New Jersey
ACCUTEST LABORATORIES

07/20/15

# Technical Report for

Stantec Consulting Services Inc.

Sunoco - Marcus Hook Facility, PA

AOI-5

Accutest Job Number: JB98590

Sampling Dates: 07/06/15 - 07/07/15

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Total number of pages in report: **616**

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Laboratory Director

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# Sample Summary

Stantec Consulting Services Inc.

**Job No:** JB98590

Sunoco - Marcus Hook Facility, PA
Project No: AOI-5

| Sample Number | Collected Date | Time | By | Received | Matrix Code | Type | Client Sample ID |
|---|---|---|---|---|---|---|---|
| JB98590-1 | 07/06/15 | 13:00 | DH | 07/07/15 | AQ | Ground Water | MW-440-20150706 |
| JB98590-1F | 07/06/15 | 13:00 | DH | 07/07/15 | AQ | Groundwater Filtered | MW-440-20150706 |
| JB98590-2 | 07/06/15 | 14:00 | DH | 07/07/15 | AQ | Ground Water | MW-447-20150706 |
| JB98590-2F | 07/06/15 | 14:00 | DH | 07/07/15 | AQ | Groundwater Filtered | MW-447-20150706 |
| JB98590-3 | 07/06/15 | 15:00 | DH | 07/07/15 | AQ | Ground Water | MW-453-20150706 |
| JB98590-3F | 07/06/15 | 15:00 | DH | 07/07/15 | AQ | Groundwater Filtered | MW-453-20150706 |
| JB98590-4 | 07/06/15 | 00:00 | DH | 07/07/15 | AQ | Field Blank Water | FB-20150706 |
| JB98590-4F | 07/06/15 | 00:00 | DH | 07/07/15 | AQ | Field Blank Filtered | FB-20150706 |
| JB98590-5 | 07/06/15 | 11:41 | DH | 07/07/15 | AQ | Ground Water | MW-444-20150706 |
| JB98590-5F | 07/06/15 | 11:41 | DH | 07/07/15 | AQ | Groundwater Filtered | MW-444-20150706 |
| JB98590-6 | 07/06/15 | 13:15 | DH | 07/07/15 | AQ | Ground Water | MW-446-20150706 |
| JB98590-6F | 07/06/15 | 13:15 | DH | 07/07/15 | AQ | Groundwater Filtered | MW-446-20150706 |
| JB98590-7 | 07/06/15 | 13:15 | DH | 07/07/15 | AQ | Ground Water | MW-450-20150706 |

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# Sample Summary
(continued)

Stantec Consulting Services Inc.

**Job No:** JB98590

Sunoco - Marcus Hook Facility, PA
Project No: AOI-5

| Sample Number | Collected Date | Time | By | Received | Matrix Code | Type | Client Sample ID |
|---|---|---|---|---|---|---|---|
| JB98590-7F | 07/06/15 | 13:15 | DH | 07/07/15 | AQ | Groundwater Filtered | MW-450-20150706 |
| JB98590-8 | 07/07/15 | 13:30 | DH | 07/07/15 | AQ | Trip Blank Water | TB-20150706 |
| JB98590-9 | 07/07/15 | 08:45 | DH | 07/07/15 | AQ | Ground Water | MW-457-20150707 |
| JB98590-9F | 07/07/15 | 08:45 | DH | 07/07/15 | AQ | Groundwater Filtered | MW-457-20150707 |
| JB98590-10 | 07/07/15 | 10:15 | DH | 07/07/15 | AQ | Ground Water | MW-471-20150707 |
| JB98590-10F | 07/07/15 | 10:15 | DH | 07/07/15 | AQ | Groundwater Filtered | MW-471-20150707 |
| JB98590-11 | 07/07/15 | 11:30 | DH | 07/07/15 | AQ | Ground Water | MW-479-20150707 |
| JB98590-11F | 07/07/15 | 11:30 | DH | 07/07/15 | AQ | Groundwater Filtered | MW-479-20150707 |
| JB98590-12 | 07/07/15 | 13:00 | DH | 07/07/15 | AQ | Ground Water | MW-478-20150707 |
| JB98590-12F | 07/07/15 | 13:00 | DH | 07/07/15 | AQ | Groundwater Filtered | MW-478-20150707 |
| JB98590-13 | 07/07/15 | 10:00 | DH | 07/07/15 | AQ | Ground Water | MW-468-20150707 |
| JB98590-13F | 07/07/15 | 10:00 | DH | 07/07/15 | AQ | Groundwater Filtered | MW-468-20150707 |
| JB98590-14 | 07/07/15 | 10:45 | DH | 07/07/15 | AQ | Ground Water | MW-469-20150707 |

Accutest Laboratories

# Sample Summary
(continued)

Stantec Consulting Services Inc.

**Job No:** JB98590

Sunoco - Marcus Hook Facility, PA
Project No: AOI-5

| Sample Number | Collected Date | Time | By | Received | Matrix Code | Type | Client Sample ID |
|---|---|---|---|---|---|---|---|
| JB98590-14F | 07/07/15 | 10:45 | DH | 07/07/15 | AQ | Groundwater Filtered | MW-469-20150707 |
| JB98590-15 | 07/07/15 | 11:30 | DH | 07/07/15 | AQ | Ground Water | MW-464-20150707 |
| JB98590-15F | 07/07/15 | 11:30 | DH | 07/07/15 | AQ | Groundwater Filtered | MW-464-20150707 |
| JB98590-16 | 07/07/15 | 12:30 | DH | 07/07/15 | AQ | Ground Water | MW-461-20150707 |
| JB98590-16F | 07/07/15 | 12:30 | DH | 07/07/15 | AQ | Groundwater Filtered | MW-461-20150707 |
| JB98590-17 | 07/07/15 | 13:30 | DH | 07/07/15 | AQ | Ground Water | MW-448-20150707 |
| JB98590-17F | 07/07/15 | 13:30 | DH | 07/07/15 | AQ | Groundwater Filtered | MW-448-20150707 |
| JB98590-18 | 07/07/15 | 10:00 | DH | 07/07/15 | AQ | Ground Water | MW-468-DUP20150707 |
| JB98590-18F | 07/07/15 | 10:00 | DH | 07/07/15 | AQ | Groundwater Filtered | MW-468-DUP20150707 |

# CASE NARRATIVE / CONFORMANCE SUMMARY

| | | | |
|---|---|---|---|
| **Client:** | Stantec Consulting Services Inc. | **Job No** | JB98590 |
| **Site:** | Sunoco - Marcus Hook Facility, PA | **Report Date** | 7/20/2015 2:45:45 PM |

On 07/07/2015, 16 Sample(s), 1 Trip Blank(s) and 2 Field Blank(s) were received at Accutest Laboratories at a maximum corrected temperature of 3.3 C. Samples were intact and chemically preserved, unless noted below. An Accutest Job Number of JB98590 was assigned to the project. Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section.

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

## Volatiles by GCMS By Method SW846 8260C

**Matrix:** AQ **Batch ID:** V2A6821

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB98590-10MS, JB98590-10MSD were used as the QC samples indicated.

**Matrix:** AQ **Batch ID:** VC7407

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB99086-2MS, JB99086-2MSD were used as the QC samples indicated.

**Matrix:** AQ **Batch ID:** VU9094

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB99145-3MS, JB99145-3MSD were used as the QC samples indicated.

## Extractables by GCMS By Method SW846 8270D

**Matrix:** AQ **Batch ID:** OP85388

- All samples were extracted within the recommended method holding time.
- Sample(s) JB98590-1MS, JB98590-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- JB98590-18 for Nitrobenzene-d5: Outside control limits due to matrix interference.

## Extractables by GCMS By Method SW846 8270D BY SIM

**Matrix:** AQ **Batch ID:** OP85388A

- All samples were extracted within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB98590-2MS, JB98590-2MSD were used as the QC samples indicated.
- RPD(s) for MSD for Acenaphthene, Phenanthrene are outside control limits for sample OP85388A-MSD. Outside of in house control limits.
- JB98590-18: Dilution required due to matrix interference.

## Volatiles by GC By Method SW846-8011

| **Matrix:** AQ | **Batch ID:** OP85389 |
|---|---|

- All samples were extracted within the recommended method holding time.
- Sample(s) JB98590-1MS, JB98590-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

## Metals By Method SW846 6010C

| **Matrix:** AQ | **Batch ID:** MP87589A |
|---|---|

- All samples were digested within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB98590-1FMS, JB98590-1FMSD, JB98590-1FSDL were used as the QC samples for metals.
- RPD(s) for Serial Dilution for Lead, Zinc are outside control limits for sample MP87589A-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

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

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

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

# Summary of Hits

**Job Number:** JB98590
**Account:** Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA
**Collected:** 07/06/15 thru 07/07/15



| Lab Sample ID<br>Analyte | Client Sample ID | Result/<br>Qual | RL | MDL | Units | Method |
|---|---|---|---|---|---|---|
| **JB98590-1** | **MW-440-20150706** | | | | | |
| tert-Butylbenzene | | 0.32 J | 2.0 | 0.28 | ug/l | SW846 8260C |
| Isopropylbenzene | | 0.52 J | 1.0 | 0.23 | ug/l | SW846 8260C |
| **JB98590-1F** | **MW-440-20150706** | | | | | |
| Vanadium | | 17.8 B | 50 | 0.70 | ug/l | SW846 6010C |
| **JB98590-2** | **MW-447-20150706** | | | | | |
| Methyl Tert Butyl Ether | | 1.2 | 1.0 | 0.24 | ug/l | SW846 8260C |
| **JB98590-2F** | **MW-447-20150706** | | | | | |
| Vanadium | | 2.8 B | 50 | 0.70 | ug/l | SW846 6010C |
| **JB98590-3** | **MW-453-20150706** | | | | | |
| sec-Butylbenzene | | 0.62 J | 2.0 | 0.21 | ug/l | SW846 8260C |
| tert-Butylbenzene | | 1.8 J | 2.0 | 0.28 | ug/l | SW846 8260C |
| Cyclohexane | | 3.4 J | 5.0 | 0.28 | ug/l | SW846 8260C |
| Isopropylbenzene | | 0.79 J | 1.0 | 0.23 | ug/l | SW846 8260C |
| bis(2-Ethylhexyl)phthalate | | 3.6 | 2.0 | 0.55 | ug/l | SW846 8270D |
| Acenaphthene | | 1.20 | 0.10 | 0.013 | ug/l | SW846 8270D BY SIM |
| Anthracene | | 0.423 | 0.10 | 0.013 | ug/l | SW846 8270D BY SIM |
| Benzo(a)anthracene | | 0.186 | 0.050 | 0.019 | ug/l | SW846 8270D BY SIM |
| Fluoranthene | | 0.140 | 0.10 | 0.011 | ug/l | SW846 8270D BY SIM |
| Fluorene | | 1.79 | 0.10 | 0.027 | ug/l | SW846 8270D BY SIM |
| Phenanthrene | | 1.61 | 0.10 | 0.016 | ug/l | SW846 8270D BY SIM |
| Pyrene | | 0.293 | 0.10 | 0.013 | ug/l | SW846 8270D BY SIM |
| **JB98590-3F** | **MW-453-20150706** | | | | | |
| Nickel | | 1.1 B | 10 | 0.79 | ug/l | SW846 6010C |
| Vanadium | | 0.80 B | 50 | 0.70 | ug/l | SW846 6010C |
| **JB98590-4** | **FB-20150706** | | | | | |
| No hits reported in this sample. | | | | | | |
| **JB98590-4F** | **FB-20150706** | | | | | |
| Nickel | | 1.3 B | 10 | 0.79 | ug/l | SW846 6010C |

# Summary of Hits

**Job Number:** JB98590
**Account:** Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA
**Collected:** 07/06/15 thru 07/07/15

| Lab Sample ID / Analyte | Client Sample ID | Result/ Qual | RL | MDL | Units | Method |
|---|---|---|---|---|---|---|
| **JB98590-5** | **MW-444-20150706** | | | | | |
| Methyl Tert Butyl Ether | | 0.60 J | 1.0 | 0.24 | ug/l | SW846 8260C |
| sec-Butylbenzene | | 0.42 J | 2.0 | 0.21 | ug/l | SW846 8260C |
| tert-Butylbenzene | | 0.79 J | 2.0 | 0.28 | ug/l | SW846 8260C |
| Isopropylbenzene | | 0.97 J | 1.0 | 0.23 | ug/l | SW846 8260C |
| **JB98590-5F** | **MW-444-20150706** | | | | | |
| Cobalt | | 1.3 B | 50 | 0.54 | ug/l | SW846 6010C |
| Nickel | | 2.1 B | 10 | 0.79 | ug/l | SW846 6010C |
| Vanadium | | 1.6 B | 50 | 0.70 | ug/l | SW846 6010C |
| **JB98590-6** | **MW-446-20150706** | | | | | |
| bis(2-Ethylhexyl)phthalate | | 3.1 | 2.0 | 0.55 | ug/l | SW846 8270D |
| Fluorene | | 0.108 | 0.10 | 0.027 | ug/l | SW846 8270D BY SIM |
| Pyrene | | 0.138 | 0.10 | 0.013 | ug/l | SW846 8270D BY SIM |
| **JB98590-6F** | **MW-446-20150706** | | | | | |
| Vanadium | | 40.6 B | 50 | 0.70 | ug/l | SW846 6010C |
| **JB98590-7** | **MW-450-20150706** | | | | | |
| No hits reported in this sample. | | | | | | |
| **JB98590-7F** | **MW-450-20150706** | | | | | |
| Cobalt | | 0.60 B | 50 | 0.54 | ug/l | SW846 6010C |
| Nickel | | 6.0 B | 10 | 0.79 | ug/l | SW846 6010C |
| Vanadium | | 0.90 B | 50 | 0.70 | ug/l | SW846 6010C |
| **JB98590-8** | **TB-20150706** | | | | | |
| No hits reported in this sample. | | | | | | |
| **JB98590-9** | **MW-457-20150707** | | | | | |
| bis(2-Ethylhexyl)phthalate | | 1.6 J | 2.0 | 0.55 | ug/l | SW846 8270D |
| **JB98590-9F** | **MW-457-20150707** | | | | | |
| Cobalt | | 1.2 B | 50 | 0.54 | ug/l | SW846 6010C |
| Nickel | | 1.7 B | 10 | 0.79 | ug/l | SW846 6010C |

# Summary of Hits

**Job Number:** JB98590
**Account:** Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA
**Collected:** 07/06/15 thru 07/07/15



| Lab Sample ID<br>Analyte | Client Sample ID | Result/<br>Qual | RL | MDL | Units | Method |
|---|---|---|---|---|---|---|
| Vanadium | | 0.90 B | 50 | 0.70 | ug/l | SW846 6010C |
| **JB98590-10** | **MW-471-20150707** | | | | | |
| Benzo(a)anthracene | | 0.163 | 0.054 | 0.020 | ug/l | SW846 8270D BY SIM |
| Fluoranthene | | 0.135 | 0.11 | 0.012 | ug/l | SW846 8270D BY SIM |
| Pyrene | | 0.116 | 0.11 | 0.015 | ug/l | SW846 8270D BY SIM |
| **JB98590-10F** | **MW-471-20150707** | | | | | |
| Vanadium | | 0.80 B | 50 | 0.70 | ug/l | SW846 6010C |
| **JB98590-11** | **MW-479-20150707** | | | | | |
| bis(2-Ethylhexyl)phthalate | | 1.3 J | 2.0 | 0.55 | ug/l | SW846 8270D |
| **JB98590-11F** | **MW-479-20150707** | | | | | |
| Cobalt | | 7.3 B | 50 | 0.54 | ug/l | SW846 6010C |
| Nickel | | 8.9 B | 10 | 0.79 | ug/l | SW846 6010C |
| Vanadium | | 1.6 B | 50 | 0.70 | ug/l | SW846 6010C |
| Zinc | | 12.6 B | 20 | 4.9 | ug/l | SW846 6010C |
| **JB98590-12** | **MW-478-20150707** | | | | | |
| Phenanthrene | | 0.113 | 0.10 | 0.016 | ug/l | SW846 8270D BY SIM |
| **JB98590-12F** | **MW-478-20150707** | | | | | |
| Vanadium | | 180 | 50 | 0.70 | ug/l | SW846 6010C |
| **JB98590-13** | **MW-468-20150707** | | | | | |
| Benzene | | 210 | 10 | 4.7 | ug/l | SW846 8260C |
| Toluene | | 7.8 | 1.0 | 0.16 | ug/l | SW846 8260C |
| Ethylbenzene | | 154 | 1.0 | 0.27 | ug/l | SW846 8260C |
| Xylene (total) | | 134 | 1.0 | 0.17 | ug/l | SW846 8260C |
| Methyl Tert Butyl Ether | | 0.54 J | 1.0 | 0.24 | ug/l | SW846 8260C |
| sec-Butylbenzene | | 30.6 | 2.0 | 0.21 | ug/l | SW846 8260C |
| tert-Butylbenzene | | 9.8 | 2.0 | 0.28 | ug/l | SW846 8260C |
| Cyclohexane | | 116 | 5.0 | 0.28 | ug/l | SW846 8260C |
| Hexane | | 10.9 | 5.0 | 0.40 | ug/l | SW846 8260C |
| Isopropylbenzene | | 103 | 1.0 | 0.23 | ug/l | SW846 8260C |
| 1,2,4-Trimethylbenzene | | 535 | 40 | 4.5 | ug/l | SW846 8260C |
| 1,3,5-Trimethylbenzene | | 113 | 2.0 | 0.29 | ug/l | SW846 8260C |

# Summary of Hits

**Job Number:** JB98590
**Account:** Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA
**Collected:** 07/06/15 thru 07/07/15



| Lab Sample ID / Analyte | Client Sample ID | Result/ Qual | RL | MDL | Units | Method |
|---|---|---|---|---|---|---|
| 2,4-Dimethylphenol | | 35.0 | 5.2 | 1.9 | ug/l | SW846 8270D |
| 2-Methylphenol | | 155 | 10 | 6.6 | ug/l | SW846 8270D |
| 3&4-Methylphenol | | 207 | 10 | 5.6 | ug/l | SW846 8270D |
| Phenol | | 110 | 10 | 2.8 | ug/l | SW846 8270D |
| 1,1'-Biphenyl | | 1.1 | 1.0 | 0.29 | ug/l | SW846 8270D |
| bis(2-Ethylhexyl)phthalate | | 14.7 | 2.1 | 0.58 | ug/l | SW846 8270D |
| 2-Methylnaphthalene | | 84.3 | 1.0 | 0.30 | ug/l | SW846 8270D |
| Naphthalene | | 174 | 5.2 | 1.4 | ug/l | SW846 8270D |
| Fluorene | | 0.450 | 0.10 | 0.028 | ug/l | SW846 8270D BY SIM |
| Phenanthrene | | 0.161 | 0.10 | 0.017 | ug/l | SW846 8270D BY SIM |
| **JB98590-13F** | **MW-468-20150707** | | | | | |
| Nickel | | 1.9 B | 10 | 0.79 | ug/l | SW846 6010C |
| Vanadium | | 1.4 B | 50 | 0.70 | ug/l | SW846 6010C |
| **JB98590-14** | **MW-469-20150707** | | | | | |
| Benzene | | 0.79 | 0.50 | 0.24 | ug/l | SW846 8260C |
| Ethylbenzene | | 2.6 | 1.0 | 0.27 | ug/l | SW846 8260C |
| Xylene (total) | | 2.5 | 1.0 | 0.17 | ug/l | SW846 8260C |
| Methyl Tert Butyl Ether | | 5.4 | 1.0 | 0.24 | ug/l | SW846 8260C |
| sec-Butylbenzene | | 1.8 J | 2.0 | 0.21 | ug/l | SW846 8260C |
| tert-Butylbenzene | | 0.96 J | 2.0 | 0.28 | ug/l | SW846 8260C |
| Cyclohexane | | 1.1 J | 5.0 | 0.28 | ug/l | SW846 8260C |
| Isopropylbenzene | | 3.0 | 1.0 | 0.23 | ug/l | SW846 8260C |
| 1,2,4-Trimethylbenzene | | 11.7 | 2.0 | 0.22 | ug/l | SW846 8260C |
| 1,3,5-Trimethylbenzene | | 4.2 | 2.0 | 0.29 | ug/l | SW846 8260C |
| bis(2-Ethylhexyl)phthalate | | 2.1 | 2.1 | 0.58 | ug/l | SW846 8270D |
| 2-Methylnaphthalene | | 2.3 | 1.0 | 0.30 | ug/l | SW846 8270D |
| Naphthalene | | 3.6 | 1.0 | 0.28 | ug/l | SW846 8270D |
| **JB98590-14F** | **MW-469-20150707** | | | | | |
| Cobalt | | 0.70 B | 50 | 0.54 | ug/l | SW846 6010C |
| Zinc | | 8.3 B | 20 | 4.9 | ug/l | SW846 6010C |
| **JB98590-15** | **MW-464-20150707** | | | | | |
| Benzene | | 0.34 J | 0.50 | 0.24 | ug/l | SW846 8260C |
| Ethylbenzene | | 0.45 J | 1.0 | 0.27 | ug/l | SW846 8260C |
| Xylene (total) | | 0.35 J | 1.0 | 0.17 | ug/l | SW846 8260C |
| Methyl Tert Butyl Ether | | 6.9 | 1.0 | 0.24 | ug/l | SW846 8260C |
| sec-Butylbenzene | | 0.28 J | 2.0 | 0.21 | ug/l | SW846 8260C |
| 1,2-Dichloroethane | | 0.28 J | 1.0 | 0.18 | ug/l | SW846 8260C |

# Summary of Hits

**Job Number:** JB98590
**Account:** Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA
**Collected:** 07/06/15 thru 07/07/15



| Lab Sample ID / Analyte | Client Sample ID | Result/ Qual | RL | MDL | Units | Method |
|---|---|---|---|---|---|---|
| Isopropylbenzene | | 0.46 J | 1.0 | 0.23 | ug/l | SW846 8260C |
| 1,2,4-Trimethylbenzene | | 2.2 | 2.0 | 0.22 | ug/l | SW846 8260C |
| 1,3,5-Trimethylbenzene | | 0.63 J | 2.0 | 0.29 | ug/l | SW846 8260C |
| 2-Methylnaphthalene | | 1.0 | 1.0 | 0.29 | ug/l | SW846 8270D |
| Naphthalene | | 1.2 | 1.0 | 0.27 | ug/l | SW846 8270D |
| **JB98590-15F** | **MW-464-20150707** | | | | | |
| Vanadium | | 3.4 B | 50 | 0.70 | ug/l | SW846 6010C |
| **JB98590-16** | **MW-461-20150707** | | | | | |
| Benzene | | 0.25 J | 0.50 | 0.24 | ug/l | SW846 8260C |
| Toluene | | 0.21 J | 1.0 | 0.16 | ug/l | SW846 8260C |
| Xylene (total) | | 0.23 J | 1.0 | 0.17 | ug/l | SW846 8260C |
| Methyl Tert Butyl Ether | | 12.4 | 1.0 | 0.24 | ug/l | SW846 8260C |
| Isopropylbenzene | | 0.88 J | 1.0 | 0.23 | ug/l | SW846 8260C |
| 1,2,4-Trimethylbenzene | | 0.65 J | 2.0 | 0.22 | ug/l | SW846 8260C |
| bis(2-Ethylhexyl)phthalate | | 85.3 | 2.0 | 0.55 | ug/l | SW846 8270D |
| Benzo(a)anthracene | | 0.151 | 0.050 | 0.019 | ug/l | SW846 8270D BY SIM |
| Fluoranthene | | 0.140 | 0.10 | 0.011 | ug/l | SW846 8270D BY SIM |
| Naphthalene | | 0.173 | 0.10 | 0.013 | ug/l | SW846 8270D BY SIM |
| Pyrene | | 0.121 | 0.10 | 0.013 | ug/l | SW846 8270D BY SIM |
| **JB98590-16F** | **MW-461-20150707** | | | | | |
| Cobalt | | 1.1 B | 50 | 0.54 | ug/l | SW846 6010C |
| Nickel | | 1.5 B | 10 | 0.79 | ug/l | SW846 6010C |
| Vanadium | | 1.7 B | 50 | 0.70 | ug/l | SW846 6010C |
| **JB98590-17** | **MW-448-20150707** | | | | | |
| Benzene | | 0.27 J | 0.50 | 0.24 | ug/l | SW846 8260C |
| Cyclohexane | | 1.3 J | 5.0 | 0.28 | ug/l | SW846 8260C |
| 3&4-Methylphenol | | 46.4 | 2.1 | 1.1 | ug/l | SW846 8270D |
| Phenol | | 2.3 | 2.1 | 0.57 | ug/l | SW846 8270D |
| bis(2-Ethylhexyl)phthalate | | 1.4 J | 2.1 | 0.58 | ug/l | SW846 8270D |
| Acenaphthene | | 0.397 | 0.10 | 0.014 | ug/l | SW846 8270D BY SIM |
| Benzo(a)anthracene | | 0.236 | 0.052 | 0.019 | ug/l | SW846 8270D BY SIM |
| Benzo(a)pyrene | | 0.120 | 0.052 | 0.031 | ug/l | SW846 8270D BY SIM |
| Benzo(b)fluoranthene | | 0.173 | 0.10 | 0.022 | ug/l | SW846 8270D BY SIM |
| Chrysene | | 0.169 | 0.10 | 0.016 | ug/l | SW846 8270D BY SIM |
| Fluoranthene | | 0.216 | 0.10 | 0.012 | ug/l | SW846 8270D BY SIM |
| Fluorene | | 0.600 | 0.10 | 0.028 | ug/l | SW846 8270D BY SIM |
| Naphthalene | | 0.891 | 0.10 | 0.014 | ug/l | SW846 8270D BY SIM |

# Summary of Hits

**Job Number:** JB98590
**Account:** Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA
**Collected:** 07/06/15 thru 07/07/15



| Lab Sample ID<br>Analyte | Client Sample ID | Result/<br>Qual | RL | MDL | Units | Method |
|---|---|---|---|---|---|---|
| Phenanthrene | | 0.236 | 0.10 | 0.017 | ug/l | SW846 8270D BY SIM |
| Pyrene | | 0.311 | 0.10 | 0.014 | ug/l | SW846 8270D BY SIM |
| **JB98590-17F** | **MW-448-20150707** | | | | | |
| Cobalt | | 0.60 B | 50 | 0.54 | ug/l | SW846 6010C |
| Nickel | | 1.9 B | 10 | 0.79 | ug/l | SW846 6010C |
| Vanadium | | 3.5 B | 50 | 0.70 | ug/l | SW846 6010C |
| **JB98590-18** | **MW-468-DUP20150707** | | | | | |
| Benzene | | 180 | 5.0 | 2.4 | ug/l | SW846 8260C |
| Toluene | | 6.9 | 1.0 | 0.16 | ug/l | SW846 8260C |
| Ethylbenzene | | 140 | 1.0 | 0.27 | ug/l | SW846 8260C |
| Xylene (total) | | 126 | 1.0 | 0.17 | ug/l | SW846 8260C |
| Methyl Tert Butyl Ether | | 0.53 J | 1.0 | 0.24 | ug/l | SW846 8260C |
| sec-Butylbenzene | | 28.6 | 2.0 | 0.21 | ug/l | SW846 8260C |
| tert-Butylbenzene | | 9.4 | 2.0 | 0.28 | ug/l | SW846 8260C |
| Cyclohexane | | 111 | 5.0 | 0.28 | ug/l | SW846 8260C |
| Hexane | | 10.1 | 5.0 | 0.40 | ug/l | SW846 8260C |
| Isopropylbenzene | | 96.9 | 1.0 | 0.23 | ug/l | SW846 8260C |
| 1,2,4-Trimethylbenzene | | 462 | 20 | 2.2 | ug/l | SW846 8260C |
| 1,3,5-Trimethylbenzene | | 110 | 2.0 | 0.29 | ug/l | SW846 8260C |
| 2,4-Dimethylphenol | | 74.7 | 5.0 | 1.8 | ug/l | SW846 8270D |
| 2-Methylphenol | | 38.3 | 2.0 | 1.3 | ug/l | SW846 8270D |
| 3&4-Methylphenol | | 57.9 | 2.0 | 1.1 | ug/l | SW846 8270D |
| 1,1'-Biphenyl | | 6.5 | 1.0 | 0.27 | ug/l | SW846 8270D |
| bis(2-Ethylhexyl)phthalate | | 37.0 | 2.0 | 0.55 | ug/l | SW846 8270D |
| 2-Methylnaphthalene | | 634 | 20 | 5.8 | ug/l | SW846 8270D |
| Naphthalene | | 537 | 20 | 5.3 | ug/l | SW846 8270D |
| Acenaphthene [a] | | 1.62 | 0.50 | 0.067 | ug/l | SW846 8270D BY SIM |
| Benzo(a)anthracene [a] | | 0.309 | 0.25 | 0.093 | ug/l | SW846 8270D BY SIM |
| Fluorene [a] | | 2.96 | 0.50 | 0.13 | ug/l | SW846 8270D BY SIM |
| Phenanthrene [a] | | 1.15 | 0.50 | 0.080 | ug/l | SW846 8270D BY SIM |
| **JB98590-18F** | **MW-468-DUP20150707** | | | | | |
| Nickel | | 1.8 B | 10 | 0.79 | ug/l | SW846 6010C |
| Vanadium | | 1.1 B | 50 | 0.70 | ug/l | SW846 6010C |

(a) Dilution required due to matrix interference.

New Jersey

ACCUTEST LABORATORIES



## Sample Results

Report of Analysis

Accutest Laboratories

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-440-20150706 | | |
| **Lab Sample ID:** | JB98590-1 | **Date Sampled:** | 07/06/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846 8260C | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 2A159868.D | 1 | 07/11/15 | TK | n/a | n/a | V2A6821 |
| Run #2 | | | | | | | |

| | Purge Volume |
|---|---|
| Run #1 | 5.0 ml |
| Run #2 | |

**Leaded Gasoline and Aviation Gas List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 71-43-2 | Benzene | ND | 0.50 | 0.24 | ug/l | |
| 108-88-3 | Toluene | ND | 1.0 | 0.16 | ug/l | |
| 100-41-4 | Ethylbenzene | ND | 1.0 | 0.27 | ug/l | |
| 1330-20-7 | Xylene (total) | ND | 1.0 | 0.17 | ug/l | |
| 1634-04-4 | Methyl Tert Butyl Ether | ND | 1.0 | 0.24 | ug/l | |
| 135-98-8 | sec-Butylbenzene | ND | 2.0 | 0.21 | ug/l | |
| 98-06-6 | tert-Butylbenzene | 0.32 | 2.0 | 0.28 | ug/l | J |
| 110-82-7 | Cyclohexane | ND | 5.0 | 0.28 | ug/l | |
| 107-06-2 | 1,2-Dichloroethane | ND | 1.0 | 0.18 | ug/l | |
| 110-54-3 | Hexane | ND | 5.0 | 0.40 | ug/l | |
| 98-82-8 | Isopropylbenzene | 0.52 | 1.0 | 0.23 | ug/l | J |
| 95-63-6 | 1,2,4-Trimethylbenzene | ND | 2.0 | 0.22 | ug/l | |
| 108-67-8 | 1,3,5-Trimethylbenzene | ND | 2.0 | 0.29 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 1868-53-7 | Dibromofluoromethane | 93% | | 76-120% |
| 17060-07-0 | 1,2-Dichloroethane-D4 | 103% | | 73-122% |
| 2037-26-5 | Toluene-D8 | 99% | | 84-119% |
| 460-00-4 | 4-Bromofluorobenzene | 97% | | 78-117% |

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

Accutest Laboratories

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-440-20150706 | | |
| **Lab Sample ID:** | JB98590-1 | **Date Sampled:** | 07/06/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846 8270D SW846 3510C | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 6P17607.D | 1 | 07/10/15 | SW | 07/09/15 | OP85388 | E6P791 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 1000 ml | 1.0 ml |
| Run #2 | | |

**ABN Special List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 105-67-9 | 2,4-Dimethylphenol | ND | 5.0 | 1.8 | ug/l | |
| 51-28-5 | 2,4-Dinitrophenol | ND | 10 | 6.5 | ug/l | |
| 95-48-7 | 2-Methylphenol | ND | 2.0 | 1.3 | ug/l | |
| | 3&4-Methylphenol | ND | 2.0 | 1.1 | ug/l | |
| 100-02-7 | 4-Nitrophenol | ND | 10 | 0.91 | ug/l | |
| 108-95-2 | Phenol | ND | 2.0 | 0.55 | ug/l | |
| 92-52-4 | 1,1'-Biphenyl | ND | 1.0 | 0.27 | ug/l | |
| 84-74-2 | Di-n-butyl phthalate | ND | 2.0 | 0.58 | ug/l | |
| 84-66-2 | Diethyl phthalate | ND | 2.0 | 0.23 | ug/l | |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | ND | 2.0 | 0.55 | ug/l | |
| 91-57-6 | 2-Methylnaphthalene | ND | 1.0 | 0.29 | ug/l | |
| 110-86-1 | Pyridine | ND | 2.0 | 0.29 | ug/l | |
| 91-22-5 | Quinoline | ND | 5.0 | 0.35 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 367-12-4 | 2-Fluorophenol | 45% | | 12-110% |
| 4165-62-2 | Phenol-d5 | 30% | | 10-110% |
| 118-79-6 | 2,4,6-Tribromophenol | 78% | | 42-154% |
| 4165-60-0 | Nitrobenzene-d5 | 79% | | 29-139% |
| 321-60-8 | 2-Fluorobiphenyl | 74% | | 33-129% |
| 1718-51-0 | Terphenyl-d14 | 74% | | 10-140% |

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

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# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-440-20150706 | | |
| **Lab Sample ID:** | JB98590-1 | **Date Sampled:** | 07/06/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846 8270D BY SIM SW846 3510C | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 4M58921.D | 1 | 07/10/15 | AD | 07/09/15 | OP85388A | E4M2559 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 1000 ml | 1.0 ml |
| Run #2 | | |

**BN PAH List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | ND | 0.10 | 0.013 | ug/l | |
| 120-12-7 | Anthracene | ND | 0.10 | 0.013 | ug/l | |
| 56-55-3 | Benzo(a)anthracene | ND | 0.050 | 0.019 | ug/l | |
| 50-32-8 | Benzo(a)pyrene | ND | 0.050 | 0.030 | ug/l | |
| 205-99-2 | Benzo(b)fluoranthene | ND | 0.10 | 0.021 | ug/l | |
| 191-24-2 | Benzo(g,h,i)perylene | ND | 0.10 | 0.026 | ug/l | |
| 207-08-9 | Benzo(k)fluoranthene | ND | 0.10 | 0.019 | ug/l | |
| 218-01-9 | Chrysene | ND | 0.10 | 0.015 | ug/l | |
| 53-70-3 | Dibenzo(a,h)anthracene | ND | 0.10 | 0.035 | ug/l | |
| 206-44-0 | Fluoranthene | ND | 0.10 | 0.011 | ug/l | |
| 86-73-7 | Fluorene | ND | 0.10 | 0.027 | ug/l | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | ND | 0.10 | 0.031 | ug/l | |
| 91-20-3 | Naphthalene | ND | 0.10 | 0.013 | ug/l | |
| 85-01-8 | Phenanthrene | ND | 0.10 | 0.016 | ug/l | |
| 129-00-0 | Pyrene | ND | 0.10 | 0.013 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 4165-60-0 | Nitrobenzene-d5 | 51% | | 23-131% |
| 321-60-8 | 2-Fluorobiphenyl | 63% | | 24-120% |
| 1718-51-0 | Terphenyl-d14 | 60% | | 10-125% |

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

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# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-440-20150706 | | |
| **Lab Sample ID:** | JB98590-1 | **Date Sampled:** | 07/06/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846-8011 SW846 8011 | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 7G13946.D | 1 | 07/10/15 | VDT | 07/09/15 | OP85389 | G7G508 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 36 ml | 2.0 ml |
| Run #2 | | |

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 106-93-4 | 1,2-Dibromoethane | ND | 0.019 | 0.0083 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 3017-95-6 | 2-Bromo-1-chloropropane | 81% | | 38-167% |
| 3017-95-6 | 2-Bromo-1-chloropropane | 80% | | 38-167% |

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

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-440-20150706 | | |
| **Lab Sample ID:** | JB98590-1F | **Date Sampled:** | 07/06/15 |
| **Matrix:** | AQ - Groundwater Filtered | **Date Received:** | 07/07/15 |
| | | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

**Dissolved Metals Analysis**

| Analyte | Result | RL | MDL | Units | DF | Prep | Analyzed | By | Method | Prep Method |
|---|---|---|---|---|---|---|---|---|---|---|
| Cobalt | 0.54 U | 50 | 0.54 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Lead | 2.3 U | 3.0 | 2.3 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Nickel | 0.79 U | 10 | 0.79 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Vanadium | 17.8 B | 50 | 0.70 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Zinc | 4.9 U | 20 | 4.9 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |

(1) Instrument QC Batch: MA37077
(2) Prep QC Batch: MP87589A

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

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# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-447-20150706 | | |
| **Lab Sample ID:** | JB98590-2 | **Date Sampled:** | 07/06/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846 8260C | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 2A159854.D | 1 | 07/10/15 | TK | n/a | n/a | V2A6821 |
| Run #2 | | | | | | | |

| | Purge Volume |
|---|---|
| Run #1 | 5.0 ml |
| Run #2 | |

**Leaded Gasoline and Aviation Gas List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 71-43-2 | Benzene | ND | 0.50 | 0.24 | ug/l | |
| 108-88-3 | Toluene | ND | 1.0 | 0.16 | ug/l | |
| 100-41-4 | Ethylbenzene | ND | 1.0 | 0.27 | ug/l | |
| 1330-20-7 | Xylene (total) | ND | 1.0 | 0.17 | ug/l | |
| 1634-04-4 | Methyl Tert Butyl Ether | 1.2 | 1.0 | 0.24 | ug/l | |
| 135-98-8 | sec-Butylbenzene | ND | 2.0 | 0.21 | ug/l | |
| 98-06-6 | tert-Butylbenzene | ND | 2.0 | 0.28 | ug/l | |
| 110-82-7 | Cyclohexane | ND | 5.0 | 0.28 | ug/l | |
| 107-06-2 | 1,2-Dichloroethane | ND | 1.0 | 0.18 | ug/l | |
| 110-54-3 | Hexane | ND | 5.0 | 0.40 | ug/l | |
| 98-82-8 | Isopropylbenzene | ND | 1.0 | 0.23 | ug/l | |
| 95-63-6 | 1,2,4-Trimethylbenzene | ND | 2.0 | 0.22 | ug/l | |
| 108-67-8 | 1,3,5-Trimethylbenzene | ND | 2.0 | 0.29 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 1868-53-7 | Dibromofluoromethane | 93% | | 76-120% |
| 17060-07-0 | 1,2-Dichloroethane-D4 | 103% | | 73-122% |
| 2037-26-5 | Toluene-D8 | 97% | | 84-119% |
| 460-00-4 | 4-Bromofluorobenzene | 97% | | 78-117% |

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

Accutest Laboratories

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-447-20150706 | | |
| **Lab Sample ID:** | JB98590-2 | **Date Sampled:** | 07/06/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846 8270D SW846 3510C | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 6P17608.D | 1 | 07/10/15 | SW | 07/09/15 | OP85388 | E6P791 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 1000 ml | 1.0 ml |
| Run #2 | | |

**ABN Special List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 105-67-9 | 2,4-Dimethylphenol | ND | 5.0 | 1.8 | ug/l | |
| 51-28-5 | 2,4-Dinitrophenol | ND | 10 | 6.5 | ug/l | |
| 95-48-7 | 2-Methylphenol | ND | 2.0 | 1.3 | ug/l | |
| | 3&4-Methylphenol | ND | 2.0 | 1.1 | ug/l | |
| 100-02-7 | 4-Nitrophenol | ND | 10 | 0.91 | ug/l | |
| 108-95-2 | Phenol | ND | 2.0 | 0.55 | ug/l | |
| 92-52-4 | 1,1'-Biphenyl | ND | 1.0 | 0.27 | ug/l | |
| 84-74-2 | Di-n-butyl phthalate | ND | 2.0 | 0.58 | ug/l | |
| 84-66-2 | Diethyl phthalate | ND | 2.0 | 0.23 | ug/l | |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | ND | 2.0 | 0.55 | ug/l | |
| 91-57-6 | 2-Methylnaphthalene | ND | 1.0 | 0.29 | ug/l | |
| 110-86-1 | Pyridine | ND | 2.0 | 0.29 | ug/l | |
| 91-22-5 | Quinoline | ND | 5.0 | 0.35 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 367-12-4 | 2-Fluorophenol | 48% | | 12-110% |
| 4165-62-2 | Phenol-d5 | 30% | | 10-110% |
| 118-79-6 | 2,4,6-Tribromophenol | 82% | | 42-154% |
| 4165-60-0 | Nitrobenzene-d5 | 90% | | 29-139% |
| 321-60-8 | 2-Fluorobiphenyl | 83% | | 33-129% |
| 1718-51-0 | Terphenyl-d14 | 68% | | 10-140% |

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

Accutest Laboratories

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-447-20150706 | | |
| **Lab Sample ID:** | JB98590-2 | **Date Sampled:** | 07/06/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846 8270D BY SIM SW846 3510C | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 4M58922.D | 1 | 07/10/15 | AD | 07/09/15 | OP85388A | E4M2559 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 1000 ml | 1.0 ml |
| Run #2 | | |

**BN PAH List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | ND | 0.10 | 0.013 | ug/l | |
| 120-12-7 | Anthracene | ND | 0.10 | 0.013 | ug/l | |
| 56-55-3 | Benzo(a)anthracene | ND | 0.050 | 0.019 | ug/l | |
| 50-32-8 | Benzo(a)pyrene | ND | 0.050 | 0.030 | ug/l | |
| 205-99-2 | Benzo(b)fluoranthene | ND | 0.10 | 0.021 | ug/l | |
| 191-24-2 | Benzo(g,h,i)perylene | ND | 0.10 | 0.026 | ug/l | |
| 207-08-9 | Benzo(k)fluoranthene | ND | 0.10 | 0.019 | ug/l | |
| 218-01-9 | Chrysene | ND | 0.10 | 0.015 | ug/l | |
| 53-70-3 | Dibenzo(a,h)anthracene | ND | 0.10 | 0.035 | ug/l | |
| 206-44-0 | Fluoranthene | ND | 0.10 | 0.011 | ug/l | |
| 86-73-7 | Fluorene | ND | 0.10 | 0.027 | ug/l | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | ND | 0.10 | 0.031 | ug/l | |
| 91-20-3 | Naphthalene | ND | 0.10 | 0.013 | ug/l | |
| 85-01-8 | Phenanthrene | ND | 0.10 | 0.016 | ug/l | |
| 129-00-0 | Pyrene | ND | 0.10 | 0.013 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 4165-60-0 | Nitrobenzene-d5 | 56% | | 23-131% |
| 321-60-8 | 2-Fluorobiphenyl | 67% | | 24-120% |
| 1718-51-0 | Terphenyl-d14 | 60% | | 10-125% |

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

Accutest Laboratories

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-447-20150706 | | |
| **Lab Sample ID:** | JB98590-2 | **Date Sampled:** | 07/06/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846-8011 SW846 8011 | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 7G13947.D | 1 | 07/10/15 | VDT | 07/09/15 | OP85389 | G7G508 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 37 ml | 2.0 ml |
| Run #2 | | |

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 106-93-4 | 1,2-Dibromoethane | ND | 0.019 | 0.0081 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 3017-95-6 | 2-Bromo-1-chloropropane | 57% | | 38-167% |
| 3017-95-6 | 2-Bromo-1-chloropropane | 56% | | 38-167% |

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

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-447-20150706 | | |
| **Lab Sample ID:** | JB98590-2F | **Date Sampled:** | 07/06/15 |
| **Matrix:** | AQ - Groundwater Filtered | **Date Received:** | 07/07/15 |
| | | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

**Dissolved Metals Analysis**

| Analyte | Result | RL | MDL | Units | DF | Prep | Analyzed | By | Method | Prep Method |
|---|---|---|---|---|---|---|---|---|---|---|
| Cobalt | 0.54 U | 50 | 0.54 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Lead | 2.3 U | 3.0 | 2.3 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Nickel | 0.79 U | 10 | 0.79 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Vanadium | 2.8 B | 50 | 0.70 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Zinc | 4.9 U | 20 | 4.9 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |

(1) Instrument QC Batch: MA37077
(2) Prep QC Batch: MP87589A

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

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# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-453-20150706 | | |
| **Lab Sample ID:** | JB98590-3 | **Date Sampled:** | 07/06/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846 8260C | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 2A159865.D | 1 | 07/11/15 | TK | n/a | n/a | V2A6821 |
| Run #2 | | | | | | | |

| | Purge Volume |
|---|---|
| Run #1 | 5.0 ml |
| Run #2 | |

**Leaded Gasoline and Aviation Gas List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 71-43-2 | Benzene | ND | 0.50 | 0.24 | ug/l | |
| 108-88-3 | Toluene | ND | 1.0 | 0.16 | ug/l | |
| 100-41-4 | Ethylbenzene | ND | 1.0 | 0.27 | ug/l | |
| 1330-20-7 | Xylene (total) | ND | 1.0 | 0.17 | ug/l | |
| 1634-04-4 | Methyl Tert Butyl Ether | ND | 1.0 | 0.24 | ug/l | |
| 135-98-8 | sec-Butylbenzene | 0.62 | 2.0 | 0.21 | ug/l | J |
| 98-06-6 | tert-Butylbenzene | 1.8 | 2.0 | 0.28 | ug/l | J |
| 110-82-7 | Cyclohexane | 3.4 | 5.0 | 0.28 | ug/l | J |
| 107-06-2 | 1,2-Dichloroethane | ND | 1.0 | 0.18 | ug/l | |
| 110-54-3 | Hexane | ND | 5.0 | 0.40 | ug/l | |
| 98-82-8 | Isopropylbenzene | 0.79 | 1.0 | 0.23 | ug/l | J |
| 95-63-6 | 1,2,4-Trimethylbenzene | ND | 2.0 | 0.22 | ug/l | |
| 108-67-8 | 1,3,5-Trimethylbenzene | ND | 2.0 | 0.29 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 1868-53-7 | Dibromofluoromethane | 93% | | 76-120% |
| 17060-07-0 | 1,2-Dichloroethane-D4 | 103% | | 73-122% |
| 2037-26-5 | Toluene-D8 | 98% | | 84-119% |
| 460-00-4 | 4-Bromofluorobenzene | 96% | | 78-117% |

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

Accutest Laboratories

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-453-20150706 | | |
| **Lab Sample ID:** | JB98590-3 | **Date Sampled:** | 07/06/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846 8270D SW846 3510C | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 6P17609.D | 1 | 07/10/15 | SW | 07/09/15 | OP85388 | E6P791 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 1000 ml | 1.0 ml |
| Run #2 | | |

**ABN Special List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 105-67-9 | 2,4-Dimethylphenol | ND | 5.0 | 1.8 | ug/l | |
| 51-28-5 | 2,4-Dinitrophenol | ND | 10 | 6.5 | ug/l | |
| 95-48-7 | 2-Methylphenol | ND | 2.0 | 1.3 | ug/l | |
| | 3&4-Methylphenol | ND | 2.0 | 1.1 | ug/l | |
| 100-02-7 | 4-Nitrophenol | ND | 10 | 0.91 | ug/l | |
| 108-95-2 | Phenol | ND | 2.0 | 0.55 | ug/l | |
| 92-52-4 | 1,1'-Biphenyl | ND | 1.0 | 0.27 | ug/l | |
| 84-74-2 | Di-n-butyl phthalate | ND | 2.0 | 0.58 | ug/l | |
| 84-66-2 | Diethyl phthalate | ND | 2.0 | 0.23 | ug/l | |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | 3.6 | 2.0 | 0.55 | ug/l | |
| 91-57-6 | 2-Methylnaphthalene | ND | 1.0 | 0.29 | ug/l | |
| 110-86-1 | Pyridine | ND | 2.0 | 0.29 | ug/l | |
| 91-22-5 | Quinoline | ND | 5.0 | 0.35 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 367-12-4 | 2-Fluorophenol | 49% | | 12-110% |
| 4165-62-2 | Phenol-d5 | 33% | | 10-110% |
| 118-79-6 | 2,4,6-Tribromophenol | 91% | | 42-154% |
| 4165-60-0 | Nitrobenzene-d5 | 97% | | 29-139% |
| 321-60-8 | 2-Fluorobiphenyl | 88% | | 33-129% |
| 1718-51-0 | Terphenyl-d14 | 58% | | 10-140% |

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

Accutest Laboratories

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-453-20150706 | | |
| **Lab Sample ID:** | JB98590-3 | **Date Sampled:** | 07/06/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846 8270D BY SIM SW846 3510C | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 4M58923.D | 1 | 07/10/15 | AD | 07/09/15 | OP85388A | E4M2559 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 1000 ml | 1.0 ml |
| Run #2 | | |

**BN PAH List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | 1.20 | 0.10 | 0.013 | ug/l | |
| 120-12-7 | Anthracene | 0.423 | 0.10 | 0.013 | ug/l | |
| 56-55-3 | Benzo(a)anthracene | 0.186 | 0.050 | 0.019 | ug/l | |
| 50-32-8 | Benzo(a)pyrene | ND | 0.050 | 0.030 | ug/l | |
| 205-99-2 | Benzo(b)fluoranthene | ND | 0.10 | 0.021 | ug/l | |
| 191-24-2 | Benzo(g,h,i)perylene | ND | 0.10 | 0.026 | ug/l | |
| 207-08-9 | Benzo(k)fluoranthene | ND | 0.10 | 0.019 | ug/l | |
| 218-01-9 | Chrysene | ND | 0.10 | 0.015 | ug/l | |
| 53-70-3 | Dibenzo(a,h)anthracene | ND | 0.10 | 0.035 | ug/l | |
| 206-44-0 | Fluoranthene | 0.140 | 0.10 | 0.011 | ug/l | |
| 86-73-7 | Fluorene | 1.79 | 0.10 | 0.027 | ug/l | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | ND | 0.10 | 0.031 | ug/l | |
| 91-20-3 | Naphthalene | ND | 0.10 | 0.013 | ug/l | |
| 85-01-8 | Phenanthrene | 1.61 | 0.10 | 0.016 | ug/l | |
| 129-00-0 | Pyrene | 0.293 | 0.10 | 0.013 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 4165-60-0 | Nitrobenzene-d5 | 63% | | 23-131% |
| 321-60-8 | 2-Fluorobiphenyl | 77% | | 24-120% |
| 1718-51-0 | Terphenyl-d14 | 51% | | 10-125% |

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

Accutest Laboratories

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-453-20150706 | | |
| **Lab Sample ID:** | JB98590-3 | **Date Sampled:** | 07/06/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846-8011 SW846 8011 | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 7G13948.D | 1 | 07/10/15 | VDT | 07/09/15 | OP85389 | G7G508 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 37 ml | 2.0 ml |
| Run #2 | | |

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 106-93-4 | 1,2-Dibromoethane | ND | 0.019 | 0.0081 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 3017-95-6 | 2-Bromo-1-chloropropane | 73% | | 38-167% |
| 3017-95-6 | 2-Bromo-1-chloropropane | 74% | | 38-167% |

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

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-453-20150706 | | |
| **Lab Sample ID:** | JB98590-3F | **Date Sampled:** | 07/06/15 |
| **Matrix:** | AQ - Groundwater Filtered | **Date Received:** | 07/07/15 |
| | | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

**Dissolved Metals Analysis**

| Analyte | Result | RL | MDL | Units | DF | Prep | Analyzed | By | Method | Prep Method |
|---|---|---|---|---|---|---|---|---|---|---|
| Cobalt | 0.54 U | 50 | 0.54 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Lead | 2.3 U | 3.0 | 2.3 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Nickel | 1.1 B | 10 | 0.79 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Vanadium | 0.80 B | 50 | 0.70 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Zinc | 4.9 U | 20 | 4.9 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |

(1) Instrument QC Batch: MA37077
(2) Prep QC Batch: MP87589A

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

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# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | FB-20150706 | | |
| **Lab Sample ID:** | JB98590-4 | **Date Sampled:** | 07/06/15 |
| **Matrix:** | AQ - Field Blank Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846 8260C | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 2A159862.D | 1 | 07/10/15 | TK | n/a | n/a | V2A6821 |
| Run #2 | | | | | | | |

| | Purge Volume |
|---|---|
| Run #1 | 5.0 ml |
| Run #2 | |

**Leaded Gasoline and Aviation Gas List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 71-43-2 | Benzene | ND | 0.50 | 0.24 | ug/l | |
| 108-88-3 | Toluene | ND | 1.0 | 0.16 | ug/l | |
| 100-41-4 | Ethylbenzene | ND | 1.0 | 0.27 | ug/l | |
| 1330-20-7 | Xylene (total) | ND | 1.0 | 0.17 | ug/l | |
| 1634-04-4 | Methyl Tert Butyl Ether | ND | 1.0 | 0.24 | ug/l | |
| 135-98-8 | sec-Butylbenzene | ND | 2.0 | 0.21 | ug/l | |
| 98-06-6 | tert-Butylbenzene | ND | 2.0 | 0.28 | ug/l | |
| 110-82-7 | Cyclohexane | ND | 5.0 | 0.28 | ug/l | |
| 107-06-2 | 1,2-Dichloroethane | ND | 1.0 | 0.18 | ug/l | |
| 110-54-3 | Hexane | ND | 5.0 | 0.40 | ug/l | |
| 98-82-8 | Isopropylbenzene | ND | 1.0 | 0.23 | ug/l | |
| 95-63-6 | 1,2,4-Trimethylbenzene | ND | 2.0 | 0.22 | ug/l | |
| 108-67-8 | 1,3,5-Trimethylbenzene | ND | 2.0 | 0.29 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 1868-53-7 | Dibromofluoromethane | 93% | | 76-120% |
| 17060-07-0 | 1,2-Dichloroethane-D4 | 104% | | 73-122% |
| 2037-26-5 | Toluene-D8 | 99% | | 84-119% |
| 460-00-4 | 4-Bromofluorobenzene | 97% | | 78-117% |

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

Accutest Laboratories

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | FB-20150706 | | |
| **Lab Sample ID:** | JB98590-4 | **Date Sampled:** | 07/06/15 |
| **Matrix:** | AQ - Field Blank Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846 8270D SW846 3510C | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 6P17610.D | 1 | 07/10/15 | SW | 07/09/15 | OP85388 | E6P791 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 1000 ml | 1.0 ml |
| Run #2 | | |

**ABN Special List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 105-67-9 | 2,4-Dimethylphenol | ND | 5.0 | 1.8 | ug/l | |
| 51-28-5 | 2,4-Dinitrophenol | ND | 10 | 6.5 | ug/l | |
| 95-48-7 | 2-Methylphenol | ND | 2.0 | 1.3 | ug/l | |
| | 3&4-Methylphenol | ND | 2.0 | 1.1 | ug/l | |
| 100-02-7 | 4-Nitrophenol | ND | 10 | 0.91 | ug/l | |
| 108-95-2 | Phenol | ND | 2.0 | 0.55 | ug/l | |
| 92-52-4 | 1,1'-Biphenyl | ND | 1.0 | 0.27 | ug/l | |
| 84-74-2 | Di-n-butyl phthalate | ND | 2.0 | 0.58 | ug/l | |
| 84-66-2 | Diethyl phthalate | ND | 2.0 | 0.23 | ug/l | |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | ND | 2.0 | 0.55 | ug/l | |
| 91-57-6 | 2-Methylnaphthalene | ND | 1.0 | 0.29 | ug/l | |
| 110-86-1 | Pyridine | ND | 2.0 | 0.29 | ug/l | |
| 91-22-5 | Quinoline | ND | 5.0 | 0.35 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 367-12-4 | 2-Fluorophenol | 51% | | 12-110% |
| 4165-62-2 | Phenol-d5 | 34% | | 10-110% |
| 118-79-6 | 2,4,6-Tribromophenol | 83% | | 42-154% |
| 4165-60-0 | Nitrobenzene-d5 | 94% | | 29-139% |
| 321-60-8 | 2-Fluorobiphenyl | 85% | | 33-129% |
| 1718-51-0 | Terphenyl-d14 | 81% | | 10-140% |

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

Accutest Laboratories

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | FB-20150706 | | |
| **Lab Sample ID:** | JB98590-4 | **Date Sampled:** | 07/06/15 |
| **Matrix:** | AQ - Field Blank Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846 8270D BY SIM SW846 3510C | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 4M58924.D | 1 | 07/10/15 | AD | 07/09/15 | OP85388A | E4M2559 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 1000 ml | 1.0 ml |
| Run #2 | | |

**BN PAH List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | ND | 0.10 | 0.013 | ug/l | |
| 120-12-7 | Anthracene | ND | 0.10 | 0.013 | ug/l | |
| 56-55-3 | Benzo(a)anthracene | ND | 0.050 | 0.019 | ug/l | |
| 50-32-8 | Benzo(a)pyrene | ND | 0.050 | 0.030 | ug/l | |
| 205-99-2 | Benzo(b)fluoranthene | ND | 0.10 | 0.021 | ug/l | |
| 191-24-2 | Benzo(g,h,i)perylene | ND | 0.10 | 0.026 | ug/l | |
| 207-08-9 | Benzo(k)fluoranthene | ND | 0.10 | 0.019 | ug/l | |
| 218-01-9 | Chrysene | ND | 0.10 | 0.015 | ug/l | |
| 53-70-3 | Dibenzo(a,h)anthracene | ND | 0.10 | 0.035 | ug/l | |
| 206-44-0 | Fluoranthene | ND | 0.10 | 0.011 | ug/l | |
| 86-73-7 | Fluorene | ND | 0.10 | 0.027 | ug/l | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | ND | 0.10 | 0.031 | ug/l | |
| 91-20-3 | Naphthalene | ND | 0.10 | 0.013 | ug/l | |
| 85-01-8 | Phenanthrene | ND | 0.10 | 0.016 | ug/l | |
| 129-00-0 | Pyrene | ND | 0.10 | 0.013 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 4165-60-0 | Nitrobenzene-d5 | 58% | | 23-131% |
| 321-60-8 | 2-Fluorobiphenyl | 73% | | 24-120% |
| 1718-51-0 | Terphenyl-d14 | 74% | | 10-125% |

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

Accutest Laboratories

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | FB-20150706 | | |
| **Lab Sample ID:** | JB98590-4 | **Date Sampled:** | 07/06/15 |
| **Matrix:** | AQ - Field Blank Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846-8011 SW846 8011 | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 7G13949.D | 1 | 07/10/15 | VDT | 07/09/15 | OP85389 | G7G508 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 39 ml | 2.0 ml |
| Run #2 | | |

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 106-93-4 | 1,2-Dibromoethane | ND | 0.018 | 0.0078 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 3017-95-6 | 2-Bromo-1-chloropropane | 59% | | 38-167% |
| 3017-95-6 | 2-Bromo-1-chloropropane | 57% | | 38-167% |

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

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | FB-20150706 | | |
| **Lab Sample ID:** | JB98590-4F | **Date Sampled:** | 07/06/15 |
| **Matrix:** | AQ - Field Blank Filtered | **Date Received:** | 07/07/15 |
| | | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

**Dissolved Metals Analysis**

| Analyte | Result | RL | MDL | Units | DF | Prep | Analyzed | By | Method | Prep Method |
|---|---|---|---|---|---|---|---|---|---|---|
| Cobalt | 0.54 U | 50 | 0.54 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Lead | 2.3 U | 3.0 | 2.3 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Nickel | 1.3 B | 10 | 0.79 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Vanadium | 0.70 U | 50 | 0.70 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Zinc | 4.9 U | 20 | 4.9 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |

(1) Instrument QC Batch: MA37077
(2) Prep QC Batch: MP87589A

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

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# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-444-20150706 | | |
| **Lab Sample ID:** | JB98590-5 | **Date Sampled:** | 07/06/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846 8260C | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 2A159856.D | 1 | 07/10/15 | TK | n/a | n/a | V2A6821 |
| Run #2 | | | | | | | |

| | Purge Volume |
|---|---|
| Run #1 | 5.0 ml |
| Run #2 | |

**Leaded Gasoline and Aviation Gas List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 71-43-2 | Benzene | ND | 0.50 | 0.24 | ug/l | |
| 108-88-3 | Toluene | ND | 1.0 | 0.16 | ug/l | |
| 100-41-4 | Ethylbenzene | ND | 1.0 | 0.27 | ug/l | |
| 1330-20-7 | Xylene (total) | ND | 1.0 | 0.17 | ug/l | |
| 1634-04-4 | Methyl Tert Butyl Ether | 0.60 | 1.0 | 0.24 | ug/l | J |
| 135-98-8 | sec-Butylbenzene | 0.42 | 2.0 | 0.21 | ug/l | J |
| 98-06-6 | tert-Butylbenzene | 0.79 | 2.0 | 0.28 | ug/l | J |
| 110-82-7 | Cyclohexane | ND | 5.0 | 0.28 | ug/l | |
| 107-06-2 | 1,2-Dichloroethane | ND | 1.0 | 0.18 | ug/l | |
| 110-54-3 | Hexane | ND | 5.0 | 0.40 | ug/l | |
| 98-82-8 | Isopropylbenzene | 0.97 | 1.0 | 0.23 | ug/l | J |
| 95-63-6 | 1,2,4-Trimethylbenzene | ND | 2.0 | 0.22 | ug/l | |
| 108-67-8 | 1,3,5-Trimethylbenzene | ND | 2.0 | 0.29 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 1868-53-7 | Dibromofluoromethane | 92% | | 76-120% |
| 17060-07-0 | 1,2-Dichloroethane-D4 | 103% | | 73-122% |
| 2037-26-5 | Toluene-D8 | 97% | | 84-119% |
| 460-00-4 | 4-Bromofluorobenzene | 96% | | 78-117% |

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

Accutest Laboratories

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-444-20150706 | | |
| **Lab Sample ID:** | JB98590-5 | **Date Sampled:** | 07/06/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846 8270D SW846 3510C | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 6P17628.D | 1 | 07/10/15 | AP | 07/09/15 | OP85388 | E6P792 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 1000 ml | 1.0 ml |
| Run #2 | | |

**ABN Special List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 105-67-9 | 2,4-Dimethylphenol | ND | 5.0 | 1.8 | ug/l | |
| 51-28-5 | 2,4-Dinitrophenol | ND | 10 | 6.5 | ug/l | |
| 95-48-7 | 2-Methylphenol | ND | 2.0 | 1.3 | ug/l | |
| | 3&4-Methylphenol | ND | 2.0 | 1.1 | ug/l | |
| 100-02-7 | 4-Nitrophenol | ND | 10 | 0.91 | ug/l | |
| 108-95-2 | Phenol | ND | 2.0 | 0.55 | ug/l | |
| 92-52-4 | 1,1'-Biphenyl | ND | 1.0 | 0.27 | ug/l | |
| 84-74-2 | Di-n-butyl phthalate | ND | 2.0 | 0.58 | ug/l | |
| 84-66-2 | Diethyl phthalate | ND | 2.0 | 0.23 | ug/l | |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | ND | 2.0 | 0.55 | ug/l | |
| 91-57-6 | 2-Methylnaphthalene | ND | 1.0 | 0.29 | ug/l | |
| 110-86-1 | Pyridine | ND | 2.0 | 0.29 | ug/l | |
| 91-22-5 | Quinoline | ND | 5.0 | 0.35 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 367-12-4 | 2-Fluorophenol | 57% | | 12-110% |
| 4165-62-2 | Phenol-d5 | 39% | | 10-110% |
| 118-79-6 | 2,4,6-Tribromophenol | 83% | | 42-154% |
| 4165-60-0 | Nitrobenzene-d5 | 88% | | 29-139% |
| 321-60-8 | 2-Fluorobiphenyl | 67% | | 33-129% |
| 1718-51-0 | Terphenyl-d14 | 42% | | 10-140% |

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

Accutest Laboratories

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-444-20150706 | | |
| **Lab Sample ID:** | JB98590-5 | **Date Sampled:** | 07/06/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846 8270D BY SIM SW846 3510C | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 4M58925.D | 1 | 07/10/15 | AD | 07/09/15 | OP85388A | E4M2559 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 1000 ml | 1.0 ml |
| Run #2 | | |

**BN PAH List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | ND | 0.10 | 0.013 | ug/l | |
| 120-12-7 | Anthracene | ND | 0.10 | 0.013 | ug/l | |
| 56-55-3 | Benzo(a)anthracene | ND | 0.050 | 0.019 | ug/l | |
| 50-32-8 | Benzo(a)pyrene | ND | 0.050 | 0.030 | ug/l | |
| 205-99-2 | Benzo(b)fluoranthene | ND | 0.10 | 0.021 | ug/l | |
| 191-24-2 | Benzo(g,h,i)perylene | ND | 0.10 | 0.026 | ug/l | |
| 207-08-9 | Benzo(k)fluoranthene | ND | 0.10 | 0.019 | ug/l | |
| 218-01-9 | Chrysene | ND | 0.10 | 0.015 | ug/l | |
| 53-70-3 | Dibenzo(a,h)anthracene | ND | 0.10 | 0.035 | ug/l | |
| 206-44-0 | Fluoranthene | ND | 0.10 | 0.011 | ug/l | |
| 86-73-7 | Fluorene | ND | 0.10 | 0.027 | ug/l | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | ND | 0.10 | 0.031 | ug/l | |
| 91-20-3 | Naphthalene | ND | 0.10 | 0.013 | ug/l | |
| 85-01-8 | Phenanthrene | ND | 0.10 | 0.016 | ug/l | |
| 129-00-0 | Pyrene | ND | 0.10 | 0.013 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 4165-60-0 | Nitrobenzene-d5 | 55% | | 23-131% |
| 321-60-8 | 2-Fluorobiphenyl | 55% | | 24-120% |
| 1718-51-0 | Terphenyl-d14 | 37% | | 10-125% |

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

Accutest Laboratories

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-444-20150706 | | |
| **Lab Sample ID:** | JB98590-5 | **Date Sampled:** | 07/06/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846-8011 SW846 8011 | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 7G13950.D | 1 | 07/10/15 | VDT | 07/09/15 | OP85389 | G7G508 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 37 ml | 2.0 ml |
| Run #2 | | |

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 106-93-4 | 1,2-Dibromoethane | ND | 0.019 | 0.0082 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 3017-95-6 | 2-Bromo-1-chloropropane | 51% | | 38-167% |
| 3017-95-6 | 2-Bromo-1-chloropropane | 51% | | 38-167% |

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

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-444-20150706 | | |
| **Lab Sample ID:** | JB98590-5F | **Date Sampled:** | 07/06/15 |
| **Matrix:** | AQ - Groundwater Filtered | **Date Received:** | 07/07/15 |
| | | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

**Dissolved Metals Analysis**

| Analyte | Result | RL | MDL | Units | DF | Prep | Analyzed | By | Method | Prep Method |
|---|---|---|---|---|---|---|---|---|---|---|
| Cobalt | 1.3 B | 50 | 0.54 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Lead | 2.3 U | 3.0 | 2.3 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Nickel | 2.1 B | 10 | 0.79 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Vanadium | 1.6 B | 50 | 0.70 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Zinc | 4.9 U | 20 | 4.9 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |

(1) Instrument QC Batch: MA37077
(2) Prep QC Batch: MP87589A

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

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# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-446-20150706 | | |
| **Lab Sample ID:** | JB98590-6 | **Date Sampled:** | 07/06/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846 8260C | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 2A159855.D | 1 | 07/10/15 | TK | n/a | n/a | V2A6821 |
| Run #2 | | | | | | | |

| | Purge Volume |
|---|---|
| Run #1 | 5.0 ml |
| Run #2 | |

**Leaded Gasoline and Aviation Gas List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 71-43-2 | Benzene | ND | 0.50 | 0.24 | ug/l | |
| 108-88-3 | Toluene | ND | 1.0 | 0.16 | ug/l | |
| 100-41-4 | Ethylbenzene | ND | 1.0 | 0.27 | ug/l | |
| 1330-20-7 | Xylene (total) | ND | 1.0 | 0.17 | ug/l | |
| 1634-04-4 | Methyl Tert Butyl Ether | ND | 1.0 | 0.24 | ug/l | |
| 135-98-8 | sec-Butylbenzene | ND | 2.0 | 0.21 | ug/l | |
| 98-06-6 | tert-Butylbenzene | ND | 2.0 | 0.28 | ug/l | |
| 110-82-7 | Cyclohexane | ND | 5.0 | 0.28 | ug/l | |
| 107-06-2 | 1,2-Dichloroethane | ND | 1.0 | 0.18 | ug/l | |
| 110-54-3 | Hexane | ND | 5.0 | 0.40 | ug/l | |
| 98-82-8 | Isopropylbenzene | ND | 1.0 | 0.23 | ug/l | |
| 95-63-6 | 1,2,4-Trimethylbenzene | ND | 2.0 | 0.22 | ug/l | |
| 108-67-8 | 1,3,5-Trimethylbenzene | ND | 2.0 | 0.29 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 1868-53-7 | Dibromofluoromethane | 92% | | 76-120% |
| 17060-07-0 | 1,2-Dichloroethane-D4 | 104% | | 73-122% |
| 2037-26-5 | Toluene-D8 | 98% | | 84-119% |
| 460-00-4 | 4-Bromofluorobenzene | 97% | | 78-117% |

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

Accutest Laboratories

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-446-20150706 | | |
| **Lab Sample ID:** | JB98590-6 | **Date Sampled:** | 07/06/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846 8270D SW846 3510C | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 6P17629.D | 1 | 07/10/15 | AP | 07/09/15 | OP85388 | E6P792 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 1000 ml | 1.0 ml |
| Run #2 | | |

**ABN Special List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 105-67-9 | 2,4-Dimethylphenol | ND | 5.0 | 1.8 | ug/l | |
| 51-28-5 | 2,4-Dinitrophenol | ND | 10 | 6.5 | ug/l | |
| 95-48-7 | 2-Methylphenol | ND | 2.0 | 1.3 | ug/l | |
| | 3&4-Methylphenol | ND | 2.0 | 1.1 | ug/l | |
| 100-02-7 | 4-Nitrophenol | ND | 10 | 0.91 | ug/l | |
| 108-95-2 | Phenol | ND | 2.0 | 0.55 | ug/l | |
| 92-52-4 | 1,1'-Biphenyl | ND | 1.0 | 0.27 | ug/l | |
| 84-74-2 | Di-n-butyl phthalate | ND | 2.0 | 0.58 | ug/l | |
| 84-66-2 | Diethyl phthalate | ND | 2.0 | 0.23 | ug/l | |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | 3.1 | 2.0 | 0.55 | ug/l | |
| 91-57-6 | 2-Methylnaphthalene | ND | 1.0 | 0.29 | ug/l | |
| 110-86-1 | Pyridine | ND | 2.0 | 0.29 | ug/l | |
| 91-22-5 | Quinoline | ND | 5.0 | 0.35 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 367-12-4 | 2-Fluorophenol | 53% | | 12-110% |
| 4165-62-2 | Phenol-d5 | 37% | | 10-110% |
| 118-79-6 | 2,4,6-Tribromophenol | 90% | | 42-154% |
| 4165-60-0 | Nitrobenzene-d5 | 92% | | 29-139% |
| 321-60-8 | 2-Fluorobiphenyl | 85% | | 33-129% |
| 1718-51-0 | Terphenyl-d14 | 88% | | 10-140% |

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

Accutest Laboratories

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-446-20150706 | | |
| **Lab Sample ID:** | JB98590-6 | **Date Sampled:** | 07/06/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846 8270D BY SIM SW846 3510C | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 4M58926.D | 1 | 07/10/15 | AD | 07/09/15 | OP85388A | E4M2559 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 1000 ml | 1.0 ml |
| Run #2 | | |

**BN PAH List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | ND | 0.10 | 0.013 | ug/l | |
| 120-12-7 | Anthracene | ND | 0.10 | 0.013 | ug/l | |
| 56-55-3 | Benzo(a)anthracene | ND | 0.050 | 0.019 | ug/l | |
| 50-32-8 | Benzo(a)pyrene | ND | 0.050 | 0.030 | ug/l | |
| 205-99-2 | Benzo(b)fluoranthene | ND | 0.10 | 0.021 | ug/l | |
| 191-24-2 | Benzo(g,h,i)perylene | ND | 0.10 | 0.026 | ug/l | |
| 207-08-9 | Benzo(k)fluoranthene | ND | 0.10 | 0.019 | ug/l | |
| 218-01-9 | Chrysene | ND | 0.10 | 0.015 | ug/l | |
| 53-70-3 | Dibenzo(a,h)anthracene | ND | 0.10 | 0.035 | ug/l | |
| 206-44-0 | Fluoranthene | ND | 0.10 | 0.011 | ug/l | |
| 86-73-7 | Fluorene | 0.108 | 0.10 | 0.027 | ug/l | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | ND | 0.10 | 0.031 | ug/l | |
| 91-20-3 | Naphthalene | ND | 0.10 | 0.013 | ug/l | |
| 85-01-8 | Phenanthrene | ND | 0.10 | 0.016 | ug/l | |
| 129-00-0 | Pyrene | 0.138 | 0.10 | 0.013 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 4165-60-0 | Nitrobenzene-d5 | 55% | | 23-131% |
| 321-60-8 | 2-Fluorobiphenyl | 66% | | 24-120% |
| 1718-51-0 | Terphenyl-d14 | 69% | | 10-125% |

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

Accutest Laboratories

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-446-20150706 | | |
| **Lab Sample ID:** | JB98590-6 | **Date Sampled:** | 07/06/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846-8011 SW846 8011 | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 7G13953.D | 1 | 07/10/15 | VDT | 07/09/15 | OP85389 | G7G508 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 37 ml | 2.0 ml |
| Run #2 | | |

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 106-93-4 | 1,2-Dibromoethane | ND | 0.019 | 0.0080 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 3017-95-6 | 2-Bromo-1-chloropropane | 45% | | 38-167% |
| 3017-95-6 | 2-Bromo-1-chloropropane | 49% | | 38-167% |

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

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-446-20150706 | | |
| **Lab Sample ID:** | JB98590-6F | **Date Sampled:** | 07/06/15 |
| **Matrix:** | AQ - Groundwater Filtered | **Date Received:** | 07/07/15 |
| | | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

**Dissolved Metals Analysis**

| Analyte | Result | RL | MDL | Units | DF | Prep | Analyzed | By | Method | Prep Method |
|---|---|---|---|---|---|---|---|---|---|---|
| Cobalt | 0.54 U | 50 | 0.54 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Lead | 2.3 U | 3.0 | 2.3 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Nickel | 0.79 U | 10 | 0.79 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Vanadium | 40.6 B | 50 | 0.70 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Zinc | 4.9 U | 20 | 4.9 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |

(1) Instrument QC Batch: MA37077
(2) Prep QC Batch: MP87589A

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

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# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-450-20150706 | | |
| **Lab Sample ID:** | JB98590-7 | **Date Sampled:** | 07/06/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846 8260C | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 2A159857.D | 1 | 07/10/15 | TK | n/a | n/a | V2A6821 |
| Run #2 | | | | | | | |

| | Purge Volume |
|---|---|
| Run #1 | 5.0 ml |
| Run #2 | |

**Leaded Gasoline and Aviation Gas List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 71-43-2 | Benzene | ND | 0.50 | 0.24 | ug/l | |
| 108-88-3 | Toluene | ND | 1.0 | 0.16 | ug/l | |
| 100-41-4 | Ethylbenzene | ND | 1.0 | 0.27 | ug/l | |
| 1330-20-7 | Xylene (total) | ND | 1.0 | 0.17 | ug/l | |
| 1634-04-4 | Methyl Tert Butyl Ether | ND | 1.0 | 0.24 | ug/l | |
| 135-98-8 | sec-Butylbenzene | ND | 2.0 | 0.21 | ug/l | |
| 98-06-6 | tert-Butylbenzene | ND | 2.0 | 0.28 | ug/l | |
| 110-82-7 | Cyclohexane | ND | 5.0 | 0.28 | ug/l | |
| 107-06-2 | 1,2-Dichloroethane | ND | 1.0 | 0.18 | ug/l | |
| 110-54-3 | Hexane | ND | 5.0 | 0.40 | ug/l | |
| 98-82-8 | Isopropylbenzene | ND | 1.0 | 0.23 | ug/l | |
| 95-63-6 | 1,2,4-Trimethylbenzene | ND | 2.0 | 0.22 | ug/l | |
| 108-67-8 | 1,3,5-Trimethylbenzene | ND | 2.0 | 0.29 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 1868-53-7 | Dibromofluoromethane | 94% | | 76-120% |
| 17060-07-0 | 1,2-Dichloroethane-D4 | 105% | | 73-122% |
| 2037-26-5 | Toluene-D8 | 98% | | 84-119% |
| 460-00-4 | 4-Bromofluorobenzene | 96% | | 78-117% |

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

Accutest Laboratories

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-450-20150706 | | |
| **Lab Sample ID:** | JB98590-7 | **Date Sampled:** | 07/06/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846 8270D SW846 3510C | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 6P17630.D | 1 | 07/10/15 | AP | 07/09/15 | OP85388 | E6P792 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 950 ml | 1.0 ml |
| Run #2 | | |

**ABN Special List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 105-67-9 | 2,4-Dimethylphenol | ND | 5.3 | 1.9 | ug/l | |
| 51-28-5 | 2,4-Dinitrophenol | ND | 11 | 6.9 | ug/l | |
| 95-48-7 | 2-Methylphenol | ND | 2.1 | 1.3 | ug/l | |
| | 3&4-Methylphenol | ND | 2.1 | 1.1 | ug/l | |
| 100-02-7 | 4-Nitrophenol | ND | 11 | 0.95 | ug/l | |
| 108-95-2 | Phenol | ND | 2.1 | 0.58 | ug/l | |
| 92-52-4 | 1,1'-Biphenyl | ND | 1.1 | 0.29 | ug/l | |
| 84-74-2 | Di-n-butyl phthalate | ND | 2.1 | 0.61 | ug/l | |
| 84-66-2 | Diethyl phthalate | ND | 2.1 | 0.25 | ug/l | |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | ND | 2.1 | 0.58 | ug/l | |
| 91-57-6 | 2-Methylnaphthalene | ND | 1.1 | 0.31 | ug/l | |
| 110-86-1 | Pyridine | ND | 2.1 | 0.31 | ug/l | |
| 91-22-5 | Quinoline | ND | 5.3 | 0.37 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 367-12-4 | 2-Fluorophenol | 41% | | 12-110% |
| 4165-62-2 | Phenol-d5 | 29% | | 10-110% |
| 118-79-6 | 2,4,6-Tribromophenol | 80% | | 42-154% |
| 4165-60-0 | Nitrobenzene-d5 | 83% | | 29-139% |
| 321-60-8 | 2-Fluorobiphenyl | 72% | | 33-129% |
| 1718-51-0 | Terphenyl-d14 | 69% | | 10-140% |

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

Accutest Laboratories

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-450-20150706 | | |
| **Lab Sample ID:** | JB98590-7 | **Date Sampled:** | 07/06/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846 8270D BY SIM SW846 3510C | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 4M58927.D | 1 | 07/10/15 | AD | 07/09/15 | OP85388A | E4M2559 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 950 ml | 1.0 ml |
| Run #2 | | |

**BN PAH List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | ND | 0.11 | 0.014 | ug/l | |
| 120-12-7 | Anthracene | ND | 0.11 | 0.014 | ug/l | |
| 56-55-3 | Benzo(a)anthracene | ND | 0.053 | 0.019 | ug/l | |
| 50-32-8 | Benzo(a)pyrene | ND | 0.053 | 0.031 | ug/l | |
| 205-99-2 | Benzo(b)fluoranthene | ND | 0.11 | 0.022 | ug/l | |
| 191-24-2 | Benzo(g,h,i)perylene | ND | 0.11 | 0.028 | ug/l | |
| 207-08-9 | Benzo(k)fluoranthene | ND | 0.11 | 0.020 | ug/l | |
| 218-01-9 | Chrysene | ND | 0.11 | 0.016 | ug/l | |
| 53-70-3 | Dibenzo(a,h)anthracene | ND | 0.11 | 0.037 | ug/l | |
| 206-44-0 | Fluoranthene | ND | 0.11 | 0.012 | ug/l | |
| 86-73-7 | Fluorene | ND | 0.11 | 0.028 | ug/l | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | ND | 0.11 | 0.033 | ug/l | |
| 91-20-3 | Naphthalene | ND | 0.11 | 0.014 | ug/l | |
| 85-01-8 | Phenanthrene | ND | 0.11 | 0.017 | ug/l | |
| 129-00-0 | Pyrene | ND | 0.11 | 0.014 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 4165-60-0 | Nitrobenzene-d5 | 52% | | 23-131% |
| 321-60-8 | 2-Fluorobiphenyl | 61% | | 24-120% |
| 1718-51-0 | Terphenyl-d14 | 57% | | 10-125% |

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

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# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-450-20150706 | | |
| **Lab Sample ID:** | JB98590-7 | **Date Sampled:** | 07/06/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846-8011 SW846 8011 | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 7G13954.D | 1 | 07/10/15 | VDT | 07/09/15 | OP85389 | G7G508 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 37 ml | 2.0 ml |
| Run #2 | | |

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 106-93-4 | 1,2-Dibromoethane | ND | 0.019 | 0.0082 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 3017-95-6 | 2-Bromo-1-chloropropane | 74% | | 38-167% |
| 3017-95-6 | 2-Bromo-1-chloropropane | 77% | | 38-167% |

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

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-450-20150706 | | |
| **Lab Sample ID:** | JB98590-7F | **Date Sampled:** | 07/06/15 |
| **Matrix:** | AQ - Groundwater Filtered | **Date Received:** | 07/07/15 |
| | | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

**Dissolved Metals Analysis**

| Analyte | Result | RL | MDL | Units | DF | Prep | Analyzed | By | Method | Prep Method |
|---|---|---|---|---|---|---|---|---|---|---|
| Cobalt | 0.60 B | 50 | 0.54 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Lead | 2.3 U | 3.0 | 2.3 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Nickel | 6.0 B | 10 | 0.79 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Vanadium | 0.90 B | 50 | 0.70 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Zinc | 4.9 U | 20 | 4.9 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |

(1) Instrument QC Batch: MA37077
(2) Prep QC Batch: MP87589A

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

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# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | TB-20150706 | | |
| **Lab Sample ID:** | JB98590-8 | **Date Sampled:** | 07/07/15 |
| **Matrix:** | AQ - Trip Blank Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846 8260C | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 2A159863.D | 1 | 07/10/15 | TK | n/a | n/a | V2A6821 |
| Run #2 | | | | | | | |

| | Purge Volume |
|---|---|
| Run #1 | 5.0 ml |
| Run #2 | |

**Leaded Gasoline and Aviation Gas List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 71-43-2 | Benzene | ND | 0.50 | 0.24 | ug/l | |
| 108-88-3 | Toluene | ND | 1.0 | 0.16 | ug/l | |
| 100-41-4 | Ethylbenzene | ND | 1.0 | 0.27 | ug/l | |
| 1330-20-7 | Xylene (total) | ND | 1.0 | 0.17 | ug/l | |
| 1634-04-4 | Methyl Tert Butyl Ether | ND | 1.0 | 0.24 | ug/l | |
| 135-98-8 | sec-Butylbenzene | ND | 2.0 | 0.21 | ug/l | |
| 98-06-6 | tert-Butylbenzene | ND | 2.0 | 0.28 | ug/l | |
| 110-82-7 | Cyclohexane | ND | 5.0 | 0.28 | ug/l | |
| 107-06-2 | 1,2-Dichloroethane | ND | 1.0 | 0.18 | ug/l | |
| 110-54-3 | Hexane | ND | 5.0 | 0.40 | ug/l | |
| 98-82-8 | Isopropylbenzene | ND | 1.0 | 0.23 | ug/l | |
| 95-63-6 | 1,2,4-Trimethylbenzene | ND | 2.0 | 0.22 | ug/l | |
| 108-67-8 | 1,3,5-Trimethylbenzene | ND | 2.0 | 0.29 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 1868-53-7 | Dibromofluoromethane | 93% | | 76-120% |
| 17060-07-0 | 1,2-Dichloroethane-D4 | 105% | | 73-122% |
| 2037-26-5 | Toluene-D8 | 98% | | 84-119% |
| 460-00-4 | 4-Bromofluorobenzene | 97% | | 78-117% |

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

Accutest Laboratories

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | TB-20150706 | | |
| **Lab Sample ID:** | JB98590-8 | **Date Sampled:** | 07/07/15 |
| **Matrix:** | AQ - Trip Blank Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846-8011 SW846 8011 | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 7G13955.D | 1 | 07/10/15 | VDT | 07/09/15 | OP85389 | G7G508 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 37 ml | 2.0 ml |
| Run #2 | | |

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 106-93-4 | 1,2-Dibromoethane | ND | 0.019 | 0.0081 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 3017-95-6 | 2-Bromo-1-chloropropane | 64% | | 38-167% |
| 3017-95-6 | 2-Bromo-1-chloropropane | 62% | | 38-167% |

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

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# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-457-20150707 | | |
| **Lab Sample ID:** | JB98590-9 | **Date Sampled:** | 07/07/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846 8260C | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 2A159866.D | 1 | 07/11/15 | TK | n/a | n/a | V2A6821 |
| Run #2 | | | | | | | |

| | Purge Volume |
|---|---|
| Run #1 | 5.0 ml |
| Run #2 | |

**Leaded Gasoline and Aviation Gas List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 71-43-2 | Benzene | ND | 0.50 | 0.24 | ug/l | |
| 108-88-3 | Toluene | ND | 1.0 | 0.16 | ug/l | |
| 100-41-4 | Ethylbenzene | ND | 1.0 | 0.27 | ug/l | |
| 1330-20-7 | Xylene (total) | ND | 1.0 | 0.17 | ug/l | |
| 1634-04-4 | Methyl Tert Butyl Ether | ND | 1.0 | 0.24 | ug/l | |
| 135-98-8 | sec-Butylbenzene | ND | 2.0 | 0.21 | ug/l | |
| 98-06-6 | tert-Butylbenzene | ND | 2.0 | 0.28 | ug/l | |
| 110-82-7 | Cyclohexane | ND | 5.0 | 0.28 | ug/l | |
| 107-06-2 | 1,2-Dichloroethane | ND | 1.0 | 0.18 | ug/l | |
| 110-54-3 | Hexane | ND | 5.0 | 0.40 | ug/l | |
| 98-82-8 | Isopropylbenzene | ND | 1.0 | 0.23 | ug/l | |
| 95-63-6 | 1,2,4-Trimethylbenzene | ND | 2.0 | 0.22 | ug/l | |
| 108-67-8 | 1,3,5-Trimethylbenzene | ND | 2.0 | 0.29 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 1868-53-7 | Dibromofluoromethane | 93% | | 76-120% |
| 17060-07-0 | 1,2-Dichloroethane-D4 | 102% | | 73-122% |
| 2037-26-5 | Toluene-D8 | 97% | | 84-119% |
| 460-00-4 | 4-Bromofluorobenzene | 95% | | 78-117% |

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

Accutest Laboratories

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-457-20150707 | | |
| **Lab Sample ID:** | JB98590-9 | **Date Sampled:** | 07/07/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846 8270D SW846 3510C | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 6P17597.D | 1 | 07/10/15 | SW | 07/09/15 | OP85388 | E6P791 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 1000 ml | 1.0 ml |
| Run #2 | | |

**ABN Special List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 105-67-9 | 2,4-Dimethylphenol | ND | 5.0 | 1.8 | ug/l | |
| 51-28-5 | 2,4-Dinitrophenol | ND | 10 | 6.5 | ug/l | |
| 95-48-7 | 2-Methylphenol | ND | 2.0 | 1.3 | ug/l | |
| | 3&4-Methylphenol | ND | 2.0 | 1.1 | ug/l | |
| 100-02-7 | 4-Nitrophenol | ND | 10 | 0.91 | ug/l | |
| 108-95-2 | Phenol | ND | 2.0 | 0.55 | ug/l | |
| 92-52-4 | 1,1'-Biphenyl | ND | 1.0 | 0.27 | ug/l | |
| 84-74-2 | Di-n-butyl phthalate | ND | 2.0 | 0.58 | ug/l | |
| 84-66-2 | Diethyl phthalate | ND | 2.0 | 0.23 | ug/l | |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | 1.6 | 2.0 | 0.55 | ug/l | J |
| 91-57-6 | 2-Methylnaphthalene | ND | 1.0 | 0.29 | ug/l | |
| 110-86-1 | Pyridine | ND | 2.0 | 0.29 | ug/l | |
| 91-22-5 | Quinoline | ND | 5.0 | 0.35 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 367-12-4 | 2-Fluorophenol | 46% | | 12-110% |
| 4165-62-2 | Phenol-d5 | 31% | | 10-110% |
| 118-79-6 | 2,4,6-Tribromophenol | 93% | | 42-154% |
| 4165-60-0 | Nitrobenzene-d5 | 93% | | 29-139% |
| 321-60-8 | 2-Fluorobiphenyl | 90% | | 33-129% |
| 1718-51-0 | Terphenyl-d14 | 77% | | 10-140% |

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

Accutest Laboratories

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-457-20150707 | | |
| **Lab Sample ID:** | JB98590-9 | **Date Sampled:** | 07/07/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846 8270D BY SIM SW846 3510C | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 3M56148.D | 1 | 07/10/15 | AD | 07/09/15 | OP85388A | E3M2590 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 1000 ml | 1.0 ml |
| Run #2 | | |

**BN PAH List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | ND | 0.10 | 0.013 | ug/l | |
| 120-12-7 | Anthracene | ND | 0.10 | 0.013 | ug/l | |
| 56-55-3 | Benzo(a)anthracene | ND | 0.050 | 0.019 | ug/l | |
| 50-32-8 | Benzo(a)pyrene | ND | 0.050 | 0.030 | ug/l | |
| 205-99-2 | Benzo(b)fluoranthene | ND | 0.10 | 0.021 | ug/l | |
| 191-24-2 | Benzo(g,h,i)perylene | ND | 0.10 | 0.026 | ug/l | |
| 207-08-9 | Benzo(k)fluoranthene | ND | 0.10 | 0.019 | ug/l | |
| 218-01-9 | Chrysene | ND | 0.10 | 0.015 | ug/l | |
| 53-70-3 | Dibenzo(a,h)anthracene | ND | 0.10 | 0.035 | ug/l | |
| 206-44-0 | Fluoranthene | ND | 0.10 | 0.011 | ug/l | |
| 86-73-7 | Fluorene | ND | 0.10 | 0.027 | ug/l | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | ND | 0.10 | 0.031 | ug/l | |
| 91-20-3 | Naphthalene | ND | 0.10 | 0.013 | ug/l | |
| 85-01-8 | Phenanthrene | ND | 0.10 | 0.016 | ug/l | |
| 129-00-0 | Pyrene | ND | 0.10 | 0.013 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 4165-60-0 | Nitrobenzene-d5 | 66% | | 23-131% |
| 321-60-8 | 2-Fluorobiphenyl | 69% | | 24-120% |
| 1718-51-0 | Terphenyl-d14 | 55% | | 10-125% |

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

Accutest Laboratories

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-457-20150707 | | |
| **Lab Sample ID:** | JB98590-9 | **Date Sampled:** | 07/07/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846-8011 SW846 8011 | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 7G13956.D | 1 | 07/10/15 | VDT | 07/09/15 | OP85389 | G7G508 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 36 ml | 2.0 ml |
| Run #2 | | |

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 106-93-4 | 1,2-Dibromoethane | ND | 0.019 | 0.0082 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 3017-95-6 | 2-Bromo-1-chloropropane | 60% | | 38-167% |
| 3017-95-6 | 2-Bromo-1-chloropropane | 59% | | 38-167% |

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

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-457-20150707 | | |
| **Lab Sample ID:** | JB98590-9F | **Date Sampled:** | 07/07/15 |
| **Matrix:** | AQ - Groundwater Filtered | **Date Received:** | 07/07/15 |
| | | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

**Dissolved Metals Analysis**

| Analyte | Result | RL | MDL | Units | DF | Prep | Analyzed | By | Method | Prep Method |
|---|---|---|---|---|---|---|---|---|---|---|
| Cobalt | 1.2 B | 50 | 0.54 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Lead | 2.3 U | 3.0 | 2.3 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Nickel | 1.7 B | 10 | 0.79 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Vanadium | 0.90 B | 50 | 0.70 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Zinc | 4.9 U | 20 | 4.9 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |

(1) Instrument QC Batch: MA37077
(2) Prep QC Batch: MP87589A

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Accutest Laboratories

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-471-20150707 | | |
| **Lab Sample ID:** | JB98590-10 | **Date Sampled:** | 07/07/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846 8260C | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 2A159843.D | 1 | 07/10/15 | TK | n/a | n/a | V2A6821 |
| Run #2 | | | | | | | |

| | Purge Volume |
|---|---|
| Run #1 | 5.0 ml |
| Run #2 | |

**Leaded Gasoline and Aviation Gas List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 71-43-2 | Benzene | ND | 0.50 | 0.24 | ug/l | |
| 108-88-3 | Toluene | ND | 1.0 | 0.16 | ug/l | |
| 100-41-4 | Ethylbenzene | ND | 1.0 | 0.27 | ug/l | |
| 1330-20-7 | Xylene (total) | ND | 1.0 | 0.17 | ug/l | |
| 1634-04-4 | Methyl Tert Butyl Ether | ND | 1.0 | 0.24 | ug/l | |
| 135-98-8 | sec-Butylbenzene | ND | 2.0 | 0.21 | ug/l | |
| 98-06-6 | tert-Butylbenzene | ND | 2.0 | 0.28 | ug/l | |
| 110-82-7 | Cyclohexane | ND | 5.0 | 0.28 | ug/l | |
| 107-06-2 | 1,2-Dichloroethane | ND | 1.0 | 0.18 | ug/l | |
| 110-54-3 | Hexane | ND | 5.0 | 0.40 | ug/l | |
| 98-82-8 | Isopropylbenzene | ND | 1.0 | 0.23 | ug/l | |
| 95-63-6 | 1,2,4-Trimethylbenzene | ND | 2.0 | 0.22 | ug/l | |
| 108-67-8 | 1,3,5-Trimethylbenzene | ND | 2.0 | 0.29 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 1868-53-7 | Dibromofluoromethane | 93% | | 76-120% |
| 17060-07-0 | 1,2-Dichloroethane-D4 | 104% | | 73-122% |
| 2037-26-5 | Toluene-D8 | 97% | | 84-119% |
| 460-00-4 | 4-Bromofluorobenzene | 98% | | 78-117% |

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

Accutest Laboratories

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-471-20150707 | | |
| **Lab Sample ID:** | JB98590-10 | **Date Sampled:** | 07/07/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846 8270D SW846 3510C | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 6P17598.D | 1 | 07/10/15 | SW | 07/09/15 | OP85388 | E6P791 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 920 ml | 1.0 ml |
| Run #2 | | |

**ABN Special List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 105-67-9 | 2,4-Dimethylphenol | ND | 5.4 | 2.0 | ug/l | |
| 51-28-5 | 2,4-Dinitrophenol | ND | 11 | 7.1 | ug/l | |
| 95-48-7 | 2-Methylphenol | ND | 2.2 | 1.4 | ug/l | |
| | 3&4-Methylphenol | ND | 2.2 | 1.2 | ug/l | |
| 100-02-7 | 4-Nitrophenol | ND | 11 | 0.99 | ug/l | |
| 108-95-2 | Phenol | ND | 2.2 | 0.59 | ug/l | |
| 92-52-4 | 1,1'-Biphenyl | ND | 1.1 | 0.30 | ug/l | |
| 84-74-2 | Di-n-butyl phthalate | ND | 2.2 | 0.63 | ug/l | |
| 84-66-2 | Diethyl phthalate | ND | 2.2 | 0.25 | ug/l | |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | ND | 2.2 | 0.60 | ug/l | |
| 91-57-6 | 2-Methylnaphthalene | ND | 1.1 | 0.32 | ug/l | |
| 110-86-1 | Pyridine | ND | 2.2 | 0.32 | ug/l | |
| 91-22-5 | Quinoline | ND | 5.4 | 0.38 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 367-12-4 | 2-Fluorophenol | 45% | | 12-110% |
| 4165-62-2 | Phenol-d5 | 33% | | 10-110% |
| 118-79-6 | 2,4,6-Tribromophenol | 60% | | 42-154% |
| 4165-60-0 | Nitrobenzene-d5 | 100% | | 29-139% |
| 321-60-8 | 2-Fluorobiphenyl | 86% | | 33-129% |
| 1718-51-0 | Terphenyl-d14 | 36% | | 10-140% |

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

Accutest Laboratories

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-471-20150707 | | |
| **Lab Sample ID:** | JB98590-10 | **Date Sampled:** | 07/07/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846 8270D BY SIM SW846 3510C | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 3M56175.D | 1 | 07/11/15 | AD | 07/09/15 | OP85388A | E3M2591 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 920 ml | 1.0 ml |
| Run #2 | | |

**BN PAH List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | ND | 0.11 | 0.015 | ug/l | |
| 120-12-7 | Anthracene | ND | 0.11 | 0.014 | ug/l | |
| 56-55-3 | Benzo(a)anthracene | 0.163 | 0.054 | 0.020 | ug/l | |
| 50-32-8 | Benzo(a)pyrene | ND | 0.054 | 0.032 | ug/l | |
| 205-99-2 | Benzo(b)fluoranthene | ND | 0.11 | 0.023 | ug/l | |
| 191-24-2 | Benzo(g,h,i)perylene | ND | 0.11 | 0.028 | ug/l | |
| 207-08-9 | Benzo(k)fluoranthene | ND | 0.11 | 0.021 | ug/l | |
| 218-01-9 | Chrysene | ND | 0.11 | 0.017 | ug/l | |
| 53-70-3 | Dibenzo(a,h)anthracene | ND | 0.11 | 0.038 | ug/l | |
| 206-44-0 | Fluoranthene | 0.135 | 0.11 | 0.012 | ug/l | |
| 86-73-7 | Fluorene | ND | 0.11 | 0.029 | ug/l | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | ND | 0.11 | 0.034 | ug/l | |
| 91-20-3 | Naphthalene | ND | 0.11 | 0.014 | ug/l | |
| 85-01-8 | Phenanthrene | ND | 0.11 | 0.017 | ug/l | |
| 129-00-0 | Pyrene | 0.116 | 0.11 | 0.015 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 4165-60-0 | Nitrobenzene-d5 | 66% | | 23-131% |
| 321-60-8 | 2-Fluorobiphenyl | 58% | | 24-120% |
| 1718-51-0 | Terphenyl-d14 | 27% | | 10-125% |

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

Accutest Laboratories

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-471-20150707 | | |
| **Lab Sample ID:** | JB98590-10 | **Date Sampled:** | 07/07/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846-8011 SW846 8011 | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 7G13957.D | 1 | 07/10/15 | VDT | 07/09/15 | OP85389 | G7G508 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 35 ml | 2.0 ml |
| Run #2 | | |

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 106-93-4 | 1,2-Dibromoethane | ND | 0.020 | 0.0085 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 3017-95-6 | 2-Bromo-1-chloropropane | 85% | | 38-167% |
| 3017-95-6 | 2-Bromo-1-chloropropane | 83% | | 38-167% |

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

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-471-20150707 | | |
| **Lab Sample ID:** | JB98590-10F | **Date Sampled:** | 07/07/15 |
| **Matrix:** | AQ - Groundwater Filtered | **Date Received:** | 07/07/15 |
| | | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

**Dissolved Metals Analysis**

| Analyte | Result | RL | MDL | Units | DF | Prep | Analyzed | By | Method | Prep Method |
|---|---|---|---|---|---|---|---|---|---|---|
| Cobalt | 0.54 U | 50 | 0.54 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Lead | 2.3 U | 3.0 | 2.3 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Nickel | 0.79 U | 10 | 0.79 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Vanadium | 0.80 B | 50 | 0.70 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Zinc | 4.9 U | 20 | 4.9 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |

(1) Instrument QC Batch: MA37077
(2) Prep QC Batch: MP87589A

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

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# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-479-20150707 | | |
| **Lab Sample ID:** | JB98590-11 | **Date Sampled:** | 07/07/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846 8260C | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 2A159844.D | 1 | 07/10/15 | TK | n/a | n/a | V2A6821 |
| Run #2 | | | | | | | |

| | Purge Volume |
|---|---|
| Run #1 | 5.0 ml |
| Run #2 | |

**Leaded Gasoline and Aviation Gas List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 71-43-2 | Benzene | ND | 0.50 | 0.24 | ug/l | |
| 108-88-3 | Toluene | ND | 1.0 | 0.16 | ug/l | |
| 100-41-4 | Ethylbenzene | ND | 1.0 | 0.27 | ug/l | |
| 1330-20-7 | Xylene (total) | ND | 1.0 | 0.17 | ug/l | |
| 1634-04-4 | Methyl Tert Butyl Ether | ND | 1.0 | 0.24 | ug/l | |
| 135-98-8 | sec-Butylbenzene | ND | 2.0 | 0.21 | ug/l | |
| 98-06-6 | tert-Butylbenzene | ND | 2.0 | 0.28 | ug/l | |
| 110-82-7 | Cyclohexane | ND | 5.0 | 0.28 | ug/l | |
| 107-06-2 | 1,2-Dichloroethane | ND | 1.0 | 0.18 | ug/l | |
| 110-54-3 | Hexane | ND | 5.0 | 0.40 | ug/l | |
| 98-82-8 | Isopropylbenzene | ND | 1.0 | 0.23 | ug/l | |
| 95-63-6 | 1,2,4-Trimethylbenzene | ND | 2.0 | 0.22 | ug/l | |
| 108-67-8 | 1,3,5-Trimethylbenzene | ND | 2.0 | 0.29 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 1868-53-7 | Dibromofluoromethane | 92% | | 76-120% |
| 17060-07-0 | 1,2-Dichloroethane-D4 | 102% | | 73-122% |
| 2037-26-5 | Toluene-D8 | 98% | | 84-119% |
| 460-00-4 | 4-Bromofluorobenzene | 99% | | 78-117% |

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

Accutest Laboratories

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-479-20150707 | | |
| **Lab Sample ID:** | JB98590-11 | **Date Sampled:** | 07/07/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846 8270D SW846 3510C | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 6P17599.D | 1 | 07/10/15 | SW | 07/09/15 | OP85388 | E6P791 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 1000 ml | 1.0 ml |
| Run #2 | | |

**ABN Special List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 105-67-9 | 2,4-Dimethylphenol | ND | 5.0 | 1.8 | ug/l | |
| 51-28-5 | 2,4-Dinitrophenol | ND | 10 | 6.5 | ug/l | |
| 95-48-7 | 2-Methylphenol | ND | 2.0 | 1.3 | ug/l | |
| | 3&4-Methylphenol | ND | 2.0 | 1.1 | ug/l | |
| 100-02-7 | 4-Nitrophenol | ND | 10 | 0.91 | ug/l | |
| 108-95-2 | Phenol | ND | 2.0 | 0.55 | ug/l | |
| 92-52-4 | 1,1'-Biphenyl | ND | 1.0 | 0.27 | ug/l | |
| 84-74-2 | Di-n-butyl phthalate | ND | 2.0 | 0.58 | ug/l | |
| 84-66-2 | Diethyl phthalate | ND | 2.0 | 0.23 | ug/l | |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | 1.3 | 2.0 | 0.55 | ug/l | J |
| 91-57-6 | 2-Methylnaphthalene | ND | 1.0 | 0.29 | ug/l | |
| 110-86-1 | Pyridine | ND | 2.0 | 0.29 | ug/l | |
| 91-22-5 | Quinoline | ND | 5.0 | 0.35 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 367-12-4 | 2-Fluorophenol | 52% | | 12-110% |
| 4165-62-2 | Phenol-d5 | 38% | | 10-110% |
| 118-79-6 | 2,4,6-Tribromophenol | 77% | | 42-154% |
| 4165-60-0 | Nitrobenzene-d5 | 100% | | 29-139% |
| 321-60-8 | 2-Fluorobiphenyl | 93% | | 33-129% |
| 1718-51-0 | Terphenyl-d14 | 96% | | 10-140% |

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

Accutest Laboratories

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-479-20150707 | | |
| **Lab Sample ID:** | JB98590-11 | **Date Sampled:** | 07/07/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846 8270D BY SIM SW846 3510C | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 3M56150.D | 1 | 07/10/15 | AD | 07/09/15 | OP85388A | E3M2590 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 1000 ml | 1.0 ml |
| Run #2 | | |

**BN PAH List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | ND | 0.10 | 0.013 | ug/l | |
| 120-12-7 | Anthracene | ND | 0.10 | 0.013 | ug/l | |
| 56-55-3 | Benzo(a)anthracene | ND | 0.050 | 0.019 | ug/l | |
| 50-32-8 | Benzo(a)pyrene | ND | 0.050 | 0.030 | ug/l | |
| 205-99-2 | Benzo(b)fluoranthene | ND | 0.10 | 0.021 | ug/l | |
| 191-24-2 | Benzo(g,h,i)perylene | ND | 0.10 | 0.026 | ug/l | |
| 207-08-9 | Benzo(k)fluoranthene | ND | 0.10 | 0.019 | ug/l | |
| 218-01-9 | Chrysene | ND | 0.10 | 0.015 | ug/l | |
| 53-70-3 | Dibenzo(a,h)anthracene | ND | 0.10 | 0.035 | ug/l | |
| 206-44-0 | Fluoranthene | ND | 0.10 | 0.011 | ug/l | |
| 86-73-7 | Fluorene | ND | 0.10 | 0.027 | ug/l | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | ND | 0.10 | 0.031 | ug/l | |
| 91-20-3 | Naphthalene | ND | 0.10 | 0.013 | ug/l | |
| 85-01-8 | Phenanthrene | ND | 0.10 | 0.016 | ug/l | |
| 129-00-0 | Pyrene | ND | 0.10 | 0.013 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 4165-60-0 | Nitrobenzene-d5 | 67% | | 23-131% |
| 321-60-8 | 2-Fluorobiphenyl | 68% | | 24-120% |
| 1718-51-0 | Terphenyl-d14 | 61% | | 10-125% |

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

Accutest Laboratories

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-479-20150707 | | |
| **Lab Sample ID:** | JB98590-11 | **Date Sampled:** | 07/07/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846-8011 SW846 8011 | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 7G13958.D | 1 | 07/10/15 | VDT | 07/09/15 | OP85389 | G7G508 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 37 ml | 2.0 ml |
| Run #2 | | |

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 106-93-4 | 1,2-Dibromoethane | ND | 0.019 | 0.0082 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 3017-95-6 | 2-Bromo-1-chloropropane | 47% | | 38-167% |
| 3017-95-6 | 2-Bromo-1-chloropropane | 41% | | 38-167% |

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

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-479-20150707 | | |
| **Lab Sample ID:** | JB98590-11F | **Date Sampled:** | 07/07/15 |
| **Matrix:** | AQ - Groundwater Filtered | **Date Received:** | 07/07/15 |
| | | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

**Dissolved Metals Analysis**

| Analyte | Result | RL | MDL | Units | DF | Prep | Analyzed | By | Method | Prep Method |
|---|---|---|---|---|---|---|---|---|---|---|
| Cobalt | 7.3 B | 50 | 0.54 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Lead | 2.3 U | 3.0 | 2.3 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Nickel | 8.9 B | 10 | 0.79 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Vanadium | 1.6 B | 50 | 0.70 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Zinc | 12.6 B | 20 | 4.9 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |

(1) Instrument QC Batch: MA37077
(2) Prep QC Batch: MP87589A

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Accutest Laboratories

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-478-20150707 | | |
| **Lab Sample ID:** | JB98590-12 | **Date Sampled:** | 07/07/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846 8260C | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 2A159864.D | 1 | 07/11/15 | TK | n/a | n/a | V2A6821 |
| Run #2 | | | | | | | |

| | Purge Volume |
|---|---|
| Run #1 | 5.0 ml |
| Run #2 | |

**Leaded Gasoline and Aviation Gas List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 71-43-2 | Benzene | ND | 0.50 | 0.24 | ug/l | |
| 108-88-3 | Toluene | ND | 1.0 | 0.16 | ug/l | |
| 100-41-4 | Ethylbenzene | ND | 1.0 | 0.27 | ug/l | |
| 1330-20-7 | Xylene (total) | ND | 1.0 | 0.17 | ug/l | |
| 1634-04-4 | Methyl Tert Butyl Ether | ND | 1.0 | 0.24 | ug/l | |
| 135-98-8 | sec-Butylbenzene | ND | 2.0 | 0.21 | ug/l | |
| 98-06-6 | tert-Butylbenzene | ND | 2.0 | 0.28 | ug/l | |
| 110-82-7 | Cyclohexane | ND | 5.0 | 0.28 | ug/l | |
| 107-06-2 | 1,2-Dichloroethane | ND | 1.0 | 0.18 | ug/l | |
| 110-54-3 | Hexane | ND | 5.0 | 0.40 | ug/l | |
| 98-82-8 | Isopropylbenzene | ND | 1.0 | 0.23 | ug/l | |
| 95-63-6 | 1,2,4-Trimethylbenzene | ND | 2.0 | 0.22 | ug/l | |
| 108-67-8 | 1,3,5-Trimethylbenzene | ND | 2.0 | 0.29 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 1868-53-7 | Dibromofluoromethane | 93% | | 76-120% |
| 17060-07-0 | 1,2-Dichloroethane-D4 | 104% | | 73-122% |
| 2037-26-5 | Toluene-D8 | 97% | | 84-119% |
| 460-00-4 | 4-Bromofluorobenzene | 96% | | 78-117% |

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

Accutest Laboratories

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-478-20150707 | | |
| **Lab Sample ID:** | JB98590-12 | **Date Sampled:** | 07/07/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846 8270D SW846 3510C | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 6P17600.D | 1 | 07/10/15 | SW | 07/09/15 | OP85388 | E6P791 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 1000 ml | 1.0 ml |
| Run #2 | | |

**ABN Special List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 105-67-9 | 2,4-Dimethylphenol | ND | 5.0 | 1.8 | ug/l | |
| 51-28-5 | 2,4-Dinitrophenol | ND | 10 | 6.5 | ug/l | |
| 95-48-7 | 2-Methylphenol | ND | 2.0 | 1.3 | ug/l | |
| | 3&4-Methylphenol | ND | 2.0 | 1.1 | ug/l | |
| 100-02-7 | 4-Nitrophenol | ND | 10 | 0.91 | ug/l | |
| 108-95-2 | Phenol | ND | 2.0 | 0.55 | ug/l | |
| 92-52-4 | 1,1'-Biphenyl | ND | 1.0 | 0.27 | ug/l | |
| 84-74-2 | Di-n-butyl phthalate | ND | 2.0 | 0.58 | ug/l | |
| 84-66-2 | Diethyl phthalate | ND | 2.0 | 0.23 | ug/l | |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | ND | 2.0 | 0.55 | ug/l | |
| 91-57-6 | 2-Methylnaphthalene | ND | 1.0 | 0.29 | ug/l | |
| 110-86-1 | Pyridine | ND | 2.0 | 0.29 | ug/l | |
| 91-22-5 | Quinoline | ND | 5.0 | 0.35 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 367-12-4 | 2-Fluorophenol | 44% | | 12-110% |
| 4165-62-2 | Phenol-d5 | 31% | | 10-110% |
| 118-79-6 | 2,4,6-Tribromophenol | 73% | | 42-154% |
| 4165-60-0 | Nitrobenzene-d5 | 91% | | 29-139% |
| 321-60-8 | 2-Fluorobiphenyl | 80% | | 33-129% |
| 1718-51-0 | Terphenyl-d14 | 85% | | 10-140% |

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

Accutest Laboratories

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-478-20150707 | | |
| **Lab Sample ID:** | JB98590-12 | **Date Sampled:** | 07/07/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846 8270D BY SIM SW846 3510C | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 3M56151.D | 1 | 07/10/15 | AD | 07/09/15 | OP85388A | E3M2590 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 1000 ml | 1.0 ml |
| Run #2 | | |

**BN PAH List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | ND | 0.10 | 0.013 | ug/l | |
| 120-12-7 | Anthracene | ND | 0.10 | 0.013 | ug/l | |
| 56-55-3 | Benzo(a)anthracene | ND | 0.050 | 0.019 | ug/l | |
| 50-32-8 | Benzo(a)pyrene | ND | 0.050 | 0.030 | ug/l | |
| 205-99-2 | Benzo(b)fluoranthene | ND | 0.10 | 0.021 | ug/l | |
| 191-24-2 | Benzo(g,h,i)perylene | ND | 0.10 | 0.026 | ug/l | |
| 207-08-9 | Benzo(k)fluoranthene | ND | 0.10 | 0.019 | ug/l | |
| 218-01-9 | Chrysene | ND | 0.10 | 0.015 | ug/l | |
| 53-70-3 | Dibenzo(a,h)anthracene | ND | 0.10 | 0.035 | ug/l | |
| 206-44-0 | Fluoranthene | ND | 0.10 | 0.011 | ug/l | |
| 86-73-7 | Fluorene | ND | 0.10 | 0.027 | ug/l | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | ND | 0.10 | 0.031 | ug/l | |
| 91-20-3 | Naphthalene | ND | 0.10 | 0.013 | ug/l | |
| 85-01-8 | Phenanthrene | 0.113 | 0.10 | 0.016 | ug/l | |
| 129-00-0 | Pyrene | ND | 0.10 | 0.013 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 4165-60-0 | Nitrobenzene-d5 | 62% | | 23-131% |
| 321-60-8 | 2-Fluorobiphenyl | 60% | | 24-120% |
| 1718-51-0 | Terphenyl-d14 | 57% | | 10-125% |

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

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# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-478-20150707 | | |
| **Lab Sample ID:** | JB98590-12 | **Date Sampled:** | 07/07/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846-8011 SW846 8011 | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 7G13959.D | 1 | 07/10/15 | VDT | 07/09/15 | OP85389 | G7G508 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 37 ml | 2.0 ml |
| Run #2 | | |

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 106-93-4 | 1,2-Dibromoethane | ND | 0.019 | 0.0082 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 3017-95-6 | 2-Bromo-1-chloropropane | 51% | | 38-167% |
| 3017-95-6 | 2-Bromo-1-chloropropane | 56% | | 38-167% |

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

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-478-20150707 | | |
| **Lab Sample ID:** | JB98590-12F | **Date Sampled:** | 07/07/15 |
| **Matrix:** | AQ - Groundwater Filtered | **Date Received:** | 07/07/15 |
| | | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

**Dissolved Metals Analysis**

| Analyte | Result | RL | MDL | Units | DF | Prep | Analyzed | By | Method | Prep Method |
|---|---|---|---|---|---|---|---|---|---|---|
| Cobalt | 0.54 U | 50 | 0.54 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Lead | 2.3 U | 3.0 | 2.3 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Nickel | 0.79 U | 10 | 0.79 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Vanadium | 180 | 50 | 0.70 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Zinc | 4.9 U | 20 | 4.9 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |

(1) Instrument QC Batch: MA37077
(2) Prep QC Batch: MP87589A

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

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# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-468-20150707 | | |
| **Lab Sample ID:** | JB98590-13 | **Date Sampled:** | 07/07/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846 8260C | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 2A159869.D | 1 | 07/11/15 | TK | n/a | n/a | V2A6821 |
| Run #2 | C201887.D | 20 | 07/16/15 | MM | n/a | n/a | VC7407 |

| | Purge Volume |
|---|---|
| Run #1 | 5.0 ml |
| Run #2 | 5.0 ml |

**Leaded Gasoline and Aviation Gas List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 71-43-2 | Benzene | 210 [a] | 10 | 4.7 | ug/l | |
| 108-88-3 | Toluene | 7.8 | 1.0 | 0.16 | ug/l | |
| 100-41-4 | Ethylbenzene | 154 | 1.0 | 0.27 | ug/l | |
| 1330-20-7 | Xylene (total) | 134 | 1.0 | 0.17 | ug/l | |
| 1634-04-4 | Methyl Tert Butyl Ether | 0.54 | 1.0 | 0.24 | ug/l | J |
| 135-98-8 | sec-Butylbenzene | 30.6 | 2.0 | 0.21 | ug/l | |
| 98-06-6 | tert-Butylbenzene | 9.8 | 2.0 | 0.28 | ug/l | |
| 110-82-7 | Cyclohexane | 116 | 5.0 | 0.28 | ug/l | |
| 107-06-2 | 1,2-Dichloroethane | ND | 1.0 | 0.18 | ug/l | |
| 110-54-3 | Hexane | 10.9 | 5.0 | 0.40 | ug/l | |
| 98-82-8 | Isopropylbenzene | 103 | 1.0 | 0.23 | ug/l | |
| 95-63-6 | 1,2,4-Trimethylbenzene | 535 [a] | 40 | 4.5 | ug/l | |
| 108-67-8 | 1,3,5-Trimethylbenzene | 113 | 2.0 | 0.29 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 1868-53-7 | Dibromofluoromethane | 92% | 98% | 76-120% |
| 17060-07-0 | 1,2-Dichloroethane-D4 | 104% | 113% | 73-122% |
| 2037-26-5 | Toluene-D8 | 99% | 102% | 84-119% |
| 460-00-4 | 4-Bromofluorobenzene | 92% | 105% | 78-117% |

(a) Result is from Run# 2

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

Accutest Laboratories

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-468-20150707 | | |
| **Lab Sample ID:** | JB98590-13 | **Date Sampled:** | 07/07/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846 8270D SW846 3510C | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 6P17601.D | 1 | 07/10/15 | SW | 07/09/15 | OP85388 | E6P791 |
| Run #2 | 6P17631.D | 5 | 07/10/15 | AP | 07/09/15 | OP85388 | E6P792 |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 960 ml | 1.0 ml |
| Run #2 | 960 ml | 1.0 ml |

**ABN Special List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 105-67-9 | 2,4-Dimethylphenol | 35.0 | 5.2 | 1.9 | ug/l | |
| 51-28-5 | 2,4-Dinitrophenol | ND | 10 | 6.8 | ug/l | |
| 95-48-7 | 2-Methylphenol | 155 [a] | 10 | 6.6 | ug/l | |
| | 3&4-Methylphenol | 207 [a] | 10 | 5.6 | ug/l | |
| 100-02-7 | 4-Nitrophenol | ND | 10 | 0.94 | ug/l | |
| 108-95-2 | Phenol | 110 [a] | 10 | 2.8 | ug/l | |
| 92-52-4 | 1,1'-Biphenyl | 1.1 | 1.0 | 0.29 | ug/l | |
| 84-74-2 | Di-n-butyl phthalate | ND | 2.1 | 0.61 | ug/l | |
| 84-66-2 | Diethyl phthalate | ND | 2.1 | 0.24 | ug/l | |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | 14.7 | 2.1 | 0.58 | ug/l | |
| 91-57-6 | 2-Methylnaphthalene | 84.3 | 1.0 | 0.30 | ug/l | |
| 91-20-3 | Naphthalene | 174 [a] | 5.2 | 1.4 | ug/l | |
| 110-86-1 | Pyridine | ND | 2.1 | 0.30 | ug/l | |
| 91-22-5 | Quinoline | ND | 5.2 | 0.36 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 367-12-4 | 2-Fluorophenol | 61% | 56% | 12-110% |
| 4165-62-2 | Phenol-d5 | 39% | 41% | 10-110% |
| 118-79-6 | 2,4,6-Tribromophenol | 96% | 89% | 42-154% |
| 4165-60-0 | Nitrobenzene-d5 | 119% | 116% | 29-139% |
| 321-60-8 | 2-Fluorobiphenyl | 93% | 92% | 33-129% |
| 1718-51-0 | Terphenyl-d14 | 97% | 88% | 10-140% |

(a) Result is from Run# 2

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-468-20150707 | | |
| **Lab Sample ID:** | JB98590-13 | **Date Sampled:** | 07/07/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846 8270D BY SIM SW846 3510C | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 3M56152.D | 1 | 07/10/15 | AD | 07/09/15 | OP85388A | E3M2590 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 960 ml | 1.0 ml |
| Run #2 | | |

**BN PAH List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | ND | 0.10 | 0.014 | ug/l | |
| 120-12-7 | Anthracene | ND | 0.10 | 0.013 | ug/l | |
| 56-55-3 | Benzo(a)anthracene | ND | 0.052 | 0.019 | ug/l | |
| 50-32-8 | Benzo(a)pyrene | ND | 0.052 | 0.031 | ug/l | |
| 205-99-2 | Benzo(b)fluoranthene | ND | 0.10 | 0.022 | ug/l | |
| 191-24-2 | Benzo(g,h,i)perylene | ND | 0.10 | 0.027 | ug/l | |
| 207-08-9 | Benzo(k)fluoranthene | ND | 0.10 | 0.020 | ug/l | |
| 218-01-9 | Chrysene | ND | 0.10 | 0.016 | ug/l | |
| 53-70-3 | Dibenzo(a,h)anthracene | ND | 0.10 | 0.037 | ug/l | |
| 206-44-0 | Fluoranthene | ND | 0.10 | 0.012 | ug/l | |
| 86-73-7 | Fluorene | 0.450 | 0.10 | 0.028 | ug/l | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | ND | 0.10 | 0.032 | ug/l | |
| 85-01-8 | Phenanthrene | 0.161 | 0.10 | 0.017 | ug/l | |
| 129-00-0 | Pyrene | ND | 0.10 | 0.014 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 4165-60-0 | Nitrobenzene-d5 | 68% | | 23-131% |
| 321-60-8 | 2-Fluorobiphenyl | 70% | | 24-120% |
| 1718-51-0 | Terphenyl-d14 | 68% | | 10-125% |

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

Accutest Laboratories

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-468-20150707 | | |
| **Lab Sample ID:** | JB98590-13 | **Date Sampled:** | 07/07/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846-8011 SW846 8011 | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 7G13960.D | 1 | 07/10/15 | VDT | 07/09/15 | OP85389 | G7G508 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 37 ml | 2.0 ml |
| Run #2 | | |

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 106-93-4 | 1,2-Dibromoethane | ND | 0.019 | 0.0082 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 3017-95-6 | 2-Bromo-1-chloropropane | 43% | | 38-167% |
| 3017-95-6 | 2-Bromo-1-chloropropane | 44% | | 38-167% |

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

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-468-20150707 | | |
| **Lab Sample ID:** | JB98590-13F | **Date Sampled:** | 07/07/15 |
| **Matrix:** | AQ - Groundwater Filtered | **Date Received:** | 07/07/15 |
| | | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

**Dissolved Metals Analysis**

| Analyte | Result | RL | MDL | Units | DF | Prep | Analyzed | By | Method | Prep Method |
|---|---|---|---|---|---|---|---|---|---|---|
| Cobalt | 0.54 U | 50 | 0.54 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Lead | 2.3 U | 3.0 | 2.3 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Nickel | 1.9 B | 10 | 0.79 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Vanadium | 1.4 B | 50 | 0.70 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Zinc | 4.9 U | 20 | 4.9 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |

(1) Instrument QC Batch: MA37077
(2) Prep QC Batch: MP87589A

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

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# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-469-20150707 | | |
| **Lab Sample ID:** | JB98590-14 | **Date Sampled:** | 07/07/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846 8260C | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 2A159867.D | 1 | 07/11/15 | TK | n/a | n/a | V2A6821 |
| Run #2 | | | | | | | |

| | Purge Volume |
|---|---|
| Run #1 | 5.0 ml |
| Run #2 | |

**Leaded Gasoline and Aviation Gas List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 71-43-2 | Benzene | 0.79 | 0.50 | 0.24 | ug/l | |
| 108-88-3 | Toluene | ND | 1.0 | 0.16 | ug/l | |
| 100-41-4 | Ethylbenzene | 2.6 | 1.0 | 0.27 | ug/l | |
| 1330-20-7 | Xylene (total) | 2.5 | 1.0 | 0.17 | ug/l | |
| 1634-04-4 | Methyl Tert Butyl Ether | 5.4 | 1.0 | 0.24 | ug/l | |
| 135-98-8 | sec-Butylbenzene | 1.8 | 2.0 | 0.21 | ug/l | J |
| 98-06-6 | tert-Butylbenzene | 0.96 | 2.0 | 0.28 | ug/l | J |
| 110-82-7 | Cyclohexane | 1.1 | 5.0 | 0.28 | ug/l | J |
| 107-06-2 | 1,2-Dichloroethane | ND | 1.0 | 0.18 | ug/l | |
| 110-54-3 | Hexane | ND | 5.0 | 0.40 | ug/l | |
| 98-82-8 | Isopropylbenzene | 3.0 | 1.0 | 0.23 | ug/l | |
| 95-63-6 | 1,2,4-Trimethylbenzene | 11.7 | 2.0 | 0.22 | ug/l | |
| 108-67-8 | 1,3,5-Trimethylbenzene | 4.2 | 2.0 | 0.29 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 1868-53-7 | Dibromofluoromethane | 94% | | 76-120% |
| 17060-07-0 | 1,2-Dichloroethane-D4 | 104% | | 73-122% |
| 2037-26-5 | Toluene-D8 | 99% | | 84-119% |
| 460-00-4 | 4-Bromofluorobenzene | 95% | | 78-117% |

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

Accutest Laboratories

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-469-20150707 | | |
| **Lab Sample ID:** | JB98590-14 | **Date Sampled:** | 07/07/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846 8270D SW846 3510C | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 6P17602.D | 1 | 07/10/15 | SW | 07/09/15 | OP85388 | E6P791 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 960 ml | 1.0 ml |
| Run #2 | | |

**ABN Special List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 105-67-9 | 2,4-Dimethylphenol | ND | 5.2 | 1.9 | ug/l | |
| 51-28-5 | 2,4-Dinitrophenol | ND | 10 | 6.8 | ug/l | |
| 95-48-7 | 2-Methylphenol | ND | 2.1 | 1.3 | ug/l | |
| | 3&4-Methylphenol | ND | 2.1 | 1.1 | ug/l | |
| 100-02-7 | 4-Nitrophenol | ND | 10 | 0.94 | ug/l | |
| 108-95-2 | Phenol | ND | 2.1 | 0.57 | ug/l | |
| 92-52-4 | 1,1'-Biphenyl | ND | 1.0 | 0.29 | ug/l | |
| 84-74-2 | Di-n-butyl phthalate | ND | 2.1 | 0.61 | ug/l | |
| 84-66-2 | Diethyl phthalate | ND | 2.1 | 0.24 | ug/l | |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | 2.1 | 2.1 | 0.58 | ug/l | |
| 91-57-6 | 2-Methylnaphthalene | 2.3 | 1.0 | 0.30 | ug/l | |
| 91-20-3 | Naphthalene | 3.6 | 1.0 | 0.28 | ug/l | |
| 110-86-1 | Pyridine | ND | 2.1 | 0.30 | ug/l | |
| 91-22-5 | Quinoline | ND | 5.2 | 0.36 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 367-12-4 | 2-Fluorophenol | 54% | | 12-110% |
| 4165-62-2 | Phenol-d5 | 37% | | 10-110% |
| 118-79-6 | 2,4,6-Tribromophenol | 91% | | 42-154% |
| 4165-60-0 | Nitrobenzene-d5 | 93% | | 29-139% |
| 321-60-8 | 2-Fluorobiphenyl | 88% | | 33-129% |
| 1718-51-0 | Terphenyl-d14 | 58% | | 10-140% |

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

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# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-469-20150707 | | |
| **Lab Sample ID:** | JB98590-14 | **Date Sampled:** | 07/07/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846 8270D BY SIM SW846 3510C | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 3M56153.D | 1 | 07/10/15 | AD | 07/09/15 | OP85388A | E3M2590 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 960 ml | 1.0 ml |
| Run #2 | | |

**BN PAH List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | ND | 0.10 | 0.014 | ug/l | |
| 120-12-7 | Anthracene | ND | 0.10 | 0.013 | ug/l | |
| 56-55-3 | Benzo(a)anthracene | ND | 0.052 | 0.019 | ug/l | |
| 50-32-8 | Benzo(a)pyrene | ND | 0.052 | 0.031 | ug/l | |
| 205-99-2 | Benzo(b)fluoranthene | ND | 0.10 | 0.022 | ug/l | |
| 191-24-2 | Benzo(g,h,i)perylene | ND | 0.10 | 0.027 | ug/l | |
| 207-08-9 | Benzo(k)fluoranthene | ND | 0.10 | 0.020 | ug/l | |
| 218-01-9 | Chrysene | ND | 0.10 | 0.016 | ug/l | |
| 53-70-3 | Dibenzo(a,h)anthracene | ND | 0.10 | 0.037 | ug/l | |
| 206-44-0 | Fluoranthene | ND | 0.10 | 0.012 | ug/l | |
| 86-73-7 | Fluorene | ND | 0.10 | 0.028 | ug/l | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | ND | 0.10 | 0.032 | ug/l | |
| 85-01-8 | Phenanthrene | ND | 0.10 | 0.017 | ug/l | |
| 129-00-0 | Pyrene | ND | 0.10 | 0.014 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 4165-60-0 | Nitrobenzene-d5 | 65% | | 23-131% |
| 321-60-8 | 2-Fluorobiphenyl | 65% | | 24-120% |
| 1718-51-0 | Terphenyl-d14 | 40% | | 10-125% |

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

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# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-469-20150707 | | |
| **Lab Sample ID:** | JB98590-14 | **Date Sampled:** | 07/07/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846-8011 SW846 8011 | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 7G13961.D | 1 | 07/10/15 | VDT | 07/09/15 | OP85389 | G7G508 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 37 ml | 2.0 ml |
| Run #2 | | |

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 106-93-4 | 1,2-Dibromoethane | ND | 0.019 | 0.0082 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 3017-95-6 | 2-Bromo-1-chloropropane | 76% | | 38-167% |
| 3017-95-6 | 2-Bromo-1-chloropropane | 77% | | 38-167% |

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

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-469-20150707 | | |
| **Lab Sample ID:** | JB98590-14F | **Date Sampled:** | 07/07/15 |
| **Matrix:** | AQ - Groundwater Filtered | **Date Received:** | 07/07/15 |
| | | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

**Dissolved Metals Analysis**

| Analyte | Result | RL | MDL | Units | DF | Prep | Analyzed | By | Method | Prep Method |
|---|---|---|---|---|---|---|---|---|---|---|
| Cobalt | 0.70 B | 50 | 0.54 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Lead | 2.3 U | 3.0 | 2.3 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Nickel | 0.79 U | 10 | 0.79 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Vanadium | 0.70 U | 50 | 0.70 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Zinc | 8.3 B | 20 | 4.9 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |

(1) Instrument QC Batch: MA37077
(2) Prep QC Batch: MP87589A

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

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# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-464-20150707 | | |
| **Lab Sample ID:** | JB98590-15 | **Date Sampled:** | 07/07/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846 8260C | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | C201896.D | 1 | 07/16/15 | MM | n/a | n/a | VC7407 |
| Run #2 | | | | | | | |

| | Purge Volume |
|---|---|
| Run #1 | 5.0 ml |
| Run #2 | |

**Leaded Gasoline and Aviation Gas List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 71-43-2 | Benzene | 0.34 | 0.50 | 0.24 | ug/l | J |
| 108-88-3 | Toluene | ND | 1.0 | 0.16 | ug/l | |
| 100-41-4 | Ethylbenzene | 0.45 | 1.0 | 0.27 | ug/l | J |
| 1330-20-7 | Xylene (total) | 0.35 | 1.0 | 0.17 | ug/l | J |
| 1634-04-4 | Methyl Tert Butyl Ether | 6.9 | 1.0 | 0.24 | ug/l | |
| 135-98-8 | sec-Butylbenzene | 0.28 | 2.0 | 0.21 | ug/l | J |
| 98-06-6 | tert-Butylbenzene | ND | 2.0 | 0.28 | ug/l | |
| 110-82-7 | Cyclohexane | ND | 5.0 | 0.28 | ug/l | |
| 107-06-2 | 1,2-Dichloroethane | 0.28 | 1.0 | 0.18 | ug/l | J |
| 110-54-3 | Hexane | ND | 5.0 | 0.40 | ug/l | |
| 98-82-8 | Isopropylbenzene | 0.46 | 1.0 | 0.23 | ug/l | J |
| 95-63-6 | 1,2,4-Trimethylbenzene | 2.2 | 2.0 | 0.22 | ug/l | |
| 108-67-8 | 1,3,5-Trimethylbenzene | 0.63 | 2.0 | 0.29 | ug/l | J |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 1868-53-7 | Dibromofluoromethane | 100% | | 76-120% |
| 17060-07-0 | 1,2-Dichloroethane-D4 | 115% | | 73-122% |
| 2037-26-5 | Toluene-D8 | 101% | | 84-119% |
| 460-00-4 | 4-Bromofluorobenzene | 104% | | 78-117% |

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

Accutest Laboratories

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-464-20150707 | | |
| **Lab Sample ID:** | JB98590-15 | **Date Sampled:** | 07/07/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846 8270D SW846 3510C | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 6P17603.D | 1 | 07/10/15 | SW | 07/09/15 | OP85388 | E6P791 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 1000 ml | 1.0 ml |
| Run #2 | | |

**ABN Special List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 105-67-9 | 2,4-Dimethylphenol | ND | 5.0 | 1.8 | ug/l | |
| 51-28-5 | 2,4-Dinitrophenol | ND | 10 | 6.5 | ug/l | |
| 95-48-7 | 2-Methylphenol | ND | 2.0 | 1.3 | ug/l | |
| | 3&4-Methylphenol | ND | 2.0 | 1.1 | ug/l | |
| 100-02-7 | 4-Nitrophenol | ND | 10 | 0.91 | ug/l | |
| 108-95-2 | Phenol | ND | 2.0 | 0.55 | ug/l | |
| 92-52-4 | 1,1'-Biphenyl | ND | 1.0 | 0.27 | ug/l | |
| 84-74-2 | Di-n-butyl phthalate | ND | 2.0 | 0.58 | ug/l | |
| 84-66-2 | Diethyl phthalate | ND | 2.0 | 0.23 | ug/l | |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | ND | 2.0 | 0.55 | ug/l | |
| 91-57-6 | 2-Methylnaphthalene | 1.0 | 1.0 | 0.29 | ug/l | |
| 91-20-3 | Naphthalene | 1.2 | 1.0 | 0.27 | ug/l | |
| 110-86-1 | Pyridine | ND | 2.0 | 0.29 | ug/l | |
| 91-22-5 | Quinoline | ND | 5.0 | 0.35 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 367-12-4 | 2-Fluorophenol | 61% | | 12-110% |
| 4165-62-2 | Phenol-d5 | 39% | | 10-110% |
| 118-79-6 | 2,4,6-Tribromophenol | 96% | | 42-154% |
| 4165-60-0 | Nitrobenzene-d5 | 102% | | 29-139% |
| 321-60-8 | 2-Fluorobiphenyl | 95% | | 33-129% |
| 1718-51-0 | Terphenyl-d14 | 70% | | 10-140% |

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

Accutest Laboratories

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-464-20150707 | | |
| **Lab Sample ID:** | JB98590-15 | **Date Sampled:** | 07/07/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846 8270D BY SIM SW846 3510C | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 3M56154.D | 1 | 07/10/15 | AD | 07/09/15 | OP85388A | E3M2590 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 1000 ml | 1.0 ml |
| Run #2 | | |

**BN PAH List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | ND | 0.10 | 0.013 | ug/l | |
| 120-12-7 | Anthracene | ND | 0.10 | 0.013 | ug/l | |
| 56-55-3 | Benzo(a)anthracene | ND | 0.050 | 0.019 | ug/l | |
| 50-32-8 | Benzo(a)pyrene | ND | 0.050 | 0.030 | ug/l | |
| 205-99-2 | Benzo(b)fluoranthene | ND | 0.10 | 0.021 | ug/l | |
| 191-24-2 | Benzo(g,h,i)perylene | ND | 0.10 | 0.026 | ug/l | |
| 207-08-9 | Benzo(k)fluoranthene | ND | 0.10 | 0.019 | ug/l | |
| 218-01-9 | Chrysene | ND | 0.10 | 0.015 | ug/l | |
| 53-70-3 | Dibenzo(a,h)anthracene | ND | 0.10 | 0.035 | ug/l | |
| 206-44-0 | Fluoranthene | ND | 0.10 | 0.011 | ug/l | |
| 86-73-7 | Fluorene | ND | 0.10 | 0.027 | ug/l | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | ND | 0.10 | 0.031 | ug/l | |
| 85-01-8 | Phenanthrene | ND | 0.10 | 0.016 | ug/l | |
| 129-00-0 | Pyrene | ND | 0.10 | 0.013 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 4165-60-0 | Nitrobenzene-d5 | 71% | | 23-131% |
| 321-60-8 | 2-Fluorobiphenyl | 72% | | 24-120% |
| 1718-51-0 | Terphenyl-d14 | 48% | | 10-125% |

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

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# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-464-20150707 | | |
| **Lab Sample ID:** | JB98590-15 | **Date Sampled:** | 07/07/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846-8011 SW846 8011 | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 7G13964.D | 1 | 07/10/15 | VDT | 07/09/15 | OP85389 | G7G508 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 37 ml | 2.0 ml |
| Run #2 | | |

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 106-93-4 | 1,2-Dibromoethane | ND | 0.019 | 0.0081 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 3017-95-6 | 2-Bromo-1-chloropropane | 71% | | 38-167% |
| 3017-95-6 | 2-Bromo-1-chloropropane | 66% | | 38-167% |

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

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-464-20150707 | | |
| **Lab Sample ID:** | JB98590-15F | **Date Sampled:** | 07/07/15 |
| **Matrix:** | AQ - Groundwater Filtered | **Date Received:** | 07/07/15 |
| | | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

**Dissolved Metals Analysis**

| Analyte | Result | RL | MDL | Units | DF | Prep | Analyzed | By | Method | Prep Method |
|---|---|---|---|---|---|---|---|---|---|---|
| Cobalt | 0.54 U | 50 | 0.54 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Lead | 2.3 U | 3.0 | 2.3 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Nickel | 0.79 U | 10 | 0.79 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Vanadium | 3.4 B | 50 | 0.70 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Zinc | 4.9 U | 20 | 4.9 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |

(1) Instrument QC Batch: MA37077
(2) Prep QC Batch: MP87589A

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

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# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-461-20150707 | | |
| **Lab Sample ID:** | JB98590-16 | **Date Sampled:** | 07/07/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846 8260C | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | C201897.D | 1 | 07/16/15 | MM | n/a | n/a | VC7407 |
| Run #2 | | | | | | | |

| | Purge Volume |
|---|---|
| Run #1 | 5.0 ml |
| Run #2 | |

**Leaded Gasoline and Aviation Gas List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 71-43-2 | Benzene | 0.25 | 0.50 | 0.24 | ug/l | J |
| 108-88-3 | Toluene | 0.21 | 1.0 | 0.16 | ug/l | J |
| 100-41-4 | Ethylbenzene | ND | 1.0 | 0.27 | ug/l | |
| 1330-20-7 | Xylene (total) | 0.23 | 1.0 | 0.17 | ug/l | J |
| 1634-04-4 | Methyl Tert Butyl Ether | 12.4 | 1.0 | 0.24 | ug/l | |
| 135-98-8 | sec-Butylbenzene | ND | 2.0 | 0.21 | ug/l | |
| 98-06-6 | tert-Butylbenzene | ND | 2.0 | 0.28 | ug/l | |
| 110-82-7 | Cyclohexane | ND | 5.0 | 0.28 | ug/l | |
| 107-06-2 | 1,2-Dichloroethane | ND | 1.0 | 0.18 | ug/l | |
| 110-54-3 | Hexane | ND | 5.0 | 0.40 | ug/l | |
| 98-82-8 | Isopropylbenzene | 0.88 | 1.0 | 0.23 | ug/l | J |
| 95-63-6 | 1,2,4-Trimethylbenzene | 0.65 | 2.0 | 0.22 | ug/l | J |
| 108-67-8 | 1,3,5-Trimethylbenzene | ND | 2.0 | 0.29 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 1868-53-7 | Dibromofluoromethane | 100% | | 76-120% |
| 17060-07-0 | 1,2-Dichloroethane-D4 | 120% | | 73-122% |
| 2037-26-5 | Toluene-D8 | 101% | | 84-119% |
| 460-00-4 | 4-Bromofluorobenzene | 104% | | 78-117% |

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

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# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-461-20150707 | | |
| **Lab Sample ID:** | JB98590-16 | **Date Sampled:** | 07/07/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846 8270D SW846 3510C | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 6P17604.D | 1 | 07/10/15 | SW | 07/09/15 | OP85388 | E6P791 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 1000 ml | 1.0 ml |
| Run #2 | | |

**ABN Special List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 105-67-9 | 2,4-Dimethylphenol | ND | 5.0 | 1.8 | ug/l | |
| 51-28-5 | 2,4-Dinitrophenol | ND | 10 | 6.5 | ug/l | |
| 95-48-7 | 2-Methylphenol | ND | 2.0 | 1.3 | ug/l | |
| | 3&4-Methylphenol | ND | 2.0 | 1.1 | ug/l | |
| 100-02-7 | 4-Nitrophenol | ND | 10 | 0.91 | ug/l | |
| 108-95-2 | Phenol | ND | 2.0 | 0.55 | ug/l | |
| 92-52-4 | 1,1'-Biphenyl | ND | 1.0 | 0.27 | ug/l | |
| 84-74-2 | Di-n-butyl phthalate | ND | 2.0 | 0.58 | ug/l | |
| 84-66-2 | Diethyl phthalate | ND | 2.0 | 0.23 | ug/l | |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | 85.3 | 2.0 | 0.55 | ug/l | |
| 91-57-6 | 2-Methylnaphthalene | ND | 1.0 | 0.29 | ug/l | |
| 110-86-1 | Pyridine | ND | 2.0 | 0.29 | ug/l | |
| 91-22-5 | Quinoline | ND | 5.0 | 0.35 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 367-12-4 | 2-Fluorophenol | 55% | | 12-110% |
| 4165-62-2 | Phenol-d5 | 36% | | 10-110% |
| 118-79-6 | 2,4,6-Tribromophenol | 91% | | 42-154% |
| 4165-60-0 | Nitrobenzene-d5 | 97% | | 29-139% |
| 321-60-8 | 2-Fluorobiphenyl | 85% | | 33-129% |
| 1718-51-0 | Terphenyl-d14 | 61% | | 10-140% |

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

Accutest Laboratories

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-461-20150707 | | |
| **Lab Sample ID:** | JB98590-16 | **Date Sampled:** | 07/07/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846 8270D BY SIM SW846 3510C | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 3M56176.D | 1 | 07/11/15 | AD | 07/09/15 | OP85388A | E3M2591 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 1000 ml | 1.0 ml |
| Run #2 | | |

**BN PAH List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | ND | 0.10 | 0.013 | ug/l | |
| 120-12-7 | Anthracene | ND | 0.10 | 0.013 | ug/l | |
| 56-55-3 | Benzo(a)anthracene | 0.151 | 0.050 | 0.019 | ug/l | |
| 50-32-8 | Benzo(a)pyrene | ND | 0.050 | 0.030 | ug/l | |
| 205-99-2 | Benzo(b)fluoranthene | ND | 0.10 | 0.021 | ug/l | |
| 191-24-2 | Benzo(g,h,i)perylene | ND | 0.10 | 0.026 | ug/l | |
| 207-08-9 | Benzo(k)fluoranthene | ND | 0.10 | 0.019 | ug/l | |
| 218-01-9 | Chrysene | ND | 0.10 | 0.015 | ug/l | |
| 53-70-3 | Dibenzo(a,h)anthracene | ND | 0.10 | 0.035 | ug/l | |
| 206-44-0 | Fluoranthene | 0.140 | 0.10 | 0.011 | ug/l | |
| 86-73-7 | Fluorene | ND | 0.10 | 0.027 | ug/l | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | ND | 0.10 | 0.031 | ug/l | |
| 91-20-3 | Naphthalene | 0.173 | 0.10 | 0.013 | ug/l | |
| 85-01-8 | Phenanthrene | ND | 0.10 | 0.016 | ug/l | |
| 129-00-0 | Pyrene | 0.121 | 0.10 | 0.013 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 4165-60-0 | Nitrobenzene-d5 | 68% | | 23-131% |
| 321-60-8 | 2-Fluorobiphenyl | 62% | | 24-120% |
| 1718-51-0 | Terphenyl-d14 | 42% | | 10-125% |

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

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# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-461-20150707 | | |
| **Lab Sample ID:** | JB98590-16 | **Date Sampled:** | 07/07/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846-8011 SW846 8011 | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 7G13965.D | 1 | 07/10/15 | VDT | 07/09/15 | OP85389 | G7G508 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 37 ml | 2.0 ml |
| Run #2 | | |

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 106-93-4 | 1,2-Dibromoethane | ND | 0.019 | 0.0081 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 3017-95-6 | 2-Bromo-1-chloropropane | 83% | | 38-167% |
| 3017-95-6 | 2-Bromo-1-chloropropane | 83% | | 38-167% |

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

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-461-20150707 | | |
| **Lab Sample ID:** | JB98590-16F | **Date Sampled:** | 07/07/15 |
| **Matrix:** | AQ - Groundwater Filtered | **Date Received:** | 07/07/15 |
| | | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

**Dissolved Metals Analysis**

| Analyte | Result | RL | MDL | Units | DF | Prep | Analyzed | By | Method | Prep Method |
|---|---|---|---|---|---|---|---|---|---|---|
| Cobalt | 1.1 B | 50 | 0.54 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Lead | 2.3 U | 3.0 | 2.3 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Nickel | 1.5 B | 10 | 0.79 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Vanadium | 1.7 B | 50 | 0.70 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Zinc | 4.9 U | 20 | 4.9 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |

(1) Instrument QC Batch: MA37077
(2) Prep QC Batch: MP87589A

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

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# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-448-20150707 | | |
| **Lab Sample ID:** | JB98590-17 | **Date Sampled:** | 07/07/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846 8260C | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | U197279.D | 1 | 07/17/15 | NH | n/a | n/a | VU9094 |
| Run #2 | | | | | | | |

| | Purge Volume |
|---|---|
| Run #1 | 5.0 ml |
| Run #2 | |

**Leaded Gasoline and Aviation Gas List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 71-43-2 | Benzene | 0.27 | 0.50 | 0.24 | ug/l | J |
| 108-88-3 | Toluene | ND | 1.0 | 0.16 | ug/l | |
| 100-41-4 | Ethylbenzene | ND | 1.0 | 0.27 | ug/l | |
| 1330-20-7 | Xylene (total) | ND | 1.0 | 0.17 | ug/l | |
| 1634-04-4 | Methyl Tert Butyl Ether | ND | 1.0 | 0.24 | ug/l | |
| 135-98-8 | sec-Butylbenzene | ND | 2.0 | 0.21 | ug/l | |
| 98-06-6 | tert-Butylbenzene | ND | 2.0 | 0.28 | ug/l | |
| 110-82-7 | Cyclohexane | 1.3 | 5.0 | 0.28 | ug/l | J |
| 107-06-2 | 1,2-Dichloroethane | ND | 1.0 | 0.18 | ug/l | |
| 110-54-3 | Hexane | ND | 5.0 | 0.40 | ug/l | |
| 98-82-8 | Isopropylbenzene | ND | 1.0 | 0.23 | ug/l | |
| 95-63-6 | 1,2,4-Trimethylbenzene | ND | 2.0 | 0.22 | ug/l | |
| 108-67-8 | 1,3,5-Trimethylbenzene | ND | 2.0 | 0.29 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 1868-53-7 | Dibromofluoromethane | 104% | | 76-120% |
| 17060-07-0 | 1,2-Dichloroethane-D4 | 103% | | 73-122% |
| 2037-26-5 | Toluene-D8 | 100% | | 84-119% |
| 460-00-4 | 4-Bromofluorobenzene | 95% | | 78-117% |

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

Accutest Laboratories

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-448-20150707 | | |
| **Lab Sample ID:** | JB98590-17 | **Date Sampled:** | 07/07/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846 8270D SW846 3510C | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 6P17605.D | 1 | 07/10/15 | SW | 07/09/15 | OP85388 | E6P791 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 960 ml | 1.0 ml |
| Run #2 | | |

**ABN Special List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 105-67-9 | 2,4-Dimethylphenol | ND | 5.2 | 1.9 | ug/l | |
| 51-28-5 | 2,4-Dinitrophenol | ND | 10 | 6.8 | ug/l | |
| 95-48-7 | 2-Methylphenol | ND | 2.1 | 1.3 | ug/l | |
| | 3&4-Methylphenol | 46.4 | 2.1 | 1.1 | ug/l | |
| 100-02-7 | 4-Nitrophenol | ND | 10 | 0.94 | ug/l | |
| 108-95-2 | Phenol | 2.3 | 2.1 | 0.57 | ug/l | |
| 92-52-4 | 1,1'-Biphenyl | ND | 1.0 | 0.29 | ug/l | |
| 84-74-2 | Di-n-butyl phthalate | ND | 2.1 | 0.61 | ug/l | |
| 84-66-2 | Diethyl phthalate | ND | 2.1 | 0.24 | ug/l | |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | 1.4 | 2.1 | 0.58 | ug/l | J |
| 91-57-6 | 2-Methylnaphthalene | ND | 1.0 | 0.30 | ug/l | |
| 110-86-1 | Pyridine | ND | 2.1 | 0.30 | ug/l | |
| 91-22-5 | Quinoline | ND | 5.2 | 0.36 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 367-12-4 | 2-Fluorophenol | 55% | | 12-110% |
| 4165-62-2 | Phenol-d5 | 37% | | 10-110% |
| 118-79-6 | 2,4,6-Tribromophenol | 97% | | 42-154% |
| 4165-60-0 | Nitrobenzene-d5 | 99% | | 29-139% |
| 321-60-8 | 2-Fluorobiphenyl | 94% | | 33-129% |
| 1718-51-0 | Terphenyl-d14 | 112% | | 10-140% |

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

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# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-448-20150707 | | |
| **Lab Sample ID:** | JB98590-17 | **Date Sampled:** | 07/07/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846 8270D BY SIM SW846 3510C | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 3M56177.D | 1 | 07/11/15 | AD | 07/09/15 | OP85388A | E3M2591 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 960 ml | 1.0 ml |
| Run #2 | | |

**BN PAH List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | 0.397 | 0.10 | 0.014 | ug/l | |
| 120-12-7 | Anthracene | ND | 0.10 | 0.013 | ug/l | |
| 56-55-3 | Benzo(a)anthracene | 0.236 | 0.052 | 0.019 | ug/l | |
| 50-32-8 | Benzo(a)pyrene | 0.120 | 0.052 | 0.031 | ug/l | |
| 205-99-2 | Benzo(b)fluoranthene | 0.173 | 0.10 | 0.022 | ug/l | |
| 191-24-2 | Benzo(g,h,i)perylene | ND | 0.10 | 0.027 | ug/l | |
| 207-08-9 | Benzo(k)fluoranthene | ND | 0.10 | 0.020 | ug/l | |
| 218-01-9 | Chrysene | 0.169 | 0.10 | 0.016 | ug/l | |
| 53-70-3 | Dibenzo(a,h)anthracene | ND | 0.10 | 0.037 | ug/l | |
| 206-44-0 | Fluoranthene | 0.216 | 0.10 | 0.012 | ug/l | |
| 86-73-7 | Fluorene | 0.600 | 0.10 | 0.028 | ug/l | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | ND | 0.10 | 0.032 | ug/l | |
| 91-20-3 | Naphthalene | 0.891 | 0.10 | 0.014 | ug/l | |
| 85-01-8 | Phenanthrene | 0.236 | 0.10 | 0.017 | ug/l | |
| 129-00-0 | Pyrene | 0.311 | 0.10 | 0.014 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 4165-60-0 | Nitrobenzene-d5 | 70% | | 23-131% |
| 321-60-8 | 2-Fluorobiphenyl | 66% | | 24-120% |
| 1718-51-0 | Terphenyl-d14 | 76% | | 10-125% |

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

Accutest Laboratories

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-448-20150707 | | |
| **Lab Sample ID:** | JB98590-17 | **Date Sampled:** | 07/07/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846-8011 SW846 8011 | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 7G13966.D | 1 | 07/10/15 | VDT | 07/09/15 | OP85389 | G7G508 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 37 ml | 2.0 ml |
| Run #2 | | |

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 106-93-4 | 1,2-Dibromoethane | ND | 0.019 | 0.0082 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 3017-95-6 | 2-Bromo-1-chloropropane | 68% | | 38-167% |
| 3017-95-6 | 2-Bromo-1-chloropropane | 67% | | 38-167% |

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

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-448-20150707 | | |
| **Lab Sample ID:** | JB98590-17F | **Date Sampled:** | 07/07/15 |
| **Matrix:** | AQ - Groundwater Filtered | **Date Received:** | 07/07/15 |
| | | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

**Dissolved Metals Analysis**

| Analyte | Result | RL | MDL | Units | DF | Prep | Analyzed | By | Method | Prep Method |
|---|---|---|---|---|---|---|---|---|---|---|
| Cobalt | 0.60 B | 50 | 0.54 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Lead | 2.3 U | 3.0 | 2.3 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Nickel | 1.9 B | 10 | 0.79 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Vanadium | 3.5 B | 50 | 0.70 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Zinc | 4.9 U | 20 | 4.9 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |

(1) Instrument QC Batch: MA37077
(2) Prep QC Batch: MP87589A

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Accutest Laboratories

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-468-DUP20150707 | | |
| **Lab Sample ID:** | JB98590-18 | **Date Sampled:** | 07/07/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846 8260C | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | C201898.D | 1 | 07/16/15 | MM | n/a | n/a | VC7407 |
| Run #2 | U197276.D | 10 | 07/17/15 | NH | n/a | n/a | VU9094 |

| | Purge Volume |
|---|---|
| Run #1 | 5.0 ml |
| Run #2 | 5.0 ml |

**Leaded Gasoline and Aviation Gas List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 71-43-2 | Benzene | 180 [a] | 5.0 | 2.4 | ug/l | |
| 108-88-3 | Toluene | 6.9 | 1.0 | 0.16 | ug/l | |
| 100-41-4 | Ethylbenzene | 140 | 1.0 | 0.27 | ug/l | |
| 1330-20-7 | Xylene (total) | 126 | 1.0 | 0.17 | ug/l | |
| 1634-04-4 | Methyl Tert Butyl Ether | 0.53 | 1.0 | 0.24 | ug/l | J |
| 135-98-8 | sec-Butylbenzene | 28.6 | 2.0 | 0.21 | ug/l | |
| 98-06-6 | tert-Butylbenzene | 9.4 | 2.0 | 0.28 | ug/l | |
| 110-82-7 | Cyclohexane | 111 | 5.0 | 0.28 | ug/l | |
| 107-06-2 | 1,2-Dichloroethane | ND | 1.0 | 0.18 | ug/l | |
| 110-54-3 | Hexane | 10.1 | 5.0 | 0.40 | ug/l | |
| 98-82-8 | Isopropylbenzene | 96.9 | 1.0 | 0.23 | ug/l | |
| 95-63-6 | 1,2,4-Trimethylbenzene | 462 [a] | 20 | 2.2 | ug/l | |
| 108-67-8 | 1,3,5-Trimethylbenzene | 110 | 2.0 | 0.29 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 1868-53-7 | Dibromofluoromethane | 101% | 103% | 76-120% |
| 17060-07-0 | 1,2-Dichloroethane-D4 | 119% | 102% | 73-122% |
| 2037-26-5 | Toluene-D8 | 103% | 100% | 84-119% |
| 460-00-4 | 4-Bromofluorobenzene | 102% | 93% | 78-117% |

(a) Result is from Run# 2

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

Accutest Laboratories

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-468-DUP20150707 | | |
| **Lab Sample ID:** | JB98590-18 | **Date Sampled:** | 07/07/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846 8270D SW846 3510C | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 6P17606.D | 1 | 07/10/15 | SW | 07/09/15 | OP85388 | E6P791 |
| Run #2 | 6P17632.D | 20 | 07/10/15 | AP | 07/09/15 | OP85388 | E6P792 |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 1000 ml | 1.0 ml |
| Run #2 | 1000 ml | 1.0 ml |

**ABN Special List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 105-67-9 | 2,4-Dimethylphenol | 74.7 | 5.0 | 1.8 | ug/l | |
| 51-28-5 | 2,4-Dinitrophenol | ND | 10 | 6.5 | ug/l | |
| 95-48-7 | 2-Methylphenol | 38.3 | 2.0 | 1.3 | ug/l | |
| | 3&4-Methylphenol | 57.9 | 2.0 | 1.1 | ug/l | |
| 100-02-7 | 4-Nitrophenol | ND | 10 | 0.91 | ug/l | |
| 108-95-2 | Phenol | ND | 2.0 | 0.55 | ug/l | |
| 92-52-4 | 1,1'-Biphenyl | 6.5 | 1.0 | 0.27 | ug/l | |
| 84-74-2 | Di-n-butyl phthalate | ND | 2.0 | 0.58 | ug/l | |
| 84-66-2 | Diethyl phthalate | ND | 2.0 | 0.23 | ug/l | |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | 37.0 | 2.0 | 0.55 | ug/l | |
| 91-57-6 | 2-Methylnaphthalene | 634 [a] | 20 | 5.8 | ug/l | |
| 91-20-3 | Naphthalene | 537 [a] | 20 | 5.3 | ug/l | |
| 110-86-1 | Pyridine | ND | 2.0 | 0.29 | ug/l | |
| 91-22-5 | Quinoline | ND | 5.0 | 0.35 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 367-12-4 | 2-Fluorophenol | 31% | 40% | 12-110% |
| 4165-62-2 | Phenol-d5 | 30% | 12% | 10-110% |
| 118-79-6 | 2,4,6-Tribromophenol | 73% | 65% | 42-154% |
| 4165-60-0 | Nitrobenzene-d5 | 265% [b] | 42% | 29-139% |
| 321-60-8 | 2-Fluorobiphenyl | 69% | 83% | 33-129% |
| 1718-51-0 | Terphenyl-d14 | 88% | 87% | 10-140% |

(a) Result is from Run# 2
(b) Outside control limits due to matrix interference.

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

Accutest Laboratories

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-468-DUP20150707 | | |
| **Lab Sample ID:** | JB98590-18 | **Date Sampled:** | 07/07/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846 8270D BY SIM SW846 3510C | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | 3M56178.D | 5 | 07/11/15 | AD | 07/09/15 | OP85388A | E3M2591 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 1000 ml | 1.0 ml |
| Run #2 | | |

**BN PAH List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | 1.62 | 0.50 | 0.067 | ug/l | |
| 120-12-7 | Anthracene | ND | 0.50 | 0.065 | ug/l | |
| 56-55-3 | Benzo(a)anthracene | 0.309 | 0.25 | 0.093 | ug/l | |
| 50-32-8 | Benzo(a)pyrene | ND | 0.25 | 0.15 | ug/l | |
| 205-99-2 | Benzo(b)fluoranthene | ND | 0.50 | 0.11 | ug/l | |
| 191-24-2 | Benzo(g,h,i)perylene | ND | 0.50 | 0.13 | ug/l | |
| 207-08-9 | Benzo(k)fluoranthene | ND | 0.50 | 0.097 | ug/l | |
| 218-01-9 | Chrysene | ND | 0.50 | 0.076 | ug/l | |
| 53-70-3 | Dibenzo(a,h)anthracene | ND | 0.50 | 0.18 | ug/l | |
| 206-44-0 | Fluoranthene | ND | 0.50 | 0.056 | ug/l | |
| 86-73-7 | Fluorene | 2.96 | 0.50 | 0.13 | ug/l | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | ND | 0.50 | 0.16 | ug/l | |
| 85-01-8 | Phenanthrene | 1.15 | 0.50 | 0.080 | ug/l | |
| 129-00-0 | Pyrene | ND | 0.50 | 0.067 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 4165-60-0 | Nitrobenzene-d5 | 102% | | 23-131% |
| 321-60-8 | 2-Fluorobiphenyl | 67% | | 24-120% |
| 1718-51-0 | Terphenyl-d14 | 72% | | 10-125% |

(a) Dilution required due to matrix interference.

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

Accutest Laboratories

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-468-DUP20150707 | | |
| **Lab Sample ID:** | JB98590-18 | **Date Sampled:** | 07/07/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/07/15 |
| **Method:** | SW846-8011 SW846 8011 | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | 7G13967.D | 1 | 07/10/15 | VDT | 07/09/15 | OP85389 | G7G508 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 38 ml | 2.0 ml |
| Run #2 | | |

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 106-93-4 | 1,2-Dibromoethane | ND | 0.019 | 0.0079 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 3017-95-6 | 2-Bromo-1-chloropropane | 71% | | 38-167% |
| 3017-95-6 | 2-Bromo-1-chloropropane | 77% | | 38-167% |

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

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | MW-468-DUP20150707 | | |
| **Lab Sample ID:** | JB98590-18F | **Date Sampled:** | 07/07/15 |
| **Matrix:** | AQ - Groundwater Filtered | **Date Received:** | 07/07/15 |
| | | **Percent Solids:** | n/a |
| **Project:** | Sunoco - Marcus Hook Facility, PA | | |

**Dissolved Metals Analysis**

| Analyte | Result | RL | MDL | Units | DF | Prep | Analyzed | By | Method | Prep Method |
|---|---|---|---|---|---|---|---|---|---|---|
| Cobalt | 0.54 U | 50 | 0.54 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Lead | 2.3 U | 3.0 | 2.3 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Nickel | 1.8 B | 10 | 0.79 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Vanadium | 1.1 B | 50 | 0.70 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |
| Zinc | 4.9 U | 20 | 4.9 | ug/l | 1 | 07/10/15 | 07/13/15 | KK | SW846 6010C [1] | SW846 3010A [2] |

(1) Instrument QC Batch: MA37077
(2) Prep QC Batch: MP87589A

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

New Jersey

ACCUTEST LABORATORIES



# Misc. Forms

## Custody Documents and Other Forms

Includes the following where applicable:

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

ACCUTEST LABORATORIES

GW
FB
TB

# CHAIN OF CUSTODY

2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200 FAX: 732-329-3499/3480
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PAGE 1 OF 2

F/PN

FED-EX Tracking #:
Bottle Order Control #:
Accutest Quote #:
Accutest Job #: JB98590

**Client / Reporting Information**

Company Name: Stantec
Street Address: 1060 Andrew Drive
City: West Chester State: PA Zip: 19380
Project Contact: Jennifer.Mengel@stantec.com E-mail:
Phone #: 610-840-2500 Fax #: 610-840-2501
Sampler(s) Name(s): Kurt McCurry / Dene Hopkins Phone #:

**Project Information**

Project Name: Evergreen MHIC AOI-5
Street:
City: State:
Project #:
Client Purchase Order #:
Project Manager:

**Billing Information ( if different from Report to)**

Company Name:
Street Address:
City: State: Zip:
Attention:

**Requested Analysis ( see TEST CODE sheet)**

| Accutest Sample # | Field ID / Point of Collection | MEOH/DI Vial # | Collection Date | Collection Time | Sampled by | Matrix | # of bottles | HCl | NaOH | HNO3 | H2SO4 | NONE | DI Water | MEOH | ENCORE | 8260 VOC * | 8270 SVOC * | 6010/6020 Metals | 8011 EDB | LAB USE ONLY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1F | MW-446-20150706 | | 7.6.15 | 1300 | DH | GW | 8 | 5 | | | | | | | | X | X | X | X | E28 |
| 2F | MW-447-20150706 | | 7.6.15 | 1400 | DH | GW | 8 | 5 | | | | | | | | X | X | X | X | C11 |
| 3F | MW-453-20150706 | | 7.6.15 | 1500 | DH | GW | 8 | 5 | | | | | | | | X | X | X | X | V529 |
| 4F | FB-20150706- | | 7.6.15 | ~~1440~~ | DH | ~~DI~~ | 8 | 5 | | | | | | | | X | X | X | X | E30 |
| 5F | MW-444-20150706 | | 7.6.15 | 1141 | KM | GW | 8 | 5 | | | | | | | | X | X | X | X | V530 |
| 6F | MW-446-20150706 | | 7.6.15 | 1315 | KM | GW | 8 | 5 | | | | | | | | X | X | X | X | |
| 7F | MW-450-20150706 | | 7.6.15 | 1315 | KM | GW | 8 | 5 | | | | | | | | X | X | X | X | |
| 8 | TB-20150706- | | 7.6.15 | — | DH | - | 5 | 5 | | | | | | | | X | X | X | X | |
| 9F | MW-457-20150707 | | 7.7.15 | 845 | KM | GW | 8 | 5 | | | | | | | | X | X | X | X | |
| 10F | MW-471-20150707 | | 7.7.15 | 1015 | KM | GW | 8 | 5 | | | | | | | | X | X | X | X | |
| 11F | MW-479-20150707 | | 7.7.15 | 1130 | KM | GW | 8 | 5 | | | | | | | | X | X | X | X | |
| 12F | MW-478-20150707 | | 7.7.15 | 1300 | KM | GW | 8 | 5 | | | | | | | | X | X | X | X | |

INITIAL ASESSMENT KMC
LABEL VERIFICATION NJ

**Matrix Codes**

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

**Turnaround Time ( Business days)**

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

Emergency & Rush T/A data available VIA Lablink

Approved By (Accutest PM): / Date:

**Data Deliverable Information**

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

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

**Comments / Special Instructions**

* See attached comprehensive COC list for analytes.
Metals are to be lab filtered

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

| Relinquished by Sampler: | Date Time: | Received By: | Relinquished By: | Date Time: | Received By: |
|---|---|---|---|---|---|
| Dene [signature] | 7/7/15 1545 | 1 [signature] | 2 [signature] | 7/7/15 1735 | 2 [signature] |
| Relinquished by Sampler: 3 | Date Time: | Received By: 3 | Relinquished By: 4 | Date Time: | Received By: 4 |
| Relinquished by: 5 | Date Time: | Received By: 5 | Custody Seal # | Intact / Not intact | Preserved where applicable |

On Ice: 3.6 GP 2.9 CTP
Cooler Temp.: 1.1 GP 2.2 CTP

**JB98590: Chain of Custody**
**Page 1 of 7**

ACCUTEST LABORATORIES

# CHAIN OF CUSTODY



2235 Route 130, Dayton, NJ 08810
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FED-EX Tracking #:
Bottle Order Control #:
Accutest Quote #:
Accutest Job #: JB98590

**Client / Reporting Information**

Company Name: Stantec
Street Address: 1060 Andrew Drive
City / State / Zip: West Chester, PA 19380
Project Contact / E-mail: Jennifer.Menges@stantec.com
Phone # / Fax #: 610-840-2500 610-840-2501
Sampler(s) Name(s) / Phone #: Karl McGerry/Dave Hopkins

**Project Information**

Project Name: Evergreen MHIC AOI-5
Street:
City / State:
Project #:
Client Purchase Order #:
Project Manager:

**Billing Information ( if different from Report to)**

Company Name:
Street Address:
City / State / Zip:
Attention:

**Requested Analysis ( see TEST CODE sheet)**

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

| Accutest Sample # | Field ID / Point of Collection | MEOH/DI Vial # | Collection Date | Collection Time | Sampled by | Matrix | # of bottles | HCl | NaOH | HNO3 | H2SO4 | NONE | DI Water | MEOH | ENCORE | 8260 VOC * | 8270 SVOC * | 6010/6020 metals | 8011 EDB | LAB USE ONLY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13F | MW-468-20150707 | | 7.7.15 | 1000 | DH | GW | 8 | 5 | | | | | | | | X | X | X | X | |
| 14F | MW-469-20150707 | | 7.7.15 | 1045 | DH | GW | 8 | 5 | | | | | | | | X | X | X | X | |
| 15F | MW-464-20150707 | | 7.7.15 | 1130 | DH | GW | 8 | 5 | | | | | | | | X | X | X | X | |
| 16F | MW-461-20150707 | | 7.7.15 | 1230 | DH | GW | 8 | 5 | | | | | | | | X | X | X | X | |
| 17F | MW-448-20150707 | | 7.7.15 | 1330 | DH | GW | 8 | 5 | | | | | | | | X | X | X | X | |
| 18F | MW-468-DUP20150707 | | 7.7.15 | 1000 | DH | GW | 8 | 5 | | | | | | | | X | X | X | X | |

**Turnaround Time ( Business days)**

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

Emergency & Rush T/A data available VIA Lablink

Approved By (Accutest PM): / Date:

**Data Deliverable Information**

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" ( Level 2)
- [ ] FULLT1 ( Level 3+4 )
- [ ] NJ Reduced
- [ ] Commercial "C"
- [ ] NYASP Category A
- [ ] NYASP Category B
- [ ] State Forms
- [x] EDD Format Equis
- [ ] Other

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

**Comments / Special Instructions**

* See attached Comprehensive Coc list for analytes
Metals are to be lab filtered

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

| Relinquished by Sampler: | Date Time: | Received By: | Relinquished By: | Date Time: | Received By: |
|---|---|---|---|---|---|
| 1 Dave | 7/7/15 1545 | 1 | 2 | 7/7/15 1545 | 2 |
| 3 | | 3 | 4 | | 4 |
| 5 | | 5 | | | |

Custody Seal #: [ ] Intact [ ] Not intact
Preserved where applicable: [ ]
On Ice: [x] Cooler Temp. 3.6 CTP 2.9 CTP 1.9 CTP 2.3 CTP

5.1 5

**JB98590: Chain of Custody**
**Page 2 of 7**

JB98590

## Comprehensive COC List for Sunoco Characterizations (Sept. 2013)

| VOCs by EPA Method 8260 | CAS No. |
|---|---|
| Benzene | 71-43-2 |
| Butylbenzene, sec- | 135-98-8 |
| Butylbenzene, tert- | 98-06-6 |
| Cumene | 98-82-8 |
| Cyclohexane | 110-82-7 |
| Dichloroethane, 1,2- | 107-06-2 |
| Ethylbenzene | 100-41-4 |
| Hexane | 110-54-3 |
| Methyl tert butyl ether | 1634-04-4 |
| Toluene | 108-88-3 |
| Trimethylbenzene, 1,2,4- | 95-63-6 |
| Trimethylbenzene, 1,3,5- | 108-67-8 |
| Xylenes | 1330-20-7 |

| EDB by EPA Method 8011 | CAS No. |
|---|---|
| Ethylene Dibromide | 106-93-4 |

| Metals by Method 6010/6020 | CAS No. |
|---|---|
| Cobalt | 7440-48-4 |
| Lead | 7439-92-1 |
| Nickel | 7440-02-0 |
| Vanadium | 7440-62-2 |
| Zinc | 7440-66-6 |

| SVOCs by EPA Method 8270 | CAS No. |
|---|---|
| Acenaphthene | 83-32-9 |
| Anthracene | 120-12-7 |
| Benzo(a)anthracene | 56-55-3 |
| Benzo(a)pyrene | 50-32-8 |
| Benzo(b)fluroranthene | 205-99-2 |
| Benzo(g,h,i)perylene | 191-24-2 |
| Benzo(k)fluoranthene | 207-08-9 |
| Biphenyl, 1,1- | 92-52-4 |
| Bis(2-ethylhexyl) phthalate | 117-81-7 |
| Chrysene | 218-01-9 |
| Cresol, m- (3-methylphenol) | 108-39-4 |
| Cresol, o- (2-methylphenol) | 95-48-7 |
| Cresol, p- (4-methylphenol) | 106-44-5 |
| Dibenz(a,h)anthracene | 53-70-3 |
| Diethyl phthalate | 84-66-2 |
| Dimethylphenol, 2,4- | 105-67-9 |
| Dibutyl phthalate, n- | 84-74-2 |
| Dinitrophenol, 2,4- | 51-28-5 |
| Fluoranthene | 206-44-0 |
| Fluorene | 86-73-7 |
| Indeno(1,2,3-cd)pyrene | 193-39-5 |
| Methylnaphthalene, 2- | 91-57-6 |
| Naphthalene | 91-20-3 |
| Nitrophenol, 4- | 100-02-7 |
| Phenanthrene | 85-01-8 |
| Phenol | 108-95-2 |
| Pyrene | 129-00-0 |
| Pyridine | 110-86-1 |
| Quinoline | 91-22-5 |

List from PADEP SERO Crude Oil Parameters for Corrective Action (CDB | SERO | PA DEP | 9 Aug 2013) combined with PADEP Petroleum Shortlist (leaded and unleaded gasoline and No. 2, 4, 5, 6 Fuel Oils).

# Accutest Laboratories Sample Receipt Summary

**Accutest Job Number:** JB98590 **Client:** STANTEC **Project:** EVERGREEN MHIC AOI-5

**Date / Time Received:** 7/7/2015 5:35:00 PM **Delivery Method:** Accutest Courier **Airbill #'s:**

Cooler Temps (Raw Measured) °C: Cooler 1: (3.6); Cooler 2: (2.9); Cooler 3: (1.9); Cooler 4: (2.3);

Cooler Temps (Corrected) °C: Cooler 1: (3.3); Cooler 2: (2.6); Cooler 3: (1.6); Cooler 4: (2.0);

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

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

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

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

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

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

Comments
-7 Collection time on labels is 14:15, not 13:15. ID and date ok
-8 For TB, All analyses are marked off. Only rec'd 2 voc vials

Accutest Laboratories
V:732.329.0200
2235 US Highway 130
F: 732.329.3499
Dayton, New Jersey
www/accutest.com

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5

**JB98590: Chain of Custody**
**Page 4 of 7**

# Sample Receipt Summary - Problem Resolution

**Accutest Job Number:** JB98590 **Initiator:** ANDREWS

**CSR:** Marie **Response Date:** 7/8/2015

**Response:** -7, please enter collection time as 14:15; confirmed by J. Menges.
-8, TB, please login for 8260 and 8011 only.

Login, please use the instructions for test codes and special lists as per my email from am 7/8/15.
Those will match the attached compound list from the client.



Accutest Laboratories
V:732.329.0200

2235 US Highway 130
F: 732.329.3499

Dayton, New Jersey
www/accutest.com

ACCUTEST LABORATORIES

**Job Change Order:** JB98590

| | | | |
|---|---|---|---|
| **Requested Date:** | 7/13/2015 | **Received Date:** | 7/7/2015 |
| **Account Name:** | Stantec Consulting Services Inc. | **Due Date:** | 7/21/2015 |
| **Project Description:** | Evergreen, Philadelphia Refinery, Philadelphia, PA | **Deliverable:** | REDT2 |
| **CSR:** | mariem | **TAT (Days):** | 14 |

==========

**Sample #:** JB98590-1F to 7F, 9F to 18F

**Dept:**

**Change:**
Please revise PBMS to PB; I misinterpreted the metals methods.

==========

**Above Changes Per:**

**Date/Time:** 7/13/2015 11:10:20 AM

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

Page 1 of 1

# Job Change Order: JB98590

| | | | |
|---|---|---|---|
| **Requested Date:** | 7/14/2015 | **Received Date:** | 7/7/2015 |
| **Account Name:** | Stantec Consulting Services Inc. | **Due Date:** | 7/21/2015 |
| **Project Description:** | Evergreen, Philadelphia Refinery, Philadelphia, PA | **Deliverable:** | REDT2 |
| **CSR:** | mariem | **TAT (Days):** | 14 |

==========

**Sample #:** JB98590-all

**Dept:**

**Change:**
Please move to SECORPAE33099; these samples are from Marcus Hook.

==========

**Above Changes Per:**

**Date/Time:** 7/14/2015 11:08:29 AM

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

# Internal Sample Tracking Chronicle

Stantec Consulting Services Inc.

**Job No:** JB98590

Sunoco - Marcus Hook Facility, PA
Project No: AOI-5

| Sample Number | Method | Analyzed | By | Prepped | By | Test Codes |
|---|---|---|---|---|---|---|
| JB98590-1 Collected: 06-JUL-15 13:00 By: DH Received: 07-JUL-15 By: AS MW-440-20150706 | | | | | | |
| JB98590-1 | SW846 8270D BY SIM | 10-JUL-15 03:15 | AD | 09-JUL-15 | NG | B8270SIMSL2 |
| JB98590-1 | SW846 8270D | 10-JUL-15 07:39 | SW | 09-JUL-15 | NG | AB8270SL2 |
| JB98590-1 | SW846-8011 | 10-JUL-15 17:23 | VDT | 09-JUL-15 | AQ | V8011EDB |
| JB98590-1 | SW846 8260C | 11-JUL-15 02:27 | TK | | | V8260SL2 |
| JB98590-2 Collected: 06-JUL-15 14:00 By: DH Received: 07-JUL-15 By: AS MW-447-20150706 | | | | | | |
| JB98590-2 | SW846 8270D BY SIM | 10-JUL-15 03:45 | AD | 09-JUL-15 | NG | B8270SIMSL2 |
| JB98590-2 | SW846 8270D | 10-JUL-15 08:05 | SW | 09-JUL-15 | NG | AB8270SL2 |
| JB98590-2 | SW846-8011 | 10-JUL-15 17:41 | VDT | 09-JUL-15 | AQ | V8011EDB |
| JB98590-2 | SW846 8260C | 10-JUL-15 19:29 | TK | | | V8260SL2 |
| JB98590-3 Collected: 06-JUL-15 15:00 By: DH Received: 07-JUL-15 By: AS MW-453-20150706 | | | | | | |
| JB98590-3 | SW846 8270D BY SIM | 10-JUL-15 04:14 | AD | 09-JUL-15 | NG | B8270SIMSL2 |
| JB98590-3 | SW846 8270D | 10-JUL-15 08:31 | SW | 09-JUL-15 | NG | AB8270SL2 |
| JB98590-3 | SW846-8011 | 10-JUL-15 18:00 | VDT | 09-JUL-15 | AQ | V8011EDB |
| JB98590-3 | SW846 8260C | 11-JUL-15 00:57 | TK | | | V8260SL2 |
| JB98590-4 Collected: 06-JUL-15 00:00 By: DH Received: 07-JUL-15 By: AS FB-20150706 | | | | | | |
| JB98590-4 | SW846 8270D BY SIM | 10-JUL-15 04:43 | AD | 09-JUL-15 | NG | B8270SIMSL2 |
| JB98590-4 | SW846 8270D | 10-JUL-15 08:57 | SW | 09-JUL-15 | NG | AB8270SL2 |
| JB98590-4 | SW846-8011 | 10-JUL-15 18:19 | VDT | 09-JUL-15 | AQ | V8011EDB |
| JB98590-4 | SW846 8260C | 10-JUL-15 23:28 | TK | | | V8260SL2 |
| JB98590-5 Collected: 06-JUL-15 11:41 By: DH Received: 07-JUL-15 By: AS MW-444-20150706 | | | | | | |
| JB98590-5 | SW846 8270D BY SIM | 10-JUL-15 05:13 | AD | 09-JUL-15 | NG | B8270SIMSL2 |
| JB98590-5 | SW846 8270D | 10-JUL-15 16:33 | AP | 09-JUL-15 | NG | AB8270SL2 |
| JB98590-5 | SW846-8011 | 10-JUL-15 18:37 | VDT | 09-JUL-15 | AQ | V8011EDB |
| JB98590-5 | SW846 8260C | 10-JUL-15 20:29 | TK | | | V8260SL2 |

# Internal Sample Tracking Chronicle

Stantec Consulting Services Inc.

**Job No:** JB98590

Sunoco - Marcus Hook Facility, PA
Project No: AOI-5



| Sample Number | Method | Analyzed | By | Prepped | By | Test Codes |
|---|---|---|---|---|---|---|
| JB98590-6 | Collected: 06-JUL-15 13:15 By: DH | | Received: 07-JUL-15 By: AS | | | |
| MW-446-20150706 | | | | | | |
| JB98590-6 | SW846 8270D BY SIM | 10-JUL-15 05:43 | AD | 09-JUL-15 | NG | B8270SIMSL2 |
| JB98590-6 | SW846 8270D | 10-JUL-15 17:00 | AP | 09-JUL-15 | NG | AB8270SL2 |
| JB98590-6 | SW846-8011 | 10-JUL-15 19:33 | VDT | 09-JUL-15 | AQ | V8011EDB |
| JB98590-6 | SW846 8260C | 10-JUL-15 19:59 | TK | | | V8260SL2 |
| JB98590-7 | Collected: 06-JUL-15 13:15 By: DH | | Received: 07-JUL-15 By: AS | | | |
| MW-450-20150706 | | | | | | |
| JB98590-7 | SW846 8270D BY SIM | 10-JUL-15 06:13 | AD | 09-JUL-15 | NG | B8270SIMSL2 |
| JB98590-7 | SW846 8270D | 10-JUL-15 17:26 | AP | 09-JUL-15 | NG | AB8270SL2 |
| JB98590-7 | SW846-8011 | 10-JUL-15 19:52 | VDT | 09-JUL-15 | AQ | V8011EDB |
| JB98590-7 | SW846 8260C | 10-JUL-15 20:59 | TK | | | V8260SL2 |
| JB98590-8 | Collected: 07-JUL-15 13:30 By: DH | | Received: 07-JUL-15 By: AS | | | |
| TB-20150706 | | | | | | |
| JB98590-8 | SW846-8011 | 10-JUL-15 20:11 | VDT | 09-JUL-15 | AQ | V8011EDB |
| JB98590-8 | SW846 8260C | 10-JUL-15 23:58 | TK | | | V8260SL2 |
| JB98590-9 | Collected: 07-JUL-15 08:45 By: DH | | Received: 07-JUL-15 By: AS | | | |
| MW-457-20150707 | | | | | | |
| JB98590-9 | SW846 8270D | 10-JUL-15 03:17 | SW | 09-JUL-15 | NG | AB8270SL2 |
| JB98590-9 | SW846 8270D BY SIM | 10-JUL-15 18:15 | AD | 09-JUL-15 | NG | B8270SIMSL2 |
| JB98590-9 | SW846-8011 | 10-JUL-15 20:29 | VDT | 09-JUL-15 | AQ | V8011EDB |
| JB98590-9 | SW846 8260C | 11-JUL-15 01:27 | TK | | | V8260SL2 |
| JB98590-10 | Collected: 07-JUL-15 10:15 By: DH | | Received: 07-JUL-15 By: AS | | | |
| MW-471-20150707 | | | | | | |
| JB98590-10 | SW846 8270D | 10-JUL-15 03:43 | SW | 09-JUL-15 | NG | AB8270SL2 |
| JB98590-10 | SW846 8260C | 10-JUL-15 13:56 | TK | | | V8260SL2 |
| JB98590-10 | SW846-8011 | 10-JUL-15 20:48 | VDT | 09-JUL-15 | AQ | V8011EDB |
| JB98590-10 | SW846 8270D BY SIM | 11-JUL-15 17:58 | AD | 09-JUL-15 | NG | B8270SIMSL2 |

# Internal Sample Tracking Chronicle

Stantec Consulting Services Inc.

**Job No:** JB98590

Sunoco - Marcus Hook Facility, PA
Project No: AOI-5



| Sample Number | Method | Analyzed | By | Prepped | By | Test Codes |
|---|---|---|---|---|---|---|
| JB98590-11 Collected: 07-JUL-15 11:30 By: DH Received: 07-JUL-15 By: AS MW-479-20150707 | | | | | | |
| JB98590-11 | SW846 8270D | 10-JUL-15 04:09 | SW | 09-JUL-15 | NG | AB8270SL2 |
| JB98590-11 | SW846 8260C | 10-JUL-15 14:26 | TK | | | V8260SL2 |
| JB98590-11 | SW846 8270D BY SIM | 10-JUL-15 19:17 | AD | 09-JUL-15 | NG | B8270SIMSL2 |
| JB98590-11 | SW846-8011 | 10-JUL-15 21:07 | VDT | 09-JUL-15 | AQ | V8011EDB |
| JB98590-12 Collected: 07-JUL-15 13:00 By: DH Received: 07-JUL-15 By: AS MW-478-20150707 | | | | | | |
| JB98590-12 | SW846 8270D | 10-JUL-15 04:36 | SW | 09-JUL-15 | NG | AB8270SL2 |
| JB98590-12 | SW846 8270D BY SIM | 10-JUL-15 19:48 | AD | 09-JUL-15 | NG | B8270SIMSL2 |
| JB98590-12 | SW846-8011 | 10-JUL-15 21:25 | VDT | 09-JUL-15 | AQ | V8011EDB |
| JB98590-12 | SW846 8260C | 11-JUL-15 00:27 | TK | | | V8260SL2 |
| JB98590-13 Collected: 07-JUL-15 10:00 By: DH Received: 07-JUL-15 By: AS MW-468-20150707 | | | | | | |
| JB98590-13 | SW846 8270D | 10-JUL-15 05:02 | SW | 09-JUL-15 | NG | AB8270SL2 |
| JB98590-13 | SW846 8270D | 10-JUL-15 17:52 | AP | 09-JUL-15 | NG | AB8270SL2 |
| JB98590-13 | SW846 8270D BY SIM | 10-JUL-15 20:19 | AD | 09-JUL-15 | NG | B8270SIMSL2 |
| JB98590-13 | SW846-8011 | 10-JUL-15 21:44 | VDT | 09-JUL-15 | AQ | V8011EDB |
| JB98590-13 | SW846 8260C | 11-JUL-15 02:57 | TK | | | V8260SL2 |
| JB98590-13 | SW846 8260C | 16-JUL-15 15:35 | MM | | | V8260SL2 |
| JB98590-14 Collected: 07-JUL-15 10:45 By: DH Received: 07-JUL-15 By: AS MW-469-20150707 | | | | | | |
| JB98590-14 | SW846 8270D | 10-JUL-15 05:28 | SW | 09-JUL-15 | NG | AB8270SL2 |
| JB98590-14 | SW846 8270D BY SIM | 10-JUL-15 20:50 | AD | 09-JUL-15 | NG | B8270SIMSL2 |
| JB98590-14 | SW846-8011 | 10-JUL-15 22:03 | VDT | 09-JUL-15 | AQ | V8011EDB |
| JB98590-14 | SW846 8260C | 11-JUL-15 01:57 | TK | | | V8260SL2 |
| JB98590-15 Collected: 07-JUL-15 11:30 By: DH Received: 07-JUL-15 By: AS MW-464-20150707 | | | | | | |
| JB98590-15 | SW846 8270D | 10-JUL-15 05:54 | SW | 09-JUL-15 | NG | AB8270SL2 |
| JB98590-15 | SW846 8270D BY SIM | 10-JUL-15 21:21 | AD | 09-JUL-15 | NG | B8270SIMSL2 |

# Internal Sample Tracking Chronicle

Stantec Consulting Services Inc.

**Job No:** JB98590

Sunoco - Marcus Hook Facility, PA
Project No: AOI-5

| Sample Number | Method | Analyzed | By | Prepped | By | Test Codes |
|---|---|---|---|---|---|---|
| JB98590-15 | SW846-8011 | 10-JUL-15 22:59 | VDT | 09-JUL-15 | AQ | V8011EDB |
| JB98590-15 | SW846 8260C | 16-JUL-15 19:37 | MM | | | V8260SL2 |
| JB98590-16 | Collected: 07-JUL-15 12:30 By: DH | | Received: 07-JUL-15 By: AS | | | |
| MW-461-20150707 | | | | | | |
| JB98590-16 | SW846 8270D | 10-JUL-15 06:20 | SW | 09-JUL-15 | NG | AB8270SL2 |
| JB98590-16 | SW846-8011 | 10-JUL-15 23:17 | VDT | 09-JUL-15 | AQ | V8011EDB |
| JB98590-16 | SW846 8270D BY SIM | 11-JUL-15 18:29 | AD | 09-JUL-15 | NG | B8270SIMSL2 |
| JB98590-16 | SW846 8260C | 16-JUL-15 20:04 | MM | | | V8260SL2 |
| JB98590-17 | Collected: 07-JUL-15 13:30 By: DH | | Received: 07-JUL-15 By: AS | | | |
| MW-448-20150707 | | | | | | |
| JB98590-17 | SW846 8270D | 10-JUL-15 06:47 | SW | 09-JUL-15 | NG | AB8270SL2 |
| JB98590-17 | SW846-8011 | 10-JUL-15 23:36 | VDT | 09-JUL-15 | AQ | V8011EDB |
| JB98590-17 | SW846 8270D BY SIM | 11-JUL-15 19:00 | AD | 09-JUL-15 | NG | B8270SIMSL2 |
| JB98590-17 | SW846 8260C | 17-JUL-15 23:41 | NH | | | V8260SL2 |
| JB98590-18 | Collected: 07-JUL-15 10:00 By: DH | | Received: 07-JUL-15 By: AS | | | |
| MW-468-DUP20150707 | | | | | | |
| JB98590-18 | SW846 8270D | 10-JUL-15 07:13 | SW | 09-JUL-15 | NG | AB8270SL2 |
| JB98590-18 | SW846 8270D | 10-JUL-15 18:18 | AP | 09-JUL-15 | NG | AB8270SL2 |
| JB98590-18 | SW846-8011 | 10-JUL-15 23:55 | VDT | 09-JUL-15 | AQ | V8011EDB |
| JB98590-18 | SW846 8270D BY SIM | 11-JUL-15 19:31 | AD | 09-JUL-15 | NG | B8270SIMSL2 |
| JB98590-18 | SW846 8260C | 16-JUL-15 20:31 | MM | | | V8260SL2 |
| JB98590-18 | SW846 8260C | 17-JUL-15 22:43 | NH | | | V8260SL2 |
| JB98590-1F | Collected: 06-JUL-15 13:00 By: DH | | Received: 07-JUL-15 By: AS | | | |
| MW-440-20150706 | | | | | | |
| JB98590-1F | SW846 6010C | 13-JUL-15 19:04 | KK | 10-JUL-15 | AA | CO,NI,PB,V,ZN |
| JB98590-2F | Collected: 06-JUL-15 14:00 By: DH | | Received: 07-JUL-15 By: AS | | | |
| MW-447-20150706 | | | | | | |
| JB98590-2F | SW846 6010C | 13-JUL-15 19:28 | KK | 10-JUL-15 | AA | CO,NI,PB,V,ZN |

# Internal Sample Tracking Chronicle

Stantec Consulting Services Inc.

**Job No:** JB98590

Sunoco - Marcus Hook Facility, PA
Project No: AOI-5



| Sample Number | Method | Analyzed | By | Prepped | By | Test Codes |
|---|---|---|---|---|---|---|
| JB98590-3F Collected: 06-JUL-15 15:00 By: DH Received: 07-JUL-15 By: AS MW-453-20150706 | | | | | | |
| JB98590-3F | SW846 6010C | 13-JUL-15 19:34 | KK | 10-JUL-15 | AA | CO,NI,PB,V,ZN |
| JB98590-4F Collected: 06-JUL-15 00:00 By: DH Received: 07-JUL-15 By: AS FB-20150706 | | | | | | |
| JB98590-4F | SW846 6010C | 13-JUL-15 19:40 | KK | 10-JUL-15 | AA | CO,NI,PB,V,ZN |
| JB98590-5F Collected: 06-JUL-15 11:41 By: DH Received: 07-JUL-15 By: AS MW-444-20150706 | | | | | | |
| JB98590-5F | SW846 6010C | 13-JUL-15 19:46 | KK | 10-JUL-15 | AA | CO,NI,PB,V,ZN |
| JB98590-6F Collected: 06-JUL-15 13:15 By: DH Received: 07-JUL-15 By: AS MW-446-20150706 | | | | | | |
| JB98590-6F | SW846 6010C | 13-JUL-15 19:52 | KK | 10-JUL-15 | AA | CO,NI,PB,V,ZN |
| JB98590-7F Collected: 06-JUL-15 13:15 By: DH Received: 07-JUL-15 By: AS MW-450-20150706 | | | | | | |
| JB98590-7F | SW846 6010C | 13-JUL-15 19:58 | KK | 10-JUL-15 | AA | CO,NI,PB,V,ZN |
| JB98590-9F Collected: 07-JUL-15 08:45 By: DH Received: 07-JUL-15 By: AS MW-457-20150707 | | | | | | |
| JB98590-9F | SW846 6010C | 13-JUL-15 20:04 | KK | 10-JUL-15 | AA | CO,NI,PB,V,ZN |
| JB98590-10F Collected: 07-JUL-15 10:15 By: DH Received: 07-JUL-15 By: AS MW-471-20150707 | | | | | | |
| JB98590-10F | SW846 6010C | 13-JUL-15 20:10 | KK | 10-JUL-15 | AA | CO,NI,PB,V,ZN |
| JB98590-11F Collected: 07-JUL-15 11:30 By: DH Received: 07-JUL-15 By: AS MW-479-20150707 | | | | | | |
| JB98590-11F | SW846 6010C | 13-JUL-15 20:16 | KK | 10-JUL-15 | AA | CO,NI,PB,V,ZN |

# Internal Sample Tracking Chronicle

Stantec Consulting Services Inc.

**Job No:** JB98590

Sunoco - Marcus Hook Facility, PA
Project No: AOI-5

| Sample Number | Method | Analyzed | By | Prepped | By | Test Codes |
|---|---|---|---|---|---|---|
| JB98590-12F | Collected: 07-JUL-15 13:00 By: DH | | Received: 07-JUL-15 By: AS | | | |
| MW-478-20150707 | | | | | | |
| JB98590-12F | SW846 6010C | 13-JUL-15 21:35 | KK | 10-JUL-15 | AA | CO,NI,PB,V,ZN |
| JB98590-13F | Collected: 07-JUL-15 10:00 By: DH | | Received: 07-JUL-15 By: AS | | | |
| MW-468-20150707 | | | | | | |
| JB98590-13F | SW846 6010C | 13-JUL-15 21:41 | KK | 10-JUL-15 | AA | CO,NI,PB,V,ZN |
| JB98590-14F | Collected: 07-JUL-15 10:45 By: DH | | Received: 07-JUL-15 By: AS | | | |
| MW-469-20150707 | | | | | | |
| JB98590-14F | SW846 6010C | 13-JUL-15 21:47 | KK | 10-JUL-15 | AA | CO,NI,PB,V,ZN |
| JB98590-15F | Collected: 07-JUL-15 11:30 By: DH | | Received: 07-JUL-15 By: AS | | | |
| MW-464-20150707 | | | | | | |
| JB98590-15F | SW846 6010C | 13-JUL-15 21:53 | KK | 10-JUL-15 | AA | CO,NI,PB,V,ZN |
| JB98590-16F | Collected: 07-JUL-15 12:30 By: DH | | Received: 07-JUL-15 By: AS | | | |
| MW-461-20150707 | | | | | | |
| JB98590-16F | SW846 6010C | 13-JUL-15 21:59 | KK | 10-JUL-15 | AA | CO,NI,PB,V,ZN |
| JB98590-17F | Collected: 07-JUL-15 13:30 By: DH | | Received: 07-JUL-15 By: AS | | | |
| MW-448-20150707 | | | | | | |
| JB98590-17F | SW846 6010C | 13-JUL-15 22:05 | KK | 10-JUL-15 | AA | CO,NI,PB,V,ZN |
| JB98590-18F | Collected: 07-JUL-15 10:00 By: DH | | Received: 07-JUL-15 By: AS | | | |
| MW-468-DUP20150707 | | | | | | |
| JB98590-18F | SW846 6010C | 13-JUL-15 22:11 | KK | 10-JUL-15 | AA | CO,NI,PB,V,ZN |

# Accutest Internal Chain of Custody



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA
**Received:** 07/07/15

| Sample.Bottle Number | Transfer FROM | Transfer TO | Date/Time | Reason |
|---|---|---|---|---|
| JB98590-1.1 | Secured Storage | Brian Johnson | 07/09/15 04:48 | Retrieve from Storage |
| JB98590-1.1 | Brian Johnson | | 07/09/15 11:13 | Depleted |
| JB98590-1.1.1 | Brian Johnson | Organics Prep | 07/09/15 04:55 | Extract from JB98590-1.1 |
| JB98590-1.1.1 | Organics Prep | Nicholas Goydish | 07/09/15 14:20 | Extract from JB98590-1.1 |
| JB98590-1.1.1 | Nicholas Goydish | Extract Storage | 07/09/15 14:20 | Return to Storage |
| JB98590-1.1.1 | Extract Storage | Sara Wellington | 07/10/15 00:20 | Retrieve from Storage |
| JB98590-1.1.1 | Sara Wellington | GCMS6P | 07/10/15 00:20 | Load on Instrument |
| JB98590-1.1.1 | GCMS6P | Olga Azarihn | 07/10/15 14:38 | Unload from Instrument |
| JB98590-1.1.1 | Olga Azarihn | Extract Freezer | 07/10/15 14:38 | Return to Storage |
| JB98590-1.2 | Secured Storage | Brian Johnson | 07/09/15 04:48 | Retrieve from Storage |
| JB98590-1.2 | Brian Johnson | | 07/09/15 11:13 | Depleted |
| JB98590-1.2.1 | Brian Johnson | Organics Prep | 07/09/15 04:55 | Extract from JB98590-1.2 |
| JB98590-1.2.1 | Organics Prep | Nicholas Goydish | 07/09/15 14:20 | Extract from JB98590-1.2 |
| JB98590-1.2.1 | Nicholas Goydish | Extract Storage | 07/09/15 14:20 | Return to Storage |
| JB98590-1.4 | Secured Storage | Todd Shoemaker | 07/09/15 09:03 | Retrieve from Storage |
| JB98590-1.4 | Todd Shoemaker | Adil Quyser | 07/09/15 15:13 | Custody Transfer |
| JB98590-1.4 | Adil Quyser | | 07/09/15 19:52 | Depleted |
| JB98590-1.4.1 | Adil Quyser | Organics Prep | 07/09/15 15:15 | Extract from JB98590-1.4 |
| JB98590-1.4.1 | Organics Prep | Adil Quyser | 07/09/15 19:52 | Extract from JB98590-1.4 |
| JB98590-1.4.1 | Adil Quyser | Extract Storage | 07/09/15 19:52 | Return to Storage |
| JB98590-1.4.1 | Extract Storage | Vincent Drago | 07/10/15 14:23 | Retrieve from Storage |
| JB98590-1.4.1 | Vincent Drago | GC7G | 07/10/15 14:23 | Load on Instrument |
| JB98590-1.4.1 | GC7G | Vincent Drago | 07/13/15 16:59 | Unload from Instrument |
| JB98590-1.4.1 | Vincent Drago | Extract Freezer | 07/13/15 16:59 | Return to Storage |
| JB98590-1.6 | Secured Storage | Todd Shoemaker | 07/09/15 09:03 | Retrieve from Storage |
| JB98590-1.6 | Todd Shoemaker | Adil Quyser | 07/09/15 15:13 | Custody Transfer |
| JB98590-1.6 | Adil Quyser | | 07/09/15 19:52 | Depleted |
| JB98590-1.6.1 | Adil Quyser | Organics Prep | 07/09/15 15:15 | Extract from JB98590-1.6 |
| JB98590-1.6.1 | Organics Prep | Adil Quyser | 07/09/15 19:52 | Extract from JB98590-1.6 |
| JB98590-1.6.1 | Adil Quyser | Extract Storage | 07/09/15 19:52 | Return to Storage |
| JB98590-1.6.1 | Extract Storage | Vincent Drago | 07/10/15 14:23 | Retrieve from Storage |
| JB98590-1.6.1 | Vincent Drago | GC7G | 07/10/15 14:23 | Load on Instrument |
| JB98590-1.6.1 | GC7G | Vincent Drago | 07/13/15 16:59 | Unload from Instrument |
| JB98590-1.6.1 | Vincent Drago | Extract Freezer | 07/13/15 16:59 | Return to Storage |
| JB98590-1F.3 | Secured Storage | Alfredo Crespo | 07/08/15 08:58 | Retrieve from Storage |
| JB98590-1F.3 | Alfredo Crespo | Secured Staging Area | 07/08/15 08:58 | Return to Storage |

# Accutest Internal Chain of Custody



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA
**Received:** 07/07/15

| Sample.Bottle Number | Transfer FROM | Transfer TO | Date/Time | Reason |
|---|---|---|---|---|
| JB98590-1F.3 | Secured Staging Area | Masooda Sultani | 07/08/15 09:08 | Retrieve from Storage |
| JB98590-1F.3 | Masooda Sultani | Secured Storage | 07/08/15 13:07 | Return to Storage |
| JB98590-1F.3 | Secured Storage | Dwayne Johnson | 07/10/15 11:44 | Retrieve from Storage |
| JB98590-1F.3 | Dwayne Johnson | Secured Staging Area | 07/10/15 11:44 | Return to Storage |
| JB98590-1F.3 | Secured Staging Area | Ariel Alcala | 07/10/15 14:39 | Retrieve from Storage |
| JB98590-1F.3 | Ariel Alcala | Secured Storage | 07/10/15 16:00 | Return to Storage |
| JB98590-1F.3.1 | Ariel Alcala | Metals Digestion | 07/10/15 15:24 | Digestate from JB98590-1F.3 |
| JB98590-1F.3.1 | Metals Digestion | Ariel Alcala | 07/10/15 15:25 | Digestate from JB98590-1F.3 |
| JB98590-1F.3.1 | Ariel Alcala | Metals Digestate Storage | 07/10/15 15:25 | Return to Storage |
| JB98590-2.1 | Secured Storage | Brian Johnson | 07/09/15 04:48 | Retrieve from Storage |
| JB98590-2.1 | Brian Johnson | | 07/09/15 11:13 | Depleted |
| JB98590-2.1.1 | Brian Johnson | Organics Prep | 07/09/15 04:55 | Extract from JB98590-2.1 |
| JB98590-2.1.1 | Organics Prep | Nicholas Goydish | 07/09/15 14:20 | Extract from JB98590-2.1 |
| JB98590-2.1.1 | Nicholas Goydish | Extract Storage | 07/09/15 14:20 | Return to Storage |
| JB98590-2.1.1 | Extract Storage | Sara Wellington | 07/10/15 00:20 | Retrieve from Storage |
| JB98590-2.1.1 | Sara Wellington | GCMS6P | 07/10/15 00:20 | Load on Instrument |
| JB98590-2.1.1 | GCMS6P | Olga Azarihn | 07/10/15 14:38 | Unload from Instrument |
| JB98590-2.1.1 | Olga Azarihn | Extract Freezer | 07/10/15 14:38 | Return to Storage |
| JB98590-2.2 | Secured Storage | Brian Johnson | 07/09/15 04:48 | Retrieve from Storage |
| JB98590-2.2 | Brian Johnson | | 07/09/15 11:13 | Depleted |
| JB98590-2.2.1 | Brian Johnson | Organics Prep | 07/09/15 04:55 | Extract from JB98590-2.2 |
| JB98590-2.2.1 | Organics Prep | Nicholas Goydish | 07/09/15 14:20 | Extract from JB98590-2.2 |
| JB98590-2.2.1 | Nicholas Goydish | Extract Storage | 07/09/15 14:20 | Return to Storage |
| JB98590-2.4 | Secured Storage | Todd Shoemaker | 07/09/15 09:03 | Retrieve from Storage |
| JB98590-2.4 | Todd Shoemaker | Adil Quyser | 07/09/15 15:13 | Custody Transfer |
| JB98590-2.4 | Adil Quyser | | 07/09/15 19:52 | Depleted |
| JB98590-2.4.1 | Adil Quyser | Organics Prep | 07/09/15 15:15 | Extract from JB98590-2.4 |
| JB98590-2.4.1 | Organics Prep | Adil Quyser | 07/09/15 19:52 | Extract from JB98590-2.4 |
| JB98590-2.4.1 | Adil Quyser | Extract Storage | 07/09/15 19:52 | Return to Storage |
| JB98590-2.4.1 | Extract Storage | Vincent Drago | 07/10/15 14:23 | Retrieve from Storage |
| JB98590-2.4.1 | Vincent Drago | GC7G | 07/10/15 14:23 | Load on Instrument |
| JB98590-2.4.1 | GC7G | Vincent Drago | 07/13/15 16:59 | Unload from Instrument |
| JB98590-2.4.1 | Vincent Drago | Extract Freezer | 07/13/15 16:59 | Return to Storage |
| JB98590-2.5 | Secured Storage | Zobia Hamid | 07/10/15 14:49 | Retrieve from Storage |
| JB98590-2.5 | Zobia Hamid | GCMS2A | 07/10/15 14:49 | Load on Instrument |
| JB98590-2.5 | GCMS2A | Tracy Karpinski | 07/13/15 09:44 | Unload from Instrument |

# Accutest Internal Chain of Custody



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA
**Received:** 07/07/15

| Sample.Bottle Number | Transfer FROM | Transfer TO | Date/Time | Reason |
|---|---|---|---|---|
| JB98590-2.5 | Tracy Karpinski | Secured Storage | 07/13/15 09:44 | Return to Storage |
| JB98590-2F.3 | Secured Storage | Alfredo Crespo | 07/08/15 08:58 | Retrieve from Storage |
| JB98590-2F.3 | Alfredo Crespo | Secured Staging Area | 07/08/15 08:58 | Return to Storage |
| JB98590-2F.3 | Secured Staging Area | Masooda Sultani | 07/08/15 09:08 | Retrieve from Storage |
| JB98590-2F.3 | Masooda Sultani | Secured Storage | 07/08/15 13:07 | Return to Storage |
| JB98590-2F.3 | Secured Storage | Dwayne Johnson | 07/10/15 11:44 | Retrieve from Storage |
| JB98590-2F.3 | Dwayne Johnson | Secured Staging Area | 07/10/15 11:44 | Return to Storage |
| JB98590-2F.3 | Secured Staging Area | Ariel Alcala | 07/10/15 14:39 | Retrieve from Storage |
| JB98590-2F.3 | Ariel Alcala | Secured Storage | 07/10/15 16:00 | Return to Storage |
| JB98590-2F.3.1 | Ariel Alcala | Metals Digestion | 07/10/15 15:24 | Digestate from JB98590-2F.3 |
| JB98590-2F.3.1 | Metals Digestion | Ariel Alcala | 07/10/15 15:25 | Digestate from JB98590-2F.3 |
| JB98590-2F.3.1 | Ariel Alcala | Metals Digestate Storage | 07/10/15 15:25 | Return to Storage |
| JB98590-3.1 | Secured Storage | Brian Johnson | 07/09/15 04:48 | Retrieve from Storage |
| JB98590-3.1 | Brian Johnson | | 07/09/15 11:13 | Depleted |
| JB98590-3.1.1 | Brian Johnson | Organics Prep | 07/09/15 04:55 | Extract from JB98590-3.1 |
| JB98590-3.1.1 | Organics Prep | Nicholas Goydish | 07/09/15 14:20 | Extract from JB98590-3.1 |
| JB98590-3.1.1 | Nicholas Goydish | Extract Storage | 07/09/15 14:20 | Return to Storage |
| JB98590-3.1.1 | Extract Storage | Sara Wellington | 07/10/15 00:20 | Retrieve from Storage |
| JB98590-3.1.1 | Sara Wellington | GCMS6P | 07/10/15 00:20 | Load on Instrument |
| JB98590-3.1.1 | GCMS6P | Olga Azarihn | 07/10/15 14:38 | Unload from Instrument |
| JB98590-3.1.1 | Olga Azarihn | Extract Freezer | 07/10/15 14:38 | Return to Storage |
| JB98590-3.5 | Secured Storage | Todd Shoemaker | 07/09/15 09:03 | Retrieve from Storage |
| JB98590-3.5 | Todd Shoemaker | Adil Quyser | 07/09/15 15:13 | Custody Transfer |
| JB98590-3.5 | Adil Quyser | | 07/09/15 19:52 | Depleted |
| JB98590-3.5.1 | Adil Quyser | Organics Prep | 07/09/15 15:15 | Extract from JB98590-3.5 |
| JB98590-3.5.1 | Organics Prep | Adil Quyser | 07/09/15 19:52 | Extract from JB98590-3.5 |
| JB98590-3.5.1 | Adil Quyser | Extract Storage | 07/09/15 19:52 | Return to Storage |
| JB98590-3.5.1 | Extract Storage | Vincent Drago | 07/10/15 14:23 | Retrieve from Storage |
| JB98590-3.5.1 | Vincent Drago | GC7G | 07/10/15 14:23 | Load on Instrument |
| JB98590-3.5.1 | GC7G | Vincent Drago | 07/13/15 16:59 | Unload from Instrument |
| JB98590-3.5.1 | Vincent Drago | Extract Freezer | 07/13/15 16:59 | Return to Storage |
| JB98590-3.7 | Secured Storage | Zobia Hamid | 07/10/15 14:49 | Retrieve from Storage |
| JB98590-3.7 | Zobia Hamid | GCMS2A | 07/10/15 14:49 | Load on Instrument |
| JB98590-3.7 | GCMS2A | Tracy Karpinski | 07/13/15 09:44 | Unload from Instrument |
| JB98590-3.7 | Tracy Karpinski | Secured Storage | 07/13/15 09:44 | Return to Storage |
| JB98590-3F.3 | Secured Storage | Alfredo Crespo | 07/08/15 08:58 | Retrieve from Storage |

# Accutest Internal Chain of Custody



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA
**Received:** 07/07/15

| Sample.Bottle Number | Transfer FROM | Transfer TO | Date/Time | Reason |
|---|---|---|---|---|
| JB98590-3F.3 | Alfredo Crespo | Secured Staging Area | 07/08/15 08:58 | Return to Storage |
| JB98590-3F.3 | Secured Staging Area | Masooda Sultani | 07/08/15 09:08 | Retrieve from Storage |
| JB98590-3F.3 | Masooda Sultani | Secured Storage | 07/08/15 13:07 | Return to Storage |
| JB98590-3F.3 | Secured Storage | Dwayne Johnson | 07/10/15 11:44 | Retrieve from Storage |
| JB98590-3F.3 | Dwayne Johnson | Secured Staging Area | 07/10/15 11:44 | Return to Storage |
| JB98590-3F.3 | Secured Staging Area | Ariel Alcala | 07/10/15 14:39 | Retrieve from Storage |
| JB98590-3F.3 | Ariel Alcala | Secured Storage | 07/10/15 16:00 | Return to Storage |
| JB98590-3F.3.1 | Ariel Alcala | Metals Digestion | 07/10/15 15:24 | Digestate from JB98590-3F.3 |
| JB98590-3F.3.1 | Metals Digestion | Ariel Alcala | 07/10/15 15:25 | Digestate from JB98590-3F.3 |
| JB98590-3F.3.1 | Ariel Alcala | Metals Digestate Storage | 07/10/15 15:25 | Return to Storage |
| JB98590-4.1 | Secured Storage | Brian Johnson | 07/09/15 04:48 | Retrieve from Storage |
| JB98590-4.1 | Brian Johnson | | 07/09/15 11:13 | Depleted |
| JB98590-4.1.1 | Brian Johnson | Organics Prep | 07/09/15 04:55 | Extract from JB98590-4.1 |
| JB98590-4.1.1 | Organics Prep | Nicholas Goydish | 07/09/15 14:20 | Extract from JB98590-4.1 |
| JB98590-4.1.1 | Nicholas Goydish | Extract Storage | 07/09/15 14:20 | Return to Storage |
| JB98590-4.1.1 | Extract Storage | Sara Wellington | 07/10/15 00:20 | Retrieve from Storage |
| JB98590-4.1.1 | Sara Wellington | GCMS6P | 07/10/15 00:20 | Load on Instrument |
| JB98590-4.1.1 | GCMS6P | Olga Azarihn | 07/10/15 14:38 | Unload from Instrument |
| JB98590-4.1.1 | Olga Azarihn | Extract Freezer | 07/10/15 14:38 | Return to Storage |
| JB98590-4.4 | Secured Storage | Tracy Karpinski | 07/09/15 16:48 | Retrieve from Storage |
| JB98590-4.4 | Tracy Karpinski | GCMS2A | 07/09/15 16:48 | Load on Instrument |
| JB98590-4.4 | GCMS2A | Tracy Karpinski | 07/13/15 09:44 | Unload from Instrument |
| JB98590-4.4 | Tracy Karpinski | Secured Storage | 07/13/15 09:44 | Return to Storage |
| JB98590-4.6 | Secured Storage | Todd Shoemaker | 07/09/15 09:03 | Retrieve from Storage |
| JB98590-4.6 | Todd Shoemaker | Adil Quyser | 07/09/15 15:13 | Custody Transfer |
| JB98590-4.6 | Adil Quyser | | 07/09/15 19:52 | Depleted |
| JB98590-4.6.1 | Adil Quyser | Organics Prep | 07/09/15 15:15 | Extract from JB98590-4.6 |
| JB98590-4.6.1 | Organics Prep | Adil Quyser | 07/09/15 19:52 | Extract from JB98590-4.6 |
| JB98590-4.6.1 | Adil Quyser | Extract Storage | 07/09/15 19:52 | Return to Storage |
| JB98590-4.6.1 | Extract Storage | Vincent Drago | 07/10/15 14:23 | Retrieve from Storage |
| JB98590-4.6.1 | Vincent Drago | GC7G | 07/10/15 14:23 | Load on Instrument |
| JB98590-4.6.1 | GC7G | Vincent Drago | 07/13/15 16:59 | Unload from Instrument |
| JB98590-4.6.1 | Vincent Drago | Extract Freezer | 07/13/15 16:59 | Return to Storage |
| JB98590-4F.3 | Secured Storage | Alfredo Crespo | 07/08/15 08:58 | Retrieve from Storage |
| JB98590-4F.3 | Alfredo Crespo | Secured Staging Area | 07/08/15 08:58 | Return to Storage |
| JB98590-4F.3 | Secured Staging Area | Masooda Sultani | 07/08/15 09:08 | Retrieve from Storage |
| JB98590-4F.3 | Masooda Sultani | Secured Storage | 07/08/15 13:07 | Return to Storage |

# Accutest Internal Chain of Custody



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA
**Received:** 07/07/15

| Sample.Bottle Number | Transfer FROM | Transfer TO | Date/Time | Reason |
|---|---|---|---|---|
| JB98590-4F.3 | Secured Storage | Dwayne Johnson | 07/10/15 11:44 | Retrieve from Storage |
| JB98590-4F.3 | Dwayne Johnson | Secured Staging Area | 07/10/15 11:44 | Return to Storage |
| JB98590-4F.3 | Secured Staging Area | Ariel Alcala | 07/10/15 14:39 | Retrieve from Storage |
| JB98590-4F.3 | Ariel Alcala | Secured Storage | 07/10/15 16:00 | Return to Storage |
| JB98590-4F.3.1 | Ariel Alcala | Metals Digestion | 07/10/15 15:24 | Digestate from JB98590-4F.3 |
| JB98590-4F.3.1 | Metals Digestion | Ariel Alcala | 07/10/15 15:25 | Digestate from JB98590-4F.3 |
| JB98590-4F.3.1 | Ariel Alcala | Metals Digestate Storage | 07/10/15 15:25 | Return to Storage |
| JB98590-5.1 | Secured Storage | Brian Johnson | 07/09/15 04:48 | Retrieve from Storage |
| JB98590-5.1 | Brian Johnson | | 07/09/15 11:13 | Depleted |
| JB98590-5.1.1 | Brian Johnson | Organics Prep | 07/09/15 04:55 | Extract from JB98590-5.1 |
| JB98590-5.1.1 | Organics Prep | Nicholas Goydish | 07/09/15 14:20 | Extract from JB98590-5.1 |
| JB98590-5.1.1 | Nicholas Goydish | Extract Storage | 07/09/15 14:20 | Return to Storage |
| JB98590-5.1.1 | Extract Storage | Sara Wellington | 07/10/15 00:20 | Retrieve from Storage |
| JB98590-5.1.1 | Sara Wellington | GCMS6P | 07/10/15 00:20 | Load on Instrument |
| JB98590-5.1.1 | GCMS6P | Olga Azarihn | 07/13/15 09:38 | Unload from Instrument |
| JB98590-5.1.1 | Olga Azarihn | Extract Freezer | 07/13/15 09:38 | Return to Storage |
| JB98590-5.6 | Secured Storage | Tracy Karpinski | 07/09/15 16:48 | Retrieve from Storage |
| JB98590-5.6 | Tracy Karpinski | GCMS2A | 07/09/15 16:48 | Load on Instrument |
| JB98590-5.6 | GCMS2A | Tracy Karpinski | 07/13/15 09:44 | Unload from Instrument |
| JB98590-5.6 | Tracy Karpinski | Secured Storage | 07/13/15 09:44 | Return to Storage |
| JB98590-5.7 | Secured Storage | Todd Shoemaker | 07/09/15 09:03 | Retrieve from Storage |
| JB98590-5.7 | Todd Shoemaker | Adil Quyser | 07/09/15 15:13 | Custody Transfer |
| JB98590-5.7 | Adil Quyser | | 07/09/15 19:52 | Depleted |
| JB98590-5.7.1 | Adil Quyser | Organics Prep | 07/09/15 15:15 | Extract from JB98590-5.7 |
| JB98590-5.7.1 | Organics Prep | Adil Quyser | 07/09/15 19:52 | Extract from JB98590-5.7 |
| JB98590-5.7.1 | Adil Quyser | Extract Storage | 07/09/15 19:52 | Return to Storage |
| JB98590-5.7.1 | Extract Storage | Vincent Drago | 07/10/15 14:23 | Retrieve from Storage |
| JB98590-5.7.1 | Vincent Drago | GC7G | 07/10/15 14:23 | Load on Instrument |
| JB98590-5.7.1 | GC7G | Vincent Drago | 07/13/15 16:59 | Unload from Instrument |
| JB98590-5.7.1 | Vincent Drago | Extract Freezer | 07/13/15 16:59 | Return to Storage |
| JB98590-5F.3 | Secured Storage | Alfredo Crespo | 07/08/15 08:58 | Retrieve from Storage |
| JB98590-5F.3 | Alfredo Crespo | Secured Staging Area | 07/08/15 08:58 | Return to Storage |
| JB98590-5F.3 | Secured Staging Area | Masooda Sultani | 07/08/15 09:08 | Retrieve from Storage |
| JB98590-5F.3 | Masooda Sultani | Secured Storage | 07/08/15 13:07 | Return to Storage |
| JB98590-5F.3 | Secured Storage | Dwayne Johnson | 07/10/15 11:44 | Retrieve from Storage |
| JB98590-5F.3 | Dwayne Johnson | Secured Staging Area | 07/10/15 11:44 | Return to Storage |
| JB98590-5F.3 | Secured Staging Area | Ariel Alcala | 07/10/15 14:39 | Retrieve from Storage |

# Accutest Internal Chain of Custody



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA
**Received:** 07/07/15

| Sample.Bottle Number | Transfer FROM | Transfer TO | Date/Time | Reason |
|---|---|---|---|---|
| JB98590-5F.3 | Ariel Alcala | Secured Storage | 07/10/15 16:00 | Return to Storage |
| JB98590-5F.3.1 | Ariel Alcala | Metals Digestion | 07/10/15 15:24 | Digestate from JB98590-5F.3 |
| JB98590-5F.3.1 | Metals Digestion | Ariel Alcala | 07/10/15 15:25 | Digestate from JB98590-5F.3 |
| JB98590-5F.3.1 | Ariel Alcala | Metals Digestate Storage | 07/10/15 15:25 | Return to Storage |
| JB98590-6.1 | Secured Storage | Brian Johnson | 07/09/15 04:48 | Retrieve from Storage |
| JB98590-6.1 | Brian Johnson | | 07/09/15 11:13 | Depleted |
| JB98590-6.1.1 | Brian Johnson | Organics Prep | 07/09/15 04:55 | Extract from JB98590-6.1 |
| JB98590-6.1.1 | Organics Prep | Nicholas Goydish | 07/09/15 14:20 | Extract from JB98590-6.1 |
| JB98590-6.1.1 | Nicholas Goydish | Extract Storage | 07/09/15 14:20 | Return to Storage |
| JB98590-6.1.1 | Extract Storage | Sara Wellington | 07/10/15 00:20 | Retrieve from Storage |
| JB98590-6.1.1 | Sara Wellington | GCMS6P | 07/10/15 00:20 | Load on Instrument |
| JB98590-6.1.1 | GCMS6P | Olga Azarihn | 07/13/15 09:38 | Unload from Instrument |
| JB98590-6.1.1 | Olga Azarihn | Extract Freezer | 07/13/15 09:38 | Return to Storage |
| JB98590-6.5 | Secured Storage | Zobia Hamid | 07/10/15 14:49 | Retrieve from Storage |
| JB98590-6.5 | Zobia Hamid | GCMS2A | 07/10/15 14:49 | Load on Instrument |
| JB98590-6.5 | GCMS2A | Tracy Karpinski | 07/13/15 09:44 | Unload from Instrument |
| JB98590-6.5 | Tracy Karpinski | Secured Storage | 07/13/15 09:44 | Return to Storage |
| JB98590-6.7 | Secured Storage | Todd Shoemaker | 07/09/15 09:03 | Retrieve from Storage |
| JB98590-6.7 | Todd Shoemaker | Adil Quyser | 07/09/15 15:13 | Custody Transfer |
| JB98590-6.7 | Adil Quyser | | 07/09/15 19:52 | Depleted |
| JB98590-6.7.1 | Adil Quyser | Organics Prep | 07/09/15 15:15 | Extract from JB98590-6.7 |
| JB98590-6.7.1 | Organics Prep | Adil Quyser | 07/09/15 19:52 | Extract from JB98590-6.7 |
| JB98590-6.7.1 | Adil Quyser | Extract Storage | 07/09/15 19:52 | Return to Storage |
| JB98590-6.7.1 | Extract Storage | Vincent Drago | 07/10/15 14:23 | Retrieve from Storage |
| JB98590-6.7.1 | Vincent Drago | GC7G | 07/10/15 14:23 | Load on Instrument |
| JB98590-6.7.1 | GC7G | Vincent Drago | 07/13/15 16:59 | Unload from Instrument |
| JB98590-6.7.1 | Vincent Drago | Extract Freezer | 07/13/15 16:59 | Return to Storage |
| JB98590-6F.3 | Secured Storage | Alfredo Crespo | 07/08/15 08:58 | Retrieve from Storage |
| JB98590-6F.3 | Alfredo Crespo | Secured Staging Area | 07/08/15 08:58 | Return to Storage |
| JB98590-6F.3 | Secured Staging Area | Masooda Sultani | 07/08/15 09:08 | Retrieve from Storage |
| JB98590-6F.3 | Masooda Sultani | Secured Storage | 07/08/15 13:07 | Return to Storage |
| JB98590-6F.3 | Secured Storage | Dwayne Johnson | 07/10/15 11:44 | Retrieve from Storage |
| JB98590-6F.3 | Dwayne Johnson | Secured Staging Area | 07/10/15 11:44 | Return to Storage |
| JB98590-6F.3 | Secured Staging Area | Ariel Alcala | 07/10/15 14:39 | Retrieve from Storage |
| JB98590-6F.3 | Ariel Alcala | Secured Storage | 07/10/15 16:00 | Return to Storage |
| JB98590-6F.3.1 | Ariel Alcala | Metals Digestion | 07/10/15 15:24 | Digestate from JB98590-6F.3 |

# Accutest Internal Chain of Custody



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA
**Received:** 07/07/15

| Sample.Bottle Number | Transfer FROM | Transfer TO | Date/Time | Reason |
|---|---|---|---|---|
| JB98590-6F.3.1 | Metals Digestion | Ariel Alcala | 07/10/15 15:25 | Digestate from JB98590-6F.3 |
| JB98590-6F.3.1 | Ariel Alcala | Metals Digestate Storage | 07/10/15 15:25 | Return to Storage |
| JB98590-7.2 | Secured Storage | Brian Johnson | 07/09/15 04:48 | Retrieve from Storage |
| JB98590-7.2 | Brian Johnson | | 07/09/15 11:13 | Depleted |
| JB98590-7.2.1 | Brian Johnson | Organics Prep | 07/09/15 04:55 | Extract from JB98590-7.2 |
| JB98590-7.2.1 | Organics Prep | Nicholas Goydish | 07/09/15 14:20 | Extract from JB98590-7.2 |
| JB98590-7.2.1 | Nicholas Goydish | Extract Storage | 07/09/15 14:20 | Return to Storage |
| JB98590-7.2.1 | Extract Storage | Sara Wellington | 07/10/15 00:20 | Retrieve from Storage |
| JB98590-7.2.1 | Sara Wellington | GCMS6P | 07/10/15 00:20 | Load on Instrument |
| JB98590-7.2.1 | GCMS6P | Olga Azarihn | 07/13/15 09:38 | Unload from Instrument |
| JB98590-7.2.1 | Olga Azarihn | Extract Freezer | 07/13/15 09:38 | Return to Storage |
| JB98590-7.4 | Secured Storage | Tracy Karpinski | 07/09/15 16:48 | Retrieve from Storage |
| JB98590-7.4 | Tracy Karpinski | GCMS2A | 07/09/15 16:48 | Load on Instrument |
| JB98590-7.4 | GCMS2A | Tracy Karpinski | 07/13/15 09:44 | Unload from Instrument |
| JB98590-7.4 | Tracy Karpinski | Secured Storage | 07/13/15 09:44 | Return to Storage |
| JB98590-7.7 | Secured Storage | Todd Shoemaker | 07/09/15 09:03 | Retrieve from Storage |
| JB98590-7.7 | Todd Shoemaker | Adil Quyser | 07/09/15 15:13 | Custody Transfer |
| JB98590-7.7 | Adil Quyser | | 07/09/15 19:52 | Depleted |
| JB98590-7.7.1 | Adil Quyser | Organics Prep | 07/09/15 15:15 | Extract from JB98590-7.7 |
| JB98590-7.7.1 | Organics Prep | Adil Quyser | 07/09/15 19:52 | Extract from JB98590-7.7 |
| JB98590-7.7.1 | Adil Quyser | Extract Storage | 07/09/15 19:52 | Return to Storage |
| JB98590-7.7.1 | Extract Storage | Vincent Drago | 07/10/15 14:23 | Retrieve from Storage |
| JB98590-7.7.1 | Vincent Drago | GC7G | 07/10/15 14:23 | Load on Instrument |
| JB98590-7.7.1 | GC7G | Vincent Drago | 07/13/15 16:59 | Unload from Instrument |
| JB98590-7.7.1 | Vincent Drago | Extract Freezer | 07/13/15 16:59 | Return to Storage |
| JB98590-7F.3 | Secured Storage | Alfredo Crespo | 07/08/15 08:58 | Retrieve from Storage |
| JB98590-7F.3 | Alfredo Crespo | Secured Staging Area | 07/08/15 08:58 | Return to Storage |
| JB98590-7F.3 | Secured Staging Area | Masooda Sultani | 07/08/15 09:08 | Retrieve from Storage |
| JB98590-7F.3 | Masooda Sultani | Secured Storage | 07/08/15 13:07 | Return to Storage |
| JB98590-7F.3 | Secured Storage | Dwayne Johnson | 07/10/15 11:44 | Retrieve from Storage |
| JB98590-7F.3 | Dwayne Johnson | Secured Staging Area | 07/10/15 11:44 | Return to Storage |
| JB98590-7F.3 | Secured Staging Area | Ariel Alcala | 07/10/15 14:39 | Retrieve from Storage |
| JB98590-7F.3 | Ariel Alcala | Secured Storage | 07/10/15 16:00 | Return to Storage |
| JB98590-7F.3.1 | Ariel Alcala | Metals Digestion | 07/10/15 15:24 | Digestate from JB98590-7F.3 |
| JB98590-7F.3.1 | Metals Digestion | Ariel Alcala | 07/10/15 15:25 | Digestate from JB98590-7F.3 |
| JB98590-7F.3.1 | Ariel Alcala | Metals Digestate Storage | 07/10/15 15:25 | Return to Storage |

# Accutest Internal Chain of Custody



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA
**Received:** 07/07/15

| Sample.Bottle Number | Transfer FROM | Transfer TO | Date/Time | Reason |
|---|---|---|---|---|
| JB98590-8.1 | Secured Storage | Tracy Karpinski | 07/09/15 16:48 | Retrieve from Storage |
| JB98590-8.1 | Tracy Karpinski | GCMS2A | 07/09/15 16:48 | Load on Instrument |
| JB98590-8.1 | GCMS2A | Tracy Karpinski | 07/13/15 09:44 | Unload from Instrument |
| JB98590-8.1 | Tracy Karpinski | Secured Storage | 07/13/15 09:44 | Return to Storage |
| JB98590-8.2 | Secured Storage | Todd Shoemaker | 07/09/15 09:03 | Retrieve from Storage |
| JB98590-8.2 | Todd Shoemaker | Adil Quyser | 07/09/15 15:13 | Custody Transfer |
| JB98590-8.2 | Adil Quyser | | 07/09/15 19:52 | Depleted |
| JB98590-8.2.1 | Adil Quyser | Organics Prep | 07/09/15 15:15 | Extract from JB98590-8.2 |
| JB98590-8.2.1 | Organics Prep | Adil Quyser | 07/09/15 19:52 | Extract from JB98590-8.2 |
| JB98590-8.2.1 | Adil Quyser | Extract Storage | 07/09/15 19:52 | Return to Storage |
| JB98590-8.2.1 | Extract Storage | Vincent Drago | 07/10/15 14:23 | Retrieve from Storage |
| JB98590-8.2.1 | Vincent Drago | GC7G | 07/10/15 14:23 | Load on Instrument |
| JB98590-8.2.1 | GC7G | Vincent Drago | 07/13/15 16:59 | Unload from Instrument |
| JB98590-8.2.1 | Vincent Drago | Extract Freezer | 07/13/15 16:59 | Return to Storage |
| JB98590-9.1 | Secured Storage | Brian Johnson | 07/09/15 04:48 | Retrieve from Storage |
| JB98590-9.1 | Brian Johnson | | 07/09/15 11:13 | Depleted |
| JB98590-9.1.1 | Brian Johnson | Organics Prep | 07/09/15 04:55 | Extract from JB98590-9.1 |
| JB98590-9.1.1 | Organics Prep | Nicholas Goydish | 07/09/15 14:20 | Extract from JB98590-9.1 |
| JB98590-9.1.1 | Nicholas Goydish | Extract Storage | 07/09/15 14:20 | Return to Storage |
| JB98590-9.1.1 | Extract Storage | Sara Wellington | 07/10/15 00:20 | Retrieve from Storage |
| JB98590-9.1.1 | Sara Wellington | GCMS6P | 07/10/15 00:20 | Load on Instrument |
| JB98590-9.1.1 | GCMS6P | Olga Azarihn | 07/10/15 14:38 | Unload from Instrument |
| JB98590-9.1.1 | Olga Azarihn | Extract Freezer | 07/10/15 14:38 | Return to Storage |
| JB98590-9.6 | Secured Storage | Zobia Hamid | 07/10/15 14:49 | Retrieve from Storage |
| JB98590-9.6 | Zobia Hamid | GCMS2A | 07/10/15 14:49 | Load on Instrument |
| JB98590-9.6 | GCMS2A | Tracy Karpinski | 07/13/15 09:44 | Unload from Instrument |
| JB98590-9.6 | Tracy Karpinski | Secured Storage | 07/13/15 09:44 | Return to Storage |
| JB98590-9.7 | Secured Storage | Todd Shoemaker | 07/09/15 09:03 | Retrieve from Storage |
| JB98590-9.7 | Todd Shoemaker | Adil Quyser | 07/09/15 15:13 | Custody Transfer |
| JB98590-9.7 | Adil Quyser | | 07/09/15 19:52 | Depleted |
| JB98590-9.7.1 | Adil Quyser | Organics Prep | 07/09/15 15:15 | Extract from JB98590-9.7 |
| JB98590-9.7.1 | Organics Prep | Adil Quyser | 07/09/15 19:52 | Extract from JB98590-9.7 |
| JB98590-9.7.1 | Adil Quyser | Extract Storage | 07/09/15 19:52 | Return to Storage |
| JB98590-9.7.1 | Extract Storage | Vincent Drago | 07/10/15 14:23 | Retrieve from Storage |
| JB98590-9.7.1 | Vincent Drago | GC7G | 07/10/15 14:23 | Load on Instrument |
| JB98590-9.7.1 | GC7G | Vincent Drago | 07/13/15 16:59 | Unload from Instrument |
| JB98590-9.7.1 | Vincent Drago | Extract Freezer | 07/13/15 16:59 | Return to Storage |

# Accutest Internal Chain of Custody



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA
**Received:** 07/07/15



| Sample.Bottle Number | Transfer FROM | Transfer TO | Date/Time | Reason |
|---|---|---|---|---|
| JB98590-9F.3 | Secured Storage | Alfredo Crespo | 07/08/15 08:58 | Retrieve from Storage |
| JB98590-9F.3 | Alfredo Crespo | Secured Staging Area | 07/08/15 08:58 | Return to Storage |
| JB98590-9F.3 | Secured Staging Area | Masooda Sultani | 07/08/15 09:08 | Retrieve from Storage |
| JB98590-9F.3 | Masooda Sultani | Secured Storage | 07/08/15 13:07 | Return to Storage |
| JB98590-9F.3 | Secured Storage | Dwayne Johnson | 07/10/15 11:44 | Retrieve from Storage |
| JB98590-9F.3 | Dwayne Johnson | Secured Staging Area | 07/10/15 11:44 | Return to Storage |
| JB98590-9F.3 | Secured Staging Area | Ariel Alcala | 07/10/15 14:39 | Retrieve from Storage |
| JB98590-9F.3 | Ariel Alcala | Secured Storage | 07/10/15 16:00 | Return to Storage |
| JB98590-9F.3.1 | Ariel Alcala | Metals Digestion | 07/10/15 15:24 | Digestate from JB98590-9F.3 |
| JB98590-9F.3.1 | Metals Digestion | Ariel Alcala | 07/10/15 15:25 | Digestate from JB98590-9F.3 |
| JB98590-9F.3.1 | Ariel Alcala | Metals Digestate Storage | 07/10/15 15:25 | Return to Storage |
| JB98590-10.1 | Secured Storage | Brian Johnson | 07/09/15 04:48 | Retrieve from Storage |
| JB98590-10.1 | Brian Johnson | | 07/09/15 11:13 | Depleted |
| JB98590-10.1.1 | Brian Johnson | Organics Prep | 07/09/15 04:55 | Extract from JB98590-10.1 |
| JB98590-10.1.1 | Organics Prep | Nicholas Goydish | 07/09/15 14:20 | Extract from JB98590-10.1 |
| JB98590-10.1.1 | Nicholas Goydish | Extract Storage | 07/09/15 14:20 | Return to Storage |
| JB98590-10.1.1 | Extract Storage | Sara Wellington | 07/10/15 00:20 | Retrieve from Storage |
| JB98590-10.1.1 | Sara Wellington | GCMS6P | 07/10/15 00:20 | Load on Instrument |
| JB98590-10.1.1 | GCMS6P | Olga Azarihn | 07/10/15 14:38 | Unload from Instrument |
| JB98590-10.1.1 | Olga Azarihn | Extract Freezer | 07/10/15 14:38 | Return to Storage |
| JB98590-10.4 | Secured Storage | Zobia Hamid | 07/10/15 13:36 | Retrieve from Storage |
| JB98590-10.4 | Zobia Hamid | GCMS2A | 07/10/15 13:36 | Load on Instrument |
| JB98590-10.4 | GCMS2A | Tracy Karpinski | 07/13/15 09:44 | Unload from Instrument |
| JB98590-10.4 | Tracy Karpinski | Secured Storage | 07/13/15 09:44 | Return to Storage |
| JB98590-10.5 | Secured Storage | Zobia Hamid | 07/10/15 14:49 | Retrieve from Storage |
| JB98590-10.5 | Zobia Hamid | GCMS2A | 07/10/15 14:49 | Load on Instrument |
| JB98590-10.5 | GCMS2A | Tracy Karpinski | 07/13/15 09:44 | Unload from Instrument |
| JB98590-10.5 | Tracy Karpinski | Secured Storage | 07/13/15 09:44 | Return to Storage |
| JB98590-10.6 | Secured Storage | Zobia Hamid | 07/10/15 14:49 | Retrieve from Storage |
| JB98590-10.6 | Zobia Hamid | GCMS2A | 07/10/15 14:49 | Load on Instrument |
| JB98590-10.6 | GCMS2A | Tracy Karpinski | 07/13/15 09:44 | Unload from Instrument |
| JB98590-10.6 | Tracy Karpinski | Secured Storage | 07/13/15 09:44 | Return to Storage |
| JB98590-10.7 | Secured Storage | Todd Shoemaker | 07/09/15 09:03 | Retrieve from Storage |
| JB98590-10.7 | Todd Shoemaker | Adil Quyser | 07/09/15 15:13 | Custody Transfer |
| JB98590-10.7 | Adil Quyser | | 07/09/15 19:52 | Depleted |

# Accutest Internal Chain of Custody

**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA
**Received:** 07/07/15

| Sample.Bottle Number | Transfer FROM | Transfer TO | Date/Time | Reason |
|---|---|---|---|---|
| JB98590-10.7.1 | Adil Quyser | Organics Prep | 07/09/15 15:15 | Extract from JB98590-10.7 |
| JB98590-10.7.1 | Organics Prep | Adil Quyser | 07/09/15 19:52 | Extract from JB98590-10.7 |
| JB98590-10.7.1 | Adil Quyser | Extract Storage | 07/09/15 19:52 | Return to Storage |
| JB98590-10.7.1 | Extract Storage | Vincent Drago | 07/10/15 14:23 | Retrieve from Storage |
| JB98590-10.7.1 | Vincent Drago | GC7G | 07/10/15 14:23 | Load on Instrument |
| JB98590-10.7.1 | GC7G | Vincent Drago | 07/13/15 16:59 | Unload from Instrument |
| JB98590-10.7.1 | Vincent Drago | Extract Freezer | 07/13/15 16:59 | Return to Storage |
| JB98590-10F.3 | Secured Storage | Alfredo Crespo | 07/08/15 08:58 | Retrieve from Storage |
| JB98590-10F.3 | Alfredo Crespo | Secured Staging Area | 07/08/15 08:58 | Return to Storage |
| JB98590-10F.3 | Secured Staging Area | Masooda Sultani | 07/08/15 09:08 | Retrieve from Storage |
| JB98590-10F.3 | Masooda Sultani | Secured Storage | 07/08/15 13:07 | Return to Storage |
| JB98590-10F.3 | Secured Storage | Dwayne Johnson | 07/10/15 11:44 | Retrieve from Storage |
| JB98590-10F.3 | Dwayne Johnson | Secured Staging Area | 07/10/15 11:44 | Return to Storage |
| JB98590-10F.3 | Secured Staging Area | Ariel Alcala | 07/10/15 14:39 | Retrieve from Storage |
| JB98590-10F.3 | Ariel Alcala | Secured Storage | 07/10/15 16:00 | Return to Storage |
| JB98590-10F.3.1 | Ariel Alcala | Metals Digestion | 07/10/15 15:24 | Digestate from JB98590-10F.3 |
| JB98590-10F.3.1 | Metals Digestion | Ariel Alcala | 07/10/15 15:25 | Digestate from JB98590-10F.3 |
| JB98590-10F.3.1 | Ariel Alcala | Metals Digestate Storage | 07/10/15 15:25 | Return to Storage |
| JB98590-11.1 | Secured Storage | Brian Johnson | 07/09/15 04:48 | Retrieve from Storage |
| JB98590-11.1 | Brian Johnson | | 07/09/15 11:13 | Depleted |
| JB98590-11.1.1 | Brian Johnson | Organics Prep | 07/09/15 04:55 | Extract from JB98590-11.1 |
| JB98590-11.1.1 | Organics Prep | Nicholas Goydish | 07/09/15 14:20 | Extract from JB98590-11.1 |
| JB98590-11.1.1 | Nicholas Goydish | Extract Storage | 07/09/15 14:20 | Return to Storage |
| JB98590-11.1.1 | Extract Storage | Sara Wellington | 07/10/15 00:20 | Retrieve from Storage |
| JB98590-11.1.1 | Sara Wellington | GCMS6P | 07/10/15 00:20 | Load on Instrument |
| JB98590-11.1.1 | GCMS6P | Olga Azarihn | 07/10/15 14:38 | Unload from Instrument |
| JB98590-11.1.1 | Olga Azarihn | Extract Freezer | 07/10/15 14:38 | Return to Storage |
| JB98590-11.4 | Secured Storage | Zobia Hamid | 07/10/15 13:36 | Retrieve from Storage |
| JB98590-11.4 | Zobia Hamid | GCMS2A | 07/10/15 13:36 | Load on Instrument |
| JB98590-11.4 | GCMS2A | Tracy Karpinski | 07/13/15 09:44 | Unload from Instrument |
| JB98590-11.4 | Tracy Karpinski | Secured Storage | 07/13/15 09:44 | Return to Storage |
| JB98590-11.7 | Secured Storage | Todd Shoemaker | 07/09/15 09:03 | Retrieve from Storage |
| JB98590-11.7 | Todd Shoemaker | Adil Quyser | 07/09/15 15:13 | Custody Transfer |
| JB98590-11.7 | Adil Quyser | | 07/09/15 19:52 | Depleted |
| JB98590-11.7.1 | Adil Quyser | Organics Prep | 07/09/15 15:15 | Extract from JB98590-11.7 |
| JB98590-11.7.1 | Organics Prep | Adil Quyser | 07/09/15 19:52 | Extract from JB98590-11.7 |
| JB98590-11.7.1 | Adil Quyser | Extract Storage | 07/09/15 19:52 | Return to Storage |

# Accutest Internal Chain of Custody



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA
**Received:** 07/07/15

| Sample.Bottle Number | Transfer FROM | Transfer TO | Date/Time | Reason |
|---|---|---|---|---|
| JB98590-11.7.1 | Extract Storage | Vincent Drago | 07/10/15 14:23 | Retrieve from Storage |
| JB98590-11.7.1 | Vincent Drago | GC7G | 07/10/15 14:23 | Load on Instrument |
| JB98590-11.7.1 | GC7G | Vincent Drago | 07/13/15 16:59 | Unload from Instrument |
| JB98590-11.7.1 | Vincent Drago | Extract Freezer | 07/13/15 16:59 | Return to Storage |
| JB98590-11F.3 | Secured Storage | Alfredo Crespo | 07/08/15 08:58 | Retrieve from Storage |
| JB98590-11F.3 | Alfredo Crespo | Secured Staging Area | 07/08/15 08:58 | Return to Storage |
| JB98590-11F.3 | Secured Staging Area | Masooda Sultani | 07/08/15 09:08 | Retrieve from Storage |
| JB98590-11F.3 | Masooda Sultani | Secured Storage | 07/08/15 13:07 | Return to Storage |
| JB98590-11F.3 | Secured Storage | Dwayne Johnson | 07/10/15 11:44 | Retrieve from Storage |
| JB98590-11F.3 | Dwayne Johnson | Secured Staging Area | 07/10/15 11:44 | Return to Storage |
| JB98590-11F.3 | Secured Staging Area | Ariel Alcala | 07/10/15 14:39 | Retrieve from Storage |
| JB98590-11F.3 | Ariel Alcala | Secured Storage | 07/10/15 16:00 | Return to Storage |
| JB98590-11F.3.1 | Ariel Alcala | Metals Digestion | 07/10/15 15:24 | Digestate from JB98590-11F.3 |
| JB98590-11F.3.1 | Metals Digestion | Ariel Alcala | 07/10/15 15:25 | Digestate from JB98590-11F.3 |
| JB98590-11F.3.1 | Ariel Alcala | Metals Digestate Storage | 07/10/15 15:25 | Return to Storage |
| JB98590-12.2 | Secured Storage | Brian Johnson | 07/09/15 04:48 | Retrieve from Storage |
| JB98590-12.2 | Brian Johnson | | 07/09/15 11:13 | Depleted |
| JB98590-12.2.1 | Brian Johnson | Organics Prep | 07/09/15 04:55 | Extract from JB98590-12.2 |
| JB98590-12.2.1 | Organics Prep | Nicholas Goydish | 07/09/15 14:20 | Extract from JB98590-12.2 |
| JB98590-12.2.1 | Nicholas Goydish | Extract Storage | 07/09/15 14:20 | Return to Storage |
| JB98590-12.2.1 | Extract Storage | Sara Wellington | 07/10/15 00:20 | Retrieve from Storage |
| JB98590-12.2.1 | Sara Wellington | GCMS6P | 07/10/15 00:20 | Load on Instrument |
| JB98590-12.2.1 | GCMS6P | Olga Azarihn | 07/10/15 14:38 | Unload from Instrument |
| JB98590-12.2.1 | Olga Azarihn | Extract Freezer | 07/10/15 14:38 | Return to Storage |
| JB98590-12.5 | Secured Storage | Zobia Hamid | 07/10/15 14:49 | Retrieve from Storage |
| JB98590-12.5 | Zobia Hamid | GCMS2A | 07/10/15 14:49 | Load on Instrument |
| JB98590-12.5 | GCMS2A | Tracy Karpinski | 07/13/15 09:44 | Unload from Instrument |
| JB98590-12.5 | Tracy Karpinski | Secured Storage | 07/13/15 09:44 | Return to Storage |
| JB98590-12.6 | Secured Storage | Todd Shoemaker | 07/09/15 09:03 | Retrieve from Storage |
| JB98590-12.6 | Todd Shoemaker | Adil Quyser | 07/09/15 15:13 | Custody Transfer |
| JB98590-12.6 | Adil Quyser | | 07/09/15 19:52 | Depleted |
| JB98590-12.6.1 | Adil Quyser | Organics Prep | 07/09/15 15:15 | Extract from JB98590-12.6 |
| JB98590-12.6.1 | Organics Prep | Adil Quyser | 07/09/15 19:52 | Extract from JB98590-12.6 |
| JB98590-12.6.1 | Adil Quyser | Extract Storage | 07/09/15 19:52 | Return to Storage |
| JB98590-12.6.1 | Extract Storage | Vincent Drago | 07/10/15 14:23 | Retrieve from Storage |
| JB98590-12.6.1 | Vincent Drago | GC7G | 07/10/15 14:23 | Load on Instrument |
| JB98590-12.6.1 | GC7G | Vincent Drago | 07/13/15 16:59 | Unload from Instrument |

# Accutest Internal Chain of Custody



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA
**Received:** 07/07/15



| Sample.Bottle Number | Transfer FROM | Transfer TO | Date/Time | Reason |
|---|---|---|---|---|
| JB98590-12.6.1 | Vincent Drago | Extract Freezer | 07/13/15 16:59 | Return to Storage |
| JB98590-12F.3 | Secured Storage | Alfredo Crespo | 07/08/15 08:58 | Retrieve from Storage |
| JB98590-12F.3 | Alfredo Crespo | Secured Staging Area | 07/08/15 08:58 | Return to Storage |
| JB98590-12F.3 | Secured Staging Area | Masooda Sultani | 07/08/15 09:08 | Retrieve from Storage |
| JB98590-12F.3 | Masooda Sultani | Secured Storage | 07/08/15 13:07 | Return to Storage |
| JB98590-12F.3 | Secured Storage | Dwayne Johnson | 07/10/15 11:44 | Retrieve from Storage |
| JB98590-12F.3 | Dwayne Johnson | Secured Staging Area | 07/10/15 11:44 | Return to Storage |
| JB98590-12F.3 | Secured Staging Area | Ariel Alcala | 07/10/15 14:39 | Retrieve from Storage |
| JB98590-12F.3 | Ariel Alcala | Secured Storage | 07/10/15 16:00 | Return to Storage |
| JB98590-12F.3.1 | Ariel Alcala | Metals Digestion | 07/10/15 15:24 | Digestate from JB98590-12F.3 |
| JB98590-12F.3.1 | Metals Digestion | Ariel Alcala | 07/10/15 15:25 | Digestate from JB98590-12F.3 |
| JB98590-12F.3.1 | Ariel Alcala | Metals Digestate Storage | 07/10/15 15:25 | Return to Storage |
| JB98590-13.1 | Secured Storage | Brian Johnson | 07/09/15 04:48 | Retrieve from Storage |
| JB98590-13.1 | Brian Johnson | | 07/09/15 11:13 | Depleted |
| JB98590-13.1.1 | Brian Johnson | Organics Prep | 07/09/15 04:55 | Extract from JB98590-13.1 |
| JB98590-13.1.1 | Organics Prep | Nicholas Goydish | 07/09/15 14:20 | Extract from JB98590-13.1 |
| JB98590-13.1.1 | Nicholas Goydish | Extract Storage | 07/09/15 14:20 | Return to Storage |
| JB98590-13.1.1 | Extract Storage | Sara Wellington | 07/10/15 00:20 | Retrieve from Storage |
| JB98590-13.1.1 | Sara Wellington | GCMS6P | 07/10/15 00:20 | Load on Instrument |
| JB98590-13.1.1 | GCMS6P | Olga Azarihn | 07/13/15 09:38 | Unload from Instrument |
| JB98590-13.1.1 | Olga Azarihn | Extract Freezer | 07/13/15 09:38 | Return to Storage |
| JB98590-13.4 | Secured Storage | Todd Shoemaker | 07/09/15 09:03 | Retrieve from Storage |
| JB98590-13.4 | Todd Shoemaker | Adil Quyser | 07/09/15 15:13 | Custody Transfer |
| JB98590-13.4 | Adil Quyser | | 07/09/15 19:52 | Depleted |
| JB98590-13.4.1 | Adil Quyser | Organics Prep | 07/09/15 15:15 | Extract from JB98590-13.4 |
| JB98590-13.4.1 | Organics Prep | Adil Quyser | 07/09/15 19:52 | Extract from JB98590-13.4 |
| JB98590-13.4.1 | Adil Quyser | Extract Storage | 07/09/15 19:52 | Return to Storage |
| JB98590-13.4.1 | Extract Storage | Vincent Drago | 07/10/15 14:23 | Retrieve from Storage |
| JB98590-13.4.1 | Vincent Drago | GC7G | 07/10/15 14:23 | Load on Instrument |
| JB98590-13.4.1 | GC7G | Vincent Drago | 07/13/15 16:59 | Unload from Instrument |
| JB98590-13.4.1 | Vincent Drago | Extract Freezer | 07/13/15 16:59 | Return to Storage |
| JB98590-13.5 | Secured Storage | Mihir Mehta | 07/16/15 11:39 | Retrieve from Storage |
| JB98590-13.5 | Mihir Mehta | Secured Storage | 07/17/15 08:28 | Return to Storage |
| JB98590-13F.3 | Secured Storage | Alfredo Crespo | 07/08/15 08:58 | Retrieve from Storage |
| JB98590-13F.3 | Alfredo Crespo | Secured Staging Area | 07/08/15 08:58 | Return to Storage |
| JB98590-13F.3 | Secured Staging Area | Masooda Sultani | 07/08/15 09:08 | Retrieve from Storage |

# Accutest Internal Chain of Custody



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA
**Received:** 07/07/15

| Sample.Bottle Number | Transfer FROM | Transfer TO | Date/Time | Reason |
|---|---|---|---|---|
| JB98590-13F.3 | Masooda Sultani | Secured Storage | 07/08/15 13:07 | Return to Storage |
| JB98590-13F.3 | Secured Storage | Dwayne Johnson | 07/10/15 11:44 | Retrieve from Storage |
| JB98590-13F.3 | Dwayne Johnson | Secured Staging Area | 07/10/15 11:44 | Return to Storage |
| JB98590-13F.3 | Secured Staging Area | Ariel Alcala | 07/10/15 14:39 | Retrieve from Storage |
| JB98590-13F.3 | Ariel Alcala | Secured Storage | 07/10/15 16:00 | Return to Storage |
| JB98590-13F.3.1 | Ariel Alcala | Metals Digestion | 07/10/15 15:24 | Digestate from JB98590-13F.3 |
| JB98590-13F.3.1 | Metals Digestion | Ariel Alcala | 07/10/15 15:25 | Digestate from JB98590-13F.3 |
| JB98590-13F.3.1 | Ariel Alcala | Metals Digestate Storage | 07/10/15 15:25 | Return to Storage |
| JB98590-14.2 | Secured Storage | Brian Johnson | 07/09/15 04:48 | Retrieve from Storage |
| JB98590-14.2 | Brian Johnson | | 07/09/15 11:13 | Depleted |
| JB98590-14.2.1 | Brian Johnson | Organics Prep | 07/09/15 04:55 | Extract from JB98590-14.2 |
| JB98590-14.2.1 | Organics Prep | Nicholas Goydish | 07/09/15 14:20 | Extract from JB98590-14.2 |
| JB98590-14.2.1 | Nicholas Goydish | Extract Storage | 07/09/15 14:20 | Return to Storage |
| JB98590-14.2.1 | Extract Storage | Sara Wellington | 07/10/15 00:20 | Retrieve from Storage |
| JB98590-14.2.1 | Sara Wellington | GCMS6P | 07/10/15 00:20 | Load on Instrument |
| JB98590-14.2.1 | GCMS6P | Olga Azarihn | 07/10/15 14:38 | Unload from Instrument |
| JB98590-14.2.1 | Olga Azarihn | Extract Freezer | 07/10/15 14:38 | Return to Storage |
| JB98590-14.4 | Secured Storage | Todd Shoemaker | 07/09/15 09:03 | Retrieve from Storage |
| JB98590-14.4 | Todd Shoemaker | Adil Quyser | 07/09/15 15:13 | Custody Transfer |
| JB98590-14.4 | Adil Quyser | | 07/09/15 19:52 | Depleted |
| JB98590-14.4.1 | Adil Quyser | Organics Prep | 07/09/15 15:15 | Extract from JB98590-14.4 |
| JB98590-14.4.1 | Organics Prep | Adil Quyser | 07/09/15 19:52 | Extract from JB98590-14.4 |
| JB98590-14.4.1 | Adil Quyser | Extract Storage | 07/09/15 19:52 | Return to Storage |
| JB98590-14.4.1 | Extract Storage | Vincent Drago | 07/10/15 14:23 | Retrieve from Storage |
| JB98590-14.4.1 | Vincent Drago | GC7G | 07/10/15 14:23 | Load on Instrument |
| JB98590-14.4.1 | GC7G | Vincent Drago | 07/13/15 16:59 | Unload from Instrument |
| JB98590-14.4.1 | Vincent Drago | Extract Freezer | 07/13/15 16:59 | Return to Storage |
| JB98590-14.7 | Secured Storage | Zobia Hamid | 07/10/15 14:49 | Retrieve from Storage |
| JB98590-14.7 | Zobia Hamid | GCMS2A | 07/10/15 14:49 | Load on Instrument |
| JB98590-14.7 | GCMS2A | Tracy Karpinski | 07/13/15 09:44 | Unload from Instrument |
| JB98590-14.7 | Tracy Karpinski | Secured Storage | 07/13/15 09:44 | Return to Storage |
| JB98590-14F.3 | Secured Storage | Alfredo Crespo | 07/08/15 08:58 | Retrieve from Storage |
| JB98590-14F.3 | Alfredo Crespo | Secured Staging Area | 07/08/15 08:58 | Return to Storage |
| JB98590-14F.3 | Secured Staging Area | Masooda Sultani | 07/08/15 09:08 | Retrieve from Storage |
| JB98590-14F.3 | Masooda Sultani | Secured Storage | 07/08/15 13:07 | Return to Storage |
| JB98590-14F.3 | Secured Storage | Dwayne Johnson | 07/10/15 11:44 | Retrieve from Storage |
| JB98590-14F.3 | Dwayne Johnson | Secured Staging Area | 07/10/15 11:44 | Return to Storage |

# Accutest Internal Chain of Custody

**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA
**Received:** 07/07/15

| Sample.Bottle Number | Transfer FROM | Transfer TO | Date/Time | Reason |
|---|---|---|---|---|
| JB98590-14F.3 | Secured Staging Area | Ariel Alcala | 07/10/15 14:39 | Retrieve from Storage |
| JB98590-14F.3 | Ariel Alcala | Secured Storage | 07/10/15 16:00 | Return to Storage |
| JB98590-14F.3.1 | Ariel Alcala | Metals Digestion | 07/10/15 15:24 | Digestate from JB98590-14F.3 |
| JB98590-14F.3.1 | Metals Digestion | Ariel Alcala | 07/10/15 15:25 | Digestate from JB98590-14F.3 |
| JB98590-14F.3.1 | Ariel Alcala | Metals Digestate Storage | 07/10/15 15:25 | Return to Storage |
| JB98590-15.2 | Secured Storage | Brian Johnson | 07/09/15 04:48 | Retrieve from Storage |
| JB98590-15.2 | Brian Johnson | | 07/09/15 11:13 | Depleted |
| JB98590-15.2.1 | Brian Johnson | Organics Prep | 07/09/15 04:55 | Extract from JB98590-15.2 |
| JB98590-15.2.1 | Organics Prep | Nicholas Goydish | 07/09/15 14:20 | Extract from JB98590-15.2 |
| JB98590-15.2.1 | Nicholas Goydish | Extract Storage | 07/09/15 14:20 | Return to Storage |
| JB98590-15.2.1 | Extract Storage | Sara Wellington | 07/10/15 00:20 | Retrieve from Storage |
| JB98590-15.2.1 | Sara Wellington | GCMS6P | 07/10/15 00:20 | Load on Instrument |
| JB98590-15.2.1 | GCMS6P | Olga Azarihn | 07/10/15 14:38 | Unload from Instrument |
| JB98590-15.2.1 | Olga Azarihn | Extract Freezer | 07/10/15 14:38 | Return to Storage |
| JB98590-15.4 | Secured Storage | Zobia Hamid | 07/10/15 14:49 | Retrieve from Storage |
| JB98590-15.4 | Zobia Hamid | GCMS2A | 07/10/15 14:49 | Load on Instrument |
| JB98590-15.4 | GCMS2A | Tracy Karpinski | 07/13/15 09:46 | Unload from Instrument |
| JB98590-15.4 | Tracy Karpinski | Secured Storage | 07/13/15 09:46 | Return to Storage |
| JB98590-15.4 | Secured Storage | Mihir Mehta | 07/16/15 11:41 | Retrieve from Storage |
| JB98590-15.4 | Mihir Mehta | GCMSC | 07/16/15 11:41 | Load on Instrument |
| JB98590-15.4 | GCMSC | Mihir Mehta | 07/17/15 10:33 | Unload from Instrument |
| JB98590-15.4 | Mihir Mehta | Secured Storage | 07/17/15 10:33 | Return to Storage |
| JB98590-15.5 | Secured Storage | Todd Shoemaker | 07/09/15 09:03 | Retrieve from Storage |
| JB98590-15.5 | Todd Shoemaker | Adil Quyser | 07/09/15 15:13 | Custody Transfer |
| JB98590-15.5 | Adil Quyser | | 07/09/15 19:52 | Depleted |
| JB98590-15.5.1 | Adil Quyser | Organics Prep | 07/09/15 15:15 | Extract from JB98590-15.5 |
| JB98590-15.5.1 | Organics Prep | Adil Quyser | 07/09/15 19:52 | Extract from JB98590-15.5 |
| JB98590-15.5.1 | Adil Quyser | Extract Storage | 07/09/15 19:52 | Return to Storage |
| JB98590-15.5.1 | Extract Storage | Vincent Drago | 07/10/15 14:23 | Retrieve from Storage |
| JB98590-15.5.1 | Vincent Drago | GC7G | 07/10/15 14:23 | Load on Instrument |
| JB98590-15.5.1 | GC7G | Vincent Drago | 07/13/15 16:59 | Unload from Instrument |
| JB98590-15.5.1 | Vincent Drago | Extract Freezer | 07/13/15 16:59 | Return to Storage |
| JB98590-15F.3 | Secured Storage | Alfredo Crespo | 07/08/15 08:58 | Retrieve from Storage |
| JB98590-15F.3 | Alfredo Crespo | Secured Staging Area | 07/08/15 08:58 | Return to Storage |
| JB98590-15F.3 | Secured Staging Area | Masooda Sultani | 07/08/15 09:08 | Retrieve from Storage |
| JB98590-15F.3 | Masooda Sultani | Secured Storage | 07/08/15 13:07 | Return to Storage |
| JB98590-15F.3 | Secured Storage | Dwayne Johnson | 07/10/15 11:44 | Retrieve from Storage |

# Accutest Internal Chain of Custody



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA
**Received:** 07/07/15

| Sample.Bottle Number | Transfer FROM | Transfer TO | Date/Time | Reason |
|---|---|---|---|---|
| JB98590-15F.3 | Dwayne Johnson | Secured Staging Area | 07/10/15 11:44 | Return to Storage |
| JB98590-15F.3 | Secured Staging Area | Ariel Alcala | 07/10/15 14:39 | Retrieve from Storage |
| JB98590-15F.3 | Ariel Alcala | Secured Storage | 07/10/15 16:00 | Return to Storage |
| JB98590-15F.3.1 | Ariel Alcala | Metals Digestion | 07/10/15 15:24 | Digestate from JB98590-15F.3 |
| JB98590-15F.3.1 | Metals Digestion | Ariel Alcala | 07/10/15 15:25 | Digestate from JB98590-15F.3 |
| JB98590-15F.3.1 | Ariel Alcala | Metals Digestate Storage | 07/10/15 15:25 | Return to Storage |
| JB98590-16.1 | Secured Storage | Brian Johnson | 07/09/15 04:48 | Retrieve from Storage |
| JB98590-16.1 | Brian Johnson | | 07/09/15 11:13 | Depleted |
| JB98590-16.1.1 | Brian Johnson | Organics Prep | 07/09/15 04:55 | Extract from JB98590-16.1 |
| JB98590-16.1.1 | Organics Prep | Nicholas Goydish | 07/09/15 14:20 | Extract from JB98590-16.1 |
| JB98590-16.1.1 | Nicholas Goydish | Extract Storage | 07/09/15 14:20 | Return to Storage |
| JB98590-16.1.1 | Extract Storage | Sara Wellington | 07/10/15 00:20 | Retrieve from Storage |
| JB98590-16.1.1 | Sara Wellington | GCMS6P | 07/10/15 00:20 | Load on Instrument |
| JB98590-16.1.1 | GCMS6P | Olga Azarihn | 07/10/15 14:38 | Unload from Instrument |
| JB98590-16.1.1 | Olga Azarihn | Extract Freezer | 07/10/15 14:38 | Return to Storage |
| JB98590-16.6 | Secured Storage | Mihir Mehta | 07/16/15 11:41 | Retrieve from Storage |
| JB98590-16.6 | Mihir Mehta | GCMSC | 07/16/15 11:41 | Load on Instrument |
| JB98590-16.6 | GCMSC | Mihir Mehta | 07/17/15 10:33 | Unload from Instrument |
| JB98590-16.6 | Mihir Mehta | Secured Storage | 07/17/15 10:33 | Return to Storage |
| JB98590-16.7 | Secured Storage | Todd Shoemaker | 07/09/15 09:03 | Retrieve from Storage |
| JB98590-16.7 | Todd Shoemaker | Adil Quyser | 07/09/15 15:13 | Custody Transfer |
| JB98590-16.7 | Adil Quyser | | 07/09/15 19:52 | Depleted |
| JB98590-16.7.1 | Adil Quyser | Organics Prep | 07/09/15 15:15 | Extract from JB98590-16.7 |
| JB98590-16.7.1 | Organics Prep | Adil Quyser | 07/09/15 19:52 | Extract from JB98590-16.7 |
| JB98590-16.7.1 | Adil Quyser | Extract Storage | 07/09/15 19:52 | Return to Storage |
| JB98590-16.7.1 | Extract Storage | Vincent Drago | 07/10/15 14:23 | Retrieve from Storage |
| JB98590-16.7.1 | Vincent Drago | GC7G | 07/10/15 14:23 | Load on Instrument |
| JB98590-16.7.1 | GC7G | Vincent Drago | 07/13/15 16:59 | Unload from Instrument |
| JB98590-16.7.1 | Vincent Drago | Extract Freezer | 07/13/15 16:59 | Return to Storage |
| JB98590-16F.3 | Secured Storage | Alfredo Crespo | 07/08/15 08:58 | Retrieve from Storage |
| JB98590-16F.3 | Alfredo Crespo | Secured Staging Area | 07/08/15 08:58 | Return to Storage |
| JB98590-16F.3 | Secured Staging Area | Masooda Sultani | 07/08/15 09:08 | Retrieve from Storage |
| JB98590-16F.3 | Masooda Sultani | Secured Storage | 07/08/15 13:07 | Return to Storage |
| JB98590-16F.3 | Secured Storage | Dwayne Johnson | 07/10/15 11:44 | Retrieve from Storage |
| JB98590-16F.3 | Dwayne Johnson | Secured Staging Area | 07/10/15 11:44 | Return to Storage |
| JB98590-16F.3 | Secured Staging Area | Ariel Alcala | 07/10/15 14:39 | Retrieve from Storage |
| JB98590-16F.3 | Ariel Alcala | Secured Storage | 07/10/15 16:00 | Return to Storage |

# Accutest Internal Chain of Custody

**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA
**Received:** 07/07/15



| Sample.Bottle Number | Transfer FROM | Transfer TO | Date/Time | Reason |
|---|---|---|---|---|
| JB98590-16F.3.1 | Ariel Alcala | Metals Digestion | 07/10/15 15:24 | Digestate from JB98590-16F.3 |
| JB98590-16F.3.1 | Metals Digestion | Ariel Alcala | 07/10/15 15:25 | Digestate from JB98590-16F.3 |
| JB98590-16F.3.1 | Ariel Alcala | Metals Digestate Storage | 07/10/15 15:25 | Return to Storage |
| JB98590-17.2 | Secured Storage | Brian Johnson | 07/09/15 04:48 | Retrieve from Storage |
| JB98590-17.2 | Brian Johnson | | 07/09/15 11:13 | Depleted |
| JB98590-17.2.1 | Brian Johnson | Organics Prep | 07/09/15 04:55 | Extract from JB98590-17.2 |
| JB98590-17.2.1 | Organics Prep | Nicholas Goydish | 07/09/15 14:20 | Extract from JB98590-17.2 |
| JB98590-17.2.1 | Nicholas Goydish | Extract Storage | 07/09/15 14:20 | Return to Storage |
| JB98590-17.2.1 | Extract Storage | Sara Wellington | 07/10/15 00:20 | Retrieve from Storage |
| JB98590-17.2.1 | Sara Wellington | GCMS6P | 07/10/15 00:20 | Load on Instrument |
| JB98590-17.2.1 | GCMS6P | Olga Azarihn | 07/10/15 14:38 | Unload from Instrument |
| JB98590-17.2.1 | Olga Azarihn | Extract Freezer | 07/10/15 14:38 | Return to Storage |
| JB98590-17.6 | Secured Storage | King Cheng | 07/17/15 21:30 | Retrieve from Storage |
| JB98590-17.6 | King Cheng | GCMSU | 07/17/15 21:30 | Load on Instrument |
| JB98590-17.6 | GCMSU | Nicole Horvath | 07/20/15 08:35 | Unload from Instrument |
| JB98590-17.6 | Nicole Horvath | Secured Storage | 07/20/15 08:35 | Return to Storage |
| JB98590-17.7 | Secured Storage | Todd Shoemaker | 07/09/15 09:03 | Retrieve from Storage |
| JB98590-17.7 | Todd Shoemaker | Adil Quyser | 07/09/15 15:13 | Custody Transfer |
| JB98590-17.7 | Adil Quyser | | 07/09/15 19:52 | Depleted |
| JB98590-17.7.1 | Adil Quyser | Organics Prep | 07/09/15 15:15 | Extract from JB98590-17.7 |
| JB98590-17.7.1 | Organics Prep | Adil Quyser | 07/09/15 19:52 | Extract from JB98590-17.7 |
| JB98590-17.7.1 | Adil Quyser | Extract Storage | 07/09/15 19:52 | Return to Storage |
| JB98590-17.7.1 | Extract Storage | Vincent Drago | 07/10/15 14:23 | Retrieve from Storage |
| JB98590-17.7.1 | Vincent Drago | GC7G | 07/10/15 14:23 | Load on Instrument |
| JB98590-17.7.1 | GC7G | Vincent Drago | 07/13/15 16:59 | Unload from Instrument |
| JB98590-17.7.1 | Vincent Drago | Extract Freezer | 07/13/15 16:59 | Return to Storage |
| JB98590-17F.3 | Secured Storage | Alfredo Crespo | 07/08/15 08:58 | Retrieve from Storage |
| JB98590-17F.3 | Alfredo Crespo | Secured Staging Area | 07/08/15 08:58 | Return to Storage |
| JB98590-17F.3 | Secured Staging Area | Masooda Sultani | 07/08/15 09:08 | Retrieve from Storage |
| JB98590-17F.3 | Masooda Sultani | Secured Storage | 07/08/15 13:07 | Return to Storage |
| JB98590-17F.3 | Secured Storage | Dwayne Johnson | 07/10/15 11:44 | Retrieve from Storage |
| JB98590-17F.3 | Dwayne Johnson | Secured Staging Area | 07/10/15 11:44 | Return to Storage |
| JB98590-17F.3 | Secured Staging Area | Ariel Alcala | 07/10/15 14:39 | Retrieve from Storage |
| JB98590-17F.3 | Ariel Alcala | Secured Storage | 07/10/15 16:00 | Return to Storage |
| JB98590-17F.3.1 | Ariel Alcala | Metals Digestion | 07/10/15 15:24 | Digestate from JB98590-17F.3 |
| JB98590-17F.3.1 | Metals Digestion | Ariel Alcala | 07/10/15 15:25 | Digestate from JB98590-17F.3 |

# Accutest Internal Chain of Custody

**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA
**Received:** 07/07/15

| Sample.Bottle Number | Transfer FROM | Transfer TO | Date/Time | Reason |
|---|---|---|---|---|
| JB98590-17F.3.1 | Ariel Alcala | Metals Digestate Storage | 07/10/15 15:25 | Return to Storage |
| JB98590-18.1 | Secured Storage | Brian Johnson | 07/09/15 04:48 | Retrieve from Storage |
| JB98590-18.1 | Brian Johnson | | 07/09/15 11:13 | Depleted |
| JB98590-18.1.1 | Brian Johnson | Organics Prep | 07/09/15 04:55 | Extract from JB98590-18.1 |
| JB98590-18.1.1 | Organics Prep | Nicholas Goydish | 07/09/15 14:20 | Extract from JB98590-18.1 |
| JB98590-18.1.1 | Nicholas Goydish | Extract Storage | 07/09/15 14:20 | Return to Storage |
| JB98590-18.1.1 | Extract Storage | Sara Wellington | 07/10/15 00:20 | Retrieve from Storage |
| JB98590-18.1.1 | Sara Wellington | GCMS6P | 07/10/15 00:20 | Load on Instrument |
| JB98590-18.1.1 | GCMS6P | Olga Azarihn | 07/13/15 09:38 | Unload from Instrument |
| JB98590-18.1.1 | Olga Azarihn | Extract Freezer | 07/13/15 09:38 | Return to Storage |
| JB98590-18.4 | Secured Storage | Mihir Mehta | 07/16/15 11:41 | Retrieve from Storage |
| JB98590-18.4 | Mihir Mehta | GCMSC | 07/16/15 11:41 | Load on Instrument |
| JB98590-18.4 | GCMSC | Mihir Mehta | 07/17/15 10:33 | Unload from Instrument |
| JB98590-18.4 | Mihir Mehta | Secured Storage | 07/17/15 10:33 | Return to Storage |
| JB98590-18.5 | Secured Storage | Todd Shoemaker | 07/09/15 09:03 | Retrieve from Storage |
| JB98590-18.5 | Todd Shoemaker | Adil Quyser | 07/09/15 15:13 | Custody Transfer |
| JB98590-18.5 | Adil Quyser | | 07/09/15 19:52 | Depleted |
| JB98590-18.5.1 | Adil Quyser | Organics Prep | 07/09/15 15:15 | Extract from JB98590-18.5 |
| JB98590-18.5.1 | Organics Prep | Adil Quyser | 07/09/15 19:52 | Extract from JB98590-18.5 |
| JB98590-18.5.1 | Adil Quyser | Extract Storage | 07/09/15 19:52 | Return to Storage |
| JB98590-18.5.1 | Extract Storage | Vincent Drago | 07/10/15 14:23 | Retrieve from Storage |
| JB98590-18.5.1 | Vincent Drago | GC7G | 07/10/15 14:23 | Load on Instrument |
| JB98590-18.5.1 | GC7G | Vincent Drago | 07/13/15 16:59 | Unload from Instrument |
| JB98590-18.5.1 | Vincent Drago | Extract Freezer | 07/13/15 16:59 | Return to Storage |
| JB98590-18.6 | Secured Storage | King Cheng | 07/17/15 21:30 | Retrieve from Storage |
| JB98590-18.6 | King Cheng | GCMSU | 07/17/15 21:30 | Load on Instrument |
| JB98590-18.6 | GCMSU | Nicole Horvath | 07/20/15 08:35 | Unload from Instrument |
| JB98590-18.6 | Nicole Horvath | Secured Storage | 07/20/15 08:35 | Return to Storage |
| JB98590-18F.3 | Secured Storage | Alfredo Crespo | 07/08/15 08:58 | Retrieve from Storage |
| JB98590-18F.3 | Alfredo Crespo | Secured Staging Area | 07/08/15 08:58 | Return to Storage |
| JB98590-18F.3 | Secured Staging Area | Masooda Sultani | 07/08/15 09:08 | Retrieve from Storage |
| JB98590-18F.3 | Masooda Sultani | Secured Storage | 07/08/15 13:07 | Return to Storage |
| JB98590-18F.3 | Secured Storage | Dwayne Johnson | 07/10/15 11:44 | Retrieve from Storage |
| JB98590-18F.3 | Dwayne Johnson | Secured Staging Area | 07/10/15 11:44 | Return to Storage |
| JB98590-18F.3 | Secured Staging Area | Ariel Alcala | 07/10/15 14:39 | Retrieve from Storage |
| JB98590-18F.3 | Ariel Alcala | Secured Storage | 07/10/15 16:00 | Return to Storage |

# Accutest Internal Chain of Custody



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA
**Received:** 07/07/15

| Sample.Bottle Number | Transfer FROM | Transfer TO | Date/Time | Reason |
|---|---|---|---|---|
| JB98590-18F.3.1 | Ariel Alcala | Metals Digestion | 07/10/15 15:24 | Digestate from JB98590-18F.3 |
| JB98590-18F.3.1 | Metals Digestion | Ariel Alcala | 07/10/15 15:25 | Digestate from JB98590-18F.3 |
| JB98590-18F.3.1 | Ariel Alcala | Metals Digestate Storage | 07/10/15 15:25 | Return to Storage |

New Jersey
ACCUTEST LABORATORIES



# GC/MS Volatiles

## QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Instrument Performance Checks (BFB)
- Internal Standard Area Summaries
- Surrogate Recovery Summaries
- Initial and Continuing Calibration Summaries

# Method Blank Summary



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| V2A6821-MB1 | 2A159840.D | 1 | 07/10/15 | TK | n/a | n/a | V2A6821 |

**The QC reported here applies to the following samples:** **Method:** SW846 8260C

JB98590-2, JB98590-5, JB98590-6, JB98590-7, JB98590-10, JB98590-11

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 71-43-2 | Benzene | ND | 0.50 | 0.24 | ug/l | |
| 135-98-8 | sec-Butylbenzene | ND | 2.0 | 0.21 | ug/l | |
| 98-06-6 | tert-Butylbenzene | ND | 2.0 | 0.28 | ug/l | |
| 110-82-7 | Cyclohexane | ND | 5.0 | 0.28 | ug/l | |
| 107-06-2 | 1,2-Dichloroethane | ND | 1.0 | 0.18 | ug/l | |
| 100-41-4 | Ethylbenzene | ND | 1.0 | 0.27 | ug/l | |
| 110-54-3 | Hexane | ND | 5.0 | 0.40 | ug/l | |
| 98-82-8 | Isopropylbenzene | ND | 1.0 | 0.23 | ug/l | |
| 1634-04-4 | Methyl Tert Butyl Ether | ND | 1.0 | 0.24 | ug/l | |
| 108-88-3 | Toluene | ND | 1.0 | 0.16 | ug/l | |
| 95-63-6 | 1,2,4-Trimethylbenzene | ND | 2.0 | 0.22 | ug/l | |
| 108-67-8 | 1,3,5-Trimethylbenzene | ND | 2.0 | 0.29 | ug/l | |
| 1330-20-7 | Xylene (total) | ND | 1.0 | 0.17 | ug/l | |

| CAS No. | Surrogate Recoveries | | Limits |
|---|---|---|---|
| 1868-53-7 | Dibromofluoromethane | 94% | 76-120% |
| 17060-07-0 | 1,2-Dichloroethane-D4 | 105% | 73-122% |
| 2037-26-5 | Toluene-D8 | 99% | 84-119% |
| 460-00-4 | 4-Bromofluorobenzene | 97% | 78-117% |

# Method Blank Summary



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| V2A6821-MB2 | 2A159861.D | 1 | 07/10/15 | TK | n/a | n/a | V2A6821 |

**The QC reported here applies to the following samples:** **Method:** SW846 8260C

JB98590-1, JB98590-3, JB98590-4, JB98590-8, JB98590-9, JB98590-12, JB98590-13, JB98590-14

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 71-43-2 | Benzene | ND | 0.50 | 0.24 | ug/l | |
| 135-98-8 | sec-Butylbenzene | ND | 2.0 | 0.21 | ug/l | |
| 98-06-6 | tert-Butylbenzene | ND | 2.0 | 0.28 | ug/l | |
| 110-82-7 | Cyclohexane | ND | 5.0 | 0.28 | ug/l | |
| 107-06-2 | 1,2-Dichloroethane | ND | 1.0 | 0.18 | ug/l | |
| 100-41-4 | Ethylbenzene | ND | 1.0 | 0.27 | ug/l | |
| 110-54-3 | Hexane | ND | 5.0 | 0.40 | ug/l | |
| 98-82-8 | Isopropylbenzene | ND | 1.0 | 0.23 | ug/l | |
| 1634-04-4 | Methyl Tert Butyl Ether | ND | 1.0 | 0.24 | ug/l | |
| 108-88-3 | Toluene | ND | 1.0 | 0.16 | ug/l | |
| 95-63-6 | 1,2,4-Trimethylbenzene | ND | 2.0 | 0.22 | ug/l | |
| 108-67-8 | 1,3,5-Trimethylbenzene | ND | 2.0 | 0.29 | ug/l | |
| 1330-20-7 | Xylene (total) | ND | 1.0 | 0.17 | ug/l | |

| CAS No. | Surrogate Recoveries | | Limits |
|---|---|---|---|
| 1868-53-7 | Dibromofluoromethane | 94% | 76-120% |
| 17060-07-0 | 1,2-Dichloroethane-D4 | 104% | 73-122% |
| 2037-26-5 | Toluene-D8 | 98% | 84-119% |
| 460-00-4 | 4-Bromofluorobenzene | 101% | 78-117% |

# Method Blank Summary



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| VC7407-MB | C201877.D | 1 | 07/16/15 | MM | n/a | n/a | VC7407 |

**The QC reported here applies to the following samples:** **Method:** SW846 8260C

JB98590-13, JB98590-15, JB98590-16, JB98590-18

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 71-43-2 | Benzene | ND | 0.50 | 0.24 | ug/l | |
| 135-98-8 | sec-Butylbenzene | ND | 2.0 | 0.21 | ug/l | |
| 98-06-6 | tert-Butylbenzene | ND | 2.0 | 0.28 | ug/l | |
| 110-82-7 | Cyclohexane | ND | 5.0 | 0.28 | ug/l | |
| 107-06-2 | 1,2-Dichloroethane | ND | 1.0 | 0.18 | ug/l | |
| 100-41-4 | Ethylbenzene | ND | 1.0 | 0.27 | ug/l | |
| 110-54-3 | Hexane | ND | 5.0 | 0.40 | ug/l | |
| 98-82-8 | Isopropylbenzene | ND | 1.0 | 0.23 | ug/l | |
| 1634-04-4 | Methyl Tert Butyl Ether | ND | 1.0 | 0.24 | ug/l | |
| 108-88-3 | Toluene | ND | 1.0 | 0.16 | ug/l | |
| 95-63-6 | 1,2,4-Trimethylbenzene | ND | 2.0 | 0.22 | ug/l | |
| 108-67-8 | 1,3,5-Trimethylbenzene | ND | 2.0 | 0.29 | ug/l | |
| 1330-20-7 | Xylene (total) | ND | 1.0 | 0.17 | ug/l | |

| CAS No. | Surrogate Recoveries | | Limits |
|---|---|---|---|
| 1868-53-7 | Dibromofluoromethane | 104% | 76-120% |
| 17060-07-0 | 1,2-Dichloroethane-D4 | 117% | 73-122% |
| 2037-26-5 | Toluene-D8 | 101% | 84-119% |
| 460-00-4 | 4-Bromofluorobenzene | 102% | 78-117% |

| CAS No. | Tentatively Identified Compounds | R.T. | Est. Conc. | Units | Q |
|---|---|---|---|---|---|
| | Total TIC, Volatile | | 0 | ug/l | |

# Method Blank Summary



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| VU9094-MB | U197272.D | 1 | 07/17/15 | NH | n/a | n/a | VU9094 |

**The QC reported here applies to the following samples:** **Method:** SW846 8260C

JB98590-17, JB98590-18

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 71-43-2 | Benzene | ND | 0.50 | 0.24 | ug/l | |
| 135-98-8 | sec-Butylbenzene | ND | 2.0 | 0.21 | ug/l | |
| 98-06-6 | tert-Butylbenzene | ND | 2.0 | 0.28 | ug/l | |
| 110-82-7 | Cyclohexane | ND | 5.0 | 0.28 | ug/l | |
| 107-06-2 | 1,2-Dichloroethane | ND | 1.0 | 0.18 | ug/l | |
| 100-41-4 | Ethylbenzene | ND | 1.0 | 0.27 | ug/l | |
| 110-54-3 | Hexane | ND | 5.0 | 0.40 | ug/l | |
| 98-82-8 | Isopropylbenzene | ND | 1.0 | 0.23 | ug/l | |
| 1634-04-4 | Methyl Tert Butyl Ether | ND | 1.0 | 0.24 | ug/l | |
| 108-88-3 | Toluene | ND | 1.0 | 0.16 | ug/l | |
| 95-63-6 | 1,2,4-Trimethylbenzene | ND | 2.0 | 0.22 | ug/l | |
| 108-67-8 | 1,3,5-Trimethylbenzene | ND | 2.0 | 0.29 | ug/l | |
| 1330-20-7 | Xylene (total) | ND | 1.0 | 0.17 | ug/l | |

| CAS No. | Surrogate Recoveries | | Limits |
|---|---|---|---|
| 1868-53-7 | Dibromofluoromethane | 105% | 76-120% |
| 17060-07-0 | 1,2-Dichloroethane-D4 | 105% | 73-122% |
| 2037-26-5 | Toluene-D8 | 101% | 84-119% |
| 460-00-4 | 4-Bromofluorobenzene | 97% | 78-117% |

| CAS No. | Tentatively Identified Compounds | R.T. | Est. Conc. | Units | Q |
|---|---|---|---|---|---|
| | Total TIC, Volatile | | 0 | ug/l | |

# Blank Spike Summary



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| V2A6821-BS | 2A159841.D | 1 | 07/10/15 | TK | n/a | n/a | V2A6821 |

**The QC reported here applies to the following samples:** **Method:** SW846 8260C

JB98590-1, JB98590-2, JB98590-3, JB98590-4, JB98590-5, JB98590-6, JB98590-7, JB98590-8, JB98590-9, JB98590-10, JB98590-11, JB98590-12, JB98590-13, JB98590-14

| CAS No. | Compound | Spike ug/l | BSP ug/l | BSP % | Limits |
|---|---|---|---|---|---|
| 71-43-2 | Benzene | 50 | 49.9 | 100 | 81-119 |
| 135-98-8 | sec-Butylbenzene | 50 | 51.9 | 104 | 78-124 |
| 98-06-6 | tert-Butylbenzene | 50 | 52.9 | 106 | 77-127 |
| 110-82-7 | Cyclohexane | 50 | 48.4 | 97 | 77-125 |
| 107-06-2 | 1,2-Dichloroethane | 50 | 60.7 | 121 | 78-131 |
| 100-41-4 | Ethylbenzene | 50 | 51.5 | 103 | 80-118 |
| 110-54-3 | Hexane | 50 | 34.3 | 69 | 40-144 |
| 98-82-8 | Isopropylbenzene | 50 | 51.6 | 103 | 78-125 |
| 1634-04-4 | Methyl Tert Butyl Ether | 100 | 93.0 | 93 | 73-122 |
| 108-88-3 | Toluene | 50 | 51.7 | 103 | 80-122 |
| 95-63-6 | 1,2,4-Trimethylbenzene | 50 | 55.2 | 110 | 82-125 |
| 108-67-8 | 1,3,5-Trimethylbenzene | 50 | 53.1 | 106 | 79-123 |
| 1330-20-7 | Xylene (total) | 150 | 158 | 105 | 82-119 |

| CAS No. | Surrogate Recoveries | BSP | Limits |
|---|---|---|---|
| 1868-53-7 | Dibromofluoromethane | 93% | 76-120% |
| 17060-07-0 | 1,2-Dichloroethane-D4 | 105% | 73-122% |
| 2037-26-5 | Toluene-D8 | 99% | 84-119% |
| 460-00-4 | 4-Bromofluorobenzene | 94% | 78-117% |

* = Outside of Control Limits.

# Blank Spike Summary



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| VC7407-BS | C201878.D | 1 | 07/16/15 | MM | n/a | n/a | VC7407 |

**The QC reported here applies to the following samples:** **Method:** SW846 8260C

JB98590-13, JB98590-15, JB98590-16, JB98590-18

| CAS No. | Compound | Spike ug/l | BSP ug/l | BSP % | Limits |
|---|---|---|---|---|---|
| 71-43-2 | Benzene | 50 | 46.9 | 94 | 81-119 |
| 135-98-8 | sec-Butylbenzene | 50 | 51.1 | 102 | 78-124 |
| 98-06-6 | tert-Butylbenzene | 50 | 51.0 | 102 | 77-127 |
| 110-82-7 | Cyclohexane | 50 | 51.5 | 103 | 77-125 |
| 107-06-2 | 1,2-Dichloroethane | 50 | 59.1 | 118 | 78-131 |
| 100-41-4 | Ethylbenzene | 50 | 49.5 | 99 | 80-118 |
| 110-54-3 | Hexane | 50 | 41.3 | 83 | 40-144 |
| 98-82-8 | Isopropylbenzene | 50 | 52.8 | 106 | 78-125 |
| 1634-04-4 | Methyl Tert Butyl Ether | 100 | 93.2 | 93 | 73-122 |
| 108-88-3 | Toluene | 50 | 48.9 | 98 | 80-122 |
| 95-63-6 | 1,2,4-Trimethylbenzene | 50 | 53.0 | 106 | 82-125 |
| 108-67-8 | 1,3,5-Trimethylbenzene | 50 | 52.2 | 104 | 79-123 |
| 1330-20-7 | Xylene (total) | 150 | 152 | 101 | 82-119 |

| CAS No. | Surrogate Recoveries | BSP | Limits |
|---|---|---|---|
| 1868-53-7 | Dibromofluoromethane | 105% | 76-120% |
| 17060-07-0 | 1,2-Dichloroethane-D4 | 118% | 73-122% |
| 2037-26-5 | Toluene-D8 | 104% | 84-119% |
| 460-00-4 | 4-Bromofluorobenzene | 105% | 78-117% |

* = Outside of Control Limits.

# Blank Spike Summary



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| VU9094-BS | U197273.D | 1 | 07/17/15 | NH | n/a | n/a | VU9094 |

**The QC reported here applies to the following samples:** **Method:** SW846 8260C

JB98590-17, JB98590-18

| CAS No. | Compound | Spike ug/l | BSP ug/l | BSP % | Limits |
|---|---|---|---|---|---|
| 71-43-2 | Benzene | 50 | 55.6 | 111 | 81-119 |
| 135-98-8 | sec-Butylbenzene | 50 | 52.3 | 105 | 78-124 |
| 98-06-6 | tert-Butylbenzene | 50 | 58.9 | 118 | 77-127 |
| 110-82-7 | Cyclohexane | 50 | 57.9 | 116 | 77-125 |
| 107-06-2 | 1,2-Dichloroethane | 50 | 60.7 | 121 | 78-131 |
| 100-41-4 | Ethylbenzene | 50 | 53.3 | 107 | 80-118 |
| 110-54-3 | Hexane | 50 | 45.1 | 90 | 40-144 |
| 98-82-8 | Isopropylbenzene | 50 | 51.9 | 104 | 78-125 |
| 1634-04-4 | Methyl Tert Butyl Ether | 100 | 108 | 108 | 73-122 |
| 108-88-3 | Toluene | 50 | 55.7 | 111 | 80-122 |
| 95-63-6 | 1,2,4-Trimethylbenzene | 50 | 54.2 | 108 | 82-125 |
| 108-67-8 | 1,3,5-Trimethylbenzene | 50 | 51.3 | 103 | 79-123 |
| 1330-20-7 | Xylene (total) | 150 | 166 | 111 | 82-119 |

| CAS No. | Surrogate Recoveries | BSP | Limits |
|---|---|---|---|
| 1868-53-7 | Dibromofluoromethane | 106% | 76-120% |
| 17060-07-0 | 1,2-Dichloroethane-D4 | 106% | 73-122% |
| 2037-26-5 | Toluene-D8 | 104% | 84-119% |
| 460-00-4 | 4-Bromofluorobenzene | 94% | 78-117% |

* = Outside of Control Limits.

# Matrix Spike/Matrix Spike Duplicate Summary



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| JB98590-10MS | 2A159847.D | 1 | 07/10/15 | TK | n/a | n/a | V2A6821 |
| JB98590-10MSD | 2A159848.D | 1 | 07/10/15 | TK | n/a | n/a | V2A6821 |
| JB98590-10 | 2A159843.D | 1 | 07/10/15 | TK | n/a | n/a | V2A6821 |

**The QC reported here applies to the following samples:** **Method:** SW846 8260C

JB98590-1, JB98590-2, JB98590-3, JB98590-4, JB98590-5, JB98590-6, JB98590-7, JB98590-8, JB98590-9, JB98590-10, JB98590-11, JB98590-12, JB98590-13, JB98590-14

| CAS No. | Compound | JB98590-10 ug/l | Q | Spike ug/l | MS ug/l | MS % | Spike ug/l | MSD ug/l | MSD % | RPD | Limits Rec/RPD |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 71-43-2 | Benzene | ND | | 50 | 52.9 | 106 | 50 | 52.1 | 104 | 2 | 43-138/12 |
| 135-98-8 | sec-Butylbenzene | ND | | 50 | 55.6 | 111 | 50 | 56.7 | 113 | 2 | 52-138/16 |
| 98-06-6 | tert-Butylbenzene | ND | | 50 | 54.8 | 110 | 50 | 56.3 | 113 | 3 | 55-137/16 |
| 110-82-7 | Cyclohexane | ND | | 50 | 52.4 | 105 | 50 | 52.7 | 105 | 1 | 30-148/17 |
| 107-06-2 | 1,2-Dichloroethane | ND | | 50 | 61.7 | 123 | 50 | 59.8 | 120 | 3 | 72-133/12 |
| 100-41-4 | Ethylbenzene | ND | | 50 | 55.8 | 112 | 50 | 56.2 | 112 | 1 | 38-139/12 |
| 110-54-3 | Hexane | ND | | 50 | 50.8 | 102 | 50 | 51.4 | 103 | 1 | 20-158/19 |
| 98-82-8 | Isopropylbenzene | ND | | 50 | 56.5 | 113 | 50 | 57.0 | 114 | 1 | 54-137/15 |
| 1634-04-4 | Methyl Tert Butyl Ether | ND | | 50 | 49.1 | 98 | 50 | 49.3 | 99 | 0 | 64-132/13 |
| 108-88-3 | Toluene | ND | | 50 | 55.7 | 111 | 50 | 55.7 | 111 | 0 | 51-136/13 |
| 95-63-6 | 1,2,4-Trimethylbenzene | ND | | 50 | 53.8 | 108 | 50 | 55.3 | 111 | 3 | 40-143/13 |
| 108-67-8 | 1,3,5-Trimethylbenzene | ND | | 50 | 54.0 | 108 | 50 | 55.8 | 112 | 3 | 54-135/14 |
| 1330-20-7 | Xylene (total) | ND | | 150 | 166 | 111 | 150 | 170 | 113 | 2 | 46-137/12 |

| CAS No. | Surrogate Recoveries | MS | MSD | JB98590-10 | Limits |
|---|---|---|---|---|---|
| 1868-53-7 | Dibromofluoromethane | 93% | 93% | 93% | 76-120% |
| 17060-07-0 | 1,2-Dichloroethane-D4 | 104% | 104% | 104% | 73-122% |
| 2037-26-5 | Toluene-D8 | 100% | 99% | 97% | 84-119% |
| 460-00-4 | 4-Bromofluorobenzene | 95% | 96% | 98% | 78-117% |

* = Outside of Control Limits.

# Matrix Spike/Matrix Spike Duplicate Summary



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| JB99086-2MS | C201885.D | 50 | 07/16/15 | MM | n/a | n/a | VC7407 |
| JB99086-2MSD | C201886.D | 50 | 07/16/15 | MM | n/a | n/a | VC7407 |
| JB99086-2 | C201881.D | 50 | 07/16/15 | MM | n/a | n/a | VC7407 |

**The QC reported here applies to the following samples:** **Method:** SW846 8260C

JB98590-13, JB98590-15, JB98590-16, JB98590-18

| CAS No. | Compound | JB99086-2 ug/l | Q | Spike ug/l | MS ug/l | MS % | Spike ug/l | MSD ug/l | MSD % | RPD | Limits Rec/RPD |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 71-43-2 | Benzene | 6110 | | 2500 | 7720 | 64 | 2500 | 7730 | 65 | 0 | 43-138/12 |
| 135-98-8 | sec-Butylbenzene | ND | | 2500 | 2540 | 102 | 2500 | 2520 | 101 | 1 | 52-138/16 |
| 98-06-6 | tert-Butylbenzene | ND | | 2500 | 2550 | 102 | 2500 | 2470 | 99 | 3 | 55-137/16 |
| 110-82-7 | Cyclohexane | 54.9 | J | 2500 | 2220 | 87 | 2500 | 2200 | 86 | 1 | 30-148/17 |
| 107-06-2 | 1,2-Dichloroethane | ND | | 2500 | 2790 | 112 | 2500 | 2750 | 110 | 1 | 72-133/12 |
| 100-41-4 | Ethylbenzene | ND | | 2500 | 2410 | 96 | 2500 | 2390 | 96 | 1 | 38-139/12 |
| 110-54-3 | Hexane | ND | | 2500 | 2120 | 85 | 2500 | 2110 | 84 | 0 | 20-158/19 |
| 98-82-8 | Isopropylbenzene | ND | | 2500 | 2600 | 104 | 2500 | 2590 | 104 | 0 | 54-137/15 |
| 1634-04-4 | Methyl Tert Butyl Ether | ND | | 2500 | 2080 | 83 | 2500 | 2040 | 82 | 2 | 64-132/13 |
| 108-88-3 | Toluene | 75.7 | | 2500 | 2360 | 91 | 2500 | 2350 | 91 | 0 | 51-136/13 |
| 95-63-6 | 1,2,4-Trimethylbenzene | ND | | 2500 | 2500 | 100 | 2500 | 2490 | 100 | 0 | 40-143/13 |
| 108-67-8 | 1,3,5-Trimethylbenzene | ND | | 2500 | 2590 | 104 | 2500 | 2580 | 103 | 0 | 54-135/14 |
| 1330-20-7 | Xylene (total) | 46.4 | J | 7500 | 7390 | 98 | 7500 | 7350 | 97 | 1 | 46-137/12 |

| CAS No. | Surrogate Recoveries | MS | MSD | JB99086-2 | Limits |
|---|---|---|---|---|---|
| 1868-53-7 | Dibromofluoromethane | 103% | 101% | 99% | 76-120% |
| 17060-07-0 | 1,2-Dichloroethane-D4 | 116% | 116% | 116% | 73-122% |
| 2037-26-5 | Toluene-D8 | 102% | 101% | 101% | 84-119% |
| 460-00-4 | 4-Bromofluorobenzene | 105% | 106% | 107% | 78-117% |

* = Outside of Control Limits.

# Matrix Spike/Matrix Spike Duplicate Summary



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| JB99145-3MS | U197274.D | 20 | 07/17/15 | NH | n/a | n/a | VU9094 |
| JB99145-3MSD | U197275.D | 20 | 07/17/15 | NH | n/a | n/a | VU9094 |
| JB99145-3 | U197277.D | 20 | 07/17/15 | NH | n/a | n/a | VU9094 |

**The QC reported here applies to the following samples:** **Method:** SW846 8260C

JB98590-17, JB98590-18

| CAS No. | Compound | JB99145-3 ug/l | Q | Spike ug/l | MS ug/l | MS % | Spike ug/l | MSD ug/l | MSD % | RPD | Limits Rec/RPD |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 71-43-2 | Benzene | 45.4 | | 1000 | 1110 | 106 | 1000 | 1110 | 106 | 0 | 43-138/12 |
| 135-98-8 | sec-Butylbenzene | ND | | 1000 | 1050 | 105 | 1000 | 1060 | 106 | 1 | 52-138/16 |
| 98-06-6 | tert-Butylbenzene | ND | | 1000 | 1180 | 118 | 1000 | 1180 | 118 | 0 | 55-137/16 |
| 110-82-7 | Cyclohexane | ND | | 1000 | 1130 | 113 | 1000 | 1140 | 114 | 1 | 30-148/17 |
| 107-06-2 | 1,2-Dichloroethane | ND | | 1000 | 1160 | 116 | 1000 | 1160 | 116 | 0 | 72-133/12 |
| 100-41-4 | Ethylbenzene | ND | | 1000 | 1070 | 107 | 1000 | 1080 | 108 | 1 | 38-139/12 |
| 110-54-3 | Hexane | ND | | 1000 | 1200 | 120 | 1000 | 1190 | 119 | 1 | 20-158/19 |
| 98-82-8 | Isopropylbenzene | ND | | 1000 | 1050 | 105 | 1000 | 1070 | 107 | 2 | 54-137/15 |
| 1634-04-4 | Methyl Tert Butyl Ether | 64.1 | | 1000 | 1130 | 107 | 1000 | 1130 | 107 | 0 | 64-132/13 |
| 108-88-3 | Toluene | ND | | 1000 | 1100 | 110 | 1000 | 1100 | 110 | 0 | 51-136/13 |
| 95-63-6 | 1,2,4-Trimethylbenzene | ND | | 1000 | 1050 | 105 | 1000 | 1050 | 105 | 0 | 40-143/13 |
| 108-67-8 | 1,3,5-Trimethylbenzene | ND | | 1000 | 1040 | 104 | 1000 | 1060 | 106 | 2 | 54-135/14 |
| 1330-20-7 | Xylene (total) | ND | | 3000 | 3310 | 110 | 3000 | 3360 | 112 | 1 | 46-137/12 |

| CAS No. | Surrogate Recoveries | MS | MSD | JB99145-3 | Limits |
|---|---|---|---|---|---|
| 1868-53-7 | Dibromofluoromethane | 105% | 105% | 103% | 76-120% |
| 17060-07-0 | 1,2-Dichloroethane-D4 | 105% | 104% | 101% | 73-122% |
| 2037-26-5 | Toluene-D8 | 102% | 101% | 110% | 84-119% |
| 460-00-4 | 4-Bromofluorobenzene | 94% | 94% | 98% | 78-117% |

* = Outside of Control Limits.

# Instrument Performance Check (BFB)



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

**Sample:** V2A6798-BFB
**Lab File ID:** 2A159355.D
**Instrument ID:** GCMS2A
**Injection Date:** 06/24/15
**Injection Time:** 12:05

| m/e | Ion Abundance Criteria | Raw Abundance | % Relative Abundance | | Pass/Fail |
|---|---|---|---|---|---|
| 50 | 15.0 - 40.0% of mass 95 | 15142 | 15.8 | | Pass |
| 75 | 30.0 - 60.0% of mass 95 | 42616 | 44.4 | | Pass |
| 95 | Base peak, 100% relative abundance | 96042 | 100.0 | | Pass |
| 96 | 5.0 - 9.0% of mass 95 | 6096 | 6.35 | | Pass |
| 173 | Less than 2.0% of mass 174 | 0 | 0.00 | (0.00) [a] | Pass |
| 174 | 50.0 - 120.0% of mass 95 | 96573 | 100.6 | | Pass |
| 175 | 5.0 - 9.0% of mass 174 | 7913 | 8.24 | (8.19) [a] | Pass |
| 176 | 95.0 - 101.0% of mass 174 | 93661 | 97.5 | (97.0) [a] | Pass |
| 177 | 5.0 - 9.0% of mass 176 | 6160 | 6.41 | (6.58) [b] | Pass |

(a) Value is % of mass 174
(b) Value is % of mass 176

**This check applies to the following Samples, MS, MSD, Blanks, and Standards:**

| Lab Sample ID | Lab File ID | Date Analyzed | Time Analyzed | Hours Lapsed | Client Sample ID |
|---|---|---|---|---|---|
| V2A6798-IC6798 | 2A159356.D | 06/24/15 | 12:40 | 00:35 | Initial cal 0.2 |
| V2A6798-IC6798 | 2A159357.D | 06/24/15 | 13:10 | 01:05 | Initial cal 0.5 |
| V2A6798-IC6798 | 2A159358.D | 06/24/15 | 13:40 | 01:35 | Initial cal 1 |
| V2A6798-IC6798 | 2A159359.D | 06/24/15 | 14:10 | 02:05 | Initial cal 2 |
| V2A6798-IC6798 | 2A159360.D | 06/24/15 | 14:40 | 02:35 | Initial cal 5 |
| V2A6798-IC6798 | 2A159361.D | 06/24/15 | 15:10 | 03:05 | Initial cal 10 |
| V2A6798-IC6798 | 2A159362.D | 06/24/15 | 15:40 | 03:35 | Initial cal 20 |
| V2A6798-ICC6798 | 2A159363.D | 06/24/15 | 16:09 | 04:04 | Initial cal 50 |
| V2A6798-IC6798 | 2A159364.D | 06/24/15 | 16:39 | 04:34 | Initial cal 100 |
| V2A6798-IC6798 | 2A159365.D | 06/24/15 | 17:09 | 05:04 | Initial cal 200 |
| V2A6798-ICV6798 | 2A159368.D | 06/24/15 | 18:39 | 06:34 | Initial cal verification 50 |

# Instrument Performance Check (BFB)



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

**Sample:** V2A6821-BFB
**Lab File ID:** 2A159836.D
**Instrument ID:** GCMS2A
**Injection Date:** 07/10/15
**Injection Time:** 09:55

| m/e | Ion Abundance Criteria | Raw Abundance | % Relative Abundance | | Pass/Fail |
|---|---|---|---|---|---|
| 50 | 15.0 - 40.0% of mass 95 | 13682 | 16.6 | | Pass |
| 75 | 30.0 - 60.0% of mass 95 | 39907 | 48.3 | | Pass |
| 95 | Base peak, 100% relative abundance | 82589 | 100.0 | | Pass |
| 96 | 5.0 - 9.0% of mass 95 | 5812 | 7.04 | | Pass |
| 173 | Less than 2.0% of mass 174 | 0 | 0.00 | (0.00) [a] | Pass |
| 174 | 50.0 - 120.0% of mass 95 | 84728 | 102.6 | | Pass |
| 175 | 5.0 - 9.0% of mass 174 | 6629 | 8.03 | (7.82) [a] | Pass |
| 176 | 95.0 - 101.0% of mass 174 | 82229 | 99.6 | (97.1) [a] | Pass |
| 177 | 5.0 - 9.0% of mass 176 | 5537 | 6.70 | (6.73) [b] | Pass |

(a) Value is % of mass 174
(b) Value is % of mass 176

**This check applies to the following Samples, MS, MSD, Blanks, and Standards:**

| Lab Sample ID | Lab File ID | Date Analyzed | Time Analyzed | Hours Lapsed | Client Sample ID |
|---|---|---|---|---|---|
| V2A6821-CC6798 | 2A159837.D | 07/10/15 | 10:26 | 00:31 | Continuing cal 20 |
| V2A6821-CC6798 | 2A159838.D | 07/10/15 | 11:08 | 01:13 | Continuing cal 5 |
| V2A6821-MB1 | 2A159840.D | 07/10/15 | 12:26 | 02:31 | Method Blank |
| V2A6821-BS | 2A159841.D | 07/10/15 | 12:56 | 03:01 | Blank Spike |
| JB98590-10 | 2A159843.D | 07/10/15 | 13:56 | 04:01 | MW-471-20150707 |
| JB98590-11 | 2A159844.D | 07/10/15 | 14:26 | 04:31 | MW-479-20150707 |
| ZZZZZZ | 2A159845.D | 07/10/15 | 14:56 | 05:01 | (unrelated sample) |
| JB98590-10MS | 2A159847.D | 07/10/15 | 15:58 | 06:03 | Matrix Spike |
| JB98590-10MSD | 2A159848.D | 07/10/15 | 16:28 | 06:33 | Matrix Spike Duplicate |
| ZZZZZZ | 2A159849.D | 07/10/15 | 16:58 | 07:03 | (unrelated sample) |
| ZZZZZZ | 2A159850.D | 07/10/15 | 17:29 | 07:34 | (unrelated sample) |
| ZZZZZZ | 2A159851.D | 07/10/15 | 17:59 | 08:04 | (unrelated sample) |
| ZZZZZZ | 2A159852.D | 07/10/15 | 18:29 | 08:34 | (unrelated sample) |
| ZZZZZZ | 2A159853.D | 07/10/15 | 18:59 | 09:04 | (unrelated sample) |
| JB98590-2 | 2A159854.D | 07/10/15 | 19:29 | 09:34 | MW-447-20150706 |
| JB98590-6 | 2A159855.D | 07/10/15 | 19:59 | 10:04 | MW-446-20150706 |
| JB98590-5 | 2A159856.D | 07/10/15 | 20:29 | 10:34 | MW-444-20150706 |
| JB98590-7 | 2A159857.D | 07/10/15 | 20:59 | 11:04 | MW-450-20150706 |

# Instrument Performance Check (BFB)



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

**Sample:** V2A6821-BFB2
**Lab File ID:** 2A159858.D
**Instrument ID:** GCMS2A
**Injection Date:** 07/10/15
**Injection Time:** 21:29

| m/e | Ion Abundance Criteria | Raw Abundance | % Relative Abundance | | Pass/Fail |
|---|---|---|---|---|---|
| 50 | 15.0 - 40.0% of mass 95 | 13513 | 17.3 | | Pass |
| 75 | 30.0 - 60.0% of mass 95 | 38205 | 48.9 | | Pass |
| 95 | Base peak, 100% relative abundance | 78160 | 100.0 | | Pass |
| 96 | 5.0 - 9.0% of mass 95 | 4888 | 6.25 | | Pass |
| 173 | Less than 2.0% of mass 174 | 0 | 0.00 | (0.00) [a] | Pass |
| 174 | 50.0 - 120.0% of mass 95 | 81563 | 104.4 | | Pass |
| 175 | 5.0 - 9.0% of mass 174 | 6675 | 8.54 | (8.18) [a] | Pass |
| 176 | 95.0 - 101.0% of mass 174 | 80379 | 102.8 | (98.5) [a] | Pass |
| 177 | 5.0 - 9.0% of mass 176 | 5380 | 6.88 | (6.69) [b] | Pass |

(a) Value is % of mass 174
(b) Value is % of mass 176

**This check applies to the following Samples, MS, MSD, Blanks, and Standards:**

| Lab Sample ID | Lab File ID | Date Analyzed | Time Analyzed | Hours Lapsed | Client Sample ID |
|---|---|---|---|---|---|
| V2A6821-CC6798 | 2A159859.D | 07/10/15 | 21:59 | 00:30 | Continuing cal 50 |
| V2A6821-MB2 | 2A159861.D | 07/10/15 | 22:58 | 01:29 | Method Blank |
| JB98590-4 | 2A159862.D | 07/10/15 | 23:28 | 01:59 | FB-20150706 |
| JB98590-8 | 2A159863.D | 07/10/15 | 23:58 | 02:29 | TB-20150706 |
| JB98590-12 | 2A159864.D | 07/11/15 | 00:27 | 02:58 | MW-478-20150707 |
| JB98590-3 | 2A159865.D | 07/11/15 | 00:57 | 03:28 | MW-453-20150706 |
| JB98590-9 | 2A159866.D | 07/11/15 | 01:27 | 03:58 | MW-457-20150707 |
| JB98590-14 | 2A159867.D | 07/11/15 | 01:57 | 04:28 | MW-469-20150707 |
| JB98590-1 | 2A159868.D | 07/11/15 | 02:27 | 04:58 | MW-440-20150706 |
| JB98590-13 | 2A159869.D | 07/11/15 | 02:57 | 05:28 | MW-468-20150707 |

# Instrument Performance Check (BFB)



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

**Sample:** VC7362-BFB
**Lab File ID:** C200844.D
**Instrument ID:** GCMSC
**Injection Date:** 06/09/15
**Injection Time:** 21:59

| m/e | Ion Abundance Criteria | Raw Abundance | % Relative Abundance | | Pass/Fail |
|---|---|---|---|---|---|
| 50 | 15.0 - 40.0% of mass 95 | 41704 | 16.1 | | Pass |
| 75 | 30.0 - 60.0% of mass 95 | 117570 | 45.3 | | Pass |
| 95 | Base peak, 100% relative abundance | 259498 | 100.0 | | Pass |
| 96 | 5.0 - 9.0% of mass 95 | 17229 | 6.64 | | Pass |
| 173 | Less than 2.0% of mass 174 | 0 | 0.00 | (0.00) [a] | Pass |
| 174 | 50.0 - 120.0% of mass 95 | 193941 | 74.7 | | Pass |
| 175 | 5.0 - 9.0% of mass 174 | 16504 | 6.36 | (8.51) [a] | Pass |
| 176 | 95.0 - 101.0% of mass 174 | 190357 | 73.4 | (98.2) [a] | Pass |
| 177 | 5.0 - 9.0% of mass 176 | 12403 | 4.78 | (6.52) [b] | Pass |

(a) Value is % of mass 174
(b) Value is % of mass 176

**This check applies to the following Samples, MS, MSD, Blanks, and Standards:**

| Lab Sample ID | Lab File ID | Date Analyzed | Time Analyzed | Hours Lapsed | Client Sample ID |
|---|---|---|---|---|---|
| VC7362-IC7362 | C200845.D | 06/09/15 | 22:29 | 00:30 | Initial cal 0.2 |
| VC7362-IC7362 | C200846.D | 06/09/15 | 22:56 | 00:57 | Initial cal 0.5 |
| VC7362-IC7362 | C200847.D | 06/09/15 | 23:22 | 01:23 | Initial cal 1 |
| VC7362-IC7362 | C200848.D | 06/09/15 | 23:49 | 01:50 | Initial cal 2 |
| VC7362-IC7362 | C200850.D | 06/10/15 | 00:42 | 02:43 | Initial cal 10 |
| VC7362-IC7362 | C200851.D | 06/10/15 | 01:09 | 03:10 | Initial cal 20 |
| VC7362-ICC7362 | C200852.D | 06/10/15 | 01:36 | 03:37 | Initial cal 50 |
| VC7362-IC7362 | C200853.D | 06/10/15 | 02:03 | 04:04 | Initial cal 100 |
| VC7362-IC7362 | C200854.D | 06/10/15 | 02:29 | 04:30 | Initial cal 200 |
| VC7362-ICV7362 | C200857.D | 06/10/15 | 03:49 | 05:50 | Initial cal verification 50 |

# Instrument Performance Check (BFB)



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

**Sample:** VC7407-BFB
**Lab File ID:** C201874.D
**Instrument ID:** GCMSC
**Injection Date:** 07/16/15
**Injection Time:** 08:46

| m/e | Ion Abundance Criteria | Raw Abundance | % Relative Abundance | | Pass/Fail |
|---|---|---|---|---|---|
| 50 | 15.0 - 40.0% of mass 95 | 30754 | 18.2 | | Pass |
| 75 | 30.0 - 60.0% of mass 95 | 85232 | 50.4 | | Pass |
| 95 | Base peak, 100% relative abundance | 169045 | 100.0 | | Pass |
| 96 | 5.0 - 9.0% of mass 95 | 11509 | 6.81 | | Pass |
| 173 | Less than 2.0% of mass 174 | 0 | 0.00 | (0.00) [a] | Pass |
| 174 | 50.0 - 120.0% of mass 95 | 138330 | 81.8 | | Pass |
| 175 | 5.0 - 9.0% of mass 174 | 12106 | 7.16 | (8.75) [a] | Pass |
| 176 | 95.0 - 101.0% of mass 174 | 132909 | 78.6 | (96.1) [a] | Pass |
| 177 | 5.0 - 9.0% of mass 176 | 8766 | 5.19 | (6.60) [b] | Pass |

(a) Value is % of mass 174
(b) Value is % of mass 176

**This check applies to the following Samples, MS, MSD, Blanks, and Standards:**

| Lab Sample ID | Lab File ID | Date Analyzed | Time Analyzed | Hours Lapsed | Client Sample ID |
|---|---|---|---|---|---|
| VC7407-CC7362 | C201875.D | 07/16/15 | 09:25 | 00:39 | Continuing cal 20 |
| VC7407-CC7362 | C201876.D | 07/16/15 | 10:01 | 01:15 | Continuing cal 0.5 |
| VC7407-MB | C201877.D | 07/16/15 | 10:37 | 01:51 | Method Blank |
| VC7407-BS | C201878.D | 07/16/15 | 11:13 | 02:27 | Blank Spike |
| ZZZZZZ | C201879.D | 07/16/15 | 12:00 | 03:14 | (unrelated sample) |
| ZZZZZZ | C201880.D | 07/16/15 | 12:27 | 03:41 | (unrelated sample) |
| JB99086-2 | C201881.D | 07/16/15 | 12:54 | 04:08 | (used for QC only; not part of job JB98590) |
| ZZZZZZ | C201882.D | 07/16/15 | 13:20 | 04:34 | (unrelated sample) |
| ZZZZZZ | C201884.D | 07/16/15 | 14:15 | 05:29 | (unrelated sample) |
| JB99086-2MS | C201885.D | 07/16/15 | 14:41 | 05:55 | Matrix Spike |
| JB99086-2MSD | C201886.D | 07/16/15 | 15:08 | 06:22 | Matrix Spike Duplicate |
| JB98590-13 | C201887.D | 07/16/15 | 15:35 | 06:49 | MW-468-20150707 |
| ZZZZZZ | C201889.D | 07/16/15 | 16:29 | 07:43 | (unrelated sample) |
| ZZZZZZ | C201890.D | 07/16/15 | 16:56 | 08:10 | (unrelated sample) |
| ZZZZZZ | C201891.D | 07/16/15 | 17:23 | 08:37 | (unrelated sample) |
| ZZZZZZ | C201892.D | 07/16/15 | 17:50 | 09:04 | (unrelated sample) |
| ZZZZZZ | C201893.D | 07/16/15 | 18:17 | 09:31 | (unrelated sample) |
| ZZZZZZ | C201894.D | 07/16/15 | 18:44 | 09:58 | (unrelated sample) |
| ZZZZZZ | C201895.D | 07/16/15 | 19:11 | 10:25 | (unrelated sample) |
| JB98590-15 | C201896.D | 07/16/15 | 19:37 | 10:51 | MW-464-20150707 |
| JB98590-16 | C201897.D | 07/16/15 | 20:04 | 11:18 | MW-461-20150707 |
| JB98590-18 | C201898.D | 07/16/15 | 20:31 | 11:45 | MW-468-DUP20150707 |

# Instrument Performance Check (BFB)



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

**Sample:** VU8988-BFB
**Lab File ID:** U194814.D
**Instrument ID:** GCMSU
**Injection Date:** 05/01/15
**Injection Time:** 10:03

| m/e | Ion Abundance Criteria | Raw Abundance | % Relative Abundance | | Pass/Fail |
|---|---|---|---|---|---|
| 50 | 15.0 - 40.0% of mass 95 | 10557 | 16.4 | | Pass |
| 75 | 30.0 - 60.0% of mass 95 | 28893 | 44.9 | | Pass |
| 95 | Base peak, 100% relative abundance | 64296 | 100.0 | | Pass |
| 96 | 5.0 - 9.0% of mass 95 | 4247 | 6.61 | | Pass |
| 173 | Less than 2.0% of mass 174 | 0 | 0.00 | (0.00) [a] | Pass |
| 174 | 50.0 - 120.0% of mass 95 | 66064 | 102.7 | | Pass |
| 175 | 5.0 - 9.0% of mass 174 | 5120 | 7.96 | (7.75) [a] | Pass |
| 176 | 95.0 - 101.0% of mass 174 | 64296 | 100.0 | (97.3) [a] | Pass |
| 177 | 5.0 - 9.0% of mass 176 | 4382 | 6.82 | (6.82) [b] | Pass |

(a) Value is % of mass 174
(b) Value is % of mass 176

**This check applies to the following Samples, MS, MSD, Blanks, and Standards:**

| Lab Sample ID | Lab File ID | Date Analyzed | Time Analyzed | Hours Lapsed | Client Sample ID |
|---|---|---|---|---|---|
| VU8988-IC8988 | U194815.D | 05/01/15 | 11:27 | 01:24 | Initial cal 0.2 |
| VU8988-IC8988 | U194816.D | 05/01/15 | 11:57 | 01:54 | Initial cal 0.5 |
| VU8988-IC8988 | U194817.D | 05/01/15 | 12:26 | 02:23 | Initial cal 1 |
| VU8988-IC8988 | U194818.D | 05/01/15 | 12:55 | 02:52 | Initial cal 2 |
| VU8988-IC8988 | U194819.D | 05/01/15 | 13:24 | 03:21 | Initial cal 5 |
| VU8988-IC8988 | U194820.D | 05/01/15 | 13:54 | 03:51 | Initial cal 10 |
| VU8988-IC8988 | U194821.D | 05/01/15 | 14:23 | 04:20 | Initial cal 20 |
| VU8988-ICC8988 | U194822.D | 05/01/15 | 14:52 | 04:49 | Initial cal 50 |
| VU8988-IC8988 | U194823.D | 05/01/15 | 15:22 | 05:19 | Initial cal 100 |
| VU8988-IC8988 | U194824.D | 05/01/15 | 15:51 | 05:48 | Initial cal 200 |
| VU8988-ICV8988 | U194827.D | 05/01/15 | 17:20 | 07:17 | Initial cal verification 50 |

# Instrument Performance Check (BFB)



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

**Sample:** VU9094-BFB
**Lab File ID:** U197269.D
**Instrument ID:** GCMSU
**Injection Date:** 07/17/15
**Injection Time:** 19:17

| m/e | Ion Abundance Criteria | Raw Abundance | % Relative Abundance | | Pass/Fail |
|---|---|---|---|---|---|
| 50 | 15.0 - 40.0% of mass 95 | 10479 | 19.2 | | Pass |
| 75 | 30.0 - 60.0% of mass 95 | 26725 | 48.9 | | Pass |
| 95 | Base peak, 100% relative abundance | 54667 | 100.0 | | Pass |
| 96 | 5.0 - 9.0% of mass 95 | 3721 | 6.81 | | Pass |
| 173 | Less than 2.0% of mass 174 | 0 | 0.00 | (0.00) [a] | Pass |
| 174 | 50.0 - 120.0% of mass 95 | 58032 | 106.2 | | Pass |
| 175 | 5.0 - 9.0% of mass 174 | 4494 | 8.22 | (7.74) [a] | Pass |
| 176 | 95.0 - 101.0% of mass 174 | 56029 | 102.5 | (96.5) [a] | Pass |
| 177 | 5.0 - 9.0% of mass 176 | 3810 | 6.97 | (6.80) [b] | Pass |

(a) Value is % of mass 174
(b) Value is % of mass 176

**This check applies to the following Samples, MS, MSD, Blanks, and Standards:**

| Lab Sample ID | Lab File ID | Date Analyzed | Time Analyzed | Hours Lapsed | Client Sample ID |
|---|---|---|---|---|---|
| VU9094-CC8988 | U197270.D | 07/17/15 | 19:47 | 00:30 | Continuing cal 50 |
| VU9094-MB | U197272.D | 07/17/15 | 20:45 | 01:28 | Method Blank |
| VU9094-BS | U197273.D | 07/17/15 | 21:15 | 01:58 | Blank Spike |
| JB99145-3MS | U197274.D | 07/17/15 | 21:44 | 02:27 | Matrix Spike |
| JB99145-3MSD | U197275.D | 07/17/15 | 22:13 | 02:56 | Matrix Spike Duplicate |
| JB98590-18 | U197276.D | 07/17/15 | 22:43 | 03:26 | MW-468-DUP20150707 |
| JB99145-3 | U197277.D | 07/17/15 | 23:12 | 03:55 | (used for QC only; not part of job JB98590) |
| JB98590-17 | U197279.D | 07/17/15 | 23:41 | 04:24 | MW-448-20150707 |
| ZZZZZZ | U197280.D | 07/18/15 | 00:10 | 04:53 | (unrelated sample) |
| ZZZZZZ | U197281.D | 07/18/15 | 00:40 | 05:23 | (unrelated sample) |
| ZZZZZZ | U197282.D | 07/18/15 | 01:10 | 05:53 | (unrelated sample) |
| ZZZZZZ | U197283.D | 07/18/15 | 01:39 | 06:22 | (unrelated sample) |
| ZZZZZZ | U197284.D | 07/18/15 | 02:08 | 06:51 | (unrelated sample) |
| ZZZZZZ | U197285.D | 07/18/15 | 02:37 | 07:20 | (unrelated sample) |
| ZZZZZZ | U197286.D | 07/18/15 | 03:06 | 07:49 | (unrelated sample) |
| ZZZZZZ | U197287.D | 07/18/15 | 03:36 | 08:19 | (unrelated sample) |
| ZZZZZZ | U197288.D | 07/18/15 | 04:05 | 08:48 | (unrelated sample) |
| ZZZZZZ | U197289.D | 07/18/15 | 04:34 | 09:17 | (unrelated sample) |
| ZZZZZZ | U197290.D | 07/18/15 | 05:03 | 09:46 | (unrelated sample) |
| ZZZZZZ | U197291.D | 07/18/15 | 05:32 | 10:15 | (unrelated sample) |
| ZZZZZZ | U197292.D | 07/18/15 | 06:01 | 10:44 | (unrelated sample) |

# Volatile Internal Standard Area Summary



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

| | | | |
|---|---|---|---|
| **Check Std:** | V2A6821-CC6798 | **Injection Date:** | 07/10/15 |
| **Lab File ID:** | 2A159837.D | **Injection Time:** | 10:26 |
| **Instrument ID:** | GCMS2A | **Method:** | SW846 8260C |

| | IS 1 AREA | RT | IS 2 AREA | RT | IS 3 AREA | RT | IS 4 AREA | RT | IS 5 AREA | RT |
|---|---|---|---|---|---|---|---|---|---|---|
| Check Std | 107728 | 8.56 | 343770 | 10.96 | 369131 | 11.88 | 284897 | 14.85 | 169802 | 17.01 |
| Upper Limit [a] | 215456 | 9.06 | 687540 | 11.46 | 738262 | 12.38 | 569794 | 15.35 | 339604 | 17.51 |
| Lower Limit [b] | 53864 | 8.06 | 171885 | 10.46 | 184566 | 11.38 | 142449 | 14.35 | 84901 | 16.51 |

| Lab Sample ID | IS 1 AREA | RT | IS 2 AREA | RT | IS 3 AREA | RT | IS 4 AREA | RT | IS 5 AREA | RT |
|---|---|---|---|---|---|---|---|---|---|---|
| V2A6821-MB1 | 119878 | 8.57 | 341942 | 10.96 | 365225 | 11.88 | 285774 | 14.85 | 162964 | 17.00 |
| V2A6821-BS | 102549 | 8.57 | 344566 | 10.97 | 371364 | 11.88 | 296114 | 14.85 | 174410 | 17.00 |
| JB98590-10 | 101276 | 8.56 | 353013 | 10.97 | 374958 | 11.88 | 291074 | 14.85 | 164020 | 17.00 |
| JB98590-11 | 107756 | 8.57 | 347862 | 10.96 | 366164 | 11.88 | 289506 | 14.85 | 160486 | 17.00 |
| ZZZZZZ | 108307 | 8.57 | 345325 | 10.96 | 366057 | 11.88 | 285341 | 14.85 | 160740 | 17.00 |
| JB98590-10MS | 108046 | 8.57 | 342422 | 10.96 | 365061 | 11.88 | 290902 | 14.85 | 171677 | 17.00 |
| JB98590-10MSD | 116626 | 8.57 | 360065 | 10.96 | 390582 | 11.88 | 305268 | 14.85 | 179575 | 17.00 |
| ZZZZZZ | 121180 | 8.57 | 377778 | 10.97 | 405688 | 11.88 | 318044 | 14.85 | 176998 | 17.00 |
| ZZZZZZ | 121431 | 8.57 | 370046 | 10.97 | 397988 | 11.89 | 311469 | 14.85 | 174748 | 17.00 |
| ZZZZZZ | 117530 | 8.57 | 353423 | 10.96 | 377435 | 11.88 | 294049 | 14.85 | 165584 | 17.00 |
| ZZZZZZ | 117474 | 8.57 | 354993 | 10.96 | 376796 | 11.88 | 294298 | 14.85 | 165990 | 17.00 |
| ZZZZZZ | 114974 | 8.56 | 341439 | 10.97 | 365195 | 11.88 | 286383 | 14.85 | 161519 | 17.00 |
| JB98590-2 | 108502 | 8.56 | 342483 | 10.96 | 366088 | 11.88 | 282564 | 14.85 | 162943 | 17.00 |
| JB98590-6 | 120651 | 8.56 | 340841 | 10.96 | 363698 | 11.88 | 286310 | 14.85 | 163953 | 17.00 |
| JB98590-5 | 103182 | 8.56 | 333021 | 10.96 | 352157 | 11.88 | 276824 | 14.85 | 156962 | 17.00 |
| JB98590-7 | 100903 | 8.56 | 335211 | 10.96 | 355654 | 11.88 | 278481 | 14.85 | 159353 | 17.00 |

**IS 1** = Tert Butyl Alcohol-D9
**IS 2** = Pentafluorobenzene
**IS 3** = 1,4-Difluorobenzene
**IS 4** = Chlorobenzene-D5
**IS 5** = 1,4-Dichlorobenzene-d4

(a) Upper Limit = +100% of check standard area; Retention time +0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

# Volatile Internal Standard Area Summary



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

| | | | |
|---|---|---|---|
| **Check Std:** | V2A6821-CC6798 | **Injection Date:** | 07/10/15 |
| **Lab File ID:** | 2A159859.D | **Injection Time:** | 21:59 |
| **Instrument ID:** | GCMS2A | **Method:** | SW846 8260C |

| | IS 1 AREA | RT | IS 2 AREA | RT | IS 3 AREA | RT | IS 4 AREA | RT | IS 5 AREA | RT |
|---|---|---|---|---|---|---|---|---|---|---|
| Check Std | 101716 | 8.56 | 336602 | 10.96 | 363618 | 11.88 | 292190 | 14.85 | 173164 | 17.00 |
| Upper Limit [a] | 203432 | 9.06 | 673204 | 11.46 | 727236 | 12.38 | 584380 | 15.35 | 346328 | 17.50 |
| Lower Limit [b] | 50858 | 8.06 | 168301 | 10.46 | 181809 | 11.38 | 146095 | 14.35 | 86582 | 16.50 |

| Lab Sample ID | IS 1 AREA | RT | IS 2 AREA | RT | IS 3 AREA | RT | IS 4 AREA | RT | IS 5 AREA | RT |
|---|---|---|---|---|---|---|---|---|---|---|
| V2A6821-MB2 | 113601 | 8.56 | 339818 | 10.96 | 363827 | 11.88 | 285197 | 14.85 | 159849 | 17.00 |
| JB98590-4 | 112651 | 8.56 | 344102 | 10.96 | 367102 | 11.88 | 287409 | 14.85 | 164039 | 17.00 |
| JB98590-8 | 111538 | 8.56 | 331027 | 10.96 | 352860 | 11.88 | 279844 | 14.85 | 158612 | 17.00 |
| JB98590-12 | 101043 | 8.57 | 337951 | 10.96 | 354112 | 11.88 | 279739 | 14.85 | 161515 | 17.00 |
| JB98590-3 | 116280 | 8.56 | 328410 | 10.96 | 346837 | 11.88 | 272733 | 14.85 | 157869 | 17.00 |
| JB98590-9 | 120346 | 8.57 | 349030 | 10.96 | 372853 | 11.88 | 293513 | 14.85 | 167472 | 17.00 |
| JB98590-14 | 102443 | 8.55 | 346901 | 10.96 | 369849 | 11.88 | 292727 | 14.85 | 170259 | 17.00 |
| JB98590-1 | 115234 | 8.56 | 346845 | 10.96 | 367952 | 11.88 | 287826 | 14.85 | 163927 | 17.00 |
| JB98590-13 | 121715 | 8.56 | 349437 | 10.96 | 372343 | 11.88 | 297043 | 14.85 | 178470 | 17.00 |

**IS 1** = Tert Butyl Alcohol-D9
**IS 2** = Pentafluorobenzene
**IS 3** = 1,4-Difluorobenzene
**IS 4** = Chlorobenzene-D5
**IS 5** = 1,4-Dichlorobenzene-d4

(a) Upper Limit = +100% of check standard area; Retention time +0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

# Volatile Internal Standard Area Summary



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

| | | | |
|---|---|---|---|
| **Check Std:** | VC7407-CC7362 | **Injection Date:** | 07/16/15 |
| **Lab File ID:** | C201875.D | **Injection Time:** | 09:25 |
| **Instrument ID:** | GCMSC | **Method:** | SW846 8260C |

| | IS 1 AREA | RT | IS 2 AREA | RT | IS 3 AREA | RT | IS 4 AREA | RT | IS 5 AREA | RT |
|---|---|---|---|---|---|---|---|---|---|---|
| Check Std | 236063 | 8.13 | 511691 | 10.82 | 688859 | 11.78 | 594925 | 14.81 | 321484 | 16.83 |
| Upper Limit [a] | 472126 | 8.63 | 1023382 | 11.32 | 1377718 | 12.28 | 1189850 | 15.31 | 642968 | 17.33 |
| Lower Limit [b] | 118032 | 7.63 | 255846 | 10.32 | 344430 | 11.28 | 297463 | 14.31 | 160742 | 16.33 |

| Lab Sample ID | IS 1 AREA | RT | IS 2 AREA | RT | IS 3 AREA | RT | IS 4 AREA | RT | IS 5 AREA | RT |
|---|---|---|---|---|---|---|---|---|---|---|
| VC7407-MB | 233177 | 8.13 | 495243 | 10.82 | 669716 | 11.78 | 573279 | 14.81 | 327316 | 16.83 |
| VC7407-BS | 236674 | 8.13 | 491900 | 10.82 | 672190 | 11.78 | 595911 | 14.82 | 337567 | 16.83 |
| ZZZZZZ | 228679 | 8.13 | 504760 | 10.82 | 674009 | 11.77 | 578806 | 14.81 | 333448 | 16.83 |
| ZZZZZZ | 216296 | 8.13 | 517765 | 10.83 | 691313 | 11.78 | 600087 | 14.82 | 336374 | 16.83 |
| JB99086-2 | 212771 | 8.14 | 511087 | 10.83 | 697580 | 11.78 | 603590 | 14.82 | 331656 | 16.83 |
| ZZZZZZ | 214013 | 8.14 | 524691 | 10.82 | 699516 | 11.78 | 603308 | 14.82 | 331904 | 16.83 |
| ZZZZZZ | 212621 | 8.14 | 512859 | 10.83 | 691884 | 11.78 | 592269 | 14.82 | 328720 | 16.83 |
| JB99086-2MS | 217716 | 8.14 | 511434 | 10.83 | 693595 | 11.79 | 601664 | 14.81 | 334581 | 16.83 |
| JB99086-2MSD | 221347 | 8.14 | 521975 | 10.82 | 708637 | 11.78 | 606403 | 14.82 | 334310 | 16.83 |
| JB98590-13 | 218344 | 8.13 | 520699 | 10.83 | 694429 | 11.78 | 609893 | 14.82 | 329073 | 16.83 |
| ZZZZZZ | 205959 | 8.14 | 525652 | 10.83 | 708311 | 11.78 | 614671 | 14.82 | 338008 | 16.83 |
| ZZZZZZ | 200012 | 8.14 | 506085 | 10.83 | 680633 | 11.78 | 584230 | 14.82 | 325037 | 16.83 |
| ZZZZZZ | 201853 | 8.14 | 527591 | 10.83 | 698253 | 11.78 | 601849 | 14.82 | 331478 | 16.83 |
| ZZZZZZ | 196690 | 8.13 | 510624 | 10.83 | 683938 | 11.78 | 588598 | 14.81 | 329120 | 16.83 |
| ZZZZZZ | 202875 | 8.13 | 510019 | 10.83 | 677549 | 11.78 | 591020 | 14.82 | 335914 | 16.83 |
| ZZZZZZ | 195872 | 8.14 | 513782 | 10.83 | 681445 | 11.78 | 575399 | 14.81 | 317936 | 16.83 |
| ZZZZZZ | 198211 | 8.14 | 500927 | 10.83 | 669500 | 11.78 | 584157 | 14.82 | 328911 | 16.83 |
| JB98590-15 | 196799 | 8.13 | 503080 | 10.83 | 668346 | 11.79 | 584660 | 14.82 | 331435 | 16.83 |
| JB98590-16 | 198475 | 8.13 | 485969 | 10.82 | 658958 | 11.78 | 575379 | 14.82 | 322266 | 16.83 |
| JB98590-18 | 190135 | 8.13 | 500343 | 10.83 | 676908 | 11.78 | 602718 | 14.82 | 351755 | 16.83 |

**IS 1** = Tert Butyl Alcohol-D9
**IS 2** = Pentafluorobenzene
**IS 3** = 1,4-Difluorobenzene
**IS 4** = Chlorobenzene-D5
**IS 5** = 1,4-Dichlorobenzene-d4

(a) Upper Limit = +100% of check standard area; Retention time +0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

# Volatile Internal Standard Area Summary



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

| | | | |
|---|---|---|---|
| **Check Std:** | VU9094-CC8988 | **Injection Date:** | 07/17/15 |
| **Lab File ID:** | U197270.D | **Injection Time:** | 19:47 |
| **Instrument ID:** | GCMSU | **Method:** | SW846 8260C |

| | IS 1 AREA | RT | IS 2 AREA | RT | IS 3 AREA | RT | IS 4 AREA | RT | IS 5 AREA | RT |
|---|---|---|---|---|---|---|---|---|---|---|
| Check Std | 79842 | 7.87 | 242043 | 10.07 | 284036 | 10.99 | 267210 | 14.32 | 155202 | 16.89 |
| Upper Limit [a] | 159684 | 8.37 | 484086 | 10.57 | 568072 | 11.49 | 534420 | 14.82 | 310404 | 17.39 |
| Lower Limit [b] | 39921 | 7.37 | 121022 | 9.57 | 142018 | 10.49 | 133605 | 13.82 | 77601 | 16.39 |

| Lab Sample ID | IS 1 AREA | RT | IS 2 AREA | RT | IS 3 AREA | RT | IS 4 AREA | RT | IS 5 AREA | RT |
|---|---|---|---|---|---|---|---|---|---|---|
| VU9094-MB | 69035 | 7.87 | 237316 | 10.08 | 279150 | 11.00 | 252312 | 14.32 | 133719 | 16.90 |
| VU9094-BS | 79229 | 7.87 | 246335 | 10.08 | 287183 | 11.00 | 272620 | 14.32 | 158016 | 16.90 |
| JB99145-3MS | 86127 | 7.87 | 266121 | 10.07 | 308609 | 11.00 | 284734 | 14.32 | 163581 | 16.90 |
| JB99145-3MSD | 89024 | 7.87 | 275707 | 10.07 | 320498 | 11.00 | 293534 | 14.32 | 167292 | 16.90 |
| JB98590-18 | 87512 | 7.87 | 283333 | 10.08 | 325154 | 11.00 | 294262 | 14.32 | 165772 | 16.90 |
| JB99145-3 | 88264 | 7.87 | 293894 | 10.07 | 290658 | 11.00 | 290595 | 14.32 | 154624 | 16.90 |
| JB98590-17 | 74883 | 7.87 | 274331 | 10.08 | 317114 | 11.00 | 287047 | 14.32 | 156013 | 16.90 |
| ZZZZZZ | 80454 | 7.87 | 285582 | 10.07 | 328106 | 11.00 | 291950 | 14.32 | 153608 | 16.90 |
| ZZZZZZ | 78407 | 7.87 | 272133 | 10.07 | 313281 | 10.99 | 278865 | 14.32 | 145290 | 16.90 |
| ZZZZZZ | 75421 | 7.87 | 261281 | 10.07 | 302166 | 10.99 | 269501 | 14.32 | 146417 | 16.89 |
| ZZZZZZ | 70675 | 7.87 | 257428 | 10.08 | 299827 | 11.00 | 267022 | 14.32 | 143171 | 16.90 |
| ZZZZZZ | 73150 | 7.86 | 256389 | 10.07 | 299158 | 10.99 | 269673 | 14.32 | 146916 | 16.90 |
| ZZZZZZ | 75020 | 7.87 | 255029 | 10.07 | 296690 | 10.99 | 265590 | 14.32 | 140573 | 16.90 |
| ZZZZZZ | 71615 | 7.87 | 249506 | 10.07 | 291181 | 11.00 | 231384 | 14.32 | 136152 | 16.90 |
| ZZZZZZ | 80977 | 7.87 | 245013 | 10.07 | 284427 | 11.00 | 256772 | 14.32 | 134928 | 16.90 |
| ZZZZZZ | 67105 | 7.88 | 241433 | 10.07 | 283708 | 10.99 | 255098 | 14.32 | 133739 | 16.90 |
| ZZZZZZ | 65864 | 7.87 | 242976 | 10.07 | 283455 | 11.00 | 253392 | 14.32 | 131734 | 16.90 |
| ZZZZZZ | 66169 | 7.88 | 241929 | 10.07 | 282417 | 10.99 | 253649 | 14.32 | 131338 | 16.90 |
| ZZZZZZ | 70051 | 7.86 | 238572 | 10.07 | 279771 | 11.00 | 253412 | 14.32 | 130759 | 16.90 |
| ZZZZZZ | 70013 | 7.87 | 237141 | 10.07 | 277806 | 10.99 | 248900 | 14.32 | 129958 | 16.90 |

**IS 1** = Tert Butyl Alcohol-D9
**IS 2** = Pentafluorobenzene
**IS 3** = 1,4-Difluorobenzene
**IS 4** = Chlorobenzene-D5
**IS 5** = 1,4-Dichlorobenzene-d4

(a) Upper Limit = +100% of check standard area; Retention time +0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

# Volatile Surrogate Recovery Summary



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

**Method:** SW846 8260C **Matrix:** AQ

**Samples and QC shown here apply to the above method**

| Lab Sample ID | Lab File ID | S1 | S2 | S3 | S4 |
|---|---|---|---|---|---|
| JB98590-1 | 2A159868.D | 93 | 103 | 99 | 97 |
| JB98590-2 | 2A159854.D | 93 | 103 | 97 | 97 |
| JB98590-3 | 2A159865.D | 93 | 103 | 98 | 96 |
| JB98590-4 | 2A159862.D | 93 | 104 | 99 | 97 |
| JB98590-5 | 2A159856.D | 92 | 103 | 97 | 96 |
| JB98590-6 | 2A159855.D | 92 | 104 | 98 | 97 |
| JB98590-7 | 2A159857.D | 94 | 105 | 98 | 96 |
| JB98590-8 | 2A159863.D | 93 | 105 | 98 | 97 |
| JB98590-9 | 2A159866.D | 93 | 102 | 97 | 95 |
| JB98590-10 | 2A159843.D | 93 | 104 | 97 | 98 |
| JB98590-11 | 2A159844.D | 92 | 102 | 98 | 99 |
| JB98590-12 | 2A159864.D | 93 | 104 | 97 | 96 |
| JB98590-13 | C201887.D | 98 | 113 | 102 | 105 |
| JB98590-13 | 2A159869.D | 92 | 104 | 99 | 92 |
| JB98590-14 | 2A159867.D | 94 | 104 | 99 | 95 |
| JB98590-15 | C201896.D | 100 | 115 | 101 | 104 |
| JB98590-16 | C201897.D | 100 | 120 | 101 | 104 |
| JB98590-17 | U197279.D | 104 | 103 | 100 | 95 |
| JB98590-18 | U197276.D | 103 | 102 | 100 | 93 |
| JB98590-18 | C201898.D | 101 | 119 | 103 | 102 |
| JB98590-10MS | 2A159847.D | 93 | 104 | 100 | 95 |
| JB98590-10MSD | 2A159848.D | 93 | 104 | 99 | 96 |
| JB99086-2MS | C201885.D | 103 | 116 | 102 | 105 |
| JB99086-2MSD | C201886.D | 101 | 116 | 101 | 106 |
| JB99145-3MS | U197274.D | 105 | 105 | 102 | 94 |
| JB99145-3MSD | U197275.D | 105 | 104 | 101 | 94 |
| V2A6821-BS | 2A159841.D | 93 | 105 | 99 | 94 |
| V2A6821-MB1 | 2A159840.D | 94 | 105 | 99 | 97 |
| V2A6821-MB2 | 2A159861.D | 94 | 104 | 98 | 101 |
| VC7407-BS | C201878.D | 105 | 118 | 104 | 105 |
| VC7407-MB | C201877.D | 104 | 117 | 101 | 102 |
| VU9094-BS | U197273.D | 106 | 106 | 104 | 94 |
| VU9094-MB | U197272.D | 105 | 105 | 101 | 97 |

| Surrogate Compounds | Recovery Limits |
|---|---|
| **S1** = Dibromofluoromethane | 76-120% |
| **S2** = 1,2-Dichloroethane-D4 | 73-122% |
| **S3** = Toluene-D8 | 84-119% |

# Volatile Surrogate Recovery Summary



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

**Method:** SW846 8260C **Matrix:** AQ

**Samples and QC shown here apply to the above method**

| Surrogate Compounds | Recovery Limits |
|---|---|
| **S4** = 4-Bromofluorobenzene | 78-117% |

# Initial Calibration Summary

**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

**Sample:** V2A6798-ICC6798
**Lab FileID:** 2A159363.D



```
                         Response Factor Report  Instrumen

Method       : C:\MSDCHEM\1\METHODS\M2A6798.M (RTE Integrator)
Title        : Method SW846 8260B, ZB624 60mx0.25mmx1.4um
Last Update  : Fri Jun 26 15:17:51 2015
Response via : Initial Calibration

Calibration Files
1   =2A159358.D  2   =2A159359.D  100 =2A159364.D  50  =2A159363.D
20  =2A159362.D  200 =2A159365.D  5   =2A159360.D  0.5 =2A159357.D
10  =2A159361.D  0.2 =2A159356.D      =                =

Compound
        1     2     100   50    20    200   5     0.5   10    0.2    Avg   %RSD
-------------------------------------------------------------------------------

1) I   Tert Butyl Alcohol-d9 ----------------ISTD---------------------
2)  tertiary butyl alcohol
           0.852 1.159 1.191 1.100 1.054 1.147       0.998        1.072   10.93
3)  Ethanol *This compound does not meet initial calibration criteria*
           0.038 0.055 0.050 0.051 0.035 0.020       0.039        0.041   29.00
4)  1,4-dioxane
                 0.105 0.107 0.093 0.101 0.077       0.067        0.092   18.04

5) I   pentafluorobenzene    ----------------ISTD---------------------
6)  FREON 143A
                                                                  0.000#  -1.00
7)  chlorodifluoromethane
     0.356 0.341 0.394 0.397 0.392 0.399 0.358       0.370        0.376    5.93
8)  dichlorodifluoromethane
           0.361 0.521 0.534 0.534 0.471 0.434       0.491        0.478   13.20
9)  FREON 142B
                                                                  0.000#  -1.00
10)  chloromethane
      0.434 0.512 0.509 0.512 0.528 0.518 0.481 0.349 0.492        0.482   11.88
11)  vinyl chloride
      0.341 0.472 0.500 0.508 0.507 0.502 0.452       0.468        0.469   11.88
12)  bromomethane
           0.367 0.340 0.337 0.352 0.340 0.344       0.328        0.344    3.63
13)  chloroethane
      0.124 0.222 0.223 0.223 0.226 0.217 0.210       0.211        0.207   16.47
14)  trichlorofluoromethane
      0.431 0.548 0.685 0.690 0.700 0.655 0.615       0.652        0.622   14.72
15)  PENTANE
                                                                  0.000#  -1.00
16)  ethyl ether
      0.203 0.196 0.212 0.207 0.210 0.219 0.204 0.214 0.208        0.208    3.17
17)  FREON 141B
                                                                  0.000#  -1.00
18)  acrolein
      0.053 0.059 0.066 0.062 0.063 0.069 0.056       0.058        0.061    8.79
19)  1,1-dichloroethene
      0.499 0.543 0.560 0.555 0.556 0.581 0.537 0.489 0.576        0.544    5.85
20)  acetone
                 0.103 0.098 0.098 0.100 0.101       0.098        0.100    1.98
21)  allyl chloride
      0.152 0.185 0.201 0.194 0.198 0.218 0.181       0.199        0.191   10.10
22)  acetonitrile
                 0.026 0.025 0.028 0.025 0.023       0.022        0.025    8.43
23)  iodomethane
```

# Initial Calibration Summary

**Job Number:** JB98590 **Sample:** V2A6798-ICC6798
**Account:** SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 2A159363.D
**Project:** Sunoco - Marcus Hook Facility, PA

```
      0.667 0.685 0.735 0.726 0.729 0.783 0.721 0.722 0.733        0.722    4.52
24)  iso-butyl alcohol
                  0.012 0.012 0.012 0.013 0.013       0.012        0.012    3.34
25)  carbon disulfide
      1.214 1.235 1.231 1.232 1.229 1.302 1.209 1.205 1.260 1.457  1.257    6.02
26)  methylene chloride
      0.405 0.426 0.404 0.410 0.409 0.434 0.408 0.479 0.419 0.378  0.417    6.30
27)  methyl acetate
            0.054 0.061 0.059 0.060 0.063 0.056       0.056        0.058    5.58
28)  methyl tert butyl ether
      1.047 1.089 1.123 1.095 1.101 1.173 1.076 1.181 1.093        1.109    3.96
29)  trans-1,2-dichloroethene
      0.461 0.538 0.558 0.557 0.566 0.594 0.554 0.488 0.605        0.547    8.47
30)  di-isopropyl ether
      1.270 1.267 1.234 1.229 1.237 1.288 1.215 1.273 1.192 1.331  1.254    3.20
31)  2-butanone
                  0.042 0.042 0.039 0.046 0.034       0.039        0.040    9.83
32)  1,1-dichloroethane
      0.697 0.716 0.717 0.709 0.729 0.759 0.717 0.704 0.738        0.721    2.65
33)  chloroprene
      0.557 0.537 0.547 0.543 0.551 0.575 0.534 0.415 0.534        0.533    8.60
34)  acrylonitrile
      0.123 0.121 0.133 0.131 0.131 0.139 0.126 0.106 0.131        0.127    7.51
35)  vinyl acetate
                  0.071 0.068 0.064 0.073 0.061       0.060        0.066    8.34
36)  ethyl tert-butyl ether
      1.240 1.219 1.223 1.210 1.206 1.289 1.198 1.147 1.169 1.148  1.205    3.58
37)  ethyl acetate
            0.043 0.046 0.048 0.043 0.048 0.049       0.046        0.046    5.43
38)  2,2-dichloropropane
      0.562 0.566 0.573 0.588 0.591 0.584 0.606 0.527 0.614        0.579    4.52
39)  cis-1,2-dichloroethene
      0.531 0.460 0.449 0.445 0.449 0.475 0.454 0.586 0.472        0.480    9.93
40)  methylacrylate
                  0.058 0.054 0.052 0.061 0.047       0.053        0.054    9.17
41)  propionitrile
      0.043 0.042 0.052 0.051 0.051 0.055 0.046       0.051        0.049    9.85
42)  bromochloromethane
      0.222 0.230 0.241 0.238 0.240 0.256 0.228 0.211 0.237        0.234    5.49
43)  tetrahydrofuran
                  0.117 0.117 0.118 0.123 0.116       0.114        0.117    2.60
44)  chloroform
      0.451 0.475 0.475 0.470 0.474 0.497 0.458 0.502 0.498        0.478    3.74
45)  t-butyl formate
      0.358 0.331 0.345 0.342 0.331 0.359 0.338       0.321        0.341    3.87
46)  dibromofluoromethane (s)
      0.381 0.385 0.379 0.386 0.389 0.381 0.387 0.385 0.386 0.376  0.384    1.09
47)  1,2-dichloroethane-d4 (s)
      0.396 0.401 0.384 0.399 0.398 0.378 0.401 0.394 0.398 0.386  0.393    2.06
48)  freon 113
            0.211 0.295 0.280 0.270 0.285 0.237       0.256        0.262   11.27
49)  methacrylonitrile
      0.173 0.204 0.213 0.204 0.208 0.222 0.212 0.166 0.210        0.201    9.50
50)  1,1,1-trichloroethane
      0.559 0.609 0.634 0.635 0.640 0.660 0.626 0.514 0.642        0.613    7.65
51)  Cyclohexane
      0.445 0.470 0.568 0.557 0.525 0.570 0.524       0.561        0.528    8.94

52) I   1,4-difluorobenzene   ----------------ISTD---------------------
53)  epichlorohydrin
```

# Initial Calibration Summary

**Job Number:** JB98590 **Sample:** V2A6798-ICC6798
**Account:** SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 2A159363.D
**Project:** Sunoco - Marcus Hook Facility, PA

```
            0.022 0.025 0.024 0.024 0.026 0.023       0.022        0.024    6.16
54)  n-butyl alcohol
                  0.008 0.008 0.009 0.007 0.006       0.008        0.008#  10.43
55)  carbon tetrachloride
      0.423 0.502 0.519 0.522 0.509 0.529 0.504 0.403 0.526 0.377  0.481   11.89
56)  1,1-dichloropropene
      0.393 0.447 0.460 0.452 0.450 0.480 0.452       0.457        0.449    5.55
57)  hexane
      0.394 0.367 0.387 0.387 0.372 0.376 0.374 0.345 0.378 0.319  0.370    6.05
58)  TERT AMYL ALCOHOL
                                                                   0.000#  -1.00
59)  2,2,4-TRIMETHYLPENTANE
                                                                   0.000#  -1.00
60)  benzene
      1.274 1.231 1.275 1.257 1.262 1.352 1.238 1.282 1.282 0.976  1.243    8.00
61)  tert-amyl methyl ether
      0.215 0.212 0.233 0.229 0.224 0.242 0.223       0.218        0.225    4.44
62)  heptane
      0.185 0.190 0.213 0.208 0.202 0.207 0.192       0.205        0.200    5.04
63)  isopropyl acetate
            0.541 0.513 0.507 0.499 0.525 0.538       0.484        0.515    4.05
64)  1,2-dichloroethane
      0.435 0.443 0.448 0.445 0.450 0.455 0.433 0.399 0.463        0.441    4.15
65)  Ethyl Acrylate
                                                                   0.000#  -1.00
66)  trichloroethene
      0.308 0.318 0.341 0.337 0.335 0.361 0.331 0.303 0.346        0.331    5.58
67)  TERT-AMYL ETHYL ETHER
                                                                   0.000#  -1.00
68)  methyl methacrylate
      0.410 0.401 0.428 0.423 0.419 0.442 0.424 0.458 0.415        0.424    4.00
69)  2-nitropropane
                  0.098 0.098 0.096 0.100 0.102       0.094        0.098    2.74
70)  2-chloroethyl vinyl ether
      0.169 0.175 0.185 0.180 0.175 0.189 0.174 0.173 0.169 0.152  0.174    5.79
71)  1,2-dichloropropane
      0.289 0.303 0.329 0.323 0.326 0.343 0.311 0.301 0.325        0.317    5.32
72)  dibromomethane
      0.168 0.205 0.216 0.212 0.208 0.225 0.206 0.207 0.205        0.206    7.58
73)  methylcyclohexane
      0.434 0.451 0.499 0.486 0.472 0.494 0.467       0.468        0.471    4.63
74)  bromodichloromethane
      0.413 0.450 0.474 0.466 0.467 0.494 0.457 0.467 0.467        0.462    4.73
75)  cis-1,3-dichloropropene
      0.479 0.478 0.545 0.531 0.531 0.577 0.505 0.486 0.523        0.517    6.44
76)  toluene-d8 (s)
      1.013 1.015 1.021 1.035 1.018 1.037 1.020 1.018 1.006 1.041  1.022    1.12
77)  4-methyl-2-pentanone
            0.086 0.104 0.103 0.102 0.108 0.104       0.105        0.102    7.00
78)  toluene
      0.679 0.679 0.731 0.723 0.723 0.788 0.683 0.697 0.710 0.681  0.709    4.82
79)  3-methyl-1-butanol
      0.011 0.012 0.012 0.013 0.013 0.012 0.013       0.012        0.012    6.22
80)  trans-1,3-dichloropropene
      0.419 0.432 0.501 0.491 0.484 0.517 0.459 0.473 0.476 0.394  0.465    8.33
81)  ethyl methacrylate
      0.282 0.322 0.371 0.356 0.340 0.388 0.320       0.336        0.339    9.72
82)  1,1,2-trichloroethane
      0.193 0.204 0.233 0.230 0.221 0.246 0.211 0.202 0.223        0.218    7.84
83)  2-hexanone
```

```
            0.076 0.093 0.091 0.088 0.096 0.081       0.093        0.088    8.16

 84) I   chlorobenzene-d5      ----------------ISTD---------------------
 85)  tetrachloroethene
      0.317 0.373 0.398 0.390 0.390 0.428 0.373 0.289 0.392        0.372   11.53
 86)  1,3-dichloropropane
      0.488 0.534 0.590 0.566 0.572 0.612 0.565 0.539 0.590        0.562    6.58
 87)  butyl acetate
      0.197 0.225 0.213 0.213 0.213 0.219 0.213       0.207        0.212    3.92
 88)  3,3-dimethyl-1-butanol
      0.032 0.040 0.034 0.038 0.038 0.035 0.039       0.037        0.037    7.80
 89)  dibromochloromethane
      0.459 0.481 0.518 0.500 0.506 0.549 0.476 0.465 0.499 0.446  0.490    6.27
 90)  1,2-dibromoethane
      0.339 0.393 0.392 0.374 0.372 0.410 0.375 0.338 0.382        0.375    6.36
 91)  chlorobenzene
      1.037 1.012 1.110 1.085 1.081 1.185 1.070 1.047 1.108 0.774  1.051   10.30
 92)  1,1,1,2-tetrachloroethane
      0.429 0.458 0.472 0.466 0.470 0.500 0.455 0.441 0.471        0.463    4.36
 93)  ethylbenzene
      1.650 1.701 1.789 1.752 1.747 1.912 1.720 1.569 1.772 1.758  1.737    5.18
 94)  m,p-xylene
      0.652 0.630 0.694 0.675 0.677 0.750 0.641 0.664 0.673 0.561  0.662    7.33
 95)  o-xylene
      0.596 0.647 0.700 0.680 0.678 0.758 0.641 0.607 0.679 0.553  0.654    8.97
 96)  styrene
      0.991 1.011 1.168 1.114 1.119 1.257 1.060 0.986 1.108 0.912  1.072    9.43
 97)  bromoform
      0.276 0.330 0.367 0.350 0.348 0.393 0.328 0.284 0.349        0.336   11.07

 98) I   1,4-dichlorobenzene-d ----------------ISTD---------------------
 99)  isopropylbenzene
      2.799 2.919 3.216 3.077 3.122 3.369 3.025 2.643 3.205 2.637  3.001    8.25
100)  4-bromofluorobenzene (s)
      0.867 0.852 0.844 0.846 0.853 0.829 0.861 0.866 0.851 0.849  0.852    1.34
101)  cyclohexanone
      0.028 0.025 0.030 0.035 0.028 0.030 0.027       0.030        0.029    9.86
102)  bromobenzene
      0.867 0.875 0.939 0.913 0.922 0.982 0.949 0.942 0.947        0.926    3.94
103)  1,1,2,2-tetrachloroethane
      0.774 0.793 0.832 0.787 0.790 0.852 0.786 0.770 0.828        0.801    3.58
104)  trans-1,4-dichloro-2-butene
                  0.192 0.182 0.173 0.195 0.166       0.169        0.180    6.64
105)  1,2,3-trichloropropane
            0.219 0.219 0.215 0.218 0.227 0.197       0.221        0.217    4.31
106)  n-propylbenzene
      0.655 0.798 0.820 0.792 0.797 0.872 0.792 0.654 0.793        0.775    9.39
107)  2-chlorotoluene
      0.797 0.781 0.813 0.795 0.803 0.853 0.803 0.844 0.798 0.638  0.792    7.42
108)  4-chlorotoluene
      0.720 0.739 0.834 0.808 0.828 0.874 0.773 0.732 0.829        0.793    6.81
109)  1,3,5-trimethylbenzene
      2.405 2.386 2.728 2.599 2.649 2.875 2.510 2.358 2.668 2.015  2.520    9.60
110)  tert-butylbenzene
      2.110 2.127 2.391 2.301 2.278 2.493 2.209 2.403 2.314        2.292    5.57
111)  pentachloroethane
      0.476 0.542 0.612 0.587 0.583 0.627 0.589 0.566 0.605        0.576    7.87
112)  1,2,4-trimethylbenzene
      2.275 2.371 2.667 2.585 2.578 2.821 2.476 2.484 2.603 2.246  2.511    7.10
113)  sec-butylbenzene
```

# Initial Calibration Summary

**Job Number:** JB98590 **Sample:** V2A6798-ICC6798
**Account:** SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 2A159363.D
**Project:** Sunoco - Marcus Hook Facility, PA

```
       3.071 3.038 3.500 3.358 3.274 3.657 3.170 2.857 3.358 2.710  3.199    9.06
114)  1,3-dichlorobenzene
       1.624 1.539 1.773 1.703 1.735 1.867 1.712 1.757 1.732 1.399  1.684    7.89
115)  p-isopropyltoluene
       2.590 2.603 3.036 2.912 2.882 3.200 2.781 2.571 2.930 2.583  2.809    7.82
116)  1,4-dichlorobenzene
       1.798 1.708 1.789 1.698 1.739 1.879 1.691 1.907 1.747 1.793  1.775    4.15
117)  1,2-dichlorobenzene
       1.575 1.581 1.754 1.677 1.686 1.833 1.650 1.769 1.721 1.373  1.662    7.81
118)  benzyl chloride
       1.722 1.643 1.616 1.582 1.598 1.635 1.663 1.702 1.579 1.855  1.659    5.06
119)  n-butylbenzene
       1.234 1.294 1.481 1.412 1.395 1.554 1.358 1.362 1.426 1.224  1.374    7.56
120)  1,2-dibromo-3-chloropropane
       0.162 0.162 0.157 0.156 0.156 0.161 0.151       0.154        0.157    2.54
121)  1,3,5-TRICHLOROBENZENE
       1.344 1.383 1.584 1.489 1.480 1.601 1.390 1.274 1.503 1.352  1.440    7.50
122)  1,2,4-trichlorobenzene
       1.040 1.113 1.473 1.372 1.320 1.481 1.222       1.298        1.290   12.31
123)  hexachlorobutadiene
       0.663 0.614 0.714 0.670 0.658 0.696 0.672       0.656        0.668    4.42
124)  naphthalene
             2.197 2.885 2.685 2.556 2.901 2.316       2.515        2.579   10.35
125)  1,2,3-trichlorobenzene
       0.993 1.036 1.368 1.262 1.208 1.344 1.089       1.179        1.185   11.64
126)  hexachloroethane
       0.480 0.462 0.612 0.590 0.581 0.641 0.530       0.569        0.558   11.21
 ---------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

           M2A6798.M         Fri Jun 26 15:23:57 2015   MS2A
```

6.7.1

6

# Initial Calibration Verification

**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

**Sample:** V2A6798-ICV6798
**Lab FileID:** 2A159368.D

Evaluate Continuing Calibration Report

Data File : C:\MSDCHEM\1\DATA\2A159368.D  Vial: 14
Acq On : 24 Jun 2015 6:39 pm  Operator: tracyk
Sample : icv6798-50  Inst : Instrumen
Misc : MS86850,V2A6798,5,,,,1  Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\MSDCHEM\1\METHODS\M2A6798.M (RTE Integrator)
Title : Method SW846 8260B, ZB624 60mx0.25mmx1.4um
Last Update : Fri Jun 26 15:17:51 2015
Response via : Multiple Level Calibration

Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.30min
Max. RRF Dev : 30% Max. Rel. Area : 200%

| | | Compound | AvgRF | CCRF | %Dev | Area% | Dev(min) | R.T. |
|---|---|---|---|---|---|---|---|---|
| 1 | I | Tert Butyl Alcohol-d9 | 1.000 | 1.000 | 0.0 | 111 | 0.00 | 8.58 |
| 2 | M | tertiary butyl alcohol | 1.072 | 1.226 | -14.4 | 114 | 0.00 | 8.70 |
| 3 | m | Ethanol | 0.041 | 0.053 | -29.3 | 118 | 0.00 | 7.12 |
| 4 | M | 1,4-dioxane | 0.092 | 0.100 | -8.7 | 103 | 0.00 | 12.58 |
| 5 | I | pentafluorobenzene | 1.000 | 1.000 | 0.0 | 112 | 0.00 | 10.97 |
| 6 | | FREON 143A | | ----------NA---------- | | | | |
| 7 | M | chlorodifluoromethane | 0.376 | 0.322 | 14.4 | 90 | 0.00 | 4.51 |
| 8 | M | dichlorodifluoromethane | 0.478 | 0.489 | -2.3 | 102 | 0.01 | 4.47 |
| 9 | | FREON 142B | | ----------NA---------- | | | | |
| 10 | M | chloromethane | 0.482 | 0.516 | -7.1 | 112 | 0.00 | 4.92 |
| 11 | M | vinyl chloride | 0.469 | 0.520 | -10.9 | 114 | 0.00 | 5.23 |
| 12 | M | bromomethane | 0.344 | 0.368 | -7.0 | 122 | 0.01 | 6.02 |
| 13 | M | chloroethane | 0.207 | 0.278 | -34.3# | 139 | 0.00 | 6.22 |
| 14 | M | trichlorofluoromethane | 0.622 | 0.688 | -10.6 | 111 | 0.00 | 6.75 |
| 15 | | PENTANE | | ----------NA---------- | | | | |
| 16 | M | ethyl ether | 0.208 | 0.213 | -2.4 | 115 | 0.00 | 7.25 |
| 17 | | FREON 141B | | ----------NA---------- | | | | |
| 18 | M | acrolein | 0.061 | 0.071 | -16.4 | 128 | 0.00 | 7.58 |
| 19 | M | 1,1-dichloroethene | 0.544 | 0.558 | -2.6 | 112 | 0.00 | 7.75 |
| 20 | M | acetone | 0.100 | 0.098 | 2.0 | 112 | 0.00 | 7.85 |
| 21 | M | allyl chloride | 0.191 | 0.221 | -15.7 | 127 | 0.00 | 8.37 |
| 22 | M | acetonitrile | 0.025 | 0.026 | -4.0 | 115 | 0.00 | 8.37 |
| 23 | M | iodomethane | 0.722 | 0.740 | -2.5 | 114 | 0.00 | 8.08 |
| 24 | M | iso-butyl alcohol | 0.012 | 0.012 | 0.0 | 116 | 0.00 | 11.53 |
| 25 | M | carbon disulfide | 1.257 | 1.293 | -2.9 | 117 | 0.00 | 8.21 |
| 26 | M | methylene chloride | 0.417 | 0.414 | 0.7 | 113 | 0.00 | 8.60 |
| 27 | M | methyl acetate | 0.058 | 0.056 | 3.4 | 106 | 0.00 | 8.36 |
| 28 | M | methyl tert butyl ether | 1.109 | 1.094 | 1.4 | 112 | 0.00 | 8.93 |
| 29 | M | trans-1,2-dichloroethene | 0.547 | 0.555 | -1.5 | 111 | 0.00 | 9.00 |
| 30 | M | di-isopropyl ether | 1.254 | 1.238 | 1.3 | 112 | 0.00 | 9.58 |
| 31 | M | 2-butanone | 0.040 | 0.043 | -7.5 | 112 | 0.00 | 10.41 |
| 32 | M | 1,1-dichloroethane | 0.721 | 0.735 | -1.9 | 116 | 0.00 | 9.64 |
| 33 | M | chloroprene | 0.533 | 0.533 | 0.0 | 109 | 0.00 | 9.74 |
| 34 | M | acrylonitrile | 0.127 | 0.138 | -8.7 | 118 | 0.00 | 9.00 |
| 35 | M | vinyl acetate | 0.066 | 0.075 | -13.6 | 123 | 0.01 | 9.62 |
| 36 | M | ethyl tert-butyl ether | 1.205 | 1.184 | 1.7 | 109 | 0.00 | 10.09 |
| 37 | M | ethyl acetate | 0.046 | 0.048 | -4.3 | 112 | -0.01 | 10.41 |
| 38 | M | 2,2-dichloropropane | 0.579 | 0.572 | 1.2 | 108 | 0.00 | 10.43 |
| 39 | M | cis-1,2-dichloroethene | 0.480 | 0.452 | 5.8 | 113 | 0.00 | 10.45 |
| 40 | | methylacrylate | 0.054 | 0.057 | -5.6 | 117 | 0.00 | 10.51 |
| 41 | M | propionitrile | 0.049 | 0.050 | -2.0 | 110 | 0.00 | 10.55 |

# Initial Calibration Verification

**Job Number:** JB98590 **Sample:** V2A6798-ICV6798
**Account:** SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 2A159368.D
**Project:** Sunoco - Marcus Hook Facility, PA

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 42 | M | bromochloromethane | 0.234 | 0.237 | -1.3 | 111 | 0.00 | 10.78 |
| 43 | M | tetrahydrofuran | 0.117 | 0.117 | 0.0 | 112 | 0.00 | 10.81 |
| 44 | M | chloroform | 0.478 | 0.476 | 0.4 | 113 | 0.00 | 10.83 |
| 45 | | t-butyl formate | 0.341 | 0.351 | -2.9 | 115 | 0.00 | 10.85 |
| 46 | S | dibromofluoromethane (s) | 0.384 | 0.383 | 0.3 | 111 | 0.00 | 11.04 |
| 47 | S | 1,2-dichloroethane-d4 (s) | 0.393 | 0.385 | 2.0 | 108 | 0.00 | 11.47 |
| 48 | M | freon 113 | 0.262 | 0.279 | -6.5 | 111 | 0.00 | 7.69 |
| 49 | M | methacrylonitrile | 0.201 | 0.207 | -3.0 | 113 | 0.00 | 10.72 |
| 50 | M | 1,1,1-trichloroethane | 0.613 | 0.642 | -4.7 | 113 | 0.00 | 11.07 |
| 51 | M | Cyclohexane | 0.528 | 0.576 | -9.1 | 115 | 0.00 | 11.14 |
| 52 | I | 1,4-difluorobenzene | 1.000 | 1.000 | 0.0 | 112 | 0.00 | 11.89 |
| 53 | M | epichlorohydrin | 0.024 | 0.028 | -16.7 | 130 | 0.00 | 13.10 |
| 54 | M | n-butyl alcohol | 0.008 | 0.009# | -12.5 | 136 | 0.00 | 12.02 |
| 55 | M | carbon tetrachloride | 0.481 | 0.518 | -7.7 | 111 | 0.00 | 11.27 |
| 56 | M | 1,1-dichloropropene | 0.449 | 0.475 | -5.8 | 118 | 0.00 | 11.26 |
| 57 | M | hexane | 0.370 | 0.332 | 10.3 | 97 | 0.00 | 9.30 |
| 58 | | TERT AMYL ALCOHOL | | ----------NA---------- | | | | |
| 59 | | 2,2,4-TRIMETHYLPENTANE | | ----------NA---------- | | | | |
| 60 | M | benzene | 1.243 | 1.283 | -3.2 | 115 | 0.00 | 11.52 |
| 61 | M | tert-amyl methyl ether | 0.225 | 0.224 | 0.4 | 110 | 0.00 | 11.54 |
| 62 | M | heptane | 0.200 | 0.227 | -13.5 | 123 | 0.00 | 11.65 |
| 63 | M | isopropyl acetate | 0.515 | 0.648 | -25.8 | 144 | 0.00 | 11.44 |
| 64 | M | 1,2-dichloroethane | 0.441 | 0.442 | -0.2 | 112 | 0.00 | 11.56 |
| 65 | M | Ethyl Acrylate | | ----------NA---------- | | | | |
| 66 | M | trichloroethene | 0.331 | 0.341 | -3.0 | 114 | 0.00 | 12.21 |
| 67 | | TERT-AMYL ETHYL ETHER | | ----------NA---------- | | | | |
| 68 | M | methyl methacrylate | 0.424 | 0.426 | -0.5 | 113 | 0.00 | 12.46 |
| 69 | M | 2-nitropropane | 0.098 | 0.102 | -4.1 | 117 | 0.00 | 12.97 |
| 70 | M | 2-chloroethyl vinyl ether | 0.174 | 0.201 | -15.5 | 125 | 0.00 | 12.96 |
| 71 | M | 1,2-dichloropropane | 0.317 | 0.335 | -5.7 | 117 | 0.00 | 12.48 |
| 72 | M | dibromomethane | 0.206 | 0.208 | -1.0 | 110 | 0.00 | 12.64 |
| 73 | M | methylcyclohexane | 0.471 | 0.462 | 1.9 | 107 | 0.00 | 12.40 |
| 74 | M | bromodichloromethane | 0.462 | 0.465 | -0.6 | 112 | 0.00 | 12.76 |
| 75 | M | cis-1,3-dichloropropene | 0.517 | 0.534 | -3.3 | 113 | 0.00 | 13.18 |
| 76 | S | toluene-d8 (s) | 1.022 | 1.010 | 1.2 | 110 | 0.00 | 13.44 |
| 77 | M | 4-methyl-2-pentanone | 0.102 | 0.105 | -2.9 | 115 | 0.00 | 13.25 |
| 78 | M | toluene | 0.709 | 0.722 | -1.8 | 112 | 0.00 | 13.51 |
| 79 | M | 3-methyl-1-butanol | 0.012 | 0.013 | -8.3 | 112 | 0.00 | 13.28 |
| 80 | M | trans-1,3-dichloropropene | 0.465 | 0.463 | 0.4 | 106 | 0.00 | 13.70 |
| 81 | M | ethyl methacrylate | 0.339 | 0.360 | -6.2 | 114 | 0.00 | 13.66 |
| 82 | M | 1,1,2-trichloroethane | 0.218 | 0.229 | -5.0 | 112 | 0.00 | 13.90 |
| 83 | M | 2-hexanone | 0.088 | 0.090 | -2.3 | 111 | 0.00 | 14.04 |
| 84 | I | chlorobenzene-d5 | 1.000 | 1.000 | 0.0 | 111 | 0.00 | 14.85 |
| 85 | M | tetrachloroethene | 0.372 | 0.399 | -7.3 | 114 | 0.00 | 14.04 |
| 86 | M | 1,3-dichloropropane | 0.562 | 0.572 | -1.8 | 112 | 0.00 | 14.08 |
| 87 | M | butyl acetate | 0.212 | 0.220 | -3.8 | 115 | 0.00 | 14.10 |
| 88 | | 3,3-dimethyl-1-butanol | 0.037 | 0.044 | -18.9 | 127 | 0.00 | 14.21 |
| 89 | M | dibromochloromethane | 0.490 | 0.510 | -4.1 | 113 | 0.00 | 14.33 |
| 90 | M | 1,2-dibromoethane | 0.375 | 0.381 | -1.6 | 113 | 0.00 | 14.47 |
| 91 | M | chlorobenzene | 1.051 | 1.110 | -5.6 | 114 | 0.00 | 14.88 |
| 92 | M | 1,1,1,2-tetrachloroethane | 0.463 | 0.457 | 1.3 | 109 | 0.00 | 14.93 |
| 93 | M | ethylbenzene | 1.737 | 1.772 | -2.0 | 112 | 0.00 | 14.91 |
| 94 | M | m,p-xylene | 0.662 | 0.691 | -4.4 | 114 | 0.00 | 15.01 |
| 95 | M | o-xylene | 0.654 | 0.705 | -7.8 | 115 | 0.00 | 15.40 |
| 96 | M | styrene | 1.072 | 1.138 | -6.2 | 113 | 0.00 | 15.41 |
| 97 | M | bromoform | 0.336 | 0.356 | -6.0 | 113 | 0.00 | 15.69 |
| 98 | I | 1,4-dichlorobenzene-d4 | 1.000 | 1.000 | 0.0 | 109 | 0.00 | 17.00 |

# Initial Calibration Verification

**Job Number:** JB98590 **Sample:** V2A6798-ICV6798
**Account:** SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 2A159368.D
**Project:** Sunoco - Marcus Hook Facility, PA

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 99 | M | isopropylbenzene | 3.001 | 3.210 | -7.0 | 114 | 0.00 | 15.71 |
| 100 | S | 4-bromofluorobenzene (s) | 0.852 | 0.852 | 0.0 | 110 | 0.00 | 15.92 |
| 101 | | cyclohexanone | 0.029 | 0.025 | 13.8 | 78 | 0.00 | 15.91 |
| 102 | M | bromobenzene | 0.926 | 0.944 | -1.9 | 113 | 0.00 | 16.10 |
| 103 | M | 1,1,2,2-tetrachloroethane | 0.801 | 0.800 | 0.1 | 111 | 0.00 | 16.02 |
| 104 | M | trans-1,4-dichloro-2-bute | 0.180 | 0.186 | -3.3 | 111 | 0.00 | 16.05 |
| 105 | M | 1,2,3-trichloropropane | 0.217 | 0.213 | 1.8 | 108 | 0.00 | 16.09 |
| 106 | M | n-propylbenzene | 0.775 | 0.864 | -11.5 | 119 | 0.00 | 16.09 |
| 107 | M | 2-chlorotoluene | 0.792 | 0.818 | -3.3 | 112 | 0.00 | 16.24 |
| 108 | M | 4-chlorotoluene | 0.793 | 0.836 | -5.4 | 113 | 0.00 | 16.34 |
| 109 | M | 1,3,5-trimethylbenzene | 2.520 | 2.664 | -5.7 | 112 | 0.00 | 16.22 |
| 110 | M | tert-butylbenzene | 2.292 | 2.371 | -3.4 | 112 | 0.00 | 16.55 |
| 111 | M | pentachloroethane | 0.576 | 0.593 | -3.0 | 110 | 0.00 | 16.65 |
| 112 | M | 1,2,4-trimethylbenzene | 2.511 | 2.762 | -10.0 | 117 | 0.00 | 16.59 |
| 113 | M | sec-butylbenzene | 3.199 | 3.452 | -7.9 | 112 | 0.00 | 16.75 |
| 114 | M | 1,3-dichlorobenzene | 1.684 | 1.746 | -3.7 | 112 | 0.00 | 16.95 |
| 115 | M | p-isopropyltoluene | 2.809 | 3.027 | -7.8 | 113 | 0.00 | 16.86 |
| 116 | M | 1,4-dichlorobenzene | 1.775 | 1.777 | -0.1 | 114 | 0.00 | 17.03 |
| 117 | M | 1,2-dichlorobenzene | 1.662 | 1.753 | -5.5 | 114 | 0.00 | 17.42 |
| 118 | M | benzyl chloride | 1.659 | 1.780 | -7.3 | 123 | 0.00 | 17.15 |
| 119 | M | n-butylbenzene | 1.374 | 1.497 | -9.0 | 116 | 0.00 | 17.26 |
| 120 | M | 1,2-dibromo-3-chloropropa | 0.157 | 0.153 | 2.5 | 107 | 0.00 | 18.20 |
| 121 | | 1,3,5-TRICHLOROBENZENE | 1.440 | 1.547 | -7.4 | 113 | 0.00 | 18.36 |
| 122 | M | 1,2,4-trichlorobenzene | 1.290 | 1.424 | -10.4 | 113 | 0.00 | 19.03 |
| 123 | M | hexachlorobutadiene | 0.668 | 0.689 | -3.1 | 112 | 0.00 | 19.12 |
| 124 | M | naphthalene | 2.579 | 2.722 | -5.5 | 111 | 0.00 | 19.32 |
| 125 | M | 1,2,3-trichlorobenzene | 1.185 | 1.287 | -8.6 | 111 | 0.00 | 19.57 |
| 126 | M | hexachloroethane | 0.558 | 0.599 | -7.3 | 111 | 0.00 | 17.66 |

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2A159363.D M2A6798.M Fri Jun 26 15:23:57 2015 MS2A

6.7.2

6

# Continuing Calibration Summary

**Job Number:** JB98590 **Sample:** V2A6821-CC6798
**Account:** SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 2A159837.D
**Project:** Sunoco - Marcus Hook Facility, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\2a\v2a6821-6822\2A159837.D Vial: 2
Acq On : 10 Jul 2015 10:26 am Operator: tracyk
Sample : cc6798-20 Inst : Instrument #1
Misc : MS87751,V2A6821,5,,,,1 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\MSDCHEM\1\METHODS\M2A6798.M (RTE Integrator)
Title : Method SW846 8260B, ZB624 60mx0.25mmx1.4um
Last Update : Thu Jun 25 09:43:38 2015
Response via : Multiple Level Calibration

Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.30min
Max. RRF Dev : 20% Max. Rel. Area : 200%

| | | Compound | AvgRF | CCRF | %Dev | Area% | Dev(min) | R.T. |
|---|---|---|---|---|---|---|---|---|
| 1 | I | Tert Butyl Alcohol-d9 | 1.000 | 1.000 | 0.0 | 88 | -0.01 | 8.56 |
| 2 | M | tertiary butyl alcohol | 1.072 | 1.193 | -11.3 | 96 | 0.00 | 8.71 |
| 3 | m | Ethanol | | ----------NA---------- | | | | |
| 4 | M | 1,4-dioxane | 0.092 | 0.092 | 0.0 | 87 | 0.00 | 12.58 |
| 5 | I | pentafluorobenzene | 1.000 | 1.000 | 0.0 | 90 | 0.00 | 10.96 |
| 6 | | FREON 143A | | ----------NA---------- | | | | |
| 7 | M | chlorodifluoromethane | 0.376 | 0.345 | 8.2 | 79 | 0.00 | 4.50 |
| 8 | M | dichlorodifluoromethane | 0.478 | 0.544 | -13.8 | 92 | 0.02 | 4.48 |
| 9 | | FREON 142B | | ----------NA---------- | | | | |
| 10 | M | chloromethane | 0.482 | 0.413 | 14.3 | 70 | 0.00 | 4.91 |
| 11 | M | vinyl chloride | 0.469 | 0.423 | 9.8 | 75 | 0.00 | 5.22 |
| 12 | M | bromomethane | 0.344 | 0.323 | 6.1 | 82 | 0.00 | 6.01 |
| 13 | M | chloroethane | 0.207 | 0.201 | 2.9 | 80 | 0.00 | 6.22 |
| 14 | M | trichlorofluoromethane | 0.622 | 0.760 | -22.2# | 98 | 0.00 | 6.76 |
| 15 | | PENTANE | | ----------NA---------- | | | | |
| 16 | M | ethyl ether | 0.208 | 0.178 | 14.4 | 76 | 0.00 | 7.24 |
| 17 | | FREON 141B | | ----------NA---------- | | | | |
| 18 | M | acrolein | 0.061 | 0.046 | 24.6# | 66 | 0.00 | 7.58 |
| 19 | M | 1,1-dichloroethene | 0.544 | 0.524 | 3.7 | 85 | 0.00 | 7.73 |
| 20 | M | acetone | 0.100 | 0.092 | 8.0 | 85 | 0.00 | 7.85 |
| 21 | M | allyl chloride | 0.191 | 0.171 | 10.5 | 78 | 0.00 | 8.37 |
| 22 | M | acetonitrile | 0.025 | 0.021 | 16.0 | 68 | 0.00 | 8.37 |
| 23 | M | iodomethane | 0.722 | 0.733 | -1.5 | 90 | 0.00 | 8.08 |
| 24 | M | iso-butyl alcohol | 0.012 | 0.012 | 0.0 | 87 | 0.00 | 11.52 |
| 25 | M | carbon disulfide | 1.257 | 1.091 | 13.2 | 80 | 0.00 | 8.20 |
| 26 | M | methylene chloride | 0.417 | 0.361 | 13.4 | 79 | 0.00 | 8.60 |
| 27 | M | methyl acetate | 0.058 | 0.045 | 22.4# | 68 | 0.01 | 8.37 |
| 28 | M | methyl tert butyl ether | 1.109 | 1.055 | 4.9 | 86 | 0.00 | 8.94 |
| 29 | M | trans-1,2-dichloroethene | 0.547 | 0.513 | 6.2 | 81 | 0.00 | 9.00 |
| 30 | M | di-isopropyl ether | 1.254 | 0.974 | 22.3# | 71 | 0.00 | 9.59 |
| 31 | M | 2-butanone | 0.040 | 0.034 | 15.0 | 79 | 0.00 | 10.41 |
| 32 | M | 1,1-dichloroethane | 0.721 | 0.652 | 9.6 | 80 | 0.00 | 9.64 |
| 33 | M | chloroprene | 0.533 | 0.517 | 3.0 | 84 | 0.00 | 9.74 |
| 34 | M | acrylonitrile | 0.127 | 0.102 | 19.7 | 70 | 0.00 | 8.99 |
| 35 | M | vinyl acetate | 0.066 | 0.057 | 13.6 | 81 | 0.00 | 9.61 |
| 36 | M | ethyl tert-butyl ether | 1.205 | 1.075 | 10.8 | 80 | 0.00 | 10.09 |
| 37 | M | ethyl acetate | 0.046 | 0.036 | 21.7# | 74 | 0.00 | 10.41 |
| 38 | M | 2,2-dichloropropane | 0.579 | 0.659 | -13.8 | 100 | 0.00 | 10.42 |
| 39 | M | cis-1,2-dichloroethene | 0.480 | 0.419 | 12.7 | 84 | 0.00 | 10.44 |
| 40 | | methylacrylate | 0.054 | 0.047 | 13.0 | 80 | 0.00 | 10.50 |
| 41 | M | propionitrile | 0.049 | 0.041 | 16.3 | 72 | 0.00 | 10.54 |

# Continuing Calibration Summary

**Job Number:** JB98590 **Sample:** V2A6821-CC6798
**Account:** SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 2A159837.D
**Project:** Sunoco - Marcus Hook Facility, PA

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 42 | M | bromochloromethane | 0.234 | 0.231 | 1.3 | 87 | 0.00 | 10.78 |
| 43 | M | tetrahydrofuran | 0.117 | 0.090 | 23.1# | 69 | 0.00 | 10.81 |
| 44 | M | chloroform | 0.478 | 0.463 | 3.1 | 88 | 0.00 | 10.83 |
| 45 | | t-butyl formate | 0.341 | 0.316 | 7.3 | 86 | 0.00 | 10.85 |
| 46 | S | dibromofluoromethane (s) | 0.384 | 0.364 | 5.2 | 84 | 0.00 | 11.04 |
| 47 | S | 1,2-dichloroethane-d4 (s) | 0.393 | 0.410 | -4.3 | 93 | 0.00 | 11.47 |
| 48 | M | freon 113 | 0.262 | 0.294 | -12.2 | 98 | 0.00 | 7.70 |
| 49 | M | methacrylonitrile | 0.201 | 0.173 | 13.9 | 75 | 0.00 | 10.72 |
| 50 | M | 1,1,1-trichloroethane | 0.613 | 0.701 | -14.4 | 99 | 0.00 | 11.07 |
| 51 | M | Cyclohexane | 0.528 | 0.517 | 2.1 | 88 | 0.00 | 11.13 |
| 52 | I | 1,4-difluorobenzene | 1.000 | 1.000 | 0.0 | 82 | 0.00 | 11.88 |
| 53 | M | epichlorohydrin | 0.024 | 0.024 | 0.0 | 84 | 0.00 | 13.10 |
| 54 | M | n-butyl alcohol | 0.008 | 0.008# | 0.0 | 70 | 0.00 | 12.01 |
| 55 | M | carbon tetrachloride | 0.481 | 0.636 | -32.2# | 102 | 0.00 | 11.28 |
| 56 | M | 1,1-dichloropropene | 0.449 | 0.467 | -4.0 | 85 | 0.00 | 11.25 |
| 57 | M | hexane | 0.370 | 0.330 | 10.8 | 72 | 0.00 | 9.30 |
| 58 | | TERT AMYL ALCOHOL | | ----------NA---------- | | | | |
| 59 | | 2,2,4-TRIMETHYLPENTANE | | ----------NA---------- | | | | |
| 60 | M | benzene | 1.243 | 1.237 | 0.5 | 80 | 0.00 | 11.52 |
| 61 | M | tert-amyl methyl ether | 0.225 | 0.247 | -9.8 | 90 | 0.00 | 11.53 |
| 62 | M | heptane | 0.200 | 0.185 | 7.5 | 75 | 0.00 | 11.65 |
| 63 | M | isopropyl acetate | 0.510 | 0.588 | -15.3 | 96 | 0.00 | 11.43 |
| 64 | M | 1,2-dichloroethane | 0.441 | 0.517 | -17.2 | 94 | 0.00 | 11.55 |
| 65 | M | Ethyl Acrylate | | ----------NA---------- | | | | |
| 66 | M | trichloroethene | 0.331 | 0.350 | -5.7 | 86 | 0.00 | 12.21 |
| 67 | | TERT-AMYL ETHYL ETHER | | ----------NA---------- | | | | |
| 68 | M | methyl methacrylate | 0.420 | 0.426 | -1.4 | 83 | 0.00 | 12.47 |
| 69 | M | 2-nitropropane | 0.098 | 0.116 | -18.4 | 99 | 0.00 | 12.96 |
| 70 | M | 2-chloroethyl vinyl ether | 0.174 | 0.169 | 2.9 | 79 | 0.00 | 12.96 |
| 71 | M | 1,2-dichloropropane | 0.317 | 0.295 | 6.9 | 74 | 0.00 | 12.48 |
| 72 | M | dibromomethane | 0.206 | 0.220 | -6.8 | 86 | 0.00 | 12.64 |
| 73 | M | methylcyclohexane | 0.471 | 0.481 | -2.1 | 83 | 0.00 | 12.40 |
| 74 | M | bromodichloromethane | 0.462 | 0.524 | -13.4 | 92 | 0.00 | 12.75 |
| 75 | M | cis-1,3-dichloropropene | 0.517 | 0.541 | -4.6 | 83 | 0.00 | 13.17 |
| 76 | S | toluene-d8 (s) | 1.022 | 1.009 | 1.3 | 81 | 0.00 | 13.43 |
| 77 | M | 4-methyl-2-pentanone | 0.102 | 0.091 | 10.8 | 73 | 0.00 | 13.25 |
| 78 | M | toluene | 0.709 | 0.737 | -3.9 | 83 | 0.00 | 13.50 |
| 79 | M | 3-methyl-1-butanol | 0.012 | 0.012 | 0.0 | 77 | 0.00 | 13.28 |
| 80 | M | trans-1,3-dichloropropene | 0.465 | 0.529 | -13.8 | 89 | 0.00 | 13.70 |
| 81 | M | ethyl methacrylate | 0.339 | 0.327 | 3.5 | 79 | 0.00 | 13.66 |
| 82 | M | 1,1,2-trichloroethane | 0.218 | 0.221 | -1.4 | 82 | 0.00 | 13.90 |
| 83 | M | 2-hexanone | 0.088 | 0.082 | 6.8 | 77 | 0.00 | 14.04 |
| 84 | I | chlorobenzene-d5 | 1.000 | 1.000 | 0.0 | 84 | 0.00 | 14.85 |
| 85 | M | tetrachloroethene | 0.372 | 0.426 | -14.5 | 91 | 0.00 | 14.04 |
| 86 | M | 1,3-dichloropropane | 0.562 | 0.576 | -2.5 | 84 | 0.00 | 14.08 |
| 87 | M | butyl acetate | 0.212 | 0.183 | 13.7 | 72 | 0.00 | 14.10 |
| 88 | | 3,3-dimethyl-1-butanol | 0.037 | 0.034 | 8.1 | 74 | 0.00 | 14.21 |
| 89 | M | dibromochloromethane | 0.490 | 0.547 | -11.6 | 90 | 0.00 | 14.32 |
| 90 | M | 1,2-dibromoethane | 0.375 | 0.394 | -5.1 | 89 | 0.00 | 14.47 |
| 91 | M | chlorobenzene | 1.051 | 1.133 | -7.8 | 88 | 0.00 | 14.88 |
| 92 | M | 1,1,1,2-tetrachloroethane | 0.463 | 0.524 | -13.2 | 93 | 0.00 | 14.93 |
| 93 | M | ethylbenzene | 1.737 | 1.846 | -6.3 | 88 | 0.00 | 14.91 |
| 94 | M | m,p-xylene | 0.662 | 0.703 | -6.2 | 87 | 0.00 | 15.01 |
| 95 | M | o-xylene | 0.654 | 0.698 | -6.7 | 86 | 0.00 | 15.40 |
| 96 | M | styrene | 1.072 | 1.138 | -6.2 | 85 | 0.00 | 15.41 |
| 97 | M | bromoform | 0.336 | 0.391 | -16.4 | 94 | 0.00 | 15.69 |
| 98 | I | 1,4-dichlorobenzene-d4 | 1.000 | 1.000 | 0.0 | 88 | 0.00 | 17.01 |

# Continuing Calibration Summary

**Job Number:** JB98590 **Sample:** V2A6821-CC6798
**Account:** SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 2A159837.D
**Project:** Sunoco - Marcus Hook Facility, PA

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 99 | M | isopropylbenzene | 3.001 | 3.181 | -6.0 | 90 | 0.00 | 15.71 |
| 100 | S | 4-bromofluorobenzene (s) | 0.852 | 0.810 | 4.9 | 84 | 0.00 | 15.92 |
| 101 | | cyclohexanone | 0.029 | 0.029 | 0.0 | 93 | 0.00 | 15.90 |
| 102 | M | bromobenzene | 0.926 | 0.967 | -4.4 | 93 | 0.00 | 16.10 |
| 103 | M | 1,1,2,2-tetrachloroethane | 0.801 | 0.724 | 9.6 | 81 | 0.00 | 16.02 |
| 104 | M | trans-1,4-dichloro-2-bute | 0.180 | 0.207 | -15.0 | 106 | 0.00 | 16.05 |
| 105 | M | 1,2,3-trichloropropane | 0.217 | 0.228 | -5.1 | 93 | 0.00 | 16.09 |
| 106 | M | n-propylbenzene | 0.775 | 0.802 | -3.5 | 89 | 0.00 | 16.09 |
| 107 | M | 2-chlorotoluene | 0.781 | 0.814 | -4.2 | 90 | 0.00 | 16.24 |
| 108 | M | 4-chlorotoluene | 0.793 | 0.816 | -2.9 | 87 | 0.00 | 16.33 |
| 109 | M | 1,3,5-trimethylbenzene | 2.520 | 2.714 | -7.7 | 91 | 0.00 | 16.22 |
| 110 | M | tert-butylbenzene | 2.292 | 2.394 | -4.5 | 93 | 0.00 | 16.55 |
| 111 | M | pentachloroethane | 0.576 | 0.633 | -9.9 | 96 | 0.00 | 16.65 |
| 112 | M | 1,2,4-trimethylbenzene | 2.511 | 2.689 | -7.1 | 92 | 0.00 | 16.59 |
| 113 | M | sec-butylbenzene | 3.199 | 3.376 | -5.5 | 91 | 0.00 | 16.75 |
| 114 | M | 1,3-dichlorobenzene | 1.684 | 1.785 | -6.0 | 91 | 0.00 | 16.95 |
| 115 | M | p-isopropyltoluene | 2.809 | 3.030 | -7.9 | 93 | 0.00 | 16.86 |
| 116 | M | 1,4-dichlorobenzene | 1.775 | 1.776 | -0.1 | 90 | 0.00 | 17.03 |
| 117 | M | 1,2-dichlorobenzene | 1.662 | 1.726 | -3.9 | 91 | 0.00 | 17.42 |
| 118 | M | benzyl chloride | 1.659 | 1.644 | 0.9 | 91 | 0.00 | 17.15 |
| 119 | M | n-butylbenzene | 1.374 | 1.391 | -1.2 | 88 | 0.00 | 17.26 |
| 120 | M | 1,2-dibromo-3-chloropropa | 0.157 | 0.170 | -8.3 | 97 | 0.00 | 18.20 |
| 121 | | 1,3,5-TRICHLOROBENZENE | 1.440 | 1.579 | -9.7 | 94 | 0.00 | 18.36 |
| 122 | M | 1,2,4-trichlorobenzene | 1.290 | 1.384 | -7.3 | 93 | 0.00 | 19.03 |
| 123 | M | hexachlorobutadiene | 0.668 | 0.785 | -17.5 | 106 | 0.00 | 19.12 |
| 124 | M | naphthalene | 2.579 | 2.457 | 4.7 | 85 | 0.00 | 19.32 |
| 125 | M | 1,2,3-trichlorobenzene | 1.185 | 1.259 | -6.2 | 92 | 0.00 | 19.57 |
| 126 | M | hexachloroethane | 0.558 | 0.646 | -15.8 | 98 | 0.00 | 17.66 |

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2A159362.D M2A6798.M Mon Jul 13 20:22:26 2015

# Continuing Calibration Summary

**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

**Sample:** V2A6821-CC6798
**Lab FileID:** 2A159838.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\2a\v2a6821-6822\2A159838.D Vial: 3
Acq On    : 10 Jul 2015  11:08 am                    Operator: tracyk
Sample    : cc6798-5                                 Inst    : Instrument #1
Misc      : MS87751,V2A6821,5,,,,1                   Multiplr: 1.00
MS Integration Params: rteint.p

Method       : C:\MSDCHEM\1\METHODS\M2A6798.M (RTE Integrator)
Title        : Method SW846 8260B, ZB624 60mx0.25mmx1.4um
Last Update  : Thu Jun 25 09:43:38 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.010  Min. Rel. Area :  50%  Max. R.T. Dev  0.30min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

| | | Compound | AvgRF | CCRF | %Dev | Area% | Dev(min) | R.T. |
|---|---|---|---|---|---|---|---|---|
| 1 | I | Tert Butyl Alcohol-d9 | 1.000 | 1.000 | 0.0 | 109 | 0.00 | 8.57 |
| 2 | M | tertiary butyl alcohol | | ----------NA---------- | | | | |
| 3 | m | Ethanol | | ----------NA---------- | | | | |
| 4 | M | 1,4-dioxane | | ----------NA---------- | | | | |
| 5 | I | pentafluorobenzene | 1.000 | 1.000 | 0.0 | 93 | 0.00 | 10.96 |
| 6 | | FREON 143A | | ----------NA---------- | | | | |
| 7 | M | chlorodifluoromethane | | ----------NA---------- | | | | |
| 8 | M | dichlorodifluoromethane | | ----------NA---------- | | | | |
| 9 | | FREON 142B | | ----------NA---------- | | | | |
| 10 | M | chloromethane | | ----------NA---------- | | | | |
| 11 | M | vinyl chloride | | ----------NA---------- | | | | |
| 12 | M | bromomethane | | ----------NA---------- | | | | |
| 13 | M | chloroethane | | ----------NA---------- | | | | |
| 14 | M | trichlorofluoromethane | | ----------NA---------- | | | | |
| 15 | | PENTANE | | ----------NA---------- | | | | |
| 16 | M | ethyl ether | | ----------NA---------- | | | | |
| 17 | | FREON 141B | | ----------NA---------- | | | | |
| 18 | M | acrolein | 0.061 | 0.048 | 21.3 | 79 | 0.00 | 7.59 |
| 19 | M | 1,1-dichloroethene | | ----------NA---------- | | | | |
| 20 | M | acetone | | ----------NA---------- | | | | |
| 21 | M | allyl chloride | | ----------NA---------- | | | | |
| 22 | M | acetonitrile | | ----------NA---------- | | | | |
| 23 | M | iodomethane | | ----------NA---------- | | | | |
| 24 | M | iso-butyl alcohol | | ----------NA---------- | | | | |
| 25 | M | carbon disulfide | | ----------NA---------- | | | | |
| 26 | M | methylene chloride | | ----------NA---------- | | | | |
| 27 | M | methyl acetate | 0.058 | 0.047 | 19.0 | 78 | 0.00 | 8.36 |
| 28 | M | methyl tert butyl ether | | ----------NA---------- | | | | |
| 29 | M | trans-1,2-dichloroethene | | ----------NA---------- | | | | |
| 30 | M | di-isopropyl ether | 1.254 | 1.020 | 18.7 | 78 | 0.00 | 9.59 |
| 31 | M | 2-butanone | | ----------NA---------- | | | | |
| 32 | M | 1,1-dichloroethane | | ----------NA---------- | | | | |
| 33 | M | chloroprene | | ----------NA---------- | | | | |
| 34 | M | acrylonitrile | | ----------NA---------- | | | | |
| 35 | M | vinyl acetate | | ----------NA---------- | | | | |
| 36 | M | ethyl tert-butyl ether | | ----------NA---------- | | | | |
| 37 | M | ethyl acetate | 0.046 | 0.035 | 23.9 | 66 | 0.00 | 10.41 |
| 38 | M | 2,2-dichloropropane | | ----------NA---------- | | | | |
| 39 | M | cis-1,2-dichloroethene | | ----------NA---------- | | | | |
| 40 | | methylacrylate | | ----------NA---------- | | | | |
| 41 | M | propionitrile | | ----------NA---------- | | | | |

# Continuing Calibration Summary

**Job Number:** JB98590 **Sample:** V2A6821-CC6798
**Account:** SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 2A159838.D
**Project:** Sunoco - Marcus Hook Facility, PA

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 42 | M | bromochloromethane | | ----------NA---------- | | | | |
| 43 | M | tetrahydrofuran | 0.117 | 0.082 | 29.9 | 66 | 0.00 | 10.82 |
| 44 | M | chloroform | | ----------NA---------- | | | | |
| 45 | | t-butyl formate | | ----------NA---------- | | | | |
| 46 | S | dibromofluoromethane (s) | 0.384 | 0.358 | 6.8 | 86 | 0.00 | 11.04 |
| 47 | S | 1,2-dichloroethane-d4 (s) | 0.393 | 0.401 | -2.0 | 93 | 0.00 | 11.47 |
| 48 | M | freon 113 | | ----------NA---------- | | | | |
| 49 | M | methacrylonitrile | | ----------NA---------- | | | | |
| 50 | M | 1,1,1-trichloroethane | | ----------NA---------- | | | | |
| 51 | M | Cyclohexane | | ----------NA---------- | | | | |
| 52 | I | 1,4-difluorobenzene | 1.000 | 1.000 | 0.0 | 88 | 0.00 | 11.88 |
| 53 | M | epichlorohydrin | | ----------NA---------- | | | | |
| 54 | M | n-butyl alcohol | | ----------NA---------- | | | | |
| 55 | M | carbon tetrachloride | | ----------NA---------- | | | | |
| 56 | M | 1,1-dichloropropene | | ----------NA---------- | | | | |
| 57 | M | hexane | | ----------NA---------- | | | | |
| 58 | | TERT AMYL ALCOHOL | | ----------NA---------- | | | | |
| 59 | | 2,2,4-TRIMETHYLPENTANE | | ----------NA---------- | | | | |
| 60 | M | benzene | | ----------NA---------- | | | | |
| 61 | M | tert-amyl methyl ether | | ----------NA---------- | | | | |
| 62 | M | heptane | | ----------NA---------- | | | | |
| 63 | M | isopropyl acetate | | ----------NA---------- | | | | |
| 64 | M | 1,2-dichloroethane | | ----------NA---------- | | | | |
| 65 | M | Ethyl Acrylate | | ----------NA---------- | | | | |
| 66 | M | trichloroethene | | ----------NA---------- | | | | |
| 67 | | TERT-AMYL ETHYL ETHER | | ----------NA---------- | | | | |
| 68 | M | methyl methacrylate | | ----------NA---------- | | | | |
| 69 | M | 2-nitropropane | | ----------NA---------- | | | | |
| 70 | M | 2-chloroethyl vinyl ether | | ----------NA---------- | | | | |
| 71 | M | 1,2-dichloropropane | | ----------NA---------- | | | | |
| 72 | M | dibromomethane | | ----------NA---------- | | | | |
| 73 | M | methylcyclohexane | | ----------NA---------- | | | | |
| 74 | M | bromodichloromethane | | ----------NA---------- | | | | |
| 75 | M | cis-1,3-dichloropropene | | ----------NA---------- | | | | |
| 76 | S | toluene-d8 (s) | 1.022 | 0.992 | 2.9 | 85 | 0.00 | 13.43 |
| 77 | M | 4-methyl-2-pentanone | | ----------NA---------- | | | | |
| 78 | M | toluene | | ----------NA---------- | | | | |
| 79 | M | 3-methyl-1-butanol | | ----------NA---------- | | | | |
| 80 | M | trans-1,3-dichloropropene | | ----------NA---------- | | | | |
| 81 | M | ethyl methacrylate | | ----------NA---------- | | | | |
| 82 | M | 1,1,2-trichloroethane | | ----------NA---------- | | | | |
| 83 | M | 2-hexanone | | ----------NA---------- | | | | |
| 84 | I | chlorobenzene-d5 | 1.000 | 1.000 | 0.0 | 89 | 0.00 | 14.85 |
| 85 | M | tetrachloroethene | | ----------NA---------- | | | | |
| 86 | M | 1,3-dichloropropane | | ----------NA---------- | | | | |
| 87 | M | butyl acetate | | ----------NA---------- | | | | |
| 88 | | 3,3-dimethyl-1-butanol | | ----------NA---------- | | | | |
| 89 | M | dibromochloromethane | | ----------NA---------- | | | | |
| 90 | M | 1,2-dibromoethane | | ----------NA---------- | | | | |
| 91 | M | chlorobenzene | | ----------NA---------- | | | | |
| 92 | M | 1,1,1,2-tetrachloroethane | | ----------NA---------- | | | | |
| 93 | M | ethylbenzene | | ----------NA---------- | | | | |
| 94 | M | m,p-xylene | | ----------NA---------- | | | | |
| 95 | M | o-xylene | | ----------NA---------- | | | | |
| 96 | M | styrene | | ----------NA---------- | | | | |
| 97 | M | bromoform | | ----------NA---------- | | | | |
| 98 | I | 1,4-dichlorobenzene-d4 | 1.000 | 1.000 | 0.0 | 93 | 0.00 | 17.00 |

# Continuing Calibration Summary

**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

**Sample:** V2A6821-CC6798
**Lab FileID:** 2A159838.D

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 99 | M | isopropylbenzene | | ----------NA---------- | | | | |
| 100 | S | 4-bromofluorobenzene (s) | 0.852 | 0.831 | 2.5 | 89 | 0.00 | 15.92 |
| 101 | | cyclohexanone | | ----------NA---------- | | | | |
| 102 | M | bromobenzene | | ----------NA---------- | | | | |
| 103 | M | 1,1,2,2-tetrachloroethane | | ----------NA---------- | | | | |
| 104 | M | trans-1,4-dichloro-2-bute | | ----------NA---------- | | | | |
| 105 | M | 1,2,3-trichloropropane | | ----------NA---------- | | | | |
| 106 | M | n-propylbenzene | | ----------NA---------- | | | | |
| 107 | M | 2-chlorotoluene | | ----------NA---------- | | | | |
| 108 | M | 4-chlorotoluene | | ----------NA---------- | | | | |
| 109 | M | 1,3,5-trimethylbenzene | | ----------NA---------- | | | | |
| 110 | M | tert-butylbenzene | | ----------NA---------- | | | | |
| 111 | M | pentachloroethane | | ----------NA---------- | | | | |
| 112 | M | 1,2,4-trimethylbenzene | | ----------NA---------- | | | | |
| 113 | M | sec-butylbenzene | | ----------NA---------- | | | | |
| 114 | M | 1,3-dichlorobenzene | | ----------NA---------- | | | | |
| 115 | M | p-isopropyltoluene | | ----------NA---------- | | | | |
| 116 | M | 1,4-dichlorobenzene | | ----------NA---------- | | | | |
| 117 | M | 1,2-dichlorobenzene | | ----------NA---------- | | | | |
| 118 | M | benzyl chloride | | ----------NA---------- | | | | |
| 119 | M | n-butylbenzene | | ----------NA---------- | | | | |
| 120 | M | 1,2-dibromo-3-chloropropa | | ----------NA---------- | | | | |
| 121 | | 1,3,5-TRICHLOROBENZENE | | ----------NA---------- | | | | |
| 122 | M | 1,2,4-trichlorobenzene | | ----------NA---------- | | | | |
| 123 | M | hexachlorobutadiene | | ----------NA---------- | | | | |
| 124 | M | naphthalene | | ----------NA---------- | | | | |
| 125 | M | 1,2,3-trichlorobenzene | | ----------NA---------- | | | | |
| 126 | M | hexachloroethane | | ----------NA---------- | | | | |

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2A159360.D M2A6798.M Mon Jul 13 20:27:30 2015

6.7.4

6

# Continuing Calibration Summary

**Job Number:** JB98590 **Sample:** V2A6821-CC6798
**Account:** SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 2A159859.D
**Project:** Sunoco - Marcus Hook Facility, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\2a\v2a6821-6822\2A159859.D Vial: 24
Acq On : 10 Jul 2015 9:59 pm Operator: tracyk
Sample : cc6798-50 Inst : Instrument #1
Misc : MS87777,V2A6821,5,,,,1 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\MSDCHEM\1\METHODS\M2A6798.M (RTE Integrator)
Title : Method SW846 8260B, ZB624 60mx0.25mmx1.4um
Last Update : Thu Jun 25 09:43:38 2015
Response via : Multiple Level Calibration

Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.30min
Max. RRF Dev : 20% Max. Rel. Area : 200%

| | | Compound | AvgRF | CCRF | %Dev | Area% | Dev(min) | R.T. |
|---|---|---|---|---|---|---|---|---|
| 1 | I | Tert Butyl Alcohol-d9 | 1.000 | 1.000 | 0.0 | 84 | -0.02 | 8.56 |
| 2 | M | tertiary butyl alcohol | 1.072 | 1.213 | -13.2 | 86 | 0.00 | 8.70 |
| 3 | m | Ethanol | | ----------NA---------- | | | | |
| 4 | M | 1,4-dioxane | 0.092 | 0.086 | 6.5 | 67 | 0.00 | 12.58 |
| 5 | I | pentafluorobenzene | 1.000 | 1.000 | 0.0 | 87 | 0.00 | 10.96 |
| 6 | | FREON 143A | | ----------NA---------- | | | | |
| 7 | M | chlorodifluoromethane | 0.376 | 0.346 | 8.0 | 76 | -0.02 | 4.49 |
| 8 | M | dichlorodifluoromethane | 0.478 | 0.537 | -12.3 | 87 | 0.00 | 4.46 |
| 9 | | FREON 142B | | ----------NA---------- | | | | |
| 10 | M | chloromethane | 0.482 | 0.390 | 19.1 | 66 | 0.00 | 4.91 |
| 11 | M | vinyl chloride | 0.469 | 0.419 | 10.7 | 71 | -0.01 | 5.21 |
| 12 | M | bromomethane | 0.344 | 0.310 | 9.9 | 80 | 0.00 | 6.00 |
| 13 | M | chloroethane | 0.207 | 0.192 | 7.2 | 75 | 0.00 | 6.21 |
| 14 | M | trichlorofluoromethane | 0.622 | 0.780 | -25.4# | 98 | 0.00 | 6.76 |
| 15 | | PENTANE | | ----------NA---------- | | | | |
| 16 | M | ethyl ether | 0.208 | 0.181 | 13.0 | 76 | 0.00 | 7.24 |
| 17 | | FREON 141B | | ----------NA---------- | | | | |
| 18 | M | acrolein | 0.061 | 0.054 | 11.5 | 76 | 0.00 | 7.58 |
| 19 | M | 1,1-dichloroethene | 0.544 | 0.537 | 1.3 | 84 | 0.00 | 7.74 |
| 20 | M | acetone | 0.100 | 0.090 | 10.0 | 80 | 0.00 | 7.84 |
| 21 | M | allyl chloride | 0.191 | 0.169 | 11.5 | 76 | 0.00 | 8.36 |
| 22 | M | acetonitrile | 0.025 | 0.021 | 16.0 | 72 | 0.00 | 8.36 |
| 23 | M | iodomethane | 0.722 | 0.719 | 0.4 | 86 | 0.00 | 8.07 |
| 24 | M | iso-butyl alcohol | 0.012 | 0.012 | 0.0 | 85 | 0.00 | 11.52 |
| 25 | M | carbon disulfide | 1.257 | 1.071 | 14.8 | 76 | 0.00 | 8.20 |
| 26 | M | methylene chloride | 0.417 | 0.356 | 14.6 | 75 | 0.00 | 8.59 |
| 27 | M | methyl acetate | 0.058 | 0.052 | 10.3 | 77 | 0.00 | 8.35 |
| 28 | M | methyl tert butyl ether | 1.109 | 1.094 | 1.4 | 87 | 0.00 | 8.93 |
| 29 | M | trans-1,2-dichloroethene | 0.547 | 0.507 | 7.3 | 79 | 0.00 | 9.00 |
| 30 | M | di-isopropyl ether | 1.254 | 0.973 | 22.4# | 69 | 0.00 | 9.58 |
| 31 | M | 2-butanone | 0.040 | 0.039 | 2.5 | 80 | 0.00 | 10.41 |
| 32 | M | 1,1-dichloroethane | 0.721 | 0.627 | 13.0 | 77 | 0.00 | 9.64 |
| 33 | M | chloroprene | 0.533 | 0.526 | 1.3 | 84 | 0.00 | 9.73 |
| 34 | M | acrylonitrile | 0.127 | 0.104 | 18.1 | 69 | 0.00 | 8.99 |
| 35 | M | vinyl acetate | 0.066 | 0.064 | 3.0 | 82 | 0.00 | 9.61 |
| 36 | M | ethyl tert-butyl ether | 1.205 | 1.110 | 7.9 | 80 | 0.00 | 10.09 |
| 37 | M | ethyl acetate | 0.046 | 0.037 | 19.6 | 68 | -0.01 | 10.41 |
| 38 | M | 2,2-dichloropropane | 0.579 | 0.560 | 3.3 | 83 | 0.00 | 10.42 |
| 39 | M | cis-1,2-dichloroethene | 0.480 | 0.400 | 16.7 | 78 | 0.00 | 10.44 |
| 40 | | methylacrylate | 0.054 | 0.053 | 1.9 | 85 | 0.00 | 10.50 |
| 41 | M | propionitrile | 0.049 | 0.042 | 14.3 | 71 | 0.00 | 10.53 |

# Continuing Calibration Summary

**Job Number:** JB98590 **Sample:** V2A6821-CC6798
**Account:** SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 2A159859.D
**Project:** Sunoco - Marcus Hook Facility, PA

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 42 | M | bromochloromethane | 0.234 | 0.227 | 3.0 | 83 | 0.00 | 10.78 |
| 43 | M | tetrahydrofuran | 0.117 | 0.093 | 20.5# | 69 | 0.00 | 10.81 |
| 44 | M | chloroform | 0.478 | 0.466 | 2.5 | 86 | 0.00 | 10.83 |
| 45 | | t-butyl formate | 0.341 | 0.332 | 2.6 | 84 | 0.00 | 10.84 |
| 46 | S | dibromofluoromethane (s) | 0.384 | 0.361 | 6.0 | 81 | 0.00 | 11.04 |
| 47 | S | 1,2-dichloroethane-d4 (s) | 0.393 | 0.414 | -5.3 | 90 | 0.00 | 11.47 |
| 48 | M | freon 113 | 0.262 | 0.295 | -12.6 | 92 | 0.00 | 7.69 |
| 49 | M | methacrylonitrile | 0.201 | 0.176 | 12.4 | 75 | 0.00 | 10.71 |
| 50 | M | 1,1,1-trichloroethane | 0.613 | 0.698 | -13.9 | 95 | 0.00 | 11.07 |
| 51 | M | Cyclohexane | 0.528 | 0.521 | 1.3 | 81 | 0.00 | 11.13 |
| 52 | I | 1,4-difluorobenzene | 1.000 | 1.000 | 0.0 | 80 | 0.00 | 11.88 |
| 53 | M | epichlorohydrin | 0.024 | 0.024 | 0.0 | 79 | 0.00 | 13.09 |
| 54 | M | n-butyl alcohol | 0.008 | 0.007# | 12.5 | 77 | 0.00 | 12.01 |
| 55 | M | carbon tetrachloride | 0.481 | 0.647 | -34.5# | 99 | 0.00 | 11.27 |
| 56 | M | 1,1-dichloropropene | 0.449 | 0.469 | -4.5 | 83 | 0.00 | 11.25 |
| 57 | M | hexane | 0.370 | 0.332 | 10.3 | 69 | 0.00 | 9.29 |
| 58 | | TERT AMYL ALCOHOL | | ----------NA---------- | | | | |
| 59 | | 2,2,4-TRIMETHYLPENTANE | | ----------NA---------- | | | | |
| 60 | M | benzene | 1.243 | 1.198 | 3.6 | 76 | 0.00 | 11.52 |
| 61 | M | tert-amyl methyl ether | 0.225 | 0.255 | -13.3 | 89 | 0.00 | 11.53 |
| 62 | M | heptane | 0.200 | 0.212 | -6.0 | 82 | 0.00 | 11.65 |
| 63 | M | isopropyl acetate | 0.510 | 0.618 | -21.2# | 98 | 0.00 | 11.43 |
| 64 | M | 1,2-dichloroethane | 0.441 | 0.525 | -19.0 | 94 | 0.00 | 11.55 |
| 65 | M | Ethyl Acrylate | | ----------NA---------- | | | | |
| 66 | M | trichloroethene | 0.331 | 0.359 | -8.5 | 85 | 0.00 | 12.21 |
| 67 | | TERT-AMYL ETHYL ETHER | | ----------NA---------- | | | | |
| 68 | M | methyl methacrylate | 0.420 | 0.443 | -5.5 | 84 | 0.00 | 12.46 |
| 69 | M | 2-nitropropane | 0.098 | 0.119 | -21.4# | 97 | 0.00 | 12.96 |
| 70 | M | 2-chloroethyl vinyl ether | 0.174 | 0.175 | -0.6 | 77 | 0.00 | 12.96 |
| 71 | M | 1,2-dichloropropane | 0.317 | 0.292 | 7.9 | 72 | 0.00 | 12.48 |
| 72 | M | dibromomethane | 0.206 | 0.226 | -9.7 | 85 | 0.00 | 12.63 |
| 73 | M | methylcyclohexane | 0.471 | 0.507 | -7.6 | 83 | 0.00 | 12.40 |
| 74 | M | bromodichloromethane | 0.462 | 0.519 | -12.3 | 89 | 0.00 | 12.75 |
| 75 | M | cis-1,3-dichloropropene | 0.517 | 0.533 | -3.1 | 80 | 0.00 | 13.17 |
| 76 | S | toluene-d8 (s) | 1.022 | 1.017 | 0.5 | 79 | 0.00 | 13.43 |
| 77 | M | 4-methyl-2-pentanone | 0.102 | 0.100 | 2.0 | 77 | 0.00 | 13.25 |
| 78 | M | toluene | 0.709 | 0.735 | -3.7 | 81 | 0.00 | 13.50 |
| 79 | M | 3-methyl-1-butanol | 0.012 | 0.012 | 0.0 | 71 | 0.00 | 13.27 |
| 80 | M | trans-1,3-dichloropropene | 0.465 | 0.521 | -12.0 | 85 | 0.00 | 13.69 |
| 81 | M | ethyl methacrylate | 0.339 | 0.363 | -7.1 | 82 | 0.00 | 13.66 |
| 82 | M | 1,1,2-trichloroethane | 0.218 | 0.234 | -7.3 | 81 | 0.00 | 13.90 |
| 83 | M | 2-hexanone | 0.088 | 0.086 | 2.3 | 75 | 0.00 | 14.04 |
| 84 | I | chlorobenzene-d5 | 1.000 | 1.000 | 0.0 | 83 | 0.00 | 14.85 |
| 85 | M | tetrachloroethene | 0.372 | 0.444 | -19.4 | 95 | 0.00 | 14.04 |
| 86 | M | 1,3-dichloropropane | 0.562 | 0.564 | -0.4 | 83 | 0.00 | 14.07 |
| 87 | M | butyl acetate | 0.212 | 0.189 | 10.8 | 74 | 0.00 | 14.09 |
| 88 | | 3,3-dimethyl-1-butanol | 0.037 | 0.031 | 16.2 | 67 | 0.00 | 14.20 |
| 89 | M | dibromochloromethane | 0.490 | 0.563 | -14.9 | 94 | 0.00 | 14.32 |
| 90 | M | 1,2-dibromoethane | 0.375 | 0.397 | -5.9 | 88 | 0.00 | 14.47 |
| 91 | M | chlorobenzene | 1.051 | 1.116 | -6.2 | 85 | 0.00 | 14.88 |
| 92 | M | 1,1,1,2-tetrachloroethane | 0.463 | 0.498 | -7.6 | 89 | 0.00 | 14.93 |
| 93 | M | ethylbenzene | 1.737 | 1.791 | -3.1 | 85 | 0.00 | 14.91 |
| 94 | M | m,p-xylene | 0.662 | 0.691 | -4.4 | 85 | 0.00 | 15.01 |
| 95 | M | o-xylene | 0.654 | 0.694 | -6.1 | 85 | 0.00 | 15.40 |
| 96 | M | styrene | 1.072 | 1.147 | -7.0 | 86 | 0.00 | 15.41 |
| 97 | M | bromoform | 0.336 | 0.404 | -20.2# | 96 | 0.00 | 15.69 |
| 98 | I | 1,4-dichlorobenzene-d4 | 1.000 | 1.000 | 0.0 | 87 | 0.00 | 17.00 |

# Continuing Calibration Summary

**Job Number:** JB98590 **Sample:** V2A6821-CC6798
**Account:** SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 2A159859.D
**Project:** Sunoco - Marcus Hook Facility, PA

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 99 | M | isopropylbenzene | 3.001 | 3.140 | -4.6 | 89 | 0.00 | 15.71 |
| 100 | S | 4-bromofluorobenzene (s) | 0.852 | 0.813 | 4.6 | 84 | 0.00 | 15.92 |
| 101 | | cyclohexanone | 0.029 | 0.015 | 48.3# | 37# | 0.00 | 15.90 |
| 102 | M | bromobenzene | 0.926 | 0.971 | -4.9 | 92 | 0.00 | 16.10 |
| 103 | M | 1,1,2,2-tetrachloroethane | 0.801 | 0.742 | 7.4 | 82 | 0.00 | 16.02 |
| 104 | M | trans-1,4-dichloro-2-bute | 0.180 | 0.192 | -6.7 | 92 | 0.00 | 16.05 |
| 105 | M | 1,2,3-trichloropropane | 0.217 | 0.224 | -3.2 | 91 | 0.00 | 16.09 |
| 106 | M | n-propylbenzene | 0.775 | 0.794 | -2.5 | 87 | 0.00 | 16.09 |
| 107 | M | 2-chlorotoluene | 0.781 | 0.799 | -2.3 | 87 | 0.00 | 16.24 |
| 108 | M | 4-chlorotoluene | 0.793 | 0.822 | -3.7 | 88 | 0.00 | 16.33 |
| 109 | M | 1,3,5-trimethylbenzene | 2.520 | 2.692 | -6.8 | 90 | 0.00 | 16.22 |
| 110 | M | tert-butylbenzene | 2.292 | 2.371 | -3.4 | 90 | 0.00 | 16.55 |
| 111 | M | pentachloroethane | 0.576 | 0.616 | -6.9 | 91 | 0.00 | 16.65 |
| 112 | M | 1,2,4-trimethylbenzene | 2.511 | 2.665 | -6.1 | 90 | 0.00 | 16.59 |
| 113 | M | sec-butylbenzene | 3.199 | 3.399 | -6.3 | 88 | 0.00 | 16.75 |
| 114 | M | 1,3-dichlorobenzene | 1.684 | 1.784 | -5.9 | 91 | 0.00 | 16.95 |
| 115 | M | p-isopropyltoluene | 2.809 | 3.051 | -8.6 | 91 | 0.00 | 16.85 |
| 116 | M | 1,4-dichlorobenzene | 1.775 | 1.778 | -0.2 | 91 | 0.00 | 17.03 |
| 117 | M | 1,2-dichlorobenzene | 1.662 | 1.740 | -4.7 | 90 | 0.00 | 17.42 |
| 118 | M | benzyl chloride | 1.659 | 1.449 | 12.7 | 80 | 0.00 | 17.14 |
| 119 | M | n-butylbenzene | 1.374 | 1.409 | -2.5 | 87 | 0.00 | 17.26 |
| 120 | M | 1,2-dibromo-3-chloropropa | 0.157 | 0.169 | -7.6 | 94 | 0.00 | 18.20 |
| 121 | | 1,3,5-TRICHLOROBENZENE | 1.440 | 1.610 | -11.8 | 94 | 0.00 | 18.36 |
| 122 | M | 1,2,4-trichlorobenzene | 1.290 | 1.485 | -15.1 | 94 | 0.00 | 19.02 |
| 123 | M | hexachlorobutadiene | 0.668 | 0.812 | -21.6# | 105 | 0.00 | 19.12 |
| 124 | M | naphthalene | 2.579 | 2.734 | -6.0 | 89 | 0.00 | 19.32 |
| 125 | M | 1,2,3-trichlorobenzene | 1.185 | 1.351 | -14.0 | 93 | 0.00 | 19.57 |
| 126 | M | hexachloroethane | 0.558 | 0.648 | -16.1 | 96 | 0.00 | 17.66 |

(#) = Out of Range SPCC's out = 0 CCC's out = 0
2A159363.D M2A6798.M Mon Jul 13 20:39:51 2015

# Initial Calibration Summary

**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

**Sample:** VC7362-ICC7362
**Lab FileID:** C200852.D

```
                         Response Factor Report  MSC

Method       : C:\MSDCHEM\1\METHODS\MC7362.M (RTE Integrator)
Title        : SW846  8260B,ZB624 60m x 0.25mm x 1.4um
Last Update  : Wed Jun 10 10:21:31 2015
Response via : Initial Calibration

Calibration Files
5   =c200849.D   2   =c200848.D   20  =c200851.D   50  =c200852.D
100 =c200853.D   1   =c200847.D   200 =c200854.D   0.5 =c200846.D
10  =c200850.D   0.2 =c200845.D       =                =

Compound
        5     2     20    50    100   1     200   0.5   10    0.2    Avg   %RSD
-------------------------------------------------------------------------------

1)     Tert Butyl Alcohol-d9 ----------------ISTD---------------------
2)  1,4-dioxane
     0.059 0.067 0.064 0.065 0.065 0.076 0.064       0.059        0.065    7.75
3)  tertiary butyl alcohol
     0.934 0.988 0.971 0.950 0.985 1.061 0.955 1.015 0.963        0.980    3.94
4)  ethanol
                                                                  0.000#  -1.00

5) I   pentafluorobenzene    ----------------ISTD---------------------
6)  chlorotrifluoroethene
                                                                  0.000#  -1.00
7)  chlorodifluoromethane  **This compound did not meet initial calibration criteria
     0.229 0.237 0.252 0.266 0.286 0.264 0.294 0.270 0.233        0.259    8.89
8)  dichlorodifluoromethane
     0.480 0.484 0.493 0.493 0.498 0.462 0.454 0.395 0.495        0.473    6.95
9)  chloromethane
     0.499 0.524 0.478 0.470 0.471 0.507 0.437 0.568 0.488        0.493    7.64
10)  vinyl chloride
     0.483 0.497 0.494 0.504 0.505 0.486 0.463 0.518 0.480 0.468  0.490    3.45
11)  1,3-Butadiene
                                                                  0.000#  -1.00
12)  acetaldehyde
                                                                  0.000#  -1.00
13)  bromomethane
     0.311 0.311 0.294 0.287 0.282 0.295 0.245 0.346 0.296        0.296    9.10
14)  chloroethane
     0.286 0.295 0.272 0.272 0.266 0.281 0.235 0.297 0.275        0.275    6.73
15)  VINYL BROMIDE
                                                                  0.000#  -1.00
16)  trichlorofluoromethane
     0.539 0.539 0.525 0.532 0.539 0.536 0.502 0.549 0.541        0.533    2.52
17)  pentane
                                                                  0.000#  -1.00
18)  ethyl ether
     0.253 0.263 0.250 0.254 0.260 0.270 0.242 0.273 0.245 0.266  0.258    4.12
19)  2-chloropropane
     0.656 0.676 0.647 0.627 0.637 0.689 0.584 0.707 0.622        0.649    5.79
20)  acrolein
     0.077 0.074 0.076 0.078 0.078 0.071 0.072 0.064 0.078        0.074    6.37
21)  1,1-dichloroethene
     0.556 0.545 0.544 0.553 0.557 0.578 0.528 0.542 0.531 0.689  0.562    8.32
22)  isopropyl alcohol
                                                                  0.000#  -1.00
23)  acetone
```

```
      0.040 0.040 0.039 0.041 0.040 0.035 0.038       0.040        0.039    4.89
24)  allyl chloride
      0.197 0.200 0.186 0.186 0.189 0.196 0.176 0.187 0.180        0.189    4.22
25)  acetonitrile
      0.029 0.031 0.028 0.029 0.029       0.027       0.028        0.029    4.07
26)  iodomethane
      0.572 0.590 0.570 0.577 0.594 0.565 0.563 0.583 0.545 0.569  0.573    2.47
27)  iso-butyl alcohol
                                                                   0.000#  -1.00
28)  carbon disulfide
      1.258 1.274 1.248 1.238 1.256 1.251 1.181 1.268 1.187 1.436  1.260    5.53
29)  methylene chloride
      0.407 0.430 0.402 0.402 0.410 0.431 0.379 0.444 0.394        0.411    5.01
30)  1-chloropropane
      0.055       0.036 0.033 0.033       0.030       0.038        0.037   24.38
            ----- Linear regression -----  Coefficient =  0.9981
              Response Ratio = 0.00310 + 0.02926 *A

31)  methyl acetate
      0.284 0.283 0.291 0.301 0.300 0.283 0.291       0.285        0.290    2.61
32)  methyl tert butyl ether
      1.229 1.292 1.242 1.248 1.280 1.305 1.197 1.353 1.181 1.467  1.279    6.54
33)  trans-1,2-dichloroethene
      0.549 0.571 0.550 0.545 0.555 0.574 0.516 0.575 0.542 0.615  0.559    4.73
34)  di-isopropyl ether
      1.097 1.145 1.124 1.129 1.146 1.217 1.091 1.098 1.100 1.217  1.136    4.13
35)  ethyl tert-butyl ether
      1.237 1.285 1.255 1.264 1.302 1.337 1.240 1.281 1.209 1.331  1.274    3.25
36)  2-butanone
      0.043 0.041 0.050 0.053 0.051       0.049       0.046        0.048    9.32
37)  1,1-dichloroethane
      0.668 0.703 0.677 0.657 0.663 0.699 0.615 0.700 0.642        0.669    4.38
38)  chloroprene
      0.508 0.531 0.533 0.544 0.561 0.545 0.546 0.482 0.506        0.528    4.73
39)  acrylonitrile
      0.140 0.140 0.136 0.141 0.144 0.135 0.134 0.131 0.134        0.137    3.01
40)  vinyl acetate
      0.066 0.067 0.074 0.077 0.078 0.057 0.078       0.071        0.071   10.20
41)  ethyl acetate
      0.048 0.044 0.049 0.051 0.050 0.051 0.049       0.049        0.049    4.63
42)  2,2-dichloropropane
      0.405 0.430 0.384 0.364 0.354 0.435 0.295       0.380        0.381   11.84
43)  cis-1,2-dichloroethene
      0.429 0.476 0.424 0.425 0.433 0.521 0.403       0.431        0.443    8.48
44)  methyl acrylate
      0.296 0.289 0.316 0.349 0.343 0.316 0.336       0.298        0.318    7.21
45)  propionitrile
      0.053 0.056 0.054 0.056 0.055 0.051 0.053 0.049 0.052        0.053    4.07
46)  bromochloromethane
      0.193 0.211 0.197 0.198 0.206 0.197 0.193 0.193 0.187        0.197    3.65
47)  tetrahydrofuran
      0.146 0.142 0.130 0.132 0.132 0.125 0.126       0.133        0.133    5.37
48)  chloroform
      0.637 0.644 0.630 0.635 0.648 0.647 0.609 0.670 0.620 0.764  0.650    6.65
49)  t-butyl formate
      0.344 0.356 0.357 0.362 0.376 0.374 0.355 0.352 0.347        0.358    3.10
50)  dibromofluoromethane (s)
      0.398 0.398 0.387 0.393 0.397 0.389 0.382 0.402 0.389 0.394  0.393    1.56
51)  1,2-dichloroethane-d4 (s)
      0.462 0.465 0.450 0.450 0.451 0.461 0.439 0.467 0.462 0.457  0.456    1.92
```

# Initial Calibration Summary

**Job Number:** JB98590 **Sample:** VC7362-ICC7362
**Account:** SECORPAE Stantec Consulting Services Inc. **Lab FileID:** C200852.D
**Project:** Sunoco - Marcus Hook Facility, PA

```
52)  freon 113
      0.236 0.245 0.232 0.242 0.241 0.261 0.232 0.202 0.227        0.235    6.69
53)  methacrylonitrile
      0.158 0.154 0.165 0.175 0.174 0.145 0.170       0.162        0.163    6.35
54)  cyclohexane
      0.585 0.595 0.593 0.597 0.603 0.637 0.574 0.535 0.574        0.588    4.66
55)  1,1,1-trichloroethane
      0.545 0.548 0.546 0.532 0.542 0.584 0.511 0.546 0.518 0.558  0.543    3.74
56)  tert-amyl alcohol
                                                                   0.000#  -1.00
57)  2,2,4-trimethylpentane
                                                                   0.000#  -1.00
58)  tert-amyl methyl ether
      1.244 1.374 1.245 1.254 1.289 1.371 1.223 1.547 1.212        1.307    8.27

59) I   1,4-difluorobenzene   ----------------ISTD---------------------
60)  epichlorohydrin
      0.025 0.026 0.027 0.028 0.027 0.027 0.028       0.026        0.027    3.75
61)  n-butyl alcohol **This compound did not meet initial calibration criteria
      0.012 0.012 0.013 0.013 0.013 0.013 0.012 0.012 0.012        0.013    3.05
62)  carbon tetrachloride
      0.307 0.308 0.317 0.314 0.319 0.328 0.306 0.311 0.300 0.310  0.312    2.52
63)  1,1-dichloropropene
      0.355 0.366 0.364 0.360 0.362 0.380 0.347 0.352 0.353 0.391  0.363    3.70
64)  hexane
      0.264 0.282 0.268 0.279 0.270 0.313 0.275 0.245 0.270        0.274    6.54
65)  benzene
      1.125 1.158 1.138 1.106 1.112 1.210 1.050 1.260 1.102 1.439  1.170    9.52
66)  heptane
      0.121 0.122 0.126 0.133 0.126 0.146 0.132 0.125 0.125        0.128    5.90
67)  isopropyl acetate
      0.172       0.130 0.126 0.122       0.121       0.142        0.135   14.33
68)  1,2-dichloroethane
      0.342 0.362 0.356 0.350 0.360 0.369 0.345 0.349 0.343 0.364  0.354    2.72
69)  ethyl acrylate
                                                                   0.000#  -1.00
70)  trichloroethene
      0.269 0.270 0.271 0.269 0.272 0.273 0.265 0.272 0.262 0.296  0.272    3.36
71)  2-chloroethyl vinyl ether
      0.153 0.148 0.166 0.169 0.163 0.172 0.162 0.146 0.161        0.160    5.77
72)  2-Nitropropane
      0.105 0.110 0.107 0.109 0.106 0.132 0.107       0.108        0.111    8.12
73)  methylcyclohexane
      0.400 0.424 0.409 0.417 0.425 0.452 0.421 0.372 0.402        0.413    5.29
74)  tert-amyl ethyl ether
                                                                   0.000#  -1.00
75)  methyl methacrylate
      0.180 0.176 0.196 0.208 0.203 0.177 0.205       0.188        0.192    6.94
76)  1,2-dichloropropane
      0.259 0.273 0.271 0.269 0.270 0.274 0.257 0.265 0.265 0.248  0.265    3.09
77)  dibromomethane
      0.162 0.161 0.164 0.164 0.169 0.163 0.164 0.161 0.160 0.176  0.165    2.92
78)  bromodichloromethane
      0.337 0.350 0.352 0.356 0.367 0.346 0.356 0.361 0.343 0.385  0.355    3.79
79)  cis-1,3-dichloropropene
      0.438 0.460 0.464 0.461 0.463 0.469 0.454 0.476 0.443 0.489  0.462    3.19
80)  toluene-d8 (s)
      1.167 1.161 1.173 1.167 1.171 1.160 1.182 1.161 1.160 1.154  1.166    0.70
81)  4-methyl-2-pentanone
      0.112 0.107 0.118 0.122 0.121 0.109 0.122 0.110 0.115        0.115    5.07
```

# Initial Calibration Summary

**Job Number:** JB98590 **Sample:** VC7362-ICC7362
**Account:** SECORPAE Stantec Consulting Services Inc. **Lab FileID:** C200852.D
**Project:** Sunoco - Marcus Hook Facility, PA

```
 82)  toluene
       0.696 0.703 0.716 0.707 0.703 0.751 0.687 0.716 0.691 0.848  0.722    6.61
 83)  3-methyl-1-butanol
       0.012 0.011 0.013 0.013 0.013 0.013 0.013 0.014 0.012        0.013    6.07
 84)  trans-1,3-dichloropropene
       0.406 0.423 0.424 0.424 0.425 0.433 0.421 0.388 0.411 0.432  0.419    3.27
 85)  ethyl methacrylate
       0.343 0.332 0.379 0.393 0.389 0.347 0.399 0.326 0.349 0.387  0.364    7.62
 86)  1,1,2-trichloroethane
       0.195 0.200 0.207 0.208 0.210 0.205 0.210 0.221 0.200 0.170  0.203    6.68
 87)  2-hexanone
       0.103 0.098 0.107 0.110 0.109 0.119 0.115 0.097 0.103        0.107    6.81

 88) I   chlorobenzene-d5      ----------------ISTD---------------------
 89)  cyclohexanone
       0.016 0.016 0.014 0.016 0.014 0.018 0.012 0.016 0.014        0.015   11.67
 90)  tetrachloroethene
       0.308 0.306 0.311 0.317 0.311 0.328 0.305 0.305 0.301 0.314  0.311    2.48
 91)  1,3-dichloropropane
       0.477 0.486 0.478 0.482 0.477 0.494 0.464 0.467 0.478 0.539  0.484    4.35
 92)  butyl acetate
       0.205 0.199 0.212 0.222 0.213 0.241 0.223 0.216 0.212        0.216    5.62
 93)  3,3-dimethyl-1-butanol
       0.033 0.032 0.034 0.036 0.036 0.035 0.036 0.035 0.033        0.034    3.93
 94)  dibromochloromethane
       0.287 0.302 0.303 0.312 0.319 0.298 0.313 0.285 0.292 0.302  0.301    3.75
 95)  1,2-dibromoethane
       0.270 0.264 0.283 0.289 0.289 0.273 0.285 0.265 0.272 0.266  0.276    3.59
 96)  n-butyl ether
                                                                    0.000#  -1.00
 97)  chlorobenzene
       0.837 0.842 0.834 0.842 0.842 0.931 0.815 0.920 0.823 0.974  0.866    6.31
 98)  1,1,1,2-tetrachloroethane
       0.292 0.303 0.299 0.298 0.308 0.296 0.297 0.303 0.287 0.306  0.299    2.16
 99)  ethylbenzene
       1.467 1.497 1.505 1.485 1.477 1.576 1.425 1.624 1.458 1.988  1.550   10.61
100)  m,p-xylene
       0.567 0.585 0.583 0.576 0.576 0.599 0.551 0.614 0.563 0.774  0.599   10.71
101)  o-xylene
       0.586 0.581 0.590 0.586 0.592 0.602 0.566 0.620 0.581 0.765  0.607    9.43
102)  styrene
       0.901 0.933 0.969 0.980 0.998 0.971 0.978 1.093 0.915        0.971    5.80
103)  bromoform
       0.191 0.191 0.204 0.215 0.226 0.192 0.232 0.198 0.195        0.205    7.72

104) I   1,4-dichlorobenzene-d ----------------ISTD---------------------
105)  isopropylbenzene
       2.706 2.762 2.816 2.734 2.644 2.858 2.472 2.770 2.722        2.720    4.12
106)  4-bromofluorobenzene (s)
       0.725 0.724 0.743 0.736 0.720 0.733 0.723 0.711 0.742 0.707  0.726    1.66
107)  bromobenzene
       0.653 0.673 0.669 0.656 0.652 0.739 0.635 0.727 0.651        0.673    5.30
108)  1,1,2,2-tetrachloroethane
       0.783 0.814 0.790 0.787 0.767 0.820 0.731 0.796 0.779 0.874  0.794    4.71
109)  trans-1,4-dichloro-2-butene
       0.207 0.192 0.205 0.208 0.203 0.226 0.206 0.214 0.206        0.207    4.33
110)  1,2,3-trichloropropane
       0.215 0.216 0.213 0.216 0.209 0.216 0.200 0.205 0.216        0.212    2.77
111)  n-propylbenzene
       3.051 3.192 3.182 3.092 2.987 3.454 2.796 3.657 3.079        3.165    8.06
```

# Initial Calibration Summary

**Job Number:** JB98590 **Sample:** VC7362-ICC7362
**Account:** SECORPAE Stantec Consulting Services Inc. **Lab FileID:** C200852.D
**Project:** Sunoco - Marcus Hook Facility, PA

```
112)  4-ethyltoluene
                                                                          0.000#  -1.00
113)  2-chlorotoluene
       0.635 0.689 0.654 0.640 0.627 0.667 0.603 0.749 0.630        0.655    6.60
114)  4-chlorotoluene
       2.012 2.133 2.065 2.037 2.001 2.185 1.947 2.270 1.992        2.071    5.05
115)  1,3,5-trimethylbenzene
       2.377 2.452 2.474 2.404 2.400 2.544 2.262 2.603 2.376        2.433    4.14
116)  tert-butylbenzene
       0.496 0.514 0.503 0.490 0.495 0.566 0.473 0.572 0.489        0.511    6.82
117)  pentachloroethane
       0.359 0.382 0.396 0.389 0.405 0.383 0.392 0.402 0.378        0.387    3.57
118)  1,2,4-trimethylbenzene
       2.388 2.505 2.468 2.421 2.419 2.699 2.291 2.933 2.383        2.501    7.88
119)  sec-butylbenzene
       2.974 3.085 3.092 3.018 3.008 3.215 2.836 3.201 2.969        3.044    3.92
120)  1,3-dichlorobenzene
       1.323 1.365 1.333 1.331 1.336 1.427 1.304 1.528 1.299        1.361    5.39
121)  p-isopropyltoluene
       2.506 2.599 2.587 2.560 2.588 2.729 2.430 2.613 2.508        2.569    3.26
122)  1,4-dichlorobenzene
       1.330 1.412 1.363 1.348 1.365 1.502 1.331 1.703 1.327        1.409    8.75
123)  benzyl chloride
       1.503 1.516 1.500 1.522 1.499 1.794 1.442 1.771 1.483        1.559    8.27
124)  p-diethylbenzene
                                                                          0.000#  -1.00
125)  1,2-dichlorobenzene
       1.362 1.426 1.371 1.349 1.361 1.511 1.288 1.665 1.325        1.406    8.26
126)  n-butylbenzene
       1.274 1.326 1.301 1.295 1.297 1.507 1.221 1.730 1.250        1.356   11.95
127)  1,2,4,5-tetramethylbenzene
                                                                          0.000#  -1.00
128)  1,2-dibromo-3-chloropropane
       0.192 0.202 0.189 0.195 0.198 0.201 0.177 0.229 0.188        0.197    7.34
129)  1,3,5-trichlorobenzene
       1.056 1.121 1.062 1.078 1.091 1.157 0.969 1.252 1.036        1.091    7.32
130)  1,2,4-trichlorobenzene
       1.030 1.101 1.022 1.031 1.033 1.111 0.912       0.999        1.030    5.98
131)  hexachlorobutadiene
       0.373 0.417 0.375 0.381 0.385 0.422 0.344       0.366        0.383    6.73
132)  naphthalene
       3.084 3.354 3.064 3.052 2.967 3.607 2.521       2.994        3.080   10.17
133)  1,2,3-trichlorobenzene
       0.984 1.071 0.980 0.974 0.975 1.126 0.855       0.961        0.991    8.06
134)  hexachloroethane
       0.439 0.462 0.444 0.450 0.467 0.511 0.439       0.422        0.454    5.90
 ---------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

           MC7362.M          Wed Jun 10 10:45:03 2015   C
```

# Initial Calibration Verification

**Job Number:** JB98590 **Sample:** VC7362-ICV7362
**Account:** SECORPAE Stantec Consulting Services Inc. **Lab FileID:** C200857.D
**Project:** Sunoco - Marcus Hook Facility, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\c200857.D                    Vial: 36
Acq On    : 10 Jun 2015   3:49 am                     Operator: mihirm
Sample    : icv7362-50                                Inst    : MSC
Misc      : MS86212,VC7362,5,,,,1                     Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\MSDCHEM\1\METHODS\MC7362.M (RTE Integrator)
Title        : SW846  8260B,ZB624 60m x 0.25mm x 1.4um
Last Update  : Wed Jun 10 10:21:31 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.010  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

| | | Compound | AvgRF | CCRF | %Dev | Area% | Dev(min) | R.T. |
|---|---|---|---|---|---|---|---|---|
| 1 | | Tert Butyl Alcohol-d9 | 1.000 | 1.000 | 0.0 | 93 | 0.00 | 8.13 |
| 2 | M | 1,4-dioxane | 0.065 | 0.062 | 4.6 | 89 | 0.00 | 12.52 |
| 3 | M | tertiary butyl alcohol | 0.980 | 1.011 | -3.2 | 99 | 0.00 | 8.29 |
| 4 | | ethanol | | ----------NA---------- | | | | |
| 5 | I | pentafluorobenzene | 1.000 | 1.000 | 0.0 | 98 | 0.00 | 10.83 |
| 6 | M | chlorotrifluoroethene | | ----------NA---------- | | | | |
| 7 | M | chlorodifluoromethane | 0.259 | 0.173 | 33.2# | 64 | 0.00 | 3.98 |
| 8 | M | dichlorodifluoromethane | 0.473 | 0.478 | -1.1 | 95 | 0.00 | 3.94 |
| 9 | M | chloromethane | 0.493 | 0.476 | 3.4 | 99 | 0.00 | 4.36 |
| 10 | M | vinyl chloride | 0.490 | 0.523 | -6.7 | 102 | 0.00 | 4.64 |
| 11 | | 1,3-Butadiene | | ----------NA---------- | | | | |
| 12 | M | acetaldehyde | | ----------NA---------- | | | | |
| 13 | M | bromomethane | 0.296 | 0.306 | -3.4 | 104 | 0.00 | 5.42 |
| 14 | M | chloroethane | 0.275 | 0.315 | -14.5 | 113 | 0.00 | 5.63 |
| 15 | | VINYL BROMIDE | | ----------NA---------- | | | | |
| 16 | M | trichlorofluoromethane | 0.533 | 0.556 | -4.3 | 102 | 0.00 | 6.14 |
| 17 | | pentane | | ----------NA---------- | | | | |
| 18 | M | ethyl ether | 0.258 | 0.254 | 1.6 | 98 | 0.00 | 6.69 |
| 19 | m | 2-chloropropane | 0.649 | 0.661 | -1.8 | 103 | 0.00 | 6.93 |
| 20 | M | acrolein | 0.074 | 0.083 | -12.2 | 104 | 0.00 | 7.05 |
| 21 | M | 1,1-dichloroethene | 0.562 | 0.545 | 3.0 | 96 | 0.00 | 7.19 |
| 22 | M | isopropyl alcohol | | ----------NA---------- | | | | |
| 23 | M | acetone | 0.039 | 0.041 | -5.1 | 99 | -0.01 | 7.33 |
| 24 | M | allyl chloride | 0.189 | 0.207 | -9.5 | 109 | 0.00 | 7.89 |
| 25 | M | acetonitrile | 0.029 | 0.027 | 6.9 | 90 | 0.00 | 7.92 |
| 26 | M | iodomethane | 0.573 | 0.587 | -2.4 | 99 | 0.00 | 7.55 |
| 27 | M | iso-butyl alcohol | | ----------NA---------- | | | | |
| 28 | M | carbon disulfide | 1.260 | 1.273 | -1.0 | 101 | 0.00 | 7.67 |
| 29 | M | methylene chloride | 0.411 | 0.404 | 1.7 | 98 | 0.00 | 8.15 |
| | | ---------- | True | Calc. | % Drift | | ---------- | |
| 30 | m | 1-chloropropane | 50.000 | 53.042 | -6.1 | 102 | 0.00 | 8.17 |
| | | ---------- | AvgRF | CCRF | % Dev | | ---------- | |
| 31 | M | methyl acetate | 0.290 | 0.259 | 10.7 | 84 | 0.00 | 7.90 |
| 32 | M | methyl tert butyl ether | 1.279 | 1.217 | 4.8 | 95 | 0.00 | 8.53 |
| 33 | M | trans-1,2-dichloroethene | 0.559 | 0.545 | 2.5 | 98 | 0.00 | 8.60 |
| 34 | M | di-isopropyl ether | 1.136 | 1.112 | 2.1 | 96 | 0.00 | 9.29 |
| 35 | M | ethyl tert-butyl ether | 1.274 | 1.241 | 2.6 | 96 | 0.00 | 9.85 |
| 36 | M | 2-butanone | 0.048 | 0.051 | -6.2 | 93 | 0.00 | 10.22 |
| 37 | M | 1,1-dichloroethane | 0.669 | 0.676 | -1.0 | 101 | 0.00 | 9.35 |

# Initial Calibration Verification

**Job Number:** JB98590 **Sample:** VC7362-ICV7362
**Account:** SECORPAE Stantec Consulting Services Inc. **Lab FileID:** C200857.D
**Project:** Sunoco - Marcus Hook Facility, PA

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 38 | M | chloroprene | 0.528 | 0.484 | 8.3 | 87 | 0.00 | 9.46 |
| 39 | M | acrylonitrile | 0.137 | 0.151 | -10.2 | 105 | 0.00 | 8.63 |
| 40 | M | vinyl acetate | 0.071 | 0.080 | -12.7 | 102 | 0.00 | 9.35 |
| 41 | M | ethyl acetate | 0.049 | 0.049 | 0.0 | 94 | 0.00 | 10.23 |
| 42 | M | 2,2-dichloropropane | 0.381 | 0.368 | 3.4 | 99 | 0.00 | 10.20 |
| 43 | M | cis-1,2-dichloroethene | 0.443 | 0.429 | 3.2 | 99 | 0.00 | 10.23 |
| 44 | m | methyl acrylate | 0.318 | 0.337 | -6.0 | 94 | 0.00 | 10.32 |
| 45 | M | propionitrile | 0.053 | 0.057 | -7.5 | 100 | 0.00 | 10.37 |
| 46 | M | bromochloromethane | 0.197 | 0.201 | -2.0 | 99 | 0.00 | 10.59 |
| 47 | M | tetrahydrofuran | 0.133 | 0.130 | 2.3 | 97 | 0.00 | 10.62 |
| 48 | M | chloroform | 0.650 | 0.652 | -0.3 | 100 | 0.00 | 10.66 |
| 49 | m | t-butyl formate | 0.358 | 0.332 | 7.3 | 90 | 0.00 | 10.67 |
| 50 | S | dibromofluoromethane (s) | 0.393 | 0.392 | 0.3 | 98 | 0.00 | 10.88 |
| 51 | S | 1,2-dichloroethane-d4 (s) | 0.456 | 0.446 | 2.2 | 97 | 0.00 | 11.33 |
| 52 | M | freon 113 | 0.235 | 0.202 | 14.0 | 81 | 0.00 | 7.13 |
| 53 | M | methacrylonitrile | 0.163 | 0.172 | -5.5 | 96 | 0.00 | 10.56 |
| 54 | | cyclohexane | 0.588 | 0.617 | -4.9 | 101 | 0.00 | 10.93 |
| 55 | M | 1,1,1-trichloroethane | 0.543 | 0.558 | -2.8 | 103 | 0.00 | 10.89 |
| 56 | | tert-amyl alcohol | | ----------NA---------- | | | | |
| 57 | | 2,2,4-trimethylpentane | | ----------NA---------- | | | | |
| 58 | M | tert-amyl methyl ether | 1.307 | 1.197 | 8.4 | 93 | 0.00 | 11.40 |
| 59 | I | 1,4-difluorobenzene | 1.000 | 1.000 | 0.0 | 97 | 0.00 | 11.78 |
| 60 | M | epichlorohydrin | 0.027 | 0.028 | -3.7 | 98 | 0.00 | 13.07 |
| 61 | M | n-butyl alcohol | 0.013 | 0.007# | 46.2# | 52 | 0.00 | 11.96 |
| 62 | M | carbon tetrachloride | 0.312 | 0.327 | -4.8 | 101 | 0.00 | 11.09 |
| 63 | M | 1,1-dichloropropene | 0.363 | 0.383 | -5.5 | 103 | 0.00 | 11.08 |
| 64 | M | hexane | 0.274 | 0.256 | 6.6 | 89 | 0.00 | 8.96 |
| 65 | M | benzene | 1.170 | 1.140 | 2.6 | 100 | 0.00 | 11.37 |
| 66 | M | heptane | 0.128 | 0.110 | 14.1 | 80 | 0.00 | 11.52 |
| 67 | M | isopropyl acetate | 0.135 | 0.125 | 7.4 | 96 | 0.00 | 11.33 |
| 68 | M | 1,2-dichloroethane | 0.354 | 0.358 | -1.1 | 99 | 0.00 | 11.42 |
| 69 | | ethyl acrylate | | ----------NA---------- | | | | |
| 70 | M | trichloroethene | 0.272 | 0.278 | -2.2 | 100 | 0.00 | 12.11 |
| 71 | M | 2-chloroethyl vinyl ether | 0.160 | 0.190 | -18.8 | 109 | 0.00 | 12.93 |
| 72 | | 2-Nitropropane | 0.111 | 0.115 | -3.6 | 103 | 0.00 | 12.94 |
| 73 | M | methylcyclohexane | 0.413 | 0.353 | 14.5 | 82 | 0.00 | 12.29 |
| 74 | | tert-amyl ethyl ether | | ----------NA---------- | | | | |
| 75 | M | methyl methacrylate | 0.192 | 0.207 | -7.8 | 96 | 0.00 | 12.40 |
| 76 | M | 1,2-dichloropropane | 0.265 | 0.279 | -5.3 | 100 | 0.00 | 12.39 |
| 77 | M | dibromomethane | 0.165 | 0.165 | 0.0 | 97 | 0.00 | 12.56 |
| 78 | M | bromodichloromethane | 0.355 | 0.365 | -2.8 | 99 | 0.00 | 12.69 |
| 79 | M | cis-1,3-dichloropropene | 0.462 | 0.463 | -0.2 | 97 | 0.00 | 13.13 |
| 80 | S | toluene-d8 (s) | 1.166 | 1.172 | -0.5 | 97 | 0.00 | 13.39 |
| 81 | M | 4-methyl-2-pentanone | 0.115 | 0.122 | -6.1 | 97 | 0.00 | 13.23 |
| 82 | M | toluene | 0.722 | 0.714 | 1.1 | 98 | 0.00 | 13.46 |
| 83 | M | 3-methyl-1-butanol | 0.013 | 0.012 | 7.7 | 91 | 0.00 | 13.28 |
| 84 | M | trans-1,3-dichloropropene | 0.419 | 0.410 | 2.1 | 94 | 0.00 | 13.68 |
| 85 | M | ethyl methacrylate | 0.364 | 0.389 | -6.9 | 96 | 0.00 | 13.66 |
| 86 | M | 1,1,2-trichloroethane | 0.203 | 0.210 | -3.4 | 97 | 0.00 | 13.89 |
| 87 | M | 2-hexanone | 0.107 | 0.110 | -2.8 | 96 | 0.00 | 14.04 |
| 88 | I | chlorobenzene-d5 | 1.000 | 1.000 | 0.0 | 98 | 0.00 | 14.82 |
| 89 | M | cyclohexanone | 0.015 | 0.014 | 6.7 | 86 | 0.00 | 15.84 |
| 90 | M | tetrachloroethene | 0.311 | 0.339 | -9.0 | 105 | 0.00 | 14.01 |
| 91 | M | 1,3-dichloropropane | 0.484 | 0.475 | 1.9 | 96 | 0.00 | 14.05 |
| 92 | M | butyl acetate | 0.216 | 0.221 | -2.3 | 97 | 0.00 | 14.10 |
| 93 | m | 3,3-dimethyl-1-butanol | 0.034 | 0.034 | 0.0 | 94 | 0.00 | 14.21 |
| 94 | M | dibromochloromethane | 0.301 | 0.311 | -3.3 | 98 | 0.00 | 14.31 |
| 95 | M | 1,2-dibromoethane | 0.276 | 0.287 | -4.0 | 97 | 0.00 | 14.44 |

# Initial Calibration Verification

**Job Number:** JB98590 **Sample:** VC7362-ICV7362
**Account:** SECORPAE Stantec Consulting Services Inc. **Lab FileID:** C200857.D
**Project:** Sunoco - Marcus Hook Facility, PA

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 96 | M | n-butyl ether | | ----------NA---------- | | | | |
| 97 | M | chlorobenzene | 0.866 | 0.856 | 1.2 | 99 | 0.00 | 14.84 |
| 98 | M | 1,1,1,2-tetrachloroethane | 0.299 | 0.300 | -0.3 | 98 | 0.00 | 14.90 |
| 99 | M | ethylbenzene | 1.550 | 1.511 | 2.5 | 99 | 0.00 | 14.88 |
| 100 | M | m,p-xylene | 0.599 | 0.587 | 2.0 | 100 | 0.00 | 14.97 |
| 101 | M | o-xylene | 0.607 | 0.602 | 0.8 | 100 | 0.00 | 15.35 |
| 102 | M | styrene | 0.971 | 0.988 | -1.8 | 99 | 0.00 | 15.37 |
| 103 | M | bromoform | 0.205 | 0.218 | -6.3 | 99 | 0.00 | 15.63 |
| 104 | I | 1,4-dichlorobenzene-d4 | 1.000 | 1.000 | 0.0 | 99 | 0.00 | 16.83 |
| 105 | M | isopropylbenzene | 2.720 | 2.768 | -1.8 | 100 | 0.00 | 15.64 |
| 106 | S | 4-bromofluorobenzene (s) | 0.726 | 0.731 | -0.7 | 99 | 0.00 | 15.84 |
| 107 | M | bromobenzene | 0.673 | 0.663 | 1.5 | 100 | 0.00 | 16.02 |
| 108 | M | 1,1,2,2-tetrachloroethane | 0.794 | 0.757 | 4.7 | 95 | 0.00 | 15.95 |
| 109 | M | trans-1,4-dichloro-2-bute | 0.207 | 0.201 | 2.9 | 96 | 0.00 | 15.98 |
| 110 | M | 1,2,3-trichloropropane | 0.212 | 0.211 | 0.5 | 97 | 0.00 | 16.02 |
| 111 | M | n-propylbenzene | 3.165 | 3.279 | -3.6 | 105 | 0.00 | 15.99 |
| 112 | M | 4-ethyltoluene | | ----------NA---------- | | | | |
| 113 | M | 2-chlorotoluene | 0.655 | 0.639 | 2.4 | 99 | 0.00 | 16.14 |
| 114 | M | 4-chlorotoluene | 2.071 | 2.045 | 1.3 | 100 | 0.00 | 16.22 |
| 115 | M | 1,3,5-trimethylbenzene | 2.433 | 2.445 | -0.5 | 101 | 0.00 | 16.12 |
| 116 | M | tert-butylbenzene | 0.511 | 0.510 | 0.2 | 103 | 0.00 | 16.42 |
| 117 | M | pentachloroethane | 0.387 | 0.373 | 3.6 | 95 | 0.00 | 16.52 |
| 118 | M | 1,2,4-trimethylbenzene | 2.501 | 2.562 | -2.4 | 105 | 0.00 | 16.46 |
| 119 | M | sec-butylbenzene | 3.044 | 3.062 | -0.6 | 101 | 0.00 | 16.60 |
| 120 | M | 1,3-dichlorobenzene | 1.361 | 1.349 | 0.9 | 101 | 0.00 | 16.78 |
| 121 | M | p-isopropyltoluene | 2.569 | 2.643 | -2.9 | 102 | 0.00 | 16.69 |
| 122 | M | 1,4-dichlorobenzene | 1.409 | 1.380 | 2.1 | 102 | 0.00 | 16.85 |
| 123 | | benzyl chloride | 1.559 | 1.343 | 13.9 | 88 | 0.00 | 16.96 |
| 124 | | p-diethylbenzene | | ----------NA---------- | | | | |
| 125 | M | 1,2-dichlorobenzene | 1.406 | 1.381 | 1.8 | 102 | 0.00 | 17.19 |
| 126 | M | n-butylbenzene | 1.356 | 1.341 | 1.1 | 103 | 0.00 | 17.04 |
| 127 | | 1,2,4,5-tetramethylbenzen | | ----------NA---------- | | | | |
| 128 | M | 1,2-dibromo-3-chloropropa | 0.197 | 0.196 | 0.5 | 100 | 0.00 | 17.83 |
| 129 | m | 1,3,5-trichlorobenzene | 1.091 | 1.120 | -2.7 | 103 | 0.00 | 17.94 |
| 130 | M | 1,2,4-trichlorobenzene | 1.030 | 1.049 | -1.8 | 101 | 0.00 | 18.48 |
| 131 | M | hexachlorobutadiene | 0.383 | 0.388 | -1.3 | 101 | 0.00 | 18.54 |
| 132 | M | naphthalene | 3.080 | 3.010 | 2.3 | 98 | 0.00 | 18.73 |
| 133 | M | 1,2,3-trichlorobenzene | 0.991 | 0.983 | 0.8 | 100 | 0.00 | 18.93 |
| 134 | M | hexachloroethane | 0.454 | 0.471 | -3.7 | 104 | 0.00 | 17.39 |

(#) = Out of Range SPCC's out = 0 CCC's out = 0
c200852.D MC7362.M Wed Jun 10 10:23:29 2015 C

6.7.7

6

# Continuing Calibration Summary

**Job Number:** JB98590 **Sample:** VC7407-CC7362
**Account:** SECORPAE Stantec Consulting Services Inc. **Lab FileID:** C201875.D
**Project:** Sunoco - Marcus Hook Facility, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\c201875.D Vial: 43
Acq On : 16 Jul 2015 9:25 am Operator: mihirm
Sample : cc7362-20 Inst : MSC
Misc : MS88057,VC7407,5,,,,1 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\MC7362.M (RTE Integrator)
Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
Last Update : Wed Jun 10 15:01:19 2015
Response via : Multiple Level Calibration

Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

| | | Compound | AvgRF | CCRF | %Dev | Area% | Dev(min) | R.T. |
|---|---|---|---|---|---|---|---|---|
| 1 | | Tert Butyl Alcohol-d9 | 1.000 | 1.000 | 0.0 | 77 | -0.01 | 8.13 |
| 2 | M | 1,4-dioxane | 0.065 | 0.075 | -15.4 | 91 | 0.00 | 12.52 |
| 3 | M | tertiary butyl alcohol | 0.980 | 1.231 | -25.6# | 98 | -0.01 | 8.28 |
| 4 | | ethanol | | ----------NA---------- | | | | |
| 5 | I | pentafluorobenzene | 1.000 | 1.000 | 0.0 | 78 | 0.00 | 10.82 |
| 6 | M | chlorotrifluoroethene | | ----------NA---------- | | | | |
| 7 | M | chlorodifluoromethane | 0.259 | 0.268 | -3.5 | 83 | 0.00 | 3.99 |
| 8 | M | dichlorodifluoromethane | 0.473 | 0.522 | -10.4 | 83 | 0.00 | 3.94 |
| 9 | M | chloromethane | 0.493 | 0.392 | 20.5# | 64 | 0.00 | 4.37 |
| 10 | M | vinyl chloride | 0.490 | 0.422 | 13.9 | 67 | 0.00 | 4.65 |
| 11 | | 1,3-Butadiene | | ----------NA---------- | | | | |
| 12 | M | acetaldehyde | | ----------NA---------- | | | | |
| 13 | M | bromomethane | 0.296 | 0.256 | 13.5 | 68 | 0.00 | 5.42 |
| 14 | M | chloroethane | 0.275 | 0.227 | 17.5 | 65 | 0.00 | 5.64 |
| 15 | | VINYL BROMIDE | | ----------NA---------- | | | | |
| 16 | M | trichlorofluoromethane | 0.533 | 0.606 | -13.7 | 90 | 0.00 | 6.15 |
| 17 | | pentane | | ----------NA---------- | | | | |
| 18 | M | ethyl ether | 0.258 | 0.213 | 17.4 | 67 | 0.00 | 6.69 |
| 19 | m | 2-chloropropane | 0.649 | 0.550 | 15.3 | 66 | 0.00 | 6.93 |
| 20 | M | acrolein | 0.074 | 0.058 | 21.6# | 59 | 0.00 | 7.05 |
| 21 | M | 1,1-dichloroethene | 0.562 | 0.526 | 6.4 | 75 | 0.00 | 7.20 |
| 22 | M | isopropyl alcohol | | ----------NA---------- | | | | |
| 23 | M | acetone | 0.039 | 0.039 | 0.0 | 79 | 0.00 | 7.34 |
| 24 | M | allyl chloride | 0.189 | 0.173 | 8.5 | 72 | 0.00 | 7.89 |
| 25 | M | acetonitrile | 0.029 | 0.024 | 17.2 | 67 | 0.00 | 7.92 |
| 26 | M | iodomethane | 0.573 | 0.564 | 1.6 | 77 | 0.00 | 7.55 |
| 27 | M | iso-butyl alcohol | | ----------NA---------- | | | | |
| 28 | M | carbon disulfide | 1.260 | 1.069 | 15.2 | 67 | 0.00 | 7.67 |
| 29 | M | methylene chloride | 0.411 | 0.366 | 10.9 | 71 | 0.00 | 8.14 |
| | | ---------- | True | Calc. | % Drift | ---------- | | |
| 30 | m | 1-chloropropane | 20.000 | 17.456 | 12.7 | 72 | 0.00 | 8.17 |
| | | ---------- | AvgRF | CCRF | % Dev | ---------- | | |
| 31 | M | methyl acetate | 0.290 | 0.241 | 16.9 | 65 | 0.00 | 7.90 |
| 32 | M | methyl tert butyl ether | 1.279 | 1.128 | 11.8 | 71 | 0.00 | 8.52 |
| 33 | M | trans-1,2-dichloroethene | 0.559 | 0.505 | 9.7 | 72 | 0.00 | 8.60 |
| 34 | M | di-isopropyl ether | 1.136 | 0.973 | 14.3 | 67 | 0.00 | 9.29 |
| 35 | M | ethyl tert-butyl ether | 1.274 | 1.051 | 17.5 | 65 | 0.00 | 9.85 |
| 36 | M | 2-butanone | 0.048 | 0.048 | 0.0 | 75 | 0.00 | 10.22 |
| 37 | M | 1,1-dichloroethane | 0.669 | 0.613 | 8.4 | 71 | 0.00 | 9.35 |

# Continuing Calibration Summary

**Job Number:** JB98590 **Sample:** VC7407-CC7362
**Account:** SECORPAE Stantec Consulting Services Inc. **Lab FileID:** C201875.D
**Project:** Sunoco - Marcus Hook Facility, PA

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 38 | M | chloroprene | 0.528 | 0.556 | -5.3 | 81 | 0.00 | 9.46 |
| 39 | M | acrylonitrile | 0.137 | 0.122 | 10.9 | 70 | 0.00 | 8.63 |
| 40 | M | vinyl acetate | 0.071 | 0.066 | 7.0 | 70 | 0.00 | 9.35 |
| 41 | M | ethyl acetate | 0.049 | 0.042 | 14.3 | 67 | 0.00 | 10.23 |
| 42 | M | 2,2-dichloropropane | 0.381 | 0.437 | -14.7 | 89 | 0.00 | 10.20 |
| 43 | M | cis-1,2-dichloroethene | 0.443 | 0.397 | 10.4 | 73 | 0.00 | 10.23 |
| 44 | m | methyl acrylate | 0.318 | 0.288 | 9.4 | 71 | 0.00 | 10.31 |
| 45 | M | propionitrile | 0.053 | 0.050 | 5.7 | 73 | 0.00 | 10.37 |
| 46 | M | bromochloromethane | 0.197 | 0.192 | 2.5 | 76 | 0.00 | 10.59 |
| 47 | M | tetrahydrofuran | 0.133 | 0.100 | 24.8# | 60 | 0.00 | 10.61 |
| 48 | M | chloroform | 0.650 | 0.646 | 0.6 | 80 | 0.00 | 10.65 |
| 49 | m | t-butyl formate | 0.358 | 0.105 | 70.7# | 23# | 0.00 | 10.67 |
| 50 | S | dibromofluoromethane (s) | 0.393 | 0.399 | -1.5 | 80 | 0.00 | 10.88 |
| 51 | S | 1,2-dichloroethane-d4 (s) | 0.456 | 0.525 | -15.1 | 91 | 0.00 | 11.32 |
| 52 | M | freon 113 | 0.235 | 0.258 | -9.8 | 87 | 0.00 | 7.13 |
| 53 | M | methacrylonitrile | 0.163 | 0.146 | 10.4 | 69 | 0.00 | 10.56 |
| 54 | | cyclohexane | 0.588 | 0.557 | 5.3 | 73 | 0.00 | 10.93 |
| 55 | M | 1,1,1-trichloroethane | 0.543 | 0.589 | -8.5 | 84 | 0.00 | 10.89 |
| 56 | | tert-amyl alcohol | | ----------NA---------- | | | | |
| 57 | | 2,2,4-trimethylpentane | | ----------NA---------- | | | | |
| 58 | M | tert-amyl methyl ether | 1.307 | 1.025 | 21.6# | 64 | 0.00 | 11.39 |
| 59 | I | 1,4-difluorobenzene | 1.000 | 1.000 | 0.0 | 75 | 0.00 | 11.78 |
| 60 | M | epichlorohydrin | 0.027 | 0.025 | 7.4 | 70 | 0.00 | 13.07 |
| 61 | M | n-butyl alcohol | 0.013 | 0.008# | 38.5# | 44# | 0.00 | 11.96 |
| 62 | M | carbon tetrachloride | 0.312 | 0.362 | -16.0 | 86 | 0.00 | 11.09 |
| 63 | M | 1,1-dichloropropene | 0.363 | 0.368 | -1.4 | 76 | 0.00 | 11.08 |
| 64 | M | hexane | 0.274 | 0.289 | -5.5 | 82 | 0.00 | 8.95 |
| 65 | M | benzene | 1.170 | 1.061 | 9.3 | 70 | 0.00 | 11.37 |
| 66 | M | heptane | 0.128 | 0.142 | -10.9 | 85 | 0.00 | 11.52 |
| 67 | M | isopropyl acetate | 0.135 | 0.121 | 10.4 | 70 | 0.00 | 11.32 |
| 68 | M | 1,2-dichloroethane | 0.354 | 0.410 | -15.8 | 87 | 0.00 | 11.42 |
| 69 | | ethyl acrylate | | ----------NA---------- | | | | |
| 70 | M | trichloroethene | 0.272 | 0.271 | 0.4 | 75 | 0.00 | 12.10 |
| 71 | M | 2-chloroethyl vinyl ether | 0.160 | 0.094 | 41.3# | 43# | 0.00 | 12.92 |
| 72 | | 2-Nitropropane | 0.111 | 0.111 | 0.0 | 78 | 0.00 | 12.93 |
| 73 | M | methylcyclohexane | 0.413 | 0.427 | -3.4 | 79 | 0.00 | 12.29 |
| 74 | | tert-amyl ethyl ether | | ----------NA---------- | | | | |
| 75 | M | methyl methacrylate | 0.192 | 0.184 | 4.2 | 71 | 0.00 | 12.40 |
| 76 | M | 1,2-dichloropropane | 0.265 | 0.239 | 9.8 | 67 | 0.00 | 12.39 |
| 77 | M | dibromomethane | 0.165 | 0.162 | 1.8 | 74 | 0.00 | 12.55 |
| 78 | M | bromodichloromethane | 0.355 | 0.377 | -6.2 | 81 | 0.00 | 12.69 |
| 79 | M | cis-1,3-dichloropropene | 0.462 | 0.461 | 0.2 | 75 | 0.00 | 13.13 |
| 80 | S | toluene-d8 (s) | 1.166 | 1.187 | -1.8 | 76 | 0.00 | 13.39 |
| 81 | M | 4-methyl-2-pentanone | 0.115 | 0.105 | 8.7 | 67 | 0.00 | 13.23 |
| 82 | M | toluene | 0.722 | 0.691 | 4.3 | 73 | 0.00 | 13.46 |
| 83 | M | 3-methyl-1-butanol | 0.013 | 0.013 | 0.0 | 77 | 0.00 | 13.27 |
| 84 | M | trans-1,3-dichloropropene | 0.419 | 0.450 | -7.4 | 80 | 0.00 | 13.68 |
| 85 | M | ethyl methacrylate | 0.364 | 0.353 | 3.0 | 70 | 0.00 | 13.65 |
| 86 | M | 1,1,2-trichloroethane | 0.203 | 0.197 | 3.0 | 72 | 0.00 | 13.89 |
| 87 | M | 2-hexanone | 0.107 | 0.100 | 6.5 | 70 | 0.00 | 14.04 |
| 88 | I | chlorobenzene-d5 | 1.000 | 1.000 | 0.0 | 73 | 0.00 | 14.81 |
| 89 | M | cyclohexanone | 0.015 | 0.029 | -93.3# | 153 | 0.00 | 15.84 |
| 90 | M | tetrachloroethene | 0.311 | 0.335 | -7.7 | 79 | 0.00 | 14.00 |
| 91 | M | 1,3-dichloropropane | 0.484 | 0.471 | 2.7 | 72 | 0.00 | 14.05 |
| 92 | M | butyl acetate | 0.216 | 0.206 | 4.6 | 71 | 0.00 | 14.09 |
| 93 | m | 3,3-dimethyl-1-butanol | 0.034 | 0.034 | 0.0 | 73 | 0.00 | 14.21 |
| 94 | M | dibromochloromethane | 0.301 | 0.332 | -10.3 | 80 | 0.00 | 14.30 |
| 95 | M | 1,2-dibromoethane | 0.276 | 0.283 | -2.5 | 73 | 0.00 | 14.44 |

# Continuing Calibration Summary

**Job Number:** JB98590 **Sample:** VC7407-CC7362
**Account:** SECORPAE Stantec Consulting Services Inc. **Lab FileID:** C201875.D
**Project:** Sunoco - Marcus Hook Facility, PA

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 96 | M | n-butyl ether | | ----------NA---------- | | | | |
| 97 | M | chlorobenzene | 0.866 | 0.871 | -0.6 | 76 | 0.00 | 14.84 |
| 98 | M | 1,1,1,2-tetrachloroethane | 0.299 | 0.326 | -9.0 | 79 | 0.00 | 14.90 |
| 99 | M | ethylbenzene | 1.550 | 1.543 | 0.5 | 75 | 0.00 | 14.88 |
| 100 | M | m,p-xylene | 0.599 | 0.597 | 0.3 | 75 | 0.00 | 14.97 |
| 101 | M | o-xylene | 0.607 | 0.614 | -1.2 | 76 | 0.00 | 15.35 |
| 102 | M | styrene | 0.971 | 0.991 | -2.1 | 74 | 0.00 | 15.36 |
| 103 | M | bromoform | 0.205 | 0.221 | -7.8 | 79 | 0.00 | 15.63 |
| 104 | I | 1,4-dichlorobenzene-d4 | 1.000 | 1.000 | 0.0 | 73 | 0.00 | 16.83 |
| 105 | M | isopropylbenzene | 2.720 | 2.960 | -8.8 | 76 | 0.00 | 15.64 |
| 106 | S | 4-bromofluorobenzene (s) | 0.726 | 0.776 | -6.9 | 76 | 0.00 | 15.84 |
| 107 | M | bromobenzene | 0.673 | 0.703 | -4.5 | 76 | 0.00 | 16.02 |
| 108 | M | 1,1,2,2-tetrachloroethane | 0.794 | 0.731 | 7.9 | 67 | 0.00 | 15.95 |
| 109 | M | trans-1,4-dichloro-2-bute | 0.207 | 0.218 | -5.3 | 77 | 0.00 | 15.97 |
| 110 | M | 1,2,3-trichloropropane | 0.212 | 0.222 | -4.7 | 76 | 0.00 | 16.01 |
| 111 | M | n-propylbenzene | 3.165 | 3.242 | -2.4 | 74 | 0.00 | 15.99 |
| 112 | M | 4-ethyltoluene | | ----------NA---------- | | | | |
| 113 | M | 2-chlorotoluene | 0.655 | 0.671 | -2.4 | 74 | 0.00 | 16.14 |
| 114 | M | 4-chlorotoluene | 2.071 | 2.104 | -1.6 | 74 | 0.00 | 16.22 |
| 115 | M | 1,3,5-trimethylbenzene | 2.433 | 2.604 | -7.0 | 76 | 0.00 | 16.11 |
| 116 | M | tert-butylbenzene | 0.511 | 0.519 | -1.6 | 75 | 0.00 | 16.42 |
| 117 | M | pentachloroethane | 0.387 | 0.458 | -18.3 | 84 | 0.00 | 16.52 |
| 118 | M | 1,2,4-trimethylbenzene | 2.501 | 2.560 | -2.4 | 75 | 0.00 | 16.45 |
| 119 | M | sec-butylbenzene | 3.044 | 3.187 | -4.7 | 75 | 0.00 | 16.60 |
| 120 | M | 1,3-dichlorobenzene | 1.361 | 1.376 | -1.1 | 75 | 0.00 | 16.78 |
| 121 | M | p-isopropyltoluene | 2.569 | 2.753 | -7.2 | 77 | 0.00 | 16.69 |
| 122 | M | 1,4-dichlorobenzene | 1.409 | 1.417 | -0.6 | 76 | 0.00 | 16.85 |
| 123 | | benzyl chloride | 1.559 | 1.769 | -13.5 | 86 | 0.00 | 16.95 |
| 124 | | p-diethylbenzene | | ----------NA---------- | | | | |
| 125 | M | 1,2-dichlorobenzene | 1.406 | 1.392 | 1.0 | 74 | 0.00 | 17.18 |
| 126 | M | n-butylbenzene | 1.356 | 1.307 | 3.6 | 73 | 0.00 | 17.04 |
| 127 | | 1,2,4,5-tetramethylbenzen | | ----------NA---------- | | | | |
| 128 | M | 1,2-dibromo-3-chloropropa | 0.197 | 0.190 | 3.6 | 73 | 0.00 | 17.82 |
| 129 | m | 1,3,5-trichlorobenzene | 1.091 | 1.161 | -6.4 | 79 | 0.00 | 17.94 |
| 130 | M | 1,2,4-trichlorobenzene | 1.030 | 1.097 | -6.5 | 78 | 0.00 | 18.47 |
| 131 | M | hexachlorobutadiene | 0.383 | 0.429 | -12.0 | 83 | 0.00 | 18.54 |
| 132 | M | naphthalene | 3.080 | 3.067 | 0.4 | 73 | 0.00 | 18.72 |
| 133 | M | 1,2,3-trichlorobenzene | 0.991 | 1.048 | -5.8 | 78 | 0.00 | 18.93 |
| 134 | M | hexachloroethane | 0.454 | 0.460 | -1.3 | 75 | 0.00 | 17.38 |

(#) = Out of Range SPCC's out = 0 CCC's out = 0
c200851.D MC7362.M Thu Jul 16 10:23:20 2015 C

# Continuing Calibration Summary

**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

**Sample:** VC7407-CC7362
**Lab FileID:** C201876.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\c201876.D                    Vial: 44
Acq On    : 16 Jul 2015  10:01 am                     Operator: mihirm
Sample    : cc7362-0.5                                Inst    : MSC
Misc      : MS88057,VC7407,5,,,,1                     Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\MSDCHEM\1\METHODS\MC7362.M (RTE Integrator)
Title        : SW846  8260B,ZB624 60m x 0.25mm x 1.4um
Last Update  : Wed Jun 10 15:01:19 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.010  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  Max. Rel. Area : 200%
```

| | | Compound | AvgRF | CCRF | %Dev | Area% | Dev(min) | R.T. |
|---|---|---|---|---|---|---|---|---|
| 1 | | Tert Butyl Alcohol-d9 | 1.000 | 1.000 | 0.0 | 74 | 0.00 | 8.13 |
| 2 | M | 1,4-dioxane | | ----------NA---------- | | | | |
| 3 | M | tertiary butyl alcohol | | ----------NA---------- | | | | |
| 4 | | ethanol | | ----------NA---------- | | | | |
| 5 | I | pentafluorobenzene | 1.000 | 1.000 | 0.0 | 84 | 0.00 | 10.82 |
| 6 | M | chlorotrifluoroethene | | ----------NA---------- | | | | |
| 7 | M | chlorodifluoromethane | | ----------NA---------- | | | | |
| 8 | M | dichlorodifluoromethane | | ----------NA---------- | | | | |
| 9 | M | chloromethane | 0.493 | 0.464 | 5.9 | 69 | 0.00 | 4.37 |
| 10 | M | vinyl chloride | | ----------NA---------- | | | | |
| 11 | | 1,3-Butadiene | | ----------NA---------- | | | | |
| 12 | M | acetaldehyde | | ----------NA---------- | | | | |
| 13 | M | bromomethane | | ----------NA---------- | | | | |
| 14 | M | chloroethane | | ----------NA---------- | | | | |
| 15 | | VINYL BROMIDE | | ----------NA---------- | | | | |
| 16 | M | trichlorofluoromethane | | ----------NA---------- | | | | |
| 17 | | pentane | | ----------NA---------- | | | | |
| 18 | M | ethyl ether | | ----------NA---------- | | | | |
| 19 | m | 2-chloropropane | | ----------NA---------- | | | | |
| 20 | M | acrolein | | ----------NA---------- | | | | |
| 21 | M | 1,1-dichloroethene | | ----------NA---------- | | | | |
| 22 | M | isopropyl alcohol | | ----------NA---------- | | | | |
| 23 | M | acetone | | ----------NA---------- | | | | |
| 24 | M | allyl chloride | | ----------NA---------- | | | | |
| 25 | M | acetonitrile | | ----------NA---------- | | | | |
| 26 | M | iodomethane | | ----------NA---------- | | | | |
| 27 | M | iso-butyl alcohol | | ----------NA---------- | | | | |
| 28 | M | carbon disulfide | | ----------NA---------- | | | | |
| 29 | M | methylene chloride | | ----------NA---------- | | | | |
| | | ---------- | True | Calc. | % Drift | ---------- | | |
| 30 | m | 1-chloropropane | | ----------NA---------- | | | | |
| | | ---------- | AvgRF | CCRF | % Dev | ---------- | | |
| 31 | M | methyl acetate | | ----------NA---------- | | | | |
| 32 | M | methyl tert butyl ether | | ----------NA---------- | | | | |
| 33 | M | trans-1,2-dichloroethene | | ----------NA---------- | | | | |
| 34 | M | di-isopropyl ether | | ----------NA---------- | | | | |
| 35 | M | ethyl tert-butyl ether | | ----------NA---------- | | | | |
| 36 | M | 2-butanone | | ----------NA---------- | | | | |
| 37 | M | 1,1-dichloroethane | | ----------NA---------- | | | | |

# Continuing Calibration Summary

**Job Number:** JB98590 **Sample:** VC7407-CC7362
**Account:** SECORPAE Stantec Consulting Services Inc. **Lab FileID:** C201876.D
**Project:** Sunoco - Marcus Hook Facility, PA

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 38 | M | chloroprene | | ----------NA---------- | | | | |
| 39 | M | acrylonitrile | | ----------NA---------- | | | | |
| 40 | M | vinyl acetate | | ----------NA---------- | | | | |
| 41 | M | ethyl acetate | | ----------NA---------- | | | | |
| 42 | M | 2,2-dichloropropane | | ----------NA---------- | | | | |
| 43 | M | cis-1,2-dichloroethene | | ----------NA---------- | | | | |
| 44 | m | methyl acrylate | | ----------NA---------- | | | | |
| 45 | M | propionitrile | | ----------NA---------- | | | | |
| 46 | M | bromochloromethane | | ----------NA---------- | | | | |
| 47 | M | tetrahydrofuran | | ----------NA---------- | | | | |
| 48 | M | chloroform | | ----------NA---------- | | | | |
| 49 | m | t-butyl formate | | ----------NA---------- | | | | |
| 50 | S | dibromofluoromethane (s) | 0.393 | 0.396 | -0.8 | 83 | 0.00 | 10.88 |
| 51 | S | 1,2-dichloroethane-d4 (s) | 0.456 | 0.534 | -17.1 | 96 | 0.00 | 11.33 |
| 52 | M | freon 113 | | ----------NA---------- | | | | |
| 53 | M | methacrylonitrile | | ----------NA---------- | | | | |
| 54 | | cyclohexane | | ----------NA---------- | | | | |
| 55 | M | 1,1,1-trichloroethane | | ----------NA---------- | | | | |
| 56 | | tert-amyl alcohol | | ----------NA---------- | | | | |
| 57 | | 2,2,4-trimethylpentane | 0.000 | 1.099 | 0.0 | 0# | 0.00 | 11.33 |
| 58 | M | tert-amyl methyl ether | | ----------NA---------- | | | | |
| 59 | I | 1,4-difluorobenzene | 1.000 | 1.000 | 0.0 | 80 | 0.00 | 11.77 |
| 60 | M | epichlorohydrin | | ----------NA---------- | | | | |
| 61 | M | n-butyl alcohol | | ----------NA---------- | | | | |
| 62 | M | carbon tetrachloride | | ----------NA---------- | | | | |
| 63 | M | 1,1-dichloropropene | | ----------NA---------- | | | | |
| 64 | M | hexane | | ----------NA---------- | | | | |
| 65 | M | benzene | | ----------NA---------- | | | | |
| 66 | M | heptane | | ----------NA---------- | | | | |
| 67 | M | isopropyl acetate | | ----------NA---------- | | | | |
| 68 | M | 1,2-dichloroethane | | ----------NA---------- | | | | |
| 69 | | ethyl acrylate | | ----------NA---------- | | | | |
| 70 | M | trichloroethene | | ----------NA---------- | | | | |
| 71 | M | 2-chloroethyl vinyl ether | | ----------NA---------- | | | | |
| 72 | | 2-Nitropropane | | ----------NA---------- | | | | |
| 73 | M | methylcyclohexane | | ----------NA---------- | | | | |
| 74 | | tert-amyl ethyl ether | | ----------NA---------- | | | | |
| 75 | M | methyl methacrylate | | ----------NA---------- | | | | |
| 76 | M | 1,2-dichloropropane | | ----------NA---------- | | | | |
| 77 | M | dibromomethane | | ----------NA---------- | | | | |
| 78 | M | bromodichloromethane | | ----------NA---------- | | | | |
| 79 | M | cis-1,3-dichloropropene | | ----------NA---------- | | | | |
| 80 | S | toluene-d8 (s) | 1.166 | 1.181 | -1.3 | 81 | 0.00 | 13.39 |
| 81 | M | 4-methyl-2-pentanone | | ----------NA---------- | | | | |
| 82 | M | toluene | | ----------NA---------- | | | | |
| 83 | M | 3-methyl-1-butanol | | ----------NA---------- | | | | |
| 84 | M | trans-1,3-dichloropropene | | ----------NA---------- | | | | |
| 85 | M | ethyl methacrylate | | ----------NA---------- | | | | |
| 86 | M | 1,1,2-trichloroethane | | ----------NA---------- | | | | |
| 87 | M | 2-hexanone | | ----------NA---------- | | | | |
| 88 | I | chlorobenzene-d5 | 1.000 | 1.000 | 0.0 | 79 | 0.00 | 14.81 |
| 89 | M | cyclohexanone | | ----------NA---------- | | | | |
| 90 | M | tetrachloroethene | | ----------NA---------- | | | | |
| 91 | M | 1,3-dichloropropane | | ----------NA---------- | | | | |
| 92 | M | butyl acetate | | ----------NA---------- | | | | |
| 93 | m | 3,3-dimethyl-1-butanol | | ----------NA---------- | | | | |
| 94 | M | dibromochloromethane | | ----------NA---------- | | | | |
| 95 | M | 1,2-dibromoethane | | ----------NA---------- | | | | |

# Continuing Calibration Summary

**Job Number:** JB98590 **Sample:** VC7407-CC7362
**Account:** SECORPAE Stantec Consulting Services Inc. **Lab FileID:** C201876.D
**Project:** Sunoco - Marcus Hook Facility, PA

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 96 | M | n-butyl ether | | ----------NA---------- | | | | |
| 97 | M | chlorobenzene | | ----------NA---------- | | | | |
| 98 | M | 1,1,1,2-tetrachloroethane | | ----------NA---------- | | | | |
| 99 | M | ethylbenzene | | ----------NA---------- | | | | |
| 100 | M | m,p-xylene | | ----------NA---------- | | | | |
| 101 | M | o-xylene | | ----------NA---------- | | | | |
| 102 | M | styrene | | ----------NA---------- | | | | |
| 103 | M | bromoform | | ----------NA---------- | | | | |
| 104 | I | 1,4-dichlorobenzene-d4 | 1.000 | 1.000 | 0.0 | 80 | 0.00 | 16.83 |
| 105 | M | isopropylbenzene | | ----------NA---------- | | | | |
| 106 | S | 4-bromofluorobenzene (s) | 0.726 | 0.756 | -4.1 | 85 | 0.00 | 15.84 |
| 107 | M | bromobenzene | | ----------NA---------- | | | | |
| 108 | M | 1,1,2,2-tetrachloroethane | | ----------NA---------- | | | | |
| 109 | M | trans-1,4-dichloro-2-bute | | ----------NA---------- | | | | |
| 110 | M | 1,2,3-trichloropropane | | ----------NA---------- | | | | |
| 111 | M | n-propylbenzene | | ----------NA---------- | | | | |
| 112 | M | 4-ethyltoluene | | ----------NA---------- | | | | |
| 113 | M | 2-chlorotoluene | | ----------NA---------- | | | | |
| 114 | M | 4-chlorotoluene | | ----------NA---------- | | | | |
| 115 | M | 1,3,5-trimethylbenzene | | ----------NA---------- | | | | |
| 116 | M | tert-butylbenzene | | ----------NA---------- | | | | |
| 117 | M | pentachloroethane | | ----------NA---------- | | | | |
| 118 | M | 1,2,4-trimethylbenzene | | ----------NA---------- | | | | |
| 119 | M | sec-butylbenzene | | ----------NA---------- | | | | |
| 120 | M | 1,3-dichlorobenzene | | ----------NA---------- | | | | |
| 121 | M | p-isopropyltoluene | | ----------NA---------- | | | | |
| 122 | M | 1,4-dichlorobenzene | | ----------NA---------- | | | | |
| 123 | | benzyl chloride | | ----------NA---------- | | | | |
| 124 | | p-diethylbenzene | | ----------NA---------- | | | | |
| 125 | M | 1,2-dichlorobenzene | | ----------NA---------- | | | | |
| 126 | M | n-butylbenzene | | ----------NA---------- | | | | |
| 127 | | 1,2,4,5-tetramethylbenzen | | ----------NA---------- | | | | |
| 128 | M | 1,2-dibromo-3-chloropropa | | ----------NA---------- | | | | |
| 129 | m | 1,3,5-trichlorobenzene | | ----------NA---------- | | | | |
| 130 | M | 1,2,4-trichlorobenzene | | ----------NA---------- | | | | |
| 131 | M | hexachlorobutadiene | | ----------NA---------- | | | | |
| 132 | M | naphthalene | | ----------NA---------- | | | | |
| 133 | M | 1,2,3-trichlorobenzene | | ----------NA---------- | | | | |
| 134 | M | hexachloroethane | | ----------NA---------- | | | | |

(#) = Out of Range SPCC's out = 0 CCC's out = 0
c200846.D MC7362.M Thu Jul 16 10:28:56 2015 C

# Initial Calibration Summary

**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

**Sample:** VU8988-ICC8988
**Lab FileID:** U194822.D



```
                         Response Factor Report  MSU

Method       : C:\MSDCHEM\1\METHODS\MU8988.M (RTE Integrator)
Title        : SW-846  8260B, ZB624  60m x 250um x 1.40um
Last Update  : Mon May 04 09:25:27 2015
Response via : Initial Calibration

Calibration Files
5   =u194819.D   2   =u194818.D   20  =u194821.D   50  =u194822.D
100 =u194823.D   1   =u194817.D   200 =u194824.D   10  =u194820.D
0.5 =u194816.D   0.2 =u194815.D       =                =

Compound
        5     2     20    50    100   1     200   10    0.5   0.2    Avg   %RSD
-------------------------------------------------------------------------------

1) I   Tert Butyl Alcohol-d9 ----------------ISTD---------------------
2)  tertiary butyl alcohol
     0.962 0.990 1.231 1.222 1.191       1.120 1.129              1.120    9.62
3)  Ethanol
                                                                   0.000   -1.00
4)  1,4-dioxane
     0.076       0.109 0.108 0.116       0.102 0.092              0.101   14.21

5) I   pentafluorobenzene    ----------------ISTD---------------------
6)  freon 115
                                                                   0.000   -1.00
7)  freon 23
                                                                   0.000   -1.00
8)  freon 143A
                                                                   0.000   -1.00
9)  freon 152A
                                                                   0.000   -1.00
10)  chlorotrifluoroethene
                                                                   0.000   -1.00
11)  chlorodifluoromethane
      0.316 0.311 0.352 0.394 0.387       0.380 0.344              0.355    9.43
12)  dichlorodifluoromethane
      0.309 0.263 0.393 0.434 0.471       0.439 0.433              0.392   19.61
13)  freon 142B
                                                                   0.000   -1.00
14)  freon 114
                                                                   0.000   -1.00
15)  chloromethane
      0.398 0.371 0.451 0.451 0.482 0.391 0.454 0.496 0.385        0.431   10.52
16)  vinyl chloride
      0.357 0.321 0.420 0.429 0.459 0.314 0.434 0.455              0.399   14.79
17)  acetaldehyde
                                                                   0.000   -1.00
18)  bromomethane
      0.267 0.266 0.306 0.303 0.323 0.273 0.285 0.330              0.294    8.54
19)  chloroethane
      0.180 0.158 0.221 0.223 0.239 0.147 0.223 0.231              0.203   17.62
20)  trichlorofluoromethane
      0.388 0.321 0.487 0.521 0.563 0.337 0.527 0.531              0.459   20.80
            ----- Linear regression -----  Coefficient =  0.9988
              Response Ratio = -0.00445 + 0.53463 *A

21)  pentane
                                                                   0.000   -1.00
```

# Initial Calibration Summary

**Job Number:** JB98590 **Sample:** VU8988-ICC8988
**Account:** SECORPAE Stantec Consulting Services Inc. **Lab FileID:** U194822.D
**Project:** Sunoco - Marcus Hook Facility, PA

```
22)  freon 123A
                                                                    0.000   -1.00
23)  ethyl ether
      0.162 0.150 0.198 0.207 0.205       0.201 0.191               0.188   12.02
24)  2-CHLOROPROPANE
      0.571 0.601 0.611 0.659 0.642 0.658 0.627 0.598               0.621    5.03
25)  freon 141B
                                                                    0.000   -1.00
26)  freon 123
                                                                    0.000   -1.00
27)  acrolein
      0.061 0.062 0.059 0.060       0.059       0.053 0.044         0.057   11.40
28)  1,1-dichloroethene
      0.279 0.271 0.330 0.351 0.348 0.270 0.340 0.326 0.294         0.312   10.69
29)  acetone
                  0.029 0.030 0.030       0.027 0.025               0.028    7.32
30)  allyl chloride
      0.166 0.148 0.192 0.203 0.201 0.128 0.195 0.190               0.178   15.54
31)  acetonitrile
      0.021 0.024 0.024 0.028 0.028 0.019 0.027 0.024               0.024   13.41
32)  iodomethane
      0.568 0.530 0.684 0.730 0.712 0.507 0.705 0.666 0.456         0.618   16.63
33)  carbon disulfide
      0.934 0.917 1.111 1.188 1.171 0.836 1.154 1.091 0.873 0.819   1.009   14.58
34)  1-CHLOROPROPANE
      0.021       0.031 0.031 0.032       0.031 0.029               0.029   13.64
35)  methylene chloride
      0.364 0.466 0.382 0.397 0.386       0.379 0.387               0.395    8.42
36)  methyl acetate
      0.258 0.262 0.263 0.263 0.257       0.246 0.255               0.258    2.45
37)  methyl tert butyl ether
      0.893 0.858 1.078 1.113 1.083 0.862 1.069 1.021 0.848         0.981   11.47
38)  trans-1,2-dichloroethene
      0.323 0.313 0.375 0.394 0.384 0.313 0.378 0.367 0.306         0.350   10.15
39)  di-isopropyl ether
      1.011 1.030 1.151 1.197 1.166 0.842 1.146 1.085 1.004         1.070   10.42
40)  ethyl tert-butyl ether
      1.006 0.992 1.150 1.204 1.177 0.830 1.161 1.079 0.955 0.887   1.044   12.46
41)  2-butanone
      0.026       0.043 0.043 0.043       0.040 0.041               0.039   16.61
42)  1,1-dichloroethane
      0.549 0.522 0.658 0.689 0.664 0.492 0.662 0.641 0.430         0.590   15.80
43)  chloroprene
      0.459 0.458 0.520 0.560 0.551 0.362 0.539 0.499 0.431         0.487   13.32
44)  acrylonitrile
      0.095 0.090 0.117 0.121 0.118 0.085 0.114 0.111               0.106   13.30
45)  vinyl acetate
      0.050       0.065 0.069 0.068       0.066 0.057               0.062   12.33
46)  ethyl acetate
      0.040       0.048 0.050 0.048       0.046 0.046               0.046    7.30
47)  2,2-dichloropropane
      0.477 0.465 0.547 0.577 0.562 0.444 0.545 0.550 0.466         0.515    9.83
48)  cis-1,2-dichloroethene
      0.355 0.340 0.414 0.435 0.422 0.333 0.418 0.398 0.359         0.386   10.15
49)  methyl acrylate
      0.043       0.055 0.059 0.058       0.056 0.051               0.054   10.66
50)  propionitrile
      0.038 0.036 0.047 0.049 0.047 0.033 0.045 0.045               0.043   13.67
51)  bromochloromethane
      0.175 0.159 0.213 0.226 0.221 0.149 0.218 0.205               0.196   15.49
```

# Initial Calibration Summary

**Job Number:** JB98590 **Sample:** VU8988-ICC8988
**Account:** SECORPAE Stantec Consulting Services Inc. **Lab FileID:** U194822.D
**Project:** Sunoco - Marcus Hook Facility, PA

```
52)  tetrahydrofuran
      0.115 0.111 0.124 0.127 0.120       0.117 0.128              0.120    5.34
53)  chloroform
      0.552 0.537 0.651 0.682 0.666 0.536 0.655 0.636 0.547 0.676  0.614   10.17
54)  tert-butyl Formate
      0.270 0.266 0.329 0.348 0.348 0.195 0.342 0.301              0.300   17.93
55)  iso-butyl alcohol
      0.016 0.020 0.016 0.017 0.016 0.019 0.014 0.015              0.017   11.44
56)  dibromofluoromethane (s)
      0.339 0.341 0.339 0.342 0.342 0.337 0.344 0.338 0.336 0.342  0.340    0.76
57)  1,2-dichloroethane-d4 (s)
      0.359 0.358 0.359 0.361 0.367 0.356 0.373 0.358 0.353 0.353  0.360    1.74
58)  freon 113
      0.202 0.219 0.250 0.298 0.302       0.282 0.243              0.257   15.12
59)  methacrylonitrile
      0.184 0.200 0.210 0.221 0.212 0.216 0.207 0.204              0.207    5.45
60)  1,1,1-trichloroethane
      0.488 0.454 0.568 0.607 0.604 0.420 0.595 0.559 0.419        0.524   15.03
61)  tert amyl alcohol
                                                                   0.000   -1.00
62)  tert-amyl methyl ether
      0.226 0.222 0.264 0.277 0.269       0.263 0.249              0.253    8.44
63)  iso-octane
      0.895 1.069 1.056 1.332 1.361 0.766 1.232 1.093 1.090 0.840  1.073   18.55

64) I   1,4-difluorobenzene   ----------------ISTD---------------------
65)  Di-isobutylene
                                                                   0.000   -1.00
66)  epichlorohydrin
      0.025 0.024 0.031 0.031 0.031       0.029 0.028              0.029    9.91
67)  n-butyl alcohol
      0.008 0.007 0.009 0.010 0.009 0.006 0.008 0.009 0.007        0.008   15.33
68)  Cyclohexane
      0.361 0.345 0.435 0.492 0.507       0.471 0.438              0.436   14.28
69)  carbon tetrachloride
      0.374 0.353 0.453 0.485 0.487 0.328 0.470 0.435 0.328        0.413   16.16
70)  1,1-dichloropropene
      0.365 0.354 0.430 0.460 0.460 0.311 0.442 0.423 0.290        0.393   16.45
71)  hexane
      0.270 0.305 0.325 0.391 0.398 0.237 0.356 0.323 0.358        0.329   16.20
72)  benzene
      1.096 1.090 1.278 1.330 1.300 1.106 1.266 1.237 1.157        1.207    7.87
73)  heptane
      0.160 0.195 0.189 0.236 0.241       0.214 0.198              0.205   13.79
74)  isopropyl acetate
      0.484 0.555 0.576 0.574 0.563 0.481 0.562 0.530 0.574        0.544    6.94
75)  1,2-dichloroethane
      0.347 0.342 0.425 0.437 0.427 0.315 0.413 0.409 0.270        0.376   15.75
76)  ethyl acrylate
                                                                   0.000   -1.00
77)  tert amyl ethyl ether
                                                                   0.000   -1.00
78)  trichloroethene
      0.298 0.273 0.349 0.362 0.359 0.258 0.353 0.338 0.239        0.314   15.18
79)  methylcyclohexane
      0.402 0.450 0.484 0.570 0.576 0.338 0.535 0.476 0.441        0.475   16.45
80)  2-nitropropane
      0.110 0.119 0.119 0.124 0.125 0.103 0.117 0.115 0.105        0.115    6.64
81)  2-chloroethyl vinyl ether
      0.134 0.132 0.167 0.184 0.190       0.187 0.149              0.163   15.26
```

# Initial Calibration Summary

**Job Number:** JB98590 **Sample:** VU8988-ICC8988
**Account:** SECORPAE Stantec Consulting Services Inc. **Lab FileID:** U194822.D
**Project:** Sunoco - Marcus Hook Facility, PA

```
 82)  methyl methacrylate
       0.068 0.066 0.090 0.093 0.092       0.089 0.085              0.083   13.98
 83)  1,2-dichloropropane
       0.270 0.266 0.330 0.343 0.335 0.256 0.328 0.320 0.213        0.296   15.37
 84)  propyl acetate
       0.056 0.057 0.062 0.063 0.061       0.058 0.058              0.059    4.43
 85)  dibromomethane
       0.173 0.159 0.209 0.218 0.215 0.163 0.210 0.197              0.193   12.53
 86)  bromodichloromethane
       0.381 0.367 0.458 0.483 0.474 0.348 0.468 0.436 0.324        0.415   14.57
 87)  cis-1,3-dichloropropene
       0.463 0.463 0.570 0.601 0.592 0.436 0.582 0.552 0.391 0.407  0.506   16.17
 88)  toluene-d8 (s)
       1.138 1.135 1.152 1.152 1.151 1.144 1.155 1.133 1.133 1.141  1.143    0.75
 89)  4-methyl-2-pentanone
       0.097 0.089 0.123 0.125 0.121       0.116 0.115              0.112   12.36
 90)  toluene
       0.712 0.686 0.841 0.889 0.879 0.673 0.861 0.816 0.695 0.675  0.773   11.90
 91)  3-methyl-1-butanol
       0.014 0.014 0.016 0.016 0.015 0.013 0.013 0.015              0.014    9.10
 92)  trans-1,3-dichloropropene
       0.428 0.415 0.529 0.559 0.542 0.400 0.530 0.506 0.364 0.345  0.462   17.31
 93)  ethyl methacrylate
       0.343 0.331 0.422 0.439 0.429 0.334 0.418 0.398 0.316        0.381   12.89
 94)  1,1,2-trichloroethane
       0.208 0.207 0.255 0.265 0.261 0.200 0.255 0.245 0.162        0.229   15.60
 95)  2-hexanone
       0.097 0.086 0.120 0.123 0.120       0.112 0.111              0.110   12.44

 96) I   chlorobenzene-d5      ----------------ISTD---------------------
 97)  cyclohexanone       ***This compound does not meet initial criteria***
       0.031 0.034 0.033 0.036 0.041 0.047 0.028 0.039              0.036   16.55
 98)  tetrachloroethene
       0.342 0.312 0.390 0.412 0.404 0.306 0.392 0.386 0.291        0.359   13.03
 99)  1,3-dichloropropane
       0.458 0.428 0.561 0.584 0.567 0.428 0.555 0.538 0.388        0.501   14.89
100)  butyl acetate
       0.200 0.201 0.232 0.239 0.229 0.176 0.219 0.222 0.188        0.212   10.23
101)  dibromochloromethane
       0.362 0.339 0.446 0.478 0.468 0.318 0.464 0.430 0.294        0.400   17.86
102)  1,2-dibromoethane
       0.309 0.288 0.363 0.382 0.373 0.280 0.369 0.352 0.259        0.330   14.12
103)  3,3-dimethyl-1-Butanol
       0.033 0.031 0.039 0.040 0.036 0.026 0.030 0.036 0.032        0.034   13.11
104)  n-butyl ether
       1.388 1.348 1.653 1.753 1.706 1.327 1.685 1.625 1.310 1.243  1.504   13.06
105)  chlorobenzene
       0.935 0.918 1.118 1.177 1.153 0.885 1.131 1.098 0.901 0.821  1.014   13.16
106)  1,1,1,2-tetrachloroethane
       0.355 0.336 0.426 0.446 0.436 0.331 0.424 0.411 0.290        0.384   14.69
107)  ethylbenzene
       1.550 1.488 1.824 1.931 1.896 1.475 1.848 1.797 1.515 1.569  1.689   10.94
108)  m,p-xylene
       0.616 0.599 0.731 0.768 0.753 0.573 0.720 0.711 0.573 0.578  0.662   12.27
109)  o-xylene
       0.623 0.582 0.730 0.761 0.740 0.571 0.719 0.714 0.556 0.525  0.652   13.69
110)  styrene
       1.031 0.994 1.247 1.303 1.272 0.961 1.234 1.215 0.960 0.971  1.119   13.05
111)  bromoform
       0.272 0.255 0.341 0.362 0.356 0.239 0.351 0.323              0.312   15.80
```

# Initial Calibration Summary

**Job Number:** JB98590 **Sample:** VU8988-ICC8988
**Account:** SECORPAE Stantec Consulting Services Inc. **Lab FileID:** U194822.D
**Project:** Sunoco - Marcus Hook Facility, PA

```
112) I   1,4-dichlorobenzene-d ----------------ISTD---------------------
113)  isopropylbenzene
       2.821 2.754 3.379 3.569 3.525 2.704 3.446 3.326 2.634 2.497  3.066   13.64
114)  4-bromofluorobenzene (s)
       0.883 0.889 0.890 0.878 0.880 0.882 0.886 0.893 0.891 0.884  0.886    0.57
115)  bromobenzene
       0.812 0.791 0.978 1.024 0.991 0.822 0.976 0.951 0.740 0.688  0.877   13.66
116)  1,1,2,2-tetrachloroethane
       0.651 0.642 0.803 0.847 0.835 0.634 0.817 0.773 0.592        0.733   13.79
117)  trans-1,4-dichloro-2-butene
       0.175 0.168 0.225 0.238 0.236       0.230 0.207              0.211   13.82
118)  1,2,3-trichloropropane
       0.194 0.174 0.227 0.236 0.228 0.185 0.221 0.225              0.211   11.02
119)  n-propylbenzene
       3.229 3.111 3.757 4.017 3.908 3.092 3.834 3.745 2.937 3.023  3.465   12.15
120)  2-chlorotoluene
       0.708 0.696 0.855 0.902 0.876 0.695 0.851 0.840 0.681        0.789   11.58
121)  4-chlorotoluene
       2.024 2.019 2.397 2.512 2.462 1.942 2.435 2.370 1.944 1.987  2.209   10.97
122)  p-Ethyltoluene
                                                                    0.000   -1.00
123)  1,3,5-trimethylbenzene
       2.383 2.325 2.859 3.020 2.959 2.261 2.876 2.810 2.256 2.385  2.614   12.06
124)  tert-butylbenzene
       2.140 2.131 2.525 2.695 2.633 2.013 2.574 2.486 2.076 1.937  2.321   12.37
125)  pentachloroethane
       0.436 0.445 0.564 0.608 0.609 0.398 0.608 0.537              0.526   16.53
126)  1,2,4-trimethylbenzene
       2.365 2.302 2.803 2.936 2.879 2.228 2.812 2.771 2.161 2.346  2.560   11.86
127)  1,2,3-trimethylbenzene
                                                                    0.000   -1.00
128)  sec-butylbenzene
       3.101 2.942 3.636 3.863 3.855 2.877 3.716 3.592 2.854 2.829  3.327   13.28
129)  1,3-dichlorobenzene
       1.519 1.447 1.802 1.900 1.865 1.417 1.828 1.780 1.385 1.422  1.636   13.09
130)  p-isopropyltoluene
       2.721 2.665 3.199 3.386 3.349 2.566 3.229 3.170 2.528 2.424  2.924   12.83
131)  1,4-dichlorobenzene
       1.528 1.495 1.808 1.908 1.867 1.436 1.825 1.759 1.400 1.514  1.654   11.86
132)  benzyl chloride
       1.430 1.431 1.637 1.703 1.655 1.299 1.595 1.551 1.571 1.582  1.545    7.97
133)  1,2-dichlorobenzene
       1.414 1.355 1.692 1.786 1.740 1.295 1.710 1.657 1.257 1.167  1.507   15.39
134)  p-Diethylbenzene
                                                                    0.000   -1.00
135)  n-butylbenzene
       1.233 1.179 1.476 1.595 1.588 1.159 1.522 1.468 1.148        1.374   13.88
136)  1,2,4,5-Tetramethylbenzene
                                                                    0.000   -1.00
137)  1,2-dibromo-3-chloropropane
       0.155 0.139 0.195 0.204 0.201       0.196 0.186              0.182   13.80
138)  1,3,5-trichlorobenzene
       1.215 1.153 1.472 1.569 1.565 1.105 1.513 1.449 1.117 1.092  1.325   15.44
139)  1,2,4-trichlorobenzene
       1.022 0.982 1.284 1.366 1.355 0.884 1.326 1.229 0.874 0.955  1.128   17.95
140)  hexachlorobutadiene
       0.625 0.602 0.729 0.794 0.797 0.557 0.751 0.725 0.498        0.675   15.97
141)  naphthalene
       1.954 1.819 2.467 2.584 2.518 1.789 2.432 2.329 1.696 2.005  2.159   15.75
```

# Initial Calibration Summary

**Job Number:** JB98590 **Sample:** VU8988-ICC8988
**Account:** SECORPAE Stantec Consulting Services Inc. **Lab FileID:** U194822.D
**Project:** Sunoco - Marcus Hook Facility, PA

```
142)  INDANE
                                                                    0.000   -1.00
143)  1,2,3-trichlorobenzene
       0.853 0.808 1.081 1.148 1.113 0.801 1.075 1.026              0.988   14.54
144)  hexachloroethane
       0.510 0.484 0.625 0.678 0.677 0.431 0.670 0.604              0.585   16.59
145)  MMT
                                                                    0.000   -1.00
146)  Bis(chloromethyl)ether
                                                                    0.000   -1.00
147)  Ethylenimine
                                                                    0.000   -1.00
 ---------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

           MU8988.M          Mon May 04 09:49:46 2015   U_CORE
```

# Initial Calibration Verification

**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

**Sample:** VU8988-ICV8988
**Lab FileID:** U194827.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\u194827.D  Vial: 15
Acq On : 1 May 2015 5:20 pm  Operator: NicoleH1
Sample : icv8988-50  Inst : MSU
Misc : ms84282,vu8988,5.0,,,,1  Multiplr: 1.00
MS Integration Params: rtenox2.p

Method : C:\MSDCHEM\1\METHODS\MU8988.M (RTE Integrator)
Title : SW-846 8260B, ZB624 60m x 250um x 1.40um
Last Update : Mon May 04 09:25:27 2015
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

| | | Compound | AvgRF | CCRF | %Dev | Area% | Dev(min) | R.T. |
|---|---|---|---|---|---|---|---|---|
| 1 | I | Tert Butyl Alcohol-d9 | 1.000 | 1.000 | 0.0 | 100 | 0.00 | 7.88 |
| 2 | M | tertiary butyl alcohol | 1.120 | 1.198 | -7.0 | 98 | 0.00 | 8.00 |
| 3 | | Ethanol | | ----------NA---------- | | | | |
| 4 | m | 1,4-dioxane | 0.101 | 0.099 | 2.0 | 91 | 0.00 | 11.74 |
| 5 | I | pentafluorobenzene | 1.000 | 1.000 | 0.0 | 102 | 0.00 | 10.08 |
| 6 | M | freon 115 | | ----------NA---------- | | | | |
| 7 | M | freon 23 | | ----------NA---------- | | | | |
| 8 | M | freon 143A | | ----------NA---------- | | | | |
| 9 | M | freon 152A | | ----------NA---------- | | | | |
| 10 | M | chlorotrifluoroethene | | ----------NA---------- | | | | |
| 11 | M | chlorodifluoromethane | 0.355 | 0.354 | 0.3 | 92 | 0.00 | 4.40 |
| 12 | M | dichlorodifluoromethane | 0.392 | 0.369 | 5.9 | 87 | 0.00 | 4.36 |
| 13 | M | freon 142B | | ----------NA---------- | | | | |
| 14 | M | freon 114 | | ----------NA---------- | | | | |
| 15 | M | chloromethane | 0.431 | 0.427 | 0.9 | 96 | 0.00 | 4.77 |
| 16 | M | vinyl chloride | 0.399 | 0.397 | 0.5 | 94 | 0.00 | 5.04 |
| 17 | M | acetaldehyde | | ----------NA---------- | | | | |
| 18 | M | bromomethane | 0.294 | 0.305 | -3.7 | 103 | 0.00 | 5.71 |
| 19 | M | chloroethane | 0.203 | 0.245 | -20.7 | 112 | 0.00 | 5.88 |
| | | ---------- | True | Calc. | % Drift | ---------- | | |
| 20 | M | trichlorofluoromethane | 50.000 | 46.950 | 6.1 | 97 | 0.00 | 6.32 |
| | | ---------- | AvgRF | CCRF | % Dev | ---------- | | |
| 21 | M | pentane | | ----------NA---------- | | | | |
| 22 | M | freon 123A | | ----------NA---------- | | | | |
| 23 | M | ethyl ether | 0.188 | 0.202 | -7.4 | 99 | 0.00 | 6.76 |
| 24 | | 2-CHLOROPROPANE | 0.621 | 0.497 | 20.0 | 77 | 0.00 | 6.98 |
| 25 | M | freon 141B | | ----------NA---------- | | | | |
| 26 | M | freon 123 | | ----------NA---------- | | | | |
| 27 | M | acrolein | 0.057 | 0.070 | -22.8 | 120 | 0.00 | 7.05 |
| 28 | M | 1,1-dichloroethene | 0.312 | 0.335 | -7.4 | 97 | 0.00 | 7.20 |
| 29 | M | acetone | 0.028 | 0.029 | -3.6 | 98 | 0.00 | 7.27 |
| 30 | M | allyl chloride | 0.178 | 0.215 | -20.8 | 108 | 0.00 | 7.74 |
| 31 | M | acetonitrile | 0.024 | 0.027 | -12.5 | 97 | 0.00 | 7.73 |
| 32 | M | iodomethane | 0.618 | 0.684 | -10.7 | 95 | 0.00 | 7.50 |
| 33 | M | carbon disulfide | 1.009 | 1.103 | -9.3 | 95 | 0.00 | 7.63 |
| 34 | | 1-CHLOROPROPANE | 0.029 | 0.031 | -6.9 | 102 | 0.00 | 7.96 |
| 35 | M | methylene chloride | 0.395 | 0.377 | 4.6 | 97 | 0.00 | 7.94 |
| 36 | M | methyl acetate | 0.258 | 0.250 | 3.1 | 97 | 0.00 | 7.72 |
| 37 | M | methyl tert butyl ether | 0.981 | 1.040 | -6.0 | 95 | 0.00 | 8.23 |

# Initial Calibration Verification

**Job Number:** JB98590 **Sample:** VU8988-ICV8988
**Account:** SECORPAE Stantec Consulting Services Inc. **Lab FileID:** U194827.D
**Project:** Sunoco - Marcus Hook Facility, PA

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 38 | M | trans-1,2-dichloroethene | 0.350 | 0.368 | -5.1 | 95 | 0.00 | 8.29 |
| 39 | M | di-isopropyl ether | 1.070 | 1.143 | -6.8 | 97 | 0.00 | 8.81 |
| 40 | M | ethyl tert-butyl ether | 1.044 | 1.122 | -7.5 | 95 | 0.00 | 9.27 |
| 41 | M | 2-butanone | 0.039 | 0.041 | -5.1 | 97 | 0.00 | 9.56 |
| 42 | M | 1,1-dichloroethane | 0.590 | 0.662 | -12.2 | 98 | 0.00 | 8.87 |
| 43 | M | chloroprene | 0.487 | 0.501 | -2.9 | 91 | 0.00 | 8.96 |
| 44 | M | acrylonitrile | 0.106 | 0.125 | -17.9 | 106 | 0.00 | 8.28 |
| 45 | M | vinyl acetate | 0.062 | 0.068 | -9.7 | 100 | 0.00 | 8.83 |
| 46 | M | ethyl acetate | 0.046 | 0.048 | -4.3 | 97 | 0.00 | 9.55 |
| 47 | M | 2,2-dichloropropane | 0.515 | 0.572 | -11.1 | 101 | 0.00 | 9.59 |
| 48 | M | cis-1,2-dichloroethene | 0.386 | 0.408 | -5.7 | 96 | 0.00 | 9.60 |
| 49 | M | methyl acrylate | 0.054 | 0.055 | -1.9 | 96 | 0.00 | 9.64 |
| 50 | M | propionitrile | 0.043 | 0.048 | -11.6 | 101 | 0.00 | 9.69 |
| 51 | M | bromochloromethane | 0.196 | 0.211 | -7.7 | 95 | 0.00 | 9.91 |
| 52 | M | tetrahydrofuran | 0.120 | 0.121 | -0.8 | 97 | 0.00 | 9.94 |
| 53 | M | chloroform | 0.614 | 0.648 | -5.5 | 97 | 0.00 | 9.96 |
| 54 | | tert-butyl Formate | 0.300 | 0.338 | -12.7 | 99 | 0.00 | 9.98 |
| 55 | M | iso-butyl alcohol | 0.017 | 0.015 | 11.8 | 90 | 0.00 | 10.38 |
| 56 | S | dibromofluoromethane (s) | 0.340 | 0.340 | 0.0 | 101 | 0.00 | 10.16 |
| 57 | S | 1,2-dichloroethane-d4 (s) | 0.360 | 0.360 | 0.0 | 102 | 0.00 | 10.58 |
| 58 | M | freon 113 | 0.257 | 0.313 | -21.8 | 107 | 0.00 | 7.16 |
| 59 | M | methacrylonitrile | 0.207 | 0.209 | -1.0 | 96 | 0.00 | 9.85 |
| 60 | M | 1,1,1-trichloroethane | 0.524 | 0.583 | -11.3 | 98 | 0.00 | 10.20 |
| 61 | M | tert amyl alcohol | | ----------NA---------- | | | | |
| 62 | M | tert-amyl methyl ether | 0.253 | 0.259 | -2.4 | 95 | 0.00 | 10.65 |
| 63 | | iso-octane | 1.073 | 1.343 | -25.2 | 103 | 0.00 | 10.61 |
| 64 | I | 1,4-difluorobenzene | 1.000 | 1.000 | 0.0 | 101 | 0.00 | 11.00 |
| 65 | M | Di-isobutylene | | ----------NA---------- | | | | |
| 66 | M | epichlorohydrin | 0.029 | 0.030 | -3.4 | 98 | 0.00 | 12.30 |
| 67 | M | n-butyl alcohol | 0.008 | 0.009 | -12.5 | 95 | 0.00 | 11.12 |
| 68 | M | Cyclohexane | 0.436 | 0.493 | -13.1 | 102 | 0.00 | 10.27 |
| 69 | M | carbon tetrachloride | 0.413 | 0.470 | -13.8 | 98 | 0.00 | 10.40 |
| 70 | M | 1,1-dichloropropene | 0.393 | 0.458 | -16.5 | 101 | 0.00 | 10.37 |
| 71 | M | hexane | 0.329 | 0.375 | -14.0 | 97 | 0.00 | 8.56 |
| 72 | M | benzene | 1.207 | 1.282 | -6.2 | 98 | 0.00 | 10.64 |
| 73 | M | heptane | 0.205 | 0.258 | -25.9 | 111 | 0.00 | 10.76 |
| 74 | M | isopropyl acetate | 0.544 | 0.578 | -6.2 | 102 | 0.00 | 10.53 |
| 75 | M | 1,2-dichloroethane | 0.376 | 0.416 | -10.6 | 97 | 0.00 | 10.67 |
| 76 | M | ethyl acrylate | | ----------NA---------- | | | | |
| 77 | | tert amyl ethyl ether | | ----------NA---------- | | | | |
| 78 | M | trichloroethene | 0.314 | 0.350 | -11.5 | 98 | 0.00 | 11.35 |
| 79 | M | methylcyclohexane | 0.475 | 0.573 | -20.6 | 102 | 0.00 | 11.56 |
| 80 | M | 2-nitropropane | 0.115 | 0.126 | -9.6 | 103 | 0.00 | 12.15 |
| 81 | M | 2-chloroethyl vinyl ether | 0.163 | 0.191 | -17.2 | 105 | 0.00 | 12.15 |
| 82 | M | methyl methacrylate | 0.083 | 0.091 | -9.6 | 99 | 0.00 | 11.60 |
| 83 | M | 1,2-dichloropropane | 0.296 | 0.332 | -12.2 | 98 | 0.00 | 11.63 |
| 84 | M | propyl acetate | 0.059 | 0.061 | -3.4 | 99 | 0.00 | 11.64 |
| 85 | M | dibromomethane | 0.193 | 0.206 | -6.7 | 96 | 0.00 | 11.80 |
| 86 | M | bromodichloromethane | 0.415 | 0.454 | -9.4 | 95 | 0.00 | 11.92 |
| 87 | M | cis-1,3-dichloropropene | 0.506 | 0.576 | -13.8 | 97 | 0.00 | 12.39 |
| 88 | S | toluene-d8 (s) | 1.143 | 1.143 | 0.0 | 101 | 0.00 | 12.68 |
| 89 | M | 4-methyl-2-pentanone | 0.112 | 0.120 | -7.1 | 97 | 0.00 | 12.48 |
| 90 | M | toluene | 0.773 | 0.850 | -10.0 | 97 | 0.00 | 12.76 |
| 91 | M | 3-methyl-1-butanol | 0.014 | 0.015 | -7.1 | 91 | 0.00 | 12.49 |
| 92 | M | trans-1,3-dichloropropene | 0.462 | 0.519 | -12.3 | 94 | 0.00 | 12.98 |
| 93 | M | ethyl methacrylate | 0.381 | 0.407 | -6.8 | 94 | 0.00 | 12.94 |
| 94 | M | 1,1,2-trichloroethane | 0.229 | 0.250 | -9.2 | 95 | 0.00 | 13.22 |
| 95 | M | 2-hexanone | 0.110 | 0.120 | -9.1 | 98 | 0.00 | 13.38 |

# Initial Calibration Verification

**Job Number:** JB98590 **Sample:** VU8988-ICV8988
**Account:** SECORPAE Stantec Consulting Services Inc. **Lab FileID:** U194827.D
**Project:** Sunoco - Marcus Hook Facility, PA

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 96 | I | chlorobenzene-d5 | 1.000 | 1.000 | 0.0 | 101 | 0.00 | 14.33 |
| 97 | M | cyclohexanone | 0.036 | 0.014 | 61.1# | 41# | 0.00 | 15.59 |
| 98 | M | tetrachloroethene | 0.359 | 0.394 | -9.7 | 96 | 0.00 | 13.38 |
| 99 | M | 1,3-dichloropropane | 0.501 | 0.558 | -11.4 | 96 | 0.00 | 13.41 |
| 100 | M | butyl acetate | 0.212 | 0.226 | -6.6 | 95 | 0.00 | 13.44 |
| 101 | M | dibromochloromethane | 0.400 | 0.450 | -12.5 | 95 | 0.00 | 13.70 |
| 102 | M | 1,2-dibromoethane | 0.330 | 0.364 | -10.3 | 96 | 0.00 | 13.87 |
| 103 | | 3,3-dimethyl-1-Butanol | 0.034 | 0.034 | 0.0 | 87 | 0.00 | 13.57 |
| 104 | | n-butyl ether | 1.504 | 1.888 | -25.5 | 109 | 0.00 | 14.21 |
| 105 | M | chlorobenzene | 1.014 | 1.129 | -11.3 | 97 | 0.00 | 14.36 |
| 106 | M | 1,1,1,2-tetrachloroethane | 0.384 | 0.423 | -10.2 | 96 | 0.00 | 14.42 |
| 107 | M | ethylbenzene | 1.689 | 1.844 | -9.2 | 96 | 0.00 | 14.41 |
| 108 | M | m,p-xylene | 0.662 | 0.742 | -12.1 | 97 | 0.00 | 14.52 |
| 109 | M | o-xylene | 0.652 | 0.728 | -11.7 | 97 | 0.00 | 14.99 |
| 110 | M | styrene | 1.119 | 1.251 | -11.8 | 97 | 0.00 | 15.00 |
| 111 | M | bromoform | 0.312 | 0.340 | -9.0 | 95 | 0.00 | 15.32 |
| 112 | I | 1,4-dichlorobenzene-d4 | 1.000 | 1.000 | 0.0 | 98 | 0.00 | 16.90 |
| 113 | M | isopropylbenzene | 3.066 | 3.550 | -15.8 | 97 | 0.00 | 15.36 |
| 114 | S | 4-bromofluorobenzene (s) | 0.886 | 0.915 | -3.3 | 102 | 0.00 | 15.60 |
| 115 | M | bromobenzene | 0.877 | 1.022 | -16.5 | 98 | 0.00 | 15.83 |
| 116 | M | 1,1,2,2-tetrachloroethane | 0.733 | 0.802 | -9.4 | 93 | 0.00 | 15.72 |
| 117 | M | trans-1,4-dichloro-2-bute | 0.211 | 0.239 | -13.3 | 98 | 0.00 | 15.77 |
| 118 | M | 1,2,3-trichloropropane | 0.211 | 0.228 | -8.1 | 95 | 0.00 | 15.81 |
| 119 | M | n-propylbenzene | 3.465 | 4.209 | -21.5 | 103 | 0.00 | 15.81 |
| 120 | M | 2-chlorotoluene | 0.789 | 0.899 | -13.9 | 98 | 0.00 | 15.99 |
| 121 | M | 4-chlorotoluene | 2.209 | 2.518 | -14.0 | 98 | 0.00 | 16.10 |
| 122 | | p-Ethyltoluene | | ----------NA---------- | | | | |
| 123 | M | 1,3,5-trimethylbenzene | 2.614 | 3.002 | -14.8 | 97 | 0.00 | 15.98 |
| 124 | M | tert-butylbenzene | 2.321 | 2.735 | -17.8 | 99 | 0.00 | 16.37 |
| 125 | M | pentachloroethane | 0.526 | 0.609 | -15.8 | 98 | 0.00 | 16.48 |
| 126 | M | 1,2,4-trimethylbenzene | 2.560 | 3.049 | -19.1 | 102 | 0.00 | 16.42 |
| 127 | | 1,2,3-trimethylbenzene | | ----------NA---------- | | | | |
| 128 | M | sec-butylbenzene | 3.327 | 3.895 | -17.1 | 99 | 0.00 | 16.61 |
| 129 | M | 1,3-dichlorobenzene | 1.636 | 1.785 | -9.1 | 92 | 0.00 | 16.84 |
| 130 | M | p-isopropyltoluene | 2.924 | 3.463 | -18.4 | 100 | 0.00 | 16.73 |
| 131 | M | 1,4-dichlorobenzene | 1.654 | 1.815 | -9.7 | 93 | 0.00 | 16.93 |
| 132 | M | benzyl chloride | 1.545 | 1.807 | -17.0 | 104 | 0.00 | 17.06 |
| 133 | M | 1,2-dichlorobenzene | 1.507 | 1.720 | -14.1 | 94 | 0.00 | 17.37 |
| 134 | | p-Diethylbenzene | | ----------NA---------- | | | | |
| 135 | M | n-butylbenzene | 1.374 | 1.617 | -17.7 | 99 | 0.00 | 17.19 |
| 136 | | 1,2,4,5-Tetramethylbenzen | | ----------NA---------- | | | | |
| 137 | M | 1,2-dibromo-3-chloropropa | 0.182 | 0.201 | -10.4 | 96 | 0.00 | 18.23 |
| 138 | | 1,3,5-trichlorobenzene | 1.325 | 1.569 | -18.4 | 98 | 0.00 | 18.42 |
| 139 | M | 1,2,4-trichlorobenzene | 1.128 | 1.351 | -19.8 | 97 | 0.00 | 19.15 |
| 140 | M | hexachlorobutadiene | 0.675 | 0.793 | -17.5 | 98 | 0.00 | 19.26 |
| 141 | M | naphthalene | 2.159 | 2.501 | -15.8 | 95 | 0.00 | 19.48 |
| 142 | | INDANE | 0.000 | 0.000 | 0.0 | 98 | 0.00 | 16.90 |
| 143 | M | 1,2,3-trichlorobenzene | 0.988 | 1.114 | -12.8 | 95 | 0.00 | 19.76 |
| 144 | M | hexachloroethane | 0.585 | 0.671 | -14.7 | 97 | 0.00 | 17.65 |
| 145 | M | MMT | | ----------NA---------- | | | | |
| 146 | M | Bis(chloromethyl)ether | | ----------NA---------- | | | | |
| 147 | M | Ethylenimine | | ----------NA---------- | | | | |

(#) = Out of Range SPCC's out = 0 CCC's out = 0
u194822.D MU8988.M Mon May 04 09:50:14 2015 U_CORE

# Continuing Calibration Summary

**Job Number:** JB98590 **Sample:** VU9094-CC8988
**Account:** SECORPAE Stantec Consulting Services Inc. **Lab FileID:** U197270.D
**Project:** Sunoco - Marcus Hook Facility, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\U\vu9093-9094\u197270.D    Vial: 24
Acq On    : 17 Jul 2015   7:47 pm                    Operator: NicoleH1
Sample    : cc8988-50                                Inst    : MSU
Misc      : ms88222,vu9094,5.0,,,,1                  Multiplr: 1.00
MS Integration Params: rtenox2.p

Method       : C:\MSDCHEM\1\METHODS\MU8988.M (RTE Integrator)
Title        : SW-846  8260B, ZB624  60m x 250um x 1.40um
Last Update  : Mon May 04 09:25:27 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 200%
```

| | | Compound | AvgRF | CCRF | %Dev | Area% | Dev(min) | R.T. |
|---|---|---|---|---|---|---|---|---|
| 1 | I | Tert Butyl Alcohol-d9 | 1.000 | 1.000 | 0.0 | 89 | -0.02 | 7.87 |
| 2 | M | tertiary butyl alcohol | 1.120 | 1.199 | -7.1 | 87 | -0.02 | 7.99 |
| 3 | | Ethanol | | ----------NA---------- | | | | |
| 4 | m | 1,4-dioxane | 0.101 | 0.104 | -3.0 | 85 | -0.01 | 11.73 |
| 5 | I | pentafluorobenzene | 1.000 | 1.000 | 0.0 | 87 | -0.01 | 10.07 |
| 6 | M | freon 115 | | ----------NA---------- | | | | |
| 7 | M | freon 23 | | ----------NA---------- | | | | |
| 8 | M | freon 143A | | ----------NA---------- | | | | |
| 9 | M | freon 152A | | ----------NA---------- | | | | |
| 10 | M | chlorotrifluoroethene | | ----------NA---------- | | | | |
| 11 | M | chlorodifluoromethane | 0.355 | 0.369 | -3.9 | 82 | 0.00 | 4.40 |
| 12 | M | dichlorodifluoromethane | 0.392 | 0.398 | -1.5 | 80 | 0.00 | 4.37 |
| 13 | M | freon 142B | | ----------NA---------- | | | | |
| 14 | M | freon 114 | | ----------NA---------- | | | | |
| 15 | M | chloromethane | 0.431 | 0.459 | -6.5 | 89 | 0.00 | 4.77 |
| 16 | M | vinyl chloride | 0.399 | 0.468 | -17.3 | 95 | 0.00 | 5.05 |
| 17 | M | acetaldehyde | | ----------NA---------- | | | | |
| 18 | M | bromomethane | 0.294 | 0.333 | -13.3 | 96 | 0.00 | 5.72 |
| 19 | M | chloroethane | 0.203 | 0.243 | -19.7 | 95 | 0.00 | 5.88 |
| | | ---------- | True | Calc. | % Drift | | ---------- | |
| 20 | M | trichlorofluoromethane | 50.000 | 53.034 | -6.1 | 94 | 0.00 | 6.32 |
| | | ---------- | AvgRF | CCRF | % Dev | | ---------- | |
| 21 | M | pentane | | ----------NA---------- | | | | |
| 22 | M | freon 123A | | ----------NA---------- | | | | |
| 23 | M | ethyl ether | 0.188 | 0.198 | -5.3 | 83 | 0.00 | 6.76 |
| 24 | | 2-CHLOROPROPANE | 0.621 | 0.638 | -2.7 | 85 | 0.00 | 6.97 |
| 25 | M | freon 141B | | ----------NA---------- | | | | |
| 26 | M | freon 123 | | ----------NA---------- | | | | |
| 27 | M | acrolein | 0.057 | 0.062 | -8.8 | 90 | 0.00 | 7.05 |
| 28 | M | 1,1-dichloroethene | 0.312 | 0.338 | -8.3 | 84 | -0.01 | 7.20 |
| 29 | M | acetone | 0.028 | 0.029 | -3.6 | 83 | -0.02 | 7.26 |
| 30 | M | allyl chloride | 0.178 | 0.194 | -9.0 | 83 | 0.00 | 7.73 |
| 31 | M | acetonitrile | | ----------NA---------- | | | | |
| 32 | M | iodomethane | 0.618 | 0.695 | -12.5 | 83 | -0.01 | 7.49 |
| 33 | M | carbon disulfide | 1.009 | 1.142 | -13.2 | 84 | 0.00 | 7.62 |
| 34 | | 1-CHLOROPROPANE | 0.029 | 0.031 | -6.9 | 88 | 0.00 | 7.95 |
| 35 | M | methylene chloride | 0.395 | 0.388 | 1.8 | 85 | 0.00 | 7.93 |
| 36 | M | methyl acetate | 0.258 | 0.257 | 0.4 | 85 | 0.00 | 7.71 |
| 37 | M | methyl tert butyl ether | 0.981 | 1.054 | -7.4 | 83 | -0.02 | 8.22 |

# Continuing Calibration Summary

**Job Number:** JB98590 **Sample:** VU9094-CC8988
**Account:** SECORPAE Stantec Consulting Services Inc. **Lab FileID:** U197270.D
**Project:** Sunoco - Marcus Hook Facility, PA

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 38 | M | trans-1,2-dichloroethene | 0.350 | 0.384 | -9.7 | 85 | 0.00 | 8.29 |
| 39 | M | di-isopropyl ether | 1.070 | 1.161 | -8.5 | 85 | 0.00 | 8.80 |
| 40 | M | ethyl tert-butyl ether | 1.044 | 1.166 | -11.7 | 85 | 0.00 | 9.26 |
| 41 | M | 2-butanone | 0.039 | 0.041 | -5.1 | 83 | 0.00 | 9.55 |
| 42 | M | 1,1-dichloroethane | 0.590 | 0.687 | -16.4 | 87 | 0.00 | 8.86 |
| 43 | M | chloroprene | 0.487 | 0.558 | -14.6 | 87 | 0.00 | 8.96 |
| 44 | M | acrylonitrile | 0.106 | 0.126 | -18.9 | 91 | 0.00 | 8.27 |
| 45 | M | vinyl acetate | 0.062 | 0.064 | -3.2 | 81 | 0.00 | 8.83 |
| 46 | M | ethyl acetate | 0.046 | 0.045 | 2.2 | 79 | 0.00 | 9.55 |
| 47 | M | 2,2-dichloropropane | 0.515 | 0.561 | -8.9 | 85 | 0.00 | 9.59 |
| 48 | M | cis-1,2-dichloroethene | 0.386 | 0.427 | -10.6 | 86 | 0.00 | 9.59 |
| 49 | M | methyl acrylate | 0.054 | 0.055 | -1.9 | 81 | -0.01 | 9.63 |
| 50 | M | propionitrile | 0.043 | 0.049 | -14.0 | 88 | -0.01 | 9.67 |
| 51 | M | bromochloromethane | 0.196 | 0.223 | -13.8 | 86 | 0.00 | 9.90 |
| 52 | M | tetrahydrofuran | 0.120 | 0.117 | 2.5 | 81 | 0.00 | 9.93 |
| 53 | M | chloroform | 0.614 | 0.686 | -11.7 | 88 | 0.00 | 9.95 |
| 54 | | tert-butyl Formate | 0.300 | 0.313 | -4.3 | 79 | -0.01 | 9.97 |
| 55 | M | iso-butyl alcohol | 0.017 | 0.016 | 5.9 | 82 | 0.00 | 10.37 |
| 56 | S | dibromofluoromethane (s) | 0.340 | 0.361 | -6.2 | 92 | -0.01 | 10.15 |
| 57 | S | 1,2-dichloroethane-d4 (s) | 0.360 | 0.385 | -6.9 | 93 | 0.00 | 10.57 |
| 58 | M | freon 113 | 0.257 | 0.314 | -22.2# | 92 | 0.00 | 7.16 |
| 59 | M | methacrylonitrile | 0.207 | 0.203 | 1.9 | 81 | -0.01 | 9.84 |
| 60 | M | 1,1,1-trichloroethane | 0.524 | 0.600 | -14.5 | 86 | 0.00 | 10.20 |
| 61 | M | tert amyl alcohol | | ----------NA---------- | | | | |
| 62 | M | tert-amyl methyl ether | 0.253 | 0.279 | -10.3 | 88 | 0.00 | 10.64 |
| 63 | | iso-octane | | ----------NA---------- | | | | |
| 64 | I | 1,4-difluorobenzene | 1.000 | 1.000 | 0.0 | 88 | 0.00 | 10.99 |
| 65 | M | Di-isobutylene | | ----------NA---------- | | | | |
| 66 | M | epichlorohydrin | 0.029 | 0.027 | 6.9 | 75 | 0.00 | 12.29 |
| 67 | M | n-butyl alcohol | 0.008 | 0.009 | -12.5 | 82 | 0.00 | 11.11 |
| 68 | M | Cyclohexane | 0.436 | 0.499 | -14.4 | 89 | 0.00 | 10.26 |
| 69 | M | carbon tetrachloride | 0.413 | 0.482 | -16.7 | 87 | 0.00 | 10.39 |
| 70 | M | 1,1-dichloropropene | 0.393 | 0.454 | -15.5 | 87 | 0.00 | 10.37 |
| 71 | M | hexane | 0.329 | 0.427 | -29.8# | 96 | 0.00 | 8.56 |
| 72 | M | benzene | 1.207 | 1.329 | -10.1 | 88 | 0.00 | 10.64 |
| 73 | M | heptane | 0.205 | 0.234 | -14.1 | 87 | 0.00 | 10.76 |
| 74 | M | isopropyl acetate | 0.544 | 0.560 | -2.9 | 86 | 0.00 | 10.53 |
| 75 | M | 1,2-dichloroethane | 0.376 | 0.446 | -18.6 | 90 | 0.00 | 10.66 |
| 76 | M | ethyl acrylate | | ----------NA---------- | | | | |
| 77 | | tert amyl ethyl ether | | ----------NA---------- | | | | |
| 78 | M | trichloroethene | 0.314 | 0.348 | -10.8 | 84 | 0.00 | 11.34 |
| 79 | M | methylcyclohexane | 0.475 | 0.590 | -24.2# | 91 | 0.00 | 11.55 |
| 80 | M | 2-nitropropane | 0.115 | 0.123 | -7.0 | 87 | -0.01 | 12.14 |
| 81 | M | 2-chloroethyl vinyl ether | 0.163 | 0.156 | 4.3 | 75 | 0.00 | 12.14 |
| 82 | M | methyl methacrylate | 0.083 | 0.083 | 0.0 | 78 | 0.00 | 11.59 |
| 83 | M | 1,2-dichloropropane | 0.296 | 0.335 | -13.2 | 86 | 0.00 | 11.62 |
| 84 | M | propyl acetate | 0.059 | 0.062 | -5.1 | 86 | 0.00 | 11.63 |
| 85 | M | dibromomethane | 0.193 | 0.214 | -10.9 | 86 | 0.00 | 11.79 |
| 86 | M | bromodichloromethane | 0.415 | 0.459 | -10.6 | 84 | 0.00 | 11.91 |
| 87 | M | cis-1,3-dichloropropene | 0.506 | 0.553 | -9.3 | 81 | 0.00 | 12.38 |
| 88 | S | toluene-d8 (s) | 1.143 | 1.188 | -3.9 | 91 | 0.00 | 12.68 |
| 89 | M | 4-methyl-2-pentanone | 0.112 | 0.118 | -5.4 | 83 | 0.00 | 12.47 |
| 90 | M | toluene | 0.773 | 0.867 | -12.2 | 86 | 0.00 | 12.76 |
| 91 | M | 3-methyl-1-butanol | 0.014 | 0.015 | -7.1 | 81 | 0.00 | 12.48 |
| 92 | M | trans-1,3-dichloropropene | 0.462 | 0.531 | -14.9 | 83 | 0.00 | 12.97 |
| 93 | M | ethyl methacrylate | 0.381 | 0.413 | -8.4 | 83 | 0.00 | 12.94 |
| 94 | M | 1,1,2-trichloroethane | 0.229 | 0.255 | -11.4 | 84 | 0.00 | 13.21 |
| 95 | M | 2-hexanone | 0.110 | 0.112 | -1.8 | 80 | 0.00 | 13.38 |

# Continuing Calibration Summary

**Job Number:** JB98590 **Sample:** VU9094-CC8988
**Account:** SECORPAE Stantec Consulting Services Inc. **Lab FileID:** U197270.D
**Project:** Sunoco - Marcus Hook Facility, PA

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 96 | I | chlorobenzene-d5 | 1.000 | 1.000 | 0.0 | 92 | 0.00 | 14.32 |
| 97 | M | cyclohexanone | 0.036 | 0.013 | 63.9# | 33# | 0.00 | 15.58 |
| 98 | M | tetrachloroethene | 0.359 | 0.413 | -15.0 | 92 | 0.00 | 13.38 |
| 99 | M | 1,3-dichloropropane | 0.501 | 0.535 | -6.8 | 84 | 0.00 | 13.40 |
| 100 | M | butyl acetate | 0.212 | 0.217 | -2.4 | 84 | 0.00 | 13.43 |
| 101 | M | dibromochloromethane | 0.400 | 0.429 | -7.2 | 83 | 0.00 | 13.70 |
| 102 | M | 1,2-dibromoethane | 0.330 | 0.347 | -5.2 | 84 | 0.00 | 13.87 |
| 103 | | 3,3-dimethyl-1-Butanol | 0.034 | 0.034 | 0.0 | 80 | 0.00 | 13.56 |
| 104 | | n-butyl ether | 1.504 | 1.559 | -3.7 | 82 | 0.00 | 14.21 |
| 105 | M | chlorobenzene | 1.014 | 1.118 | -10.3 | 87 | 0.00 | 14.36 |
| 106 | M | 1,1,1,2-tetrachloroethane | 0.384 | 0.427 | -11.2 | 88 | 0.00 | 14.42 |
| 107 | M | ethylbenzene | 1.689 | 1.847 | -9.4 | 88 | 0.00 | 14.40 |
| 108 | M | m,p-xylene | 0.662 | 0.741 | -11.9 | 89 | 0.00 | 14.51 |
| 109 | M | o-xylene | 0.652 | 0.733 | -12.4 | 89 | 0.00 | 14.98 |
| 110 | M | styrene | 1.119 | 1.236 | -10.5 | 87 | 0.00 | 14.99 |
| 111 | M | bromoform | 0.312 | 0.331 | -6.1 | 84 | 0.00 | 15.31 |
| 112 | I | 1,4-dichlorobenzene-d4 | 1.000 | 1.000 | 0.0 | 96 | 0.00 | 16.89 |
| 113 | M | isopropylbenzene | 3.066 | 3.252 | -6.1 | 88 | 0.00 | 15.35 |
| 114 | S | 4-bromofluorobenzene (s) | 0.886 | 0.829 | 6.4 | 91 | 0.00 | 15.60 |
| 115 | M | bromobenzene | 0.877 | 0.961 | -9.6 | 90 | 0.00 | 15.82 |
| 116 | M | 1,1,2,2-tetrachloroethane | 0.733 | 0.772 | -5.3 | 88 | 0.00 | 15.72 |
| 117 | M | trans-1,4-dichloro-2-bute | 0.211 | 0.135 | 36.0# | 54 | 0.00 | 15.76 |
| 118 | M | 1,2,3-trichloropropane | 0.211 | 0.220 | -4.3 | 90 | 0.00 | 15.80 |
| 119 | M | n-propylbenzene | 3.465 | 3.725 | -7.5 | 89 | 0.00 | 15.81 |
| 120 | M | 2-chlorotoluene | 0.789 | 0.858 | -8.7 | 91 | 0.00 | 15.99 |
| 121 | M | 4-chlorotoluene | 2.209 | 2.281 | -3.3 | 87 | 0.00 | 16.10 |
| 122 | | p-Ethyltoluene | | ----------NA---------- | | | | |
| 123 | M | 1,3,5-trimethylbenzene | 2.614 | 2.749 | -5.2 | 87 | 0.00 | 15.97 |
| 124 | M | tert-butylbenzene | 2.321 | 2.738 | -18.0 | 98 | 0.00 | 16.36 |
| 125 | M | pentachloroethane | 0.526 | 0.534 | -1.5 | 84 | 0.00 | 16.48 |
| 126 | M | 1,2,4-trimethylbenzene | 2.560 | 2.705 | -5.7 | 89 | 0.00 | 16.42 |
| 127 | | 1,2,3-trimethylbenzene | | ----------NA---------- | | | | |
| 128 | M | sec-butylbenzene | 3.327 | 3.568 | -7.2 | 89 | 0.00 | 16.60 |
| 129 | M | 1,3-dichlorobenzene | 1.636 | 1.754 | -7.2 | 89 | 0.00 | 16.83 |
| 130 | M | p-isopropyltoluene | 2.924 | 3.120 | -6.7 | 89 | 0.00 | 16.73 |
| 131 | M | 1,4-dichlorobenzene | 1.654 | 1.752 | -5.9 | 88 | 0.00 | 16.92 |
| 132 | M | benzyl chloride | 1.545 | 1.409 | 8.8 | 80 | 0.00 | 17.05 |
| 133 | M | 1,2-dichlorobenzene | 1.507 | 1.612 | -7.0 | 87 | 0.00 | 17.37 |
| 134 | | p-Diethylbenzene | | ----------NA---------- | | | | |
| 135 | M | n-butylbenzene | 1.374 | 1.439 | -4.7 | 87 | 0.00 | 17.19 |
| 136 | | 1,2,4,5-Tetramethylbenzen | | ----------NA---------- | | | | |
| 137 | M | 1,2-dibromo-3-chloropropa | 0.182 | 0.159 | 12.6 | 75 | -0.01 | 18.23 |
| 138 | | 1,3,5-trichlorobenzene | 1.325 | 1.314 | 0.8 | 80 | 0.00 | 18.41 |
| 139 | M | 1,2,4-trichlorobenzene | 1.128 | 1.078 | 4.4 | 76 | 0.00 | 19.15 |
| 140 | M | hexachlorobutadiene | 0.675 | 0.638 | 5.5 | 77 | -0.01 | 19.26 |
| 141 | M | naphthalene | 2.159 | 1.896 | 12.2 | 71 | -0.01 | 19.48 |
| 142 | | INDANE | | ----------NA---------- | | | | |
| 143 | M | 1,2,3-trichlorobenzene | 0.988 | 0.891 | 9.8 | 75 | 0.00 | 19.75 |
| 144 | M | hexachloroethane | 0.585 | 0.524 | 10.4 | 74 | 0.00 | 17.65 |
| 145 | M | MMT | | ----------NA---------- | | | | |
| 146 | M | Bis(chloromethyl)ether | | ----------NA---------- | | | | |
| 147 | M | Ethylenimine | | ----------NA---------- | | | | |

(#) = Out of Range SPCC's out = 0 CCC's out = 0
u194822.D MU8988.M Mon Jul 20 08:49:56 2015 T

6.7.12

6

New Jersey

ACCUTEST LABORATORIES

# GC/MS Volatiles

## Raw Data

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2a\v2a6821-6822\
Data File : 2A159868.D
Acq On : 11 Jul 2015 2:27 am
Operator : tracyk
Sample : jb98590-1
Misc : MS87777,V2A6821,5,,,,1
ALS Vial : 33 Sample Multiplier: 1

Quant Time: Jul 13 20:46:16 2015
Quant Method : C:\MSDCHEM\1\METHODS\M2A6798.M
Quant Title : Method SW846 8260B, ZB624 60mx0.25mmx1.4um
QLast Update : Tue Jun 30 09:56:27 2015
Response via : Initial Calibration

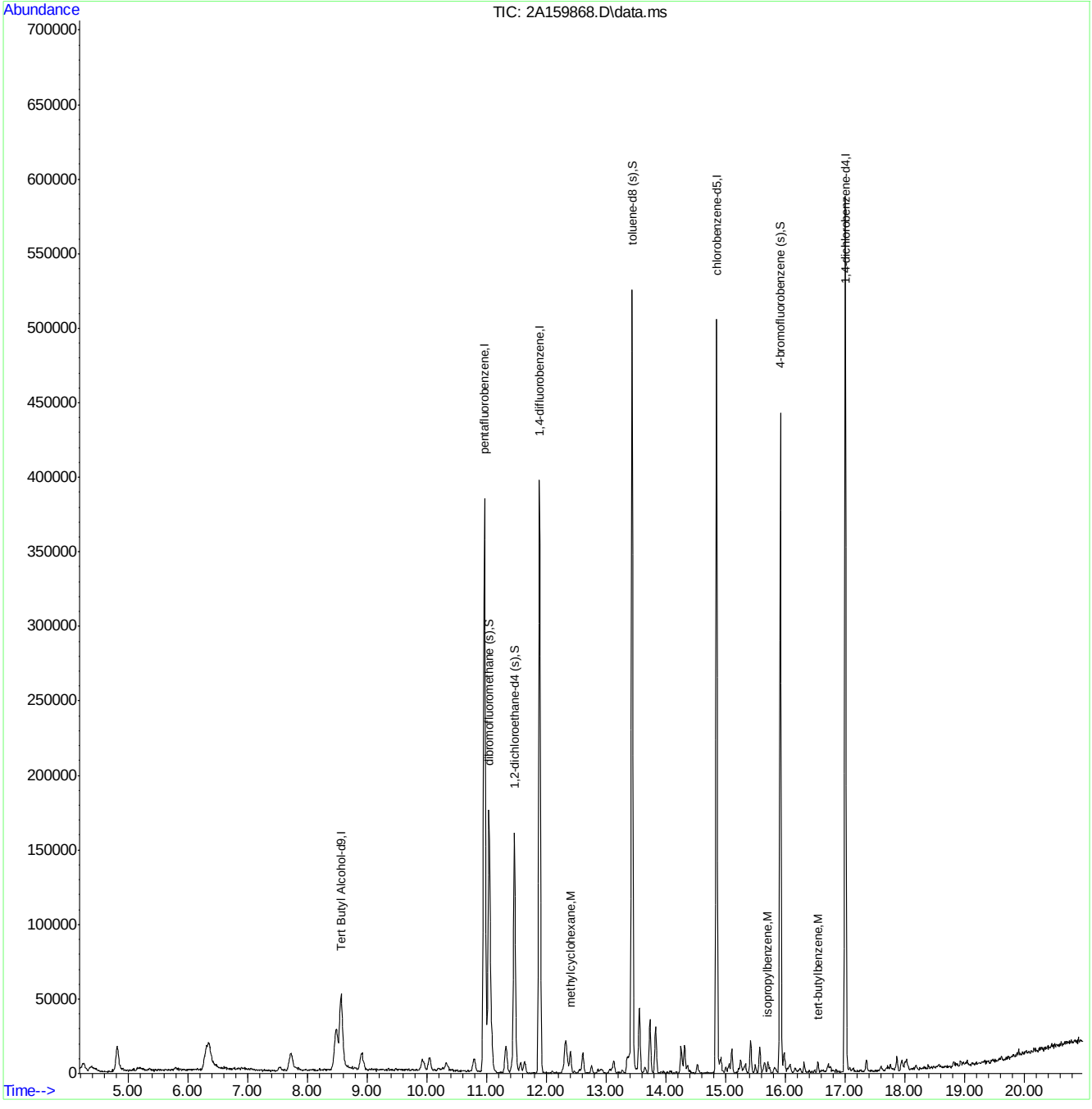
| Compound | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| Internal Standards | | | | | | |
| 1) Tert Butyl Alcohol-d9 | 8.558 | 65 | 115234 | 500.00 | ug/L | -0.02 |
| 5) pentafluorobenzene | 10.964 | 168 | 346845 | 50.00 | ug/L | 0.00 |
| 52) 1,4-difluorobenzene | 11.884 | 114 | 367952 | 50.00 | ug/L | 0.00 |
| 84) chlorobenzene-d5 | 14.850 | 117 | 287826 | 50.00 | ug/L | 0.00 |
| 98) 1,4-dichlorobenzene-d4 | 17.005 | 152 | 163927 | 50.00 | ug/L | 0.00 |
| System Monitoring Compounds | | | | | | |
| 46) dibromofluoromethane (s) | 11.037 | 113 | 124007 | 46.60 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 76 - 120 | | Recovery = 93.20% | | | |
| 47) 1,2-dichloroethane-d4 (s) | 11.466 | 65 | 140825 | 51.62 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 73 - 122 | | Recovery = 103.24% | | | |
| 76) toluene-d8 (s) | 13.432 | 98 | 372062 | 49.45 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 84 - 119 | | Recovery = 98.90% | | | |
| 100) 4-bromofluorobenzene (s) | 15.917 | 95 | 135561 | 48.55 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 78 - 117 | | Recovery = 97.10% | | | |
| Target Compounds | | | | | | Qvalue |
| 73) methylcyclohexane | 12.402 | 83 | 7352 | 2.12 | ug/L | 87 |
| 99) isopropylbenzene | 15.707 | 105 | 5159 | 0.52 | ug/L | 93 |
| 110) tert-butylbenzene | 16.549 | 119 | 2373 | 0.32 | ug/L | 92 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

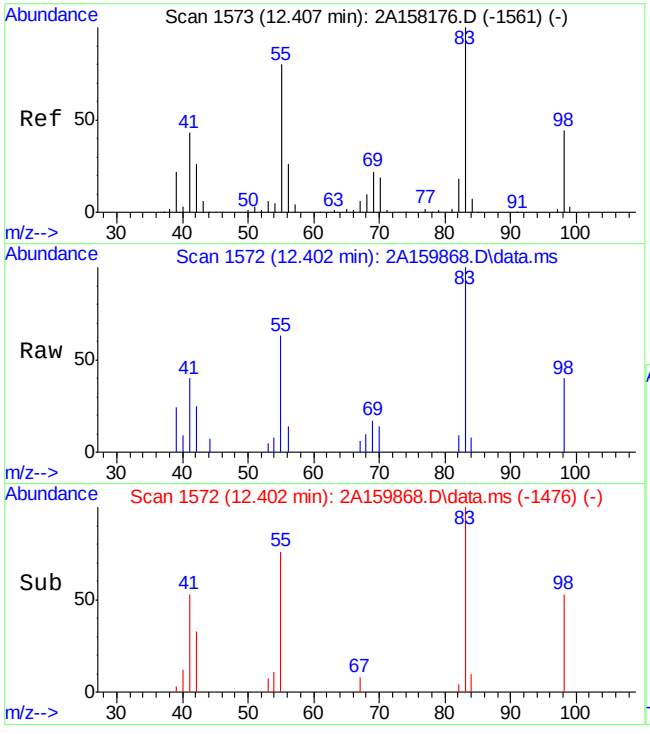
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2a\v2a6821-6822\
Data File : 2A159868.D
Acq On : 11 Jul 2015 2:27 am
Operator : tracyk
Sample : jb98590-1
Misc : MS87777,V2A6821,5,,,,1
ALS Vial : 33 Sample Multiplier: 1

Quant Time: Jul 13 20:46:16 2015
Quant Method : C:\MSDCHEM\1\METHODS\M2A6798.M
Quant Title : Method SW846 8260B, ZB624 60mx0.25mmx1.4um
QLast Update : Tue Jun 30 09:56:27 2015
Response via : Initial Calibration



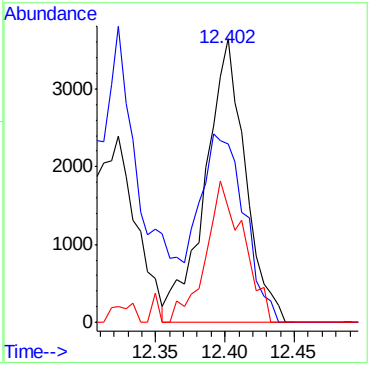

M2A6798.M Mon Jul 13 21:17:08 2015 Page: 2

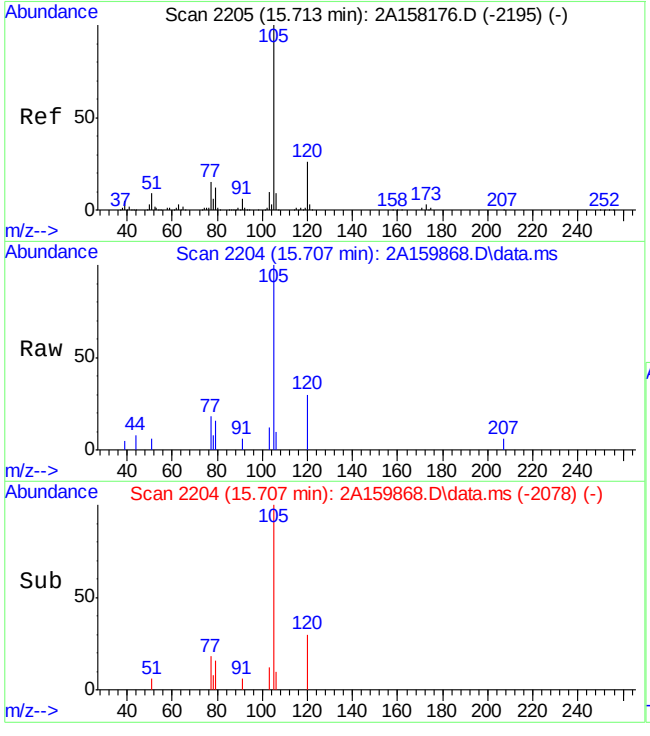



#73
methylcyclohexane
Concen: 2.12 ug/L
RT: 12.402 min Scan# 1572
Delta R.T. 0.001 min
Lab File: 2A159868.D
Acq: 11 Jul 2015 2:27 am

Tgt Ion: 83 Resp: 7352

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 83 | 100 | | |
| 55 | 62.9 | 48.1 | 108.1 |
| 98 | 40.3 | 13.7 | 73.7 |

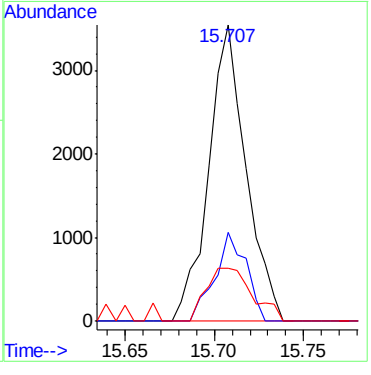


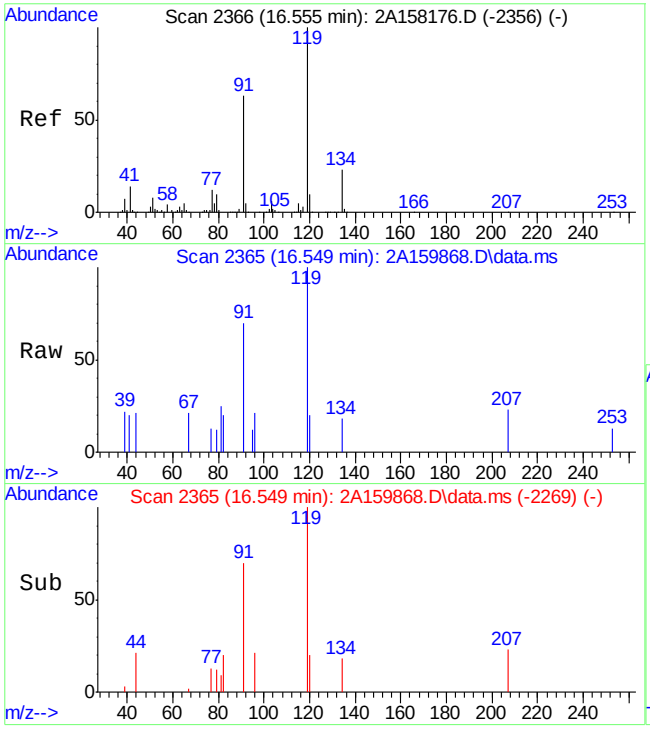




#99
isopropylbenzene
Concen: 0.52 ug/L
RT: 15.707 min Scan# 2204
Delta R.T. 0.000 min
Lab File: 2A159868.D
Acq: 11 Jul 2015 2:27 am

Tgt Ion:105 Resp: 5159

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 105 | 100 | | |
| 120 | 30.1 | 0.0 | 55.8 |
| 77 | 18.0 | 0.0 | 45.7 |

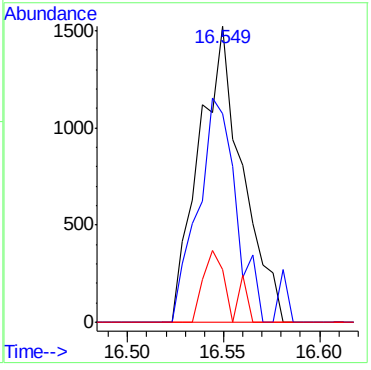





#110
tert-butylbenzene
Concen: 0.32 ug/L
RT: 16.549 min Scan# 2365
Delta R.T. 0.000 min
Lab File: 2A159868.D
Acq: 11 Jul 2015 2:27 am

Tgt Ion:119 Resp: 2373

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 119 | 100 | | |
| 91 | 70.4 | 35.0 | 95.0 |
| 134 | 17.7 | 0.0 | 53.0 |



Manual Integrations APPROVED (compounds with "m" flag)
Kanya Veerawat 07/14/15 06:02

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2a\v2a6821-6822\
Data File : 2A159854.D
Acq On : 10 Jul 2015 7:29 pm
Operator : tracyk
Sample : jb98590-2
Misc : MS87777,V2A6821,5,,,,1
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Jul 13 20:36:22 2015
Quant Method : C:\MSDCHEM\1\METHODS\M2A6798.M
Quant Title : Method SW846 8260B, ZB624 60mx0.25mmx1.4um
QLast Update : Tue Jun 30 09:56:27 2015
Response via : Initial Calibration

| Compound | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| Internal Standards | | | | | | |
| 1) Tert Butyl Alcohol-d9 | 8.558 | 65 | 108502 | 500.00 | ug/L | -0.02 |
| 5) pentafluorobenzene | 10.964 | 168 | 342483 | 50.00 | ug/L | 0.00 |
| 52) 1,4-difluorobenzene | 11.884 | 114 | 366088 | 50.00 | ug/L | 0.00 |
| 84) chlorobenzene-d5 | 14.850 | 117 | 282564 | 50.00 | ug/L | 0.00 |
| 98) 1,4-dichlorobenzene-d4 | 17.004 | 152 | 162943 | 50.00 | ug/L | 0.00 |
| System Monitoring Compounds | | | | | | |
| 46) dibromofluoromethane (s) | 11.037 | 113 | 122372 | 46.57 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 76 - 120 | | Recovery = 93.14% | | | |
| 47) 1,2-dichloroethane-d4 (s) | 11.466 | 65 | 138287 | 51.34 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 73 - 122 | | Recovery = 102.68% | | | |
| 76) toluene-d8 (s) | 13.432 | 98 | 361626 | 48.31 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 84 - 119 | | Recovery = 96.62% | | | |
| 100) 4-bromofluorobenzene (s) | 15.917 | 95 | 134885 | 48.60 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 78 - 117 | | Recovery = 97.20% | | | |
| Target Compounds | | | | | | Qvalue |
| 2) tertiary butyl alcohol | 8.678 | 59 | 3793m | 16.31 | ug/L | |
| 28) methyl tert butyl ether | 8.945 | 73 | 9128m | 1.20 | ug/L | |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

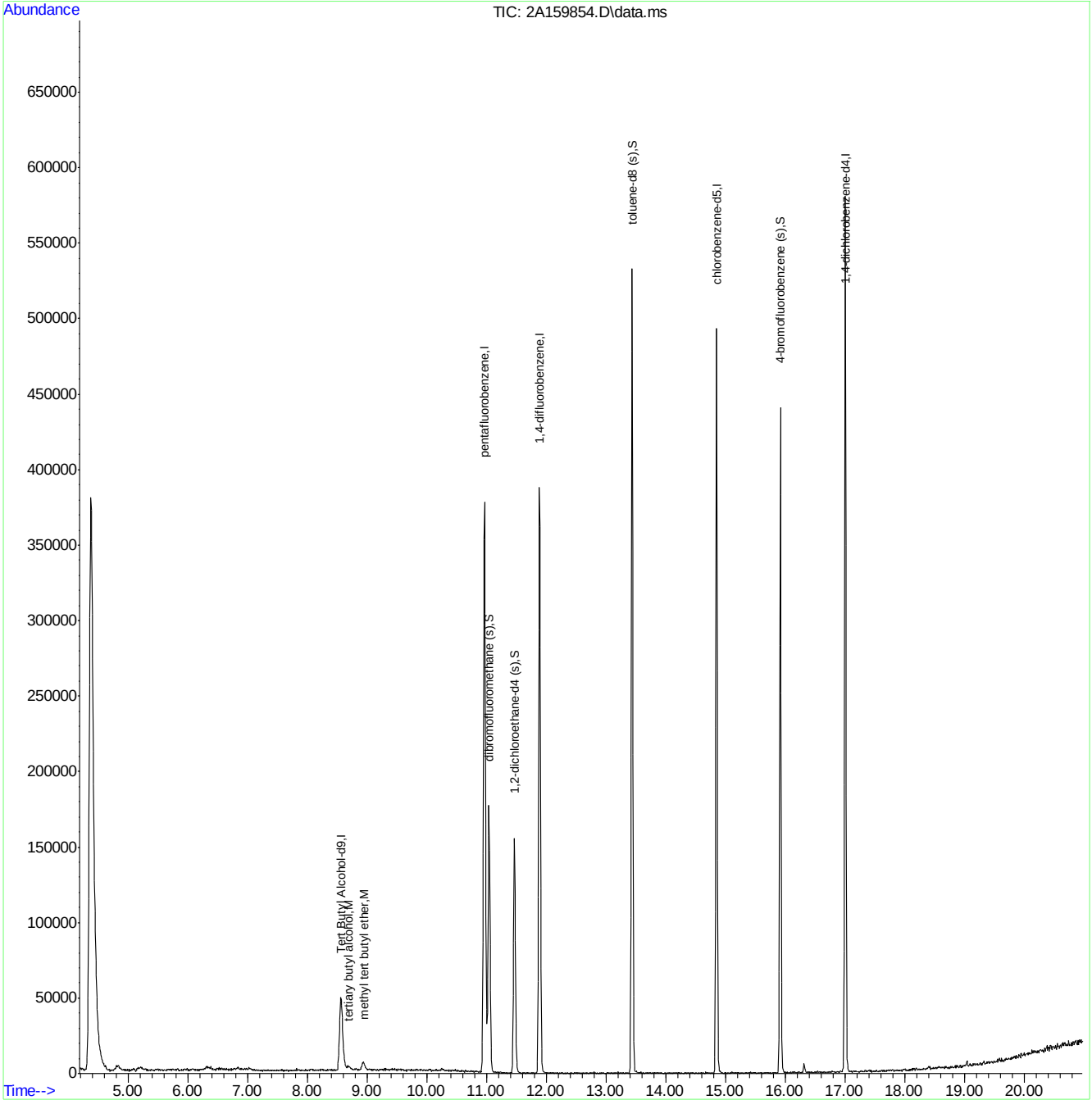
7.1.2

7

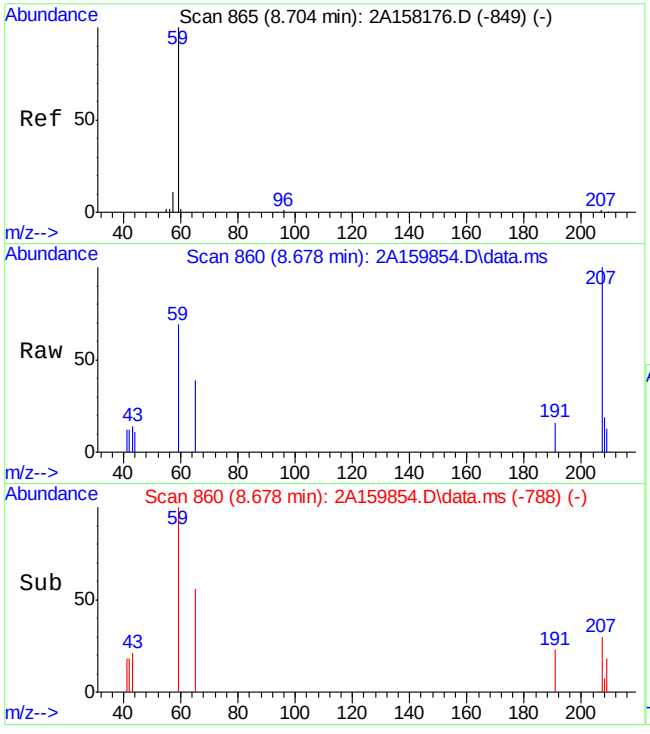
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2a\v2a6821-6822\
Data File : 2A159854.D
Acq On : 10 Jul 2015 7:29 pm
Operator : tracyk
Sample : jb98590-2
Misc : MS87777,V2A6821,5,,,,1
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Jul 13 20:36:22 2015
Quant Method : C:\MSDCHEM\1\METHODS\M2A6798.M
Quant Title : Method SW846 8260B, ZB624 60mx0.25mmx1.4um
QLast Update : Tue Jun 30 09:56:27 2015
Response via : Initial Calibration



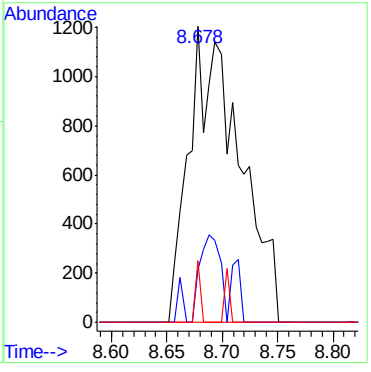

M2A6798.M Mon Jul 13 21:16:37 2015 Page: 2

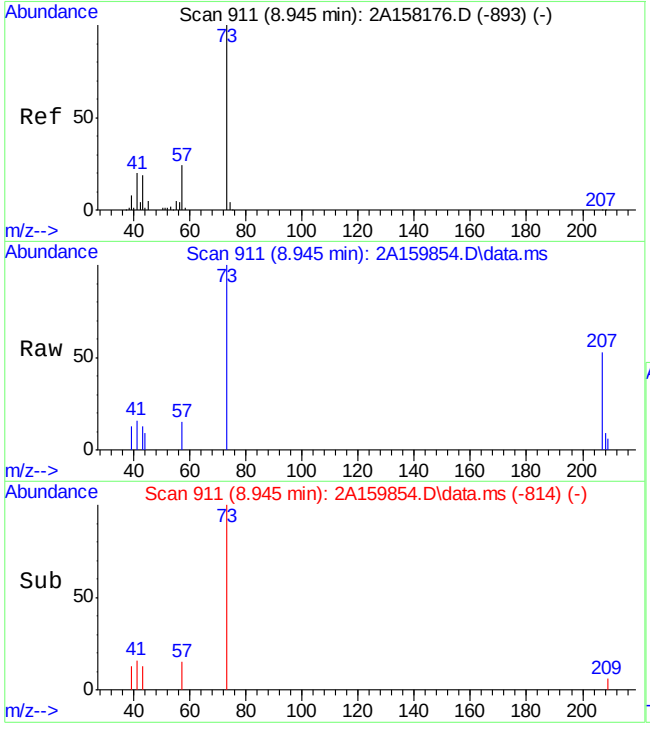



#2
tertiary butyl alcohol
Concen: 16.31 ug/L m
RT: 8.678 min Scan# 860
Delta R.T. -0.025 min
Lab File: 2A159854.D
Acq: 10 Jul 2015 7:29 pm

Tgt Ion: 59 Resp: 3793

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 59 | 100 | | |
| 41 | 17.9 | 0.0 | 51.1 |
| 43 | 21.0 | 0.0 | 41.9 |

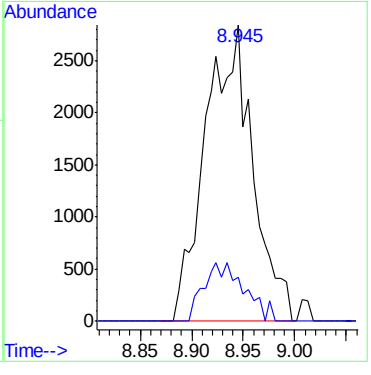



#28
methyl tert butyl ether
Concen: 1.20 ug/L m
RT: 8.945 min Scan# 911
Delta R.T. 0.006 min
Lab File: 2A159854.D
Acq: 10 Jul 2015 7:29 pm

Tgt Ion: 73 Resp: 9128

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 73 | 100 | | |
| 57 | 14.7 | 0.0 | 42.4 |



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2a\v2a6821-6822\
Data File : 2A159865.D
Acq On : 11 Jul 2015 12:57 am
Operator : tracyk
Sample : jb98590-3
Misc : MS87777,V2A6821,5,,,,1
ALS Vial : 30 Sample Multiplier: 1

Quant Time: Jul 13 20:43:06 2015
Quant Method : C:\MSDCHEM\1\METHODS\M2A6798.M
Quant Title : Method SW846 8260B, ZB624 60mx0.25mmx1.4um
QLast Update : Tue Jun 30 09:56:27 2015
Response via : Initial Calibration

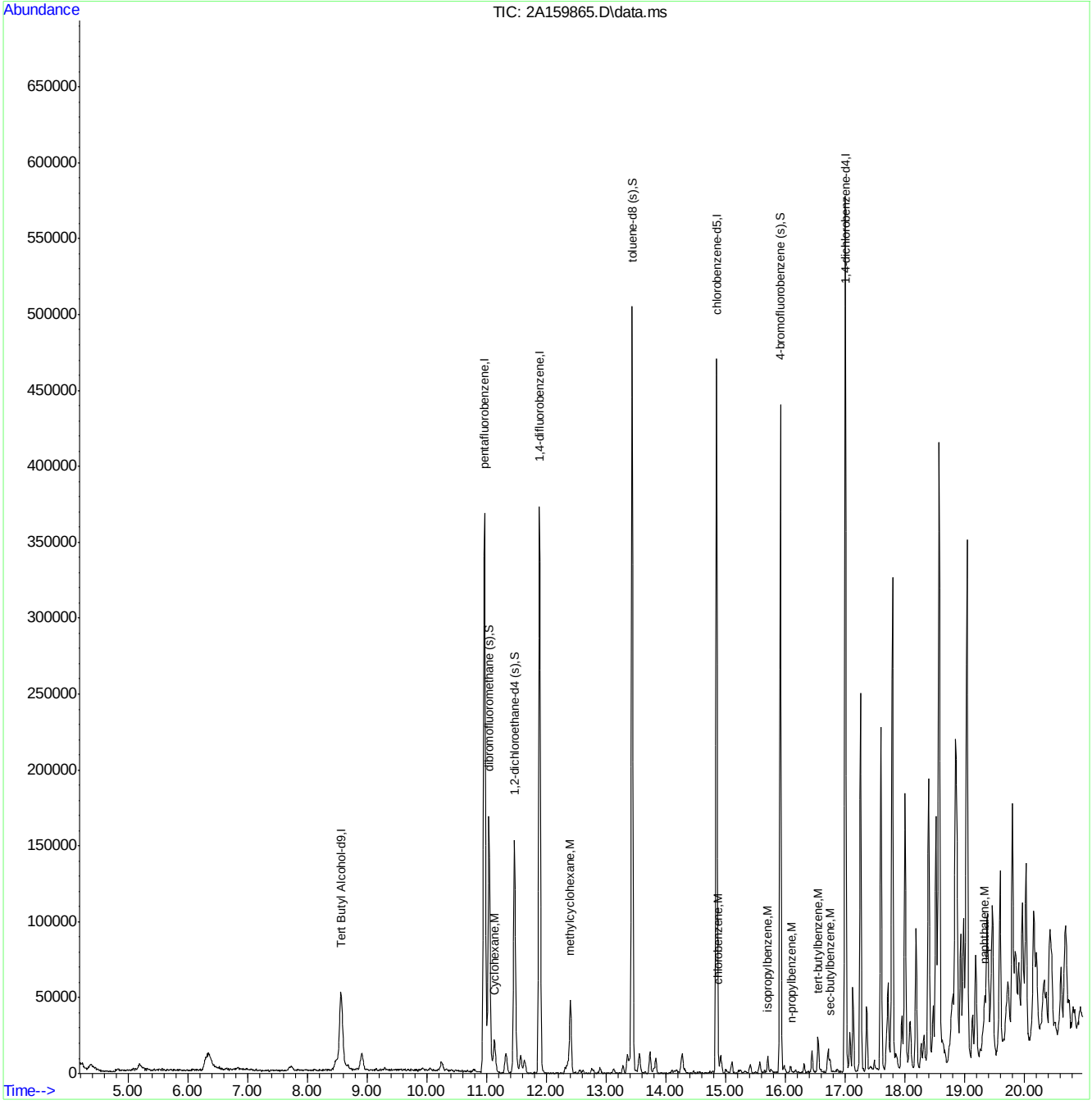
| Compound | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| Internal Standards | | | | | | |
| 1) Tert Butyl Alcohol-d9 | 8.563 | 65 | 116280 | 500.00 | ug/L | -0.01 |
| 5) pentafluorobenzene | 10.963 | 168 | 328410 | 50.00 | ug/L | 0.00 |
| 52) 1,4-difluorobenzene | 11.884 | 114 | 346837 | 50.00 | ug/L | 0.00 |
| 84) chlorobenzene-d5 | 14.850 | 117 | 272733 | 50.00 | ug/L | 0.00 |
| 98) 1,4-dichlorobenzene-d4 | 17.004 | 152 | 157869 | 50.00 | ug/L | 0.00 |
| System Monitoring Compounds | | | | | | |
| 46) dibromofluoromethane (s) | 11.037 | 113 | 116673 | 46.31 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 76 - 120 | | Recovery = 92.62% | | | |
| 47) 1,2-dichloroethane-d4 (s) | 11.466 | 65 | 133171 | 51.55 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 73 - 122 | | Recovery = 103.10% | | | |
| 76) toluene-d8 (s) | 13.432 | 98 | 347460 | 48.99 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 84 - 119 | | Recovery = 97.98% | | | |
| 100) 4-bromofluorobenzene (s) | 15.917 | 95 | 128881 | 47.93 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 78 - 117 | | Recovery = 95.86% | | | |
| Target Compounds | | | | | | Qvalue |
| 51) Cyclohexane | 11.126 | 84 | 11730 | 3.38 | ug/L | 92 |
| 73) methylcyclohexane | 12.397 | 83 | 23141 | 7.08 | ug/L | 98 |
| 91) chlorobenzene | 14.876 | 112 | 2709 | 0.47 | ug/L | 92 |
| 99) isopropylbenzene | 15.707 | 105 | 7503 | 0.79 | ug/L | 98 |
| 106) n-propylbenzene | 16.094 | 120 | 757 | 0.31 | ug/L # | 50 |
| 110) tert-butylbenzene | 16.549 | 119 | 12994 | 1.80 | ug/L | 98 |
| 113) sec-butylbenzene | 16.748 | 105 | 6217 | 0.62 | ug/L | 95 |
| 124) naphthalene | 19.327 | 128 | 7182 | 0.88 | ug/L | 66 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

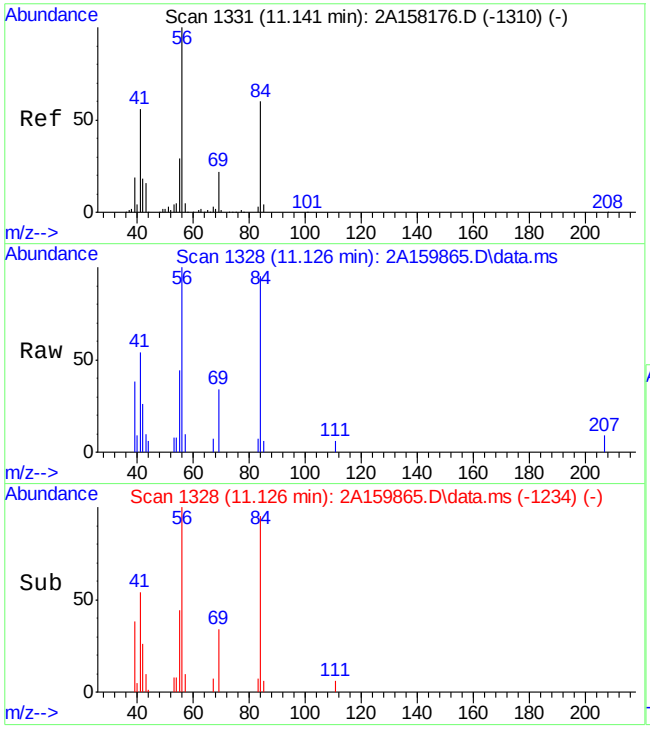
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2a\v2a6821-6822\
Data File : 2A159865.D
Acq On : 11 Jul 2015 12:57 am
Operator : tracyk
Sample : jb98590-3
Misc : MS87777,V2A6821,5,,,,1
ALS Vial : 30 Sample Multiplier: 1

Quant Time: Jul 13 20:43:06 2015
Quant Method : C:\MSDCHEM\1\METHODS\M2A6798.M
Quant Title : Method SW846 8260B, ZB624 60mx0.25mmx1.4um
QLast Update : Tue Jun 30 09:56:27 2015
Response via : Initial Calibration



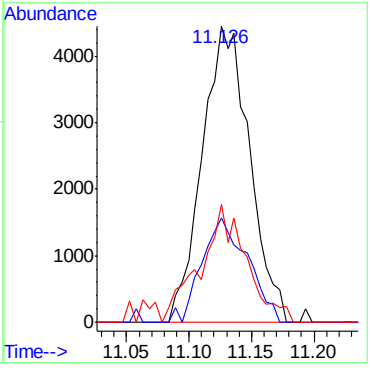

M2A6798.M Mon Jul 13 21:16:58 2015 Page: 2

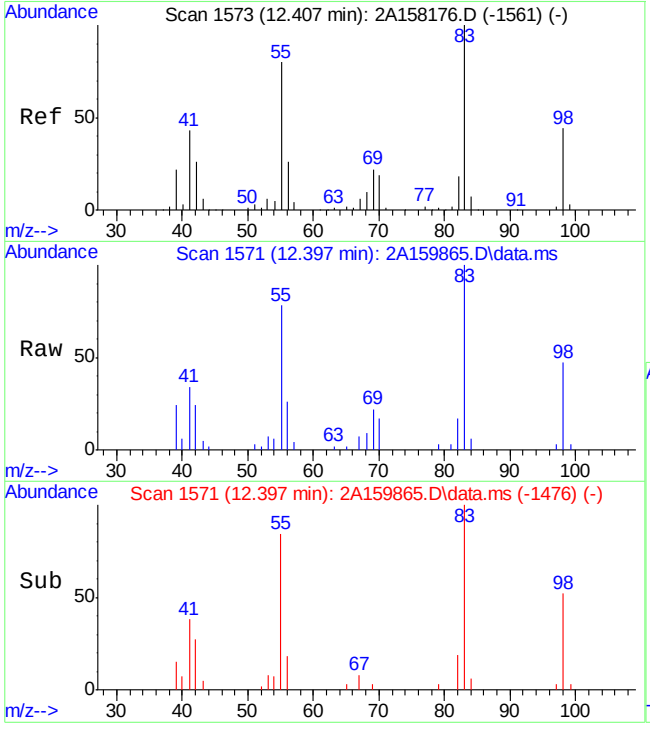



#51
Cyclohexane
Concen: 3.38 ug/L
RT: 11.126 min Scan# 1328
Delta R.T. -0.009 min
Lab File: 2A159865.D
Acq: 11 Jul 2015 12:57 am

Tgt Ion: 84 Resp: 11730

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 84 | 100 | | |
| 69 | 35.1 | 4.8 | 64.8 |
| 39 | 39.8 | 1.1 | 61.1 |

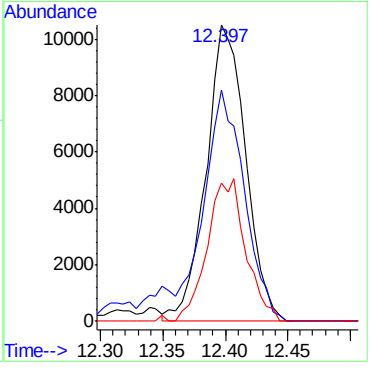


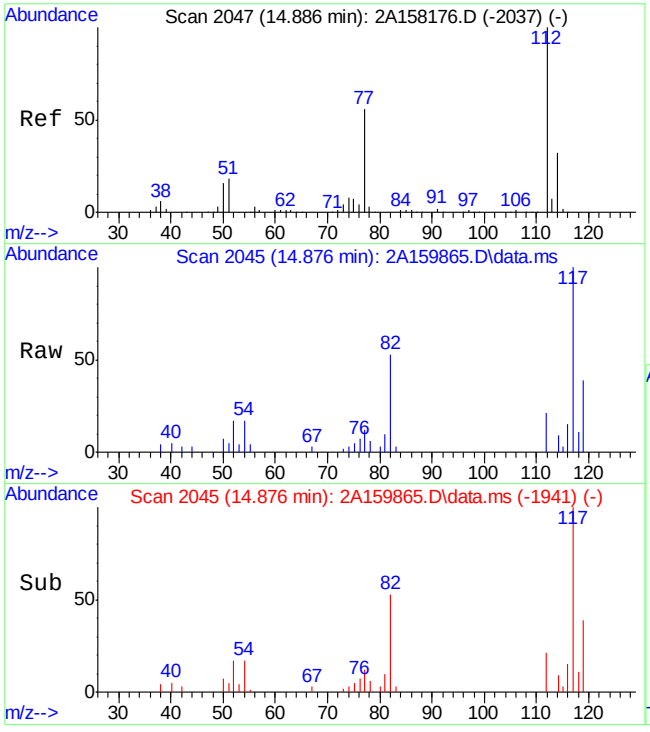




#73
methylcyclohexane
Concen: 7.08 ug/L
RT: 12.397 min Scan# 1571
Delta R.T. -0.004 min
Lab File: 2A159865.D
Acq: 11 Jul 2015 12:57 am

Tgt Ion: 83 Resp: 23141

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 83 | 100 | | |
| 55 | 78.1 | 48.1 | 108.1 |
| 98 | 46.7 | 13.7 | 73.7 |

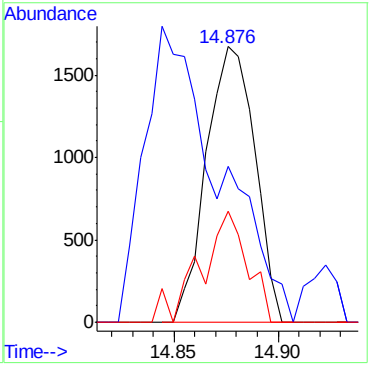


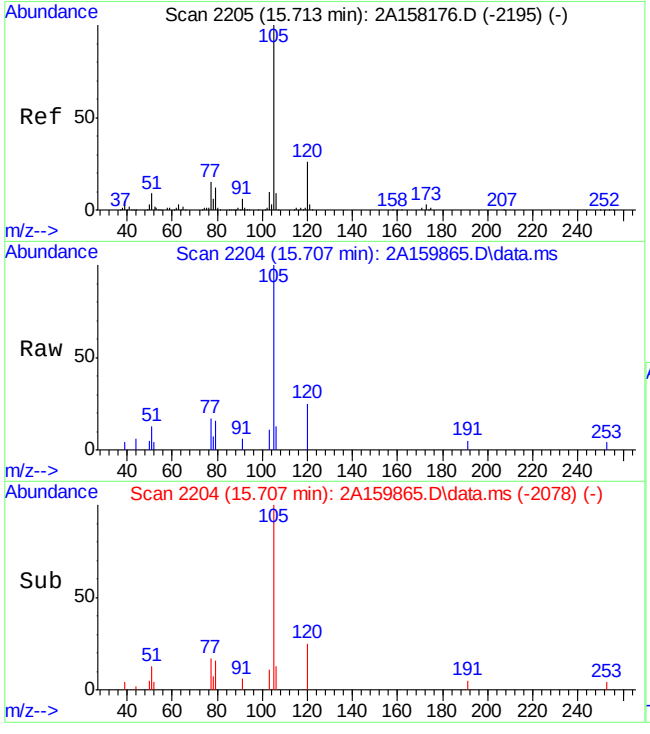



#91
chlorobenzene
Concen: 0.47 ug/L
RT: 14.876 min Scan# 2045
Delta R.T. -0.005 min
Lab File: 2A159865.D
Acq: 11 Jul 2015 12:57 am

Tgt Ion:112 Resp: 2709

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 112 | 100 | | |
| 77 | 56.4 | 23.7 | 83.7 |
| 114 | 40.1 | 2.4 | 62.4 |

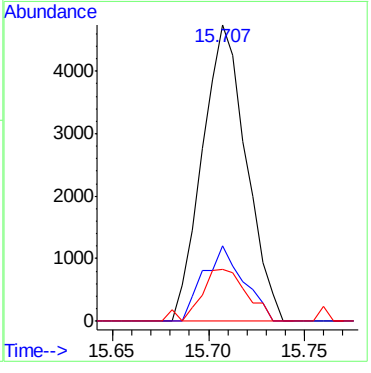


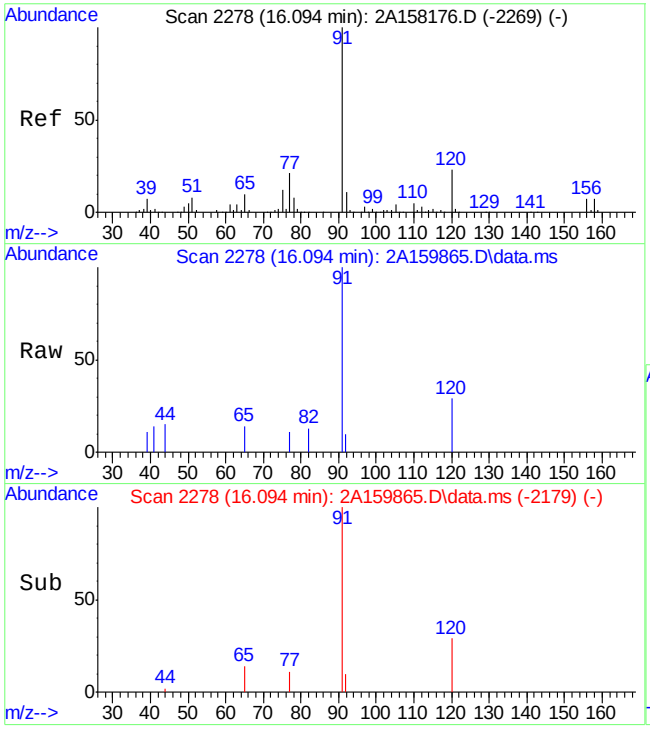




#99
isopropylbenzene
Concen: 0.79 ug/L
RT: 15.707 min Scan# 2204
Delta R.T. 0.000 min
Lab File: 2A159865.D
Acq: 11 Jul 2015 12:57 am

Tgt Ion:105 Resp: 7503

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 105 | 100 | | |
| 120 | 25.4 | 0.0 | 55.8 |
| 77 | 17.5 | 0.0 | 45.7 |

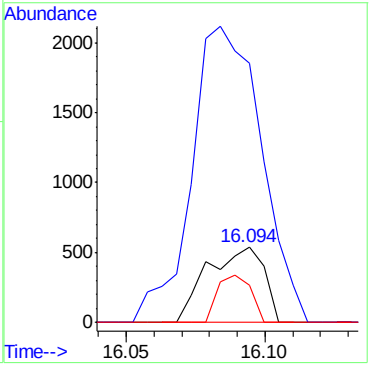


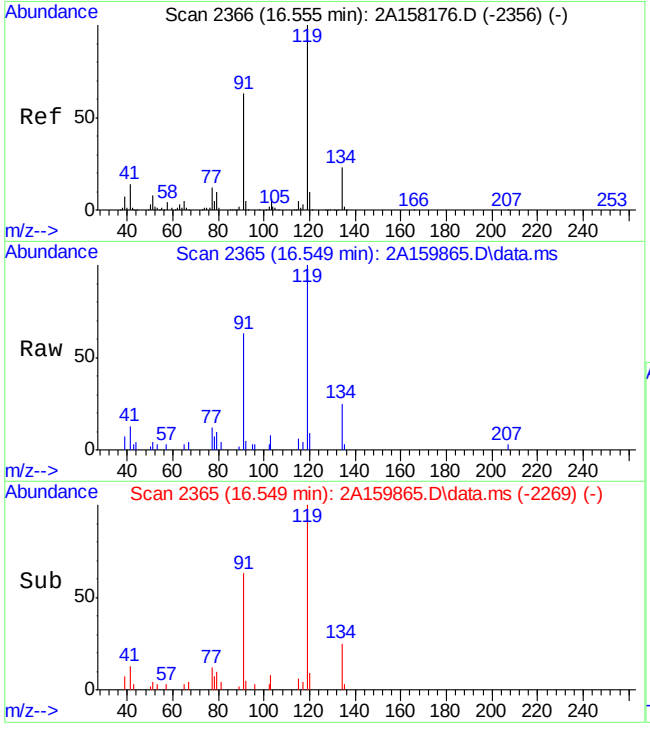



#106
n-propylbenzene
Concen: 0.31 ug/L
RT: 16.094 min Scan# 2278
Delta R.T. 0.006 min
Lab File: 2A159865.D
Acq: 11 Jul 2015 12:57 am

Tgt Ion:120 Resp: 757

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 120 | 100 | | |
| 91 | 294.5 | 399.4 | 459.4# |
| 65 | 48.9 | 14.1 | 74.1 |

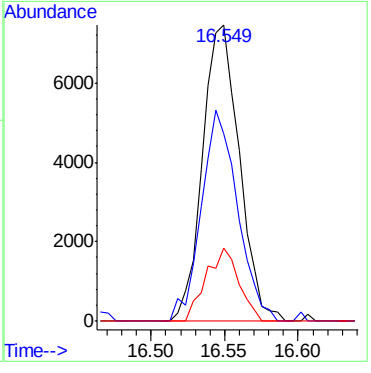


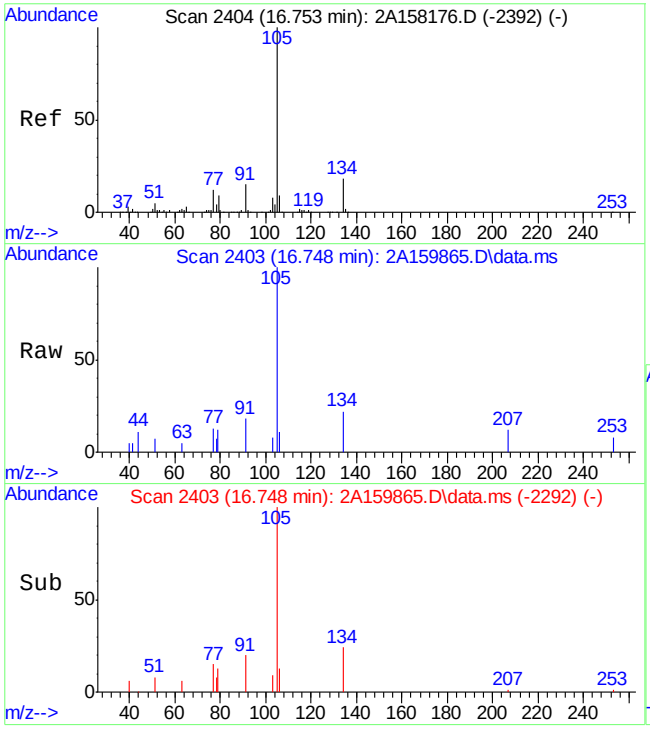




#110
tert-butylbenzene
Concen: 1.80 ug/L
RT: 16.549 min Scan# 2365
Delta R.T. 0.000 min
Lab File: 2A159865.D
Acq: 11 Jul 2015 12:57 am

Tgt Ion:119 Resp: 12994

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 119 | 100 | | |
| 91 | 63.4 | 35.0 | 95.0 |
| 134 | 24.8 | 0.0 | 53.0 |

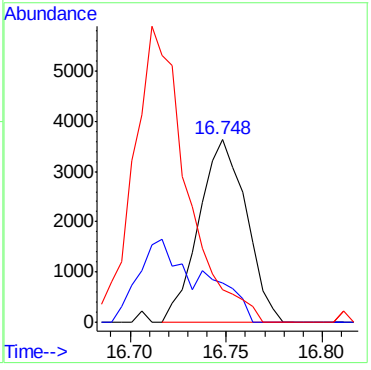


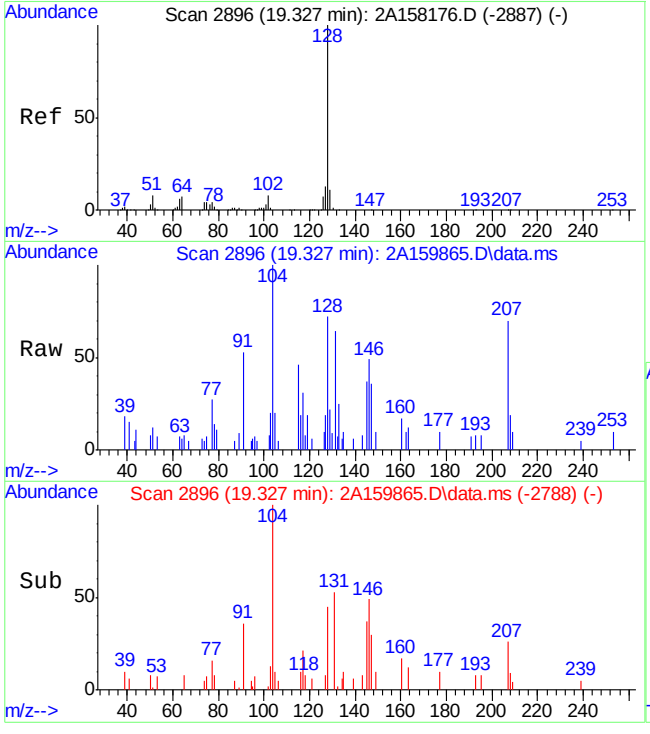



#113
sec-butylbenzene
Concen: 0.62 ug/L
RT: 16.748 min Scan# 2403
Delta R.T. 0.000 min
Lab File: 2A159865.D
Acq: 11 Jul 2015 12:57 am

Tgt Ion:105 Resp: 6217

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 105 | 100 | | |
| 134 | 21.6 | 0.0 | 48.8 |
| 91 | 17.7 | 0.0 | 46.2 |

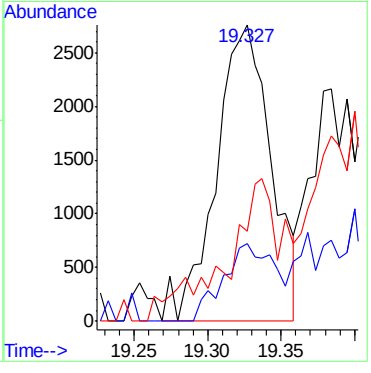



#124
naphthalene
Concen: 0.88 ug/L
RT: 19.327 min Scan# 2896
Delta R.T. 0.006 min
Lab File: 2A159865.D
Acq: 11 Jul 2015 12:57 am

Tgt Ion:128 Resp: 7182

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 128 | 100 | | |
| 127 | 26.2 | 0.0 | 42.5 |
| 129 | 23.7 | 0.0 | 40.9 |



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2a\v2a6821-6822\
Data File : 2A159862.D
Acq On : 10 Jul 2015 11:28 pm
Operator : tracyk
Sample : jb98590-4
Misc : MS87777,V2A6821,5,,,,1
ALS Vial : 27 Sample Multiplier: 1

Quant Time: Jul 13 20:41:16 2015
Quant Method : C:\MSDCHEM\1\METHODS\M2A6798.M
Quant Title : Method SW846 8260B, ZB624 60mx0.25mmx1.4um
QLast Update : Tue Jun 30 09:56:27 2015
Response via : Initial Calibration

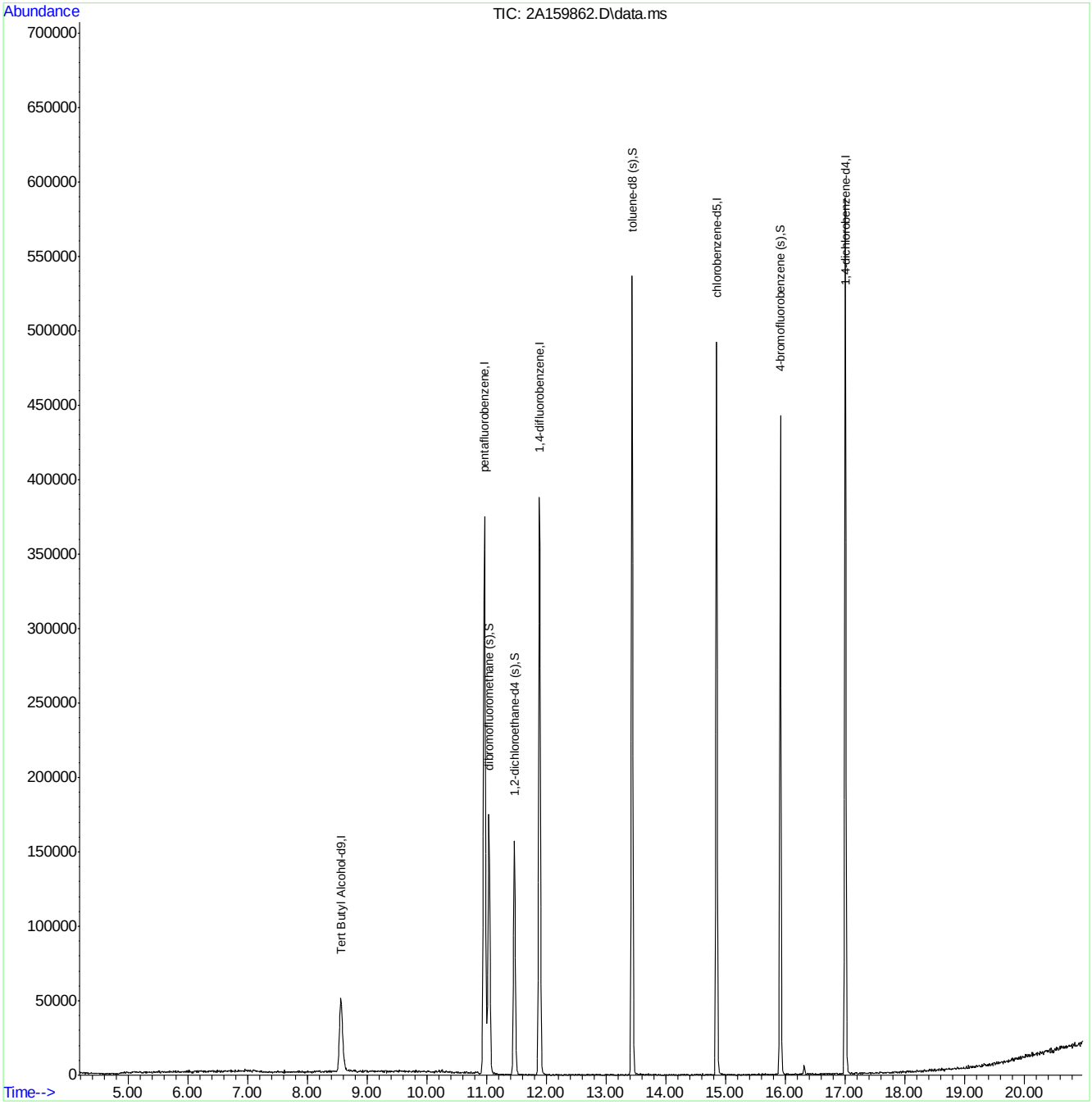
| Compound | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| Internal Standards | | | | | | |
| 1) Tert Butyl Alcohol-d9 | 8.558 | 65 | 112651 | 500.00 | ug/L | -0.02 |
| 5) pentafluorobenzene | 10.964 | 168 | 344102 | 50.00 | ug/L | 0.00 |
| 52) 1,4-difluorobenzene | 11.884 | 114 | 367102 | 50.00 | ug/L | 0.00 |
| 84) chlorobenzene-d5 | 14.850 | 117 | 287409 | 50.00 | ug/L | 0.00 |
| 98) 1,4-dichlorobenzene-d4 | 17.005 | 152 | 164039 | 50.00 | ug/L | 0.00 |
| System Monitoring Compounds | | | | | | |
| 46) dibromofluoromethane (s) | 11.037 | 113 | 122103 | 46.25 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 76 - 120 | | Recovery = 92.50% | | | |
| 47) 1,2-dichloroethane-d4 (s) | 11.466 | 65 | 140438 | 51.89 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 73 - 122 | | Recovery = 103.78% | | | |
| 76) toluene-d8 (s) | 13.432 | 98 | 371088 | 49.44 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 84 - 119 | | Recovery = 98.88% | | | |
| 100) 4-bromofluorobenzene (s) | 15.917 | 95 | 134844 | 48.26 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 78 - 117 | | Recovery = 96.52% | | | |
| Target Compounds | | | | | | Qvalue |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2a\v2a6821-6822\
Data File : 2A159862.D
Acq On : 10 Jul 2015 11:28 pm
Operator : tracyk
Sample : jb98590-4
Misc : MS87777,V2A6821,5,,,,1
ALS Vial : 27 Sample Multiplier: 1

Quant Time: Jul 13 20:41:16 2015
Quant Method : C:\MSDCHEM\1\METHODS\M2A6798.M
Quant Title : Method SW846 8260B, ZB624 60mx0.25mmx1.4um
QLast Update : Tue Jun 30 09:56:27 2015
Response via : Initial Calibration






ACCUTEST LABORATORIES JB98590

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2a\v2a6821-6822\
Data File : 2A159856.D
Acq On : 10 Jul 2015 8:29 pm
Operator : tracyk
Sample : jb98590-5
Misc : MS87777,V2A6821,5,,,,1
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Jul 14 19:46:02 2015
Quant Method : C:\MSDCHEM\1\METHODS\M2A6798.M
Quant Title : Method SW846 8260B, ZB624 60mx0.25mmx1.4um
QLast Update : Tue Jun 30 09:56:27 2015
Response via : Initial Calibration

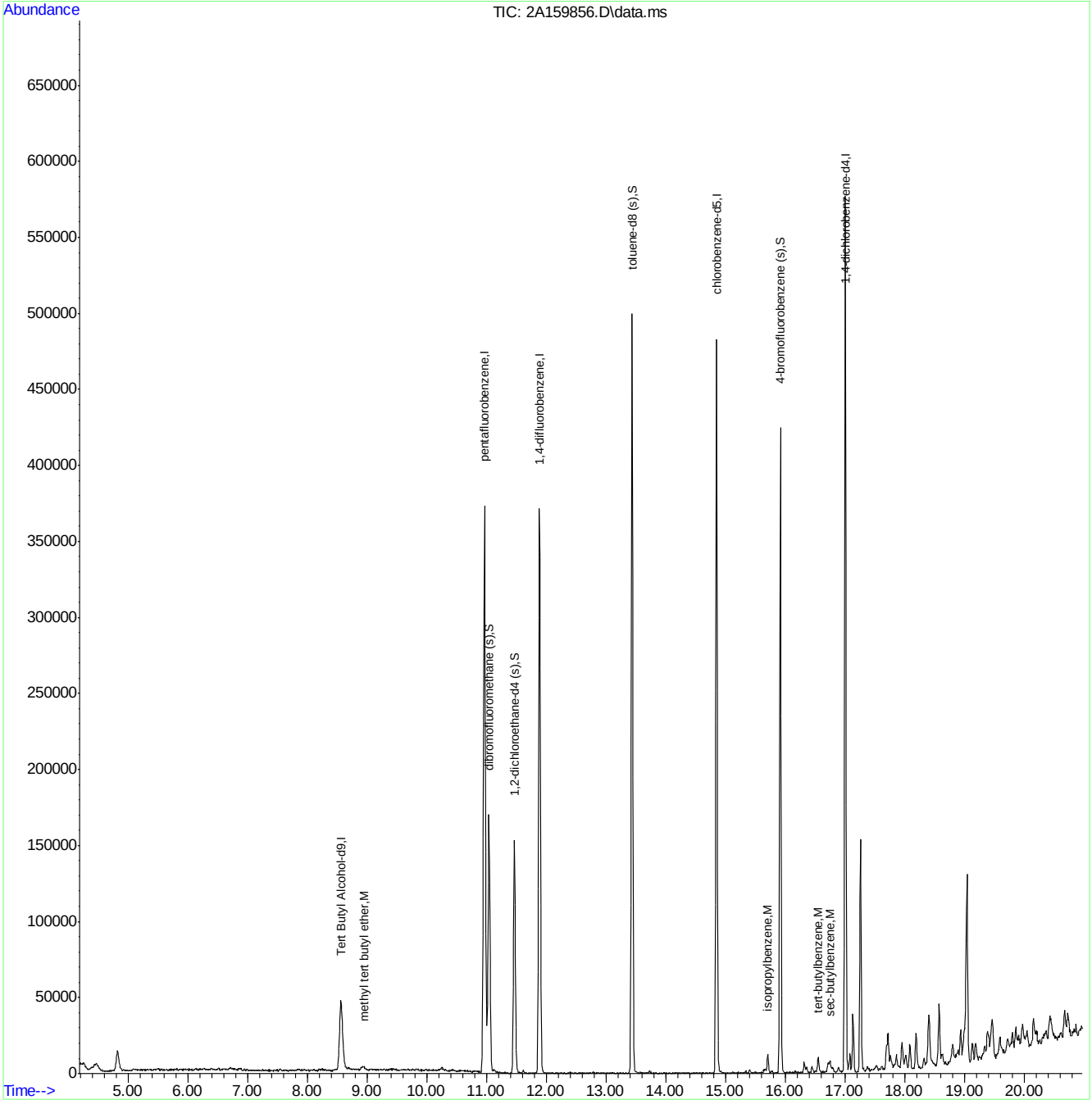
| Compound | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| Internal Standards | | | | | | |
| 1) Tert Butyl Alcohol-d9 | 8.558 | 65 | 103182 | 500.00 | ug/L | -0.02 |
| 5) pentafluorobenzene | 10.964 | 168 | 333021 | 50.00 | ug/L | 0.00 |
| 52) 1,4-difluorobenzene | 11.884 | 114 | 352157 | 50.00 | ug/L | 0.00 |
| 84) chlorobenzene-d5 | 14.850 | 117 | 276824 | 50.00 | ug/L | 0.00 |
| 98) 1,4-dichlorobenzene-d4 | 17.004 | 152 | 156962 | 50.00 | ug/L | 0.00 |
| System Monitoring Compounds | | | | | | |
| 46) dibromofluoromethane (s) | 11.037 | 113 | 117171 | 45.86 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 76 - 120 | | Recovery = 91.72% | | | |
| 47) 1,2-dichloroethane-d4 (s) | 11.466 | 65 | 134279 | 51.26 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 73 - 122 | | Recovery = 102.52% | | | |
| 76) toluene-d8 (s) | 13.432 | 98 | 347804 | 48.30 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 84 - 119 | | Recovery = 96.60% | | | |
| 100) 4-bromofluorobenzene (s) | 15.917 | 95 | 128554 | 48.08 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 78 - 117 | | Recovery = 96.16% | | | |
| Target Compounds | | | | | | Qvalue |
| 28) methyl tert butyl ether | 8.939 | 73 | 4414 | 0.60 | ug/L | 100 |
| 99) isopropylbenzene | 15.702 | 105 | 9180 | 0.97 | ug/L | 94 |
| 110) tert-butylbenzene | 16.549 | 119 | 5658 | 0.79 | ug/L | 97 |
| 113) sec-butylbenzene | 16.748 | 105 | 4221 | 0.42 | ug/L | 98 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

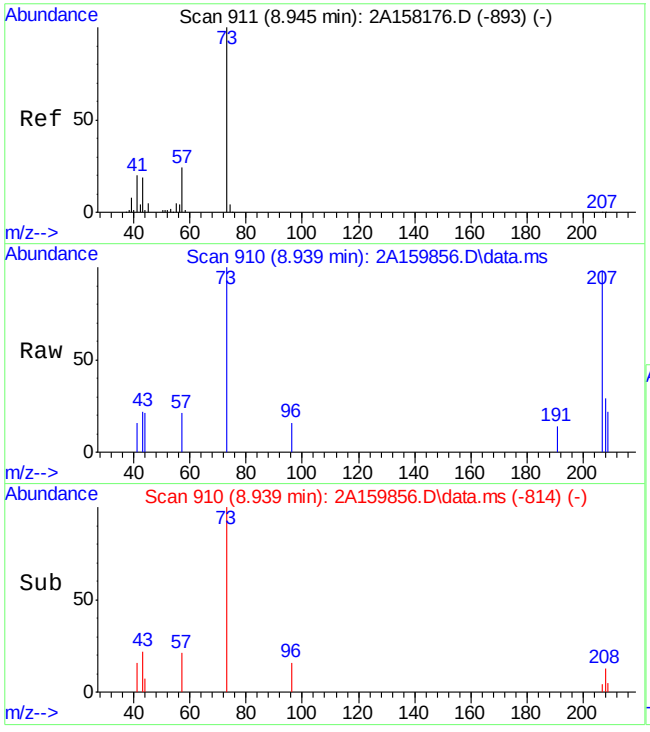
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2a\v2a6821-6822\
Data File : 2A159856.D
Acq On : 10 Jul 2015 8:29 pm
Operator : tracyk
Sample : jb98590-5
Misc : MS87777,V2A6821,5,,,,1
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Jul 14 19:46:02 2015
Quant Method : C:\MSDCHEM\1\METHODS\M2A6798.M
Quant Title : Method SW846 8260B, ZB624 60mx0.25mmx1.4um
QLast Update : Tue Jun 30 09:56:27 2015
Response via : Initial Calibration



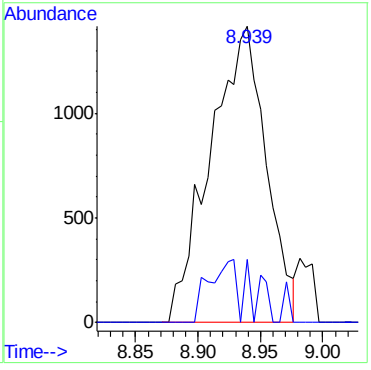

M2A6798.M Tue Jul 14 19:46:11 2015 Page: 2

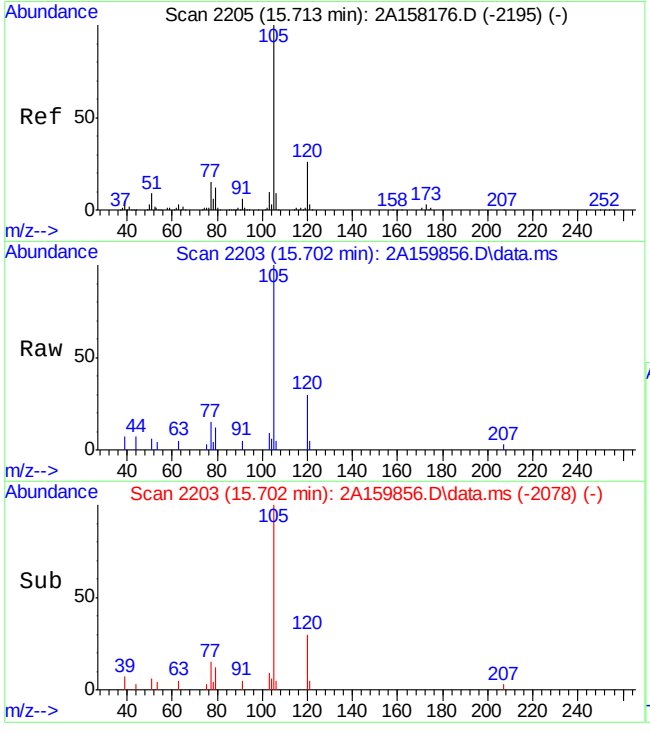



#28
methyl tert butyl ether
Concen: 0.60 ug/L
RT: 8.939 min Scan# 910
Delta R.T. 0.000 min
Lab File: 2A159856.D
Acq: 10 Jul 2015 8:29 pm

Tgt Ion: 73 Resp: 4414

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 73 | 100 | | |
| 57 | 21.2 | 0.0 | 42.4 |

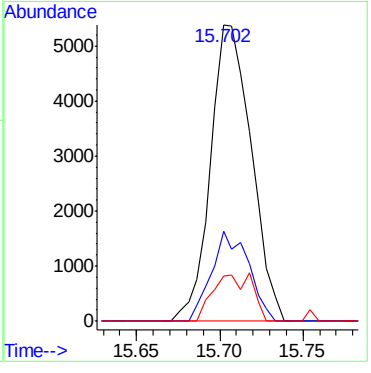


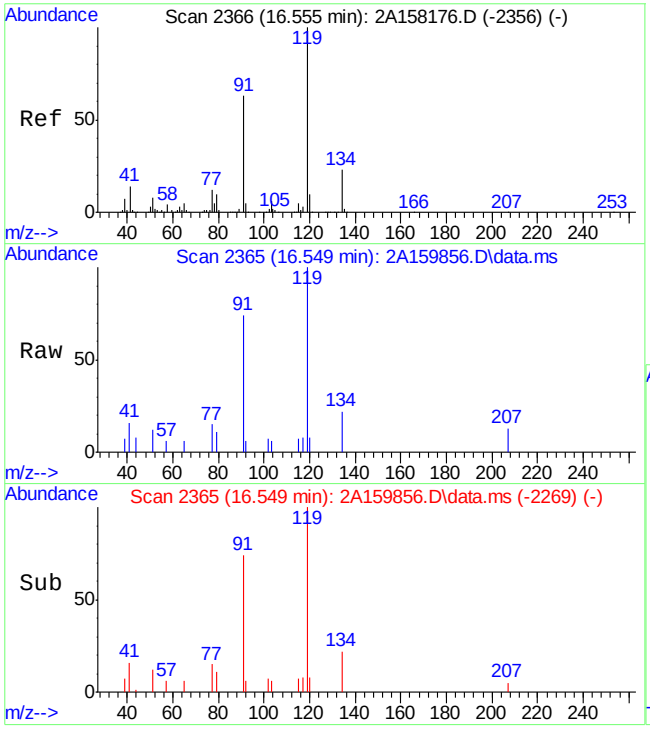




#99
isopropylbenzene
Concen: 0.97 ug/L
RT: 15.702 min Scan# 2203
Delta R.T. -0.005 min
Lab File: 2A159856.D
Acq: 10 Jul 2015 8:29 pm

Tgt Ion:105 Resp: 9180

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 105 | 100 | | |
| 120 | 30.5 | 0.0 | 55.8 |
| 77 | 15.3 | 0.0 | 45.7 |

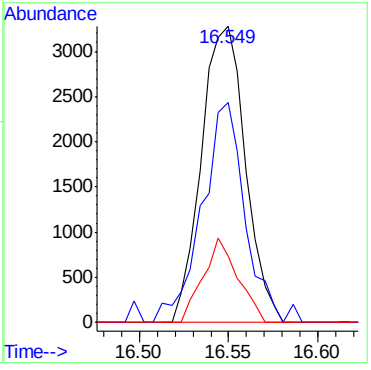


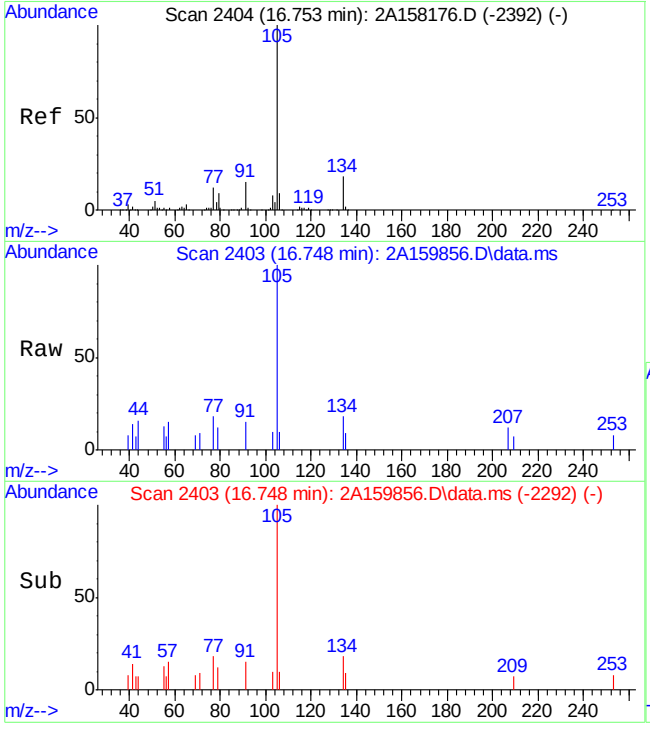



#110
tert-butylbenzene
Concen: 0.79 ug/L
RT: 16.549 min Scan# 2365
Delta R.T. 0.000 min
Lab File: 2A159856.D
Acq: 10 Jul 2015 8:29 pm

Tgt Ion:119 Resp: 5658

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 119 | 100 | | |
| 91 | 68.3 | 35.0 | 95.0 |
| 134 | 22.5 | 0.0 | 53.0 |

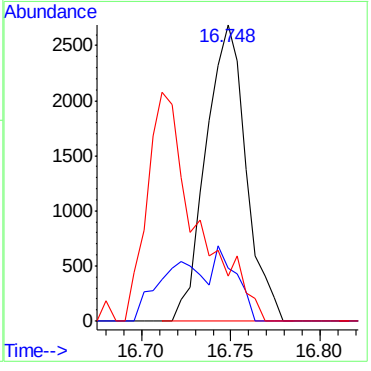



#113
sec-butylbenzene
Concen: 0.42 ug/L
RT: 16.748 min Scan# 2403
Delta R.T. 0.000 min
Lab File: 2A159856.D
Acq: 10 Jul 2015 8:29 pm

Tgt Ion:105 Resp: 4221

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 105 | 100 | | |
| 134 | 17.8 | 0.0 | 48.8 |
| 91 | 15.3 | 0.0 | 46.2 |



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2a\v2a6821-6822\
Data File : 2A159855.D
Acq On : 10 Jul 2015 7:59 pm
Operator : tracyk
Sample : jb98590-6
Misc : MS87777,V2A6821,5,,,,1
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Jul 13 20:36:41 2015
Quant Method : C:\MSDCHEM\1\METHODS\M2A6798.M
Quant Title : Method SW846 8260B, ZB624 60mx0.25mmx1.4um
QLast Update : Tue Jun 30 09:56:27 2015
Response via : Initial Calibration

| Compound | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| Internal Standards | | | | | | |
| 1) Tert Butyl Alcohol-d9 | 8.563 | 65 | 120651 | 500.00 | ug/L | -0.01 |
| 5) pentafluorobenzene | 10.963 | 168 | 340841 | 50.00 | ug/L | 0.00 |
| 52) 1,4-difluorobenzene | 11.884 | 114 | 363698 | 50.00 | ug/L | 0.00 |
| 84) chlorobenzene-d5 | 14.849 | 117 | 286310 | 50.00 | ug/L | 0.00 |
| 98) 1,4-dichlorobenzene-d4 | 17.004 | 152 | 163953 | 50.00 | ug/L | 0.00 |
| System Monitoring Compounds | | | | | | |
| 46) dibromofluoromethane (s) | 11.042 | 113 | 120829 | 46.21 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 76 - 120 | | Recovery = 92.42% | | | |
| 47) 1,2-dichloroethane-d4 (s) | 11.465 | 65 | 139689 | 52.11 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 73 - 122 | | Recovery = 104.22% | | | |
| 76) toluene-d8 (s) | 13.432 | 98 | 365323 | 49.12 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 84 - 119 | | Recovery = 98.24% | | | |
| 100) 4-bromofluorobenzene (s) | 15.916 | 95 | 135112 | 48.38 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 78 - 117 | | Recovery = 96.76% | | | |

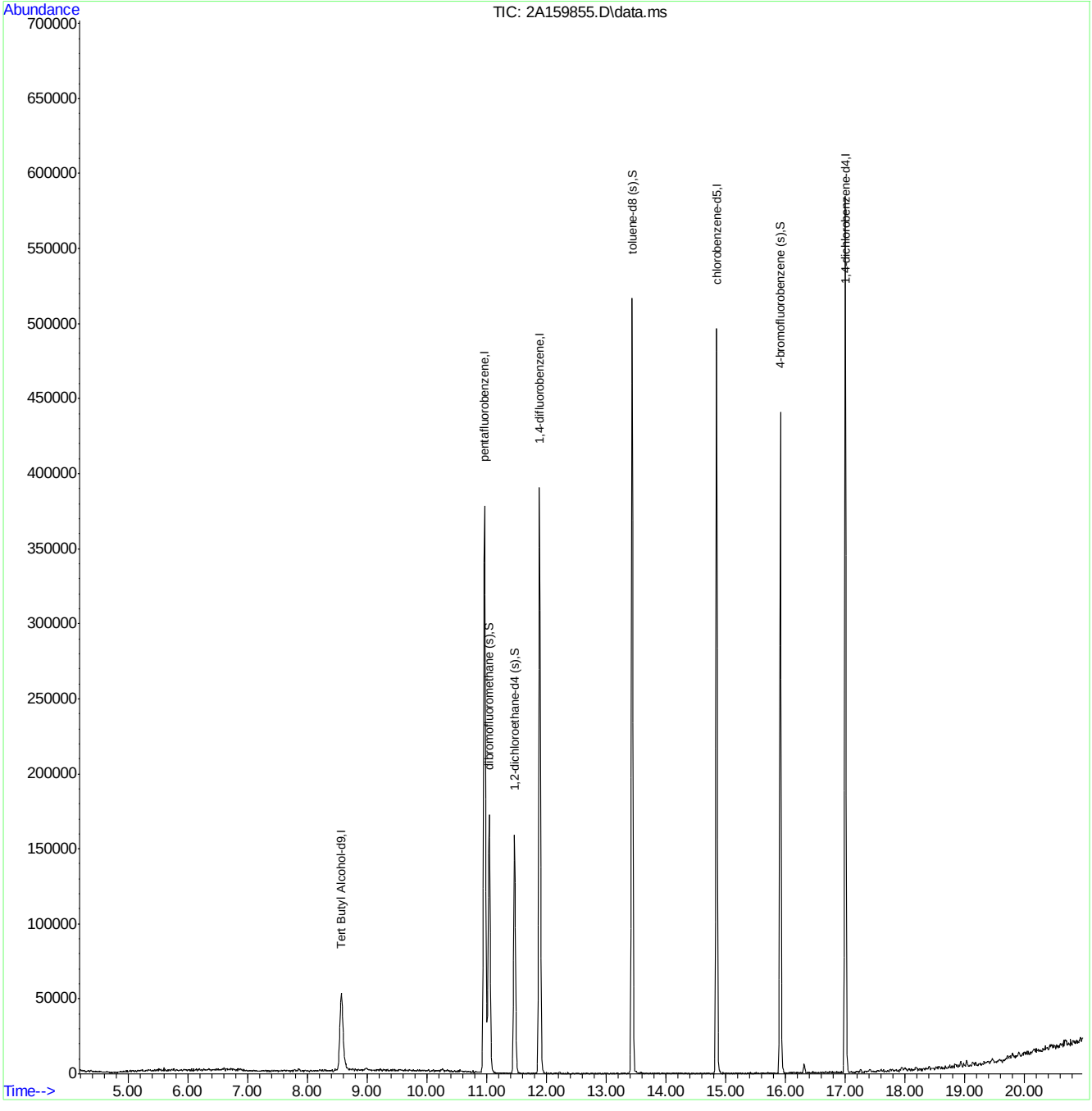
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2a\v2a6821-6822\
Data File : 2A159855.D
Acq On : 10 Jul 2015 7:59 pm
Operator : tracyk
Sample : jb98590-6
Misc : MS87777,V2A6821,5,,,,1
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Jul 13 20:36:41 2015
Quant Method : C:\MSDCHEM\1\METHODS\M2A6798.M
Quant Title : Method SW846 8260B, ZB624 60mx0.25mmx1.4um
QLast Update : Tue Jun 30 09:56:27 2015
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2a\v2a6821-6822\
Data File : 2A159857.D
Acq On : 10 Jul 2015 8:59 pm
Operator : tracyk
Sample : jb98590-7
Misc : MS87777,V2A6821,5,,,,1
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Jul 13 20:38:00 2015
Quant Method : C:\MSDCHEM\1\METHODS\M2A6798.M
Quant Title : Method SW846 8260B, ZB624 60mx0.25mmx1.4um
QLast Update : Tue Jun 30 09:56:27 2015
Response via : Initial Calibration

| Compound | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| Internal Standards | | | | | | |
| 1) Tert Butyl Alcohol-d9 | 8.557 | 65 | 100903 | 500.00 | ug/L | -0.02 |
| 5) pentafluorobenzene | 10.963 | 168 | 335211 | 50.00 | ug/L | 0.00 |
| 52) 1,4-difluorobenzene | 11.884 | 114 | 355654 | 50.00 | ug/L | 0.00 |
| 84) chlorobenzene-d5 | 14.849 | 117 | 278481 | 50.00 | ug/L | 0.00 |
| 98) 1,4-dichlorobenzene-d4 | 17.004 | 152 | 159353 | 50.00 | ug/L | 0.00 |
| System Monitoring Compounds | | | | | | |
| 46) dibromofluoromethane (s) | 11.037 | 113 | 121197 | 47.13 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 76 - 120 | | Recovery = 94.26% | | | |
| 47) 1,2-dichloroethane-d4 (s) | 11.466 | 65 | 138091 | 52.37 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 73 - 122 | | Recovery = 104.74% | | | |
| 76) toluene-d8 (s) | 13.432 | 98 | 355849 | 48.93 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 84 - 119 | | Recovery = 97.86% | | | |
| 100) 4-bromofluorobenzene (s) | 15.916 | 95 | 129725 | 47.79 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 78 - 117 | | Recovery = 95.58% | | | |

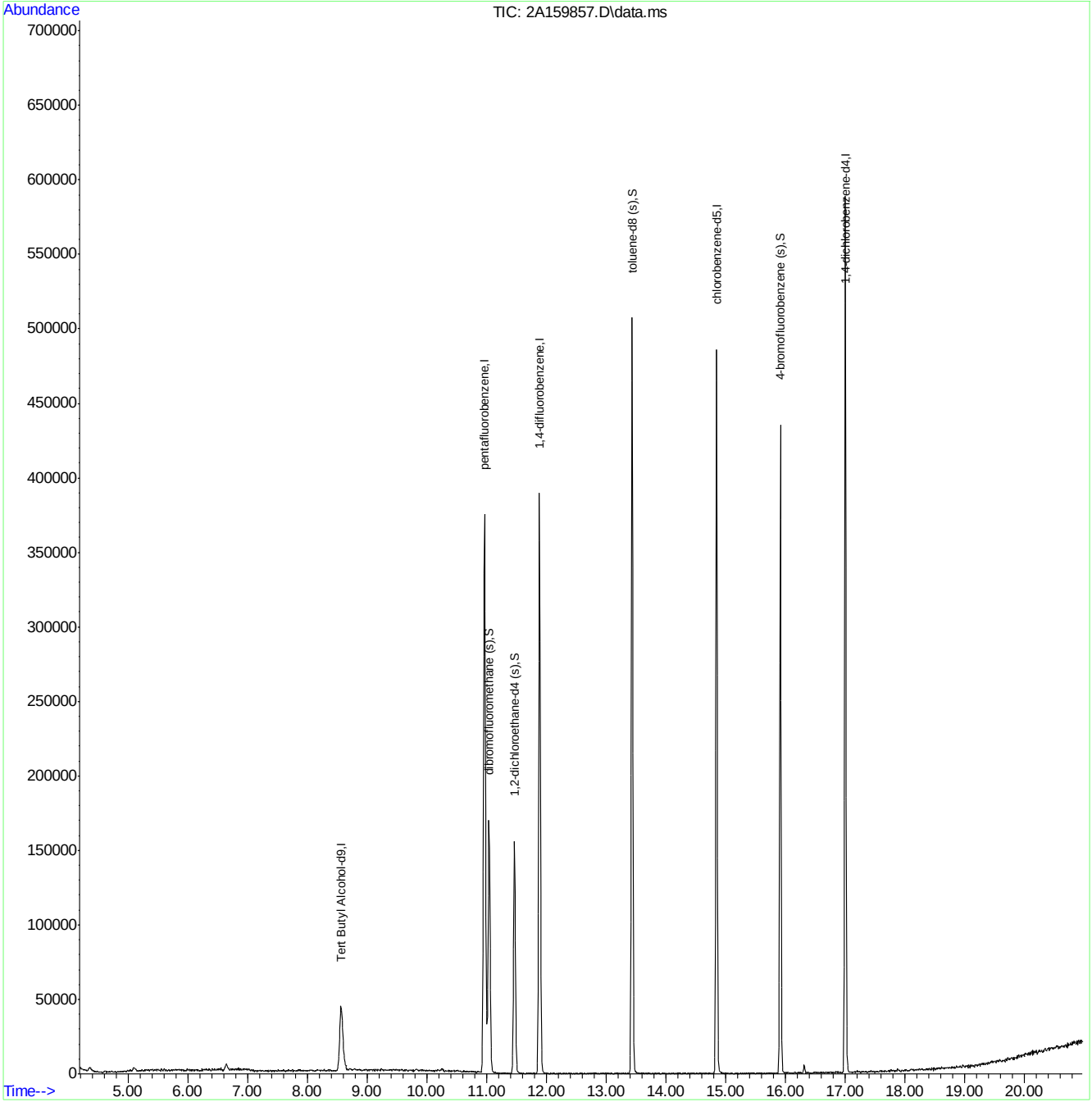
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2a\v2a6821-6822\
Data File : 2A159857.D
Acq On : 10 Jul 2015 8:59 pm
Operator : tracyk
Sample : jb98590-7
Misc : MS87777,V2A6821,5,,,,1
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Jul 13 20:38:00 2015
Quant Method : C:\MSDCHEM\1\METHODS\M2A6798.M
Quant Title : Method SW846 8260B, ZB624 60mx0.25mmx1.4um
QLast Update : Tue Jun 30 09:56:27 2015
Response via : Initial Calibration




M2A6798.M Mon Jul 13 21:16:46 2015 Page: 2

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2a\v2a6821-6822\
Data File : 2A159863.D
Acq On : 10 Jul 2015 11:58 pm
Operator : tracyk
Sample : jb98590-8
Misc : MS87777,V2A6821,5,,,,1
ALS Vial : 28 Sample Multiplier: 1

Quant Time: Jul 13 20:41:32 2015
Quant Method : C:\MSDCHEM\1\METHODS\M2A6798.M
Quant Title : Method SW846 8260B, ZB624 60mx0.25mmx1.4um
QLast Update : Tue Jun 30 09:56:27 2015
Response via : Initial Calibration

| Compound | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| **Internal Standards** | | | | | | |
| 1) Tert Butyl Alcohol-d9 | 8.563 | 65 | 111538 | 500.00 | ug/L | -0.01 |
| 5) pentafluorobenzene | 10.964 | 168 | 331027 | 50.00 | ug/L | 0.00 |
| 52) 1,4-difluorobenzene | 11.884 | 114 | 352860 | 50.00 | ug/L | 0.00 |
| 84) chlorobenzene-d5 | 14.850 | 117 | 279844 | 50.00 | ug/L | 0.00 |
| 98) 1,4-dichlorobenzene-d4 | 17.005 | 152 | 158612 | 50.00 | ug/L | 0.00 |
| **System Monitoring Compounds** | | | | | | |
| 46) dibromofluoromethane (s) | 11.037 | 113 | 118608 | 46.70 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 76 - 120 | | Recovery = 93.40% | | | |
| 47) 1,2-dichloroethane-d4 (s) | 11.466 | 65 | 136891 | 52.58 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 73 - 122 | | Recovery = 105.16% | | | |
| 76) toluene-d8 (s) | 13.432 | 98 | 353625 | 49.01 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 84 - 119 | | Recovery = 98.02% | | | |
| 100) 4-bromofluorobenzene (s) | 15.917 | 95 | 131279 | 48.59 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 78 - 117 | | Recovery = 97.18% | | | |

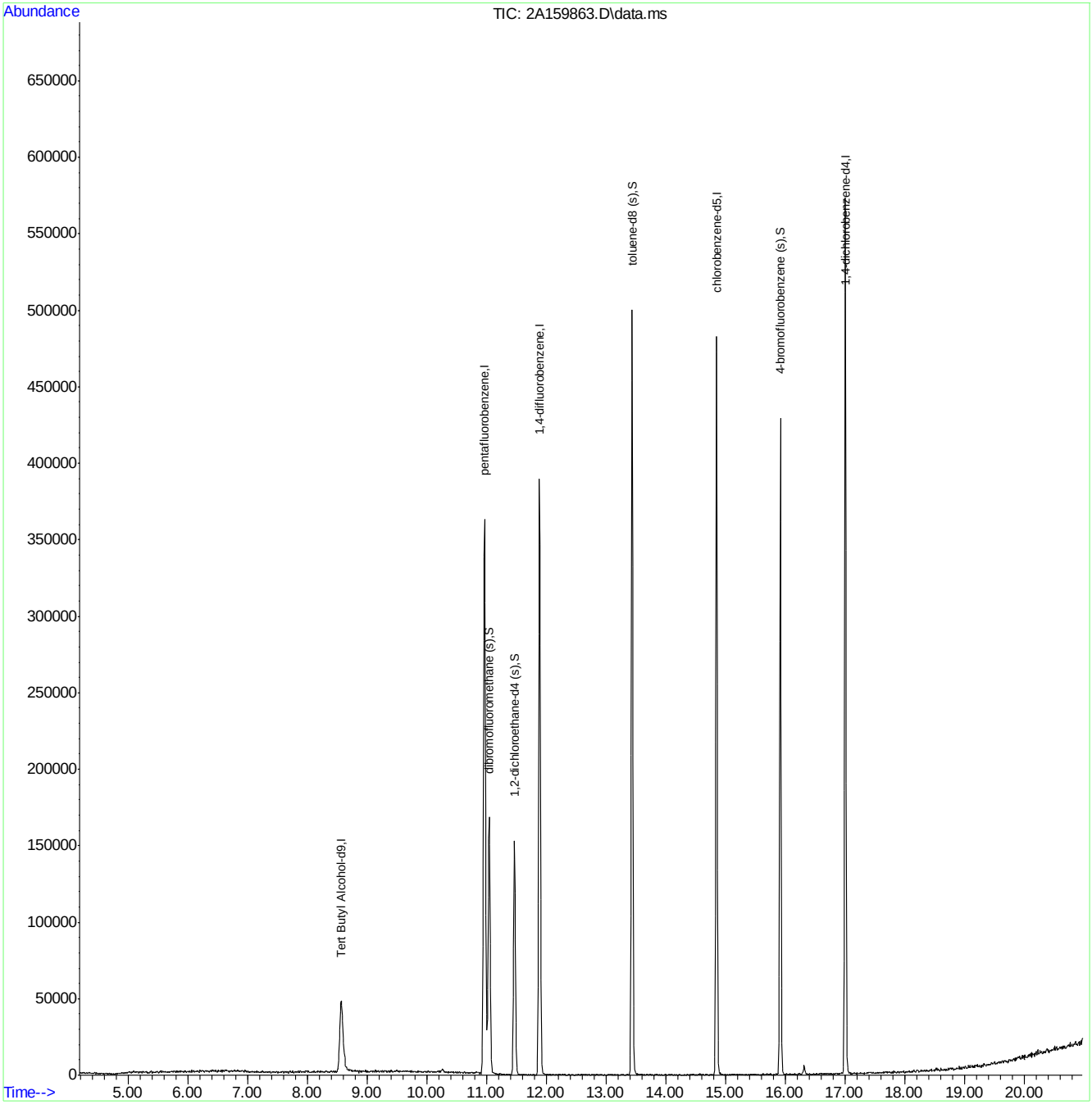
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2a\v2a6821-6822\
Data File : 2A159863.D
Acq On : 10 Jul 2015 11:58 pm
Operator : tracyk
Sample : jb98590-8
Misc : MS87777,V2A6821,5,,,,1
ALS Vial : 28 Sample Multiplier: 1

Quant Time: Jul 13 20:41:32 2015
Quant Method : C:\MSDCHEM\1\METHODS\M2A6798.M
Quant Title : Method SW846 8260B, ZB624 60mx0.25mmx1.4um
QLast Update : Tue Jun 30 09:56:27 2015
Response via : Initial Calibration




M2A6798.M Mon Jul 13 21:16:52 2015 Page: 2

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2a\v2a6821-6822\
Data File : 2A159866.D
Acq On : 11 Jul 2015 1:27 am
Operator : tracyk
Sample : jb98590-9
Misc : MS87777,V2A6821,5,,,,1
ALS Vial : 31 Sample Multiplier: 1

Quant Time: Jul 13 20:43:53 2015
Quant Method : C:\MSDCHEM\1\METHODS\M2A6798.M
Quant Title : Method SW846 8260B, ZB624 60mx0.25mmx1.4um
QLast Update : Tue Jun 30 09:56:27 2015
Response via : Initial Calibration

| Compound | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| Internal Standards | | | | | | |
| 1) Tert Butyl Alcohol-d9 | 8.568 | 65 | 120346 | 500.00 | ug/L | 0.00 |
| 5) pentafluorobenzene | 10.963 | 168 | 349030 | 50.00 | ug/L | 0.00 |
| 52) 1,4-difluorobenzene | 11.884 | 114 | 372853 | 50.00 | ug/L | 0.00 |
| 84) chlorobenzene-d5 | 14.849 | 117 | 293513 | 50.00 | ug/L | 0.00 |
| 98) 1,4-dichlorobenzene-d4 | 17.004 | 152 | 167472 | 50.00 | ug/L | 0.00 |
| System Monitoring Compounds | | | | | | |
| 46) dibromofluoromethane (s) | 11.037 | 113 | 124857 | 46.63 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 76 - 120 | | Recovery = 93.26% | | | |
| 47) 1,2-dichloroethane-d4 (s) | 11.465 | 65 | 139642 | 50.87 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 73 - 122 | | Recovery = 101.74% | | | |
| 76) toluene-d8 (s) | 13.432 | 98 | 369981 | 48.53 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 84 - 119 | | Recovery = 97.06% | | | |
| 100) 4-bromofluorobenzene (s) | 15.916 | 95 | 135529 | 47.51 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 78 - 117 | | Recovery = 95.02% | | | |
| Target Compounds | | | | | | Qvalue |
| 73) methylcyclohexane | 12.391 | 83 | 3551 | 1.01 | ug/L | 92 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

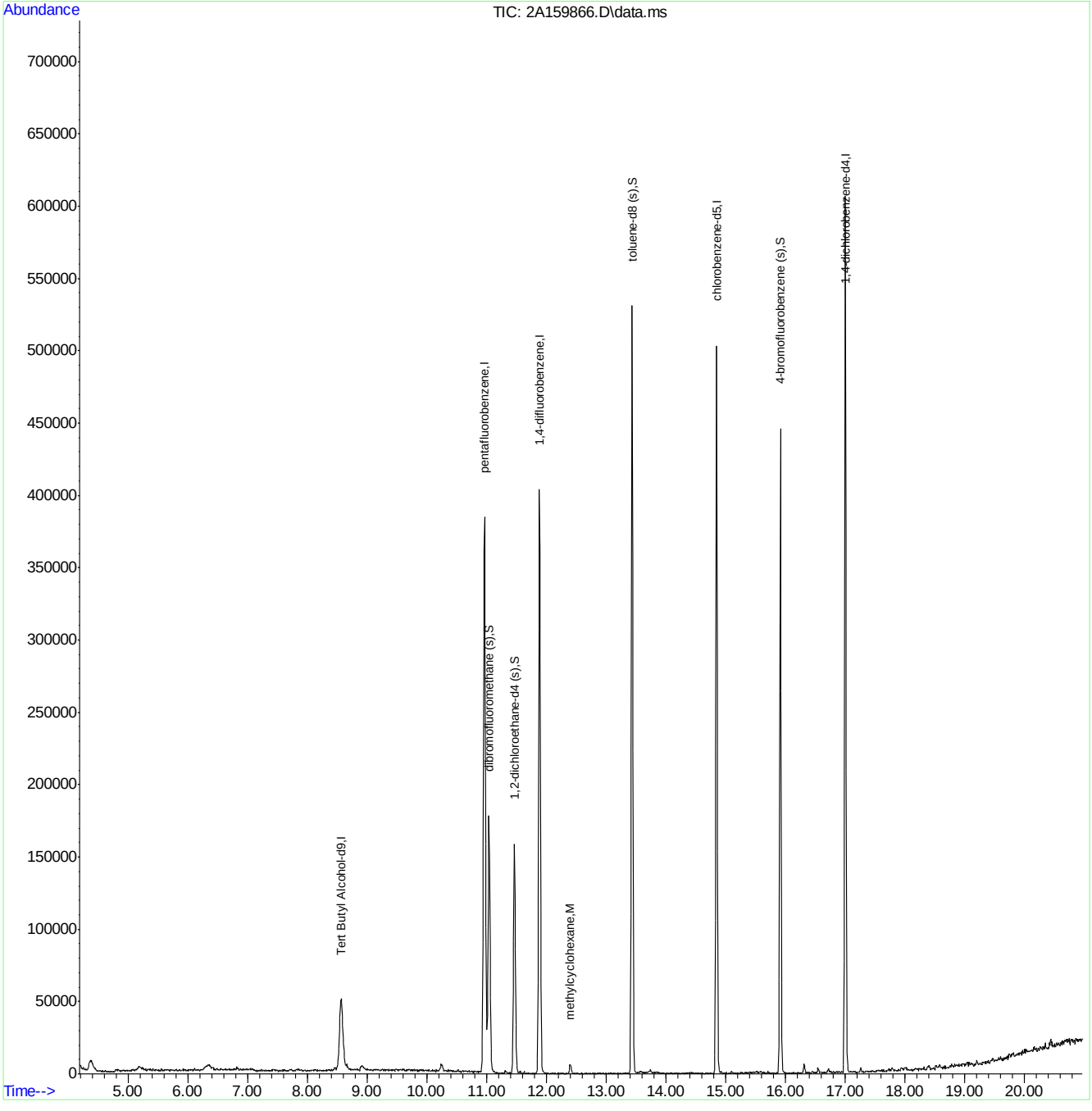


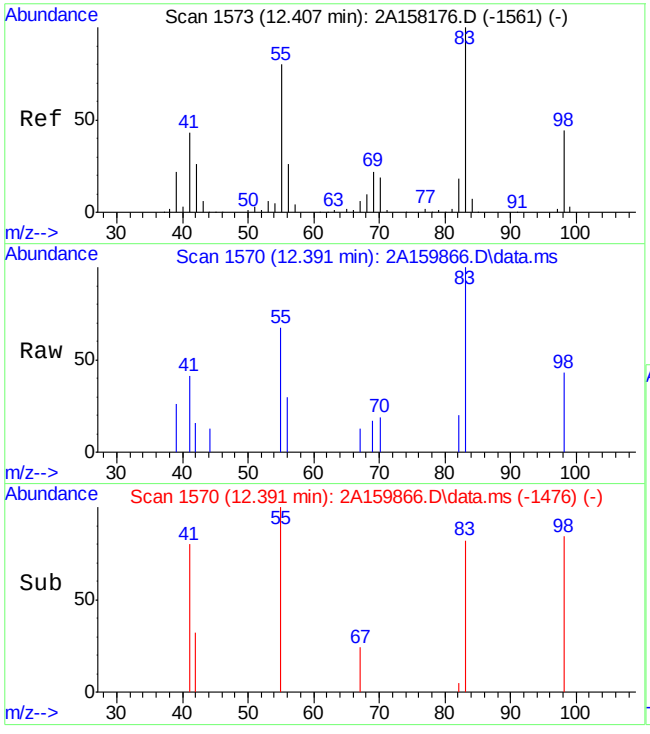
ACCUTEST LABORATORIES JB98590

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2a\v2a6821-6822\
Data File : 2A159866.D
Acq On : 11 Jul 2015 1:27 am
Operator : tracyk
Sample : jb98590-9
Misc : MS87777,V2A6821,5,,,,1
ALS Vial : 31 Sample Multiplier: 1

Quant Time: Jul 13 20:43:53 2015
Quant Method : C:\MSDCHEM\1\METHODS\M2A6798.M
Quant Title : Method SW846 8260B, ZB624 60mx0.25mmx1.4um
QLast Update : Tue Jun 30 09:56:27 2015
Response via : Initial Calibration

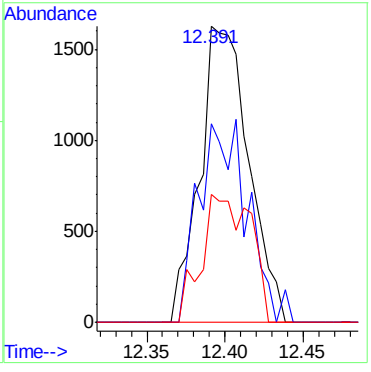





#73
methylcyclohexane
Concen: 1.01 ug/L
RT: 12.391 min Scan# 1570
Delta R.T. -0.010 min
Lab File: 2A159866.D
Acq: 11 Jul 2015 1:27 am

Tgt Ion: 83 Resp: 3551

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 83 | 100 | | |
| 55 | 67.0 | 48.1 | 108.1 |
| 98 | 43.1 | 13.7 | 73.7 |




7.1.9

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2a\v2a6821-6822\
Data File : 2A159843.D
Acq On : 10 Jul 2015 1:56 pm
Operator : tracyk
Sample : jb98590-10
Misc : MS87777,V2A6821,5,,,,1
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Jul 13 20:29:26 2015
Quant Method : C:\MSDCHEM\1\METHODS\M2A6798.M
Quant Title : Method SW846 8260B, ZB624 60mx0.25mmx1.4um
QLast Update : Tue Jun 30 09:56:27 2015
Response via : Initial Calibration

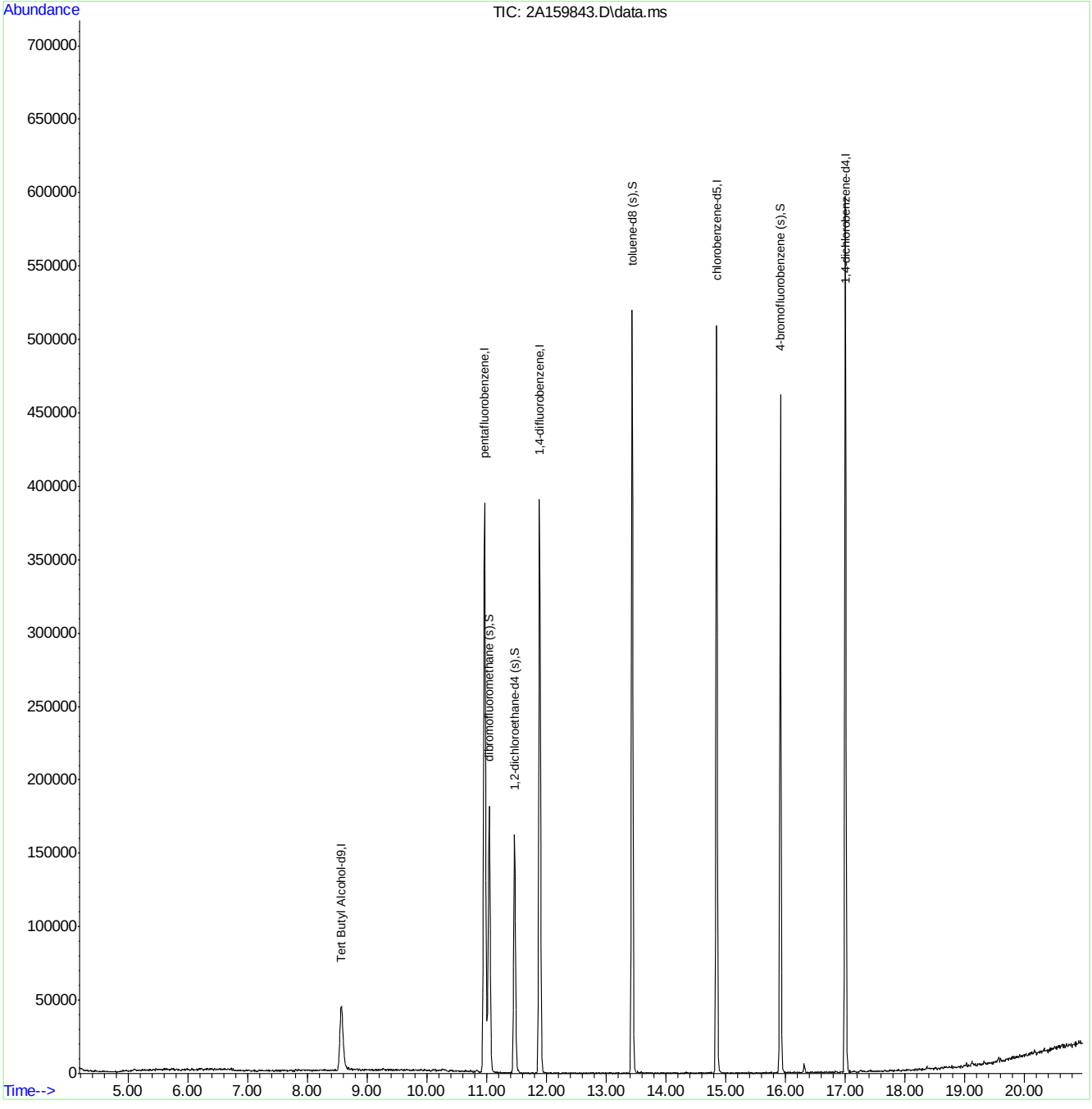
| Compound | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| Internal Standards | | | | | | |
| 1) Tert Butyl Alcohol-d9 | 8.563 | 65 | 101276 | 500.00 | ug/L | -0.01 |
| 5) pentafluorobenzene | 10.969 | 168 | 353013 | 50.00 | ug/L | 0.00 |
| 52) 1,4-difluorobenzene | 11.884 | 114 | 374958 | 50.00 | ug/L | 0.00 |
| 84) chlorobenzene-d5 | 14.850 | 117 | 291074 | 50.00 | ug/L | 0.00 |
| 98) 1,4-dichlorobenzene-d4 | 17.004 | 152 | 164020 | 50.00 | ug/L | 0.00 |
| System Monitoring Compounds | | | | | | |
| 46) dibromofluoromethane (s) | 11.042 | 113 | 125869 | 46.48 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 76 - 120 | | Recovery = 92.96% | | | |
| 47) 1,2-dichloroethane-d4 (s) | 11.466 | 65 | 144866 | 52.17 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 73 - 122 | | Recovery = 104.34% | | | |
| 76) toluene-d8 (s) | 13.432 | 98 | 373309 | 48.69 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 84 - 119 | | Recovery = 97.38% | | | |
| 100) 4-bromofluorobenzene (s) | 15.916 | 95 | 136231 | 48.76 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 78 - 117 | | Recovery = 97.52% | | | |
| Target Compounds | | | | | | Qvalue |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2a\v2a6821-6822\
Data File : 2A159843.D
Acq On : 10 Jul 2015 1:56 pm
Operator : tracyk
Sample : jb98590-10
Misc : MS87777,V2A6821,5,,,,1
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Jul 13 20:29:26 2015
Quant Method : C:\MSDCHEM\1\METHODS\M2A6798.M
Quant Title : Method SW846 8260B, ZB624 60mx0.25mmx1.4um
QLast Update : Tue Jun 30 09:56:27 2015
Response via : Initial Calibration






ACCUTEST LABORATORIES JB98590

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2a\v2a6821-6822\
Data File : 2A159844.D
Acq On : 10 Jul 2015 2:26 pm
Operator : tracyk
Sample : jb98590-11
Misc : MS87777,V2A6821,5,,,,1
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Jul 13 20:29:51 2015
Quant Method : C:\MSDCHEM\1\METHODS\M2A6798.M
Quant Title : Method SW846 8260B, ZB624 60mx0.25mmx1.4um
QLast Update : Tue Jun 30 09:56:27 2015
Response via : Initial Calibration

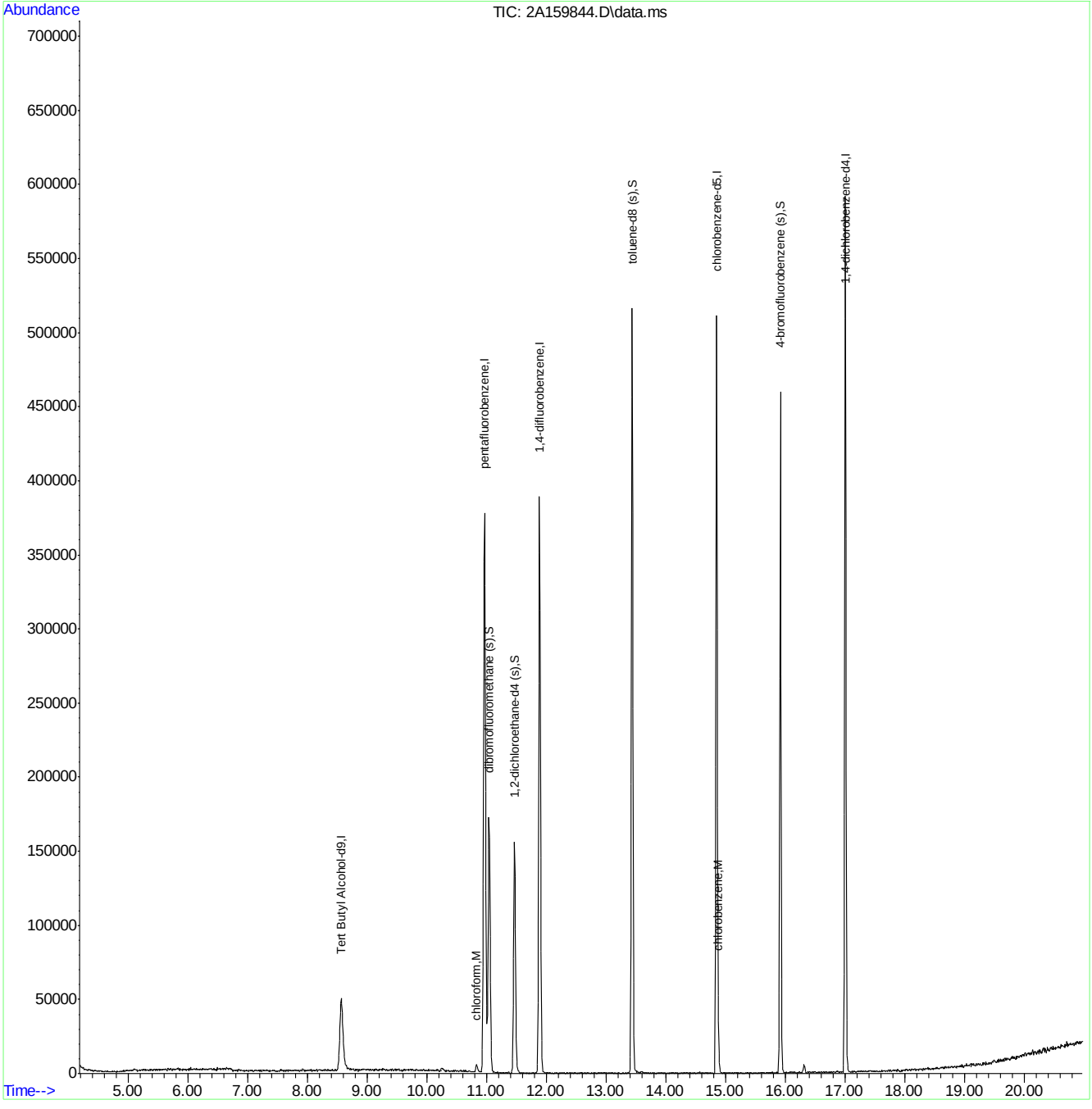
| Compound | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| Internal Standards | | | | | | |
| 1) Tert Butyl Alcohol-d9 | 8.568 | 65 | 107756 | 500.00 | ug/L | 0.00 |
| 5) pentafluorobenzene | 10.964 | 168 | 347862 | 50.00 | ug/L | 0.00 |
| 52) 1,4-difluorobenzene | 11.884 | 114 | 366164 | 50.00 | ug/L | 0.00 |
| 84) chlorobenzene-d5 | 14.850 | 117 | 289506 | 50.00 | ug/L | 0.00 |
| 98) 1,4-dichlorobenzene-d4 | 17.004 | 152 | 160486 | 50.00 | ug/L | 0.00 |
| System Monitoring Compounds | | | | | | |
| 46) dibromofluoromethane (s) | 11.037 | 113 | 122932 | 46.06 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 76 - 120 | | Recovery = 92.12% | | | |
| 47) 1,2-dichloroethane-d4 (s) | 11.466 | 65 | 139255 | 50.90 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 73 - 122 | | Recovery = 101.80% | | | |
| 76) toluene-d8 (s) | 13.432 | 98 | 365464 | 48.81 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 84 - 119 | | Recovery = 97.62% | | | |
| 100) 4-bromofluorobenzene (s) | 15.917 | 95 | 135262 | 49.48 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 78 - 117 | | Recovery = 98.96% | | | |
| Target Compounds | | | | | | Qvalue |
| 44) chloroform | 10.828 | 85 | 3299 | 0.99 | ug/L | 81 |
| 91) chlorobenzene | 14.876 | 112 | 14164 | 2.33 | ug/L | 92 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

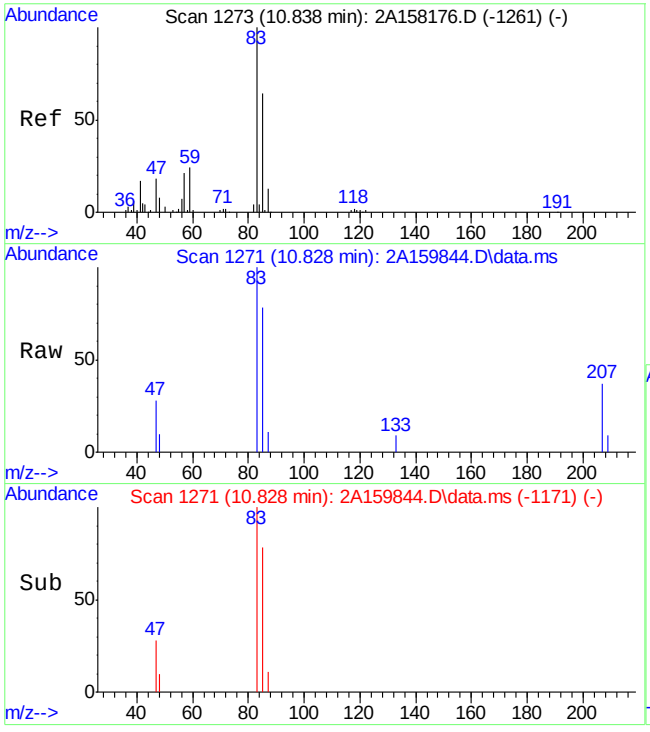
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2a\v2a6821-6822\
Data File : 2A159844.D
Acq On : 10 Jul 2015 2:26 pm
Operator : tracyk
Sample : jb98590-11
Misc : MS87777,V2A6821,5,,,,1
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Jul 13 20:29:51 2015
Quant Method : C:\MSDCHEM\1\METHODS\M2A6798.M
Quant Title : Method SW846 8260B, ZB624 60mx0.25mmx1.4um
QLast Update : Tue Jun 30 09:56:27 2015
Response via : Initial Calibration



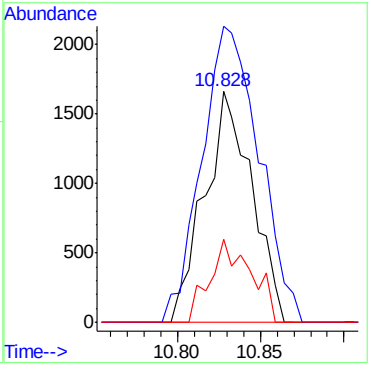

M2A6798.M Mon Jul 13 21:16:12 2015 Page: 2

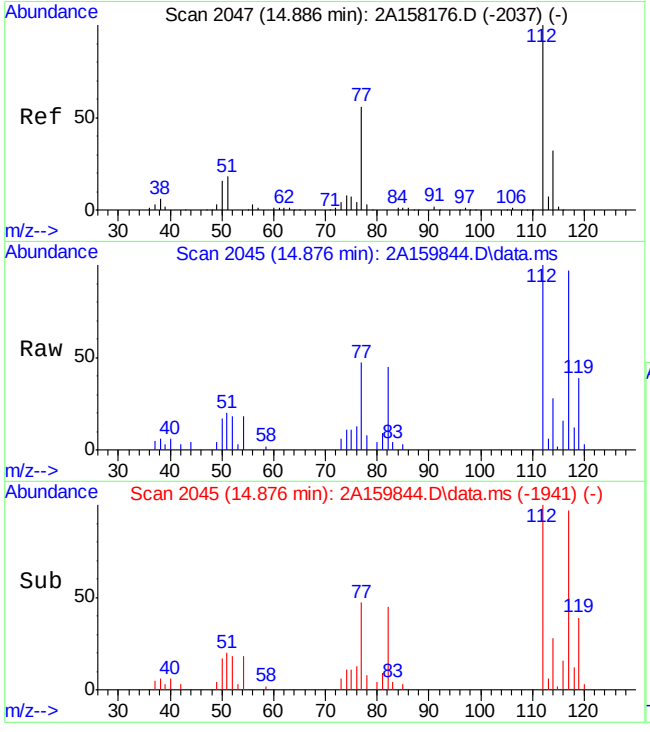



#44
chloroform
Concen: 0.99 ug/L
RT: 10.828 min Scan# 1271
Delta R.T. -0.004 min
Lab File: 2A159844.D
Acq: 10 Jul 2015 2:26 pm

Tgt Ion: 85 Resp: 3299

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 85 | 100 | | |
| 83 | 128.0 | 124.0 | 184.0 |
| 47 | 36.1 | 0.4 | 60.4 |

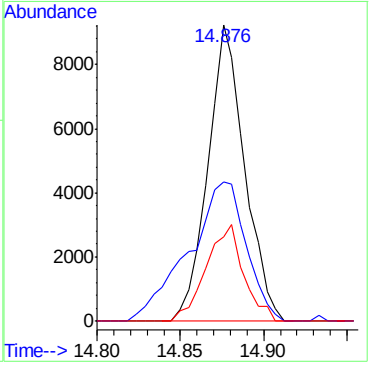



#91
chlorobenzene
Concen: 2.33 ug/L
RT: 14.876 min Scan# 2045
Delta R.T. -0.005 min
Lab File: 2A159844.D
Acq: 10 Jul 2015 2:26 pm

Tgt Ion:112 Resp: 14164

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 112 | 100 | | |
| 77 | 47.2 | 23.7 | 83.7 |
| 114 | 28.3 | 2.4 | 62.4 |



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2a\v2a6821-6822\
Data File : 2A159864.D
Acq On : 11 Jul 2015 12:27 am
Operator : tracyk
Sample : jb98590-12
Misc : MS87777,V2A6821,5,,,,1
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Jul 13 20:41:47 2015
Quant Method : C:\MSDCHEM\1\METHODS\M2A6798.M
Quant Title : Method SW846 8260B, ZB624 60mx0.25mmx1.4um
QLast Update : Tue Jun 30 09:56:27 2015
Response via : Initial Calibration

| Compound | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| Internal Standards | | | | | | |
| 1) Tert Butyl Alcohol-d9 | 8.568 | 65 | 101043 | 500.00 | ug/L | 0.00 |
| 5) pentafluorobenzene | 10.963 | 168 | 337951 | 50.00 | ug/L | 0.00 |
| 52) 1,4-difluorobenzene | 11.884 | 114 | 354112 | 50.00 | ug/L | 0.00 |
| 84) chlorobenzene-d5 | 14.850 | 117 | 279739 | 50.00 | ug/L | 0.00 |
| 98) 1,4-dichlorobenzene-d4 | 17.004 | 152 | 161515 | 50.00 | ug/L | 0.00 |
| System Monitoring Compounds | | | | | | |
| 46) dibromofluoromethane (s) | 11.037 | 113 | 120179 | 46.35 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 76 - 120 | | Recovery = 92.70% | | | |
| 47) 1,2-dichloroethane-d4 (s) | 11.466 | 65 | 138254 | 52.01 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 73 - 122 | | Recovery = 104.02% | | | |
| 76) toluene-d8 (s) | 13.432 | 98 | 352058 | 48.62 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 84 - 119 | | Recovery = 97.24% | | | |
| 100) 4-bromofluorobenzene (s) | 15.916 | 95 | 132324 | 48.10 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 78 - 117 | | Recovery = 96.20% | | | |

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

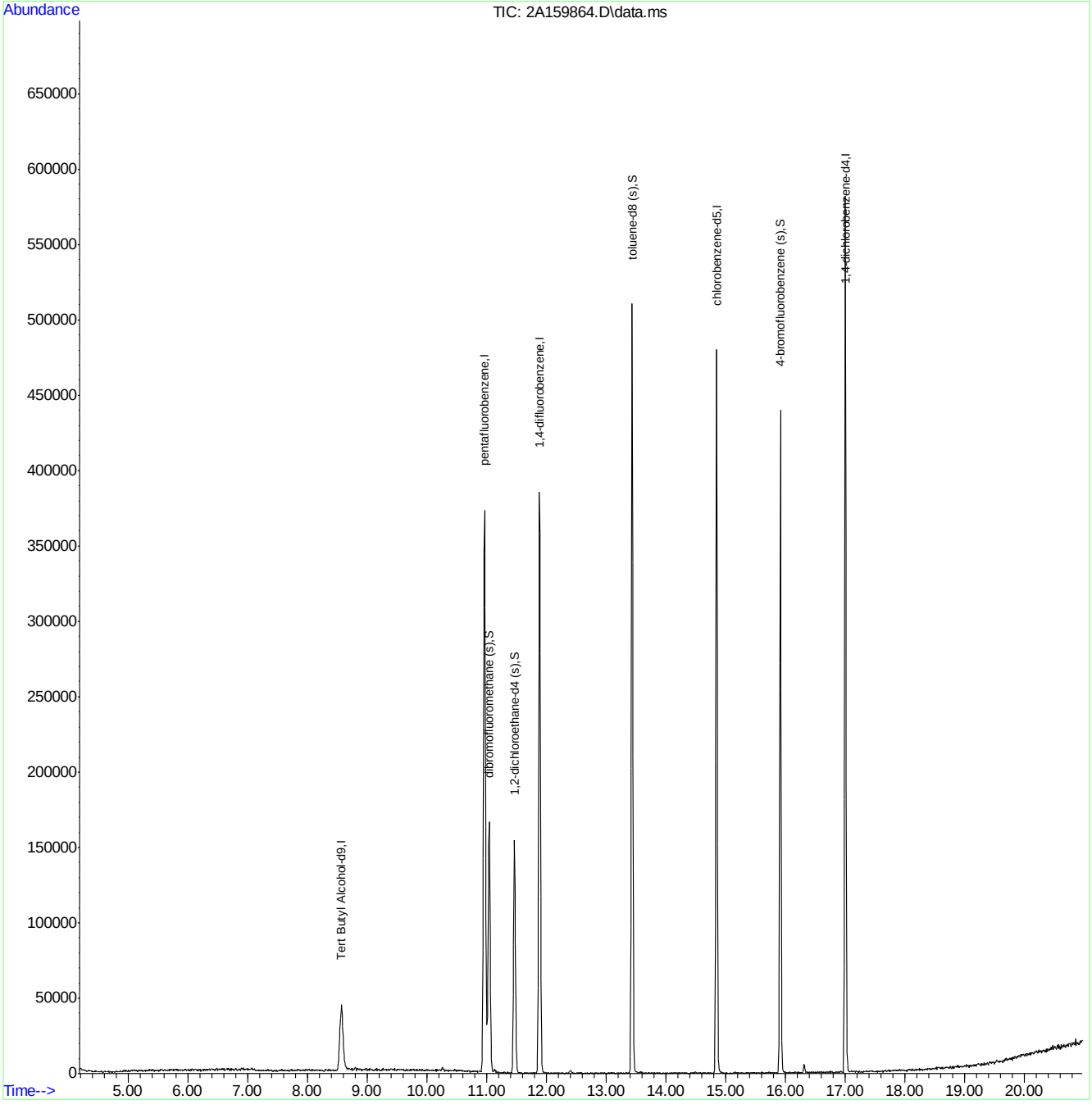
7.1.12

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2a\v2a6821-6822\
Data File : 2A159864.D
Acq On : 11 Jul 2015 12:27 am
Operator : tracyk
Sample : jb98590-12
Misc : MS87777,V2A6821,5,,,,1
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Jul 13 20:41:47 2015
Quant Method : C:\MSDCHEM\1\METHODS\M2A6798.M
Quant Title : Method SW846 8260B, ZB624 60mx0.25mmx1.4um
QLast Update : Tue Jun 30 09:56:27 2015
Response via : Initial Calibration






ACCUTEST LABORATORIES JB98590

Manual Integrations APPROVED (compounds with "m" flag)
Kanya Veerawat 07/17/15 16:02

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2a\v2a6821-6822\
Data File : 2A159869.D
Acq On : 11 Jul 2015 2:57 am
Operator : tracyk
Sample : jb98590-13
Misc : MS87777,V2A6821,5,,,,1
ALS Vial : 34 Sample Multiplier: 1

Quant Time: Jul 17 10:23:11 2015
Quant Method : C:\MSDCHEM\1\METHODS\M2A6798.M
Quant Title : Method SW846 8260B, ZB624 60mx0.25mmx1.4um
QLast Update : Tue Jun 30 09:56:27 2015
Response via : Initial Calibration

| Compound | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| Internal Standards | | | | | | |
| 1) Tert Butyl Alcohol-d9 | 8.563 | 65 | 121715 | 500.00 | ug/L | -0.01 |
| 5) pentafluorobenzene | 10.963 | 168 | 349437 | 50.00 | ug/L | 0.00 |
| 52) 1,4-difluorobenzene | 11.884 | 114 | 372343 | 50.00 | ug/L | 0.00 |
| 84) chlorobenzene-d5 | 14.850 | 117 | 297043 | 50.00 | ug/L | 0.00 |
| 98) 1,4-dichlorobenzene-d4 | 17.004 | 152 | 178470 | 50.00 | ug/L | 0.00 |
| System Monitoring Compounds | | | | | | |
| 46) dibromofluoromethane (s) | 11.037 | 113 | 123752 | 46.16 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 76 - 120 | | Recovery = 92.32% | | | |
| 47) 1,2-dichloroethane-d4 (s) | 11.466 | 65 | 143364 | 52.16 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 73 - 122 | | Recovery = 104.32% | | | |
| 76) toluene-d8 (s) | 13.432 | 98 | 378647 | 49.73 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 84 - 119 | | Recovery = 99.46% | | | |
| 100) 4-bromofluorobenzene (s) | 15.916 | 95 | 139858 | 46.01 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 78 - 117 | | Recovery = 92.02% | | | |
| Target Compounds | | | | | | Qvalue |
| 20) acetone | 7.836 | 43 | 10351 | 14.85 | ug/L | 80 |
| 25) carbon disulfide | 8.212 | 76 | 4018 | 0.46 | ug/L | 73 |
| 28) methyl tert butyl ether | 8.945 | 73 | 4206 | 0.54 | ug/L # | 1 |
| 31) 2-butanone | 10.404 | 72 | 1799 | 6.38 | ug/L # | 1 |
| 51) Cyclohexane | 11.131 | 84 | 429511 | 116.48 | ug/L | 98 |
| 57) hexane | 9.300 | 57 | 30068m | 10.92 | ug/L | |
| 60) benzene | 11.523 | 78 | 2162644 | 233.66 | ug/L | 99 |
| 73) methylcyclohexane | 12.402 | 83 | 657517 | 187.33 | ug/L | 96 |
| 78) toluene | 13.500 | 92 | 41004 | 7.76 | ug/L | 98 |
| 93) ethylbenzene | 14.912 | 91 | 1584562 | 153.56 | ug/L | 98 |
| 94) m,p-xylene | 15.012 | 106 | 505266 | 128.54 | ug/L | 98 |
| 95) o-xylene | 15.404 | 106 | 21102 | 5.43 | ug/L | 100 |
| 99) isopropylbenzene | 15.707 | 105 | 1101514 | 102.82 | ug/L | 100 |
| 106) n-propylbenzene | 16.089 | 120 | 394661 | 142.70 | ug/L | 92 |
| 109) 1,3,5-trimethylbenzene | 16.220 | 105 | 1013702 | 112.72 | ug/L | 98 |
| 110) tert-butylbenzene | 16.549 | 119 | 80289 | 9.81 | ug/L | 99 |
| 112) 1,2,4-trimethylbenzene | 16.591 | 105 | 5034241 | 561.80 | ug/L | 98 |
| 113) sec-butylbenzene | 16.748 | 105 | 349639 | 30.62 | ug/L | 98 |
| 115) p-isopropyltoluene | 16.858 | 119 | 109012 | 10.87 | ug/L | 98 |
| 124) naphthalene | 19.321 | 128 | 3614830 | 392.63 | ug/L | 99 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

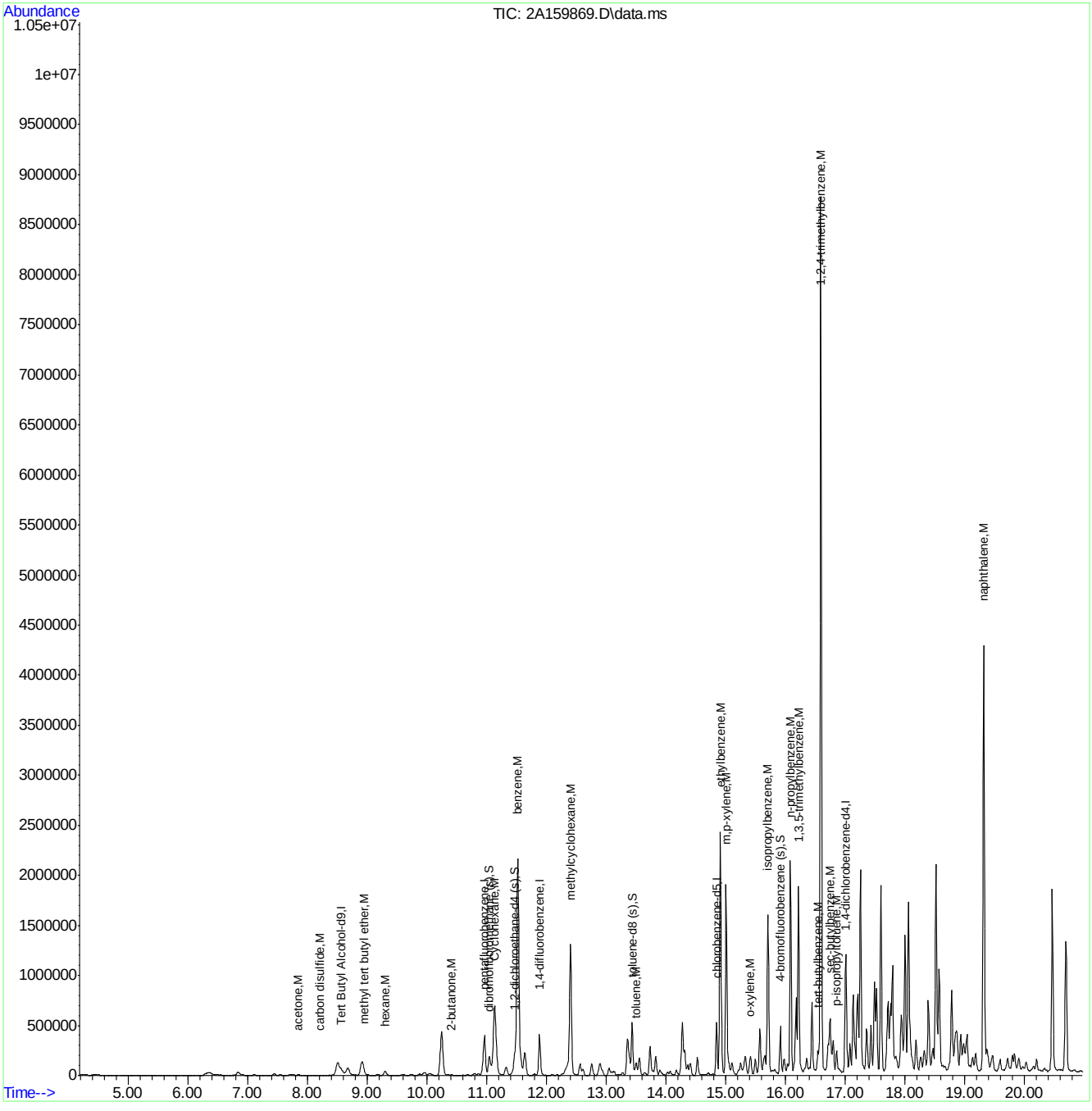
7.1.13

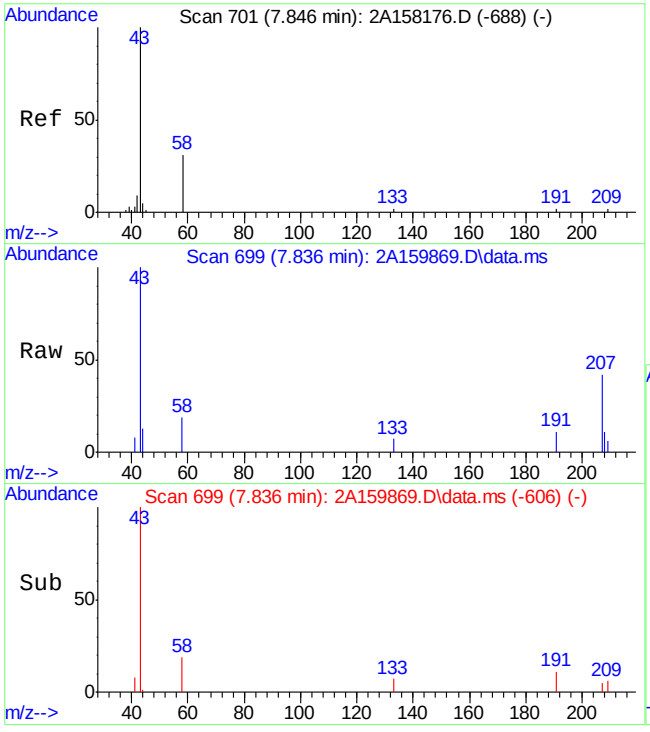
7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2a\v2a6821-6822\
Data File : 2A159869.D
Acq On : 11 Jul 2015 2:57 am
Operator : tracyk
Sample : jb98590-13
Misc : MS87777,V2A6821,5,,,,1
ALS Vial : 34 Sample Multiplier: 1

Quant Time: Jul 17 10:23:11 2015
Quant Method : C:\MSDCHEM\1\METHODS\M2A6798.M
Quant Title : Method SW846 8260B, ZB624 60mx0.25mmx1.4um
QLast Update : Tue Jun 30 09:56:27 2015
Response via : Initial Calibration

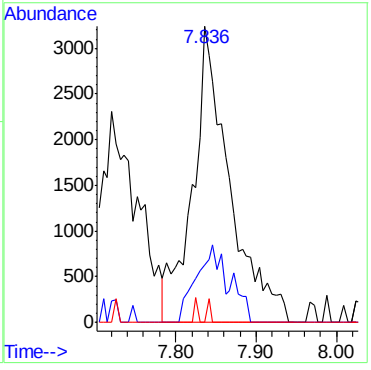


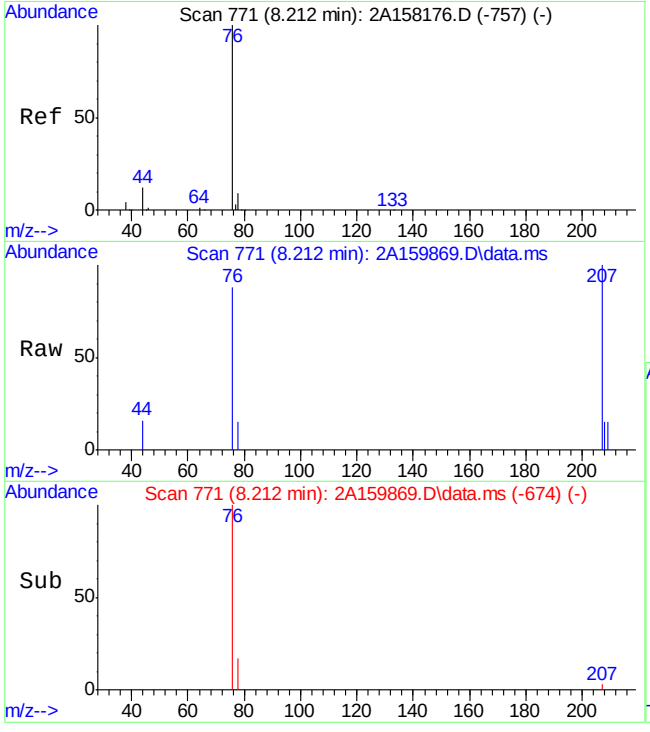



#20
acetone
Concen: 14.85 ug/L
RT: 7.836 min Scan# 699
Delta R.T. -0.015 min
Lab File: 2A159869.D
Acq: 11 Jul 2015 2:57 am

Tgt Ion: 43 Resp: 10351

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 43 | 100 | | |
| 58 | 19.3 | 0.0 | 59.2 |
| 42 | 0.0 | 0.0 | 39.3 |

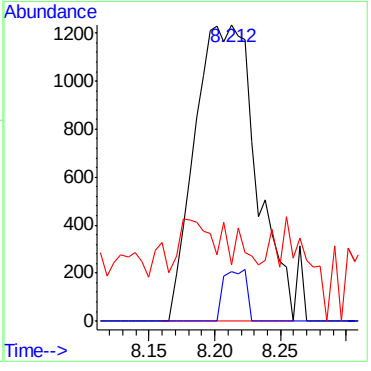


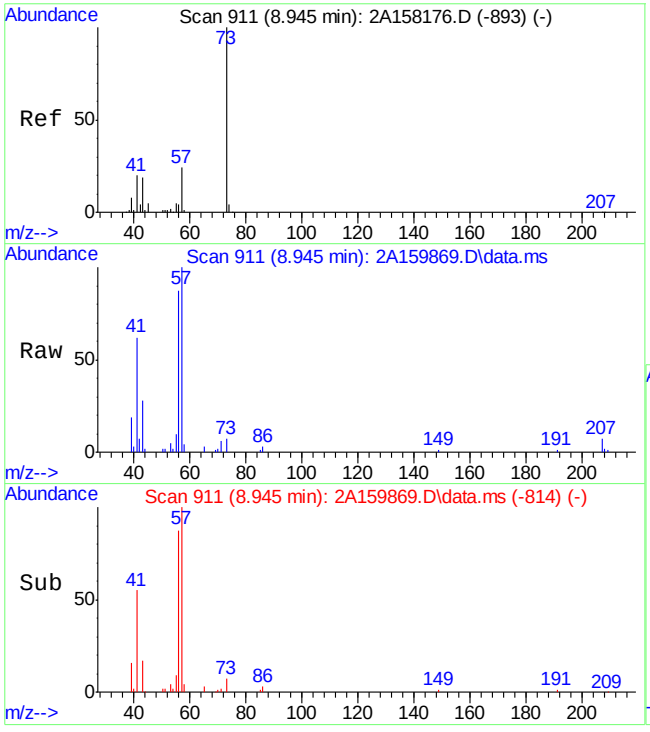




#25
carbon disulfide
Concen: 0.46 ug/L
RT: 8.212 min Scan# 771
Delta R.T. 0.005 min
Lab File: 2A159869.D
Acq: 11 Jul 2015 2:57 am

Tgt Ion: 76 Resp: 4018

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 76 | 100 | | |
| 78 | 16.6 | 0.0 | 38.8 |
| 44 | 0.0 | 0.0 | 41.9 |

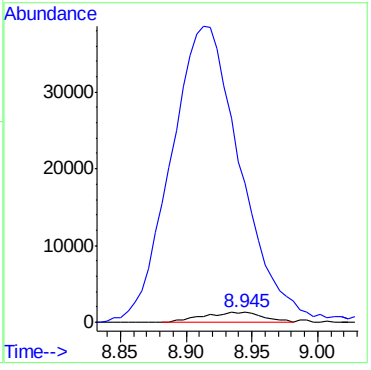


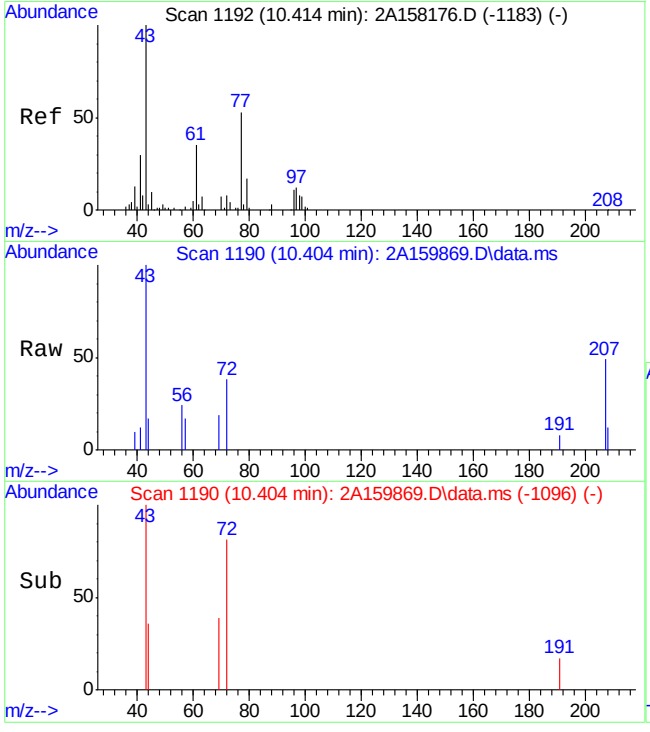



#28
methyl tert butyl ether
Concen: 0.54 ug/L
RT: 8.945 min Scan# 911
Delta R.T. 0.006 min
Lab File: 2A159869.D
Acq: 11 Jul 2015 2:57 am

Tgt Ion: 73 Resp: 4206

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 73 | 100 | | |
| 57 | 1138.9 | 0.0 | 42.4# |

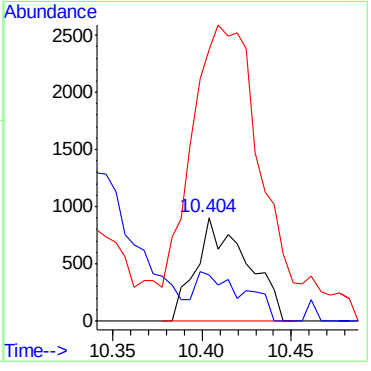


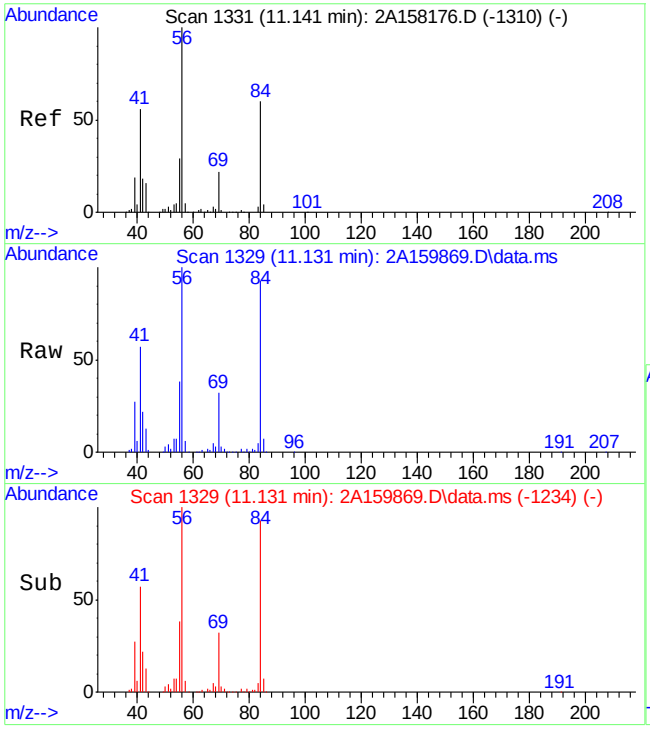




#31
2-butanone
Concen: 6.38 ug/L
RT: 10.404 min Scan# 1190
Delta R.T. -0.010 min
Lab File: 2A159869.D
Acq: 11 Jul 2015 2:57 am

Tgt Ion: 72 Resp: 1799

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 72 | 100 | | |
| 57 | 44.4 | 0.5 | 60.5 |
| 43 | 228.6 | 1119.6 | 1179.6# |

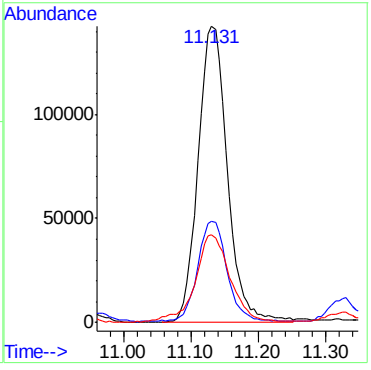


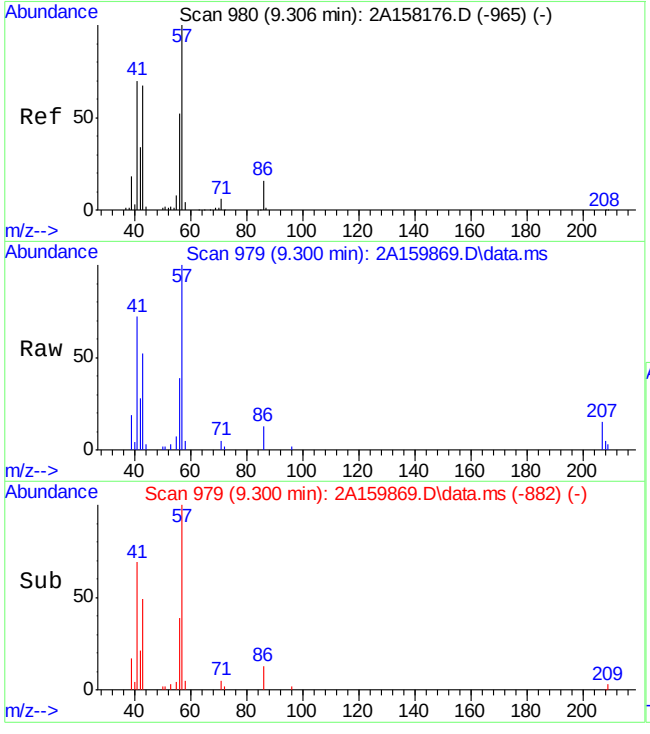



#51
Cyclohexane
Concen: 116.48 ug/L
RT: 11.131 min Scan# 1329
Delta R.T. -0.004 min
Lab File: 2A159869.D
Acq: 11 Jul 2015 2:57 am

Tgt Ion: 84 Resp: 429511

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 84 | 100 | | |
| 69 | 34.2 | 4.8 | 64.8 |
| 39 | 29.4 | 1.1 | 61.1 |

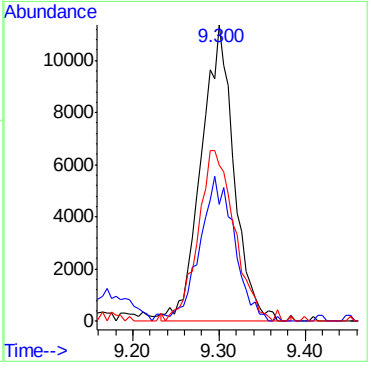


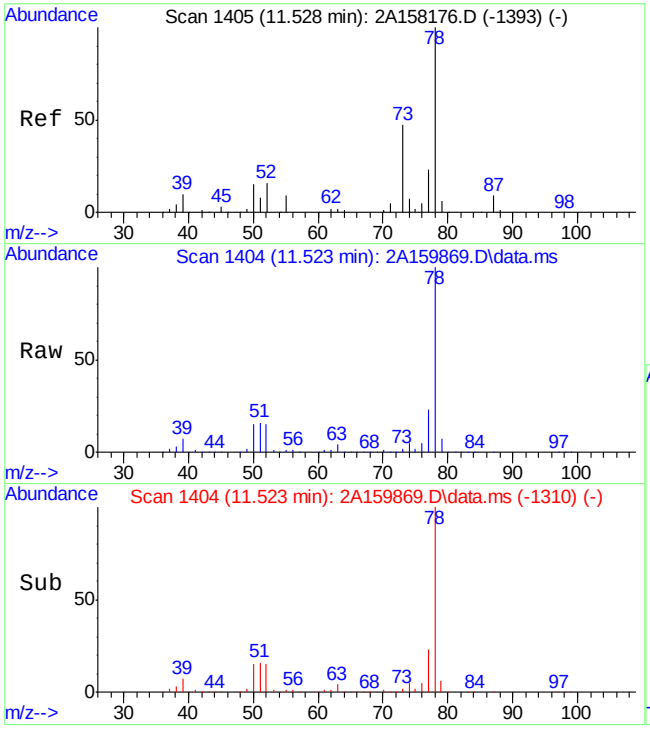




#57
hexane
Concen: 10.92 ug/L m
RT: 9.300 min Scan# 979
Delta R.T. 0.005 min
Lab File: 2A159869.D
Acq: 11 Jul 2015 2:57 am

Tgt Ion: 57 Resp: 30068

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 57 | 100 | | |
| 56 | 39.4 | 19.3 | 79.3 |
| 43 | 52.5 | 33.2 | 93.2 |

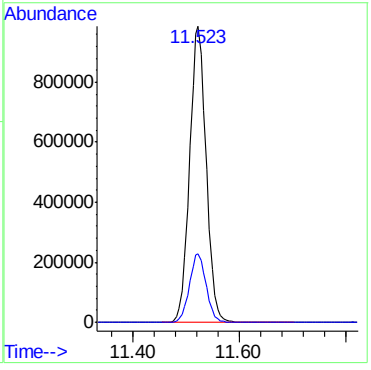


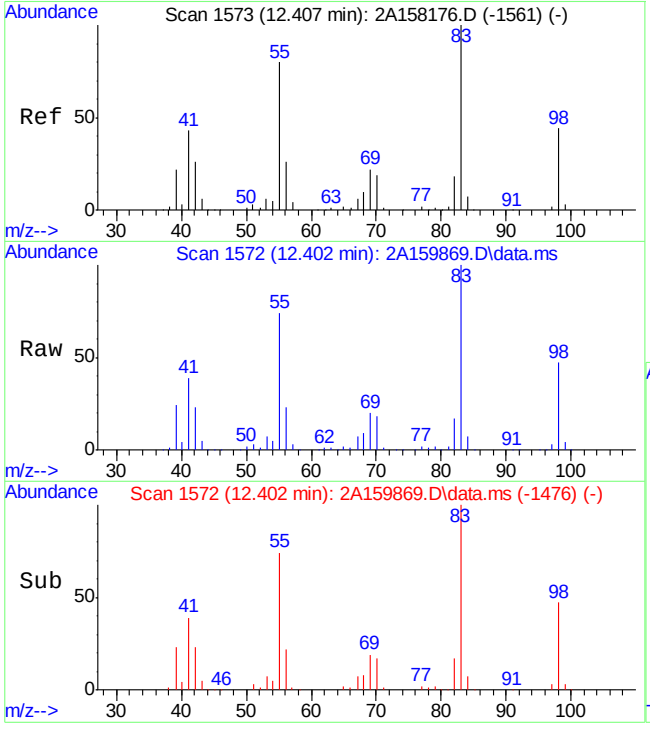



#60
benzene
Concen: 233.66 ug/L
RT: 11.523 min Scan# 1404
Delta R.T. 0.000 min
Lab File: 2A159869.D
Acq: 11 Jul 2015 2:57 am

Tgt Ion: 78 Resp: 2162644

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 78 | 100 | | |
| 77 | 23.3 | 0.0 | 53.0 |

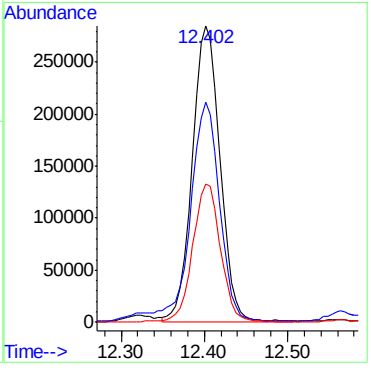



#73
methylcyclohexane
Concen: 187.33 ug/L
RT: 12.402 min Scan# 1572
Delta R.T. 0.001 min
Lab File: 2A159869.D
Acq: 11 Jul 2015 2:57 am

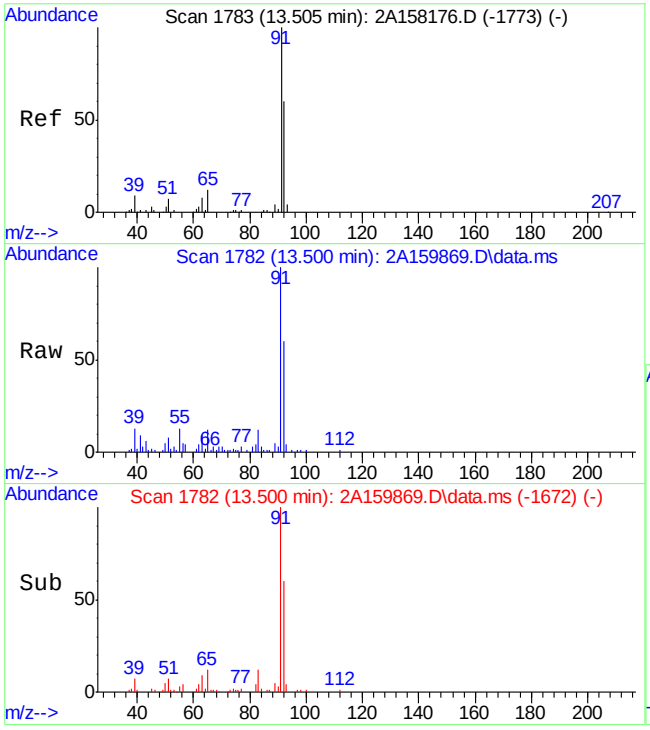
Tgt Ion: 83 Resp: 657517

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 83 | 100 | | |
| 55 | 74.2 | 48.1 | 108.1 |
| 98 | 46.5 | 13.7 | 73.7 |




7.1.13

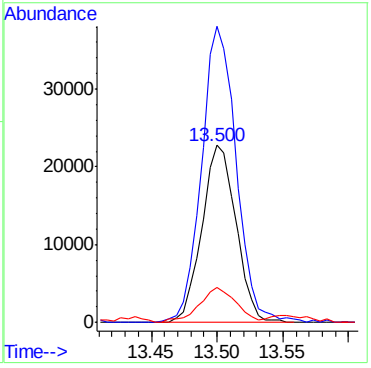
7

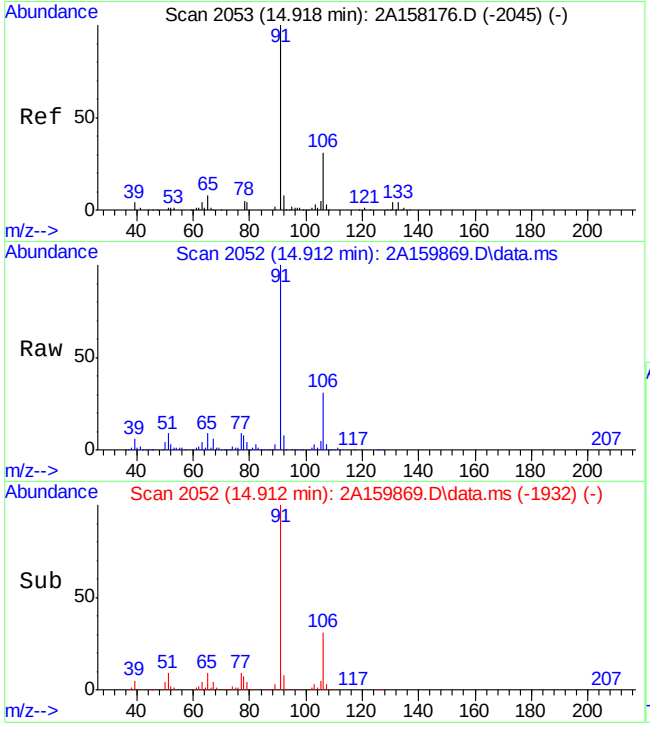



#78
toluene
Concen: 7.76 ug/L
RT: 13.500 min Scan# 1782
Delta R.T. -0.005 min
Lab File: 2A159869.D
Acq: 11 Jul 2015 2:57 am

Tgt Ion: 92 Resp: 41004

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 92 | 100 | | |
| 91 | 166.4 | 139.1 | 199.1 |
| 65 | 19.8 | 0.0 | 48.7 |

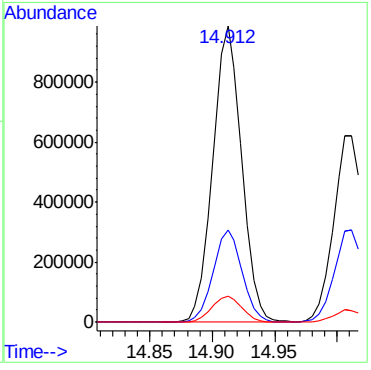


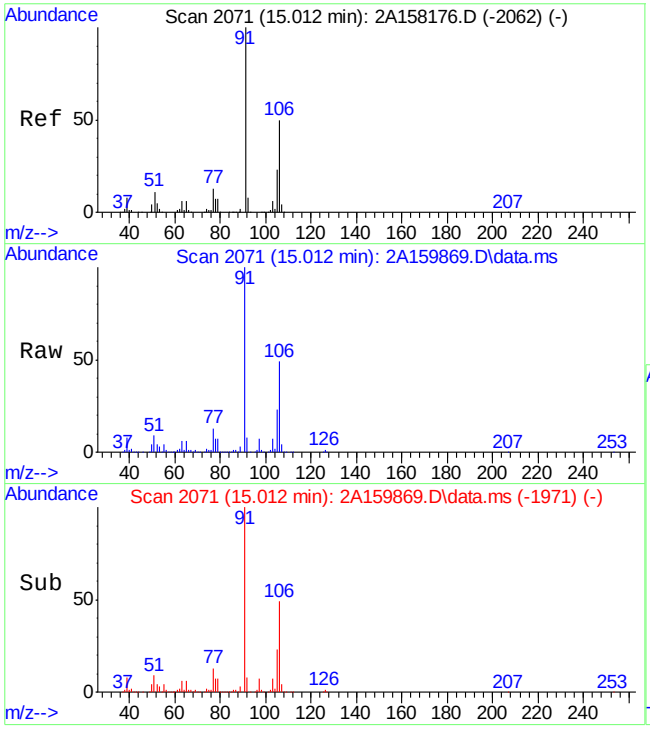




#93
ethylbenzene
Concen: 153.56 ug/L
RT: 14.912 min Scan# 2052
Delta R.T. 0.000 min
Lab File: 2A159869.D
Acq: 11 Jul 2015 2:57 am

Tgt Ion: 91 Resp: 1584562

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 91 | 100 | | |
| 106 | 31.1 | 0.2 | 60.2 |
| 65 | 8.7 | 0.0 | 38.2 |

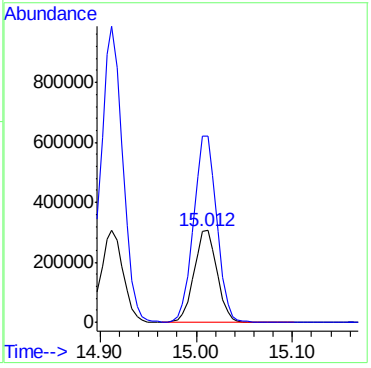


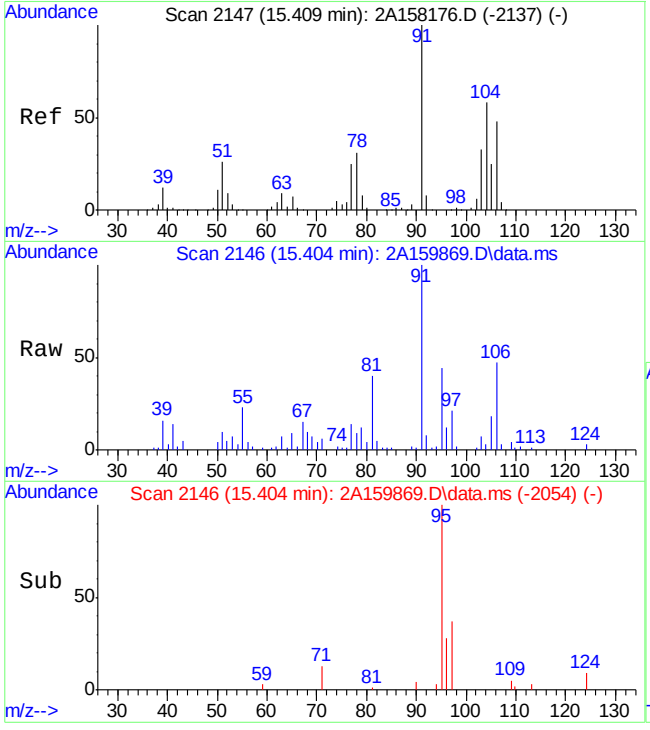



#94
m,p-xylene
Concen: 128.54 ug/L
RT: 15.012 min Scan# 2071
Delta R.T. 0.005 min
Lab File: 2A159869.D
Acq: 11 Jul 2015 2:57 am

Tgt Ion:106 Resp: 505266

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 106 | 100 | | |
| 91 | 202.5 | 169.6 | 229.6 |

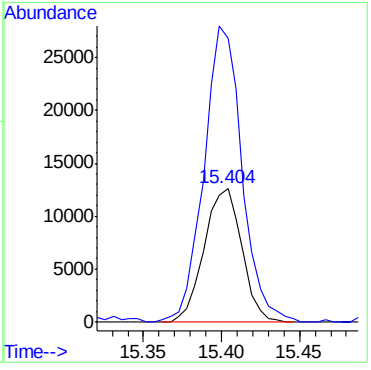


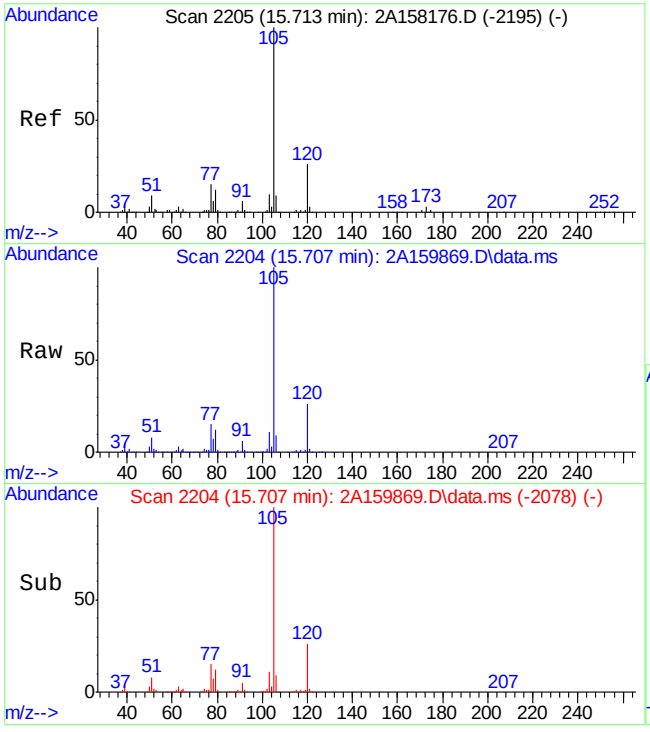




#95
o-xylene
Concen: 5.43 ug/L
RT: 15.404 min Scan# 2146
Delta R.T. 0.000 min
Lab File: 2A159869.D
Acq: 11 Jul 2015 2:57 am

Tgt Ion:106 Resp: 21102

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 106 | 100 | | |
| 91 | 210.5 | 180.7 | 240.7 |

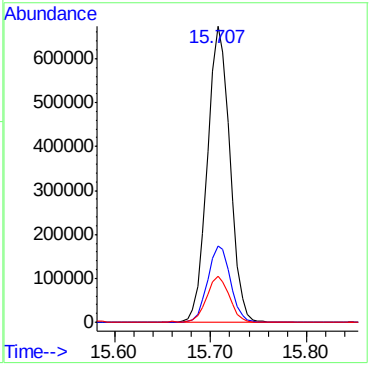


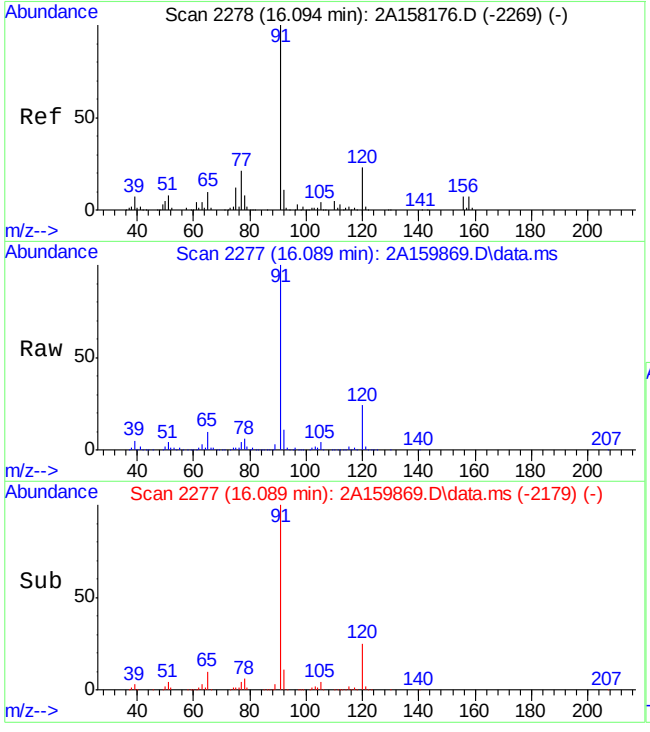



#99
isopropylbenzene
Concen: 102.82 ug/L
RT: 15.707 min Scan# 2204
Delta R.T. 0.000 min
Lab File: 2A159869.D
Acq: 11 Jul 2015 2:57 am

Tgt Ion:105 Resp: 1101514

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 105 | 100 | | |
| 120 | 25.8 | 0.0 | 55.8 |
| 77 | 15.4 | 0.0 | 45.7 |

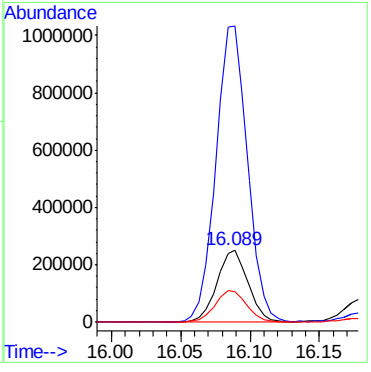


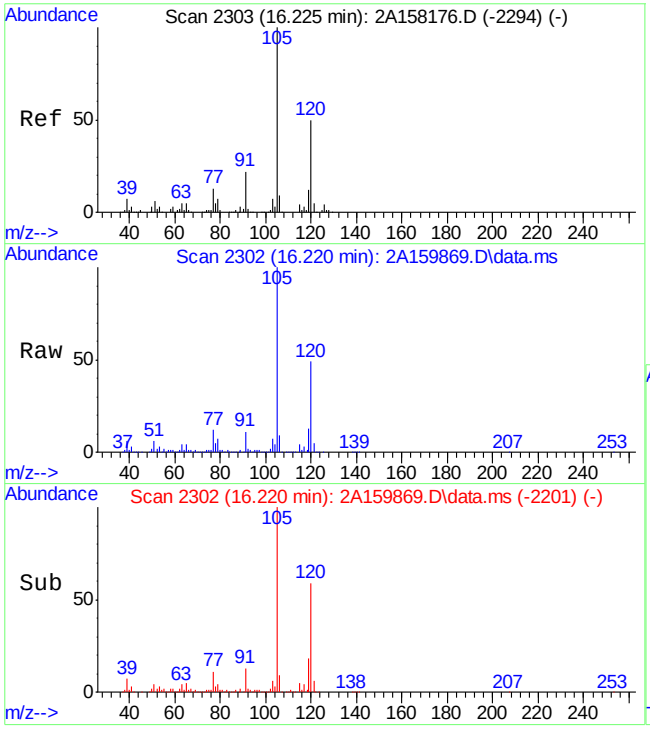




#106
n-propylbenzene
Concen: 142.70 ug/L
RT: 16.089 min Scan# 2277
Delta R.T. 0.001 min
Lab File: 2A159869.D
Acq: 11 Jul 2015 2:57 am

Tgt Ion:120 Resp: 394661

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 120 | 100 | | |
| 91 | 408.4 | 399.4 | 459.4 |
| 65 | 42.1 | 14.1 | 74.1 |

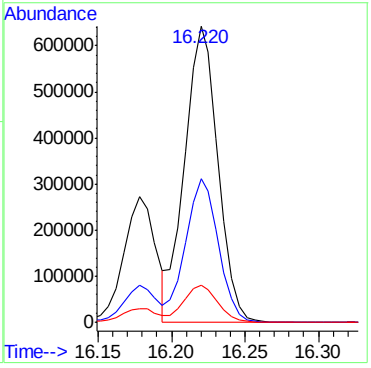


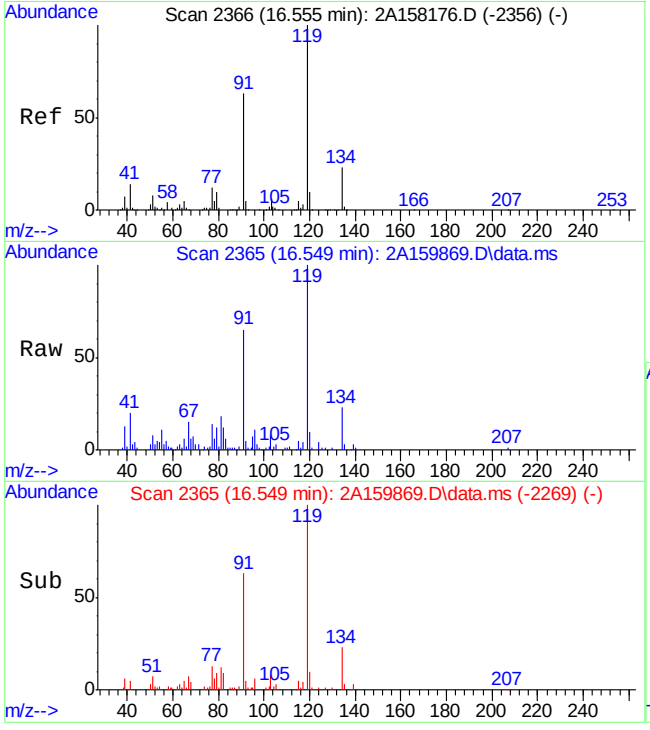



#109
1,3,5-trimethylbenzene
Concen: 112.72 ug/L
RT: 16.220 min Scan# 2302
Delta R.T. 0.000 min
Lab File: 2A159869.D
Acq: 11 Jul 2015 2:57 am

Tgt Ion:105 Resp: 1013702

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 105 | 100 | | |
| 120 | 48.7 | 20.1 | 80.1 |
| 77 | 12.3 | 0.0 | 43.0 |

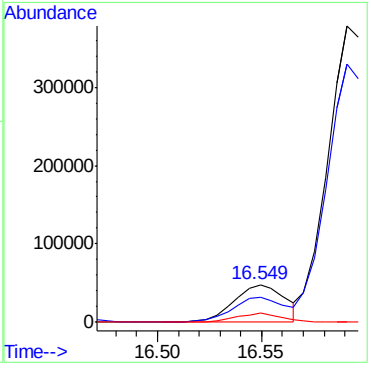


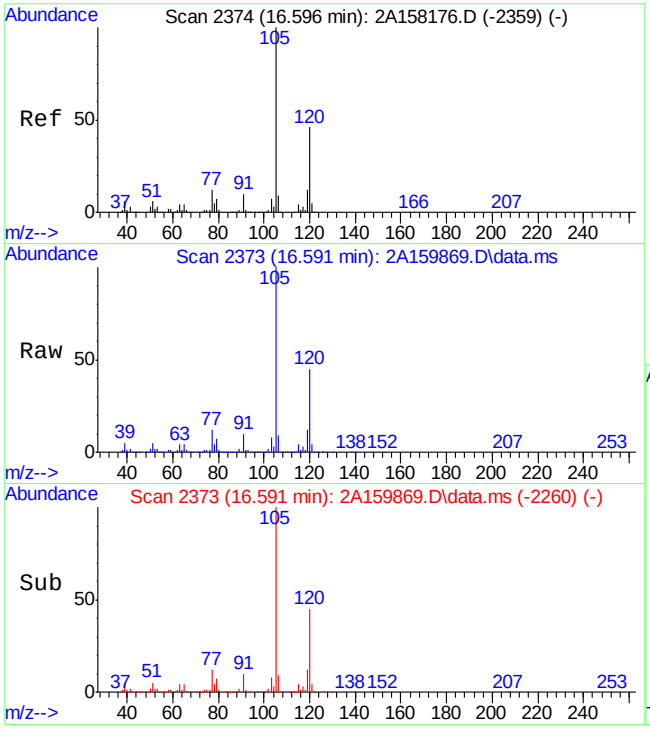




#110
tert-butylbenzene
Concen: 9.81 ug/L
RT: 16.549 min Scan# 2365
Delta R.T. 0.000 min
Lab File: 2A159869.D
Acq: 11 Jul 2015 2:57 am

Tgt Ion:119 Resp: 80289

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 119 | 100 | | |
| 91 | 64.1 | 35.0 | 95.0 |
| 134 | 23.0 | 0.0 | 53.0 |

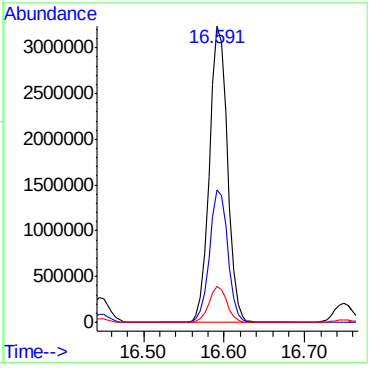


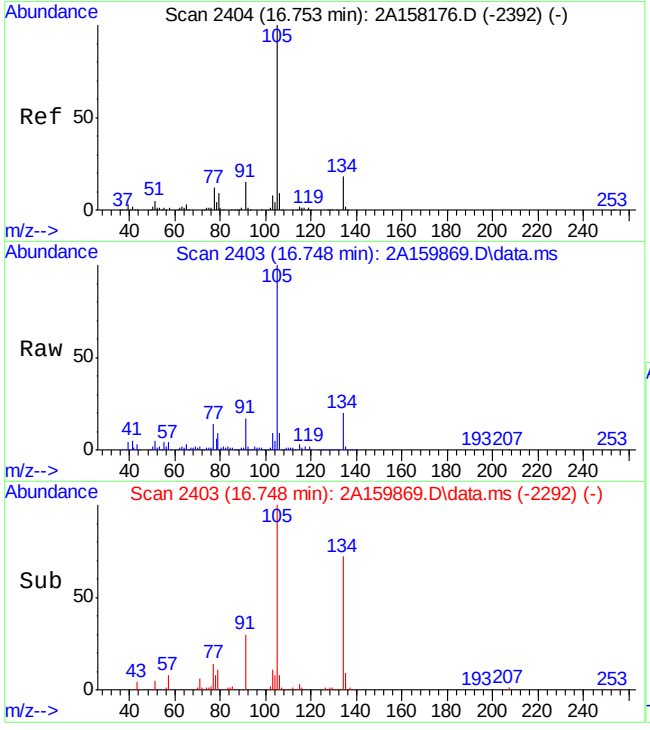



#112
1,2,4-trimethylbenzene
Concen: 561.80 ug/L
RT: 16.591 min Scan# 2373
Delta R.T. 0.000 min
Lab File: 2A159869.D
Acq: 11 Jul 2015 2:57 am

Tgt Ion:105 Resp: 5034241

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 105 | 100 | | |
| 120 | 44.9 | 16.1 | 76.1 |
| 77 | 12.1 | 0.0 | 42.3 |

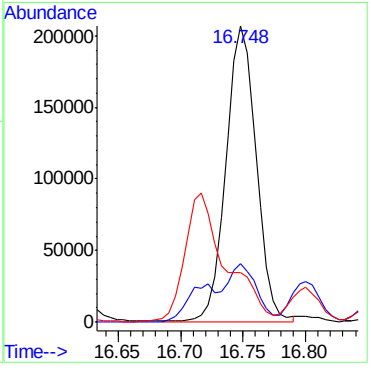


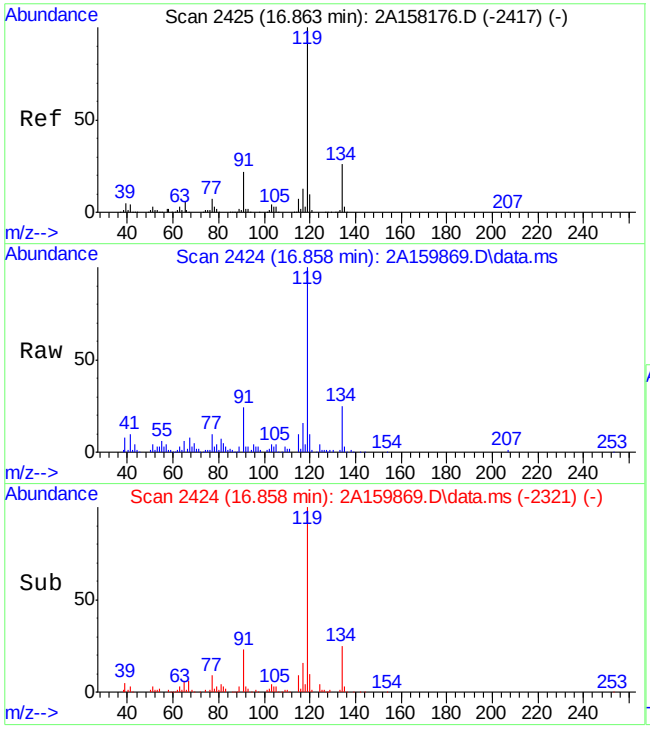




#113
sec-butylbenzene
Concen: 30.62 ug/L
RT: 16.748 min Scan# 2403
Delta R.T. 0.000 min
Lab File: 2A159869.D
Acq: 11 Jul 2015 2:57 am

Tgt Ion:105 Resp: 349639

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 105 | 100 | | |
| 134 | 19.7 | 0.0 | 48.8 |
| 91 | 15.7 | 0.0 | 46.2 |

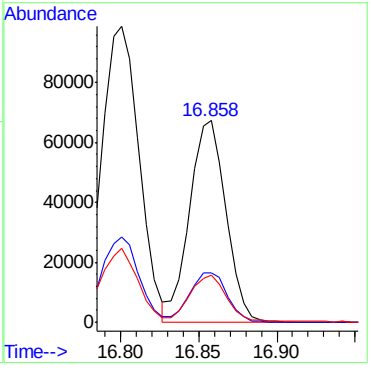


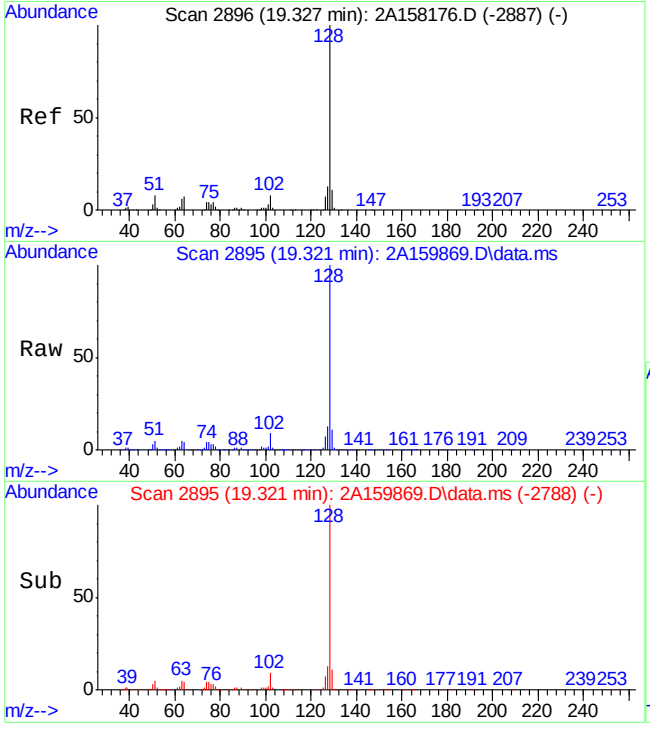



#115
p-isopropyltoluene
Concen: 10.87 ug/L
RT: 16.858 min Scan# 2424
Delta R.T. 0.000 min
Lab File: 2A159869.D
Acq: 11 Jul 2015 2:57 am

Tgt Ion:119 Resp: 109012

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 119 | 100 | | |
| 134 | 24.5 | 0.0 | 55.1 |
| 91 | 23.1 | 0.0 | 51.7 |

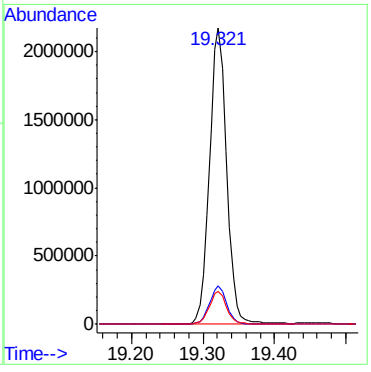



#124
naphthalene
Concen: 392.63 ug/L
RT: 19.321 min Scan# 2895
Delta R.T. 0.000 min
Lab File: 2A159869.D
Acq: 11 Jul 2015 2:57 am

Tgt Ion:128 Resp: 3614830

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 128 | 100 | | |
| 127 | 13.0 | 0.0 | 42.5 |
| 129 | 11.1 | 0.0 | 40.9 |



Manual Integrations APPROVED (compounds with "m" flag)
Kanya Veerawat 07/17/15 16:02

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : c201887.D
Acq On : 16 Jul 2015 3:35 pm
Operator : mihirm
Sample : jb98590-13
Misc : MS87777,VC7407,5,,,,20
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Jul 16 17:24:30 2015
Quant Method : C:\MSDCHEM\1\METHODS\MC7362.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Wed Jun 10 15:01:19 2015
Response via : Initial Calibration

| Internal Standards | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| 1) Tert Butyl Alcohol-d9 | 8.135 | 65 | 218344 | 500.00 | ug/L | 0.00 |
| 5) pentafluorobenzene | 10.828 | 168 | 520699 | 50.00 | ug/L | 0.00 |
| 59) 1,4-difluorobenzene | 11.780 | 114 | 694429 | 50.00 | ug/L | 0.00 |
| 88) chlorobenzene-d5 | 14.819 | 117 | 609893 | 50.00 | ug/L | 0.00 |
| 104) 1,4-dichlorobenzene-d4 | 16.832 | 152 | 329073 | 50.00 | ug/L | 0.00 |

System Monitoring Compounds

| | | | | | | |
|---|---|---|---|---|---|---|
| 50) dibromofluoromethane (s) | 10.886 | 113 | 199871 | 48.84 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 76 - 120 | | Recovery = 97.68% | | | |
| 51) 1,2-dichloroethane-d4 (s) | 11.330 | 65 | 269045 | 56.62 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 73 - 122 | | Recovery = 113.24% | | | |
| 80) toluene-d8 (s) | 13.391 | 98 | 823951 | 50.90 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 84 - 119 | | Recovery = 101.80% | | | |
| 106) 4-bromofluorobenzene (s) | 15.844 | 174 | 250983 | 52.49 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 78 - 117 | | Recovery = 104.98% | | | |

| Target Compounds | | | | | | Qvalue |
|---|---|---|---|---|---|---|
| 54) cyclohexane | 10.938 | 84 | 34937 | 5.70 | ug/L # | 84 |
| 64) hexane | 8.966 | 57 | 2979m | 0.78 | ug/L | |
| 65) benzene | 11.372 | 78 | 170728 | 10.51 | ug/L | 100 |
| 73) methylcyclohexane | 12.293 | 83 | 55065 | 9.59 | ug/L | 96 |
| 82) toluene | 13.464 | 92 | 3807 | 0.38 | ug/L | 88 |
| 99) ethylbenzene | 14.882 | 91 | 132798 | 7.02 | ug/L | 96 |
| 100) m,p-xylene | 14.976 | 106 | 43320 | 5.93 | ug/L | 100 |
| 101) o-xylene | 15.352 | 106 | 2073 | 0.28 | ug/L | 86 |
| 105) isopropylbenzene | 15.645 | 105 | 94952 | 5.30 | ug/L | 99 |
| 111) n-propylbenzene | 16.001 | 91 | 146809 | 7.05 | ug/L | 99 |
| 115) 1,3,5-trimethylbenzene | 16.121 | 105 | 99629 | 6.22 | ug/L | 97 |
| 116) tert-butylbenzene | 16.424 | 134 | 1982 | 0.59 | ug/L | 94 |
| 118) 1,2,4-trimethylbenzene | 16.461 | 105 | 440483 | 26.76 | ug/L | 99 |
| 126) n-butylbenzene | 17.036 | 92 | 15421m | 1.73 | ug/L | |
| 132) naphthalene | 18.731 | 128 | 355326 | 17.53 | ug/L | 99 |

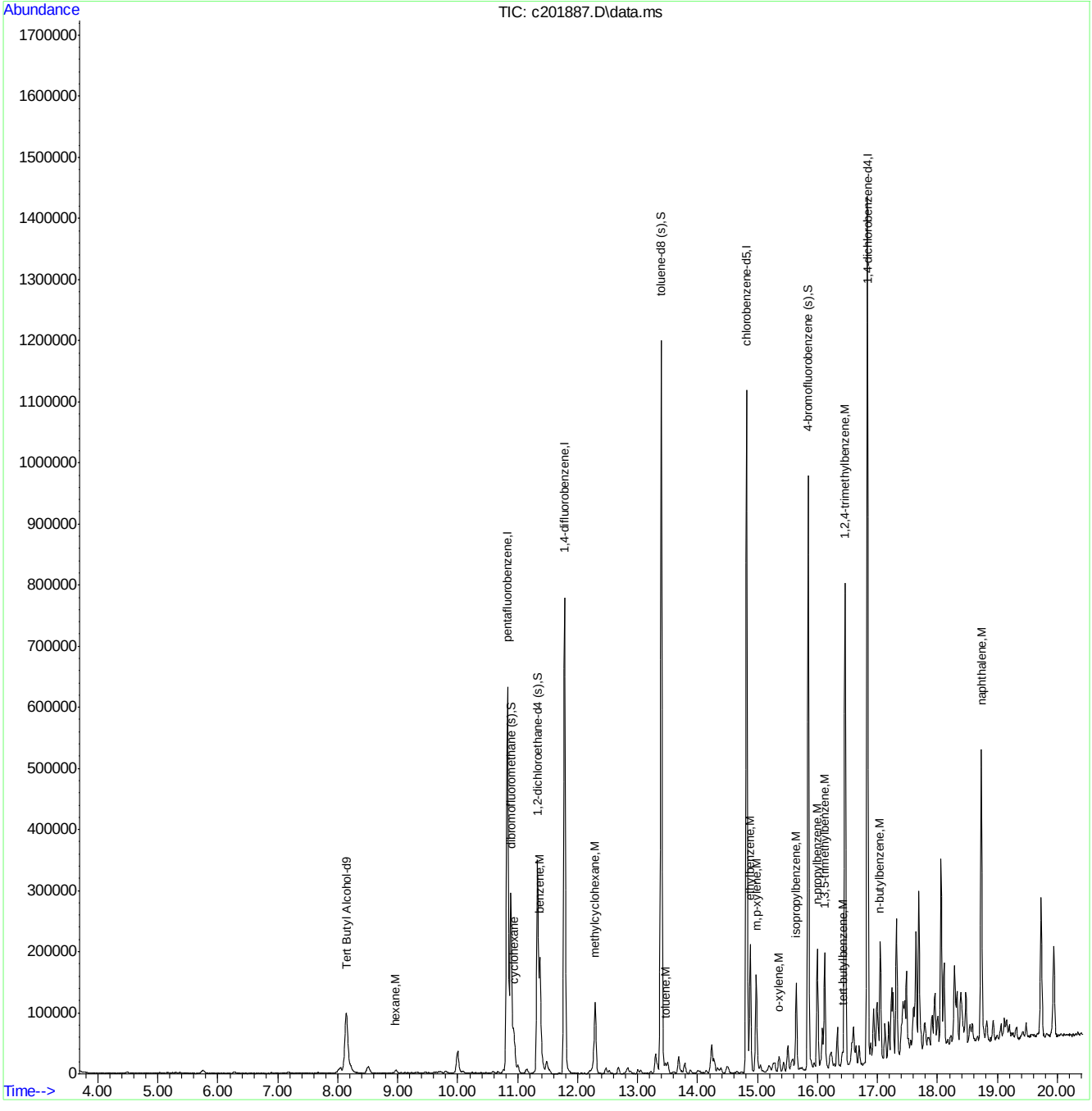
(#) = qualifier out of range (m) = manual integration (+) = signals summed

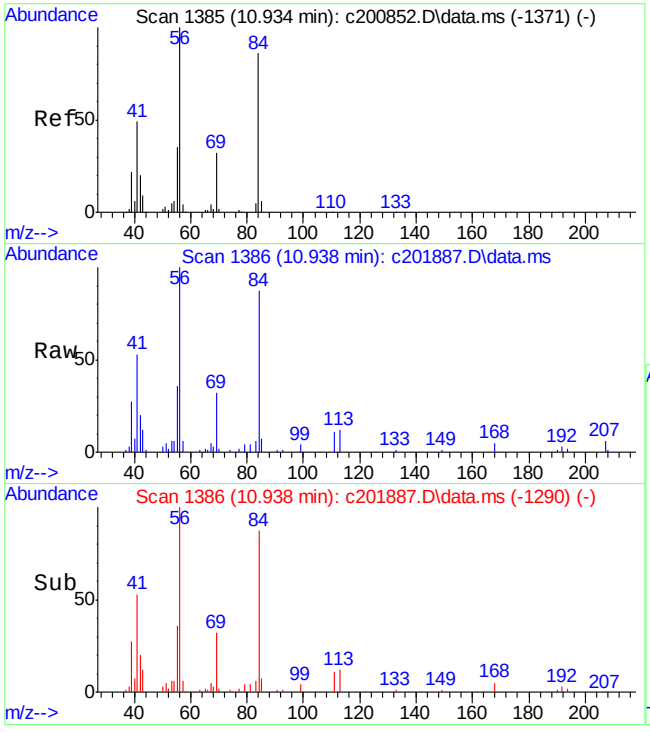
7.1.14
7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : c201887.D
Acq On : 16 Jul 2015 3:35 pm
Operator : mihirm
Sample : jb98590-13
Misc : MS87777,VC7407,5,,,,20
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Jul 16 17:24:30 2015
Quant Method : C:\MSDCHEM\1\METHODS\MC7362.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Wed Jun 10 15:01:19 2015
Response via : Initial Calibration

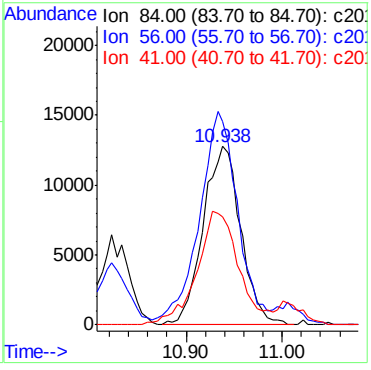


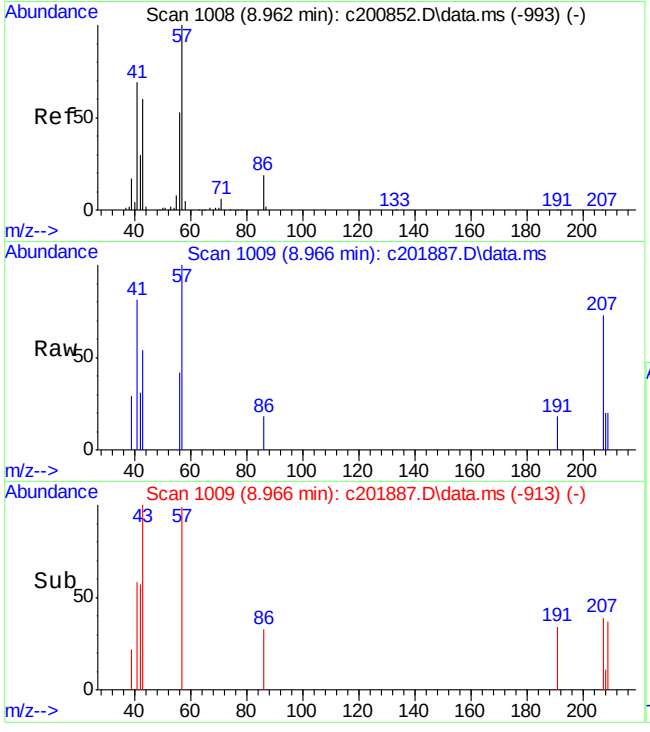



#54
cyclohexane
Concen: 5.70 ug/L
RT: 10.938 min Scan# 1386
Delta R.T. 0.004 min
Lab File: c201887.D
Acq: 16 Jul 2015 3:35 pm

Tgt Ion: 84 Resp: 34937

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 84 | 100 | | |
| 56 | 123.0 | 76.9 | 142.7 |
| 41 | 70.9 | 38.0 | 70.6# |

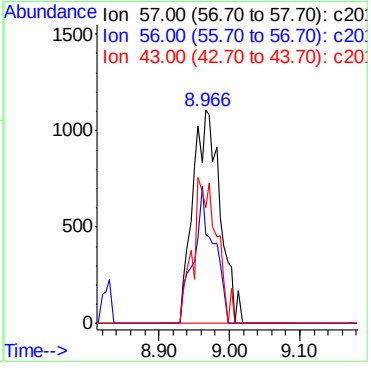


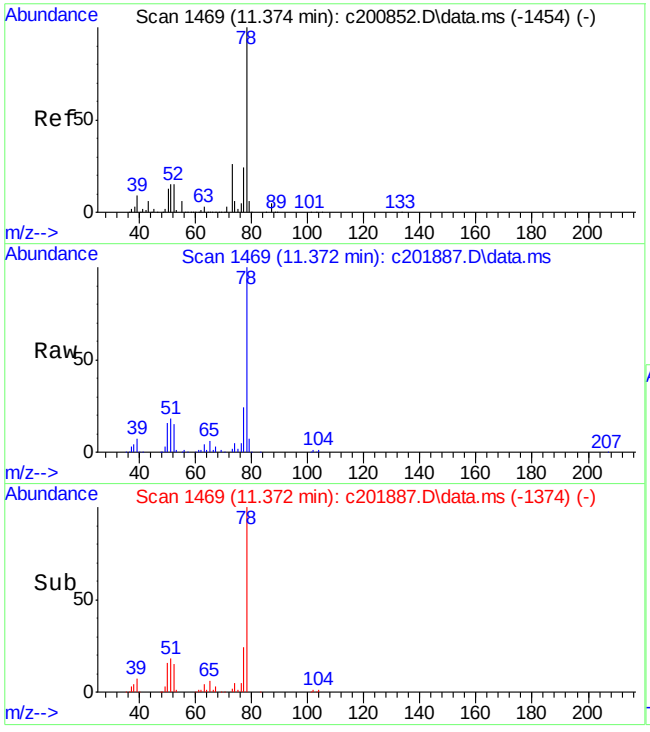




#64
hexane
Concen: 0.78 ug/L m
RT: 8.966 min Scan# 1009
Delta R.T. 0.004 min
Lab File: c201887.D
Acq: 16 Jul 2015 3:35 pm

Tgt Ion: 57 Resp: 2979

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 57 | 100 | | |
| 56 | 41.7 | 22.6 | 82.6 |
| 43 | 54.1 | 29.5 | 89.5 |

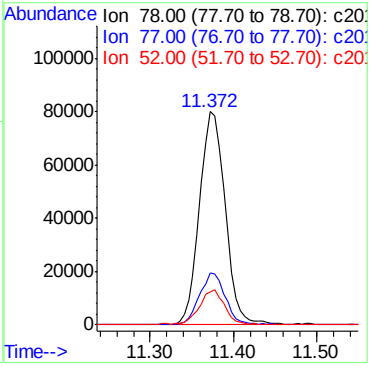


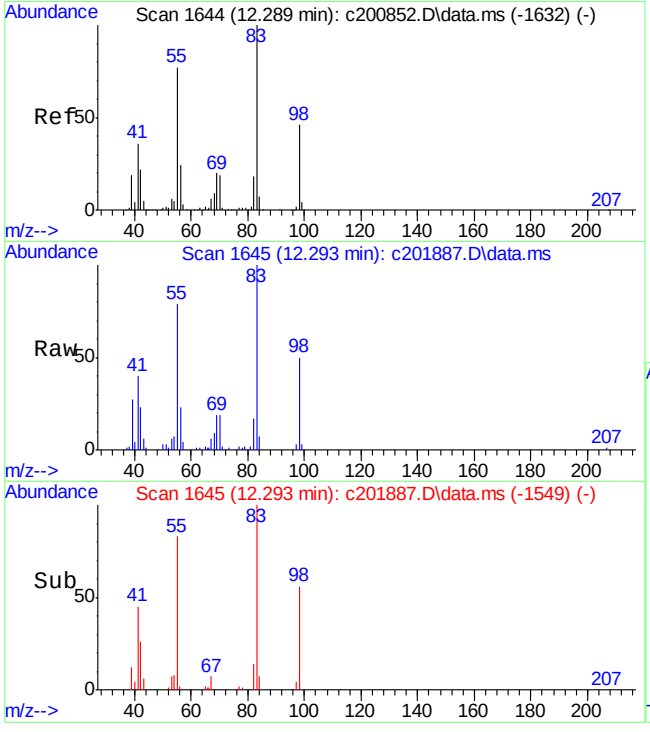



#65
benzene
Concen: 10.51 ug/L
RT: 11.372 min Scan# 1469
Delta R.T. -0.002 min
Lab File: c201887.D
Acq: 16 Jul 2015 3:35 pm

Tgt Ion: 78 Resp: 170728

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 78 | 100 | | |
| 77 | 24.2 | 0.0 | 54.1 |
| 52 | 15.2 | 0.0 | 45.2 |

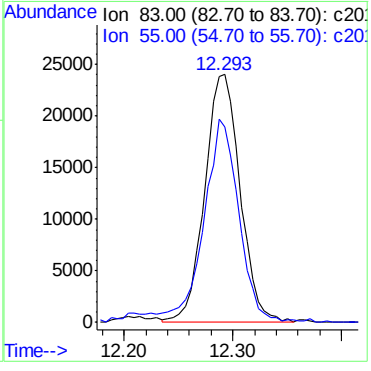



#73
methylcyclohexane
Concen: 9.59 ug/L
RT: 12.293 min Scan# 1645
Delta R.T. 0.004 min
Lab File: c201887.D
Acq: 16 Jul 2015 3:35 pm

Tgt Ion: 83 Resp: 55065

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 83 | 100 | | |
| 55 | 81.2 | 54.3 | 100.8 |

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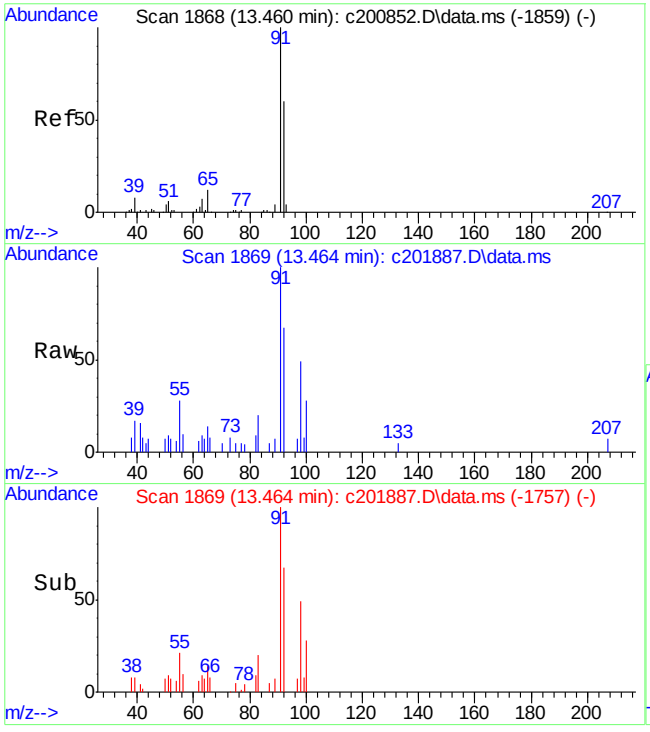
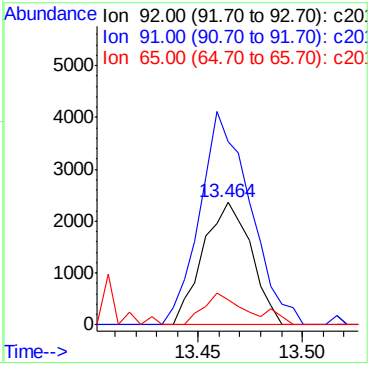
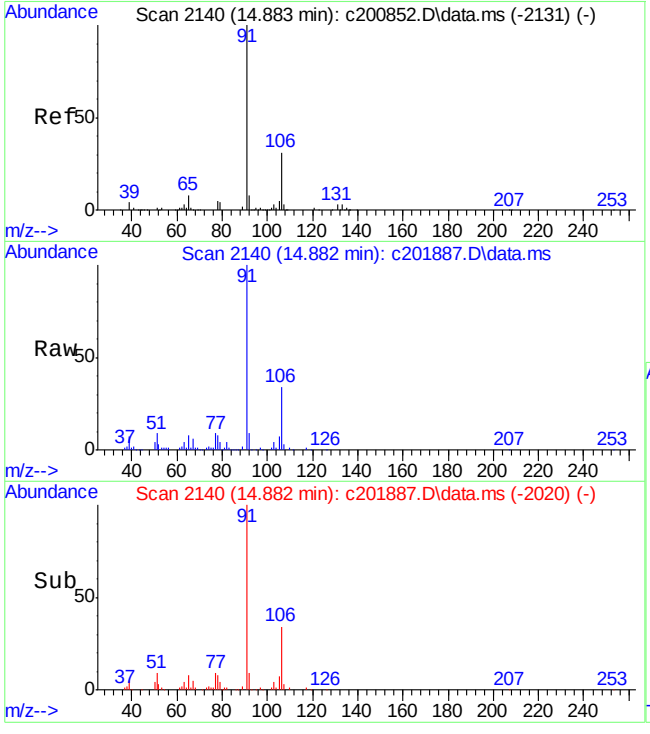



#82
toluene
Concen: 0.38 ug/L
RT: 13.464 min Scan# 1869
Delta R.T. 0.004 min
Lab File: c201887.D
Acq: 16 Jul 2015 3:35 pm

Tgt Ion: 92 Resp: 3807

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 92 | 100 | | |
| 91 | 148.7 | 135.8 | 195.8 |
| 65 | 20.7 | 0.0 | 49.5 |

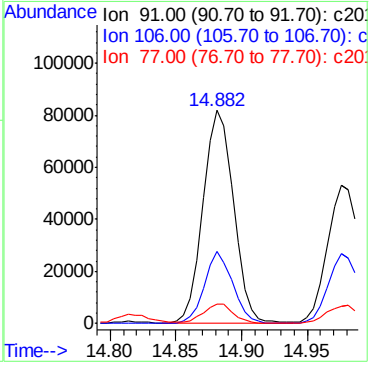


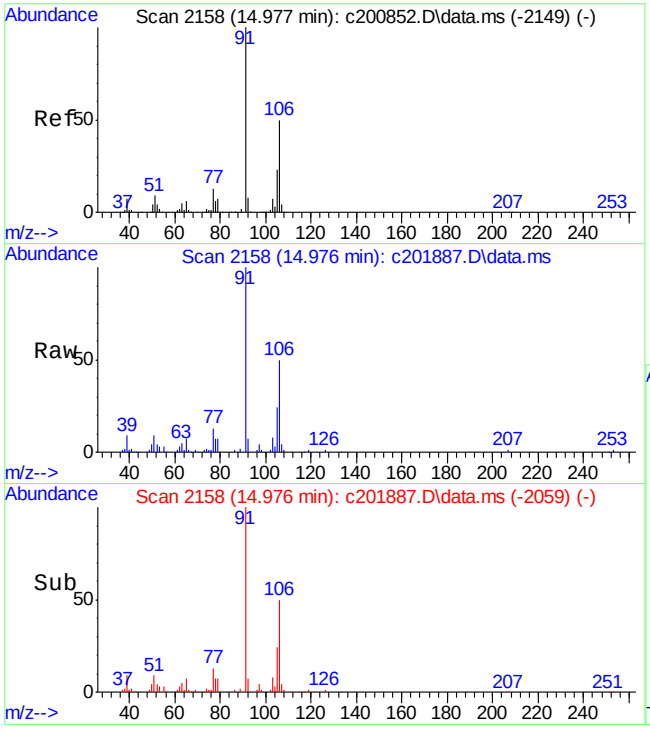




#99
ethylbenzene
Concen: 7.02 ug/L
RT: 14.882 min Scan# 2140
Delta R.T. -0.001 min
Lab File: c201887.D
Acq: 16 Jul 2015 3:35 pm

Tgt Ion: 91 Resp: 132798

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 91 | 100 | | |
| 106 | 33.9 | 1.4 | 61.4 |
| 77 | 9.0 | 0.0 | 38.3 |

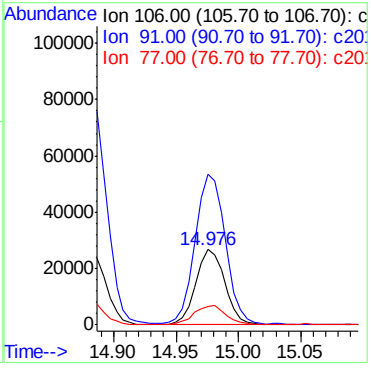


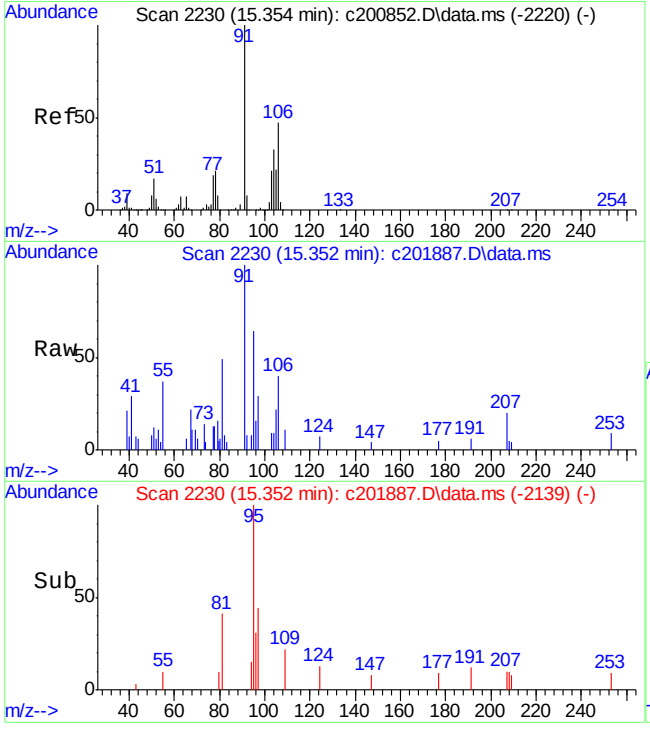



#100
m,p-xylene
Concen: 5.93 ug/L
RT: 14.976 min Scan# 2158
Delta R.T. -0.001 min
Lab File: c201887.D
Acq: 16 Jul 2015 3:35 pm

Tgt Ion:106 Resp: 43320

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 106 | 100 | | |
| 91 | 198.6 | 168.9 | 228.9 |
| 77 | 25.1 | 0.0 | 55.4 |

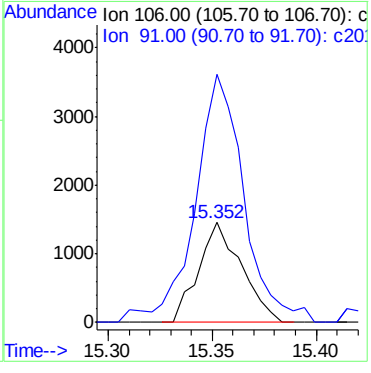



#101
o-xylene
Concen: 0.28 ug/L
RT: 15.352 min Scan# 2230
Delta R.T. -0.002 min
Lab File: c201887.D
Acq: 16 Jul 2015 3:35 pm

Tgt Ion:106 Resp: 2073

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 106 | 100 | | |
| 91 | 235.9 | 184.3 | 244.3 |




7.1.14

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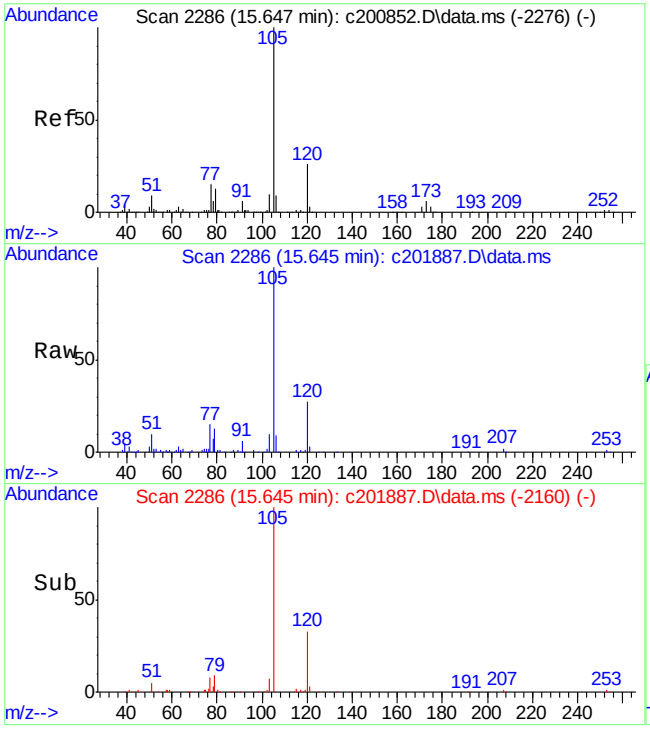
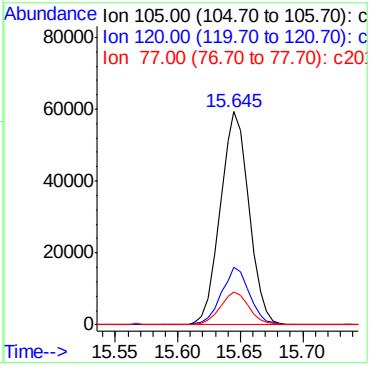
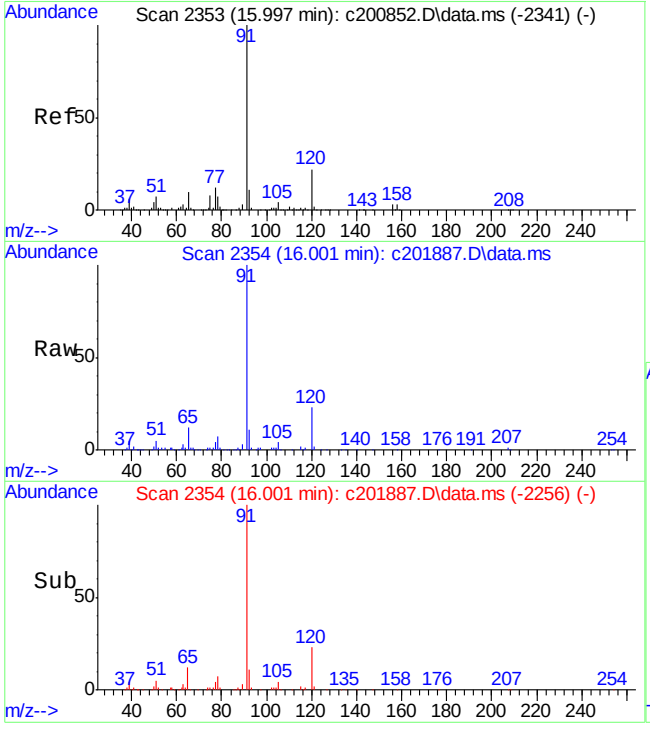



#105
isopropylbenzene
Concen: 5.30 ug/L
RT: 15.645 min Scan# 2286
Delta R.T. -0.002 min
Lab File: c201887.D
Acq: 16 Jul 2015 3:35 pm

Tgt Ion:105 Resp: 94952

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 105 | 100 | | |
| 120 | 27.1 | 0.0 | 56.4 |
| 77 | 15.2 | 0.0 | 44.7 |

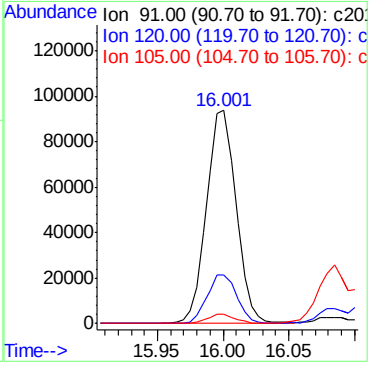


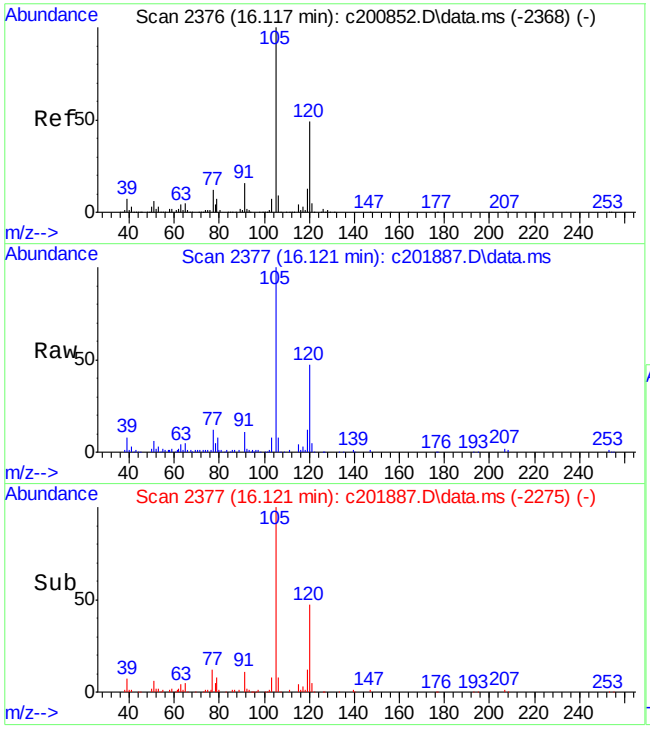




#111
n-propylbenzene
Concen: 7.05 ug/L
RT: 16.001 min Scan# 2354
Delta R.T. 0.004 min
Lab File: c201887.D
Acq: 16 Jul 2015 3:35 pm

Tgt Ion: 91 Resp: 146809

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 91 | 100 | | |
| 120 | 22.7 | 0.0 | 52.4 |
| 105 | 4.2 | 0.0 | 33.8 |

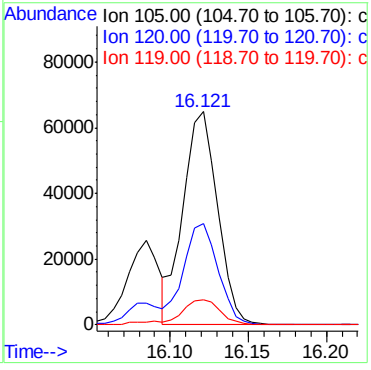


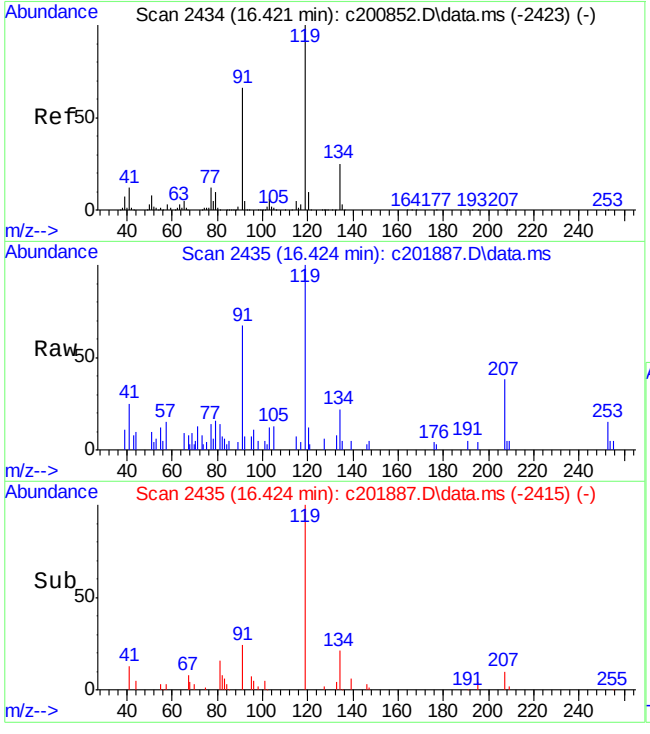



#115
1,3,5-trimethylbenzene
Concen: 6.22 ug/L
RT: 16.121 min Scan# 2377
Delta R.T. 0.004 min
Lab File: c201887.D
Acq: 16 Jul 2015 3:35 pm

Tgt Ion:105 Resp: 99629

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 105 | 100 | | |
| 120 | 47.4 | 19.5 | 79.5 |
| 119 | 11.3 | 0.0 | 42.5 |

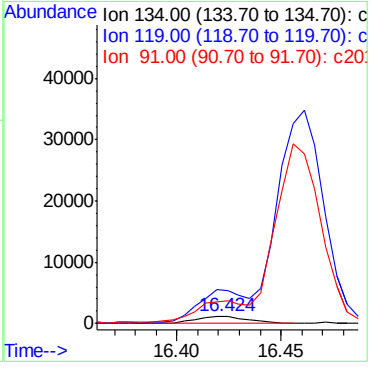



#116
tert-butylbenzene
Concen: 0.59 ug/L
RT: 16.424 min Scan# 2435
Delta R.T. 0.004 min
Lab File: c201887.D
Acq: 16 Jul 2015 3:35 pm

Tgt Ion:134 Resp: 1982

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 134 | 100 | | |
| 119 | 427.0 | 377.8 | 437.8 |
| 91 | 273.6 | 238.6 | 298.6 |




7.1.14

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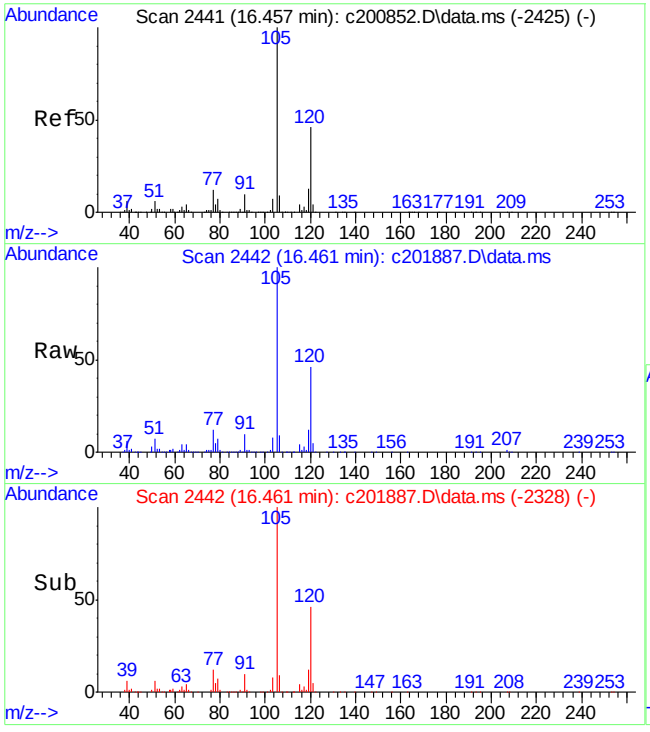
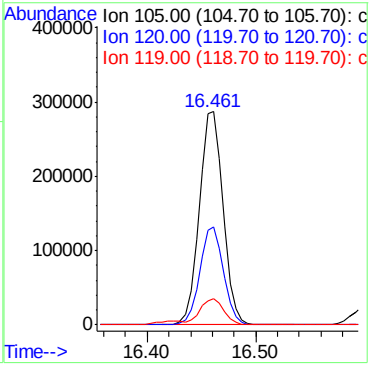
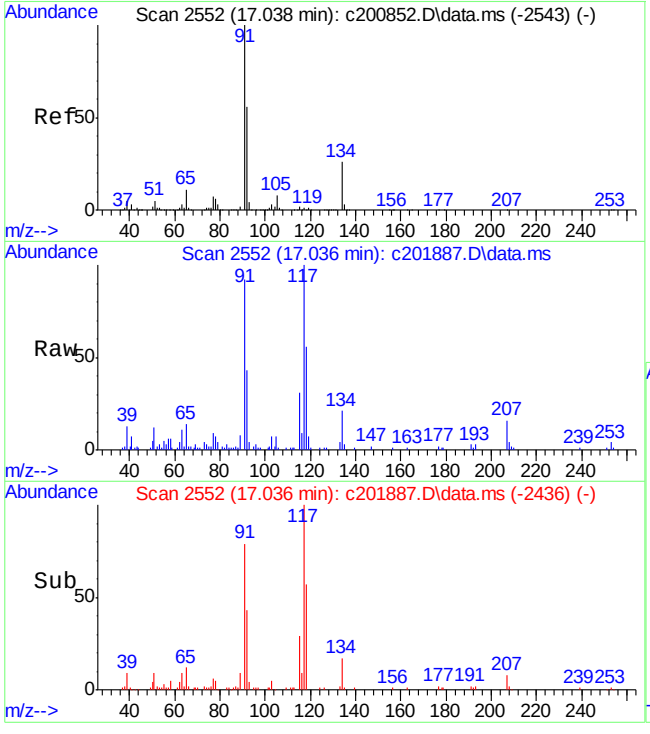



#118
1,2,4-trimethylbenzene
Concen: 26.76 ug/L
RT: 16.461 min Scan# 2442
Delta R.T. 0.004 min
Lab File: c201887.D
Acq: 16 Jul 2015 3:35 pm

Tgt Ion:105 Resp: 440483

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 105 | 100 | | |
| 120 | 46.1 | 15.5 | 75.5 |
| 119 | 12.0 | 0.0 | 42.7 |

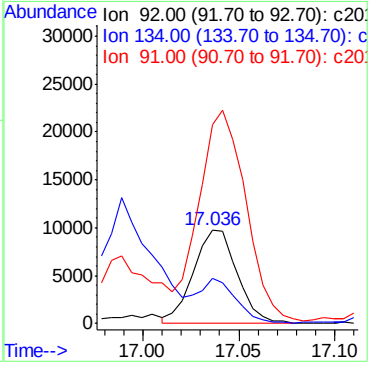



#126
n-butylbenzene
Concen: 1.73 ug/L m
RT: 17.036 min Scan# 2552
Delta R.T. -0.002 min
Lab File: c201887.D
Acq: 16 Jul 2015 3:35 pm

Tgt Ion: 92 Resp: 15421

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 92 | 100 | | |
| 134 | 48.4 | 17.6 | 77.6 |
| 91 | 212.6 | 150.3 | 210.3# |




7.1.14

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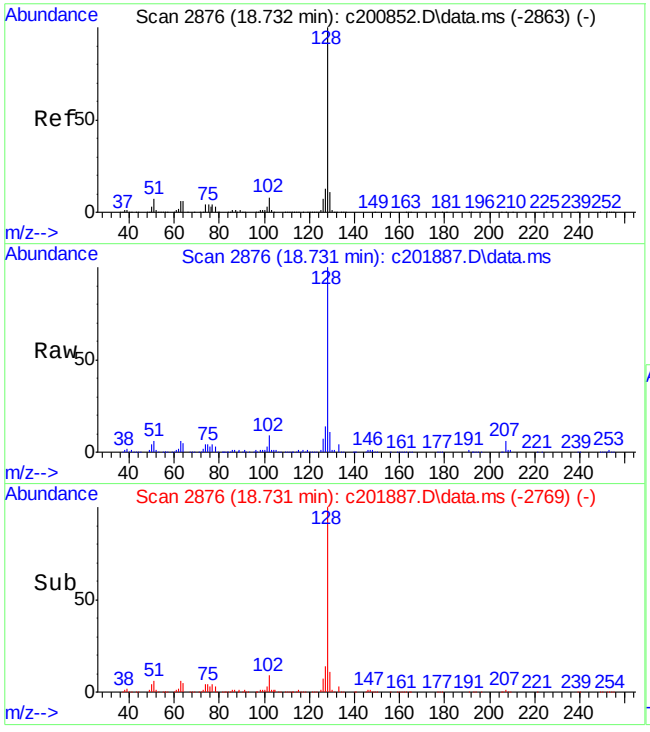
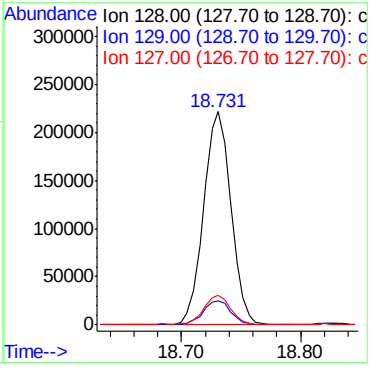



#132
naphthalene
Concen: 17.53 ug/L
RT: 18.731 min Scan# 2876
Delta R.T. -0.002 min
Lab File: c201887.D
Acq: 16 Jul 2015 3:35 pm

Tgt Ion:128 Resp: 355326

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 128 | 100 | | |
| 129 | 11.2 | 0.0 | 40.9 |
| 127 | 13.9 | 0.0 | 43.4 |




7.1.14

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Manual Integrations APPROVED (compounds with "m" flag)
Kanya Veerawat 07/17/15 02:55

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2a\v2a6821-6822\
Data File : 2A159867.D
Acq On : 11 Jul 2015 1:57 am
Operator : tracyk
Sample : jb98590-14
Misc : MS87777,V2A6821,5,,,,1
ALS Vial : 32 Sample Multiplier: 1

Quant Time: Jul 16 11:33:46 2015
Quant Method : C:\MSDCHEM\1\METHODS\M2A6798.M
Quant Title : Method SW846 8260B, ZB624 60mx0.25mmx1.4um
QLast Update : Tue Jun 30 09:56:27 2015
Response via : Initial Calibration

| Compound | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| Internal Standards | | | | | | |
| 1) Tert Butyl Alcohol-d9 | 8.552 | 65 | 102443 | 500.00 | ug/L | -0.02 |
| 5) pentafluorobenzene | 10.964 | 168 | 346901 | 50.00 | ug/L | 0.00 |
| 52) 1,4-difluorobenzene | 11.884 | 114 | 369849 | 50.00 | ug/L | 0.00 |
| 84) chlorobenzene-d5 | 14.850 | 117 | 292727 | 50.00 | ug/L | 0.00 |
| 98) 1,4-dichlorobenzene-d4 | 17.005 | 152 | 170259 | 50.00 | ug/L | 0.00 |
| System Monitoring Compounds | | | | | | |
| 46) dibromofluoromethane (s) | 11.037 | 113 | 125231 | 47.06 | ug/L | 0.00 |
| Spiked Amount 50.000 Range 76 - 120 Recovery = 94.12% | | | | | | |
| 47) 1,2-dichloroethane-d4 (s) | 11.460 | 65 | 141928 | 52.02 | ug/L | -0.01 |
| Spiked Amount 50.000 Range 73 - 122 Recovery = 104.04% | | | | | | |
| 76) toluene-d8 (s) | 13.432 | 98 | 373291 | 49.36 | ug/L | 0.00 |
| Spiked Amount 50.000 Range 84 - 119 Recovery = 98.72% | | | | | | |
| 100) 4-bromofluorobenzene (s) | 15.917 | 95 | 138094 | 47.62 | ug/L | 0.00 |
| Spiked Amount 50.000 Range 78 - 117 Recovery = 95.24% | | | | | | |
| Target Compounds | | | | | | Qvalue |
| 11) vinyl chloride | 5.205 | 62 | 4571 | 1.41 | ug/L | 94 |
| 28) methyl tert butyl ether | 8.929 | 73 | 41556m | 5.40 | ug/L | |
| 39) cis-1,2-dichloroethene | 10.435 | 96 | 11360 | 3.41 | ug/L | 84 |
| 51) Cyclohexane | 11.131 | 84 | 3947 | 1.08 | ug/L | 83 |
| 60) benzene | 11.518 | 78 | 7294 | 0.79 | ug/L | 96 |
| 73) methylcyclohexane | 12.402 | 83 | 6579 | 1.89 | ug/L | 84 |
| 91) chlorobenzene | 14.876 | 112 | 13026 | 2.12 | ug/L | 78 |
| 93) ethylbenzene | 14.912 | 91 | 26580 | 2.61 | ug/L | 98 |
| 94) m,p-xylene | 15.007 | 106 | 9538 | 2.46 | ug/L | 97 |
| 99) isopropylbenzene | 15.707 | 105 | 31164 | 3.05 | ug/L | 99 |
| 106) n-propylbenzene | 16.084 | 120 | 14325 | 5.43 | ug/L | 92 |
| 109) 1,3,5-trimethylbenzene | 16.220 | 105 | 35897 | 4.18 | ug/L | 97 |
| 110) tert-butylbenzene | 16.549 | 119 | 7524 | 0.96 | ug/L | 96 |
| 112) 1,2,4-trimethylbenzene | 16.591 | 105 | 100422 | 11.75 | ug/L | 99 |
| 113) sec-butylbenzene | 16.748 | 105 | 19222 | 1.76 | ug/L | 85 |
| 115) p-isopropyltoluene | 16.858 | 119 | 5594 | 0.58 | ug/L | 94 |
| 124) naphthalene | 19.316 | 128 | 20670 | 2.35 | ug/L | 97 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

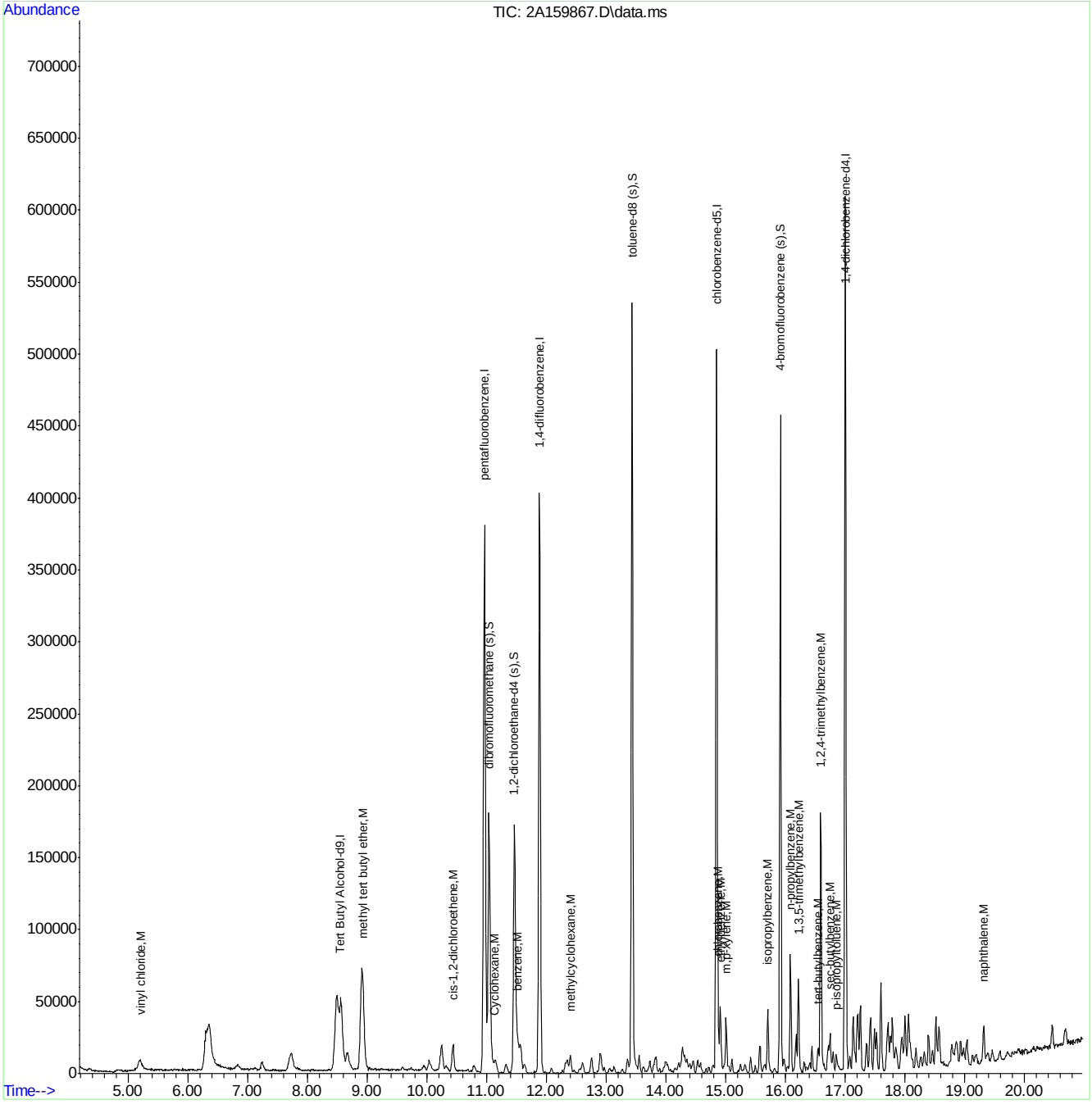
7.1.15

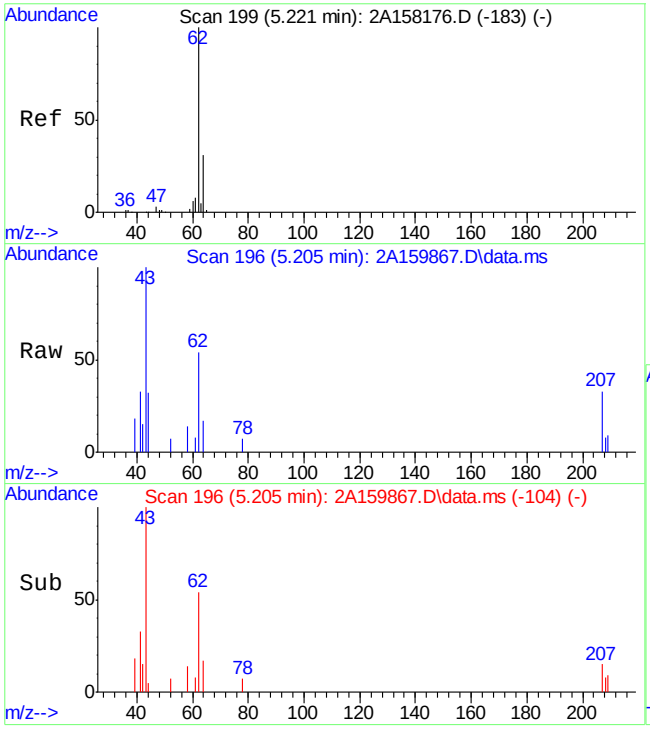
7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2a\v2a6821-6822\
Data File : 2A159867.D
Acq On : 11 Jul 2015 1:57 am
Operator : tracyk
Sample : jb98590-14
Misc : MS87777,V2A6821,5,,,,1
ALS Vial : 32 Sample Multiplier: 1

Quant Time: Jul 16 11:33:46 2015
Quant Method : C:\MSDCHEM\1\METHODS\M2A6798.M
Quant Title : Method SW846 8260B, ZB624 60mx0.25mmx1.4um
QLast Update : Tue Jun 30 09:56:27 2015
Response via : Initial Calibration

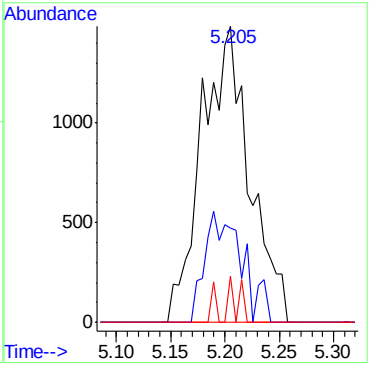


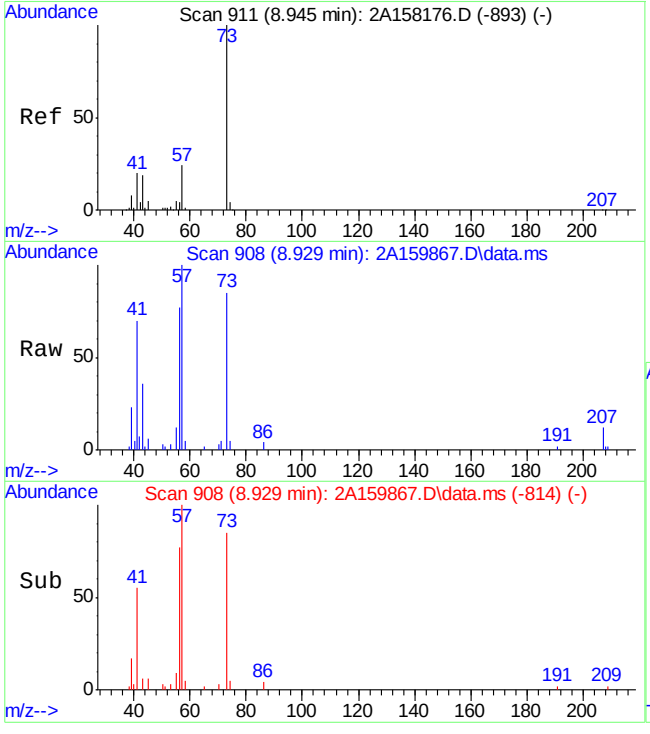



#11
vinyl chloride
Concen: 1.41 ug/L
RT: 5.205 min Scan# 196
Delta R.T. -0.020 min
Lab File: 2A159867.D
Acq: 11 Jul 2015 1:57 am

Tgt Ion: 62 Resp: 4571

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 62 | 100 | | |
| 64 | 31.7 | 0.6 | 60.6 |
| 61 | 15.5 | 0.0 | 38.8 |

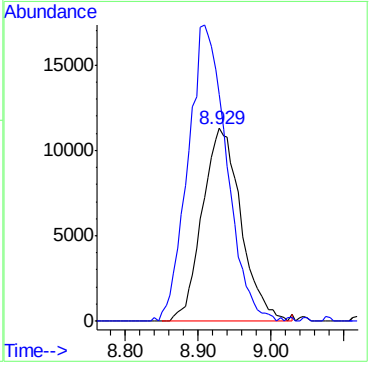


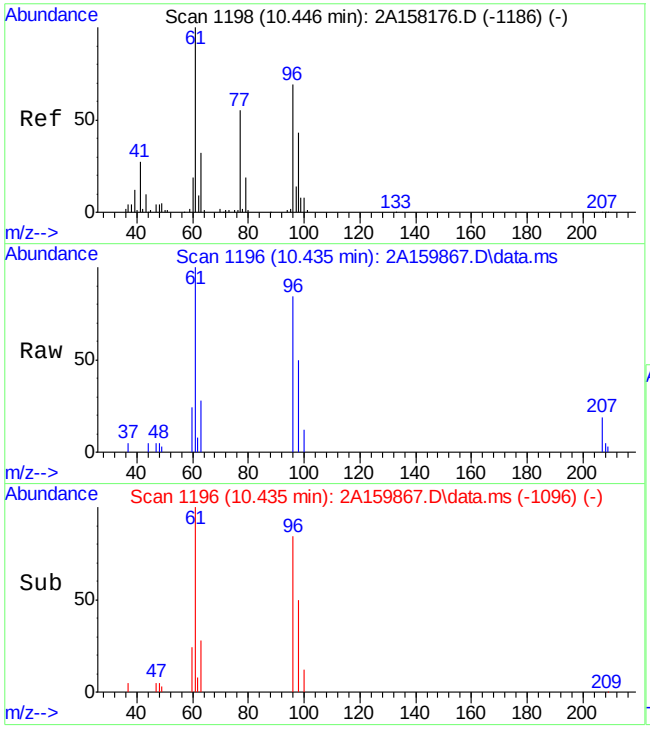




#28
methyl tert butyl ether
Concen: 5.40 ug/L m
RT: 8.929 min Scan# 908
Delta R.T. -0.010 min
Lab File: 2A159867.D
Acq: 11 Jul 2015 1:57 am

Tgt Ion: 73 Resp: 41556

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 73 | 100 | | |
| 57 | 117.6 | 0.0 | 42.4# |

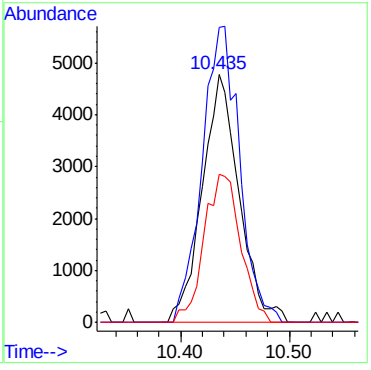


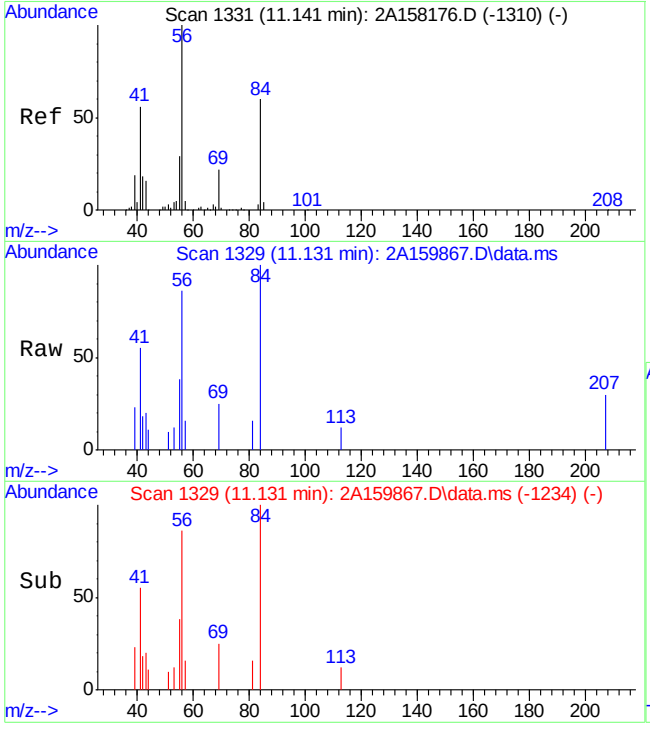



#39
cis-1,2-dichloroethene
Concen: 3.41 ug/L
RT: 10.435 min Scan# 1196
Delta R.T. -0.005 min
Lab File: 2A159867.D
Acq: 11 Jul 2015 1:57 am

Tgt Ion: 96 Resp: 11360

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 96 | 100 | | |
| 61 | 118.7 | 112.0 | 172.0 |
| 98 | 59.8 | 36.7 | 96.7 |

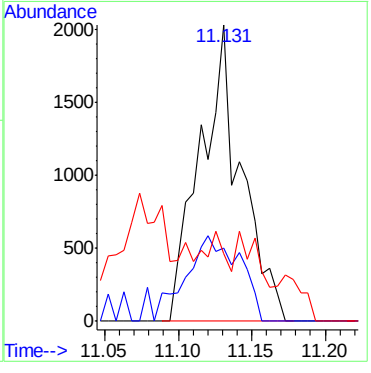


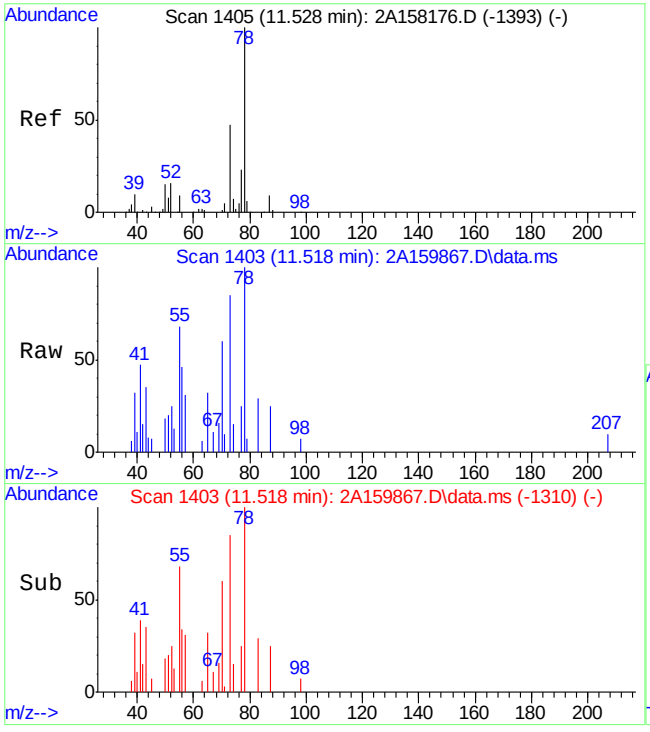




#51
Cyclohexane
Concen: 1.08 ug/L
RT: 11.131 min Scan# 1329
Delta R.T. -0.004 min
Lab File: 2A159867.D
Acq: 11 Jul 2015 1:57 am

Tgt Ion: 84 Resp: 3947

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 84 | 100 | | |
| 69 | 24.6 | 4.8 | 64.8 |
| 39 | 22.6 | 1.1 | 61.1 |

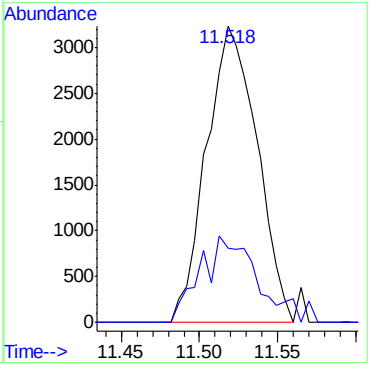


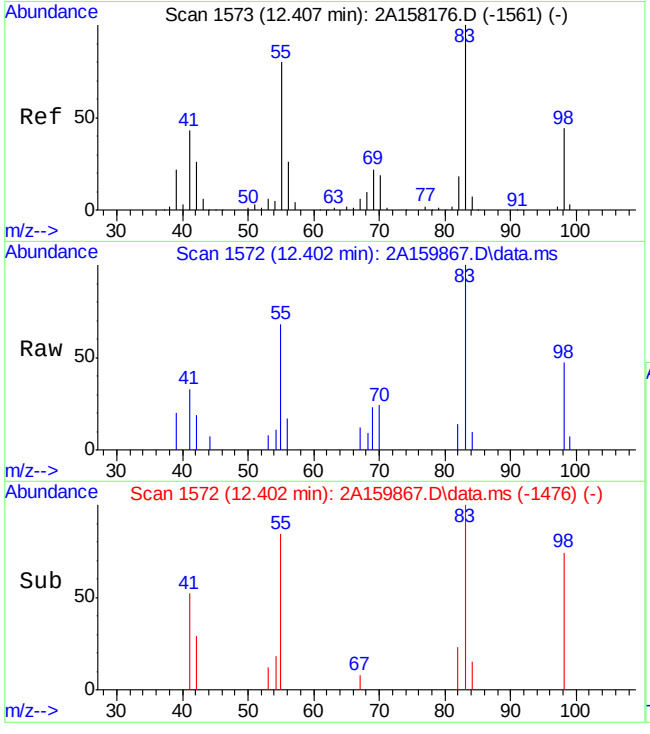



#60
benzene
Concen: 0.79 ug/L
RT: 11.518 min Scan# 1403
Delta R.T. -0.005 min
Lab File: 2A159867.D
Acq: 11 Jul 2015 1:57 am

Tgt Ion: 78 Resp: 7294

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 78 | 100 | | |
| 77 | 25.2 | 0.0 | 53.0 |

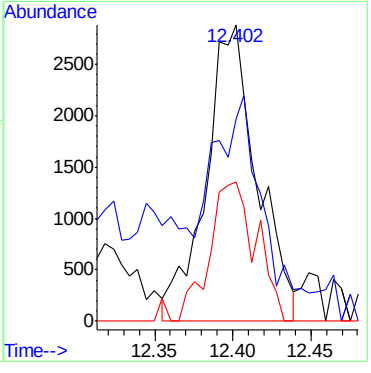


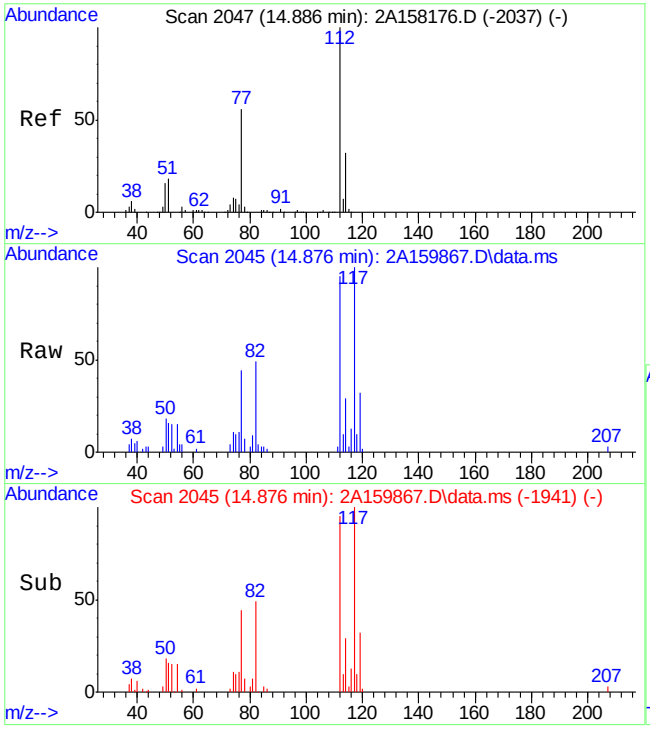




#73
methylcyclohexane
Concen: 1.89 ug/L
RT: 12.402 min Scan# 1572
Delta R.T. 0.001 min
Lab File: 2A159867.D
Acq: 11 Jul 2015 1:57 am

Tgt Ion: 83 Resp: 6579

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 83 | 100 | | |
| 55 | 62.0 | 48.1 | 108.1 |
| 98 | 50.8 | 13.7 | 73.7 |

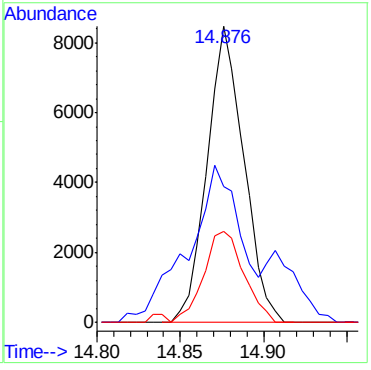


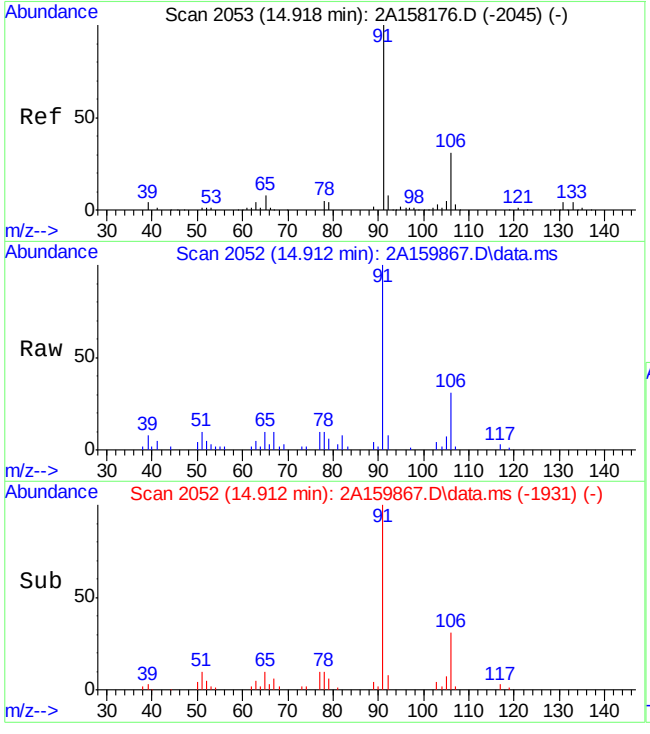



#91
chlorobenzene
Concen: 2.12 ug/L
RT: 14.876 min Scan# 2045
Delta R.T. -0.005 min
Lab File: 2A159867.D
Acq: 11 Jul 2015 1:57 am

Tgt Ion:112 Resp: 13026

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 112 | 100 | | |
| 77 | 29.9 | 23.7 | 83.7 |
| 114 | 30.6 | 2.4 | 62.4 |

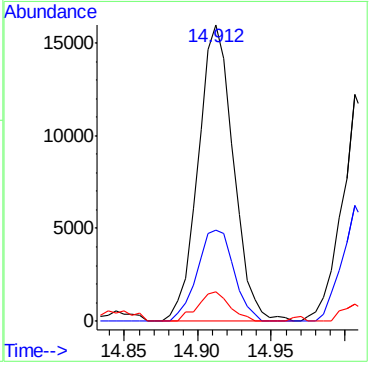


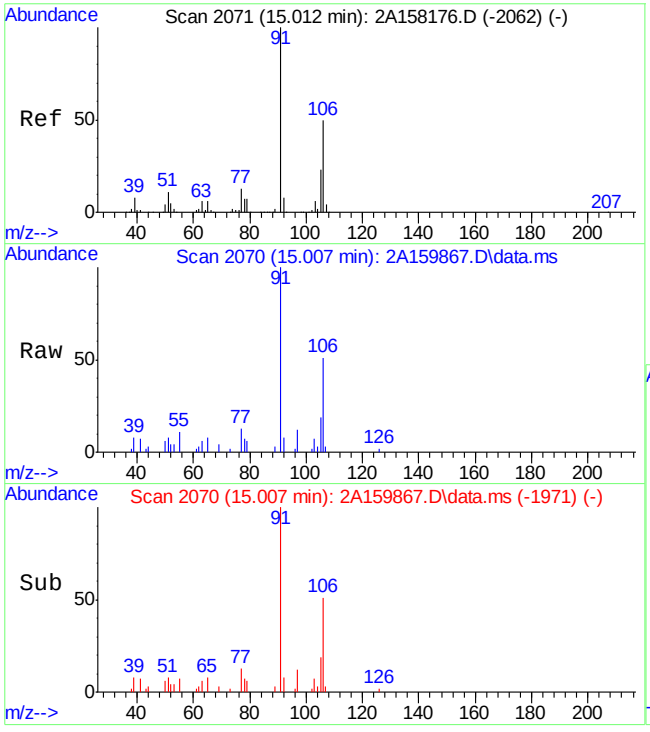




#93
ethylbenzene
Concen: 2.61 ug/L
RT: 14.912 min Scan# 2052
Delta R.T. 0.000 min
Lab File: 2A159867.D
Acq: 11 Jul 2015 1:57 am

Tgt Ion: 91 Resp: 26580

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 91 | 100 | | |
| 106 | 30.9 | 0.2 | 60.2 |
| 65 | 9.7 | 0.0 | 38.2 |

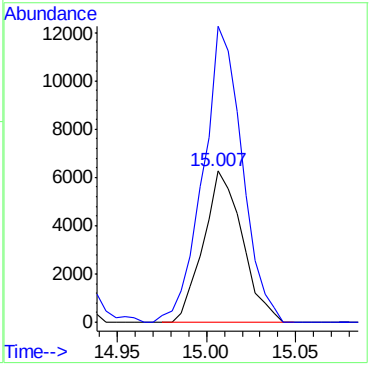


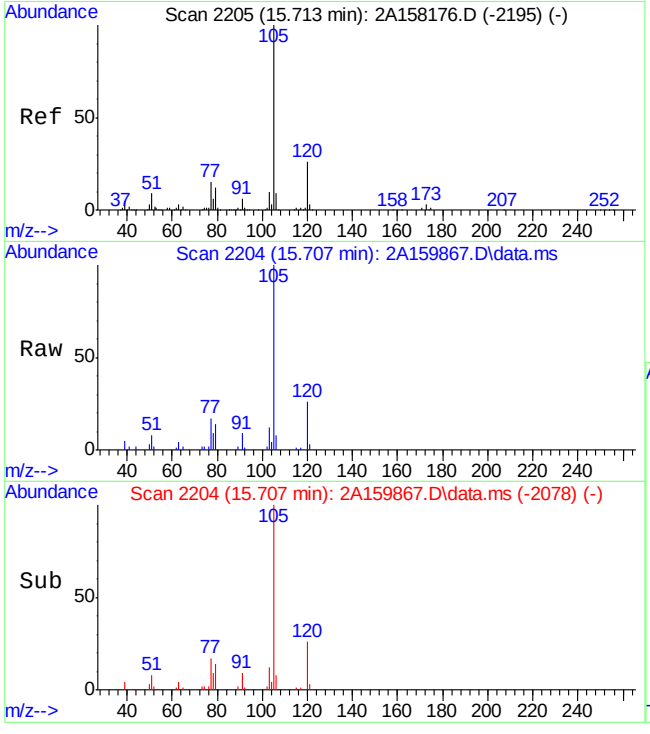



#94
m,p-xylene
Concen: 2.46 ug/L
RT: 15.007 min Scan# 2070
Delta R.T. 0.000 min
Lab File: 2A159867.D
Acq: 11 Jul 2015 1:57 am

Tgt Ion:106 Resp: 9538

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 106 | 100 | | |
| 91 | 195.7 | 169.6 | 229.6 |

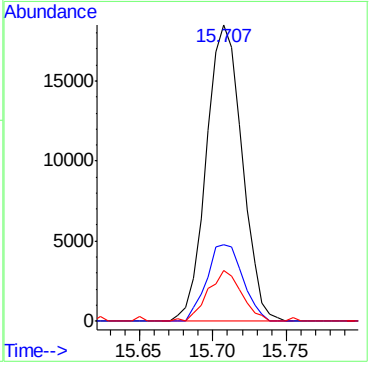


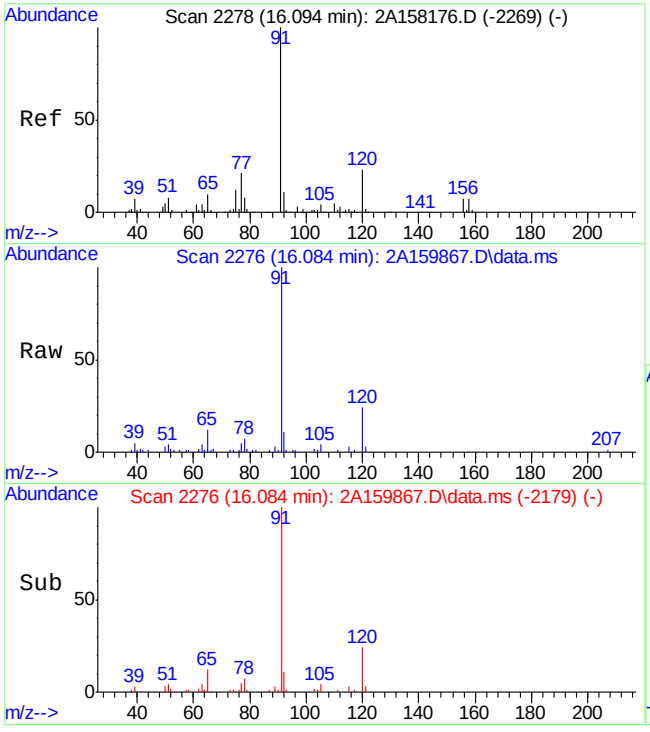




#99
isopropylbenzene
Concen: 3.05 ug/L
RT: 15.707 min Scan# 2204
Delta R.T. 0.000 min
Lab File: 2A159867.D
Acq: 11 Jul 2015 1:57 am

Tgt Ion:105 Resp: 31164

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 105 | 100 | | |
| 120 | 25.8 | 0.0 | 55.8 |
| 77 | 17.0 | 0.0 | 45.7 |

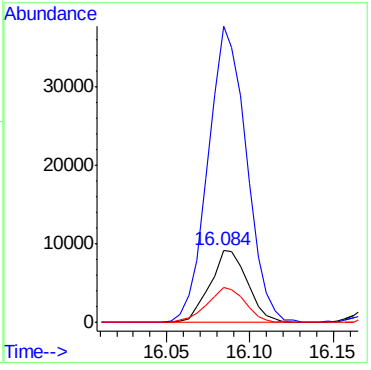


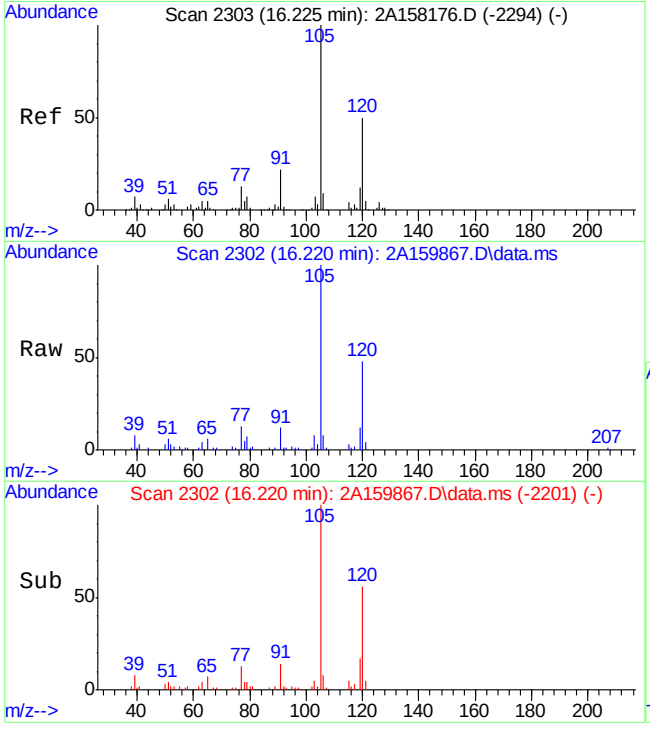



#106
n-propylbenzene
Concen: 5.43 ug/L
RT: 16.084 min Scan# 2276
Delta R.T. -0.004 min
Lab File: 2A159867.D
Acq: 11 Jul 2015 1:57 am

Tgt Ion:120 Resp: 14325

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 120 | 100 | | |
| 91 | 409.4 | 399.4 | 459.4 |
| 65 | 48.1 | 14.1 | 74.1 |

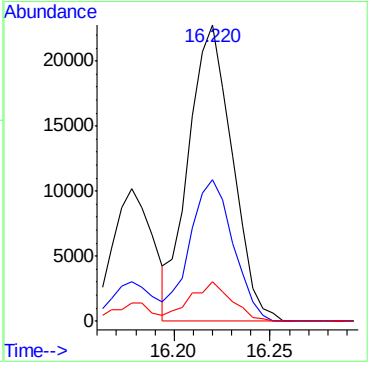


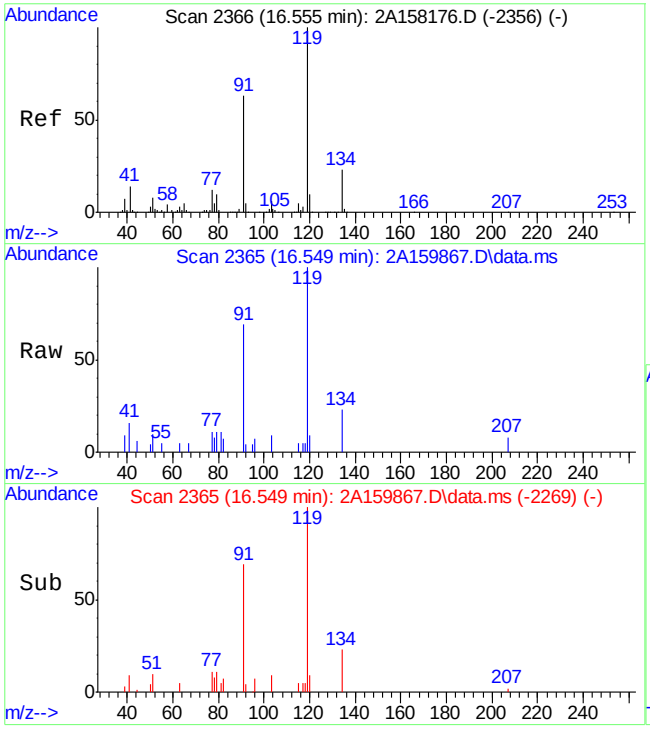




#109
1,3,5-trimethylbenzene
Concen: 4.18 ug/L
RT: 16.220 min Scan# 2302
Delta R.T. 0.000 min
Lab File: 2A159867.D
Acq: 11 Jul 2015 1:57 am

Tgt Ion:105 Resp: 35897

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 105 | 100 | | |
| 120 | 47.6 | 20.1 | 80.1 |
| 77 | 13.3 | 0.0 | 43.0 |

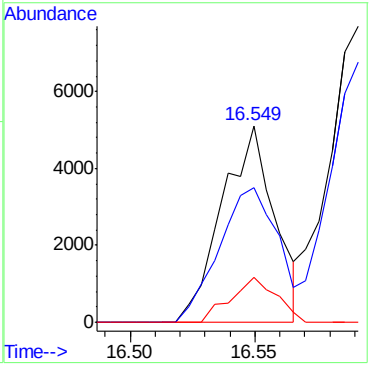


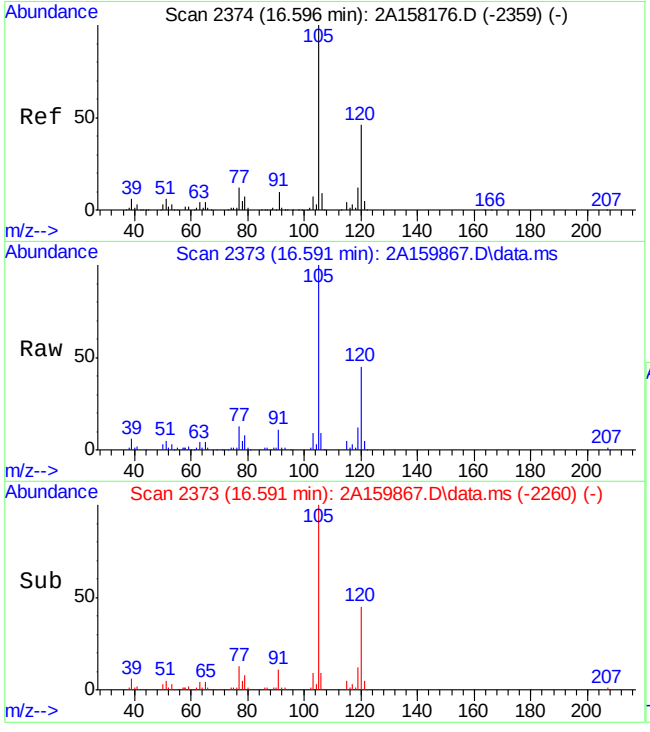



#110
tert-butylbenzene
Concen: 0.96 ug/L
RT: 16.549 min Scan# 2365
Delta R.T. 0.000 min
Lab File: 2A159867.D
Acq: 11 Jul 2015 1:57 am

Tgt Ion:119 Resp: 7524

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 119 | 100 | | |
| 91 | 68.5 | 35.0 | 95.0 |
| 134 | 22.6 | 0.0 | 53.0 |

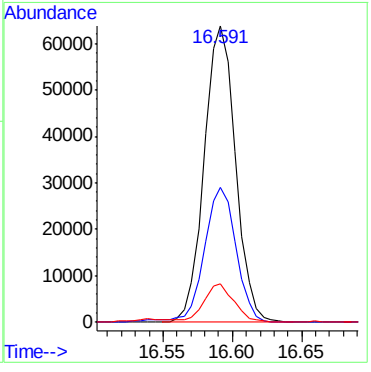


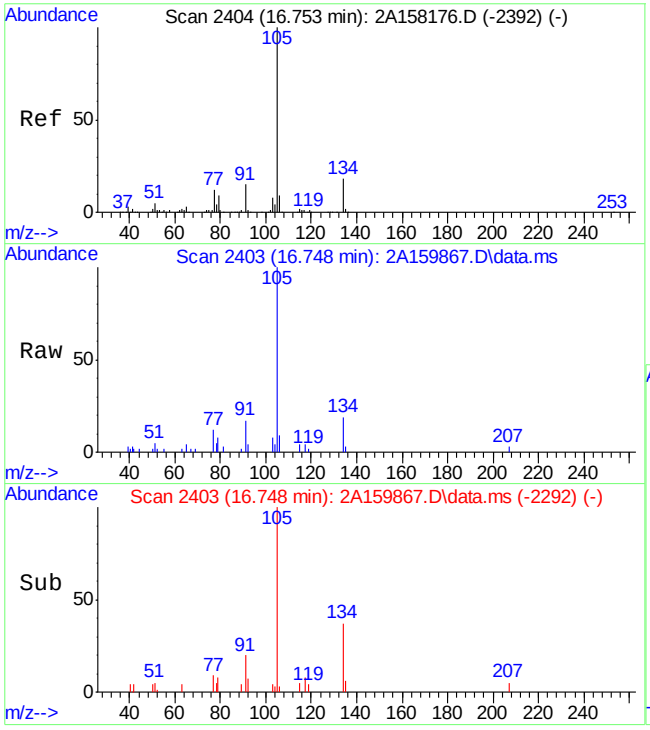




#112
1,2,4-trimethylbenzene
Concen: 11.75 ug/L
RT: 16.591 min Scan# 2373
Delta R.T. 0.000 min
Lab File: 2A159867.D
Acq: 11 Jul 2015 1:57 am

Tgt Ion:105 Resp: 100422

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 105 | 100 | | |
| 120 | 45.4 | 16.1 | 76.1 |
| 77 | 13.1 | 0.0 | 42.3 |

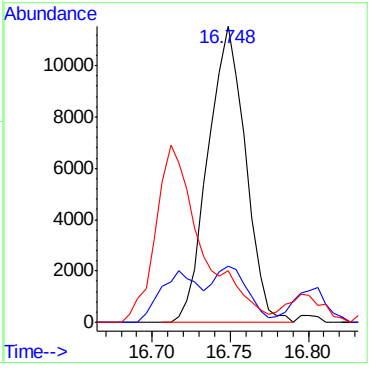


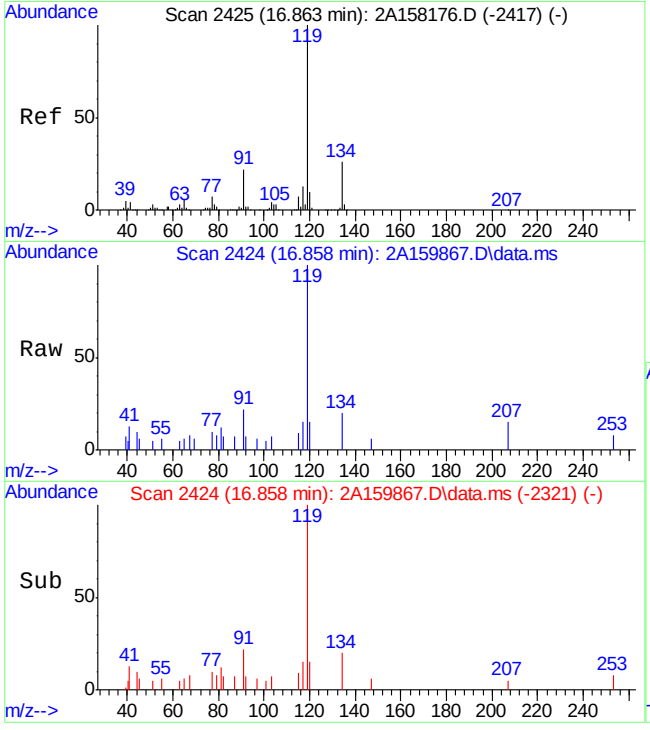



#113
sec-butylbenzene
Concen: 1.76 ug/L
RT: 16.748 min Scan# 2403
Delta R.T. 0.000 min
Lab File: 2A159867.D
Acq: 11 Jul 2015 1:57 am

Tgt Ion:105 Resp: 19222

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 105 | 100 | | |
| 134 | 11.7 | 0.0 | 48.8 |
| 91 | 10.5 | 0.0 | 46.2 |

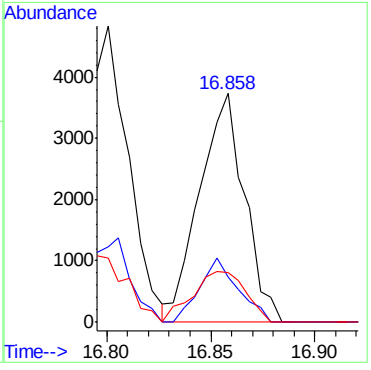


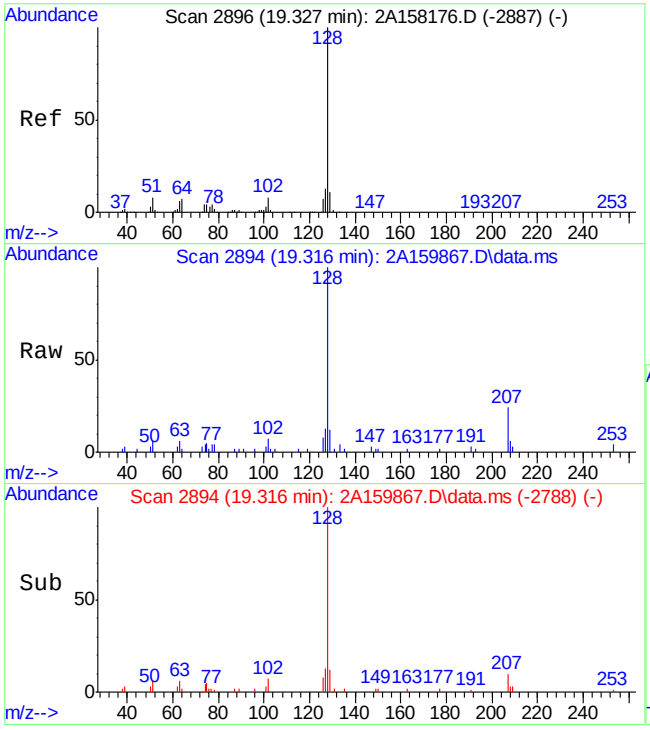




#115
p-isopropyltoluene
Concen: 0.58 ug/L
RT: 16.858 min Scan# 2424
Delta R.T. 0.000 min
Lab File: 2A159867.D
Acq: 11 Jul 2015 1:57 am

Tgt Ion:119 Resp: 5594

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 119 | 100 | | |
| 134 | 19.5 | 0.0 | 55.1 |
| 91 | 21.7 | 0.0 | 51.7 |

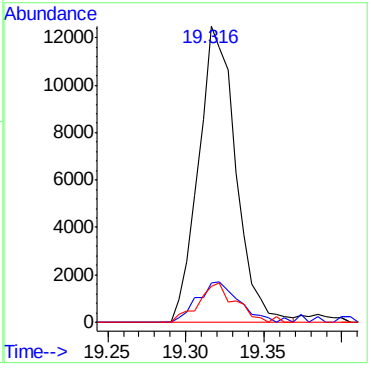





#124
naphthalene
Concen: 2.35 ug/L
RT: 19.316 min Scan# 2894
Delta R.T. -0.005 min
Lab File: 2A159867.D
Acq: 11 Jul 2015 1:57 am

Tgt Ion:128 Resp: 20670

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 128 | 100 | | |
| 127 | 13.3 | 0.0 | 42.5 |
| 129 | 12.3 | 0.0 | 40.9 |




7.1.15

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : c201896.D
Acq On : 16 Jul 2015 7:37 pm
Operator : mihirm
Sample : jb98590-15
Misc : MS87777,VC7407,5,,,,1
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Jul 17 11:08:44 2015
Quant Method : C:\MSDCHEM\1\METHODS\MC7362.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Wed Jun 10 15:01:19 2015
Response via : Initial Calibration

| Internal Standards | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| 1) Tert Butyl Alcohol-d9 | 8.135 | 65 | 196799 | 500.00 | ug/L | 0.00 |
| 5) pentafluorobenzene | 10.828 | 168 | 503080 | 50.00 | ug/L | 0.00 |
| 59) 1,4-difluorobenzene | 11.785 | 114 | 668346 | 50.00 | ug/L | 0.00 |
| 88) chlorobenzene-d5 | 14.819 | 117 | 584660 | 50.00 | ug/L | 0.00 |
| 104) 1,4-dichlorobenzene-d4 | 16.832 | 152 | 331435 | 50.00 | ug/L | 0.00 |

System Monitoring Compounds

| | | | | | | |
|---|---|---|---|---|---|---|
| 50) dibromofluoromethane (s) | 10.886 | 113 | 198497 | 50.21 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 76 - 120 | | Recovery = 100.42% | | | |
| 51) 1,2-dichloroethane-d4 (s) | 11.330 | 65 | 262926 | 57.27 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 73 - 122 | | Recovery = 114.54% | | | |
| 80) toluene-d8 (s) | 13.391 | 98 | 788308 | 50.60 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 84 - 119 | | Recovery = 101.20% | | | |
| 106) 4-bromofluorobenzene (s) | 15.844 | 174 | 250010 | 51.92 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 78 - 117 | | Recovery = 103.84% | | | |

Target Compounds

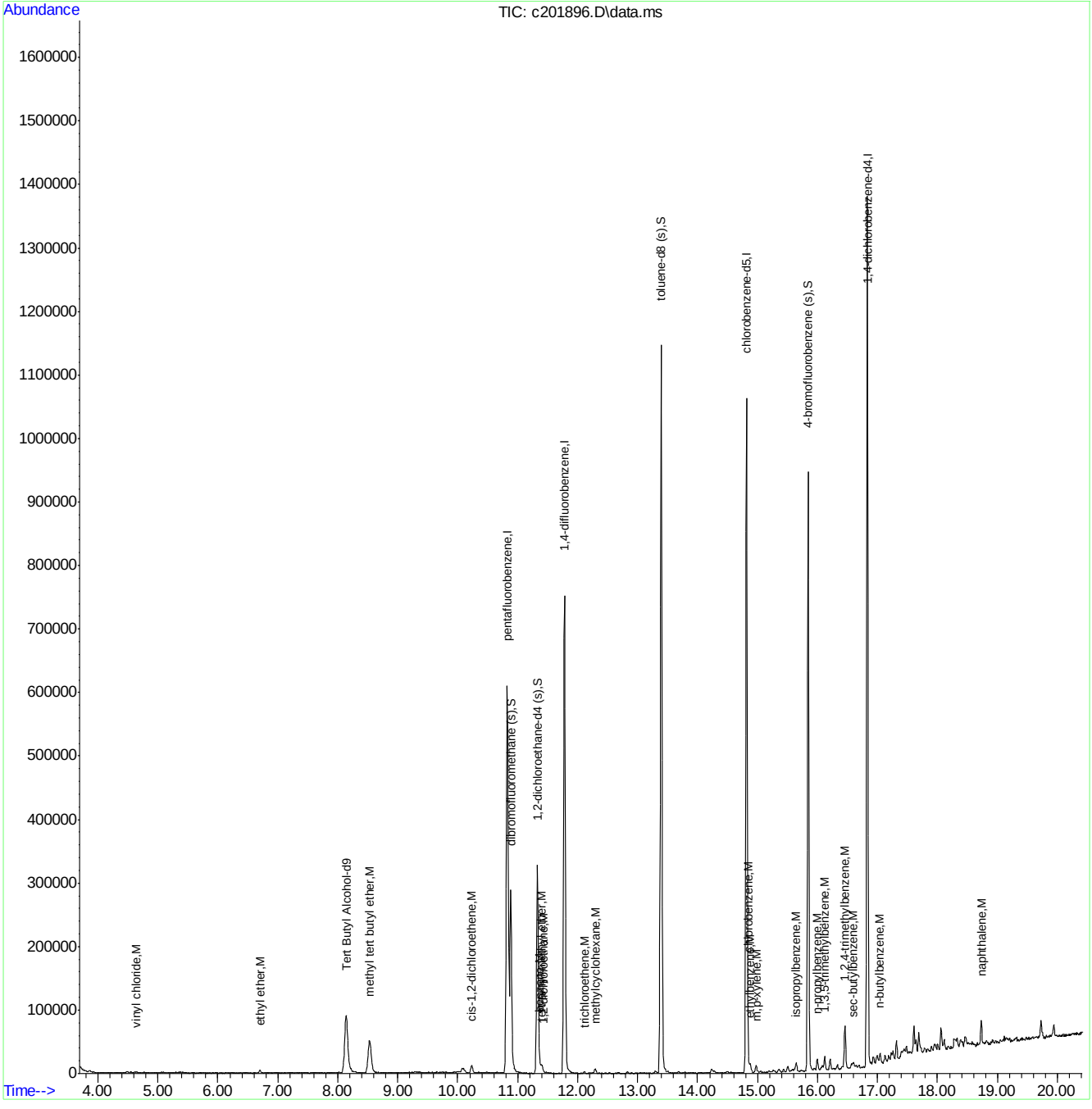
| | | | | | | Qvalue |
|---|---|---|---|---|---|---|
| 10) vinyl chloride | 4.641 | 62 | 1318 | 0.27 | ug/L | 62 |
| 18) ethyl ether | 6.702 | 74 | 2128 | 0.82 | ug/L # | 81 |
| 32) methyl tert butyl ether | 8.532 | 73 | 88390 | 6.87 | ug/L | 95 |
| 43) cis-1,2-dichloroethene | 10.242 | 96 | 6915 | 1.55 | ug/L | 76 |
| 58) tert-amyl methyl ether | 11.404 | 73 | 9251 | 0.70 | ug/L | 94 |
| 65) benzene | 11.372 | 78 | 5280 | 0.34 | ug/L | 91 |
| 68) 1,2-dichloroethane | 11.424 | 62 | 1336 | 0.28 | ug/L | 91 |
| 70) trichloroethene | 12.110 | 95 | 911 | 0.25 | ug/L # | 77 |
| 73) methylcyclohexane | 12.293 | 83 | 3541 | 0.64 | ug/L | 92 |
| 97) chlorobenzene | 14.845 | 112 | 3170 | 0.31 | ug/L # | 71 |
| 99) ethylbenzene | 14.882 | 91 | 8081 | 0.45 | ug/L | 96 |
| 100) m,p-xylene | 14.976 | 106 | 2443 | 0.35 | ug/L | 87 |
| 105) isopropylbenzene | 15.645 | 105 | 8297 | 0.46 | ug/L | 98 |
| 111) n-propylbenzene | 16.001 | 91 | 14162 | 0.67 | ug/L | 99 |
| 115) 1,3,5-trimethylbenzene | 16.121 | 105 | 10228 | 0.63 | ug/L | 95 |
| 118) 1,2,4-trimethylbenzene | 16.456 | 105 | 36666 | 2.21 | ug/L | 94 |
| 119) sec-butylbenzene | 16.602 | 105 | 5595 | 0.28 | ug/L | 75 |
| 126) n-butylbenzene | 17.036 | 92 | 2301 | 0.26 | ug/L | 93 |
| 132) naphthalene | 18.731 | 128 | 27515 | 1.35 | ug/L | 95 |

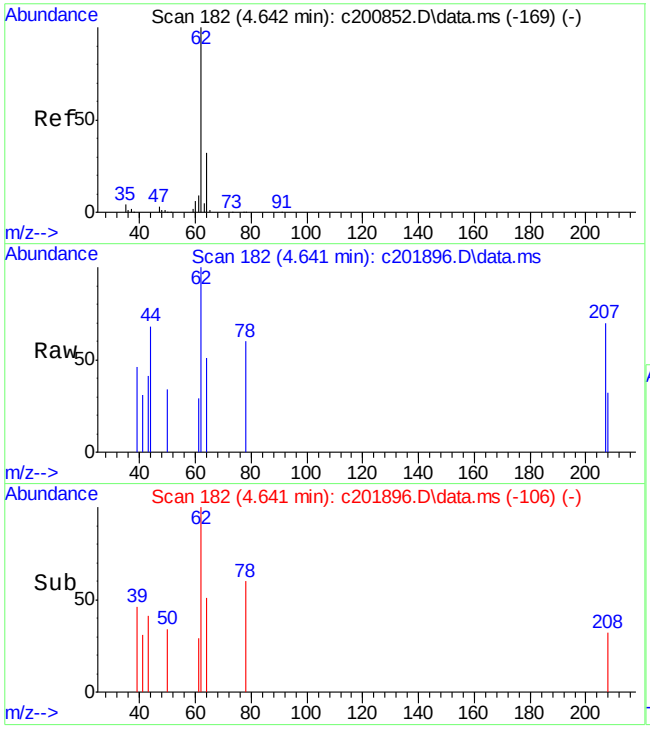
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : c201896.D
Acq On : 16 Jul 2015 7:37 pm
Operator : mihirm
Sample : jb98590-15
Misc : MS87777,VC7407,5,,,,1
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Jul 17 11:08:44 2015
Quant Method : C:\MSDCHEM\1\METHODS\MC7362.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Wed Jun 10 15:01:19 2015
Response via : Initial Calibration

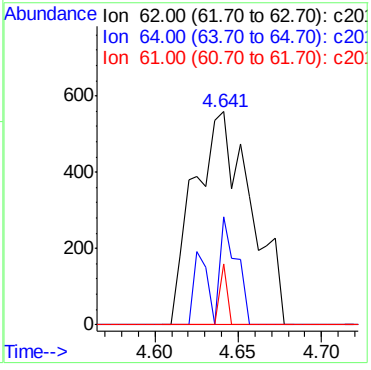


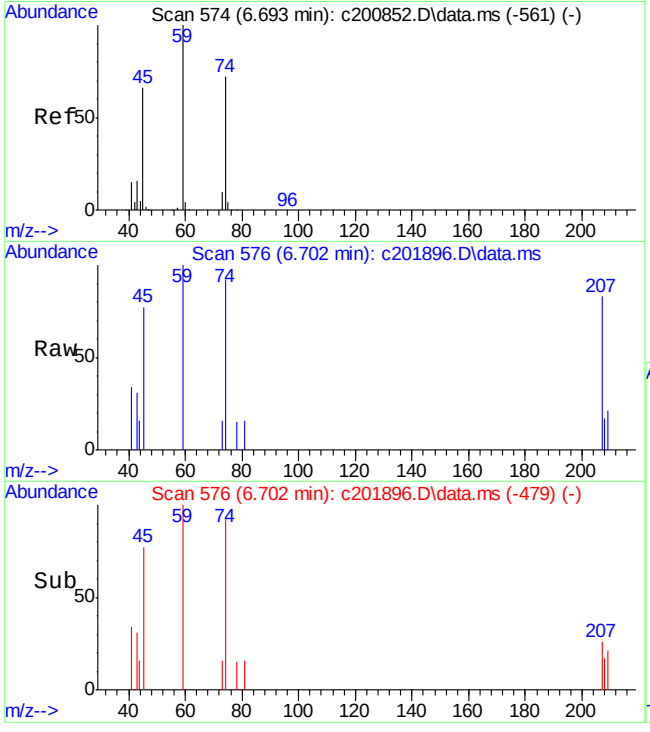



#10
vinyl chloride
Concen: 0.27 ug/L
RT: 4.641 min Scan# 182
Delta R.T. -0.001 min
Lab File: c201896.D
Acq: 16 Jul 2015 7:37 pm

Tgt Ion: 62 Resp: 1318

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 62 | 100 | | |
| 64 | 50.6 | 2.0 | 62.0 |
| 61 | 28.6 | 0.0 | 38.6 |

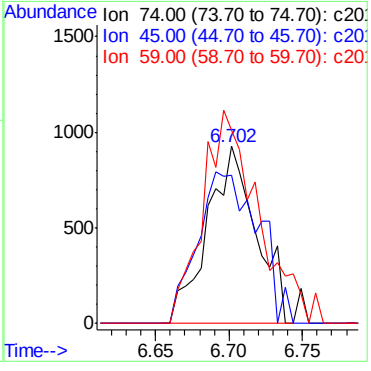


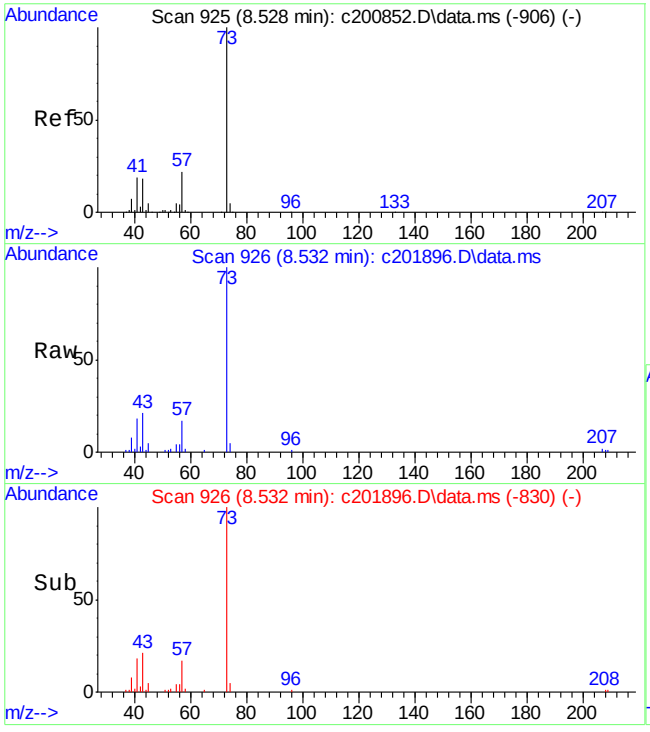




#18
ethyl ether
Concen: 0.82 ug/L
RT: 6.702 min Scan# 576
Delta R.T. 0.009 min
Lab File: c201896.D
Acq: 16 Jul 2015 7:37 pm

Tgt Ion: 74 Resp: 2128

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 74 | 100 | | |
| 45 | 83.5 | 62.2 | 122.2 |
| 59 | 109.1 | 109.6 | 169.6# |

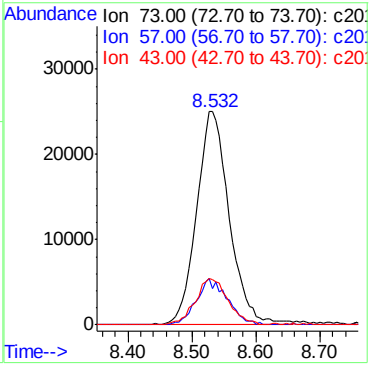


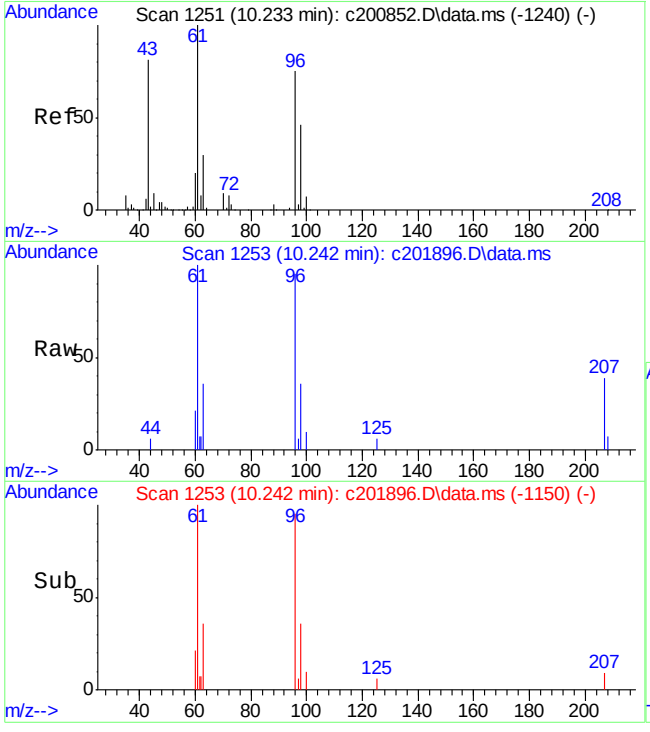



#32
methyl tert butyl ether
Concen: 6.87 ug/L
RT: 8.532 min Scan# 926
Delta R.T. 0.004 min
Lab File: c201896.D
Acq: 16 Jul 2015 7:37 pm

Tgt Ion: 73 Resp: 88390

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 73 | 100 | | |
| 57 | 20.3 | 0.0 | 52.0 |
| 43 | 21.8 | 0.0 | 48.8 |

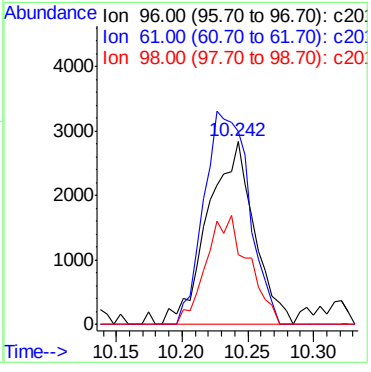


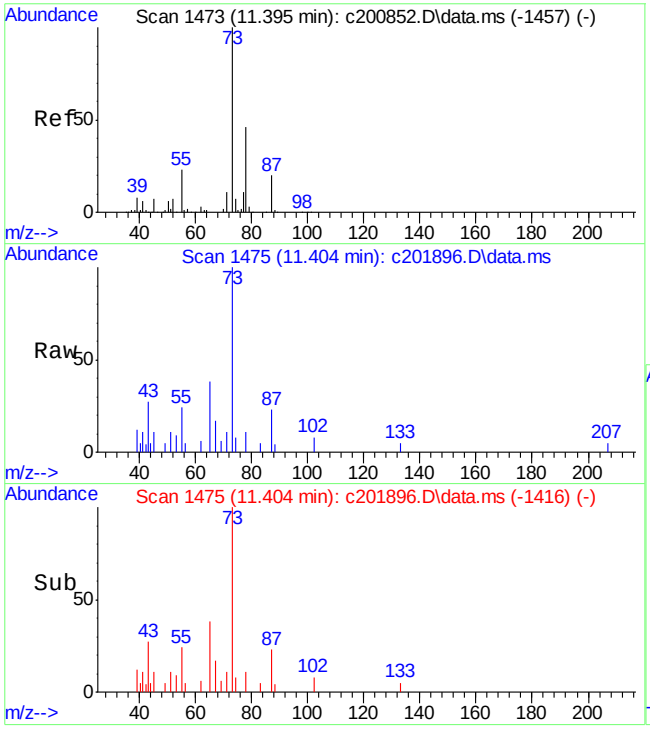




#43
cis-1,2-dichloroethene
Concen: 1.55 ug/L
RT: 10.242 min Scan# 1253
Delta R.T. 0.009 min
Lab File: c201896.D
Acq: 16 Jul 2015 7:37 pm

Tgt Ion: 96 Resp: 6915

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 96 | 100 | | |
| 61 | 113.3 | 107.4 | 167.4 |
| 98 | 37.8 | 32.4 | 92.4 |

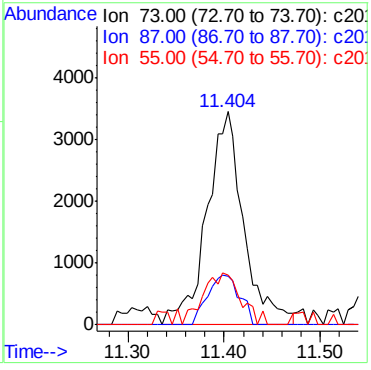


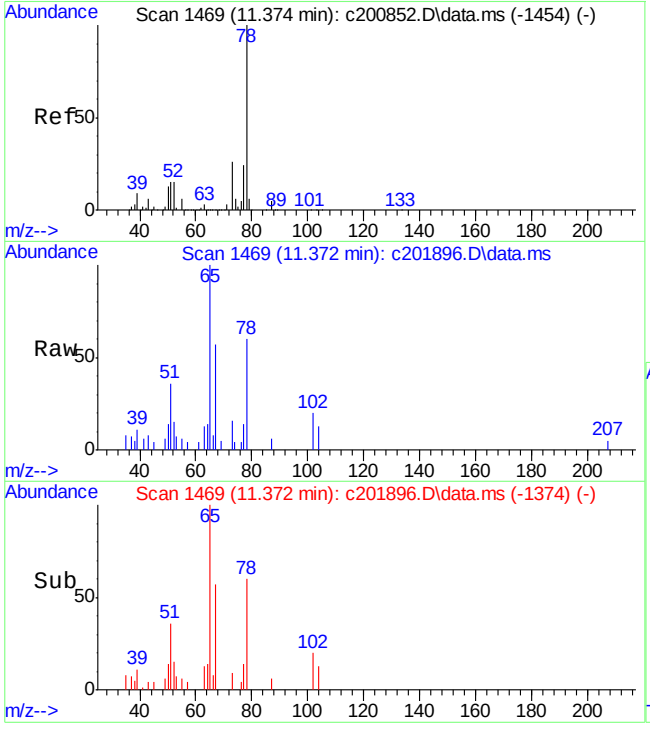



#58
tert-amyl methyl ether
Concen: 0.70 ug/L
RT: 11.404 min Scan# 1475
Delta R.T. 0.009 min
Lab File: c201896.D
Acq: 16 Jul 2015 7:37 pm

Tgt Ion: 73 Resp: 9251

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 73 | 100 | | |
| 87 | 22.6 | 0.0 | 53.6 |
| 55 | 18.1 | 0.0 | 52.8 |

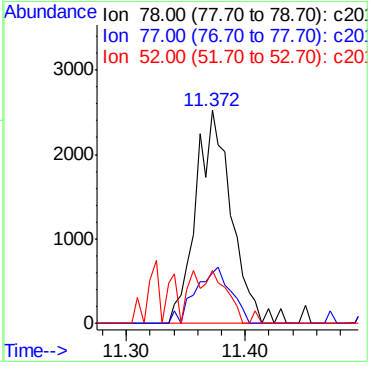


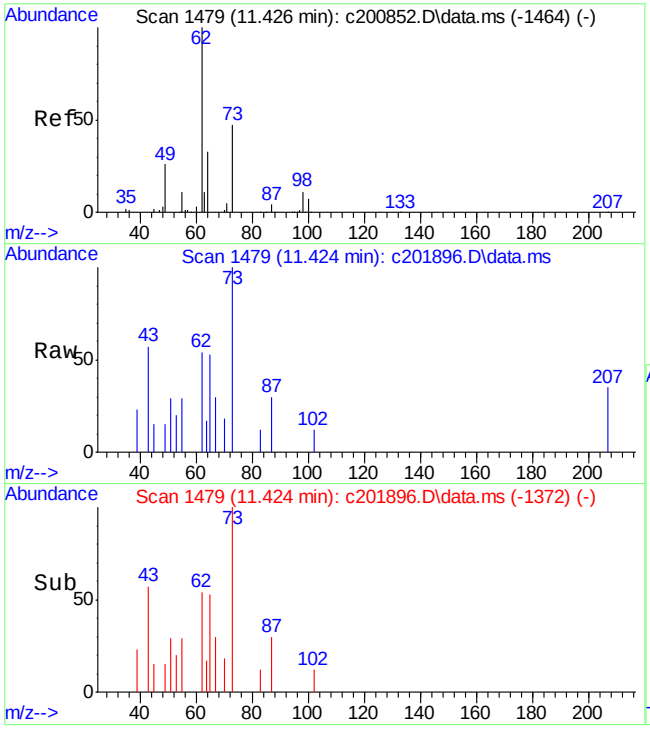




#65
benzene
Concen: 0.34 ug/L
RT: 11.372 min Scan# 1469
Delta R.T. -0.001 min
Lab File: c201896.D
Acq: 16 Jul 2015 7:37 pm

Tgt Ion: 78 Resp: 5280

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 78 | 100 | | |
| 77 | 24.0 | 0.0 | 54.1 |
| 52 | 24.8 | 0.0 | 45.2 |

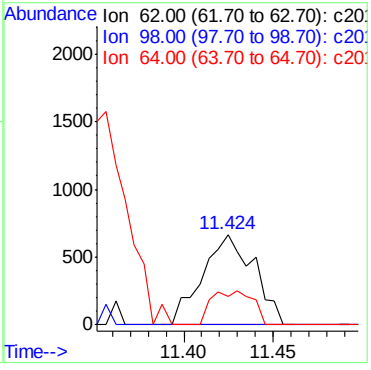


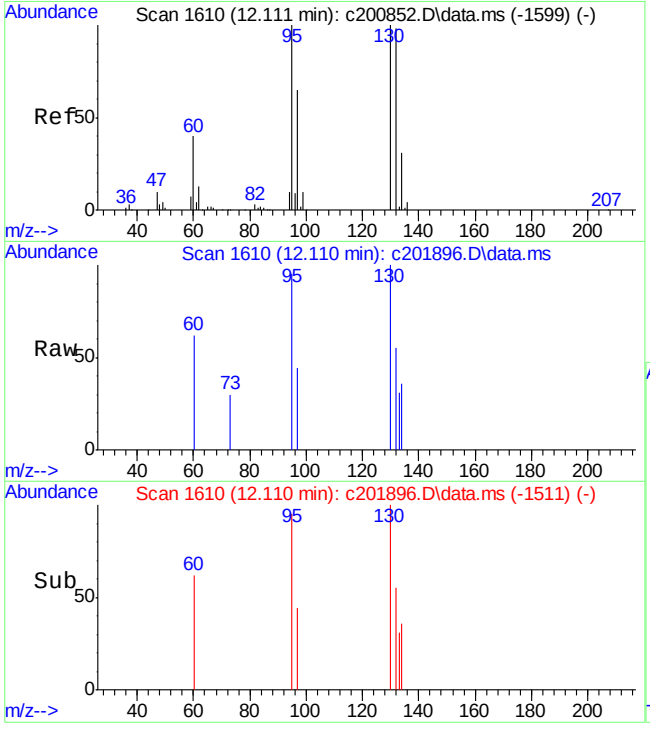



#68
1,2-dichloroethane
Concen: 0.28 ug/L
RT: 11.424 min Scan# 1479
Delta R.T. -0.001 min
Lab File: c201896.D
Acq: 16 Jul 2015 7:37 pm

Tgt Ion: 62 Resp: 1336

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 62 | 100 | | |
| 98 | 0.0 | 0.0 | 40.8 |
| 64 | 31.7 | 3.1 | 63.1 |

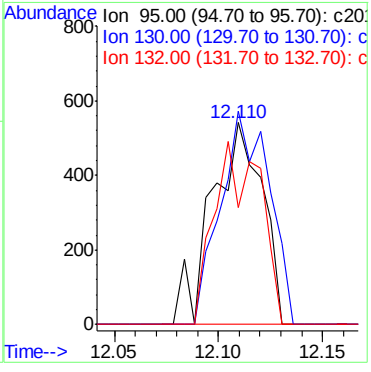


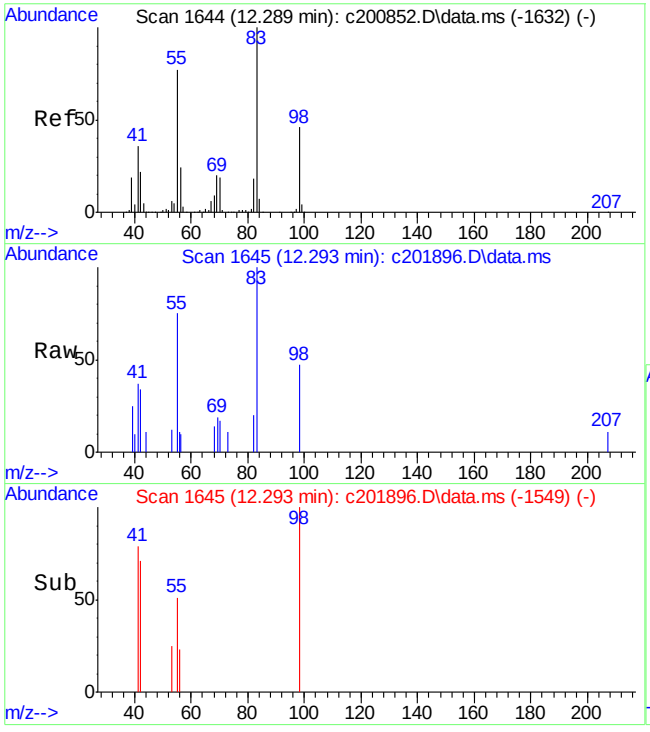




#70
trichloroethene
Concen: 0.25 ug/L
RT: 12.110 min Scan# 1610
Delta R.T. -0.001 min
Lab File: c201896.D
Acq: 16 Jul 2015 7:37 pm

Tgt Ion: 95 Resp: 911

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 95 | 100 | | |
| 130 | 105.5 | 69.6 | 129.6 |
| 132 | 57.9 | 68.0 | 128.0# |

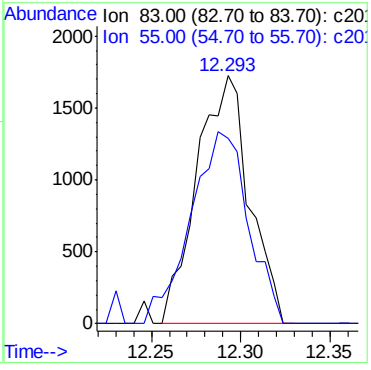


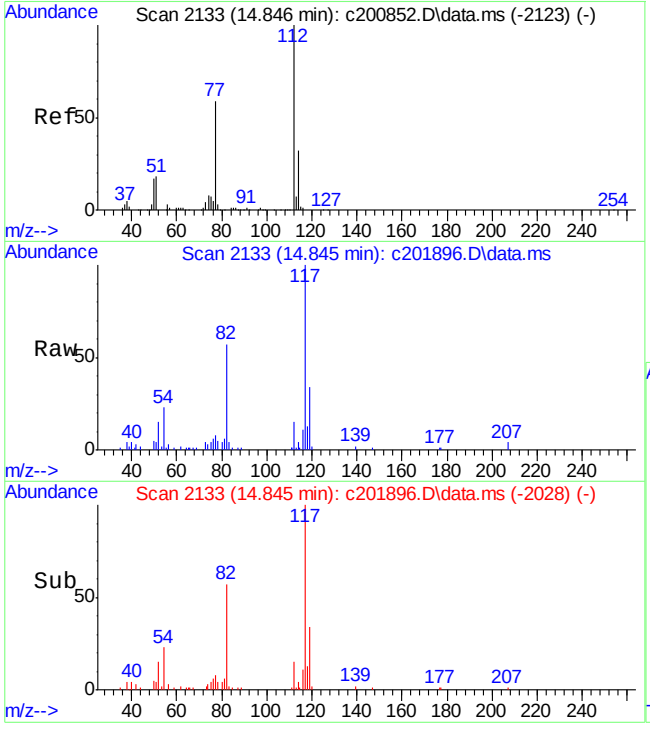



#73
methylcyclohexane
Concen: 0.64 ug/L
RT: 12.293 min Scan# 1645
Delta R.T. 0.004 min
Lab File: c201896.D
Acq: 16 Jul 2015 7:37 pm

Tgt Ion: 83 Resp: 3541

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 83 | 100 | | |
| 55 | 84.9 | 54.3 | 100.8 |

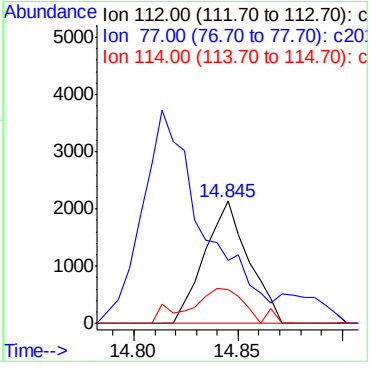


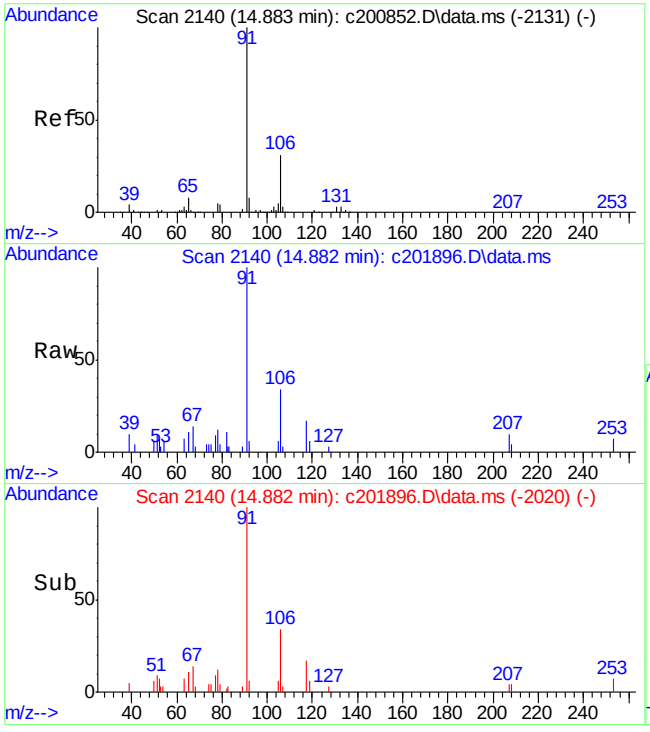




#97
chlorobenzene
Concen: 0.31 ug/L
RT: 14.845 min Scan# 2133
Delta R.T. -0.001 min
Lab File: c201896.D
Acq: 16 Jul 2015 7:37 pm

Tgt Ion:112 Resp: 3170

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 112 | 100 | | |
| 77 | 28.4 | 29.4 | 89.4# |
| 114 | 27.8 | 2.0 | 62.0 |

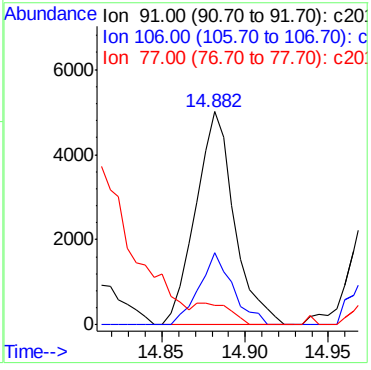


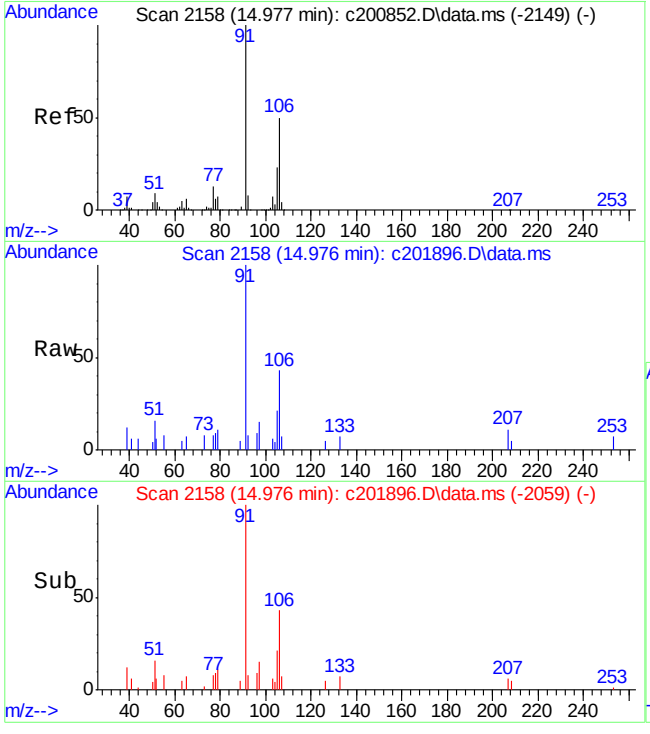



#99
ethylbenzene
Concen: 0.45 ug/L
RT: 14.882 min Scan# 2140
Delta R.T. -0.001 min
Lab File: c201896.D
Acq: 16 Jul 2015 7:37 pm

Tgt Ion: 91 Resp: 8081

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 91 | 100 | | |
| 106 | 33.7 | 1.4 | 61.4 |
| 77 | 9.0 | 0.0 | 38.3 |

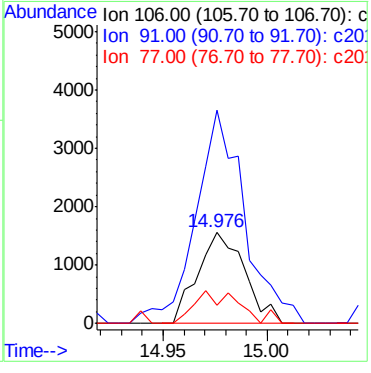



#100
m,p-xylene
Concen: 0.35 ug/L
RT: 14.976 min Scan# 2158
Delta R.T. -0.001 min
Lab File: c201896.D
Acq: 16 Jul 2015 7:37 pm

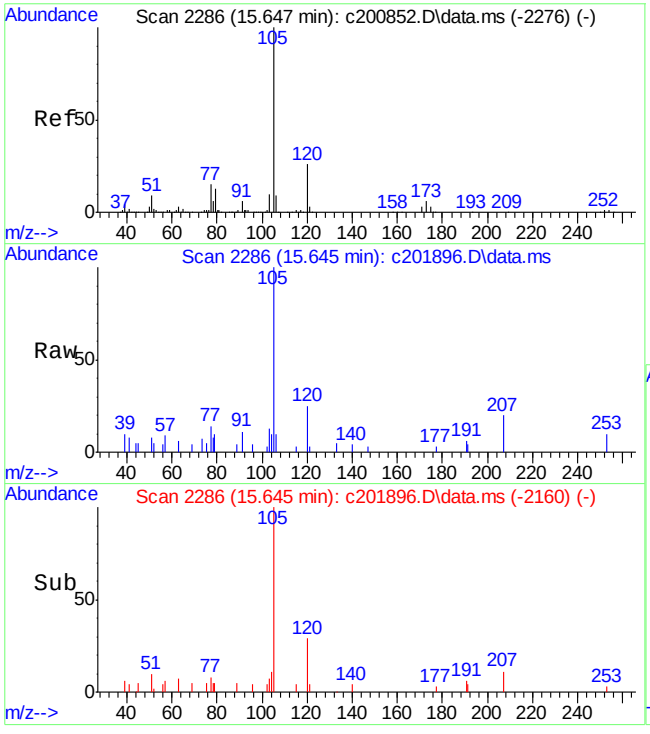
Tgt Ion:106 Resp: 2443

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 106 | 100 | | |
| 91 | 218.3 | 168.9 | 228.9 |
| 77 | 19.6 | 0.0 | 55.4 |




7.1.16

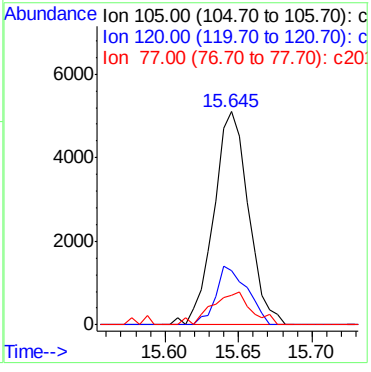
7

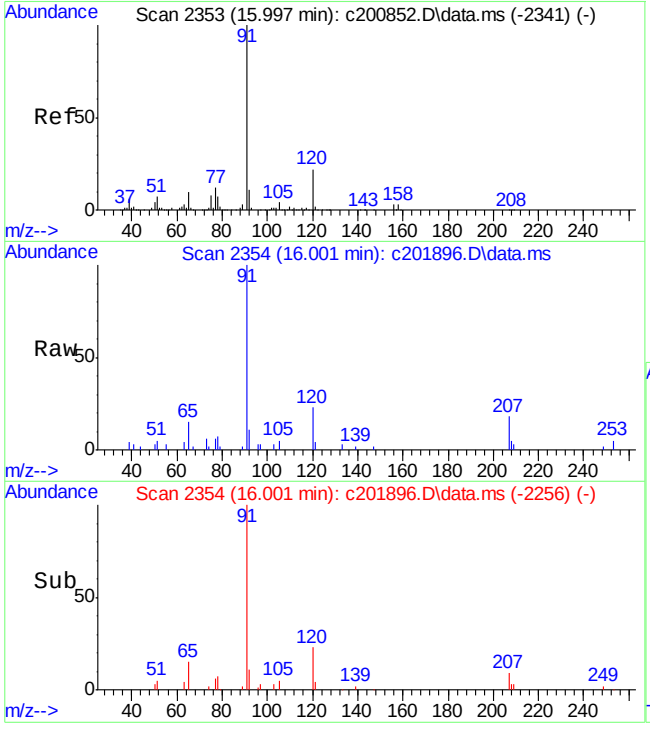



#105
isopropylbenzene
Concen: 0.46 ug/L
RT: 15.645 min Scan# 2286
Delta R.T. -0.001 min
Lab File: c201896.D
Acq: 16 Jul 2015 7:37 pm

Tgt Ion:105 Resp: 8297

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 105 | 100 | | |
| 120 | 25.4 | 0.0 | 56.4 |
| 77 | 13.9 | 0.0 | 44.7 |

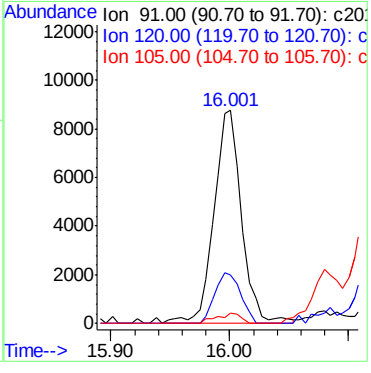


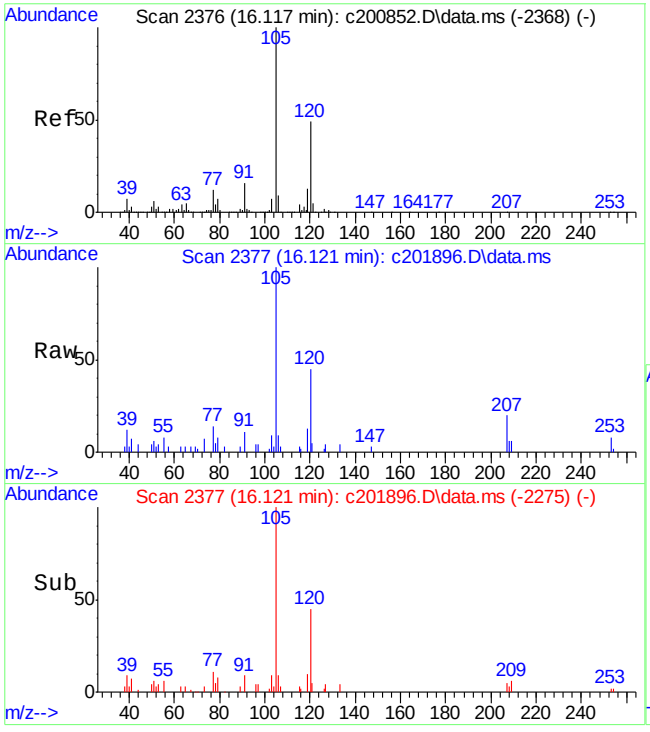




#111
n-propylbenzene
Concen: 0.67 ug/L
RT: 16.001 min Scan# 2354
Delta R.T. 0.004 min
Lab File: c201896.D
Acq: 16 Jul 2015 7:37 pm

Tgt Ion: 91 Resp: 14162

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 91 | 100 | | |
| 120 | 22.6 | 0.0 | 52.4 |
| 105 | 4.8 | 0.0 | 33.8 |

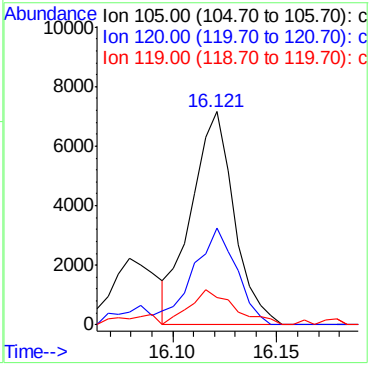


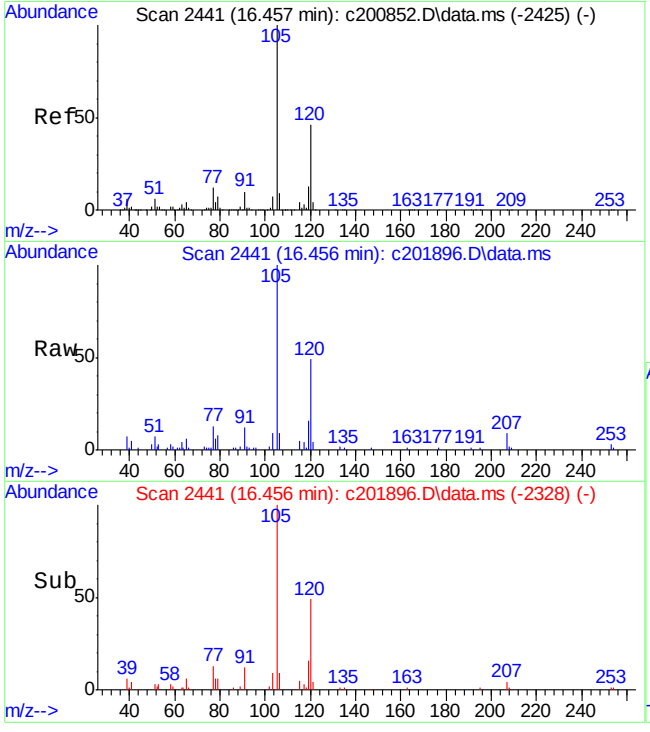



#115
1,3,5-trimethylbenzene
Concen: 0.63 ug/L
RT: 16.121 min Scan# 2377
Delta R.T. 0.004 min
Lab File: c201896.D
Acq: 16 Jul 2015 7:37 pm

Tgt Ion:105 Resp: 10228

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 105 | 100 | | |
| 120 | 45.5 | 19.5 | 79.5 |
| 119 | 12.6 | 0.0 | 42.5 |

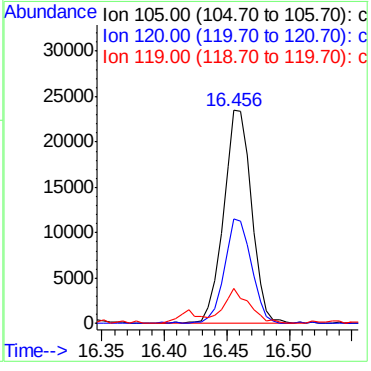


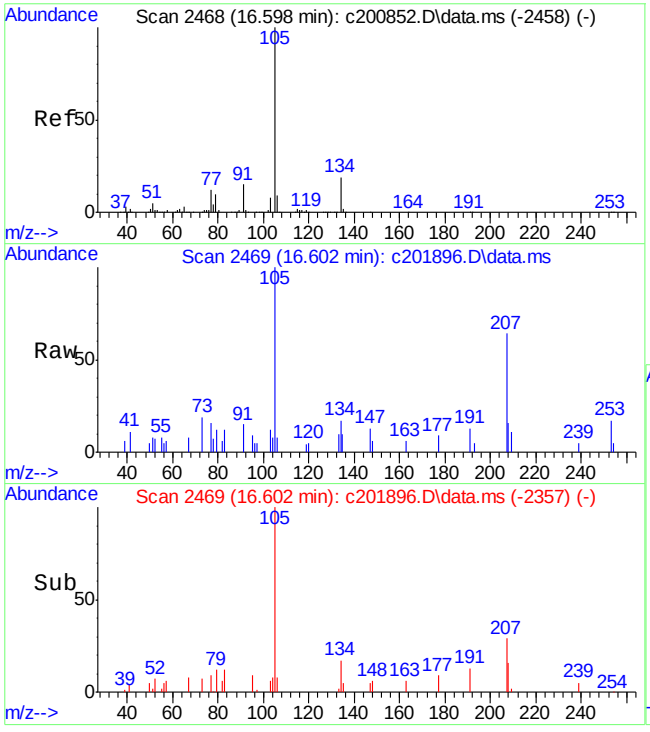




#118
1,2,4-trimethylbenzene
Concen: 2.21 ug/L
RT: 16.456 min Scan# 2441
Delta R.T. -0.001 min
Lab File: c201896.D
Acq: 16 Jul 2015 7:37 pm

Tgt Ion:105 Resp: 36666

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 105 | 100 | | |
| 120 | 49.2 | 15.5 | 75.5 |
| 119 | 16.3 | 0.0 | 42.7 |

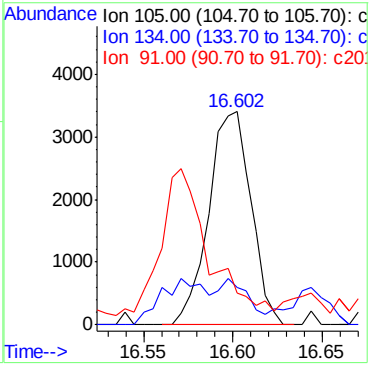


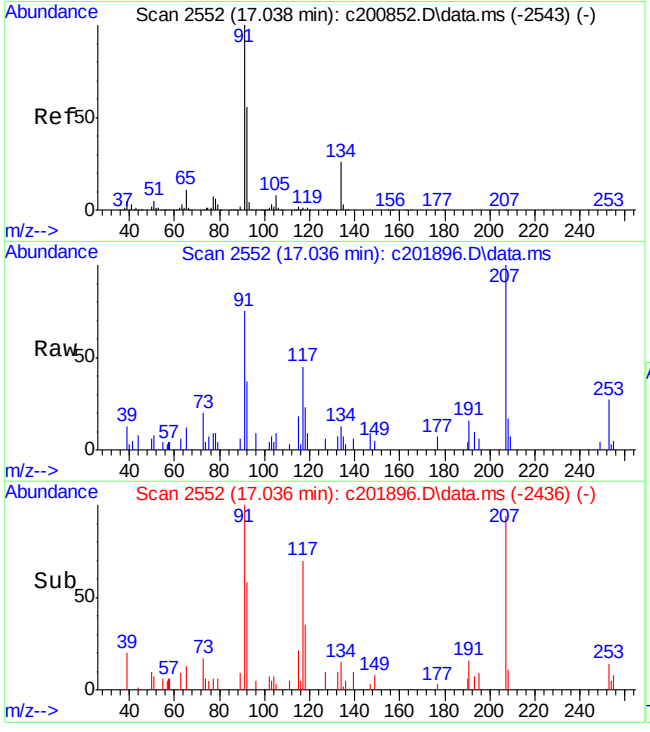



#119
sec-butylbenzene
Concen: 0.28 ug/L
RT: 16.602 min Scan# 2469
Delta R.T. 0.004 min
Lab File: c201896.D
Acq: 16 Jul 2015 7:37 pm

Tgt Ion:105 Resp: 5595

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 105 | 100 | | |
| 134 | 9.5 | 0.0 | 48.9 |
| 91 | 2.7 | 0.0 | 45.2 |

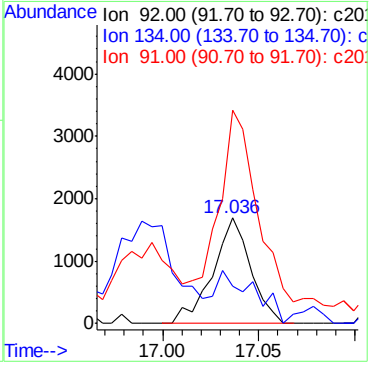


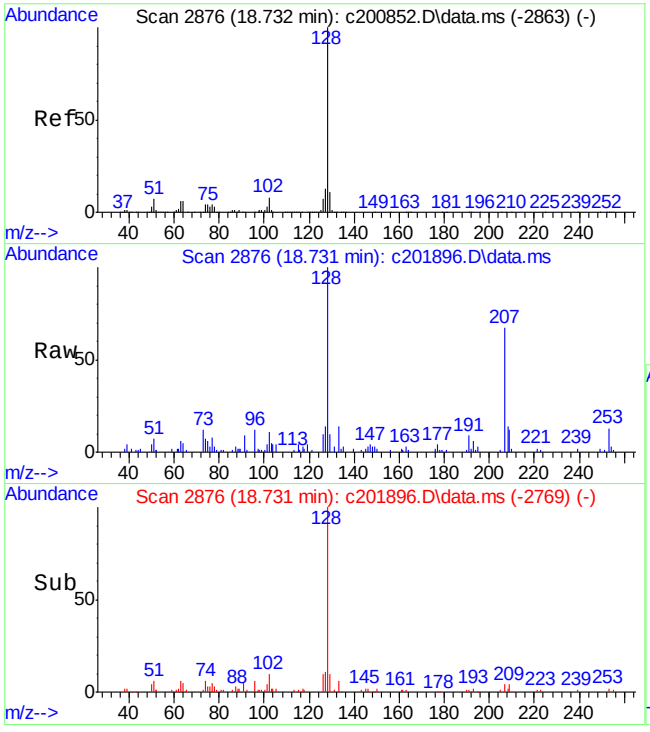




#126
n-butylbenzene
Concen: 0.26 ug/L
RT: 17.036 min Scan# 2552
Delta R.T. -0.001 min
Lab File: c201896.D
Acq: 16 Jul 2015 7:37 pm

Tgt Ion: 92 Resp: 2301

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 92 | 100 | | |
| 134 | 26.8 | 17.6 | 77.6 |
| 91 | 181.8 | 150.3 | 210.3 |

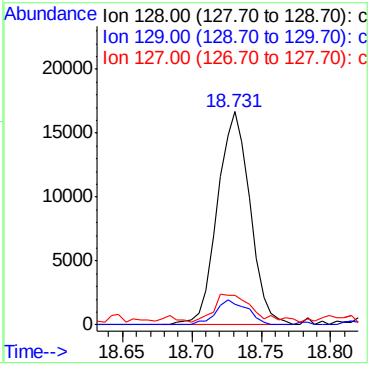





#132
naphthalene
Concen: 1.35 ug/L
RT: 18.731 min Scan# 2876
Delta R.T. -0.001 min
Lab File: c201896.D
Acq: 16 Jul 2015 7:37 pm

Tgt Ion:128 Resp: 27515

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 128 | 100 | | |
| 129 | 9.7 | 0.0 | 40.9 |
| 127 | 11.0 | 0.0 | 43.4 |



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : c201897.D
Acq On : 16 Jul 2015 8:04 pm
Operator : mihirm
Sample : jb98590-16
Misc : MS87777,VC7407,5,,,,1
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Jul 17 11:12:05 2015
Quant Method : C:\MSDCHEM\1\METHODS\MC7362.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Wed Jun 10 15:01:19 2015
Response via : Initial Calibration

| Internal Standards | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| 1) Tert Butyl Alcohol-d9 | 8.129 | 65 | 198475 | 500.00 | ug/L | -0.01 |
| 5) pentafluorobenzene | 10.823 | 168 | 485969 | 50.00 | ug/L | 0.00 |
| 59) 1,4-difluorobenzene | 11.780 | 114 | 658958 | 50.00 | ug/L | 0.00 |
| 88) chlorobenzene-d5 | 14.819 | 117 | 575379 | 50.00 | ug/L | 0.00 |
| 104) 1,4-dichlorobenzene-d4 | 16.832 | 152 | 322266 | 50.00 | ug/L | 0.00 |

System Monitoring Compounds

| | | | | | | |
|---|---|---|---|---|---|---|
| 50) dibromofluoromethane (s) | 10.886 | 113 | 191570 | 50.16 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 76 - 120 | | Recovery = 100.32% | | | |
| 51) 1,2-dichloroethane-d4 (s) | 11.330 | 65 | 266397 | 60.07 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 73 - 122 | | Recovery = 120.14% | | | |
| 80) toluene-d8 (s) | 13.391 | 98 | 779496 | 50.74 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 84 - 119 | | Recovery = 101.48% | | | |
| 106) 4-bromofluorobenzene (s) | 15.844 | 174 | 244530 | 52.22 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 78 - 117 | | Recovery = 104.44% | | | |

Target Compounds

| | | | | | | Qvalue |
|---|---|---|---|---|---|---|
| 32) methyl tert butyl ether | 8.527 | 73 | 153661 | 12.36 | ug/L | 95 |
| 65) benzene | 11.372 | 78 | 3819 | 0.25 | ug/L | 46 |
| 82) toluene | 13.459 | 92 | 1977 | 0.21 | ug/L | 90 |
| 97) chlorobenzene | 14.845 | 112 | 9821 | 0.99 | ug/L | 98 |
| 99) ethylbenzene | 14.881 | 91 | 3408 | 0.19 | ug/L | 81 |
| 100) m,p-xylene | 14.981 | 106 | 1589 | 0.23 | ug/L | 93 |
| 105) isopropylbenzene | 15.645 | 105 | 15497 | 0.88 | ug/L | 95 |
| 118) 1,2,4-trimethylbenzene | 16.461 | 105 | 10536 | 0.65 | ug/L | 95 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

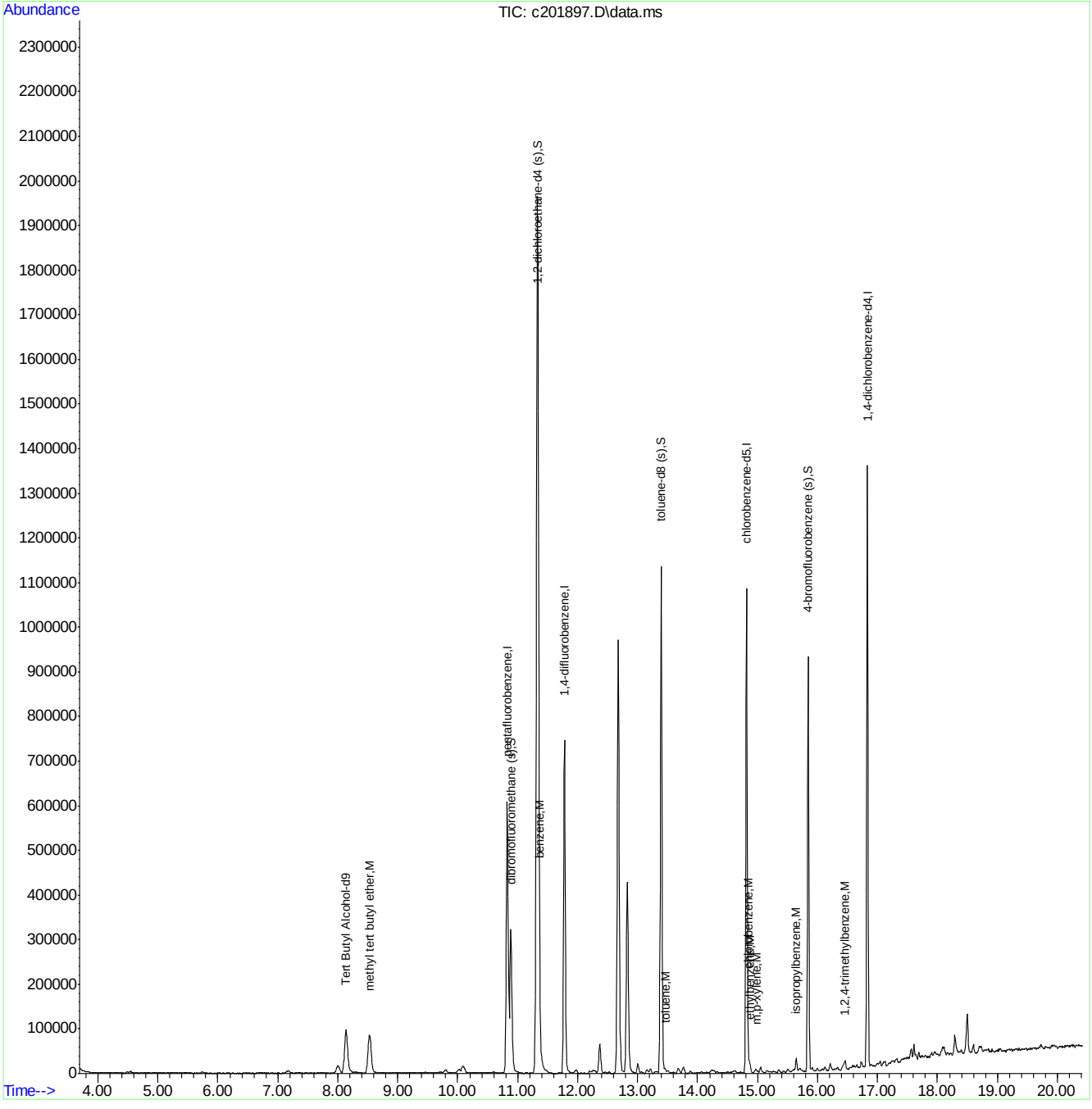
7.1.17

7

Quantitation Report (QT Reviewed)

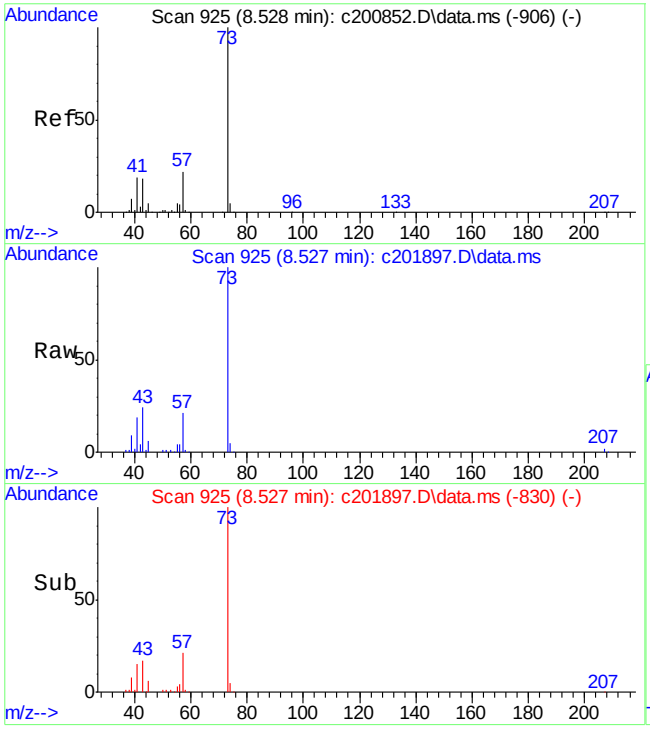
Data Path : C:\msdchem\1\DATA\
Data File : c201897.D
Acq On : 16 Jul 2015 8:04 pm
Operator : mihirm
Sample : jb98590-16
Misc : MS87777,VC7407,5,,,,1
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Jul 17 11:12:05 2015
Quant Method : C:\MSDCHEM\1\METHODS\MC7362.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Wed Jun 10 15:01:19 2015
Response via : Initial Calibration




MC7362.M Fri Jul 17 11:17:01 2015 C

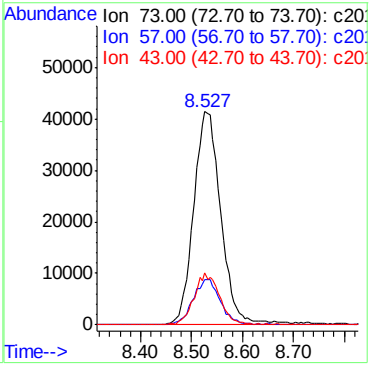
Page: 2

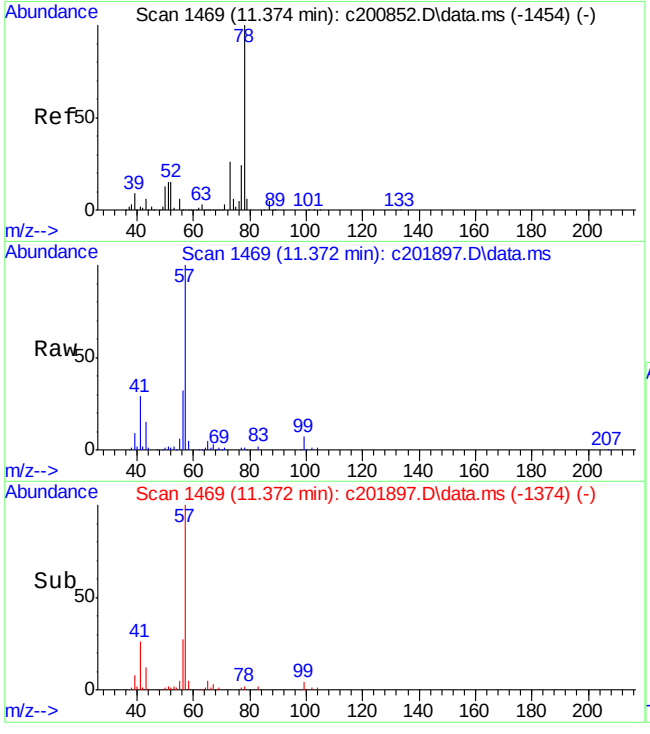



#32
methyl tert butyl ether
Concen: 12.36 ug/L
RT: 8.527 min Scan# 925
Delta R.T. -0.002 min
Lab File: c201897.D
Acq: 16 Jul 2015 8:04 pm

Tgt Ion: 73 Resp: 153661

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 73 | 100 | | |
| 57 | 21.3 | 0.0 | 52.0 |
| 43 | 22.5 | 0.0 | 48.8 |

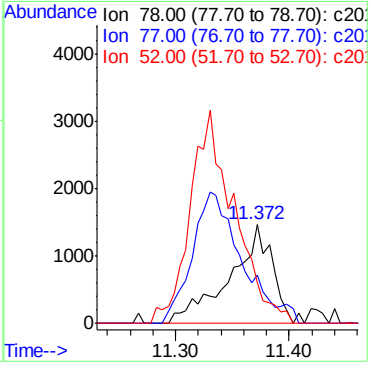


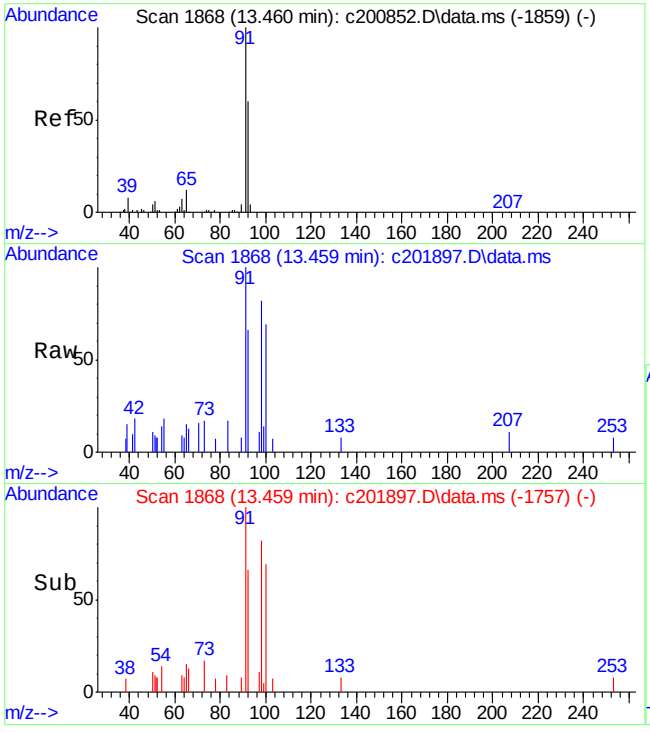




#65
benzene
Concen: 0.25 ug/L
RT: 11.372 min Scan# 1469
Delta R.T. -0.002 min
Lab File: c201897.D
Acq: 16 Jul 2015 8:04 pm

Tgt Ion: 78 Resp: 3819

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 78 | 100 | | |
| 77 | 48.4 | 0.0 | 54.1 |
| 52 | 40.9 | 0.0 | 45.2 |

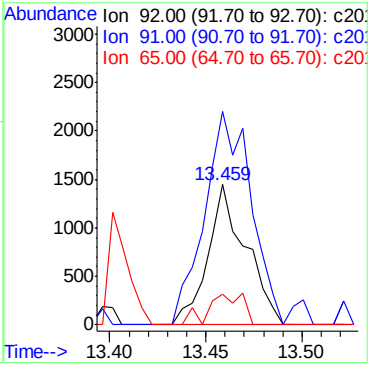


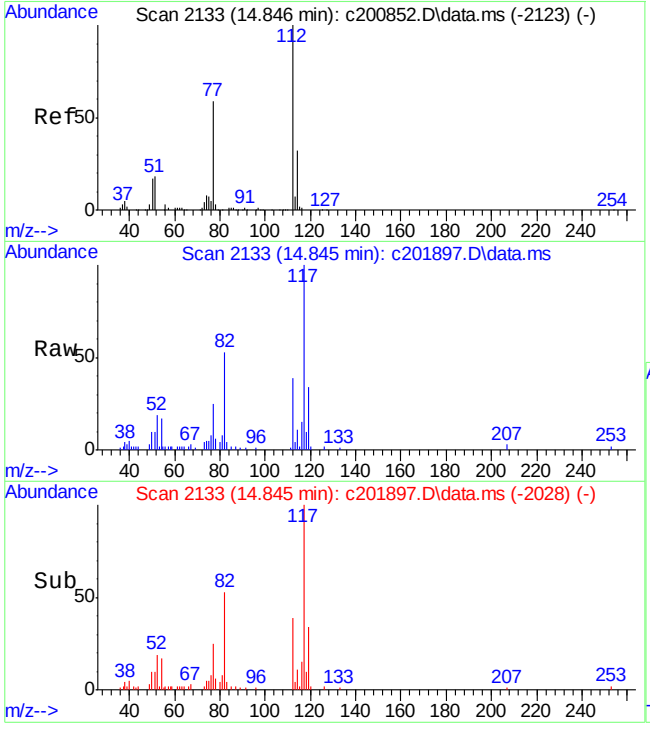



#82
toluene
Concen: 0.21 ug/L
RT: 13.459 min Scan# 1868
Delta R.T. -0.002 min
Lab File: c201897.D
Acq: 16 Jul 2015 8:04 pm

Tgt Ion: 92 Resp: 1977

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 92 | 100 | | |
| 91 | 152.2 | 135.8 | 195.8 |
| 65 | 22.1 | 0.0 | 49.5 |

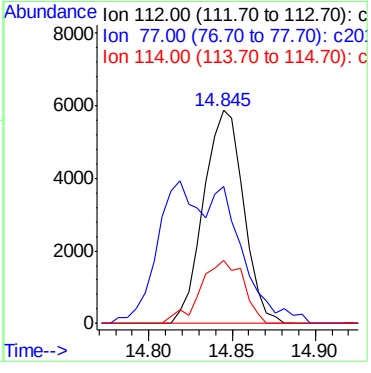


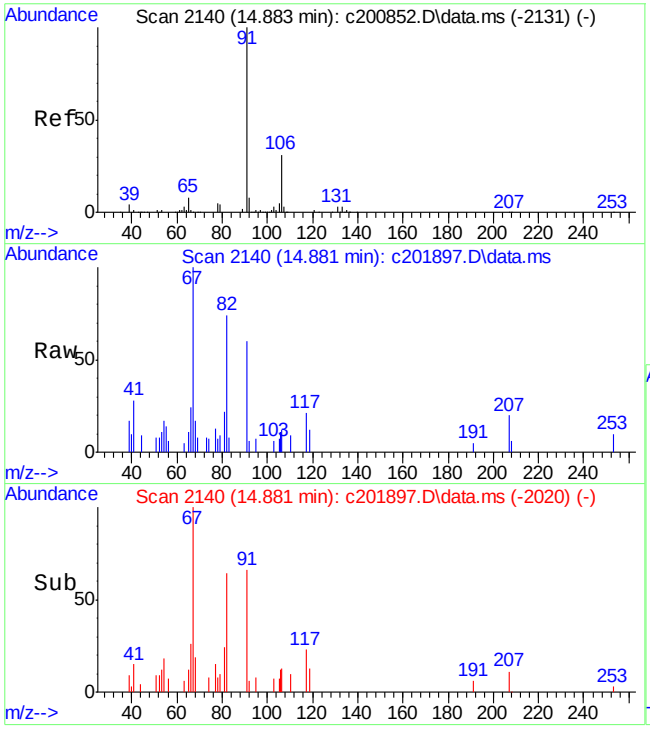




#97
chlorobenzene
Concen: 0.99 ug/L
RT: 14.845 min Scan# 2133
Delta R.T. -0.002 min
Lab File: c201897.D
Acq: 16 Jul 2015 8:04 pm

Tgt Ion:112 Resp: 9821

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 112 | 100 | | |
| 77 | 60.5 | 29.4 | 89.4 |
| 114 | 29.5 | 2.0 | 62.0 |

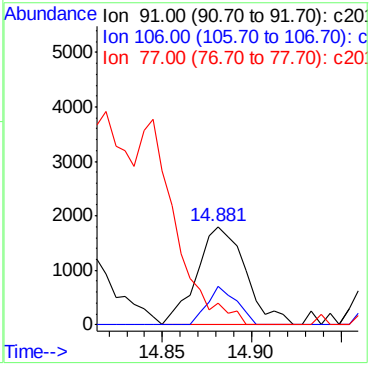


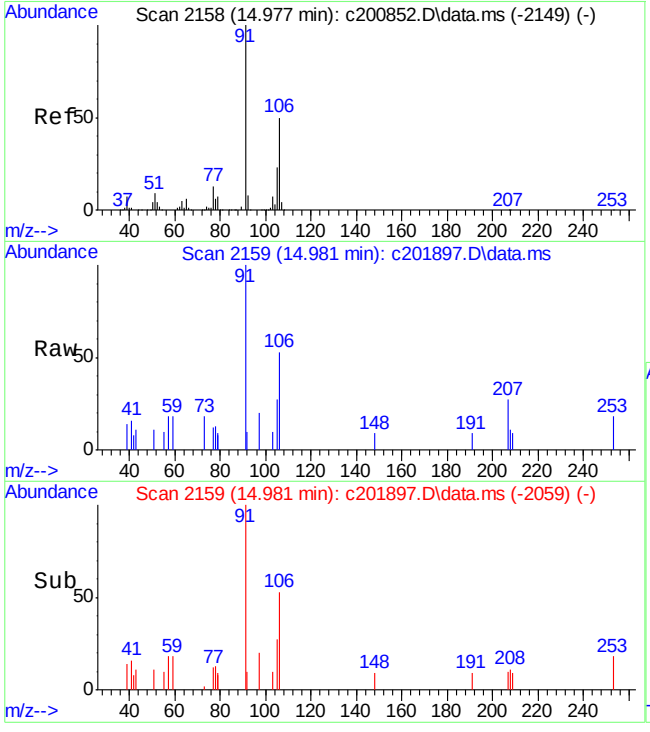



#99
ethylbenzene
Concen: 0.19 ug/L
RT: 14.881 min Scan# 2140
Delta R.T. -0.002 min
Lab File: c201897.D
Acq: 16 Jul 2015 8:04 pm

Tgt Ion: 91 Resp: 3408

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 91 | 100 | | |
| 106 | 39.2 | 1.4 | 61.4 |
| 77 | 22.3 | 0.0 | 38.3 |

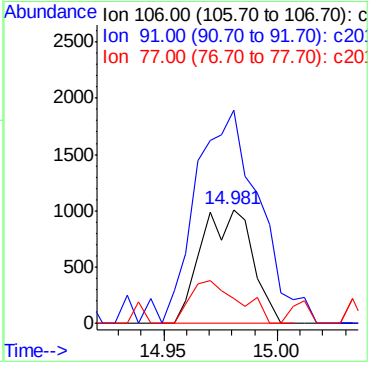



#100
m,p-xylene
Concen: 0.23 ug/L
RT: 14.981 min Scan# 2159
Delta R.T. 0.004 min
Lab File: c201897.D
Acq: 16 Jul 2015 8:04 pm

Tgt Ion:106 Resp: 1589

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 106 | 100 | | |
| 91 | 187.6 | 168.9 | 228.9 |
| 77 | 21.6 | 0.0 | 55.4 |




7.1.17

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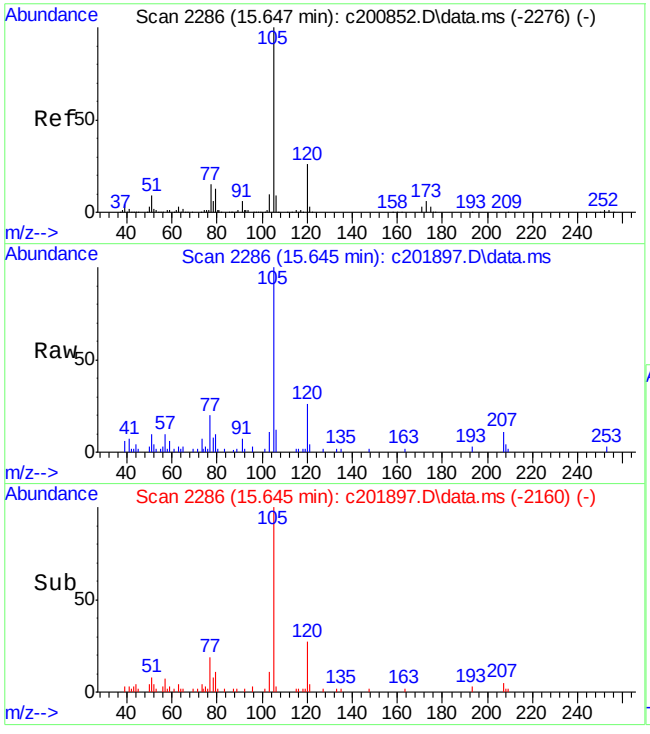
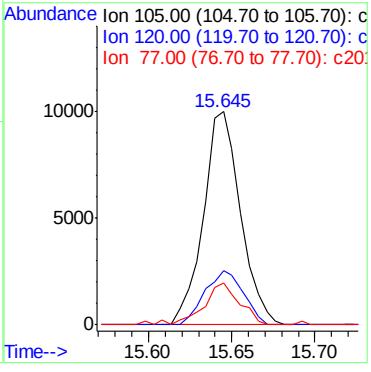
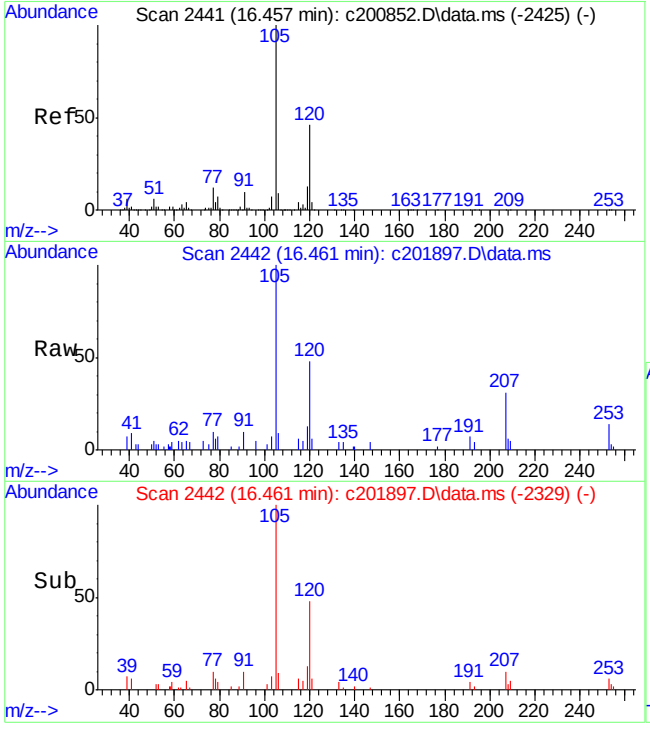



#105
isopropylbenzene
Concen: 0.88 ug/L
RT: 15.645 min Scan# 2286
Delta R.T. -0.002 min
Lab File: c201897.D
Acq: 16 Jul 2015 8:04 pm

Tgt Ion:105 Resp: 15497

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 105 | 100 | | |
| 120 | 25.7 | 0.0 | 56.4 |
| 77 | 19.7 | 0.0 | 44.7 |

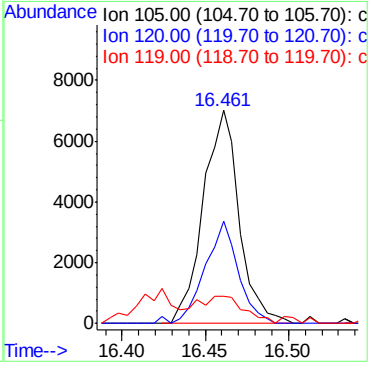



#118
1,2,4-trimethylbenzene
Concen: 0.65 ug/L
RT: 16.461 min Scan# 2442
Delta R.T. 0.004 min
Lab File: c201897.D
Acq: 16 Jul 2015 8:04 pm

Tgt Ion:105 Resp: 10536

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 105 | 100 | | |
| 120 | 48.2 | 15.5 | 75.5 |
| 119 | 10.0 | 0.0 | 42.7 |



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : u197279.D
Acq On : 17 Jul 2015 11:41 pm
Operator : NicoleH1
Sample : jb98590-17
Misc : ms87777,vu9094,5.0,,,,1
ALS Vial : 33 Sample Multiplier: 1

Quant Time: Jul 18 00:17:01 2015
Quant Method : C:\MSDCHEM\1\METHODS\MU8988.M
Quant Title : SW-846 8260B, ZB624 60m x 250um x 1.40um
QLast Update : Mon May 04 09:25:27 2015
Response via : Initial Calibration

| Internal Standards | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| 1) Tert Butyl Alcohol-d9 | 7.869 | 65 | 74883 | 500.00 | ug/L | -0.02 |
| 5) pentafluorobenzene | 10.076 | 168 | 274331 | 50.00 | ug/L | 0.00 |
| 64) 1,4-difluorobenzene | 10.996 | 114 | 317114 | 50.00 | ug/L | 0.00 |
| 96) chlorobenzene-d5 | 14.323 | 117 | 287047 | 50.00 | ug/L | 0.00 |
| 112) 1,4-dichlorobenzene-d4 | 16.896 | 152 | 156013 | 50.00 | ug/L | 0.00 |

| System Monitoring Compounds | | | | | | |
|---|---|---|---|---|---|---|
| 56) dibromofluoromethane (s) | 10.154 | 113 | 97252 | 52.14 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 76 - 120 | | Recovery = 104.28% | | | |
| 57) 1,2-dichloroethane-d4 (s) | 10.578 | 65 | 101201 | 51.27 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 73 - 122 | | Recovery = 102.54% | | | |
| 88) toluene-d8 (s) | 12.680 | 98 | 363959 | 50.19 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 84 - 119 | | Recovery = 100.38% | | | |
| 114) 4-bromofluorobenzene (s) | 15.594 | 95 | 131485 | 47.58 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 78 - 117 | | Recovery = 95.16% | | | |

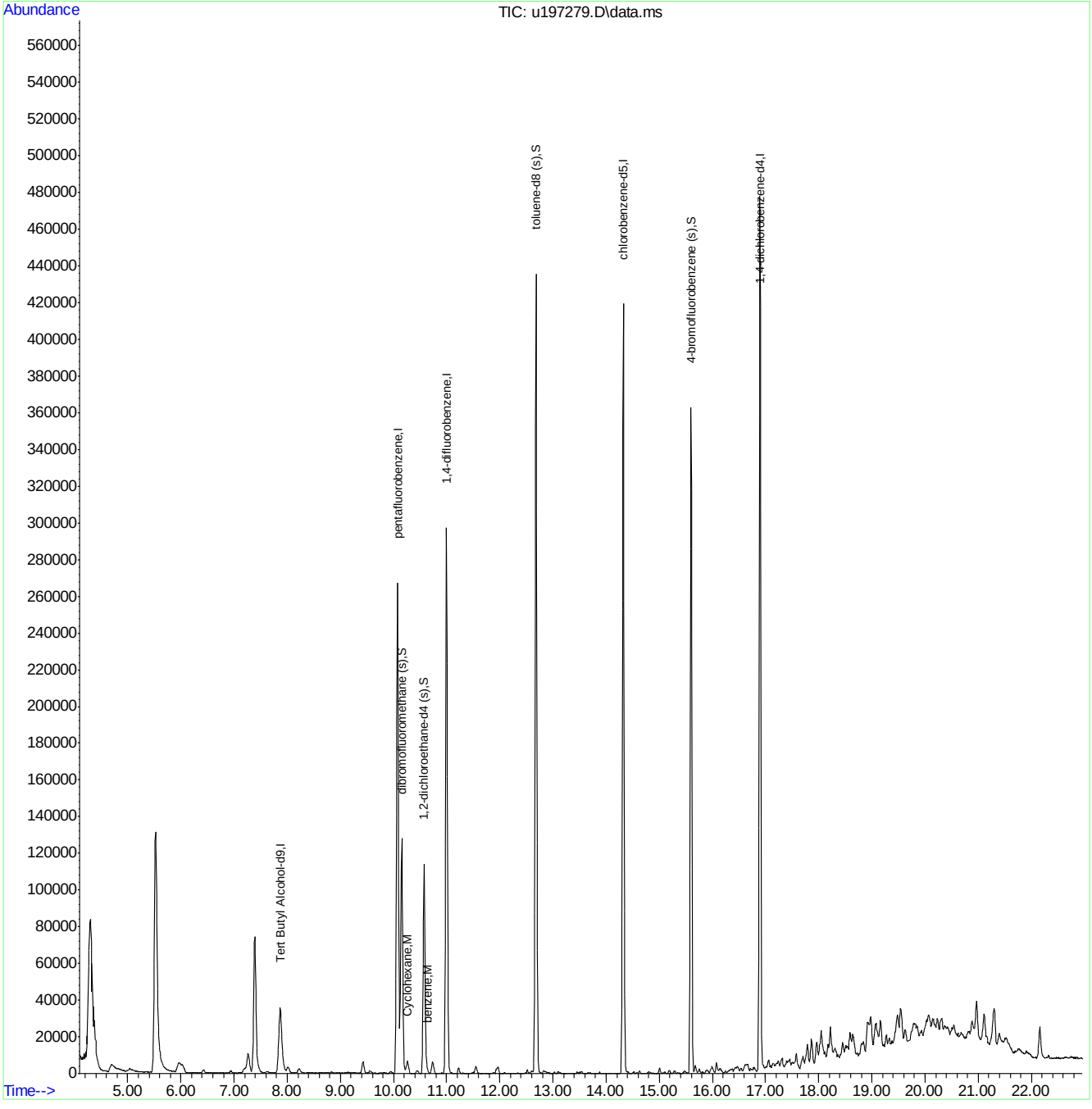
| Target Compounds | | | | | | Qvalue |
|---|---|---|---|---|---|---|
| 68) Cyclohexane | 10.264 | 84 | 3717 | 1.35 | ug/L # | 40 |
| 72) benzene | 10.635 | 78 | 2099 | 0.27 | ug/L | 93 |

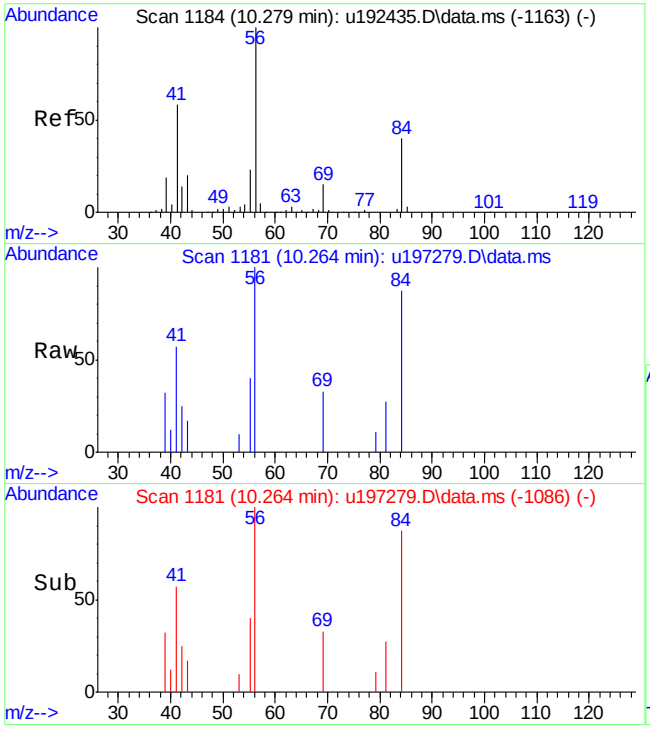
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : u197279.D
Acq On : 17 Jul 2015 11:41 pm
Operator : NicoleH1
Sample : jb98590-17
Misc : ms87777,vu9094,5.0,,,,1
ALS Vial : 33 Sample Multiplier: 1

Quant Time: Jul 18 00:17:01 2015
Quant Method : C:\MSDCHEM\1\METHODS\MU8988.M
Quant Title : SW-846 8260B, ZB624 60m x 250um x 1.40um
QLast Update : Mon May 04 09:25:27 2015
Response via : Initial Calibration

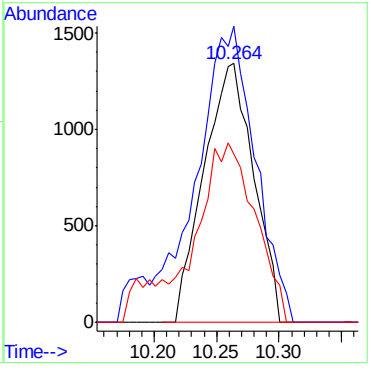


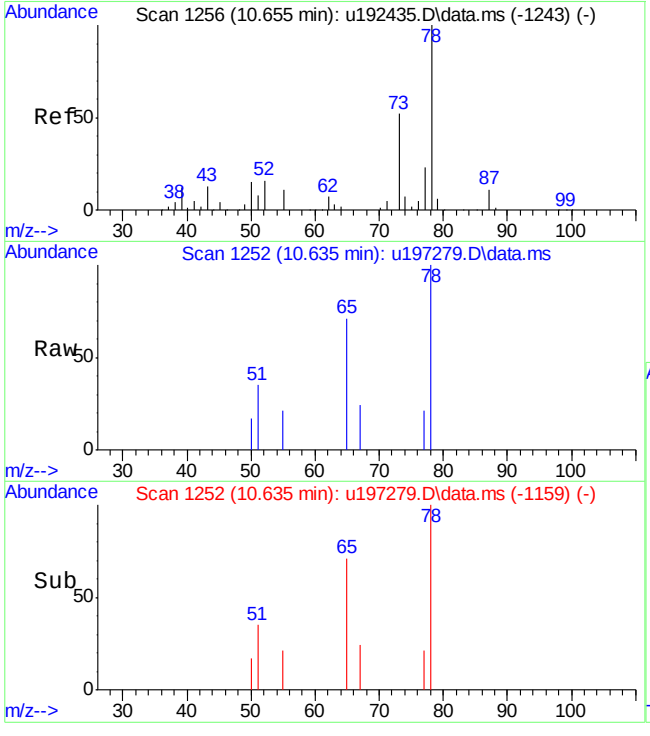



#68
Cyclohexane
Concen: 1.35 ug/L
RT: 10.264 min Scan# 1181
Delta R.T. -0.001 min
Lab File: u197279.D
Acq: 17 Jul 2015 11:41 pm

Tgt Ion: 84 Resp: 3717

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 84 | 100 | | |
| 56 | 114.5 | 187.3 | 247.3# |
| 41 | 65.0 | 96.3 | 156.3# |

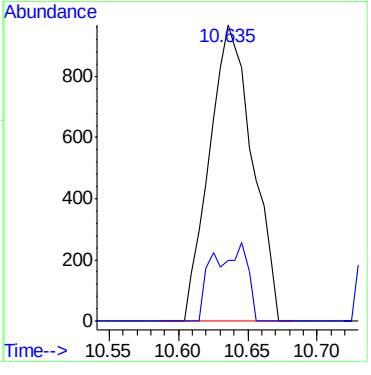



#72
benzene
Concen: 0.27 ug/L
RT: 10.635 min Scan# 1252
Delta R.T. -0.006 min
Lab File: u197279.D
Acq: 17 Jul 2015 11:41 pm

Tgt Ion: 78 Resp: 2099

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 78 | 100 | | |
| 77 | 20.7 | 0.0 | 53.9 |



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : c201898.D
Acq On : 16 Jul 2015 8:31 pm
Operator : mihirm
Sample : jb98590-18
Misc : MS87777,VC7407,5,,,,1
ALS Vial : 25 Sample Multiplier: 1

Quant Time: Jul 17 11:15:19 2015
Quant Method : C:\MSDCHEM\1\METHODS\MC7362.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Wed Jun 10 15:01:19 2015
Response via : Initial Calibration

| Internal Standards | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| 1) Tert Butyl Alcohol-d9 | 8.134 | 65 | 190135 | 500.00 | ug/L | 0.00 |
| 5) pentafluorobenzene | 10.828 | 168 | 500343 | 50.00 | ug/L | 0.00 |
| 59) 1,4-difluorobenzene | 11.780 | 114 | 676908 | 50.00 | ug/L | 0.00 |
| 88) chlorobenzene-d5 | 14.818 | 117 | 602718 | 50.00 | ug/L | 0.00 |
| 104) 1,4-dichlorobenzene-d4 | 16.832 | 152 | 351755 | 50.00 | ug/L | 0.00 |

| System Monitoring Compounds | | | | | | |
|---|---|---|---|---|---|---|
| 50) dibromofluoromethane (s) | 10.885 | 113 | 199215 | 50.66 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 76 - 120 | | Recovery = 101.32% | | | |
| 51) 1,2-dichloroethane-d4 (s) | 11.330 | 65 | 272520 | 59.68 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 73 - 122 | | Recovery = 119.36% | | | |
| 80) toluene-d8 (s) | 13.390 | 98 | 808895 | 51.26 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 84 - 119 | | Recovery = 102.52% | | | |
| 106) 4-bromofluorobenzene (s) | 15.843 | 174 | 260492 | 50.97 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 78 - 117 | | Recovery = 101.94% | | | |

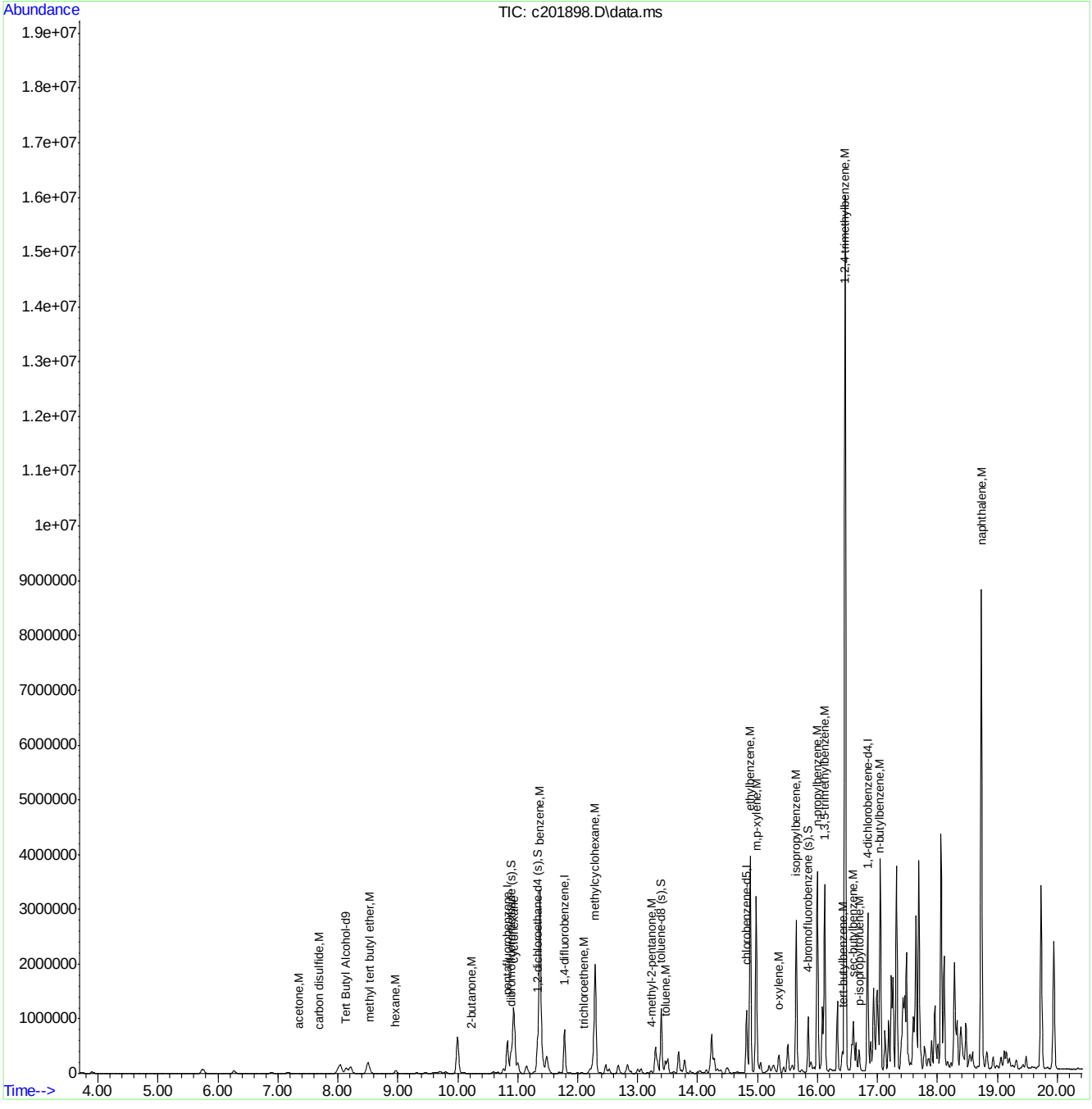
| Target Compounds | | | | | | Qvalue |
|---|---|---|---|---|---|---|
| 23) acetone | 7.350 | 58 | 2817 | 7.22 | ug/L # | 58 |
| 28) carbon disulfide | 7.679 | 76 | 5990 | 0.48 | ug/L | 83 |
| 32) methyl tert butyl ether | 8.532 | 73 | 6790 | 0.53 | ug/L # | 1 |
| 36) 2-butanone | 10.231 | 72 | 2600 | 5.46 | ug/L # | 1 |
| 54) cyclohexane | 10.937 | 84 | 651898 | 110.74 | ug/L | 86 |
| 64) hexane | 8.971 | 57 | 37440 | 10.09 | ug/L | 93 |
| 65) benzene | 11.372 | 78 | 3270456 | 206.48 | ug/L | 99 |
| 70) trichloroethene | 12.104 | 95 | 1131 | 0.31 | ug/L # | 51 |
| 73) methylcyclohexane | 12.292 | 83 | 973688 | 173.97 | ug/L | 97 |
| 81) 4-methyl-2-pentanone | 13.239 | 58 | 2631 | 1.68 | ug/L # | 74 |
| 82) toluene | 13.464 | 92 | 67726 | 6.93 | ug/L | 95 |
| 99) ethylbenzene | 14.881 | 91 | 2607958 | 139.56 | ug/L | 99 |
| 100) m,p-xylene | 14.975 | 106 | 874242 | 121.12 | ug/L | 98 |
| 101) o-xylene | 15.352 | 106 | 36177 | 4.94 | ug/L | 98 |
| 105) isopropylbenzene | 15.645 | 105 | 1855440 | 96.95 | ug/L | 99 |
| 111) n-propylbenzene | 15.995 | 91 | 2813543 | 126.34 | ug/L | 99 |
| 115) 1,3,5-trimethylbenzene | 16.121 | 105 | 1881351 | 109.94 | ug/L | 99 |
| 116) tert-butylbenzene | 16.424 | 134 | 33705 | 9.38 | ug/L | 98 |
| 118) 1,2,4-trimethylbenzene | 16.460 | 105 | 8468746 | 481.37 | ug/L | 97 |
| 119) sec-butylbenzene | 16.596 | 105 | 613171 | 28.63 | ug/L | 99 |
| 121) p-isopropyltoluene | 16.691 | 119 | 186150 | 10.30 | ug/L | 99 |
| 126) n-butylbenzene | 17.036 | 92 | 210757 | 22.10 | ug/L # | 73 |
| 132) naphthalene | 18.730 | 128 | 6565529 | 302.96 | ug/L | 99 |

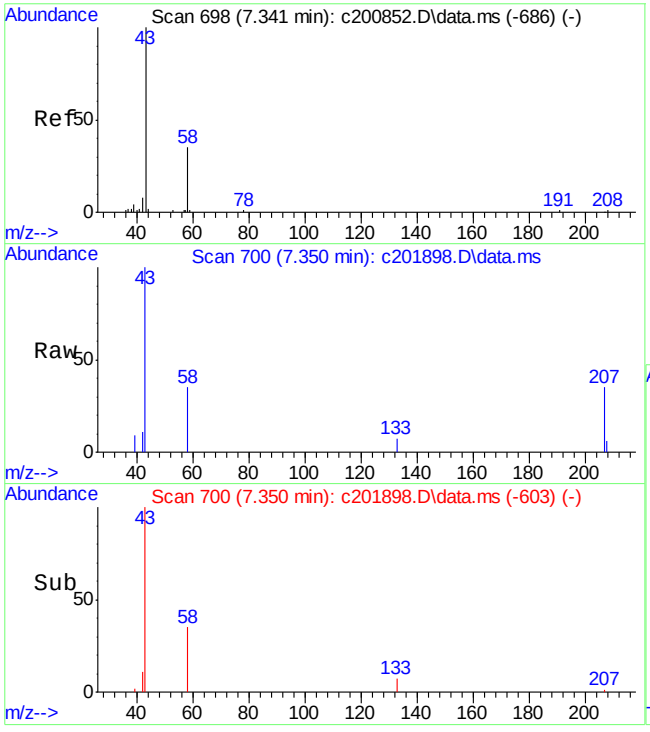
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : c201898.D
Acq On : 16 Jul 2015 8:31 pm
Operator : mihirm
Sample : jb98590-18
Misc : MS87777,VC7407,5,,,,1
ALS Vial : 25 Sample Multiplier: 1

Quant Time: Jul 17 11:15:19 2015
Quant Method : C:\MSDCHEM\1\METHODS\MC7362.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Wed Jun 10 15:01:19 2015
Response via : Initial Calibration

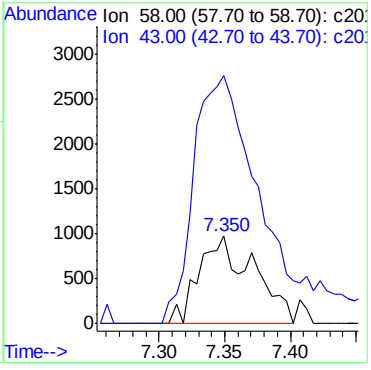


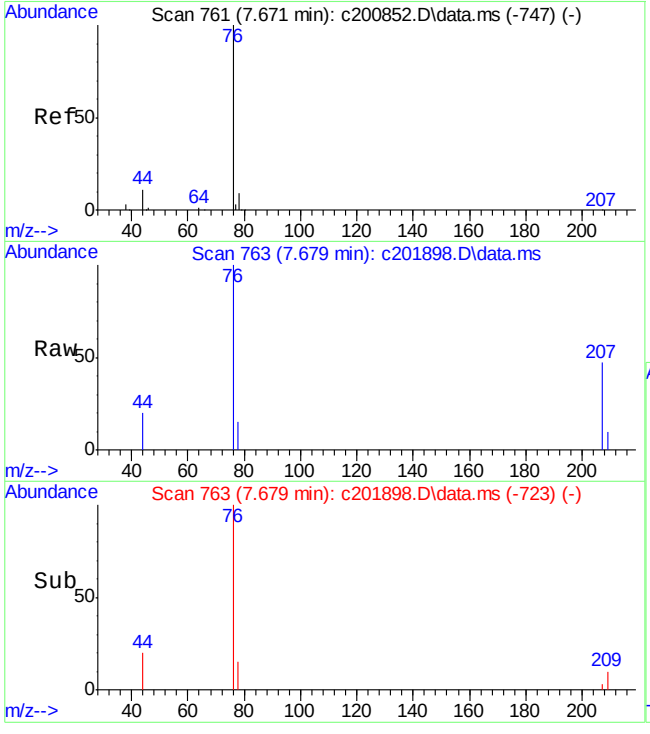



#23
acetone
Concen: 7.22 ug/L
RT: 7.350 min Scan# 700
Delta R.T. 0.008 min
Lab File: c201898.D
Acq: 16 Jul 2015 8:31 pm

Tgt Ion: 58 Resp: 2817

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 58 | 100 | | |
| 43 | 368.2 | 258.5 | 318.5# |

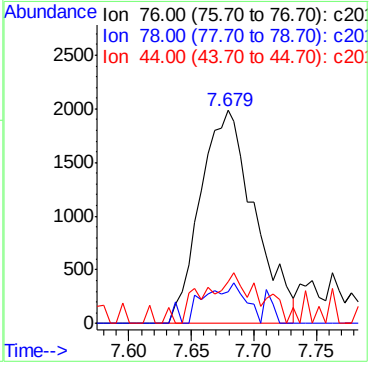


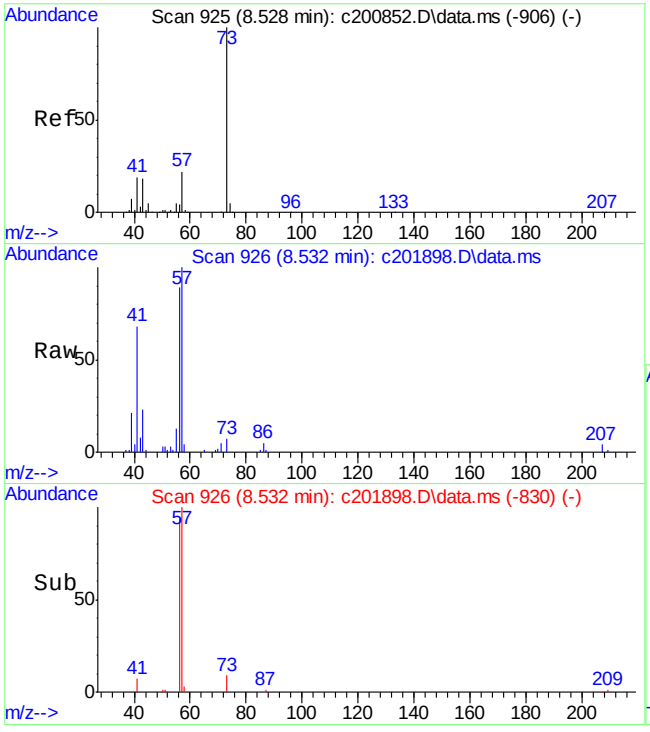




#28
carbon disulfide
Concen: 0.48 ug/L
RT: 7.679 min Scan# 763
Delta R.T. 0.008 min
Lab File: c201898.D
Acq: 16 Jul 2015 8:31 pm

Tgt Ion: 76 Resp: 5990

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 76 | 100 | | |
| 78 | 16.0 | 0.0 | 39.4 |
| 44 | 16.9 | 0.0 | 40.8 |

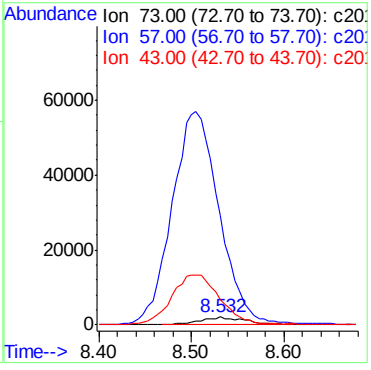


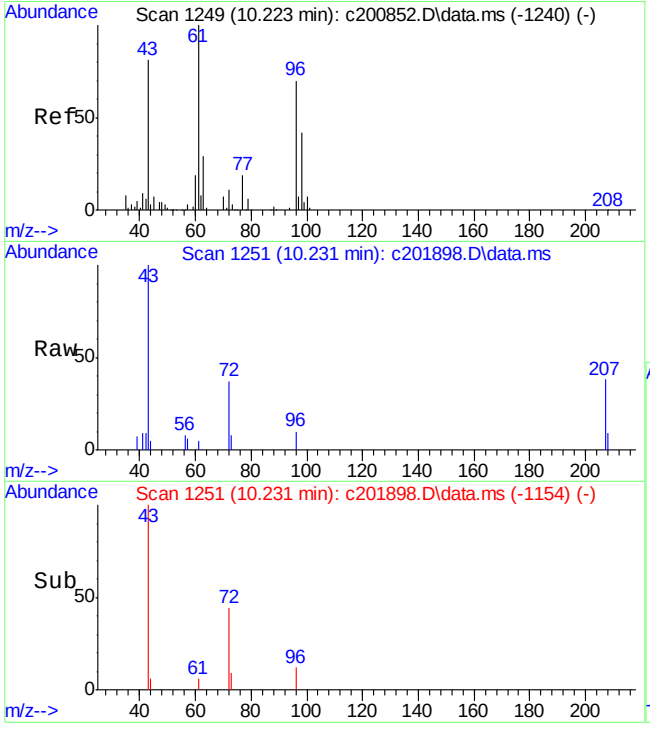



#32
methyl tert butyl ether
Concen: 0.53 ug/L
RT: 8.532 min Scan# 926
Delta R.T. 0.003 min
Lab File: c201898.D
Acq: 16 Jul 2015 8:31 pm

Tgt Ion: 73 Resp: 6790

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 73 | 100 | | |
| 57 | 3003.9 | 0.0 | 52.0# |
| 43 | 725.3 | 0.0 | 48.8# |

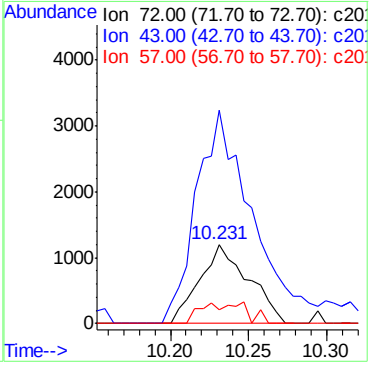


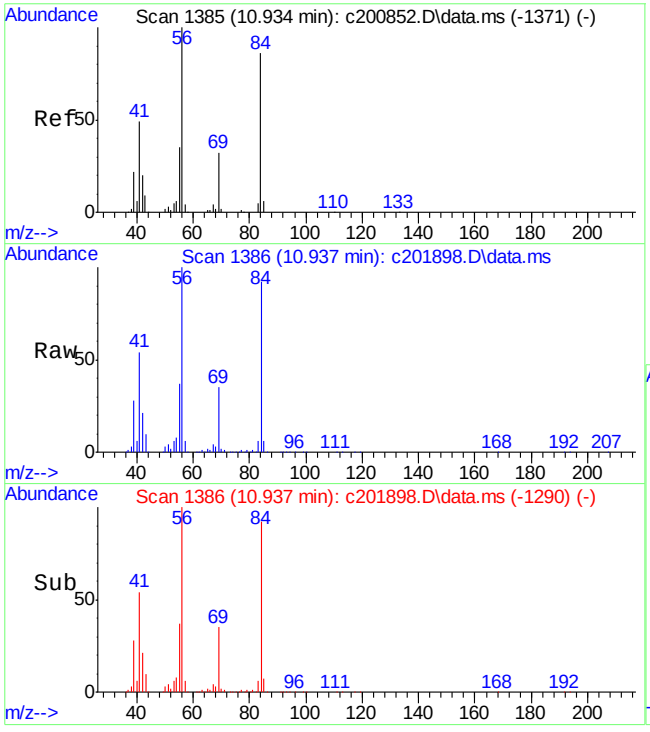




#36
2-butanone
Concen: 5.46 ug/L
RT: 10.231 min Scan# 1251
Delta R.T. 0.008 min
Lab File: c201898.D
Acq: 16 Jul 2015 8:31 pm

Tgt Ion: 72 Resp: 2600

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 72 | 100 | | |
| 43 | 341.2 | 685.9 | 1273.7# |
| 57 | 24.8 | 19.3 | 35.8 |

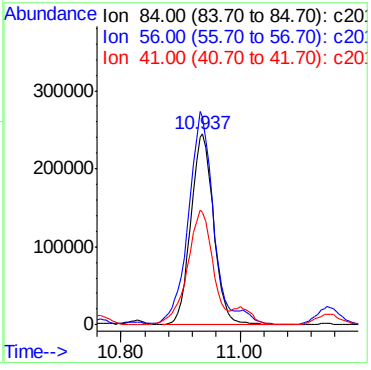


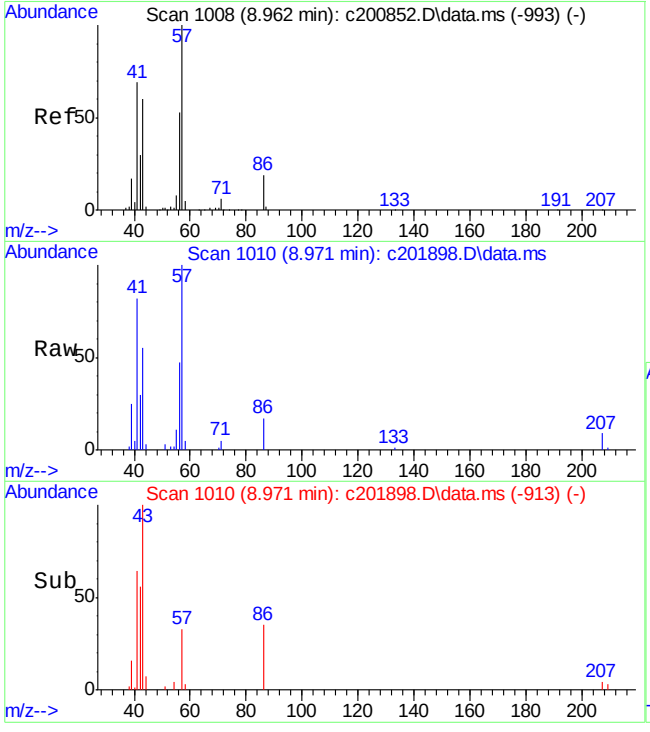



#54
cyclohexane
Concen: 110.74 ug/L
RT: 10.937 min Scan# 1386
Delta R.T. 0.003 min
Lab File: c201898.D
Acq: 16 Jul 2015 8:31 pm

Tgt Ion: 84 Resp: 651898

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 84 | 100 | | |
| 56 | 123.6 | 76.9 | 142.7 |
| 41 | 66.6 | 38.0 | 70.6 |

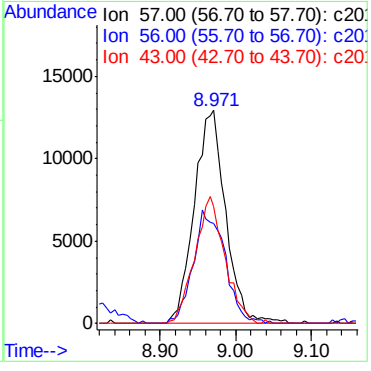


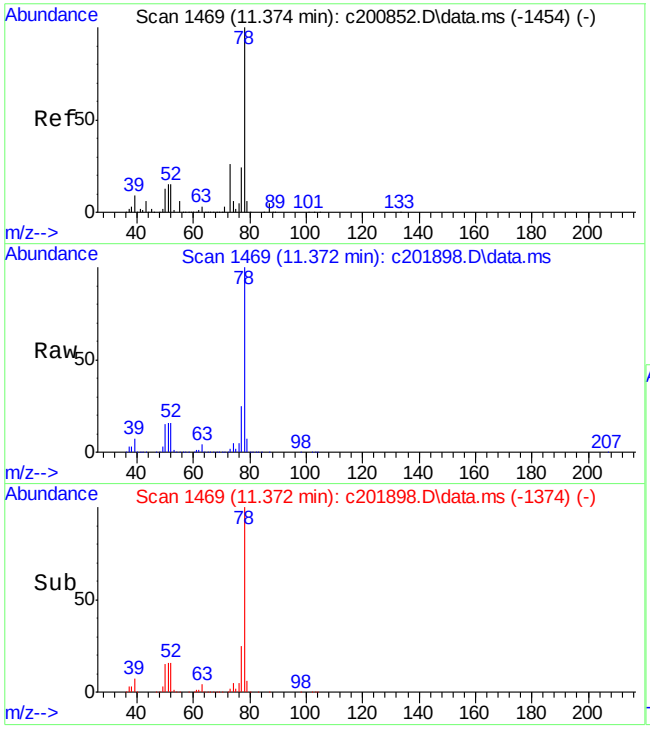




#64
hexane
Concen: 10.09 ug/L
RT: 8.971 min Scan# 1010
Delta R.T. 0.008 min
Lab File: c201898.D
Acq: 16 Jul 2015 8:31 pm

Tgt Ion: 57 Resp: 37440

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 57 | 100 | | |
| 56 | 47.0 | 22.6 | 82.6 |
| 43 | 55.0 | 29.5 | 89.5 |

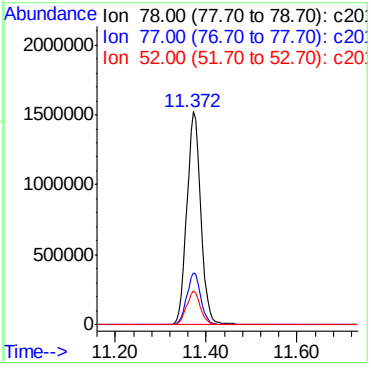


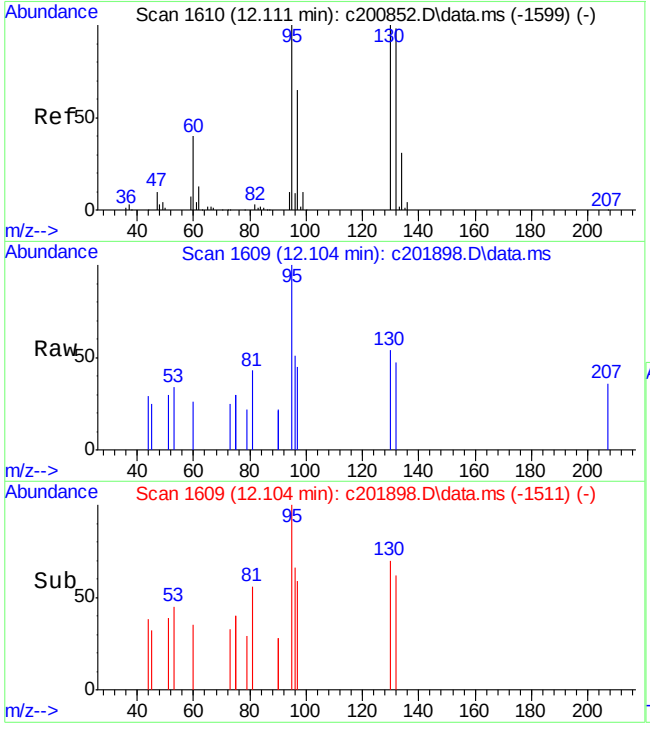



#65
benzene
Concen: 206.48 ug/L
RT: 11.372 min Scan# 1469
Delta R.T. -0.002 min
Lab File: c201898.D
Acq: 16 Jul 2015 8:31 pm

Tgt Ion: 78 Resp: 3270456

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 78 | 100 | | |
| 77 | 24.6 | 0.0 | 54.1 |
| 52 | 15.9 | 0.0 | 45.2 |

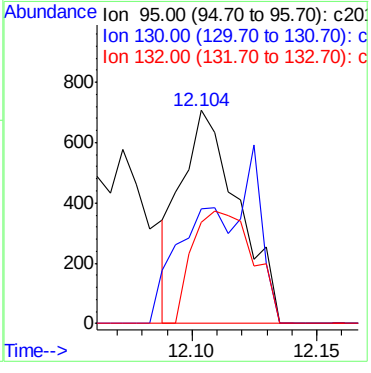


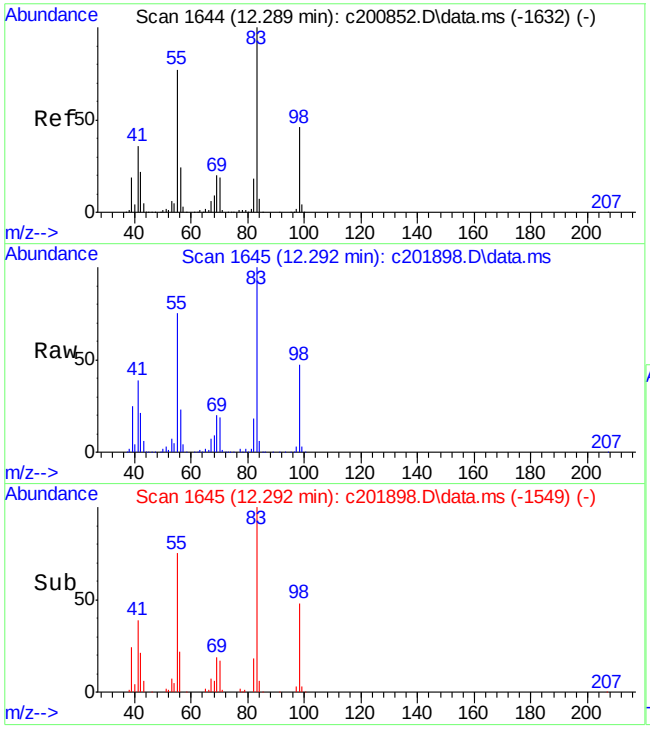




#70
trichloroethene
Concen: 0.31 ug/L
RT: 12.104 min Scan# 1609
Delta R.T. -0.007 min
Lab File: c201898.D
Acq: 16 Jul 2015 8:31 pm

Tgt Ion: 95 Resp: 1131

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 95 | 100 | | |
| 130 | 53.7 | 69.6 | 129.6# |
| 132 | 47.4 | 68.0 | 128.0# |

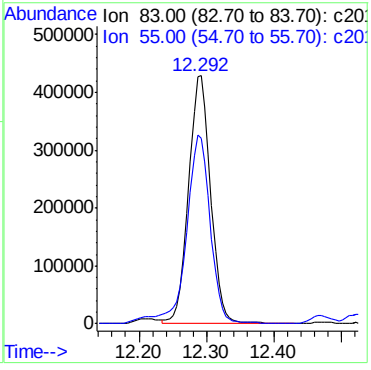


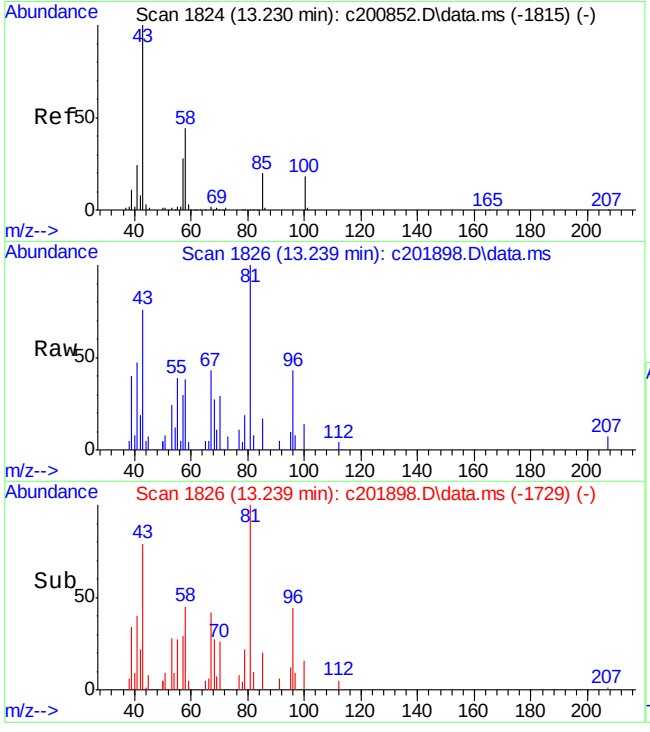



#73
methylcyclohexane
Concen: 173.97 ug/L
RT: 12.292 min Scan# 1645
Delta R.T. 0.003 min
Lab File: c201898.D
Acq: 16 Jul 2015 8:31 pm

Tgt Ion: 83 Resp: 973688

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 83 | 100 | | |
| 55 | 80.3 | 54.3 | 100.8 |

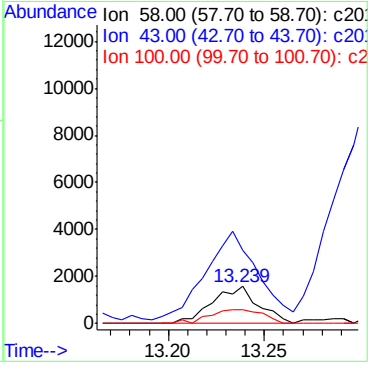


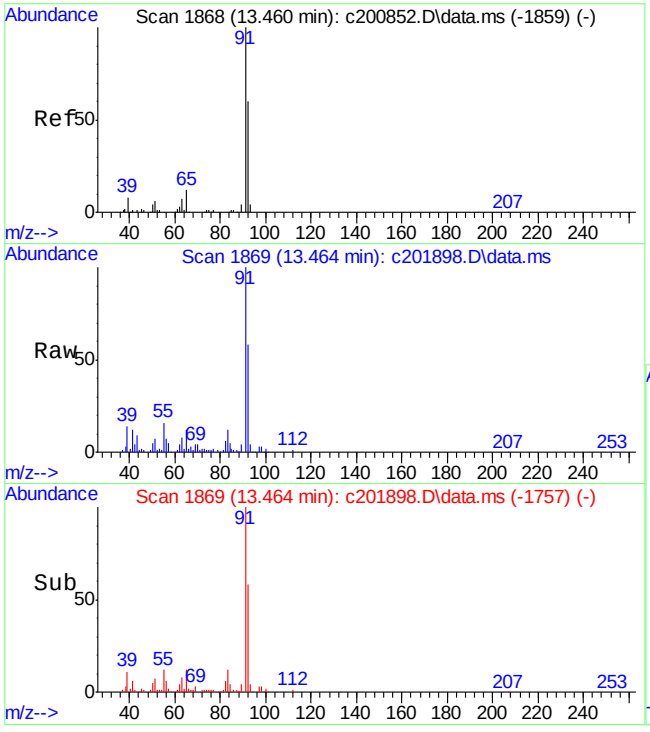




#81
4-methyl-2-pentanone
Concen: 1.68 ug/L
RT: 13.239 min Scan# 1826
Delta R.T. 0.008 min
Lab File: c201898.D
Acq: 16 Jul 2015 8:31 pm

Tgt Ion: 58 Resp: 2631

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 58 | 100 | | |
| 43 | 265.3 | 188.2 | 248.2# |
| 100 | 42.5 | 9.2 | 69.2 |

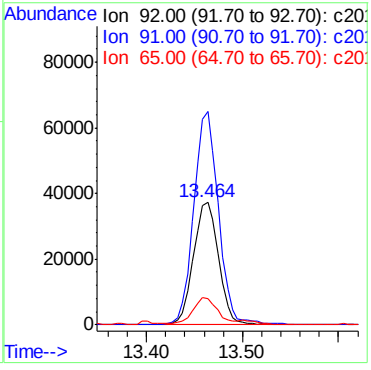


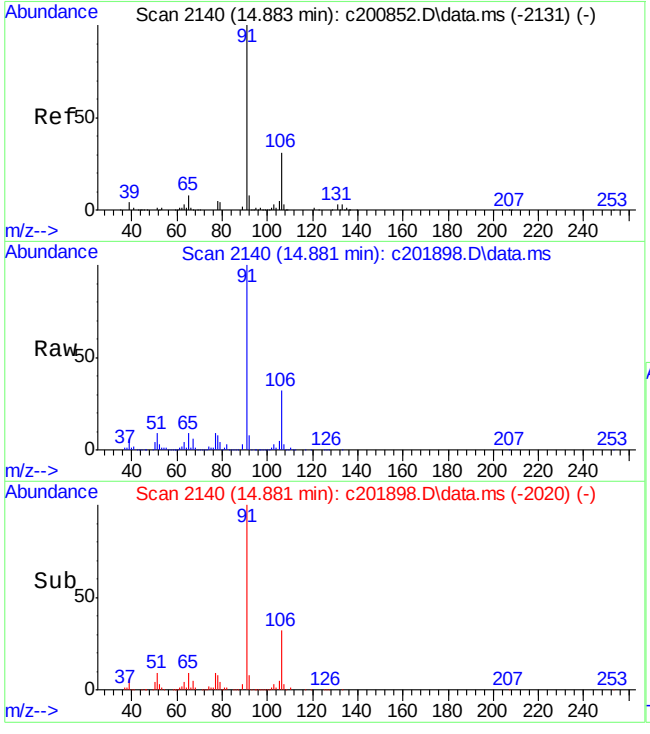



#82
toluene
Concen: 6.93 ug/L
RT: 13.464 min Scan# 1869
Delta R.T. 0.003 min
Lab File: c201898.D
Acq: 16 Jul 2015 8:31 pm

Tgt Ion: 92 Resp: 67726

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 92 | 100 | | |
| 91 | 173.2 | 135.8 | 195.8 |
| 65 | 21.5 | 0.0 | 49.5 |

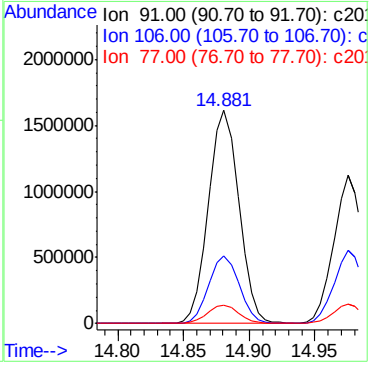



#99
ethylbenzene
Concen: 139.56 ug/L
RT: 14.881 min Scan# 2140
Delta R.T. -0.002 min
Lab File: c201898.D
Acq: 16 Jul 2015 8:31 pm

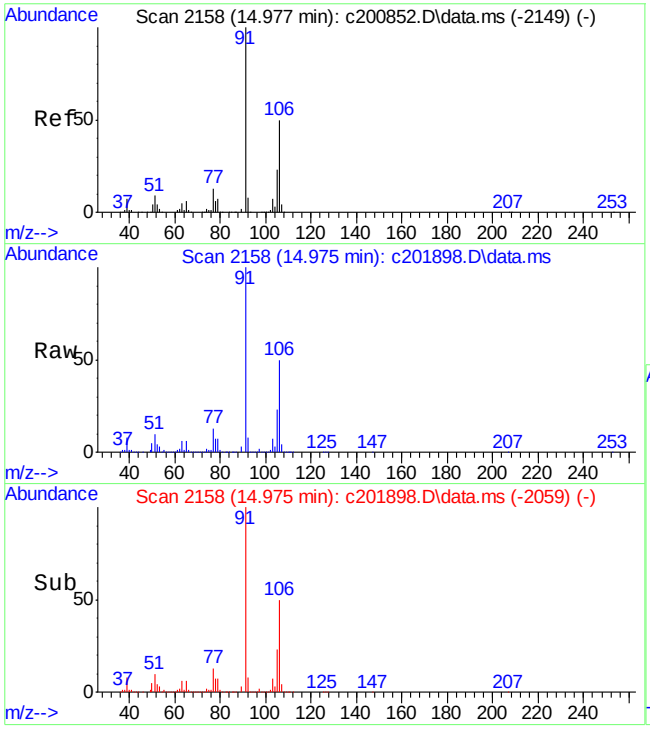
Tgt Ion: 91 Resp: 2607958

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 91 | 100 | | |
| 106 | 31.6 | 1.4 | 61.4 |
| 77 | 8.8 | 0.0 | 38.3 |




7.1.19

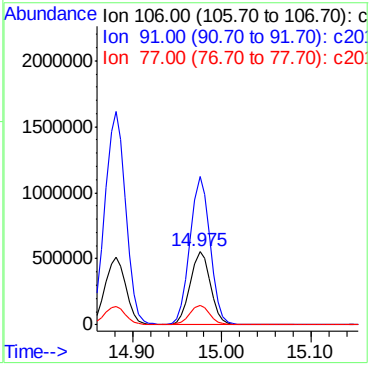
7

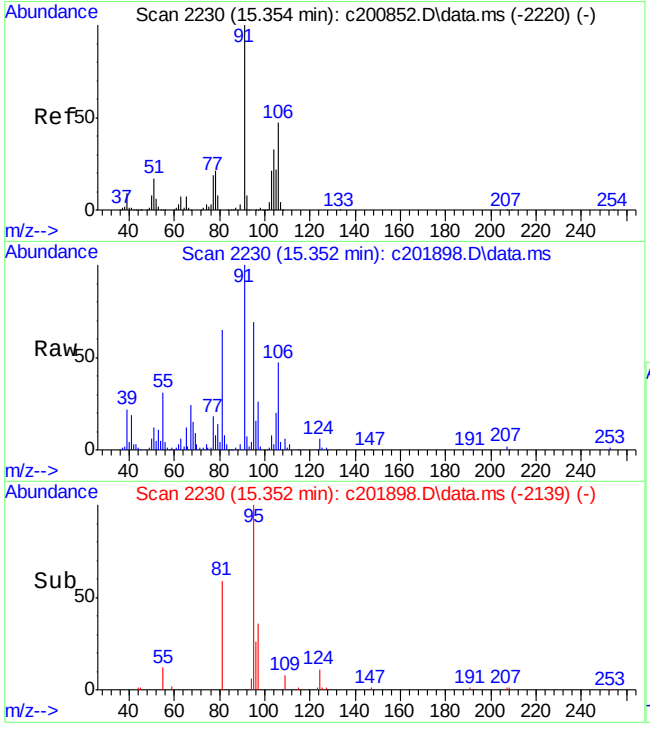



#100
m,p-xylene
Concen: 121.12 ug/L
RT: 14.975 min Scan# 2158
Delta R.T. -0.002 min
Lab File: c201898.D
Acq: 16 Jul 2015 8:31 pm

Tgt Ion:106 Resp: 874242

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 106 | 100 | | |
| 91 | 201.8 | 168.9 | 228.9 |
| 77 | 26.0 | 0.0 | 55.4 |

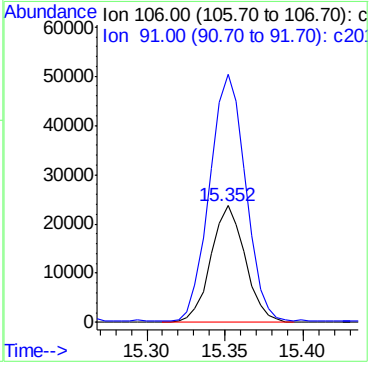


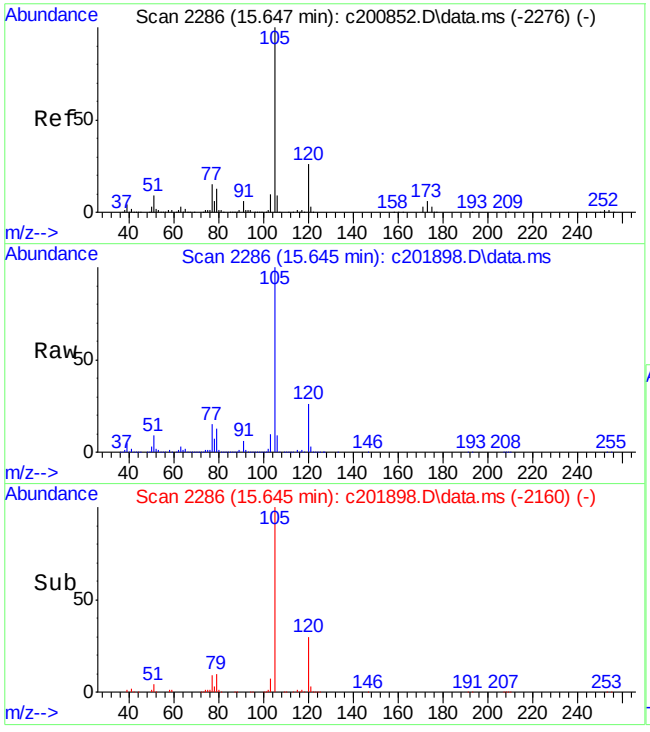




#101
o-xylene
Concen: 4.94 ug/L
RT: 15.352 min Scan# 2230
Delta R.T. -0.002 min
Lab File: c201898.D
Acq: 16 Jul 2015 8:31 pm

Tgt Ion:106 Resp: 36177

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 106 | 100 | | |
| 91 | 210.6 | 184.3 | 244.3 |

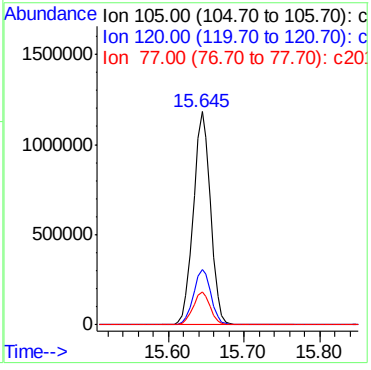


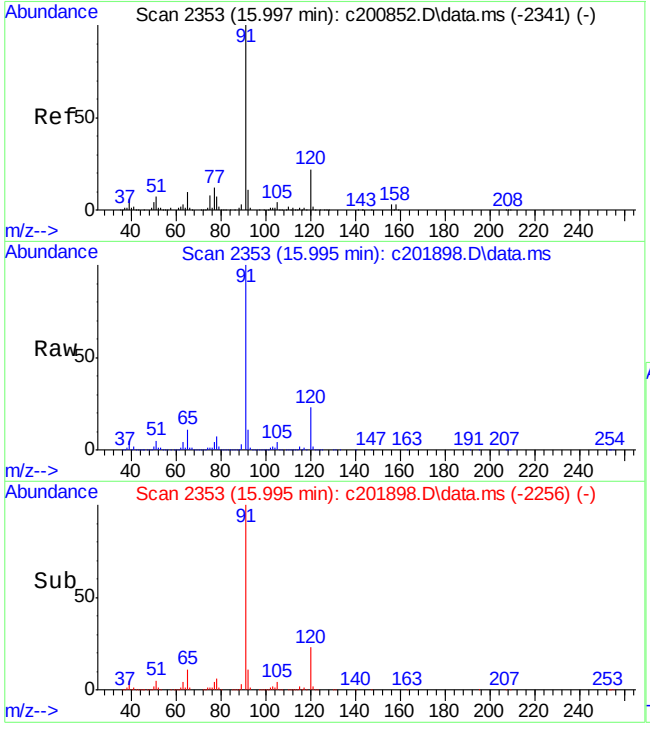



#105
isopropylbenzene
Concen: 96.95 ug/L
RT: 15.645 min Scan# 2286
Delta R.T. -0.002 min
Lab File: c201898.D
Acq: 16 Jul 2015 8:31 pm

Tgt Ion:105 Resp: 1855440

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 105 | 100 | | |
| 120 | 26.0 | 0.0 | 56.4 |
| 77 | 15.2 | 0.0 | 44.7 |

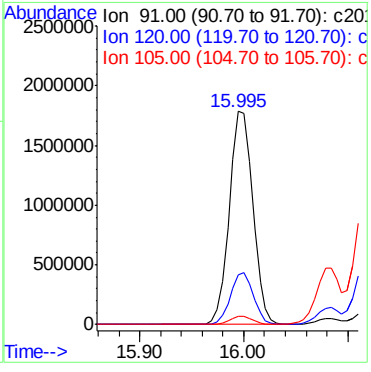


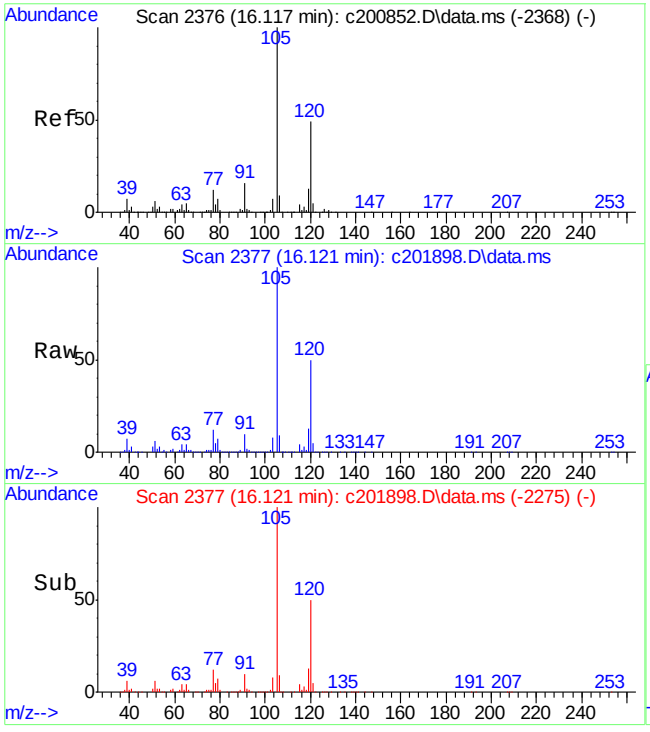




#111
n-propylbenzene
Concen: 126.34 ug/L
RT: 15.995 min Scan# 2353
Delta R.T. -0.002 min
Lab File: c201898.D
Acq: 16 Jul 2015 8:31 pm

Tgt Ion: 91 Resp: 2813543

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 91 | 100 | | |
| 120 | 23.2 | 0.0 | 52.4 |
| 105 | 3.9 | 0.0 | 33.8 |

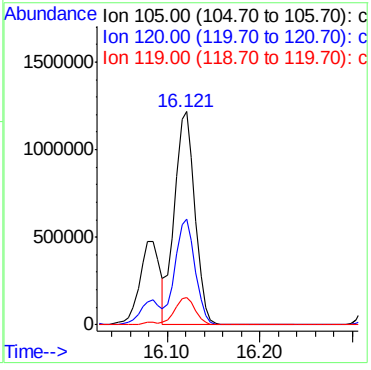


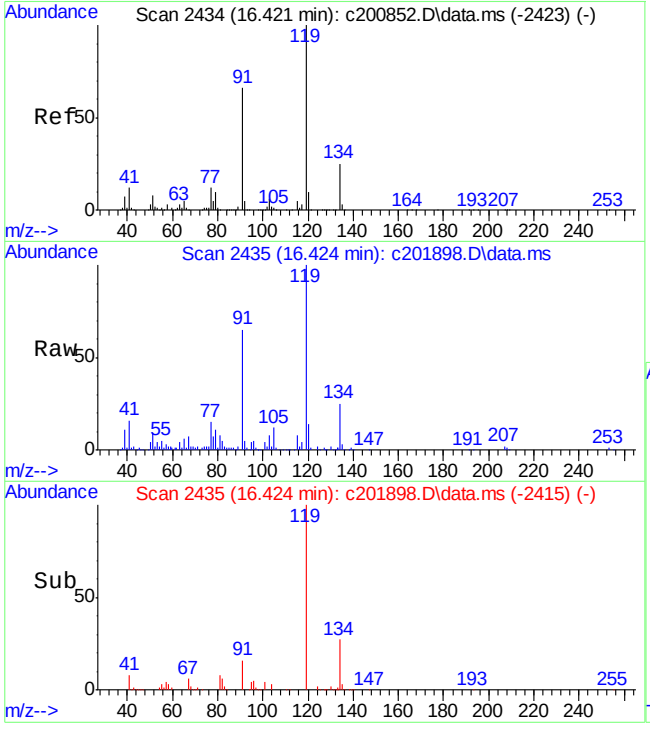



#115
1,3,5-trimethylbenzene
Concen: 109.94 ug/L
RT: 16.121 min Scan# 2377
Delta R.T. 0.003 min
Lab File: c201898.D
Acq: 16 Jul 2015 8:31 pm

Tgt Ion:105 Resp: 1881351

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 105 | 100 | | |
| 120 | 49.8 | 19.5 | 79.5 |
| 119 | 12.8 | 0.0 | 42.5 |

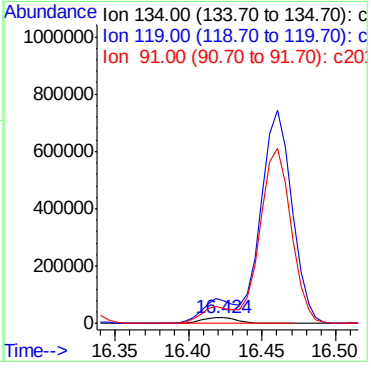


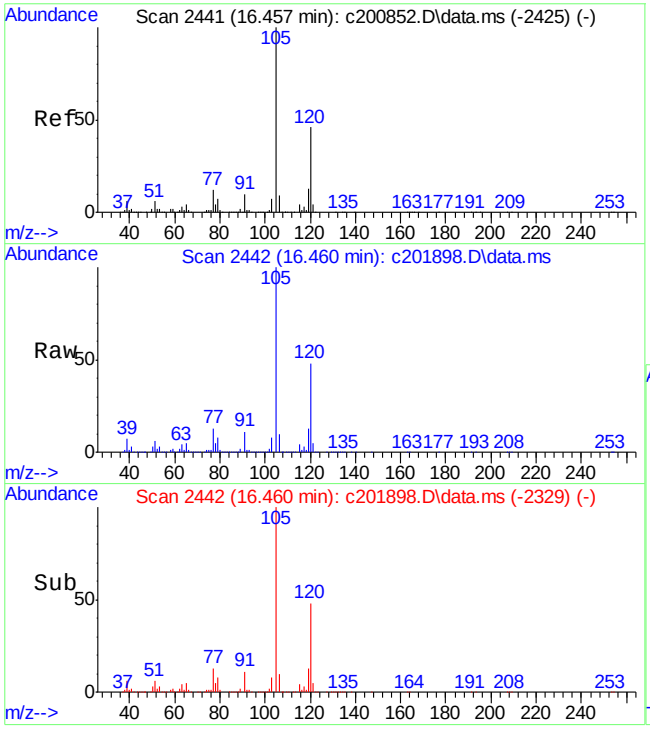




#116
tert-butylbenzene
Concen: 9.38 ug/L
RT: 16.424 min Scan# 2435
Delta R.T. 0.003 min
Lab File: c201898.D
Acq: 16 Jul 2015 8:31 pm

Tgt Ion:134 Resp: 33705

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 134 | 100 | | |
| 119 | 404.7 | 377.8 | 437.8 |
| 91 | 263.1 | 238.6 | 298.6 |

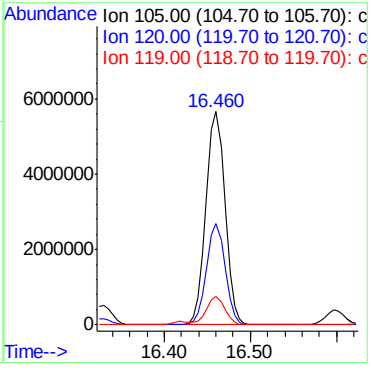


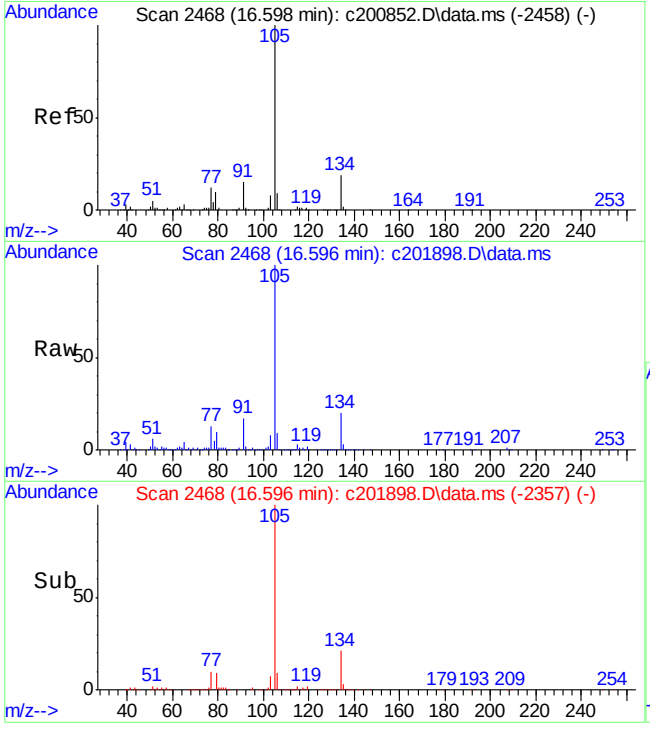



#118
1,2,4-trimethylbenzene
Concen: 481.37 ug/L
RT: 16.460 min Scan# 2442
Delta R.T. 0.003 min
Lab File: c201898.D
Acq: 16 Jul 2015 8:31 pm

Tgt Ion:105 Resp: 8468746

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 105 | 100 | | |
| 120 | 47.5 | 15.5 | 75.5 |
| 119 | 13.1 | 0.0 | 42.7 |

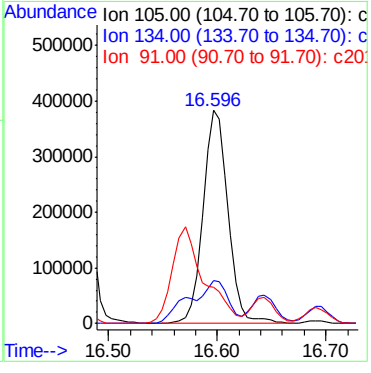


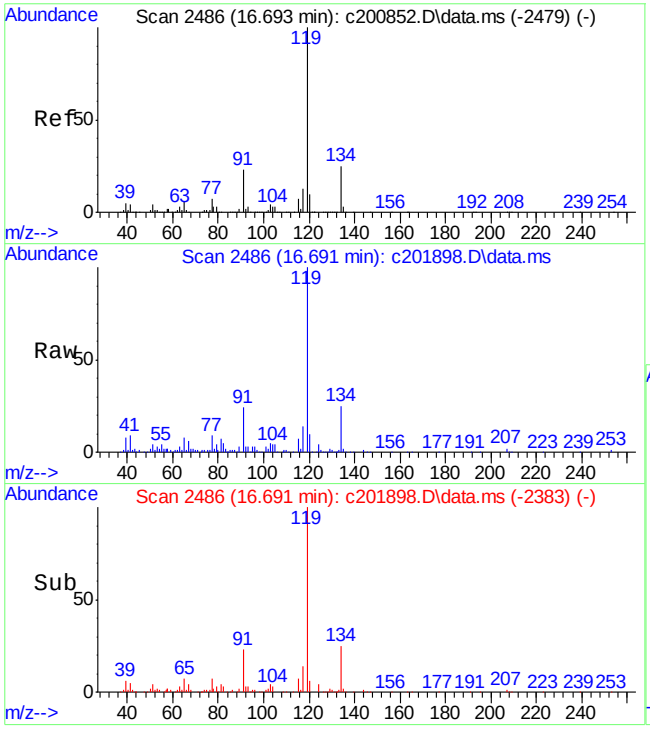




#119
sec-butylbenzene
Concen: 28.63 ug/L
RT: 16.596 min Scan# 2468
Delta R.T. -0.002 min
Lab File: c201898.D
Acq: 16 Jul 2015 8:31 pm

Tgt Ion:105 Resp: 613171

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 105 | 100 | | |
| 134 | 19.0 | 0.0 | 48.9 |
| 91 | 16.0 | 0.0 | 45.2 |

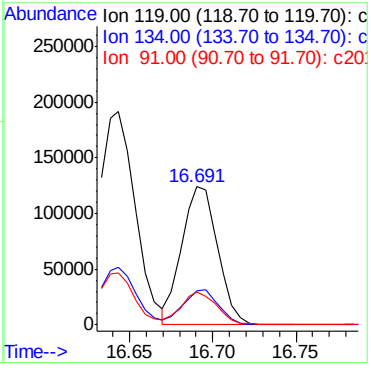


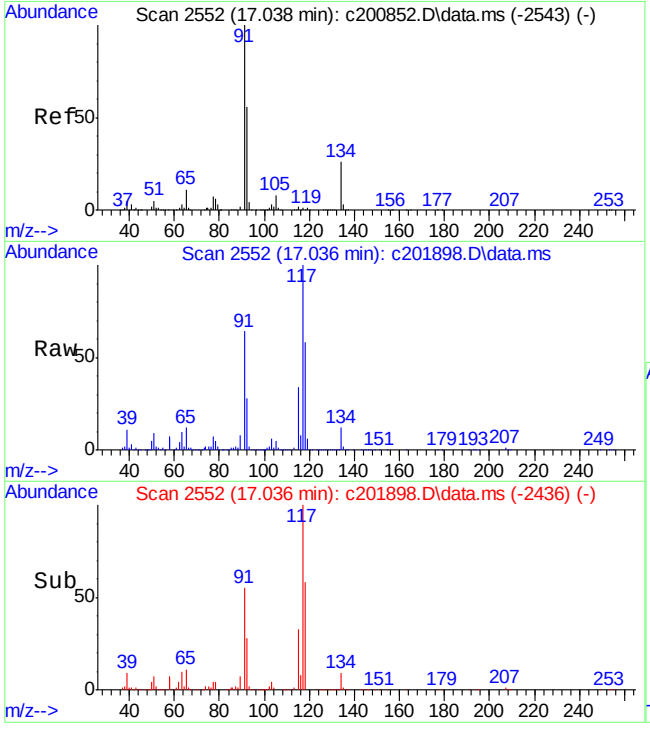



#121
p-isopropyltoluene
Concen: 10.30 ug/L
RT: 16.691 min Scan# 2486
Delta R.T. -0.002 min
Lab File: c201898.D
Acq: 16 Jul 2015 8:31 pm

Tgt Ion:119 Resp: 186150

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 119 | 100 | | |
| 134 | 24.4 | 0.0 | 55.4 |
| 91 | 23.3 | 0.0 | 53.2 |

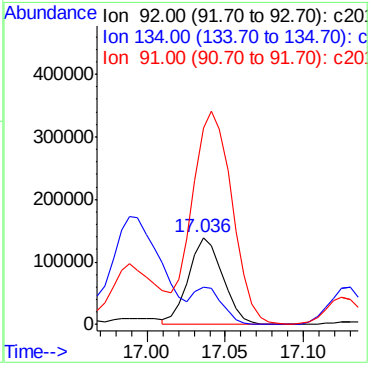


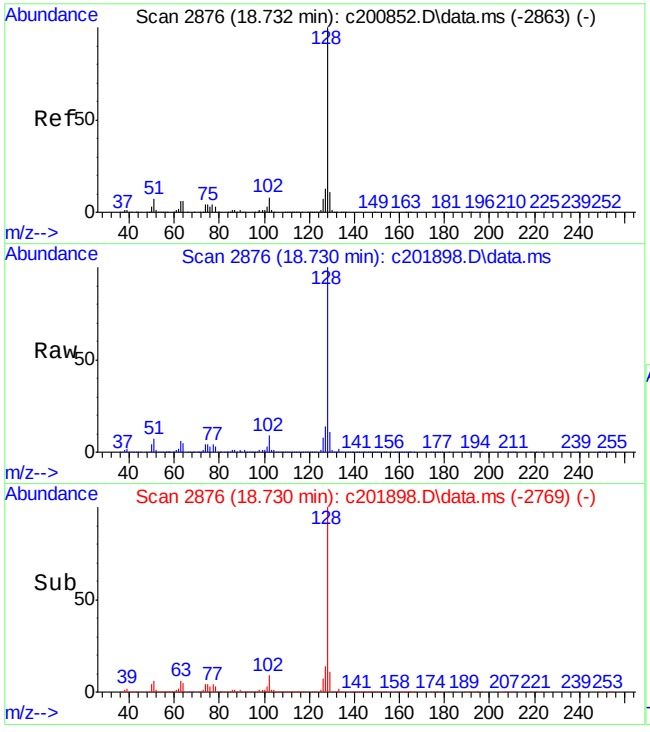




#126
n-butylbenzene
Concen: 22.10 ug/L
RT: 17.036 min Scan# 2552
Delta R.T. -0.002 min
Lab File: c201898.D
Acq: 16 Jul 2015 8:31 pm

Tgt Ion: 92 Resp: 210757

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 92 | 100 | | |
| 134 | 43.2 | 17.6 | 77.6 |
| 91 | 226.5 | 150.3 | 210.3# |

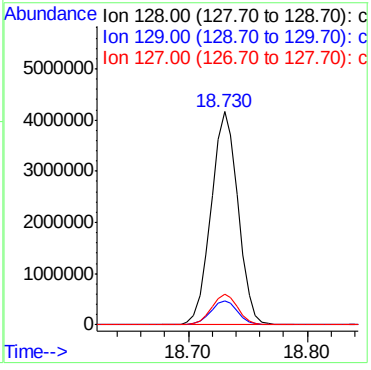





#132
naphthalene
Concen: 302.96 ug/L
RT: 18.730 min Scan# 2876
Delta R.T. -0.002 min
Lab File: c201898.D
Acq: 16 Jul 2015 8:31 pm

Tgt Ion:128 Resp: 6565529

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 128 | 100 | | |
| 129 | 11.3 | 0.0 | 40.9 |
| 127 | 14.1 | 0.0 | 43.4 |




7.1.19

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : u197276.D
Acq On : 17 Jul 2015 10:43 pm
Operator : NicoleH1
Sample : jb98590-18
Misc : ms87777,vu9094,5.0,,,,10
ALS Vial : 30 Sample Multiplier: 1

Quant Time: Jul 18 00:14:00 2015
Quant Method : C:\MSDCHEM\1\METHODS\MU8988.M
Quant Title : SW-846 8260B, ZB624 60m x 250um x 1.40um
QLast Update : Mon May 04 09:25:27 2015
Response via : Initial Calibration

| Internal Standards | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| 1) Tert Butyl Alcohol-d9 | 7.869 | 65 | 87512 | 500.00 | ug/L | -0.02 |
| 5) pentafluorobenzene | 10.076 | 168 | 283333 | 50.00 | ug/L | 0.00 |
| 64) 1,4-difluorobenzene | 10.996 | 114 | 325154 | 50.00 | ug/L | 0.00 |
| 96) chlorobenzene-d5 | 14.323 | 117 | 294262 | 50.00 | ug/L | 0.00 |
| 112) 1,4-dichlorobenzene-d4 | 16.896 | 152 | 165772 | 50.00 | ug/L | 0.00 |

| System Monitoring Compounds | | | | | | |
|---|---|---|---|---|---|---|
| 56) dibromofluoromethane (s) | 10.149 | 113 | 99393 | 51.59 | ug/L | -0.01 |
| Spiked Amount 50.000 | Range 76 - 120 | | Recovery = 103.18% | | | |
| 57) 1,2-dichloroethane-d4 (s) | 10.573 | 65 | 103874 | 50.96 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 73 - 122 | | Recovery = 101.92% | | | |
| 88) toluene-d8 (s) | 12.680 | 98 | 371957 | 50.02 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 84 - 119 | | Recovery = 100.04% | | | |
| 114) 4-bromofluorobenzene (s) | 15.599 | 95 | 136209 | 46.39 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 78 - 117 | | Recovery = 92.78% | | | |

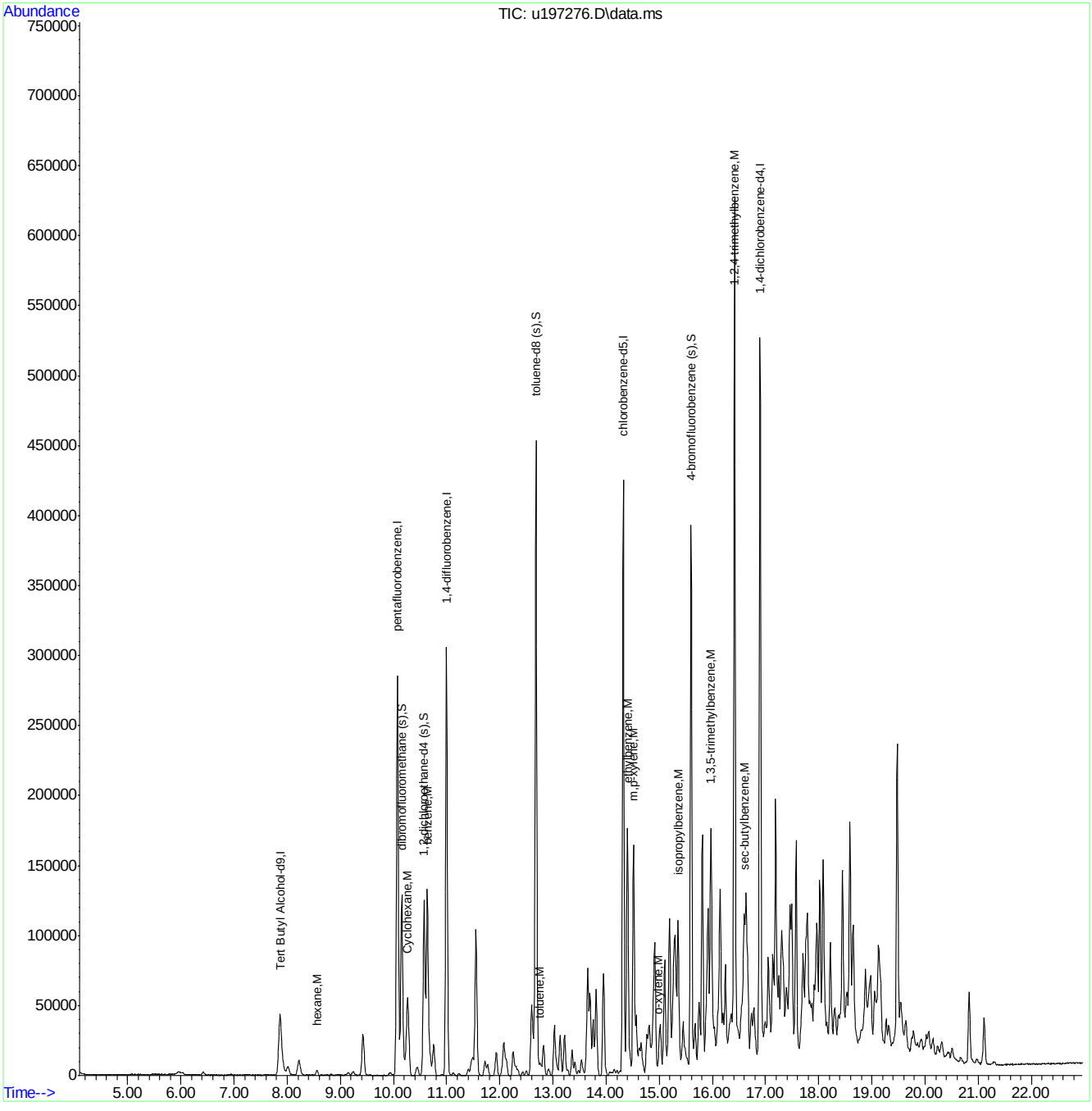
| Target Compounds | | | | | | Qvalue |
|---|---|---|---|---|---|---|
| 68) Cyclohexane | 10.259 | 84 | 29664 | 10.47 | ug/L # | 43 |
| 71) hexane | 8.559 | 57 | 2293 | 1.07 | ug/L | 90 |
| 72) benzene | 10.635 | 78 | 141520 | 18.03 | ug/L | 100 |
| 90) toluene | 12.759 | 92 | 2874 | 0.57 | ug/L | 99 |
| 107) ethylbenzene | 14.401 | 91 | 117747 | 11.84 | ug/L | 100 |
| 108) m,p-xylene | 14.516 | 106 | 40298 | 10.34 | ug/L | 99 |
| 109) o-xylene | 14.976 | 106 | 1695 | 0.44 | ug/L | 90 |
| 113) isopropylbenzene | 15.353 | 105 | 87557 | 8.61 | ug/L | 99 |
| 123) 1,3,5-trimethylbenzene | 15.970 | 105 | 83280 | 9.61 | ug/L | 99 |
| 126) 1,2,4-trimethylbenzene | 16.415 | 105 | 392533 | 46.24 | ug/L | 99 |
| 128) sec-butylbenzene | 16.598 | 105 | 36795 | 3.34 | ug/L | 98 |

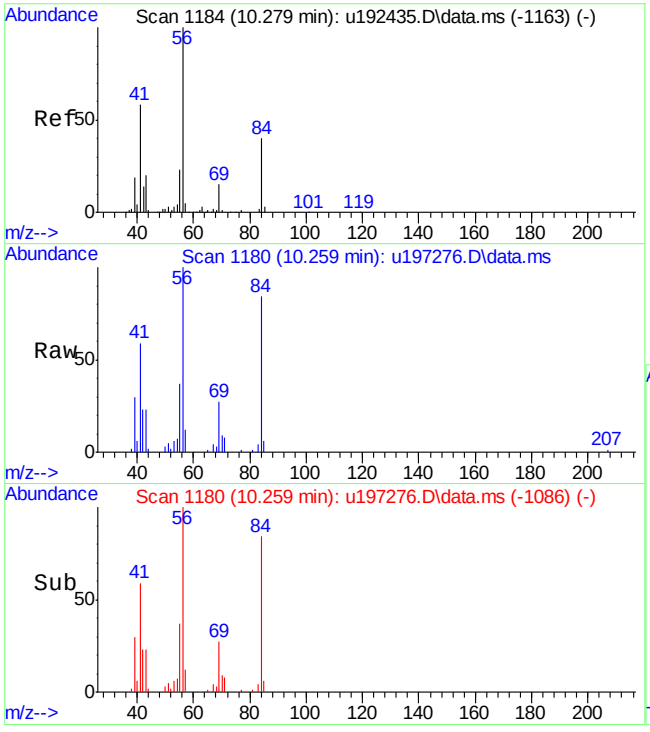
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : u197276.D
Acq On : 17 Jul 2015 10:43 pm
Operator : NicoleH1
Sample : jb98590-18
Misc : ms87777,vu9094,5.0,,,,10
ALS Vial : 30 Sample Multiplier: 1

Quant Time: Jul 18 00:14:00 2015
Quant Method : C:\MSDCHEM\1\METHODS\MU8988.M
Quant Title : SW-846 8260B, ZB624 60m x 250um x 1.40um
QLast Update : Mon May 04 09:25:27 2015
Response via : Initial Calibration

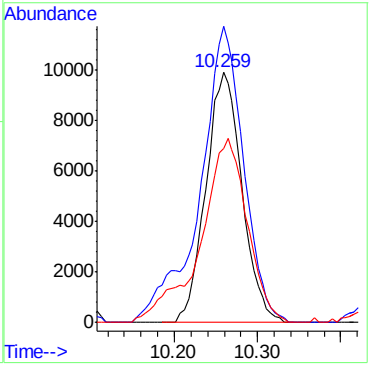


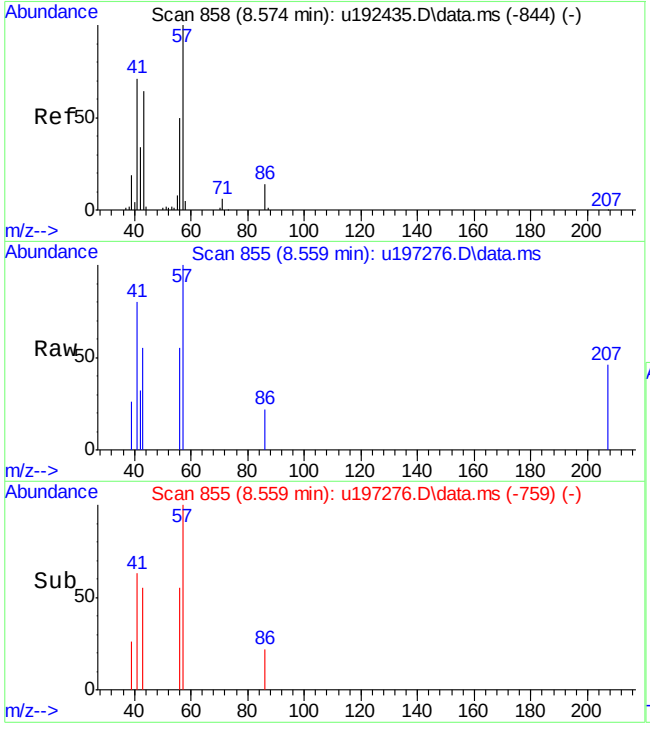



#68
Cyclohexane
Concen: 10.47 ug/L
RT: 10.259 min Scan# 1180
Delta R.T. -0.006 min
Lab File: u197276.D
Acq: 17 Jul 2015 10:43 pm

Tgt Ion: 84 Resp: 29664

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 84 | 100 | | |
| 56 | 118.4 | 187.3 | 247.3# |
| 41 | 69.7 | 96.3 | 156.3# |

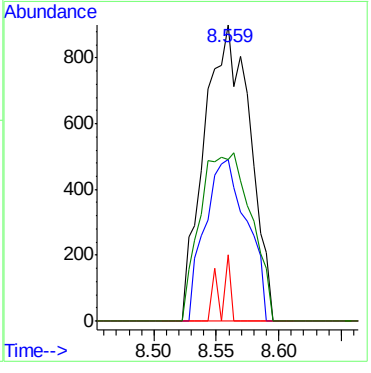


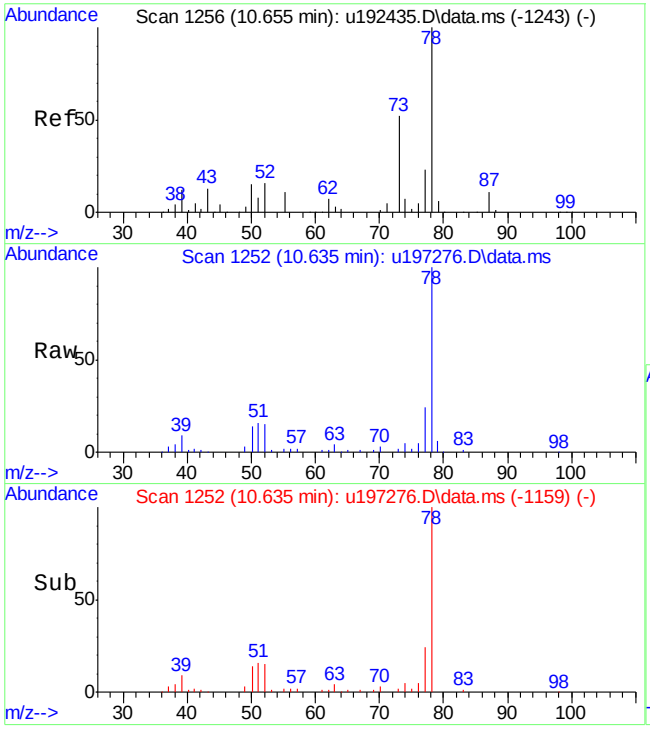




#71
hexane
Concen: 1.07 ug/L
RT: 8.559 min Scan# 855
Delta R.T. 0.004 min
Lab File: u197276.D
Acq: 17 Jul 2015 10:43 pm

Tgt Ion: 57 Resp: 2293

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 57 | 100 | | |
| 56 | 54.6 | 21.8 | 81.8 |
| 86 | 22.4 | 0.0 | 45.7 |
| 43 | 54.7 | 34.8 | 94.8 |

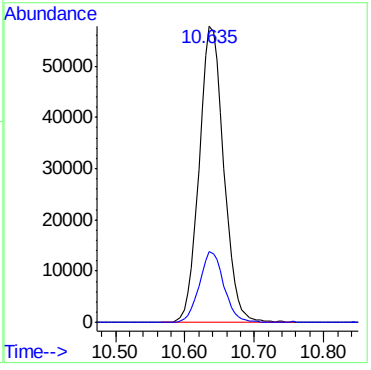


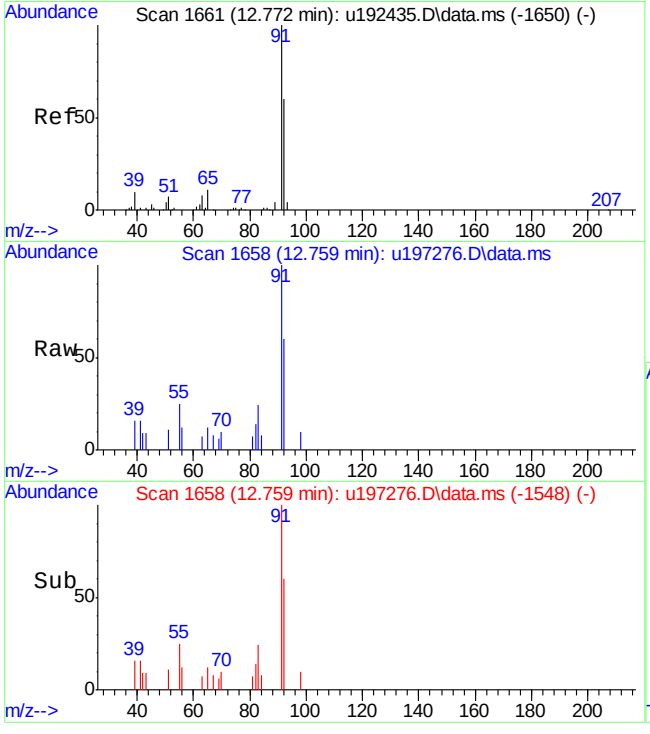



#72
benzene
Concen: 18.03 ug/L
RT: 10.635 min Scan# 1252
Delta R.T. -0.006 min
Lab File: u197276.D
Acq: 17 Jul 2015 10:43 pm

Tgt Ion: 78 Resp: 141520

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 78 | 100 | | |
| 77 | 23.9 | 0.0 | 53.9 |

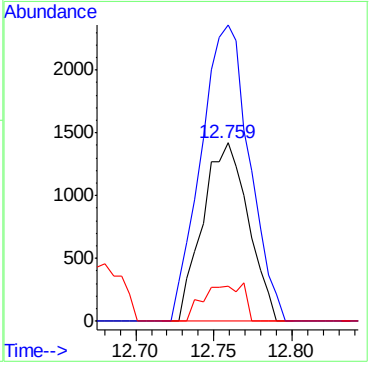


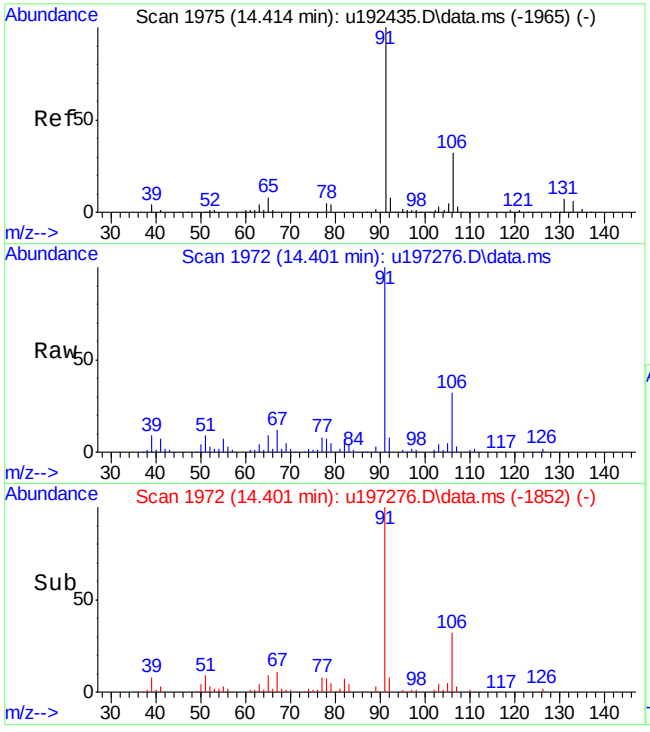




#90
toluene
Concen: 0.57 ug/L
RT: 12.759 min Scan# 1658
Delta R.T. -0.005 min
Lab File: u197276.D
Acq: 17 Jul 2015 10:43 pm

Tgt Ion: 92 Resp: 2874

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 92 | 100 | | |
| 91 | 166.1 | 137.2 | 197.2 |
| 65 | 19.4 | 0.0 | 48.1 |

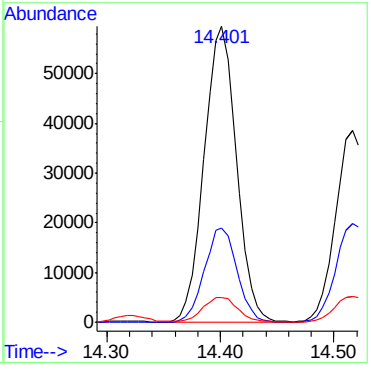


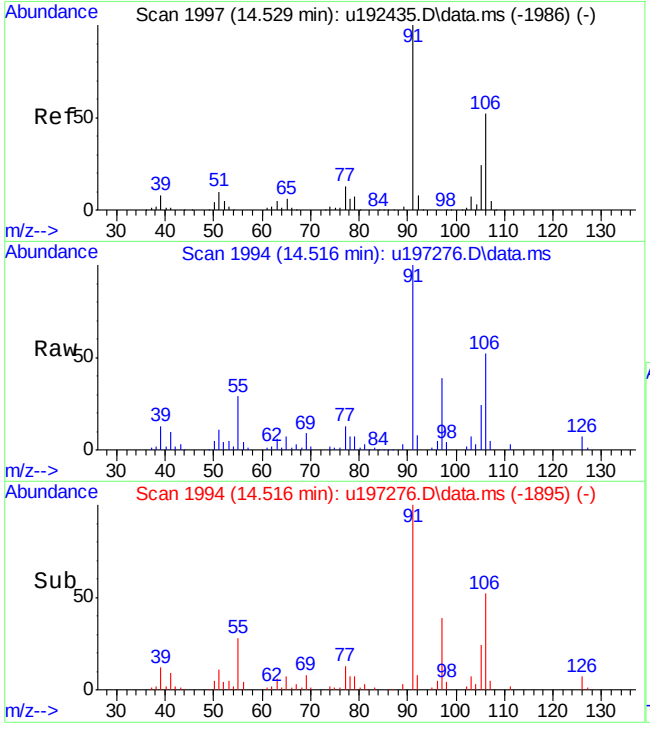



#107
ethylbenzene
Concen: 11.84 ug/L
RT: 14.401 min Scan# 1972
Delta R.T. -0.005 min
Lab File: u197276.D
Acq: 17 Jul 2015 10:43 pm

Tgt Ion: 91 Resp: 117747

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 91 | 100 | | |
| 106 | 31.9 | 2.0 | 62.0 |
| 77 | 8.3 | 0.0 | 38.1 |

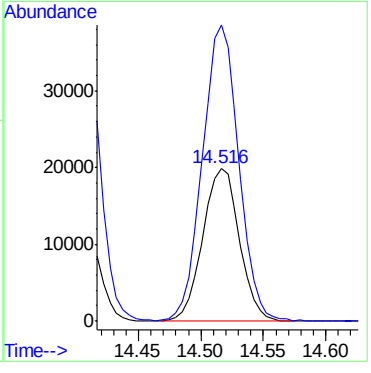


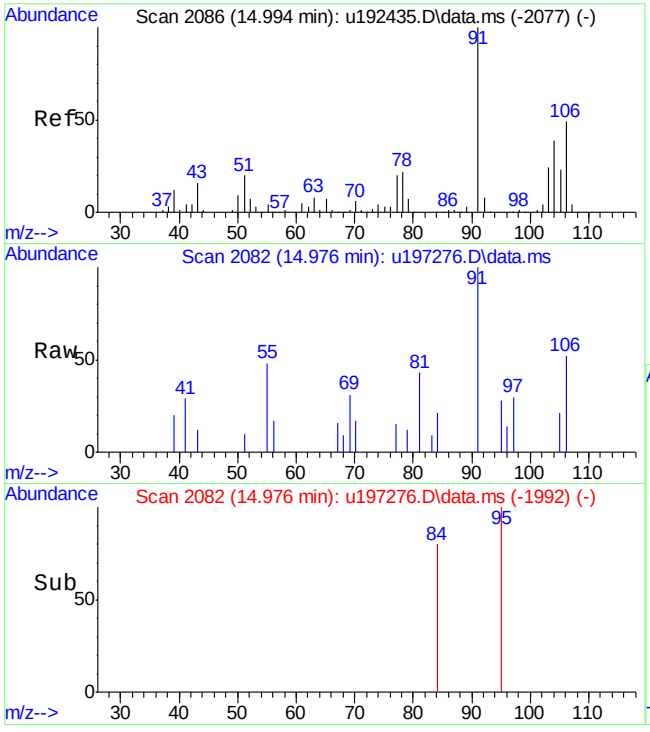




#108
m,p-xylene
Concen: 10.34 ug/L
RT: 14.516 min Scan# 1994
Delta R.T. -0.005 min
Lab File: u197276.D
Acq: 17 Jul 2015 10:43 pm

Tgt Ion:106 Resp: 40298

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 106 | 100 | | |
| 91 | 194.0 | 163.3 | 223.3 |

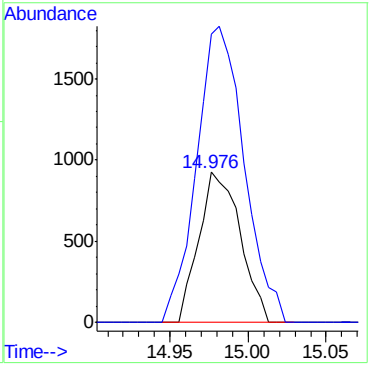


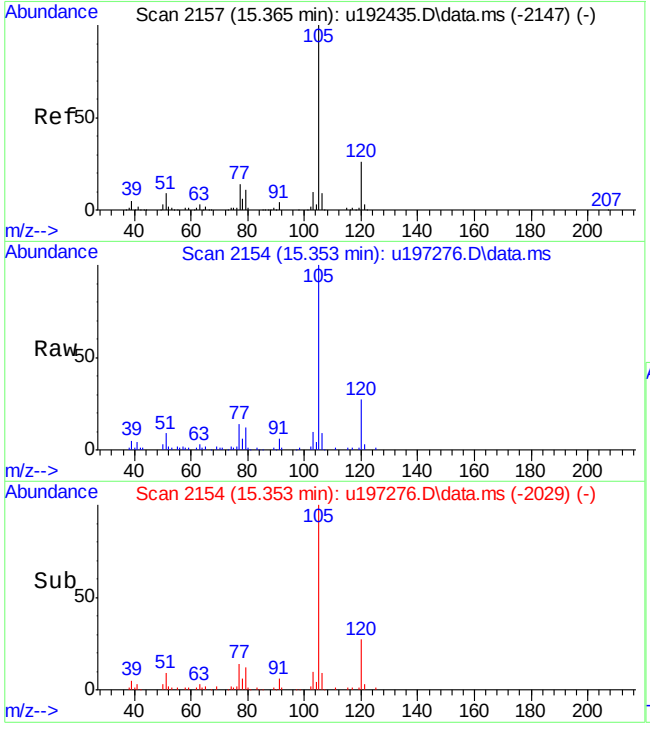



#109
o-xylene
Concen: 0.44 ug/L
RT: 14.976 min Scan# 2082
Delta R.T. -0.010 min
Lab File: u197276.D
Acq: 17 Jul 2015 10:43 pm

Tgt Ion:106 Resp: 1695

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 106 | 100 | | |
| 91 | 191.8 | 177.8 | 237.8 |

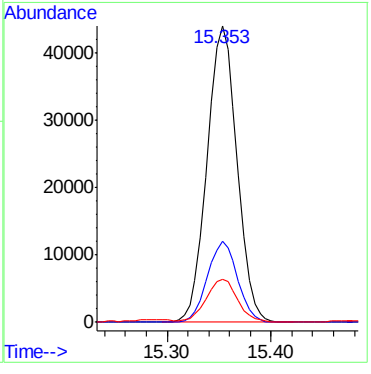


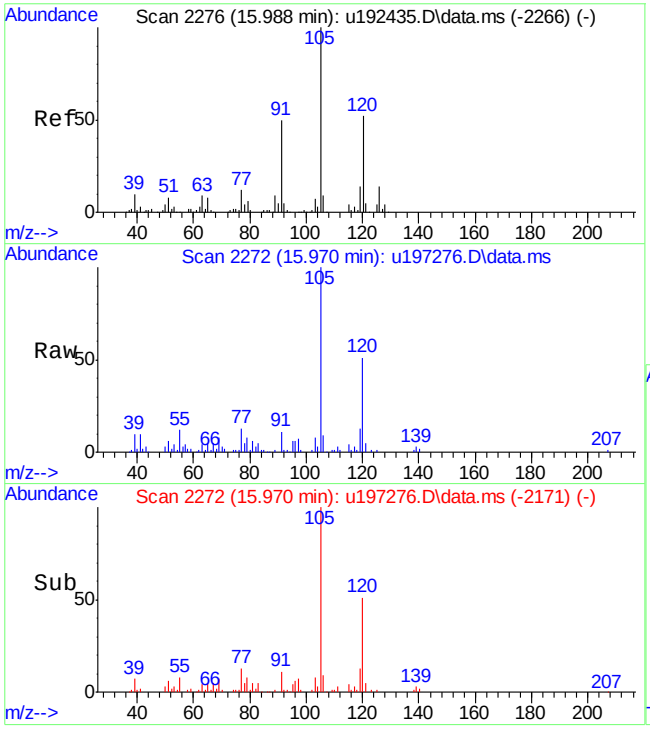




#113
isopropylbenzene
Concen: 8.61 ug/L
RT: 15.353 min Scan# 2154
Delta R.T. -0.004 min
Lab File: u197276.D
Acq: 17 Jul 2015 10:43 pm

Tgt Ion:105 Resp: 87557

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 105 | 100 | | |
| 120 | 27.2 | 0.0 | 56.7 |
| 77 | 14.5 | 0.0 | 44.2 |

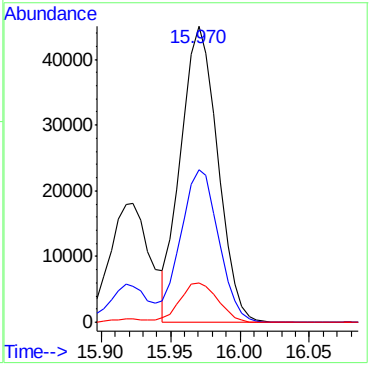


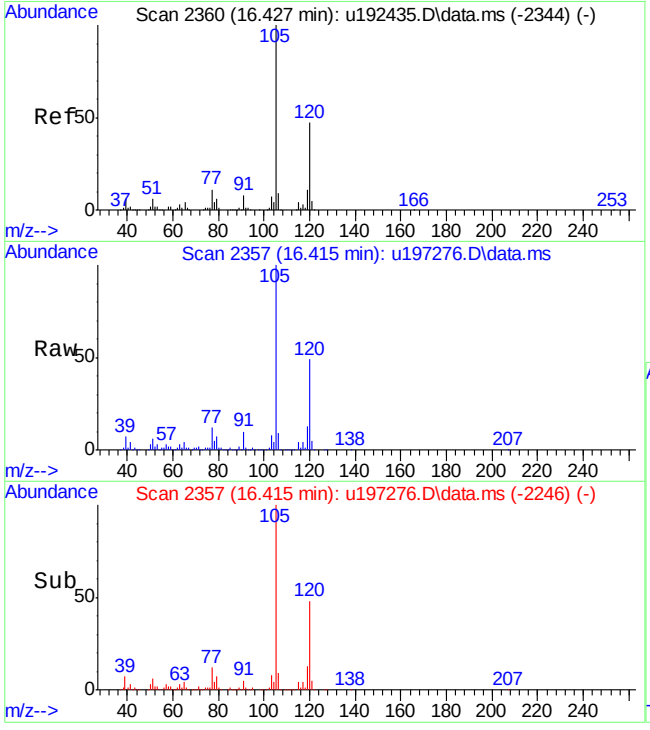



#123
1,3,5-trimethylbenzene
Concen: 9.61 ug/L
RT: 15.970 min Scan# 2272
Delta R.T. -0.004 min
Lab File: u197276.D
Acq: 17 Jul 2015 10:43 pm

Tgt Ion:105 Resp: 83280

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 105 | 100 | | |
| 120 | 51.4 | 20.8 | 80.8 |
| 119 | 13.4 | 0.0 | 43.2 |

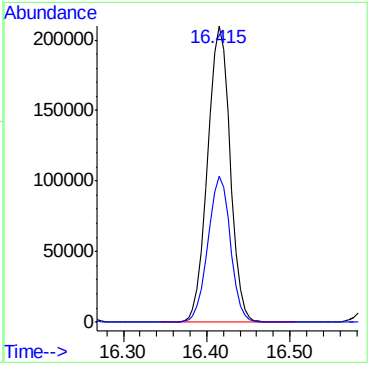


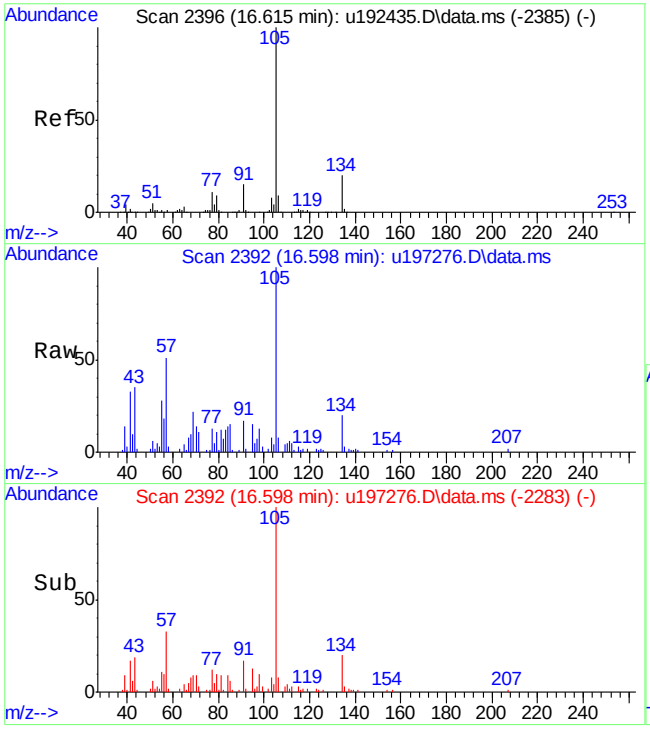




#126
1,2,4-trimethylbenzene
Concen: 46.24 ug/L
RT: 16.415 min Scan# 2357
Delta R.T. -0.009 min
Lab File: u197276.D
Acq: 17 Jul 2015 10:43 pm

Tgt Ion:105 Resp: 392533

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 105 | 100 | | |
| 120 | 49.3 | 18.8 | 78.8 |

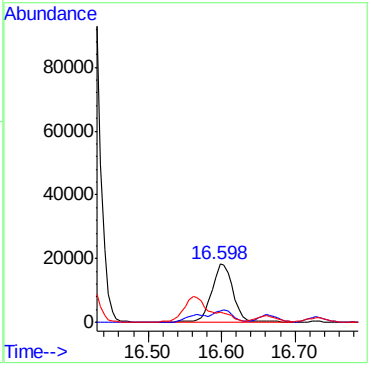





#128
sec-butylbenzene
Concen: 3.34 ug/L
RT: 16.598 min Scan# 2392
Delta R.T. -0.009 min
Lab File: u197276.D
Acq: 17 Jul 2015 10:43 pm

Tgt Ion:105 Resp: 36795

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 105 | 100 | | |
| 134 | 20.3 | 0.0 | 50.5 |
| 91 | 16.2 | 0.0 | 44.7 |




7.1.20

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2a\v2a6821-6822\
Data File : 2A159840.D
Acq On : 10 Jul 2015 12:26 pm
Operator : tracyk
Sample : mb1
Misc : MS87777,V2A6821,5,,,,1
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jul 13 20:28:15 2015
Quant Method : C:\MSDCHEM\1\METHODS\M2A6798.M
Quant Title : Method SW846 8260B, ZB624 60mx0.25mmx1.4um
QLast Update : Tue Jun 30 09:56:27 2015
Response via : Initial Calibration

| Compound | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| Internal Standards | | | | | | |
| 1) Tert Butyl Alcohol-d9 | 8.568 | 65 | 119878 | 500.00 | ug/L | 0.00 |
| 5) pentafluorobenzene | 10.964 | 168 | 341942 | 50.00 | ug/L | 0.00 |
| 52) 1,4-difluorobenzene | 11.884 | 114 | 365225 | 50.00 | ug/L | 0.00 |
| 84) chlorobenzene-d5 | 14.850 | 117 | 285774 | 50.00 | ug/L | 0.00 |
| 98) 1,4-dichlorobenzene-d4 | 17.005 | 152 | 162964 | 50.00 | ug/L | 0.00 |
| System Monitoring Compounds | | | | | | |
| 46) dibromofluoromethane (s) | 11.042 | 113 | 123115 | 46.93 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 76 - 120 | | Recovery = 93.86% | | | |
| 47) 1,2-dichloroethane-d4 (s) | 11.466 | 65 | 140957 | 52.41 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 73 - 122 | | Recovery = 104.82% | | | |
| 76) toluene-d8 (s) | 13.432 | 98 | 368047 | 49.28 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 84 - 119 | | Recovery = 98.56% | | | |
| 100) 4-bromofluorobenzene (s) | 15.917 | 95 | 134919 | 48.60 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 78 - 117 | | Recovery = 97.20% | | | |
| Target Compounds | | | | | | Qvalue |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

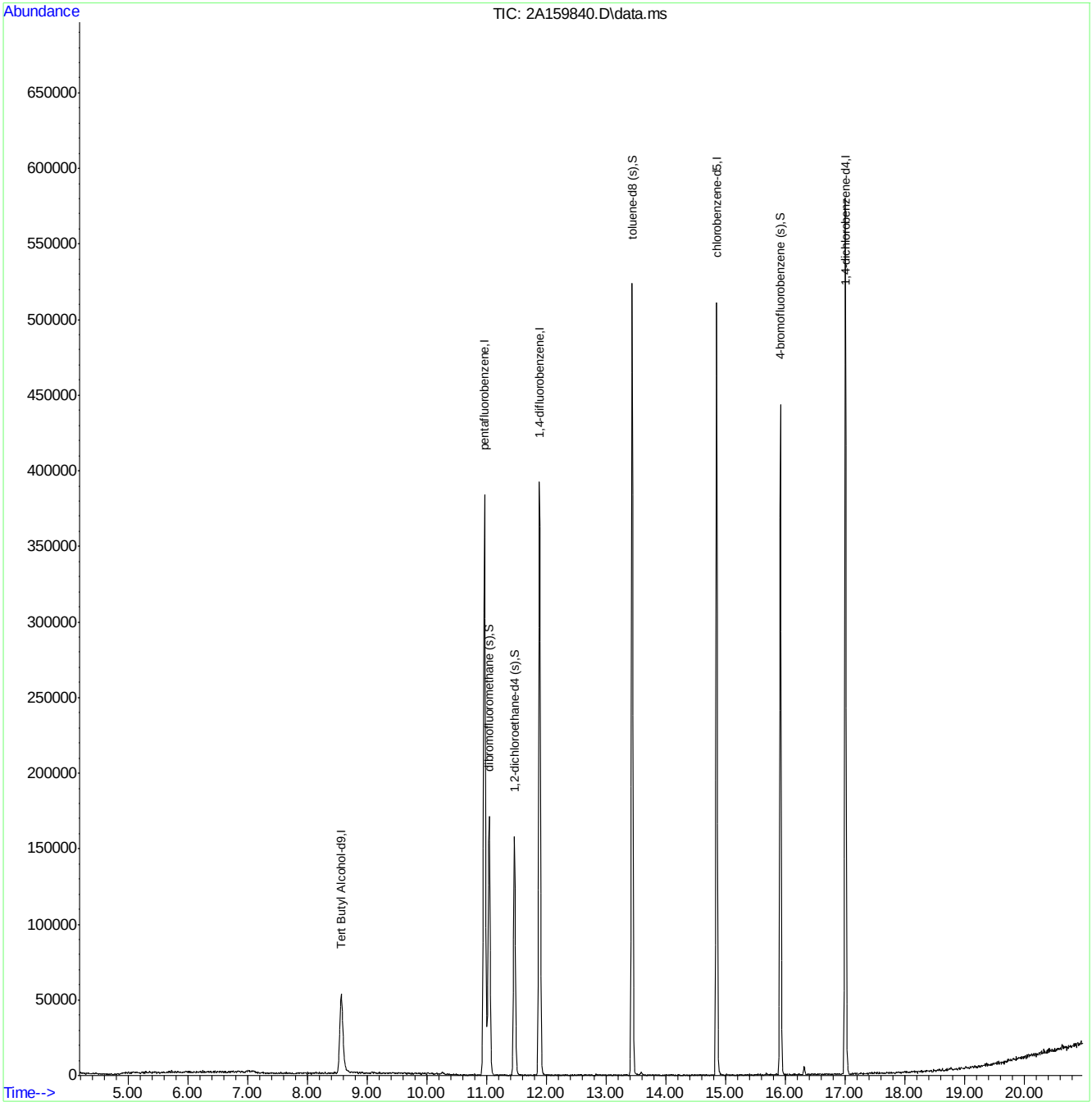
7.2.1

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2a\v2a6821-6822\
Data File : 2A159840.D
Acq On : 10 Jul 2015 12:26 pm
Operator : tracyk
Sample : mb1
Misc : MS87777,V2A6821,5,,,,1
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jul 13 20:28:15 2015
Quant Method : C:\MSDCHEM\1\METHODS\M2A6798.M
Quant Title : Method SW846 8260B, ZB624 60mx0.25mmx1.4um
QLast Update : Tue Jun 30 09:56:27 2015
Response via : Initial Calibration






ACCUTEST LABORATORIES JB98590

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2a\v2a6821-6822\
Data File : 2A159861.D
Acq On : 10 Jul 2015 10:58 pm
Operator : tracyk
Sample : mb2
Misc : MS87777,V2A6821,5,,,,1
ALS Vial : 26 Sample Multiplier: 1

Quant Time: Jul 13 20:40:45 2015
Quant Method : C:\MSDCHEM\1\METHODS\M2A6798.M
Quant Title : Method SW846 8260B, ZB624 60mx0.25mmx1.4um
QLast Update : Tue Jun 30 09:56:27 2015
Response via : Initial Calibration

| Compound | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| Internal Standards | | | | | | |
| 1) Tert Butyl Alcohol-d9 | 8.563 | 65 | 113601 | 500.00 | ug/L | -0.01 |
| 5) pentafluorobenzene | 10.964 | 168 | 339818 | 50.00 | ug/L | 0.00 |
| 52) 1,4-difluorobenzene | 11.884 | 114 | 363827 | 50.00 | ug/L | 0.00 |
| 84) chlorobenzene-d5 | 14.850 | 117 | 285197 | 50.00 | ug/L | 0.00 |
| 98) 1,4-dichlorobenzene-d4 | 17.004 | 152 | 159849 | 50.00 | ug/L | 0.00 |
| System Monitoring Compounds | | | | | | |
| 46) dibromofluoromethane (s) | 11.037 | 113 | 122437 | 46.96 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 76 - 120 | | Recovery = 93.92% | | | |
| 47) 1,2-dichloroethane-d4 (s) | 11.466 | 65 | 138538 | 51.83 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 73 - 122 | | Recovery = 103.66% | | | |
| 76) toluene-d8 (s) | 13.432 | 98 | 366381 | 49.25 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 84 - 119 | | Recovery = 98.50% | | | |
| 100) 4-bromofluorobenzene (s) | 15.917 | 95 | 137474 | 50.49 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 78 - 117 | | Recovery = 100.98% | | | |

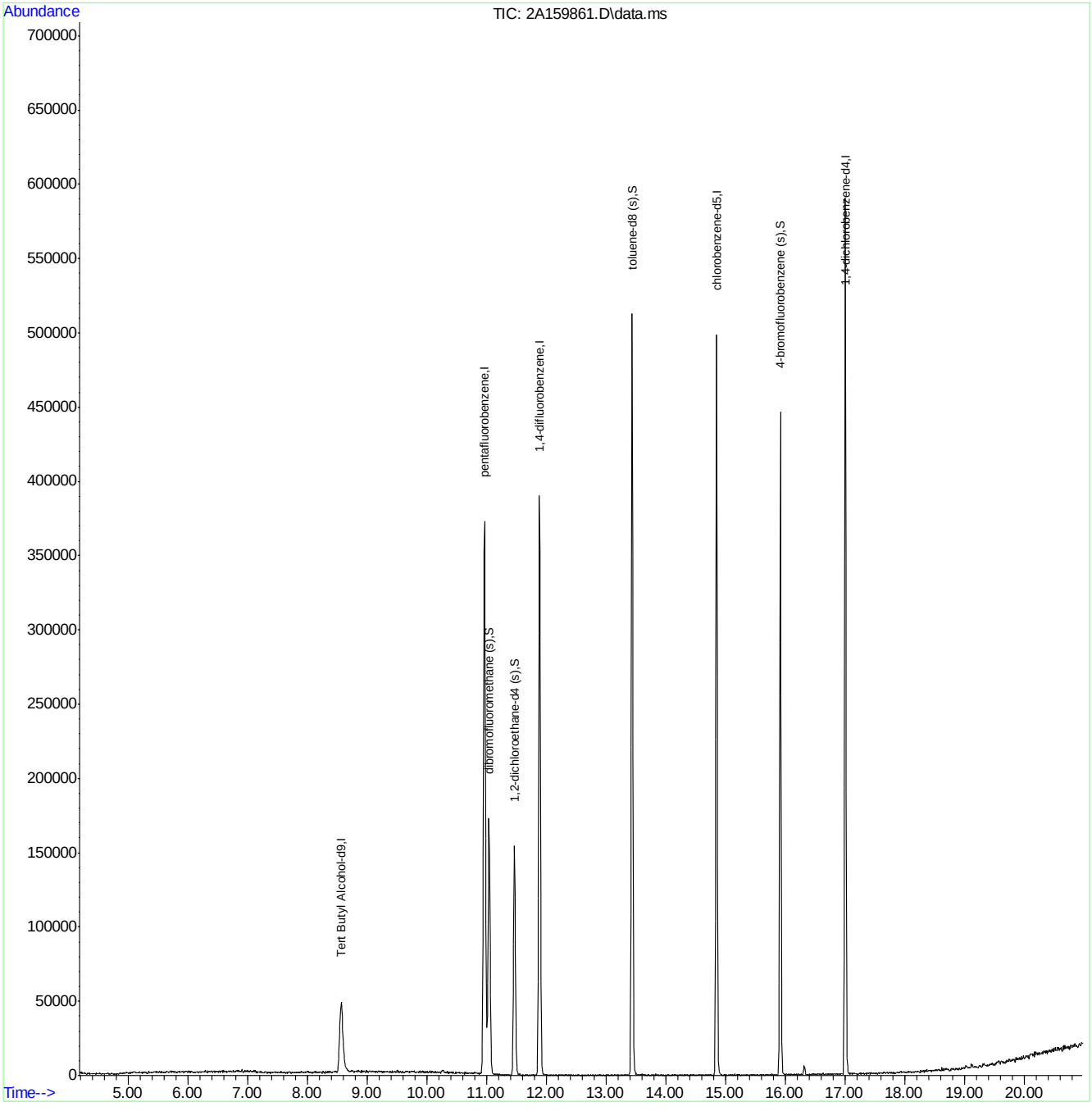
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2a\v2a6821-6822\
Data File : 2A159861.D
Acq On : 10 Jul 2015 10:58 pm
Operator : tracyk
Sample : mb2
Misc : MS87777,V2A6821,5,,,,1
ALS Vial : 26 Sample Multiplier: 1

Quant Time: Jul 13 20:40:45 2015
Quant Method : C:\MSDCHEM\1\METHODS\M2A6798.M
Quant Title : Method SW846 8260B, ZB624 60mx0.25mmx1.4um
QLast Update : Tue Jun 30 09:56:27 2015
Response via : Initial Calibration






ACCUTEST LABORATORIES JB98590

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : c201877.D
Acq On : 16 Jul 2015 10:37 am
Operator : mihirm
Sample : mb
Misc : MS88057,VC7407,5,,,,1
ALS Vial : 45 Sample Multiplier: 1

Quant Time: Jul 16 17:07:53 2015
Quant Method : C:\MSDCHEM\1\METHODS\MC7362.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Wed Jun 10 15:01:19 2015
Response via : Initial Calibration

| Internal Standards | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| 1) Tert Butyl Alcohol-d9 | 8.135 | 65 | 233177 | 500.00 | ug/L | 0.00 |
| 5) pentafluorobenzene | 10.823 | 168 | 495243 | 50.00 | ug/L | 0.00 |
| 59) 1,4-difluorobenzene | 11.780 | 114 | 669716 | 50.00 | ug/L | 0.00 |
| 88) chlorobenzene-d5 | 14.813 | 117 | 573279 | 50.00 | ug/L | 0.00 |
| 104) 1,4-dichlorobenzene-d4 | 16.832 | 152 | 327316 | 50.00 | ug/L | 0.00 |

System Monitoring Compounds

| | | | | | | |
|---|---|---|---|---|---|---|
| 50) dibromofluoromethane (s) | 10.880 | 113 | 201716 | 51.83 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 76 - 120 | | Recovery = 103.66% | | | |
| 51) 1,2-dichloroethane-d4 (s) | 11.325 | 65 | 264886 | 58.61 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 73 - 122 | | Recovery = 117.22% | | | |
| 80) toluene-d8 (s) | 13.391 | 98 | 786928 | 50.40 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 84 - 119 | | Recovery = 100.80% | | | |
| 106) 4-bromofluorobenzene (s) | 15.844 | 174 | 242921 | 51.08 | ug/L | 0.00 |
| Spiked Amount 50.000 | Range 78 - 117 | | Recovery = 102.16% | | | |

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

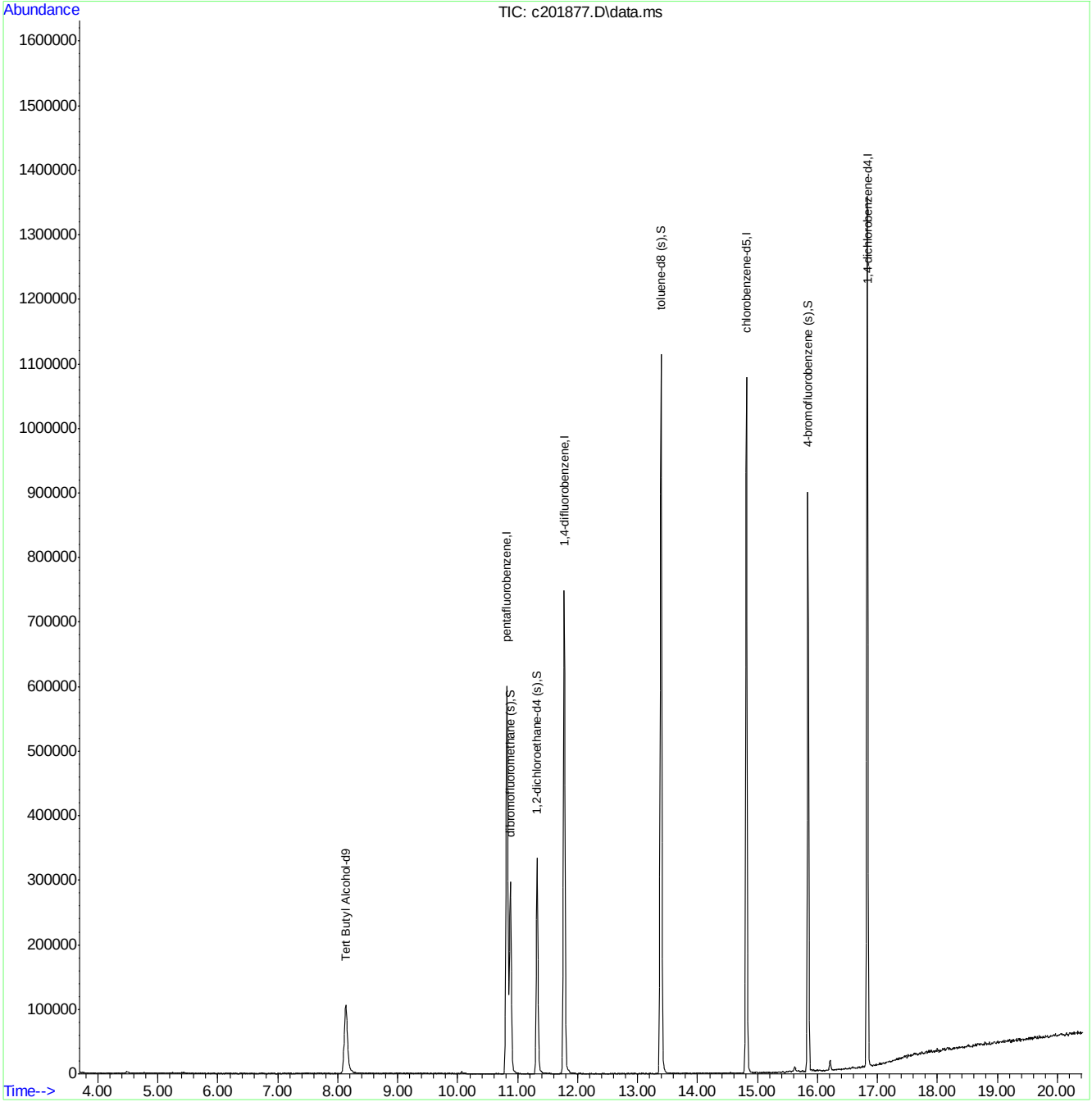
7.2.3

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : c201877.D
Acq On : 16 Jul 2015 10:37 am
Operator : mihirm
Sample : mb
Misc : MS88057,VC7407,5,,,,1
ALS Vial : 45 Sample Multiplier: 1

Quant Time: Jul 16 17:07:53 2015
Quant Method : C:\MSDCHEM\1\METHODS\MC7362.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Wed Jun 10 15:01:19 2015
Response via : Initial Calibration




MC7362.M Thu Jul 16 17:08:09 2015 C



ACCUTEST LABORATORIES JB98590

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\U\vu9093-9094\
Data File : u197272.D
Acq On : 17 Jul 2015 8:45 pm
Operator : NicoleH1
Sample : mb
Misc : ms88222,vu9094,5.0,,,,1
ALS Vial : 26 Sample Multiplier: 1

Quant Time: Jul 20 08:50:11 2015
Quant Method : C:\MSDCHEM\1\METHODS\MU8988.M
Quant Title : SW-846 8260B, ZB624 60m x 250um x 1.40um
QLast Update : Mon May 04 09:25:27 2015
Response via : Initial Calibration

| Compound | R.T. | QIon | Response | Conc Units | Dev(Min) |
|---|---|---|---|---|---|
| Internal Standards | | | | | |
| 1) Tert Butyl Alcohol-d9 | 7.869 | 65 | 69035 | 500.00 ug/L | -0.02 |
| 5) pentafluorobenzene | 10.076 | 168 | 237316 | 50.00 ug/L | 0.00 |
| 64) 1,4-difluorobenzene | 10.997 | 114 | 279150 | 50.00 ug/L | 0.00 |
| 96) chlorobenzene-d5 | 14.323 | 117 | 252312 | 50.00 ug/L | 0.00 |
| 112) 1,4-dichlorobenzene-d4 | 16.896 | 152 | 133719 | 50.00 ug/L | 0.00 |
| System Monitoring Compounds | | | | | |
| 56) dibromofluoromethane (s) | 10.155 | 113 | 85032 | 52.70 ug/L | 0.00 |
| Spiked Amount 50.000 | Range 76 - 120 | | Recovery | = 105.40% | |
| 57) 1,2-dichloroethane-d4 (s) | 10.573 | 65 | 89422 | 52.37 ug/L | 0.00 |
| Spiked Amount 50.000 | Range 73 - 122 | | Recovery | = 104.74% | |
| 88) toluene-d8 (s) | 12.681 | 98 | 321515 | 50.36 ug/L | 0.00 |
| Spiked Amount 50.000 | Range 84 - 119 | | Recovery | = 100.72% | |
| 114) 4-bromofluorobenzene (s) | 15.599 | 95 | 115130 | 48.61 ug/L | 0.00 |
| Spiked Amount 50.000 | Range 78 - 117 | | Recovery | = 97.22% | |
| Target Compounds | | | | | Qvalue |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

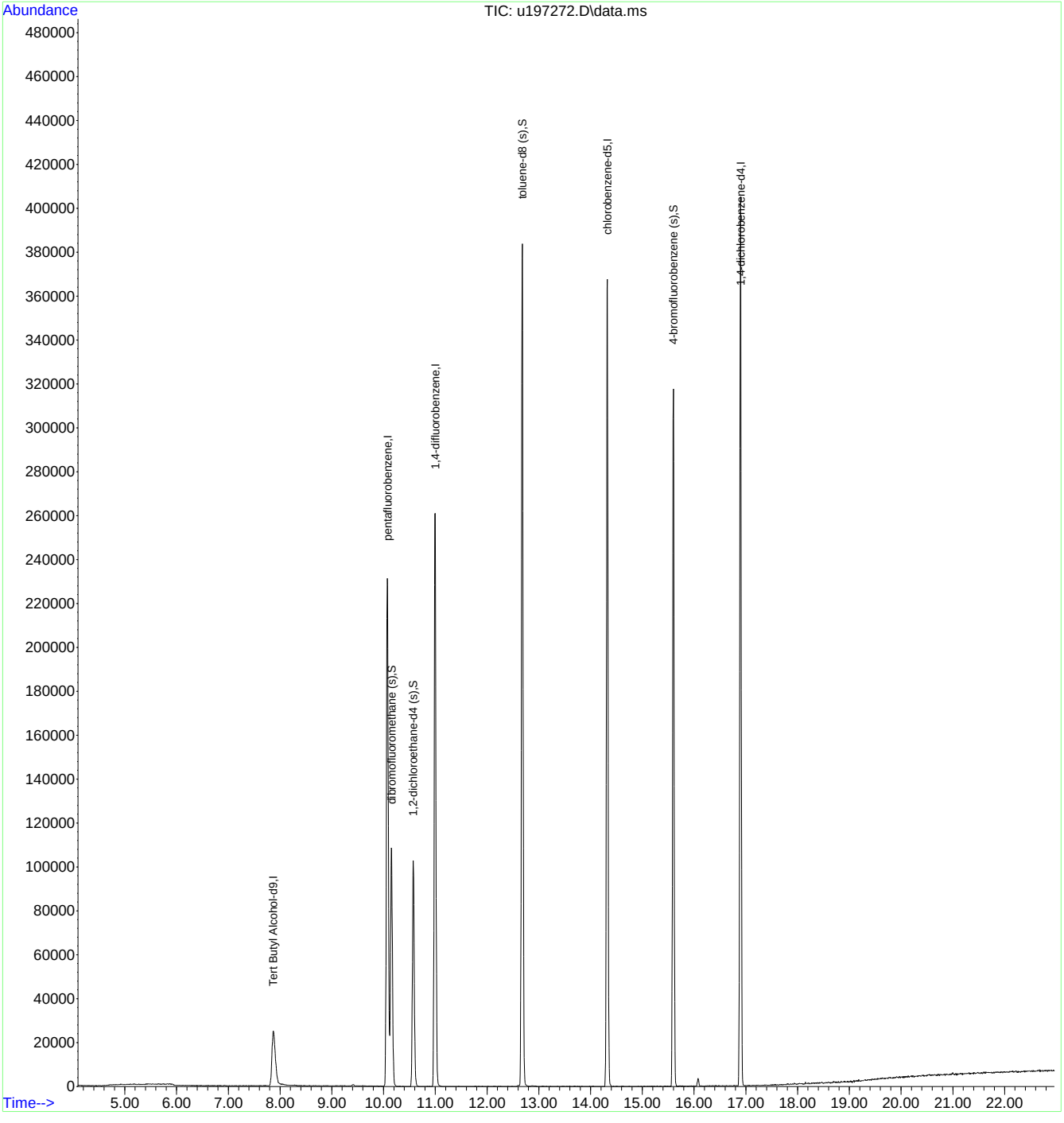
7.2.4

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\U\vu9093-9094\
Data File : u197272.D
Acq On : 17 Jul 2015 8:45 pm
Operator : NicoleH1
Sample : mb
Misc : ms88222,vu9094,5.0,,,,1
ALS Vial : 26 Sample Multiplier: 1

Quant Time: Jul 20 08:50:11 2015
Quant Method : C:\MSDCHEM\1\METHODS\MU8988.M
Quant Title : SW-846 8260B, ZB624 60m x 250um x 1.40um
QLast Update : Mon May 04 09:25:27 2015
Response via : Initial Calibration










ACCUTEST LABORATORIES JB98590

New Jersey
ACCUTEST LABORATORIES

# GC/MS Semi-volatiles

## QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Instrument Performance Checks (DFTPP)
- Internal Standard Area Summaries
- Surrogate Recovery Summaries
- Initial and Continuing Calibration Summaries

# Method Blank Summary



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| OP85388-MB1 | 6P17625A.D | 1 | 07/10/15 | AP | 07/09/15 | OP85388 | E6P792 |

**The QC reported here applies to the following samples:** **Method:** SW846 8270D

JB98590-1, JB98590-2, JB98590-3, JB98590-4, JB98590-5, JB98590-6, JB98590-7, JB98590-9, JB98590-10, JB98590-11, JB98590-12, JB98590-13, JB98590-14, JB98590-15, JB98590-16, JB98590-17, JB98590-18

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 105-67-9 | 2,4-Dimethylphenol | ND | 5.0 | 1.8 | ug/l | |
| 51-28-5 | 2,4-Dinitrophenol | ND | 10 | 6.5 | ug/l | |
| 95-48-7 | 2-Methylphenol | ND | 2.0 | 1.3 | ug/l | |
| | 3&4-Methylphenol | ND | 2.0 | 1.1 | ug/l | |
| 100-02-7 | 4-Nitrophenol | ND | 10 | 0.91 | ug/l | |
| 108-95-2 | Phenol | ND | 2.0 | 0.55 | ug/l | |
| 92-52-4 | 1,1'-Biphenyl | ND | 1.0 | 0.27 | ug/l | |
| 84-74-2 | Di-n-butyl phthalate | ND | 2.0 | 0.58 | ug/l | |
| 84-66-2 | Diethyl phthalate | ND | 2.0 | 0.23 | ug/l | |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | ND | 2.0 | 0.55 | ug/l | |
| 91-57-6 | 2-Methylnaphthalene | ND | 1.0 | 0.29 | ug/l | |
| 91-20-3 | Naphthalene | ND | 1.0 | 0.27 | ug/l | |
| 110-86-1 | Pyridine | ND | 2.0 | 0.29 | ug/l | |
| 91-22-5 | Quinoline | ND | 5.0 | 0.35 | ug/l | |

| CAS No. | Surrogate Recoveries | | Limits |
|---|---|---|---|
| 367-12-4 | 2-Fluorophenol | 38% | 12-110% |
| 4165-62-2 | Phenol-d5 | 25% | 10-110% |
| 118-79-6 | 2,4,6-Tribromophenol | 60% | 42-154% |
| 4165-60-0 | Nitrobenzene-d5 | 65% | 29-139% |
| 321-60-8 | 2-Fluorobiphenyl | 61% | 33-129% |
| 1718-51-0 | Terphenyl-d14 | 76% | 10-140% |

# Method Blank Summary



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| OP85388A-MB1 | 4M58919.D | 1 | 07/09/15 | AD | 07/09/15 | OP85388A | E4M2559 |

**The QC reported here applies to the following samples:** **Method:** SW846 8270D BY SIM

JB98590-1, JB98590-2, JB98590-3, JB98590-4, JB98590-5, JB98590-6, JB98590-7, JB98590-9, JB98590-10, JB98590-11, JB98590-12, JB98590-13, JB98590-14, JB98590-15, JB98590-16, JB98590-17, JB98590-18

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | ND | 0.10 | 0.013 | ug/l | |
| 120-12-7 | Anthracene | ND | 0.10 | 0.013 | ug/l | |
| 56-55-3 | Benzo(a)anthracene | ND | 0.050 | 0.019 | ug/l | |
| 50-32-8 | Benzo(a)pyrene | ND | 0.050 | 0.030 | ug/l | |
| 205-99-2 | Benzo(b)fluoranthene | ND | 0.10 | 0.021 | ug/l | |
| 191-24-2 | Benzo(g,h,i)perylene | ND | 0.10 | 0.026 | ug/l | |
| 207-08-9 | Benzo(k)fluoranthene | ND | 0.10 | 0.019 | ug/l | |
| 218-01-9 | Chrysene | ND | 0.10 | 0.015 | ug/l | |
| 53-70-3 | Dibenzo(a,h)anthracene | ND | 0.10 | 0.035 | ug/l | |
| 206-44-0 | Fluoranthene | ND | 0.10 | 0.011 | ug/l | |
| 86-73-7 | Fluorene | ND | 0.10 | 0.027 | ug/l | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | ND | 0.10 | 0.031 | ug/l | |
| 91-20-3 | Naphthalene | ND | 0.10 | 0.013 | ug/l | |
| 85-01-8 | Phenanthrene | ND | 0.10 | 0.016 | ug/l | |
| 129-00-0 | Pyrene | ND | 0.10 | 0.013 | ug/l | |

| CAS No. | Surrogate Recoveries | | Limits |
|---|---|---|---|
| 367-12-4 | 2-Fluorophenol | 28% | 10-110% |
| 4165-62-2 | Phenol-d5 | 19% | 10-110% |
| 118-79-6 | 2,4,6-Tribromophenol | 60% | 10-157% |
| 4165-60-0 | Nitrobenzene-d5 | 42% | 23-131% |
| 321-60-8 | 2-Fluorobiphenyl | 53% | 24-120% |
| 1718-51-0 | Terphenyl-d14 | 67% | 10-125% |

# Method Blank Summary



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| OP85388A-MB1 | 3M56147.D | 1 | 07/10/15 | AD | 07/09/15 | OP85388A | E3M2590 |

**The QC reported here applies to the following samples:** **Method:** SW846 8270D BY SIM

JB98590-1, JB98590-2, JB98590-3, JB98590-4, JB98590-5, JB98590-6, JB98590-7, JB98590-9, JB98590-10, JB98590-11, JB98590-12, JB98590-13, JB98590-14, JB98590-15, JB98590-16, JB98590-17, JB98590-18

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | ND | 0.10 | 0.013 | ug/l | |
| 120-12-7 | Anthracene | ND | 0.10 | 0.013 | ug/l | |
| 56-55-3 | Benzo(a)anthracene | ND | 0.050 | 0.019 | ug/l | |
| 50-32-8 | Benzo(a)pyrene | ND | 0.050 | 0.030 | ug/l | |
| 205-99-2 | Benzo(b)fluoranthene | ND | 0.10 | 0.021 | ug/l | |
| 191-24-2 | Benzo(g,h,i)perylene | ND | 0.10 | 0.026 | ug/l | |
| 207-08-9 | Benzo(k)fluoranthene | ND | 0.10 | 0.019 | ug/l | |
| 218-01-9 | Chrysene | ND | 0.10 | 0.015 | ug/l | |
| 53-70-3 | Dibenzo(a,h)anthracene | ND | 0.10 | 0.035 | ug/l | |
| 206-44-0 | Fluoranthene | ND | 0.10 | 0.011 | ug/l | |
| 86-73-7 | Fluorene | ND | 0.10 | 0.027 | ug/l | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | ND | 0.10 | 0.031 | ug/l | |
| 91-20-3 | Naphthalene | ND | 0.10 | 0.013 | ug/l | |
| 85-01-8 | Phenanthrene | ND | 0.10 | 0.016 | ug/l | |
| 129-00-0 | Pyrene | ND | 0.10 | 0.013 | ug/l | |

| CAS No. | Surrogate Recoveries | | Limits |
|---|---|---|---|
| 367-12-4 | 2-Fluorophenol | 33% | 10-110% |
| 4165-62-2 | Phenol-d5 | 23% | 10-110% |
| 118-79-6 | 2,4,6-Tribromophenol | 64% | 10-157% |
| 4165-60-0 | Nitrobenzene-d5 | 48% | 23-131% |
| 321-60-8 | 2-Fluorobiphenyl | 48% | 24-120% |
| 1718-51-0 | Terphenyl-d14 | 52% | 10-125% |

# Blank Spike Summary



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| OP85388-BS1 | 6P17596.D | 1 | 07/10/15 | SW | 07/09/15 | OP85388 | E6P791 |

**The QC reported here applies to the following samples:** **Method:** SW846 8270D

JB98590-1, JB98590-2, JB98590-3, JB98590-4, JB98590-5, JB98590-6, JB98590-7, JB98590-9, JB98590-10, JB98590-11, JB98590-12, JB98590-13, JB98590-14, JB98590-15, JB98590-16, JB98590-17, JB98590-18

| CAS No. | Compound | Spike ug/l | BSP ug/l | BSP % | Limits |
|---|---|---|---|---|---|
| 105-67-9 | 2,4-Dimethylphenol | 50 | 41.1 | 82 | 41-137 |
| 51-28-5 | 2,4-Dinitrophenol | 100 | 85.0 | 85 | 38-154 |
| 95-48-7 | 2-Methylphenol | 50 | 41.1 | 82 | 39-112 |
| | 3&4-Methylphenol | 50 | 39.2 | 78 | 36-107 |
| 100-02-7 | 4-Nitrophenol | 50 | 29.4 | 59 | 13-121 |
| 108-95-2 | Phenol | 50 | 23.4 | 47 | 10-110 |
| 92-52-4 | 1,1'-Biphenyl | 50 | 44.0 | 88 | 55-122 |
| 84-74-2 | Di-n-butyl phthalate | 50 | 46.5 | 93 | 47-157 |
| 84-66-2 | Diethyl phthalate | 50 | 44.3 | 89 | 36-147 |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | 50 | 53.2 | 106 | 44-157 |
| 91-57-6 | 2-Methylnaphthalene | 50 | 46.9 | 94 | 46-112 |
| 91-20-3 | Naphthalene | 50 | 39.5 | 79 | 36-113 |
| 110-86-1 | Pyridine | 50 | 27.1 | 54 | 10-110 |
| 91-22-5 | Quinoline | 50 | 41.5 | 83 | 47-134 |

| CAS No. | Surrogate Recoveries | BSP | Limits |
|---|---|---|---|
| 367-12-4 | 2-Fluorophenol | 68% | 12-110% |
| 4165-62-2 | Phenol-d5 | 46% | 10-110% |
| 118-79-6 | 2,4,6-Tribromophenol | 93% | 42-154% |
| 4165-60-0 | Nitrobenzene-d5 | 105% | 29-139% |
| 321-60-8 | 2-Fluorobiphenyl | 99% | 33-129% |
| 1718-51-0 | Terphenyl-d14 | 118% | 10-140% |

* = Outside of Control Limits.

# Blank Spike Summary



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| OP85388A-BS12 | 4M58920.D | 1 | 07/09/15 | AD | 07/09/15 | OP85388A | E4M2559 |

**The QC reported here applies to the following samples:** **Method:** SW846 8270D BY SIM

JB98590-1, JB98590-2, JB98590-3, JB98590-4, JB98590-5, JB98590-6, JB98590-7, JB98590-9, JB98590-10, JB98590-11, JB98590-12, JB98590-13, JB98590-14, JB98590-15, JB98590-16, JB98590-17, JB98590-18

| CAS No. | Compound | Spike ug/l | BSP ug/l | BSP % | Limits |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | 1 | 0.791 | 79 | 45-125 |
| 120-12-7 | Anthracene | 1 | 0.908 | 91 | 48-136 |
| 56-55-3 | Benzo(a)anthracene | 1 | 0.879 | 88 | 33-136 |
| 50-32-8 | Benzo(a)pyrene | 1 | 0.753 | 75 | 44-123 |
| 205-99-2 | Benzo(b)fluoranthene | 1 | 0.837 | 84 | 32-146 |
| 191-24-2 | Benzo(g,h,i)perylene | 1 | 0.631 | 63 | 47-129 |
| 207-08-9 | Benzo(k)fluoranthene | 1 | 0.663 | 66 | 34-154 |
| 218-01-9 | Chrysene | 1 | 0.930 | 93 | 43-143 |
| 53-70-3 | Dibenzo(a,h)anthracene | 1 | 0.666 | 67 | 43-144 |
| 206-44-0 | Fluoranthene | 1 | 0.770 | 77 | 46-122 |
| 86-73-7 | Fluorene | 1 | 0.817 | 82 | 49-125 |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | 1 | 0.649 | 65 | 45-142 |
| 91-20-3 | Naphthalene | 1 | 0.651 | 65 | 36-128 |
| 85-01-8 | Phenanthrene | 1 | 0.872 | 87 | 41-129 |
| 129-00-0 | Pyrene | 1 | 0.821 | 82 | 47-130 |

| CAS No. | Surrogate Recoveries | BSP | Limits |
|---|---|---|---|
| 367-12-4 | 2-Fluorophenol | 44% | 10-110% |
| 4165-62-2 | Phenol-d5 | 28% | 10-110% |
| 118-79-6 | 2,4,6-Tribromophenol | 92% | 10-157% |
| 4165-60-0 | Nitrobenzene-d5 | 61% | 23-131% |
| 321-60-8 | 2-Fluorobiphenyl | 71% | 24-120% |
| 1718-51-0 | Terphenyl-d14 | 77% | 10-125% |

* = Outside of Control Limits.

# Matrix Spike/Matrix Spike Duplicate Summary



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| OP85388-MS | 6P17611.D | 1 | 07/10/15 | SW | 07/09/15 | OP85388 | E6P791 |
| OP85388-MSD | 6P17612.D | 1 | 07/10/15 | SW | 07/09/15 | OP85388 | E6P791 |
| JB98590-1 | 6P17607.D | 1 | 07/10/15 | SW | 07/09/15 | OP85388 | E6P791 |

**The QC reported here applies to the following samples:** **Method:** SW846 8270D

JB98590-1, JB98590-2, JB98590-3, JB98590-4, JB98590-5, JB98590-6, JB98590-7, JB98590-9, JB98590-10, JB98590-11, JB98590-12, JB98590-13, JB98590-14, JB98590-15, JB98590-16, JB98590-17, JB98590-18

| CAS No. | Compound | JB98590-1 ug/l | Q | Spike ug/l | MS ug/l | MS % | Spike ug/l | MSD ug/l | MSD % | RPD | Limits Rec/RPD |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 105-67-9 | 2,4-Dimethylphenol | ND | | 106 | 97.6 | 92 | 106 | 94.9 | 89 | 3 | 32-152/30 |
| 51-28-5 | 2,4-Dinitrophenol | ND | | 213 | 178 | 84 | 213 | 171 | 80 | 4 | 24-169/31 |
| 95-48-7 | 2-Methylphenol | ND | | 106 | 95.5 | 90 | 106 | 92.5 | 87 | 3 | 41-122/25 |
| | 3&4-Methylphenol | ND | | 106 | 95.9 | 90 | 106 | 93.7 | 88 | 2 | 34-129/24 |
| 100-02-7 | 4-Nitrophenol | ND | | 106 | 87.5 | 82 | 106 | 86.7 | 81 | 1 | 21-167/27 |
| 108-95-2 | Phenol | ND | | 106 | 74.7 | 70 | 106 | 74.2 | 70 | 1 | 24-105/25 |
| 92-52-4 | 1,1'-Biphenyl | ND | | 106 | 100 | 94 | 106 | 97.9 | 92 | 2 | 43-138/28 |
| 84-74-2 | Di-n-butyl phthalate | ND | | 106 | 101 | 95 | 106 | 102 | 96 | 1 | 41-159/32 |
| 84-66-2 | Diethyl phthalate | ND | | 106 | 95.0 | 89 | 106 | 93.3 | 88 | 2 | 27-153/32 |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | ND | | 106 | 118 | 111 | 106 | 121 | 114 | 3 | 39-160/34 |
| 91-57-6 | 2-Methylnaphthalene | ND | | 106 | 102 | 96 | 106 | 102 | 96 | 0 | 39-118/27 |
| 91-20-3 | Naphthalene | ND | | 106 | 88.7 | 83 | 106 | 93.7 | 88 | 5 | 23-133/30 |
| 110-86-1 | Pyridine | ND | | 106 | 79.5 | 75 | 106 | 72.5 | 68 | 9 | 10-105/52 |
| 91-22-5 | Quinoline | ND | | 106 | 94.8 | 89 | 106 | 96.5 | 91 | 2 | 34-140/30 |

| CAS No. | Surrogate Recoveries | MS | MSD | JB98590-1 | Limits |
|---|---|---|---|---|---|
| 367-12-4 | 2-Fluorophenol | 84% | 85% | 45% | 12-110% |
| 4165-62-2 | Phenol-d5 | 69% | 72% | 30% | 10-110% |
| 118-79-6 | 2,4,6-Tribromophenol | 100% | 98% | 78% | 42-154% |
| 4165-60-0 | Nitrobenzene-d5 | 105% | 104% | 79% | 29-139% |
| 321-60-8 | 2-Fluorobiphenyl | 101% | 99% | 74% | 33-129% |
| 1718-51-0 | Terphenyl-d14 | 119% | 119% | 74% | 10-140% |

* = Outside of Control Limits.

# Matrix Spike/Matrix Spike Duplicate Summary



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| OP85388A-MS | 4M58928.D | 1 | 07/10/15 | AD | 07/09/15 | OP85388A | E4M2559 |
| OP85388A-MSD | 4M58929.D | 1 | 07/10/15 | AD | 07/09/15 | OP85388A | E4M2559 |
| JB98590-2 | 4M58922.D | 1 | 07/10/15 | AD | 07/09/15 | OP85388A | E4M2559 |

**The QC reported here applies to the following samples:** **Method:** SW846 8270D BY SIM

JB98590-1, JB98590-2, JB98590-3, JB98590-4, JB98590-5, JB98590-6, JB98590-7, JB98590-9, JB98590-10, JB98590-11, JB98590-12, JB98590-13, JB98590-14, JB98590-15, JB98590-16, JB98590-17, JB98590-18

| CAS No. | Compound | JB98590-2 ug/l | Q | Spike ug/l | MS ug/l | MS % | Spike ug/l | MSD ug/l | MSD % | RPD | Limits Rec/RPD |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | ND | | 2 | 1.65 | 83 | 2 | 1.34 | 67 | 21* [a] | 51-116/20 |
| 120-12-7 | Anthracene | ND | | 2 | 1.90 | 95 | 2 | 1.55 | 78 | 20 | 55-121/21 |
| 56-55-3 | Benzo(a)anthracene | ND | | 2 | 1.78 | 89 | 2 | 1.66 | 83 | 7 | 51-120/20 |
| 50-32-8 | Benzo(a)pyrene | ND | | 2 | 1.25 | 63 | 2 | 1.30 | 65 | 4 | 45-128/20 |
| 205-99-2 | Benzo(b)fluoranthene | ND | | 2 | 1.39 | 70 | 2 | 1.38 | 69 | 1 | 38-137/28 |
| 191-24-2 | Benzo(g,h,i)perylene | ND | | 2 | 0.968 | 48 | 2 | 1.16 | 58 | 18 | 34-138/23 |
| 207-08-9 | Benzo(k)fluoranthene | ND | | 2 | 1.25 | 63 | 2 | 1.23 | 62 | 2 | 34-136/30 |
| 218-01-9 | Chrysene | ND | | 2 | 1.77 | 89 | 2 | 1.62 | 81 | 9 | 50-123/21 |
| 53-70-3 | Dibenzo(a,h)anthracene | ND | | 2 | 1.08 | 54 | 2 | 1.22 | 61 | 12 | 35-142/25 |
| 206-44-0 | Fluoranthene | ND | | 2 | 1.62 | 81 | 2 | 1.33 | 67 | 20 | 51-126/20 |
| 86-73-7 | Fluorene | ND | | 2 | 1.79 | 90 | 2 | 1.49 | 75 | 18 | 53-122/22 |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | ND | | 2 | 1.00 | 50 | 2 | 1.17 | 59 | 16 | 36-140/25 |
| 91-20-3 | Naphthalene | ND | | 2 | 1.37 | 69 | 2 | 1.12 | 56 | 20 | 36-119/21 |
| 85-01-8 | Phenanthrene | ND | | 2 | 1.79 | 90 | 2 | 1.45 | 73 | 21* [a] | 49-126/20 |
| 129-00-0 | Pyrene | ND | | 2 | 1.63 | 82 | 2 | 1.40 | 70 | 15 | 52-122/22 |

| CAS No. | Surrogate Recoveries | MS | MSD | JB98590-2 | Limits |
|---|---|---|---|---|---|
| 367-12-4 | 2-Fluorophenol | 55% | 47% | | 10-110% |
| 4165-62-2 | Phenol-d5 | 41% | 36% | | 10-110% |
| 118-79-6 | 2,4,6-Tribromophenol | 96% | 79% | | 10-157% |
| 4165-60-0 | Nitrobenzene-d5 | 59% | 50% | 56% | 23-131% |
| 321-60-8 | 2-Fluorobiphenyl | 72% | 61% | 67% | 24-120% |
| 1718-51-0 | Terphenyl-d14 | 76% | 66% | 60% | 10-125% |

(a) Outside of in house control limits.

* = Outside of Control Limits.

# Instrument Performance Check (DFTPP)



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

**Sample:** E3M2536-DFTPP
**Lab File ID:** 3M55093.D
**Instrument ID:** GCMS3M
**Injection Date:** 05/26/15
**Injection Time:** 21:18

| m/e | Ion Abundance Criteria | Raw Abundance | % Relative Abundance | | Pass/Fail |
|---|---|---|---|---|---|
| 51 | 30.0 - 60.0% of mass 198 | 116477 | 40.5 | | Pass |
| 68 | Less than 2.0% of mass 69 | 1873 | 0.65 | (1.38) [a] | Pass |
| 69 | Mass 69 relative abundance | 135509 | 47.1 | | Pass |
| 70 | Less than 2.0% of mass 69 | 536 | 0.19 | (0.40) [a] | Pass |
| 127 | 40.0 - 60.0% of mass 198 | 165467 | 57.6 | | Pass |
| 197 | Less than 1.0% of mass 198 | 0 | 0.00 | | Pass |
| 198 | Base peak, 100% relative abundance | 287403 | 100.0 | | Pass |
| 199 | 5.0 - 9.0% of mass 198 | 19302 | 6.72 | | Pass |
| 275 | 10.0 - 30.0% of mass 198 | 71059 | 24.7 | | Pass |
| 365 | 1.0 - 100.0% of mass 198 | 9647 | 3.36 | | Pass |
| 441 | Present, but less than mass 443 | 37047 | 12.9 | (78.7) [b] | Pass |
| 442 | 40.0 - 100.0% of mass 198 | 238883 | 83.1 | | Pass |
| 443 | 17.0 - 23.0% of mass 442 | 47102 | 16.4 | (19.7) [c] | Pass |

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

**This check applies to the following Samples, MS, MSD, Blanks, and Standards:**

| Lab Sample ID | Lab File ID | Date Analyzed | Time Analyzed | Hours Lapsed | Client Sample ID |
|---|---|---|---|---|---|
| E3M2536-ICC2536 | 3M55094A.D | 05/26/15 | 21:32 | 00:14 | Initial cal 1.0 |
| E3M2536-IC2536 | 3M55095.D | 05/26/15 | 22:03 | 00:45 | Initial cal 0.5 |
| E3M2536-IC2536 | 3M55096.D | 05/26/15 | 22:34 | 01:16 | Initial cal 5.0 |
| E3M2536-IC2536 | 3M55097.D | 05/26/15 | 23:05 | 01:47 | Initial cal 2.5 |
| E3M2536-IC2536 | 3M55098.D | 05/26/15 | 23:36 | 02:18 | Initial cal .2 |
| E3M2536-IC2536 | 3M55099.D | 05/27/15 | 00:07 | 02:49 | Initial cal .1 |
| E3M2536-IC2536 | 3M55100.D | 05/27/15 | 00:38 | 03:20 | Initial cal .05 |
| E3M2536-IC2536 | 3M55101.D | 05/27/15 | 01:09 | 03:51 | Initial cal .02 |
| E3M2536-IC2536 | 3M55102.D | 05/27/15 | 01:40 | 04:22 | Initial cal .01 |
| E3M2536-ICV2536 | 3M55103.D | 05/27/15 | 02:11 | 04:53 | Initial cal verification 1.0 |
| E3M2536-ICV2536 | 3M55104.D | 05/27/15 | 02:42 | 05:24 | Initial cal verification 1.0 |

# Instrument Performance Check (DFTPP)



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

**Sample:** E3M2537-DFTPP
**Lab File ID:** 3M55106.D
**Instrument ID:** GCMS3M
**Injection Date:** 05/27/15
**Injection Time:** 12:23

| m/e | Ion Abundance Criteria | Raw Abundance | % Relative Abundance | | Pass/Fail |
|---|---|---|---|---|---|
| 51 | 30.0 - 60.0% of mass 198 | 74692 | 40.6 | | Pass |
| 68 | Less than 2.0% of mass 69 | 1553 | 0.84 | (1.74) [a] | Pass |
| 69 | Mass 69 relative abundance | 89452 | 48.7 | | Pass |
| 70 | Less than 2.0% of mass 69 | 297 | 0.16 | (0.33) [a] | Pass |
| 127 | 40.0 - 60.0% of mass 198 | 104397 | 56.8 | | Pass |
| 197 | Less than 1.0% of mass 198 | 974 | 0.53 | | Pass |
| 198 | Base peak, 100% relative abundance | 183848 | 100.0 | | Pass |
| 199 | 5.0 - 9.0% of mass 198 | 11973 | 6.51 | | Pass |
| 275 | 10.0 - 30.0% of mass 198 | 43184 | 23.5 | | Pass |
| 365 | 1.0 - 100.0% of mass 198 | 6018 | 3.27 | | Pass |
| 441 | Present, but less than mass 443 | 22107 | 12.0 | (79.3) [b] | Pass |
| 442 | 40.0 - 100.0% of mass 198 | 140600 | 76.5 | | Pass |
| 443 | 17.0 - 23.0% of mass 442 | 27871 | 15.2 | (19.8) [c] | Pass |

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

**This check applies to the following Samples, MS, MSD, Blanks, and Standards:**

| Lab Sample ID | Lab File ID | Date Analyzed | Time Analyzed | Hours Lapsed | Client Sample ID |
|---|---|---|---|---|---|
| E3M2537-ICV2536 | 3M55107.D | 05/27/15 | 12:35 | 00:12 | Initial cal verification 1 |

# Instrument Performance Check (DFTPP)



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

**Sample:** E3M2590-DFTPP
**Lab File ID:** 3M56144.D
**Instrument ID:** GCMS3M
**Injection Date:** 07/10/15
**Injection Time:** 15:56

| m/e | Ion Abundance Criteria | Raw Abundance | % Relative Abundance | | Pass/Fail |
|---|---|---|---|---|---|
| 51 | 30.0 - 60.0% of mass 198 | 79538 | 41.2 | | Pass |
| 68 | Less than 2.0% of mass 69 | 1687 | 0.87 | (1.74) [a] | Pass |
| 69 | Mass 69 relative abundance | 96689 | 50.0 | | Pass |
| 70 | Less than 2.0% of mass 69 | 0 | 0.00 | (0.00) [a] | Pass |
| 127 | 40.0 - 60.0% of mass 198 | 112555 | 58.2 | | Pass |
| 197 | Less than 1.0% of mass 198 | 0 | 0.00 | | Pass |
| 198 | Base peak, 100% relative abundance | 193277 | 100.0 | | Pass |
| 199 | 5.0 - 9.0% of mass 198 | 13154 | 6.81 | | Pass |
| 275 | 10.0 - 30.0% of mass 198 | 45313 | 23.4 | | Pass |
| 365 | 1.0 - 100.0% of mass 198 | 5489 | 2.84 | | Pass |
| 441 | Present, but less than mass 443 | 22577 | 11.7 | (75.9) [b] | Pass |
| 442 | 40.0 - 100.0% of mass 198 | 153869 | 79.6 | | Pass |
| 443 | 17.0 - 23.0% of mass 442 | 29729 | 15.4 | (19.3) [c] | Pass |

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

**This check applies to the following Samples, MS, MSD, Blanks, and Standards:**

| Lab Sample ID | Lab File ID | Date Analyzed | Time Analyzed | Hours Lapsed | Client Sample ID |
|---|---|---|---|---|---|
| E3M2590-CC2536 | 3M56146.D | 07/10/15 | 17:12 | 01:16 | Continuing cal 0.5 |
| OP85388A-MB1 | 3M56147.D | 07/10/15 | 17:44 | 01:48 | Method Blank |
| JB98590-9 | 3M56148.D | 07/10/15 | 18:15 | 02:19 | MW-457-20150707 |
| JB98590-11 | 3M56150.D | 07/10/15 | 19:17 | 03:21 | MW-479-20150707 |
| JB98590-12 | 3M56151.D | 07/10/15 | 19:48 | 03:52 | MW-478-20150707 |
| JB98590-13 | 3M56152.D | 07/10/15 | 20:19 | 04:23 | MW-468-20150707 |
| JB98590-14 | 3M56153.D | 07/10/15 | 20:50 | 04:54 | MW-469-20150707 |
| JB98590-15 | 3M56154.D | 07/10/15 | 21:21 | 05:25 | MW-464-20150707 |
| OP85400A-MB1 | 3M56158.D | 07/10/15 | 23:25 | 07:29 | Method Blank |
| OP85400A-BS12 | 3M56159.D | 07/10/15 | 23:56 | 08:00 | Blank Spike |
| OP85400A-MS | 3M56160.D | 07/11/15 | 00:27 | 08:31 | Matrix Spike |
| OP85400A-MSD | 3M56161.D | 07/11/15 | 00:58 | 09:02 | Matrix Spike Duplicate |
| ZZZZZZ | 3M56162.D | 07/11/15 | 01:29 | 09:33 | (unrelated sample) |
| JB98629-1 | 3M56164.D | 07/11/15 | 02:30 | 10:34 | (used for QC only; not part of job JB98590) |
| ZZZZZZ | 3M56165.D | 07/11/15 | 03:01 | 11:05 | (unrelated sample) |
| ZZZZZZ | 3M56166.D | 07/11/15 | 03:32 | 11:36 | (unrelated sample) |

# Instrument Performance Check (DFTPP)



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

**Sample:** E3M2591-DFTPP
**Lab File ID:** 3M56168.D
**Instrument ID:** GCMS3M
**Injection Date:** 07/11/15
**Injection Time:** 12:34

| m/e | Ion Abundance Criteria | Raw Abundance | % Relative Abundance | | Pass/Fail |
|---|---|---|---|---|---|
| 51 | 30.0 - 60.0% of mass 198 | 76869 | 42.6 | | Pass |
| 68 | Less than 2.0% of mass 69 | 1612 | 0.89 | (1.76) [a] | Pass |
| 69 | Mass 69 relative abundance | 91557 | 50.7 | | Pass |
| 70 | Less than 2.0% of mass 69 | 303 | 0.17 | (0.33) [a] | Pass |
| 127 | 40.0 - 60.0% of mass 198 | 104320 | 57.8 | | Pass |
| 197 | Less than 1.0% of mass 198 | 0 | 0.00 | | Pass |
| 198 | Base peak, 100% relative abundance | 180440 | 100.0 | | Pass |
| 199 | 5.0 - 9.0% of mass 198 | 13139 | 7.28 | | Pass |
| 275 | 10.0 - 30.0% of mass 198 | 40263 | 22.3 | | Pass |
| 365 | 1.0 - 100.0% of mass 198 | 5411 | 3.00 | | Pass |
| 441 | Present, but less than mass 443 | 21069 | 11.7 | (77.0) [b] | Pass |
| 442 | 40.0 - 100.0% of mass 198 | 134845 | 74.7 | | Pass |
| 443 | 17.0 - 23.0% of mass 442 | 27372 | 15.2 | (20.3) [c] | Pass |

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

**This check applies to the following Samples, MS, MSD, Blanks, and Standards:**

| Lab Sample ID | Lab File ID | Date Analyzed | Time Analyzed | Hours Lapsed | Client Sample ID |
|---|---|---|---|---|---|
| E3M2591-CC2536 | 3M56169.D | 07/11/15 | 12:46 | 00:12 | Continuing cal 1.0 |
| ZZZZZZ | 3M56170.D | 07/11/15 | 13:19 | 00:45 | (unrelated sample) |
| ZZZZZZ | 3M56179.D | 07/11/15 | 13:50 | 01:16 | (unrelated sample) |
| ZZZZZZ | 3M56171.D | 07/11/15 | 14:21 | 01:47 | (unrelated sample) |
| ZZZZZZ | 3M56172.D | 07/11/15 | 14:52 | 02:18 | (unrelated sample) |
| ZZZZZZ | 3M56173.D | 07/11/15 | 15:23 | 02:49 | (unrelated sample) |
| ZZZZZZ | 3M56174.D | 07/11/15 | 15:54 | 03:20 | (unrelated sample) |
| OP85421A-MB1 | 3M56180.D | 07/11/15 | 16:25 | 03:51 | Method Blank |
| ZZZZZZ | 3M56181.D | 07/11/15 | 16:56 | 04:22 | (unrelated sample) |
| ZZZZZZ | 3M56182.D | 07/11/15 | 17:27 | 04:53 | (unrelated sample) |
| JB98590-10 | 3M56175.D | 07/11/15 | 17:58 | 05:24 | MW-471-20150707 |
| JB98590-16 | 3M56176.D | 07/11/15 | 18:29 | 05:55 | MW-461-20150707 |
| JB98590-17 | 3M56177.D | 07/11/15 | 19:00 | 06:26 | MW-448-20150707 |
| JB98590-18 | 3M56178.D | 07/11/15 | 19:31 | 06:57 | MW-468-DUP20150707 |

# Instrument Performance Check (DFTPP)



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

**Sample:** E4M2526-DFTPP
**Lab File ID:** 4M58448.D
**Instrument ID:** GCMS4M
**Injection Date:** 06/12/15
**Injection Time:** 21:40

| m/e | Ion Abundance Criteria | Raw Abundance | % Relative Abundance | | Pass/Fail |
|---|---|---|---|---|---|
| 51 | 30.0 - 60.0% of mass 198 | 147757 | 38.8 | | Pass |
| 68 | Less than 2.0% of mass 69 | 0 | 0.00 | (0.00) [a] | Pass |
| 69 | Mass 69 relative abundance | 184890 | 48.5 | | Pass |
| 70 | Less than 2.0% of mass 69 | 1198 | 0.31 | (0.65) [a] | Pass |
| 127 | 40.0 - 60.0% of mass 198 | 205661 | 54.0 | | Pass |
| 197 | Less than 1.0% of mass 198 | 822 | 0.22 | | Pass |
| 198 | Base peak, 100% relative abundance | 381120 | 100.0 | | Pass |
| 199 | 5.0 - 9.0% of mass 198 | 27968 | 7.34 | | Pass |
| 275 | 10.0 - 30.0% of mass 198 | 100645 | 26.4 | | Pass |
| 365 | 1.0 - 100.0% of mass 198 | 12718 | 3.34 | | Pass |
| 441 | Present, but less than mass 443 | 53027 | 13.9 | (82.3) [b] | Pass |
| 442 | 40.0 - 100.0% of mass 198 | 349888 | 91.8 | | Pass |
| 443 | 17.0 - 23.0% of mass 442 | 64419 | 16.9 | (18.4) [c] | Pass |

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

**This check applies to the following Samples, MS, MSD, Blanks, and Standards:**

| Lab Sample ID | Lab File ID | Date Analyzed | Time Analyzed | Hours Lapsed | Client Sample ID |
|---|---|---|---|---|---|
| E4M2526-IC2526 | 4M58449A.D | 06/12/15 | 23:01 | 01:21 | Initial cal 5.0 |
| E4M2526-IC2526 | 4M58450A.D | 06/12/15 | 23:31 | 01:51 | Initial cal 2.5 |
| E4M2526-ICC2526 | 4M58451.D | 06/13/15 | 00:01 | 02:21 | Initial cal 1.0 |
| E4M2526-IC2526 | 4M58452.D | 06/13/15 | 00:31 | 02:51 | Initial cal 0.5 |
| E4M2526-IC2526 | 4M58453.D | 06/13/15 | 01:00 | 03:20 | Initial cal 0.2 |
| E4M2526-IC2526 | 4M58454.D | 06/13/15 | 01:30 | 03:50 | Initial cal 0.1 |
| E4M2526-IC2526 | 4M58455.D | 06/13/15 | 02:00 | 04:20 | Initial cal 0.05 |
| E4M2526-IC2526 | 4M58456.D | 06/13/15 | 02:30 | 04:50 | Initial cal 0.02 |
| E4M2526-IC2526 | 4M58457.D | 06/13/15 | 03:00 | 05:20 | Initial cal 0.01 |
| E4M2526-ICV2526 | 4M58458.D | 06/13/15 | 03:29 | 05:49 | Initial cal verification 1.0 |
| E4M2526-ICV2526 | 4M58459.D | 06/13/15 | 03:59 | 06:19 | Initial cal verification 1.0 |

# Instrument Performance Check (DFTPP)



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

**Sample:** E4M2527-DFTPP
**Lab File ID:** 4M58461.D
**Instrument ID:** GCMS4M
**Injection Date:** 06/13/15
**Injection Time:** 11:31

| m/e | Ion Abundance Criteria | Raw Abundance | % Relative Abundance | | Pass/Fail |
|---|---|---|---|---|---|
| 51 | 30.0 - 60.0% of mass 198 | 172621 | 33.8 | | Pass |
| 68 | Less than 2.0% of mass 69 | 2366 | 0.46 | (1.01) [a] | Pass |
| 69 | Mass 69 relative abundance | 233690 | 45.8 | | Pass |
| 70 | Less than 2.0% of mass 69 | 444 | 0.09 | (0.19) [a] | Pass |
| 127 | 40.0 - 60.0% of mass 198 | 265309 | 52.0 | | Pass |
| 197 | Less than 1.0% of mass 198 | 0 | 0.00 | | Pass |
| 198 | Base peak, 100% relative abundance | 510677 | 100.0 | | Pass |
| 199 | 5.0 - 9.0% of mass 198 | 34004 | 6.66 | | Pass |
| 275 | 10.0 - 30.0% of mass 198 | 138648 | 27.1 | | Pass |
| 365 | 1.0 - 100.0% of mass 198 | 15694 | 3.07 | | Pass |
| 441 | Present, but less than mass 443 | 73765 | 14.4 | (78.8) [b] | Pass |
| 442 | 40.0 - 100.0% of mass 198 | 494293 | 96.8 | | Pass |
| 443 | 17.0 - 23.0% of mass 442 | 93565 | 18.3 | (18.9) [c] | Pass |

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

**This check applies to the following Samples, MS, MSD, Blanks, and Standards:**

| Lab Sample ID | Lab File ID | Date Analyzed | Time Analyzed | Hours Lapsed | Client Sample ID |
|---|---|---|---|---|---|
| E4M2527-ICV2526 | 4M58462.D | 06/13/15 | 11:49 | 00:18 | Initial cal verification 1.0 |

# Instrument Performance Check (DFTPP)



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

**Sample:** E4M2559-DFTPP
**Lab File ID:** 4M58906.D
**Instrument ID:** GCMS4M
**Injection Date:** 07/09/15
**Injection Time:** 20:01

| m/e | Ion Abundance Criteria | Raw Abundance | % Relative Abundance | | Pass/Fail |
|---|---|---|---|---|---|
| 51 | 30.0 - 60.0% of mass 198 | 187595 | 30.9 | | Pass |
| 68 | Less than 2.0% of mass 69 | 0 | 0.00 | (0.00) [a] | Pass |
| 69 | Mass 69 relative abundance | 254865 | 42.0 | | Pass |
| 70 | Less than 2.0% of mass 69 | 664 | 0.11 | (0.26) [a] | Pass |
| 127 | 40.0 - 60.0% of mass 198 | 296661 | 48.9 | | Pass |
| 197 | Less than 1.0% of mass 198 | 0 | 0.00 | | Pass |
| 198 | Base peak, 100% relative abundance | 606939 | 100.0 | | Pass |
| 199 | 5.0 - 9.0% of mass 198 | 43901 | 7.23 | | Pass |
| 275 | 10.0 - 30.0% of mass 198 | 166808 | 27.5 | | Pass |
| 365 | 1.0 - 100.0% of mass 198 | 18891 | 3.11 | | Pass |
| 441 | Present, but less than mass 443 | 66221 | 10.9 | (73.3) [b] | Pass |
| 442 | 40.0 - 100.0% of mass 198 | 453952 | 74.8 | | Pass |
| 443 | 17.0 - 23.0% of mass 442 | 90288 | 14.9 | (19.9) [c] | Pass |

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

**This check applies to the following Samples, MS, MSD, Blanks, and Standards:**

| Lab Sample ID | Lab File ID | Date Analyzed | Time Analyzed | Hours Lapsed | Client Sample ID |
|---|---|---|---|---|---|
| E4M2559-CC2526 | 4M58907.D | 07/09/15 | 20:14 | 00:13 | Continuing cal 1.0 |
| ZZZZZZ | 4M58908.D | 07/09/15 | 20:47 | 00:46 | (unrelated sample) |
| ZZZZZZ | 4M58909.D | 07/09/15 | 21:17 | 01:16 | (unrelated sample) |
| OP85388A-MB1 | 4M58919.D | 07/09/15 | 21:47 | 01:46 | Method Blank |
| OP85388A-BS12 | 4M58920.D | 07/09/15 | 22:17 | 02:16 | Blank Spike |
| ZZZZZZ | 4M58910.D | 07/09/15 | 22:47 | 02:46 | (unrelated sample) |
| ZZZZZZ | 4M58911.D | 07/09/15 | 23:17 | 03:16 | (unrelated sample) |
| ZZZZZZ | 4M58912.D | 07/09/15 | 23:47 | 03:46 | (unrelated sample) |
| ZZZZZZ | 4M58913.D | 07/10/15 | 00:16 | 04:15 | (unrelated sample) |
| ZZZZZZ | 4M58914.D | 07/10/15 | 00:46 | 04:45 | (unrelated sample) |
| ZZZZZZ | 4M58915.D | 07/10/15 | 01:16 | 05:15 | (unrelated sample) |
| ZZZZZZ | 4M58916.D | 07/10/15 | 01:46 | 05:45 | (unrelated sample) |
| ZZZZZZ | 4M58917.D | 07/10/15 | 02:15 | 06:14 | (unrelated sample) |
| ZZZZZZ | 4M58918.D | 07/10/15 | 02:45 | 06:44 | (unrelated sample) |
| JB98590-1 | 4M58921.D | 07/10/15 | 03:15 | 07:14 | MW-440-20150706 |
| JB98590-2 | 4M58922.D | 07/10/15 | 03:45 | 07:44 | MW-447-20150706 |
| JB98590-3 | 4M58923.D | 07/10/15 | 04:14 | 08:13 | MW-453-20150706 |
| JB98590-4 | 4M58924.D | 07/10/15 | 04:43 | 08:42 | FB-20150706 |
| JB98590-5 | 4M58925.D | 07/10/15 | 05:13 | 09:12 | MW-444-20150706 |

# Instrument Performance Check (DFTPP)



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

**Sample:** E4M2559-DFTPP
**Lab File ID:** 4M58906.D
**Instrument ID:** GCMS4M
**Injection Date:** 07/09/15
**Injection Time:** 20:01

| Lab Sample ID | Lab File ID | Date Analyzed | Time Analyzed | Hours Lapsed | Client Sample ID |
|---|---|---|---|---|---|
| JB98590-6 | 4M58926.D | 07/10/15 | 05:43 | 09:42 | MW-446-20150706 |
| JB98590-7 | 4M58927.D | 07/10/15 | 06:13 | 10:12 | MW-450-20150706 |
| OP85388A-MS | 4M58928.D | 07/10/15 | 06:43 | 10:42 | Matrix Spike |
| OP85388A-MSD | 4M58929.D | 07/10/15 | 07:13 | 11:12 | Matrix Spike Duplicate |

# Instrument Performance Check (DFTPP)



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

**Sample:** E6P776-DFTPP
**Lab File ID:** 6P17291.D
**Instrument ID:** GCMS6P
**Injection Date:** 07/01/15
**Injection Time:** 09:42

| m/e | Ion Abundance Criteria | Raw Abundance | % Relative Abundance | | Pass/Fail |
|---|---|---|---|---|---|
| 51 | 30.0 - 60.0% of mass 198 | 91112 | 44.6 | | Pass |
| 68 | Less than 2.0% of mass 69 | 1029 | 0.50 | (1.12) [a] | Pass |
| 69 | Mass 69 relative abundance | 91580 | 44.8 | | Pass |
| 70 | Less than 2.0% of mass 69 | 381 | 0.19 | (0.42) [a] | Pass |
| 127 | 40.0 - 60.0% of mass 198 | 92829 | 45.5 | | Pass |
| 197 | Less than 1.0% of mass 198 | 0 | 0.00 | | Pass |
| 198 | Base peak, 100% relative abundance | 204229 | 100.0 | | Pass |
| 199 | 5.0 - 9.0% of mass 198 | 13435 | 6.58 | | Pass |
| 275 | 10.0 - 30.0% of mass 198 | 44005 | 21.5 | | Pass |
| 365 | 1.0 - 100.0% of mass 198 | 5268 | 2.58 | | Pass |
| 441 | Present, but less than mass 443 | 18126 | 8.88 | (70.7) [b] | Pass |
| 442 | 40.0 - 100.0% of mass 198 | 131083 | 64.2 | | Pass |
| 443 | 17.0 - 23.0% of mass 442 | 25624 | 12.5 | (19.5) [c] | Pass |

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

**This check applies to the following Samples, MS, MSD, Blanks, and Standards:**

| Lab Sample ID | Lab File ID | Date Analyzed | Time Analyzed | Hours Lapsed | Client Sample ID |
|---|---|---|---|---|---|
| E6P776-IC776 | 6P17292.D | 07/01/15 | 10:03 | 00:21 | Initial cal 2 |
| E6P776-IC776 | 6P17293.D | 07/01/15 | 10:35 | 00:53 | Initial cal 100 |
| E6P776-IC776 | 6P17294.D | 07/01/15 | 11:04 | 01:22 | Initial cal 1 |
| E6P776-ICC776 | 6P17295.D | 07/01/15 | 11:37 | 01:55 | Initial cal 50 |
| E6P776-IC776 | 6P17296.D | 07/01/15 | 12:03 | 02:21 | Initial cal 25 |
| E6P776-IC776 | 6P17297.D | 07/01/15 | 12:29 | 02:47 | Initial cal 5 |
| E6P776-IC776 | 6P17298.D | 07/01/15 | 12:55 | 03:13 | Initial cal 10 |
| E6P776-IC776 | 6P17299.D | 07/01/15 | 13:21 | 03:39 | Initial cal 80 |

# Instrument Performance Check (DFTPP)



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

**Sample:** E6P777-DFTPP
**Lab File ID:** 6P17302.D
**Instrument ID:** GCMS6P
**Injection Date:** 07/01/15
**Injection Time:** 14:26

| m/e | Ion Abundance Criteria | Raw Abundance | % Relative Abundance | | Pass/Fail |
|---|---|---|---|---|---|
| 51 | 30.0 - 60.0% of mass 198 | 103157 | 47.5 | | Pass |
| 68 | Less than 2.0% of mass 69 | 1383 | 0.64 | (1.39) [a] | Pass |
| 69 | Mass 69 relative abundance | 99443 | 45.8 | | Pass |
| 70 | Less than 2.0% of mass 69 | 201 | 0.09 | (0.20) [a] | Pass |
| 127 | 40.0 - 60.0% of mass 198 | 102448 | 47.2 | | Pass |
| 197 | Less than 1.0% of mass 198 | 0 | 0.00 | | Pass |
| 198 | Base peak, 100% relative abundance | 217032 | 100.0 | | Pass |
| 199 | 5.0 - 9.0% of mass 198 | 14706 | 6.78 | | Pass |
| 275 | 10.0 - 30.0% of mass 198 | 48827 | 22.5 | | Pass |
| 365 | 1.0 - 100.0% of mass 198 | 5154 | 2.37 | | Pass |
| 441 | Present, but less than mass 443 | 20601 | 9.49 | (79.8) [b] | Pass |
| 442 | 40.0 - 100.0% of mass 198 | 133152 | 61.4 | | Pass |
| 443 | 17.0 - 23.0% of mass 442 | 25804 | 11.9 | (19.4) [c] | Pass |

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

**This check applies to the following Samples, MS, MSD, Blanks, and Standards:**

| Lab Sample ID | Lab File ID | Date Analyzed | Time Analyzed | Hours Lapsed | Client Sample ID |
|---|---|---|---|---|---|
| E6P777-IC777 | 6P17303.D | 07/01/15 | 14:47 | 00:21 | Initial cal 100 |
| E6P777-IC777 | 6P17304.D | 07/01/15 | 15:13 | 00:47 | Initial cal 80 |
| E6P777-ICC777 | 6P17305.D | 07/01/15 | 15:39 | 01:13 | Initial cal 50 |
| E6P777-IC777 | 6P17306.D | 07/01/15 | 16:05 | 01:39 | Initial cal 25 |
| E6P777-IC777 | 6P17307.D | 07/01/15 | 16:31 | 02:05 | Initial cal 10 |
| E6P777-IC777 | 6P17308.D | 07/01/15 | 16:58 | 02:32 | Initial cal 5 |
| E6P777-IC777 | 6P17309.D | 07/01/15 | 17:24 | 02:58 | Initial cal 2 |
| E6P777-IC777 | 6P17310.D | 07/01/15 | 17:50 | 03:24 | Initial cal 1 |
| E6P777-ICV776 | 6P17312.D | 07/01/15 | 18:43 | 04:17 | Initial cal verification 50 |
| E6P777-ICV777 | 6P17313A.D | 07/01/15 | 19:09 | 04:43 | Initial cal verification 50 |
| E6P777-ICV776 | 6P17313.D | 07/01/15 | 19:09 | 04:43 | Initial cal verification 50 |
| E6P777-ICV776 | 6P17314.D | 07/01/15 | 19:35 | 05:09 | Initial cal verification 50 |
| E6P777-ICV777 | 6P17314A.D | 07/01/15 | 19:35 | 05:09 | Initial cal verification 50 |
| E6P777-ICV776 | 6P17315.D | 07/01/15 | 20:01 | 05:35 | Initial cal verification 50 |
| E6P777-ICV777 | 6P17316A.D | 07/01/15 | 20:27 | 06:01 | Initial cal verification 50 |
| E6P777-ICV776 | 6P17316.D | 07/01/15 | 20:27 | 06:01 | Initial cal verification 50 |
| E6P777-ICV777 | 6P17317.D | 07/01/15 | 20:54 | 06:28 | Initial cal verification 50 |

# Instrument Performance Check (DFTPP)



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

**Sample:** E6P778-DFTPP
**Lab File ID:** 6P17320.D
**Instrument ID:** GCMS6P
**Injection Date:** 07/01/15
**Injection Time:** 22:08

| m/e | Ion Abundance Criteria | Raw Abundance | % Relative Abundance | | Pass/Fail |
|---|---|---|---|---|---|
| 51 | 30.0 - 60.0% of mass 198 | 150278 | 47.1 | | Pass |
| 68 | Less than 2.0% of mass 69 | 495 | 0.16 | (0.33) [a] | Pass |
| 69 | Mass 69 relative abundance | 148999 | 46.7 | | Pass |
| 70 | Less than 2.0% of mass 69 | 875 | 0.27 | (0.59) [a] | Pass |
| 127 | 40.0 - 60.0% of mass 198 | 152512 | 47.8 | | Pass |
| 197 | Less than 1.0% of mass 198 | 0 | 0.00 | | Pass |
| 198 | Base peak, 100% relative abundance | 319075 | 100.0 | | Pass |
| 199 | 5.0 - 9.0% of mass 198 | 20914 | 6.55 | | Pass |
| 275 | 10.0 - 30.0% of mass 198 | 72909 | 22.9 | | Pass |
| 365 | 1.0 - 100.0% of mass 198 | 8007 | 2.51 | | Pass |
| 441 | Present, but less than mass 443 | 29848 | 9.35 | (77.3) [b] | Pass |
| 442 | 40.0 - 100.0% of mass 198 | 204928 | 64.2 | | Pass |
| 443 | 17.0 - 23.0% of mass 442 | 38637 | 12.1 | (18.9) [c] | Pass |

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

**This check applies to the following Samples, MS, MSD, Blanks, and Standards:**

| Lab Sample ID | Lab File ID | Date Analyzed | Time Analyzed | Hours Lapsed | Client Sample ID |
|---|---|---|---|---|---|
| E6P778-ICV776 | 6P17321.D | 07/01/15 | 22:20 | 00:12 | Initial cal verification 50 |

# Instrument Performance Check (DFTPP)



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

**Sample:** E6P791-DFTPP
**Lab File ID:** 6P17592.D
**Instrument ID:** GCMS6P
**Injection Date:** 07/09/15
**Injection Time:** 22:37

| m/e | Ion Abundance Criteria | Raw Abundance | % Relative Abundance | | Pass/Fail |
|---|---|---|---|---|---|
| 51 | 30.0 - 60.0% of mass 198 | 422663 | 51.0 | | Pass |
| 68 | Less than 2.0% of mass 69 | 4914 | 0.59 | (1.22) [a] | Pass |
| 69 | Mass 69 relative abundance | 401358 | 48.4 | | Pass |
| 70 | Less than 2.0% of mass 69 | 1453 | 0.18 | (0.36) [a] | Pass |
| 127 | 40.0 - 60.0% of mass 198 | 389359 | 47.0 | | Pass |
| 197 | Less than 1.0% of mass 198 | 0 | 0.00 | | Pass |
| 198 | Base peak, 100% relative abundance | 828437 | 100.0 | | Pass |
| 199 | 5.0 - 9.0% of mass 198 | 52705 | 6.36 | | Pass |
| 275 | 10.0 - 30.0% of mass 198 | 188349 | 22.7 | | Pass |
| 365 | 1.0 - 100.0% of mass 198 | 18967 | 2.29 | | Pass |
| 441 | Present, but less than mass 443 | 79731 | 9.62 | (80.4) [b] | Pass |
| 442 | 40.0 - 100.0% of mass 198 | 519957 | 62.8 | | Pass |
| 443 | 17.0 - 23.0% of mass 442 | 99171 | 12.0 | (19.1) [c] | Pass |

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

**This check applies to the following Samples, MS, MSD, Blanks, and Standards:**

| Lab Sample ID | Lab File ID | Date Analyzed | Time Analyzed | Hours Lapsed | Client Sample ID |
|---|---|---|---|---|---|
| E6P791-CC776 | 6P17593.D | 07/09/15 | 22:50 | 00:13 | Continuing cal 50 |
| E6P791-CC777 | 6P17594.D | 07/09/15 | 23:16 | 00:39 | Continuing cal 50 |
| OP85388-BS1 | 6P17596.D | 07/10/15 | 00:14 | 01:37 | Blank Spike |
| JB98590-9 | 6P17597.D | 07/10/15 | 03:17 | 04:40 | MW-457-20150707 |
| JB98590-10 | 6P17598.D | 07/10/15 | 03:43 | 05:06 | MW-471-20150707 |
| JB98590-11 | 6P17599.D | 07/10/15 | 04:09 | 05:32 | MW-479-20150707 |
| JB98590-12 | 6P17600.D | 07/10/15 | 04:36 | 05:59 | MW-478-20150707 |
| JB98590-13 | 6P17601.D | 07/10/15 | 05:02 | 06:25 | MW-468-20150707 |
| JB98590-14 | 6P17602.D | 07/10/15 | 05:28 | 06:51 | MW-469-20150707 |
| JB98590-15 | 6P17603.D | 07/10/15 | 05:54 | 07:17 | MW-464-20150707 |
| JB98590-16 | 6P17604.D | 07/10/15 | 06:20 | 07:43 | MW-461-20150707 |
| JB98590-17 | 6P17605.D | 07/10/15 | 06:47 | 08:10 | MW-448-20150707 |
| JB98590-18 | 6P17606.D | 07/10/15 | 07:13 | 08:36 | MW-468-DUP20150707 |
| JB98590-1 | 6P17607.D | 07/10/15 | 07:39 | 09:02 | MW-440-20150706 |
| JB98590-2 | 6P17608.D | 07/10/15 | 08:05 | 09:28 | MW-447-20150706 |
| JB98590-3 | 6P17609.D | 07/10/15 | 08:31 | 09:54 | MW-453-20150706 |
| JB98590-4 | 6P17610.D | 07/10/15 | 08:57 | 10:20 | FB-20150706 |
| OP85388-MS | 6P17611.D | 07/10/15 | 09:24 | 10:47 | Matrix Spike |
| OP85388-MSD | 6P17612.D | 07/10/15 | 09:50 | 11:13 | Matrix Spike Duplicate |

# Instrument Performance Check (DFTPP)



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

**Sample:** E6P792-DFTPP
**Lab File ID:** 6P17619.D
**Instrument ID:** GCMS6P
**Injection Date:** 07/10/15
**Injection Time:** 12:15

| m/e | Ion Abundance Criteria | Raw Abundance | % Relative Abundance | | Pass/Fail |
|---|---|---|---|---|---|
| 51 | 30.0 - 60.0% of mass 198 | 325210 | 46.3 | | Pass |
| 68 | Less than 2.0% of mass 69 | 2617 | 0.37 | (0.84) [a] | Pass |
| 69 | Mass 69 relative abundance | 312103 | 44.5 | | Pass |
| 70 | Less than 2.0% of mass 69 | 1429 | 0.20 | (0.46) [a] | Pass |
| 127 | 40.0 - 60.0% of mass 198 | 310992 | 44.3 | | Pass |
| 197 | Less than 1.0% of mass 198 | 0 | 0.00 | | Pass |
| 198 | Base peak, 100% relative abundance | 701904 | 100.0 | | Pass |
| 199 | 5.0 - 9.0% of mass 198 | 49933 | 7.11 | | Pass |
| 275 | 10.0 - 30.0% of mass 198 | 167397 | 23.8 | | Pass |
| 365 | 1.0 - 100.0% of mass 198 | 16558 | 2.36 | | Pass |
| 441 | Present, but less than mass 443 | 76216 | 10.9 | (76.8) [b] | Pass |
| 442 | 40.0 - 100.0% of mass 198 | 517291 | 73.7 | | Pass |
| 443 | 17.0 - 23.0% of mass 442 | 99264 | 14.1 | (19.2) [c] | Pass |

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

**This check applies to the following Samples, MS, MSD, Blanks, and Standards:**

| Lab Sample ID | Lab File ID | Date Analyzed | Time Analyzed | Hours Lapsed | Client Sample ID |
|---|---|---|---|---|---|
| E6P792-CC776 | 6P17620.D | 07/10/15 | 12:37 | 00:22 | Continuing cal 25 |
| E6P792-CC777 | 6P17621.D | 07/10/15 | 13:03 | 00:48 | Continuing cal 25 |
| OP85388-MB1 | 6P17625A.D | 07/10/15 | 15:15 | 03:00 | Method Blank |
| ZZZZZZ | 6P17626A.D | 07/10/15 | 15:41 | 03:26 | (unrelated sample) |
| ZZZZZZ | 6P17627.D | 07/10/15 | 16:07 | 03:52 | (unrelated sample) |
| JB98590-5 | 6P17628.D | 07/10/15 | 16:33 | 04:18 | MW-444-20150706 |
| JB98590-6 | 6P17629.D | 07/10/15 | 17:00 | 04:45 | MW-446-20150706 |
| JB98590-7 | 6P17630.D | 07/10/15 | 17:26 | 05:11 | MW-450-20150706 |
| JB98590-13 | 6P17631.D | 07/10/15 | 17:52 | 05:37 | MW-468-20150707 |
| JB98590-18 | 6P17632.D | 07/10/15 | 18:18 | 06:03 | MW-468-DUP20150707 |

# Semivolatile Internal Standard Area Summary



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

| | | | |
|---|---|---|---|
| **Check Std:** | E3M2590-CC2536 | **Injection Date:** | 07/10/15 |
| **Lab File ID:** | 3M56146.D | **Injection Time:** | 17:12 |
| **Instrument ID:** | GCMS3M | **Method:** | SW846 8270D BY SIM |

| | IS 1 AREA | RT | IS 2 AREA | RT | IS 3 AREA | RT | IS 4 AREA | RT |
|---|---|---|---|---|---|---|---|---|
| Check Std | 99994 | 9.48 | 168076 | 12.47 | 244186 | 16.69 | 202329 | 21.33 |
| Upper Limit [a] | 199988 | 9.98 | 336152 | 12.97 | 488372 | 17.19 | 404658 | 21.83 |
| Lower Limit [b] | 49997 | 8.98 | 84038 | 11.97 | 122093 | 16.19 | 101165 | 20.83 |

| Lab Sample ID | IS 1 AREA | RT | IS 2 AREA | RT | IS 3 AREA | RT | IS 4 AREA | RT |
|---|---|---|---|---|---|---|---|---|
| OP85388A-MB1 | 114436 | 9.48 | 181133 | 12.47 | 255329 | 16.69 | 211402 | 21.31 |
| JB98590-9 | 117045 | 9.48 | 173324 | 12.47 | 234328 | 16.69 | 208916 | 21.33 |
| JB98590-11 | 118615 | 9.48 | 181367 | 12.47 | 251523 | 16.69 | 209695 | 21.31 |
| JB98590-12 | 114416 | 9.48 | 174365 | 12.47 | 237321 | 16.69 | 198410 | 21.31 |
| JB98590-13 | 118821 | 9.50 | 172552 | 12.47 | 232430 | 16.69 | 200125 | 21.33 |
| JB98590-14 | 111773 | 9.48 | 175287 | 12.47 | 251054 | 16.69 | 207925 | 21.31 |
| JB98590-15 | 113703 | 9.48 | 178402 | 12.47 | 252390 | 16.69 | 208660 | 21.31 |
| OP85400A-MB1 | 100391 | 9.48 | 154595 | 12.47 | 217498 | 16.69 | 176966 | 21.31 |
| OP85400A-BS12 | 98052 | 9.48 | 161784 | 12.45 | 229137 | 16.69 | 187585 | 21.31 |
| OP85400A-MS | 110392 | 9.48 | 178239 | 12.45 | 249924 | 16.69 | 207781 | 21.31 |
| OP85400A-MSD | 99697 | 9.48 | 162957 | 12.45 | 226314 | 16.69 | 188446 | 21.31 |
| ZZZZZZ | 115150 | 9.48 | 185624 | 12.45 | 255379 | 16.69 | 208767 | 21.31 |
| JB98629-1 | 100629 | 9.48 | 153464 | 12.45 | 221471 | 16.69 | 183516 | 21.31 |
| ZZZZZZ | 114495 | 9.48 | 176636 | 12.45 | 245699 | 16.69 | 208555 | 21.31 |
| ZZZZZZ | 116400 | 9.48 | 184446 | 12.45 | 253561 | 16.69 | 210573 | 21.31 |

**IS 1** = 1-Methylnaphthalene-d10
**IS 2** = Fluorene-d10
**IS 3** = Fluoranthene-d10
**IS 4** = Benzo(a)pyrene-d12

(a) Upper Limit = +100% of check standard area; Retention time +0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

# Semivolatile Internal Standard Area Summary



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

| | | | |
|---|---|---|---|
| **Check Std:** | E3M2591-CC2536 | **Injection Date:** | 07/11/15 |
| **Lab File ID:** | 3M56169.D | **Injection Time:** | 12:46 |
| **Instrument ID:** | GCMS3M | **Method:** | SW846 8270D BY SIM |

| | IS 1 AREA | RT | IS 2 AREA | RT | IS 3 AREA | RT | IS 4 AREA | RT |
|---|---|---|---|---|---|---|---|---|
| Check Std | 107959 | 9.46 | 169679 | 12.44 | 244860 | 16.66 | 192940 | 21.30 |
| Upper Limit [a] | 215918 | 9.96 | 339358 | 12.94 | 489720 | 17.16 | 385880 | 21.80 |
| Lower Limit [b] | 53980 | 8.96 | 84840 | 11.94 | 122430 | 16.16 | 96470 | 20.80 |

| Lab Sample ID | IS 1 AREA | RT | IS 2 AREA | RT | IS 3 AREA | RT | IS 4 AREA | RT |
|---|---|---|---|---|---|---|---|---|
| ZZZZZZ | 111948 | 9.46 | 176046 | 12.44 | 238455 | 16.67 | 193159 | 21.29 |
| ZZZZZZ | 118638 | 9.46 | 174392 | 12.44 | 242005 | 16.67 | 196235 | 21.30 |
| ZZZZZZ | 118218 | 9.46 | 183853 | 12.44 | 242046 | 16.67 | 195921 | 21.29 |
| ZZZZZZ | 128785 | 9.46 | 199919 | 12.44 | 270884 | 16.67 | 218080 | 21.29 |
| ZZZZZZ | 117196 | 9.46 | 178893 | 12.44 | 239039 | 16.67 | 195750 | 21.29 |
| ZZZZZZ | 129466 | 9.46 | 203686 | 12.44 | 264173 | 16.67 | 215480 | 21.29 |
| OP85421A-MB1 | 125775 | 9.46 | 196510 | 12.44 | 258705 | 16.67 | 217283 | 21.29 |
| ZZZZZZ | 122829 | 9.46 | 188674 | 12.44 | 252448 | 16.67 | 207884 | 21.29 |
| ZZZZZZ | 120486 | 9.46 | 178219 | 12.44 | 240299 | 16.67 | 197383 | 21.30 |
| JB98590-10 | 120217 | 9.46 | 183128 | 12.44 | 236002 | 16.67 | 182582 | 21.30 |
| JB98590-16 | 108889 | 9.46 | 159488 | 12.44 | 218616 | 16.67 | 181483 | 21.30 |
| JB98590-17 | 108547 | 9.46 | 165682 | 12.44 | 231850 | 16.73 | 191566 | 21.30 |
| JB98590-18 [c] | 115720 | 9.48 | 151047 | 12.44 | 226580 | 16.67 | 185470 | 21.30 |

**IS 1** = 1-Methylnaphthalene-d10
**IS 2** = Fluorene-d10
**IS 3** = Fluoranthene-d10
**IS 4** = Benzo(a)pyrene-d12

(a) Upper Limit = +100% of check standard area; Retention time +0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.
(c) Dilution required due to matrix interference.

# Semivolatile Internal Standard Area Summary



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

| | | | |
|---|---|---|---|
| **Check Std:** | E4M2559-CC2526 | **Injection Date:** | 07/09/15 |
| **Lab File ID:** | 4M58907.D | **Injection Time:** | 20:14 |
| **Instrument ID:** | GCMS4M | **Method:** | SW846 8270D BY SIM |

| | IS 1 AREA | RT | IS 2 AREA | RT | IS 3 AREA | RT | IS 4 AREA | RT |
|---|---|---|---|---|---|---|---|---|
| Check Std | 108387 | 9.79 | 172681 | 12.73 | 285139 | 16.91 | 207749 | 21.49 |
| Upper Limit [a] | 216774 | 10.29 | 345362 | 13.23 | 570278 | 17.41 | 415498 | 21.99 |
| Lower Limit [b] | 54194 | 9.29 | 86341 | 12.23 | 142570 | 16.41 | 103875 | 20.99 |

| Lab Sample ID | IS 1 AREA | RT | IS 2 AREA | RT | IS 3 AREA | RT | IS 4 AREA | RT |
|---|---|---|---|---|---|---|---|---|
| ZZZZZZ | 107124 | 9.79 | 170002 | 12.73 | 271871 | 16.91 | 183815 | 21.49 |
| ZZZZZZ | 130176 | 9.79 | 231288 | 12.73 | 355653 | 16.91 | 270940 | 21.49 |
| OP85388A-MB1 | 105189 | 9.77 | 192493 | 12.73 | 252934 | 16.89 | 193426 | 21.48 |
| OP85388A-BS12 | 108269 | 9.79 | 174659 | 12.73 | 278053 | 16.91 | 207280 | 21.49 |
| ZZZZZZ | 119500 | 9.79 | 201147 | 12.73 | 317122 | 16.91 | 226834 | 21.49 |
| ZZZZZZ | 142168 | 9.77 | 233955 | 12.73 | 347934 | 16.91 | 262592 | 21.48 |
| ZZZZZZ | 98164 | 9.77 | 166764 | 12.73 | 231219 | 16.91 | 176958 | 21.48 |
| ZZZZZZ | 111416 | 9.77 | 197184 | 12.73 | 269875 | 16.91 | 210475 | 21.48 |
| ZZZZZZ | 103345 | 9.77 | 186135 | 12.73 | 243722 | 16.89 | 185776 | 21.48 |
| ZZZZZZ | 98512 | 9.79 | 162242 | 12.73 | 254910 | 16.91 | 192453 | 21.48 |
| ZZZZZZ | 103119 | 9.77 | 172466 | 12.73 | 249382 | 16.91 | 188212 | 21.48 |
| ZZZZZZ | 90880 | 9.79 | 152974 | 12.73 | 240891 | 16.91 | 170877 | 21.49 |
| ZZZZZZ | 101430 | 9.77 | 178112 | 12.73 | 237637 | 16.89 | 171262 | 21.48 |
| JB98590-1 | 111186 | 9.79 | 177683 | 12.73 | 283434 | 16.91 | 217098 | 21.49 |
| JB98590-2 | 101188 | 9.79 | 152350 | 12.73 | 251319 | 16.91 | 191889 | 21.49 |
| JB98590-3 | 106072 | 9.77 | 343350 | 12.73 | 278191 | 16.91 | 211335 | 21.49 |
| JB98590-4 | 102022 | 9.77 | 177534 | 12.73 | 251440 | 16.91 | 194189 | 21.48 |
| JB98590-5 | 101433 | 9.79 | 227815 | 12.75 | 252915 | 16.91 | 195331 | 21.49 |
| JB98590-6 | 106593 | 9.79 | 166456 | 12.75 | 263503 | 16.91 | 196712 | 21.49 |
| JB98590-7 | 96623 | 9.79 | 154321 | 12.75 | 244978 | 16.91 | 184845 | 21.49 |
| OP85388A-MS | 104099 | 9.79 | 166026 | 12.75 | 259043 | 16.91 | 192270 | 21.49 |
| OP85388A-MSD | 99301 | 9.79 | 157347 | 12.75 | 239323 | 16.91 | 176385 | 21.49 |

**IS 1** = 1-Methylnaphthalene-d10
**IS 2** = Fluorene-d10
**IS 3** = Fluoranthene-d10
**IS 4** = Benzo(a)pyrene-d12

(a) Upper Limit = +100% of check standard area; Retention time +0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

# Semivolatile Internal Standard Area Summary



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

| | | | |
|---|---|---|---|
| **Check Std:** | E6P791-CC776 | **Injection Date:** | 07/09/15 |
| **Lab File ID:** | 6P17593.D | **Injection Time:** | 22:50 |
| **Instrument ID:** | GCMS6P | **Method:** | SW846 8270D |

| | IS 1 AREA | RT | IS 2 AREA | RT | IS 3 AREA | RT | IS 4 AREA | RT | IS 5 AREA | RT | IS 6 AREA | RT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Check Std | 623095 | 4.49 | 2403411 | 5.56 | 1525653 | 7.60 | 2559980 | 9.76 | 2512351 | 13.95 | 2499712 | 16.07 |
| Upper Limit [a] | 1246190 | 4.99 | 4806822 | 6.06 | 3051306 | 8.10 | 5119960 | 10.26 | 5024702 | 14.45 | 4999424 | 16.57 |
| Lower Limit [b] | 311548 | 3.99 | 1201706 | 5.06 | 762827 | 7.10 | 1279990 | 9.26 | 1256176 | 13.45 | 1249856 | 15.57 |

| Lab Sample ID | IS 1 AREA | RT | IS 2 AREA | RT | IS 3 AREA | RT | IS 4 AREA | RT | IS 5 AREA | RT | IS 6 AREA | RT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OP85388-BS1 | 610547 | 4.49 | 2351326 | 5.56 | 1436749 | 7.60 | 2349779 | 9.76 | 2105669 | 13.95 | 1871646 | 16.07 |
| JB98590-9 | 591884 | 4.49 | 2291515 | 5.56 | 1404683 | 7.59 | 2326243 | 9.76 | 2259134 | 13.95 | 2003481 | 16.07 |
| JB98590-10 | 578996 | 4.49 | 2245519 | 5.56 | 1400295 | 7.59 | 2329143 | 9.76 | 2221056 | 13.95 | 1925790 | 16.07 |
| JB98590-11 | 570043 | 4.49 | 2194284 | 5.56 | 1360300 | 7.59 | 2271950 | 9.76 | 2164641 | 13.95 | 1969501 | 16.06 |
| JB98590-12 | 411957 | 4.49 | 1602684 | 5.56 | 1014870 | 7.59 | 1711590 | 9.75 | 1626796 | 13.94 | 1420910 | 16.06 |
| JB98590-13 | 578862 | 4.49 | 2191477 | 5.56 | 1400486 | 7.60 | 2347941 | 9.76 | 2234385 | 13.95 | 2067959 | 16.07 |
| JB98590-14 | 561791 | 4.49 | 2161883 | 5.55 | 1351684 | 7.59 | 2216602 | 9.75 | 2129201 | 13.94 | 1925510 | 16.06 |
| JB98590-15 | 570504 | 4.49 | 2220364 | 5.56 | 1390253 | 7.59 | 2320955 | 9.75 | 2225067 | 13.95 | 2028470 | 16.06 |
| JB98590-16 | 543677 | 4.49 | 2048883 | 5.55 | 1289790 | 7.59 | 2150984 | 9.75 | 2066619 | 13.95 | 1826304 | 16.06 |
| JB98590-17 | 569104 | 4.49 | 2175326 | 5.55 | 1338370 | 7.59 | 2232593 | 9.75 | 2115395 | 13.95 | 1897106 | 16.06 |
| JB98590-18 | 620065 | 4.51 | 1601010 | 5.60 | 1260021 | 7.61 | 2189026 | 9.76 | 2114369 | 13.95 | 1907480 | 16.07 |
| JB98590-1 | 574872 | 4.49 | 2218861 | 5.55 | 1422011 | 7.59 | 2372264 | 9.76 | 2278838 | 13.95 | 2122951 | 16.07 |
| JB98590-2 | 609194 | 4.49 | 2374299 | 5.55 | 1508327 | 7.59 | 2509610 | 9.76 | 2378001 | 13.95 | 2147217 | 16.07 |
| JB98590-3 | 623873 | 4.49 | 2329855 | 5.56 | 1447935 | 7.59 | 2353065 | 9.76 | 2267079 | 13.95 | 2081944 | 16.08 |
| JB98590-4 | 595768 | 4.49 | 2293406 | 5.55 | 1473171 | 7.59 | 2440565 | 9.76 | 2313743 | 13.95 | 2131364 | 16.07 |
| OP85388-MS | 590250 | 4.49 | 2233968 | 5.56 | 1328885 | 7.59 | 2118221 | 9.76 | 1894803 | 13.95 | 1693375 | 16.07 |
| OP85388-MSD | 618767 | 4.49 | 2284146 | 5.56 | 1377525 | 7.59 | 2171775 | 9.76 | 1958932 | 13.95 | 1732645 | 16.07 |

**IS 1** = 1,4-Dichlorobenzene-d4
**IS 2** = Naphthalene-d8
**IS 3** = Acenaphthene-D10
**IS 4** = Phenanthrene-d10
**IS 5** = Chrysene-d12
**IS 6** = Perylene-d12

(a) Upper Limit = +100% of check standard area; Retention time +0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

# Semivolatile Internal Standard Area Summary



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

| | | | |
|---|---|---|---|
| **Check Std:** | E6P792-CC776 | **Injection Date:** | 07/10/15 |
| **Lab File ID:** | 6P17620.D | **Injection Time:** | 12:37 |
| **Instrument ID:** | GCMS6P | **Method:** | SW846 8270D |

| | IS 1 AREA | RT | IS 2 AREA | RT | IS 3 AREA | RT | IS 4 AREA | RT | IS 5 AREA | RT | IS 6 AREA | RT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Check Std | 687175 | 4.48 | 2658762 | 5.55 | 1722693 | 7.59 | 2888361 | 9.75 | 2831053 | 13.94 | 2783897 | 16.06 |
| Upper Limit [a] | 1374350 | 4.98 | 5317524 | 6.05 | 3445386 | 8.09 | 5776722 | 10.25 | 5662106 | 14.44 | 5567794 | 16.56 |
| Lower Limit [b] | 343588 | 3.98 | 1329381 | 5.05 | 861347 | 7.09 | 1444181 | 9.25 | 1415527 | 13.44 | 1391949 | 15.56 |

| Lab Sample ID | IS 1 AREA | RT | IS 2 AREA | RT | IS 3 AREA | RT | IS 4 AREA | RT | IS 5 AREA | RT | IS 6 AREA | RT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OP85388-MB1 | 641765 | 4.48 | 2492241 | 5.55 | 1586307 | 7.58 | 2656413 | 9.75 | 2574681 | 13.93 | 2290007 | 16.06 |
| ZZZZZZ | 604691 | 4.48 | 2394368 | 5.55 | 1532829 | 7.58 | 2569933 | 9.75 | 2462958 | 13.93 | 2211686 | 16.05 |
| ZZZZZZ | 640054 | 4.48 | 2498769 | 5.55 | 1597351 | 7.58 | 2680824 | 9.75 | 2577814 | 13.93 | 2305899 | 16.06 |
| JB98590-5 | 578149 | 4.48 | 2264483 | 5.55 | 1462657 | 7.59 | 2410500 | 9.75 | 2346019 | 13.93 | 2093991 | 16.06 |
| JB98590-6 | 613540 | 4.48 | 2414554 | 5.55 | 1558205 | 7.59 | 2600730 | 9.75 | 2515701 | 13.94 | 2230060 | 16.06 |
| JB98590-7 | 595243 | 4.49 | 2339924 | 5.55 | 1517703 | 7.59 | 2564911 | 9.75 | 2507895 | 13.93 | 2247484 | 16.06 |
| JB98590-13 | 633691 | 4.49 | 2552211 | 5.55 | 1613135 | 7.59 | 2706826 | 9.75 | 2618962 | 13.93 | 2318098 | 16.06 |
| JB98590-18 | 592102 | 4.49 | 2233775 | 5.55 | 1486511 | 7.59 | 2490111 | 9.75 | 2433540 | 13.93 | 2157740 | 16.06 |

**IS 1** = 1,4-Dichlorobenzene-d4
**IS 2** = Naphthalene-d8
**IS 3** = Acenaphthene-D10
**IS 4** = Phenanthrene-d10
**IS 5** = Chrysene-d12
**IS 6** = Perylene-d12

(a) Upper Limit = +100% of check standard area; Retention time +0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

# Semivolatile Surrogate Recovery Summary



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

**Method:** SW846 8270D **Matrix:** AQ

**Samples and QC shown here apply to the above method**

| Lab Sample ID | Lab File ID | S1 | S2 | S3 | S4 | S5 | S6 |
|---|---|---|---|---|---|---|---|
| JB98590-1 | 6P17607.D | 45 | 30 | 78 | 79 | 74 | 74 |
| JB98590-2 | 6P17608.D | 48 | 30 | 82 | 90 | 83 | 68 |
| JB98590-3 | 6P17609.D | 49 | 33 | 91 | 97 | 88 | 58 |
| JB98590-4 | 6P17610.D | 51 | 34 | 83 | 94 | 85 | 81 |
| JB98590-5 | 6P17628.D | 57 | 39 | 83 | 88 | 67 | 42 |
| JB98590-6 | 6P17629.D | 53 | 37 | 90 | 92 | 85 | 88 |
| JB98590-7 | 6P17630.D | 41 | 29 | 80 | 83 | 72 | 69 |
| JB98590-9 | 6P17597.D | 46 | 31 | 93 | 93 | 90 | 77 |
| JB98590-10 | 6P17598.D | 45 | 33 | 60 | 100 | 86 | 36 |
| JB98590-11 | 6P17599.D | 52 | 38 | 77 | 100 | 93 | 96 |
| JB98590-12 | 6P17600.D | 44 | 31 | 73 | 91 | 80 | 85 |
| JB98590-13 | 6P17631.D | 56 | 41 | 89 | 116 | 92 | 88 |
| JB98590-13 | 6P17601.D | 61 | 39 | 96 | 119 | 93 | 97 |
| JB98590-14 | 6P17602.D | 54 | 37 | 91 | 93 | 88 | 58 |
| JB98590-15 | 6P17603.D | 61 | 39 | 96 | 102 | 95 | 70 |
| JB98590-16 | 6P17604.D | 55 | 36 | 91 | 97 | 85 | 61 |
| JB98590-17 | 6P17605.D | 55 | 37 | 97 | 99 | 94 | 112 |
| JB98590-18 | 6P17632.D | 40 | 12 | 65 | 42 | 83 | 87 |
| JB98590-18 | 6P17606.D | 31 | 30 | 73 | 265* [a] | 69 | 88 |
| OP85388-BS1 | 6P17596.D | 68 | 46 | 93 | 105 | 99 | 118 |
| OP85388-MB1 | 6P17625A.D | 38 | 25 | 60 | 65 | 61 | 76 |
| OP85388-MS | 6P17611.D | 84 | 69 | 100 | 105 | 101 | 119 |
| OP85388-MSD | 6P17612.D | 85 | 72 | 98 | 104 | 99 | 119 |

| Surrogate Compounds | Recovery Limits |
|---|---|
| **S1** = 2-Fluorophenol | 12-110% |
| **S2** = Phenol-d5 | 10-110% |
| **S3** = 2,4,6-Tribromophenol | 42-154% |
| **S4** = Nitrobenzene-d5 | 29-139% |
| **S5** = 2-Fluorobiphenyl | 33-129% |
| **S6** = Terphenyl-d14 | 10-140% |

(a) Outside control limits due to matrix interference.

# Semivolatile Surrogate Recovery Summary



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

**Method:** SW846 8270D BY SIM **Matrix:** AQ

**Samples and QC shown here apply to the above method**

| Lab Sample ID | Lab File ID | S1 | S2 | S3 |
|---|---|---|---|---|
| JB98590-1 | 4M58921.D | 51 | 63 | 60 |
| JB98590-2 | 4M58922.D | 56 | 67 | 60 |
| JB98590-3 | 4M58923.D | 63 | 77 | 51 |
| JB98590-4 | 4M58924.D | 58 | 73 | 74 |
| JB98590-5 | 4M58925.D | 55 | 55 | 37 |
| JB98590-6 | 4M58926.D | 55 | 66 | 69 |
| JB98590-7 | 4M58927.D | 52 | 61 | 57 |
| JB98590-9 | 3M56148.D | 66 | 69 | 55 |
| JB98590-10 | 3M56175.D | 66 | 58 | 27 |
| JB98590-11 | 3M56150.D | 67 | 68 | 61 |
| JB98590-12 | 3M56151.D | 62 | 60 | 57 |
| JB98590-13 | 3M56152.D | 68 | 70 | 68 |
| JB98590-14 | 3M56153.D | 65 | 65 | 40 |
| JB98590-15 | 3M56154.D | 71 | 72 | 48 |
| JB98590-16 | 3M56176.D | 68 | 62 | 42 |
| JB98590-17 | 3M56177.D | 70 | 66 | 76 |
| JB98590-18 | 3M56178.D | 102 | 67 | 72 |
| OP85388A-BS12 | 4M58920.D | 61 | 71 | 77 |
| OP85388A-MB1 | 4M58919.D | 42 | 53 | 67 |
| OP85388A-MB1 | 3M56147.D | 48 | 48 | 52 |
| OP85388A-MS | 4M58928.D | 59 | 72 | 76 |
| OP85388A-MSD | 4M58929.D | 50 | 61 | 66 |

| Surrogate Compounds | Recovery Limits |
|---|---|
| **S1** = Nitrobenzene-d5 | 23-131% |
| **S2** = 2-Fluorobiphenyl | 24-120% |
| **S3** = Terphenyl-d14 | 10-125% |

# Initial Calibration Summary

**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

**Sample:** E3M2536-ICC2536
**Lab FileID:** 3M55094A.D

Response Factor Report MS3M

```
Method       : C:\MSDCHEM\1\METHODS\M3M2536SIM.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Wed May 27 10:46:43 2015
Response via : Initial Calibration

Calibration Files
2.5 =3m55097.D   1.0 =3m55094a.D  0.5 =3m55095.D   0.2 =3m55098.D
0.1 =3m55099.D   0.05=3m55100.D   0.02=3m55101.D   0.01=3m55102.D
5   =3m55096.D       =                =                =

Compound
        2.5   1.0   0.5   0.2   0.1   0.05  0.02  0.01  5            Avg   %RSD
-------------------------------------------------------------------------------

1) I   1-Methylnaphthalene-d ----------------ISTD---------------------
2)  1,4-dioxane
     0.323 0.367 0.364 0.415 0.327 0.353             0.291        0.349   11.38
3)  2-Fluorophenol
     0.413 0.505 0.553 0.682 0.615 0.657 0.692 0.690              0.601   17.01
4)  Phenol-d5
     0.604 0.741 0.818 1.013 0.922 0.991 1.034 1.062              0.898   18.11
5)  Phenol
     0.727 0.825 0.854 1.000 0.913 0.994 1.049 1.084 0.646        0.899   16.57
6)  bis(2-Chloroethyl)ether
     0.668 0.747 0.762 0.849 0.704 0.740 0.754 0.788 0.602        0.735    9.62
7)  Nitrobenzene-d5
     0.548 0.683 0.744 0.901 0.811 0.874 0.901 0.915              0.797   16.38
8)  Naphthalene
     2.330 2.826 2.961 3.405 2.892 3.080 3.157 3.254 2.019        2.880   15.46
9)  Hexachlorobutadiene
     0.393 0.443 0.456 0.516 0.434 0.467 0.483       0.356        0.444   11.37
10)  2-Methylnaphthalene
     1.297 1.490 1.633 1.919 1.632 1.737 1.817 1.774 1.110        1.601   16.28
11)  1-Methylnaphthalene
     1.226 1.422 1.477 1.726 1.445 1.501 1.490 1.570 1.065        1.436   13.33
12)  Hexachlorocyclopentadiene
     0.361 0.333 0.271 0.212 0.098                   0.357        0.272   37.69
        ----- Quadratic regression -----                Coefficient =  0.9998
             Response Ratio = -0.01931 + 0.38091 *A + -0.00642 *A^2


13) I   Fluorene-d10          ----------------ISTD---------------------
14)  2-Fluorobiphenyl
     0.654 0.835 1.014 1.299 1.236 1.390                          1.072   26.83
15)  Acenaphthylene
     1.571 1.883 2.139 2.430 2.058 2.197 2.187 2.233 1.291        1.999   18.00
16)  Acenaphthene
     0.911 1.102 1.254 1.476 1.283 1.409                          1.239   16.68
17)  4,6-dinitro-2-methylphenol
     0.167 0.154 0.123 0.104 0.059                   0.164        0.129   32.72
        ----- Quadratic regression -----                Coefficient =  0.9997
             Response Ratio = -0.02218 + 0.17774 *A + -0.00161 *A^2

18)  Fluorene
     1.045 1.182 1.289 1.395 1.167 1.251 1.214 1.309 0.907        1.196   12.25
19)  2,4,6-Tribromophenol
     0.129 0.150 0.173 0.199 0.159 0.165 0.167 0.169 0.101        0.157   17.95
```

# Initial Calibration Summary

**Job Number:** JB98590 **Sample:** E3M2536-ICC2536
**Account:** SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 3M55094A.D
**Project:** Sunoco - Marcus Hook Facility, PA

```
20) I   Fluoranthene-d10      ----------------ISTD--------------------
21)  Hexachlorobenzene
      0.285 0.313 0.344 0.389 0.343 0.352 0.349 0.396 0.245        0.335   14.24
22)  Pentachlorophenol
      0.149 0.159 0.136 0.104 0.055 0.041             0.136        0.111   41.84
         ----- Quadratic regression -----                Coefficient =  0.9998
              Response Ratio = -0.01297 + 0.16958 *A + -0.00501 *A^2

23)  Phenanthrene
      1.179 1.356 1.492 1.751 1.527 1.626 1.692 1.912 1.003        1.504   19.05
24)  Anthracene
      1.119 1.242 1.353 1.547 1.385 1.475 1.568 1.725 0.995        1.379   16.75
25)  Fluoranthene
      1.119 1.255 1.319 1.468 1.245 1.285 1.579       0.993        1.283   14.33
26)  Pyrene
      1.296 1.499 1.600 1.808 1.558 1.677 1.807 2.112 1.091        1.605   18.65
27)  Terphenyl-d14
      0.434 0.533 0.623 0.811 0.741 0.836                          0.663   24.19
28)  Benzo[a]anthracene
      1.157 1.361 1.458 1.602 1.378 1.484 1.604       1.002        1.381   15.22
29)  Chrysene
      1.007 1.147 1.257 1.403 1.259 1.387             0.904        1.195   15.67

30) I   Benzo(a)pyrene-d12    ----------------ISTD--------------------
31)  Benzo[b]fluoranthene
      1.348 1.646 1.829 2.077 1.809 1.995             1.156        1.694   19.87
32)  Benzo[k]fluoranthene
      1.307 1.555 1.768 2.144 1.896 2.209                          1.813   19.07
33)  Benzo[a]pyrene
      1.182 1.340 1.457 1.455 1.254 1.334 1.500 1.750 1.022        1.366   15.26
34)  Indeno[1,2,3-cd]pyrene
      1.618 1.911 2.143 2.430 2.082 2.286             1.449        1.988   17.78
35)  Dibenz[a,h]anthracene
      1.243 1.467 1.675 1.920 1.619 1.733             1.146        1.543   17.84
36)  Benzo[g,h,i]perylene
      1.380 1.644 1.820 2.081 1.784 1.961 2.296                    1.852   16.09
-------------------------------------------------------------------------------
(#) = Out of Range  ###  Number of calibration levels exceeded format  ###

          M3M2536SIM.M        Wed May 27 13:42:09 2015   RPT1
```

8.7.1

8

# Initial Calibration Verification



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

**Sample:** E3M2536-ICV2536
**Lab FileID:** 3M55103.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E3M2536\3m55103.D          Vial: 11
Acq On    : 27 May 2015   2:11 am                    Operator: ashleyd
Sample    : icv2536-1.0                              Inst    : MS3M
Misc      : op83959a,e3m2536                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M3M2536SIM.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Wed May 27 10:46:43 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

| | | Compound | AvgRF | CCRF | %Dev | Area% | Dev(min) | R.T. |
|---|---|---|---|---|---|---|---|---|
| 1 | I | 1-Methylnaphthalene-d10 | 1.000 | 1.000 | 0.0 | 77 | 0.00 | 9.71 |
| 6 | t | bis(2-Chloroethyl)ether | 0.735 | 0.705 | 4.1 | 73 | 0.00 | 5.51 |
| 8 | t | Naphthalene | 2.880 | 2.571 | 10.7 | 70 | 0.00 | 8.24 |
| 9 | t | Hexachlorobutadiene | 0.444 | 0.402 | 9.5 | 70 | 0.00 | 8.54 |
| 10 | t | 2-Methylnaphthalene | 1.601 | 1.476 | 7.8 | 77 | 0.00 | 9.59 |
| 13 | I | Fluorene-d10 | 1.000 | 1.000 | 0.0 | 73 | 0.00 | 12.70 |
| 15 | t | Acenaphthylene | 1.999 | 1.657 | 17.1 | 65 | 0.00 | 11.36 |
| 16 | t | Acenaphthene | 1.239 | 1.071 | 13.6 | 71 | 0.00 | 11.71 |
| 18 | t | Fluorene | 1.196 | 1.068 | 10.7 | 66 | 0.02 | 12.76 |
| 20 | I | Fluoranthene-d10 | 1.000 | 1.000 | 0.0 | 77 | 0.00 | 16.90 |
| 21 | t | Hexachlorobenzene | 0.335 | 0.288 | 14.0 | 71 | 0.00 | 13.87 |
| 23 | t | Phenanthrene | 1.504 | 1.243 | 17.4 | 71 | 0.00 | 14.65 |
| 24 | t | Anthracene | 1.379 | 1.082 | 21.5 | 67 | 0.00 | 14.75 |
| 25 | t | Fluoranthene | 1.283 | 1.092 | 14.9 | 67 | 0.00 | 16.93 |
| 26 | t | Pyrene | 1.605 | 1.282 | 20.1 | 66 | 0.00 | 17.31 |
| 28 | t | Benzo[a]anthracene | 1.381 | 1.091 | 21.0 | 62 | 0.00 | 19.40 |
| 29 | t | Chrysene | 1.195 | 0.951 | 20.4 | 64 | 0.00 | 19.45 |
| 30 | I | Benzo(a)pyrene-d12 | 1.000 | 1.000 | 0.0 | 72 | 0.02 | 21.50 |
| 31 | t | Benzo[b]fluoranthene | 1.694 | 1.373 | 18.9 | 60 | 0.00 | 21.07 |
| 32 | t | Benzo[k]fluoranthene | 1.813 | 1.410 | 22.2 | 65 | 0.00 | 21.11 |
| 33 | t | Benzo[a]pyrene | 1.366 | 1.203 | 11.9 | 65 | 0.00 | 21.52 |
| 34 | t | Indeno[1,2,3-cd]pyrene | 1.988 | 1.678 | 15.6 | 63 | 0.00 | 23.02 |
| 35 | t | Dibenz[a,h]anthracene | 1.543 | 1.223 | 20.7 | 60 | 0.00 | 23.06 |
| 36 | t | Benzo[g,h,i]perylene | 1.852 | 1.454 | 21.5 | 64 | 0.00 | 23.42 |

(#) = Out of Range  SPCC's out = 0  CCC's out = 0
3m55094a.D M3M2536SIM.M  Wed May 27 11:33:58 2015  RPT1

# Initial Calibration Verification



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

**Sample:** E3M2536-ICV2536
**Lab FileID:** 3M55104.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E3M2536\3m55104.D          Vial: 12
Acq On    : 27 May 2015   2:42 am                    Operator: ashleyd
Sample    : icv2536-1.0                              Inst    : MS3M
Misc      : op83959a,e3m2536                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M3M2536SIM.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Wed May 27 10:46:43 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

| | | Compound | AvgRF | CCRF | %Dev | Area% | Dev(min) | R.T. |
|---|---|---|---|---|---|---|---|---|
| 1 | I | 1-Methylnaphthalene-d10 | 1.000 | 1.000 | 0.0 | 82 | 0.00 | 9.71 |
| 2 | t | 1,4-dioxane | 0.349 | 0.416 | -19.2 | 93 | 0.00 | 2.21 |
| 11 | t | 1-Methylnaphthalene | 1.436 | 1.525 | -6.2 | 88 | 0.00 | 9.77 |
| | | ---------- | True | Calc. | % Drift | ---------- | | |
| 12 | | Hexachlorocyclopentadiene | 2.000 | 1.994 | 0.3 | 74 | 0.00 | 9.96 |

```
(#) = Out of Range              SPCC's out = 0  CCC's out = 0
 3m55094a.D M3M2536SIM.M       Wed May 27 11:34:01 2015   RPT1
```

8.7.3

8

# Initial Calibration Verification



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

**Sample:** E3M2537-ICV2536
**Lab FileID:** 3M55107.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E3M2537\3m55107.D          Vial: 2
Acq On    : 27 May 2015  12:35 pm                     Operator: olgaa
Sample    : icv2536-1                                 Inst    : MS3M
Misc      : op83959a,e3m2537,                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M3M2536SIM.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Wed May 27 10:46:43 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

| | | Compound | AvgRF | CCRF | %Dev | Area% | Dev(min) | R.T. |
|---|---|---|---|---|---|---|---|---|
| 1 | I | 1-Methylnaphthalene-d10 | 1.000 | 1.000 | 0.0 | 154 | 0.00 | 9.71 |
| 5 | | Phenol | 0.899 | 0.830 | 7.7 | 155 | -0.01 | 5.38 |
| 13 | I | Fluorene-d10 | 1.000 | 1.000 | 0.0 | 147 | -0.02 | 12.68 |
| | | ---------- | True | Calc. | % Drift | ---------- | | |
| 17 | t | 4,6-dinitro-2-methylpheno | 5.000 | 4.338 | 13.2 | 128 | -0.04 | 12.89 |
| 20 | I | Fluoranthene-d10 | 1.000 | 1.000 | 0.0 | 157 | -0.02 | 16.88 |
| | | ---------- | True | Calc. | % Drift | ---------- | | |
| 22 | t | Pentachlorophenol | 5.000 | 4.955 | 0.9 | 150 | -0.06 | 14.27 |

```
(#) = Out of Range              SPCC's out = 0  CCC's out = 0
 3m55094a.D M3M2536SIM.M       Wed May 27 13:15:19 2015   RPT1
```

# Continuing Calibration Summary

**Job Number:** JB98590 **Sample:** E3M2590-CC2536
**Account:** SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 3M56146.D
**Project:** Sunoco - Marcus Hook Facility, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E3M2590\3m56146.D          Vial: 2
Acq On    : 10 Jul 2015   5:12 pm                     Operator: ashleyd
Sample    : cc2536-0.5                                Inst    : MS3M
Misc      : op85378a,e3m2590                          Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M3M2536SIM.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Wed May 27 10:46:43 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 200%
```

| | | Compound | AvgRF | CCRF | %Dev | Area% | Dev(min) | R.T. |
|---|---|---|---|---|---|---|---|---|
| 1 | I | 1-Methylnaphthalene-d10 | 1.000 | 1.000 | 0.0 | 120 | -0.23 | 9.48 |
| 2 | t | 1,4-dioxane | | ----------NA---------- | | | | |
| 3 | S | 2-Fluorophenol | 0.601 | 0.676 | -12.5 | 146 | -0.16 | 3.83 |
| 4 | S | Phenol-d5 | 0.898 | 0.932 | -3.8 | 137 | -0.15 | 5.22 |
| 5 | | Phenol | 0.899 | 0.975 | -8.5 | 137 | -0.15 | 5.24 |
| 6 | t | bis(2-Chloroethyl)ether | 0.735 | 0.834 | -13.5 | 131 | -0.22 | 5.29 |
| 7 | S | Nitrobenzene-d5 | 0.797 | 0.892 | -11.9 | 143 | -0.22 | 6.65 |
| 8 | t | Naphthalene | 2.880 | 3.461 | -20.2# | 140 | -0.23 | 8.01 |
| 9 | t | Hexachlorobutadiene | 0.444 | 0.554 | -24.8# | 145 | -0.25 | 8.30 |
| 10 | t | 2-Methylnaphthalene | 1.601 | 1.889 | -18.0 | 138 | -0.23 | 9.36 |
| 11 | t | 1-Methylnaphthalene | 1.436 | 1.953 | -36.0# | 158 | -0.23 | 9.55 |
| | | ---------- | True | Calc. | % Drift | ---------- | | |
| 12 | | Hexachlorocyclopentadiene | 1.000 | 0.634 | 36.6# | 72 | -0.25 | 9.71 |
| | | ---------- | AvgRF | CCRF | % Dev | ---------- | | |
| 13 | I | Fluorene-d10 | 1.000 | 1.000 | 0.0 | 137 | -0.23 | 12.47 |
| 14 | S | 2-Fluorobiphenyl | 1.072 | 1.114 | -3.9 | 151 | -0.23 | 10.13 |
| 15 | t | Acenaphthylene | 1.999 | 2.241 | -12.1 | 144 | -0.23 | 11.12 |
| 16 | t | Acenaphthene | 1.239 | 1.345 | -8.6 | 147 | -0.23 | 11.48 |
| | | ---------- | True | Calc. | % Drift | ---------- | | |
| 17 | t | 4,6-dinitro-2-methylpheno | 2.500 | 3.594 | -43.8# | 243 | -0.21 | 12.72 |
| | | ---------- | AvgRF | CCRF | % Dev | ---------- | | |
| 18 | t | Fluorene | 1.196 | 1.395 | -16.6 | 148 | -0.23 | 12.51 |
| 19 | S | 2,4,6-Tribromophenol | 0.157 | 0.200 | -27.4# | 158 | -0.23 | 13.02 |
| 20 | I | Fluoranthene-d10 | 1.000 | 1.000 | 0.0 | 139 | -0.20 | 16.69 |
| 21 | t | Hexachlorobenzene | 0.335 | 0.379 | -13.1 | 153 | -0.22 | 13.65 |
| | | ---------- | True | Calc. | % Drift | ---------- | | |
| 22 | t | Pentachlorophenol | 2.500 | 2.664 | -6.6 | 159 | -0.23 | 14.10 |
| | | ---------- | AvgRF | CCRF | % Dev | ---------- | | |
| 23 | t | Phenanthrene | 1.504 | 1.560 | -3.7 | 145 | -0.22 | 14.44 |
| 24 | t | Anthracene | 1.379 | 1.432 | -3.8 | 147 | -0.22 | 14.53 |
| 25 | t | Fluoranthene | 1.283 | 1.422 | -10.8 | 150 | -0.20 | 16.72 |
| 26 | t | Pyrene | 1.605 | 1.796 | -11.9 | 156 | -0.20 | 17.11 |
| 27 | S | Terphenyl-d14 | 0.663 | 0.651 | 1.8 | 145 | -0.19 | 17.50 |
| 28 | t | Benzo[a]anthracene | 1.381 | 1.703 | -23.3# | 162 | -0.19 | 19.21 |

# Continuing Calibration Summary

**Job Number:** JB98590 **Sample:** E3M2590-CC2536
**Account:** SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 3M56146.D
**Project:** Sunoco - Marcus Hook Facility, PA

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 29 | t | Chrysene | 1.195 | 1.470 | -23.0# | 162 | -0.17 | 19.27 |
| 30 | I | Benzo(a)pyrene-d12 | 1.000 | 1.000 | 0.0 | 138 | -0.16 | 21.33 |
| 31 | t | Benzo[b]fluoranthene | 1.694 | 1.987 | -17.3 | 150 | -0.17 | 20.89 |
| 32 | t | Benzo[k]fluoranthene | 1.813 | 1.679 | 7.4 | 131 | -0.19 | 20.93 |
| 33 | t | Benzo[a]pyrene | 1.366 | 1.519 | -11.2 | 144 | -0.17 | 21.34 |
| 34 | t | Indeno[1,2,3-cd]pyrene | 1.988 | 2.109 | -6.1 | 136 | -0.19 | 22.83 |
| 35 | t | Dibenz[a,h]anthracene | 1.543 | 1.727 | -11.9 | 143 | -0.19 | 22.87 |
| 36 | t | Benzo[g,h,i]perylene | 1.852 | 1.784 | 3.7 | 136 | -0.21 | 23.21 |

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3m55095.D M3M2536SIM.M Sat Jul 11 12:01:56 2015 RPT1

8.7.5

8

# Continuing Calibration Summary

**Job Number:** JB98590 **Sample:** E3M2591-CC2536
**Account:** SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 3M56169.D
**Project:** Sunoco - Marcus Hook Facility, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E3M2591\3m56169.D          Vial: 2
Acq On    : 11 Jul 2015  12:46 pm                    Operator: ashleyd
Sample    : cc2536-1.0                               Inst    : MS3M
Misc      : op85378a,e3m2591                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M3M2536SIM.M (RTE Integrator)
Title        : Semi Volatile Extractables by GC/MS
Last Update  : Sat Jul 11 13:10:48 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 200%
```

| | | Compound | AvgRF | CCRF | %Dev | Area% | Dev(min) | R.T. |
|---|---|---|---|---|---|---|---|---|
| 1 | I | 1-Methylnaphthalene-d10 | 1.000 | 1.000 | 0.0 | 134 | 0.00 | 9.46 |
| 2 | t | 1,4-dioxane | | ----------NA---------- | | | | |
| 3 | S | 2-Fluorophenol | 0.601 | 0.579 | 3.7 | 154 | 0.00 | 3.82 |
| 4 | S | Phenol-d5 | 0.898 | 0.807 | 10.1 | 146 | 0.00 | 5.22 |
| 5 | | Phenol | 0.899 | 0.932 | -3.7 | 152 | 0.00 | 5.23 |
| 6 | t | bis(2-Chloroethyl)ether | 0.735 | 0.767 | -4.4 | 138 | 0.00 | 5.28 |
| 7 | S | Nitrobenzene-d5 | 0.797 | 0.777 | 2.5 | 153 | 0.00 | 6.64 |
| 8 | t | Naphthalene | 2.880 | 3.123 | -8.4 | 148 | 0.00 | 7.99 |
| 9 | t | Hexachlorobutadiene | 0.444 | 0.509 | -14.6 | 154 | 0.00 | 8.28 |
| 10 | t | 2-Methylnaphthalene | 1.601 | 1.647 | -2.9 | 148 | 0.00 | 9.34 |
| 11 | t | 1-Methylnaphthalene | 1.436 | 1.697 | -18.2 | 160 | 0.00 | 9.52 |
| | | ---------- | True | Calc. | % Drift | ---------- | | |
| 12 | | Hexachlorocyclopentadiene | 2.000 | 0.917 | 54.1# | 55 | 0.00 | 9.69 |
| | | ---------- | AvgRF | CCRF | % Dev | ---------- | | |
| 13 | I | Fluorene-d10 | 1.000 | 1.000 | 0.0 | 132 | 0.00 | 12.44 |
| 14 | S | 2-Fluorobiphenyl | 1.072 | 0.987 | 7.9 | 156 | 0.00 | 10.12 |
| 15 | t | Acenaphthylene | 1.999 | 2.045 | -2.3 | 144 | 0.00 | 11.09 |
| 16 | t | Acenaphthene | 1.239 | 1.213 | 2.1 | 145 | 0.00 | 11.45 |
| | | ---------- | True | Calc. | % Drift | ---------- | | |
| 17 | t | 4,6-dinitro-2-methylpheno | 5.000 | 5.556 | -11.1 | 152 | 0.00 | 12.70 |
| | | ---------- | AvgRF | CCRF | % Dev | ---------- | | |
| 18 | t | Fluorene | 1.196 | 1.362 | -13.9 | 152 | 0.00 | 12.49 |
| 19 | S | 2,4,6-Tribromophenol | 0.157 | 0.161 | -2.5 | 142 | 0.00 | 13.00 |
| 20 | I | Fluoranthene-d10 | 1.000 | 1.000 | 0.0 | 137 | 0.00 | 16.66 |
| 21 | t | Hexachlorobenzene | 0.335 | 0.338 | -0.9 | 148 | 0.00 | 13.62 |
| | | ---------- | True | Calc. | % Drift | ---------- | | |
| 22 | t | Pentachlorophenol | 5.000 | 4.856 | 2.9 | 128 | 0.00 | 14.06 |
| | | ---------- | AvgRF | CCRF | % Dev | ---------- | | |
| 23 | t | Phenanthrene | 1.504 | 1.414 | 6.0 | 143 | 0.00 | 14.40 |
| 24 | t | Anthracene | 1.379 | 1.286 | 6.7 | 142 | 0.00 | 14.51 |
| 25 | t | Fluoranthene | 1.283 | 1.296 | -1.0 | 142 | 0.00 | 16.69 |
| 26 | t | Pyrene | 1.605 | 1.556 | 3.1 | 143 | 0.00 | 17.09 |
| 27 | S | Terphenyl-d14 | 0.663 | 0.564 | 14.9 | 145 | 0.00 | 17.46 |
| 28 | t | Benzo[a]anthracene | 1.381 | 1.435 | -3.9 | 145 | 0.00 | 19.18 |

# Continuing Calibration Summary

**Job Number:** JB98590 **Sample:** E3M2591-CC2536
**Account:** SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 3M56169.D
**Project:** Sunoco - Marcus Hook Facility, PA

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 29 | t | Chrysene | 1.195 | 1.217 | -1.8 | 146 | 0.00 | 19.24 |
| 30 | I | Benzo(a)pyrene-d12 | 1.000 | 1.000 | 0.0 | 128 | 0.00 | 21.30 |
| 31 | t | Benzo[b]fluoranthene | 1.694 | 1.742 | -2.8 | 135 | 0.00 | 20.86 |
| 32 | t | Benzo[k]fluoranthene | 1.813 | 1.533 | 15.4 | 126 | 0.00 | 20.91 |
| 33 | t | Benzo[a]pyrene | 1.366 | 1.402 | -2.6 | 134 | 0.00 | 21.31 |
| 34 | t | Indeno[1,2,3-cd]pyrene | 1.988 | 1.929 | 3.0 | 129 | 0.00 | 22.79 |
| 35 | t | Dibenz[a,h]anthracene | 1.543 | 1.533 | 0.6 | 133 | 0.00 | 22.83 |
| 36 | t | Benzo[g,h,i]perylene | 1.852 | 1.615 | 12.8 | 125 | 0.00 | 23.17 |

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3m55094a.D M3M2536SIM.M Sat Jul 11 13:44:20 2015 RPT1

8.7.6

8

# Initial Calibration Summary

**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA
**Sample:** E4M2526-ICC2526
**Lab FileID:** 4M58451.D

Response Factor Report GCMS4M

```
Method       : C:\MSDCHEM\1\METHODS\M4M2526SIM.M (RTE Integrator)
Title        : Semi Volatile  GC/MS,zb-5 15m x .25mm x .50um
Last Update  : Sat Jun 13 11:08:14 2015
Response via : Initial Calibration

Calibration Files
0.05=4m58455.D   .2  =4m58453.D   2.5 =4m58450a.D  .02 =4m58456.D
.1  =4m58454.D   1   =4m58451.D   .01 =4m58457.D   .5  =4m58452.D
5   =4m58449a.D      =                =                =
```

| Compound | 0.05 | .2 | 2.5 | .02 | .1 | 1 | .01 | .5 | 5 | Avg | %RSD |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1) I 1-Methylnaphthalene-d | ----------ISTD---------- | | | | | | | | | | |
| 2) 2-Fluorophenol | 0.729 | 0.734 | 0.482 | 0.737 | 0.713 | 0.588 | | 0.661 | 0.426 | 0.634 | 19.32 |
| 3) Phenol-d5 | 1.312 | 1.266 | 0.808 | | 1.256 | 0.986 | | 1.120 | | 1.125 | 17.41 |
| 4) Phenol | 1.471 | 1.562 | 1.022 | 1.427 | 1.462 | 1.254 | | 1.402 | 0.910 | 1.314 | 17.75 |
| 5) bis(2-Chloroethyl)ether | 1.282 | 1.331 | 0.886 | 1.250 | 1.244 | 1.075 | 1.406 | 1.207 | 0.794 | 1.164 | 17.66 |
| 6) Nitrobenzene-d5 | 1.208 | 1.229 | 0.794 | | 1.170 | 0.972 | | 1.111 | | 1.081 | 15.55 |
| 7) Naphthalene | 4.380 | 4.419 | 2.747 | | 4.275 | 3.462 | | 3.922 | | 3.868 | 16.98 |
| 8) Hexachlorobutadiene | 0.676 | 0.689 | 0.457 | | 0.614 | 0.556 | | 0.624 | 0.404 | 0.574 | 18.85 |
| 9) 2-Methylnaphthalene | | 1.996 | 1.404 | | 1.598 | 1.690 | | 1.864 | 1.233 | 1.631 | 17.38 |
| 10) Hexachlorocyclopentadiene | | 0.266 | 0.299 | | 0.171 | 0.284 | | 0.280 | 0.274 | 0.262 | 17.52 |
| 11) 2-Fluorobiphenyl | | 1.541 | 0.873 | | 1.707 | 1.142 | | 1.304 | | 1.313 | 24.96 |
| 12) I Fluorene-d10 | | | | | ----------ISTD---------- | | | | | | |
| 13) Acenaphthylene | 1.589 | 1.843 | 1.296 | 1.430 | 1.522 | 1.408 | | 1.688 | 1.143 | 1.490 | 14.85 |
| 14) Acenaphthene | 1.089 | 1.265 | 0.839 | | 0.938 | 0.935 | | 1.136 | 0.742 | 0.992 | 18.25 |
| 15) Dibenzofuran | 2.047 | 2.462 | 1.693 | | 1.835 | 1.769 | | 2.248 | 1.494 | 1.935 | 17.38 |
| 16) Fluorene | 1.562 | 1.690 | 1.257 | | 1.616 | 1.381 | | 1.613 | 1.094 | 1.459 | 15.12 |
| 17) 2,4,6-Tribromophenol | | 0.149 | 0.127 | | 0.119 | 0.123 | | 0.143 | 0.124 | 0.131 | 9.48 |
| 18) Hexachlorobenzene | 0.526 | 0.564 | 0.377 | 0.501 | 0.472 | 0.425 | 0.570 | 0.504 | 0.330 | 0.475 | 17.34 |
| 19) Pentachlorophenol | 0.080 | 0.137 | 0.201 | | 0.080 | 0.165 | | 0.164 | 0.195 | 0.146 | 34.17 |
| ----- Quadratic regression ----- Coefficient = 0.9989 | | | | | | | | | | | |
| Response Ratio = -0.01945 + 0.20393 *A + -0.00080 *A^2 | | | | | | | | | | | |
| 20) Phenanthrene | 2.358 | 2.597 | 1.731 | | 2.174 | 1.971 | | 2.356 | 1.527 | 2.102 | 18.06 |
| 21) Anthracene | 1.927 | 2.243 | 1.695 | | 1.791 | 1.787 | | 2.100 | 1.537 | 1.869 | 12.93 |

8.7.7

8

# Initial Calibration Summary

**Job Number:** JB98590 **Sample:** E4M2526-ICC2526
**Account:** SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 4M58451.D
**Project:** Sunoco - Marcus Hook Facility, PA

```
22) I   Fluoranthene-d10      ----------------ISTD---------------------
23)  Fluoranthene
      1.819 1.696 1.208       1.678 1.484       1.596 1.046        1.504   18.66
24)  Pyrene
      1.844 1.925 1.276       1.606 1.630       1.764 1.160        1.601   17.89
25)  Terphenyl-d14
            0.662 0.513       0.739 0.543       0.591 0.447        0.583   18.11
26)  Benzo[a]anthracene
      1.259 1.247 0.970       1.334 1.165       1.203 0.893        1.153   14.01
27)  Chrysene
      1.305 1.236 0.953       1.157 1.137       1.172 0.888        1.121   13.31

28) I   Benzo(a)pyrene-d12    ----------------ISTD---------------------
29)  Benzo[b]fluoranthene
      1.683 2.180 1.546       1.695 2.011       2.081 1.383        1.797   16.54
30)  Benzo[k]fluoranthene
            1.763 1.279       1.577 1.332       1.647 1.121        1.453   16.98
31)  Benzo[a]pyrene
      1.888 1.647 1.265       1.371 1.478       1.543 1.129        1.474   17.06
32)  Indeno[1,2,3-cd]pyrene
      1.665 2.041 1.659       1.706 1.824       2.023 1.519        1.777   11.03
33)  Dibenz[a,h]anthracene
      1.293 1.564 1.324       1.316 1.441       1.585 1.212        1.391   10.24
34)  Benzo[g,h,i]perylene
      1.516 1.787 1.400       1.439 1.560       1.702 1.274        1.525   11.59

35) I   1-Methylnaphthalene-d ----------------ISTD---------------------
36)  1,4-Dioxane
            0.501 0.315       0.661 0.379       0.429 0.276        0.427   32.77
         ----- Quadratic regression -----                Coefficient =  0.9996
              Response Ratio = 0.01002 + 0.33834 *A + -0.05631 *A^2

37)  1-Methylnaphthalene
      1.799 2.014 1.338 1.710 1.641 1.693       1.818 1.200        1.652   16.00

38) I   Fluorene-d10a         ----------------ISTD---------------------
39)  4,6-dinitro-2-methylphenol
            0.079 0.129       0.048 0.090       0.085 0.137        0.095   35.03
         ----- Quadratic regression -----                Coefficient =  0.9982
              Response Ratio = -0.01776 + 0.11874 *A + 0.00345 *A^2

40)  1,2-Diphenylhydrazine
            2.006 1.534       1.507 1.568       1.867 1.362        1.641   14.86
41)  n-nitrosodiphenylamine
            1.276 1.011       0.822 1.004       1.200 0.873        1.031   17.26
-------------------------------------------------------------------------------
(#) = Out of Range  ###  Number of calibration levels exceeded format  ###

          M4M2526SIM.M        Sat Jun 13 13:51:02 2015   MANAGER
```

8.7.7

8

# Initial Calibration Verification



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

**Sample:** E4M2526-ICV2526
**Lab FileID:** 4M58458.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E4M2526\4m58458.D          Vial: 11
Acq On    : 13 Jun 2015   3:29 am                    Operator: ashleyd
Sample    : icv2526-1.0                              Inst    : GCMS4M
Misc      : op84653a,e4m2526                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M4M2526SIM.M (RTE Integrator)
Title        : Semi Volatile  GC/MS,zb-5 15m x .25mm x .50um
Last Update  : Sat Jun 13 11:08:14 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

| | | Compound | AvgRF | CCRF | %Dev | Area% | Dev(min) | R.T. |
|---|---|---|---|---|---|---|---|---|
| 1 | I | 1-Methylnaphthalene-d10 | 1.000 | 1.000 | 0.0 | 90 | 0.00 | 10.09 |
| 5 | t | bis(2-Chloroethyl)ether | 1.164 | 1.024 | 12.0 | 85 | 0.00 | 5.88 |
| 7 | t | Naphthalene | 3.868 | 3.032 | 21.6 | 79 | 0.00 | 8.62 |
| 8 | t | Hexachlorobutadiene | 0.574 | 0.519 | 9.6 | 84 | 0.00 | 8.93 |
| 9 | t | 2-Methylnaphthalene | 1.631 | 1.519 | 6.9 | 81 | 0.00 | 9.97 |
| 12 | I | Fluorene-d10 | 1.000 | 1.000 | 0.0 | 82 | 0.00 | 13.06 |
| 13 | t | Acenaphthylene | 1.490 | 1.208 | 18.9 | 70 | 0.00 | 11.73 |
| 14 | t | Acenaphthene | 0.992 | 0.876 | 11.7 | 77 | 0.00 | 12.08 |
| 15 | t | Dibenzofuran | 1.935 | 1.725 | 10.9 | 80 | 0.00 | 12.44 |
| 16 | t | Fluorene | 1.459 | 1.228 | 15.8 | 73 | -0.02 | 13.11 |
| 18 | t | Hexachlorobenzene | 0.475 | 0.400 | 15.8 | 77 | 0.00 | 14.24 |
| | | ---------- | AvgRF | CCRF | % Dev | ---------- | | |
| 20 | t | Phenanthrene | 2.102 | 1.708 | 18.7 | 71 | 0.00 | 15.02 |
| 21 | t | Anthracene | 1.869 | 1.512 | 19.1 | 69 | 0.00 | 15.12 |
| 22 | I | Fluoranthene-d10 | 1.000 | 1.000 | 0.0 | 83 | 0.00 | 17.23 |
| 23 | t | Fluoranthene | 1.504 | 1.236 | 17.8 | 69 | 0.00 | 17.25 |
| 24 | t | Pyrene | 1.601 | 1.333 | 16.7 | 68 | 0.00 | 17.64 |
| 26 | t | Benzo[a]anthracene | 1.153 | 0.890 | 22.8 | 63 | 0.00 | 19.73 |
| 27 | t | Chrysene | 1.121 | 0.953 | 15.0 | 69 | 0.00 | 19.79 |
| 28 | I | Benzo(a)pyrene-d12 | 1.000 | 1.000 | 0.0 | 75 | 0.00 | 21.81 |
| 29 | t | Benzo[b]fluoranthene | 1.797 | 1.377 | 23.4 | 51 | 0.00 | 21.38 |
| 30 | t | Benzo[k]fluoranthene | 1.453 | 1.320 | 9.2 | 74 | 0.00 | 21.42 |
| 31 | t | Benzo[a]pyrene | 1.474 | 1.320 | 10.4 | 67 | 0.00 | 21.83 |
| 32 | t | Indeno[1,2,3-cd]pyrene | 1.777 | 1.438 | 19.1 | 59 | 0.00 | 23.44 |
| 33 | t | Dibenz[a,h]anthracene | 1.391 | 1.139 | 18.1 | 59 | 0.00 | 23.48 |
| 34 | t | Benzo[g,h,i]perylene | 1.525 | 1.317 | 13.6 | 63 | 0.00 | 23.87 |
| 35 | I | 1-Methylnaphthalene-d10a | 1.000 | 1.000 | 0.0 | 90 | 0.00 | 10.09 |
| | | ---------- | AvgRF | CCRF | % Dev | ---------- | | |
| 38 | I | Fluorene-d10a | 1.000 | 1.000 | 0.0 | 82 | 0.00 | 13.06 |
| | | ---------- | AvgRF | CCRF | % Dev | ---------- | | |
| 40 | t | 1,2-Diphenylhydrazine | 1.641 | 1.469 | 10.5 | 77 | 0.00 | 13.48 |
| 41 | t | n-nitrosodiphenylamine | 1.031 | 0.879 | 14.7 | 72 | 0.00 | 13.42 |

# Initial Calibration Verification

**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

**Sample:** E4M2526-ICV2526
**Lab FileID:** 4M58458.D

```
(#) = Out of Range                SPCC's out = 0  CCC's out = 0
 4m58451.D  M4M2526SIM.M       Sat Jun 13 13:48:48 2015   MANAGER
```

# Initial Calibration Verification



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

**Sample:** E4M2526-ICV2526
**Lab FileID:** 4M58459.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E4M2526\4m58459.D          Vial: 12
Acq On    : 13 Jun 2015   3:59 am                    Operator: ashleyd
Sample    : icv2526-1.0                              Inst    : GCMS4M
Misc      : op84653a,e4m2526                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M4M2526SIM.M (RTE Integrator)
Title        : Semi Volatile  GC/MS,zb-5 15m x .25mm x .50um
Last Update  : Sat Jun 13 11:08:14 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

| | | Compound | AvgRF | CCRF | %Dev | Area% | Dev(min) | R.T. |
|---|---|---|---|---|---|---|---|---|
| 1 | I | 1-Methylnaphthalene-d10 | 1.000 | 1.000 | 0.0 | 115 | 0.00 | 10.09 |
| 10 | t | Hexachlorocyclopentadiene | 0.262 | 0.276 | -5.3 | 112 | 0.00 | 10.34 |
| 12 | I | Fluorene-d10 | 1.000 | 1.000 | 0.0 | 109 | 0.00 | 13.06 |
| | | ---------- | AvgRF | CCRF | % Dev | ---------- | | |
| 22 | I | Fluoranthene-d10 | 1.000 | 1.000 | 0.0 | 115 | 0.00 | 17.23 |
| 28 | I | Benzo(a)pyrene-d12 | 1.000 | 1.000 | 0.0 | 107 | 0.00 | 21.81 |
| 35 | I | 1-Methylnaphthalene-d10a | 1.000 | 1.000 | 0.0 | 115 | 0.00 | 10.09 |
| | | ---------- | True | Calc. | % Drift | ---------- | | |
| 36 | t | 1,4-Dioxane | 1.000 | 1.012 | -1.2 | 111 | 0.00 | 2.51 |
| | | ---------- | AvgRF | CCRF | % Dev | ---------- | | |
| 37 | t | 1-Methylnaphthalene | 1.652 | 1.588 | 3.9 | 108 | 0.00 | 10.15 |
| 38 | I | Fluorene-d10a | 1.000 | 1.000 | 0.0 | 109 | 0.00 | 13.06 |

(#) = Out of Range  SPCC's out = 0  CCC's out = 0
4m58451.D  M4M2526SIM.M  Sat Jun 13 13:48:51 2015  MANAGER

8.7.9

8

# Initial Calibration Verification



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

**Sample:** E4M2527-ICV2526
**Lab FileID:** 4M58462.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E4M2527\4m58462.D          Vial: 2
Acq On    : 13 Jun 2015  11:49 am                    Operator: ashleyd
Sample    : icv2526-1.0                              Inst    : GCMS4M
Misc      : op84653a,e4m2527                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M4M2526SIM.M (RTE Integrator)
Title        : Semi Volatile  GC/MS,zb-5 15m x .25mm x .50um
Last Update  : Sat Jun 13 11:08:14 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

| | | Compound | AvgRF | CCRF | %Dev | Area% | Dev(min) | R.T. |
|---|---|---|---|---|---|---|---|---|
| 1 | I | 1-Methylnaphthalene-d10 | 1.000 | 1.000 | 0.0 | 127 | -0.02 | 10.07 |
| 4 | t | Phenol | 1.314 | 1.109 | 15.6 | 112 | -0.03 | 5.73 |
| 12 | I | Fluorene-d10 | 1.000 | 1.000 | 0.0 | 127 | 0.00 | 13.06 |
| | | ---------- | True | Calc. | % Drift | ---------- | | |
| 19 | t | Pentachlorophenol | 5.000 | 5.721 | -14.4 | 167 | -0.02 | 14.63 |
| | | ---------- | AvgRF | CCRF | % Dev | ---------- | | |
| 22 | I | Fluoranthene-d10 | 1.000 | 1.000 | 0.0 | 136 | -0.02 | 17.21 |
| 28 | I | Benzo(a)pyrene-d12 | 1.000 | 1.000 | 0.0 | 143 | -0.01 | 21.79 |
| 35 | I | 1-Methylnaphthalene-d10a | 1.000 | 1.000 | 0.0 | 127 | -0.02 | 10.07 |
| | | ---------- | AvgRF | CCRF | % Dev | ---------- | | |
| 38 | I | Fluorene-d10a | 1.000 | 1.000 | 0.0 | 127 | 0.00 | 13.06 |
| | | ---------- | True | Calc. | % Drift | ---------- | | |
| 39 | t | 4,6-dinitro-2-methylpheno | 5.000 | 4.684 | 6.3 | 143 | 0.00 | 13.26 |

(#) = Out of Range  SPCC's out = 0  CCC's out = 0
4m58451.D  M4M2526SIM.M  Sat Jun 13 13:50:51 2015  MANAGER

8.7.10

8

# Continuing Calibration Summary

**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA
**Sample:** E4M2559-CC2526
**Lab FileID:** 4M58907.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\E4M2559\4m58907.D          Vial: 2
Acq On    :  9 Jul 2015   8:14 pm                    Operator: ashleyd
Sample    : cc2526-1.0                               Inst    : GCMS4M
Misc      : op85270a,e4m2559                         Multiplr: 1.00
MS Integration Params: lscint.p

Method       : C:\MSDCHEM\1\METHODS\M4M2526SIM.M (RTE Integrator)
Title        : Semi Volatile  GC/MS,zb-5 15m x .25mm x .50um
Last Update  : Thu Jul 09 20:39:52 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 200%
```

| | | Compound | AvgRF | CCRF | %Dev | Area% | Dev(min) | R.T. |
|---|---|---|---|---|---|---|---|---|
| 1 | I | 1-Methylnaphthalene-d10 | 1.000 | 1.000 | 0.0 | 58 | 0.00 | 9.79 |
| 2 | S | 2-Fluorophenol | 0.634 | 0.546 | 13.9 | 53 | 0.00 | 4.11 |
| 3 | S | Phenol-d5 | 1.125 | 0.882 | 21.6# | 52 | 0.00 | 5.49 |
| 4 | t | Phenol | 1.314 | 1.052 | 19.9 | 48# | 0.00 | 5.51 |
| 5 | t | bis(2-Chloroethyl)ether | 1.164 | 0.847 | 27.2# | 45# | 0.00 | 5.60 |
| 6 | S | Nitrobenzene-d5 | 1.081 | 0.883 | 18.3 | 52 | 0.00 | 6.96 |
| 7 | t | Naphthalene | 3.868 | 3.285 | 15.1 | 55 | 0.00 | 8.32 |
| 8 | t | Hexachlorobutadiene | 0.574 | 0.773 | -34.7# | 80 | 0.00 | 8.62 |
| 9 | t | 2-Methylnaphthalene | 1.631 | 1.529 | 6.3 | 52 | 0.00 | 9.66 |
| 10 | t | Hexachlorocyclopentadiene | 0.262 | 0.368 | -40.5# | 74 | 0.00 | 10.01 |
| 11 | S | 2-Fluorobiphenyl | 1.313 | 1.316 | -0.2 | 66 | 0.00 | 10.42 |
| 12 | I | Fluorene-d10 | 1.000 | 1.000 | 0.0 | 59 | 0.00 | 12.73 |
| 13 | t | Acenaphthylene | 1.490 | 1.515 | -1.7 | 64 | 0.00 | 11.41 |
| 14 | t | Acenaphthene | 0.992 | 0.946 | 4.6 | 60 | 0.00 | 11.75 |
| 15 | t | Dibenzofuran | 1.935 | 1.387 | 28.3# | 46# | 0.00 | 12.12 |
| 16 | t | Fluorene | 1.459 | 1.416 | 2.9 | 61 | 0.00 | 12.80 |
| 17 | S | 2,4,6-Tribromophenol | 0.131 | 0.152 | -16.0 | 73 | 0.00 | 13.28 |
| 18 | t | Hexachlorobenzene | 0.475 | 0.512 | -7.8 | 71 | 0.00 | 13.91 |
| | | ---------- | True | Calc. | % Drift | ---------- | | |
| 19 | t | Pentachlorophenol | 5.000 | 7.309 | -46.2# | 101 | 0.00 | 14.32 |
| | | ---------- | AvgRF | CCRF | % Dev | ---------- | | |
| 20 | t | Phenanthrene | 2.102 | 2.228 | -6.0 | 67 | 0.00 | 14.68 |
| 21 | t | Anthracene | 1.869 | 2.044 | -9.4 | 68 | 0.00 | 14.79 |
| 22 | I | Fluoranthene-d10 | 1.000 | 1.000 | 0.0 | 76 | 0.00 | 16.91 |
| 23 | t | Fluoranthene | 1.504 | 1.332 | 11.4 | 68 | 0.00 | 16.93 |
| 24 | t | Pyrene | 1.601 | 1.536 | 4.1 | 71 | 0.00 | 17.32 |
| 25 | S | Terphenyl-d14 | 0.583 | 0.627 | -7.5 | 87 | 0.00 | 17.70 |
| 26 | t | Benzo[a]anthracene | 1.153 | 1.297 | -12.5 | 84 | 0.00 | 19.41 |
| 27 | t | Chrysene | 1.121 | 1.253 | -11.8 | 83 | 0.00 | 19.47 |
| 28 | I | Benzo(a)pyrene-d12 | 1.000 | 1.000 | 0.0 | 79 | 0.00 | 21.49 |
| 29 | t | Benzo[b]fluoranthene | 1.797 | 2.009 | -11.8 | 79 | 0.00 | 21.06 |
| 30 | t | Benzo[k]fluoranthene | 1.453 | 1.336 | 8.1 | 79 | 0.00 | 21.10 |
| 31 | t | Benzo[a]pyrene | 1.474 | 1.491 | -1.2 | 79 | 0.00 | 21.52 |
| 32 | t | Indeno[1,2,3-cd]pyrene | 1.777 | 1.862 | -4.8 | 80 | 0.00 | 23.05 |
| 33 | t | Dibenz[a,h]anthracene | 1.391 | 1.519 | -9.2 | 83 | 0.00 | 23.07 |
| 34 | t | Benzo[g,h,i]perylene | 1.525 | 1.579 | -3.5 | 80 | 0.00 | 23.43 |

# Continuing Calibration Summary

**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

**Sample:** E4M2559-CC2526
**Lab FileID:** 4M58907.D

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 35 | I | 1-Methylnaphthalene-d10a | 1.000 | 1.000 | 0.0 | 58 | 0.00 | 9.79 |
| | | ---------- | True | Calc. | % Drift | ---------- | | |
| 36 | t | 1,4-Dioxane | 1.000 | 0.836 | 16.4 | 48 | 0.00 | 2.32 |
| | | ---------- | AvgRF | CCRF | % Dev | ---------- | | |
| 37 | t | 1-Methylnaphthalene | 1.652 | 1.573 | 4.8 | 53 | 0.00 | 9.85 |
| 38 | I | Fluorene-d10a | 1.000 | 1.000 | 0.0 | 59 | 0.00 | 12.73 |
| | | ---------- | True | Calc. | % Drift | ---------- | | |
| 39 | t | 4,6-dinitro-2-methylpheno | 5.000 | 10.112 | -102.2# | 161 | 0.00 | 12.95 |
| | | ---------- | AvgRF | CCRF | % Dev | ---------- | | |
| 40 | t | 1,2-Diphenylhydrazine | 1.641 | 1.235 | 24.7# | 47# | 0.00 | 13.15 |
| 41 | t | n-nitrosodiphenylamine | 1.031 | 0.872 | 15.4 | 51 | 0.00 | 13.09 |

(#) = Out of Range SPCC's out = 0 CCC's out = 0
4m58451.D M4M2526SIM.M Thu Jul 09 23:36:22 2015 MANAGER

8.7.11

8

# Initial Calibration Summary



**Job Number:** JB98590 **Sample:** E6P776-ICC776
**Account:** SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 6P17295.D
**Project:** Sunoco - Marcus Hook Facility, PA

Response Factor Report MS6P

Method : C:\MSDCHEM\1\METHODS\M6P776.M (RTE Integrator)
Title : Semi Volatile GC/MS, ZB-5MSi 30m x .25mm x .25um
Last Update : Wed Jul 01 19:41:57 2015
Response via : Initial Calibration

Calibration Files
100 =6p17293.D 80 =6p17299.D 50 =6p17295.D 25 =6p17296.D
10 =6p17298.D 5 =6p17297.D 2 =6p17292.D 1 =6p17294.D

| Compound | 100 | 80 | 50 | 25 | 10 | 5 | 2 | 1 | Avg | %RSD |
|---|---|---|---|---|---|---|---|---|---|---|
| 1) I 1,4-Dichlorobenzene-d | | | | | ISTD | | | | | |
| 2) 1,4-Dioxane | 0.582 | 0.578 | 0.593 | 0.561 | 0.582 | 0.575 | 0.546 | 0.649 | 0.583 | 5.20 |
| 3) Pyridine | 1.533 | 1.524 | 1.537 | 1.528 | 1.476 | 1.676 | 1.434 | 1.420 | 1.516 | 5.23 |
| 4) N-Nitrosodim | 0.928 | 0.938 | 0.944 | 0.937 | 0.929 | 0.989 | 0.974 | 0.852 | 0.936 | 4.31 |
| 5) 2-Fluorophen | 1.314 | 1.338 | 1.346 | 1.287 | 1.326 | 1.470 | 1.322 | 1.374 | 1.347 | 4.14 |
| 6) Indene | 2.397 | 2.473 | 2.545 | 2.505 | 2.631 | 2.852 | 2.735 | 2.730 | 2.609 | 5.94 |
| 7) Cumene | 3.447 | 3.505 | 3.615 | 3.510 | 3.654 | 3.955 | 3.713 | 3.975 | 3.672 | 5.47 |
| 8) Phenol-d5 | 1.721 | 1.757 | 1.777 | 1.718 | 1.770 | 1.931 | 1.758 | 1.797 | 1.779 | 3.77 |
| 9) Phenol | 1.895 | 1.940 | 1.978 | 1.915 | 1.930 | 2.209 | 1.967 | 1.945 | 1.972 | 5.03 |
| 10) Aniline | 2.209 | 2.214 | 2.273 | 2.171 | 2.301 | 2.469 | 2.172 | 2.350 | 2.270 | 4.51 |
| 11) bis(2-Chloro | 1.343 | 1.349 | 1.395 | 1.332 | 1.433 | 1.546 | 1.384 | 1.393 | 1.397 | 4.92 |
| 12) 2-Chlorophen | 1.293 | 1.312 | 1.331 | 1.294 | 1.367 | 1.504 | 1.325 | 1.367 | 1.349 | 5.09 |
| 13) Decane | 1.751 | 1.769 | 1.823 | 1.769 | 1.766 | 1.989 | 1.828 | 1.902 | 1.825 | 4.55 |
| 14) 1,3-Dichloro | 1.506 | 1.546 | 1.562 | 1.512 | 1.624 | 1.760 | 1.671 | 1.642 | 1.603 | 5.47 |
| 15) 1,4-Dichloro | 1.540 | 1.543 | 1.582 | 1.569 | 1.601 | 1.875 | 1.587 | 1.774 | 1.634 | 7.49 |
| 16) Benzyl alcoh | 0.859 | 0.877 | 0.873 | 0.850 | 0.854 | 0.935 | 0.847 | 0.824 | 0.865 | 3.80 |
| 17) 1,2-Dichloro | 1.410 | 1.442 | 1.455 | 1.440 | 1.533 | 1.599 | 1.522 | 1.606 | 1.501 | 5.02 |
| 18) Acetophenone | 1.898 | 1.939 | 1.975 | 1.987 | 2.088 | 2.301 | 2.077 | 2.169 | 2.054 | 6.49 |
| 19) 2-Methylphen | 1.238 | 1.261 | 1.308 | 1.257 | 1.353 | 1.463 | 1.259 | 1.387 | 1.316 | 6.02 |
| 20) 2,2'-oxybis( | 0.470 | 0.474 | 0.480 | 0.471 | 0.503 | 0.536 | 0.499 | 0.446 | 0.485 | 5.59 |
| 21) 3&4-Methylph | 1.318 | 1.331 | 1.366 | 1.335 | 1.381 | 1.532 | 1.445 | 1.339 | 1.381 | 5.30 |
| 22) n-Nitroso-di | 1.134 | 1.173 | 1.189 | 1.185 | 1.212 | 1.331 | 1.224 | 1.306 | 1.219 | 5.51 |
| 23) Hexachloroet | 0.547 | 0.557 | 0.573 | 0.548 | 0.571 | 0.626 | 0.567 | 0.571 | 0.570 | 4.34 |
| 24) I Naphthalene-d8 | | | | | ISTD | | | | | |
| 25) Nitrobenzene | 0.419 | 0.414 | 0.419 | 0.408 | 0.421 | 0.453 | 0.397 | 0.445 | 0.422 | 4.43 |
| 26) Nitrobenzene | 0.438 | 0.428 | 0.444 | 0.434 | 0.444 | 0.469 | 0.470 | 0.464 | 0.449 | 3.71 |
| 27) Quinoline | 0.681 | 0.685 | 0.686 | 0.666 | 0.660 | 0.745 | 0.707 | 0.693 | 0.690 | 3.84 |
| 28) Isophorone | 0.726 | 0.714 | 0.733 | 0.700 | 0.723 | 0.791 | 0.755 | 0.728 | 0.734 | 3.80 |
| 29) 2-Nitropheno | 0.192 | 0.188 | 0.192 | 0.183 | 0.186 | 0.183 | 0.172 | 0.159 | 0.182 | 6.04 |
| 30) 2,4-Dimethyl | 0.368 | 0.370 | 0.372 | 0.370 | 0.382 | 0.395 | 0.392 | 0.396 | 0.381 | 3.19 |
| 31) Benzoic Acid | 0.299 | 0.303 | 0.296 | 0.266 | 0.234 | 0.254 | 0.200 | | 0.265 | 14.52 |
| 32) bis(2-Chloro | 0.436 | 0.430 | 0.441 | 0.417 | 0.433 | 0.471 | 0.452 | 0.473 | 0.444 | 4.45 |
| 33) 2,4-Dichloro | 0.288 | 0.285 | 0.291 | 0.272 | 0.295 | 0.303 | 0.283 | 0.299 | 0.290 | 3.43 |
| 34) 2,6-Dichloro | 0.284 | 0.281 | 0.284 | 0.274 | 0.296 | 0.306 | 0.293 | 0.270 | 0.286 | 4.15 |
| 35) 1,3,5-Trichl | 0.338 | 0.339 | 0.355 | 0.345 | 0.368 | 0.396 | 0.370 | 0.368 | 0.360 | 5.44 |
| 36) 1,2,4-Trichl | 0.328 | 0.326 | 0.334 | 0.329 | 0.343 | 0.372 | 0.327 | 0.349 | 0.339 | 4.68 |
| 37) 1,2,3-Trichl | 0.317 | 0.316 | 0.325 | 0.316 | 0.341 | 0.359 | 0.340 | 0.370 | 0.336 | 6.13 |
| 38) Naphthalene | 0.990 | 0.980 | 0.995 | 0.962 | 1.014 | 1.125 | 1.049 | 1.039 | 1.019 | 5.09 |
| 39) 4-Chloroanil | 0.420 | 0.410 | 0.425 | 0.405 | 0.410 | 0.445 | 0.410 | 0.418 | 0.418 | 3.13 |
| 40) 2,3-Dichloro | 0.351 | 0.348 | 0.359 | 0.352 | 0.357 | 0.401 | 0.373 | 0.374 | 0.364 | 4.83 |
| 41) Caprolactam | 0.178 | 0.174 | 0.175 | 0.169 | 0.173 | 0.186 | 0.176 | 0.178 | 0.176 | 2.85 |
| 42) Hexachlorobu | 0.187 | 0.188 | 0.195 | 0.193 | 0.208 | 0.214 | 0.214 | 0.206 | 0.201 | 5.56 |
| 43) 4-Chloro-3-m | 0.335 | 0.331 | 0.330 | 0.320 | 0.326 | 0.354 | 0.325 | 0.330 | 0.332 | 3.09 |
| 44) 2-Methylnaph | 0.551 | 0.547 | 0.553 | 0.532 | 0.565 | 0.589 | 0.560 | 0.574 | 0.559 | 3.14 |
| 45) 1-Methylnaph | 0.597 | 0.587 | 0.597 | 0.579 | 0.595 | 0.673 | 0.630 | 0.611 | 0.609 | 4.98 |

# Initial Calibration Summary

**Job Number:** JB98590 **Sample:** E6P776-ICC776
**Account:** SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 6P17295.D
**Project:** Sunoco - Marcus Hook Facility, PA

```
46) Dimethylnaph 0.637 0.637 0.648 0.626 0.655 0.697 0.661 0.693 0.657   3.98

47) I   Acenaphthene-d10      ----------------ISTD---------------------
48) Hexachlorocy 0.349 0.352 0.352 0.336 0.335 0.329 0.279 0.250 0.323  11.66
49) 2,4,6-Trichl 0.330 0.335 0.337 0.330 0.352 0.361 0.336 0.371 0.344   4.46
50) 2,4,5-Trichl 0.368 0.362 0.365 0.362 0.358 0.384 0.377 0.313 0.361   5.85
51) 2-Fluorobiph 1.135 1.143 1.151 1.142 1.186 1.325 1.272 1.486 1.230  10.13
52) 2-Chloronaph 0.995 0.998 1.017 0.982 1.040 1.119 1.037 1.068 1.032   4.36
53) Biphenyl     1.377 1.380 1.405 1.362 1.465 1.550 1.435 1.579 1.444   5.66
54) 2-Nitroanili 0.374 0.378 0.370 0.363 0.354 0.364 0.325 0.330 0.357   5.49
55) Dimethylphth 1.236 1.238 1.243 1.212 1.255 1.311 1.261 1.235 1.249   2.34
56) Acenaphthyle 1.590 1.584 1.612 1.580 1.627 1.728 1.664 1.807 1.649   4.91
57) 2,6-Dinitrot 0.278 0.274 0.273 0.258 0.258 0.248 0.200 0.209 0.250  11.94
58) 3-Nitroanili 0.292 0.291 0.290 0.274 0.274 0.284 0.250 0.211 0.271  10.29
59) Acenaphthene 1.022 1.041 1.033 1.016 1.070 1.171 1.139 1.307 1.100   9.20
60) 2,4-Dinitrop 0.172 0.183 0.163 0.143 0.112 0.088 0.058       0.131  35.72
         ----- Quadratic regression -----                Coefficient =  0.9966
              Response Ratio = -0.02479 + 0.17359 *A + 0.00159 *A^2

61) 4-Nitropheno 0.198 0.206 0.200 0.194 0.201 0.195 0.180 0.185 0.195   4.41
62) Dibenzofuran 1.391 1.407 1.417 1.392 1.481 1.584 1.464 1.523 1.457   4.77
63) 2,4-Dinitrot 0.372 0.378 0.381 0.360 0.355 0.377 0.278 0.310 0.351  10.70
64) 2,3,4,6-Tetr 0.303 0.307 0.308 0.301 0.295 0.290 0.276 0.324 0.300   4.67
65) Diethylphtha 1.240 1.259 1.256 1.233 1.243 1.330 1.217 1.239 1.252   2.72
66) Fluorene     1.175 1.182 1.188 1.171 1.214 1.314 1.301 1.499 1.255   9.04
67) 4-Chlorophen 0.638 0.631 0.628 0.628 0.653 0.689 0.658 0.617 0.643   3.59
68) 4-Nitroanili 0.286 0.290 0.290 0.279 0.267 0.285 0.238 0.243 0.272   7.70

69) I   Phenanthrene-d10      ----------------ISTD---------------------
70) 4,6-Dinitro- 0.144 0.149 0.141 0.127 0.104 0.093             0.126  18.30
71) n-Nitrosodip 0.523 0.532 0.535 0.510 0.528 0.551 0.497 0.495 0.521   3.74
72) 1,2-Diphenyl 0.788 0.800 0.799 0.775 0.800 0.827 0.747 0.753 0.786   3.40
73) 2,4,6-Tribro 0.076 0.079 0.076 0.074 0.079 0.076 0.089 0.108 0.082  13.99
74) 4-Bromopheny 0.209 0.207 0.210 0.202 0.210 0.217 0.195 0.204 0.207   3.08
75) Hexachlorobe 0.178 0.181 0.181 0.171 0.184 0.192 0.176 0.191 0.182   3.97
76) Pentachlorop 0.136 0.139 0.135 0.129 0.126 0.128 0.103 0.107 0.125  10.76
77) Phenanthrene 1.000 1.017 1.011 1.001 1.053 1.130 1.157 1.386 1.095  12.08
78) Anthracene   1.020 1.033 1.029 1.013 1.060 1.165 1.145 1.309 1.097   9.43
79) Carbazole    0.972 0.993 0.997 0.974 1.010 1.049 1.041 1.033 1.009   2.94
80) Di-n-butylph 1.259 1.277 1.274 1.210 1.233 1.273 1.118 1.060 1.213   6.69
81) Fluoranthene 1.113 1.133 1.132 1.112 1.119 1.207 1.240 1.404 1.183   8.55
82) Octadecane   0.526 0.521 0.524 0.507 0.508 0.533 0.490 0.516 0.516   2.62

83) I   Chrysene-d12          ----------------ISTD---------------------
84) Pyrene       1.198 1.202 1.227 1.181 1.261 1.314 1.354 1.588 1.291  10.42
85) Butyl steara 0.346 0.343 0.343 0.319 0.301 0.290 0.263 0.236 0.305  13.31
86) Terphenyl-d1 0.633 0.636 0.630 0.610 0.643 0.697 0.791 1.016 0.707  19.48
87) Butylbenzylp 0.575 0.583 0.574 0.546 0.547 0.522 0.507 0.465 0.540   7.48
88) Benzo[a]anth 1.089 1.098 1.110 1.061 1.109 1.167 1.237 1.470 1.168  11.47
89) 3,3'-Dichlor 0.373 0.374 0.375 0.349 0.352 0.356 0.329 0.346 0.357   4.57
90) Chrysene     1.021 1.021 1.029 0.993 1.038 1.116 1.164 1.237 1.077   7.99
91) bis(2-Ethylh 0.776 0.784 0.781 0.719 0.716 0.709 0.618 0.513 0.702  13.41

92) I   Perylene-d12          ----------------ISTD---------------------
93) Di-n-octylph 1.397 1.338 1.443 1.253 1.210 1.169 0.943 0.775 1.191  19.22
94) Benzo[b]fluo 1.072 1.047 1.085 0.987 1.001 1.113 1.031 1.155 1.061   5.32
95) Benzo[k]fluo 0.969 0.905 1.030 0.959 1.046 1.197 1.095 1.126 1.041   9.27
96) Benzo[a]pyre 0.918 0.878 0.947 0.859 0.879 0.925 0.874 0.918 0.900   3.45
97) Indeno[1,2,3 0.914 0.864 0.883 0.744 0.667 0.707 0.655 0.722 0.769  13.30
98) Dibenz(a,h)a 0.806 0.768 0.820 0.712 0.693 0.605 0.522 0.543 0.684  16.90
```

# Initial Calibration Summary

**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA
**Sample:** E6P776-ICC776
**Lab FileID:** 6P17295.D

```
 99) Dibenz[a,h]a 0.896 0.858 0.911 0.826 0.779 0.795 0.749 0.717 0.817   8.46
100) 7,12-Dimethy 0.518 0.495 0.538 0.501 0.517 0.564 0.484 0.480 0.512   5.52
101) Benzo[g,h,i] 0.861 0.828 0.875 0.782 0.781 0.872 0.793 0.835 0.828   4.74
 ---------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

          M6P776.M          Wed Jul 01 23:00:54 2015   RPT1
```

8.7.12

8

# Initial Calibration Summary



**Job Number:** JB98590 **Sample:** E6P777-ICC777
**Account:** SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 6P17305.D
**Project:** Sunoco - Marcus Hook Facility, PA

```
                         Response Factor Report  MS6P

  Method       : C:\MSDCHEM\1\METHODS\M6P776.M (RTE Integrator)
  Title        : Semi Volatile  GC/MS, ZB-5MSi 30m x .25mm x .25um
  Last Update  : Wed Jul 01 19:41:57 2015
  Response via : Initial Calibration

  Calibration Files
  100 =6p17303.D  80  =6p17304.D  50  =6p17305.D   25  =6p17306.D
  10  =6p17307.D  5   =6p17308.D  2   =6p17309.D  1   =6p17310.D

   Compound         100   80    50    25    10    5     2     1     Avg %RSD
  ---------------------------------------------------------------------------
102)     1,4-Dichlorobenzene-d ----------------ISTD---------------------
103) Benzaldehyde 1.179 1.140 1.158 1.152 1.180 1.191 0.986 1.174 1.145   5.78

104)     Phenanthrene-d10a     ----------------ISTD---------------------
105) Atrazine     0.107 0.106 0.105 0.104 0.096 0.089 0.084 0.073 0.096  13.01
106) o-terphenyl  0.537 0.544 0.537 0.525 0.541 0.505 0.477 0.454 0.515   6.52

107)     Chrysene-d12a         ----------------ISTD---------------------
108) Benzidine    0.677 0.754 0.755 0.705 0.664 0.575 0.417       0.650  18.39
109) 1-chloroocta 0.344 0.349 0.327 0.312 0.312 0.283 0.210 0.209 0.293  19.05

110)     Acenaphthene-d10a     ----------------ISTD---------------------
111) 1,2,4,5-Tetr 0.531 0.547 0.537 0.527 0.533 0.529 0.493 0.528 0.528   2.96

112) I   Naphthalene-d8a       ----------------ISTD---------------------
113) Hydroquinone 0.337 0.336 0.337 0.333 0.315 0.257 0.189       0.301  18.98
 ---------------------------------------------------------------------------
 (#) = Out of Range  ###  Number of calibration levels exceeded format  ###

           M6P776.M          Wed Jul 01 23:00:22 2015   RPT1
```

8.7.13

8

# Initial Calibration Verification



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

**Sample:** E6P777-ICV776
**Lab FileID:** 6P17312.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e6p777\6p17312.D          Vial: 11
Acq On    :  1 Jul 2015   6:43 pm                   Operator: alicjap
Sample    : icv776-50                               Inst    : MS6P
Misc      : op85127,e6p777,                         Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\MSDCHEM\1\METHODS\M6P776.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MSi 30m x .25mm x .25um
Last Update  : Wed Jul 01 19:41:57 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

| | | Compound | AvgRF | CCRF | %Dev | Area% | Dev(min) | R.T. |
|---|---|---|---|---|---|---|---|---|
| 1 | I | 1,4-Dichlorobenzene-d4 | 1.000 | 1.000 | 0.0 | 111 | 0.00 | 4.55 |
| 3 | t | Pyridine | 1.516 | 1.211 | 20.1 | 87 | 0.16 | 2.54 |
| 10 | t | Aniline | 2.270 | 2.205 | 2.9 | 107 | 0.00 | 4.31 |
| 16 | t | Benzyl alcohol | 0.865 | 0.877 | -1.4 | 111 | 0.01 | 4.66 |
| 24 | I | Naphthalene-d8 | 1.000 | 1.000 | 0.0 | 86 | 0.00 | 5.62 |
| 39 | t | 4-Chloroaniline | 0.418 | 0.440 | -5.3 | 89 | 0.00 | 5.69 |
| 44 | t | 2-Methylnaphthalene | 0.559 | 0.634 | -13.4 | 99 | 0.00 | 6.37 |
| 47 | I | Acenaphthene-d10 | 1.000 | 1.000 | 0.0 | 100 | 0.00 | 7.68 |
| 54 | t | 2-Nitroaniline | 0.357 | 0.347 | 2.8 | 94 | 0.00 | 7.08 |
| 58 | t | 3-Nitroaniline | 0.271 | 0.258 | 4.8 | 89 | 0.01 | 7.62 |
| | | ---------- | AvgRF | CCRF | % Dev | ---------- | | |
| 62 | t | Dibenzofuran | 1.457 | 1.461 | -0.3 | 103 | 0.00 | 7.96 |
| 68 | t | 4-Nitroaniline | 0.272 | 0.255 | 6.3 | 88 | 0.02 | 8.48 |
| 69 | I | Phenanthrene-d10 | 1.000 | 1.000 | 0.0 | 100 | 0.00 | 9.84 |
| 79 | t | Carbazole | 1.009 | 0.932 | 7.6 | 94 | 0.00 | 10.23 |

```
(#) = Out of Range              SPCC's out = 0  CCC's out = 0
 6p17305.D  M6P776.M         Wed Jul 01 22:58:40 2015   RPT1
```

8.7.14

8

# Initial Calibration Verification



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

**Sample:** E6P777-ICV777
**Lab FileID:** 6P17313A.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e6p777\6p17313a.D          Vial: 12
Acq On    :  1 Jul 2015   7:09 pm                    Operator: alicjap
Sample    : icv777-50                                Inst    : MS6P
Misc      : op85127,e6p777,                          Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\MSDCHEM\1\METHODS\M6P776.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MSi 30m x .25mm x .25um
Last Update  : Wed Jul 01 19:41:57 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

| | Compound | AvgRF | CCRF | %Dev | Area% | Dev(min) | R.T. |
|---|---|---|---|---|---|---|---|
| 110 | Acenaphthene-d10a | 1.000 | 1.000 | 0.0 | 114 | 0.00 | 7.68 |
| 111 | 1,2,4,5-Tetrachlorobenzen | 0.528 | 0.506 | 4.2 | 107 | 0.00 | 6.57 |

(#) = Out of Range  SPCC's out = 0  CCC's out = 0
6p17305.D  M6P776.M  Wed Jul 01 22:58:44 2015  RPT1

8.7.15

8

# Initial Calibration Verification

**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

**Sample:** E6P777-ICV776
**Lab FileID:** 6P17313.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\e6p777\6p17313.D  Vial: 12
Acq On : 1 Jul 2015 7:09 pm  Operator: alicjap
Sample : icv776-50  Inst : MS6P
Misc : op85127,e6p777,  Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\M6P776.M (RTE Integrator)
Title : Semi Volatile GC/MS, ZB-5MSi 30m x .25mm x .25um
Last Update : Wed Jul 01 19:41:57 2015
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

| | | Compound | AvgRF | CCRF | %Dev | Area% | Dev(min) | R.T. |
|---|---|---|---|---|---|---|---|---|
| 1 | I | 1,4-Dichlorobenzene-d4 | 1.000 | 1.000 | 0.0 | 95 | 0.00 | 4.55 |
| 4 | t | N-Nitrosodimethylamine | 0.936 | 0.878 | 6.2 | 89 | 0.02 | 2.34 |
| 11 | t | bis(2-Chloroethyl)ether | 1.397 | 1.326 | 5.1 | 90 | 0.00 | 4.35 |
| 14 | t | 1,3-Dichlorobenzene | 1.603 | 1.568 | 2.2 | 96 | 0.00 | 4.51 |
| 15 | t | 1,4-Dichlorobenzene | 1.634 | 1.583 | 3.1 | 95 | 0.00 | 4.56 |
| 17 | t | 1,2-Dichlorobenzene | 1.501 | 1.489 | 0.8 | 97 | 0.00 | 4.68 |
| 20 | t | 2,2'-oxybis(1-Chloropropa | 0.485 | 0.454 | 6.4 | 90 | 0.00 | 4.76 |
| 22 | t | n-Nitroso-di-n-propylamin | 1.219 | 1.102 | 9.6 | 88 | 0.00 | 4.86 |
| 23 | t | Hexachloroethane | 0.570 | 0.572 | -0.4 | 95 | 0.00 | 4.95 |
| 24 | I | Naphthalene-d8 | 1.000 | 1.000 | 0.0 | 95 | 0.00 | 5.63 |
| 26 | t | Nitrobenzene | 0.449 | 0.431 | 4.0 | 92 | 0.00 | 5.00 |
| 28 | t | Isophorone | 0.734 | 0.766 | -4.4 | 99 | 0.00 | 5.20 |
| 32 | t | bis(2-Chloroethoxy)methan | 0.444 | 0.419 | 5.6 | 90 | 0.00 | 5.39 |
| 36 | t | 1,2,4-Trichlorobenzene | 0.339 | 0.333 | 1.8 | 95 | 0.00 | 5.57 |
| 38 | t | Naphthalene | 1.019 | 1.013 | 0.6 | 97 | 0.00 | 5.64 |
| 42 | t | Hexachlorobutadiene | 0.201 | 0.201 | 0.0 | 98 | 0.00 | 5.78 |
| 47 | I | Acenaphthene-d10 | 1.000 | 1.000 | 0.0 | 93 | 0.00 | 7.68 |
| 48 | t | Hexachlorocyclopentadiene | 0.323 | 0.288 | 10.8 | 76 | 0.00 | 6.57 |
| 52 | t | 2-Chloronaphthalene | 1.032 | 0.972 | 5.8 | 89 | 0.00 | 6.94 |
| 55 | t | Dimethylphthalate | 1.249 | 1.100 | 11.9 | 83 | 0.01 | 7.34 |
| 56 | t | Acenaphthylene | 1.649 | 1.444 | 12.4 | 84 | 0.00 | 7.48 |
| 57 | t | 2,6-Dinitrotoluene | 0.250 | 0.240 | 4.0 | 82 | 0.01 | 7.40 |
| 59 | t | Acenaphthene | 1.100 | 1.078 | 2.0 | 98 | 0.00 | 7.72 |
| | | ---------- | AvgRF | CCRF | % Dev | ---------- | | |
| 63 | t | 2,4-Dinitrotoluene | 0.351 | 0.307 | 12.5 | 75 | 0.01 | 7.96 |
| 65 | t | Diethylphthalate | 1.252 | 1.104 | 11.8 | 82 | 0.01 | 8.34 |
| 66 | t | Fluorene | 1.255 | 1.191 | 5.1 | 94 | 0.00 | 8.45 |
| 67 | t | 4-Chlorophenyl-phenylethe | 0.643 | 0.573 | 10.9 | 85 | 0.00 | 8.47 |
| 69 | I | Phenanthrene-d10 | 1.000 | 1.000 | 0.0 | 91 | 0.00 | 9.84 |
| 71 | t | n-Nitrosodiphenylamine | 0.521 | 0.477 | 8.4 | 82 | 0.00 | 8.65 |
| 72 | t | 1,2-Diphenylhydrazine | 0.786 | 0.802 | -2.0 | 92 | 0.00 | 8.70 |
| 74 | t | 4-Bromophenyl-phenylether | 0.207 | 0.188 | 9.2 | 82 | 0.00 | 9.20 |
| 75 | t | Hexachlorobenzene | 0.182 | 0.171 | 6.0 | 86 | 0.00 | 9.28 |
| 77 | t | Phenanthrene | 1.095 | 1.006 | 8.1 | 91 | 0.00 | 9.88 |
| 78 | t | Anthracene | 1.097 | 1.013 | 7.7 | 90 | 0.01 | 9.96 |
| 80 | t | Di-n-butylphthalate | 1.213 | 1.091 | 10.1 | 78 | 0.00 | 10.88 |
| 81 | t | Fluoranthene | 1.183 | 1.092 | 7.7 | 88 | 0.00 | 11.75 |

# Initial Calibration Verification

**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

**Sample:** E6P777-ICV776
**Lab FileID:** 6P17313.D

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 83 | I | Chrysene-d12 | 1.000 | 1.000 | 0.0 | 87 | 0.00 | 14.04 |
| 84 | t | Pyrene | 1.291 | 1.212 | 6.1 | 86 | 0.01 | 12.09 |
| 87 | t | Butylbenzylphthalate | 0.540 | 0.517 | 4.3 | 78 | 0.00 | 13.26 |
| 88 | t | Benzo[a]anthracene | 1.168 | 1.080 | 7.5 | 84 | 0.00 | 14.03 |
| 90 | t | Chrysene | 1.077 | 1.052 | 2.3 | 89 | 0.01 | 14.08 |
| 91 | t | bis(2-Ethylhexyl)phthalat | 0.702 | 0.687 | 2.1 | 76 | 0.00 | 14.24 |
| 92 | I | Perylene-d12 | 1.000 | 1.000 | 0.0 | 76 | 0.00 | 16.17 |
| 93 | t | Di-n-octylphthalate | 1.191 | 1.397 | -17.3 | 74 | 0.00 | 15.23 |
| 94 | t | Benzo[b]fluoranthene | 1.061 | 1.126 | -6.1 | 79 | 0.01 | 15.64 |
| 95 | t | Benzo[k]fluoranthene | 1.041 | 1.103 | -6.0 | 81 | 0.02 | 15.68 |
| 96 | t | Benzo[a]pyrene | 0.900 | 1.054 | -17.1 | 85 | 0.01 | 16.09 |
| 97 | t | Indeno[1,2,3-cd]pyrene | 0.769 | 0.877 | -14.0 | 76 | 0.02 | 17.64 |
| 99 | t | Dibenz[a,h]anthracene | 0.817 | 0.939 | -14.9 | 78 | 0.02 | 17.68 |
| 101 | t | Benzo[g,h,i]perylene | 0.828 | 0.927 | -12.0 | 81 | 0.03 | 18.05 |

(#) = Out of Range SPCC's out = 0 CCC's out = 0
6p17305.D M6P776.M Wed Jul 01 22:58:42 2015 RPT1

8.7.16

8

# Initial Calibration Verification



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

**Sample:** E6P777-ICV776
**Lab FileID:** 6P17314.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e6p777\6p17314.D          Vial: 13
Acq On    :  1 Jul 2015   7:35 pm                   Operator: alicjap
Sample    : icv776-50                               Inst    : MS6P
Misc      : op85127,e6p777,                         Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\MSDCHEM\1\METHODS\M6P776.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MSi 30m x .25mm x .25um
Last Update  : Wed Jul 01 19:41:57 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

| | | Compound | AvgRF | CCRF | %Dev | Area% | Dev(min) | R.T. |
|---|---|---|---|---|---|---|---|---|
| 1 | I | 1,4-Dichlorobenzene-d4 | 1.000 | 1.000 | 0.0 | 96 | 0.00 | 4.55 |
| 2 | | 1,4-Dioxane | 0.583 | 0.552 | 5.3 | 90 | 0.02 | 2.06 |
| 6 | t | Indene | 2.609 | 2.453 | 6.0 | 93 | 0.00 | 4.75 |
| 7 | t | Cumene | 3.672 | 3.548 | 3.4 | 95 | 0.00 | 3.95 |
| 13 | t | Decane | 1.825 | 1.715 | 6.0 | 91 | 0.00 | 4.44 |
| 18 | t | Acetophenone | 2.054 | 1.951 | 5.0 | 95 | 0.00 | 4.86 |
| 24 | I | Naphthalene-d8 | 1.000 | 1.000 | 0.0 | 96 | 0.00 | 5.62 |
| 27 | t | Quinoline | 0.690 | 0.650 | 5.8 | 91 | 0.00 | 5.97 |
| 40 | t | 2,3-Dichloroaniline | 0.364 | 0.310 | 14.8 | 83 | 0.00 | 6.70 |
| 41 | t | Caprolactam | 0.176 | 0.160 | 9.1 | 88 | 0.02 | 6.02 |
| 45 | t | 1-Methylnaphthalene | 0.609 | 0.572 | 6.1 | 92 | 0.00 | 6.48 |
| 46 | t | Dimethylnaphthalene | 0.657 | 0.617 | 6.1 | 91 | 0.00 | 7.13 |
| 47 | I | Acenaphthene-d10 | 1.000 | 1.000 | 0.0 | 94 | 0.00 | 7.67 |
| 53 | t | Biphenyl | 1.444 | 1.358 | 6.0 | 91 | 0.00 | 6.93 |
| | | ---------- | AvgRF | CCRF | % Dev | ---------- | | |
| 69 | I | Phenanthrene-d10 | 1.000 | 1.000 | 0.0 | 92 | 0.00 | 9.84 |
| 82 | t | Octadecane | 0.516 | 0.513 | 0.6 | 90 | 0.00 | 9.83 |
| 83 | I | Chrysene-d12 | 1.000 | 1.000 | 0.0 | 86 | 0.00 | 14.04 |
| 92 | I | Perylene-d12 | 1.000 | 1.000 | 0.0 | 71 | 0.00 | 16.16 |
| 100 | t | 7,12-Dimethylbenz(a)anthr | 0.512 | 0.359 | 29.9 | 47# | 0.00 | 15.64 |

(#) = Out of Range  SPCC's out = 0  CCC's out = 0
6p17305.D  M6P776.M  Wed Jul 01 22:58:46 2015  RPT1

8.7.17

8

# Initial Calibration Verification



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

**Sample:** E6P777-ICV777
**Lab FileID:** 6P17314A.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e6p777\6p17314a.D          Vial: 13
Acq On    :  1 Jul 2015   7:35 pm                    Operator: alicjap
Sample    : icv777-50                                Inst    : MS6P
Misc      : op85127,e6p777,                          Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\MSDCHEM\1\METHODS\M6P776.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MSi 30m x .25mm x .25um
Last Update  : Wed Jul 01 19:41:57 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

| | Compound | AvgRF | CCRF | %Dev | Area% | Dev(min) | R.T. |
|---|---|---|---|---|---|---|---|
| 102 | 1,4-Dichlorobenzene-d4a | 1.000 | 1.000 | 0.0 | 116 | 0.00 | 4.55 |
| 103 | Benzaldehyde | 1.145 | 1.150 | -0.4 | 115 | 0.00 | 4.22 |
| 104 | Phenanthrene-d10a | 1.000 | 1.000 | 0.0 | 104 | 0.00 | 9.84 |
| 105 | Atrazine | 0.096 | 0.109 | -13.5 | 108 | 0.00 | 9.50 |

(#) = Out of Range  SPCC's out = 0  CCC's out = 0
6p17305.D  M6P776.M  Wed Jul 01 22:58:48 2015  RPT1

8.7.18

8

# Initial Calibration Verification



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

**Sample:** E6P777-ICV776
**Lab FileID:** 6P17315.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e6p777\6p17315.D          Vial: 14
Acq On    :  1 Jul 2015   8:01 pm                   Operator: alicjap
Sample    : icv776-50                               Inst    : MS6P
Misc      : op85127,e6p777,                         Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\MSDCHEM\1\METHODS\M6P776.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MSi 30m x .25mm x .25um
Last Update  : Wed Jul 01 19:41:57 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

| | | Compound | AvgRF | CCRF | %Dev | Area% | Dev(min) | R.T. |
|---|---|---|---|---|---|---|---|---|
| 1 | I | 1,4-Dichlorobenzene-d4 | 1.000 | 1.000 | 0.0 | 100 | 0.00 | 4.55 |
| 5 | S | 2-Fluorophenol | 1.347 | 1.233 | 8.5 | 92 | 0.01 | 3.55 |
| 8 | S | Phenol-d5 | 1.779 | 1.582 | 11.1 | 89 | 0.00 | 4.28 |
| 24 | I | Naphthalene-d8 | 1.000 | 1.000 | 0.0 | 100 | 0.00 | 5.62 |
| 25 | S | Nitrobenzene-d5 | 0.422 | 0.422 | 0.0 | 101 | 0.00 | 4.98 |
| 47 | I | Acenaphthene-d10 | 1.000 | 1.000 | 0.0 | 99 | 0.00 | 7.67 |
| 51 | S | 2-Fluorobiphenyl | 1.230 | 1.179 | 4.1 | 101 | 0.00 | 6.81 |
| | | ---------- | AvgRF | CCRF | % Dev | ---------- | | |
| 69 | I | Phenanthrene-d10 | 1.000 | 1.000 | 0.0 | 103 | 0.00 | 9.84 |
| 73 | S | 2,4,6-Tribromophenol | 0.082 | 0.062 | 24.4 | 84 | 0.00 | 8.79 |
| 83 | I | Chrysene-d12 | 1.000 | 1.000 | 0.0 | 91 | 0.00 | 14.04 |
| 86 | S | Terphenyl-d14 | 0.707 | 0.776 | -9.8 | 112 | 0.00 | 12.42 |

(#) = Out of Range  SPCC's out = 0  CCC's out = 0
6p17305.D  M6P776.M  Wed Jul 01 22:58:50 2015  RPT1

8.7.19

8

# Initial Calibration Verification



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

**Sample:** E6P777-ICV776
**Lab FileID:** 6P17316.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e6p777\6p17316.D          Vial: 15
Acq On    :  1 Jul 2015   8:27 pm                   Operator: alicjap
Sample    : icv776-50                               Inst    : MS6P
Misc      : op85127,e6p777,                         Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\MSDCHEM\1\METHODS\M6P776.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MSi 30m x .25mm x .25um
Last Update  : Wed Jul 01 19:41:57 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

| | | Compound | AvgRF | CCRF | %Dev | Area% | Dev(min) | R.T. |
|---|---|---|---|---|---|---|---|---|
| 83 | I | Chrysene-d12 | 1.000 | 1.000 | 0.0 | 145 | 0.00 | 14.04 |
| 89 | t | 3,3'-Dichlorobenzidine | 0.357 | 0.395 | -10.6 | 152 | 0.01 | 14.04 |

(#) = Out of Range  SPCC's out = 0  CCC's out = 0
6p17305.D  M6P776.M  Wed Jul 01 22:58:52 2015  RPT1

# Initial Calibration Verification



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

**Sample:** E6P777-ICV777
**Lab FileID:** 6P17316A.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e6p777\6p17316a.D          Vial: 15
Acq On    :  1 Jul 2015   8:27 pm                    Operator: alicjap
Sample    : icv777-50                                Inst    : MS6P
Misc      : op85127,e6p777,                          Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\MSDCHEM\1\METHODS\M6P776.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MSi 30m x .25mm x .25um
Last Update  : Wed Jul 01 19:41:57 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

| | Compound | AvgRF | CCRF | %Dev | Area% | Dev(min) | R.T. |
|---|---|---|---|---|---|---|---|
| 107 | Chrysene-d12a | 1.000 | 1.000 | 0.0 | 167 | 0.00 | 14.04 |
| 108 | Benzidine | 0.650 | 0.814 | -25.2 | 179 | 0.00 | 12.01 |

(#) = Out of Range  SPCC's out = 0  CCC's out = 0
6p17305.D  M6P776.M  Wed Jul 01 22:58:54 2015  RPT1

8.7.21

8

# Initial Calibration Verification



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

**Sample:** E6P777-ICV777
**Lab FileID:** 6P17317.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e6p777\6p17317.D          Vial: 16
Acq On    :  1 Jul 2015   8:54 pm                   Operator: alicjap
Sample    : icv777-50                               Inst    : MS6P
Misc      : op85127,e6p777,                         Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\MSDCHEM\1\METHODS\M6P776.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MSi 30m x .25mm x .25um
Last Update  : Wed Jul 01 19:41:57 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

| | Compound | AvgRF | CCRF | %Dev | Area% | Dev(min) | R.T. |
|---|---|---|---|---|---|---|---|
| 112 I | Naphthalene-d8a | 1.000 | 1.000 | 0.0 | 157 | 0.00 | 5.62 |
| 113 | Hydroquinone | 0.301 | 0.443 | -47.2# | 206# | 0.02 | 6.06 |

(#) = Out of Range  SPCC's out = 0  CCC's out = 0
6p17305.D  M6P776.M  Wed Jul 01 22:58:56 2015  RPT1

8.7.22

8

# Initial Calibration Verification



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

**Sample:** E6P778-ICV776
**Lab FileID:** 6P17321.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e6p778\6p17321.D          Vial: 2
Acq On    :  1 Jul 2015  10:20 pm                   Operator: ashleyd
Sample    : icv776-50                               Inst    : MS6P
Misc      : op85127,e6p778                          Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\MSDCHEM\1\METHODS\M6P776.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MSi 30m x .25mm x .25um
Last Update  : Wed Jul 01 19:41:57 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  30%     Max. Rel. Area : 200%
```

| | | Compound | AvgRF | CCRF | %Dev | Area% | Dev(min) | R.T. |
|---|---|---|---|---|---|---|---|---|
| 1 | I | 1,4-Dichlorobenzene-d4 | 1.000 | 1.000 | 0.0 | 99 | 0.00 | 4.54 |
| 9 | t | Phenol | 1.972 | 1.726 | 12.5 | 86 | 0.00 | 4.29 |
| 12 | t | 2-Chlorophenol | 1.349 | 1.272 | 5.7 | 95 | 0.00 | 4.39 |
| 19 | t | 2-Methylphenol | 1.316 | 1.247 | 5.2 | 94 | 0.00 | 4.74 |
| 21 | t | 3&4-Methylphenol | 1.381 | 1.312 | 5.0 | 95 | 0.00 | 4.86 |
| 24 | I | Naphthalene-d8 | 1.000 | 1.000 | 0.0 | 98 | 0.00 | 5.62 |
| 29 | t | 2-Nitrophenol | 0.182 | 0.182 | 0.0 | 93 | 0.00 | 5.26 |
| 30 | t | 2,4-Dimethylphenol | 0.381 | 0.383 | -0.5 | 101 | 0.00 | 5.31 |
| 31 | | Benzoic Acid | 0.265 | 0.266 | -0.4 | 88 | 0.07 | 5.42 |
| 33 | t | 2,4-Dichlorophenol | 0.290 | 0.282 | 2.8 | 95 | 0.00 | 5.48 |
| 34 | | 2,6-Dichlorophenol | 0.286 | 0.283 | 1.0 | 98 | 0.00 | 5.70 |
| 43 | t | 4-Chloro-3-methylphenol | 0.332 | 0.328 | 1.2 | 97 | 0.00 | 6.20 |
| 47 | I | Acenaphthene-d10 | 1.000 | 1.000 | 0.0 | 98 | -0.02 | 7.66 |
| 49 | t | 2,4,6-Trichlorophenol | 0.344 | 0.331 | 3.8 | 96 | 0.00 | 6.69 |
| 50 | t | 2,4,5-Trichlorophenol | 0.361 | 0.341 | 5.5 | 92 | 0.00 | 6.74 |
| | | ---------- | True | Calc. | % Drift | | ---------- | |
| 60 | t | 2,4-Dinitrophenol | 50.000 | 39.168 | 21.6 | 70 | -0.02 | 7.75 |
| | | ---------- | AvgRF | CCRF | % Dev | | ---------- | |
| 61 | t | 4-Nitrophenol | 0.195 | 0.194 | 0.5 | 95 | 0.00 | 7.87 |
| 64 | | 2,3,4,6-Tetrachlorophenol | 0.300 | 0.280 | 6.7 | 89 | -0.01 | 8.13 |
| 69 | I | Phenanthrene-d10 | 1.000 | 1.000 | 0.0 | 102 | -0.01 | 9.83 |
| 70 | t | 4,6-Dinitro-2-methylpheno | 0.126 | 0.105 | 16.7 | 76 | 0.00 | 8.52 |
| 76 | t | Pentachlorophenol | 0.125 | 0.126 | -0.8 | 96 | -0.01 | 9.56 |

(#) = Out of Range  SPCC's out = 0  CCC's out = 0
6p17305.D  M6P776.M  Wed Jul 01 23:00:13 2015  RPT1

8.7.23

8

# Continuing Calibration Summary

**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

**Sample:** E6P791-CC776
**Lab FileID:** 6P17593.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\e6p791\6p17593.D  Vial: 2
Acq On : 9 Jul 2015 10:50 pm  Operator: saraw
Sample : cc776-50  Inst : MS6P
Misc : op85349,e6p791,1000,,,1,1  Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\M6P776.M (RTE Integrator)
Title : Semi Volatile GC/MS, ZB-5MSi 30m x .25mm x .25um
Last Update : Fri Jul 10 09:11:40 2015
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

| | | Compound | AvgRF | CCRF | %Dev | Area% | Dev(min) | R.T. |
|---|---|---|---|---|---|---|---|---|
| 1 | I | 1,4-Dichlorobenzene-d4 | 1.000 | 1.000 | 0.0 | 120 | 0.00 | 4.49 |
| 2 | | 1,4-Dioxane | 0.583 | 0.611 | -4.8 | 130 | 0.00 | 1.97 |
| 3 | t | Pyridine | 1.516 | 1.658 | -9.4 | 130 | 0.00 | 2.31 |
| 4 | t | N-Nitrosodimethylamine | 0.936 | 0.966 | -3.2 | 123 | 0.00 | 2.27 |
| 5 | S | 2-Fluorophenol | 1.347 | 1.318 | 2.2 | 123 | 0.00 | 3.51 |
| 6 | t | Indene | 2.609 | 2.510 | 3.8 | 120 | 0.00 | 4.69 |
| 7 | t | Cumene | 3.672 | 3.561 | 3.0 | 121 | 0.00 | 3.89 |
| 8 | S | Phenol-d5 | 1.779 | 1.782 | -0.2 | 124 | 0.00 | 4.25 |
| 9 | t | Phenol | 1.972 | 1.944 | 1.4 | 121 | 0.00 | 4.26 |
| 10 | t | Aniline | 2.270 | 2.090 | 7.9 | 115 | 0.00 | 4.25 |
| 11 | t | bis(2-Chloroethyl)ether | 1.397 | 1.441 | -3.1 | 129 | 0.00 | 4.30 |
| 12 | t | 2-Chlorophenol | 1.349 | 1.304 | 3.3 | 121 | 0.00 | 4.34 |
| 13 | t | Decane | 1.825 | 1.909 | -4.6 | 129 | 0.00 | 4.38 |
| 14 | t | 1,3-Dichlorobenzene | 1.603 | 1.529 | 4.6 | 121 | 0.00 | 4.45 |
| 15 | t | 1,4-Dichlorobenzene | 1.634 | 1.546 | 5.4 | 118 | 0.00 | 4.51 |
| 16 | t | Benzyl alcohol | 0.865 | 0.874 | -1.0 | 123 | 0.00 | 4.61 |
| 17 | t | 1,2-Dichlorobenzene | 1.501 | 1.456 | 3.0 | 121 | 0.00 | 4.62 |
| 18 | t | Acetophenone | 2.054 | 2.001 | 2.6 | 120 | 0.00 | 4.80 |
| 19 | t | 2-Methylphenol | 1.316 | 1.279 | 2.8 | 122 | 0.00 | 4.71 |
| 20 | t | 2,2'-oxybis(1-Chloropropa | 0.485 | 0.466 | 3.9 | 118 | 0.00 | 4.71 |
| 21 | t | 3&4-Methylphenol | 1.381 | 1.406 | -1.8 | 126 | 0.00 | 4.83 |
| 22 | t | n-Nitroso-di-n-propylamin | 1.219 | 1.218 | 0.1 | 123 | 0.00 | 4.81 |
| 23 | t | Hexachloroethane | 0.570 | 0.547 | 4.0 | 119 | 0.00 | 4.89 |
| 24 | I | Naphthalene-d8 | 1.000 | 1.000 | 0.0 | 120 | 0.00 | 5.56 |
| 25 | S | Nitrobenzene-d5 | 0.422 | 0.413 | 2.1 | 121 | 0.00 | 4.93 |
| 26 | t | Nitrobenzene | 0.449 | 0.447 | 0.4 | 123 | 0.00 | 4.94 |
| 27 | t | Quinoline | 0.690 | 0.667 | 3.3 | 120 | 0.00 | 5.91 |
| 28 | t | Isophorone | 0.734 | 0.720 | 1.9 | 123 | 0.00 | 5.14 |
| 29 | t | 2-Nitrophenol | 0.182 | 0.189 | -3.8 | 124 | 0.00 | 5.21 |
| 30 | t | 2,4-Dimethylphenol | 0.381 | 0.330 | 13.4 | 107 | 0.00 | 5.26 |
| 31 | | Benzoic Acid | 0.265 | 0.248 | 6.4 | 111 | 0.00 | 5.37 |
| 32 | t | bis(2-Chloroethoxy)methan | 0.444 | 0.429 | 3.4 | 123 | 0.00 | 5.33 |
| 33 | t | 2,4-Dichlorophenol | 0.290 | 0.282 | 2.8 | 124 | 0.00 | 5.44 |
| 34 | | 2,6-Dichlorophenol | 0.286 | 0.280 | 2.1 | 122 | 0.00 | 5.65 |
| 35 | t | 1,3,5-Trichlorobenzene | 0.360 | 0.341 | 5.3 | 118 | 0.00 | 5.23 |
| 36 | t | 1,2,4-Trichlorobenzene | 0.339 | 0.321 | 5.3 | 117 | 0.00 | 5.51 |
| 37 | t | 1,2,3-Trichlorobenzene | 0.336 | 0.313 | 6.8 | 119 | 0.00 | 5.72 |
| 38 | t | Naphthalene | 1.019 | 0.975 | 4.3 | 121 | 0.00 | 5.58 |
| 39 | t | 4-Chloroaniline | 0.418 | 0.393 | 6.0 | 116 | 0.00 | 5.64 |
| 40 | t | 2,3-Dichloroaniline | 0.364 | 0.357 | 1.9 | 121 | 0.00 | 6.63 |
| 41 | t | Caprolactam | 0.176 | 0.190 | -8.0 | 135 | 0.00 | 5.99 |

# Continuing Calibration Summary

**Job Number:** JB98590 **Sample:** E6P791-CC776
**Account:** SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 6P17593.D
**Project:** Sunoco - Marcus Hook Facility, PA

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 42 | t | Hexachlorobutadiene | 0.201 | 0.188 | 6.5 | 116 | 0.00 | 5.71 |
| 43 | t | 4-Chloro-3-methylphenol | 0.332 | 0.340 | -2.4 | 127 | 0.00 | 6.16 |
| 44 | t | 2-Methylnaphthalene | 0.559 | 0.542 | 3.0 | 122 | 0.00 | 6.30 |
| 45 | t | 1-Methylnaphthalene | 0.609 | 0.582 | 4.4 | 120 | 0.00 | 6.41 |
| 46 | t | Dimethylnaphthalene | 0.657 | 0.640 | 2.6 | 122 | 0.00 | 7.05 |
| 47 | I | Acenaphthene-d10 | 1.000 | 1.000 | 0.0 | 120 | 0.00 | 7.60 |
| 48 | t | Hexachlorocyclopentadiene | 0.323 | 0.294 | 9.0 | 105 | 0.00 | 6.49 |
| 49 | t | 2,4,6-Trichlorophenol | 0.344 | 0.332 | 3.5 | 121 | 0.00 | 6.64 |
| 50 | t | 2,4,5-Trichlorophenol | 0.361 | 0.360 | 0.3 | 119 | 0.00 | 6.69 |
| 51 | S | 2-Fluorobiphenyl | 1.230 | 1.139 | 7.4 | 119 | 0.00 | 6.74 |
| 52 | t | 2-Chloronaphthalene | 1.032 | 0.997 | 3.4 | 122 | 0.00 | 6.87 |
| 53 | t | Biphenyl | 1.444 | 1.403 | 2.8 | 123 | 0.00 | 6.85 |
| 54 | t | 2-Nitroaniline | 0.357 | 0.378 | -5.9 | 125 | 0.00 | 7.01 |
| 55 | t | Dimethylphthalate | 1.249 | 1.228 | 1.7 | 121 | 0.00 | 7.26 |
| 56 | t | Acenaphthylene | 1.649 | 1.596 | 3.2 | 121 | 0.00 | 7.40 |
| 57 | t | 2,6-Dinitrotoluene | 0.250 | 0.274 | -9.6 | 127 | 0.00 | 7.33 |
| 58 | t | 3-Nitroaniline | 0.271 | 0.285 | -5.2 | 125 | 0.00 | 7.55 |
| 59 | t | Acenaphthene | 1.100 | 1.038 | 5.6 | 122 | 0.00 | 7.64 |
| | | ---------- | True | Calc. | % Drift | ---------- | | |
| 60 | t | 2,4-Dinitrophenol | 50.000 | 43.313 | 13.4 | 111 | 0.00 | 7.70 |
| | | ---------- | AvgRF | CCRF | % Dev | ---------- | | |
| 61 | t | 4-Nitrophenol | 0.195 | 0.187 | 4.1 | 115 | 0.00 | 7.85 |
| 62 | t | Dibenzofuran | 1.457 | 1.415 | 2.9 | 122 | 0.00 | 7.88 |
| 63 | t | 2,4-Dinitrotoluene | 0.351 | 0.375 | -6.8 | 124 | 0.00 | 7.88 |
| 64 | | 2,3,4,6-Tetrachlorophenol | 0.300 | 0.297 | 1.0 | 118 | 0.00 | 8.07 |
| 65 | t | Diethylphthalate | 1.252 | 1.248 | 0.3 | 121 | 0.00 | 8.25 |
| 66 | t | Fluorene | 1.255 | 1.195 | 4.8 | 122 | 0.00 | 8.37 |
| 67 | t | 4-Chlorophenyl-phenylethe | 0.643 | 0.632 | 1.7 | 120 | 0.00 | 8.39 |
| 68 | t | 4-Nitroaniline | 0.272 | 0.285 | -4.8 | 123 | 0.00 | 8.42 |
| 69 | I | Phenanthrene-d10 | 1.000 | 1.000 | 0.0 | 121 | 0.00 | 9.76 |
| 70 | t | 4,6-Dinitro-2-methylpheno | 0.126 | 0.124 | 1.6 | 117 | 0.00 | 8.47 |
| 71 | t | n-Nitrosodiphenylamine | 0.521 | 0.526 | -1.0 | 125 | 0.00 | 8.56 |
| 72 | t | 1,2-Diphenylhydrazine | 0.786 | 0.802 | -2.0 | 125 | 0.00 | 8.62 |
| 73 | S | 2,4,6-Tribromophenol | 0.082 | 0.076 | 7.3 | 125 | 0.00 | 8.72 |
| 74 | t | 4-Bromophenyl-phenylether | 0.207 | 0.200 | 3.4 | 119 | 0.00 | 9.10 |
| 75 | t | Hexachlorobenzene | 0.182 | 0.177 | 2.7 | 124 | 0.00 | 9.19 |
| 76 | t | Pentachlorophenol | 0.125 | 0.113 | 9.6 | 106 | 0.00 | 9.51 |
| 77 | t | Phenanthrene | 1.095 | 1.019 | 6.9 | 123 | 0.00 | 9.79 |
| 78 | t | Anthracene | 1.097 | 1.045 | 4.7 | 125 | 0.00 | 9.87 |
| 79 | t | Carbazole | 1.009 | 1.015 | -0.6 | 126 | 0.00 | 10.15 |
| 80 | t | Di-n-butylphthalate | 1.213 | 1.246 | -2.7 | 124 | 0.00 | 10.79 |
| 81 | t | Fluoranthene | 1.183 | 1.133 | 4.2 | 123 | 0.00 | 11.66 |
| 82 | t | Octadecane | 0.516 | 0.552 | -7.0 | 131 | 0.00 | 9.74 |
| 83 | I | Chrysene-d12 | 1.000 | 1.000 | 0.0 | 121 | 0.00 | 13.95 |
| 84 | t | Pyrene | 1.291 | 1.213 | 6.0 | 124 | 0.00 | 12.00 |
| 85 | | Butyl stearate | 0.305 | 0.367 | -20.3# | 139 | 0.00 | 13.35 |
| 86 | S | Terphenyl-d14 | 0.707 | 0.639 | 9.6 | 127 | 0.00 | 12.32 |
| 87 | t | Butylbenzylphthalate | 0.540 | 0.576 | -6.7 | 128 | 0.00 | 13.16 |
| 88 | t | Benzo[a]anthracene | 1.168 | 1.098 | 6.0 | 125 | 0.00 | 13.93 |
| 89 | t | 3,3'-Dichlorobenzidine | 0.357 | 0.350 | 2.0 | 121 | 0.00 | 13.95 |
| 90 | t | Chrysene | 1.077 | 1.021 | 5.2 | 124 | 0.00 | 13.99 |
| 91 | t | bis(2-Ethylhexyl)phthalat | 0.702 | 0.776 | -10.5 | 130 | 0.00 | 14.14 |
| 92 | I | Perylene-d12 | 1.000 | 1.000 | 0.0 | 126 | 0.00 | 16.07 |
| 93 | t | Di-n-octylphthalate | 1.191 | 1.355 | -13.8 | 137 | 0.00 | 15.13 |

# Continuing Calibration Summary

**Job Number:** JB98590 **Sample:** E6P791-CC776
**Account:** SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 6P17593.D
**Project:** Sunoco - Marcus Hook Facility, PA

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 94 | t | Benzo[b]fluoranthene | 1.061 | 1.000 | 5.7 | 128 | 0.00 | 15.54 |
| 95 | t | Benzo[k]fluoranthene | 1.041 | 0.963 | 7.5 | 127 | 0.00 | 15.59 |
| 96 | t | Benzo[a]pyrene | 0.900 | 0.899 | 0.1 | 132 | 0.00 | 15.99 |
| 97 | t | Indeno[1,2,3-cd]pyrene | 0.769 | 0.857 | -11.4 | 146 | 0.00 | 17.51 |
| 98 | t | Dibenz(a,h)acridine | 0.684 | 0.775 | -13.3 | 137 | 0.00 | 17.19 |
| 99 | t | Dibenz[a,h]anthracene | 0.817 | 0.853 | -4.4 | 130 | 0.00 | 17.55 |
| 100 | t | 7,12-Dimethylbenz(a)anthr | 0.512 | 0.470 | 8.2 | 119 | 0.00 | 15.56 |
| 101 | t | Benzo[g,h,i]perylene | 0.828 | 0.835 | -0.8 | 135 | 0.00 | 17.91 |

(#) = Out of Range SPCC's out = 0 CCC's out = 0
6p17306a.D M6P776.M Fri Jul 10 09:13:03 2015 RPT1

8.7.24

8

# Continuing Calibration Summary



**Job Number:** JB98590 **Sample:** E6P791-CC777
**Account:** SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 6P17594.D
**Project:** Sunoco - Marcus Hook Facility, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e6p791\6p17594.D          Vial: 3
Acq On    :  9 Jul 2015  11:16 pm                   Operator: saraw
Sample    : cc777-50                                Inst    : MS6P
Misc      : op85349,e6p791,1000,,,1,1               Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\msdchem\1\METHODS\M6P776eph.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MSi 30m x .25mm x .25um
Last Update  : Wed Jul 01 19:41:57 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 200%
```

| | Compound | AvgRF | CCRF | %Dev | Area% | Dev(min) | R.T. |
|---|---|---|---|---|---|---|---|
| 102 | 1,4-Dichlorobenzene-d4a | 1.000 | 1.000 | 0.0 | 150 | -0.05 | 4.49 |
| 103 | Benzaldehyde | 1.145 | 1.099 | 4.0 | 143 | -0.05 | 4.16 |
| 104 | Phenanthrene-d10a | 1.000 | 1.000 | 0.0 | 144 | -0.09 | 9.76 |
| 105 | Atrazine | 0.096 | 0.106 | -10.4 | 146 | -0.08 | 9.42 |
| 106 s | o-terphenyl | 0.515 | 0.527 | -2.3 | 142 | -0.10 | 10.41 |
| 107 | Chrysene-d12a | 1.000 | 1.000 | 0.0 | 148 | -0.09 | 13.95 |
| 108 | Benzidine | 0.650 | 0.564 | 13.2 | 111 | -0.09 | 11.92 |
| 109 s | 1-chlorooctadecane | 0.293 | 0.357 | -21.8# | 161 | -0.10 | 11.63 |
| 110 | Acenaphthene-d10a | 1.000 | 1.000 | 0.0 | 154 | -0.08 | 7.60 |
| 111 | 1,2,4,5-Tetrachlorobenzen | 0.528 | 0.487 | 7.8 | 140 | -0.07 | 6.50 |
| 112 I | Naphthalene-d8a | 1.000 | 1.000 | 0.0 | 151 | -0.06 | 5.56 |
| 113 | Hydroquinone | 0.301 | 0.344 | -14.3 | 154 | -0.04 | 6.00 |

(#) = Out of Range  SPCC's out = 0  CCC's out = 0
6p17305.D  M6P776eph.M  Fri Jul 10 10:37:45 2015  RPT1

8.7.25

8

# Continuing Calibration Summary

**Job Number:** JB98590 **Sample:** E6P792-CC776
**Account:** SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 6P17620.D
**Project:** Sunoco - Marcus Hook Facility, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e6p792\6p17620.D          Vial: 2
Acq On    : 10 Jul 2015  12:37 pm                   Operator: alicjap
Sample    : cc776-25                                Inst    : MS6P
Misc      : op85349,e6p792                          Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\MSDCHEM\1\METHODS\M6P776.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MSi 30m x .25mm x .25um
Last Update  : Fri Jul 10 13:17:59 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 200%
```

| | | Compound | AvgRF | CCRF | %Dev | Area% | Dev(min) | R.T. |
|---|---|---|---|---|---|---|---|---|
| 1 | I | 1,4-Dichlorobenzene-d4 | 1.000 | 1.000 | 0.0 | 132 | -0.06 | 4.48 |
| 2 | | 1,4-Dioxane | 0.583 | 0.616 | -5.7 | 145 | -0.09 | 1.95 |
| 3 | t | Pyridine | 1.516 | 1.624 | -7.1 | 140 | -0.08 | 2.30 |
| 4 | t | N-Nitrosodimethylamine | 0.936 | 0.990 | -5.8 | 140 | -0.07 | 2.25 |
| 5 | S | 2-Fluorophenol | 1.347 | 1.304 | 3.2 | 134 | -0.04 | 3.50 |
| 6 | t | Indene | 2.609 | 2.544 | 2.5 | 134 | -0.07 | 4.68 |
| 7 | t | Cumene | 3.672 | 3.521 | 4.1 | 132 | -0.07 | 3.88 |
| 8 | S | Phenol-d5 | 1.779 | 1.797 | -1.0 | 138 | -0.03 | 4.24 |
| 9 | t | Phenol | 1.972 | 1.946 | 1.3 | 134 | -0.03 | 4.25 |
| 10 | t | Aniline | 2.270 | 2.119 | 6.7 | 129 | -0.06 | 4.24 |
| 11 | t | bis(2-Chloroethyl)ether | 1.397 | 1.429 | -2.3 | 142 | -0.06 | 4.29 |
| 12 | t | 2-Chlorophenol | 1.349 | 1.286 | 4.7 | 131 | -0.05 | 4.34 |
| 13 | t | Decane | 1.825 | 1.920 | -5.2 | 143 | -0.06 | 4.38 |
| 14 | t | 1,3-Dichlorobenzene | 1.603 | 1.527 | 4.7 | 133 | -0.06 | 4.45 |
| 15 | t | 1,4-Dichlorobenzene | 1.634 | 1.558 | 4.7 | 131 | -0.06 | 4.50 |
| 16 | t | Benzyl alcohol | 0.865 | 0.878 | -1.5 | 136 | -0.05 | 4.60 |
| 17 | t | 1,2-Dichlorobenzene | 1.501 | 1.454 | 3.1 | 133 | -0.06 | 4.62 |
| 18 | t | Acetophenone | 2.054 | 2.021 | 1.6 | 134 | -0.06 | 4.80 |
| 19 | t | 2-Methylphenol | 1.316 | 1.288 | 2.1 | 135 | -0.04 | 4.70 |
| 20 | t | 2,2'-oxybis(1-Chloropropa | 0.485 | 0.482 | 0.6 | 135 | -0.06 | 4.70 |
| 21 | t | 3&4-Methylphenol | 1.381 | 1.409 | -2.0 | 139 | -0.04 | 4.82 |
| 22 | t | n-Nitroso-di-n-propylamin | 1.219 | 1.273 | -4.4 | 142 | -0.06 | 4.80 |
| 23 | t | Hexachloroethane | 0.570 | 0.545 | 4.4 | 131 | -0.07 | 4.88 |
| 24 | I | Naphthalene-d8 | 1.000 | 1.000 | 0.0 | 132 | -0.07 | 5.55 |
| 25 | S | Nitrobenzene-d5 | 0.422 | 0.418 | 0.9 | 136 | -0.06 | 4.92 |
| 26 | t | Nitrobenzene | 0.449 | 0.442 | 1.6 | 135 | -0.06 | 4.93 |
| 27 | t | Quinoline | 0.690 | 0.680 | 1.4 | 135 | -0.06 | 5.91 |
| 28 | t | Isophorone | 0.734 | 0.729 | 0.7 | 138 | -0.06 | 5.14 |
| 29 | t | 2-Nitrophenol | 0.182 | 0.190 | -4.4 | 137 | -0.06 | 5.21 |
| 30 | t | 2,4-Dimethylphenol | 0.381 | 0.336 | 11.8 | 120 | -0.05 | 5.26 |
| 31 | | Benzoic Acid | 0.265 | 0.276 | -4.2 | 137 | 0.03 | 5.37 |
| 32 | t | bis(2-Chloroethoxy)methan | 0.444 | 0.436 | 1.8 | 138 | -0.07 | 5.32 |
| 33 | t | 2,4-Dichlorophenol | 0.290 | 0.288 | 0.7 | 140 | -0.06 | 5.43 |
| 34 | | 2,6-Dichlorophenol | 0.286 | 0.278 | 2.8 | 134 | -0.06 | 5.64 |
| 35 | t | 1,3,5-Trichlorobenzene | 0.360 | 0.337 | 6.4 | 129 | -0.07 | 5.22 |
| 36 | t | 1,2,4-Trichlorobenzene | 0.339 | 0.321 | 5.3 | 129 | -0.07 | 5.50 |
| 37 | t | 1,2,3-Trichlorobenzene | 0.336 | 0.317 | 5.7 | 133 | -0.07 | 5.71 |
| 38 | t | Naphthalene | 1.019 | 0.997 | 2.2 | 137 | -0.07 | 5.57 |
| 39 | t | 4-Chloroaniline | 0.418 | 0.404 | 3.3 | 132 | -0.06 | 5.63 |
| 40 | t | 2,3-Dichloroaniline | 0.364 | 0.359 | 1.4 | 135 | -0.07 | 6.62 |
| 41 | t | Caprolactam | 0.176 | 0.187 | -6.3 | 147 | -0.02 | 5.99 |

# Continuing Calibration Summary

**Job Number:** JB98590 **Sample:** E6P792-CC776
**Account:** SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 6P17620.D
**Project:** Sunoco - Marcus Hook Facility, PA

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 42 | t | Hexachlorobutadiene | 0.201 | 0.184 | 8.5 | 126 | -0.07 | 5.70 |
| 43 | t | 4-Chloro-3-methylphenol | 0.332 | 0.342 | -3.0 | 141 | -0.04 | 6.16 |
| 44 | t | 2-Methylnaphthalene | 0.559 | 0.551 | 1.4 | 137 | -0.07 | 6.29 |
| 45 | t | 1-Methylnaphthalene | 0.609 | 0.589 | 3.3 | 134 | -0.08 | 6.40 |
| 46 | t | Dimethylnaphthalene | 0.657 | 0.645 | 1.8 | 136 | -0.09 | 7.04 |
| 47 | I | Acenaphthene-d10 | 1.000 | 1.000 | 0.0 | 135 | -0.09 | 7.59 |
| 48 | t | Hexachlorocyclopentadiene | 0.323 | 0.315 | 2.5 | 127 | -0.09 | 6.48 |
| 49 | t | 2,4,6-Trichlorophenol | 0.344 | 0.337 | 2.0 | 138 | -0.06 | 6.63 |
| 50 | t | 2,4,5-Trichlorophenol | 0.361 | 0.365 | -1.1 | 137 | -0.05 | 6.69 |
| 51 | S | 2-Fluorobiphenyl | 1.230 | 1.153 | 6.3 | 136 | -0.08 | 6.72 |
| 52 | t | 2-Chloronaphthalene | 1.032 | 0.988 | 4.3 | 136 | -0.08 | 6.86 |
| 53 | t | Biphenyl | 1.444 | 1.367 | 5.3 | 136 | -0.09 | 6.84 |
| 54 | t | 2-Nitroaniline | 0.357 | 0.387 | -8.4 | 144 | -0.07 | 7.00 |
| 55 | t | Dimethylphthalate | 1.249 | 1.217 | 2.6 | 136 | -0.07 | 7.25 |
| 56 | t | Acenaphthylene | 1.649 | 1.587 | 3.8 | 136 | -0.09 | 7.39 |
| 57 | t | 2,6-Dinitrotoluene | 0.250 | 0.268 | -7.2 | 140 | -0.07 | 7.32 |
| 58 | t | 3-Nitroaniline | 0.271 | 0.282 | -4.1 | 139 | -0.06 | 7.55 |
| 59 | t | Acenaphthene | 1.100 | 1.020 | 7.3 | 136 | -0.09 | 7.63 |
| | | ---------- | True | Calc. | % Drift | ---------- | | |
| 60 | t | 2,4-Dinitrophenol | 50.000 | 50.698 | -1.4 | 150 | -0.07 | 7.69 |
| | | ---------- | AvgRF | CCRF | % Dev | ---------- | | |
| 61 | t | 4-Nitrophenol | 0.195 | 0.190 | 2.6 | 132 | -0.02 | 7.85 |
| 62 | t | Dibenzofuran | 1.457 | 1.414 | 3.0 | 137 | -0.09 | 7.86 |
| 63 | t | 2,4-Dinitrotoluene | 0.351 | 0.371 | -5.7 | 139 | -0.07 | 7.87 |
| 64 | | 2,3,4,6-Tetrachlorophenol | 0.300 | 0.301 | -0.3 | 136 | -0.07 | 8.07 |
| 65 | t | Diethylphthalate | 1.252 | 1.234 | 1.4 | 135 | -0.09 | 8.24 |
| 66 | t | Fluorene | 1.255 | 1.188 | 5.3 | 137 | -0.09 | 8.35 |
| 67 | t | 4-Chlorophenyl-phenylethe | 0.643 | 0.640 | 0.5 | 138 | -0.09 | 8.38 |
| 68 | t | 4-Nitroaniline | 0.272 | 0.280 | -2.9 | 136 | -0.06 | 8.41 |
| 69 | I | Phenanthrene-d10 | 1.000 | 1.000 | 0.0 | 136 | -0.10 | 9.75 |
| 70 | t | 4,6-Dinitro-2-methylpheno | 0.126 | 0.131 | -4.0 | 141 | -0.07 | 8.46 |
| 71 | t | n-Nitrosodiphenylamine | 0.521 | 0.522 | -0.2 | 140 | -0.09 | 8.55 |
| 72 | t | 1,2-Diphenylhydrazine | 0.786 | 0.802 | -2.0 | 141 | -0.10 | 8.60 |
| 73 | S | 2,4,6-Tribromophenol | 0.082 | 0.075 | 8.5 | 139 | -0.09 | 8.71 |
| 74 | t | 4-Bromophenyl-phenylether | 0.207 | 0.207 | 0.0 | 139 | -0.10 | 9.09 |
| 75 | t | Hexachlorobenzene | 0.182 | 0.172 | 5.5 | 137 | -0.09 | 9.18 |
| 76 | t | Pentachlorophenol | 0.125 | 0.117 | 6.4 | 124 | -0.08 | 9.50 |
| 77 | t | Phenanthrene | 1.095 | 1.013 | 7.5 | 138 | -0.09 | 9.78 |
| 78 | t | Anthracene | 1.097 | 1.043 | 4.9 | 140 | -0.09 | 9.86 |
| 79 | t | Carbazole | 1.009 | 0.995 | 1.4 | 139 | -0.08 | 10.14 |
| 80 | t | Di-n-butylphthalate | 1.213 | 1.254 | -3.4 | 141 | -0.10 | 10.78 |
| 81 | t | Fluoranthene | 1.183 | 1.127 | 4.7 | 138 | -0.10 | 11.65 |
| 82 | t | Octadecane | 0.516 | 0.550 | -6.6 | 148 | -0.11 | 9.72 |
| 83 | I | Chrysene-d12 | 1.000 | 1.000 | 0.0 | 136 | -0.10 | 13.94 |
| 84 | t | Pyrene | 1.291 | 1.224 | 5.2 | 141 | -0.09 | 11.99 |
| 85 | | Butyl stearate | 0.305 | 0.368 | -20.7# | 157 | -0.11 | 13.34 |
| 86 | S | Terphenyl-d14 | 0.707 | 0.632 | 10.6 | 141 | -0.10 | 12.31 |
| 87 | t | Butylbenzylphthalate | 0.540 | 0.563 | -4.3 | 140 | -0.10 | 13.15 |
| 88 | t | Benzo[a]anthracene | 1.168 | 1.100 | 5.8 | 141 | -0.10 | 13.92 |
| 89 | t | 3,3'-Dichlorobenzidine | 0.357 | 0.345 | 3.4 | 135 | -0.10 | 13.93 |
| 90 | t | Chrysene | 1.077 | 1.015 | 5.8 | 139 | -0.10 | 13.98 |
| 91 | t | bis(2-Ethylhexyl)phthalat | 0.702 | 0.770 | -9.7 | 146 | -0.11 | 14.13 |
| 92 | I | Perylene-d12 | 1.000 | 1.000 | 0.0 | 141 | -0.10 | 16.06 |
| 93 | t | Di-n-octylphthalate | 1.191 | 1.393 | -17.0 | 156 | -0.11 | 15.12 |

# Continuing Calibration Summary

**Job Number:** JB98590 **Sample:** E6P792-CC776
**Account:** SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 6P17620.D
**Project:** Sunoco - Marcus Hook Facility, PA

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 94 | t | Benzo[b]fluoranthene | 1.061 | 1.004 | 5.4 | 143 | -0.10 | 15.53 |
| 95 | t | Benzo[k]fluoranthene | 1.041 | 0.951 | 8.6 | 139 | -0.09 | 15.58 |
| 96 | t | Benzo[a]pyrene | 0.900 | 0.882 | 2.0 | 144 | -0.10 | 15.97 |
| 97 | t | Indeno[1,2,3-cd]pyrene | 0.769 | 0.857 | -11.4 | 162 | -0.12 | 17.50 |
| 98 | t | Dibenz(a,h)acridine | 0.684 | 0.775 | -13.3 | 153 | -0.12 | 17.18 |
| 99 | t | Dibenz[a,h]anthracene | 0.817 | 0.862 | -5.5 | 147 | -0.13 | 17.53 |
| 100 | t | 7,12-Dimethylbenz(a)anthr | 0.512 | 0.469 | 8.4 | 132 | -0.10 | 15.54 |
| 101 | t | Benzo[g,h,i]perylene | 0.828 | 0.828 | 0.0 | 149 | -0.12 | 17.90 |

(#) = Out of Range SPCC's out = 0 CCC's out = 0
6p17306a.D M6P776.M Fri Jul 10 15:58:40 2015 RPT1

8.7.26

8

# Continuing Calibration Summary



**Job Number:** JB98590 **Sample:** E6P792-CC777
**Account:** SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 6P17621.D
**Project:** Sunoco - Marcus Hook Facility, PA

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\e6p792\6p17621.D          Vial: 3
Acq On    : 10 Jul 2015   1:03 pm                   Operator: alicjap
Sample    : cc777-25                                Inst    : MS6P
Misc      : op85349,e6p792                          Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\MSDCHEM\1\METHODS\M6P776.M (RTE Integrator)
Title        : Semi Volatile  GC/MS, ZB-5MSi 30m x .25mm x .25um
Last Update  : Fri Jul 10 13:17:59 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 200%
```

| | Compound | AvgRF | CCRF | %Dev | Area% | Dev(min) | R.T. |
|---|---|---|---|---|---|---|---|
| 102 | 1,4-Dichlorobenzene-d4a | 1.000 | 1.000 | 0.0 | 139 | -0.06 | 4.48 |
| 103 | Benzaldehyde | 1.145 | 1.087 | 5.1 | 131 | -0.06 | 4.15 |
| 104 | Phenanthrene-d10a | 1.000 | 1.000 | 0.0 | 131 | -0.10 | 9.75 |
| 105 | Atrazine | 0.096 | 0.108 | -12.5 | 136 | -0.10 | 9.40 |
| 106 | Chrysene-d12a | 1.000 | 1.000 | 0.0 | 135 | -0.10 | 13.93 |
| 107 | Benzidine | 0.650 | 0.474 | 27.1# | 91 | -0.11 | 11.91 |
| 108 | Acenaphthene-d10a | 1.000 | 1.000 | 0.0 | 136 | -0.10 | 7.58 |
| 109 | 1,2,4,5-Tetrachlorobenzen | 0.528 | 0.509 | 3.6 | 131 | -0.09 | 6.48 |
| 110 I | Naphthalene-d8a | 1.000 | 1.000 | 0.0 | 139 | -0.07 | 5.55 |
| 111 | Hydroquinone | 0.301 | 0.332 | -10.3 | 139 | -0.04 | 5.99 |

(#) = Out of Range SPCC's out = 0 CCC's out = 0
6p17306a.D M6P776.M Fri Jul 10 15:58:43 2015 RPT1

8.7.27

8

New Jersey

ACCUTEST LABORATORIES

GC/MS Semi-volatiles

Raw Data

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e6p791\
Data File : 6p17607.D
Acq On : 10 Jul 2015 7:39 am
Operator : saraw
Sample : jb98590-1
Misc : op85388,e6p791,1000,,,1,1
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Jul 10 11:11:45 2015
Quant Method : C:\MSDCHEM\1\METHODS\M6P776.M
Quant Title : Semi Volatile GC/MS, ZB-5MSi 30m x .25mm x .25um
QLast Update : Fri Jul 10 09:11:40 2015
Response via : Initial Calibration

| Compound | R.T. | QIon | Response | Conc Units | Dev(Min) |
|---|---|---|---|---|---|
| Internal Standards | | | | | |
| 1) 1,4-Dichlorobenzene-d4 | 4.489 | 152 | 574872 | 40.00 ppm | 0.00 |
| 24) Naphthalene-d8 | 5.553 | 136 | 2218861 | 40.00 ppm | 0.00 |
| 47) Acenaphthene-d10 | 7.591 | 164 | 1422011 | 40.00 ppm | 0.00 |
| 69) Phenanthrene-d10 | 9.757 | 188 | 2372264 | 40.00 ppm | 0.00 |
| 83) Chrysene-d12 | 13.945 | 240 | 2278838 | 40.00 ppm | 0.00 |
| 92) Perylene-d12 | 16.069 | 264 | 2122951 | 40.00 ppm | 0.00 |
| 102) 1,4-Dichlorobenzene-d4a | 4.489 | 152 | 574872 | 40.00 ppm | 0.00 |
| 104) Phenanthrene-d10a | 9.757 | 188 | 2372997 | 40.00 ppm | 0.00 |
| 106) Chrysene-d12a | 13.945 | 240 | 2278838 | 40.00 ppm | 0.00 |
| 108) Acenaphthene-d10a | 7.591 | 164 | 1422011 | 40.00 ppm | 0.00 |
| 110) Naphthalene-d8a | 5.553 | 136 | 2218861 | 40.00 ppm | 0.00 |
| System Monitoring Compounds | | | | | |
| 5) 2-Fluorophenol | 3.516 | 112 | 431166 | 22.27 ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery | = 44.54% | |
| 8) Phenol-d5 | 4.248 | 99 | 383240 | 14.99 ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery | = 29.98% | |
| 25) Nitrobenzene-d5 | 4.922 | 82 | 921369 | 39.37 ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery | = 78.74% | |
| 51) 2-Fluorobiphenyl | 6.730 | 172 | 1621612 | 37.08 ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery | = 74.16% | |
| 73) 2,4,6-Tribromophenol | 8.720 | 330 | 189476 | 38.97 ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery | = 77.94% | |
| 86) Terphenyl-d14 | 12.325 | 244 | 1486281 | 36.90 ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery | = 73.80% | |

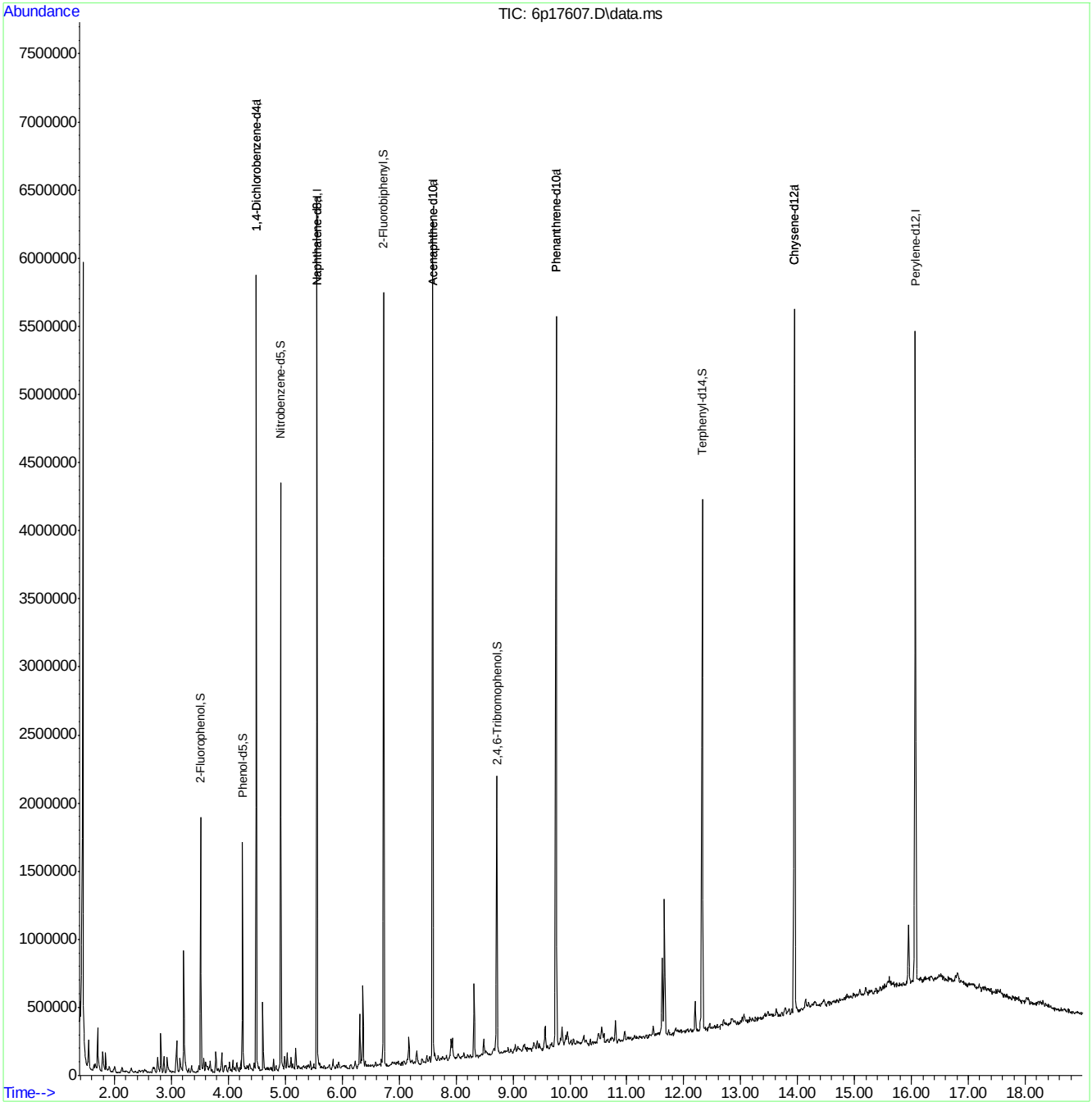
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e6p791\
Data File : 6p17607.D
Acq On : 10 Jul 2015 7:39 am
Operator : saraw
Sample : jb98590-1
Misc : op85388,e6p791,1000,,,1,1
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Jul 10 11:11:45 2015
Quant Method : C:\MSDCHEM\1\METHODS\M6P776.M
Quant Title : Semi Volatile GC/MS, ZB-5MSi 30m x .25mm x .25um
QLast Update : Fri Jul 10 09:11:40 2015
Response via : Initial Calibration




M6P776.M Fri Jul 10 11:11:50 2015 RPT1 Page: 2

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e6p791\
Data File : 6p17608.D
Acq On : 10 Jul 2015 8:05 am
Operator : saraw
Sample : jb98590-2
Misc : op85388,e6p791,1000,,,1,1
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Jul 10 11:14:10 2015
Quant Method : C:\MSDCHEM\1\METHODS\M6P776.M
Quant Title : Semi Volatile GC/MS, ZB-5MSi 30m x .25mm x .25um
QLast Update : Fri Jul 10 09:11:40 2015
Response via : Initial Calibration

| Compound | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| Internal Standards | | | | | | |
| 1) 1,4-Dichlorobenzene-d4 | 4.489 | 152 | 609194 | 40.00 | ppm | 0.00 |
| 24) Naphthalene-d8 | 5.554 | 136 | 2374299 | 40.00 | ppm | 0.00 |
| 47) Acenaphthene-d10 | 7.591 | 164 | 1508327 | 40.00 | ppm | 0.00 |
| 69) Phenanthrene-d10 | 9.758 | 188 | 2509610 | 40.00 | ppm | 0.00 |
| 83) Chrysene-d12 | 13.946 | 240 | 2378001 | 40.00 | ppm | 0.00 |
| 92) Perylene-d12 | 16.069 | 264 | 2147217 | 40.00 | ppm | 0.00 |
| 102) 1,4-Dichlorobenzene-d4a | 4.489 | 152 | 609194 | 40.00 | ppm | 0.00 |
| 104) Phenanthrene-d10a | 9.758 | 188 | 2509318 | 40.00 | ppm | 0.00 |
| 106) Chrysene-d12a | 13.946 | 240 | 2382286 | 40.00 | ppm | 0.00 |
| 108) Acenaphthene-d10a | 7.591 | 164 | 1508686 | 40.00 | ppm | 0.00 |
| 110) Naphthalene-d8a | 5.554 | 136 | 2374299 | 40.00 | ppm | 0.00 |
| System Monitoring Compounds | | | | | | |
| 5) 2-Fluorophenol | 3.516 | 112 | 490275 | 23.89 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 47.78% | | | |
| 8) Phenol-d5 | 4.254 | 99 | 409906 | 15.13 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 30.26% | | | |
| 25) Nitrobenzene-d5 | 4.922 | 82 | 1122115 | 44.81 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 89.62% | | | |
| 51) 2-Fluorobiphenyl | 6.730 | 172 | 1916480 | 41.32 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 82.64% | | | |
| 73) 2,4,6-Tribromophenol | 8.720 | 330 | 211326 | 41.08 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 82.16% | | | |
| 86) Terphenyl-d14 | 12.320 | 244 | 1435138 | 34.15 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 68.30% | | | |

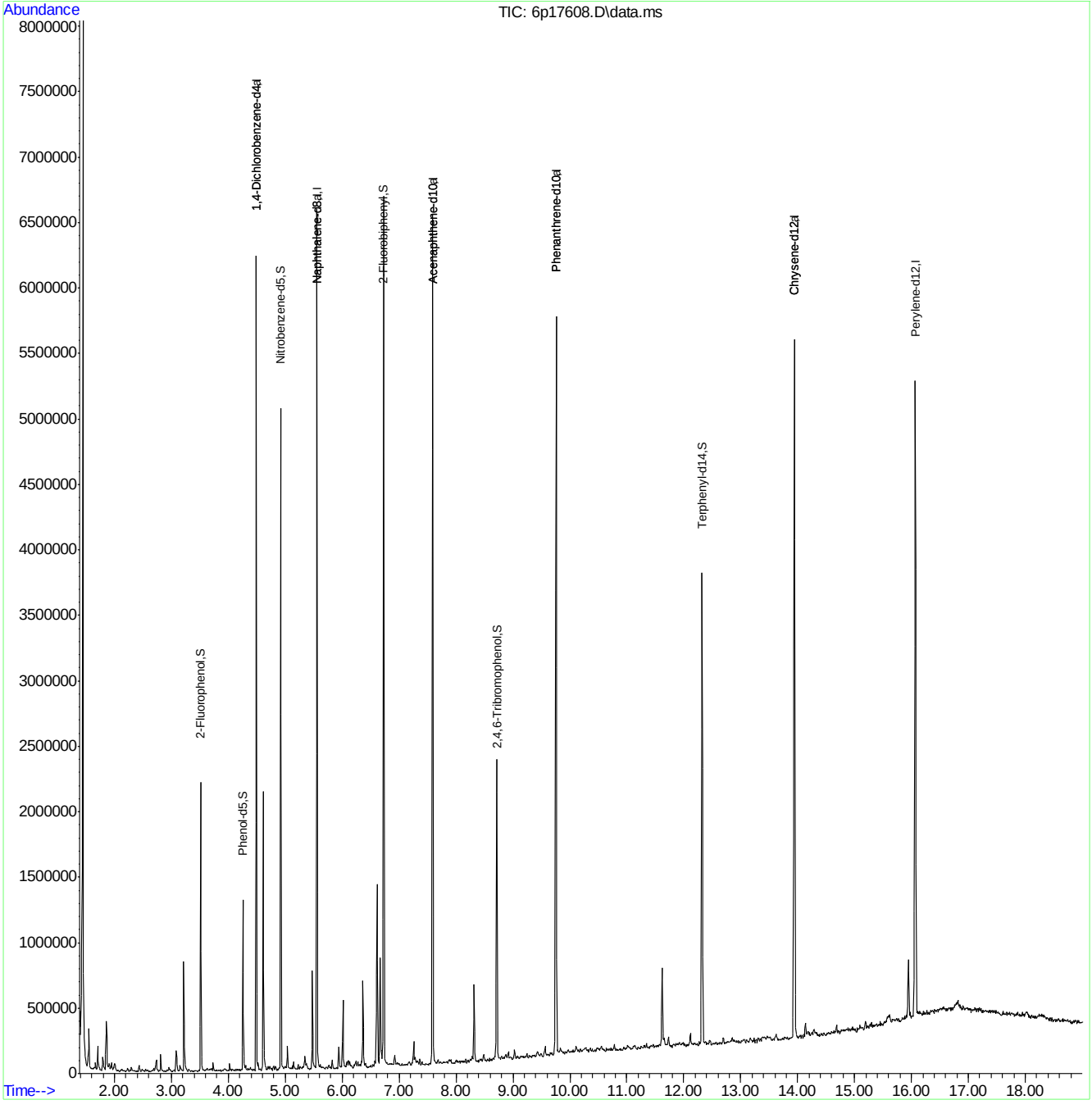
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e6p791\
Data File : 6p17608.D
Acq On : 10 Jul 2015 8:05 am
Operator : saraw
Sample : jb98590-2
Misc : op85388,e6p791,1000,,,1,1
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Jul 10 11:14:10 2015
Quant Method : C:\MSDCHEM\1\METHODS\M6P776.M
Quant Title : Semi Volatile GC/MS, ZB-5MSi 30m x .25mm x .25um
QLast Update : Fri Jul 10 09:11:40 2015
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e6p791\
Data File : 6p17609.D
Acq On : 10 Jul 2015 8:31 am
Operator : saraw
Sample : jb98590-3
Misc : op85388,e6p791,1000,,,1,1
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Jul 10 11:16:50 2015
Quant Method : C:\MSDCHEM\1\METHODS\M6P776.M
Quant Title : Semi Volatile GC/MS, ZB-5MSi 30m x .25mm x .25um
QLast Update : Wed Jul 01 19:41:10 2015
Response via : Initial Calibration

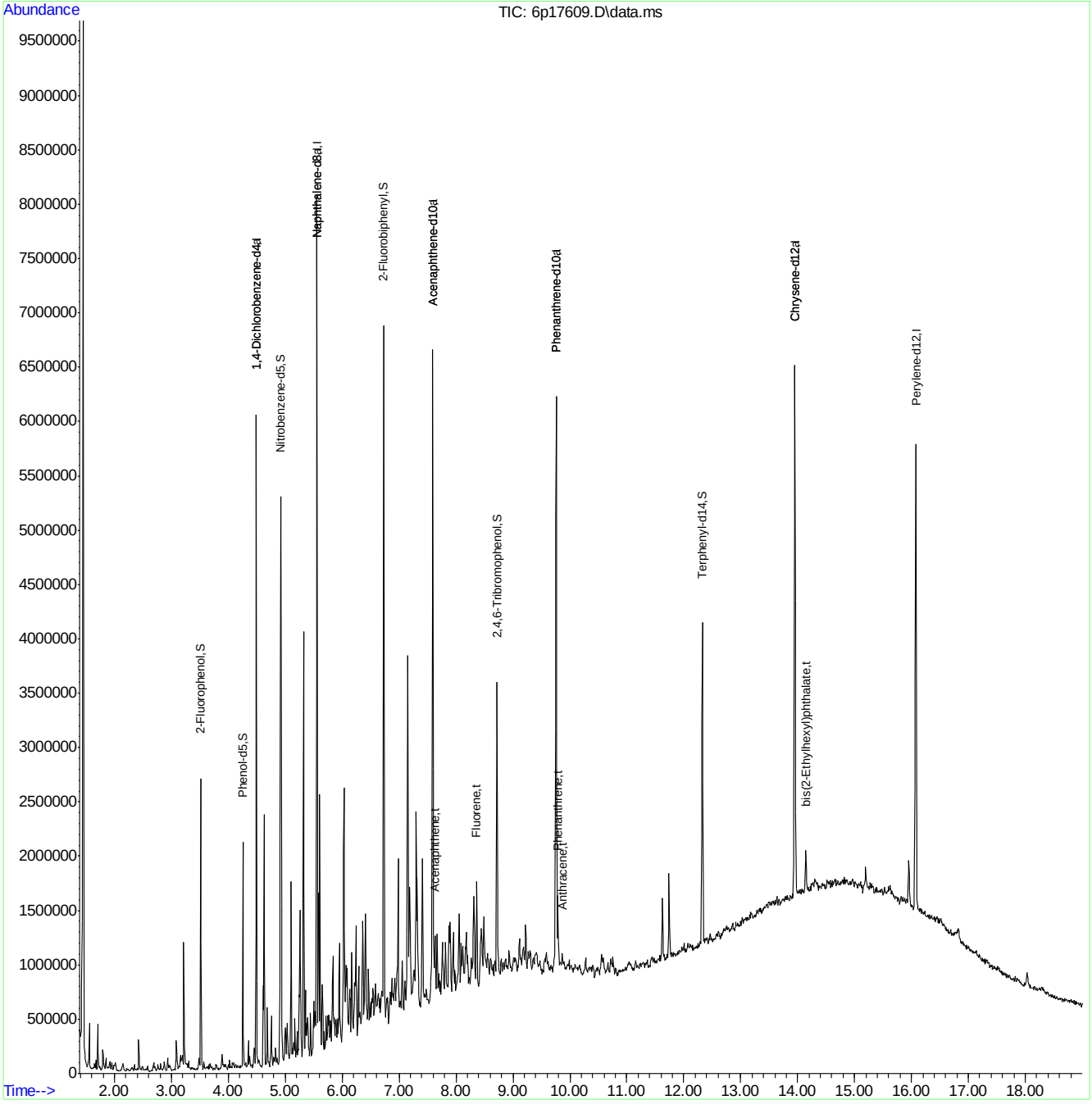
| Compound | R.T. | QIon | Response | Conc Units | Dev(Min) |
|---|---|---|---|---|---|
| Internal Standards | | | | | |
| 1) 1,4-Dichlorobenzene-d4 | 4.489 | 152 | 623873 | 40.00 ppm | -0.06 |
| 24) Naphthalene-d8 | 5.559 | 136 | 2329855 | 40.00 ppm | -0.06 |
| 47) Acenaphthene-d10 | 7.591 | 164 | 1447935 | 40.00 ppm | -0.09 |
| 69) Phenanthrene-d10 | 9.757 | 188 | 2353065 | 40.00 ppm | -0.09 |
| 83) Chrysene-d12 | 13.951 | 240 | 2267079 | 40.00 ppm | -0.09 |
| 92) Perylene-d12 | 16.079 | 264 | 2081944 | 40.00 ppm | -0.08 |
| 102) 1,4-Dichlorobenzene-d4a | 4.489 | 152 | 623873 | 40.00 ppm | -0.06 |
| 104) Phenanthrene-d10a | 9.757 | 188 | 2341170 | 40.00 ppm | -0.09 |
| 106) Chrysene-d12a | 13.951 | 240 | 2264716 | 40.00 ppm | -0.09 |
| 108) Acenaphthene-d10a | 7.591 | 164 | 1447935 | 40.00 ppm | -0.09 |
| 110) Naphthalene-d8a | 5.559 | 136 | 2329855 | 40.00 ppm | -0.06 |
| System Monitoring Compounds | | | | | |
| 5) 2-Fluorophenol | 3.515 | 112 | 513443 | 24.43 ppm | -0.03 |
| Spiked Amount 50.000 | | | Recovery | = 48.86% | |
| 8) Phenol-d5 | 4.254 | 99 | 460229 | 16.59 ppm | -0.02 |
| Spiked Amount 50.000 | | | Recovery | = 33.18% | |
| 25) Nitrobenzene-d5 | 4.922 | 82 | 1197485 | 48.73 ppm | -0.06 |
| Spiked Amount 50.000 | | | Recovery | = 97.46% | |
| 51) 2-Fluorobiphenyl | 6.730 | 172 | 1962918 | 44.08 ppm | -0.08 |
| Spiked Amount 50.000 | | | Recovery | = 88.16% | |
| 73) 2,4,6-Tribromophenol | 8.720 | 330 | 218913 | 45.39 ppm | -0.08 |
| Spiked Amount 50.000 | | | Recovery | = 90.78% | |
| 86) Terphenyl-d14 | 12.325 | 244 | 1168128 | 29.15 ppm | -0.09 |
| Spiked Amount 50.000 | | | Recovery | = 58.30% | |
| Target Compounds | | | | | Qvalue |
| 59) Acenaphthene | 7.634 | 153 | 122537 | 3.08 ppm | 98 |
| 66) Fluorene | 8.361 | 166 | 214579 | 4.72 ppm | 99 |
| 77) Phenanthrene | 9.789 | 178 | 274481 | 4.26 ppm | 97 |
| 78) Anthracene | 9.870 | 178 | 53799 | 0.83 ppm | 93 |
| 91) bis(2-Ethylhexyl)phtha... | 14.143 | 149 | 142752 | 3.59 ppm | 98 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

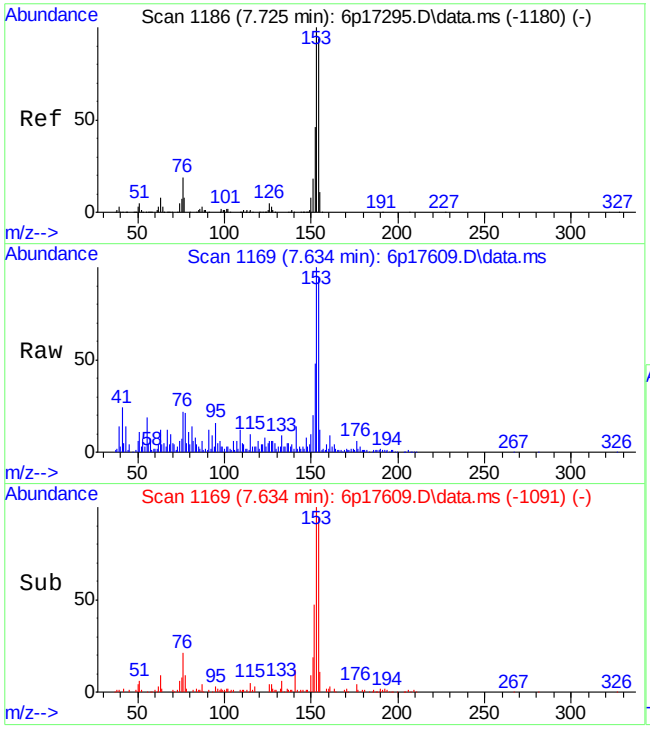
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e6p791\
Data File : 6p17609.D
Acq On : 10 Jul 2015 8:31 am
Operator : saraw
Sample : jb98590-3
Misc : op85388,e6p791,1000,,,1,1
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Jul 10 11:16:50 2015
Quant Method : C:\MSDCHEM\1\METHODS\M6P776.M
Quant Title : Semi Volatile GC/MS, ZB-5MSi 30m x .25mm x .25um
QLast Update : Wed Jul 01 19:41:10 2015
Response via : Initial Calibration



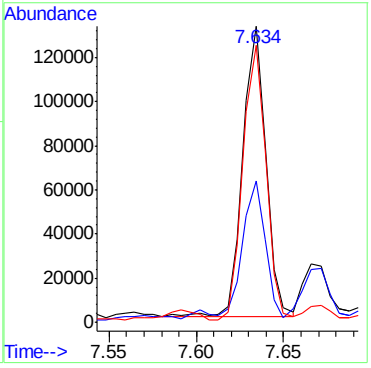

M6P776.M Fri Jul 10 11:16:54 2015 RPT1 Page: 2

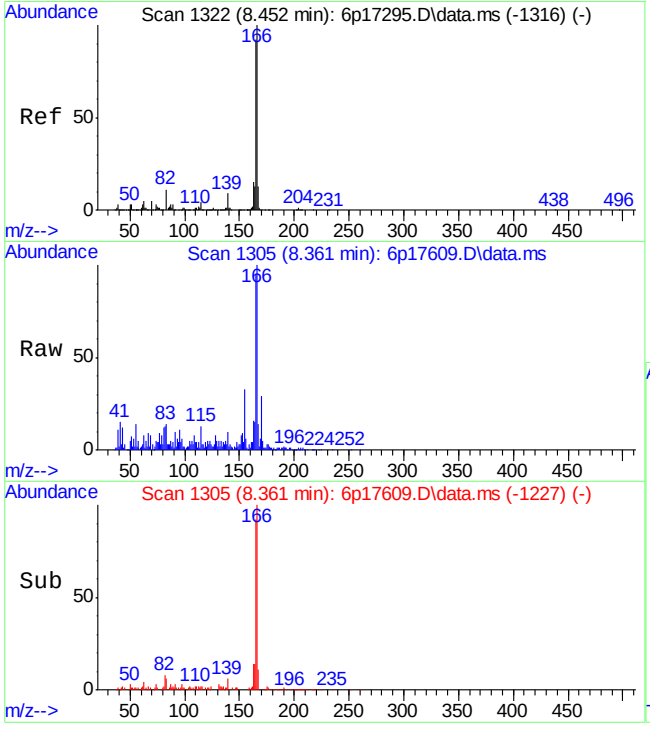



#59
Acenaphthene
Concen: 3.08 ppm
RT: 7.634 min Scan# 1169
Delta R.T. -0.080 min
Lab File: 6p17609.D
Acq: 10 Jul 2015 8:31 am

Tgt Ion:153 Resp: 122537

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 153 | 100 | | |
| 152 | 45.4 | 15.1 | 75.1 |
| 154 | 94.3 | 66.7 | 126.7 |

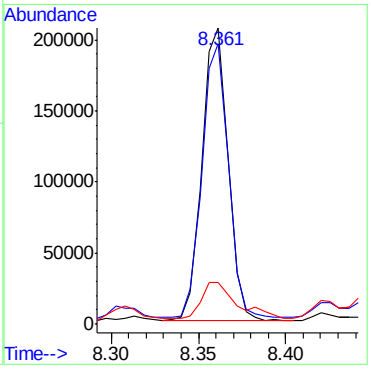


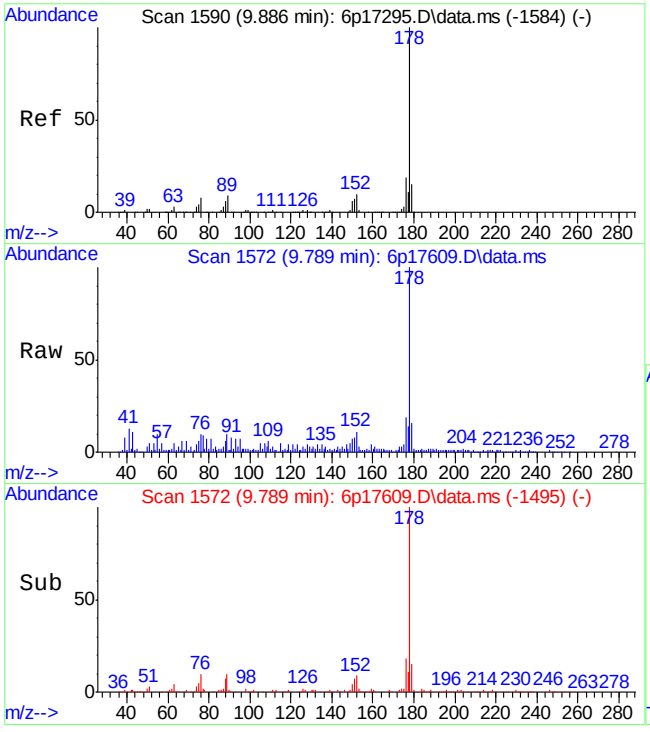




#66
Fluorene
Concen: 4.72 ppm
RT: 8.361 min Scan# 1305
Delta R.T. -0.080 min
Lab File: 6p17609.D
Acq: 10 Jul 2015 8:31 am

Tgt Ion:166 Resp: 214579

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 166 | 100 | | |
| 165 | 93.4 | 64.5 | 124.5 |
| 167 | 12.3 | 0.0 | 42.5 |

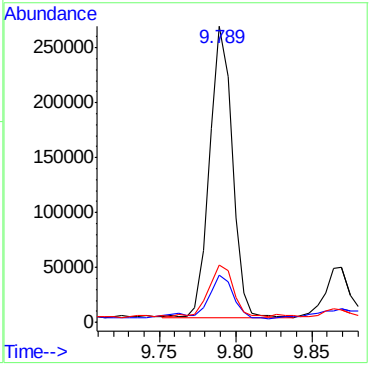


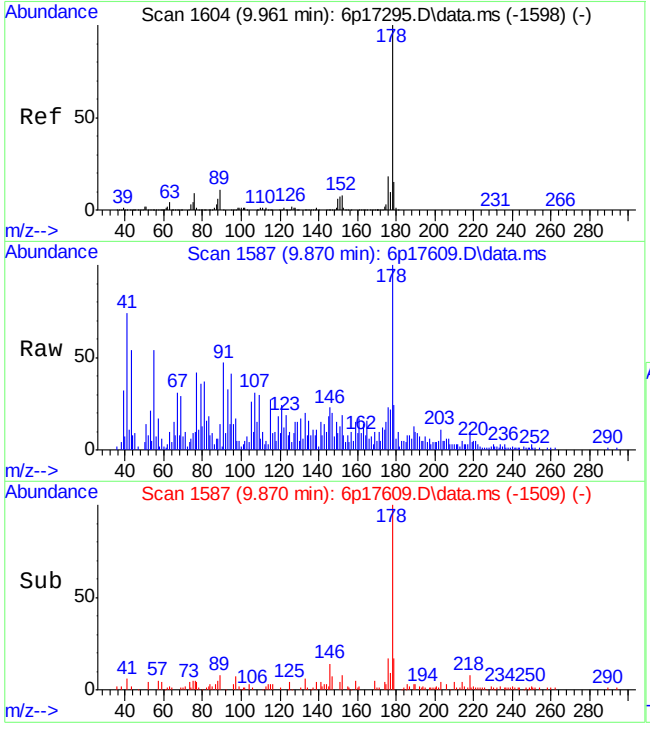



#77
Phenanthrene
Concen: 4.26 ppm
RT: 9.789 min Scan# 1572
Delta R.T. -0.086 min
Lab File: 6p17609.D
Acq: 10 Jul 2015 8:31 am

Tgt Ion:178 Resp: 274481

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 178 | 100 | | |
| 179 | 14.1 | 0.0 | 45.0 |
| 176 | 17.6 | 0.0 | 49.2 |

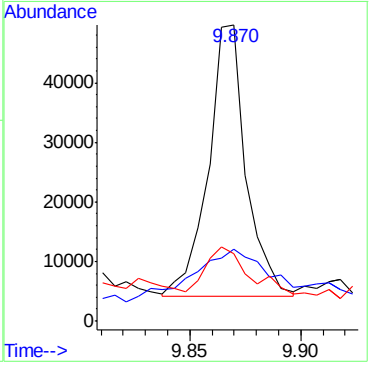


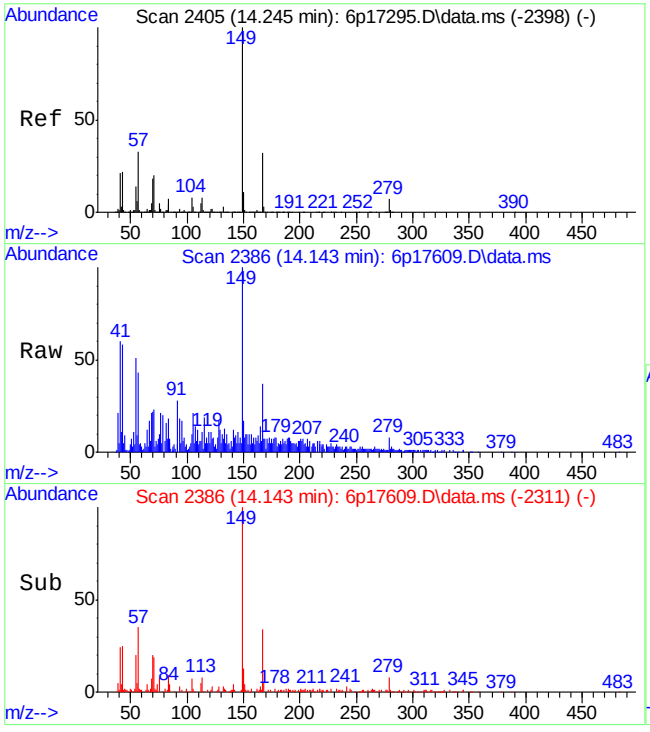




#78
Anthracene
Concen: 0.83 ppm
RT: 9.870 min Scan# 1587
Delta R.T. -0.080 min
Lab File: 6p17609.D
Acq: 10 Jul 2015 8:31 am

Tgt Ion:178 Resp: 53799

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 178 | 100 | | |
| 179 | 14.6 | 0.0 | 45.8 |
| 176 | 13.7 | 0.0 | 48.1 |

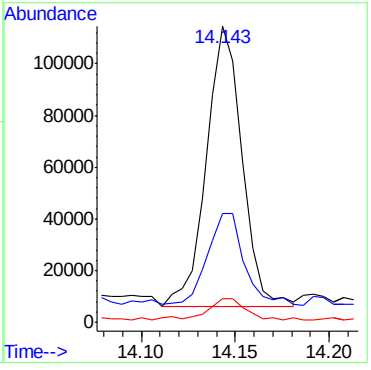





#91
bis(2-Ethylhexyl)phthalate
Concen: 3.59 ppm
RT: 14.143 min Scan# 2386
Delta R.T. -0.096 min
Lab File: 6p17609.D
Acq: 10 Jul 2015 8:31 am

Tgt Ion:149 Resp: 142752

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 149 | 100 | | |
| 167 | 32.8 | 1.8 | 61.8 |
| 279 | 8.6 | 0.0 | 37.1 |




9.1.3

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e6p791\
Data File : 6p17610.D
Acq On : 10 Jul 2015 8:57 am
Operator : saraw
Sample : jb98590-4
Misc : op85388,e6p791,1000,,,1,1
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Jul 10 11:18:49 2015
Quant Method : C:\MSDCHEM\1\METHODS\M6P776.M
Quant Title : Semi Volatile GC/MS, ZB-5MSi 30m x .25mm x .25um
QLast Update : Wed Jul 01 19:41:10 2015
Response via : Initial Calibration

| Compound | R.T. | QIon | Response | Conc Units | Dev(Min) |
|---|---|---|---|---|---|
| Internal Standards | | | | | |
| 1) 1,4-Dichlorobenzene-d4 | 4.489 | 152 | 595768 | 40.00 ppm | -0.06 |
| 24) Naphthalene-d8 | 5.553 | 136 | 2293406 | 40.00 ppm | -0.07 |
| 47) Acenaphthene-d10 | 7.591 | 164 | 1473171 | 40.00 ppm | -0.09 |
| 69) Phenanthrene-d10 | 9.758 | 188 | 2440565 | 40.00 ppm | -0.09 |
| 83) Chrysene-d12 | 13.945 | 240 | 2313743 | 40.00 ppm | -0.09 |
| 92) Perylene-d12 | 16.069 | 264 | 2131364 | 40.00 ppm | -0.09 |
| 102) 1,4-Dichlorobenzene-d4a | 4.489 | 152 | 595768 | 40.00 ppm | -0.06 |
| 104) Phenanthrene-d10a | 9.758 | 188 | 2440565 | 40.00 ppm | -0.09 |
| 106) Chrysene-d12a | 13.945 | 240 | 2313743 | 40.00 ppm | -0.09 |
| 108) Acenaphthene-d10a | 7.591 | 164 | 1474945 | 40.00 ppm | -0.09 |
| 110) Naphthalene-d8a | 5.553 | 136 | 2293406 | 40.00 ppm | -0.07 |
| System Monitoring Compounds | | | | | |
| 5) 2-Fluorophenol | 3.516 | 112 | 510040 | 25.42 ppm | -0.03 |
| Spiked Amount 50.000 | | | Recovery = 50.84% | | |
| 8) Phenol-d5 | 4.254 | 99 | 445901 | 16.83 ppm | -0.02 |
| Spiked Amount 50.000 | | | Recovery = 33.66% | | |
| 25) Nitrobenzene-d5 | 4.922 | 82 | 1135311 | 46.94 ppm | -0.06 |
| Spiked Amount 50.000 | | | Recovery = 93.88% | | |
| 51) 2-Fluorobiphenyl | 6.730 | 172 | 1932777 | 42.66 ppm | -0.07 |
| Spiked Amount 50.000 | | | Recovery = 85.32% | | |
| 73) 2,4,6-Tribromophenol | 8.720 | 330 | 208063 | 41.59 ppm | -0.07 |
| Spiked Amount 50.000 | | | Recovery = 83.18% | | |
| 86) Terphenyl-d14 | 12.325 | 244 | 1650424 | 40.36 ppm | -0.09 |
| Spiked Amount 50.000 | | | Recovery = 80.72% | | |

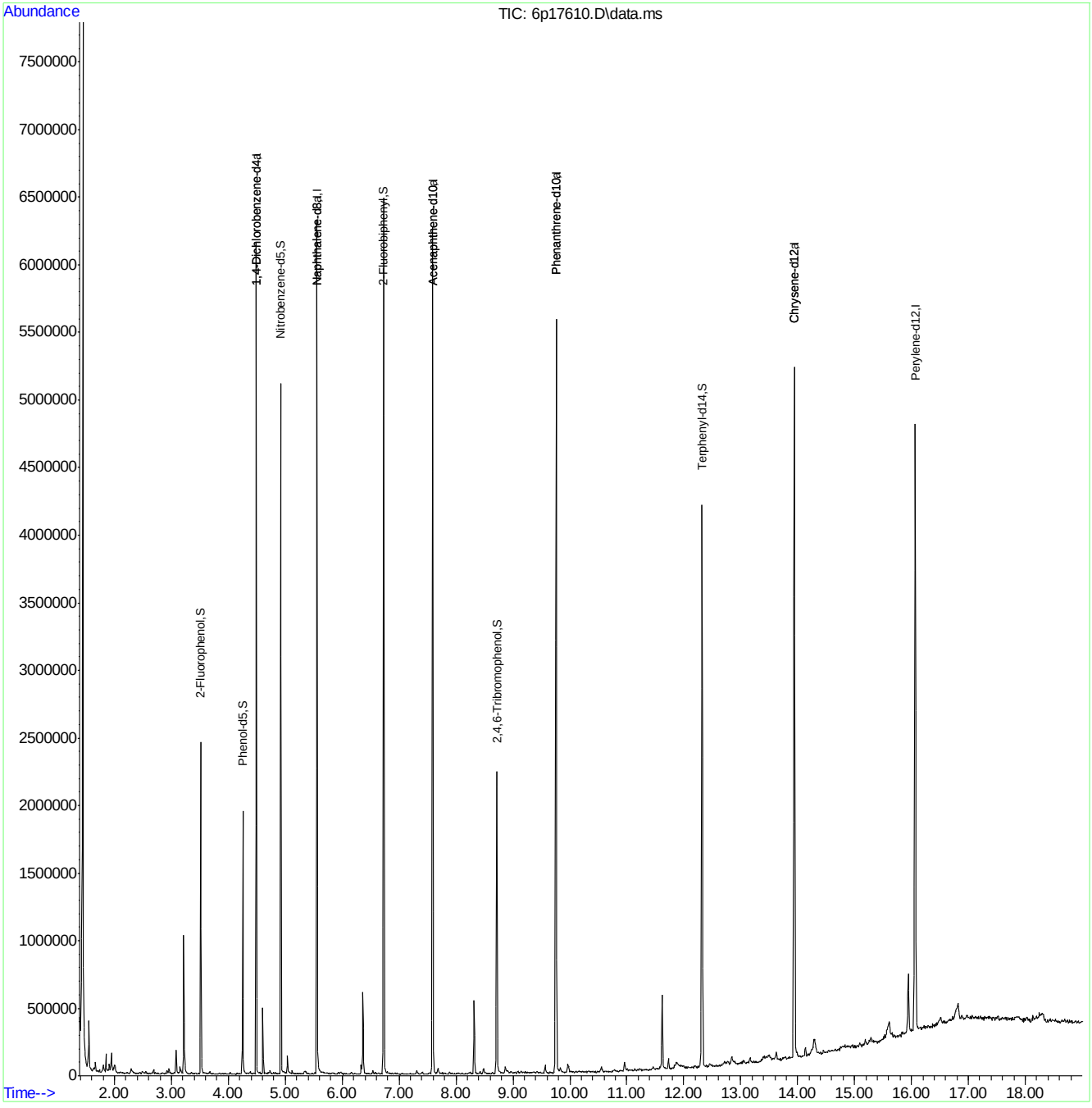
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e6p791\
Data File : 6p17610.D
Acq On : 10 Jul 2015 8:57 am
Operator : saraw
Sample : jb98590-4
Misc : op85388,e6p791,1000,,,1,1
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Jul 10 11:18:49 2015
Quant Method : C:\MSDCHEM\1\METHODS\M6P776.M
Quant Title : Semi Volatile GC/MS, ZB-5MSi 30m x .25mm x .25um
QLast Update : Wed Jul 01 19:41:10 2015
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e6p792\
Data File : 6p17628.D
Acq On : 10 Jul 2015 4:33 pm
Operator : alicjap
Sample : jb98590-5
Misc : op85388,e6p792,1000
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Jul 10 20:40:00 2015
Quant Method : C:\MSDCHEM\1\METHODS\M6P776.M
Quant Title : Semi Volatile GC/MS, ZB-5MSi 30m x .25mm x .25um
QLast Update : Fri Jul 10 19:25:04 2015
Response via : Initial Calibration

| Compound | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| Internal Standards | | | | | | |
| 1) 1,4-Dichlorobenzene-d4 | 4.484 | 152 | 578149 | 40.00 | ppm | 0.00 |
| 24) Naphthalene-d8 | 5.553 | 136 | 2264483 | 40.00 | ppm | 0.00 |
| 47) Acenaphthene-d10 | 7.586 | 164 | 1462657 | 40.00 | ppm | 0.00 |
| 69) Phenanthrene-d10 | 9.747 | 188 | 2410500 | 40.00 | ppm | 0.00 |
| 83) Chrysene-d12 | 13.935 | 240 | 2346019 | 40.00 | ppm | 0.00 |
| 92) Perylene-d12 | 16.058 | 264 | 2093991 | 40.00 | ppm | 0.00 |
| 102) 1,4-Dichlorobenzene-d4a | 4.484 | 152 | 578149 | 40.00 | ppm | 0.00 |
| 104) Phenanthrene-d10a | 9.747 | 188 | 2412524 | 40.00 | ppm | 0.00 |
| 106) Chrysene-d12a | 13.935 | 240 | 2346019 | 40.00 | ppm | 0.00 |
| 108) Acenaphthene-d10a | 7.586 | 164 | 1459009 | 40.00 | ppm | 0.00 |
| 110) Naphthalene-d8a | 5.553 | 136 | 2264483 | 40.00 | ppm | 0.00 |
| System Monitoring Compounds | | | | | | |
| 5) 2-Fluorophenol | 3.505 | 112 | 552492 | 28.37 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 56.74% | | | |
| 8) Phenol-d5 | 4.243 | 99 | 497405 | 19.35 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 38.70% | | | |
| 25) Nitrobenzene-d5 | 4.917 | 82 | 1050931 | 44.00 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 88.00% | | | |
| 51) 2-Fluorobiphenyl | 6.725 | 172 | 1496180 | 33.26 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 66.52% | | | |
| 73) 2,4,6-Tribromophenol | 8.709 | 330 | 205543 | 41.60 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 83.20% | | | |
| 86) Terphenyl-d14 | 12.314 | 244 | 869900 | 20.98 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 41.96% | | | |

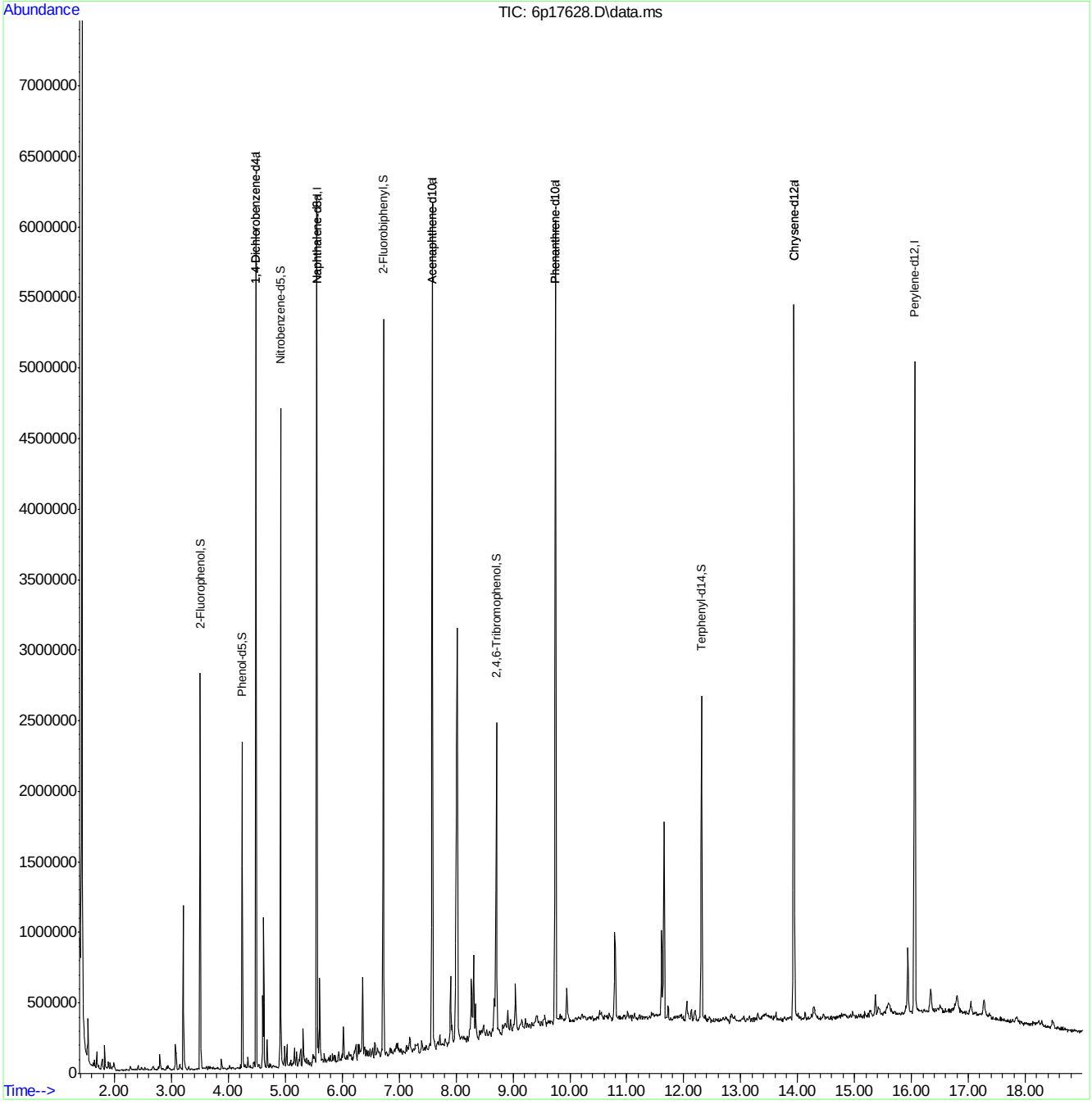
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e6p792\
Data File : 6p17628.D
Acq On : 10 Jul 2015 4:33 pm
Operator : alicjap
Sample : jb98590-5
Misc : op85388,e6p792,1000
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Jul 10 20:40:00 2015
Quant Method : C:\MSDCHEM\1\METHODS\M6P776.M
Quant Title : Semi Volatile GC/MS, ZB-5MSi 30m x .25mm x .25um
QLast Update : Fri Jul 10 19:25:04 2015
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e6p792\
Data File : 6p17629.D
Acq On : 10 Jul 2015 5:00 pm
Operator : alicjap
Sample : jb98590-6
Misc : op85388,e6p792,1000
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Jul 10 20:43:51 2015
Quant Method : C:\MSDCHEM\1\METHODS\M6P776.M
Quant Title : Semi Volatile GC/MS, ZB-5MSi 30m x .25mm x .25um
QLast Update : Fri Jul 10 19:25:04 2015
Response via : Initial Calibration

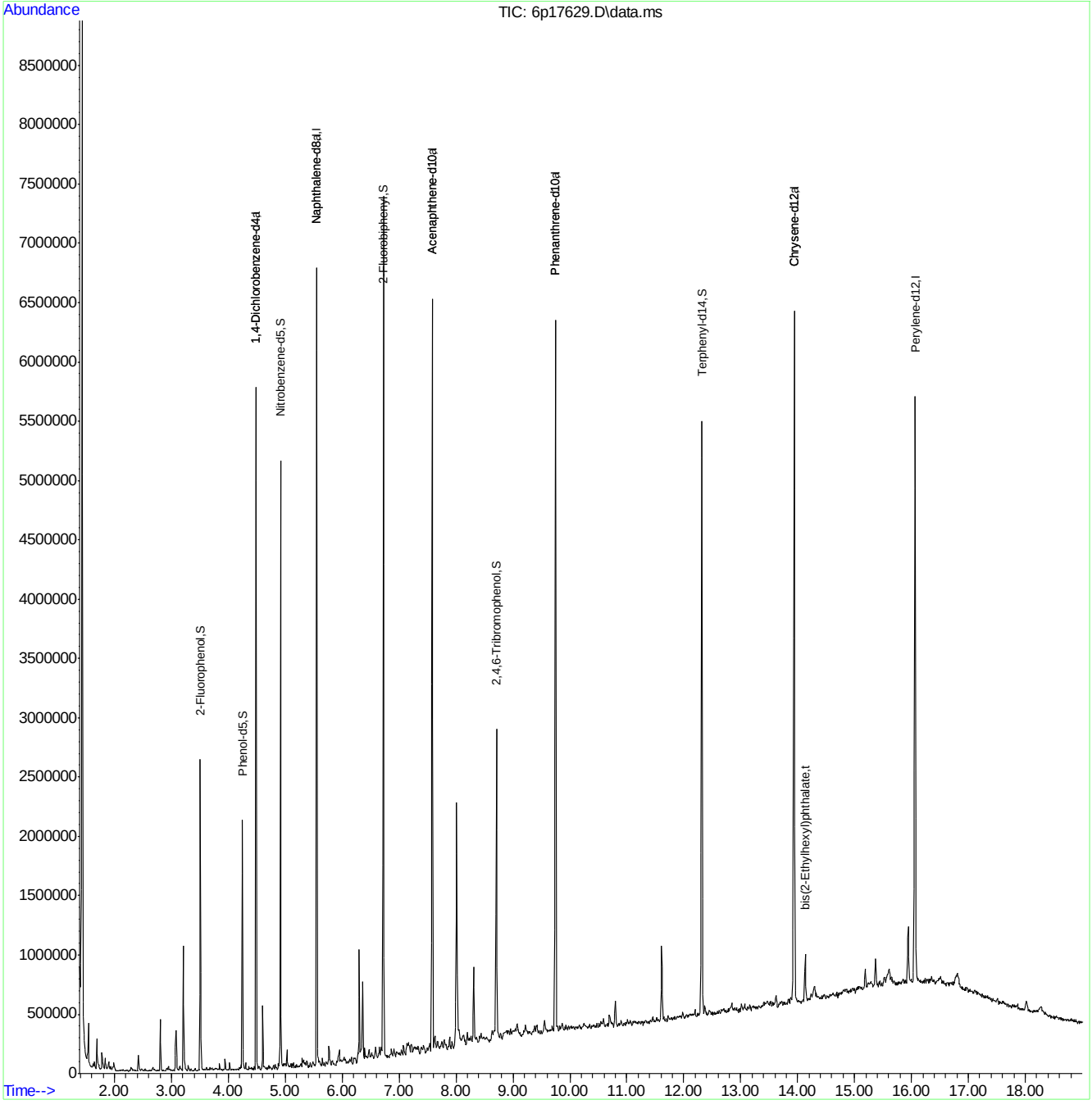
| Compound | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| Internal Standards | | | | | | |
| 1) 1,4-Dichlorobenzene-d4 | 4.484 | 152 | 613540 | 40.00 | ppm | 0.00 |
| 24) Naphthalene-d8 | 5.548 | 136 | 2414554 | 40.00 | ppm | 0.00 |
| 47) Acenaphthene-d10 | 7.586 | 164 | 1558205 | 40.00 | ppm | 0.00 |
| 69) Phenanthrene-d10 | 9.747 | 188 | 2600730 | 40.00 | ppm | 0.00 |
| 83) Chrysene-d12 | 13.940 | 240 | 2515701 | 40.00 | ppm | 0.00 |
| 92) Perylene-d12 | 16.063 | 264 | 2230060 | 40.00 | ppm | 0.00 |
| 102) 1,4-Dichlorobenzene-d4a | 4.484 | 152 | 613540 | 40.00 | ppm | 0.00 |
| 104) Phenanthrene-d10a | 9.747 | 188 | 2596300 | 40.00 | ppm | 0.00 |
| 106) Chrysene-d12a | 13.940 | 240 | 2510575 | 40.00 | ppm | 0.00 |
| 108) Acenaphthene-d10a | 7.586 | 164 | 1556773 | 40.00 | ppm | 0.00 |
| 110) Naphthalene-d8a | 5.548 | 136 | 2414554 | 40.00 | ppm | 0.00 |
| System Monitoring Compounds | | | | | | |
| 5) 2-Fluorophenol | 3.505 | 112 | 550218 | 26.63 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 53.26% | | | |
| 8) Phenol-d5 | 4.248 | 99 | 498849 | 18.28 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 36.56% | | | |
| 25) Nitrobenzene-d5 | 4.917 | 82 | 1166468 | 45.81 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 91.62% | | | |
| 51) 2-Fluorobiphenyl | 6.725 | 172 | 2036297 | 42.49 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 84.98% | | | |
| 73) 2,4,6-Tribromophenol | 8.709 | 330 | 239386 | 44.91 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 89.82% | | | |
| 86) Terphenyl-d14 | 12.319 | 244 | 1965862 | 44.21 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 88.42% | | | |
| Target Compounds | | | | | | Qvalue |
| 91) bis(2-Ethylhexyl)phtha... | 14.133 | 149 | 138369 | 3.13 | ppm | 99 |

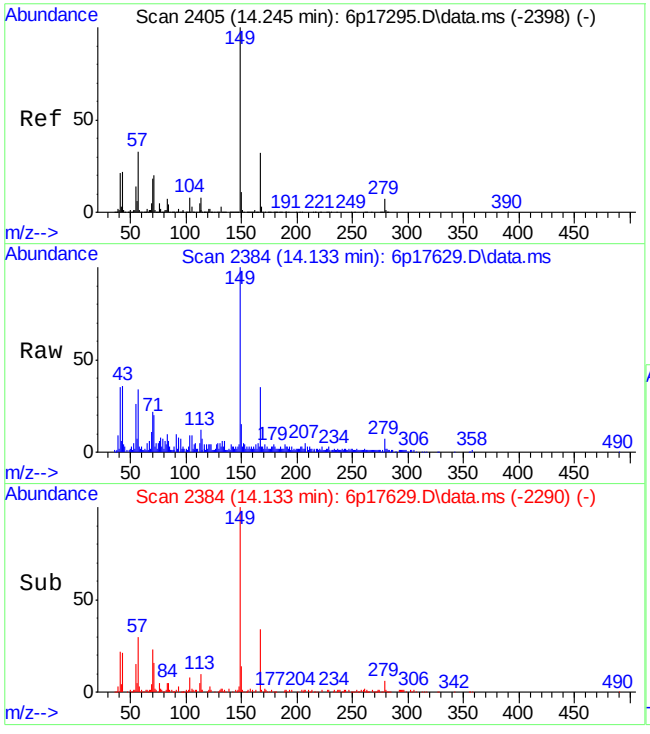
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e6p792\
Data File : 6p17629.D
Acq On : 10 Jul 2015 5:00 pm
Operator : alicjap
Sample : jb98590-6
Misc : op85388,e6p792,1000
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Jul 10 20:43:51 2015
Quant Method : C:\MSDCHEM\1\METHODS\M6P776.M
Quant Title : Semi Volatile GC/MS, ZB-5MSi 30m x .25mm x .25um
QLast Update : Fri Jul 10 19:25:04 2015
Response via : Initial Calibration

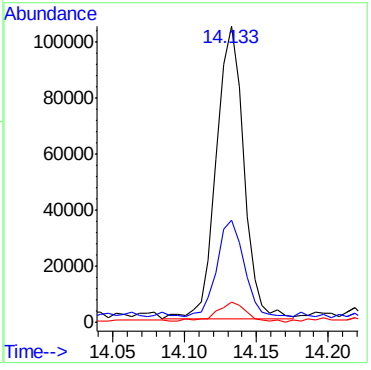





#91
bis(2-Ethylhexyl)phthalate
Concen: 3.13 ppm
RT: 14.133 min Scan# 2384
Delta R.T. 0.005 min
Lab File: 6p17629.D
Acq: 10 Jul 2015 5:00 pm

Tgt Ion:149 Resp: 138369

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 149 | 100 | | |
| 167 | 32.4 | 1.8 | 61.8 |
| 279 | 6.2 | 0.0 | 37.1 |




9.1.6

6

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e6p792\
Data File : 6p17630.D
Acq On : 10 Jul 2015 5:26 pm
Operator : alicjap
Sample : jb98590-7
Misc : op85388,e6p792,950
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Jul 10 20:51:18 2015
Quant Method : C:\MSDCHEM\1\METHODS\M6P776.M
Quant Title : Semi Volatile GC/MS, ZB-5MSi 30m x .25mm x .25um
QLast Update : Fri Jul 10 19:25:04 2015
Response via : Initial Calibration

| Compound | R.T. | QIon | Response | Conc Units | Dev(Min) |
|---|---|---|---|---|---|
| Internal Standards | | | | | |
| 1) 1,4-Dichlorobenzene-d4 | 4.489 | 152 | 595243 | 40.00 ppm | 0.00 |
| 24) Naphthalene-d8 | 5.554 | 136 | 2339924 | 40.00 ppm | 0.00 |
| 47) Acenaphthene-d10 | 7.586 | 164 | 1517703 | 40.00 ppm | 0.00 |
| 69) Phenanthrene-d10 | 9.747 | 188 | 2564911 | 40.00 ppm | 0.00 |
| 83) Chrysene-d12 | 13.935 | 240 | 2507895 | 40.00 ppm | 0.00 |
| 92) Perylene-d12 | 16.064 | 264 | 2247484 | 40.00 ppm | 0.00 |
| 102) 1,4-Dichlorobenzene-d4a | 4.489 | 152 | 595084 | 40.00 ppm | 0.00 |
| 104) Phenanthrene-d10a | 9.747 | 188 | 2564911 | 40.00 ppm | 0.00 |
| 106) Chrysene-d12a | 13.935 | 240 | 2507895 | 40.00 ppm | 0.00 |
| 108) Acenaphthene-d10a | 7.586 | 164 | 1517703 | 40.00 ppm | 0.00 |
| 110) Naphthalene-d8a | 5.554 | 136 | 2339924 | 40.00 ppm | 0.00 |
| System Monitoring Compounds | | | | | |
| 5) 2-Fluorophenol | 3.505 | 112 | 409288 | 20.41 ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery | = 40.82% | |
| 8) Phenol-d5 | 4.248 | 99 | 379840 | 14.35 ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery | = 28.70% | |
| 25) Nitrobenzene-d5 | 4.917 | 82 | 1027248 | 41.63 ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery | = 83.26% | |
| 51) 2-Fluorobiphenyl | 6.725 | 172 | 1685689 | 36.12 ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery | = 72.24% | |
| 73) 2,4,6-Tribromophenol | 8.709 | 330 | 209195 | 39.79 ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery | = 79.58% | |
| 86) Terphenyl-d14 | 12.314 | 244 | 1535028 | 34.63 ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery | = 69.26% | |

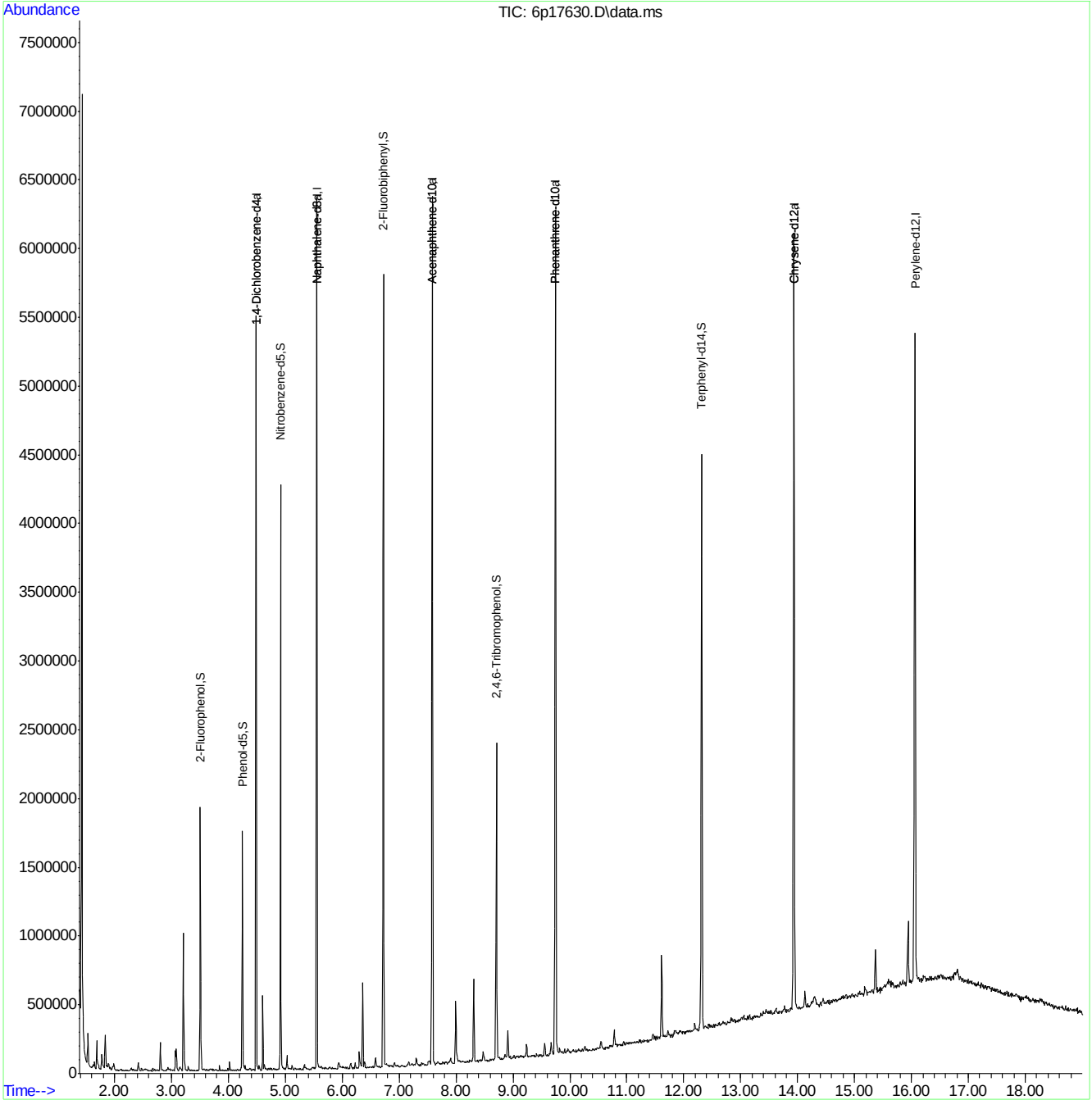
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e6p792\
Data File : 6p17630.D
Acq On : 10 Jul 2015 5:26 pm
Operator : alicjap
Sample : jb98590-7
Misc : op85388,e6p792,950
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Jul 10 20:51:18 2015
Quant Method : C:\MSDCHEM\1\METHODS\M6P776.M
Quant Title : Semi Volatile GC/MS, ZB-5MSi 30m x .25mm x .25um
QLast Update : Fri Jul 10 19:25:04 2015
Response via : Initial Calibration




M6P776.M Fri Jul 10 20:51:56 2015 RPT1 Page: 2

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e6p791\
Data File : 6p17597.D
Acq On : 10 Jul 2015 3:17 am
Operator : saraw
Sample : jb98590-9
Misc : op85388,e6p791,1000,,,1,1
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Jul 10 10:42:07 2015
Quant Method : C:\MSDCHEM\1\METHODS\M6P776.M
Quant Title : Semi Volatile GC/MS, ZB-5MSi 30m x .25mm x .25um
QLast Update : Fri Jul 10 09:11:40 2015
Response via : Initial Calibration

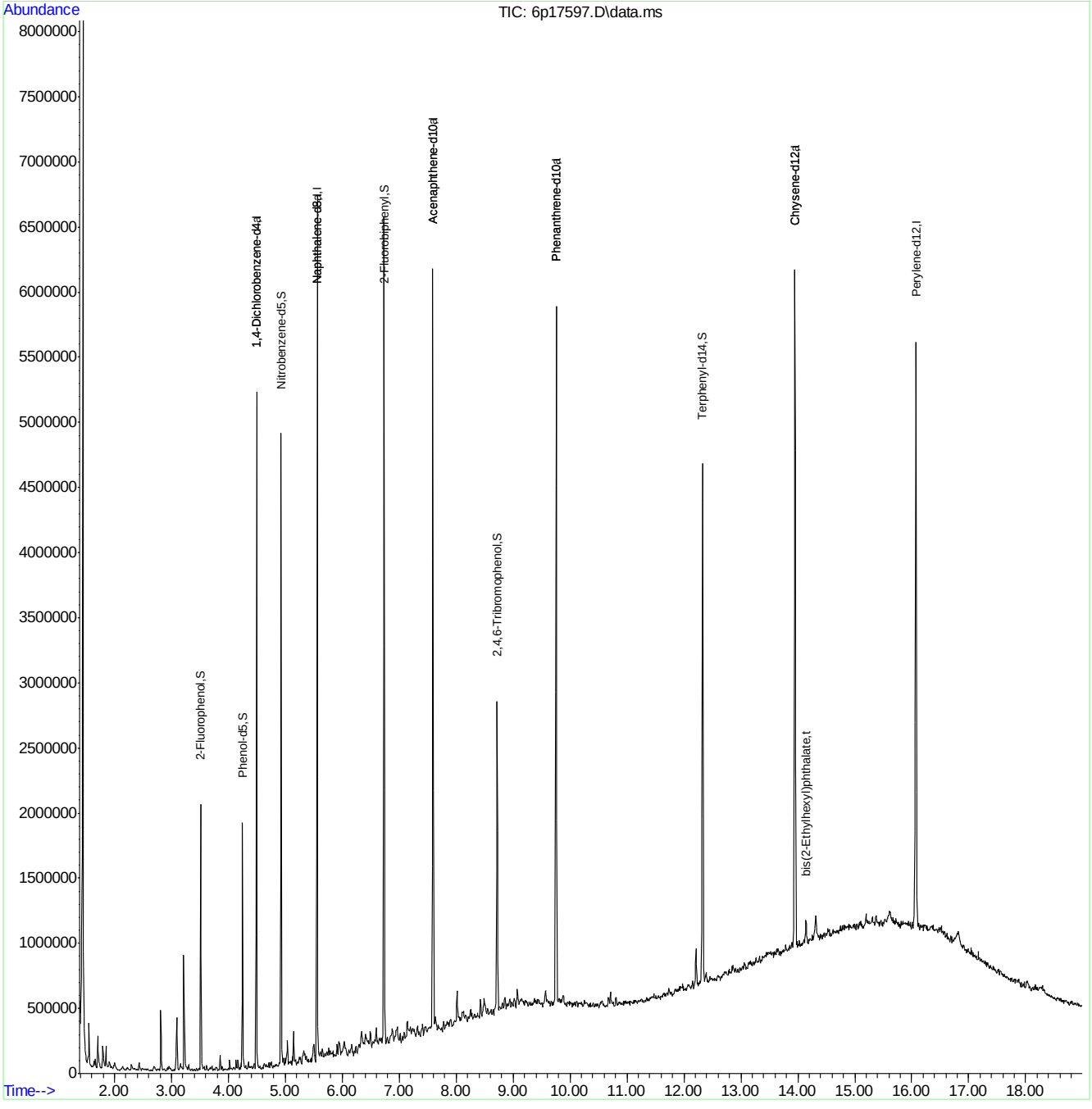
| Compound | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| Internal Standards | | | | | | |
| 1) 1,4-Dichlorobenzene-d4 | 4.495 | 152 | 591884 | 40.00 | ppm | 0.00 |
| 24) Naphthalene-d8 | 5.559 | 136 | 2291515 | 40.00 | ppm | 0.00 |
| 47) Acenaphthene-d10 | 7.591 | 164 | 1404683 | 40.00 | ppm | 0.00 |
| 69) Phenanthrene-d10 | 9.758 | 188 | 2326243 | 40.00 | ppm | 0.00 |
| 83) Chrysene-d12 | 13.951 | 240 | 2259134 | 40.00 | ppm | 0.00 |
| 92) Perylene-d12 | 16.074 | 264 | 2003481 | 40.00 | ppm | 0.00 |
| 102) 1,4-Dichlorobenzene-d4a | 4.495 | 152 | 591884 | 40.00 | ppm | 0.00 |
| 104) Phenanthrene-d10a | 9.758 | 188 | 2326243 | 40.00 | ppm | 0.00 |
| 106) Chrysene-d12a | 13.951 | 240 | 2248319 | 40.00 | ppm | 0.00 |
| 108) Acenaphthene-d10a | 7.591 | 164 | 1404890 | 40.00 | ppm | 0.00 |
| 110) Naphthalene-d8a | 5.559 | 136 | 2291515 | 40.00 | ppm | 0.00 |
| System Monitoring Compounds | | | | | | |
| 5) 2-Fluorophenol | 3.516 | 112 | 460227 | 23.09 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 46.18% | | | |
| 8) Phenol-d5 | 4.248 | 99 | 410666 | 15.60 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 31.20% | | | |
| 25) Nitrobenzene-d5 | 4.922 | 82 | 1125656 | 46.58 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 93.16% | | | |
| 51) 2-Fluorobiphenyl | 6.730 | 172 | 1933828 | 44.77 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 89.54% | | | |
| 73) 2,4,6-Tribromophenol | 8.720 | 330 | 221240 | 46.40 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 92.80% | | | |
| 86) Terphenyl-d14 | 12.325 | 244 | 1541035 | 38.59 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 77.18% | | | |
| Target Compounds | | | | | | Qvalue |
| 91) bis(2-Ethylhexyl)phtha... | 14.143 | 149 | 63273 | 1.60 | ppm | 95 |

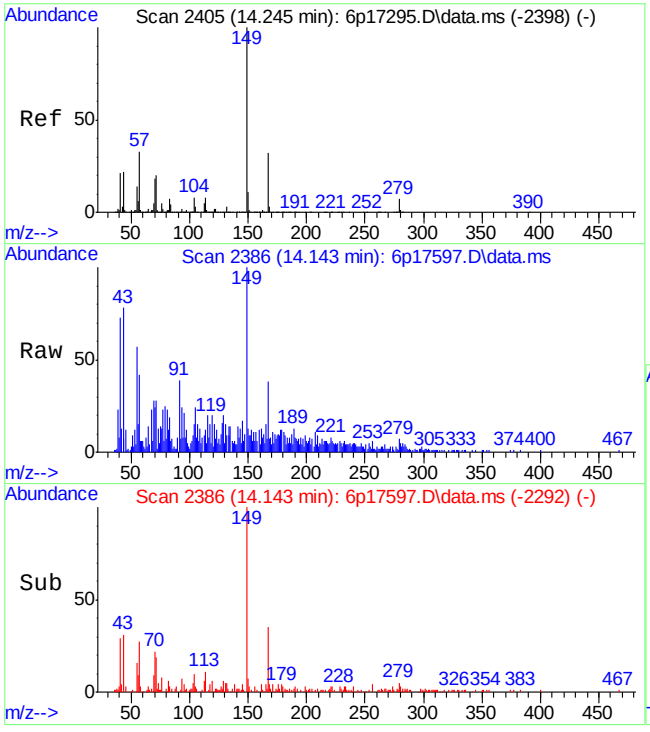
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e6p791\
Data File : 6p17597.D
Acq On : 10 Jul 2015 3:17 am
Operator : saraw
Sample : jb98590-9
Misc : op85388,e6p791,1000,,,1,1
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Jul 10 10:42:07 2015
Quant Method : C:\MSDCHEM\1\METHODS\M6P776.M
Quant Title : Semi Volatile GC/MS, ZB-5MSi 30m x .25mm x .25um
QLast Update : Fri Jul 10 09:11:40 2015
Response via : Initial Calibration

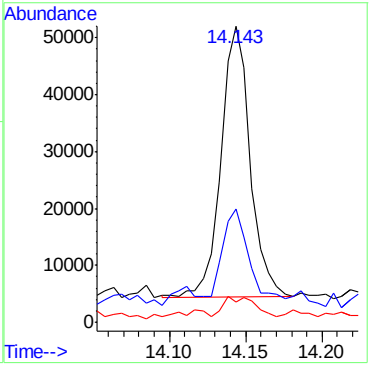





#91
bis(2-Ethylhexyl)phthalate
Concen: 1.60 ppm
RT: 14.143 min Scan# 2386
Delta R.T. 0.000 min
Lab File: 6p17597.D
Acq: 10 Jul 2015 3:17 am

Tgt Ion:149 Resp: 63273

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 149 | 100 | | |
| 167 | 34.1 | 1.8 | 61.8 |
| 279 | 4.2 | 0.0 | 37.1 |




9.1.8

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e6p791\
Data File : 6p17598.D
Acq On : 10 Jul 2015 3:43 am
Operator : saraw
Sample : jb98590-10
Misc : op85388,e6p791,920,,,1,1
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Jul 10 10:43:24 2015
Quant Method : C:\MSDCHEM\1\METHODS\M6P776.M
Quant Title : Semi Volatile GC/MS, ZB-5MSi 30m x .25mm x .25um
QLast Update : Wed Jul 01 19:41:10 2015
Response via : Initial Calibration

| Compound | R.T. | QIon | Response | Conc Units | Dev(Min) |
|---|---|---|---|---|---|
| Internal Standards | | | | | |
| 1) 1,4-Dichlorobenzene-d4 | 4.494 | 152 | 578996 | 40.00 ppm | -0.05 |
| 24) Naphthalene-d8 | 5.559 | 136 | 2245519 | 40.00 ppm | -0.06 |
| 47) Acenaphthene-d10 | 7.591 | 164 | 1400295 | 40.00 ppm | -0.09 |
| 69) Phenanthrene-d10 | 9.757 | 188 | 2329143 | 40.00 ppm | -0.09 |
| 83) Chrysene-d12 | 13.945 | 240 | 2221056 | 40.00 ppm | -0.09 |
| 92) Perylene-d12 | 16.069 | 264 | 1925790 | 40.00 ppm | -0.09 |
| 102) 1,4-Dichlorobenzene-d4a | 4.494 | 152 | 578996 | 40.00 ppm | -0.05 |
| 104) Phenanthrene-d10a | 9.757 | 188 | 2329143 | 40.00 ppm | -0.09 |
| 106) Chrysene-d12a | 13.945 | 240 | 2220667 | 40.00 ppm | -0.09 |
| 108) Acenaphthene-d10a | 7.591 | 164 | 1401045 | 40.00 ppm | -0.09 |
| 110) Naphthalene-d8a | 5.559 | 136 | 2245519 | 40.00 ppm | -0.06 |
| System Monitoring Compounds | | | | | |
| 5) 2-Fluorophenol | 3.516 | 112 | 434912 | 22.30 ppm | -0.03 |
| Spiked Amount 50.000 | | | Recovery | = 44.60% | |
| 8) Phenol-d5 | 4.254 | 99 | 423228 | 16.44 ppm | -0.02 |
| Spiked Amount 50.000 | | | Recovery | = 32.88% | |
| 25) Nitrobenzene-d5 | 4.922 | 82 | 1189236 | 50.22 ppm | -0.06 |
| Spiked Amount 50.000 | | | Recovery | = 100.44% | |
| 51) 2-Fluorobiphenyl | 6.735 | 172 | 1842278 | 42.78 ppm | -0.07 |
| Spiked Amount 50.000 | | | Recovery | = 85.56% | |
| 73) 2,4,6-Tribromophenol | 8.720 | 330 | 144062 | 30.18 ppm | -0.07 |
| Spiked Amount 50.000 | | | Recovery | = 60.36% | |
| 86) Terphenyl-d14 | 12.319 | 244 | 714900 | 18.21 ppm | -0.10 |
| Spiked Amount 50.000 | | | Recovery | = 36.42% | |

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

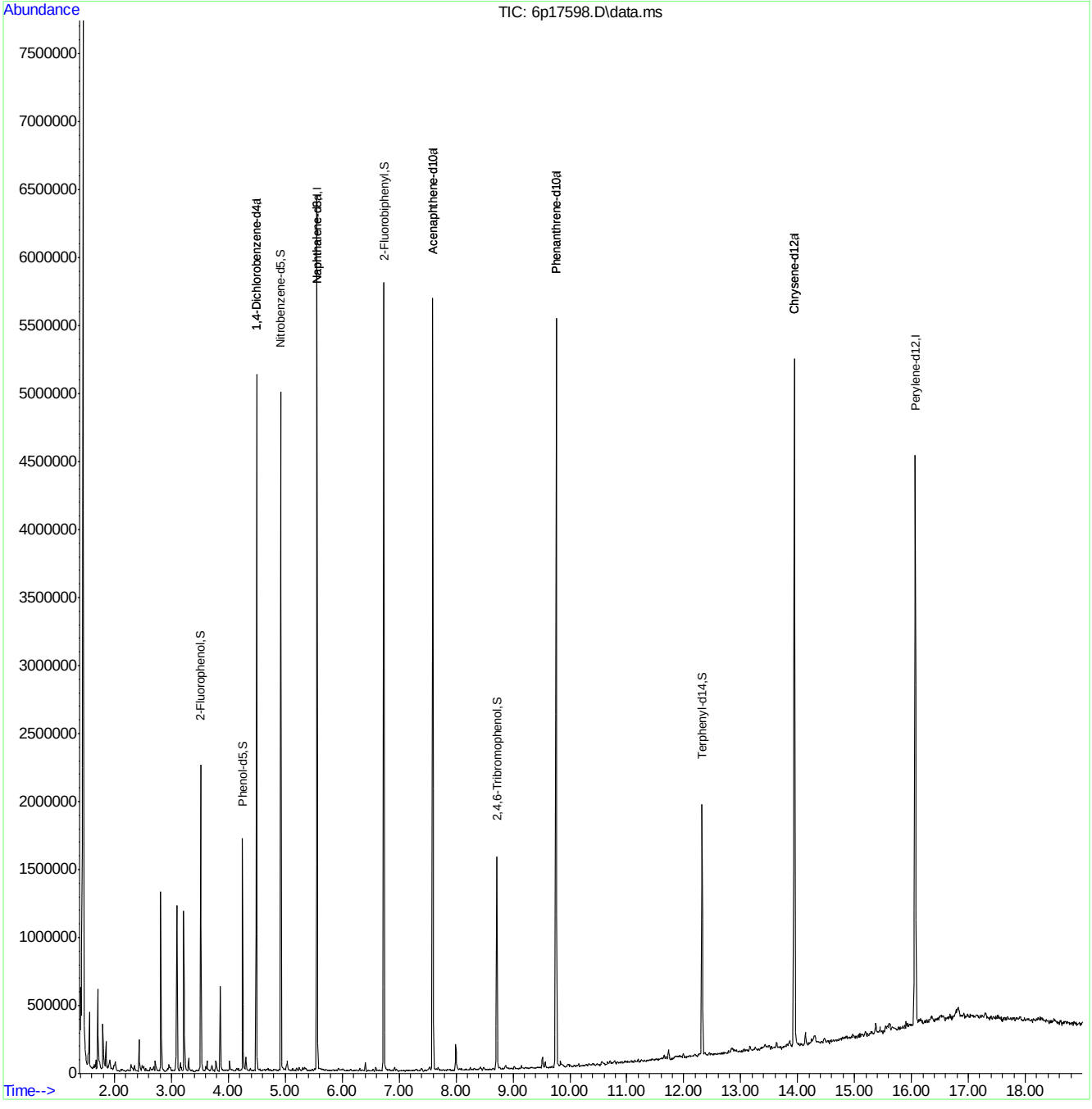


ACCUTEST LABORATORIES JB98590

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e6p791\
Data File : 6p17598.D
Acq On : 10 Jul 2015 3:43 am
Operator : saraw
Sample : jb98590-10
Misc : op85388,e6p791,920,,,1,1
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Jul 10 10:43:24 2015
Quant Method : C:\MSDCHEM\1\METHODS\M6P776.M
Quant Title : Semi Volatile GC/MS, ZB-5MSi 30m x .25mm x .25um
QLast Update : Wed Jul 01 19:41:10 2015
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e6p791\
Data File : 6p17599.D
Acq On : 10 Jul 2015 4:09 am
Operator : saraw
Sample : jb98590-11
Misc : op85388,e6p791,1000,,,1,1
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Jul 10 10:45:30 2015
Quant Method : C:\MSDCHEM\1\METHODS\M6P776.M
Quant Title : Semi Volatile GC/MS, ZB-5MSi 30m x .25mm x .25um
QLast Update : Wed Jul 01 19:41:10 2015
Response via : Initial Calibration

| Compound | R.T. | QIon | Response | Conc Units | Dev(Min) |
|---|---|---|---|---|---|
| Internal Standards | | | | | |
| 1) 1,4-Dichlorobenzene-d4 | 4.494 | 152 | 570043 | 40.00 ppm | -0.05 |
| 24) Naphthalene-d8 | 5.559 | 136 | 2194284 | 40.00 ppm | -0.06 |
| 47) Acenaphthene-d10 | 7.591 | 164 | 1360300 | 40.00 ppm | -0.09 |
| 69) Phenanthrene-d10 | 9.757 | 188 | 2271950 | 40.00 ppm | -0.09 |
| 83) Chrysene-d12 | 13.945 | 240 | 2164641 | 40.00 ppm | -0.09 |
| 92) Perylene-d12 | 16.063 | 264 | 1969501 | 40.00 ppm | -0.10 |
| 102) 1,4-Dichlorobenzene-d4a | 4.494 | 152 | 570144 | 40.00 ppm | -0.05 |
| 104) Phenanthrene-d10a | 9.757 | 188 | 2271831 | 40.00 ppm | -0.09 |
| 106) Chrysene-d12a | 13.945 | 240 | 2164641 | 40.00 ppm | -0.09 |
| 108) Acenaphthene-d10a | 7.591 | 164 | 1360300 | 40.00 ppm | -0.09 |
| 110) Naphthalene-d8a | 5.559 | 136 | 2194284 | 40.00 ppm | -0.06 |
| System Monitoring Compounds | | | | | |
| 5) 2-Fluorophenol | 3.515 | 112 | 503236 | 26.21 ppm | -0.03 |
| Spiked Amount 50.000 | | | Recovery | = 52.42% | |
| 8) Phenol-d5 | 4.248 | 99 | 476204 | 18.79 ppm | -0.03 |
| Spiked Amount 50.000 | | | Recovery | = 37.58% | |
| 25) Nitrobenzene-d5 | 4.922 | 82 | 1159718 | 50.11 ppm | -0.06 |
| Spiked Amount 50.000 | | | Recovery | = 100.22% | |
| 51) 2-Fluorobiphenyl | 6.735 | 172 | 1935622 | 46.27 ppm | -0.07 |
| Spiked Amount 50.000 | | | Recovery | = 92.54% | |
| 73) 2,4,6-Tribromophenol | 8.720 | 330 | 179542 | 38.55 ppm | -0.08 |
| Spiked Amount 50.000 | | | Recovery | = 77.10% | |
| 86) Terphenyl-d14 | 12.325 | 244 | 1833981 | 47.94 ppm | -0.09 |
| Spiked Amount 50.000 | | | Recovery | = 95.88% | |
| Target Compounds | | | | | Qvalue |
| 91) bis(2-Ethylhexyl)phtha... | 14.138 | 149 | 47692 | 1.26 ppm | 95 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

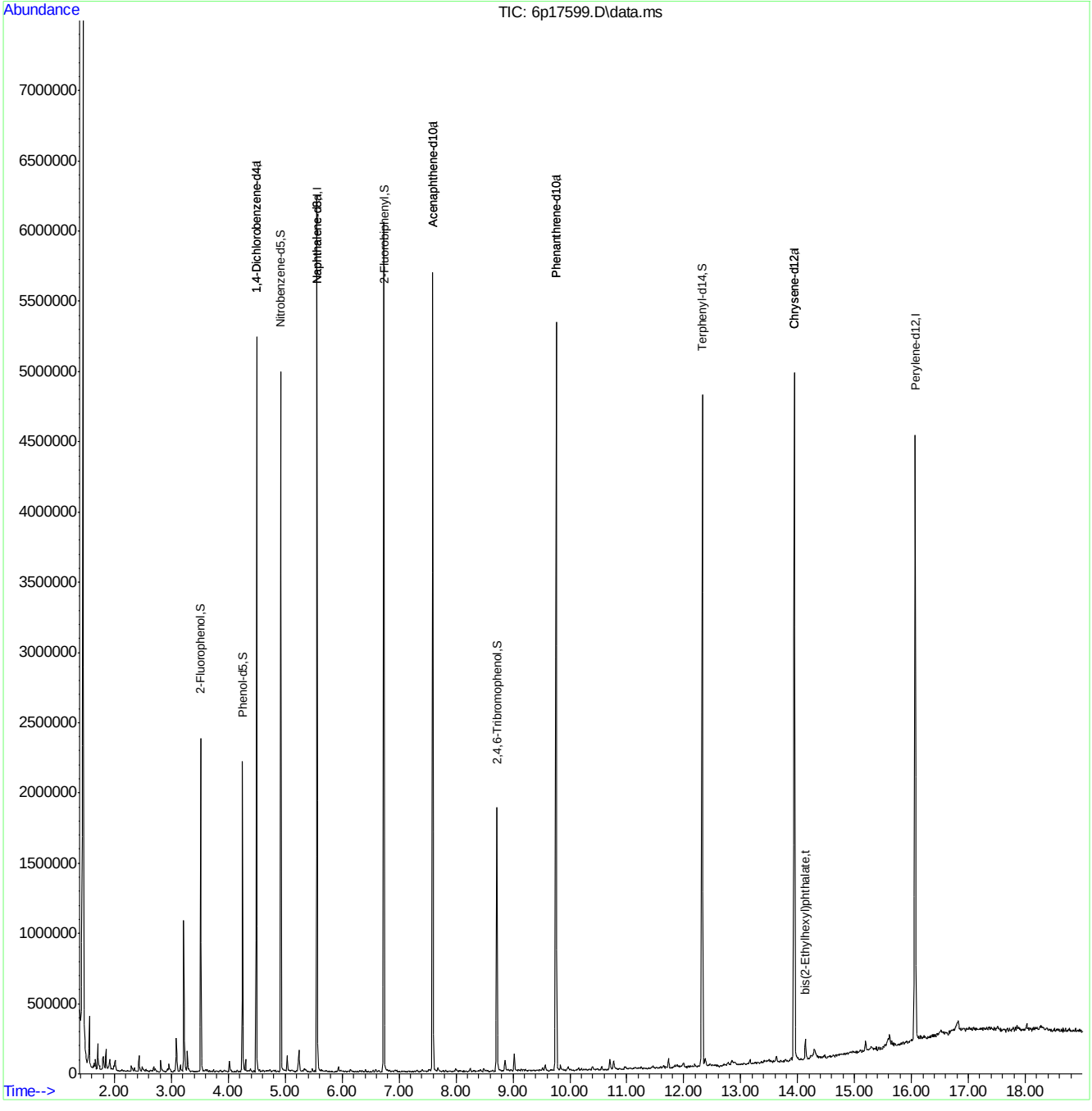
9.1.10

9

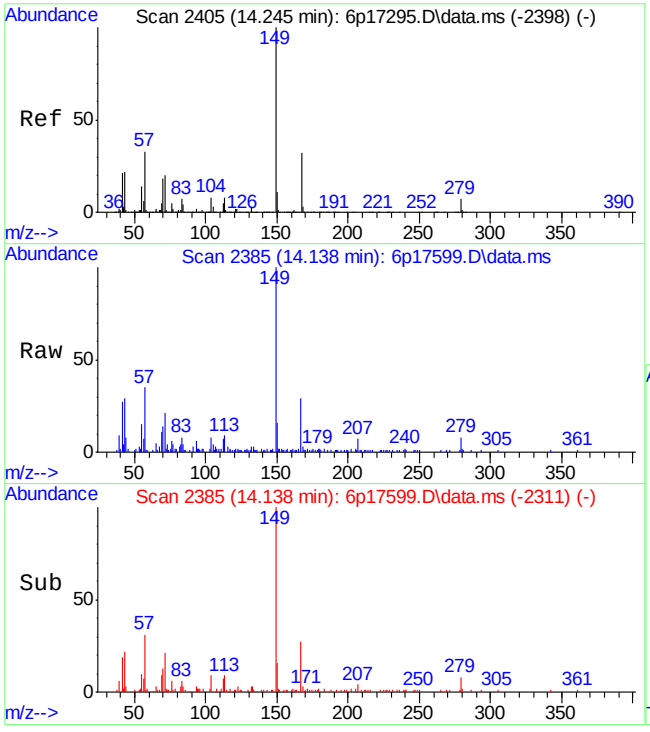
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e6p791\
Data File : 6p17599.D
Acq On : 10 Jul 2015 4:09 am
Operator : saraw
Sample : jb98590-11
Misc : op85388,e6p791,1000,,,1,1
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Jul 10 10:45:30 2015
Quant Method : C:\MSDCHEM\1\METHODS\M6P776.M
Quant Title : Semi Volatile GC/MS, ZB-5MSi 30m x .25mm x .25um
QLast Update : Wed Jul 01 19:41:10 2015
Response via : Initial Calibration



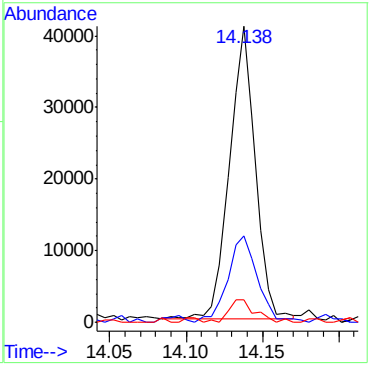

M6P776.M Fri Jul 10 10:45:38 2015 RPT1 Page: 2




#91
bis(2-Ethylhexyl)phthalate
Concen: 1.26 ppm
RT: 14.138 min Scan# 2385
Delta R.T. -0.102 min
Lab File: 6p17599.D
Acq: 10 Jul 2015 4:09 am

Tgt Ion:149 Resp: 47692

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 149 | 100 | | |
| 167 | 28.3 | 1.8 | 61.8 |
| 279 | 6.9 | 0.0 | 37.1 |




9.1.10

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e6p791\
Data File : 6p17600.D
Acq On : 10 Jul 2015 4:36 am
Operator : saraw
Sample : jb98590-12
Misc : op85388,e6p791,1000,,,1,1
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Jul 10 10:47:24 2015
Quant Method : C:\MSDCHEM\1\METHODS\M6P776.M
Quant Title : Semi Volatile GC/MS, ZB-5MSi 30m x .25mm x .25um
QLast Update : Wed Jul 01 19:41:10 2015
Response via : Initial Calibration

| Compound | R.T. | QIon | Response | Conc Units | Dev(Min) |
|---|---|---|---|---|---|
| Internal Standards | | | | | |
| 1) 1,4-Dichlorobenzene-d4 | 4.489 | 152 | 411957 | 40.00 ppm | -0.06 |
| 24) Naphthalene-d8 | 5.559 | 136 | 1602684 | 40.00 ppm | -0.06 |
| 47) Acenaphthene-d10 | 7.591 | 164 | 1014870 | 40.00 ppm | -0.09 |
| 69) Phenanthrene-d10 | 9.752 | 188 | 1711590 | 40.00 ppm | -0.09 |
| 83) Chrysene-d12 | 13.940 | 240 | 1626796 | 40.00 ppm | -0.10 |
| 92) Perylene-d12 | 16.063 | 264 | 1420910 | 40.00 ppm | -0.10 |
| 102) 1,4-Dichlorobenzene-d4a | 4.489 | 152 | 411957 | 40.00 ppm | -0.06 |
| 104) Phenanthrene-d10a | 9.752 | 188 | 1711590 | 40.00 ppm | -0.09 |
| 106) Chrysene-d12a | 13.940 | 240 | 1626796 | 40.00 ppm | -0.10 |
| 108) Acenaphthene-d10a | 7.591 | 164 | 1014974 | 40.00 ppm | -0.09 |
| 110) Naphthalene-d8a | 5.559 | 136 | 1602684 | 40.00 ppm | -0.06 |
| System Monitoring Compounds | | | | | |
| 5) 2-Fluorophenol | 3.510 | 112 | 306221 | 22.07 ppm | -0.03 |
| Spiked Amount 50.000 | | | Recovery | = 44.14% | |
| 8) Phenol-d5 | 4.248 | 99 | 283220 | 15.46 ppm | -0.03 |
| Spiked Amount 50.000 | | | Recovery | = 30.92% | |
| 25) Nitrobenzene-d5 | 4.922 | 82 | 768433 | 45.46 ppm | -0.06 |
| Spiked Amount 50.000 | | | Recovery | = 90.92% | |
| 51) 2-Fluorobiphenyl | 6.730 | 172 | 1241996 | 39.79 ppm | -0.08 |
| Spiked Amount 50.000 | | | Recovery | = 79.58% | |
| 73) 2,4,6-Tribromophenol | 8.714 | 330 | 128006 | 36.49 ppm | -0.08 |
| Spiked Amount 50.000 | | | Recovery | = 72.98% | |
| 86) Terphenyl-d14 | 12.319 | 244 | 1221356 | 42.48 ppm | -0.10 |
| Spiked Amount 50.000 | | | Recovery | = 84.96% | |

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

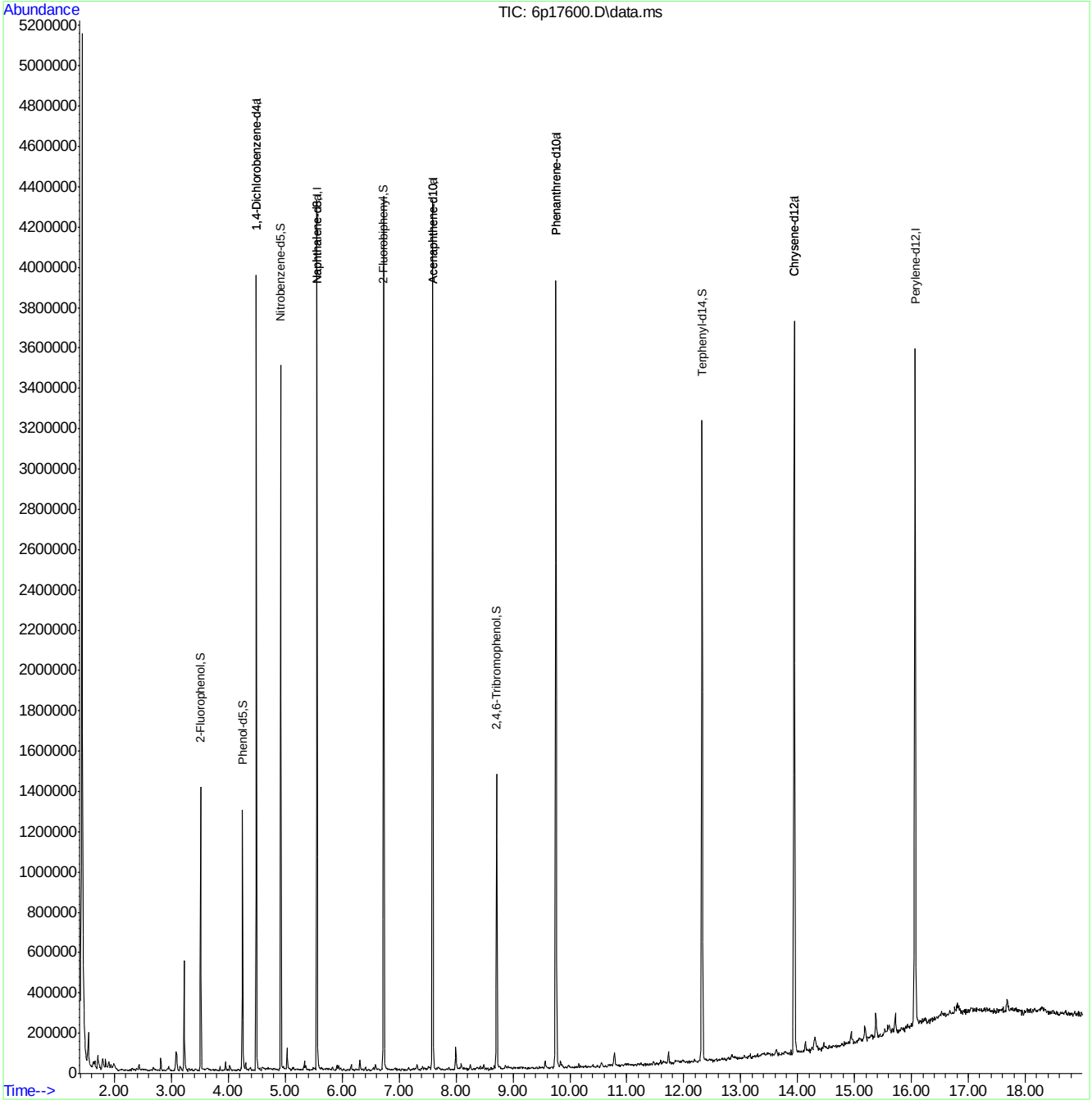
9.1.11

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e6p791\
Data File : 6p17600.D
Acq On : 10 Jul 2015 4:36 am
Operator : saraw
Sample : jb98590-12
Misc : op85388,e6p791,1000,,,1,1
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Jul 10 10:47:24 2015
Quant Method : C:\MSDCHEM\1\METHODS\M6P776.M
Quant Title : Semi Volatile GC/MS, ZB-5MSi 30m x .25mm x .25um
QLast Update : Wed Jul 01 19:41:10 2015
Response via : Initial Calibration




M6P776.M Fri Jul 10 10:47:32 2015 RPT1

Manual Integrations APPROVED (compounds with "m" flag)
Kristi Schollenberger 07/13/15 08:22

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e6p791\
Data File : 6p17601.D
Acq On : 10 Jul 2015 5:02 am
Operator : saraw
Sample : jb98590-13
Misc : op85388,e6p791,960,,,1,1
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Jul 10 10:50:10 2015
Quant Method : C:\MSDCHEM\1\METHODS\M6P776.M
Quant Title : Semi Volatile GC/MS, ZB-5MSi 30m x .25mm x .25um
QLast Update : Wed Jul 01 19:41:10 2015
Response via : Initial Calibration

| Compound | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| Internal Standards | | | | | | |
| 1) 1,4-Dichlorobenzene-d4 | 4.494 | 152 | 578862 | 40.00 | ppm | -0.05 |
| 24) Naphthalene-d8 | 5.564 | 136 | 2191477 | 40.00 | ppm | -0.06 |
| 47) Acenaphthene-d10 | 7.597 | 164 | 1400486 | 40.00 | ppm | -0.08 |
| 69) Phenanthrene-d10 | 9.757 | 188 | 2347941 | 40.00 | ppm | -0.09 |
| 83) Chrysene-d12 | 13.945 | 240 | 2234385 | 40.00 | ppm | -0.09 |
| 92) Perylene-d12 | 16.069 | 264 | 2067959 | 40.00 | ppm | -0.09 |
| 102) 1,4-Dichlorobenzene-d4a | 4.494 | 152 | 578433 | 40.00 | ppm | -0.05 |
| 104) Phenanthrene-d10a | 9.757 | 188 | 2347941 | 40.00 | ppm | -0.09 |
| 106) Chrysene-d12a | 13.945 | 240 | 2234385 | 40.00 | ppm | -0.09 |
| 108) Acenaphthene-d10a | 7.597 | 164 | 1400486 | 40.00 | ppm | -0.08 |
| 110) Naphthalene-d8a | 5.564 | 136 | 2191477 | 40.00 | ppm | -0.06 |
| System Monitoring Compounds | | | | | | |
| 5) 2-Fluorophenol | 3.521 | 112 | 593622 | 30.45 | ppm | -0.02 |
| Spiked Amount 50.000 | | | Recovery = 60.90% | | | |
| 8) Phenol-d5 | 4.259 | 99 | 508337 | 19.75 | ppm | -0.02 |
| Spiked Amount 50.000 | | | Recovery = 39.50% | | | |
| 25) Nitrobenzene-d5 | 4.933 | 82 | 1374410 | 59.47 | ppm | -0.05 |
| Spiked Amount 50.000 | | | Recovery = 118.94% | | | |
| 51) 2-Fluorobiphenyl | 6.741 | 172 | 2008231 | 46.63 | ppm | -0.06 |
| Spiked Amount 50.000 | | | Recovery = 93.26% | | | |
| 73) 2,4,6-Tribromophenol | 8.720 | 330 | 231303 | 48.06 | ppm | -0.07 |
| Spiked Amount 50.000 | | | Recovery = 96.12% | | | |
| 86) Terphenyl-d14 | 12.325 | 244 | 1916410 | 48.53 | ppm | -0.09 |
| Spiked Amount 50.000 | | | Recovery = 97.06% | | | |
| Target Compounds | | | | | | Qvalue |
| 9) Phenol | 4.270 | 94 | 2957549 | 103.62 | ppm | 94 |
| 19) 2-Methylphenol | 4.719 | 108 | 2670915 | 140.27 | ppm | 90 |
| 21) 3&4-Methylphenol | 4.847 | 108 | 3856401 | 192.96 | ppm | 81 |
| 30) 2,4-Dimethylphenol | 5.291 | 107 | 701108m | 33.63 | ppm | |
| 38) Naphthalene | 5.586 | 128 | 8176242 | 146.43 | ppm | 98 |
| 44) 2-Methylnaphthalene | 6.308 | 141 | 2475990 | 80.88 | ppm | 99 |
| 53) Biphenyl | 6.859 | 154 | 53866 | 1.07 | ppm | 98 |
| 91) bis(2-Ethylhexyl)phtha... | 14.138 | 149 | 554472 | 14.14 | ppm | 99 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

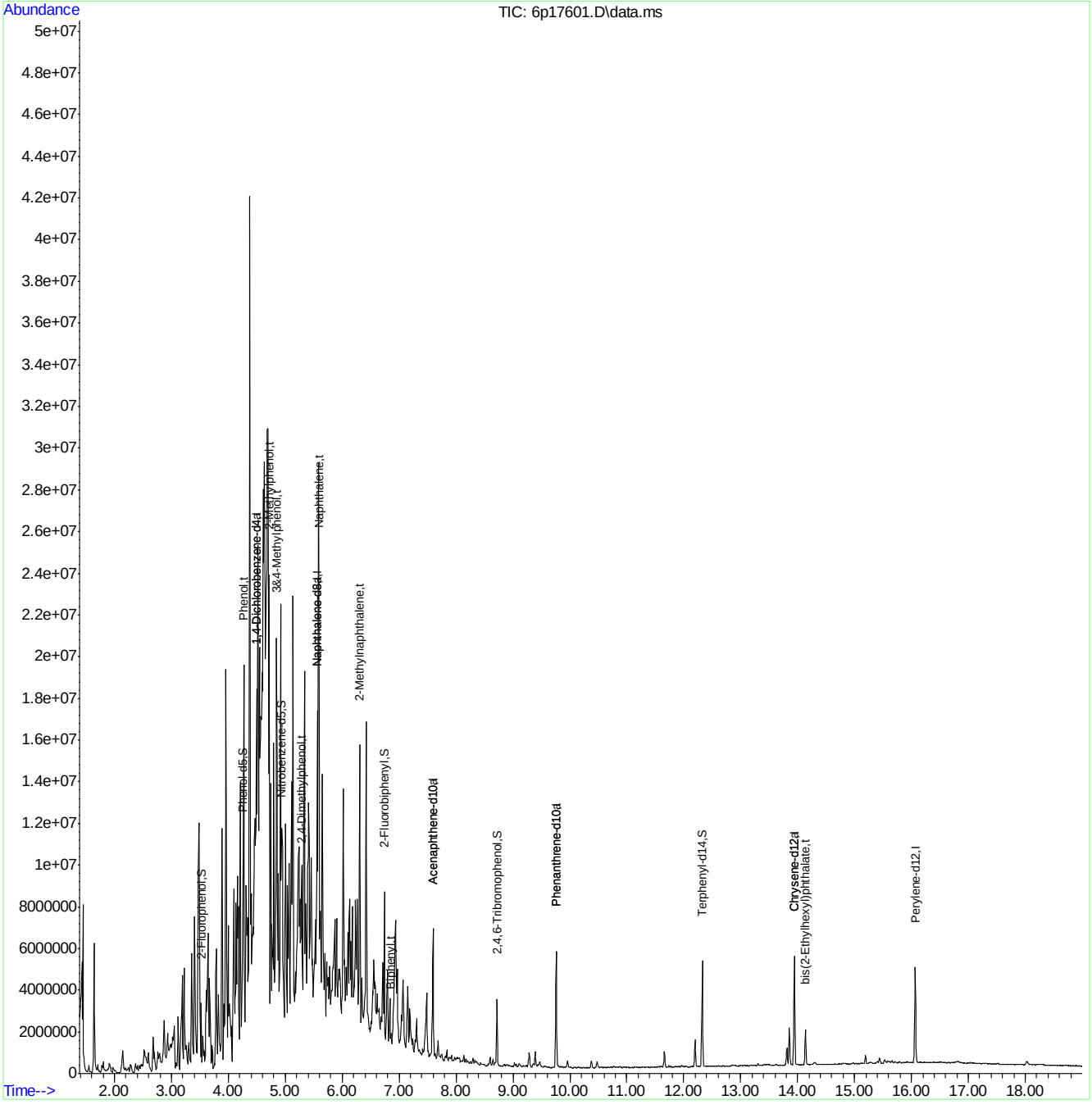
9.1.12

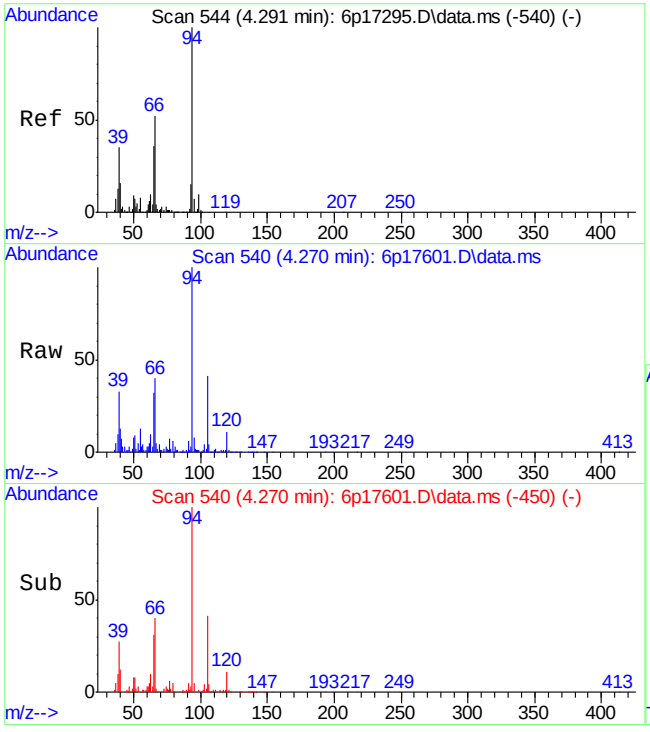
9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e6p791\
Data File : 6p17601.D
Acq On : 10 Jul 2015 5:02 am
Operator : saraw
Sample : jb98590-13
Misc : op85388,e6p791,960,,,1,1
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Jul 10 10:50:10 2015
Quant Method : C:\MSDCHEM\1\METHODS\M6P776.M
Quant Title : Semi Volatile GC/MS, ZB-5MSi 30m x .25mm x .25um
QLast Update : Wed Jul 01 19:41:10 2015
Response via : Initial Calibration

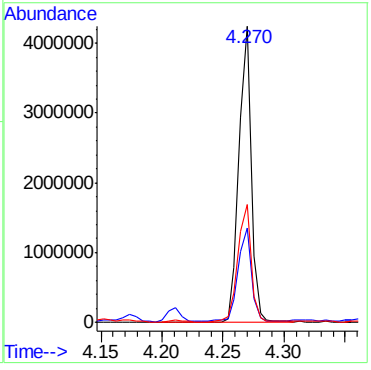


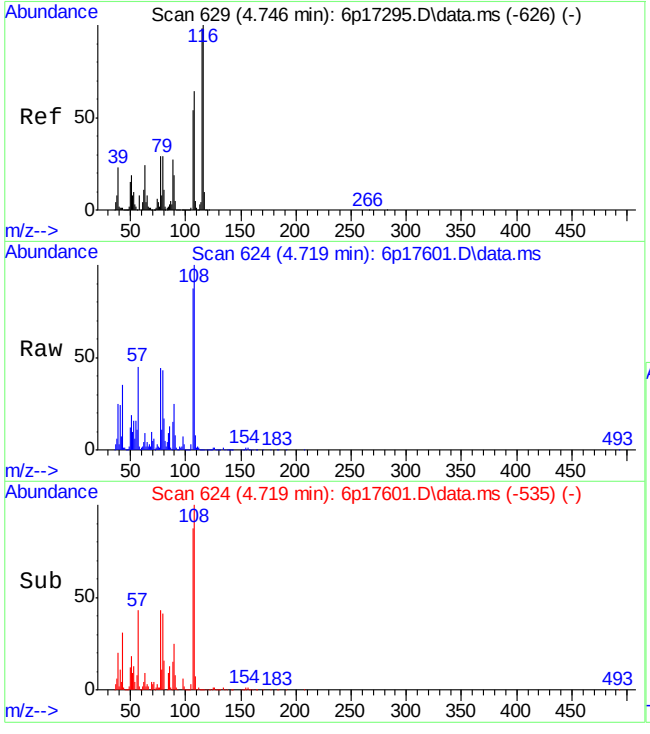



#9
Phenol
Concen: 103.62 ppm
RT: 4.270 min Scan# 540
Delta R.T. -0.016 min
Lab File: 6p17601.D
Acq: 10 Jul 2015 5:02 am

Tgt Ion: 94 Resp: 2957549

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 94 | 100 | | |
| 65 | 31.0 | 3.4 | 63.4 |
| 66 | 39.6 | 14.6 | 74.6 |

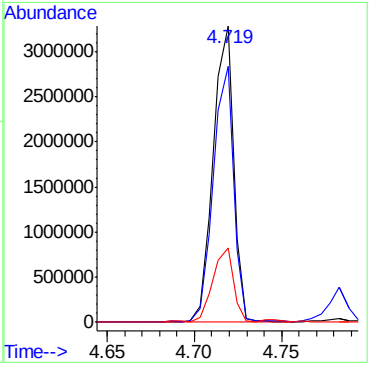



#19
2-Methylphenol
Concen: 140.27 ppm
RT: 4.719 min Scan# 624
Delta R.T. -0.021 min
Lab File: 6p17601.D
Acq: 10 Jul 2015 5:02 am

Tgt Ion:108 Resp: 2670915

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 108 | 100 | | |
| 107 | 86.5 | 50.4 | 110.4 |
| 90 | 25.0 | 4.7 | 64.7 |




9.1.12

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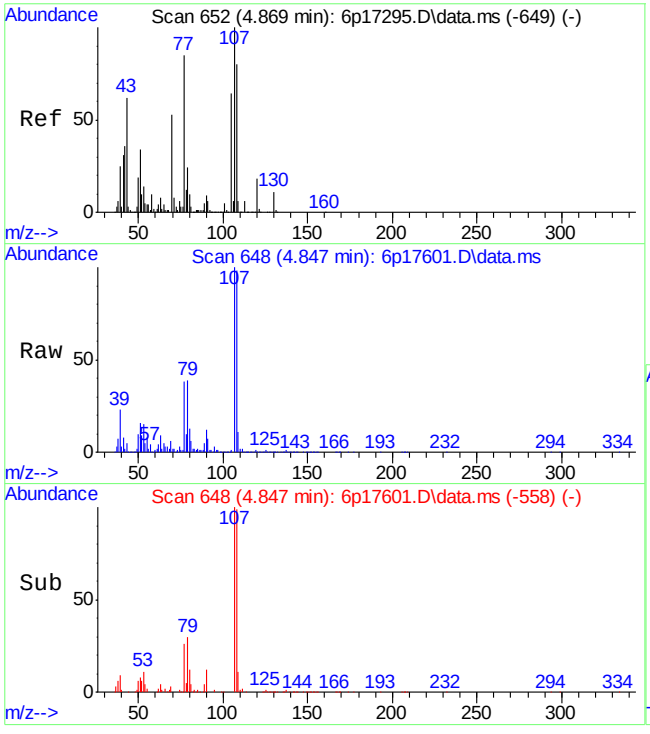
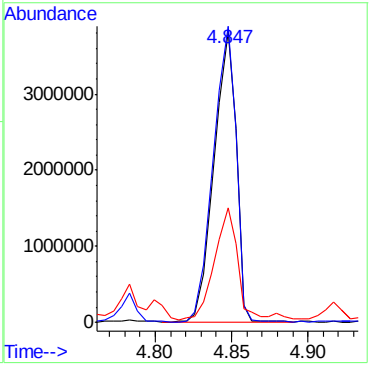
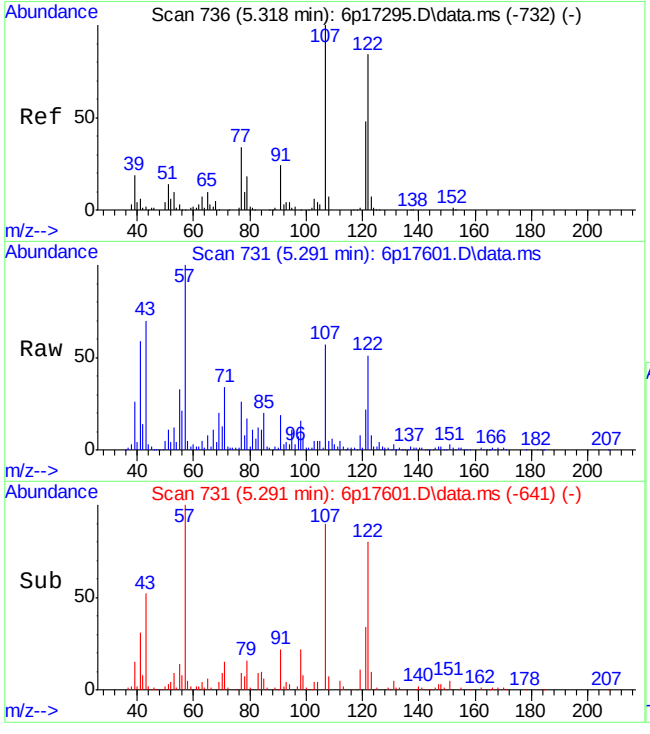



#21
3&4-Methylphenol
Concen: 192.96 ppm
RT: 4.847 min Scan# 648
Delta R.T. -0.016 min
Lab File: 6p17601.D
Acq: 10 Jul 2015 5:02 am

Tgt Ion:108 Resp: 3856401

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 108 | 100 | | |
| 107 | 101.8 | 93.9 | 153.9 |
| 79 | 35.9 | 0.0 | 57.7 |

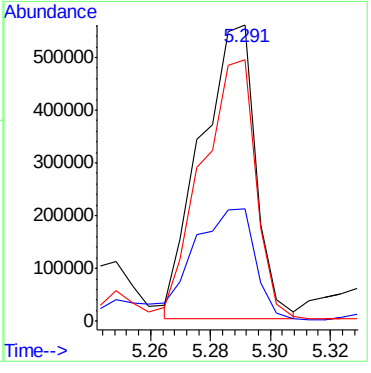


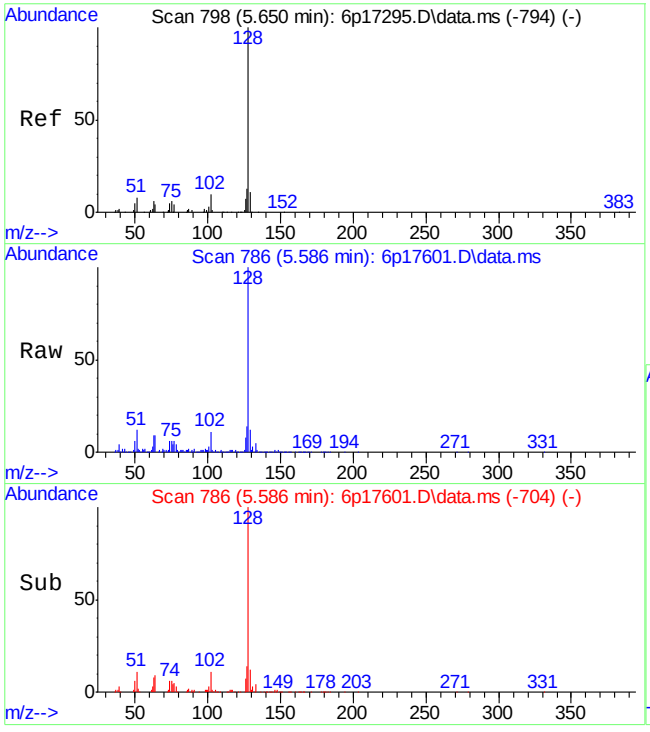




#30
2,4-Dimethylphenol
Concen: 33.63 ppm m
RT: 5.291 min Scan# 731
Delta R.T. -0.016 min
Lab File: 6p17601.D
Acq: 10 Jul 2015 5:02 am

Tgt Ion:107 Resp: 701108

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 107 | 100 | | |
| 121 | 37.9 | 15.4 | 75.4 |
| 122 | 88.4 | 42.7 | 102.7 |

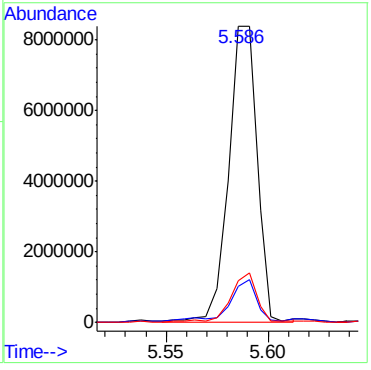


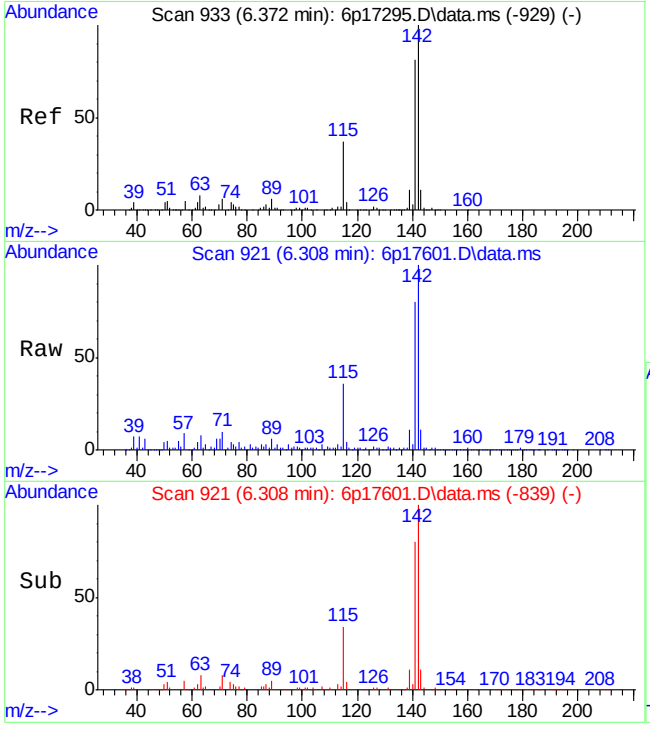



#38
Naphthalene
Concen: 146.43 ppm
RT: 5.586 min Scan# 786
Delta R.T. -0.059 min
Lab File: 6p17601.D
Acq: 10 Jul 2015 5:02 am

Tgt Ion:128 Resp: 8176242

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 128 | 100 | | |
| 129 | 11.4 | 0.0 | 41.4 |
| 127 | 13.7 | 0.0 | 42.3 |

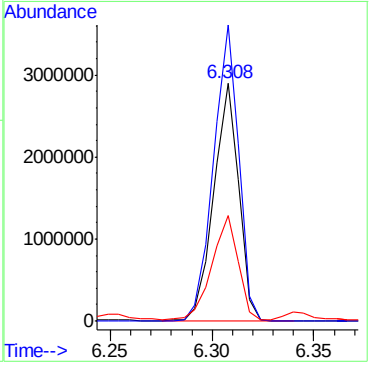



#44
2-Methylnaphthalene
Concen: 80.88 ppm
RT: 6.308 min Scan# 921
Delta R.T. -0.059 min
Lab File: 6p17601.D
Acq: 10 Jul 2015 5:02 am

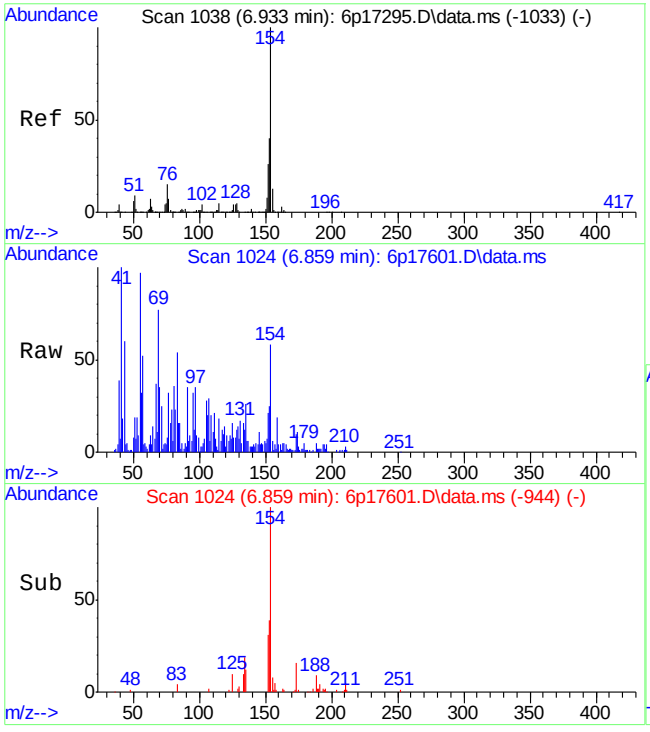
Tgt Ion:141 Resp: 2475990

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 141 | 100 | | |
| 142 | 124.4 | 94.9 | 154.9 |
| 115 | 42.3 | 11.4 | 71.4 |




9.1.12

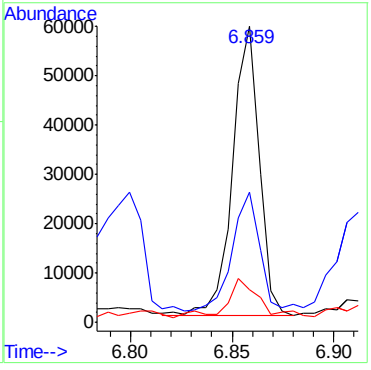
9

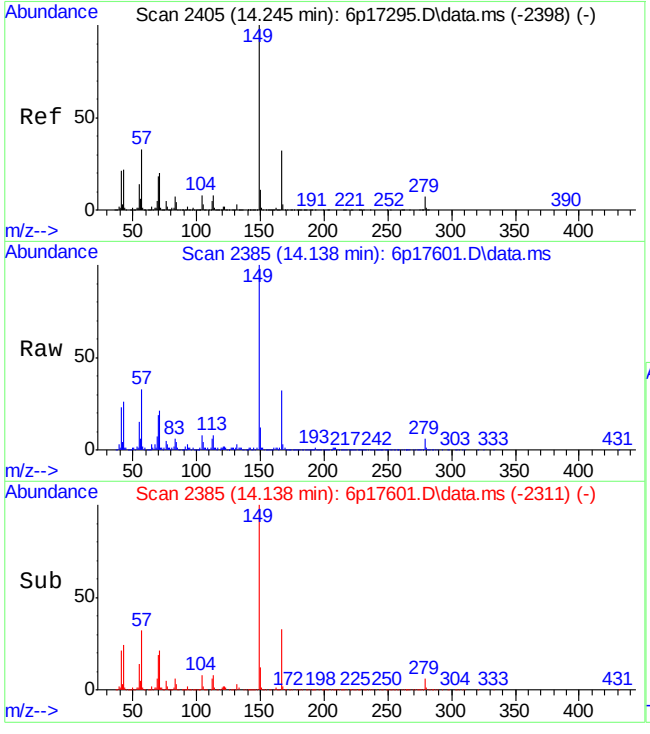



#53
Biphenyl
Concen: 1.07 ppm
RT: 6.859 min Scan# 1024
Delta R.T. -0.070 min
Lab File: 6p17601.D
Acq: 10 Jul 2015 5:02 am

Tgt Ion:154 Resp: 53866

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 154 | 100 | | |
| 153 | 39.8 | 9.8 | 69.8 |
| 155 | 8.2 | 0.0 | 41.0 |

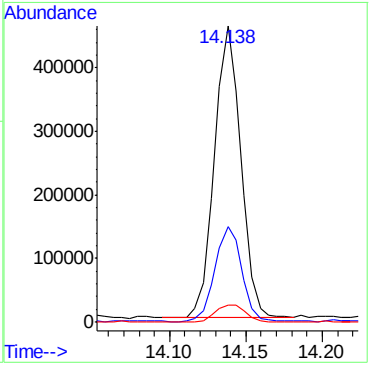



#91
bis(2-Ethylhexyl)phthalate
Concen: 14.14 ppm
RT: 14.138 min Scan# 2385
Delta R.T. -0.102 min
Lab File: 6p17601.D
Acq: 10 Jul 2015 5:02 am

Tgt Ion:149 Resp: 554472

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 149 | 100 | | |
| 167 | 32.3 | 1.8 | 61.8 |
| 279 | 5.9 | 0.0 | 37.1 |




9.1.12

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e6p792\
Data File : 6p17631.D
Acq On : 10 Jul 2015 5:52 pm
Operator : alicjap
Sample : jb98590-13
Misc : op85388,e6p792,960,,,1,5
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Jul 10 20:58:41 2015
Quant Method : C:\MSDCHEM\1\METHODS\M6P776.M
Quant Title : Semi Volatile GC/MS, ZB-5MSi 30m x .25mm x .25um
QLast Update : Wed Jul 01 19:41:10 2015
Response via : Initial Calibration

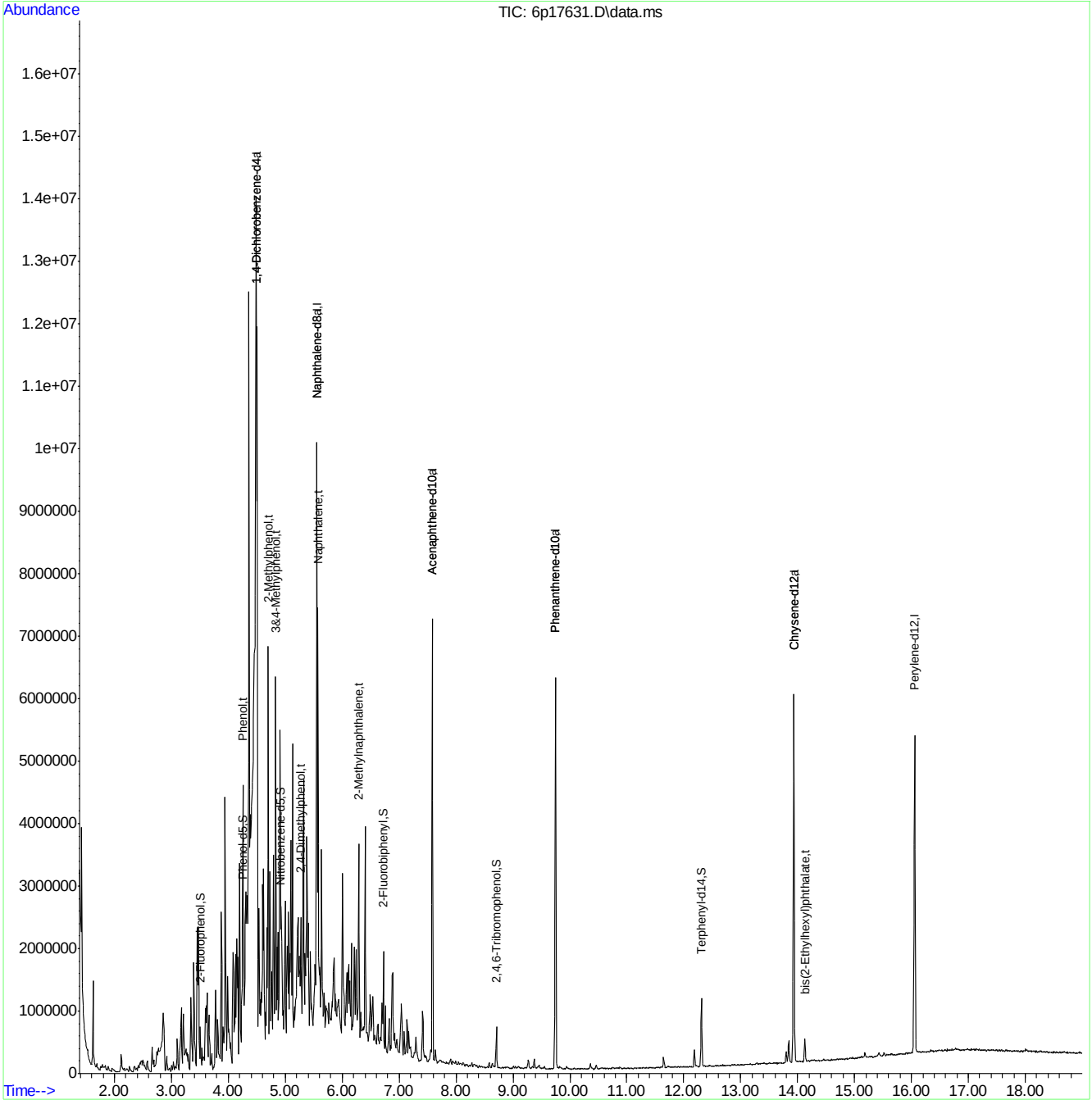
| Compound | R.T. | QIon | Response | Conc Units | Dev(Min) |
|---|---|---|---|---|---|
| Internal Standards | | | | | |
| 1) 1,4-Dichlorobenzene-d4 | 4.489 | 152 | 633691 | 40.00 ppm | -0.06 |
| 24) Naphthalene-d8 | 5.553 | 136 | 2552211 | 40.00 ppm | -0.07 |
| 47) Acenaphthene-d10 | 7.586 | 164 | 1613135 | 40.00 ppm | -0.09 |
| 69) Phenanthrene-d10 | 9.747 | 188 | 2706826 | 40.00 ppm | -0.10 |
| 83) Chrysene-d12 | 13.935 | 240 | 2618962 | 40.00 ppm | -0.10 |
| 92) Perylene-d12 | 16.058 | 264 | 2318098 | 40.00 ppm | -0.10 |
| 102) 1,4-Dichlorobenzene-d4a | 4.489 | 152 | 633479 | 40.00 ppm | -0.06 |
| 104) Phenanthrene-d10a | 9.747 | 188 | 2706826 | 40.00 ppm | -0.10 |
| 106) Chrysene-d12a | 13.935 | 240 | 2618962 | 40.00 ppm | -0.10 |
| 108) Acenaphthene-d10a | 7.586 | 164 | 1613135 | 40.00 ppm | -0.09 |
| 110) Naphthalene-d8a | 5.553 | 136 | 2552372 | 40.00 ppm | -0.07 |
| System Monitoring Compounds | | | | | |
| 5) 2-Fluorophenol | 3.505 | 112 | 119840 | 5.61 ppm | -0.04 |
| Spiked Amount 50.000 | | | Recovery | = 11.22% | |
| 8) Phenol-d5 | 4.248 | 99 | 116748 | 4.14 ppm | -0.03 |
| Spiked Amount 50.000 | | | Recovery | = 8.28% | |
| 25) Nitrobenzene-d5 | 4.917 | 82 | 313238 | 11.64 ppm | -0.06 |
| Spiked Amount 50.000 | | | Recovery | = 23.28% | |
| 51) 2-Fluorobiphenyl | 6.725 | 172 | 457435 | 9.22 ppm | -0.08 |
| Spiked Amount 50.000 | | | Recovery | = 18.44% | |
| 73) 2,4,6-Tribromophenol | 8.709 | 330 | 49490 | 8.92 ppm | -0.09 |
| Spiked Amount 50.000 | | | Recovery | = 17.84% | |
| 86) Terphenyl-d14 | 12.309 | 244 | 408325 | 8.82 ppm | -0.11 |
| Spiked Amount 50.000 | | | Recovery | = 17.64% | |
| Target Compounds | | | | | Qvalue |
| 9) Phenol | 4.259 | 94 | 659873 | 21.12 ppm | 96 |
| 19) 2-Methylphenol | 4.703 | 108 | 620212 | 29.75 ppm | 89 |
| 21) 3&4-Methylphenol | 4.831 | 108 | 867847 | 39.67 ppm | 78 |
| 30) 2,4-Dimethylphenol | 5.275 | 107 | 154642 | 6.37 ppm | 83 |
| 38) Naphthalene | 5.575 | 128 | 2170358 | 33.38 ppm | 97 |
| 44) 2-Methylnaphthalene | 6.292 | 141 | 574066 | 16.10 ppm | 99 |
| 91) bis(2-Ethylhexyl)phtha... | 14.127 | 149 | 118984 | 2.59 ppm | 97 |

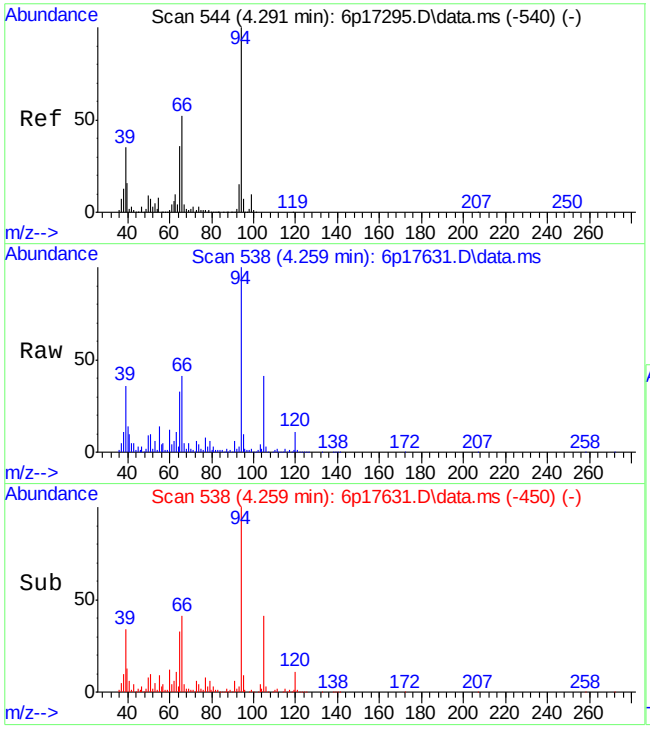
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e6p792\
Data File : 6p17631.D
Acq On : 10 Jul 2015 5:52 pm
Operator : alicjap
Sample : jb98590-13
Misc : op85388,e6p792,960,,,1,5
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Jul 10 20:58:41 2015
Quant Method : C:\MSDCHEM\1\METHODS\M6P776.M
Quant Title : Semi Volatile GC/MS, ZB-5MSi 30m x .25mm x .25um
QLast Update : Wed Jul 01 19:41:10 2015
Response via : Initial Calibration

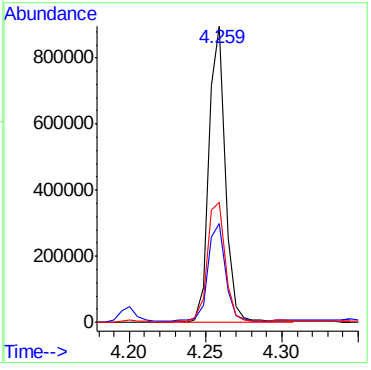


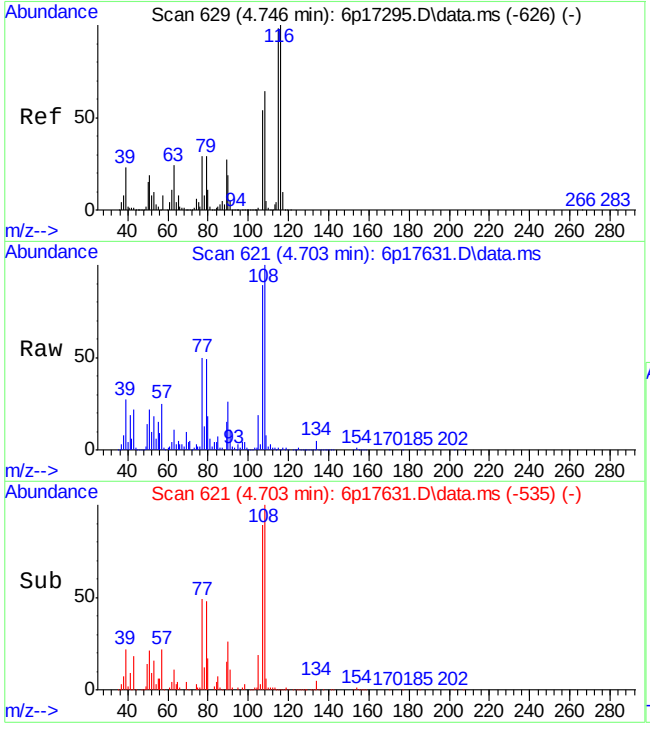



#9
Phenol
Concen: 21.12 ppm
RT: 4.259 min Scan# 538
Delta R.T. -0.027 min
Lab File: 6p17631.D
Acq: 10 Jul 2015 5:52 pm

Tgt Ion: 94 Resp: 659873

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 94 | 100 | | |
| 65 | 32.9 | 3.4 | 63.4 |
| 66 | 40.4 | 14.6 | 74.6 |

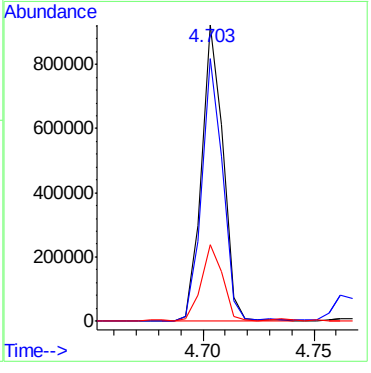



#19
2-Methylphenol
Concen: 29.75 ppm
RT: 4.703 min Scan# 621
Delta R.T. -0.037 min
Lab File: 6p17631.D
Acq: 10 Jul 2015 5:52 pm

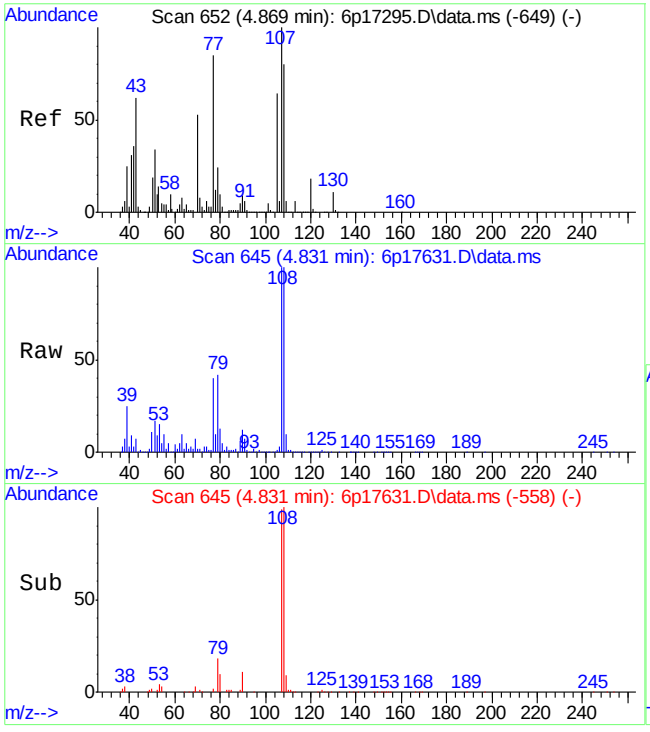
Tgt Ion:108 Resp: 620212

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 108 | 100 | | |
| 107 | 88.6 | 50.4 | 110.4 |
| 90 | 25.6 | 4.7 | 64.7 |




9.1.13

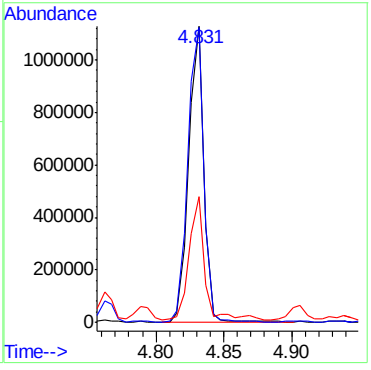
9

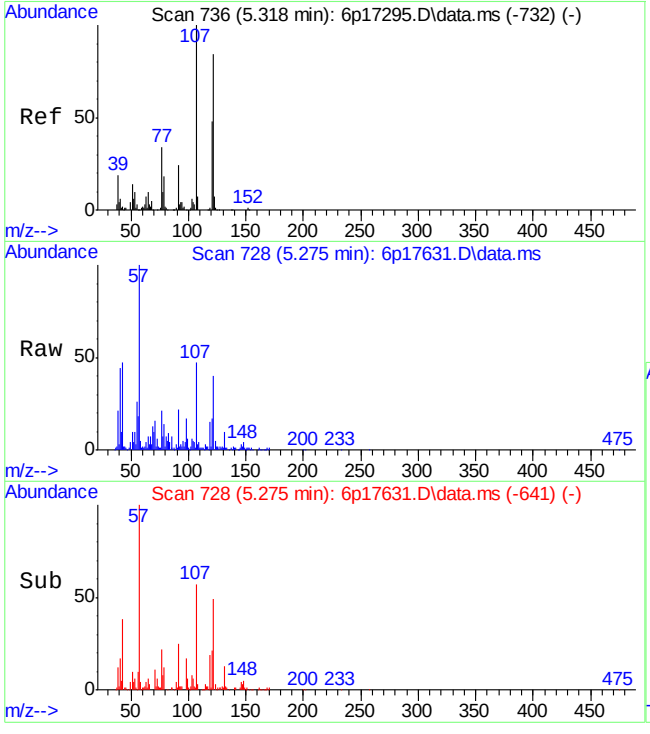



#21
3&4-Methylphenol
Concen: 39.67 ppm
RT: 4.831 min Scan# 645
Delta R.T. -0.032 min
Lab File: 6p17631.D
Acq: 10 Jul 2015 5:52 pm

Tgt Ion:108 Resp: 867847

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 108 | 100 | | |
| 107 | 99.6 | 93.9 | 153.9 |
| 79 | 39.4 | 0.0 | 57.7 |

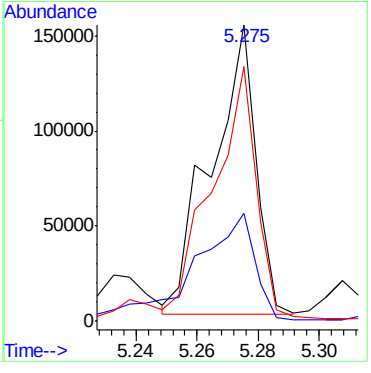



#30
2,4-Dimethylphenol
Concen: 6.37 ppm
RT: 5.275 min Scan# 728
Delta R.T. -0.032 min
Lab File: 6p17631.D
Acq: 10 Jul 2015 5:52 pm

Tgt Ion:107 Resp: 154642

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 107 | 100 | | |
| 121 | 33.8 | 15.4 | 75.4 |
| 122 | 86.8 | 42.7 | 102.7 |




9.1.13

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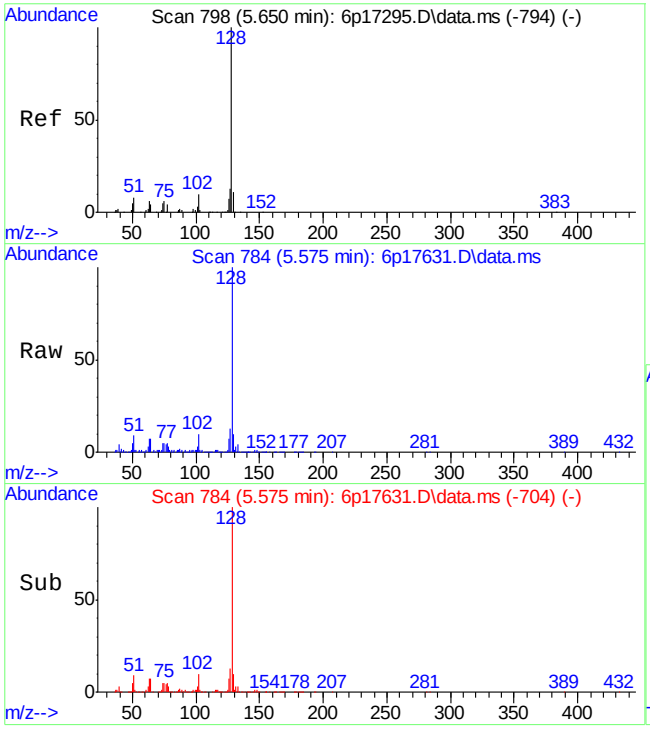
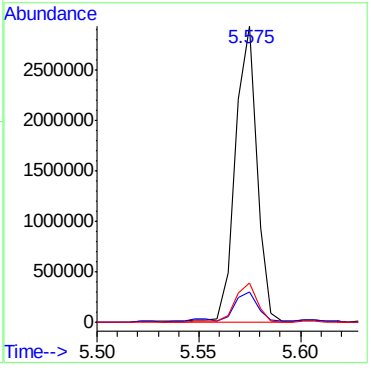
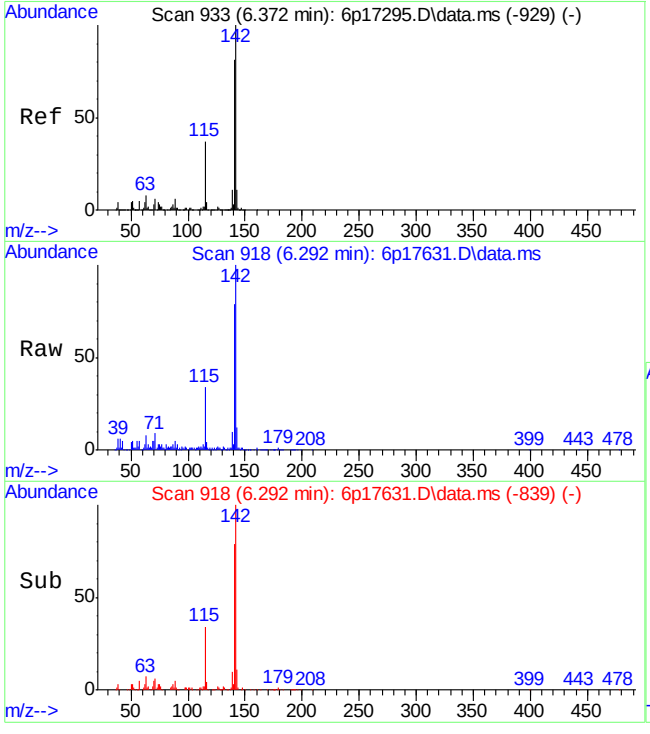



#38
Naphthalene
Concen: 33.38 ppm
RT: 5.575 min Scan# 784
Delta R.T. -0.070 min
Lab File: 6p17631.D
Acq: 10 Jul 2015 5:52 pm

Tgt Ion:128 Resp: 2170358

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 128 | 100 | | |
| 129 | 10.2 | 0.0 | 41.4 |
| 127 | 13.3 | 0.0 | 42.3 |

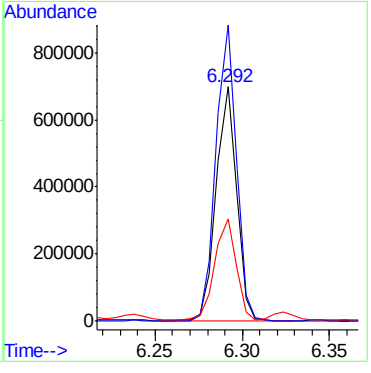



#44
2-Methylnaphthalene
Concen: 16.10 ppm
RT: 6.292 min Scan# 918
Delta R.T. -0.075 min
Lab File: 6p17631.D
Acq: 10 Jul 2015 5:52 pm

Tgt Ion:141 Resp: 574066

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 141 | 100 | | |
| 142 | 126.4 | 94.9 | 154.9 |
| 115 | 42.1 | 11.4 | 71.4 |




9.1.13

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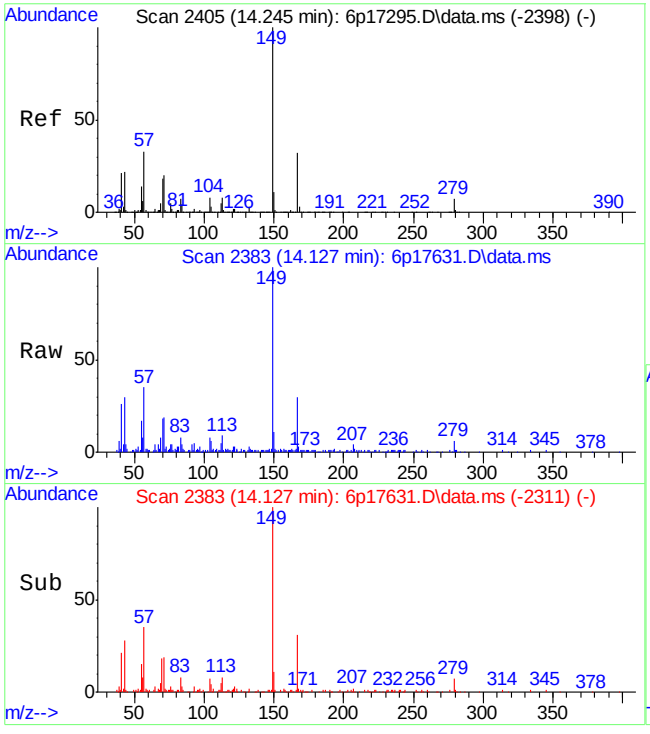
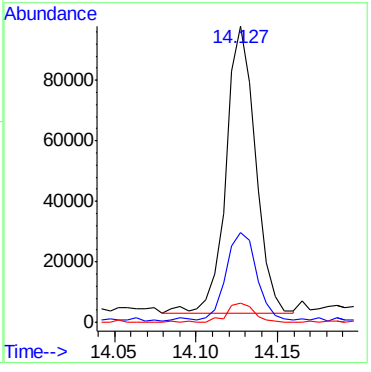



#91
bis(2-Ethylhexyl)phthalate
Concen: 2.59 ppm
RT: 14.127 min Scan# 2383
Delta R.T. -0.112 min
Lab File: 6p17631.D
Acq: 10 Jul 2015 5:52 pm

Tgt Ion:149 Resp: 118984

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 149 | 100 | | |
| 167 | 33.6 | 1.8 | 61.8 |
| 279 | 6.6 | 0.0 | 37.1 |




9.1.13

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e6p791\
Data File : 6p17602.D
Acq On : 10 Jul 2015 5:28 am
Operator : saraw
Sample : jb98590-14
Misc : op85388,e6p791,960,,,1,1
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Jul 10 10:51:43 2015
Quant Method : C:\MSDCHEM\1\METHODS\M6P776.M
Quant Title : Semi Volatile GC/MS, ZB-5MSi 30m x .25mm x .25um
QLast Update : Wed Jul 01 19:41:10 2015
Response via : Initial Calibration

| Compound | R.T. | QIon | Response | Conc Units | Dev(Min) |
|---|---|---|---|---|---|
| Internal Standards | | | | | |
| 1) 1,4-Dichlorobenzene-d4 | 4.494 | 152 | 561791 | 40.00 ppm | -0.05 |
| 24) Naphthalene-d8 | 5.554 | 136 | 2161883 | 40.00 ppm | -0.07 |
| 47) Acenaphthene-d10 | 7.591 | 164 | 1351684 | 40.00 ppm | -0.09 |
| 69) Phenanthrene-d10 | 9.752 | 188 | 2216602 | 40.00 ppm | -0.09 |
| 83) Chrysene-d12 | 13.940 | 240 | 2129201 | 40.00 ppm | -0.10 |
| 92) Perylene-d12 | 16.064 | 264 | 1925510 | 40.00 ppm | -0.10 |
| 102) 1,4-Dichlorobenzene-d4a | 4.494 | 152 | 561791 | 40.00 ppm | -0.05 |
| 104) Phenanthrene-d10a | 9.752 | 188 | 2216363 | 40.00 ppm | -0.09 |
| 106) Chrysene-d12a | 13.940 | 240 | 2129201 | 40.00 ppm | -0.10 |
| 108) Acenaphthene-d10a | 7.591 | 164 | 1351678 | 40.00 ppm | -0.09 |
| 110) Naphthalene-d8a | 5.554 | 136 | 2161883 | 40.00 ppm | -0.07 |
| System Monitoring Compounds | | | | | |
| 5) 2-Fluorophenol | 3.516 | 112 | 507581 | 26.82 ppm | -0.03 |
| Spiked Amount 50.000 | | | Recovery | = 53.64% | |
| 8) Phenol-d5 | 4.248 | 99 | 458835 | 18.37 ppm | -0.03 |
| Spiked Amount 50.000 | | | Recovery | = 36.74% | |
| 25) Nitrobenzene-d5 | 4.922 | 82 | 1065169 | 46.72 ppm | -0.06 |
| Spiked Amount 50.000 | | | Recovery | = 93.44% | |
| 51) 2-Fluorobiphenyl | 6.730 | 172 | 1819023 | 43.76 ppm | -0.07 |
| Spiked Amount 50.000 | | | Recovery | = 87.52% | |
| 73) 2,4,6-Tribromophenol | 8.715 | 330 | 206958 | 45.55 ppm | -0.08 |
| Spiked Amount 50.000 | | | Recovery | = 91.10% | |
| 86) Terphenyl-d14 | 12.320 | 244 | 1091228 | 29.00 ppm | -0.10 |
| Spiked Amount 50.000 | | | Recovery | = 58.00% | |
| Target Compounds | | | | | Qvalue |
| 38) Naphthalene | 5.575 | 128 | 192685 | 3.50 ppm | 96 |
| 44) 2-Methylnaphthalene | 6.297 | 141 | 67457 | 2.23 ppm | 97 |
| 91) bis(2-Ethylhexyl)phtha... | 14.138 | 149 | 74625 | 2.00 ppm | 99 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

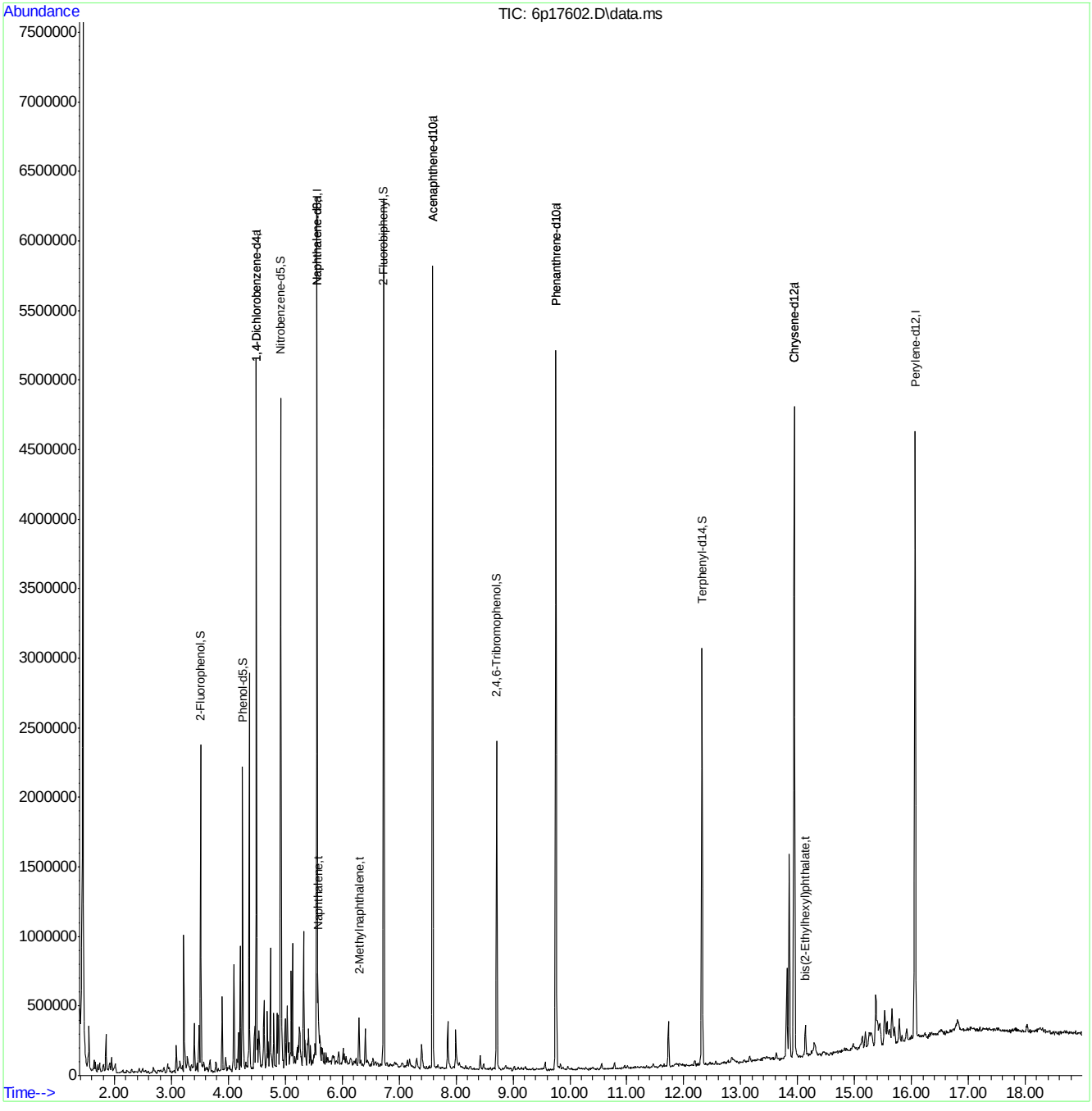
9.1.14

9

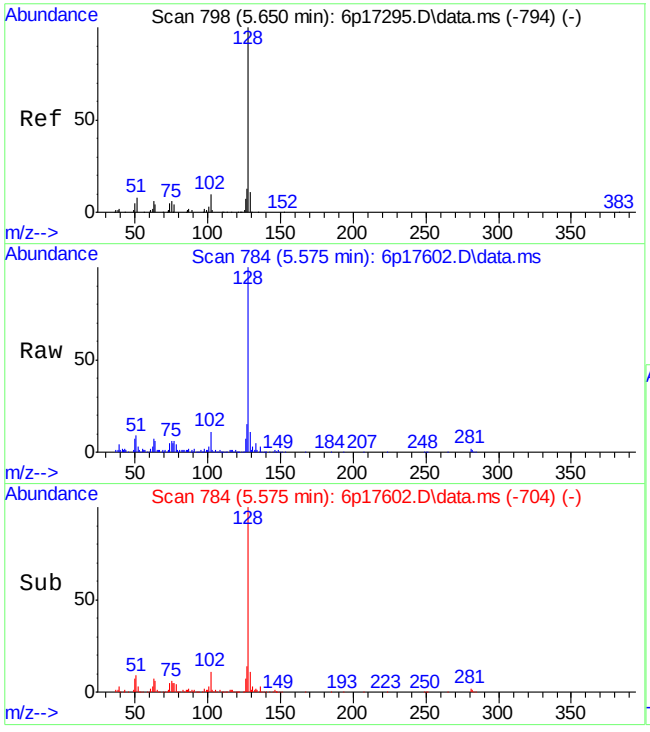
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e6p791\
Data File : 6p17602.D
Acq On : 10 Jul 2015 5:28 am
Operator : saraw
Sample : jb98590-14
Misc : op85388,e6p791,960,,,1,1
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Jul 10 10:51:43 2015
Quant Method : C:\MSDCHEM\1\METHODS\M6P776.M
Quant Title : Semi Volatile GC/MS, ZB-5MSi 30m x .25mm x .25um
QLast Update : Wed Jul 01 19:41:10 2015
Response via : Initial Calibration



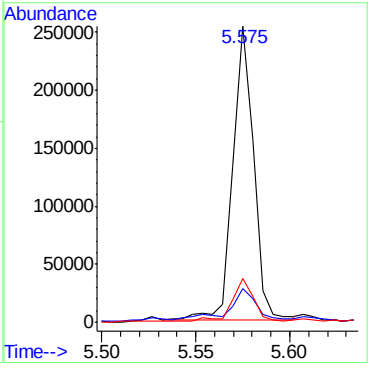

M6P776.M Fri Jul 10 10:51:47 2015 RPT1 Page: 2

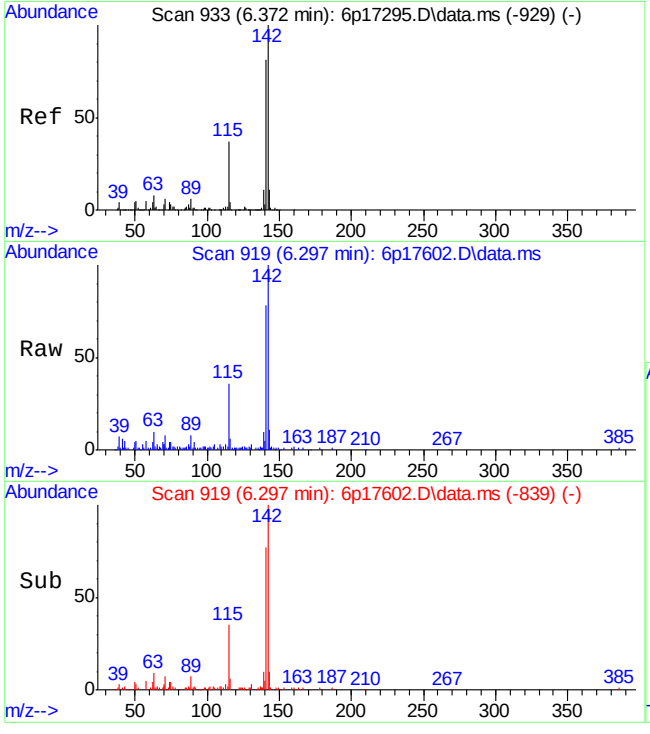



#38
Naphthalene
Concen: 3.50 ppm
RT: 5.575 min Scan# 784
Delta R.T. -0.070 min
Lab File: 6p17602.D
Acq: 10 Jul 2015 5:28 am

Tgt Ion:128 Resp: 192685

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 128 | 100 | | |
| 129 | 10.3 | 0.0 | 41.4 |
| 127 | 14.3 | 0.0 | 42.3 |

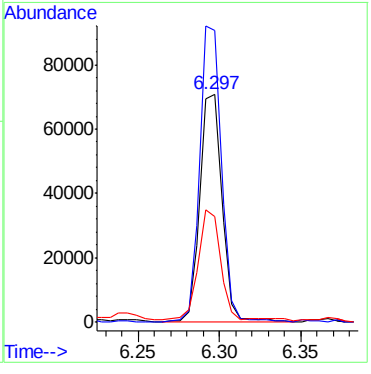



#44
2-Methylnaphthalene
Concen: 2.23 ppm
RT: 6.297 min Scan# 919
Delta R.T. -0.070 min
Lab File: 6p17602.D
Acq: 10 Jul 2015 5:28 am

Tgt Ion:141 Resp: 67457

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 141 | 100 | | |
| 142 | 128.0 | 94.9 | 154.9 |
| 115 | 45.1 | 11.4 | 71.4 |




9.1.14

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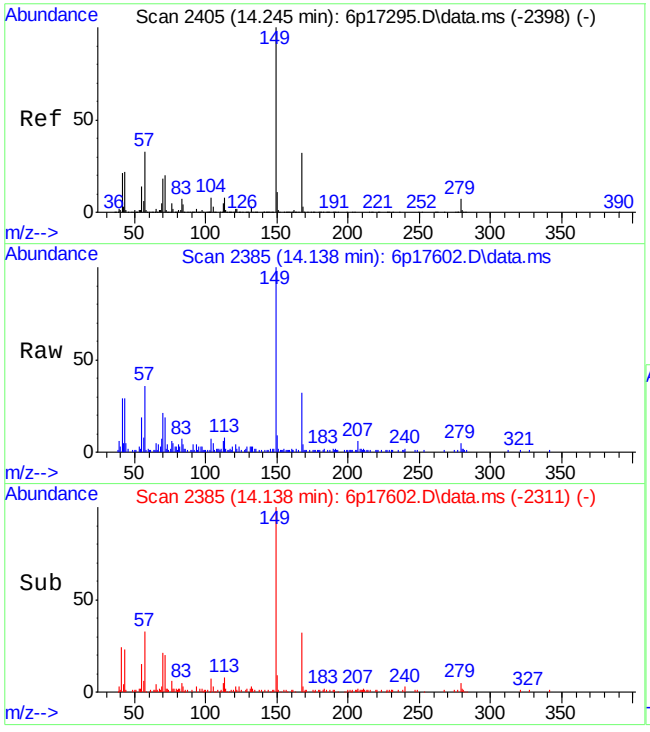
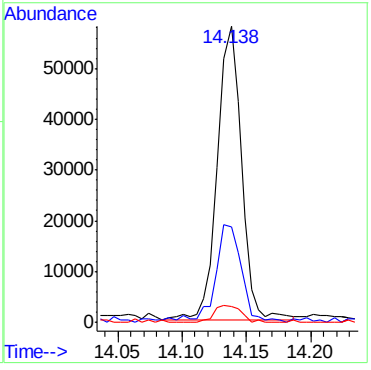



#91
bis(2-Ethylhexyl)phthalate
Concen: 2.00 ppm
RT: 14.138 min Scan# 2385
Delta R.T. -0.102 min
Lab File: 6p17602.D
Acq: 10 Jul 2015 5:28 am

Tgt Ion:149 Resp: 74625

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 149 | 100 | | |
| 167 | 31.7 | 1.8 | 61.8 |
| 279 | 4.6 | 0.0 | 37.1 |




9.1.14

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e6p791\
Data File : 6p17603.D
Acq On : 10 Jul 2015 5:54 am
Operator : saraw
Sample : jb98590-15
Misc : op85388,e6p791,1000,,,1,1
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Jul 10 10:55:15 2015
Quant Method : C:\MSDCHEM\1\METHODS\M6P776.M
Quant Title : Semi Volatile GC/MS, ZB-5MSi 30m x .25mm x .25um
QLast Update : Wed Jul 01 19:41:10 2015
Response via : Initial Calibration

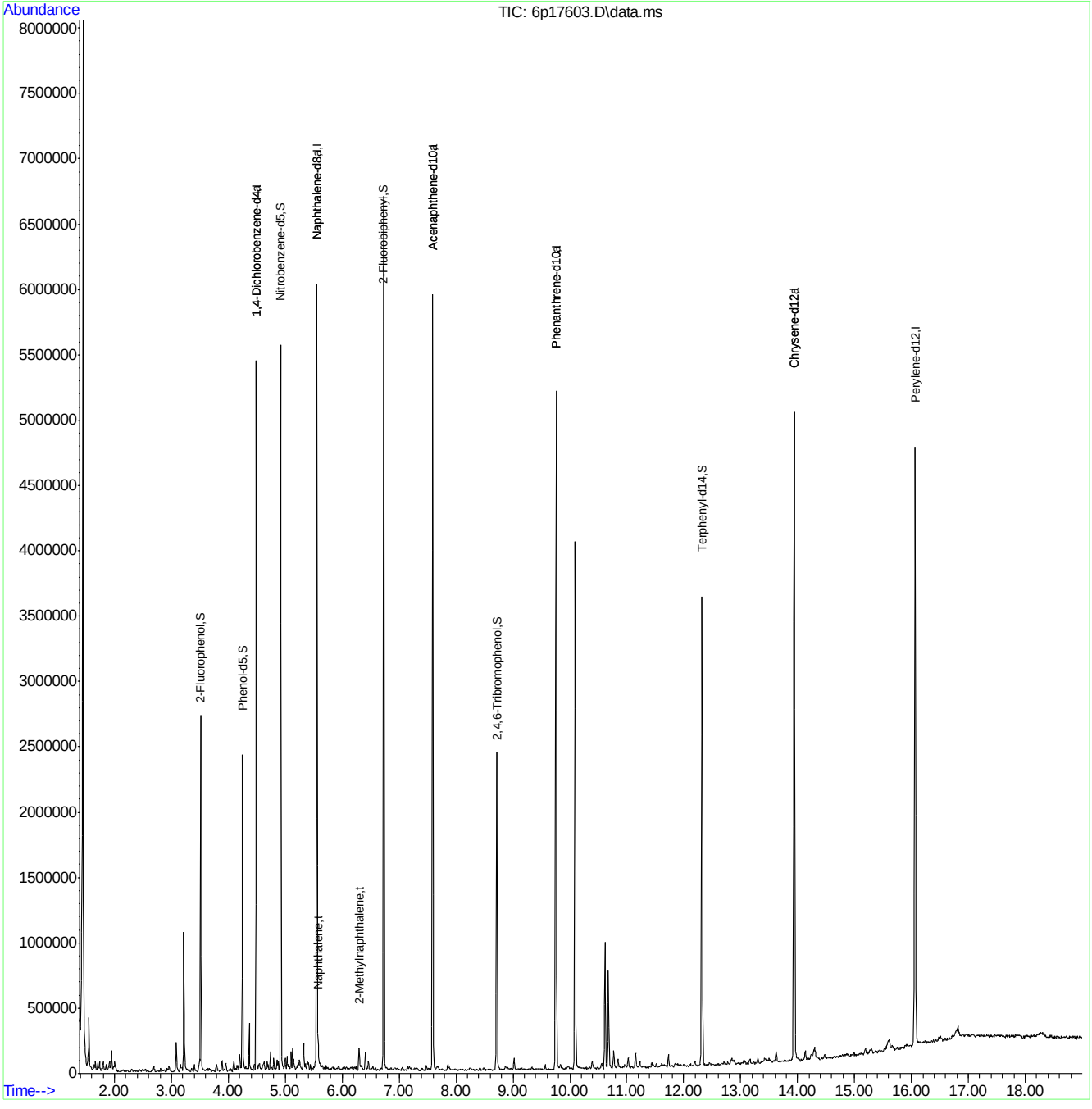
| Compound | R.T. | QIon | Response | Conc Units | Dev(Min) |
|---|---|---|---|---|---|
| Internal Standards | | | | | |
| 1) 1,4-Dichlorobenzene-d4 | 4.489 | 152 | 570504 | 40.00 ppm | -0.06 |
| 24) Naphthalene-d8 | 5.559 | 136 | 2220364 | 40.00 ppm | -0.06 |
| 47) Acenaphthene-d10 | 7.591 | 164 | 1390253 | 40.00 ppm | -0.09 |
| 69) Phenanthrene-d10 | 9.752 | 188 | 2320955 | 40.00 ppm | -0.09 |
| 83) Chrysene-d12 | 13.945 | 240 | 2225067 | 40.00 ppm | -0.09 |
| 92) Perylene-d12 | 16.063 | 264 | 2028470 | 40.00 ppm | -0.10 |
| 102) 1,4-Dichlorobenzene-d4a | 4.489 | 152 | 570504 | 40.00 ppm | -0.06 |
| 104) Phenanthrene-d10a | 9.752 | 188 | 2320955 | 40.00 ppm | -0.09 |
| 106) Chrysene-d12a | 13.945 | 240 | 2224919 | 40.00 ppm | -0.09 |
| 108) Acenaphthene-d10a | 7.591 | 164 | 1390454 | 40.00 ppm | -0.09 |
| 110) Naphthalene-d8a | 5.559 | 136 | 2220364 | 40.00 ppm | -0.06 |
| System Monitoring Compounds | | | | | |
| 5) 2-Fluorophenol | 3.516 | 112 | 587601 | 30.58 ppm | -0.03 |
| Spiked Amount 50.000 | | | Recovery = 61.16% | | |
| 8) Phenol-d5 | 4.248 | 99 | 489996 | 19.31 ppm | -0.03 |
| Spiked Amount 50.000 | | | Recovery = 38.62% | | |
| 25) Nitrobenzene-d5 | 4.922 | 82 | 1199704 | 51.23 ppm | -0.06 |
| Spiked Amount 50.000 | | | Recovery = 102.46% | | |
| 51) 2-Fluorobiphenyl | 6.730 | 172 | 2027828 | 47.43 ppm | -0.08 |
| Spiked Amount 50.000 | | | Recovery = 94.86% | | |
| 73) 2,4,6-Tribromophenol | 8.720 | 330 | 228264 | 47.98 ppm | -0.08 |
| Spiked Amount 50.000 | | | Recovery = 95.96% | | |
| 86) Terphenyl-d14 | 12.319 | 244 | 1381432 | 35.13 ppm | -0.10 |
| Spiked Amount 50.000 | | | Recovery = 70.26% | | |
| Target Compounds | | | | | Qvalue |
| 38) Naphthalene | 5.575 | 128 | 67122 | 1.19 ppm | 97 |
| 44) 2-Methylnaphthalene | 6.297 | 141 | 32330 | 1.04 ppm | 82 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e6p791\
Data File : 6p17603.D
Acq On : 10 Jul 2015 5:54 am
Operator : saraw
Sample : jb98590-15
Misc : op85388,e6p791,1000,,,1,1
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Jul 10 10:55:15 2015
Quant Method : C:\MSDCHEM\1\METHODS\M6P776.M
Quant Title : Semi Volatile GC/MS, ZB-5MSi 30m x .25mm x .25um
QLast Update : Wed Jul 01 19:41:10 2015
Response via : Initial Calibration

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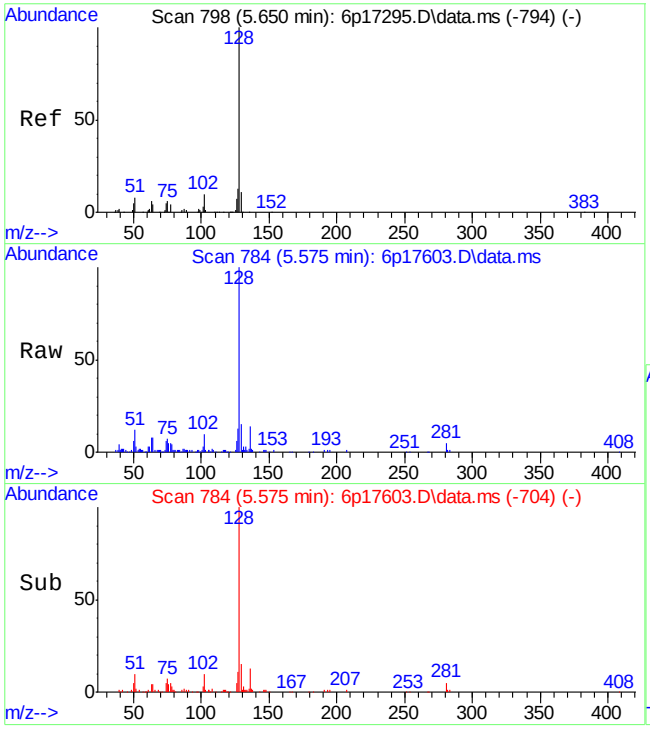
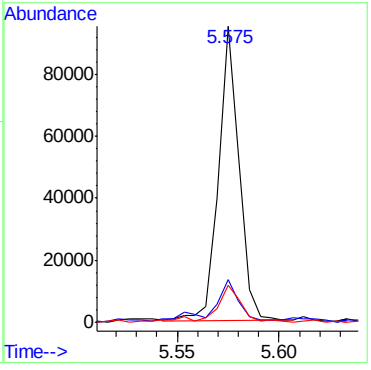
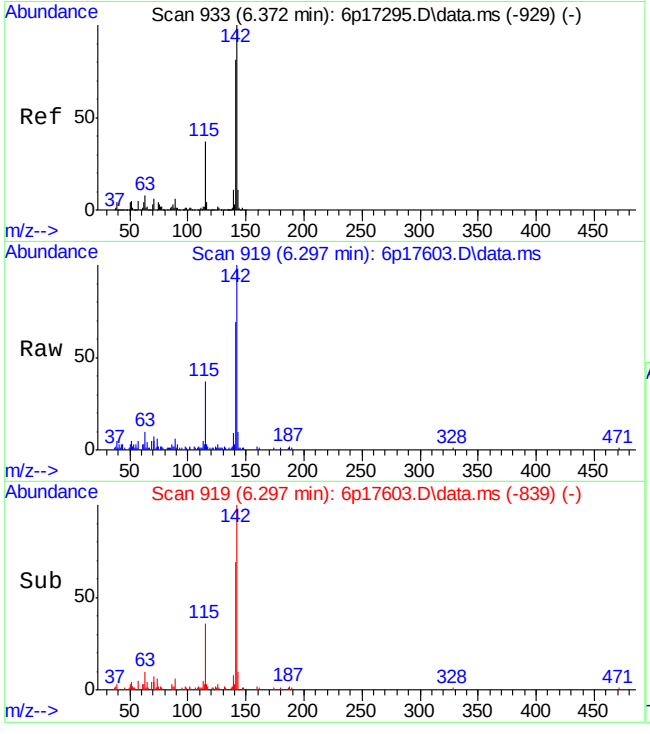



#38
Naphthalene
Concen: 1.19 ppm
RT: 5.575 min Scan# 784
Delta R.T. -0.070 min
Lab File: 6p17603.D
Acq: 10 Jul 2015 5:54 am

Tgt Ion:128 Resp: 67122

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 128 | 100 | | |
| 129 | 13.4 | 0.0 | 41.4 |
| 127 | 12.1 | 0.0 | 42.3 |

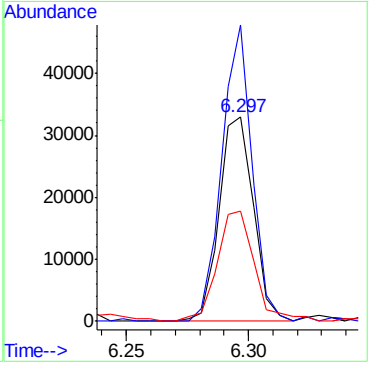



#44
2-Methylnaphthalene
Concen: 1.04 ppm
RT: 6.297 min Scan# 919
Delta R.T. -0.070 min
Lab File: 6p17603.D
Acq: 10 Jul 2015 5:54 am

Tgt Ion:141 Resp: 32330

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 141 | 100 | | |
| 142 | 145.2 | 94.9 | 154.9 |
| 115 | 53.2 | 11.4 | 71.4 |




9.1.15

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e6p791\
Data File : 6p17604.D
Acq On : 10 Jul 2015 6:20 am
Operator : saraw
Sample : jb98590-16
Misc : op85388,e6p791,1000,,,1,1
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Jul 10 10:57:09 2015
Quant Method : C:\MSDCHEM\1\METHODS\M6P776.M
Quant Title : Semi Volatile GC/MS, ZB-5MSi 30m x .25mm x .25um
QLast Update : Wed Jul 01 19:41:10 2015
Response via : Initial Calibration

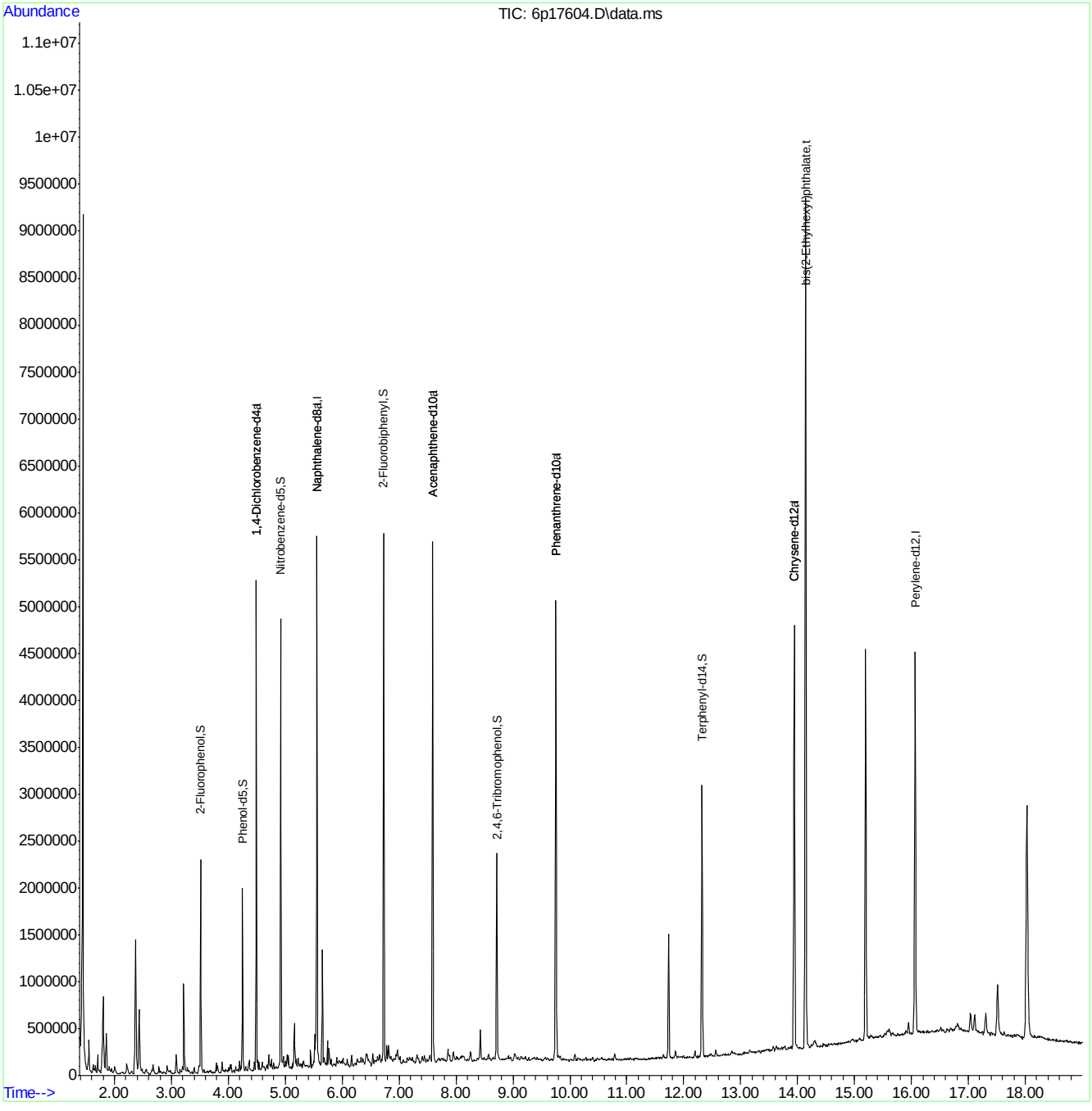
| Compound | R.T. | QIon | Response | Conc Units | Dev(Min) |
|---|---|---|---|---|---|
| Internal Standards | | | | | |
| 1) 1,4-Dichlorobenzene-d4 | 4.489 | 152 | 543677 | 40.00 ppm | -0.06 |
| 24) Naphthalene-d8 | 5.553 | 136 | 2048883 | 40.00 ppm | -0.07 |
| 47) Acenaphthene-d10 | 7.591 | 164 | 1289790 | 40.00 ppm | -0.09 |
| 69) Phenanthrene-d10 | 9.752 | 188 | 2150984 | 40.00 ppm | -0.09 |
| 83) Chrysene-d12 | 13.945 | 240 | 2066619 | 40.00 ppm | -0.09 |
| 92) Perylene-d12 | 16.063 | 264 | 1826304 | 40.00 ppm | -0.10 |
| 102) 1,4-Dichlorobenzene-d4a | 4.489 | 152 | 543667 | 40.00 ppm | -0.06 |
| 104) Phenanthrene-d10a | 9.752 | 188 | 2150657 | 40.00 ppm | -0.09 |
| 106) Chrysene-d12a | 13.945 | 240 | 2066619 | 40.00 ppm | -0.09 |
| 108) Acenaphthene-d10a | 7.591 | 164 | 1291811 | 40.00 ppm | -0.09 |
| 110) Naphthalene-d8a | 5.553 | 136 | 2048883 | 40.00 ppm | -0.07 |
| System Monitoring Compounds | | | | | |
| 5) 2-Fluorophenol | 3.510 | 112 | 500285 | 27.32 ppm | -0.03 |
| Spiked Amount 50.000 | | | Recovery | = 54.64% | |
| 8) Phenol-d5 | 4.248 | 99 | 438257 | 18.13 ppm | -0.03 |
| Spiked Amount 50.000 | | | Recovery | = 36.26% | |
| 25) Nitrobenzene-d5 | 4.922 | 82 | 1046530 | 48.43 ppm | -0.06 |
| Spiked Amount 50.000 | | | Recovery | = 96.86% | |
| 51) 2-Fluorobiphenyl | 6.730 | 172 | 1676179 | 42.26 ppm | -0.08 |
| Spiked Amount 50.000 | | | Recovery | = 84.52% | |
| 73) 2,4,6-Tribromophenol | 8.720 | 330 | 199665 | 45.29 ppm | -0.08 |
| Spiked Amount 50.000 | | | Recovery | = 90.58% | |
| 86) Terphenyl-d14 | 12.319 | 244 | 1117261 | 30.59 ppm | -0.10 |
| Spiked Amount 50.000 | | | Recovery | = 61.18% | |
| Target Compounds | | | | | Qvalue |
| 91) bis(2-Ethylhexyl)phtha... | 14.143 | 149 | 3093715 | 85.31 ppm | 100 |

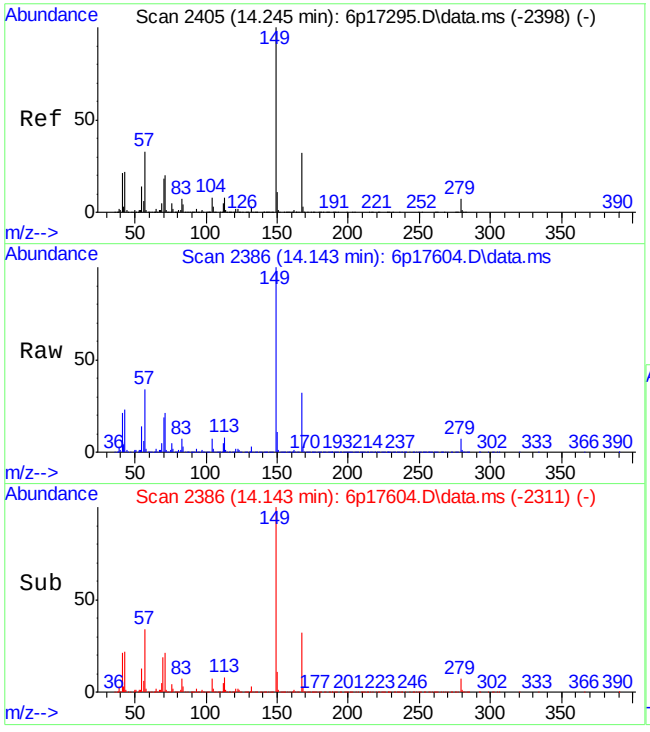
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e6p791\
Data File : 6p17604.D
Acq On : 10 Jul 2015 6:20 am
Operator : saraw
Sample : jb98590-16
Misc : op85388,e6p791,1000,,,1,1
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Jul 10 10:57:09 2015
Quant Method : C:\MSDCHEM\1\METHODS\M6P776.M
Quant Title : Semi Volatile GC/MS, ZB-5MSi 30m x .25mm x .25um
QLast Update : Wed Jul 01 19:41:10 2015
Response via : Initial Calibration

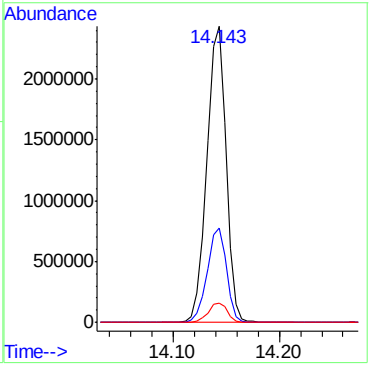





#91
bis(2-Ethylhexyl)phthalate
Concen: 85.31 ppm
RT: 14.143 min Scan# 2386
Delta R.T. -0.096 min
Lab File: 6p17604.D
Acq: 10 Jul 2015 6:20 am

Tgt Ion:149 Resp: 3093715

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 149 | 100 | | |
| 167 | 31.7 | 1.8 | 61.8 |
| 279 | 6.7 | 0.0 | 37.1 |




9.1.16

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e6p791\
Data File : 6p17605.D
Acq On : 10 Jul 2015 6:47 am
Operator : saraw
Sample : jb98590-17
Misc : op85388,e6p791,960,,,1,1
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Jul 10 11:02:53 2015
Quant Method : C:\MSDCHEM\1\METHODS\M6P776.M
Quant Title : Semi Volatile GC/MS, ZB-5MSi 30m x .25mm x .25um
QLast Update : Wed Jul 01 19:41:10 2015
Response via : Initial Calibration

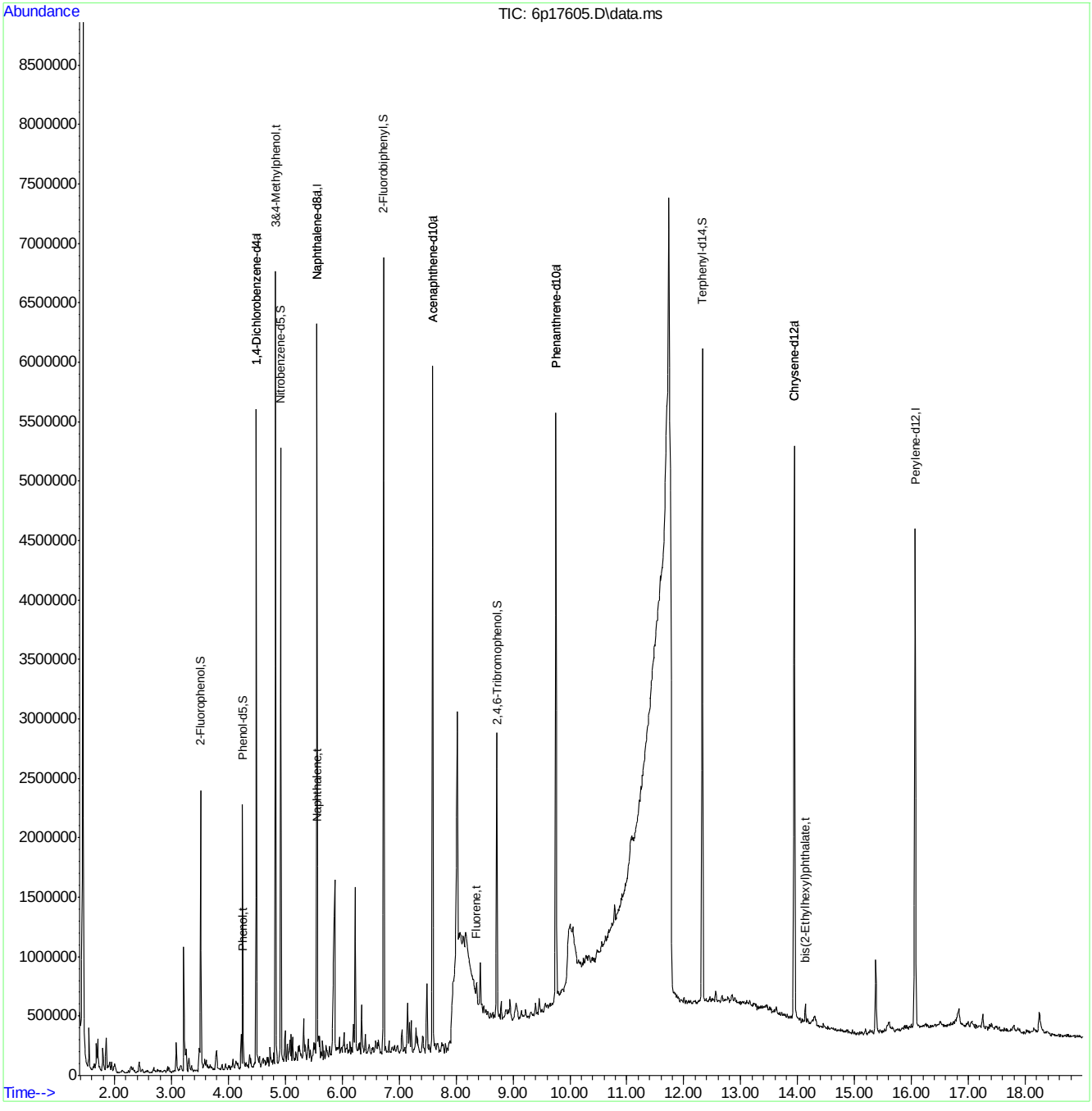
| Compound | R.T. | QIon | Response | Conc Units | Dev(Min) |
|---|---|---|---|---|---|
| Internal Standards | | | | | |
| 1) 1,4-Dichlorobenzene-d4 | 4.489 | 152 | 569104 | 40.00 ppm | -0.06 |
| 24) Naphthalene-d8 | 5.553 | 136 | 2175326 | 40.00 ppm | -0.07 |
| 47) Acenaphthene-d10 | 7.591 | 164 | 1338370 | 40.00 ppm | -0.09 |
| 69) Phenanthrene-d10 | 9.752 | 188 | 2232593 | 40.00 ppm | -0.09 |
| 83) Chrysene-d12 | 13.945 | 240 | 2115395 | 40.00 ppm | -0.09 |
| 92) Perylene-d12 | 16.063 | 264 | 1897106 | 40.00 ppm | -0.10 |
| 102) 1,4-Dichlorobenzene-d4a | 4.489 | 152 | 569104 | 40.00 ppm | -0.06 |
| 104) Phenanthrene-d10a | 9.752 | 188 | 2230980 | 40.00 ppm | -0.09 |
| 106) Chrysene-d12a | 13.945 | 240 | 2116558 | 40.00 ppm | -0.09 |
| 108) Acenaphthene-d10a | 7.591 | 164 | 1337171 | 40.00 ppm | -0.09 |
| 110) Naphthalene-d8a | 5.553 | 136 | 2175326 | 40.00 ppm | -0.07 |
| System Monitoring Compounds | | | | | |
| 5) 2-Fluorophenol | 3.516 | 112 | 522798 | 27.27 ppm | -0.03 |
| Spiked Amount 50.000 | | | Recovery | = 54.54% | |
| 8) Phenol-d5 | 4.248 | 99 | 466063 | 18.42 ppm | -0.03 |
| Spiked Amount 50.000 | | | Recovery | = 36.84% | |
| 25) Nitrobenzene-d5 | 4.922 | 82 | 1136922 | 49.56 ppm | -0.06 |
| Spiked Amount 50.000 | | | Recovery | = 99.12% | |
| 51) 2-Fluorobiphenyl | 6.730 | 172 | 1939815 | 47.13 ppm | -0.07 |
| Spiked Amount 50.000 | | | Recovery | = 94.26% | |
| 73) 2,4,6-Tribromophenol | 8.720 | 330 | 221534 | 48.41 ppm | -0.07 |
| Spiked Amount 50.000 | | | Recovery | = 96.82% | |
| 86) Terphenyl-d14 | 12.325 | 244 | 2097333 | 56.09 ppm | -0.09 |
| Spiked Amount 50.000 | | | Recovery | = 112.18% | |
| Target Compounds | | | | | Qvalue |
| 9) Phenol | 4.259 | 94 | 62375 | 2.22 ppm | 94 |
| 21) 3&4-Methylphenol | 4.826 | 108 | 874728 | 44.52 ppm | 97 |
| 38) Naphthalene | 5.564 | 128 | 64448 | 1.16 ppm | 80 |
| 66) Fluorene | 8.356 | 166 | 24787 | 0.59 ppm | 80 |
| 91) bis(2-Ethylhexyl)phtha... | 14.133 | 149 | 50112 | 1.35 ppm | 89 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

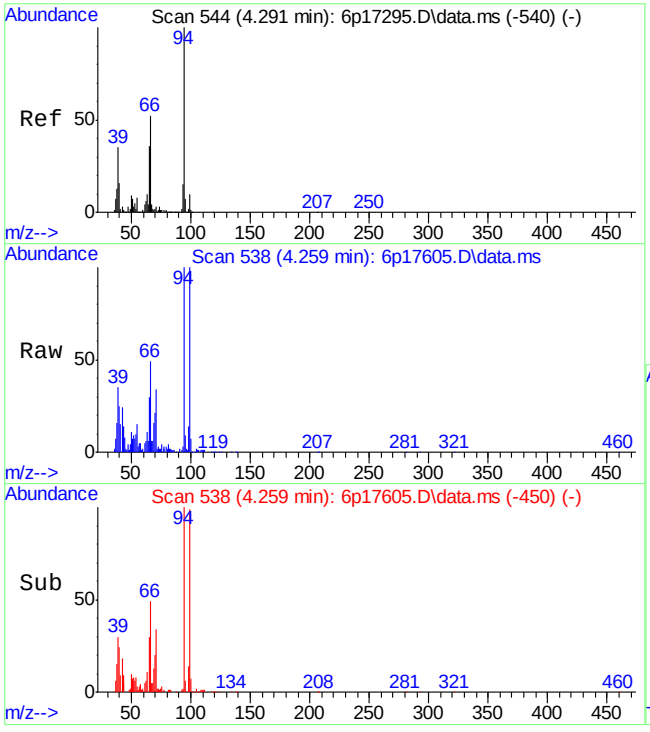
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e6p791\
Data File : 6p17605.D
Acq On : 10 Jul 2015 6:47 am
Operator : saraw
Sample : jb98590-17
Misc : op85388,e6p791,960,,,1,1
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Jul 10 11:02:53 2015
Quant Method : C:\MSDCHEM\1\METHODS\M6P776.M
Quant Title : Semi Volatile GC/MS, ZB-5MSi 30m x .25mm x .25um
QLast Update : Wed Jul 01 19:41:10 2015
Response via : Initial Calibration



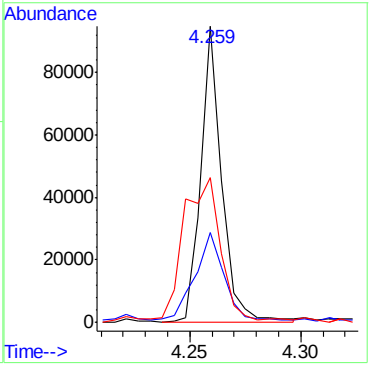

M6P776.M Fri Jul 10 11:02:56 2015 RPT1 Page: 2

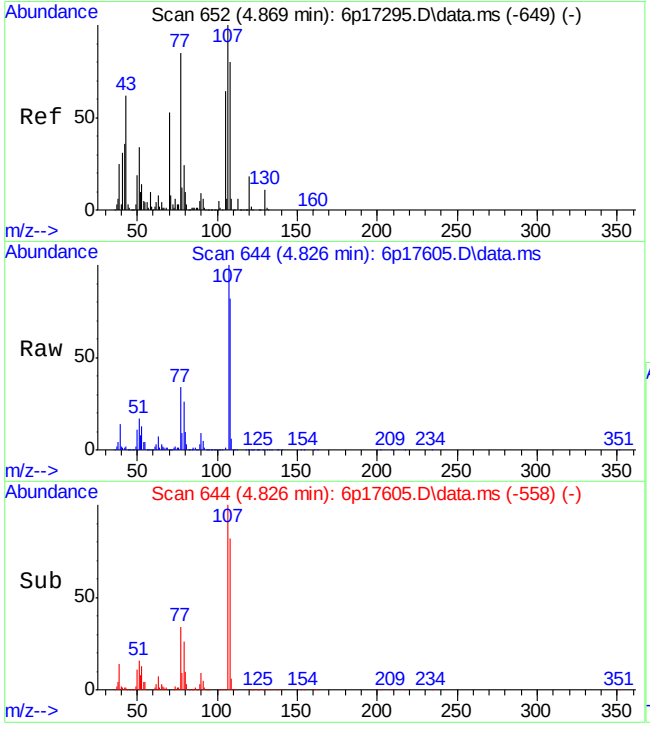



#9
Phenol
Concen: 2.22 ppm
RT: 4.259 min Scan# 538
Delta R.T. -0.027 min
Lab File: 6p17605.D
Acq: 10 Jul 2015 6:47 am

Tgt Ion: 94 Resp: 62375

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 94 | 100 | | |
| 65 | 29.4 | 3.4 | 63.4 |
| 66 | 47.8 | 14.6 | 74.6 |

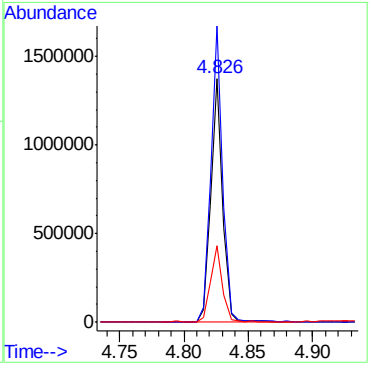



#21
3&4-Methylphenol
Concen: 44.52 ppm
RT: 4.826 min Scan# 644
Delta R.T. -0.038 min
Lab File: 6p17605.D
Acq: 10 Jul 2015 6:47 am

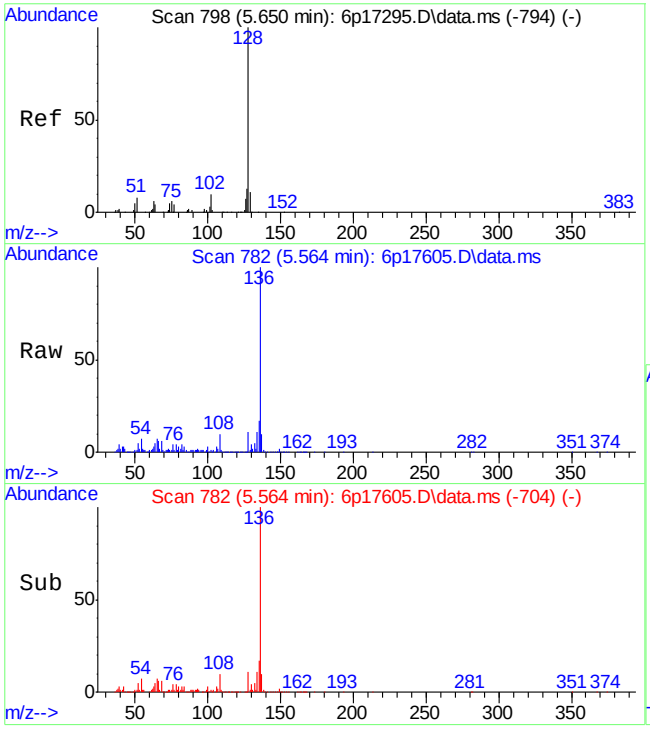
Tgt Ion:108 Resp: 874728

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 108 | 100 | | |
| 107 | 121.5 | 93.9 | 153.9 |
| 79 | 31.3 | 0.0 | 57.7 |




9.1.17

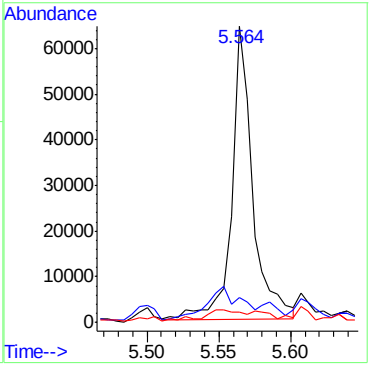
9

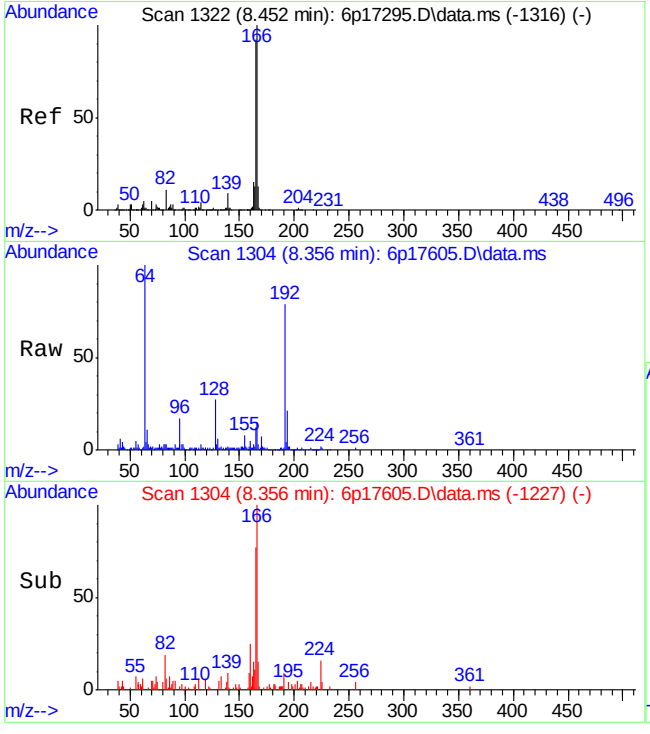



#38
Naphthalene
Concen: 1.16 ppm
RT: 5.564 min Scan# 782
Delta R.T. -0.080 min
Lab File: 6p17605.D
Acq: 10 Jul 2015 6:47 am

Tgt Ion:128 Resp: 64448

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 128 | 100 | | |
| 129 | 6.0 | 0.0 | 41.4 |
| 127 | 2.4 | 0.0 | 42.3 |

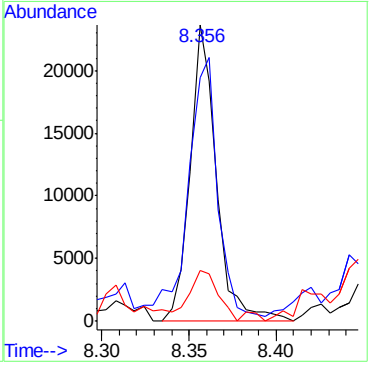



#66
Fluorene
Concen: 0.59 ppm
RT: 8.356 min Scan# 1304
Delta R.T. -0.086 min
Lab File: 6p17605.D
Acq: 10 Jul 2015 6:47 am

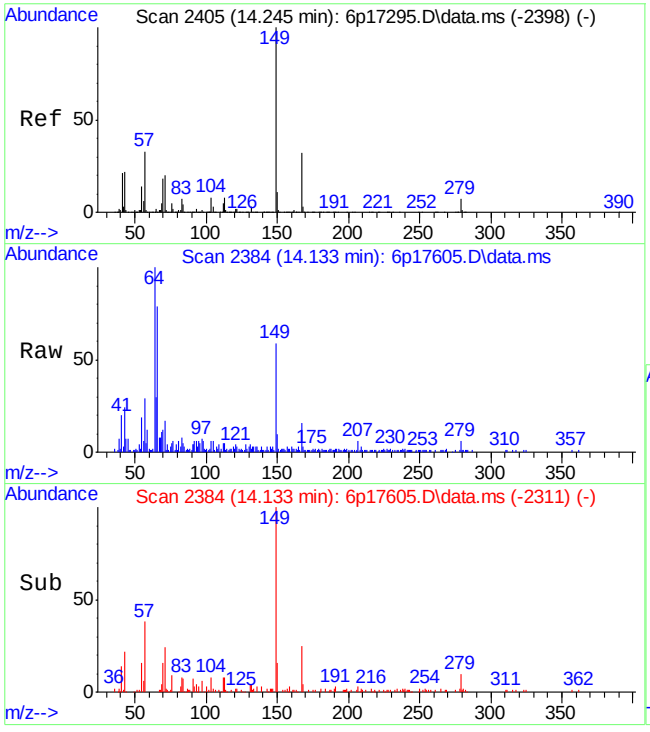
Tgt Ion:166 Resp: 24787

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 166 | 100 | | |
| 165 | 73.6 | 64.5 | 124.5 |
| 167 | 14.2 | 0.0 | 42.5 |




9.1.17

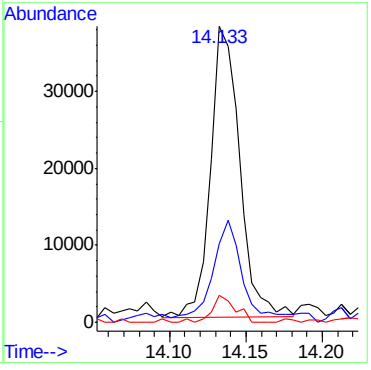
9




#91
bis(2-Ethylhexyl)phthalate
Concen: 1.35 ppm
RT: 14.133 min Scan# 2384
Delta R.T. -0.107 min
Lab File: 6p17605.D
Acq: 10 Jul 2015 6:47 am

Tgt Ion:149 Resp: 50112

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 149 | 100 | | |
| 167 | 24.9 | 1.8 | 61.8 |
| 279 | 8.6 | 0.0 | 37.1 |




9.1.17

9

Manual Integrations APPROVED (compounds with "m" flag)
Nina Pandya
07/13/15 15:47

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e6p791\
Data File : 6p17606.D
Acq On : 10 Jul 2015 7:13 am
Operator : saraw
Sample : jb98590-18
Misc : op85388,e6p791,1000,,,1,1
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Jul 10 11:10:01 2015
Quant Method : C:\MSDCHEM\1\METHODS\M6P776.M
Quant Title : Semi Volatile GC/MS, ZB-5MSi 30m x .25mm x .25um
QLast Update : Fri Jul 10 09:24:42 2015
Response via : Initial Calibration

| Compound | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| Internal Standards | | | | | | |
| 1) 1,4-Dichlorobenzene-d4 | 4.511 | 152 | 620065 | 40.00 | ppm | 0.00 |
| 24) Naphthalene-d8 | 5.602 | 136 | 1601010 | 40.00 | ppm | 0.00 |
| 47) Acenaphthene-d10 | 7.613 | 164 | 1260021 | 40.00 | ppm | 0.00 |
| 69) Phenanthrene-d10 | 9.758 | 188 | 2189026 | 40.00 | ppm | 0.00 |
| 83) Chrysene-d12 | 13.946 | 240 | 2114369 | 40.00 | ppm | 0.00 |
| 92) Perylene-d12 | 16.069 | 264 | 1907480 | 40.00 | ppm | 0.00 |
| 102) 1,4-Dichlorobenzene-d4a | 4.511 | 152 | 620065 | 40.00 | ppm | 0.00 |
| 104) Phenanthrene-d10a | 9.758 | 188 | 2185659 | 40.00 | ppm | 0.00 |
| 106) Chrysene-d12a | 13.946 | 240 | 2114369 | 40.00 | ppm | 0.00 |
| 108) Acenaphthene-d10a | 7.613 | 164 | 1260021 | 40.00 | ppm | 0.00 |
| 110) Naphthalene-d8a | 5.602 | 136 | 1601010 | 40.00 | ppm | 0.00 |
| System Monitoring Compounds | | | | | | |
| 5) 2-Fluorophenol | 3.516 | 112 | 327823 | 15.70 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 31.40% | | | |
| 8) Phenol-d5 | 4.259 | 99 | 417212 | 15.13 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 30.26% | | | |
| 25) Nitrobenzene-d5 | 4.944 | 82 | 2240535m | 132.69 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 265.38% | | | |
| 51) 2-Fluorobiphenyl | 6.768 | 172 | 1335068 | 34.45 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 68.90% | | | |
| 73) 2,4,6-Tribromophenol | 8.725 | 330 | 163366 | 36.41 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 72.82% | | | |
| 86) Terphenyl-d14 | 12.325 | 244 | 1646154 | 44.05 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 88.10% | | | |
| Target Compounds | | | | | | Qvalue |
| 19) 2-Methylphenol | 4.724 | 108 | 781163 | 38.30 | ppm | 89 |
| 21) 3&4-Methylphenol | 4.853 | 108 | 1238851 | 57.87 | ppm # | 68 |
| 30) 2,4-Dimethylphenol | 5.302 | 107 | 1138173 | 74.73 | ppm | 81 |
| 38) Naphthalene | 5.628 | 128 | 17796269 | 436.27 | ppm | 96 |
| 44) 2-Methylnaphthalene | 6.367 | 141 | 11914482 | 532.76 | ppm | 99 |
| 53) Biphenyl | 6.885 | 154 | 294911 | 6.48 | ppm | 98 |
| 59) Acenaphthene | 7.656 | 153 | 72087 | 2.08 | ppm | 87 |
| 66) Fluorene | 8.367 | 166 | 103753m | 2.62 | ppm | |
| 77) Phenanthrene | 9.790 | 178 | 79338 | 1.32 | ppm | 99 |
| 84) Pyrene | 11.999 | 202 | 28855 | 0.42 | ppm | 82 |
| 91) bis(2-Ethylhexyl)phtha... | 14.138 | 149 | 1373392 | 37.02 | ppm | 99 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

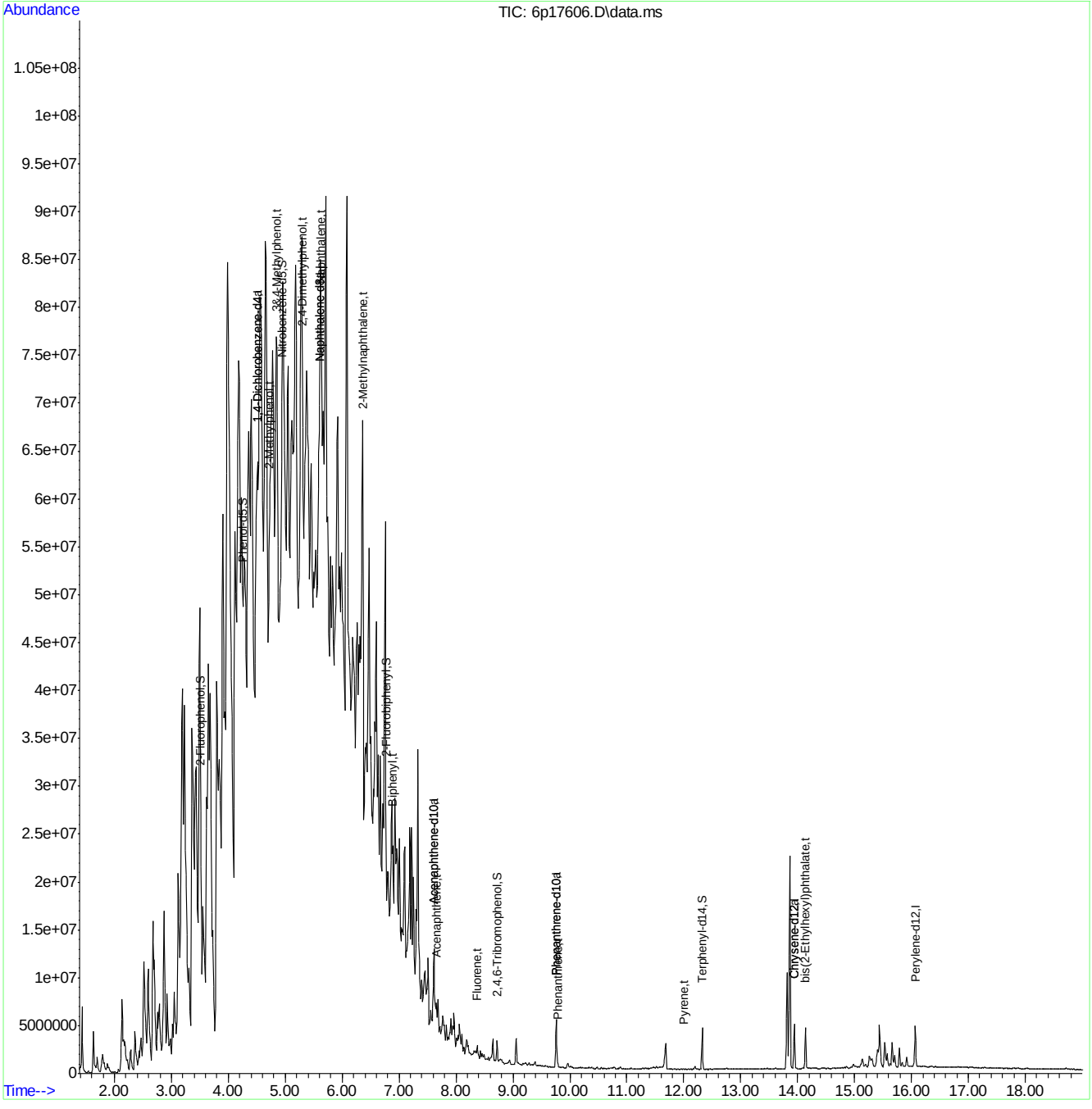
9.1.18

9

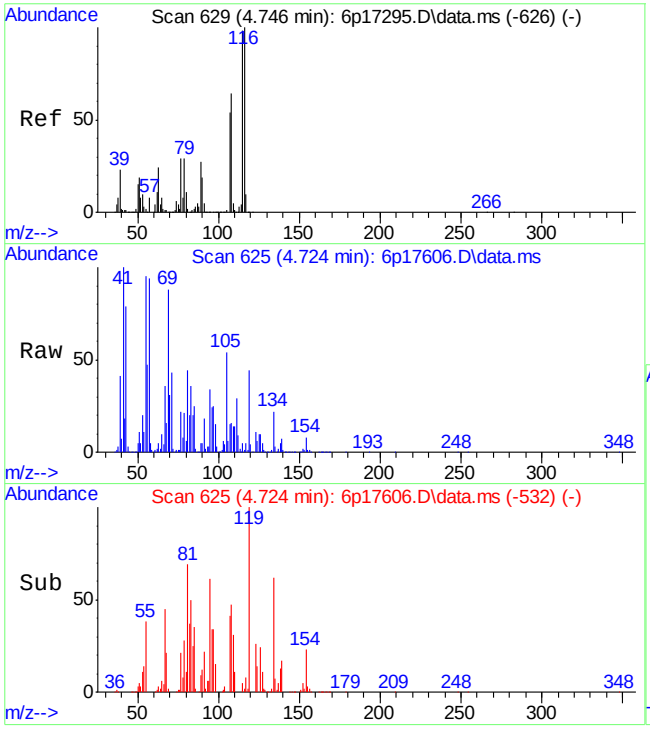
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e6p791\
Data File : 6p17606.D
Acq On : 10 Jul 2015 7:13 am
Operator : saraw
Sample : jb98590-18
Misc : op85388,e6p791,1000,,,1,1
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Jul 10 11:10:01 2015
Quant Method : C:\MSDCHEM\1\METHODS\M6P776.M
Quant Title : Semi Volatile GC/MS, ZB-5MSi 30m x .25mm x .25um
QLast Update : Fri Jul 10 09:24:42 2015
Response via : Initial Calibration



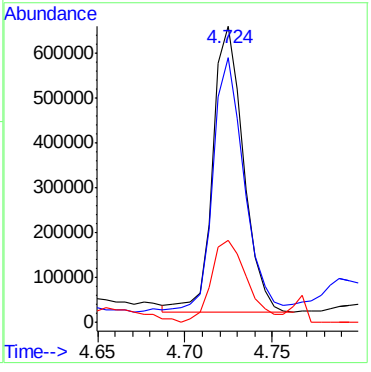

M6P776.M Fri Jul 10 11:10:04 2015 RPT1 Page: 2

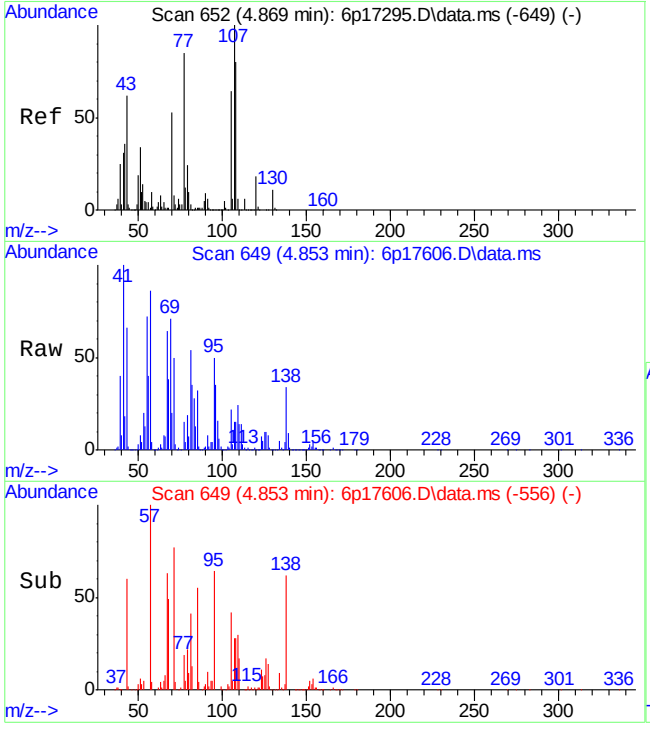



#19
2-Methylphenol
Concen: 38.30 ppm
RT: 4.724 min Scan# 625
Delta R.T. 0.000 min
Lab File: 6p17606.D
Acq: 10 Jul 2015 7:13 am

Tgt Ion:108 Resp: 781163

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 108 | 100 | | |
| 107 | 88.1 | 50.4 | 110.4 |
| 90 | 25.7 | 4.7 | 64.7 |

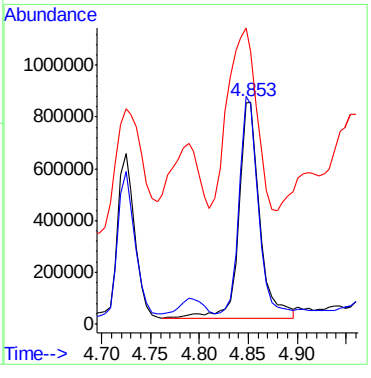


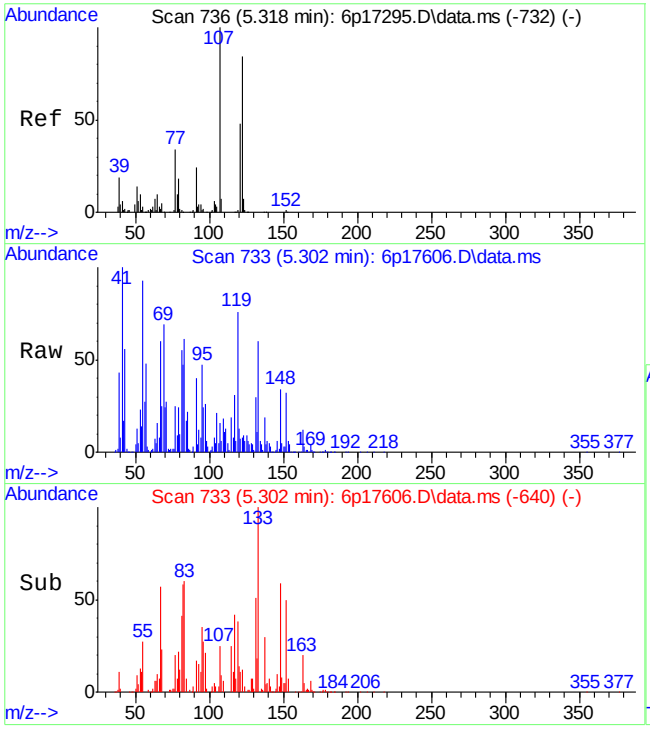




#21
3&4-Methylphenol
Concen: 57.87 ppm
RT: 4.853 min Scan# 649
Delta R.T. 0.000 min
Lab File: 6p17606.D
Acq: 10 Jul 2015 7:13 am

Tgt Ion:108 Resp: 1238851

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 108 | 100 | | |
| 107 | 98.0 | 93.9 | 153.9 |
| 79 | 66.8 | 0.0 | 57.7# |

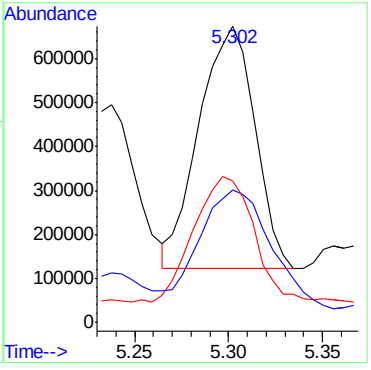


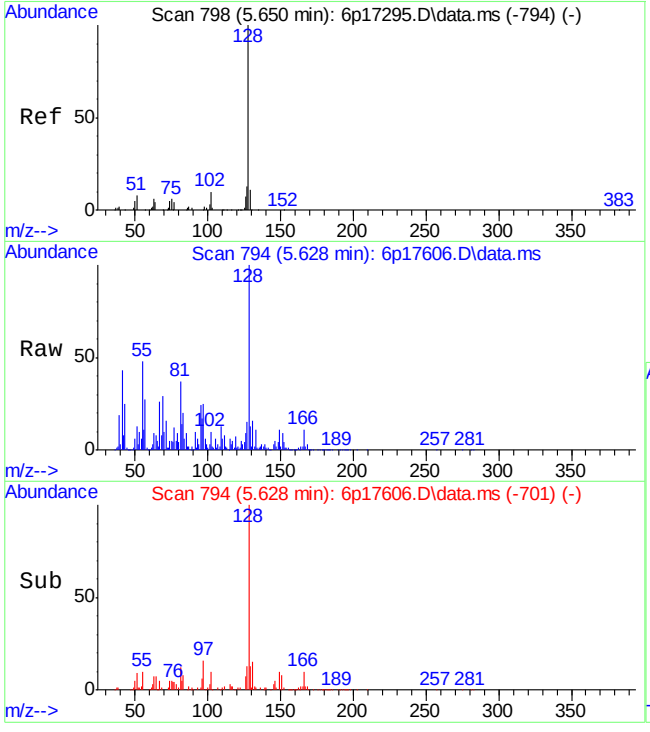



#30
2,4-Dimethylphenol
Concen: 74.73 ppm
RT: 5.302 min Scan# 733
Delta R.T. 0.000 min
Lab File: 6p17606.D
Acq: 10 Jul 2015 7:13 am

Tgt Ion:107 Resp: 1138173

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 107 | 100 | | |
| 121 | 41.4 | 15.4 | 75.4 |
| 122 | 49.6 | 42.7 | 102.7 |

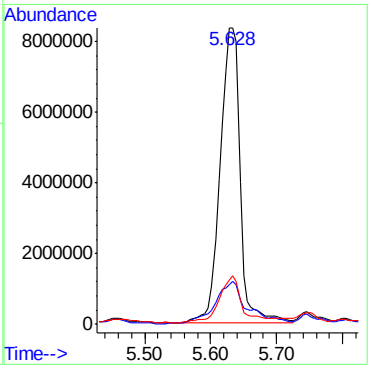



#38
Naphthalene
Concen: 436.27 ppm
RT: 5.628 min Scan# 794
Delta R.T. 0.000 min
Lab File: 6p17606.D
Acq: 10 Jul 2015 7:13 am

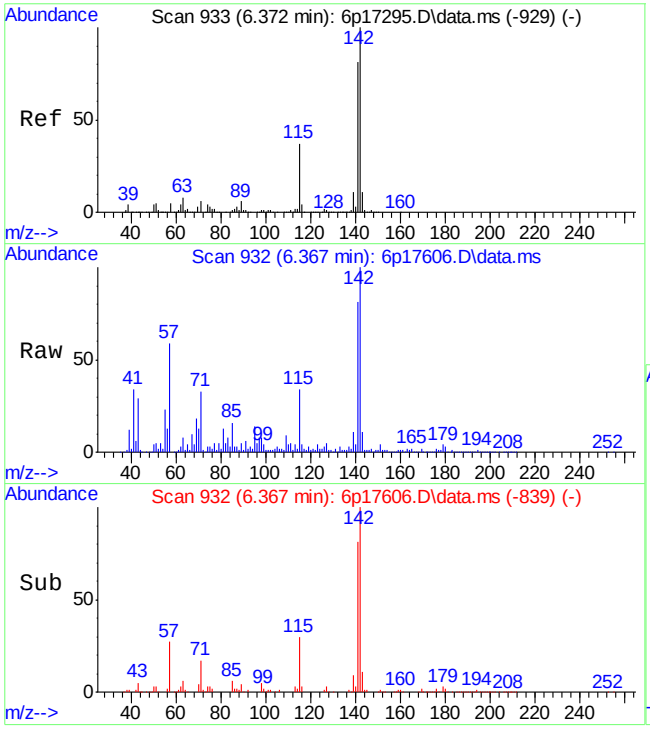
Tgt Ion:128 Resp:17796269

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 128 | 100 | | |
| 129 | 12.7 | 0.0 | 41.4 |
| 127 | 13.7 | 0.0 | 42.3 |




9.1.18

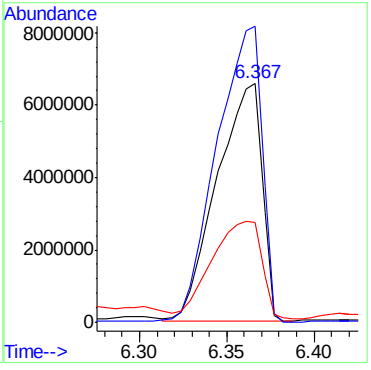
9

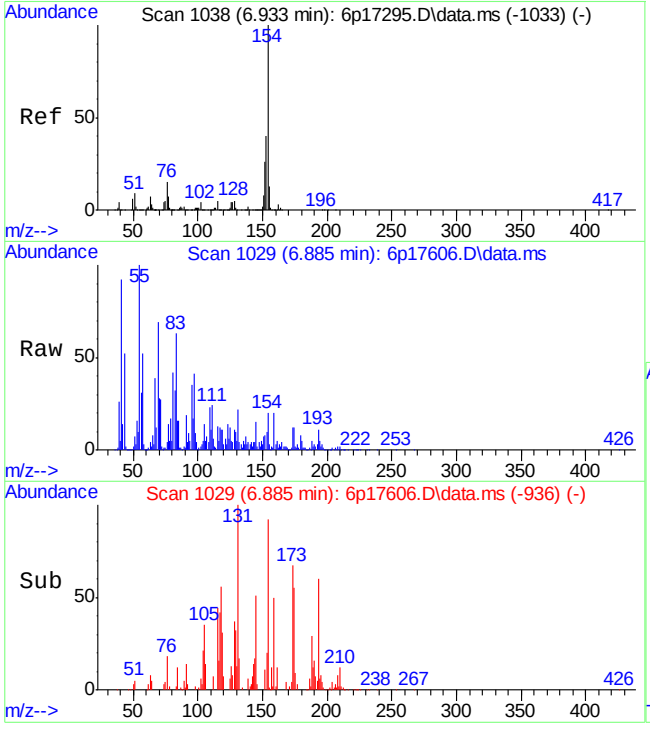



#44
2-Methylnaphthalene
Concen: 532.76 ppm
RT: 6.367 min Scan# 932
Delta R.T. 0.000 min
Lab File: 6p17606.D
Acq: 10 Jul 2015 7:13 am

Tgt Ion:141 Resp:11914482

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 141 | 100 | | |
| 142 | 124.6 | 94.9 | 154.9 |
| 115 | 39.0 | 11.4 | 71.4 |

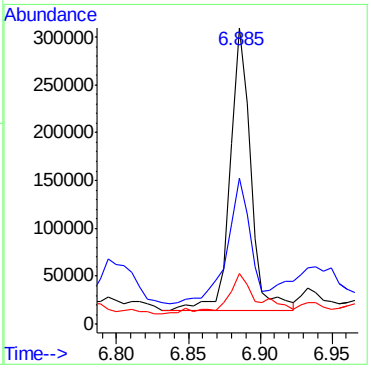



#53
Biphenyl
Concen: 6.48 ppm
RT: 6.885 min Scan# 1029
Delta R.T. 0.000 min
Lab File: 6p17606.D
Acq: 10 Jul 2015 7:13 am

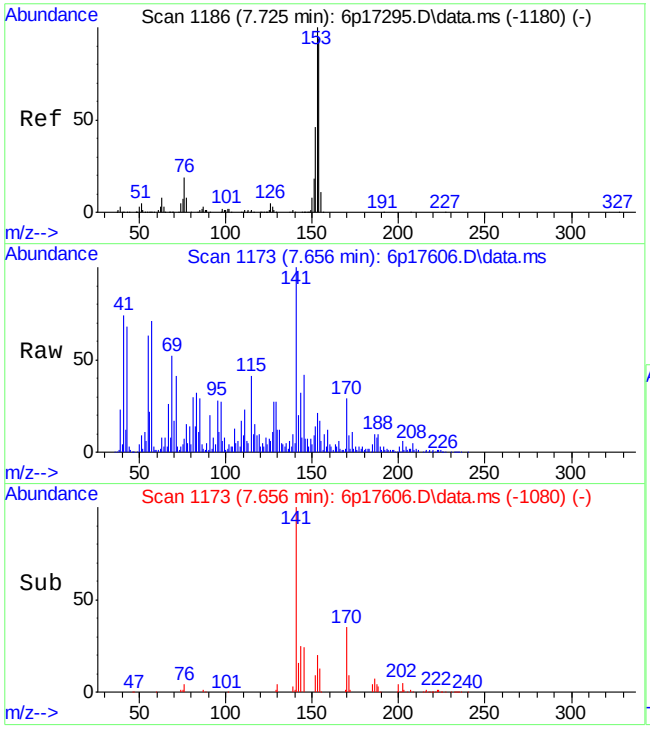
Tgt Ion:154 Resp: 294911

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 154 | 100 | | |
| 153 | 40.5 | 9.8 | 69.8 |
| 155 | 13.5 | 0.0 | 41.0 |




9.1.18

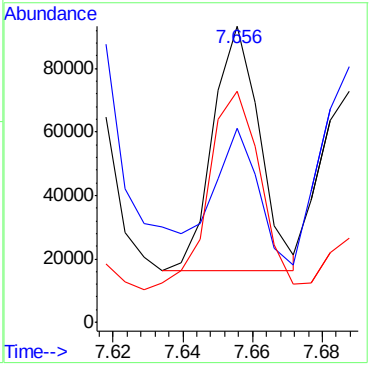
9

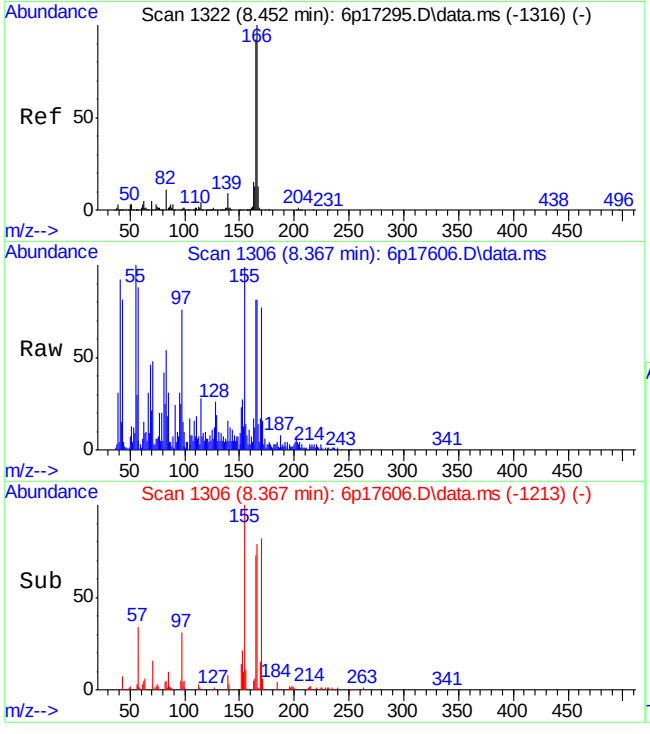



#59
Acenaphthene
Concen: 2.08 ppm
RT: 7.656 min Scan# 1173
Delta R.T. 0.000 min
Lab File: 6p17606.D
Acq: 10 Jul 2015 7:13 am

Tgt Ion:153 Resp: 72087

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 153 | 100 | | |
| 152 | 49.8 | 15.1 | 75.1 |
| 154 | 81.4 | 66.7 | 126.7 |

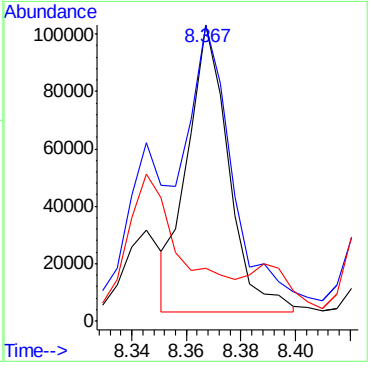



#66
Fluorene
Concen: 2.62 ppm m
RT: 8.367 min Scan# 1306
Delta R.T. 0.000 min
Lab File: 6p17606.D
Acq: 10 Jul 2015 7:13 am

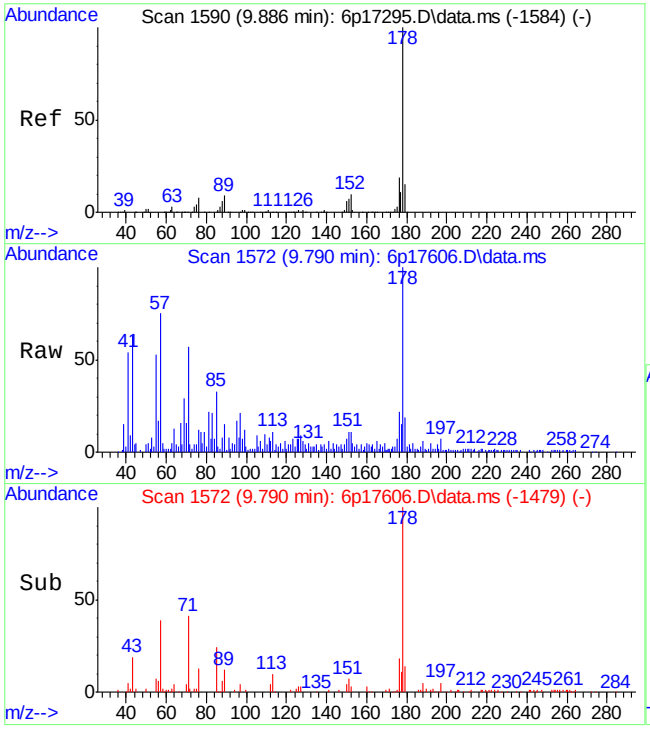
Tgt Ion:166 Resp: 103753

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 166 | 100 | | |
| 165 | 100.0 | 64.5 | 124.5 |
| 167 | 17.8 | 0.0 | 42.5 |




9.1.18

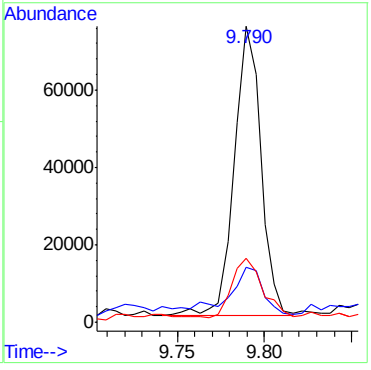
9

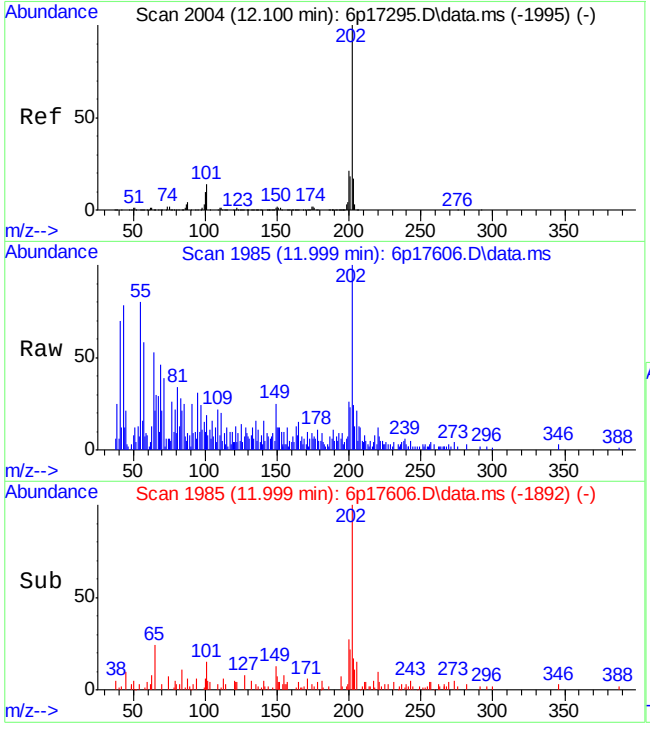



#77
Phenanthrene
Concen: 1.32 ppm
RT: 9.790 min Scan# 1572
Delta R.T. 0.000 min
Lab File: 6p17606.D
Acq: 10 Jul 2015 7:13 am

Tgt Ion:178 Resp: 79338

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 178 | 100 | | |
| 179 | 14.9 | 0.0 | 45.0 |
| 176 | 19.8 | 0.0 | 49.2 |

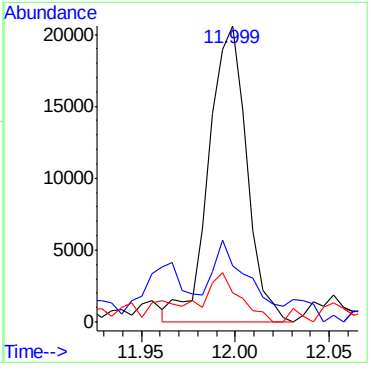


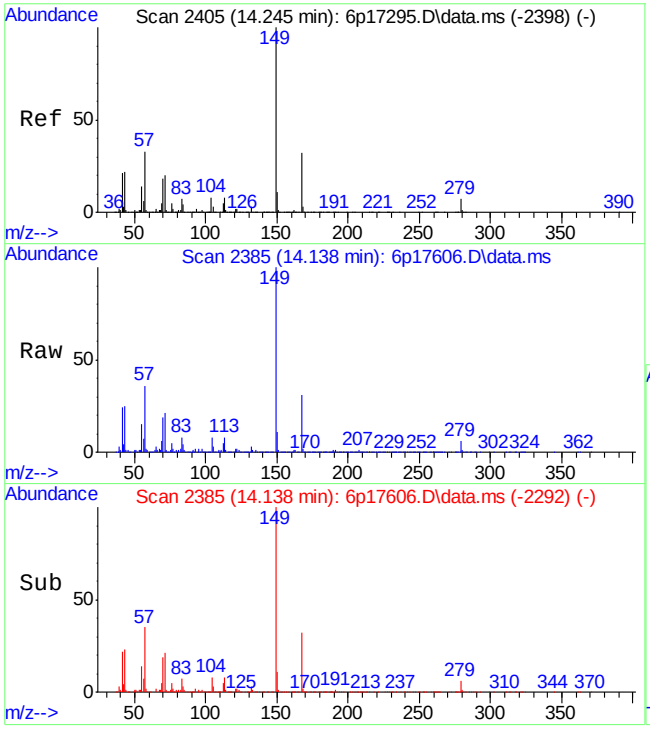




#84
Pyrene
Concen: 0.42 ppm
RT: 11.999 min Scan# 1985
Delta R.T. 0.000 min
Lab File: 6p17606.D
Acq: 10 Jul 2015 7:13 am

Tgt Ion:202 Resp: 28855

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 202 | 100 | | |
| 101 | 5.0 | 0.0 | 43.8 |
| 100 | 4.2 | 0.0 | 38.6 |

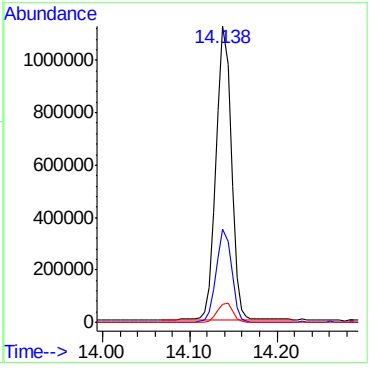





#91
bis(2-Ethylhexyl)phthalate
Concen: 37.02 ppm
RT: 14.138 min Scan# 2385
Delta R.T. 0.000 min
Lab File: 6p17606.D
Acq: 10 Jul 2015 7:13 am

Tgt Ion:149 Resp: 1373392

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 149 | 100 | | |
| 167 | 31.5 | 1.8 | 61.8 |
| 279 | 6.2 | 0.0 | 37.1 |




9.1.18

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e6p792\
Data File : 6p17632.D
Acq On : 10 Jul 2015 6:18 pm
Operator : alicjap
Sample : jb98590-18
Misc : op85388,e6p792,1000,,,1,20
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Jul 10 21:19:22 2015
Quant Method : C:\MSDCHEM\1\METHODS\M6P776.M
Quant Title : Semi Volatile GC/MS, ZB-5MSi 30m x .25mm x .25um
QLast Update : Wed Jul 01 19:41:10 2015
Response via : Initial Calibration

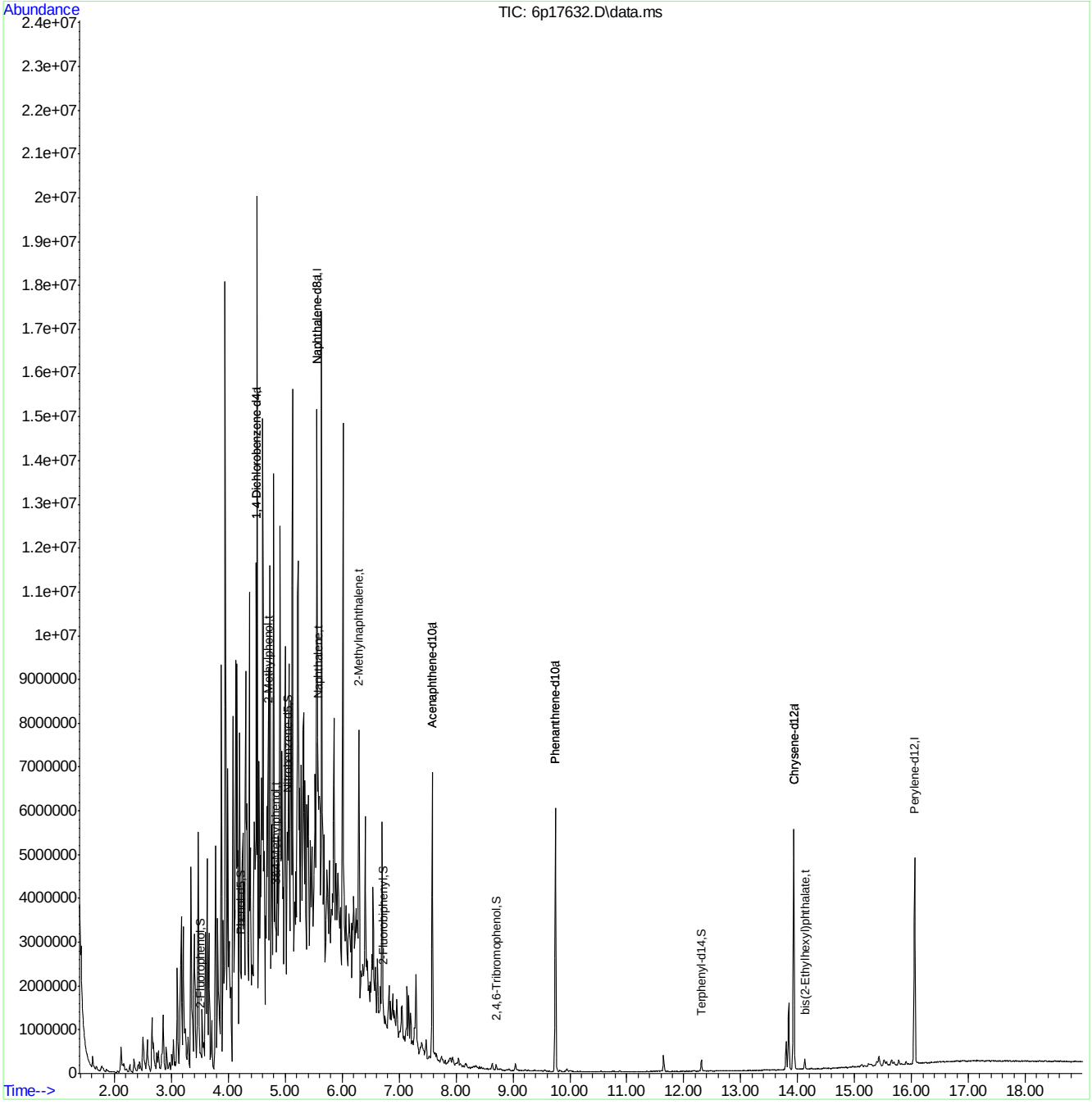
| Compound | R.T. | QIon | Response | Conc Units | Dev(Min) |
|---|---|---|---|---|---|
| Internal Standards | | | | | |
| 1) 1,4-Dichlorobenzene-d4 | 4.489 | 152 | 592102 | 40.00 ppm | -0.06 |
| 24) Naphthalene-d8 | 5.554 | 136 | 2233775 | 40.00 ppm | -0.07 |
| 47) Acenaphthene-d10 | 7.586 | 164 | 1486511 | 40.00 ppm | -0.09 |
| 69) Phenanthrene-d10 | 9.747 | 188 | 2490111 | 40.00 ppm | -0.10 |
| 83) Chrysene-d12 | 13.935 | 240 | 2433540 | 40.00 ppm | -0.10 |
| 92) Perylene-d12 | 16.058 | 264 | 2157740 | 40.00 ppm | -0.10 |
| 102) 1,4-Dichlorobenzene-d4a | 4.489 | 152 | 592102 | 40.00 ppm | -0.06 |
| 104) Phenanthrene-d10a | 9.747 | 188 | 2489558 | 40.00 ppm | -0.10 |
| 106) Chrysene-d12a | 13.935 | 240 | 2433540 | 40.00 ppm | -0.10 |
| 108) Acenaphthene-d10a | 7.586 | 164 | 1486384 | 40.00 ppm | -0.09 |
| 110) Naphthalene-d8a | 5.554 | 136 | 2240312 | 40.00 ppm | -0.07 |
| System Monitoring Compounds | | | | | |
| 5) 2-Fluorophenol | 3.505 | 112 | 19699 | 0.99 ppm | -0.04 |
| Spiked Amount 50.000 | | | Recovery | = 1.98% | |
| 8) Phenol-d5 | 4.222 | 99 | 8123 | 0.31 ppm | -0.05 |
| Spiked Amount 50.000 | | | Recovery | = 0.62% | |
| 25) Nitrobenzene-d5 | 5.040 | 82 | 24653 | 1.05 ppm | 0.06 |
| Spiked Amount 50.000 | | | Recovery | = 2.10% | |
| 51) 2-Fluorobiphenyl | 6.725 | 172 | 94400 | 2.06 ppm | -0.08 |
| Spiked Amount 50.000 | | | Recovery | = 4.12% | |
| 73) 2,4,6-Tribromophenol | 8.709 | 330 | 8337 | 1.63 ppm | -0.09 |
| Spiked Amount 50.000 | | | Recovery | = 3.26% | |
| 86) Terphenyl-d14 | 12.309 | 244 | 93810 | 2.18 ppm | -0.11 |
| Spiked Amount 50.000 | | | Recovery | = 4.36% | |
| Target Compounds | | | | | Qvalue |
| 19) 2-Methylphenol | 4.703 | 108 | 51310 | 2.63 ppm | 87 |
| 21) 3&4-Methylphenol | 4.826 | 108 | 91552 | 4.48 ppm | 79 |
| 38) Naphthalene | 5.575 | 128 | 1527301 | 26.84 ppm | 97 |
| 44) 2-Methylnaphthalene | 6.292 | 141 | 989049 | 31.70 ppm | 96 |
| 91) bis(2-Ethylhexyl)phtha... | 14.127 | 149 | 74854 | 1.75 ppm | 92 |

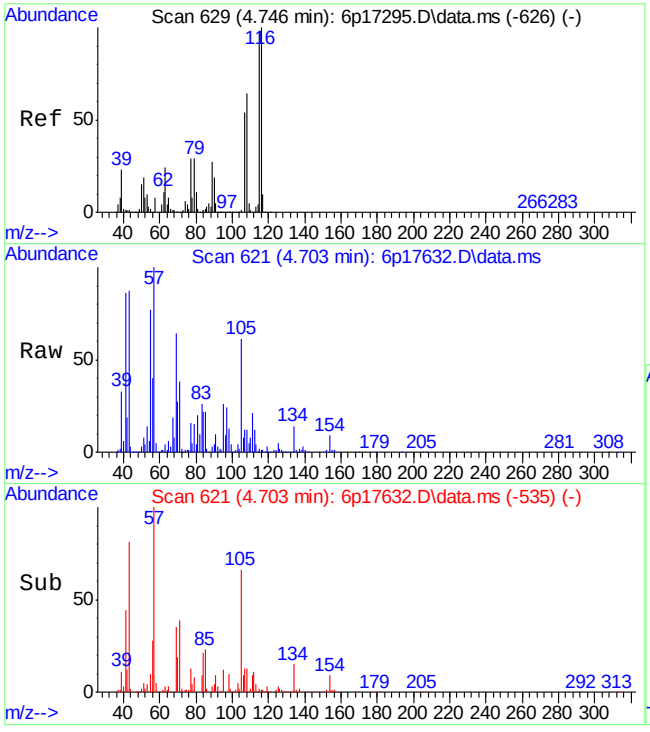
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e6p792\
Data File : 6p17632.D
Acq On : 10 Jul 2015 6:18 pm
Operator : alicjap
Sample : jb98590-18
Misc : op85388,e6p792,1000,,,1,20
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Jul 10 21:19:22 2015
Quant Method : C:\MSDCHEM\1\METHODS\M6P776.M
Quant Title : Semi Volatile GC/MS, ZB-5MSi 30m x .25mm x .25um
QLast Update : Wed Jul 01 19:41:10 2015
Response via : Initial Calibration

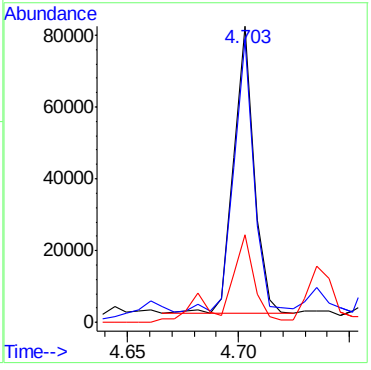


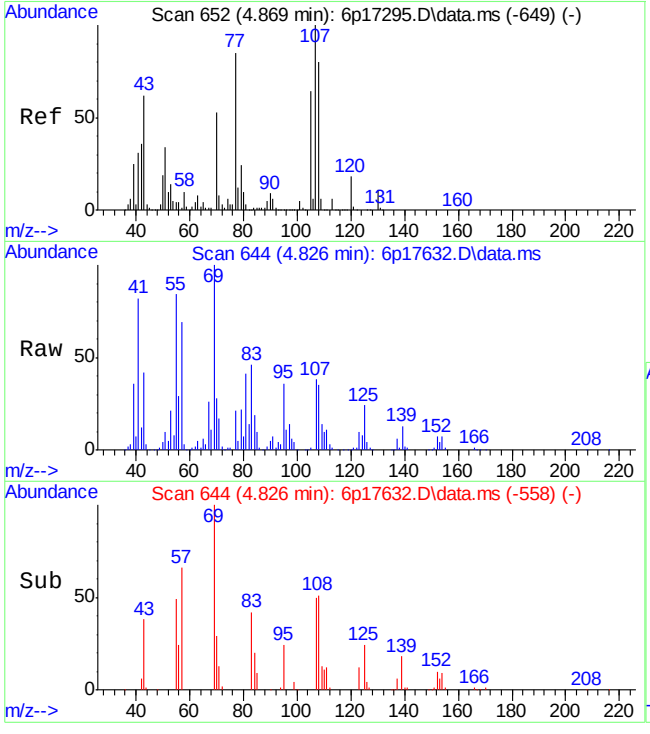



#19
2-Methylphenol
Concen: 2.63 ppm
RT: 4.703 min Scan# 621
Delta R.T. -0.037 min
Lab File: 6p17632.D
Acq: 10 Jul 2015 6:18 pm

Tgt Ion:108 Resp: 51310

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 108 | 100 | | |
| 107 | 93.2 | 50.4 | 110.4 |
| 90 | 29.7 | 4.7 | 64.7 |

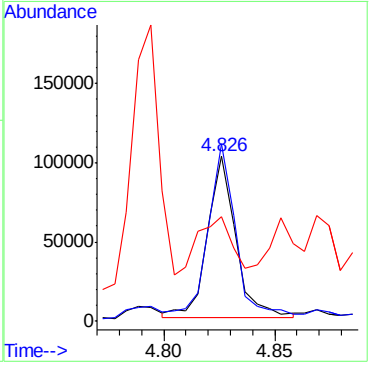



#21
3&4-Methylphenol
Concen: 4.48 ppm
RT: 4.826 min Scan# 644
Delta R.T. -0.037 min
Lab File: 6p17632.D
Acq: 10 Jul 2015 6:18 pm

Tgt Ion:108 Resp: 91552

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 108 | 100 | | |
| 107 | 107.9 | 93.9 | 153.9 |
| 79 | 0.0 | 0.0 | 57.7 |




9.1.19

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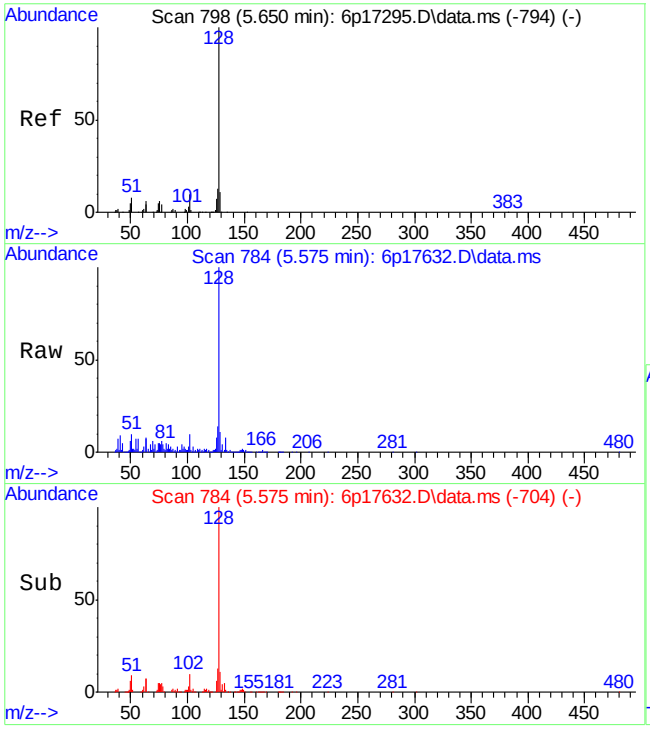
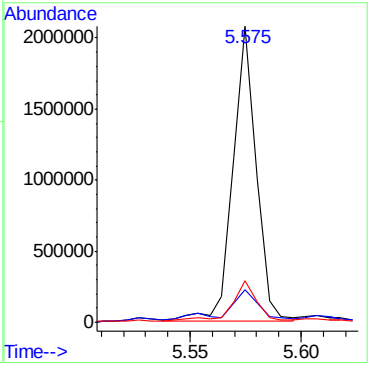
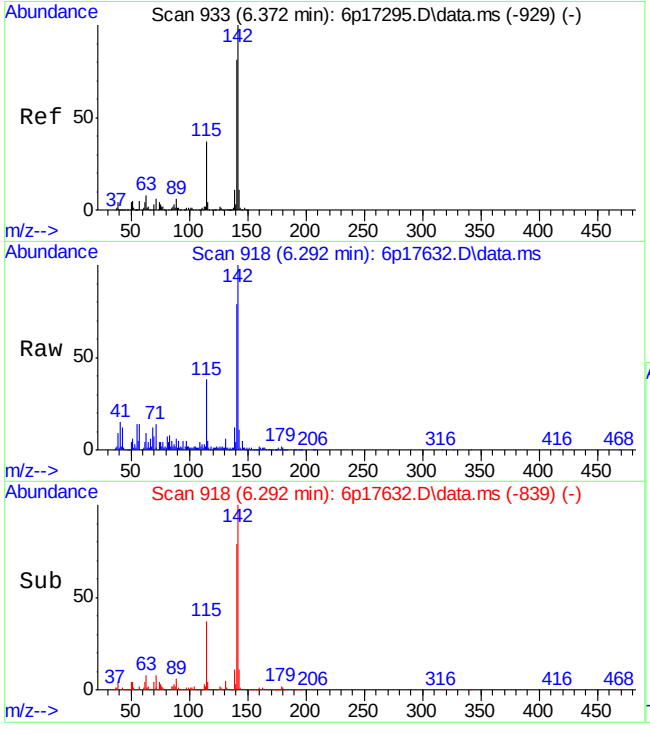



#38
Naphthalene
Concen: 26.84 ppm
RT: 5.575 min Scan# 784
Delta R.T. -0.070 min
Lab File: 6p17632.D
Acq: 10 Jul 2015 6:18 pm

Tgt Ion:128 Resp: 1527301

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 128 | 100 | | |
| 129 | 10.1 | 0.0 | 41.4 |
| 127 | 13.5 | 0.0 | 42.3 |

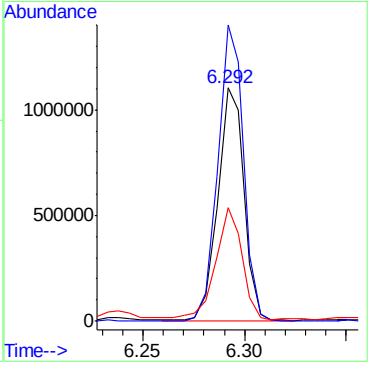



#44
2-Methylnaphthalene
Concen: 31.70 ppm
RT: 6.292 min Scan# 918
Delta R.T. -0.075 min
Lab File: 6p17632.D
Acq: 10 Jul 2015 6:18 pm

Tgt Ion:141 Resp: 989049

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 141 | 100 | | |
| 142 | 127.3 | 94.9 | 154.9 |
| 115 | 47.6 | 11.4 | 71.4 |




9.1.19

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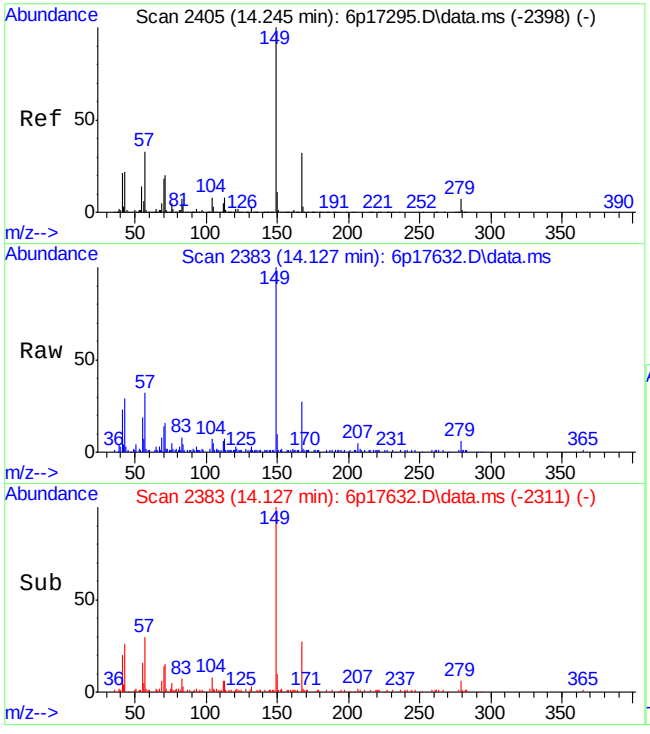
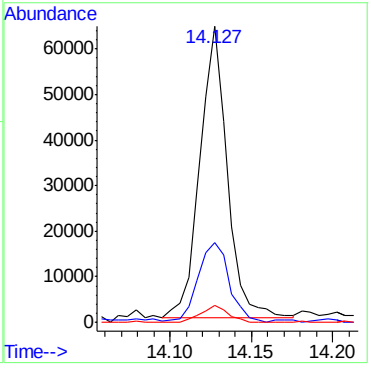



#91
bis(2-Ethylhexyl)phthalate
Concen: 1.75 ppm
RT: 14.127 min Scan# 2383
Delta R.T. -0.112 min
Lab File: 6p17632.D
Acq: 10 Jul 2015 6:18 pm

Tgt Ion:149 Resp: 74854

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 149 | 100 | | |
| 167 | 26.8 | 1.8 | 61.8 |
| 279 | 5.7 | 0.0 | 37.1 |




9.1.19

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E4M2559\
Data File : 4m58921.D
Acq On : 10 Jul 2015 3:15 am
Operator : ashleyd
Sample : jb98590-1
Misc : op85388a,e4m2559,1000
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Jul 10 09:43:10 2015
Quant Method : C:\MSDCHEM\1\METHODS\M4M2526SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Thu Jun 25 22:36:45 2015
Response via : Initial Calibration

| Compound | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| **Internal Standards** | | | | | | |
| 1) 1-Methylnaphthalene-d10 | 9.786 | 152 | 111186 | 4.00 | ppm | -0.16 |
| 12) Fluorene-d10 | 12.731 | 176 | 177683 | 4.00 | ppm | -0.20 |
| 22) Fluoranthene-d10 | 16.910 | 212 | 283434 | 4.00 | ppm | -0.17 |
| 28) Benzo(a)pyrene-d12 | 21.490 | 264 | 217098 | 4.00 | ppm | -0.18 |
| 35) 1-Methylnaphthalene-d10a | 9.786 | 152 | 111186 | 4.00 | ppm | #-0.16 |
| 38) Fluorene-d10a | 12.731 | 176 | 177683 | 4.00 | ppm | -0.20 |
| **System Monitoring Compounds** | | | | | | |
| 2) 2-Fluorophenol | 4.117 | 112 | 302589 | 17.18 | ppm | -0.14 |
| Spiked Amount 50.000 | Range 11 - 58 | | Recovery = 34.36% | | | |
| 3) Phenol-d5 | 5.494 | 99 | 342229 | 10.95 | ppm | -0.14 |
| Spiked Amount 50.000 | | | Recovery = 21.90% | | | |
| 6) Nitrobenzene-d5 | 6.962 | 82 | 768555 | 25.59 | ppm | -0.17 |
| Spiked Amount 50.000 | | | Recovery = 51.18% | | | |
| 11) 2-Fluorobiphenyl | 10.421 | 172 | 1145936 | 31.39 | ppm | -0.18 |
| Spiked Amount 50.000 | | | Recovery = 62.78% | | | |
| 17) 2,4,6-Tribromophenol | 13.280 | 330 | 247261 | 42.57 | ppm | -0.20 |
| Spiked Amount 50.000 | | | Recovery = 85.14% | | | |
| 25) Terphenyl-d14 | 17.701 | 244 | 1247516 | 30.22 | ppm | -0.17 |
| Spiked Amount 50.000 | | | Recovery = 60.44% | | | |

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

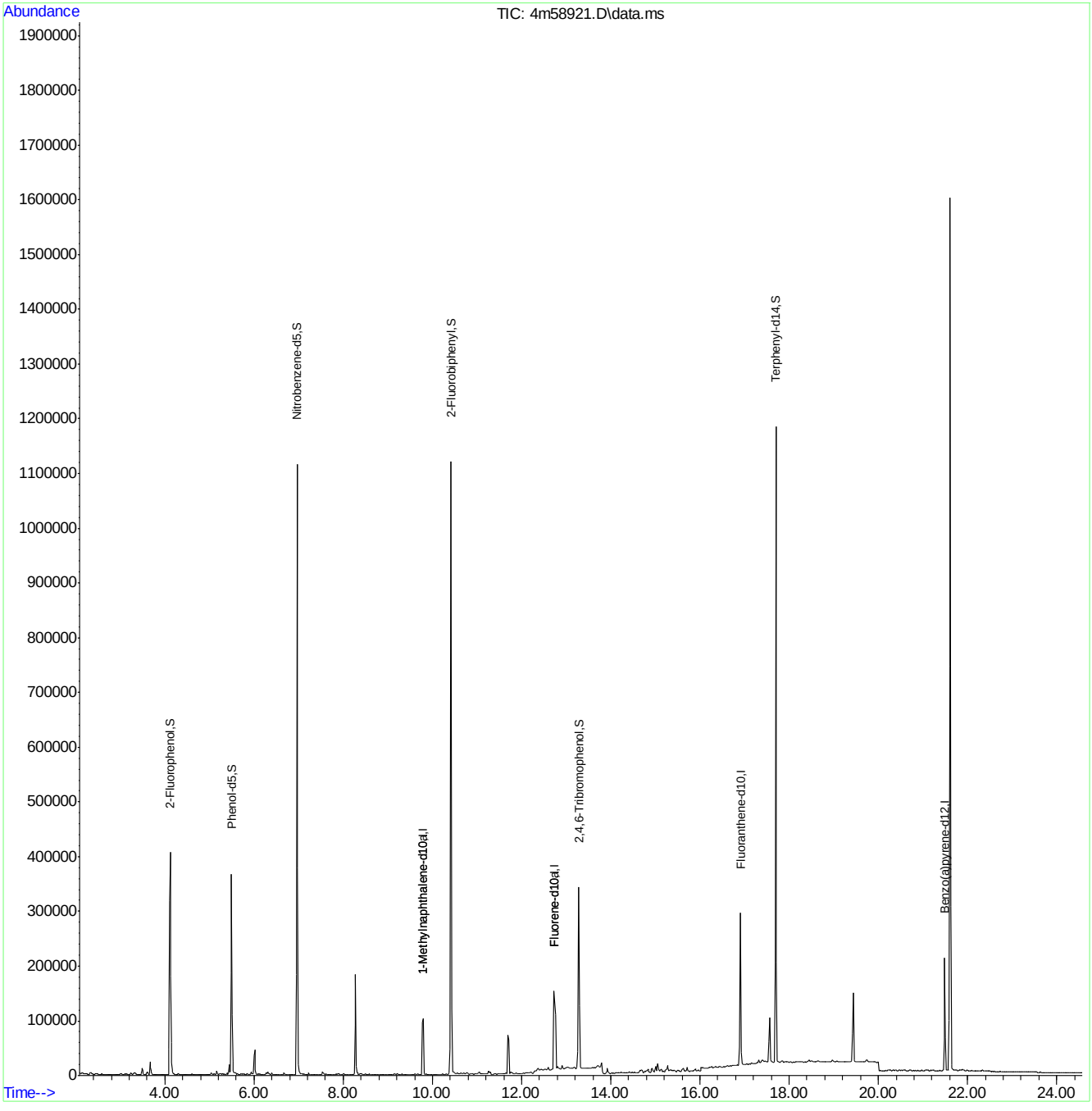
9.1.20

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E4M2559\
Data File : 4m58921.D
Acq On : 10 Jul 2015 3:15 am
Operator : ashleyd
Sample : jb98590-1
Misc : op85388a,e4m2559,1000
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Jul 10 09:43:10 2015
Quant Method : C:\MSDCHEM\1\METHODS\M4M2526SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Thu Jun 25 22:36:45 2015
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E4M2559\
Data File : 4m58922.D
Acq On : 10 Jul 2015 3:45 am
Operator : ashleyd
Sample : jb98590-2
Misc : op85388a,e4m2559,1000
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Jul 10 09:43:45 2015
Quant Method : C:\MSDCHEM\1\METHODS\M4M2526SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Thu Jun 25 22:36:45 2015
Response via : Initial Calibration

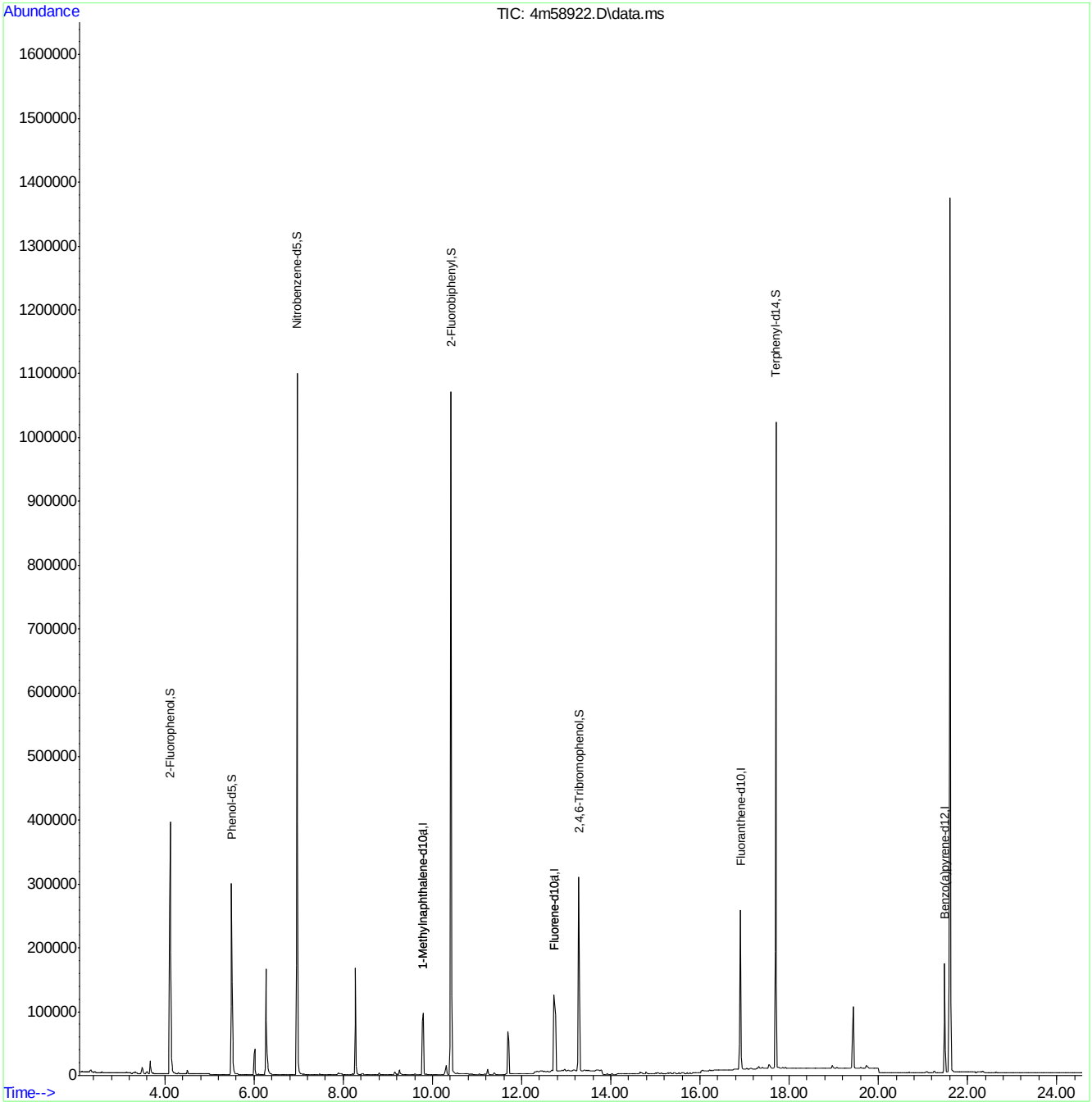
| Compound | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| **Internal Standards** | | | | | | |
| 1) 1-Methylnaphthalene-d10 | 9.786 | 152 | 101188 | 4.00 | ppm | -0.16 |
| 12) Fluorene-d10 | 12.731 | 176 | 152350 | 4.00 | ppm | -0.20 |
| 22) Fluoranthene-d10 | 16.910 | 212 | 251319 | 4.00 | ppm | -0.17 |
| 28) Benzo(a)pyrene-d12 | 21.490 | 264 | 191889 | 4.00 | ppm | -0.18 |
| 35) 1-Methylnaphthalene-d10a | 9.786 | 152 | 101188 | 4.00 | ppm | #-0.16 |
| 38) Fluorene-d10a | 12.731 | 176 | 152350 | 4.00 | ppm | -0.20 |
| **System Monitoring Compounds** | | | | | | |
| 2) 2-Fluorophenol | 4.117 | 112 | 287244 | 17.92 | ppm | -0.14 |
| Spiked Amount 50.000 | Range 11 - 58 | | Recovery = 35.84% | | | |
| 3) Phenol-d5 | 5.494 | 99 | 332231 | 11.68 | ppm | -0.14 |
| Spiked Amount 50.000 | | | Recovery = 23.36% | | | |
| 6) Nitrobenzene-d5 | 6.962 | 82 | 764378 | 27.96 | ppm | -0.17 |
| Spiked Amount 50.000 | | | Recovery = 55.92% | | | |
| 11) 2-Fluorobiphenyl | 10.421 | 172 | 1107282 | 33.33 | ppm | -0.18 |
| Spiked Amount 50.000 | | | Recovery = 66.66% | | | |
| 17) 2,4,6-Tribromophenol | 13.280 | 330 | 235189 | 47.22 | ppm | -0.20 |
| Spiked Amount 50.000 | | | Recovery = 94.44% | | | |
| 25) Terphenyl-d14 | 17.701 | 244 | 1098189 | 30.00 | ppm | -0.17 |
| Spiked Amount 50.000 | | | Recovery = 60.00% | | | |
| **Target Compounds** | | | | | | Qvalue |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E4M2559\
Data File : 4m58922.D
Acq On : 10 Jul 2015 3:45 am
Operator : ashleyd
Sample : jb98590-2
Misc : op85388a,e4m2559,1000
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Jul 10 09:43:45 2015
Quant Method : C:\MSDCHEM\1\METHODS\M4M2526SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Thu Jun 25 22:36:45 2015
Response via : Initial Calibration



Manual Integrations APPROVED (compounds with "m" flag)
Kristi Schollenberger 07/10/15 14:51

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E4M2559\
Data File : 4m58923.D
Acq On : 10 Jul 2015 4:14 am
Operator : ashleyd
Sample : jb98590-3
Misc : op85388a,e4m2559,1000
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Jul 10 15:13:05 2015
Quant Method : C:\MSDCHEM\1\METHODS\M4M2526SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Fri Jul 10 11:13:15 2015
Response via : Initial Calibration

| Compound | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| Internal Standards | | | | | | |
| 1) 1-Methylnaphthalene-d10 | 9.765 | 152 | 106072 | 4.00 | ppm | #-0.02 |
| 12) Fluorene-d10 | 12.731 | 176 | 343350 | 4.00 | ppm | # 0.00 |
| 22) Fluoranthene-d10 | 16.910 | 212 | 278191 | 4.00 | ppm | 0.00 |
| 28) Benzo(a)pyrene-d12 | 21.490 | 264 | 211335 | 4.00 | ppm | 0.00 |
| 35) 1-Methylnaphthalene-d10a | 9.765 | 152 | 106072 | 4.00 | ppm | #-0.02 |
| 38) Fluorene-d10a | 12.731 | 176 | 343350 | 4.00 | ppm | # 0.00 |
| System Monitoring Compounds | | | | | | |
| 2) 2-Fluorophenol | 4.117 | 112 | 324426 | 19.31 | ppm | 0.01 |
| Spiked Amount 50.000 | Range 11 - 58 | | Recovery = 38.62% | | | |
| 3) Phenol-d5 | 5.494 | 99 | 376167 | 12.61 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 25.22% | | | |
| 6) Nitrobenzene-d5 | 6.962 | 82 | 897248 | 31.31 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 62.62% | | | |
| 11) 2-Fluorobiphenyl | 10.421 | 172 | 1333319 | 38.28 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 76.56% | | | |
| 17) 2,4,6-Tribromophenol | 13.281 | 330 | 265510 | 23.65 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 47.30% | | | |
| 25) Terphenyl-d14 | 17.701 | 244 | 1025799 | 25.32 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 50.64% | | | |
| Target Compounds | | | | | | Qvalue |
| 14) Acenaphthene | 11.754 | 153 | 102480 | 1.20 | ppm | 95 |
| 16) Fluorene | 12.797 | 166 | 223813 | 1.79 | ppm | 95 |
| 20) Phenanthrene | 14.680 | 178 | 291222 | 1.61 | ppm | 97 |
| 21) Anthracene | 14.788 | 178 | 67767 | 0.42 | ppm | 92 |
| 23) Fluoranthene | 16.929 | 202 | 14651 | 0.14 | ppm | 83 |
| 24) Pyrene | 17.324 | 202 | 32618 | 0.29 | ppm | 86 |
| 26) Benzo[a]anthracene | 19.433 | 228 | 14892m | 0.19 | ppm | |

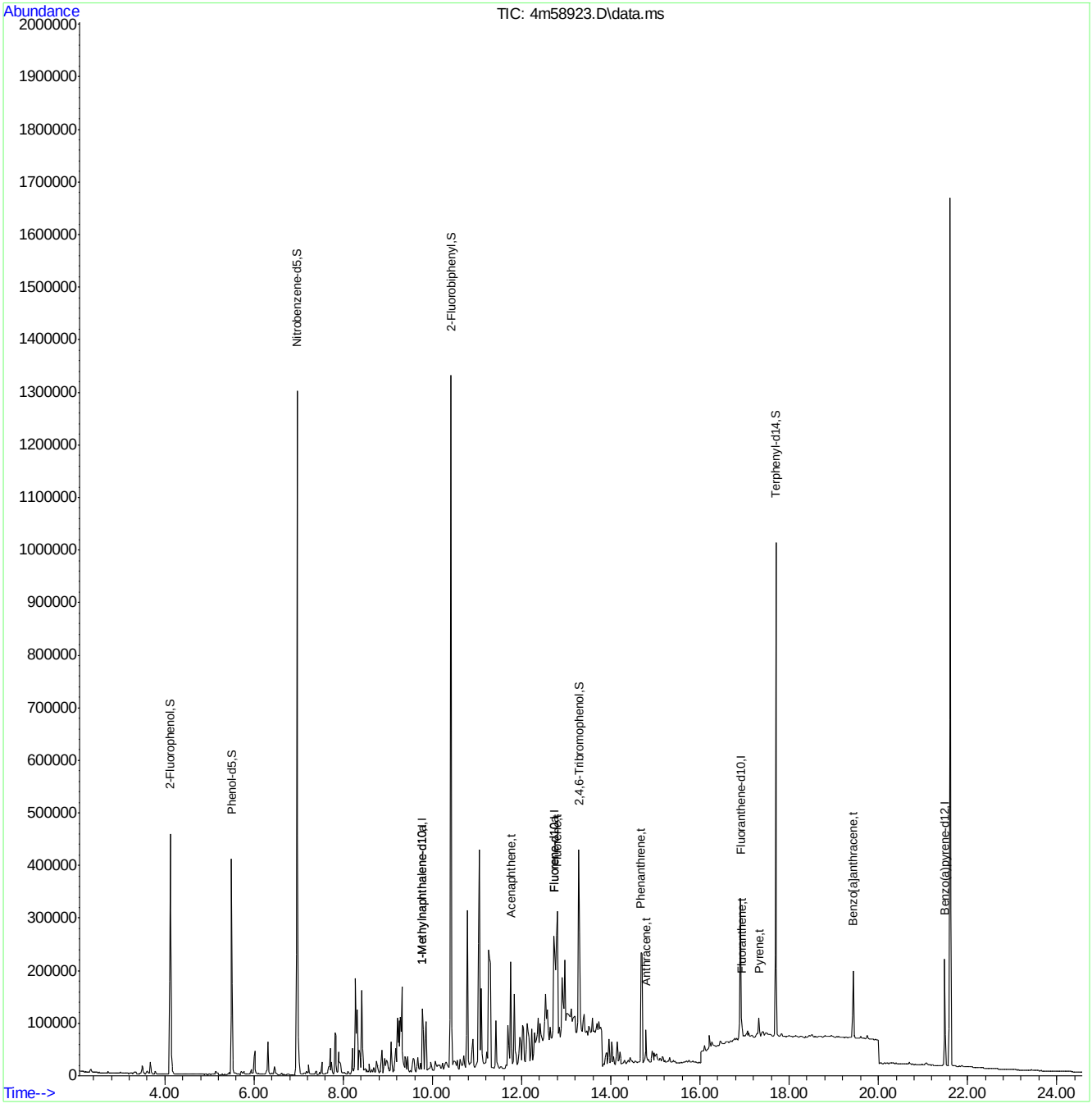
(#) = qualifier out of range (m) = manual integration (+) = signals summed

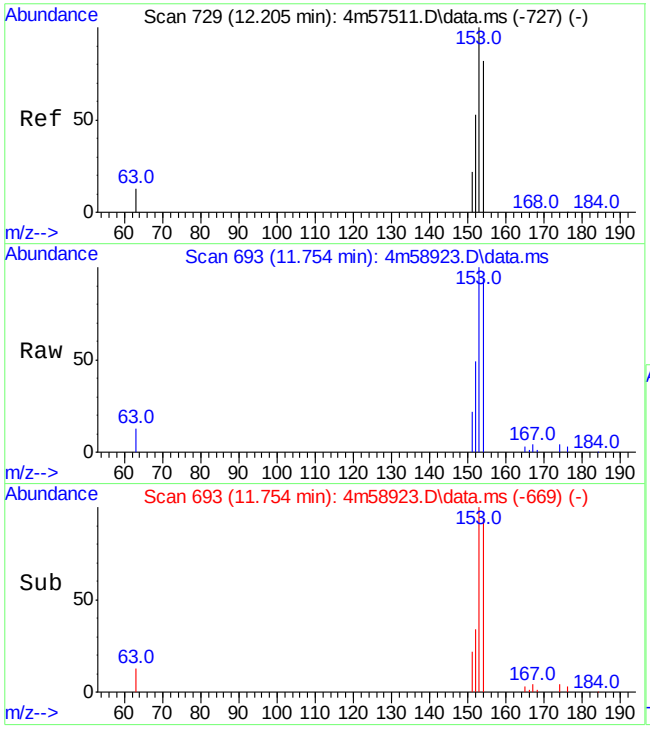
9.1.22
9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E4M2559\
Data File : 4m58923.D
Acq On : 10 Jul 2015 4:14 am
Operator : ashleyd
Sample : jb98590-3
Misc : op85388a,e4m2559,1000
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Jul 10 15:13:05 2015
Quant Method : C:\MSDCHEM\1\METHODS\M4M2526SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Fri Jul 10 11:13:15 2015
Response via : Initial Calibration

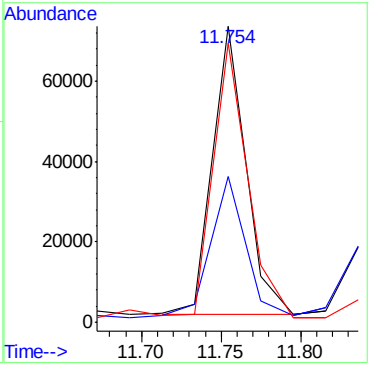


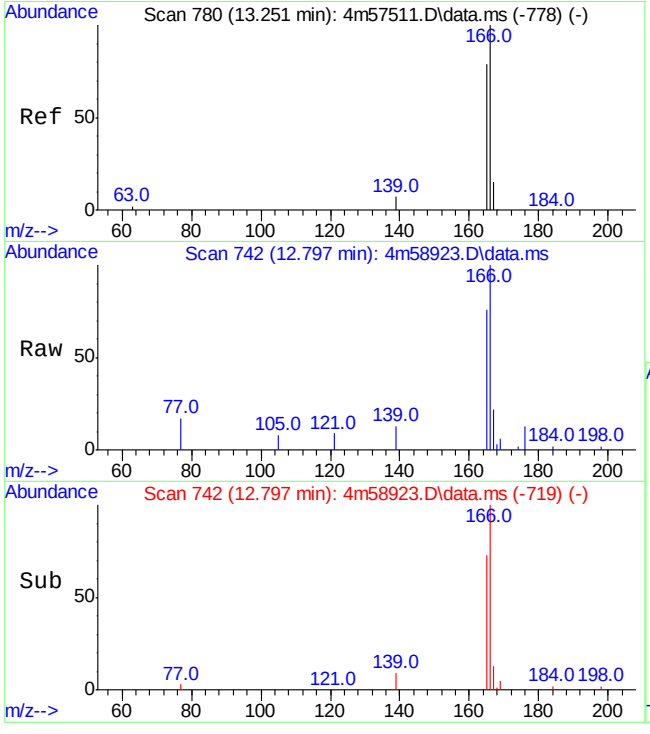



#14
Acenaphthene
Concen: 1.20 ppm
RT: 11.754 min Scan# 693
Delta R.T. 0.000 min
Lab File: 4m58923.D
Acq: 10 Jul 2015 4:14 am

Tgt Ion:153 Resp: 102480

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 153 | 100 | | |
| 152 | 48.5 | 21.2 | 81.2 |
| 154 | 95.2 | 70.5 | 130.5 |

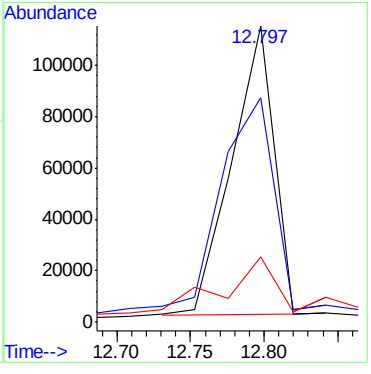



#16
Fluorene
Concen: 1.79 ppm
RT: 12.797 min Scan# 742
Delta R.T. 0.000 min
Lab File: 4m58923.D
Acq: 10 Jul 2015 4:14 am

Tgt Ion:166 Resp: 223813

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 166 | 100 | | |
| 165 | 73.1 | 39.0 | 99.0 |
| 167 | 18.7 | 0.0 | 50.0 |

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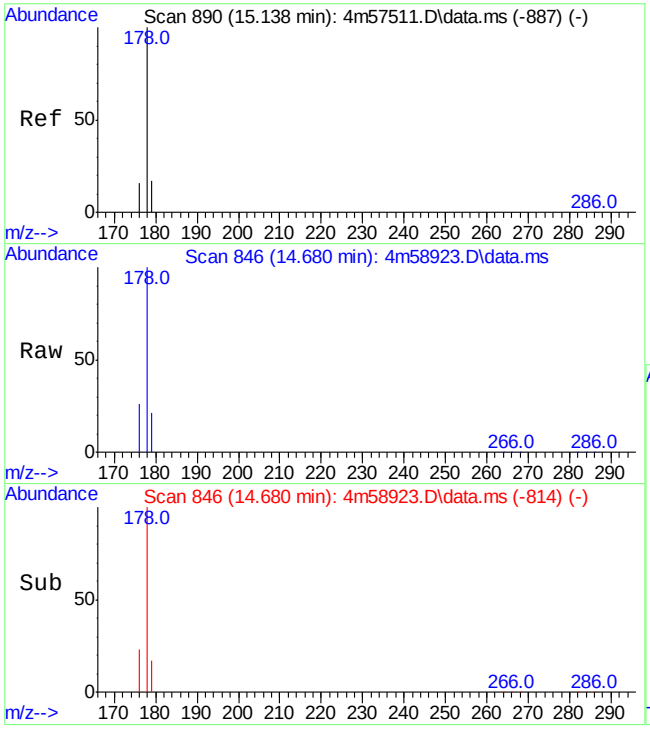
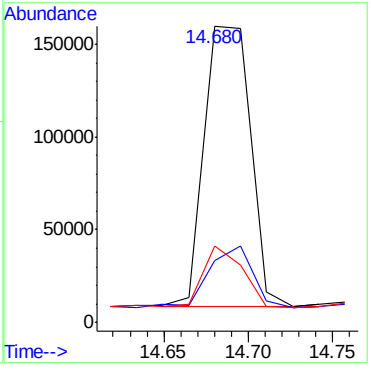
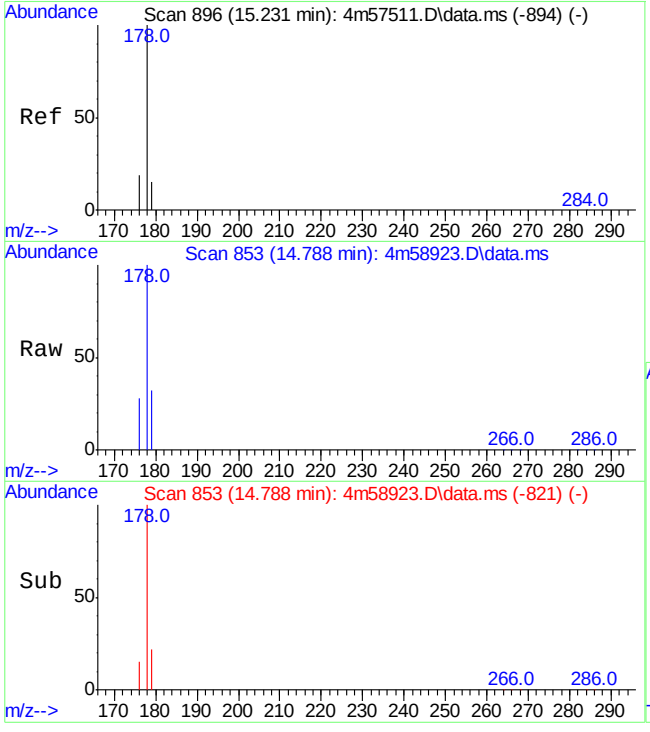



#20
Phenanthrene
Concen: 1.61 ppm
RT: 14.680 min Scan# 846
Delta R.T. 0.000 min
Lab File: 4m58923.D
Acq: 10 Jul 2015 4:14 am

Tgt Ion:178 Resp: 291222

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 178 | 100 | | |
| 179 | 16.0 | 0.0 | 47.9 |
| 176 | 21.7 | 0.0 | 53.0 |

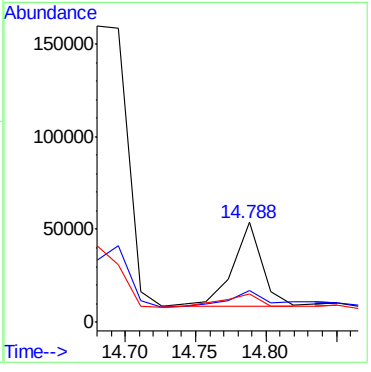



#21
Anthracene
Concen: 0.42 ppm
RT: 14.788 min Scan# 853
Delta R.T. 0.000 min
Lab File: 4m58923.D
Acq: 10 Jul 2015 4:14 am

Tgt Ion:178 Resp: 67767

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 178 | 100 | | |
| 179 | 17.7 | 0.0 | 50.6 |
| 176 | 15.6 | 0.0 | 49.7 |




9.1.22

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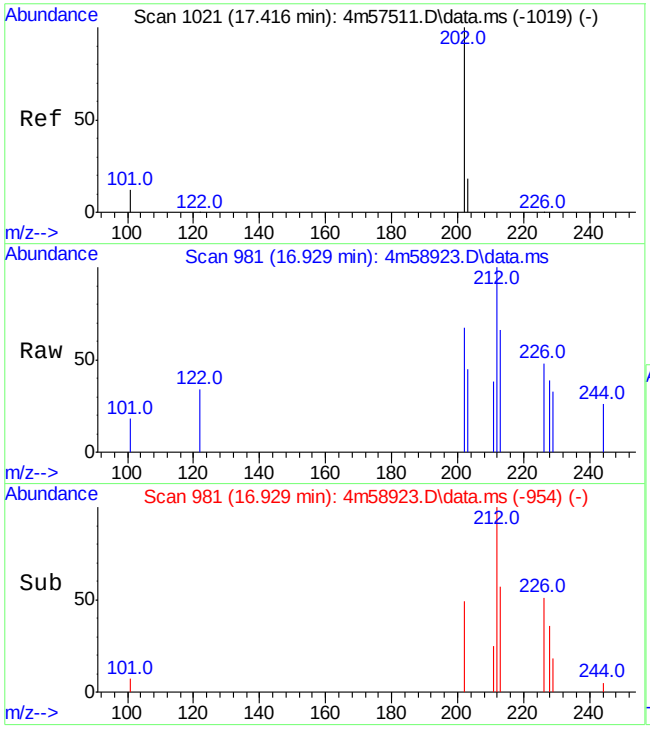
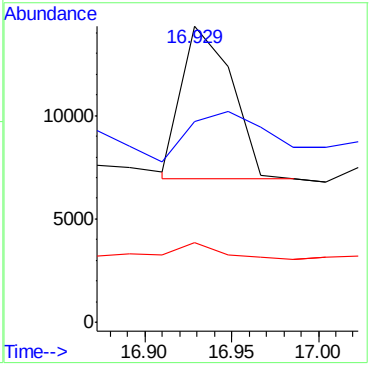
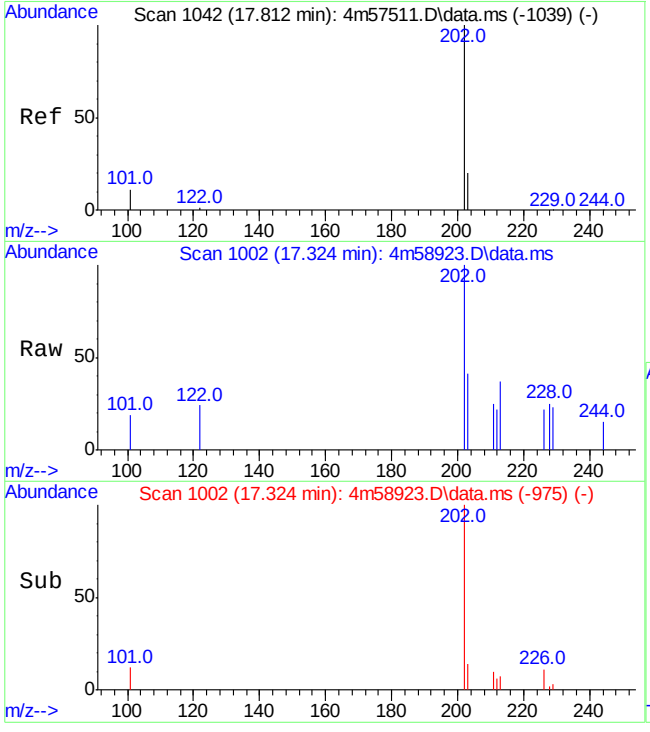



#23
Fluoranthene
Concen: 0.14 ppm
RT: 16.929 min Scan# 981
Delta R.T. 0.000 min
Lab File: 4m58923.D
Acq: 10 Jul 2015 4:14 am

Tgt Ion:202 Resp: 14651

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 202 | 100 | | |
| 203 | 22.1 | 0.0 | 47.9 |
| 101 | 10.0 | 0.0 | 51.3 |

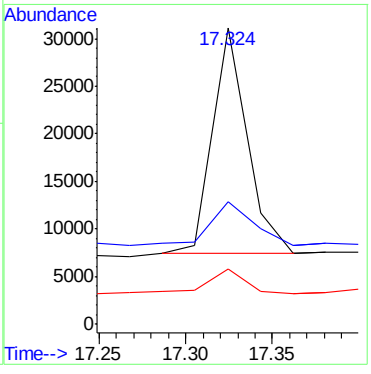


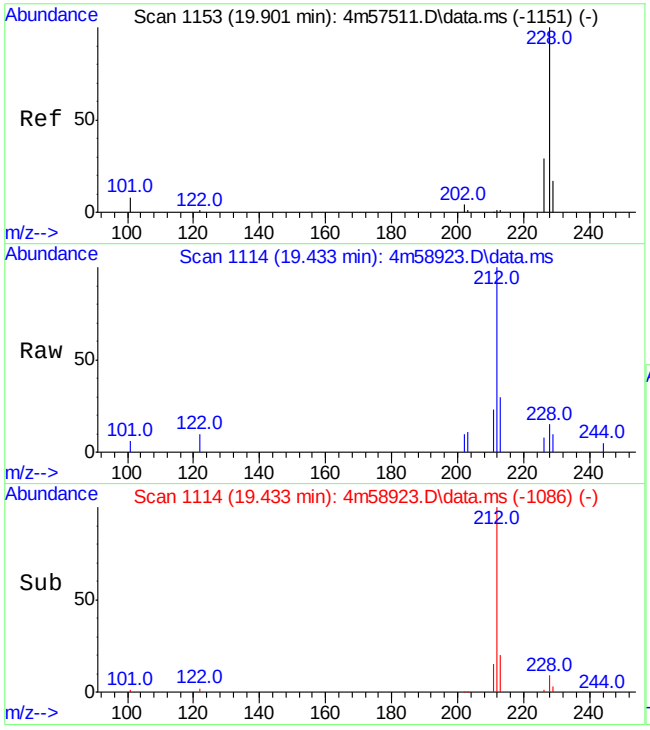




#24
Pyrene
Concen: 0.29 ppm
RT: 17.324 min Scan# 1002
Delta R.T. 0.000 min
Lab File: 4m58923.D
Acq: 10 Jul 2015 4:14 am

Tgt Ion:202 Resp: 32618

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 202 | 100 | | |
| 203 | 18.7 | 0.0 | 52.3 |
| 101 | 10.5 | 0.0 | 49.8 |

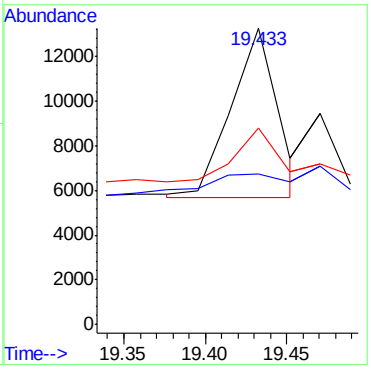





#26
Benzo[a]anthracene
Concen: 0.19 ppm m
RT: 19.433 min Scan# 1114
Delta R.T. 0.019 min
Lab File: 4m58923.D
Acq: 10 Jul 2015 4:14 am

Tgt Ion:228 Resp: 14892

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 228 | 100 | | |
| 226 | 50.8 | 0.0 | 53.0 |
| 229 | 66.3 | 26.1 | 30.1# |




9.1.22

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Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E4M2559\
Data File : 4m58924.D
Acq On : 10 Jul 2015 4:43 am
Operator : ashleyd
Sample : jb98590-4
Misc : op85388a,e4m2559,1000
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Jul 10 09:48:22 2015
Quant Method : C:\MSDCHEM\1\METHODS\M4M2526SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Thu Jun 25 22:36:45 2015
Response via : Initial Calibration

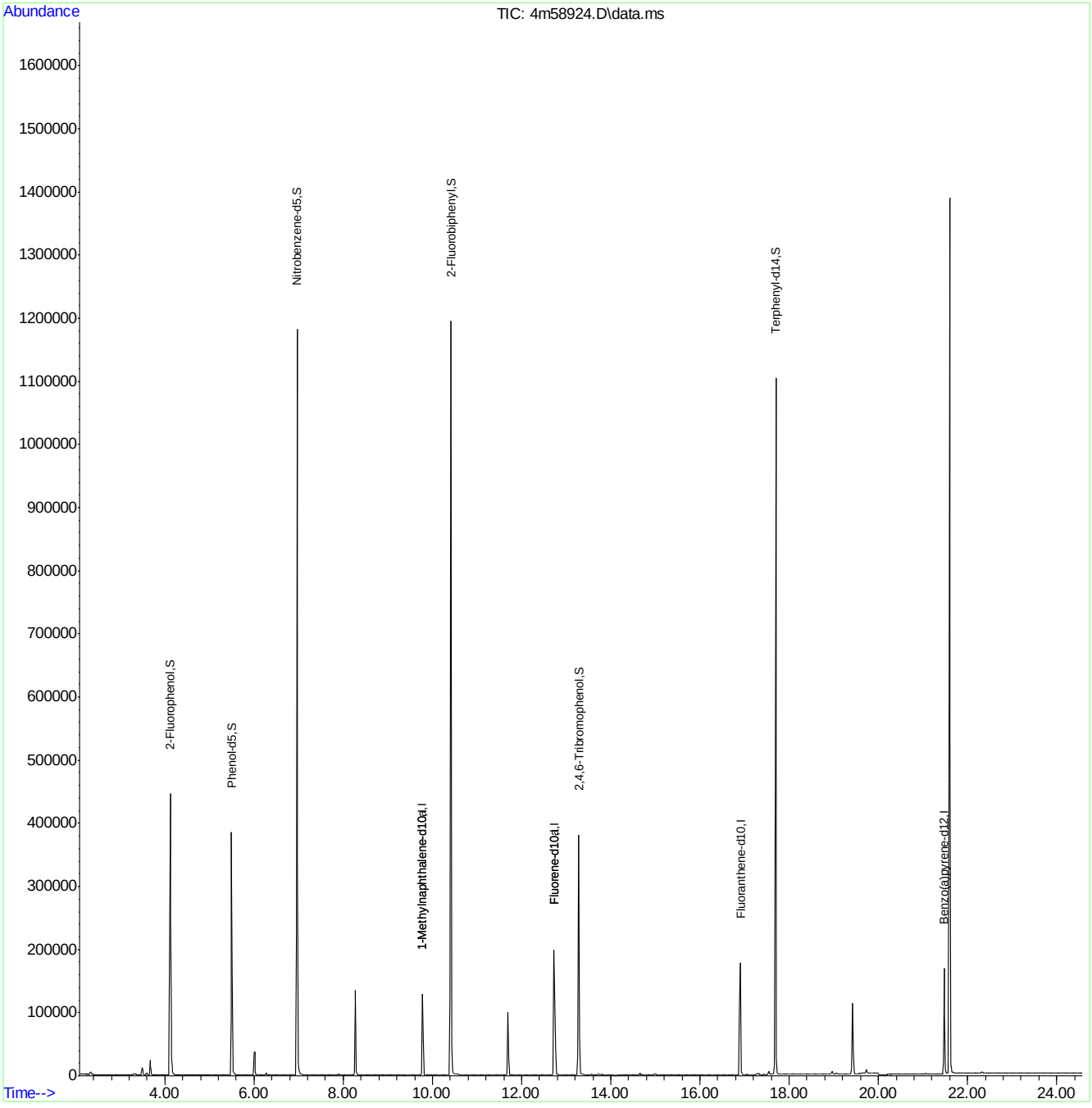
| Compound | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| **Internal Standards** | | | | | | |
| 1) 1-Methylnaphthalene-d10 | 9.765 | 152 | 102022 | 4.00 | ppm | #-0.18 |
| 12) Fluorene-d10 | 12.731 | 176 | 177534 | 4.00 | ppm | -0.20 |
| 22) Fluoranthene-d10 | 16.910 | 212 | 251440 | 4.00 | ppm | -0.17 |
| 28) Benzo(a)pyrene-d12 | 21.476 | 264 | 194189 | 4.00 | ppm | -0.19 |
| 35) 1-Methylnaphthalene-d10a | 9.765 | 152 | 102022 | 4.00 | ppm | #-0.18 |
| 38) Fluorene-d10a | 12.731 | 176 | 177534 | 4.00 | ppm | -0.20 |
| **System Monitoring Compounds** | | | | | | |
| 2) 2-Fluorophenol | 4.117 | 112 | 304408 | 18.83 | ppm | -0.14 |
| Spiked Amount 50.000 | Range 11 - 58 | | Recovery = 37.66% | | | |
| 3) Phenol-d5 | 5.494 | 99 | 345300 | 12.04 | ppm | -0.14 |
| Spiked Amount 50.000 | | | Recovery = 24.08% | | | |
| 6) Nitrobenzene-d5 | 6.962 | 82 | 799343 | 29.00 | ppm | -0.17 |
| Spiked Amount 50.000 | | | Recovery = 58.00% | | | |
| 11) 2-Fluorobiphenyl | 10.421 | 172 | 1223853 | 36.53 | ppm | -0.18 |
| Spiked Amount 50.000 | | | Recovery = 73.06% | | | |
| 17) 2,4,6-Tribromophenol | 13.280 | 330 | 256322 | 44.16 | ppm | -0.20 |
| Spiked Amount 50.000 | | | Recovery = 88.32% | | | |
| 25) Terphenyl-d14 | 17.701 | 244 | 1349982 | 36.86 | ppm | -0.17 |
| Spiked Amount 50.000 | | | Recovery = 73.72% | | | |
| **Target Compounds** | | | | | | Qvalue |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E4M2559\
Data File : 4m58924.D
Acq On : 10 Jul 2015 4:43 am
Operator : ashleyd
Sample : jb98590-4
Misc : op85388a,e4m2559,1000
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Jul 10 09:48:22 2015
Quant Method : C:\MSDCHEM\1\METHODS\M4M2526SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Thu Jun 25 22:36:45 2015
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E4M2559\
Data File : 4m58925.D
Acq On : 10 Jul 2015 5:13 am
Operator : ashleyd
Sample : jb98590-5
Misc : op85388a,e4m2559,1000
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Jul 10 09:50:51 2015
Quant Method : C:\MSDCHEM\1\METHODS\M4M2526SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Fri Jul 10 09:46:43 2015
Response via : Initial Calibration

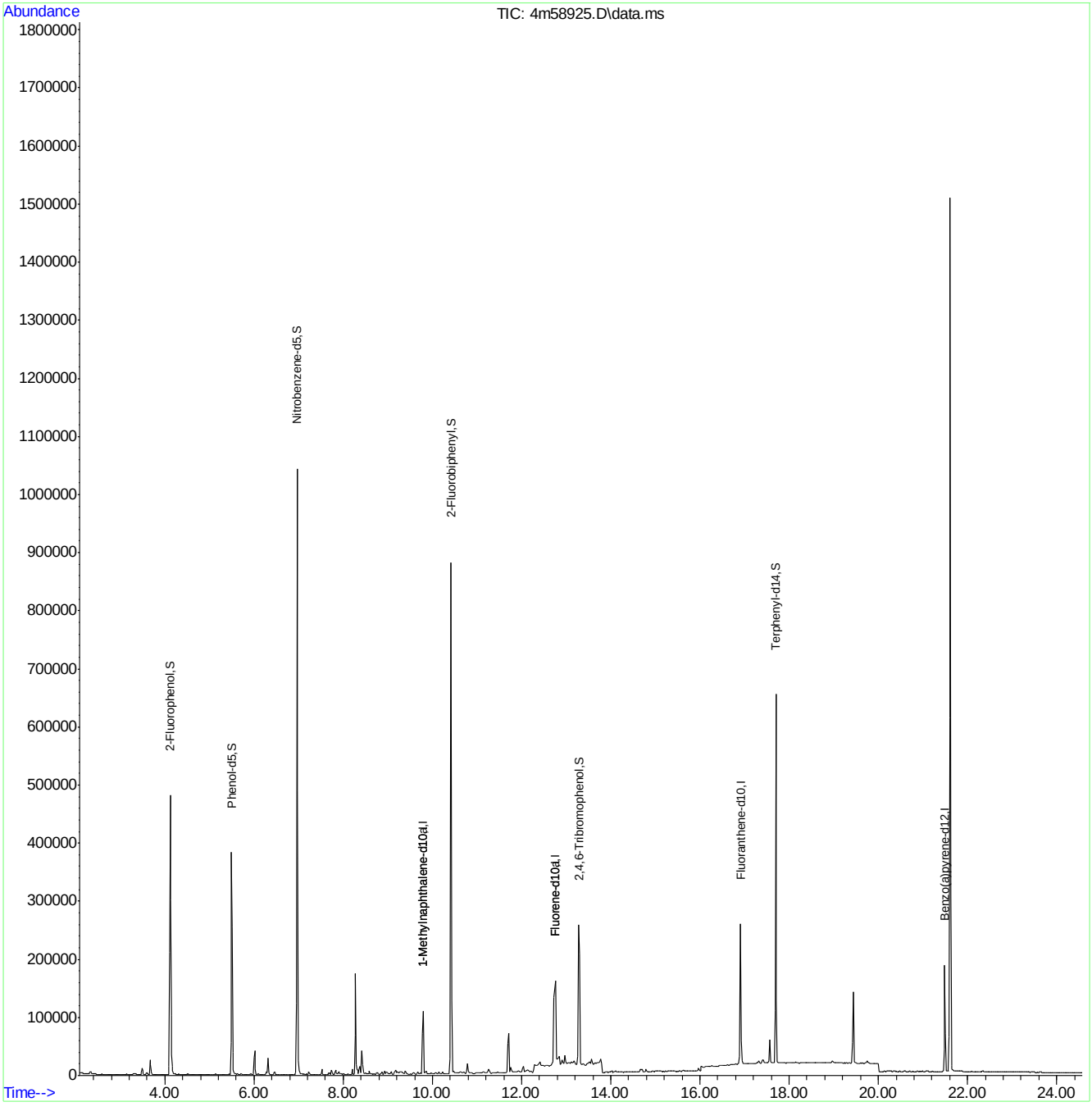
| Compound | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| **Internal Standards** | | | | | | |
| 1) 1-Methylnaphthalene-d10 | 9.786 | 152 | 101433 | 4.00 | ppm | 0.00 |
| 12) Fluorene-d10 | 12.753 | 176 | 227815 | 4.00 | ppm | # 0.02 |
| 22) Fluoranthene-d10 | 16.910 | 212 | 252915 | 4.00 | ppm | 0.00 |
| 28) Benzo(a)pyrene-d12 | 21.490 | 264 | 195331 | 4.00 | ppm | 0.00 |
| 35) 1-Methylnaphthalene-d10a | 9.786 | 152 | 101433 | 4.00 | ppm | # 0.00 |
| 38) Fluorene-d10a | 12.753 | 176 | 227815 | 4.00 | ppm | # 0.02 |
| **System Monitoring Compounds** | | | | | | |
| 2) 2-Fluorophenol | 4.117 | 112 | 337369 | 21.00 | ppm | 0.01 |
| Spiked Amount 50.000 | Range 11 - 58 | | Recovery = 42.00% | | | |
| 3) Phenol-d5 | 5.494 | 99 | 390972 | 13.71 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 27.42% | | | |
| 6) Nitrobenzene-d5 | 6.962 | 82 | 754535 | 27.54 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 55.08% | | | |
| 11) 2-Fluorobiphenyl | 10.421 | 172 | 923745 | 27.74 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 55.48% | | | |
| 17) 2,4,6-Tribromophenol | 13.281 | 330 | 230701 | 30.98 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 61.96% | | | |
| 25) Terphenyl-d14 | 17.701 | 244 | 687157 | 18.65 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 37.30% | | | |
| **Target Compounds** | | | | | | Qvalue |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E4M2559\
Data File : 4m58925.D
Acq On : 10 Jul 2015 5:13 am
Operator : ashleyd
Sample : jb98590-5
Misc : op85388a,e4m2559,1000
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Jul 10 09:50:51 2015
Quant Method : C:\MSDCHEM\1\METHODS\M4M2526SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Fri Jul 10 09:46:43 2015
Response via : Initial Calibration



Manual Integrations APPROVED (compounds with "m" flag)
Kristi Schollenberger 07/10/15 14:51

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E4M2559\
Data File : 4m58926.D
Acq On : 10 Jul 2015 5:43 am
Operator : ashleyd
Sample : jb98590-6
Misc : op85388a,e4m2559,1000
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Jul 10 15:13:24 2015
Quant Method : C:\MSDCHEM\1\METHODS\M4M2526SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Thu Jun 25 22:36:45 2015
Response via : Initial Calibration

| Compound | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| **Internal Standards** | | | | | | |
| 1) 1-Methylnaphthalene-d10 | 9.786 | 152 | 106593 | 4.00 | ppm | -0.16 |
| 12) Fluorene-d10 | 12.753 | 176 | 166456 | 4.00 | ppm | -0.18 |
| 22) Fluoranthene-d10 | 16.910 | 212 | 263503 | 4.00 | ppm | -0.17 |
| 28) Benzo(a)pyrene-d12 | 21.490 | 264 | 196712 | 4.00 | ppm | -0.18 |
| 35) 1-Methylnaphthalene-d10a | 9.786 | 152 | 106593 | 4.00 | ppm | #-0.16 |
| 38) Fluorene-d10a | 12.753 | 176 | 166456 | 4.00 | ppm | -0.18 |
| **System Monitoring Compounds** | | | | | | |
| 2) 2-Fluorophenol | 4.117 | 112 | 325388 | 19.27 | ppm | -0.14 |
| Spiked Amount 50.000 | Range 11 - 58 | | Recovery = 38.54% | | | |
| 3) Phenol-d5 | 5.508 | 99 | 367826 | 12.27 | ppm | -0.12 |
| Spiked Amount 50.000 | | | Recovery = 24.54% | | | |
| 6) Nitrobenzene-d5 | 6.962 | 82 | 795258 | 27.62 | ppm | -0.17 |
| Spiked Amount 50.000 | | | Recovery = 55.24% | | | |
| 11) 2-Fluorobiphenyl | 10.421 | 172 | 1155622 | 33.02 | ppm | -0.18 |
| Spiked Amount 50.000 | | | Recovery = 66.04% | | | |
| 17) 2,4,6-Tribromophenol | 13.301 | 330 | 264135 | 48.54 | ppm | -0.18 |
| Spiked Amount 50.000 | | | Recovery = 97.08% | | | |
| 25) Terphenyl-d14 | 17.701 | 244 | 1314841 | 34.26 | ppm | -0.17 |
| Spiked Amount 50.000 | | | Recovery = 68.52% | | | |
| **Target Compounds** | | | | | | Qvalue |
| 16) Fluorene | 12.797 | 166 | 6540 | 0.11 | ppm | 84 |
| 24) Pyrene | 17.324 | 202 | 14571 | 0.14 | ppm | 85 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

9.1.25

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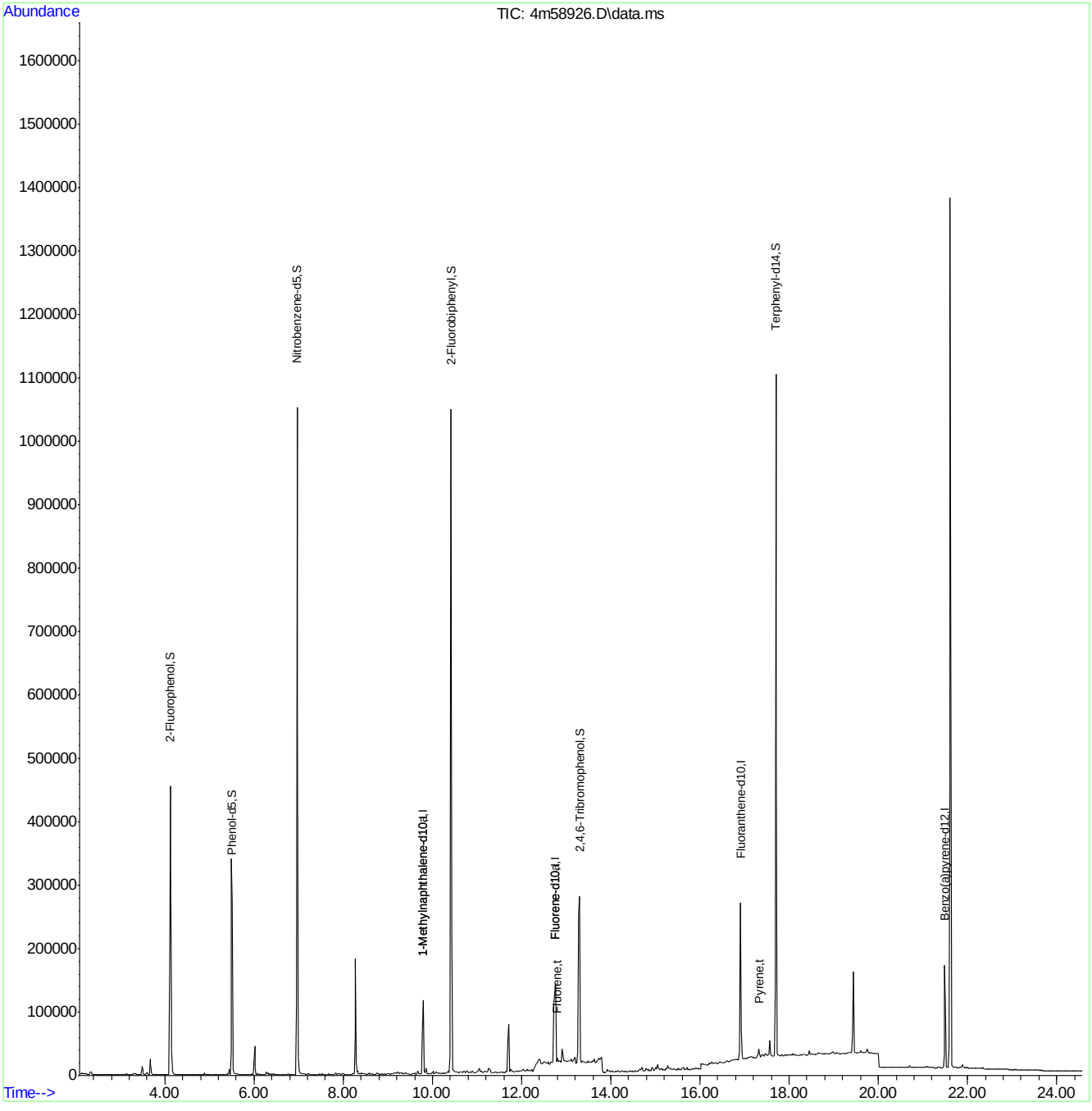
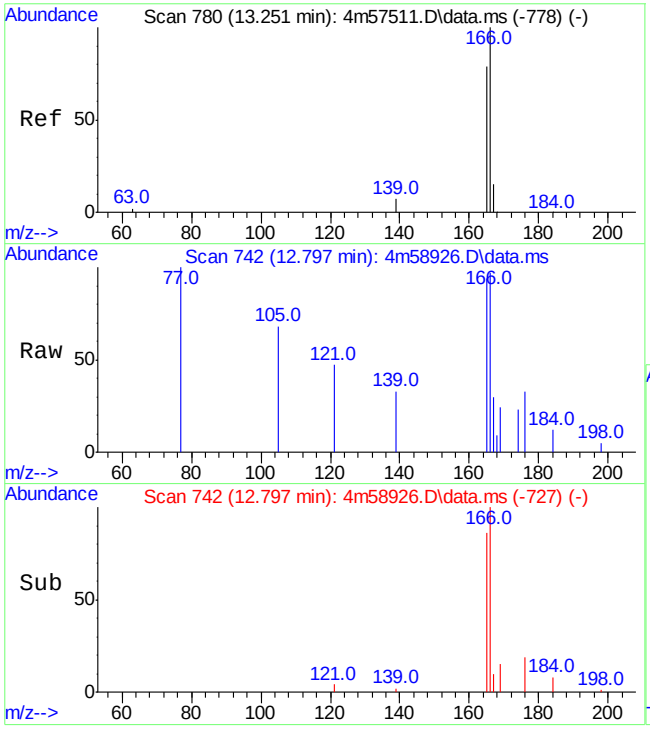
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E4M2559\
Data File : 4m58926.D
Acq On : 10 Jul 2015 5:43 am
Operator : ashleyd
Sample : jb98590-6
Misc : op85388a,e4m2559,1000
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Jul 10 15:13:24 2015
Quant Method : C:\MSDCHEM\1\METHODS\M4M2526SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Thu Jun 25 22:36:45 2015
Response via : Initial Calibration

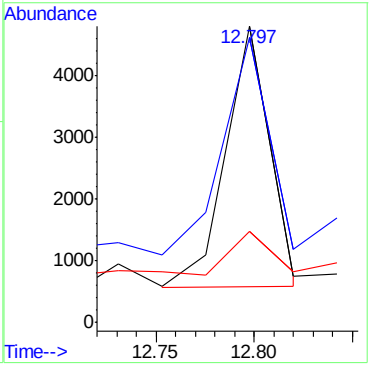


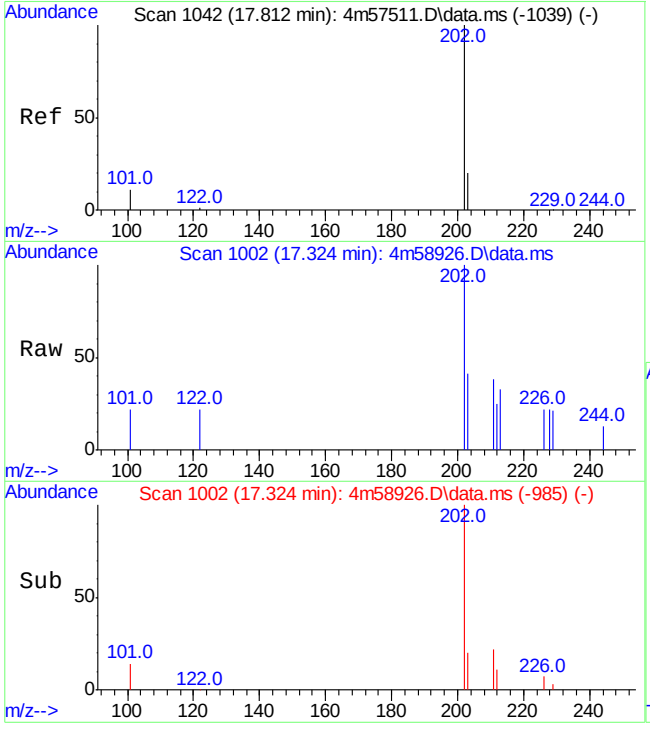



#16
Fluorene
Concen: 0.11 ppm
RT: 12.797 min Scan# 742
Delta R.T. -0.177 min
Lab File: 4m58926.D
Acq: 10 Jul 2015 5:43 am

Tgt Ion:166 Resp: 6540

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 166 | 100 | | |
| 165 | 83.8 | 39.0 | 99.0 |
| 167 | 15.7 | 0.0 | 50.0 |

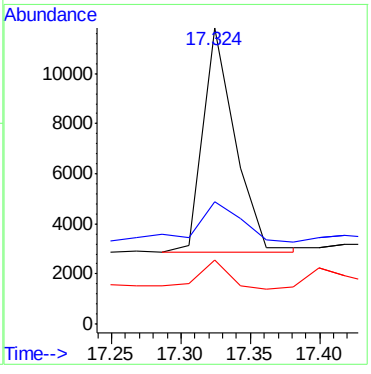



#24
Pyrene
Concen: 0.14 ppm
RT: 17.324 min Scan# 1002
Delta R.T. -0.187 min
Lab File: 4m58926.D
Acq: 10 Jul 2015 5:43 am

Tgt Ion:202 Resp: 14571

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 202 | 100 | | |
| 203 | 16.4 | 0.0 | 52.3 |
| 101 | 11.7 | 0.0 | 49.8 |



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E4M2559\
Data File : 4m58927.D
Acq On : 10 Jul 2015 6:13 am
Operator : ashleyd
Sample : jb98590-7
Misc : op85388a,e4m2559,950
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Jul 10 10:20:39 2015
Quant Method : C:\MSDCHEM\1\METHODS\M4M2526SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Thu Jun 25 22:36:45 2015
Response via : Initial Calibration

| Compound | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| Internal Standards | | | | | | |
| 1) 1-Methylnaphthalene-d10 | 9.786 | 152 | 96623 | 4.00 | ppm | -0.16 |
| 12) Fluorene-d10 | 12.753 | 176 | 154321 | 4.00 | ppm | -0.18 |
| 22) Fluoranthene-d10 | 16.910 | 212 | 244978 | 4.00 | ppm | -0.17 |
| 28) Benzo(a)pyrene-d12 | 21.490 | 264 | 184845 | 4.00 | ppm | -0.18 |
| 35) 1-Methylnaphthalene-d10a | 9.786 | 152 | 96623 | 4.00 | ppm | #-0.16 |
| 38) Fluorene-d10a | 12.753 | 176 | 154321 | 4.00 | ppm | -0.18 |
| System Monitoring Compounds | | | | | | |
| 2) 2-Fluorophenol | 4.127 | 112 | 242140 | 15.82 | ppm | -0.12 |
| Spiked Amount 50.000 | Range 11 - 58 | | Recovery = 31.64% | | | |
| 3) Phenol-d5 | 5.508 | 99 | 275643 | 10.15 | ppm | -0.12 |
| Spiked Amount 50.000 | | | Recovery = 20.30% | | | |
| 6) Nitrobenzene-d5 | 6.962 | 82 | 675349 | 25.87 | ppm | -0.17 |
| Spiked Amount 50.000 | | | Recovery = 51.74% | | | |
| 11) 2-Fluorobiphenyl | 10.421 | 172 | 962403 | 30.34 | ppm | -0.18 |
| Spiked Amount 50.000 | | | Recovery = 60.68% | | | |
| 17) 2,4,6-Tribromophenol | 13.281 | 330 | 217075 | 43.03 | ppm | -0.20 |
| Spiked Amount 50.000 | | | Recovery = 86.06% | | | |
| 25) Terphenyl-d14 | 17.701 | 244 | 1024729 | 28.72 | ppm | -0.17 |
| Spiked Amount 50.000 | | | Recovery = 57.44% | | | |
| Target Compounds | | | | | | Qvalue |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

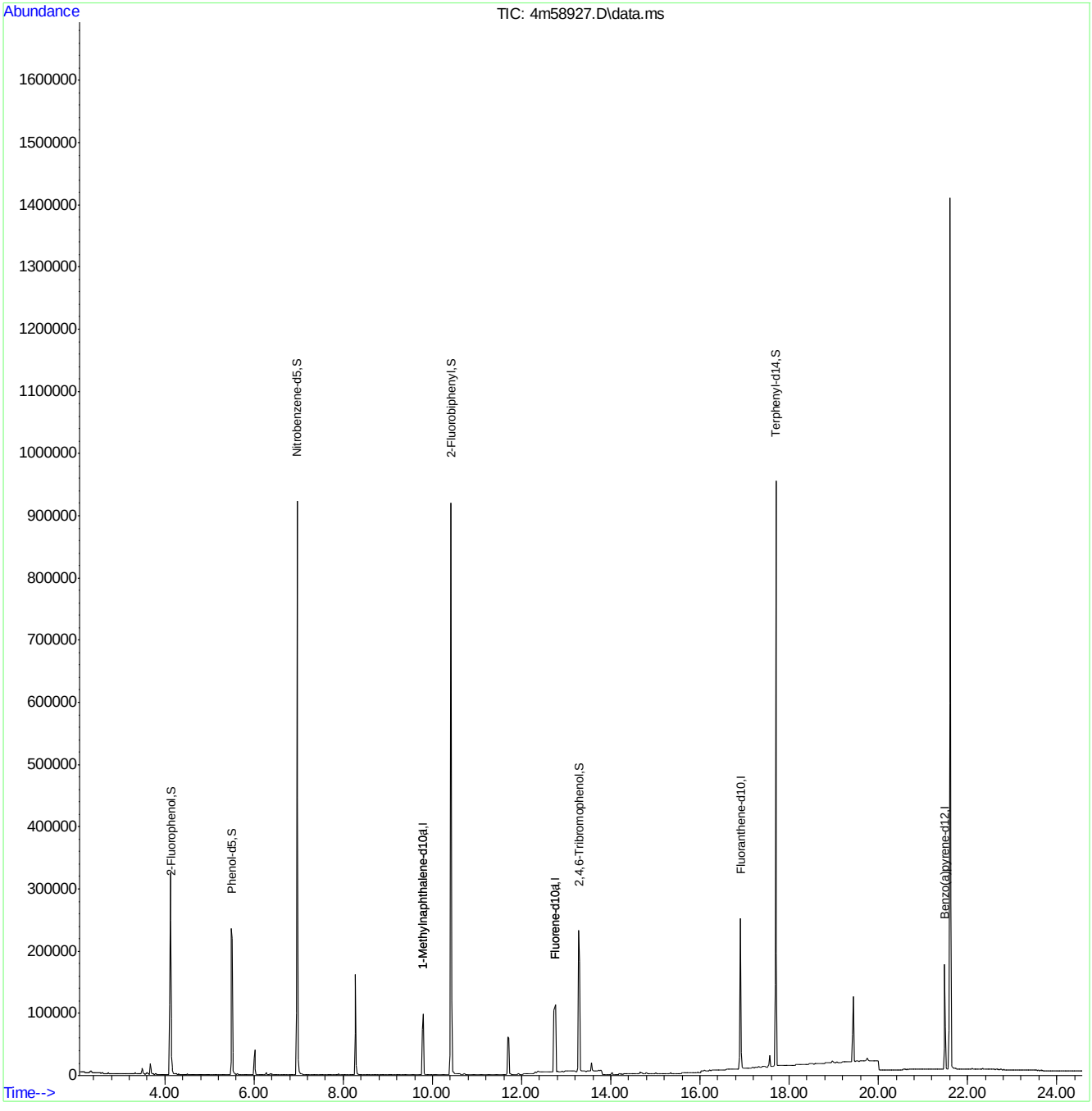
9.1.26

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E4M2559\
Data File : 4m58927.D
Acq On : 10 Jul 2015 6:13 am
Operator : ashleyd
Sample : jb98590-7
Misc : op85388a,e4m2559,950
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Jul 10 10:20:39 2015
Quant Method : C:\MSDCHEM\1\METHODS\M4M2526SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Thu Jun 25 22:36:45 2015
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M2590\
Data File : 3m56148.D
Acq On : 10 Jul 2015 6:15 pm
Operator : ashleyd
Sample : jb98590-9
Misc : op85388a,e3m2590,1000
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Jul 10 23:43:46 2015
Quant Method : C:\MSDCHEM\1\METHODS\M3M2536SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Fri Jul 10 23:42:50 2015
Response via : Initial Calibration

| Compound | R.T. | QIon | Response | Conc Units | Dev(Min) |
|---|---|---|---|---|---|
| Internal Standards | | | | | |
| 1) 1-Methylnaphthalene-d10 | 9.484 | 150 | 117045 | 4.00 ppm | 0.00 |
| 13) Fluorene-d10 | 12.473 | 176 | 173324 | 4.00 ppm | 0.00 |
| 20) Fluoranthene-d10 | 16.692 | 212 | 234328 | 4.00 ppm | 0.00 |
| 30) Benzo(a)pyrene-d12 | 21.327 | 264 | 208916 | 4.00 ppm | 0.00 |
| System Monitoring Compounds | | | | | |
| 3) 2-Fluorophenol | 3.848 | 112 | 349856 | 19.90 ppm | 0.02 |
| Spiked Amount 50.000 | | | Recovery | = 39.80% | |
| 4) Phenol-d5 | 5.245 | 99 | 373819 | 14.22 ppm | 0.02 |
| Spiked Amount 50.000 | | | Recovery | = 28.44% | |
| 7) Nitrobenzene-d5 | 6.655 | 82 | 772216 | 33.10 ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery | = 66.20% | |
| 14) 2-Fluorobiphenyl | 10.135 | 172 | 1605652 | 34.58 ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery | = 69.16% | |
| 19) 2,4,6-Tribromophenol | 13.038 | 330 | 310768 | 45.74 ppm | 0.02 |
| Spiked Amount 50.000 | | | Recovery | = 91.48% | |
| 27) Terphenyl-d14 | 17.496 | 244 | 1066283 | 27.45 ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery | = 54.90% | |

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

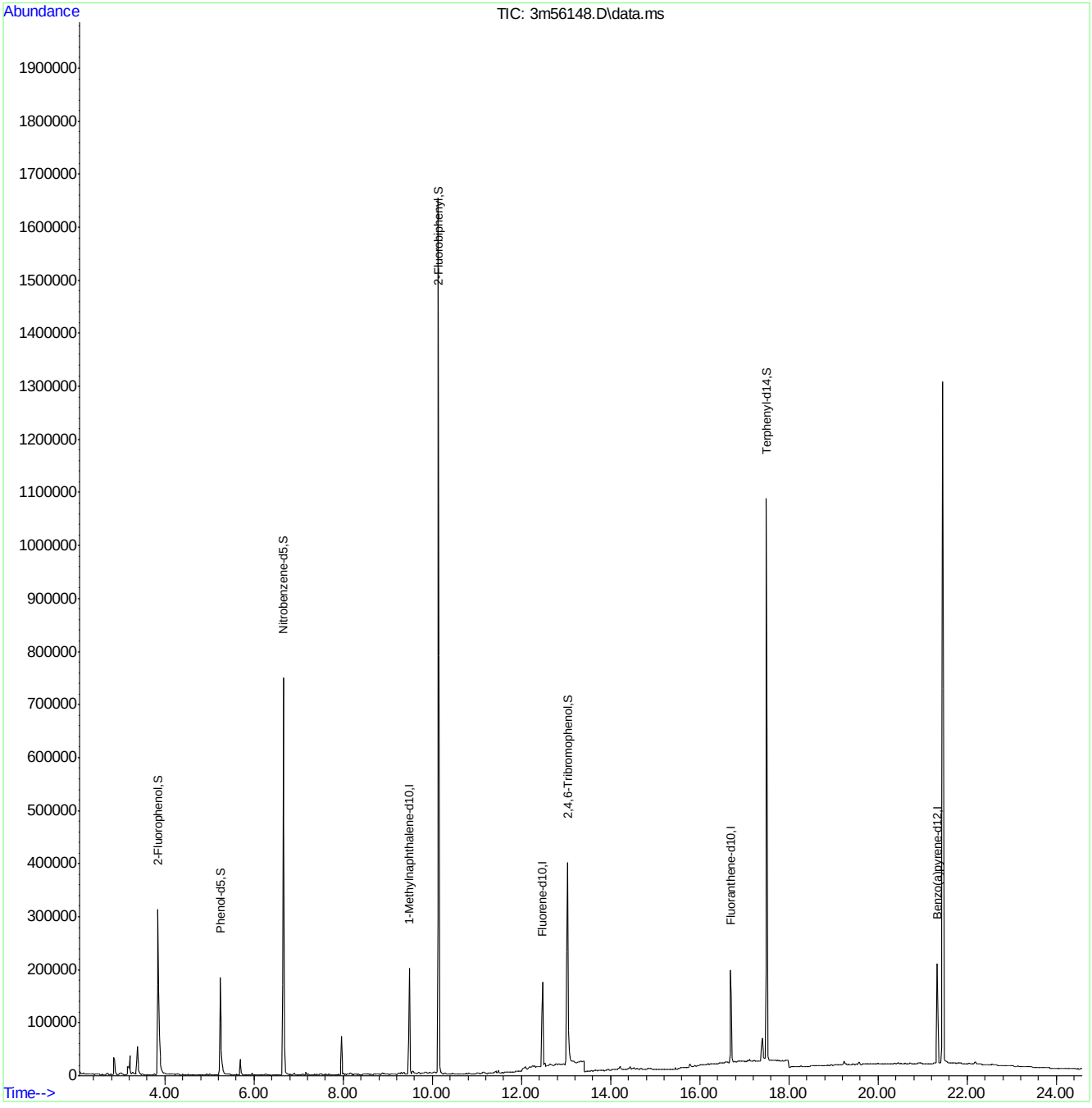
9.1.27

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M2590\
Data File : 3m56148.D
Acq On : 10 Jul 2015 6:15 pm
Operator : ashleyd
Sample : jb98590-9
Misc : op85388a,e3m2590,1000
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Jul 10 23:43:46 2015
Quant Method : C:\MSDCHEM\1\METHODS\M3M2536SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Fri Jul 10 23:42:50 2015
Response via : Initial Calibration



Manual Integrations APPROVED (compounds with "m" flag)
Kristi Schollenberger 07/13/15 12:24

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M2591\
Data File : 3m56175.D
Acq On : 11 Jul 2015 5:58 pm
Operator : ashleyd
Sample : jb98590-10
Misc : op85388a,e3m2591,920
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Jul 13 09:34:13 2015
Quant Method : C:\MSDCHEM\1\METHODS\M3M2536SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Mon Jul 13 09:04:23 2015
Response via : Initial Calibration

| Compound | R.T. | QIon | Response | Conc Units | Dev(Min) |
|---|---|---|---|---|---|
| Internal Standards | | | | | |
| 1) 1-Methylnaphthalene-d10 | 9.463 | 150 | 120217 | 4.00 ppm | 0.00 |
| 13) Fluorene-d10 | 12.444 | 176 | 183128 | 4.00 ppm | 0.00 |
| 20) Fluoranthene-d10 | 16.667 | 212 | 236002 | 4.00 ppm | 0.00 |
| 30) Benzo(a)pyrene-d12 | 21.302 | 264 | 182582 | 4.00 ppm | 0.00 |
| System Monitoring Compounds | | | | | |
| 3) 2-Fluorophenol | 3.833 | 112 | 234848 | 13.00 ppm | 0.02 |
| Spiked Amount 50.000 | | | Recovery | = 26.00% | |
| 4) Phenol-d5 | 5.221 | 99 | 331096 | 12.27 ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery | = 24.54% | |
| 7) Nitrobenzene-d5 | 6.641 | 82 | 788492 | 32.91 ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery | = 65.82% | |
| 14) 2-Fluorobiphenyl | 10.125 | 172 | 1420636 | 28.96 ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery | = 57.92% | |
| 19) 2,4,6-Tribromophenol | 13.010 | 330 | 127407 | 17.75 ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery | = 35.50% | |
| 27) Terphenyl-d14 | 17.470 | 244 | 530130 | 13.55 ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery | = 27.10% | |
| Target Compounds | | | | | Qvalue |
| 25) Fluoranthene | 16.698 | 202 | 9370 | 0.12 ppm | 91 |
| 26) Pyrene | 17.099 | 202 | 10099 | 0.11 ppm | 97 |
| 28) Benzo[a]anthracene | 19.216 | 228 | 12250m | 0.15 ppm | |

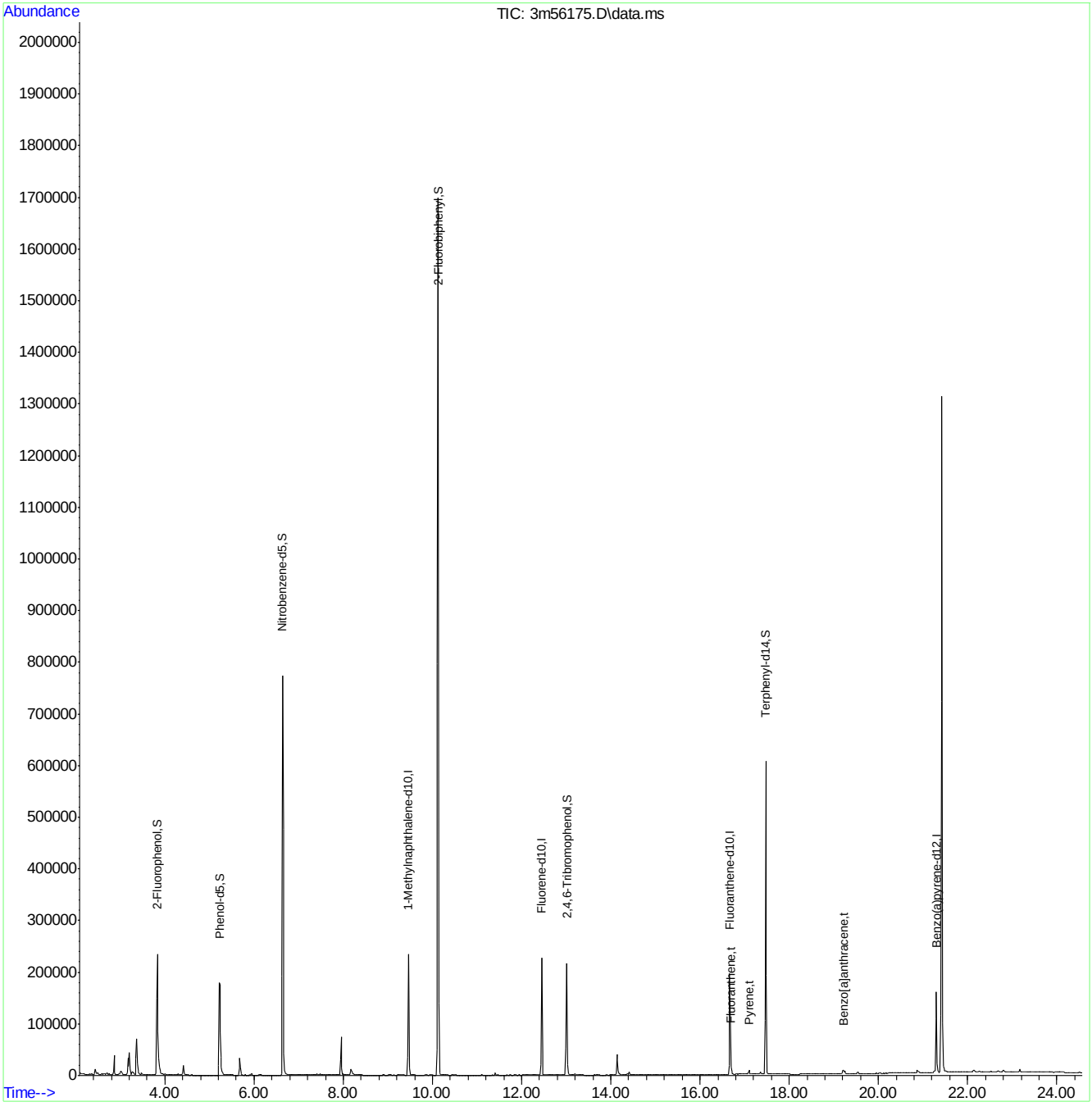
(#) = qualifier out of range (m) = manual integration (+) = signals summed

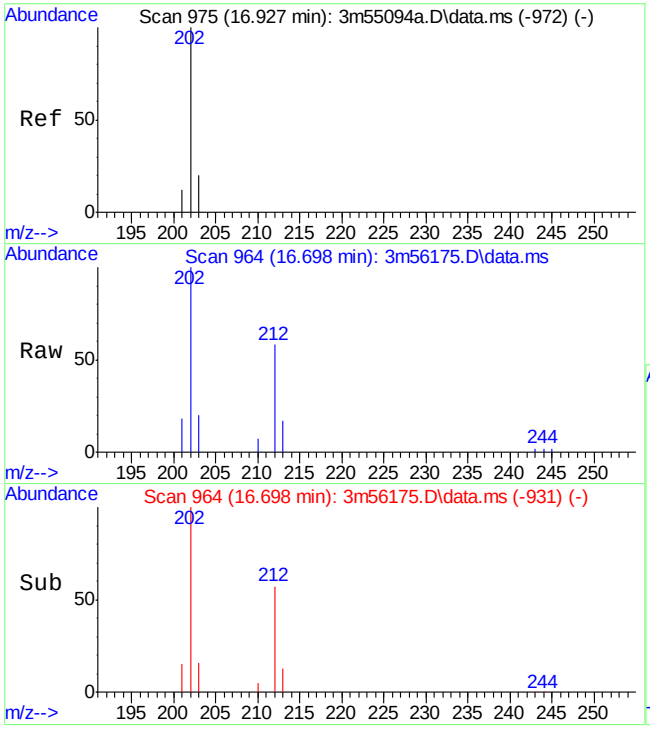
9.1.28
9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M2591\
Data File : 3m56175.D
Acq On : 11 Jul 2015 5:58 pm
Operator : ashleyd
Sample : jb98590-10
Misc : op85388a,e3m2591,920
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Jul 13 09:34:13 2015
Quant Method : C:\MSDCHEM\1\METHODS\M3M2536SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Mon Jul 13 09:04:23 2015
Response via : Initial Calibration

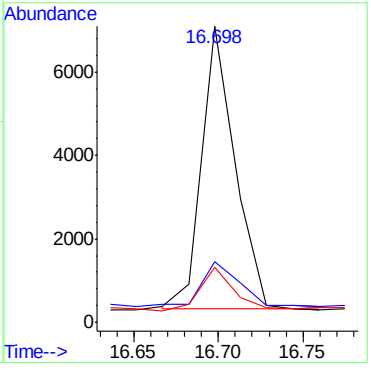


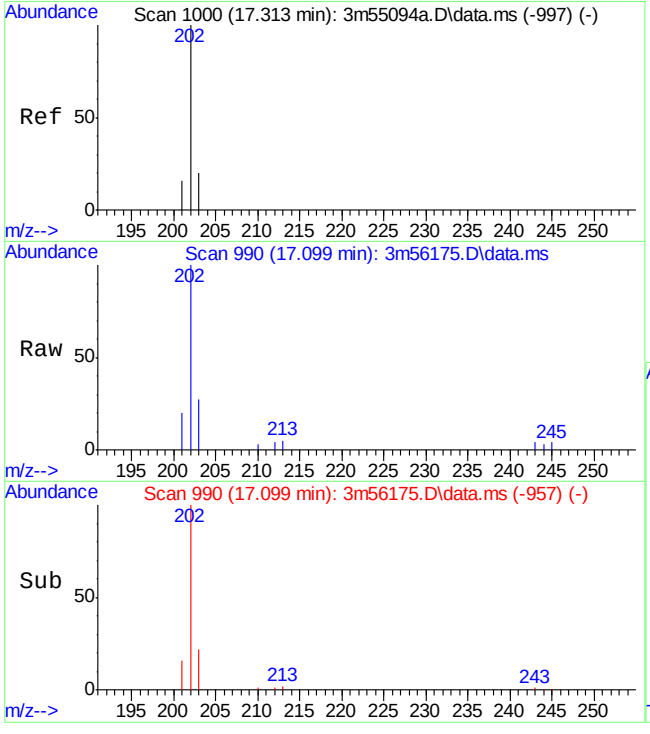



#25
Fluoranthene
Concen: 0.12 ppm
RT: 16.698 min Scan# 964
Delta R.T. 0.006 min
Lab File: 3m56175.D
Acq: 11 Jul 2015 5:58 pm

Tgt Ion:202 Resp: 9370

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 202 | 100 | | |
| 203 | 15.4 | 0.0 | 50.2 |
| 201 | 14.9 | 0.0 | 41.9 |

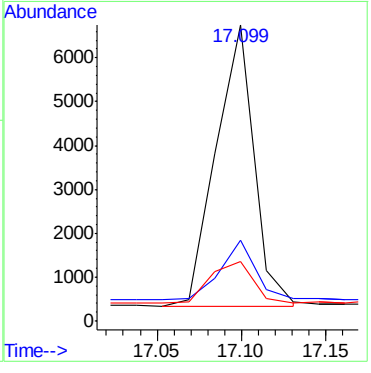


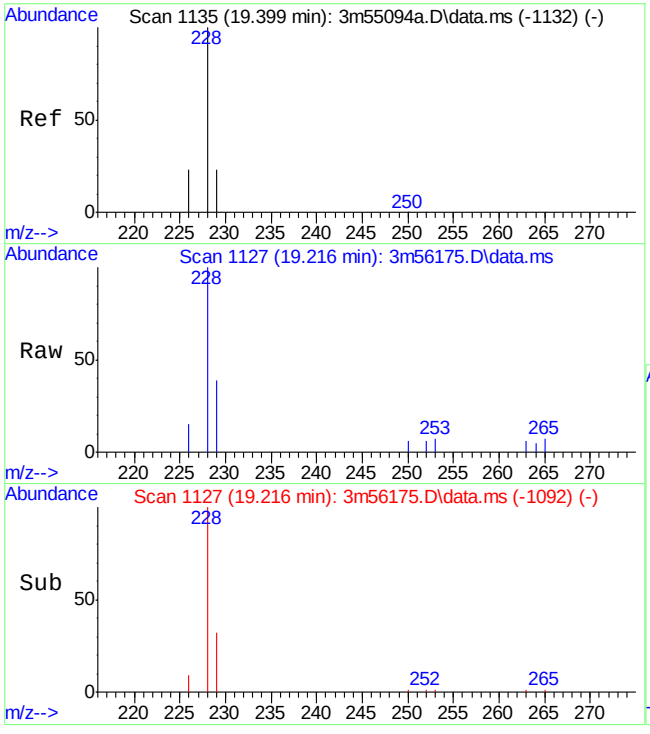




#26
Pyrene
Concen: 0.11 ppm
RT: 17.099 min Scan# 990
Delta R.T. 0.006 min
Lab File: 3m56175.D
Acq: 11 Jul 2015 5:58 pm

Tgt Ion:202 Resp: 10099

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 202 | 100 | | |
| 203 | 21.3 | 0.0 | 49.6 |
| 201 | 14.8 | 0.0 | 45.7 |

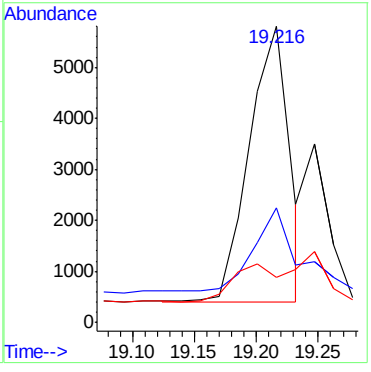





#28
Benzo[a]anthracene
Concen: 0.15 ppm m
RT: 19.216 min Scan# 1127
Delta R.T. 0.036 min
Lab File: 3m56175.D
Acq: 11 Jul 2015 5:58 pm

Tgt Ion:228 Resp: 12250

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 228 | 100 | | |
| 229 | 38.6 | 0.0 | 52.8 |
| 226 | 15.2 | 0.0 | 52.3 |




9.1.28

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M2590\
Data File : 3m56150.D
Acq On : 10 Jul 2015 7:17 pm
Operator : ashleyd
Sample : jb98590-11
Misc : op85388a,e3m2590,1000
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Jul 10 23:44:47 2015
Quant Method : C:\MSDCHEM\1\METHODS\M3M2536SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Fri Jul 10 23:42:50 2015
Response via : Initial Calibration

| Compound | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| Internal Standards | | | | | | |
| 1) 1-Methylnaphthalene-d10 | 9.484 | 150 | 118615 | 4.00 | ppm | 0.00 |
| 13) Fluorene-d10 | 12.473 | 176 | 181367 | 4.00 | ppm | 0.00 |
| 20) Fluoranthene-d10 | 16.692 | 212 | 251523 | 4.00 | ppm | 0.00 |
| 30) Benzo(a)pyrene-d12 | 21.312 | 264 | 209695 | 4.00 | ppm | -0.02 |
| System Monitoring Compounds | | | | | | |
| 3) 2-Fluorophenol | 3.848 | 112 | 334188 | 18.76 | ppm | 0.02 |
| Spiked Amount 50.000 | | | Recovery = 37.52% | | | |
| 4) Phenol-d5 | 5.245 | 99 | 411111 | 15.44 | ppm | 0.02 |
| Spiked Amount 50.000 | | | Recovery = 30.88% | | | |
| 7) Nitrobenzene-d5 | 6.655 | 82 | 797312 | 33.72 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 67.44% | | | |
| 14) 2-Fluorobiphenyl | 10.135 | 172 | 1647184 | 33.90 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 67.80% | | | |
| 19) 2,4,6-Tribromophenol | 13.038 | 330 | 243431 | 34.24 | ppm | 0.02 |
| Spiked Amount 50.000 | | | Recovery = 68.48% | | | |
| 27) Terphenyl-d14 | 17.496 | 244 | 1279917 | 30.70 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 61.40% | | | |

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

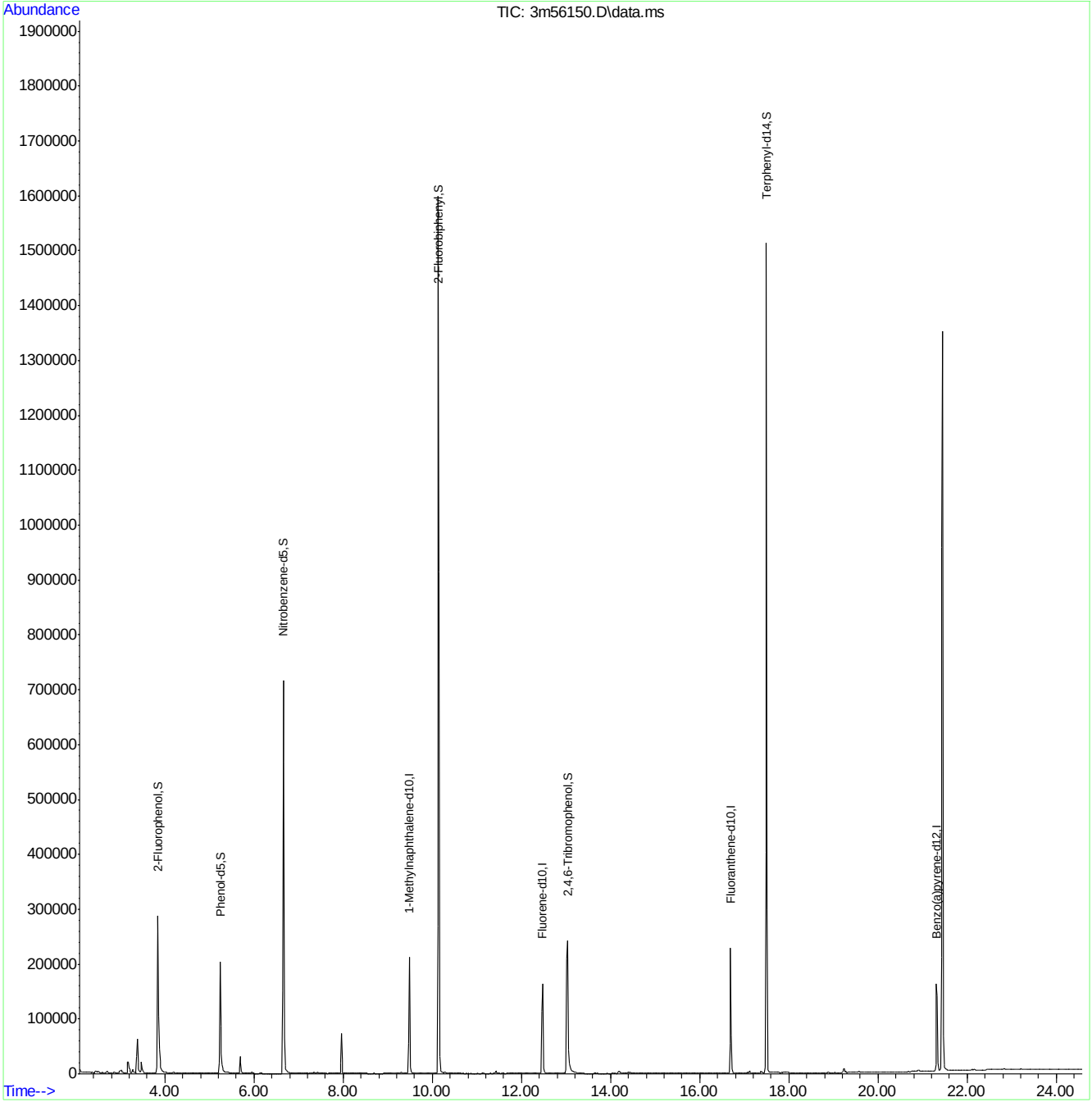
9.1.29

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M2590\
Data File : 3m56150.D
Acq On : 10 Jul 2015 7:17 pm
Operator : ashleyd
Sample : jb98590-11
Misc : op85388a,e3m2590,1000
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Jul 10 23:44:47 2015
Quant Method : C:\MSDCHEM\1\METHODS\M3M2536SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Fri Jul 10 23:42:50 2015
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M2590\
Data File : 3m56151.D
Acq On : 10 Jul 2015 7:48 pm
Operator : ashleyd
Sample : jb98590-12
Misc : op85388a,e3m2590,1000
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Jul 10 23:45:31 2015
Quant Method : C:\MSDCHEM\1\METHODS\M3M2536SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Fri Jul 10 23:42:50 2015
Response via : Initial Calibration

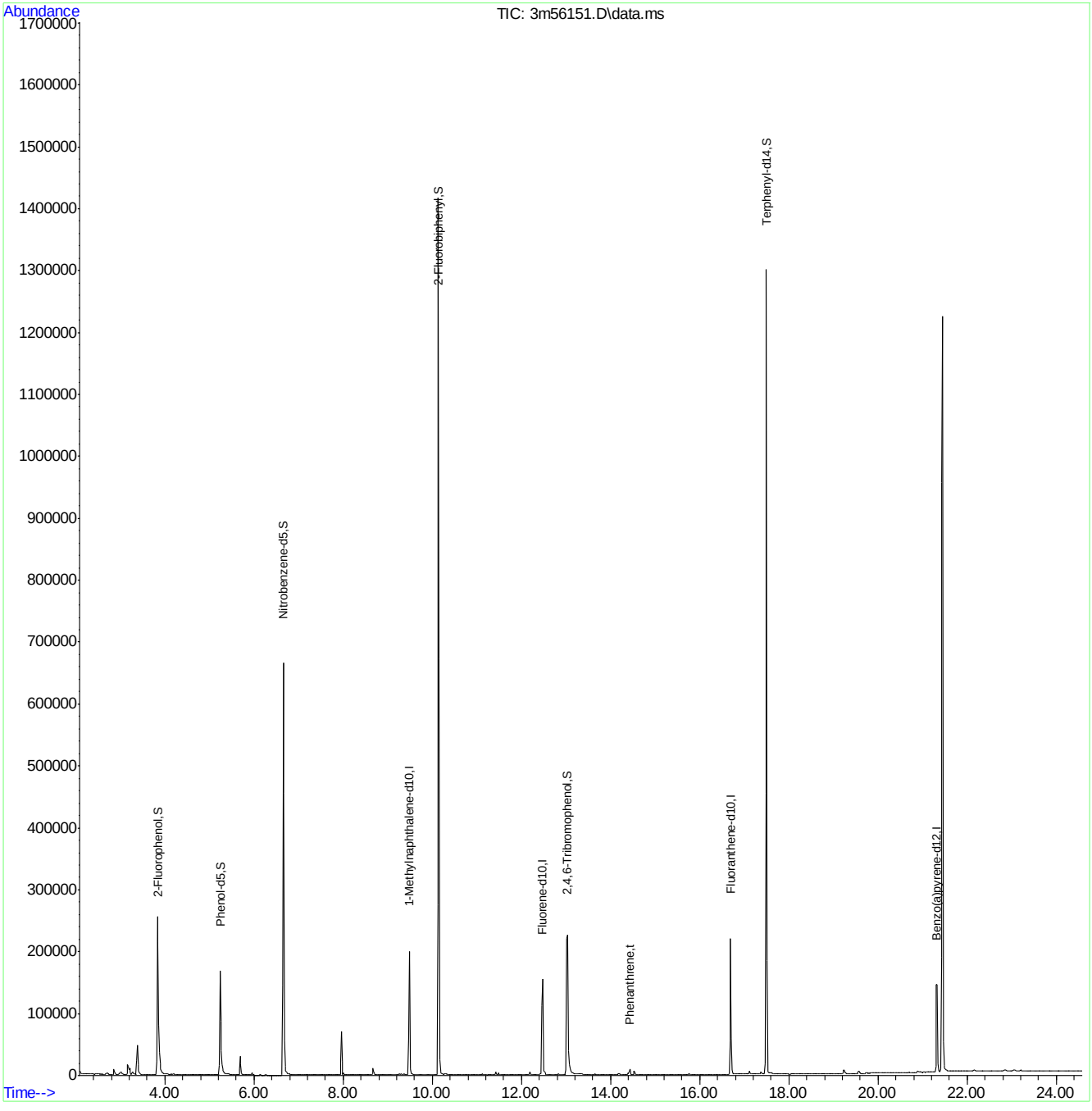
| Compound | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| Internal Standards | | | | | | |
| 1) 1-Methylnaphthalene-d10 | 9.484 | 150 | 114416 | 4.00 | ppm | 0.00 |
| 13) Fluorene-d10 | 12.473 | 176 | 174365 | 4.00 | ppm | 0.00 |
| 20) Fluoranthene-d10 | 16.692 | 212 | 237321 | 4.00 | ppm | 0.00 |
| 30) Benzo(a)pyrene-d12 | 21.312 | 264 | 198410 | 4.00 | ppm | -0.02 |
| System Monitoring Compounds | | | | | | |
| 3) 2-Fluorophenol | 3.848 | 112 | 293359 | 17.07 | ppm | 0.02 |
| Spiked Amount 50.000 | | | Recovery = 34.14% | | | |
| 4) Phenol-d5 | 5.245 | 99 | 332028 | 12.92 | ppm | 0.02 |
| Spiked Amount 50.000 | | | Recovery = 25.84% | | | |
| 7) Nitrobenzene-d5 | 6.655 | 82 | 706403 | 30.97 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 61.94% | | | |
| 14) 2-Fluorobiphenyl | 10.135 | 172 | 1400953 | 29.99 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 59.98% | | | |
| 19) 2,4,6-Tribromophenol | 13.019 | 330 | 233689 | 34.19 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 68.38% | | | |
| 27) Terphenyl-d14 | 17.496 | 244 | 1125249 | 28.60 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 57.20% | | | |
| Target Compounds | | | | | | Qvalue |
| 23) Phenanthrene | 14.435 | 178 | 10075 | 0.11 | ppm | 84 |

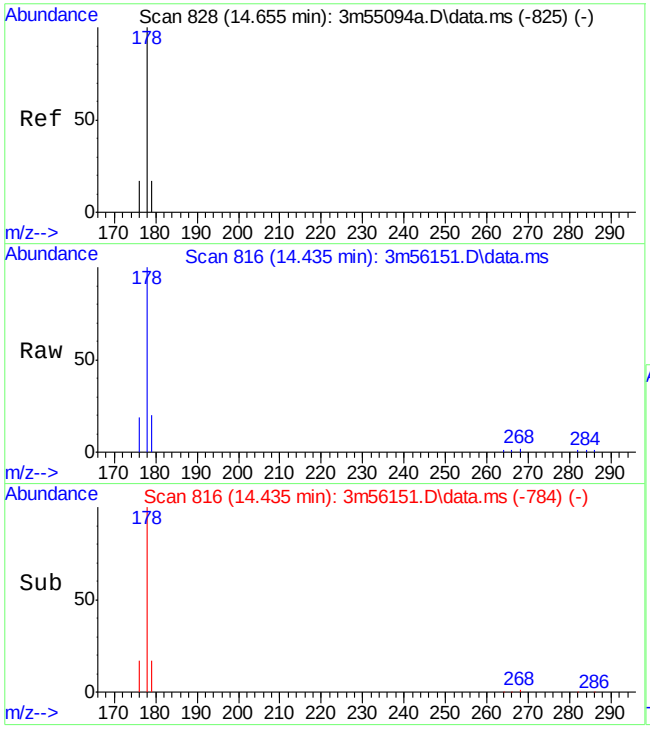
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M2590\
Data File : 3m56151.D
Acq On : 10 Jul 2015 7:48 pm
Operator : ashleyd
Sample : jb98590-12
Misc : op85388a,e3m2590,1000
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Jul 10 23:45:31 2015
Quant Method : C:\MSDCHEM\1\METHODS\M3M2536SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Fri Jul 10 23:42:50 2015
Response via : Initial Calibration

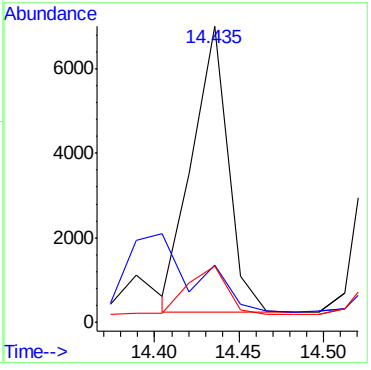





#23
Phenanthrene
Concen: 0.11 ppm
RT: 14.435 min Scan# 816
Delta R.T. -0.000 min
Lab File: 3m56151.D
Acq: 10 Jul 2015 7:48 pm

Tgt Ion:178 Resp: 10075

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 178 | 100 | | |
| 179 | 3.0 | 0.0 | 46.9 |
| 176 | 17.2 | 0.0 | 47.3 |



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M2590\
Data File : 3m56152.D
Acq On : 10 Jul 2015 8:19 pm
Operator : ashleyd
Sample : jb98590-13
Misc : op85388a,e3m2590,960
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Jul 11 16:20:14 2015
Quant Method : C:\MSDCHEM\1\METHODS\M3M2536SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Fri Jul 10 23:42:50 2015
Response via : Initial Calibration

| Compound | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| Internal Standards | | | | | | |
| 1) 1-Methylnaphthalene-d10 | 9.504 | 150 | 118821 | 4.00 | ppm | 0.02 |
| 13) Fluorene-d10 | 12.473 | 176 | 172552 | 4.00 | ppm | 0.00 |
| 20) Fluoranthene-d10 | 16.692 | 212 | 232430 | 4.00 | ppm | 0.00 |
| 30) Benzo(a)pyrene-d12 | 21.327 | 264 | 200125 | 4.00 | ppm | 0.00 |
| System Monitoring Compounds | | | | | | |
| 3) 2-Fluorophenol | 3.864 | 112 | 440581 | 24.68 | ppm | 0.03 |
| Spiked Amount 50.000 | | | Recovery = 49.36% | | | |
| 4) Phenol-d5 | 5.257 | 99 | 431439 | 16.17 | ppm | 0.04 |
| Spiked Amount 50.000 | | | Recovery = 32.34% | | | |
| 7) Nitrobenzene-d5 | 6.682 | 82 | 809223 | 34.17 | ppm | 0.03 |
| Spiked Amount 50.000 | | | Recovery = 68.34% | | | |
| 14) 2-Fluorobiphenyl | 10.150 | 172 | 1619416 | 35.03 | ppm | 0.02 |
| Spiked Amount 50.000 | | | Recovery = 70.06% | | | |
| 19) 2,4,6-Tribromophenol | 13.038 | 330 | 308475 | 45.61 | ppm | 0.02 |
| Spiked Amount 50.000 | | | Recovery = 91.22% | | | |
| 27) Terphenyl-d14 | 17.496 | 244 | 1313263 | 34.08 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 68.16% | | | |
| Target Compounds | | | | | | Qvalue |
| 8) Naphthalene | 8.033 | 128 | 6811173 | 79.61 | ppm | 90 |
| 18) Fluorene | 12.530 | 166 | 22267 | 0.43 | ppm | 77 |
| 23) Phenanthrene | 14.435 | 178 | 13524 | 0.15 | ppm | 85 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

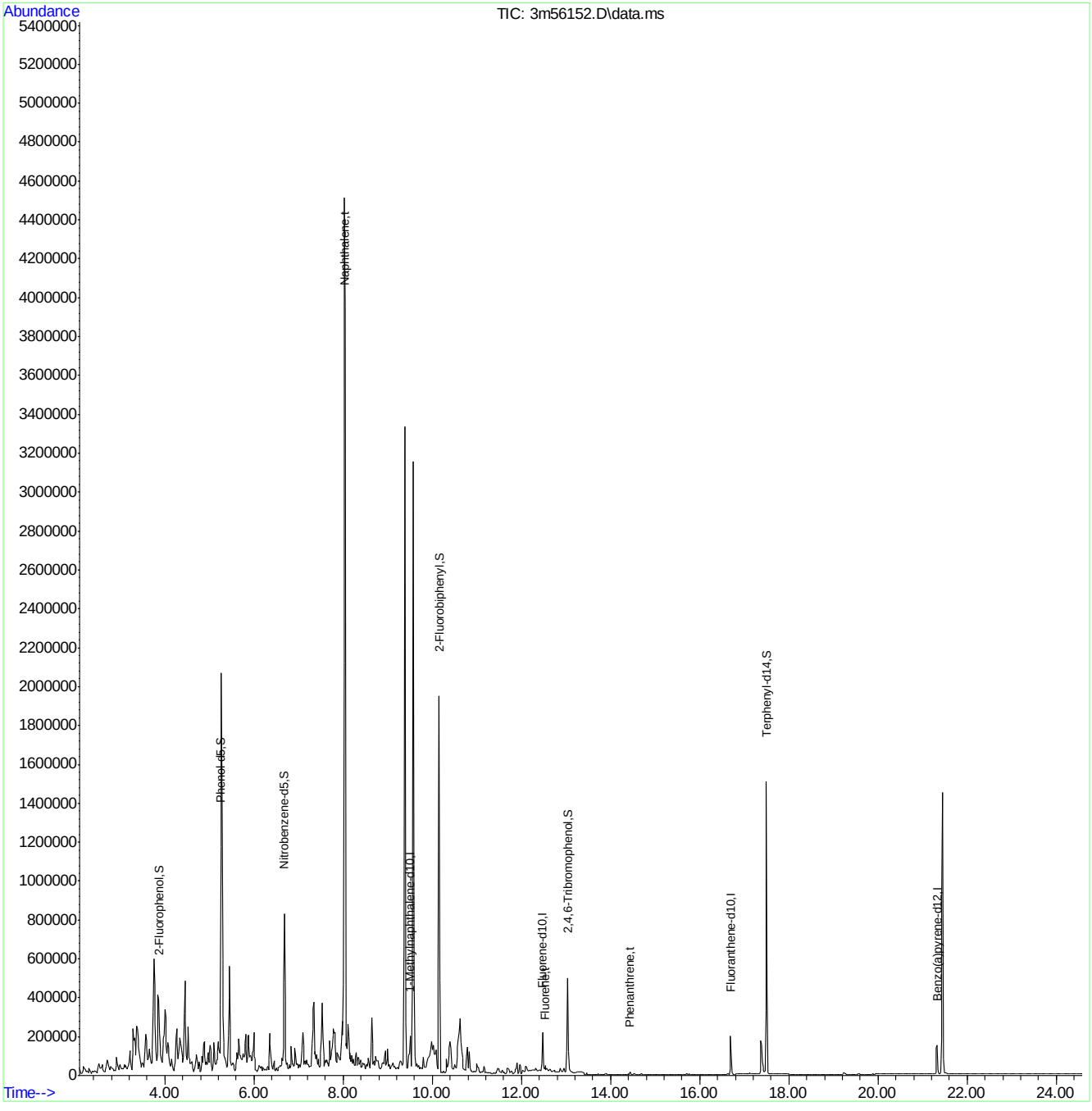
9.1.31

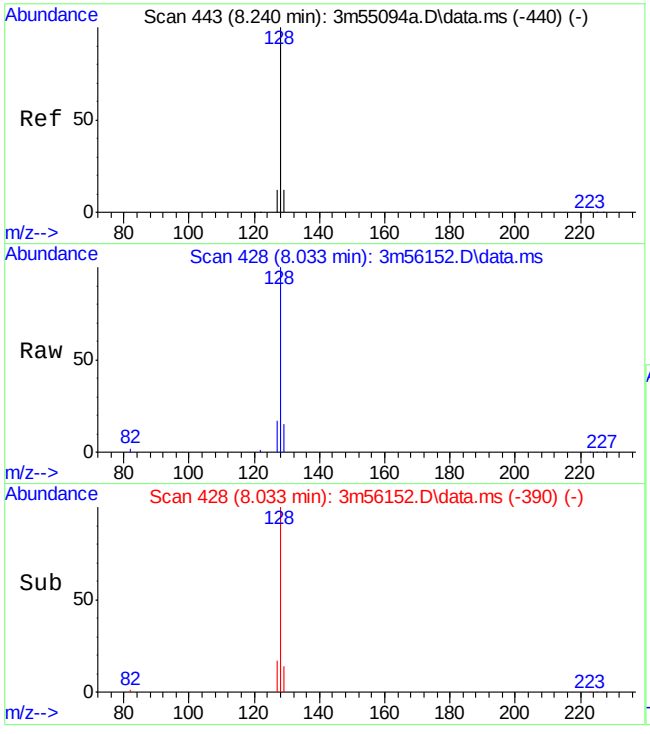
9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M2590\
Data File : 3m56152.D
Acq On : 10 Jul 2015 8:19 pm
Operator : ashleyd
Sample : jb98590-13
Misc : op85388a,e3m2590,960
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Jul 11 16:20:14 2015
Quant Method : C:\MSDCHEM\1\METHODS\M3M2536SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Fri Jul 10 23:42:50 2015
Response via : Initial Calibration

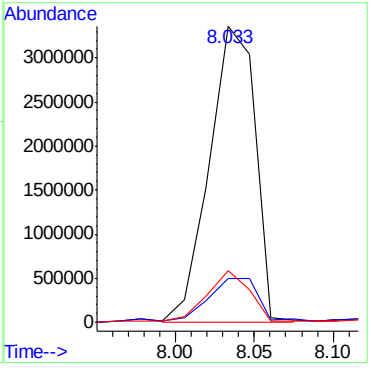


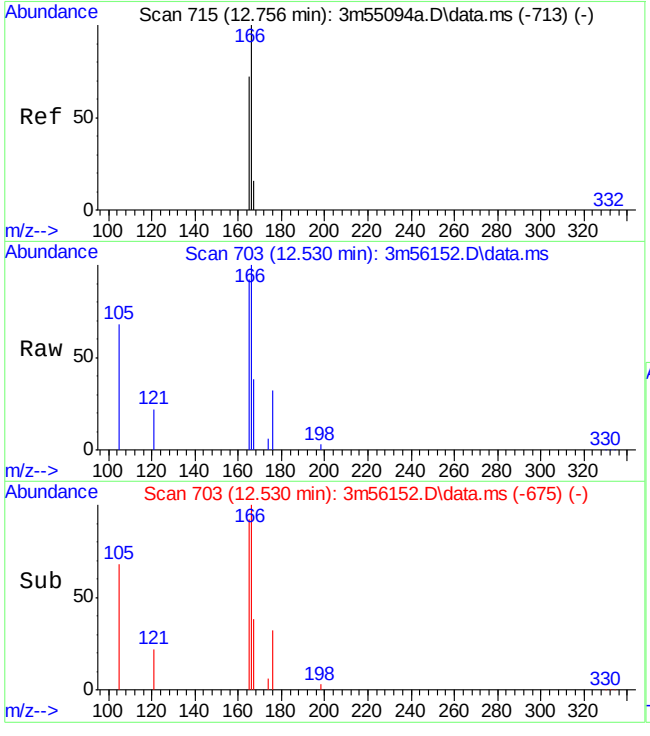



#8
Naphthalene
Concen: 79.61 ppm
RT: 8.033 min Scan# 428
Delta R.T. 0.028 min
Lab File: 3m56152.D
Acq: 10 Jul 2015 8:19 pm

Tgt Ion:128 Resp: 6811173

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 128 | 100 | | |
| 129 | 14.1 | 0.0 | 41.9 |
| 127 | 17.2 | 0.0 | 41.8 |

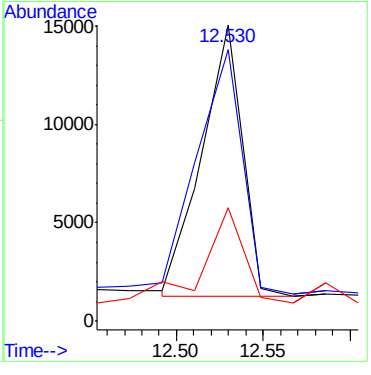


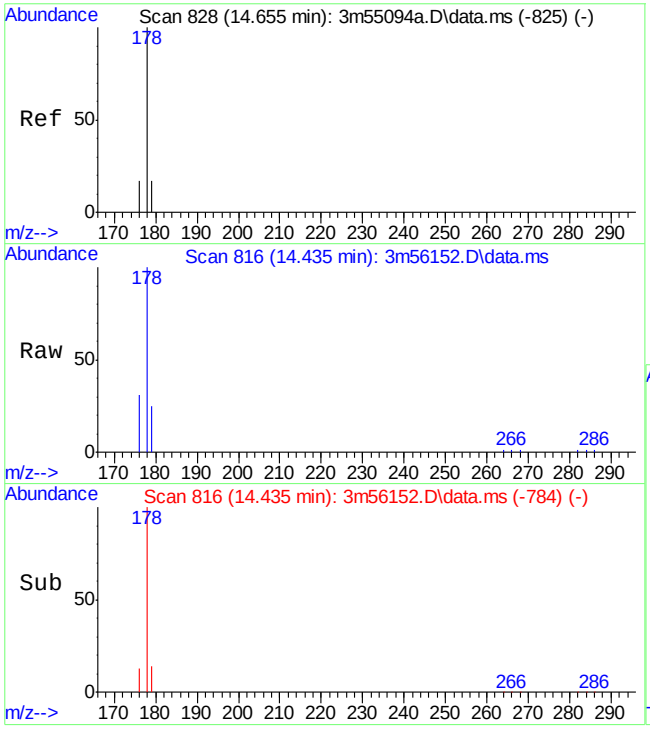




#18
Fluorene
Concen: 0.43 ppm
RT: 12.530 min Scan# 703
Delta R.T. 0.019 min
Lab File: 3m56152.D
Acq: 10 Jul 2015 8:19 pm

Tgt Ion:166 Resp: 22267

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 166 | 100 | | |
| 165 | 88.7 | 42.4 | 102.4 |
| 167 | 31.7 | 0.0 | 45.8 |

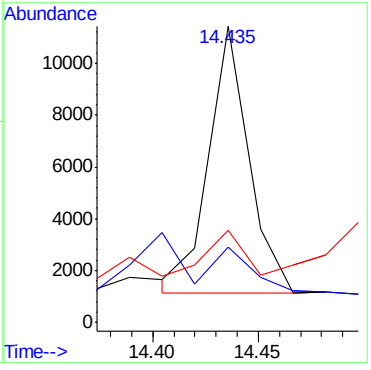





#23
Phenanthrene
Concen: 0.15 ppm
RT: 14.435 min Scan# 816
Delta R.T. -0.000 min
Lab File: 3m56152.D
Acq: 10 Jul 2015 8:19 pm

Tgt Ion:178 Resp: 13524

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 178 | 100 | | |
| 179 | 5.3 | 0.0 | 46.9 |
| 176 | 15.4 | 0.0 | 47.3 |




9.1.31

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M2590\
Data File : 3m56153.D
Acq On : 10 Jul 2015 8:50 pm
Operator : ashleyd
Sample : jb98590-14
Misc : op85388a,e3m2590,960
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Jul 10 23:46:50 2015
Quant Method : C:\MSDCHEM\1\METHODS\M3M2536SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Fri Jul 10 23:42:50 2015
Response via : Initial Calibration

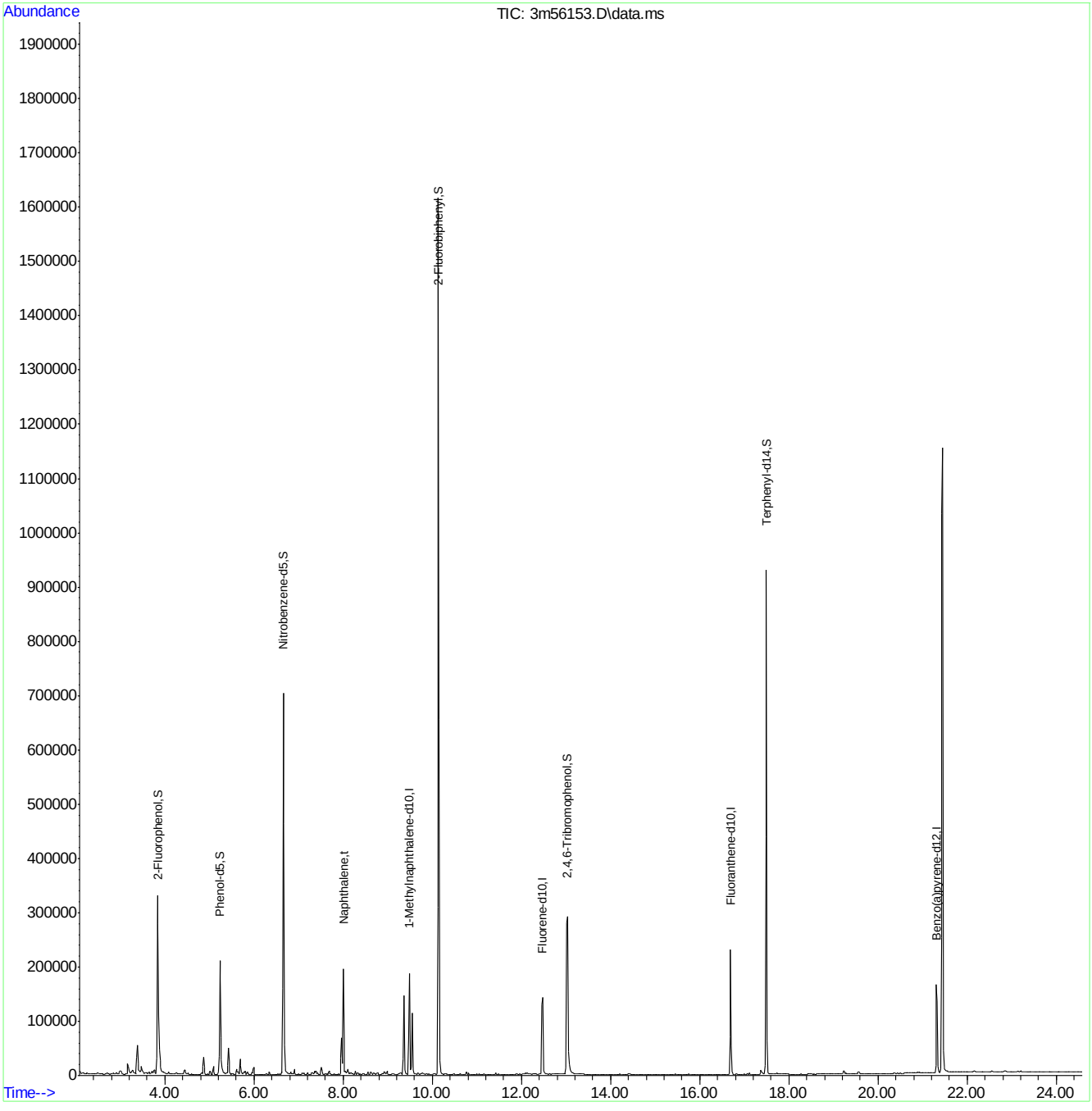
| Compound | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| Internal Standards | | | | | | |
| 1) 1-Methylnaphthalene-d10 | 9.484 | 150 | 111773 | 4.00 | ppm | 0.00 |
| 13) Fluorene-d10 | 12.473 | 176 | 175287 | 4.00 | ppm | 0.00 |
| 20) Fluoranthene-d10 | 16.692 | 212 | 251054 | 4.00 | ppm | 0.00 |
| 30) Benzo(a)pyrene-d12 | 21.312 | 264 | 207925 | 4.00 | ppm | -0.02 |
| System Monitoring Compounds | | | | | | |
| 3) 2-Fluorophenol | 3.849 | 112 | 371344 | 22.12 | ppm | 0.02 |
| Spiked Amount 50.000 | | | Recovery = 44.24% | | | |
| 4) Phenol-d5 | 5.233 | 99 | 377388 | 15.04 | ppm | 0.01 |
| Spiked Amount 50.000 | | | Recovery = 30.08% | | | |
| 7) Nitrobenzene-d5 | 6.655 | 82 | 726539 | 32.61 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 65.22% | | | |
| 14) 2-Fluorobiphenyl | 10.135 | 172 | 1517824 | 32.32 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 64.64% | | | |
| 19) 2,4,6-Tribromophenol | 13.020 | 330 | 277416 | 40.38 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 80.76% | | | |
| 27) Terphenyl-d14 | 17.496 | 244 | 840066 | 20.18 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 40.36% | | | |
| Target Compounds | | | | | | Qvalue |
| 8) Naphthalene | 8.006 | 128 | 203113 | 2.52 | ppm | 93 |

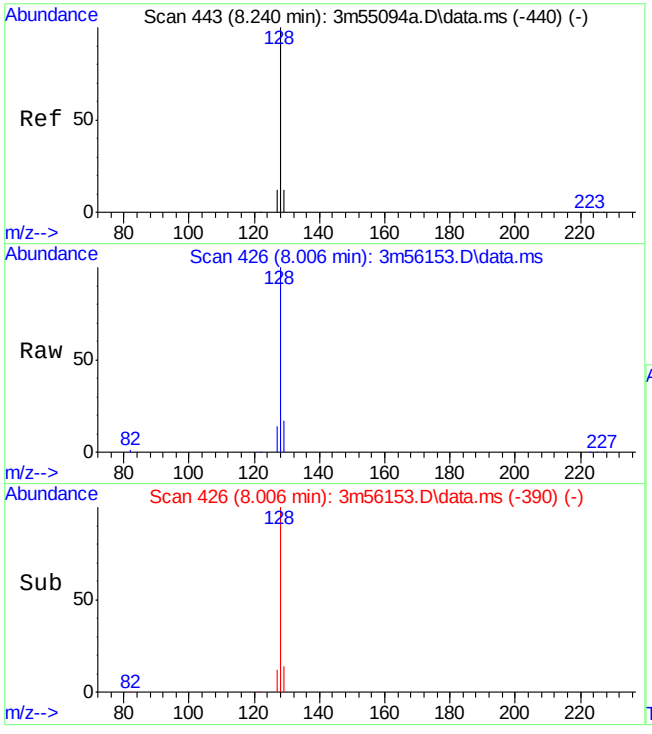
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M2590\
Data File : 3m56153.D
Acq On : 10 Jul 2015 8:50 pm
Operator : ashleyd
Sample : jb98590-14
Misc : op85388a,e3m2590,960
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Jul 10 23:46:50 2015
Quant Method : C:\MSDCHEM\1\METHODS\M3M2536SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Fri Jul 10 23:42:50 2015
Response via : Initial Calibration

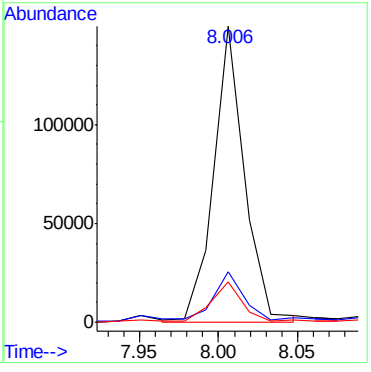





#8
Naphthalene
Concen: 2.52 ppm
RT: 8.006 min Scan# 426
Delta R.T. 0.000 min
Lab File: 3m56153.D
Acq: 10 Jul 2015 8:50 pm

Tgt Ion:128 Resp: 203113

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 128 | 100 | | |
| 129 | 15.8 | 0.0 | 41.9 |
| 127 | 13.3 | 0.0 | 41.8 |




9.1.32

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M2590\
Data File : 3m56154.D
Acq On : 10 Jul 2015 9:21 pm
Operator : ashleyd
Sample : jb98590-15
Misc : op85388a,e3m2590,1000
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Jul 10 23:47:29 2015
Quant Method : C:\MSDCHEM\1\METHODS\M3M2536SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Fri Jul 10 23:42:50 2015
Response via : Initial Calibration

| Compound | R.T. | QIon | Response | Conc Units | Dev(Min) |
|---|---|---|---|---|---|
| Internal Standards | | | | | |
| 1) 1-Methylnaphthalene-d10 | 9.484 | 150 | 113703 | 4.00 ppm | 0.00 |
| 13) Fluorene-d10 | 12.473 | 176 | 178402 | 4.00 ppm | 0.00 |
| 20) Fluoranthene-d10 | 16.692 | 212 | 252390 | 4.00 ppm | 0.00 |
| 30) Benzo(a)pyrene-d12 | 21.312 | 264 | 208660 | 4.00 ppm | -0.02 |
| System Monitoring Compounds | | | | | |
| 3) 2-Fluorophenol | 3.849 | 112 | 416845 | 24.41 ppm | 0.02 |
| Spiked Amount 50.000 | | | Recovery = 48.82% | | |
| 4) Phenol-d5 | 5.233 | 99 | 422113 | 16.53 ppm | 0.01 |
| Spiked Amount 50.000 | | | Recovery = 33.06% | | |
| 7) Nitrobenzene-d5 | 6.655 | 82 | 808151 | 35.66 ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 71.32% | | |
| 14) 2-Fluorobiphenyl | 10.135 | 172 | 1713908 | 35.86 ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 71.72% | | |
| 19) 2,4,6-Tribromophenol | 13.019 | 330 | 294867 | 42.17 ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 84.34% | | |
| 27) Terphenyl-d14 | 17.496 | 244 | 1009544 | 24.13 ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 48.26% | | |
| Target Compounds | | | | | Qvalue |
| 8) Naphthalene | 8.006 | 128 | 85786 | 1.05 ppm | 97 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

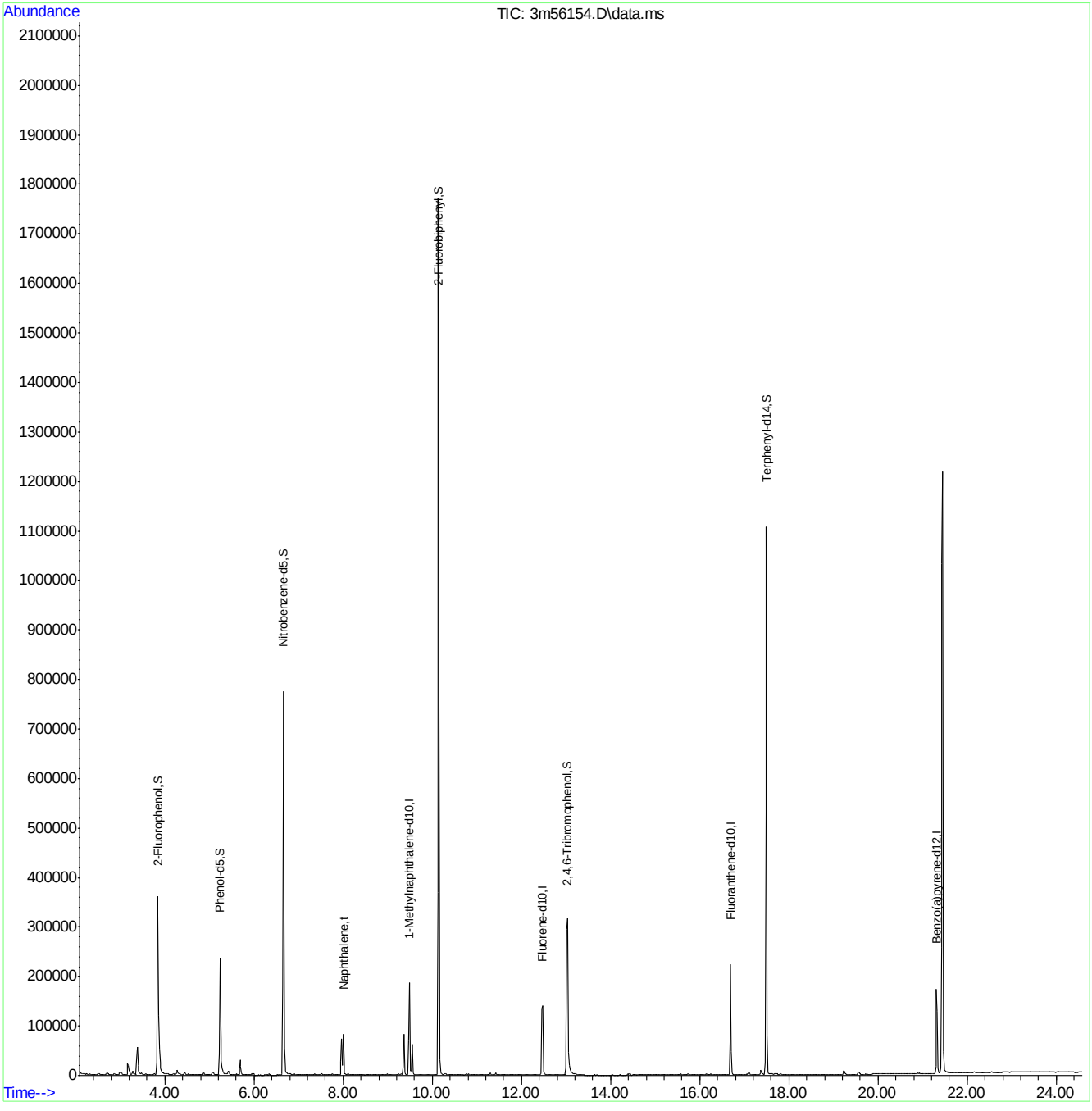
9.1.33

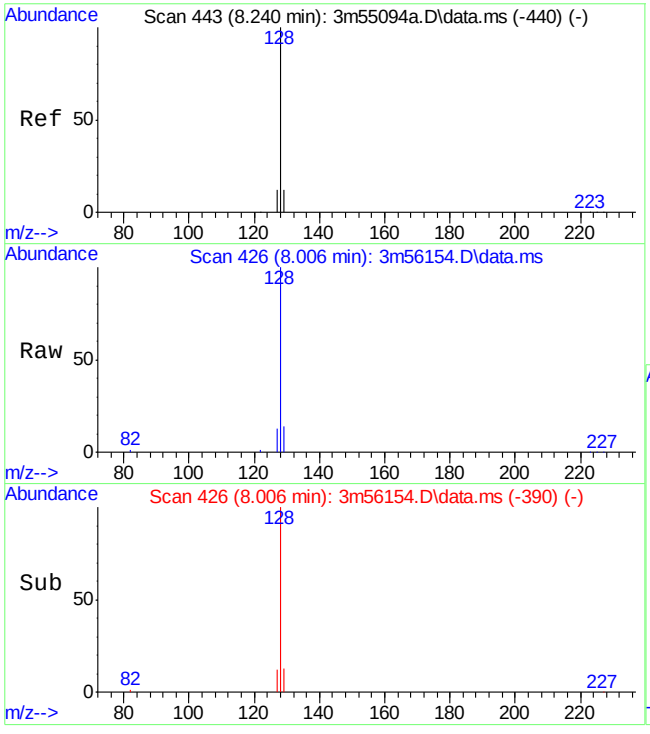
9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M2590\
Data File : 3m56154.D
Acq On : 10 Jul 2015 9:21 pm
Operator : ashleyd
Sample : jb98590-15
Misc : op85388a,e3m2590,1000
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Jul 10 23:47:29 2015
Quant Method : C:\MSDCHEM\1\METHODS\M3M2536SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Fri Jul 10 23:42:50 2015
Response via : Initial Calibration

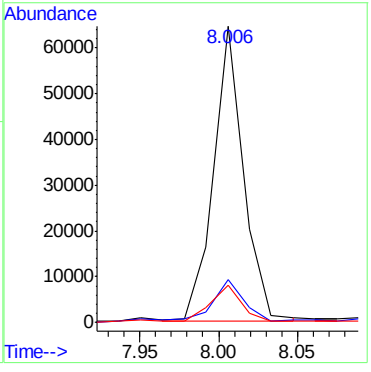





#8
Naphthalene
Concen: 1.05 ppm
RT: 8.006 min Scan# 426
Delta R.T. 0.000 min
Lab File: 3m56154.D
Acq: 10 Jul 2015 9:21 pm

Tgt Ion:128 Resp: 85786

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 128 | 100 | | |
| 129 | 13.6 | 0.0 | 41.9 |
| 127 | 12.4 | 0.0 | 41.8 |




9.1.33

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M2591\
Data File : 3m56176.D
Acq On : 11 Jul 2015 6:29 pm
Operator : ashleyd
Sample : jb98590-16
Misc : op85388a,e3m2591,1000
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Jul 13 12:33:12 2015
Quant Method : C:\MSDCHEM\1\METHODS\M3M2536SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Mon Jul 13 09:04:23 2015
Response via : Initial Calibration

| Compound | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| Internal Standards | | | | | | |
| 1) 1-Methylnaphthalene-d10 | 9.463 | 150 | 108889 | 4.00 | ppm | 0.00 |
| 13) Fluorene-d10 | 12.444 | 176 | 159488 | 4.00 | ppm | 0.00 |
| 20) Fluoranthene-d10 | 16.667 | 212 | 218616 | 4.00 | ppm | 0.00 |
| 30) Benzo(a)pyrene-d12 | 21.302 | 264 | 181483 | 4.00 | ppm | 0.00 |
| System Monitoring Compounds | | | | | | |
| 3) 2-Fluorophenol | 3.833 | 112 | 372558 | 22.78 | ppm | 0.02 |
| Spiked Amount 50.000 | | | Recovery = 45.56% | | | |
| 4) Phenol-d5 | 5.233 | 99 | 378523 | 15.48 | ppm | 0.01 |
| Spiked Amount 50.000 | | | Recovery = 30.96% | | | |
| 7) Nitrobenzene-d5 | 6.641 | 82 | 736067 | 33.91 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 67.82% | | | |
| 14) 2-Fluorobiphenyl | 10.125 | 172 | 1327143 | 31.06 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 62.12% | | | |
| 19) 2,4,6-Tribromophenol | 13.010 | 330 | 252482 | 40.39 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 80.78% | | | |
| 27) Terphenyl-d14 | 17.470 | 244 | 763989 | 21.08 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 42.16% | | | |
| Target Compounds | | | | | | Qvalue |
| 8) Naphthalene | 7.992 | 128 | 13595 | 0.17 | ppm | 95 |
| 25) Fluoranthene | 16.698 | 202 | 9799 | 0.14 | ppm | 90 |
| 26) Pyrene | 17.100 | 202 | 10641 | 0.12 | ppm | 98 |
| 28) Benzo[a]anthracene | 19.216 | 228 | 11425 | 0.15 | ppm | 76 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

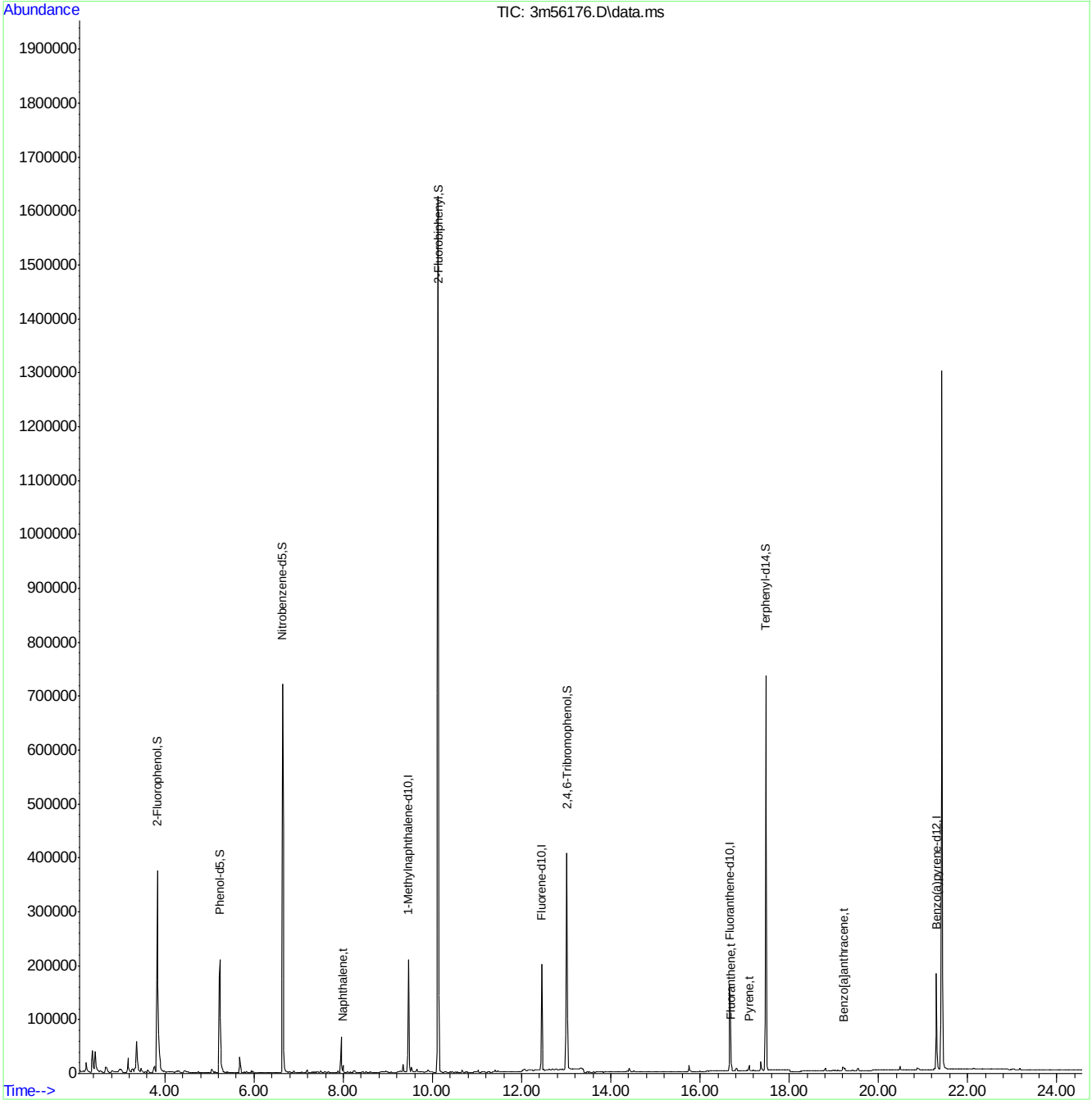
9.1.34

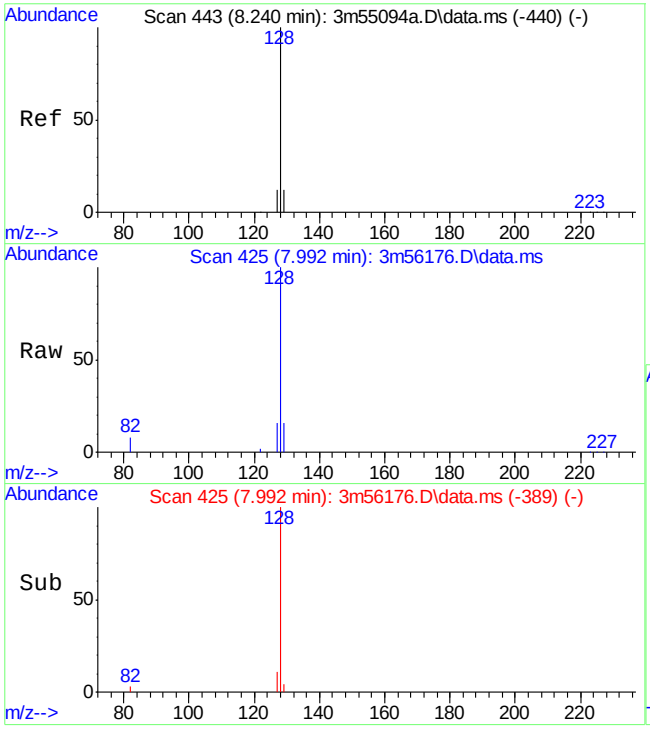
9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M2591\
Data File : 3m56176.D
Acq On : 11 Jul 2015 6:29 pm
Operator : ashleyd
Sample : jb98590-16
Misc : op85388a,e3m2591,1000
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Jul 13 12:33:12 2015
Quant Method : C:\MSDCHEM\1\METHODS\M3M2536SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Mon Jul 13 09:04:23 2015
Response via : Initial Calibration

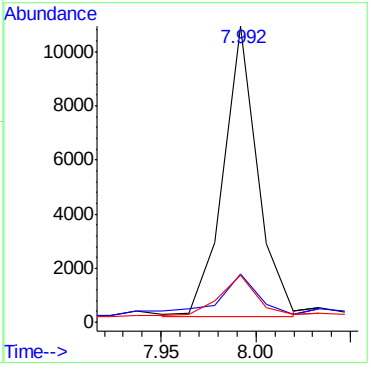


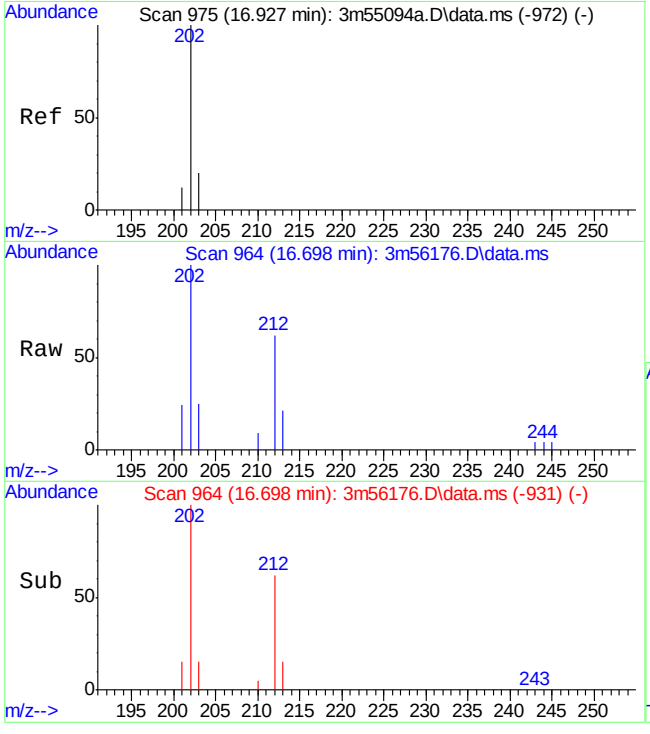



#8
Naphthalene
Concen: 0.17 ppm
RT: 7.992 min Scan# 425
Delta R.T. -0.000 min
Lab File: 3m56176.D
Acq: 11 Jul 2015 6:29 pm

Tgt Ion:128 Resp: 13595

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 128 | 100 | | |
| 129 | 13.4 | 0.0 | 41.9 |
| 127 | 13.9 | 0.0 | 41.8 |

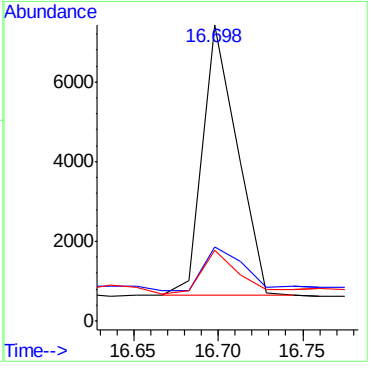


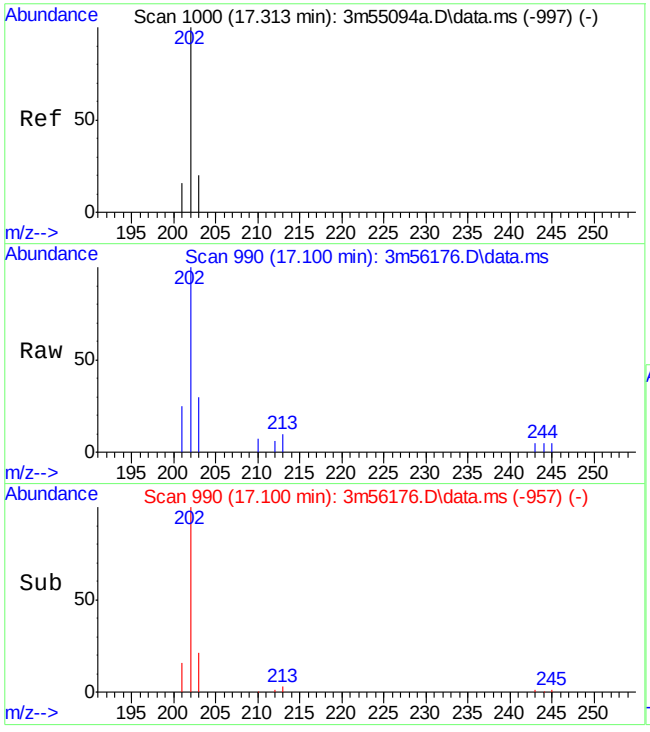




#25
Fluoranthene
Concen: 0.14 ppm
RT: 16.698 min Scan# 964
Delta R.T. 0.006 min
Lab File: 3m56176.D
Acq: 11 Jul 2015 6:29 pm

Tgt Ion:202 Resp: 9799

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 202 | 100 | | |
| 203 | 15.2 | 0.0 | 50.2 |
| 201 | 15.6 | 0.0 | 41.9 |

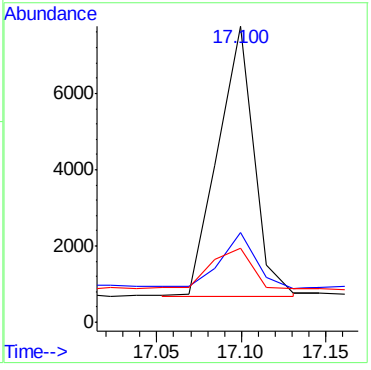


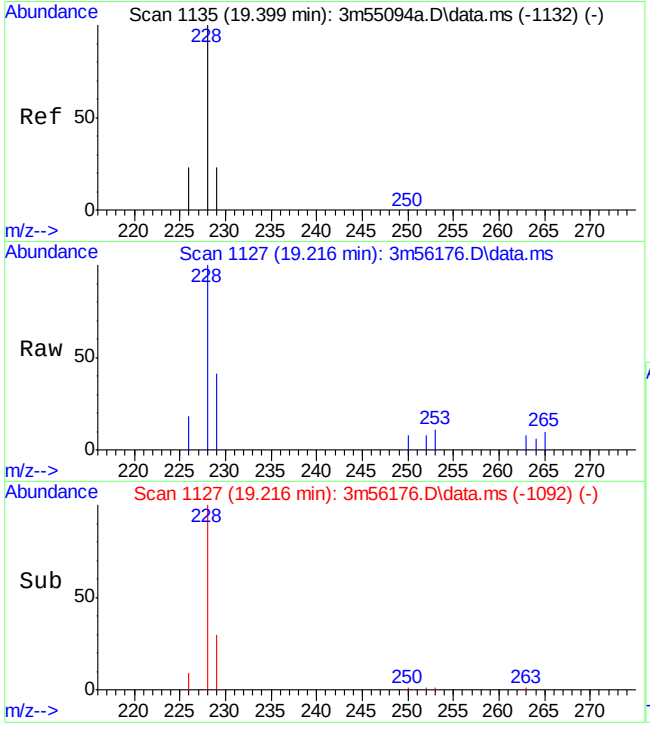



#26
Pyrene
Concen: 0.12 ppm
RT: 17.100 min Scan# 990
Delta R.T. 0.006 min
Lab File: 3m56176.D
Acq: 11 Jul 2015 6:29 pm

Tgt Ion:202 Resp: 10641

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 202 | 100 | | |
| 203 | 20.5 | 0.0 | 49.6 |
| 201 | 14.8 | 0.0 | 45.7 |

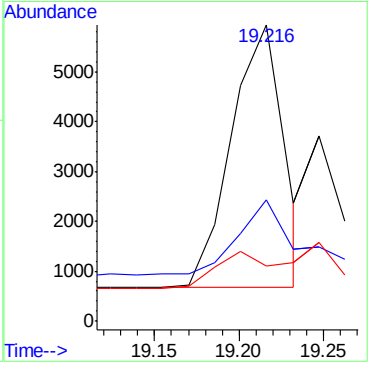



#28
Benzo[a]anthracene
Concen: 0.15 ppm
RT: 19.216 min Scan# 1127
Delta R.T. 0.037 min
Lab File: 3m56176.D
Acq: 11 Jul 2015 6:29 pm

Tgt Ion:228 Resp: 11425

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 228 | 100 | | |
| 229 | 27.9 | 0.0 | 52.8 |
| 226 | 4.0 | 0.0 | 52.3 |



Manual Integrations APPROVED (compounds with "m" flag)
Kristi Schollenberger 07/13/15 12:24

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M2591\
Data File : 3m56177.D
Acq On : 11 Jul 2015 7:00 pm
Operator : ashleyd
Sample : jb98590-17
Misc : op85388a,e3m2591,960
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Jul 13 09:44:49 2015
Quant Method : C:\MSDCHEM\1\METHODS\M3M2536SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Mon Jul 13 09:41:01 2015
Response via : Initial Calibration

| Compound | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| Internal Standards | | | | | | |
| 1) 1-Methylnaphthalene-d10 | 9.463 | 150 | 108547 | 4.00 | ppm | 0.00 |
| 13) Fluorene-d10 | 12.444 | 176 | 165682 | 4.00 | ppm | 0.00 |
| 20) Fluoranthene-d10 | 16.729 | 212 | 231850 | 4.00 | ppm | 0.07 |
| 30) Benzo(a)pyrene-d12 | 21.302 | 264 | 191566 | 4.00 | ppm | 0.00 |
| System Monitoring Compounds | | | | | | |
| 3) 2-Fluorophenol | 3.833 | 112 | 376064 | 23.06 | ppm | 0.02 |
| Spiked Amount 50.000 | | | Recovery = 46.12% | | | |
| 4) Phenol-d5 | 5.233 | 99 | 378932 | 15.55 | ppm | 0.01 |
| Spiked Amount 50.000 | | | Recovery = 31.10% | | | |
| 7) Nitrobenzene-d5 | 6.641 | 82 | 753243 | 34.81 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 69.62% | | | |
| 14) 2-Fluorobiphenyl | 10.125 | 172 | 1455860 | 32.80 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 65.60% | | | |
| 19) 2,4,6-Tribromophenol | 13.010 | 330 | 282659 | 43.52 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 87.04% | | | |
| 27) Terphenyl-d14 | 17.486 | 244 | 1464405 | 38.10 | ppm | 0.02 |
| Spiked Amount 50.000 | | | Recovery = 76.20% | | | |
| Target Compounds | | | | | | Qvalue |
| 8) Naphthalene | 8.143 | 128 | 66870 | 0.86 | ppm | 82 |
| 16) Acenaphthene | 11.470 | 153 | 19551 | 0.38 | ppm | 88 |
| 18) Fluorene | 12.501 | 166 | 28535 | 0.58 | ppm | 84 |
| 23) Phenanthrene | 14.410 | 178 | 19741 | 0.23 | ppm | 85 |
| 25) Fluoranthene | 16.759 | 202 | 15389 | 0.21 | ppm | 98 |
| 26) Pyrene | 17.115 | 202 | 27763 | 0.30 | ppm | 99 |
| 28) Benzo[a]anthracene | 19.201 | 228 | 18127 | 0.23 | ppm | 95 |
| 29) Chrysene | 19.247 | 228 | 11255 | 0.16 | ppm | 93 |
| 31) Benzo[b]fluoranthene | 20.869 | 252 | 13446m | 0.17 | ppm | |
| 33) Benzo[a]pyrene | 21.333 | 252 | 7549 | 0.12 | ppm | 92 |

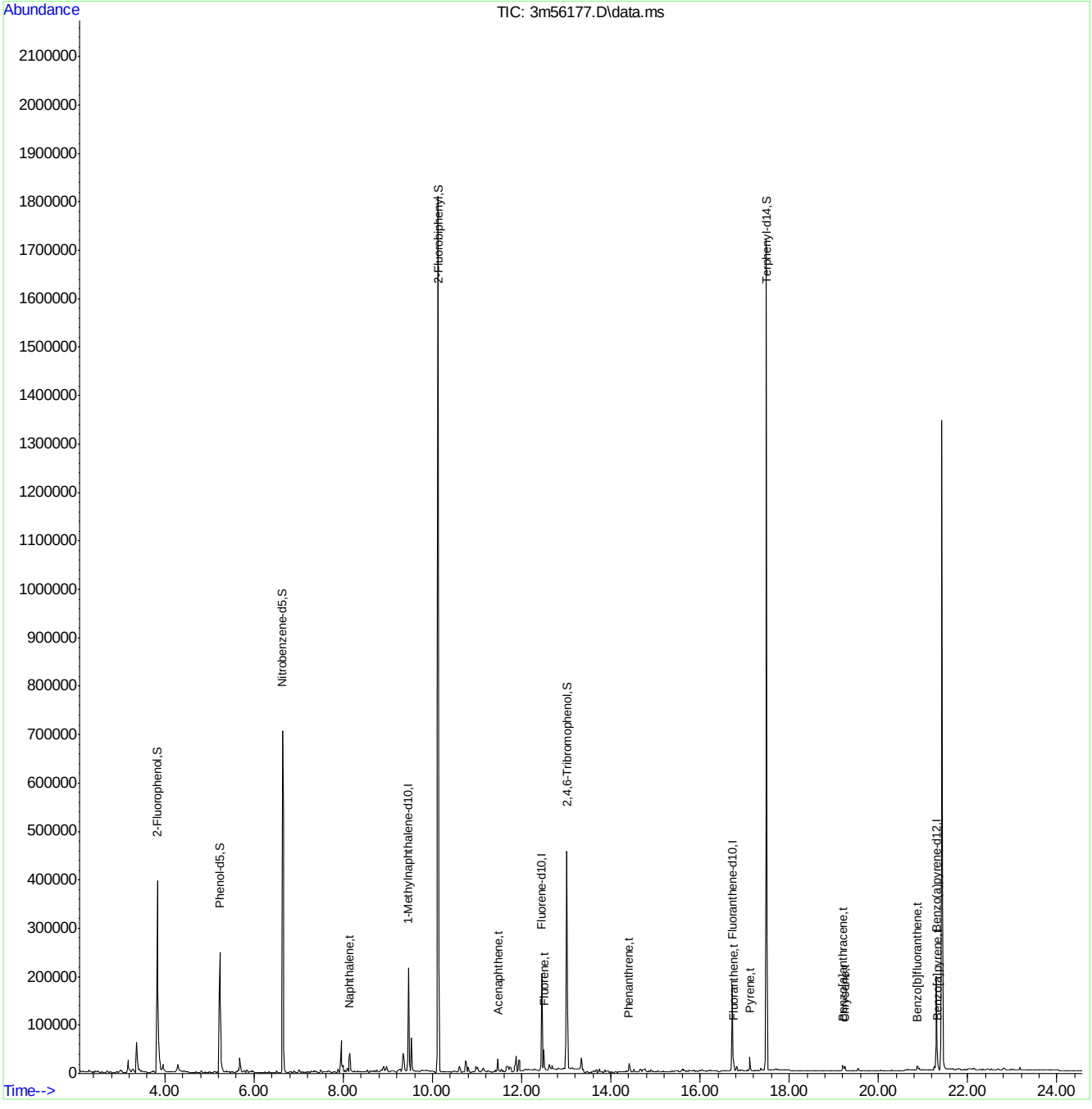
(#) = qualifier out of range (m) = manual integration (+) = signals summed

9.1.35
9

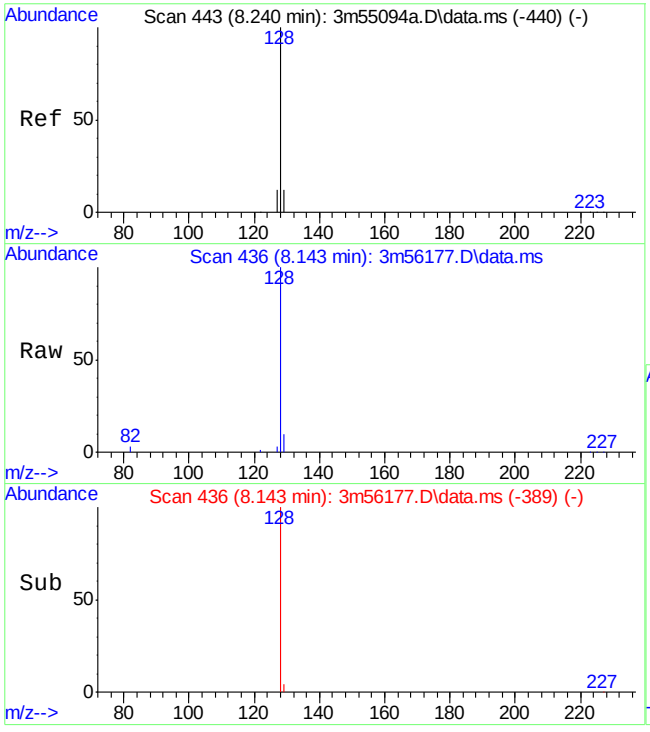
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M2591\
Data File : 3m56177.D
Acq On : 11 Jul 2015 7:00 pm
Operator : ashleyd
Sample : jb98590-17
Misc : op85388a,e3m2591,960
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Jul 13 09:44:49 2015
Quant Method : C:\MSDCHEM\1\METHODS\M3M2536SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Mon Jul 13 09:41:01 2015
Response via : Initial Calibration



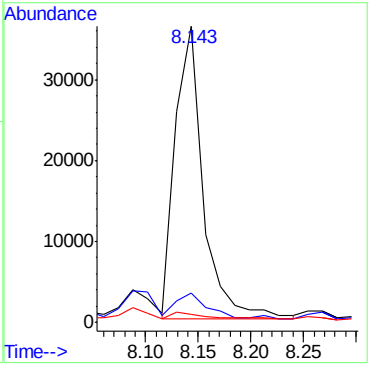

M3M2536SIM.M Mon Jul 13 09:44:56 2015 RPT1 Page: 2

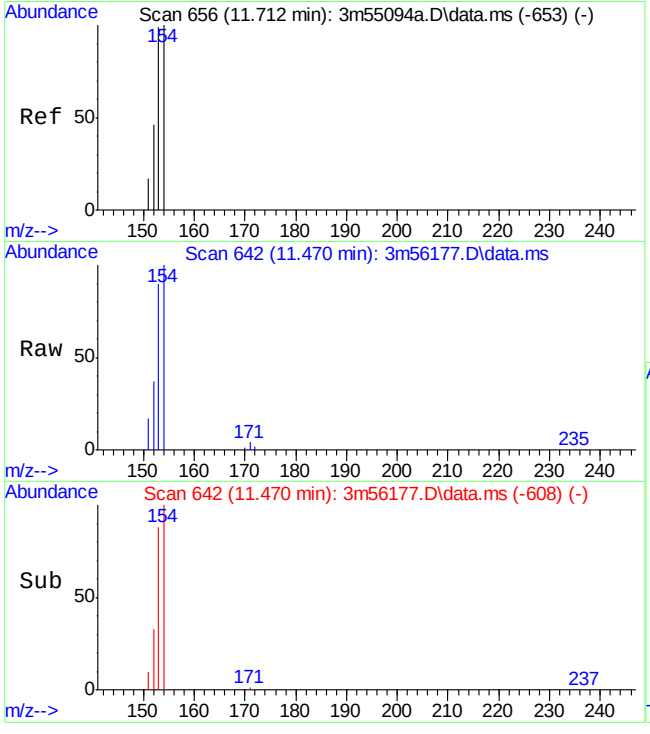



#8
Naphthalene
Concen: 0.86 ppm
RT: 8.143 min Scan# 436
Delta R.T. 0.151 min
Lab File: 3m56177.D
Acq: 11 Jul 2015 7:00 pm

Tgt Ion:128 Resp: 66870

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 128 | 100 | | |
| 129 | 8.2 | 0.0 | 41.9 |
| 127 | 1.6 | 0.0 | 41.8 |

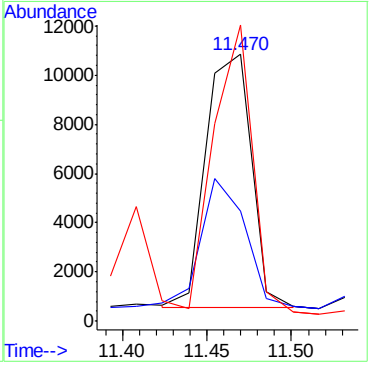


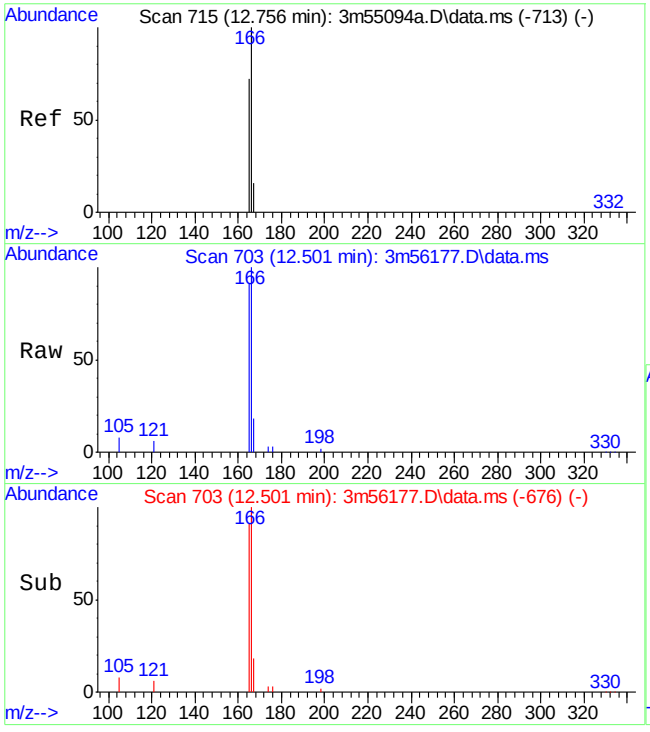




#16
Acenaphthene
Concen: 0.38 ppm
RT: 11.470 min Scan# 642
Delta R.T. 0.021 min
Lab File: 3m56177.D
Acq: 11 Jul 2015 7:00 pm

Tgt Ion:153 Resp: 19551

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 153 | 100 | | |
| 152 | 37.4 | 16.6 | 76.6 |
| 154 | 111.8 | 70.8 | 130.8 |

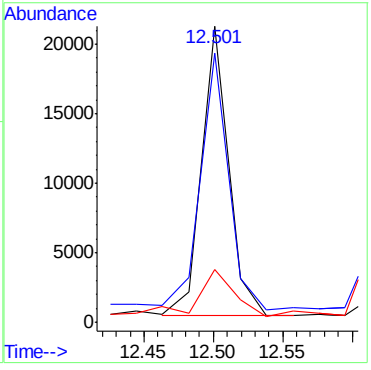


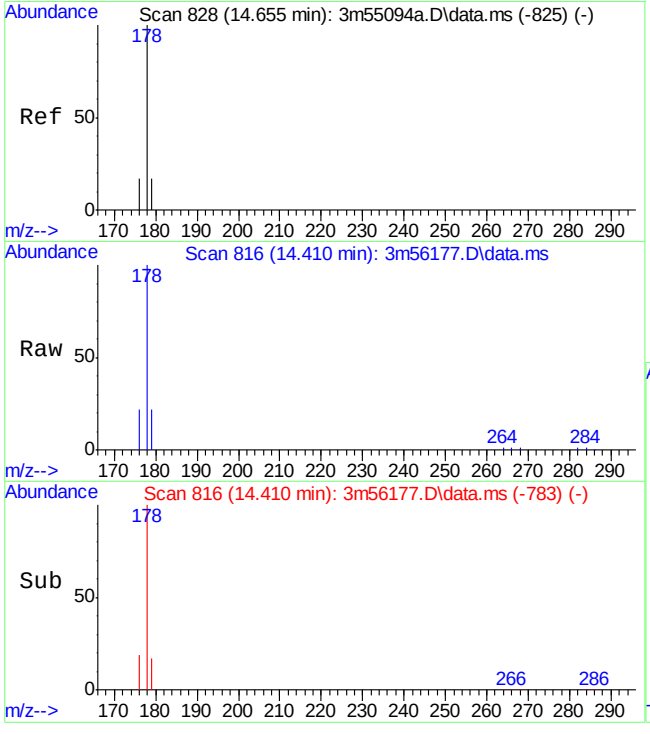



#18
Fluorene
Concen: 0.58 ppm
RT: 12.501 min Scan# 703
Delta R.T. 0.009 min
Lab File: 3m56177.D
Acq: 11 Jul 2015 7:00 pm

Tgt Ion:166 Resp: 28535

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 166 | 100 | | |
| 165 | 87.7 | 42.4 | 102.4 |
| 167 | 13.8 | 0.0 | 45.8 |

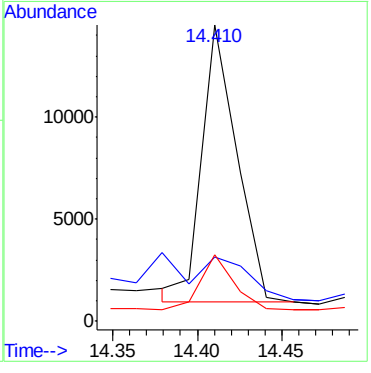


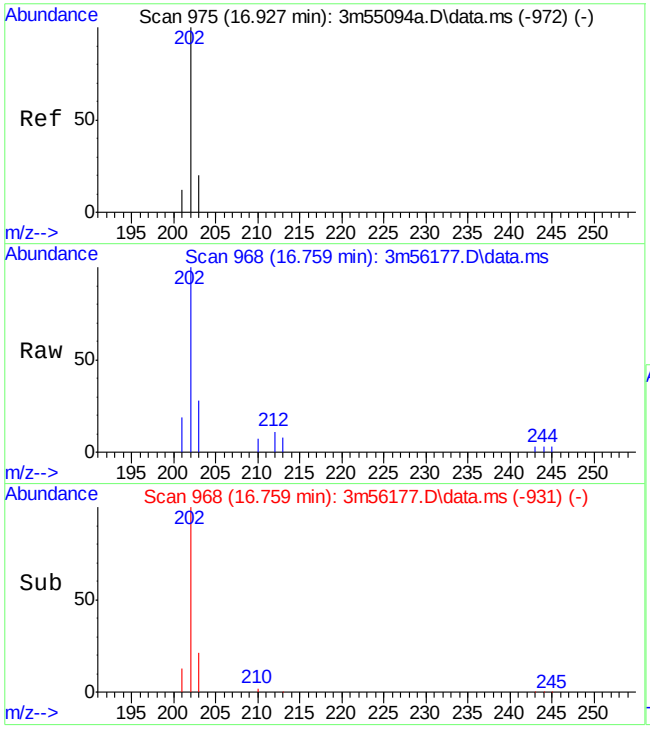




#23
Phenanthrene
Concen: 0.23 ppm
RT: 14.410 min Scan# 816
Delta R.T. 0.005 min
Lab File: 3m56177.D
Acq: 11 Jul 2015 7:00 pm

Tgt Ion:178 Resp: 19741

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 178 | 100 | | |
| 179 | 7.2 | 0.0 | 46.9 |
| 176 | 20.3 | 0.0 | 47.3 |

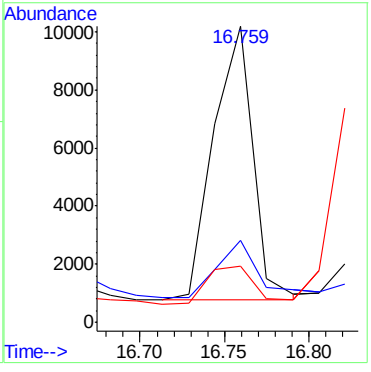


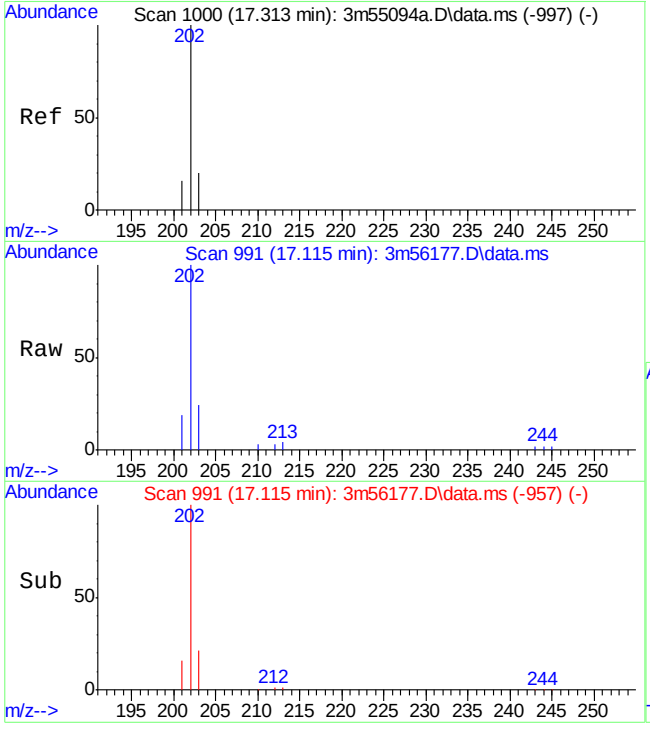



#25
Fluoranthene
Concen: 0.21 ppm
RT: 16.759 min Scan# 968
Delta R.T. 0.067 min
Lab File: 3m56177.D
Acq: 11 Jul 2015 7:00 pm

Tgt Ion:202 Resp: 15389

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 202 | 100 | | |
| 203 | 19.7 | 0.0 | 50.2 |
| 201 | 13.0 | 0.0 | 41.9 |

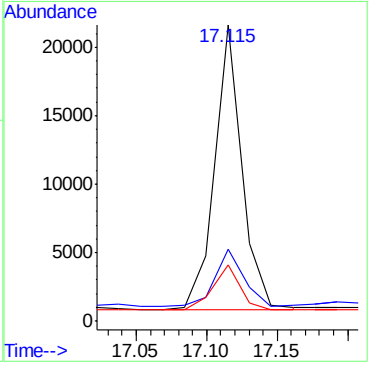


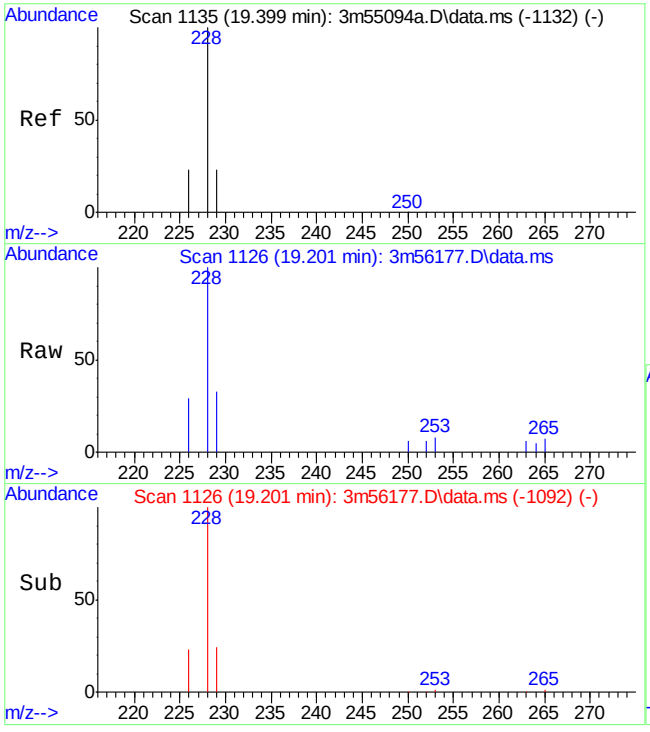




#26
Pyrene
Concen: 0.30 ppm
RT: 17.115 min Scan# 991
Delta R.T. 0.021 min
Lab File: 3m56177.D
Acq: 11 Jul 2015 7:00 pm

Tgt Ion:202 Resp: 27763

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 202 | 100 | | |
| 203 | 20.2 | 0.0 | 49.6 |
| 201 | 16.0 | 0.0 | 45.7 |

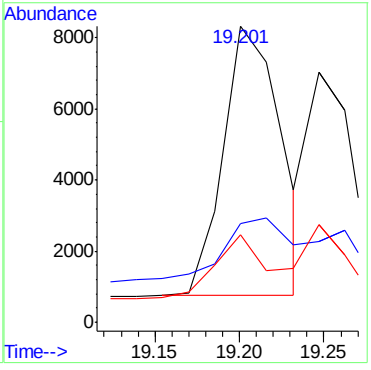


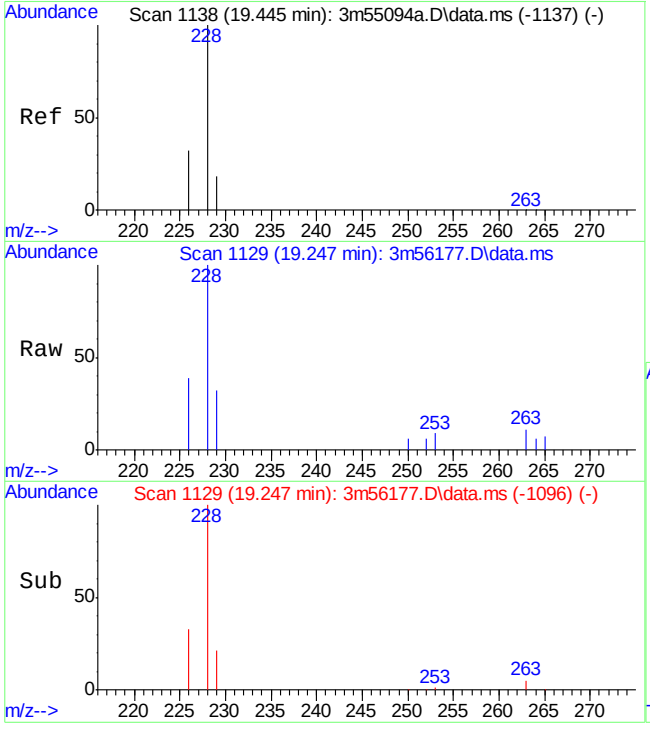



#28
Benzo[a]anthracene
Concen: 0.23 ppm
RT: 19.201 min Scan# 1126
Delta R.T. 0.021 min
Lab File: 3m56177.D
Acq: 11 Jul 2015 7:00 pm

Tgt Ion:228 Resp: 18127

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 228 | 100 | | |
| 229 | 17.9 | 0.0 | 52.8 |
| 226 | 22.1 | 0.0 | 52.3 |

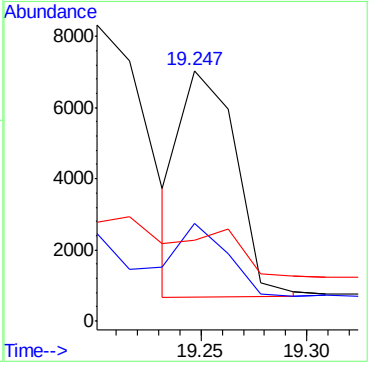


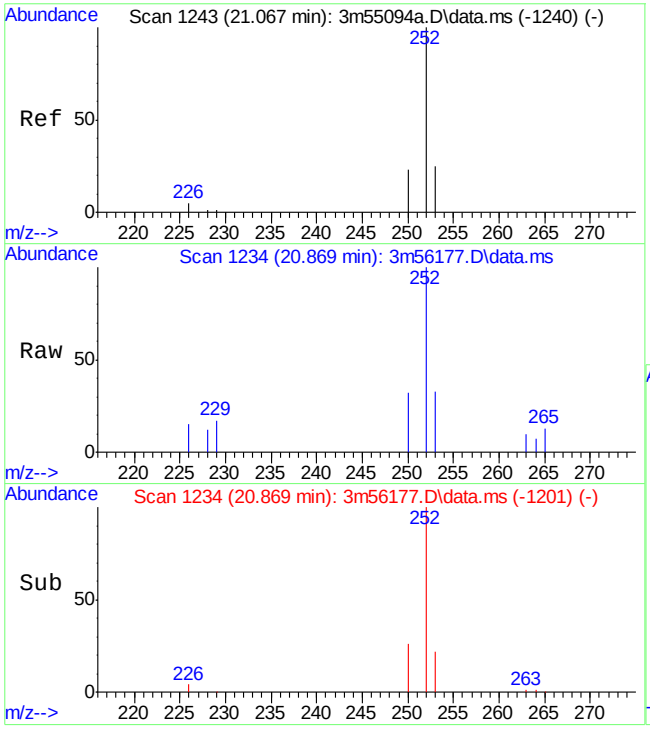




#29
Chrysene
Concen: 0.16 ppm
RT: 19.247 min Scan# 1129
Delta R.T. 0.005 min
Lab File: 3m56177.D
Acq: 11 Jul 2015 7:00 pm

Tgt Ion:228 Resp: 11255

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 228 | 100 | | |
| 226 | 34.5 | 2.5 | 62.5 |
| 229 | 11.5 | 0.0 | 47.6 |

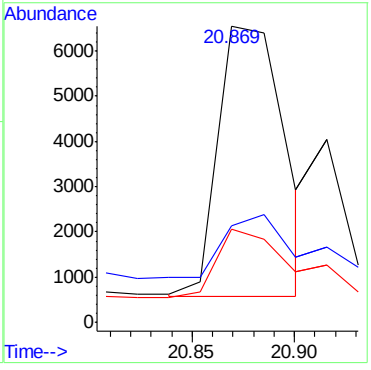


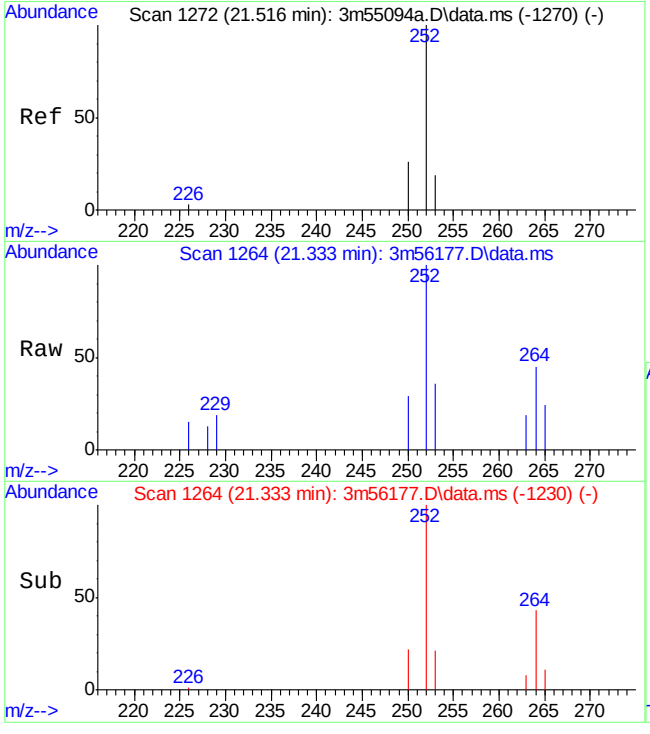



#31
Benzo[b]fluoranthene
Concen: 0.17 ppm m
RT: 20.869 min Scan# 1234
Delta R.T. 0.005 min
Lab File: 3m56177.D
Acq: 11 Jul 2015 7:00 pm

Tgt Ion:252 Resp: 13446

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 252 | 100 | | |
| 253 | 32.6 | 0.0 | 53.8 |
| 250 | 31.6 | 0.0 | 53.5 |

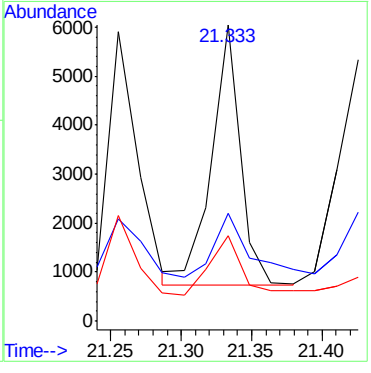



#33
Benzo[a]pyrene
Concen: 0.12 ppm
RT: 21.333 min Scan# 1264
Delta R.T. 0.021 min
Lab File: 3m56177.D
Acq: 11 Jul 2015 7:00 pm

Tgt Ion:252 Resp: 7549

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 252 | 100 | | |
| 253 | 22.8 | 0.0 | 49.3 |
| 250 | 22.0 | 0.0 | 56.3 |



Manual Integrations APPROVED (compounds with "m" flag)
Nina Pandya
07/13/15 15:47

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M2591\
Data File : 3m56178.D
Acq On : 11 Jul 2015 7:31 pm
Operator : ashleyd
Sample : jb98590-18
Misc : op85388a,e3m2591,1000,,,1,5
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Jul 13 15:32:39 2015
Quant Method : C:\MSDCHEM\1\METHODS\M3M2536SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Mon Jul 13 09:59:13 2015
Response via : Initial Calibration

| Compound | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| Internal Standards | | | | | | |
| 1) 1-Methylnaphthalene-d10 | 9.484 | 150 | 115720 | 4.00 | ppm | 0.02 |
| 13) Fluorene-d10 | 12.444 | 176 | 151047 | 4.00 | ppm | 0.00 |
| 20) Fluoranthene-d10 | 16.667 | 212 | 226580 | 4.00 | ppm | 0.00 |
| 30) Benzo(a)pyrene-d12 | 21.302 | 264 | 185470 | 4.00 | ppm | 0.00 |
| System Monitoring Compounds | | | | | | |
| 3) 2-Fluorophenol | 3.833 | 112 | 91802 | 5.28 | ppm | 0.01 |
| Spiked Amount 50.000 | | | Recovery | = | 10.56% | |
| 4) Phenol-d5 | 5.233 | 99 | 70918 | 2.73 | ppm | 0.01 |
| Spiked Amount 50.000 | | | Recovery | = | 5.46% | |
| 7) Nitrobenzene-d5 | 6.654 | 82 | 236031m | 10.23 | ppm | 0.01 |
| Spiked Amount 50.000 | | | Recovery | = | 20.46% | |
| 14) 2-Fluorobiphenyl | 10.141 | 172 | 269303 | 6.65 | ppm | 0.02 |
| Spiked Amount 50.000 | | | Recovery | = | 13.30% | |
| 19) 2,4,6-Tribromophenol | 13.009 | 330 | 47626 | 8.04 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery | = | 16.08% | |
| 27) Terphenyl-d14 | 17.470 | 244 | 269930 | 7.19 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery | = | 14.38% | |
| Target Compounds | | | | | | Qvalue |
| 8) Naphthalene | 8.033 | 128 | 3336519 | 40.04 | ppm | 92 |
| 16) Acenaphthene | 11.470 | 153 | 15173m | 0.32 | ppm | |
| 18) Fluorene | 12.501 | 166 | 26682 | 0.59 | ppm # | 53 |
| 23) Phenanthrene | 14.410 | 178 | 19665 | 0.23 | ppm | 96 |
| 28) Benzo[a]anthracene | 19.201 | 228 | 4826 | 0.06 | ppm | 90 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

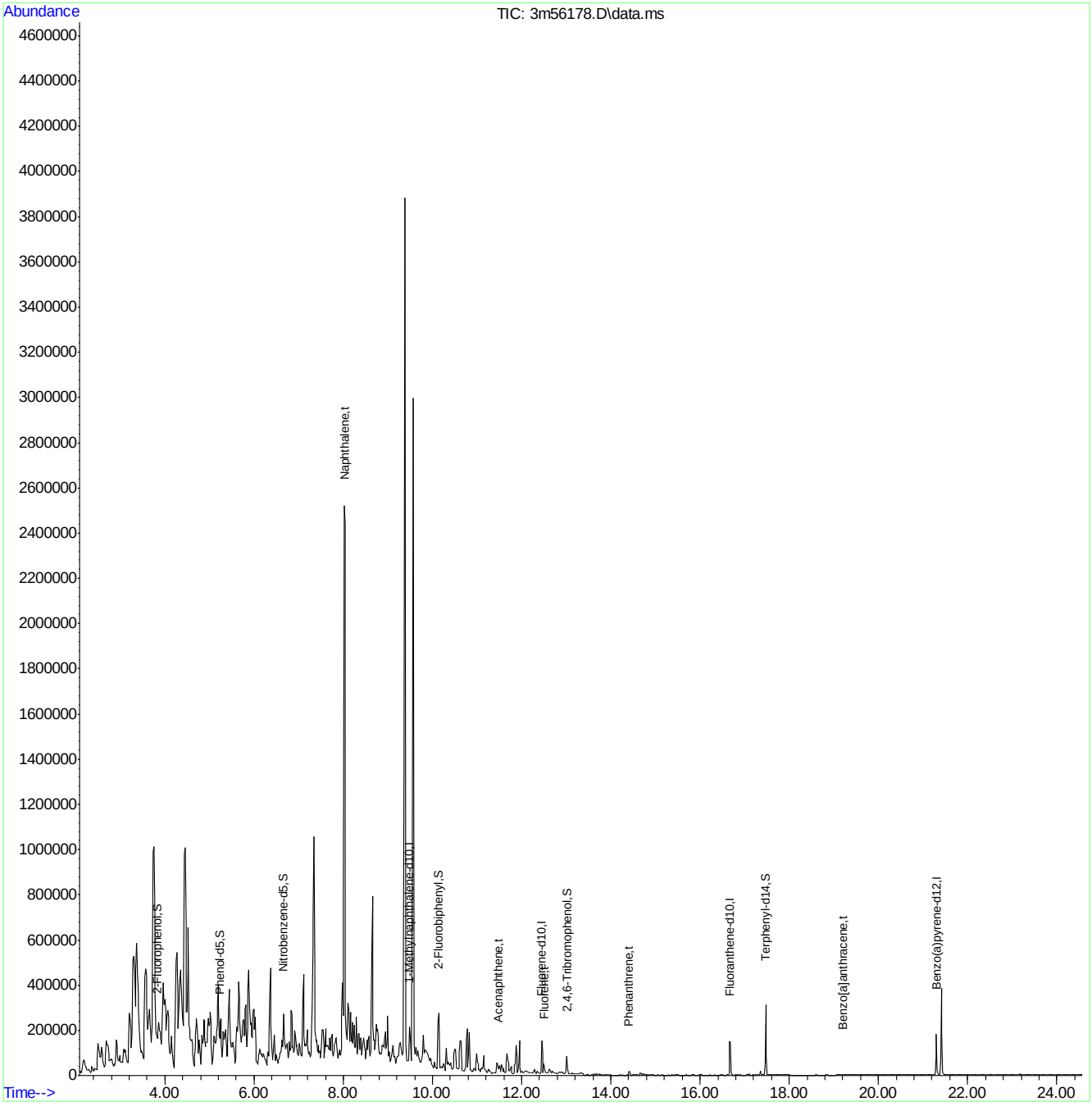
9.1.36

9

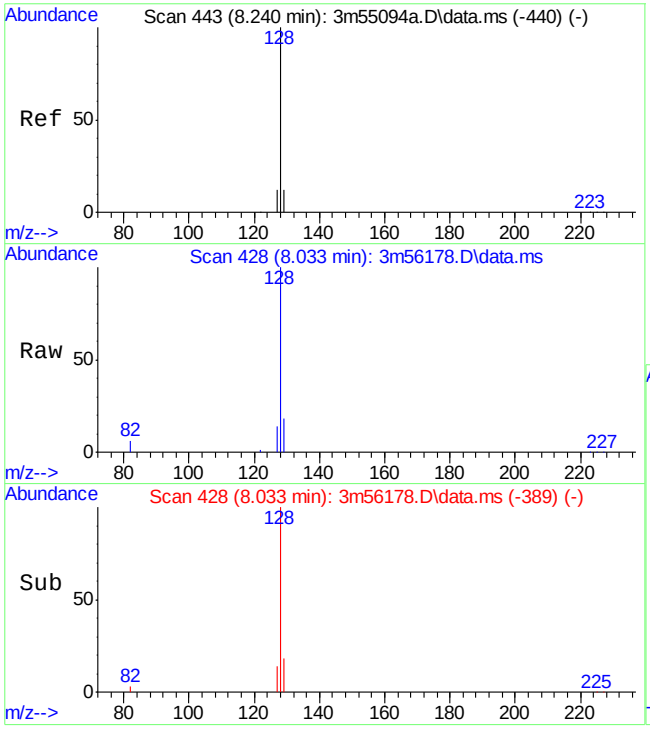
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M2591\
Data File : 3m56178.D
Acq On : 11 Jul 2015 7:31 pm
Operator : ashleyd
Sample : jb98590-18
Misc : op85388a,e3m2591,1000,,,1,5
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Jul 13 15:32:39 2015
Quant Method : C:\MSDCHEM\1\METHODS\M3M2536SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Mon Jul 13 09:59:13 2015
Response via : Initial Calibration



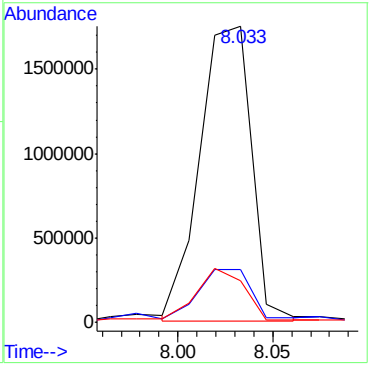

M3M2536SIM.M Mon Jul 13 15:34:22 2015 RPT1 Page: 2

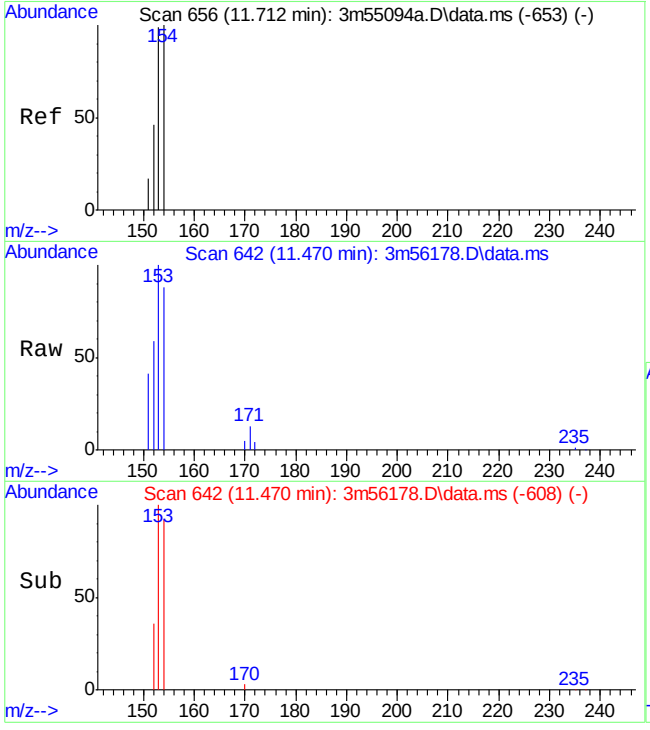



#8
Naphthalene
Concen: 40.04 ppm
RT: 8.033 min Scan# 428
Delta R.T. 0.041 min
Lab File: 3m56178.D
Acq: 11 Jul 2015 7:31 pm

Tgt Ion:128 Resp: 3336519

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 128 | 100 | | |
| 129 | 16.8 | 0.0 | 41.9 |
| 127 | 13.4 | 0.0 | 41.8 |

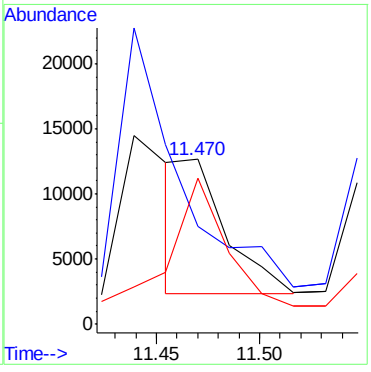


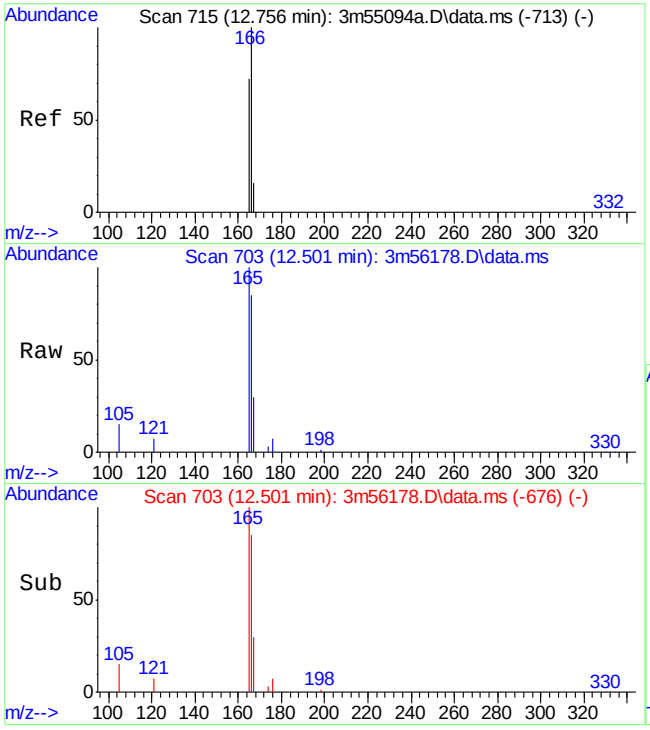




#16
Acenaphthene
Concen: 0.32 ppm m
RT: 11.470 min Scan# 642
Delta R.T. 0.021 min
Lab File: 3m56178.D
Acq: 11 Jul 2015 7:31 pm

Tgt Ion:153 Resp: 15173

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 153 | 100 | | |
| 152 | 59.0 | 16.6 | 76.6 |
| 154 | 88.4 | 70.8 | 130.8 |

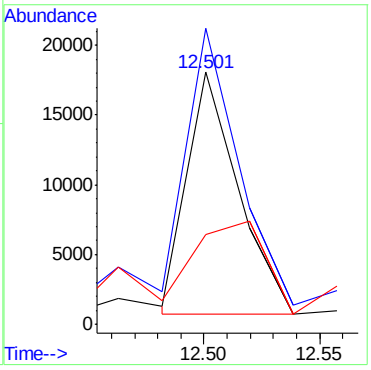


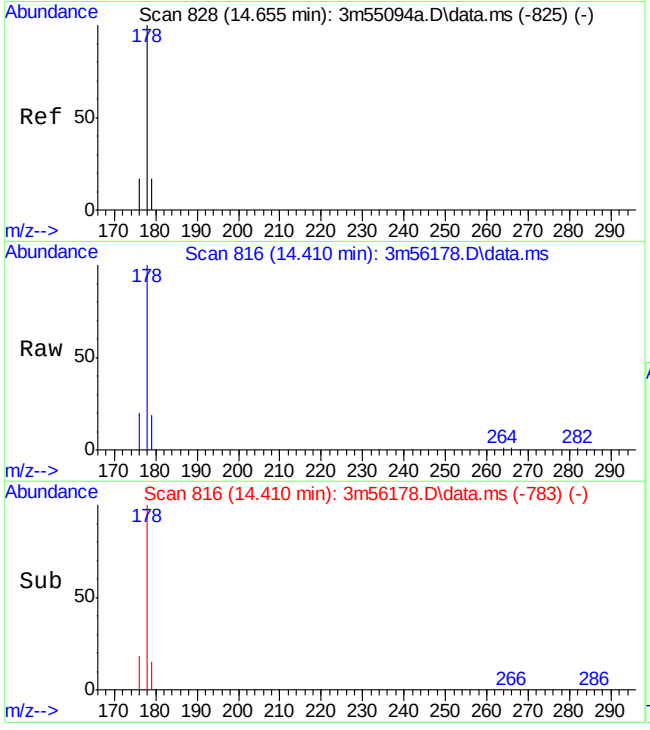



#18
Fluorene
Concen: 0.59 ppm
RT: 12.501 min Scan# 703
Delta R.T. 0.009 min
Lab File: 3m56178.D
Acq: 11 Jul 2015 7:31 pm

Tgt Ion:166 Resp: 26682

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 166 | 100 | | |
| 165 | 113.4 | 42.4 | 102.4# |
| 167 | 30.6 | 0.0 | 45.8 |

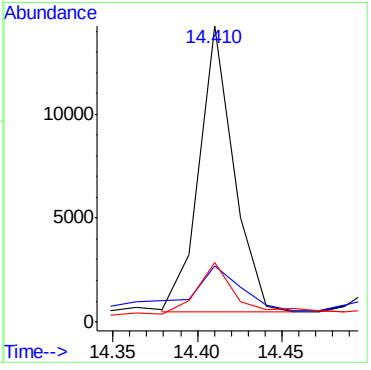



#23
Phenanthrene
Concen: 0.23 ppm
RT: 14.410 min Scan# 816
Delta R.T. 0.005 min
Lab File: 3m56178.D
Acq: 11 Jul 2015 7:31 pm

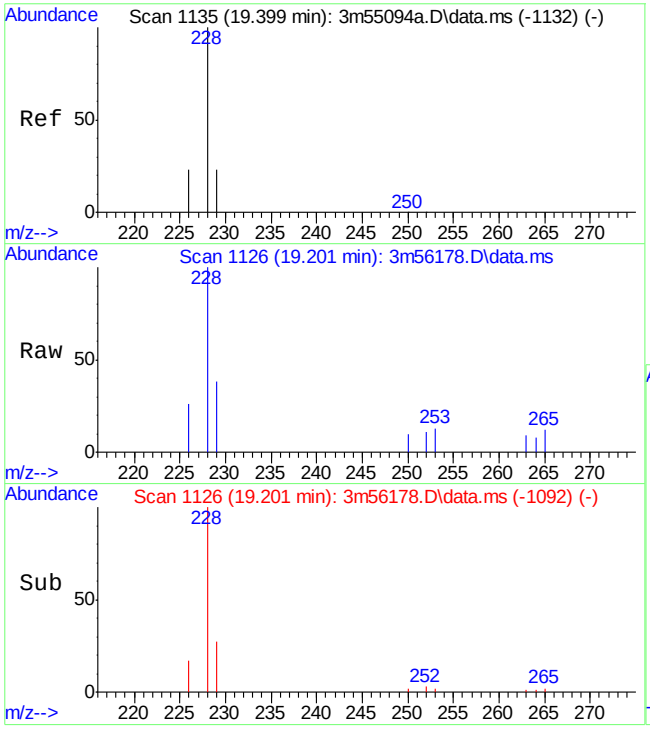
Tgt Ion:178 Resp: 19665

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 178 | 100 | | |
| 179 | 14.0 | 0.0 | 46.9 |
| 176 | 16.9 | 0.0 | 47.3 |




9.1.36

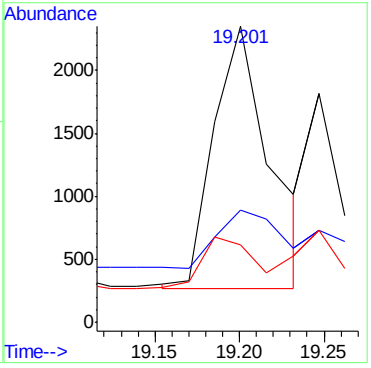
9




#28
Benzo[a]anthracene
Concen: 0.06 ppm
RT: 19.201 min Scan# 1126
Delta R.T. 0.021 min
Lab File: 3m56178.D
Acq: 11 Jul 2015 7:31 pm

Tgt Ion:228 Resp: 4826

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 228 | 100 | | |
| 229 | 22.2 | 0.0 | 52.8 |
| 226 | 12.8 | 0.0 | 52.3 |



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M2590\
Data File : 3m56147.D
Acq On : 10 Jul 2015 5:44 pm
Operator : ashleyd
Sample : op85388a-mb1
Misc : op85388a,e3m2590,1000
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Jul 10 23:43:18 2015
Quant Method : C:\MSDCHEM\1\METHODS\M3M2536SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Fri Jul 10 23:42:50 2015
Response via : Initial Calibration

| Compound | R.T. | QIon | Response | Conc Units | Dev(Min) |
|---|---|---|---|---|---|
| Internal Standards | | | | | |
| 1) 1-Methylnaphthalene-d10 | 9.484 | 150 | 114436 | 4.00 ppm | 0.00 |
| 13) Fluorene-d10 | 12.473 | 176 | 181133 | 4.00 ppm | 0.00 |
| 20) Fluoranthene-d10 | 16.692 | 212 | 255329 | 4.00 ppm | 0.00 |
| 30) Benzo(a)pyrene-d12 | 21.312 | 264 | 211402 | 4.00 ppm | -0.02 |
| System Monitoring Compounds | | | | | |
| 3) 2-Fluorophenol | 3.833 | 112 | 280563 | 16.32 ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 32.64% | | |
| 4) Phenol-d5 | 5.233 | 99 | 297117 | 11.56 ppm | 0.01 |
| Spiked Amount 50.000 | | | Recovery = 23.12% | | |
| 7) Nitrobenzene-d5 | 6.655 | 82 | 551701 | 24.19 ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 48.38% | | |
| 14) 2-Fluorobiphenyl | 10.135 | 172 | 1172783 | 24.17 ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 48.34% | | |
| 19) 2,4,6-Tribromophenol | 13.019 | 330 | 228947 | 32.25 ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 64.50% | | |
| 27) Terphenyl-d14 | 17.496 | 244 | 1100903 | 26.01 ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 52.02% | | |

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

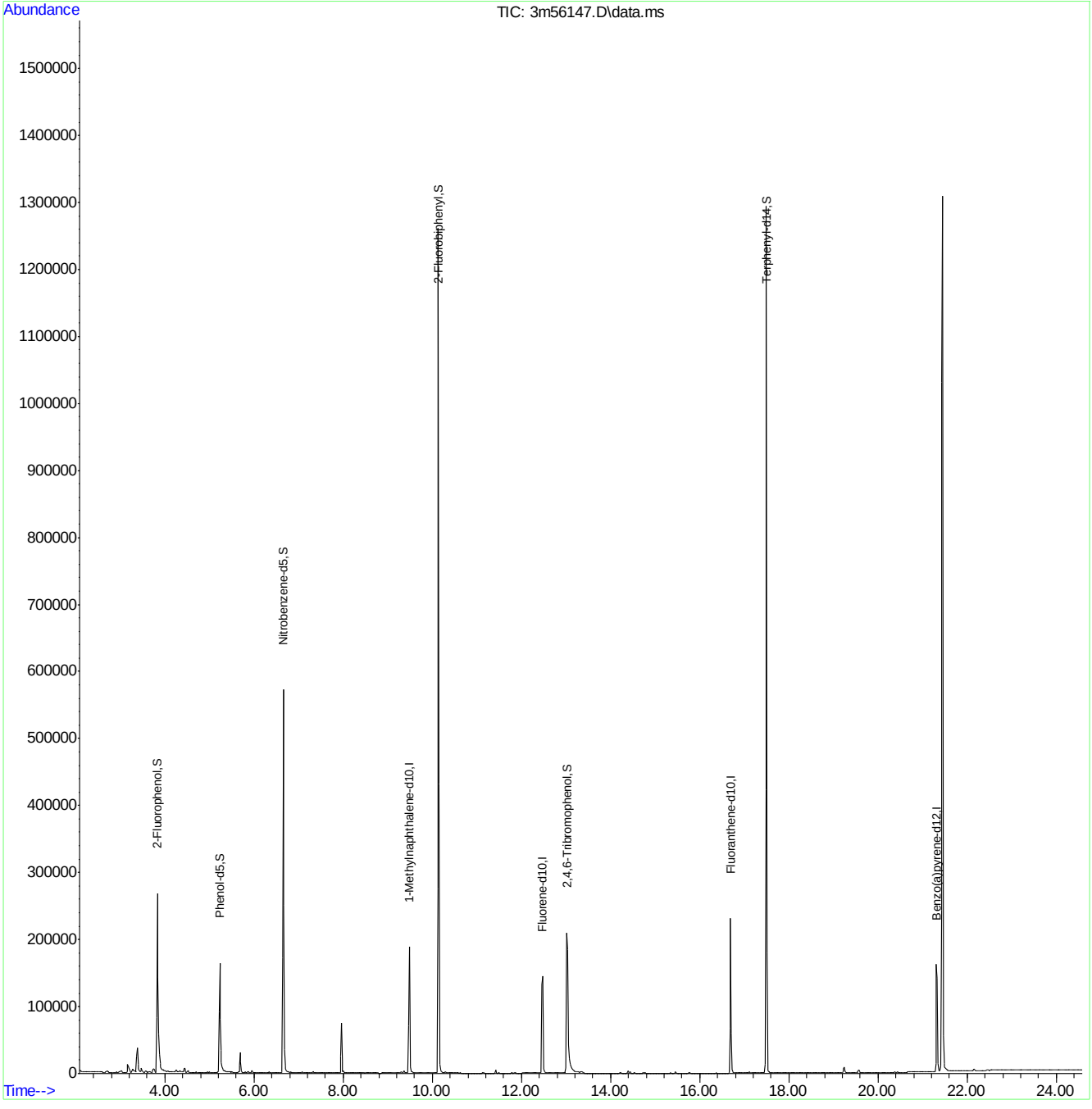
9.2.1

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M2590\
Data File : 3m56147.D
Acq On : 10 Jul 2015 5:44 pm
Operator : ashleyd
Sample : op85388a-mb1
Misc : op85388a,e3m2590,1000
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Jul 10 23:43:18 2015
Quant Method : C:\MSDCHEM\1\METHODS\M3M2536SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Fri Jul 10 23:42:50 2015
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E4M2559\
Data File : 4m58919.D
Acq On : 9 Jul 2015 9:47 pm
Operator : ashleyd
Sample : op85388a-mb1
Misc : op85388a,e4m2559,1000
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Jul 09 23:35:03 2015
Quant Method : C:\MSDCHEM\1\METHODS\M4M2526SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Thu Jul 09 20:39:52 2015
Response via : Initial Calibration

| Compound | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| Internal Standards | | | | | | |
| 1) 1-Methylnaphthalene-d10 | 9.765 | 152 | 105189 | 4.00 | ppm | -0.02 |
| 12) Fluorene-d10 | 12.731 | 176 | 192493 | 4.00 | ppm | 0.00 |
| 22) Fluoranthene-d10 | 16.891 | 212 | 252934 | 4.00 | ppm | -0.02 |
| 28) Benzo(a)pyrene-d12 | 21.476 | 264 | 193426 | 4.00 | ppm | -0.01 |
| 35) 1-Methylnaphthalene-d10a | 9.765 | 152 | 105189 | 4.00 | ppm | #-0.02 |
| 38) Fluorene-d10a | 12.731 | 176 | 192493 | 4.00 | ppm | 0.00 |
| System Monitoring Compounds | | | | | | |
| 2) 2-Fluorophenol | 4.117 | 112 | 237431 | 14.25 | ppm | 0.01 |
| Spiked Amount 50.000 | Range 11 - 58 | | Recovery = 28.50% | | | |
| 3) Phenol-d5 | 5.494 | 99 | 277399 | 9.38 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 18.76% | | | |
| 6) Nitrobenzene-d5 | 6.962 | 82 | 600084 | 21.12 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 42.24% | | | |
| 11) 2-Fluorobiphenyl | 10.421 | 172 | 907698 | 26.28 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 52.56% | | | |
| 17) 2,4,6-Tribromophenol | 13.281 | 330 | 188193 | 29.91 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 59.82% | | | |
| 25) Terphenyl-d14 | 17.701 | 244 | 1242304 | 33.72 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 67.44% | | | |

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

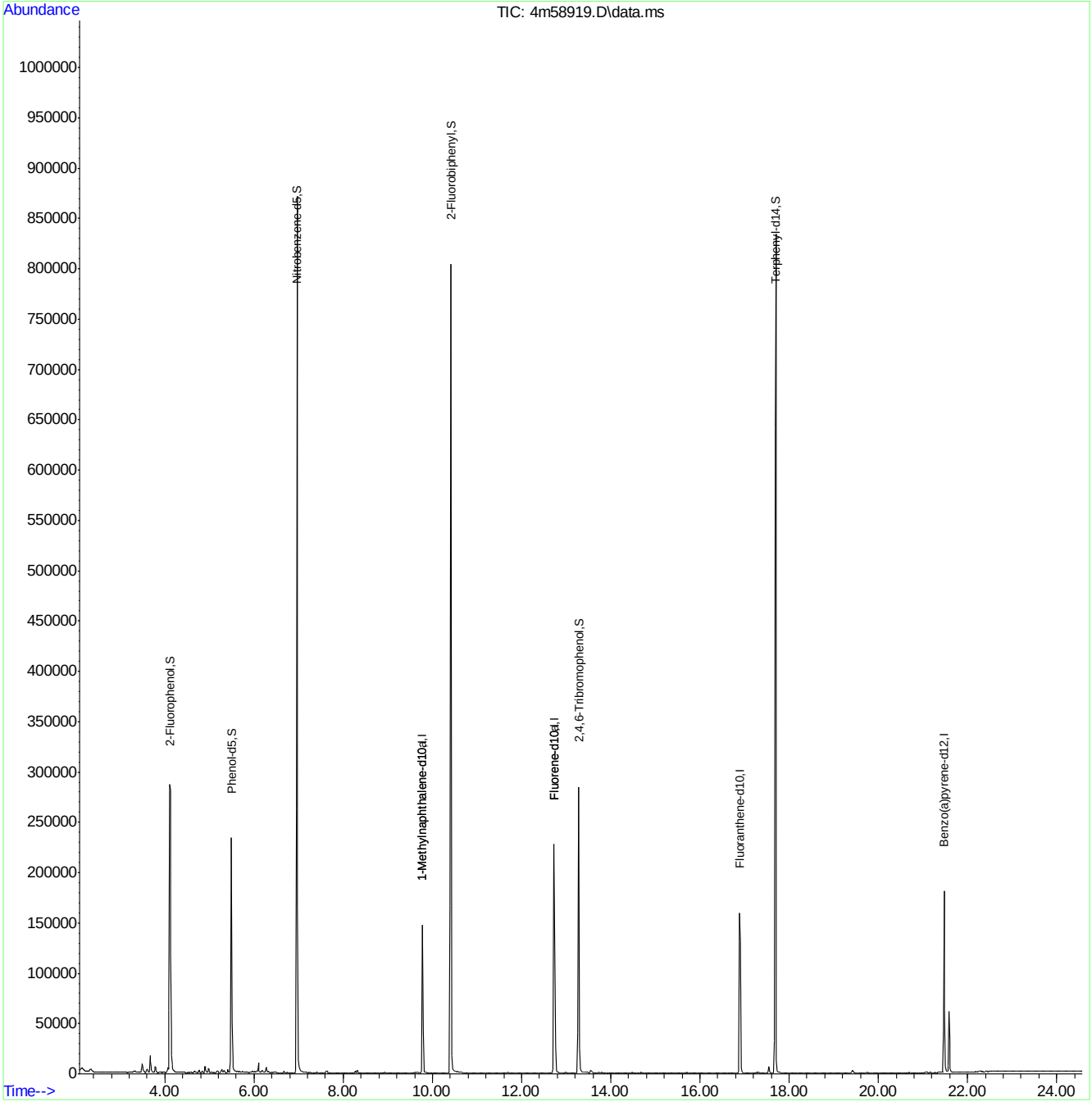
9.2.2

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E4M2559\
Data File : 4m58919.D
Acq On : 9 Jul 2015 9:47 pm
Operator : ashleyd
Sample : op85388a-mb1
Misc : op85388a,e4m2559,1000
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Jul 09 23:35:03 2015
Quant Method : C:\MSDCHEM\1\METHODS\M4M2526SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Thu Jul 09 20:39:52 2015
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e6p792\
Data File : 6p17625a.D
Acq On : 10 Jul 2015 3:15 pm
Operator : alicjap
Sample : op85388-mb1
Misc : op85388,e6p792,1000
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Jul 10 16:07:49 2015
Quant Method : C:\MSDCHEM\1\METHODS\M6P776.M
Quant Title : Semi Volatile GC/MS, ZB-5MSi 30m x .25mm x .25um
QLast Update : Fri Jul 10 16:02:00 2015
Response via : Initial Calibration

| Compound | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| Internal Standards | | | | | | |
| 1) 1,4-Dichlorobenzene-d4 | 4.484 | 152 | 641765 | 40.00 | ppm | 0.00 |
| 24) Naphthalene-d8 | 5.548 | 136 | 2492241 | 40.00 | ppm | 0.00 |
| 47) Acenaphthene-d10 | 7.581 | 164 | 1586307 | 40.00 | ppm | 0.00 |
| 69) Phenanthrene-d10 | 9.747 | 188 | 2656413 | 40.00 | ppm | 0.00 |
| 83) Chrysene-d12 | 13.935 | 240 | 2574681 | 40.00 | ppm | 0.00 |
| 92) Perylene-d12 | 16.058 | 264 | 2290007 | 40.00 | ppm | 0.00 |
| 102) 1,4-Dichlorobenzene-d4a | 4.484 | 152 | 641765 | 40.00 | ppm | 0.00 |
| 104) Phenanthrene-d10a | 9.747 | 188 | 2657100 | 40.00 | ppm | 0.00 |
| 106) Chrysene-d12a | 13.935 | 240 | 2574681 | 40.00 | ppm | 0.00 |
| 108) Acenaphthene-d10a | 7.581 | 164 | 1585998 | 40.00 | ppm | 0.00 |
| 110) Naphthalene-d8a | 5.548 | 136 | 2492241 | 40.00 | ppm | 0.00 |
| System Monitoring Compounds | | | | | | |
| 5) 2-Fluorophenol | 3.500 | 112 | 410253 | 18.98 | ppm | -0.04 |
| Spiked Amount 50.000 | | | Recovery = 37.96% | | | |
| 8) Phenol-d5 | 4.243 | 99 | 354005 | 12.40 | ppm | -0.03 |
| Spiked Amount 50.000 | | | Recovery = 24.80% | | | |
| 25) Nitrobenzene-d5 | 4.917 | 82 | 856432 | 32.58 | ppm | -0.06 |
| Spiked Amount 50.000 | | | Recovery = 65.16% | | | |
| 51) 2-Fluorobiphenyl | 6.725 | 172 | 1497387 | 30.69 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 61.38% | | | |
| 73) 2,4,6-Tribromophenol | 8.709 | 330 | 163650 | 30.06 | ppm | -0.09 |
| Spiked Amount 50.000 | | | Recovery = 60.12% | | | |
| 86) Terphenyl-d14 | 12.314 | 244 | 1720910 | 37.82 | ppm | 0.00 |
| Spiked Amount 50.000 | | | Recovery = 75.64% | | | |

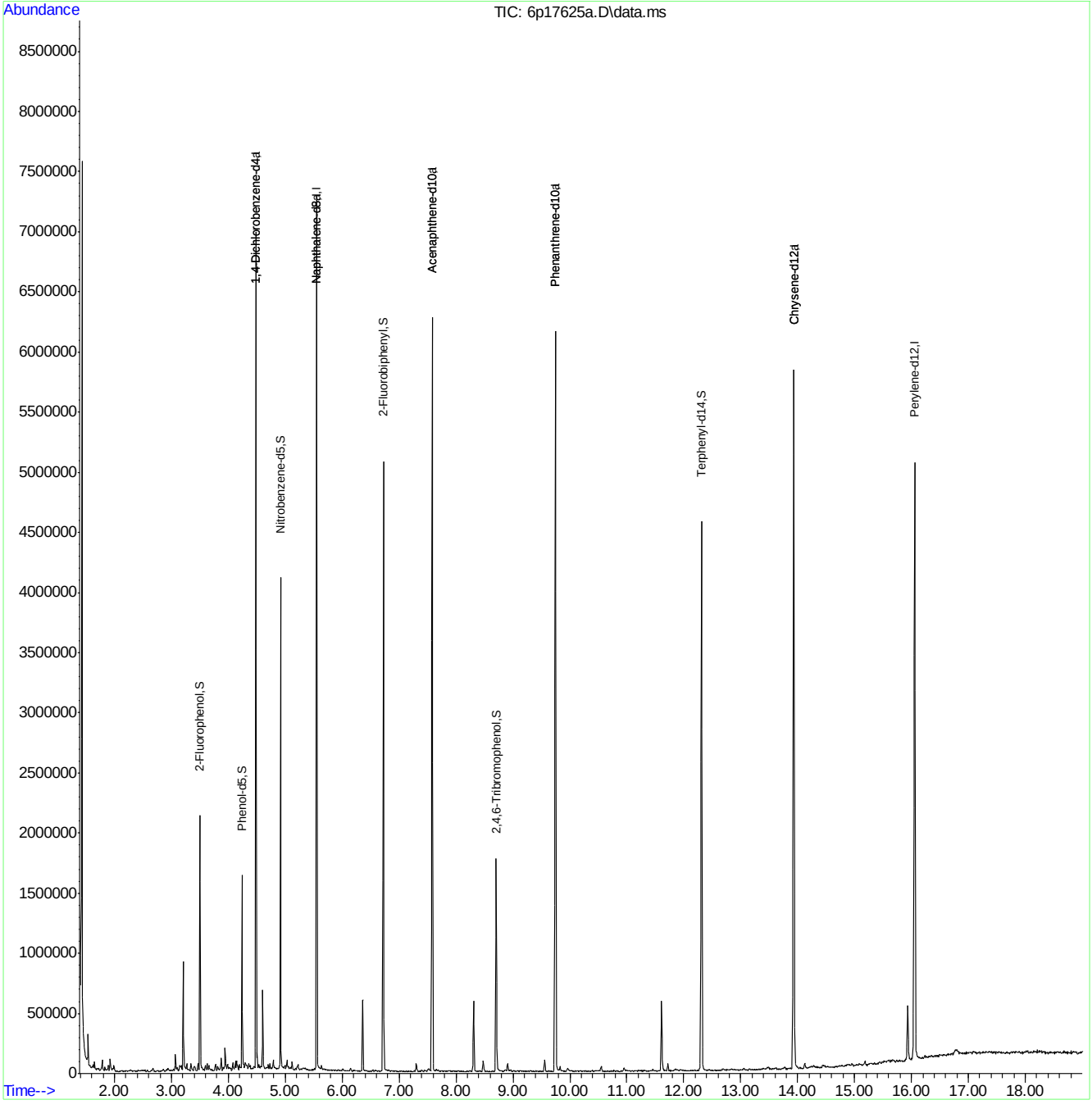
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e6p792\
Data File : 6p17625a.D
Acq On : 10 Jul 2015 3:15 pm
Operator : alicjap
Sample : op85388-mb1
Misc : op85388,e6p792,1000
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Jul 10 16:07:49 2015
Quant Method : C:\MSDCHEM\1\METHODS\M6P776.M
Quant Title : Semi Volatile GC/MS, ZB-5MSi 30m x .25mm x .25um
QLast Update : Fri Jul 10 16:02:00 2015
Response via : Initial Calibration












ACCUTEST LABORATORIES JB98590

New Jersey

ACCUTEST LABORATORIES

# GC Volatiles

## QC Data Summaries

Includes the following where applicable:

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

# Method Blank Summary



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| OP85389-MB1 | 7G13942.D | 1 | 07/10/15 | VDT | 07/09/15 | OP85389 | G7G508 |

**The QC reported here applies to the following samples:** **Method:** SW846-8011

JB98590-1, JB98590-2, JB98590-3, JB98590-4, JB98590-5, JB98590-6, JB98590-7, JB98590-8, JB98590-9, JB98590-10, JB98590-11, JB98590-12, JB98590-13, JB98590-14, JB98590-15, JB98590-16, JB98590-17, JB98590-18

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 106-93-4 | 1,2-Dibromoethane | ND | 0.020 | 0.0086 | ug/l | |

| CAS No. | Surrogate Recoveries | | Limits |
|---|---|---|---|
| 3017-95-6 | 2-Bromo-1-chloropropane | 86% | 38-167% |
| 3017-95-6 | 2-Bromo-1-chloropropane | 84% | 38-167% |

# Blank Spike Summary



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| OP85389-BS1 | 7G13943.D | 1 | 07/10/15 | VDT | 07/09/15 | OP85389 | G7G508 |

**The QC reported here applies to the following samples:** **Method:** SW846-8011

JB98590-1, JB98590-2, JB98590-3, JB98590-4, JB98590-5, JB98590-6, JB98590-7, JB98590-8, JB98590-9, JB98590-10, JB98590-11, JB98590-12, JB98590-13, JB98590-14, JB98590-15, JB98590-16, JB98590-17, JB98590-18

| CAS No. | Compound | Spike ug/l | BSP ug/l | BSP % | Limits |
|---|---|---|---|---|---|
| 106-93-4 | 1,2-Dibromoethane | 0.5 | 0.46 | 92 | 43-153 |

| CAS No. | Surrogate Recoveries | BSP | Limits |
|---|---|---|---|
| 3017-95-6 | 2-Bromo-1-chloropropane | 89% | 38-167% |
| 3017-95-6 | 2-Bromo-1-chloropropane | 89% | 38-167% |

10.2.1

10

* = Outside of Control Limits.

# Matrix Spike/Matrix Spike Duplicate Summary



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| OP85389-MS | 7G13944.D | 1 | 07/10/15 | VDT | 07/09/15 | OP85389 | G7G508 |
| OP85389-MSD | 7G13945.D | 1 | 07/10/15 | VDT | 07/09/15 | OP85389 | G7G508 |
| JB98590-1 | 7G13946.D | 1 | 07/10/15 | VDT | 07/09/15 | OP85389 | G7G508 |

**The QC reported here applies to the following samples:** **Method:** SW846-8011

JB98590-1, JB98590-2, JB98590-3, JB98590-4, JB98590-5, JB98590-6, JB98590-7, JB98590-8, JB98590-9, JB98590-10, JB98590-11, JB98590-12, JB98590-13, JB98590-14, JB98590-15, JB98590-16, JB98590-17, JB98590-18

| CAS No. | Compound | JB98590-1 ug/l | Q | Spike ug/l | MS ug/l | MS % | Spike ug/l | MSD ug/l | MSD % | RPD | Limits Rec/RPD |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 106-93-4 | 1,2-Dibromoethane | ND | | 0.875 | 0.80 | 91 | 0.875 | 0.88 | 101 | 10 | 42-178/30 |

| CAS No. | Surrogate Recoveries | MS | MSD | JB98590-1 | Limits |
|---|---|---|---|---|---|
| 3017-95-6 | 2-Bromo-1-chloropropane | 86% | 92% | 81% | 38-167% |
| 3017-95-6 | 2-Bromo-1-chloropropane | 88% | 93% | 80% | 38-167% |

10.3.1

10

* = Outside of Control Limits.

# Volatile Surrogate Recovery Summary



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

**Method:** SW846-8011 **Matrix:** AQ

**Samples and QC shown here apply to the above method**

| Lab Sample ID | Lab File ID | S1 [a] | S1 [b] |
|---|---|---|---|
| JB98590-1 | 7G13946.D | 81 | 80 |
| JB98590-2 | 7G13947.D | 57 | 56 |
| JB98590-3 | 7G13948.D | 73 | 74 |
| JB98590-4 | 7G13949.D | 59 | 57 |
| JB98590-5 | 7G13950.D | 51 | 51 |
| JB98590-6 | 7G13953.D | 45 | 49 |
| JB98590-7 | 7G13954.D | 74 | 77 |
| JB98590-8 | 7G13955.D | 64 | 62 |
| JB98590-9 | 7G13956.D | 60 | 59 |
| JB98590-10 | 7G13957.D | 85 | 83 |
| JB98590-11 | 7G13958.D | 47 | 41 |
| JB98590-12 | 7G13959.D | 51 | 56 |
| JB98590-13 | 7G13960.D | 43 | 44 |
| JB98590-14 | 7G13961.D | 76 | 77 |
| JB98590-15 | 7G13964.D | 71 | 66 |
| JB98590-16 | 7G13965.D | 83 | 83 |
| JB98590-17 | 7G13966.D | 68 | 67 |
| JB98590-18 | 7G13967.D | 71 | 77 |
| OP85389-BS1 | 7G13943.D | 89 | 89 |
| OP85389-MB1 | 7G13942.D | 86 | 84 |
| OP85389-MS | 7G13944.D | 86 | 88 |
| OP85389-MSD | 7G13945.D | 92 | 93 |

| Surrogate Compounds | Recovery Limits |
|---|---|
| **S1** = 2-Bromo-1-chloropropane | 38-167% |

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

# GC Surrogate Retention Time Summary



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

| | | | |
|---|---|---|---|
| **Check Std:** | G7G508-CC456 | **Injection Date:** | 07/10/15 |
| **Lab File ID:** | 7G13940.D | **Injection Time:** | 15:30 |
| **Instrument ID:** | GC7G | **Method:** | SW846-8011 |

| | S1 [a] RT | S1 [b] RT |
|---|---|---|
| Check Std | 1.71 | 2.16 |

| Lab Sample ID | Lab File ID | Date Analyzed | Time Analyzed | S1 [a] RT | S1 [b] RT |
|---|---|---|---|---|---|
| OP85389-MB1 | 7G13942.D | 07/10/15 | 16:08 | 1.71 | 2.16 |
| OP85389-BS1 | 7G13943.D | 07/10/15 | 16:27 | 1.71 | 2.16 |
| OP85389-MS | 7G13944.D | 07/10/15 | 16:45 | 1.71 | 2.16 |
| OP85389-MSD | 7G13945.D | 07/10/15 | 17:04 | 1.71 | 2.16 |
| JB98590-1 | 7G13946.D | 07/10/15 | 17:23 | 1.71 | 2.16 |
| JB98590-2 | 7G13947.D | 07/10/15 | 17:41 | 1.71 | 2.16 |
| JB98590-3 | 7G13948.D | 07/10/15 | 18:00 | 1.71 | 2.16 |
| JB98590-4 | 7G13949.D | 07/10/15 | 18:19 | 1.71 | 2.16 |
| JB98590-5 | 7G13950.D | 07/10/15 | 18:37 | 1.71 | 2.16 |

**Surrogate Compounds**

**S1** = 2-Bromo-1-chloropropane

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

# GC Surrogate Retention Time Summary



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

| | | | |
|---|---|---|---|
| **Check Std:** | G7G508-CC456 | **Injection Date:** | 07/10/15 |
| **Lab File ID:** | 7G13951.D | **Injection Time:** | 18:56 |
| **Instrument ID:** | GC7G | **Method:** | SW846-8011 |

| | S1 [a] RT | S1 [b] RT |
|---|---|---|
| Check Std | 1.71 | 2.16 |

| Lab Sample ID | Lab File ID | Date Analyzed | Time Analyzed | S1 [a] RT | S1 [b] RT |
|---|---|---|---|---|---|
| JB98590-6 | 7G13953.D | 07/10/15 | 19:33 | 1.71 | 2.16 |
| JB98590-7 | 7G13954.D | 07/10/15 | 19:52 | 1.71 | 2.16 |
| JB98590-8 | 7G13955.D | 07/10/15 | 20:11 | 1.71 | 2.16 |
| JB98590-9 | 7G13956.D | 07/10/15 | 20:29 | 1.71 | 2.16 |
| JB98590-10 | 7G13957.D | 07/10/15 | 20:48 | 1.71 | 2.16 |
| JB98590-11 | 7G13958.D | 07/10/15 | 21:07 | 1.71 | 2.16 |
| JB98590-12 | 7G13959.D | 07/10/15 | 21:25 | 1.71 | 2.16 |
| JB98590-13 | 7G13960.D | 07/10/15 | 21:44 | 1.71 | 2.16 |
| JB98590-14 | 7G13961.D | 07/10/15 | 22:03 | 1.71 | 2.16 |

**Surrogate Compounds**

**S1** = 2-Bromo-1-chloropropane

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

# GC Surrogate Retention Time Summary



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

| | | | |
|---|---|---|---|
| **Check Std:** | G7G508-CC456 | **Injection Date:** | 07/10/15 |
| **Lab File ID:** | 7G13962.D | **Injection Time:** | 22:21 |
| **Instrument ID:** | GC7G | **Method:** | SW846-8011 |

| | S1 [a] RT | S1 [b] RT |
|---|---|---|
| Check Std | 1.71 | 2.16 |

| Lab Sample ID | Lab File ID | Date Analyzed | Time Analyzed | S1 [a] RT | S1 [b] RT |
|---|---|---|---|---|---|
| JB98590-15 | 7G13964.D | 07/10/15 | 22:59 | 1.71 | 2.16 |
| JB98590-16 | 7G13965.D | 07/10/15 | 23:17 | 1.71 | 2.16 |
| JB98590-17 | 7G13966.D | 07/10/15 | 23:36 | 1.71 | 2.16 |
| JB98590-18 | 7G13967.D | 07/10/15 | 23:55 | 1.71 | 2.16 |

**Surrogate Compounds**

**S1** = 2-Bromo-1-chloropropane

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

# Initial Calibration Summary



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

**Sample:** G7G456-ICC456
**Lab FileID:** 7G12654.D

```
                         Response Factor Report  HP G1530A

  Method       : C:\MSDCHEM\1\METHODS\7G504M456.M (Chemstation Integrator)
  Title        : GC/ECD- EDB
  Last Update  : Tue Apr 21 13:59:46 2015
  Response via : Initial Calibration

  Calibration Files
  2   =7G12653.D   1   =7G12654.D   0.5 =7G12655.D   0.2 =7G12656.D
  0.1    =7G12657.D    0.02   =7G12658.D

        Compound              2     1     0.5   0.2   0.1   0.02  Avg    %RSD
  ---------------------------------------------------------------------------
  1) S   2-Bromo-1-Chloropro 4.141 4.447 4.711 5.055 5.282       4.727 E5   9.68
  2)     1,2-Dibromoethane   2.327 2.520 2.532 2.608 2.551 2.876 2.569 E6   6.92
  3)     1,2,3-Trichloroprop 2.453 2.585 2.495 2.063 2.317       2.383 E5   8.52
  4)     1,2-Dibromo-3-Chlor 3.713 3.674 3.533 3.659 3.472 3.137 3.531 E6   6.05

Signal #2

  1) S   2-Bromo-1-Chloropro 2.498 2.742 2.797 3.112 3.105       2.851 E5   9.15
  2)     1,2-Dibromoethane   1.273 1.368 1.400 1.396 1.380 0.943 1.293 E6  13.77
  3)     1,2,3-Trichloroprop 1.716 1.774 1.731 1.511 1.542       1.655 E5   7.22
  4)     1,2-Dibromo-3-Chlor 2.687 2.677 2.513 2.436 2.484 2.656 2.576 E6   4.29
 ---------------------------------------------------------------------------
 (#) = Out of Range

           7G504M456.M        Tue Apr 21 14:13:58 2015
```

10.6.1

10

# Initial Calibration Verification



**Job Number:** JB98590
**Account:** SECORPAE Stantec Consulting Services Inc.
**Project:** Sunoco - Marcus Hook Facility, PA

**Sample:** G7G456-ICV456
**Lab FileID:** 7G12659.D

Evaluate Continuing Calibration Report

```
Signal #1 : C:\msdchem\1\DATA\7g456\7G12659.D\ECD1A.CH   Vial: 8
Signal #2 : C:\msdchem\1\DATA\7g456\7G12659.D\ECD2B.CH
Acq On    : 21 Apr 2015   1:54 pm                    Operator: vinced
Sample    : icv456-1.0                               Inst    : HP G1530A
Misc      : op83050,g7g456,35,,,2,1                  Multiplr: 1.00
IntFile Signal #1: autoint1.e   IntFile Signal #2: autoint2.e

Method       : C:\MSDCHEM\1\METHODS\7G504M456.M (Chemstation Integrator)
Title        : GC/ECD- EDB
Last Update  : Tue Apr 21 13:59:46 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  15%     Max. Rel. Area : 150%
```

| | Compound | AvgRF | CCRF | %Dev | Area% | Dev(min) | RT Window |
|---|---|---|---|---|---|---|---|
| 1 S | 2-Bromo-1-Chloropropan | 472.704 | 437.888 E3 | 7.4 | 98 | 0.00 | 2.25- 2.31 |
| 2 | 1,2-Dibromoethane | 2.569 | 2.797 E6 | -8.9 | 111 | 0.00 | 2.46- 2.52 |
| 3 | 1,2,3-Trichloropropane | 238.263 | 279.477 E3 | -17.3# | 108 | 0.00 | 4.05- 4.11 |
| 4 | 1,2-Dibromo-3-Chloropr | 3.531 | 3.948 E6 | -11.8 | 107 | 0.00 | 5.74- 5.80 |

***** Signal #2 *****

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 S | 2-Bromo-1-Chloropropan | 285.093 | 275.777 E3 | 3.3 | 101 | 0.00 | 1.80- 1.86 |
| 2 | 1,2-Dibromoethane | 1.293 | 1.605 E6 | -24.1# | 117 | 0.00 | 2.19- 2.25 |
| 3 | 1,2,3-Trichloropropane | 165.500 | 188.336 E3 | -13.8 | 106 | 0.00 | 3.71- 3.77 |
| 4 | 1,2-Dibromo-3-Chloropr | 2.576 | 2.799 E6 | -8.7 | 105 | 0.00 | 5.61- 5.67 |

(#) = Out of Range  SPCC's out = 0  CCC's out = 0
7G12654.D  7G504M456.M  Tue Apr 21 14:13:44 2015

10.6.2

10

# Continuing Calibration Summary



**Job Number:** JB98590 **Sample:** G7G508-CC456
**Account:** SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 7G13940.D
**Project:** Sunoco - Marcus Hook Facility, PA

```
                    Evaluate Continuing Calibration Report

 Signal #1 : C:\msdchem\1\DATA\7g508\7G13940.D\ECD1A.CH   Vial: 2
 Signal #2 : C:\msdchem\1\DATA\7g508\7G13940.D\ECD2B.CH
 Acq On    : 10 Jul 2015   3:30 pm                    Operator: vinced
 Sample    : cc456-0.5                                Inst    : HP G1530A
 Misc      : op85303,g7g508,37.2,,,2,1                Multiplr: 1.00
 IntFile Signal #1: autoint1.e   IntFile Signal #2: autoint2.e

 Method       : C:\MSDCHEM\1\METHODS\7G504M456.M (Chemstation Integrator)
 Title        : GC/ECD- EDB
 Last Update  : Fri Jul 10 16:33:04 2015
 Response via : Multiple Level Calibration

 Min. RRF     :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
 Max. RRF Dev :  15%     Max. Rel. Area : 150%

        Compound                AvgRF   CCRF      %Dev Area% Dev(min)RT Window
 ---------------------------------------------------------------------------
 1 S   2-Bromo-1-Chloropropan 472.704 516.977 E3  -9.4  110   0.00    2.13- 2.19
 2     1,2-Dibromoethane        2.569   2.556 E6   0.5  101   0.00    2.35- 2.41
 3     1,2,3-Trichloropropane 238.263 227.221 E3   4.6   91   0.00    3.96- 4.02
 4     1,2-Dibromo-3-Chloropr   3.531   4.019 E6 -13.8  114   0.00    5.66- 5.72

*****  Signal #2   *****

 1 S   2-Bromo-1-Chloropropan 285.093 324.266 E3 -13.7  116   0.00    1.68- 1.74
 2     1,2-Dibromoethane        1.293   1.370 E6  -6.0   98   0.00    2.06- 2.12
 3     1,2,3-Trichloropropane 165.500 200.573 E3 -21.2# 116   0.00    3.61- 3.67
 4     1,2-Dibromo-3-Chloropr   2.576   2.677 E6  -3.9  107   0.00    5.54- 5.60
---------------------------------------------------------------------------
---------------------------------------------------------------------------

   (#) = Out of Range              SPCC's out = 0  CCC's out = 0
    7G12655.D  7G504M456.M       Mon Jul 13 16:14:19 2015
```

10.6.3

10

# Continuing Calibration Summary



**Job Number:** JB98590 **Sample:** G7G508-CC456
**Account:** SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 7G13951.D
**Project:** Sunoco - Marcus Hook Facility, PA

```
                    Evaluate Continuing Calibration Report

 Signal #1 : C:\msdchem\1\DATA\7g508\7G13951.D\ECD1A.CH   Vial: 3
 Signal #2 : C:\msdchem\1\DATA\7g508\7G13951.D\ECD2B.CH
 Acq On    : 10 Jul 2015   6:56 pm                    Operator: vinced
 Sample    : cc456-1.0                                Inst    : HP G1530A
 Misc      : op85303,g7g508,36.6,,,2,1                Multiplr: 1.00
 IntFile Signal #1: autoint1.e   IntFile Signal #2: autoint2.e

 Method       : C:\MSDCHEM\1\METHODS\7G504M456.M (Chemstation Integrator)
 Title        : GC/ECD- EDB
 Last Update  : Fri Jul 10 16:33:04 2015
 Response via : Multiple Level Calibration

 Min. RRF     :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
 Max. RRF Dev :  15%     Max. Rel. Area : 150%

        Compound                AvgRF   CCRF      %Dev Area% Dev(min)RT Window
 ---------------------------------------------------------------------------
 1 S   2-Bromo-1-Chloropropan 472.704 495.862 E3  -4.9  112   0.00    2.13- 2.19
 2     1,2-Dibromoethane        2.569   2.517 E6   2.0  100   0.00    2.36- 2.42
 3     1,2,3-Trichloropropane 238.263 267.957 E3 -12.5  104   0.00    3.96- 4.02
 4     1,2-Dibromo-3-Chloropr   3.531   4.430 E6 -25.5# 121   0.00    5.66- 5.72

*****  Signal #2   *****

 1 S   2-Bromo-1-Chloropropan 285.093 296.483 E3  -4.0  108   0.00    1.68- 1.74
 2     1,2-Dibromoethane        1.293   1.430 E6 -10.6  105   0.00    2.06- 2.12
 3     1,2,3-Trichloropropane 165.500 209.684 E3 -26.7# 118   0.00    3.61- 3.67
 4     1,2-Dibromo-3-Chloropr   2.576   2.956 E6 -14.8  110   0.00    5.54- 5.60
---------------------------------------------------------------------------
---------------------------------------------------------------------------

   (#) = Out of Range              SPCC's out = 0  CCC's out = 0
    7G12654.D  7G504M456.M       Mon Jul 13 16:13:54 2015
```

10.6.4

10

# Continuing Calibration Summary



**Job Number:** JB98590 **Sample:** G7G508-CC456
**Account:** SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 7G13962.D
**Project:** Sunoco - Marcus Hook Facility, PA

```
                    Evaluate Continuing Calibration Report

 Signal #1 : C:\msdchem\1\DATA\7g508\7G13962.D\ECD1A.CH   Vial: 2
 Signal #2 : C:\msdchem\1\DATA\7g508\7G13962.D\ECD2B.CH
 Acq On    : 10 Jul 2015  10:21 pm                    Operator: vinced
 Sample    : cc456-0.5                                Inst    : HP G1530A
 Misc      : op85303,g7g508,36.6,,,2,1                Multiplr: 1.00
 IntFile Signal #1: autoint1.e   IntFile Signal #2: autoint2.e

 Method       : C:\MSDCHEM\1\METHODS\7G504M456.M (Chemstation Integrator)
 Title        : GC/ECD- EDB
 Last Update  : Fri Jul 10 16:33:04 2015
 Response via : Multiple Level Calibration

 Min. RRF     :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
 Max. RRF Dev :  15%     Max. Rel. Area : 150%

        Compound                AvgRF   CCRF      %Dev Area% Dev(min)RT Window
 ---------------------------------------------------------------------------
 1 S   2-Bromo-1-Chloropropan 472.704 520.343 E3 -10.1  110   0.00    2.13- 2.19
 2     1,2-Dibromoethane        2.569   2.523 E6   1.8  100   0.00    2.36- 2.42
 3     1,2,3-Trichloropropane 238.263 257.123 E3  -7.9  103   0.00    3.96- 4.02
 4     1,2-Dibromo-3-Chloropr   3.531   4.287 E6 -21.4# 121   0.00    5.67- 5.73

*****  Signal #2   *****

 1 S   2-Bromo-1-Chloropropan 285.093 326.336 E3 -14.5  117   0.00    1.68- 1.74
 2     1,2-Dibromoethane        1.293   1.331 E6  -2.9   95   0.00    2.06- 2.12
 3     1,2,3-Trichloropropane 165.500 212.694 E3 -28.5# 123   0.00    3.61- 3.67
 4     1,2-Dibromo-3-Chloropr   2.576   2.773 E6  -7.6  110   0.00    5.54- 5.60
---------------------------------------------------------------------------
---------------------------------------------------------------------------

   (#) = Out of Range              SPCC's out = 0  CCC's out = 0
    7G12655.D  7G504M456.M       Mon Jul 13 16:14:21 2015
```

10.6.5

10

# Continuing Calibration Summary



**Job Number:** JB98590 **Sample:** G7G508-CC456
**Account:** SECORPAE Stantec Consulting Services Inc. **Lab FileID:** 7G13968.D
**Project:** Sunoco - Marcus Hook Facility, PA

```
                    Evaluate Continuing Calibration Report

 Signal #1 : C:\msdchem\1\DATA\7g508\7G13968.D\ECD1A.CH   Vial: 3
 Signal #2 : C:\msdchem\1\DATA\7g508\7G13968.D\ECD2B.CH
 Acq On    : 11 Jul 2015  12:13 am                    Operator: vinced
 Sample    : cc456-1.0                                Inst    : HP G1530A
 Misc      : op85303,g7g508,37.7,,,2,1                Multiplr: 1.00
 IntFile Signal #1: autoint1.e   IntFile Signal #2: autoint2.e

 Method       : C:\MSDCHEM\1\METHODS\7G504M456.M (Chemstation Integrator)
 Title        : GC/ECD- EDB
 Last Update  : Fri Jul 10 16:33:04 2015
 Response via : Multiple Level Calibration

 Min. RRF     :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
 Max. RRF Dev :  15%     Max. Rel. Area : 150%

        Compound                AvgRF   CCRF      %Dev Area% Dev(min)RT Window
 ---------------------------------------------------------------------------
 1 S   2-Bromo-1-Chloropropan 472.704 495.793 E3  -4.9  111   0.00    2.13- 2.19
 2     1,2-Dibromoethane        2.569   2.517 E6   2.0  100   0.00    2.36- 2.42
 3     1,2,3-Trichloropropane 238.263 290.792 E3 -22.0# 113   0.00    3.96- 4.02
 4     1,2-Dibromo-3-Chloropr   3.531   4.562 E6 -29.2# 124   0.00    5.67- 5.73

*****  Signal #2   *****

 1 S   2-Bromo-1-Chloropropan 285.093 299.322 E3  -5.0  109   0.00    1.68- 1.74
 2     1,2-Dibromoethane        1.293   1.418 E6  -9.7  104   0.00    2.06- 2.12
 3     1,2,3-Trichloropropane 165.500 223.320 E3 -34.9# 126   0.00    3.61- 3.67
 4     1,2-Dibromo-3-Chloropr   2.576   3.088 E6 -19.9# 115   0.00    5.54- 5.60
---------------------------------------------------------------------------
---------------------------------------------------------------------------

   (#) = Out of Range              SPCC's out = 0  CCC's out = 0
    7G12654.D  7G504M456.M       Mon Jul 13 16:13:56 2015
```

10.6.6

10

New Jersey

GC Volatiles

Raw Data

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\7g508\
Data File : 7G13946.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 10 Jul 2015 5:23 pm
Operator : vinced
Sample : jb98590-1
Misc : op85389,g7g508,36.0,,,2,1
ALS Vial : 14 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jul 13 16:06:48 2015
Quant Method : C:\MSDCHEM\1\METHODS\7G504M456.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Jul 10 16:32:11 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um

| Compound | RT#1 | RT#2 | Resp#1 | Resp#2 | PPB | PPB |
|---|---|---|---|---|---|---|
| System Monitoring Compounds | | | | | | |
| 1) S 2-Bromo-1... | 2.163 | 1.713 | 3773694 | 2302790 | 7.983 | 8.077 |
| Spiked Amount 10.000 | | | Recovery | = | 79.83% | 80.77% |
| Target Compounds | | | | | | |

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

11.1.1

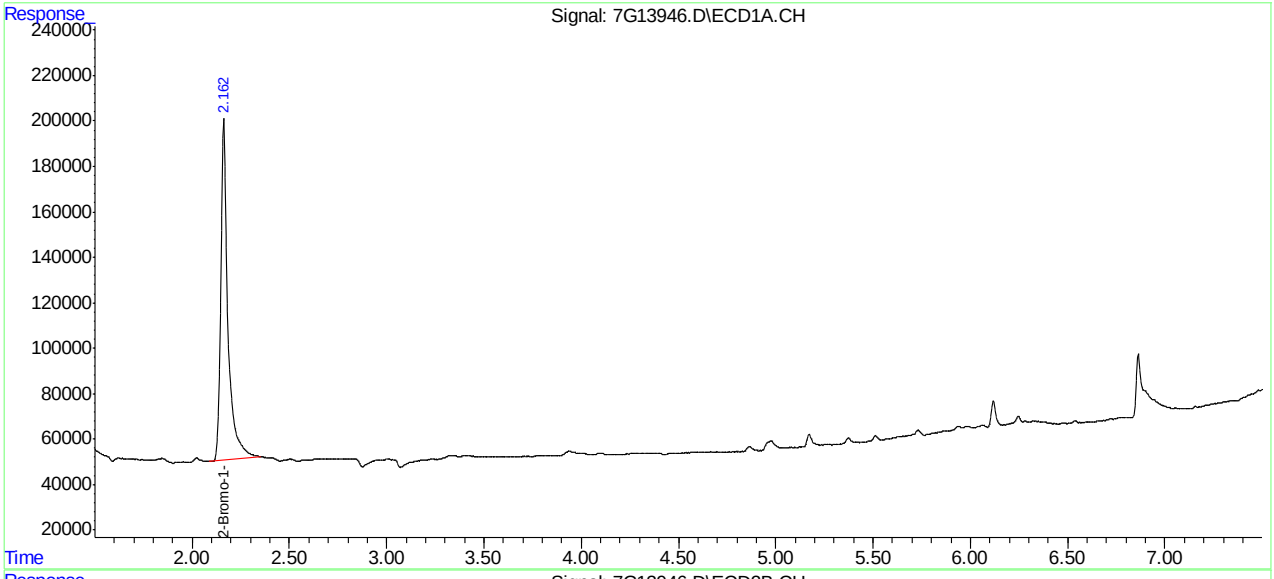
11

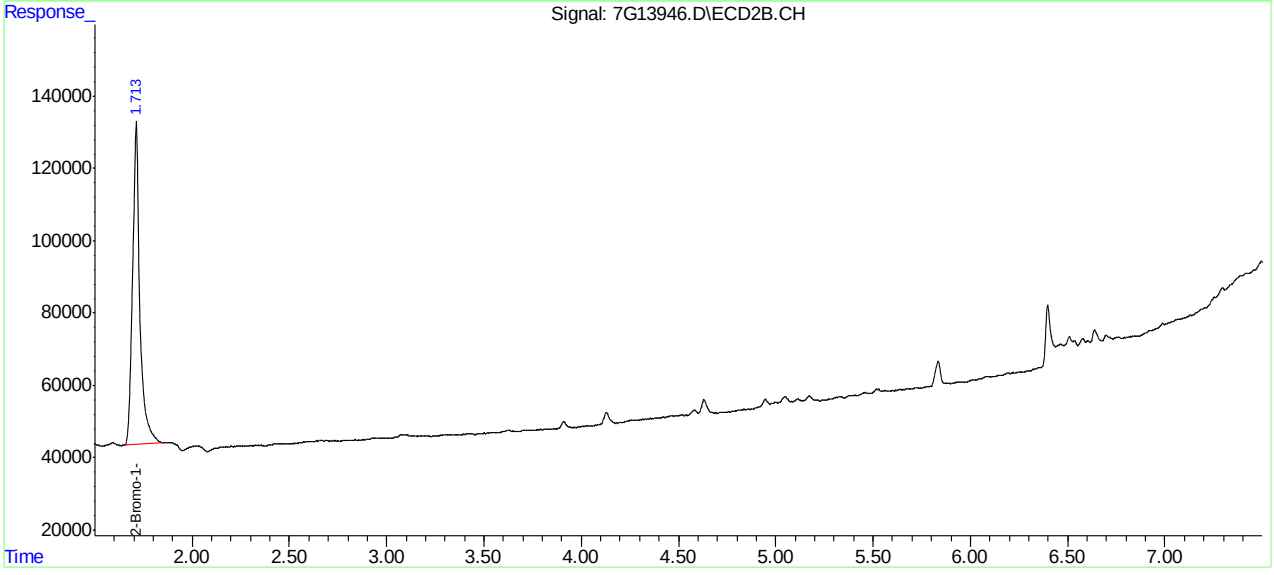
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\7g508\
Data File : 7G13946.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 10 Jul 2015 5:23 pm
Operator : vinced
Sample : jb98590-1
Misc : op85389,g7g508,36.0,,,2,1
ALS Vial : 14 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jul 13 16:06:48 2015
Quant Method : C:\MSDCHEM\1\METHODS\7G504M456.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Jul 10 16:32:11 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\7g508\
Data File : 7G13947.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 10 Jul 2015 5:41 pm
Operator : vinced
Sample : jb98590-2
Misc : op85389,g7g508,37.0,,,2,1
ALS Vial : 15 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jul 13 16:07:00 2015
Quant Method : C:\MSDCHEM\1\METHODS\7G504M456.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Jul 10 16:32:11 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um

| Compound | RT#1 | RT#2 | Resp#1 | Resp#2 | PPB | PPB |
|---|---|---|---|---|---|---|
| System Monitoring Compounds | | | | | | |
| 1) S 2-Bromo-1... | 2.163 | 1.713 | 2649654 | 1625993 | 5.605 | 5.703 |
| Spiked Amount 10.000 | | | Recovery = | | 56.05% | 57.03% |
| Target Compounds | | | | | | |

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

11.1.2

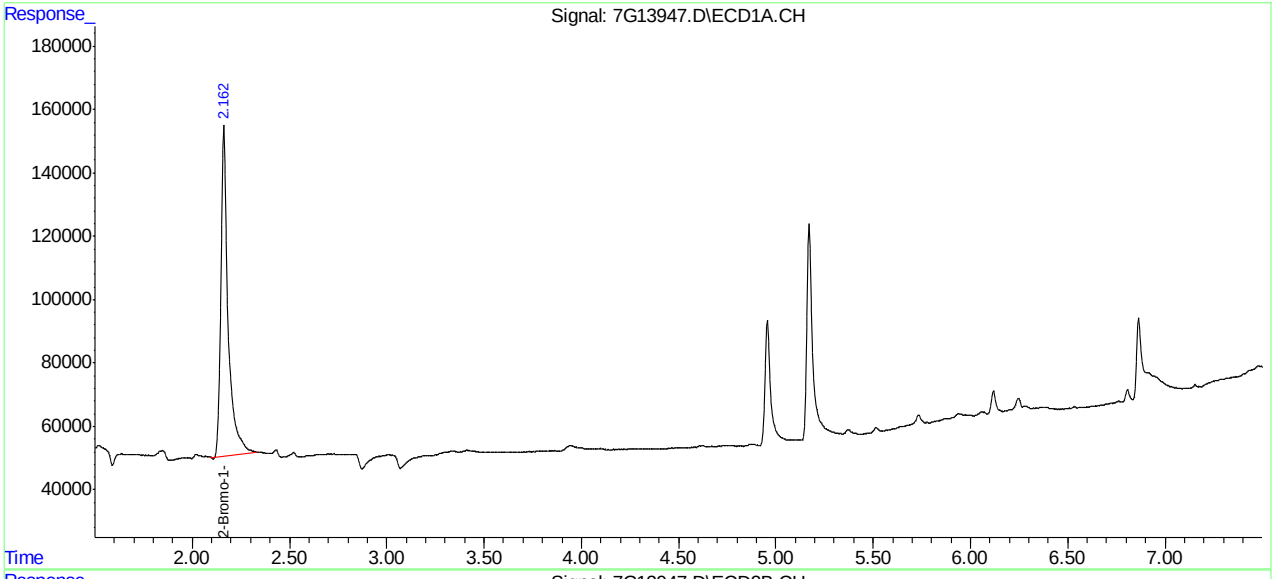
11

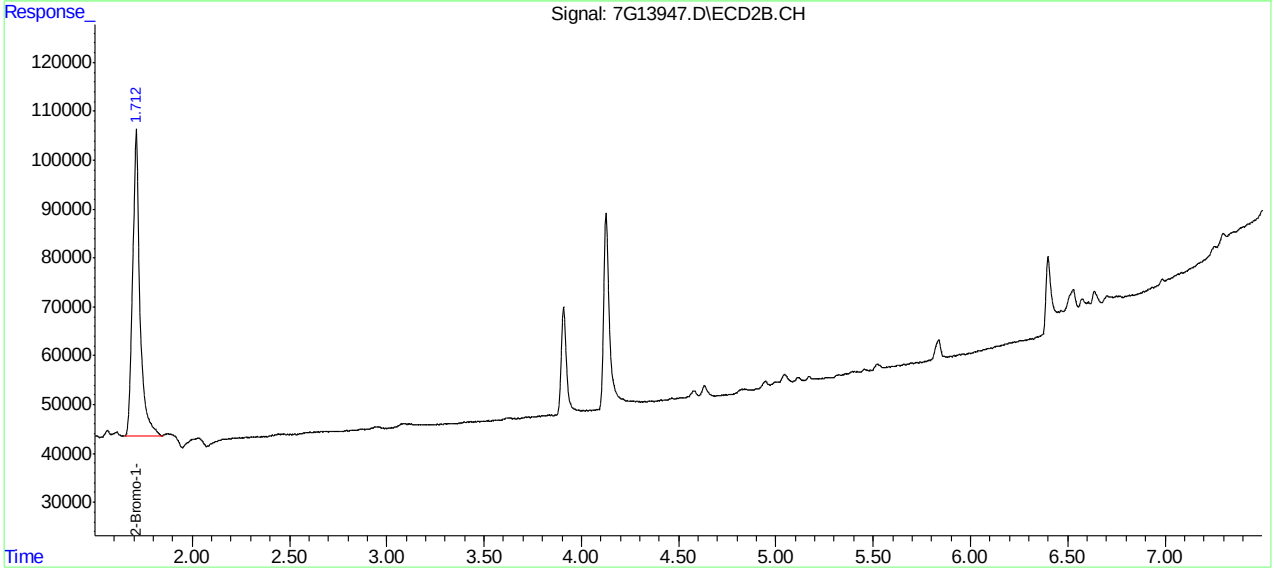
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\7g508\
Data File : 7G13947.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 10 Jul 2015 5:41 pm
Operator : vinced
Sample : jb98590-2
Misc : op85389,g7g508,37.0,,,2,1
ALS Vial : 15 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jul 13 16:07:00 2015
Quant Method : C:\MSDCHEM\1\METHODS\7G504M456.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Jul 10 16:32:11 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\7g508\
Data File : 7G13948.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 10 Jul 2015 6:00 pm
Operator : vinced
Sample : jb98590-3
Misc : op85389,g7g508,37.0,,,2,1
ALS Vial : 16 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jul 13 16:07:14 2015
Quant Method : C:\MSDCHEM\1\METHODS\7G504M456.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Jul 10 16:32:11 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um

| Compound | RT#1 | RT#2 | Resp#1 | Resp#2 | PPB | PPB |
|---|---|---|---|---|---|---|
| System Monitoring Compounds | | | | | | |
| 1) S 2-Bromo-1... | 2.162 | 1.713 | 3491718 | 2074866 | 7.387 | 7.278 |
| Spiked Amount 10.000 | | | Recovery | = | 73.87% | 72.78% |
| Target Compounds | | | | | | |

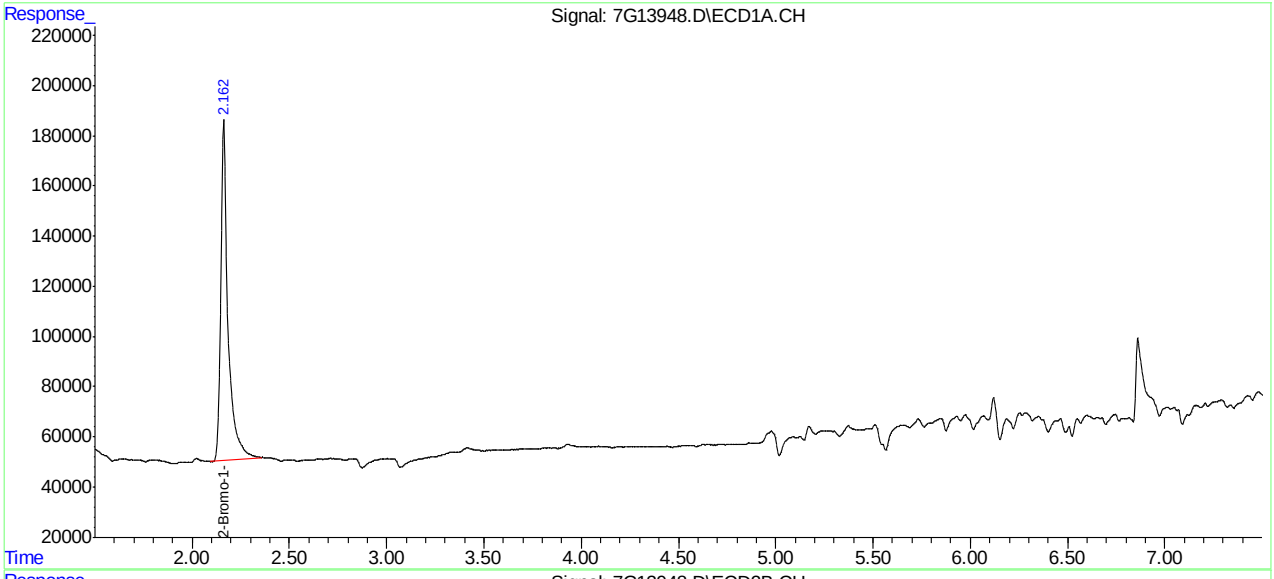
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

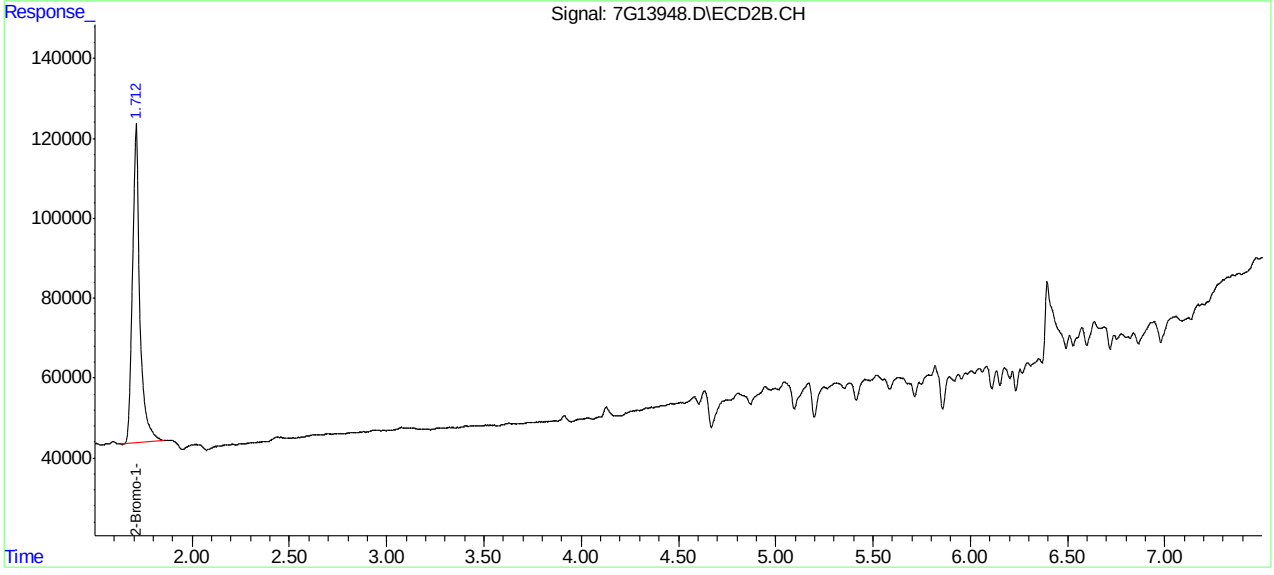
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\7g508\
Data File : 7G13948.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 10 Jul 2015 6:00 pm
Operator : vinced
Sample : jb98590-3
Misc : op85389,g7g508,37.0,,,2,1
ALS Vial : 16 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jul 13 16:07:14 2015
Quant Method : C:\MSDCHEM\1\METHODS\7G504M456.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Jul 10 16:32:11 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\7g508\
Data File : 7G13949.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 10 Jul 2015 6:19 pm
Operator : vinced
Sample : jb98590-4
Misc : op85389,g7g508,38.5,,,2,1
ALS Vial : 17 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jul 13 16:07:28 2015
Quant Method : C:\MSDCHEM\1\METHODS\7G504M456.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Jul 10 16:32:11 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um

| Compound | RT#1 | RT#2 | Resp#1 | Resp#2 | PPB | PPB |
|---|---|---|---|---|---|---|
| System Monitoring Compounds | | | | | | |
| 1) S 2-Bromo-1... | 2.164 | 1.713 | 2694802 | 1685676 | 5.701 | 5.913 |
| Spiked Amount 10.000 | | | Recovery | = | 57.01% | 59.13% |
| Target Compounds | | | | | | |

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

11.1.4

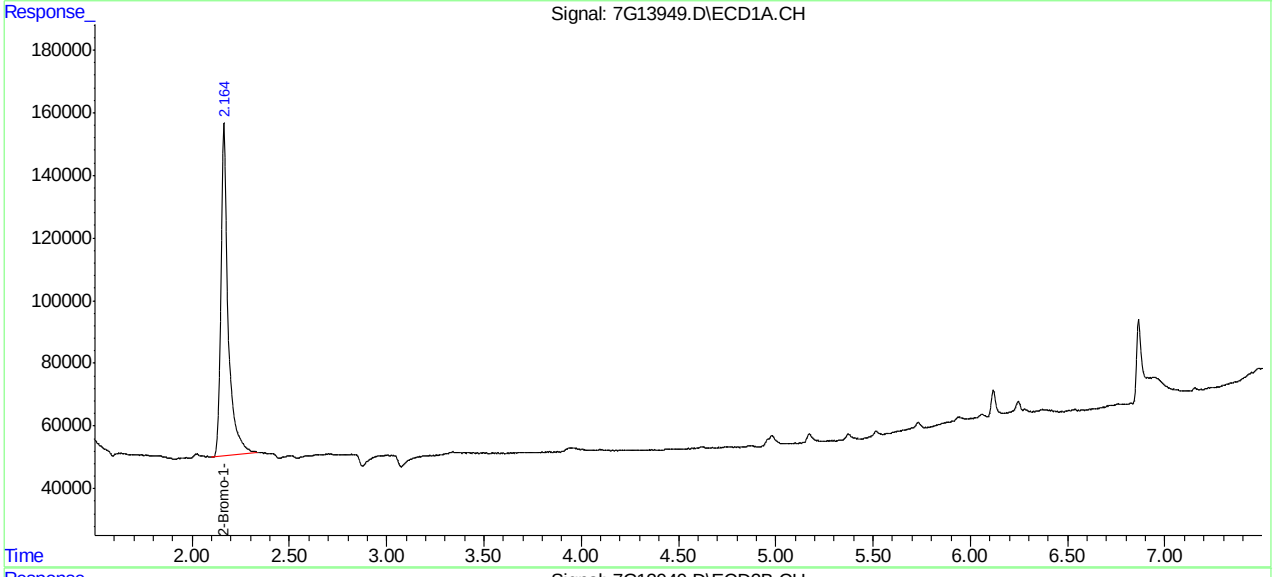
11

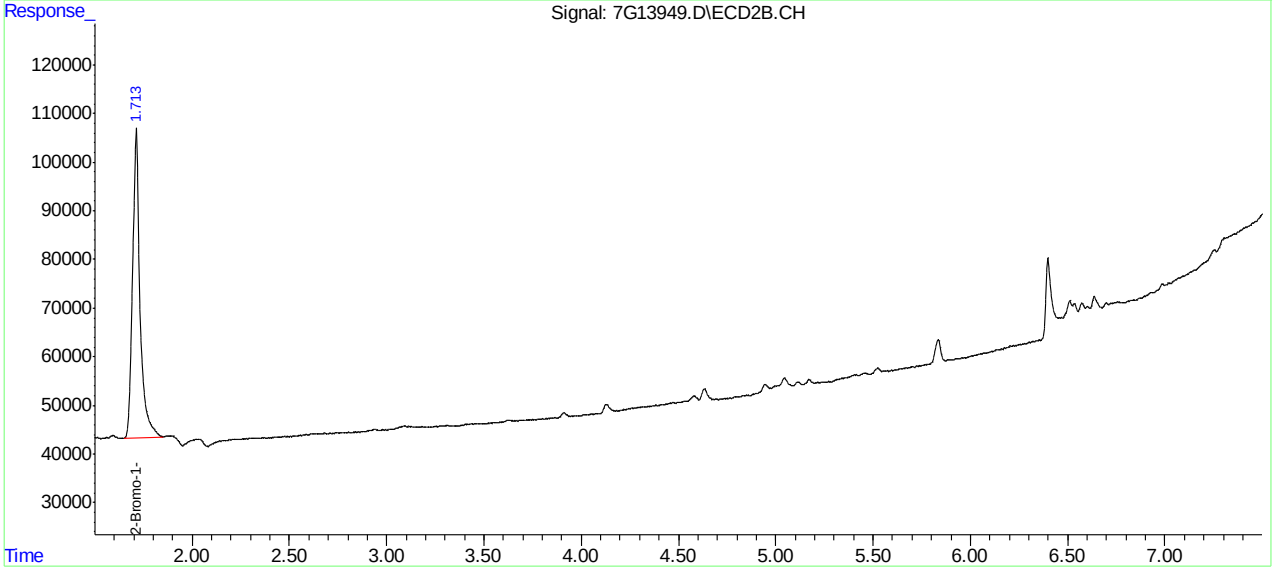
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\7g508\
Data File : 7G13949.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 10 Jul 2015 6:19 pm
Operator : vinced
Sample : jb98590-4
Misc : op85389,g7g508,38.5,,,2,1
ALS Vial : 17 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jul 13 16:07:28 2015
Quant Method : C:\MSDCHEM\1\METHODS\7G504M456.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Jul 10 16:32:11 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\7g508\
Data File : 7G13950.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 10 Jul 2015 6:37 pm
Operator : vinced
Sample : jb98590-5
Misc : op85389,g7g508,36.6,,,2,1
ALS Vial : 18 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jul 13 16:07:51 2015
Quant Method : C:\MSDCHEM\1\METHODS\7G504M456.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Jul 10 16:32:11 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um

| Compound | RT#1 | RT#2 | Resp#1 | Resp#2 | PPB | PPB |
|---|---|---|---|---|---|---|
| System Monitoring Compounds | | | | | | |
| 1) S 2-Bromo-1... | 2.163 | 1.714 | 2405028 | 1467659 | 5.088 | 5.148 |
| Spiked Amount 10.000 | | | Recovery | = | 50.88% | 51.48% |
| Target Compounds | | | | | | |

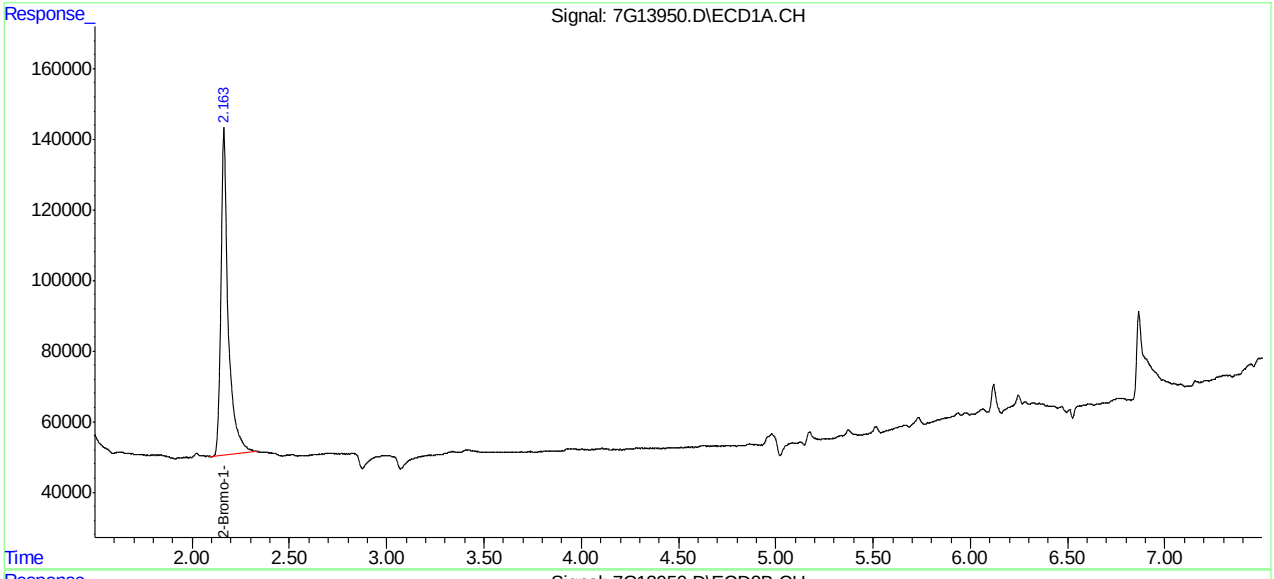
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

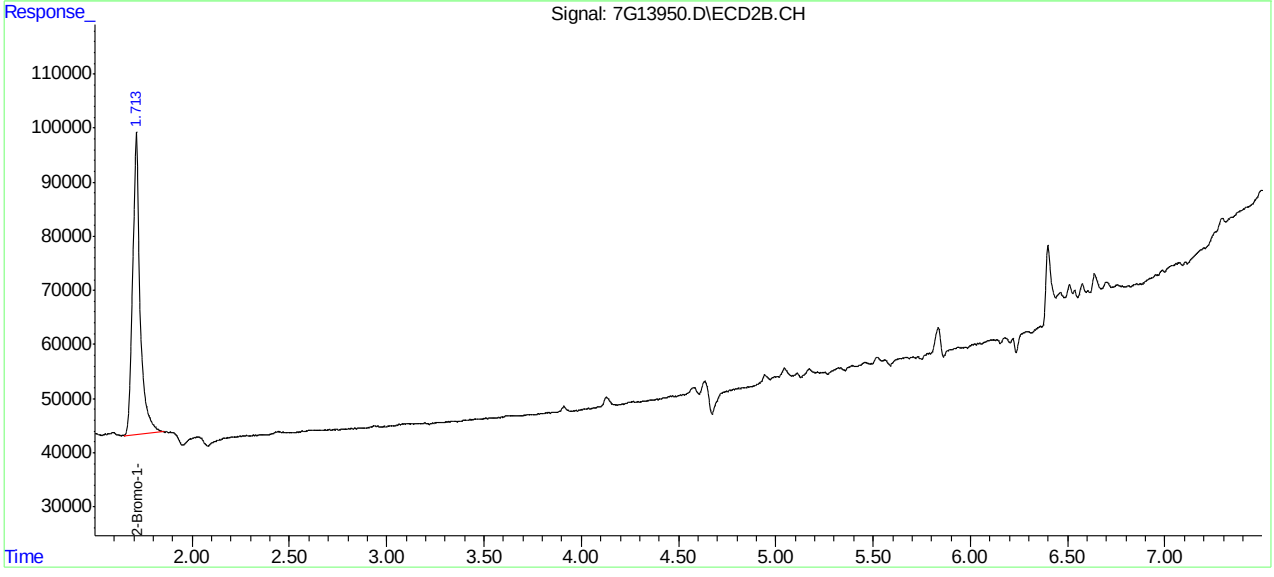
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\7g508\
Data File : 7G13950.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 10 Jul 2015 6:37 pm
Operator : vinced
Sample : jb98590-5
Misc : op85389,g7g508,36.6,,,2,1
ALS Vial : 18 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jul 13 16:07:51 2015
Quant Method : C:\MSDCHEM\1\METHODS\7G504M456.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Jul 10 16:32:11 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\7g508\
Data File : 7G13953.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 10 Jul 2015 7:33 pm
Operator : vinced
Sample : jb98590-6
Misc : op85389,g7g508,37.3,,,2,1
ALS Vial : 19 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jul 13 16:08:07 2015
Quant Method : C:\MSDCHEM\1\METHODS\7G504M456.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Jul 10 16:32:11 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um

| Compound | RT#1 | RT#2 | Resp#1 | Resp#2 | PPB | PPB |
|---|---|---|---|---|---|---|
| System Monitoring Compounds | | | | | | |
| 1) S 2-Bromo-1... | 2.164 | 1.713 | 2300527 | 1278314 | 4.867 | 4.484 |
| Spiked Amount 10.000 | | | Recovery | = | 48.67% | 44.84% |
| Target Compounds | | | | | | |

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

11.1.6

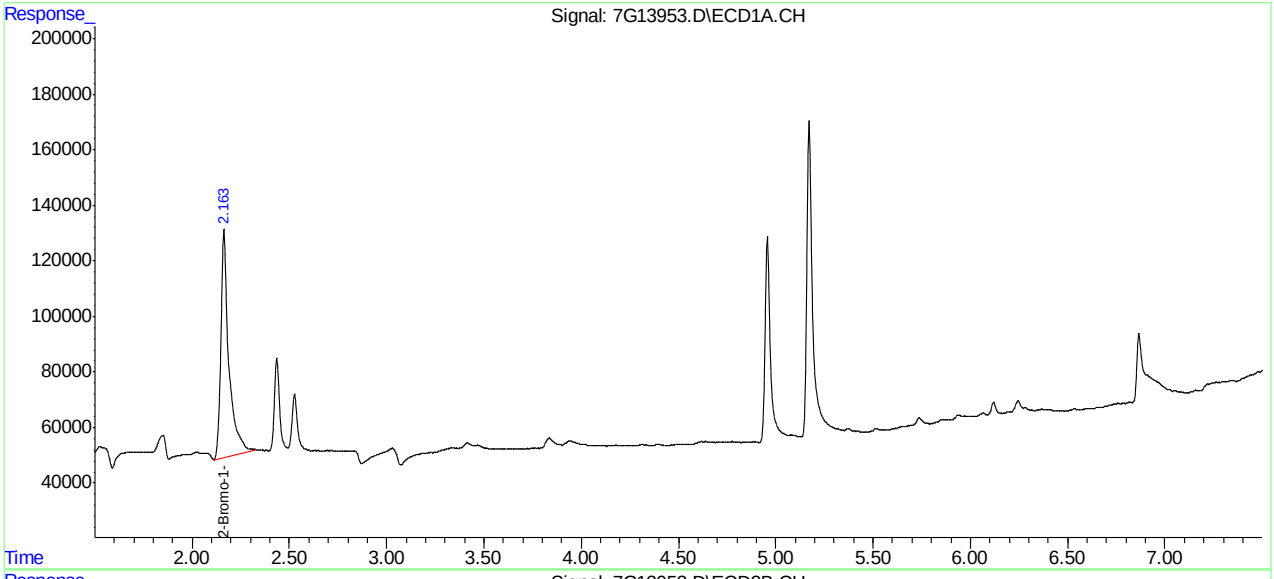
11

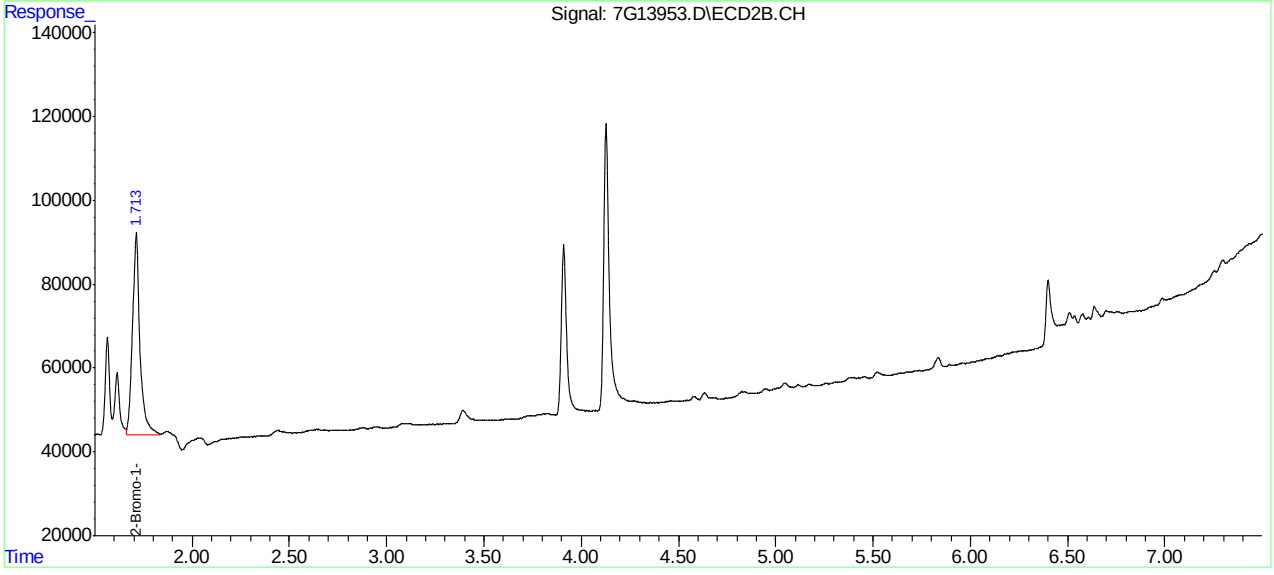
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\7g508\
Data File : 7G13953.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 10 Jul 2015 7:33 pm
Operator : vinced
Sample : jb98590-6
Misc : op85389,g7g508,37.3,,,2,1
ALS Vial : 19 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jul 13 16:08:07 2015
Quant Method : C:\MSDCHEM\1\METHODS\7G504M456.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Jul 10 16:32:11 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\7g508\
Data File : 7G13954.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 10 Jul 2015 7:52 pm
Operator : vinced
Sample : jb98590-7
Misc : op85389,g7g508,36.7,,,2,1
ALS Vial : 20 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jul 13 16:08:20 2015
Quant Method : C:\MSDCHEM\1\METHODS\7G504M456.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Jul 10 16:32:11 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um

| Compound | RT#1 | RT#2 | Resp#1 | Resp#2 | PPB | PPB |
|---|---|---|---|---|---|---|
| System Monitoring Compounds | | | | | | |
| 1) S 2-Bromo-1... | 2.163 | 1.713 | 3617719 | 2099777 | 7.653 | 7.365 |
| Spiked Amount 10.000 | | | Recovery | = | 76.53% | 73.65% |
| Target Compounds | | | | | | |

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

11.1.7

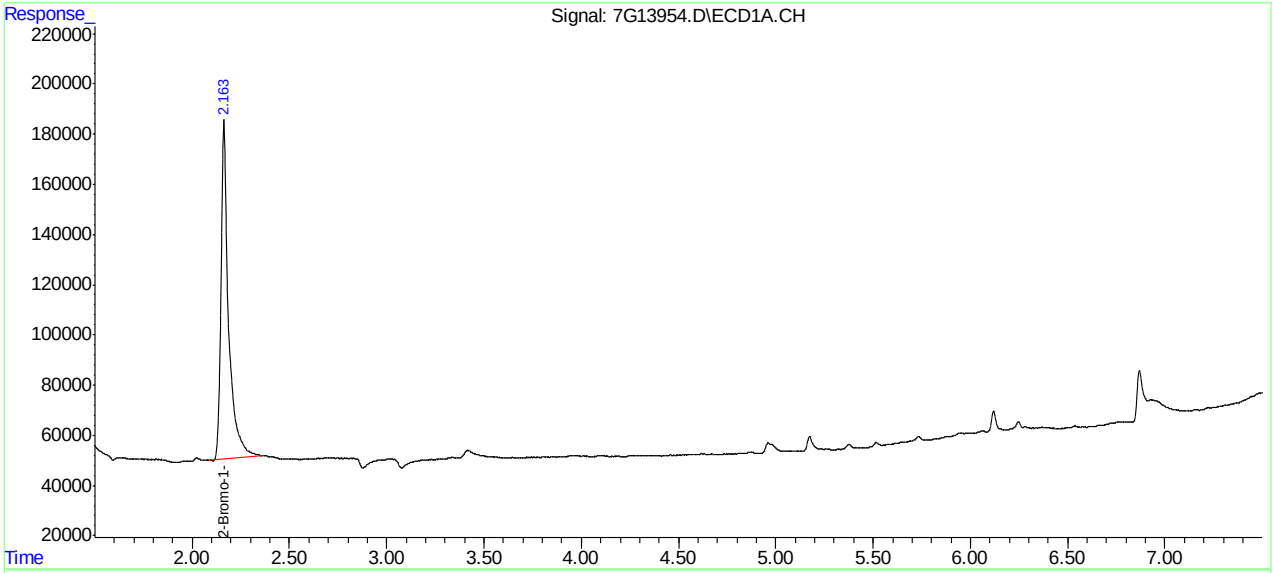
11

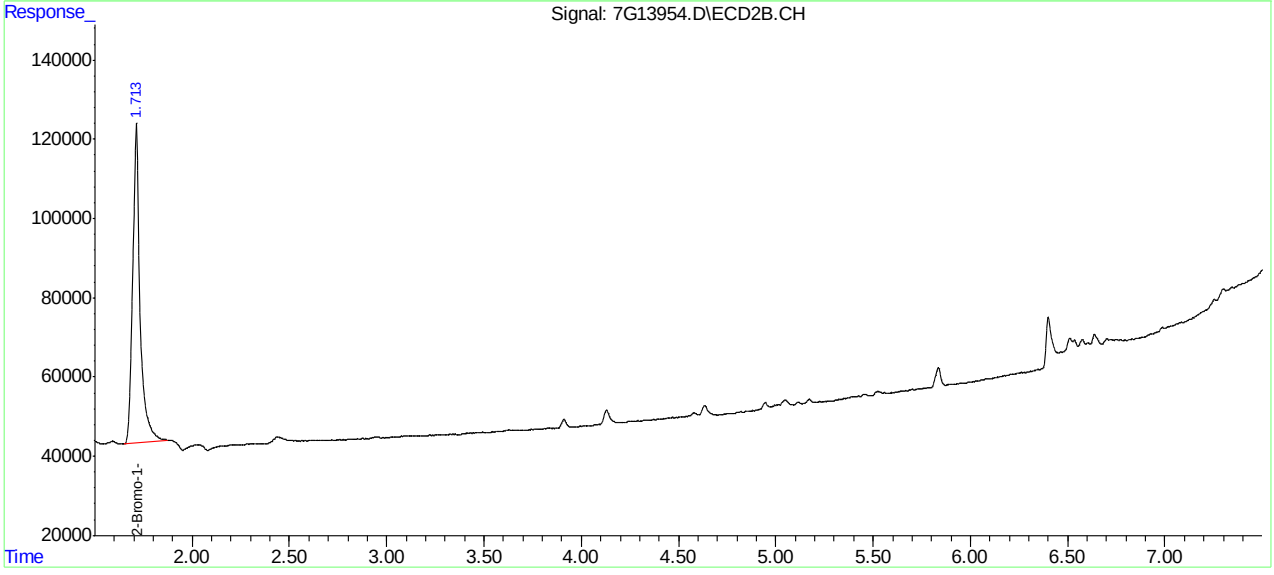
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\7g508\
Data File : 7G13954.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 10 Jul 2015 7:52 pm
Operator : vinced
Sample : jb98590-7
Misc : op85389,g7g508,36.7,,,2,1
ALS Vial : 20 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jul 13 16:08:20 2015
Quant Method : C:\MSDCHEM\1\METHODS\7G504M456.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Jul 10 16:32:11 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\7g508\
Data File : 7G13955.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 10 Jul 2015 8:11 pm
Operator : vinced
Sample : jb98590-8
Misc : op85389,g7g508,37.1,,,2,1
ALS Vial : 21 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jul 13 16:08:32 2015
Quant Method : C:\MSDCHEM\1\METHODS\7G504M456.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Jul 10 16:32:11 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um

| Compound | RT#1 | RT#2 | Resp#1 | Resp#2 | PPB | PPB |
|---|---|---|---|---|---|---|
| System Monitoring Compounds | | | | | | |
| 1) S 2-Bromo-1... | 2.163 | 1.714 | 2922657 | 1824166 | 6.183 | 6.398 |
| Spiked Amount 10.000 | | | Recovery | = | 61.83% | 63.98% |
| Target Compounds | | | | | | |

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

11.1.8

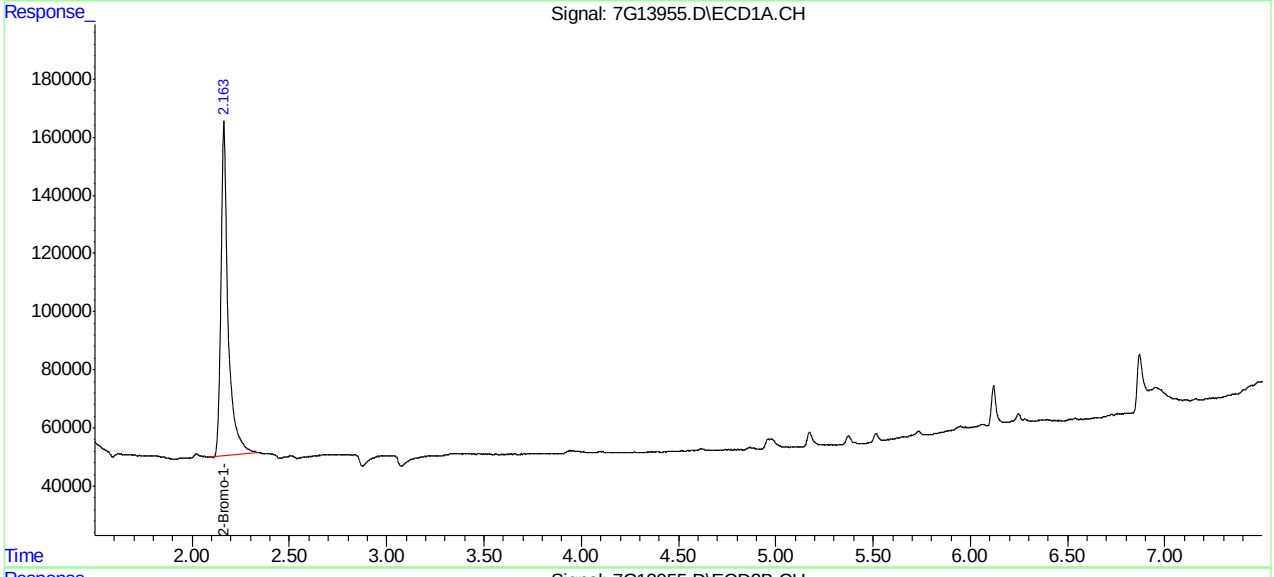
11

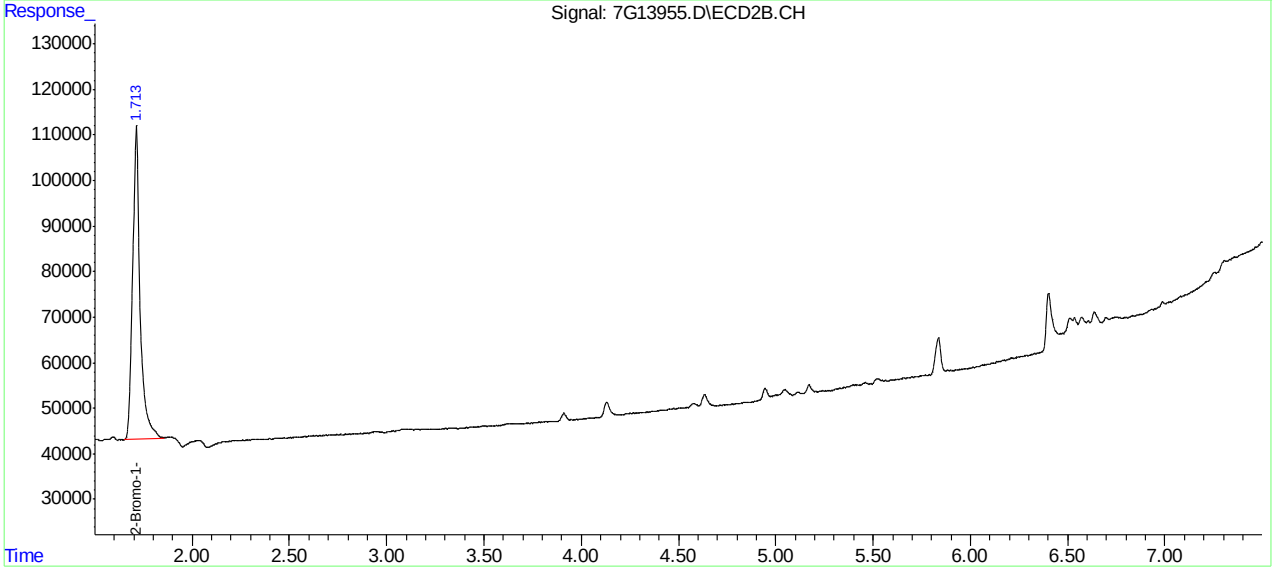
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\7g508\
Data File : 7G13955.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 10 Jul 2015 8:11 pm
Operator : vinced
Sample : jb98590-8
Misc : op85389,g7g508,37.1,,,2,1
ALS Vial : 21 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jul 13 16:08:32 2015
Quant Method : C:\MSDCHEM\1\METHODS\7G504M456.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Jul 10 16:32:11 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\7g508\
Data File : 7G13956.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 10 Jul 2015 8:29 pm
Operator : vinced
Sample : jb98590-9
Misc : op85389,g7g508,36.4,,,2,1
ALS Vial : 22 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jul 13 16:08:44 2015
Quant Method : C:\MSDCHEM\1\METHODS\7G504M456.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Jul 10 16:32:11 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um

| Compound | RT#1 | RT#2 | Resp#1 | Resp#2 | PPB | PPB |
|---|---|---|---|---|---|---|
| System Monitoring Compounds | | | | | | |
| 1) S 2-Bromo-1... | 2.163 | 1.713 | 2809303 | 1715351 | 5.943 | 6.017 |
| Spiked Amount 10.000 | | | Recovery | = | 59.43% | 60.17% |
| Target Compounds | | | | | | |

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

11.1.9

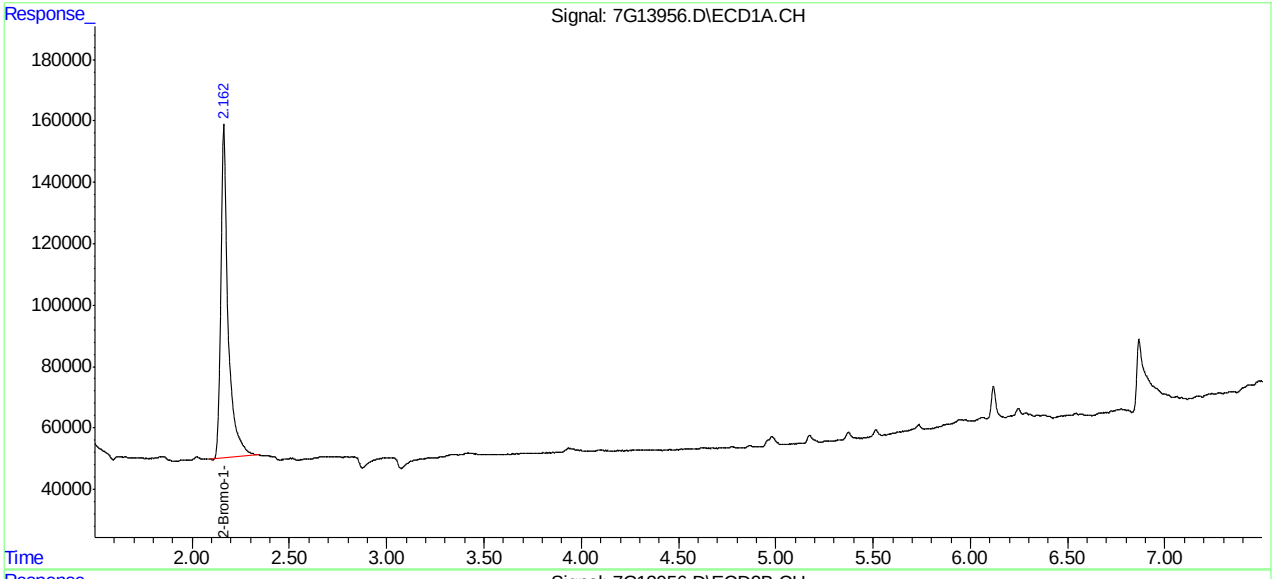
11

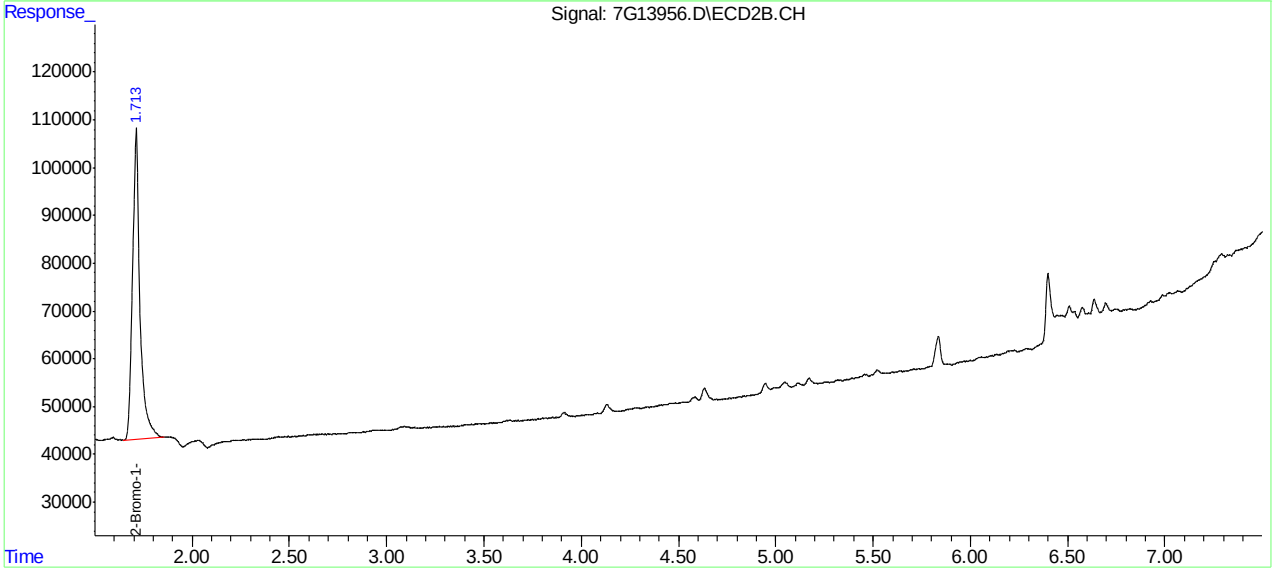
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\7g508\
Data File : 7G13956.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 10 Jul 2015 8:29 pm
Operator : vinced
Sample : jb98590-9
Misc : op85389,g7g508,36.4,,,2,1
ALS Vial : 22 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jul 13 16:08:44 2015
Quant Method : C:\MSDCHEM\1\METHODS\7G504M456.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Jul 10 16:32:11 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\7g508\
Data File : 7G13957.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 10 Jul 2015 8:48 pm
Operator : vinced
Sample : jb98590-10
Misc : op85389,g7g508,35.4,,,2,1
ALS Vial : 23 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jul 13 16:08:54 2015
Quant Method : C:\MSDCHEM\1\METHODS\7G504M456.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Jul 10 16:32:11 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um

| Compound | RT#1 | RT#2 | Resp#1 | Resp#2 | PPB | PPB |
|---|---|---|---|---|---|---|
| System Monitoring Compounds | | | | | | |
| 1) S 2-Bromo-1... | 2.163 | 1.712 | 3932176 | 2433276 | 8.318 | 8.535 |
| Spiked Amount 10.000 | | | Recovery | = | 83.18% | 85.35% |
| Target Compounds | | | | | | |

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

11.1.10

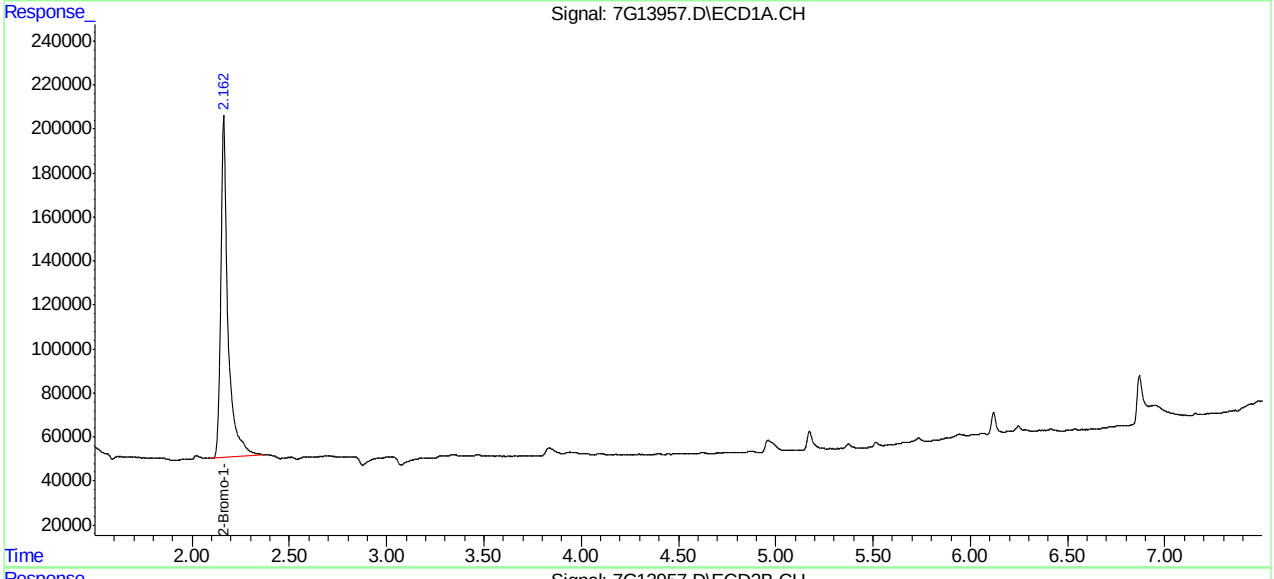
11

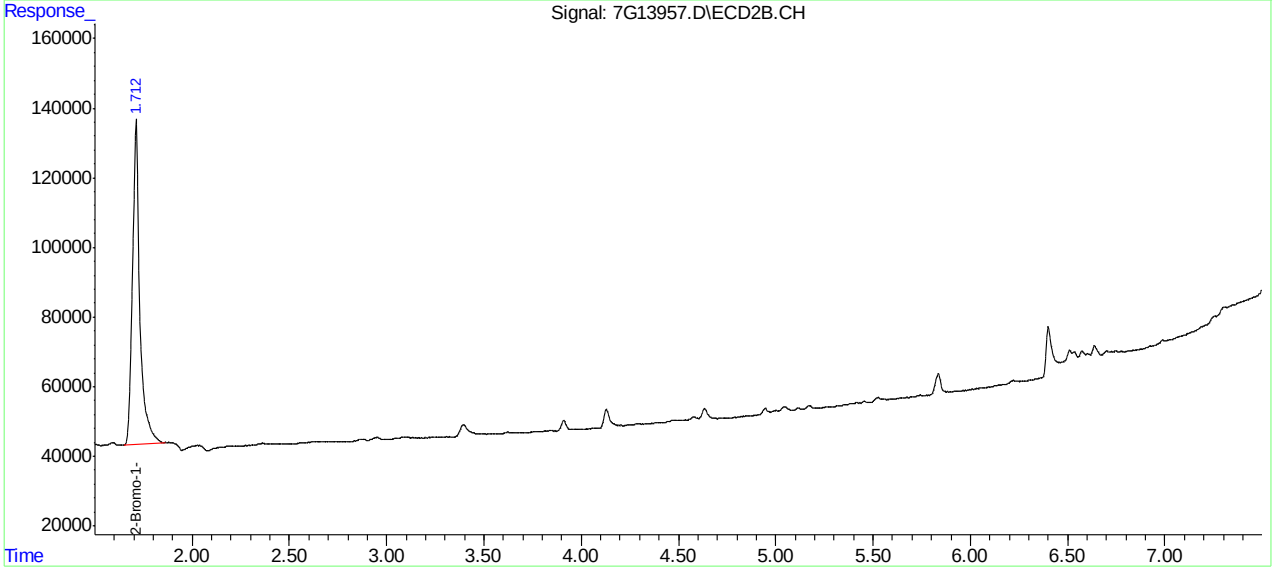
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\7g508\
Data File : 7G13957.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 10 Jul 2015 8:48 pm
Operator : vinced
Sample : jb98590-10
Misc : op85389,g7g508,35.4,,,2,1
ALS Vial : 23 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jul 13 16:08:54 2015
Quant Method : C:\MSDCHEM\1\METHODS\7G504M456.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Jul 10 16:32:11 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\7g508\
Data File : 7G13958.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 10 Jul 2015 9:07 pm
Operator : vinced
Sample : jb98590-11
Misc : op85389,g7g508,36.6,,,2,1
ALS Vial : 24 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jul 13 16:09:07 2015
Quant Method : C:\MSDCHEM\1\METHODS\7G504M456.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Jul 10 16:32:11 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um

| Compound | RT#1 | RT#2 | Resp#1 | Resp#2 | PPB | PPB |
|---|---|---|---|---|---|---|
| System Monitoring Compounds | | | | | | |
| 1) S 2-Bromo-1... | 2.163 | 1.713 | 1936250 | 1335477 | 4.096 | 4.684 |
| Spiked Amount 10.000 | | | Recovery | = | 40.96% | 46.84% |
| Target Compounds | | | | | | |

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

11.1.11

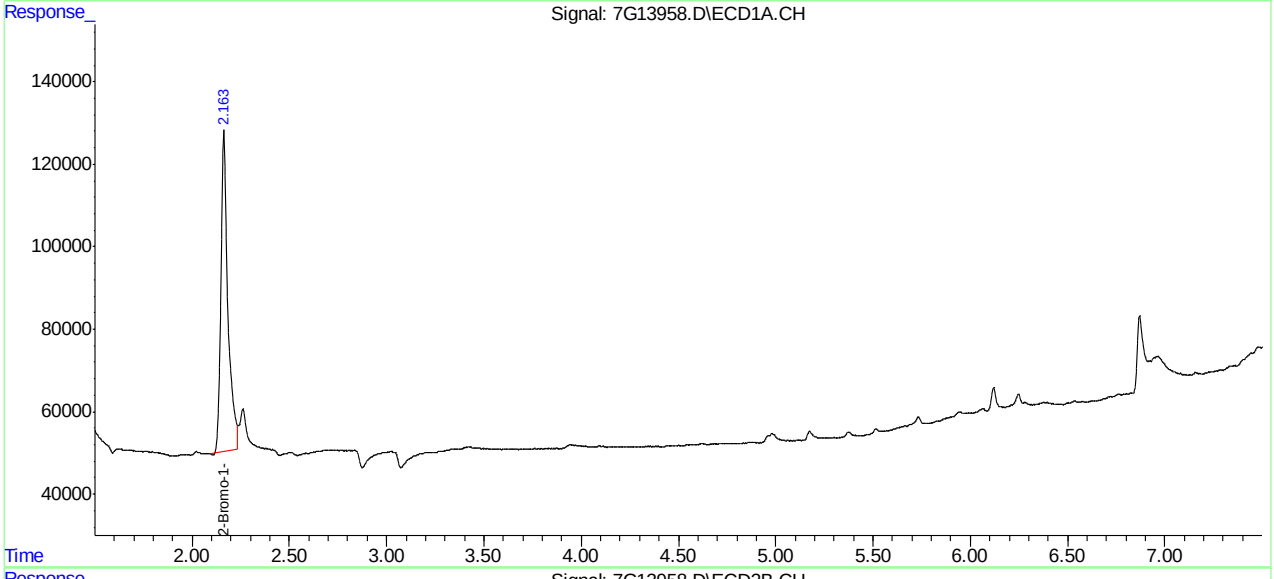
11

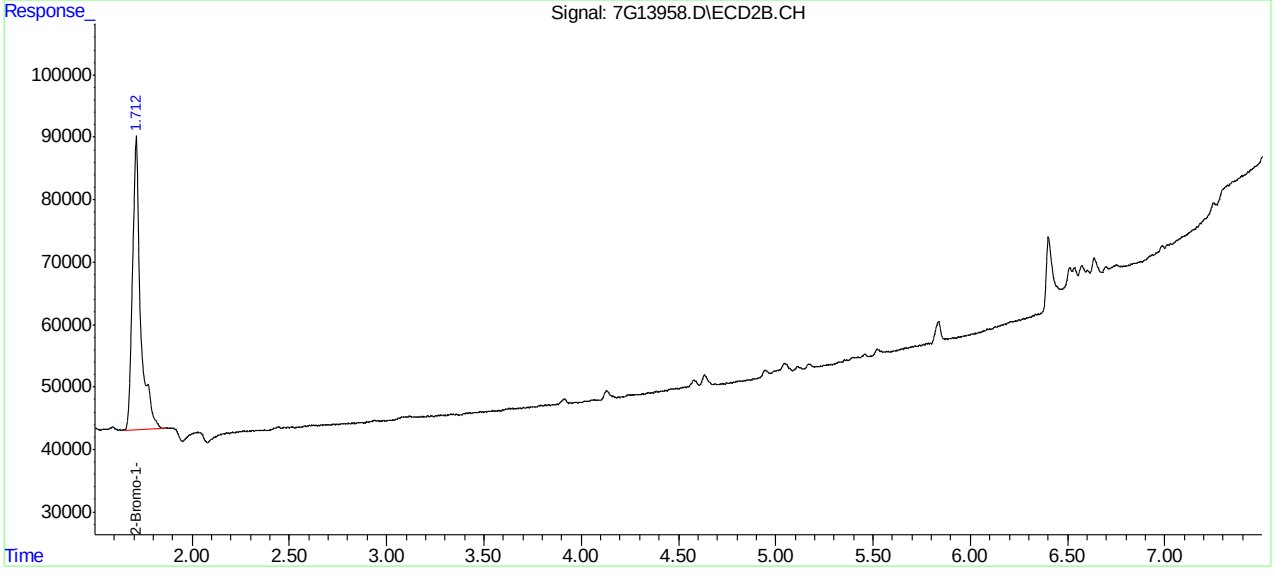
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\7g508\
Data File : 7G13958.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 10 Jul 2015 9:07 pm
Operator : vinced
Sample : jb98590-11
Misc : op85389,g7g508,36.6,,,2,1
ALS Vial : 24 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jul 13 16:09:07 2015
Quant Method : C:\MSDCHEM\1\METHODS\7G504M456.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Jul 10 16:32:11 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um



Manual Integrations APPROVED (compounds with "m" flag)
Kristi Schollenberger 07/15/15 16:07

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\7g508\
Data File : 7G13959.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 10 Jul 2015 9:25 pm
Operator : vinced
Sample : jb98590-12
Misc : op85389,g7g508,36.6,,,2,1
ALS Vial : 25 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jul 13 16:09:39 2015
Quant Method : C:\MSDCHEM\1\METHODS\7G504M456.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Jul 10 16:32:11 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um

| Compound | RT#1 | RT#2 | Resp#1 | Resp#2 | PPB | PPB |
|---|---|---|---|---|---|---|
| System Monitoring Compounds | | | | | | |
| 1) S 2-Bromo-1... | 2.163 | 1.713 | 2652810 | 1465378 | 5.612m | 5.140 |
| Spiked Amount 10.000 | | | Recovery | = | 56.12% | 51.40% |
| Target Compounds | | | | | | |

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

11.1.12

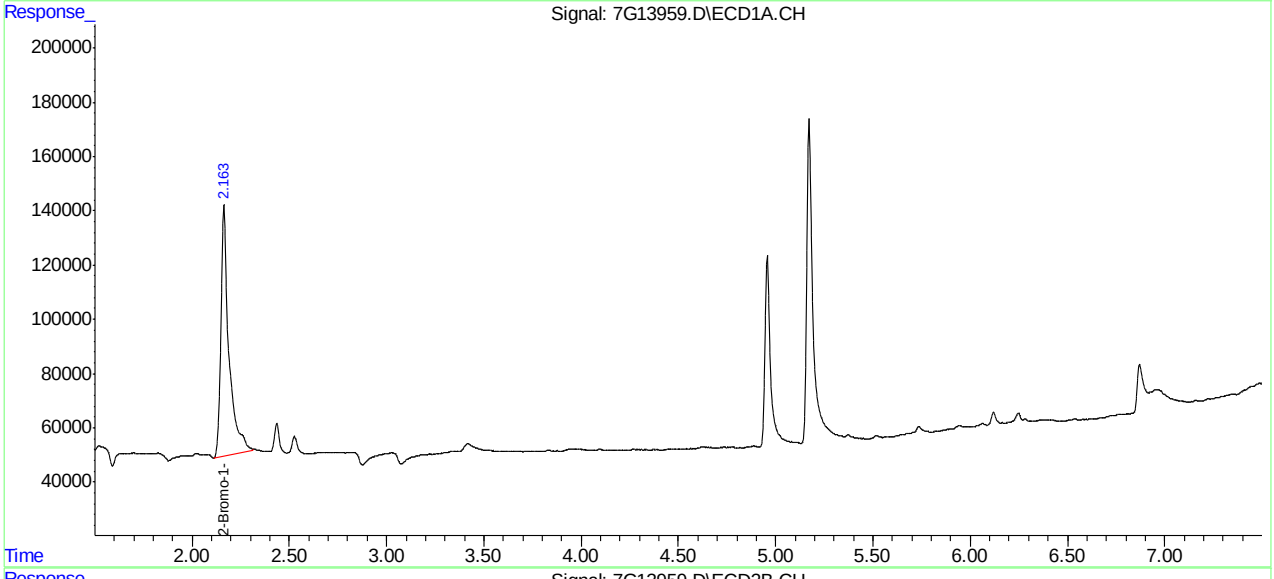
11

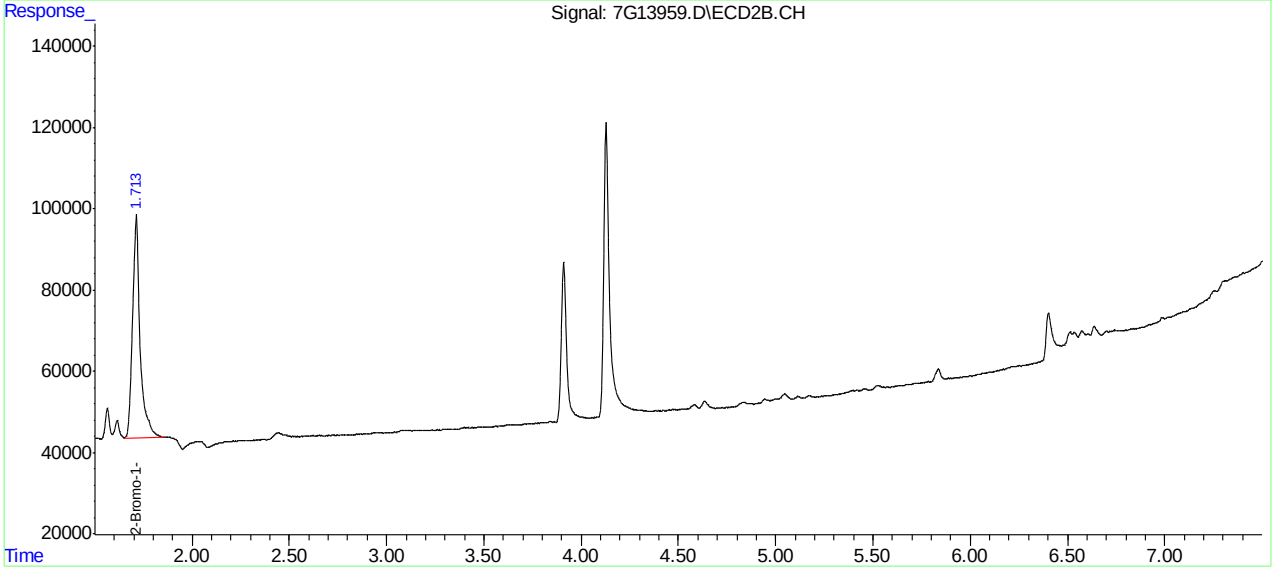
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\7g508\
Data File : 7G13959.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 10 Jul 2015 9:25 pm
Operator : vinced
Sample : jb98590-12
Misc : op85389,g7g508,36.6,,,2,1
ALS Vial : 25 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jul 13 16:09:39 2015
Quant Method : C:\MSDCHEM\1\METHODS\7G504M456.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Jul 10 16:32:11 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um




7G504M456.M Mon Jul 13 16:19:49 2015 Page: 2

Manual Integrations APPROVED (compounds with "m" flag)
Kristi Schollenberger 07/15/15 16:07

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\7g508\
Data File : 7G13960.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 10 Jul 2015 9:44 pm
Operator : vinced
Sample : jb98590-13
Misc : op85389,g7g508,36.7,,,2,1
ALS Vial : 26 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jul 13 16:10:10 2015
Quant Method : C:\MSDCHEM\1\METHODS\7G504M456.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Jul 10 16:33:04 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um

| Compound | RT#1 | RT#2 | Resp#1 | Resp#2 | PPB | PPB |
|---|---|---|---|---|---|---|
| System Monitoring Compounds | | | | | | |
| 1) S 2-Bromo-1... | 2.163 | 1.713 | 2083090 | 1220834 | 4.407m | 4.282m |
| Spiked Amount 10.000 | | | Recovery = | | 44.07% | 42.82% |
| Target Compounds | | | | | | |

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

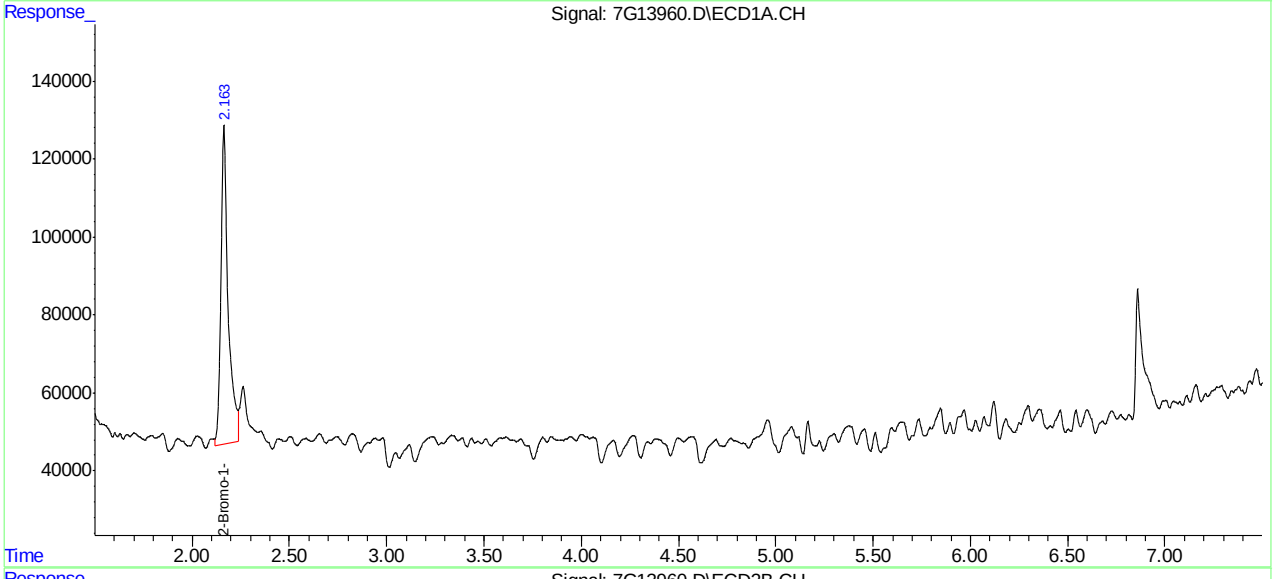
11.1.13 11

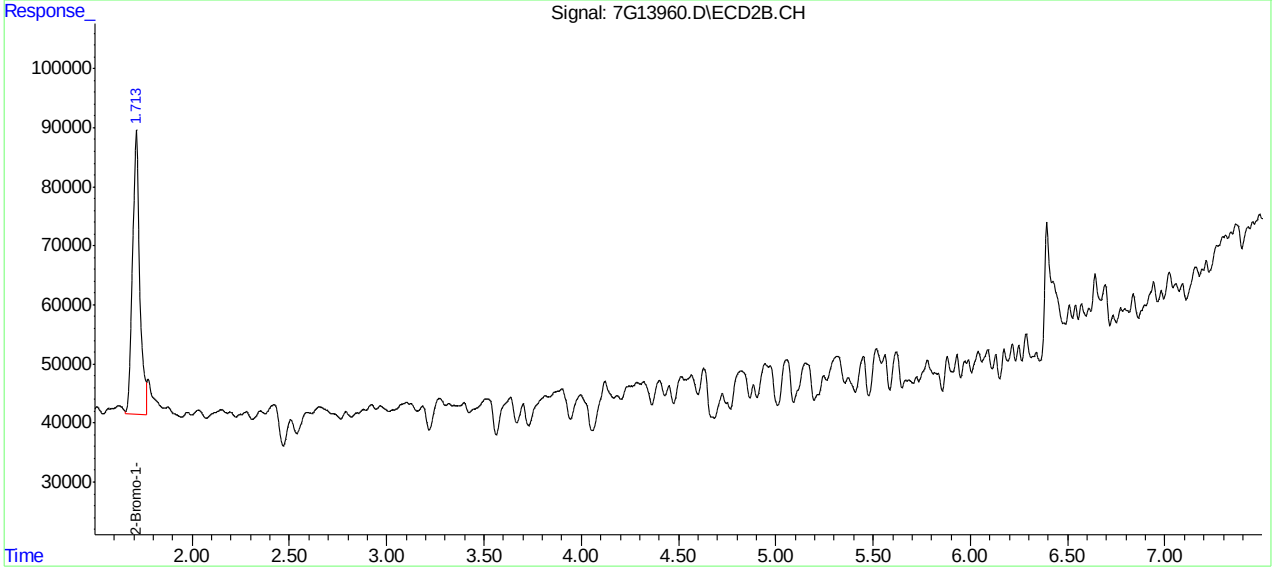
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\7g508\
Data File : 7G13960.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 10 Jul 2015 9:44 pm
Operator : vinced
Sample : jb98590-13
Misc : op85389,g7g508,36.7,,,2,1
ALS Vial : 26 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jul 13 16:10:10 2015
Quant Method : C:\MSDCHEM\1\METHODS\7G504M456.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Jul 10 16:33:04 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\7g508\
Data File : 7G13961.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 10 Jul 2015 10:03 pm
Operator : vinced
Sample : jb98590-14
Misc : op85389,g7g508,36.6,,,2,1
ALS Vial : 27 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jul 13 16:10:25 2015
Quant Method : C:\MSDCHEM\1\METHODS\7G504M456.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Jul 10 16:33:04 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um

| Compound | RT#1 | RT#2 | Resp#1 | Resp#2 | PPB | PPB |
|---|---|---|---|---|---|---|
| System Monitoring Compounds | | | | | | |
| 1) S 2-Bromo-1... | 2.163 | 1.713 | 3660531 | 2179489 | 7.744 | 7.645 |
| Spiked Amount 10.000 | | | Recovery | = | 77.44% | 76.45% |
| Target Compounds | | | | | | |

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

11.1.14

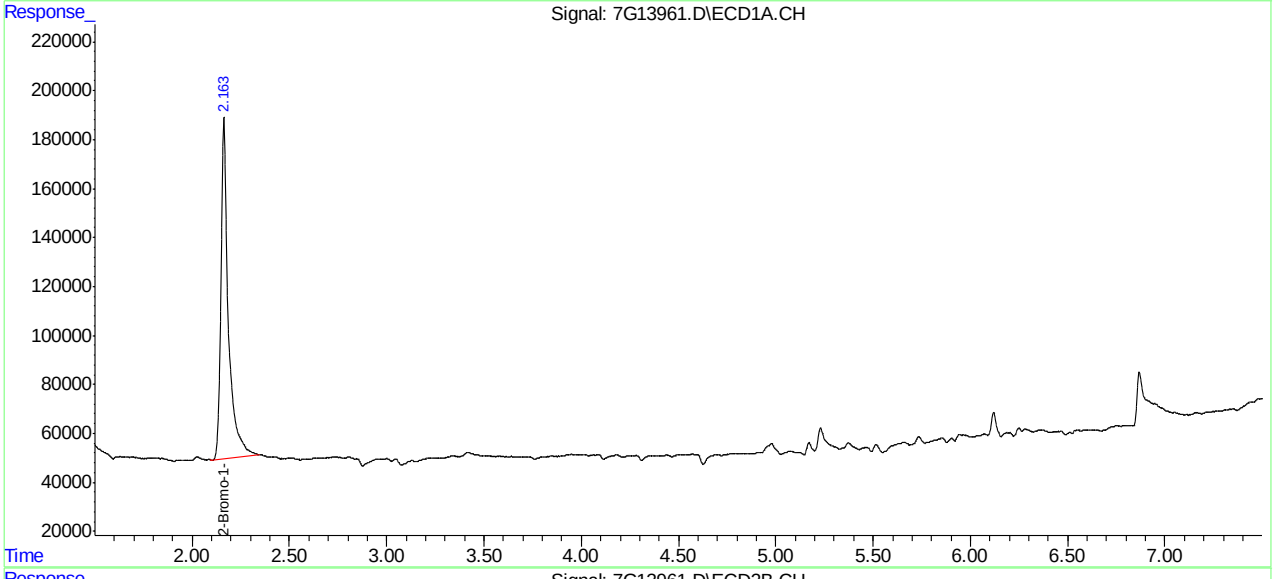
11

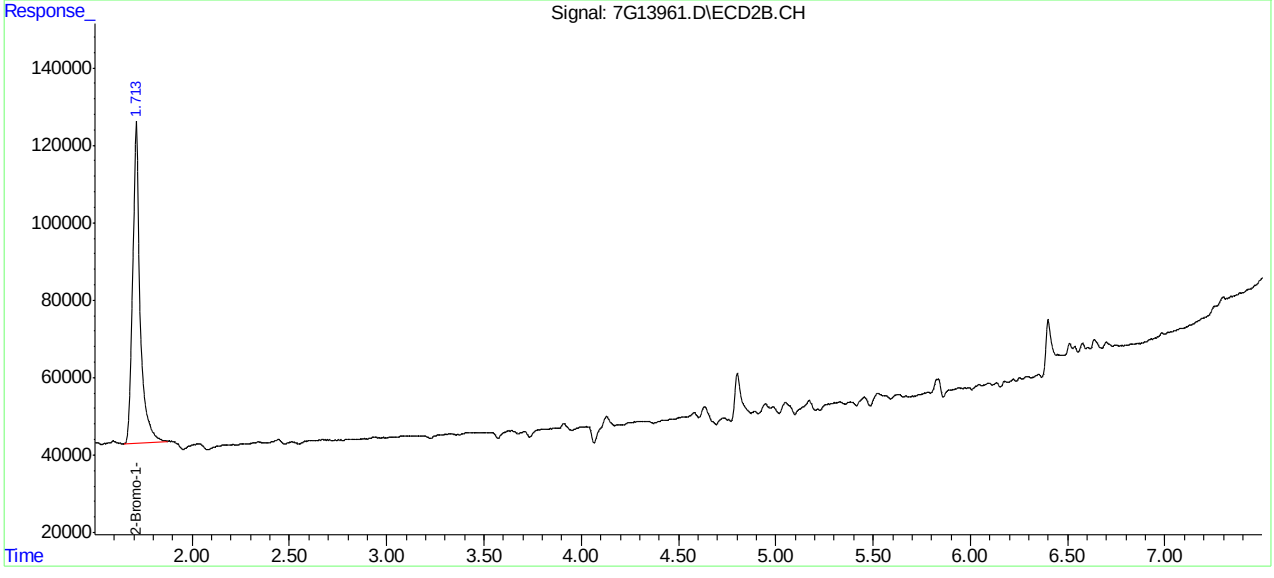
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\7g508\
Data File : 7G13961.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 10 Jul 2015 10:03 pm
Operator : vinced
Sample : jb98590-14
Misc : op85389,g7g508,36.6,,,2,1
ALS Vial : 27 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jul 13 16:10:25 2015
Quant Method : C:\MSDCHEM\1\METHODS\7G504M456.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Jul 10 16:33:04 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\7g508\
Data File : 7G13964.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 10 Jul 2015 10:59 pm
Operator : vinced
Sample : jb98590-15
Misc : op85389,g7g508,36.8,,,2,1
ALS Vial : 28 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jul 13 16:10:50 2015
Quant Method : C:\MSDCHEM\1\METHODS\7G504M456.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Jul 10 16:32:11 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um

| Compound | RT#1 | RT#2 | Resp#1 | Resp#2 | PPB | PPB |
|---|---|---|---|---|---|---|
| System Monitoring Compounds | | | | | | |
| 1) S 2-Bromo-1... | 2.163 | 1.713 | 3107238 | 2034349 | 6.573 | 7.136 |
| Spiked Amount 10.000 | | | Recovery | = | 65.73% | 71.36% |
| Target Compounds | | | | | | |

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

11.1.15

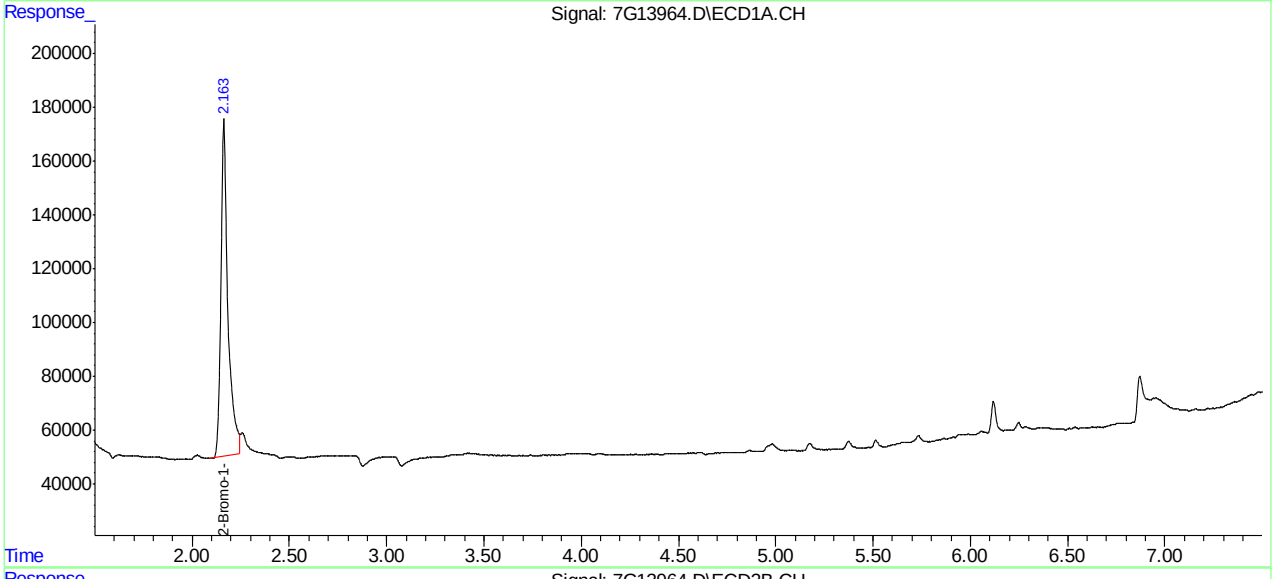
11

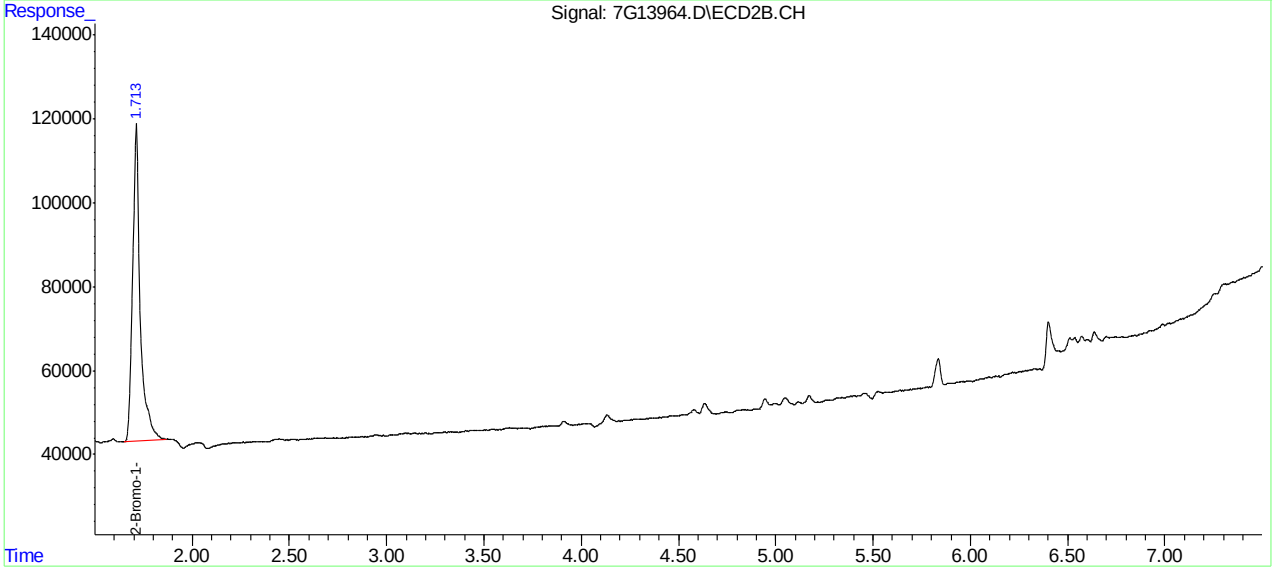
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\7g508\
Data File : 7G13964.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 10 Jul 2015 10:59 pm
Operator : vinced
Sample : jb98590-15
Misc : op85389,g7g508,36.8,,,2,1
ALS Vial : 28 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jul 13 16:10:50 2015
Quant Method : C:\MSDCHEM\1\METHODS\7G504M456.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Jul 10 16:32:11 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\7g508\
Data File : 7G13965.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 10 Jul 2015 11:17 pm
Operator : vinced
Sample : jb98590-16
Misc : op85389,g7g508,36.8,,,2,1
ALS Vial : 29 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jul 13 16:11:00 2015
Quant Method : C:\MSDCHEM\1\METHODS\7G504M456.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Jul 10 16:32:11 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um

| Compound | RT#1 | RT#2 | Resp#1 | Resp#2 | PPB | PPB |
|---|---|---|---|---|---|---|
| System Monitoring Compounds | | | | | | |
| 1) S 2-Bromo-1... | 2.164 | 1.714 | 3915717 | 2361484 | 8.284 | 8.283 |
| Spiked Amount 10.000 | | | Recovery | = | 82.84% | 82.83% |
| Target Compounds | | | | | | |

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

11.1.16

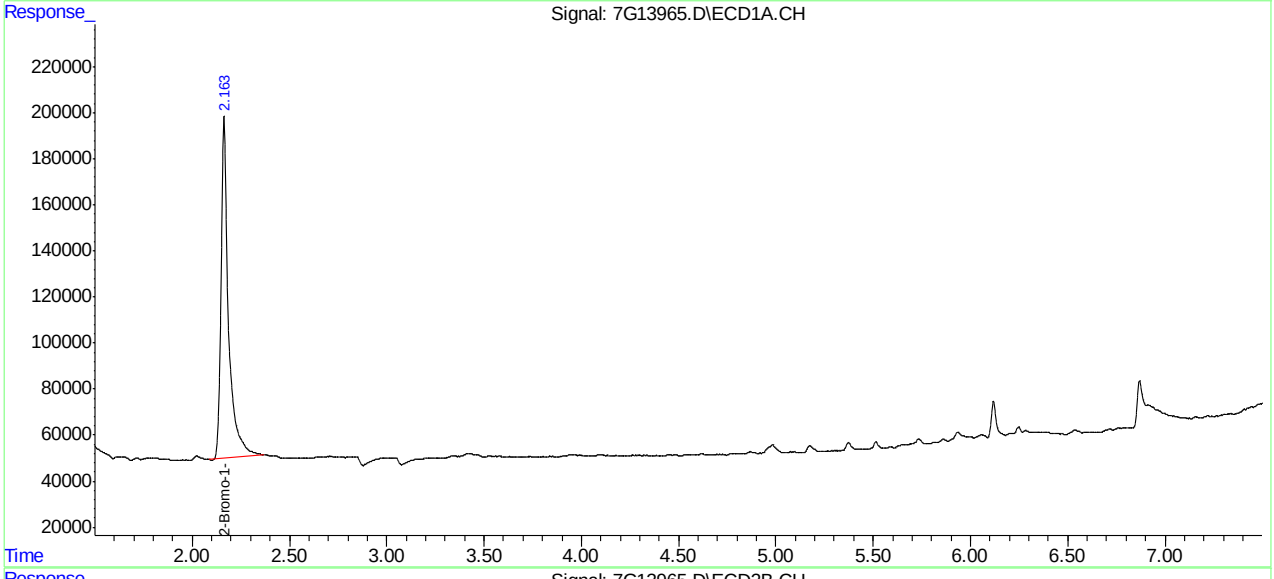
11

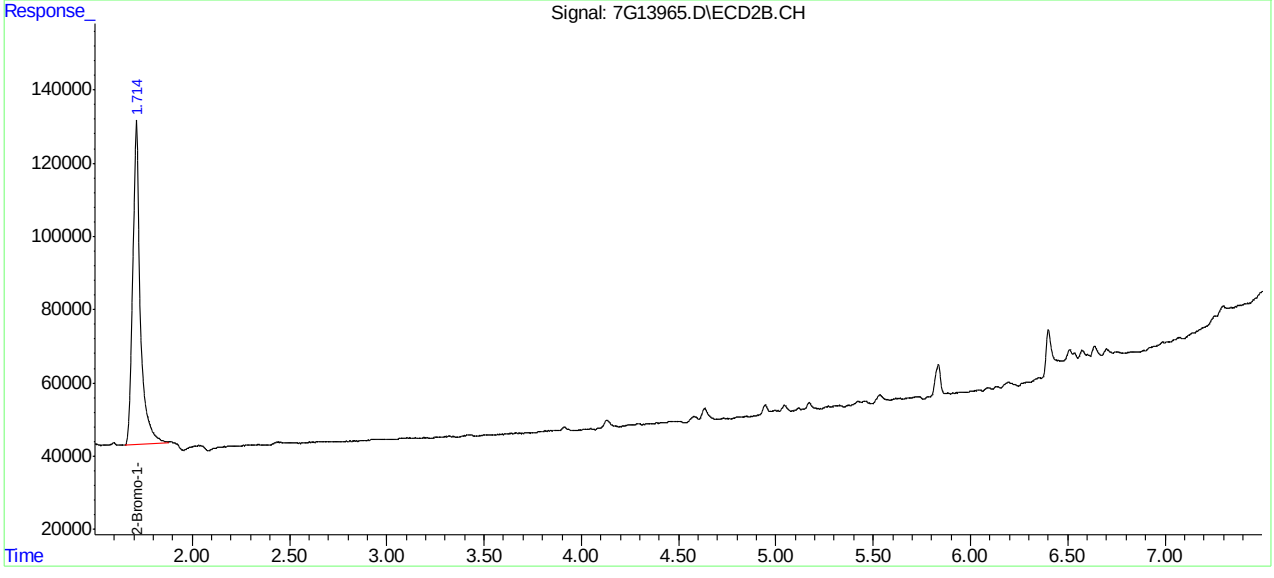
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\7g508\
Data File : 7G13965.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 10 Jul 2015 11:17 pm
Operator : vinced
Sample : jb98590-16
Misc : op85389,g7g508,36.8,,,2,1
ALS Vial : 29 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jul 13 16:11:00 2015
Quant Method : C:\MSDCHEM\1\METHODS\7G504M456.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Jul 10 16:32:11 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\7g508\
Data File : 7G13966.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 10 Jul 2015 11:36 pm
Operator : vinced
Sample : jb98590-17
Misc : op85389,g7g508,36.5,,,2,1
ALS Vial : 30 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jul 13 16:11:10 2015
Quant Method : C:\MSDCHEM\1\METHODS\7G504M456.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Jul 10 16:32:11 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um

| Compound | RT#1 | RT#2 | Resp#1 | Resp#2 | PPB | PPB |
|---|---|---|---|---|---|---|
| System Monitoring Compounds | | | | | | |
| 1) S 2-Bromo-1... | 2.163 | 1.713 | 3187335 | 1950532 | 6.743 | 6.842 |
| Spiked Amount 10.000 | | | Recovery | = | 67.43% | 68.42% |
| Target Compounds | | | | | | |

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

11.1.17

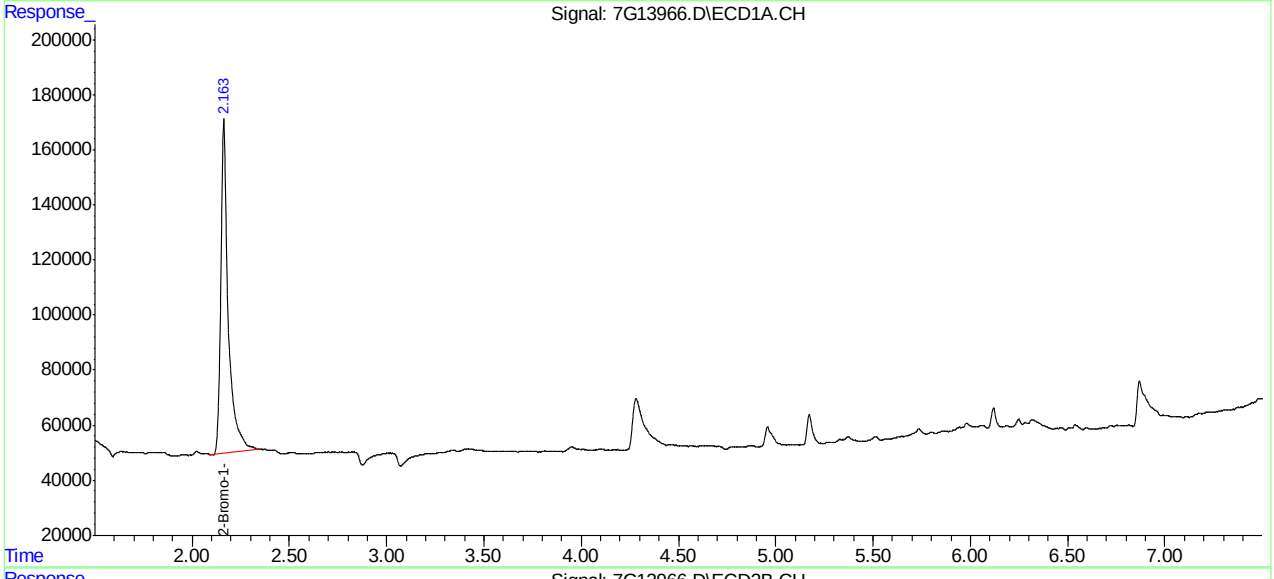
11

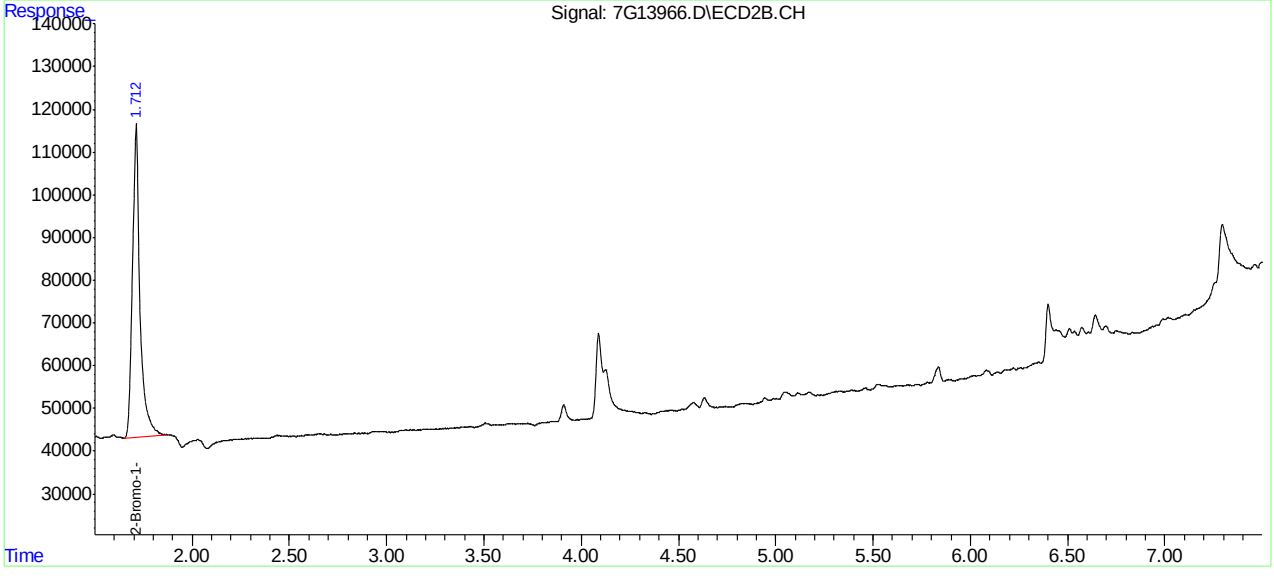
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\7g508\
Data File : 7G13966.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 10 Jul 2015 11:36 pm
Operator : vinced
Sample : jb98590-17
Misc : op85389,g7g508,36.5,,,2,1
ALS Vial : 30 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jul 13 16:11:10 2015
Quant Method : C:\MSDCHEM\1\METHODS\7G504M456.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Jul 10 16:32:11 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\7g508\
Data File : 7G13967.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 10 Jul 2015 11:55 pm
Operator : vinced
Sample : jb98590-18
Misc : op85389,g7g508,37.7,,,2,1
ALS Vial : 31 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jul 13 16:11:26 2015
Quant Method : C:\MSDCHEM\1\METHODS\7G504M456.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Jul 10 16:32:11 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um

| Compound | RT#1 | RT#2 | Resp#1 | Resp#2 | PPB | PPB |
|---|---|---|---|---|---|---|
| System Monitoring Compounds | | | | | | |
| 1) S 2-Bromo-1... | 2.163 | 1.712 | 3654480 | 2036611 | 7.731 | 7.144 |
| Spiked Amount 10.000 | | | Recovery | = | 77.31% | 71.44% |
| Target Compounds | | | | | | |

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

11.1.18

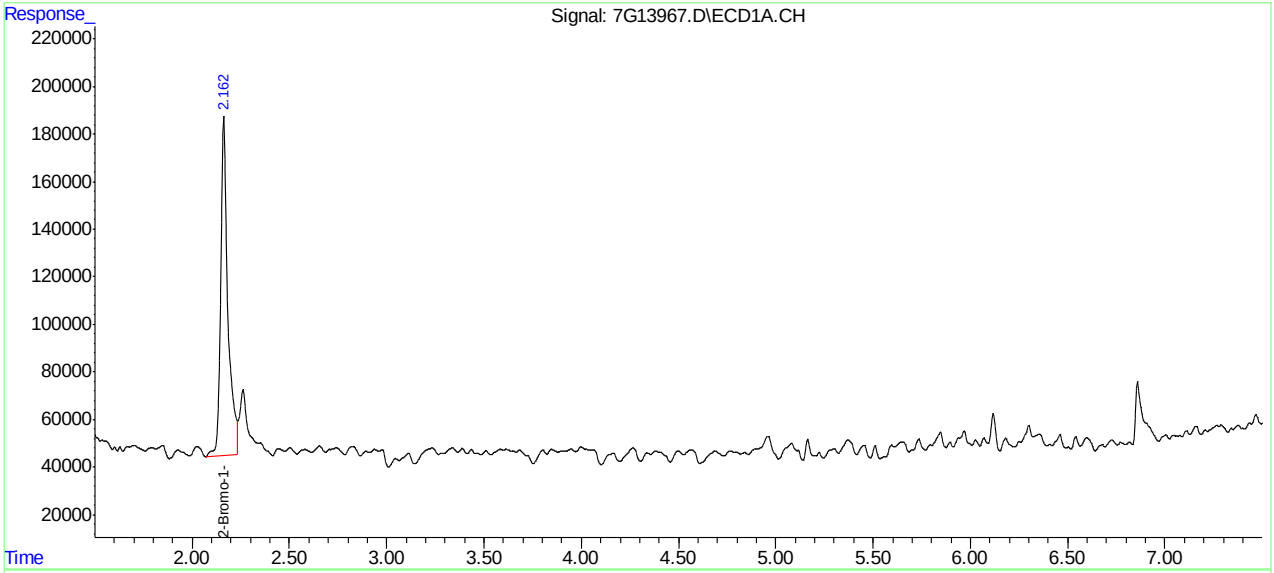
11

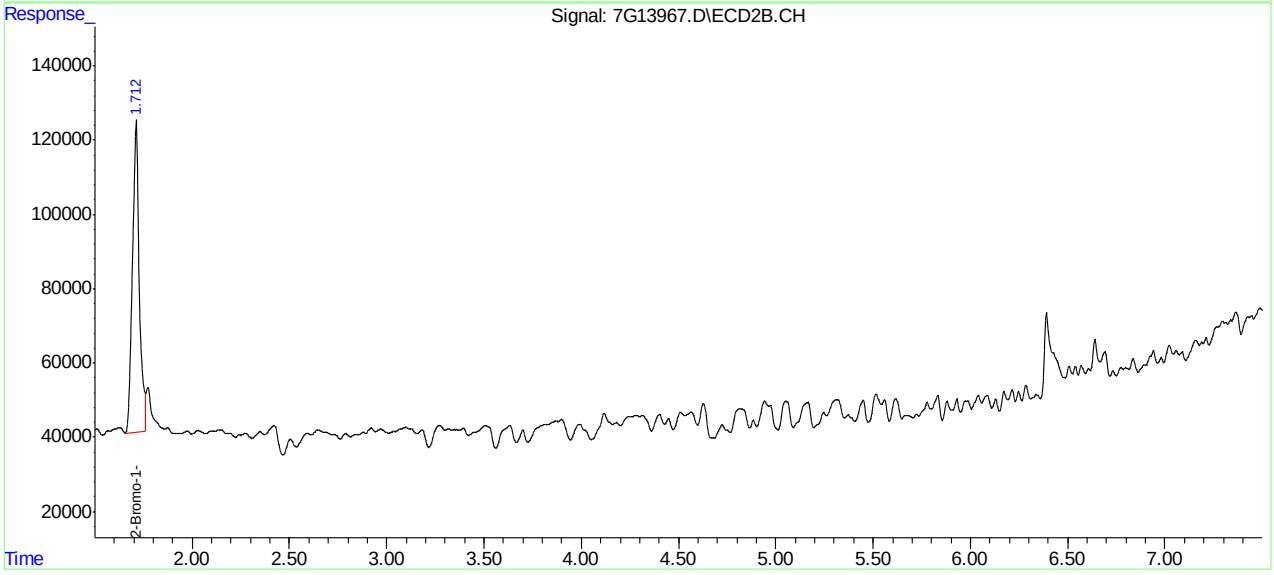
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\7g508\
Data File : 7G13967.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 10 Jul 2015 11:55 pm
Operator : vinced
Sample : jb98590-18
Misc : op85389,g7g508,37.7,,,2,1
ALS Vial : 31 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jul 13 16:11:26 2015
Quant Method : C:\MSDCHEM\1\METHODS\7G504M456.M
Quant Title : GC/ECD- EDB
QLast Update : Fri Jul 10 16:32:11 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\7g508\
Data File : 7G13942.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 10 Jul 2015 4:08 pm
Operator : vinced
Sample : op85389-mb1
Misc : op85389,g7g508,35,,,2,1
ALS Vial : 10 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jul 13 16:03:10 2015
Quant Method : C:\MSDCHEM\1\METHODS\7G504M456.M
Quant Title : GC/ECD- EDB
QLast Update : Tue Jun 23 11:16:24 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um

| Compound | RT#1 | RT#2 | Resp#1 | Resp#2 | PPB | PPB |
|---|---|---|---|---|---|---|
| System Monitoring Compounds | | | | | | |
| 1) S 2-Bromo-1... | 2.163 | 1.713 | 3977804 | 2456672 | 8.415 | 8.617 |
| Spiked Amount 10.000 | | | Recovery | = | 84.15% | 86.17% |
| Target Compounds | | | | | | |

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

11.2.1

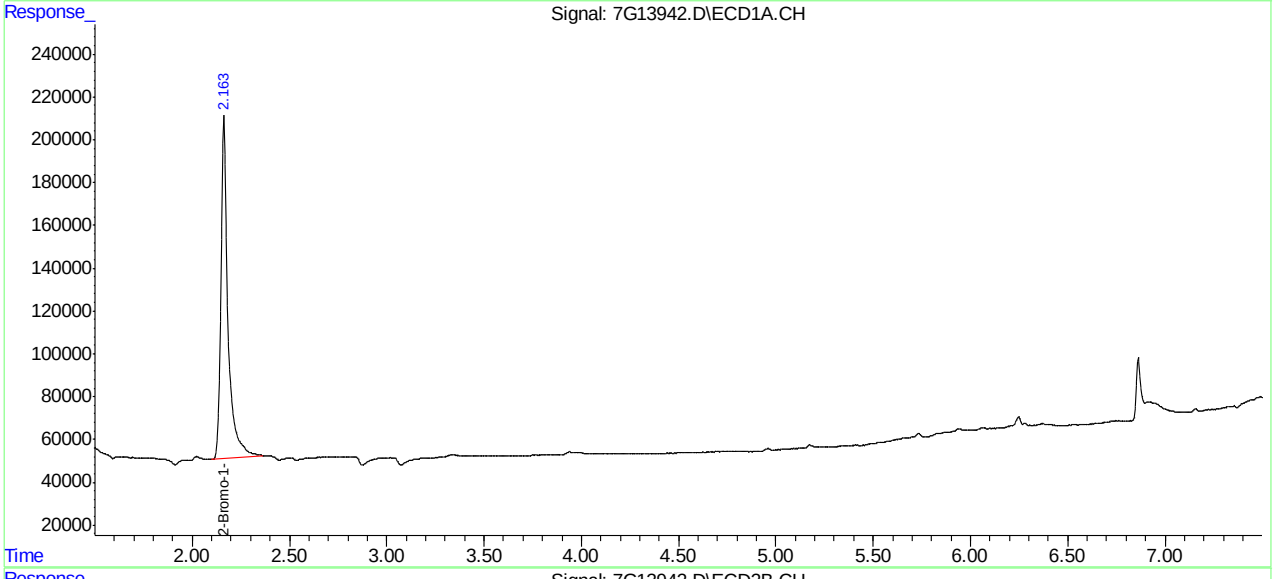
11

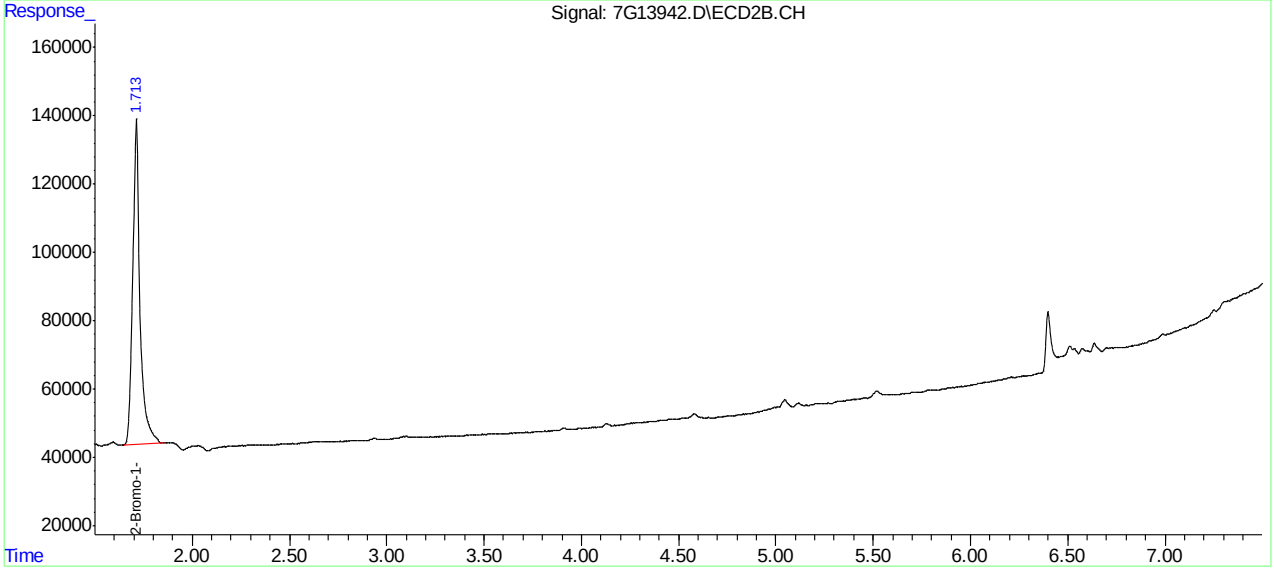
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\7g508\
Data File : 7G13942.D
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 10 Jul 2015 4:08 pm
Operator : vinced
Sample : op85389-mb1
Misc : op85389,g7g508,35,,,2,1
ALS Vial : 10 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jul 13 16:03:10 2015
Quant Method : C:\MSDCHEM\1\METHODS\7G504M456.M
Quant Title : GC/ECD- EDB
QLast Update : Tue Jun 23 11:16:24 2015
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1UL/COLUMN
Signal #1 Phase : RTXCLP Signal #2 Phase: RTXCLPII
Signal #1 Info : 30mx0.32mmx0.50um Signal #2 Info : 30m x 0.32mm x 0.25um



New Jersey

ACCUTEST LABORATORIES

## Metals Analysis

# QC Data Summaries

Includes the following where applicable:

- Instrument Runlogs
- Initial and Continuing Calibration Blanks
- Initial and Continuing Calibration Checks
- High and Low Check Standards
- Interfering Element Check Standards
- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB98590
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB071315M1.ICP  Date Analyzed: 07/13/15  Methods: EPA 200.7, SW846 6010C
Analyst: KK  Run ID: MA37077
Parameters: Co,Pb,Ni,V,Zn

| Time | Sample Description | Dilution Factor | PS Recov | Comments |
|---|---|---|---|---|
| 11:36 | MA37077-STD1 | 1 | | STDA |
| 11:42 | MA37077-STD2 | 1 | | STDB |
| 11:48 | ZZZZZZ | 1 | | |
| 11:53 | ZZZZZZ | 1 | | |
| 12:03 | MA37077-ICV1 | 1 | | |
| 12:09 | MA37077-ICV2 | 1 | | |
| 12:21 | MA37077-ICB1 | 1 | | |
| 12:29 | MA37077-ICCV1 | 1 | | |
| 12:45 | MA37077-CCB1 | 1 | | |
| 12:53 | MA37077-CRI1 | 1 | | |
| 12:59 | MA37077-CRID1 | 1 | | |
| 13:05 | MA37077-CRIA1 | 1 | | |
| 13:11 | MA37077-ICSA1 | 1 | | |
| 13:18 | MA37077-ICSAB1 | 1 | | |
| 13:24 | ZZZZZZ | 1 | | |
| 13:30 | ZZZZZZ | 1 | | |
| 13:36 | MA37077-CCV1 | 1 | | |
| 13:42 | MA37077-CCB2 | 1 | | |
| 13:48 | MA37077-CRID2 | 1 | | |
| 13:54 | ZZZZZZ | 1 | | |
| 14:00 | MP87607-MB1 | 1 | | |
| 14:06 | MP87607-B1 | 1 | | |
| 14:12 | MP87607-S1 | 1 | | |
| 14:17 | MP87607-S2 | 1 | | |
| 14:23 | JB98684-3 | 1 | | (sample used for QC only; not part of login JB98590) |
| 14:30 | MP87607-SD1 | 5 | | |
| 14:36 | ZZZZZZ | 1 | | |
| 14:42 | MA37077-CCV2 | 1 | | |
| 14:47 | MA37077-CCB3 | 1 | | |
| 14:54 | ZZZZZZ | 1 | | |
| 15:00 | ZZZZZZ | 1 | | |
| 15:06 | ZZZZZZ | 1 | | |
| 15:12 | ZZZZZZ | 1 | | |

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB98590
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB071315M1.ICP  Date Analyzed: 07/13/15  Methods: EPA 200.7, SW846 6010C
Analyst: KK  Run ID: MA37077
Parameters: Co,Pb,Ni,V,Zn

| Time | Sample Description | Dilution Factor | PS Recov | Comments |
|---|---|---|---|---|
| 15:18 | ZZZZZZ | 1 | | |
| 15:24 | ZZZZZZ | 1 | | |
| 15:30 | ZZZZZZ | 1 | | |
| 15:36 | ZZZZZZ | 1 | | |
| 15:42 | ZZZZZZ | 1 | | |
| 15:48 | MA37077-CCV3 | 1 | | |
| 15:54 | MA37077-CCB4 | 1 | | |
| 16:00 | ZZZZZZ | 1 | | |
| 16:07 | ZZZZZZ | 1 | | |
| 16:13 | ZZZZZZ | 1 | | |
| 16:19 | ZZZZZZ | 1 | | |
| 16:25 | ZZZZZZ | 1 | | |
| 16:31 | ZZZZZZ | 1 | | |
| 16:38 | ZZZZZZ | 1 | | |
| 16:44 | ZZZZZZ | 1 | | |
| 16:52 | ZZZZZZ | 1 | | |
| 16:58 | ZZZZZZ | 1 | | |
| 17:05 | MA37077-CCV4 | 1 | | |
| 17:10 | MA37077-CCB5 | 1 | | |
| 17:16 | ZZZZZZ | 1 | | |
| 17:23 | ZZZZZZ | 1 | | |
| 17:29 | ZZZZZZ | 1 | | |
| 17:35 | ZZZZZZ | 1 | | |
| 17:41 | MP87602-MB1 | 5 | | |
| 17:47 | MP87602-B1 | 5 | | |
| 17:53 | MP87602-S1 | 5 | | |
| 17:59 | MP87602-S2 | 5 | | |
| 18:05 | JB98756-1 | 5 | | (sample used for QC only; not part of login JB98590) |
| 18:11 | MA37077-CCV5 | 1 | | |
| 18:17 | MA37077-CCB6 | 1 | | |
| 18:23 | MP87602-SD1 | 25 | | |
| 18:29 | ZZZZZZ | 5 | | |
| 18:35 | ZZZZZZ | 5 | | |

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB98590
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB071315M1.ICP  Date Analyzed: 07/13/15  Methods: EPA 200.7, SW846 6010C
Analyst: KK  Run ID: MA37077
Parameters: Co,Pb,Ni,V,Zn

| Time | Sample Description | Dilution Factor | PS Recov | Comments |
|---|---|---|---|---|
| 18:41 | MP87589A-MB1 | 1 | | |
| 18:47 | MP87589A-B1 | 1 | | |
| 18:53 | MP87589A-S1 | 1 | | |
| 18:59 | MP87589A-S2 | 1 | | |
| 19:04 | JB98590-1F | 1 | | |
| 19:10 | MP87589A-SD1 | 5 | | |
| 19:16 | MA37077-CCV6 | 1 | | |
| 19:22 | MA37077-CCB7 | 1 | | |
| 19:28 | JB98590-2F | 1 | | |
| 19:34 | JB98590-3F | 1 | | |
| 19:40 | JB98590-4F | 1 | | |
| 19:46 | JB98590-5F | 1 | | |
| 19:52 | JB98590-6F | 1 | | |
| 19:58 | JB98590-7F | 1 | | |
| 20:04 | JB98590-9F | 1 | | |
| 20:10 | JB98590-10F | 1 | | |
| 20:16 | JB98590-11F | 1 | | |
| 20:22 | MA37077-CCV7 | 1 | | |
| 20:28 | MA37077-CCB8 | 1 | | |
| 20:34 | MA37077-CRI2 | 1 | | |
| 20:40 | MA37077-CRID3 | 1 | | |
| 20:46 | MA37077-CRIA2 | 1 | | |
| 20:52 | MA37077-ICSA2 | 1 | | |
| 20:58 | MA37077-ICSAB2 | 1 | | |
| 21:04 | ZZZZZZ | 1 | | |
| 21:11 | ZZZZZZ | 1 | | |
| 21:17 | ZZZZZZ | 1 | | |
| 21:23 | MA37077-CCV8 | 1 | | |
| 21:29 | MA37077-CCB9 | 1 | | |
| 21:35 | JB98590-12F | 1 | | |
| 21:41 | JB98590-13F | 1 | | |
| 21:47 | JB98590-14F | 1 | | |
| 21:53 | JB98590-15F | 1 | | |

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB98590
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB071315M1.ICP  Date Analyzed: 07/13/15  Methods: EPA 200.7, SW846 6010C
Analyst: KK  Run ID: MA37077
Parameters: Co,Pb,Ni,V,Zn

| | Time | Sample Description | Dilution Factor | PS Recov | Comments |
|---|---|---|---|---|---|
| | 21:59 | JB98590-16F | 1 | | |
| | 22:05 | JB98590-17F | 1 | | |
| | 22:11 | JB98590-18F | 1 | | |
| ----------> | Last reportable sample/prep for job JB98590 | | | | |
| | 22:17 | ZZZZZZ | 2 | | |
| | 22:23 | ZZZZZZ | 3 | | |
| | 22:29 | MA37077-CCV9 | 1 | | |
| | 22:35 | MA37077-CCB10 | 1 | | |
| | 22:41 | MA37077-CRI3 | 1 | | |
| | 22:47 | MA37077-CRID4 | 1 | | |
| | 22:53 | MA37077-CRIA3 | 1 | | |
| | 22:59 | MA37077-CCV10 | 1 | | |
| | 23:05 | MA37077-CCB11 | 1 | | |
| ----------> | Last reportable CCB for job JB98590 | | | | |
| | 23:11 | ZZZZZZ | 1 | | |
| | 23:17 | ZZZZZZ | 1 | | |
| | 23:23 | ZZZZZZ | 1 | | |
| | 23:29 | ZZZZZZ | 1 | | |
| | 23:35 | ZZZZZZ | 1 | | |

Refer to raw data for calibration curve and standards.

INTERNAL STANDARD SUMMARY

Login Number: JB98590
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB071315M1.ICP  Date Analyzed: 07/13/15  Methods: EPA 200.7, SW846 6010C
Analyst: KK  Run ID: MA37077
Parameters: Co,Pb,Ni,V,Zn

| Time | Sample Description | Istd#1 | Istd#2 | Istd#3 | Istd#4 |
|---|---|---|---|---|---|
| 11:36 | MA37077-STD1 | 1684 R | 39094 R | 15396 R | 5828 R |
| 11:42 | MA37077-STD2 | 1582 | 37011 | 15218 | 5257 |
| 11:48 | ZZZZZZ | 1621 | 37786 | 15203 | 5397 |
| 11:53 | ZZZZZZ | 1667 | 39061 | 15796 | 5773 |
| 12:03 | MA37077-ICV1 | No results reported for the elements associated with this internal standard. | | | |
| 12:09 | MA37077-ICV2 | 1623 | 37976 | 15441 | 5407 |
| 12:21 | MA37077-ICB1 | 1684 | 39724 | 15580 | 5835 |
| 12:29 | MA37077-ICCV1 | 1640 | 38475 | 15404 | 5471 |
| 12:45 | MA37077-CCB1 | 1680 | 39591 | 15511 | 5836 |
| 12:53 | MA37077-CRI1 | 1670 | 39300 | 15545 | 5747 |
| 12:59 | MA37077-CRID1 | No results reported for the elements associated with this internal standard. | | | |
| 13:05 | MA37077-CRIA1 | 1681 | 39663 | 15635 | 5836 |
| 13:11 | MA37077-ICSA1 | 1495 | 35106 | 15031 | 4901 |
| 13:18 | MA37077-ICSAB1 | 1492 | 35212 | 15013 | 4913 |
| 13:24 | ZZZZZZ | 1651 | 39218 | 15589 | 5863 |
| 13:30 | ZZZZZZ | 1635 | 39569 | 15542 | 5782 |
| 13:36 | MA37077-CCV1 | 1617 | 38210 | 15464 | 5391 |
| 13:42 | MA37077-CCB2 | 1679 | 39838 | 15593 | 5832 |
| 13:48 | MA37077-CRID2 | 1675 | 39743 | 15611 | 5800 |
| 13:54 | ZZZZZZ | 1681 | 39918 | 15728 | 5839 |
| 14:00 | MP87607-MB1 | 1673 | 39912 | 15880 | 5813 |
| 14:06 | MP87607-B1 | 1627 | 38034 | 15630 | 5502 |
| 14:12 | MP87607-S1 | 1653 | 37287 | 16413 | 5337 |
| 14:17 | MP87607-S2 | 1649 | 37692 | 16344 | 5332 |
| 14:23 | JB98684-3 | 1669 | 36451 | 16668 | 5397 |
| 14:30 | MP87607-SD1 | 1659 | 38787 | 15803 | 5554 |
| 14:36 | ZZZZZZ | 1769 | 39979 | 16946 | 5434 |
| 14:42 | MA37077-CCV2 | 1580 | 37604 | 15361 | 5260 |
| 14:47 | MA37077-CCB3 | 1614 | 39132 | 15099 | 5599 |
| 14:54 | ZZZZZZ | 2806 !a | 66370 !a | 27689 !a | 5389 |
| 15:00 | ZZZZZZ | 1699 | 39269 | 16995 | 5308 |
| 15:06 | ZZZZZZ | 1729 | 40203 | 17363 | 5287 |
| 15:12 | ZZZZZZ | 1729 | 40866 | 17295 | 5399 |

INTERNAL STANDARD SUMMARY

Login Number: JB98590
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB071315M1.ICP  Date Analyzed: 07/13/15  Methods: EPA 200.7, SW846 6010C
Analyst: KK  Run ID: MA37077
Parameters: Co,Pb,Ni,V,Zn

| Time | Sample Description | Istd#1 | Istd#2 | Istd#3 | Istd#4 |
|---|---|---|---|---|---|
| 15:18 | ZZZZZZ | 1699 | 40626 | 17527 | 5216 |
| 15:24 | ZZZZZZ | 1731 | 40711 | 17497 | 5372 |
| 15:30 | ZZZZZZ | 1643 | 39217 | 16792 | 5782 |
| 15:36 | ZZZZZZ | 1642 | 38792 | 16153 | 5400 |
| 15:42 | ZZZZZZ | 1602 | 38572 | 15426 | 5628 |
| 15:48 | MA37077-CCV3 | 1540 | 36967 | 15393 | 5186 |
| 15:54 | MA37077-CCB4 | 1607 | 38714 | 15324 | 5591 |
| 16:00 | ZZZZZZ | 1366 | 32604 | 14826 | 4718 |
| 16:07 | ZZZZZZ | 1530 | 37454 | 15837 | 5001 |
| 16:13 | ZZZZZZ | 1629 | 38739 | 16247 | 5365 |
| 16:19 | ZZZZZZ | 1608 | 37798 | 16224 | 5313 |
| 16:25 | ZZZZZZ | 1553 | 37583 | 15726 | 5071 |
| 16:31 | ZZZZZZ | 1333 | 32232 | 14653 | 4744 |
| 16:38 | ZZZZZZ | 1541 | 37753 | 15608 | 5373 |
| 16:44 | ZZZZZZ | 1586 | 38027 | 15661 | 5408 |
| 16:52 | ZZZZZZ | 6255 ! | 125760 ! | 34256 ! | 20792 ! |
| 16:58 | ZZZZZZ | 1313 | 32314 | 14079 | 4681 |
| 17:05 | MA37077-CCV4 | 1532 | 36627 | 14906 | 5126 |
| 17:10 | MA37077-CCB5 | 1577 | 38163 | 15085 | 5472 |
| 17:16 | ZZZZZZ | 1506 | 36900 | 15004 | 5254 |
| 17:23 | ZZZZZZ | 1519 | 37750 | 15620 | 5428 |
| 17:29 | ZZZZZZ | 1569 | 37971 | 15496 | 5348 |
| 17:35 | ZZZZZZ | 1561 | 37517 | 15731 | 5233 |
| 17:41 | MP87602-MB1 | 1567 | 38424 | 15152 | 5474 |
| 17:47 | MP87602-B1 | 1559 | 37848 | 15232 | 5377 |
| 17:53 | MP87602-S1 | 1436 | 36156 | 14527 | 4801 |
| 17:59 | MP87602-S2 | 1454 | 35506 | 14584 | 4852 |
| 18:05 | JB98756-1 | 1448 | 35311 | 14622 | 4863 |
| 18:11 | MA37077-CCV5 | 1515 | 36726 | 14970 | 5078 |
| 18:17 | MA37077-CCB6 | 1575 | 38381 | 15075 | 5469 |
| 18:23 | MP87602-SD1 | 1507 | 37337 | 14915 | 5186 |
| 18:29 | ZZZZZZ | 1440 | 35387 | 14585 | 4836 |
| 18:35 | ZZZZZZ | 1435 | 35530 | 14551 | 4814 |

INTERNAL STANDARD SUMMARY

Login Number: JB98590
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB071315M1.ICP  Date Analyzed: 07/13/15  Methods: EPA 200.7, SW846 6010C
Analyst: KK  Run ID: MA37077
Parameters: Co,Pb,Ni,V,Zn

| Time | Sample Description | Istd#1 | Istd#2 | Istd#3 | Istd#4 |
|---|---|---|---|---|---|
| 18:41 | MP87589A-MB1 | 1571 | 38452 | 15183 | 5484 |
| 18:47 | MP87589A-B1 | 1525 | 37346 | 15119 | 5182 |
| 18:53 | MP87589A-S1 | 1486 | 36436 | 15122 | 5021 |
| 18:59 | MP87589A-S2 | 1488 | 36496 | 15042 | 5022 |
| 19:04 | JB98590-1F | 1514 | 37826 | 15208 | 5190 |
| 19:10 | MP87589A-SD1 | 1559 | 38268 | 15098 | 5434 |
| 19:16 | MA37077-CCV6 | 1509 | 36948 | 15006 | 5074 |
| 19:22 | MA37077-CCB7 | 1586 | 38695 | 14904 | 5514 |
| 19:28 | JB98590-2F | 1543 | 37949 | 15274 | 5345 |
| 19:34 | JB98590-3F | 1504 | 36846 | 15229 | 5072 |
| 19:40 | JB98590-4F | 1582 | 38708 | 15269 | 5514 |
| 19:46 | JB98590-5F | 1516 | 37063 | 15186 | 5109 |
| 19:52 | JB98590-6F | 1545 | 37856 | 15396 | 5285 |
| 19:58 | JB98590-7F | 1523 | 37488 | 15368 | 5203 |
| 20:04 | JB98590-9F | 1519 | 37476 | 15231 | 5168 |
| 20:10 | JB98590-10F | 1538 | 37742 | 15005 | 5277 |
| 20:16 | JB98590-11F | 1511 | 37474 | 15048 | 5136 |
| 20:22 | MA37077-CCV7 | 1526 | 36962 | 14919 | 5116 |
| 20:28 | MA37077-CCB8 | 1591 | 38757 | 15127 | 5541 |
| 20:34 | MA37077-CRI2 | 1591 | 38414 | 14987 | 5485 |
| 20:40 | MA37077-CRID3 | 1602 | 38601 | 15018 | 5565 |
| 20:46 | MA37077-CRIA2 | 1593 | 38828 | 15063 | 5551 |
| 20:52 | MA37077-ICSA2 | 1437 | 34335 | 14358 | 4736 |
| 20:58 | MA37077-ICSAB2 | 1422 | 34347 | 14318 | 4699 |
| 21:04 | ZZZZZZ | 1607 | 38791 | 15123 | 5591 |
| 21:11 | ZZZZZZ | 1620 | 39033 | 15001 | 5633 |
| 21:17 | ZZZZZZ | 1616 | 38992 | 15109 | 5641 |
| 21:23 | MA37077-CCV8 | 1551 | 37198 | 14442 | 5202 |
| 21:29 | MA37077-CCB9 | 1606 | 38891 | 14736 | 5599 |
| 21:35 | JB98590-12F | 1580 | 38507 | 15236 | 5465 |
| 21:41 | JB98590-13F | 1526 | 37544 | 15142 | 5142 |
| 21:47 | JB98590-14F | 1548 | 38328 | 15487 | 5286 |
| 21:53 | JB98590-15F | 1550 | 38139 | 14977 | 5270 |

INTERNAL STANDARD SUMMARY

Login Number: JB98590
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB071315M1.ICP  Date Analyzed: 07/13/15  Methods: EPA 200.7, SW846 6010C
Analyst: KK  Run ID: MA37077
Parameters: Co,Pb,Ni,V,Zn

| Time | Sample Description | Istd#1 | Istd#2 | Istd#3 | Istd#4 |
|---|---|---|---|---|---|
| 21:59 | JB98590-16F | 1519 | 37628 | 15102 | 5154 |
| 22:05 | JB98590-17F | 1536 | 38204 | 15347 | 5216 |
| 22:11 | JB98590-18F | 1516 | 38286 | 14638 | 5119 |
| 22:17 | ZZZZZZ | 1641 | 39925 | 16318 | 5249 |
| 22:23 | ZZZZZZ | 1595 | 39096 | 15888 | 5500 |
| 22:29 | MA37077-CCV9 | 1541 | 37289 | 14918 | 5162 |
| 22:35 | MA37077-CCB10 | 1605 | 39257 | 15250 | 5580 |
| 22:41 | MA37077-CRI3 | 1591 | 39045 | 15265 | 5502 |
| 22:47 | MA37077-CRID4 | 1601 | 39152 | 15111 | 5559 |
| 22:53 | MA37077-CRIA3 | 1602 | 39307 | 15431 | 5567 |
| 22:59 | MA37077-CCV10 | 1546 | 37750 | 15088 | 5178 |
| 23:05 | MA37077-CCB11 | 1608 | 39586 | 15360 | 5597 |
| 23:11 | ZZZZZZ | 1599 | 39301 | 15303 | 5562 |
| 23:17 | ZZZZZZ | 1604 | 39138 | 15378 | 5577 |
| 23:23 | ZZZZZZ | 1620 | 37314 | 16057 | 5233 |
| 23:29 | ZZZZZZ | 1488 | 37020 | 14890 | 4978 |
| 23:35 | ZZZZZZ | 1631 | 39633 | 15420 | 5659 |

R = Reference for ISTD limits.  ! = Outside limits.

LEGEND:

| Istd# | Parameter | Limits |
|---|---|---|
| Istd#1 | Yttrium (2243) | 70-130 % |
| Istd#2 | Yttrium (3600) | 70-130 % |
| Istd#3 | Yttrium (3710) | 70-130 % |
| Istd#4 | Indium | 70-130 % |

(a) No samples reported for the elements associated with this internal standard.

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB98590
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB071315M1.ICP  Date Analyzed: 07/13/15  Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL  Run ID: MA37077  Units: ug/l

| Time: | | | 12:21 | | 12:45 | | 13:42 | | 14:47 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID: | | | ICB1 | | CCB1 | | CCB2 | | CCB3 | |
| Metal | RL | IDL | raw | final | raw | final | raw | final | raw | final |
| Aluminum | 200 | 14 | anr | | | | | | | |
| Antimony | 6.0 | 1.1 | anr | | | | | | | |
| Arsenic | 3.0 | .96 | anr | | | | | | | |
| Barium | 200 | .3 | anr | | | | | | | |
| Beryllium | 1.0 | .18 | anr | | | | | | | |
| Bismuth | 20 | 1.5 | | | | | | | | |
| Boron | 100 | 2.2 | | | | | | | | |
| Cadmium | 3.0 | .35 | anr | | | | | | | |
| Calcium | 5000 | 28 | anr | | | | | | | |
| Chromium | 10 | .4 | anr | | | | | | | |
| Cobalt | 50 | .28 | 0.10 | <50 | -0.10 | <50 | -0.10 | <50 | 0.10 | <50 |
| Copper | 10 | .57 | anr | | | | | | | |
| Iron | 100 | 7.2 | anr | | | | | | | |
| Lead | 3.0 | .98 | -0.50 | <3.0 | -0.40 | <3.0 | 0.30 | <3.0 | -0.10 | <3.0 |
| Lithium | 20 | 2.7 | | | | | | | | |
| Magnesium | 5000 | 29 | anr | | | | | | | |
| Manganese | 15 | .23 | anr | | | | | | | |
| Molybdenum | 20 | .39 | | | | | | | | |
| Nickel | 10 | .3 | -0.20 | <10 | -0.10 | <10 | -0.10 | <10 | -0.30 | <10 |
| Palladium | 50 | 1.7 | | | | | | | | |
| Potassium | 10000 | 58 | anr | | | | | | | |
| Selenium | 10 | 1.9 | anr | | | | | | | |
| Silicon | 200 | 3.5 | | | | | | | | |
| Silver | 10 | .53 | anr | | | | | | | |
| Sodium | 10000 | 18 | anr | | | | | | | |
| Sulfur | 50 | 2.5 | | | | | | | | |
| Strontium | 10 | .23 | | | | | | | | |
| Thallium | 2.0 | 1.8 | anr | | | | | | | |
| Tin | 10 | .88 | | | | | | | | |
| Titanium | 10 | .45 | | | | | | | | |
| Tungsten | 50 | 1.5 | | | | | | | | |
| Vanadium | 50 | .37 | 0.20 | <50 | 0.40 | <50 | 0.10 | <50 | 0.10 | <50 |
| Zinc | 20 | 1.9 | 0.20 | <20 | 0.0 | <20 | 0.0 | <20 | 0.20 | <20 |

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB98590
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB071315M1.ICP  Date Analyzed: 07/13/15  Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL  Run ID: MA37077  Units: ug/l

| Time: | | | 12:21 | | 12:45 | | 13:42 | | 14:47 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID: | | | ICB1 | | CCB1 | | CCB2 | | CCB3 | |
| Metal | RL | IDL | raw | final | raw | final | raw | final | raw | final |
| Zirconium | 10 | .23 | | | | | | | | |

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB98590
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB071315M1.ICP  Date Analyzed: 07/13/15  Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL  Run ID: MA37077  Units: ug/l

| Time: | | | 15:54 | | 17:10 | | 18:17 | | 19:22 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID: | | | CCB4 | | CCB5 | | CCB6 | | CCB7 | |
| Metal | RL | IDL | raw | final | raw | final | raw | final | raw | final |
| Aluminum | 200 | 14 | anr | | | | | | | |
| Antimony | 6.0 | 1.1 | anr | | | | | | | |
| Arsenic | 3.0 | .96 | anr | | | | | | | |
| Barium | 200 | .3 | anr | | | | | | | |
| Beryllium | 1.0 | .18 | anr | | | | | | | |
| Bismuth | 20 | 1.5 | | | | | | | | |
| Boron | 100 | 2.2 | | | | | | | | |
| Cadmium | 3.0 | .35 | anr | | | | | | | |
| Calcium | 5000 | 28 | anr | | | | | | | |
| Chromium | 10 | .4 | anr | | | | | | | |
| Cobalt | 50 | .28 | 0.10 | <50 | 0.20 | <50 | -0.20 | <50 | 0.10 | <50 |
| Copper | 10 | .57 | anr | | | | | | | |
| Iron | 100 | 7.2 | anr | | | | | | | |
| Lead | 3.0 | .98 | -0.30 | <3.0 | -0.10 | <3.0 | -0.10 | <3.0 | -0.40 | <3.0 |
| Lithium | 20 | 2.7 | | | | | | | | |
| Magnesium | 5000 | 29 | anr | | | | | | | |
| Manganese | 15 | .23 | anr | | | | | | | |
| Molybdenum | 20 | .39 | | | | | | | | |
| Nickel | 10 | .3 | -0.20 | <10 | -0.10 | <10 | -0.10 | <10 | -0.20 | <10 |
| Palladium | 50 | 1.7 | | | | | | | | |
| Potassium | 10000 | 58 | anr | | | | | | | |
| Selenium | 10 | 1.9 | anr | | | | | | | |
| Silicon | 200 | 3.5 | | | | | | | | |
| Silver | 10 | .53 | anr | | | | | | | |
| Sodium | 10000 | 18 | anr | | | | | | | |
| Sulfur | 50 | 2.5 | | | | | | | | |
| Strontium | 10 | .23 | | | | | | | | |
| Thallium | 2.0 | 1.8 | anr | | | | | | | |
| Tin | 10 | .88 | | | | | | | | |
| Titanium | 10 | .45 | | | | | | | | |
| Tungsten | 50 | 1.5 | | | | | | | | |
| Vanadium | 50 | .37 | 0.0 | <50 | 0.20 | <50 | 0.20 | <50 | -0.10 | <50 |
| Zinc | 20 | 1.9 | 0.10 | <20 | 0.10 | <20 | 0.10 | <20 | 0.30 | <20 |

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB98590
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB071315M1.ICP  Date Analyzed: 07/13/15  Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL  Run ID: MA37077  Units: ug/l

| Time: | | | 15:54 | | 17:10 | | 18:17 | | 19:22 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID: | | | CCB4 | | CCB5 | | CCB6 | | CCB7 | |
| Metal | RL | IDL | raw | final | raw | final | raw | final | raw | final |
| Zirconium | 10 | .23 | | | | | | | | |

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB98590
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB071315M1.ICP  Date Analyzed: 07/13/15  Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL  Run ID: MA37077  Units: ug/l

| Time: | | | 20:28 | | 21:29 | | 22:35 | | 23:05 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID: | | | CCB8 | | CCB9 | | CCB10 | | CCB11 | |
| Metal | RL | IDL | raw | final | raw | final | raw | final | raw | final |
| Aluminum | 200 | 14 | anr | | | | | | | |
| Antimony | 6.0 | 1.1 | anr | | | | | | | |
| Arsenic | 3.0 | .96 | anr | | | | | | | |
| Barium | 200 | .3 | anr | | | | | | | |
| Beryllium | 1.0 | .18 | anr | | | | | | | |
| Bismuth | 20 | 1.5 | | | | | | | | |
| Boron | 100 | 2.2 | | | | | | | | |
| Cadmium | 3.0 | .35 | anr | | | | | | | |
| Calcium | 5000 | 28 | anr | | | | | | | |
| Chromium | 10 | .4 | anr | | | | | | | |
| Cobalt | 50 | .28 | 0.10 | <50 | 0.0 | <50 | 0.10 | <50 | 0.20 | <50 |
| Copper | 10 | .57 | anr | | | | | | | |
| Iron | 100 | 7.2 | anr | | | | | | | |
| Lead | 3.0 | .98 | -0.10 | <3.0 | 0.0 | <3.0 | 0.20 | <3.0 | -0.20 | <3.0 |
| Lithium | 20 | 2.7 | | | | | | | | |
| Magnesium | 5000 | 29 | anr | | | | | | | |
| Manganese | 15 | .23 | anr | | | | | | | |
| Molybdenum | 20 | .39 | | | | | | | | |
| Nickel | 10 | .3 | -0.10 | <10 | 0.0 | <10 | 0.20 | <10 | 0.30 | <10 |
| Palladium | 50 | 1.7 | | | | | | | | |
| Potassium | 10000 | 58 | anr | | | | | | | |
| Selenium | 10 | 1.9 | anr | | | | | | | |
| Silicon | 200 | 3.5 | | | | | | | | |
| Silver | 10 | .53 | anr | | | | | | | |
| Sodium | 10000 | 18 | anr | | | | | | | |
| Sulfur | 50 | 2.5 | | | | | | | | |
| Strontium | 10 | .23 | | | | | | | | |
| Thallium | 2.0 | 1.8 | anr | | | | | | | |
| Tin | 10 | .88 | | | | | | | | |
| Titanium | 10 | .45 | | | | | | | | |
| Tungsten | 50 | 1.5 | | | | | | | | |
| Vanadium | 50 | .37 | -0.10 | <50 | 0.20 | <50 | 0.10 | <50 | 0.10 | <50 |
| Zinc | 20 | 1.9 | 0.20 | <20 | 0.20 | <20 | 0.50 | <20 | 0.40 | <20 |

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB98590
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB071315M1.ICP  Date Analyzed: 07/13/15  Methods: EPA 200.7, SW846 6010C
QC Limits: result < RL  Run ID: MA37077  Units: ug/l

| Time: | | | 20:28 | | 21:29 | | 22:35 | | 23:05 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID: | | | CCB8 | | CCB9 | | CCB10 | | CCB11 | |
| Metal | RL | IDL | raw | final | raw | final | raw | final | raw | final |
| Zirconium | 10 | .23 | | | | | | | | |

(*) Outside of QC limits
(anr) Analyte not requested

12.1.2
12

CALIBRATION CHECK STANDARDS SUMMARY
Initial Continuing Calibration Check

Login Number: JB98590
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB071315M1.ICP  Date Analyzed: 07/13/15  Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery  Run ID: MA37077  Units: ug/l

| Time: | | 12:29 | |
|---|---|---|---|
| Sample ID: | ICCV | ICCV1 | |
| Metal | True | Results | % Rec |
| Aluminum | anr | | |
| Antimony | anr | | |
| Arsenic | anr | | |
| Barium | anr | | |
| Beryllium | anr | | |
| Bismuth | | | |
| Boron | | | |
| Cadmium | anr | | |
| Calcium | anr | | |
| Chromium | anr | | |
| Cobalt | 2000 | 1990 | 99.5 |
| Copper | anr | | |
| Iron | anr | | |
| Lead | 2000 | 2010 | 100.5 |
| Lithium | | | |
| Magnesium | anr | | |
| Manganese | anr | | |
| Molybdenum | | | |
| Nickel | 2000 | 2010 | 100.5 |
| Palladium | | | |
| Potassium | anr | | |
| Selenium | anr | | |
| Silicon | | | |
| Silver | anr | | |
| Sodium | anr | | |
| Sulfur | | | |
| Strontium | | | |
| Thallium | anr | | |
| Tin | | | |
| Titanium | | | |
| Tungsten | | | |
| Vanadium | 2000 | 2000 | 100.0 |
| Zinc | 2000 | 2010 | 100.5 |

CALIBRATION CHECK STANDARDS SUMMARY
Initial Continuing Calibration Check

Login Number: JB98590
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB071315M1.ICP  Date Analyzed: 07/13/15  Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery  Run ID: MA37077  Units: ug/l

| | | | |
|---|---|---|---|
| Time: | | 12:29 | |
| Sample ID: | ICCV | ICCV1 | |
| Metal | True | Results | % Rec |
| Zirconium | | | |

(*) Outside of QC limits
(anr) Analyte not requested

12.1.3
12

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB98590
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB071315M1.ICP  Date Analyzed: 07/13/15  Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery  Run ID: MA37077  Units: ug/l

| Time: | | 12:09 | | | 13:36 | | | 14:42 | |
|---|---|---|---|---|---|---|---|---|---|
| Sample ID: | ICV | ICV2 | | CCV | CCV1 | | CCV | CCV2 | |
| Metal | True | Results | % Rec | True | Results | % Rec | True | Results | % Rec |
| Aluminum | anr | | | | | | | | |
| Antimony | anr | | | | | | | | |
| Arsenic | anr | | | | | | | | |
| Barium | anr | | | | | | | | |
| Beryllium | anr | | | | | | | | |
| Bismuth | | | | | | | | | |
| Boron | | | | | | | | | |
| Cadmium | anr | | | | | | | | |
| Calcium | anr | | | | | | | | |
| Chromium | anr | | | | | | | | |
| Cobalt | 2000 | 2020 | 101.0 | 2000 | 2010 | 100.5 | 2000 | 2050 | 102.5 |
| Copper | anr | | | | | | | | |
| Iron | anr | | | | | | | | |
| Lead | 2000 | 2040 | 102.0 | 2000 | 2030 | 101.5 | 2000 | 2060 | 103.0 |
| Lithium | | | | | | | | | |
| Magnesium | anr | | | | | | | | |
| Manganese | anr | | | | | | | | |
| Molybdenum | | | | | | | | | |
| Nickel | 2000 | 2050 | 102.5 | 2000 | 2030 | 101.5 | 2000 | 2060 | 103.0 |
| Palladium | | | | | | | | | |
| Potassium | anr | | | | | | | | |
| Selenium | anr | | | | | | | | |
| Silicon | | | | | | | | | |
| Silver | anr | | | | | | | | |
| Sodium | anr | | | | | | | | |
| Sulfur | | | | | | | | | |
| Strontium | | | | | | | | | |
| Thallium | anr | | | | | | | | |
| Tin | | | | | | | | | |
| Titanium | | | | | | | | | |
| Tungsten | | | | | | | | | |
| Vanadium | 2000 | 2030 | 101.5 | 2000 | 2010 | 100.5 | 2000 | 2020 | 101.0 |
| Zinc | 2000 | 2040 | 102.0 | 2000 | 2030 | 101.5 | 2000 | 2040 | 102.0 |

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB98590
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB071315M1.ICP  Date Analyzed: 07/13/15  Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery  Run ID: MA37077  Units: ug/l

| Time: | | 12:09 | | | 13:36 | | | 14:42 | |
|---|---|---|---|---|---|---|---|---|---|
| Sample ID: | ICV | ICV2 | | CCV | CCV1 | | CCV | CCV2 | |
| Metal | True | Results | % Rec | True | Results | % Rec | True | Results | % Rec |
| Zirconium | | | | | | | | | |

(*) Outside of QC limits
(anr) Analyte not requested

12.1.4
12

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB98590
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB071315M1.ICP  Date Analyzed: 07/13/15  Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery  Run ID: MA37077  Units: ug/l

| Time: | | 15:48 | | | 17:05 | | | 18:11 | |
|---|---|---|---|---|---|---|---|---|---|
| Sample ID: | CCV | CCV3 | | CCV | CCV4 | | CCV | CCV5 | |
| Metal | True | Results | % Rec | True | Results | % Rec | True | Results | % Rec |
| Aluminum | anr | | | | | | | | |
| Antimony | anr | | | | | | | | |
| Arsenic | anr | | | | | | | | |
| Barium | anr | | | | | | | | |
| Beryllium | anr | | | | | | | | |
| Bismuth | | | | | | | | | |
| Boron | | | | | | | | | |
| Cadmium | anr | | | | | | | | |
| Calcium | anr | | | | | | | | |
| Chromium | anr | | | | | | | | |
| Cobalt | 2000 | 2040 | 102.0 | 2000 | 2040 | 102.0 | 2000 | 2060 | 103.0 |
| Copper | anr | | | | | | | | |
| Iron | anr | | | | | | | | |
| Lead | 2000 | 2050 | 102.5 | 2000 | 2060 | 103.0 | 2000 | 2070 | 103.5 |
| Lithium | | | | | | | | | |
| Magnesium | anr | | | | | | | | |
| Manganese | anr | | | | | | | | |
| Molybdenum | | | | | | | | | |
| Nickel | 2000 | 2050 | 102.5 | 2000 | 2060 | 103.0 | 2000 | 2070 | 103.5 |
| Palladium | | | | | | | | | |
| Potassium | anr | | | | | | | | |
| Selenium | anr | | | | | | | | |
| Silicon | | | | | | | | | |
| Silver | anr | | | | | | | | |
| Sodium | anr | | | | | | | | |
| Sulfur | | | | | | | | | |
| Strontium | | | | | | | | | |
| Thallium | anr | | | | | | | | |
| Tin | | | | | | | | | |
| Titanium | | | | | | | | | |
| Tungsten | | | | | | | | | |
| Vanadium | 2000 | 2050 | 102.5 | 2000 | 2050 | 102.5 | 2000 | 2050 | 102.5 |
| Zinc | 2000 | 2040 | 102.0 | 2000 | 2050 | 102.5 | 2000 | 2060 | 103.0 |

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB98590
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB071315M1.ICP  Date Analyzed: 07/13/15  Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery  Run ID: MA37077  Units: ug/l

| Time: | | 15:48 | | | 17:05 | | | 18:11 | |
|---|---|---|---|---|---|---|---|---|---|
| Sample ID: | CCV | CCV3 | | CCV | CCV4 | | CCV | CCV5 | |
| Metal | True | Results | % Rec | True | Results | % Rec | True | Results | % Rec |
| Zirconium | | | | | | | | | |

(*) Outside of QC limits
(anr) Analyte not requested

12.1.4
12

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB98590
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB071315M1.ICP  Date Analyzed: 07/13/15  Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery  Run ID: MA37077  Units: ug/l

| Time: | | 19:16 | | | 20:22 | | | 21:23 | |
|---|---|---|---|---|---|---|---|---|---|
| Sample ID: | CCV | CCV6 | | CCV | CCV7 | | CCV | CCV8 | |
| Metal | True | Results | % Rec | True | Results | % Rec | True | Results | % Rec |
| Aluminum | anr | | | | | | | | |
| Antimony | anr | | | | | | | | |
| Arsenic | anr | | | | | | | | |
| Barium | anr | | | | | | | | |
| Beryllium | anr | | | | | | | | |
| Bismuth | | | | | | | | | |
| Boron | | | | | | | | | |
| Cadmium | anr | | | | | | | | |
| Calcium | anr | | | | | | | | |
| Chromium | anr | | | | | | | | |
| Cobalt | 2000 | 2050 | 102.5 | 2000 | 2040 | 102.0 | 2000 | 2000 | 100.0 |
| Copper | anr | | | | | | | | |
| Iron | anr | | | | | | | | |
| Lead | 2000 | 2060 | 103.0 | 2000 | 2050 | 102.5 | 2000 | 2020 | 101.0 |
| Lithium | | | | | | | | | |
| Magnesium | anr | | | | | | | | |
| Manganese | anr | | | | | | | | |
| Molybdenum | | | | | | | | | |
| Nickel | 2000 | 2060 | 103.0 | 2000 | 2060 | 103.0 | 2000 | 2030 | 101.5 |
| Palladium | | | | | | | | | |
| Potassium | anr | | | | | | | | |
| Selenium | anr | | | | | | | | |
| Silicon | | | | | | | | | |
| Silver | anr | | | | | | | | |
| Sodium | anr | | | | | | | | |
| Sulfur | | | | | | | | | |
| Strontium | | | | | | | | | |
| Thallium | anr | | | | | | | | |
| Tin | | | | | | | | | |
| Titanium | | | | | | | | | |
| Tungsten | | | | | | | | | |
| Vanadium | 2000 | 2040 | 102.0 | 2000 | 2040 | 102.0 | 2000 | 2030 | 101.5 |
| Zinc | 2000 | 2050 | 102.5 | 2000 | 2040 | 102.0 | 2000 | 2010 | 100.5 |

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB98590
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB071315M1.ICP  Date Analyzed: 07/13/15  Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery  Run ID: MA37077  Units: ug/l

| Time: | | 19:16 | | | 20:22 | | | 21:23 | |
|---|---|---|---|---|---|---|---|---|---|
| Sample ID: | CCV | CCV6 | | CCV | CCV7 | | CCV | CCV8 | |
| Metal | True | Results | % Rec | True | Results | % Rec | True | Results | % Rec |
| Zirconium | | | | | | | | | |

(*) Outside of QC limits
(anr) Analyte not requested

12.1.4
12

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB98590
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB071315M1.ICP  Date Analyzed: 07/13/15  Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery  Run ID: MA37077  Units: ug/l

| Time: | | 22:29 | | | 22:59 | |
|---|---|---|---|---|---|---|
| Sample ID: | CCV | CCV9 | | CCV | CCV10 | |
| Metal | True | Results | % Rec | True | Results | % Rec |
| Aluminum | anr | | | | | |
| Antimony | anr | | | | | |
| Arsenic | anr | | | | | |
| Barium | anr | | | | | |
| Beryllium | anr | | | | | |
| Bismuth | | | | | | |
| Boron | | | | | | |
| Cadmium | anr | | | | | |
| Calcium | anr | | | | | |
| Chromium | anr | | | | | |
| Cobalt | 2000 | 2010 | 100.5 | 2000 | 1990 | 99.5 |
| Copper | anr | | | | | |
| Iron | anr | | | | | |
| Lead | 2000 | 2020 | 101.0 | 2000 | 2010 | 100.5 |
| Lithium | | | | | | |
| Magnesium | anr | | | | | |
| Manganese | anr | | | | | |
| Molybdenum | | | | | | |
| Nickel | 2000 | 2030 | 101.5 | 2000 | 2010 | 100.5 |
| Palladium | | | | | | |
| Potassium | anr | | | | | |
| Selenium | anr | | | | | |
| Silicon | | | | | | |
| Silver | anr | | | | | |
| Sodium | anr | | | | | |
| Sulfur | | | | | | |
| Strontium | | | | | | |
| Thallium | anr | | | | | |
| Tin | | | | | | |
| Titanium | | | | | | |
| Tungsten | | | | | | |
| Vanadium | 2000 | 2020 | 101.0 | 2000 | 1990 | 99.5 |
| Zinc | 2000 | 2010 | 100.5 | 2000 | 1990 | 99.5 |

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB98590
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB071315M1.ICP  Date Analyzed: 07/13/15  Methods: EPA 200.7, SW846 6010C
QC Limits: 95 to 105 % Recovery  Run ID: MA37077  Units: ug/l

| Time: | | 22:29 | | | 22:59 | |
|---|---|---|---|---|---|---|
| Sample ID: | CCV | CCV9 | | CCV | CCV10 | |
| Metal | True | Results | % Rec | True | Results | % Rec |
| Zirconium | | | | | | |

(*) Outside of QC limits
(anr) Analyte not requested

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB98590
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB071315M1.ICP  Date Analyzed: 07/13/15  Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery  Run ID: MA37077  Units: ug/l

| Time: | | | | 12:53 | | 13:05 | | 13:48 | |
|---|---|---|---|---|---|---|---|---|---|
| Sample ID: | CRI | CRIA | CRID | CRI1 | | CRIA1 | | CRID2 | |
| Metal | True | True | True | Results | % Rec | Results | % Rec | Results | % Rec |
| Aluminum | 200 | 500 | 100 | anr | | | | | |
| Antimony | 6.0 | 20 | 3.0 | anr | | | | | |
| Arsenic | 8.0 | 20 | 3.0 | anr | | | | | |
| Barium | 200 | | 4.0 | anr | | | | | |
| Beryllium | 2.0 | | 1.0 | anr | | | | | |
| Bismuth | 20 | | | | | | | | |
| Boron | 100 | | 10 | | | | | | |
| Cadmium | 3.0 | | 1.0 | anr | | | | | |
| Calcium | 5000 | 2000 | 1000 | anr | | | | | |
| Chromium | 10 | | 2.0 | anr | | | | | |
| Cobalt | 50 | | 3.0 | 52.0 | 104.0 | | | 2.7 | 90.0 |
| Copper | 10 | | 2.0 | anr | | | | | |
| Iron | 100 | 500 | | anr | | | | | |
| Lead | 3.0 | 20 | 2.5 | 3.1 | 103.3 | 20.8 | 104.0 | 2.6 | 104.0 |
| Lithium | 20 | | | | | | | | |
| Magnesium | 5000 | 2000 | 100 | anr | | | | | |
| Manganese | 15 | | 3.0 | anr | | | | | |
| Molybdenum | 20 | | | | | | | | |
| Nickel | 10 | | 4.0 | 10.4 | 104.0 | | | 4.2 | 105.0 |
| Palladium | 50 | | | | | | | | |
| Potassium | 5000 | | 2000 | anr | | | | | |
| Selenium | 10 | 20 | 5.0 | anr | | | | | |
| Silicon | 200 | | | | | | | | |
| Silver | 5.0 | | 2.0 | anr | | | | | |
| Sodium | 5000 | | 1000 | anr | | | | | |
| Sulfur | 50 | | | | | | | | |
| Strontium | 10 | | | | | | | | |
| Thallium | 10 | | 2.0 | anr | | | | | |
| Tin | 10 | | | | | | | | |
| Titanium | 10 | | | | | | | | |
| Tungsten | 50 | | | | | | | | |
| Vanadium | 50 | | 2.0 | 51.9 | 103.8 | | | 2.0 | 100.0 |
| Zinc | 20 | | 10 | 23.7 | 118.5 | | | 11.5 | 115.0 |

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB98590
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB071315M1.ICP  Date Analyzed: 07/13/15  Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery  Run ID: MA37077  Units: ug/l

| Time: | | | | 12:53 | | 13:05 | | 13:48 | |
|---|---|---|---|---|---|---|---|---|---|
| Sample ID: | CRI | CRIA | CRID | CRI1 | | CRIA1 | | CRID2 | |
| Metal | True | True | True | Results | % Rec | Results | % Rec | Results | % Rec |
| Zirconium | 10 | | | | | | | | |

(*) Outside of QC limits
(anr) Analyte not requested

12.1.5

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LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB98590
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB071315M1.ICP  Date Analyzed: 07/13/15  Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery  Run ID: MA37077  Units: ug/l

| Time: | | | | 20:34 | | 20:40 | | 20:46 | |
|---|---|---|---|---|---|---|---|---|---|
| Sample ID: | CRI | CRIA | CRID | CRI2 | | CRID3 | | CRIA2 | |
| Metal | True | True | True | Results | % Rec | Results | % Rec | Results | % Rec |
| Aluminum | 200 | 500 | 100 | anr | | | | | |
| Antimony | 6.0 | 20 | 3.0 | anr | | | | | |
| Arsenic | 8.0 | 20 | 3.0 | anr | | | | | |
| Barium | 200 | | 4.0 | anr | | | | | |
| Beryllium | 2.0 | | 1.0 | anr | | | | | |
| Bismuth | 20 | | | | | | | | |
| Boron | 100 | | 10 | | | | | | |
| Cadmium | 3.0 | | 1.0 | anr | | | | | |
| Calcium | 5000 | 2000 | 1000 | anr | | | | | |
| Chromium | 10 | | 2.0 | anr | | | | | |
| Cobalt | 50 | | 3.0 | 52.4 | 104.8 | 3.1 | 103.3 | | |
| Copper | 10 | | 2.0 | anr | | | | | |
| Iron | 100 | 500 | | anr | | | | | |
| Lead | 3.0 | 20 | 2.5 | 2.8 | 93.3 | 2.6 | 104.0 | 20.2 | 101.0 |
| Lithium | 20 | | | | | | | | |
| Magnesium | 5000 | 2000 | 100 | anr | | | | | |
| Manganese | 15 | | 3.0 | anr | | | | | |
| Molybdenum | 20 | | | | | | | | |
| Nickel | 10 | | 4.0 | 10.3 | 103.0 | 4.1 | 102.5 | | |
| Palladium | 50 | | | | | | | | |
| Potassium | 5000 | | 2000 | anr | | | | | |
| Selenium | 10 | 20 | 5.0 | anr | | | | | |
| Silicon | 200 | | | | | | | | |
| Silver | 5.0 | | 2.0 | anr | | | | | |
| Sodium | 5000 | | 1000 | anr | | | | | |
| Sulfur | 50 | | | | | | | | |
| Strontium | 10 | | | | | | | | |
| Thallium | 10 | | 2.0 | anr | | | | | |
| Tin | 10 | | | | | | | | |
| Titanium | 10 | | | | | | | | |
| Tungsten | 50 | | | | | | | | |
| Vanadium | 50 | | 2.0 | 52.9 | 105.8 | 2.0 | 100.0 | | |
| Zinc | 20 | | 10 | 23.8 | 119.0 | 11.8 | 118.0 | | |

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB98590
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB071315M1.ICP  Date Analyzed: 07/13/15  Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery  Run ID: MA37077  Units: ug/l

| Time: | | | | 20:34 | | 20:40 | | 20:46 | |
|---|---|---|---|---|---|---|---|---|---|
| Sample ID: | CRI | CRIA | CRID | CRI2 | | CRID3 | | CRIA2 | |
| Metal | True | True | True | Results | % Rec | Results | % Rec | Results | % Rec |
| Zirconium | 10 | | | | | | | | |

(*) Outside of QC limits
(anr) Analyte not requested

12.1.5

12

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB98590
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB071315M1.ICP  Date Analyzed: 07/13/15  Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery  Run ID: MA37077  Units: ug/l

| Time: | | | | 22:41 | | 22:47 | | 22:53 | |
|---|---|---|---|---|---|---|---|---|---|
| Sample ID: | CRI | CRIA | CRID | CRI3 | | CRID4 | | CRIA3 | |
| Metal | True | True | True | Results | % Rec | Results | % Rec | Results | % Rec |
| Aluminum | 200 | 500 | 100 | anr | | | | | |
| Antimony | 6.0 | 20 | 3.0 | anr | | | | | |
| Arsenic | 8.0 | 20 | 3.0 | anr | | | | | |
| Barium | 200 | | 4.0 | anr | | | | | |
| Beryllium | 2.0 | | 1.0 | anr | | | | | |
| Bismuth | 20 | | | | | | | | |
| Boron | 100 | | 10 | | | | | | |
| Cadmium | 3.0 | | 1.0 | anr | | | | | |
| Calcium | 5000 | 2000 | 1000 | anr | | | | | |
| Chromium | 10 | | 2.0 | anr | | | | | |
| Cobalt | 50 | | 3.0 | 51.9 | 103.8 | 3.2 | 106.7 | | |
| Copper | 10 | | 2.0 | anr | | | | | |
| Iron | 100 | 500 | | anr | | | | | |
| Lead | 3.0 | 20 | 2.5 | 3.7 | 123.3 | 1.9 | 76.0 | 20.6 | 103.0 |
| Lithium | 20 | | | | | | | | |
| Magnesium | 5000 | 2000 | 100 | anr | | | | | |
| Manganese | 15 | | 3.0 | anr | | | | | |
| Molybdenum | 20 | | | | | | | | |
| Nickel | 10 | | 4.0 | 10.4 | 104.0 | 4.1 | 102.5 | | |
| Palladium | 50 | | | | | | | | |
| Potassium | 5000 | | 2000 | anr | | | | | |
| Selenium | 10 | 20 | 5.0 | anr | | | | | |
| Silicon | 200 | | | | | | | | |
| Silver | 5.0 | | 2.0 | anr | | | | | |
| Sodium | 5000 | | 1000 | anr | | | | | |
| Sulfur | 50 | | | | | | | | |
| Strontium | 10 | | | | | | | | |
| Thallium | 10 | | 2.0 | anr | | | | | |
| Tin | 10 | | | | | | | | |
| Titanium | 10 | | | | | | | | |
| Tungsten | 50 | | | | | | | | |
| Vanadium | 50 | | 2.0 | 51.6 | 103.2 | 2.0 | 100.0 | | |
| Zinc | 20 | | 10 | 23.7 | 118.5 | 12.0 | 120.0 | | |

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB98590
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB071315M1.ICP  Date Analyzed: 07/13/15  Methods: EPA 200.7, SW846 6010C
QC Limits: 70 to 130 % Recovery  Run ID: MA37077  Units: ug/l

| Time: | | | | 22:41 | | 22:47 | | 22:53 | |
|---|---|---|---|---|---|---|---|---|---|
| Sample ID: | CRI | CRIA | CRID | CRI3 | | CRID4 | | CRIA3 | |
| Metal | True | True | True | Results | % Rec | Results | % Rec | Results | % Rec |
| Zirconium | 10 | | | | | | | | |

(*) Outside of QC limits
(anr) Analyte not requested

12.1.5

12

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JB98590
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB071315M1.ICP  Date Analyzed: 07/13/15  Methods: EPA 200.7, SW846 6010C
QC Limits: 80 to 120 % Recovery  Run ID: MA37077  Units: ug/l

| Time: | | | 13:11 | | 13:18 | | 20:52 | | 20:58 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID: | ICSA | ICSAB | ICSA1 | | ICSAB1 | | ICSA2 | | ICSAB2 | |
| Metal | True | True | Results | % Rec | Results | % Rec | Results | % Rec | Results | % Rec |
| Aluminum | 500000 | 500000 | 499000 | 99.8 | 484000 | 96.8 | 501000 | 100.2 | 490000 | 98.0 |
| Antimony | | 1000 | -1.2 | | 1070 | 107.0 | -1.7 | | 1060 | 106.0 |
| Arsenic | | 1000 | -3.1 | | 1030 | 103.0 | -1.2 | | 1040 | 104.0 |
| Barium | | 500 | -0.30 | | 511 | 102.2 | -0.10 | | 519 | 103.8 |
| Beryllium | | 500 | -0.10 | | 506 | 101.2 | -0.10 | | 517 | 103.4 |
| Bismuth | | 500 | 5.1 | | 520 | 104.0 | 4.0 | | 531 | 106.2 |
| Boron | | | -1.4 | | -4.5 | | -0.70 | | -4.5 | |
| Cadmium | | 1000 | 0.30 | | 1120 | 112.0 | 0.20 | | 1140 | 114.0 |
| Calcium | 400000 | 400000 | 374000 | 93.5 | 376000 | 94.0 | 385000 | 96.3 | 391000 | 97.8 |
| Chromium | | 500 | 0.30 | | 505 | 101.0 | 0.10 | | 507 | 101.4 |
| Cobalt | | 500 | 0.40 | | 496 | 99.2 | 0.50 | | 499 | 99.8 |
| Copper | | 500 | -0.50 | | 520 | 104.0 | -0.10 | | 523 | 104.6 |
| Iron | 200000 | 200000 | 194000 | 97.0 | 203000 | 101.5 | 196000 | 98.0 | 208000 | 104.0 |
| Lead | | 1000 | 0.40 | | 953 | 95.3 | 1.1 | | 959 | 95.9 |
| Lithium | | 500 | 14.1 | | 542 | 108.4 | 18.3 | | 547 | 109.4 |
| Magnesium | 500000 | 500000 | 507000 | 101.4 | 505000 | 101.0 | 519000 | 103.8 | 521000 | 104.2 |
| Manganese | | 500 | -4.2 | | 506 | 101.2 | -3.3 | | 508 | 101.6 |
| Molybdenum | | 500 | 0.60 | | 482 | 96.4 | 0.90 | | 485 | 97.0 |
| Nickel | | 1000 | 0.0 | | 980 | 98.0 | -0.40 | | 991 | 99.1 |
| Palladium | | 500 | -1.4 | | 528 | 105.6 | -3.1 | | 536 | 107.2 |
| Potassium | | | 67.3 | | 86.4 | | 42.5 | | 69.6 | |
| Selenium | | 1000 | 5.2 | | 1030 | 103.0 | 4.6 | | 1030 | 103.0 |
| Silicon | | | -9.7 | | -12 | | -16 | | -18 | |
| Silver | | 1000 | 8.6 | | 1050 | 105.0 | 9.5 | | 1070 | 107.0 |
| Sodium | | | 48.7 | | 69.2 | | 31.1 | | 39.2 | |
| Sulfur | | 500 | 41.5 | | 570 | 114.0 | 37.3 | | 572 | 114.4 |
| Strontium | | | 5.4 | | 5.3 | | 5.2 | | 5.2 | |
| Thallium | | 1000 | 2.1 | | 925 | 92.5 | -0.60 | | 930 | 93.0 |
| Tin | | | 4.5 | | 5.7 | | 4.5 | | 2.9 | |
| Titanium | | | 2.5 | | 5.3 | | 1.9 | | 5.2 | |
| Tungsten | | 500 | 20.1 | | 524 | 104.8 | 16.8 | | 524 | 104.8 |
| Vanadium | | 500 | 1.3 | | 505 | 101.0 | 1.3 | | 512 | 102.4 |
| Zinc | | 1000 | -5.9 | | 975 | 97.5 | -6.0 | | 972 | 97.2 |

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JB98590
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

File ID: SB071315M1.ICP  Date Analyzed: 07/13/15  Methods: EPA 200.7, SW846 6010C
QC Limits: 80 to 120 % Recovery  Run ID: MA37077  Units: ug/l

| Time: | | | 13:11 | | 13:18 | | 20:52 | | 20:58 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID: | ICSA | ICSAB | ICSA1 | | ICSAB1 | | ICSA2 | | ICSAB2 | |
| Metal | True | True | Results | % Rec | Results | % Rec | Results | % Rec | Results | % Rec |
| Zirconium | | 500 | -0.80 | | 459 | 91.8 | -0.70 | | 458 | 91.6 |

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JB98590
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

QC Batch ID: MP87589A
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 07/10/15

| Metal | RL | IDL | MDL | MB raw | final |
|---|---|---|---|---|---|
| Aluminum | 200 | 14 | 33 | | |
| Antimony | 6.0 | 1.1 | 3 | | |
| Arsenic | 3.0 | .96 | 2 | | |
| Barium | 200 | .3 | .8 | | |
| Beryllium | 1.0 | .18 | .35 | | |
| Bismuth | 20 | 1.5 | 4.2 | | |
| Boron | 100 | 2.2 | 4.4 | | |
| Cadmium | 3.0 | .35 | .28 | | |
| Calcium | 5000 | 28 | 23 | | |
| Chromium | 10 | .4 | .77 | | |
| Cobalt | 50 | .28 | .54 | -0.30 | <50 |
| Copper | 10 | .57 | 1.9 | | |
| Iron | 100 | 7.2 | 21 | | |
| Lead | 3.0 | .98 | 2.3 | -0.20 | <3.0 |
| Lithium | 20 | 2.7 | 3.8 | | |
| Magnesium | 5000 | 29 | 49 | | |
| Manganese | 15 | .23 | .18 | | |
| Molybdenum | 20 | .39 | .85 | | |
| Nickel | 10 | .3 | .79 | -0.20 | <10 |
| Palladium | 50 | 1.7 | 4.5 | | |
| Potassium | 10000 | 58 | 65 | | |
| Selenium | 10 | 1.9 | 3.3 | | |
| Silicon | 200 | 3.5 | 22 | | |
| Silver | 10 | .53 | 1.3 | | |
| Sodium | 10000 | 18 | 35 | | |
| Sulfur | 50 | 2.5 | 7.2 | | |
| Strontium | 10 | .23 | .36 | | |
| Thallium | 2.0 | 1.8 | 1.7 | | |
| Tin | 10 | .88 | 1.9 | | |
| Titanium | 10 | .45 | .86 | | |
| Tungsten | 50 | 1.5 | 5.6 | | |
| Vanadium | 50 | .37 | .7 | 0.10 | <50 |
| Zinc | 20 | 1.9 | 4.9 | 0.70 | <20 |

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JB98590
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

QC Batch ID: MP87589A
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 07/10/15

| Metal | RL | IDL | MDL | MB raw | final |
|---|---|---|---|---|---|
| Zirconium | 10 | .23 | .71 | | |

Associated samples MP87589A: JB98590-1F, JB98590-2F, JB98590-3F, JB98590-4F, JB98590-5F, JB98590-6F, JB98590-7F, JB98590-9F, JB98590-10F, JB98590-11F, JB98590-12F, JB98590-13F, JB98590-14F, JB98590-15F, JB98590-16F, JB98590-17F, JB98590-18F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JB98590
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

QC Batch ID: MP87589A
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 07/10/15

| Metal | JB98590-1F Original | MS | Spikelot MPSPK1 | % Rec | QC Limits |
|---|---|---|---|---|---|
| Aluminum | | | | | |
| Antimony | | | | | |
| Arsenic | | | | | |
| Barium | | | | | |
| Beryllium | | | | | |
| Bismuth | | | | | |
| Boron | | | | | |
| Cadmium | | | | | |
| Calcium | | | | | |
| Chromium | | | | | |
| Cobalt | 0.0 | 1960 | 2000 | 98.0 | 75-125 |
| Copper | | | | | |
| Iron | | | | | |
| Lead | 1.4 | 1960 | 2000 | 97.9 | 75-125 |
| Lithium | | | | | |
| Magnesium | | | | | |
| Manganese | | | | | |
| Molybdenum | | | | | |
| Nickel | 0.0 | 1960 | 2000 | 98.0 | 75-125 |
| Palladium | | | | | |
| Potassium | | | | | |
| Selenium | | | | | |
| Silicon | | | | | |
| Silver | | | | | |
| Sodium | | | | | |
| Sulfur | | | | | |
| Strontium | | | | | |
| Thallium | | | | | |
| Tin | | | | | |
| Titanium | | | | | |
| Tungsten | | | | | |
| Vanadium | 17.8 | 1980 | 2000 | 98.1 | 75-125 |
| Zinc | 2.1 | 1950 | 2000 | 97.4 | 75-125 |

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JB98590
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

QC Batch ID: MP87589A
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 07/10/15

| Metal | JB98590-1F Original MS | Spikelot MPSPK1 | % Rec | QC Limits |
|---|---|---|---|---|
| Zirconium | | | | |

Associated samples MP87589A: JB98590-1F, JB98590-2F, JB98590-3F, JB98590-4F, JB98590-5F, JB98590-6F, JB98590-7F, JB98590-9F, JB98590-10F, JB98590-11F, JB98590-12F, JB98590-13F, JB98590-14F, JB98590-15F, JB98590-16F, JB98590-17F, JB98590-18F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JB98590
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

QC Batch ID: MP87589A
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 07/10/15

| Metal | JB98590-1F Original | MSD | Spikelot MPSPK1 | % Rec | MSD RPD | QC Limit |
|---|---|---|---|---|---|---|
| Aluminum | | | | | | |
| Antimony | | | | | | |
| Arsenic | | | | | | |
| Barium | | | | | | |
| Beryllium | | | | | | |
| Bismuth | | | | | | |
| Boron | | | | | | |
| Cadmium | | | | | | |
| Calcium | | | | | | |
| Chromium | | | | | | |
| Cobalt | 0.0 | 2000 | 2000 | 100.0 | 2.0 | 20 |
| Copper | | | | | | |
| Iron | | | | | | |
| Lead | 1.4 | 2010 | 2000 | 100.4 | 2.5 | 20 |
| Lithium | | | | | | |
| Magnesium | | | | | | |
| Manganese | | | | | | |
| Molybdenum | | | | | | |
| Nickel | 0.0 | 2010 | 2000 | 100.5 | 2.5 | 20 |
| Palladium | | | | | | |
| Potassium | | | | | | |
| Selenium | | | | | | |
| Silicon | | | | | | |
| Silver | | | | | | |
| Sodium | | | | | | |
| Sulfur | | | | | | |
| Strontium | | | | | | |
| Thallium | | | | | | |
| Tin | | | | | | |
| Titanium | | | | | | |
| Tungsten | | | | | | |
| Vanadium | 17.8 | 2030 | 2000 | 100.6 | 2.5 | 20 |
| Zinc | 2.1 | 1990 | 2000 | 99.4 | 2.0 | 20 |

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JB98590
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

QC Batch ID: MP87589A
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 07/10/15

| Metal | JB98590-1F Original MSD | Spikelot MPSPK1 | % Rec | MSD RPD | QC Limit |
|---|---|---|---|---|---|
| Zirconium | | | | | |

Associated samples MP87589A: JB98590-1F, JB98590-2F, JB98590-3F, JB98590-4F, JB98590-5F, JB98590-6F, JB98590-7F, JB98590-9F, JB98590-10F, JB98590-11F, JB98590-12F, JB98590-13F, JB98590-14F, JB98590-15F, JB98590-16F, JB98590-17F, JB98590-18F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JB98590
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

QC Batch ID: MP87589A
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 07/10/15

| Metal | BSP Result | Spikelot MPSPK1 | % Rec | QC Limits |
|---|---|---|---|---|
| Aluminum | | | | |
| Antimony | | | | |
| Arsenic | | | | |
| Barium | | | | |
| Beryllium | | | | |
| Bismuth | | | | |
| Boron | | | | |
| Cadmium | | | | |
| Calcium | | | | |
| Chromium | | | | |
| Cobalt | 1980 | 2000 | 99.0 | 80-120 |
| Copper | | | | |
| Iron | | | | |
| Lead | 2000 | 2000 | 100.0 | 80-120 |
| Lithium | | | | |
| Magnesium | | | | |
| Manganese | | | | |
| Molybdenum | | | | |
| Nickel | 2000 | 2000 | 100.0 | 80-120 |
| Palladium | | | | |
| Potassium | | | | |
| Selenium | | | | |
| Silicon | | | | |
| Silver | | | | |
| Sodium | | | | |
| Sulfur | | | | |
| Strontium | | | | |
| Thallium | | | | |
| Tin | | | | |
| Titanium | | | | |
| Tungsten | | | | |
| Vanadium | 1980 | 2000 | 99.0 | 80-120 |
| Zinc | 2000 | 2000 | 100.0 | 80-120 |

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JB98590
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

QC Batch ID: MP87589A
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 07/10/15

| Metal | BSP Result | Spikelot MPSPK1 | % Rec | QC Limits |
|---|---|---|---|---|
| Zirconium | | | | |

Associated samples MP87589A: JB98590-1F, JB98590-2F, JB98590-3F, JB98590-4F, JB98590-5F, JB98590-6F, JB98590-7F, JB98590-9F, JB98590-10F, JB98590-11F, JB98590-12F, JB98590-13F, JB98590-14F, JB98590-15F, JB98590-16F, JB98590-17F, JB98590-18F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: JB98590
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

QC Batch ID: MP87589A
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 07/10/15

| Metal | JB98590-1F Original | SDL 1:5 | %DIF | QC Limits |
|---|---|---|---|---|
| Aluminum | | | | |
| Antimony | | | | |
| Arsenic | | | | |
| Barium | | | | |
| Beryllium | | | | |
| Bismuth | | | | |
| Boron | | | | |
| Cadmium | | | | |
| Calcium | | | | |
| Chromium | | | | |
| Cobalt | 0.00 | 0.00 | NC | 0-10 |
| Copper | | | | |
| Iron | | | | |
| Lead | 1.40 | 0.00 | 100.0(a) | 0-10 |
| Lithium | | | | |
| Magnesium | | | | |
| Manganese | | | | |
| Molybdenum | | | | |
| Nickel | 0.00 | 0.00 | NC | 0-10 |
| Palladium | | | | |
| Potassium | | | | |
| Selenium | | | | |
| Silicon | | | | |
| Silver | | | | |
| Sodium | | | | |
| Sulfur | | | | |
| Strontium | | | | |
| Thallium | | | | |
| Tin | | | | |
| Titanium | | | | |
| Tungsten | | | | |
| Vanadium | 17.8 | 18.2 | 2.2 | 0-10 |
| Zinc | 2.10 | 0.00 | 100.0(a) | 0-10 |

SERIAL DILUTION RESULTS SUMMARY

Login Number: JB98590
Account: SECORPAE - Stantec Consulting Services Inc.
Project: Sunoco - Marcus Hook Facility, PA

QC Batch ID: MP87589A
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 07/10/15

| Metal | JB98590-1F Original SDL 1:5 | %DIF | QC Limits |
|---|---|---|---|
| Zirconium | | | |

Associated samples MP87589A: JB98590-1F, JB98590-2F, JB98590-3F, JB98590-4F, JB98590-5F, JB98590-6F, JB98590-7F, JB98590-9F, JB98590-10F, JB98590-11F, JB98590-12F, JB98590-13F, JB98590-14F, JB98590-15F, JB98590-16F, JB98590-17F, JB98590-18F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested
(a) Percent difference acceptable due to low initial sample concentration (< 50 times IDL).