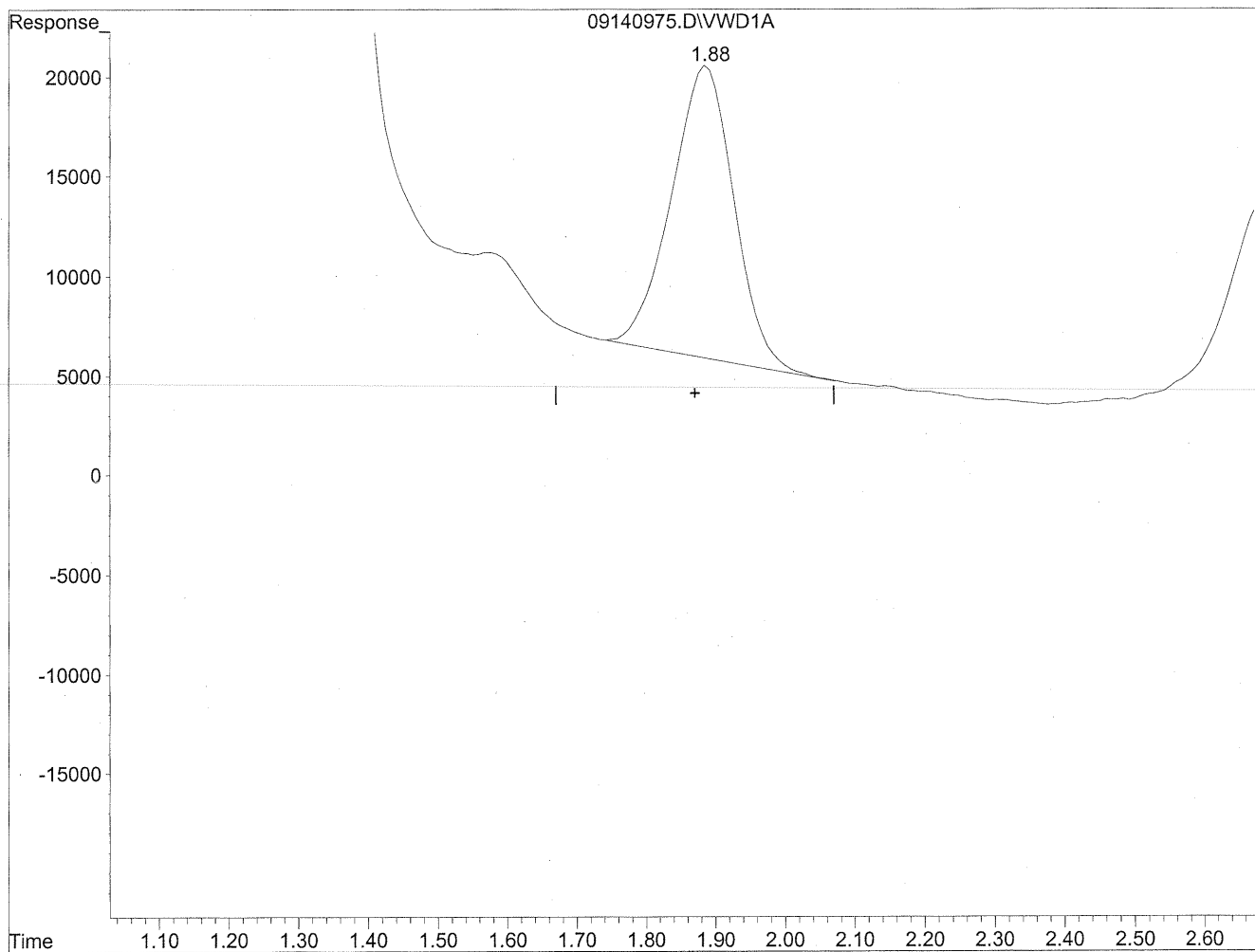
(2) Acetaldehyde  
1.89min 129.023ng/ml  
response 838750



Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140975.D Vial: 140  
Acq On : 15-Sep-2009, 00:17 Operator: MD  
Sample : P0903087-012 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:16 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



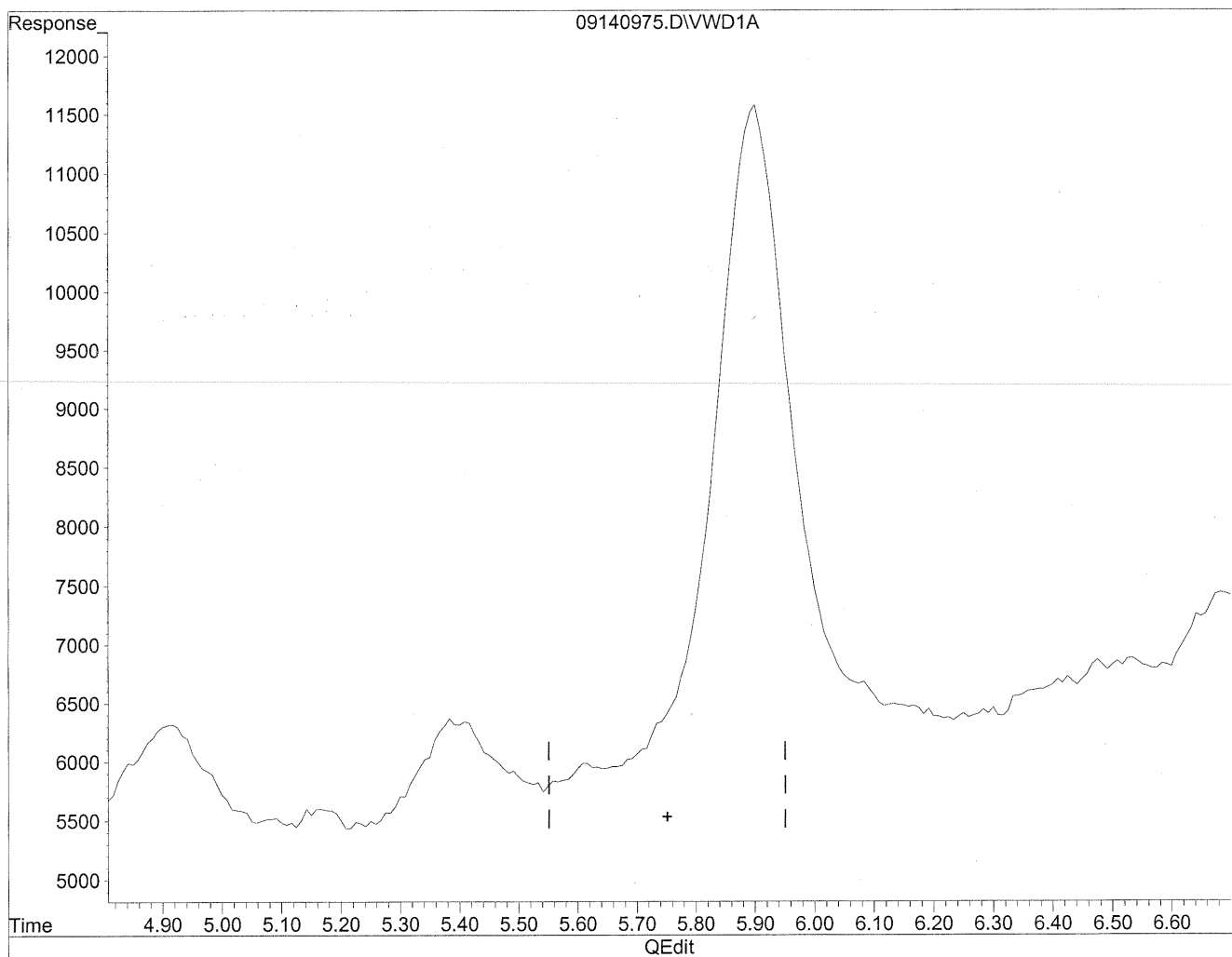
(2) Acetaldehyde  
1.88min 141.644ng/ml m  
response 920798

*MD*  
*9/17/09*  
*12*  
*HC*  
*9/17/09*

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140975.D Vial: 140  
Acq On : 15-Sep-2009, 00:17 Operator: MD  
Sample : P0903087-012 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:18 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration

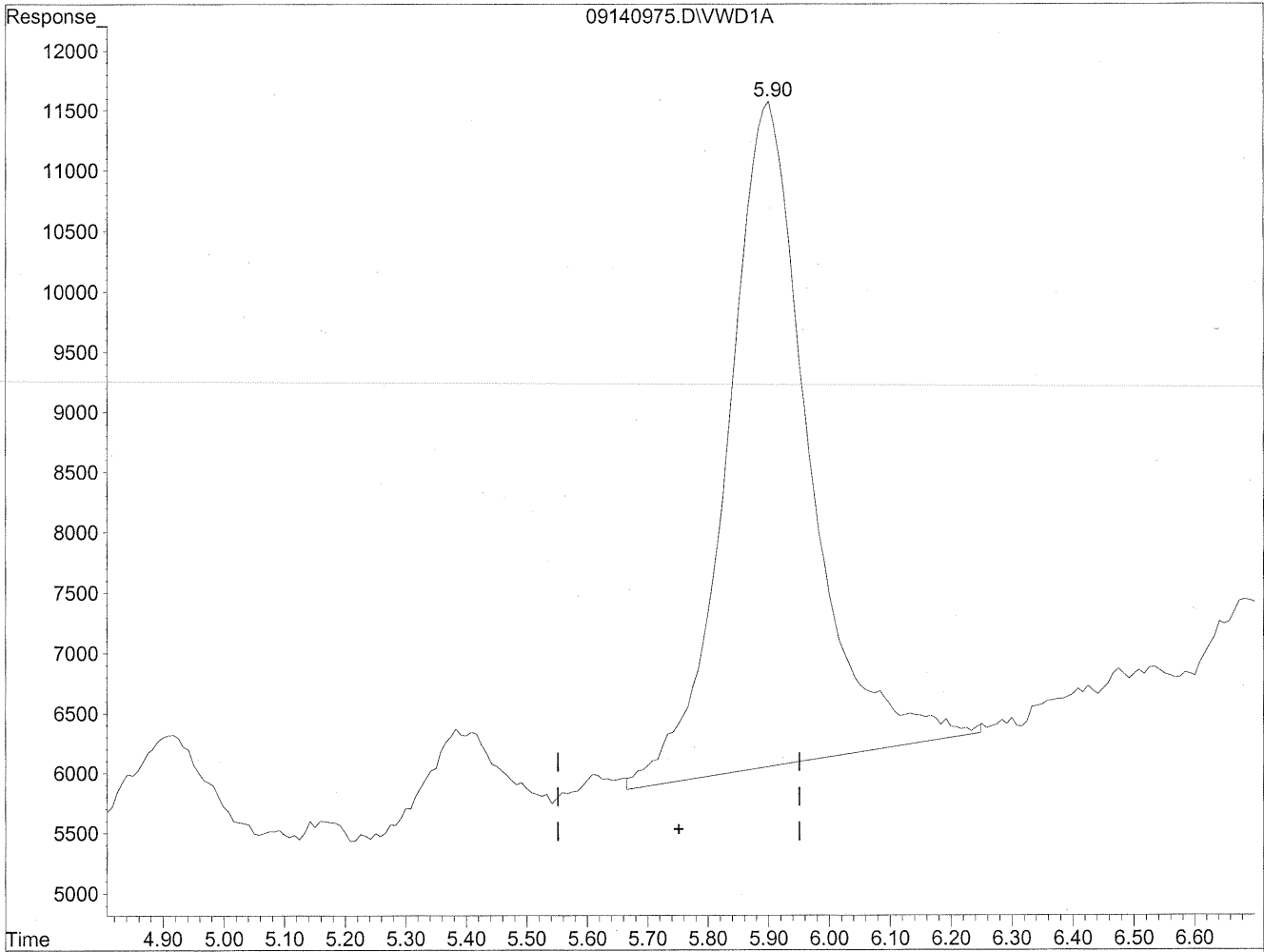


(6) Benzaldehyde  
5.75min 0.000ng/ml  
response 0

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140975.D Vial: 140  
Acq On : 15-Sep-2009, 00:17 Operator: MD  
Sample : P0903087-012 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:18 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



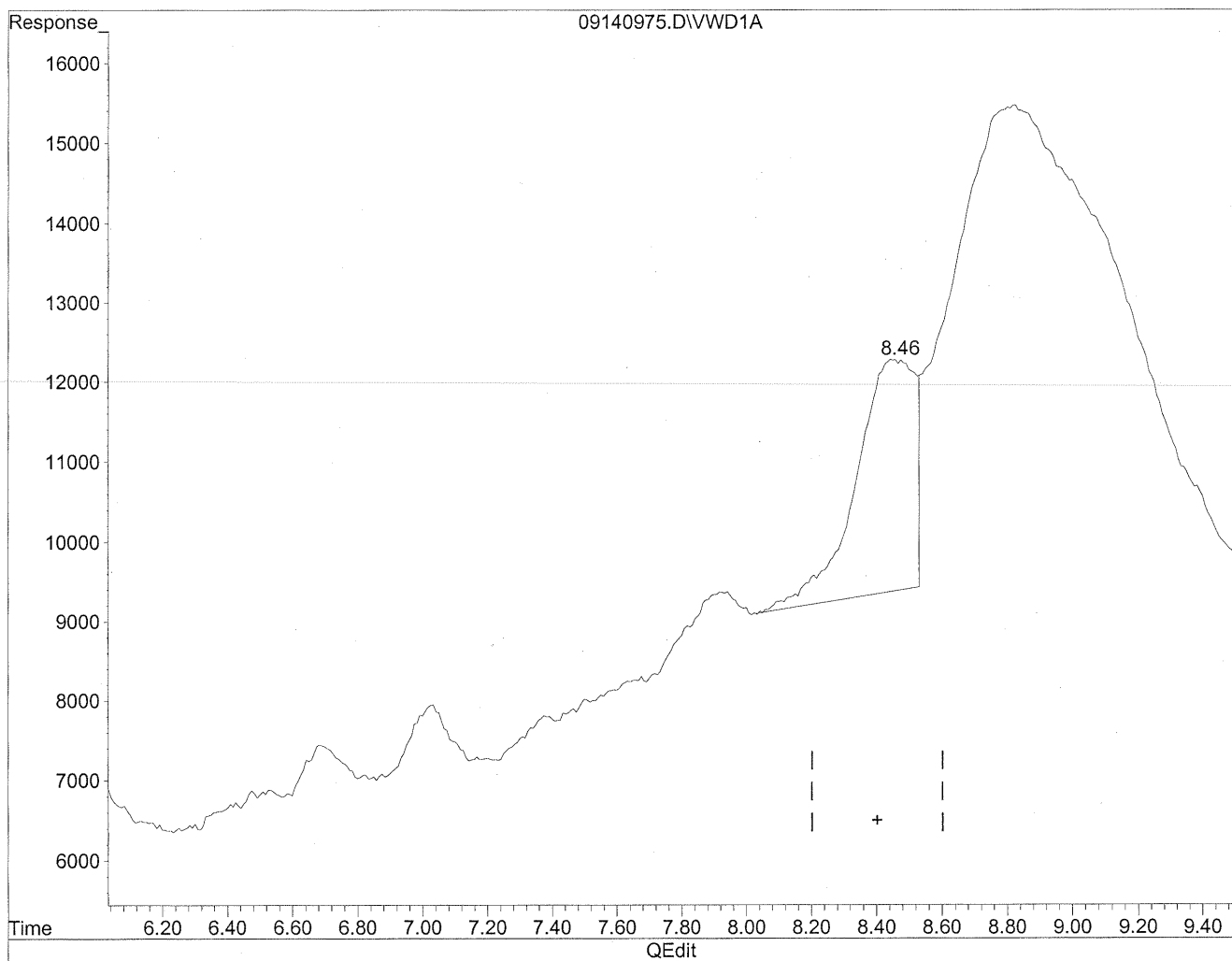
(6) Benzaldehyde  
5.90min 189.969ng/ml m  
response 518306

*Handwritten notes:*  
MK  
9/17/09  
Bui  
MK  
9/17/09

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140975.D Vial: 140  
Acq On : 15-Sep-2009, 00:17 Operator: MD  
Sample : P0903087-012 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:16 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration

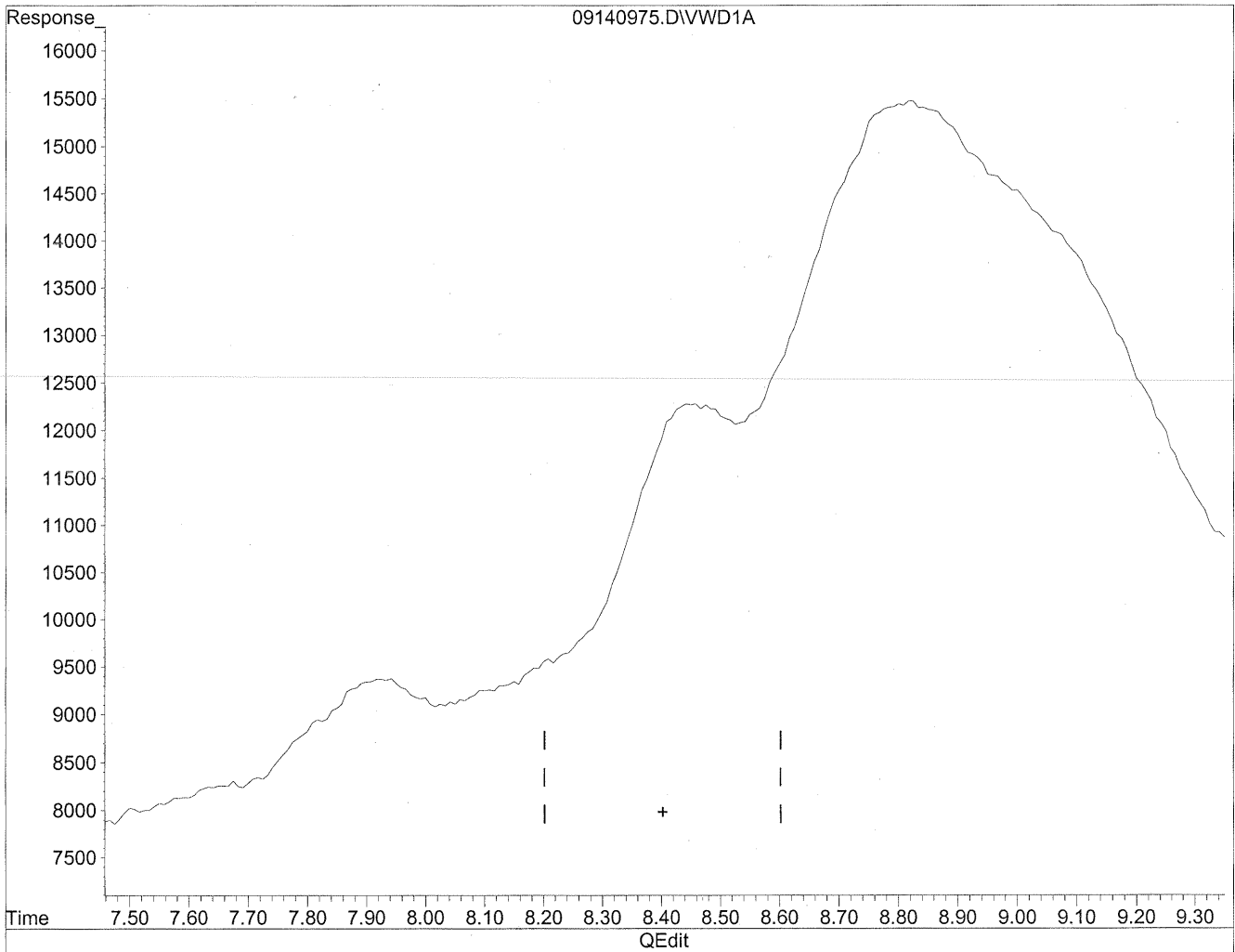


(11) Hexaldehyde  
8.45min 119.969ng/ml  
response 355194

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140975.D Vial: 140  
Acq On : 15-Sep-2009, 00:17 Operator: MD  
Sample : P0903087-012 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:16 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



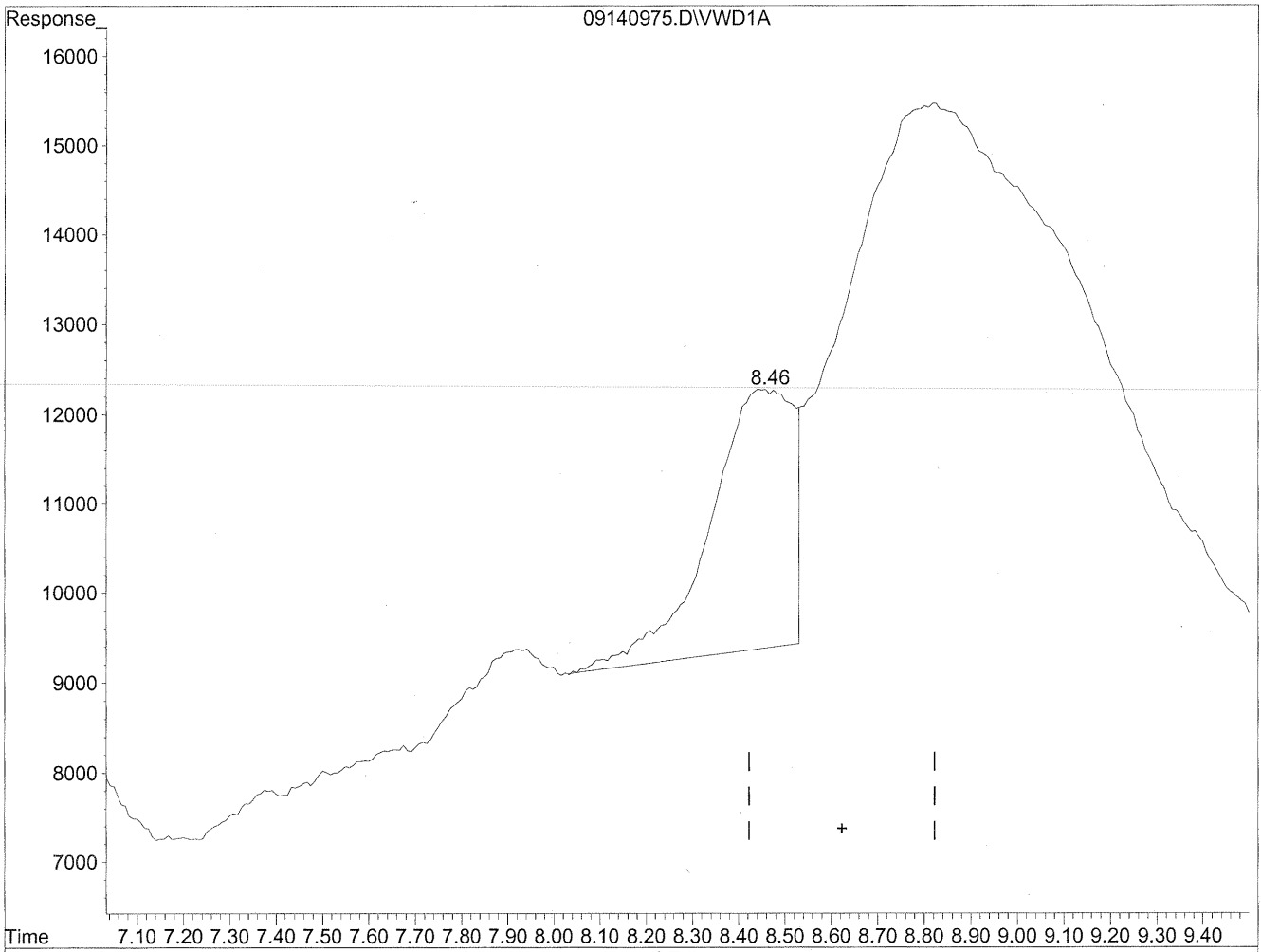
(11) Hexaldehyde  
0.00min 0.000ng/ml d  
response 0

*(md)*  
*also*  
*not real*  
*HC*  
*11/17/09*

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140975.D Vial: 140  
Acq On : 15-Sep-2009, 00:17 Operator: MD  
Sample : P0903087-012 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:16 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



(12) 2,5-Dimethylbenzaldehyde

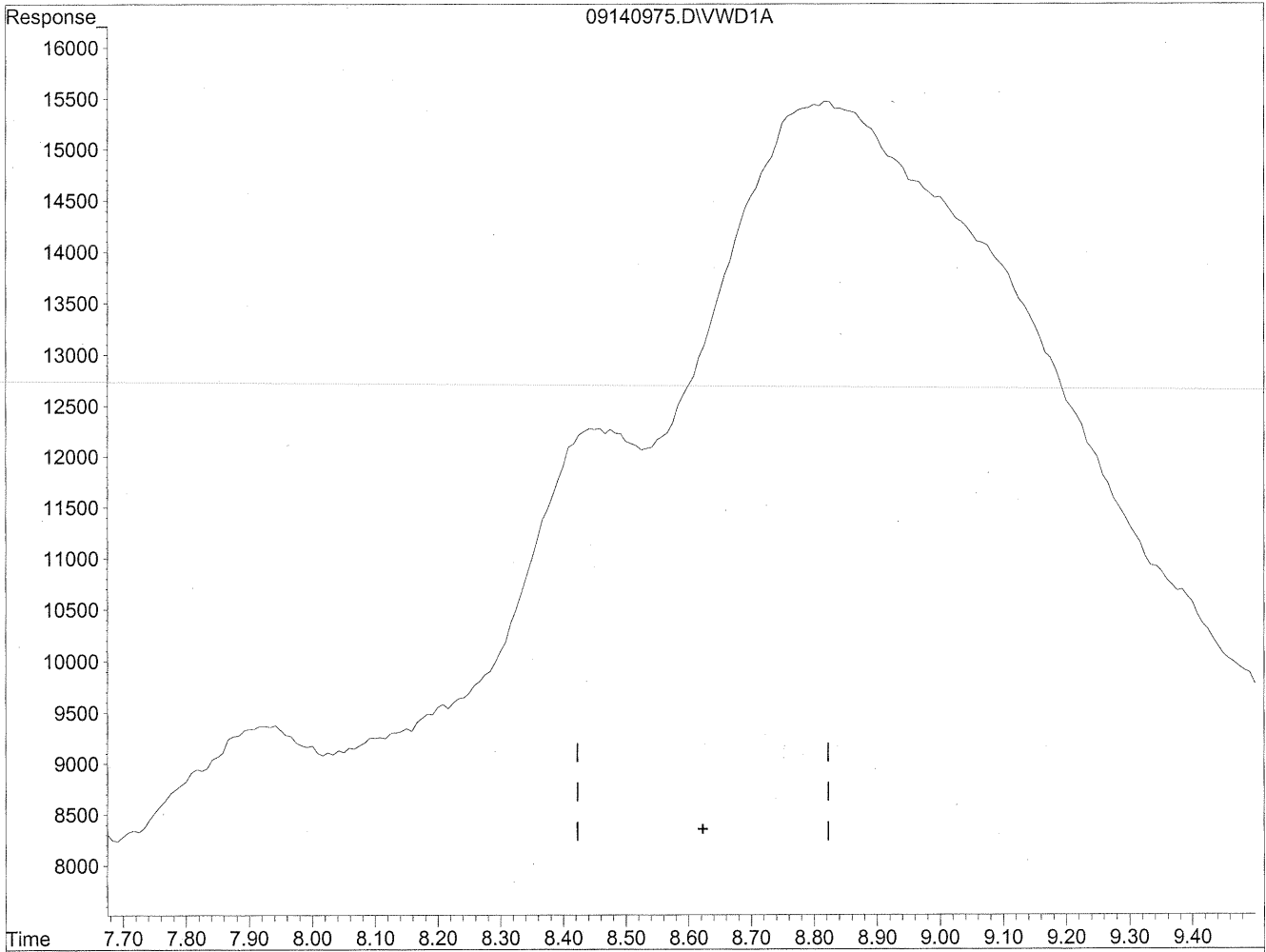
8.45min 177.998ng/ml

response 355194

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140975.D Vial: 140  
Acq On : 15-Sep-2009, 00:17 Operator: MD  
Sample : P0903087-012 front 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:16 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



(12) 2,5-Dimethylbenzaldehyde

0.00min 0.000ng/ml d

response 0

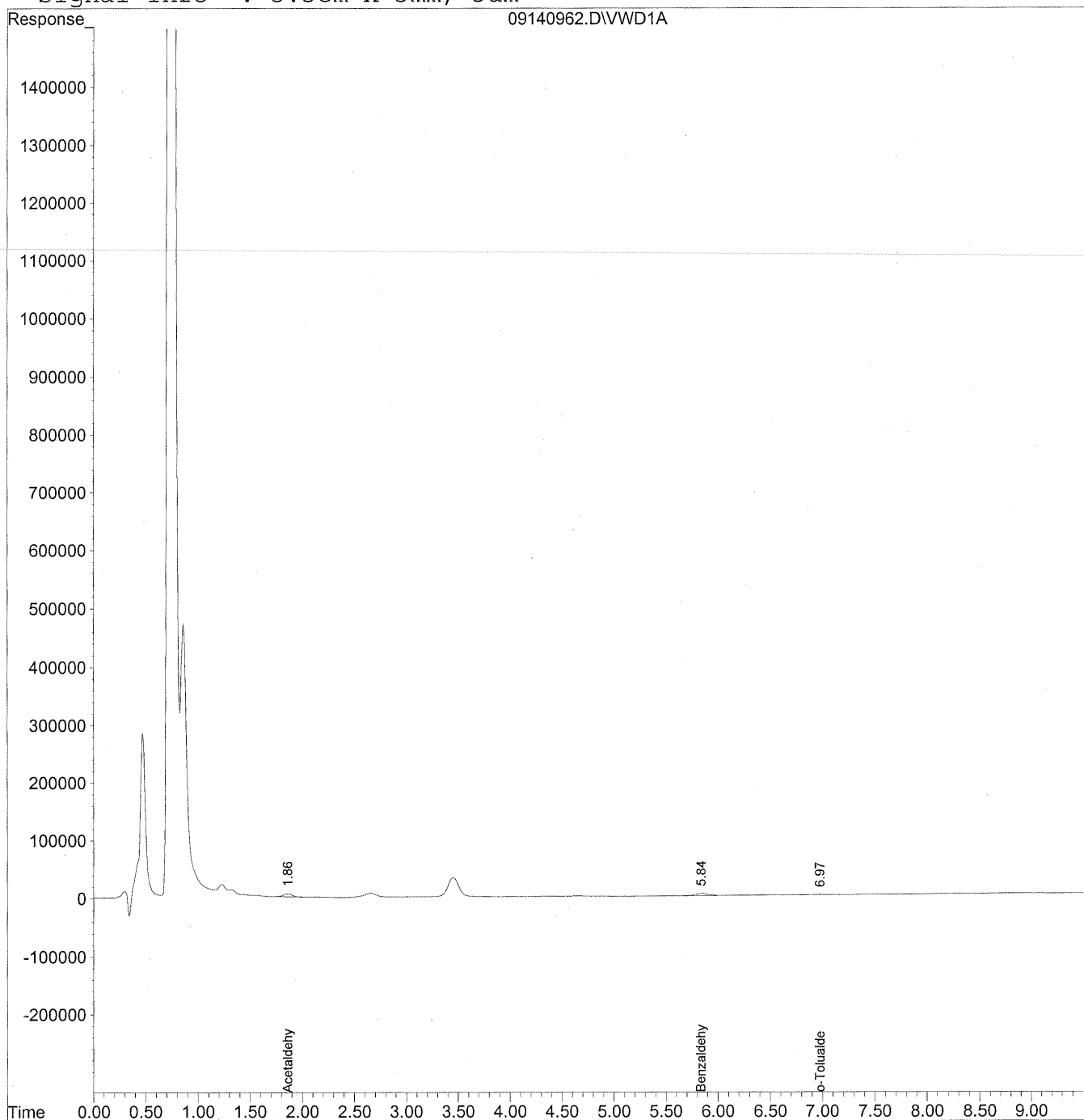
*MW*  
*alr/loa*  
*not real*  
*MC*  
*all/loa*

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140962.D Vial: 128  
Acq On : 14-Sep-2009, 21:41 Operator: MD  
Sample : P0903087-012 back 1.0ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 11:32 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration  
DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
Signal Phase : Supelcosil LC-18  
Signal Info : 3.3cm x 3mm, 3um





Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140962.D Vial: 128  
 Acq On : 14-Sep-2009, 21:41 Operator: MD  
 Sample : P0903087-012 back 1.0ml Inst : VWD  
 Misc : Multiplr: 1.00  
 IntFile : events.e  
 Quant Time: Sep 17 11:32 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
 Title : LC-1050 TO-11A ICAL  
 Last Update : Thu Sep 17 11:23:31 2009  
 Response via : Initial Calibration  
 DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
 Signal Phase : Supelcosil LC-18  
 Signal Info : 3.3cm x 3mm, 3um

| Compound                     | R.T.  | Response | Conc    | Units |
|------------------------------|-------|----------|---------|-------|
| -----                        |       |          |         |       |
| Target Compounds             |       |          |         |       |
| 1) Formaldehyde              | 0.00  | 0        | N.D.    | ng/ml |
| 2) Acetaldehyde              | 1.86  | 290214   | 44.643  | ng/ml |
| 3) Propionaldehyde           | 0.00  | 0        | N.D.    | ng/ml |
| 4) Crotonaldehyde            | 0.00  | 0        | N.D.    | ng/ml |
| 5) Butyraldehyde             | 0.00  | 0        | N.D.    | ng/ml |
| 6) Benzaldehyde              | 5.84  | 369381   | 135.385 | ng/ml |
| 7) Isovaleraldehyde          | 0.00  | 0        | N.D.    | ng/ml |
| 8) Valeraldehyde             | 0.00  | 0        | N.D.    | ng/ml |
| 9) o-Tolualdehyde            | 6.98f | 24237    | 11.044  | ng/ml |
| 10) m,p-Tolualdehyde         | 0.00  | 0        | N.D.    | ng/ml |
| 11) Hexaldehyde              | 0.00  | 0        | N.D.    | ng/ml |
| 12) 2,5-Dimethylbenzaldehyde | 0.00  | 0        | N.D.    | ng/ml |

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Page 1 of 1

**Client:** Environmental Health & Engineering, Inc.

**Client Sample ID:** Method Blank (15:40)

**Client Project ID:** 16512

CAS Project ID: P0903087

CAS Sample ID: P090914-MB

Test Code: EPA Method TO-11A

Instrument ID: HP1050/LC2

Analyst: Madeleine Dangazyan

Sampling Media: Silica Gel DNPH Tube

Test Notes: BC

Date Collected: NA

Date Received: NA

Date Analyzed: 09/14/09

Desorption Volume: 1.0 ml

Volume Sampled: NA Liter(s)

| CAS #     | Compound                 | Result<br>ng/Sample | Result<br>µg/m <sup>3</sup> | MRL<br>µg/m <sup>3</sup> | Result<br>ppbV | MRL<br>ppbV | Data<br>Qualifier |
|-----------|--------------------------|---------------------|-----------------------------|--------------------------|----------------|-------------|-------------------|
| 50-00-0   | Formaldehyde             | < 100               | NA                          | NA                       | NA             | NA          |                   |
| 75-07-0   | Acetaldehyde             | < 100               | NA                          | NA                       | NA             | NA          |                   |
| 123-38-6  | Propionaldehyde          | < 100               | NA                          | NA                       | NA             | NA          |                   |
| 4170-30-3 | Crotonaldehyde, Total    | < 100               | NA                          | NA                       | NA             | NA          |                   |
| 123-72-8  | Butyraldehyde            | < 100               | NA                          | NA                       | NA             | NA          |                   |
| 100-52-7  | Benzaldehyde             | < 100               | NA                          | NA                       | NA             | NA          |                   |
| 590-86-3  | Isovaleraldehyde         | < 100               | NA                          | NA                       | NA             | NA          |                   |
| 110-62-3  | Valeraldehyde            | < 100               | NA                          | NA                       | NA             | NA          |                   |
| 529-20-4  | o-Tolualdehyde           | < 100               | NA                          | NA                       | NA             | NA          |                   |
| 620-23-5  |                          |                     |                             |                          |                |             |                   |
| 104-87-0  | m,p-Tolualdehyde         | < 200               | NA                          | NA                       | NA             | NA          |                   |
| 66-25-1   | n-Hexaldehyde            | < 100               | NA                          | NA                       | NA             | NA          |                   |
| 5779-94-2 | 2,5-Dimethylbenzaldehyde | < 100               | NA                          | NA                       | NA             | NA          |                   |

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

BC = Results reported are not blank corrected.

NA = Not applicable.

Verified By: \_\_\_\_\_

*[Signature]*

Date: \_\_\_\_\_

9/18/09

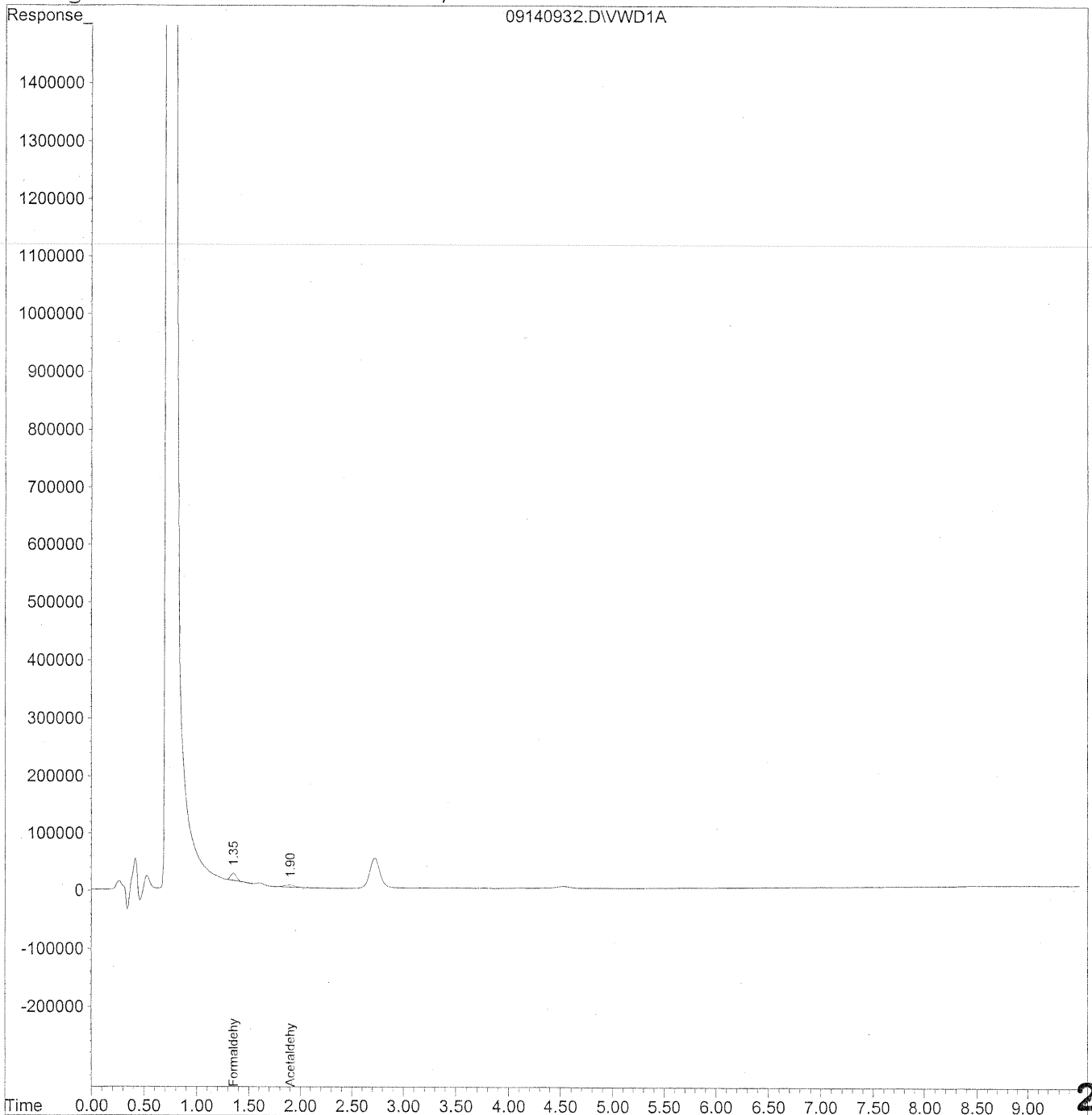
202

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140932.D Vial: 101  
Acq On : 14-Sep-2009, 15:40 Operator: MD  
Sample : MB-1 front 1.0ml lot 5855/5994 Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 14 16:08 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 10 12:03:26 2009  
Response via : Multiple Level Calibration  
DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
Signal Phase : Supelcosil LC-18  
Signal Info : 3.3cm x 3mm, 3um



203

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140932.D Vial: 101  
 Acq On : 14-Sep-2009, 15:40 Operator: MD  
 Sample : MB-1 front 1.0ml lot 5855/5994 Inst : VWD  
 Misc : Multiplr: 1.00  
 IntFile : events.e  
 Quant Time: Sep 14 16:08 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
 Title : LC-1050 TO-11A ICAL  
 Last Update : Thu Sep 10 12:03:26 2009  
 Response via : Initial Calibration  
 DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
 Signal Phase : Supelcosil LC-18  
 Signal Info : 3.3cm x 3mm, 3um

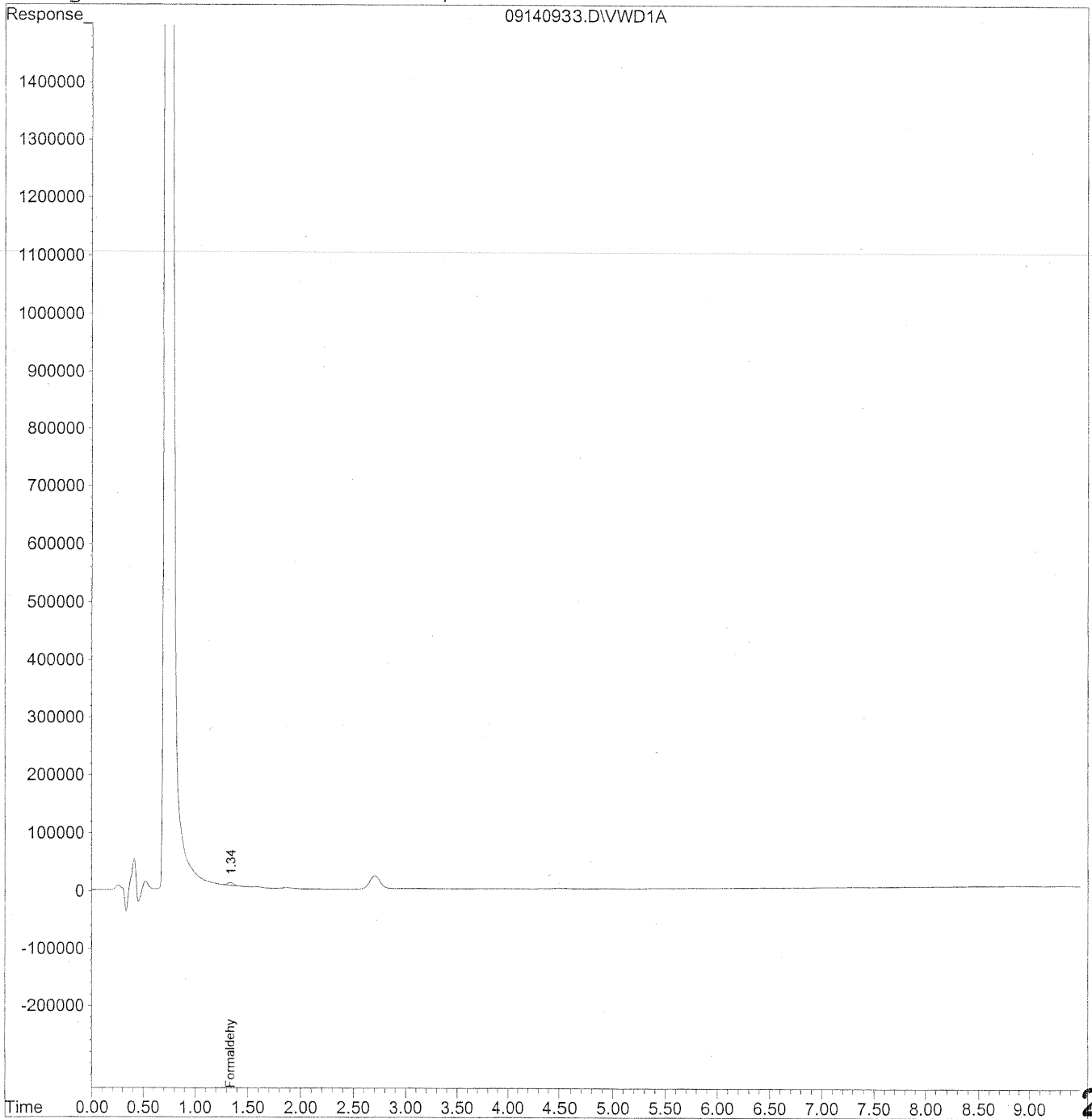
| Compound                     | R.T. | Response | Conc Units   |
|------------------------------|------|----------|--------------|
| -----                        |      |          |              |
| Target Compounds             |      |          |              |
| 1) Formaldehyde              | 1.35 | 468665   | 52.450 ng/ml |
| 2) Acetaldehyde              | 1.90 | 230364   | 35.436 ng/ml |
| 3) Propionaldehyde           | 0.00 | 0        | N.D. ng/ml   |
| 4) Crotonaldehyde            | 0.00 | 0        | N.D. ng/ml   |
| 5) Butyraldehyde             | 0.00 | 0        | N.D. ng/ml   |
| 6) Benzaldehyde              | 0.00 | 0        | N.D. ng/ml   |
| 7) Isovaleraldehyde          | 0.00 | 0        | N.D. ng/ml   |
| 8) Valeraldehyde             | 0.00 | 0        | N.D. ng/ml   |
| 9) o-Tolualdehyde            | 0.00 | 0        | N.D. ng/ml   |
| 10) m,p-Tolualdehyde         | 0.00 | 0        | N.D. ng/ml   |
| 11) Hexaldehyde              | 0.00 | 0        | N.D. ng/ml   |
| 12) 2,5-Dimethylbenzaldehyde | 0.00 | 0        | N.D. ng/ml   |

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140933.D Vial: 102  
Acq On : 14-Sep-2009, 15:52 Operator: MD  
Sample : MB-1 back 1.0ml lot 5855/5994 Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 14 16:09 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 10 12:03:26 2009  
Response via : Multiple Level Calibration  
DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
Signal Phase : Supelcosil LC-18  
Signal Info : 3.3cm x 3mm, 3um



Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140933.D Vial: 102  
 Acq On : 14-Sep-2009, 15:52 Operator: MD  
 Sample : MB-1 back 1.0ml lot 5855/5994 Inst : VWD  
 Misc : Multiplr: 1.00  
 IntFile : events.e  
 Quant Time: Sep 14 16:09 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
 Title : LC-1050 TO-11A ICAL  
 Last Update : Thu Sep 10 12:03:26 2009  
 Response via : Initial Calibration  
 DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
 Signal Phase : Supelcosil LC-18  
 Signal Info : 3.3cm x 3mm, 3um

| Compound                     | R.T. | Response | Conc Units   |
|------------------------------|------|----------|--------------|
| -----                        |      |          |              |
| Target Compounds             |      |          |              |
| 1) Formaldehyde              | 1.34 | 197284   | 22.079 ng/ml |
| 2) Acetaldehyde              | 0.00 | 0        | N.D. ng/ml   |
| 3) Propionaldehyde           | 0.00 | 0        | N.D. ng/ml   |
| 4) Crotonaldehyde            | 0.00 | 0        | N.D. ng/ml   |
| 5) Butyraldehyde             | 0.00 | 0        | N.D. ng/ml   |
| 6) Benzaldehyde              | 0.00 | 0        | N.D. ng/ml   |
| 7) Isovaleraldehyde          | 0.00 | 0        | N.D. ng/ml   |
| 8) Valeraldehyde             | 0.00 | 0        | N.D. ng/ml   |
| 9) o-Tolualdehyde            | 0.00 | 0        | N.D. ng/ml   |
| 10) m,p-Tolualdehyde         | 0.00 | 0        | N.D. ng/ml   |
| 11) Hexaldehyde              | 0.00 | 0        | N.D. ng/ml   |
| 12) 2,5-Dimethylbenzaldehyde | 0.00 | 0        | N.D. ng/ml   |

**COLUMBIA ANALYTICAL SERVICES, INC.**

RESULTS OF ANALYSIS

Page 1 of 1

**Client:** Environmental Health & Engineering, Inc.  
**Client Sample ID:** Method Blank (20:40)  
**Client Project ID:** 16512

CAS Project ID: P0903087  
 CAS Sample ID: P090914-MB

**Test Code:** EPA Method TO-11A  
**Instrument ID:** HP1050/LC2  
**Analyst:** Madeleine Dangazyan  
**Sampling Media:** Silica Gel DNPH Tube  
**Test Notes:** BC

**Date Collected:** NA  
**Date Received:** NA  
**Date Analyzed:** 09/14/09  
**Desorption Volume:** 1.0 ml  
**Volume Sampled:** NA Liter(s)

| CAS #     | Compound                 | Result<br>ng/Sample | Result<br>µg/m <sup>3</sup> | MRL<br>µg/m <sup>3</sup> | Result<br>ppbV | MRL<br>ppbV | Data<br>Qualifier |
|-----------|--------------------------|---------------------|-----------------------------|--------------------------|----------------|-------------|-------------------|
| 50-00-0   | Formaldehyde             | < 100               | NA                          | NA                       | NA             | NA          |                   |
| 75-07-0   | Acetaldehyde             | < 100               | NA                          | NA                       | NA             | NA          |                   |
| 123-38-6  | Propionaldehyde          | < 100               | NA                          | NA                       | NA             | NA          |                   |
| 4170-30-3 | Crotonaldehyde, Total    | < 100               | NA                          | NA                       | NA             | NA          |                   |
| 123-72-8  | Butyraldehyde            | < 100               | NA                          | NA                       | NA             | NA          |                   |
| 100-52-7  | Benzaldehyde             | < 100               | NA                          | NA                       | NA             | NA          |                   |
| 590-86-3  | Isovaleraldehyde         | < 100               | NA                          | NA                       | NA             | NA          |                   |
| 110-62-3  | Valeraldehyde            | < 100               | NA                          | NA                       | NA             | NA          |                   |
| 529-20-4  | o-Tolualdehyde           | < 100               | NA                          | NA                       | NA             | NA          |                   |
| 620-23-5  |                          |                     |                             |                          |                |             |                   |
| 104-87-0  | m,p-Tolualdehyde         | < 200               | NA                          | NA                       | NA             | NA          |                   |
| 66-25-1   | n-Hexaldehyde            | < 100               | NA                          | NA                       | NA             | NA          |                   |
| 5779-94-2 | 2,5-Dimethylbenzaldehyde | < 100               | NA                          | NA                       | NA             | NA          |                   |

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

BC = Results reported are not blank corrected.

NA = Not applicable.

Verified By: \_\_\_\_\_

*[Signature]*

Date: \_\_\_\_\_

*9/14/09*

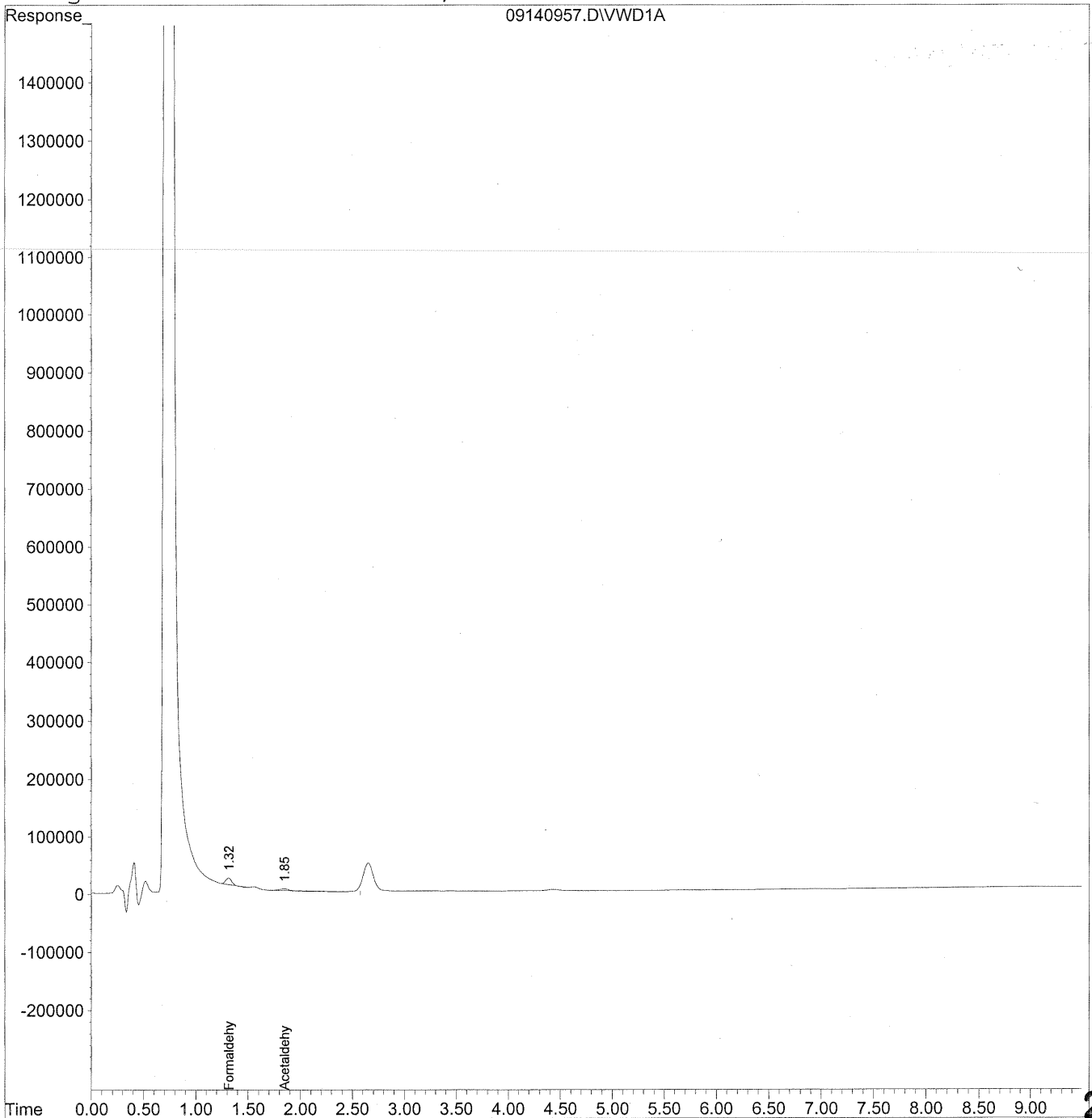
**207**

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140957.D Vial: 123  
Acq On : 14-Sep-2009, 20:40 Operator: MD  
Sample : MB-2 front 1.0ml lot 5855/5994 Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 11:30 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration  
DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
Signal Phase : Supelcosil LC-18  
Signal Info : 3.3cm x 3mm, 3um





Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140957.D Vial: 123  
 Acq On : 14-Sep-2009, 20:40 Operator: MD  
 Sample : MB-2 front 1.0ml lot 5855/5994 Inst : VWD  
 Misc : Multiplr: 1.00  
 IntFile : events.e  
 Quant Time: Sep 17 11:30 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
 Title : LC-1050 TO-11A ICAL  
 Last Update : Thu Sep 17 11:23:31 2009  
 Response via : Initial Calibration  
 DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
 Signal Phase : Supelcosil LC-18  
 Signal Info : 3.3cm x 3mm, 3um

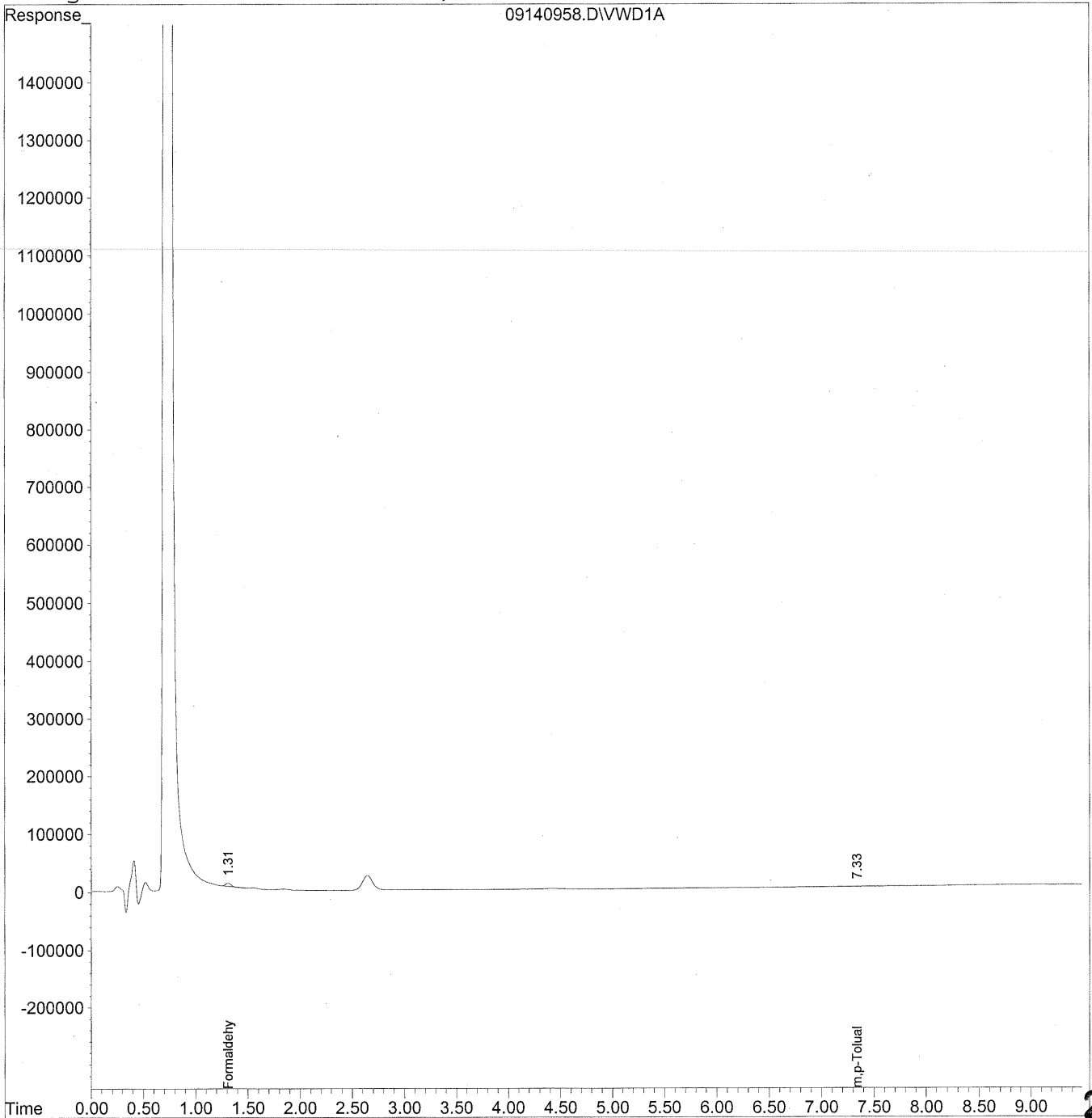
| Compound                     | R.T. | Response | Conc Units   |
|------------------------------|------|----------|--------------|
| -----                        |      |          |              |
| Target Compounds             |      |          |              |
| 1) Formaldehyde              | 1.32 | 435641   | 48.754 ng/ml |
| 2) Acetaldehyde              | 1.85 | 118962   | 18.300 ng/ml |
| 3) Propionaldehyde           | 0.00 | 0        | N.D. ng/ml   |
| 4) Crotonaldehyde            | 0.00 | 0        | N.D. ng/ml   |
| 5) Butyraldehyde             | 0.00 | 0        | N.D. ng/ml   |
| 6) Benzaldehyde              | 0.00 | 0        | N.D. ng/ml   |
| 7) Isovaleraldehyde          | 0.00 | 0        | N.D. ng/ml   |
| 8) Valeraldehyde             | 0.00 | 0        | N.D. ng/ml   |
| 9) o-Tolualdehyde            | 0.00 | 0        | N.D. ng/ml   |
| 10) m,p-Tolualdehyde         | 0.00 | 0        | N.D. ng/ml   |
| 11) Hexaldehyde              | 0.00 | 0        | N.D. ng/ml   |
| 12) 2,5-Dimethylbenzaldehyde | 0.00 | 0        | N.D. ng/ml   |

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140958.D Vial: 124  
Acq On : 14-Sep-2009, 20:52 Operator: MD  
Sample : MB-2 back 1.0ml lot 5855/5994 Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 11:30 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration  
DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
Signal Phase : Supelcosil LC-18  
Signal Info : 3.3cm x 3mm, 3um



Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140958.D Vial: 124  
 Acq On : 14-Sep-2009, 20:52 Operator: MD  
 Sample : MB-2 back 1.0ml lot 5855/5994 Inst : VWD  
 Misc : Multiplr: 1.00  
 IntFile : events.e  
 Quant Time: Sep 17 11:30 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
 Title : LC-1050 TO-11A ICAL  
 Last Update : Thu Sep 17 11:23:31 2009  
 Response via : Initial Calibration  
 DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
 Signal Phase : Supelcosil LC-18  
 Signal Info : 3.3cm x 3mm, 3um

| Compound                     | R.T. | Response | Conc Units   |
|------------------------------|------|----------|--------------|
| -----                        |      |          |              |
| Target Compounds             |      |          |              |
| 1) Formaldehyde              | 1.31 | 186881   | 20.915 ng/ml |
| 2) Acetaldehyde              | 0.00 | 0        | N.D. ng/ml   |
| 3) Propionaldehyde           | 0.00 | 0        | N.D. ng/ml   |
| 4) Crotonaldehyde            | 0.00 | 0        | N.D. ng/ml   |
| 5) Butyraldehyde             | 0.00 | 0        | N.D. ng/ml   |
| 6) Benzaldehyde              | 0.00 | 0        | N.D. ng/ml   |
| 7) Isovaleraldehyde          | 0.00 | 0        | N.D. ng/ml   |
| 8) Valeraldehyde             | 0.00 | 0        | N.D. ng/ml   |
| 9) o-Tolualdehyde            | 0.00 | 0        | N.D. ng/ml   |
| 10) m,p-Tolualdehyde         | 7.34 | 7866     | 3.425 ng/ml  |
| 11) Hexaldehyde              | 0.00 | 0        | N.D. ng/ml   |
| 12) 2,5-Dimethylbenzaldehyde | 0.00 | 0        | N.D. ng/ml   |

## INITIAL CALIBRATION STANDARDS

---

Response Factor Report VWD

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
 Title : LC-1050 TO-11A ICAL  
 Last Update : Thu Sep 11 13:54:46 2008

Calibration Files

50 =09090910.D 100 =09090913.D 500 =09090916.D  
 1500 =09090919.D 5000 =09090922.D 10 =09090925.D

|     | Compound            | 50    | 100   | 500   | 1500  | 5000  | 10    | Avg   |    | %RSD |
|-----|---------------------|-------|-------|-------|-------|-------|-------|-------|----|------|
| 1)  | Formaldehyde        | 9.033 | 8.595 | 8.515 | 9.020 | 9.302 | 9.148 | 8.935 | E3 | 3.50 |
| 2)  | Acetaldehyde        | 6.537 | 6.232 | 6.129 | 6.593 | 6.799 | 6.715 | 6.501 | E3 | 4.10 |
| 3)  | Propionaldehyde     | 5.378 | 4.996 | 5.013 | 5.195 | 5.337 | 5.268 | 5.198 | E3 | 3.13 |
| 4)  | Crotonaldehyde      | 3.974 | 3.795 | 3.909 | 4.099 | 4.319 | 4.261 | 4.060 | E3 | 5.04 |
| 5)  | Butyraldehyde       | 4.071 | 3.828 | 3.819 | 4.080 | 4.290 | 4.229 | 4.053 | E3 | 4.86 |
| 6)  | Benzaldehyde        | 2.793 | 2.509 | 2.569 | 2.745 | 2.894 | 2.860 | 2.728 | E3 | 5.74 |
| 7)  | Isovaleraldehyde    | 3.594 | 3.260 | 3.257 | 3.437 | 3.577 | 3.525 | 3.442 | E3 | 4.42 |
| 8)  | Valeraldehyde       | 3.385 | 3.277 | 3.176 | 3.434 | 3.588 | 3.539 | 3.400 | E3 | 4.58 |
| 9)  | o-Tolualdehyde      | 2.114 | 1.981 | 2.037 | 2.249 | 2.401 | 2.386 | 2.195 | E3 | 8.13 |
| 10) | m,p-Tolualdehyde    | 2.187 | 2.029 | 2.198 | 2.391 | 2.507 | 2.470 | 2.297 | E3 | 8.18 |
| 11) | Hexaldehyde         | 2.976 | 2.854 | 2.845 | 2.973 | 3.086 | 3.031 | 2.961 | E3 | 3.24 |
| 12) | 2,5-Dimethylbenzald | 1.800 | 1.761 | 1.922 | 2.067 | 2.228 | 2.194 | 1.995 | E3 | 9.95 |

Calibration Status Report VWD

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
 Title : LC-1050 TO-11A ICAL  
 Last Update : Wed Sep 09 16:02:22 2009  
 Response via : Initial Calibration

| # | ID   | Conc     | ISTD<br>Conc | Path\File                                |
|---|------|----------|--------------|--|
| 1 | 50   | 50.00    | 0.00         | J:\LC02\DATA\TO11A\2009_09\09\09090910.D |
| 2 | 100  | 100.00   | 0.00         | J:\LC02\DATA\TO11A\2009_09\09\09090913.D |
| 3 | 500  | 500.00   | 0.00         | J:\LC02\DATA\TO11A\2009_09\09\09090916.D |
| 4 | 1500 | 1500.00  | 0.00         | J:\LC02\DATA\TO11A\2009_09\09\09090919.D |
| 5 | 5000 | 5000.00  | 0.00         | J:\LC02\DATA\TO11A\2009_09\09\09090922.D |
| 6 | 10   | 10000.00 | 0.00         | J:\LC02\DATA\TO11A\2009_09\09\09090924.D |

| # | ID   | Update Time       | Quant Time         | Acquisition Time   |
|---|------|-------------------|--------------------|--------------------|
| 1 | 50   | Sep 10 08:49 2009 | Sep 10 08:49 19109 | 09-Sep-2009, 15:43 |
| 2 | 100  | Sep 10 09:03 2009 | Sep 10 09:02 19109 | 09-Sep-2009, 16:17 |
| 3 | 500  | Sep 10 08:54 2009 | Sep 10 08:54 19109 | 09-Sep-2009, 16:51 |
| 4 | 1500 | Sep 10 08:56 2009 | Sep 10 08:56 19109 | 09-Sep-2009, 17:26 |
| 5 | 5000 | Sep 10 08:58 2009 | Sep 10 08:58 19109 | 09-Sep-2009, 18:00 |
| 6 | 10   | Sep 10 08:59 2009 | Sep 10 08:59 19109 | 09-Sep-2009, 18:23 |

TO110909.M

Thu Sep 10 10:45:40 2009

**Edit Integration Events** [X]

POSSIBLE EVENTS: [ ]

| EVENT:              | VALUE | TIME:     |
|---------------------|-------|-----------|
| Initial Area Reject | 5000  | Initial   |
| Initial Area Reject | 5000  | Initial ▲ |
| Initial Peak Width  | 0.010 | Initial   |
| Shoulder Detection  | OFF   | Initial   |
| Initial Threshold   | 12.0  | Initial   |
| Integrator OFF      |       | 0.001     |
| Integrator ON       |       | 0.950 ▼   |

**Edit Integration Events** [X]

POSSIBLE EVENTS: [ ]

| EVENT:              | VALUE | TIME:     |
|---------------------|-------|-----------|
| Initial Area Reject | 5000  | Initial   |
| Initial Peak Width  | 0.010 | Initial ▲ |
| Shoulder Detection  | OFF   | Initial   |
| Initial Threshold   | 12.0  | Initial   |
| Integrator OFF      |       | 0.001     |
| Integrator ON       |       | 0.950     |
| Baseline Now        |       | 7.800 ▼   |

**TO-11A Aldehyde-DNPH Stock Solution Standard S21-06300801**

Source: AccuStandard Inc.  
 Catalog No: M-8315-R2-DNPH  
 Lot : B8060121  
 Solvent: ACN  
 Expiration Date: 06/12/11

|                          | MW     | Aldehyde-DNPH MW* | Manufacturer Prepared Concentration as Aldehyde-DNPH (ug/mL) | Calculated Concentration as Aldehyde (ug/mL) | ICV S21-07270907 (nominal ng/mL) | ICV S21-07270907 (Actual, ng/mL) | % Diff |
|--------------------------|--------|-------------------|--|--|----------------------------------|----------------------------------|--------|
| Formaldehyde             | 30.03  | 210.03            | 100  | 14.30  | 1430                             | 1453.52                          | 1.64%  |
| Acetaldehyde             | 44.05  | 224.05            | 100.2  | 19.70  | 1970                             | 2007.42                          | 1.90%  |
| Acetone                  | 58.08  | 238.08            | 100.2  | 24.44  | 2444                             | not reported                     |        |
| Acrolein                 | 56.06  | 236.06            | 103.1  | 24.48  | 2448                             | not reported                     |        |
| Propionaldehyde          | 58.08  | 238.08            | 100.2  | 24.44  | 2444                             | 2388.13                          | 2.29%  |
| Crotonaldehyde           | 70.09  | 250.09            | 100.2  | 28.08  | 2808                             | 2879.18                          | 2.53%  |
| Butyraldehyde            | 72.11  | 252.11            | 100  | 28.60  | 2860                             | 2877.59                          | 0.61%  |
| Benzaldehyde             | 106.12 | 286.12            | 100  | 37.09  | 3709                             | 3693.25                          | 0.42%  |
| Isovaleraldehyde         | 86.13  | 266.13            | 100.2  | 32.43  | 3243                             | 3227.07                          | 0.49%  |
| Valeraldehyde            | 86.13  | 266.13            | 100.1  | 32.40  | 3240                             | 3280.39                          | 1.25%  |
| o-Tolualdehyde           | 120.15 | 300.15            | 100.1  | 40.07  | 4007                             | 4053.17                          | 1.15%  |
| m,p-Tolualdehyde         | 120.15 | 300.15            | 100.3  | 80.30  | 8030                             | 8394.52                          | 4.54%  |
| Hexaldehyde              | 100.16 | 280.16            | 100.3  | 35.86  | 3586                             | 3443.52                          | 3.97%  |
| 2,5-Dimethylbenzaldehyde | 134.18 | 314.18            | 100.3  | 42.84  | 4284                             | 4423.49                          | 3.26%  |

(\* MW of DNPH is 198g/mol. The result of a nucleophilic reaction of aldehyde & DNPH is a hydrazone derivative with the loss of H2O, 18g/mol)



**COLUMBIA ANALYTICAL SERVICES, INC.**

Method: TO-11A

Printed : 09/10/09

Analyst: MD

Instrument : LC#02

Date Analysis : 09/09/09

Detector : UV-VIS 360

Sample Amount : 3ul

**CALIBRATION RESPONSE FACTOR SUMMARY**

| Calibration Level | Form-Aldehyde | % rpd | Acet-Aldehyde | % rpd | Propion-Aldehyde | % rpd | Croton-Aldehyde | % rpd | Butyr-Aldehyde | % rpd | Benz-Aldehyde | % rpd |
|-------------------|---------------|-------|---------------|-------|------------------|-------|-----------------|-------|----------------|-------|---------------|-------|
| 50ng/ml TO-11A S2 | 443088        | 1.89% | 311721        | 4.62% | 257497           | 4.24% | 205520          | 3.43% | 199284         | 2.09% | 136041        | 2.60% |
| 50ng/ml TO-11A S2 | 447251        | 0.97% | 327663        | 0.25% | 268082           | 0.31% | 200887          | 1.10% | 217482         | 6.85% | 140658        | 0.71% |
| 50ng/ml TO-11A S2 | 464552        | 2.86% | 341116        | 4.37% | 281140           | 4.55% | 189710          | 4.53% | 193856         | 4.76% | 142307        | 1.89% |
| 100ng/ml TO-11A S | 857936        | 0.18% | 602866        | 3.27% | 495705           | 0.77% | 389577          | 2.65% | 390139         | 1.92% | 249897        | 0.42% |
| 100ng/ml TO-11A S | 856527        | 0.34% | 664731        | 6.66% | 489979           | 1.92% | 375407          | 1.09% | 399611         | 4.39% | 241433        | 3.79% |
| 100ng/ml TO-11A S | 864000        | 0.53% | 602096        | 3.39% | 512978           | 2.69% | 373596          | 1.56% | 358623         | 6.31% | 261486        | 4.20% |
| 500ng/ml TO-11A S | 4290125       | 0.77% | 3109621       | 1.47% | 2494796          | 0.47% | 1900371         | 2.76% | 1886701        | 1.19% | 1323186       | 3.01% |
| 500ng/ml TO-11A S | 4242920       | 0.34% | 2996333       | 2.23% | 2520033          | 0.54% | 1968873         | 0.75% | 1894865        | 0.76% | 1238947       | 3.54% |
| 500ng/ml TO-11A S | 4239441       | 0.42% | 3088021       | 0.76% | 2504937          | 0.07% | 1993623         | 2.01% | 1946571        | 1.95% | 1291253       | 0.53% |
| 1500ng/ml TO-11A  | 13461963      | 0.50% | 9836721       | 0.53% | 7740242          | 0.67% | 6180043         | 0.51% | 6161274        | 0.67% | 4059200       | 1.43% |
| 1500ng/ml TO-11A  | 13578339      | 0.36% | 9942887       | 0.54% | 7876607          | 1.08% | 6053894         | 1.54% | 6038847        | 1.33% | 4163474       | 1.11% |
| 1500ng/ml TO-11A  | 13548320      | 0.14% | 9888425       | 0.01% | 7759817          | 0.42% | 6211709         | 1.03% | 6160753        | 0.66% | 4131112       | 0.32% |
| 5000ng/ml TO-11A  | 46422998      | 0.19% | 33949113      | 0.13% | 26460164         | 0.85% | 21469148        | 0.59% | 21371531       | 0.37% | 14455457      | 0.09% |
| 5000ng/ml TO-11A  | 46464064      | 0.10% | 33977292      | 0.05% | 26758092         | 0.27% | 21604348        | 0.03% | 21444271       | 0.03% | 14435192      | 0.23% |
| 5000ng/ml TO-11A  | 46648983      | 0.29% | 34054104      | 0.18% | 26843474         | 0.59% | 21717189        | 0.56% | 21538832       | 0.41% | 14515721      | 0.32% |
| 10000ng/ml TO-11A | 91542792      | 0.07% | 67198566      | 0.07% | 52731710         | 0.10% | 42623472        | 0.03% | 42304249       | 0.04% | 28602353      | 0.02% |
| 10000ng/ml TO-11A | 91301664      | 0.20% | 670004053     | 0.22% | 52551284         | 0.24% | 42531897        | 0.18% | 42207282       | 0.19% | 28552063      | 0.15% |
| 10000ng/ml TO-11A | 91595894      | 0.13% | 67244158      | 0.14% | 52752024         | 0.14% | 42676337        | 0.15% | 42347195       | 0.14% | 28631645      | 0.13% |

COLUMBIA ANALYTICAL SERVICES, INC.

Method: TO-11A  
 Analyst:  
 Printed : 09/10/09  
 Instrument : LC#02  
 Date Analysis : 09/09/09  
 Detector : UV-VIS 360  
 Sample Amount : 3ul

CALIBRATION RESPONSE FACTOR SUMMARY

| Calibration Level | Isovaler- Aldehyde | Valer- Aldehyde | o-Tolu- Aldehyde | m,p-Tolu- Aldehyde | Hex- Aldehyde | 2,5-Dimethyl benz- Aldehyde | % rpd |
|-------------------|--------------------|-----------------|------------------|--------------------|---------------|-----------------------------|-------|
| 50ng/ml TO-11A S2 | 186226             | 166401          | 109996           | 216426             | 145487        | 84766                       | 5.84% |
| 50ng/ml TO-11A S2 | 175760             | 171974          | 93386            | 227448             | 145697        | 96663                       | 7.37% |
| 50ng/ml TO-11A S2 | 177082             | 169317          | 113786           | 212270             | 155285        | 88645                       | 1.53% |
| 100ng/ml TO-11A S | 323665             | 320426          | 207105           | 397976             | 282439        | 170783                      | 3.03% |
| 100ng/ml TO-11A S | 313564             | 335005          | 188768           | 416110             | 285615        | 182724                      | 3.75% |
| 100ng/ml TO-11A S | 340775             | 327561          | 198353           | 403186             | 288074        | 174836                      | 0.73% |
| 500ng/ml TO-11A S | 1631123            | 1598180         | 1023918          | 2205841            | 1425262       | 964881                      | 0.39% |
| 500ng/ml TO-11A S | 1614213            | 1593172         | 1018615          | 2181093            | 1423115       | 956005                      | 0.53% |
| 500ng/ml TO-11A S | 1639714            | 1572954         | 1012283          | 2206747            | 1418487       | 962409                      | 0.14% |
| 1500ng/ml TO-11A  | 5115478            | 5104937         | 3347391          | 7133126            | 4465907       | 3088612                     | 0.37% |
| 1500ng/ml TO-11A  | 5182178            | 5176264         | 3396097          | 7179077            | 4448983       | 3056583                     | 1.41% |
| 1500ng/ml TO-11A  | 5170579            | 5170597         | 3376687          | 7206393            | 4462344       | 3155386                     | 1.78% |
| 5000ng/ml TO-11A  | 17854488           | 17905508        | 11990582         | 25039167           | 15466841      | 11107870                    | 0.29% |
| 5000ng/ml TO-11A  | 17875029           | 17921465        | 11986554         | 25032033           | 15380456      | 11113181                    | 0.24% |
| 5000ng/ml TO-11A  | 17932725           | 17988106        | 12035186         | 25134428           | 15437631      | 11198210                    | 0.52% |
| 10000ng/ml TO-11A | 35277028           | 35412579        | 23892692         | 49431359           | 30345892      | 21989696                    | 0.21% |
| 10000ng/ml TO-11A | 35194712           | 35338059        | 23813504         | 49315533           | 30246038      | 21823086                    | 0.55% |
| 10000ng/ml TO-11A | 35288997           | 35418570        | 23869930         | 49446486           | 30343150      | 22018475                    | 0.34% |

## AVERAGE RESPONSE FACTOR

|                   | Form-<br>Aldehyde | Acet-<br>Aldehyde | Propion-<br>Aldehyde | Croton-<br>Aldehyde | Butyr-<br>Aldehyde | Benz-<br>Aldehyde |
|-------------------|-------------------|-------------------|----------------------|---------------------|--------------------|-------------------|
| 50ng/ml TO-11A S: | 451630            | 326833            | 268906               | 198706              | 203541             | 139669            |
| 100ng/ml TO-11A:  | 859488            | 623231            | 499554               | 379527              | 382791             | 250939            |
| 500ng/ml TO-11A:  | 4257495           | 3064658           | 2506589              | 1954289             | 1909379            | 1284462           |
| 1500ng/ml TO-11A  | 13529541          | 9889344           | 7792222              | 6148549             | 6120291            | 4117929           |
| 5000ng/ml TO-11A  | 46512015          | 33993503          | 26687243             | 21596895            | 21451545           | 14468790          |
| 10000ng/ml TO-11  | 91480117          | 67148926          | 52678339             | 42610569            | 42286242           | 28595354          |

AVERAGE RESPONSE FACTOR

|                   | Isovaler-<br>Aldehyde | Valer-<br>Aldehyde | o-Tolu-<br>Aldehyde | m,p-Tolu-<br>Aldehyde | Hex-<br>Aldehyde | 2,5-Dimethyl<br>benz-<br>Aldehyde |
|-------------------|-----------------------|--------------------|---------------------|-----------------------|------------------|-----------------------------------|
| 50ng/ml TO-11A S: | 179689                | 169231             | 105723              | 218715                | 148823           | 90025                             |
| 100ng/ml TO-11A:  | 326001                | 327664             | 198075              | 405757                | 285376           | 176114                            |
| 500ng/ml TO-11A:  | 1628350               | 1588102            | 1018272             | 2197894               | 1422288          | 961098                            |
| 1500ng/ml TO-11A  | 5156078               | 5150599            | 3373392             | 7172865               | 4459078          | 3100194                           |
| 5000ng/ml TO-11A  | 17887414              | 17938360           | 12004107            | 25068543              | 15428309         | 11139754                          |
| 10000ng/ml TO-11L | 35253579              | 35389736           | 23858709            | 49397793              | 30311693         | 21943752                          |

| COMPOUND                 | 50        | 100       | 500       | 1500      | 5000      | 10000     | AVERAGE   | SD       | %RSD  |
|--------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|----------|-------|
| Formaldehyde             | 9.033E+03 | 8.595E+03 | 8.515E+03 | 9.020E+03 | 9.302E+03 | 9.148E+03 | 8.935E+03 | 3.13E+02 | 3.50% |
| Acetaldehyde             | 6.537E+03 | 6.232E+03 | 6.129E+03 | 6.593E+03 | 6.799E+03 | 6.715E+03 | 6.501E+03 | 2.66E+02 | 4.10% |
| Propionaldehyde          | 5.378E+03 | 4.996E+03 | 5.013E+03 | 5.195E+03 | 5.337E+03 | 5.268E+03 | 5.198E+03 | 1.62E+02 | 3.13% |
| Crotonaldehyde           | 3.974E+03 | 3.795E+03 | 3.909E+03 | 4.099E+03 | 4.319E+03 | 4.261E+03 | 4.060E+03 | 2.05E+02 | 5.04% |
| Butyraldehyde            | 4.071E+03 | 3.828E+03 | 3.819E+03 | 4.080E+03 | 4.290E+03 | 4.229E+03 | 4.053E+03 | 1.97E+02 | 4.86% |
| Benzaldehyde             | 2.793E+03 | 2.509E+03 | 2.569E+03 | 2.745E+03 | 2.894E+03 | 2.860E+03 | 2.728E+03 | 1.56E+02 | 5.74% |
| Isovaleraldehyde         | 3.594E+03 | 3.260E+03 | 3.257E+03 | 3.437E+03 | 3.577E+03 | 3.525E+03 | 3.442E+03 | 1.52E+02 | 4.42% |
| Valeraldehyde            | 3.385E+03 | 3.277E+03 | 3.176E+03 | 3.434E+03 | 3.588E+03 | 3.539E+03 | 3.400E+03 | 1.56E+02 | 4.58% |
| o-Tolualdehyde           | 2.114E+03 | 1.981E+03 | 2.037E+03 | 2.249E+03 | 2.401E+03 | 2.386E+03 | 2.195E+03 | 1.78E+02 | 8.13% |
| m,p-Tolualdehyde         | 2.187E+03 | 2.029E+03 | 2.198E+03 | 2.391E+03 | 2.507E+03 | 2.470E+03 | 2.297E+03 | 1.88E+02 | 8.18% |
| Hexaldehyde              | 2.976E+03 | 2.854E+03 | 2.845E+03 | 2.973E+03 | 3.086E+03 | 3.031E+03 | 2.961E+03 | 9.58E+01 | 3.24% |
| 2,5-Dimethylbenzaldehyde | 1.800E+03 | 1.761E+03 | 1.922E+03 | 2.067E+03 | 2.228E+03 | 2.194E+03 | 1.995E+03 | 1.98E+02 | 9.95% |

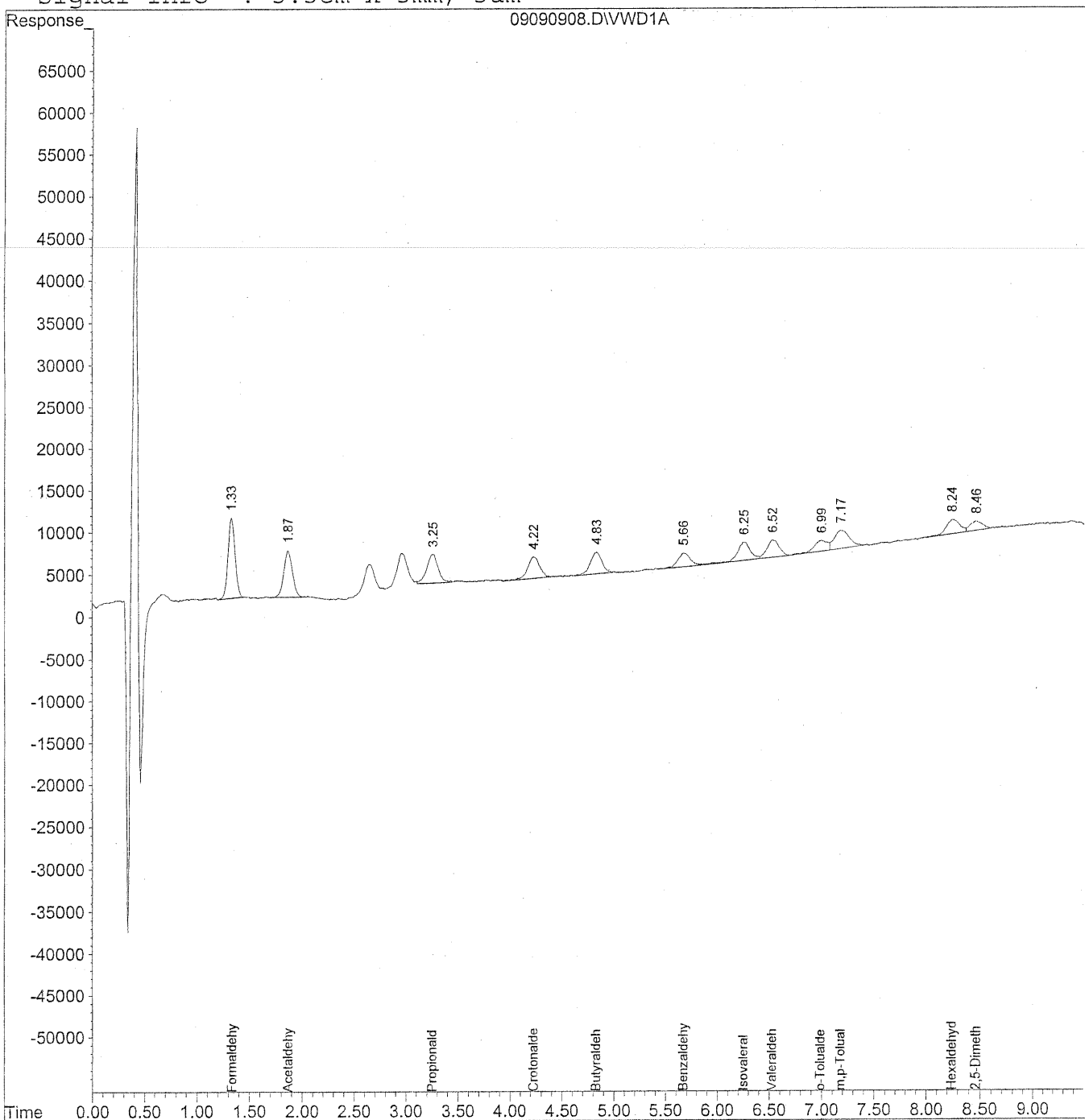
| TO-11A CALIBRATION STANDARDS LIST |        |              |  |  |  |  |  |
|-----------------------------------|--------|--------------|--|--|--|--|--|
| 50ng/ml                           | TO-11A | S21-09080905 |  |  |  |  |  |
| 100ng/ml                          | TO-11A | S21-09080904 |  |  |  |  |  |
| 500ng/ml                          | TO-11A | S21-09080903 |  |  |  |  |  |
| 1500ng/ml                         | TO-11A | S21-09090903 |  |  |  |  |  |
| 5000ng/ml                         | TO-11A | S21-09080902 |  |  |  |  |  |
| 10000ng/ml                        | TO-11A | S21-09080901 |  |  |  |  |  |

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090908.D Vial: 9  
Acq On : 09-Sep-2009, 15:20 Operator: MD  
Sample : 50ng/ml TO-11A S21-09080905 Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 10 8:46 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Wed Sep 09 16:02:22 2009  
Response via : Multiple Level Calibration  
DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
Signal Phase : Supelcosil LC-18  
Signal Info : 3.3cm x 3mm, 3um



Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090908.D Vial: 9  
 Acq On : 09-Sep-2009, 15:20 Operator: MD  
 Sample : 50ng/ml TO-11A S21-09080905 Inst : VWD  
 Misc : Multiplr: 1.00  
 IntFile : events.e  
 Quant Time: Sep 10 8:46 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
 Title : LC-1050 TO-11A ICAL  
 Last Update : Wed Sep 09 16:02:22 2009  
 Response via : Initial Calibration  
 DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
 Signal Phase : Supelcosil LC-18  
 Signal Info : 3.3cm x 3mm, 3um

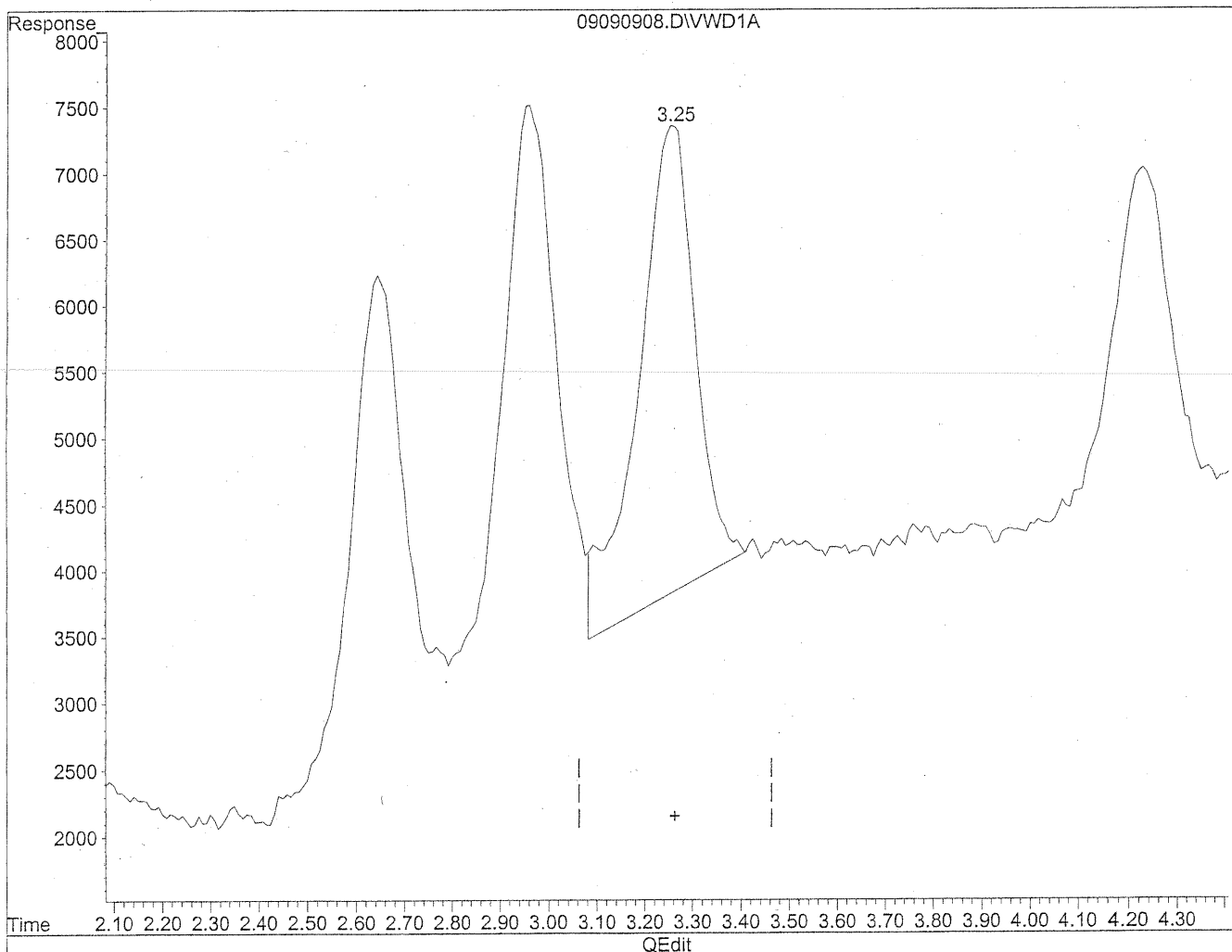
| Compound                     | R.T. | Response | Conc Units    |
|------------------------------|------|----------|---------------|
| -----                        |      |          |               |
| Target Compounds             |      |          |               |
| 1) Formaldehyde              | 1.33 | 443088   | 48.300 ng/ml  |
| 2) Acetaldehyde              | 1.87 | 311721   | 47.262 ng/ml  |
| 3) Propionaldehyde           | 3.25 | 257497   | 49.595 ng/mlm |
| 4) Crotonaldehyde            | 4.23 | 205520   | 50.553 ng/ml  |
| 5) Butyraldehyde             | 4.83 | 199284   | 48.165 ng/ml  |
| 6) Benzaldehyde              | 5.67 | 136041   | 50.640 ng/ml  |
| 7) Isovaleraldehyde          | 6.25 | 186226   | 53.155 ng/ml  |
| 8) Valeraldehyde             | 6.53 | 166401   | 50.588 ng/ml  |
| 9) o-Tolualdehyde            | 6.99 | 109996   | 48.007 ng/ml  |
| 10) m,p-Tolualdehyde         | 7.18 | 216426   | 93.961 ng/ml  |
| 11) Hexaldehyde              | 8.24 | 145487   | 51.040 ng/ml  |
| 12) 2,5-Dimethylbenzaldehyde | 8.46 | 84766    | 42.867 ng/ml  |



Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090908.D Vial: 9  
Acq On : 09-Sep-2009, 15:20 Operator: MD  
Sample : 50ng/ml TO-11A S21-09080905 Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 10 8:45 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Wed Sep 09 16:02:22 2009  
Response via : Multiple Level Calibration

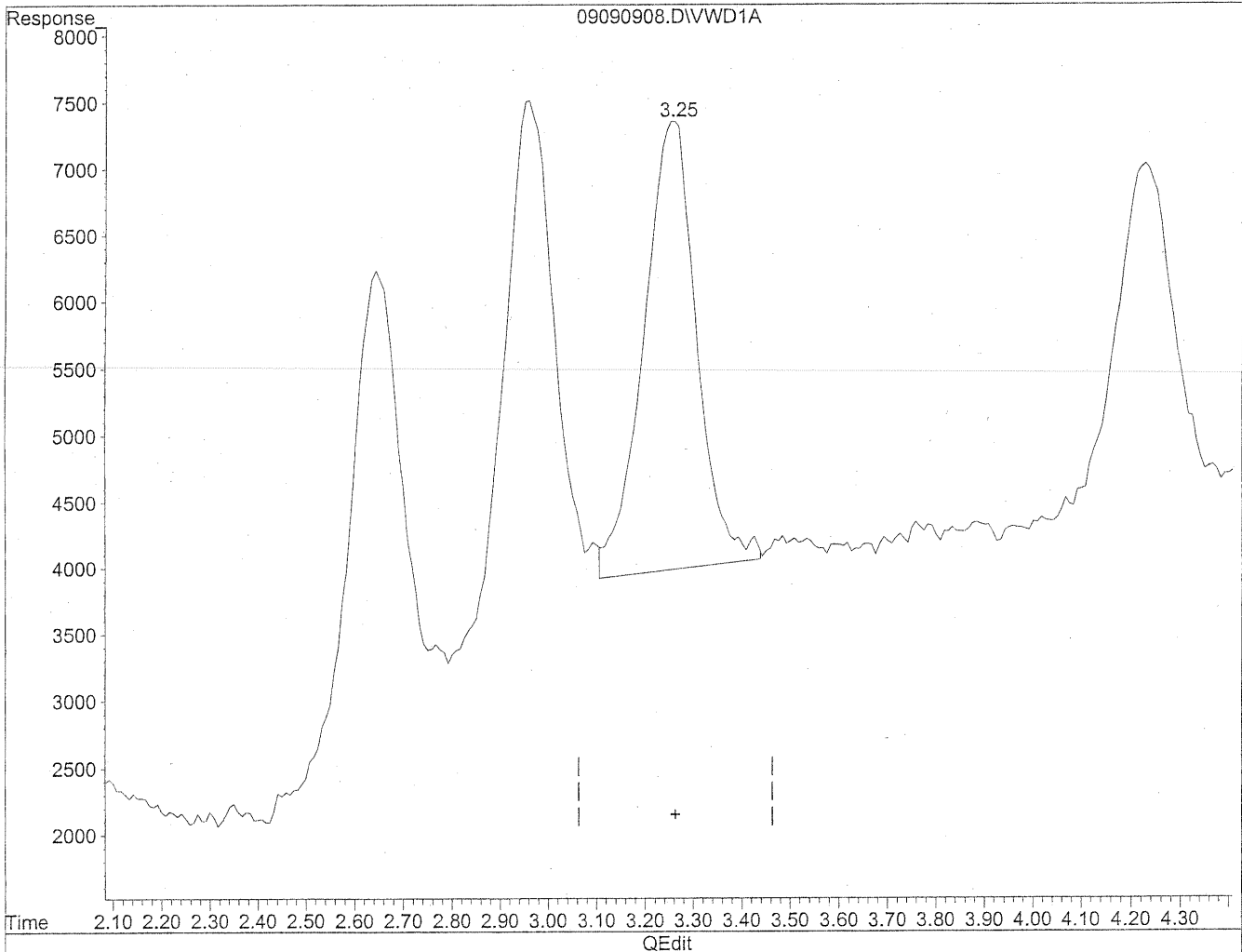


(3) Propionaldehyde  
3.26min 56.431ng/ml  
response 292995

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090908.D Vial: 9  
Acq On : 09-Sep-2009, 15:20 Operator: MD  
Sample : 50ng/ml TO-11A S21-09080905 Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 10 8:45 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Wed Sep 09 16:02:22 2009  
Response via : Multiple Level Calibration



(3) Propionaldehyde  
3.25min 49.595ng/ml m  
response 257497

*MD*  
9/10/09  
BZ

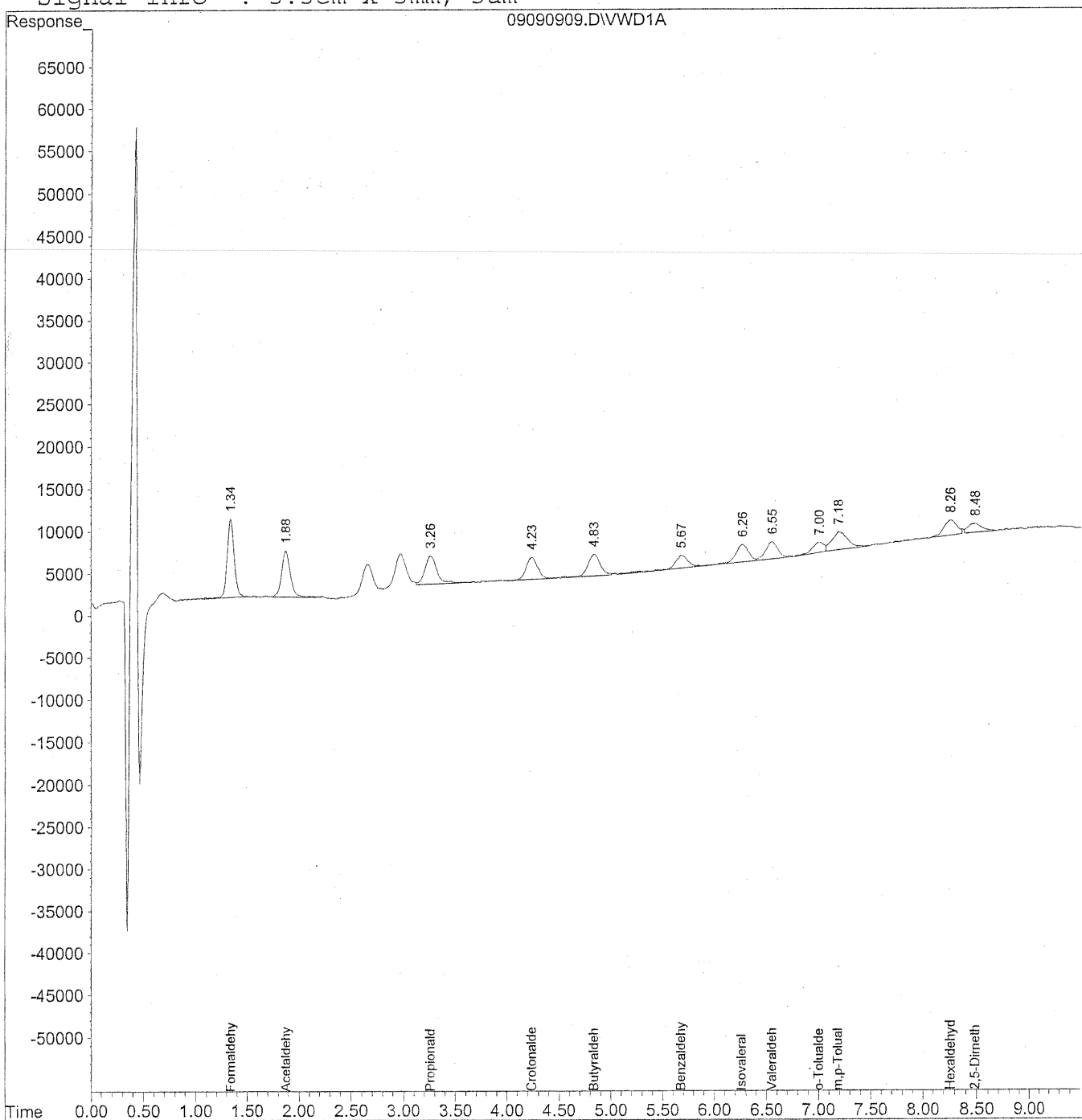
KE 9/10/09

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090909.D Vial: 9  
Acq On : 09-Sep-2009, 15:31 Operator: MD  
Sample : 50ng/ml TO-11A S21-09080905 Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 10 8:48 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Wed Sep 09 16:02:22 2009  
Response via : Multiple Level Calibration  
DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
Signal Phase : Supelcosil LC-18  
Signal Info : 3.3cm x 3mm, 3um



Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090909.D Vial: 9  
 Acq On : 09-Sep-2009, 15:31 Operator: MD  
 Sample : 50ng/ml TO-11A S21-09080905 Inst : VWD  
 Misc : Multiplr: 1.00  
 IntFile : events.e  
 Quant Time: Sep 10 8:48 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
 Title : LC-1050 TO-11A ICAL  
 Last Update : Wed Sep 09 16:02:22 2009  
 Response via : Initial Calibration  
 DataAcq Meth : TO-11A.M

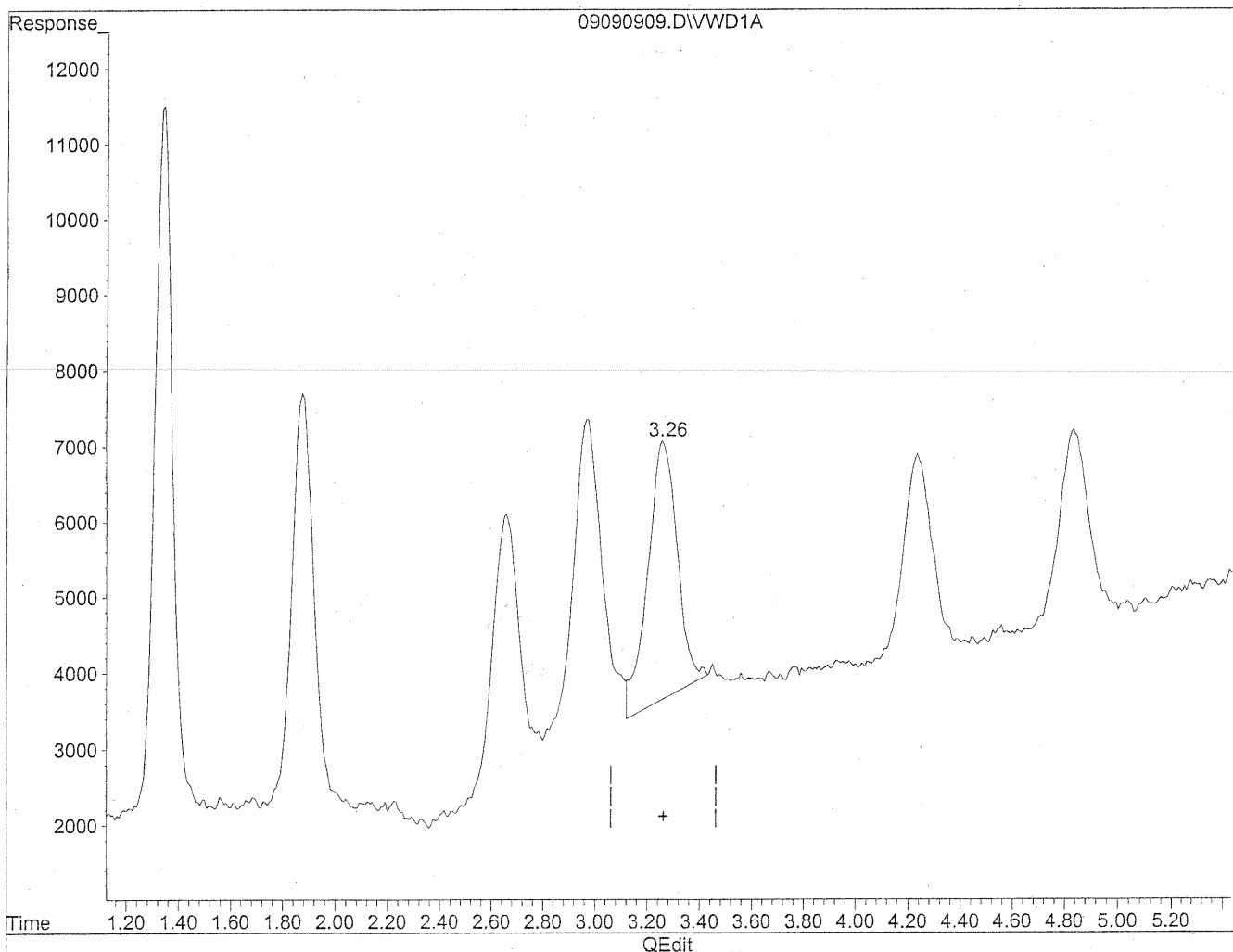
Volume Inj. : 3uL  
 Signal Phase : Supelcosil LC-18  
 Signal Info : 3.3cm x 3mm, 3um

| Compound                     | R.T. | Response | Conc Units    |
|------------------------------|------|----------|---------------|
| -----                        |      |          |               |
| Target Compounds             |      |          |               |
| 1) Formaldehyde              | 1.34 | 447251   | 48.810 ng/ml  |
| 2) Acetaldehyde              | 1.88 | 327663   | 49.697 ng/ml  |
| 3) Propionaldehyde           | 3.26 | 268082   | 51.767 ng/mlm |
| 4) Crotonaldehyde            | 4.24 | 200887   | 48.943 ng/ml  |
| 5) Butyraldehyde             | 4.84 | 217482   | 52.896 ng/ml  |
| 6) Benzaldehyde              | 5.68 | 140658   | 52.629 ng/ml  |
| 7) Isovaleraldehyde          | 6.27 | 175760   | 49.313 ng/ml  |
| 8) Valeraldehyde             | 6.55 | 171974   | 52.000 ng/ml  |
| 9) o-Tolualdehyde            | 7.01 | 93386    | 40.816 ng/ml  |
| 10) m,p-Tolualdehyde         | 7.18 | 227448   | 98.156 ng/mlm |
| 11) Hexaldehyde              | 8.26 | 145697   | 49.945 ng/mlm |
| 12) 2,5-Dimethylbenzaldehyde | 8.48 | 96663    | 49.614 ng/mlm |

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090909.D Vial: 9  
Acq On : 09-Sep-2009, 15:31 Operator: MD  
Sample : 50ng/ml TO-11A S21-09080905 Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 10 8:46 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Wed Sep 09 16:02:22 2009  
Response via : Multiple Level Calibration

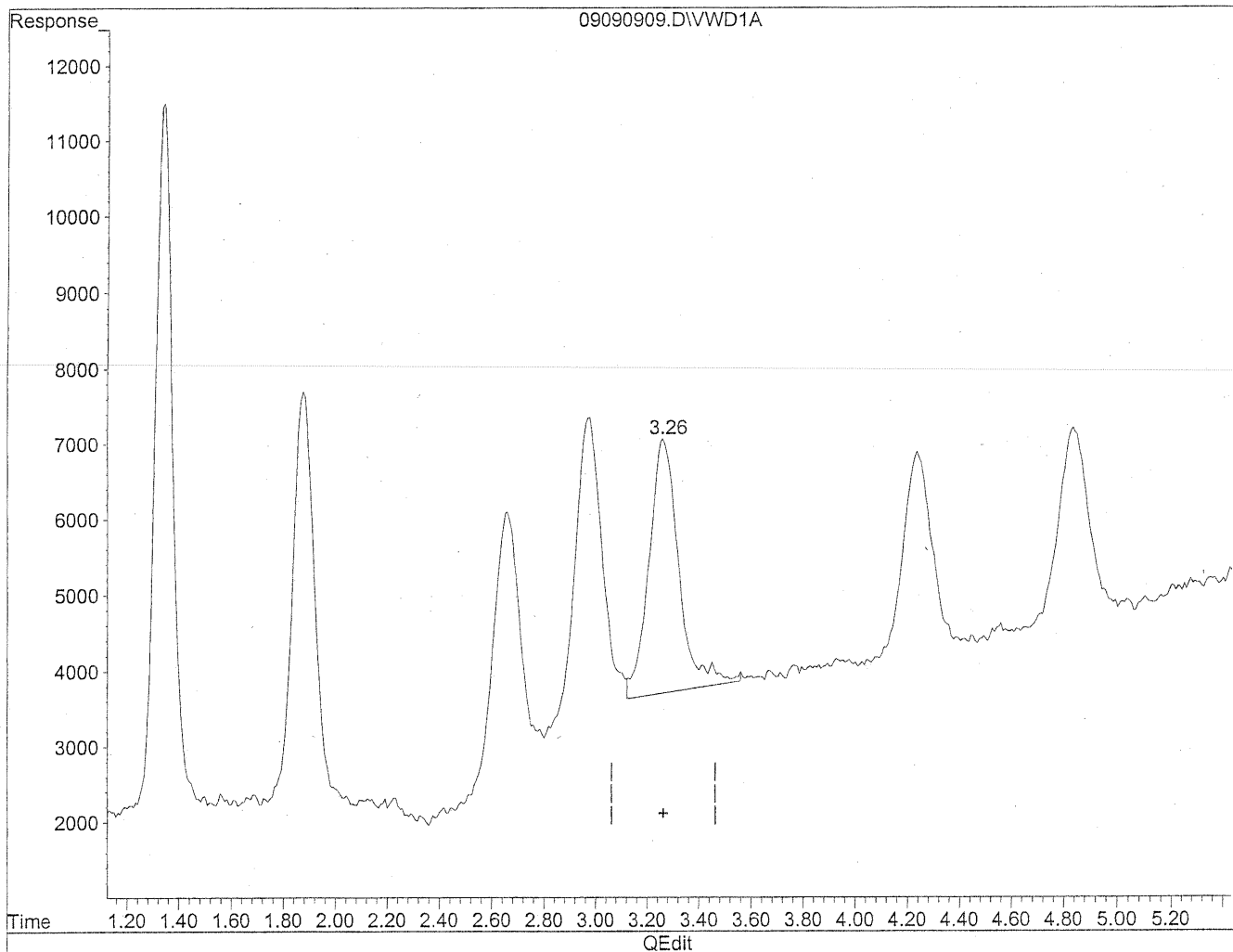


(3) Propionaldehyde  
3.26min 51.274ng/ml  
response 265532

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090909.D Vial: 9  
Acq On : 09-Sep-2009, 15:31 Operator: MD  
Sample : 50ng/ml TO-11A S21-09080905 Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 10 8:46 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Wed Sep 09 16:02:22 2009  
Response via : Multiple Level Calibration



(3) Propionaldehyde  
3.26min 51.767ng/ml m  
response 268082

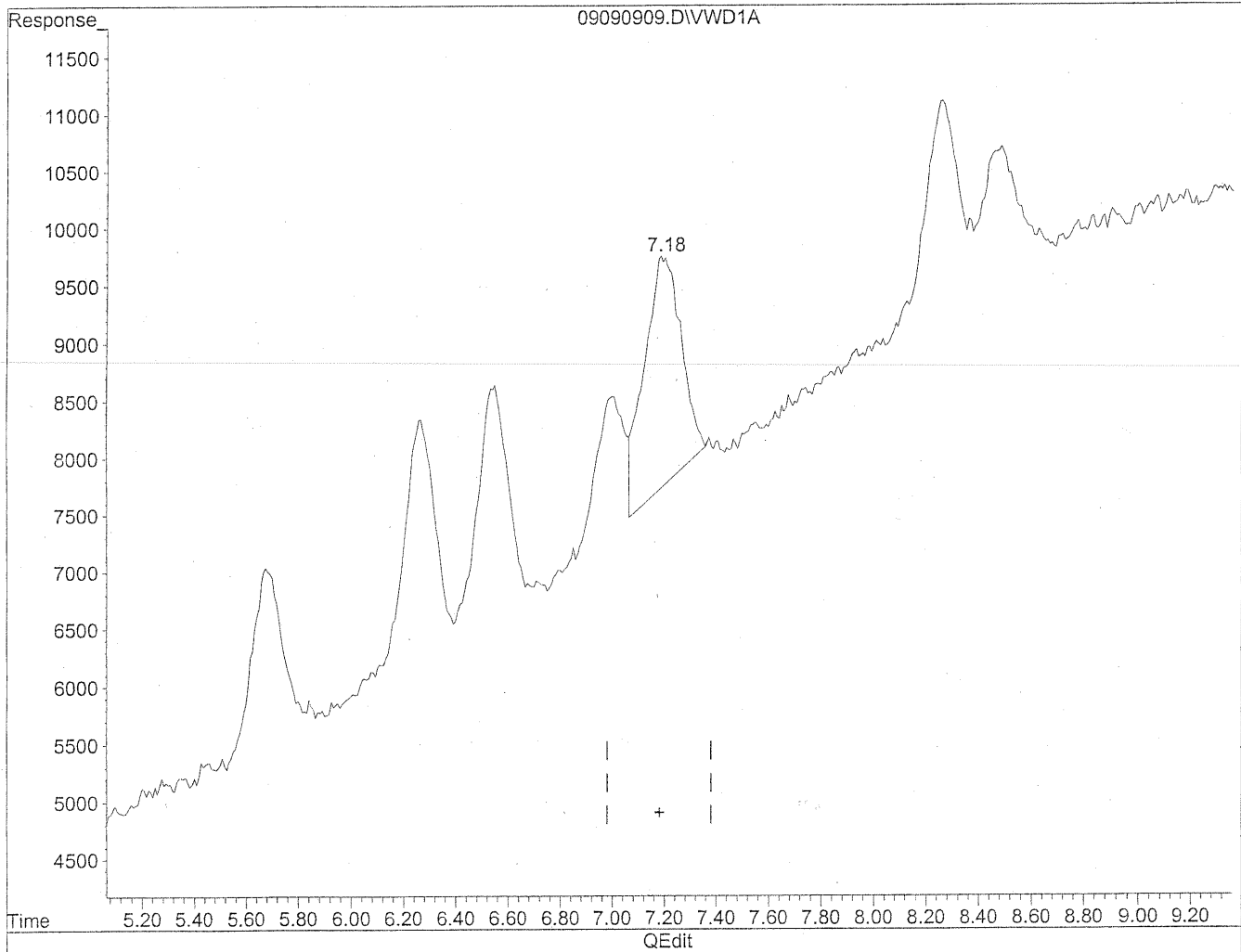
*MD*  
9/10/09  
PC

PC 9/10/09

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090909.D Vial: 9  
Acq On : 09-Sep-2009, 15:31 Operator: MD  
Sample : 50ng/ml TO-11A S21-09080905 Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 10 8:46 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Wed Sep 09 16:02:22 2009  
Response via : Multiple Level Calibration

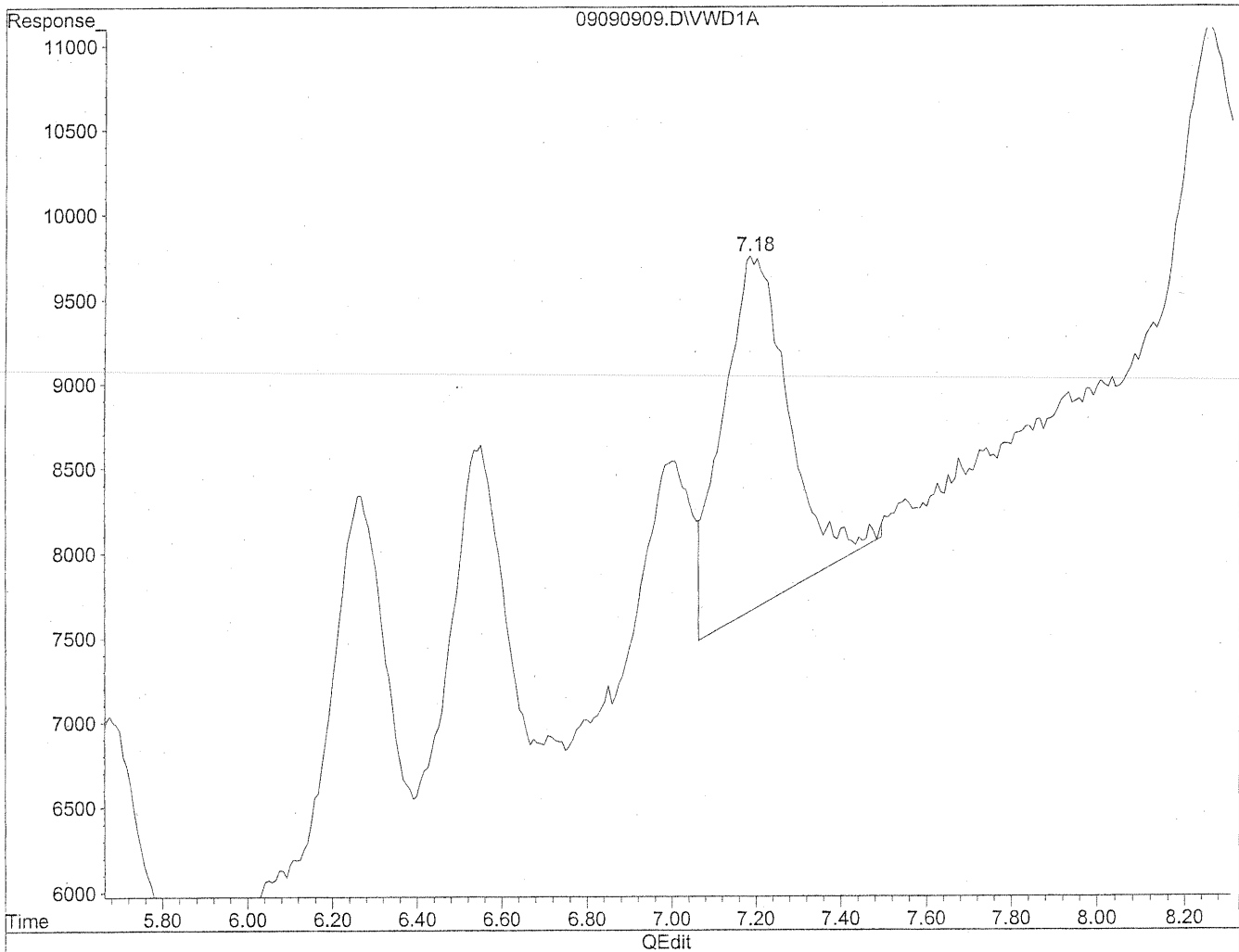


(10) m,p-Tolualdehyde  
7.19min 86.656ng/ml  
response 200799

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090909.D Vial: 9  
Acq On : 09-Sep-2009, 15:31 Operator: MD  
Sample : 50ng/ml TO-11A S21-09080905 Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 10 8:46 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Wed Sep 09 16:02:22 2009  
Response via : Multiple Level Calibration



(10) m,p-Tolualdehyde  
7.18min 98.156ng/ml m  
response 227448

*MD*  
9/10/09  
pc

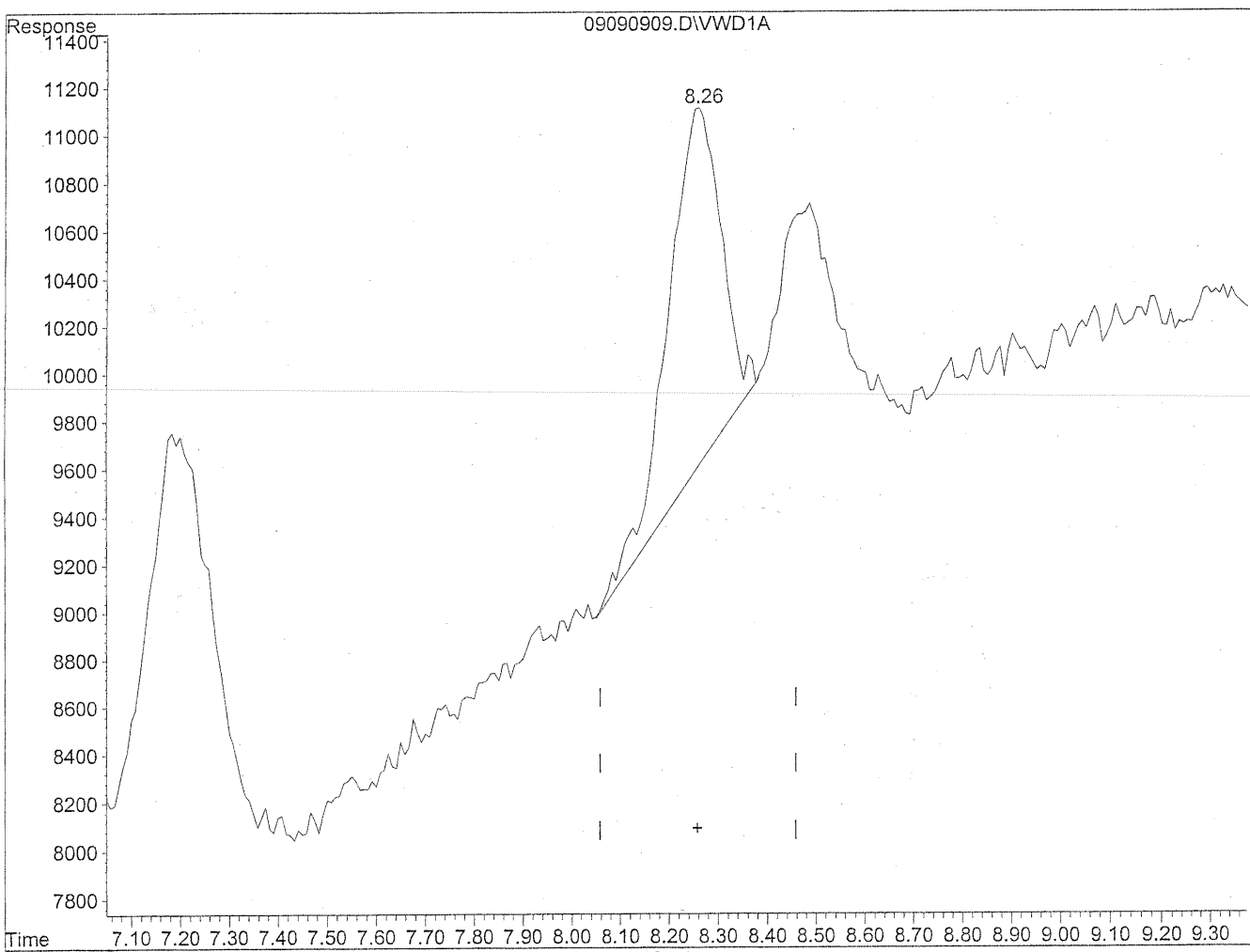
*KE 9/10/09*



Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090909.D Vial: 9  
Acq On : 09-Sep-2009, 15:31 Operator: MD  
Sample : 50ng/ml TO-11A S21-09080905 Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 10 8:46 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Wed Sep 09 16:02:22 2009  
Response via : Multiple Level Calibration

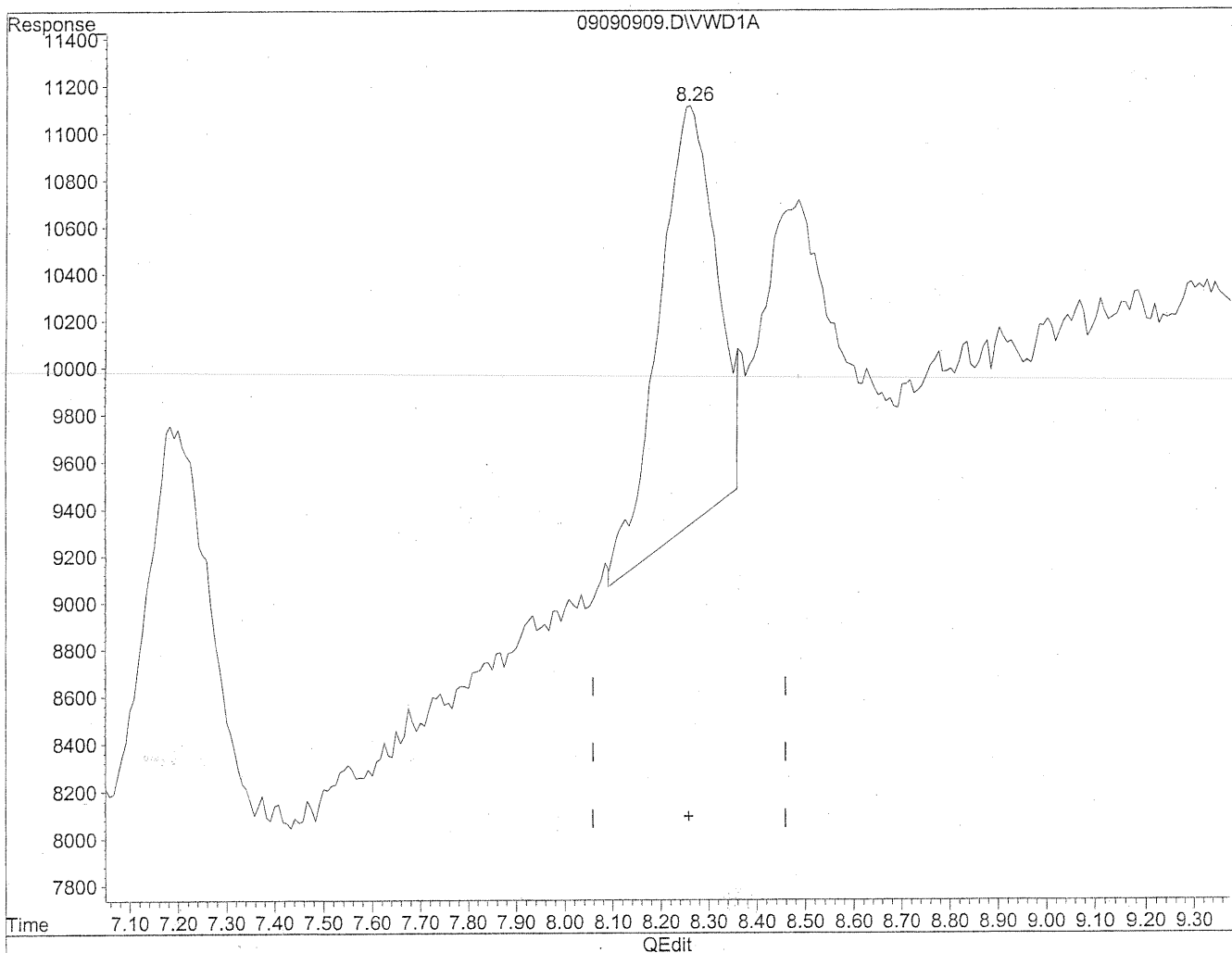


(11) Hexaldehyde  
8.26min 38.176ng/ml  
response 111365

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090909.D Vial: 9  
Acq On : 09-Sep-2009, 15:31 Operator: MD  
Sample : 50ng/ml TO-11A S21-09080905 Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 10 8:46 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Wed Sep 09 16:02:22 2009  
Response via : Multiple Level Calibration



(11) Hexaldehyde  
8.26min 49.945ng/ml m  
response 145697

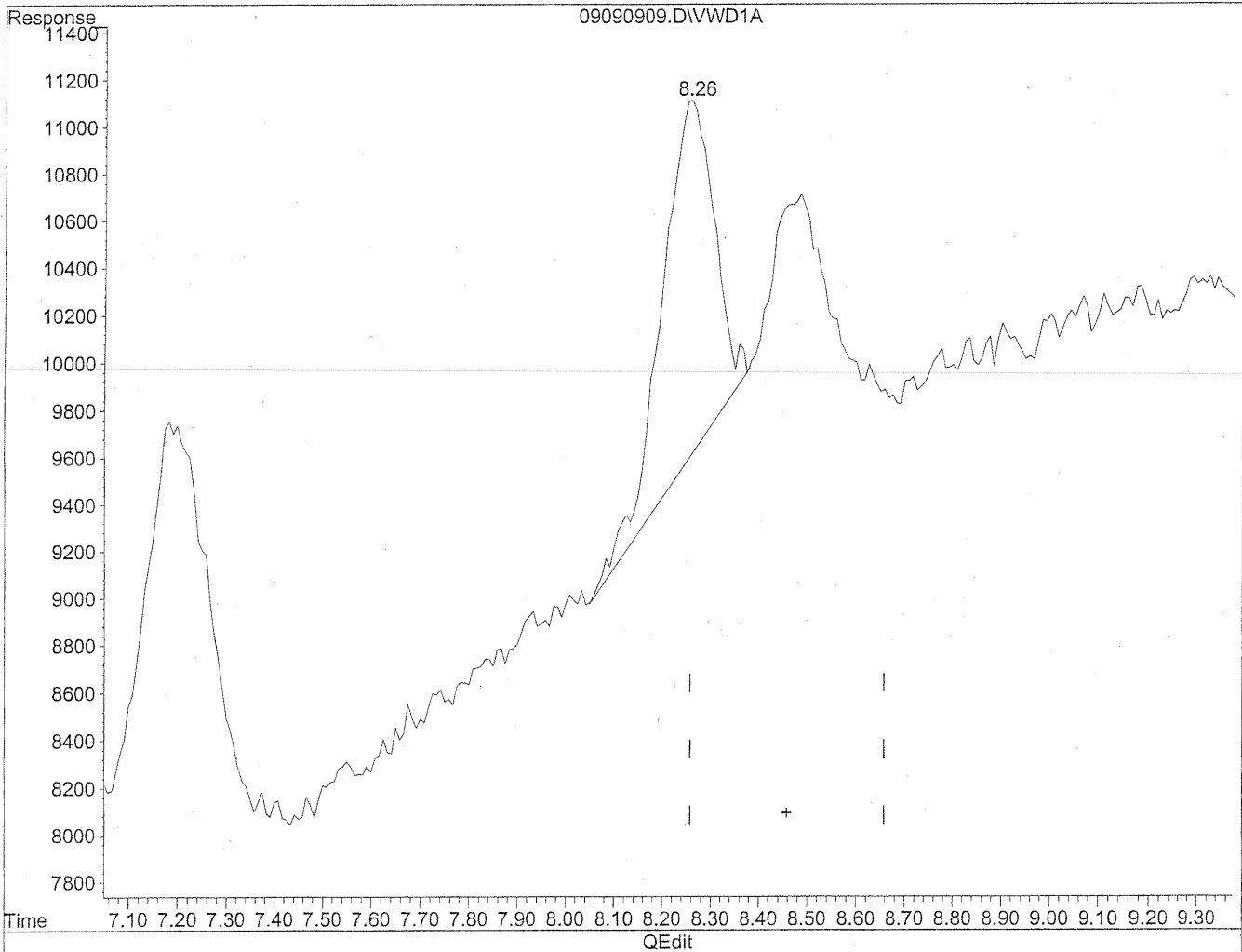
*MD*  
9/10/09  
pc

KE 9/10/09

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090909.D Vial: 9  
Acq On : 09-Sep-2009, 15:31 Operator: MD  
Sample : 50ng/ml TO-11A S21-09080905 Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 10 8:46 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Wed Sep 09 16:02:22 2009  
Response via : Multiple Level Calibration

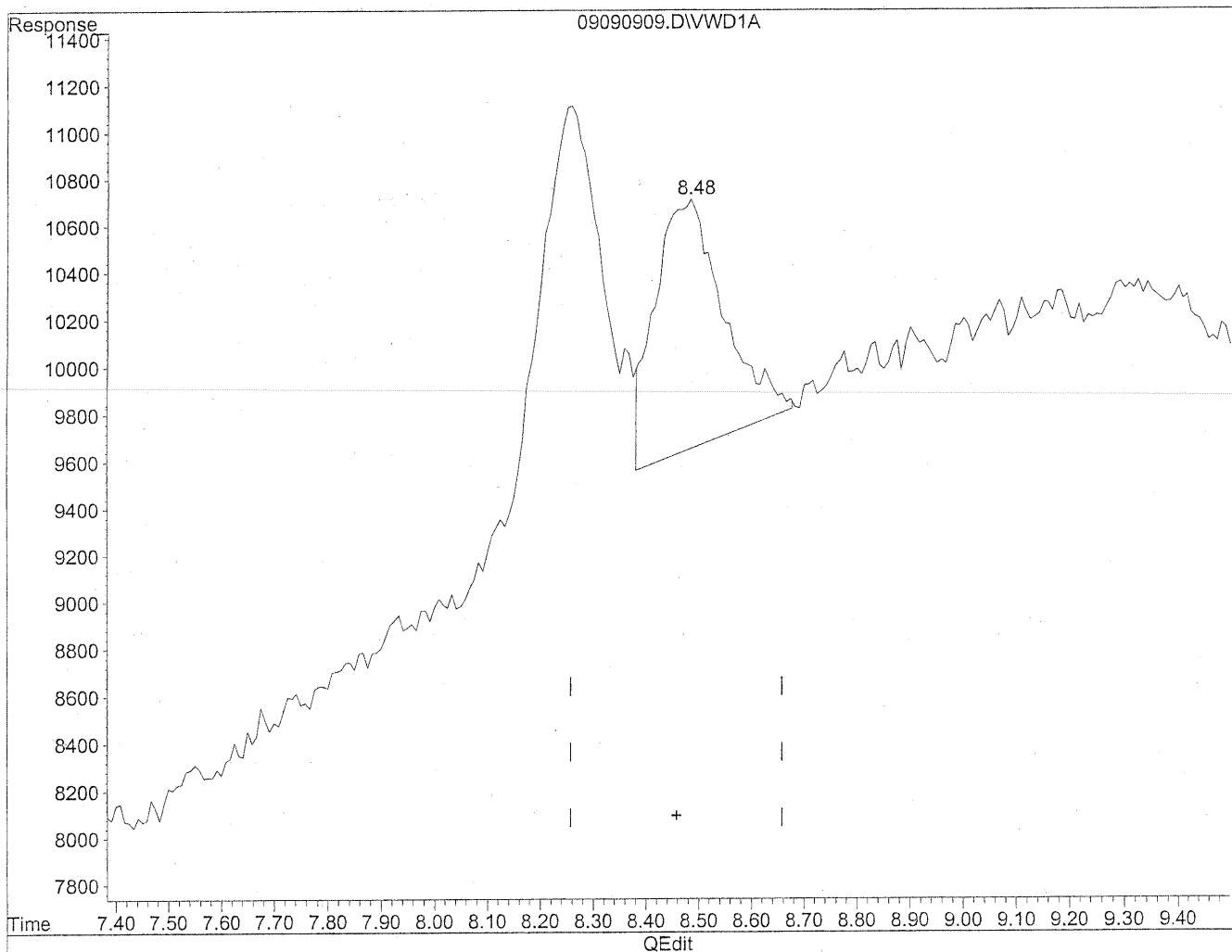


(12) 2,5-Dimethylbenzaldehyde  
8.26min 57.160ng/ml  
response 111365

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090909.D Vial: 9  
Acq On : 09-Sep-2009, 15:31 Operator: MD  
Sample : 50ng/ml TO-11A S21-09080905 Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 10 8:48 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 11 13:54:46 2008  
Response via : Multiple Level Calibration



(12) 2,5-Dimethylbenzaldehyde  
8.48min 49.614ng/ml m  
response 96663

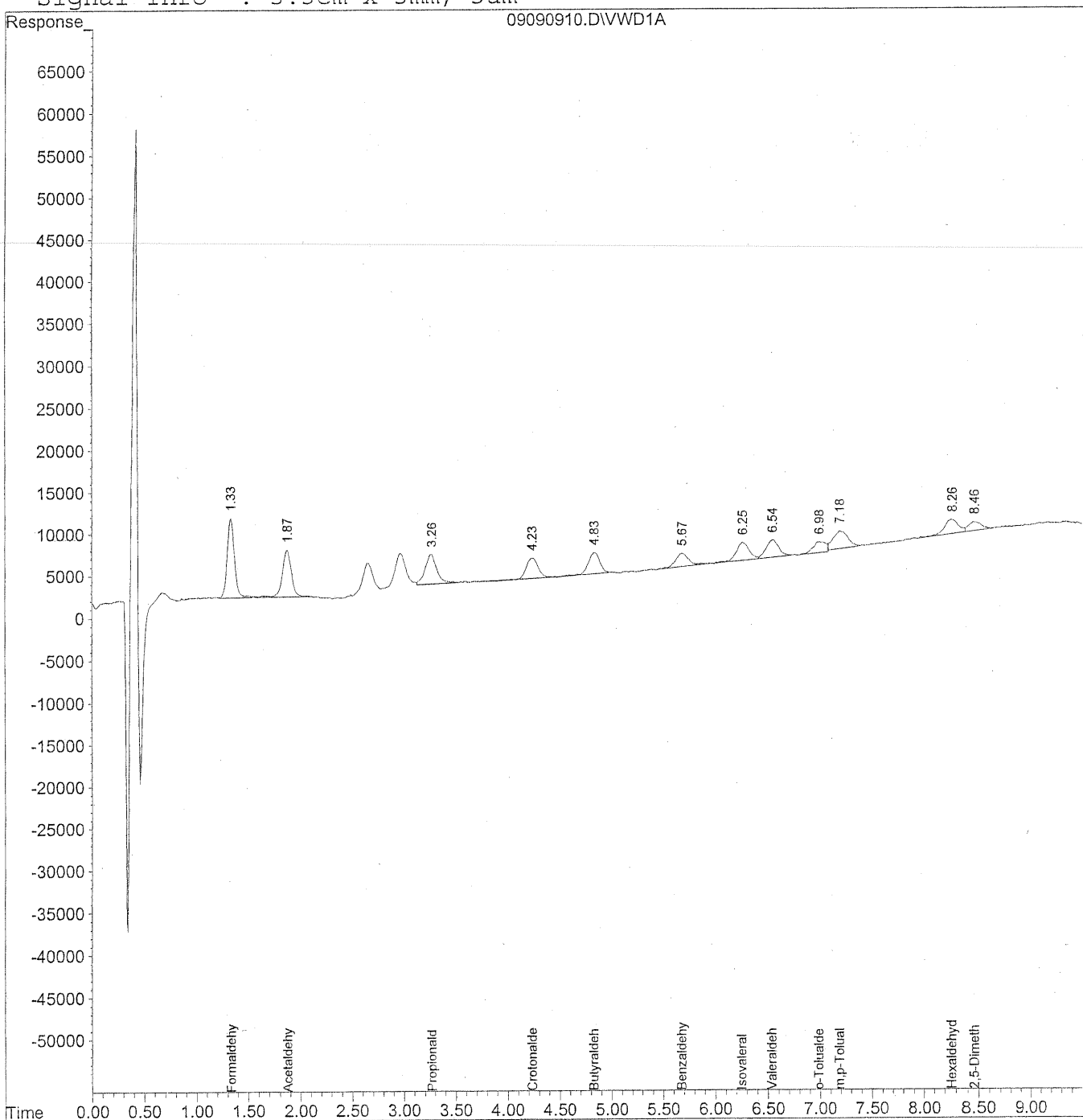
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9/10/09  
JE mp  
KAG 10/09

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090910.D Vial: 9  
Acq On : 09-Sep-2009, 15:43 Operator: MD  
Sample : 50ng/ml TO-11A S21-09080905 Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 10 8:49 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Wed Sep 09 16:02:22 2009  
Response via : Multiple Level Calibration  
DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
Signal Phase : Supelcosil LC-18  
Signal Info : 3.3cm x 3mm, 3um



237

Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090910.D Vial: 9  
 Acq On : 09-Sep-2009, 15:43 Operator: MD  
 Sample : 50ng/ml TO-11A S21-09080905 Inst : VWD  
 Misc : Multiplr: 1.00  
 IntFile : events.e  
 Quant Time: Sep 10 8:49 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
 Title : LC-1050 TO-11A ICAL  
 Last Update : Wed Sep 09 16:02:22 2009  
 Response via : Initial Calibration  
 DataAcq Meth : TO-11A.M

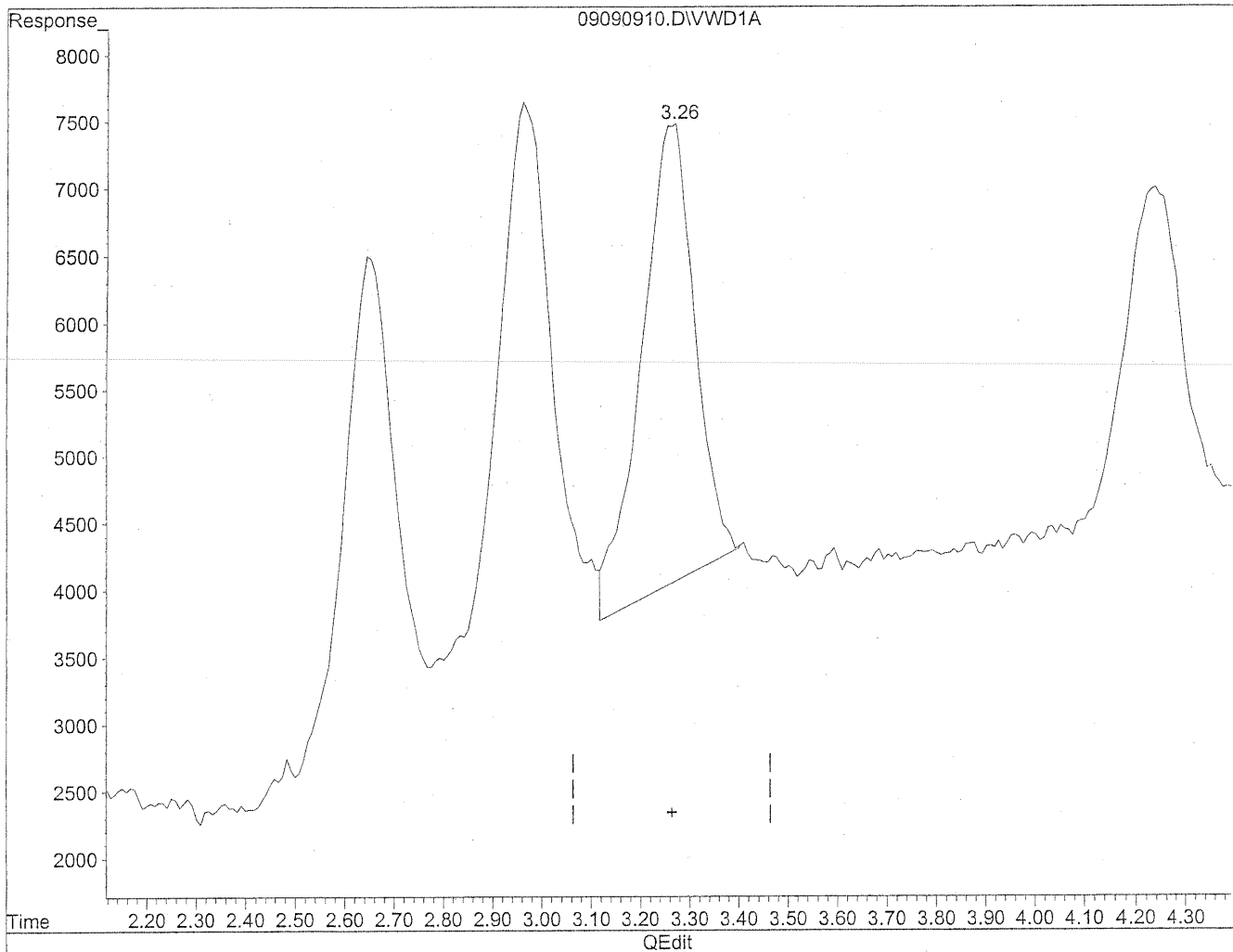
Volume Inj. : 3uL  
 Signal Phase : Supelcosil LC-18  
 Signal Info : 3.3cm x 3mm, 3um

| Compound                     | R.T. | Response | Conc Units    |
|------------------------------|------|----------|---------------|
| -----                        |      |          |               |
| Target Compounds             |      |          |               |
| 1) Formaldehyde              | 1.33 | 464552   | 50.660 ng/ml  |
| 2) Acetaldehyde              | 1.87 | 341116   | 51.530 ng/ml  |
| 3) Propionaldehyde           | 3.26 | 281140   | 54.104 ng/mlm |
| 4) Crotonaldehyde            | 4.23 | 189710   | 46.307 ng/ml  |
| 5) Butyraldehyde             | 4.83 | 193856   | 46.804 ng/ml  |
| 6) Benzaldehyde              | 5.67 | 142307   | 53.093 ng/mlm |
| 7) Isovaleraldehyde          | 6.26 | 177082   | 49.928 ng/ml  |
| 8) Valeraldehyde             | 6.54 | 169317   | 51.053 ng/ml  |
| 9) o-Tolualdehyde            | 6.98 | 113786   | 50.342 ng/mlm |
| 10) m,p-Tolualdehyde         | 7.19 | 212270   | 91.245 ng/ml  |
| 11) Hexaldehyde              | 8.26 | 155285   | 53.226 ng/ml  |
| 12) 2,5-Dimethylbenzaldehyde | 8.46 | 88645    | 45.040 ng/ml  |

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090910.D Vial: 9  
Acq On : 09-Sep-2009, 15:43 Operator: MD  
Sample : 50ng/ml TO-11A S21-09080905 Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 10 8:48 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Wed Sep 09 16:02:22 2009  
Response via : Multiple Level Calibration

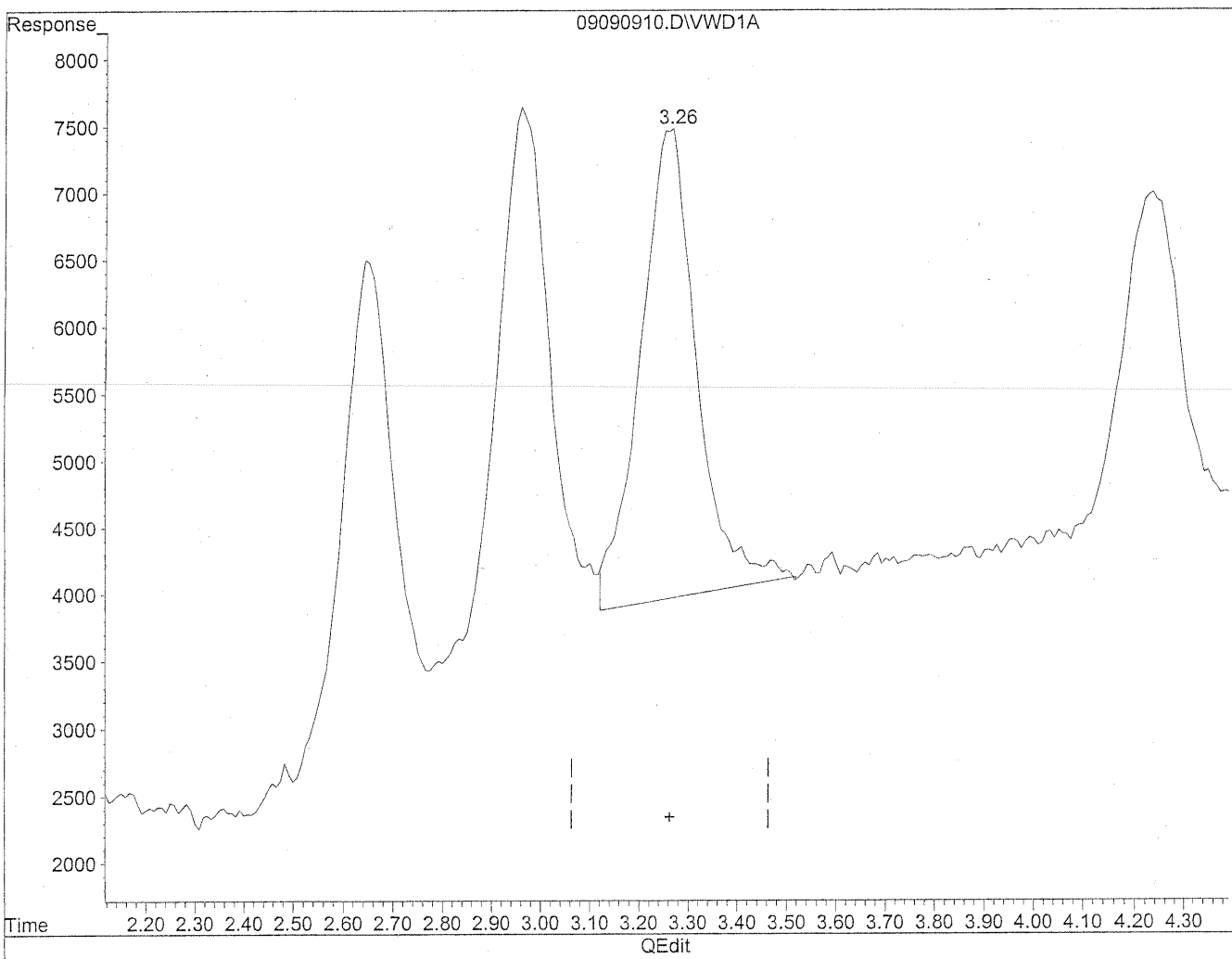


(3) Propionaldehyde  
3.26min 49.837ng/ml  
response 258964

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090910.D Vial: 9  
Acq On : 09-Sep-2009, 15:43 Operator: MD  
Sample : 50ng/ml TO-11A S21-09080905 Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 10 8:48 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Wed Sep 09 16:02:22 2009  
Response via : Multiple Level Calibration



(3) Propionaldehyde  
3.26min 54.104ng/ml m  
response 281140

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*par*

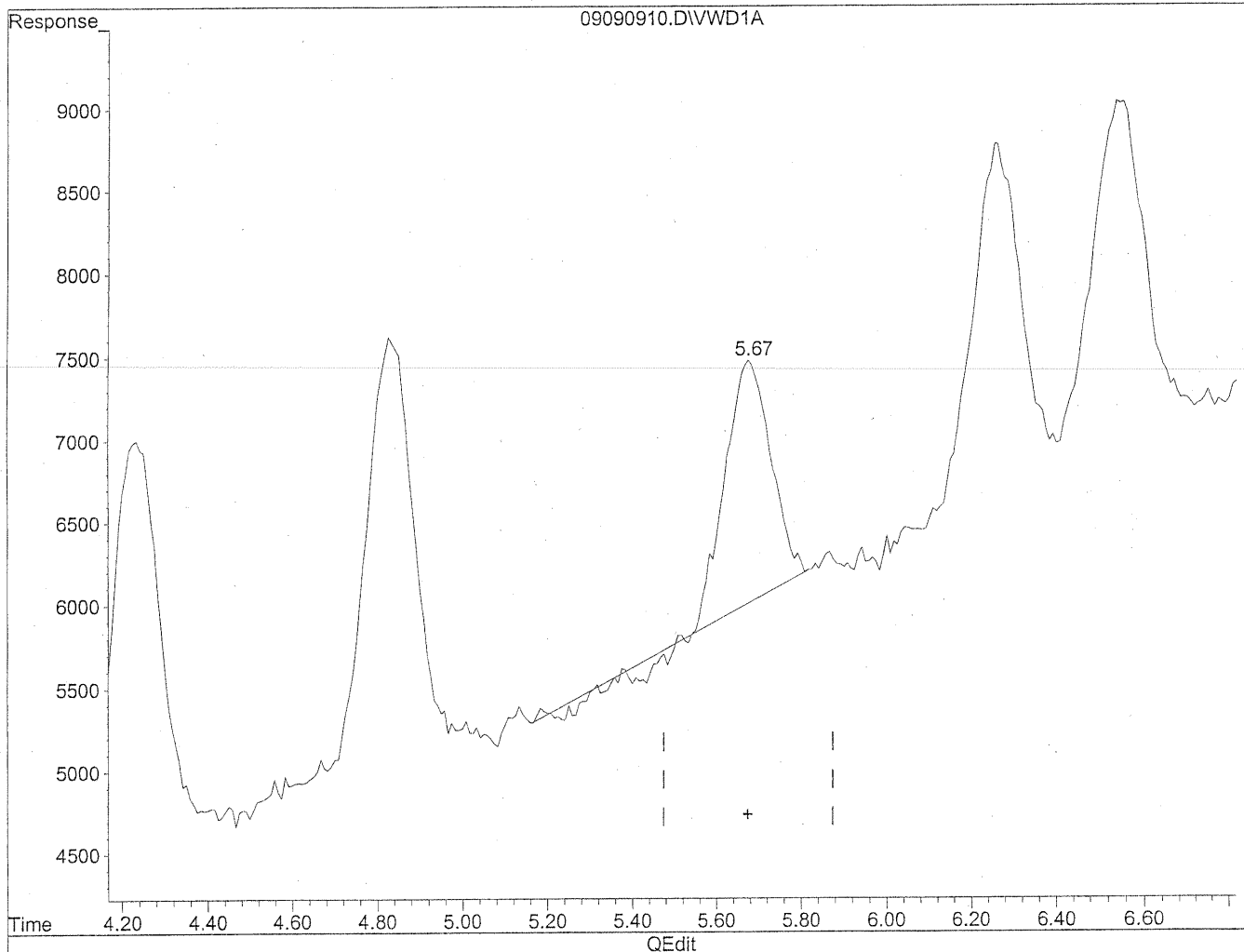
*429/10/09*



Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090910.D Vial: 9  
Acq On : 09-Sep-2009, 15:43 Operator: MD  
Sample : 50ng/ml TO-11A S21-09080905 Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 10 8:48 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Wed Sep 09 16:02:22 2009  
Response via : Multiple Level Calibration

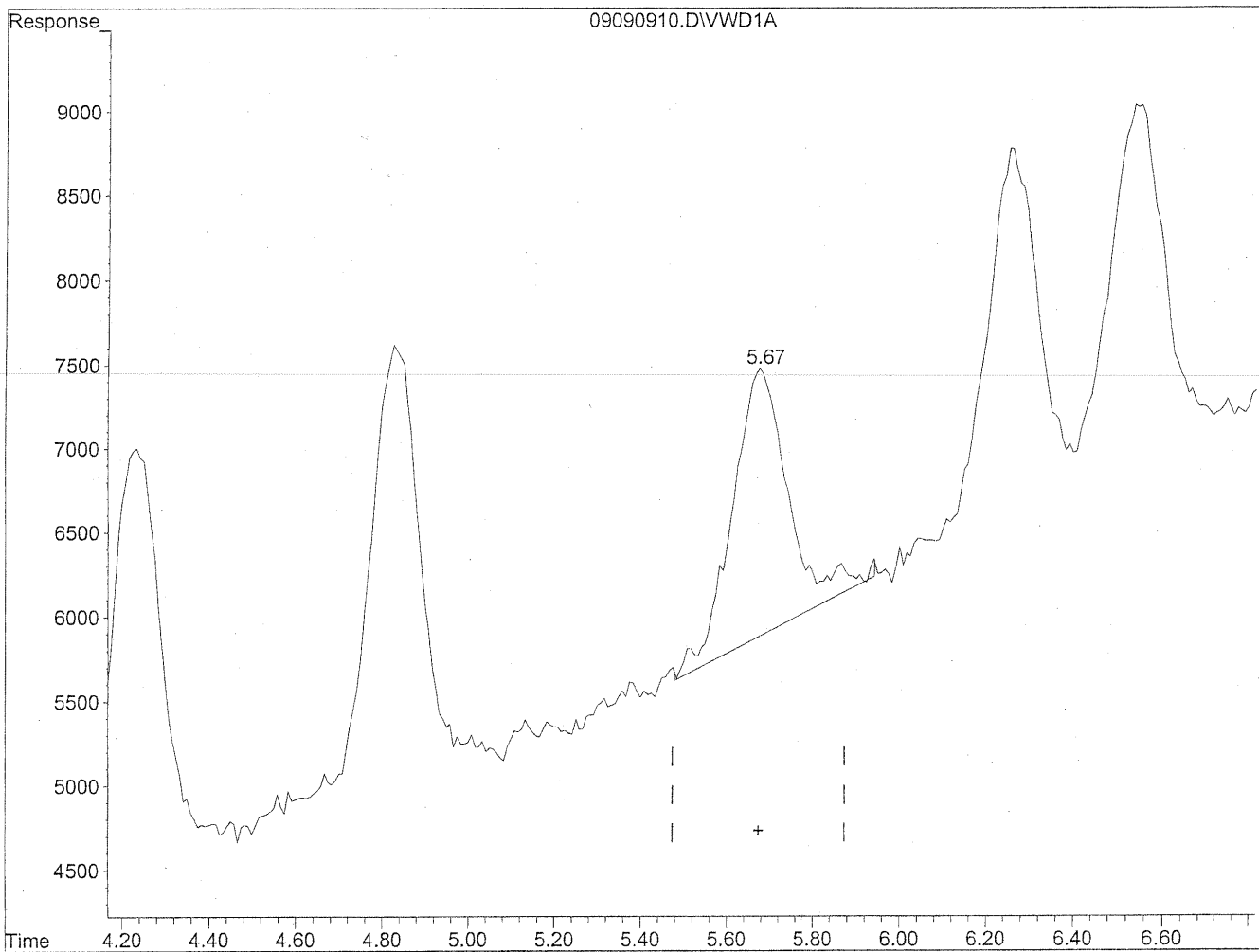


(6) Benzaldehyde  
5.68min 37.890ng/ml  
response 101557

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090910.D Vial: 9  
Acq On : 09-Sep-2009, 15:43 Operator: MD  
Sample : 50ng/ml TO-11A S21-09080905 Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 10 8:48 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Wed Sep 09 16:02:22 2009  
Response via : Multiple Level Calibration



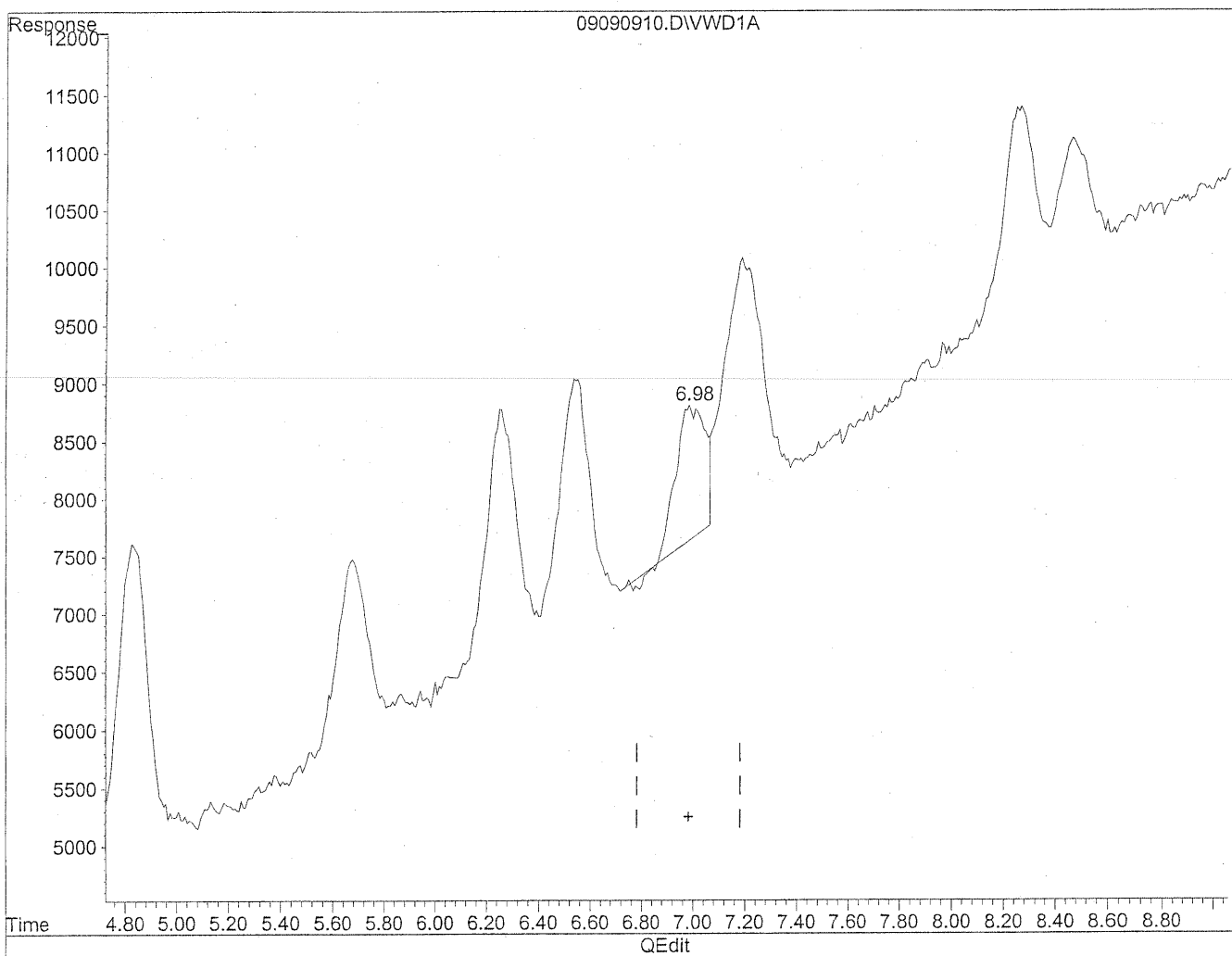
(6) Benzaldehyde  
5.67min 53.093ng/ml m  
response 142307

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149/10/09

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090910.D Vial: 9  
Acq On : 09-Sep-2009, 15:43 Operator: MD  
Sample : 50ng/ml TO-11A S21-09080905 Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 10 8:48 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Wed Sep 09 16:02:22 2009  
Response via : Multiple Level Calibration

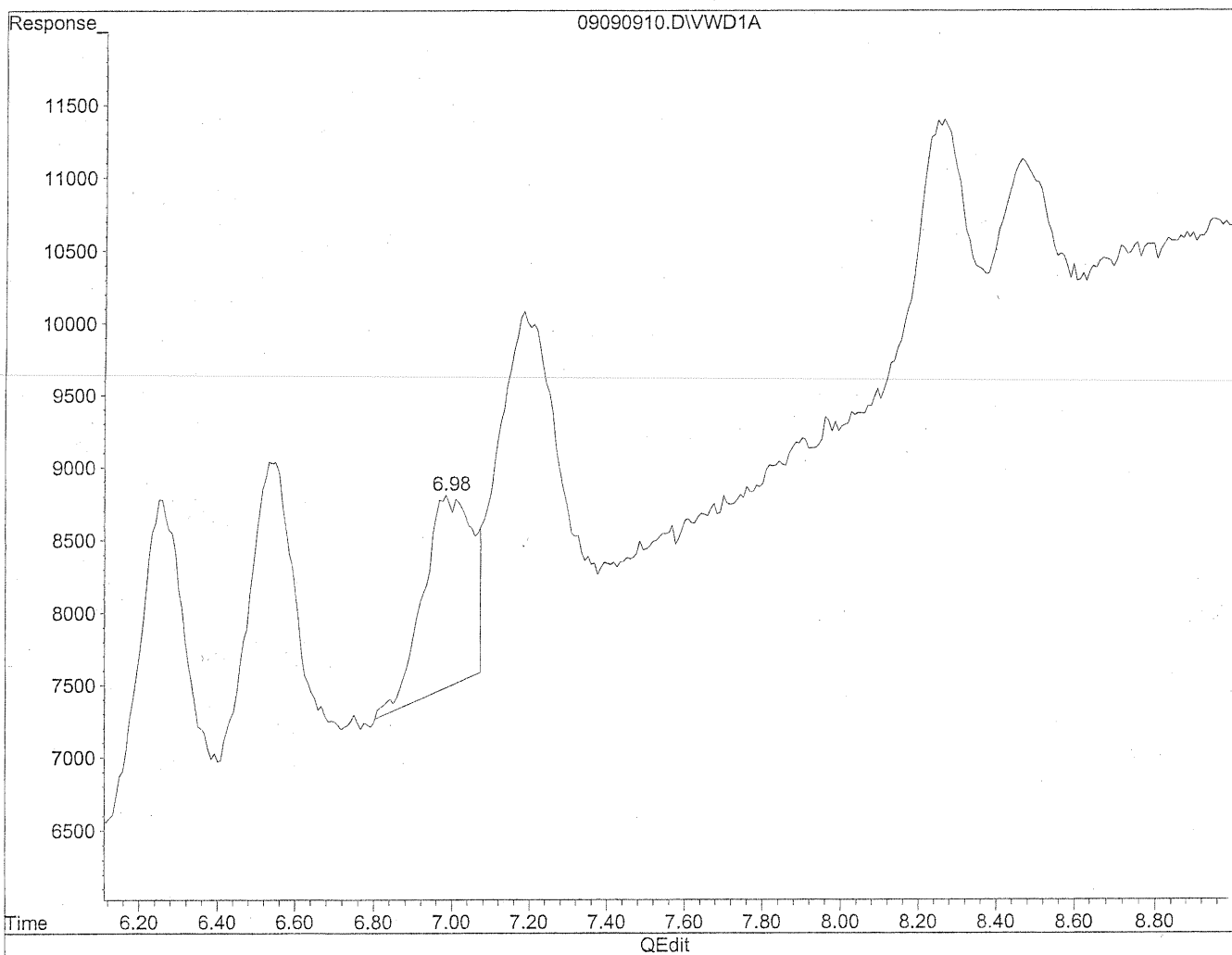


(9) o-Tolualdehyde  
6.99min 38.054ng/ml  
response 86012

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090910.D Vial: 9  
Acq On : 09-Sep-2009, 15:43 Operator: MD  
Sample : 50ng/ml TO-11A S21-09080905 Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 10 8:48 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Wed Sep 09 16:02:22 2009  
Response via : Multiple Level Calibration



(9) o-Tolualdehyde  
6.98min 50.342ng/ml m  
response 113786

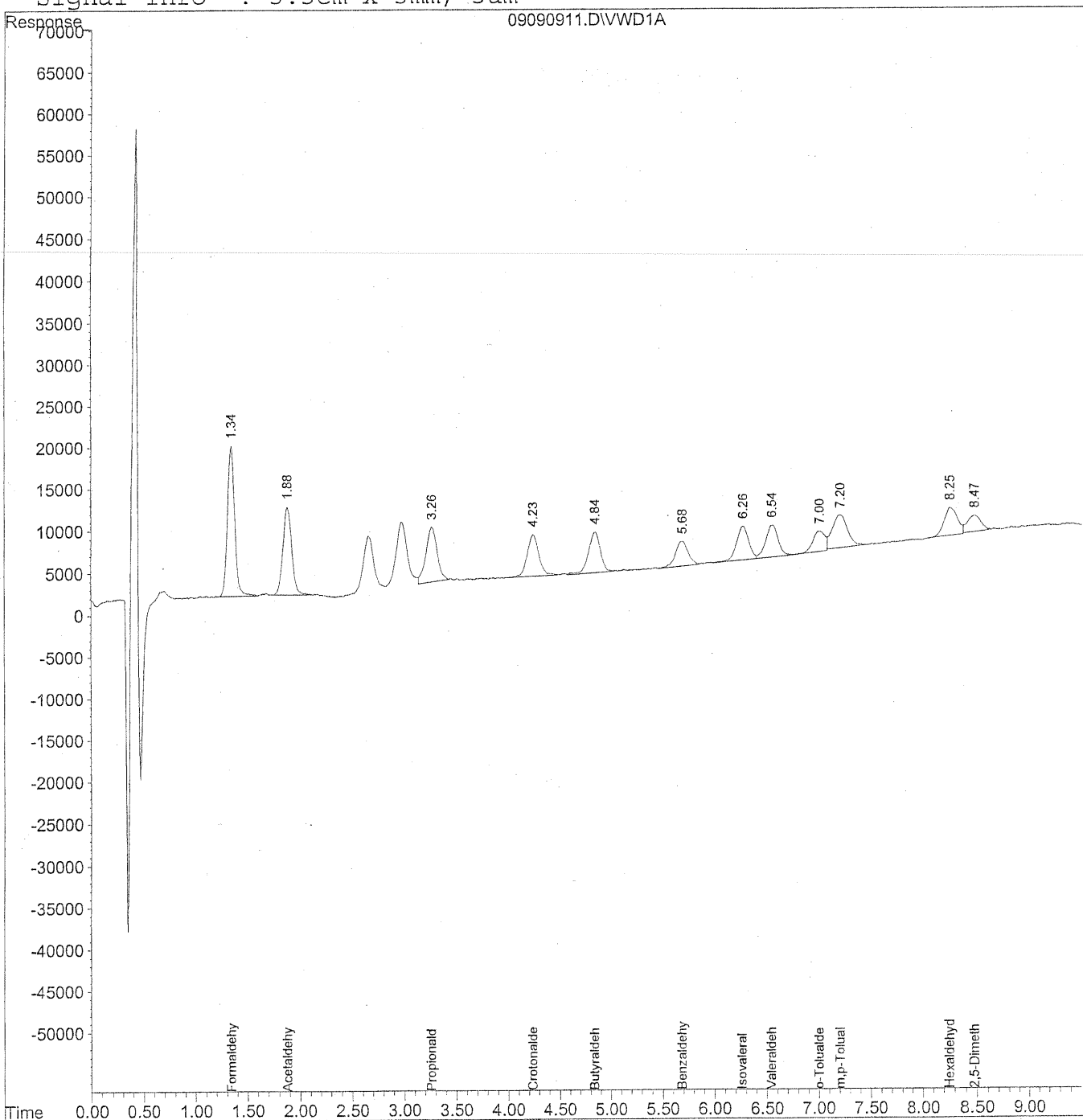
*(Handwritten notes)*  
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9/10/09  
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K29/10/09

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090911.D Vial: 8  
Acq On : 09-Sep-2009, 15:54 Operator: MD  
Sample : 100ng/ml TO-11A S21-09080904 Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 10 9:02 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Wed Sep 09 16:02:22 2009  
Response via : Multiple Level Calibration  
DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
Signal Phase : Supelcosil LC-18  
Signal Info : 3.3cm x 3mm, 3um



Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090911.D Vial: 8  
 Acq On : 09-Sep-2009, 15:54 Operator: MD  
 Sample : 100ng/ml TO-11A S21-09080904 Inst : VWD  
 Misc : Multiplr: 1.00  
 IntFile : events.e  
 Quant Time: Sep 10 9:02 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
 Title : LC-1050 TO-11A ICAL  
 Last Update : Wed Sep 09 16:02:22 2009  
 Response via : Initial Calibration  
 DataAcq Meth : TO-11A.M

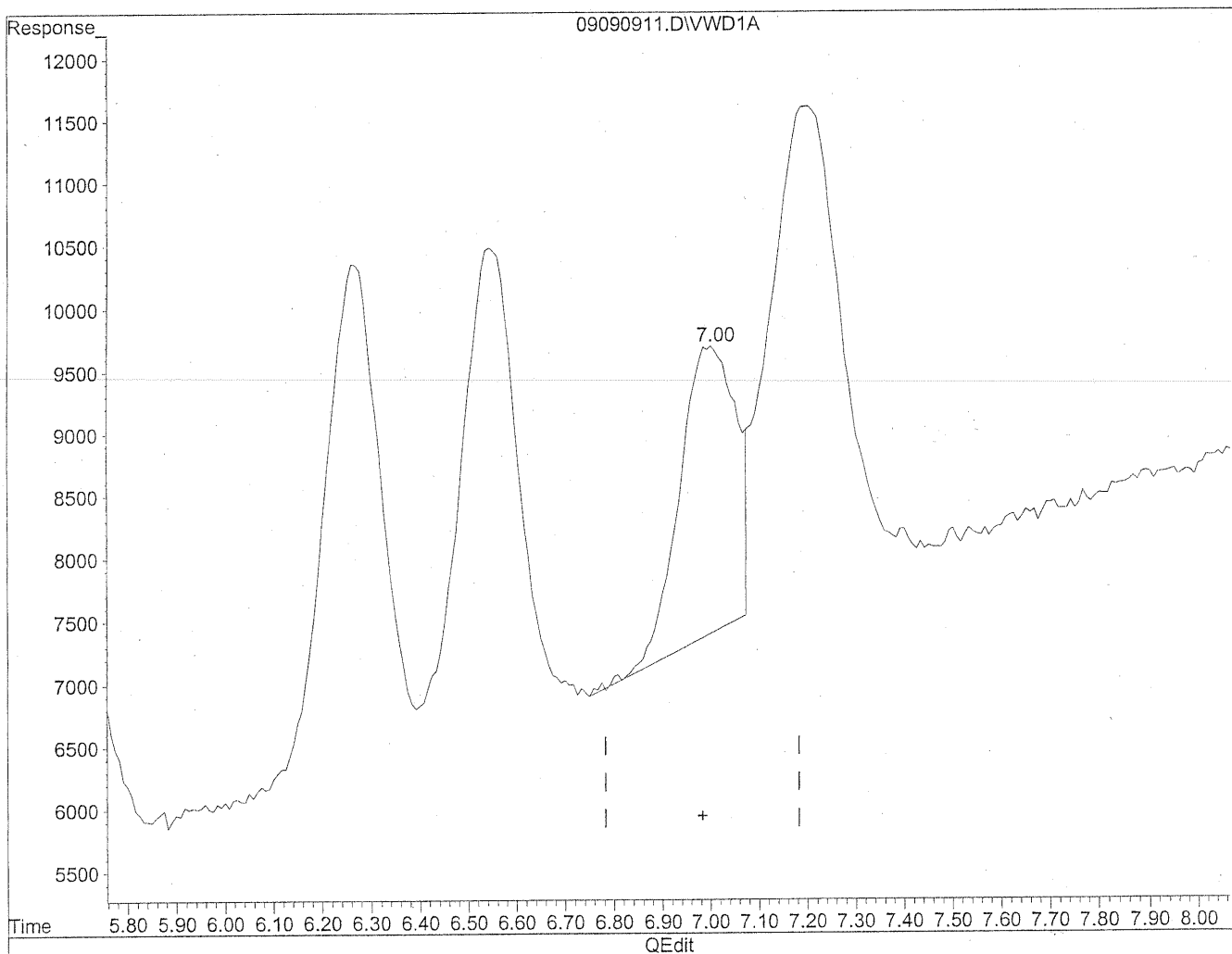
Volume Inj. : 3uL  
 Signal Phase : Supelcosil LC-18  
 Signal Info : 3.3cm x 3mm, 3um

| Compound                     | R.T. | Response | Conc Units     |
|------------------------------|------|----------|----------------|
| -----                        |      |          |                |
| Target Compounds             |      |          |                |
| 1) Formaldehyde              | 1.34 | 857936   | 93.340 ng/ml   |
| 2) Acetaldehyde              | 1.88 | 602866   | 90.745 ng/ml   |
| 3) Propionaldehyde           | 3.26 | 495705   | 95.023 ng/ml   |
| 4) Crotonaldehyde            | 4.24 | 389577   | 95.443 ng/ml   |
| 5) Butyraldehyde             | 4.84 | 390139   | 94.563 ng/ml   |
| 6) Benzaldehyde              | 5.68 | 249897   | 93.081 ng/ml   |
| 7) Isovaleraldehyde          | 6.27 | 323665   | 91.369 ng/ml   |
| 8) Valeraldehyde             | 6.55 | 320426   | 96.613 ng/ml   |
| 9) o-Tolualdehyde            | 7.00 | 207105   | 91.087 ng/mlm  |
| 10) m,p-Tolualdehyde         | 7.20 | 397976   | 171.466 ng/mlm |
| 11) Hexaldehyde              | 8.25 | 282439   | 96.453 ng/mlm  |
| 12) 2,5-Dimethylbenzaldehyde | 8.48 | 170783   | 86.876 ng/ml   |

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090911.D Vial: 8  
Acq On : 09-Sep-2009, 15:54 Operator: MD  
Sample : 100ng/ml TO-11A S21-09080904 Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 10 8:50 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Wed Sep 09 16:02:22 2009  
Response via : Multiple Level Calibration

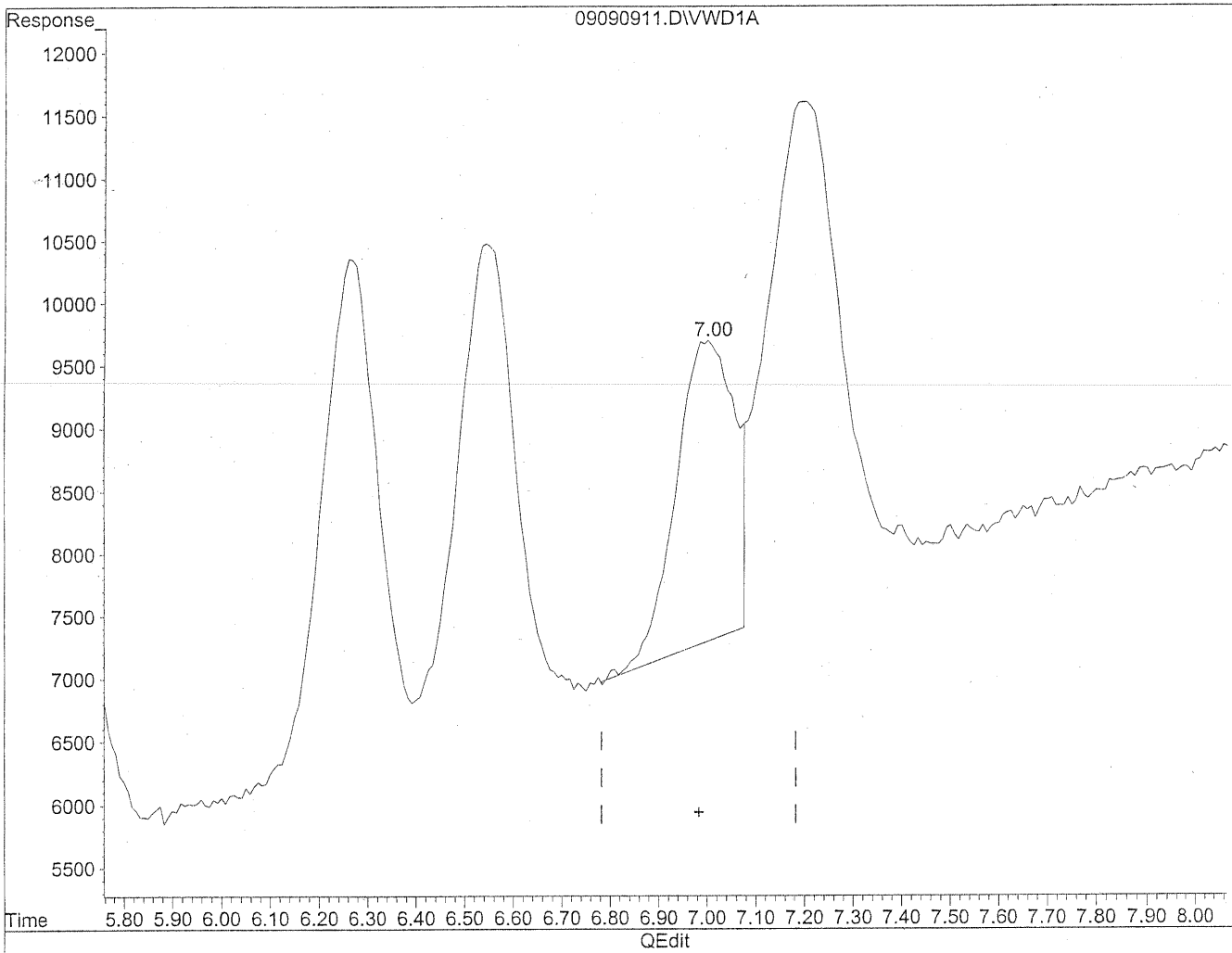


(9) o-Tolualdehyde  
7.00min 80.006ng/ml  
response 181910

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090911.D Vial: 8  
Acq On : 09-Sep-2009, 15:54 Operator: MD  
Sample : 100ng/ml TO-11A S21-09080904 Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 10 8:50 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Wed Sep 09 16:02:22 2009  
Response via : Multiple Level Calibration



(9) o-Tolualdehyde  
7.00min 91.087ng/ml m  
response 207105

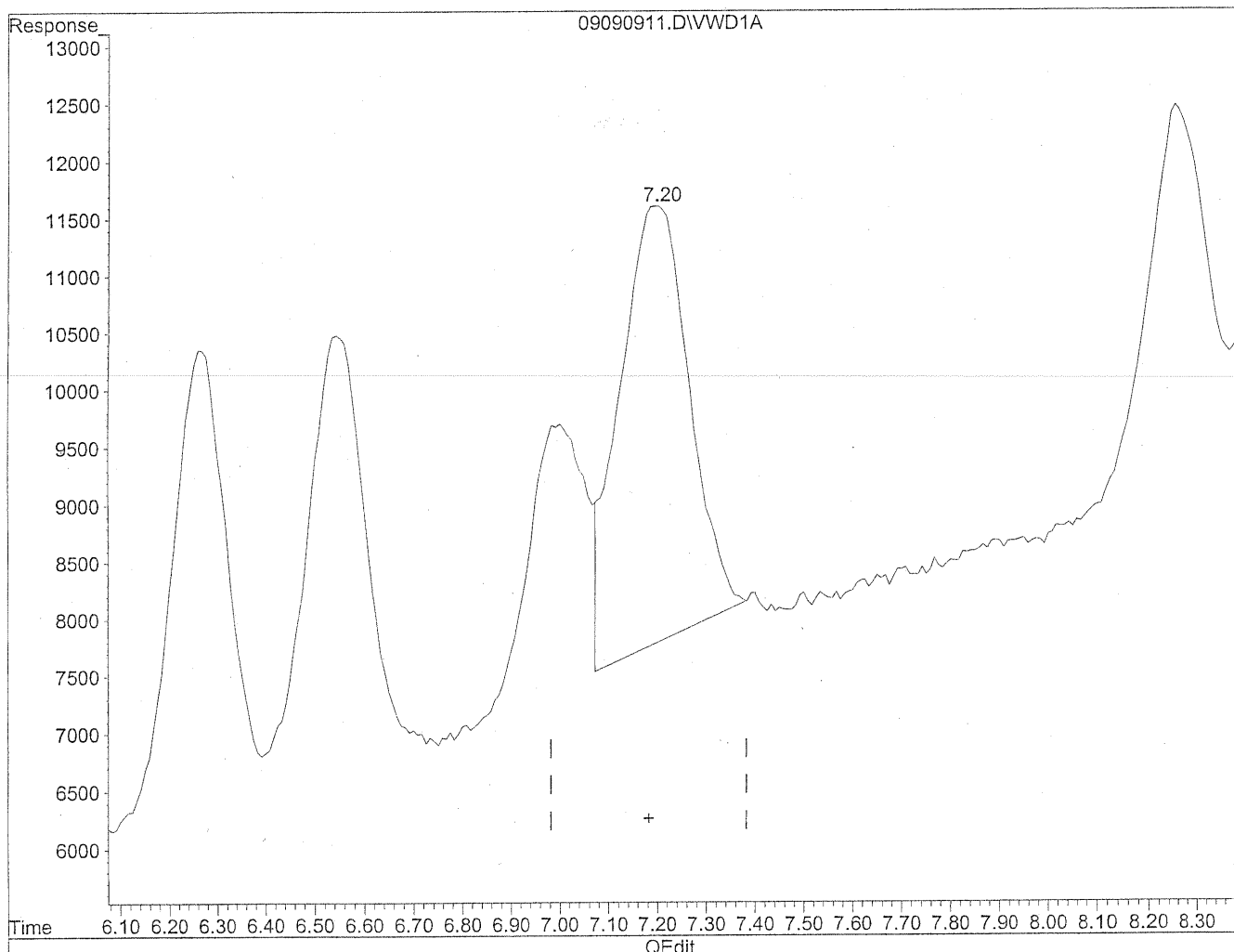
*MD*  
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9/10/09



Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090911.D Vial: 8  
Acq On : 09-Sep-2009, 15:54 Operator: MD  
Sample : 100ng/ml TO-11A S21-09080904 Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 10 8:50 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Wed Sep 09 16:02:22 2009  
Response via : Multiple Level Calibration

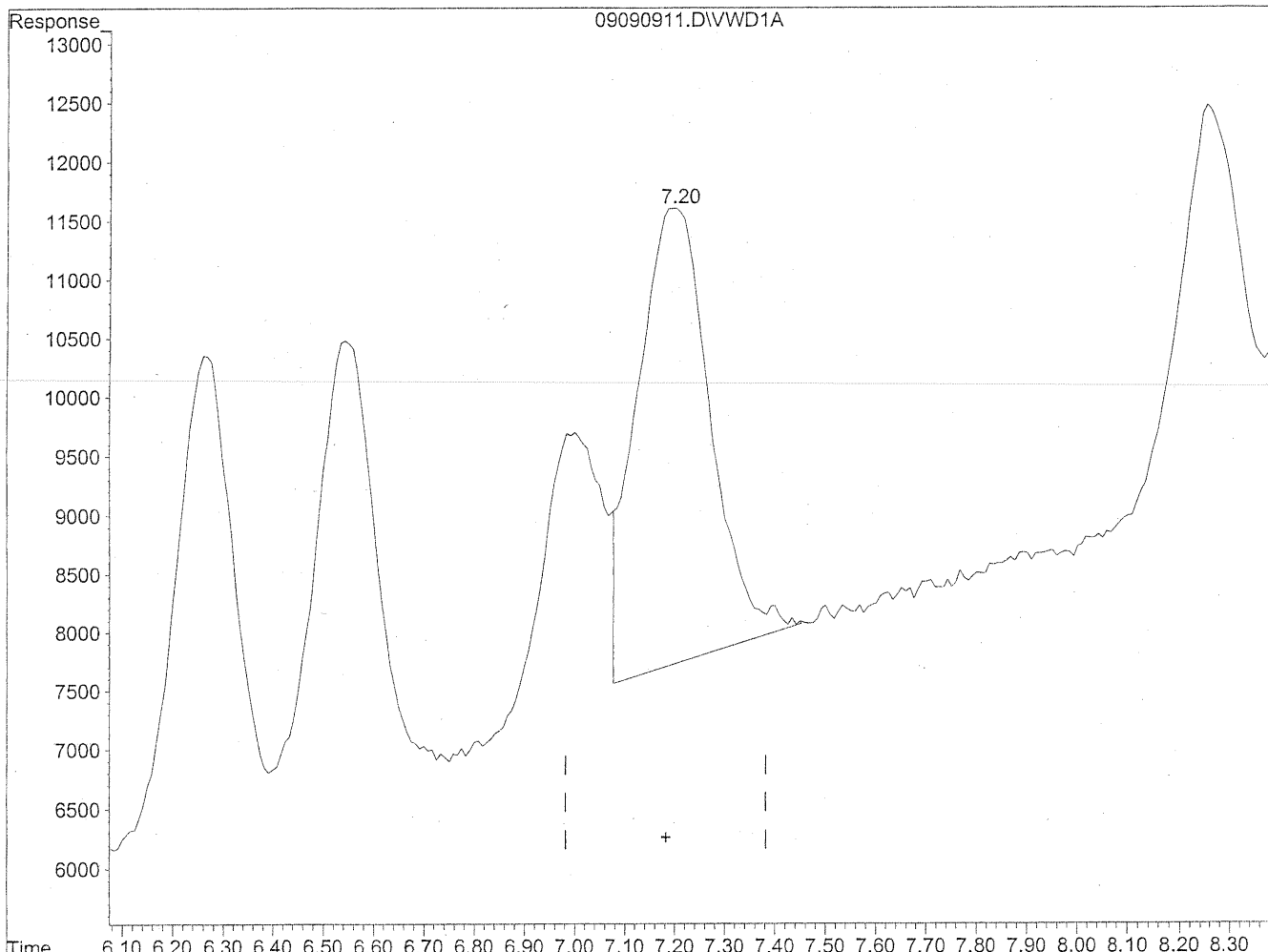


(10) m,p-Tolualdehyde  
7.20min 165.581ng/ml  
response 384316

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090911.D Vial: 8  
Acq On : 09-Sep-2009, 15:54 Operator: MD  
Sample : 100ng/ml TO-11A S21-09080904 Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 10 8:50 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Wed Sep 09 16:02:22 2009  
Response via : Multiple Level Calibration



Time 6.10 6.20 6.30 6.40 6.50 6.60 6.70 6.80 6.90 7.00 7.10 7.20 7.30 7.40 7.50 7.60 7.70 7.80 7.90 8.00 8.10 8.20 8.30  
QEdit

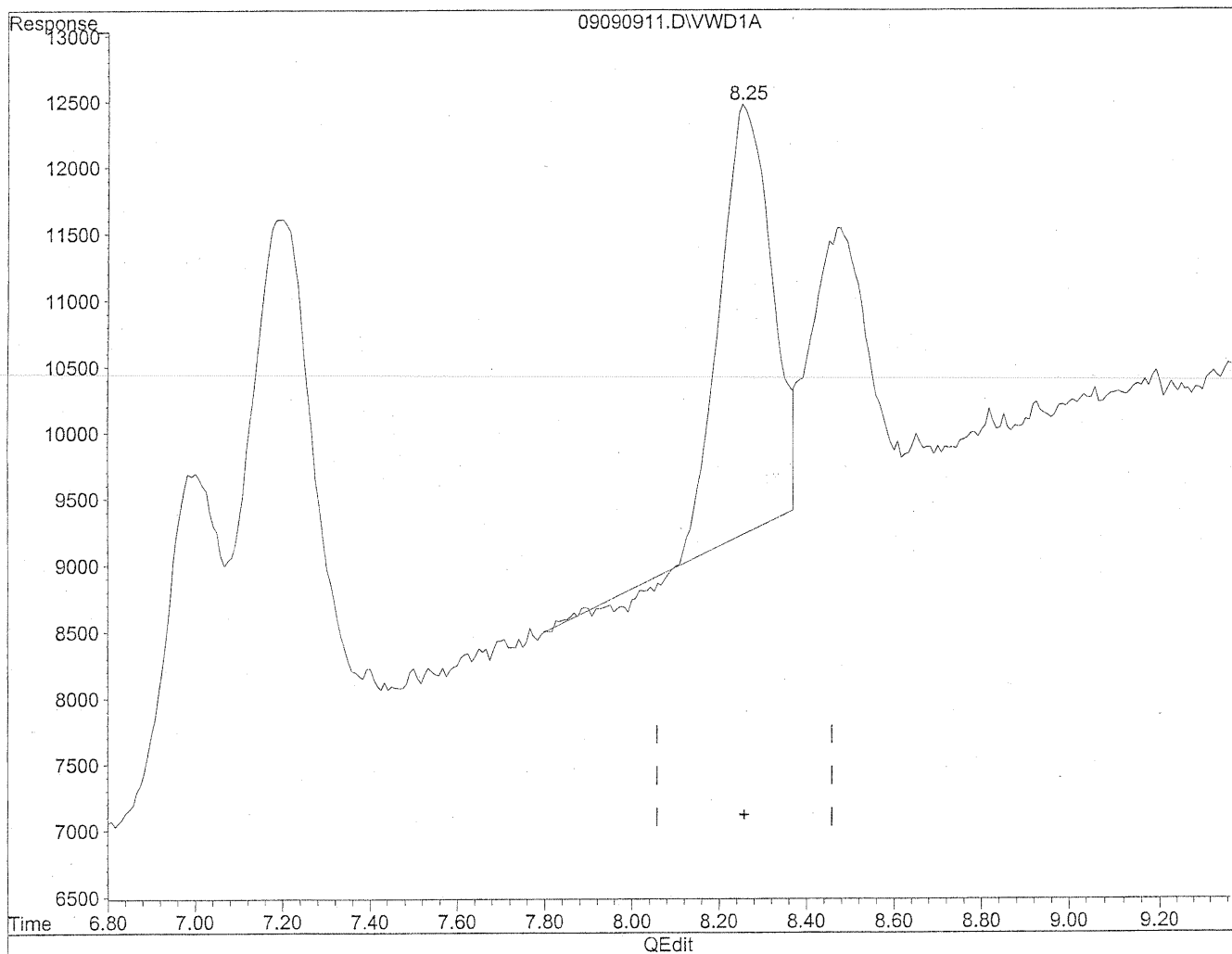
(10) m,p-Tolualdehyde  
7.20min 171.466ng/ml m  
response 397976

*MD*  
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12 9/10/09

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090911.D Vial: 8  
Acq On : 09-Sep-2009, 15:54 Operator: MD  
Sample : 100ng/ml TO-11A S21-09080904 Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 10 8:50 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Wed Sep 09 16:02:22 2009  
Response via : Multiple Level Calibration

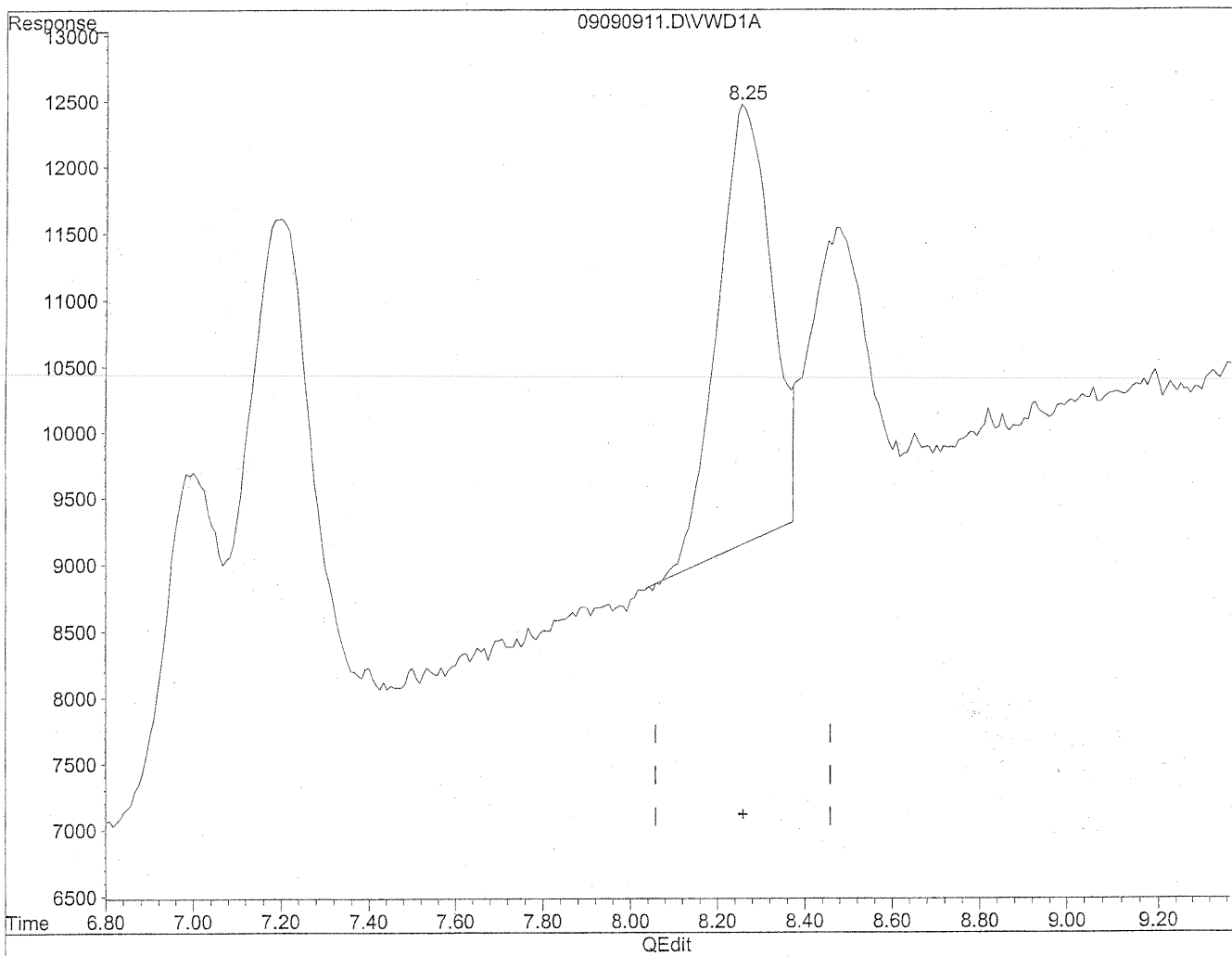


(11) Hexaldehyde  
8.25min 88.073ng/ml  
response 257900

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090911.D Vial: 8  
Acq On : 09-Sep-2009, 15:54 Operator: MD  
Sample : 100ng/ml TO-11A S21-09080904 Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 10 8:50 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Wed Sep 09 16:02:22 2009  
Response via : Multiple Level Calibration



(11) Hexaldehyde  
8.25min 96.453ng/ml m  
response 282439

*MD*  
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12

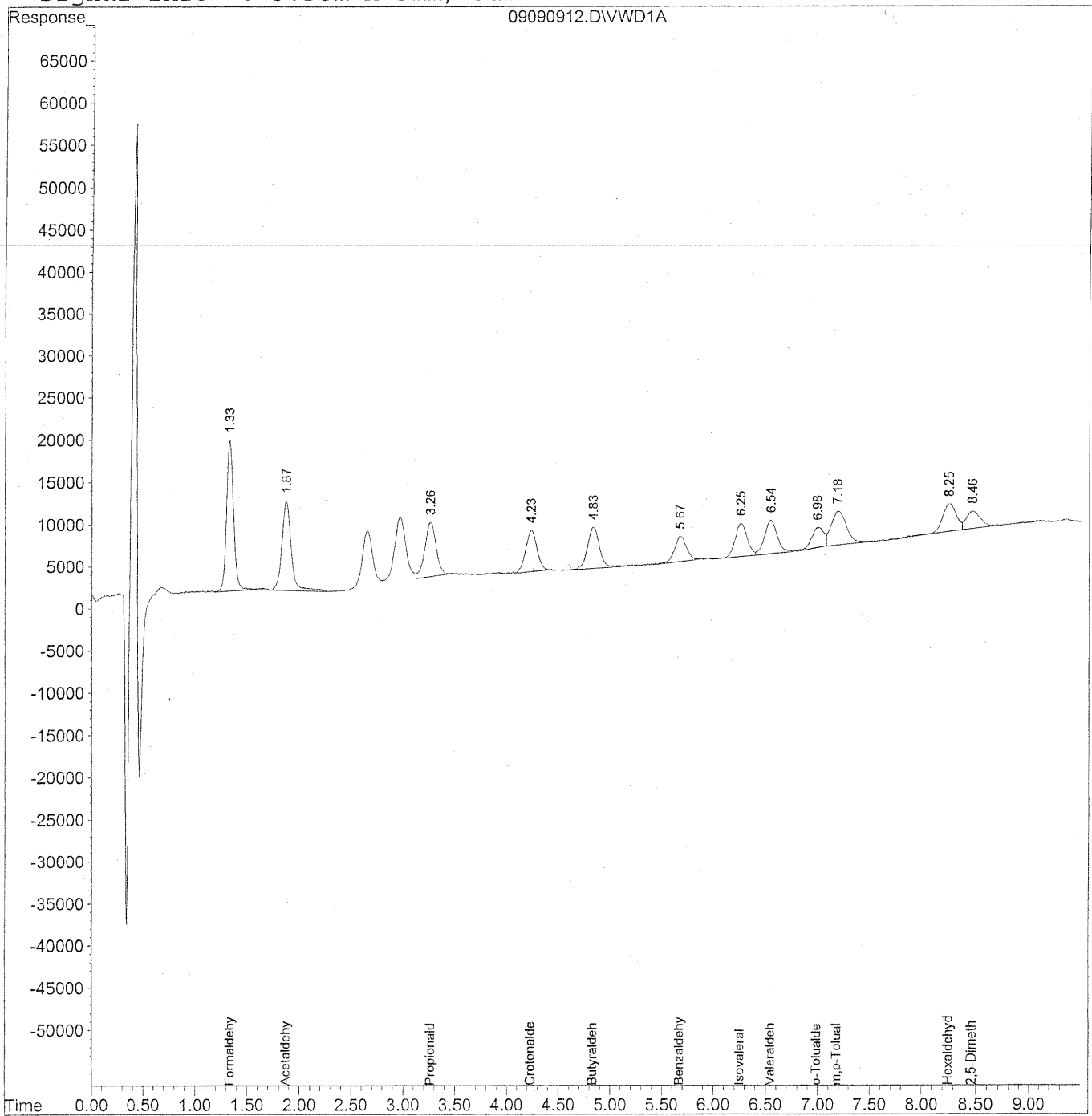
129/10/09

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090912.D Vial: 8  
Acq On : 09-Sep-2009, 16:06 Operator: MD  
Sample : 100ng/ml TO-11A S21-09080904 Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 10 8:51 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Wed Sep 09 16:02:22 2009  
Response via : Multiple Level Calibration  
DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
Signal Phase : Supelcosil LC-18  
Signal Info : 3.3cm x 3mm, 3um



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Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090912.D Vial: 8  
 Acq On : 09-Sep-2009, 16:06 Operator: MD  
 Sample : 100ng/ml TO-11A S21-09080904 Inst : VWD  
 Misc : Multiplr: 1.00  
 IntFile : events.e  
 Quant Time: Sep 10 8:51 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
 Title : LC-1050 TO-11A ICAL  
 Last Update : Wed Sep 09 16:02:22 2009  
 Response via : Initial Calibration  
 DataAcq Meth : TO-11A.M

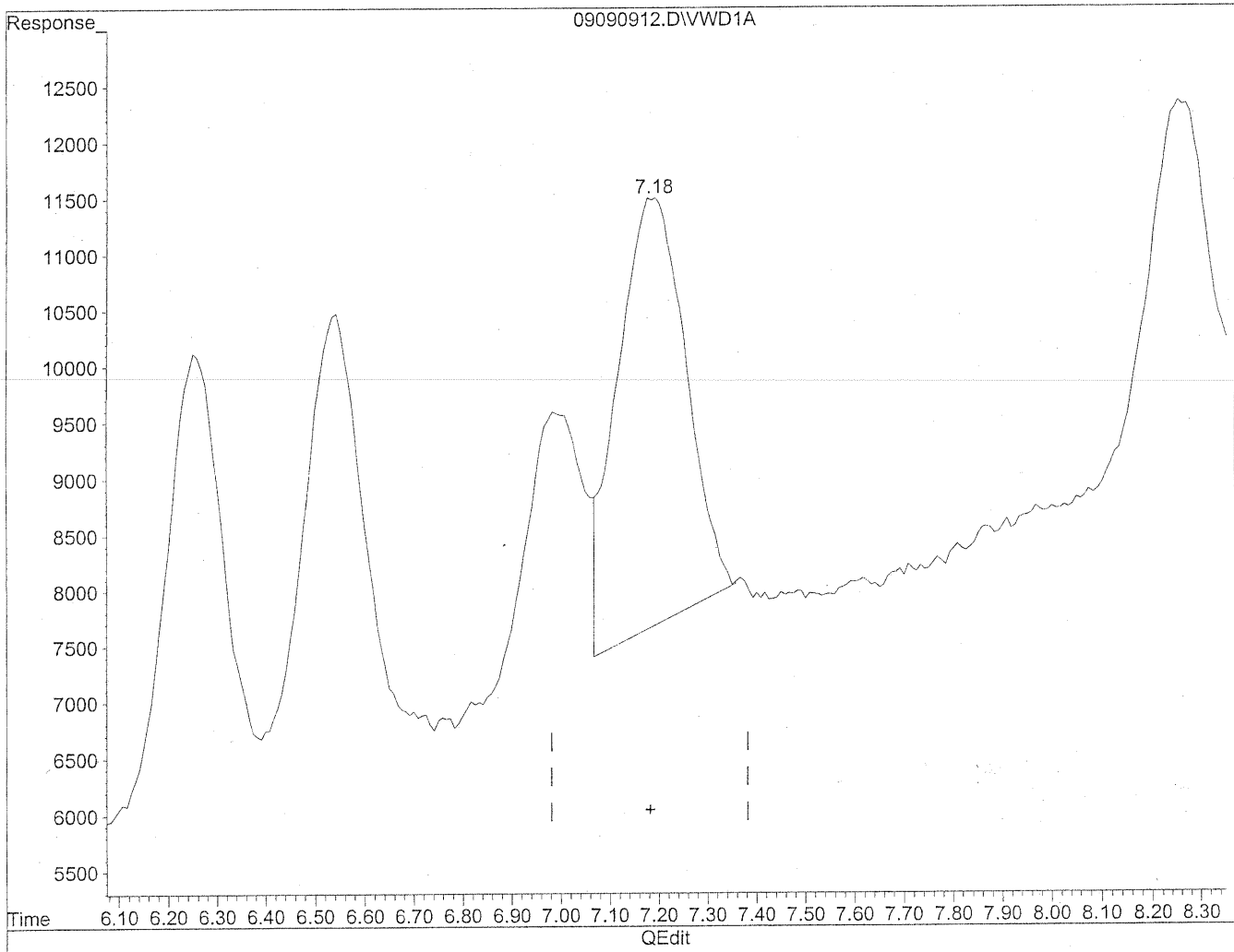
Volume Inj. : 3uL  
 Signal Phase : Supelcosil LC-18  
 Signal Info : 3.3cm x 3mm, 3um

| Compound                     | R.T. | Response | Conc Units    |
|------------------------------|------|----------|---------------|
| -----                        |      |          |               |
| Target Compounds             |      |          |               |
| 1) Formaldehyde              | 1.33 | 856527   | 95.214 ng/ml  |
| 2) Acetaldehyde              | 1.87 | 664731   | 103.021 ng/ml |
| 3) Propionaldehyde           | 3.26 | 489979   | 96.720 ng/ml  |
| 4) Crotonaldehyde            | 4.23 | 375407   | 93.706 ng/ml  |
| 5) Butyraldehyde             | 4.83 | 399611   | 98.840 ng/ml  |
| 6) Benzaldehyde              | 5.67 | 241433   | 91.160 ng/ml  |
| 7) Isovaleraldehyde          | 6.26 | 313564   | 91.728 ng/ml  |
| 8) Valeraldehyde             | 6.54 | 335005   | 102.594 ng/ml |
| 9) o-Tolualdehyde            | 6.99 | 188768   | 88.367 ng/ml  |
| 10) m,p-Tolualdehyde         | 7.18 | 416110   | 187.485 ng/ml |
| 11) Hexaldehyde              | 8.26 | 285615   | 98.813 ng/ml  |
| 12) 2,5-Dimethylbenzaldehyde | 8.47 | 182724   | 97.357 ng/ml  |

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090912.D Vial: 8  
Acq On : 09-Sep-2009, 16:06 Operator: MD  
Sample : 100ng/ml TO-11A S21-09080904 Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 10 8:50 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Wed Sep 09 16:02:22 2009  
Response via : Multiple Level Calibration



(10) m,p-Tolualdehyde

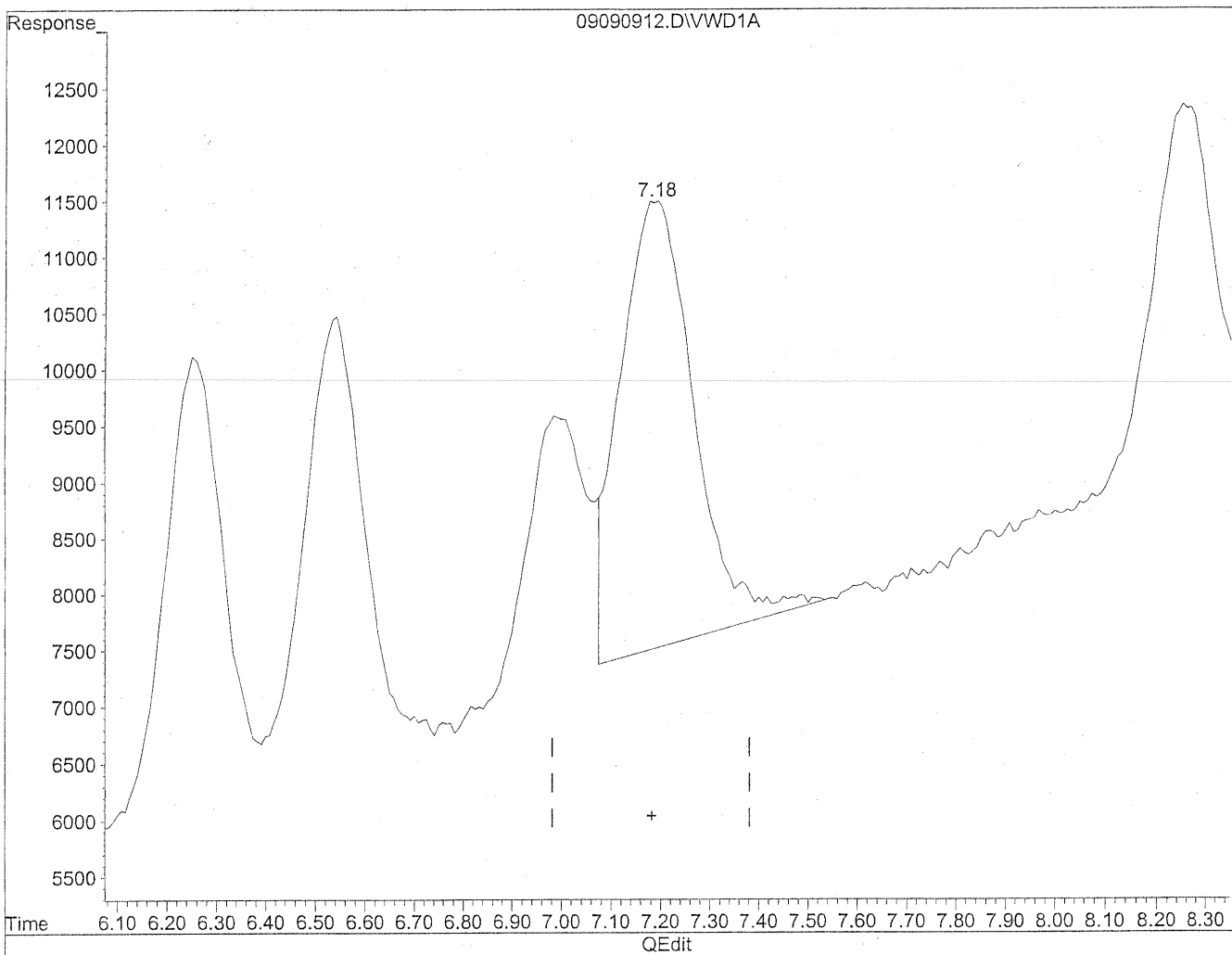
7.19min 169.858ng/ml

response 376988

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090912.D Vial: 8  
Acq On : 09-Sep-2009, 16:06 Operator: MD  
Sample : 100ng/ml TO-11A S21-09080904 Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 10 8:50 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Wed Sep 09 16:02:22 2009  
Response via : Multiple Level Calibration



(10) m,p-Tolualdehyde  
7.18min 187.485ng/ml m  
response 416110

*MD*  
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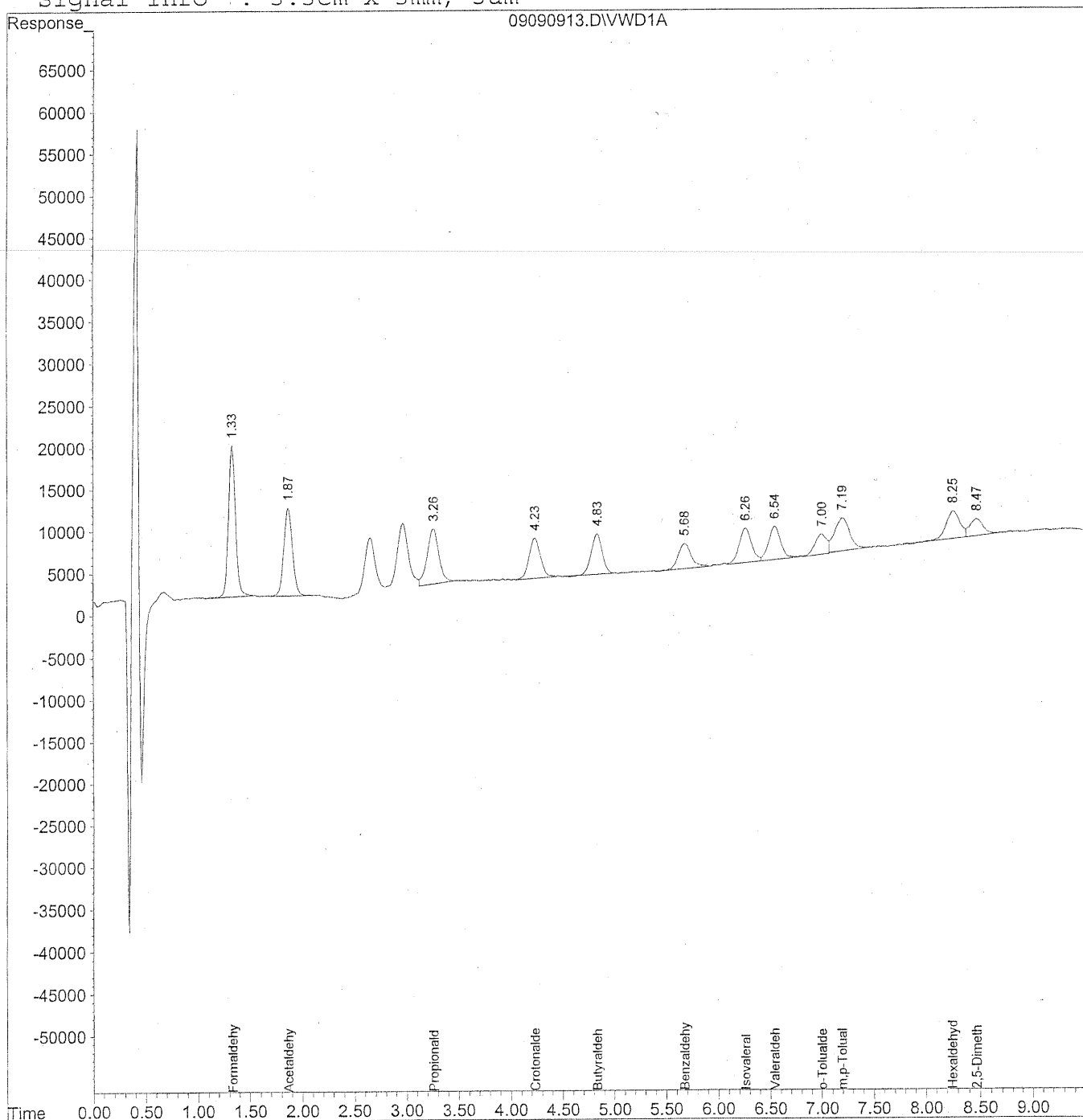


Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090913.D Vial: 8  
Acq On : 09-Sep-2009, 16:17 Operator: MD  
Sample : 100ng/ml TO-11A S21-09080904 Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 10 9:02 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Wed Sep 09 16:02:22 2009  
Response via : Multiple Level Calibration  
DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
Signal Phase : Supelcosil LC-18  
Signal Info : 3.3cm x 3mm, 3um



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Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090913.D Vial: 8  
 Acq On : 09-Sep-2009, 16:17 Operator: MD  
 Sample : 100ng/ml TO-11A S21-09080904 Inst : VWD  
 Misc : Multiplr: 1.00  
 IntFile : events.e  
 Quant Time: Sep 10 9:02 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
 Title : LC-1050 TO-11A ICAL  
 Last Update : Wed Sep 09 16:02:22 2009  
 Response via : Initial Calibration  
 DataAcq Meth : TO-11A.M

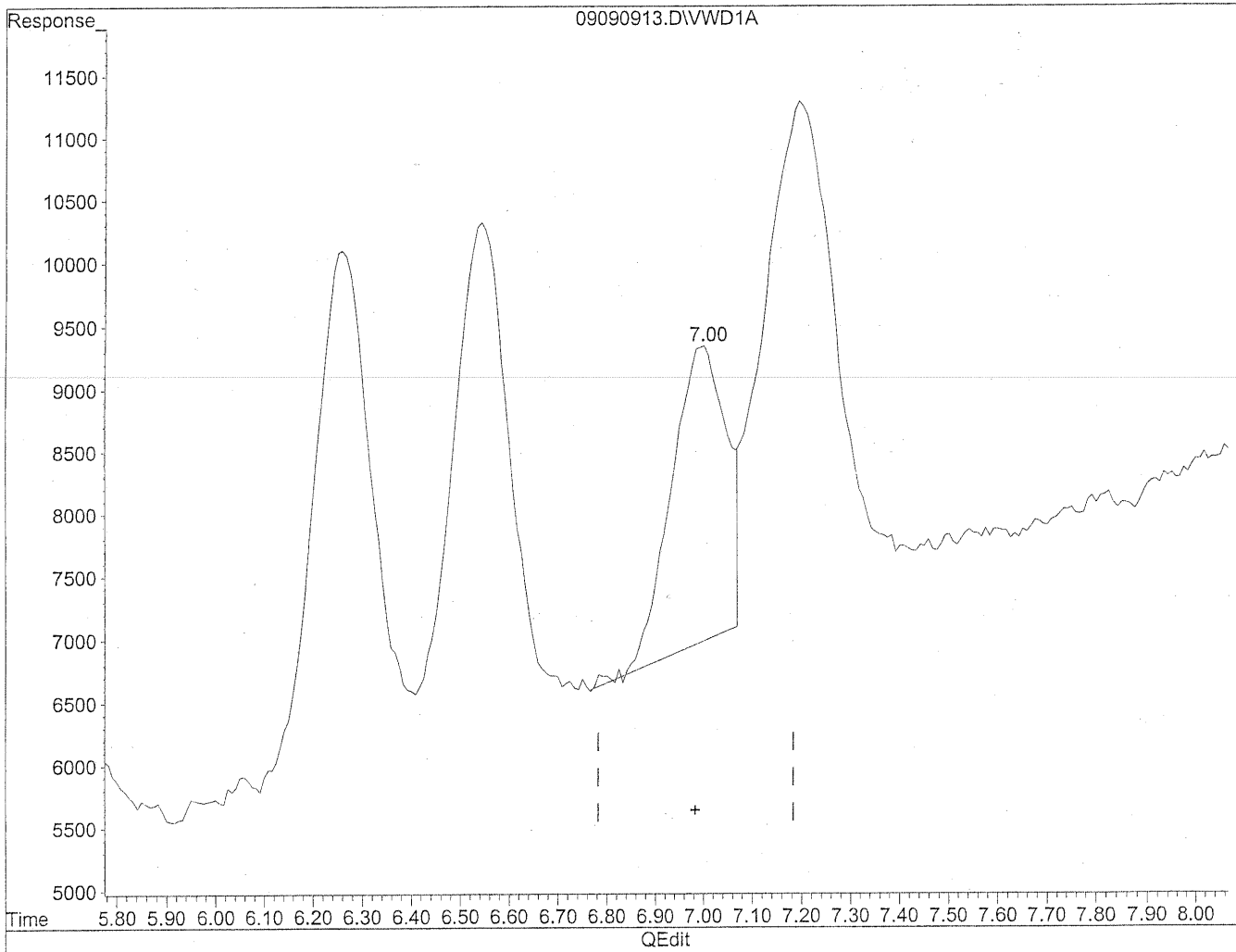
Volume Inj. : 3uL  
 Signal Phase : Supelcosil LC-18  
 Signal Info : 3.3cm x 3mm, 3um

| Compound                     | R.T. | Response | Conc Units    |
|------------------------------|------|----------|---------------|
| -----                        |      |          |               |
| Target Compounds             |      |          |               |
| 1) Formaldehyde              | 1.34 | 864000   | 96.057 ng/ml  |
| 2) Acetaldehyde              | 1.87 | 602096   | 92.574 ng/ml  |
| 3) Propionaldehyde           | 3.26 | 512978   | 101.355 ng/ml |
| 4) Crotonaldehyde            | 4.24 | 373596   | 93.529 ng/ml  |
| 5) Butyraldehyde             | 4.84 | 358623   | 88.529 ng/ml  |
| 6) Benzaldehyde              | 5.68 | 261486   | 98.995 ng/ml  |
| 7) Isovaleraldehyde          | 6.26 | 340775   | 99.934 ng/ml  |
| 8) Valeraldehyde             | 6.54 | 327561   | 99.943 ng/ml  |
| 9) o-Tolualdehyde            | 7.00 | 198353   | 92.606 ng/ml  |
| 10) m,p-Tolualdehyde         | 7.20 | 403186   | 181.045 ng/ml |
| 11) Hexaldehyde              | 8.26 | 288074   | 99.573 ng/ml  |
| 12) 2,5-Dimethylbenzaldehyde | 8.47 | 174836   | 92.662 ng/ml  |

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090913.D Vial: 8  
Acq On : 09-Sep-2009, 16:17 Operator: MD  
Sample : 100ng/ml TO-11A S21-09080904 Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 10 8:51 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 10 09:02:40 2009  
Response via : Multiple Level Calibration

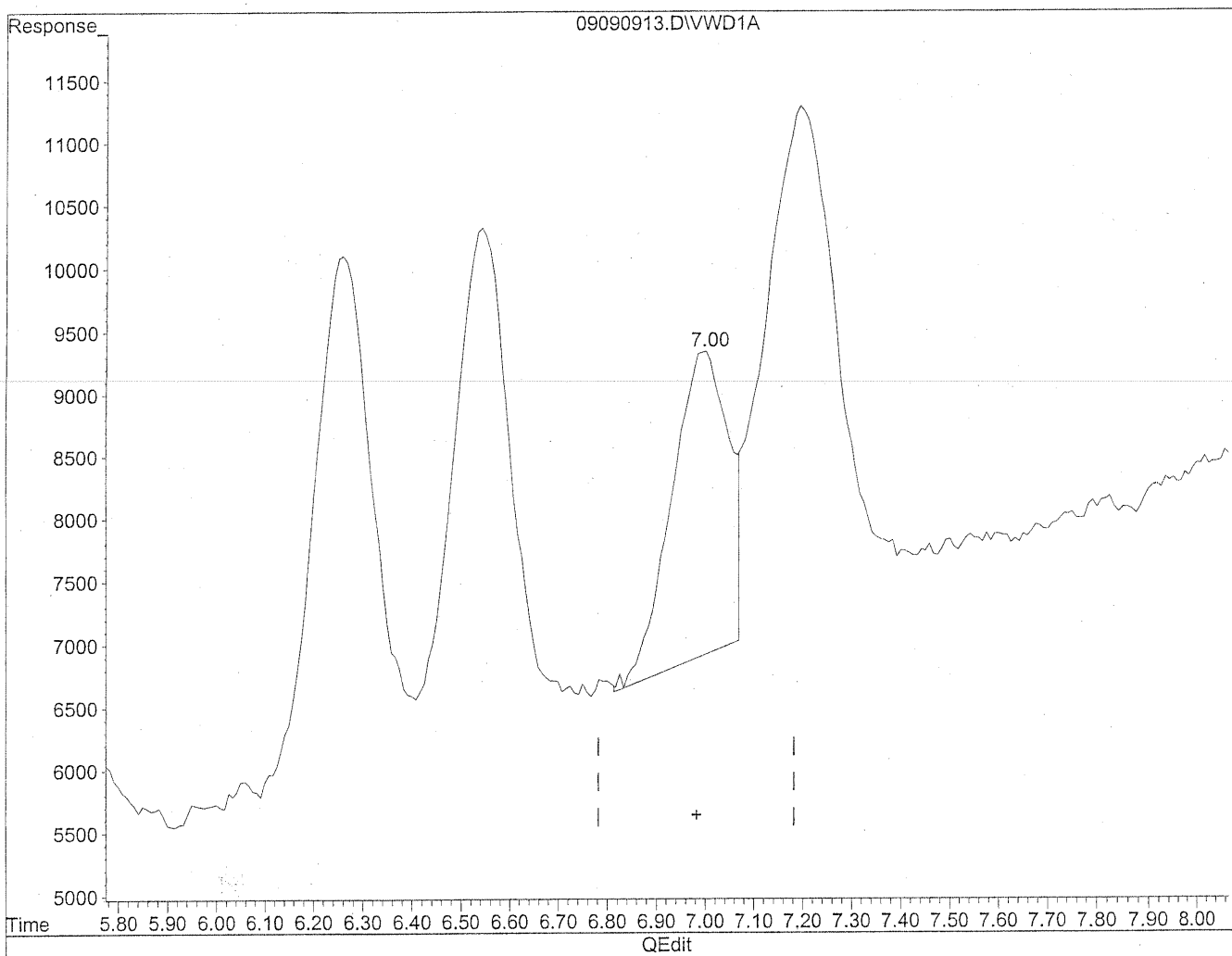


(9) o-Tolualdehyde  
7.00min 84.692ng/ml  
response 181403

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090913.D Vial: 8  
Acq On : 09-Sep-2009, 16:17 Operator: MD  
Sample : 100ng/ml TO-11A S21-09080904 Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 10 8:51 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 10 09:02:40 2009  
Response via : Multiple Level Calibration



(9) o-Tolualdehyde  
7.00min 92.606ng/ml m  
response 198353

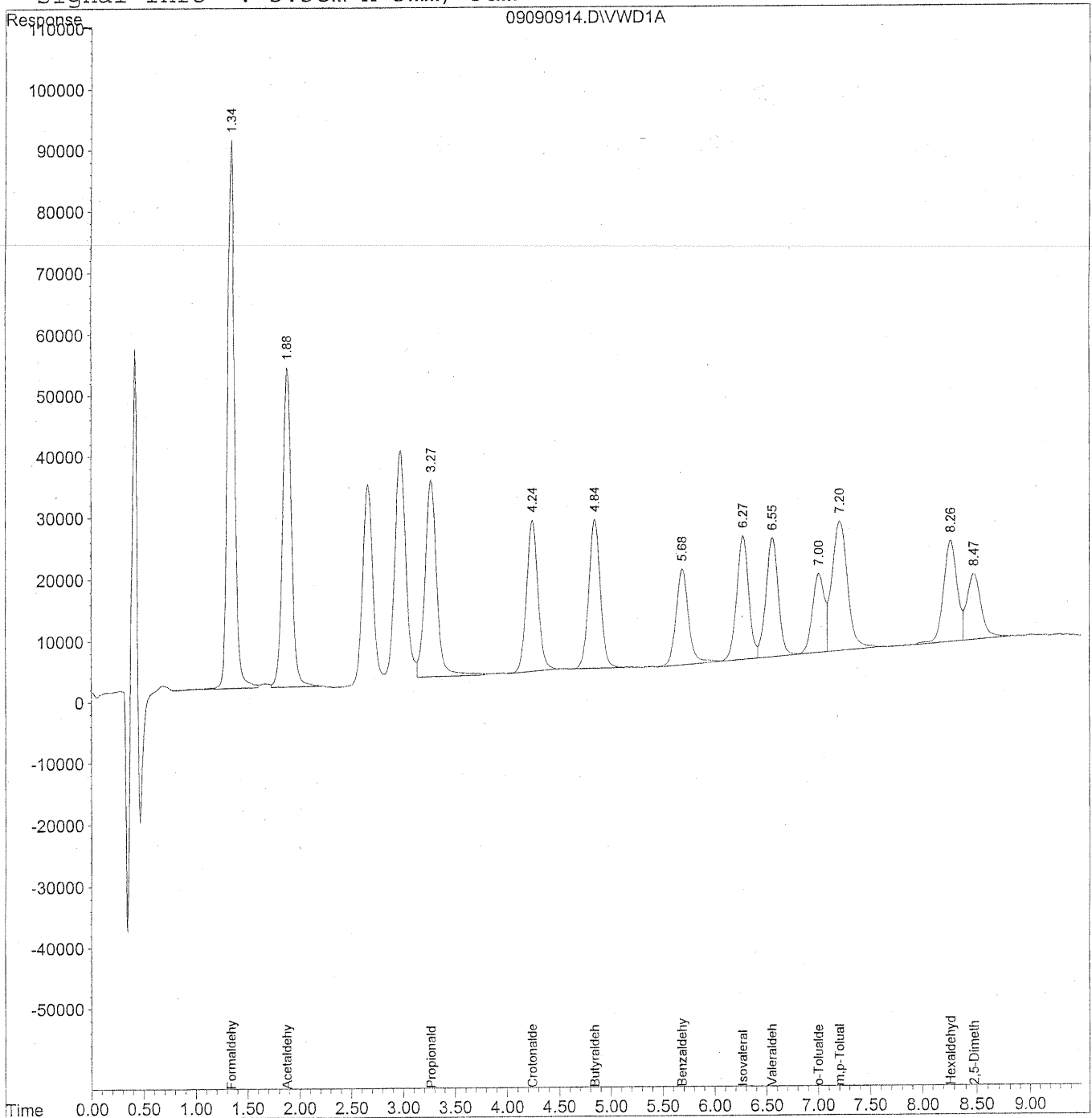
*(Handwritten notes)*  
MD  
9/10/09  
RV  
KRE 9/10/09

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090914.D Vial: 7  
Acq On : 09-Sep-2009, 16:29 Operator: MD  
Sample : 500ng/ml TO-11A S21-09080903 Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 10 8:52 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Wed Sep 09 16:02:22 2009  
Response via : Multiple Level Calibration  
DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
Signal Phase : Supelcosil LC-18  
Signal Info : 3.3cm x 3mm, 3um



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Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090914.D Vial: 7  
 Acq On : 09-Sep-2009, 16:29 Operator: MD  
 Sample : 500ng/ml TO-11A S21-09080903 Inst : VWD  
 Misc : Multiplr: 1.00  
 IntFile : events.e  
 Quant Time: Sep 10 8:52 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
 Title : LC-1050 TO-11A ICAL  
 Last Update : Wed Sep 09 16:02:22 2009  
 Response via : Initial Calibration  
 DataAcq Meth : TO-11A.M

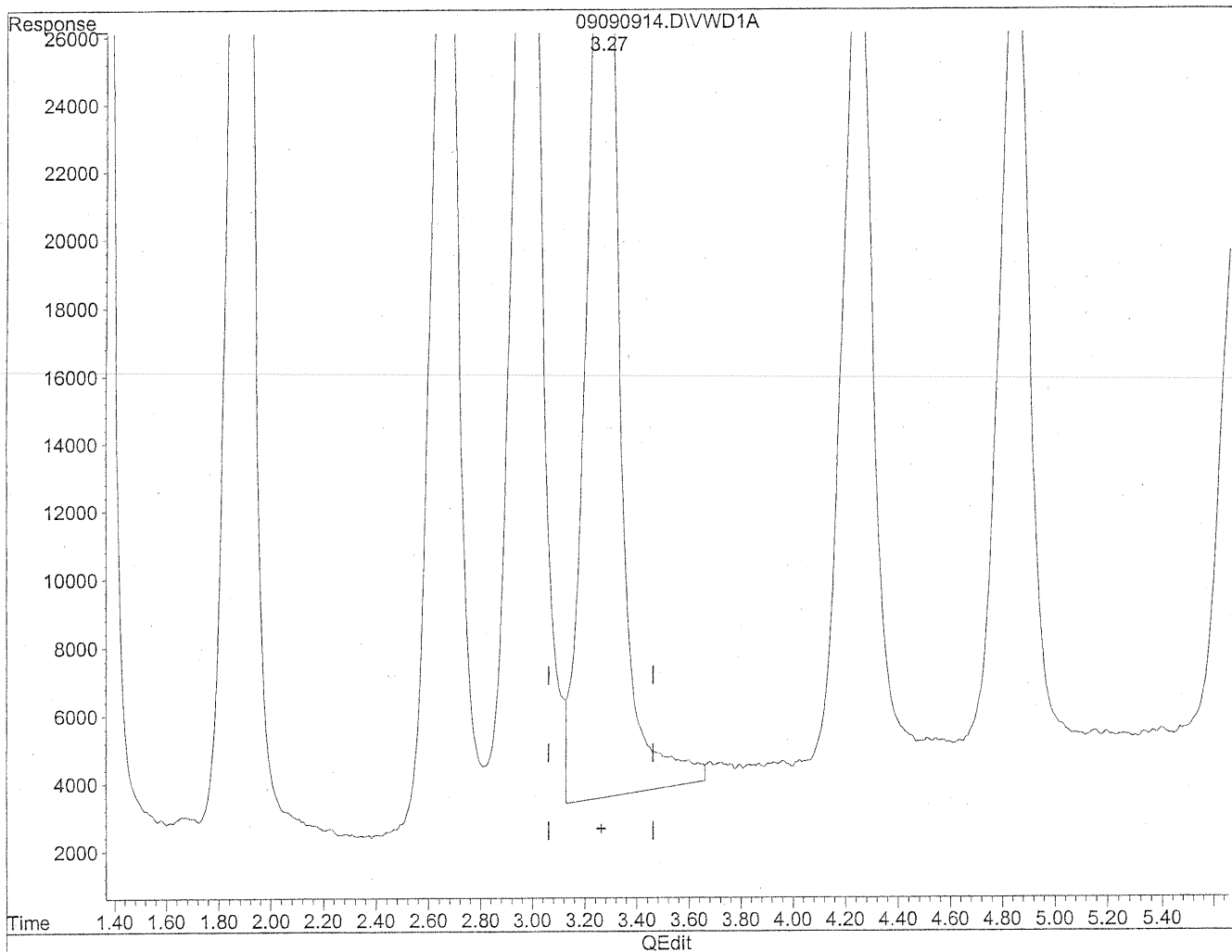
Volume Inj. : 3uL  
 Signal Phase : Supelcosil LC-18  
 Signal Info : 3.3cm x 3mm, 3um

| Compound                     | R.T. | Response | Conc    | Units |
|------------------------------|------|----------|---------|-------|
| -----                        |      |          |         |       |
| Target Compounds             |      |          |         |       |
| 1) Formaldehyde              | 1.34 | 4290125  | 476.763 | ng/ml |
| 2) Acetaldehyde              | 1.88 | 3109621  | 479.414 | ng/ml |
| 3) Propionaldehyde           | 3.27 | 2494796  | 491.839 | ng/ml |
| 4) Crotonaldehyde            | 4.24 | 1900371  | 476.346 | ng/ml |
| 5) Butyraldehyde             | 4.84 | 1886701  | 468.075 | ng/ml |
| 6) Benzaldehyde              | 5.69 | 1323186  | 499.277 | ng/ml |
| 7) Isovaleraldehyde          | 6.27 | 1631123  | 476.614 | ng/ml |
| 8) Valeraldehyde             | 6.55 | 1598180  | 487.637 | ng/ml |
| 9) o-Tolualdehyde            | 7.00 | 1023918  | 478.529 | ng/ml |
| 10) m,p-Tolualdehyde         | 7.20 | 2205841  | 990.981 | ng/ml |
| 11) Hexaldehyde              | 8.27 | 1425262  | 492.260 | ng/ml |
| 12) 2,5-Dimethylbenzaldehyde | 8.48 | 964881   | 511.672 | ng/ml |

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090914.D Vial: 7  
Acq On : 09-Sep-2009, 16:29 Operator: MD  
Sample : 500ng/ml TO-11A S21-09080903 Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 10 8:52 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Wed Sep 09 16:02:22 2009  
Response via : Multiple Level Calibration

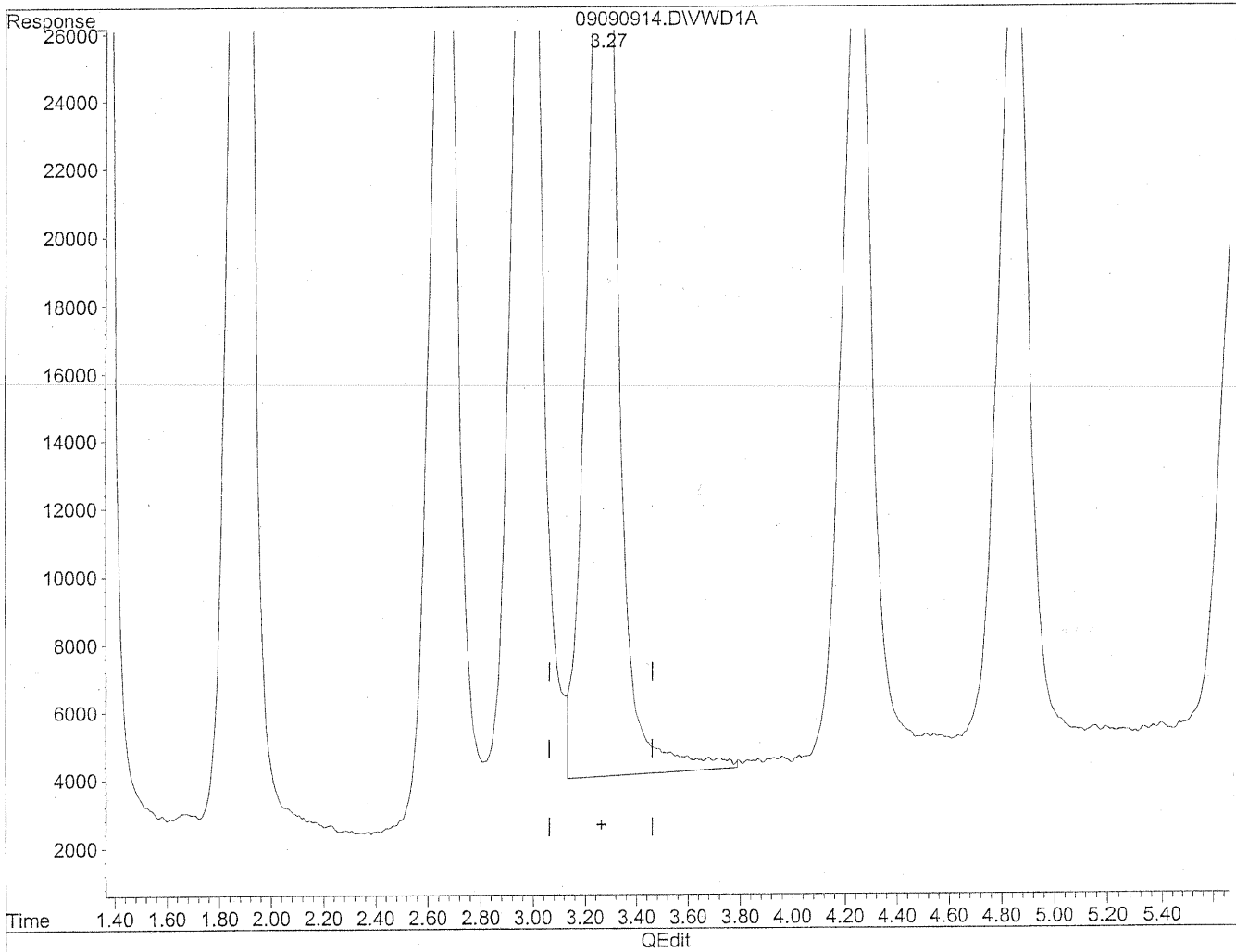


(3) Propionaldehyde  
3.27min 515.231ng/ml  
response 2613453

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090914.D Vial: 7  
Acq On : 09-Sep-2009, 16:29 Operator: MD  
Sample : 500ng/ml TO-11A S21-09080903 Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 10 8:52 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Wed Sep 09 16:02:22 2009  
Response via : Multiple Level Calibration



(3) Propionaldehyde  
3.27min 491.839ng/ml m  
response 2494796

*MD*  
*9/10/09*  
*BZ*  
*12/1/09*

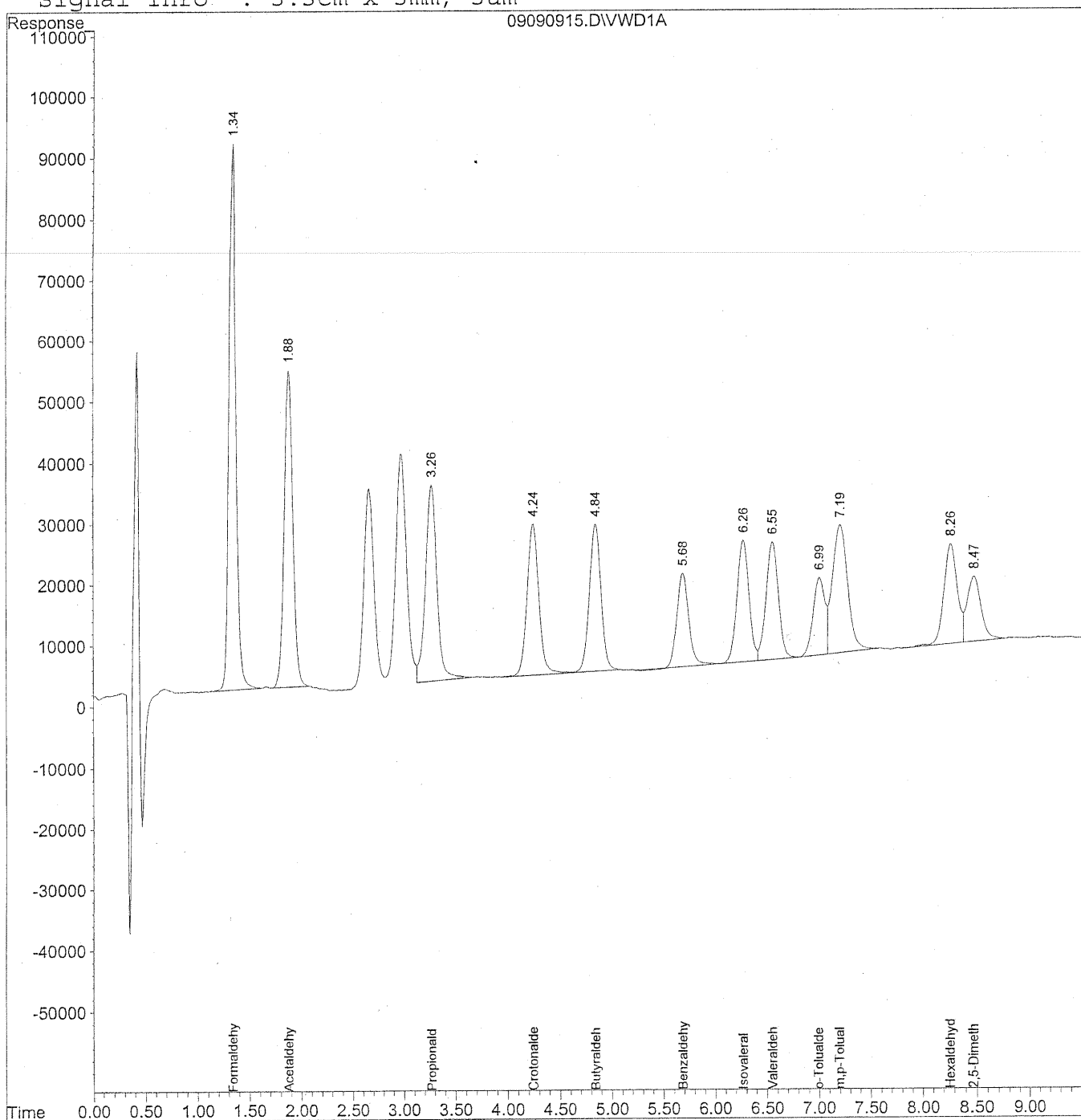


Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090915.D Vial: 7  
Acq On : 09-Sep-2009, 16:40 Operator: MD  
Sample : 500ng/ml TO-11A S21-09080903 Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 10 8:53 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Wed Sep 09 16:02:22 2009  
Response via : Multiple Level Calibration  
DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
Signal Phase : Supelcosil LC-18  
Signal Info : 3.3cm x 3mm, 3um



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Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090915.D Vial: 7  
 Acq On : 09-Sep-2009, 16:40 Operator: MD  
 Sample : 500ng/ml TO-11A S21-09080903 Inst : VWD  
 Misc : Multiplr: 1.00  
 IntFile : events.e  
 Quant Time: Sep 10 8:53 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
 Title : LC-1050 TO-11A ICAL  
 Last Update : Wed Sep 09 16:02:22 2009  
 Response via : Initial Calibration  
 DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
 Signal Phase : Supelcosil LC-18  
 Signal Info : 3.3cm x 3mm, 3um

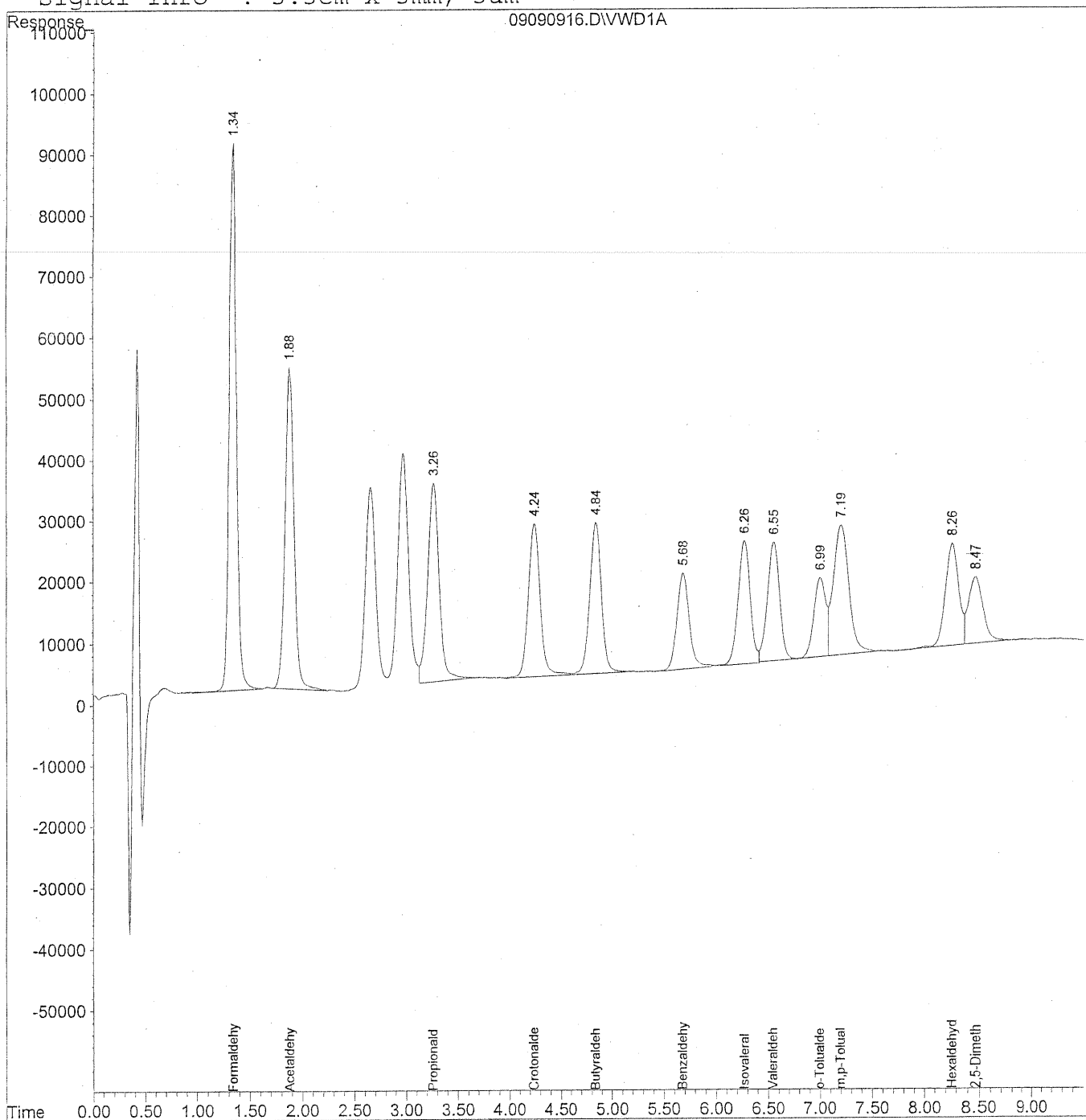
| Compound                     | R.T. | Response | Conc    | Units |
|------------------------------|------|----------|---------|-------|
| -----                        |      |          |         |       |
| Target Compounds             |      |          |         |       |
| 1) Formaldehyde              | 1.34 | 4242920  | 476.675 | ng/ml |
| 2) Acetaldehyde              | 1.88 | 2996333  | 465.530 | ng/ml |
| 3) Propionaldehyde           | 3.27 | 2520033  | 495.333 | ng/ml |
| 4) Crotonaldehyde            | 4.24 | 1968873  | 499.829 | ng/ml |
| 5) Butyraldehyde             | 4.84 | 1894865  | 474.705 | ng/ml |
| 6) Benzaldehyde              | 5.68 | 1238947  | 466.007 | ng/ml |
| 7) Isovaleraldehyde          | 6.27 | 1614213  | 474.093 | ng/ml |
| 8) Valeraldehyde             | 6.55 | 1593172  | 485.301 | ng/ml |
| 9) o-Tolualdehyde            | 7.00 | 1018615  | 479.067 | ng/ml |
| 10) m,p-Tolualdehyde         | 7.20 | 2181093  | 980.898 | ng/ml |
| 11) Hexaldehyde              | 8.26 | 1423115  | 491.568 | ng/ml |
| 12) 2,5-Dimethylbenzaldehyde | 8.47 | 956005   | 504.834 | ng/ml |

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090916.D Vial: 7  
Acq On : 09-Sep-2009, 16:51 Operator: MD  
Sample : 500ng/ml TO-11A S21-09080903 Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 10 8:54 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Wed Sep 09 16:02:22 2009  
Response via : Multiple Level Calibration  
DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
Signal Phase : Supelcosil LC-18  
Signal Info : 3.3cm x 3mm, 3um



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Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090916.D Vial: 7  
 Acq On : 09-Sep-2009, 16:51 Operator: MD  
 Sample : 500ng/ml TO-11A S21-09080903 Inst : VWD  
 Misc : Multiplr: 1.00  
 IntFile : events.e  
 Quant Time: Sep 10 8:54 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
 Title : LC-1050 TO-11A ICAL  
 Last Update : Wed Sep 09 16:02:22 2009  
 Response via : Initial Calibration  
 DataAcq Meth : TO-11A.M

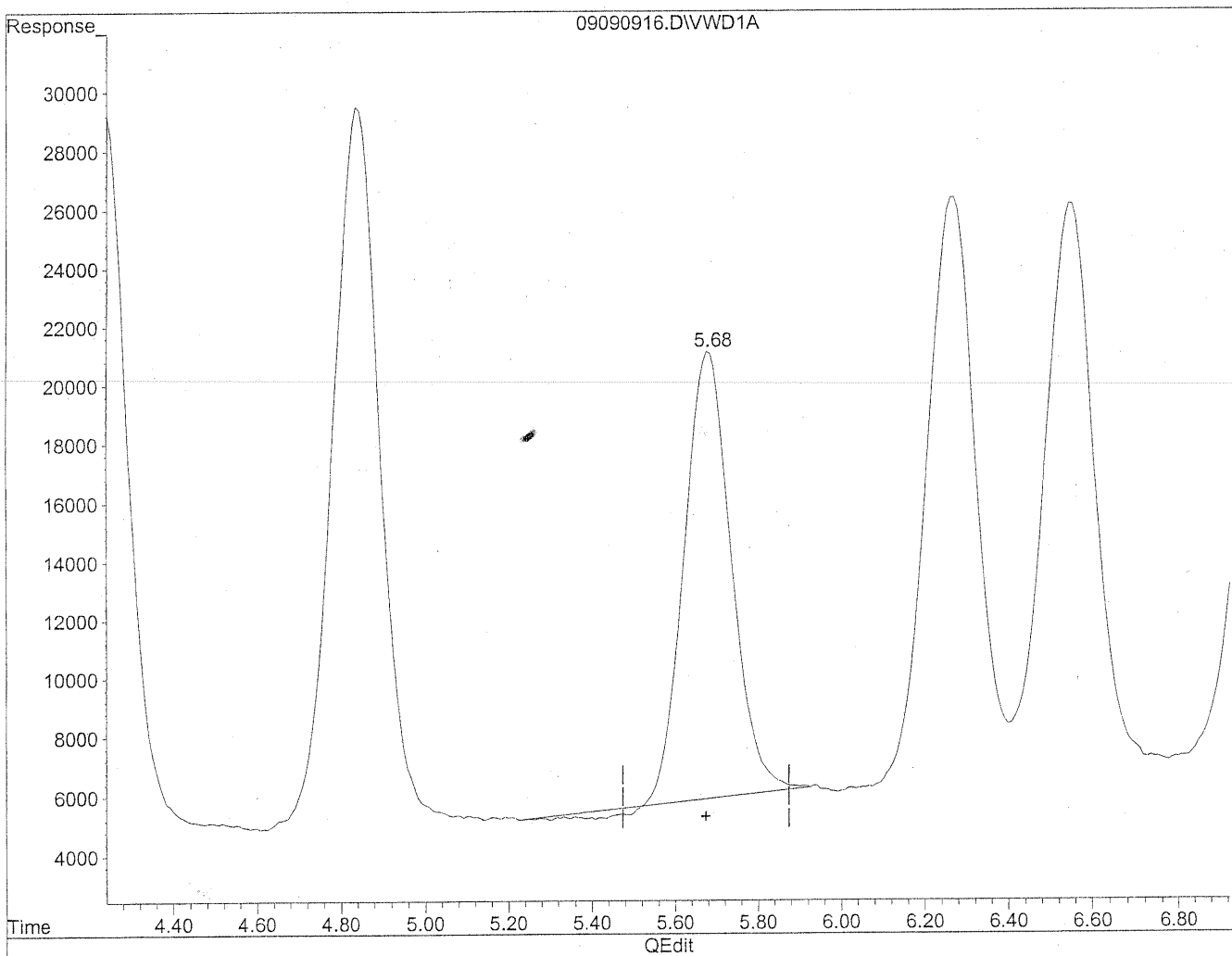
Volume Inj. : 3uL  
 Signal Phase : Supelcosil LC-18  
 Signal Info : 3.3cm x 3mm, 3um

| Compound                     | R.T. | Response | Conc Units     |
|------------------------------|------|----------|----------------|
| -----                        |      |          |                |
| Target Compounds             |      |          |                |
| 1) Formaldehyde              | 1.34 | 4239441  | 476.706 ng/ml  |
| 2) Acetaldehyde              | 1.88 | 3088021  | 481.187 ng/ml  |
| 3) Propionaldehyde           | 3.27 | 2504937  | 491.959 ng/ml  |
| 4) Crotonaldehyde            | 4.24 | 1993623  | 504.650 ng/ml  |
| 5) Butyraldehyde             | 4.84 | 1946571  | 487.492 ng/ml  |
| 6) Benzaldehyde              | 5.68 | 1291253  | 488.260 ng/mlm |
| 7) Isovaleraldehyde          | 6.26 | 1639714  | 481.982 ng/mlm |
| 8) Valeraldehyde             | 6.55 | 1572954  | 479.264 ng/ml  |
| 9) o-Tolualdehyde            | 7.00 | 1012283  | 476.287 ng/ml  |
| 10) m,p-Tolualdehyde         | 7.20 | 2206747  | 993.357 ng/ml  |
| 11) Hexaldehyde              | 8.26 | 1418487  | 490.030 ng/ml  |
| 12) 2,5-Dimethylbenzaldehyde | 8.47 | 962409   | 508.613 ng/ml  |

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090916.D Vial: 7  
Acq On : 09-Sep-2009, 16:51 Operator: MD  
Sample : 500ng/ml TO-11A S21-09080903 Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 10 8:53 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Wed Sep 09 16:02:22 2009  
Response via : Multiple Level Calibration

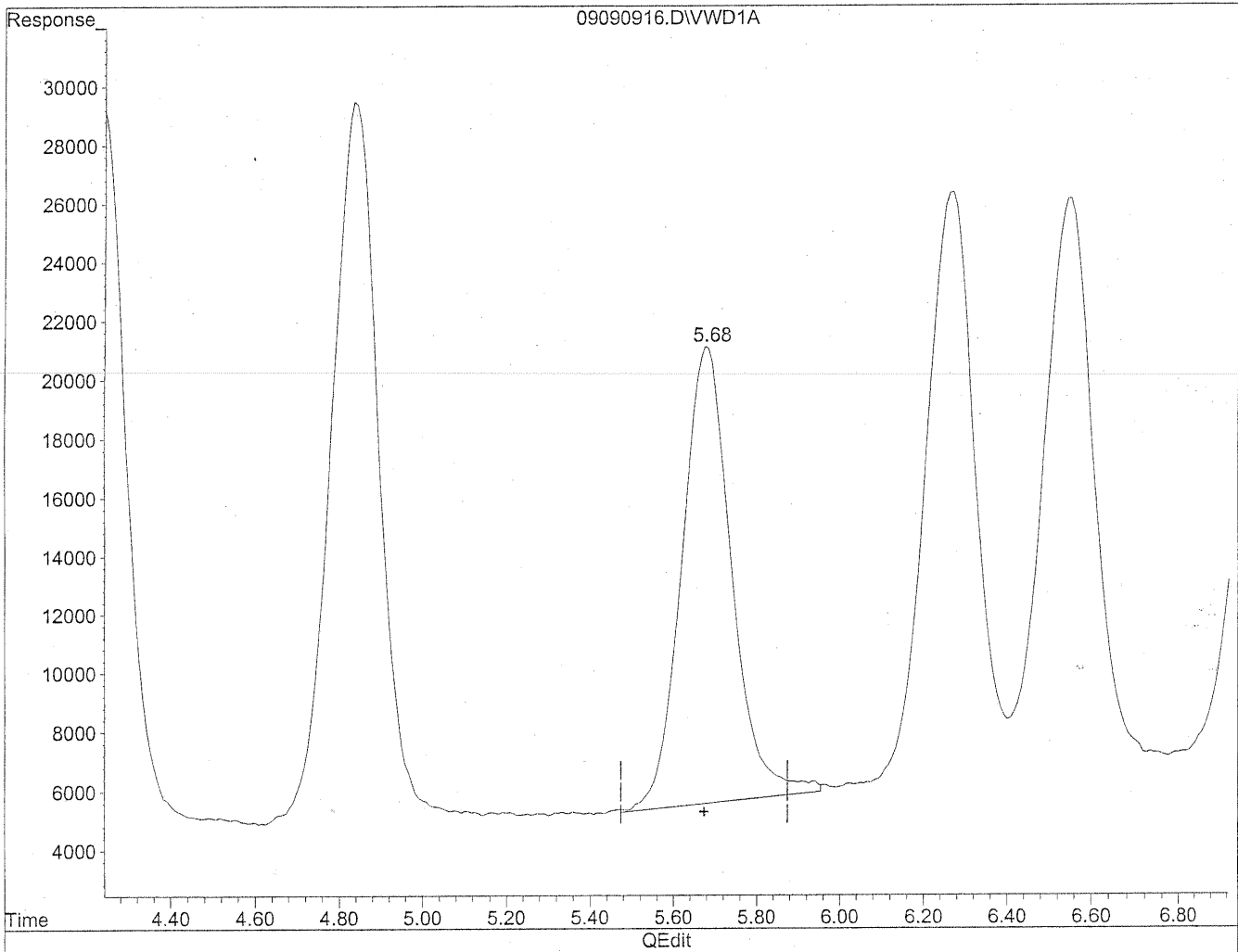


(6) Benzaldehyde  
5.68min 446.383ng/ml  
response 1180507

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090916.D Vial: 7  
Acq On : 09-Sep-2009, 16:51 Operator: MD  
Sample : 500ng/ml TO-11A S21-09080903 Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 10 8:53 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Wed Sep 09 16:02:22 2009  
Response via : Multiple Level Calibration



(6) Benzaldehyde  
5.68min 488.260ng/ml m  
response 1291253

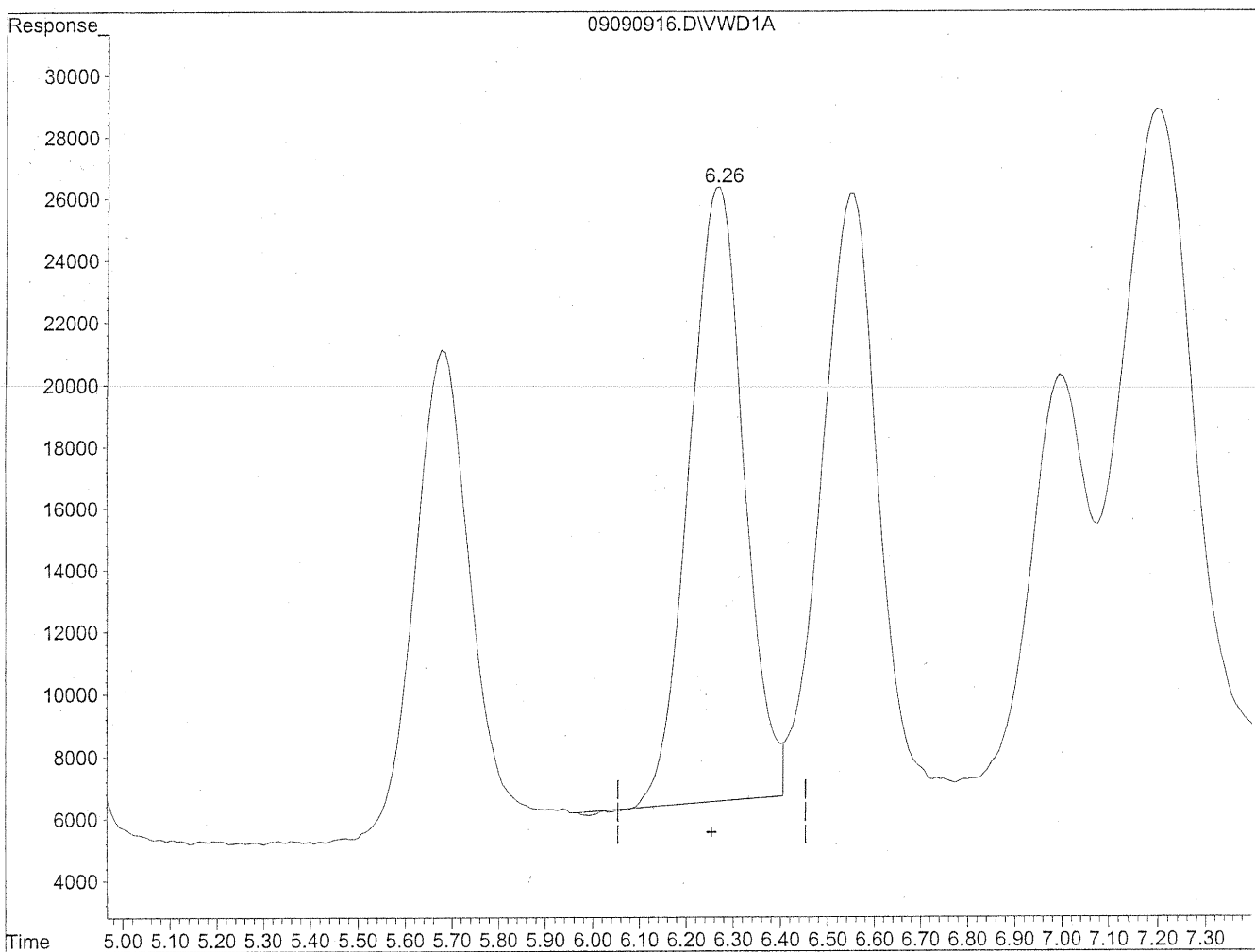
*MD*  
9/10/09  
12

*KE 9/10/09*

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090916.D Vial: 7  
Acq On : 09-Sep-2009, 16:51 Operator: MD  
Sample : 500ng/ml TO-11A S21-09080903 Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 10 8:53 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Wed Sep 09 16:02:22 2009  
Response via : Multiple Level Calibration

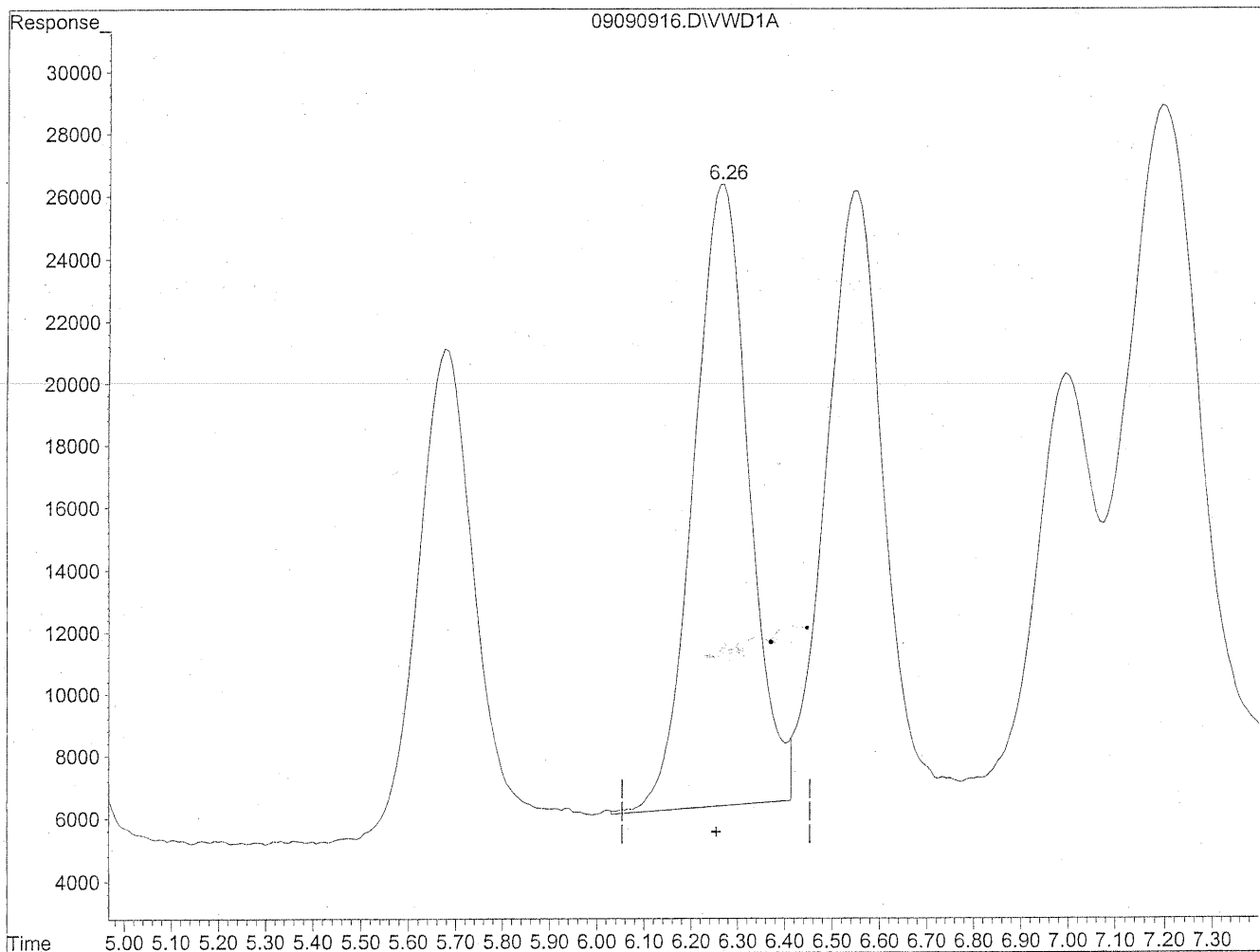


(7) Isovaleraldehyde  
6.27min 466.813ng/ml  
response 1588109

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090916.D Vial: 7  
Acq On : 09-Sep-2009, 16:51 Operator: MD  
Sample : 500ng/ml TO-11A S21-09080903 Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 10 8:53 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Wed Sep 09 16:02:22 2009  
Response via : Multiple Level Calibration



(7) Isovaleraldehyde  
6.26min 481.982ng/ml m  
response 1639714

*MD*  
*9/10/09*  
*R*  
*KE 9/10/09*

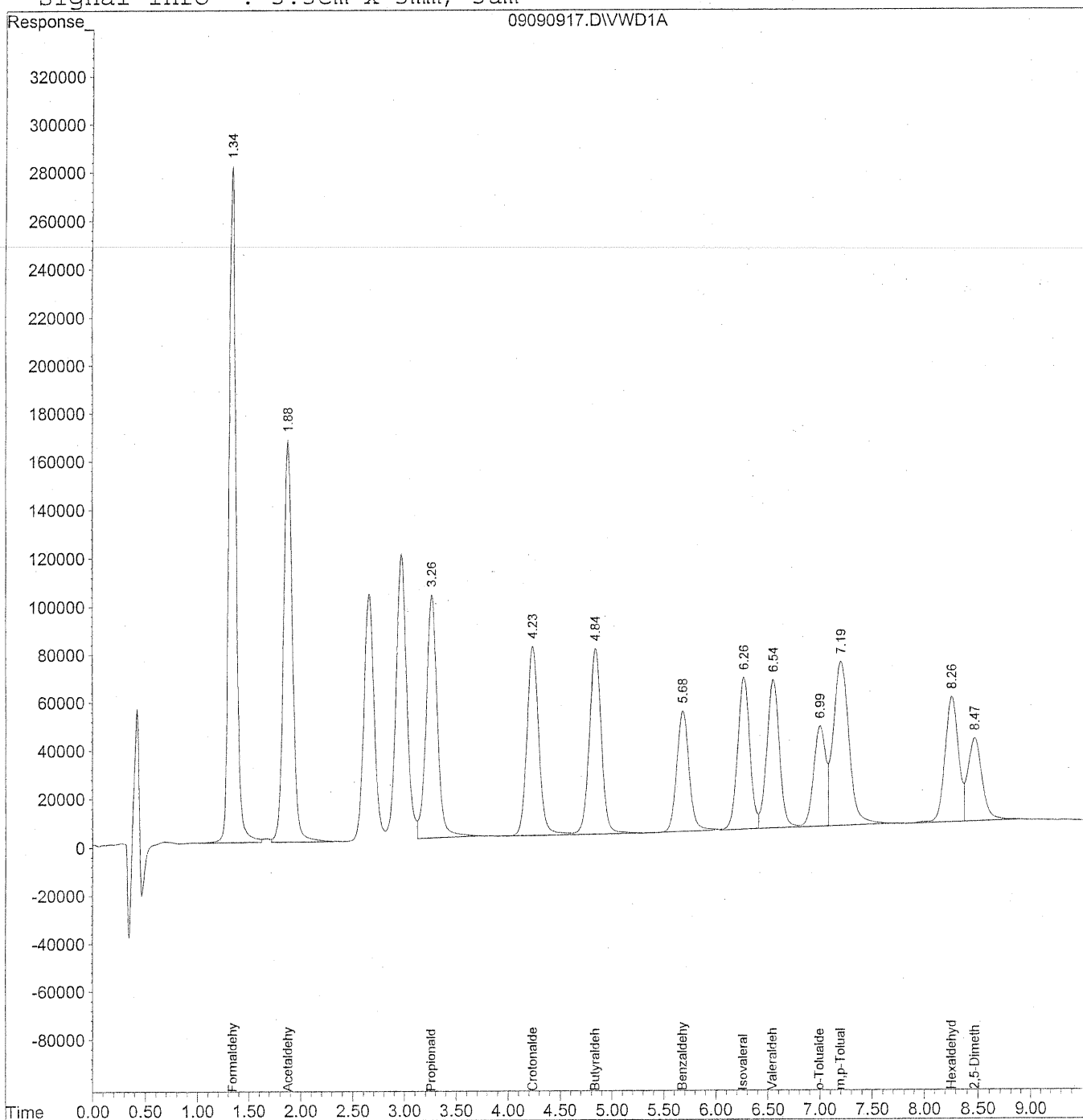


Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090917.D Vial: 6  
Acq On : 09-Sep-2009, 17:03 Operator: MD  
Sample : 1500ng/ml TO-11A S21-09090903 Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 10 8:54 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Wed Sep 09 16:02:22 2009  
Response via : Multiple Level Calibration  
DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
Signal Phase : Supelcosil LC-18  
Signal Info : 3.3cm x 3mm, 3um



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Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090917.D Vial: 6  
 Acq On : 09-Sep-2009, 17:03 Operator: MD  
 Sample : 1500ng/ml TO-11A S21-09090903 Inst : VWD  
 Misc : Multiplr: 1.00  
 IntFile : events.e  
 Quant Time: Sep 10 8:54 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
 Title : LC-1050 TO-11A ICAL  
 Last Update : Wed Sep 09 16:02:22 2009  
 Response via : Initial Calibration  
 DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
 Signal Phase : Supelcosil LC-18  
 Signal Info : 3.3cm x 3mm, 3um

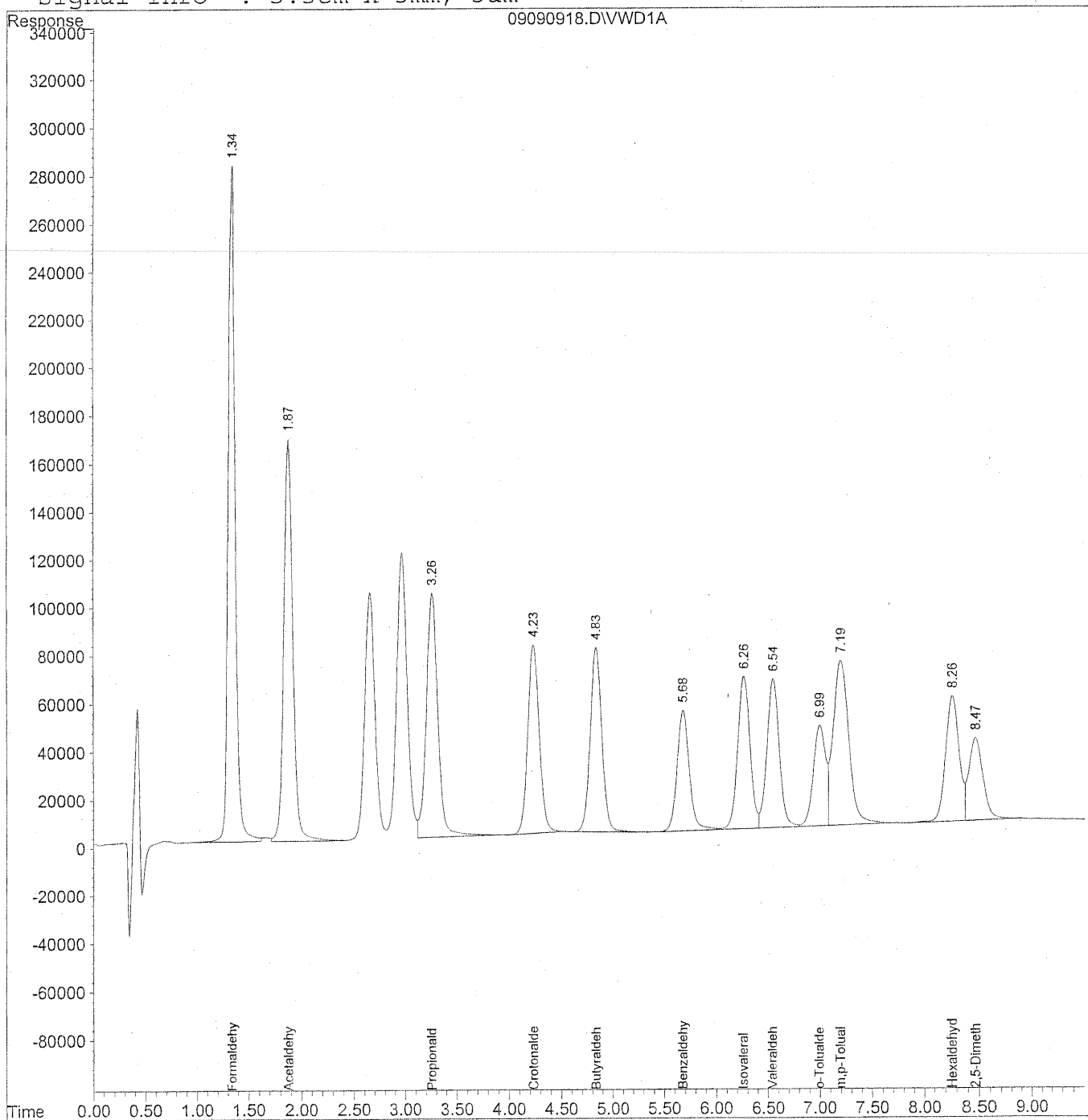
| Compound                     | R.T. | Response | Conc     | Units |
|------------------------------|------|----------|----------|-------|
| -----                        |      |          |          |       |
| Target Compounds             |      |          |          |       |
| 1) Formaldehyde              | 1.34 | 13461963 | 1514.248 | ng/ml |
| 2) Acetaldehyde              | 1.88 | 9836721  | 1531.865 | ng/ml |
| 3) Propionaldehyde           | 3.26 | 7740242  | 1520.232 | ng/ml |
| 4) Crotonaldehyde            | 4.24 | 6180043  | 1561.774 | ng/ml |
| 5) Butyraldehyde             | 4.84 | 6161274  | 1540.616 | ng/ml |
| 6) Benzaldehyde              | 5.68 | 4059200  | 1534.243 | ng/ml |
| 7) Isovaleraldehyde          | 6.27 | 5115478  | 1502.821 | ng/ml |
| 8) Valeraldehyde             | 6.55 | 5104937  | 1556.624 | ng/ml |
| 9) o-Tolualdehyde            | 7.00 | 3347391  | 1575.714 | ng/ml |
| 10) m,p-Tolualdehyde         | 7.20 | 7133126  | 3209.878 | ng/ml |
| 11) Hexaldehyde              | 8.26 | 4465907  | 1543.128 | ng/ml |
| 12) 2,5-Dimethylbenzaldehyde | 8.47 | 3088612  | 1632.078 | ng/ml |

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090918.D Vial: 6  
Acq On : 09-Sep-2009, 17:14 Operator: MD  
Sample : 1500ng/ml TO-11A S21-09090903 Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 10 8:55 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Wed Sep 09 16:02:22 2009  
Response via : Multiple Level Calibration  
DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
Signal Phase : Supelcosil LC-18  
Signal Info : 3.3cm x 3mm, 3um



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Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090918.D Vial: 6  
 Acq On : 09-Sep-2009, 17:14 Operator: MD  
 Sample : 1500ng/ml TO-11A S21-09090903 Inst : VWD  
 Misc : Multiplr: 1.00  
 IntFile : events.e  
 Quant Time: Sep 10 8:55 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
 Title : LC-1050 TO-11A ICAL  
 Last Update : Wed Sep 09 16:02:22 2009  
 Response via : Initial Calibration  
 DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
 Signal Phase : Supelcosil LC-18  
 Signal Info : 3.3cm x 3mm, 3um

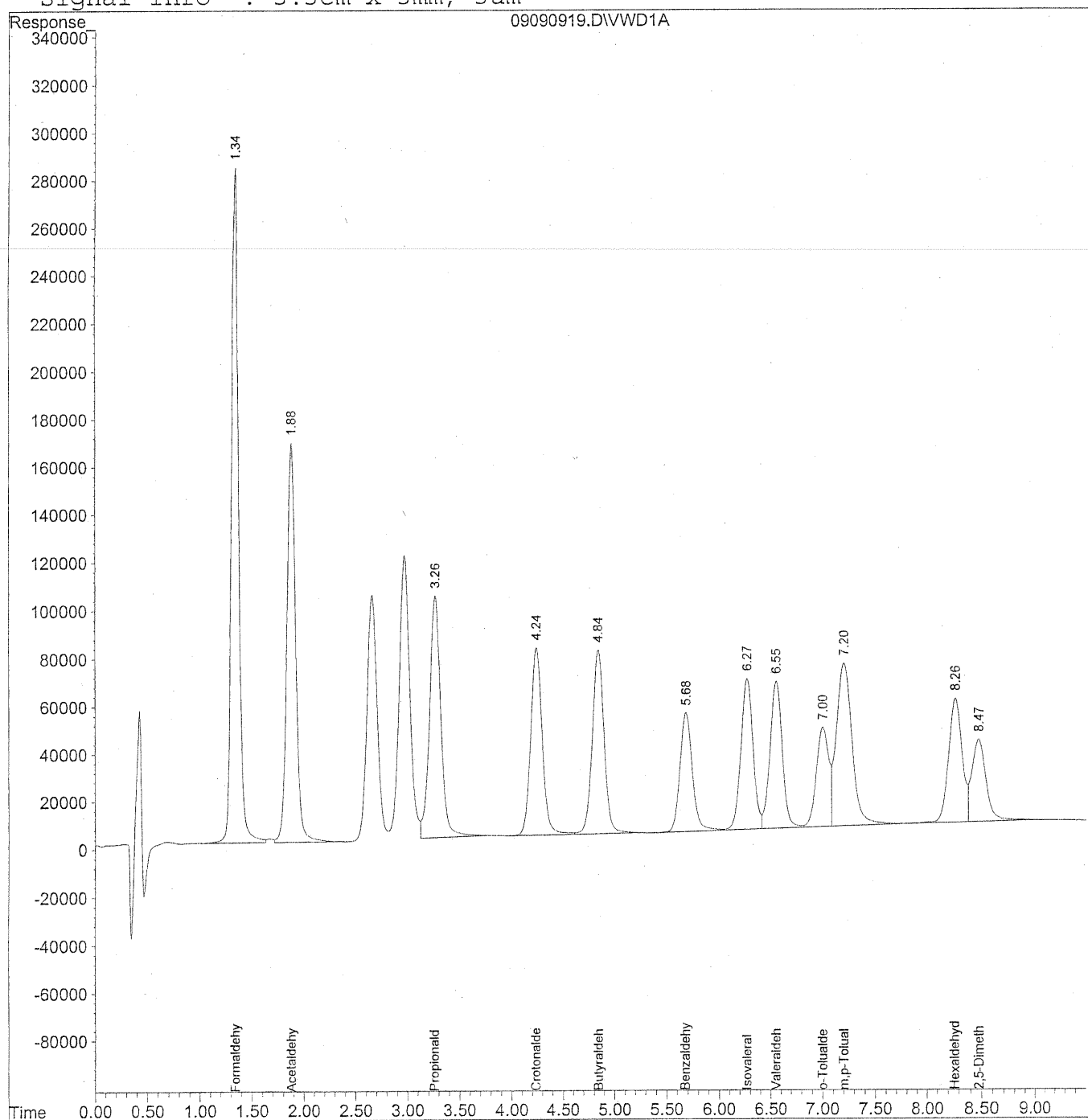
| Compound                     | R.T. | Response | Conc     | Units |
|------------------------------|------|----------|----------|-------|
| -----                        |      |          |          |       |
| Target Compounds             |      |          |          |       |
| 1) Formaldehyde              | 1.34 | 13578339 | 1534.981 | ng/ml |
| 2) Acetaldehyde              | 1.88 | 9942887  | 1551.020 | ng/ml |
| 3) Propionaldehyde           | 3.26 | 7876607  | 1547.881 | ng/ml |
| 4) Crotonaldehyde            | 4.24 | 6053894  | 1529.058 | ng/ml |
| 5) Butyraldehyde             | 4.84 | 6038847  | 1511.965 | ng/ml |
| 6) Benzaldehyde              | 5.68 | 4163474  | 1571.850 | ng/ml |
| 7) Isovaleraldehyde          | 6.27 | 5182178  | 1528.173 | ng/ml |
| 8) Valeraldehyde             | 6.55 | 5176264  | 1571.132 | ng/ml |
| 9) o-Tolualdehyde            | 7.00 | 3396097  | 1598.500 | ng/ml |
| 10) m,p-Tolualdehyde         | 7.20 | 7179077  | 3215.253 | ng/ml |
| 11) Hexaldehyde              | 8.26 | 4448983  | 1533.800 | ng/ml |
| 12) 2,5-Dimethylbenzaldehyde | 8.47 | 3056583  | 1602.761 | ng/ml |

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090919.D Vial: 6  
Acq On : 09-Sep-2009, 17:26 Operator: MD  
Sample : 1500ng/ml TO-11A S21-09090903 Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 10 8:56 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Wed Sep 09 16:02:22 2009  
Response via : Multiple Level Calibration  
DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
Signal Phase : Supelcosil LC-18  
Signal Info : 3.3cm x 3mm, 3um



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Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090919.D Vial: 6  
 Acq On : 09-Sep-2009, 17:26 Operator: MD  
 Sample : 1500ng/ml TO-11A S21-09090903 Inst : VWD  
 Misc : Multiplr: 1.00  
 IntFile : events.e  
 Quant Time: Sep 10 8:56 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
 Title : LC-1050 TO-11A ICAL  
 Last Update : Wed Sep 09 16:02:22 2009  
 Response via : Initial Calibration  
 DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
 Signal Phase : Supelcosil LC-18  
 Signal Info : 3.3cm x 3mm, 3um

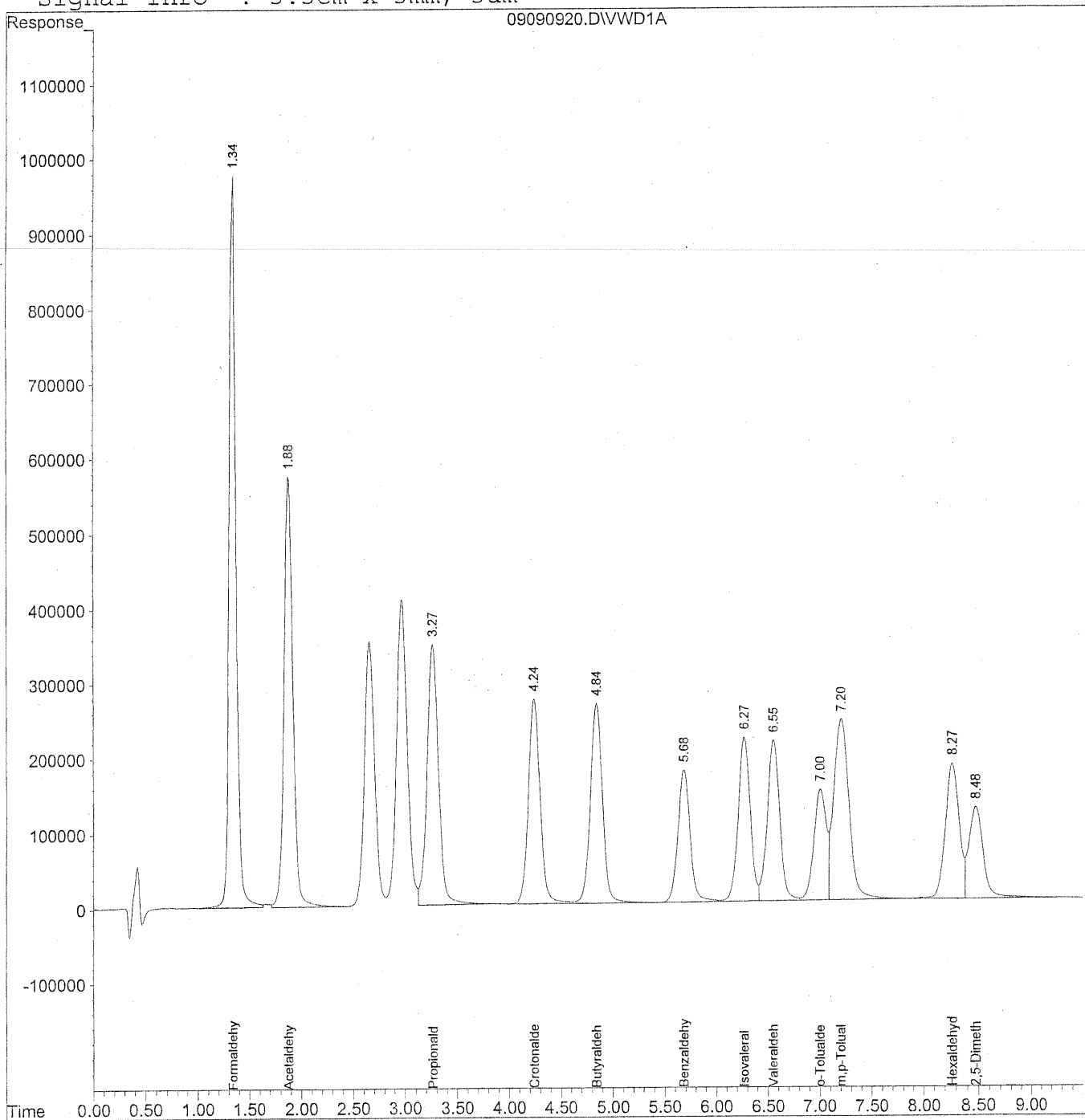
| Compound                     | R.T. | Response | Conc     | Units |
|------------------------------|------|----------|----------|-------|
| -----                        |      |          |          |       |
| Target Compounds             |      |          |          |       |
| 1) Formaldehyde              | 1.34 | 13548320 | 1530.469 | ng/ml |
| 2) Acetaldehyde              | 1.88 | 9888425  | 1541.106 | ng/ml |
| 3) Propionaldehyde           | 3.27 | 7759817  | 1522.663 | ng/ml |
| 4) Crotonaldehyde            | 4.24 | 6211709  | 1571.700 | ng/ml |
| 5) Butyraldehyde             | 4.84 | 6160753  | 1545.118 | ng/ml |
| 6) Benzaldehyde              | 5.68 | 4131112  | 1556.228 | ng/ml |
| 7) Isovaleraldehyde          | 6.27 | 5170579  | 1523.089 | ng/ml |
| 8) Valeraldehyde             | 6.55 | 5170597  | 1567.526 | ng/ml |
| 9) o-Tolualdehyde            | 7.00 | 3376687  | 1587.343 | ng/ml |
| 10) m,p-Tolualdehyde         | 7.20 | 7206393  | 3225.643 | ng/ml |
| 11) Hexaldehyde              | 8.27 | 4462344  | 1538.905 | ng/ml |
| 12) 2,5-Dimethylbenzaldehyde | 8.47 | 3155386  | 1656.115 | ng/ml |

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090920.D Vial: 5  
Acq On : 09-Sep-2009, 17:37 Operator: MD  
Sample : 5000ng/ml TO-11A S21-09080902 Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 10 8:56 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Wed Sep 09 16:02:22 2009  
Response via : Multiple Level Calibration  
DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
Signal Phase : Supelcosil LC-18  
Signal Info : 3.3cm x 3mm, 3um



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Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090920.D Vial: 5  
 Acq On : 09-Sep-2009, 17:37 Operator: MD  
 Sample : 5000ng/ml TO-11A S21-09080902 Inst : VWD  
 Misc : Multiplr: 1.00  
 IntFile : events.e  
 Quant Time: Sep 10 8:56 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
 Title : LC-1050 TO-11A ICAL  
 Last Update : Wed Sep 09 16:02:22 2009  
 Response via : Initial Calibration  
 DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
 Signal Phase : Supelcosil LC-18  
 Signal Info : 3.3cm x 3mm, 3um

| Compound                     | R.T. | Response | Conc      | Units |
|------------------------------|------|----------|-----------|-------|
| -----                        |      |          |           |       |
| Target Compounds             |      |          |           |       |
| 1) Formaldehyde              | 1.34 | 46422998 | 5243.497  | ng/ml |
| 2) Acetaldehyde              | 1.88 | 33949113 | 5290.994  | ng/ml |
| 3) Propionaldehyde           | 3.27 | 26460164 | 5193.957  | ng/ml |
| 4) Crotonaldehyde            | 4.24 | 21469148 | 5427.351  | ng/ml |
| 5) Butyraldehyde             | 4.84 | 21371531 | 5356.965  | ng/ml |
| 6) Benzaldehyde              | 5.69 | 14455457 | 5444.003  | ng/ml |
| 7) Isovaleraldehyde          | 6.27 | 17854488 | 5258.118  | ng/ml |
| 8) Valeraldehyde             | 6.55 | 17905508 | 5426.435  | ng/ml |
| 9) o-Tolualdehyde            | 7.00 | 11990582 | 5636.154  | ng/ml |
| 10) m,p-Tolualdehyde         | 7.20 | 25039167 | 11203.076 | ng/ml |
| 11) Hexaldehyde              | 8.27 | 15466841 | 5333.634  | ng/ml |
| 12) 2,5-Dimethylbenzaldehyde | 8.48 | 11107870 | 5820.635  | ng/ml |

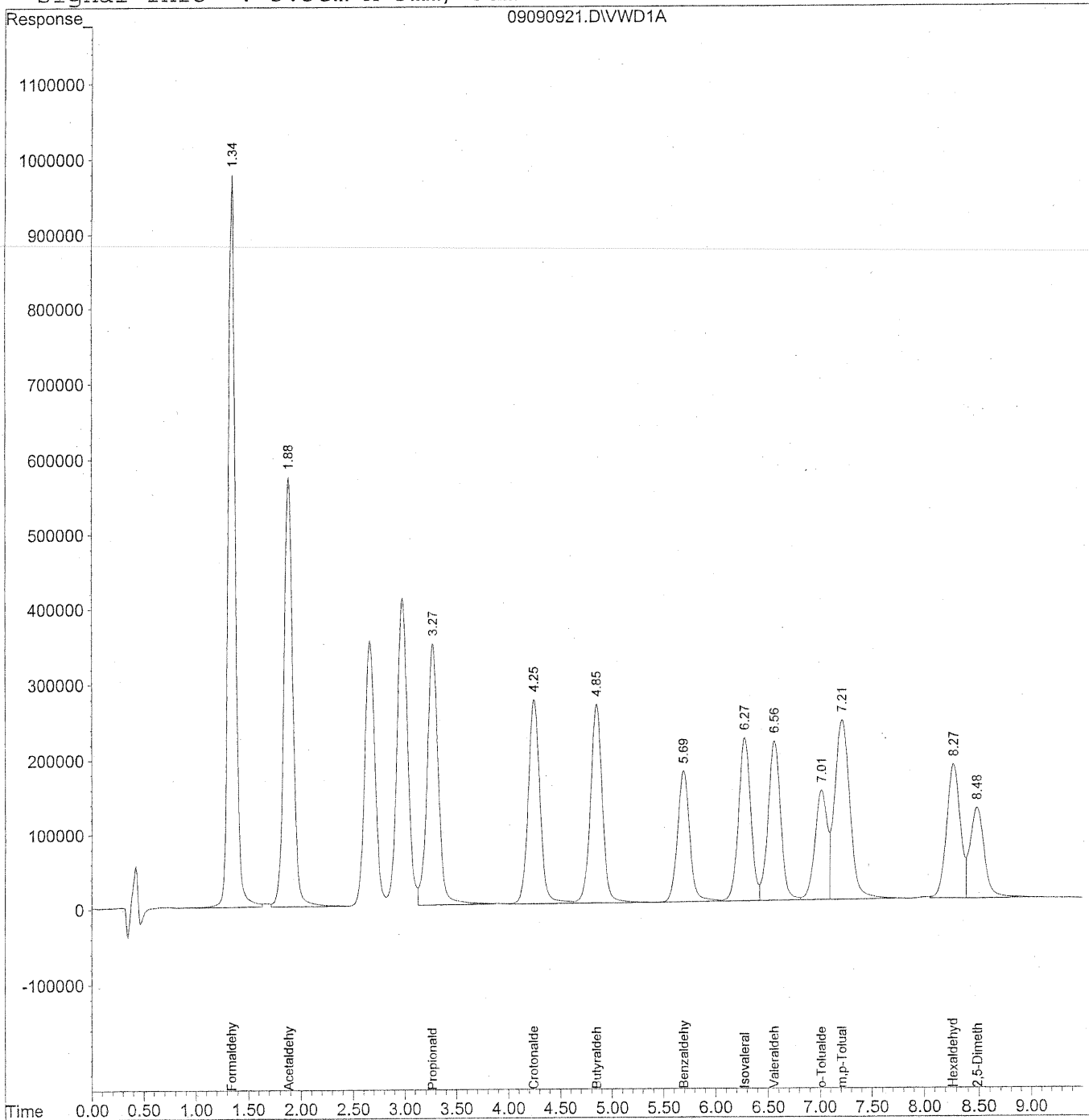


Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090921.D Vial: 5  
Acq On : 09-Sep-2009, 17:49 Operator: MD  
Sample : 5000ng/ml TO-11A S21-09080902 Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 10 8:57 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Wed Sep 09 16:02:22 2009  
Response via : Multiple Level Calibration  
DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
Signal Phase : Supelcosil LC-18  
Signal Info : 3.3cm x 3mm, 3um



Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090921.D Vial: 5  
 Acq On : 09-Sep-2009, 17:49 Operator: MD  
 Sample : 5000ng/ml TO-11A S21-09080902 Inst : VWD  
 Misc : Multiplr: 1.00  
 IntFile : events.e  
 Quant Time: Sep 10 8:57 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
 Title : LC-1050 TO-11A ICAL  
 Last Update : Wed Sep 09 16:02:22 2009  
 Response via : Initial Calibration  
 DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
 Signal Phase : Supelcosil LC-18  
 Signal Info : 3.3cm x 3mm, 3um

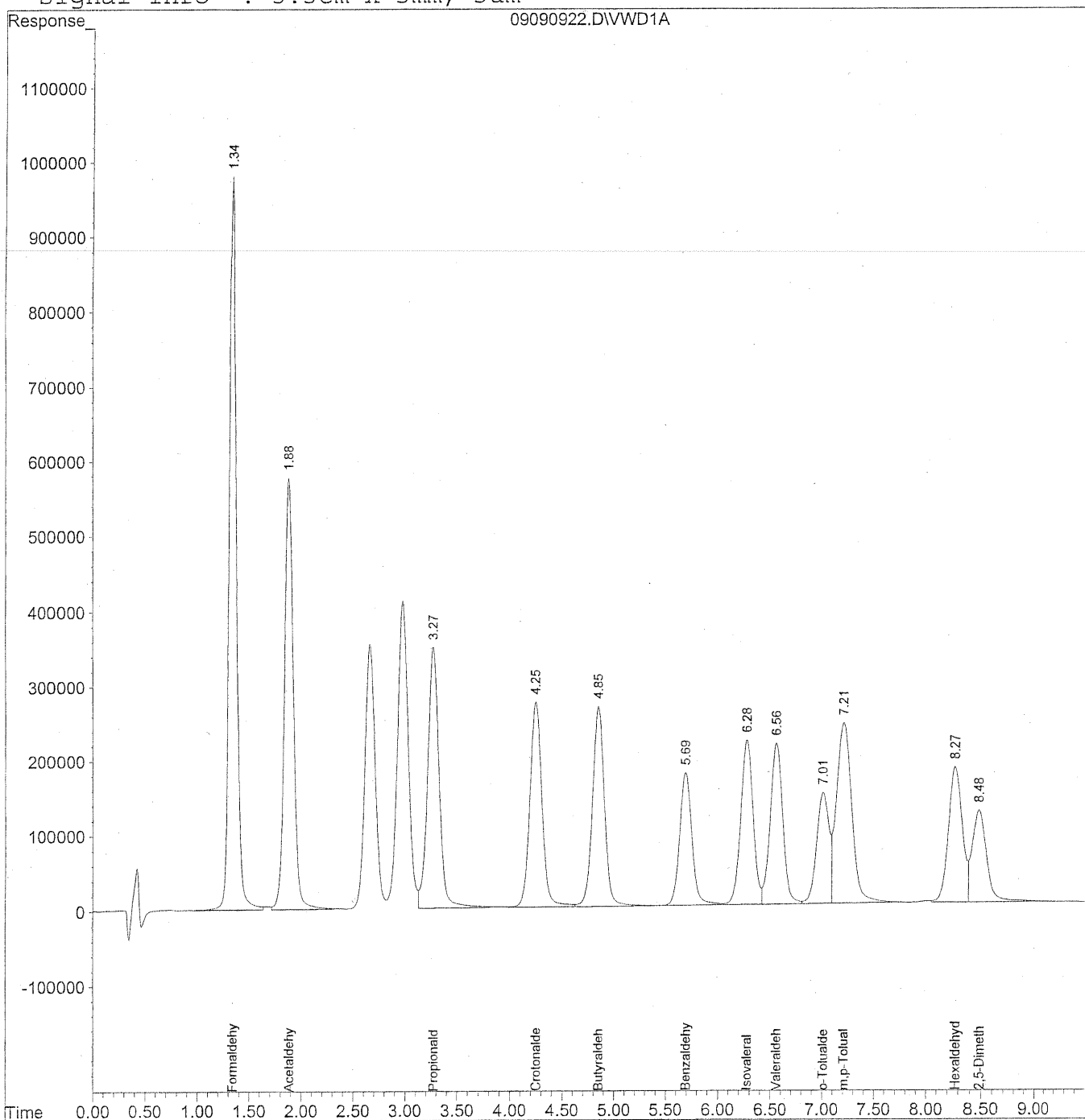
| Compound                     | R.T. | Response | Conc      | Units |
|------------------------------|------|----------|-----------|-------|
| -----                        |      |          |           |       |
| Target Compounds             |      |          |           |       |
| 1) Formaldehyde              | 1.35 | 46464064 | 5198.646  | ng/ml |
| 2) Acetaldehyde              | 1.88 | 33977292 | 5236.353  | ng/ml |
| 3) Propionaldehyde           | 3.27 | 26758092 | 5177.051  | ng/ml |
| 4) Crotonaldehyde            | 4.25 | 21604348 | 5366.312  | ng/ml |
| 5) Butyraldehyde             | 4.85 | 21444271 | 5303.711  | ng/ml |
| 6) Benzaldehyde              | 5.69 | 14435192 | 5328.040  | ng/ml |
| 7) Isovaleraldehyde          | 6.28 | 17875029 | 5200.288  | ng/ml |
| 8) Valeraldehyde             | 6.56 | 17921465 | 5321.025  | ng/ml |
| 9) o-Tolualdehyde            | 7.01 | 11986554 | 5544.716  | ng/ml |
| 10) m,p-Tolualdehyde         | 7.21 | 25032033 | 10984.299 | ng/ml |
| 11) Hexaldehyde              | 8.27 | 15380456 | 5215.387  | ng/ml |
| 12) 2,5-Dimethylbenzaldehyde | 8.48 | 11113181 | 5654.303  | ng/ml |

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090922.D Vial: 5  
Acq On : 09-Sep-2009, 18:00 Operator: MD  
Sample : 5000ng/ml TO-11A S21-09080902 Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 10 8:58 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Wed Sep 09 16:02:22 2009  
Response via : Multiple Level Calibration  
DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
Signal Phase : Supelcosil LC-18  
Signal Info : 3.3cm x 3mm, 3um



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Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090922.D Vial: 5  
 Acq On : 09-Sep-2009, 18:00 Operator: MD  
 Sample : 5000ng/ml TO-11A S21-09080902 Inst : VWD  
 Misc : Multiplr: 1.00  
 IntFile : events.e  
 Quant Time: Sep 10 8:58 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
 Title : LC-1050 TO-11A ICAL  
 Last Update : Wed Sep 09 16:02:22 2009  
 Response via : Initial Calibration  
 DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
 Signal Phase : Supelcosil LC-18  
 Signal Info : 3.3cm x 3mm, 3um

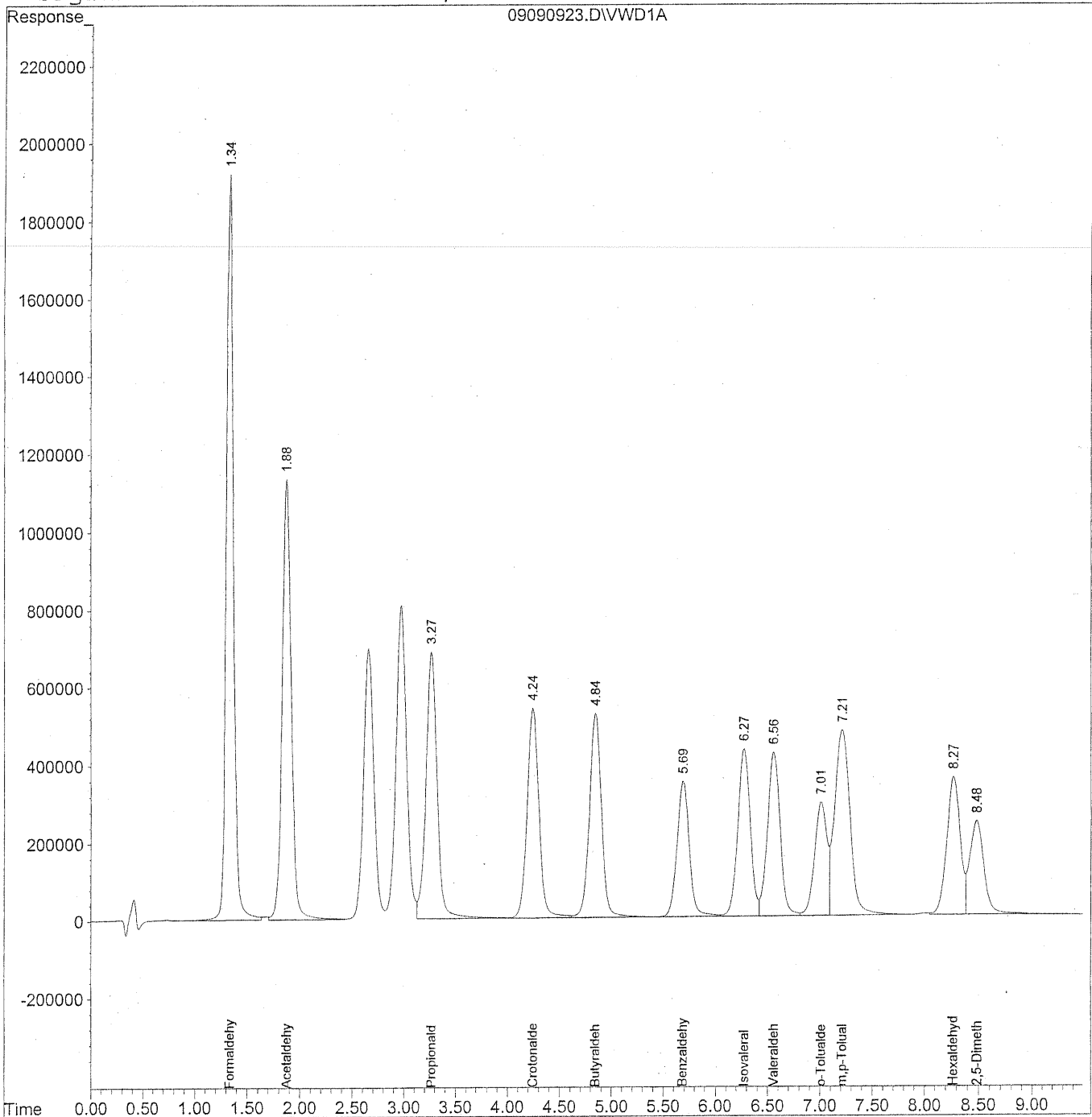
| Compound                     | R.T. | Response | Conc      | Units |
|------------------------------|------|----------|-----------|-------|
| -----                        |      |          |           |       |
| Target Compounds             |      |          |           |       |
| 1) Formaldehyde              | 1.35 | 46648983 | 5218.936  | ng/ml |
| 2) Acetaldehyde              | 1.88 | 34054104 | 5247.811  | ng/ml |
| 3) Propionaldehyde           | 3.27 | 26843474 | 5188.585  | ng/ml |
| 4) Crotonaldehyde            | 4.25 | 21717189 | 5391.323  | ng/ml |
| 5) Butyraldehyde             | 4.85 | 21538832 | 5325.502  | ng/ml |
| 6) Benzaldehyde              | 5.69 | 14515721 | 5358.432  | ng/ml |
| 7) Isovaleraldehyde          | 6.28 | 17932725 | 5216.554  | ng/ml |
| 8) Valeraldehyde             | 6.56 | 17988106 | 5340.390  | ng/ml |
| 9) o-Tolualdehyde            | 7.01 | 12035186 | 5567.385  | ng/ml |
| 10) m,p-Tolualdehyde         | 7.21 | 25134428 | 11029.519 | ng/ml |
| 11) Hexaldehyde              | 8.28 | 15437631 | 5237.332  | ng/ml |
| 12) 2,5-Dimethylbenzaldehyde | 8.49 | 11198210 | 5697.308  | ng/ml |

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090923.D Vial: 4  
Acq On : 09-Sep-2009, 18:11 Operator: MD  
Sample : 10000ng/ml TO-11A S21-09080901 Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 10 8:58 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Wed Sep 09 16:02:22 2009  
Response via : Multiple Level Calibration  
DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
Signal Phase : Supelcosil LC-18  
Signal Info : 3.3cm x 3mm, 3um



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Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090923.D Vial: 4  
 Acq On : 09-Sep-2009, 18:11 Operator: MD  
 Sample : 10000ng/ml TO-11A S21-09080901 Inst : VWD  
 Misc : Multiplr: 1.00  
 IntFile : events.e  
 Quant Time: Sep 10 8:58 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
 Title : LC-1050 TO-11A ICAL  
 Last Update : Wed Sep 09 16:02:22 2009  
 Response via : Initial Calibration  
 DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
 Signal Phase : Supelcosil LC-18  
 Signal Info : 3.3cm x 3mm, 3um

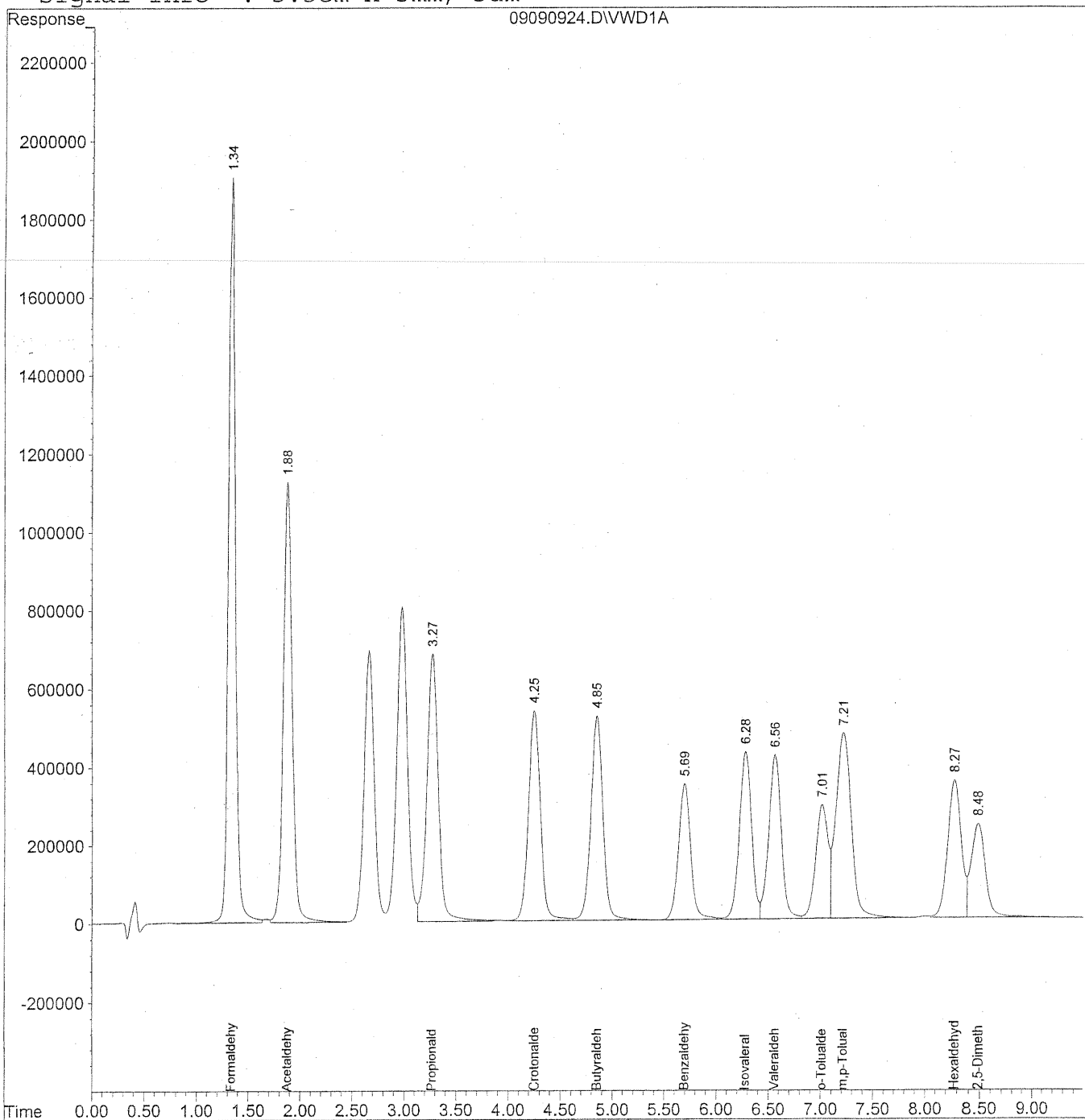
| Compound                     | R.T. | Response | Conc Units      |
|------------------------------|------|----------|-----------------|
| -----                        |      |          |                 |
| Target Compounds             |      |          |                 |
| 1) Formaldehyde              | 1.34 | 91542792 | 10238.895 ng/ml |
| 2) Acetaldehyde              | 1.88 | 67198566 | 10353.832 ng/ml |
| 3) Propionaldehyde           | 3.27 | 52731710 | 10187.405 ng/ml |
| 4) Crotonaldehyde            | 4.25 | 42623472 | 10576.073 ng/ml |
| 5) Butyraldehyde             | 4.85 | 42304249 | 10456.015 ng/ml |
| 6) Benzaldehyde              | 5.69 | 28602353 | 10555.419 ng/ml |
| 7) Isovaleraldehyde          | 6.28 | 35277028 | 10259.685 ng/ml |
| 8) Valeraldehyde             | 6.56 | 35412579 | 10510.859 ng/ml |
| 9) o-Tolualdehyde            | 7.01 | 23892692 | 11049.929 ng/ml |
| 10) m,p-Tolualdehyde         | 7.21 | 49431359 | 21686.301 ng/ml |
| 11) Hexaldehyde              | 8.27 | 30345892 | 10294.528 ng/ml |
| 12) 2,5-Dimethylbenzaldehyde | 8.48 | 21989696 | 11182.144 ng/ml |

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090924.D Vial: 4  
Acq On : 09-Sep-2009, 18:23 Operator: MD  
Sample : 10000ng/ml TO-11A S21-09080902 Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 10 8:59 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Wed Sep 09 16:02:22 2009  
Response via : Multiple Level Calibration  
DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
Signal Phase : Supelcosil LC-18  
Signal Info : 3.3cm x 3mm, 3um



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Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090924.D Vial: 4  
 Acq On : 09-Sep-2009, 18:23 Operator: MD  
 Sample : 10000ng/ml TO-11A S21-09080902 Inst : VWD  
 Misc : Multiplr: 1.00  
 IntFile : events.e  
 Quant Time: Sep 10 8:59 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
 Title : LC-1050 TO-11A ICAL  
 Last Update : Wed Sep 09 16:02:22 2009  
 Response via : Initial Calibration  
 DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
 Signal Phase : Supelcosil LC-18  
 Signal Info : 3.3cm x 3mm, 3um

| Compound                     | R.T. | Response | Conc Units      |
|------------------------------|------|----------|-----------------|
| -----                        |      |          |                 |
| Target Compounds             |      |          |                 |
| 1) Formaldehyde              | 1.34 | 91301664 | 10216.742 ng/ml |
| 2) Acetaldehyde              | 1.88 | 67004053 | 10305.740 ng/ml |
| 3) Propionaldehyde           | 3.27 | 52551284 | 10108.517 ng/ml |
| 4) Crotonaldehyde            | 4.25 | 42531897 | 10476.390 ng/ml |
| 5) Butyraldehyde             | 4.85 | 42207282 | 10413.662 ng/ml |
| 6) Benzaldehyde              | 5.69 | 28552063 | 10464.403 ng/ml |
| 7) Isovaleraldehyde          | 6.28 | 35194712 | 10224.544 ng/ml |
| 8) Valeraldehyde             | 6.56 | 35338059 | 10393.485 ng/ml |
| 9) o-Tolualdehyde            | 7.01 | 23813504 | 10965.300 ng/ml |
| 10) m,p-Tolualdehyde         | 7.21 | 49315533 | 21467.660 ng/ml |
| 11) Hexaldehyde              | 8.28 | 30246038 | 10213.789 ng/ml |
| 12) 2,5-Dimethylbenzaldehyde | 8.49 | 21823086 | 10931.999 ng/ml |

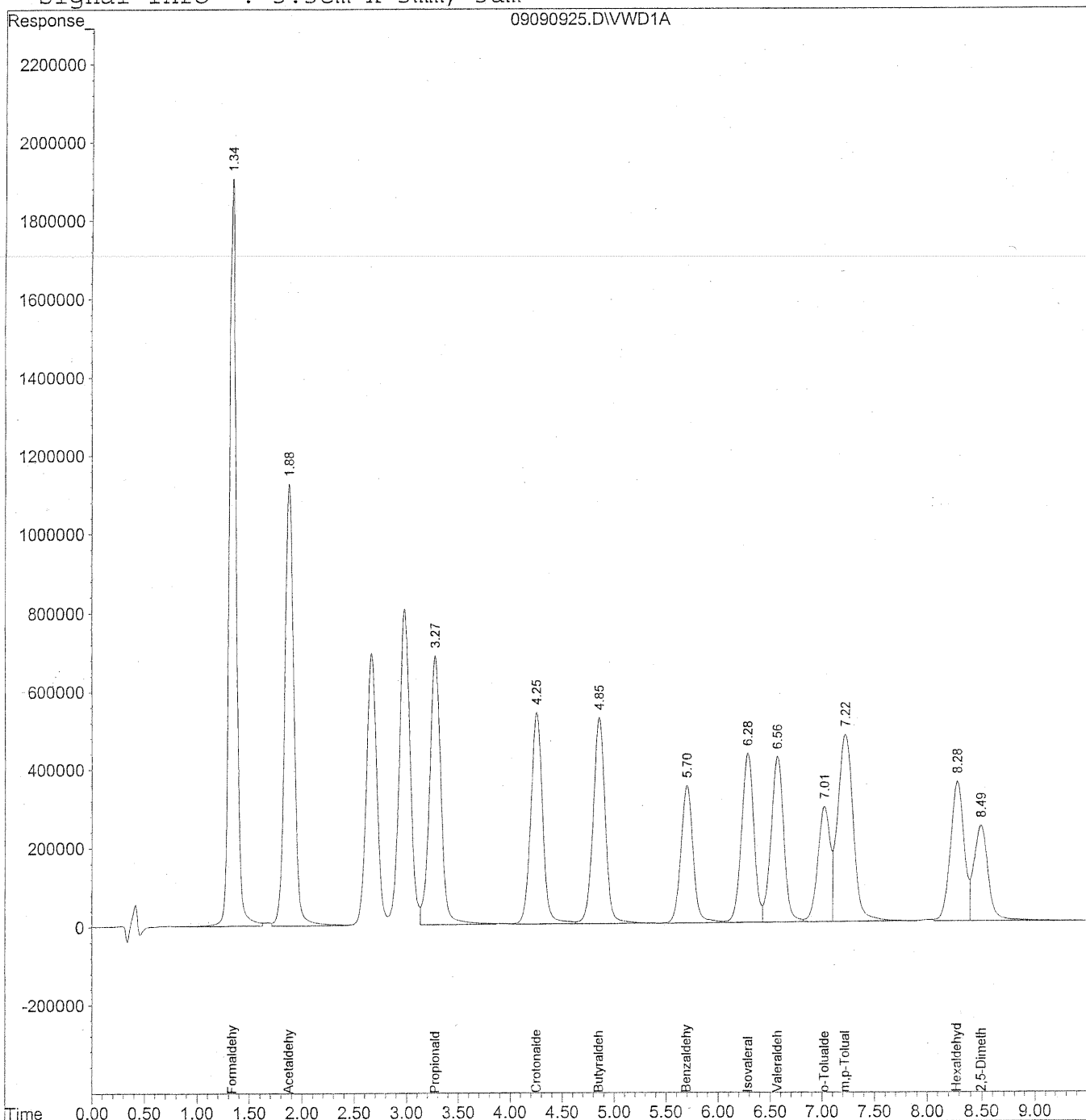


Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090925.D Vial: 4  
Acq On : 09-Sep-2009, 18:34 Operator: MD  
Sample : 10000ng/ml TO-11A S21-09080902 Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 10 8:59 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Wed Sep 09 16:02:22 2009  
Response via : Multiple Level Calibration  
DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
Signal Phase : Supelcosil LC-18  
Signal Info : 3.3cm x 3mm, 3um



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Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090925.D Vial: 4  
 Acq On : 09-Sep-2009, 18:34 Operator: MD  
 Sample : 10000ng/ml TO-11A S21-09080902 Inst : VWD  
 Misc : Multiplr: 1.00  
 IntFile : events.e  
 Quant Time: Sep 10 8:59 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
 Title : LC-1050 TO-11A ICAL  
 Last Update : Wed Sep 09 16:02:22 2009  
 Response via : Initial Calibration  
 DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
 Signal Phase : Supelcosil LC-18  
 Signal Info : 3.3cm x 3mm, 3um

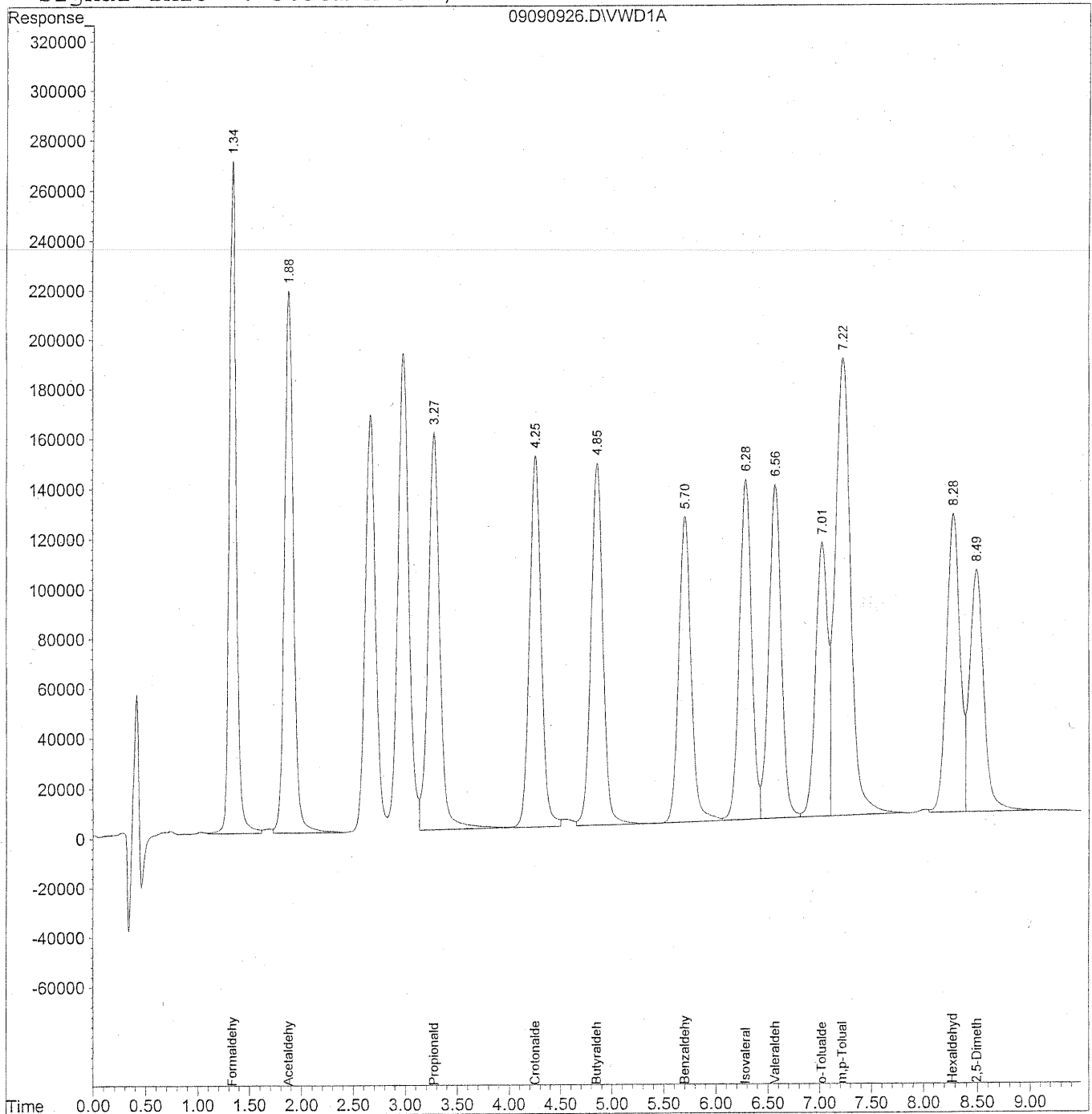
| Compound                     | R.T. | Response | Conc Units      |
|------------------------------|------|----------|-----------------|
| -----                        |      |          |                 |
| Target Compounds             |      |          |                 |
| 1) Formaldehyde              | 1.34 | 91595894 | 10251.972 ng/ml |
| 2) Acetaldehyde              | 1.88 | 67244158 | 10345.249 ng/ml |
| 3) Propionaldehyde           | 3.28 | 52752024 | 10150.066 ng/ml |
| 4) Crotonaldehyde            | 4.25 | 42676337 | 10513.945 ng/ml |
| 5) Butyraldehyde             | 4.86 | 42347195 | 10450.266 ng/ml |
| 6) Benzaldehyde              | 5.70 | 28631645 | 10495.182 ng/ml |
| 7) Isovaleraldehyde          | 6.28 | 35288997 | 10253.979 ng/ml |
| 8) Valeraldehyde             | 6.57 | 35418570 | 10419.068 ng/ml |
| 9) o-Tolualdehyde            | 7.02 | 23869930 | 10994.623 ng/ml |
| 10) m,p-Tolualdehyde         | 7.22 | 49446486 | 21529.189 ng/ml |
| 11) Hexaldehyde              | 8.28 | 30343150 | 10249.463 ng/ml |
| 12) 2,5-Dimethylbenzaldehyde | 8.49 | 22018475 | 11037.553 ng/ml |

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090926.D Vial: 3  
Acq On : 09-Sep-2009, 18:46 Operator: MD  
Sample : ~1500ng/ml TO-11A ICV S21-07270907 Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 10 9:30 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Wed Sep 09 16:02:22 2009  
Response via : Multiple Level Calibration  
DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
Signal Phase : Supelcosil LC-18  
Signal Info : 3.3cm x 3mm, 3um



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Data File : J:\LC02\DATA\TO11A\2009\_09\09\09090926.D Vial: 3  
 Acq On : 09-Sep-2009, 18:46 Operator: MD  
 Sample : ~1500ng/ml TO-11A ICV S21-07270907 Inst : VWD  
 Misc : Multiplr: 1.00  
 IntFile : events.e  
 Quant Time: Sep 10 9:30 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
 Title : LC-1050 TO-11A ICAL  
 Last Update : Wed Sep 09 16:02:22 2009  
 Response via : Initial Calibration  
 DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
 Signal Phase : Supelcosil LC-18  
 Signal Info : 3.3cm x 3mm, 3um

| Compound                     | R.T. | Response | Conc     | Units |
|------------------------------|------|----------|----------|-------|
| -----                        |      |          |          |       |
| Target Compounds             |      |          |          |       |
| 1) Formaldehyde              | 1.34 | 12986438 | 1453.521 | ng/ml |
| 2) Acetaldehyde              | 1.88 | 13048264 | 2007.424 | ng/ml |
| 3) Propionaldehyde           | 3.28 | 12411611 | 2388.130 | ng/ml |
| 4) Crotonaldehyde            | 4.26 | 11686650 | 2879.178 | ng/ml |
| 5) Butyraldehyde             | 4.86 | 11660734 | 2877.588 | ng/ml |
| 6) Benzaldehyde              | 5.70 | 10075461 | 3693.249 | ng/ml |
| 7) Isovaleraldehyde          | 6.28 | 11105935 | 3227.069 | ng/ml |
| 8) Valeraldehyde             | 6.57 | 11151355 | 3280.390 | ng/ml |
| 9) o-Tolualdehyde            | 7.02 | 8894551  | 4053.169 | ng/ml |
| 10) m,p-Tolualdehyde         | 7.22 | 19279847 | 8394.519 | ng/ml |
| 11) Hexaldehyde              | 8.28 | 10194419 | 3443.522 | ng/ml |
| 12) 2,5-Dimethylbenzaldehyde | 8.49 | 8824280  | 4423.488 | ng/ml |

CONTINUING CALIBRATION STANDARDS

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**COLUMBIA ANALYTICAL SERVICES**

TO11A Aldehyde & Ketone DNPH Analysis by HPLC

Instrument : LC#02  
 Detector : UV-VIS 360  
 Analyst : MD

Printed : 09/17/09  
 Date Acquired : 09/14/09  
 Sample Amount : 3ul  
 Client & PAI Job# : EH & E P0903087

*HC*  
*9/18/09*

**SAMPLE RESULT SUMMARY**

| Sample Information | MDL | 1500ng/ml TO<br>11A S21-<br>09090903 | % Diff | ACN blank Lot<br>CY331 | MB-1 front<br>1.0ml lot<br>5855/5994 | MB-1 back<br>1.0ml lot<br>5855/5994 | MID CCV<br>1500ng/ml | % Diff | P0903087-001<br>back 1.0ml |
|--------------------|-----|--------------------------------------|--------|------------------------|--------------------------------------|-------------------------------------|----------------------|--------|----------------------------|
| Dilution           | 1.0 |                                      |        | 1.0                    | 1.0                                  | 1.0                                 | 1.0                  |        | 1.0                        |
| Sample Volume (L)  | NA  |                                      |        | NA                     | NA                                   | NA                                  | NA                   |        | 104.00                     |
| Final Vol.(ml)     | 1.0 |                                      |        | 1.0                    | 1.0                                  | 1.0                                 | 1.0                  |        | 1.0                        |

|                          | ng/sample | ng/sample | % Diff | ng/sample | ng/sample | ng/sample | ng/sample | % Diff | ng/sample |
|--------------------------|-----------|-----------|--------|-----------|-----------|-----------|-----------|--------|-----------|
| Formaldehyde             | 100.00    | 1520.4    | 1.4%   | ND        | ND        | ND        | 1546.696  | 3.1%   | ND        |
| Acetaldehyde             | 100.00    | 1506.1    | 0.4%   | ND        | ND        | ND        | 1538.168  | 2.5%   | ND        |
| Propionaldehyde          | 100.00    | 1472.9    | 1.8%   | ND        | ND        | ND        | 1529.969  | 2.0%   | ND        |
| Crotonaldehyde           | 100.00    | 1503.6    | 0.2%   | ND        | ND        | ND        | 1534.161  | 2.3%   | ND        |
| Butyraldehyde            | 100.00    | 1504.9    | 0.3%   | ND        | ND        | ND        | 1543.389  | 2.9%   | ND        |
| Benzaldehyde             | 100.00    | 1497.3    | 0.2%   | ND        | ND        | ND        | 1475.553  | 1.6%   | ND        |
| Isovaleraldehyde         | 100.00    | 1486.2    | 0.9%   | ND        | ND        | ND        | 1540.916  | 2.7%   | ND        |
| Valeraldehyde            | 100.00    | 1453.6    | 3.1%   | ND        | ND        | ND        | 1438.000  | 4.1%   | ND        |
| o-Tolualdehyde           | 100.00    | 1475.7    | 1.6%   | ND        | ND        | ND        | 1508.777  | 0.6%   | ND        |
| m,p-Tolualdehyde         | 200.00    | 3034.0    | 1.1%   | ND        | ND        | ND        | 3118.595  | 4.0%   | ND        |
| Hexaldehyde              | 100.00    | 1489.6    | 0.7%   | ND        | ND        | ND        | 1439.867  | 4.0%   | ND        |
| 2,5-Dimethylbenzaldehyde | 100.00    | 1669.0    | 11.3%  | ND        | ND        | ND        | 1674.116  | 11.6%  | ND        |

|                          | ug/m3 | ug/m3 | ug/m3 | ug/m3 | ug/m3 |
|--------------------------|-------|-------|-------|-------|-------|
| Formaldehyde             |       | NA    | NA    | NA    | ND    |
| Acetaldehyde             |       | NA    | NA    | NA    | ND    |
| Propionaldehyde          |       | NA    | NA    | NA    | ND    |
| Crotonaldehyde           |       | NA    | NA    | NA    | ND    |
| Butyraldehyde            |       | NA    | NA    | NA    | ND    |
| Benzaldehyde             |       | NA    | NA    | NA    | ND    |
| Isovaleraldehyde         |       | NA    | NA    | NA    | ND    |
| Valeraldehyde            |       | NA    | NA    | NA    | ND    |
| o-Tolualdehyde           |       | NA    | NA    | NA    | ND    |
| m,p-Tolualdehyde         |       | NA    | NA    | NA    | ND    |
| Hexaldehyde              |       | NA    | NA    | NA    | ND    |
| 2,5-Dimethylbenzaldehyde |       | NA    | NA    | NA    | ND    |

|                          | ppb | ppb | ppb | ppb | ppb |
|--------------------------|-----|-----|-----|-----|-----|
| Formaldehyde             |     | NA  | NA  | NA  | ND  |
| Acetaldehyde             |     | NA  | NA  | NA  | ND  |
| Propionaldehyde          |     | NA  | NA  | NA  | ND  |
| Crotonaldehyde           |     | NA  | NA  | NA  | ND  |
| Butyraldehyde            |     | NA  | NA  | NA  | ND  |
| Benzaldehyde             |     | NA  | NA  | NA  | ND  |
| Isovaleraldehyde         |     | NA  | NA  | NA  | ND  |
| Valeraldehyde            |     | NA  | NA  | NA  | ND  |
| o-Tolualdehyde           |     | NA  | NA  | NA  | ND  |
| m,p-Tolualdehyde         |     | NA  | NA  | NA  | ND  |
| Hexaldehyde              |     | NA  | NA  | NA  | ND  |
| 2,5-Dimethylbenzaldehyde |     | NA  | NA  | NA  | ND  |

# COLUMBIA ANALYTICAL SERVICES

TO11A Aldehyde & Ketone DNP Analysis by HPLC

Printed : 09/17/09

Instrument : LC#02  
 Detector : UV-VIS 360  
 Analyst : MD

Date Acquired : 09/14/09  
 Sample Amount : 3ul  
 Client & PAI Job# : EH & E P0903087

| Sample Information | MDL | P0903087-002<br>back 1.0ml | P0903087-003<br>back 1.0ml | P0903087-004<br>back 1.0ml | P0903087-005<br>back 1.0ml | P0903087-006<br>back 1.0ml | P0903087-007<br>back 1.0ml | P0903087-008<br>back 1.0ml |
|--------------------|-----|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| Dilution           | 1.0 | 1.0                        | 1.0                        | 1.0                        | 1.0                        | 1.0                        | 1.0                        | 1.0                        |
| Sample Volume (L)  | NA  | 106.00                     | NA                         | 107.00                     | 107.00                     | 102.00                     | NA                         | 109.00                     |
| Final Vol.(ml)     | 1.0 | 1.0                        | 1.0                        | 1.0                        | 1.0                        | 1.0                        | 1.0                        | 1.0                        |

|                          | ng/sample | ng/sample | ng/sample | ng/sample  | ng/sample | ng/sample | ng/sample | ng/sample |
|--------------------------|-----------|-----------|-----------|------------|-----------|-----------|-----------|-----------|
| Formaldehyde             | 100.00    | ND        | ND        | ND         | ND        | ND        | ND        | ND        |
| Acetaldehyde             | 100.00    | 147.734   | ND        | 220.996 BT | 122.300   | 116.710   | ND        | ND        |
| Propionaldehyde          | 100.00    | ND        | ND        | ND         | ND        | ND        | ND        | ND        |
| Crotonaldehyde           | 100.00    | ND        | ND        | ND         | ND        | ND        | ND        | ND        |
| Butyraldehyde            | 100.00    | ND        | ND        | ND         | ND        | ND        | ND        | ND        |
| Benzaldehyde             | 100.00    | ND        | ND        | ND         | ND        | ND        | ND        | ND        |
| Isovaleraldehyde         | 100.00    | ND        | ND        | ND         | ND        | ND        | ND        | ND        |
| Valeraldehyde            | 100.00    | ND        | ND        | ND         | ND        | ND        | ND        | ND        |
| o-Tolualdehyde           | 100.00    | ND        | ND        | ND         | ND        | ND        | ND        | ND        |
| m,p-Tolualdehyde         | 200.00    | ND        | ND        | ND         | ND        | ND        | ND        | ND        |
| Hexaldehyde              | 100.00    | ND        | ND        | ND         | ND        | ND        | ND        | ND        |
| 2,5-Dimethylbenzaldehyde | 100.00    | ND        | ND        | ND         | ND        | ND        | ND        | ND        |

|                          | ug/m3 | ug/m3 | ug/m3 | ug/m3 | ug/m3 | ug/m3 | ug/m3 | ug/m3 |
|--------------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| Formaldehyde             |       | ND    | ND    | ND    | ND    | ND    | ND    | ND    |
| Acetaldehyde             |       | 1.394 | ND    | 2.065 | 1.143 | 1.144 | ND    | ND    |
| Propionaldehyde          |       | ND    | ND    | ND    | ND    | ND    | ND    | ND    |
| Crotonaldehyde           |       | ND    | ND    | ND    | ND    | ND    | ND    | ND    |
| Butyraldehyde            |       | ND    | ND    | ND    | ND    | ND    | ND    | ND    |
| Benzaldehyde             |       | ND    | ND    | ND    | ND    | ND    | ND    | ND    |
| Isovaleraldehyde         |       | ND    | ND    | ND    | ND    | ND    | ND    | ND    |
| Valeraldehyde            |       | ND    | ND    | ND    | ND    | ND    | ND    | ND    |
| o-Tolualdehyde           |       | ND    | ND    | ND    | ND    | ND    | ND    | ND    |
| m,p-Tolualdehyde         |       | ND    | ND    | ND    | ND    | ND    | ND    | ND    |
| Hexaldehyde              |       | ND    | ND    | ND    | ND    | ND    | ND    | ND    |
| 2,5-Dimethylbenzaldehyde |       | ND    | ND    | ND    | ND    | ND    | ND    | ND    |

|                          | ppb | ppb   | ppb | ppb   | ppb   | ppb   | ppb | ppb |
|--------------------------|-----|-------|-----|-------|-------|-------|-----|-----|
| Formaldehyde             |     | ND    | ND  | ND    | ND    | ND    | ND  | ND  |
| Acetaldehyde             |     | 0.774 | ND  | 1.147 | 0.635 | 0.635 | ND  | ND  |
| Propionaldehyde          |     | ND    | ND  | ND    | ND    | ND    | ND  | ND  |
| Crotonaldehyde           |     | ND    | ND  | ND    | ND    | ND    | ND  | ND  |
| Butyraldehyde            |     | ND    | ND  | ND    | ND    | ND    | ND  | ND  |
| Benzaldehyde             |     | ND    | ND  | ND    | ND    | ND    | ND  | ND  |
| Isovaleraldehyde         |     | ND    | ND  | ND    | ND    | ND    | ND  | ND  |
| Valeraldehyde            |     | ND    | ND  | ND    | ND    | ND    | ND  | ND  |
| o-Tolualdehyde           |     | ND    | ND  | ND    | ND    | ND    | ND  | ND  |
| m,p-Tolualdehyde         |     | ND    | ND  | ND    | ND    | ND    | ND  | ND  |
| Hexaldehyde              |     | ND    | ND  | ND    | ND    | ND    | ND  | ND  |
| 2,5-Dimethylbenzaldehyde |     | ND    | ND  | ND    | ND    | ND    | ND  | ND  |

**COLUMBIA ANALYTICAL SERVICES**

TO11A Aldehyde & Ketone DNP Analysis by HPLC

Printed : 09/17/09

Instrument : LC#02  
 Detector : UV-VIS 360  
 Analyst : MD

Date Acquired : 09/14/09  
 Sample Amount : 3ul  
 Client & PAI Job# : EH & E P0903087

**SAMPLE RESULT SUMMARY**

| Sample Information | MDL | 1500ng/ml TO-11A S21-09090903 | % Diff | ACN blank lot CY331 | MB-2 front 1.0ml lot 5855/5994 | MB-2 back 1.0ml lot 5855/5994 | P0903087-009 back 1.0ml | P0903087-010 back 1.0ml |
|--------------------|-----|-------------------------------|--------|---------------------|--------------------------------|-------------------------------|-------------------------|-------------------------|
| Dilution           | 1.0 | 1.0                           |        | 1.0                 | 1.0                            | 1.0                           | 1.0                     | 1.0                     |
| Sample Volume (L)  | NA  | NA                            |        | NA                  | NA                             | NA                            | 108.00                  | 107.00                  |
| Final Vol.(ml)     | 1.0 | 1.0                           |        | 1.0                 | 1.0                            | 1.0                           | 1.0                     | 1.0                     |

|                          | ng/sample | ng/sample | % Diff | ng/sample | ng/sample | ng/sample | ng/sample  | ng/sample |
|--------------------------|-----------|-----------|--------|-----------|-----------|-----------|------------|-----------|
| Formaldehyde             | 100.00    | 1540.884  | 2.7%   | ND        | ND        | ND        | ND         | ND        |
| Acetaldehyde             | 100.00    | 1529.388  | 2.0%   | ND        | ND        | ND        | ND         | ND        |
| Propionaldehyde          | 100.00    | 1526.027  | 1.7%   | ND        | ND        | ND        | ND         | ND        |
| Crotonaldehyde           | 100.00    | 1539.484  | 2.6%   | ND        | ND        | ND        | ND         | ND        |
| Butyraldehyde            | 100.00    | 1556.886  | 3.8%   | ND        | ND        | ND        | ND         | ND        |
| Benzaldehyde             | 100.00    | 1522.355  | 1.5%   | ND        | ND        | ND        | 138.657 BT | ND        |
| Isovaleraldehyde         | 100.00    | 1553.181  | 3.5%   | ND        | ND        | ND        | ND         | ND        |
| Valeraldehyde            | 100.00    | 1481.731  | 1.2%   | ND        | ND        | ND        | ND         | ND        |
| o-Tolualdehyde           | 100.00    | 1522.896  | 1.5%   | ND        | ND        | ND        | ND         | ND        |
| m,p-Tolualdehyde         | 200.00    | 3130.488  | 4.3%   | ND        | ND        | ND        | ND         | ND        |
| Hexaldehyde              | 100.00    | 1513.606  | 0.9%   | ND        | ND        | ND        | ND         | ND        |
| 2,5-Dimethylbenzaldehyde | 100.00    | 1589.879  | 6.0%   | ND        | ND        | ND        | ND         | ND        |

|                          | ug/m3 | ug/m3 | ug/m3 | ug/m3 | ug/m3 | ug/m3 |
|--------------------------|-------|-------|-------|-------|-------|-------|
| Formaldehyde             |       | ND    | ND    | ND    | ND    | ND    |
| Acetaldehyde             |       | ND    | ND    | ND    | ND    | ND    |
| Propionaldehyde          |       | ND    | ND    | ND    | ND    | ND    |
| Crotonaldehyde           |       | ND    | ND    | ND    | ND    | ND    |
| Butyraldehyde            |       | ND    | ND    | ND    | ND    | ND    |
| Benzaldehyde             |       | ND    | ND    | ND    | 1.284 | ND    |
| Isovaleraldehyde         |       | ND    | ND    | ND    | ND    | ND    |
| Valeraldehyde            |       | ND    | ND    | ND    | ND    | ND    |
| o-Tolualdehyde           |       | ND    | ND    | ND    | ND    | ND    |
| m,p-Tolualdehyde         |       | ND    | ND    | ND    | ND    | ND    |
| Hexaldehyde              |       | ND    | ND    | ND    | ND    | ND    |
| 2,5-Dimethylbenzaldehyde |       | ND    | ND    | ND    | ND    | ND    |

|                          | ppb | ppb | ppb | ppb | ppb   | ppb |
|--------------------------|-----|-----|-----|-----|-------|-----|
| Formaldehyde             |     | ND  | ND  | ND  | ND    | ND  |
| Acetaldehyde             |     | ND  | ND  | ND  | ND    | ND  |
| Propionaldehyde          |     | ND  | ND  | ND  | ND    | ND  |
| Crotonaldehyde           |     | ND  | ND  | ND  | ND    | ND  |
| Butyraldehyde            |     | ND  | ND  | ND  | ND    | ND  |
| Benzaldehyde             |     | ND  | ND  | ND  | 0.296 | ND  |
| Isovaleraldehyde         |     | ND  | ND  | ND  | ND    | ND  |
| Valeraldehyde            |     | ND  | ND  | ND  | ND    | ND  |
| o-Tolualdehyde           |     | ND  | ND  | ND  | ND    | ND  |
| m,p-Tolualdehyde         |     | ND  | ND  | ND  | ND    | ND  |
| Hexaldehyde              |     | ND  | ND  | ND  | ND    | ND  |
| 2,5-Dimethylbenzaldehyde |     | ND  | ND  | ND  | ND    | ND  |



# COLUMBIA ANALYTICAL SERVICES

TO11A Aldehyde & Ketone DNPH Analysis by HPLC

Instrument : LC#02  
 Detector : UV-VIS 360  
 Analyst : MD

Printed : 09/18/09  
 Date Acquired : 09/14/09  
 Sample Amount : 3ul  
 Client & PAI Job# : EH & E P0903087

## SAMPLE RESULT SUMMARY

| Sample Information | MDL | P0903087-011<br>back 1.0ml | P0903087-012<br>back 1.0ml | P0903087-001<br>front 1.0ml | P0903087-002<br>front 1.0ml | P0903087-003<br>front 1.0ml | P0903087-004<br>front 1.0ml | P0903087-005<br>front 1.0ml |
|--------------------|-----|----------------------------|----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| Dilution           | 1.0 | 1.0                        | 1.0                        | 1.0                         | 1.0                         | 1.0                         | 1.0                         | 1.0                         |
| Sample Volume (L)  | NA  | 106.00                     | 105.00                     | 104.00                      | 106.00                      | NA                          | 107.00                      | 107.00                      |
| Final Vol.(ml)     | 1.0 | 1.0                        | 1.0                        | 1.0                         | 1.0                         | 1.0                         | 1.0                         | 1.0                         |

|                          | ng/sample | ng/sample | ng/sample  | ng/sample | ng/sample   | ng/sample | ng/sample   | ng/sample   |
|--------------------------|-----------|-----------|------------|-----------|-------------|-----------|-------------|-------------|
| Formaldehyde             | 100.00    | ND        | ND         | 383.876   | 5698.634    | ND        | 4934.731    | 6041.463    |
| Acetaldehyde             | 100.00    | ND        | ND         | 159.779   | 1767.374    | ND        | 1544.263    | 1907.616    |
| Propionaldehyde          | 100.00    | ND        | ND         | ND        | 218.661     | ND        | 202.617     | 268.934     |
| Crotonaldehyde           | 100.00    | ND        | ND         | ND        | ND          | ND        | ND          | ND          |
| Butyraldehyde            | 100.00    | ND        | ND         | ND        | 188.350     | ND        | 168.692     | 217.925     |
| Benzaldehyde             | 100.00    | ND        | 135.385 BT | ND        | 730.052 m1↑ | ND        | 664.405 m1↑ | 860.978 m1↑ |
| Isovaleraldehyde         | 100.00    | ND        | ND         | ND        | 106.238 m1↑ | ND        | ND          | 123.142 m1↑ |
| Valeraldehyde            | 100.00    | ND        | ND         | ND        | 436.927     | ND        | 388.068     | 453.344     |
| o-Tolualdehyde           | 100.00    | ND        | ND         | ND        | ND          | ND        | ND          | ND          |
| m,p-Tolualdehyde         | 200.00    | ND        | ND         | ND        | ND          | ND        | ND          | ND          |
| Hexaldehyde              | 100.00    | ND        | ND         | ND        | 1491.180    | ND        | 1308.518    | 1563.976    |
| 2,5-Dimethylbenzaldehyde | 100.00    | ND        | ND         | ND        | ND          | ND        | ND          | ND          |

|                          | ug/m3 | ug/m3 | ug/m3 | ug/m3 | ug/m3  | ug/m3 | ug/m3  | ug/m3  |
|--------------------------|-------|-------|-------|-------|--------|-------|--------|--------|
| Formaldehyde             |       | ND    | ND    | 3.691 | 53.761 | ND    | 46.119 | 56.462 |
| Acetaldehyde             |       | ND    | ND    | 1.536 | 16.673 | ND    | 14.432 | 17.828 |
| Propionaldehyde          |       | ND    | ND    | ND    | 2.063  | ND    | 1.894  | 2.513  |
| Crotonaldehyde           |       | ND    | ND    | ND    | ND     | ND    | ND     | ND     |
| Butyraldehyde            |       | ND    | ND    | ND    | 1.777  | ND    | 1.577  | 2.037  |
| Benzaldehyde             |       | ND    | 1.289 | ND    | 6.887  | ND    | 6.209  | 8.047  |
| Isovaleraldehyde         |       | ND    | ND    | ND    | 1.002  | ND    | ND     | 1.151  |
| Valeraldehyde            |       | ND    | ND    | ND    | 4.122  | ND    | 3.627  | 4.237  |
| o-Tolualdehyde           |       | ND    | ND    | ND    | ND     | ND    | ND     | ND     |
| m,p-Tolualdehyde         |       | ND    | ND    | ND    | ND     | ND    | ND     | ND     |
| Hexaldehyde              |       | ND    | ND    | ND    | 14.068 | ND    | 12.229 | 14.617 |
| 2,5-Dimethylbenzaldehyde |       | ND    | ND    | ND    | ND     | ND    | ND     | ND     |

|                          | ppb | ppb | ppb   | ppb   | ppb    | ppb | ppb    | ppb    |
|--------------------------|-----|-----|-------|-------|--------|-----|--------|--------|
| Formaldehyde             |     | ND  | ND    | 3.006 | 43.789 | ND  | 37.565 | 45.990 |
| Acetaldehyde             |     | ND  | ND    | 0.853 | 9.258  | ND  | 8.014  | 9.900  |
| Propionaldehyde          |     | ND  | ND    | ND    | 0.869  | ND  | 0.797  | 1.059  |
| Crotonaldehyde           |     | ND  | ND    | ND    | ND     | ND  | ND     | ND     |
| Butyraldehyde            |     | ND  | ND    | ND    | 0.603  | ND  | 0.535  | 0.691  |
| Benzaldehyde             |     | ND  | 0.297 | ND    | 1.587  | ND  | 1.431  | 1.855  |
| Isovaleraldehyde         |     | ND  | ND    | ND    | 0.285  | ND  | ND     | 0.327  |
| Valeraldehyde            |     | ND  | ND    | ND    | 1.171  | ND  | 1.030  | 1.203  |
| o-Tolualdehyde           |     | ND  | ND    | ND    | ND     | ND  | ND     | ND     |
| m,p-Tolualdehyde         |     | ND  | ND    | ND    | ND     | ND  | ND     | ND     |
| Hexaldehyde              |     | ND  | ND    | ND    | 3.435  | ND  | 2.986  | 3.570  |
| 2,5-Dimethylbenzaldehyde |     | ND  | ND    | ND    | ND     | ND  | ND     | ND     |

# COLUMBIA ANALYTICAL SERVICES

TO11A Aldehyde & Ketone DNPH Analysis by HPLC

Printed : 09/17/09

Instrument : LC#02  
 Detector : UV-VIS 360  
 Analyst : MD

Date Acquired : 09/14/09  
 Sample Amount : 3ul  
 Client & PAI Job# : EH & E P0903087

## SAMPLE RESULT SUMMARY

| Sample Information | MDL | P0903087-006<br>front 1.0ml | MID CCV<br>1500ng/ml | % Diff | P0903087-007<br>front 1.0ml | P0903087-008<br>front 1.0ml | P0903087-009<br>front 1.0ml | P0903087-010<br>front 1.0ml |
|--------------------|-----|-----------------------------|----------------------|--------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| Dilution           | 1.0 | 1.0                         | 1.0                  |        | 1.0                         | 1.0                         | 1.0                         | 1.0                         |
| Sample Volume (L)  | NA  | 102.00                      | NA                   |        | NA                          | 109.00                      | 108.00                      | 107.00                      |
| Final Vol.(ml)     | 1.0 | 1.0                         | 1.0                  |        | 1.0                         | 1.0                         | 1.0                         | 1.0                         |

|                          | ng/sample | ng/sample | ng/sample | %     | ng/sample | ng/sample | ng/sample | ng/sample |
|--------------------------|-----------|-----------|-----------|-------|-----------|-----------|-----------|-----------|
| Formaldehyde             | 100.00    | 5510.874  | 1555.050  | 3.7%  | 4835.564  | 2831.072  | 1926.184  | 5525.553  |
| Acetaldehyde             | 100.00    | 1867.841  | 1545.003  | 3.0%  | 331.139   | 700.442   | 558.160   | 834.056   |
| Propionaldehyde          | 100.00    | 236.380   | 1519.572  | 1.3%  | 128.213   | ND        | ND        | 145.807   |
| Crotonaldehyde           | 100.00    | ND        | 1558.676  | 3.9%  | ND        | ND        | ND        | ND        |
| Butyraldehyde            | 100.00    | 202.072   | 1566.433  | 4.4%  | ND        | ND        | ND        | 120.132   |
| Benzaldehyde             | 100.00    | 792.638   | 1530.030  | 2.0%  | 574.866   | 390.721   | 419.503   | 727.856   |
| Isovaleraldehyde         | 100.00    | 103.657   | 1541.640  | 2.8%  | ND        | ND        | ND        | ND        |
| Valeraldehyde            | 100.00    | 448.350   | 1492.571  | 0.5%  | 188.918   | 184.055   | 121.806   | 254.460   |
| o-Tolualdehyde           | 100.00    | ND        | 1560.963  | 4.1%  | ND        | ND        | ND        | ND        |
| m,p-Tolualdehyde         | 200.00    | ND        | 3174.749  | 5.8%  | ND        | ND        | ND        | ND        |
| Hexaldehyde              | 100.00    | 1481.305  | 1474.864  | 1.7%  | 891.464   | 707.206   | 410.339   | 926.812   |
| 2,5-Dimethylbenzaldehyde | 100.00    | ND        | 1703.100  | 13.5% | ND        | ND        | ND        | ND        |

|                          | ug/m3 | ug/m3  | ug/m3 | % | ug/m3   | ug/m3  | ug/m3  | ug/m3  |
|--------------------------|-------|--------|-------|---|---------|--------|--------|--------|
| Formaldehyde             |       | 54.028 |       |   | #DIV/0! | 25.973 | 17.835 | 51.641 |
| Acetaldehyde             |       | 18.312 |       |   | #DIV/0! | 6.426  | 5.168  | 7.795  |
| Propionaldehyde          |       | 2.317  |       |   | #DIV/0! | ND     | ND     | 1.363  |
| Crotonaldehyde           |       | ND     |       |   | ND      | ND     | ND     | ND     |
| Butyraldehyde            |       | 1.981  |       |   | ND      | ND     | ND     | 1.123  |
| Benzaldehyde             |       | 7.771  |       |   | #DIV/0! | 3.585  | 3.884  | 6.802  |
| Isovaleraldehyde         |       | 1.016  |       |   | ND      | ND     | ND     | ND     |
| Valeraldehyde            |       | 4.396  |       |   | #DIV/0! | 1.689  | 1.128  | 2.378  |
| o-Tolualdehyde           |       | ND     |       |   | ND      | ND     | ND     | ND     |
| m,p-Tolualdehyde         |       | ND     |       |   | ND      | ND     | ND     | ND     |
| Hexaldehyde              |       | 14.523 |       |   | #DIV/0! | 6.488  | 3.799  | 8.662  |
| 2,5-Dimethylbenzaldehyde |       | ND     |       |   | ND      | ND     | ND     | ND     |

|                          | ppb | ppb    | ppb | % | ppb     | ppb    | ppb    | ppb    |
|--------------------------|-----|--------|-----|---|---------|--------|--------|--------|
| Formaldehyde             |     | 44.007 |     |   | #DIV/0! | 21.156 | 14.527 | 42.062 |
| Acetaldehyde             |     | 10.168 |     |   | #DIV/0! | 3.568  | 2.870  | 4.328  |
| Propionaldehyde          |     | 0.976  |     |   | #DIV/0! | ND     | ND     | 0.574  |
| Crotonaldehyde           |     | ND     |     |   | ND      | ND     | ND     | ND     |
| Butyraldehyde            |     | 0.672  |     |   | ND      | ND     | ND     | 0.381  |
| Benzaldehyde             |     | 1.791  |     |   | #DIV/0! | 0.826  | 0.895  | 1.568  |
| Isovaleraldehyde         |     | 0.289  |     |   | ND      | ND     | ND     | ND     |
| Valeraldehyde            |     | 1.248  |     |   | #DIV/0! | 0.480  | 0.320  | 0.675  |
| o-Tolualdehyde           |     | ND     |     |   | ND      | ND     | ND     | ND     |
| m,p-Tolualdehyde         |     | ND     |     |   | ND      | ND     | ND     | ND     |
| Hexaldehyde              |     | 3.547  |     |   | #DIV/0! | 1.584  | 0.928  | 2.115  |
| 2,5-Dimethylbenzaldehyde |     | ND     |     |   | ND      | ND     | ND     | ND     |

# COLUMBIA ANALYTICAL SERVICES

TO11A Aldehyde & Ketone DNPH Analysis by HPLC

Printed : 09/17/09

Instrument : LC#02  
 Detector : UV-VIS 360  
 Analyst : MD

Date Acquired : 09/14/09  
 Sample Amount : 3ul  
 Client & PAI Job# : EH & E P0903087

## SAMPLE RESULT SUMMARY

| Sample Information | MDL | P0903087-011<br>front 1.0ml | P0903087-012<br>front 1.0ml | 1500ng/ml end<br>std | % Diff |
|--------------------|-----|-----------------------------|-----------------------------|----------------------|--------|
| Dilution           | 1.0 | 1.0                         | 1.0                         | 1.0                  |        |
| Sample Volume (L)  | NA  | 106.00                      | 105.00                      | NA                   |        |
| Final Vol.(ml)     | 1.0 | 1.0                         | 1.0                         | 1.0                  |        |

|                          | ng/sample | ng/sample | ng/sample | ng/sample |      |
|--------------------------|-----------|-----------|-----------|-----------|------|
| Formaldehyde             | 100.00    | 5701.412  | 389.754   | 1551.578  | 3.4% |
| Acetaldehyde             | 100.00    | 929.977   | 141.644   | 1528.707  | 1.9% |
| Propionaldehyde          | 100.00    | 160.899   | ND        | 1525.940  | 1.7% |
| Crotonaldehyde           | 100.00    | ND        | ND        | 1558.688  | 3.9% |
| Butyraldehyde            | 100.00    | 127.895   | ND        | 1584.710  | 5.6% |
| Benzaldehyde             | 100.00    | 557.500   | 189.969   | 1561.933  | 4.1% |
| Isovaleraldehyde         | 100.00    | ND        | ND        | 1569.909  | 4.7% |
| Valeraldehyde            | 100.00    | 306.460   | ND        | 1504.055  | 0.3% |
| o-Tolualdehyde           | 100.00    | ND        | ND        | 1540.164  | 2.7% |
| m,p-Tolualdehyde         | 200.00    | ND        | ND        | 3158.750  | 5.3% |
| Hexaldehyde              | 100.00    | 1254.002  | ND        | 1536.562  | 2.4% |
| 2,5-Dimethylbenzaldehyde | 100.00    | ND        | ND        | 1593.312  | 6.2% |

|                          | ug/m3 | ug/m3  | ug/m3 | ug/m3 |
|--------------------------|-------|--------|-------|-------|
| Formaldehyde             |       | 53.787 | 3.712 | ND    |
| Acetaldehyde             |       | 8.773  | 1.349 | ND    |
| Propionaldehyde          |       | 1.518  | ND    | ND    |
| Crotonaldehyde           |       | ND     | ND    | ND    |
| Butyraldehyde            |       | 1.207  | ND    | ND    |
| Benzaldehyde             |       | 5.259  | 1.809 | ND    |
| Isovaleraldehyde         |       | ND     | ND    | ND    |
| Valeraldehyde            |       | 2.891  | ND    | ND    |
| o-Tolualdehyde           |       | ND     | ND    | ND    |
| m,p-Tolualdehyde         |       | ND     | ND    | ND    |
| Hexaldehyde              |       | 11.830 | ND    | ND    |
| 2,5-Dimethylbenzaldehyde |       | ND     | ND    | ND    |

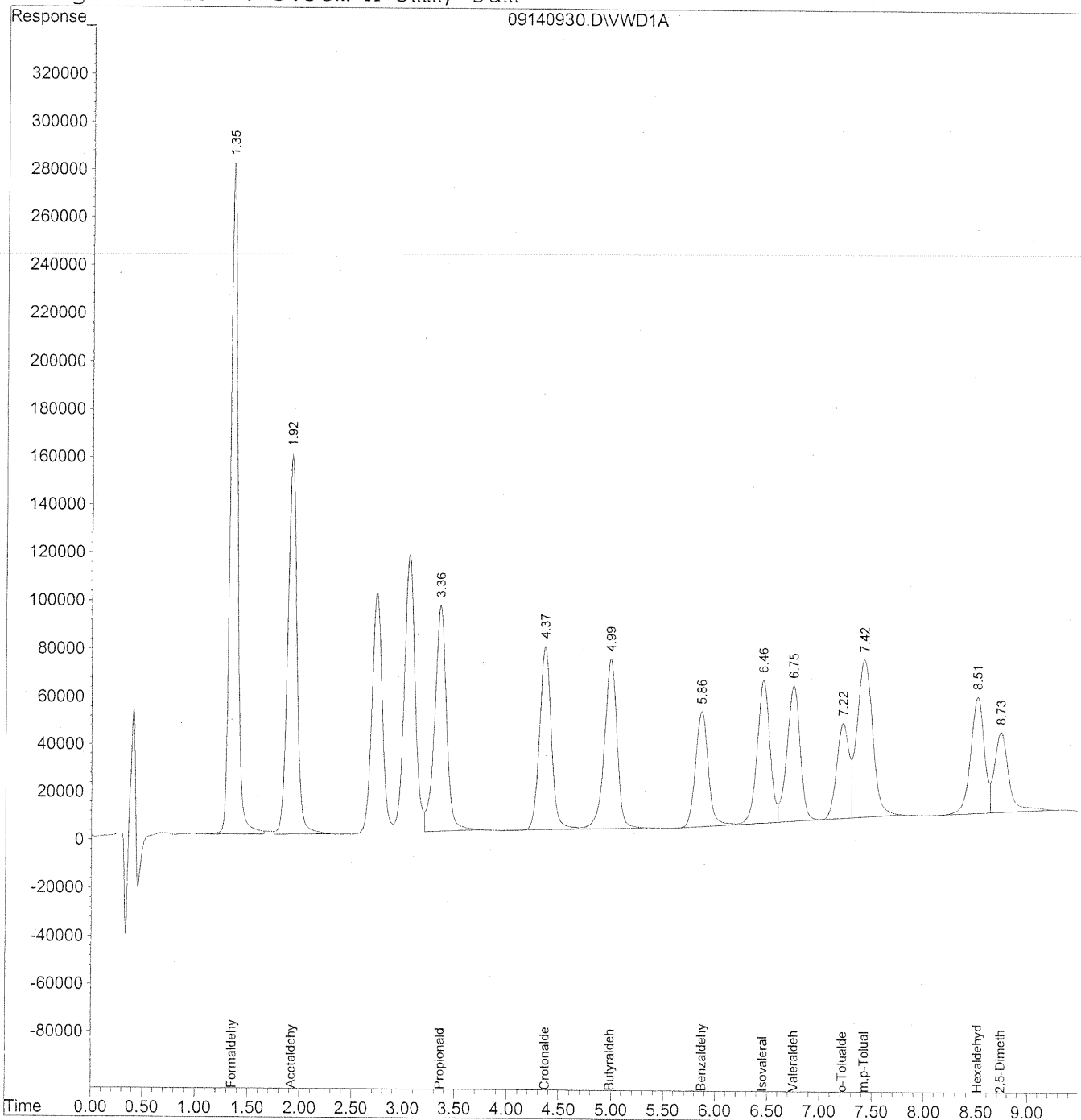
|                          | ppb | ppb    | ppb   | ppb |
|--------------------------|-----|--------|-------|-----|
| Formaldehyde             |     | 43.810 | 3.023 | ND  |
| Acetaldehyde             |     | 4.872  | 0.749 | ND  |
| Propionaldehyde          |     | 0.639  | ND    | ND  |
| Crotonaldehyde           |     | ND     | ND    | ND  |
| Butyraldehyde            |     | 0.409  | ND    | ND  |
| Benzaldehyde             |     | 1.212  | 0.417 | ND  |
| Isovaleraldehyde         |     | ND     | ND    | ND  |
| Valeraldehyde            |     | 0.821  | ND    | ND  |
| o-Tolualdehyde           |     | ND     | ND    | ND  |
| m,p-Tolualdehyde         |     | ND     | ND    | ND  |
| Hexaldehyde              |     | 2.889  | ND    | ND  |
| 2,5-Dimethylbenzaldehyde |     | ND     | ND    | ND  |

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140930.D Vial: 10  
Acq On : 14-Sep-2009, 15:17 Operator: MD  
Sample : 1500ng/ml TO-11A S21-09090903 Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 15 10:19 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Tue Sep 15 09:56:03 2009  
Response via : Multiple Level Calibration  
DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
Signal Phase : Supelcosil LC-18  
Signal Info : 3.3cm x 3mm, 3um



Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140930.D Vial: 10  
 Acq On : 14-Sep-2009, 15:17 Operator: MD  
 Sample : 1500ng/ml TO-11A S21-09090903 Inst : VWD  
 Misc : Multiplr: 1.00  
 IntFile : events.e  
 Quant Time: Sep 15 10:19 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
 Title : LC-1050 TO-11A ICAL  
 Last Update : Tue Sep 15 09:56:03 2009  
 Response via : Initial Calibration  
 DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
 Signal Phase : Supelcosil LC-18  
 Signal Info : 3.3cm x 3mm, 3um

*MLC*  
*9/17/09*  
*(mmw)*  
*9/17/09*

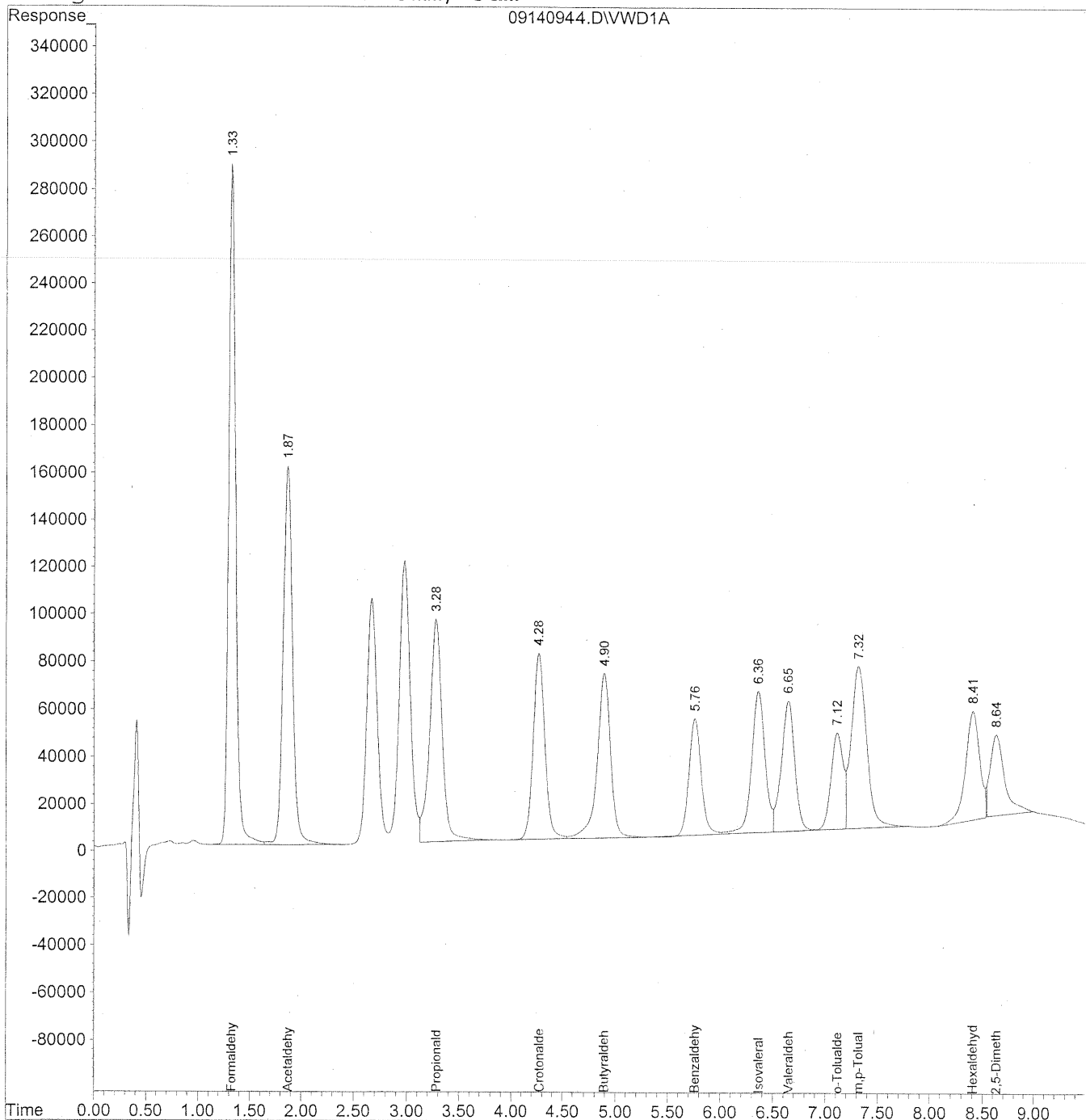
| Compound                     | R.T. | Response | Conc     | Units |
|------------------------------|------|----------|----------|-------|
| Target Compounds             |      |          |          |       |
| 1) Formaldehyde              | 1.36 | 13585395 | 1520.396 | ng/ml |
| 2) Acetaldehyde              | 1.92 | 9791152  | 1506.146 | ng/ml |
| 3) Propionaldehyde           | 3.36 | 7656115  | 1472.946 | ng/ml |
| 4) Crotonaldehyde            | 4.37 | 6104037  | 1503.616 | ng/ml |
| 5) Butyraldehyde             | 4.99 | 6099188  | 1504.944 | ng/ml |
| 6) Benzaldehyde              | 5.87 | 4085207  | 1497.303 | ng/ml |
| 7) Isovaleraldehyde          | 6.46 | 5115349  | 1486.248 | ng/ml |
| 8) Valeraldehyde             | 6.75 | 4941879  | 1453.648 | ng/ml |
| 9) o-Tolualdehyde            | 7.22 | 3238465  | 1475.677 | ng/ml |
| 10) m,p-Tolualdehyde         | 7.43 | 6968944  | 3034.037 | ng/ml |
| 11) Hexaldehyde              | 8.51 | 4410203  | 1489.569 | ng/ml |
| 12) 2,5-Dimethylbenzaldehyde | 8.74 | 3330478  | 1669.001 | ng/ml |

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140944.D Vial: 10  
Acq On : 14-Sep-2009, 18:05 Operator: MD  
Sample : MID CCV 1500ng/ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 10:50 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 10:46:08 2009  
Response via : Multiple Level Calibration  
DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
Signal Phase : Supelcosil LC-18  
Signal Info : 3.3cm x 3mm, 3um



302

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140944.D Vial: 10  
 Acq On : 14-Sep-2009, 18:05 Operator: MD  
 Sample : MID CCV 1500ng/ml Inst : VWD  
 Misc : Multiplr: 1.00  
 IntFile : events.e  
 Quant Time: Sep 17 10:50 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
 Title : LC-1050 TO-11A ICAL  
 Last Update : Thu Sep 17 10:46:08 2009  
 Response via : Initial Calibration  
 DataAcq Meth : TO-11A.M

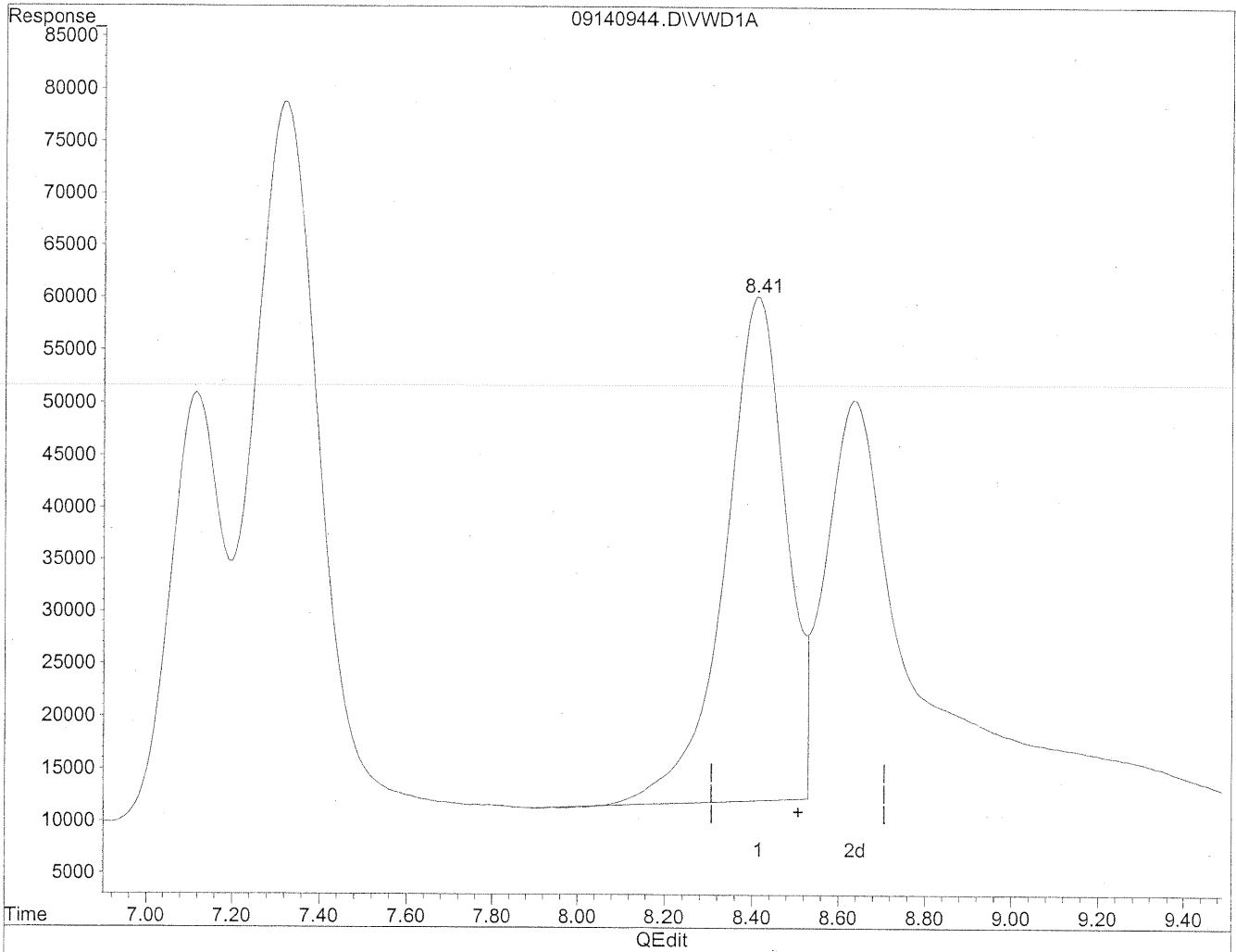
Volume Inj. : 3uL  
 Signal Phase : Supelcosil LC-18  
 Signal Info : 3.3cm x 3mm, 3um

| Compound                     | R.T.  | Response | Conc     | Units  |
|------------------------------|-------|----------|----------|--------|
| -----                        |       |          |          |        |
| Target Compounds             |       |          |          |        |
| 1) Formaldehyde              | 1.33  | 13820399 | 1546.696 | ng/ml  |
| 2) Acetaldehyde              | 1.88  | 9999321  | 1538.168 | ng/ml  |
| 3) Propionaldehyde           | 3.29  | 7952508  | 1529.969 | ng/ml  |
| 4) Crotonaldehyde            | 4.28  | 6228033  | 1534.161 | ng/ml  |
| 5) Butyraldehyde             | 4.90  | 6254998  | 1543.389 | ng/ml  |
| 6) Benzaldehyde              | 5.77  | 4025866  | 1475.553 | ng/ml  |
| 7) Isovaleraldehyde          | 6.37  | 5303506  | 1540.916 | ng/ml  |
| 8) Valeraldehyde             | 6.65  | 4888683  | 1438.000 | ng/ml  |
| 9) o-Tolualdehyde            | 7.12f | 3311104  | 1508.777 | ng/ml  |
| 10) m,p-Tolualdehyde         | 7.32f | 7163166  | 3118.595 | ng/ml  |
| 11) Hexaldehyde              | 8.41  | 4263050  | 1439.867 | ng/mlm |
| 12) 2,5-Dimethylbenzaldehyde | 8.64  | 3340684  | 1674.116 | ng/mlm |

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140944.D Vial: 10  
Acq On : 14-Sep-2009, 18:05 Operator: MD  
Sample : MID CCV 1500ng/ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 10:48 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 10:46:08 2009  
Response via : Multiple Level Calibration



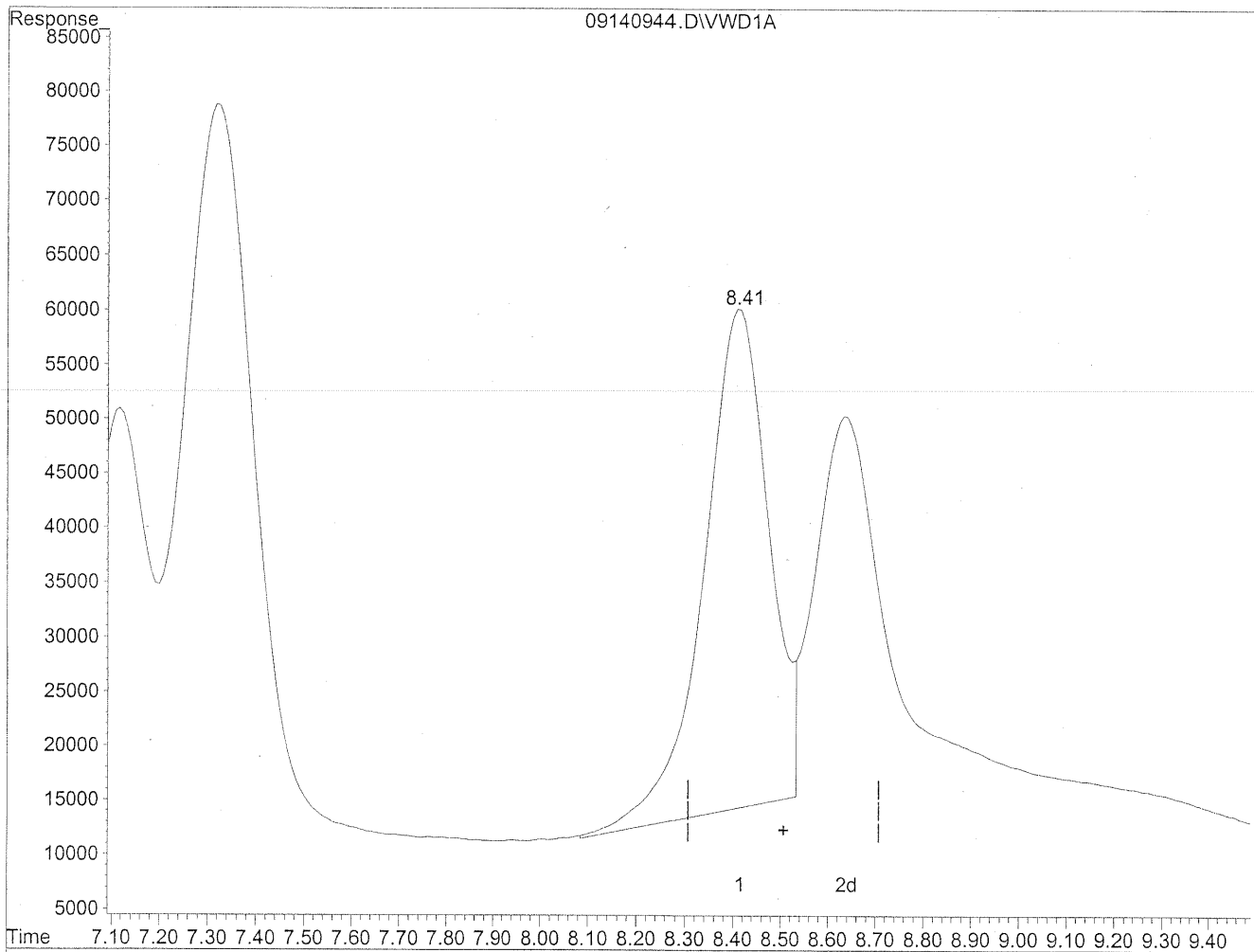
(11) Hexaldehyde  
8.42min 1577.868ng/ml  
response 4671634



Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140944.D Vial: 10  
Acq On : 14-Sep-2009, 18:05 Operator: MD  
Sample : MID CCV 1500ng/ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 10:50 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 10:46:08 2009  
Response via : Multiple Level Calibration



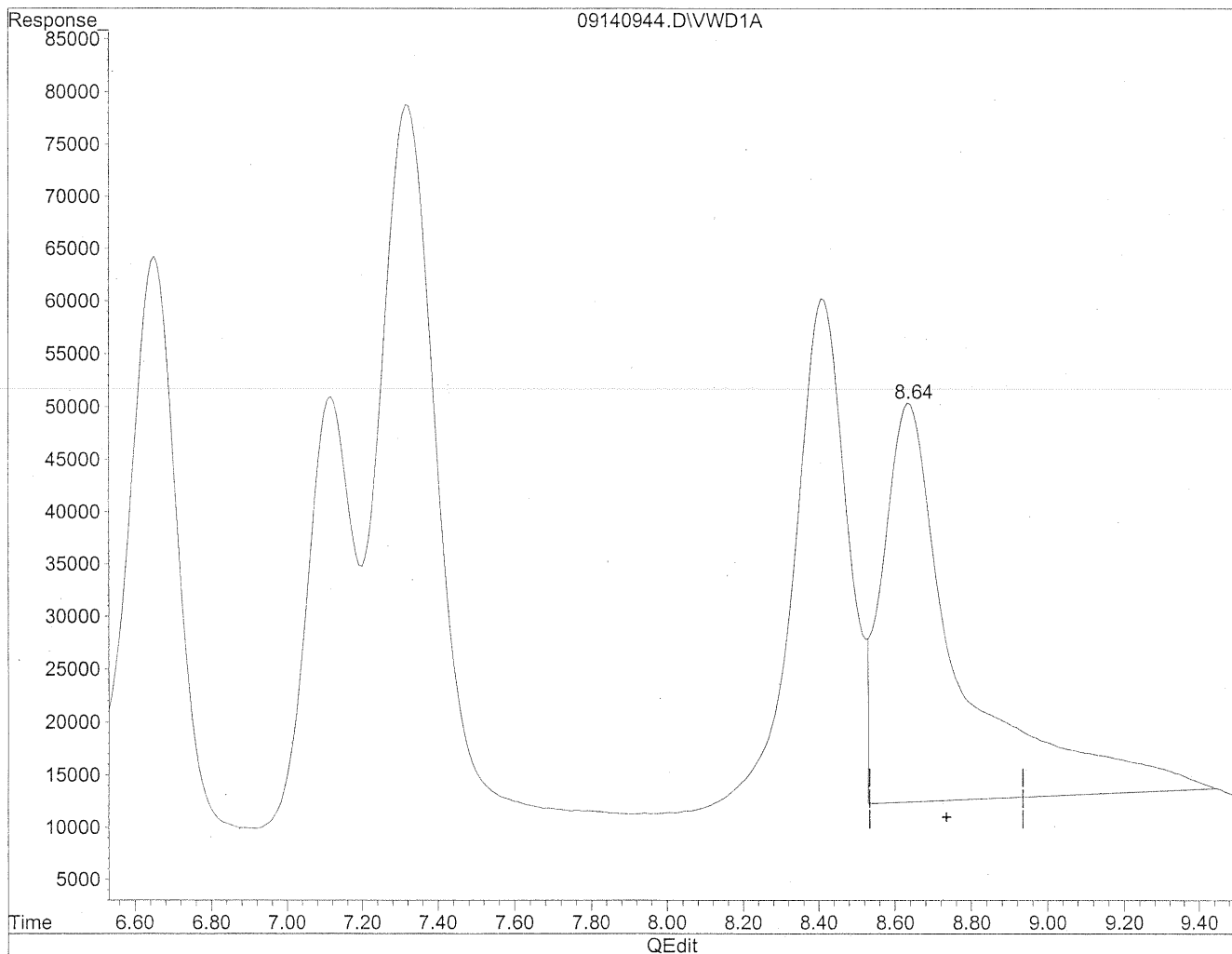
(11) Hexaldehyde  
8.41min 1439.867ng/ml m  
response 4263050

*ju allan*  
*MD*  
*9/17/09*  
*BC*

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140944.D Vial: 10  
Acq On : 14-Sep-2009, 18:05 Operator: MD  
Sample : MID CCV 1500ng/ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 10:48 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 10:46:08 2009  
Response via : Multiple Level Calibration

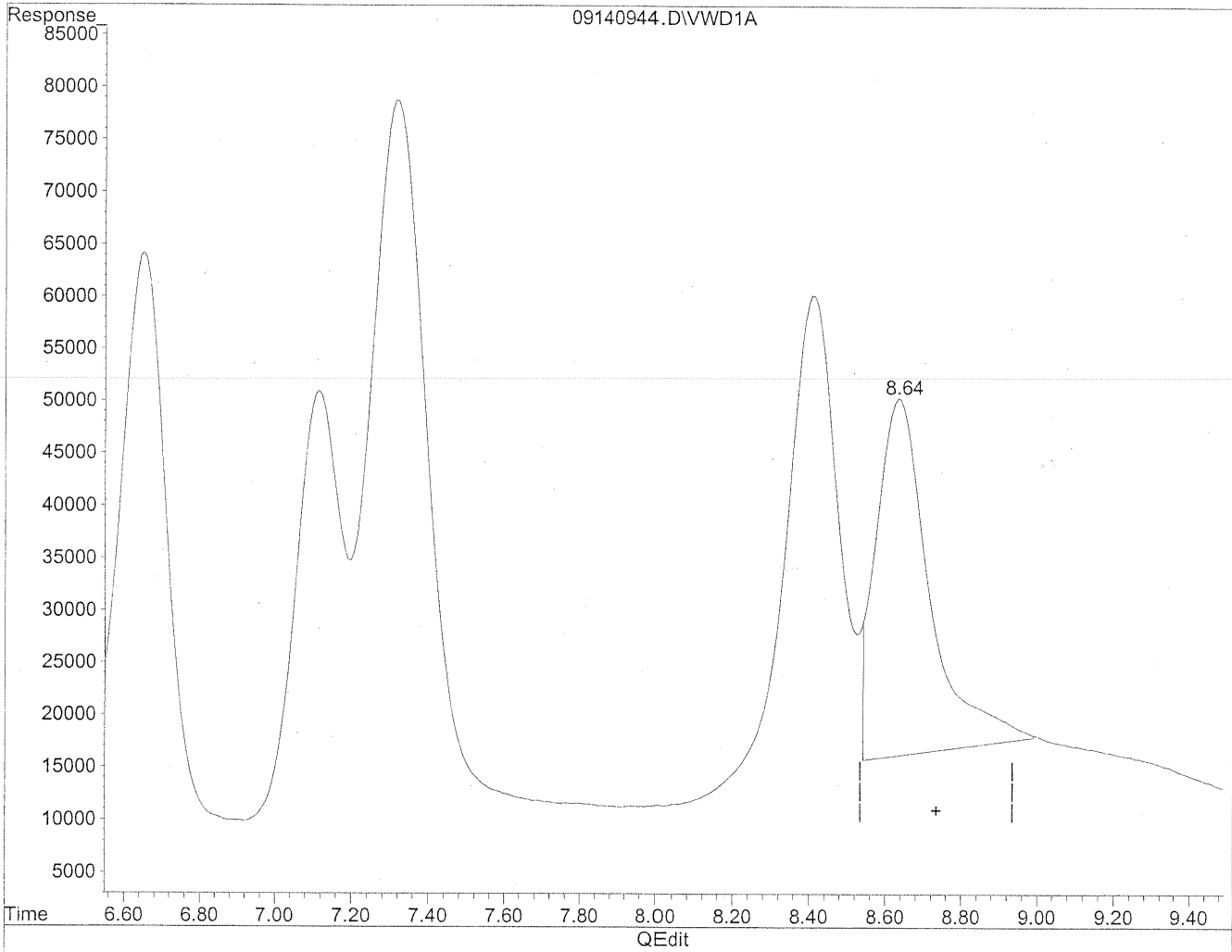


(12) 2,5-Dimethylbenzaldehyde  
8.64min 2694.832ng/ml  
response 5377515

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140944.D Vial: 10  
Acq On : 14-Sep-2009, 18:05 Operator: MD  
Sample : MID CCV 1500ng/ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 10:50 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 10:46:08 2009  
Response via : Multiple Level Calibration



(12) 2,5-Dimethylbenzaldehyde

8.64min 1674.116ng/ml m

response 3340684

*MC*  
*9/17/09*

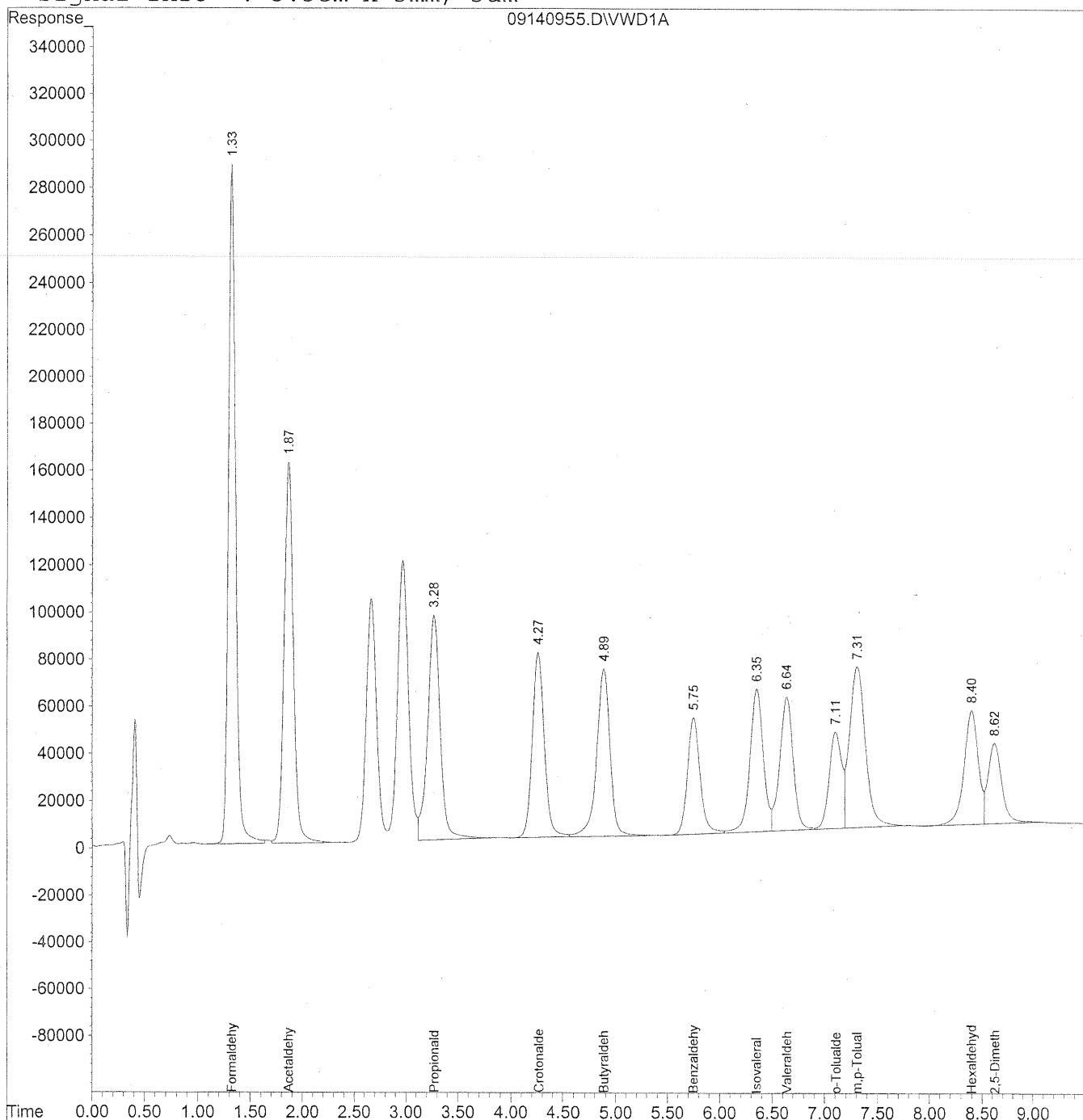
*(TMD)*  
*9/17/09*  
*PC*

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140955.D Vial: 10  
Acq On : 14-Sep-2009, 20:17 Operator: MD  
Sample : 1500ng/ml TO-11A S21-09090903 Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 11:23 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration  
DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
Signal Phase : Supelcosil LC-18  
Signal Info : 3.3cm x 3mm, 3um



308

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140955.D Vial: 10  
 Acq On : 14-Sep-2009, 20:17 Operator: MD  
 Sample : 1500ng/ml TO-11A S21-09090903 Inst : VWD  
 Misc : Multiplr: 1.00  
 IntFile : events.e  
 Quant Time: Sep 17 11:23 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
 Title : LC-1050 TO-11A ICAL  
 Last Update : Thu Sep 17 11:23:31 2009  
 Response via : Initial Calibration  
 DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
 Signal Phase : Supelcosil LC-18  
 Signal Info : 3.3cm x 3mm, 3um

*MD*  
 9/17/09

| Compound                     | R.T. | Response | Conc     | Units |
|------------------------------|------|----------|----------|-------|
| -----                        |      |          |          |       |
| Target Compounds             |      |          |          |       |
| 1) Formaldehyde              | 1.33 | 13768459 | 1540.884 | ng/ml |
| 2) Acetaldehyde              | 1.87 | 9942239  | 1529.388 | ng/ml |
| 3) Propionaldehyde           | 3.28 | 7932022  | 1526.027 | ng/ml |
| 4) Crotonaldehyde            | 4.27 | 6249643  | 1539.484 | ng/ml |
| 5) Butyraldehyde             | 4.89 | 6309698  | 1556.886 | ng/ml |
| 6) Benzaldehyde              | 5.75 | 4153559  | 1522.355 | ng/ml |
| 7) Isovaleraldehyde          | 6.36 | 5345721  | 1553.181 | ng/ml |
| 8) Valeraldehyde             | 6.64 | 5037352  | 1481.731 | ng/ml |
| 9) o-Tolualdehyde            | 7.11 | 3342090  | 1522.896 | ng/ml |
| 10) m,p-Tolualdehyde         | 7.31 | 7190486  | 3130.488 | ng/ml |
| 11) Hexaldehyde              | 8.41 | 4481369  | 1513.606 | ng/ml |
| 12) 2,5-Dimethylbenzaldehyde | 8.63 | 3172590  | 1589.879 | ng/ml |

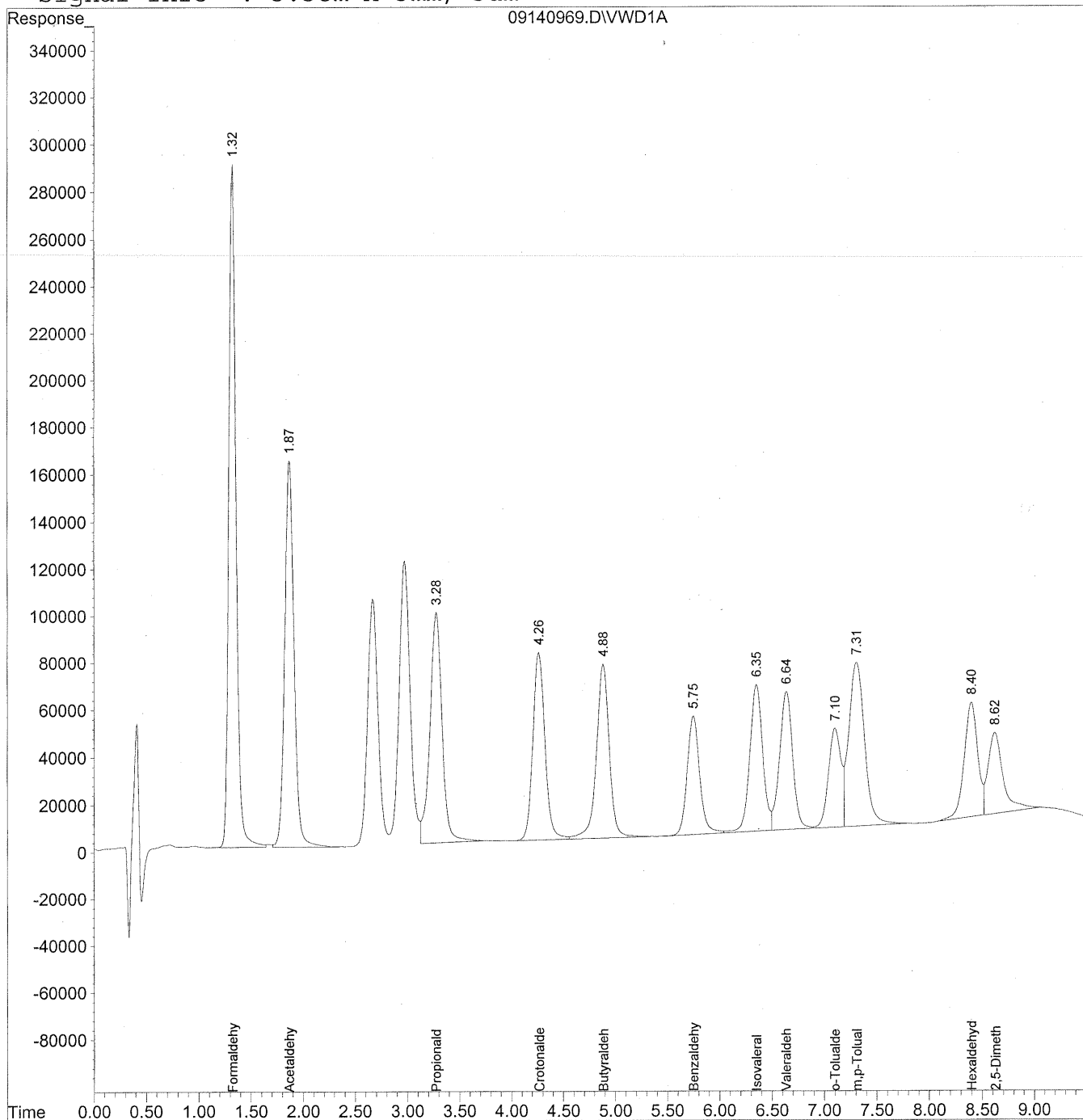
*HC*  
 9/17/09

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140969.D Vial: 10  
Acq On : 14-Sep-2009, 23:05 Operator: MD  
Sample : MID CCV 1500ng/ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 11:38 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration  
DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
Signal Phase : Supelcosil LC-18  
Signal Info : 3.3cm x 3mm, 3um



Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140969.D Vial: 10  
 Acq On : 14-Sep-2009, 23:05 Operator: MD  
 Sample : MID CCV 1500ng/ml Inst : VWD  
 Misc : Multiplr: 1.00  
 IntFile : events.e  
 Quant Time: Sep 17 11:38 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
 Title : LC-1050 TO-11A ICAL  
 Last Update : Thu Sep 17 11:23:31 2009  
 Response via : Initial Calibration  
 DataAcq Meth : TO-11A.M

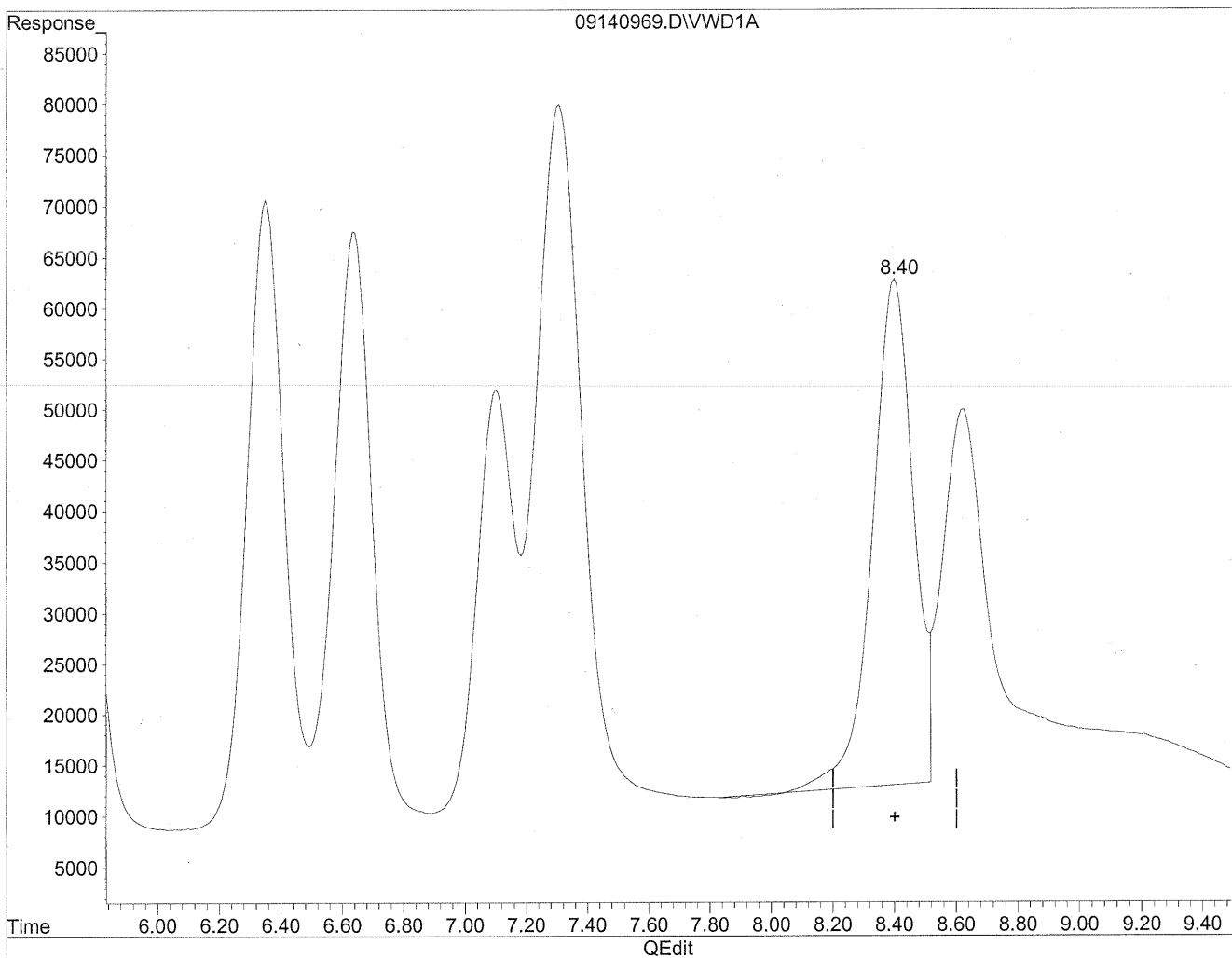
Volume Inj. : 3uL  
 Signal Phase : Supelcosil LC-18  
 Signal Info : 3.3cm x 3mm, 3um

| Compound                     | R.T. | Response | Conc Units      |
|------------------------------|------|----------|-----------------|
| -----                        |      |          |                 |
| Target Compounds             |      |          |                 |
| 1) Formaldehyde              | 1.33 | 13895044 | 1555.050 ng/ml  |
| 2) Acetaldehyde              | 1.87 | 10043750 | 1545.003 ng/ml  |
| 3) Propionaldehyde           | 3.28 | 7898468  | 1519.572 ng/ml  |
| 4) Crotonaldehyde            | 4.27 | 6327556  | 1558.676 ng/ml  |
| 5) Butyraldehyde             | 4.89 | 6348390  | 1566.433 ng/ml  |
| 6) Benzaldehyde              | 5.75 | 4174499  | 1530.030 ng/ml  |
| 7) Isovaleraldehyde          | 6.35 | 5305998  | 1541.640 ng/ml  |
| 8) Valeraldehyde             | 6.64 | 5074205  | 1492.571 ng/ml  |
| 9) o-Tolualdehyde            | 7.10 | 3425629  | 1560.963 ng/ml  |
| 10) m,p-Tolualdehyde         | 7.31 | 7292150  | 3174.749 ng/ml  |
| 11) Hexaldehyde              | 8.40 | 4366666  | 1474.864 ng/mlm |
| 12) 2,5-Dimethylbenzaldehyde | 8.62 | 3398523  | 1703.100 ng/mlm |

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140969.D Vial: 10  
Acq On : 14-Sep-2009, 23:05 Operator: MD  
Sample : MID CCV 1500ng/ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 11:38 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



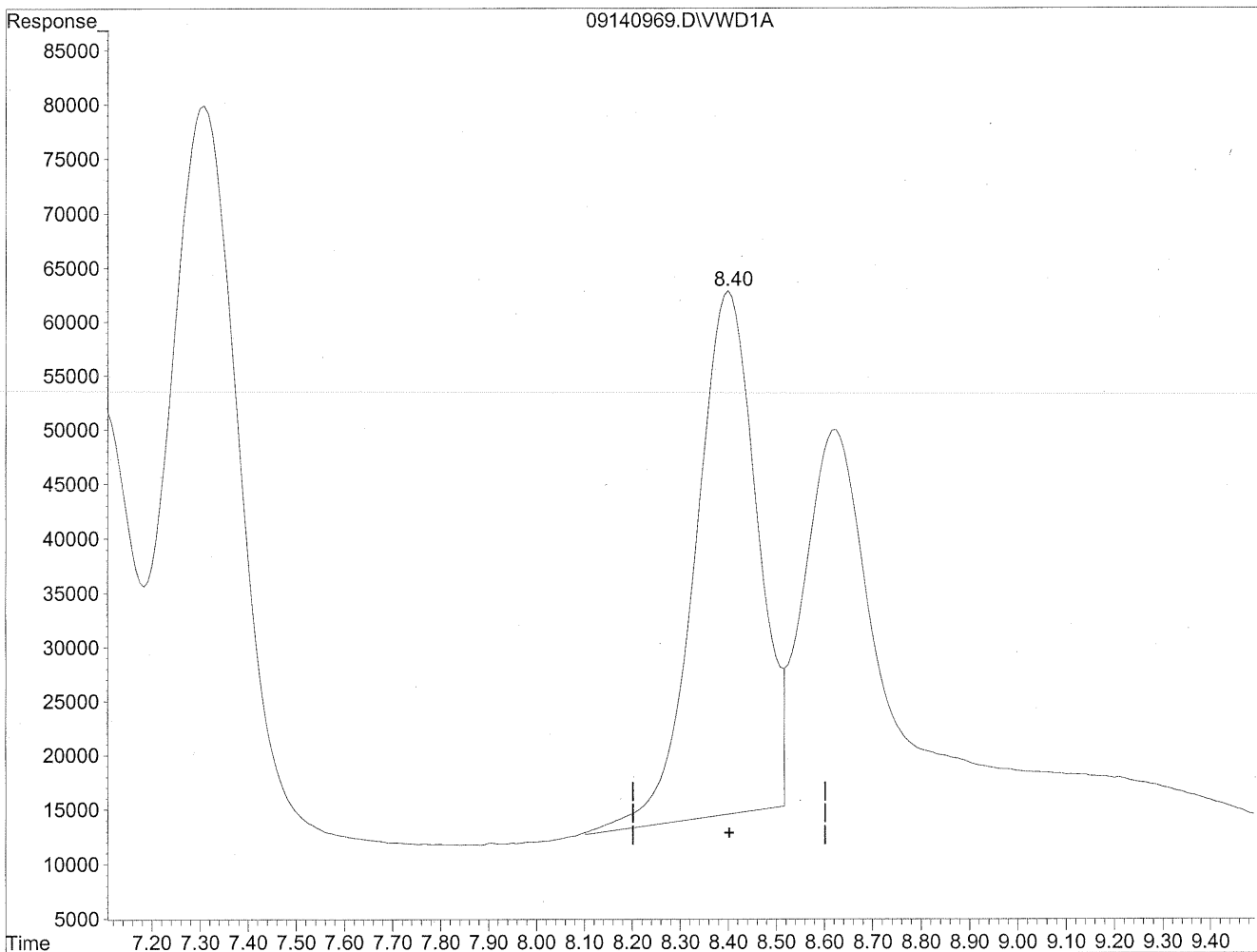
(11) Hexaldehyde  
8.40min 1546.371ng/ml  
response 4578380



Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140969.D Vial: 10  
Acq On : 14-Sep-2009, 23:05 Operator: MD  
Sample : MID CCV 1500ng/ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 11:38 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



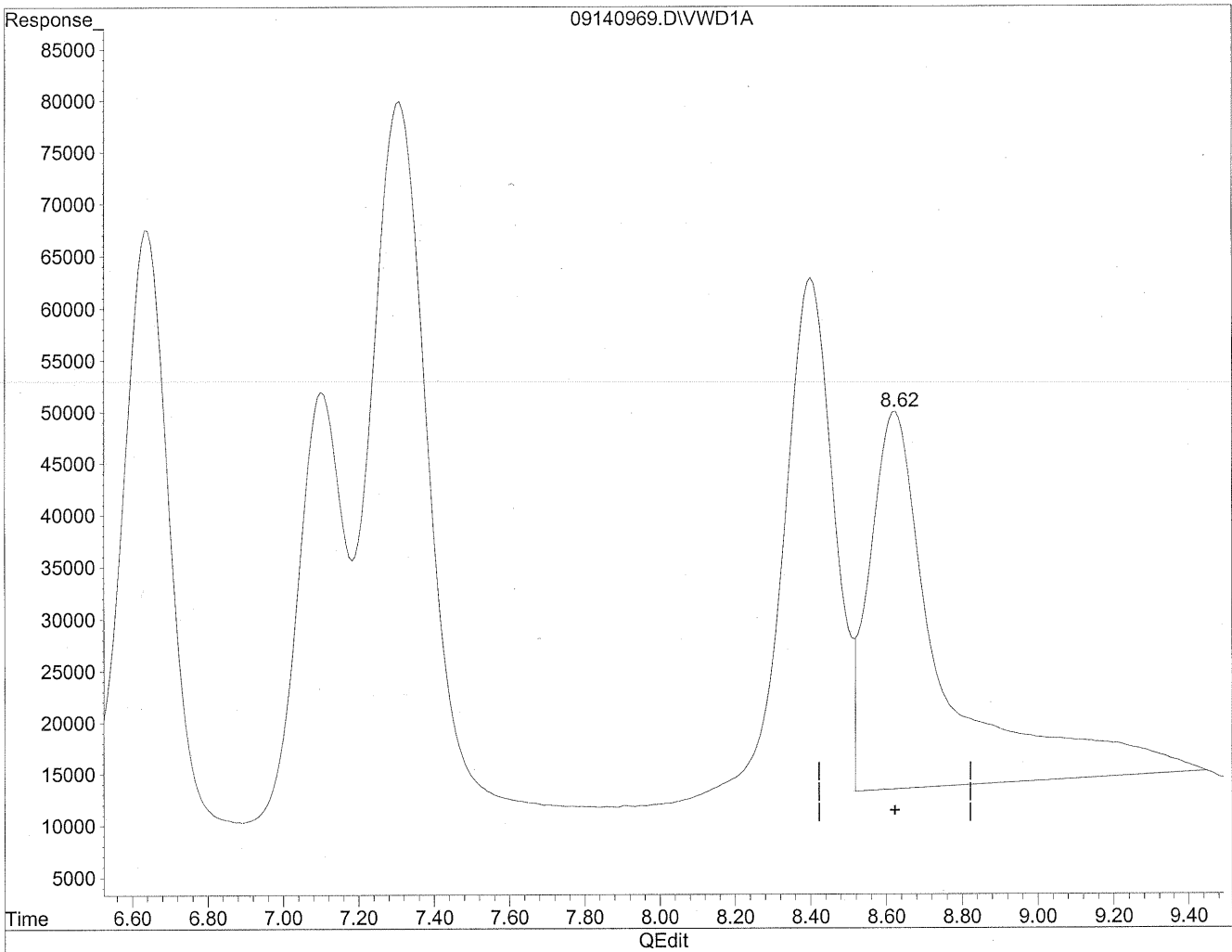
(11) Hexaldehyde  
8.40min 1474.864ng/ml m  
response 4366666

*Handwritten notes:*  
the calibration  
MD  
9/17/09  
IC

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140969.D Vial: 10  
Acq On : 14-Sep-2009, 23:05 Operator: MD  
Sample : MID CCV 1500ng/ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 11:37 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



(12) 2,5-Dimethylbenzaldehyde

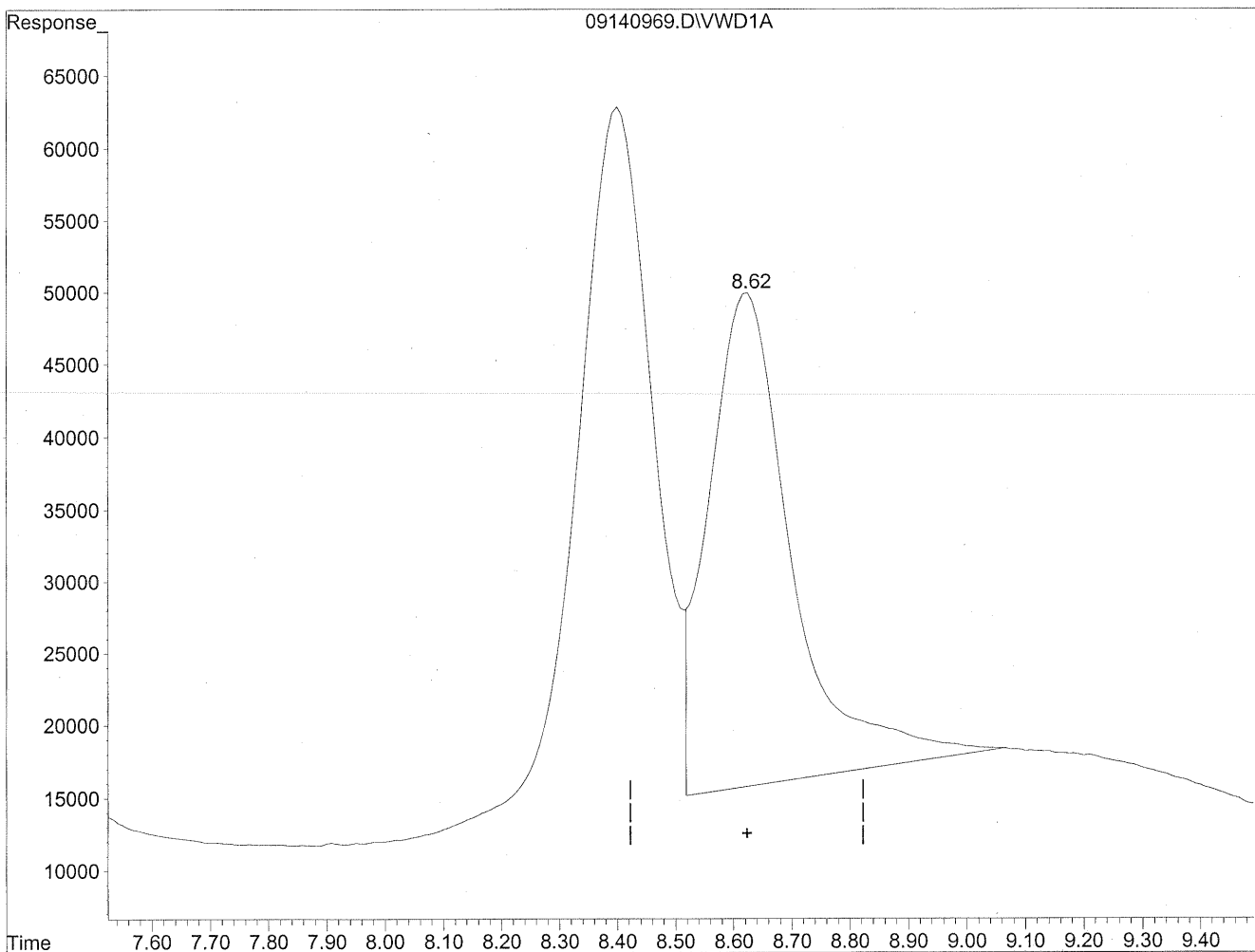
8.62min 2488.003ng/ml

response 4964791

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140969.D Vial: 10  
Acq On : 14-Sep-2009, 23:05 Operator: MD  
Sample : MID CCV 1500ng/ml Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 11:38 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



(12) 2,5-Dimethylbenzaldehyde  
8.62min 1703.100ng/ml m  
response 3398523

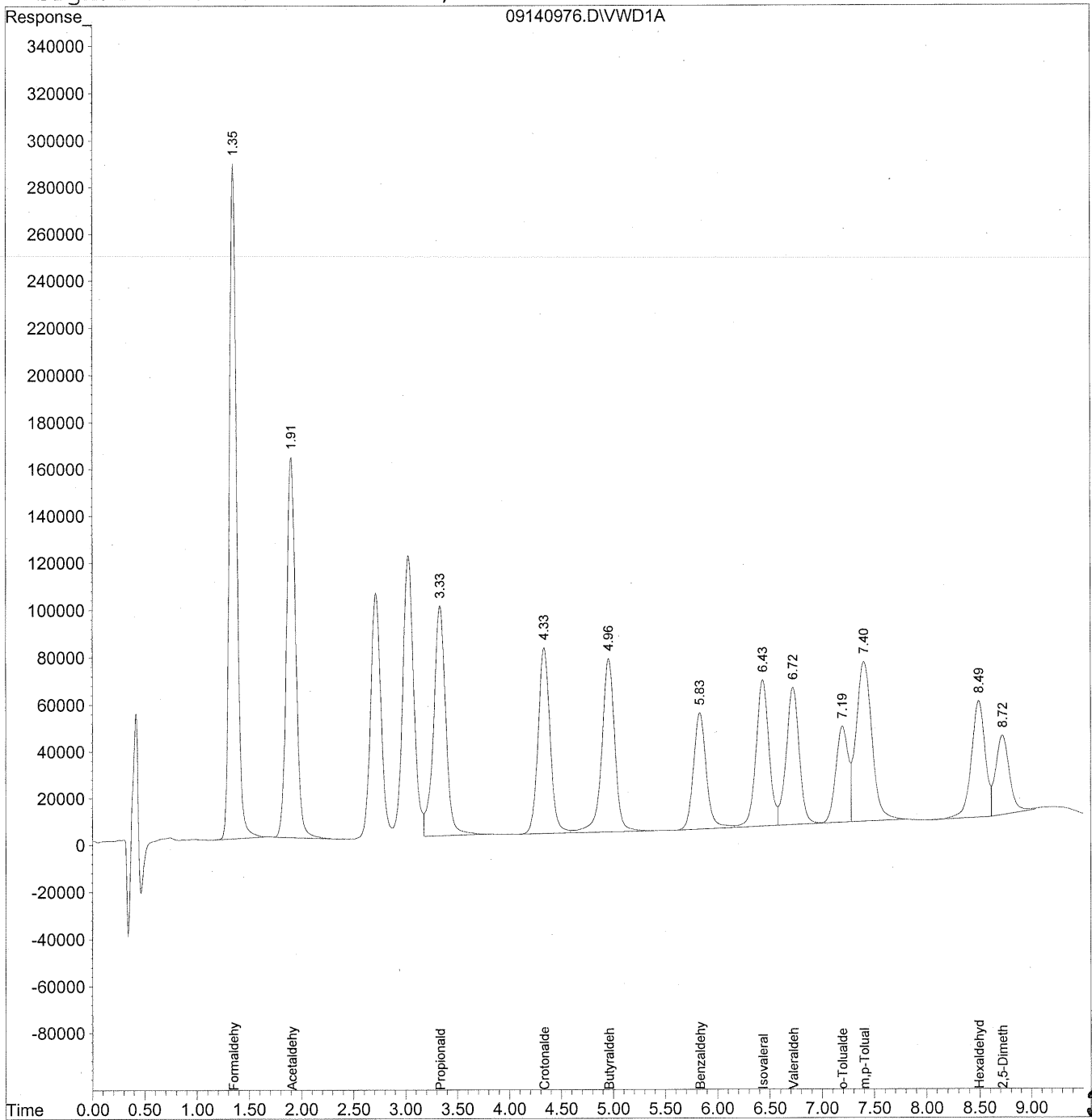
*Handwritten notes:*  
mu  
9/17/09  
MW  
9/17/09  
RZ

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140976.D Vial: 10  
Acq On : 15-Sep-2009, 00:28 Operator: MD  
Sample : 1500ng/ml end std Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:19 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration  
DataAcq Meth : TO-11A.M

Volume Inj. : 3uL  
Signal Phase : Supelcosil LC-18  
Signal Info : 3.3cm x 3mm, 3um



316

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140976.D Vial: 10  
 Acq On : 15-Sep-2009, 00:28 Operator: MD  
 Sample : 1500ng/ml end std Inst : VWD  
 Misc : Multiplr: 1.00  
 IntFile : events.e  
 Quant Time: Sep 17 12:19 19109 Quant Results File: TO110909.RES

Quant Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
 Title : LC-1050 TO-11A ICAL  
 Last Update : Thu Sep 17 11:23:31 2009  
 Response via : Initial Calibration  
 DataAcq Meth : TO-11A.M

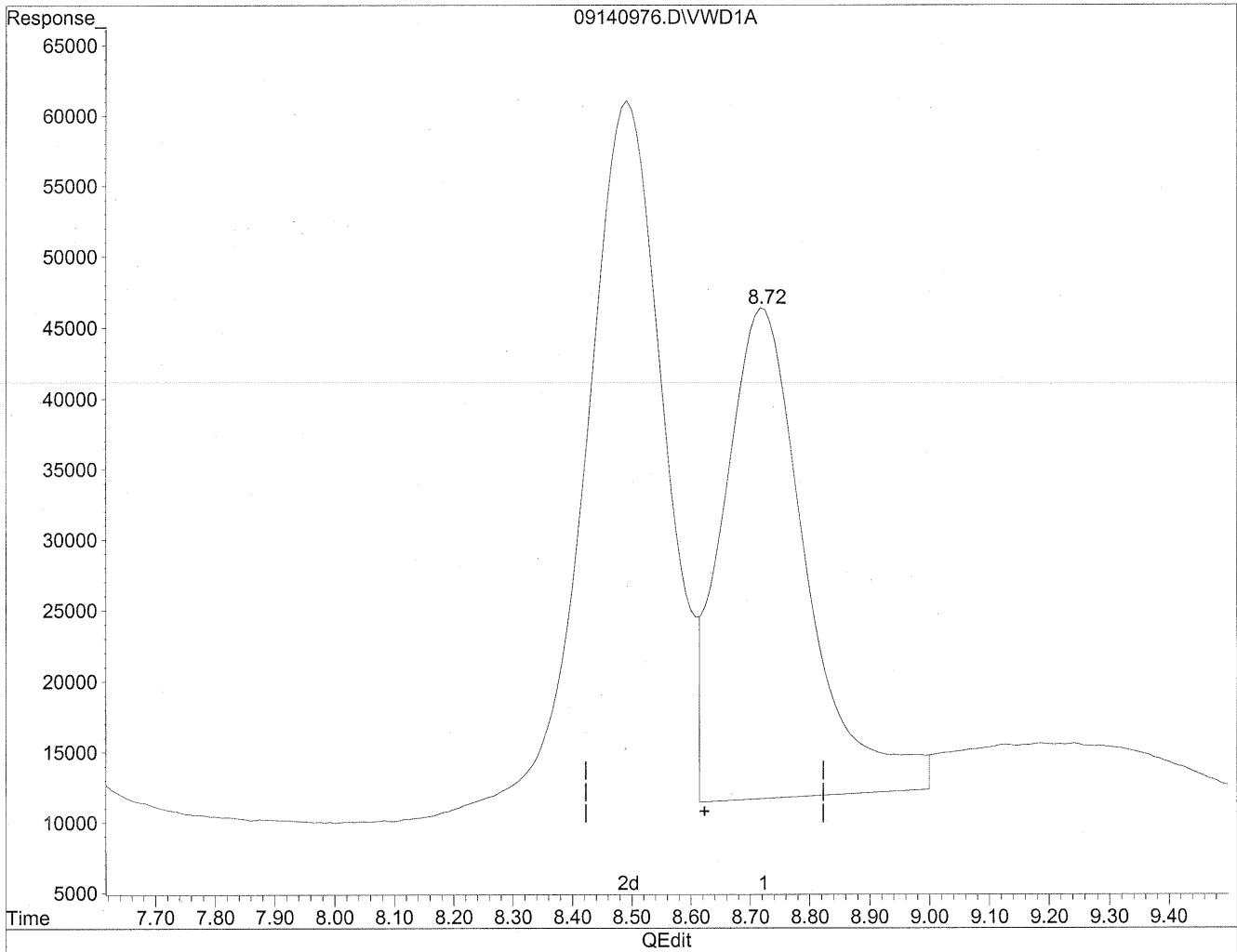
Volume Inj. : 3uL  
 Signal Phase : Supelcosil LC-18  
 Signal Info : 3.3cm x 3mm, 3um

| Compound                     | R.T. | Response | Conc Units      |
|------------------------------|------|----------|-----------------|
| -----                        |      |          |                 |
| Target Compounds             |      |          |                 |
| 1) Formaldehyde              | 1.35 | 13864014 | 1551.578 ng/ml  |
| 2) Acetaldehyde              | 1.91 | 9937812  | 1528.707 ng/ml  |
| 3) Propionaldehyde           | 3.34 | 7931566  | 1525.940 ng/ml  |
| 4) Crotonaldehyde            | 4.34 | 6327603  | 1558.688 ng/ml  |
| 5) Butyraldehyde             | 4.96 | 6422462  | 1584.710 ng/ml  |
| 6) Benzaldehyde              | 5.84 | 4261544  | 1561.933 ng/ml  |
| 7) Isovaleraldehyde          | 6.44 | 5403296  | 1569.909 ng/ml  |
| 8) Valeraldehyde             | 6.73 | 5113245  | 1504.055 ng/ml  |
| 9) o-Tolualdehyde            | 7.20 | 3379986  | 1540.164 ng/ml  |
| 10) m,p-Tolualdehyde         | 7.40 | 7255401  | 3158.750 ng/ml  |
| 11) Hexaldehyde              | 8.49 | 4549338  | 1536.562 ng/ml  |
| 12) 2,5-Dimethylbenzaldehyde | 8.72 | 3179442  | 1593.312 ng/mlm |

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140976.D Vial: 10  
Acq On : 15-Sep-2009, 00:28 Operator: MD  
Sample : 1500ng/ml end std Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:19 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



(12) 2,5-Dimethylbenzaldehyde

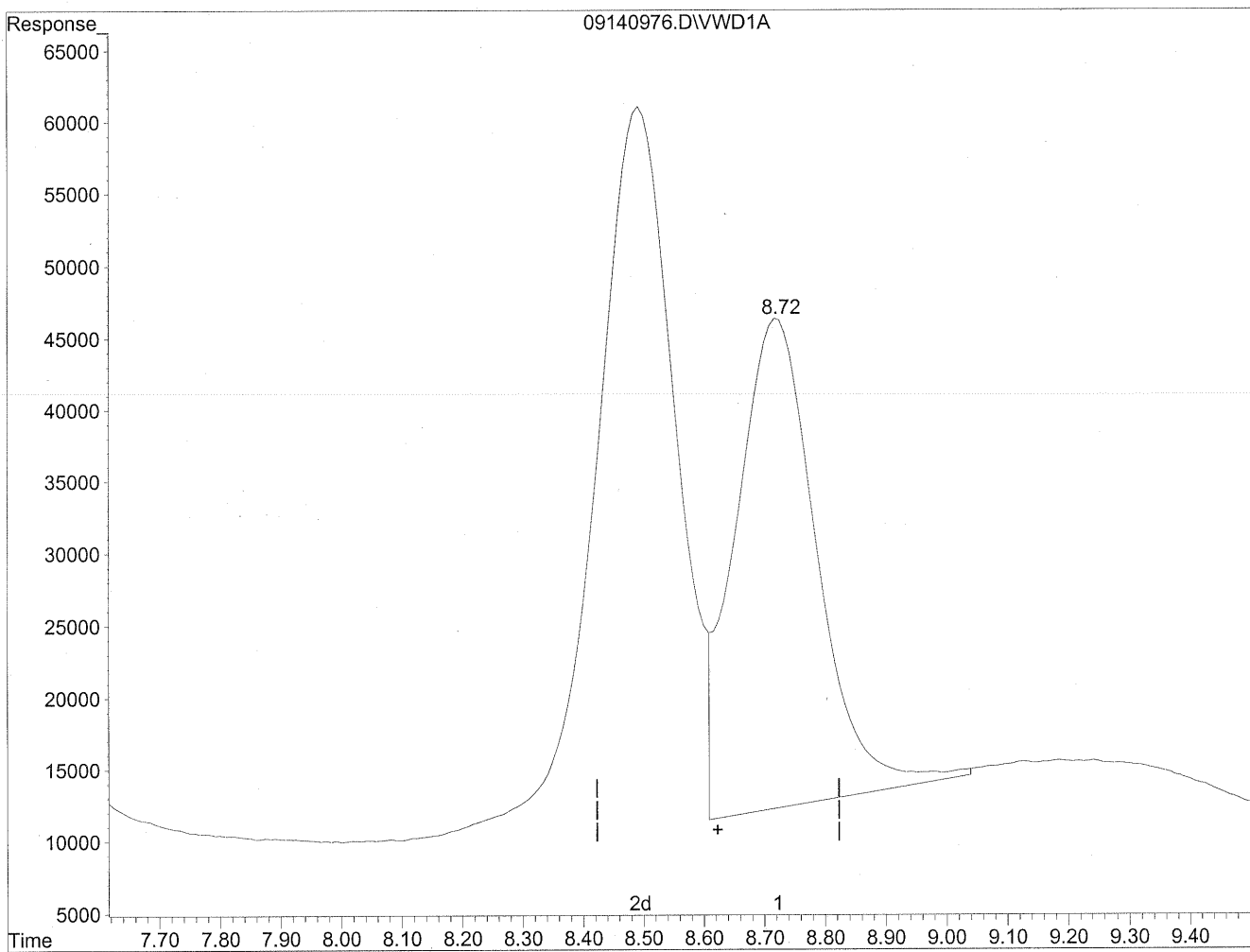
8.72min 1694.123ng/ml

response 3380608

Quantitation Report

Data File : J:\LC02\DATA\TO11A\2009\_09\14\09140976.D Vial: 10  
Acq On : 15-Sep-2009, 00:28 Operator: MD  
Sample : 1500ng/ml end std Inst : VWD  
Misc : Multiplr: 1.00  
IntFile : events.e  
Quant Time: Sep 17 12:19 19109 Quant Results File: TO110909.RES

Method : J:\LC02\METHODS\TO110909.M (Chemstation Integrator)  
Title : LC-1050 TO-11A ICAL  
Last Update : Thu Sep 17 11:23:31 2009  
Response via : Multiple Level Calibration



(12) 2,5-Dimethylbenzaldehyde  
8.72min 1593.312ng/ml m  
response 3179442

*HC*  
*9/17/09*  
*(signature)*  
*12*

RUN LOGS

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# Injection Log

Directory: j:\lc02\data\to11a\2009\_09\09

| Line | Vial | FileName   | Multiplier | SampleName                         | Misc Info | Injected        |
|------|------|------------|------------|------------------------------------|-----------|-----------------|
|      |      | 09090901.d | 1.         |                                    |           |                 |
|      |      | 09090902.d | 1.         |                                    |           |                 |
|      | 102  | 09090903.d | 1.         | TO11 STD TEST                      |           | 09-Sep-09, 12:4 |
|      | 102  | 09090904.d | 1.         | TO11 STD TEST                      |           | 09-Sep-09, 12:5 |
|      | 10   | 09090905.d | 1.         | TO11 STD TEST                      |           | 09-Sep-09, 26:1 |
|      | 10   | 09090906.d | 1.         | TO11 STD TEST                      |           | 09-Sep-09, 26:3 |
|      | 10   | 09090907.d | 1.         | ACN BLANK Lot CY331                |           | 09-Sep-09, 27:0 |
|      | 9    | 09090908.d | 1.         | 50ng/ml TO-11A S21-09080905        |           | 09-Sep-09, 27:2 |
|      | 9    | 09090909.d | 1.         | 50ng/ml TO-11A S21-09080905        |           | 09-Sep-09, 27:3 |
| 0    | 9    | 09090910.d | 1.         | 50ng/ml TO-11A S21-09080905        |           | 09-Sep-09, 27:4 |
| 1    | 8    | 09090911.d | 1.         | 100ng/ml TO-11A S21-09080904       |           | 09-Sep-09, 27:5 |
| 2    | 8    | 09090912.d | 1.         | 100ng/ml TO-11A S21-09080904       |           | 09-Sep-09, 28:0 |
| 3    | 8    | 09090913.d | 1.         | 100ng/ml TO-11A S21-09080904       |           | 09-Sep-09, 28:1 |
| 4    | 7    | 09090914.d | 1.         | 500ng/ml TO-11A S21-09080903       |           | 09-Sep-09, 28:2 |
| 5    | 7    | 09090915.d | 1.         | 500ng/ml TO-11A S21-09080903       |           | 09-Sep-09, 28:4 |
| 6    | 7    | 09090916.d | 1.         | 500ng/ml TO-11A S21-09080903       |           | 09-Sep-09, 28:5 |
| 7    | 6    | 09090917.d | 1.         | 1500ng/ml TO-11A S21-09090903      |           | 09-Sep-09, 29:0 |
| 8    | 6    | 09090918.d | 1.         | 1500ng/ml TO-11A S21-09090903      |           | 09-Sep-09, 29:1 |
| 9    | 6    | 09090919.d | 1.         | 1500ng/ml TO-11A S21-09090903      |           | 09-Sep-09, 29:2 |
| 10   | 5    | 09090920.d | 1.         | 5000ng/ml TO-11A S21-09080902      |           | 09-Sep-09, 29:3 |
| 11   | 5    | 09090921.d | 1.         | 5000ng/ml TO-11A S21-09080902      |           | 09-Sep-09, 29:4 |
| 12   | 5    | 09090922.d | 1.         | 5000ng/ml TO-11A S21-09080902      |           | 09-Sep-09, 30:0 |
| 13   | 4    | 09090923.d | 1.         | 10000ng/ml TO-11A S21-09080901     |           | 09-Sep-09, 30:1 |
| 14   | 4    | 09090924.d | 1.         | 10000ng/ml TO-11A S21-09080902     |           | 09-Sep-09, 30:2 |
| 15   | 4    | 09090925.d | 1.         | 10000ng/ml TO-11A S21-09080902     |           | 09-Sep-09, 30:3 |
| 16   | 3    | 09090926.d | 1.         | ~1500ng/ml TO-11A ICV S21-07270907 |           | 09-Sep-09, 30:4 |
| 17   | 3    | 09090927.d | 1.         | ~1500ng/ml TO-11A ICV S21-07270907 |           | 09-Sep-09, 30:5 |
| 18   | 3    | 09090928.d | 1.         | ~1500ng/ml TO-11A ICV S21-07270907 |           | 09-Sep-09, 31:0 |

> injected ICV 3x  
by mistake (mk)  
9/10/09

# Injection Log

Directory: j:\lc02\data\to11a\2009\_09\14

| Line | Vial | FileName   | Multiplier | SampleName                     | Misc Info   | Injected        |
|------|------|------------|------------|--------------------------------|---|-----------------|
| 1    | 7    | 09140901.d | 1.         | prime                          |   | 14-Sep-09, 21:0 |
| 2    | 10   | 09140902.d | 1.         | 1500ng/ml TO-11A S21-09090903  |   | 14-Sep-09, 21:1 |
| 3    | 10   | 09140903.d | 1.         | 1500ng/ml TO-11A S21-09090903  |   | 14-Sep-09, 21:2 |
| 4    | 9    | 09140904.d | 1.         | ACN blank lot CY331            |   | 14-Sep-09, 21:4 |
| 5    | 101  | 09140905.d | 1.         | MB-4 front 1.0ml lot 5855/5994 |   | 14-Sep-09, 21:5 |
| 6    | 102  | 09140906.d | 1.         | MB-4 back 1.0ml lot 5855/5994  |   | 14-Sep-09, 22:0 |
| 7    | 103  | 09140907.d | 1.         | P0903011-001 front 1.0ml       |   | 14-Sep-09, 22:2 |
| 8    | 104  | 09140908.d | 1.         | P0903011-002 front 1.0ml       |   | 14-Sep-09, 22:3 |
| 9    | 105  | 09140909.d | 1.         | P0903011-003 front 1.0ml       |   | 14-Sep-09, 22:4 |
| 10   | 106  | 09140910.d | 1.         | P0903011-004 front 1.0ml       |   | 14-Sep-09, 22:5 |
| 11   | 107  | 09140911.d | 1.         | P0903011-005 front 1.0ml       |   | 14-Sep-09, 23:0 |
| 12   | 108  | 09140912.d | 1.         | P0903011-006 front 1.0ml       |   | 14-Sep-09, 23:2 |
| 13   | 109  | 09140913.d | 1.         | P0903011-007 front 1.0ml       |   | 14-Sep-09, 23:3 |
| 14   | 110  | 09140914.d | 1.         | P0903011-008 front 1.0ml       |   | 14-Sep-09, 23:4 |
| 15   | 111  | 09140915.d | 1.         | P0903011-009 front 1.0ml       |   | 14-Sep-09, 23:5 |
| 16   | 112  | 09140916.d | 1.         | P0903011-010 front 1.0ml       |   | 14-Sep-09, 12:0 |
| 17   | 9    | 09140917.d | 1.         | acn blank                      |   | 14-Sep-09, 12:2 |
| 18   | 10   | 09140918.d | 1.         | MID CCV 1500ng/ml              |   | 14-Sep-09, 12:3 |
| 19   | 113  | 09140919.d | 1.         | P0903011-011 front 1.0ml       |   | 14-Sep-09, 12:4 |
| 20   | 114  | 09140920.d | 1.         | P0903011-012 front 1.0ml       |   | 14-Sep-09, 12:5 |
| 21   | 115  | 09140921.d | 1.         | P0902946-007 front Rerun       |   | 14-Sep-09, 25:0 |
| 22   | 116  | 09140922.d | 1.         | P0902946-008 front Rerun       |   | 14-Sep-09, 25:2 |
| 23   | 117  | 09140923.d | 1.         | P0902946-009 front Rerun       |   | 14-Sep-09, 25:3 |
| 24   | 118  | 09140924.d | 1.         | P0902946-010 front Rerun       |   | 14-Sep-09, 25:4 |
| 25   | 119  | 09140925.d | 1.         | P0902946-014 front Rerun       |   | 14-Sep-09, 25:5 |
| 26   | 120  | 09140926.d | 1.         | P0903011-001 front 10x dil     | } dilutions will demonstrate<br>instrument precision as well. | 14-Sep-09, 26:0 |
| 27   | 121  | 09140927.d | 1.         | P0903011-002 front 10x dil     |   | 14-Sep-09, 26:4 |
| 28   | 123  | 09140928.d | 1.         | P0903011-004 front 10x dil     |   | 14-Sep-09, 26:5 |
| 29   | 125  | 09140929.d | 1.         | P0903011-005 front 10x dil     |   | 14-Sep-09, 27:0 |
| 30   | 10   | 09140930.d | 1.         | 1500ng/ml TO-11A S21-09090903  |   | 14-Sep-09, 27:1 |
| 31   | 9    | 09140931.d | 1.         | ACN blank Lot CY331            |   | 14-Sep-09, 27:2 |
| 32   | 101  | 09140932.d | 1.         | MB-1 front 1.0ml lot 5855/5994 |   | 14-Sep-09, 27:4 |
| 33   | 102  | 09140933.d | 1.         | MB-1 back 1.0ml lot 5855/5994  |   | 14-Sep-09, 27:5 |
| 34   | 103  | 09140934.d | 1.         | P0903082-001 back 1.0ml        |   | 14-Sep-09, 28:0 |
| 35   | 104  | 09140935.d | 1.         | P0903082-002 back 1.0ml        |   | 14-Sep-09, 28:1 |
| 36   | 105  | 09140936.d | 1.         | P0903082-003 back 1.0ml        |   | 14-Sep-09, 28:2 |
| 37   | 106  | 09140937.d | 1.         | P0903082-004 back 1.0ml        |   | 14-Sep-09, 28:4 |
| 38   | 107  | 09140938.d | 1.         | P0903082-005 back 1.0ml        |   | 14-Sep-09, 28:5 |
| 39   | 108  | 09140939.d | 1.         | P0903082-006 back 1.0ml        |   | 14-Sep-09, 29:0 |
| 40   | 109  | 09140940.d | 1.         | P0903082-001 front 1.0ml       |   | 14-Sep-09, 29:1 |
| 41   | 110  | 09140941.d | 1.         | P0903082-002 front 1.0ml       |   | 14-Sep-09, 29:2 |
| 42   | 111  | 09140942.d | 1.         | P0903082-003 front 1.0ml       |   | 14-Sep-09, 29:4 |
| 43   | 112  | 09140943.d | 1.         | P0903082-004 front 1.0ml       |   | 14-Sep-09, 29:5 |
| 44   | 10   | 09140944.d | 1.         | MID CCV 1500ng/ml              |   | 14-Sep-09, 30:0 |
| 45   | 113  | 09140945.d | 1.         | P0903082-005 front 1.0ml       |   | 14-Sep-09, 30:1 |
| 46   | 114  | 09140946.d | 1.         | P0903082-006 front 1.0ml       |   | 14-Sep-09, 30:2 |
| 47   | 115  | 09140947.d | 1.         | P0903087-001 back 1.0ml        |   | 14-Sep-09, 30:4 |
| 48   | 116  | 09140948.d | 1.         | P0903087-002 back 1.0ml        |   | 14-Sep-09, 30:5 |
| 49   | 117  | 09140949.d | 1.         | P0903087-003 back 1.0ml        |   | 14-Sep-09, 31:0 |
| 50   | 118  | 09140950.d | 1.         | P0903087-004 back 1.0ml        |   | 14-Sep-09, 31:1 |
| 51   | 119  | 09140951.d | 1.         | P0903087-005 back 1.0ml        |   | 14-Sep-09, 31:2 |
| 52   | 120  | 09140952.d | 1.         | P0903087-006 back 1.0ml        |   | 14-Sep-09, 31:4 |
| 53   | 121  | 09140953.d | 1.         | P0903087-007 back 1.0ml        |   | 14-Sep-09, 31:5 |
| 54   | 122  | 09140954.d | 1.         | P0903087-008 back 1.0ml        |   | 14-Sep-09, 32:0 |
| 55   | 10   | 09140955.d | 1.         | 1500ng/ml TO-11A S21-09090903  |   | 14-Sep-09, 32:1 |
| 56   | 9    | 09140956.d | 1.         | ACN blank lot CY331            |   | 14-Sep-09, 32:2 |
| 57   | 123  | 09140957.d | 1.         | MB-2 front 1.0ml lot 5855/5994 |   | 14-Sep-09, 32:4 |

**322**

# Injection Log

Directory: j:\lc02\data\to11a\2009\_09\14

| Line | Vial | FileName   | Multiplier | SampleName                    | Misc Info | Injected        |
|------|------|------------|------------|-------------------------------|-----------|-----------------|
| 58   | 124  | 09140958.d | 1.         | MB-2 back 1.0ml lot 5855/5994 |           | 14-Sep-09, 32:5 |
| 59   | 125  | 09140959.d | 1.         | P0903087-009 back 1.0ml       |           | 14-Sep-09, 33:0 |
| 60   | 126  | 09140960.d | 1.         | P0903087-010 back 1.0ml       |           | 14-Sep-09, 33:1 |
| 61   | 127  | 09140961.d | 1.         | P0903087-011 back 1.0ml       |           | 14-Sep-09, 33:2 |
| 62   | 128  | 09140962.d | 1.         | P0903087-012 back 1.0ml       |           | 14-Sep-09, 33:4 |
| 63   | 129  | 09140963.d | 1.         | P0903087-001 front 1.0ml      |           | 14-Sep-09, 33:5 |
| 64   | 130  | 09140964.d | 1.         | P0903087-002 front 1.0ml      |           | 14-Sep-09, 34:0 |
| 65   | 131  | 09140965.d | 1.         | P0903087-003 front 1.0ml      |           | 14-Sep-09, 34:1 |
| 66   | 132  | 09140966.d | 1.         | P0903087-004 front 1.0ml      |           | 14-Sep-09, 34:2 |
| 67   | 133  | 09140967.d | 1.         | P0903087-005 front 1.0ml      |           | 14-Sep-09, 34:4 |
| 68   | 134  | 09140968.d | 1.         | P0903087-006 front 1.0ml      |           | 14-Sep-09, 34:5 |
| 69   | 10   | 09140969.d | 1.         | MID CCV 1500ng/ml             |           | 14-Sep-09, 35:0 |
| 70   | 135  | 09140970.d | 1.         | P0903087-007 front 1.0ml      |           | 14-Sep-09, 35:1 |
| 71   | 136  | 09140971.d | 1.         | P0903087-008 front 1.0ml      |           | 14-Sep-09, 35:2 |
| 72   | 137  | 09140972.d | 1.         | P0903087-009 front 1.0ml      |           | 14-Sep-09, 35:4 |
| 73   | 138  | 09140973.d | 1.         | P0903087-010 front 1.0ml      |           | 14-Sep-09, 35:5 |
| 74   | 139  | 09140974.d | 1.         | P0903087-011 front 1.0ml      |           | 15-Sep-09, 12:0 |
| 75   | 140  | 09140975.d | 1.         | P0903087-012 front 1.0ml      |           | 15-Sep-09, 12:1 |
| 76   | 10   | 09140976.d | 1.         | 1500ng/ml end std             |           | 15-Sep-09, 12:2 |
| 77   |      | 09140977.d | 1.         | - Shutdown program            |           |                 |