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NSA PANAMA CITY
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# FINAL TECHNICAL MEMORANDUM FOR ADDITIONAL SOIL DELINEATION OF BUILDING 98 AT NSA PANAMA CITY FL

9/17/2015

TETRA TECH

# FINAL TECHNICAL MEMORANDUM FOR ADDITIONAL SOIL DELINEATION BUILDING 98 NAVAL SUPORT ACTIVITY PANAMA CITY PANAMA CITY, FLORIDA SEPTEMBER 2015

## 1.0 SITE BACKGROUND

Building 98 is located in a developed area at the eastern side of Naval Support Activity (NSA) Panama City located in Panama City Beach, Florida (Figures 1 and 2). The site includes an asphalt paved parking lot surrounded by offices, storage, warehouse buildings and a lay down storage compound. The site was identified based on a 560 gallon underground storage tank (UST) located on the west side of Building 98 that contained diesel fuel (heating oil) used to provide heat to the building. It is unknown as to the exact date the UST was installed; however, it was in service for approximately 45 years and was removed on August 8, 1997. As part of the removal processes, a Closure Assessment Form in accordance with Chapter 62-761.800(3) Florida Administrative Code (F.A.C.) was submitted to the Florida Department of Environmental Protection (FDEP) on December 5, 1997. Closure of this site has not been approved by FDEP. The site is encompassed within the groundwater land use control boundaries of adjacent site Area of Concern (AOC) 1 that was previously investigated under the Resource Conservation and Recovery Act (RCRA) and state of Florida petroleum programs.

### 1.1 SUMMARY OF PREVIOUS INVESTIGATIONS

As indicated above, the UST was removed on August 8, 1997 and a Closure Assessment Form was completed. During the UST removal, soil was screened in accordance with Florida Petroleum Contamination Site Cleanup Criteria head space screening criteria as outlined in Chapter 62-770 F.A.C (FDEP, 2005). Based on the FID readings, contaminated soil was removed over an area and depths until soil gas headspace levels in the surrounding soil were less than 50 parts per million (ppm). Approximately 3 cubic yards of soil exhibiting greater than 50 ppm levels were removed. The final area of the tank pit excavation area measured approximately 8 feet wide, 10 feet long, and 5 feet deep.

A temporary monitoring well was installed and the groundwater sample was analyzed for volatiles by U.S. Environmental Protection Agency (USEPA) Method 8260, semi-volatiles by USEPA Method 8270, lead by USEPA Method 239.2, and ethylene dibromide by USEPA Method 504. Petroleum hydrocarbons were detected in the groundwater sample; however, the contamination was attributed to AOC 1 (the former fire fighter training area) that is located up-gradient of Building 98. Groundwater contamination at Building 98 is being addressed under the RCRA monitoring program for AOC 1.

## 1.2 APRIL 2012 INVESTIGATION

During the UST excavation in 1997, total corrected hydrocarbons measurements (total FID measurement – carbon filtered FID readings) were detected in excess of 10 ppm, but less than the 50 ppm criteria for the Kerosene Analytical Group "Excessively Contaminated Soil" designation in head space soil samples collected from locations SS-3, SS-4, and SS-5. A summary of the FID readings collected in 1997 is provided in Table 1. Based on the elevated headspace measurements, the Navy decided to complete additional step-out samples and FID headspace screening to further investigate the original FID screening locations of SS-3, SS-4, and SS-5 (Facilities Engineering Command, Southeast, March 2012).

The additional step-out soil headspace investigation was completed on April 12, 2012 and soil samples from the designated step-out locations were screened with a FID in 1 foot intervals until the water table was encountered. A summary of the FID readings collected on April 12, 2012 is provided in Table 2.

Confirmation soil samples for laboratory analysis were collected from select depth intervals, based on FID screening and submitted to a fixed based laboratory for analysis of benzene, toluene, ethylbenzene, total xylenes (BTEX), and methy-tert-butyl ether (MTBE) by USEPA Method 8260C, low level polycyclic aromatic hydrocarbons (PAHs) by USEPA Method 8270C, and total recoverable petroleum hydrocarbons (TRPH) by Florida Residual Petroleum Organics Method (FL-PRO).

<u>Soil Sample Results</u>

- None of the soil gas headspace measurements were reported above general background levels or exceed the 10 PPM criteria.
- None of the volatile organic compounds (including BTEX and MTBE) were detected at concentrations exceeding the method detection limits.
- Fifteen PAHs were detected in the soil sample PCY-0098-4-6-SB-SS3. However, only benzo(a)pyrene (0.290 milligrams per kilogram [mg/kg]) and the benzo(a)pyrene toxicity equivalent (BAP TEQ; 0.4 mg/kg) exceeded the Residential Direct Exposure Soil Cleanup Target Level (SCTL) of 0.1 mg/kg. None of the remaining PAHs were detected at concentrations exceeding their respective direct exposure or leachability SCTLs.
- TRPH was detected in soil samples PCY-0098-4-6-SB-SS2 and PCY-0098-4-6-SS3. However, they were detected at concentrations less than the Florida SCTL criteria.

The analytical data from the soil sample analyses can be found in Table 3.

## 2.0 APRIL 2015 INVESTIGATION

During the April 2012 investigation, concentrations of PAH contaminants of concern (COC) (BaP and BaP TEQ) were found to exceed their respective SCTLs. The Partnering Team decided that additional data was

needed in order to completely delineate the extent of the soil contamination, including collecting data on the groundwater conditions near the soil boring PCY-0098-4-6-SB-SS3.

The additional step-out soil investigation and monitoring well installation was completed on April 28, 2015 and soil samples from the designated step-out locations were collected. The four soil samples were collected from four locations at Site 98, in two rows of step-out samples. The two samples closest to the former UST area were analyzed for Low-Level PAHs, while the more distant samples were held until the analytical results for the initial samples was known. The sample collection field forms are included in Attachment 1. A summary of the sampling locations is shown on Figure 3.

Soil Sample Analytical Results

- None of the low-level PAHs were detected at concentrations exceeding their respective direct exposure or leachability SCTLs.

After analysis of the two initial samples closest to the former UST area, it was determined that the two additional samples that were held for analysis did not need to be analyzed. The analytical data from the soil sample analyses can be found in Table 3.

A groundwater sample was collected from monitoring well PCY-98-MW-06 on May 7, 2015 and analyzed for Low-Level PAHs.

Groundwater Sample Analytical Results

- Four Low-Level PAHs, fluorine, 1-methylnaphthalene, 2-methylnaphthalene, and naphthalene, were detected in the groundwater sample PCY-98-GW06. However, none of the PAHs were detected at concentrations exceeding their respective GCTLs.

The depth to groundwater was determined to be 6.01 feet below land surface (bls) in monitoring well PCY-98-GW06. Due to only one groundwater monitoring well existing at Site 98, groundwater flow could not be determined. Historical data for AOC 1 determined that the groundwater flow was to the east towards St. Andrews Bay.

## 3.0 CONCLUSIONS AND RECOMENDATIONS

As indicated above, based on the Soil Sample headspace data and FDEP's definition "Excessively Contaminated Soil" is not present at the site. However PAH exceedances in subsurface soil samples were reported during the April 2012 sampling event and further defined during the April 2015 sampling event. It is recommended that limited excavation be completed to remove the soil PAH concentrations in excess of residential SCTLs. This soil excavation area has been defined by previous soil sampling activities and includes the area of approximately 68 square feet (Figure 4) to a depth of 6 feet bls. The total volume of

soil to be excavated would be approximately 15 cubic yards or 21 tons (calculations provided in Attachment 1).

The April 2015 delineation sampling has minimized the proposed area to be excavated and, in turn, the time the excavation would be open, thus it has minimized a safety hazard in regards to avoiding direct contact of subsurface soil with precipitation. Upon completion of the contaminated soil removal, the soil at Building 98 would satisfy FDEP requirements and would allow Building 98 soil to be approved for site closure with no further action (NFA) and unrestricted use.

To satisfy all FDEP requirements for site closure with NFA, sampling of groundwater in conjunction with the soil excavation is also recommended to verify that disturbance of the soil has not resulted in groundwater PAH exceedances of GCTLs.

## REFERENCES

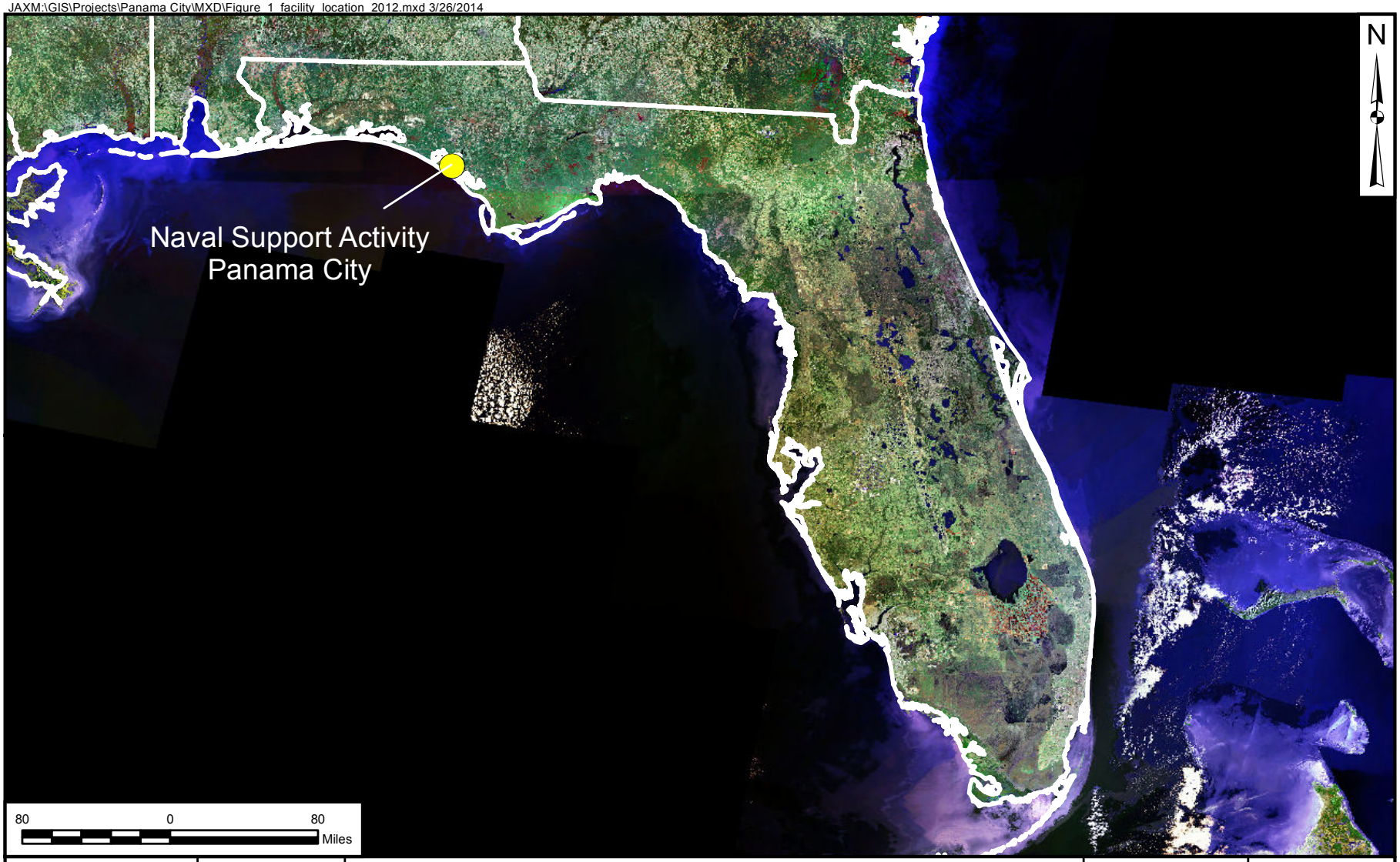
Facilities Engineering Command, Southeast, March 2012. Final Sampling Work Plan for Building 98, Site 325 and Area of Concern (AOC)-2/ South Dock, Naval Support Auxiliary Panama City, Panama City Beach, Florida. 2012

Naval Facilities Engineering Command, Southeast, 2014. Final Tier II Sampling and Analysis Plan for Building 98, Naval Support Auxiliary Panama City, Panama City Beach, Florida. November.

FDEP (Florida Department of Environmental Protection), 2005. *Final Technical Report: Development of Cleanup Target Levels (CTLs) for Chapter 62-777, F.A.C.* Prepared for the Division of Waste Management, Florida Department of Environmental Protection; Prepared by Center for Environmental & Human Toxicology, University of Florida, Gainesville, FL. February 26.

**FIGURES**

JAXM:\GIS\Projects\Panama City\MXD\Figure_1_facility_location_2012.mxd 3/26/2014




| | | | |
|---|---|---|---|
| DRAWN BY J.MADDEN | DATE 02/25/14 | | |
| CHECKED BY M.TRAXLER | DATE 02/25/14 | | |
| REVISED BY ___ | DATE ___ | | |
| SCALE AS NOTED | | | |

FACILITY LOCATION MAP
SITE 98 SUPPLEMENTAL SITE INVESTIGATION
NSA PANAMA CITY
PANAMA CITY BEACH, FLORIDA

| | |
|---|---|
| CONTRACT NUMBER ___ | CTO NUMBER JM73 |
| APPROVED BY ___ | DATE ___ |
| APPROVED BY ___ | DATE ___ |
| FIGURE NO. 1 | REV 0 |

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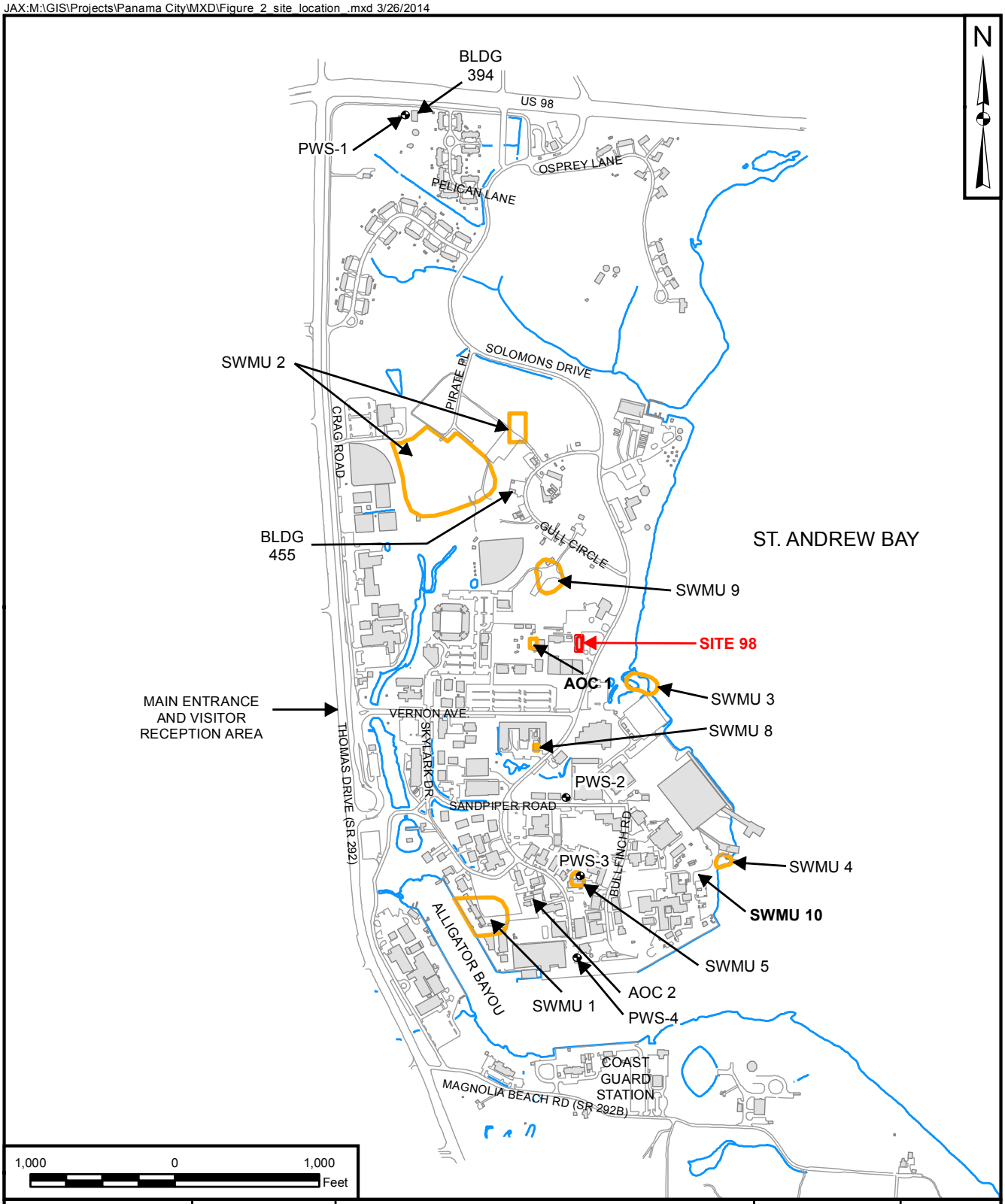


| DRAWN BY | DATE |
|---|---|
| J.MADDEN | 02/25/14 |
| CHECKED BY | DATE |
| M.TRAXLER | 02/25/14 |
| REVISED BY | DATE |
| SCALE AS NOTED | |

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SITE LOCATION MAP
SITE 98 SUPPLEMENTAL SITE INVESTIGATION
NSA PANAMA CITY
PANAMA CITY BEACH, FLORIDA

| CONTRACT NUMBER | CTO NUMBER |
|---|---|
| ___ | JM73 |
| APPROVED BY | DATE |
| ___ | ___ |
| APPROVED BY | DATE |
| ___ | ___ |
| FIGURE NO. 2 | REV 0 |

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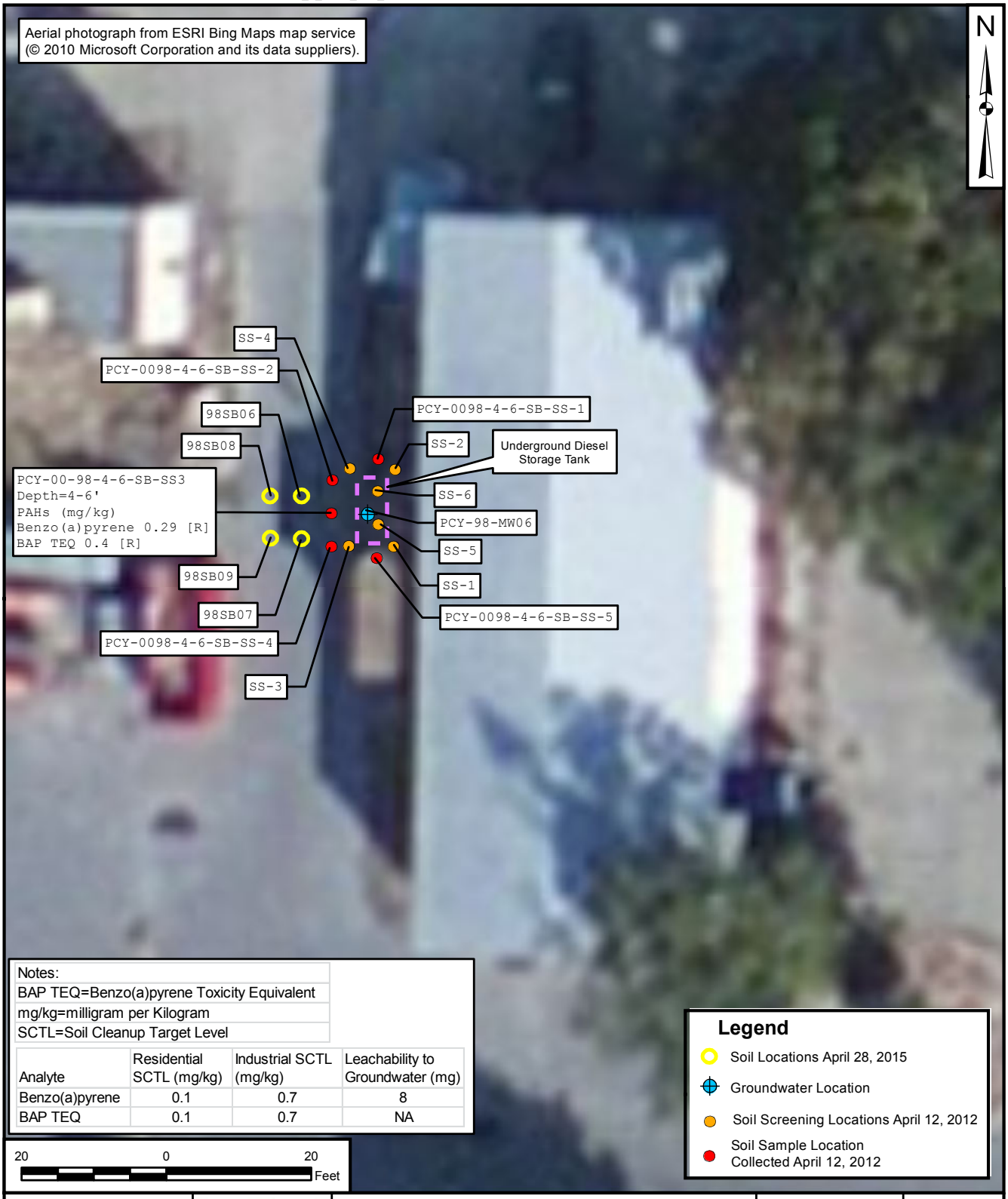


Notes:
BAP TEQ=Benzo(a)pyrene Toxicity Equivalent
mg/kg=milligram per Kilogram
SCTL=Soil Cleanup Target Level

| Analyte | Residential SCTL (mg/kg) | Industrial SCTL (mg/kg) | Leachability to Groundwater (mg) |
|---|---|---|---|
| Benzo(a)pyrene | 0.1 | 0.7 | 8 |
| BAP TEQ | 0.1 | 0.7 | NA |

| | | | |
|---|---|---|---|
| DRAWN BY J.MADDEN | DATE | SOIL AND GROUNDWATER SAMPLE LOCATIONS<br>SITE 98 SUPPLEMENTAL SITE INVESTIGATION<br>NSA PANAMA CITY<br>PANAMA CITY BEACH ,FLORIDA | CONTRACT NUMBER ___ / CTO NUMBER JM73 |
| CHECKED BY M.TRAXLER | DATE | | APPROVED BY ___ / DATE ___ |
| REVISED BY ___ | DATE ___ | | APPROVED BY ___ / DATE ___ |
| SCALE AS NOTED | | | FIGURE NO. 3 / REV 0 |

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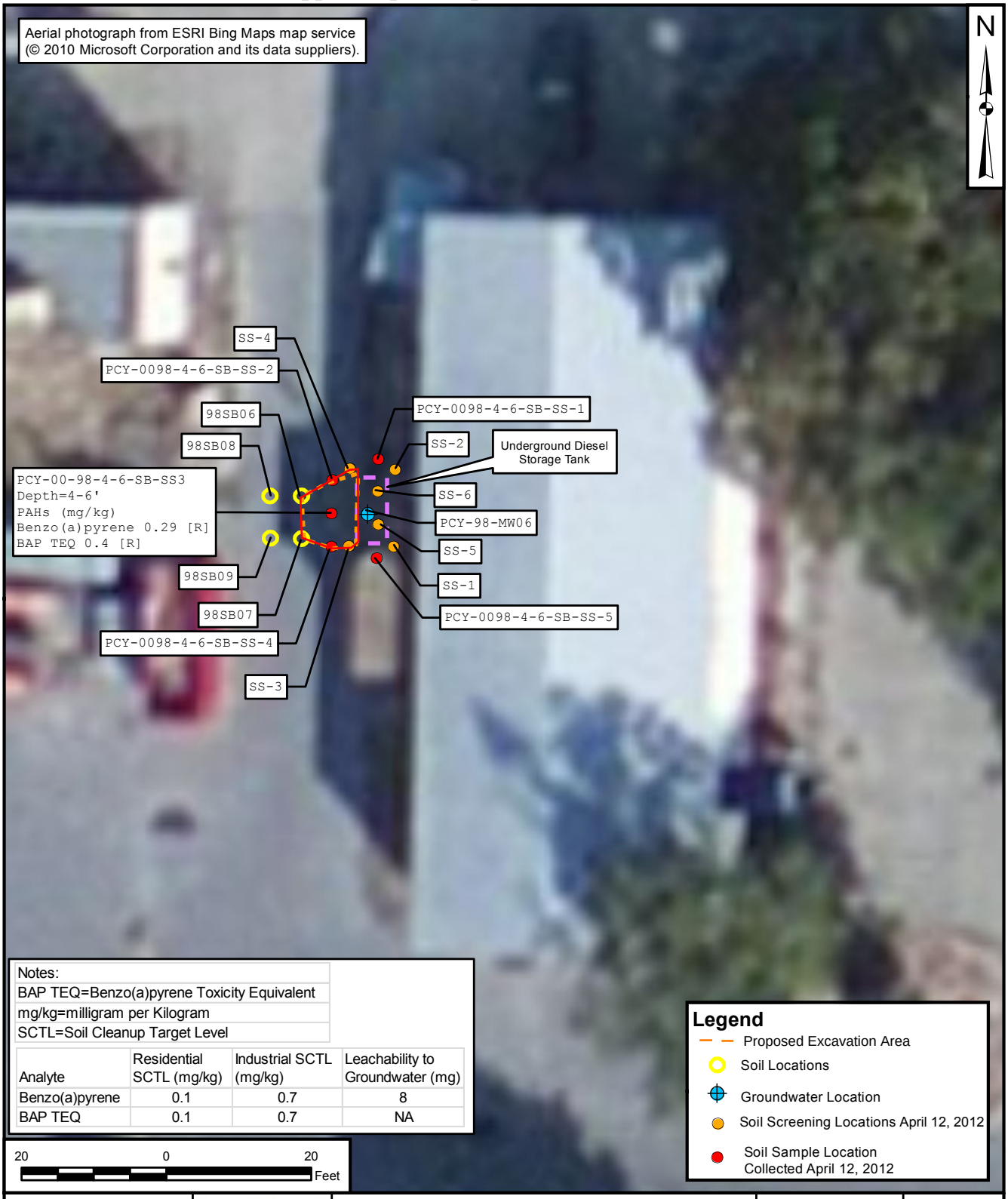


Notes:
BAP TEQ=Benzo(a)pyrene Toxicity Equivalent
mg/kg=milligram per Kilogram
SCTL=Soil Cleanup Target Level

| Analyte | Residential SCTL (mg/kg) | Industrial SCTL (mg/kg) | Leachability to Groundwater (mg) |
|---|---|---|---|
| Benzo(a)pyrene | 0.1 | 0.7 | 8 |
| BAP TEQ | 0.1 | 0.7 | NA |

| | | | |
|---|---|---|---|
| DRAWN BY J.MADDEN | DATE 03/27/14 | PROPOSED SOIL AND GROUNDWATER SAMPLE LOCATIONS<br>SITE 98 SUPPLEMENTAL SITE INVESTIGATION<br>NSA PANAMA CITY<br>PANAMA CITY BEACH ,FLORIDA | CONTRACT NUMBER ___ / CTO NUMBER JM73 |
| CHECKED BY M.TRAXLER | DATE 03/27/14 | | APPROVED BY ___ / DATE ___ |
| REVISED BY ___ | DATE ___ | | APPROVED BY ___ / DATE ___ |
| SCALE AS NOTED | | | FIGURE NO. 3 / REV 0 |

# TABLES

## TABLE 1

## FID SOIL SCREENING SUMMARY 1997
## BUILDING 98
## NSA PANAMA CITY
## PANAMA CITY, FLORIDA

| HAND AUGER SAMPLE NO. | DEPTH (FEET BLS) | UNFILTERED (PPM) | FILTERED (PPM) | CORRECTED HYDROCARBON READING (PPM) |
|---|---|---|---|---|
| SS-1 | 5 | 7 | 5 | 2 |
| SS-2 | 5 | <1 | <1 | 0 |
| SS-3 | 5 | 79 | 42 | 37 |
| SS-4 | 5 | 60 | 15 | 45 |
| SS-5 | 6 | 17 | 4 | 13 |
| SS-6 | 6 | 4 | 2 | 2 |

**Notes:**

BLS - below land surface

FID =Flame Ionization Detector

PPM = parts per million

< = less than

**TABLE 2**

**FID SOIL SCREENING SUMMARY APRIL 2012**

**BUILDING 98**
**NSA PANAMA CITY**
**PANAMA CITY, FLORIDA**

| SAMPLE | | | | FID SCREENING RESULTS | | | COMMENTS |
|---|---|---|---|---|---|---|---|
| BORING NO. | DATE COLLECTED | DEPTH TO WATER | SAMPLE INTERVAL (FBLS) | TOTAL READING (ppm) | CARBON FILTERED (ppm) | NET READING (ppm) | |
| PCY-0098-SS1 | 4/12/2012 | ~6.0 | 0-1 | <1 | NA | <1 | |
| | | | 1-2 | <1 | NA | <1 | |
| | | | 2-3 | <1 | NA | <1 | |
| | | | 3-4 | <1 | NA | <1 | |
| | | | 4-5 | <1 | NA | <1 | |
| | | | 5-6 | <1 | NA | <1 | Laboratory sample collected at 4-6 FBLS interval |
| | | | 6-7 | <1 | NA | <1 | |
| | | | | | | | |
| PCY-0098-SS2 | 4/12/2012 | ~6.0 | 0-1 | <1 | NA | <1 | |
| | | | 1-2 | <1 | NA | <1 | |
| | | | 2-3 | <1 | NA | <1 | |
| | | | 3-4 | <1 | NA | <1 | |
| | | | 4-5 | <1 | NA | <1 | |
| | | | 5-6 | <1 | NA | <1 | Laboratory sample collected at 4-6 FBLS interval |
| | | | | | | | |
| PCY-0098-SS3 | 4/12/2012 | ~6.0 | 0-1 | <1 | NA | <1 | |
| | | | 1-2 | <1 | NA | <1 | |
| | | | 2-3 | <1 | NA | <1 | |
| | | | 3-4 | <1 | NA | <1 | |
| | | | 4-5 | <1 | NA | <1 | |
| | | | 5-6 | <1 | NA | <1 | Laboratory sample collected at 4-6 FBLS interval |
| | | | | | | | |
| PCY-0098-SS4 | 4/12/2012 | ~6.0 | 0-1 | <1 | NA | <1 | |
| | | | 1-2 | <1 | NA | <1 | |
| | | | 2-3 | <1 | NA | <1 | |
| | | | 3-4 | <1 | NA | <1 | |
| | | | 4-5 | <1 | NA | <1 | |
| | | | 5-6 | <1 | NA | <1 | Laboratory sample collected at 4-6 FBLS interval |
| | | | | | | | |
| PCY-0098-SS5 | 4/12/2012 | ~6.0 | 0-1 | <1 | NA | <1 | |
| | | | 1-2 | <1 | NA | <1 | |
| | | | 2-3 | <1 | NA | <1 | |
| | | | 3-4 | <1 | NA | <1 | |
| | | | 4-5 | <1 | NA | <1 | |
| | | | 5-6 | <1 | NA | <1 | Laboratory sample collected at 4-6 FBLS interval |
| | | | | | | | |

**Notes:**
FBLS = feet below land surface
FID =Flame Ionization Detector
NA = Not Analyzed
ppm = parts per million
< = less than

**TABLE 3**

**SOIL ANALYTICAL SUMMARY**
**BUILDING 98**
**NSA PANAMA CITY**
**PANAMA CITY, FLORIDA**

| | | | | | | Laboratory Analysis | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SITE NAME** | **SAMPLE NUMBER** | **DATE COLLECTED** | **DEPTH TO WATER (FEET)** | **SAMPLE INTERVAL (BLS)** | **NET FID READING (PPM)** | **MTBE (mg/kg)** | **BENZENE (mg/kg)** | **TOLUENE (mg/kg)** | **ETHYL-BENZENE (mg/kg)** | **XYLENES (mg/kg)** | **1-METHYL-NAPHTHALENE (mg/kg)** | **2-METHYL-NAPHTHALENE (mg/kg)** | **NAPH-THALENE (mg/kg)** | **ACE-NAPHTENE (mg/kg)** | **ACENAPH-THYLENE (mg/kg)** | **ANTHRACE (mg/kg)** | **TRPH (mg/kg)** |
| PCY-0098- | 4-6-SB-SS1 | 4/12/12 | ~6.0' | 4-6 | <1 | 0.0014 U | 0.0015 U | 0.0017 U | 0.0014 U | 0.0048 U | 0.0057 U | 0.0056 U | 0.0048 U | 0.0058 U | 0.0055 U | 0.0055 U | 4.0 U |
| | 4-6-SB-SS2 | 4/12/12 | ~6.0' | 4-6 | <1 | 0.0013 U | 0.0014 U | 0.0015 U | 0.0012 U | 0.0042 U | 0.0057 U | 0.0057 U | 0.0049 U | 0.0058 U | 0.0055 U | 0.0055 U | 30 I |
| | 4-6-SB-SS3 | 4/12/12 | ~6.0' | 4-6 | <1 | 0.001 U | 0.0011 U | 0.0012 U | 0.00097 U | 0.0034 U | 0.0059 U | 0.0059 U | 0.0051 U | 0.0066 I | 0.08 | 0.058 | 45 |
| | 4-6-SB-SS4 | 4/12/12 | ~6.0' | 4-6 | <1 | 0.00094 U | 0.001 U | 0.0012 U | 0.00091 U | 0.0032 U | 0.0058 U | 0.0057 U | 0.0049 U | 0.0059 U | 0.0056 U | 0.0056 U | 4.1 U |
| | 4-6-SB-SS5 | 4/12/12 | ~6.0' | 4-6 | <1 | 0.0015 U | 0.0016 U | 0.0018 U | 0.0014 U | 0.0049 U | 0.0057 U | 0.0057 U | 0.0049 U | 0.0058 U | 0.0055 U | 0.0055 U | 4.0 U |
| | 4-6-SB-SS6 | 4/28/15 | ~6.0' | 4-6 | <1 | NS | NS | NS | NS | NS | 0.055 U | 0.055 U | 0.055 U | 0.055 U | 0.055 U | 0.035 U | NS |
| | 4-6-SB-SS7 | 4/28/15 | ~6.0' | 4-6 | <1 | NS | NS | NS | NS | NS | 0.056 U | 0.056 U | 0.056 U | 0.056 U | 0.056 U | 0.035 U | NS |
| | 4-6-SB-SS8 | 4/28/15 | ~6.0' | 4-6 | <1 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 4-6-SB-SS9 | 4/28/15 | ~6.0' | 4-6 | <1 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| Residential Exposure Target Level | | | | | | 4400 | 1.2 | 7500 | 1500 | 130 | 200 | 210 | 55 | 2400 | 1800 | 21000 | 460 |
| Commercial/Industrial Exposure Target Level | | | | | | 24000 | 1.7 | 60000 | 9200 | 700 | 1800 | 2100 | 300 | 20000 | 20000 | 300000 | 2700 |
| Leachability Based on Groundwater Target Level | | | | | | 0.09 | 0.007 | 0.5 | 0.6 | 0.2 | 3.1 | 8.5 | 1.2 | 2.1 | 27 | 2500 | 340 |

| | | | | | | Laboratory Analysis | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SITE NAME** | **SAMPLE NUMBER** | **DATE COLLECTED** | **DEPTH TO WATER (FEET)** | **SAMPLE INTERVAL (BLS)** | **NET FID READING (PPM)** | **BENZO[a]-ANTHRACENE (mg/kg)** | **PYRENE (mg/kg)** | **BENZO[b]-FLUORANTHENE (mg/kg)** | **BENZO[g,h,i]-PERYLENE (mg/kg)** | **BENZO[k]-FLUORANTHENE (mg/kg)** | **CHRYSENE (mg/kg)** | **DIBENZO[a,h]-ANTHRACENE (mg/kg)** | **FLUORANTHENE (mg/kg)** | **FLUORENE (mg/kg)** | **INDENO(1,2,3-cd)PYRENE (mg/kg)** | **PHENANTHRENE (mg/kg)** | **PYRENE (mg/kg)** | **BAP TEQ (mg/kg)** |
| PCY-0098- | 4-6-SB-SS1 | 4/12/12 | ~6.0' | 4-6 | <1 | 0.0063 U | 0.0042 U | 0.0043 U | 0.0054 U | 0.0067 U | 0.0069 U | 0.0041 U | 0.0057 U | 0.0056 U | 0.0038 U | 0.0059 U | 0.0068 U | NA |
| | 4-6-SB-SS2 | 4/12/12 | ~6.0' | 4-6 | <1 | 0.0063 U | 0.0042 U | 0.0044 U | 0.0054 U | 0.0068 U | 0.0069 U | 0.0041 U | 0.0057 U | 0.0056 U | 0.0038 U | 0.0059 U | 0.0068 U | NA |
| | 4-6-SB-SS3 | 4/12/12 | ~6.0' | 4-6 | <1 | 0.260 | **0.290** | 0.400 | 0.240 | 0.130 | 0.210 | 0.038 | 0.410 | 0.0086 | 0.220 | 0.063 | 0.420 | **0.4** |
| | 4-6-SB-SS4 | 4/12/12 | ~6.0' | 4-6 | <1 | 0.0064 U | 0.0043 U | 0.0044 U | 0.0055 U | 0.0068 U | 0.0070 U | 0.0041 U | 0.0058 U | 0.0057 U | 0.0038 U | 0.0060 U | 0.0069 U | NA |
| | 4-6-SB-SS5 | 4/12/12 | ~6.0' | 4-6 | <1 | 0.0063 U | 0.0042 U | 0.0044 U | 0.0054 U | 0.0068 U | 0.0070 U | 0.0041 U | 0.0057 U | 0.0056 U | 0.0038 U | 0.0059 U | 0.0069 U | NA |
| | 4-6-SB-SS6 | 4/28/15 | ~6.0' | 4-5 | <1 | 0.007 U | 0.007 U | 0.007 U | 0.007 U | 0.007 U | 0.007 U | 0.007 U | 0.035 U | 0.055 U | 0.007 U | 0.035 U | 0.035 U | NA |
| | 4-6-SB-SS7 | 4/28/15 | ~6.0' | 4-5 | <1 | 0.0069 U | 0.0069 U | 0.0069 U | 0.0069 U | 0.0069 U | 0.0069 U | 0.0069 U | 0.035 U | 0.056 U | 0.0069 U | 0.035 U | 0.035 U | NA |
| | 4-6-SB-SS8 | 4/28/15 | ~6.0' | 4-5 | <1 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| | 4-6-SB-SS9 | 4/28/15 | ~6.0' | 4-5 | <1 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| Residential Exposure Target Level | | | | | | # | 0.1 | # | 2500 | # | # | # | 3200 | 2600 | # | 2200 | 2400 | 0.1 |
| Commercial/Industrial Exposure Target Level | | | | | | # | 0.7 | # | 52000 | # | # | # | 59000 | 33000 | # | 36000 | 45000 | 0.7 |
| Leachability Based on Groundwater Target Level | | | | | | 0.8 | 8 | 2.4 | 32000 | 24 | 77 | 0.7 | 1200 | 160 | 6.6 | 250 | 880 | NA |

**Notes:**

#=Site concentrations for carcinogenic polycyclic aromatic hydrocarbons must be converted to benzo(a)pyrene equivalents before comparison with the appropriate direct exposure SCTL for benzo(a)pyrene using the appraoch described in the February 2005 'Final Technical Report: Development of Cleanup Target Levels (CTLs) for Chapter 62-777 Florida Administrative Code

fbls = feet below land surface
FID = Flame Ionization Detector
mg/kg = milligrams per kilogram
BAP TEQ= Benzo(a)pyrene toxicity equivalent
MTBE=methyl-tert-butyl-ether
TRPH = Total Recoverable Petroleum Hydrocarbons by Florida Residual Petroleum Organics Method (FL-PRO)
I = The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit
U = Not Detected above the laboratory method detection limit stated
**Bolded values exceed FDEP Commercial/Industrial and/or Residential Soil Cleanup Target Levels (SCTL)**
NS = Not Sampled

**TABLE 4**

**GROUNDWATER ANALYTICAL DATA**
**BUILDING 98**
**NSA PANAMA CITY**
**PANAMA CITY, FLORIDA**

| SITE NAME | SAMPLE NUMBER | DATE COLLECTED | DEPTH TO WATER (FEET) | NAPHTH-ALENE (µg/L) | 1-METHYL-NAPH-THALENE (µg/L) | 2-METHYL-NAPH-THALENE (µg/L) | ACEN-APH-THENE (µg/L) | ACEN-APH-THYLENE (µg/L) | ANTHRA-CENE (µg/L) | BENZO-(g,h,i) PERY-LENE (µg/L) | FLURAN-THENE (µg/L) | FLUOR-ENE (µg/L) | PHENAN-THRENE (µg/L) | PYRENE (µg/L) | BENZO (a) PYRENE (µg/L) | BENZO (a) ANTHRA-CENE (µg/L) | BENZO (b) FLUORAN-THENE (µg/L) | BENZO (k) FLUORAN-THENE (µg/L) | CHRY-SENE (µg/L) | DIBENZ (a,h) ANTHRA-CENE (µg/L) | INDENO (1,2,3-cd) PYRENE (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PCY-98- | GW06 | 5/8/2019 | ~6.0 | 1.2 | 0.49 I | 0.56 I | 0.33 U | 0.33 U | 0.21 U | 0.033 U | 0.21 U | 0.27 I | 0.49 I | 0.21 U | 0.033 U | 0.033 U | 0.033 U | 0.034 U | 0.033 U | 0.033 U | 0.033 U |
| **GCTLs** | | | | 14 | 28 | 28 | 20 | 210 | 2,100 | 210 | 280 | 280 | 210 | 210 | 0.2** | 0.05a | 0.05a | 0.5 | 4.8 | 0.005a | 0.05a |
| **NADCs** | | | | 140 | 280 | 280 | 200 | 2,100 | 21,000 | 2,100 | 2,800 | 2,800 | 2,100 | 2,100 | 20 | 5 | 5 | 50 | 480 | 0.5 | 5 |

Notes: GCTLs = Groundwater Cleanup Target Levels specified in Table I of Chapter 62-777, F.A.C.
NADCs = Natural Attenuation Default Source Concentrations specified in Table V of Chapter 62-777, F.A.C.
** = As provided in Chapter 62-550, F.A.C.
If an analyte is not detected, report the method detection limit [i.e., 0.01 U or ND(0.01); BDL or <0.01 are not acceptable].
Freshwater Surface Water (FSW), Marine Surface Water (MSW) and Groundwater of Low Yield/Poor Quality (LY/PQ) CTLs should be added to the base of the table as applicable.

**ATTACHMENT 1**

**FIELD FORMS**

TETRA TECH NUS, INC.

# CHAIN OF CUSTODY

NUMBER 2842

PAGE 1 OF 1

| PROJECT NO. | FACILITY: | PROJECT MANAGER | PHONE NUMBER | LABORATORY NAME AND CONTACT: |
|---|---|---|---|---|
| 112G04292 | NSA PCY | G. WALKER | 850 385 9899 | Accutest Andrea Colby |
| SAMPLERS (SIGNATURE) | | FIELD OPERATIONS LEADER | PHONE NUMBER | ADDRESS |
| [signature] | | W.D. OLSON | 850 443 6855 | 4505 Vineland Rd Ste C15 |
| | | CARRIER/WAYBILL NUMBER | | CITY, STATE |
| | | FEDEX 8066 1749 7668 | | Orlando FL |

STANDARD TAT ☑
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): G

PRESERVATIVE USED: 40

TYPE OF ANALYSIS: PAH's 8270SIM

| DATE YEAR 2015 | TIME | SAMPLE ID | LOCATION ID | TOP DEPTH (FT) | BOTTOM DEPTH (FT) | MATRIX (GW, SO, SW, SD, QC, ETC.) | COLLECTION METHOD GRAB (G) COMP (C) | No. OF CONTAINERS | | | | | | | | | | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5/7 | 1315 | PCY-98-GW06 | mw6 | 5 | 15 | GW | G | 2 | 2 | | | | | | | | | |

| 1. RELINQUISHED BY | DATE | TIME | 1. RECEIVED BY | DATE | TIME |
|---|---|---|---|---|---|
| [signature] | 5-7/15 | 1450 | | | |
| 2. RELINQUISHED BY | DATE | TIME | 2. RECEIVED BY | DATE | TIME |
| | | | | | |
| 3. RELINQUISHED BY | DATE | TIME | 3. RECEIVED BY | DATE | TIME |
| | | | | | |

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

4/02R
FORM NO. TtNUS-001

TETRA TECH NUS, INC. CHAIN OF CUSTODY | NUMBER 2841 | PAGE 1 OF 1

| PROJECT NO: | FACILITY: | PROJECT MANAGER | PHONE NUMBER | LABORATORY NAME AND CONTACT: |
|---|---|---|---|---|
| 112G04292 | PC4 UST 98 | G. Walker | 850 385 9877 | Accutest / Randy Shields |
| SAMPLERS (SIGNATURE) | | FIELD OPERATIONS LEADER | PHONE NUMBER | ADDRESS |
| [signature] | | W.D. Olson | 850 443 6855 | 4405 Vineland RD C15 |
| | | CARRIER/WAYBILL NUMBER | | CITY, STATE |
| | | FedEx 8066 1749 7657 | | Orlando FL |

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): G
PRESERVATIVE USED: 4°
TYPE OF ANALYSIS: 8270 W PAH

| DATE YEAR | TIME | SAMPLE ID | LOCATION ID | TOP DEPTH (FT) | BOTTOM DEPTH (FT) | MATRIX (GW, SO, SW, SD, QC, ETC.) | COLLECTION METHOD GRAB (G) COMP (C) | No. OF CONTAINERS | 8270 W PAH | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|
| 4/28 2015 | 1000 | PC4-0098-4-6-SB-SS-9 | SB9 | 4 | 5 | SO | G | 1 | 1 | |
| | 1002 | PC4-0098-4-6-SB-SS-7 | SB7 | 4 | 5 | SO | G | 1 | 1 | |
| | 1005 | PC4-0098-4-6-SB-SS8 | SB8 | 4 | 5 | SO | G | 3 | 3 | MS/MSD |
| | 1009 | PC4-0098-4-6-SB-SS6 | SB6 | 4 | 5 | SO | G | 1 | 1 | |
| | 1035 | PC4-0098-RB | QC | — | — | QC | G | 2 | 2 | |
| | QC | PC4-0098-FD-SB-SS | QC | — | — | QC | G | 1 | 1 | |

| | DATE | TIME | | DATE | TIME |
|---|---|---|---|---|---|
| 1. RELINQUISHED BY [signature] | 4-29-15 | 1400 | 1. RECEIVED BY | | |
| 2. RELINQUISHED BY | | | 2. RECEIVED BY | | |
| 3. RELINQUISHED BY | | | 3. RECEIVED BY | | |

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

4/02R
FORM NO. TINUS 001

Tetra Tech

# EQUIPMENT CALIBRATION LOG

PROJECT NAME: PCY

SITE NAME: 98 UST

PROJECT No.: 112G04292

INSTRUMENT NAME/MODEL: 556 MPS

MANUFACTURER: YSI

SERIAL NUMBER: 05F22753AT

| Date of Calibration | Instrument I.D. Number | Person Performing Calibration | Instrument Settings | | Instrument Readings | | Calibration Standard (Lot No.) | Remarks and Comments |
|---|---|---|---|---|---|---|---|---|
| | | | Pre-calibration | Post-calibration | Pre-calibration | Post-calibration | | |
| 5-7/15 | YSI 1 | W Dolson | | pH | 7.11 | 7.00 | | |
| | | | | Cond | 241 | 238 | | |
| | | | | DO | 80% | 99% | | |
| | | | | ORP | 100.0 | 100 | | |

Tetra Tech

# EQUIPMENT CALIBRATION LOG

PROJECT NAME: PCy UST 98

SITE NAME: PCy UST 98

PROJECT No.: 112G04292

INSTRUMENT NAME/MODEL: Hach 2100P

MANUFACTURER: HACH

SERIAL NUMBER: 21009

| Date of Calibration | Instrument I.D. Number | Person Performing Calibration | Instrument Settings | | Instrument Readings | | Calibration Standard (Lot No.) | Remarks and Comments |
|---|---|---|---|---|---|---|---|---|
| | | | Pre-calibration | Post-calibration | Pre-calibration | Post-calibration | | |
| 5-7/5 | NTU | WAO | ~ | ~ | 20 NTU | 19.5 | | |
| | | | | Cal | 100 NTU | 99.5 | | |
| | | | | | 800 NTU | 79.6 | | |
| | | | | VCR | 10 NTU | 10.4 | | |

FedEx Express Package US Airbill

FedEx Tracking Number 8066 1749 7668

MUR3

Form ID No. 0215

Sender's Copy

**1 From** *Please print and press hard.*

Date 5-7-15 Sender's FedEx Account Number

Sender's Name Bill Olson Phone (850) 443 0835

Company Tetra tech

Address 1558 Village Sq Blvd 2 Dept./Floor/Suite/Room

City Tallahassee State FL ZIP 32309

**2 Your Internal Billing Reference**
First 24 characters will appear on invoice.

**3 To**

Recipient's Name SAMPLE RECIVING Phone (407) 425-6700

Company ACCUTEST LABORATORIES SE, INC

Address 4405 VINELAND RD STE C15 Dept./Floor/Suite/Room
We cannot deliver to P.O. boxes or P.O. ZIP codes.

Address
Use this line for the HOLD location address or for continuation of your shipping address.

City ORLANDO State FL ZIP 32811-5803

HOLD Weekday FedEx location address REQUIRED. NOT available for FedEx First Overnight.

HOLD Saturday FedEx location address REQUIRED. Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations.

0117377525

FedEx at your fingertips. Good call.
Go to fedex.com/mobilesolutions

**4 Express Package Service** * To most locations.
NOTE: Service order has changed. Please select carefully.

*Packages up to 150 lbs.*
*For packages over 150 lbs., use the new FedEx Express Freight US Airbill.*

**Next Business Day**

- [ ] FedEx First Overnight — Earliest next business morning delivery to select locations. Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [x] FedEx Priority Overnight — Next business morning.* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx Standard Overnight — Next business afternoon.* Saturday Delivery NOT available.

**2 or 3 Business Days**

- [ ] FedEx 2Day A.M. — Second business morning.* Saturday Delivery NOT available.
- [ ] FedEx 2Day — Second business afternoon.* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx Express Saver — Third business day.* Saturday Delivery NOT available.

**5 Packaging** * Declared value limit $500.

- [ ] FedEx Envelope*
- [ ] FedEx Pak*
- [ ] FedEx Box
- [ ] FedEx Tube
- [x] Other

**6 Special Handling and Delivery Signature Options**

- [ ] SATURDAY Delivery — NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.

- [x] No Signature Required — Package may be left without obtaining a signature for delivery.
- [ ] Direct Signature — Someone at recipient's address may sign for delivery. *Fee applies.*
- [ ] Indirect Signature — If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only. *Fee applies.*

**Does this shipment contain dangerous goods?**
One box must be checked.

- [x] No
- [ ] Yes — As per attached Shipper's Declaration.
- [ ] Yes — Shipper's Declaration not required.
- [ ] Dry Ice — Dry ice, 9, UN 1845 ____ x ____ kg

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging or placed in a FedEx Express Drop Box.

- [ ] Cargo Aircraft Only

**7 Payment** *Bill to:*

Enter FedEx Acct. No. or Credit Card No. below.

- [ ] Sender — Acct. No. in Section 1 will be billed
- [x] Recipient
- [ ] Third Party
- [ ] Credit Card
- [ ] Cash/Check

FedEx Acct. No. Credit Card No. 1823-2015-3 Exp. Date

Total Packages 1 Total Weight ____ lbs. Total Declared Value† $ ____ .00

†Our liability is limited to US$100 unless you declare a higher value. See back for details. By using this Airbill you agree to the service conditions on the back of this Airbill and in the current FedEx Service Guide, including terms that limit our liability.

611

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FedEx Express Package US Airbill

FedEx Tracking Number 8066 1749 7657

MUR3

Form ID No. 0215

Sender's Copy

**1 From** *Please print and press hard.*

Date 4-28/15 Sender's FedEx Account Number

Sender's Name Bill Olson Phone 850 443 6855

Company Tetra Tech

Address 1558 Village Sq Blvd 2 Dept./Floor/Suite/Room

City Tallahassee State FL ZIP 32309

**2 Your Internal Billing Reference** First 24 characters will appear on invoice.

**3 To**

Recipient's Name SAMPLE RECIVING Phone (407) 425-6700

Company ACCUTEST LABORATORIES SE, INC

Address 4405 VINELAND RD STE C15 Dept./Floor/Suite/Room

We cannot deliver to P.O. boxes or P.O. ZIP codes.

Address

Use this line for the HOLD location address or for continuation of your shipping address.

City ORLANDO State FL ZIP 32811-5803

HOLD Weekday FedEx location address REQUIRED. Not available for FedEx First Overnight.

HOLD Saturday FedEx location address REQUIRED. Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations.

0117377525

Ship it. Track it. Pay for it. All online. Go to fedex.com

**4 Express Package Service** * To most locations.

NOTE: Service order has changed. Please select carefully.

*Packages up to 150 lbs. For packages over 150 lbs., use the new FedEx Express Freight US Airbill.*

**Next Business Day**

- [ ] FedEx First Overnight — Earliest next business morning delivery to select locations. Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [X] FedEx Priority Overnight — Next business morning.* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx Standard Overnight — Next business afternoon.* Saturday Delivery NOT available.

**2 or 3 Business Days**

- [ ] FedEx 2Day A.M. — Second business morning.* Saturday Delivery NOT available.
- [ ] FedEx 2Day — Second business afternoon.* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx Express Saver — Third business day.* Saturday Delivery NOT available.

**5 Packaging** * Declared value limit $500.

- [ ] FedEx Envelope*
- [ ] FedEx Pak*
- [ ] FedEx Box
- [ ] FedEx Tube
- [X] Other

**6 Special Handling and Delivery Signature Options**

- [ ] SATURDAY Delivery — NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.
- [ ] No Signature Required — Package may be left without obtaining a signature for delivery
- [ ] Direct Signature — Someone at recipient's address may sign for delivery. Fee applies.
- [ ] Indirect Signature — If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only. Fee applies.

**Does this shipment contain dangerous goods?** One box must be checked.

- [ ] No
- [ ] Yes — As per attached Shipper's Declaration.
- [ ] Yes — Shipper's Declaration not required.
- [ ] Dry Ice — Dry Ice, 9, UN 1845 ____ x ____ kg

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging or placed in a FedEx Express Drop Box.

- [ ] Cargo Aircraft Only

**7 Payment** *Bill to:*

Enter FedEx Acct. No. or Credit Card No. below.

- [ ] Sender — Acct. No. in Section 1 will be billed.
- [X] Recipient
- [ ] Third Party
- [ ] Credit Card
- [ ] Cash/Check

FedEx Acct. No. Credit Card No. 1823-2015-3 Exp. Date

| Total Packages | Total Weight | Total Declared Value† |
|---|---|---|
| 1 | 21 lbs. | $ ____ .00 |

†Our liability is limited to US$100 unless you declare a higher value. See back for details. By using the Airbill you agree to the service conditions on the back of this Airbill and in the current FedEx Service Guide, including terms that limit our liability.

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FedEx
201 MOSLEY DR
Lynn Haven, FL 32444

Location: PFNA
Device ID: PFNA-POS2
Employee: 815417
Transaction: 850126518592

PRIORITY OVERNIGHT
806617497657 20.50 lb (S) ***

Scheduled Delivery Date 04/29/2015

Bill Recipient/Third Party

*** See payer invoice

H = Weight entered manually
S = Weight read from scale
T = Taxable item

Subject to additional charges. See FedEx Service Guide at fedex.com for details. All merchandise sales final.

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1.800.463.3339

April 28, 2015 2:08:00 PM

CONTENTS

| PAGE | REFERENCE | DATE |
|---|---|---|
| | | |



Location Panama City Date 3/12/13

Project / Client Navy 112004292

0800 Guy Walker (TT) + Amber Tyree (TT) (FOL/SSO) left Tallahassee.

0930 (CST) GW + AI met Richard Lee Panama City POC

1000 GW, AI, + Richard Lee toured the 3 sites (UST 18, Site 32T + South Dock)

1435 GW + AI left Panama City

Obj. Survey Points @ 3 UST sites, Level D

Equipment Sub meter GPS unit

Weather: Sunny ~ 60°

UST Site 98.

Coordinates

| AZ ~~Well~~ ID | Northing | Easting | Z |
|---|---|---|---|
| 98SB01 | ~~430611.44~~ | 1571949. | 7.1575 |
| 98SB02 | 430636.63 | 1571905.7 | 8.6176 |
| 98SB03 | 430669.44 | 1571846.8 | 11.7.76 |
| 98SB04 | 430614.91 | 1571900.4 | 23.1022 |
| 98SB05 | 430641.13 | 1571907.6 | 26.4317 |
| 98SB06 | 430660.61 | 1571899.8 | 25.5131 |
| 98SB07 | 430640.63 | 1571914.5 | 26.4937 |
| 98SB08 | 430649.87 | 1571[illegible].3 | [illegible]2.34 |
| Abandoned mw | 430620.60 | 1571890.6 | 18.0424 |
| Existing mw | 430599.21 | 1571889.4 | 16.[illegible] |

4

Location Panama City Date 3/12/13

Project / Client Navy 112604242

| ID | Northing | Easting | Z |
|---|---|---|---|
| SS-1 | 43 0628.32 | 1571557.6 | 62 0615 |
| SS-3 | 43 0619.45 | 1571514.7 | 55.6310 |
| SS-6 | 430628.91 | 157 1897.8 | 45 2600 |
| SS-4 | 430642.44 | 157 1899.2 | 70.5512 |
| SS-2 | 430632.42 | 157 1905.7 | 65.9160 |

Site 325

| ID | Northing | Easting | Z |
|---|---|---|---|
| SB007 | 429172.62 | 157 2702.6 | 54.8687 |
| SB004 | 429168.34 | 157 2681.7 | 33.6415 |
| SB006 | 429157.24 | 157 2696.2 | 17.8935 |
| SB005 | 429157.914 | 157 2725.711 | 2.87 |
| SB001 | 429172.97 | 157 2708.5 | 3.300 |
| SB009 | 429191.97 | 157 2711.0 | 7.3242 |
| SB002 | 429202.97 | 157 2699.9 | 7.4467 |
| SB008 | 429195.58 | 157 2699.19 | 11.956 |
| SB003 (10 mw) | 429185.43 | 157 2684.5 | 10.1733 |
| MW-23 | 429176.66 | 157 2726.2 | 8.2811 |
| MW-8 | 429177.02 | 157 2759.1 | 2.2486 |
| 0.1 HW [illegible] | 429190.73 | 157 2720.4 | 14.0925 |

Location Panama City Date 3/12/13

Project / Client Navy 112604242

South Dock

| ID | Northing | Easting | Z |
|---|---|---|---|
| TW1 | 428431.67 | 157 2201.7 | 14.9636 |
| TMW3 | 428412.666 | 157 1962.20 | [illegible] |
| TMW7 | 428350.07 | 157 2011.2 | 2.7935 |
| TMW2 (4 pw) | 428464.199 | 157 2014.693 | 6.016 |
| TMW6 | 428444.58 | 157 1481 | 15.9416 |

Location PCY UST 99 Date 4-28-15
Project / Client NAV FAC SE

0500 CAT @ office
0600 loaded, go to PCY
0800 @ city limits
0830 meet w. R. Lee @ PWD
0900 meet single crew @ PWS and ID office give HPS briefing
0910 talk to G. Walker about cutting, R. Lee approves & already on the ground
0920 set up @ the MW 10C west side of BLDG 99 in of bldg out 9' where white mark is located
0945 set up to core the Asphalt for the 4 soil borings
1000 collect, 98 5B09 4.5' Tan FS
1002 collect 985B07 4.5' Tan FS



Location PCY UST 99 Date 4-28-15
Project / Client NAV FAC SE

1005 collect 985B08 4.5' tan Fine sand 3x ms/msd
1009 collect 985B06 + FD 2x volume 4-5' tan fine sand
Each sample sent for 8270 LL PAH
1015 Sampling done each of the 4-5' intervals were dry, will install wells TD 15' w/10' screen
1025 cutting concrete for auger
1035 collect rinse blank from cleaned Auger, bowl/spoon w/ D.F. Walker 2x 250 ml
1043 Augered to 10' cutting moist

Location PCY UST 98 Date 4-28-15

Project / Client NAVFAC SE

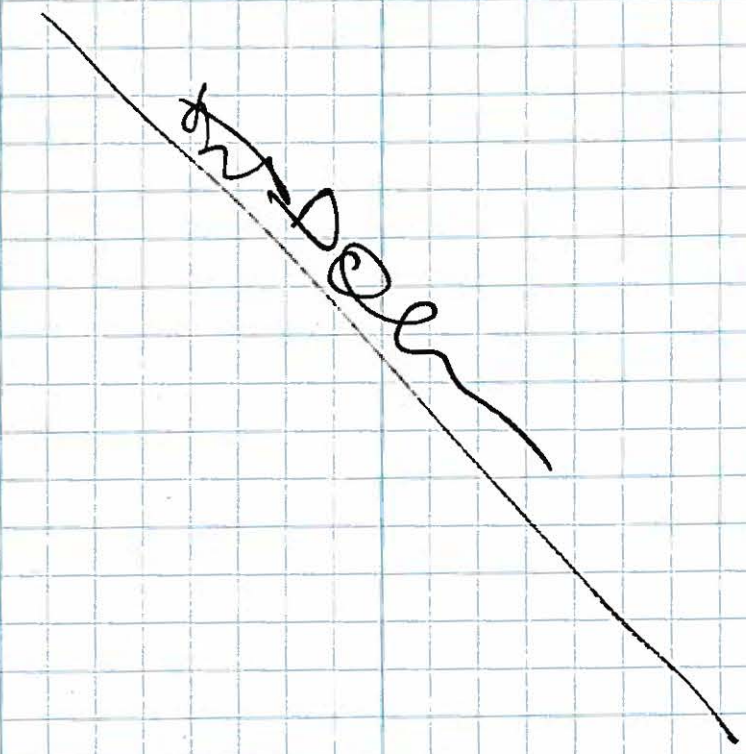
1045 begin well install
TD 15'
10' screen
5' Riser
20/30 sand 1 bag 3-15'
30/50 sand 1 bag 1-3'
2x2 pad 8" bolt down
1103 well installed,
TD @ 14.75' toc
SWL @ 6ft
ready to develop, PAD
1143 1 drum purged,
water still dk brown
when surged, will
continue dev.
1203 @ 100 gal purged
water is clearer,
still a light brown
tint, will end dev.
TD = 14.95' TOC
SWL = 6.05'
will build well PAD
check w/ R. Lee about
Purge water disposal
Lee



Location PCY UST 98 Date 4-28-15

Project / Client NAVFAC SE

1300 PWD disposed of h
city water system
PWD done, drinking
depart, go to
PWD
1315 go to FedeX
1415 depart for Tallahassee



Location PCY 98 UST Date 5-7-15

Project / Client NAVFAC SE

0830 CDT depart for NSA PCY

1115 @ BLDG 98 set up to sample PCY-98-MW06 for PAHs

1145 Cal. completed, begins purge

1315 collected PCY-98-GW06 2 x 250 ml amber for 8270 LL PAHs

NTU's were not dropping <1 NTU in 12 min

1345 take purge water to oily waste disposal area

1400 go to Cedar

1430 go to Tallahassee

1700 @ Tallahassee Enterprise rental



Location Date

Project / Client

Form FD 9000-24

# GROUNDWATER SAMPLING LOG

| SITE NAME: NSA PCY Bldg 98 | SITE LOCATION: NSA Panama City | |
|---|---|---|
| WELL NO: PCY-98-MW06 | SAMPLE ID: -PCY-98-GW06 | DATE: 5-7/2015 |

## PURGING DATA

| WELL DIAMETER (inches): 2" | TUBING DIAMETER (inches): 3/16" | WELL SCREEN INTERVAL DEPTH: 5 to 15 feet | STATIC DEPTH TO WATER (feet): 6.10 | PURGE PUMP TYPE OR BAILER: PP |
|---|---|---|---|---|

**WELL VOLUME PURGE: 1 WELL VOLUME** = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= ( 14.75 feet – 6.10 feet) X gallons/foot = 1.40 gallons

**EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL.** = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + ( gallons/foot X feet) + gallons = gallons

| INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 8' | FINAL PUMP OR TUBING DEPTH IN WELL (feet): 8' | PURGING INITIATED AT: 1145 | PURGING ENDED AT: 1312 | TOTAL VOLUME PURGED (gallons): 3.75 |
|---|---|---|---|---|

| TIME | VOLUME PURGED (gallons) | CUMUL. VOLUME PURGED (gallons) | PURGE RATE (gpm) | DEPTH TO WATER (feet) | pH (standard units) | TEMP. (°C) | COND. (circle units) µmhos/cm or µS/cm | DISSOLVED OXYGEN (circle units) mg/L or % saturation | TURBIDITY (NTUs) | COLOR (describe) | ODOR (describe) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1221 | 1.5 | 1.5 | 0.05 | 6.15 | 6.15 | 25.24 | 112 | 7.1% 0.59 | 24.1 | clear | ORP 28.5 |
| 1227 | 0.50 | 1.75 | 0.05 | 6.15 | 6.13 | 25.27 | 112 | 6.1% 0.51 | 20.6 | clear | 26.7 |
| 1232 | 0.25 | 2.0 | 0.05 | 6.15 | 6.12 | 25.22 | 111 | 5.8% 0.49 | 19.5 | clear | 24.7 |
| 1237 | 0.25 | 2.25 | 0.05 | 6.15 | 6.11 | 25.28 | 111 | 5.6%/0.46 | 18.3 | clear | 22.4 |
| 1242 | 0.25 | 2.50 | 0.05 | 6.15 | 6.11 | 25.31 | 111 | 6.2%/0.51 | 17.1 | clear | 21.5 |
| 1248 | 0.25 | 2.75 | 0.05 | 6.15 | 6.11 | 25.33 | 112 | 5.0%/0.41 | 15.7 | clear | 20.5 |
| 1254 | 0.25 | 3.00 | 0.05 | 6.15 | 6.10 | 25.37 | 112 | 5.0% 0.41 | 15.7 | clear | 16.8 |
| 1300 | 0.25 | 3.25 | 0.05 | 6.15 | 6.11 | 25.41 | 111 | 4.6/0.37 | 14.9 | clear | 14.1 |
| 1306 | 0.25 | 3.5 | 0.05 | 6.15 | 6.10 | 25.48 | 111 | 4.3/0.35 | 14.4 | clear | 11.5 |
| 1312 | 0.25 | 3.75 | 0.05 | 6.15 | 6.09 | 25.61 | 112 | 4.2/0.34 | 14.2 | clear | 8.8 |
| | | | | | | | | | | | |

**WELL CAPACITY** (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
**TUBING INSIDE DIA. CAPACITY** (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

**PURGING EQUIPMENT CODES:** **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

## SAMPLING DATA

| SAMPLED BY (PRINT) / AFFILIATION: W Dolson TT | SAMPLER(S) SIGNATURE(S): [signature] | SAMPLING INITIATED AT: 1315 | SAMPLING ENDED AT: 1320 |
|---|---|---|---|
| PUMP OR TUBING DEPTH IN WELL (feet): 8' | TUBING MATERIAL CODE: T | FIELD-FILTERED: Y (N) Filtration Equipment Type: | FILTER SIZE: ____ µm |
| FIELD DECONTAMINATION: PUMP Y (N) | TUBING Y (N) (replaced) | DUPLICATE: Y (N) | |

| SAMPLE CONTAINER SPECIFICATION | | | | SAMPLE PRESERVATION | | | INTENDED ANALYSIS AND/OR METHOD | SAMPLING EQUIPMENT CODE | SAMPLE PUMP FLOW RATE (mL per minute) |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID CODE | # CONTAINERS | MATERIAL CODE | VOLUME | PRESERVATIVE USED | TOTAL VOL ADDED IN FIELD (mL) | FINAL pH | | | |
| -PCY-98-MW06 | 2 | AG | 0.25 L | Ice | - | | LL PAHs | APP | 175 |
| | | | | | - | | | | |
| | | | | | - | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

REMARKS:

**MATERIAL CODES:** **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

**SAMPLING EQUIPMENT CODES:** **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

**NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
**pH:** ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

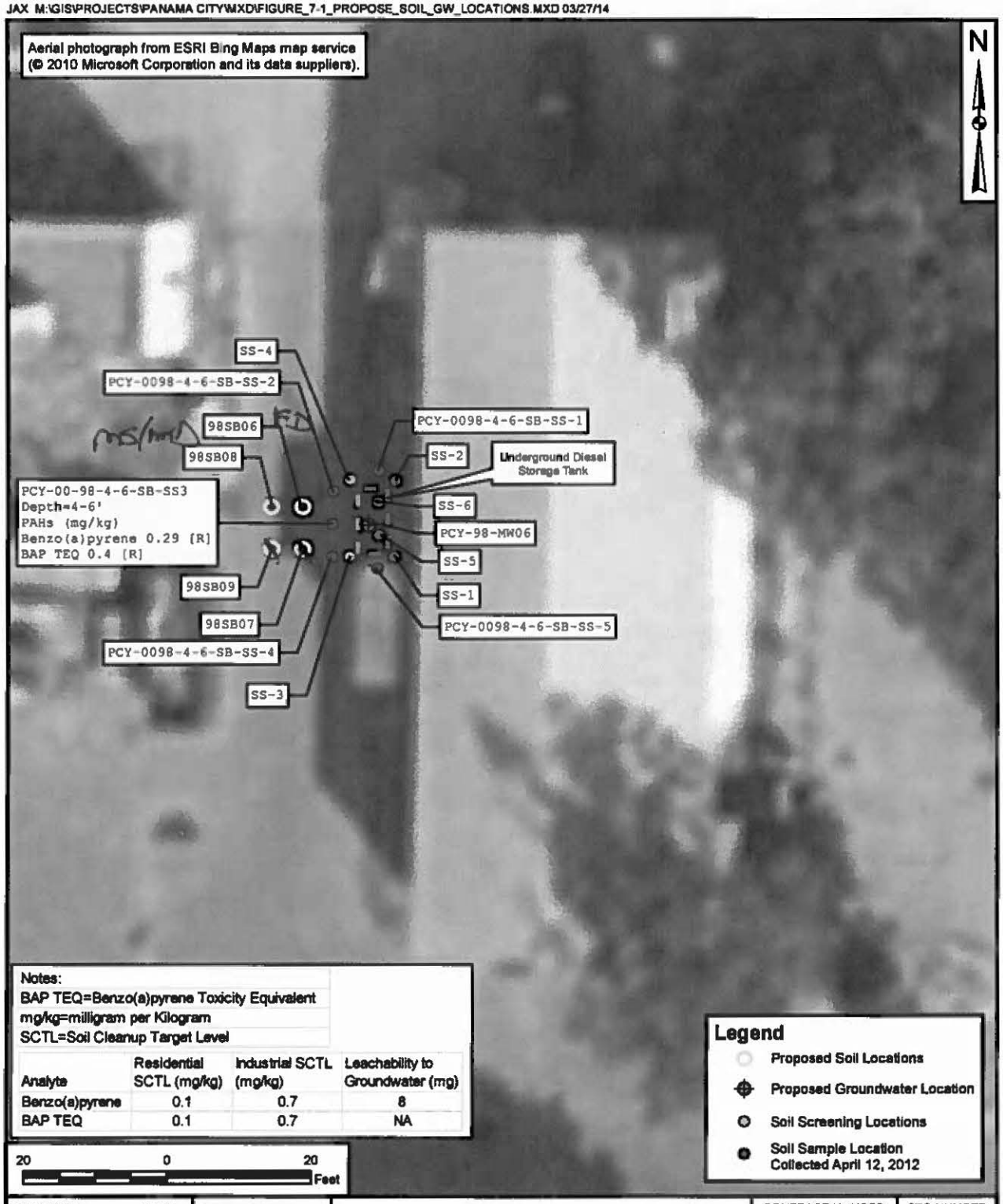
Revision Date: February 12, 2009

14.75
6.10
8.65

3) 1500
30

2
0.87
0.44
0.09

JAX M:\GIS\PROJECTS\PANAMA CITY\MXD\FIGURE_7-1_PROPOSE_SOIL_GW_LOCATIONS.MXD 03/27/14




Notes:
BAP TEQ=Benzo(a)pyrene Toxicity Equivalent
mg/kg=milligram per Kilogram
SCTL=Soil Cleanup Target Level

| Analyte | Residential SCTL (mg/kg) | Industrial SCTL (mg/kg) | Leachability to Groundwater (mg) |
|---|---|---|---|
| Benzo(a)pyrene | 0.1 | 0.7 | 8 |
| BAP TEQ | 0.1 | 0.7 | NA |

20 0 20 Feet

**Legend**
- Proposed Soil Locations
- Proposed Groundwater Location
- Soil Screening Locations
- Soil Sample Location Collected April 12, 2012

| DRAWN BY | DATE | CONTRACT NUMBER | CTO NUMBER |
|---|---|---|---|
| J.MADDEN | 03/27/14 | — | JM73 |
| CHECKED BY | DATE | APPROVED BY | DATE |
| M.TRAXLER | 03/27/14 | — | — |
| REVISED BY | DATE | APPROVED BY | DATE |
| — | — | — | — |
| SCALE AS NOTED | | FIGURE NO. 7-1 | REV 0 |

NAVFAC

PROPOSED SOIL AND GROUNDWATER SAMPLE LOCATIONS
SITE 98 SUPPLEMENTAL SITE INVESTIGATION
NSA PANAMA CITY
PANAMA CITY BEACH ,FLORIDA

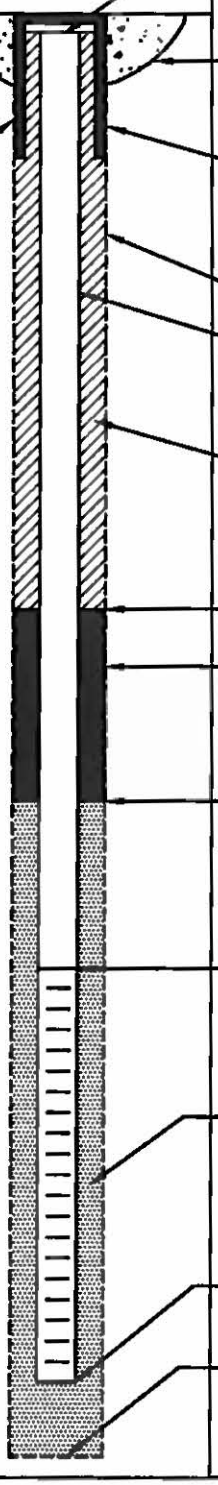
PCY-0098-4-6-SB-SS X

WELL NO.: PCY-98-MW06

Tetra Tech

# OVERBURDEN
# MONITORING WELL SHEET
# FLUSH - MOUNT

| | | |
|---|---|---|
| PROJECT NSA PCY | LOCATION UST 98 | DRILLER W. Walker |
| PROJECT NO. 1126-04292 | BORING MW06 | DRILLING METHOD HSA |
| DATE BEGUN 4-28/15 | DATE COMPLETED 4-28/15 | DEVELOPMENT METHOD Surge/Pump |
| FIELD GEOLOGIST W.D. Olson | | |
| GROUND ELEVATION NA | DATUM NA | |




ELEVATION TOP OF RISER: NA

TYPE OF SURFACE SEAL: 2x2 PAD

TYPE OF PROTECTIVE CASING: Bolt down

I.D. OF PROTECTIVE CASING: 8"

DIAMETER OF HOLE: 6"

TYPE OF RISER PIPE: Sched 40 PVC

RISER PIPE I.D.: 2"

TYPE OF BACKFILL/SEAL: grout

ELEVATION/DEPTH TOP OF SEAL: / 1'

TYPE OF SEAL: 30/65 Sand

ELEVATION/DEPTH TOP OF SAND: NA / 3'

ELEVATION/DEPTH TOP OF SCREEN: NA / 5'

TYPE OF SCREEN: Sched 40 PVC

SLOT SIZE x LENGTH: 0.010 x 10'

TYPE OF SAND PACK: 20/30 Sand

DIAMETER OF HOLE IN BEDROCK: ~~6"~~ NA

ELEVATION / DEPTH BOTTOM OF SCREEN: NA / 15'

ELEVATION / DEPTH BOTTOM OF SAND: NA / 15'

ELEVATION/DEPTH BOTTOM OF HOLE: NA / 15'

BACKFILL MATERIAL BELOW SAND: NA

ACAD:FORM_MWFM.dwg 07/29/99 INL

Tetra Tech NUS, Inc.

# SOIL & SEDIMENT SAMPLE LOG SHEET



Project Site Name: PCY UST 98
Project No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: PCY-0098-4-6 SB-55-6
Sample Location: 98 SB06
Sampled By: WSD
C.O.C. No.: 2841

Type of Sample:
[X] Low Concentration
[] High Concentration

**GRAB SAMPLE DATA:**

| | Depth Interval | Color | Description (Sand, Silt, Clay, Moisture, etc.) |
|---|---|---|---|
| Date: 4-28-15<br>Time: 1009<br>Method: HA<br>Monitor Reading (ppm): — | 4-5 | TAN | Fine Sand |

**COMPOSITE SAMPLE DATA:**

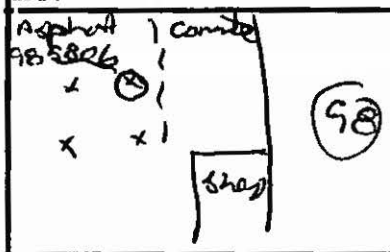
| Date: | Time | Depth Interval | Color | Description (Sand, Silt, Clay, Moisture, etc.) |
|---|---|---|---|---|
| Method: | | | | |
| Monitor Readings (Range in ppm): | | | | |

**SAMPLE COLLECTION INFORMATION:**

| Analysis | Container Requirements | Collected | Other |
|---|---|---|---|
| 8270 LL PAH | 2x 4oz | ✓ | |

**OBSERVATIONS / NOTES:**

**MAP:**




**Circle if Applicable:**

| MS/MSD | Duplicate ID No.: |
|---|---|
| | PCY-0098-FD SB-55 |

**Signature(s):**

Tetra Tech NUS, Inc.

# SOIL & SEDIMENT SAMPLE LOG SHEET



Project Site Name: PC4 UST 98
Project No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: PC4-0098-16-4-6 SB-SS-8
Sample Location: 98 SB08
Sampled By: LWG
C.O.C. No.: 2841

Type of Sample:
[✓] Low Concentration
[] High Concentration

**GRAB SAMPLE DATA:**

| | Depth Interval | Color | Description (Sand, Silt, Clay, Moisture, etc.) |
|---|---|---|---|
| Date: 4-28/15<br>Time: 1005<br>Method: HA<br>Monitor Reading (ppm): – | 4-5' | TAN | Fine Sand |

**COMPOSITE SAMPLE DATA:**

| Date: | Time | Depth Interval | Color | Description (Sand, Silt, Clay, Moisture, etc.) |
|---|---|---|---|---|
| Method: | | | | |
| Monitor Readings (Range in ppm): | | | | |

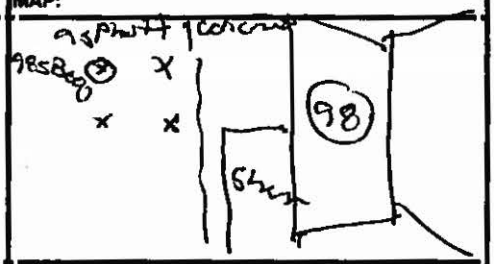
**SAMPLE COLLECTION INFORMATION:**

| Analysis | Container Requirements | Collected | Other |
|---|---|---|---|
| 8270 LL PAH | 8X 4oz glass | ✓ | |

**OBSERVATIONS / NOTES:**

Extract/hold

**MAP:**




**Circle if Applicable:**

MS/MSD

Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

# SOIL & SEDIMENT SAMPLE LOG SHEET

Page 1 of 1

Project Site Name: PCY UST 98
Project No.: 112604292

Sample ID No.: PCY-0098-4-6-SB-SS-9
Sample Location: 98SB09
Sampled By: WOG
C.O.C. No.: 2861

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

**GRAB SAMPLE DATA:**

| | Depth Interval | Color | Description (Sand, Silt, Clay, Moisture, etc.) |
|---|---|---|---|
| Date: 4-28-15<br>Time: 1000<br>Method: HA<br>Monitor Reading (ppm): — | 4-5 | TAN | Fine Sand |

**COMPOSITE SAMPLE DATA:**

| Date: | Time | Depth Interval | Color | Description (Sand, Silt, Clay, Moisture, etc.) |
|---|---|---|---|---|
| Method: | | | | |
| Monitor Readings (Range in ppm): | | | | |

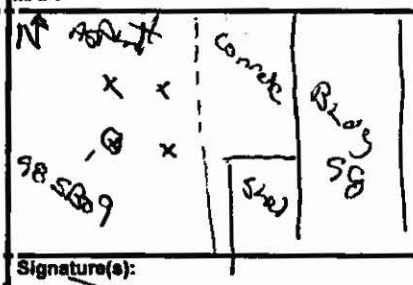
**SAMPLE COLLECTION INFORMATION:**

| Analysis | Container Requirements | Collected | Other |
|---|---|---|---|
| 8270 LL PAH | 1x 4oz glass | ✓ | |

**OBSERVATIONS / NOTES:**

Extract / hold

**MAP:**




**Circle if Applicable:**

| MS/MSD | Duplicate ID No.: |
|---|---|
| | |

**Signature(s):**

Tetra Tech NUS, Inc.

# SOIL & SEDIMENT SAMPLE LOG SHEET

Page 1 of 1

Project Site Name: PCY UST 98
Project No.: 112G04292

Sample ID No.: PCY-0098-4-6 SB-SS-7
Sample Location: 98SB07
Sampled By: WRD
C.O.C. No.: 2841

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

**GRAB SAMPLE DATA:**

Date: 4-28/15
Time: 1002
Method: HA
Monitor Reading (ppm): —

| Depth Interval | Color | Description (Sand, Silt, Clay, Moisture, etc.) |
|---|---|---|
| 4-5 | TAN | Fine sand |

**COMPOSITE SAMPLE DATA:**

| Date: | Time | Depth Interval | Color | Description (Sand, Silt, Clay, Moisture, etc.) |
|---|---|---|---|---|
| Method: | | | | |
| Monitor Readings (Range in ppm): | | | | |

**SAMPLE COLLECTION INFORMATION:**

| Analysis | Container Requirements | Collected | Other |
|---|---|---|---|
| 8270 LL PAH | 1x 4oz glass | ✓ | |

**OBSERVATIONS / NOTES:**

**MAP:**

**Circle if Applicable:**

MS/MSD

Duplicate ID No.: ~~PCY-0098-FD-SS-SS~~ WRD 4-28/15

**Signature(s):**

**Tetra Tech**

SOIL VOLUME
CALCUATION SHEET

| | | | |
|---|---|---|---|
| CLIENT: NAVY | FILE No: 112G04292 | BY: MJ | PAGE: 1 0F 1 |
| SUBJECT: CTO JM73 | CHECKED BY: | DATE: 6/23/15 | |

**Objective:** Estimate soil volumes for contaminated soil removal.

| UST Pit | Gallons | Cubic Feet |
|---|---|---|
| Tank 1 | 0 | 0 |
| Tank 2 | 0 | 0 |

ESTIMATED TOTAL ($ft^3$) = 0
ESTIMATED TOTAL ($yd^3$) = 0

**Conversion:** 1 US gallon = 0.133680556 cubic feet

| UST Pit | Length | Width | AREA ($ft^2$) | x DEPTH (ft) | = VOLUME ($ft^3$) | ($yd^3$) |
|---|---|---|---|---|---|---|
| Soil | 4 | 17 | 68 | 6 | 408 | 15 |

ESTIMATED TOTAL (Tons) = **21**

| | |
|---|---|
| **ESTIMATED TOTAL - SOIL TO BE EXCAVATED ($ft^3$) =** | **408** |
| **ESTIMATED TOTAL - SOIL TO BE EXCAVATED ($yd^3$) =** | **15** |
| **ESTIMATED TOTAL - SOIL TO BE EXCAVATED (Tons) =** | **21** |

| Pipeline | Length | Width | AREA ($ft^2$) | x DEPTH (ft) | = VOLUME ($ft^3$) | ($yd^3$) |
|---|---|---|---|---|---|---|
| Soil | 0 | 0 | 0 | 4 | 0 | 0 |

| | |
|---|---|
| **ESTIMATED TOTAL ($ft^3$) =** | **0** |
| **ESTIMATED TOTAL ($yd^3$) =** | **0** |
| **ESTIMATED TOTAL (Tons) =** | **0** |

total 21

**Tetra Tech**

SOIL VOLUME
CALCUATION SHEET

| | | | |
|---|---|---|---|
| CLIENT: NAVY | FILE No: 112G04292 | BY: MJ | PAGE: 1 0F 1 |
| SUBJECT: CTO JM73 | CHECKED BY: | DATE: 6/23/15 | |

**Objective:** Estimate soil volumes for contaminated soil removal.

| UST Pit | Length | Width | AREA ($ft^2$) | x DEPTH (ft) | = VOLUME ($ft^3$) | ($yd^3$) |
|---|---|---|---|---|---|---|
| **Contaminated Soil Area** | **4** | **17** | **68** | **6** | **408** | **15** |
| | **0** | **0** | **0** | **0** | **0** | **0** |
| | **0** | **0** | **0** | **0** | **0** | **0** |
| | **0** | **0** | **0** | | **0** | **0** |
| **Total Soil** | | | | | **408** | **15** |

| | |
|---|---|
| **ESTIMATED TOTAL - SOIL TO BE EXCAVATED ($ft^3$) =** | **408** |
| **ESTIMATED TOTAL - SOIL TO BE EXCAVATED ($yd^3$) =** | **15** |
| **ESTIMATED TOTAL - SOIL TO BE EXCAVATED (Tons) =** | **21** |

**ATTACHMENT 2**

**LABORATORY ANALYTICAL DATA**

Southeast ACCUTEST LABORATORIES

05/19/15

# Technical Report for

## Tetra Tech NUS

NSA Panama City JM73 Bldg 98; Panama City, FL

112G04292

Accutest Job Number: FA23938

Sampling Date: 04/28/15

Report to:

Tetra-Tech,Inc
661 Andersen Dr
Foster Plaza 7
Pittsburgh, PA 15220

ATTN: Amy Thomson

Total number of pages in report: **166**

NELAP ACCREDITED TNI LABORATORY

Norm Farmer
Technical Director

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

Client Service contact: Andrea Colby 407-425-6700

Certifications: FL (E83510), LA (03051), KS (E-10327), IA (366), IL (200063), NC (573), NJ (FL002), SC (96038001) DoD ELAP (L-A-B L2229), CA (2937), TX (T104704404), PA (68-03573), VA (460177), AK, AR, GA, KY, MA, NV, OK, UT, WA

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Test results relate only to samples analyzed.



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# Sample Summary

Tetra Tech NUS

**Job No:** FA23938

NSA Panama City JM73 Bldg 98; Panama City, FL
Project No: 112G04292

| Sample Number | Collected Date | Time | By | Received | Matrix Code | Type | Client Sample ID |
|---|---|---|---|---|---|---|---|
| FA23938-1 | 04/28/15 | 10:00 | WO | 04/29/15 | SO | Soil | PCY-0098-4-6-SB-SS-9 |
| FA23938-2 | 04/28/15 | 10:02 | WO | 04/29/15 | SO | Soil | PCY-0098-4-6-SB-SS-7 |
| FA23938-3 | 04/28/15 | 10:05 | WO | 04/29/15 | SO | Soil | PCY-0098-4-6-SB-SS-8 |
| FA23938-3D | 04/28/15 | 10:05 | WO | 04/29/15 | SO | Soil Dup/MSD | PCY-0098-4-6-SB-SS-8 |
| FA23938-3S | 04/28/15 | 10:05 | WO | 04/29/15 | SO | Soil Matrix Spike | PCY-0098-4-6-SB-SS-8 |
| FA23938-4 | 04/28/15 | 10:09 | WO | 04/29/15 | SO | Soil | PCY-0098-4-6-SB-SS-6 |
| FA23938-5 | 04/28/15 | 10:35 | WO | 04/29/15 | AQ | Equipment Blank | PCY-0098-RB |
| FA23938-6 | 04/28/15 | 00:00 | WO | 04/29/15 | SO | Soil | PCY-0098-FD-SB-SS |

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

# SAMPLE DELIVERY GROUP CASE NARRATIVE

**Client:** Tetra Tech NUS **Job No:** FA23938

**Site:** NSA Panama City JM73 Bldg 98; Panama City, FL **Report Date:** 5/18/2015 10:43:19

6 Sample(s) were collected on 04/28/2015 and were received at Accutest SE on 04/29/2015 properly preserved, at 3.4 Deg. C and intact. These Samples received an Accutest job number of FA23938. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

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

**Matrix:** AQ **Batch ID:** OP55914

All samples were extracted within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) FA23861-1MS, FA23861-1MSD were used as the QC samples indicated.

Matrix Spike/ Matrix Spike Duplicate Recovery(s) for Acenaphthene, Acenaphthylene, Fluorene are outside control limits. Probable cause is due to matrix interference. % RPD was within control limits in MS/MSD. For method performance in a clean matrix, refer to Blank Spike.

**Matrix:** SO **Batch ID:** OP56056

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) FA24262-2MS, FA24262-2MSD were used as the QC samples indicated.

Matrix Spike Recovery(s) for Chrysene are outside control limits. Probable cause is due to matrix interference. % RPD was within control limits in MS/MSD. For method performance in a clean matrix, refer to Blank Spike.

## Wet Chemistry By Method SM19 2540G

**Matrix:** SO **Batch ID:** GN66294

Sample(s) FA23938-3DUP was used as the QC sample for Solids, Percent.

Accutest Laboratories Southeast (ALSE) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALSE and as stated on the COC. ALSE certifies that the data meets the Data Quality Objectives for precision, accuracy and completeness as specified in the ALSE Quality Manual except as noted above. This report is to be used in its entirety. ALSE is not responsible for any assumptions of data quality if partial data packages are used.

Narrative prepared by:

_____ Date: May 18, 2015

Kim Benham, Client Services (signature on file)

# Manual Integration Summary

| Lab Sample ID | Analysis Type | File ID | Manual Integrations |
|---|---|---|---|
| OP55914-BS | MSSEMI | R448848.D | Indeno(1,2,3-cd)pyrene |
| SR2318-IC2318 | MSSEMI | R448792.D | Indeno(1,2,3-cd)pyrene |
| SR2318-IC2318 | MSSEMI | R448798.D | Benzo(k)fluoranthene |

**3 Manual Integrations were found for FA23938**

# Summary of Hits



**Job Number:** FA23938
**Account:** Tetra Tech NUS
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL
**Collected:** 04/28/15



| Lab Sample ID<br>Analyte | Client Sample ID | Result/<br>Qual | PQL | MDL | Units | Method |
|---|---|---|---|---|---|---|

**FA23938-1 PCY-0098-4-6-SB-SS-9**

No hits reported in this sample.

**FA23938-2 PCY-0098-4-6-SB-SS-7**

No hits reported in this sample.

**FA23938-3 PCY-0098-4-6-SB-SS-8**

No hits reported in this sample.

**FA23938-4 PCY-0098-4-6-SB-SS-6**

No hits reported in this sample.

**FA23938-5 PCY-0098-RB**

No hits reported in this sample.

**FA23938-6 PCY-0098-FD-SB-SS**

No hits reported in this sample.

Southeast ACCUTEST LABORATORIES



Sample Results

Report of Analysis

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | PCY-0098-4-6-SB-SS-9 | | |
| **Lab Sample ID:** | FA23938-1 | **Date Sampled:** | 04/28/15 |
| **Matrix:** | SO - Soil | **Date Received:** | 04/29/15 |
| | | **Percent Solids:** | 93.7 |
| **Project:** | NSA Panama City JM73 Bldg 98; Panama City, FL | | |

**General Chemistry**

| Analyte | Result | RL | Units | DF | Analyzed | By | Method |
|---|---|---|---|---|---|---|---|
| Solids, Percent | 93.7 | | % | 1 | 05/13/15 14:43 | FN | SM19 2540G |

RL = Reporting Limit

Accutest Laboratories

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | PCY-0098-4-6-SB-SS-7 | | |
| **Lab Sample ID:** | FA23938-2 | **Date Sampled:** | 04/28/15 |
| **Matrix:** | SO - Soil | **Date Received:** | 04/29/15 |
| **Method:** | SW846 8270D BY SIM SW846 3550C | **Percent Solids:** | 95.5 |
| **Project:** | NSA Panama City JM73 Bldg 98; Panama City, FL | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | U050708.D | 4 | 05/12/15 | NJ | 05/12/15 | OP56056 | SU2315 |
| Run #2 | | | | | | | |

| | Initial Weight | Final Volume |
|---|---|---|
| Run #1 | 30.1 g | 1.0 ml |
| Run #2 | | |

**BN PAH List**

| CAS No. | Compound | Result | PQL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | 56 U | 140 | 56 | ug/kg | |
| 208-96-8 | Acenaphthylene | 56 U | 140 | 56 | ug/kg | |
| 120-12-7 | Anthracene | 35 U | 140 | 35 | ug/kg | |
| 56-55-3 | Benzo(a)anthracene | 7.0 U | 28 | 7.0 | ug/kg | |
| 50-32-8 | Benzo(a)pyrene | 7.0 U | 28 | 7.0 | ug/kg | |
| 205-99-2 | Benzo(b)fluoranthene | 7.0 U | 28 | 7.0 | ug/kg | |
| 191-24-2 | Benzo(g,h,i)perylene | 7.0 U | 28 | 7.0 | ug/kg | |
| 207-08-9 | Benzo(k)fluoranthene | 7.0 U | 28 | 7.0 | ug/kg | |
| 218-01-9 | Chrysene | 7.0 U | 28 | 7.0 | ug/kg | |
| 53-70-3 | Dibenzo(a,h)anthracene | 7.0 U | 28 | 7.0 | ug/kg | |
| 206-44-0 | Fluoranthene | 35 U | 140 | 35 | ug/kg | |
| 86-73-7 | Fluorene | 56 U | 140 | 56 | ug/kg | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | 7.0 U | 28 | 7.0 | ug/kg | |
| 90-12-0 | 1-Methylnaphthalene | 56 U | 140 | 56 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | 56 U | 140 | 56 | ug/kg | |
| 91-20-3 | Naphthalene | 56 U | 140 | 56 | ug/kg | |
| 85-01-8 | Phenanthrene | 35 U | 140 | 35 | ug/kg | |
| 129-00-0 | Pyrene | 35 U | 140 | 35 | ug/kg | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 4165-60-0 | Nitrobenzene-d5 | 89% | | 40-105% |
| 321-60-8 | 2-Fluorobiphenyl | 83% | | 43-107% |
| 1718-51-0 | Terphenyl-d14 | 106% | | 45-119% |

U = Not detected MDL = Method Detection Limit
PQL = Practical Quantitation Limit
L = Indicates value exceeds calibration range

I = Result > = MDL but < PQL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | PCY-0098-4-6-SB-SS-7 | | |
| **Lab Sample ID:** | FA23938-2 | **Date Sampled:** | 04/28/15 |
| **Matrix:** | SO - Soil | **Date Received:** | 04/29/15 |
| **Method:** | SW846 8270D BY SIM | **Percent Solids:** | 95.5 |
| **Project:** | NSA Panama City JM73 Bldg 98; Panama City, FL | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | | 1 | 05/12/15 | NJ | n/a | n/a | R36977 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | PQL | Units | Q |
|---|---|---|---|---|---|
| | Benzo(a)pyrene Equivalents [a] | NC | | mg/kg | |

(a) Total Benzo(a)pyrene Equivalents calculated as per FDEP Conversion Table [Revised 11-26-07]

U = Not detected
PQL = Practical Quantitation Limit
L = Indicates value exceeds calibration range

I = Result > = MDL but < PQL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | PCY-0098-4-6-SB-SS-8 | | |
| **Lab Sample ID:** | FA23938-3 | **Date Sampled:** | 04/28/15 |
| **Matrix:** | SO - Soil | **Date Received:** | 04/29/15 |
| | | **Percent Solids:** | 94.4 |
| **Project:** | NSA Panama City JM73 Bldg 98; Panama City, FL | | |

**General Chemistry**

| Analyte | Result | RL | Units | DF | Analyzed | By | Method |
|---|---|---|---|---|---|---|---|
| Solids, Percent | 94.4 | | % | 1 | 05/13/15 14:43 | FN | SM19 2540G |

RL = Reporting Limit

Accutest Laboratories

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | PCY-0098-4-6-SB-SS-6 | | |
| **Lab Sample ID:** | FA23938-4 | **Date Sampled:** | 04/28/15 |
| **Matrix:** | SO - Soil | **Date Received:** | 04/29/15 |
| **Method:** | SW846 8270D BY SIM SW846 3550C | **Percent Solids:** | 95.3 |
| **Project:** | NSA Panama City JM73 Bldg 98; Panama City, FL | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | U050710.D | 4 | 05/12/15 | NJ | 05/12/15 | OP56056 | SU2315 |
| Run #2 | | | | | | | |

| | Initial Weight | Final Volume |
|---|---|---|
| Run #1 | 30.4 g | 1.0 ml |
| Run #2 | | |

**BN PAH List**

| CAS No. | Compound | Result | PQL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | 55 U | 140 | 55 | ug/kg | |
| 208-96-8 | Acenaphthylene | 55 U | 140 | 55 | ug/kg | |
| 120-12-7 | Anthracene | 35 U | 140 | 35 | ug/kg | |
| 56-55-3 | Benzo(a)anthracene | 6.9 U | 28 | 6.9 | ug/kg | |
| 50-32-8 | Benzo(a)pyrene | 6.9 U | 28 | 6.9 | ug/kg | |
| 205-99-2 | Benzo(b)fluoranthene | 6.9 U | 28 | 6.9 | ug/kg | |
| 191-24-2 | Benzo(g,h,i)perylene | 6.9 U | 28 | 6.9 | ug/kg | |
| 207-08-9 | Benzo(k)fluoranthene | 6.9 U | 28 | 6.9 | ug/kg | |
| 218-01-9 | Chrysene | 6.9 U | 28 | 6.9 | ug/kg | |
| 53-70-3 | Dibenzo(a,h)anthracene | 6.9 U | 28 | 6.9 | ug/kg | |
| 206-44-0 | Fluoranthene | 35 U | 140 | 35 | ug/kg | |
| 86-73-7 | Fluorene | 55 U | 140 | 55 | ug/kg | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | 6.9 U | 28 | 6.9 | ug/kg | |
| 90-12-0 | 1-Methylnaphthalene | 55 U | 140 | 55 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | 55 U | 140 | 55 | ug/kg | |
| 91-20-3 | Naphthalene | 55 U | 140 | 55 | ug/kg | |
| 85-01-8 | Phenanthrene | 35 U | 140 | 35 | ug/kg | |
| 129-00-0 | Pyrene | 35 U | 140 | 35 | ug/kg | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 4165-60-0 | Nitrobenzene-d5 | 82% | | 40-105% |
| 321-60-8 | 2-Fluorobiphenyl | 75% | | 43-107% |
| 1718-51-0 | Terphenyl-d14 | 94% | | 45-119% |

U = Not detected MDL = Method Detection Limit
PQL = Practical Quantitation Limit
L = Indicates value exceeds calibration range

I = Result > = MDL but < PQL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | PCY-0098-4-6-SB-SS-6 | | |
| **Lab Sample ID:** | FA23938-4 | **Date Sampled:** | 04/28/15 |
| **Matrix:** | SO - Soil | **Date Received:** | 04/29/15 |
| **Method:** | SW846 8270D BY SIM | **Percent Solids:** | 95.3 |
| **Project:** | NSA Panama City JM73 Bldg 98; Panama City, FL | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | | 1 | 05/12/15 | NJ | n/a | n/a | R36976 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | PQL | Units | Q |
|---|---|---|---|---|---|
| | Benzo(a)pyrene Equivalents [a] | NC | | mg/kg | |

(a) Total Benzo(a)pyrene Equivalents calculated as per FDEP Conversion Table [Revised 11-26-07]

U = Not detected
PQL = Practical Quantitation Limit
L = Indicates value exceeds calibration range

I = Result > = MDL but < PQL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | PCY-0098-RB | | |
| **Lab Sample ID:** | FA23938-5 | **Date Sampled:** | 04/28/15 |
| **Matrix:** | AQ - Equipment Blank | **Date Received:** | 04/29/15 |
| **Method:** | SW846 8270D BY SIM SW846 3510C | **Percent Solids:** | n/a |
| **Project:** | NSA Panama City JM73 Bldg 98; Panama City, FL | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | R448868.D | 1 | 05/01/15 | MG | 04/29/15 | OP55914 | SR2322 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 240 ml | 1.0 ml |
| Run #2 | | |

**BN PAH List**

| CAS No. | Compound | Result | PQL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | 0.33 U | 0.83 | 0.33 | ug/l | |
| 208-96-8 | Acenaphthylene | 0.33 U | 0.83 | 0.33 | ug/l | |
| 120-12-7 | Anthracene | 0.21 U | 0.83 | 0.21 | ug/l | |
| 56-55-3 | Benzo(a)anthracene | 0.033 U | 0.17 | 0.033 | ug/l | |
| 50-32-8 | Benzo(a)pyrene | 0.033 U | 0.17 | 0.033 | ug/l | |
| 205-99-2 | Benzo(b)fluoranthene | 0.033 U | 0.17 | 0.033 | ug/l | |
| 191-24-2 | Benzo(g,h,i)perylene | 0.033 U | 0.17 | 0.033 | ug/l | |
| 207-08-9 | Benzo(k)fluoranthene | 0.034 U | 0.17 | 0.034 | ug/l | |
| 218-01-9 | Chrysene | 0.033 U | 0.17 | 0.033 | ug/l | |
| 53-70-3 | Dibenzo(a,h)anthracene | 0.033 U | 0.17 | 0.033 | ug/l | |
| 206-44-0 | Fluoranthene | 0.21 U | 0.83 | 0.21 | ug/l | |
| 86-73-7 | Fluorene | 0.21 U | 0.83 | 0.21 | ug/l | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | 0.033 U | 0.17 | 0.033 | ug/l | |
| 90-12-0 | 1-Methylnaphthalene | 0.33 U | 0.83 | 0.33 | ug/l | |
| 91-57-6 | 2-Methylnaphthalene | 0.33 U | 0.83 | 0.33 | ug/l | |
| 91-20-3 | Naphthalene | 0.33 U | 0.83 | 0.33 | ug/l | |
| 85-01-8 | Phenanthrene | 0.21 U | 0.83 | 0.21 | ug/l | |
| 129-00-0 | Pyrene | 0.21 U | 0.83 | 0.21 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 4165-60-0 | Nitrobenzene-d5 | 77% | | 41-129% |
| 321-60-8 | 2-Fluorobiphenyl | 79% | | 41-118% |
| 1718-51-0 | Terphenyl-d14 | 96% | | 45-145% |

U = Not detected MDL = Method Detection Limit I = Result > = MDL but < PQL J = Estimated value
PQL = Practical Quantitation Limit V = Indicates analyte found in associated method blank
L = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Accutest Laboratories

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | PCY-0098-FD-SB-SS | | |
| **Lab Sample ID:** | FA23938-6 | **Date Sampled:** | 04/28/15 |
| **Matrix:** | SO - Soil | **Date Received:** | 04/29/15 |
| **Method:** | SW846 8270D BY SIM SW846 3550C | **Percent Solids:** | 95.2 |
| **Project:** | NSA Panama City JM73 Bldg 98; Panama City, FL | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | U050711.D | 4 | 05/12/15 | NJ | 05/12/15 | OP56056 | SU2315 |
| Run #2 | | | | | | | |

| | Initial Weight | Final Volume |
|---|---|---|
| Run #1 | 30.1 g | 1.0 ml |
| Run #2 | | |

**BN PAH List**

| CAS No. | Compound | Result | PQL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | 56 U | 140 | 56 | ug/kg | |
| 208-96-8 | Acenaphthylene | 56 U | 140 | 56 | ug/kg | |
| 120-12-7 | Anthracene | 35 U | 140 | 35 | ug/kg | |
| 56-55-3 | Benzo(a)anthracene | 7.0 U | 28 | 7.0 | ug/kg | |
| 50-32-8 | Benzo(a)pyrene | 7.0 U | 28 | 7.0 | ug/kg | |
| 205-99-2 | Benzo(b)fluoranthene | 7.0 U | 28 | 7.0 | ug/kg | |
| 191-24-2 | Benzo(g,h,i)perylene | 7.0 U | 28 | 7.0 | ug/kg | |
| 207-08-9 | Benzo(k)fluoranthene | 7.0 U | 28 | 7.0 | ug/kg | |
| 218-01-9 | Chrysene | 7.0 U | 28 | 7.0 | ug/kg | |
| 53-70-3 | Dibenzo(a,h)anthracene | 7.0 U | 28 | 7.0 | ug/kg | |
| 206-44-0 | Fluoranthene | 35 U | 140 | 35 | ug/kg | |
| 86-73-7 | Fluorene | 56 U | 140 | 56 | ug/kg | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | 7.0 U | 28 | 7.0 | ug/kg | |
| 90-12-0 | 1-Methylnaphthalene | 56 U | 140 | 56 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | 56 U | 140 | 56 | ug/kg | |
| 91-20-3 | Naphthalene | 56 U | 140 | 56 | ug/kg | |
| 85-01-8 | Phenanthrene | 35 U | 140 | 35 | ug/kg | |
| 129-00-0 | Pyrene | 35 U | 140 | 35 | ug/kg | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 4165-60-0 | Nitrobenzene-d5 | 82% | | 40-105% |
| 321-60-8 | 2-Fluorobiphenyl | 76% | | 43-107% |
| 1718-51-0 | Terphenyl-d14 | 102% | | 45-119% |

U = Not detected MDL = Method Detection Limit
PQL = Practical Quantitation Limit
L = Indicates value exceeds calibration range

I = Result > = MDL but < PQL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | PCY-0098-FD-SB-SS | | |
| **Lab Sample ID:** | FA23938-6 | **Date Sampled:** | 04/28/15 |
| **Matrix:** | SO - Soil | **Date Received:** | 04/29/15 |
| **Method:** | SW846 8270D BY SIM | **Percent Solids:** | 95.2 |
| **Project:** | NSA Panama City JM73 Bldg 98; Panama City, FL | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | | 1 | 05/12/15 | NJ | n/a | n/a | R36975 |
| Run #2 | | | | | | | |

| CAS No. | Compound | Result | PQL | Units | Q |
|---|---|---|---|---|---|
| | Benzo(a)pyrene Equivalents [a] | NC | | mg/kg | |

(a) Total Benzo(a)pyrene Equivalents calculated as per FDEP Conversion Table [Revised 11-26-07]

U = Not detected
PQL = Practical Quantitation Limit
L = Indicates value exceeds calibration range

I = Result > = MDL but < PQL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Southeast ACCUTEST LABORATORIES



# Misc. Forms

## Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- QC Evaluation: DOD QSM5 Limits

# Job Change

FA23938

| | | | |
|---|---|---|---|
| **Requested Date:** | 4/29/2015 | **Received Date:** | 4/29/2015 |
| **Account Name:** | Tetra Tech NUS | **Due Date:** | 5/20/2015 |
| **Project** | NSA Panama City JM73 Bldg 98; Panama City, | **Deliverable:** | FULT1 |
| **CSR:** | andreac | **TAT (Days):** | 21 |

==========

**Sample #:** FA23938-1, 3

**Change:**
Please extract and hold these samples for PAHs.

==========

**Above Changes Per:** Bill Olson

**Date/Time:** 4/29/2015 2:54:23 PM

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

TETRA TECH NUS, INC.

FA23938

CHAIN OF CUSTODY | NUMBER 2841 | PAGE 1 OF 1

PROJECT NO: 112G04292
FACILITY: PC4 US1 98
PROJECT MANAGER: G. Walker
PHONE NUMBER: 850 385 9879
LABORATORY NAME AND CONTACT: Accutest / Randy Shields
SAMPLERS (SIGNATURE): [signature]
FIELD OPERATIONS LEADER: W.D. Olson
PHONE NUMBER: 850 443 6853
ADDRESS: 4405 Vineland RD C15
CARRIER/WAYBILL NUMBER: FedEx 8066 1749 7657
CITY, STATE: Orlando FL

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): G
PRESERVATIVE USED: 4°

| | DATE YEAR | TIME | SAMPLE ID | LOCATION ID | TOP DEPTH (FT) | BOTTOM DEPTH (FT) | MATRIX (GW, SO, SW, SD, QC, ETC.) | COLLECTION METHOD GRAB (G) COMP (C) | No. OF CONTAINERS | TYPE OF ANALYSIS: 8270 LL PAH | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 4/28 | 1000 | PC4-0098-4-6-SB-SS-9 | SB9 | 4 | 5 | SO | G | 1 | 1 | |
| 2 | | 1002 | PC4-0098-4-6-SB-SS-7 | SB7 | 4 | 5 | SO | G | 1 | 1 | |
| 3 | | 1005 | PC4-0098-4-6-SB-SS-8 | SB8 | 4 | 5 | SO | G | 3 | 3 | ms/msD |
| 4 | | 1009 | PC4-0098-4-6-SB-SS-6 | SB6 | 4 | 5 | SO | G | 1 | 1 | |
| 5 | | 1035 | PC4-0098-RB | QC | — | — | QC | G | 2 | 2 | |
| 6 | | QC | PC4-0098-FD-SB-SS | QC | — | — | QC | G | 1 | 1 | |

| | | | | | |
|---|---|---|---|---|---|
| 1. RELINQUISHED BY [signature] | DATE 4-28-15 | TIME 1400 | 1. RECEIVED BY [signature] | DATE | TIME |
| 2. RELINQUISHED BY [signature] | DATE 04-29-15 | TIME 900 | 2. RECEIVED BY [signature] | DATE | TIME |
| 3. RELINQUISHED BY | DATE | TIME | 3. RECEIVED BY | DATE | TIME |

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

3-4

4/02R FORM NO. TtNUS-001

**FA23938: Chain of Custody**
**Page 2 of 4**

# ACCUTEST LABORATORIES SAMPLE RECEIPT CONFIRMATION

ACCUTEST'S JOB NUMBER: FA23938 CLIENT: TetraTech PROJECT: 112G04292

DATE/TIME RECEIVED: 04-29-15 {MM/DD/YY 24:00} NUMBER OF COOLERS RECEIVED: 1

METHOD OF DELIVERY: (FEDEX) UPS ACCUTEST COURIER DELIVERY OTHER:

AIRBILL NUMBERS: 8066 1749 7657

## COOLER INFORMATION

- [ ] CUSTODY SEAL NOT PRESENT OR NOT INTACT
- [ ] CHAIN OF CUSTODY NOT RECEIVED (COC)
- [ ] ANALYSIS REQUESTED IS UNCLEAR OR MISSING
- [ ] SAMPLE DATES OR TIMES UNCLEAR OR MISSING
- [ ] TEMPERATURE CRITERIA NOT MET

## TEMPERATURE INFORMATION

- [ ] IR THERM ID 1 CORR. FACTOR -0.2
- [ ] OBSERVED TEMPS: 3.6
- [ ] CORRECTED TEMPS: 3.4

## TRIP BLANK INFORMATION

- [ ] TRIP BLANK PROVIDED
- [x] TRIP BLANK NOT PROVIDED
- [x] TRIP BLANK NOT ON COC
- [ ] TRIP BLANK INTACT
- [ ] TRIP BLANK NOT INTACT
- [ ] RECEIVED WATER TRIP BLANK
- [ ] RECEIVED SOIL TRIP BLANK

## SAMPLE INFORMATION

- [ ] INCORRECT NUMBER OF CONTAINERS USED
- [ ] SAMPLE RECEIVED IMPROPERLY PRESERVED
- [ ] INSUFFICIENT VOLUME FOR ANALYSIS
- [ ] DATES/TIMES ON COC DO NOT MATCH SAMPLE LABEL
- [ ] ID'S ON COC DO NOT MATCH LABEL
- [ ] VOC VIALS HAVE HEADSPACE (MACRO BUBBLES)
- [ ] BOTTLES RECEIVED BUT ANALYSIS NOT REQUESTED
- [ ] NO BOTTLES RECEIVED FOR ANALYSIS REQUESTED
- [ ] UNCLEAR FILTERING OR COMPOSITING INSTRUCTIONS
- [ ] SAMPLE CONTAINER(S) RECEIVED BROKEN
- [ ] 5035 FIELD KITS NOT RECEIVED WITHIN 48 HOURS
- [ ] BULK VOA SOIL JARS NOT RECEIVED WITHIN 48 HOURS
- [ ] % SOLIDS JAR NOT RECEIVED
- [ ] RESIDUAL CHLORINE PRESENT LOT#

{APPLICABLE TO EPA 600 SERIES OR NORTH CAROLINA ORGANICS}

## MISC. INFORMATION

NUMBER OF ENCORES ? 25-GRAM 5-GRAM

NUMBER OF 5035 FIELD KITS ?

NUMBER OF LAB FILTERED METALS ?

pH PAPER LOT#s WIDE RANGE A036122 NARROW RANGE HC421754 OTHER (specify) 405-230010

SUMMARY OF COMMENTS: 250 ml (8270) Sample #5

TECHNICIAN SIGNATURE/DATE 04-29-15 REVIEWER SIGNATURE/DATE 04-29-15

NF 10/14 receipt confirmation 102914.xls

5.1 5

**FA23938: Chain of Custody**
**Page 3 of 4**

ORIGIN ID:PFNA

SHIP DATE: 28APR15
ACTWGT: 20.5 LB
CAD: /POS1601
DIMS: 16x13x9 IN

BILL RECIPIENT

UNITED STATES US

TO SAMPLE RECEIVING
ACCUTEST LABORATORIES SE INC
4405 VINELAND RD
STE C15
ORLANDO FL 32811
(407) 426-0700

INV:
PO:
REF:
DEPT:

FedEx Express

TRK# 0215 8066 1749 7657

WED - 29 APR 10:30A
PRIORITY OVERNIGHT

33 TIXA

32811
FL-US MCO

FA23938: Chain of Custody

Page 4 of 4

# QC Evaluation: DOD QSM5 Limits



**Job Number:** FA23938
**Account:** Tetra Tech NUS
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL
**Collected:** 04/28/15

| QC Sample ID | CAS# | Analyte | Sample Type | Result Type | Result | Units | Limits |
|---|---|---|---|---|---|---|---|
| OP55914 | SW846 8270D BY SIM | | | | | | |
| OP55914-BS | 83-32-9 | Acenaphthene | BSP | REC | 96 | % | 48-114 |
| OP55914-BS | 208-96-8 | Acenaphthylene | BSP | REC | 93 | % | 35-121 |
| OP55914-BS | 120-12-7 | Anthracene | BSP | REC | 93 | % | 53-119 |
| OP55914-BS | 56-55-3 | Benzo(a)anthracene | BSP | REC | 103 | % | 59-120 |
| OP55914-BS | 50-32-8 | Benzo(a)pyrene | BSP | REC | 95 | % | 53-120 |
| OP55914-BS | 205-99-2 | Benzo(b)fluoranthene | BSP | REC | 103 | % | 53-126 |
| OP55914-BS | 191-24-2 | Benzo(g,h,i)perylene | BSP | REC | 85 | % | 44-128 |
| OP55914-BS | 207-08-9 | Benzo(k)fluoranthene | BSP | REC | 103 | % | 54-125 |
| OP55914-BS | 218-01-9 | Chrysene | BSP | REC | 103 | % | 57-120 |
| OP55914-BS | 53-70-3 | Dibenzo(a,h)anthracene | BSP | REC | 85 | % | 44-131 |
| OP55914-BS | 206-44-0 | Fluoranthene | BSP | REC | 104 | % | 58-120 |
| OP55914-BS | 86-73-7 | Fluorene | BSP | REC | 96 | % | 50-118 |
| OP55914-BS | 193-39-5 | Indeno(1,2,3-cd)pyrene | BSP | REC | 88 | % | 48-130 |
| OP55914-BS | 90-12-0 | 1-Methylnaphthalene | BSP | REC | 93 | % | 41-115 |
| OP55914-BS | 91-57-6 | 2-Methylnaphthalene | BSP | REC | 84 | % | 39-114 |
| OP55914-BS | 91-20-3 | Naphthalene | BSP | REC | 90 | % | 43-114 |
| OP55914-BS | 85-01-8 | Phenanthrene | BSP | REC | 96 | % | 53-115 |
| OP55914-BS | 129-00-0 | Pyrene | BSP | REC | 93 | % | 53-121 |
| OP55914-BS | 4165-60-0 | Nitrobenzene-d5 | BSP | SURR | 87 | % | 55-111 |
| OP55914-BS | 321-60-8 | 2-Fluorobiphenyl | BSP | SURR | 88 | % | 53-106 |
| OP55914-BS | 1718-51-0 | Terphenyl-d14 | BSP | SURR | 94 | % | 58-132 |
| OP55914-MS* | 83-32-9 | Acenaphthene | MS | REC | 39 | % | 48-114 |
| OP55914-MS* | 208-96-8 | Acenaphthylene | MS | REC | 39 | % | 35-121 |
| OP55914-MS* | 120-12-7 | Anthracene | MS | REC | 84 | % | 53-119 |
| OP55914-MS* | 56-55-3 | Benzo(a)anthracene | MS | REC | 86 | % | 59-120 |
| OP55914-MS* | 50-32-8 | Benzo(a)pyrene | MS | REC | 76 | % | 53-120 |
| OP55914-MS* | 205-99-2 | Benzo(b)fluoranthene | MS | REC | 81 | % | 53-126 |
| OP55914-MS* | 191-24-2 | Benzo(g,h,i)perylene | MS | REC | 63 | % | 44-128 |
| OP55914-MS* | 207-08-9 | Benzo(k)fluoranthene | MS | REC | 75 | % | 54-125 |
| OP55914-MS* | 218-01-9 | Chrysene | MS | REC | 83 | % | 57-120 |
| OP55914-MS* | 53-70-3 | Dibenzo(a,h)anthracene | MS | REC | 60 | % | 44-131 |
| OP55914-MS* | 206-44-0 | Fluoranthene | MS | REC | 100 | % | 58-120 |
| OP55914-MS* | 86-73-7 | Fluorene | MS | REC | 39 | % | 50-118 |
| OP55914-MS* | 193-39-5 | Indeno(1,2,3-cd)pyrene | MS | REC | 68 | % | 48-130 |
| OP55914-MS* | 90-12-0 | 1-Methylnaphthalene | MS | REC | 73 | % | 41-115 |
| OP55914-MS* | 91-57-6 | 2-Methylnaphthalene | MS | REC | 69 | % | 39-114 |
| OP55914-MS* | 91-20-3 | Naphthalene | MS | REC | 73 | % | 43-114 |
| OP55914-MS* | 85-01-8 | Phenanthrene | MS | REC | 87 | % | 53-115 |
| OP55914-MS* | 129-00-0 | Pyrene | MS | REC | 66 | % | 53-121 |
| OP55914-MS* | 4165-60-0 | Nitrobenzene-d5 | MS | SURR | 71 | % | 55-111 |
| OP55914-MS* | 321-60-8 | 2-Fluorobiphenyl | MS | SURR | 41 | % | 53-106 |
| OP55914-MS* | 1718-51-0 | Terphenyl-d14 | MS | SURR | 65 | % | 58-132 |

* Sample used for QC is not from job FA23938

# QC Evaluation: DOD QSM5 Limits



**Job Number:** FA23938
**Account:** Tetra Tech NUS
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL
**Collected:** 04/28/15

| QC Sample ID | CAS# | Analyte | Sample Type | Result Type | Result | Units | Limits |
|---|---|---|---|---|---|---|---|
| OP55914-MSD* | 83-32-9 | Acenaphthene | MSD | REC | 39 | % | 48-114 |
| OP55914-MSD* | 83-32-9 | Acenaphthene | MSD | RPD | 0 | % | 20 |
| OP55914-MSD* | 208-96-8 | Acenaphthylene | MSD | REC | 40 | % | 35-121 |
| OP55914-MSD* | 208-96-8 | Acenaphthylene | MSD | RPD | 3 | % | 20 |
| OP55914-MSD* | 120-12-7 | Anthracene | MSD | REC | 96 | % | 53-119 |
| OP55914-MSD* | 120-12-7 | Anthracene | MSD | RPD | 14 | % | 20 |
| OP55914-MSD* | 56-55-3 | Benzo(a)anthracene | MSD | REC | 98 | % | 59-120 |
| OP55914-MSD* | 56-55-3 | Benzo(a)anthracene | MSD | RPD | 12 | % | 20 |
| OP55914-MSD* | 50-32-8 | Benzo(a)pyrene | MSD | REC | 90 | % | 53-120 |
| OP55914-MSD* | 50-32-8 | Benzo(a)pyrene | MSD | RPD | 17 | % | 20 |
| OP55914-MSD* | 205-99-2 | Benzo(b)fluoranthene | MSD | REC | 98 | % | 53-126 |
| OP55914-MSD* | 205-99-2 | Benzo(b)fluoranthene | MSD | RPD | 18 | % | 20 |
| OP55914-MSD* | 191-24-2 | Benzo(g,h,i)perylene | MSD | REC | 73 | % | 44-128 |
| OP55914-MSD* | 191-24-2 | Benzo(g,h,i)perylene | MSD | RPD | 15 | % | 20 |
| OP55914-MSD* | 207-08-9 | Benzo(k)fluoranthene | MSD | REC | 88 | % | 54-125 |
| OP55914-MSD* | 207-08-9 | Benzo(k)fluoranthene | MSD | RPD | 15 | % | 20 |
| OP55914-MSD* | 218-01-9 | Chrysene | MSD | REC | 95 | % | 57-120 |
| OP55914-MSD* | 218-01-9 | Chrysene | MSD | RPD | 14 | % | 20 |
| OP55914-MSD* | 53-70-3 | Dibenzo(a,h)anthracene | MSD | REC | 74 | % | 44-131 |
| OP55914-MSD* | 53-70-3 | Dibenzo(a,h)anthracene | MSD | RPD | 21 | % | 20 |
| OP55914-MSD* | 206-44-0 | Fluoranthene | MSD | REC | 111 | % | 58-120 |
| OP55914-MSD* | 206-44-0 | Fluoranthene | MSD | RPD | 10 | % | 20 |
| OP55914-MSD* | 86-73-7 | Fluorene | MSD | REC | 41 | % | 50-118 |
| OP55914-MSD* | 86-73-7 | Fluorene | MSD | RPD | 4 | % | 20 |
| OP55914-MSD* | 193-39-5 | Indeno(1,2,3-cd)pyrene | MSD | REC | 79 | % | 48-130 |
| OP55914-MSD* | 193-39-5 | Indeno(1,2,3-cd)pyrene | MSD | RPD | 15 | % | 20 |
| OP55914-MSD* | 90-12-0 | 1-Methylnaphthalene | MSD | REC | 77 | % | 41-115 |
| OP55914-MSD* | 90-12-0 | 1-Methylnaphthalene | MSD | RPD | 4 | % | 20 |
| OP55914-MSD* | 91-57-6 | 2-Methylnaphthalene | MSD | REC | 76 | % | 39-114 |
| OP55914-MSD* | 91-57-6 | 2-Methylnaphthalene | MSD | RPD | 7 | % | 20 |
| OP55914-MSD* | 91-20-3 | Naphthalene | MSD | REC | 80 | % | 43-114 |
| OP55914-MSD* | 91-20-3 | Naphthalene | MSD | RPD | 9 | % | 20 |
| OP55914-MSD* | 85-01-8 | Phenanthrene | MSD | REC | 96 | % | 53-115 |
| OP55914-MSD* | 85-01-8 | Phenanthrene | MSD | RPD | 9 | % | 20 |
| OP55914-MSD* | 129-00-0 | Pyrene | MSD | REC | 74 | % | 53-121 |
| OP55914-MSD* | 129-00-0 | Pyrene | MSD | RPD | 11 | % | 20 |
| OP55914-MSD* | 4165-60-0 | Nitrobenzene-d5 | MSD | SURR | 79 | % | 55-111 |
| OP55914-MSD* | 321-60-8 | 2-Fluorobiphenyl | MSD | SURR | 43 | % | 53-106 |
| OP55914-MSD* | 1718-51-0 | Terphenyl-d14 | MSD | SURR | 74 | % | 58-132 |
| OP55914-MB | 4165-60-0 | Nitrobenzene-d5 | MB | SURR | 83 | % | 55-111 |
| OP55914-MB | 321-60-8 | 2-Fluorobiphenyl | MB | SURR | 84 | % | 53-106 |
| OP55914-MB | 1718-51-0 | Terphenyl-d14 | MB | SURR | 98 | % | 58-132 |
| FA23938-5 | 4165-60-0 | Nitrobenzene-d5 | SAMP | SURR | 77 | % | 55-111 |
| FA23938-5 | 321-60-8 | 2-Fluorobiphenyl | SAMP | SURR | 79 | % | 53-106 |
| FA23938-5 | 1718-51-0 | Terphenyl-d14 | SAMP | SURR | 96 | % | 58-132 |

* Sample used for QC is not from job FA23938

# QC Evaluation: DOD QSM5 Limits



**Job Number:** FA23938
**Account:** Tetra Tech NUS
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL
**Collected:** 04/28/15

| QC Sample ID | CAS# | Analyte | Sample Type | Result Type | Result | Units | Limits |
|---|---|---|---|---|---|---|---|
| OP56056 | SW846 8270D BY SIM | | | | | | |
| OP56056-BS | 83-32-9 | Acenaphthene | BSP | REC | 77 | % | 44-111 |
| OP56056-BS | 208-96-8 | Acenaphthylene | BSP | REC | 85 | % | 39-116 |
| OP56056-BS | 120-12-7 | Anthracene | BSP | REC | 77 | % | 50-114 |
| OP56056-BS | 56-55-3 | Benzo(a)anthracene | BSP | REC | 86 | % | 54-122 |
| OP56056-BS | 50-32-8 | Benzo(a)pyrene | BSP | REC | 84 | % | 50-125 |
| OP56056-BS | 205-99-2 | Benzo(b)fluoranthene | BSP | REC | 91 | % | 53-128 |
| OP56056-BS | 191-24-2 | Benzo(g,h,i)perylene | BSP | REC | 91 | % | 49-127 |
| OP56056-BS | 207-08-9 | Benzo(k)fluoranthene | BSP | REC | 87 | % | 56-123 |
| OP56056-BS | 218-01-9 | Chrysene | BSP | REC | 91 | % | 57-118 |
| OP56056-BS | 53-70-3 | Dibenzo(a,h)anthracene | BSP | REC | 88 | % | 50-129 |
| OP56056-BS | 206-44-0 | Fluoranthene | BSP | REC | 77 | % | 55-119 |
| OP56056-BS | 86-73-7 | Fluorene | BSP | REC | 83 | % | 47-114 |
| OP56056-BS | 193-39-5 | Indeno(1,2,3-cd)pyrene | BSP | REC | 92 | % | 49-130 |
| OP56056-BS | 90-12-0 | 1-Methylnaphthalene | BSP | REC | 77 | % | 43-111 |
| OP56056-BS | 91-57-6 | 2-Methylnaphthalene | BSP | REC | 70 | % | 39-114 |
| OP56056-BS | 91-20-3 | Naphthalene | BSP | REC | 68 | % | 38-111 |
| OP56056-BS | 85-01-8 | Phenanthrene | BSP | REC | 80 | % | 49-113 |
| OP56056-BS | 129-00-0 | Pyrene | BSP | REC | 85 | % | 55-117 |
| OP56056-BS | 4165-60-0 | Nitrobenzene-d5 | BSP | SURR | 98 | % | 44-125 |
| OP56056-BS | 321-60-8 | 2-Fluorobiphenyl | BSP | SURR | 84 | % | 46-115 |
| OP56056-BS | 1718-51-0 | Terphenyl-d14 | BSP | SURR | 110 | % | 58-133 |
| OP56056-MS* | 83-32-9 | Acenaphthene | MS | REC | 80 | % | 44-111 |
| OP56056-MS* | 208-96-8 | Acenaphthylene | MS | REC | 84 | % | 39-116 |
| OP56056-MS* | 120-12-7 | Anthracene | MS | REC | 80 | % | 50-114 |
| OP56056-MS* | 56-55-3 | Benzo(a)anthracene | MS | REC | 95 | % | 54-122 |
| OP56056-MS* | 50-32-8 | Benzo(a)pyrene | MS | REC | 95 | % | 50-125 |
| OP56056-MS* | 205-99-2 | Benzo(b)fluoranthene | MS | REC | 103 | % | 53-128 |
| OP56056-MS* | 191-24-2 | Benzo(g,h,i)perylene | MS | REC | 102 | % | 49-127 |
| OP56056-MS* | 207-08-9 | Benzo(k)fluoranthene | MS | REC | 98 | % | 56-123 |
| OP56056-MS* | 218-01-9 | Chrysene | MS | REC | 106 | % | 57-118 |
| OP56056-MS* | 53-70-3 | Dibenzo(a,h)anthracene | MS | REC | 89 | % | 50-129 |
| OP56056-MS* | 206-44-0 | Fluoranthene | MS | REC | 89 | % | 55-119 |
| OP56056-MS* | 86-73-7 | Fluorene | MS | REC | 86 | % | 47-114 |
| OP56056-MS* | 193-39-5 | Indeno(1,2,3-cd)pyrene | MS | REC | 101 | % | 49-130 |
| OP56056-MS* | 90-12-0 | 1-Methylnaphthalene | MS | REC | 79 | % | 43-111 |
| OP56056-MS* | 91-57-6 | 2-Methylnaphthalene | MS | REC | 70 | % | 39-114 |
| OP56056-MS* | 91-20-3 | Naphthalene | MS | REC | 70 | % | 38-111 |
| OP56056-MS* | 85-01-8 | Phenanthrene | MS | REC | 86 | % | 49-113 |
| OP56056-MS* | 129-00-0 | Pyrene | MS | REC | 94 | % | 55-117 |
| OP56056-MS* | 4165-60-0 | Nitrobenzene-d5 | MS | SURR | 93 | % | 44-125 |
| OP56056-MS* | 321-60-8 | 2-Fluorobiphenyl | MS | SURR | 84 | % | 46-115 |
| OP56056-MS* | 1718-51-0 | Terphenyl-d14 | MS | SURR | 111 | % | 58-133 |

* Sample used for QC is not from job FA23938

# QC Evaluation: DOD QSM5 Limits



**Job Number:** FA23938
**Account:** Tetra Tech NUS
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL
**Collected:** 04/28/15

| QC Sample ID | CAS# | Analyte | Sample Type | Result Type | Result | Units | Limits |
|---|---|---|---|---|---|---|---|
| OP56056-MSD* | 83-32-9 | Acenaphthene | MSD | REC | 81 | % | 44-111 |
| OP56056-MSD* | 83-32-9 | Acenaphthene | MSD | RPD | 4 | % | 20 |
| OP56056-MSD* | 208-96-8 | Acenaphthylene | MSD | REC | 87 | % | 39-116 |
| OP56056-MSD* | 208-96-8 | Acenaphthylene | MSD | RPD | 5 | % | 20 |
| OP56056-MSD* | 120-12-7 | Anthracene | MSD | REC | 77 | % | 50-114 |
| OP56056-MSD* | 120-12-7 | Anthracene | MSD | RPD | 3 | % | 20 |
| OP56056-MSD* | 56-55-3 | Benzo(a)anthracene | MSD | REC | 89 | % | 54-122 |
| OP56056-MSD* | 56-55-3 | Benzo(a)anthracene | MSD | RPD | 5 | % | 20 |
| OP56056-MSD* | 50-32-8 | Benzo(a)pyrene | MSD | REC | 87 | % | 50-125 |
| OP56056-MSD* | 50-32-8 | Benzo(a)pyrene | MSD | RPD | 8 | % | 20 |
| OP56056-MSD* | 205-99-2 | Benzo(b)fluoranthene | MSD | REC | 93 | % | 53-128 |
| OP56056-MSD* | 205-99-2 | Benzo(b)fluoranthene | MSD | RPD | 8 | % | 20 |
| OP56056-MSD* | 191-24-2 | Benzo(g,h,i)perylene | MSD | REC | 95 | % | 49-127 |
| OP56056-MSD* | 191-24-2 | Benzo(g,h,i)perylene | MSD | RPD | 6 | % | 20 |
| OP56056-MSD* | 207-08-9 | Benzo(k)fluoranthene | MSD | REC | 92 | % | 56-123 |
| OP56056-MSD* | 207-08-9 | Benzo(k)fluoranthene | MSD | RPD | 5 | % | 20 |
| OP56056-MSD* | 218-01-9 | Chrysene | MSD | REC | 98 | % | 57-118 |
| OP56056-MSD* | 218-01-9 | Chrysene | MSD | RPD | 7 | % | 20 |
| OP56056-MSD* | 53-70-3 | Dibenzo(a,h)anthracene | MSD | REC | 85 | % | 50-129 |
| OP56056-MSD* | 53-70-3 | Dibenzo(a,h)anthracene | MSD | RPD | 3 | % | 20 |
| OP56056-MSD* | 206-44-0 | Fluoranthene | MSD | REC | 84 | % | 55-119 |
| OP56056-MSD* | 206-44-0 | Fluoranthene | MSD | RPD | 5 | % | 20 |
| OP56056-MSD* | 86-73-7 | Fluorene | MSD | REC | 85 | % | 47-114 |
| OP56056-MSD* | 86-73-7 | Fluorene | MSD | RPD | 0 | % | 20 |
| OP56056-MSD* | 193-39-5 | Indeno(1,2,3-cd)pyrene | MSD | REC | 93 | % | 49-130 |
| OP56056-MSD* | 193-39-5 | Indeno(1,2,3-cd)pyrene | MSD | RPD | 6 | % | 20 |
| OP56056-MSD* | 90-12-0 | 1-Methylnaphthalene | MSD | REC | 85 | % | 43-111 |
| OP56056-MSD* | 90-12-0 | 1-Methylnaphthalene | MSD | RPD | 9 | % | 20 |
| OP56056-MSD* | 91-57-6 | 2-Methylnaphthalene | MSD | REC | 77 | % | 39-114 |
| OP56056-MSD* | 91-57-6 | 2-Methylnaphthalene | MSD | RPD | 10 | % | 20 |
| OP56056-MSD* | 91-20-3 | Naphthalene | MSD | REC | 77 | % | 38-111 |
| OP56056-MSD* | 91-20-3 | Naphthalene | MSD | RPD | 12 | % | 20 |
| OP56056-MSD* | 85-01-8 | Phenanthrene | MSD | REC | 83 | % | 49-113 |
| OP56056-MSD* | 85-01-8 | Phenanthrene | MSD | RPD | 2 | % | 20 |
| OP56056-MSD* | 129-00-0 | Pyrene | MSD | REC | 89 | % | 55-117 |
| OP56056-MSD* | 129-00-0 | Pyrene | MSD | RPD | 4 | % | 20 |
| OP56056-MSD* | 4165-60-0 | Nitrobenzene-d5 | MSD | SURR | 96 | % | 44-125 |
| OP56056-MSD* | 321-60-8 | 2-Fluorobiphenyl | MSD | SURR | 86 | % | 46-115 |
| OP56056-MSD* | 1718-51-0 | Terphenyl-d14 | MSD | SURR | 107 | % | 58-133 |
| OP56056-MB | 4165-60-0 | Nitrobenzene-d5 | MB | SURR | 101 | % | 44-125 |
| OP56056-MB | 321-60-8 | 2-Fluorobiphenyl | MB | SURR | 86 | % | 46-115 |
| OP56056-MB | 1718-51-0 | Terphenyl-d14 | MB | SURR | 117 | % | 58-133 |
| FA23938-2 | 4165-60-0 | Nitrobenzene-d5 | SAMP | SURR | 89 | % | 44-125 |
| FA23938-2 | 321-60-8 | 2-Fluorobiphenyl | SAMP | SURR | 83 | % | 46-115 |
| FA23938-2 | 1718-51-0 | Terphenyl-d14 | SAMP | SURR | 106 | % | 58-133 |

* Sample used for QC is not from job FA23938

# QC Evaluation: DOD QSM5 Limits



**Job Number:** FA23938
**Account:** Tetra Tech NUS
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL
**Collected:** 04/28/15

| QC Sample ID | CAS# | Analyte | Sample Type | Result Type | Result | Units | Limits |
|---|---|---|---|---|---|---|---|
| FA23938-4 | 4165-60-0 | Nitrobenzene-d5 | SAMP | SURR | 82 | % | 44-125 |
| FA23938-4 | 321-60-8 | 2-Fluorobiphenyl | SAMP | SURR | 75 | % | 46-115 |
| FA23938-4 | 1718-51-0 | Terphenyl-d14 | SAMP | SURR | 94 | % | 58-133 |
| FA23938-6 | 4165-60-0 | Nitrobenzene-d5 | SAMP | SURR | 82 | % | 44-125 |
| FA23938-6 | 321-60-8 | 2-Fluorobiphenyl | SAMP | SURR | 76 | % | 46-115 |
| FA23938-6 | 1718-51-0 | Terphenyl-d14 | SAMP | SURR | 102 | % | 58-133 |

* Sample used for QC is not from job FA23938

Southeast 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:** FA23938
**Account:** TETRPAPT Tetra Tech NUS
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| OP56056-MB | U050689.D | 1 | 05/12/15 | NJ | 05/12/15 | OP56056 | SU2315 |

**The QC reported here applies to the following samples:** **Method:** SW846 8270D BY SIM

FA23938-2, FA23938-4, FA23938-6

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | ND | 33 | 13 | ug/kg | |
| 208-96-8 | Acenaphthylene | ND | 33 | 13 | ug/kg | |
| 120-12-7 | Anthracene | ND | 33 | 8.3 | ug/kg | |
| 56-55-3 | Benzo(a)anthracene | ND | 6.7 | 1.7 | ug/kg | |
| 50-32-8 | Benzo(a)pyrene | ND | 6.7 | 1.7 | ug/kg | |
| 205-99-2 | Benzo(b)fluoranthene | ND | 6.7 | 1.7 | ug/kg | |
| 191-24-2 | Benzo(g,h,i)perylene | ND | 6.7 | 1.7 | ug/kg | |
| 207-08-9 | Benzo(k)fluoranthene | ND | 6.7 | 1.7 | ug/kg | |
| 218-01-9 | Chrysene | ND | 6.7 | 1.7 | ug/kg | |
| 53-70-3 | Dibenzo(a,h)anthracene | ND | 6.7 | 1.7 | ug/kg | |
| 206-44-0 | Fluoranthene | ND | 33 | 8.3 | ug/kg | |
| 86-73-7 | Fluorene | ND | 33 | 13 | ug/kg | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | ND | 6.7 | 1.7 | ug/kg | |
| 90-12-0 | 1-Methylnaphthalene | ND | 33 | 13 | ug/kg | |
| 91-57-6 | 2-Methylnaphthalene | ND | 33 | 13 | ug/kg | |
| 91-20-3 | Naphthalene | ND | 33 | 13 | ug/kg | |
| 85-01-8 | Phenanthrene | ND | 33 | 8.3 | ug/kg | |
| 129-00-0 | Pyrene | ND | 33 | 8.3 | ug/kg | |

| CAS No. | Surrogate Recoveries | | Limits |
|---|---|---|---|
| 4165-60-0 | Nitrobenzene-d5 | 101% | 40-105% |
| 321-60-8 | 2-Fluorobiphenyl | 86% | 43-107% |
| 1718-51-0 | Terphenyl-d14 | 117% | 45-119% |

# Method Blank Summary



**Job Number:** FA23938
**Account:** TETRPAPT Tetra Tech NUS
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| OP55914-MB | R448849.D | 1 | 04/30/15 | MG | 04/29/15 | OP55914 | SR2321 |

**The QC reported here applies to the following samples:** **Method:** SW846 8270D BY SIM

FA23938-5

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | ND | 0.80 | 0.32 | ug/l | |
| 208-96-8 | Acenaphthylene | ND | 0.80 | 0.32 | ug/l | |
| 120-12-7 | Anthracene | ND | 0.80 | 0.20 | ug/l | |
| 56-55-3 | Benzo(a)anthracene | ND | 0.16 | 0.032 | ug/l | |
| 50-32-8 | Benzo(a)pyrene | ND | 0.16 | 0.032 | ug/l | |
| 205-99-2 | Benzo(b)fluoranthene | ND | 0.16 | 0.032 | ug/l | |
| 191-24-2 | Benzo(g,h,i)perylene | ND | 0.16 | 0.032 | ug/l | |
| 207-08-9 | Benzo(k)fluoranthene | ND | 0.16 | 0.032 | ug/l | |
| 218-01-9 | Chrysene | ND | 0.16 | 0.032 | ug/l | |
| 53-70-3 | Dibenzo(a,h)anthracene | ND | 0.16 | 0.032 | ug/l | |
| 206-44-0 | Fluoranthene | ND | 0.80 | 0.20 | ug/l | |
| 86-73-7 | Fluorene | ND | 0.80 | 0.20 | ug/l | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | ND | 0.16 | 0.032 | ug/l | |
| 90-12-0 | 1-Methylnaphthalene | ND | 0.80 | 0.32 | ug/l | |
| 91-57-6 | 2-Methylnaphthalene | ND | 0.80 | 0.32 | ug/l | |
| 91-20-3 | Naphthalene | ND | 0.80 | 0.32 | ug/l | |
| 85-01-8 | Phenanthrene | ND | 0.80 | 0.20 | ug/l | |
| 129-00-0 | Pyrene | ND | 0.80 | 0.20 | ug/l | |

| CAS No. | Surrogate Recoveries | | Limits |
|---|---|---|---|
| 4165-60-0 | Nitrobenzene-d5 | 83% | 41-129% |
| 321-60-8 | 2-Fluorobiphenyl | 84% | 41-118% |
| 1718-51-0 | Terphenyl-d14 | 98% | 45-145% |

# Blank Spike Summary



**Job Number:** FA23938
**Account:** TETRPAPT Tetra Tech NUS
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| OP56056-BS | U050688.D | 1 | 05/12/15 | NJ | 05/12/15 | OP56056 | SU2315 |

**The QC reported here applies to the following samples:** **Method:** SW846 8270D BY SIM

FA23938-2, FA23938-4, FA23938-6

| CAS No. | Compound | Spike ug/kg | BSP ug/kg | BSP % | Limits |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | 333 | 257 | 77 | 53-100 |
| 208-96-8 | Acenaphthylene | 333 | 282 | 85 | 51-100 |
| 120-12-7 | Anthracene | 167 | 129 | 77 | 60-102 |
| 56-55-3 | Benzo(a)anthracene | 167 | 144 | 86 | 60-106 |
| 50-32-8 | Benzo(a)pyrene | 167 | 140 | 84 | 58-105 |
| 205-99-2 | Benzo(b)fluoranthene | 167 | 151 | 91 | 59-112 |
| 191-24-2 | Benzo(g,h,i)perylene | 167 | 152 | 91 | 56-109 |
| 207-08-9 | Benzo(k)fluoranthene | 167 | 145 | 87 | 58-109 |
| 218-01-9 | Chrysene | 167 | 151 | 91 | 62-104 |
| 53-70-3 | Dibenzo(a,h)anthracene | 167 | 147 | 88 | 55-110 |
| 206-44-0 | Fluoranthene | 333 | 257 | 77 | 59-109 |
| 86-73-7 | Fluorene | 333 | 277 | 83 | 56-104 |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | 167 | 153 | 92 | 54-110 |
| 90-12-0 | 1-Methylnaphthalene | 333 | 258 | 77 | 50-101 |
| 91-57-6 | 2-Methylnaphthalene | 333 | 234 | 70 | 49-100 |
| 91-20-3 | Naphthalene | 333 | 228 | 68 | 49-101 |
| 85-01-8 | Phenanthrene | 333 | 267 | 80 | 57-104 |
| 129-00-0 | Pyrene | 333 | 284 | 85 | 58-106 |

| CAS No. | Surrogate Recoveries | BSP | Limits |
|---|---|---|---|
| 4165-60-0 | Nitrobenzene-d5 | 98% | 40-105% |
| 321-60-8 | 2-Fluorobiphenyl | 84% | 43-107% |
| 1718-51-0 | Terphenyl-d14 | 110% | 45-119% |

* = Outside of Control Limits.

# Blank Spike Summary



**Job Number:** FA23938
**Account:** TETRPAPT Tetra Tech NUS
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| OP55914-BS | R448848.D | 1 | 04/30/15 | MG | 04/29/15 | OP55914 | SR2321 |

**The QC reported here applies to the following samples:** **Method:** SW846 8270D BY SIM

FA23938-5

| CAS No. | Compound | Spike ug/l | BSP ug/l | BSP % | Limits |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | 8 | 7.7 | 96 | 54-128 |
| 208-96-8 | Acenaphthylene | 8 | 7.4 | 93 | 55-128 |
| 120-12-7 | Anthracene | 4 | 3.7 | 93 | 57-129 |
| 56-55-3 | Benzo(a)anthracene | 4 | 4.1 | 103 | 60-134 |
| 50-32-8 | Benzo(a)pyrene | 4 | 3.8 | 95 | 58-131 |
| 205-99-2 | Benzo(b)fluoranthene | 4 | 4.1 | 103 | 62-139 |
| 191-24-2 | Benzo(g,h,i)perylene | 4 | 3.4 | 85 | 48-136 |
| 207-08-9 | Benzo(k)fluoranthene | 4 | 4.1 | 103 | 60-139 |
| 218-01-9 | Chrysene | 4 | 4.1 | 103 | 64-136 |
| 53-70-3 | Dibenzo(a,h)anthracene | 4 | 3.4 | 85 | 46-131 |
| 206-44-0 | Fluoranthene | 8 | 8.3 | 104 | 59-140 |
| 86-73-7 | Fluorene | 8 | 7.7 | 96 | 55-129 |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | 4 | 3.5 | 88 | 46-139 |
| 90-12-0 | 1-Methylnaphthalene | 8 | 7.4 | 93 | 52-128 |
| 91-57-6 | 2-Methylnaphthalene | 8 | 6.7 | 84 | 50-117 |
| 91-20-3 | Naphthalene | 8 | 7.2 | 90 | 52-124 |
| 85-01-8 | Phenanthrene | 8 | 7.7 | 96 | 60-130 |
| 129-00-0 | Pyrene | 8 | 7.4 | 93 | 53-134 |

| CAS No. | Surrogate Recoveries | BSP | Limits |
|---|---|---|---|
| 4165-60-0 | Nitrobenzene-d5 | 87% | 41-129% |
| 321-60-8 | 2-Fluorobiphenyl | 88% | 41-118% |
| 1718-51-0 | Terphenyl-d14 | 94% | 45-145% |

* = Outside of Control Limits.

# Matrix Spike/Matrix Spike Duplicate Summary



**Job Number:** FA23938
**Account:** TETRPAPT Tetra Tech NUS
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| OP56056-MS | U050693.D | 4 | 05/12/15 | NJ | 05/12/15 | OP56056 | SU2315 |
| OP56056-MSD | U050694.D | 4 | 05/12/15 | NJ | 05/12/15 | OP56056 | SU2315 |
| FA24262-2 | U050692.D | 4 | 05/12/15 | NJ | 05/12/15 | OP56056 | SU2315 |

**The QC reported here applies to the following samples:** **Method:** SW846 8270D BY SIM

FA23938-2, FA23938-4, FA23938-6

| CAS No. | Compound | FA24262-2 ug/kg | Q | Spike ug/kg | MS ug/kg | MS % | Spike ug/kg | MSD ug/kg | MSD % | RPD | Limits Rec/RPD |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | 140 U | | 347 | 276 | 80 | 351 | 286 | 81 | 4 | 53-100/28 |
| 208-96-8 | Acenaphthylene | 140 U | | 347 | 291 | 84 | 351 | 305 | 87 | 5 | 51-100/25 |
| 120-12-7 | Anthracene | 140 U | | 173 | 139 | 80 | 176 | 135 | 77 | 3 | 60-102/29 |
| 56-55-3 | Benzo(a)anthracene | 28 U | | 173 | 165 | 95 | 176 | 157 | 89 | 5 | 60-106/30 |
| 50-32-8 | Benzo(a)pyrene | 28 U | | 173 | 164 | 95 | 176 | 152 | 87 | 8 | 58-105/30 |
| 205-99-2 | Benzo(b)fluoranthene | 9.0 | I | 173 | 188 | 103 | 176 | 173 | 93 | 8 | 59-112/33 |
| 191-24-2 | Benzo(g,h,i)perylene | 7.2 | I | 173 | 184 | 102 | 176 | 174 | 95 | 6 | 56-109/31 |
| 207-08-9 | Benzo(k)fluoranthene | 28 U | | 173 | 170 | 98 | 176 | 161 | 92 | 5 | 58-109/33 |
| 218-01-9 | Chrysene | 28 U | | 173 | 184 | 106* | 176 | 172 | 98 | 7 | 62-104/30 |
| 53-70-3 | Dibenzo(a,h)anthracene | 28 U | | 173 | 154 | 89 | 176 | 149 | 85 | 3 | 55-110/31 |
| 206-44-0 | Fluoranthene | 140 U | | 347 | 309 | 89 | 351 | 295 | 84 | 5 | 59-109/29 |
| 86-73-7 | Fluorene | 140 U | | 347 | 299 | 86 | 351 | 300 | 85 | 0 | 56-104/27 |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | 7.9 | I | 173 | 183 | 101 | 176 | 172 | 93 | 6 | 54-110/32 |
| 90-12-0 | 1-Methylnaphthalene | 140 U | | 347 | 273 | 79 | 351 | 298 | 85 | 9 | 50-101/30 |
| 91-57-6 | 2-Methylnaphthalene | 140 U | | 347 | 244 | 70 | 351 | 269 | 77 | 10 | 49-100/26 |
| 91-20-3 | Naphthalene | 140 U | | 347 | 241 | 70 | 351 | 272 | 77 | 12 | 49-101/28 |
| 85-01-8 | Phenanthrene | 140 U | | 347 | 297 | 86 | 351 | 291 | 83 | 2 | 57-104/27 |
| 129-00-0 | Pyrene | 140 U | | 347 | 327 | 94 | 351 | 314 | 89 | 4 | 58-106/29 |

| CAS No. | Surrogate Recoveries | MS | MSD | FA24262-2 | Limits |
|---|---|---|---|---|---|
| 4165-60-0 | Nitrobenzene-d5 | 93% | 96% | 90% | 40-105% |
| 321-60-8 | 2-Fluorobiphenyl | 84% | 86% | 81% | 43-107% |
| 1718-51-0 | Terphenyl-d14 | 111% | 107% | 104% | 45-119% |

* = Outside of Control Limits.

# Matrix Spike/Matrix Spike Duplicate Summary



**Job Number:** FA23938
**Account:** TETRPAPT Tetra Tech NUS
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| OP55914-MS | R448859.D | 1 | 04/30/15 | MG | 04/29/15 | OP55914 | SR2321 |
| OP55914-MSD | R448860.D | 1 | 04/30/15 | MG | 04/29/15 | OP55914 | SR2321 |
| FA23861-1 | R448851.D | 1 | 04/30/15 | MG | 04/29/15 | OP55914 | SR2321 |

**The QC reported here applies to the following samples:** **Method:** SW846 8270D BY SIM

FA23938-5

| CAS No. | Compound | FA23861-1 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 | 0.79 | I | 16 | 7.0 | 39* | 16 | 7.0 | 39* | 0 | 54-128/23 |
| 208-96-8 | Acenaphthylene | 0.87 U | | 16 | 6.2 | 39* | 16 | 6.4 | 40* | 3 | 55-128/23 |
| 120-12-7 | Anthracene | 0.87 U | | 8 | 6.7 | 84 | 8 | 7.7 | 96 | 14 | 57-129/22 |
| 56-55-3 | Benzo(a)anthracene | 0.17 U | | 8 | 6.9 | 86 | 8 | 7.8 | 98 | 12 | 60-134/18 |
| 50-32-8 | Benzo(a)pyrene | 0.17 U | | 8 | 6.1 | 76 | 8 | 7.2 | 90 | 17 | 58-131/20 |
| 205-99-2 | Benzo(b)fluoranthene | 0.17 U | | 8 | 6.5 | 81 | 8 | 7.8 | 98 | 18 | 62-139/21 |
| 191-24-2 | Benzo(g,h,i)perylene | 0.17 U | | 8 | 5.0 | 63 | 8 | 5.8 | 73 | 15 | 48-136/23 |
| 207-08-9 | Benzo(k)fluoranthene | 0.17 U | | 8 | 6.0 | 75 | 8 | 7.0 | 88 | 15 | 60-139/19 |
| 218-01-9 | Chrysene | 0.17 U | | 8 | 6.6 | 83 | 8 | 7.6 | 95 | 14 | 64-136/19 |
| 53-70-3 | Dibenzo(a,h)anthracene | 0.17 U | | 8 | 4.8 | 60 | 8 | 5.9 | 74 | 21 | 46-131/25 |
| 206-44-0 | Fluoranthene | 0.87 U | | 16 | 16.0 | 100 | 16 | 17.7 | 111 | 10 | 59-140/18 |
| 86-73-7 | Fluorene | 1.1 | | 16 | 7.3 | 39* | 16 | 7.6 | 41* | 4 | 55-129/23 |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | 0.17 U | | 8 | 5.4 | 68 | 8 | 6.3 | 79 | 15 | 46-139/24 |
| 90-12-0 | 1-Methylnaphthalene | 4.5 | | 16 | 16.1 | 73 | 16 | 16.8 | 77 | 4 | 52-128/22 |
| 91-57-6 | 2-Methylnaphthalene | 2.5 | | 16 | 13.6 | 69 | 16 | 14.6 | 76 | 7 | 50-117/23 |
| 91-20-3 | Naphthalene | 1.9 | | 16 | 13.5 | 73 | 16 | 14.7 | 80 | 9 | 52-124/23 |
| 85-01-8 | Phenanthrene | 0.26 | I | 16 | 14.2 | 87 | 16 | 15.6 | 96 | 9 | 60-130/22 |
| 129-00-0 | Pyrene | 0.87 U | | 16 | 10.6 | 66 | 16 | 11.8 | 74 | 11 | 53-134/18 |

| CAS No. | Surrogate Recoveries | MS | MSD | FA23861-1 | Limits |
|---|---|---|---|---|---|
| 4165-60-0 | Nitrobenzene-d5 | 71% | 79% | 70% | 41-129% |
| 321-60-8 | 2-Fluorobiphenyl | 41% | 43% | 77% | 41-118% |
| 1718-51-0 | Terphenyl-d14 | 65% | 74% | 57% | 45-145% |

* = Outside of Control Limits.

# Instrument Performance Check (DFTPP)



**Job Number:** FA23938
**Account:** TETRPAPT Tetra Tech NUS
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL

**Sample:** SR2318-DFTPP
**Lab File ID:** R448789.D
**Instrument ID:** GCMSR
**Injection Date:** 04/24/15
**Injection Time:** 14:33

| m/e | Ion Abundance Criteria | Raw Abundance | % Relative Abundance | | Pass/Fail |
|---|---|---|---|---|---|
| 51 | 30.0 - 60.0% of mass 198 | 13427 | 41.2 | | Pass |
| 68 | Less than 2.0% of mass 69 | 0 | 0.00 | (0.00) [a] | Pass |
| 69 | Mass 69 relative abundance | 14362 | 44.1 | | Pass |
| 70 | Less than 2.0% of mass 69 | 0 | 0.00 | (0.00) [a] | Pass |
| 127 | 40.0 - 60.0% of mass 198 | 17717 | 54.4 | | Pass |
| 197 | Less than 1.0% of mass 198 | 0 | 0.00 | | Pass |
| 198 | Base peak, 100% relative abundance | 32552 | 100.0 | | Pass |
| 199 | 5.0 - 9.0% of mass 198 | 2399 | 7.37 | | Pass |
| 275 | 10.0 - 30.0% of mass 198 | 7303 | 22.4 | | Pass |
| 365 | 1.0 - 100.0% of mass 198 | 595 | 1.83 | | Pass |
| 441 | Present, but less than mass 443 | 2684 | 8.25 | (92.4) [b] | Pass |
| 442 | 40.0 - 100.0% of mass 198 | 15071 | 46.3 | | Pass |
| 443 | 17.0 - 23.0% of mass 442 | 2906 | 8.93 | (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 |
|---|---|---|---|---|---|
| SR2318-IC2318 | R448792.D | 04/24/15 | 16:01 | 01:28 | Initial cal 1 |
| SR2318-IC2318 | R448793.D | 04/24/15 | 16:28 | 01:55 | Initial cal 2 |
| SR2318-IC2318 | R448794.D | 04/24/15 | 16:54 | 02:21 | Initial cal 3 |
| SR2318-ICC2318 | R448795.D | 04/24/15 | 17:20 | 02:47 | Initial cal 4 |
| SR2318-IC2318 | R448796.D | 04/24/15 | 17:47 | 03:14 | Initial cal 5 |
| SR2318-IC2318 | R448797.D | 04/24/15 | 18:13 | 03:40 | Initial cal 6 |
| SR2318-IC2318 | R448798.D | 04/24/15 | 18:39 | 04:06 | Initial cal 7 |
| SR2318-ICV2318 | R448799.D | 04/24/15 | 19:06 | 04:33 | Initial cal verification 4 |
| ZZZZZZ | R448801.D | 04/24/15 | 19:58 | 05:25 | (unrelated sample) |
| ZZZZZZ | R448802.D | 04/24/15 | 20:25 | 05:52 | (unrelated sample) |
| ZZZZZZ | R448803.D | 04/24/15 | 20:51 | 06:18 | (unrelated sample) |
| ZZZZZZ | R448804.D | 04/24/15 | 21:17 | 06:44 | (unrelated sample) |
| ZZZZZZ | R448805.D | 04/24/15 | 21:43 | 07:10 | (unrelated sample) |
| ZZZZZZ | R448806.D | 04/24/15 | 22:10 | 07:37 | (unrelated sample) |
| ZZZZZZ | R448807.D | 04/24/15 | 22:36 | 08:03 | (unrelated sample) |
| ZZZZZZ | R448808.D | 04/24/15 | 23:02 | 08:29 | (unrelated sample) |
| SR2318-ECC2318 | R448809.D | 04/24/15 | 23:28 | 08:55 | Ending cal 4 |

# Instrument Performance Check (DFTPP)



**Job Number:** FA23938
**Account:** TETRPAPT Tetra Tech NUS
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL

**Sample:** SR2321-DFTPP
**Lab File ID:** R448846.D
**Instrument ID:** GCMSR
**Injection Date:** 04/30/15
**Injection Time:** 13:23

| m/e | Ion Abundance Criteria | Raw Abundance | % Relative Abundance | | Pass/Fail |
|---|---|---|---|---|---|
| 51 | 30.0 - 60.0% of mass 198 | 18546 | 37.7 | | Pass |
| 68 | Less than 2.0% of mass 69 | 0 | 0.00 | (0.00) [a] | Pass |
| 69 | Mass 69 relative abundance | 20194 | 41.0 | | Pass |
| 70 | Less than 2.0% of mass 69 | 44 | 0.09 | (0.22) [a] | Pass |
| 127 | 40.0 - 60.0% of mass 198 | 25757 | 52.3 | | Pass |
| 197 | Less than 1.0% of mass 198 | 0 | 0.00 | | Pass |
| 198 | Base peak, 100% relative abundance | 49202 | 100.0 | | Pass |
| 199 | 5.0 - 9.0% of mass 198 | 3412 | 6.93 | | Pass |
| 275 | 10.0 - 30.0% of mass 198 | 11233 | 22.8 | | Pass |
| 365 | 1.0 - 100.0% of mass 198 | 969 | 1.97 | | Pass |
| 441 | Present, but less than mass 443 | 3245 | 6.60 | (65.1) [b] | Pass |
| 442 | 40.0 - 100.0% of mass 198 | 25896 | 52.6 | | Pass |
| 443 | 17.0 - 23.0% of mass 442 | 4981 | 10.1 | (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 |
|---|---|---|---|---|---|
| SR2321-CC2318 | R448847.D | 04/30/15 | 13:43 | 00:20 | Continuing cal 5 |
| OP55914-BS | R448848.D | 04/30/15 | 14:13 | 00:50 | Blank Spike |
| OP55914-MB | R448849.D | 04/30/15 | 14:40 | 01:17 | Method Blank |
| ZZZZZZ | R448850.D | 04/30/15 | 15:06 | 01:43 | (unrelated sample) |
| FA23861-1 | R448851.D | 04/30/15 | 15:32 | 02:09 | (used for QC only; not part of job FA23938) |
| ZZZZZZ | R448853.D | 04/30/15 | 16:25 | 03:02 | (unrelated sample) |
| ZZZZZZ | R448854.D | 04/30/15 | 16:52 | 03:29 | (unrelated sample) |
| ZZZZZZ | R448856.D | 04/30/15 | 17:44 | 04:21 | (unrelated sample) |
| ZZZZZZ | R448857.D | 04/30/15 | 18:11 | 04:48 | (unrelated sample) |
| OP55914-MS | R448859.D | 04/30/15 | 19:03 | 05:40 | Matrix Spike |
| OP55914-MSD | R448860.D | 04/30/15 | 19:30 | 06:07 | Matrix Spike Duplicate |
| SR2321-ECC2318 | R448861.D | 04/30/15 | 19:56 | 06:33 | Ending cal 5 |

# Instrument Performance Check (DFTPP)



**Job Number:** FA23938
**Account:** TETRPAPT Tetra Tech NUS
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL

**Sample:** SR2322-DFTPP
**Lab File ID:** R448862.D
**Instrument ID:** GCMSR
**Injection Date:** 05/01/15
**Injection Time:** 10:04

| m/e | Ion Abundance Criteria | Raw Abundance | % Relative Abundance | | Pass/Fail |
|---|---|---|---|---|---|
| 51 | 30.0 - 60.0% of mass 198 | 14040 | 39.4 | | Pass |
| 68 | Less than 2.0% of mass 69 | 0 | 0.00 | (0.00) [a] | Pass |
| 69 | Mass 69 relative abundance | 15498 | 43.4 | | Pass |
| 70 | Less than 2.0% of mass 69 | 77 | 0.22 | (0.50) [a] | Pass |
| 127 | 40.0 - 60.0% of mass 198 | 19034 | 53.4 | | Pass |
| 197 | Less than 1.0% of mass 198 | 0 | 0.00 | | Pass |
| 198 | Base peak, 100% relative abundance | 35672 | 100.0 | | Pass |
| 199 | 5.0 - 9.0% of mass 198 | 2415 | 6.77 | | Pass |
| 275 | 10.0 - 30.0% of mass 198 | 7924 | 22.2 | | Pass |
| 365 | 1.0 - 100.0% of mass 198 | 639 | 1.79 | | Pass |
| 441 | Present, but less than mass 443 | 3149 | 8.83 | (92.8) [b] | Pass |
| 442 | 40.0 - 100.0% of mass 198 | 17887 | 50.1 | | Pass |
| 443 | 17.0 - 23.0% of mass 442 | 3395 | 9.52 | (19.0) [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 |
|---|---|---|---|---|---|
| SR2322-CC2318 | R448863.D | 05/01/15 | 10:25 | 00:21 | Continuing cal 5 |
| ZZZZZZ | R448865.D | 05/01/15 | 11:18 | 01:14 | (unrelated sample) |
| ZZZZZZ | R448866.D | 05/01/15 | 11:44 | 01:40 | (unrelated sample) |
| ZZZZZZ | R448867.D | 05/01/15 | 12:10 | 02:06 | (unrelated sample) |
| FA23938-5 | R448868.D | 05/01/15 | 12:37 | 02:33 | PCY-0098-RB |
| SR2322-ECC2318 | R448869.D | 05/01/15 | 13:03 | 02:59 | Ending cal 5 |

# Instrument Performance Check (DFTPP)



**Job Number:** FA23938
**Account:** TETRPAPT Tetra Tech NUS
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL

**Sample:** SU2245-DFTPP
**Lab File ID:** U049021.D
**Instrument ID:** GCMSU
**Injection Date:** 01/28/15
**Injection Time:** 18:10

| m/e | Ion Abundance Criteria | Raw Abundance | % Relative Abundance | | Pass/Fail |
|---|---|---|---|---|---|
| 51 | 30.0 - 60.0% of mass 198 | 14713 | 33.7 | | Pass |
| 68 | Less than 2.0% of mass 69 | 258 | 0.59 | (1.50) [a] | Pass |
| 69 | Mass 69 relative abundance | 17249 | 39.5 | | Pass |
| 70 | Less than 2.0% of mass 69 | 0 | 0.00 | (0.00) [a] | Pass |
| 127 | 40.0 - 60.0% of mass 198 | 22117 | 50.7 | | Pass |
| 197 | Less than 1.0% of mass 198 | 0 | 0.00 | | Pass |
| 198 | Base peak, 100% relative abundance | 43640 | 100.0 | | Pass |
| 199 | 5.0 - 9.0% of mass 198 | 3312 | 7.59 | | Pass |
| 275 | 10.0 - 30.0% of mass 198 | 11667 | 26.7 | | Pass |
| 365 | 1.0 - 100.0% of mass 198 | 1423 | 3.26 | | Pass |
| 441 | Present, but less than mass 443 | 6436 | 14.7 | (70.5) [b] | Pass |
| 442 | 40.0 - 100.0% of mass 198 | 41157 | 94.3 | | Pass |
| 443 | 17.0 - 23.0% of mass 442 | 9133 | 20.9 | (22.2) [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 |
|---|---|---|---|---|---|
| SU2245-IC2245 | U049023.D | 01/28/15 | 18:48 | 00:38 | Initial cal 1 |
| SU2245-IC2245 | U049024.D | 01/28/15 | 19:10 | 01:00 | Initial cal 2 |
| SU2245-IC2245 | U049025.D | 01/28/15 | 19:33 | 01:23 | Initial cal 3 |
| SU2245-IC2245 | U049026.D | 01/28/15 | 19:56 | 01:46 | Initial cal 4 |
| SU2245-ICC2245 | U049027.D | 01/28/15 | 20:18 | 02:08 | Initial cal 5 |
| SU2245-IC2245 | U049028.D | 01/28/15 | 20:41 | 02:31 | Initial cal 6 |
| SU2245-IC2245 | U049029.D | 01/28/15 | 21:04 | 02:54 | Initial cal 7 |
| SU2245-ICV2245 | U049030.D | 01/28/15 | 21:26 | 03:16 | Initial cal verification 4 |
| OP54674-BS | U049032.D | 01/28/15 | 22:12 | 04:02 | Blank Spike |
| OP54674-MB | U049033.D | 01/28/15 | 22:35 | 04:25 | Method Blank |
| ZZZZZZ | U049034.D | 01/28/15 | 22:57 | 04:47 | (unrelated sample) |
| ZZZZZZ | U049035.D | 01/28/15 | 23:20 | 05:10 | (unrelated sample) |
| ZZZZZZ | U049036.D | 01/28/15 | 23:43 | 05:33 | (unrelated sample) |
| ZZZZZZ | U049037.D | 01/29/15 | 00:05 | 05:55 | (unrelated sample) |
| ZZZZZZ | U049038.D | 01/29/15 | 00:28 | 06:18 | (unrelated sample) |
| ZZZZZZ | U049040.D | 01/29/15 | 01:13 | 07:03 | (unrelated sample) |
| ZZZZZZ | U049041.D | 01/29/15 | 01:36 | 07:26 | (unrelated sample) |
| ZZZZZZ | U049042.D | 01/29/15 | 01:59 | 07:49 | (unrelated sample) |
| ZZZZZZ | U049043.D | 01/29/15 | 02:21 | 08:11 | (unrelated sample) |

# Instrument Performance Check (DFTPP)



**Job Number:** FA23938
**Account:** TETRPAPT Tetra Tech NUS
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL

**Sample:** SU2245-DFTPP
**Lab File ID:** U049021.D
**Instrument ID:** GCMSU
**Injection Date:** 01/28/15
**Injection Time:** 18:10

| Lab Sample ID | Lab File ID | Date Analyzed | Time Analyzed | Hours Lapsed | Client Sample ID |
|---|---|---|---|---|---|
| ZZZZZZ | U049044.D | 01/29/15 | 02:44 | 08:34 | (unrelated sample) |
| ZZZZZZ | U049045.D | 01/29/15 | 03:07 | 08:57 | (unrelated sample) |
| FA21556-13 | U049046.D | 01/29/15 | 03:29 | 09:19 | (used for QC only; not part of job FA23938) |
| OP54674-MS | U049047.D | 01/29/15 | 03:52 | 09:42 | Matrix Spike |
| OP54674-MSD | U049048.D | 01/29/15 | 04:15 | 10:05 | Matrix Spike Duplicate |
| ZZZZZZ | U049049.D | 01/29/15 | 04:37 | 10:27 | (unrelated sample) |
| ZZZZZZ | U049050.D | 01/29/15 | 05:00 | 10:50 | (unrelated sample) |
| ZZZZZZ | U049051.D | 01/29/15 | 05:23 | 11:13 | (unrelated sample) |
| ZZZZZZ | U049052.D | 01/29/15 | 05:45 | 11:35 | (unrelated sample) |
| ZZZZZZ | U049053.D | 01/29/15 | 06:08 | 11:58 | (unrelated sample) |
| SU2245-ECC2245 | U049055.D | 01/29/15 | 07:49 | 13:39 | Ending cal 5 |

# Instrument Performance Check (DFTPP)



**Job Number:** FA23938
**Account:** TETRPAPT Tetra Tech NUS
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL

**Sample:** SU2315-DFTPP
**Lab File ID:** U050686.D
**Instrument ID:** GCMSU
**Injection Date:** 05/12/15
**Injection Time:** 12:13

| m/e | Ion Abundance Criteria | Raw Abundance | % Relative Abundance | | Pass/Fail |
|---|---|---|---|---|---|
| 51 | 30.0 - 60.0% of mass 198 | 13160 | 46.2 | | Pass |
| 68 | Less than 2.0% of mass 69 | 0 | 0.00 | (0.00) [a] | Pass |
| 69 | Mass 69 relative abundance | 14699 | 51.6 | | Pass |
| 70 | Less than 2.0% of mass 69 | 0 | 0.00 | (0.00) [a] | Pass |
| 127 | 40.0 - 60.0% of mass 198 | 15350 | 53.8 | | Pass |
| 197 | Less than 1.0% of mass 198 | 0 | 0.00 | | Pass |
| 198 | Base peak, 100% relative abundance | 28514 | 100.0 | | Pass |
| 199 | 5.0 - 9.0% of mass 198 | 2008 | 7.04 | | Pass |
| 275 | 10.0 - 30.0% of mass 198 | 6713 | 23.5 | | Pass |
| 365 | 1.0 - 100.0% of mass 198 | 768 | 2.69 | | Pass |
| 441 | Present, but less than mass 443 | 2952 | 10.4 | (79.1) [b] | Pass |
| 442 | 40.0 - 100.0% of mass 198 | 18744 | 65.7 | | Pass |
| 443 | 17.0 - 23.0% of mass 442 | 3731 | 13.1 | (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 |
|---|---|---|---|---|---|
| SU2315-CC2245 | U050687.D | 05/12/15 | 12:28 | 00:15 | Continuing cal 4 |
| OP56056-BS | U050688.D | 05/12/15 | 12:59 | 00:46 | Blank Spike |
| OP56056-MB | U050689.D | 05/12/15 | 13:21 | 01:08 | Method Blank |
| ZZZZZZ | U050690.D | 05/12/15 | 13:44 | 01:31 | (unrelated sample) |
| ZZZZZZ | U050691.D | 05/12/15 | 14:06 | 01:53 | (unrelated sample) |
| FA24262-2 | U050692.D | 05/12/15 | 14:29 | 02:16 | (used for QC only; not part of job FA23938) |
| OP56056-MS | U050693.D | 05/12/15 | 14:51 | 02:38 | Matrix Spike |
| OP56056-MSD | U050694.D | 05/12/15 | 15:14 | 03:01 | Matrix Spike Duplicate |
| ZZZZZZ | U050695.D | 05/12/15 | 15:41 | 03:28 | (unrelated sample) |
| ZZZZZZ | U050696.D | 05/12/15 | 16:03 | 03:50 | (unrelated sample) |
| ZZZZZZ | U050697.D | 05/12/15 | 16:26 | 04:13 | (unrelated sample) |
| ZZZZZZ | U050698.D | 05/12/15 | 16:48 | 04:35 | (unrelated sample) |
| ZZZZZZ | U050699.D | 05/12/15 | 17:11 | 04:58 | (unrelated sample) |
| ZZZZZZ | U050700.D | 05/12/15 | 17:33 | 05:20 | (unrelated sample) |
| ZZZZZZ | U050701.D | 05/12/15 | 17:56 | 05:43 | (unrelated sample) |
| ZZZZZZ | U050702.D | 05/12/15 | 18:19 | 06:06 | (unrelated sample) |
| ZZZZZZ | U050703.D | 05/12/15 | 18:41 | 06:28 | (unrelated sample) |
| ZZZZZZ | U050704.D | 05/12/15 | 19:04 | 06:51 | (unrelated sample) |
| ZZZZZZ | U050705.D | 05/12/15 | 19:26 | 07:13 | (unrelated sample) |

# Instrument Performance Check (DFTPP)



**Job Number:** FA23938
**Account:** TETRPAPT Tetra Tech NUS
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL

**Sample:** SU2315-DFTPP
**Lab File ID:** U050686.D
**Instrument ID:** GCMSU
**Injection Date:** 05/12/15
**Injection Time:** 12:13

| Lab Sample ID | Lab File ID | Date Analyzed | Time Analyzed | Hours Lapsed | Client Sample ID |
|---|---|---|---|---|---|
| ZZZZZZ | U050706.D | 05/12/15 | 19:49 | 07:36 | (unrelated sample) |
| FA23938-2 | U050708.D | 05/12/15 | 20:34 | 08:21 | PCY-0098-4-6-SB-SS-7 |
| FA23938-4 | U050710.D | 05/12/15 | 21:19 | 09:06 | PCY-0098-4-6-SB-SS-6 |
| FA23938-6 | U050711.D | 05/12/15 | 21:42 | 09:29 | PCY-0098-FD-SB-SS |
| SU2315-ECC2245 | U050712.D | 05/12/15 | 22:04 | 09:51 | Ending cal 4 |

# Semivolatile Internal Standard Area Summary



**Job Number:** FA23938
**Account:** TETRPAPT Tetra Tech NUS
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL

| | | | |
|---|---|---|---|
| **Check Std:** | SR2321-CC2318 | **Injection Date:** | 04/30/15 |
| **Lab File ID:** | R448847.D | **Injection Time:** | 13:43 |
| **Instrument ID:** | GCMSR | **Method:** | SW846 8270D BY SIM |

| | IS 1 AREA | RT | IS 2 AREA | RT | IS 3 AREA | RT | IS 4 AREA | RT | IS 5 AREA | RT |
|---|---|---|---|---|---|---|---|---|---|---|
| Initial Cal [a] | 126971 | 6.91 | 69441 | 8.47 | 105603 | 9.77 | 50221 | 12.62 | 27137 | 15.10 |
| Check Std [b] | 119402 | 6.91 | 66174 | 8.47 | 106783 | 9.78 | 55851 | 12.62 | 30293 | 15.10 |
| Upper Limit [c] | 238804 | 7.41 | 132348 | 8.97 | 213566 | 10.28 | 111702 | 13.12 | 60586 | 15.60 |
| Lower Limit [d] | 59701 | 6.41 | 33087 | 7.97 | 53392 | 9.28 | 27926 | 12.12 | 15147 | 14.60 |

| Lab Sample ID | IS 1 AREA | RT | IS 2 AREA | RT | IS 3 AREA | RT | IS 4 AREA | RT | IS 5 AREA | RT |
|---|---|---|---|---|---|---|---|---|---|---|
| OP55914-BS | 125921 | 6.91 | 68809 | 8.47 | 110041 | 9.78 | 59474 | 12.62 | 32385 | 15.11 |
| OP55914-MB | 124825 | 6.91 | 66589 | 8.47 | 101179 | 9.77 | 49103 | 12.62 | 26796 | 15.10 |
| ZZZZZZ | 124541 | 6.91 | 68455 | 8.47 | 103764 | 9.77 | 54945 | 12.62 | 32117 | 15.10 |
| FA23861-1 | 121247 | 6.91 | 54659 | 8.48 | 77818 | 9.79 | 64495 | 12.65 | 38514 | 15.12 |
| ZZZZZZ | 129850 | 6.91 | 70306 | 8.47 | 108433 | 9.77 | 54099 | 12.62 | 31042 | 15.10 |
| ZZZZZZ | 127779 | 6.91 | 69204 | 8.47 | 106749 | 9.77 | 50860 | 12.62 | 28687 | 15.11 |
| ZZZZZZ | 131352 | 6.91 | 71873 | 8.47 | 110201 | 9.78 | 55410 | 12.62 | 31591 | 15.11 |
| ZZZZZZ | 106728 | 6.92 | 97789 | 8.48 | 102885 | 9.78 | 69759 | 12.63 | 38269 | 15.11 |
| OP55914-MS | 122621 | 6.91 | 113041 | 8.48 | 93498 | 9.78 | 67545 | 12.63 | 40124 | 15.11 |
| OP55914-MSD | 123348 | 6.91 | 117964 | 8.48 | 92936 | 9.78 | 67970 | 12.64 | 40176 | 15.12 |
| SR2321-ECC2318 | 124693 | 6.91 | 69041 | 8.47 | 111447 | 9.78 | 61425 | 12.62 | 33905 | 15.11 |

**IS 1** = Naphthalene-d8
**IS 2** = Acenaphthene-D10
**IS 3** = Phenanthrene-d10
**IS 4** = Chrysene-d12
**IS 5** = Perylene-d12

(a) Initial Cal is: SR2318-ICC2318 R448795.D 04/24/15 17:20
(b) Check Std Limit = -50 to + 100% of initial cal area.
(c) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.
(d) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

# Semivolatile Internal Standard Area Summary



**Job Number:** FA23938
**Account:** TETRPAPT Tetra Tech NUS
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL

| | | | |
|---|---|---|---|
| **Check Std:** | SR2322-CC2318 | **Injection Date:** | 05/01/15 |
| **Lab File ID:** | R448863.D | **Injection Time:** | 10:25 |
| **Instrument ID:** | GCMSR | **Method:** | SW846 8270D BY SIM |

| | IS 1 AREA | RT | IS 2 AREA | RT | IS 3 AREA | RT | IS 4 AREA | RT | IS 5 AREA | RT |
|---|---|---|---|---|---|---|---|---|---|---|
| Initial Cal [a] | 126971 | 6.91 | 69441 | 8.47 | 105603 | 9.77 | 50221 | 12.62 | 27137 | 15.10 |
| Check Std [b] | 134002 | 6.91 | 74329 | 8.47 | 120626 | 9.78 | 67709 | 12.62 | 36489 | 15.11 |
| Upper Limit [c] | 268004 | 7.41 | 148658 | 8.97 | 241252 | 10.28 | 135418 | 13.12 | 72978 | 15.61 |
| Lower Limit [d] | 67001 | 6.41 | 37165 | 7.97 | 60313 | 9.28 | 33855 | 12.12 | 18245 | 14.61 |

| Lab Sample ID | IS 1 AREA | RT | IS 2 AREA | RT | IS 3 AREA | RT | IS 4 AREA | RT | IS 5 AREA | RT |
|---|---|---|---|---|---|---|---|---|---|---|
| ZZZZZZ | 95252 | 6.91 | 53572 | 8.47 | 81057 | 9.77 | 37549 | 12.62 | 21437 | 15.10 |
| ZZZZZZ | 130959 | 6.91 | 72788 | 8.47 | 113636 | 9.78 | 62091 | 12.62 | 33837 | 15.10 |
| ZZZZZZ | 130549 | 6.91 | 71240 | 8.47 | 111272 | 9.77 | 54434 | 12.62 | 30715 | 15.10 |
| FA23938-5 | 138526 | 6.91 | 74894 | 8.47 | 117726 | 9.77 | 57146 | 12.62 | 31814 | 15.10 |
| SR2322-ECC2318 | 131764 | 6.91 | 72994 | 8.47 | 119435 | 9.78 | 65131 | 12.62 | 35392 | 15.10 |

**IS 1** = Naphthalene-d8
**IS 2** = Acenaphthene-D10
**IS 3** = Phenanthrene-d10
**IS 4** = Chrysene-d12
**IS 5** = Perylene-d12

(a) Initial Cal is: SR2318-ICC2318 R448795.D 04/24/15 17:20
(b) Check Std Limit = -50 to + 100% of initial cal area.
(c) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.
(d) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

# Semivolatile Internal Standard Area Summary



**Job Number:** FA23938
**Account:** TETRPAPT Tetra Tech NUS
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL

| | | | |
|---|---|---|---|
| **Check Std:** | SU2315-CC2245 | **Injection Date:** | 05/12/15 |
| **Lab File ID:** | U050687.D | **Injection Time:** | 12:28 |
| **Instrument ID:** | GCMSU | **Method:** | SW846 8270D BY SIM |

| | IS 1 AREA | RT | IS 2 AREA | RT | IS 3 AREA | RT | IS 4 AREA | RT | IS 5 AREA | RT |
|---|---|---|---|---|---|---|---|---|---|---|
| Initial Cal [a] | 244024 | 4.82 | 132368 | 6.24 | 206198 | 7.61 | 256291 | 11.57 | 251998 | 14.00 |
| Check Std [b] | 212589 | 3.95 | 129281 | 5.34 | 230359 | 6.52 | 256479 | 9.93 | 223809 | 12.33 |
| Upper Limit [c] | 425178 | 4.45 | 258562 | 5.84 | 460718 | 7.02 | 512958 | 10.43 | 447618 | 12.83 |
| Lower Limit [d] | 106295 | 3.45 | 64641 | 4.84 | 115180 | 6.02 | 128240 | 9.43 | 111905 | 11.83 |

| Lab Sample ID | IS 1 AREA | RT | IS 2 AREA | RT | IS 3 AREA | RT | IS 4 AREA | RT | IS 5 AREA | RT |
|---|---|---|---|---|---|---|---|---|---|---|
| OP56056-BS | 214339 | 3.95 | 127013 | 5.34 | 220838 | 6.53 | 249203 | 9.94 | 217587 | 12.33 |
| OP56056-MB | 201850 | 3.95 | 119169 | 5.34 | 203172 | 6.52 | 227054 | 9.92 | 194456 | 12.32 |
| ZZZZZZ | 204900 | 3.95 | 121549 | 5.34 | 207359 | 6.52 | 235731 | 9.92 | 206163 | 12.32 |
| ZZZZZZ | 206665 | 3.95 | 125027 | 5.34 | 214896 | 6.52 | 245905 | 9.92 | 213680 | 12.32 |
| FA24262-2 | 216134 | 3.95 | 127894 | 5.34 | 213898 | 6.52 | 244879 | 9.92 | 219443 | 12.32 |
| OP56056-MS | 224184 | 3.95 | 134074 | 5.34 | 231153 | 6.52 | 268067 | 9.92 | 238837 | 12.32 |
| OP56056-MSD | 222486 | 3.95 | 134162 | 5.34 | 230309 | 6.52 | 265727 | 9.92 | 238452 | 12.32 |
| ZZZZZZ | 213998 | 3.95 | 128991 | 5.34 | 219893 | 6.52 | 251716 | 9.93 | 220800 | 12.33 |
| ZZZZZZ | 228374 | 3.95 | 136578 | 5.34 | 230939 | 6.52 | 267711 | 9.93 | 236956 | 12.33 |
| ZZZZZZ | 235932 | 3.95 | 142193 | 5.34 | 240677 | 6.52 | 277885 | 9.92 | 248701 | 12.32 |
| ZZZZZZ | 219847 | 3.95 | 132946 | 5.34 | 224609 | 6.52 | 267372 | 9.92 | 237980 | 12.33 |
| ZZZZZZ | 240727 | 3.95 | 143073 | 5.34 | 243945 | 6.52 | 287480 | 9.93 | 249108 | 12.34 |
| ZZZZZZ | 226885 | 3.95 | 135987 | 5.34 | 230893 | 6.52 | 276927 | 9.92 | 245974 | 12.33 |
| ZZZZZZ | 242397 | 3.95 | 143024 | 5.34 | 240986 | 6.52 | 279976 | 9.92 | 241980 | 12.33 |
| ZZZZZZ | 242046 | 3.95 | 143914 | 5.34 | 243456 | 6.52 | 284460 | 9.93 | 232573 | 12.33 |
| ZZZZZZ | 243530 | 3.95 | 144600 | 5.34 | 244511 | 6.52 | 289480 | 9.93 | 238620 | 12.33 |
| ZZZZZZ | 239833 | 3.95 | 141760 | 5.34 | 239000 | 6.52 | 274331 | 9.92 | 230535 | 12.32 |
| ZZZZZZ | 219707 | 3.95 | 131557 | 5.34 | 225186 | 6.52 | 271733 | 9.93 | 221685 | 12.33 |
| ZZZZZZ | 246733 | 3.95 | 146386 | 5.34 | 249157 | 6.52 | 296992 | 9.93 | 239208 | 12.33 |
| FA23938-2 | 225942 | 3.95 | 135164 | 5.34 | 230552 | 6.52 | 272681 | 9.92 | 222459 | 12.33 |
| FA23938-4 | 245612 | 3.95 | 145651 | 5.34 | 244078 | 6.52 | 283093 | 9.93 | 229873 | 12.33 |
| FA23938-6 | 246338 | 3.95 | 145501 | 5.34 | 241755 | 6.52 | 280186 | 9.93 | 229230 | 12.33 |
| SU2315-ECC2245 | 224710 | 3.95 | 134622 | 5.34 | 236928 | 6.52 | 282725 | 9.93 | 230950 | 12.33 |

**IS 1** = Naphthalene-d8
**IS 2** = Acenaphthene-d10
**IS 3** = Phenanthrene-d10
**IS 4** = Chrysene-d12
**IS 5** = Perylene-d12

(a) Initial Cal is: SU2245-ICC2245 U049027.D 01/28/15 20:18
(b) Check Std Limit = -50 to + 100% of initial cal area.
(c) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.

# Semivolatile Internal Standard Area Summary



**Job Number:** FA23938
**Account:** TETRPAPT Tetra Tech NUS
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL

| | | | |
|---|---|---|---|
| **Check Std:** | SU2315-CC2245 | **Injection Date:** | 05/12/15 |
| **Lab File ID:** | U050687.D | **Injection Time:** | 12:28 |
| **Instrument ID:** | GCMSU | **Method:** | SW846 8270D BY SIM |

| Lab | IS 1 | | IS 2 | | IS 3 | | IS 4 | | IS 5 | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Sample ID** | **AREA** | **RT** | **AREA** | **RT** | **AREA** | **RT** | **AREA** | **RT** | **AREA** | **RT** |

(d) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

# Semivolatile Surrogate Recovery Summary



**Job Number:** FA23938
**Account:** TETRPAPT Tetra Tech NUS
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL

**Method:** SW846 8270D BY SIM **Matrix:** SO

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

| Lab Sample ID | Lab File ID | S1 | S2 | S3 |
|---|---|---|---|---|
| FA23938-2 | U050708.D | 89 | 83 | 106 |
| FA23938-4 | U050710.D | 82 | 75 | 94 |
| FA23938-6 | U050711.D | 82 | 76 | 102 |
| OP56056-BS | U050688.D | 98 | 84 | 110 |
| OP56056-MB | U050689.D | 101 | 86 | 117 |
| OP56056-MS | U050693.D | 93 | 84 | 111 |
| OP56056-MSD | U050694.D | 96 | 86 | 107 |

| Surrogate Compounds | Recovery Limits |
|---|---|
| **S1** = Nitrobenzene-d5 | 40-105% |
| **S2** = 2-Fluorobiphenyl | 43-107% |
| **S3** = Terphenyl-d14 | 45-119% |

# Semivolatile Surrogate Recovery Summary



**Job Number:** FA23938
**Account:** TETRPAPT Tetra Tech NUS
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL

**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 |
|---|---|---|---|---|
| FA23938-5 | R448868.D | 77 | 79 | 96 |
| OP55914-BS | R448848.D | 87 | 88 | 94 |
| OP55914-MB | R448849.D | 83 | 84 | 98 |
| OP55914-MS | R448859.D | 71 | 41 | 65 |
| OP55914-MSD | R448860.D | 79 | 43 | 74 |

| Surrogate Compounds | Recovery Limits |
|---|---|
| **S1** = Nitrobenzene-d5 | 41-129% |
| **S2** = 2-Fluorobiphenyl | 41-118% |
| **S3** = Terphenyl-d14 | 45-145% |

# Initial Calibration Summary



**Job Number:** FA23938
**Account:** TETRPAPT Tetra Tech NUS
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL

**Sample:** SR2318-ICC2318
**Lab FileID:** R448795.D

Response Factor Report MSBNA3

```
Method       : C:\msdchem\1\METHODS\SIM_LVR.M (RTE Integrator)
Title        : PAH's by 8270D SIM Large Volume Inj
Last Update  : Mon Apr 27 09:54:14 2015
Response via : Initial Calibration

Calibration Files
L1  =R448792.D   L2  =R448793.D   L3  =R448794.D   L4  =R448795.D
L5  =R448796.D   L6  =R448797.D   L7  =R448798.D

   Compound              L1    L2    L3    L4    L5    L6    L7    Avg   %RSD
-------------------------------------------------------------------------------

1) I   Naphthalene-d8        ----------------ISTD---------------------
2)S Nitrobenzene-d5   0.296 0.310 0.311 0.300 0.331 0.291 0.261 0.300   7.25
3)P Naphthalene       1.132 1.139 1.117 1.027 1.066 0.840 0.671 0.999  17.79
            ---- Quadratic regr., Force(0,0) ----  Coefficient =  0.9989
              Response Ratio = 0.00000 + 1.05897 *A + -0.01952 *A^2

4)P 2-Methylnaphthale 0.738 0.746 0.754 0.700 0.729 0.585 0.477 0.676  15.53
            ---- Quadratic regr., Force(0,0) ----  Coefficient =  0.9991
              Response Ratio = 0.00000 + 0.72421 *A + -0.01244 *A^2

5)P 1-Methylnaphthale 0.673 0.680 0.690 0.640 0.673 0.544 0.446 0.621  14.78

6) I   Acenaphthene-d10      ----------------ISTD---------------------
7)S 2-Fluorobiphenyl  1.374 1.406 1.384 1.293 1.352 1.102 0.912 1.261  14.67
8)P Acenaphthylene    1.875 2.002 1.994 1.866 1.977 1.551 1.259 1.789  15.71
            ---- Quadratic regr., Force(0,0) ----  Coefficient =  0.9987
              Response Ratio = 0.00000 + 1.93976 *A + -0.03428 *A^2

9)P Acenaphthene      1.262 1.289 1.275 1.175 1.212 0.974 0.811 1.143  15.88
            ---- Quadratic regr., Force(0,0) ----  Coefficient =  0.9991
              Response Ratio = 0.00000 + 1.19448 *A + -0.01930 *A^2

10)P Dibenzofuran     1.584 1.618 1.624 1.526 1.646 1.328 1.109 1.491  13.42
11)P Fluorene         1.270 1.288 1.299 1.229 1.296 1.048 0.871 1.186  13.87

12) I   Phenanthrene-d10     ----------------ISTD---------------------
13)S 2,4,6-Tribromophe 0.060 0.063 0.066 0.064 0.071 0.068 0.065 0.065   5.35
14)P Pentachlorophenol 0.053 0.069 0.087 0.100 0.121 0.189 0.260 0.125  58.75
            ---- Quadratic regr., Force(0,0) ----  Coefficient =  0.9977
              Response Ratio = 0.00000 + 0.00632 *A + 0.01251 *A^2

15)P Phenanthrene     1.141 1.163 1.169 1.072 1.105 0.885 0.711 1.035  16.70
            ---- Quadratic regr., Force(0,0) ----  Coefficient =  0.9992
              Response Ratio = 0.00000 + 1.10440 *A + -0.01977 *A^2

16)P Anthracene       1.071 1.098 1.142 1.100 1.202 1.042 0.879 1.076   9.39
17)P Carbazole        0.895 0.881 0.925 0.900 1.010 0.903 0.798 0.902   6.95
18)P Fluoranthene     0.981 1.019 1.061 1.022 1.086 0.903 0.750 0.975  11.83

19) I   Chrysene-d12         ----------------ISTD---------------------
20)P Pyrene           2.141 2.283 2.317 2.212 2.240 1.728 1.375 2.042  17.37
            ---- Quadratic regr., Force(0,0) ----  Coefficient =  0.9985
              Response Ratio = 0.00000 + 2.20733 *A + -0.04192 *A^2

21)S Terphenyl-d14    0.986 1.011 1.025 0.961 1.014 0.827 0.666 0.927  14.39
22)P Benzo[a]anthracen 1.170 1.179 1.205 1.173 1.337 1.238 1.141 1.206   5.41
```

# Initial Calibration Summary

**Job Number:** FA23938 **Sample:** SR2318-ICC2318
**Account:** TETRPAPT Tetra Tech NUS **Lab FileID:** R448795.D
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL

```
23)P Chrysene          1.214 1.226 1.249 1.177 1.313 1.184 1.083 1.206   5.88

24) I   Perylene-d12          ----------------ISTD---------------------
25)P Benzo[b]fluoranth 1.388 1.471 1.524 1.504 1.737 1.649 1.555 1.547   7.45
26)P Benzo[k]fluoranth 1.462 1.520 1.587 1.560 1.726 1.648 1.506 1.573   5.75
27)P Benzo[a]pyrene    1.161 1.229 1.290 1.297 1.496 1.445 1.351 1.324   8.86
28)P Indeno[1,2,3-cd]p 1.074 1.096 1.139 1.126 1.316 1.234 1.121 1.158   7.44
29)P Dibenz[a,h]anthra 1.188 1.234 1.269 1.233 1.378 1.262 1.102 1.238   6.77
30)P Benzo[g,h,i]peryl 1.379 1.413 1.452 1.375 1.534 1.386 1.214 1.393   6.94
-------------------------------------------------------------------------------
(#) = Out of Range

          SIM_LVR.M         Mon Apr 27 10:36:25 2015
```

# Initial Calibration Verification



**Job Number:** FA23938
**Account:** TETRPAPT Tetra Tech NUS
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL
**Sample:** SR2318-ICV2318
**Lab FileID:** R448799.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\SR2318\R448799.D          Vial: 9
Acq On    : 24 Apr 2015   7:06 pm                   Operator: mayrag
Sample    : icv2318-4                               Inst    : MSBNA3
Misc      : op55419,sr2318,250,,,1,1,water          Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\msdchem\1\METHODS\SIM_LVR.M (RTE Integrator)
Title        : PAH's by 8270D SIM Large Volume Inj
Last Update  : Mon Apr 27 09:54:14 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 | Amount | Calc. | %Drift | Area% | Dev(min) | R.T. |
|---|---|---|---|---|---|---|---|---|
| 1 | I | Naphthalene-d8 | 500.000 | 500.000 | 0.0 | 97 | 0.00 | 6.91 |
| 2 | S | Nitrobenzene-d5 | | | NA | | | |
| | | | Amount | Calc. | %Drift | | | |
| 3 | P | Naphthalene | 1000.000 | 1025.425 | -2.5 | 99 | 0.00 | 6.92 |
| 4 | P | 2-Methylnaphthalene | 1000.000 | 967.010 | 3.3 | 94 | 0.00 | 7.53 |
| | | | Amount | Calc. | %Drift | | | |
| 5 | P | 1-Methylnaphthalene | 1000.000 | 1080.356 | -8.0 | 102 | 0.00 | 7.63 |
| 6 | I | Acenaphthene-d10 | 500.000 | 500.000 | 0.0 | 98 | 0.00 | 8.47 |
| 7 | S | 2-Fluorobiphenyl | | | NA | | | |
| | | | Amount | Calc. | %Drift | | | |
| 8 | P | Acenaphthylene | 1000.000 | 976.771 | 2.3 | 96 | 0.00 | 8.33 |
| 9 | P | Acenaphthene | 1000.000 | 1030.993 | -3.1 | 100 | 0.00 | 8.50 |
| | | | Amount | Calc. | %Drift | | | |
| 10 | P | Dibenzofuran | 1000.000 | 1023.125 | -2.3 | 98 | 0.00 | 8.64 |
| 11 | P | Fluorene | 1000.000 | 1042.870 | -4.3 | 99 | 0.00 | 8.95 |
| 12 | I | Phenanthrene-d10 | 500.000 | 500.000 | 0.0 | 99 | 0.00 | 9.77 |
| 13 | S | 2,4,6-Tribromophenol | | | NA | | | |
| | | | Amount | Calc. | %Drift | | | |
| 14 | P | Pentachlorophenol | 2500.000 | 2664.091 | -6.6 | 77 | 0.00 | 9.67 |
| 15 | P | Phenanthrene | 1000.000 | 985.952 | 1.4 | 97 | 0.00 | 9.79 |
| | | | Amount | Calc. | %Drift | | | |
| 16 | P | Anthracene | 500.000 | 467.326 | 6.5 | 90 | 0.00 | 9.83 |
| 17 | P | Carbazole | 500.000 | 469.180 | 6.2 | 93 | 0.00 | 9.98 |
| 18 | P | Fluoranthene | 1000.000 | 996.430 | 0.4 | 94 | 0.00 | 10.87 |
| 19 | I | Chrysene-d12 | 500.000 | 500.000 | 0.0 | 96 | 0.00 | 12.62 |
| | | | Amount | Calc. | %Drift | | | |
| 20 | P | Pyrene | 1000.000 | 1014.630 | -1.5 | 93 | 0.00 | 11.09 |
| | | | Amount | Calc. | %Drift | | | |
| 21 | S | Terphenyl-d14 | | | NA | | | |
| 22 | P | Benzo[a]anthracene | 500.000 | 466.160 | 6.8 | 92 | 0.00 | 12.60 |
| 23 | P | Chrysene | 500.000 | 497.557 | 0.5 | 98 | 0.00 | 12.66 |

# Initial Calibration Verification

**Job Number:** FA23938
**Account:** TETRPAPT Tetra Tech NUS
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL

**Sample:** SR2318-ICV2318
**Lab FileID:** R448799.D

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 24 | I | Perylene-d12 | 500.000 | 500.000 | 0.0 | 96 | 0.00 | 15.10 |
| 25 | P | Benzo[b]fluoranthene | 500.000 | 481.736 | 3.7 | 96 | 0.00 | 14.45 |
| 26 | P | Benzo[k]fluoranthene | 500.000 | 496.436 | 0.7 | 97 | 0.00 | 14.49 |
| 27 | P | Benzo[a]pyrene | 500.000 | 464.046 | 7.2 | 91 | 0.00 | 15.00 |
| 28 | P | Indeno[1,2,3-cd]pyrene | 500.000 | 472.106 | 5.6 | 94 | 0.00 | 16.62 |
| 29 | P | Dibenz[a,h]anthracene | 500.000 | 479.696 | 4.1 | 93 | 0.00 | 16.65 |
| 30 | P | Benzo[g,h,i]perylene | 500.000 | 486.431 | 2.7 | 95 | 0.00 | 16.95 |

(#) = Out of Range SPCC's out = 0 CCC's out = 0
R448795.D SIM_LVR.M Mon Apr 27 10:36:01 2015

6.7.2

6

# Continuing Calibration Summary



**Job Number:** FA23938
**Account:** TETRPAPT Tetra Tech NUS
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL
**Sample:** SR2321-CC2318
**Lab FileID:** R448847.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\SR2321\R448847.D          Vial: 2
Acq On    : 30 Apr 2015   1:43 pm                   Operator: mayrag
Sample    : cc2318-5                                Inst    : MSBNA3
Misc      : op55419,sr2321,250,,,1,1,water          Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\msdchem\1\METHODS\SIM_LVR.M (RTE Integrator)
Title        : PAH's by 8270D SIM Large Volume Inj
Last Update  : Fri May 01 09:34:04 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 | Naphthalene-d8 | 1.000 | 1.000 | 0.0 | 100 | 0.00 | 6.91 |
| 2 | S | Nitrobenzene-d5 | 0.300 | 0.325 | -8.3 | 98 | 0.00 | 6.30 |
| | | | Amount | Calc. | %Drift | | | |
| 3 | P | Naphthalene | 2000.000 | 2178.140 | -8.9 | 99 | 0.00 | 6.93 |
| 4 | P | 2-Methylnaphthalene | 2000.000 | 2188.408 | -9.4 | 100 | 0.00 | 7.54 |
| | | | AvgRF | CCRF | %Dev | | | |
| 5 | P | 1-Methylnaphthalene | 0.621 | 0.675 | -8.7 | 100 | 0.00 | 7.63 |
| 6 | I | Acenaphthene-d10 | 1.000 | 1.000 | 0.0 | 101 | 0.00 | 8.47 |
| 7 | S | 2-Fluorobiphenyl | 1.261 | 1.344 | -6.6 | 101 | 0.00 | 7.88 |
| | | | Amount | Calc. | %Drift | | | |
| 8 | P | Acenaphthylene | 2000.000 | 2202.174 | -10.1 | 101 | 0.00 | 8.34 |
| 9 | P | Acenaphthene | 2000.000 | 2200.993 | -10.0 | 102 | 0.00 | 8.50 |
| | | | AvgRF | CCRF | %Dev | | | |
| 10 | P | Dibenzofuran | 1.491 | 1.608 | -7.8 | 99 | 0.00 | 8.64 |
| 11 | P | Fluorene | 1.186 | 1.294 | -9.1 | 101 | 0.00 | 8.95 |
| 12 | I | Phenanthrene-d10 | 1.000 | 1.000 | 0.0 | 102 | 0.00 | 9.78 |
| 13 | S | 2,4,6-Tribromophenol | 0.065 | 0.067 | -3.1 | 97 | 0.00 | 9.18 |
| | | | Amount | Calc. | %Drift | | | |
| 14 | P | Pentachlorophenol | 5000.000 | 4520.225 | 9.6 | 91 | 0.00 | 9.67 |
| 15 | P | Phenanthrene | 2000.000 | 2127.500 | -6.4 | 100 | 0.00 | 9.80 |
| | | | AvgRF | CCRF | %Dev | | | |
| 16 | P | Anthracene | 1.076 | 1.168 | -8.6 | 99 | 0.00 | 9.83 |
| 17 | P | Carbazole | 0.902 | 0.981 | -8.8 | 99 | 0.00 | 9.98 |
| 18 | P | Fluoranthene | 0.975 | 1.088 | -11.6 | 102 | 0.00 | 10.87 |
| 19 | I | Chrysene-d12 | 1.000 | 1.000 | 0.0 | 107 | 0.00 | 12.62 |
| | | | Amount | Calc. | %Drift | | | |
| 20 | P | Pyrene | 2000.000 | 2128.301 | -6.4 | 103 | 0.00 | 11.10 |
| | | | AvgRF | CCRF | %Dev | | | |
| 21 | S | Terphenyl-d14 | 0.927 | 0.993 | -7.1 | 104 | 0.00 | 11.27 |
| 22 | P | Benzo[a]anthracene | 1.206 | 1.295 | -7.4 | 103 | 0.00 | 12.60 |
| 23 | P | Chrysene | 1.206 | 1.269 | -5.2 | 103 | 0.00 | 12.66 |

# Continuing Calibration Summary

**Job Number:** FA23938 **Sample:** SR2321-CC2318
**Account:** TETRPAPT Tetra Tech NUS **Lab FileID:** R448847.D
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 24 | I | Perylene-d12 | 1.000 | 1.000 | 0.0 | 107 | 0.00 | 15.10 |
| 25 | P | Benzo[b]fluoranthene | 1.547 | 1.684 | -8.9 | 104 | 0.00 | 14.45 |
| 26 | P | Benzo[k]fluoranthene | 1.573 | 1.676 | -6.5 | 104 | 0.00 | 14.50 |
| 27 | P | Benzo[a]pyrene | 1.324 | 1.439 | -8.7 | 103 | 0.00 | 15.01 |
| 28 | P | Indeno[1,2,3-cd]pyrene | 1.158 | 1.154 | 0.3 | 94 | 0.00 | 16.62 |
| 29 | P | Dibenz[a,h]anthracene | 1.238 | 1.239 | -0.1 | 97 | 0.00 | 16.66 |
| 30 | P | Benzo[g,h,i]perylene | 1.393 | 1.370 | 1.7 | 96 | 0.00 | 16.96 |

(#) = Out of Range SPCC's out = 0 CCC's out = 0
R448796.D SIM_LVR.M Fri May 01 09:50:25 2015

6.7.3

6

# Continuing Calibration Summary



**Job Number:** FA23938
**Account:** TETRPAPT Tetra Tech NUS
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL
**Sample:** SR2321-ECC2318
**Lab FileID:** R448861.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\SR2321\R448861.D          Vial: 2
Acq On    : 30 Apr 2015   7:56 pm                   Operator: mayrag
Sample    : ecc2318-5                               Inst    : MSBNA3
Misc      : op55419,sr2321,250,,,1,1,water          Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\msdchem\1\METHODS\SIM_LVR.M (RTE Integrator)
Title        : PAH's by 8270D SIM Large Volume Inj
Last Update  : Fri May 01 09:34:04 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 | Naphthalene-d8 | 1.000 | 1.000 | 0.0 | 104 | 0.00 | 6.91 |
| 2 | S | Nitrobenzene-d5 | 0.300 | 0.327 | -9.0 | 103 | 0.00 | 6.30 |
| | | | Amount | Calc. | %Drift | | | |
| 3 | P | Naphthalene | 2000.000 | 2166.561 | -8.3 | 103 | 0.00 | 6.93 |
| 4 | P | 2-Methylnaphthalene | 2000.000 | 2179.780 | -9.0 | 105 | 0.00 | 7.54 |
| | | | AvgRF | CCRF | %Dev | | | |
| 5 | P | 1-Methylnaphthalene | 0.621 | 0.668 | -7.6 | 104 | 0.00 | 7.63 |
| 6 | I | Acenaphthene-d10 | 1.000 | 1.000 | 0.0 | 105 | 0.00 | 8.47 |
| 7 | S | 2-Fluorobiphenyl | 1.261 | 1.341 | -6.3 | 105 | 0.00 | 7.88 |
| | | | Amount | Calc. | %Drift | | | |
| 8 | P | Acenaphthylene | 2000.000 | 2193.764 | -9.7 | 105 | 0.00 | 8.34 |
| 9 | P | Acenaphthene | 2000.000 | 2158.102 | -7.9 | 104 | 0.00 | 8.50 |
| | | | AvgRF | CCRF | %Dev | | | |
| 10 | P | Dibenzofuran | 1.491 | 1.631 | -9.4 | 104 | 0.00 | 8.64 |
| 11 | P | Fluorene | 1.186 | 1.298 | -9.4 | 106 | 0.00 | 8.95 |
| 12 | I | Phenanthrene-d10 | 1.000 | 1.000 | 0.0 | 107 | 0.00 | 9.78 |
| 13 | S | 2,4,6-Tribromophenol | 0.065 | 0.072 | -10.8 | 109 | 0.00 | 9.18 |
| | | | Amount | Calc. | %Drift | | | |
| 14 | P | Pentachlorophenol | 5000.000 | 4676.638 | 6.5 | 102 | 0.00 | 9.67 |
| 15 | P | Phenanthrene | 2000.000 | 2133.048 | -6.7 | 105 | 0.00 | 9.80 |
| | | | AvgRF | CCRF | %Dev | | | |
| 16 | P | Anthracene | 1.076 | 1.215 | -12.9 | 108 | 0.00 | 9.84 |
| 17 | P | Carbazole | 0.902 | 1.039 | -15.2 | 110 | 0.00 | 9.98 |
| 18 | P | Fluoranthene | 0.975 | 1.109 | -13.7 | 109 | 0.00 | 10.88 |
| 19 | I | Chrysene-d12 | 1.000 | 1.000 | 0.0 | 117 | 0.00 | 12.62 |
| | | | Amount | Calc. | %Drift | | | |
| 20 | P | Pyrene | 2000.000 | 2046.027 | -2.3 | 109 | 0.00 | 11.10 |
| | | | AvgRF | CCRF | %Dev | | | |
| 21 | S | Terphenyl-d14 | 0.927 | 0.980 | -5.7 | 113 | 0.00 | 11.27 |
| 22 | P | Benzo[a]anthracene | 1.206 | 1.351 | -12.0 | 118 | 0.00 | 12.60 |
| 23 | P | Chrysene | 1.206 | 1.280 | -6.1 | 114 | 0.00 | 12.66 |

# Continuing Calibration Summary

**Job Number:** FA23938 **Sample:** SR2321-ECC2318
**Account:** TETRPAPT Tetra Tech NUS **Lab FileID:** R448861.D
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 24 | I | Perylene-d12 | 1.000 | 1.000 | 0.0 | 120 | 0.00 | 15.11 |
| 25 | P | Benzo[b]fluoranthene | 1.547 | 1.677 | -8.4 | 116 | 0.00 | 14.45 |
| 26 | P | Benzo[k]fluoranthene | 1.573 | 1.700 | -8.1 | 118 | 0.01 | 14.50 |
| 27 | P | Benzo[a]pyrene | 1.324 | 1.465 | -10.6 | 118 | 0.00 | 15.01 |
| 28 | P | Indeno[1,2,3-cd]pyrene | 1.158 | 1.189 | -2.7 | 109 | 0.01 | 16.63 |
| 29 | P | Dibenz[a,h]anthracene | 1.238 | 1.240 | -0.2 | 108 | 0.00 | 16.66 |
| 30 | P | Benzo[g,h,i]perylene | 1.393 | 1.328 | 4.7 | 104 | 0.00 | 16.96 |

(#) = Out of Range SPCC's out = 0 CCC's out = 0
R448796.D SIM_LVR.M Fri May 01 09:50:26 2015

# Continuing Calibration Summary



**Job Number:** FA23938
**Account:** TETRPAPT Tetra Tech NUS
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL
**Sample:** SR2322-CC2318
**Lab FileID:** R448863.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\SR2322\R448863.D          Vial: 2
Acq On    :  1 May 2015  10:25 am                   Operator: mayrag
Sample    : cc2318-5                                Inst    : MSBNA3
Misc      : op55419,sr2322,250,,,1,1,water          Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\msdchem\1\METHODS\SIM_LVR.M (RTE Integrator)
Title        : PAH's by 8270D SIM Large Volume Inj
Last Update  : Fri May 01 13:33:52 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 | Naphthalene-d8 | 1.000 | 1.000 | 0.0 | 112 | 0.00 | 6.91 |
| 2 | S | Nitrobenzene-d5 | 0.300 | 0.326 | -8.7 | 110 | 0.00 | 6.31 |
| | | | Amount | Calc. | %Drift | | | |
| 3 | P | Naphthalene | 2000.000 | 2166.677 | -8.3 | 111 | 0.00 | 6.93 |
| 4 | P | 2-Methylnaphthalene | 2000.000 | 2177.215 | -8.9 | 112 | 0.00 | 7.54 |
| | | | AvgRF | CCRF | %Dev | | | |
| 5 | P | 1-Methylnaphthalene | 0.621 | 0.666 | -7.2 | 111 | 0.00 | 7.63 |
| 6 | I | Acenaphthene-d10 | 1.000 | 1.000 | 0.0 | 114 | 0.00 | 8.47 |
| 7 | S | 2-Fluorobiphenyl | 1.261 | 1.336 | -5.9 | 112 | 0.00 | 7.88 |
| | | | Amount | Calc. | %Drift | | | |
| 8 | P | Acenaphthylene | 2000.000 | 2168.646 | -8.4 | 112 | 0.00 | 8.34 |
| 9 | P | Acenaphthene | 2000.000 | 2149.410 | -7.5 | 112 | 0.00 | 8.50 |
| | | | AvgRF | CCRF | %Dev | | | |
| 10 | P | Dibenzofuran | 1.491 | 1.603 | -7.5 | 111 | 0.00 | 8.64 |
| 11 | P | Fluorene | 1.186 | 1.286 | -8.4 | 113 | 0.00 | 8.95 |
| 12 | I | Phenanthrene-d10 | 1.000 | 1.000 | 0.0 | 115 | 0.00 | 9.78 |
| 13 | S | 2,4,6-Tribromophenol | 0.065 | 0.072 | -10.8 | 117 | 0.00 | 9.18 |
| | | | Amount | Calc. | %Drift | | | |
| 14 | P | Pentachlorophenol | 5000.000 | 4683.169 | 6.3 | 110 | 0.00 | 9.67 |
| 15 | P | Phenanthrene | 2000.000 | 2101.595 | -5.1 | 112 | 0.00 | 9.80 |
| | | | AvgRF | CCRF | %Dev | | | |
| 16 | P | Anthracene | 1.076 | 1.216 | -13.0 | 117 | 0.00 | 9.84 |
| 17 | P | Carbazole | 0.902 | 1.049 | -16.3 | 120 | 0.00 | 9.98 |
| 18 | P | Fluoranthene | 0.975 | 1.100 | -12.8 | 117 | 0.00 | 10.88 |
| 19 | I | Chrysene-d12 | 1.000 | 1.000 | 0.0 | 129 | 0.00 | 12.62 |
| | | | Amount | Calc. | %Drift | | | |
| 20 | P | Pyrene | 2000.000 | 1986.928 | 0.7 | 117 | 0.00 | 11.10 |
| | | | AvgRF | CCRF | %Dev | | | |
| 21 | S | Terphenyl-d14 | 0.927 | 0.985 | -6.3 | 125 | 0.00 | 11.27 |
| 22 | P | Benzo[a]anthracene | 1.206 | 1.324 | -9.8 | 128 | 0.00 | 12.60 |
| 23 | P | Chrysene | 1.206 | 1.276 | -5.8 | 126 | 0.00 | 12.66 |

# Continuing Calibration Summary

**Job Number:** FA23938 **Sample:** SR2322-CC2318
**Account:** TETRPAPT Tetra Tech NUS **Lab FileID:** R448863.D
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 24 | I | Perylene-d12 | 1.000 | 1.000 | 0.0 | 129 | 0.00 | 15.11 |
| 25 | P | Benzo[b]fluoranthene | 1.547 | 1.665 | -7.6 | 124 | 0.00 | 14.46 |
| 26 | P | Benzo[k]fluoranthene | 1.573 | 1.735 | -10.3 | 130 | 0.00 | 14.50 |
| 27 | P | Benzo[a]pyrene | 1.324 | 1.470 | -11.0 | 127 | 0.00 | 15.01 |
| 28 | P | Indeno[1,2,3-cd]pyrene | 1.158 | 1.151 | 0.6 | 113 | 0.00 | 16.63 |
| 29 | P | Dibenz[a,h]anthracene | 1.238 | 1.221 | 1.4 | 115 | 0.00 | 16.67 |
| 30 | P | Benzo[g,h,i]perylene | 1.393 | 1.323 | 5.0 | 112 | 0.00 | 16.96 |

(#) = Out of Range SPCC's out = 0 CCC's out = 0
R448796.D SIM_LVR.M Fri May 01 13:39:18 2015

6.7.5

6

# Continuing Calibration Summary



**Job Number:** FA23938
**Account:** TETRPAPT Tetra Tech NUS
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL

**Sample:** SR2322-ECC2318
**Lab FileID:** R448869.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\SR2322\R448869.D          Vial: 2
Acq On    :  1 May 2015   1:03 pm                   Operator: mayrag
Sample    : ecc2318-5                               Inst    : MSBNA3
Misc      : op55419,sr2322,250,,,1,1,water          Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\msdchem\1\METHODS\SIM_LVR.M (RTE Integrator)
Title        : PAH's by 8270D SIM Large Volume Inj
Last Update  : Fri May 01 13:33:52 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 | Naphthalene-d8 | 1.000 | 1.000 | 0.0 | 110 | 0.00 | 6.91 |
| 2 | S | Nitrobenzene-d5 | 0.300 | 0.321 | -7.0 | 107 | 0.00 | 6.30 |
| | | | Amount | Calc. | %Drift | | | |
| 3 | P | Naphthalene | 2000.000 | 2167.733 | -8.4 | 109 | 0.00 | 6.93 |
| 4 | P | 2-Methylnaphthalene | 2000.000 | 2151.960 | -7.6 | 109 | 0.00 | 7.54 |
| | | | AvgRF | CCRF | %Dev | | | |
| 5 | P | 1-Methylnaphthalene | 0.621 | 0.667 | -7.4 | 109 | 0.00 | 7.63 |
| 6 | I | Acenaphthene-d10 | 1.000 | 1.000 | 0.0 | 112 | 0.00 | 8.47 |
| 7 | S | 2-Fluorobiphenyl | 1.261 | 1.349 | -7.0 | 111 | 0.00 | 7.88 |
| | | | Amount | Calc. | %Drift | | | |
| 8 | P | Acenaphthylene | 2000.000 | 2172.375 | -8.6 | 110 | 0.00 | 8.34 |
| 9 | P | Acenaphthene | 2000.000 | 2178.591 | -8.9 | 111 | 0.00 | 8.50 |
| | | | AvgRF | CCRF | %Dev | | | |
| 10 | P | Dibenzofuran | 1.491 | 1.617 | -8.5 | 110 | 0.00 | 8.64 |
| 11 | P | Fluorene | 1.186 | 1.285 | -8.3 | 111 | 0.00 | 8.95 |
| 12 | I | Phenanthrene-d10 | 1.000 | 1.000 | 0.0 | 114 | 0.00 | 9.78 |
| 13 | S | 2,4,6-Tribromophenol | 0.065 | 0.070 | -7.7 | 112 | 0.00 | 9.18 |
| | | | Amount | Calc. | %Drift | | | |
| 14 | P | Pentachlorophenol | 5000.000 | 4577.304 | 8.5 | 105 | 0.00 | 9.67 |
| 15 | P | Phenanthrene | 2000.000 | 2090.167 | -4.5 | 110 | 0.00 | 9.80 |
| | | | AvgRF | CCRF | %Dev | | | |
| 16 | P | Anthracene | 1.076 | 1.185 | -10.1 | 113 | 0.00 | 9.83 |
| 17 | P | Carbazole | 0.902 | 1.016 | -12.6 | 115 | 0.00 | 9.98 |
| 18 | P | Fluoranthene | 0.975 | 1.083 | -11.1 | 114 | 0.00 | 10.87 |
| 19 | I | Chrysene-d12 | 1.000 | 1.000 | 0.0 | 124 | 0.00 | 12.62 |
| | | | Amount | Calc. | %Drift | | | |
| 20 | P | Pyrene | 2000.000 | 2025.563 | -1.3 | 114 | 0.00 | 11.10 |
| | | | AvgRF | CCRF | %Dev | | | |
| 21 | S | Terphenyl-d14 | 0.927 | 0.977 | -5.4 | 120 | 0.00 | 11.27 |
| 22 | P | Benzo[a]anthracene | 1.206 | 1.319 | -9.4 | 123 | 0.00 | 12.60 |
| 23 | P | Chrysene | 1.206 | 1.277 | -5.9 | 121 | 0.00 | 12.66 |

# Continuing Calibration Summary

**Job Number:** FA23938 **Sample:** SR2322-ECC2318
**Account:** TETRPAPT Tetra Tech NUS **Lab FileID:** R448869.D
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 24 | I | Perylene-d12 | 1.000 | 1.000 | 0.0 | 126 | 0.00 | 15.10 |
| 25 | P | Benzo[b]fluoranthene | 1.547 | 1.703 | -10.1 | 123 | 0.00 | 14.45 |
| 26 | P | Benzo[k]fluoranthene | 1.573 | 1.694 | -7.7 | 123 | 0.00 | 14.50 |
| 27 | P | Benzo[a]pyrene | 1.324 | 1.458 | -10.1 | 122 | 0.00 | 15.01 |
| 28 | P | Indeno[1,2,3-cd]pyrene | 1.158 | 1.172 | -1.2 | 112 | 0.00 | 16.62 |
| 29 | P | Dibenz[a,h]anthracene | 1.238 | 1.223 | 1.2 | 111 | 0.00 | 16.66 |
| 30 | P | Benzo[g,h,i]perylene | 1.393 | 1.346 | 3.4 | 110 | 0.00 | 16.96 |

(#) = Out of Range SPCC's out = 0 CCC's out = 0
R448796.D SIM_LVR.M Fri May 01 13:39:19 2015

# Initial Calibration Summary



**Job Number:** FA23938 **Sample:** SU2245-ICC2245
**Account:** TETRPAPT Tetra Tech NUS **Lab FileID:** U049027.D
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL

Response Factor Report MSBNA04

Method : C:\msdchem\2\METHODS\simpahf.m (RTE Integrator)
Title : PAH's by 8270 SIM
Last Update : Thu Jan 29 08:55:20 2015
Response via : Initial Calibration

Calibration Files
L1 =U049023.D L2 =U049024.D L3 =U049025.D L4 =U049026.D
L5 =U049027.D L6 =U049028.D L7 =U049029.D

| Compound | L1 | L2 | L3 | L4 | L5 | L6 | L7 | Avg | %RSD |
|---|---|---|---|---|---|---|---|---|---|
| 1) I Naphthalene-d8 | ----------ISTD---------- | | | | | | | | |
| 2)S Nitrobenzene-d5 | 0.319 | 0.323 | 0.318 | 0.313 | 0.311 | 0.311 | 0.314 | 0.316 | 1.46 |
| 3) 1,4-Dioxane | | | | | | | | 0.000# | -1.00 |
| 4)P Naphthalene | 1.167 | 1.140 | 1.102 | 1.068 | 1.039 | 1.028 | 0.960 | 1.072 | 6.61 |
| 5)P 2-Methylnaphthale | 0.794 | 0.781 | 0.753 | 0.719 | 0.699 | 0.689 | 0.642 | 0.726 | 7.45 |
| 6)P 1-Methylnaphthale | 0.725 | 0.706 | 0.677 | 0.648 | 0.628 | 0.621 | 0.580 | 0.655 | 7.80 |
| 7) I Acenaphthene-d10 | ----------ISTD---------- | | | | | | | | |
| 8)S 2-Fluorobiphenyl | 1.418 | 1.407 | 1.369 | 1.325 | 1.276 | 1.250 | 1.147 | 1.313 | 7.37 |
| 9)P Acenaphthylene | 2.074 | 2.087 | 2.018 | 1.951 | 1.878 | 1.838 | 1.683 | 1.933 | 7.48 |
| 10)P Acenaphthene | 1.303 | 1.291 | 1.245 | 1.200 | 1.157 | 1.135 | 1.053 | 1.198 | 7.52 |
| 11)P Dibenzofuran | | | | | | | 0.005 | 0.005# | 0.00 |
| 12)P Fluorene | 1.426 | 1.418 | 1.371 | 1.325 | 1.290 | 1.261 | 1.188 | 1.325 | 6.54 |
| 13) I Phenanthrene-d10 | ----------ISTD---------- | | | | | | | | |
| 14)S 2,4,6-Tribromophe | 0.110 | 0.107 | 0.104 | 0.108 | 0.107 | 0.108 | 0.109 | 0.108 | 1.65 |
| 15)P Pentachlorophenol | | | | | | | | 0.000# | -1.00 |
| 16)P Phenanthrene | 1.274 | 1.240 | 1.197 | 1.155 | 1.117 | 1.111 | 1.048 | 1.163 | 6.79 |
| 17)P Anthracene | 1.307 | 1.285 | 1.252 | 1.222 | 1.198 | 1.197 | 1.164 | 1.232 | 4.18 |
| 18)P Carbazole | | | | | | | | 0.000# | -1.00 |
| 19)P Fluoranthene | 1.888 | 1.881 | 1.831 | 1.781 | 1.730 | 1.725 | 1.671 | 1.787 | 4.66 |
| 20) I Chrysene-d12 | ----------ISTD---------- | | | | | | | | |
| 21)P Pyrene | 1.566 | 1.551 | 1.506 | 1.450 | 1.418 | 1.416 | 1.368 | 1.468 | 5.08 |
| 22)S Terphenyl-d14 | 0.861 | 0.855 | 0.828 | 0.806 | 0.790 | 0.794 | 0.776 | 0.816 | 4.05 |
| 23)P Benzo[a]anthracen | 1.259 | 1.230 | 1.203 | 1.188 | 1.174 | 1.176 | 1.178 | 1.201 | 2.69 |
| 24)P Chrysene | 1.162 | 1.161 | 1.127 | 1.110 | 1.093 | 1.094 | 1.092 | 1.120 | 2.78 |
| 25) I Perylene-d12 | ----------ISTD---------- | | | | | | | | |
| 26)P Benzo[b]fluoranth | 1.195 | 1.247 | 1.235 | 1.219 | 1.209 | 1.235 | 1.244 | 1.226 | 1.56 |
| 27)P Benzo[k]fluoranth | 1.315 | 1.308 | 1.284 | 1.290 | 1.249 | 1.258 | 1.234 | 1.277 | 2.40 |
| 28)P Benzo[a]pyrene | 1.177 | 1.203 | 1.196 | 1.195 | 1.186 | 1.206 | 1.214 | 1.197 | 1.04 |
| 29)P Indeno[1,2,3-cd]p | 0.654 | 0.700 | 0.711 | 0.732 | 0.747 | 0.770 | 0.838 | 0.736 | 7.92 |
| 30)P Dibenz[a,h]anthra | 0.624 | 0.773 | 0.782 | 0.789 | 0.790 | 0.799 | 0.817 | 0.768 | 8.46 |
| 31)P Benzo[g,h,i]peryl | 0.841 | 0.864 | 0.854 | 0.843 | 0.836 | 0.840 | 0.851 | 0.847 | 1.12 |

(#) = Out of Range

simpahf.m Thu Jan 29 09:04:31 2015

# Initial Calibration Verification



**Job Number:** FA23938
**Account:** TETRPAPT Tetra Tech NUS
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL

**Sample:** SU2245-ICV2245
**Lab FileID:** U049030.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\2\DATA\SU2245\U049030.D  Vial: 9
Acq On : 28 Jan 2015 9:26 pm  Operator: nareshj
Sample : icv2245-4  Inst : MSBNA04
Misc : op54674,su2245,30.0,,,1,1,soil  Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\msdchem\2\METHODS\simpahf.m (RTE Integrator)
Title : PAH's by 8270 SIM
Last Update : Thu Jan 29 08:55:20 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 | Amount | Calc. | %Drift | Area% | Dev(min) | R.T. |
|---|---|---|---|---|---|---|---|---|
| 1 | I | Naphthalene-d8 | 4.000 | 4.000 | 0.0 | 91 | 0.00 | 4.82 |
| 2 | S | Nitrobenzene-d5 | | ----------NA---------- | | | | |
| 3 | | 1,4-Dioxane | | ----------NA---------- | | | | |
| 4 | P | Naphthalene | 10.000 | 9.122 | 8.8 | 83 | 0.00 | 4.83 |
| 5 | P | 2-Methylnaphthalene | 10.000 | 8.661 | 13.4 | 79 | 0.00 | 5.38 |
| 6 | P | 1-Methylnaphthalene | 10.000 | 9.369 | 6.3 | 86 | 0.00 | 5.47 |
| 7 | I | Acenaphthene-d10 | 4.000 | 4.000 | 0.0 | 90 | 0.00 | 6.24 |
| 8 | S | 2-Fluorobiphenyl | | ----------NA---------- | | | | |
| 9 | P | Acenaphthylene | 10.000 | 9.117 | 8.8 | 81 | 0.00 | 6.11 |
| 10 | P | Acenaphthene | 10.000 | 9.280 | 7.2 | 83 | 0.00 | 6.26 |
| 11 | P | Dibenzofuran | | ----------NA---------- | | | | |
| 12 | P | Fluorene | 10.000 | 9.174 | 8.3 | 83 | 0.00 | 6.69 |
| 13 | I | Phenanthrene-d10 | 4.000 | 4.000 | 0.0 | 89 | 0.00 | 7.61 |
| 14 | S | 2,4,6-Tribromophenol | | ----------NA---------- | | | | |
| 15 | P | Pentachlorophenol | | ----------NA---------- | | | | |
| 16 | P | Phenanthrene | 10.000 | 9.234 | 7.7 | 83 | 0.00 | 7.64 |
| 17 | P | Anthracene | 5.000 | 4.370 | 12.6 | 78 | 0.00 | 7.68 |
| 18 | P | Carbazole | | ----------NA---------- | | | | |
| 19 | P | Fluoranthene | 10.000 | 8.795 | 12.1 | 78 | 0.00 | 9.16 |
| 20 | I | Chrysene-d12 | 4.000 | 4.000 | 0.0 | 86 | -0.01 | 11.56 |
| 21 | P | Pyrene | 10.000 | 8.921 | 10.8 | 78 | -0.01 | 9.50 |
| 22 | S | Terphenyl-d14 | | ----------NA---------- | | | | |
| 23 | P | Benzo[a]anthracene | 5.000 | 4.406 | 11.9 | 77 | -0.01 | 11.54 |
| 24 | P | Chrysene | 5.000 | 4.598 | 8.0 | 80 | -0.01 | 11.61 |
| 25 | I | Perylene-d12 | 4.000 | 4.000 | 0.0 | 85 | 0.00 | 14.00 |
| 26 | P | Benzo[b]fluoranthene | 5.000 | 4.600 | 8.0 | 78 | 0.00 | 13.41 |
| 27 | P | Benzo[k]fluoranthene | 5.000 | 4.605 | 7.9 | 77 | 0.00 | 13.45 |
| 28 | P | Benzo[a]pyrene | 5.000 | 4.374 | 12.5 | 74 | 0.00 | 13.91 |
| 29 | P | Indeno[1,2,3-cd]pyrene | 5.000 | 4.447 | 11.1 | 76 | -0.01 | 15.52 |
| 30 | P | Dibenz[a,h]anthracene | 5.000 | 4.553 | 8.9 | 75 | -0.01 | 15.56 |
| 31 | P | Benzo[g,h,i]perylene | 5.000 | 4.510 | 9.8 | 77 | -0.01 | 15.88 |

(#) = Out of Range  SPCC's out = 0  CCC's out = 0
U049026.D simpahf.m  Thu Jan 29 08:59:36 2015

# Continuing Calibration Summary



**Job Number:** FA23938 **Sample:** SU2315-CC2245
**Account:** TETRPAPT Tetra Tech NUS **Lab FileID:** U050687.D
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\2\DATA\SU2315\U050687.D          Vial: 2
Acq On    : 12 May 2015  12:28 pm                   Operator: nareshj
Sample    : cc2245-4                                Inst    : MSBNA04
Misc      : op55912,su2315,1000,,,1,1,water         Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\msdchem\2\METHODS\simpahf.m (RTE Integrator)
Title        : PAH's by 8270 SIM
Last Update  : Tue May 12 13:27:24 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 | Naphthalene-d8 | 1.000 | 1.000 | 0.0 | 85 | 0.00 | 3.95 |
| 2 | S | Nitrobenzene-d5 | 0.316 | 0.364 | -15.2 | 99 | 0.00 | 3.43 |
| 3 | | 1,4-Dioxane | | ----------NA---------- | | | | |
| 4 | P | Naphthalene | 1.072 | 1.078 | -0.6 | 86 | 0.00 | 3.96 |
| 5 | P | 2-Methylnaphthalene | 0.726 | 0.730 | -0.6 | 86 | 0.00 | 4.50 |
| 6 | P | 1-Methylnaphthalene | 0.655 | 0.661 | -0.9 | 87 | 0.00 | 4.59 |
| 7 | I | Acenaphthene-d10 | 1.000 | 1.000 | 0.0 | 96 | 0.00 | 5.34 |
| 8 | S | 2-Fluorobiphenyl | 1.313 | 1.264 | 3.7 | 91 | 0.00 | 4.82 |
| 9 | P | Acenaphthylene | 1.933 | 1.996 | -3.3 | 98 | 0.00 | 5.21 |
| 10 | P | Acenaphthene | 1.198 | 1.131 | 5.6 | 90 | 0.00 | 5.36 |
| 11 | P | Dibenzofuran | | ----------NA---------- | | | | |
| 12 | P | Fluorene | 1.325 | 1.301 | 1.8 | 94 | 0.00 | 5.76 |
| 13 | I | Phenanthrene-d10 | 1.000 | 1.000 | 0.0 | 110 | 0.00 | 6.52 |
| 14 | S | 2,4,6-Tribromophenol | 0.108 | 0.101 | 6.5 | 103 | 0.00 | 5.97 |
| 15 | P | Pentachlorophenol | | ----------NA---------- | | | | |
| 16 | P | Phenanthrene | 1.163 | 1.051 | 9.6 | 101 | 0.00 | 6.54 |
| 17 | P | Anthracene | 1.232 | 1.149 | 6.7 | 104 | 0.00 | 6.58 |
| 18 | P | Carbazole | | ----------NA---------- | | | | |
| 19 | P | Fluoranthene | 1.787 | 1.562 | 12.6 | 97 | 0.00 | 7.80 |
| 20 | I | Chrysene-d12 | 1.000 | 1.000 | 0.0 | 98 | 0.00 | 9.93 |
| 21 | P | Pyrene | 1.468 | 1.440 | 1.9 | 98 | 0.00 | 8.07 |
| 22 | S | Terphenyl-d14 | 0.816 | 0.922 | -13.0 | 113 | 0.00 | 8.37 |
| 23 | P | Benzo[a]anthracene | 1.201 | 1.182 | 1.6 | 98 | 0.00 | 9.90 |
| 24 | P | Chrysene | 1.120 | 1.115 | 0.4 | 99 | 0.00 | 9.97 |
| 25 | I | Perylene-d12 | 1.000 | 1.000 | 0.0 | 87 | 0.00 | 12.33 |
| 26 | P | Benzo[b]fluoranthene | 1.226 | 1.234 | -0.7 | 88 | 0.00 | 11.74 |
| 27 | P | Benzo[k]fluoranthene | 1.277 | 1.266 | 0.9 | 85 | 0.00 | 11.78 |
| 28 | P | Benzo[a]pyrene | 1.197 | 1.188 | 0.8 | 86 | 0.00 | 12.23 |
| 29 | P | Indeno[1,2,3-cd]pyrene | 0.736 | 0.757 | -2.9 | 90 | 0.00 | 13.84 |
| 30 | P | Dibenz[a,h]anthracene | 0.768 | 0.780 | -1.6 | 86 | 0.00 | 13.90 |
| 31 | P | Benzo[g,h,i]perylene | 0.847 | 0.872 | -3.0 | 90 | 0.00 | 14.15 |

(#) = Out of Range SPCC's out = 3 CCC's out = 0
U049026.D simpahf.m Wed May 13 08:54:15 2015

# Continuing Calibration Summary



**Job Number:** FA23938 **Sample:** SU2315-ECC2245
**Account:** TETRPAPT Tetra Tech NUS **Lab FileID:** U050712.D
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\2\DATA\SU2315\U050712.D          Vial: 27
Acq On    : 12 May 2015  10:04 pm                   Operator: nareshj
Sample    : ecc2245-4                               Inst    : MSBNA04
Misc      : op56056,su2315,30.0,,,1,4,soil          Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\msdchem\2\METHODS\simpahf.m (RTE Integrator)
Title        : PAH's by 8270 SIM
Last Update  : Tue May 12 13:27:24 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  50%     Max. Rel. Area : 200%
```

| | | Compound | AvgRF | CCRF | %Dev | Area% | Dev(min) | R.T. |
|---|---|---|---|---|---|---|---|---|
| 1 | I | Naphthalene-d8 | 1.000 | 1.000 | 0.0 | 90 | 0.00 | 3.95 |
| 2 | S | Nitrobenzene-d5 | 0.316 | 0.357 | -13.0 | 102 | 0.00 | 3.43 |
| 3 | | 1,4-Dioxane | | ----------NA---------- | | | | |
| 4 | P | Naphthalene | 1.072 | 1.077 | -0.5 | 91 | 0.00 | 3.96 |
| 5 | P | 2-Methylnaphthalene | 0.726 | 0.724 | 0.3 | 90 | 0.00 | 4.50 |
| 6 | P | 1-Methylnaphthalene | 0.655 | 0.659 | -0.6 | 91 | 0.00 | 4.59 |
| 7 | I | Acenaphthene-d10 | 1.000 | 1.000 | 0.0 | 100 | 0.00 | 5.34 |
| 8 | S | 2-Fluorobiphenyl | 1.313 | 1.266 | 3.6 | 95 | 0.00 | 4.82 |
| 9 | P | Acenaphthylene | 1.933 | 2.009 | -3.9 | 103 | 0.00 | 5.21 |
| 10 | P | Acenaphthene | 1.198 | 1.130 | 5.7 | 94 | 0.00 | 5.36 |
| 11 | P | Dibenzofuran | | ----------NA---------- | | | | |
| 12 | P | Fluorene | 1.325 | 1.278 | 3.5 | 96 | 0.00 | 5.76 |
| 13 | I | Phenanthrene-d10 | 1.000 | 1.000 | 0.0 | 114 | 0.00 | 6.52 |
| 14 | S | 2,4,6-Tribromophenol | 0.108 | 0.106 | 1.9 | 112 | 0.00 | 5.98 |
| 15 | P | Pentachlorophenol | | ----------NA---------- | | | | |
| 16 | P | Phenanthrene | 1.163 | 1.055 | 9.3 | 104 | 0.00 | 6.54 |
| 17 | P | Anthracene | 1.232 | 1.157 | 6.1 | 107 | 0.00 | 6.58 |
| 18 | P | Carbazole | | ----------NA---------- | | | | |
| 19 | P | Fluoranthene | 1.787 | 1.608 | 10.0 | 103 | 0.00 | 7.80 |
| 20 | I | Chrysene-d12 | 1.000 | 1.000 | 0.0 | 108 | 0.00 | 9.93 |
| 21 | P | Pyrene | 1.468 | 1.398 | 4.8 | 105 | 0.00 | 8.08 |
| 22 | S | Terphenyl-d14 | 0.816 | 0.901 | -10.4 | 121 | 0.00 | 8.36 |
| 23 | P | Benzo[a]anthracene | 1.201 | 1.192 | 0.7 | 109 | 0.00 | 9.90 |
| 24 | P | Chrysene | 1.120 | 1.113 | 0.6 | 109 | 0.00 | 9.97 |
| 25 | I | Perylene-d12 | 1.000 | 1.000 | 0.0 | 90 | 0.00 | 12.33 |
| 26 | P | Benzo[b]fluoranthene | 1.226 | 1.299 | -6.0 | 96 | 0.00 | 11.74 |
| 27 | P | Benzo[k]fluoranthene | 1.277 | 1.281 | -0.3 | 89 | 0.00 | 11.78 |
| 28 | P | Benzo[a]pyrene | 1.197 | 1.201 | -0.3 | 90 | 0.00 | 12.23 |
| 29 | P | Indeno[1,2,3-cd]pyrene | 0.736 | 0.602 | 18.2 | 74 | 0.00 | 13.84 |
| 30 | P | Dibenz[a,h]anthracene | 0.768 | 0.644 | 16.1 | 73 | 0.00 | 13.89 |
| 31 | P | Benzo[g,h,i]perylene | 0.847 | 0.618 | 27.0 | 66 | 0.00 | 14.15 |

(#) = Out of Range SPCC's out = 3 CCC's out = 0
U049026.D simpahf.m Wed May 13 09:12:09 2015

Southeast ACCUTEST LABORATORIES

GC/MS Semi-volatiles

Raw Data

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\SU2315\
Data File : U050708.D
Acq On : 12 May 2015 8:34 pm
Operator : nareshj
Sample : fa23938-2,4
Misc : op56056,su2315,30.1,,,1,4,soil
ALS Vial : 23 Sample Multiplier: 1

Quant Time: May 13 08:52:21 2015
Quant Method : C:\msdchem\2\METHODS\simpahf.m
Quant Title : PAH's by 8270 SIM
QLast Update : Tue May 12 13:27:24 2015
Response via : Initial Calibration

| Internal Standards | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| 1) Naphthalene-d8 | 3.949 | 136 | 225942 | 4.00 | ppm | 0.00 |
| 7) Acenaphthene-d10 | 5.336 | 164 | 135164 | 4.00 | ppm | 0.00 |
| 13) Phenanthrene-d10 | 6.521 | 188 | 230552 | 4.00 | ppm | 0.00 |
| 20) Chrysene-d12 | 9.924 | 240 | 272681 | 4.00 | ppm | 0.00 |
| 25) Perylene-d12 | 12.326 | 264 | 222459 | 4.00 | ppm | 0.00 |

System Monitoring Compounds

| | | | | | | |
|---|---|---|---|---|---|---|
| 2) Nitrobenzene-d5 | 3.428 | 82 | 39639 | 2.22 | ppm | 0.00 |
| Spiked Amount 10.000 | Range 40 - 105 | | Recovery | = | 22.20%# | |
| 8) 2-Fluorobiphenyl | 4.815 | 172 | 91611 | 2.06 | ppm | 0.00 |
| Spiked Amount 10.000 | Range 40 - 105 | | Recovery | = | 20.60%# | |
| 14) 2,4,6-Tribromophenol | 5.972 | 330 | 27053 | 4.36 | ppm | 0.00 |
| Spiked Amount 20.000 | Range 42 - 108 | | Recovery | = | 21.80%# | |
| 22) Terphenyl-d14 | 8.359 | 244 | 146769 | 2.64 | ppm | 0.00 |
| Spiked Amount 10.000 | Range 45 - 119 | | Recovery | = | 26.40%# | |

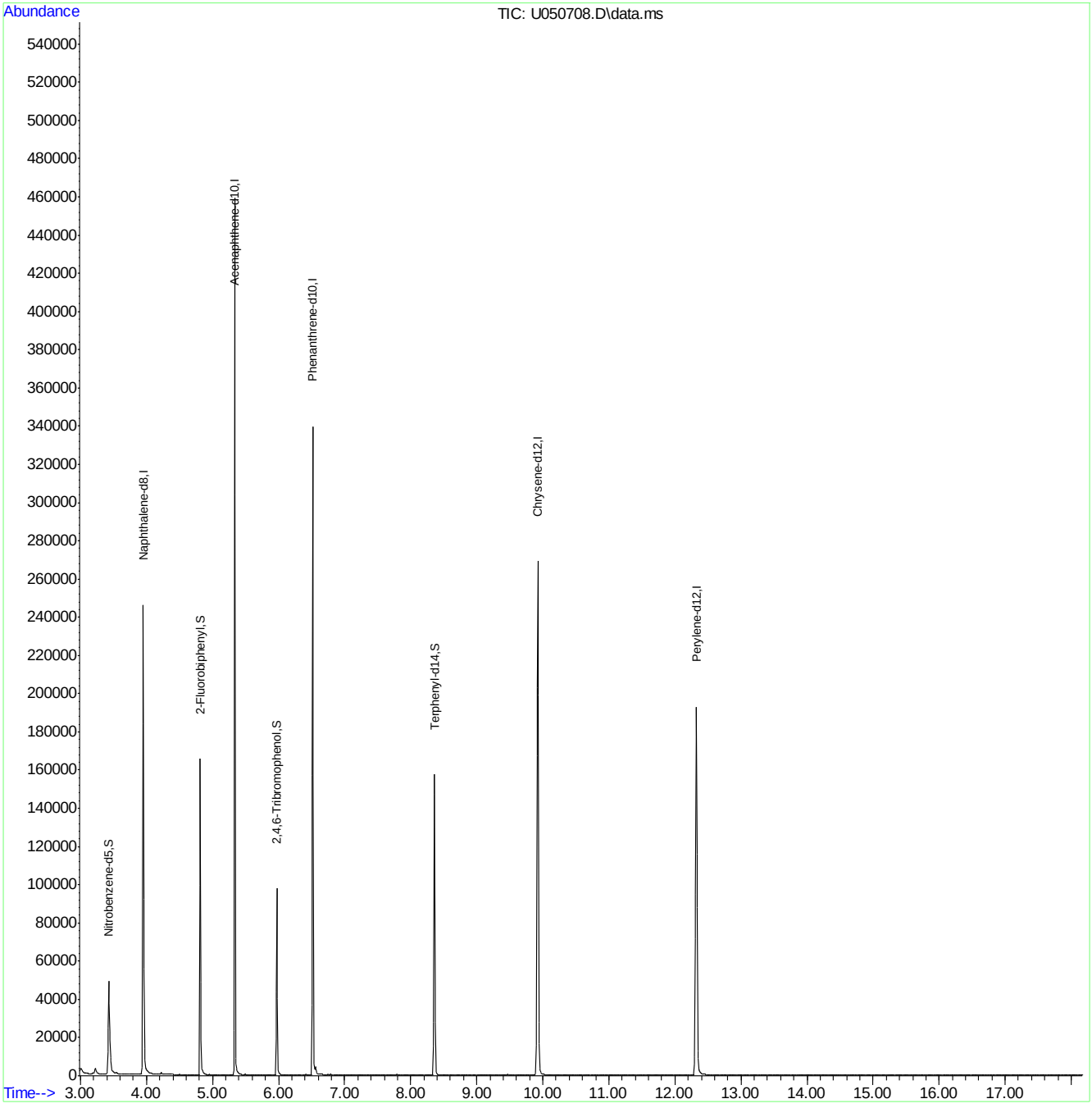
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\SU2315\
Data File : U050708.D
Acq On : 12 May 2015 8:34 pm
Operator : nareshj
Sample : fa23938-2,4
Misc : op56056,su2315,30.1,,,1,4,soil
ALS Vial : 23 Sample Multiplier: 1

Quant Time: May 13 08:52:21 2015
Quant Method : C:\msdchem\2\METHODS\simpahf.m
Quant Title : PAH's by 8270 SIM
QLast Update : Tue May 12 13:27:24 2015
Response via : Initial Calibration




simpahf.m Wed May 13 09:14:20 2015 Page: 2

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\SU2315\
Data File : U050710.D
Acq On : 12 May 2015 9:19 pm
Operator : nareshj
Sample : fa23938-4,4
Misc : op56056,su2315,30.4,,,1,4,soil
ALS Vial : 25 Sample Multiplier: 1

Quant Time: May 13 08:52:23 2015
Quant Method : C:\msdchem\2\METHODS\simpahf.m
Quant Title : PAH's by 8270 SIM
QLast Update : Tue May 12 13:27:24 2015
Response via : Initial Calibration

| Internal Standards | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| 1) Naphthalene-d8 | 3.949 | 136 | 245612 | 4.00 | ppm | 0.00 |
| 7) Acenaphthene-d10 | 5.336 | 164 | 145651 | 4.00 | ppm | 0.00 |
| 13) Phenanthrene-d10 | 6.521 | 188 | 244078 | 4.00 | ppm | 0.00 |
| 20) Chrysene-d12 | 9.927 | 240 | 283093 | 4.00 | ppm | 0.00 |
| 25) Perylene-d12 | 12.326 | 264 | 229873 | 4.00 | ppm | 0.00 |

System Monitoring Compounds

| | | | | | | |
|---|---|---|---|---|---|---|
| 2) Nitrobenzene-d5 | 3.428 | 82 | 39605 | 2.04 | ppm | 0.00 |
| Spiked Amount 10.000 | Range 40 - 105 | | Recovery | = | 20.40%# | |
| 8) 2-Fluorobiphenyl | 4.815 | 172 | 89891 | 1.88 | ppm | 0.00 |
| Spiked Amount 10.000 | Range 40 - 105 | | Recovery | = | 18.80%# | |
| 14) 2,4,6-Tribromophenol | 5.972 | 330 | 26273 | 4.00 | ppm | 0.00 |
| Spiked Amount 20.000 | Range 42 - 108 | | Recovery | = | 20.00%# | |
| 22) Terphenyl-d14 | 8.359 | 244 | 136337 | 2.36 | ppm | 0.00 |
| Spiked Amount 10.000 | Range 45 - 119 | | Recovery | = | 23.60%# | |

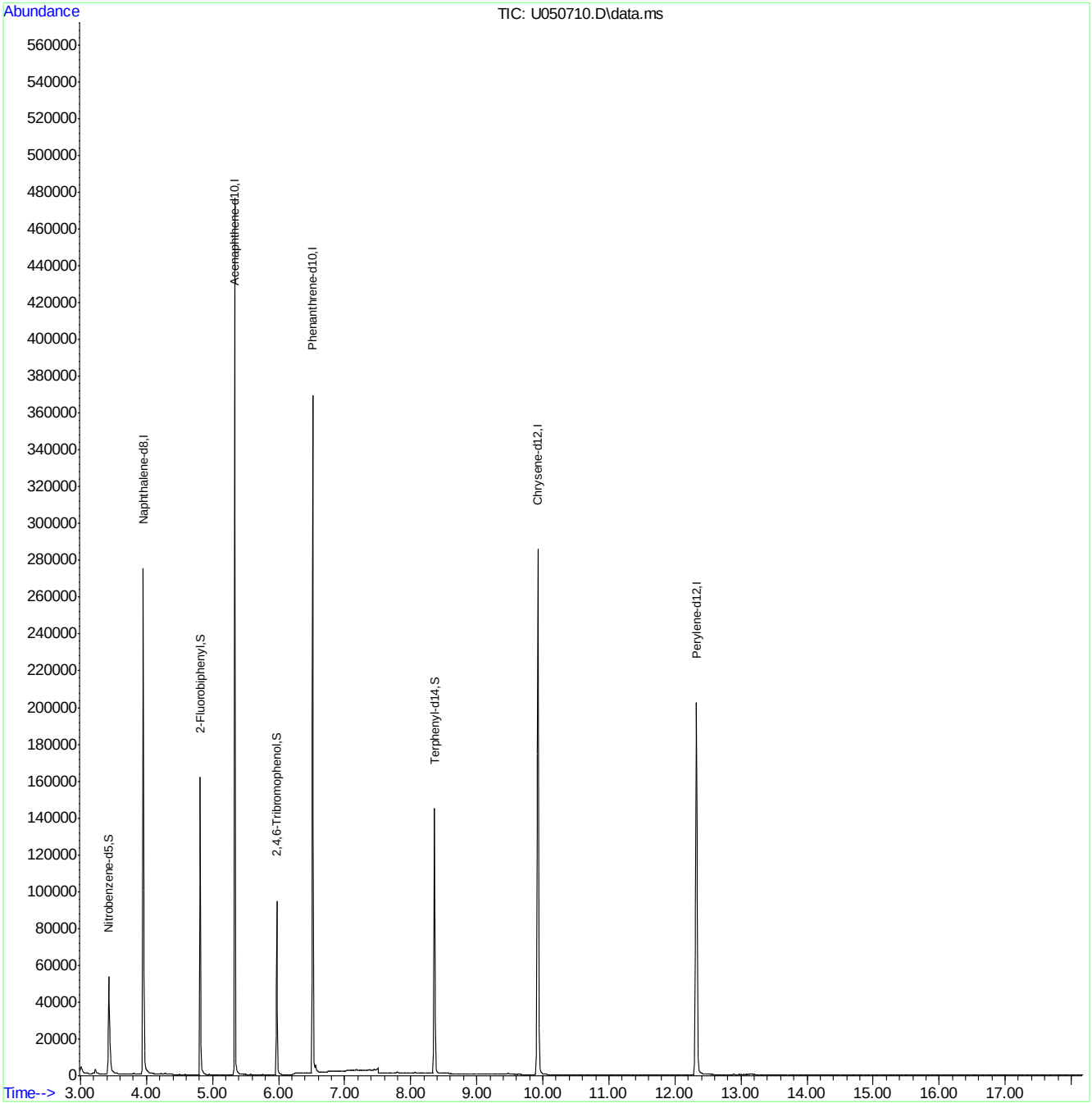
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\SU2315\
Data File : U050710.D
Acq On : 12 May 2015 9:19 pm
Operator : nareshj
Sample : fa23938-4,4
Misc : op56056,su2315,30.4,,,1,4,soil
ALS Vial : 25 Sample Multiplier: 1

Quant Time: May 13 08:52:23 2015
Quant Method : C:\msdchem\2\METHODS\simpahf.m
Quant Title : PAH's by 8270 SIM
QLast Update : Tue May 12 13:27:24 2015
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\SU2315\
Data File : U050711.D
Acq On : 12 May 2015 9:42 pm
Operator : nareshj
Sample : fa23938-6,4
Misc : op56056,su2315,30.1,,,1,4,soil
ALS Vial : 26 Sample Multiplier: 1

Quant Time: May 13 08:52:24 2015
Quant Method : C:\msdchem\2\METHODS\simpahf.m
Quant Title : PAH's by 8270 SIM
QLast Update : Tue May 12 13:27:24 2015
Response via : Initial Calibration

| Internal Standards | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| 1) Naphthalene-d8 | 3.949 | 136 | 246338 | 4.00 | ppm | 0.00 |
| 7) Acenaphthene-d10 | 5.336 | 164 | 145501 | 4.00 | ppm | 0.00 |
| 13) Phenanthrene-d10 | 6.520 | 188 | 241755 | 4.00 | ppm | 0.00 |
| 20) Chrysene-d12 | 9.927 | 240 | 280186 | 4.00 | ppm | 0.00 |
| 25) Perylene-d12 | 12.326 | 264 | 229230 | 4.00 | ppm | 0.00 |

System Monitoring Compounds

| | | | | | | |
|---|---|---|---|---|---|---|
| 2) Nitrobenzene-d5 | 3.428 | 82 | 39973 | 2.06 | ppm | 0.00 |
| Spiked Amount 10.000 | Range 40 - 105 | | Recovery | = | 20.60%# | |
| 8) 2-Fluorobiphenyl | 4.812 | 172 | 90828 | 1.90 | ppm | 0.00 |
| Spiked Amount 10.000 | Range 40 - 105 | | Recovery | = | 19.00%# | |
| 14) 2,4,6-Tribromophenol | 5.971 | 330 | 27671 | 4.26 | ppm | 0.00 |
| Spiked Amount 20.000 | Range 42 - 108 | | Recovery | = | 21.30%# | |
| 22) Terphenyl-d14 | 8.361 | 244 | 145056 | 2.54 | ppm | 0.00 |
| Spiked Amount 10.000 | Range 45 - 119 | | Recovery | = | 25.40%# | |

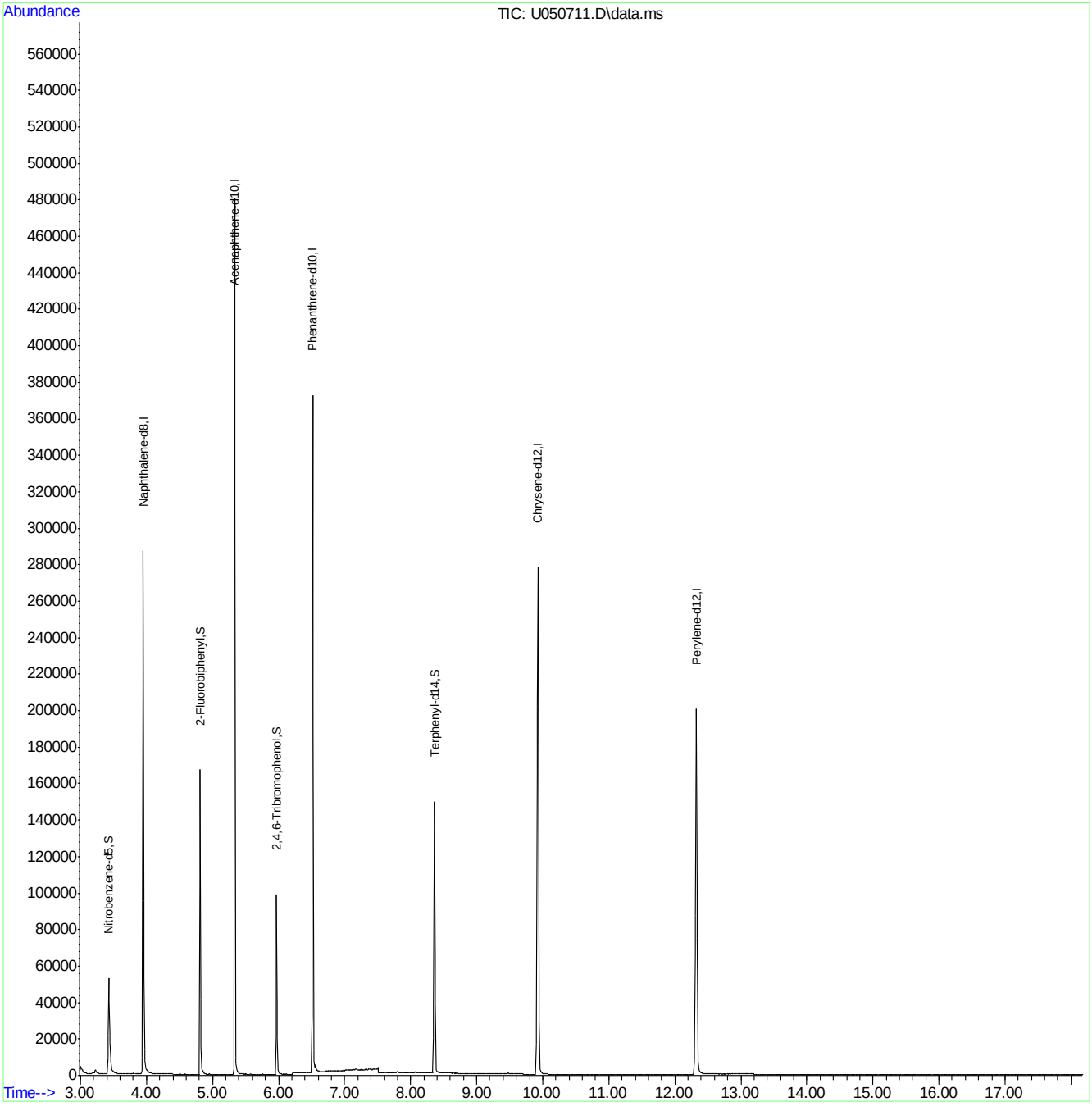
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\SU2315\
Data File : U050711.D
Acq On : 12 May 2015 9:42 pm
Operator : nareshj
Sample : fa23938-6,4
Misc : op56056,su2315,30.1,,,1,4,soil
ALS Vial : 26 Sample Multiplier: 1

Quant Time: May 13 08:52:24 2015
Quant Method : C:\msdchem\2\METHODS\simpahf.m
Quant Title : PAH's by 8270 SIM
QLast Update : Tue May 12 13:27:24 2015
Response via : Initial Calibration




simpahf.m Wed May 13 09:14:23 2015 Page: 2

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2322\
Data File : R448868.D
Acq On : 1 May 2015 12:37 pm
Operator : mayrag
Sample : fa23938-5
Misc : op55914,sr2322,240,,,1,1,water
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 01 13:38:16 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Fri May 01 13:33:52 2015
Response via : Initial Calibration

| Internal Standards | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| 1) Naphthalene-d8 | 6.913 | 136 | 138526 | 500.00 | ppb | 0.00 |
| 6) Acenaphthene-d10 | 8.468 | 164 | 74894 | 500.00 | ppb | 0.00 |
| 12) Phenanthrene-d10 | 9.770 | 188 | 117726 | 500.00 | ppb | 0.00 |
| 19) Chrysene-d12 | 12.623 | 240 | 57146 | 500.00 | ppb | 0.00 |
| 24) Perylene-d12 | 15.101 | 264 | 31814 | 500.00 | ppb | 0.00 |

System Monitoring Compounds

| | | | | | | |
|---|---|---|---|---|---|---|
| 2) Nitrobenzene-d5 | 6.302 | 82 | 128010 | 1541.01 | ppb | 0.00 |
| Spiked Amount 2000.000 | Range 41 - 129 | | Recovery = 77.05% | | | |
| 7) 2-Fluorobiphenyl | 7.876 | 172 | 299638 | 1586.94 | ppb | 0.00 |
| Spiked Amount 2000.000 | Range 41 - 118 | | Recovery = 79.35% | | | |
| 13) 2,4,6-Tribromophenol | 9.178 | 330 | 48561 | 3166.60 | ppb | 0.00 |
| Spiked Amount 4000.000 | Range 33 - 118 | | Recovery = 79.16% | | | |
| 21) Terphenyl-d14 | 11.274 | 244 | 204437 | 1929.23 | ppb | 0.00 |
| Spiked Amount 2000.000 | Range 45 - 145 | | Recovery = 96.46% | | | |

| Target Compounds | | | | | | Qvalue |
|---|---|---|---|---|---|---|
| 3) Naphthalene | 6.929 | 128 | 22866 | 78.16 | ppb | 96 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

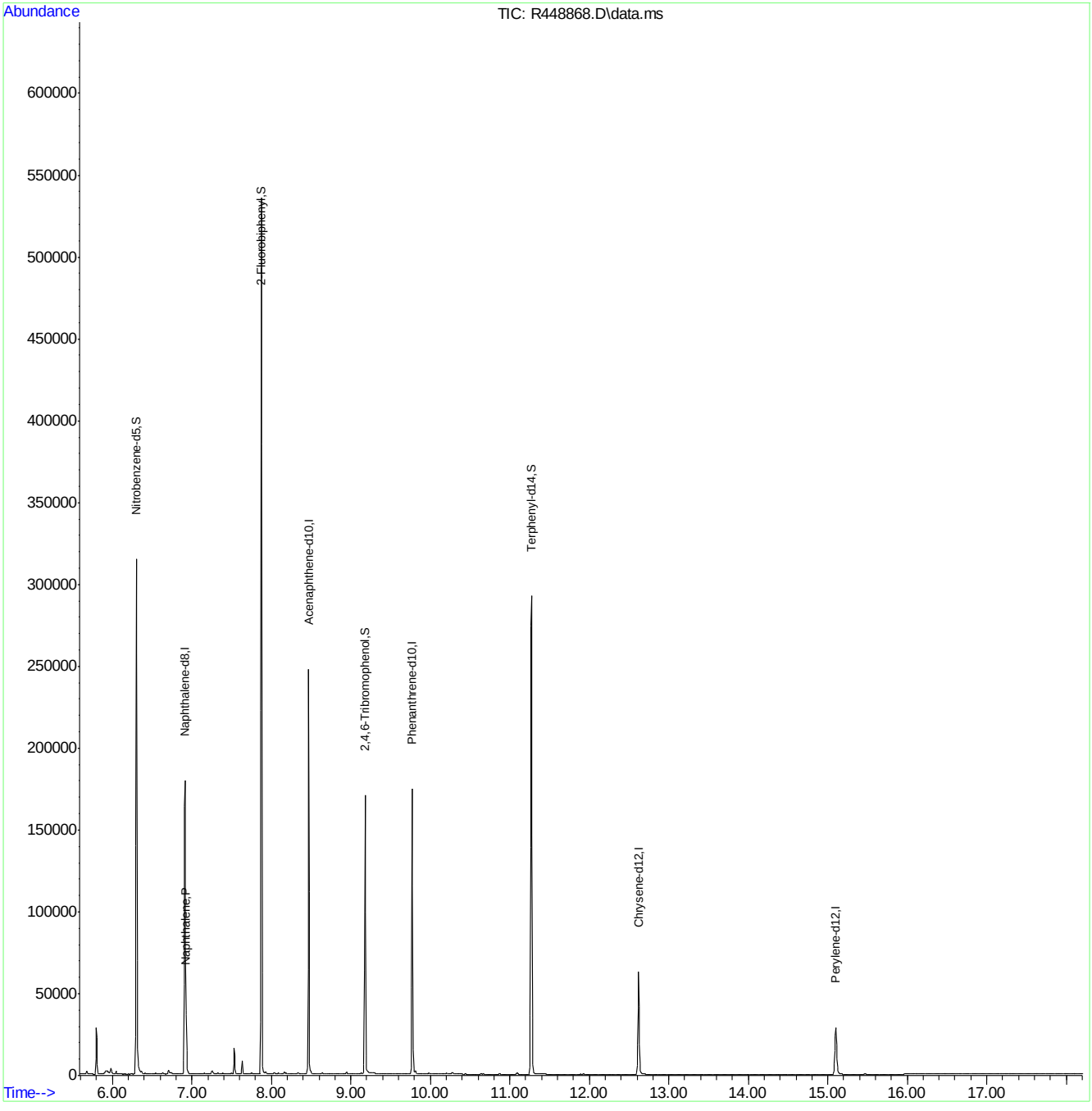
7.1.4

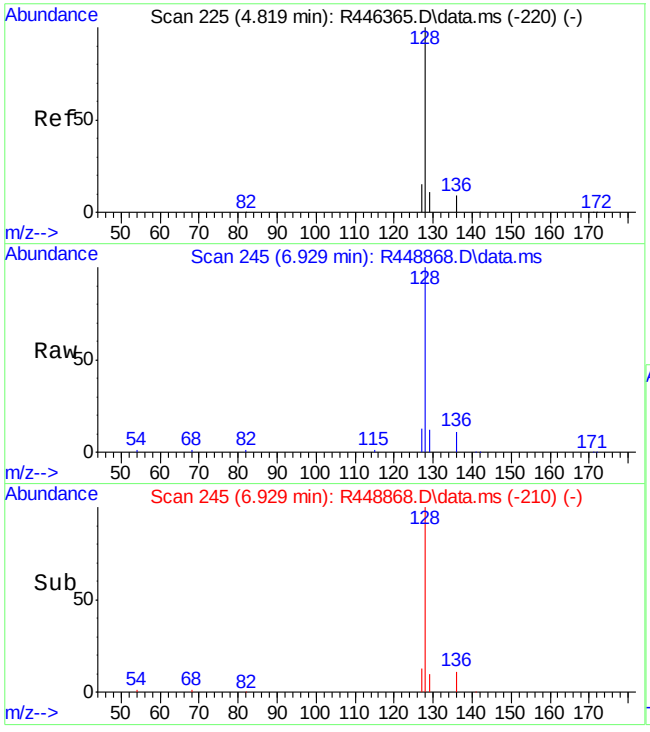
7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2322\
Data File : R448868.D
Acq On : 1 May 2015 12:37 pm
Operator : mayrag
Sample : fa23938-5
Misc : op55914,sr2322,240,,,1,1,water
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 01 13:38:16 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Fri May 01 13:33:52 2015
Response via : Initial Calibration

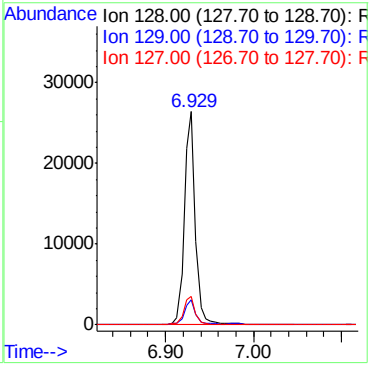





#3
Naphthalene
Concen: 78.16 ppb
RT: 6.929 min Scan# 245
Delta R.T. -0.005 min
Lab File: R448868.D
Acq: 1 May 2015 12:37 pm

Tgt Ion:128 Resp: 22866

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 128 | 100 | | |
| 129 | 11.5 | 0.0 | 40.8 |
| 127 | 12.8 | 0.0 | 45.0 |



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\SU2315\
Data File : U050689.D
Acq On : 12 May 2015 1:21 pm
Operator : nareshj
Sample : op56056-mb
Misc : op56056,su2315,30.0,,,1,1,soil
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 13 08:51:56 2015
Quant Method : C:\msdchem\2\METHODS\simpahf.m
Quant Title : PAH's by 8270 SIM
QLast Update : Tue May 12 13:27:24 2015
Response via : Initial Calibration

| Internal Standards | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| 1) Naphthalene-d8 | 3.945 | 136 | 201850 | 4.00 | ppm | 0.00 |
| 7) Acenaphthene-d10 | 5.336 | 164 | 119169 | 4.00 | ppm | 0.00 |
| 13) Phenanthrene-d10 | 6.516 | 188 | 203172 | 4.00 | ppm | 0.00 |
| 20) Chrysene-d12 | 9.924 | 240 | 227054 | 4.00 | ppm | 0.00 |
| 25) Perylene-d12 | 12.321 | 264 | 194456 | 4.00 | ppm | 0.00 |

System Monitoring Compounds

| | | | | | | |
|---|---|---|---|---|---|---|
| 2) Nitrobenzene-d5 | 3.424 | 82 | 160756 | 10.09 | ppm | 0.00 |
| Spiked Amount 10.000 | Range 40 - 105 | | Recovery = 100.90% | | | |
| 8) 2-Fluorobiphenyl | 4.812 | 172 | 337514 | 8.63 | ppm | 0.00 |
| Spiked Amount 10.000 | Range 40 - 105 | | Recovery = 86.30% | | | |
| 14) 2,4,6-Tribromophenol | 5.974 | 330 | 102159 | 18.70 | ppm | 0.00 |
| Spiked Amount 20.000 | Range 42 - 108 | | Recovery = 93.50% | | | |
| 22) Terphenyl-d14 | 8.364 | 244 | 539981 | 11.66 | ppm | 0.00 |
| Spiked Amount 10.000 | Range 45 - 119 | | Recovery = 116.60% | | | |

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

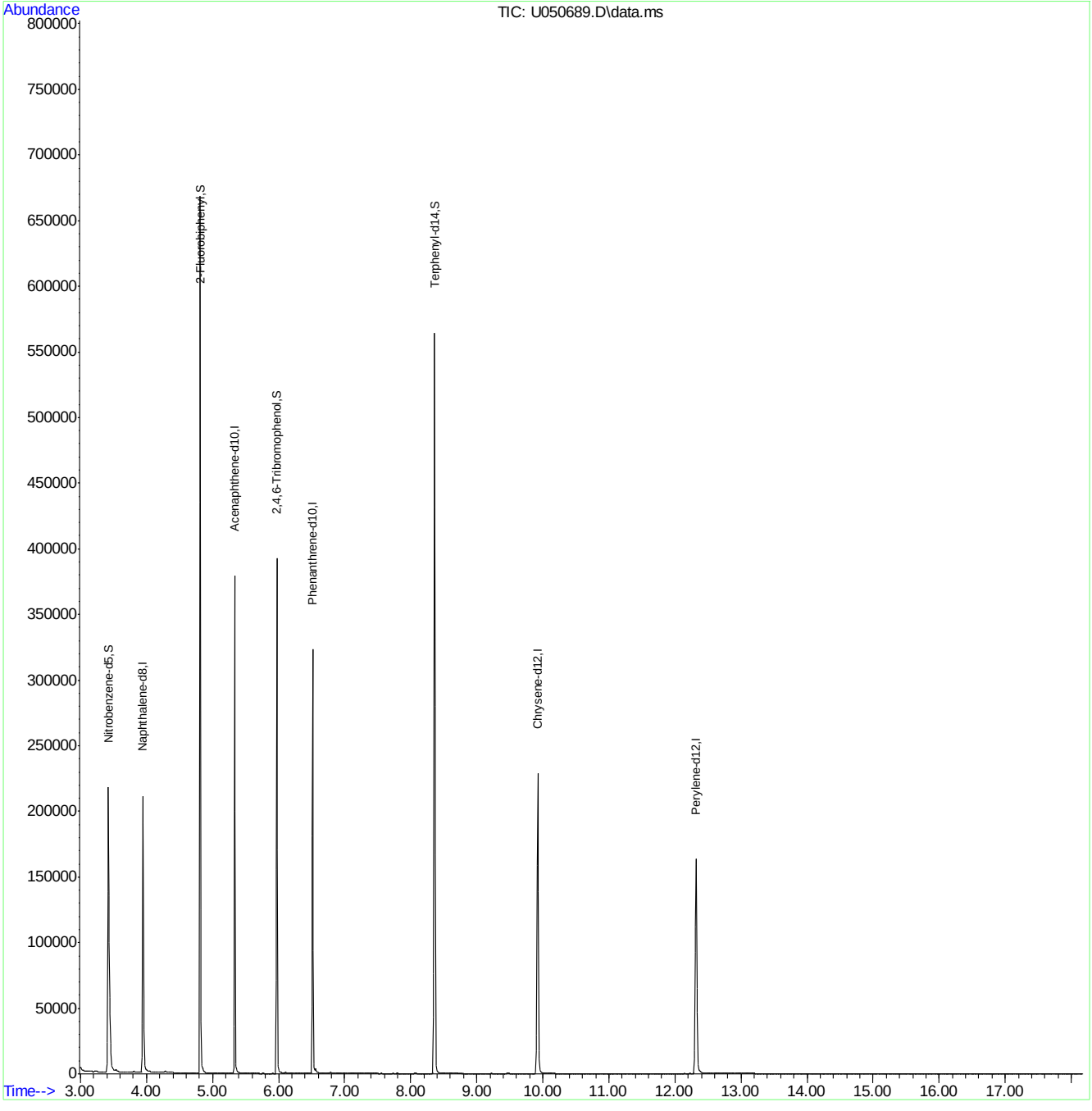
7.2.1

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\SU2315\
Data File : U050689.D
Acq On : 12 May 2015 1:21 pm
Operator : nareshj
Sample : op56056-mb
Misc : op56056,su2315,30.0,,,1,1,soil
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 13 08:51:56 2015
Quant Method : C:\msdchem\2\METHODS\simpahf.m
Quant Title : PAH's by 8270 SIM
QLast Update : Tue May 12 13:27:24 2015
Response via : Initial Calibration






ACCUTEST LABORATORIES FA23938

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2321\
Data File : R448849.D
Acq On : 30 Apr 2015 2:40 pm
Operator : mayrag
Sample : op55914-mb
Misc : op55914,sr2321,250,,,1,1,water
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 01 09:38:53 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Fri May 01 09:34:04 2015
Response via : Initial Calibration

| Internal Standards | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| 1) Naphthalene-d8 | 6.913 | 136 | 124825 | 500.00 | ppb | 0.00 |
| 6) Acenaphthene-d10 | 8.469 | 164 | 66589 | 500.00 | ppb | 0.00 |
| 12) Phenanthrene-d10 | 9.770 | 188 | 101179 | 500.00 | ppb | 0.00 |
| 19) Chrysene-d12 | 12.618 | 240 | 49103 | 500.00 | ppb | 0.00 |
| 24) Perylene-d12 | 15.101 | 264 | 26796 | 500.00 | ppb | 0.00 |

System Monitoring Compounds

| | | | | | | |
|---|---|---|---|---|---|---|
| 2) Nitrobenzene-d5 | 6.302 | 82 | 123922 | 1655.54 | ppb | 0.00 |
| Spiked Amount 2000.000 | Range 41 - 129 | | Recovery = 82.78% | | | |
| 7) 2-Fluorobiphenyl | 7.876 | 172 | 283393 | 1688.10 | ppb | 0.00 |
| Spiked Amount 2000.000 | Range 41 - 118 | | Recovery = 84.41% | | | |
| 13) 2,4,6-Tribromophenol | 9.178 | 330 | 43790 | 3322.48 | ppb | 0.00 |
| Spiked Amount 4000.000 | Range 33 - 118 | | Recovery = 83.06% | | | |
| 21) Terphenyl-d14 | 11.274 | 244 | 179020 | 1966.09 | ppb | 0.00 |
| Spiked Amount 2000.000 | Range 45 - 145 | | Recovery = 98.30% | | | |

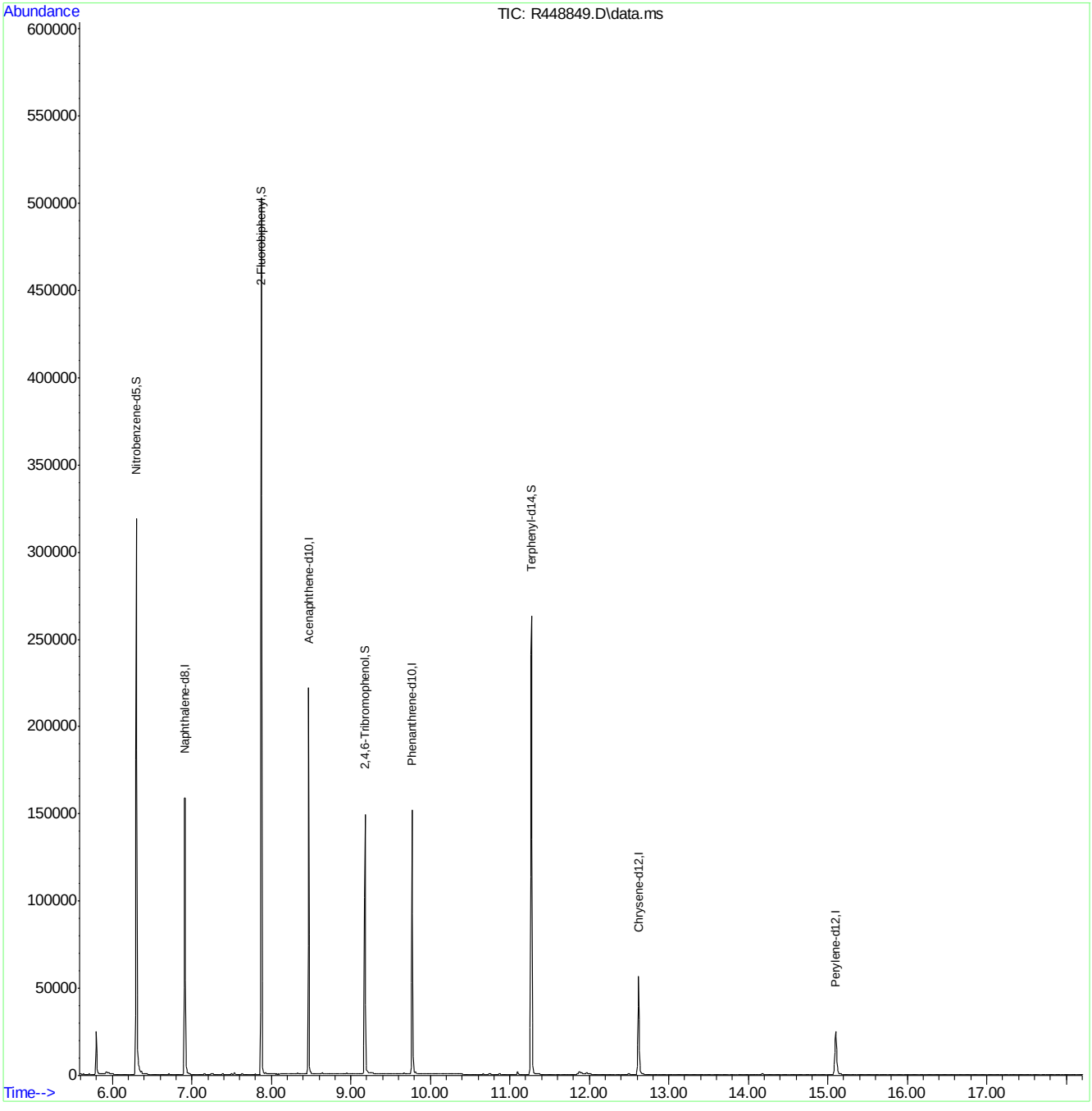
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2321\
Data File : R448849.D
Acq On : 30 Apr 2015 2:40 pm
Operator : mayrag
Sample : op55914-mb
Misc : op55914,sr2321,250,,,1,1,water
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 01 09:38:53 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Fri May 01 09:34:04 2015
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\SU2315\
Data File : U050688.D
Acq On : 12 May 2015 12:59 pm
Operator : nareshj
Sample : op56056-bs
Misc : op56056,su2315,30.0,,,1,1,soil
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 13 08:54:36 2015
Quant Method : C:\msdchem\2\METHODS\simpahf.m
Quant Title : PAH's by 8270 SIM
QLast Update : Tue May 12 13:27:24 2015
Response via : Initial Calibration

| Internal Standards | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| 1) Naphthalene-d8 | 3.949 | 136 | 214339 | 4.00 | ppm | 0.00 |
| 7) Acenaphthene-d10 | 5.340 | 164 | 127013 | 4.00 | ppm | 0.00 |
| 13) Phenanthrene-d10 | 6.525 | 188 | 220838 | 4.00 | ppm | 0.00 |
| 20) Chrysene-d12 | 9.937 | 240 | 249203 | 4.00 | ppm | 0.00 |
| 25) Perylene-d12 | 12.331 | 264 | 217587 | 4.00 | ppm | 0.00 |

System Monitoring Compounds

| | | | | | | |
|---|---|---|---|---|---|---|
| 2) Nitrobenzene-d5 | 3.428 | 82 | 165683 | 9.80 | ppm | 0.00 |
| Spiked Amount 10.000 | Range 40 - 105 | | Recovery = 98.00% | | | |
| 8) 2-Fluorobiphenyl | 4.818 | 172 | 351824 | 8.44 | ppm | 0.00 |
| Spiked Amount 10.000 | Range 40 - 105 | | Recovery = 84.40% | | | |
| 14) 2,4,6-Tribromophenol | 5.979 | 330 | 108848 | 18.33 | ppm | 0.00 |
| Spiked Amount 20.000 | Range 42 - 108 | | Recovery = 91.65% | | | |
| 22) Terphenyl-d14 | 8.371 | 244 | 560658 | 11.03 | ppm | 0.00 |
| Spiked Amount 10.000 | Range 45 - 119 | | Recovery = 110.30% | | | |

Target Compounds

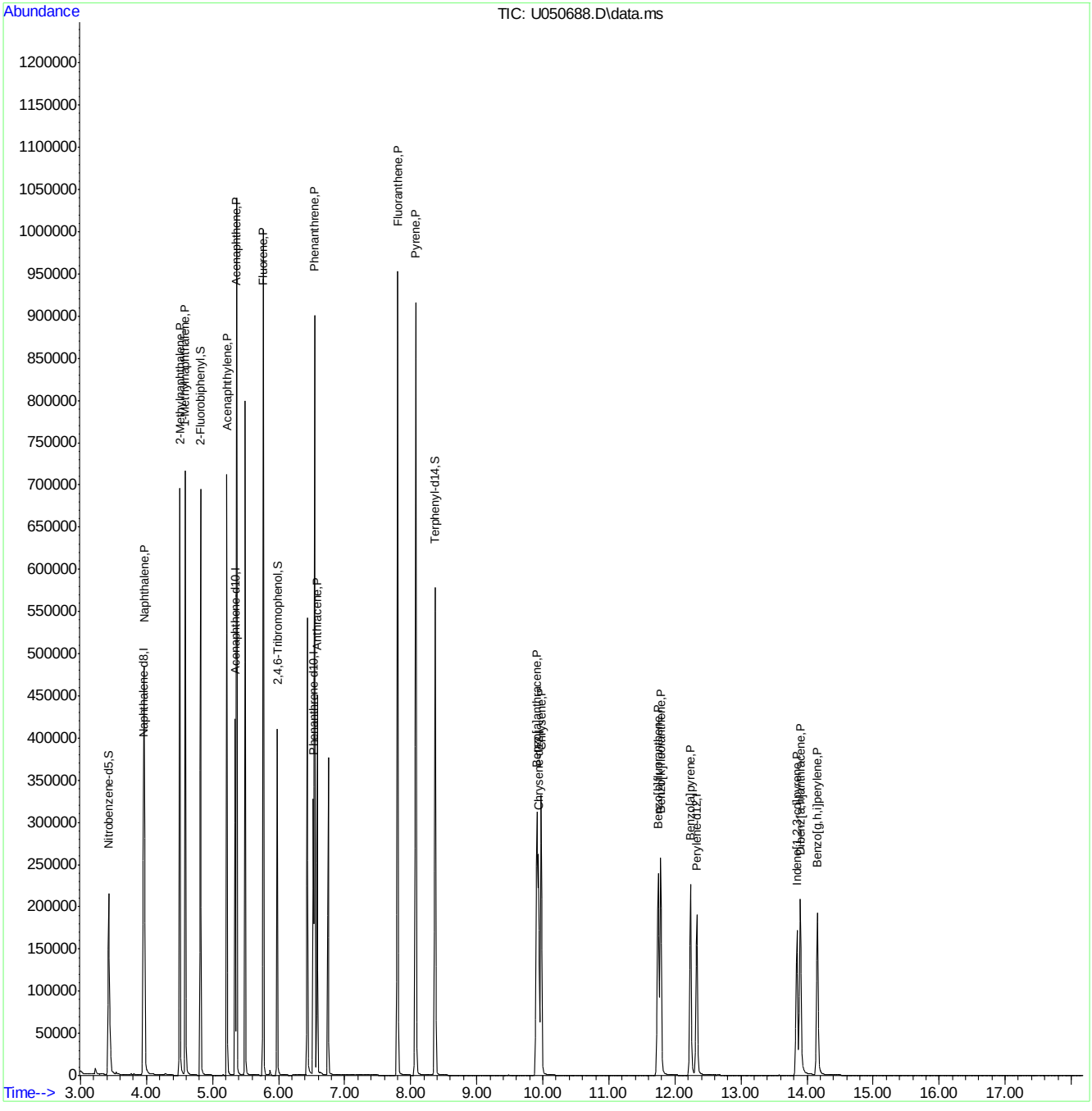
| | | | | | | Qvalue |
|---|---|---|---|---|---|---|
| 4) Naphthalene | 3.964 | 128 | 392576 | 6.84 | ppm | 99 |
| 5) 2-Methylnaphthalene | 4.505 | 142 | 272348 | 7.01 | ppm | 98 |
| 6) 1-Methylnaphthalene | 4.589 | 142 | 271553 | 7.74 | ppm | 98 |
| 9) Acenaphthylene | 5.216 | 152 | 518469 | 8.45 | ppm | 73 |
| 10) Acenaphthene | 5.363 | 153 | 292831 | 7.70 | ppm | 97 |
| 12) Fluorene | 5.768 | 166 | 349538 | 8.31 | ppm | 98 |
| 16) Phenanthrene | 6.548 | 178 | 514183 | 8.01 | ppm | 99 |
| 17) Anthracene | 6.584 | 178 | 263000 | 3.87 | ppm | 99 |
| 19) Fluoranthene | 7.802 | 202 | 761268 | 7.72 | ppm | 100 |
| 21) Pyrene | 8.078 | 202 | 778190 | 8.51 | ppm | 96 |
| 23) Benzo[a]anthracene | 9.910 | 228 | 323281 | 4.32 | ppm | 100 |
| 24) Chrysene | 9.975 | 228 | 316802 | 4.54 | ppm | 99 |
| 26) Benzo[b]fluoranthene | 11.747 | 252 | 302386 | 4.53 | ppm | 100 |
| 27) Benzo[k]fluoranthene | 11.786 | 252 | 303044 | 4.36 | ppm | 100 |
| 28) Benzo[a]pyrene | 12.236 | 252 | 273061 | 4.19 | ppm | 100 |
| 29) Indeno[1,2,3-cd]pyrene | 13.848 | 276 | 183830 | 4.59 | ppm | 99 |
| 30) Dibenz[a,h]anthracene | 13.898 | 278 | 184032 | 4.41 | ppm | 99 |
| 31) Benzo[g,h,i]perylene | 14.160 | 276 | 209943 | 4.56 | ppm | 99 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\SU2315\
Data File : U050688.D
Acq On : 12 May 2015 12:59 pm
Operator : nareshj
Sample : op56056-bs
Misc : op56056,su2315,30.0,,,1,1,soil
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 13 08:54:36 2015
Quant Method : C:\msdchem\2\METHODS\simpahf.m
Quant Title : PAH's by 8270 SIM
QLast Update : Tue May 12 13:27:24 2015
Response via : Initial Calibration



Manual Integrations APPROVED (compounds with "m" flag)
Mark Erstling
05/01/15 11:18

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2321\
Data File : R448848.D
Acq On : 30 Apr 2015 2:13 pm
Operator : mayrag
Sample : op55914-bs
Misc : op55914,sr2321,250,,,1,1,water
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 01 09:37:45 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Fri May 01 09:34:04 2015
Response via : Initial Calibration

| Internal Standards | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| 1) Naphthalene-d8 | 6.913 | 136 | 125921 | 500.00 | ppb | 0.00 |
| 6) Acenaphthene-d10 | 8.468 | 164 | 68809 | 500.00 | ppb | 0.00 |
| 12) Phenanthrene-d10 | 9.777 | 188 | 110041 | 500.00 | ppb | 0.00 |
| 19) Chrysene-d12 | 12.623 | 240 | 59474 | 500.00 | ppb | 0.00 |
| 24) Perylene-d12 | 15.107 | 264 | 32385 | 500.00 | ppb | 0.00 |

System Monitoring Compounds

| | | | | | | |
|---|---|---|---|---|---|---|
| 2) Nitrobenzene-d5 | 6.302 | 82 | 131648 | 1743.44 | ppb | 0.00 |
| Spiked Amount 2000.000 | Range 41 - 129 | | Recovery = 87.17% | | | |
| 7) 2-Fluorobiphenyl | 7.876 | 172 | 304345 | 1754.42 | ppb | 0.00 |
| Spiked Amount 2000.000 | Range 41 - 118 | | Recovery = 87.72% | | | |
| 13) 2,4,6-Tribromophenol | 9.177 | 330 | 49151 | 3428.90 | ppb | 0.00 |
| Spiked Amount 4000.000 | Range 33 - 118 | | Recovery = 85.72% | | | |
| 21) Terphenyl-d14 | 11.274 | 244 | 207924 | 1885.33 | ppb | 0.00 |
| Spiked Amount 2000.000 | Range 45 - 145 | | Recovery = 94.27% | | | |

Target Compounds

| | | | | | | Qvalue |
|---|---|---|---|---|---|---|
| 3) Naphthalene | 6.929 | 128 | 447965 | 1799.04 | ppb | 97 |
| 4) 2-Methylnaphthalene | 7.535 | 142 | 287044 | 1669.56 | ppb | 94 |
| 5) 1-Methylnaphthalene | 7.634 | 142 | 288189 | 1843.60 | ppb | 97 |
| 8) Acenaphthylene | 8.338 | 152 | 460479 | 1845.35 | ppb | 93 |
| 9) Acenaphthene | 8.497 | 153 | 295548 | 1916.65 | ppb | 94 |
| 10) Dibenzofuran | 8.642 | 168 | 369387 | 1800.50 | ppb | 91 |
| 11) Fluorene | 8.946 | 166 | 315310 | 1932.21 | ppb | 97 |
| 14) Pentachlorophenol | 9.668 | 266 | 79503 | 3675.93 | ppb | 94 |
| 15) Phenanthrene | 9.797 | 178 | 437839 | 1935.50 | ppb | 99 |
| 16) Anthracene | 9.831 | 178 | 221828 | 936.40 | ppb | 99 |
| 17) Carbazole | 9.981 | 167 | 202301 | 1019.34 | ppb | 97 |
| 18) Fluoranthene | 10.872 | 202 | 444092 | 2070.52 | ppb | 95 |
| 20) Pyrene | 11.098 | 202 | 454060 | 1860.91 | ppb | 95 |
| 22) Benzo[a]anthracene | 12.601 | 228 | 145468 | 1013.97 | ppb | 99 |
| 23) Chrysene | 12.662 | 228 | 146075 | 1017.92 | ppb | 99 |
| 25) Benzo[b]fluoranthene | 14.451 | 252 | 102950 | 1027.58 | ppb | 92 |
| 26) Benzo[k]fluoranthene | 14.495 | 252 | 104133 | 1022.20 | ppb | 92 |
| 27) Benzo[a]pyrene | 15.008 | 252 | 81897 | 954.97 | ppb | 92 |
| 28) Indeno[1,2,3-cd]pyrene | 16.621 | 276 | 65330m | 871.04 | ppb | |
| 29) Dibenz[a,h]anthracene | 16.660 | 278 | 68084 | 848.97 | ppb | 86 |
| 30) Benzo[g,h,i]perylene | 16.957 | 276 | 76321 | 845.72 | ppb | 85 |

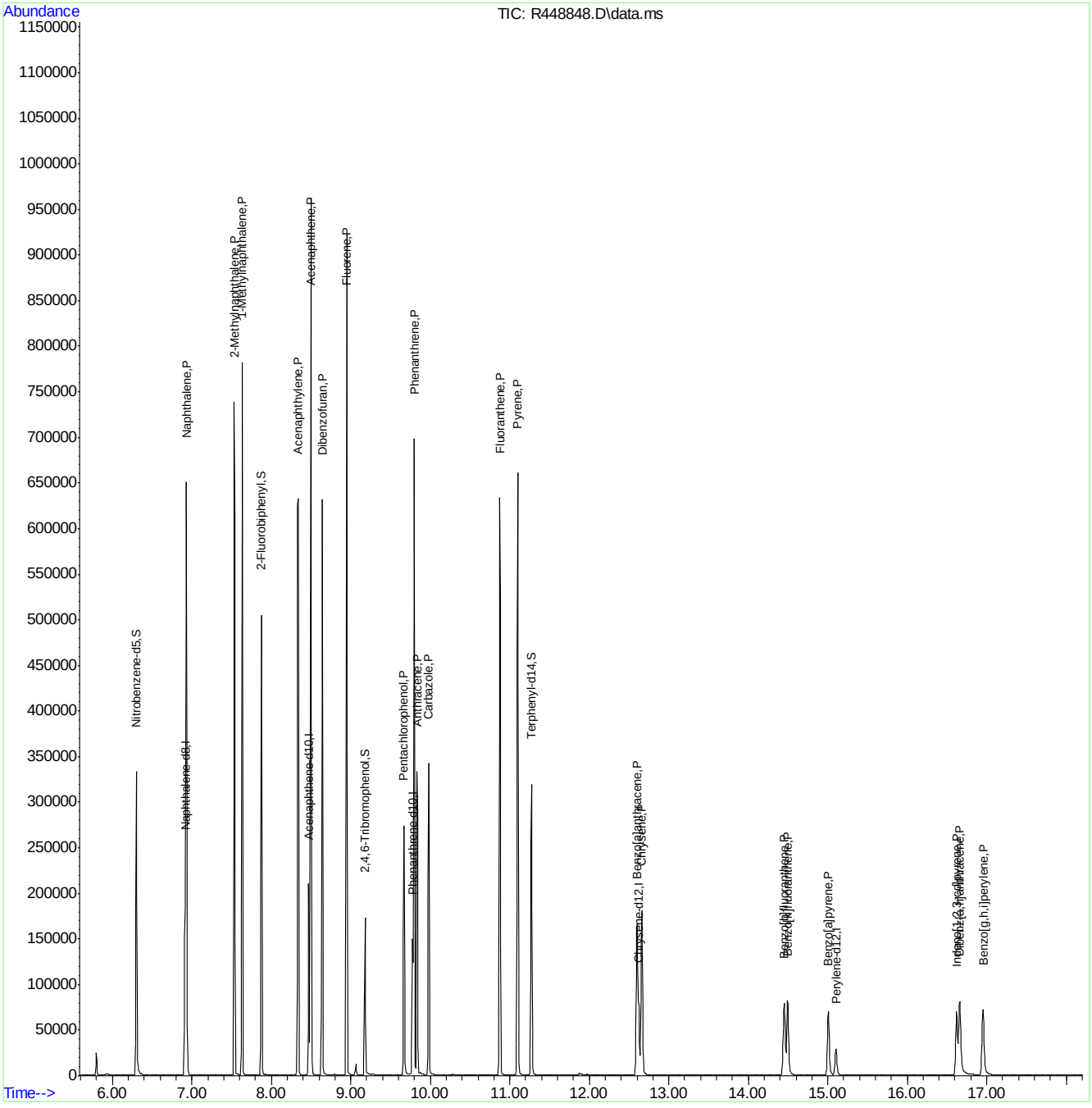
(#) = qualifier out of range (m) = manual integration (+) = signals summed

7.3.2
7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2321\
Data File : R448848.D
Acq On : 30 Apr 2015 2:13 pm
Operator : mayrag
Sample : op55914-bs
Misc : op55914,sr2321,250,,,1,1,water
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 01 09:37:45 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Fri May 01 09:34:04 2015
Response via : Initial Calibration




SIM_LVR.M Fri May 01 09:38:08 2015 Page: 2

# Manual Integration Approval Summary



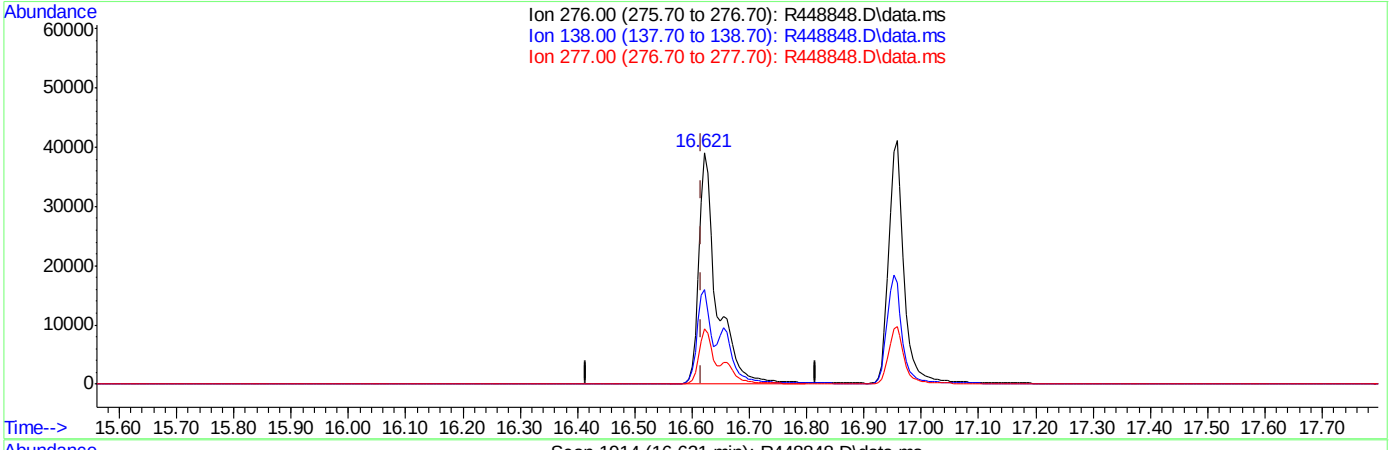
| | | | |
|---|---|---|---|
| **Sample Number:** | OP55914-BS | **Method:** | SW846 8270D BY SIM |
| **Lab FileID:** | R448848.D | **Analyst approved:** | 05/01/15 09:53 Mayra Gonzalez |
| **Injection Time:** | 04/30/15 14:13 | **Supervisor approved:** | 05/01/15 11:18 Mark Erstling |

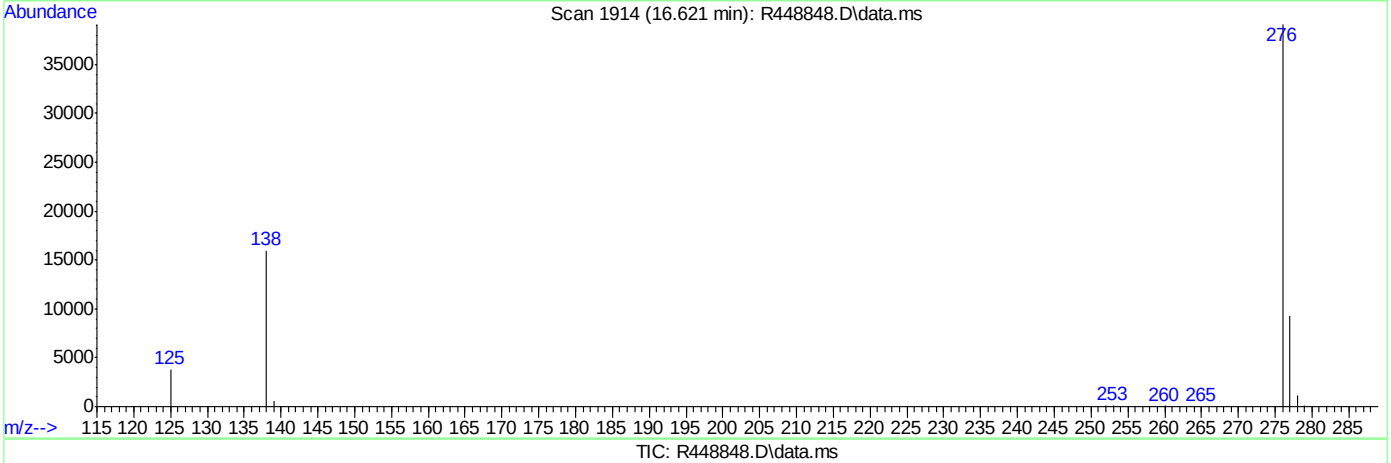
| Parameter | CAS | Sig# | R.T. (min.) | Reason |
|---|---|---|---|---|
| Indeno(1,2,3-cd)pyrene | 193-39-5 | | 16.62 | Overlapping peak |

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\SR2321\
Data File : R448848.D
Acq On    : 30 Apr 2015   2:13 pm
Operator  : mayrag
Sample    : op55914-bs
Misc      : op55914,sr2321,250,,,1,1,water
ALS Vial  : 3   Sample Multiplier: 1

Quant Time: May 01 09:34:35 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title  : PAH's by 8270D SIM Large Volume Inj
QLast Update : Fri May 01 09:34:04 2015
Response via : Initial Calibration
```




TIC: R448848.D\data.ms

(28) Indeno[1,2,3-cd]pyrene (P)

16.621min (+0.005) 1138.04ppb

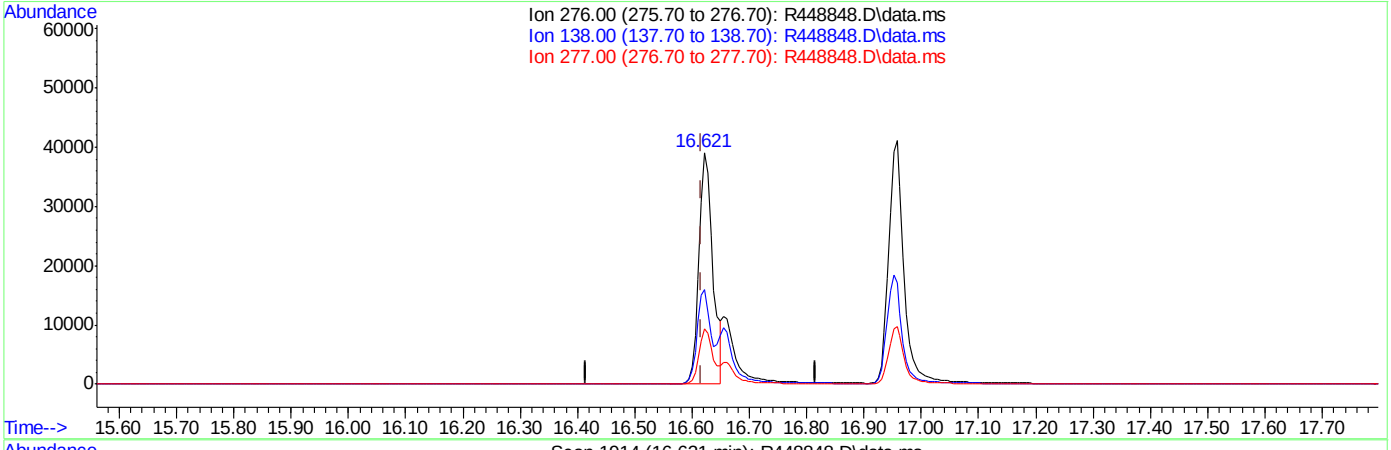
response 85355

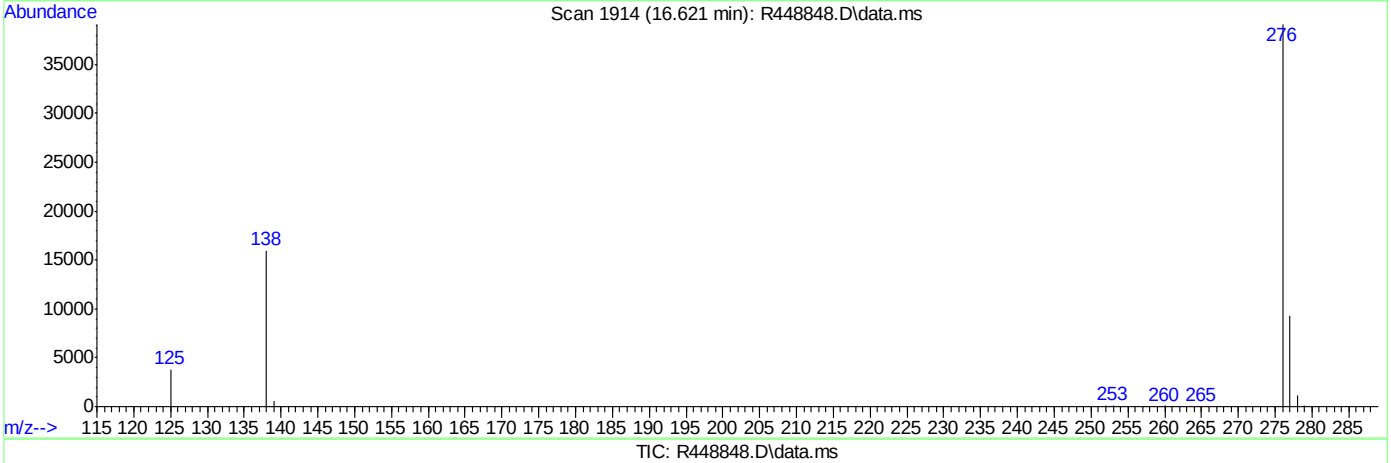
| Ion | Exp% | Act% |
|---|---|---|
| 276.00 | 100 | 100 |
| 138.00 | 21.80 | 40.62 |
| 277.00 | 23.50 | 23.78 |
| 0.00 | 0.00 | 0.00 |

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\SR2321\
Data File : R448848.D
Acq On    : 30 Apr 2015   2:13 pm
Operator  : mayrag
Sample    : op55914-bs
Misc      : op55914,sr2321,250,,,1,1,water
ALS Vial  : 3   Sample Multiplier: 1

Quant Time: May 01 09:34:35 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title  : PAH's by 8270D SIM Large Volume Inj
QLast Update : Fri May 01 09:34:04 2015
Response via : Initial Calibration
```




TIC: R448848.D\data.ms

(28) Indeno[1,2,3-cd]pyrene (P)

16.621min (+0.005) 871.04ppb m

response 65330

| Ion | Exp% | Act% |
|---|---|---|
| 276.00 | 100 | 100 |
| 138.00 | 21.80 | 40.76 |
| 277.00 | 23.50 | 23.88 |
| 0.00 | 0.00 | 0.00 |

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\SU2315\
Data File : U050693.D
Acq On : 12 May 2015 2:51 pm
Operator : nareshj
Sample : op56056-ms,4
Misc : op56056,su2315,30.3,,,1,4,soil
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 13 08:56:00 2015
Quant Method : C:\msdchem\2\METHODS\simpahf.m
Quant Title : PAH's by 8270 SIM
QLast Update : Tue May 12 13:27:24 2015
Response via : Initial Calibration

| Internal Standards | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| 1) Naphthalene-d8 | 3.949 | 136 | 224184 | 4.00 | ppm | 0.00 |
| 7) Acenaphthene-d10 | 5.336 | 164 | 134074 | 4.00 | ppm | 0.00 |
| 13) Phenanthrene-d10 | 6.516 | 188 | 231153 | 4.00 | ppm | 0.00 |
| 20) Chrysene-d12 | 9.924 | 240 | 268067 | 4.00 | ppm | 0.00 |
| 25) Perylene-d12 | 12.321 | 264 | 238837 | 4.00 | ppm | 0.00 |

| System Monitoring Compounds | | | | | | |
|---|---|---|---|---|---|---|
| 2) Nitrobenzene-d5 | 3.428 | 82 | 40999 | 2.32 | ppm | 0.00 |
| Spiked Amount 10.000 | Range 40 - 105 | | Recovery | = | 23.20%# | |
| 8) 2-Fluorobiphenyl | 4.812 | 172 | 92739 | 2.11 | ppm | 0.00 |
| Spiked Amount 10.000 | Range 40 - 105 | | Recovery | = | 21.10%# | |
| 14) 2,4,6-Tribromophenol | 5.971 | 330 | 27986 | 4.50 | ppm | 0.00 |
| Spiked Amount 20.000 | Range 42 - 108 | | Recovery | = | 22.50%# | |
| 22) Terphenyl-d14 | 8.357 | 244 | 152368 | 2.79 | ppm | 0.00 |
| Spiked Amount 10.000 | Range 45 - 119 | | Recovery | = | 27.90%# | |

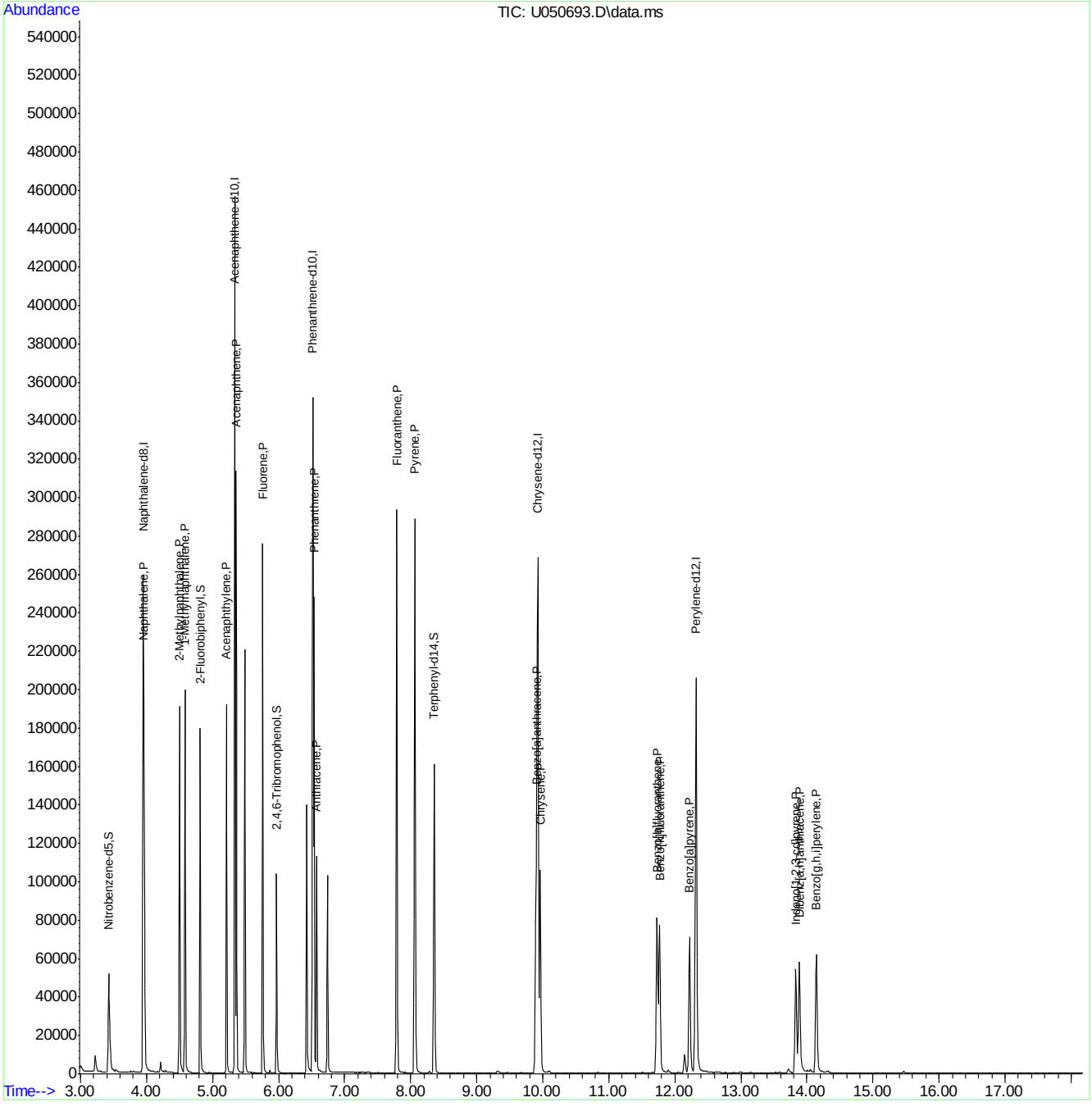
| Target Compounds | | | | | | Qvalue |
|---|---|---|---|---|---|---|
| 4) Naphthalene | 3.964 | 128 | 104411 | 1.74 | ppm | 99 |
| 5) 2-Methylnaphthalene | 4.498 | 142 | 71658 | 1.76 | ppm | 98 |
| 6) 1-Methylnaphthalene | 4.582 | 142 | 72375 | 1.97 | ppm | 99 |
| 9) Acenaphthylene | 5.212 | 152 | 135928 | 2.10 | ppm | 73 |
| 10) Acenaphthene | 5.359 | 153 | 79753 | 1.99 | ppm | 99 |
| 12) Fluorene | 5.760 | 166 | 95638 | 2.15 | ppm | 97 |
| 16) Phenanthrene | 6.538 | 178 | 143761 | 2.14 | ppm | 99 |
| 17) Anthracene | 6.575 | 178 | 71237 | 1.00 | ppm | 99 |
| 19) Fluoranthene | 7.790 | 202 | 229897 | 2.23 | ppm | 99 |
| 21) Pyrene | 8.063 | 202 | 231860 | 2.36 | ppm | 96 |
| 23) Benzo[a]anthracene | 9.898 | 228 | 95864 | 1.19 | ppm | 99 |
| 24) Chrysene | 9.960 | 228 | 99680 | 1.33 | ppm | 99 |
| 26) Benzo[b]fluoranthene | 11.730 | 252 | 99336 | 1.36 | ppm | 99 |
| 27) Benzo[k]fluoranthene | 11.768 | 252 | 93661 | 1.23 | ppm | 99 |
| 28) Benzo[a]pyrene | 12.224 | 252 | 84765 | 1.19 | ppm | 99 |
| 29) Indeno[1,2,3-cd]pyrene | 13.833 | 276 | 58051 | 1.32 | ppm | 99 |
| 30) Dibenz[a,h]anthracene | 13.886 | 278 | 50933 | 1.11 | ppm | 100 |
| 31) Benzo[g,h,i]perylene | 14.143 | 276 | 67202 | 1.33 | ppm | 99 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\SU2315\
Data File : U050693.D
Acq On : 12 May 2015 2:51 pm
Operator : nareshj
Sample : op56056-ms,4
Misc : op56056,su2315,30.3,,,1,4,soil
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 13 08:56:00 2015
Quant Method : C:\msdchem\2\METHODS\simpahf.m
Quant Title : PAH's by 8270 SIM
QLast Update : Tue May 12 13:27:24 2015
Response via : Initial Calibration










ACCUTEST LABORATORIES FA23938

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\SU2315\
Data File : U050694.D
Acq On : 12 May 2015 3:14 pm
Operator : nareshj
Sample : op56056-msd,4
Misc : op56056,su2315,29.9,,,1,4,soil
ALS Vial : 9 Sample Multiplier: 1

Quant Time: May 13 08:56:26 2015
Quant Method : C:\msdchem\2\METHODS\simpahf.m
Quant Title : PAH's by 8270 SIM
QLast Update : Tue May 12 13:27:24 2015
Response via : Initial Calibration

| Internal Standards | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| 1) Naphthalene-d8 | 3.949 | 136 | 222486 | 4.00 | ppm | 0.00 |
| 7) Acenaphthene-d10 | 5.336 | 164 | 134162 | 4.00 | ppm | 0.00 |
| 13) Phenanthrene-d10 | 6.521 | 188 | 230309 | 4.00 | ppm | 0.00 |
| 20) Chrysene-d12 | 9.924 | 240 | 265727 | 4.00 | ppm | 0.00 |
| 25) Perylene-d12 | 12.323 | 264 | 238452 | 4.00 | ppm | 0.00 |

| System Monitoring Compounds | | | | | | |
|---|---|---|---|---|---|---|
| 2) Nitrobenzene-d5 | 3.428 | 82 | 42173 | 2.40 | ppm | 0.00 |
| Spiked Amount 10.000 | Range 40 - 105 | | Recovery | = | 24.00%# | |
| 8) 2-Fluorobiphenyl | 4.812 | 172 | 94165 | 2.14 | ppm | 0.00 |
| Spiked Amount 10.000 | Range 40 - 105 | | Recovery | = | 21.40%# | |
| 14) 2,4,6-Tribromophenol | 5.971 | 330 | 26691 | 4.31 | ppm | 0.00 |
| Spiked Amount 20.000 | Range 42 - 108 | | Recovery | = | 21.55%# | |
| 22) Terphenyl-d14 | 8.357 | 244 | 145258 | 2.68 | ppm | 0.00 |
| Spiked Amount 10.000 | Range 45 - 119 | | Recovery | = | 26.80%# | |

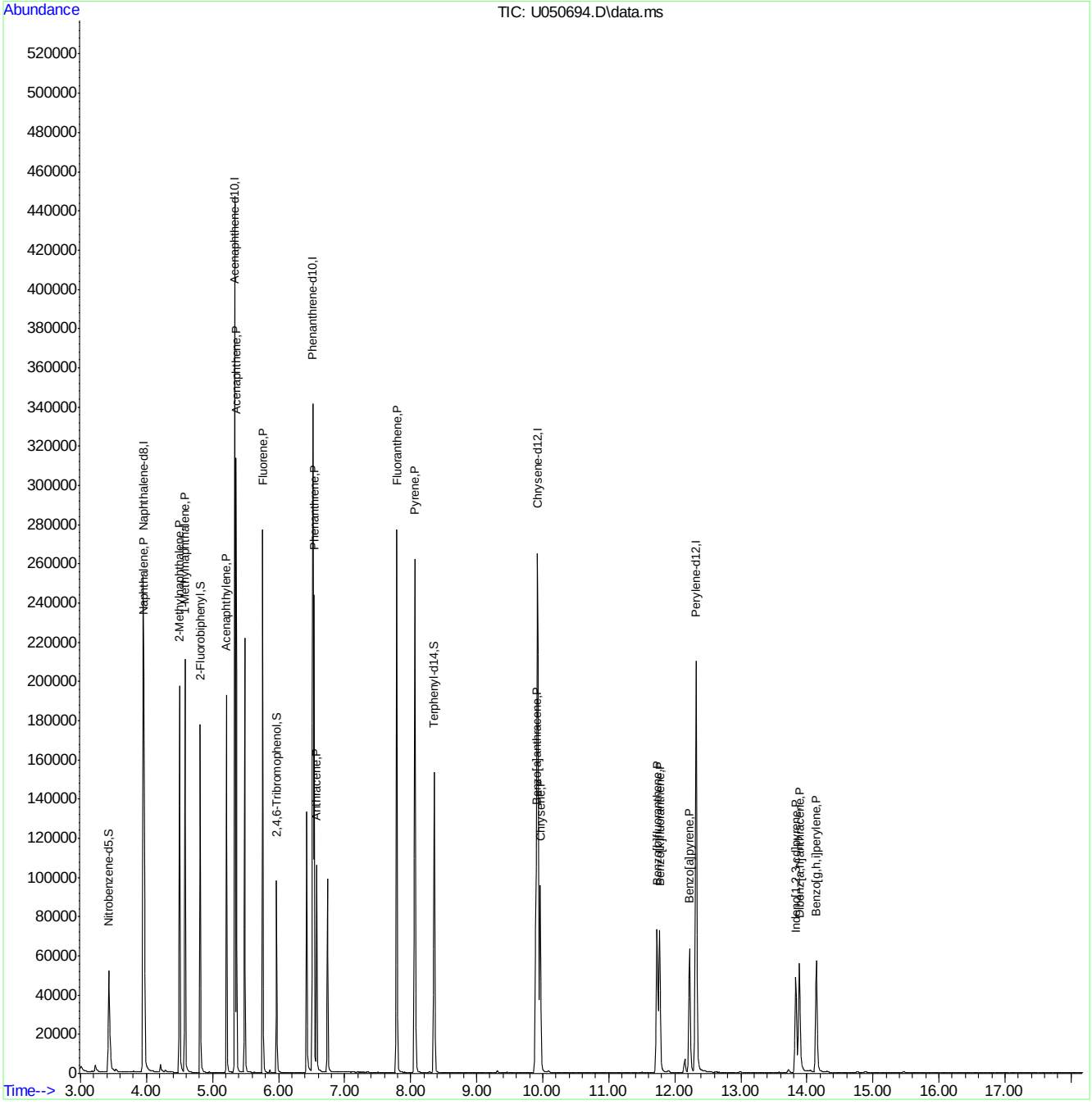
| Target Compounds | | | | | | Qvalue |
|---|---|---|---|---|---|---|
| 4) Naphthalene | 3.964 | 128 | 115569 | 1.94 | ppm | 99 |
| 5) 2-Methylnaphthalene | 4.502 | 142 | 77249 | 1.91 | ppm | 98 |
| 6) 1-Methylnaphthalene | 4.582 | 142 | 77148 | 2.12 | ppm | 99 |
| 9) Acenaphthylene | 5.212 | 152 | 140649 | 2.17 | ppm | 73 |
| 10) Acenaphthene | 5.359 | 153 | 81626 | 2.03 | ppm | 99 |
| 12) Fluorene | 5.760 | 166 | 94842 | 2.13 | ppm | 98 |
| 16) Phenanthrene | 6.539 | 178 | 138751 | 2.07 | ppm | 99 |
| 17) Anthracene | 6.575 | 178 | 68099 | 0.96 | ppm | 99 |
| 19) Fluoranthene | 7.790 | 202 | 216156 | 2.10 | ppm | 99 |
| 21) Pyrene | 8.063 | 202 | 217989 | 2.24 | ppm | 96 |
| 23) Benzo[a]anthracene | 9.895 | 228 | 88975 | 1.11 | ppm | 99 |
| 24) Chrysene | 9.961 | 228 | 90995 | 1.22 | ppm | 100 |
| 26) Benzo[b]fluoranthene | 11.730 | 252 | 89988 | 1.23 | ppm | 99 |
| 27) Benzo[k]fluoranthene | 11.769 | 252 | 87415 | 1.15 | ppm | 99 |
| 28) Benzo[a]pyrene | 12.222 | 252 | 77181 | 1.08 | ppm | 99 |
| 29) Indeno[1,2,3-cd]pyrene | 13.833 | 276 | 53718 | 1.22 | ppm | 99 |
| 30) Dibenz[a,h]anthracene | 13.886 | 278 | 48689 | 1.06 | ppm | 99 |
| 31) Benzo[g,h,i]perylene | 14.145 | 276 | 62353 | 1.23 | ppm | 98 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\SU2315\
Data File : U050694.D
Acq On : 12 May 2015 3:14 pm
Operator : nareshj
Sample : op56056-msd,4
Misc : op56056,su2315,29.9,,,1,4,soil
ALS Vial : 9 Sample Multiplier: 1

Quant Time: May 13 08:56:26 2015
Quant Method : C:\msdchem\2\METHODS\simpahf.m
Quant Title : PAH's by 8270 SIM
QLast Update : Tue May 12 13:27:24 2015
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2321\
Data File : R448859.D
Acq On : 30 Apr 2015 7:03 pm
Operator : mayrag
Sample : op55914-ms
Misc : op55914,sr2321,125,,,1,1,water
ALS Vial : 14 Sample Multiplier: 1

Quant Time: May 01 09:34:57 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Fri May 01 09:34:04 2015
Response via : Initial Calibration

| Internal Standards | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| 1) Naphthalene-d8 | 6.913 | 136 | 122621 | 500.00 | ppb | 0.00 |
| 6) Acenaphthene-d10 | 8.476 | 164 | 113041 | 500.00 | ppb | 0.00 |
| 12) Phenanthrene-d10 | 9.783 | 188 | 93498 | 500.00 | ppb | 0.00 |
| 19) Chrysene-d12 | 12.634 | 240 | 67545 | 500.00 | ppb | 0.01 |
| 24) Perylene-d12 | 15.112 | 264 | 40124 | 500.00 | ppb | 0.01 |

System Monitoring Compounds

| | | | | | | |
|---|---|---|---|---|---|---|
| 2) Nitrobenzene-d5 | 6.308 | 82 | 104907 | 1426.70 | ppb | 0.00 |
| Spiked Amount 2000.000 | Range 41 - 129 | | Recovery = 71.34% | | | |
| 7) 2-Fluorobiphenyl | 7.881 | 172 | 235070 | 824.85 | ppb | 0.00 |
| Spiked Amount 2000.000 | Range 41 - 118 | | Recovery = 41.24% | | | |
| 13) 2,4,6-Tribromophenol | 9.192 | 330 | 40752 | 3345.99 | ppb | 0.00 |
| Spiked Amount 4000.000 | Range 33 - 118 | | Recovery = 83.65% | | | |
| 21) Terphenyl-d14 | 11.285 | 244 | 162697 | 1298.96 | ppb | 0.02 |
| Spiked Amount 2000.000 | Range 45 - 145 | | Recovery = 64.95% | | | |

Target Compounds

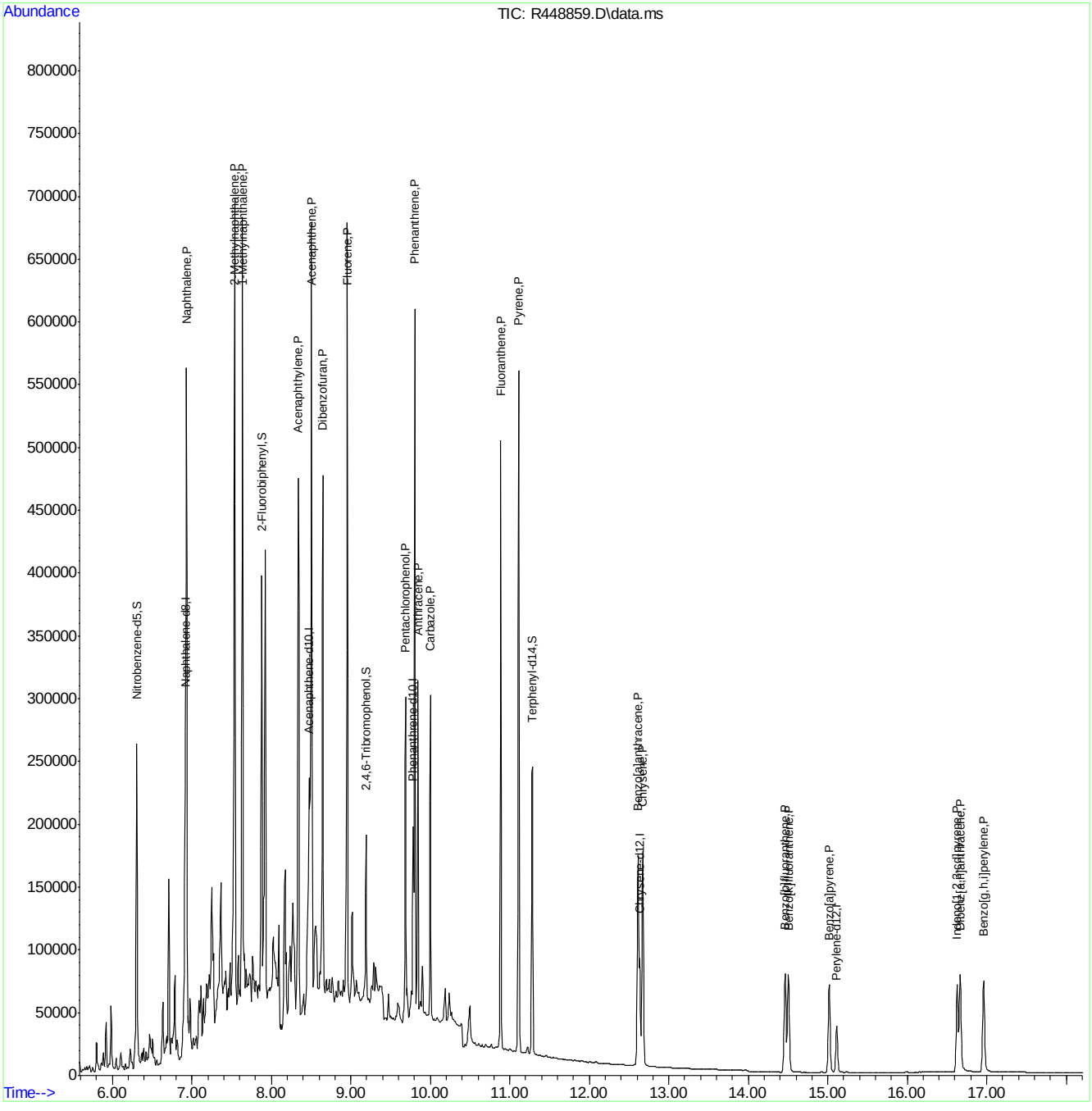
| | | | | | | Qvalue |
|---|---|---|---|---|---|---|
| 3) Naphthalene | 6.929 | 128 | 411152 | 1688.25 | ppb | 97 |
| 4) 2-Methylnaphthalene | 7.540 | 142 | 284715 | 1702.63 | ppb | 90 |
| 5) 1-Methylnaphthalene | 7.639 | 142 | 305982 | 2010.10 | ppb | 98 |
| 8) Acenaphthylene | 8.338 | 152 | 328922 | 771.04 | ppb | 97 |
| 9) Acenaphthene | 8.505 | 153 | 230394 | 878.07 | ppb | 93 |
| 10) Dibenzofuran | 8.649 | 168 | 272476 | 808.44 | ppb | 95 |
| 11) Fluorene | 8.953 | 166 | 245033 | 914.01 | ppb | 95 |
| 14) Pentachlorophenol | 9.688 | 266 | 84946 | 4137.00 | ppb | 93 |
| 15) Phenanthrene | 9.804 | 178 | 343986 | 1778.95 | ppb | 98 |
| 16) Anthracene | 9.845 | 178 | 169594 | 842.57 | ppb | 96 |
| 17) Carbazole | 10.001 | 167 | 166884 | 989.67 | ppb | 97 |
| 18) Fluoranthene | 10.889 | 202 | 364520 | 2000.23 | ppb | 98 |
| 20) Pyrene | 11.109 | 202 | 376819 | 1330.98 | ppb | 93 |
| 22) Benzo[a]anthracene | 12.612 | 228 | 139623 | 856.93 | ppb | 99 |
| 23) Chrysene | 12.673 | 228 | 134997 | 828.32 | ppb | 99 |
| 25) Benzo[b]fluoranthene | 14.462 | 252 | 100665 | 810.97 | ppb | 93 |
| 26) Benzo[k]fluoranthene | 14.506 | 252 | 94163 | 746.05 | ppb | 93 |
| 27) Benzo[a]pyrene | 15.019 | 252 | 81020 | 762.52 | ppb | 92 |
| 28) Indeno[1,2,3-cd]pyrene | 16.627 | 276 | 63176 | 679.86 | ppb | 84 |
| 29) Dibenz[a,h]anthracene | 16.665 | 278 | 60110 | 604.97 | ppb | 86 |
| 30) Benzo[g,h,i]perylene | 16.963 | 276 | 70221 | 628.04 | ppb | 84 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2321\
Data File : R448859.D
Acq On : 30 Apr 2015 7:03 pm
Operator : mayrag
Sample : op55914-ms
Misc : op55914,sr2321,125,,,1,1,water
ALS Vial : 14 Sample Multiplier: 1

Quant Time: May 01 09:34:57 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Fri May 01 09:34:04 2015
Response via : Initial Calibration




SIM_LVR.M Fri May 01 09:48:15 2015 Page: 2

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2321\
Data File : R448860.D
Acq On : 30 Apr 2015 7:30 pm
Operator : mayrag
Sample : op55914-msd
Misc : op55914,sr2321,125,,,1,1,water
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 01 09:34:59 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Fri May 01 09:34:04 2015
Response via : Initial Calibration

| Internal Standards | R.T. | QIon | Response | Conc Units | Dev(Min) |
|---|---|---|---|---|---|
| 1) Naphthalene-d8 | 6.913 | 136 | 123348 | 500.00 ppb | 0.00 |
| 6) Acenaphthene-d10 | 8.476 | 164 | 117964 | 500.00 ppb | 0.00 |
| 12) Phenanthrene-d10 | 9.783 | 188 | 92936 | 500.00 ppb | 0.00 |
| 19) Chrysene-d12 | 12.640 | 240 | 67970 | 500.00 ppb | 0.02 |
| 24) Perylene-d12 | 15.118 | 264 | 40176 | 500.00 ppb | 0.02 |

System Monitoring Compounds

| | | | | | |
|---|---|---|---|---|---|
| 2) Nitrobenzene-d5 | 6.308 | 82 | 116940 | 1580.97 ppb | 0.00 |
| Spiked Amount 2000.000 | Range 41 - 129 | | Recovery = 79.05% | | |
| 7) 2-Fluorobiphenyl | 7.881 | 172 | 255505 | 859.14 ppb | 0.00 |
| Spiked Amount 2000.000 | Range 41 - 118 | | Recovery = 42.96% | | |
| 13) 2,4,6-Tribromophenol | 9.192 | 330 | 47350 | 3911.23 ppb | 0.00 |
| Spiked Amount 4000.000 | Range 33 - 118 | | Recovery = 97.78% | | |
| 21) Terphenyl-d14 | 11.285 | 244 | 187203 | 1485.27 ppb | 0.02 |
| Spiked Amount 2000.000 | Range 45 - 145 | | Recovery = 74.26% | | |

Target Compounds

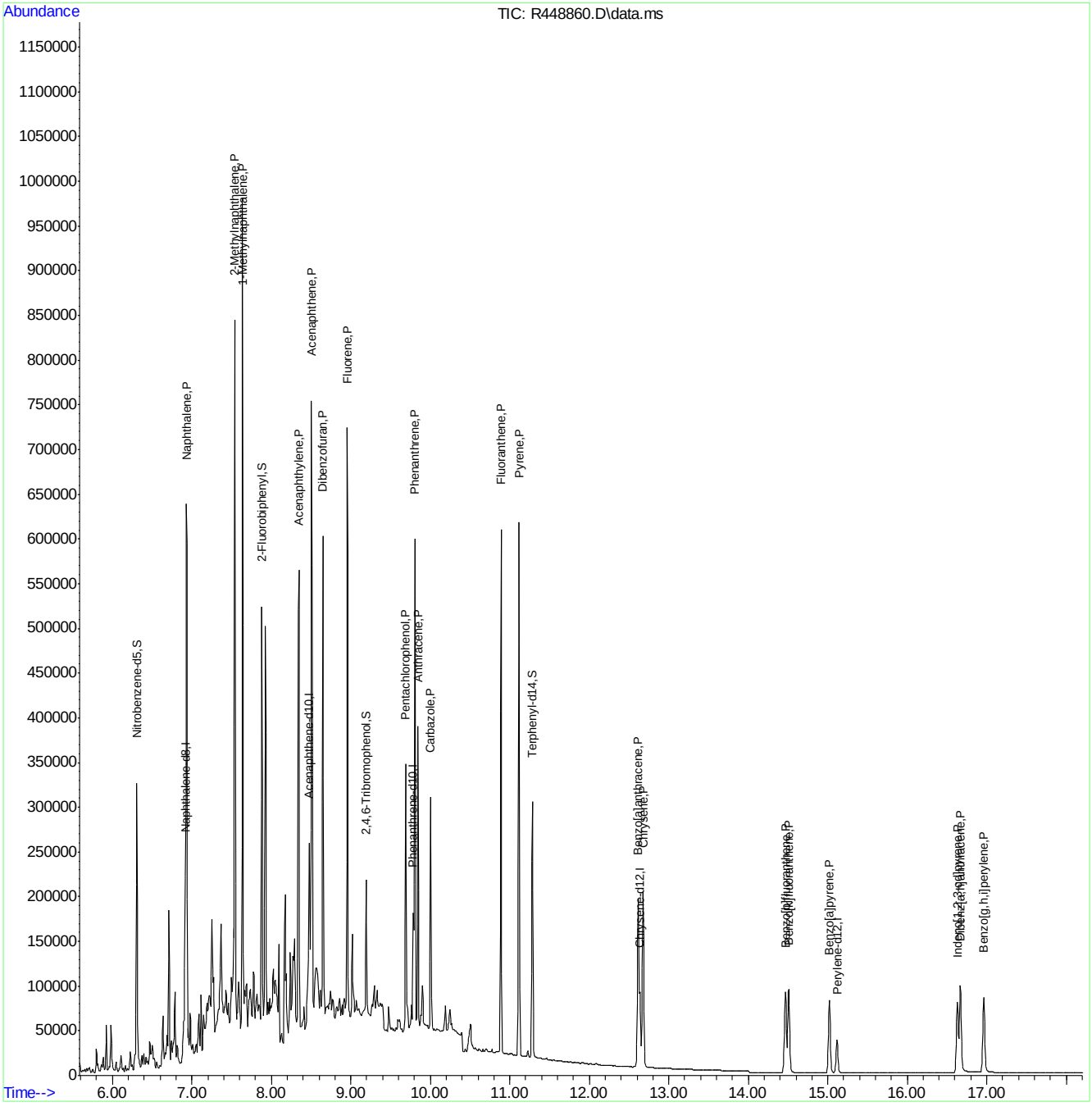
| | | | | | Qvalue |
|---|---|---|---|---|---|
| 3) Naphthalene | 6.929 | 128 | 446194 | 1831.67 ppb | 98 |
| 4) 2-Methylnaphthalene | 7.540 | 142 | 305277 | 1822.83 ppb | 92 |
| 5) 1-Methylnaphthalene | 7.639 | 142 | 322381 | 2105.35 ppb | 98 |
| 8) Acenaphthylene | 8.345 | 152 | 356308 | 801.26 ppb | 93 |
| 9) Acenaphthene | 8.505 | 153 | 240703 | 879.10 ppb | 93 |
| 10) Dibenzofuran | 8.649 | 168 | 294363 | 836.93 ppb | 77 |
| 11) Fluorene | 8.953 | 166 | 264543 | 945.60 ppb | 92 |
| 14) Pentachlorophenol | 9.688 | 266 | 97455 | 4453.65 ppb | 93 |
| 15) Phenanthrene | 9.804 | 178 | 371364 | 1944.46 ppb | 97 |
| 16) Anthracene | 9.845 | 178 | 193308 | 966.19 ppb | 98 |
| 17) Carbazole | 10.001 | 167 | 187149 | 1116.56 ppb | 97 |
| 18) Fluoranthene | 10.889 | 202 | 400802 | 2212.62 ppb | 96 |
| 20) Pyrene | 11.114 | 202 | 417944 | 1475.54 ppb | 95 |
| 22) Benzo[a]anthracene | 12.612 | 228 | 160806 | 980.77 ppb | 99 |
| 23) Chrysene | 12.678 | 228 | 156487 | 954.17 ppb | 99 |
| 25) Benzo[b]fluoranthene | 14.468 | 252 | 120473 | 969.29 ppb | 93 |
| 26) Benzo[k]fluoranthene | 14.512 | 252 | 110236 | 872.27 ppb | 93 |
| 27) Benzo[a]pyrene | 15.019 | 252 | 95501 | 897.65 ppb | 92 |
| 28) Indeno[1,2,3-cd]pyrene | 16.632 | 276 | 73768 | 792.82 ppb | 88 |
| 29) Dibenz[a,h]anthracene | 16.665 | 278 | 72991 | 733.66 ppb | 84 |
| 30) Benzo[g,h,i]perylene | 16.968 | 276 | 80972 | 723.26 ppb | 89 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2321\
Data File : R448860.D
Acq On : 30 Apr 2015 7:30 pm
Operator : mayrag
Sample : op55914-msd
Misc : op55914,sr2321,125,,,1,1,water
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 01 09:34:59 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Fri May 01 09:34:04 2015
Response via : Initial Calibration







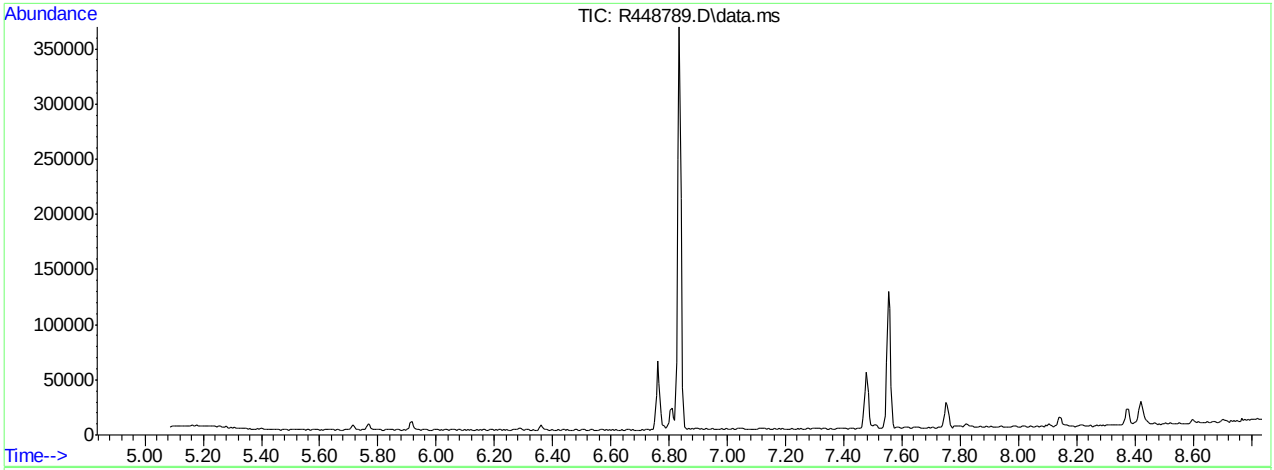


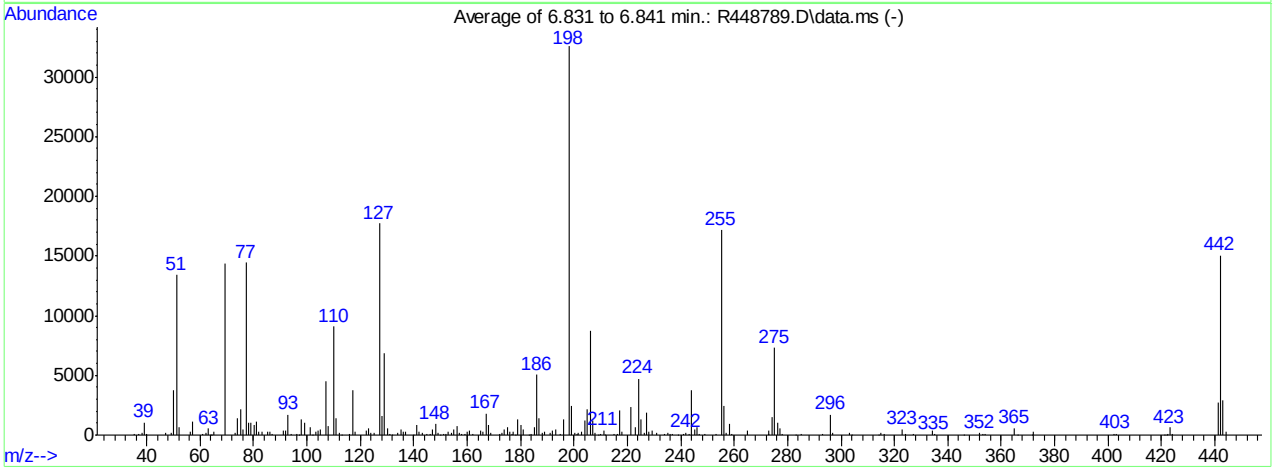

ACCUTEST LABORATORIES FA23938

SW-846 Method 8270

Data File : C:\msdchem\1\DATA\SR2318\R448789.D  Vial: 1
Acq On : 24 Apr 2015 2:33 pm  Operator: mayrag
Sample : dftpp  Inst : MSBNA3
Misc : op55419,sr2318,250,,,1,1,water  Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\msdchem\1\METHODS\DFTPP.M (RTE Integrator)
Title : Tune Evaluation




AutoFind: Scans 327, 328, 329; Background Corrected with Scan 323

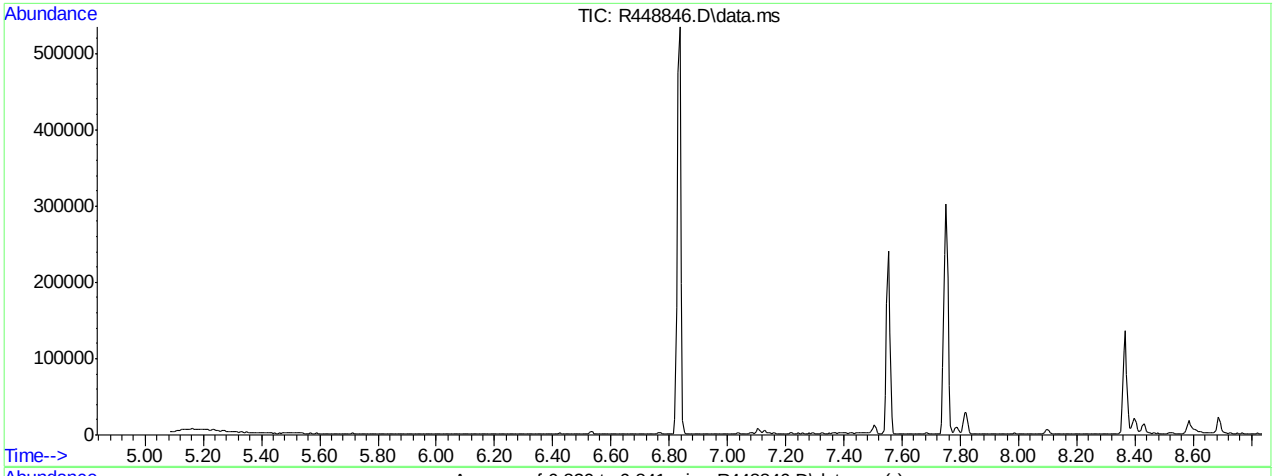
| Target Mass | Rel. to Mass | Lower Limit% | Upper Limit% | Rel. Abn% | Raw Abn | Result Pass/Fail |
|---|---|---|---|---|---|---|
| 51 | 198 | 30 | 60 | 41.2 | 13427 | PASS |
| 68 | 69 | 0.00 | 2 | 0.0 | 0 | PASS |
| 69 | 198 | 0.00 | 100 | 44.1 | 14362 | PASS |
| 70 | 69 | 0.00 | 2 | 0.0 | 0 | PASS |
| 127 | 198 | 40 | 60 | 54.4 | 17717 | PASS |
| 197 | 198 | 0.00 | 1 | 0.0 | 0 | PASS |
| 198 | 198 | 100 | 100 | 100.0 | 32552 | PASS |
| 199 | 198 | 5 | 9 | 7.4 | 2399 | PASS |
| 275 | 198 | 10 | 30 | 22.4 | 7303 | PASS |
| 365 | 198 | 1 | 100 | 1.8 | 595 | PASS |
| 441 | 443 | 0.01 | 100 | 92.4 | 2684 | PASS |
| 442 | 198 | 40 | 100 | 46.3 | 15071 | PASS |
| 443 | 442 | 17 | 23 | 19.3 | 2906 | PASS |

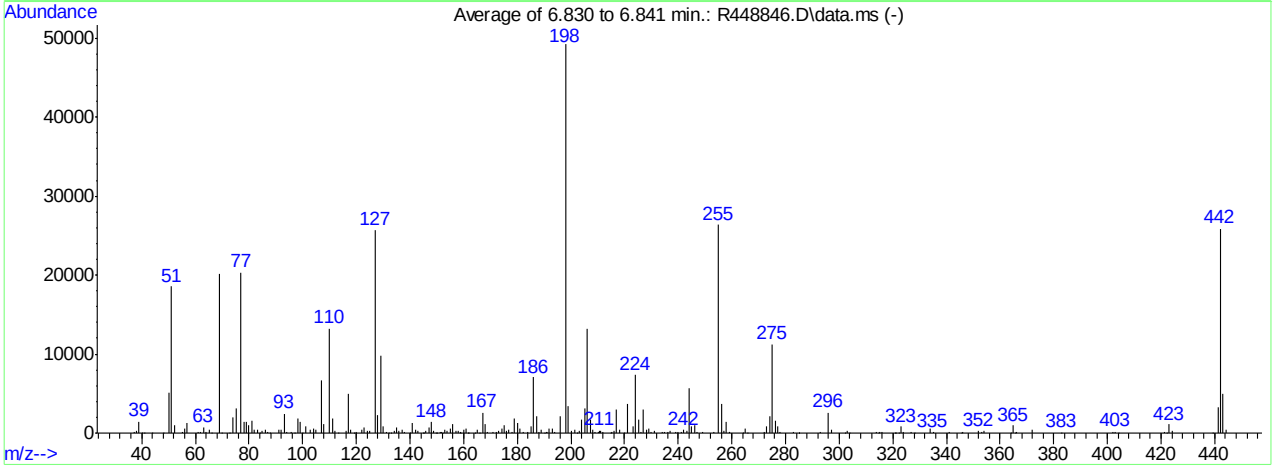
R448789.D DFTPP.M Fri Apr 24 15:02:49 2015

SW-846 Method 8270

Data File : C:\msdchem\1\DATA\SR2321\R448846.D  Vial: 1
Acq On : 30 Apr 2015 1:23 pm  Operator: mayrag
Sample : dftpp  Inst : MSBNA3
Misc : op55419,sr2321,250,,,1,1,water  Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\msdchem\1\METHODS\DFTPP.M (RTE Integrator)
Title : Tune Evaluation




AutoFind: Scans 327, 328, 329; Background Corrected with Scan 323

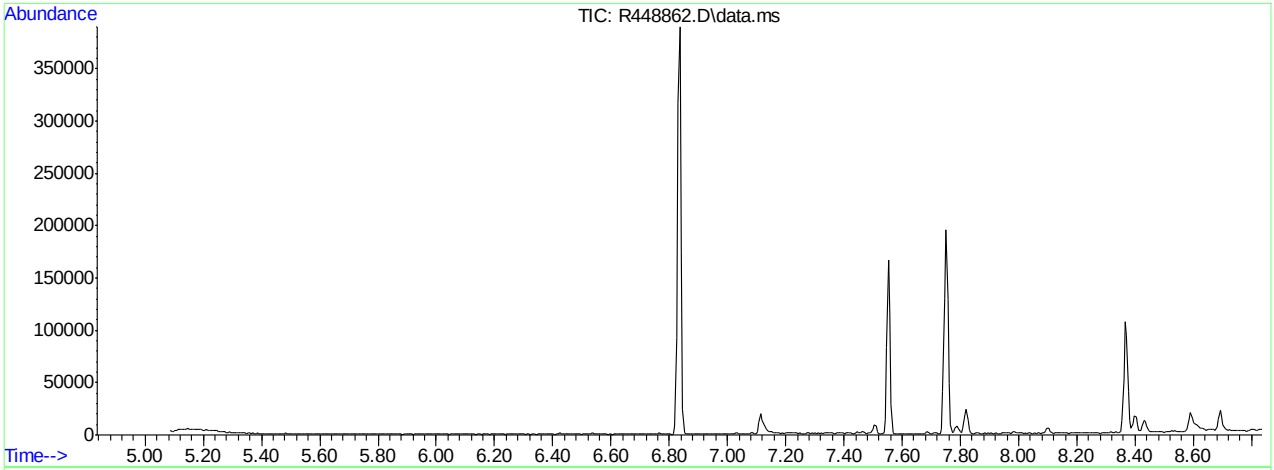
| Target Mass | Rel. to Mass | Lower Limit% | Upper Limit% | Rel. Abn% | Raw Abn | Result Pass/Fail |
|---|---|---|---|---|---|---|
| 51 | 198 | 30 | 60 | 37.7 | 18546 | PASS |
| 68 | 69 | 0.00 | 2 | 0.0 | 0 | PASS |
| 69 | 198 | 0.00 | 100 | 41.0 | 20194 | PASS |
| 70 | 69 | 0.00 | 2 | 0.2 | 44 | PASS |
| 127 | 198 | 40 | 60 | 52.3 | 25757 | PASS |
| 197 | 198 | 0.00 | 1 | 0.0 | 0 | PASS |
| 198 | 198 | 100 | 100 | 100.0 | 49202 | PASS |
| 199 | 198 | 5 | 9 | 6.9 | 3412 | PASS |
| 275 | 198 | 10 | 30 | 22.8 | 11233 | PASS |
| 365 | 198 | 1 | 100 | 2.0 | 969 | PASS |
| 441 | 443 | 0.01 | 100 | 65.1 | 3245 | PASS |
| 442 | 198 | 40 | 100 | 52.6 | 25896 | PASS |
| 443 | 442 | 17 | 23 | 19.2 | 4981 | PASS |

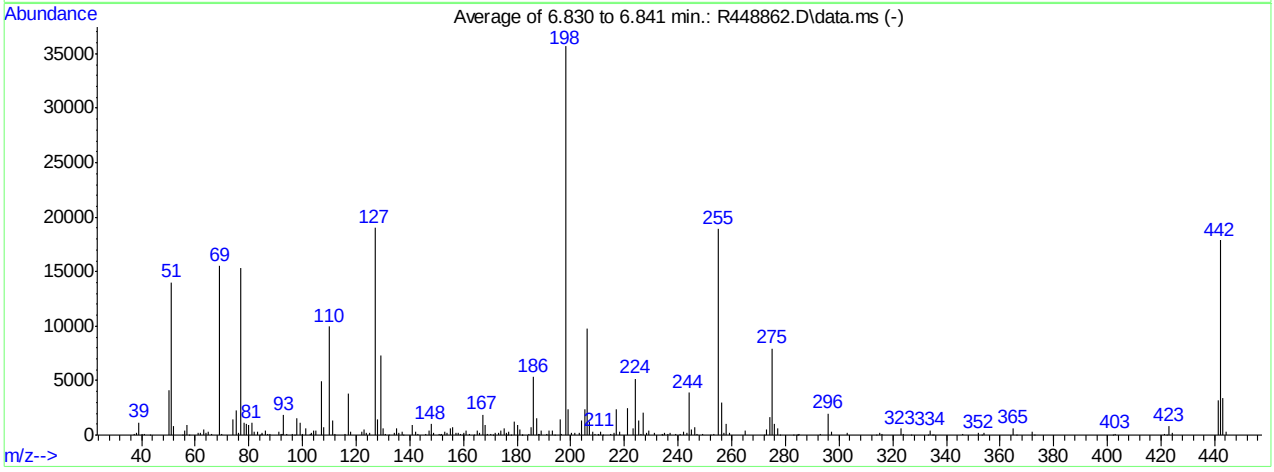
R448846.D DFTPP.M Thu Apr 30 14:11:33 2015

SW-846 Method 8270

Data File : C:\msdchem\1\DATA\SR2322\R448862.D  Vial: 1
Acq On : 1 May 2015 10:04 am  Operator: mayrag
Sample : dftpp  Inst : MSBNA3
Misc : op55419,sr2322,250,,,1,1,water  Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\msdchem\1\METHODS\DFTPP.M (RTE Integrator)
Title : Tune Evaluation




AutoFind: Scans 327, 328, 329; Background Corrected with Scan 323

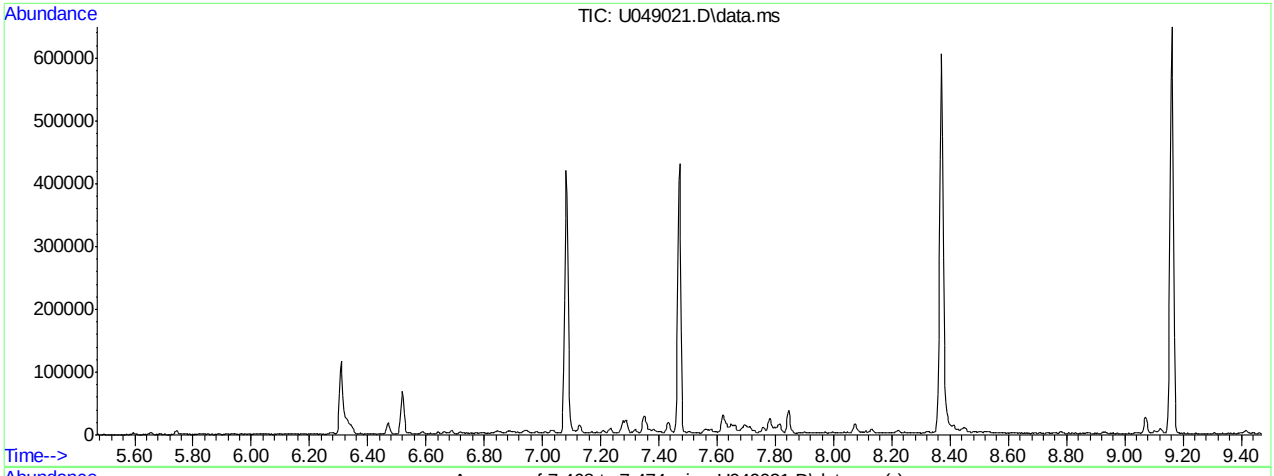
| Target Mass | Rel. to Mass | Lower Limit% | Upper Limit% | Rel. Abn% | Raw Abn | Result Pass/Fail |
|---|---|---|---|---|---|---|
| 51 | 198 | 30 | 60 | 39.4 | 14040 | PASS |
| 68 | 69 | 0.00 | 2 | 0.0 | 0 | PASS |
| 69 | 198 | 0.00 | 100 | 43.4 | 15498 | PASS |
| 70 | 69 | 0.00 | 2 | 0.5 | 77 | PASS |
| 127 | 198 | 40 | 60 | 53.4 | 19034 | PASS |
| 197 | 198 | 0.00 | 1 | 0.0 | 0 | PASS |
| 198 | 198 | 100 | 100 | 100.0 | 35672 | PASS |
| 199 | 198 | 5 | 9 | 6.8 | 2415 | PASS |
| 275 | 198 | 10 | 30 | 22.2 | 7924 | PASS |
| 365 | 198 | 1 | 100 | 1.8 | 639 | PASS |
| 441 | 443 | 0.01 | 100 | 92.8 | 3149 | PASS |
| 442 | 198 | 40 | 100 | 50.1 | 17887 | PASS |
| 443 | 442 | 17 | 23 | 19.0 | 3395 | PASS |

R448862.D DFTPP.M Fri May 01 10:44:28 2015

SW-846 Method 8270

Data File : C:\msdchem\2\DATA\SU2245\U049021.D  Vial: 1
Acq On : 28 Jan 2015 6:10 pm  Operator: nareshj
Sample : dftpp  Inst : MSBNA04
Misc : op54674,su2245,30.0,,,1,1,soil  Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\msdchem\2\METHODS\dftpp.m (RTE Integrator)
Title : Tune Evaluation




AutoFind: Scans 1191, 1192, 1193; Background Corrected with Scan 1183

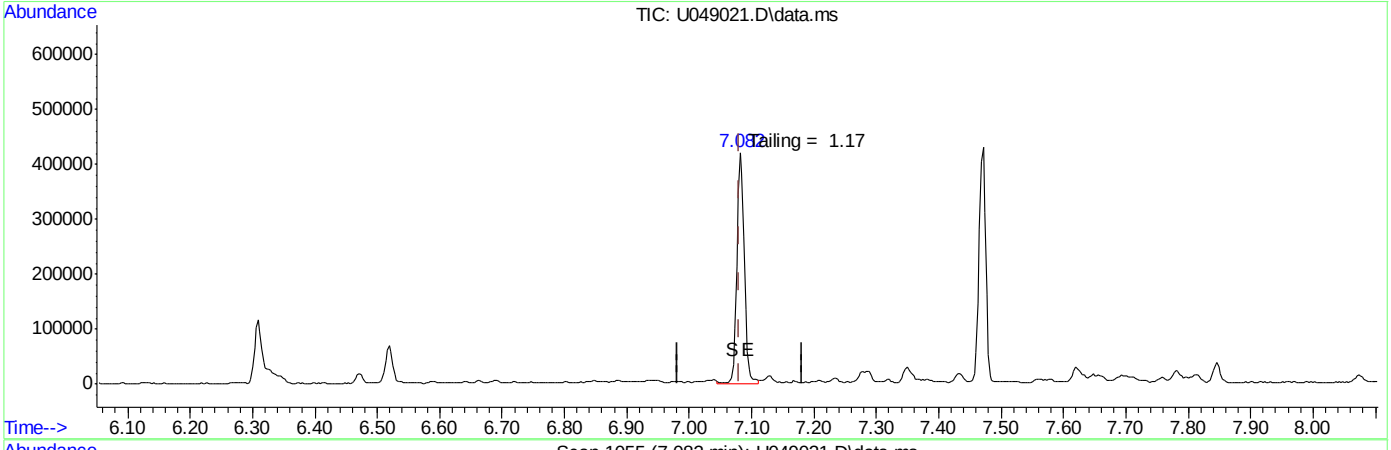
| Target Mass | Rel. to Mass | Lower Limit% | Upper Limit% | Rel. Abn% | Raw Abn | Result Pass/Fail |
|---|---|---|---|---|---|---|
| 51 | 198 | 30 | 60 | 33.7 | 14713 | PASS |
| 68 | 69 | 0.00 | 2 | 1.5 | 258 | PASS |
| 69 | 198 | 0.00 | 100 | 39.5 | 17249 | PASS |
| 70 | 69 | 0.00 | 2 | 0.0 | 0 | PASS |
| 127 | 198 | 40 | 60 | 50.7 | 22117 | PASS |
| 197 | 198 | 0.00 | 1 | 0.0 | 0 | PASS |
| 198 | 198 | 100 | 100 | 100.0 | 43640 | PASS |
| 199 | 198 | 5 | 9 | 7.6 | 3312 | PASS |
| 275 | 198 | 10 | 30 | 26.7 | 11667 | PASS |
| 365 | 198 | 1 | 100 | 3.3 | 1423 | PASS |
| 441 | 443 | 0.01 | 100 | 70.5 | 6436 | PASS |
| 442 | 198 | 40 | 100 | 94.3 | 41157 | PASS |
| 443 | 442 | 17 | 23 | 22.2 | 9133 | PASS |

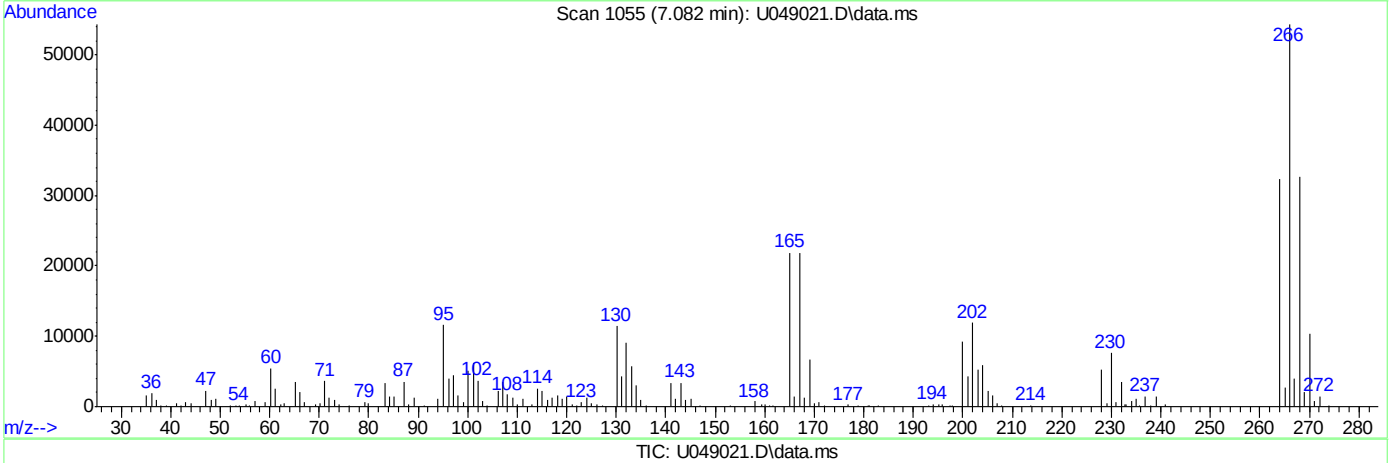
U049021.D dftpp.m Thu Jan 29 08:58:21 2015

Quantitation Report (Qedit)

Data Path : C:\msdchem\2\DATA\SU2245\
Data File : U049021.D
Acq On : 28 Jan 2015 6:10 pm
Operator : nareshj
Sample : dftpp
Misc : op54674,su2245,30.0,,,1,1,soil
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Jan 29 08:58:25 2015
Quant Method : C:\msdchem\2\METHODS\dftpp.m
Quant Title : Tune Evaluation
QLast Update : Thu Jan 29 08:58:08 2015
Response via : Initial Calibration




TIC: U049021.D\data.ms

(1) Pentachlorophenol

7.082min (0.000) 14.28

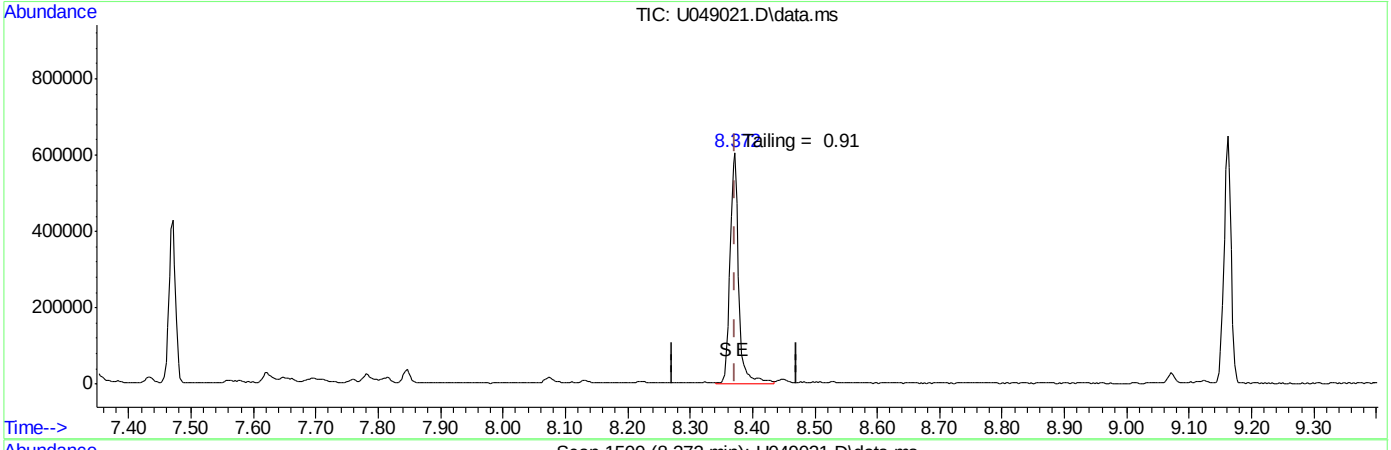
response 341594

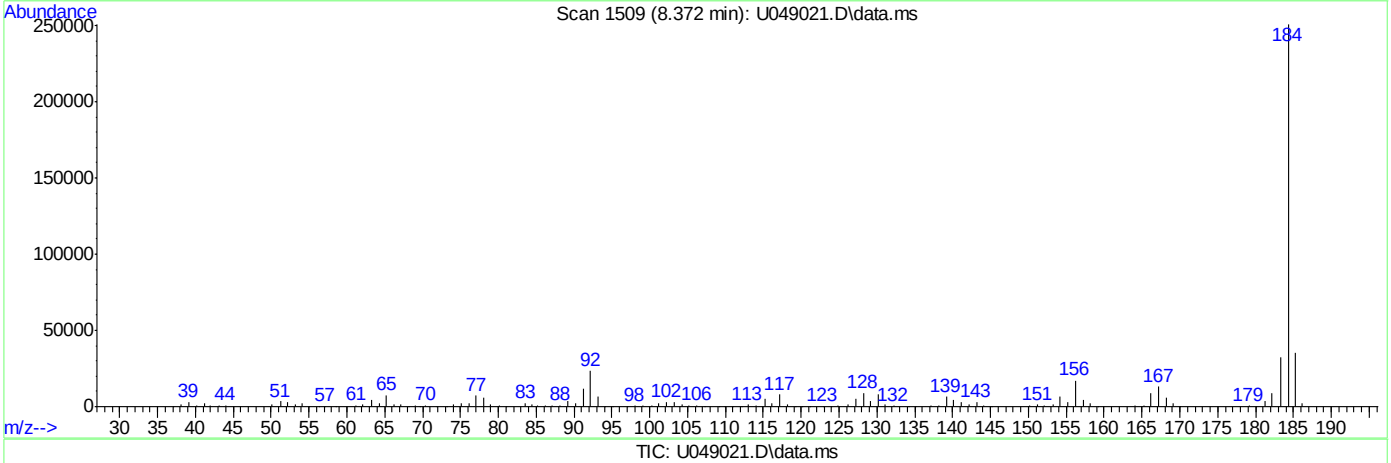
| Signal | Exp% | Act% |
|---|---|---|
| TIC | 100 | 100 |
| 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 |

Quantitation Report (Qedit)

Data Path : C:\msdchem\2\DATA\SU2245\
Data File : U049021.D
Acq On : 28 Jan 2015 6:10 pm
Operator : nareshj
Sample : dftpp
Misc : op54674,su2245,30.0,,,1,1,soil
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Jan 29 08:58:25 2015
Quant Method : C:\msdchem\2\METHODS\dftpp.m
Quant Title : Tune Evaluation
QLast Update : Thu Jan 29 08:58:08 2015
Response via : Initial Calibration




TIC: U049021.D\data.ms

(3) Benzidine

8.372min (0.000) 12.98

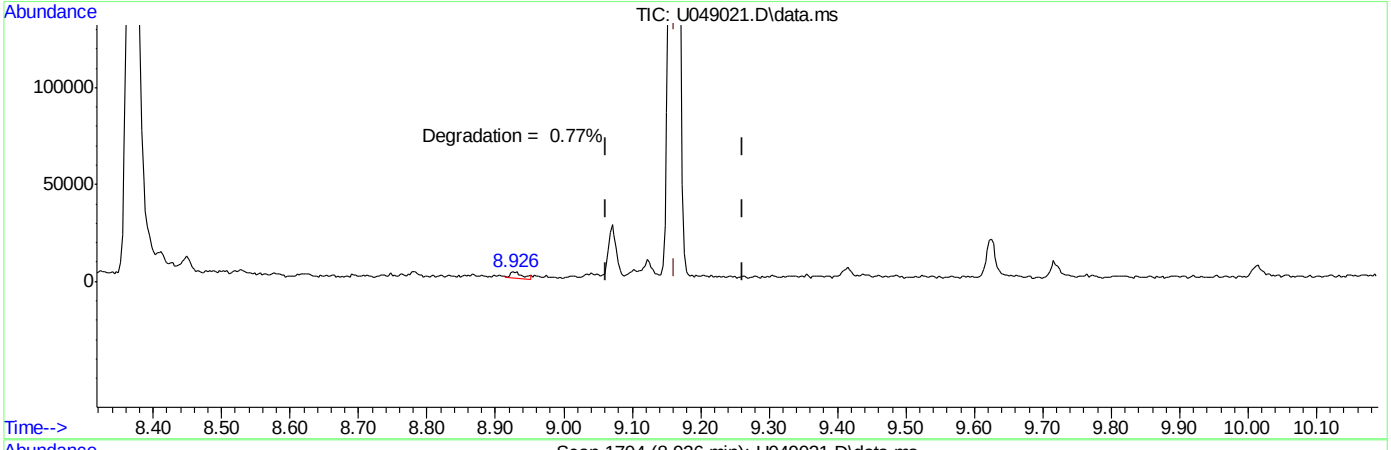
response 550541

| Signal | Exp% | Act% |
|---|---|---|
| TIC | 100 | 100 |
| 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 |

Quantitation Report (Qedit)

Data Path : C:\msdchem\2\DATA\SU2245\
Data File : U049021.D
Acq On : 28 Jan 2015 6:10 pm
Operator : nareshj
Sample : dftpp
Misc : op54674,su2245,30.0,,,1,1,soil
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Jan 29 08:58:25 2015
Quant Method : C:\msdchem\2\METHODS\dftpp.m
Quant Title : Tune Evaluation
QLast Update : Thu Jan 29 08:58:08 2015
Response via : Initial Calibration




TIC: U049021.D\data.ms

(4) DDT

9.162min (0.000) 14.85

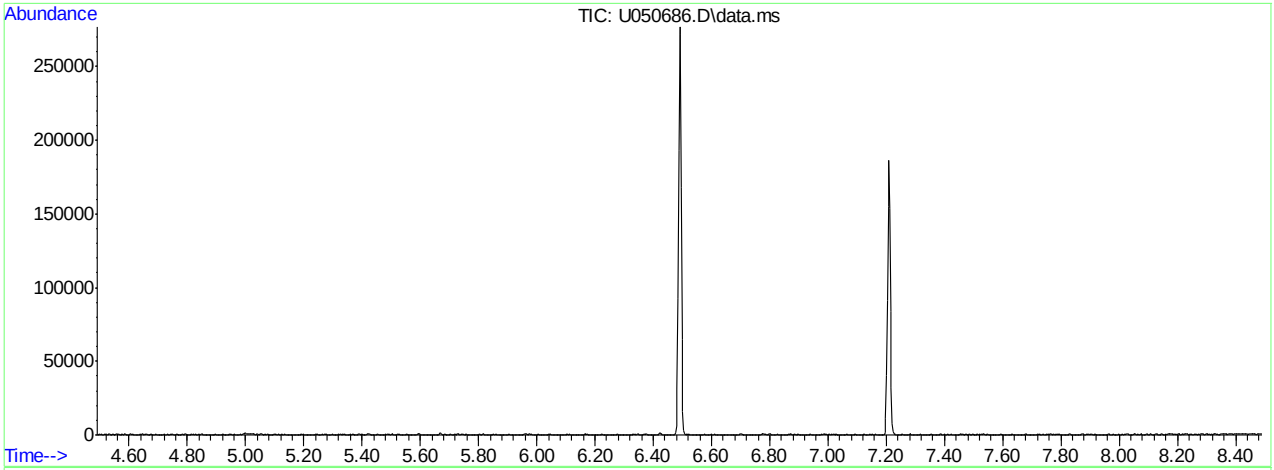
response 518415

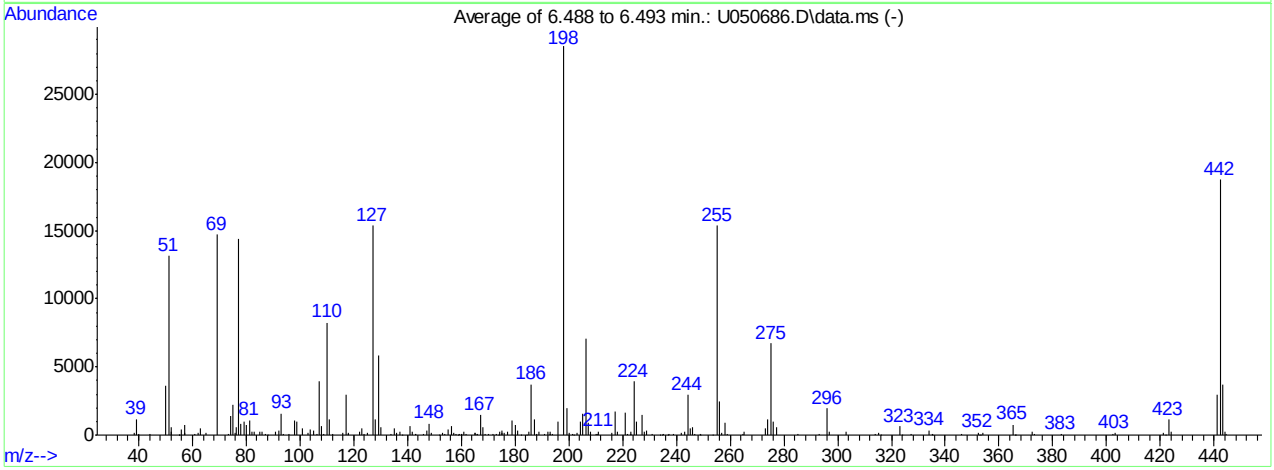
| Signal | Exp% | Act% |
|---|---|---|
| TIC | 100 | 100 |
| 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 |

SW-846 Method 8270

Data File : C:\msdchem\2\DATA\SU2315\U050686.D  Vial: 1
Acq On : 12 May 2015 12:13 pm  Operator: nareshj
Sample : dftpp  Inst : MSBNA04
Misc : op55912,su2315,1000,,,1,1,water  Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\msdchem\2\METHODS\dftpp.m (RTE Integrator)
Title : Tune Evaluation




AutoFind: Scans 846, 847, 848; Background Corrected with Scan 840

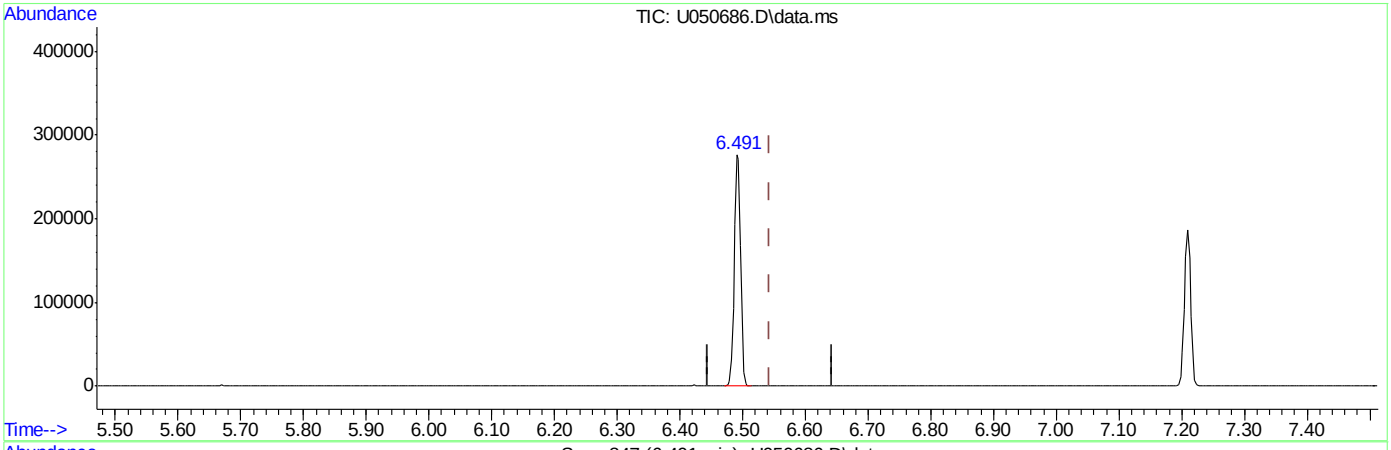
| Target Mass | Rel. to Mass | Lower Limit% | Upper Limit% | Rel. Abn% | Raw Abn | Result Pass/Fail |
|---|---|---|---|---|---|---|
| 51 | 198 | 30 | 60 | 46.2 | 13160 | PASS |
| 68 | 69 | 0.00 | 2 | 0.0 | 0 | PASS |
| 69 | 198 | 0.00 | 100 | 51.6 | 14699 | PASS |
| 70 | 69 | 0.00 | 2 | 0.0 | 0 | PASS |
| 127 | 198 | 40 | 60 | 53.8 | 15350 | PASS |
| 197 | 198 | 0.00 | 1 | 0.0 | 0 | PASS |
| 198 | 198 | 100 | 100 | 100.0 | 28514 | PASS |
| 199 | 198 | 5 | 9 | 7.0 | 2008 | PASS |
| 275 | 198 | 10 | 30 | 23.5 | 6713 | PASS |
| 365 | 198 | 1 | 100 | 2.7 | 768 | PASS |
| 441 | 443 | 0.01 | 100 | 79.1 | 2952 | PASS |
| 442 | 198 | 40 | 100 | 65.7 | 18744 | PASS |
| 443 | 442 | 17 | 23 | 19.9 | 3731 | PASS |

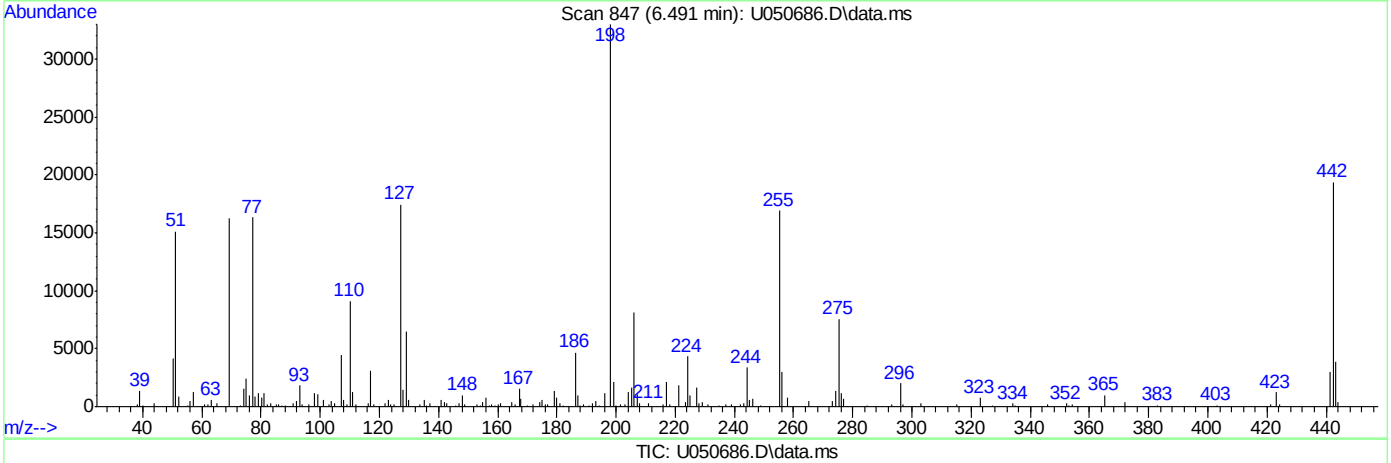
U050686.D dftpp.m Wed May 13 08:53:07 2015

Quantitation Report (Qedit)

Data Path : C:\msdchem\2\DATA\SU2315\
Data File : U050686.D
Acq On : 12 May 2015 12:13 pm
Operator : nareshj
Sample : dftpp
Misc : op55912,su2315,1000,,,1,1,water
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 13 08:53:10 2015
Quant Method : C:\msdchem\2\METHODS\dftpp.m
Quant Title : Tune Evaluation
QLast Update : Fri May 08 15:00:35 2015
Response via : Initial Calibration




TIC: U050686.D\data.ms

(2) DFTPP

6.491min (-0.054) 6.78

response 191473

| Signal | Exp% | Act% |
|---|---|---|
| TIC | 100 | 100 |
| 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 |

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
04/27/15 13:00

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2318\
Data File : R448792.D
Acq On : 24 Apr 2015 4:01 pm
Operator : mayrag
Sample : ic2318-1
Misc : op55419,sr2318,250,,,1,1,water
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Apr 27 09:47:15 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Mon Apr 27 09:45:29 2015
Response via : Initial Calibration

| Internal Standards | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| 1) Naphthalene-d8 | 6.907 | 136 | 124706 | 500.00 | ppb | 0.00 |
| 6) Acenaphthene-d10 | 8.469 | 164 | 67219 | 500.00 | ppb | 0.00 |
| 12) Phenanthrene-d10 | 9.770 | 188 | 96440 | 500.00 | ppb | 0.00 |
| 19) Chrysene-d12 | 12.623 | 240 | 45152 | 500.00 | ppb | 0.00 |
| 24) Perylene-d12 | 15.101 | 264 | 25870 | 500.00 | ppb | 0.00 |
| **System Monitoring Compounds** | | | | | | |
| 2) Nitrobenzene-d5 | 6.302 | 82 | 5897 | 86.04 | ppb | 0.00 |
| Spiked Amount 2000.000 | Range 41 - 129 | | Recovery = 4.30%# | | | |
| 7) 2-Fluorobiphenyl | 7.876 | 172 | 14774 | 89.35 | ppb | 0.00 |
| Spiked Amount 2000.000 | Range 41 - 118 | | Recovery = 4.47%# | | | |
| 13) 2,4,6-Tribromophenol | 9.178 | 330 | 1849 | 158.73 | ppb | 0.00 |
| Spiked Amount 4000.000 | Range 33 - 118 | | Recovery = 3.97%# | | | |
| 21) Terphenyl-d14 | 11.269 | 244 | 7122 | 87.26 | ppb | 0.00 |
| Spiked Amount 2000.000 | Range 45 - 145 | | Recovery = 4.36%# | | | |
| **Target Compounds** | | | | | | Qvalue |
| 3) Naphthalene | 6.929 | 128 | 22584 | 90.89 | ppb | 96 |
| 4) 2-Methylnaphthalene | 7.535 | 142 | 14716 | 87.01 | ppb | 88 |
| 5) 1-Methylnaphthalene | 7.634 | 142 | 13421 | 86.11 | ppb | 93 |
| 8) Acenaphthylene | 8.331 | 152 | 20170 | 83.81 | ppb | 95 |
| 9) Acenaphthene | 8.497 | 153 | 13575 | 87.93 | ppb | 90 |
| 10) Dibenzofuran | 8.642 | 168 | 17032 | 86.33 | ppb | 99 |
| 11) Fluorene | 8.946 | 166 | 13655 | 84.65 | ppb | 99 |
| 14) Pentachlorophenol | 9.668 | 266 | 2053 | 78.99 | ppb | 93 |
| 15) Phenanthrene | 9.790 | 178 | 17606 | 87.13 | ppb | 99 |
| 16) Anthracene | 9.831 | 178 | 8266 | 38.88 | ppb | 97 |
| 17) Carbazole | 9.981 | 167 | 6906 | 39.18 | ppb | 94 |
| 18) Fluoranthene | 10.872 | 202 | 15134 | 77.01 | ppb | 99 |
| 20) Pyrene | 11.092 | 202 | 15466 | 82.85 | ppb | 95 |
| 22) Benzo[a]anthracene | 12.596 | 228 | 4228 | 38.02 | ppb | 99 |
| 23) Chrysene | 12.656 | 228 | 4385 | 39.85 | ppb | 100 |
| 25) Benzo[b]fluoranthene | 14.446 | 252 | 2873 | 36.45 | ppb | 92 |
| 26) Benzo[k]fluoranthene | 14.490 | 252 | 3026 | 38.02 | ppb | 92 |
| 27) Benzo[a]pyrene | 15.002 | 252 | 2402 | 35.03 | ppb | 92 |
| 28) Indeno[1,2,3-cd]pyrene | 16.616 | 276 | 2223m | 38.70 | ppb | |
| 29) Dibenz[a,h]anthracene | 16.655 | 278 | 2459 | 40.57 | ppb | 86 |
| 30) Benzo[g,h,i]perylene | 16.952 | 276 | 2854 | 41.76 | ppb | 87 |

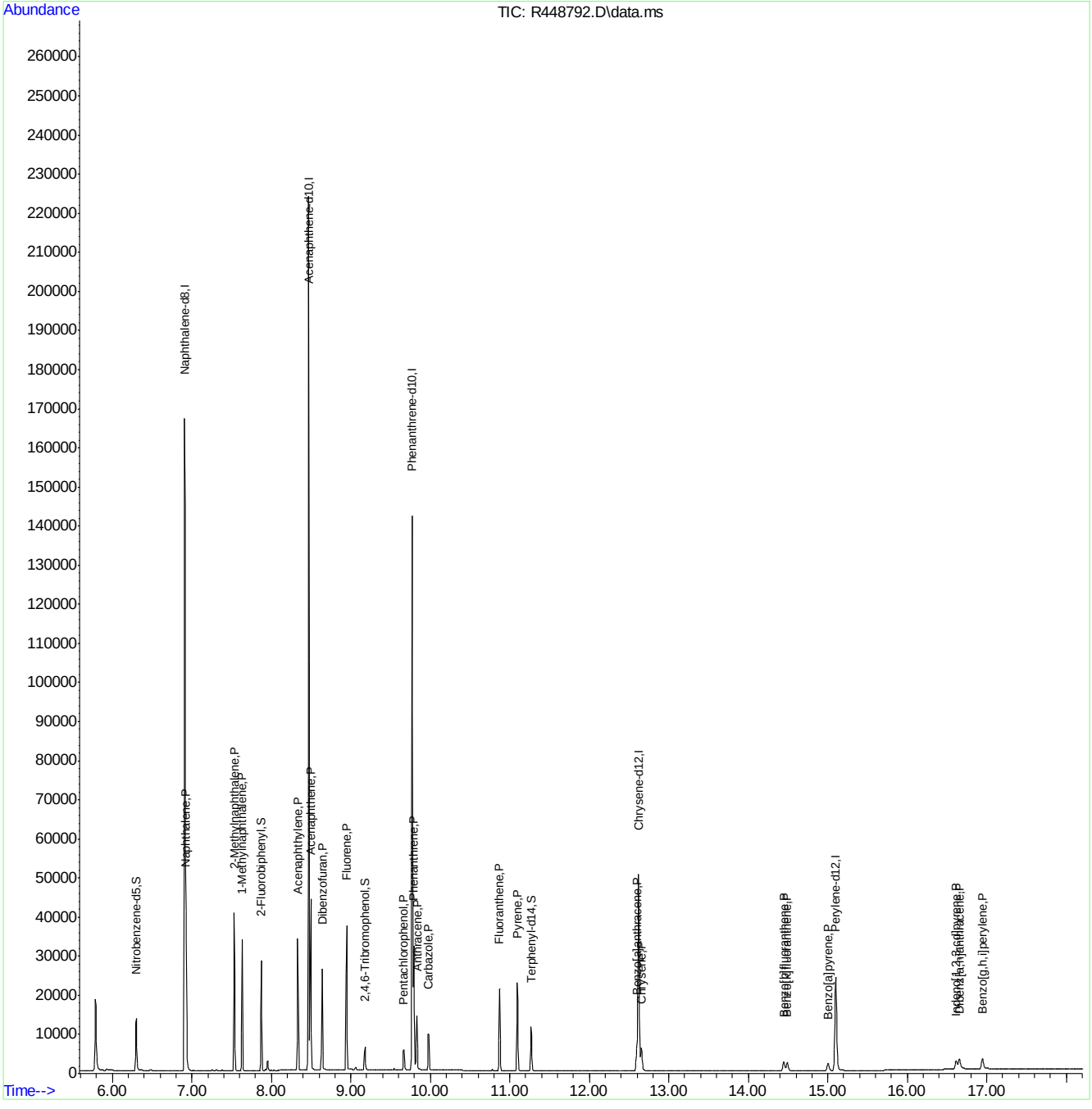
(#) = qualifier out of range (m) = manual integration (+) = signals summed

7.6.1
7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2318\
Data File : R448792.D
Acq On : 24 Apr 2015 4:01 pm
Operator : mayrag
Sample : ic2318-1
Misc : op55419,sr2318,250,,,1,1,water
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Apr 27 09:47:15 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Mon Apr 27 09:45:29 2015
Response via : Initial Calibration










ACCUTEST LABORATORIES FA23938

# Manual Integration Approval Summary



| | | | |
|---|---|---|---|
| **Sample Number:** | SR2318-IC2318 | **Method:** | SW846 8270D BY SIM |
| **Lab FileID:** | R448792.D | **Analyst approved:** | 04/27/15 10:39 Mayra Gonzalez |
| **Injection Time:** | 04/24/15 16:01 | **Supervisor approved:** | 04/27/15 13:00 Naresh Jiawan |

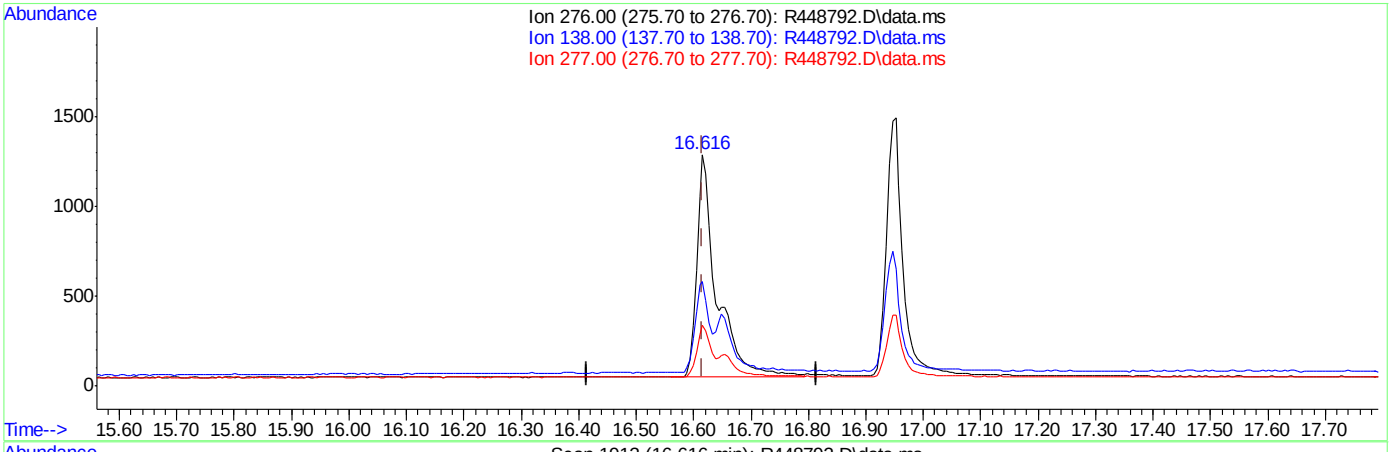
| Parameter | CAS | Sig# | R.T. (min.) | Reason |
|---|---|---|---|---|
| Indeno(1,2,3-cd)pyrene | 193-39-5 | | 16.62 | Missed peak |

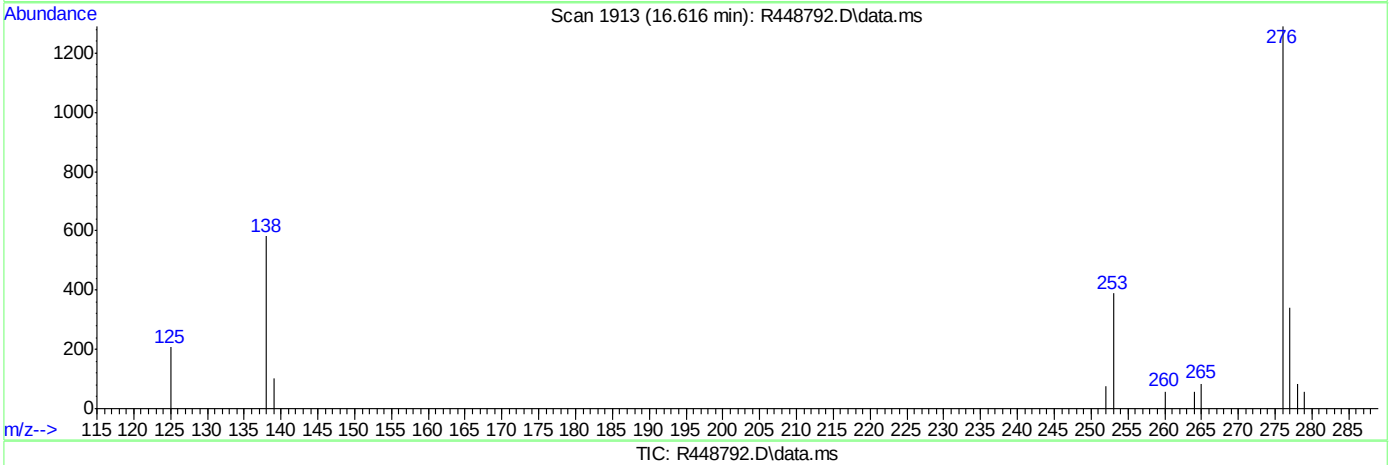
Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\SR2318\
Data File : R448792.D
Acq On    : 24 Apr 2015   4:01 pm
Operator  : mayrag
Sample    : ic2318-1
Misc      : op55419,sr2318,250,,,1,1,water
ALS Vial  : 2   Sample Multiplier: 1

Quant Time: Apr 27 09:46:16 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title  : PAH's by 8270D SIM Large Volume Inj
QLast Update : Mon Apr 27 09:45:29 2015
Response via : Initial Calibration
```






TIC: R448792.D\data.ms

(28) Indeno[1,2,3-cd]pyrene (P)

16.616min (+0.000) 51.88ppb

response 2980

| Ion | Exp% | Act% |
|---|---|---|
| 276.00 | 100 | 100 |
| 138.00 | 21.80 | 40.37 |
| 277.00 | 23.50 | 23.40 |
| 0.00 | 0.00 | 0.00 |



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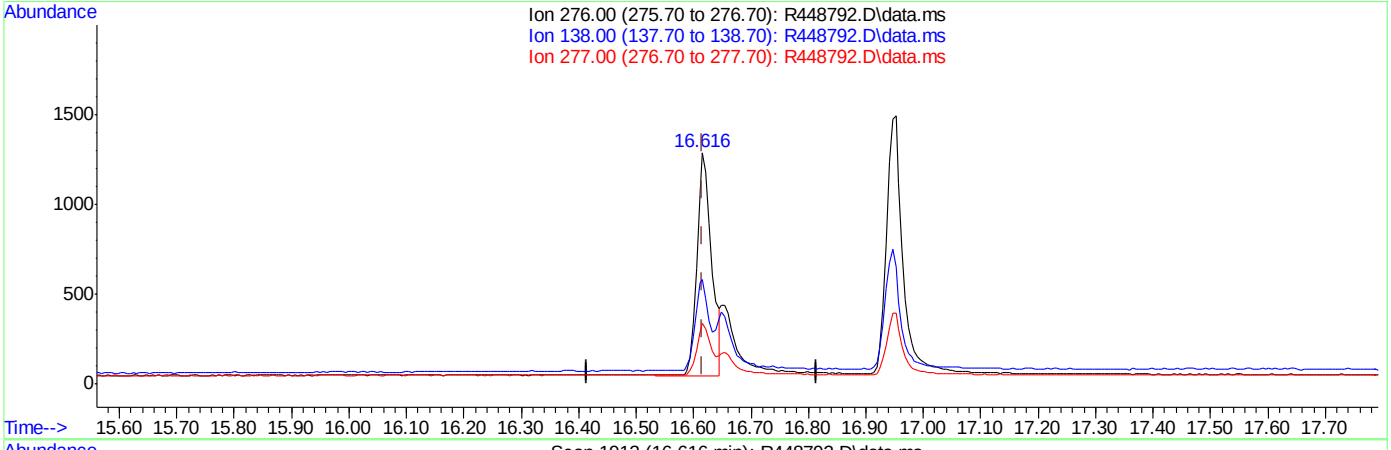
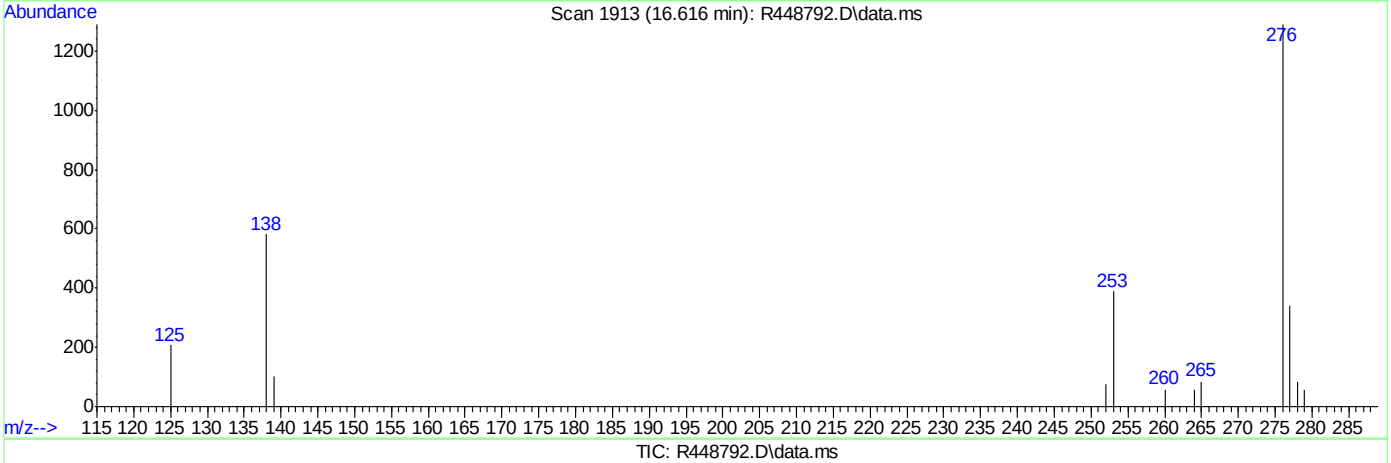
Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\SR2318\
Data File : R448792.D
Acq On    : 24 Apr 2015   4:01 pm
Operator  : mayrag
Sample    : ic2318-1
Misc      : op55419,sr2318,250,,,1,1,water
ALS Vial  : 2   Sample Multiplier: 1

Quant Time: Apr 27 09:46:16 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title  : PAH's by 8270D SIM Large Volume Inj
QLast Update : Mon Apr 27 09:45:29 2015
Response via : Initial Calibration
```




TIC: R448792.D\data.ms

(28) Indeno[1,2,3-cd]pyrene (P)

16.616min (+0.000) 38.70ppb m

response 2223

| Ion | Exp% | Act% |
|---|---|---|
| 276.00 | 100 | 100 |
| 138.00 | 21.80 | 45.12 |
| 277.00 | 23.50 | 26.43 |
| 0.00 | 0.00 | 0.00 |

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2318\
Data File : R448793.D
Acq On : 24 Apr 2015 4:28 pm
Operator : mayrag
Sample : ic2318-2
Misc : op55419,sr2318,250,,,1,1,water
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Apr 27 09:47:26 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Mon Apr 27 09:45:29 2015
Response via : Initial Calibration

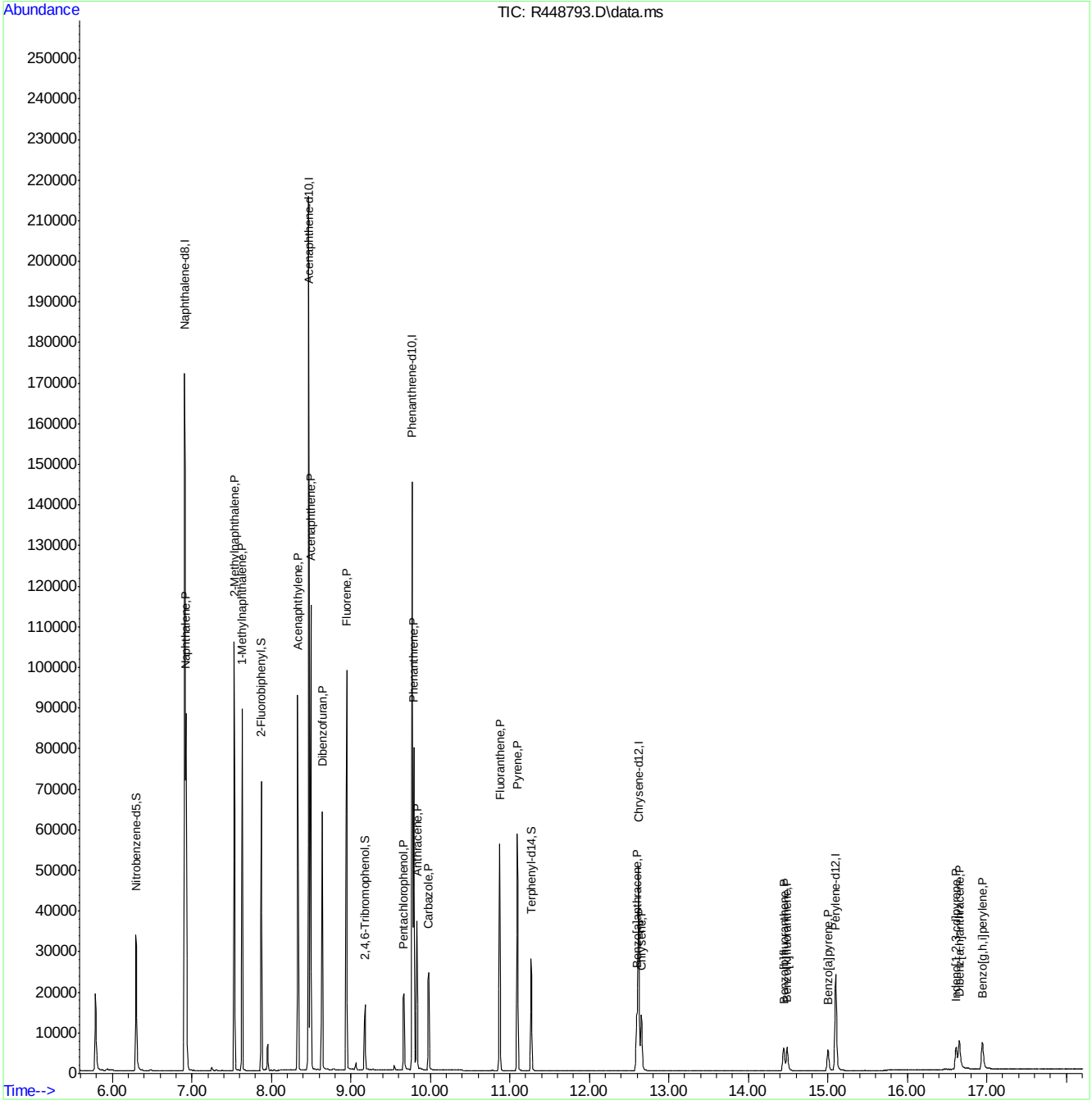
| Internal Standards | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| 1) Naphthalene-d8 | 6.907 | 136 | 126448 | 500.00 | ppb | 0.00 |
| 6) Acenaphthene-d10 | 8.468 | 164 | 67557 | 500.00 | ppb | 0.00 |
| 12) Phenanthrene-d10 | 9.769 | 188 | 97749 | 500.00 | ppb | 0.00 |
| 19) Chrysene-d12 | 12.623 | 240 | 44466 | 500.00 | ppb | 0.00 |
| 24) Perylene-d12 | 15.101 | 264 | 25002 | 500.00 | ppb | 0.00 |
| **System Monitoring Compounds** | | | | | | |
| 2) Nitrobenzene-d5 | 6.296 | 82 | 15673 | 225.54 | ppb | 0.00 |
| Spiked Amount 2000.000 | Range 41 - 129 | | Recovery = 11.28%# | | | |
| 7) 2-Fluorobiphenyl | 7.875 | 172 | 38007 | 228.72 | ppb | 0.00 |
| Spiked Amount 2000.000 | Range 41 - 118 | | Recovery = 11.44%# | | | |
| 13) 2,4,6-Tribromophenol | 9.177 | 330 | 4895 | 414.58 | ppb | 0.00 |
| Spiked Amount 4000.000 | Range 33 - 118 | | Recovery = 10.36%# | | | |
| 21) Terphenyl-d14 | 11.268 | 244 | 17974 | 223.63 | ppb | 0.00 |
| Spiked Amount 2000.000 | Range 45 - 145 | | Recovery = 11.18%# | | | |
| **Target Compounds** | | | | | | Qvalue |
| 3) Naphthalene | 6.924 | 128 | 57587 | 228.58 | ppb | 98 |
| 4) 2-Methylnaphthalene | 7.534 | 142 | 37748 | 220.11 | ppb | 88 |
| 5) 1-Methylnaphthalene | 7.633 | 142 | 34370 | 217.48 | ppb | 92 |
| 8) Acenaphthylene | 8.331 | 152 | 54097 | 223.66 | ppb | 95 |
| 9) Acenaphthene | 8.497 | 153 | 34835 | 224.50 | ppb | 90 |
| 10) Dibenzofuran | 8.642 | 168 | 43721 | 220.50 | ppb | 99 |
| 11) Fluorene | 8.946 | 166 | 34806 | 214.68 | ppb | 98 |
| 14) Pentachlorophenol | 9.667 | 266 | 6748 | 256.16 | ppb | 94 |
| 15) Phenanthrene | 9.790 | 178 | 45491 | 222.11 | ppb | 99 |
| 16) Anthracene | 9.831 | 178 | 21461 | 99.59 | ppb | 97 |
| 17) Carbazole | 9.980 | 167 | 17226 | 96.43 | ppb | 95 |
| 18) Fluoranthene | 10.872 | 202 | 39862 | 200.13 | ppb | 100 |
| 20) Pyrene | 11.092 | 202 | 40598 | 220.83 | ppb | 95 |
| 22) Benzo[a]anthracene | 12.595 | 228 | 10482 | 95.72 | ppb | 99 |
| 23) Chrysene | 12.656 | 228 | 10901 | 100.59 | ppb | 99 |
| 25) Benzo[b]fluoranthene | 14.446 | 252 | 7358 | 96.58 | ppb | 93 |
| 26) Benzo[k]fluoranthene | 14.490 | 252 | 7602 | 98.84 | ppb | 93 |
| 27) Benzo[a]pyrene | 15.002 | 252 | 6147 | 92.77 | ppb | 92 |
| 28) Indeno[1,2,3-cd]pyrene | 16.616 | 276 | 5478 | 98.68 | ppb | 87 |
| 29) Dibenz[a,h]anthracene | 16.654 | 278 | 6171 | 105.34 | ppb | 85 |
| 30) Benzo[g,h,i]perylene | 16.946 | 276 | 7067 | 107.00 | ppb | 81 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2318\
Data File : R448793.D
Acq On : 24 Apr 2015 4:28 pm
Operator : mayrag
Sample : ic2318-2
Misc : op55419,sr2318,250,,,1,1,water
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Apr 27 09:47:26 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Mon Apr 27 09:45:29 2015
Response via : Initial Calibration







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Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2318\
Data File : R448794.D
Acq On : 24 Apr 2015 4:54 pm
Operator : mayrag
Sample : ic2318-3
Misc : op55419,sr2318,250,,,1,1,water
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Apr 27 09:49:00 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Mon Apr 27 09:45:29 2015
Response via : Initial Calibration

| Internal Standards | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| 1) Naphthalene-d8 | 6.913 | 136 | 126230 | 500.00 | ppb | 0.00 |
| 6) Acenaphthene-d10 | 8.468 | 164 | 68351 | 500.00 | ppb | 0.00 |
| 12) Phenanthrene-d10 | 9.770 | 188 | 100459 | 500.00 | ppb | 0.00 |
| 19) Chrysene-d12 | 12.618 | 240 | 47119 | 500.00 | ppb | 0.00 |
| 24) Perylene-d12 | 15.101 | 264 | 26255 | 500.00 | ppb | 0.00 |
| **System Monitoring Compounds** | | | | | | |
| 2) Nitrobenzene-d5 | 6.297 | 82 | 31363 | 452.10 | ppb | 0.00 |
| Spiked Amount 2000.000 | Range 41 - 129 | | Recovery = 22.61%# | | | |
| 7) 2-Fluorobiphenyl | 7.876 | 172 | 75704 | 450.28 | ppb | 0.00 |
| Spiked Amount 2000.000 | Range 41 - 118 | | Recovery = 22.51%# | | | |
| 13) 2,4,6-Tribromophenol | 9.177 | 330 | 10574 | 871.40 | ppb | 0.00 |
| Spiked Amount 4000.000 | Range 33 - 118 | | Recovery = 21.79%# | | | |
| 21) Terphenyl-d14 | 11.269 | 244 | 38649 | 453.79 | ppb | 0.00 |
| Spiked Amount 2000.000 | Range 45 - 145 | | Recovery = 22.69%# | | | |

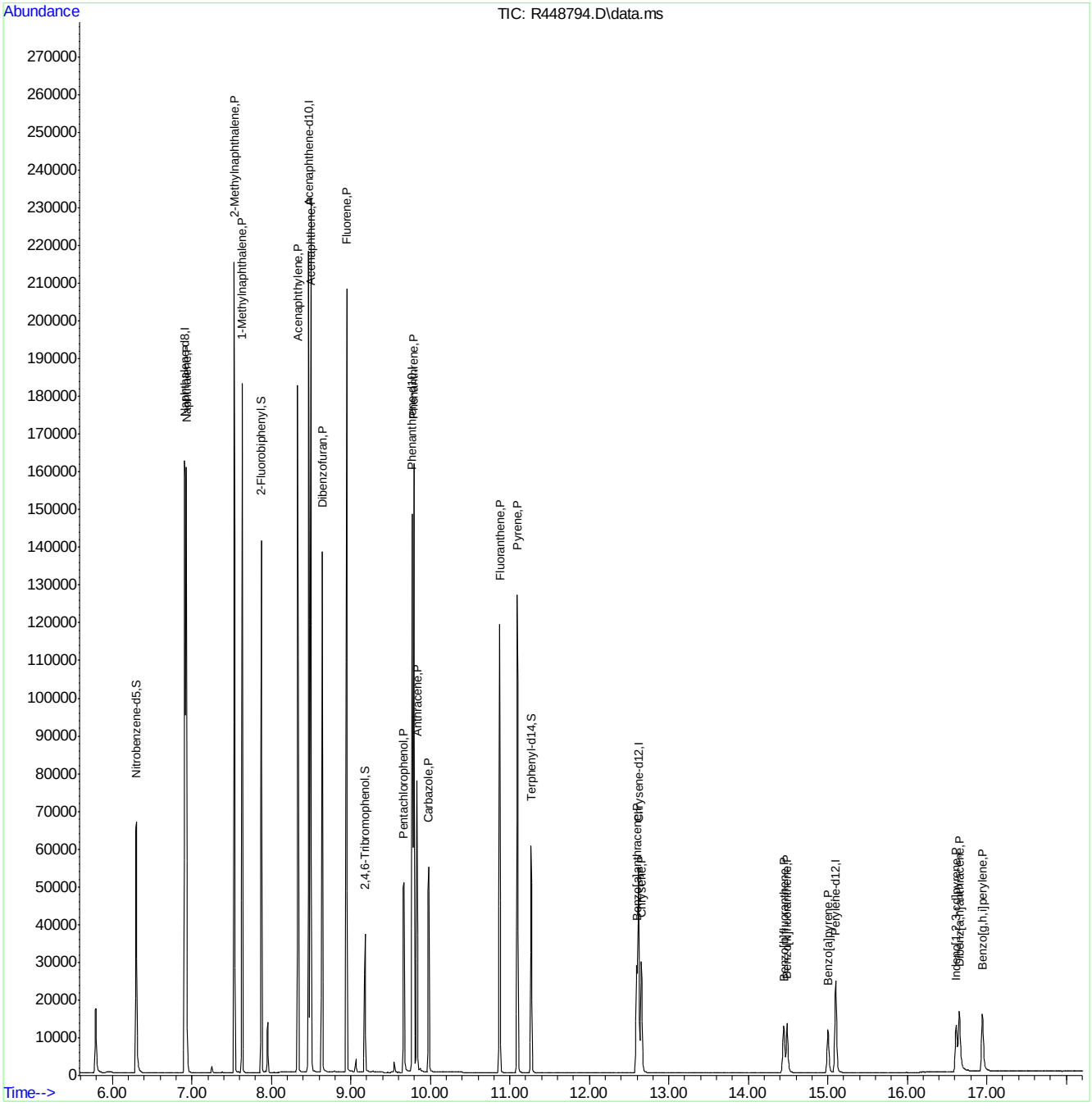
| Target Compounds | | | | | | Qvalue |
|---|---|---|---|---|---|---|
| 3) Naphthalene | 6.929 | 128 | 112817 | 448.57 | ppb | 96 |
| 4) 2-Methylnaphthalene | 7.534 | 142 | 76141 | 444.75 | ppb | 89 |
| 5) 1-Methylnaphthalene | 7.633 | 142 | 69688 | 441.71 | ppb | 92 |
| 8) Acenaphthylene | 8.331 | 152 | 109044 | 445.59 | ppb | 95 |
| 9) Acenaphthene | 8.497 | 153 | 69741 | 444.23 | ppb | 91 |
| 10) Dibenzofuran | 8.642 | 168 | 88819 | 442.74 | ppb | 99 |
| 11) Fluorene | 8.946 | 166 | 71039 | 433.07 | ppb | 100 |
| 14) Pentachlorophenol | 9.668 | 266 | 17384 | 642.10 | ppb | 93 |
| 15) Phenanthrene | 9.790 | 178 | 93929 | 446.23 | ppb | 99 |
| 16) Anthracene | 9.831 | 178 | 45909 | 207.28 | ppb | 97 |
| 17) Carbazole | 9.981 | 167 | 37189 | 202.57 | ppb | 95 |
| 18) Fluoranthene | 10.872 | 202 | 85237 | 416.39 | ppb | 99 |
| 20) Pyrene | 11.092 | 202 | 87358 | 448.41 | ppb | 94 |
| 22) Benzo[a]anthracene | 12.596 | 228 | 22715 | 195.75 | ppb | 98 |
| 23) Chrysene | 12.656 | 228 | 23533 | 204.93 | ppb | 99 |
| 25) Benzo[b]fluoranthene | 14.446 | 252 | 16001 | 200.01 | ppb | 93 |
| 26) Benzo[k]fluoranthene | 14.490 | 252 | 16663 | 206.31 | ppb | 93 |
| 27) Benzo[a]pyrene | 15.002 | 252 | 13544 | 194.65 | ppb | 92 |
| 28) Indeno[1,2,3-cd]pyrene | 16.616 | 276 | 11963 | 205.22 | ppb | 87 |
| 29) Dibenz[a,h]anthracene | 16.654 | 278 | 13331 | 216.71 | ppb | 86 |
| 30) Benzo[g,h,i]perylene | 16.946 | 276 | 15248 | 219.84 | ppb | 82 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2318\
Data File : R448794.D
Acq On : 24 Apr 2015 4:54 pm
Operator : mayrag
Sample : ic2318-3
Misc : op55419,sr2318,250,,,1,1,water
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Apr 27 09:49:00 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Mon Apr 27 09:45:29 2015
Response via : Initial Calibration







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Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2318\
Data File : R448795.D
Acq On : 24 Apr 2015 5:20 pm
Operator : mayrag
Sample : icc2318-4
Misc : op55419,sr2318,250,,,1,1,water
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Apr 27 09:45:16 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Mon Apr 27 09:45:13 2015
Response via : Initial Calibration

| Internal Standards | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| 1) Naphthalene-d8 | 6.907 | 136 | 126971 | 500.00 | ppb | 0.00 |
| 6) Acenaphthene-d10 | 8.468 | 164 | 69441 | 500.00 | ppb | 0.00 |
| 12) Phenanthrene-d10 | 9.770 | 188 | 105603 | 500.00 | ppb | 0.00 |
| 19) Chrysene-d12 | 12.623 | 240 | 50221 | 500.00 | ppb | 0.00 |
| 24) Perylene-d12 | 15.101 | 264 | 27137 | 500.00 | ppb | 0.00 |

| System Monitoring Compounds | | | | | | |
|---|---|---|---|---|---|---|
| 2) Nitrobenzene-d5 | 6.297 | 82 | 76096 | 1090.53 | ppb | 0.00 |
| Spiked Amount 2000.000 | Range 41 - 129 | | Recovery = 54.53% | | | |
| 7) 2-Fluorobiphenyl | 7.876 | 172 | 179589 | 1051.42 | ppb | 0.00 |
| Spiked Amount 2000.000 | Range 41 - 118 | | Recovery = 52.57% | | | |
| 13) 2,4,6-Tribromophenol | 9.177 | 330 | 26998 | 2116.53 | ppb | 0.00 |
| Spiked Amount 4000.000 | Range 33 - 118 | | Recovery = 52.91% | | | |
| 21) Terphenyl-d14 | 11.269 | 244 | 96561 | 1063.72 | ppb | 0.00 |
| Spiked Amount 2000.000 | Range 45 - 145 | | Recovery = 53.19% | | | |

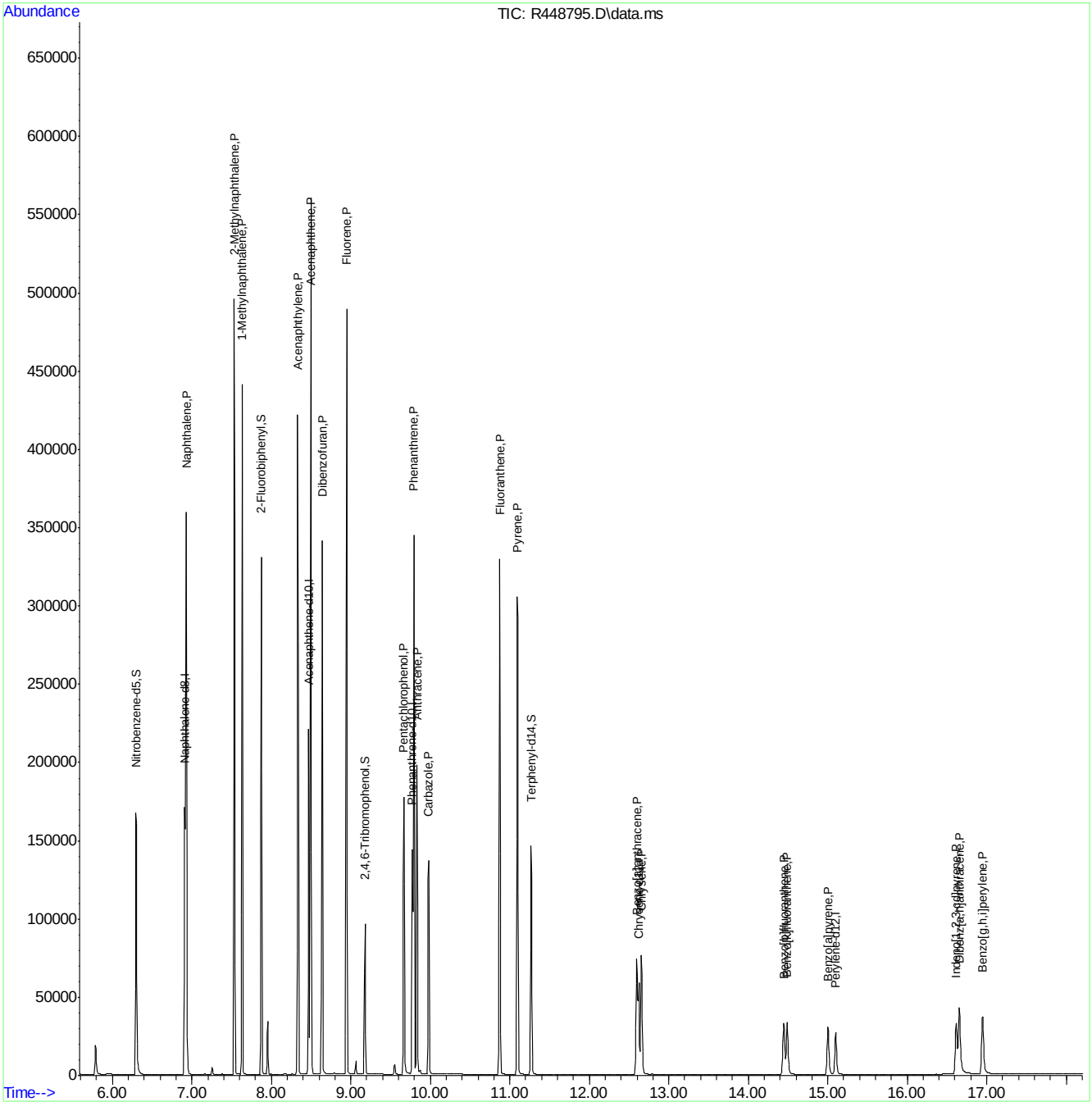
| Target Compounds | | | | | | Qvalue |
|---|---|---|---|---|---|---|
| 3) Naphthalene | 6.929 | 128 | 260904 | 1031.33 | ppb | 96 |
| 4) 2-Methylnaphthalene | 7.535 | 142 | 177642 | 1031.58 | ppb | 91 |
| 5) 1-Methylnaphthalene | 7.634 | 142 | 162539 | 1024.23 | ppb | 94 |
| 8) Acenaphthylene | 8.331 | 152 | 259207 | 1042.57 | ppb | 96 |
| 9) Acenaphthene | 8.497 | 153 | 163247 | 1023.52 | ppb | 92 |
| 10) Dibenzofuran | 8.642 | 168 | 211957 | 1039.96 | ppb | 99 |
| 11) Fluorene | 8.946 | 166 | 170721 | 1024.42 | ppb | 100 |
| 14) Pentachlorophenol | 9.668 | 266 | 52752 | 1853.54 | ppb | 94 |
| 15) Phenanthrene | 9.790 | 178 | 226415 | 1023.25 | ppb | 98 |
| 16) Anthracene | 9.831 | 178 | 116132 | 498.81 | ppb | 98 |
| 17) Carbazole | 9.981 | 167 | 95067 | 492.60 | ppb | 94 |
| 18) Fluoranthene | 10.872 | 202 | 215777 | 1002.74 | ppb | 98 |
| 20) Pyrene | 11.092 | 202 | 222185 | 1070.05 | ppb | 93 |
| 22) Benzo[a]anthracene | 12.596 | 228 | 58893 | 476.18 | ppb | 99 |
| 23) Chrysene | 12.656 | 228 | 59131 | 483.12 | ppb | 99 |
| 25) Benzo[b]fluoranthene | 14.446 | 252 | 40822 | 493.69 | ppb | 93 |
| 26) Benzo[k]fluoranthene | 14.490 | 252 | 42345 | 507.25 | ppb | 92 |
| 27) Benzo[a]pyrene | 15.002 | 252 | 35185 | 489.24 | ppb | 92 |
| 28) Indeno[1,2,3-cd]pyrene | 16.616 | 276 | 30548 | 507.00 | ppb | 87 |
| 29) Dibenz[a,h]anthracene | 16.654 | 278 | 33460 | 526.24 | ppb | 85 |
| 30) Benzo[g,h,i]perylene | 16.952 | 276 | 37306 | 520.38 | ppb | 85 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2318\
Data File : R448795.D
Acq On : 24 Apr 2015 5:20 pm
Operator : mayrag
Sample : icc2318-4
Misc : op55419,sr2318,250,,,1,1,water
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Apr 27 09:45:16 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Mon Apr 27 09:45:13 2015
Response via : Initial Calibration







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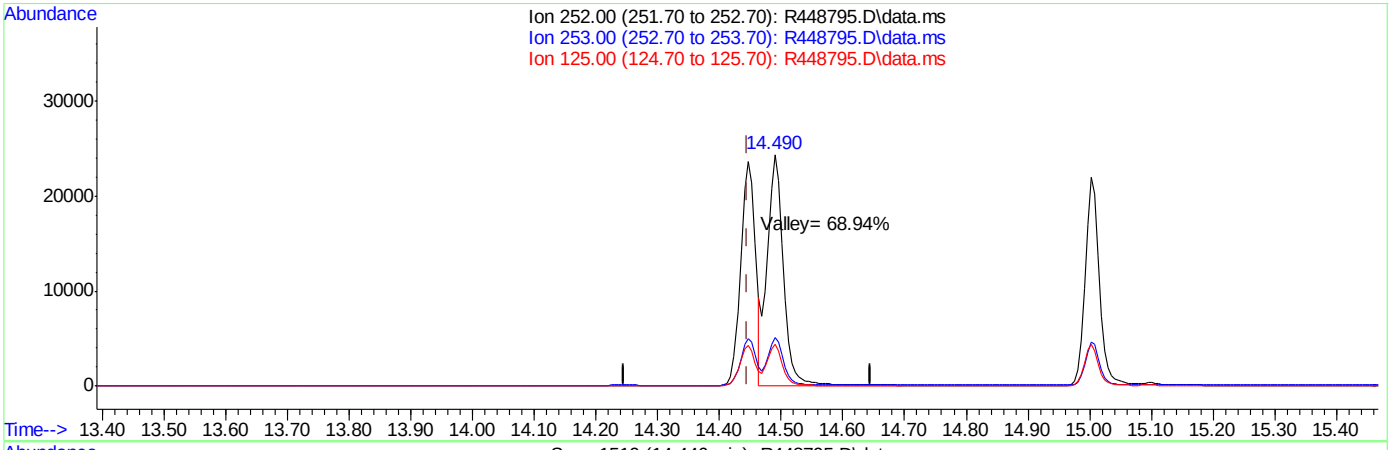
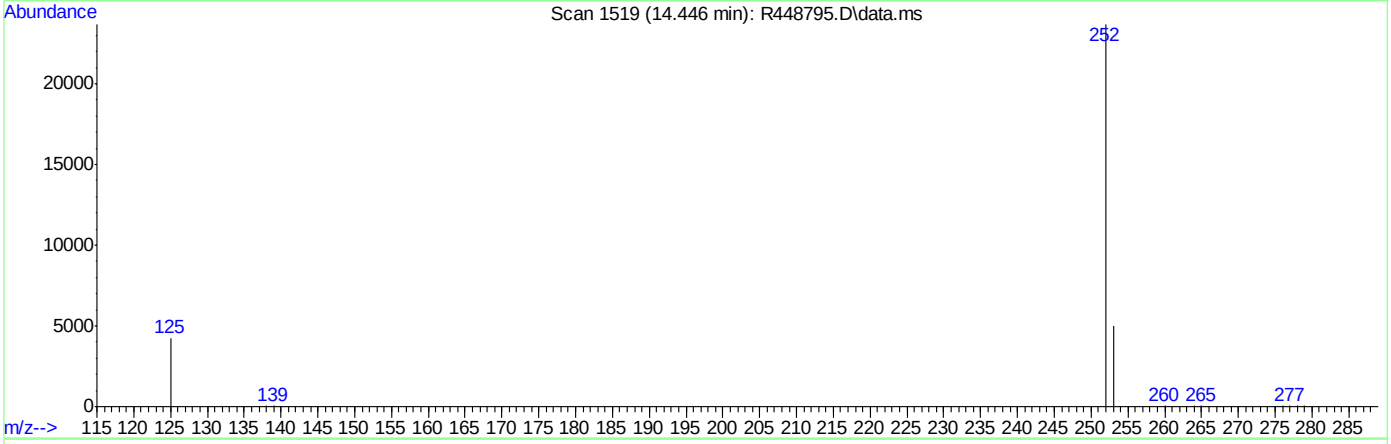
Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\SR2318\
Data File : R448795.D
Acq On : 24 Apr 2015 5:20 pm
Operator : mayrag
Sample : icc2318-4
Misc : op55419,sr2318,250,,,1,1,water
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Apr 27 09:45:16 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Mon Apr 27 09:45:13 2015
Response via : Initial Calibration




TIC: R448795.D\data.ms

(25) Benzo[b]fluoranthene (P)

14.446min (0.000) 493.69ppb

response 40822

| Ion | Exp% | Act% |
|---|---|---|
| 252.00 | 100 | 100 |
| 253.00 | 22.00 | 20.88 |
| 125.00 | 11.40 | 17.67 |
| 0.00 | 0.00 | 0.00 |

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2318\
Data File : R448796.D
Acq On : 24 Apr 2015 5:47 pm
Operator : mayrag
Sample : ic2318-5
Misc : op55419,sr2318,250,,,1,1,water
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Apr 27 09:49:33 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Mon Apr 27 09:45:29 2015
Response via : Initial Calibration

| Internal Standards | R.T. | QIon | Response | Conc Units | Dev(Min) |
|---|---|---|---|---|---|
| 1) Naphthalene-d8 | 6.913 | 136 | 119468 | 500.00 ppb | 0.00 |
| 6) Acenaphthene-d10 | 8.468 | 164 | 65450 | 500.00 ppb | 0.00 |
| 12) Phenanthrene-d10 | 9.777 | 188 | 104599 | 500.00 ppb | 0.00 |
| 19) Chrysene-d12 | 12.623 | 240 | 52411 | 500.00 ppb | 0.00 |
| 24) Perylene-d12 | 15.101 | 264 | 28198 | 500.00 ppb | 0.00 |

| System Monitoring Compounds | | | | | |
|---|---|---|---|---|---|
| 2) Nitrobenzene-d5 | 6.302 | 82 | 158385 | 2412.37 ppb | 0.00 |
| Spiked Amount 2000.000 | Range 41 - 129 | | Recovery = 120.62% | | |
| 7) 2-Fluorobiphenyl | 7.876 | 172 | 353832 | 2197.85 ppb | 0.00 |
| Spiked Amount 2000.000 | Range 41 - 118 | | Recovery = 109.89% | | |
| 13) 2,4,6-Tribromophenol | 9.177 | 330 | 59180 | 4684.00 ppb | 0.00 |
| Spiked Amount 4000.000 | Range 33 - 118 | | Recovery = 117.10% | | |
| 21) Terphenyl-d14 | 11.274 | 244 | 212578 | 2243.92 ppb | 0.00 |
| Spiked Amount 2000.000 | Range 45 - 145 | | Recovery = 112.20% | | |

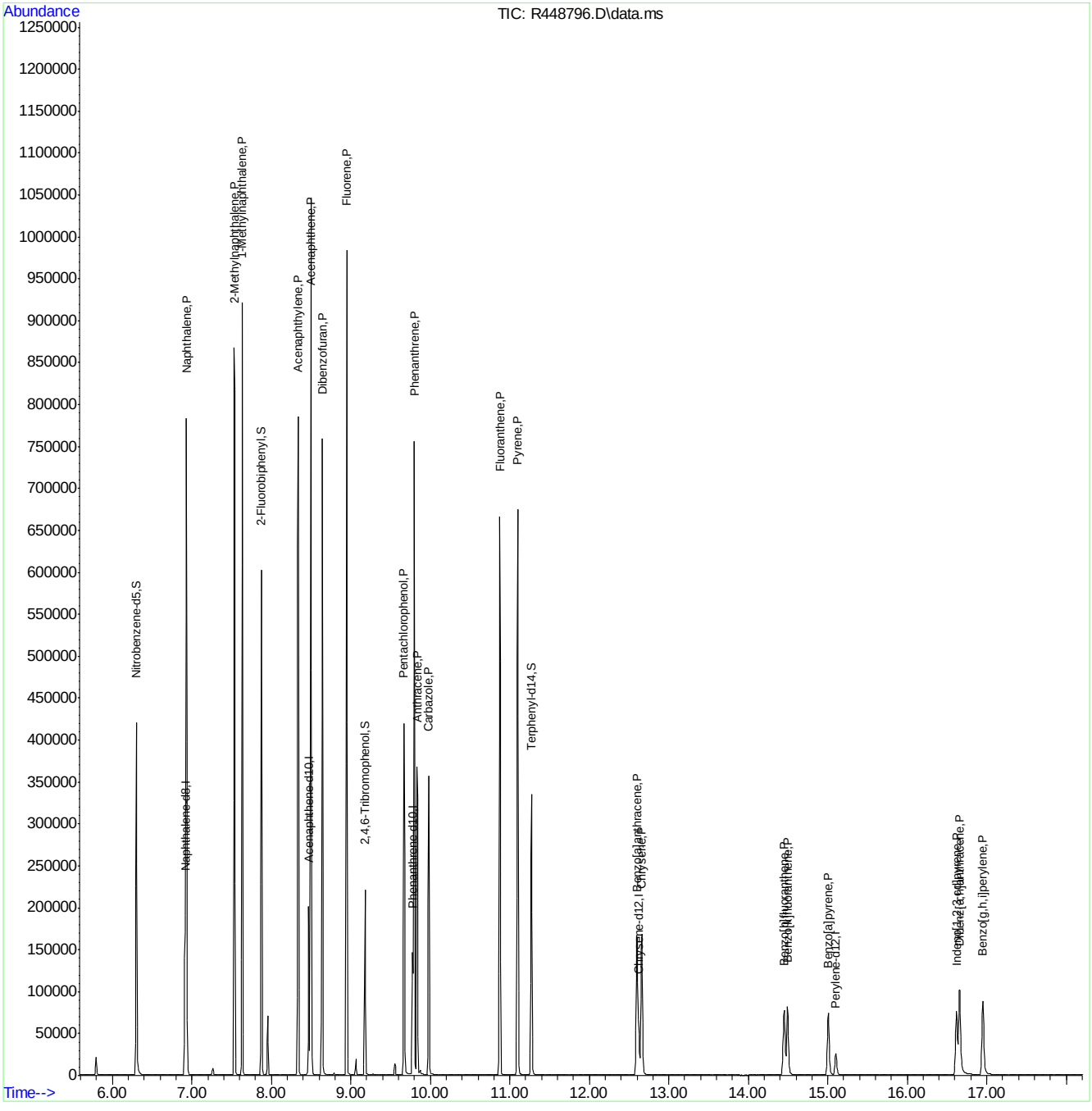
| Target Compounds | | | | | Qvalue |
|---|---|---|---|---|---|
| 3) Naphthalene | 6.929 | 128 | 509447 | 2140.27 ppb | 98 |
| 4) 2-Methylnaphthalene | 7.540 | 142 | 348346 | 2149.92 ppb | 82 |
| 5) 1-Methylnaphthalene | 7.634 | 142 | 321459 | 2152.87 ppb | 97 |
| 8) Acenaphthylene | 8.338 | 152 | 517683 | 2209.17 ppb | 94 |
| 9) Acenaphthene | 8.497 | 153 | 317312 | 2110.79 ppb | 94 |
| 10) Dibenzofuran | 8.642 | 168 | 431026 | 2243.77 ppb | 88 |
| 11) Fluorene | 8.946 | 166 | 339173 | 2159.33 ppb | 95 |
| 14) Pentachlorophenol | 9.668 | 266 | 126323 | 4481.21 ppb | 93 |
| 15) Phenanthrene | 9.797 | 178 | 462174 | 2108.77 ppb | 98 |
| 16) Anthracene | 9.831 | 178 | 251452 | 1090.40 ppb | 99 |
| 17) Carbazole | 9.981 | 167 | 211272 | 1105.23 ppb | 97 |
| 18) Fluoranthene | 10.872 | 202 | 454495 | 2132.37 ppb | 96 |
| 20) Pyrene | 11.098 | 202 | 469555 | 2166.89 ppb | 94 |
| 22) Benzo[a]anthracene | 12.596 | 228 | 140126 | 1085.65 ppb | 99 |
| 23) Chrysene | 12.662 | 228 | 137609 | 1077.33 ppb | 99 |
| 25) Benzo[b]fluoranthene | 14.451 | 252 | 97933 | 1139.81 ppb | 93 |
| 26) Benzo[k]fluoranthene | 14.495 | 252 | 97357 | 1122.36 ppb | 93 |
| 27) Benzo[a]pyrene | 15.008 | 252 | 84357 | 1128.82 ppb | 93 |
| 28) Indeno[1,2,3-cd]pyrene | 16.621 | 276 | 74235 | 1185.70 ppb | 90 |
| 29) Dibenz[a,h]anthracene | 16.660 | 278 | 77733 | 1176.54 ppb | 89 |
| 30) Benzo[g,h,i]perylene | 16.957 | 276 | 86493 | 1161.10 ppb | 88 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2318\
Data File : R448796.D
Acq On : 24 Apr 2015 5:47 pm
Operator : mayrag
Sample : ic2318-5
Misc : op55419,sr2318,250,,,1,1,water
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Apr 27 09:49:33 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Mon Apr 27 09:45:29 2015
Response via : Initial Calibration










ACCUTEST LABORATORIES FA23938

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2318\
Data File : R448797.D
Acq On : 24 Apr 2015 6:13 pm
Operator : mayrag
Sample : ic2318-6
Misc : op55419,sr2318,250,,,1,1,water
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Apr 27 09:50:58 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Mon Apr 27 09:45:29 2015
Response via : Initial Calibration

| Internal Standards | R.T. | QIon | Response | Conc Units | Dev(Min) |
|---|---|---|---|---|---|
| 1) Naphthalene-d8 | 6.913 | 136 | 123817 | 500.00 ppb | 0.00 |
| 6) Acenaphthene-d10 | 8.468 | 164 | 68311 | 500.00 ppb | 0.00 |
| 12) Phenanthrene-d10 | 9.777 | 188 | 110362 | 500.00 ppb | 0.00 |
| 19) Chrysene-d12 | 12.629 | 240 | 59243 | 500.00 ppb | 0.00 |
| 24) Perylene-d12 | 15.107 | 264 | 30777 | 500.00 ppb | 0.00 |

System Monitoring Compounds

| | | | | | |
|---|---|---|---|---|---|
| 2) Nitrobenzene-d5 | 6.302 | 82 | 360179 | 5293.21 ppb | 0.00 |
| Spiked Amount 2000.000 | Range 41 - 129 | | Recovery = 264.66%# | | |
| 7) 2-Fluorobiphenyl | 7.881 | 172 | 753067 | 4481.82 ppb | 0.00 |
| Spiked Amount 2000.000 | Range 41 - 118 | | Recovery = 224.09%# | | |
| 13) 2,4,6-Tribromophenol | 9.185 | 330 | 149077 | 11183.05 ppb | 0.00 |
| Spiked Amount 4000.000 | Range 33 - 118 | | Recovery = 279.58%# | | |
| 21) Terphenyl-d14 | 11.280 | 244 | 489873 | 4574.64 ppb | 0.01 |
| Spiked Amount 2000.000 | Range 45 - 145 | | Recovery = 228.73%# | | |

Target Compounds

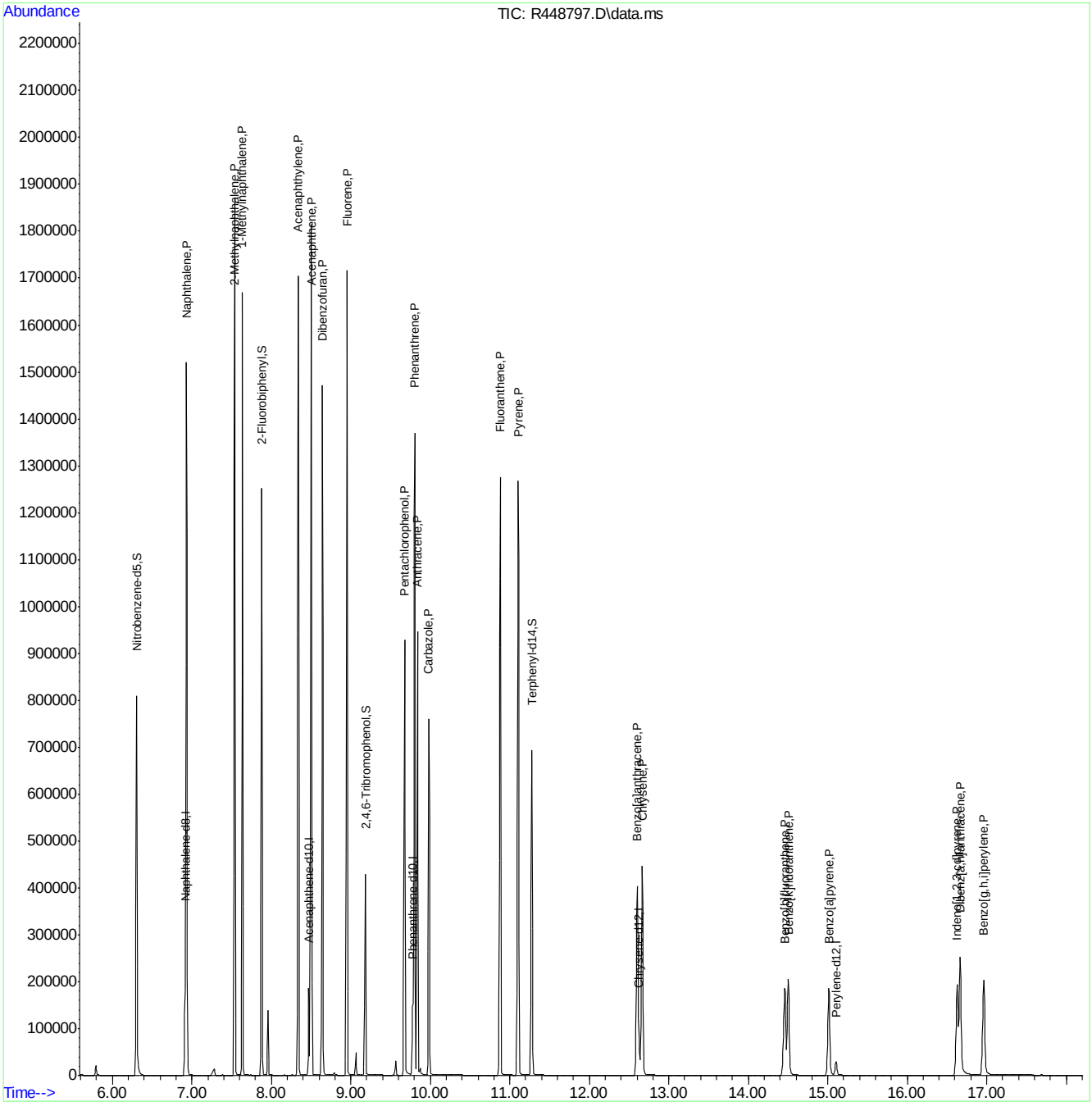
| | | | | | Qvalue |
|---|---|---|---|---|---|
| 3) Naphthalene | 6.929 | 128 | 1040272 | 4216.85 ppb | 96 |
| 4) 2-Methylnaphthalene | 7.540 | 142 | 724706 | 4315.63 ppb | 93 |
| 5) 1-Methylnaphthalene | 7.639 | 142 | 673760 | 4353.81 ppb | 95 |
| 8) Acenaphthylene | 8.338 | 152 | 1059759 | 4333.04 ppb | 98 |
| 9) Acenaphthene | 8.505 | 153 | 665527 | 4241.74 ppb | 91 |
| 10) Dibenzofuran | 8.642 | 168 | 907023 | 4523.89 ppb | 63 |
| 11) Fluorene | 8.953 | 166 | 715739 | 4365.88 ppb | 99 |
| 14) Pentachlorophenol | 9.674 | 266 | 312093 | 10493.12 ppb | 92 |
| 15) Phenanthrene | 9.804 | 178 | 976325 | 4222.07 ppb | 96 |
| 16) Anthracene | 9.838 | 178 | 575141 | 2363.81 ppb | 98 |
| 17) Carbazole | 9.981 | 167 | 498192 | 2470.11 ppb | 96 |
| 18) Fluoranthene | 10.878 | 202 | 996786 | 4432.45 ppb | 93 |
| 20) Pyrene | 11.103 | 202 | 1024015 | 4180.63 ppb | 91 |
| 22) Benzo[a]anthracene | 12.601 | 228 | 366750 | 2513.78 ppb | 97 |
| 23) Chrysene | 12.667 | 228 | 350733 | 2429.21 ppb | 98 |
| 25) Benzo[b]fluoranthene | 14.457 | 252 | 253686 | 2705.16 ppb | 92 |
| 26) Benzo[k]fluoranthene | 14.506 | 252 | 253584 | 2678.43 ppb | 93 |
| 27) Benzo[a]pyrene | 15.013 | 252 | 222428 | 2727.01 ppb | 92 |
| 28) Indeno[1,2,3-cd]pyrene | 16.627 | 276 | 189926 | 2779.34 ppb | 86 |
| 29) Dibenz[a,h]anthracene | 16.665 | 278 | 194158 | 2692.45 ppb | 86 |
| 30) Benzo[g,h,i]perylene | 16.968 | 276 | 213315 | 2623.63 ppb | 86 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2318\
Data File : R448797.D
Acq On : 24 Apr 2015 6:13 pm
Operator : mayrag
Sample : ic2318-6
Misc : op55419,sr2318,250,,,1,1,water
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Apr 27 09:50:58 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Mon Apr 27 09:45:29 2015
Response via : Initial Calibration



R448798.D

Manual Integrations APPROVED (compounds with "m" flag)

Naresh Jiawan 04/27/15 13:00

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2318\
Data File : R448798.D
Acq On : 24 Apr 2015 6:39 pm
Operator : mayrag
Sample : ic2318-7
Misc : op55419,sr2318,250,,,1,1,water
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Apr 27 09:51:55 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Mon Apr 27 09:45:29 2015
Response via : Initial Calibration

| Internal Standards | R.T. | QIon | Response | Conc Units | Dev(Min) |
|---|---|---|---|---|---|
| 1) Naphthalene-d8 | 6.913 | 136 | 123104 | 500.00 ppb | 0.00 |
| 6) Acenaphthene-d10 | 8.476 | 164 | 67515 | 500.00 ppb | 0.00 |
| 12) Phenanthrene-d10 | 9.783 | 188 | 110314 | 500.00 ppb | 0.01 |
| 19) Chrysene-d12 | 12.634 | 240 | 62395 | 500.00 ppb | 0.01 |
| 24) Perylene-d12 | 15.107 | 264 | 32639 | 500.00 ppb | 0.00 |

| System Monitoring Compounds | | | | | |
|---|---|---|---|---|---|
| 2) Nitrobenzene-d5 | 6.307 | 82 | 642214 | 9492.67 ppb | 0.01 |
| Spiked Amount 2000.000 | Range 41 - 129 | | Recovery = 474.63%# | | |
| 7) 2-Fluorobiphenyl | 7.886 | 172 | 1231650 | 7416.49 ppb | 0.01 |
| Spiked Amount 2000.000 | Range 41 - 118 | | Recovery = 370.82%# | | |
| 13) 2,4,6-Tribromophenol | 9.185 | 330 | 288799 | 21673.77 ppb | 0.00 |
| Spiked Amount 4000.000 | Range 33 - 118 | | Recovery = 541.84%# | | |
| 21) Terphenyl-d14 | 11.285 | 244 | 831448 | 7372.18 ppb | 0.02 |
| Spiked Amount 2000.000 | Range 45 - 145 | | Recovery = 368.61%# | | |

| Target Compounds | | | | | Qvalue |
|---|---|---|---|---|---|
| 3) Naphthalene | 6.935 | 128 | 1651462 | 6733.14 ppb | 93 |
| 4) 2-Methylnaphthalene | 7.545 | 142 | 1174094 | 7032.23 ppb | 94 |
| 5) 1-Methylnaphthalene | 7.639 | 142 | 1097473 | 7132.89 ppb | 91 |
| 8) Acenaphthylene | 8.345 | 152 | 1699356 | 7030.07 ppb | 96 |
| 9) Acenaphthene | 8.505 | 153 | 1095194 | 7062.52 ppb | 92 |
| 10) Dibenzofuran | 8.649 | 168 | 1497788 | 7558.48 ppb | 68 |
| 11) Fluorene | 8.953 | 166 | 1176297 | 7259.79 ppb | 93 |
| 14) Pentachlorophenol | 9.688 | 266 | 572586 | 19259.73 ppb | 91 |
| 15) Phenanthrene | 9.810 | 178 | 1568880 | 6787.50 ppb | 93 |
| 16) Anthracene | 9.844 | 178 | 969834 | 3987.72 ppb | 95 |
| 17) Carbazole | 9.987 | 167 | 879910 | 4364.63 ppb | 95 |
| 18) Fluoranthene | 10.888 | 202 | 1654531 | 7360.48 ppb | 93 |
| 20) Pyrene | 11.114 | 202 | 1715479 | 6649.80 ppb | 91 |
| 22) Benzo[a]anthracene | 12.612 | 228 | 711817 | 4632.47 ppb | 96 |
| 23) Chrysene | 12.678 | 228 | 675428 | 4441.76 ppb | 97 |
| 25) Benzo[b]fluoranthene | 14.468 | 252 | 507559 | 5103.54 ppb | 93 |
| 26) Benzo[k]fluoranthene | 14.523 | 252 | 491563m | 4895.83 ppb | |
| 27) Benzo[a]pyrene | 15.024 | 252 | 440958 | 5097.82 ppb | 92 |
| 28) Indeno[1,2,3-cd]pyrene | 16.638 | 276 | 365832 | 5048.10 ppb | 85 |
| 29) Dibenz[a,h]anthracene | 16.676 | 278 | 359844 | 4705.39 ppb | 86 |
| 30) Benzo[g,h,i]perylene | 16.979 | 276 | 396338 | 4596.60 ppb | 81 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

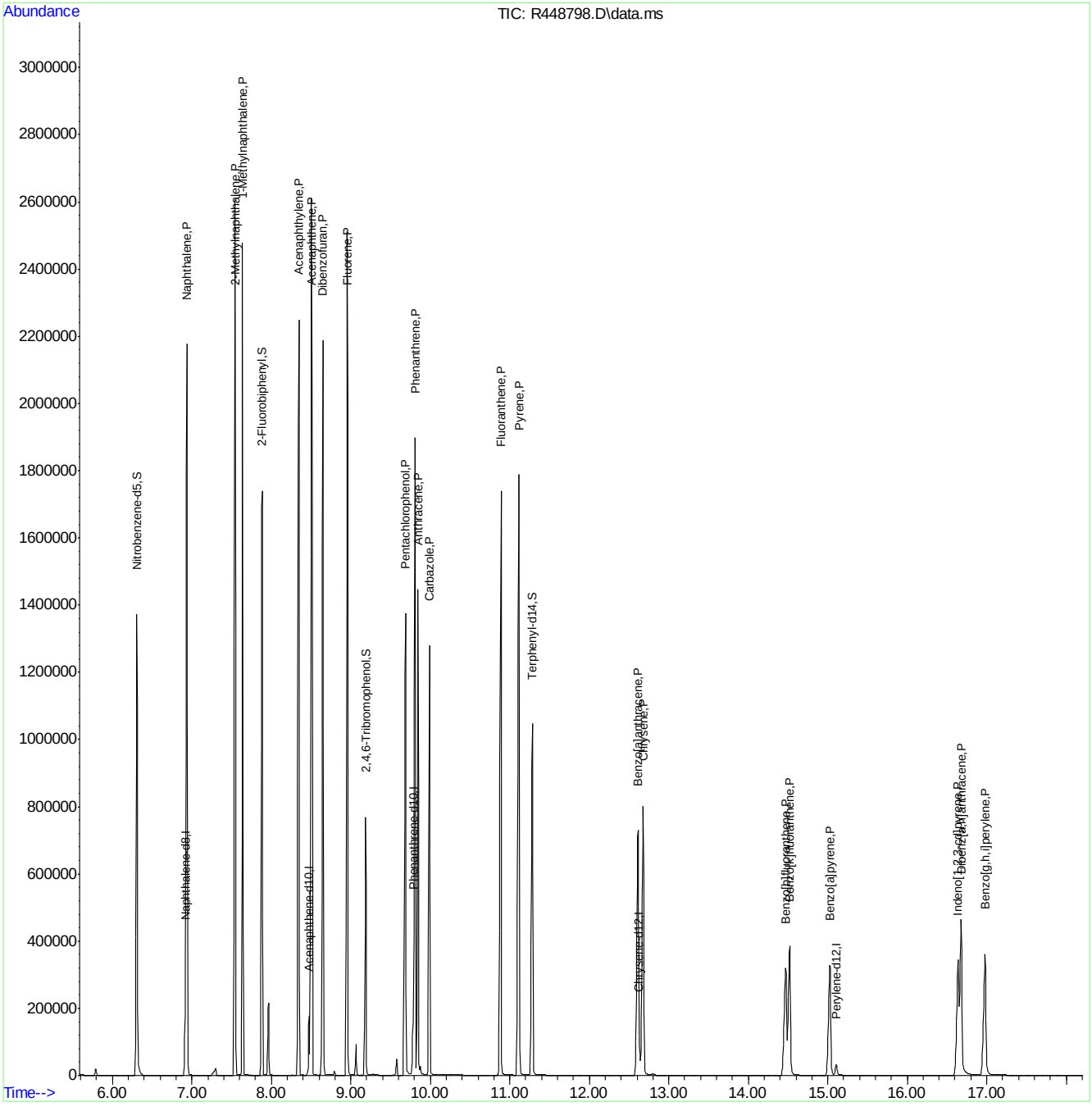
7.6.7

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2318\
Data File : R448798.D
Acq On : 24 Apr 2015 6:39 pm
Operator : mayrag
Sample : ic2318-7
Misc : op55419,sr2318,250,,,1,1,water
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Apr 27 09:51:55 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Mon Apr 27 09:45:29 2015
Response via : Initial Calibration






ACCUTEST LABORATORIES FA23938

# Manual Integration Approval Summary



| | | | |
|---|---|---|---|
| **Sample Number:** | SR2318-IC2318 | **Method:** | SW846 8270D BY SIM |
| **Lab FileID:** | R448798.D | **Analyst approved:** | 04/27/15 10:39 Mayra Gonzalez |
| **Injection Time:** | 04/24/15 18:39 | **Supervisor approved:** | 04/27/15 13:00 Naresh Jiawan |

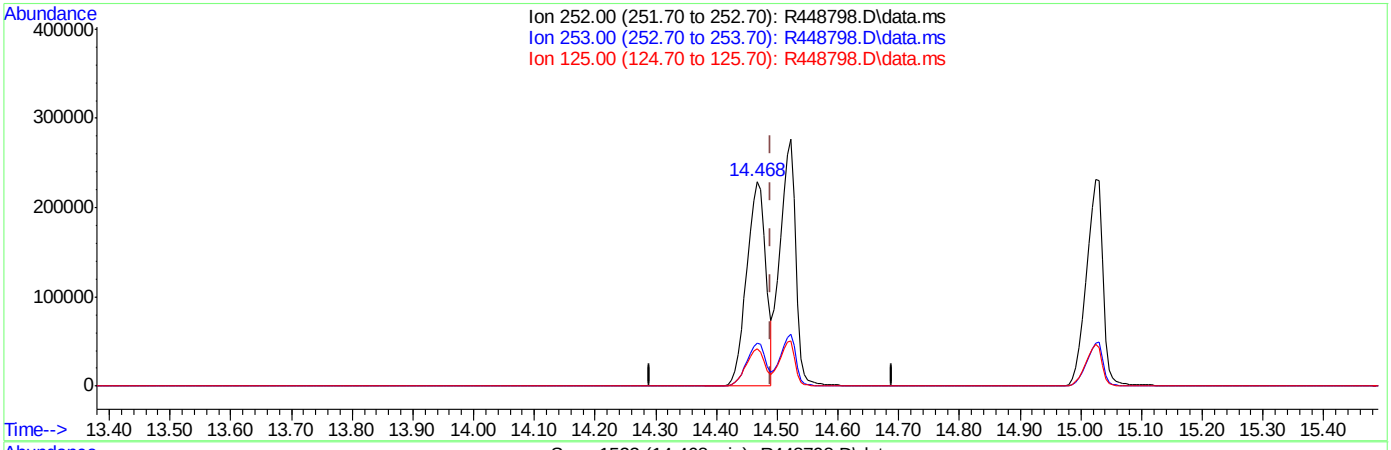
| Parameter | CAS | Sig# | R.T. (min.) | Reason |
|---|---|---|---|---|
| Benzo(k)fluoranthene | 207-08-9 | | 14.52 | Missed peak |

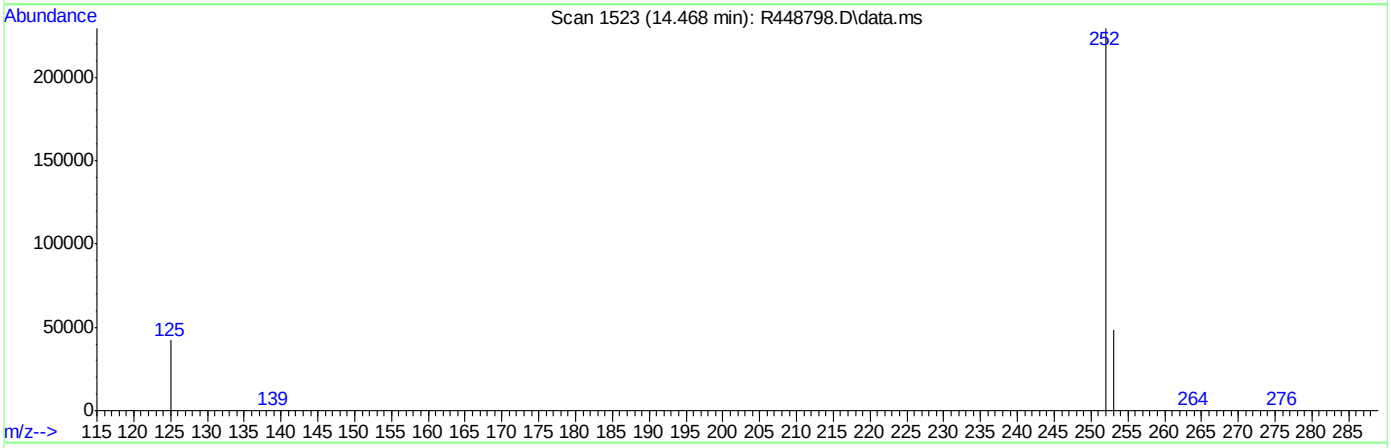
Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\SR2318\
Data File : R448798.D
Acq On : 24 Apr 2015 6:39 pm
Operator : mayrag
Sample : ic2318-7
Misc : op55419,sr2318,250,,,1,1,water
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Apr 27 09:51:42 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Mon Apr 27 09:45:29 2015
Response via : Initial Calibration






TIC: R448798.D\data.ms

(26) Benzo[k]fluoranthene (P)

14.468min (-0.022) 5055.15ppb

response 507559

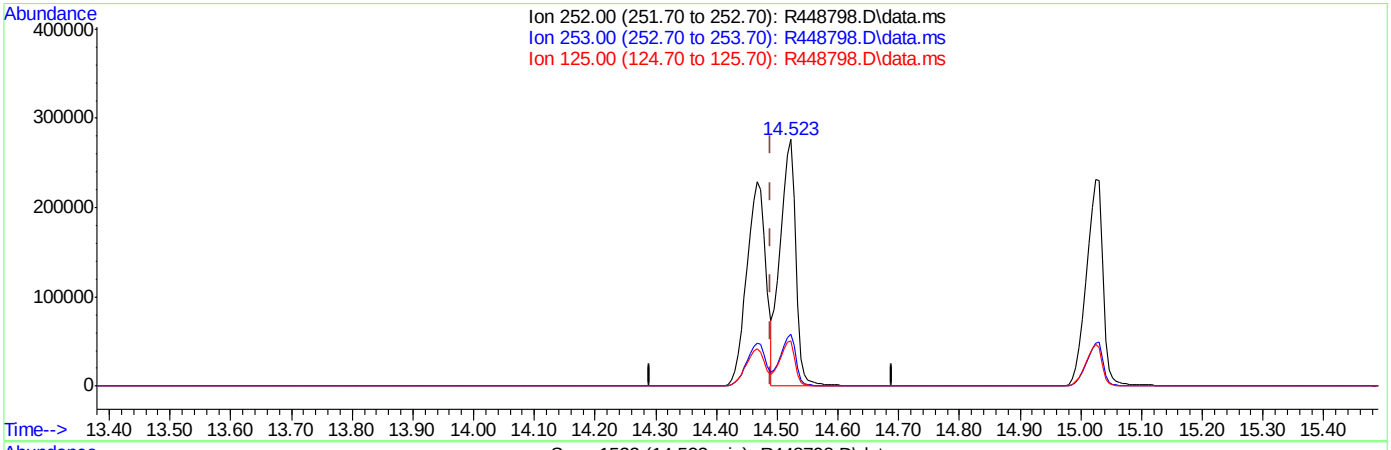
| Ion | Exp% | Act% |
|---|---|---|
| 252.00 | 100 | 100 |
| 253.00 | 21.90 | 21.17 |
| 125.00 | 11.10 | 18.48 |
| 0.00 | 0.00 | 0.00 |

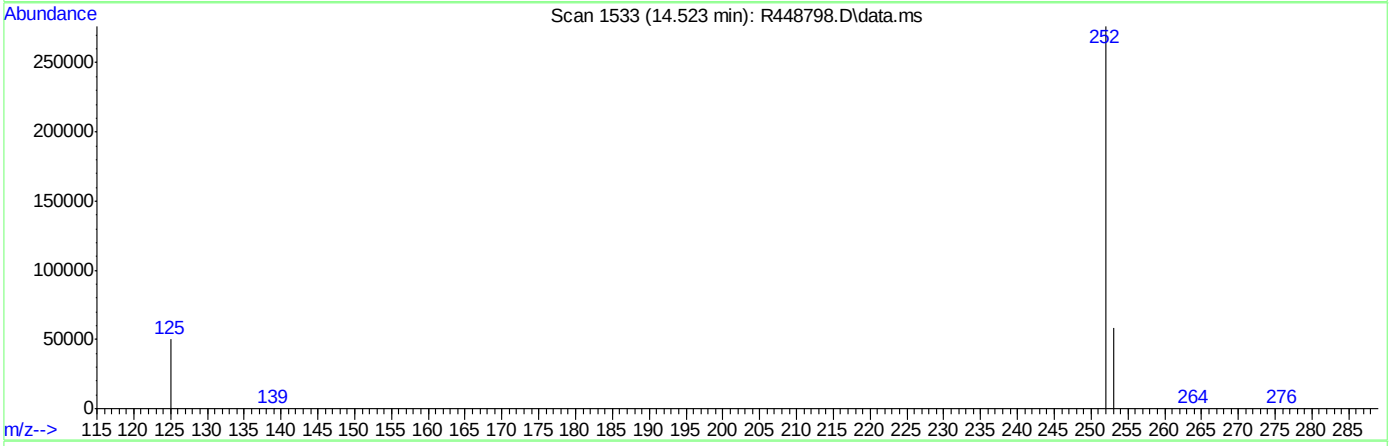
Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\SR2318\
Data File : R448798.D
Acq On : 24 Apr 2015 6:39 pm
Operator : mayrag
Sample : ic2318-7
Misc : op55419,sr2318,250,,,1,1,water
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Apr 27 09:51:42 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Mon Apr 27 09:45:29 2015
Response via : Initial Calibration






TIC: R448798.D\data.ms

(26) Benzo[k]fluoranthene (P)

14.523min (+0.033) 4895.83ppb m

response 491563

| Ion | Exp% | Act% |
|---|---|---|
| 252.00 | 100 | 100 |
| 253.00 | 21.90 | 21.19 |
| 125.00 | 11.10 | 18.19 |
| 0.00 | 0.00 | 0.00 |

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2318\
Data File : R448799.D
Acq On : 24 Apr 2015 7:06 pm
Operator : mayrag
Sample : icv2318-4
Misc : op55419,sr2318,250,,,1,1,water
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Apr 27 09:54:50 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Mon Apr 27 09:54:14 2015
Response via : Initial Calibration

| Internal Standards | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| 1) Naphthalene-d8 | 6.913 | 136 | 123257 | 500.00 | ppb | 0.00 |
| 6) Acenaphthene-d10 | 8.468 | 164 | 68250 | 500.00 | ppb | 0.00 |
| 12) Phenanthrene-d10 | 9.770 | 188 | 104413 | 500.00 | ppb | 0.00 |
| 19) Chrysene-d12 | 12.623 | 240 | 48209 | 500.00 | ppb | 0.00 |
| 24) Perylene-d12 | 15.101 | 264 | 26175 | 500.00 | ppb | 0.00 |

System Monitoring Compounds

| | | | | | | |
|---|---|---|---|---|---|---|
| 2) Nitrobenzene-d5 | 0.000 | 82 | 0 | 0.00 | ppb | |
| Spiked Amount 2000.000 | Range 41 - 129 | | Recovery | = | 0.00%# | |
| 7) 2-Fluorobiphenyl | 0.000 | 172 | 0 | 0.00 | ppb | |
| Spiked Amount 2000.000 | Range 41 - 118 | | Recovery | = | 0.00%# | |
| 13) 2,4,6-Tribromophenol | 0.000 | 330 | 0 | 0.00 | ppb | |
| Spiked Amount 4000.000 | Range 33 - 118 | | Recovery | = | 0.00%# | |
| 21) Terphenyl-d14 | 0.000 | 244 | 0 | 0.00 | ppb | |
| Spiked Amount 2000.000 | Range 45 - 145 | | Recovery | = | 0.00%# | |

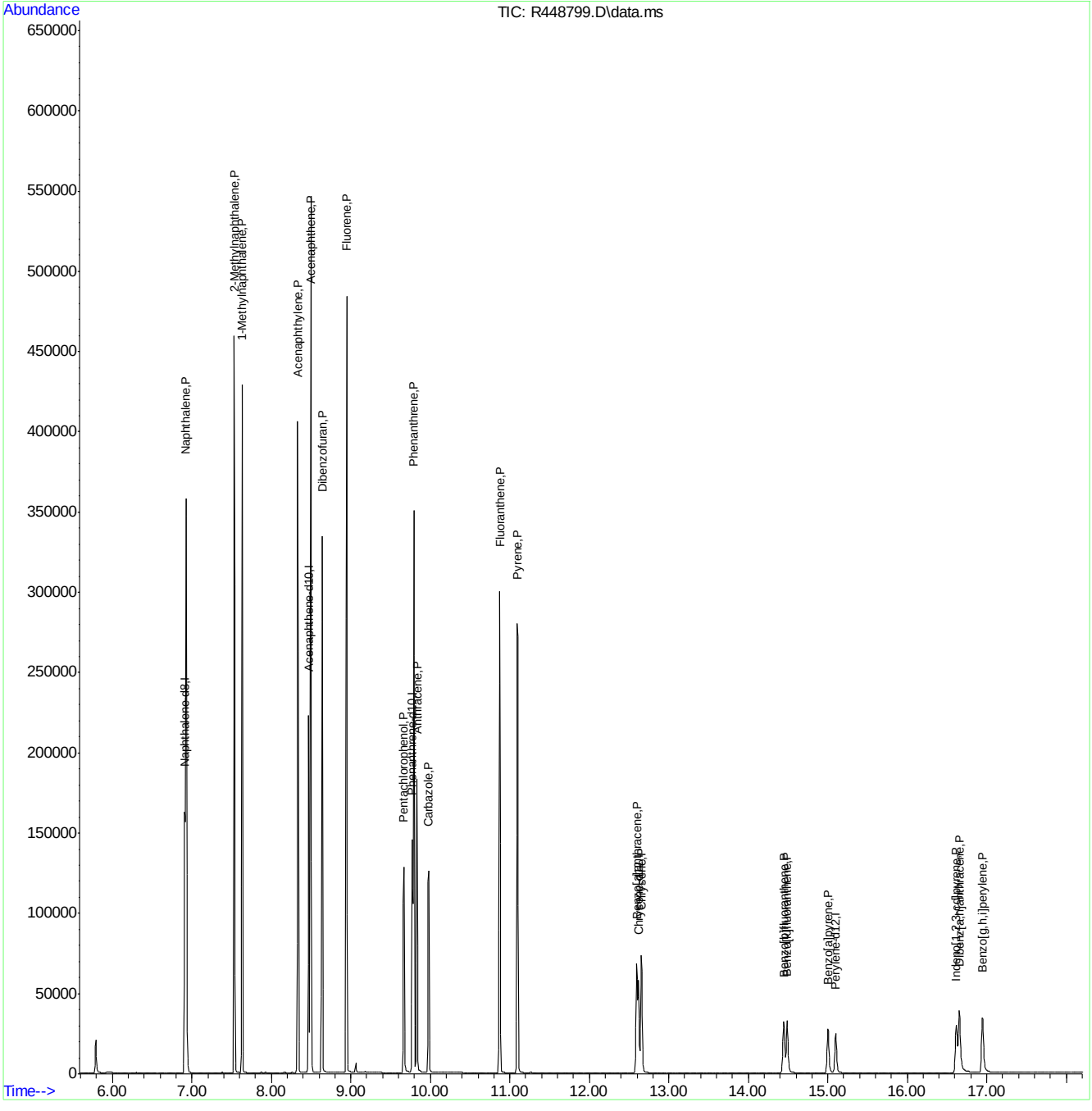
| Target Compounds | | | | | | Qvalue |
|---|---|---|---|---|---|---|
| 3) Naphthalene | 6.924 | 128 | 257567 | 1025.42 | ppb | 99 |
| 4) 2-Methylnaphthalene | 7.534 | 142 | 166904 | 967.01 | ppb | 90 |
| 5) 1-Methylnaphthalene | 7.633 | 142 | 165307 | 1080.36 | ppb | 94 |
| 8) Acenaphthylene | 8.331 | 152 | 249698 | 976.77 | ppb | 96 |
| 9) Acenaphthene | 8.497 | 153 | 162499 | 1030.99 | ppb | 92 |
| 10) Dibenzofuran | 8.642 | 168 | 208197 | 1023.13 | ppb | 98 |
| 11) Fluorene | 8.946 | 166 | 168799 | 1042.87 | ppb | 100 |
| 14) Pentachlorophenol | 9.668 | 266 | 40591 | 2664.09 | ppb | 94 |
| 15) Phenanthrene | 9.790 | 178 | 219360 | 985.95 | ppb | 98 |
| 16) Anthracene | 9.831 | 178 | 105045 | 467.33 | ppb | 97 |
| 17) Carbazole | 9.981 | 167 | 88352 | 469.18 | ppb | 94 |
| 18) Fluoranthene | 10.872 | 202 | 202787 | 996.43 | ppb | 98 |
| 20) Pyrene | 11.092 | 202 | 207618 | 1014.63 | ppb | 93 |
| 22) Benzo[a]anthracene | 12.596 | 228 | 54210 | 466.16 | ppb | 99 |
| 23) Chrysene | 12.656 | 228 | 57877 | 497.56 | ppb | 99 |
| 25) Benzo[b]fluoranthene | 14.446 | 252 | 39009 | 481.74 | ppb | 93 |
| 26) Benzo[k]fluoranthene | 14.490 | 252 | 40875 | 496.44 | ppb | 93 |
| 27) Benzo[a]pyrene | 15.002 | 252 | 32165 | 464.05 | ppb | 92 |
| 28) Indeno[1,2,3-cd]pyrene | 16.621 | 276 | 28619 | 472.11 | ppb | 91 |
| 29) Dibenz[a,h]anthracene | 16.654 | 278 | 31093 | 479.70 | ppb | 85 |
| 30) Benzo[g,h,i]perylene | 16.952 | 276 | 35480 | 486.43 | ppb | 85 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2318\
Data File : R448799.D
Acq On : 24 Apr 2015 7:06 pm
Operator : mayrag
Sample : icv2318-4
Misc : op55419,sr2318,250,,,1,1,water
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Apr 27 09:54:50 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Mon Apr 27 09:54:14 2015
Response via : Initial Calibration










ACCUTEST LABORATORIES FA23938

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2321\
Data File : R448847.D
Acq On : 30 Apr 2015 1:43 pm
Operator : mayrag
Sample : cc2318-5
Misc : op55419,sr2321,250,,,1,1,water
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 01 09:34:09 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Fri May 01 09:34:04 2015
Response via : Initial Calibration

| Internal Standards | R.T. | QIon | Response | Conc Units | Dev(Min) |
|---|---|---|---|---|---|
| 1) Naphthalene-d8 | 6.913 | 136 | 119402 | 500.00 ppb | 0.00 |
| 6) Acenaphthene-d10 | 8.469 | 164 | 66174 | 500.00 ppb | 0.00 |
| 12) Phenanthrene-d10 | 9.777 | 188 | 106783 | 500.00 ppb | 0.00 |
| 19) Chrysene-d12 | 12.623 | 240 | 55851 | 500.00 ppb | 0.00 |
| 24) Perylene-d12 | 15.101 | 264 | 30293 | 500.00 ppb | 0.00 |

| System Monitoring Compounds | | | | | |
|---|---|---|---|---|---|
| 2) Nitrobenzene-d5 | 6.302 | 82 | 155065 | 2165.68 ppb | 0.00 |
| Spiked Amount 2000.000 | Range 41 - 129 | | Recovery = 108.28% | | |
| 7) 2-Fluorobiphenyl | 7.876 | 172 | 355840 | 2132.94 ppb | 0.00 |
| Spiked Amount 2000.000 | Range 41 - 118 | | Recovery = 106.65% | | |
| 13) 2,4,6-Tribromophenol | 9.178 | 330 | 57201 | 4112.25 ppb | 0.00 |
| Spiked Amount 4000.000 | Range 33 - 118 | | Recovery = 102.81% | | |
| 21) Terphenyl-d14 | 11.274 | 244 | 221757 | 2141.19 ppb | 0.00 |
| Spiked Amount 2000.000 | Range 45 - 145 | | Recovery = 107.06% | | |

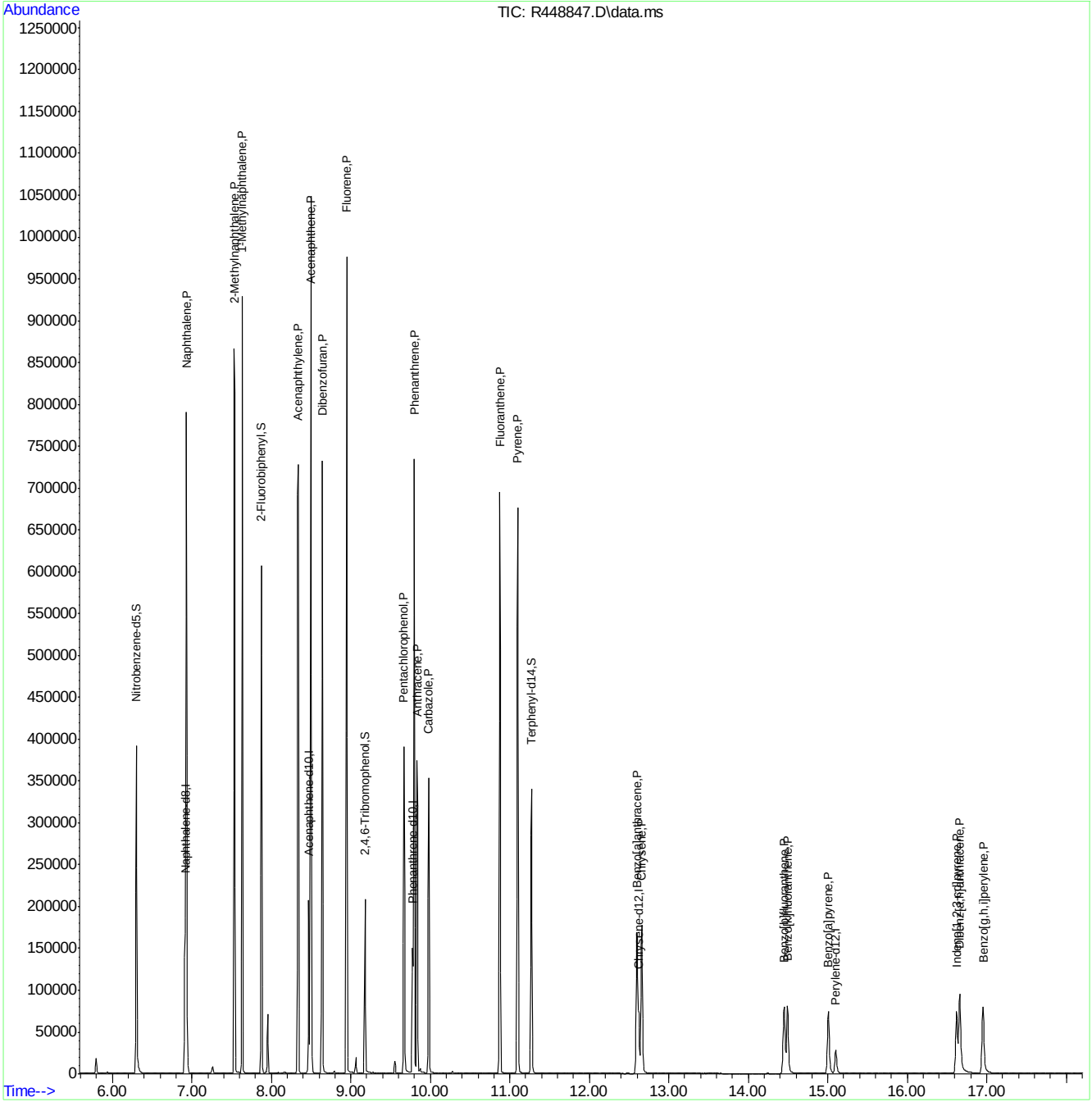
| Target Compounds | | | | | Qvalue |
|---|---|---|---|---|---|
| 3) Naphthalene | 6.929 | 128 | 506584 | 2178.14 ppb | 98 |
| 4) 2-Methylnaphthalene | 7.540 | 142 | 350026 | 2188.41 ppb | 83 |
| 5) 1-Methylnaphthalene | 7.634 | 142 | 322198 | 2173.69 ppb | 97 |
| 8) Acenaphthylene | 8.338 | 152 | 521347 | 2202.17 ppb | 93 |
| 9) Acenaphthene | 8.497 | 153 | 323199 | 2200.99 ppb | 94 |
| 10) Dibenzofuran | 8.642 | 168 | 425681 | 2157.51 ppb | 91 |
| 11) Fluorene | 8.946 | 166 | 342502 | 2182.42 ppb | 97 |
| 14) Pentachlorophenol | 9.668 | 266 | 115257 | 4520.23 ppb | 93 |
| 15) Phenanthrene | 9.797 | 178 | 463573 | 2127.50 ppb | 99 |
| 16) Anthracene | 9.831 | 178 | 249355 | 1084.71 ppb | 99 |
| 17) Carbazole | 9.981 | 167 | 209457 | 1087.60 ppb | 97 |
| 18) Fluoranthene | 10.872 | 202 | 464780 | 2233.09 ppb | 95 |
| 20) Pyrene | 11.098 | 202 | 482340 | 2128.30 ppb | 94 |
| 22) Benzo[a]anthracene | 12.596 | 228 | 144619 | 1073.44 ppb | 99 |
| 23) Chrysene | 12.662 | 228 | 141788 | 1052.14 ppb | 99 |
| 25) Benzo[b]fluoranthene | 14.451 | 252 | 102012 | 1088.53 ppb | 93 |
| 26) Benzo[k]fluoranthene | 14.495 | 252 | 101512 | 1065.29 ppb | 93 |
| 27) Benzo[a]pyrene | 15.008 | 252 | 87190 | 1086.90 ppb | 92 |
| 28) Indeno[1,2,3-cd]pyrene | 16.621 | 276 | 69908 | 996.45 ppb | 87 |
| 29) Dibenz[a,h]anthracene | 16.660 | 278 | 75051 | 1000.47 ppb | 86 |
| 30) Benzo[g,h,i]perylene | 16.957 | 276 | 83002 | 983.27 ppb | 86 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2321\
Data File : R448847.D
Acq On : 30 Apr 2015 1:43 pm
Operator : mayrag
Sample : cc2318-5
Misc : op55419,sr2321,250,,,1,1,water
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 01 09:34:09 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Fri May 01 09:34:04 2015
Response via : Initial Calibration



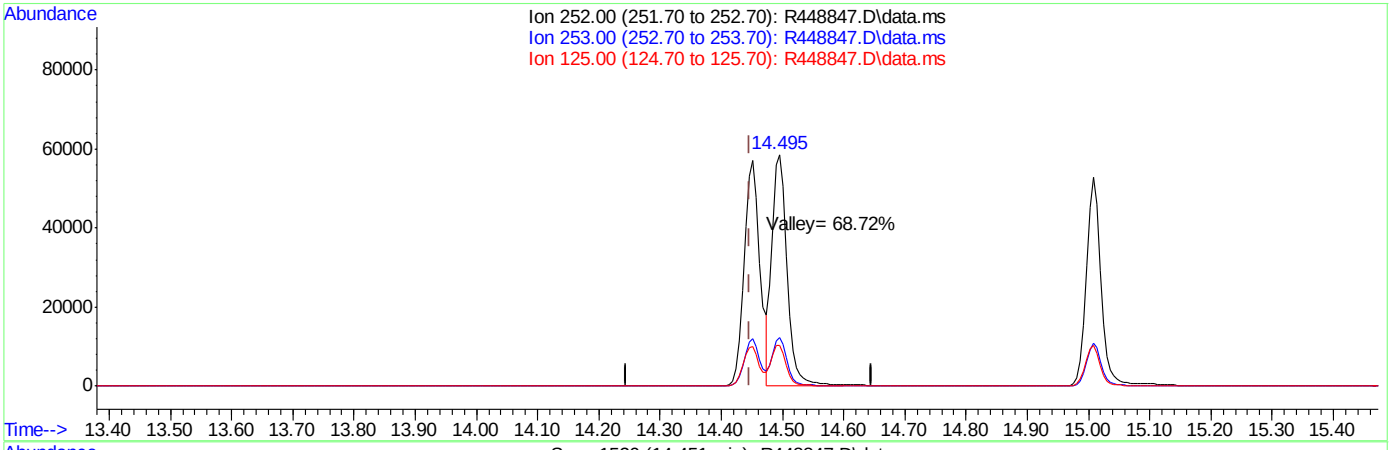

SIM_LVR.M Fri May 01 09:34:25 2015 Page: 2

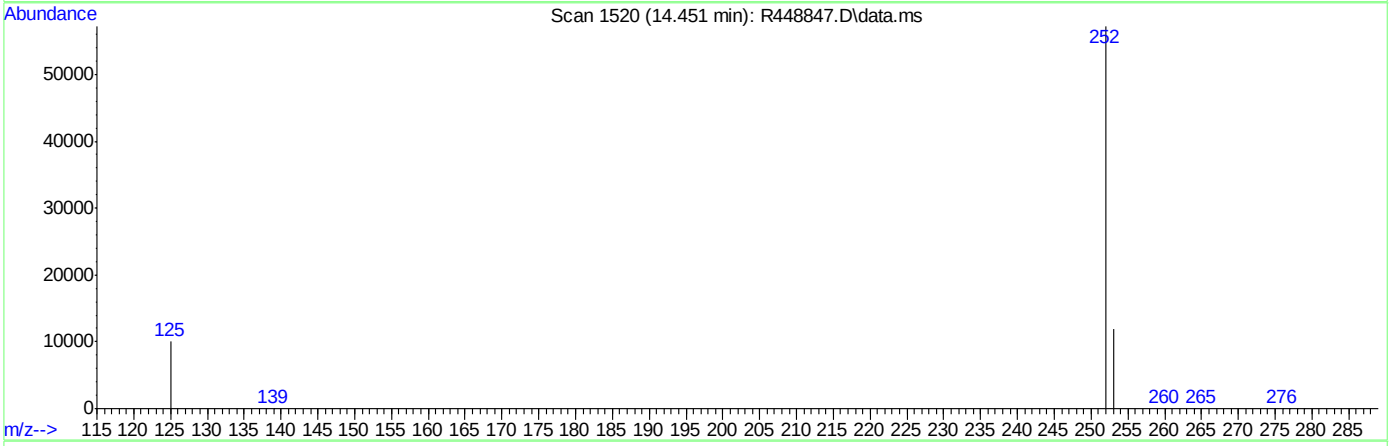
Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\SR2321\
Data File : R448847.D
Acq On : 30 Apr 2015 1:43 pm
Operator : mayrag
Sample : cc2318-5
Misc : op55419,sr2321,250,,,1,1,water
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 01 09:34:09 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Fri May 01 09:34:04 2015
Response via : Initial Calibration






TIC: R448847.D\data.ms

(25) Benzo[b]fluoranthene (P)

14.451min (+0.006) 1088.53ppb

response 102012

| Ion | Exp% | Act% |
|---|---|---|
| 252.00 | 100 | 100 |
| 253.00 | 22.00 | 20.69 |
| 125.00 | 11.40 | 17.32 |
| 0.00 | 0.00 | 0.00 |

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2321\
Data File : R448861.D
Acq On : 30 Apr 2015 7:56 pm
Operator : mayrag
Sample : ecc2318-5
Misc : op55419,sr2321,250,,,1,1,water
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 01 09:35:01 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Fri May 01 09:34:04 2015
Response via : Initial Calibration

| Internal Standards | R.T. | QIon | Response | Conc Units | Dev(Min) |
|---|---|---|---|---|---|
| 1) Naphthalene-d8 | 6.913 | 136 | 124693 | 500.00 ppb | 0.00 |
| 6) Acenaphthene-d10 | 8.469 | 164 | 69041 | 500.00 ppb | 0.00 |
| 12) Phenanthrene-d10 | 9.777 | 188 | 111447 | 500.00 ppb | 0.00 |
| 19) Chrysene-d12 | 12.623 | 240 | 61425 | 500.00 ppb | 0.00 |
| 24) Perylene-d12 | 15.107 | 264 | 33905 | 500.00 ppb | 0.00 |

System Monitoring Compounds

| | | | | | |
|---|---|---|---|---|---|
| 2) Nitrobenzene-d5 | 6.302 | 82 | 162850 | 2177.90 ppb | 0.00 |
| Spiked Amount 2000.000 | Range 41 - 129 | | Recovery = 108.90% | | |
| 7) 2-Fluorobiphenyl | 7.881 | 172 | 370465 | 2128.39 ppb | 0.00 |
| Spiked Amount 2000.000 | Range 41 - 118 | | Recovery = 106.42% | | |
| 13) 2,4,6-Tribromophenol | 9.185 | 330 | 64581 | 4448.50 ppb | 0.00 |
| Spiked Amount 4000.000 | Range 33 - 118 | | Recovery = 111.21% | | |
| 21) Terphenyl-d14 | 11.274 | 244 | 240703 | 2113.23 ppb | 0.00 |
| Spiked Amount 2000.000 | Range 45 - 145 | | Recovery = 105.66% | | |

Target Compounds

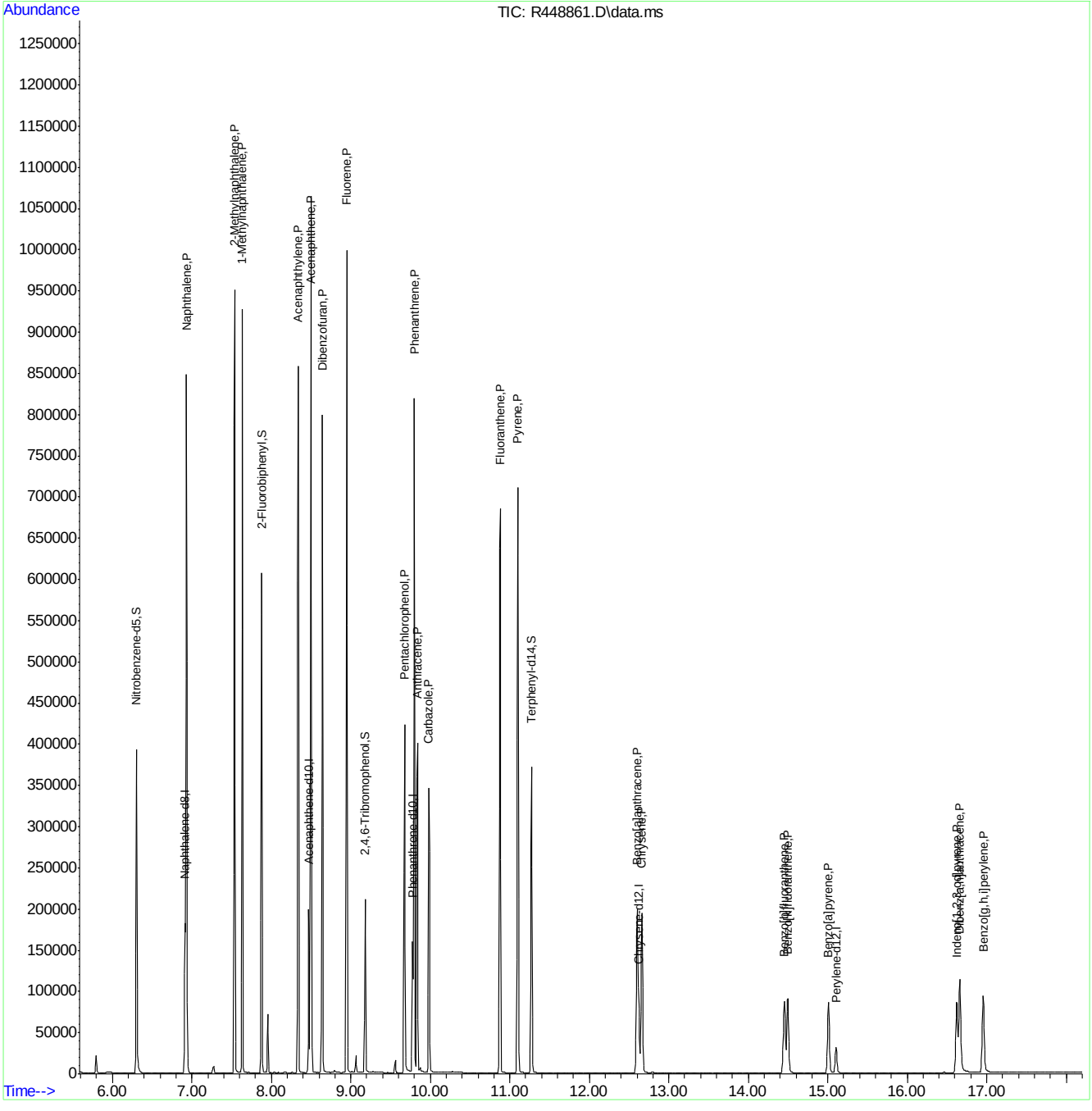
| | | | | | Qvalue |
|---|---|---|---|---|---|
| 3) Naphthalene | 6.929 | 128 | 526464 | 2166.56 ppb | 98 |
| 4) 2-Methylnaphthalene | 7.540 | 142 | 364212 | 2179.78 ppb | 85 |
| 5) 1-Methylnaphthalene | 7.634 | 142 | 332954 | 2150.95 ppb | 97 |
| 8) Acenaphthylene | 8.338 | 152 | 542032 | 2193.76 ppb | 94 |
| 9) Acenaphthene | 8.498 | 153 | 331124 | 2158.10 ppb | 94 |
| 10) Dibenzofuran | 8.642 | 168 | 450329 | 2187.66 ppb | 84 |
| 11) Fluorene | 8.946 | 166 | 358447 | 2189.18 ppb | 96 |
| 14) Pentachlorophenol | 9.675 | 266 | 128532 | 4676.64 ppb | 93 |
| 15) Phenanthrene | 9.797 | 178 | 484978 | 2133.05 ppb | 98 |
| 16) Anthracene | 9.838 | 178 | 270749 | 1128.49 ppb | 96 |
| 17) Carbazole | 9.981 | 167 | 231537 | 1151.94 ppb | 97 |
| 18) Fluoranthene | 10.878 | 202 | 494497 | 2276.44 ppb | 97 |
| 20) Pyrene | 11.098 | 202 | 511705 | 2046.03 ppb | 93 |
| 22) Benzo[a]anthracene | 12.601 | 228 | 165917 | 1119.77 ppb | 99 |
| 23) Chrysene | 12.662 | 228 | 157285 | 1061.22 ppb | 99 |
| 25) Benzo[b]fluoranthene | 14.451 | 252 | 113749 | 1084.46 ppb | 92 |
| 26) Benzo[k]fluoranthene | 14.501 | 252 | 115309 | 1081.16 ppb | 93 |
| 27) Benzo[a]pyrene | 15.008 | 252 | 99314 | 1106.14 ppb | 92 |
| 28) Indeno[1,2,3-cd]pyrene | 16.627 | 276 | 80602 | 1026.49 ppb | 92 |
| 29) Dibenz[a,h]anthracene | 16.660 | 278 | 84071 | 1001.32 ppb | 85 |
| 30) Benzo[g,h,i]perylene | 16.958 | 276 | 90080 | 953.43 ppb | 84 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2321\
Data File : R448861.D
Acq On : 30 Apr 2015 7:56 pm
Operator : mayrag
Sample : ecc2318-5
Misc : op55419,sr2321,250,,,1,1,water
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 01 09:35:01 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Fri May 01 09:34:04 2015
Response via : Initial Calibration




SIM_LVR.M Fri May 01 09:48:41 2015 Page: 2

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2322\
Data File : R448863.D
Acq On : 1 May 2015 10:25 am
Operator : mayrag
Sample : cc2318-5
Misc : op55419,sr2322,250,,,1,1,water
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 01 13:33:57 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Fri May 01 13:33:52 2015
Response via : Initial Calibration

| Internal Standards | R.T. | QIon | Response | Conc Units | Dev(Min) |
|---|---|---|---|---|---|
| 1) Naphthalene-d8 | 6.913 | 136 | 134002 | 500.00 ppb | 0.00 |
| 6) Acenaphthene-d10 | 8.468 | 164 | 74329 | 500.00 ppb | 0.00 |
| 12) Phenanthrene-d10 | 9.777 | 188 | 120626 | 500.00 ppb | 0.00 |
| 19) Chrysene-d12 | 12.623 | 240 | 67709 | 500.00 ppb | 0.00 |
| 24) Perylene-d12 | 15.107 | 264 | 36489 | 500.00 ppb | 0.00 |

System Monitoring Compounds

| | | | | | |
|---|---|---|---|---|---|
| 2) Nitrobenzene-d5 | 6.308 | 82 | 174929 | 2176.92 ppb | 0.00 |
| Spiked Amount 2000.000 | Range 41 - 129 | | Recovery = 108.85% | | |
| 7) 2-Fluorobiphenyl | 7.881 | 172 | 397337 | 2120.37 ppb | 0.00 |
| Spiked Amount 2000.000 | Range 41 - 118 | | Recovery = 106.02% | | |
| 13) 2,4,6-Tribromophenol | 9.185 | 330 | 69527 | 4424.76 ppb | 0.00 |
| Spiked Amount 4000.000 | Range 33 - 118 | | Recovery = 110.62% | | |
| 21) Terphenyl-d14 | 11.274 | 244 | 266738 | 2124.46 ppb | 0.00 |
| Spiked Amount 2000.000 | Range 45 - 145 | | Recovery = 106.22% | | |

Target Compounds

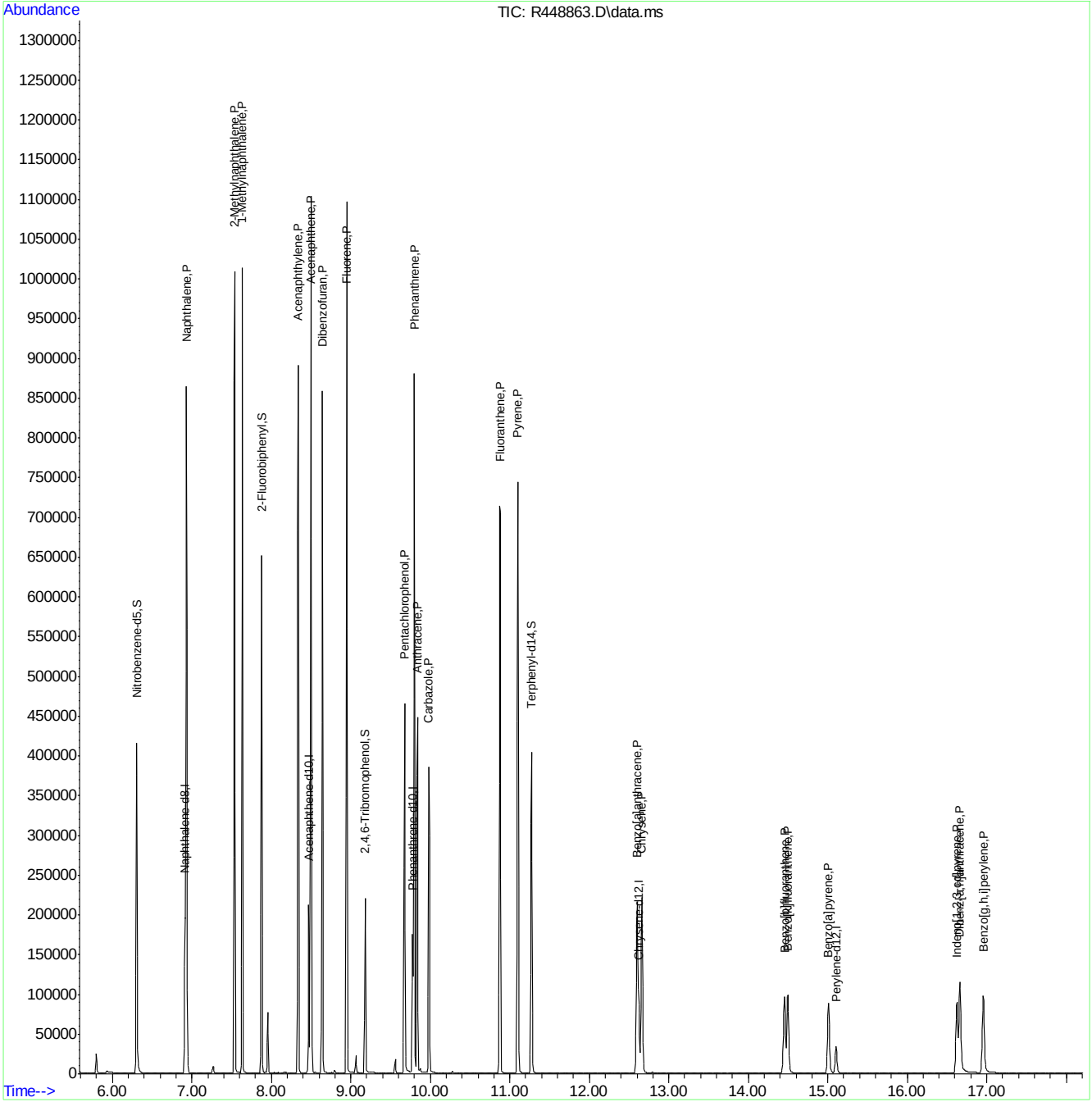
| | | | | | Qvalue |
|---|---|---|---|---|---|
| 3) Naphthalene | 6.929 | 128 | 565795 | 2166.68 ppb | 98 |
| 4) 2-Methylnaphthalene | 7.540 | 142 | 390979 | 2177.21 ppb | 85 |
| 5) 1-Methylnaphthalene | 7.634 | 142 | 356985 | 2145.98 ppb | 97 |
| 8) Acenaphthylene | 8.338 | 152 | 577421 | 2168.65 ppb | 94 |
| 9) Acenaphthene | 8.497 | 153 | 355157 | 2149.41 ppb | 94 |
| 10) Dibenzofuran | 8.642 | 168 | 476616 | 2150.64 ppb | 84 |
| 11) Fluorene | 8.946 | 166 | 382392 | 2169.27 ppb | 95 |
| 14) Pentachlorophenol | 9.674 | 266 | 139497 | 4683.17 ppb | 93 |
| 15) Phenanthrene | 9.797 | 178 | 517812 | 2101.59 ppb | 98 |
| 16) Anthracene | 9.838 | 178 | 293367 | 1129.72 ppb | 96 |
| 17) Carbazole | 9.981 | 167 | 253072 | 1163.27 ppb | 97 |
| 18) Fluoranthene | 10.878 | 202 | 530665 | 2257.05 ppb | 97 |
| 20) Pyrene | 11.098 | 202 | 549095 | 1986.93 ppb | 93 |
| 22) Benzo[a]anthracene | 12.601 | 228 | 179280 | 1097.66 ppb | 99 |
| 23) Chrysene | 12.662 | 228 | 172730 | 1057.27 ppb | 99 |
| 25) Benzo[b]fluoranthene | 14.457 | 252 | 121502 | 1076.35 ppb | 93 |
| 26) Benzo[k]fluoranthene | 14.501 | 252 | 126610 | 1103.06 ppb | 93 |
| 27) Benzo[a]pyrene | 15.008 | 252 | 107243 | 1109.87 ppb | 92 |
| 28) Indeno[1,2,3-cd]pyrene | 16.627 | 276 | 84005 | 994.06 ppb | 90 |
| 29) Dibenz[a,h]anthracene | 16.665 | 278 | 89093 | 985.99 ppb | 90 |
| 30) Benzo[g,h,i]perylene | 16.957 | 276 | 96557 | 949.61 ppb | 81 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2322\
Data File : R448863.D
Acq On : 1 May 2015 10:25 am
Operator : mayrag
Sample : cc2318-5
Misc : op55419,sr2322,250,,,1,1,water
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 01 13:33:57 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Fri May 01 13:33:52 2015
Response via : Initial Calibration



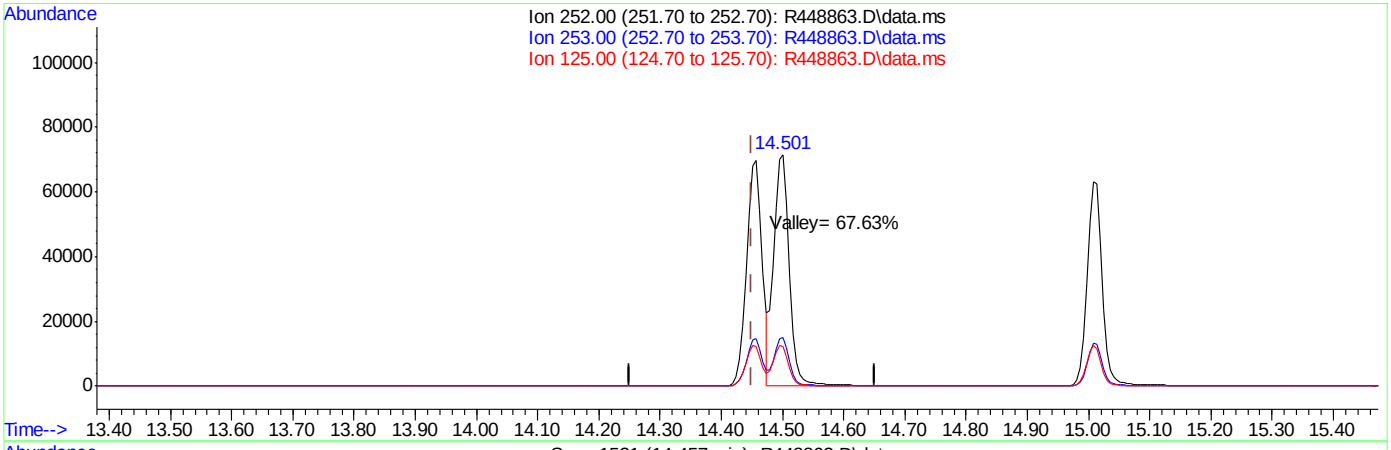

SIM_LVR.M Fri May 01 13:34:18 2015 Page: 2

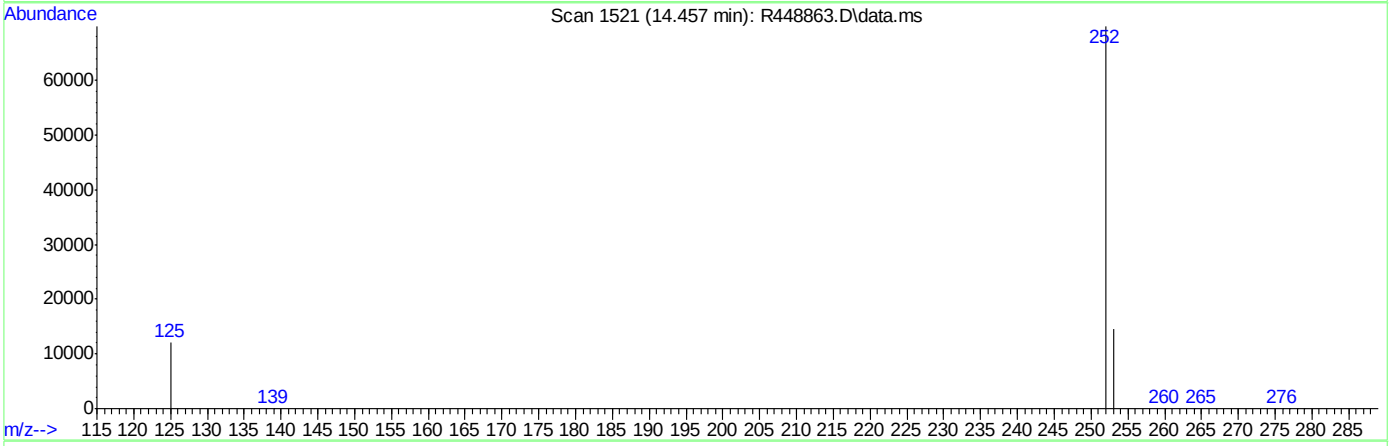
Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\SR2322\
Data File : R448863.D
Acq On : 1 May 2015 10:25 am
Operator : mayrag
Sample : cc2318-5
Misc : op55419,sr2322,250,,,1,1,water
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 01 13:33:57 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Fri May 01 13:33:52 2015
Response via : Initial Calibration






TIC: R448863.D\data.ms

(25) Benzo[b]fluoranthene (P)

14.457min (+0.006) 1076.35ppb

response 121502

| Ion | Exp% | Act% |
|---|---|---|
| 252.00 | 100 | 100 |
| 253.00 | 22.00 | 20.75 |
| 125.00 | 11.40 | 17.26 |
| 0.00 | 0.00 | 0.00 |

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2322\
Data File : R448869.D
Acq On : 1 May 2015 1:03 pm
Operator : mayrag
Sample : ecc2318-5
Misc : op55419,sr2322,250,,,1,1,water
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 01 13:38:30 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Fri May 01 13:33:52 2015
Response via : Initial Calibration

| Internal Standards | R.T. | QIon | Response | Conc Units | Dev(Min) |
|---|---|---|---|---|---|
| 1) Naphthalene-d8 | 6.913 | 136 | 131764 | 500.00 ppb | 0.00 |
| 6) Acenaphthene-d10 | 8.468 | 164 | 72994 | 500.00 ppb | 0.00 |
| 12) Phenanthrene-d10 | 9.777 | 188 | 119435 | 500.00 ppb | 0.00 |
| 19) Chrysene-d12 | 12.623 | 240 | 65131 | 500.00 ppb | 0.00 |
| 24) Perylene-d12 | 15.101 | 264 | 35392 | 500.00 ppb | 0.00 |

System Monitoring Compounds

| | | | | | |
|---|---|---|---|---|---|
| 2) Nitrobenzene-d5 | 6.302 | 82 | 169175 | 2141.07 ppb | 0.00 |
| Spiked Amount 2000.000 | Range 41 - 129 | | Recovery = 107.05% | | |
| 7) 2-Fluorobiphenyl | 7.881 | 172 | 393978 | 2140.90 ppb | 0.00 |
| Spiked Amount 2000.000 | Range 41 - 118 | | Recovery = 107.05% | | |
| 13) 2,4,6-Tribromophenol | 9.178 | 330 | 66557 | 4277.99 ppb | 0.00 |
| Spiked Amount 4000.000 | Range 33 - 118 | | Recovery = 106.95% | | |
| 21) Terphenyl-d14 | 11.274 | 244 | 254650 | 2108.46 ppb | 0.00 |
| Spiked Amount 2000.000 | Range 45 - 145 | | Recovery = 105.42% | | |

Target Compounds

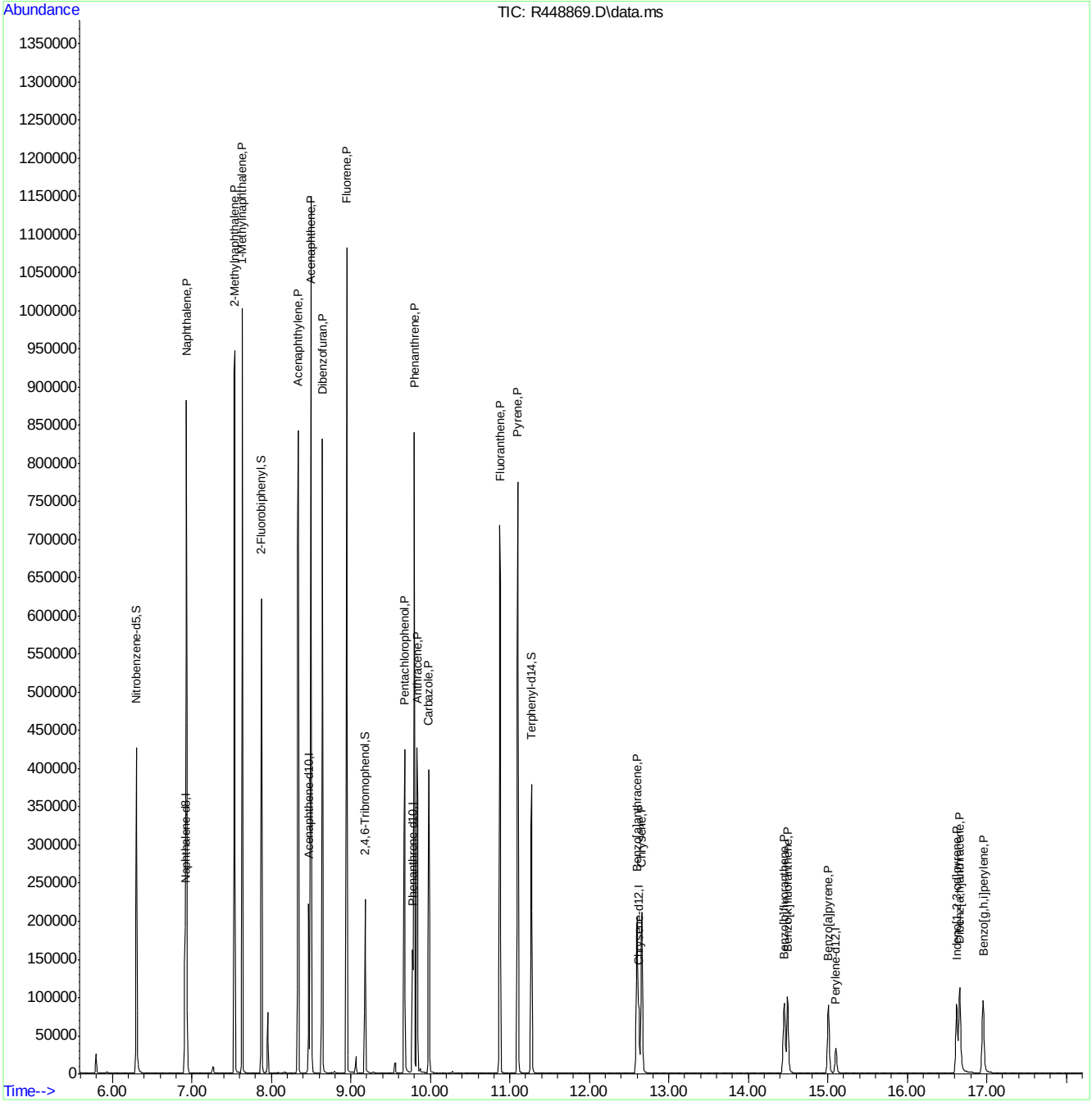
| | | | | | Qvalue |
|---|---|---|---|---|---|
| 3) Naphthalene | 6.929 | 128 | 556593 | 2167.73 ppb | 98 |
| 4) 2-Methylnaphthalene | 7.540 | 142 | 380346 | 2151.96 ppb | 84 |
| 5) 1-Methylnaphthalene | 7.634 | 142 | 351631 | 2149.70 ppb | 97 |
| 8) Acenaphthylene | 8.338 | 152 | 567944 | 2172.37 ppb | 94 |
| 9) Acenaphthene | 8.497 | 153 | 353155 | 2178.59 ppb | 94 |
| 10) Dibenzofuran | 8.642 | 168 | 472030 | 2168.90 ppb | 87 |
| 11) Fluorene | 8.946 | 166 | 375298 | 2167.96 ppb | 95 |
| 14) Pentachlorophenol | 9.674 | 266 | 132102 | 4577.30 ppb | 93 |
| 15) Phenanthrene | 9.797 | 178 | 510137 | 2090.17 ppb | 98 |
| 16) Anthracene | 9.831 | 178 | 283135 | 1101.19 ppb | 99 |
| 17) Carbazole | 9.981 | 167 | 242722 | 1126.82 ppb | 97 |
| 18) Fluoranthene | 10.872 | 202 | 517605 | 2223.45 ppb | 94 |
| 20) Pyrene | 11.098 | 202 | 537604 | 2025.56 ppb | 94 |
| 22) Benzo[a]anthracene | 12.601 | 228 | 171811 | 1093.57 ppb | 99 |
| 23) Chrysene | 12.662 | 228 | 166396 | 1058.81 ppb | 99 |
| 25) Benzo[b]fluoranthene | 14.451 | 252 | 120557 | 1101.08 ppb | 93 |
| 26) Benzo[k]fluoranthene | 14.495 | 252 | 119915 | 1077.11 ppb | 93 |
| 27) Benzo[a]pyrene | 15.008 | 252 | 103168 | 1100.79 ppb | 93 |
| 28) Indeno[1,2,3-cd]pyrene | 16.621 | 276 | 82953 | 1012.04 ppb | 85 |
| 29) Dibenz[a,h]anthracene | 16.660 | 278 | 86569 | 987.75 ppb | 86 |
| 30) Benzo[g,h,i]perylene | 16.957 | 276 | 95268 | 965.98 ppb | 86 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2322\
Data File : R448869.D
Acq On : 1 May 2015 1:03 pm
Operator : mayrag
Sample : ecc2318-5
Misc : op55419,sr2322,250,,,1,1,water
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 01 13:38:30 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Fri May 01 13:33:52 2015
Response via : Initial Calibration




SIM_LVR.M Fri May 01 13:38:48 2015 Page: 2





ACCUTEST LABORATORIES FA23938

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\SU2245\
Data File : U049023.D
Acq On : 28 Jan 2015 6:48 pm
Operator : nareshj
Sample : ic2245-1
Misc : op54674,su2245,30.0,,,1,1,soil
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Jan 29 08:42:27 2015
Quant Method : C:\msdchem\2\METHODS\simpahf.m
Quant Title : PAH's by 8270 SIM
QLast Update : Thu Jan 29 08:40:46 2015
Response via : Initial Calibration

| Internal Standards | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| 1) Naphthalene-d8 | 4.817 | 136 | 244343 | 4.00 | ppm | 0.00 |
| 7) Acenaphthene-d10 | 6.237 | 164 | 136549 | 4.00 | ppm | 0.00 |
| 13) Phenanthrene-d10 | 7.608 | 188 | 204867 | 4.00 | ppm | 0.00 |
| 20) Chrysene-d12 | 11.562 | 240 | 252804 | 4.00 | ppm | 0.00 |
| 25) Perylene-d12 | 14.001 | 264 | 249634 | 4.00 | ppm | 0.00 |

System Monitoring Compounds

| | | | | | | |
|---|---|---|---|---|---|---|
| 2) Nitrobenzene-d5 | 4.269 | 82 | 7786 | 0.39 | ppm | 0.00 |
| Spiked Amount 10.000 | Range 40 - 105 | | Recovery | = | 3.90%# | |
| 8) 2-Fluorobiphenyl | 5.686 | 172 | 19367 | 0.43 | ppm | 0.00 |
| Spiked Amount 10.000 | Range 40 - 105 | | Recovery | = | 4.30%# | |
| 14) 2,4,6-Tribromophenol | 6.926 | 330 | 4504 | 0.89 | ppm | 0.00 |
| Spiked Amount 20.000 | Range 42 - 108 | | Recovery | = | 4.45%# | |
| 22) Terphenyl-d14 | 9.786 | 244 | 21779 | 0.37 | ppm | 0.00 |
| Spiked Amount 10.000 | Range 45 - 119 | | Recovery | = | 3.70%# | |

Target Compounds

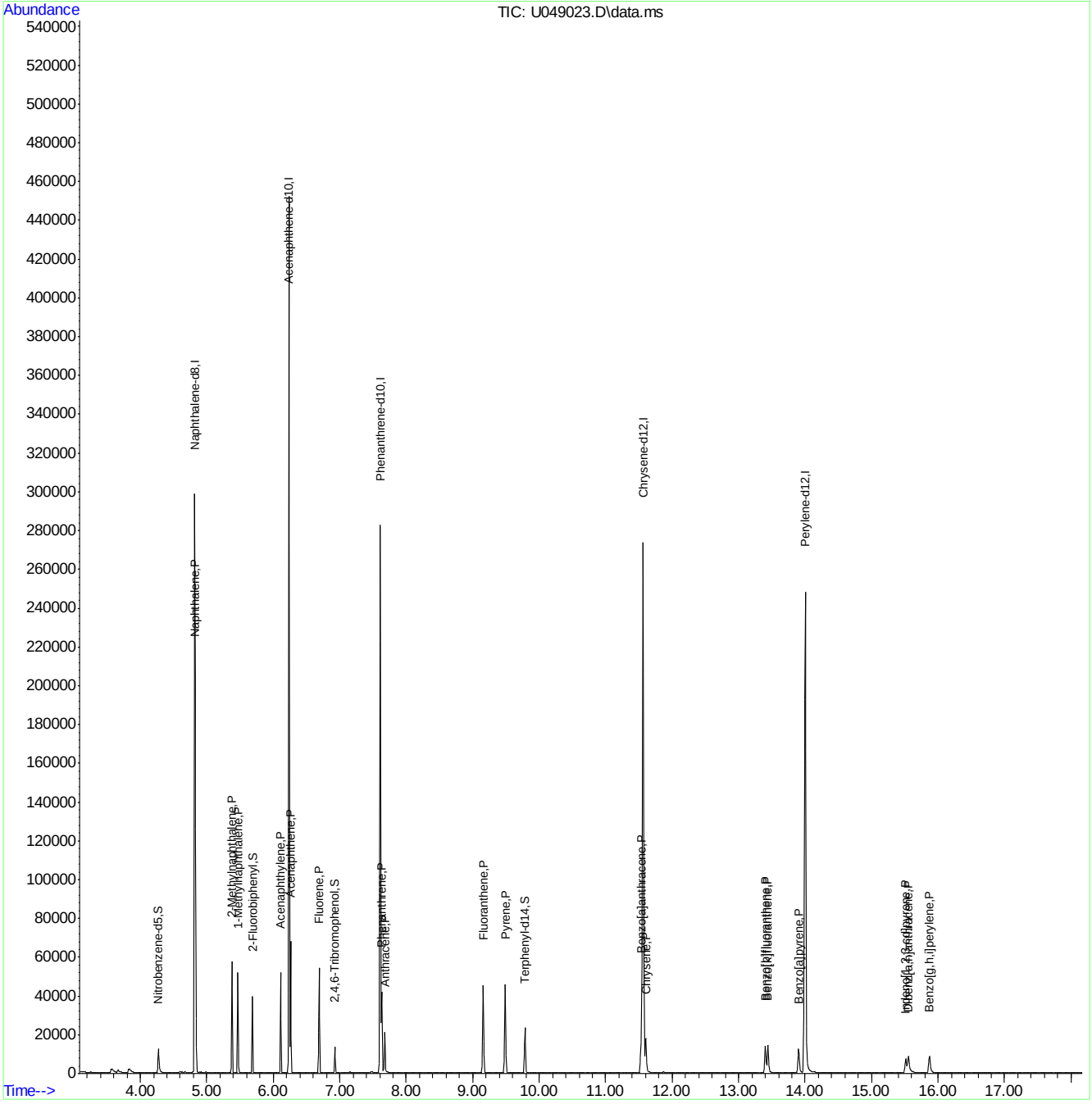
| | | | | | | | Qvalue |
|---|---|---|---|---|---|---|---|
| 4) Naphthalene | 4.832 | 128 | 28505 | 0.41 | ppm | # | 1 |
| 5) 2-Methylnaphthalene | 5.379 | 142 | 19413 | 0.43 | ppm | | 88 |
| 6) 1-Methylnaphthalene | 5.466 | 142 | 17723 | 0.43 | ppm | # | 88 |
| 9) Acenaphthylene | 6.112 | 152 | 28314 | 0.44 | ppm | # | 1 |
| 10) Acenaphthene | 6.260 | 153 | 17798 | 0.43 | ppm | # | 100 |
| 12) Fluorene | 6.690 | 166 | 19475 | 0.44 | ppm | # | 77 |
| 16) Phenanthrene | 7.631 | 178 | 26106 | 0.45 | ppm | | 99 |
| 17) Anthracene | 7.680 | 178 | 13387 | 0.22 | ppm | | 100 |
| 19) Fluoranthene | 9.158 | 202 | 38683 | 0.48 | ppm | | 100 |
| 21) Pyrene | 9.488 | 202 | 39598 | 0.45 | ppm | | 87 |
| 23) Benzo[a]anthracene | 11.533 | 228 | 15919 | 0.25 | ppm | | 95 |
| 24) Chrysene | 11.603 | 228 | 14688 | 0.22 | ppm | | 100 |
| 26) Benzo[b]fluoranthene | 13.400 | 252 | 14917 | 0.22 | ppm | | 100 |
| 27) Benzo[k]fluoranthene | 13.439 | 252 | 16419 | 0.22 | ppm | | 97 |
| 28) Benzo[a]pyrene | 13.902 | 252 | 14694 | 0.23 | ppm | | 95 |
| 29) Indeno[1,2,3-cd]pyrene | 15.513 | 276 | 8158 | 0.23 | ppm | | 91 |
| 30) Dibenz[a,h]anthracene | 15.554 | 278 | 7788 | 0.20 | ppm | | 89 |
| 31) Benzo[g,h,i]perylene | 15.869 | 276 | 10501 | 0.22 | ppm | | 93 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\SU2245\
Data File : U049023.D
Acq On : 28 Jan 2015 6:48 pm
Operator : nareshj
Sample : ic2245-1
Misc : op54674,su2245,30.0,,,1,1,soil
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Jan 29 08:42:27 2015
Quant Method : C:\msdchem\2\METHODS\simpahf.m
Quant Title : PAH's by 8270 SIM
QLast Update : Thu Jan 29 08:40:46 2015
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\SU2245\
Data File : U049024.D
Acq On : 28 Jan 2015 7:10 pm
Operator : nareshj
Sample : ic2245-2
Misc : op54674,su2245,30.0,,,1,1,soil
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Jan 29 08:42:28 2015
Quant Method : C:\msdchem\2\METHODS\simpahf.m
Quant Title : PAH's by 8270 SIM
QLast Update : Thu Jan 29 08:40:46 2015
Response via : Initial Calibration

| Internal Standards | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| 1) Naphthalene-d8 | 4.817 | 136 | 257373 | 4.00 | ppm | 0.00 |
| 7) Acenaphthene-d10 | 6.238 | 164 | 141457 | 4.00 | ppm | 0.00 |
| 13) Phenanthrene-d10 | 7.608 | 188 | 214827 | 4.00 | ppm | 0.00 |
| 20) Chrysene-d12 | 11.562 | 240 | 267679 | 4.00 | ppm | 0.00 |
| 25) Perylene-d12 | 14.002 | 264 | 265885 | 4.00 | ppm | 0.00 |

| System Monitoring Compounds | | | | | | |
|---|---|---|---|---|---|---|
| 2) Nitrobenzene-d5 | 4.270 | 82 | 41621 | 1.96 | ppm | 0.00 |
| Spiked Amount 10.000 | Range 40 - 105 | | Recovery | = | 19.60%# | |
| 8) 2-Fluorobiphenyl | 5.687 | 172 | 99549 | 2.14 | ppm | 0.00 |
| Spiked Amount 10.000 | Range 40 - 105 | | Recovery | = | 21.40%# | |
| 14) 2,4,6-Tribromophenol | 6.926 | 330 | 23066 | 4.33 | ppm | 0.00 |
| Spiked Amount 20.000 | Range 42 - 108 | | Recovery | = | 21.65%# | |
| 22) Terphenyl-d14 | 9.786 | 244 | 114389 | 1.84 | ppm | 0.00 |
| Spiked Amount 10.000 | Range 45 - 119 | | Recovery | = | 18.40%# | |

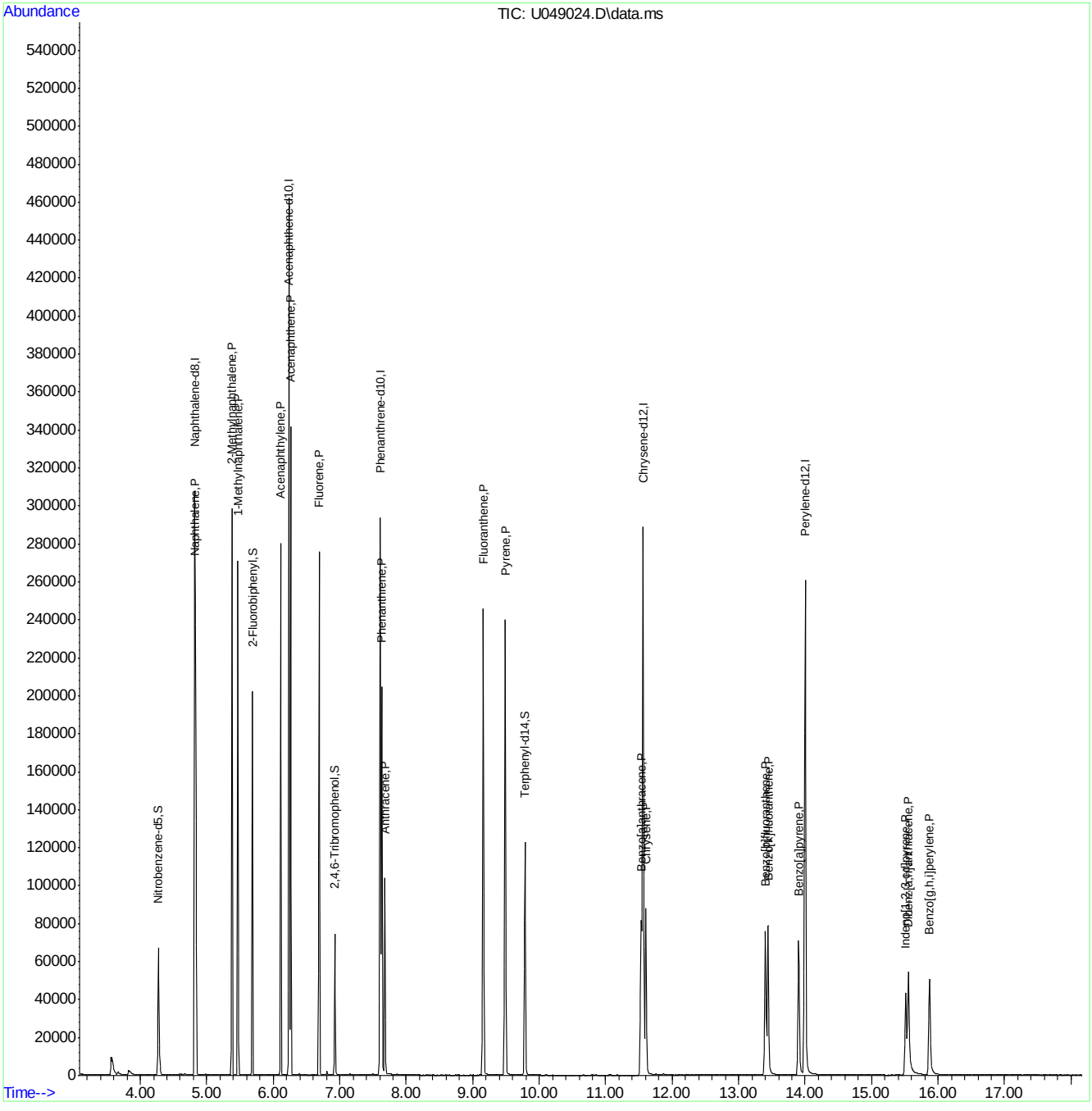
| Target Compounds | | | | | | Qvalue |
|---|---|---|---|---|---|---|
| 4) Naphthalene | 4.833 | 128 | 146639 | 2.02 | ppm # | 1 |
| 5) 2-Methylnaphthalene | 5.379 | 142 | 100547 | 2.09 | ppm | 89 |
| 6) 1-Methylnaphthalene | 5.466 | 142 | 90871 | 2.08 | ppm # | 89 |
| 9) Acenaphthylene | 6.112 | 152 | 147627 | 2.21 | ppm # | 1 |
| 10) Acenaphthene | 6.260 | 153 | 91277 | 2.14 | ppm # | 100 |
| 12) Fluorene | 6.690 | 166 | 100280 | 2.17 | ppm # | 77 |
| 16) Phenanthrene | 7.631 | 178 | 133144 | 2.16 | ppm | 99 |
| 17) Anthracene | 7.680 | 178 | 69038 | 1.08 | ppm | 100 |
| 19) Fluoranthene | 9.158 | 202 | 202053 | 2.39 | ppm | 100 |
| 21) Pyrene | 9.488 | 202 | 207541 | 2.24 | ppm | 86 |
| 23) Benzo[a]anthracene | 11.533 | 228 | 82281 | 1.22 | ppm | 96 |
| 24) Chrysene | 11.604 | 228 | 77692 | 1.12 | ppm | 100 |
| 26) Benzo[b]fluoranthene | 13.401 | 252 | 82858 | 1.16 | ppm | 100 |
| 27) Benzo[k]fluoranthene | 13.440 | 252 | 86926 | 1.11 | ppm | 97 |
| 28) Benzo[a]pyrene | 13.902 | 252 | 79994 | 1.20 | ppm | 95 |
| 29) Indeno[1,2,3-cd]pyrene | 15.513 | 276 | 46503 | 1.22 | ppm | 91 |
| 30) Dibenz[a,h]anthracene | 15.555 | 278 | 51369 | 1.23 | ppm | 88 |
| 31) Benzo[g,h,i]perylene | 15.872 | 276 | 57401 | 1.14 | ppm | 94 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\SU2245\
Data File : U049024.D
Acq On : 28 Jan 2015 7:10 pm
Operator : nareshj
Sample : ic2245-2
Misc : op54674,su2245,30.0,,,1,1,soil
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Jan 29 08:42:28 2015
Quant Method : C:\msdchem\2\METHODS\simpahf.m
Quant Title : PAH's by 8270 SIM
QLast Update : Thu Jan 29 08:40:46 2015
Response via : Initial Calibration







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Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\SU2245\
Data File : U049025.D
Acq On : 28 Jan 2015 7:33 pm
Operator : nareshj
Sample : ic2245-3
Misc : op54674,su2245,30.0,,,1,1,soil
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Jan 29 08:42:29 2015
Quant Method : C:\msdchem\2\METHODS\simpahf.m
Quant Title : PAH's by 8270 SIM
QLast Update : Thu Jan 29 08:40:46 2015
Response via : Initial Calibration

| Internal Standards | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| 1) Naphthalene-d8 | 4.817 | 136 | 244069 | 4.00 | ppm | 0.00 |
| 7) Acenaphthene-d10 | 6.238 | 164 | 132289 | 4.00 | ppm | 0.00 |
| 13) Phenanthrene-d10 | 7.608 | 188 | 201970 | 4.00 | ppm | 0.00 |
| 20) Chrysene-d12 | 11.565 | 240 | 251186 | 4.00 | ppm | 0.00 |
| 25) Perylene-d12 | 14.002 | 264 | 248770 | 4.00 | ppm | 0.00 |

| System Monitoring Compounds | | | | | | |
|---|---|---|---|---|---|---|
| 2) Nitrobenzene-d5 | 4.270 | 82 | 96998 | 4.81 | ppm | 0.00 |
| Spiked Amount 10.000 | Range 40 - 105 | | Recovery = 48.10% | | | |
| 8) 2-Fluorobiphenyl | 5.686 | 172 | 226324 | 5.21 | ppm | 0.00 |
| Spiked Amount 10.000 | Range 40 - 105 | | Recovery = 52.10% | | | |
| 14) 2,4,6-Tribromophenol | 6.926 | 330 | 52600 | 10.51 | ppm | 0.00 |
| Spiked Amount 20.000 | Range 42 - 108 | | Recovery = 52.55% | | | |
| 22) Terphenyl-d14 | 9.788 | 244 | 260118 | 4.47 | ppm | 0.00 |
| Spiked Amount 10.000 | Range 45 - 119 | | Recovery = 44.70%# | | | |

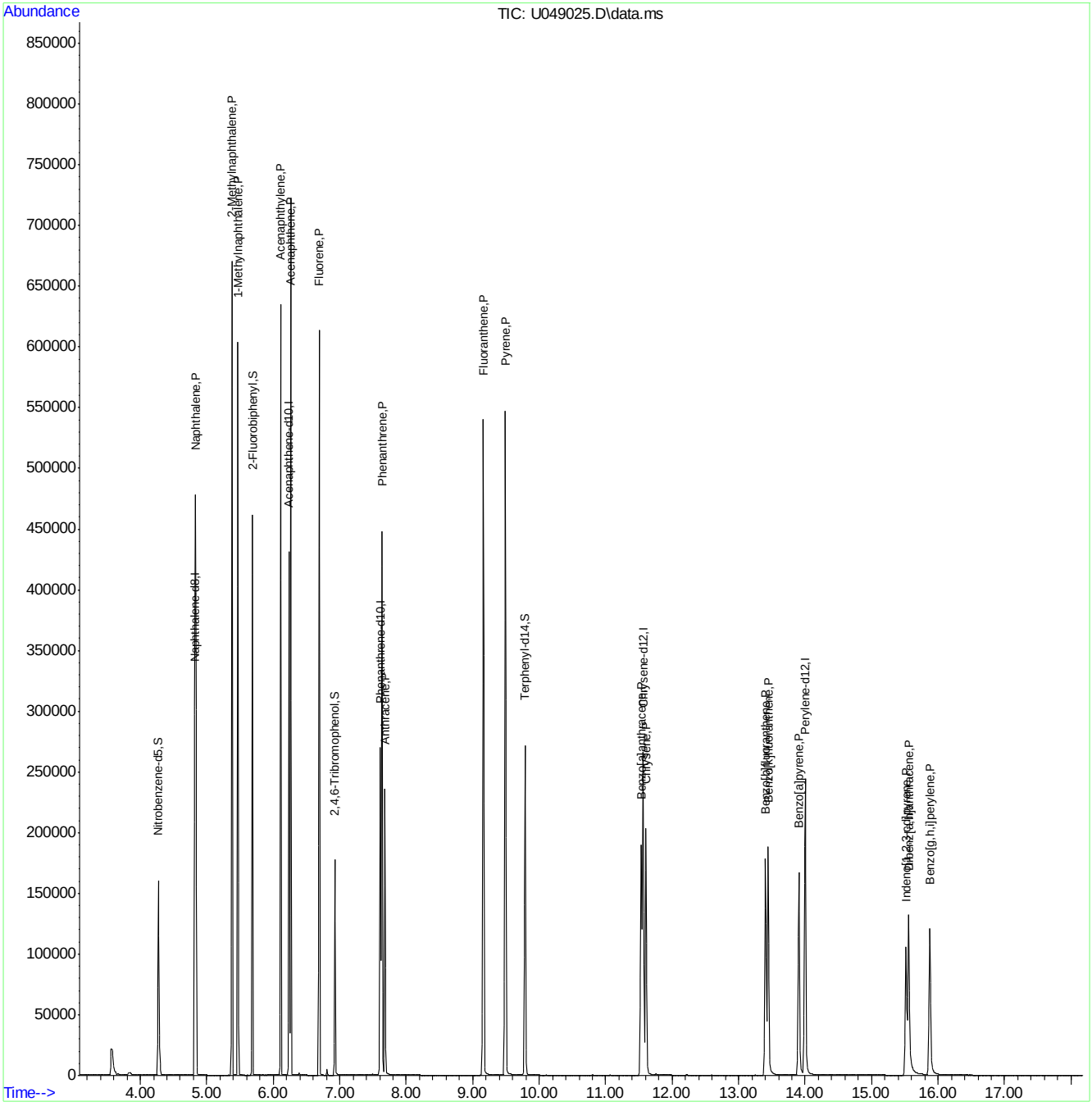
| Target Compounds | | | | | | Qvalue |
|---|---|---|---|---|---|---|
| 4) Naphthalene | 4.833 | 128 | 336069 | 4.88 | ppm # | 1 |
| 5) 2-Methylnaphthalene | 5.379 | 142 | 229595 | 5.04 | ppm | 89 |
| 6) 1-Methylnaphthalene | 5.469 | 142 | 206426 | 4.99 | ppm # | 86 |
| 9) Acenaphthylene | 6.112 | 152 | 333660 | 5.35 | ppm # | 1 |
| 10) Acenaphthene | 6.260 | 153 | 205820 | 5.15 | ppm # | 100 |
| 12) Fluorene | 6.690 | 166 | 226685 | 5.24 | ppm # | 77 |
| 16) Phenanthrene | 7.635 | 178 | 302220 | 5.23 | ppm | 99 |
| 17) Anthracene | 7.680 | 178 | 158014 | 2.62 | ppm | 100 |
| 19) Fluoranthene | 9.161 | 202 | 462317 | 5.81 | ppm | 100 |
| 21) Pyrene | 9.493 | 202 | 472907 | 5.45 | ppm | 86 |
| 23) Benzo[a]anthracene | 11.533 | 228 | 188861 | 2.99 | ppm | 96 |
| 24) Chrysene | 11.606 | 228 | 176951 | 2.71 | ppm | 100 |
| 26) Benzo[b]fluoranthene | 13.406 | 252 | 191990 | 2.86 | ppm | 99 |
| 27) Benzo[k]fluoranthene | 13.444 | 252 | 199607 | 2.72 | ppm | 97 |
| 28) Benzo[a]pyrene | 13.905 | 252 | 185901 | 2.98 | ppm | 95 |
| 29) Indeno[1,2,3-cd]pyrene | 15.516 | 276 | 110620 | 3.09 | ppm | 92 |
| 30) Dibenz[a,h]anthracene | 15.557 | 278 | 121532 | 3.11 | ppm | 89 |
| 31) Benzo[g,h,i]perylene | 15.877 | 276 | 132710 | 2.82 | ppm | 93 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\SU2245\
Data File : U049025.D
Acq On : 28 Jan 2015 7:33 pm
Operator : nareshj
Sample : ic2245-3
Misc : op54674,su2245,30.0,,,1,1,soil
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Jan 29 08:42:29 2015
Quant Method : C:\msdchem\2\METHODS\simpahf.m
Quant Title : PAH's by 8270 SIM
QLast Update : Thu Jan 29 08:40:46 2015
Response via : Initial Calibration



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Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\SU2245\
Data File : U049026.D
Acq On : 28 Jan 2015 7:56 pm
Operator : nareshj
Sample : ic2245-4
Misc : op54674,su2245,30.0,,,1,1,soil
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jan 29 08:46:06 2015
Quant Method : C:\msdchem\2\METHODS\simpahf.m
Quant Title : PAH's by 8270 SIM
QLast Update : Thu Jan 29 08:40:46 2015
Response via : Initial Calibration

| Internal Standards | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| 1) Naphthalene-d8 | 4.821 | 136 | 249985 | 4.00 | ppm | 0.00 |
| 7) Acenaphthene-d10 | 6.238 | 164 | 134880 | 4.00 | ppm | 0.00 |
| 13) Phenanthrene-d10 | 7.608 | 188 | 208709 | 4.00 | ppm | 0.00 |
| 20) Chrysene-d12 | 11.565 | 240 | 260678 | 4.00 | ppm | 0.00 |
| 25) Perylene-d12 | 14.002 | 264 | 257309 | 4.00 | ppm | 0.00 |

System Monitoring Compounds

| | | | | | | |
|---|---|---|---|---|---|---|
| 2) Nitrobenzene-d5 | 4.270 | 82 | 195804 | 9.47 | ppm | 0.00 |
| Spiked Amount 10.000 | Range 40 - 105 | | Recovery = 94.70% | | | |
| 8) 2-Fluorobiphenyl | 5.687 | 172 | 446635 | 10.08 | ppm | 0.00 |
| Spiked Amount 10.000 | Range 40 - 105 | | Recovery = 100.80% | | | |
| 14) 2,4,6-Tribromophenol | 6.928 | 330 | 112188 | 21.70 | ppm | 0.00 |
| Spiked Amount 20.000 | Range 42 - 108 | | Recovery = 108.50%# | | | |
| 22) Terphenyl-d14 | 9.791 | 244 | 525433 | 8.70 | ppm | 0.00 |
| Spiked Amount 10.000 | Range 45 - 119 | | Recovery = 87.00% | | | |

Target Compounds

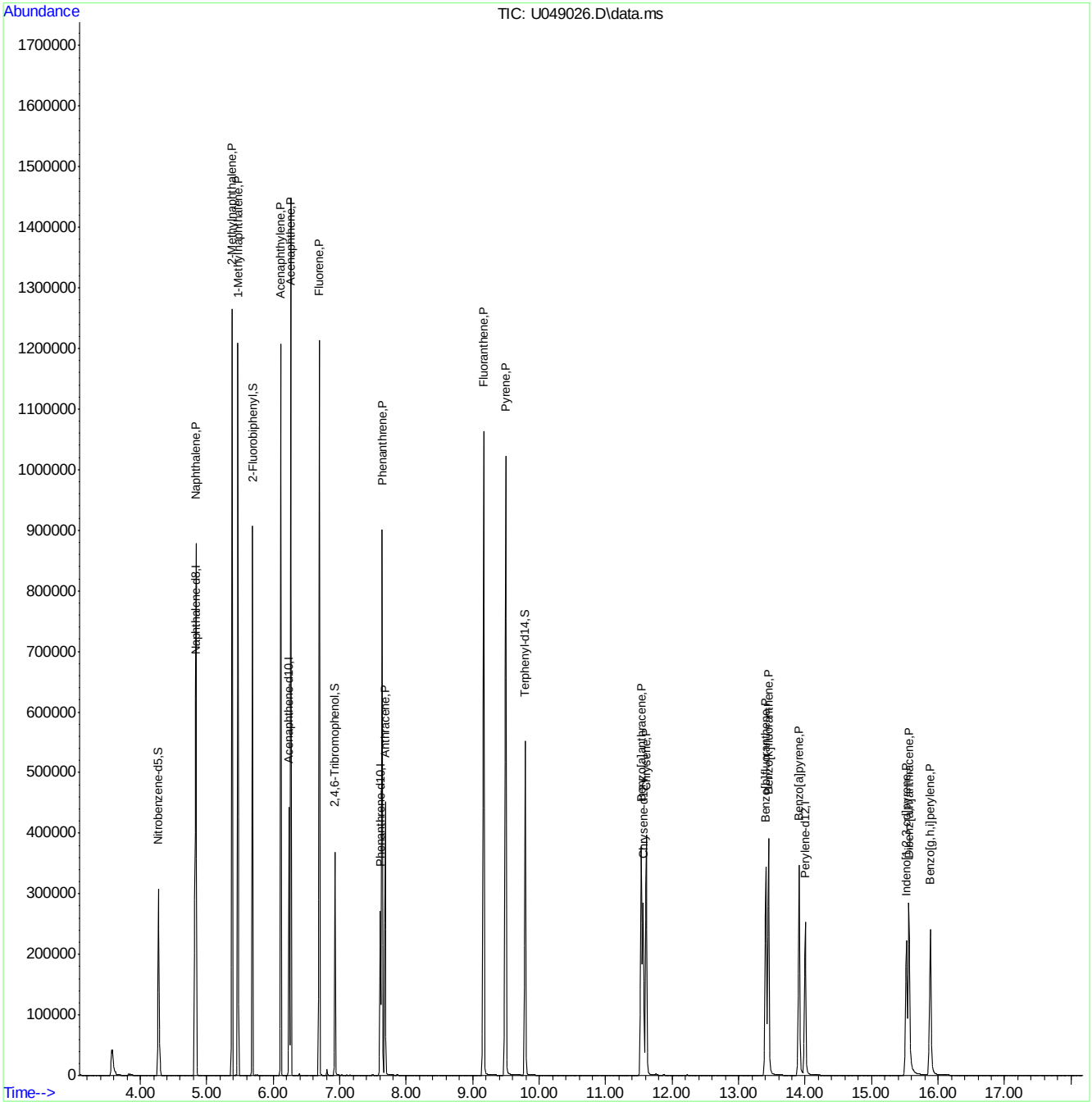
| | | | | | | Qvalue |
|---|---|---|---|---|---|---|
| 4) Naphthalene | 4.836 | 128 | 667300 | 9.46 | ppm # | 1 |
| 5) 2-Methylnaphthalene | 5.379 | 142 | 449656 | 9.64 | ppm | 91 |
| 6) 1-Methylnaphthalene | 5.469 | 142 | 405280 | 9.56 | ppm # | 88 |
| 9) Acenaphthylene | 6.112 | 152 | 657715 | 10.34 | ppm # | 1 |
| 10) Acenaphthene | 6.264 | 153 | 404695 | 9.94 | ppm # | 100 |
| 12) Fluorene | 6.693 | 166 | 446737 | 10.14 | ppm # | 77 |
| 16) Phenanthrene | 7.635 | 178 | 602463 | 10.08 | ppm | 99 |
| 17) Anthracene | 7.685 | 178 | 318836 | 5.12 | ppm | 100 |
| 19) Fluoranthene | 9.166 | 202 | 929051 | 11.29 | ppm | 100 |
| 21) Pyrene | 9.498 | 202 | 944772 | 10.49 | ppm | 86 |
| 23) Benzo[a]anthracene | 11.536 | 228 | 387254 | 5.91 | ppm | 96 |
| 24) Chrysene | 11.611 | 228 | 361557 | 5.33 | ppm | 100 |
| 26) Benzo[b]fluoranthene | 13.408 | 252 | 391936 | 5.65 | ppm | 99 |
| 27) Benzo[k]fluoranthene | 13.449 | 252 | 414977 | 5.47 | ppm | 97 |
| 28) Benzo[a]pyrene | 13.910 | 252 | 384490 | 5.96 | ppm | 95 |
| 29) Indeno[1,2,3-cd]pyrene | 15.523 | 276 | 235467 | 6.37 | ppm | 91 |
| 30) Dibenz[a,h]anthracene | 15.562 | 278 | 253877 | 6.28 | ppm | 89 |
| 31) Benzo[g,h,i]perylene | 15.887 | 276 | 271185 | 5.57 | ppm | 92 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\SU2245\
Data File : U049026.D
Acq On : 28 Jan 2015 7:56 pm
Operator : nareshj
Sample : ic2245-4
Misc : op54674,su2245,30.0,,,1,1,soil
ALS Vial : 5 Sample Multiplier: 1

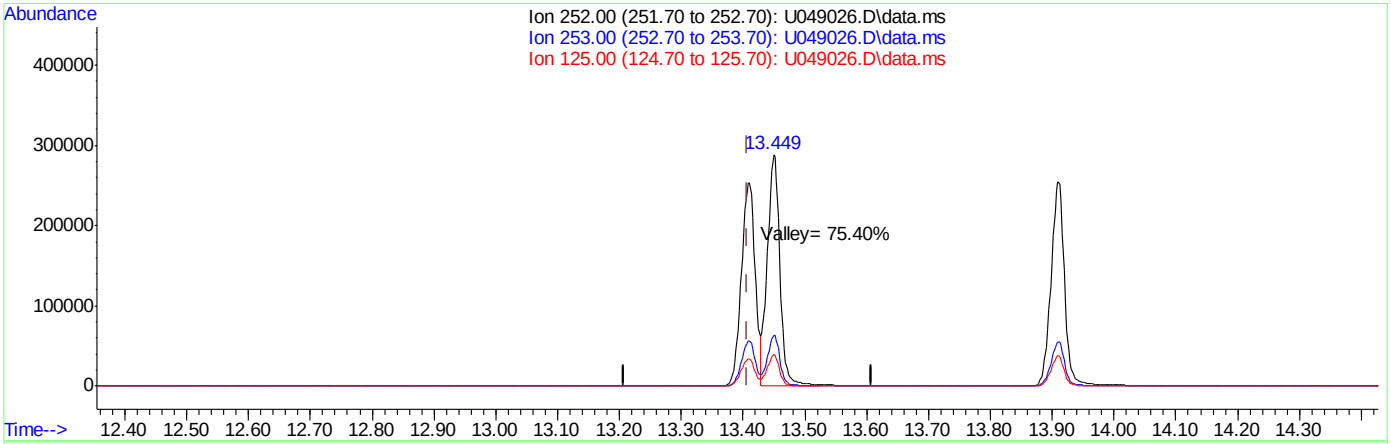
Quant Time: Jan 29 08:46:06 2015
Quant Method : C:\msdchem\2\METHODS\simpahf.m
Quant Title : PAH's by 8270 SIM
QLast Update : Thu Jan 29 08:40:46 2015
Response via : Initial Calibration

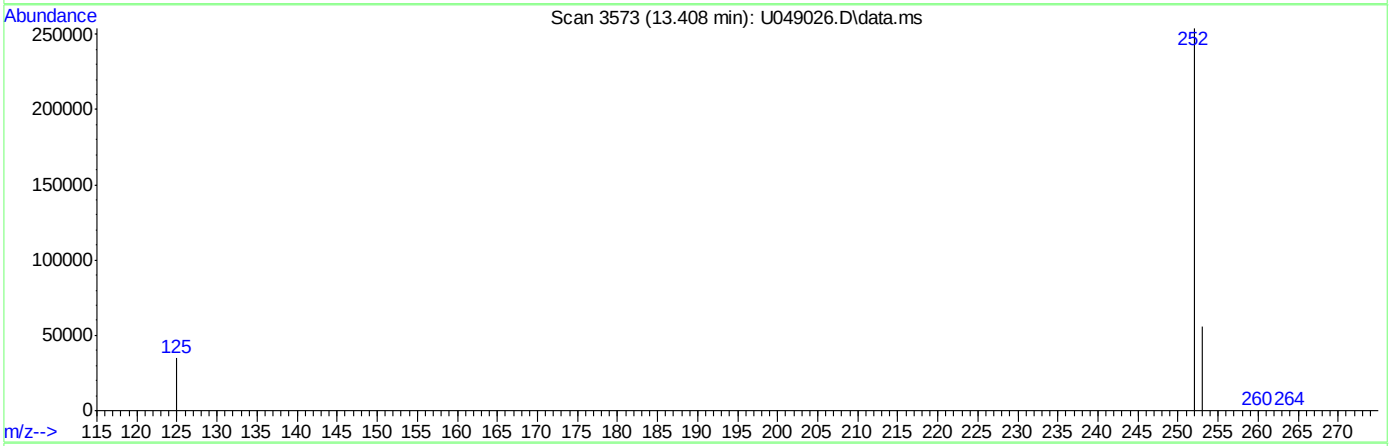


Quantitation Report (Qedit)

Data Path : C:\msdchem\2\DATA\SU2245\
Data File : U049026.D
Acq On : 28 Jan 2015 7:56 pm
Operator : nareshj
Sample : ic2245-4
Misc : op54674,su2245,30.0,,,1,1,soil
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jan 29 08:46:06 2015
Quant Method : C:\msdchem\2\METHODS\simpahf.m
Quant Title : PAH's by 8270 SIM
QLast Update : Thu Jan 29 08:40:46 2015
Response via : Initial Calibration




TIC: U049026.D\data.ms

(26) Benzo[b]fluoranthene (P)

13.408min (+0.000) 5.65ppm

response 391936

| Ion | Exp% | Act% |
|---|---|---|
| 252.00 | 100 | 100 |
| 253.00 | 22.20 | 21.98 |
| 125.00 | 14.00 | 13.67 |
| 0.00 | 0.00 | 0.00 |

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\SU2245\
Data File : U049027.D
Acq On : 28 Jan 2015 8:18 pm
Operator : nareshj
Sample : icc2245-5
Misc : op54674,su2245,30.0,,,1,1,soil
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Jan 29 08:46:46 2015
Quant Method : C:\msdchem\2\METHODS\simpahf.m
Quant Title : PAH's by 8270 SIM
QLast Update : Thu Jan 29 08:40:46 2015
Response via : Initial Calibration

| Internal Standards | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| 1) Naphthalene-d8 | 4.821 | 136 | 244024 | 4.00 | ppm | 0.00 |
| 7) Acenaphthene-d10 | 6.237 | 164 | 132368 | 4.00 | ppm | 0.00 |
| 13) Phenanthrene-d10 | 7.608 | 188 | 206198 | 4.00 | ppm | 0.00 |
| 20) Chrysene-d12 | 11.567 | 240 | 256291 | 4.00 | ppm | 0.00 |
| 25) Perylene-d12 | 14.001 | 264 | 251998 | 4.00 | ppm | 0.00 |

| System Monitoring Compounds | | | | | | |
|---|---|---|---|---|---|---|
| 2) Nitrobenzene-d5 | 4.273 | 82 | 284784 | 14.11 | ppm | 0.00 |
| Spiked Amount 10.000 | Range 40 - 105 | | Recovery = 141.10%# | | | |
| 8) 2-Fluorobiphenyl | 5.686 | 172 | 633426 | 14.57 | ppm | 0.00 |
| Spiked Amount 10.000 | Range 40 - 105 | | Recovery = 145.70%# | | | |
| 14) 2,4,6-Tribromophenol | 6.931 | 330 | 165786 | 32.45 | ppm | 0.00 |
| Spiked Amount 20.000 | Range 42 - 108 | | Recovery = 162.25%# | | | |
| 22) Terphenyl-d14 | 9.795 | 244 | 759442 | 12.79 | ppm | 0.00 |
| Spiked Amount 10.000 | Range 45 - 119 | | Recovery = 127.90%# | | | |

| Target Compounds | | | | | | Qvalue |
|---|---|---|---|---|---|---|
| 4) Naphthalene | 4.836 | 128 | 950508 | 13.80 | ppm # | 1 |
| 5) 2-Methylnaphthalene | 5.382 | 142 | 639786 | 14.05 | ppm | 90 |
| 6) 1-Methylnaphthalene | 5.469 | 142 | 575048 | 13.89 | ppm # | 89 |
| 9) Acenaphthylene | 6.116 | 152 | 932119 | 14.93 | ppm # | 1 |
| 10) Acenaphthene | 6.264 | 153 | 574349 | 14.37 | ppm # | 100 |
| 12) Fluorene | 6.695 | 166 | 640098 | 14.80 | ppm # | 77 |
| 16) Phenanthrene | 7.640 | 178 | 863971 | 14.63 | ppm | 99 |
| 17) Anthracene | 7.685 | 178 | 463306 | 7.53 | ppm | 100 |
| 19) Fluoranthene | 9.168 | 202 | 1337868 | 16.46 | ppm | 100 |
| 21) Pyrene | 9.502 | 202 | 1362891 | 15.39 | ppm | 86 |
| 23) Benzo[a]anthracene | 11.538 | 228 | 564262 | 8.76 | ppm | 96 |
| 24) Chrysene | 11.613 | 228 | 525047 | 7.87 | ppm | 100 |
| 26) Benzo[b]fluoranthene | 13.413 | 252 | 571436 | 8.41 | ppm | 100 |
| 27) Benzo[k]fluoranthene | 13.454 | 252 | 590294 | 7.95 | ppm | 97 |
| 28) Benzo[a]pyrene | 13.912 | 252 | 560180 | 8.87 | ppm | 95 |
| 29) Indeno[1,2,3-cd]pyrene | 15.528 | 276 | 353094 | 9.75 | ppm | 91 |
| 30) Dibenz[a,h]anthracene | 15.569 | 278 | 373503 | 9.43 | ppm | 88 |
| 31) Benzo[g,h,i]perylene | 15.891 | 276 | 395160 | 8.28 | ppm | 93 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

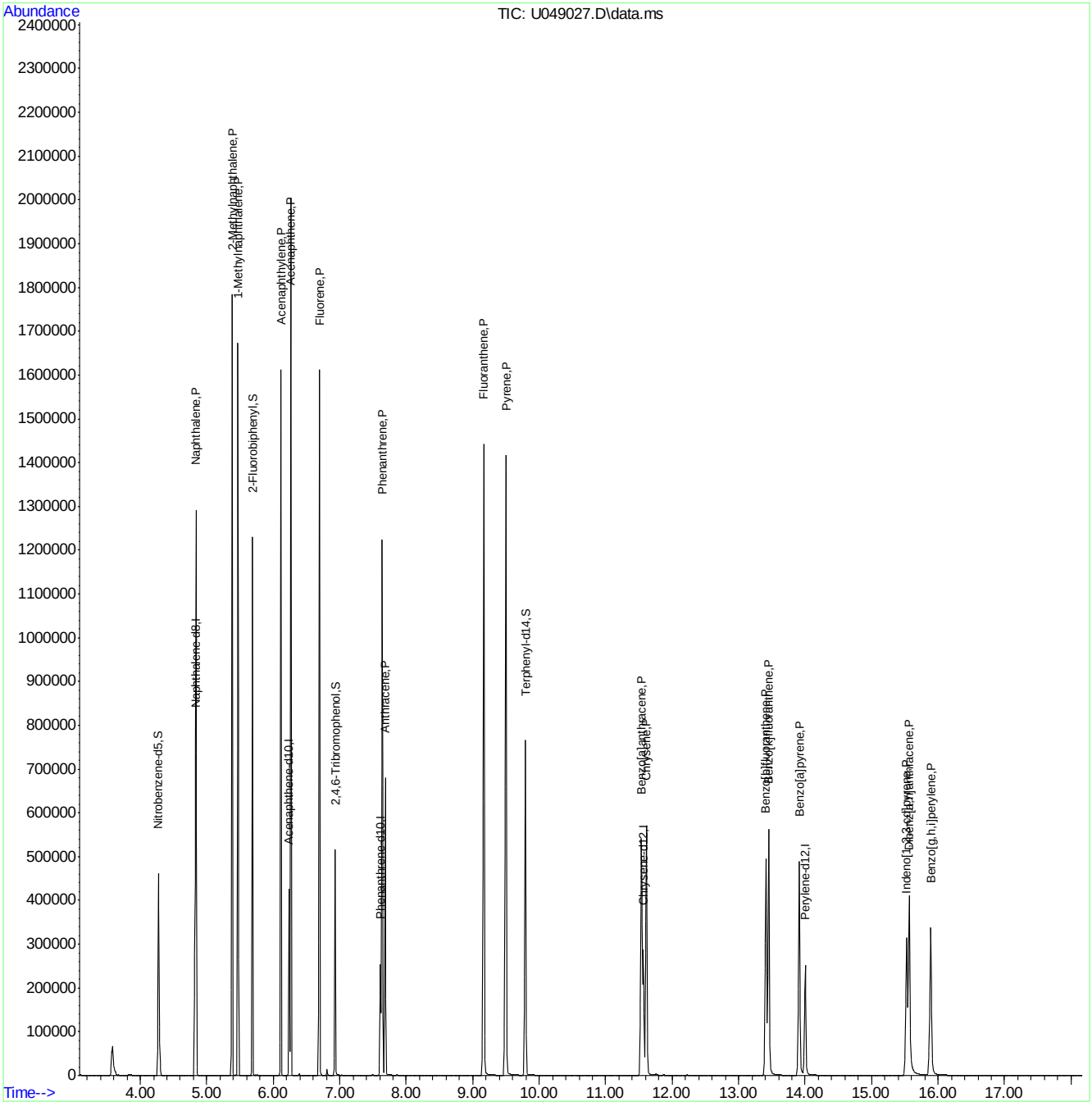
7.6.17

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\SU2245\
Data File : U049027.D
Acq On : 28 Jan 2015 8:18 pm
Operator : nareshj
Sample : icc2245-5
Misc : op54674,su2245,30.0,,,1,1,soil
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Jan 29 08:46:46 2015
Quant Method : C:\msdchem\2\METHODS\simpahf.m
Quant Title : PAH's by 8270 SIM
QLast Update : Thu Jan 29 08:40:46 2015
Response via : Initial Calibration







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Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\SU2245\
Data File : U049028.D
Acq On : 28 Jan 2015 8:41 pm
Operator : nareshj
Sample : ic2245-6
Misc : op54674,su2245,30.0,,,1,1,soil
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Jan 29 08:47:19 2015
Quant Method : C:\msdchem\2\METHODS\simpahf.m
Quant Title : PAH's by 8270 SIM
QLast Update : Thu Jan 29 08:40:46 2015
Response via : Initial Calibration

| Internal Standards | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| 1) Naphthalene-d8 | 4.821 | 136 | 234980 | 4.00 | ppm | 0.00 |
| 7) Acenaphthene-d10 | 6.238 | 164 | 127710 | 4.00 | ppm | 0.00 |
| 13) Phenanthrene-d10 | 7.608 | 188 | 198066 | 4.00 | ppm | 0.00 |
| 20) Chrysene-d12 | 11.570 | 240 | 244948 | 4.00 | ppm | 0.00 |
| 25) Perylene-d12 | 14.004 | 264 | 240577 | 4.00 | ppm | 0.00 |

System Monitoring Compounds

| | | | | | | |
|---|---|---|---|---|---|---|
| 2) Nitrobenzene-d5 | 4.273 | 82 | 365086 | 18.79 | ppm | 0.00 |
| Spiked Amount 10.000 | Range 40 - 105 | | Recovery = 187.90%# | | | |
| 8) 2-Fluorobiphenyl | 5.687 | 172 | 797899 | 19.03 | ppm | 0.00 |
| Spiked Amount 10.000 | Range 40 - 105 | | Recovery = 190.30%# | | | |
| 14) 2,4,6-Tribromophenol | 6.931 | 330 | 213444 | 43.49 | ppm | 0.00 |
| Spiked Amount 20.000 | Range 42 - 108 | | Recovery = 217.45%# | | | |
| 22) Terphenyl-d14 | 9.798 | 244 | 971846 | 17.12 | ppm | 0.00 |
| Spiked Amount 10.000 | Range 45 - 119 | | Recovery = 171.20%# | | | |

Target Compounds

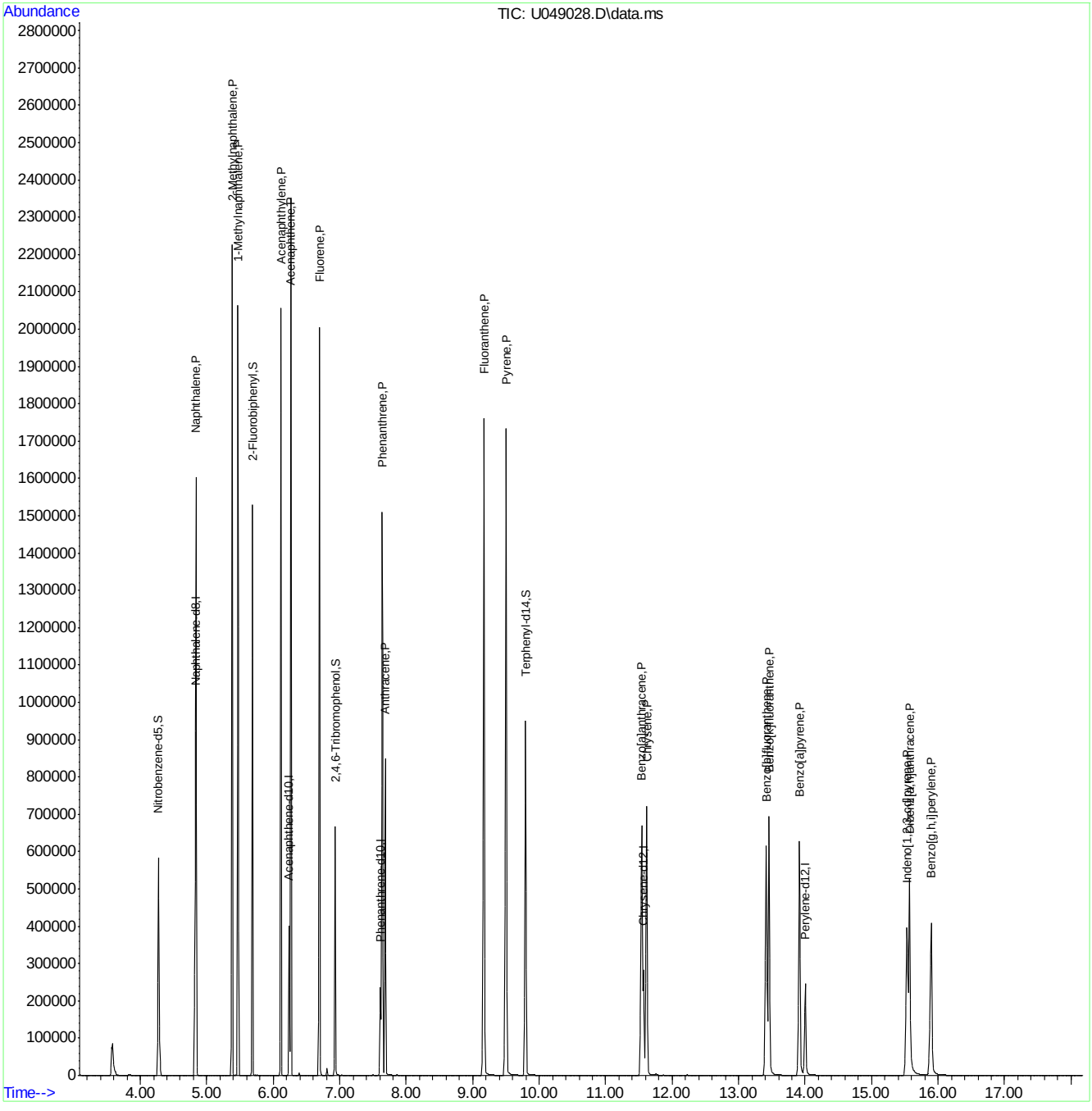
| | | | | | | | Qvalue |
|---|---|---|---|---|---|---|---|
| 4) Naphthalene | 4.836 | 128 | 1207793 | 18.21 | ppm | # | 1 |
| 5) 2-Methylnaphthalene | 5.382 | 142 | 809726 | 18.47 | ppm | | 90 |
| 6) 1-Methylnaphthalene | 5.469 | 142 | 729161 | 18.29 | ppm | # | 89 |
| 9) Acenaphthylene | 6.116 | 152 | 1173580 | 19.48 | ppm | # | 1 |
| 10) Acenaphthene | 6.264 | 153 | 724608 | 18.80 | ppm | # | 100 |
| 12) Fluorene | 6.695 | 166 | 805136 | 19.29 | ppm | # | 77 |
| 16) Phenanthrene | 7.640 | 178 | 1100064 | 19.40 | ppm | | 99 |
| 17) Anthracene | 7.685 | 178 | 592753 | 10.02 | ppm | | 100 |
| 19) Fluoranthene | 9.173 | 202 | 1708198 | 21.87 | ppm | | 100 |
| 21) Pyrene | 9.505 | 202 | 1734584 | 20.49 | ppm | | 86 |
| 23) Benzo[a]anthracene | 11.543 | 228 | 719968 | 11.69 | ppm | | 96 |
| 24) Chrysene | 11.618 | 228 | 669869 | 10.51 | ppm | | 100 |
| 26) Benzo[b]fluoranthene | 13.415 | 252 | 742665 | 11.44 | ppm | | 99 |
| 27) Benzo[k]fluoranthene | 13.459 | 252 | 756399 | 10.67 | ppm | | 97 |
| 28) Benzo[a]pyrene | 13.917 | 252 | 725436 | 12.03 | ppm | | 95 |
| 29) Indeno[1,2,3-cd]pyrene | 15.533 | 276 | 462904 | 13.39 | ppm | | 91 |
| 30) Dibenz[a,h]anthracene | 15.572 | 278 | 480503 | 12.71 | ppm | | 88 |
| 31) Benzo[g,h,i]perylene | 15.899 | 276 | 505510 | 11.10 | ppm | | 92 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\SU2245\
Data File : U049028.D
Acq On : 28 Jan 2015 8:41 pm
Operator : nareshj
Sample : ic2245-6
Misc : op54674,su2245,30.0,,,1,1,soil
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Jan 29 08:47:19 2015
Quant Method : C:\msdchem\2\METHODS\simpahf.m
Quant Title : PAH's by 8270 SIM
QLast Update : Thu Jan 29 08:40:46 2015
Response via : Initial Calibration



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Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\SU2245\
Data File : U049029.D
Acq On : 28 Jan 2015 9:04 pm
Operator : nareshj
Sample : ic2245-7
Misc : op54674,su2245,30.0,,,1,1,soil
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Jan 29 09:03:41 2015
Quant Method : C:\msdchem\2\METHODS\simpahf.m
Quant Title : PAH's by 8270 SIM
QLast Update : Thu Jan 29 08:40:46 2015
Response via : Initial Calibration

| Internal Standards | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| 1) Naphthalene-d8 | 4.821 | 136 | 241274 | 4.00 | ppm | 0.00 |
| 7) Acenaphthene-d10 | 6.238 | 164 | 133382 | 4.00 | ppm | 0.00 |
| 13) Phenanthrene-d10 | 7.613 | 188 | 209212 | 4.00 | ppm | 0.00 |
| 20) Chrysene-d12 | 11.577 | 240 | 259111 | 4.00 | ppm | 0.00 |
| 25) Perylene-d12 | 14.009 | 264 | 253463 | 4.00 | ppm | 0.00 |

System Monitoring Compounds

| | | | | | | |
|---|---|---|---|---|---|---|
| 2) Nitrobenzene-d5 | 4.273 | 82 | 757757 | 37.98 | ppm | 0.00 |
| Spiked Amount 10.000 | Range 40 - 105 | | Recovery = 379.80%# | | | |
| 8) 2-Fluorobiphenyl | 5.693 | 172 | 1529624 | 34.92 | ppm | 0.00 |
| Spiked Amount 10.000 | Range 40 - 105 | | Recovery = 349.20%# | | | |
| 14) 2,4,6-Tribromophenol | 6.938 | 330 | 455377 | 87.85 | ppm | 0.00 |
| Spiked Amount 20.000 | Range 42 - 108 | | Recovery = 439.25%# | | | |
| 22) Terphenyl-d14 | 9.810 | 244 | 2011807 | 33.51 | ppm | 0.02 |
| Spiked Amount 10.000 | Range 45 - 119 | | Recovery = 335.10%# | | | |

Target Compounds

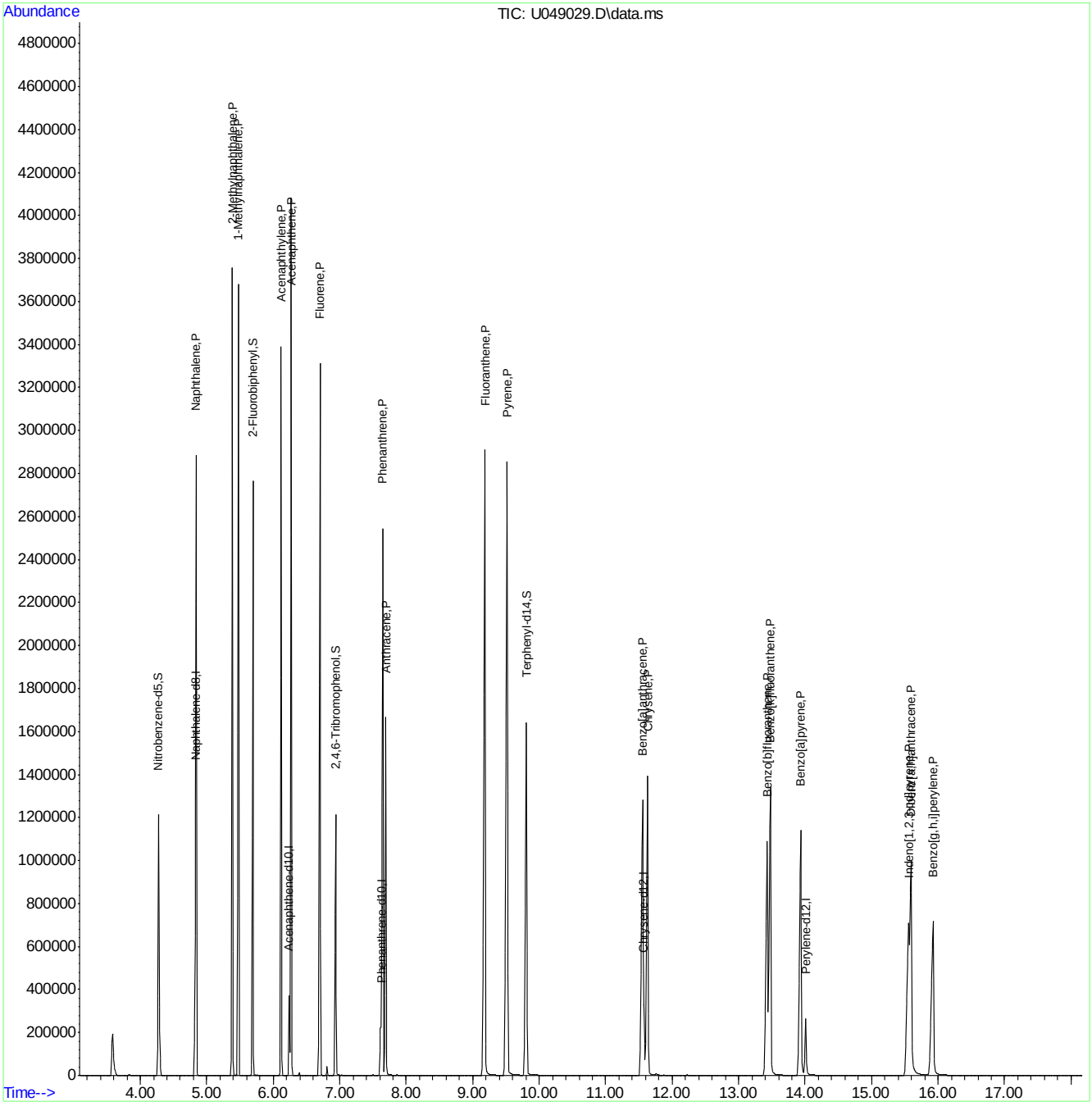
| | | | | | | | Qvalue |
|---|---|---|---|---|---|---|---|
| 4) Naphthalene | 4.840 | 128 | 2315081 | 34.00 | ppm | # | 1 |
| 5) 2-Methylnaphthalene | 5.385 | 142 | 1550136 | 34.44 | ppm | | 93 |
| 6) 1-Methylnaphthalene | 5.475 | 142 | 1398360 | 34.17 | ppm | # | 89 |
| 9) Acenaphthylene | 6.120 | 152 | 2245226 | 35.68 | ppm | # | 1 |
| 10) Acenaphthene | 6.272 | 153 | 1403940 | 34.87 | ppm | # | 100 |
| 12) Fluorene | 6.702 | 166 | 1584366 | 36.35 | ppm | # | 78 |
| 16) Phenanthrene | 7.649 | 178 | 2193193 | 36.61 | ppm | | 97 |
| 17) Anthracene | 7.694 | 178 | 1217889 | 19.50 | ppm | | 100 |
| 19) Fluoranthene | 9.185 | 202 | 3495545 | 42.38 | ppm | | 100 |
| 21) Pyrene | 9.519 | 202 | 3545671 | 39.59 | ppm | | 86 |
| 23) Benzo[a]anthracene | 11.555 | 228 | 1526563 | 23.44 | ppm | | 96 |
| 24) Chrysene | 11.632 | 228 | 1414423 | 20.98 | ppm | | 100 |
| 26) Benzo[b]fluoranthene | 13.430 | 252 | 1576969 | 23.06 | ppm | | 100 |
| 27) Benzo[k]fluoranthene | 13.478 | 252 | 1563525 | 20.93 | ppm | | 96 |
| 28) Benzo[a]pyrene | 13.934 | 252 | 1537991 | 24.20 | ppm | | 95 |
| 29) Indeno[1,2,3-cd]pyrene | 15.555 | 276 | 1061800 | 29.15 | ppm | | 89 |
| 30) Dibenz[a,h]anthracene | 15.593 | 278 | 1035760 | 26.01 | ppm | | 88 |
| 31) Benzo[g,h,i]perylene | 15.925 | 276 | 1078527 | 22.48 | ppm | | 92 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\SU2245\
Data File : U049029.D
Acq On : 28 Jan 2015 9:04 pm
Operator : nareshj
Sample : ic2245-7
Misc : op54674,su2245,30.0,,,1,1,soil
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Jan 29 09:03:41 2015
Quant Method : C:\msdchem\2\METHODS\simpahf.m
Quant Title : PAH's by 8270 SIM
QLast Update : Thu Jan 29 08:40:46 2015
Response via : Initial Calibration










ACCUTEST LABORATORIES FA23938

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\SU2245\
Data File : U049030.D
Acq On : 28 Jan 2015 9:26 pm
Operator : nareshj
Sample : icv2245-4
Misc : op54674,su2245,30.0,,,1,1,soil
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Jan 29 08:57:20 2015
Quant Method : C:\msdchem\2\METHODS\simpahf.m
Quant Title : PAH's by 8270 SIM
QLast Update : Thu Jan 29 08:55:20 2015
Response via : Initial Calibration

| Internal Standards | R.T. | QIon | Response | Conc Units | Dev(Min) |
|---|---|---|---|---|---|
| 1) Naphthalene-d8 | 4.817 | 136 | 226243 | 4.00 ppm | 0.00 |
| 7) Acenaphthene-d10 | 6.238 | 164 | 121535 | 4.00 ppm | 0.00 |
| 13) Phenanthrene-d10 | 7.608 | 188 | 185638 | 4.00 ppm | 0.00 |
| 20) Chrysene-d12 | 11.565 | 240 | 224271 | 4.00 ppm | -0.01 |
| 25) Perylene-d12 | 13.999 | 264 | 217969 | 4.00 ppm | 0.00 |

System Monitoring Compounds

| | | | | | |
|---|---|---|---|---|---|
| 2) Nitrobenzene-d5 | 0.000 | 82 | 0 | 0.00 ppm | |
| Spiked Amount 10.000 | Range 40 - 105 | | Recovery | = | 0.00%# |
| 8) 2-Fluorobiphenyl | 0.000 | 172 | 0 | 0.00 ppm | |
| Spiked Amount 10.000 | Range 40 - 105 | | Recovery | = | 0.00%# |
| 14) 2,4,6-Tribromophenol | 0.000 | 330 | 0 | 0.00 ppm | |
| Spiked Amount 20.000 | Range 42 - 108 | | Recovery | = | 0.00%# |
| 22) Terphenyl-d14 | 0.000 | 244 | 0 | 0.00 ppm | |
| Spiked Amount 10.000 | Range 45 - 119 | | Recovery | = | 0.00%# |

Target Compounds

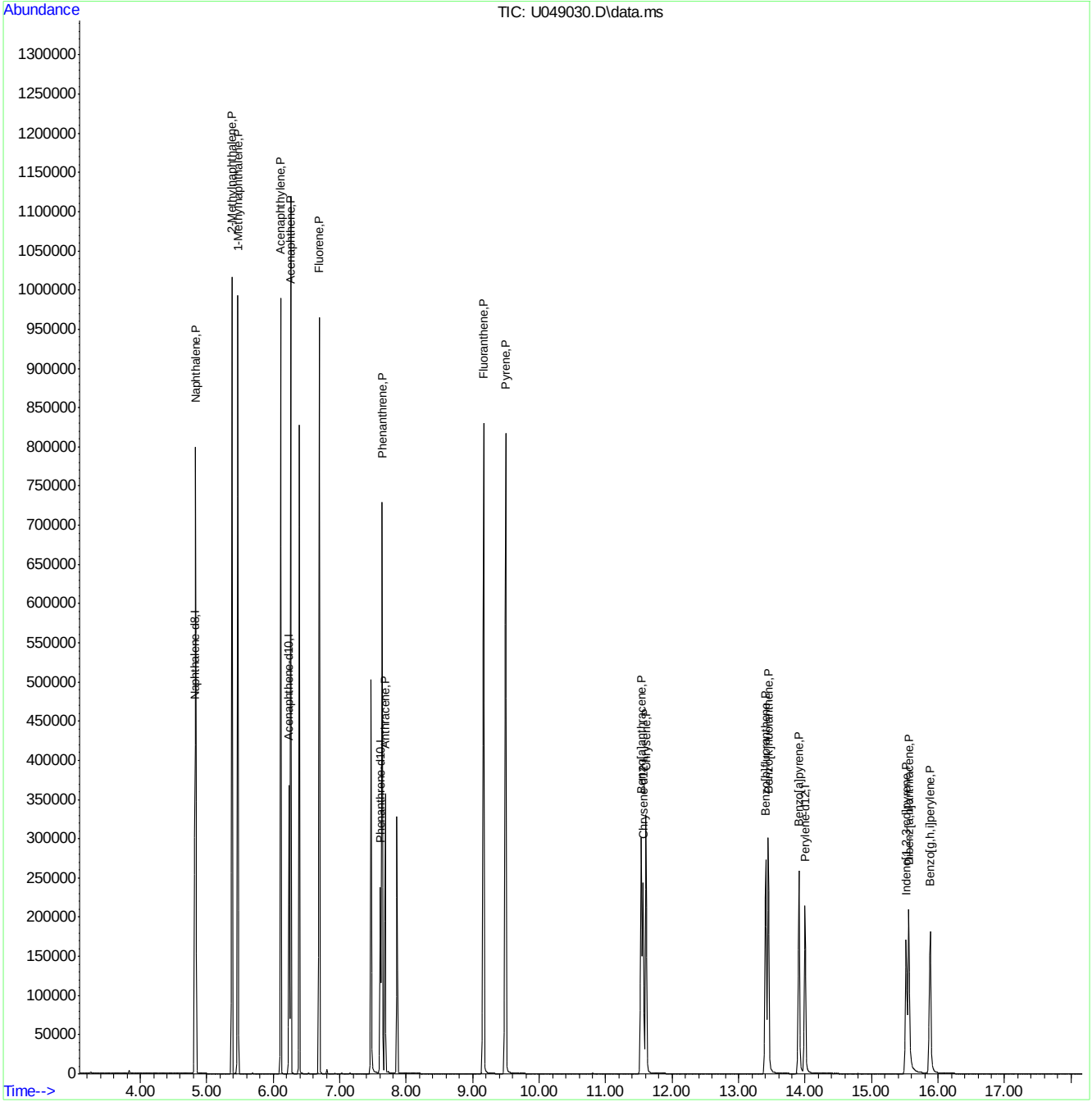
| | | | | | Qvalue |
|---|---|---|---|---|---|
| 4) Naphthalene | 4.832 | 128 | 552897 | 9.12 ppm | 100 |
| 5) 2-Methylnaphthalene | 5.379 | 142 | 355408 | 8.66 ppm | 98 |
| 6) 1-Methylnaphthalene | 5.466 | 142 | 347119 | 9.37 ppm | 98 |
| 9) Acenaphthylene | 6.112 | 152 | 535328 | 9.12 ppm | 99 |
| 10) Acenaphthene | 6.260 | 153 | 337694 | 9.28 ppm | 96 |
| 12) Fluorene | 6.693 | 166 | 369455 | 9.17 ppm | 99 |
| 16) Phenanthrene | 7.635 | 178 | 498476 | 9.23 ppm | 100 |
| 17) Anthracene | 7.685 | 178 | 249918 | 4.37 ppm | 100 |
| 19) Fluoranthene | 9.163 | 202 | 729257 | 8.79 ppm | 100 |
| 21) Pyrene | 9.495 | 202 | 734238 | 8.92 ppm | 99 |
| 23) Benzo[a]anthracene | 11.536 | 228 | 296714 | 4.41 ppm | 99 |
| 24) Chrysene | 11.608 | 228 | 288644 | 4.60 ppm | 100 |
| 26) Benzo[b]fluoranthene | 13.408 | 252 | 307353 | 4.60 ppm | 100 |
| 27) Benzo[k]fluoranthene | 13.447 | 252 | 320394 | 4.60 ppm | 100 |
| 28) Benzo[a]pyrene | 13.907 | 252 | 285249 | 4.37 ppm | 100 |
| 29) Indeno[1,2,3-cd]pyrene | 15.521 | 276 | 178328 | 4.45 ppm | 100 |
| 30) Dibenz[a,h]anthracene | 15.559 | 278 | 190485 | 4.55 ppm | 99 |
| 31) Benzo[g,h,i]perylene | 15.882 | 276 | 208175 | 4.51 ppm | 100 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\SU2245\
Data File : U049030.D
Acq On : 28 Jan 2015 9:26 pm
Operator : nareshj
Sample : icv2245-4
Misc : op54674,su2245,30.0,,,1,1,soil
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Jan 29 08:57:20 2015
Quant Method : C:\msdchem\2\METHODS\simpahf.m
Quant Title : PAH's by 8270 SIM
QLast Update : Thu Jan 29 08:55:20 2015
Response via : Initial Calibration










ACCUTEST LABORATORIES FA23938

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\SU2315\
Data File : U050687.D
Acq On : 12 May 2015 12:28 pm
Operator : nareshj
Sample : cc2245-4
Misc : op55912,su2315,1000,,,1,1,water
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 13 08:53:47 2015
Quant Method : C:\msdchem\2\METHODS\simpahf.m
Quant Title : PAH's by 8270 SIM
QLast Update : Tue May 12 13:27:24 2015
Response via : Initial Calibration

| Internal Standards | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| 1) Naphthalene-d8 | 3.949 | 136 | 212589 | 4.00 | ppm | 0.00 |
| 7) Acenaphthene-d10 | 5.336 | 164 | 129281 | 4.00 | ppm | 0.00 |
| 13) Phenanthrene-d10 | 6.521 | 188 | 230359 | 4.00 | ppm | 0.00 |
| 20) Chrysene-d12 | 9.929 | 240 | 256479 | 4.00 | ppm | 0.00 |
| 25) Perylene-d12 | 12.326 | 264 | 223809 | 4.00 | ppm | 0.00 |

System Monitoring Compounds

| | | | | | | |
|---|---|---|---|---|---|---|
| 2) Nitrobenzene-d5 | 3.428 | 82 | 193634 | 11.54 | ppm | 0.00 |
| Spiked Amount 10.000 | Range 42 - 108 | | Recovery = 115.40%# | | | |
| 8) 2-Fluorobiphenyl | 4.815 | 172 | 408539 | 9.63 | ppm | 0.00 |
| Spiked Amount 10.000 | Range 42 - 108 | | Recovery = 96.30% | | | |
| 14) 2,4,6-Tribromophenol | 5.974 | 330 | 116074 | 18.74 | ppm | 0.00 |
| Spiked Amount 20.000 | Range 33 - 118 | | Recovery = 93.70% | | | |
| 22) Terphenyl-d14 | 8.366 | 244 | 591202 | 11.30 | ppm | 0.00 |
| Spiked Amount 10.000 | Range 39 - 121 | | Recovery = 113.00% | | | |

Target Compounds

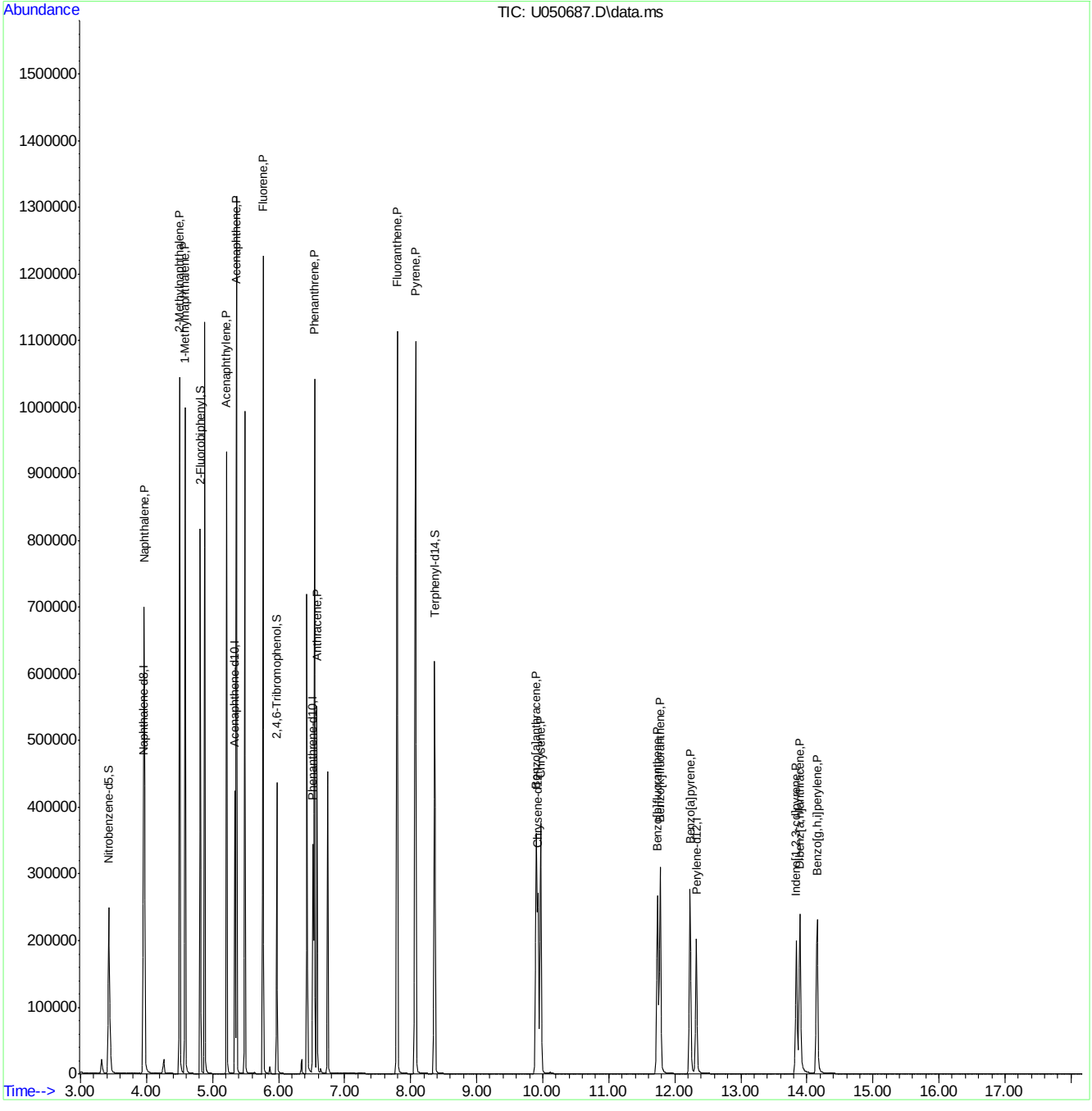
| | | | | | | Qvalue |
|---|---|---|---|---|---|---|
| 4) Naphthalene | 3.964 | 128 | 572939 | 10.06 | ppm | 99 |
| 5) 2-Methylnaphthalene | 4.502 | 142 | 387796 | 10.06 | ppm | 100 |
| 6) 1-Methylnaphthalene | 4.585 | 142 | 351429 | 10.09 | ppm | 100 |
| 9) Acenaphthylene | 5.212 | 152 | 645145 | 10.33 | ppm | 73 |
| 10) Acenaphthene | 5.363 | 153 | 365478 | 9.44 | ppm | 99 |
| 12) Fluorene | 5.765 | 166 | 420425 | 9.81 | ppm | 100 |
| 16) Phenanthrene | 6.543 | 178 | 605485 | 9.04 | ppm | 99 |
| 17) Anthracene | 6.579 | 178 | 330713 | 4.66 | ppm | 99 |
| 19) Fluoranthene | 7.797 | 202 | 899335 | 8.74 | ppm | 100 |
| 21) Pyrene | 8.073 | 202 | 923050 | 9.81 | ppm | 96 |
| 23) Benzo[a]anthracene | 9.902 | 228 | 378952 | 4.92 | ppm | 99 |
| 24) Chrysene | 9.968 | 228 | 357580 | 4.98 | ppm | 99 |
| 26) Benzo[b]fluoranthene | 11.739 | 252 | 345158 | 5.03 | ppm | 100 |
| 27) Benzo[k]fluoranthene | 11.781 | 252 | 354055 | 4.96 | ppm | 100 |
| 28) Benzo[a]pyrene | 12.231 | 252 | 332248 | 4.96 | ppm | 100 |
| 29) Indeno[1,2,3-cd]pyrene | 13.842 | 276 | 211756 | 5.14 | ppm | 99 |
| 30) Dibenz[a,h]anthracene | 13.896 | 278 | 218140 | 5.08 | ppm | 100 |
| 31) Benzo[g,h,i]perylene | 14.155 | 276 | 243831 | 5.14 | ppm | 100 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\SU2315\
Data File : U050687.D
Acq On : 12 May 2015 12:28 pm
Operator : nareshj
Sample : cc2245-4
Misc : op55912,su2315,1000,,,1,1,water
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 13 08:53:47 2015
Quant Method : C:\msdchem\2\METHODS\simpahf.m
Quant Title : PAH's by 8270 SIM
QLast Update : Tue May 12 13:27:24 2015
Response via : Initial Calibration









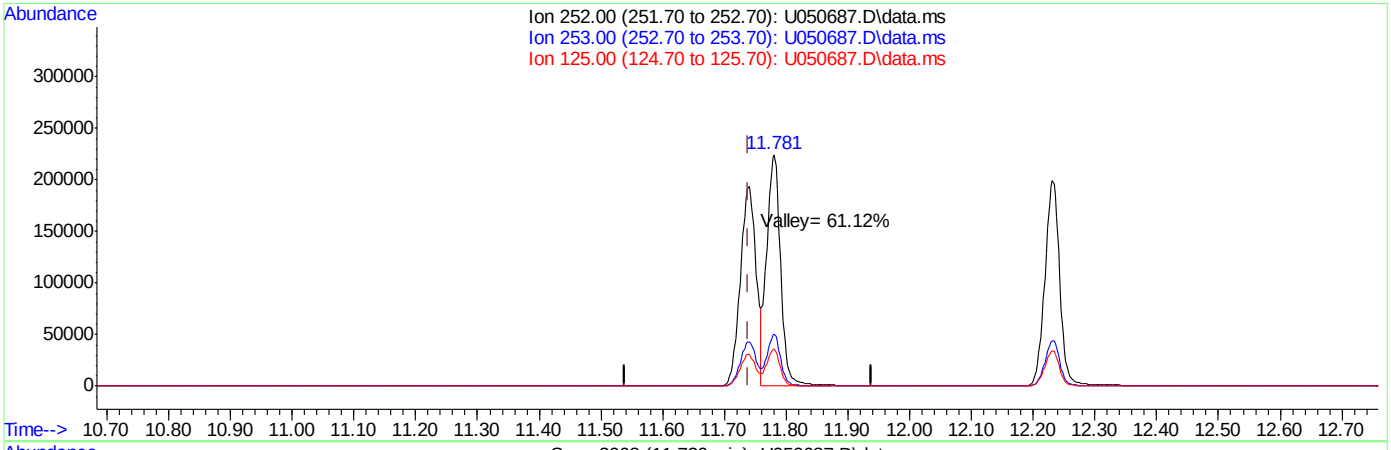

ACCUTEST LABORATORIES FA23938

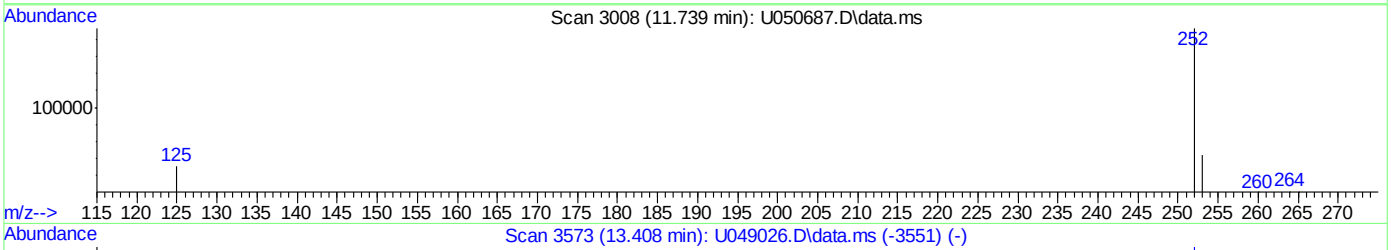
Quantitation Report (Qedit)

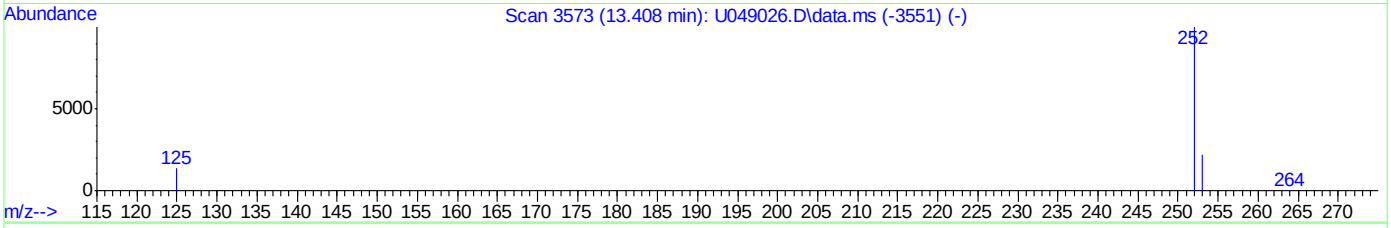
Data Path : C:\msdchem\2\DATA\SU2315\
Data File : U050687.D
Acq On : 12 May 2015 12:28 pm
Operator : nareshj
Sample : cc2245-4
Misc : op55912,su2315,1000,,,1,1,water
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 13 08:51:54 2015
Quant Method : C:\msdchem\2\METHODS\simpahf.m
Quant Title : PAH's by 8270 SIM
QLast Update : Tue May 12 13:27:24 2015
Response via : Initial Calibration






TIC: U050687.D\data.ms

(26) Benzo[b]fluoranthene (P)

11.739min (0.000) 5.03ppm

response 345158

| Ion | Exp% | Act% |
|---|---|---|
| 252.00 | 100 | 100 |
| 253.00 | 22.30 | 22.32 |
| 125.00 | 15.90 | 15.86 |
| 0.00 | 0.00 | 0.00 |

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\SU2315\
Data File : U050712.D
Acq On : 12 May 2015 10:04 pm
Operator : nareshj
Sample : ecc2245-4
Misc : op56056,su2315,30.0,,,1,4,soil
ALS Vial : 27 Sample Multiplier: 1

Quant Time: May 13 09:11:45 2015
Quant Method : C:\msdchem\2\METHODS\simpahf.m
Quant Title : PAH's by 8270 SIM
QLast Update : Tue May 12 13:27:24 2015
Response via : Initial Calibration

| Internal Standards | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| 1) Naphthalene-d8 | 3.949 | 136 | 224710 | 4.00 | ppm | 0.00 |
| 7) Acenaphthene-d10 | 5.336 | 164 | 134622 | 4.00 | ppm | 0.00 |
| 13) Phenanthrene-d10 | 6.521 | 188 | 236928 | 4.00 | ppm | 0.00 |
| 20) Chrysene-d12 | 9.932 | 240 | 282725 | 4.00 | ppm | 0.00 |
| 25) Perylene-d12 | 12.326 | 264 | 230950 | 4.00 | ppm | 0.00 |

System Monitoring Compounds

| | | | | | | |
|---|---|---|---|---|---|---|
| 2) Nitrobenzene-d5 | 3.428 | 82 | 200368 | 11.30 | ppm | 0.00 |
| Spiked Amount 10.000 | Range 40 - 105 | | Recovery = 113.00%# | | | |
| 8) 2-Fluorobiphenyl | 4.815 | 172 | 425943 | 9.64 | ppm | 0.00 |
| Spiked Amount 10.000 | Range 40 - 105 | | Recovery = 96.40% | | | |
| 14) 2,4,6-Tribromophenol | 5.976 | 330 | 125112 | 19.64 | ppm | 0.00 |
| Spiked Amount 20.000 | Range 42 - 108 | | Recovery = 98.20% | | | |
| 22) Terphenyl-d14 | 8.364 | 244 | 637116 | 11.05 | ppm | 0.00 |
| Spiked Amount 10.000 | Range 45 - 119 | | Recovery = 110.50% | | | |

Target Compounds

| | | | | | | Qvalue |
|---|---|---|---|---|---|---|
| 4) Naphthalene | 3.964 | 128 | 605233 | 10.05 | ppm | 99 |
| 5) 2-Methylnaphthalene | 4.502 | 142 | 406474 | 9.97 | ppm | 100 |
| 6) 1-Methylnaphthalene | 4.585 | 142 | 370093 | 10.06 | ppm | 99 |
| 9) Acenaphthylene | 5.212 | 152 | 676018 | 10.39 | ppm | 73 |
| 10) Acenaphthene | 5.363 | 153 | 380204 | 9.43 | ppm | 99 |
| 12) Fluorene | 5.765 | 166 | 430043 | 9.64 | ppm | 100 |
| 16) Phenanthrene | 6.543 | 178 | 625127 | 9.07 | ppm | 99 |
| 17) Anthracene | 6.584 | 178 | 342651 | 4.69 | ppm | 100 |
| 19) Fluoranthene | 7.797 | 202 | 952405 | 9.00 | ppm | 100 |
| 21) Pyrene | 8.076 | 202 | 987944 | 9.52 | ppm | 97 |
| 23) Benzo[a]anthracene | 9.903 | 228 | 421313 | 4.96 | ppm | 99 |
| 24) Chrysene | 9.970 | 228 | 393189 | 4.97 | ppm | 99 |
| 26) Benzo[b]fluoranthene | 11.740 | 252 | 374970 | 5.30 | ppm | 99 |
| 27) Benzo[k]fluoranthene | 11.781 | 252 | 369710 | 5.01 | ppm | 99 |
| 28) Benzo[a]pyrene | 12.231 | 252 | 346788 | 5.02 | ppm | 100 |
| 29) Indeno[1,2,3-cd]pyrene | 13.840 | 276 | 173838 | 4.09 | ppm | 99 |
| 30) Dibenz[a,h]anthracene | 13.893 | 278 | 185858 | 4.19 | ppm | 100 |
| 31) Benzo[g,h,i]perylene | 14.153 | 276 | 178327 | 3.65 | ppm | 99 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

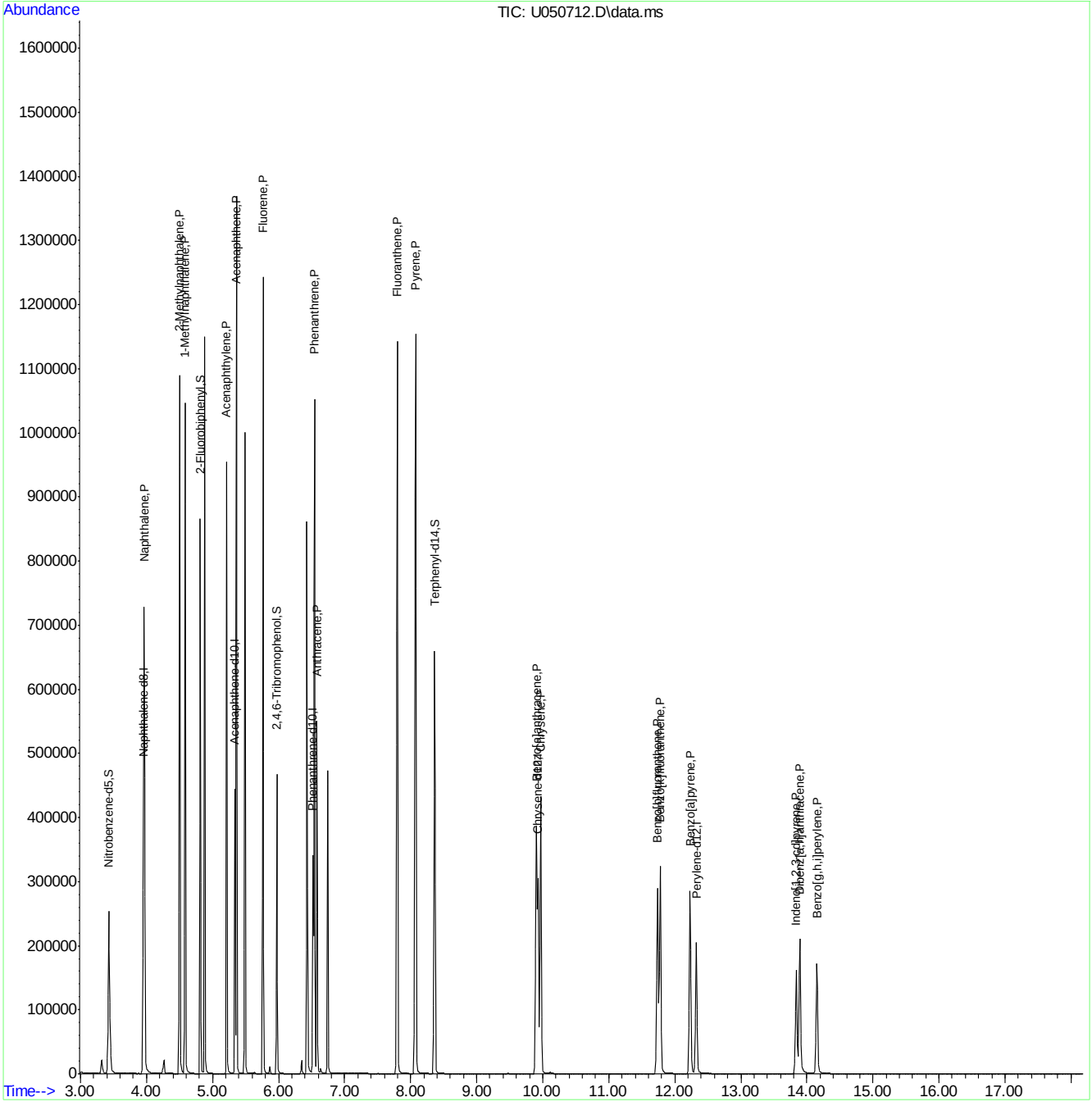
7.6.22

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\SU2315\
Data File : U050712.D
Acq On : 12 May 2015 10:04 pm
Operator : nareshj
Sample : ecc2245-4
Misc : op56056,su2315,30.0,,,1,4,soil
ALS Vial : 27 Sample Multiplier: 1

Quant Time: May 13 09:11:45 2015
Quant Method : C:\msdchem\2\METHODS\simpahf.m
Quant Title : PAH's by 8270 SIM
QLast Update : Tue May 12 13:27:24 2015
Response via : Initial Calibration



ACCUTEST LABORATORIES SE

| | |
|---|---|
| DATE: | 04-29-15 |
| COLUMN TYPE: | 285 Mi |
| AMOUNT INJECTED: | 5 ul |
| INSTRUMENT: | MSBNA03-R |

MS BNA03-R ANALYSIS LOG

| | |
|---|---|
| METHODS*: | 8270 D SIMPAH |
| ACQ. METHOD: | ACQ-UVR |
| PROC. METHOD: | SIM-UV |
| CALIB. DATE: | 04-24-15 |
| RUN BATCH: | SR 2318 |

| | |
|---|---|
| ANALYST: | MLA |
| MECL2 LOT #: | 1507059 |
| DFTPP RESPONSE: | 293567 |
| EM VOLTAGE: | 1612 |

MLA 04-29-15

| DATA FILE | ALS # | SAMPLE ID | SAMPLE METHOD | OP BATCH | DF | MANUALLY INTEGRATED PEAKS RATIONALE, PEAK # | COMMENTS I ~~55144~~ 55149 |
|---|---|---|---|---|---|---|---|
| R 448786 | 1 | dftpp | dftpp | | | | |
| R 87 | 2 | CC2316-5 | 8270 | | | | |
| R 88 | 3 | blk | ↓ | | | | |
| R 89 | 1 | dftpp | dftpp | 55142 | 1x | | PASS |
| R 90 | 2 | CC2316-5 | 8270 | 55164 | 5x 100+400 | | ↑ surr. |
| R 91 | 2 | ↓ ↓ | | | ↓ | | ↓ ↓ |
| R 92 | 2 | ic2318-1 | | | 10x 4+496 | | PASS |
| R 93 | 3 | -2 | | | 50x 10+490 | #28 Mp | |
| R 94 | 4 | -3 | | | 25x 20+480 | | |
| R 95 | 5 | -4 | | | 10x 40+760 | | |
| R 96 | 6 | -5 | | | 5x 100+400 | | |
| R 97 | 7 | -6 | | | 2x 200+200 | | |
| R 98 | 8 | -7 | | ↓ | 1x | #26 Mp | |
| R 99 | 9 | icv2318-4 | | E5134 | 20x 20+380 | | ↓ |
| R 448800 | 10 | blk | | OP5030 | 1x | | NO |
| R 01 | 11 | FC23711-8 | | | 1x ~~25x~~ | | / |
| R 02 | 12 | -4 | | | | | / |
| R 03 | 13 | -5 | | | 50x | | / |
| R 04 | 14 | -6 | | | 200x | | / M 1000x |
| R 05 | 15 | -7 | | ↓ | 100x | | / |

* For NELAC purposes, Method 625 includes analytes by SOP MS004 and 8270 includes analytes by SOP MS006
Manual Integration Rationale SOP QA029: MP Missed Peak, OP Overlapping Peak, SP Split Peak, PDB Poorly Defined Baseline, BR Baseline Ripple, PII Poor Instrument Integration
All strikeouts must be initialed and dated. If correction was not due to a transcription error, then list the reason for correction.

msbna03_r_log.xls NF rev. 08/09

Analyst's Signature: MLA



Instrument Run Log SR2318 page 1 of
155 of 166
ACCUTEST LABORATORIES FA23938
7.7.1 7

ACCUTEST LABORATORIES SE

| | |
|---|---|
| DATE: | 04-24-15 |
| COLUMN TYPE: | ZB-5MS i |
| AMOUNT INJECTED: | 5 ul |
| INSTRUMENT: | MSBNA03-R |

MS BNA03-R ANALYSIS LOG

| | |
|---|---|
| METHODS*: | 8270 SMPSH |
| ACQ. METHOD: | ACQ-UW |
| PROC. METHOD: | SM-LV |
| CALIB. DATE: | 04-24-15 |
| RUN BATCH: | SR 2318 |

| | |
|---|---|
| ANALYST: | MLA |
| MECL2 LOT #: | 1503058 |
| DFTPP RESPONSE: | 293567 |
| EM VOLTAGE: | 1612 |

| DATA FILE | ALS # | SAMPLE ID | SAMPLE METHOD | OP BATCH | DF | MANUALLY INTEGRATED PEAKS RATIONALE, PEAK # | COMMENTS |
|---|---|---|---|---|---|---|---|
| R 448806 | 16 | FA23711-9 | 8270 | OP55330 | 1000 | #1 MP | µ800X |
| R 07 | 17 | -10 | ↓ | ↓ | 500 | — | — |
| R 08 | 18 | FA23741-1 | | | 50 | #2 MP #3 MP | — |
| R 09 | 5 | ccc2318-4 | | 55164 | 100 40+360 | — | — |
| R | | | | | | | |
| R | | | | | | | |
| R | | | | | | | |
| R | | | | | | | |
| R | | | | | | | |
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| R | | | | | | | |
| R | | | | | | | |
| R | | | | | | | MLA 04-24-15 |
| R | | | | | | | |
| R | | | | | | | |
| R | | | | | | | |

* For NELAC purposes, Method 625 includes analytes by SOP MS004 and 8270 includes analytes by SOP MS006
Manual Integration Rationale SOP QA029: MP Missed Peak, OP Overlapping Peak, SP Split Peak, PDB Poorly Defined Baseline, BR Baseline Ripple, PII Poor Instrument Integration
All strikeouts must be initialed and dated. If correction was not due to a transcription error, then list the reason for correction.

msbna03_r_log.xls NF rev. 08/09

Analyst's Signature: [signature]







ACCUTEST LABORATORIES FA23938

ACCUTEST LABORATORIES SE

| | |
|---|---|
| DATE: | 04-30-15 |
| COLUMN TYPE: | ZB 5MS i |
| AMOUNT INJECTED: | 5 ul |
| INSTRUMENT: | MSBNA03-R |

MS BNA03-R ANALYSIS LOG

| | |
|---|---|
| METHODS*: | 8270D SIMpah |
| ACQ. METHOD: | ACQ_LVR |
| PROC. METHOD: | SM-LVR |
| CALIB. DATE: | 04-29-15 |
| RUN BATCH: | SR 2321 |

| | |
|---|---|
| ANALYST: | MLA |
| MECL2 LOT #: | 150358 |
| DFTPP RESPONSE: | 449825 |
| EM VOLTAGE: | 1612 |

| DATA FILE | ALS # | SAMPLE ID | SAMPLE METHOD | OP BATCH | DF | MANUALLY INTEGRATED PEAKS RATIONALE, PEAK # | COMMENTS IS 55149 |
|---|---|---|---|---|---|---|---|
| R 448846 | 1 | dstpp | dstpp | 55162 | 1x | | Pass |
| R 47 | 2 | CL2318-5 | 8270 | 55164 | 5x 100+400 | [illegible] | Pass |
| R 48 | 3 | OP55914-BS | | OP55914 | 1x | [illegible] | — |
| R 49 | 4 | -MB | | | | | NO |
| R 50 | 5 | FA23821-1 | | | | | — |
| R 51 | 6 | FA23861-1 | | | | | — |
| R 52 | 7 | FA23877-1 | | | 4x 100+700 | | M 100x (Reprodx only IS fail) |
| R 53 | 8 | -2 | | | 1x | | NO |
| R 54 | 9 | -3 | | | | | NO |
| R 55 | 10 | -4 | | | | | M-10x (Rep. 1 only IS fail) |
| R 56 | 11 | -8 | | | | | NO |
| R 57 | 12 | -9 | | | | | — M 20x (Rep/redrun) |
| R 58 | 13 | FA23938-5 | | | | | M 1x ED |
| R 59 | 14 | OP55914-MS | | | | | — |
| R 60 | 15 | -MSD | | | | | — |
| R 61 | 2 | CL2319-5 | | 55164 | 5x 100+400 | | — |
| R | | | | | | | |
| R | | | | | | | |
| R | | | | | | | |
| R | | | | | | | |

MLA 04-30-15

* For NELAC purposes, Method 625 includes analytes by SOP MS004 and 8270 includes analytes by SOP MS006
Manual Integration Rationale SOP QA029: MP Missed Peak, OP Overlapping Peak, SP Split Peak, PDB Poorly Defined Baseline, BR Baseline Ripple, PII Poor Instrument Integration
All strikeouts must be initialed and dated. If correction was not due to a transcription error, then list the reason for correction.

msbna03_r_log.xls NF rev. 08/09

Analyst's Signature: MLA

ACCUTEST LABORATORIES SE

| | |
|---|---|
| DATE: | ~~04-30-15~~ 05-01-15 |
| COLUMN TYPE: | ZB-5MSi |
| AMOUNT INJECTED: | 5 ul |
| INSTRUMENT: | MSBNA03-R |

MS BNA03-R ANALYSIS LOG

| | |
|---|---|
| METHODS*: | 8270 DEDBAW |
| ACQ. METHOD: | A CA-LVR |
| PROC. METHOD: | SM_LVR |
| CALIB. DATE: | 04-24-15 |
| RUN BATCH: | SR 2322 |

| | |
|---|---|
| ANALYST: | MA |
| MECL2 LOT #: | 150358 |
| DFTPP RESPONSE: | 372369 |
| EM VOLTAGE: | 1612 |

| | DATA FILE | ALS # | SAMPLE ID | SAMPLE METHOD | OP BATCH | DF | MANUALLY INTEGRATED PEAKS RATIONALE, PEAK # | COMMENTS IS 55149 |
|---|---|---|---|---|---|---|---|---|
| R | 448862 | 1 | DFTPP | DFTPP | 55162 | 1X | | PASS |
| R | 63 | 2 | CC2318-5 | 8270 | 55164 | 50X 100+400 | | PASS |
| R | 64 | 3 | BLK | | 055914 | 1X | | ND |
| R | 65 | 4 | FA23937-1 | | | 10X 5+495 | | — |
| R | 66 | 5 | -4 | | | 10X 40+260 | | — |
| R | 67 | 6 | -9 | | | 20X 20+380 | | — |
| R | 68 | 7 | FA23938-5 | | | 1X | | — |
| R | 69 | 2 | CC2318-5 | | 55164 | 50X 100+400 | | — |
| R | | | | | | | | |
| R | | | | | | | | |
| R | | | | | | | | |
| R | | | | | | | | |
| R | | | | | | | | |
| R | | | | | | | | |
| R | | | | | | | | |
| R | | | | | | | | |
| R | | | | | | | | |
| R | | | | | | | | |
| R | | | | | | | | |

MA 05-01-15

* For NELAC purposes, Method 625 includes analytes by SOP MS004 and 8270 includes analytes by SOP MS006
Manual Integration Rationale SOP QA029: MP Missed Peak, OP Overlapping Peak, SP Split Peak, PDB Poorly Defined Baseline, BR Baseline Ripple, PII Poor Instrument Integration
All strikeouts must be initialed and dated. If correction was not due to a transcription error, then list the reason for correction.

msbna03_r_log.xls NF rev. 08/09

Analyst's Signature: MA

**ACCUTEST LABORATORIES SE**

| | |
|---|---|
| DATE: | 01/28/15 |
| COLUMN TYPE: | TG5-MS |
| AMOUNT INJECTED: | 2 ul |
| INSTRUMENT: | MSBNA04-U |

**MS BNA04-U ANALYSIS LOG**

| | |
|---|---|
| METHODS*: | 8270 D SIM PAH |
| ACQ. METHOD: | GAS-PAH |
| PROC. METHOD: | SIM PAH F |
| CALIB. DATE: | 01/28/15 |
| RUN BATCH: SU | 2245 |

| | |
|---|---|
| ANALYST: | NJ |
| MECL2 LOT #: | 87537 |
| DFTPP RESPONSE: | 715776 |
| EM VOLTAGE: | 1729 |

| DATA FILE | ALS # | SAMPLE ID | SAMPLE METHOD | OP BATCH | DF | MANUALLY INTEGRATED PEAKS RATIONALE, PEAK # | COMMENTS IC-15070 |
|---|---|---|---|---|---|---|---|
| U 49016 | 1 | DFTPP | DFTPP | 15080 | 1x | | — |
| U 17 | 2 | IC2245-1 | 8270 | 15093 | | | Low |
| U 18 | 1 | DFTPP | DFTPP | 15080 | 1x | | — |
| U 19 | 2 | IC2245-1 | 8270 | 15093 | | | Low ↑ EM |
| U 20 | 3 | IC2245-1 | 8270 | ↓ | | | Low ↑ Integration 2nd PEAK Low |
| U 21 | 1 | DFTPP | DFTPP | 15080 | 1x | | Pass |
| U 22 | 3 | IC2245-1 | 8270 | 15093 | 100x | | Wrong Vial |
| U 23 | 2 | -1 | | | ~~20~~ 100x | | — |
| U 24 | 3 | -2 | | | ~~4~~ 20x | | — |
| U 25 | 4 | -3 | | | 8x | | — |
| U 26 | 5 | -4 | | | 4x | | — |
| U 27 | 6 | -5 | | | 150,000 | | — |
| U 28 | 7 | -6 | | | 2x | | — |
| U 29 | 8 | -7 | | | 1x | | — Pass |
| U 30 | 9 | IC2245-4 | | E5048 | 2x | | — Pass |
| U 31 | 10 | -5 1:10 | | 7205 | 20x | | Not Usd. - Dil not correct |
| U 32 | 11 | 01 54674-BS | | 54674 | 1x | | — |
| U 33 | 12 | 01 54674-MB | | | 1x | | ND |
| U 34 | 13 | FA21528-1 | | | 10x | | — Dil - Matrix |
| U 35 | 14 | FA21544-1 | — | | 4x | | ND |

* For NELAC purposes, Method 625 includes analytes by SOP MS004 and 8270 includes analytes by SOP MS006

Manual Integration Rationale SOP QA029: **MP** Missed Peak, **OP** Overlapping Peak, **SP** Split Peak, **PDB** Poorly Defined Baseline, **BR** Baseline Ripple, **PII** Poor Instrument Integration

All strikeouts must be initialed and dated. If correction was not due to a transcription error, then list the reason for correction.

msbna04_u_log.xls NF rev. 08/09

Analyst's Signature: [signature]

**ACCUTEST LABORATORIES SE**

| | |
|---|---|
| DATE: | 01/28/15 |
| COLUMN TYPE: | Ti5-ms |
| AMOUNT INJECTED: | 2 ul |
| INSTRUMENT: | MSBNA04-U |

**MS BNA04-U ANALYSIS LOG**

| | |
|---|---|
| METHODS*: | 8270 SIM PAH |
| ACQ. METHOD: | FA SS PAH |
| PROC. METHOD: | SIM PAH F |
| CALIB. DATE: | 01/28/15 |
| RUN BATCH: | SU 2245 |

| | |
|---|---|
| ANALYST: | NJ |
| MECL2 LOT #: | 875372 |
| DFTPP RESPONSE: | 315776 |
| EM VOLTAGE: | 1729 |

| DATA FILE | ALS # | SAMPLE ID | SAMPLE METHOD | OP BATCH | DF | MANUALLY INTEGRATED PEAKS RATIONALE, PEAK # | COMMENTS |
|---|---|---|---|---|---|---|---|
| U 49036 | 15 | FA21544-2 | 8270 | 54674 | 4 | | NI |
| U 37 | 16 | -3 | | | 1 | | NI |
| U 38 | 17 | -4 | | | 1 | | NI |
| U 39 | 18 | FA21545-1 | | | 100 | | — 4 Tmp |
| U 40 | 19 | -2 | | | 100 | | — |
| U 41 | 20 | FA21543-1 | | | 4 | | NI |
| U 42 | 21 | -2 | | | | | NI |
| U 43 | 22 | -3 | | | | | NI |
| U 44 | 23 | -4 | | | | | — |
| U 45 | 24 | -5 | | | | | NI |
| U 46 | 25 | FA21556-13 | | | | | NI |
| U 47 | 26 | 0.5 54674-M1 | | | | | — |
| U 48 | 27 | -MS1 | | | | | — |
| U 49 | 28 | FA21556-1 | | | | | NI |
| U 50 | 29 | -3 | | | | | NI |
| U 51 | 30 | -5 | | | | | NI |
| U 52 | 31 | -7 | | | | | NI |
| U 53 | 32 | -9 | | | | | NI |
| U 54 | 33 | -11 | | | | | Out of Tune |
| U 55 | 6 | ECC2145-5 | | 15093 | 100:40 | | — |

* For NELAC purposes, Method 625 includes analytes by SOP MS004 and 8270 includes analytes by SOP MS006
Manual Integration Rationale SOP QA029: **MP** Missed Peak, **OP** Overlapping Peak, **SP** Split Peak, **PDB** Poorly Defined Baseline, **BR** Baseline Ripple, **PII** Poor Instrument Integration
All strikeouts must be initialed and dated. If correction was not due to a transcription error, then list the reason for correction.

msbna04_u_log.xls NF rev. 08/09

Analyst's Signature: [signature]

ACCUTEST LABORATORIES SE

| | |
|---|---|
| DATE: | 05/12/15 |
| COLUMN TYPE: | TG5-MS |
| AMOUNT INJECTED: | 2 ul |
| INSTRUMENT: | MSBNA04-U |

MS BNA04-U ANALYSIS LOG

| | |
|---|---|
| METHODS*: | 8270D SIM/TMS |
| ACQ. METHOD: | BASTPAH |
| PROC. METHOD: | SIMTMS |
| CALIB. DATE: | 01/28/15 |
| RUN BATCH: | SU 2315 |

| | |
|---|---|
| ANALYST: | NT |
| MECL2 LOT #: | 153758 |
| DFTPP RESPONSE: | 191477 |
| EM VOLTAGE: | 1741 |

| DATA FILE | ALS # | SAMPLE ID | SAMPLE METHOD | OP BATCH | DF | MANUALLY INTEGRATED PEAKS RATIONALE, PEAK # | COMMENTS IS 55169 |
|---|---|---|---|---|---|---|---|
| U 50682 | 1 | DFTPP | DFTPP | 55180 | 1 | | PASS |
| U 83 | 2 | CC2245-4 | 8270 | 55167 | 4 | | Low - No MANAGEMENT |
| U 84 | 1 | DFTPP | DFTPP | 55180 | 1 | | PASS |
| U 85 | 2 | CC2245-4 | 8270 | 55167 | 4 | | PASS - Acen TIGHT (ACEN TRACE LOW 25-T1) |
| U 86 | 1 | DFTPP | DFTPP | 55180 | 1 | | PASS |
| U 87 | 2 | CC2245-4 | 8270 | 55167 | 4 | | PASS |
| U 88 | 3 | 915 6056-BS | | 56056 | 1 | | — |
| U 89 | 4 | -MB | | | 1 | | NA |
| U 90 | 5 | FA24088-25 re | | | 4 | | NA |
| U 91 | 6 | FA24262-1 | | | | | NA |
| U 92 | 7 | -2 | | | | | — |
| U 93 | 8 | 915 6056-MS | | | | | — |
| U 94 | 9 | -MSD | | | | | — |
| U 95 | 10 | FA24262-3 | | | | | NA |
| U 96 | 11 | FA24279-13 | | | 10x | | — MATRIX |
| U 97 | 12 | -14 | | | 4x | | — |
| U 98 | 13 | -15 | | | 10x | | — TRACE |
| U 99 | 14 | -16 | | | 10x | | — MATRIX |
| U 100 | 15 | -20 | | | 4x | | — |
| U 101 | 16 | -21 | | | 4x | | — |

* For NELAC purposes, Method 625 includes analytes by SOP MS004 and 8270 includes analytes by SOP MS006
Manual Integration Rationale SOP QA029: MP Missed Peak, OP Overlapping Peak, SP Split Peak, PDB Poorly Defined Baseline, BR Baseline Ripple, PII Poor Instrument Integration
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msbna04_u_log.xls NF rev. 08/09

Analyst's Signature: [signature]

ACCUTEST LABORATORIES SE

| | |
|---|---|
| DATE: | 05/12/15 |
| COLUMN TYPE: | TG5 MS |
| AMOUNT INJECTED: | 2 ul |
| INSTRUMENT: | MSBNA04-U |

MS BNA04-U ANALYSIS LOG

| | |
|---|---|
| METHODS*: | 8270 17 SIM/MRL |
| ACQ. METHOD: | FAST PAH |
| PROC. METHOD: | SIM.PAH.F |
| CALIB. DATE: | 01/28/15 |
| RUN BATCH: SU | 2315 |

| | |
|---|---|
| ANALYST: | NJ |
| MECL2 LOT #: | 150758 |
| DFTPP RESPONSE: | 19477 |
| EM VOLTAGE: | 1741 |

| DATA FILE | ALS # | SAMPLE ID | SAMPLE METHOD | OP BATCH | DF | MANUALLY INTEGRATED PEAKS RATIONALE, PEAK # | COMMENTS |
|---|---|---|---|---|---|---|---|
| U 50702 | 17 | FA34279-22 | 8270 | 56056 | 4 | | — |
| U 03 | 18 | -23 | | | 10 | | — RD 4 |
| U 04 | 19 | -24 | | | 4 | | — |
| U 05 | 20 | -25 | | | 10 | | — MATRIX |
| U 06 | 21 | -26 | | | 4 | | — |
| U 07 | 22 | FA23938-1 | | | | | NV XH |
| U 08 | 23 | -2 | | | | | ND |
| U 09 | 24 | -3 | | | | | ND XH |
| U 10 | 25 | -4 | | | | | ND |
| U 11 | 26 | -6 | | | | | ND |
| U 12 | 27 | SCC2245-5 | — | 5163 | 4 | | — |
| U | | | | | | | |
| U | | | | | | | |
| U | | | | | | | |
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| U | | | | | | | |

NJ 5/13/15

* For NELAC purposes, Method 625 includes analytes by SOP MS004 and 8270 includes analytes by SOP MS006
Manual Integration Rationale SOP QA029: MP Missed Peak, OP Overlapping Peak, SP Split Peak, PDB Poorly Defined Baseline, BR Baseline Ripple, PII Poor Instrument Integration
All strikeouts must be initialed and dated. If correction was not due to a transcription error, then list the reason for correction.

msbna04_u_log.xls NF rev. 08/09

Analyst's Signature: [signature]

ACCUTEST LABORATORIES SE

LIQUID SAMPLE PREP REPORT

Date/Time: 04/29/15 1600
Started {mm/dd/yy 24:00}

Date/Time: 04/29/15 1900
Finished {mm/dd/yy 24:00}

Prep Method: 3510C 3580A or Method (circle)

Analytical Method: SinCVI

Batch#: 55914 Ext. By: MJJ, SP, JT, YFS Conc. By: JT Vialed By: JT

| Sample ID | Bottle Number | Amount Extracted (ml) | Initial pH | Adjusted pH | Surrogate Amount | Spike Amount | Final Volume (ml) | Comments |
|---|---|---|---|---|---|---|---|---|
| OP 55914 MB | X | 250 | 6 | <2>11 | 0.5mL | | 1.0 | nacl ~~140950~~ 145475 |
| OP 55914 BS | X | 250 | ↓ | ↓ | ↓ | 0.1mL | ↓ | nacl ~~140950~~ 145475 |
| FA23821-1 | 6 | 240 | ↓ | ↓ | ↓ | ↓ | ↓ | MJJ 04/29/ |
| FA23861-1 | 6 | 230 | ↓ | ↓ | ↓ | ↓ | ↓ | |
| FA23877-1 | 6 | 240 | ↓ | ↓ | ↓ | ↓ | ↓ | |
| -2 | 5 | 220 | ↓ | ↓ | ↓ | ↓ | ↓ | |
| -3 | 5 | 210 | ↓ | ↓ | ↓ | ↓ | ↓ | |
| -4 | 6 | 230 | ↓ | ↓ | ↓ | ↓ | ↓ | |
| -5 | 4 | 260 | ↓ | ↓ | ↓ | ↓ | ↓ | |
| -9 | 6 | 240 | ↓ | ↓ | ↓ | ↓ | ↓ | |
| FA23938-5 | 1 | 240 | ↓ | ↓ | ↓ | ↓ | ↓ | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | 04/29/15 MJJ | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| FA23861-1 MS | 5 | 125 | 6 | <2>11 | 0.5mL | 0.1mL | 1.0 | |
| -1 MSD | 5 | 125 | 6 | <2>11 | 0.5mL | 0.1mL | ↓ | |
| DUP | | | | | | | | |

Comments:

Surr. ID: ES11 Conc: 8/4 ppm Exp. Date: 09/12/15 Inj. By: SP Ver. By JT

Spk. ID: ESDSU A Conc: 20/40 ppm Exp. Date: 07/12/15 Inj. By: SP Ver. By JT

Initial Bath Temp (Therm ID): TV H 5
Observed Temp °C: 45°C Corr. Temp °C: —

Exchange Bath/N-Evap Temp (Therm ID): —
Observed Temp °C: — Corr. Temp °C: —

CH2CL2 Lot # 150358 Hexane Lot # — Na2SO4 Lot# —

Acetonitrile Lot # — Methanol Lot # — Acetone Lot# —

Syringe Filter Lot# — ~~Reagent#~~ $H_2SO_4$ 410227 ~~Reagent#~~ NaOH 16774

Copper Lot # — If Sulfur Cleaning is performed in Extractions (3660B)

Relinquished By: Date: 04/29/15

Accepted By: Date: 04/30/15

NF rev. 09/14/12 extwater 091412.xls

7.8.1

7

ACCUTEST LABORATORIES SE

SOLID SAMPLE PREP REPORT

Date/Time: 05/12/15 8:45
Started {mm/dd/yy 24:00}

Prep Method: 3550C 3580A or Method (circle)

Date/Time: 05/12/15 10:30
Finished {mm/dd/yy 24:00}

Batch#: OP56056

Analytical Method: SIMPAH

Ext. By: JC, BC Conc. By: ACM Vialed By: MV Balance ID: ADUPRO 8

| Sample ID | Bottle Number | Amount Extracted (g) | Surrogate Amount | Spike Amount | Final Volume (ml) | Comments |
|---|---|---|---|---|---|---|
| OP 56056 MB | X | 30.0 | 0.1mL | | 1.0mL | |
| OP 56056 BS | | 30.0 | | 0.5mL | | |
| FA24088-25RE | 1 | 30.0 | | | | |
| FA24262-1 | 5 | 30.0 | | | | |
| -2 | 5 | 29.8 | | | | MS, MSD |
| -3 | 5 | 29.8 | | | | |
| FA24279-13 | 5 | 30.4 | | | | |
| -14 | 1 | 30.1 | | | | |
| -15 | 1 | 30.1 | | | | |
| -16 | 1 | 29.8 | | | | |
| -20 | 1 | 30.3 | | | | |
| -21 | 1 | 30.2 | | | | |
| -22 | 1 | 30.3 | | | | |
| -23 | 1 | 29.9 | | | | |
| -24 | 1 | 30.4 | | | | |
| -25 | 1 | 30.0 | | | | |
| -26 | 1 | 30.1 | | | | |
| FA23938-1 | 1 | 30.0 | | | | |
| -2 | 1 | 30.1 | | | | |
| -3 | 3 | 30.4 | | | | ~~MS, MSD~~ JC 05/12/15 |
| -4 | 1 | 30.4 | | | | |
| -6 | 1 | 30.1 | | | | |
| 05/12/15 JC ~~FA23938-3~~ MS | 5 | 30.3 | | 0.5mL | | FA 24262-2 |
| MSD | 5 | 29.9 | | | | |
| DUP | | | | | | |

Comments:

Surr. ID: 7221F Conc: 200/100ppm Exp. Date: 10/27/15 Inj. By: BC Ver. By JC

Spk. ID: E5134C Conc: 10/20ppm Exp. Date: 10/14/15 Inj. By: BC Ver. By JC

Initial Bath Temp (Therm ID): TV#5 Exchange Bath/N-Evap Temp (Therm ID): ✓

Observed Temp °C: 40C Corr. Temp °C: ✓ Observed Temp °C: ✓ Corr. Temp °C: ✓

CH2CL2 Lot # 150358 Hexane Lot # ✓ Na2SO4 Lot# 1968

Acetonitrile Lot # ✓ Methanol Lot # ✓ Acetone Lot# 148470

Syringe Filter Lot# ✓ Filter Paper # 5931 Reagent # ✓

Copper Lot # ✓ If Sulfur Cleaning is performed in Extractions (3660B)

Relinquished By: [signature] Date: 05/12/15

Accepted By: [signature] Date: 05/12/15 10:25

NF rev. 09/14/12 extsolid 091412.xls

7.8.2

7

Southeast ACCUTEST LABORATORIES

## General Chemistry

# QC Data Summaries

Includes the following where applicable:

- Percent Solids Raw Data Summary

# Percent Solids Raw Data Summary



**Job Number:** FA23938
**Account:** TETRPAPT Tetra Tech NUS
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL

**Sample:** FA23938-1 **Analyzed:** 13-MAY-15 by FN **Method:** SM19 2540G
**ClientID:** PCY-0098-4-6-SB-SS-9

| | | |
|---|---|---|
| Wet Weight (Total) | 8.55 | g |
| Tare Weight | 1.04 | g |
| Dry Weight (Total) | 8.08 | g |
| Solids, Percent | 93.7 | % |

**Sample:** FA23938-2 **Analyzed:** 13-MAY-15 by FN **Method:** SM19 2540G
**ClientID:** PCY-0098-4-6-SB-SS-7

| | | |
|---|---|---|
| Wet Weight (Total) | 8.53 | g |
| Tare Weight | 1.01 | g |
| Dry Weight (Total) | 8.19 | g |
| Solids, Percent | 95.5 | % |

**Sample:** FA23938-3 **Analyzed:** 13-MAY-15 by FN **Method:** SM19 2540G
**ClientID:** PCY-0098-4-6-SB-SS-8

| | | |
|---|---|---|
| Wet Weight (Total) | 8.52 | g |
| Tare Weight | 1.02 | g |
| Dry Weight (Total) | 8.1 | g |
| Solids, Percent | 94.4 | % |

**Sample:** FA23938-4 **Analyzed:** 13-MAY-15 by FN **Method:** SM19 2540G
**ClientID:** PCY-0098-4-6-SB-SS-6

| | | |
|---|---|---|
| Wet Weight (Total) | 8.53 | g |
| Tare Weight | 1.03 | g |
| Dry Weight (Total) | 8.18 | g |
| Solids, Percent | 95.3 | % |

**Sample:** FA23938-6 **Analyzed:** 13-MAY-15 by FN **Method:** SM19 2540G
**ClientID:** PCY-0098-FD-SB-SS

| | | |
|---|---|---|
| Wet Weight (Total) | 8.51 | g |
| Tare Weight | 1 | g |
| Dry Weight (Total) | 8.15 | g |
| Solids, Percent | 95.2 | % |

Southeast
ACCUTEST LABORATORIES

05/26/15

# Technical Report for

Tetra Tech NUS

NSA Panama City JM73 Bldg 98; Panama City, FL

112G04292

Accutest Job Number: FA24234

Sampling Date: 05/07/15

Report to:

Tetra-Tech, Inc
661 Andersen Dr
Foster Plaza 7
Pittsburgh, PA 15220

ATTN: Amy Thomson

Total number of pages in report: **113**

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

Norm Farmer
Technical Director

Client Service contact: Andrea Colby 407-425-6700

Certifications: FL (E83510), LA (03051), KS (E-10327), IA (366), IL (200063), NC (573), NJ (FL002), SC (96038001) DoD ELAP (L-A-B L2229), CA (2937), TX (T104704404), PA (68-03573), VA (460177), AK, AR, GA, KY, MA, NV, OK, UT, WA

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Test results relate only to samples analyzed.



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# Sample Summary

Tetra Tech NUS

**Job No:** FA24234

NSA Panama City JM73 Bldg 98; Panama City, FL
Project No: 112G04292

| Sample Number | Collected Date | Time | By | Received | Matrix Code | Type | Client Sample ID |
|---|---|---|---|---|---|---|---|
| FA24234-1 | 05/07/15 | 13:15 | MO | 05/08/15 | AQ | Ground Water | PCY-98-GW06 |

# SAMPLE DELIVERY GROUP CASE NARRATIVE

**Client:** Tetra Tech NUS **Job No:** FA24234

**Site:** NSA Panama City JM73 Bldg 98; Panama City, FL **Report Date:** 5/21/2015 12:19:42

1 Sample(s) were collected on 05/07/2015 and were received at Accutest SE on 05/08/2015 properly preserved, at 3 Deg. C and intact. These Samples received an Accutest job number of FA24234. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

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

**Matrix:** AQ **Batch ID:** OP56067

All samples were extracted within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) FA24248-9MS, FA24248-9MSD were used as the QC samples indicated.

Matrix Spike Duplicate Recovery(s) for 1-Methylnaphthalene, 2-Methylnaphthalene are outside control limits. Probable cause is due to matrix interference. For method performance in a clean matrix, refer to Blank Spike.

Matrix Spike/Matrix Spike Duplicate Recovery(s) for Naphthalene are outside control limits. Outside control limits due to high level in sample relative to spike amount. For method performance in a clean matrix, refer to Blank Spike.

RPD(s) for MSD for Naphthalene are outside control limits for sample OP56067-MSD. Probable cause is due to sample non-homogeneity.

Accutest Laboratories Southeast (ALSE) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALSE and as stated on the COC. ALSE certifies that the data meets the Data Quality Objectives for precision, accuracy and completeness as specified in the ALSE Quality Manual except as noted above. This report is to be used in its entirety. ALSE is not responsible for any assumptions of data quality if partial data packages are used.

Narrative prepared by:

_____ Date: May 21, 2015

Kim Benham, Client Services (signature on file)

# Manual Integration Summary

| Lab Sample ID | Analysis Type | File ID | Manual Integrations |
|---|---|---|---|
| OP56067-MSD | MSSEMI | R449109.D | Indeno(1,2,3-cd)pyrene |
| SR2318-IC2318 | MSSEMI | R448792.D | Indeno(1,2,3-cd)pyrene |
| SR2318-IC2318 | MSSEMI | R448798.D | Benzo(k)fluoranthene |
| SR2329-CC2318 | MSSEMI | R449080.D | Indeno(1,2,3-cd)pyrene |

**4 Manual Integrations were found for FA24234**

# Summary of Hits



**Job Number:** FA24234
**Account:** Tetra Tech NUS
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL
**Collected:** 05/07/15

3

| Lab Sample ID<br>Analyte | Client Sample ID | Result/<br>Qual | PQL | MDL | Units | Method |
|---|---|---|---|---|---|---|
| **FA24234-1** | **PCY-98-GW06** | | | | | |
| Fluorene | | 0.27 I | 0.83 | 0.21 | ug/l | SW846 8270D BY SIM |
| 1-Methylnaphthalene | | 0.49 I | 0.83 | 0.33 | ug/l | SW846 8270D BY SIM |
| 2-Methylnaphthalene | | 0.56 I | 0.83 | 0.33 | ug/l | SW846 8270D BY SIM |
| Naphthalene | | 1.2 | 0.83 | 0.33 | ug/l | SW846 8270D BY SIM |

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## Sample Results

Report of Analysis

Accutest Laboratories

# Report of Analysis





| | | | |
|---|---|---|---|
| **Client Sample ID:** | PCY-98-GW06 | | |
| **Lab Sample ID:** | FA24234-1 | **Date Sampled:** | 05/07/15 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 05/08/15 |
| **Method:** | SW846 8270D BY SIM SW846 3510C | **Percent Solids:** | n/a |
| **Project:** | NSA Panama City JM73 Bldg 98; Panama City, FL | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 | R449093.D | 1 | 05/14/15 | MG | 05/12/15 | OP56067 | SR2329 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 240 ml | 1.0 ml |
| Run #2 | | |

**BN PAH List**

| CAS No. | Compound | Result | PQL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | 0.33 U | 0.83 | 0.33 | ug/l | |
| 208-96-8 | Acenaphthylene | 0.33 U | 0.83 | 0.33 | ug/l | |
| 120-12-7 | Anthracene | 0.21 U | 0.83 | 0.21 | ug/l | |
| 56-55-3 | Benzo(a)anthracene | 0.033 U | 0.17 | 0.033 | ug/l | |
| 50-32-8 | Benzo(a)pyrene | 0.033 U | 0.17 | 0.033 | ug/l | |
| 205-99-2 | Benzo(b)fluoranthene | 0.033 U | 0.17 | 0.033 | ug/l | |
| 191-24-2 | Benzo(g,h,i)perylene | 0.033 U | 0.17 | 0.033 | ug/l | |
| 207-08-9 | Benzo(k)fluoranthene | 0.034 U | 0.17 | 0.034 | ug/l | |
| 218-01-9 | Chrysene | 0.033 U | 0.17 | 0.033 | ug/l | |
| 53-70-3 | Dibenzo(a,h)anthracene | 0.033 U | 0.17 | 0.033 | ug/l | |
| 206-44-0 | Fluoranthene | 0.21 U | 0.83 | 0.21 | ug/l | |
| 86-73-7 | Fluorene | 0.27 | 0.83 | 0.21 | ug/l | I |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | 0.033 U | 0.17 | 0.033 | ug/l | |
| 90-12-0 | 1-Methylnaphthalene | 0.49 | 0.83 | 0.33 | ug/l | I |
| 91-57-6 | 2-Methylnaphthalene | 0.56 | 0.83 | 0.33 | ug/l | I |
| 91-20-3 | Naphthalene | 1.2 | 0.83 | 0.33 | ug/l | |
| 85-01-8 | Phenanthrene | 0.21 U | 0.83 | 0.21 | ug/l | |
| 129-00-0 | Pyrene | 0.21 U | 0.83 | 0.21 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 4165-60-0 | Nitrobenzene-d5 | 76% | | 41-129% |
| 321-60-8 | 2-Fluorobiphenyl | 60% | | 41-118% |
| 1718-51-0 | Terphenyl-d14 | 74% | | 45-145% |

U = Not detected MDL = Method Detection Limit
PQL = Practical Quantitation Limit
L = Indicates value exceeds calibration range

I = Result > = MDL but < PQL J = Estimated value
V = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

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# Misc. Forms

## Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- QC Evaluation: DOD QSM5 Limits

TETRA TECH NUS, INC.

CHAIN OF CUSTODY | NUMBER 2842 FA24234 PAGE 1 OF 1

| | | | | |
|---|---|---|---|---|
| PROJECT NO: 112G04292 | FACILITY: NSA Pcy | PROJECT MANAGER G. WALKER | PHONE NUMBER 850 385 9899 | LABORATORY NAME AND CONTACT: Accutest Andrea Colby |
| SAMPLERS (SIGNATURE) | | FIELD OPERATIONS LEADER W.D. Olson | PHONE NUMBER 850 443 6835 | ADDRESS 4505 Vineland Rd Ste C15 |
| | | CARRIER/WAYBILL NUMBER FEDEX 8066 1749 7668 | | CITY, STATE Orlando FL |

STANDARD TAT ☒
RUSH TAT ☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): G
PRESERVATIVE USED: 40

| DATE YEAR 2015 | TIME | SAMPLE ID | LOCATION ID | TOP DEPTH (FT) | BOTTOM DEPTH (FT) | MATRIX (GW, SO, SW, SD, QC, ETC.) | COLLECTION METHOD GRAB (G) COMP (C) | No. OF CONTAINERS | TYPE OF ANALYSIS: PAHs 8270SIM | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|
| (1) 5/7 | 1315 | PCY-98-GW06 | mw6 | 5 | 15 | GW | G | 2 | 2 | |

| | DATE | TIME | | DATE | TIME |
|---|---|---|---|---|---|
| 1. RELINQUISHED BY | 5-7-15 | 1430 | 1. RECEIVED BY FX | | |
| 2. RELINQUISHED BY FX | | | 2. RECEIVED BY | | |
| 3. RELINQUISHED BY | | | 3. RECEIVED BY | | |

COMMENTS: 3.0

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

4/02R
FORM NO. TINUS-001

5.1 5

**FA24234: Chain of Custody**
**Page 1 of 3**

# ACCUTEST LABORATORIES SAMPLE RECEIPT CONFIRMATION

ACCUTEST'S JOB NUMBER: FA 24234 CLIENT: TETRA TECH PROJECT: 112604292

DATE/TIME RECEIVED: 5-8-15 09:45 {MM/DD/YY 24:00} NUMBER OF COOLERS RECEIVED: 1

METHOD OF DELIVERY: (FEDEX) UPS ACCUTEST COURIER DELIVERY OTHER:

AIRBILL NUMBERS: 8066 1749 7668

## COOLER INFORMATION

- [ ] CUSTODY SEAL NOT PRESENT OR NOT INTACT
- [ ] CHAIN OF CUSTODY NOT RECEIVED (COC)
- [ ] ANALYSIS REQUESTED IS UNCLEAR OR MISSING
- [ ] SAMPLE DATES OR TIMES UNCLEAR OR MISSING
- [ ] TEMPERATURE CRITERIA NOT MET

## TEMPERATURE INFORMATION

- [ ] IR THERM ID 1 CORR. FACTOR -0.2
- [ ] OBSERVED TEMPS: 3.2
- [ ] CORRECTED TEMPS: 3.0

## TRIP BLANK INFORMATION

- [ ] TRIP BLANK PROVIDED
- [X] TRIP BLANK NOT PROVIDED
- [X] TRIP BLANK NOT ON COC
- [ ] TRIP BLANK INTACT
- [ ] TRIP BLANK NOT INTACT
- [ ] RECEIVED WATER TRIP BLANK
- [ ] RECEIVED SOIL TRIP BLANK

## SAMPLE INFORMATION

- [ ] INCORRECT NUMBER OF CONTAINERS USED
- [ ] SAMPLE RECEIVED IMPROPERLY PRESERVED
- [ ] INSUFFICIENT VOLUME FOR ANALYSIS
- [ ] DATES/TIMES ON COC DO NOT MATCH SAMPLE LABEL
- [ ] ID'S ON COC DO NOT MATCH LABEL
- [ ] VOC VIALS HAVE HEADSPACE (MACRO BUBBLES)
- [ ] BOTTLES RECEIVED BUT ANALYSIS NOT REQUESTED
- [ ] NO BOTTLES RECEIVED FOR ANALYSIS REQUESTED
- [ ] UNCLEAR FILTERING OR COMPOSITING INSTRUCTIONS
- [ ] SAMPLE CONTAINER(S) RECEIVED BROKEN
- [ ] 5035 FIELD KITS NOT RECEIVED WITHIN 48 HOURS
- [ ] BULK VOA SOIL JARS NOT RECEIVED WITHIN 48 HOURS
- [ ] % SOLIDS JAR NOT RECEIVED
- [ ] RESIDUAL CHLORINE PRESENT LOT#

{APPLICABLE TO EPA 600 SERIES OR NORTH CAROLINA ORGANICS}

## MISC. INFORMATION

NUMBER OF ENCORES ? 25-GRAM 5-GRAM

NUMBER OF 5035 FIELD KITS ?

NUMBER OF LAB FILTERED METALS ?

pH PAPER LOT#s WIDE RANGE A036122 NARROW RANGE HC421754 OTHER (specify) 405-230010

SUMMARY OF COMMENTS: (8270) ON 250 ml BOTTLES

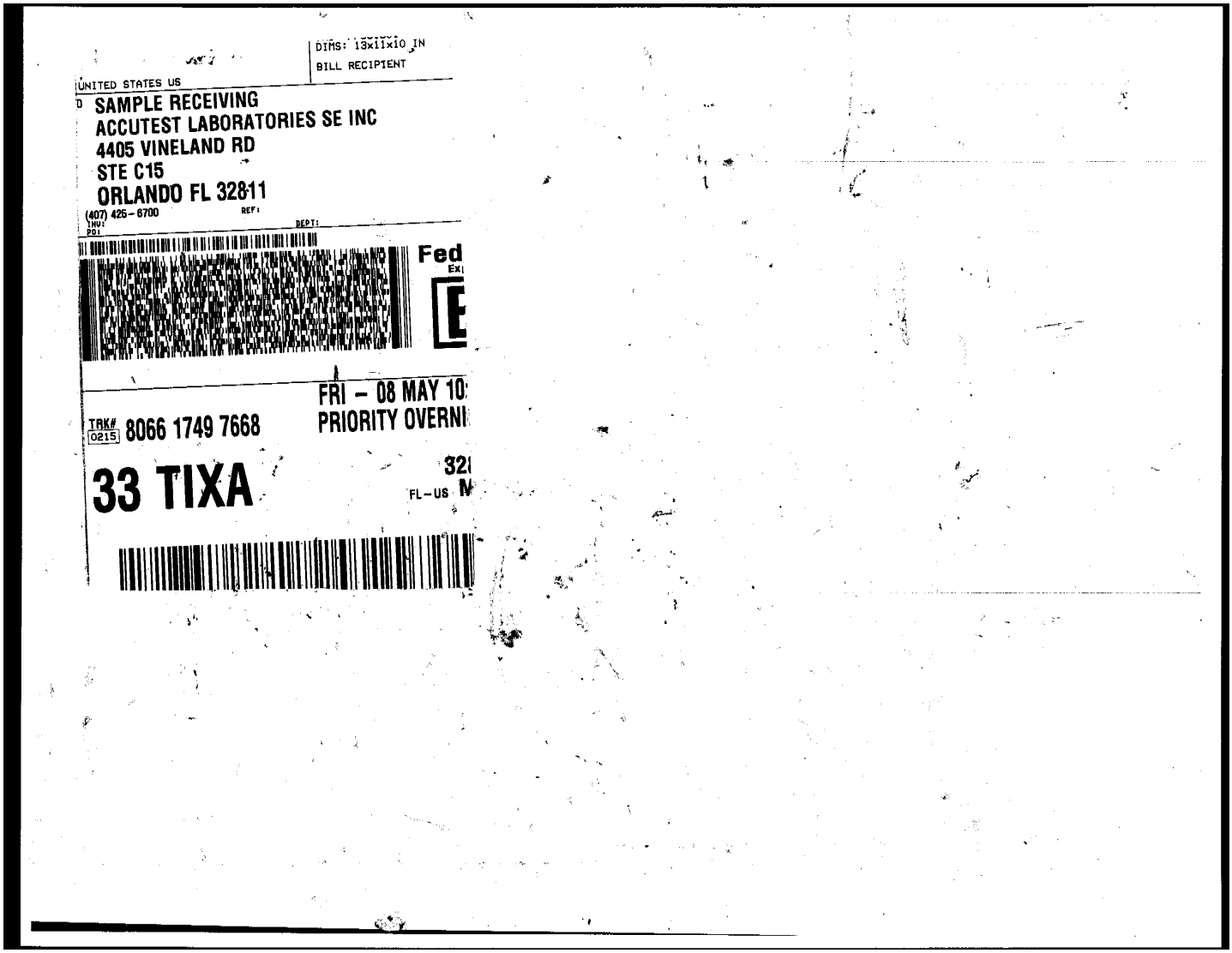
TECHNICIAN SIGNATURE/DATE 5-8-15 REVIEWER SIGNATURE/DATE Jay Zen 5-8-15

NF 10/14

receipt confirmation 102914.xls

5.1 5

**FA24234: Chain of Custody**
**Page 2 of 3**




**FA24234: Chain of Custody**
**Page 3 of 3**

# QC Evaluation: DOD QSM5 Limits



**Job Number:** FA24234
**Account:** Tetra Tech NUS
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL
**Collected:** 05/07/15

| QC Sample ID | CAS# | Analyte | Sample Type | Result Type | Result | Units | Limits |
|---|---|---|---|---|---|---|---|
| OP56067 | SW846 8270D BY SIM | | | | | | |
| OP56067-BS | 83-32-9 | Acenaphthene | BSP | REC | 73 | % | 48-114 |
| OP56067-BS | 208-96-8 | Acenaphthylene | BSP | REC | 70 | % | 35-121 |
| OP56067-BS | 120-12-7 | Anthracene | BSP | REC | 73 | % | 53-119 |
| OP56067-BS | 56-55-3 | Benzo(a)anthracene | BSP | REC | 78 | % | 59-120 |
| OP56067-BS | 50-32-8 | Benzo(a)pyrene | BSP | REC | 75 | % | 53-120 |
| OP56067-BS | 205-99-2 | Benzo(b)fluoranthene | BSP | REC | 80 | % | 53-126 |
| OP56067-BS | 191-24-2 | Benzo(g,h,i)perylene | BSP | REC | 65 | % | 44-128 |
| OP56067-BS | 207-08-9 | Benzo(k)fluoranthene | BSP | REC | 75 | % | 54-125 |
| OP56067-BS | 218-01-9 | Chrysene | BSP | REC | 75 | % | 57-120 |
| OP56067-BS | 53-70-3 | Dibenzo(a,h)anthracene | BSP | REC | 70 | % | 44-131 |
| OP56067-BS | 206-44-0 | Fluoranthene | BSP | REC | 78 | % | 58-120 |
| OP56067-BS | 86-73-7 | Fluorene | BSP | REC | 75 | % | 50-118 |
| OP56067-BS | 193-39-5 | Indeno(1,2,3-cd)pyrene | BSP | REC | 70 | % | 48-130 |
| OP56067-BS | 90-12-0 | 1-Methylnaphthalene | BSP | REC | 71 | % | 41-115 |
| OP56067-BS | 91-57-6 | 2-Methylnaphthalene | BSP | REC | 65 | % | 39-114 |
| OP56067-BS | 91-20-3 | Naphthalene | BSP | REC | 69 | % | 43-114 |
| OP56067-BS | 85-01-8 | Phenanthrene | BSP | REC | 73 | % | 53-115 |
| OP56067-BS | 129-00-0 | Pyrene | BSP | REC | 65 | % | 53-121 |
| OP56067-BS | 4165-60-0 | Nitrobenzene-d5 | BSP | SURR | 72 | % | 55-111 |
| OP56067-BS | 321-60-8 | 2-Fluorobiphenyl | BSP | SURR | 69 | % | 53-106 |
| OP56067-BS | 1718-51-0 | Terphenyl-d14 | BSP | SURR | 74 | % | 58-132 |
| OP56067-MS* | 83-32-9 | Acenaphthene | MS | REC | 106 | % | 48-114 |
| OP56067-MS* | 208-96-8 | Acenaphthylene | MS | REC | 99 | % | 35-121 |
| OP56067-MS* | 120-12-7 | Anthracene | MS | REC | 100 | % | 53-119 |
| OP56067-MS* | 56-55-3 | Benzo(a)anthracene | MS | REC | 94 | % | 59-120 |
| OP56067-MS* | 50-32-8 | Benzo(a)pyrene | MS | REC | 86 | % | 53-120 |
| OP56067-MS* | 205-99-2 | Benzo(b)fluoranthene | MS | REC | 88 | % | 53-126 |
| OP56067-MS* | 191-24-2 | Benzo(g,h,i)perylene | MS | REC | 87 | % | 44-128 |
| OP56067-MS* | 207-08-9 | Benzo(k)fluoranthene | MS | REC | 87 | % | 54-125 |
| OP56067-MS* | 218-01-9 | Chrysene | MS | REC | 91 | % | 57-120 |
| OP56067-MS* | 53-70-3 | Dibenzo(a,h)anthracene | MS | REC | 84 | % | 44-131 |
| OP56067-MS* | 206-44-0 | Fluoranthene | MS | REC | 119 | % | 58-120 |
| OP56067-MS* | 86-73-7 | Fluorene | MS | REC | 112 | % | 50-118 |
| OP56067-MS* | 193-39-5 | Indeno(1,2,3-cd)pyrene | MS | REC | 91 | % | 48-130 |
| OP56067-MS* | 90-12-0 | 1-Methylnaphthalene | MS | REC | 94 | % | 41-115 |
| OP56067-MS* | 91-57-6 | 2-Methylnaphthalene | MS | REC | 79 | % | 39-114 |
| OP56067-MS* | 91-20-3 | Naphthalene | MS | REC | 26 [a] | % | 43-114 |
| OP56067-MS* | 85-01-8 | Phenanthrene | MS | REC | 109 | % | 53-115 |
| OP56067-MS* | 129-00-0 | Pyrene | MS | REC | 80 | % | 53-121 |
| OP56067-MS* | 4165-60-0 | Nitrobenzene-d5 | MS | SURR | 95 | % | 55-111 |
| OP56067-MS* | 321-60-8 | 2-Fluorobiphenyl | MS | SURR | 105 | % | 53-106 |
| OP56067-MS* | 1718-51-0 | Terphenyl-d14 | MS | SURR | 90 | % | 58-132 |

* Sample used for QC is not from job FA24234

# QC Evaluation: DOD QSM5 Limits



**Job Number:** FA24234
**Account:** Tetra Tech NUS
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL
**Collected:** 05/07/15

| QC Sample ID | CAS# | Analyte | Sample Type | Result Type | Result | Units | Limits |
|---|---|---|---|---|---|---|---|
| OP56067-MSD* | 83-32-9 | Acenaphthene | MSD | REC | 116 | % | 48-114 |
| OP56067-MSD* | 83-32-9 | Acenaphthene | MSD | RPD | 9 | % | 20 |
| OP56067-MSD* | 208-96-8 | Acenaphthylene | MSD | REC | 110 | % | 35-121 |
| OP56067-MSD* | 208-96-8 | Acenaphthylene | MSD | RPD | 11 | % | 20 |
| OP56067-MSD* | 120-12-7 | Anthracene | MSD | REC | 109 | % | 53-119 |
| OP56067-MSD* | 120-12-7 | Anthracene | MSD | RPD | 9 | % | 20 |
| OP56067-MSD* | 56-55-3 | Benzo(a)anthracene | MSD | REC | 101 | % | 59-120 |
| OP56067-MSD* | 56-55-3 | Benzo(a)anthracene | MSD | RPD | 8 | % | 20 |
| OP56067-MSD* | 50-32-8 | Benzo(a)pyrene | MSD | REC | 94 | % | 53-120 |
| OP56067-MSD* | 50-32-8 | Benzo(a)pyrene | MSD | RPD | 9 | % | 20 |
| OP56067-MSD* | 205-99-2 | Benzo(b)fluoranthene | MSD | REC | 100 | % | 53-126 |
| OP56067-MSD* | 205-99-2 | Benzo(b)fluoranthene | MSD | RPD | 12 | % | 20 |
| OP56067-MSD* | 191-24-2 | Benzo(g,h,i)perylene | MSD | REC | 91 | % | 44-128 |
| OP56067-MSD* | 191-24-2 | Benzo(g,h,i)perylene | MSD | RPD | 4 | % | 20 |
| OP56067-MSD* | 207-08-9 | Benzo(k)fluoranthene | MSD | REC | 90 | % | 54-125 |
| OP56067-MSD* | 207-08-9 | Benzo(k)fluoranthene | MSD | RPD | 3 | % | 20 |
| OP56067-MSD* | 218-01-9 | Chrysene | MSD | REC | 99 | % | 57-120 |
| OP56067-MSD* | 218-01-9 | Chrysene | MSD | RPD | 8 | % | 20 |
| OP56067-MSD* | 53-70-3 | Dibenzo(a,h)anthracene | MSD | REC | 90 | % | 44-131 |
| OP56067-MSD* | 53-70-3 | Dibenzo(a,h)anthracene | MSD | RPD | 6 | % | 20 |
| OP56067-MSD* | 206-44-0 | Fluoranthene | MSD | REC | 130 | % | 58-120 |
| OP56067-MSD* | 206-44-0 | Fluoranthene | MSD | RPD | 9 | % | 20 |
| OP56067-MSD* | 86-73-7 | Fluorene | MSD | REC | 123 | % | 50-118 |
| OP56067-MSD* | 86-73-7 | Fluorene | MSD | RPD | 9 | % | 20 |
| OP56067-MSD* | 193-39-5 | Indeno(1,2,3-cd)pyrene | MSD | REC | 94 | % | 48-130 |
| OP56067-MSD* | 193-39-5 | Indeno(1,2,3-cd)pyrene | MSD | RPD | 3 | % | 20 |
| OP56067-MSD* | 90-12-0 | 1-Methylnaphthalene | MSD | REC | 138 | % | 41-115 |
| OP56067-MSD* | 90-12-0 | 1-Methylnaphthalene | MSD | RPD | 20 | % | 20 |
| OP56067-MSD* | 91-57-6 | 2-Methylnaphthalene | MSD | REC | 133 | % | 39-114 |
| OP56067-MSD* | 91-57-6 | 2-Methylnaphthalene | MSD | RPD | 23 | % | 20 |
| OP56067-MSD* | 91-20-3 | Naphthalene | MSD | REC | 273 [a] | % | 43-114 |
| OP56067-MSD* | 91-20-3 | Naphthalene | MSD | RPD | 29 | % | 20 |
| OP56067-MSD* | 85-01-8 | Phenanthrene | MSD | REC | 119 | % | 53-115 |
| OP56067-MSD* | 85-01-8 | Phenanthrene | MSD | RPD | 9 | % | 20 |
| OP56067-MSD* | 129-00-0 | Pyrene | MSD | REC | 86 | % | 53-121 |
| OP56067-MSD* | 129-00-0 | Pyrene | MSD | RPD | 8 | % | 20 |
| OP56067-MSD* | 4165-60-0 | Nitrobenzene-d5 | MSD | SURR | 103 | % | 55-111 |
| OP56067-MSD* | 321-60-8 | 2-Fluorobiphenyl | MSD | SURR | 113 | % | 53-106 |
| OP56067-MSD* | 1718-51-0 | Terphenyl-d14 | MSD | SURR | 95 | % | 58-132 |
| OP56067-MB | 4165-60-0 | Nitrobenzene-d5 | MB | SURR | 62 | % | 55-111 |
| OP56067-MB | 321-60-8 | 2-Fluorobiphenyl | MB | SURR | 62 | % | 53-106 |
| OP56067-MB | 1718-51-0 | Terphenyl-d14 | MB | SURR | 70 | % | 58-132 |
| FA24234-1 | 4165-60-0 | Nitrobenzene-d5 | SAMP | SURR | 76 | % | 55-111 |
| FA24234-1 | 321-60-8 | 2-Fluorobiphenyl | SAMP | SURR | 60 | % | 53-106 |
| FA24234-1 | 1718-51-0 | Terphenyl-d14 | SAMP | SURR | 74 | % | 58-132 |

* Sample used for QC is not from job FA24234

# QC Evaluation: DOD QSM5 Limits



**Job Number:** FA24234
**Account:** Tetra Tech NUS
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL
**Collected:** 05/07/15

| QC Sample ID | CAS# | Analyte | Sample Type | Result Type | Result | Units | Limits |
|---|---|---|---|---|---|---|---|

(a) Outside control limits due to high level in sample relative to spike amount.

* Sample used for QC is not from job FA24234

Southeast 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:** FA24234
**Account:** TETRPAPT Tetra Tech NUS
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| OP56067-MB | R449048.D | 1 | 05/13/15 | MG | 05/12/15 | OP56067 | SR2329 |

**The QC reported here applies to the following samples:** **Method:** SW846 8270D BY SIM

FA24234-1

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | ND | 0.80 | 0.32 | ug/l | |
| 208-96-8 | Acenaphthylene | ND | 0.80 | 0.32 | ug/l | |
| 120-12-7 | Anthracene | ND | 0.80 | 0.20 | ug/l | |
| 56-55-3 | Benzo(a)anthracene | ND | 0.16 | 0.032 | ug/l | |
| 50-32-8 | Benzo(a)pyrene | ND | 0.16 | 0.032 | ug/l | |
| 205-99-2 | Benzo(b)fluoranthene | ND | 0.16 | 0.032 | ug/l | |
| 191-24-2 | Benzo(g,h,i)perylene | ND | 0.16 | 0.032 | ug/l | |
| 207-08-9 | Benzo(k)fluoranthene | ND | 0.16 | 0.032 | ug/l | |
| 218-01-9 | Chrysene | ND | 0.16 | 0.032 | ug/l | |
| 53-70-3 | Dibenzo(a,h)anthracene | ND | 0.16 | 0.032 | ug/l | |
| 206-44-0 | Fluoranthene | ND | 0.80 | 0.20 | ug/l | |
| 86-73-7 | Fluorene | ND | 0.80 | 0.20 | ug/l | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | ND | 0.16 | 0.032 | ug/l | |
| 90-12-0 | 1-Methylnaphthalene | ND | 0.80 | 0.32 | ug/l | |
| 91-57-6 | 2-Methylnaphthalene | ND | 0.80 | 0.32 | ug/l | |
| 91-20-3 | Naphthalene | ND | 0.80 | 0.32 | ug/l | |
| 85-01-8 | Phenanthrene | ND | 0.80 | 0.20 | ug/l | |
| 129-00-0 | Pyrene | ND | 0.80 | 0.20 | ug/l | |

| CAS No. | Surrogate Recoveries | | Limits |
|---|---|---|---|
| 4165-60-0 | Nitrobenzene-d5 | 62% | 41-129% |
| 321-60-8 | 2-Fluorobiphenyl | 62% | 41-118% |
| 1718-51-0 | Terphenyl-d14 | 70% | 45-145% |

# Blank Spike Summary



**Job Number:** FA24234
**Account:** TETRPAPT Tetra Tech NUS
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| OP56067-BS | R449047.D | 1 | 05/13/15 | MG | 05/12/15 | OP56067 | SR2329 |

**The QC reported here applies to the following samples:** **Method:** SW846 8270D BY SIM

FA24234-1

| CAS No. | Compound | Spike ug/l | BSP ug/l | BSP % | Limits |
|---|---|---|---|---|---|
| 83-32-9 | Acenaphthene | 8 | 5.8 | 73 | 54-128 |
| 208-96-8 | Acenaphthylene | 8 | 5.6 | 70 | 55-128 |
| 120-12-7 | Anthracene | 4 | 2.9 | 73 | 57-129 |
| 56-55-3 | Benzo(a)anthracene | 4 | 3.1 | 78 | 60-134 |
| 50-32-8 | Benzo(a)pyrene | 4 | 3.0 | 75 | 58-131 |
| 205-99-2 | Benzo(b)fluoranthene | 4 | 3.2 | 80 | 62-139 |
| 191-24-2 | Benzo(g,h,i)perylene | 4 | 2.6 | 65 | 48-136 |
| 207-08-9 | Benzo(k)fluoranthene | 4 | 3.0 | 75 | 60-139 |
| 218-01-9 | Chrysene | 4 | 3.0 | 75 | 64-136 |
| 53-70-3 | Dibenzo(a,h)anthracene | 4 | 2.8 | 70 | 46-131 |
| 206-44-0 | Fluoranthene | 8 | 6.2 | 78 | 59-140 |
| 86-73-7 | Fluorene | 8 | 6.0 | 75 | 55-129 |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | 4 | 2.8 | 70 | 46-139 |
| 90-12-0 | 1-Methylnaphthalene | 8 | 5.7 | 71 | 52-128 |
| 91-57-6 | 2-Methylnaphthalene | 8 | 5.2 | 65 | 50-117 |
| 91-20-3 | Naphthalene | 8 | 5.5 | 69 | 52-124 |
| 85-01-8 | Phenanthrene | 8 | 5.8 | 73 | 60-130 |
| 129-00-0 | Pyrene | 8 | 5.2 | 65 | 53-134 |

| CAS No. | Surrogate Recoveries | BSP | Limits |
|---|---|---|---|
| 4165-60-0 | Nitrobenzene-d5 | 72% | 41-129% |
| 321-60-8 | 2-Fluorobiphenyl | 69% | 41-118% |
| 1718-51-0 | Terphenyl-d14 | 74% | 45-145% |

* = Outside of Control Limits.

# Matrix Spike/Matrix Spike Duplicate Summary



**Job Number:** FA24234
**Account:** TETRPAPT Tetra Tech NUS
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| OP56067-MS | R449108.D | 10 | 05/15/15 | MG | 05/12/15 | OP56067 | SR2330 |
| OP56067-MSD | R449109.D | 10 | 05/15/15 | MG | 05/12/15 | OP56067 | SR2330 |
| FA24248-9 [a] | R449095.D | 20 | 05/14/15 | MG | 05/12/15 | OP56067 | SR2329 |

**The QC reported here applies to the following samples:** **Method:** SW846 8270D BY SIM

FA24234-1

| CAS No. | Compound | FA24248-9 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 | 16 U | | 15.4 | 16.3 | 106 | 15.4 | 17.8 | 116 | 9 | 54-128/23 |
| 208-96-8 | Acenaphthylene | 16 U | | 15.4 | 15.2 | 99 | 15.4 | 16.9 | 110 | 11 | 55-128/23 |
| 120-12-7 | Anthracene | 16 U | | 7.69 | 7.7 | 100 | 7.69 | 8.4 | 109 | 9 | 57-129/22 |
| 56-55-3 | Benzo(a)anthracene | 3.2 U | | 7.69 | 7.2 | 94 | 7.69 | 7.8 | 101 | 8 | 60-134/18 |
| 50-32-8 | Benzo(a)pyrene | 3.2 U | | 7.69 | 6.6 | 86 | 7.69 | 7.2 | 94 | 9 | 58-131/20 |
| 205-99-2 | Benzo(b)fluoranthene | 3.2 U | | 7.69 | 6.8 | 88 | 7.69 | 7.7 | 100 | 12 | 62-139/21 |
| 191-24-2 | Benzo(g,h,i)perylene | 3.2 U | | 7.69 | 6.7 | 87 | 7.69 | 7.0 | 91 | 4 | 48-136/23 |
| 207-08-9 | Benzo(k)fluoranthene | 3.2 U | | 7.69 | 6.7 | 87 | 7.69 | 6.9 | 90 | 3 | 60-139/19 |
| 218-01-9 | Chrysene | 3.2 U | | 7.69 | 7.0 | 91 | 7.69 | 7.6 | 99 | 8 | 64-136/19 |
| 53-70-3 | Dibenzo(a,h)anthracene | 3.2 U | | 7.69 | 6.5 | 84 | 7.69 | 6.9 | 90 | 6 | 46-131/25 |
| 206-44-0 | Fluoranthene | 16 U | | 15.4 | 18.3 | 119 | 15.4 | 20.0 | 130 | 9 | 59-140/18 |
| 86-73-7 | Fluorene | 16 U | | 15.4 | 17.3 | 112 | 15.4 | 18.9 | 123 | 9 | 55-129/23 |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | 3.2 U | | 7.69 | 7.0 | 91 | 7.69 | 7.2 | 94 | 3 | 46-139/24 |
| 90-12-0 | 1-Methylnaphthalene | 15.8 | I | 15.4 | 30.2 | 94 | 15.4 | 37.0 | 138* | 20 | 52-128/22 |
| 91-57-6 | 2-Methylnaphthalene | 20.8 | | 15.4 | 32.9 | 79 | 15.4 | 41.3 | 133* | 23 | 50-117/23 |
| 91-20-3 | Naphthalene | 109 | | 15.4 | 113 | 26* [b] | 15.4 | 151 | 273* [b] | 29* | 52-124/23 |
| 85-01-8 | Phenanthrene | 16 U | | 15.4 | 16.8 | 109 | 15.4 | 18.3 | 119 | 9 | 60-130/22 |
| 129-00-0 | Pyrene | 16 U | | 15.4 | 12.3 | 80 | 15.4 | 13.3 | 86 | 8 | 53-134/18 |

| CAS No. | Surrogate Recoveries | MS | MSD | FA24248-9 | Limits |
|---|---|---|---|---|---|
| 4165-60-0 | Nitrobenzene-d5 | 95% | 103% | 0%* [c] | 41-129% |
| 321-60-8 | 2-Fluorobiphenyl | 105% | 113% | 0%* [c] | 41-118% |
| 1718-51-0 | Terphenyl-d14 | 90% | 95% | 0%* [c] | 45-145% |

(a) Dilution required due to matrix interference (internal standard failure).
(b) Outside control limits due to high level in sample relative to spike amount.
(c) Outside control limits due to dilution.

* = Outside of Control Limits.

# Instrument Performance Check (DFTPP)



**Job Number:** FA24234
**Account:** TETRPAPT Tetra Tech NUS
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL

**Sample:** SR2318-DFTPP
**Lab File ID:** R448789.D
**Instrument ID:** GCMSR
**Injection Date:** 04/24/15
**Injection Time:** 14:33

| m/e | Ion Abundance Criteria | Raw Abundance | % Relative Abundance | | Pass/Fail |
|---|---|---|---|---|---|
| 51 | 30.0 - 60.0% of mass 198 | 13427 | 41.2 | | Pass |
| 68 | Less than 2.0% of mass 69 | 0 | 0.00 | (0.00) [a] | Pass |
| 69 | Mass 69 relative abundance | 14362 | 44.1 | | Pass |
| 70 | Less than 2.0% of mass 69 | 0 | 0.00 | (0.00) [a] | Pass |
| 127 | 40.0 - 60.0% of mass 198 | 17717 | 54.4 | | Pass |
| 197 | Less than 1.0% of mass 198 | 0 | 0.00 | | Pass |
| 198 | Base peak, 100% relative abundance | 32552 | 100.0 | | Pass |
| 199 | 5.0 - 9.0% of mass 198 | 2399 | 7.37 | | Pass |
| 275 | 10.0 - 30.0% of mass 198 | 7303 | 22.4 | | Pass |
| 365 | 1.0 - 100.0% of mass 198 | 595 | 1.83 | | Pass |
| 441 | Present, but less than mass 443 | 2684 | 8.25 | (92.4) [b] | Pass |
| 442 | 40.0 - 100.0% of mass 198 | 15071 | 46.3 | | Pass |
| 443 | 17.0 - 23.0% of mass 442 | 2906 | 8.93 | (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 |
|---|---|---|---|---|---|
| SR2318-IC2318 | R448792.D | 04/24/15 | 16:01 | 01:28 | Initial cal 1 |
| SR2318-IC2318 | R448793.D | 04/24/15 | 16:28 | 01:55 | Initial cal 2 |
| SR2318-IC2318 | R448794.D | 04/24/15 | 16:54 | 02:21 | Initial cal 3 |
| SR2318-ICC2318 | R448795.D | 04/24/15 | 17:20 | 02:47 | Initial cal 4 |
| SR2318-IC2318 | R448796.D | 04/24/15 | 17:47 | 03:14 | Initial cal 5 |
| SR2318-IC2318 | R448797.D | 04/24/15 | 18:13 | 03:40 | Initial cal 6 |
| SR2318-IC2318 | R448798.D | 04/24/15 | 18:39 | 04:06 | Initial cal 7 |
| SR2318-ICV2318 | R448799.D | 04/24/15 | 19:06 | 04:33 | Initial cal verification 4 |
| ZZZZZZ | R448801.D | 04/24/15 | 19:58 | 05:25 | (unrelated sample) |
| ZZZZZZ | R448802.D | 04/24/15 | 20:25 | 05:52 | (unrelated sample) |
| ZZZZZZ | R448803.D | 04/24/15 | 20:51 | 06:18 | (unrelated sample) |
| ZZZZZZ | R448804.D | 04/24/15 | 21:17 | 06:44 | (unrelated sample) |
| ZZZZZZ | R448805.D | 04/24/15 | 21:43 | 07:10 | (unrelated sample) |
| ZZZZZZ | R448806.D | 04/24/15 | 22:10 | 07:37 | (unrelated sample) |
| ZZZZZZ | R448807.D | 04/24/15 | 22:36 | 08:03 | (unrelated sample) |
| ZZZZZZ | R448808.D | 04/24/15 | 23:02 | 08:29 | (unrelated sample) |
| SR2318-ECC2318 | R448809.D | 04/24/15 | 23:28 | 08:55 | Ending cal 4 |

# Instrument Performance Check (DFTPP)



**Job Number:** FA24234
**Account:** TETRPAPT Tetra Tech NUS
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL

**Sample:** SR2329-DFTPP
**Lab File ID:** R449042.D
**Instrument ID:** GCMSR
**Injection Date:** 05/13/15
**Injection Time:** 20:39

| m/e | Ion Abundance Criteria | Raw Abundance | % Relative Abundance | | Pass/Fail |
|---|---|---|---|---|---|
| 51 | 30.0 - 60.0% of mass 198 | 15726 | 41.0 | | Pass |
| 68 | Less than 2.0% of mass 69 | 0 | 0.00 | (0.00) [a] | Pass |
| 69 | Mass 69 relative abundance | 16878 | 44.0 | | Pass |
| 70 | Less than 2.0% of mass 69 | 63 | 0.16 | (0.37) [a] | Pass |
| 127 | 40.0 - 60.0% of mass 198 | 21179 | 55.2 | | Pass |
| 197 | Less than 1.0% of mass 198 | 0 | 0.00 | | Pass |
| 198 | Base peak, 100% relative abundance | 38394 | 100.0 | | Pass |
| 199 | 5.0 - 9.0% of mass 198 | 2728 | 7.11 | | Pass |
| 275 | 10.0 - 30.0% of mass 198 | 9022 | 23.5 | | Pass |
| 365 | 1.0 - 100.0% of mass 198 | 683 | 1.78 | | Pass |
| 441 | Present, but less than mass 443 | 3496 | 9.11 | (95.9) [b] | Pass |
| 442 | 40.0 - 100.0% of mass 198 | 19274 | 50.2 | | Pass |
| 443 | 17.0 - 23.0% of mass 442 | 3647 | 9.50 | (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 |
|---|---|---|---|---|---|
| SR2329-CC2318 | R449043.D | 05/13/15 | 21:00 | 00:21 | Continuing cal 5 |
| ZZZZZZ | R449044.D | 05/13/15 | 21:26 | 00:47 | (unrelated sample) |
| ZZZZZZ | R449045.D | 05/13/15 | 21:52 | 01:13 | (unrelated sample) |
| ZZZZZZ | R449046.D | 05/13/15 | 22:19 | 01:40 | (unrelated sample) |
| OP56067-BS | R449047.D | 05/13/15 | 22:45 | 02:06 | Blank Spike |
| OP56067-MB | R449048.D | 05/13/15 | 23:11 | 02:32 | Method Blank |
| ZZZZZZ | R449049.D | 05/13/15 | 23:37 | 02:58 | (unrelated sample) |
| ZZZZZZ | R449051.D | 05/14/15 | 00:30 | 03:51 | (unrelated sample) |
| ZZZZZZ | R449052.D | 05/14/15 | 00:56 | 04:17 | (unrelated sample) |
| ZZZZZZ | R449053.D | 05/14/15 | 01:22 | 04:43 | (unrelated sample) |
| ZZZZZZ | R449054.D | 05/14/15 | 01:48 | 05:09 | (unrelated sample) |
| ZZZZZZ | R449055.D | 05/14/15 | 02:15 | 05:36 | (unrelated sample) |
| ZZZZZZ | R449056.D | 05/14/15 | 02:41 | 06:02 | (unrelated sample) |
| ZZZZZZ | R449058.D | 05/14/15 | 03:33 | 06:54 | (unrelated sample) |
| ZZZZZZ | R449059.D | 05/14/15 | 04:00 | 07:21 | (unrelated sample) |
| ZZZZZZ | R449061.D | 05/14/15 | 04:52 | 08:13 | (unrelated sample) |

# Instrument Performance Check (DFTPP)



**Job Number:** FA24234
**Account:** TETRPAPT Tetra Tech NUS
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL

**Sample:** SR2329-DFTPP
**Lab File ID:** R449079.D
**Instrument ID:** GCMSR
**Injection Date:** 05/14/15
**Injection Time:** 12:59

| m/e | Ion Abundance Criteria | Raw Abundance | % Relative Abundance | | Pass/Fail |
|---|---|---|---|---|---|
| 51 | 30.0 - 60.0% of mass 198 | 10203 | 39.3 | | Pass |
| 68 | Less than 2.0% of mass 69 | 0 | 0.00 | (0.00) [a] | Pass |
| 69 | Mass 69 relative abundance | 10821 | 41.7 | | Pass |
| 70 | Less than 2.0% of mass 69 | 43 | 0.17 | (0.40) [a] | Pass |
| 127 | 40.0 - 60.0% of mass 198 | 13527 | 52.2 | | Pass |
| 197 | Less than 1.0% of mass 198 | 0 | 0.00 | | Pass |
| 198 | Base peak, 100% relative abundance | 25930 | 100.0 | | Pass |
| 199 | 5.0 - 9.0% of mass 198 | 1790 | 6.90 | | Pass |
| 275 | 10.0 - 30.0% of mass 198 | 6163 | 23.8 | | Pass |
| 365 | 1.0 - 100.0% of mass 198 | 486 | 1.87 | | Pass |
| 441 | Present, but less than mass 443 | 587 | 2.26 | (21.5) [b] | Pass |
| 442 | 40.0 - 100.0% of mass 198 | 14079 | 54.3 | | Pass |
| 443 | 17.0 - 23.0% of mass 442 | 2735 | 10.5 | (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 |
|---|---|---|---|---|---|
| SR2329-CC2318 | R449080.D | 05/14/15 | 13:19 | 00:20 | Continuing cal 5 |
| FA24287-3 | R449081.D | 05/14/15 | 13:45 | 00:46 | (used for QC only; not part of job FA24234) |
| ZZZZZZ | R449082.D | 05/14/15 | 14:12 | 01:13 | (unrelated sample) |
| ZZZZZZ | R449083.D | 05/14/15 | 14:38 | 01:39 | (unrelated sample) |
| ZZZZZZ | R449084.D | 05/14/15 | 15:05 | 02:06 | (unrelated sample) |
| ZZZZZZ | R449085.D | 05/14/15 | 15:31 | 02:32 | (unrelated sample) |
| ZZZZZZ | R449087.D | 05/14/15 | 16:24 | 03:25 | (unrelated sample) |
| ZZZZZZ | R449088.D | 05/14/15 | 16:51 | 03:52 | (unrelated sample) |
| ZZZZZZ | R449089.D | 05/14/15 | 17:17 | 04:18 | (unrelated sample) |
| OP56081-MS | R449090.D | 05/14/15 | 17:44 | 04:45 | Matrix Spike |
| OP56081-MSD | R449091.D | 05/14/15 | 18:10 | 05:11 | Matrix Spike Duplicate |
| ZZZZZZ | R449092.D | 05/14/15 | 18:36 | 05:37 | (unrelated sample) |
| FA24234-1 | R449093.D | 05/14/15 | 19:03 | 06:04 | PCY-98-GW06 |
| ZZZZZZ | R449094.D | 05/14/15 | 19:29 | 06:30 | (unrelated sample) |
| FA24248-9 | R449095.D | 05/14/15 | 19:55 | 06:56 | (used for QC only; not part of job FA24234) |
| ZZZZZZ | R449096.D | 05/14/15 | 20:22 | 07:23 | (unrelated sample) |
| ZZZZZZ | R449097.D | 05/14/15 | 20:48 | 07:49 | (unrelated sample) |
| ZZZZZZ | R449098.D | 05/14/15 | 21:14 | 08:15 | (unrelated sample) |
| ZZZZZZ | R449099.D | 05/14/15 | 21:41 | 08:42 | (unrelated sample) |

# Instrument Performance Check (DFTPP)



**Job Number:** FA24234
**Account:** TETRPAPT Tetra Tech NUS
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL

**Sample:** SR2329-DFTPP
**Lab File ID:** R449079.D
**Instrument ID:** GCMSR
**Injection Date:** 05/14/15
**Injection Time:** 12:59

| Lab Sample ID | Lab File ID | Date Analyzed | Time Analyzed | Hours Lapsed | Client Sample ID |
|---|---|---|---|---|---|
| SR2329-ECC2318 | R449100.D | 05/14/15 | 22:07 | 09:08 | Ending cal 5 |

# Instrument Performance Check (DFTPP)



**Job Number:** FA24234
**Account:** TETRPAPT Tetra Tech NUS
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL

**Sample:** SR2330-DFTPP
**Lab File ID:** R449103.D
**Instrument ID:** GCMSR
**Injection Date:** 05/15/15
**Injection Time:** 14:23

| m/e | Ion Abundance Criteria | Raw Abundance | % Relative Abundance | | Pass/Fail |
|---|---|---|---|---|---|
| 51 | 30.0 - 60.0% of mass 198 | 9170 | 39.7 | | Pass |
| 68 | Less than 2.0% of mass 69 | 0 | 0.00 | (0.00) [a] | Pass |
| 69 | Mass 69 relative abundance | 9812 | 42.5 | | Pass |
| 70 | Less than 2.0% of mass 69 | 0 | 0.00 | (0.00) [a] | Pass |
| 127 | 40.0 - 60.0% of mass 198 | 11822 | 51.2 | | Pass |
| 197 | Less than 1.0% of mass 198 | 0 | 0.00 | | Pass |
| 198 | Base peak, 100% relative abundance | 23100 | 100.0 | | Pass |
| 199 | 5.0 - 9.0% of mass 198 | 1692 | 7.32 | | Pass |
| 275 | 10.0 - 30.0% of mass 198 | 5556 | 24.1 | | Pass |
| 365 | 1.0 - 100.0% of mass 198 | 506 | 2.19 | | Pass |
| 441 | Present, but less than mass 443 | 1450 | 6.28 | (58.1) [b] | Pass |
| 442 | 40.0 - 100.0% of mass 198 | 12644 | 54.7 | | Pass |
| 443 | 17.0 - 23.0% of mass 442 | 2497 | 10.8 | (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 |
|---|---|---|---|---|---|
| SR2330-CC2318 | R449104.D | 05/15/15 | 14:43 | 00:20 | Continuing cal 5 |
| ZZZZZZ | R449106.D | 05/15/15 | 15:36 | 01:13 | (unrelated sample) |
| ZZZZZZ | R449107.D | 05/15/15 | 16:03 | 01:40 | (unrelated sample) |
| OP56067-MS | R449108.D | 05/15/15 | 16:29 | 02:06 | Matrix Spike |
| OP56067-MSD | R449109.D | 05/15/15 | 16:56 | 02:33 | Matrix Spike Duplicate |
| ZZZZZZ | R449110.D | 05/15/15 | 17:22 | 02:59 | (unrelated sample) |
| OP56105-BS | R449111.D | 05/15/15 | 17:48 | 03:25 | Blank Spike |
| OP56105-MB | R449112.D | 05/15/15 | 18:15 | 03:52 | Method Blank |
| ZZZZZZ | R449114.D | 05/15/15 | 19:07 | 04:44 | (unrelated sample) |
| ZZZZZZ | R449115.D | 05/15/15 | 19:34 | 05:11 | (unrelated sample) |
| ZZZZZZ | R449116.D | 05/15/15 | 20:00 | 05:37 | (unrelated sample) |
| ZZZZZZ | R449117.D | 05/15/15 | 20:26 | 06:03 | (unrelated sample) |
| ZZZZZZ | R449119.D | 05/15/15 | 21:19 | 06:56 | (unrelated sample) |
| FA24368-7 | R449120.D | 05/15/15 | 21:45 | 07:22 | (used for QC only; not part of job FA24234) |
| ZZZZZZ | R449121.D | 05/15/15 | 22:11 | 07:48 | (unrelated sample) |
| ZZZZZZ | R449122.D | 05/15/15 | 22:37 | 08:14 | (unrelated sample) |
| ZZZZZZ | R449123.D | 05/15/15 | 23:04 | 08:41 | (unrelated sample) |
| ZZZZZZ | R449124.D | 05/15/15 | 23:30 | 09:07 | (unrelated sample) |
| OP56105-MS | R449125.D | 05/15/15 | 23:56 | 09:33 | Matrix Spike |

# Instrument Performance Check (DFTPP)



**Job Number:** FA24234
**Account:** TETRPAPT Tetra Tech NUS
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL

**Sample:** SR2330-DFTPP
**Lab File ID:** R449103.D
**Instrument ID:** GCMSR
**Injection Date:** 05/15/15
**Injection Time:** 14:23

| Lab Sample ID | Lab File ID | Date Analyzed | Time Analyzed | Hours Lapsed | Client Sample ID |
|---|---|---|---|---|---|
| OP56105-MSD | R449126.D | 05/16/15 | 00:22 | 09:59 | Matrix Spike Duplicate |
| SR2330-ECC2318 | R449127.D | 05/16/15 | 00:48 | 10:25 | Ending cal 5 |

# Semivolatile Internal Standard Area Summary



**Job Number:** FA24234
**Account:** TETRPAPT Tetra Tech NUS
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL

| | | | |
|---|---|---|---|
| **Check Std:** | SR2329-CC2318 | **Injection Date:** | 05/13/15 |
| **Lab File ID:** | R449043.D | **Injection Time:** | 21:00 |
| **Instrument ID:** | GCMSR | **Method:** | SW846 8270D BY SIM |

| | IS 1 AREA | RT | IS 2 AREA | RT | IS 3 AREA | RT | IS 4 AREA | RT | IS 5 AREA | RT |
|---|---|---|---|---|---|---|---|---|---|---|
| Initial Cal [a] | 126971 | 6.91 | 69441 | 8.47 | 105603 | 9.77 | 50221 | 12.62 | 27137 | 15.10 |
| Check Std [b] | 159212 | 6.85 | 90147 | 8.40 | 148403 | 9.71 | 86438 | 12.52 | 49676 | 14.99 |
| Upper Limit [c] | 318424 | 7.35 | 180294 | 8.90 | 296806 | 10.21 | 172876 | 13.02 | 99352 | 15.49 |
| Lower Limit [d] | 79606 | 6.35 | 45074 | 7.90 | 74202 | 9.21 | 43219 | 12.02 | 24838 | 14.49 |

| Lab Sample ID | IS 1 AREA | RT | IS 2 AREA | RT | IS 3 AREA | RT | IS 4 AREA | RT | IS 5 AREA | RT |
|---|---|---|---|---|---|---|---|---|---|---|
| ZZZZZZ | 167301 | 6.85 | 90904 | 8.40 | 146704 | 9.70 | 83210 | 12.51 | 48198 | 14.99 |
| ZZZZZZ | 161051 | 6.85 | 87831 | 8.40 | 139990 | 9.70 | 76858 | 12.51 | 44558 | 14.99 |
| ZZZZZZ | 156838 | 6.85 | 88718 | 8.40 | 142851 | 9.71 | 80654 | 12.51 | 46065 | 14.99 |
| OP56067-BS | 163176 | 6.85 | 90718 | 8.40 | 147774 | 9.71 | 84224 | 12.52 | 47184 | 14.99 |
| OP56067-MB | 162457 | 6.85 | 89419 | 8.40 | 140483 | 9.70 | 76782 | 12.51 | 44188 | 14.98 |
| ZZZZZZ | 163526 | 6.85 | 88510 | 8.40 | 140972 | 9.70 | 77593 | 12.51 | 45379 | 14.99 |
| ZZZZZZ | 167790 | 6.85 | 98496 | 8.41 | 145586 | 9.72 | 82243 | 12.55 | 49467 | 15.04 |
| ZZZZZZ | 169556 | 6.85 | 92506 | 8.41 | 144675 | 9.72 | 79249 | 12.54 | 47261 | 15.01 |
| ZZZZZZ | 166800 | 6.85 | 91545 | 8.41 | 140852 | 9.71 | 76287 | 12.53 | 45798 | 15.00 |
| ZZZZZZ | 165816 | 6.85 | 91652 | 8.41 | 140143 | 9.71 | 75490 | 12.53 | 44465 | 15.00 |
| ZZZZZZ | 118131 | 6.87 | 84381 | 8.41 | 141612 | 9.72 | 82354 | 12.53 | 48177 | 15.01 |
| ZZZZZZ | 128299 | 6.86 | 82739 | 8.41 | 138837 | 9.72 | 79739 | 12.53 | 46928 | 15.01 |
| ZZZZZZ | 95938 | 6.87 | 81538 | 8.41 | 134222 | 9.71 | 75521 | 12.53 | 44481 | 15.00 |
| ZZZZZZ | 140505 | 6.86 | 85966 | 8.41 | 137162 | 9.71 | 72833 | 12.52 | 42927 | 15.00 |
| ZZZZZZ | 158672 | 6.85 | 87603 | 8.41 | 135510 | 9.71 | 73139 | 12.53 | 43306 | 15.00 |

**IS 1** = Naphthalene-d8
**IS 2** = Acenaphthene-D10
**IS 3** = Phenanthrene-d10
**IS 4** = Chrysene-d12
**IS 5** = Perylene-d12

(a) Initial Cal is: SR2318-ICC2318 R448795.D 04/24/15 17:20
(b) Check Std Limit = -50 to + 100% of initial cal area.
(c) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.
(d) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

# Semivolatile Internal Standard Area Summary



**Job Number:** FA24234
**Account:** TETRPAPT Tetra Tech NUS
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL

| | | | |
|---|---|---|---|
| **Check Std:** | SR2329-CC2318 | **Injection Date:** | 05/14/15 |
| **Lab File ID:** | R449080.D | **Injection Time:** | 13:19 |
| **Instrument ID:** | GCMSR | **Method:** | SW846 8270D BY SIM |

| | IS 1 AREA | RT | IS 2 AREA | RT | IS 3 AREA | RT | IS 4 AREA | RT | IS 5 AREA | RT |
|---|---|---|---|---|---|---|---|---|---|---|
| Initial Cal [a] | 126971 | 6.91 | 69441 | 8.47 | 105603 | 9.77 | 50221 | 12.62 | 27137 | 15.10 |
| Check Std [b] | 155528 | 6.85 | 87597 | 8.41 | 140941 | 9.72 | 81243 | 12.54 | 49703 | 15.02 |
| Upper Limit [c] | 311056 | 7.35 | 175194 | 8.91 | 281882 | 10.22 | 162486 | 13.04 | 99406 | 15.52 |
| Lower Limit [d] | 77764 | 6.35 | 43799 | 7.91 | 70471 | 9.22 | 40622 | 12.04 | 24852 | 14.52 |

| Lab Sample ID | IS 1 AREA | RT | IS 2 AREA | RT | IS 3 AREA | RT | IS 4 AREA | RT | IS 5 AREA | RT |
|---|---|---|---|---|---|---|---|---|---|---|
| FA24287-3 | 152331 | 6.86 | 88105 | 8.41 | 137635 | 9.72 | 75883 | 12.53 | 46221 | 15.01 |
| ZZZZZZ | 152867 | 6.85 | 85307 | 8.41 | 133955 | 9.72 | 76519 | 12.53 | 47722 | 15.01 |
| ZZZZZZ | 158563 | 6.85 | 89505 | 8.41 | 142516 | 9.72 | 88441 | 12.54 | 55955 | 15.02 |
| ZZZZZZ | 157714 | 6.85 | 88071 | 8.41 | 137868 | 9.72 | 79669 | 12.54 | 51193 | 15.02 |
| ZZZZZZ | 137863 | 6.86 | 93112 | 8.41 | 143680 | 9.72 | 84911 | 12.54 | 53476 | 15.02 |
| ZZZZZZ | 157804 | 6.85 | 88895 | 8.41 | 138649 | 9.72 | 79758 | 12.56 | 51412 | 15.05 |
| ZZZZZZ | 158985 | 6.86 | 87577 | 8.41 | 136190 | 9.72 | 80345 | 12.55 | 52522 | 15.03 |
| ZZZZZZ | 160829 | 6.86 | 88511 | 8.42 | 137880 | 9.72 | 82253 | 12.58 | 52592 | 15.07 |
| OP56081-MS | 164052 | 6.86 | 93300 | 8.42 | 149071 | 9.72 | 87602 | 12.55 | 53394 | 15.03 |
| OP56081-MSD | 164073 | 6.86 | 92725 | 8.41 | 148521 | 9.72 | 87510 | 12.55 | 52798 | 15.02 |
| ZZZZZZ | 172200 | 6.86 | 95122 | 8.41 | 150148 | 9.72 | 83223 | 12.54 | 50545 | 15.02 |
| FA24234-1 | 164816 | 6.86 | 113594 | 8.41 | 143061 | 9.72 | 93654 | 12.56 | 59653 | 15.04 |
| ZZZZZZ | 153263 | 6.86 | 83871 | 8.41 | 131171 | 9.72 | 72852 | 12.54 | 45702 | 15.02 |
| FA24248-9 | 158688 | 6.86 | 87954 | 8.41 | 142749 | 9.72 | 87235 | 12.55 | 56868 | 15.03 |
| ZZZZZZ | 158017 | 6.86 | 86102 | 8.41 | 134622 | 9.72 | 74868 | 12.55 | 46988 | 15.02 |
| ZZZZZZ | 157560 | 6.86 | 87074 | 8.41 | 132361 | 9.72 | 74011 | 12.54 | 46215 | 15.02 |
| ZZZZZZ | 158670 | 6.86 | 85857 | 8.41 | 131529 | 9.72 | 73364 | 12.54 | 45367 | 15.02 |
| ZZZZZZ | 155966 | 6.86 | 84437 | 8.41 | 129596 | 9.72 | 71673 | 12.54 | 43935 | 15.02 |
| SR2329-ECC2318 | 173324 | 6.85 | 95655 | 8.41 | 155738 | 9.72 | 86552 | 12.54 | 52177 | 15.02 |

**IS 1** = Naphthalene-d8
**IS 2** = Acenaphthene-D10
**IS 3** = Phenanthrene-d10
**IS 4** = Chrysene-d12
**IS 5** = Perylene-d12

(a) Initial Cal is: SR2318-ICC2318 R448795.D 04/24/15 17:20
(b) Check Std Limit = -50 to + 100% of initial cal area.
(c) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.
(d) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

# Semivolatile Internal Standard Area Summary



**Job Number:** FA24234
**Account:** TETRPAPT Tetra Tech NUS
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL

| | | | |
|---|---|---|---|
| **Check Std:** | SR2330-CC2318 | **Injection Date:** | 05/15/15 |
| **Lab File ID:** | R449104.D | **Injection Time:** | 14:43 |
| **Instrument ID:** | GCMSR | **Method:** | SW846 8270D BY SIM |

| | IS 1 AREA | RT | IS 2 AREA | RT | IS 3 AREA | RT | IS 4 AREA | RT | IS 5 AREA | RT |
|---|---|---|---|---|---|---|---|---|---|---|
| Initial Cal [a] | 126971 | 6.91 | 69441 | 8.47 | 105603 | 9.77 | 50221 | 12.62 | 27137 | 15.10 |
| Check Std [b] | 142825 | 6.81 | 79982 | 8.37 | 128115 | 9.67 | 76593 | 12.47 | 49154 | 14.94 |
| Upper Limit [c] | 285650 | 7.31 | 159964 | 8.87 | 256230 | 10.17 | 153186 | 12.97 | 98308 | 15.44 |
| Lower Limit [d] | 71413 | 6.31 | 39991 | 7.87 | 64058 | 9.17 | 38297 | 11.97 | 24577 | 14.44 |

| Lab Sample ID | IS 1 AREA | RT | IS 2 AREA | RT | IS 3 AREA | RT | IS 4 AREA | RT | IS 5 AREA | RT |
|---|---|---|---|---|---|---|---|---|---|---|
| ZZZZZZ | 130456 | 6.81 | 71760 | 8.37 | 112781 | 9.67 | 70495 | 12.47 | 46023 | 14.93 |
| ZZZZZZ | 103246 | 6.81 | 54928 | 8.37 | 76934 | 9.67 | 52771 | 12.46 | 34947 | 14.93 |
| OP56067-MS | 104720 | 6.81 | 55778 | 8.37 | 86890 | 9.67 | 59619 | 12.47 | 40117 | 14.94 |
| OP56067-MSD | 105341 | 6.81 | 56109 | 8.37 | 87554 | 9.67 | 60384 | 12.47 | 40516 | 14.95 |
| ZZZZZZ | 104182 | 6.81 | 57336 | 8.37 | 85436 | 9.67 | 56369 | 12.47 | 37080 | 14.94 |
| OP56105-BS | 103487 | 6.81 | 55791 | 8.37 | 88517 | 9.67 | 60198 | 12.47 | 37869 | 14.94 |
| OP56105-MB | 107277 | 6.81 | 56900 | 8.37 | 84404 | 9.67 | 57388 | 12.47 | 36892 | 14.94 |
| ZZZZZZ | 107161 | 6.81 | 56682 | 8.37 | 84818 | 9.67 | 56504 | 12.47 | 37343 | 14.94 |
| ZZZZZZ | 107477 | 6.81 | 56545 | 8.37 | 84395 | 9.67 | 57413 | 12.47 | 38089 | 14.94 |
| ZZZZZZ | 105932 | 6.81 | 56148 | 8.37 | 83008 | 9.67 | 55130 | 12.47 | 36668 | 14.94 |
| ZZZZZZ | 106983 | 6.81 | 57284 | 8.37 | 90373 | 9.67 | 62751 | 12.47 | 40750 | 14.95 |
| ZZZZZZ | 105407 | 6.81 | 57268 | 8.37 | 87653 | 9.67 | 60313 | 12.49 | 40252 | 14.95 |
| FA24368-7 | 109696 | 6.81 | 57181 | 8.37 | 88777 | 9.67 | 59205 | 12.47 | 39284 | 14.94 |
| ZZZZZZ | 112543 | 6.81 | 55182 | 8.37 | 84369 | 9.67 | 54772 | 12.47 | 36334 | 14.94 |
| ZZZZZZ | 106586 | 6.81 | 55653 | 8.37 | 85543 | 9.67 | 56783 | 12.47 | 37490 | 14.94 |
| ZZZZZZ | 105740 | 6.81 | 55605 | 8.37 | 83514 | 9.67 | 55628 | 12.47 | 37208 | 14.94 |
| ZZZZZZ | 106708 | 6.81 | 56982 | 8.37 | 85589 | 9.67 | 56295 | 12.47 | 37227 | 14.94 |
| OP56105-MS | 110846 | 6.81 | 57142 | 8.37 | 90027 | 9.67 | 60272 | 12.47 | 38461 | 14.94 |
| OP56105-MSD | 111527 | 6.81 | 57093 | 8.37 | 88893 | 9.67 | 58953 | 12.47 | 37718 | 14.94 |
| SR2330-ECC2318 | 157462 | 6.81 | 88606 | 8.37 | 143168 | 9.67 | 85984 | 12.47 | 55321 | 14.94 |

**IS 1** = Naphthalene-d8
**IS 2** = Acenaphthene-D10
**IS 3** = Phenanthrene-d10
**IS 4** = Chrysene-d12
**IS 5** = Perylene-d12

(a) Initial Cal is: SR2318-ICC2318 R448795.D 04/24/15 17:20
(b) Check Std Limit = -50 to + 100% of initial cal area.
(c) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.
(d) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

# Semivolatile Surrogate Recovery Summary



**Job Number:** FA24234
**Account:** TETRPAPT Tetra Tech NUS
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL

**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 |
|---|---|---|---|---|
| FA24234-1 | R449093.D | 76 | 60 | 74 |
| OP56067-BS | R449047.D | 72 | 69 | 74 |
| OP56067-MB | R449048.D | 62 | 62 | 70 |
| OP56067-MS | R449108.D | 95 | 105 | 90 |
| OP56067-MSD | R449109.D | 103 | 113 | 95 |

| Surrogate Compounds | Recovery Limits |
|---|---|
| **S1** = Nitrobenzene-d5 | 41-129% |
| **S2** = 2-Fluorobiphenyl | 41-118% |
| **S3** = Terphenyl-d14 | 45-145% |

# Initial Calibration Summary



**Job Number:** FA24234
**Account:** TETRPAPT Tetra Tech NUS
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL
**Sample:** SR2318-ICC2318
**Lab FileID:** R448795.D

Response Factor Report MSBNA3

```
Method       : C:\msdchem\1\METHODS\SIM_LVR.M (RTE Integrator)
Title        : PAH's by 8270D SIM Large Volume Inj
Last Update  : Mon Apr 27 09:54:14 2015
Response via : Initial Calibration

Calibration Files
L1  =R448792.D   L2  =R448793.D   L3  =R448794.D   L4  =R448795.D
L5  =R448796.D   L6  =R448797.D   L7  =R448798.D

   Compound              L1    L2    L3    L4    L5    L6    L7    Avg   %RSD
--------------------------------------------------------------------------------

1) I   Naphthalene-d8        ----------------ISTD---------------------
2)S Nitrobenzene-d5   0.296 0.310 0.311 0.300 0.331 0.291 0.261 0.300   7.25
3)P Naphthalene       1.132 1.139 1.117 1.027 1.066 0.840 0.671 0.999  17.79
            ---- Quadratic regr., Force(0,0) ----  Coefficient =  0.9989
              Response Ratio = 0.00000 + 1.05897 *A + -0.01952 *A^2

4)P 2-Methylnaphthale 0.738 0.746 0.754 0.700 0.729 0.585 0.477 0.676  15.53
            ---- Quadratic regr., Force(0,0) ----  Coefficient =  0.9991
              Response Ratio = 0.00000 + 0.72421 *A + -0.01244 *A^2

5)P 1-Methylnaphthale 0.673 0.680 0.690 0.640 0.673 0.544 0.446 0.621  14.78

6) I   Acenaphthene-d10      ----------------ISTD---------------------
7)S 2-Fluorobiphenyl  1.374 1.406 1.384 1.293 1.352 1.102 0.912 1.261  14.67
8)P Acenaphthylene    1.875 2.002 1.994 1.866 1.977 1.551 1.259 1.789  15.71
            ---- Quadratic regr., Force(0,0) ----  Coefficient =  0.9987
              Response Ratio = 0.00000 + 1.93976 *A + -0.03428 *A^2

9)P Acenaphthene      1.262 1.289 1.275 1.175 1.212 0.974 0.811 1.143  15.88
            ---- Quadratic regr., Force(0,0) ----  Coefficient =  0.9991
              Response Ratio = 0.00000 + 1.19448 *A + -0.01930 *A^2

10)P Dibenzofuran     1.584 1.618 1.624 1.526 1.646 1.328 1.109 1.491  13.42
11)P Fluorene         1.270 1.288 1.299 1.229 1.296 1.048 0.871 1.186  13.87

12) I   Phenanthrene-d10     ----------------ISTD---------------------
13)S 2,4,6-Tribromophe 0.060 0.063 0.066 0.064 0.071 0.068 0.065 0.065   5.35
14)P Pentachlorophenol 0.053 0.069 0.087 0.100 0.121 0.189 0.260 0.125  58.75
            ---- Quadratic regr., Force(0,0) ----  Coefficient =  0.9977
              Response Ratio = 0.00000 + 0.00632 *A + 0.01251 *A^2

15)P Phenanthrene     1.141 1.163 1.169 1.072 1.105 0.885 0.711 1.035  16.70
            ---- Quadratic regr., Force(0,0) ----  Coefficient =  0.9992
              Response Ratio = 0.00000 + 1.10440 *A + -0.01977 *A^2

16)P Anthracene       1.071 1.098 1.142 1.100 1.202 1.042 0.879 1.076   9.39
17)P Carbazole        0.895 0.881 0.925 0.900 1.010 0.903 0.798 0.902   6.95
18)P Fluoranthene     0.981 1.019 1.061 1.022 1.086 0.903 0.750 0.975  11.83

19) I   Chrysene-d12         ----------------ISTD---------------------
20)P Pyrene           2.141 2.283 2.317 2.212 2.240 1.728 1.375 2.042  17.37
            ---- Quadratic regr., Force(0,0) ----  Coefficient =  0.9985
              Response Ratio = 0.00000 + 2.20733 *A + -0.04192 *A^2

21)S Terphenyl-d14    0.986 1.011 1.025 0.961 1.014 0.827 0.666 0.927  14.39
22)P Benzo[a]anthracen 1.170 1.179 1.205 1.173 1.337 1.238 1.141 1.206   5.41
```

# Initial Calibration Summary

**Job Number:** FA24234 **Sample:** SR2318-ICC2318
**Account:** TETRPAPT Tetra Tech NUS **Lab FileID:** R448795.D
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 23)P Chrysene | 1.214 | 1.226 | 1.249 | 1.177 | 1.313 | 1.184 | 1.083 | 1.206 | 5.88 |
| 24) I Perylene-d12 | ----------ISTD---------- | | | | | | | | |
| 25)P Benzo[b]fluoranth | 1.388 | 1.471 | 1.524 | 1.504 | 1.737 | 1.649 | 1.555 | 1.547 | 7.45 |
| 26)P Benzo[k]fluoranth | 1.462 | 1.520 | 1.587 | 1.560 | 1.726 | 1.648 | 1.506 | 1.573 | 5.75 |
| 27)P Benzo[a]pyrene | 1.161 | 1.229 | 1.290 | 1.297 | 1.496 | 1.445 | 1.351 | 1.324 | 8.86 |
| 28)P Indeno[1,2,3-cd]p | 1.074 | 1.096 | 1.139 | 1.126 | 1.316 | 1.234 | 1.121 | 1.158 | 7.44 |
| 29)P Dibenz[a,h]anthra | 1.188 | 1.234 | 1.269 | 1.233 | 1.378 | 1.262 | 1.102 | 1.238 | 6.77 |
| 30)P Benzo[g,h,i]peryl | 1.379 | 1.413 | 1.452 | 1.375 | 1.534 | 1.386 | 1.214 | 1.393 | 6.94 |

(#) = Out of Range

SIM_LVR.M Mon Apr 27 10:36:25 2015

# Initial Calibration Verification



**Job Number:** FA24234
**Account:** TETRPAPT Tetra Tech NUS
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL

**Sample:** SR2318-ICV2318
**Lab FileID:** R448799.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\SR2318\R448799.D          Vial: 9
Acq On    : 24 Apr 2015   7:06 pm                   Operator: mayrag
Sample    : icv2318-4                               Inst    : MSBNA3
Misc      : op55419,sr2318,250,,,1,1,water          Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\msdchem\1\METHODS\SIM_LVR.M (RTE Integrator)
Title        : PAH's by 8270D SIM Large Volume Inj
Last Update  : Mon Apr 27 09:54:14 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 | Amount | Calc. | %Drift | Area% | Dev(min) | R.T. |
|---|---|---|---|---|---|---|---|---|
| 1 | I | Naphthalene-d8 | 500.000 | 500.000 | 0.0 | 97 | 0.00 | 6.91 |
| 2 | S | Nitrobenzene-d5 | | | NA | | | |
| | | | Amount | Calc. | %Drift | | | |
| 3 | P | Naphthalene | 1000.000 | 1025.425 | -2.5 | 99 | 0.00 | 6.92 |
| 4 | P | 2-Methylnaphthalene | 1000.000 | 967.010 | 3.3 | 94 | 0.00 | 7.53 |
| | | | Amount | Calc. | %Drift | | | |
| 5 | P | 1-Methylnaphthalene | 1000.000 | 1080.356 | -8.0 | 102 | 0.00 | 7.63 |
| 6 | I | Acenaphthene-d10 | 500.000 | 500.000 | 0.0 | 98 | 0.00 | 8.47 |
| 7 | S | 2-Fluorobiphenyl | | | NA | | | |
| | | | Amount | Calc. | %Drift | | | |
| 8 | P | Acenaphthylene | 1000.000 | 976.771 | 2.3 | 96 | 0.00 | 8.33 |
| 9 | P | Acenaphthene | 1000.000 | 1030.993 | -3.1 | 100 | 0.00 | 8.50 |
| | | | Amount | Calc. | %Drift | | | |
| 10 | P | Dibenzofuran | 1000.000 | 1023.125 | -2.3 | 98 | 0.00 | 8.64 |
| 11 | P | Fluorene | 1000.000 | 1042.870 | -4.3 | 99 | 0.00 | 8.95 |
| 12 | I | Phenanthrene-d10 | 500.000 | 500.000 | 0.0 | 99 | 0.00 | 9.77 |
| 13 | S | 2,4,6-Tribromophenol | | | NA | | | |
| | | | Amount | Calc. | %Drift | | | |
| 14 | P | Pentachlorophenol | 2500.000 | 2664.091 | -6.6 | 77 | 0.00 | 9.67 |
| 15 | P | Phenanthrene | 1000.000 | 985.952 | 1.4 | 97 | 0.00 | 9.79 |
| | | | Amount | Calc. | %Drift | | | |
| 16 | P | Anthracene | 500.000 | 467.326 | 6.5 | 90 | 0.00 | 9.83 |
| 17 | P | Carbazole | 500.000 | 469.180 | 6.2 | 93 | 0.00 | 9.98 |
| 18 | P | Fluoranthene | 1000.000 | 996.430 | 0.4 | 94 | 0.00 | 10.87 |
| 19 | I | Chrysene-d12 | 500.000 | 500.000 | 0.0 | 96 | 0.00 | 12.62 |
| | | | Amount | Calc. | %Drift | | | |
| 20 | P | Pyrene | 1000.000 | 1014.630 | -1.5 | 93 | 0.00 | 11.09 |
| | | | Amount | Calc. | %Drift | | | |
| 21 | S | Terphenyl-d14 | | | NA | | | |
| 22 | P | Benzo[a]anthracene | 500.000 | 466.160 | 6.8 | 92 | 0.00 | 12.60 |
| 23 | P | Chrysene | 500.000 | 497.557 | 0.5 | 98 | 0.00 | 12.66 |

# Initial Calibration Verification

**Job Number:** FA24234 **Sample:** SR2318-ICV2318
**Account:** TETRPAPT Tetra Tech NUS **Lab FileID:** R448799.D
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 24 | I | Perylene-d12 | 500.000 | 500.000 | 0.0 | 96 | 0.00 | 15.10 |
| 25 | P | Benzo[b]fluoranthene | 500.000 | 481.736 | 3.7 | 96 | 0.00 | 14.45 |
| 26 | P | Benzo[k]fluoranthene | 500.000 | 496.436 | 0.7 | 97 | 0.00 | 14.49 |
| 27 | P | Benzo[a]pyrene | 500.000 | 464.046 | 7.2 | 91 | 0.00 | 15.00 |
| 28 | P | Indeno[1,2,3-cd]pyrene | 500.000 | 472.106 | 5.6 | 94 | 0.00 | 16.62 |
| 29 | P | Dibenz[a,h]anthracene | 500.000 | 479.696 | 4.1 | 93 | 0.00 | 16.65 |
| 30 | P | Benzo[g,h,i]perylene | 500.000 | 486.431 | 2.7 | 95 | 0.00 | 16.95 |

(#) = Out of Range SPCC's out = 0 CCC's out = 0
R448795.D SIM_LVR.M Mon Apr 27 10:36:01 2015

6.7.2

6

# Continuing Calibration Summary



**Job Number:** FA24234
**Account:** TETRPAPT Tetra Tech NUS
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL
**Sample:** SR2329-CC2318
**Lab FileID:** R449043.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\SR2329\R449043.D          Vial: 2
Acq On    : 13 May 2015   9:00 pm                   Operator: mayrag
Sample    : cc2318-5                                Inst    : MSBNA3
Misc      : op55419,sr2329,250,,,1,1,water          Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\msdchem\1\METHODS\SIM_LVR.M (RTE Integrator)
Title        : PAH's by 8270D SIM Large Volume Inj
Last Update  : Tue May 12 16:38:40 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 | Naphthalene-d8 | 1.000 | 1.000 | 0.0 | 133 | 0.01 | 6.85 |
| 2 | S | Nitrobenzene-d5 | 0.300 | 0.290 | 3.3 | 117 | 0.01 | 6.24 |
| | | | Amount | Calc. | %Drift | | | |
| 3 | P | Naphthalene | 2000.000 | 1873.259 | 6.3 | 115 | 0.00 | 6.86 |
| 4 | P | 2-Methylnaphthalene | 2000.000 | 1868.898 | 6.6 | 116 | 0.02 | 7.47 |
| | | | AvgRF | CCRF | %Dev | | | |
| 5 | P | 1-Methylnaphthalene | 0.621 | 0.580 | 6.6 | 115 | 0.01 | 7.57 |
| 6 | I | Acenaphthene-d10 | 1.000 | 1.000 | 0.0 | 138 | 0.00 | 8.40 |
| 7 | S | 2-Fluorobiphenyl | 1.261 | 1.149 | 8.9 | 117 | 0.00 | 7.82 |
| | | | Amount | Calc. | %Drift | | | |
| 8 | P | Acenaphthylene | 2000.000 | 1841.901 | 7.9 | 116 | 0.01 | 8.27 |
| 9 | P | Acenaphthene | 2000.000 | 1847.401 | 7.6 | 118 | 0.00 | 8.43 |
| | | | AvgRF | CCRF | %Dev | | | |
| 10 | P | Dibenzofuran | 1.491 | 1.411 | 5.4 | 118 | 0.00 | 8.58 |
| 11 | P | Fluorene | 1.186 | 1.117 | 5.8 | 119 | 0.01 | 8.88 |
| 12 | I | Phenanthrene-d10 | 1.000 | 1.000 | 0.0 | 142 | 0.01 | 9.71 |
| 13 | S | 2,4,6-Tribromophenol | 0.065 | 0.059 | 9.2 | 118 | 0.01 | 9.12 |
| | | | Amount | Calc. | %Drift | | | |
| 14 | P | Pentachlorophenol | 5000.000 | 3960.815 | 20.8# | 98 | 0.03 | 9.62 |
| 15 | P | Phenanthrene | 2000.000 | 1801.898 | 9.9 | 120 | 0.01 | 9.73 |
| | | | AvgRF | CCRF | %Dev | | | |
| 16 | P | Anthracene | 1.076 | 1.045 | 2.9 | 123 | 0.01 | 9.77 |
| 17 | P | Carbazole | 0.902 | 0.900 | 0.2 | 126 | 0.02 | 9.93 |
| 18 | P | Fluoranthene | 0.975 | 0.950 | 2.6 | 124 | 0.01 | 10.80 |
| 19 | I | Chrysene-d12 | 1.000 | 1.000 | 0.0 | 165 | 0.02 | 12.52 |
| | | | Amount | Calc. | %Drift | | | |
| 20 | P | Pyrene | 2000.000 | 1614.551 | 19.3 | 123 | 0.02 | 11.02 |
| | | | AvgRF | CCRF | %Dev | | | |
| 21 | S | Terphenyl-d14 | 0.927 | 0.836 | 9.8 | 136 | 0.01 | 11.19 |
| 22 | P | Benzo[a]anthracene | 1.206 | 1.158 | 4.0 | 143 | 0.02 | 12.50 |
| 23 | P | Chrysene | 1.206 | 1.101 | 8.7 | 138 | 0.02 | 12.56 |

# Continuing Calibration Summary

**Job Number:** FA24234 **Sample:** SR2329-CC2318
**Account:** TETRPAPT Tetra Tech NUS **Lab FileID:** R449043.D
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 24 | I | Perylene-d12 | 1.000 | 1.000 | 0.0 | 176 | 0.02 | 14.99 |
| 25 | P | Benzo[b]fluoranthene | 1.547 | 1.451 | 6.2 | 147 | 0.02 | 14.32 |
| 26 | P | Benzo[k]fluoranthene | 1.573 | 1.482 | 5.8 | 151 | 0.03 | 14.37 |
| 27 | P | Benzo[a]pyrene | 1.324 | 1.280 | 3.3 | 151 | 0.03 | 14.89 |
| 28 | P | Indeno[1,2,3-cd]pyrene | 1.158 | 1.087 | 6.1 | 145 | 0.03 | 16.52 |
| 29 | P | Dibenz[a,h]anthracene | 1.238 | 1.155 | 6.7 | 148 | 0.02 | 16.56 |
| 30 | P | Benzo[g,h,i]perylene | 1.393 | 1.178 | 15.4 | 135 | 0.03 | 16.85 |

(#) = Out of Range SPCC's out = 0 CCC's out = 0
R448796.D SIM_LVR.M Thu May 14 13:57:00 2015

6.7.3

6

# Continuing Calibration Summary



**Job Number:** FA24234 **Sample:** SR2329-CC2318
**Account:** TETRPAPT Tetra Tech NUS **Lab FileID:** R449080.D
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\SR2329\R449080.D          Vial: 2
Acq On    : 14 May 2015   1:19 pm                   Operator: mayrag
Sample    : cc2318-5                                Inst    : MSBNA3
Misc      : op55419,sr2329,250,,,1,1,water          Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\msdchem\1\METHODS\SIM_LVR.M (RTE Integrator)
Title        : PAH's by 8270D SIM Large Volume Inj
Last Update  : Tue May 12 16:38:40 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 | Naphthalene-d8 | 1.000 | 1.000 | 0.0 | 130 | 0.02 | 6.85 |
| 2 | S | Nitrobenzene-d5 | 0.300 | 0.290 | 3.3 | 114 | 0.02 | 6.25 |
| | | | Amount | Calc. | %Drift | | | |
| 3 | P | Naphthalene | 2000.000 | 1956.319 | 2.2 | 117 | 0.02 | 6.87 |
| 4 | P | 2-Methylnaphthalene | 2000.000 | 1915.785 | 4.2 | 116 | 0.02 | 7.48 |
| | | | AvgRF | CCRF | %Dev | | | |
| 5 | P | 1-Methylnaphthalene | 0.621 | 0.600 | 3.4 | 116 | 0.02 | 7.57 |
| 6 | I | Acenaphthene-d10 | 1.000 | 1.000 | 0.0 | 134 | 0.01 | 8.41 |
| 7 | S | 2-Fluorobiphenyl | 1.261 | 1.221 | 3.2 | 121 | 0.01 | 7.82 |
| | | | Amount | Calc. | %Drift | | | |
| 8 | P | Acenaphthylene | 2000.000 | 1932.213 | 3.4 | 118 | 0.02 | 8.28 |
| 9 | P | Acenaphthene | 2000.000 | 1959.624 | 2.0 | 121 | 0.02 | 8.44 |
| | | | AvgRF | CCRF | %Dev | | | |
| 10 | P | Dibenzofuran | 1.491 | 1.481 | 0.7 | 120 | 0.02 | 8.58 |
| 11 | P | Fluorene | 1.186 | 1.166 | 1.7 | 121 | 0.02 | 8.89 |
| 12 | I | Phenanthrene-d10 | 1.000 | 1.000 | 0.0 | 135 | 0.02 | 9.72 |
| 13 | S | 2,4,6-Tribromophenol | 0.065 | 0.066 | -1.5 | 126 | 0.03 | 9.13 |
| | | | Amount | Calc. | %Drift | | | |
| 14 | P | Pentachlorophenol | 5000.000 | 3317.121 | 33.7# | 66 | 0.04 | 9.63 |
| 15 | P | Phenanthrene | 2000.000 | 1910.697 | 4.5 | 120 | 0.02 | 9.74 |
| | | | AvgRF | CCRF | %Dev | | | |
| 16 | P | Anthracene | 1.076 | 1.078 | -0.2 | 121 | 0.02 | 9.78 |
| 17 | P | Carbazole | 0.902 | 0.908 | -0.7 | 121 | 0.04 | 9.95 |
| 18 | P | Fluoranthene | 0.975 | 0.985 | -1.0 | 122 | 0.02 | 10.81 |
| 19 | I | Chrysene-d12 | 1.000 | 1.000 | 0.0 | 155 | 0.04 | 12.54 |
| | | | Amount | Calc. | %Drift | | | |
| 20 | P | Pyrene | 2000.000 | 1713.226 | 14.3 | 122 | 0.03 | 11.03 |
| | | | AvgRF | CCRF | %Dev | | | |
| 21 | S | Terphenyl-d14 | 0.927 | 0.855 | 7.8 | 131 | 0.02 | 11.20 |
| 22 | P | Benzo[a]anthracene | 1.206 | 1.158 | 4.0 | 134 | 0.03 | 12.51 |
| 23 | P | Chrysene | 1.206 | 1.108 | 8.1 | 131 | 0.04 | 12.57 |

# Continuing Calibration Summary

**Job Number:** FA24234 **Sample:** SR2329-CC2318
**Account:** TETRPAPT Tetra Tech NUS **Lab FileID:** R449080.D
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 24 | I | Perylene-d12 | 1.000 | 1.000 | 0.0 | 176 | 0.06 | 15.02 |
| 25 | P | Benzo[b]fluoranthene | 1.547 | 1.494 | 3.4 | 152 | 0.06 | 14.35 |
| 26 | P | Benzo[k]fluoranthene | 1.573 | 1.398 | 11.1 | 143 | 0.06 | 14.40 |
| 27 | P | Benzo[a]pyrene | 1.324 | 1.264 | 4.5 | 149 | 0.05 | 14.91 |
| 28 | P | Indeno[1,2,3-cd]pyrene | 1.158 | 1.063 | 8.2 | 142 | 0.06 | 16.55 |
| 29 | P | Dibenz[a,h]anthracene | 1.238 | 1.131 | 8.6 | 145 | 0.05 | 16.58 |
| 30 | P | Benzo[g,h,i]perylene | 1.393 | 1.159 | 16.8 | 133 | 0.06 | 16.87 |

(#) = Out of Range SPCC's out = 0 CCC's out = 0
R448796.D SIM_LVR.M Fri May 15 11:01:59 2015

6.7.4

6

# Continuing Calibration Summary



**Job Number:** FA24234
**Account:** TETRPAPT Tetra Tech NUS
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL
**Sample:** SR2329-ECC2318
**Lab FileID:** R449100.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\SR2329\R449100.D          Vial: 2
Acq On    : 14 May 2015  10:07 pm                   Operator: mayrag
Sample    : ecc2318-5                               Inst    : MSBNA3
Misc      : op55419,sr2329,250,,,1,1,water          Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\msdchem\1\METHODS\SIM_LVR.M (RTE Integrator)
Title        : PAH's by 8270D SIM Large Volume Inj
Last Update  : Tue May 12 16:38:40 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 | Naphthalene-d8 | 1.000 | 1.000 | 0.0 | 145 | 0.02 | 6.85 |
| 2 | S | Nitrobenzene-d5 | 0.300 | 0.288 | 4.0 | 126 | 0.02 | 6.25 |
| | | | Amount | Calc. | %Drift | | | |
| 3 | P | Naphthalene | 2000.000 | 1953.503 | 2.3 | 131 | 0.02 | 6.87 |
| 4 | P | 2-Methylnaphthalene | 2000.000 | 1894.890 | 5.3 | 128 | 0.02 | 7.48 |
| | | | AvgRF | CCRF | %Dev | | | |
| 5 | P | 1-Methylnaphthalene | 0.621 | 0.599 | 3.5 | 129 | 0.02 | 7.57 |
| 6 | I | Acenaphthene-d10 | 1.000 | 1.000 | 0.0 | 146 | 0.01 | 8.41 |
| 7 | S | 2-Fluorobiphenyl | 1.261 | 1.236 | 2.0 | 134 | 0.01 | 7.82 |
| | | | Amount | Calc. | %Drift | | | |
| 8 | P | Acenaphthylene | 2000.000 | 1930.390 | 3.5 | 129 | 0.02 | 8.28 |
| 9 | P | Acenaphthene | 2000.000 | 1997.698 | 0.1 | 135 | 0.01 | 8.44 |
| | | | AvgRF | CCRF | %Dev | | | |
| 10 | P | Dibenzofuran | 1.491 | 1.494 | -0.2 | 133 | 0.02 | 8.58 |
| 11 | P | Fluorene | 1.186 | 1.170 | 1.3 | 132 | 0.02 | 8.89 |
| 12 | I | Phenanthrene-d10 | 1.000 | 1.000 | 0.0 | 149 | 0.02 | 9.72 |
| 13 | S | 2,4,6-Tribromophenol | 0.065 | 0.062 | 4.6 | 130 | 0.03 | 9.13 |
| | | | Amount | Calc. | %Drift | | | |
| 14 | P | Pentachlorophenol | 5000.000 | 3035.632 | 39.3# | 62 | 0.04 | 9.63 |
| 15 | P | Phenanthrene | 2000.000 | 1875.124 | 6.2 | 130 | 0.02 | 9.74 |
| | | | AvgRF | CCRF | %Dev | | | |
| 16 | P | Anthracene | 1.076 | 1.056 | 1.9 | 131 | 0.02 | 9.78 |
| 17 | P | Carbazole | 0.902 | 0.874 | 3.1 | 129 | 0.04 | 9.95 |
| 18 | P | Fluoranthene | 0.975 | 0.972 | 0.3 | 133 | 0.02 | 10.81 |
| 19 | I | Chrysene-d12 | 1.000 | 1.000 | 0.0 | 165 | 0.04 | 12.54 |
| | | | Amount | Calc. | %Drift | | | |
| 20 | P | Pyrene | 2000.000 | 1756.734 | 12.2 | 133 | 0.03 | 11.03 |
| | | | AvgRF | CCRF | %Dev | | | |
| 21 | S | Terphenyl-d14 | 0.927 | 0.864 | 6.8 | 141 | 0.02 | 11.20 |
| 22 | P | Benzo[a]anthracene | 1.206 | 1.156 | 4.1 | 143 | 0.03 | 12.51 |
| 23 | P | Chrysene | 1.206 | 1.113 | 7.7 | 140 | 0.04 | 12.57 |

# Continuing Calibration Summary

**Job Number:** FA24234 **Sample:** SR2329-ECC2318
**Account:** TETRPAPT Tetra Tech NUS **Lab FileID:** R449100.D
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 24 | I | Perylene-d12 | 1.000 | 1.000 | 0.0 | 185 | 0.05 | 15.02 |
| 25 | P | Benzo[b]fluoranthene | 1.547 | 1.509 | 2.5 | 161 | 0.05 | 14.35 |
| 26 | P | Benzo[k]fluoranthene | 1.573 | 1.424 | 9.5 | 153 | 0.06 | 14.40 |
| 27 | P | Benzo[a]pyrene | 1.324 | 1.274 | 3.8 | 158 | 0.05 | 14.92 |
| 28 | P | Indeno[1,2,3-cd]pyrene | 1.158 | 0.975 | 15.8 | 137 | 0.05 | 16.55 |
| 29 | P | Dibenz[a,h]anthracene | 1.238 | 1.087 | 12.2 | 146 | 0.05 | 16.59 |
| 30 | P | Benzo[g,h,i]perylene | 1.393 | 1.132 | 18.7 | 137 | 0.06 | 16.88 |

(#) = Out of Range SPCC's out = 0 CCC's out = 0
R448796.D SIM_LVR.M Fri May 15 11:02:00 2015

6.7.5

6

# Continuing Calibration Summary



**Job Number:** FA24234
**Account:** TETRPAPT Tetra Tech NUS
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL
**Sample:** SR2330-CC2318
**Lab FileID:** R449104.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\SR2330\R449104.D          Vial: 2
Acq On    : 15 May 2015   2:43 pm                   Operator: mayrag
Sample    : cc2318-5                                Inst    : MSBNA3
Misc      : op55419,sr2330,250,,,1,1,water          Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\msdchem\1\METHODS\SIM_LVR.M (RTE Integrator)
Title        : PAH's by 8270D SIM Large Volume Inj
Last Update  : Mon May 18 15:56:08 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 | Naphthalene-d8 | 1.000 | 1.000 | 0.0 | 120 | 0.00 | 6.81 |
| 2 | S | Nitrobenzene-d5 | 0.300 | 0.297 | 1.0 | 107 | 0.00 | 6.20 |
| | | | Amount | Calc. | %Drift | | | |
| 3 | P | Naphthalene | 2000.000 | 1966.485 | 1.7 | 108 | 0.00 | 6.82 |
| 4 | P | 2-Methylnaphthalene | 2000.000 | 1938.772 | 3.1 | 107 | 0.00 | 7.44 |
| | | | AvgRF | CCRF | %Dev | | | |
| 5 | P | 1-Methylnaphthalene | 0.621 | 0.605 | 2.6 | 108 | 0.00 | 7.53 |
| 6 | I | Acenaphthene-d10 | 1.000 | 1.000 | 0.0 | 122 | 0.00 | 8.37 |
| 7 | S | 2-Fluorobiphenyl | 1.261 | 1.234 | 2.1 | 112 | 0.00 | 7.78 |
| | | | Amount | Calc. | %Drift | | | |
| 8 | P | Acenaphthylene | 2000.000 | 1950.169 | 2.5 | 109 | 0.00 | 8.23 |
| 9 | P | Acenaphthene | 2000.000 | 1979.808 | 1.0 | 112 | 0.00 | 8.40 |
| | | | AvgRF | CCRF | %Dev | | | |
| 10 | P | Dibenzofuran | 1.491 | 1.478 | 0.9 | 110 | 0.00 | 8.54 |
| 11 | P | Fluorene | 1.186 | 1.160 | 2.2 | 109 | 0.00 | 8.84 |
| 12 | I | Phenanthrene-d10 | 1.000 | 1.000 | 0.0 | 122 | 0.00 | 9.67 |
| 13 | S | 2,4,6-Tribromophenol | 0.065 | 0.063 | 3.1 | 109 | 0.00 | 9.08 |
| | | | Amount | Calc. | %Drift | | | |
| 14 | P | Pentachlorophenol | 5000.000 | 3522.377 | 29.6# | 67 | 0.01 | 9.59 |
| 15 | P | Phenanthrene | 2000.000 | 1903.727 | 4.8 | 109 | 0.00 | 9.69 |
| | | | AvgRF | CCRF | %Dev | | | |
| 16 | P | Anthracene | 1.076 | 1.046 | 2.8 | 107 | 0.00 | 9.74 |
| 17 | P | Carbazole | 0.902 | 0.891 | 1.2 | 108 | 0.02 | 9.90 |
| 18 | P | Fluoranthene | 0.975 | 0.987 | -1.2 | 111 | 0.00 | 10.76 |
| 19 | I | Chrysene-d12 | 1.000 | 1.000 | 0.0 | 146 | 0.00 | 12.47 |
| | | | Amount | Calc. | %Drift | | | |
| 20 | P | Pyrene | 2000.000 | 1658.627 | 17.1 | 112 | 0.00 | 10.98 |
| | | | AvgRF | CCRF | %Dev | | | |
| 21 | S | Terphenyl-d14 | 0.927 | 0.829 | 10.6 | 119 | 0.00 | 11.15 |
| 22 | P | Benzo[a]anthracene | 1.206 | 1.157 | 4.1 | 126 | 0.00 | 12.45 |
| 23 | P | Chrysene | 1.206 | 1.109 | 8.0 | 123 | 0.00 | 12.51 |

# Continuing Calibration Summary

**Job Number:** FA24234 **Sample:** SR2330-CC2318
**Account:** TETRPAPT Tetra Tech NUS **Lab FileID:** R449104.D
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 24 | I | Perylene-d12 | 1.000 | 1.000 | 0.0 | 174 | 0.00 | 14.94 |
| 25 | P | Benzo[b]fluoranthene | 1.547 | 1.476 | 4.6 | 148 | 0.00 | 14.26 |
| 26 | P | Benzo[k]fluoranthene | 1.573 | 1.380 | 12.3 | 139 | 0.00 | 14.31 |
| 27 | P | Benzo[a]pyrene | 1.324 | 1.254 | 5.3 | 146 | 0.00 | 14.83 |
| 28 | P | Indeno[1,2,3-cd]pyrene | 1.158 | 1.146 | 1.0 | 152 | 0.00 | 16.47 |
| 29 | P | Dibenz[a,h]anthracene | 1.238 | 1.154 | 6.8 | 146 | 0.00 | 16.51 |
| 30 | P | Benzo[g,h,i]perylene | 1.393 | 1.272 | 8.7 | 145 | 0.00 | 16.80 |

(#) = Out of Range SPCC's out = 0 CCC's out = 0
R448796.D SIM_LVR.M Mon May 18 16:03:17 2015

# Continuing Calibration Summary



**Job Number:** FA24234
**Account:** TETRPAPT Tetra Tech NUS
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL
**Sample:** SR2330-ECC2318
**Lab FileID:** R449127.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\SR2330\R449127.D          Vial: 2
Acq On    : 16 May 2015  12:48 am                   Operator: mayrag
Sample    : ecc2318-5                               Inst    : MSBNA3
Misc      : op55419,sr2330,250,,,1,1,water          Multiplr: 1.00
MS Integration Params: RTEINT.P

Method       : C:\msdchem\1\METHODS\SIM_LVR.M (RTE Integrator)
Title        : PAH's by 8270D SIM Large Volume Inj
Last Update  : Mon May 18 15:56:08 2015
Response via : Multiple Level Calibration

Min. RRF     :   0.050  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  50%     Max. Rel. Area : 200%
```

| | | Compound | AvgRF | CCRF | %Dev | Area% | Dev(min) | R.T. |
|---|---|---|---|---|---|---|---|---|
| 1 | I | Naphthalene-d8 | 1.000 | 1.000 | 0.0 | 132 | 0.00 | 6.81 |
| 2 | S | Nitrobenzene-d5 | 0.300 | 0.297 | 1.0 | 118 | 0.00 | 6.21 |
| | | | Amount | Calc. | %Drift | | | |
| 3 | P | Naphthalene | 2000.000 | 1929.312 | 3.5 | 117 | 0.00 | 6.82 |
| 4 | P | 2-Methylnaphthalene | 2000.000 | 1937.553 | 3.1 | 118 | 0.00 | 7.44 |
| | | | AvgRF | CCRF | %Dev | | | |
| 5 | P | 1-Methylnaphthalene | 0.621 | 0.597 | 3.9 | 117 | 0.00 | 7.53 |
| 6 | I | Acenaphthene-d10 | 1.000 | 1.000 | 0.0 | 135 | 0.00 | 8.37 |
| 7 | S | 2-Fluorobiphenyl | 1.261 | 1.214 | 3.7 | 122 | 0.00 | 7.78 |
| | | | Amount | Calc. | %Drift | | | |
| 8 | P | Acenaphthylene | 2000.000 | 1903.170 | 4.8 | 118 | 0.00 | 8.24 |
| 9 | P | Acenaphthene | 2000.000 | 1919.916 | 4.0 | 120 | 0.00 | 8.40 |
| | | | AvgRF | CCRF | %Dev | | | |
| 10 | P | Dibenzofuran | 1.491 | 1.463 | 1.9 | 120 | 0.00 | 8.54 |
| 11 | P | Fluorene | 1.186 | 1.136 | 4.2 | 119 | 0.00 | 8.84 |
| 12 | I | Phenanthrene-d10 | 1.000 | 1.000 | 0.0 | 137 | 0.00 | 9.67 |
| 13 | S | 2,4,6-Tribromophenol | 0.065 | 0.067 | -3.1 | 130 | 0.00 | 9.09 |
| | | | Amount | Calc. | %Drift | | | |
| 14 | P | Pentachlorophenol | 5000.000 | 3786.984 | 24.3 | 87 | 0.01 | 9.59 |
| 15 | P | Phenanthrene | 2000.000 | 1839.361 | 8.0 | 118 | 0.00 | 9.69 |
| | | | AvgRF | CCRF | %Dev | | | |
| 16 | P | Anthracene | 1.076 | 1.042 | 3.2 | 119 | 0.00 | 9.74 |
| 17 | P | Carbazole | 0.902 | 0.884 | 2.0 | 120 | 0.02 | 9.90 |
| 18 | P | Fluoranthene | 0.975 | 0.972 | 0.3 | 122 | 0.00 | 10.76 |
| 19 | I | Chrysene-d12 | 1.000 | 1.000 | 0.0 | 164 | 0.00 | 12.47 |
| | | | Amount | Calc. | %Drift | | | |
| 20 | P | Pyrene | 2000.000 | 1630.072 | 18.5 | 124 | 0.00 | 10.98 |
| | | | AvgRF | CCRF | %Dev | | | |
| 21 | S | Terphenyl-d14 | 0.927 | 0.811 | 12.5 | 131 | 0.00 | 11.15 |
| 22 | P | Benzo[a]anthracene | 1.206 | 1.158 | 4.0 | 142 | 0.00 | 12.45 |
| 23 | P | Chrysene | 1.206 | 1.097 | 9.0 | 137 | 0.00 | 12.51 |

# Continuing Calibration Summary

**Job Number:** FA24234 **Sample:** SR2330-ECC2318
**Account:** TETRPAPT Tetra Tech NUS **Lab FileID:** R449127.D
**Project:** NSA Panama City JM73 Bldg 98; Panama City, FL

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 24 | I | Perylene-d12 | 1.000 | 1.000 | 0.0 | 196 | 0.00 | 14.94 |
| 25 | P | Benzo[b]fluoranthene | 1.547 | 1.434 | 7.3 | 162 | 0.00 | 14.27 |
| 26 | P | Benzo[k]fluoranthene | 1.573 | 1.402 | 10.9 | 159 | 0.00 | 14.31 |
| 27 | P | Benzo[a]pyrene | 1.324 | 1.257 | 5.1 | 165 | 0.00 | 14.84 |
| 28 | P | Indeno[1,2,3-cd]pyrene | 1.158 | 1.094 | 5.5 | 163 | 0.01 | 16.48 |
| 29 | P | Dibenz[a,h]anthracene | 1.238 | 1.141 | 7.8 | 162 | 0.01 | 16.52 |
| 30 | P | Benzo[g,h,i]perylene | 1.393 | 1.216 | 12.7 | 156 | 0.00 | 16.80 |

(#) = Out of Range SPCC's out = 0 CCC's out = 0
R448796.D SIM_LVR.M Mon May 18 16:03:46 2015

6.7.7

6

Southeast ACCUTEST LABORATORIES

GC/MS Semi-volatiles

Raw Data

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2329\
Data File : R449093.D
Acq On : 14 May 2015 7:03 pm
Operator : mayrag
Sample : fa24234-1
Misc : op56067,sr2329,240,,,1,1,water
ALS Vial : 37 Sample Multiplier: 1

Quant Time: May 15 09:54:34 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Tue May 12 16:38:40 2015
Response via : Initial Calibration

| Internal Standards | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| 1) Naphthalene-d8 | 6.858 | 136 | 164816 | 500.00 | ppb | 0.02 |
| 6) Acenaphthene-d10 | 8.411 | 164 | 113594 | 500.00 | ppb | 0.01 |
| 12) Phenanthrene-d10 | 9.722 | 188 | 143061 | 500.00 | ppb | 0.03 |
| 19) Chrysene-d12 | 12.557 | 240 | 93654 | 500.00 | ppb | 0.06 |
| 24) Perylene-d12 | 15.041 | 264 | 59653 | 500.00 | ppb | 0.08 |

System Monitoring Compounds

| | | | | | | |
|---|---|---|---|---|---|---|
| 2) Nitrobenzene-d5 | 6.253 | 82 | 149566 | 1513.30 | ppb | 0.02 |
| Spiked Amount 2000.000 | Range 41 - 129 | | Recovery = 75.66% | | | |
| 7) 2-Fluorobiphenyl | 7.821 | 172 | 344233 | 1202.01 | ppb | 0.01 |
| Spiked Amount 2000.000 | Range 41 - 118 | | Recovery = 60.10% | | | |
| 13) 2,4,6-Tribromophenol | 9.149 | 330 | 66755 | 3582.12 | ppb | 0.04 |
| Spiked Amount 4000.000 | Range 33 - 118 | | Recovery = 89.55% | | | |
| 21) Terphenyl-d14 | 11.219 | 244 | 256537 | 1477.18 | ppb | 0.04 |
| Spiked Amount 2000.000 | Range 45 - 145 | | Recovery = 73.86% | | | |

Target Compounds

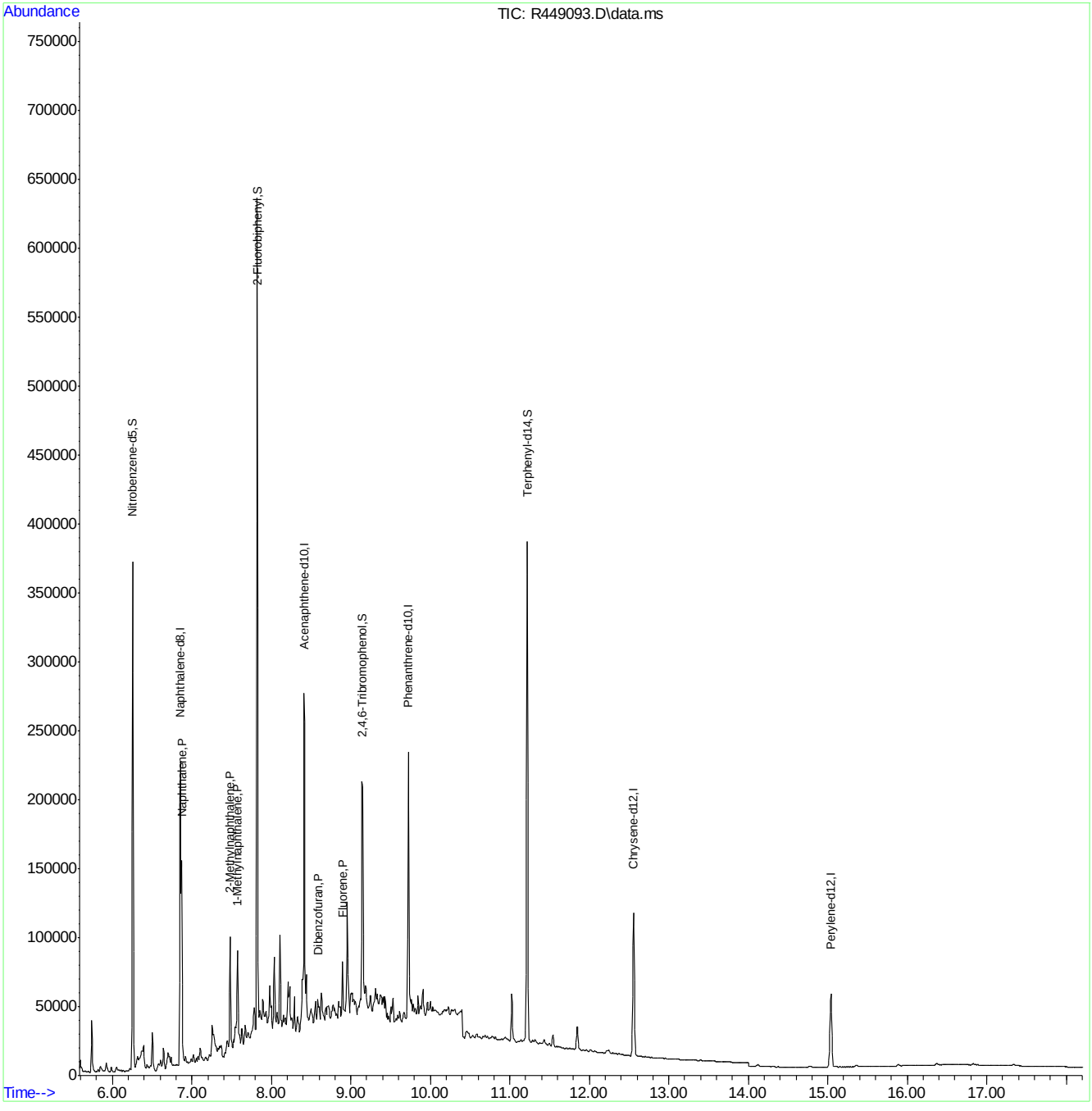
| | | | | | | Qvalue |
|---|---|---|---|---|---|---|
| 3) Naphthalene | 6.874 | 128 | 98766 | 285.96 | ppb | 97 |
| 4) 2-Methylnaphthalene | 7.480 | 142 | 31691 | 133.36 | ppb | 89 |
| 5) 1-Methylnaphthalene | 7.579 | 142 | 23851 | 116.57 | ppb | 93 |
| 10) Dibenzofuran | 8.584 | 168 | 8692 | 25.66 | ppb | 59 |
| 11) Fluorene | 8.895 | 166 | 17422 | 64.67 | ppb | 96 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

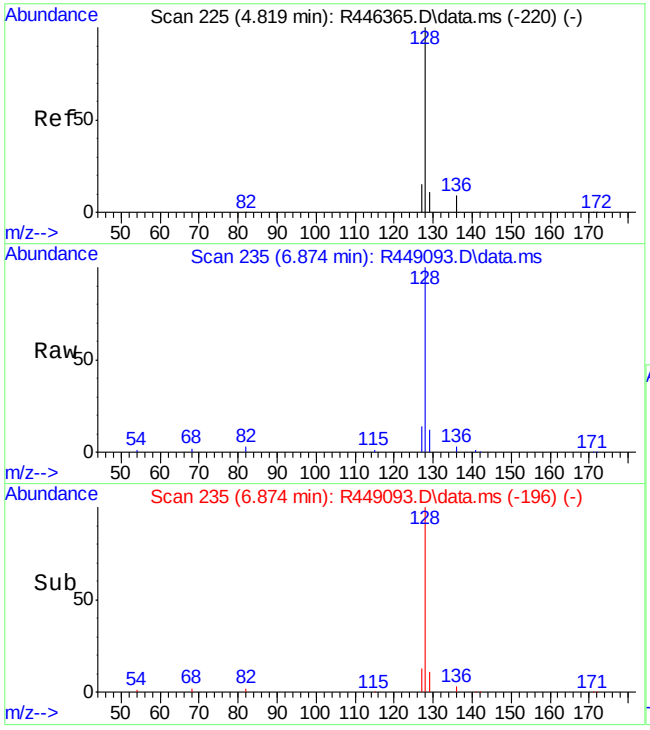
Data Path : C:\msdchem\1\DATA\SR2329\
Data File : R449093.D
Acq On : 14 May 2015 7:03 pm
Operator : mayrag
Sample : fa24234-1
Misc : op56067,sr2329,240,,,1,1,water
ALS Vial : 37 Sample Multiplier: 1

Quant Time: May 15 09:54:34 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Tue May 12 16:38:40 2015
Response via : Initial Calibration





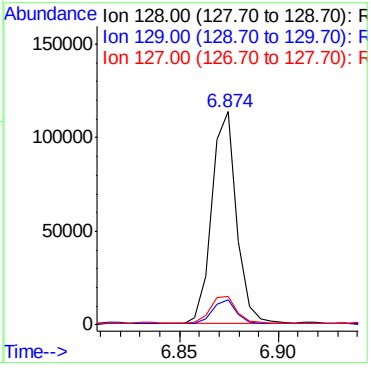

ACCUTEST LABORATORIES FA24234

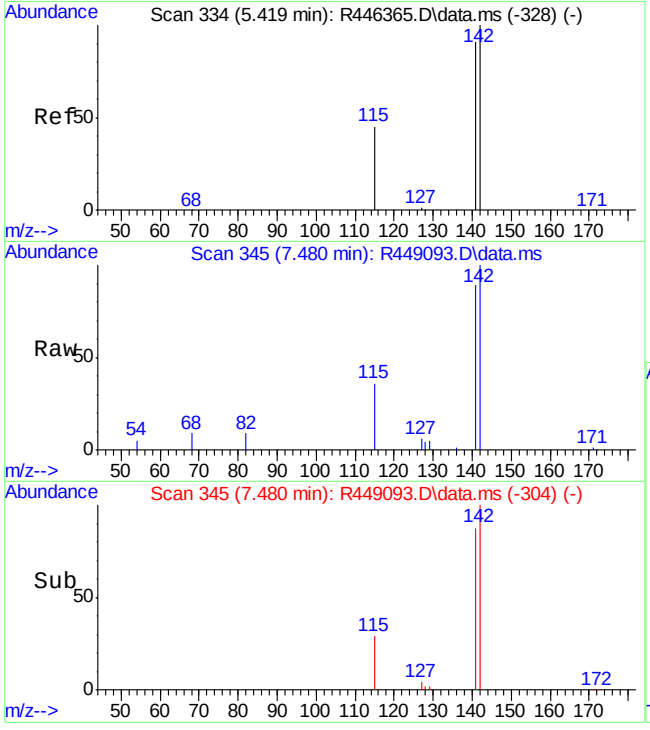



#3
Naphthalene
Concen: 285.96 ppb
RT: 6.874 min Scan# 235
Delta R.T. 0.017 min
Lab File: R449093.D
Acq: 14 May 2015 7:03 pm

Tgt Ion:128 Resp: 98766

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 128 | 100 | | |
| 129 | 11.2 | 0.0 | 40.8 |
| 127 | 12.8 | 0.0 | 45.0 |

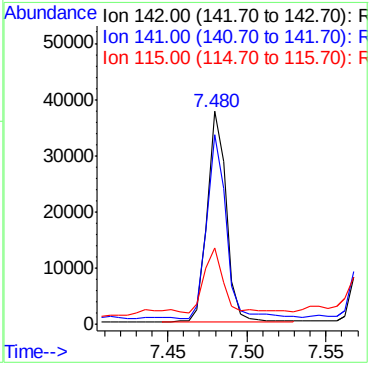


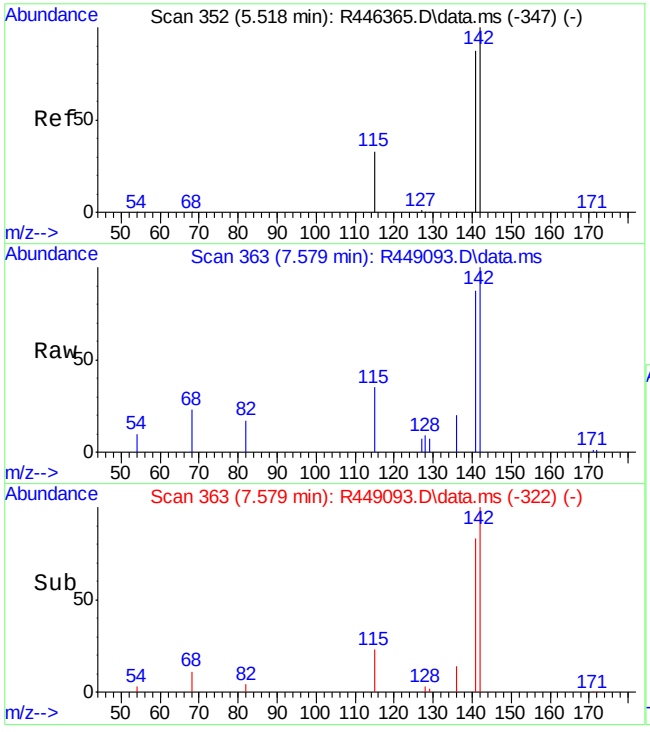




#4
2-Methylnaphthalene
Concen: 133.36 ppb
RT: 7.480 min Scan# 345
Delta R.T. 0.024 min
Lab File: R449093.D
Acq: 14 May 2015 7:03 pm

Tgt Ion:142 Resp: 31691

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 142 | 100 | | |
| 141 | 86.7 | 60.6 | 120.6 |
| 115 | 29.8 | 15.3 | 75.3 |

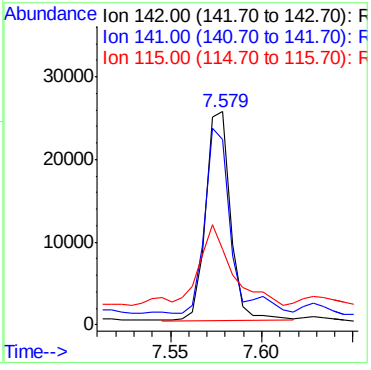


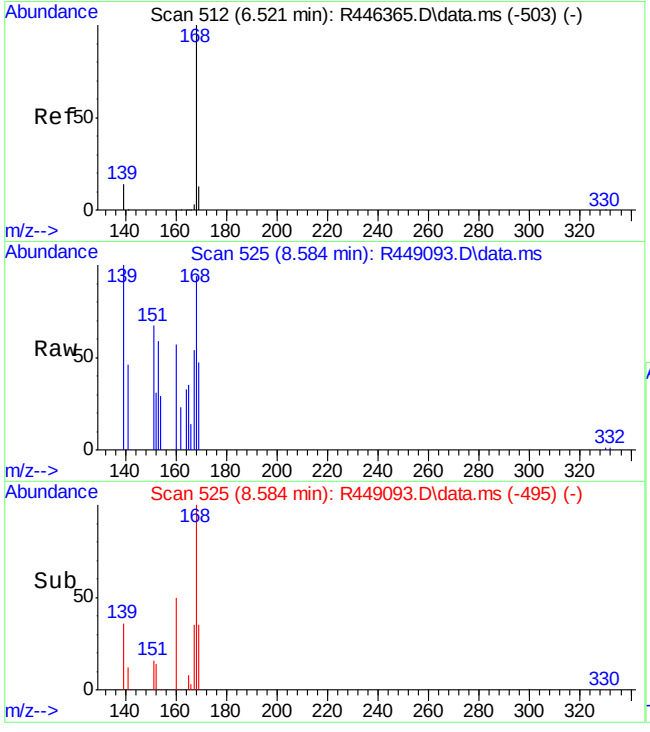



#5
1-Methylnaphthalene
Concen: 116.57 ppb
RT: 7.579 min Scan# 363
Delta R.T. 0.024 min
Lab File: R449093.D
Acq: 14 May 2015 7:03 pm

Tgt Ion:142 Resp: 23851

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 142 | 100 | | |
| 141 | 83.1 | 57.4 | 117.4 |
| 115 | 24.6 | 2.9 | 62.9 |

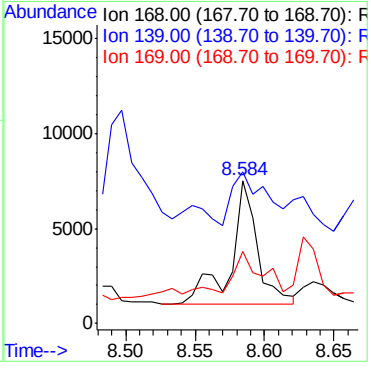


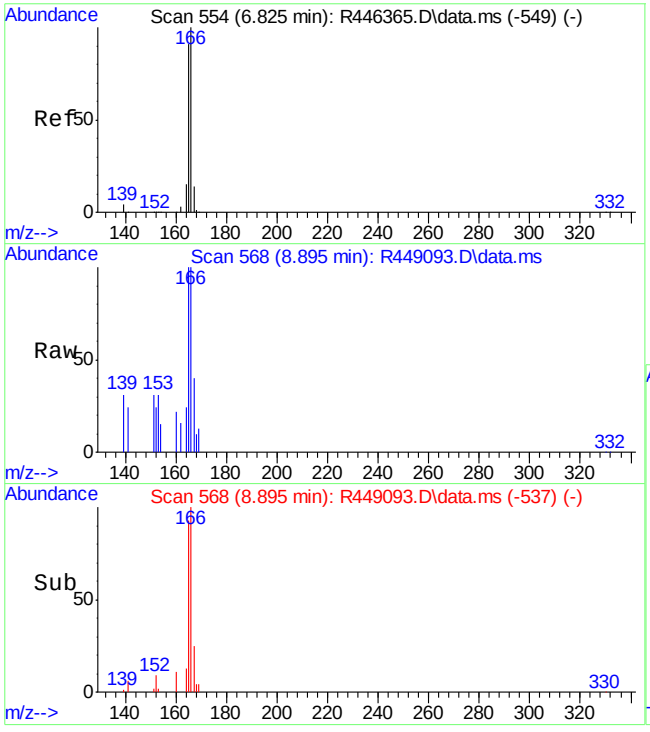




#10
Dibenzofuran
Concen: 25.66 ppb
RT: 8.584 min Scan# 525
Delta R.T. 0.016 min
Lab File: R449093.D
Acq: 14 May 2015 7:03 pm

Tgt Ion:168 Resp: 8692

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 168 | 100 | | |
| 139 | 28.7 | 0.0 | 43.5 |
| 169 | 30.7 | 0.0 | 43.4 |

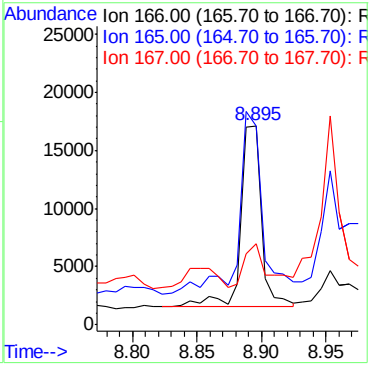





#11
Fluorene
Concen: 64.67 ppb
RT: 8.895 min Scan# 568
Delta R.T. 0.026 min
Lab File: R449093.D
Acq: 14 May 2015 7:03 pm

Tgt Ion:166 Resp: 17422

| Ion | Ratio | Lower | Upper |
|---|---|---|---|
| 166 | 100 | | |
| 165 | 90.1 | 61.5 | 121.5 |
| 167 | 21.6 | 0.0 | 43.6 |




7.1.1

7



ACCUTEST LABORATORIES FA24234

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2329\
Data File : R449048.D
Acq On : 13 May 2015 11:11 pm
Operator : mayrag
Sample : op56067-mb
Misc : op56067,sr2329,250,,,1,1,water
ALS Vial : 25 Sample Multiplier: 1

Quant Time: May 14 14:10:16 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Tue May 12 16:38:40 2015
Response via : Initial Calibration

| Internal Standards | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| 1) Naphthalene-d8 | 6.847 | 136 | 162457 | 500.00 | ppb | 0.01 |
| 6) Acenaphthene-d10 | 8.403 | 164 | 89419 | 500.00 | ppb | 0.00 |
| 12) Phenanthrene-d10 | 9.702 | 188 | 140483 | 500.00 | ppb | 0.00 |
| 19) Chrysene-d12 | 12.513 | 240 | 76782 | 500.00 | ppb | 0.01 |
| 24) Perylene-d12 | 14.980 | 264 | 44188 | 500.00 | ppb | 0.02 |

System Monitoring Compounds

| | | | | | | |
|---|---|---|---|---|---|---|
| 2) Nitrobenzene-d5 | 6.241 | 82 | 121434 | 1246.50 | ppb | 0.01 |
| Spiked Amount 2000.000 | Range 41 - 129 | | Recovery = 62.32% | | | |
| 7) 2-Fluorobiphenyl | 7.809 | 172 | 277315 | 1230.14 | ppb | 0.00 |
| Spiked Amount 2000.000 | Range 41 - 118 | | Recovery = 61.51% | | | |
| 13) 2,4,6-Tribromophenol | 9.119 | 330 | 43195 | 2360.41 | ppb | 0.01 |
| Spiked Amount 4000.000 | Range 33 - 118 | | Recovery = 59.01% | | | |
| 21) Terphenyl-d14 | 11.191 | 244 | 200141 | 1405.68 | ppb | 0.01 |
| Spiked Amount 2000.000 | Range 45 - 145 | | Recovery = 70.28% | | | |

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

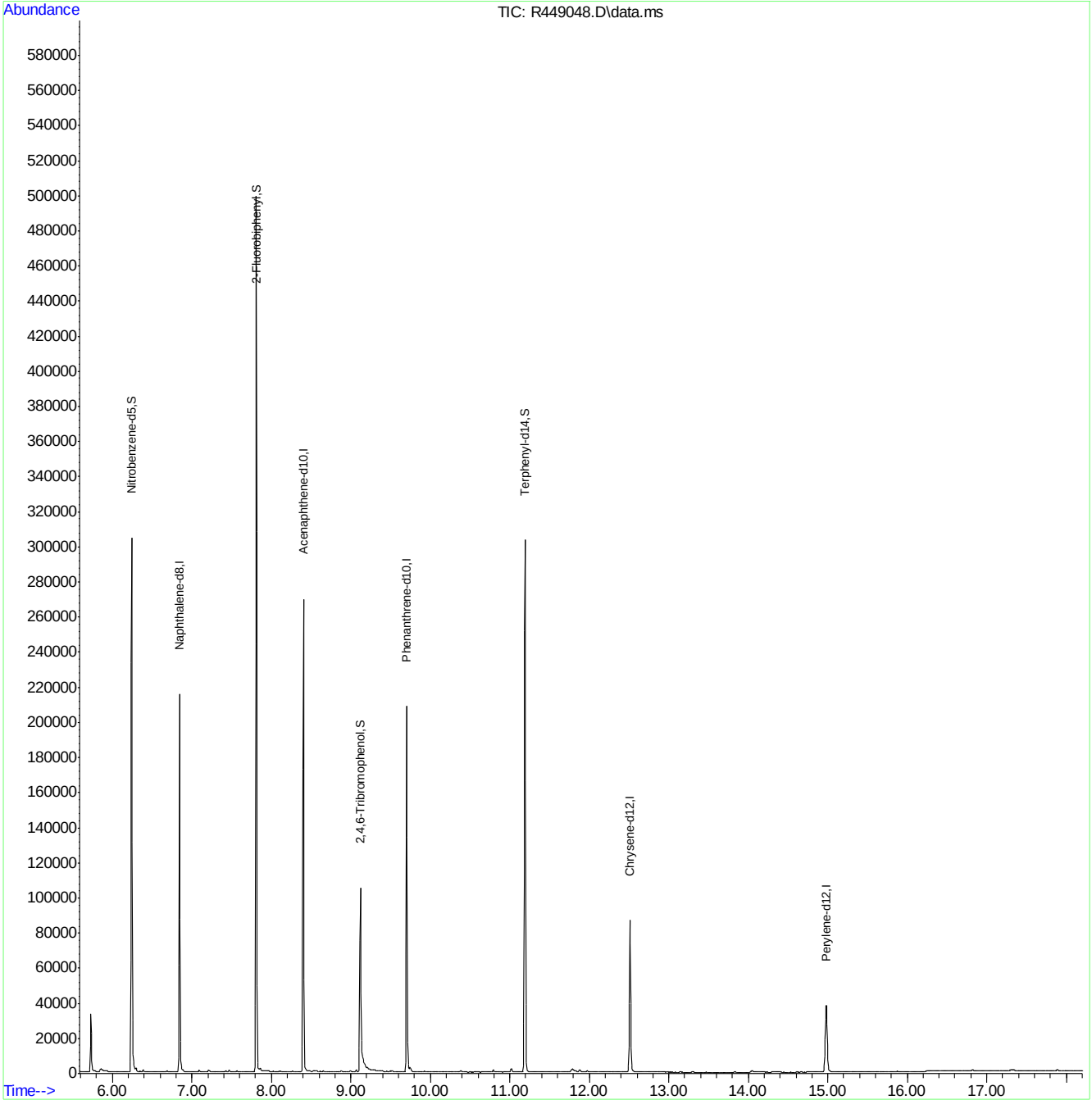


ACCUTEST LABORATORIES FA24234

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2329\
Data File : R449048.D
Acq On : 13 May 2015 11:11 pm
Operator : mayrag
Sample : op56067-mb
Misc : op56067,sr2329,250,,,1,1,water
ALS Vial : 25 Sample Multiplier: 1

Quant Time: May 14 14:10:16 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Tue May 12 16:38:40 2015
Response via : Initial Calibration




SIM_LVR.M Thu May 14 14:10:22 2015 Page: 2

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2329\
Data File : R449047.D
Acq On : 13 May 2015 10:45 pm
Operator : mayrag
Sample : op56067-bs
Misc : op56067,sr2329,250,,,1,1,water
ALS Vial : 24 Sample Multiplier: 1

Quant Time: May 14 09:02:33 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Tue May 12 16:38:40 2015
Response via : Initial Calibration

| Internal Standards | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| 1) Naphthalene-d8 | 6.847 | 136 | 163176 | 500.00 | ppb | 0.01 |
| 6) Acenaphthene-d10 | 8.403 | 164 | 90718 | 500.00 | ppb | 0.00 |
| 12) Phenanthrene-d10 | 9.709 | 188 | 147774 | 500.00 | ppb | 0.01 |
| 19) Chrysene-d12 | 12.519 | 240 | 84224 | 500.00 | ppb | 0.02 |
| 24) Perylene-d12 | 14.986 | 264 | 47184 | 500.00 | ppb | 0.02 |

System Monitoring Compounds

| | | | | | | |
|---|---|---|---|---|---|---|
| 2) Nitrobenzene-d5 | 6.242 | 82 | 140612 | 1437.00 | ppb | 0.01 |
| Spiked Amount 2000.000 | Range 41 - 129 | | Recovery = 71.85% | | | |
| 7) 2-Fluorobiphenyl | 7.810 | 172 | 316497 | 1383.85 | ppb | 0.00 |
| Spiked Amount 2000.000 | Range 41 - 118 | | Recovery = 69.19% | | | |
| 13) 2,4,6-Tribromophenol | 9.120 | 330 | 52933 | 2749.83 | ppb | 0.01 |
| Spiked Amount 4000.000 | Range 33 - 118 | | Recovery = 68.75% | | | |
| 21) Terphenyl-d14 | 11.192 | 244 | 230418 | 1475.33 | ppb | 0.01 |
| Spiked Amount 2000.000 | Range 45 - 145 | | Recovery = 73.77% | | | |

Target Compounds

| | | | | | | Qvalue |
|---|---|---|---|---|---|---|
| 3) Naphthalene | 6.863 | 128 | 450900 | 1374.34 | ppb | 97 |
| 4) 2-Methylnaphthalene | 7.469 | 142 | 291472 | 1290.43 | ppb | 93 |
| 5) 1-Methylnaphthalene | 7.568 | 142 | 290883 | 1435.98 | ppb | 96 |
| 8) Acenaphthylene | 8.266 | 152 | 464810 | 1388.88 | ppb | 96 |
| 9) Acenaphthene | 8.432 | 153 | 297348 | 1438.94 | ppb | 90 |
| 10) Dibenzofuran | 8.577 | 168 | 394986 | 1460.31 | ppb | 97 |
| 11) Fluorene | 8.881 | 166 | 324794 | 1509.65 | ppb | 99 |
| 14) Pentachlorophenol | 9.613 | 266 | 71073 | 2976.80 | ppb | 94 |
| 15) Phenanthrene | 9.722 | 178 | 446525 | 1442.52 | ppb | 97 |
| 16) Anthracene | 9.763 | 178 | 230670 | 725.09 | ppb | 98 |
| 17) Carbazole | 9.926 | 167 | 211573 | 793.85 | ppb | 97 |
| 18) Fluoranthene | 10.795 | 202 | 449562 | 1560.82 | ppb | 96 |
| 20) Pyrene | 11.015 | 202 | 457333 | 1293.54 | ppb | 99 |
| 22) Benzo[a]anthracene | 12.491 | 228 | 155787 | 766.79 | ppb | 99 |
| 23) Chrysene | 12.552 | 228 | 153820 | 756.91 | ppb | 100 |
| 25) Benzo[b]fluoranthene | 14.319 | 252 | 116926 | 801.03 | ppb | 99 |
| 26) Benzo[k]fluoranthene | 14.363 | 252 | 109976 | 740.96 | ppb | 98 |
| 27) Benzo[a]pyrene | 14.887 | 252 | 92288 | 738.61 | ppb | 98 |
| 28) Indeno[1,2,3-cd]pyrene | 16.517 | 276 | 77024 | 704.86 | ppb | 88 |
| 29) Dibenz[a,h]anthracene | 16.550 | 278 | 82712 | 707.89 | ppb | 100 |
| 30) Benzo[g,h,i]perylene | 16.842 | 276 | 85109 | 647.30 | ppb | 96 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

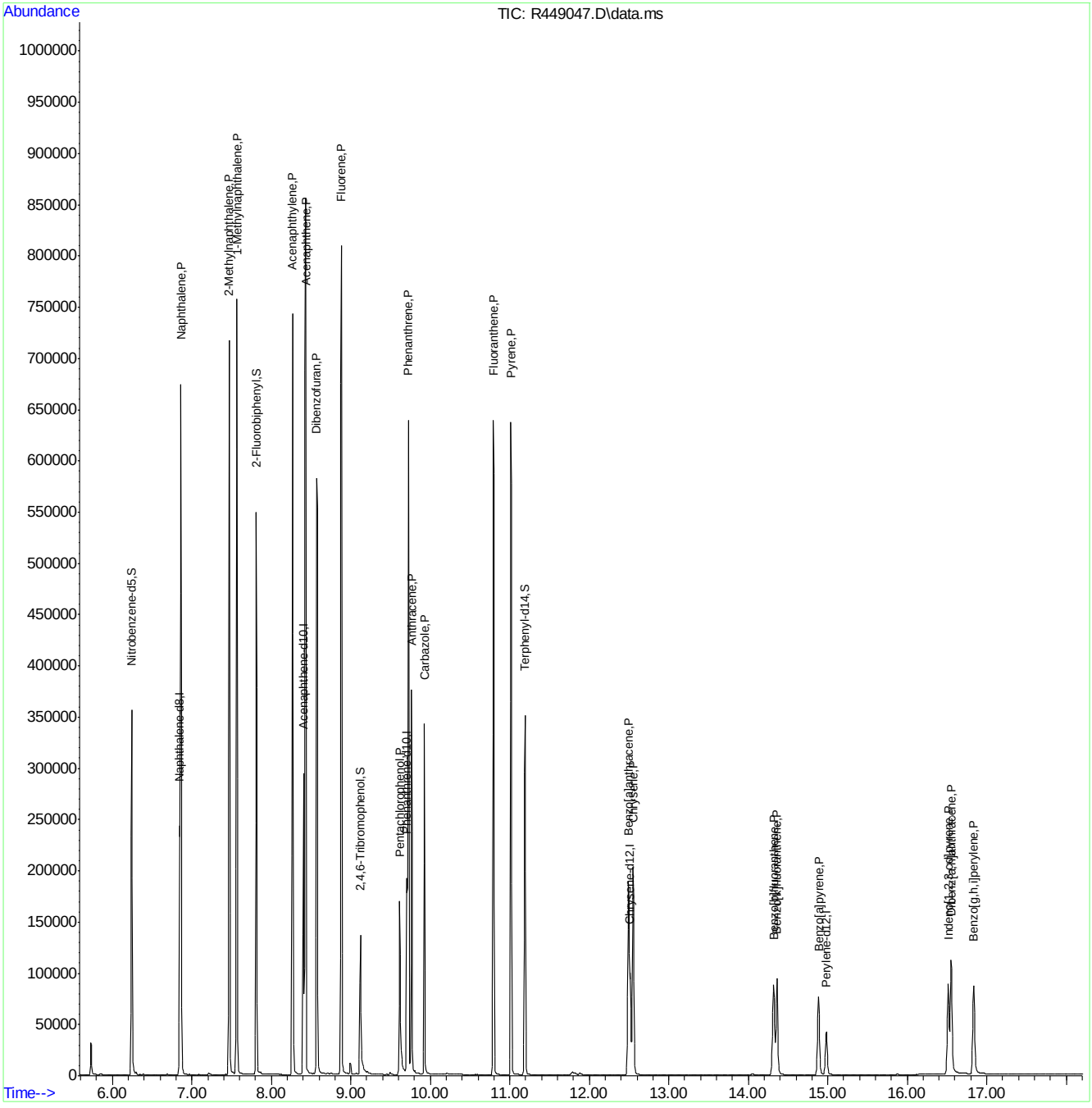
7.3.1

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2329\
Data File : R449047.D
Acq On : 13 May 2015 10:45 pm
Operator : mayrag
Sample : op56067-bs
Misc : op56067,sr2329,250,,,1,1,water
ALS Vial : 24 Sample Multiplier: 1

Quant Time: May 14 09:02:33 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Tue May 12 16:38:40 2015
Response via : Initial Calibration




SIM_LVR.M Thu May 14 14:09:59 2015 Page: 2

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2330\
Data File : R449108.D
Acq On : 15 May 2015 4:29 pm
Operator : mayrag
Sample : op56067-ms,10
Misc : op56067,sr2330,130,,,1,10,water
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 18 15:56:48 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Mon May 18 15:56:08 2015
Response via : Initial Calibration

| Internal Standards | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| 1) Naphthalene-d8 | 6.808 | 136 | 104720 | 500.00 | ppb | 0.00 |
| 6) Acenaphthene-d10 | 8.367 | 164 | 55778 | 500.00 | ppb | 0.00 |
| 12) Phenanthrene-d10 | 9.668 | 188 | 86890 | 500.00 | ppb | 0.00 |
| 19) Chrysene-d12 | 12.475 | 240 | 59619 | 500.00 | ppb | 0.00 |
| 24) Perylene-d12 | 14.942 | 264 | 40117 | 500.00 | ppb | 0.00 |

| System Monitoring Compounds | | | | | | |
|---|---|---|---|---|---|---|
| 2) Nitrobenzene-d5 | 6.203 | 82 | 11900 | 189.50 | ppb | 0.00 |
| Spiked Amount 2000.000 | Range 41 - 129 | | Recovery = 9.47%# | | | |
| 7) 2-Fluorobiphenyl | 7.771 | 172 | 29640 | 210.78 | ppb | -0.01 |
| Spiked Amount 2000.000 | Range 41 - 118 | | Recovery = 10.54%# | | | |
| 13) 2,4,6-Tribromophenol | 9.084 | 330 | 4853 | 428.76 | ppb | 0.00 |
| Spiked Amount 4000.000 | Range 33 - 118 | | Recovery = 10.72%# | | | |
| 21) Terphenyl-d14 | 11.153 | 244 | 19821 | 179.29 | ppb | 0.00 |
| Spiked Amount 2000.000 | Range 45 - 145 | | Recovery = 8.96%# | | | |

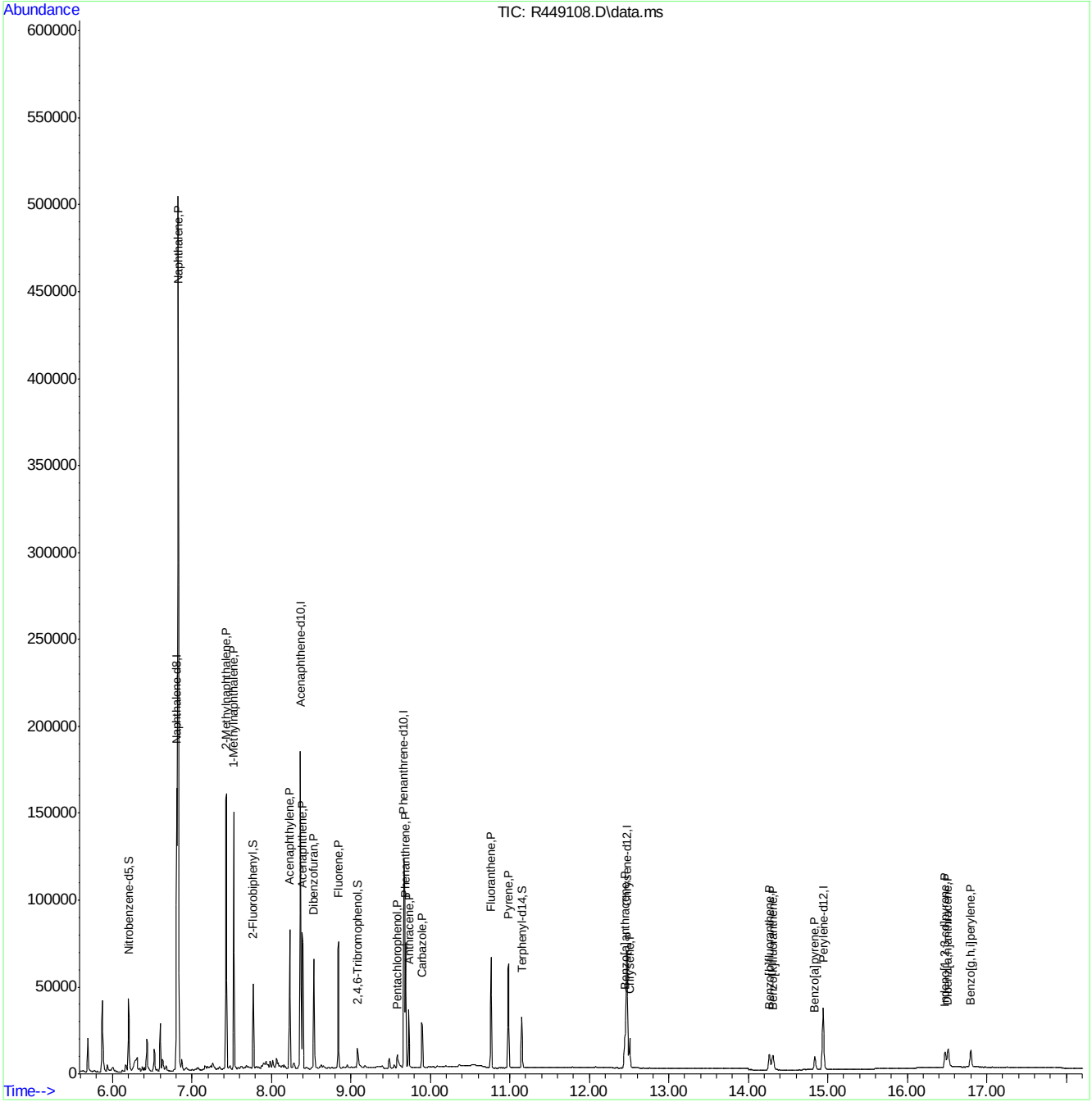
| Target Compounds | | | | | | Qvalue |
|---|---|---|---|---|---|---|
| 3) Naphthalene | 6.825 | 128 | 308772 | 1472.08 | ppb | 98 |
| 4) 2-Methylnaphthalene | 7.436 | 142 | 64010 | 428.31 | ppb | 82 |
| 5) 1-Methylnaphthalene | 7.529 | 142 | 50981 | 392.16 | ppb | 97 |
| 8) Acenaphthylene | 8.230 | 152 | 42565 | 198.09 | ppb | 95 |
| 9) Acenaphthene | 8.389 | 153 | 28044 | 211.91 | ppb | 97 |
| 10) Dibenzofuran | 8.541 | 168 | 36436 | 219.09 | ppb | 94 |
| 11) Fluorene | 8.845 | 166 | 29786 | 225.17 | ppb | 98 |
| 14) Pentachlorophenol | 9.586 | 266 | 5090 | 963.09 | ppb | 96 |
| 15) Phenanthrene | 9.688 | 178 | 41491 | 217.89 | ppb | 98 |
| 16) Anthracene | 9.729 | 178 | 18825 | 100.64 | ppb | 97 |
| 17) Carbazole | 9.899 | 167 | 16662 | 106.32 | ppb | 95 |
| 18) Fluoranthene | 10.762 | 202 | 40311 | 238.02 | ppb | 98 |
| 20) Pyrene | 10.982 | 202 | 41901 | 160.17 | ppb | 94 |
| 22) Benzo[a]anthracene | 12.447 | 228 | 13537 | 94.13 | ppb | 99 |
| 23) Chrysene | 12.508 | 228 | 13098 | 91.05 | ppb | 100 |
| 25) Benzo[b]fluoranthene | 14.264 | 252 | 10946 | 88.20 | ppb | 98 |
| 26) Benzo[k]fluoranthene | 14.308 | 252 | 11036 | 87.45 | ppb | 100 |
| 27) Benzo[a]pyrene | 14.837 | 252 | 9155 | 86.18 | ppb | 98 |
| 28) Indeno[1,2,3-cd]pyrene | 16.478 | 276 | 8477 | 91.24 | ppb | 87 |
| 29) Dibenz[a,h]anthracene | 16.517 | 278 | 8405 | 84.61 | ppb | 94 |
| 30) Benzo[g,h,i]perylene | 16.798 | 276 | 9666 | 86.47 | ppb | 99 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2330\
Data File : R449108.D
Acq On : 15 May 2015 4:29 pm
Operator : mayrag
Sample : op56067-ms,10
Misc : op56067,sr2330,130,,,1,10,water
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 18 15:56:48 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Mon May 18 15:56:08 2015
Response via : Initial Calibration










ACCUTEST LABORATORIES FA24234

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger
05/18/15 17:00

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2330\
Data File : R449109.D
Acq On : 15 May 2015 4:56 pm
Operator : mayrag
Sample : op56067-msd,10
Misc : op56067,sr2330,130,,,1,10,water
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 18 16:08:17 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Mon May 18 15:56:08 2015
Response via : Initial Calibration

| Internal Standards | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| 1) Naphthalene-d8 | 6.808 | 136 | 105341 | 500.00 | ppb | 0.00 |
| 6) Acenaphthene-d10 | 8.367 | 164 | 56109 | 500.00 | ppb | 0.00 |
| 12) Phenanthrene-d10 | 9.674 | 188 | 87554 | 500.00 | ppb | 0.00 |
| 19) Chrysene-d12 | 12.474 | 240 | 60384 | 500.00 | ppb | 0.00 |
| 24) Perylene-d12 | 14.947 | 264 | 40516 | 500.00 | ppb | 0.01 |

| System Monitoring Compounds | | | | | | |
|---|---|---|---|---|---|---|
| 2) Nitrobenzene-d5 | 6.203 | 82 | 12991 | 205.65 | ppb | 0.00 |
| Spiked Amount 2000.000 | Range 41 - 129 | | Recovery = 10.28%# | | | |
| 7) 2-Fluorobiphenyl | 7.777 | 172 | 31988 | 226.13 | ppb | 0.00 |
| Spiked Amount 2000.000 | Range 41 - 118 | | Recovery = 11.31%# | | | |
| 13) 2,4,6-Tribromophenol | 9.091 | 330 | 5478 | 480.31 | ppb | 0.00 |
| Spiked Amount 4000.000 | Range 33 - 118 | | Recovery = 12.01%# | | | |
| 21) Terphenyl-d14 | 11.153 | 244 | 21174 | 189.10 | ppb | 0.00 |
| Spiked Amount 2000.000 | Range 45 - 145 | | Recovery = 9.46%# | | | |

| Target Compounds | | | | | | Qvalue |
|---|---|---|---|---|---|---|
| 3) Naphthalene | 6.825 | 128 | 407490 | 1969.46 | ppb | 99 |
| 4) 2-Methylnaphthalene | 7.435 | 142 | 80482 | 537.40 | ppb | 86 |
| 5) 1-Methylnaphthalene | 7.529 | 142 | 62836 | 480.51 | ppb | 97 |
| 8) Acenaphthylene | 8.230 | 152 | 47542 | 220.12 | ppb | 96 |
| 9) Acenaphthene | 8.396 | 153 | 30831 | 231.75 | ppb | 90 |
| 10) Dibenzofuran | 8.541 | 168 | 40030 | 239.28 | ppb | 99 |
| 11) Fluorene | 8.845 | 166 | 32713 | 245.84 | ppb | 100 |
| 14) Pentachlorophenol | 9.586 | 266 | 6299 | 1079.48 | ppb | 94 |
| 15) Phenanthrene | 9.695 | 178 | 45502 | 237.30 | ppb | 99 |
| 16) Anthracene | 9.729 | 178 | 20674 | 109.69 | ppb | 98 |
| 17) Carbazole | 9.899 | 167 | 17917 | 113.47 | ppb | 97 |
| 18) Fluoranthene | 10.767 | 202 | 44380 | 260.06 | ppb | 98 |
| 20) Pyrene | 10.982 | 202 | 45837 | 173.09 | ppb | 96 |
| 22) Benzo[a]anthracene | 12.452 | 228 | 14864 | 102.05 | ppb | 100 |
| 23) Chrysene | 12.513 | 228 | 14362 | 98.57 | ppb | 100 |
| 25) Benzo[b]fluoranthene | 14.275 | 252 | 12600 | 100.53 | ppb | 99 |
| 26) Benzo[k]fluoranthene | 14.314 | 252 | 11422 | 89.62 | ppb | 99 |
| 27) Benzo[a]pyrene | 14.842 | 252 | 10012 | 93.32 | ppb | 99 |
| 28) Indeno[1,2,3-cd]pyrene | 16.484 | 276 | 8790m | 93.68 | ppb | |
| 29) Dibenz[a,h]anthracene | 16.517 | 278 | 9030 | 90.00 | ppb | 98 |
| 30) Benzo[g,h,i]perylene | 16.803 | 276 | 10225 | 90.57 | ppb | 99 |

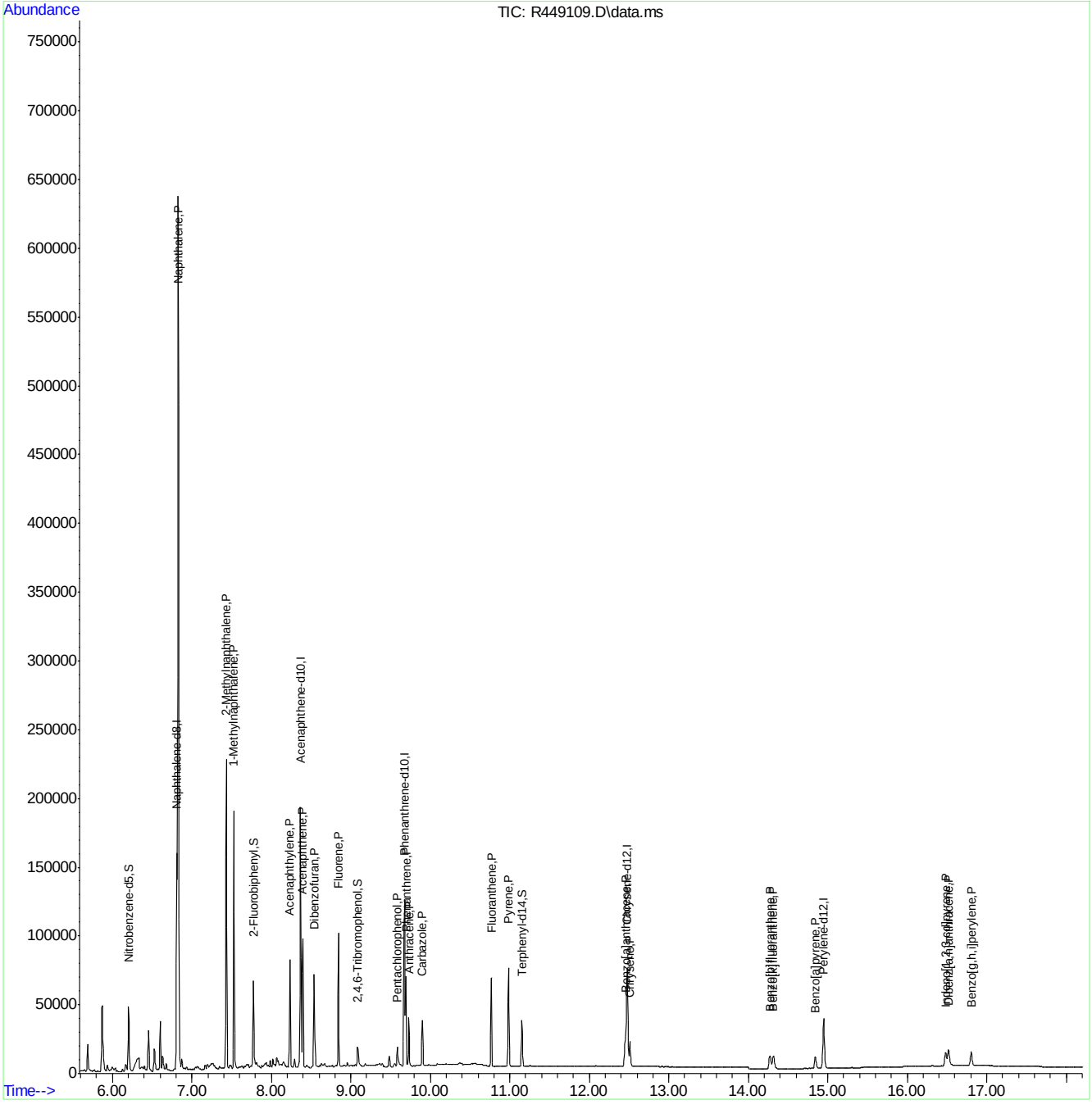
(#) = qualifier out of range (m) = manual integration (+) = signals summed

7.4.2
7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2330\
Data File : R449109.D
Acq On : 15 May 2015 4:56 pm
Operator : mayrag
Sample : op56067-msd,10
Misc : op56067,sr2330,130,,,1,10,water
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 18 16:08:17 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Mon May 18 15:56:08 2015
Response via : Initial Calibration










ACCUTEST LABORATORIES FA24234

# Manual Integration Approval Summary



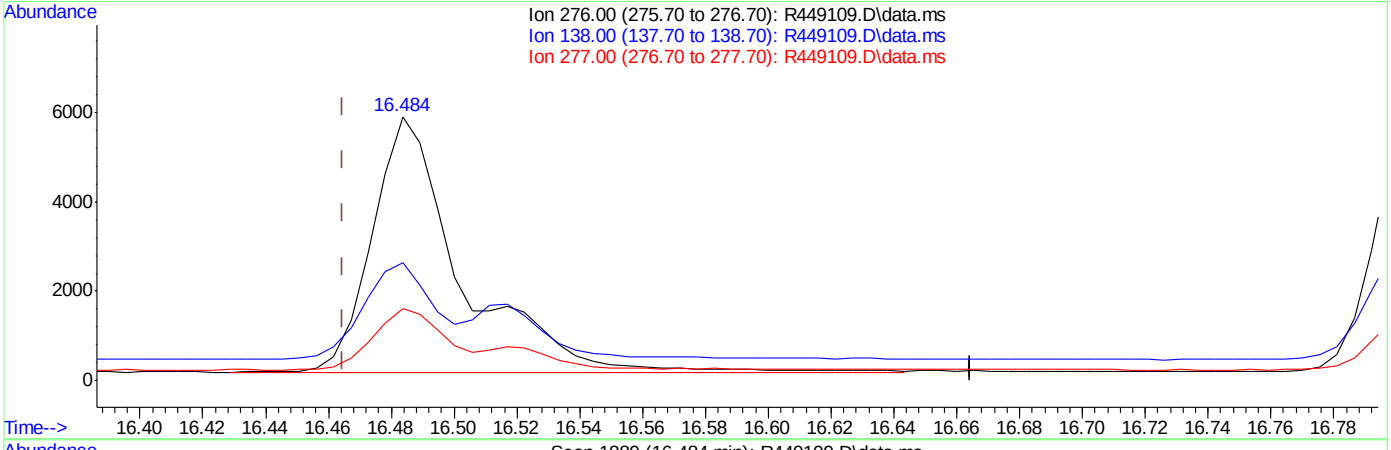
| | | | |
|---|---|---|---|
| **Sample Number:** | OP56067-MSD | **Method:** | SW846 8270D BY SIM |
| **Lab FileID:** | R449109.D | **Analyst approved:** | 05/18/15 16:36 Naresh Jiawan |
| **Injection Time:** | 05/15/15 16:56 | **Supervisor approved:** | 05/18/15 17:00 Mike Eger |

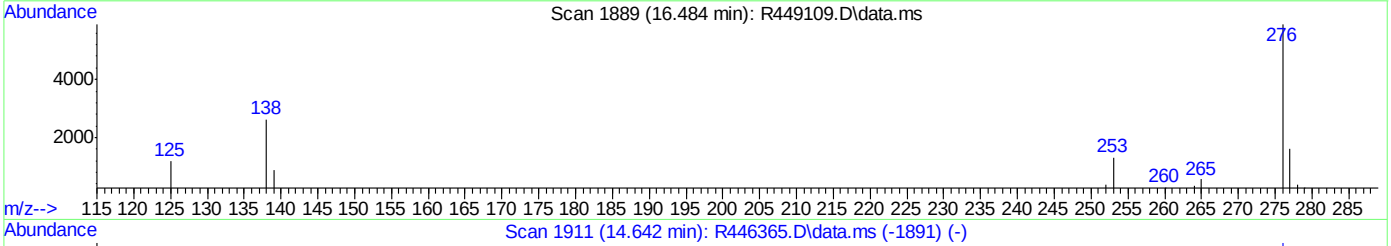
| Parameter | CAS | Sig# | R.T. (min.) | Reason |
|---|---|---|---|---|
| Indeno(1,2,3-cd)pyrene | 193-39-5 | | 16.48 | Overlapping peak |

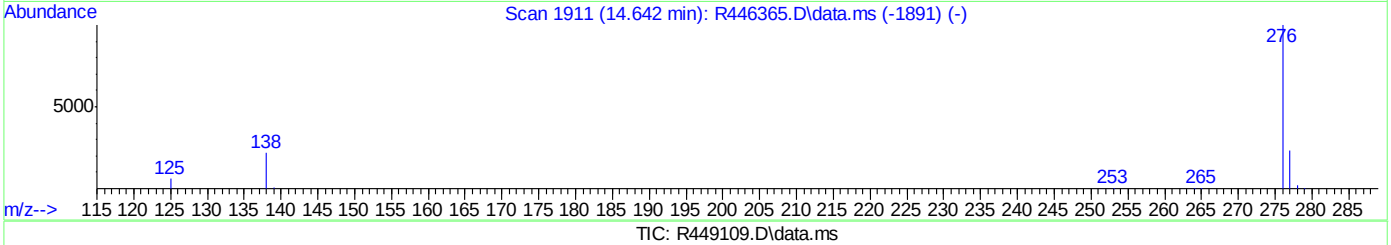
Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\SR2330\
Data File : R449109.D
Acq On    : 15 May 2015   4:56 pm
Operator  : mayrag
Sample    : op56067-msd,10
Misc      : op56067,sr2330,130,,,1,10,water
ALS Vial  : 7   Sample Multiplier: 1

Quant Time: May 18 15:56:50 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title  : PAH's by 8270D SIM Large Volume Inj
QLast Update : Mon May 18 15:56:08 2015
Response via : Initial Calibration
```




TIC: R449109.D\data.ms

(28) Indeno[1,2,3-cd]pyrene (P)

16.484min (+0.019) 120.35ppb

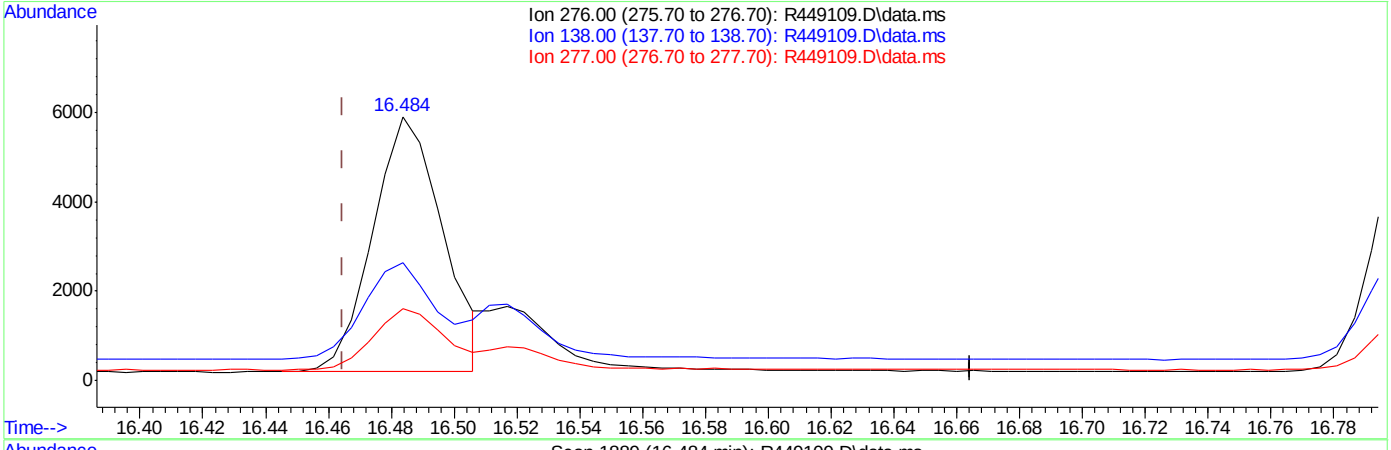
response 11293

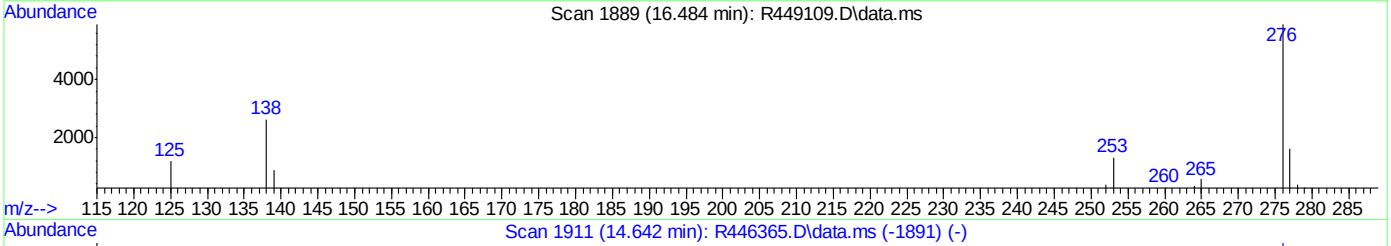
| Ion | Exp% | Act% |
|---|---|---|
| 276.00 | 100 | 100 |
| 138.00 | 42.70 | 37.48 |
| 277.00 | 23.60 | 23.57 |
| 0.00 | 0.00 | 0.00 |

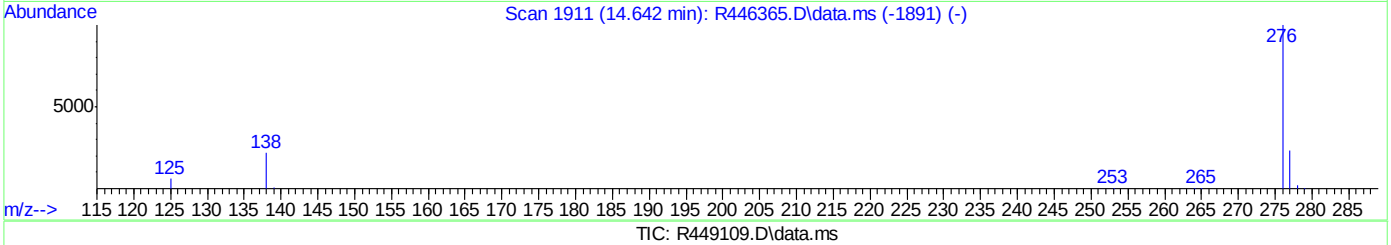
Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\SR2330\
Data File : R449109.D
Acq On    : 15 May 2015   4:56 pm
Operator  : mayrag
Sample    : op56067-msd,10
Misc      : op56067,sr2330,130,,,1,10,water
ALS Vial  : 7   Sample Multiplier: 1

Quant Time: May 18 15:56:50 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title  : PAH's by 8270D SIM Large Volume Inj
QLast Update : Mon May 18 15:56:08 2015
Response via : Initial Calibration
```




TIC: R449109.D\data.ms

(28) Indeno[1,2,3-cd]pyrene (P)

16.484min (+0.019) 93.68ppb m

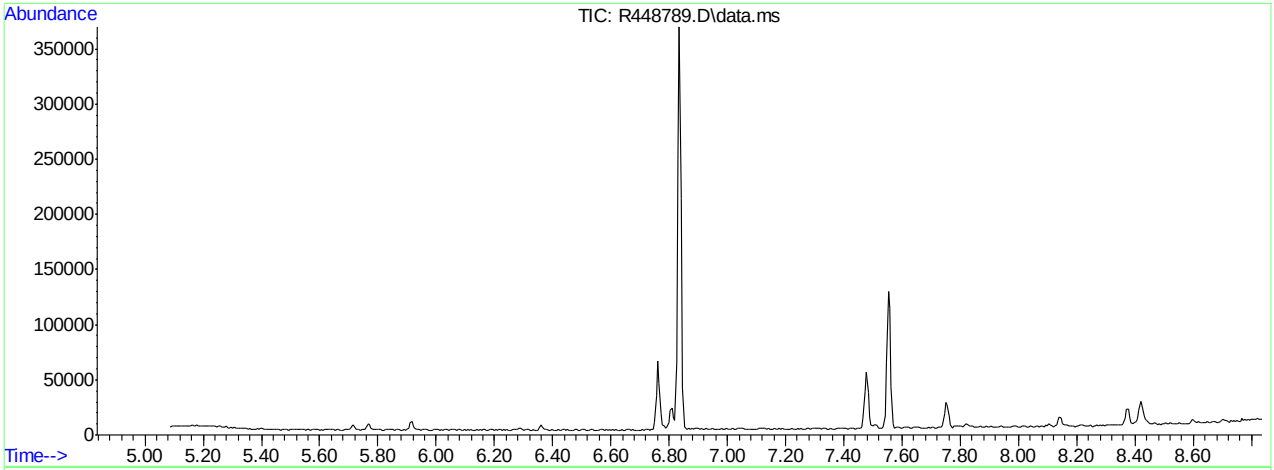
response 8790

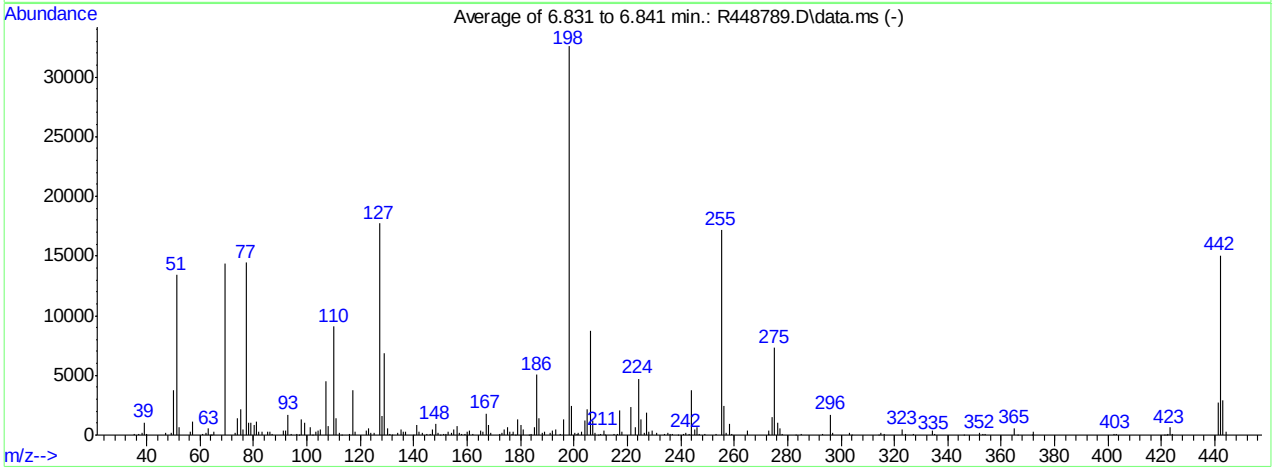
| Ion | Exp% | Act% |
|---|---|---|
| 276.00 | 100 | 100 |
| 138.00 | 42.70 | 44.54 |
| 277.00 | 23.60 | 27.18 |
| 0.00 | 0.00 | 0.00 |

SW-846 Method 8270

Data File : C:\msdchem\1\DATA\SR2318\R448789.D  Vial: 1
Acq On : 24 Apr 2015 2:33 pm  Operator: mayrag
Sample : dftpp  Inst : MSBNA3
Misc : op55419,sr2318,250,,,1,1,water  Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\msdchem\1\METHODS\DFTPP.M (RTE Integrator)
Title : Tune Evaluation




AutoFind: Scans 327, 328, 329; Background Corrected with Scan 323

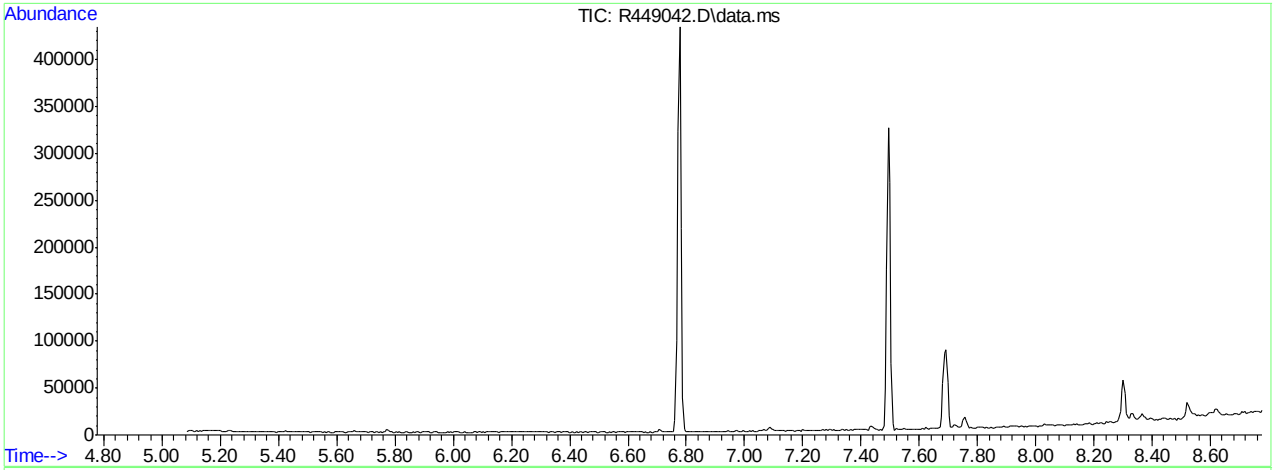
| Target Mass | Rel. to Mass | Lower Limit% | Upper Limit% | Rel. Abn% | Raw Abn | Result Pass/Fail |
|---|---|---|---|---|---|---|
| 51 | 198 | 30 | 60 | 41.2 | 13427 | PASS |
| 68 | 69 | 0.00 | 2 | 0.0 | 0 | PASS |
| 69 | 198 | 0.00 | 100 | 44.1 | 14362 | PASS |
| 70 | 69 | 0.00 | 2 | 0.0 | 0 | PASS |
| 127 | 198 | 40 | 60 | 54.4 | 17717 | PASS |
| 197 | 198 | 0.00 | 1 | 0.0 | 0 | PASS |
| 198 | 198 | 100 | 100 | 100.0 | 32552 | PASS |
| 199 | 198 | 5 | 9 | 7.4 | 2399 | PASS |
| 275 | 198 | 10 | 30 | 22.4 | 7303 | PASS |
| 365 | 198 | 1 | 100 | 1.8 | 595 | PASS |
| 441 | 443 | 0.01 | 100 | 92.4 | 2684 | PASS |
| 442 | 198 | 40 | 100 | 46.3 | 15071 | PASS |
| 443 | 442 | 17 | 23 | 19.3 | 2906 | PASS |

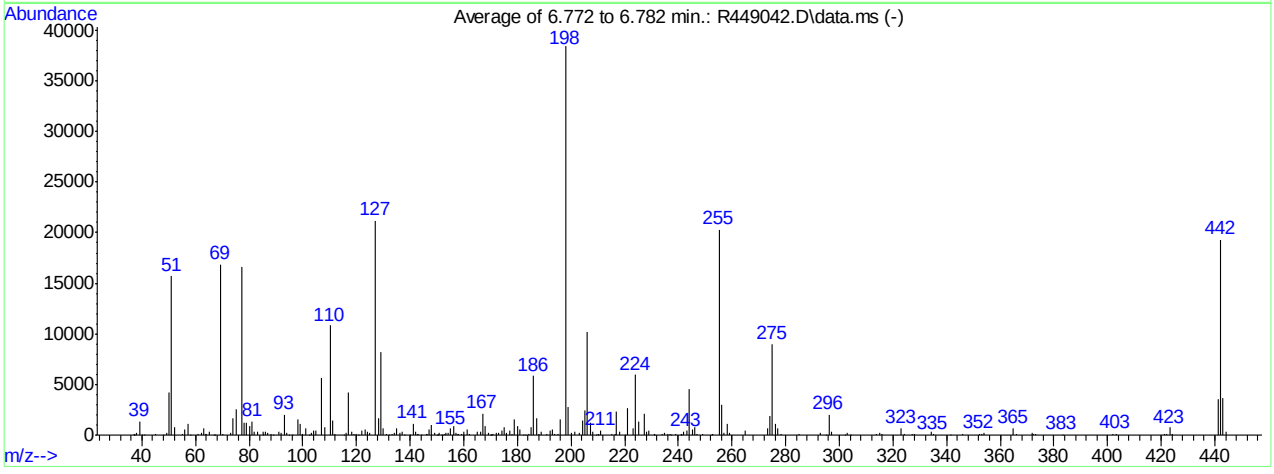
R448789.D DFTPP.M Fri Apr 24 15:02:49 2015

SW-846 Method 8270

Data File : C:\msdchem\1\DATA\SR2329\R449042.D  Vial: 1
Acq On : 13 May 2015 8:39 pm  Operator: mayrag
Sample : dftpp  Inst : MSBNA3
Misc : op55419,sr2329,250,,,1,1,water  Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\msdchem\1\METHODS\DFTPP.M (RTE Integrator)
Title : Tune Evaluation




AutoFind: Scans 316, 317, 318; Background Corrected with Scan 312

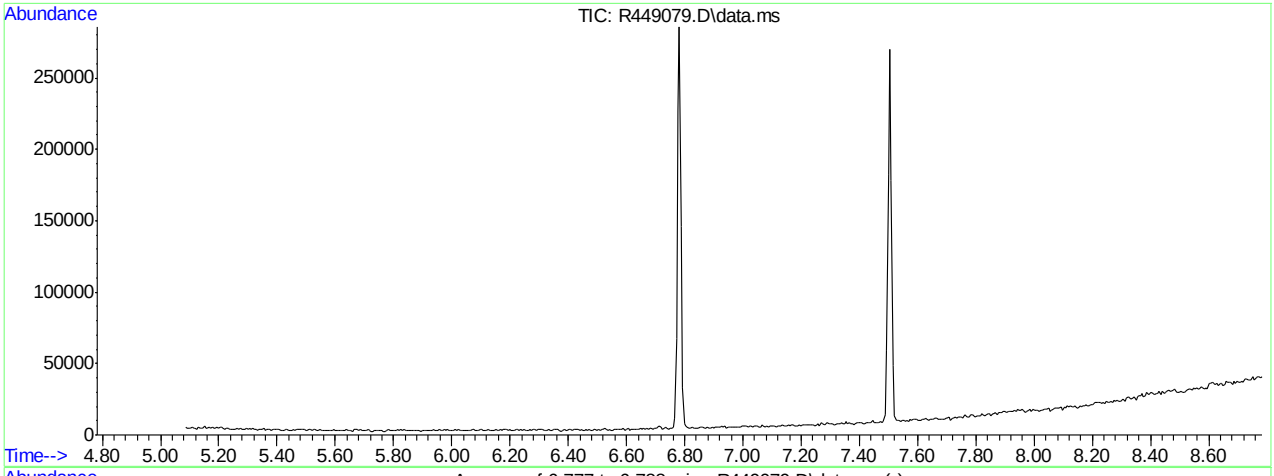
| Target Mass | Rel. to Mass | Lower Limit% | Upper Limit% | Rel. Abn% | Raw Abn | Result Pass/Fail |
|---|---|---|---|---|---|---|
| 51 | 198 | 30 | 60 | 41.0 | 15726 | PASS |
| 68 | 69 | 0.00 | 2 | 0.0 | 0 | PASS |
| 69 | 198 | 0.00 | 100 | 44.0 | 16878 | PASS |
| 70 | 69 | 0.00 | 2 | 0.4 | 63 | PASS |
| 127 | 198 | 40 | 60 | 55.2 | 21179 | PASS |
| 197 | 198 | 0.00 | 1 | 0.0 | 0 | PASS |
| 198 | 198 | 100 | 100 | 100.0 | 38394 | PASS |
| 199 | 198 | 5 | 9 | 7.1 | 2728 | PASS |
| 275 | 198 | 10 | 30 | 23.5 | 9022 | PASS |
| 365 | 198 | 1 | 100 | 1.8 | 683 | PASS |
| 441 | 443 | 0.01 | 100 | 95.9 | 3496 | PASS |
| 442 | 198 | 40 | 100 | 50.2 | 19274 | PASS |
| 443 | 442 | 17 | 23 | 18.9 | 3647 | PASS |

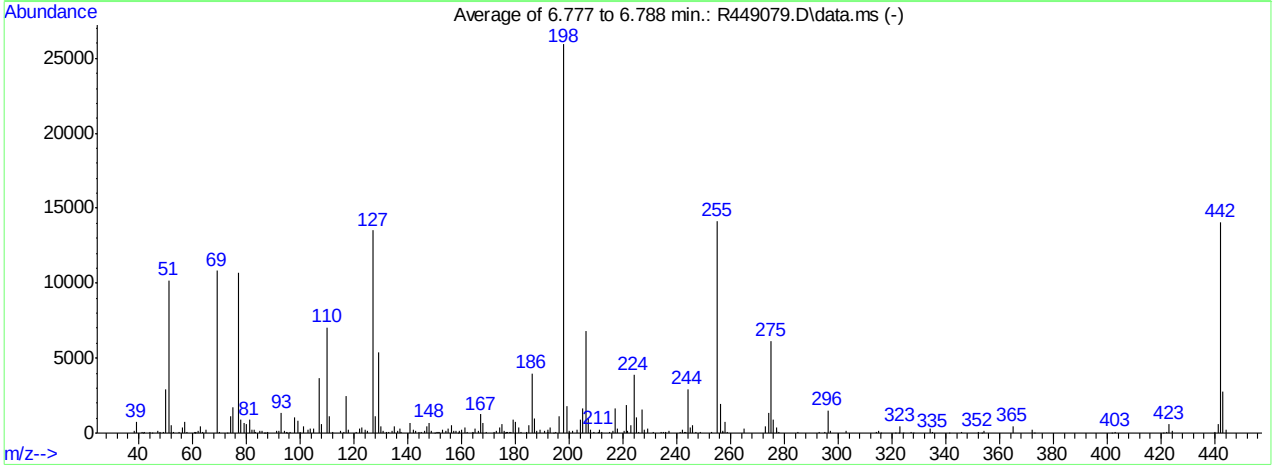
R449042.D DFTPP.M Thu May 14 13:57:21 2015

SW-846 Method 8270

Data File : C:\msdchem\1\DATA\SR2329\R449079.D  Vial: 1
Acq On : 14 May 2015 12:59 pm  Operator: mayrag
Sample : dftpp  Inst : MSBNA3
Misc : op55419,sr2329,250,,,1,1,water  Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\msdchem\1\METHODS\DFTPP.M (RTE Integrator)
Title : Tune Evaluation




AutoFind: Scans 317, 318, 319; Background Corrected with Scan 313

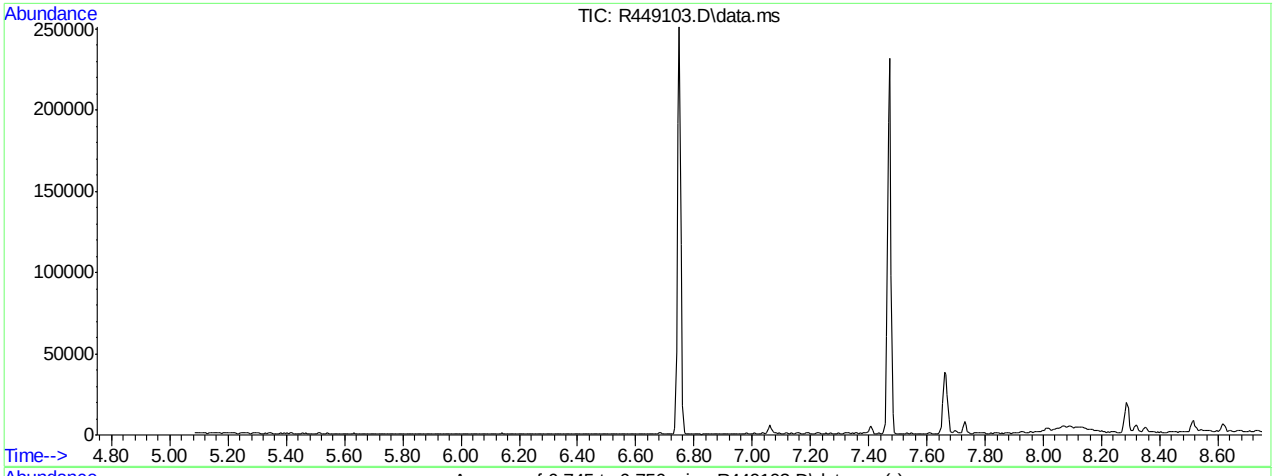
| Target Mass | Rel. to Mass | Lower Limit% | Upper Limit% | Rel. Abn% | Raw Abn | Result Pass/Fail |
|---|---|---|---|---|---|---|
| 51 | 198 | 30 | 60 | 39.3 | 10203 | PASS |
| 68 | 69 | 0.00 | 2 | 0.0 | 0 | PASS |
| 69 | 198 | 0.00 | 100 | 41.7 | 10821 | PASS |
| 70 | 69 | 0.00 | 2 | 0.4 | 43 | PASS |
| 127 | 198 | 40 | 60 | 52.2 | 13527 | PASS |
| 197 | 198 | 0.00 | 1 | 0.0 | 0 | PASS |
| 198 | 198 | 100 | 100 | 100.0 | 25930 | PASS |
| 199 | 198 | 5 | 9 | 6.9 | 1790 | PASS |
| 275 | 198 | 10 | 30 | 23.8 | 6163 | PASS |
| 365 | 198 | 1 | 100 | 1.9 | 486 | PASS |
| 441 | 443 | 0.01 | 100 | 21.5 | 587 | PASS |
| 442 | 198 | 40 | 100 | 54.3 | 14079 | PASS |
| 443 | 442 | 17 | 23 | 19.4 | 2735 | PASS |

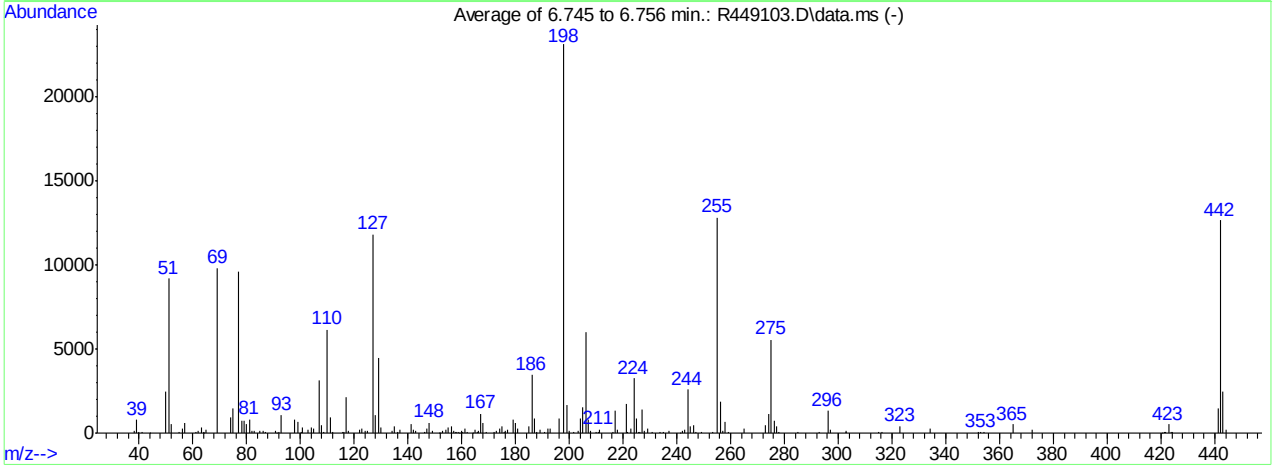
R449079.D DFTPP.M Fri May 15 11:02:56 2015

SW-846 Method 8270

Data File : C:\msdchem\1\DATA\SR2330\R449103.D  Vial: 1
Acq On : 15 May 2015 2:23 pm  Operator: mayrag
Sample : dftpp  Inst : MSBNA3
Misc : op55419,sr2330,250,,,1,1,water  Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\msdchem\1\METHODS\DFTPP.M (RTE Integrator)
Title : Tune Evaluation




AutoFind: Scans 311, 312, 313; Background Corrected with Scan 307

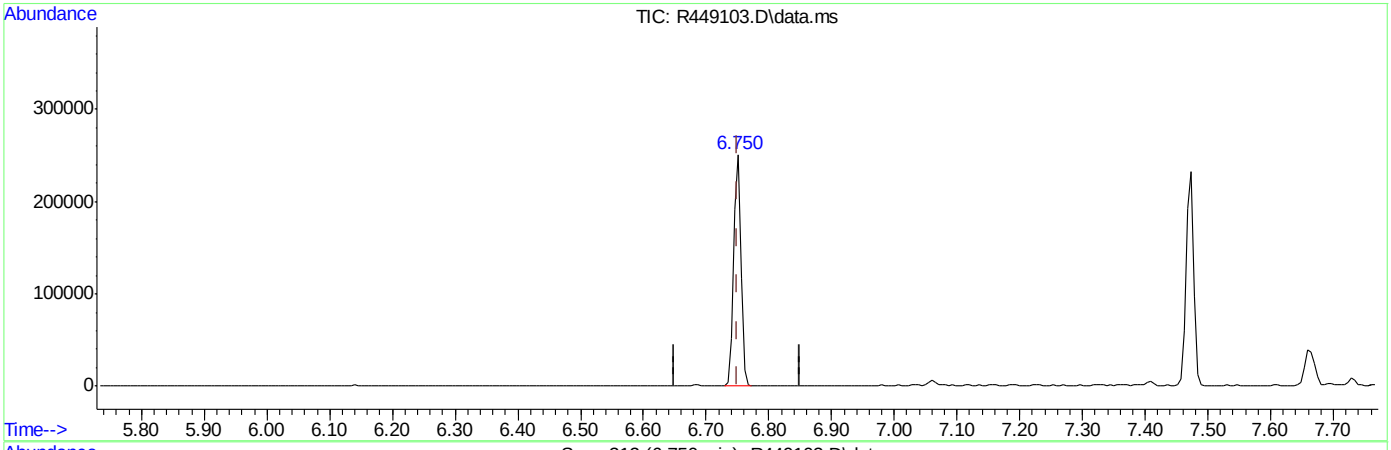
| Target Mass | Rel. to Mass | Lower Limit% | Upper Limit% | Rel. Abn% | Raw Abn | Result Pass/Fail |
|---|---|---|---|---|---|---|
| 51 | 198 | 30 | 60 | 39.7 | 9170 | PASS |
| 68 | 69 | 0.00 | 2 | 0.0 | 0 | PASS |
| 69 | 198 | 0.00 | 100 | 42.5 | 9812 | PASS |
| 70 | 69 | 0.00 | 2 | 0.0 | 0 | PASS |
| 127 | 198 | 40 | 60 | 51.2 | 11822 | PASS |
| 197 | 198 | 0.00 | 1 | 0.0 | 0 | PASS |
| 198 | 198 | 100 | 100 | 100.0 | 23100 | PASS |
| 199 | 198 | 5 | 9 | 7.3 | 1692 | PASS |
| 275 | 198 | 10 | 30 | 24.1 | 5556 | PASS |
| 365 | 198 | 1 | 100 | 2.2 | 506 | PASS |
| 441 | 443 | 0.01 | 100 | 58.1 | 1450 | PASS |
| 442 | 198 | 40 | 100 | 54.7 | 12644 | PASS |
| 443 | 442 | 17 | 23 | 19.7 | 2497 | PASS |

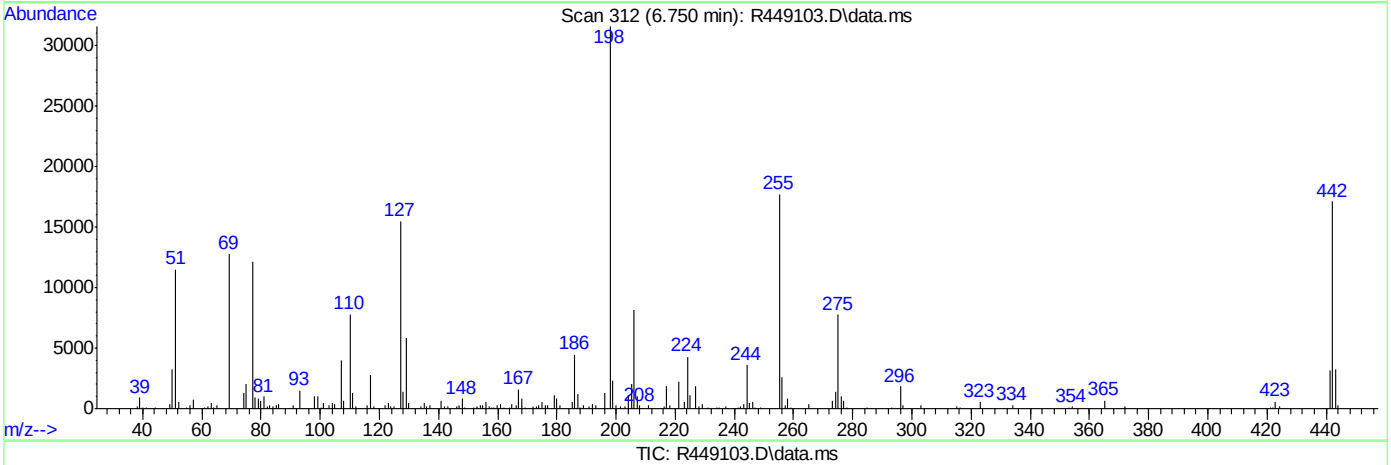
R449103.D DFTPP.M Mon May 18 15:51:35 2015

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\SR2330\
Data File : R449103.D
Acq On : 15 May 2015 2:23 pm
Operator : mayrag
Sample : dftpp
Misc : op55419,sr2330,250,,,1,1,water
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 18 15:51:37 2015
Quant Method : C:\msdchem\1\METHODS\DFTPP.M
Quant Title : Tune Evaluation
QLast Update : Mon May 18 15:51:29 2015
Response via : Initial Calibration




TIC: R449103.D\data.ms

(2) DFTPP

6.750min (0.000) 7.16

response 202064

| Signal | Exp% | Act% |
|---|---|---|
| TIC | 100 | 100 |
| 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 |

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
04/27/15 13:00

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2318\
Data File : R448792.D
Acq On : 24 Apr 2015 4:01 pm
Operator : mayrag
Sample : ic2318-1
Misc : op55419,sr2318,250,,,1,1,water
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Apr 27 09:47:15 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Mon Apr 27 09:45:29 2015
Response via : Initial Calibration

| Internal Standards | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| 1) Naphthalene-d8 | 6.907 | 136 | 124706 | 500.00 | ppb | 0.00 |
| 6) Acenaphthene-d10 | 8.469 | 164 | 67219 | 500.00 | ppb | 0.00 |
| 12) Phenanthrene-d10 | 9.770 | 188 | 96440 | 500.00 | ppb | 0.00 |
| 19) Chrysene-d12 | 12.623 | 240 | 45152 | 500.00 | ppb | 0.00 |
| 24) Perylene-d12 | 15.101 | 264 | 25870 | 500.00 | ppb | 0.00 |
| **System Monitoring Compounds** | | | | | | |
| 2) Nitrobenzene-d5 | 6.302 | 82 | 5897 | 86.04 | ppb | 0.00 |
| Spiked Amount 2000.000 | Range 41 - 129 | | Recovery = 4.30%# | | | |
| 7) 2-Fluorobiphenyl | 7.876 | 172 | 14774 | 89.35 | ppb | 0.00 |
| Spiked Amount 2000.000 | Range 41 - 118 | | Recovery = 4.47%# | | | |
| 13) 2,4,6-Tribromophenol | 9.178 | 330 | 1849 | 158.73 | ppb | 0.00 |
| Spiked Amount 4000.000 | Range 33 - 118 | | Recovery = 3.97%# | | | |
| 21) Terphenyl-d14 | 11.269 | 244 | 7122 | 87.26 | ppb | 0.00 |
| Spiked Amount 2000.000 | Range 45 - 145 | | Recovery = 4.36%# | | | |

| Target Compounds | | | | | | Qvalue |
|---|---|---|---|---|---|---|
| 3) Naphthalene | 6.929 | 128 | 22584 | 90.89 | ppb | 96 |
| 4) 2-Methylnaphthalene | 7.535 | 142 | 14716 | 87.01 | ppb | 88 |
| 5) 1-Methylnaphthalene | 7.634 | 142 | 13421 | 86.11 | ppb | 93 |
| 8) Acenaphthylene | 8.331 | 152 | 20170 | 83.81 | ppb | 95 |
| 9) Acenaphthene | 8.497 | 153 | 13575 | 87.93 | ppb | 90 |
| 10) Dibenzofuran | 8.642 | 168 | 17032 | 86.33 | ppb | 99 |
| 11) Fluorene | 8.946 | 166 | 13655 | 84.65 | ppb | 99 |
| 14) Pentachlorophenol | 9.668 | 266 | 2053 | 78.99 | ppb | 93 |
| 15) Phenanthrene | 9.790 | 178 | 17606 | 87.13 | ppb | 99 |
| 16) Anthracene | 9.831 | 178 | 8266 | 38.88 | ppb | 97 |
| 17) Carbazole | 9.981 | 167 | 6906 | 39.18 | ppb | 94 |
| 18) Fluoranthene | 10.872 | 202 | 15134 | 77.01 | ppb | 99 |
| 20) Pyrene | 11.092 | 202 | 15466 | 82.85 | ppb | 95 |
| 22) Benzo[a]anthracene | 12.596 | 228 | 4228 | 38.02 | ppb | 99 |
| 23) Chrysene | 12.656 | 228 | 4385 | 39.85 | ppb | 100 |
| 25) Benzo[b]fluoranthene | 14.446 | 252 | 2873 | 36.45 | ppb | 92 |
| 26) Benzo[k]fluoranthene | 14.490 | 252 | 3026 | 38.02 | ppb | 92 |
| 27) Benzo[a]pyrene | 15.002 | 252 | 2402 | 35.03 | ppb | 92 |
| 28) Indeno[1,2,3-cd]pyrene | 16.616 | 276 | 2223m | 38.70 | ppb | |
| 29) Dibenz[a,h]anthracene | 16.655 | 278 | 2459 | 40.57 | ppb | 86 |
| 30) Benzo[g,h,i]perylene | 16.952 | 276 | 2854 | 41.76 | ppb | 87 |

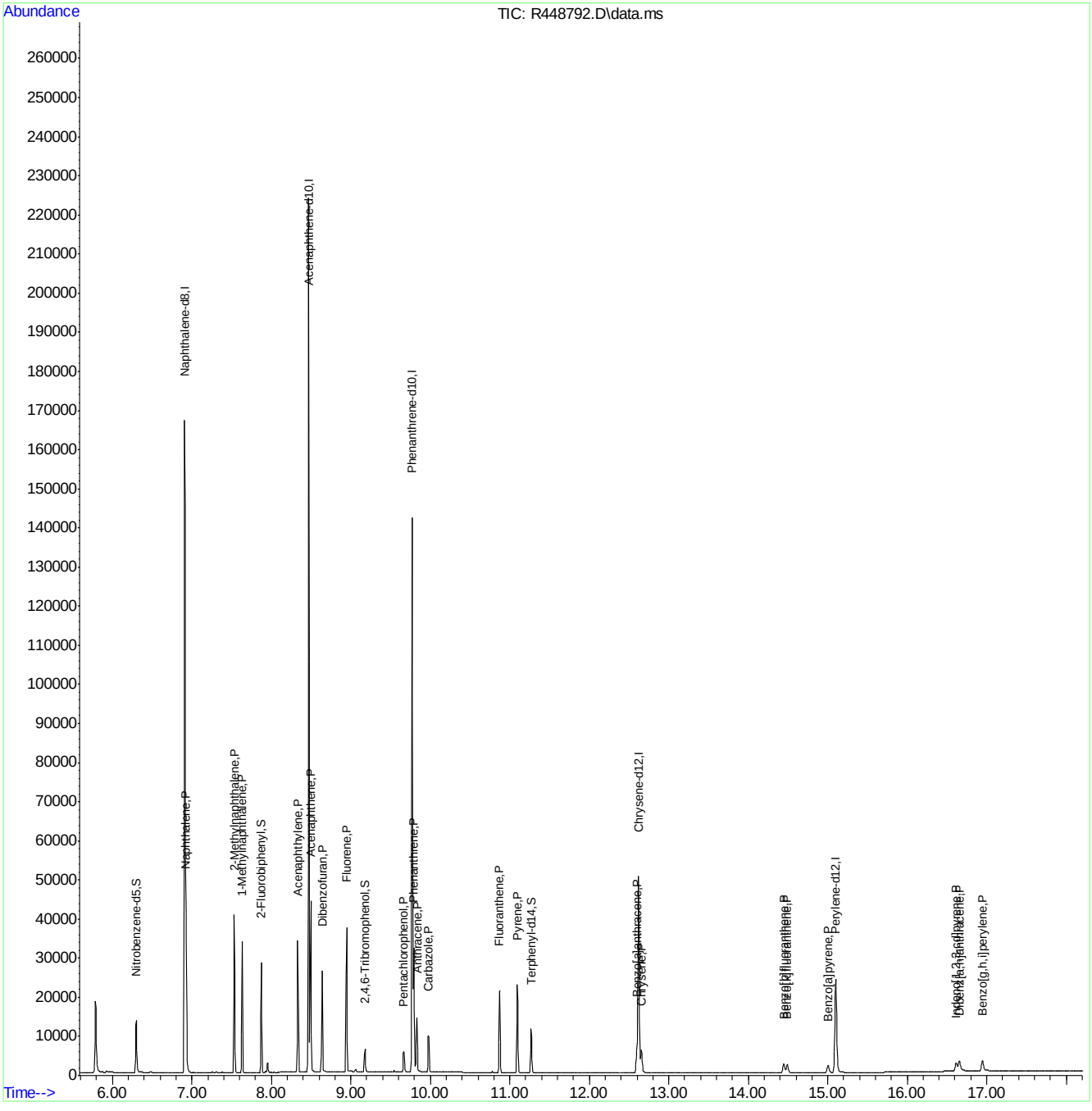
(#) = qualifier out of range (m) = manual integration (+) = signals summed

7.6.1
7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2318\
Data File : R448792.D
Acq On : 24 Apr 2015 4:01 pm
Operator : mayrag
Sample : ic2318-1
Misc : op55419,sr2318,250,,,1,1,water
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Apr 27 09:47:15 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Mon Apr 27 09:45:29 2015
Response via : Initial Calibration



# Manual Integration Approval Summary



| | | | |
|---|---|---|---|
| **Sample Number:** | SR2318-IC2318 | **Method:** | SW846 8270D BY SIM |
| **Lab FileID:** | R448792.D | **Analyst approved:** | 04/27/15 10:39 Mayra Gonzalez |
| **Injection Time:** | 04/24/15 16:01 | **Supervisor approved:** | 04/27/15 13:00 Naresh Jiawan |

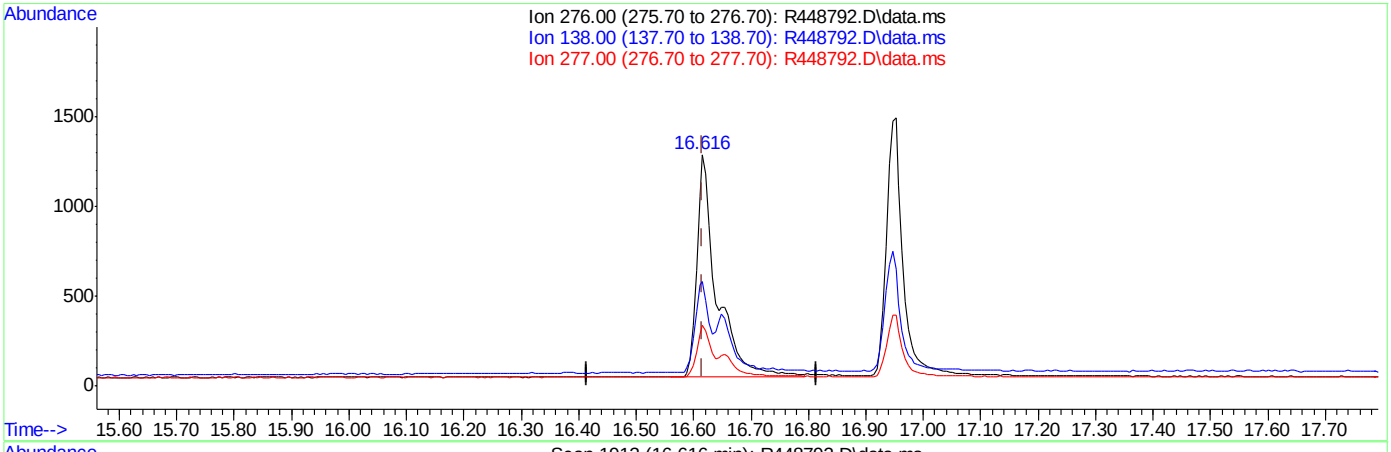
| Parameter | CAS | Sig# | R.T. (min.) | Reason |
|---|---|---|---|---|
| Indeno(1,2,3-cd)pyrene | 193-39-5 | | 16.62 | Missed peak |

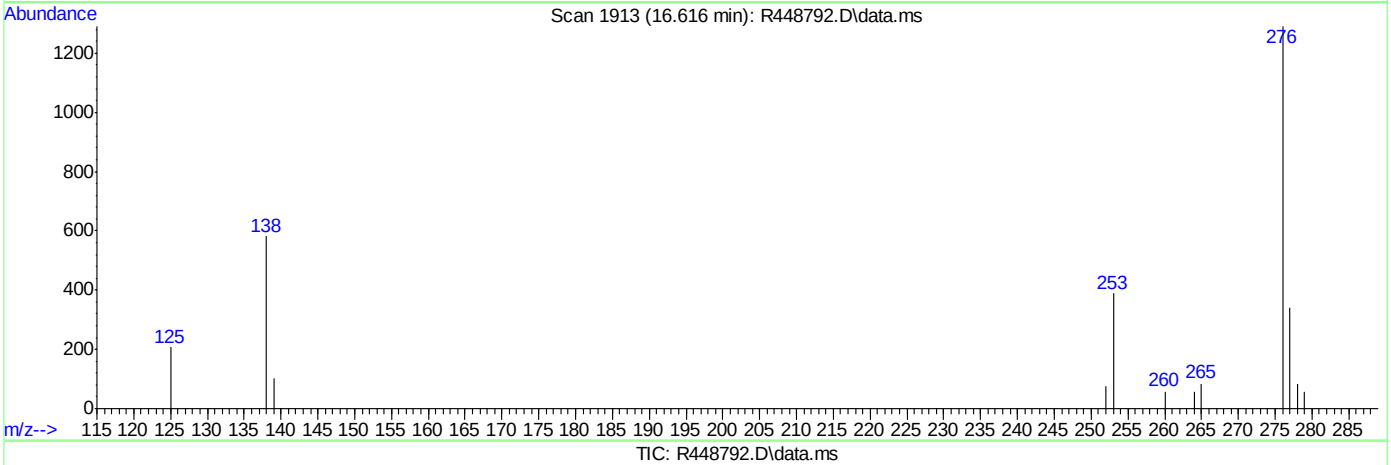
Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\SR2318\
Data File : R448792.D
Acq On    : 24 Apr 2015   4:01 pm
Operator  : mayrag
Sample    : ic2318-1
Misc      : op55419,sr2318,250,,,1,1,water
ALS Vial  : 2   Sample Multiplier: 1

Quant Time: Apr 27 09:46:16 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title  : PAH's by 8270D SIM Large Volume Inj
QLast Update : Mon Apr 27 09:45:29 2015
Response via : Initial Calibration
```






TIC: R448792.D\data.ms

(28) Indeno[1,2,3-cd]pyrene (P)

16.616min (+0.000) 51.88ppb

response 2980

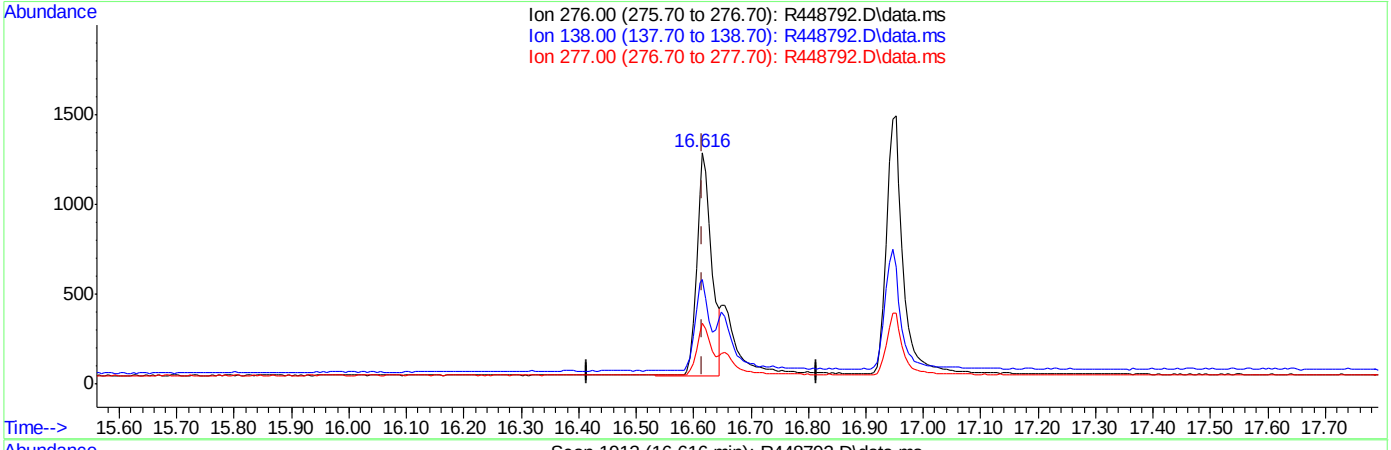
| Ion | Exp% | Act% |
|---|---|---|
| 276.00 | 100 | 100 |
| 138.00 | 21.80 | 40.37 |
| 277.00 | 23.50 | 23.40 |
| 0.00 | 0.00 | 0.00 |

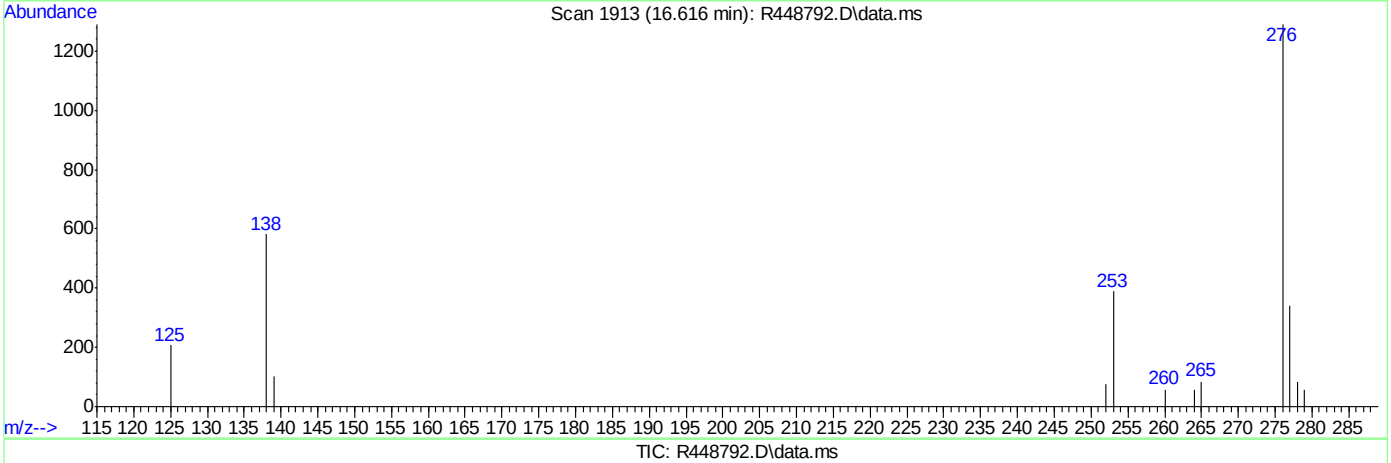
Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\SR2318\
Data File : R448792.D
Acq On : 24 Apr 2015 4:01 pm
Operator : mayrag
Sample : ic2318-1
Misc : op55419,sr2318,250,,,1,1,water
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Apr 27 09:46:16 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Mon Apr 27 09:45:29 2015
Response via : Initial Calibration






TIC: R448792.D\data.ms

(28) Indeno[1,2,3-cd]pyrene (P)

16.616min (+0.000) 38.70ppb m

response 2223

| Ion | Exp% | Act% |
|---|---|---|
| 276.00 | 100 | 100 |
| 138.00 | 21.80 | 45.12 |
| 277.00 | 23.50 | 26.43 |
| 0.00 | 0.00 | 0.00 |

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2318\
Data File : R448793.D
Acq On : 24 Apr 2015 4:28 pm
Operator : mayrag
Sample : ic2318-2
Misc : op55419,sr2318,250,,,1,1,water
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Apr 27 09:47:26 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Mon Apr 27 09:45:29 2015
Response via : Initial Calibration

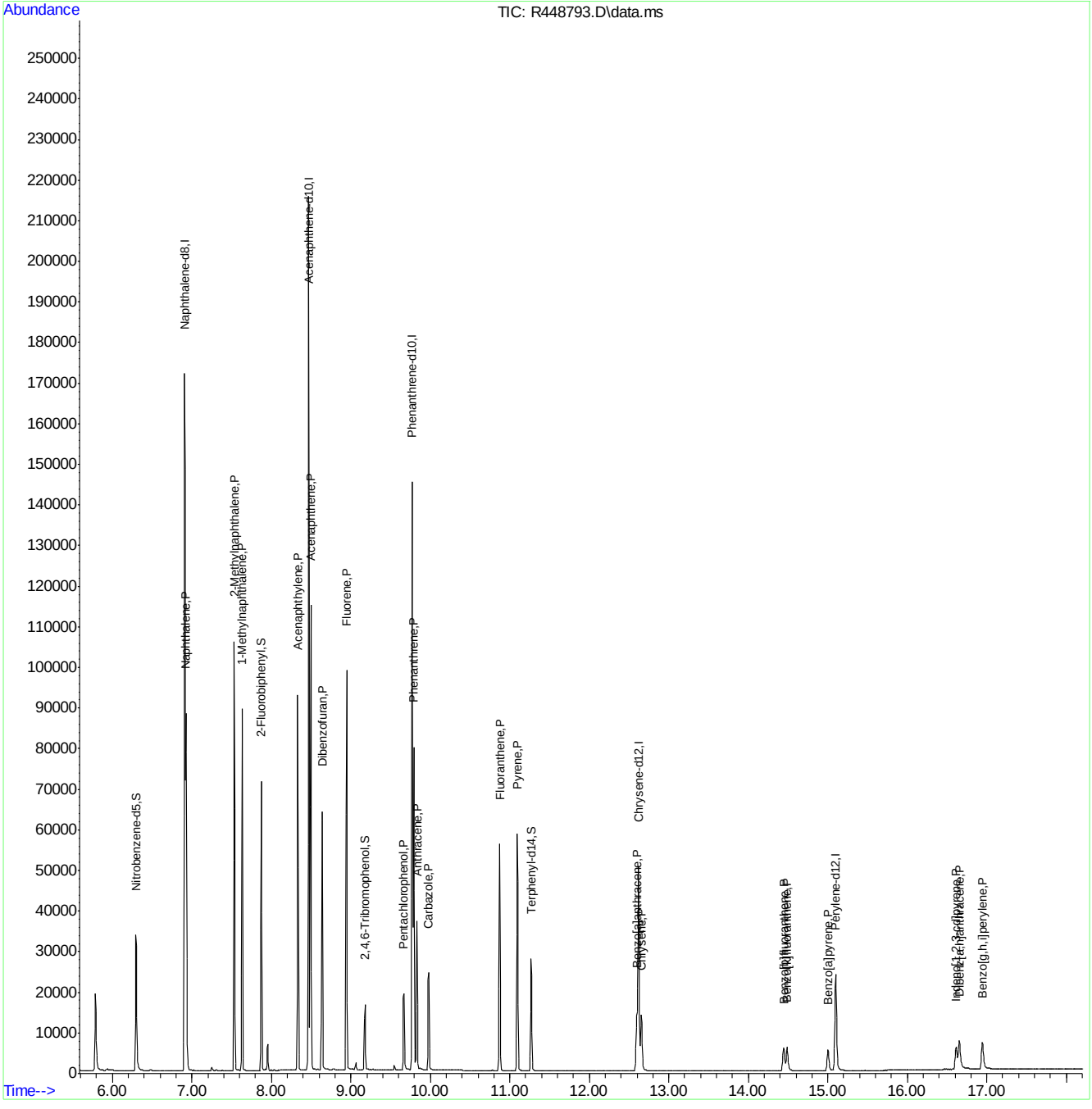
| Internal Standards | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| 1) Naphthalene-d8 | 6.907 | 136 | 126448 | 500.00 | ppb | 0.00 |
| 6) Acenaphthene-d10 | 8.468 | 164 | 67557 | 500.00 | ppb | 0.00 |
| 12) Phenanthrene-d10 | 9.769 | 188 | 97749 | 500.00 | ppb | 0.00 |
| 19) Chrysene-d12 | 12.623 | 240 | 44466 | 500.00 | ppb | 0.00 |
| 24) Perylene-d12 | 15.101 | 264 | 25002 | 500.00 | ppb | 0.00 |
| **System Monitoring Compounds** | | | | | | |
| 2) Nitrobenzene-d5 | 6.296 | 82 | 15673 | 225.54 | ppb | 0.00 |
| Spiked Amount 2000.000 | Range 41 - 129 | | Recovery = 11.28%# | | | |
| 7) 2-Fluorobiphenyl | 7.875 | 172 | 38007 | 228.72 | ppb | 0.00 |
| Spiked Amount 2000.000 | Range 41 - 118 | | Recovery = 11.44%# | | | |
| 13) 2,4,6-Tribromophenol | 9.177 | 330 | 4895 | 414.58 | ppb | 0.00 |
| Spiked Amount 4000.000 | Range 33 - 118 | | Recovery = 10.36%# | | | |
| 21) Terphenyl-d14 | 11.268 | 244 | 17974 | 223.63 | ppb | 0.00 |
| Spiked Amount 2000.000 | Range 45 - 145 | | Recovery = 11.18%# | | | |
| **Target Compounds** | | | | | | Qvalue |
| 3) Naphthalene | 6.924 | 128 | 57587 | 228.58 | ppb | 98 |
| 4) 2-Methylnaphthalene | 7.534 | 142 | 37748 | 220.11 | ppb | 88 |
| 5) 1-Methylnaphthalene | 7.633 | 142 | 34370 | 217.48 | ppb | 92 |
| 8) Acenaphthylene | 8.331 | 152 | 54097 | 223.66 | ppb | 95 |
| 9) Acenaphthene | 8.497 | 153 | 34835 | 224.50 | ppb | 90 |
| 10) Dibenzofuran | 8.642 | 168 | 43721 | 220.50 | ppb | 99 |
| 11) Fluorene | 8.946 | 166 | 34806 | 214.68 | ppb | 98 |
| 14) Pentachlorophenol | 9.667 | 266 | 6748 | 256.16 | ppb | 94 |
| 15) Phenanthrene | 9.790 | 178 | 45491 | 222.11 | ppb | 99 |
| 16) Anthracene | 9.831 | 178 | 21461 | 99.59 | ppb | 97 |
| 17) Carbazole | 9.980 | 167 | 17226 | 96.43 | ppb | 95 |
| 18) Fluoranthene | 10.872 | 202 | 39862 | 200.13 | ppb | 100 |
| 20) Pyrene | 11.092 | 202 | 40598 | 220.83 | ppb | 95 |
| 22) Benzo[a]anthracene | 12.595 | 228 | 10482 | 95.72 | ppb | 99 |
| 23) Chrysene | 12.656 | 228 | 10901 | 100.59 | ppb | 99 |
| 25) Benzo[b]fluoranthene | 14.446 | 252 | 7358 | 96.58 | ppb | 93 |
| 26) Benzo[k]fluoranthene | 14.490 | 252 | 7602 | 98.84 | ppb | 93 |
| 27) Benzo[a]pyrene | 15.002 | 252 | 6147 | 92.77 | ppb | 92 |
| 28) Indeno[1,2,3-cd]pyrene | 16.616 | 276 | 5478 | 98.68 | ppb | 87 |
| 29) Dibenz[a,h]anthracene | 16.654 | 278 | 6171 | 105.34 | ppb | 85 |
| 30) Benzo[g,h,i]perylene | 16.946 | 276 | 7067 | 107.00 | ppb | 81 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2318\
Data File : R448793.D
Acq On : 24 Apr 2015 4:28 pm
Operator : mayrag
Sample : ic2318-2
Misc : op55419,sr2318,250,,,1,1,water
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Apr 27 09:47:26 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Mon Apr 27 09:45:29 2015
Response via : Initial Calibration










ACCUTEST LABORATORIES FA24234

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2318\
Data File : R448794.D
Acq On : 24 Apr 2015 4:54 pm
Operator : mayrag
Sample : ic2318-3
Misc : op55419,sr2318,250,,,1,1,water
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Apr 27 09:49:00 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Mon Apr 27 09:45:29 2015
Response via : Initial Calibration

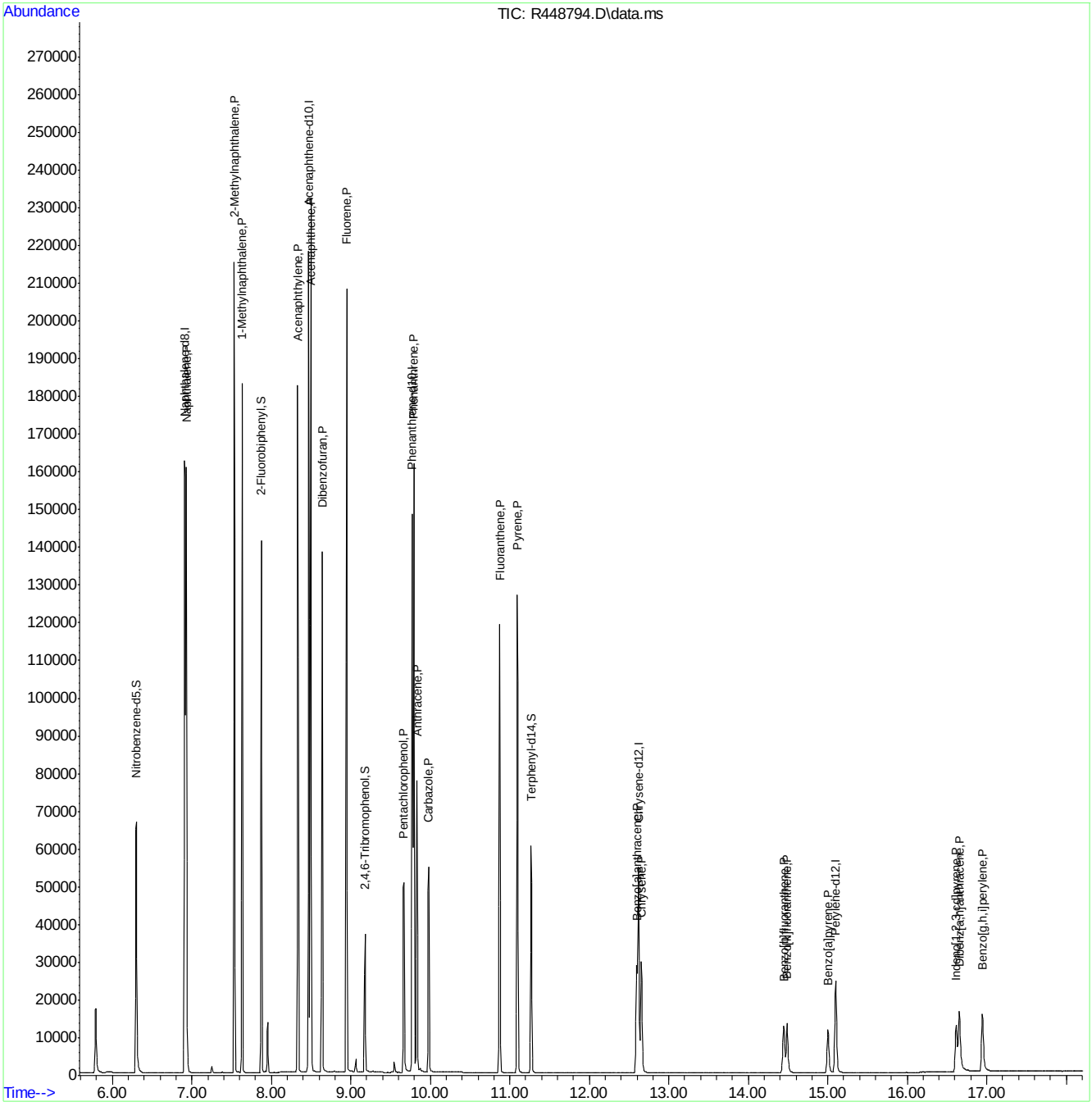
| Internal Standards | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| 1) Naphthalene-d8 | 6.913 | 136 | 126230 | 500.00 | ppb | 0.00 |
| 6) Acenaphthene-d10 | 8.468 | 164 | 68351 | 500.00 | ppb | 0.00 |
| 12) Phenanthrene-d10 | 9.770 | 188 | 100459 | 500.00 | ppb | 0.00 |
| 19) Chrysene-d12 | 12.618 | 240 | 47119 | 500.00 | ppb | 0.00 |
| 24) Perylene-d12 | 15.101 | 264 | 26255 | 500.00 | ppb | 0.00 |
| **System Monitoring Compounds** | | | | | | |
| 2) Nitrobenzene-d5 | 6.297 | 82 | 31363 | 452.10 | ppb | 0.00 |
| Spiked Amount 2000.000 | Range 41 - 129 | | Recovery = 22.61%# | | | |
| 7) 2-Fluorobiphenyl | 7.876 | 172 | 75704 | 450.28 | ppb | 0.00 |
| Spiked Amount 2000.000 | Range 41 - 118 | | Recovery = 22.51%# | | | |
| 13) 2,4,6-Tribromophenol | 9.177 | 330 | 10574 | 871.40 | ppb | 0.00 |
| Spiked Amount 4000.000 | Range 33 - 118 | | Recovery = 21.79%# | | | |
| 21) Terphenyl-d14 | 11.269 | 244 | 38649 | 453.79 | ppb | 0.00 |
| Spiked Amount 2000.000 | Range 45 - 145 | | Recovery = 22.69%# | | | |
| **Target Compounds** | | | | | | Qvalue |
| 3) Naphthalene | 6.929 | 128 | 112817 | 448.57 | ppb | 96 |
| 4) 2-Methylnaphthalene | 7.534 | 142 | 76141 | 444.75 | ppb | 89 |
| 5) 1-Methylnaphthalene | 7.633 | 142 | 69688 | 441.71 | ppb | 92 |
| 8) Acenaphthylene | 8.331 | 152 | 109044 | 445.59 | ppb | 95 |
| 9) Acenaphthene | 8.497 | 153 | 69741 | 444.23 | ppb | 91 |
| 10) Dibenzofuran | 8.642 | 168 | 88819 | 442.74 | ppb | 99 |
| 11) Fluorene | 8.946 | 166 | 71039 | 433.07 | ppb | 100 |
| 14) Pentachlorophenol | 9.668 | 266 | 17384 | 642.10 | ppb | 93 |
| 15) Phenanthrene | 9.790 | 178 | 93929 | 446.23 | ppb | 99 |
| 16) Anthracene | 9.831 | 178 | 45909 | 207.28 | ppb | 97 |
| 17) Carbazole | 9.981 | 167 | 37189 | 202.57 | ppb | 95 |
| 18) Fluoranthene | 10.872 | 202 | 85237 | 416.39 | ppb | 99 |
| 20) Pyrene | 11.092 | 202 | 87358 | 448.41 | ppb | 94 |
| 22) Benzo[a]anthracene | 12.596 | 228 | 22715 | 195.75 | ppb | 98 |
| 23) Chrysene | 12.656 | 228 | 23533 | 204.93 | ppb | 99 |
| 25) Benzo[b]fluoranthene | 14.446 | 252 | 16001 | 200.01 | ppb | 93 |
| 26) Benzo[k]fluoranthene | 14.490 | 252 | 16663 | 206.31 | ppb | 93 |
| 27) Benzo[a]pyrene | 15.002 | 252 | 13544 | 194.65 | ppb | 92 |
| 28) Indeno[1,2,3-cd]pyrene | 16.616 | 276 | 11963 | 205.22 | ppb | 87 |
| 29) Dibenz[a,h]anthracene | 16.654 | 278 | 13331 | 216.71 | ppb | 86 |
| 30) Benzo[g,h,i]perylene | 16.946 | 276 | 15248 | 219.84 | ppb | 82 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2318\
Data File : R448794.D
Acq On : 24 Apr 2015 4:54 pm
Operator : mayrag
Sample : ic2318-3
Misc : op55419,sr2318,250,,,1,1,water
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Apr 27 09:49:00 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Mon Apr 27 09:45:29 2015
Response via : Initial Calibration




SIM_LVR.M Mon Apr 27 09:49:26 2015 Page: 2

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2318\
Data File : R448795.D
Acq On : 24 Apr 2015 5:20 pm
Operator : mayrag
Sample : icc2318-4
Misc : op55419,sr2318,250,,,1,1,water
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Apr 27 09:45:16 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Mon Apr 27 09:45:13 2015
Response via : Initial Calibration

| Internal Standards | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| 1) Naphthalene-d8 | 6.907 | 136 | 126971 | 500.00 | ppb | 0.00 |
| 6) Acenaphthene-d10 | 8.468 | 164 | 69441 | 500.00 | ppb | 0.00 |
| 12) Phenanthrene-d10 | 9.770 | 188 | 105603 | 500.00 | ppb | 0.00 |
| 19) Chrysene-d12 | 12.623 | 240 | 50221 | 500.00 | ppb | 0.00 |
| 24) Perylene-d12 | 15.101 | 264 | 27137 | 500.00 | ppb | 0.00 |

System Monitoring Compounds

| | | | | | | |
|---|---|---|---|---|---|---|
| 2) Nitrobenzene-d5 | 6.297 | 82 | 76096 | 1090.53 | ppb | 0.00 |
| Spiked Amount 2000.000 | Range 41 - 129 | | Recovery = 54.53% | | | |
| 7) 2-Fluorobiphenyl | 7.876 | 172 | 179589 | 1051.42 | ppb | 0.00 |
| Spiked Amount 2000.000 | Range 41 - 118 | | Recovery = 52.57% | | | |
| 13) 2,4,6-Tribromophenol | 9.177 | 330 | 26998 | 2116.53 | ppb | 0.00 |
| Spiked Amount 4000.000 | Range 33 - 118 | | Recovery = 52.91% | | | |
| 21) Terphenyl-d14 | 11.269 | 244 | 96561 | 1063.72 | ppb | 0.00 |
| Spiked Amount 2000.000 | Range 45 - 145 | | Recovery = 53.19% | | | |

Target Compounds

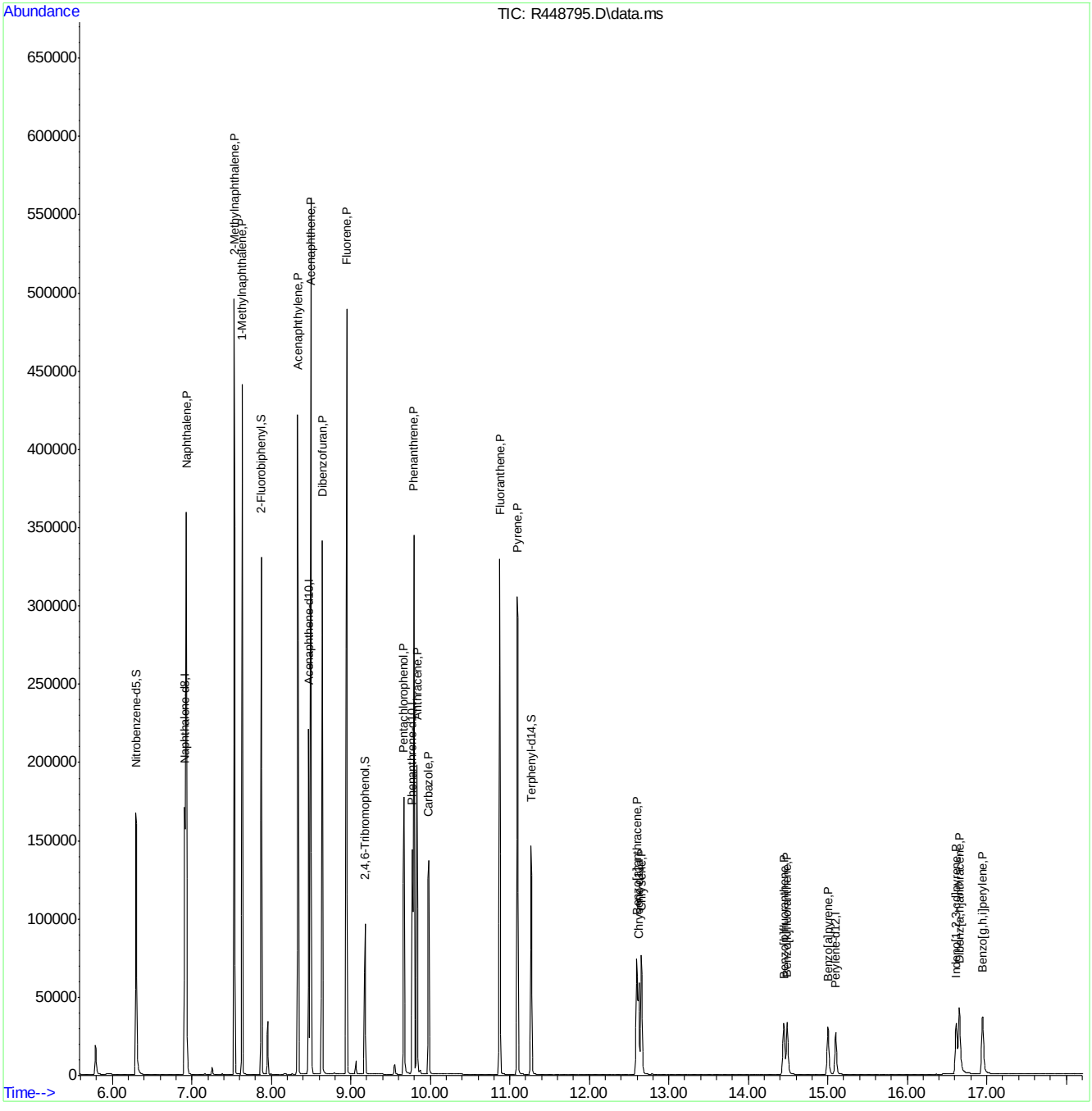
| | | | | | | Qvalue |
|---|---|---|---|---|---|---|
| 3) Naphthalene | 6.929 | 128 | 260904 | 1031.33 | ppb | 96 |
| 4) 2-Methylnaphthalene | 7.535 | 142 | 177642 | 1031.58 | ppb | 91 |
| 5) 1-Methylnaphthalene | 7.634 | 142 | 162539 | 1024.23 | ppb | 94 |
| 8) Acenaphthylene | 8.331 | 152 | 259207 | 1042.57 | ppb | 96 |
| 9) Acenaphthene | 8.497 | 153 | 163247 | 1023.52 | ppb | 92 |
| 10) Dibenzofuran | 8.642 | 168 | 211957 | 1039.96 | ppb | 99 |
| 11) Fluorene | 8.946 | 166 | 170721 | 1024.42 | ppb | 100 |
| 14) Pentachlorophenol | 9.668 | 266 | 52752 | 1853.54 | ppb | 94 |
| 15) Phenanthrene | 9.790 | 178 | 226415 | 1023.25 | ppb | 98 |
| 16) Anthracene | 9.831 | 178 | 116132 | 498.81 | ppb | 98 |
| 17) Carbazole | 9.981 | 167 | 95067 | 492.60 | ppb | 94 |
| 18) Fluoranthene | 10.872 | 202 | 215777 | 1002.74 | ppb | 98 |
| 20) Pyrene | 11.092 | 202 | 222185 | 1070.05 | ppb | 93 |
| 22) Benzo[a]anthracene | 12.596 | 228 | 58893 | 476.18 | ppb | 99 |
| 23) Chrysene | 12.656 | 228 | 59131 | 483.12 | ppb | 99 |
| 25) Benzo[b]fluoranthene | 14.446 | 252 | 40822 | 493.69 | ppb | 93 |
| 26) Benzo[k]fluoranthene | 14.490 | 252 | 42345 | 507.25 | ppb | 92 |
| 27) Benzo[a]pyrene | 15.002 | 252 | 35185 | 489.24 | ppb | 92 |
| 28) Indeno[1,2,3-cd]pyrene | 16.616 | 276 | 30548 | 507.00 | ppb | 87 |
| 29) Dibenz[a,h]anthracene | 16.654 | 278 | 33460 | 526.24 | ppb | 85 |
| 30) Benzo[g,h,i]perylene | 16.952 | 276 | 37306 | 520.38 | ppb | 85 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2318\
Data File : R448795.D
Acq On : 24 Apr 2015 5:20 pm
Operator : mayrag
Sample : icc2318-4
Misc : op55419,sr2318,250,,,1,1,water
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Apr 27 09:45:16 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Mon Apr 27 09:45:13 2015
Response via : Initial Calibration







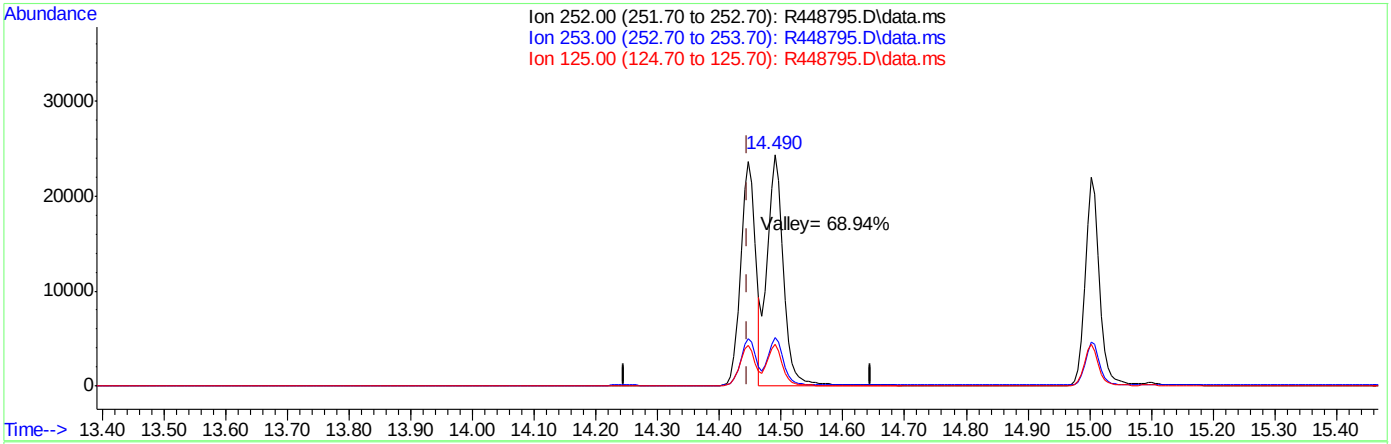


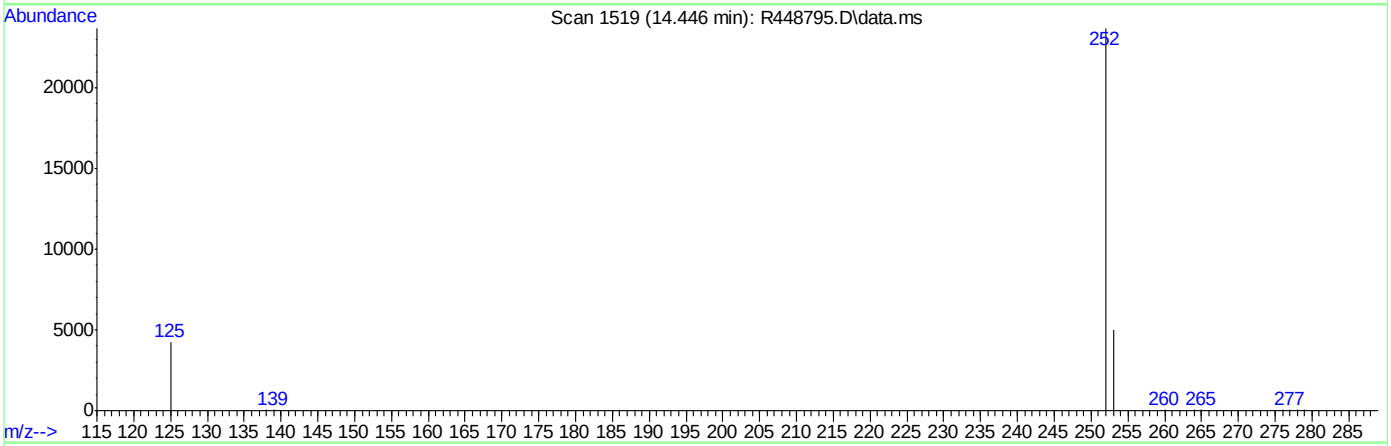

ACCUTEST LABORATORIES FA24234

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\SR2318\
Data File : R448795.D
Acq On : 24 Apr 2015 5:20 pm
Operator : mayrag
Sample : icc2318-4
Misc : op55419,sr2318,250,,,1,1,water
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Apr 27 09:45:16 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Mon Apr 27 09:45:13 2015
Response via : Initial Calibration




TIC: R448795.D\data.ms

(25) Benzo[b]fluoranthene (P)

14.446min (0.000) 493.69ppb

response 40822

| Ion | Exp% | Act% |
|---|---|---|
| 252.00 | 100 | 100 |
| 253.00 | 22.00 | 20.88 |
| 125.00 | 11.40 | 17.67 |
| 0.00 | 0.00 | 0.00 |

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2318\
Data File : R448796.D
Acq On : 24 Apr 2015 5:47 pm
Operator : mayrag
Sample : ic2318-5
Misc : op55419,sr2318,250,,,1,1,water
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Apr 27 09:49:33 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Mon Apr 27 09:45:29 2015
Response via : Initial Calibration

| Internal Standards | R.T. | QIon | Response | Conc Units | Dev(Min) |
|---|---|---|---|---|---|
| 1) Naphthalene-d8 | 6.913 | 136 | 119468 | 500.00 ppb | 0.00 |
| 6) Acenaphthene-d10 | 8.468 | 164 | 65450 | 500.00 ppb | 0.00 |
| 12) Phenanthrene-d10 | 9.777 | 188 | 104599 | 500.00 ppb | 0.00 |
| 19) Chrysene-d12 | 12.623 | 240 | 52411 | 500.00 ppb | 0.00 |
| 24) Perylene-d12 | 15.101 | 264 | 28198 | 500.00 ppb | 0.00 |

System Monitoring Compounds

| | | | | | |
|---|---|---|---|---|---|
| 2) Nitrobenzene-d5 | 6.302 | 82 | 158385 | 2412.37 ppb | 0.00 |
| Spiked Amount 2000.000 | Range 41 - 129 | | Recovery = 120.62% | | |
| 7) 2-Fluorobiphenyl | 7.876 | 172 | 353832 | 2197.85 ppb | 0.00 |
| Spiked Amount 2000.000 | Range 41 - 118 | | Recovery = 109.89% | | |
| 13) 2,4,6-Tribromophenol | 9.177 | 330 | 59180 | 4684.00 ppb | 0.00 |
| Spiked Amount 4000.000 | Range 33 - 118 | | Recovery = 117.10% | | |
| 21) Terphenyl-d14 | 11.274 | 244 | 212578 | 2243.92 ppb | 0.00 |
| Spiked Amount 2000.000 | Range 45 - 145 | | Recovery = 112.20% | | |

Target Compounds

| | | | | | Qvalue |
|---|---|---|---|---|---|
| 3) Naphthalene | 6.929 | 128 | 509447 | 2140.27 ppb | 98 |
| 4) 2-Methylnaphthalene | 7.540 | 142 | 348346 | 2149.92 ppb | 82 |
| 5) 1-Methylnaphthalene | 7.634 | 142 | 321459 | 2152.87 ppb | 97 |
| 8) Acenaphthylene | 8.338 | 152 | 517683 | 2209.17 ppb | 94 |
| 9) Acenaphthene | 8.497 | 153 | 317312 | 2110.79 ppb | 94 |
| 10) Dibenzofuran | 8.642 | 168 | 431026 | 2243.77 ppb | 88 |
| 11) Fluorene | 8.946 | 166 | 339173 | 2159.33 ppb | 95 |
| 14) Pentachlorophenol | 9.668 | 266 | 126323 | 4481.21 ppb | 93 |
| 15) Phenanthrene | 9.797 | 178 | 462174 | 2108.77 ppb | 98 |
| 16) Anthracene | 9.831 | 178 | 251452 | 1090.40 ppb | 99 |
| 17) Carbazole | 9.981 | 167 | 211272 | 1105.23 ppb | 97 |
| 18) Fluoranthene | 10.872 | 202 | 454495 | 2132.37 ppb | 96 |
| 20) Pyrene | 11.098 | 202 | 469555 | 2166.89 ppb | 94 |
| 22) Benzo[a]anthracene | 12.596 | 228 | 140126 | 1085.65 ppb | 99 |
| 23) Chrysene | 12.662 | 228 | 137609 | 1077.33 ppb | 99 |
| 25) Benzo[b]fluoranthene | 14.451 | 252 | 97933 | 1139.81 ppb | 93 |
| 26) Benzo[k]fluoranthene | 14.495 | 252 | 97357 | 1122.36 ppb | 93 |
| 27) Benzo[a]pyrene | 15.008 | 252 | 84357 | 1128.82 ppb | 93 |
| 28) Indeno[1,2,3-cd]pyrene | 16.621 | 276 | 74235 | 1185.70 ppb | 90 |
| 29) Dibenz[a,h]anthracene | 16.660 | 278 | 77733 | 1176.54 ppb | 89 |
| 30) Benzo[g,h,i]perylene | 16.957 | 276 | 86493 | 1161.10 ppb | 88 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

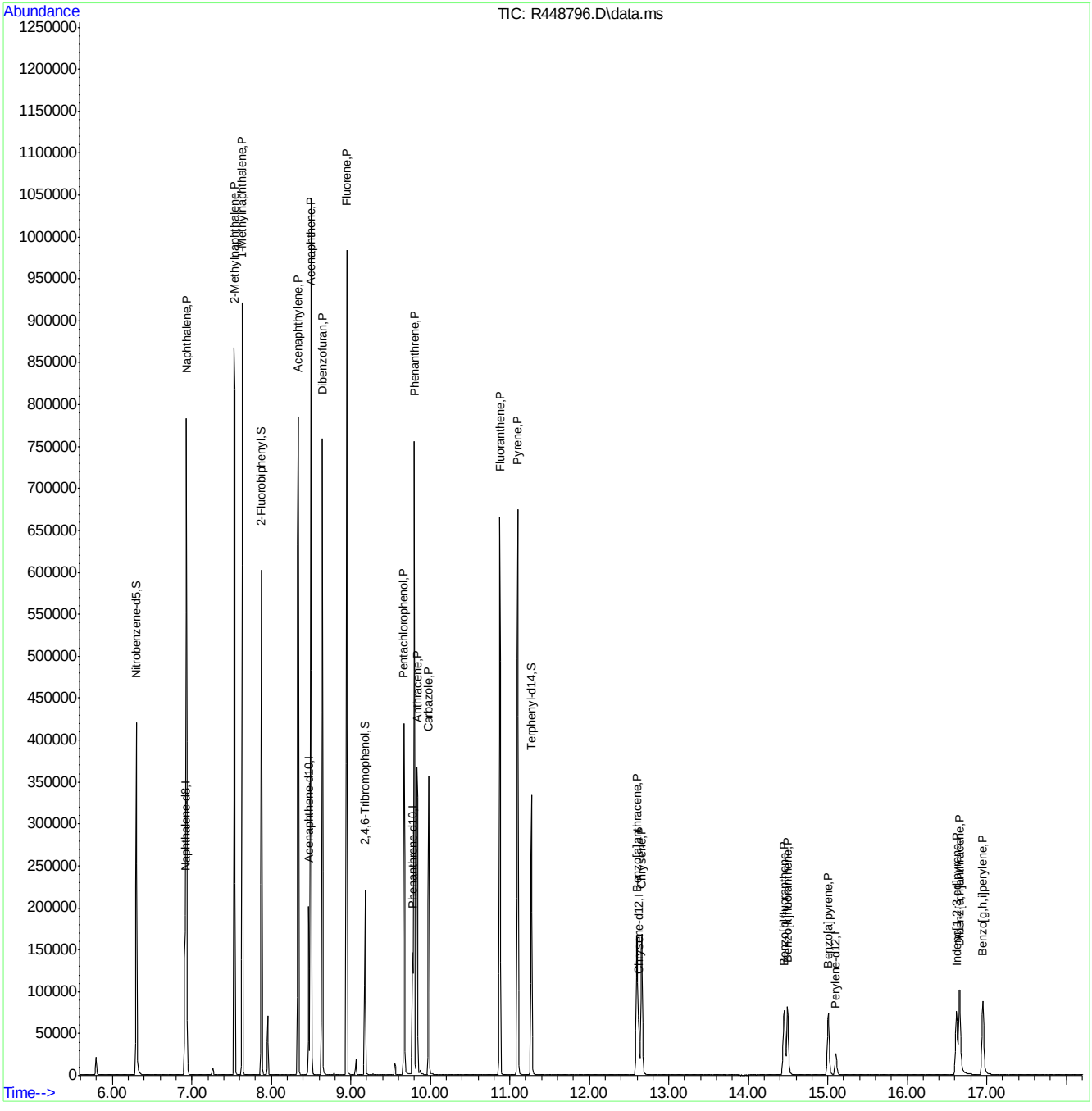


ACCUTEST LABORATORIES FA24234

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2318\
Data File : R448796.D
Acq On : 24 Apr 2015 5:47 pm
Operator : mayrag
Sample : ic2318-5
Misc : op55419,sr2318,250,,,1,1,water
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Apr 27 09:49:33 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Mon Apr 27 09:45:29 2015
Response via : Initial Calibration










ACCUTEST LABORATORIES FA24234

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2318\
Data File : R448797.D
Acq On : 24 Apr 2015 6:13 pm
Operator : mayrag
Sample : ic2318-6
Misc : op55419,sr2318,250,,,1,1,water
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Apr 27 09:50:58 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Mon Apr 27 09:45:29 2015
Response via : Initial Calibration

| Internal Standards | R.T. | QIon | Response | Conc Units | Dev(Min) |
|---|---|---|---|---|---|
| 1) Naphthalene-d8 | 6.913 | 136 | 123817 | 500.00 ppb | 0.00 |
| 6) Acenaphthene-d10 | 8.468 | 164 | 68311 | 500.00 ppb | 0.00 |
| 12) Phenanthrene-d10 | 9.777 | 188 | 110362 | 500.00 ppb | 0.00 |
| 19) Chrysene-d12 | 12.629 | 240 | 59243 | 500.00 ppb | 0.00 |
| 24) Perylene-d12 | 15.107 | 264 | 30777 | 500.00 ppb | 0.00 |

System Monitoring Compounds

| | | | | | |
|---|---|---|---|---|---|
| 2) Nitrobenzene-d5 | 6.302 | 82 | 360179 | 5293.21 ppb | 0.00 |
| Spiked Amount 2000.000 | Range 41 - 129 | | Recovery = 264.66%# | | |
| 7) 2-Fluorobiphenyl | 7.881 | 172 | 753067 | 4481.82 ppb | 0.00 |
| Spiked Amount 2000.000 | Range 41 - 118 | | Recovery = 224.09%# | | |
| 13) 2,4,6-Tribromophenol | 9.185 | 330 | 149077 | 11183.05 ppb | 0.00 |
| Spiked Amount 4000.000 | Range 33 - 118 | | Recovery = 279.58%# | | |
| 21) Terphenyl-d14 | 11.280 | 244 | 489873 | 4574.64 ppb | 0.01 |
| Spiked Amount 2000.000 | Range 45 - 145 | | Recovery = 228.73%# | | |

Target Compounds

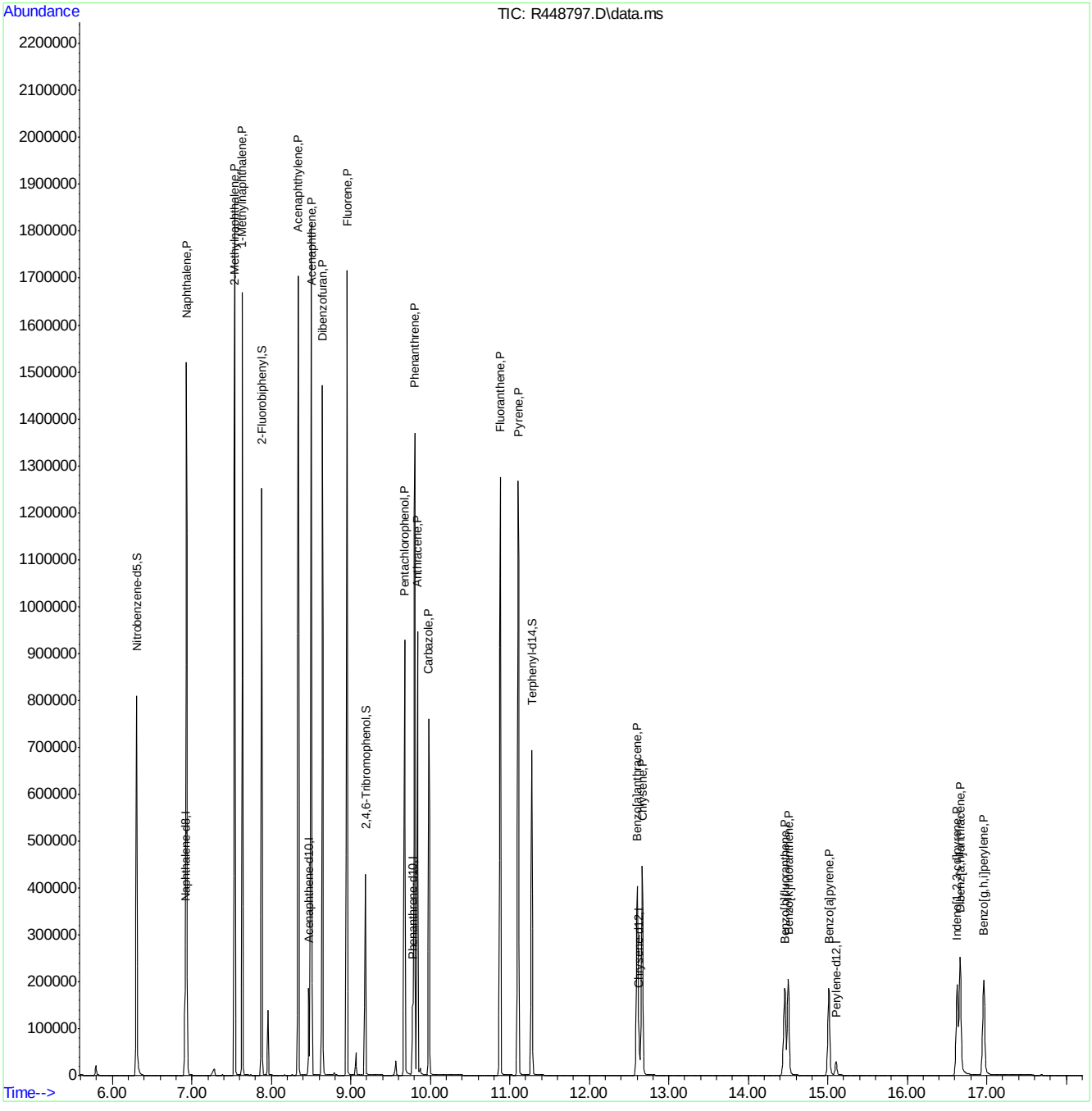
| | | | | | Qvalue |
|---|---|---|---|---|---|
| 3) Naphthalene | 6.929 | 128 | 1040272 | 4216.85 ppb | 96 |
| 4) 2-Methylnaphthalene | 7.540 | 142 | 724706 | 4315.63 ppb | 93 |
| 5) 1-Methylnaphthalene | 7.639 | 142 | 673760 | 4353.81 ppb | 95 |
| 8) Acenaphthylene | 8.338 | 152 | 1059759 | 4333.04 ppb | 98 |
| 9) Acenaphthene | 8.505 | 153 | 665527 | 4241.74 ppb | 91 |
| 10) Dibenzofuran | 8.642 | 168 | 907023 | 4523.89 ppb | 63 |
| 11) Fluorene | 8.953 | 166 | 715739 | 4365.88 ppb | 99 |
| 14) Pentachlorophenol | 9.674 | 266 | 312093 | 10493.12 ppb | 92 |
| 15) Phenanthrene | 9.804 | 178 | 976325 | 4222.07 ppb | 96 |
| 16) Anthracene | 9.838 | 178 | 575141 | 2363.81 ppb | 98 |
| 17) Carbazole | 9.981 | 167 | 498192 | 2470.11 ppb | 96 |
| 18) Fluoranthene | 10.878 | 202 | 996786 | 4432.45 ppb | 93 |
| 20) Pyrene | 11.103 | 202 | 1024015 | 4180.63 ppb | 91 |
| 22) Benzo[a]anthracene | 12.601 | 228 | 366750 | 2513.78 ppb | 97 |
| 23) Chrysene | 12.667 | 228 | 350733 | 2429.21 ppb | 98 |
| 25) Benzo[b]fluoranthene | 14.457 | 252 | 253686 | 2705.16 ppb | 92 |
| 26) Benzo[k]fluoranthene | 14.506 | 252 | 253584 | 2678.43 ppb | 93 |
| 27) Benzo[a]pyrene | 15.013 | 252 | 222428 | 2727.01 ppb | 92 |
| 28) Indeno[1,2,3-cd]pyrene | 16.627 | 276 | 189926 | 2779.34 ppb | 86 |
| 29) Dibenz[a,h]anthracene | 16.665 | 278 | 194158 | 2692.45 ppb | 86 |
| 30) Benzo[g,h,i]perylene | 16.968 | 276 | 213315 | 2623.63 ppb | 86 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2318\
Data File : R448797.D
Acq On : 24 Apr 2015 6:13 pm
Operator : mayrag
Sample : ic2318-6
Misc : op55419,sr2318,250,,,1,1,water
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Apr 27 09:50:58 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Mon Apr 27 09:45:29 2015
Response via : Initial Calibration



R448798.D

Manual Integrations APPROVED (compounds with "m" flag)

Naresh Jiawan 04/27/15 13:00

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2318\
Data File : R448798.D
Acq On : 24 Apr 2015 6:39 pm
Operator : mayrag
Sample : ic2318-7
Misc : op55419,sr2318,250,,,1,1,water
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Apr 27 09:51:55 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Mon Apr 27 09:45:29 2015
Response via : Initial Calibration

| Internal Standards | R.T. | QIon | Response | Conc Units | Dev(Min) |
|---|---|---|---|---|---|
| 1) Naphthalene-d8 | 6.913 | 136 | 123104 | 500.00 ppb | 0.00 |
| 6) Acenaphthene-d10 | 8.476 | 164 | 67515 | 500.00 ppb | 0.00 |
| 12) Phenanthrene-d10 | 9.783 | 188 | 110314 | 500.00 ppb | 0.01 |
| 19) Chrysene-d12 | 12.634 | 240 | 62395 | 500.00 ppb | 0.01 |
| 24) Perylene-d12 | 15.107 | 264 | 32639 | 500.00 ppb | 0.00 |

| System Monitoring Compounds | | | | | |
|---|---|---|---|---|---|
| 2) Nitrobenzene-d5 | 6.307 | 82 | 642214 | 9492.67 ppb | 0.01 |
| Spiked Amount 2000.000 | Range 41 - 129 | | Recovery = 474.63%# | | |
| 7) 2-Fluorobiphenyl | 7.886 | 172 | 1231650 | 7416.49 ppb | 0.01 |
| Spiked Amount 2000.000 | Range 41 - 118 | | Recovery = 370.82%# | | |
| 13) 2,4,6-Tribromophenol | 9.185 | 330 | 288799 | 21673.77 ppb | 0.00 |
| Spiked Amount 4000.000 | Range 33 - 118 | | Recovery = 541.84%# | | |
| 21) Terphenyl-d14 | 11.285 | 244 | 831448 | 7372.18 ppb | 0.02 |
| Spiked Amount 2000.000 | Range 45 - 145 | | Recovery = 368.61%# | | |

| Target Compounds | | | | | Qvalue |
|---|---|---|---|---|---|
| 3) Naphthalene | 6.935 | 128 | 1651462 | 6733.14 ppb | 93 |
| 4) 2-Methylnaphthalene | 7.545 | 142 | 1174094 | 7032.23 ppb | 94 |
| 5) 1-Methylnaphthalene | 7.639 | 142 | 1097473 | 7132.89 ppb | 91 |
| 8) Acenaphthylene | 8.345 | 152 | 1699356 | 7030.07 ppb | 96 |
| 9) Acenaphthene | 8.505 | 153 | 1095194 | 7062.52 ppb | 92 |
| 10) Dibenzofuran | 8.649 | 168 | 1497788 | 7558.48 ppb | 68 |
| 11) Fluorene | 8.953 | 166 | 1176297 | 7259.79 ppb | 93 |
| 14) Pentachlorophenol | 9.688 | 266 | 572586 | 19259.73 ppb | 91 |
| 15) Phenanthrene | 9.810 | 178 | 1568880 | 6787.50 ppb | 93 |
| 16) Anthracene | 9.844 | 178 | 969834 | 3987.72 ppb | 95 |
| 17) Carbazole | 9.987 | 167 | 879910 | 4364.63 ppb | 95 |
| 18) Fluoranthene | 10.888 | 202 | 1654531 | 7360.48 ppb | 93 |
| 20) Pyrene | 11.114 | 202 | 1715479 | 6649.80 ppb | 91 |
| 22) Benzo[a]anthracene | 12.612 | 228 | 711817 | 4632.47 ppb | 96 |
| 23) Chrysene | 12.678 | 228 | 675428 | 4441.76 ppb | 97 |
| 25) Benzo[b]fluoranthene | 14.468 | 252 | 507559 | 5103.54 ppb | 93 |
| 26) Benzo[k]fluoranthene | 14.523 | 252 | 491563m | 4895.83 ppb | |
| 27) Benzo[a]pyrene | 15.024 | 252 | 440958 | 5097.82 ppb | 92 |
| 28) Indeno[1,2,3-cd]pyrene | 16.638 | 276 | 365832 | 5048.10 ppb | 85 |
| 29) Dibenz[a,h]anthracene | 16.676 | 278 | 359844 | 4705.39 ppb | 86 |
| 30) Benzo[g,h,i]perylene | 16.979 | 276 | 396338 | 4596.60 ppb | 81 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

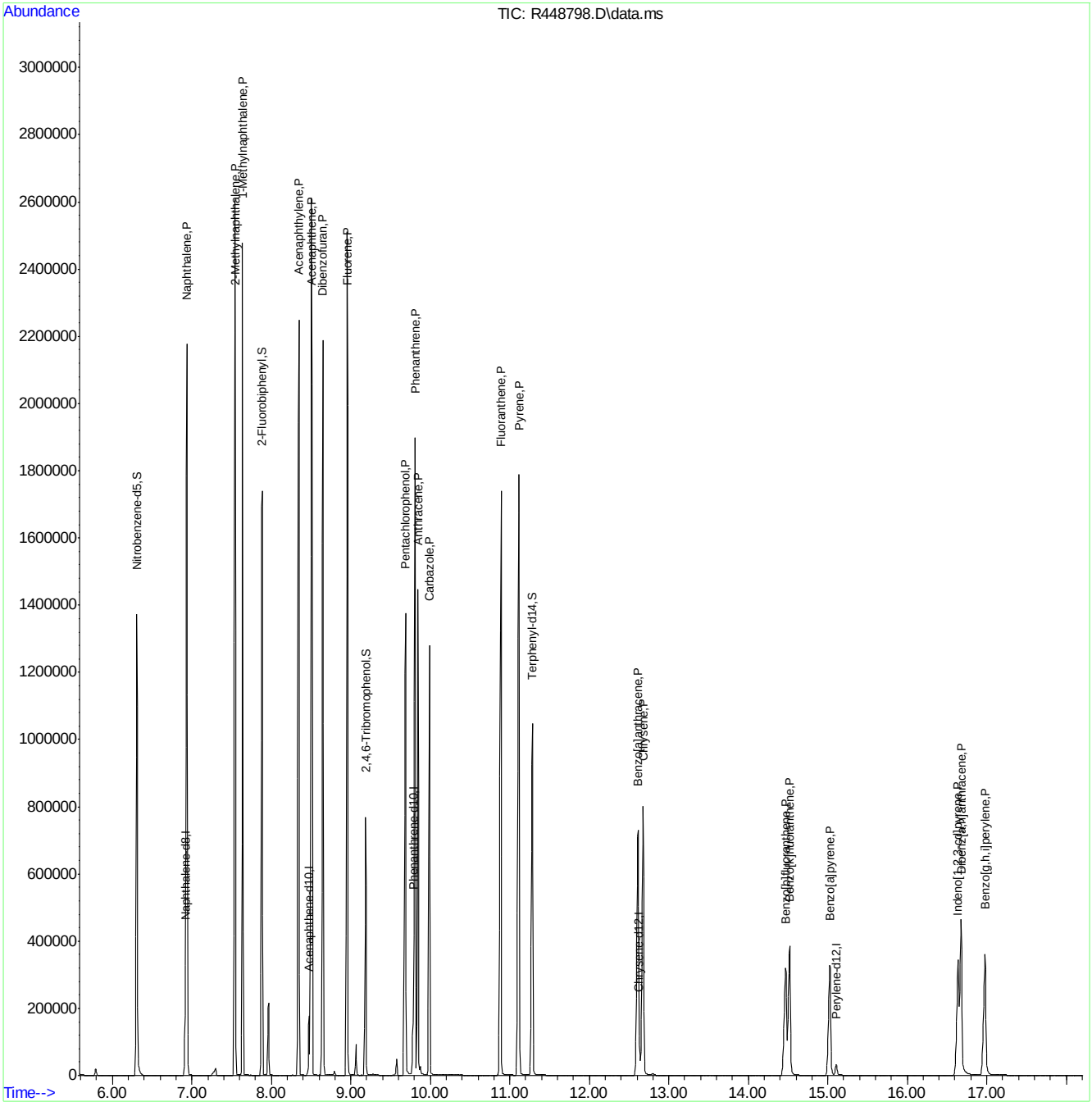
7.6.7

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2318\
Data File : R448798.D
Acq On : 24 Apr 2015 6:39 pm
Operator : mayrag
Sample : ic2318-7
Misc : op55419,sr2318,250,,,1,1,water
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Apr 27 09:51:55 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Mon Apr 27 09:45:29 2015
Response via : Initial Calibration




SIM_LVR.M Mon Apr 27 09:52:44 2015 Page: 2

# Manual Integration Approval Summary



| | | | |
|---|---|---|---|
| **Sample Number:** | SR2318-IC2318 | **Method:** | SW846 8270D BY SIM |
| **Lab FileID:** | R448798.D | **Analyst approved:** | 04/27/15 10:39 Mayra Gonzalez |
| **Injection Time:** | 04/24/15 18:39 | **Supervisor approved:** | 04/27/15 13:00 Naresh Jiawan |

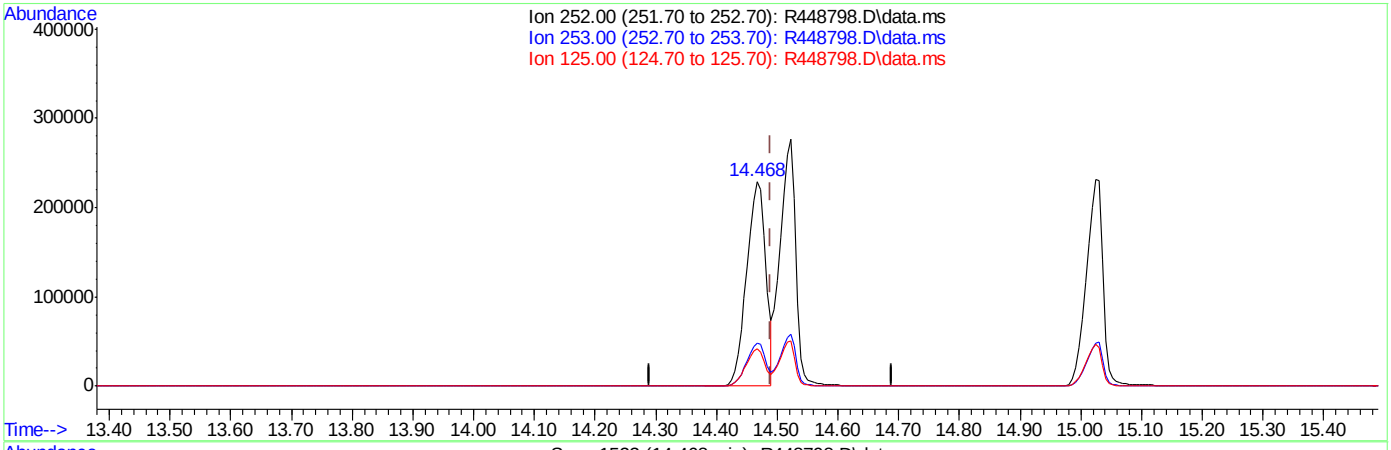
| Parameter | CAS | Sig# | R.T. (min.) | Reason |
|---|---|---|---|---|
| Benzo(k)fluoranthene | 207-08-9 | | 14.52 | Missed peak |

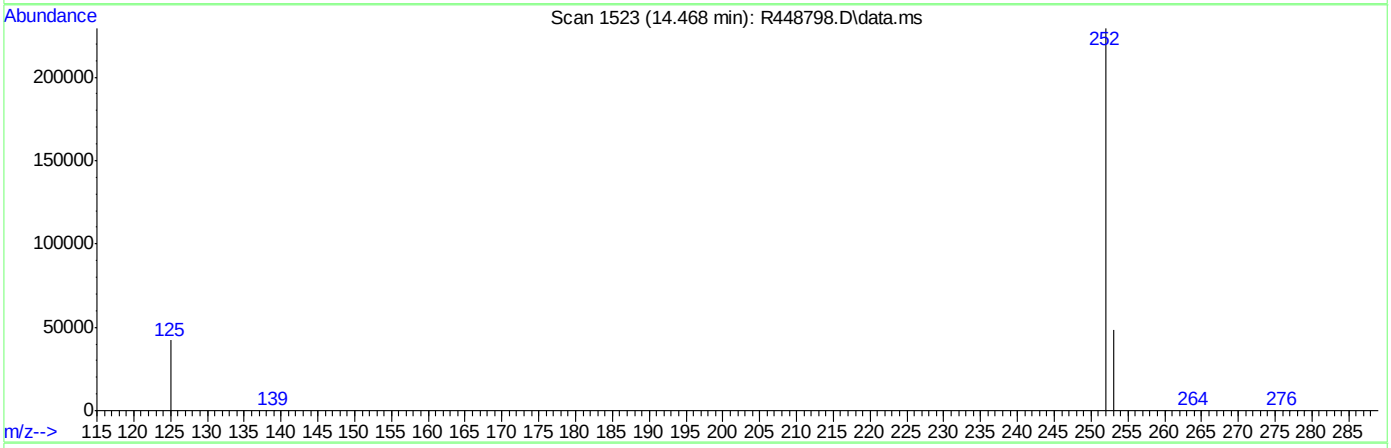
Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\SR2318\
Data File : R448798.D
Acq On : 24 Apr 2015 6:39 pm
Operator : mayrag
Sample : ic2318-7
Misc : op55419,sr2318,250,,,1,1,water
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Apr 27 09:51:42 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Mon Apr 27 09:45:29 2015
Response via : Initial Calibration






TIC: R448798.D\data.ms

(26) Benzo[k]fluoranthene (P)

14.468min (-0.022) 5055.15ppb

response 507559

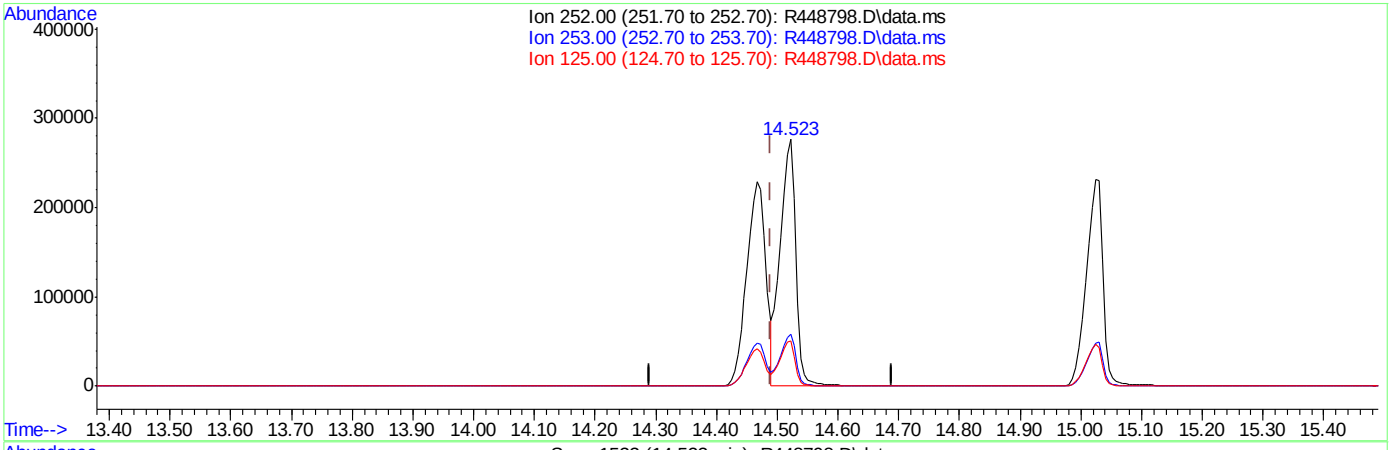
| Ion | Exp% | Act% |
|---|---|---|
| 252.00 | 100 | 100 |
| 253.00 | 21.90 | 21.17 |
| 125.00 | 11.10 | 18.48 |
| 0.00 | 0.00 | 0.00 |

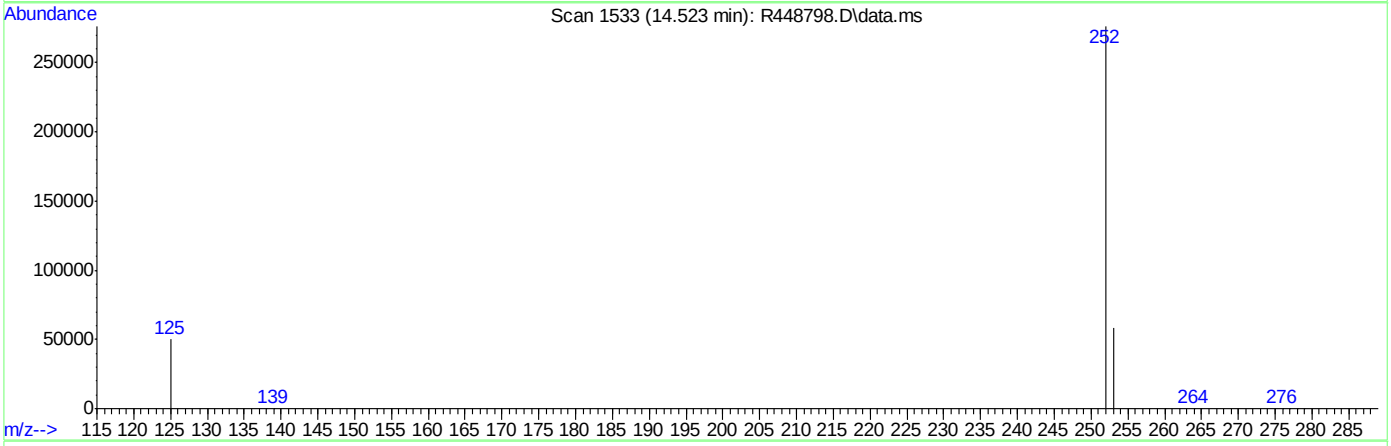
Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\SR2318\
Data File : R448798.D
Acq On : 24 Apr 2015 6:39 pm
Operator : mayrag
Sample : ic2318-7
Misc : op55419,sr2318,250,,,1,1,water
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Apr 27 09:51:42 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Mon Apr 27 09:45:29 2015
Response via : Initial Calibration






TIC: R448798.D\data.ms

(26) Benzo[k]fluoranthene (P)

14.523min (+0.033) 4895.83ppb m

response 491563

| Ion | Exp% | Act% |
|---|---|---|
| 252.00 | 100 | 100 |
| 253.00 | 21.90 | 21.19 |
| 125.00 | 11.10 | 18.19 |
| 0.00 | 0.00 | 0.00 |

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2318\
Data File : R448799.D
Acq On : 24 Apr 2015 7:06 pm
Operator : mayrag
Sample : icv2318-4
Misc : op55419,sr2318,250,,,1,1,water
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Apr 27 09:54:50 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Mon Apr 27 09:54:14 2015
Response via : Initial Calibration

| Internal Standards | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| 1) Naphthalene-d8 | 6.913 | 136 | 123257 | 500.00 | ppb | 0.00 |
| 6) Acenaphthene-d10 | 8.468 | 164 | 68250 | 500.00 | ppb | 0.00 |
| 12) Phenanthrene-d10 | 9.770 | 188 | 104413 | 500.00 | ppb | 0.00 |
| 19) Chrysene-d12 | 12.623 | 240 | 48209 | 500.00 | ppb | 0.00 |
| 24) Perylene-d12 | 15.101 | 264 | 26175 | 500.00 | ppb | 0.00 |

System Monitoring Compounds

| | | | | | | |
|---|---|---|---|---|---|---|
| 2) Nitrobenzene-d5 | 0.000 | 82 | 0 | 0.00 | ppb | |
| Spiked Amount 2000.000 | Range 41 - 129 | | Recovery | = | 0.00%# | |
| 7) 2-Fluorobiphenyl | 0.000 | 172 | 0 | 0.00 | ppb | |
| Spiked Amount 2000.000 | Range 41 - 118 | | Recovery | = | 0.00%# | |
| 13) 2,4,6-Tribromophenol | 0.000 | 330 | 0 | 0.00 | ppb | |
| Spiked Amount 4000.000 | Range 33 - 118 | | Recovery | = | 0.00%# | |
| 21) Terphenyl-d14 | 0.000 | 244 | 0 | 0.00 | ppb | |
| Spiked Amount 2000.000 | Range 45 - 145 | | Recovery | = | 0.00%# | |

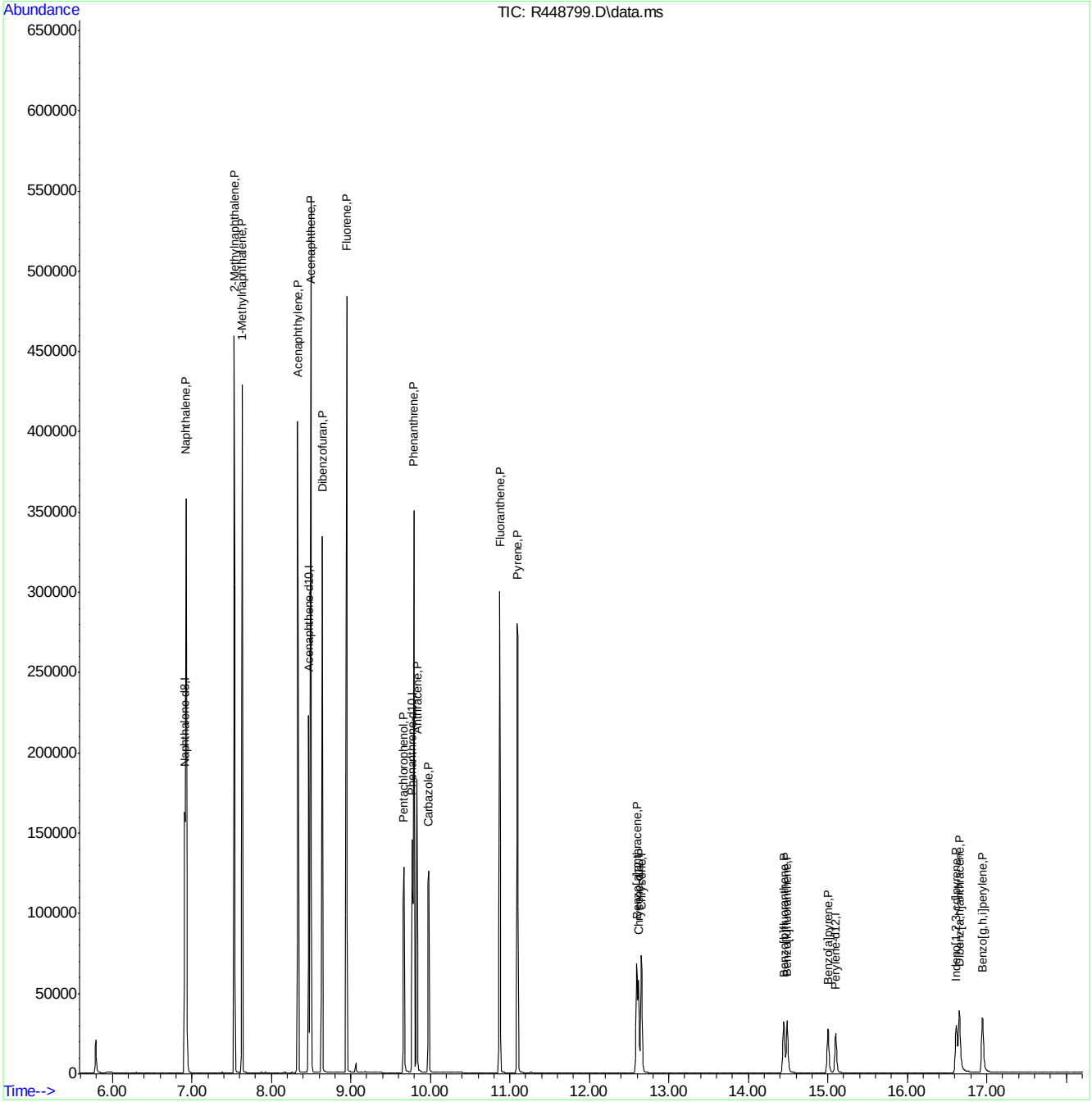
| Target Compounds | | | | | | Qvalue |
|---|---|---|---|---|---|---|
| 3) Naphthalene | 6.924 | 128 | 257567 | 1025.42 | ppb | 99 |
| 4) 2-Methylnaphthalene | 7.534 | 142 | 166904 | 967.01 | ppb | 90 |
| 5) 1-Methylnaphthalene | 7.633 | 142 | 165307 | 1080.36 | ppb | 94 |
| 8) Acenaphthylene | 8.331 | 152 | 249698 | 976.77 | ppb | 96 |
| 9) Acenaphthene | 8.497 | 153 | 162499 | 1030.99 | ppb | 92 |
| 10) Dibenzofuran | 8.642 | 168 | 208197 | 1023.13 | ppb | 98 |
| 11) Fluorene | 8.946 | 166 | 168799 | 1042.87 | ppb | 100 |
| 14) Pentachlorophenol | 9.668 | 266 | 40591 | 2664.09 | ppb | 94 |
| 15) Phenanthrene | 9.790 | 178 | 219360 | 985.95 | ppb | 98 |
| 16) Anthracene | 9.831 | 178 | 105045 | 467.33 | ppb | 97 |
| 17) Carbazole | 9.981 | 167 | 88352 | 469.18 | ppb | 94 |
| 18) Fluoranthene | 10.872 | 202 | 202787 | 996.43 | ppb | 98 |
| 20) Pyrene | 11.092 | 202 | 207618 | 1014.63 | ppb | 93 |
| 22) Benzo[a]anthracene | 12.596 | 228 | 54210 | 466.16 | ppb | 99 |
| 23) Chrysene | 12.656 | 228 | 57877 | 497.56 | ppb | 99 |
| 25) Benzo[b]fluoranthene | 14.446 | 252 | 39009 | 481.74 | ppb | 93 |
| 26) Benzo[k]fluoranthene | 14.490 | 252 | 40875 | 496.44 | ppb | 93 |
| 27) Benzo[a]pyrene | 15.002 | 252 | 32165 | 464.05 | ppb | 92 |
| 28) Indeno[1,2,3-cd]pyrene | 16.621 | 276 | 28619 | 472.11 | ppb | 91 |
| 29) Dibenz[a,h]anthracene | 16.654 | 278 | 31093 | 479.70 | ppb | 85 |
| 30) Benzo[g,h,i]perylene | 16.952 | 276 | 35480 | 486.43 | ppb | 85 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2318\
Data File : R448799.D
Acq On : 24 Apr 2015 7:06 pm
Operator : mayrag
Sample : icv2318-4
Misc : op55419,sr2318,250,,,1,1,water
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Apr 27 09:54:50 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Mon Apr 27 09:54:14 2015
Response via : Initial Calibration










ACCUTEST LABORATORIES FA24234

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2329\
Data File : R449043.D
Acq On : 13 May 2015 9:00 pm
Operator : mayrag
Sample : cc2318-5
Misc : op55419,sr2329,250,,,1,1,water
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 14 09:02:25 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Tue May 12 16:38:40 2015
Response via : Initial Calibration

| Internal Standards | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| 1) Naphthalene-d8 | 6.847 | 136 | 159212 | 500.00 | ppb | 0.01 |
| 6) Acenaphthene-d10 | 8.403 | 164 | 90147 | 500.00 | ppb | 0.00 |
| 12) Phenanthrene-d10 | 9.708 | 188 | 148403 | 500.00 | ppb | 0.01 |
| 19) Chrysene-d12 | 12.518 | 240 | 86438 | 500.00 | ppb | 0.02 |
| 24) Perylene-d12 | 14.986 | 264 | 49676 | 500.00 | ppb | 0.02 |

System Monitoring Compounds

| | | | | | | |
|---|---|---|---|---|---|---|
| 2) Nitrobenzene-d5 | 6.241 | 82 | 184631 | 1933.84 | ppb | 0.01 |
| Spiked Amount 2000.000 | Range 41 - 129 | | Recovery = 96.69% | | | |
| 7) 2-Fluorobiphenyl | 7.815 | 172 | 414228 | 1822.64 | ppb | 0.00 |
| Spiked Amount 2000.000 | Range 41 - 118 | | Recovery = 91.13% | | | |
| 13) 2,4,6-Tribromophenol | 9.120 | 330 | 69881 | 3614.88 | ppb | 0.01 |
| Spiked Amount 4000.000 | Range 33 - 118 | | Recovery = 90.37% | | | |
| 21) Terphenyl-d14 | 11.191 | 244 | 288892 | 1802.35 | ppb | 0.01 |
| Spiked Amount 2000.000 | Range 45 - 145 | | Recovery = 90.12% | | | |

Target Compounds

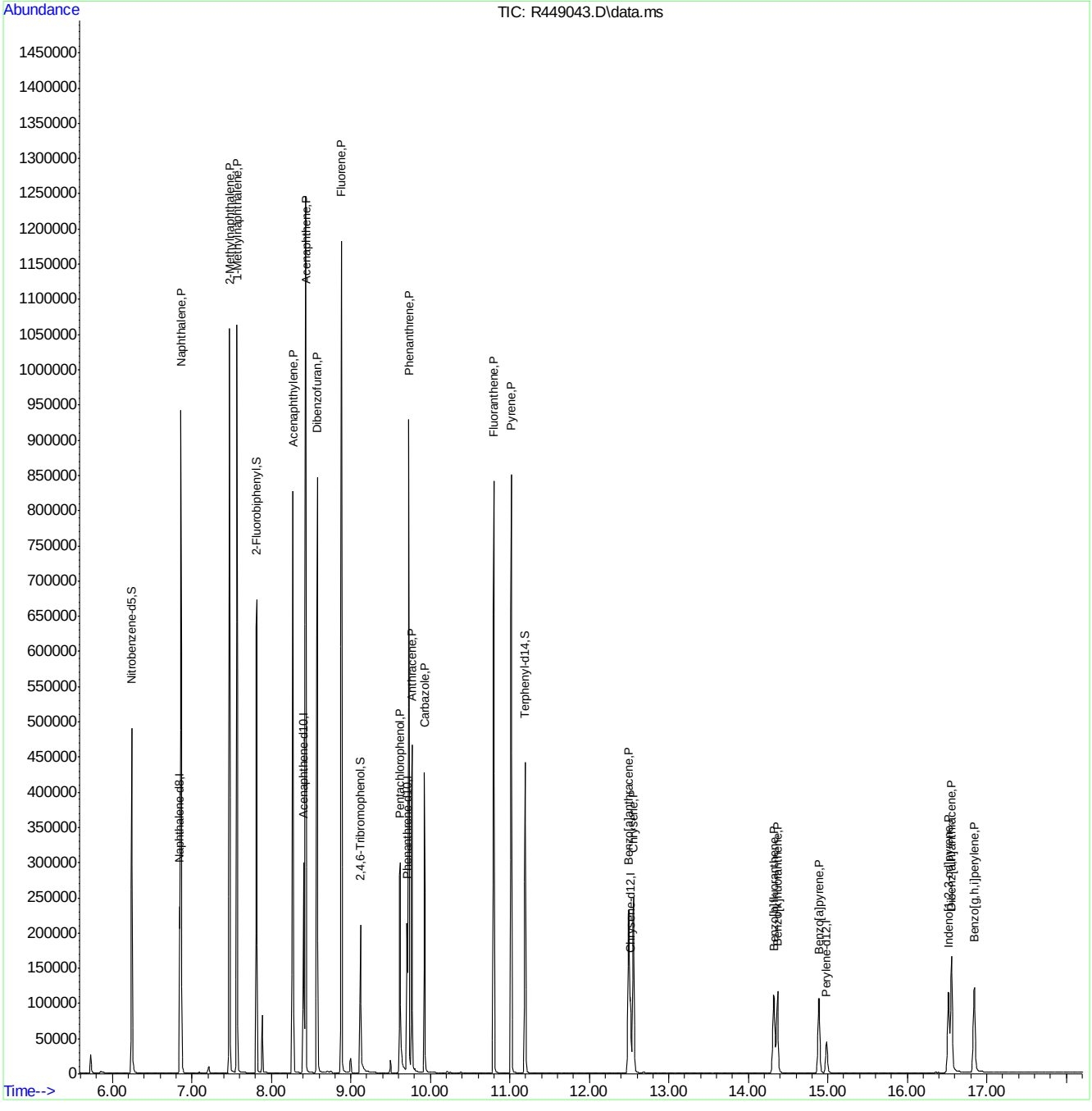
| | | | | | | Qvalue |
|---|---|---|---|---|---|---|
| 3) Naphthalene | 6.863 | 128 | 588036 | 1873.26 | ppb | 98 |
| 4) 2-Methylnaphthalene | 7.474 | 142 | 403315 | 1868.90 | ppb | 86 |
| 5) 1-Methylnaphthalene | 7.567 | 142 | 369085 | 1867.40 | ppb | 97 |
| 8) Acenaphthylene | 8.273 | 152 | 602228 | 1841.90 | ppb | 93 |
| 9) Acenaphthene | 8.432 | 153 | 374099 | 1847.40 | ppb | 93 |
| 10) Dibenzofuran | 8.577 | 168 | 508891 | 1893.35 | ppb | 95 |
| 11) Fluorene | 8.881 | 166 | 402946 | 1884.77 | ppb | 97 |
| 14) Pentachlorophenol | 9.620 | 266 | 123906 | 3960.81 | ppb | 93 |
| 15) Phenanthrene | 9.729 | 178 | 552542 | 1801.90 | ppb | 98 |
| 16) Anthracene | 9.770 | 178 | 310193 | 970.93 | ppb | 96 |
| 17) Carbazole | 9.926 | 167 | 267188 | 998.28 | ppb | 97 |
| 18) Fluoranthene | 10.800 | 202 | 564226 | 1950.62 | ppb | 98 |
| 20) Pyrene | 11.021 | 202 | 578321 | 1614.55 | ppb | 96 |
| 22) Benzo[a]anthracene | 12.496 | 228 | 200276 | 960.52 | ppb | 99 |
| 23) Chrysene | 12.557 | 228 | 190272 | 912.29 | ppb | 99 |
| 25) Benzo[b]fluoranthene | 14.319 | 252 | 144146 | 937.97 | ppb | 99 |
| 26) Benzo[k]fluoranthene | 14.369 | 252 | 147251 | 942.33 | ppb | 99 |
| 27) Benzo[a]pyrene | 14.892 | 252 | 127208 | 967.01 | ppb | 98 |
| 28) Indeno[1,2,3-cd]pyrene | 16.522 | 276 | 107979 | 938.56 | ppb | 85 |
| 29) Dibenz[a,h]anthracene | 16.555 | 278 | 114710 | 932.49 | ppb | 98 |
| 30) Benzo[g,h,i]perylene | 16.847 | 276 | 117031 | 845.43 | ppb | 98 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2329\
Data File : R449043.D
Acq On : 13 May 2015 9:00 pm
Operator : mayrag
Sample : cc2318-5
Misc : op55419,sr2329,250,,,1,1,water
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 14 09:02:25 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Tue May 12 16:38:40 2015
Response via : Initial Calibration




SIM_LVR.M Thu May 14 13:45:03 2015 Page: 2

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
05/15/15 13:59

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2329\
Data File : R449080.D
Acq On : 14 May 2015 1:19 pm
Operator : mayrag
Sample : cc2318-5
Misc : op55419,sr2329,250,,,1,1,water
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 15 09:27:38 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Tue May 12 16:38:40 2015
Response via : Initial Calibration

| Internal Standards | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| 1) Naphthalene-d8 | 6.852 | 136 | 155528 | 500.00 | ppb | 0.02 |
| 6) Acenaphthene-d10 | 8.411 | 164 | 87597 | 500.00 | ppb | 0.01 |
| 12) Phenanthrene-d10 | 9.715 | 188 | 140941 | 500.00 | ppb | 0.02 |
| 19) Chrysene-d12 | 12.541 | 240 | 81243 | 500.00 | ppb | 0.04 |
| 24) Perylene-d12 | 15.019 | 264 | 49703 | 500.00 | ppb | 0.06 |

| System Monitoring Compounds | | | | | | |
|---|---|---|---|---|---|---|
| 2) Nitrobenzene-d5 | 6.253 | 82 | 180155 | 1931.65 | ppb | 0.02 |
| Spiked Amount 2000.000 | Range 41 - 129 | | Recovery = 96.58% | | | |
| 7) 2-Fluorobiphenyl | 7.821 | 172 | 427820 | 1937.24 | ppb | 0.01 |
| Spiked Amount 2000.000 | Range 41 - 118 | | Recovery = 96.86% | | | |
| 13) 2,4,6-Tribromophenol | 9.134 | 330 | 74311 | 4047.56 | ppb | 0.03 |
| Spiked Amount 4000.000 | Range 33 - 118 | | Recovery = 101.19% | | | |
| 21) Terphenyl-d14 | 11.203 | 244 | 277716 | 1843.42 | ppb | 0.02 |
| Spiked Amount 2000.000 | Range 45 - 145 | | Recovery = 92.17% | | | |

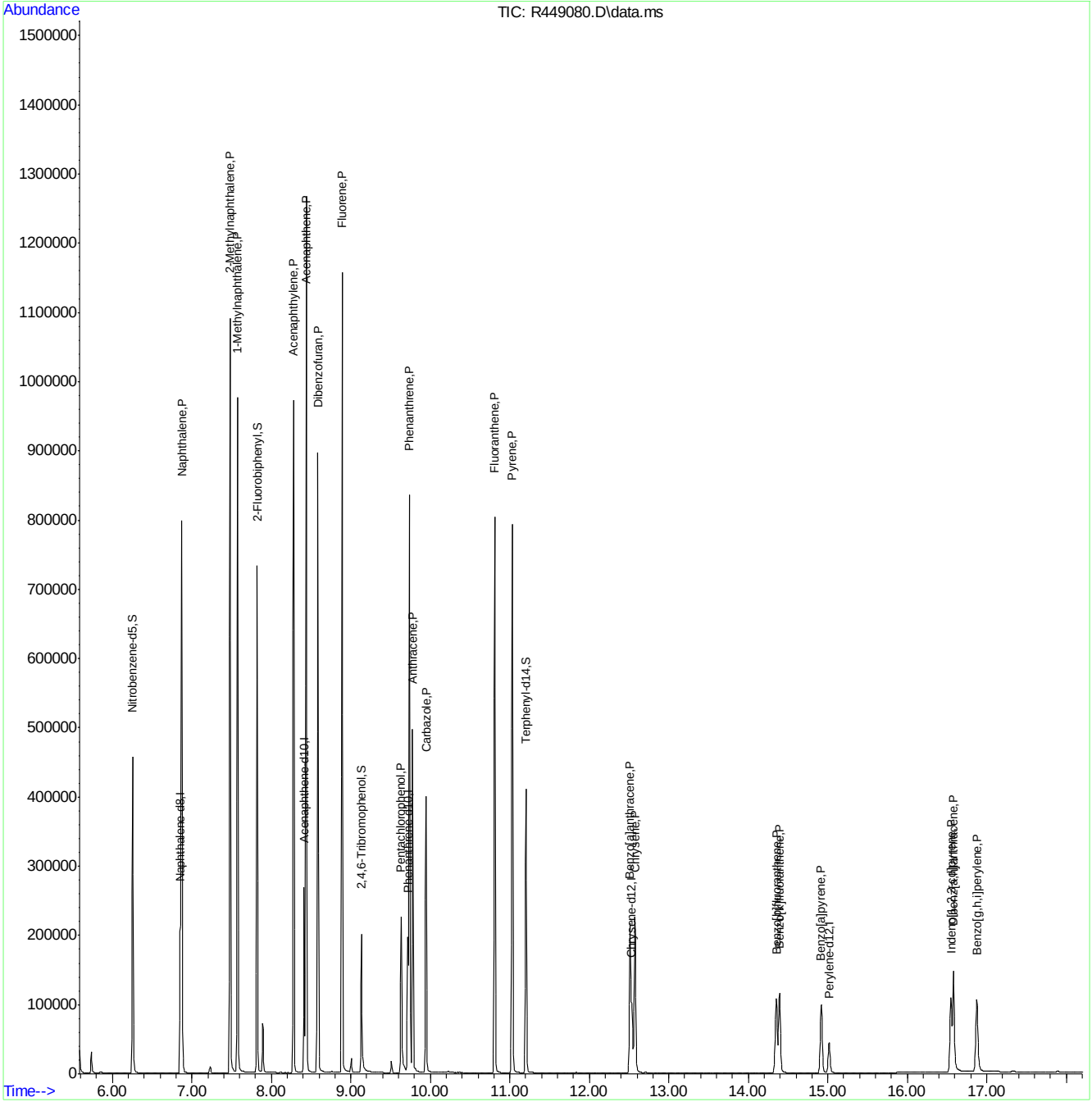
| Target Compounds | | | | | | Qvalue |
|---|---|---|---|---|---|---|
| 3) Naphthalene | 6.874 | 128 | 597926 | 1956.32 | ppb | 97 |
| 4) 2-Methylnaphthalene | 7.480 | 142 | 403172 | 1915.79 | ppb | 90 |
| 5) 1-Methylnaphthalene | 7.573 | 142 | 373208 | 1932.99 | ppb | 93 |
| 8) Acenaphthylene | 8.280 | 152 | 611790 | 1932.21 | ppb | 95 |
| 9) Acenaphthene | 8.440 | 153 | 384112 | 1959.62 | ppb | 94 |
| 10) Dibenzofuran | 8.584 | 168 | 519072 | 1987.45 | ppb | 86 |
| 11) Fluorene | 8.888 | 166 | 408704 | 1967.35 | ppb | 95 |
| 14) Pentachlorophenol | 9.634 | 266 | 83496 | 3317.12 | ppb | 93 |
| 15) Phenanthrene | 9.736 | 178 | 554127 | 1910.70 | ppb | 97 |
| 16) Anthracene | 9.777 | 178 | 303863 | 1001.47 | ppb | 98 |
| 17) Carbazole | 9.947 | 167 | 255823 | 1006.42 | ppb | 98 |
| 18) Fluoranthene | 10.812 | 202 | 555352 | 2021.59 | ppb | 98 |
| 20) Pyrene | 11.032 | 202 | 574481 | 1713.23 | ppb | 98 |
| 22) Benzo[a]anthracene | 12.513 | 228 | 188102 | 959.82 | ppb | 99 |
| 23) Chrysene | 12.574 | 228 | 180056 | 918.52 | ppb | 100 |
| 25) Benzo[b]fluoranthene | 14.352 | 252 | 148495 | 965.74 | ppb | 98 |
| 26) Benzo[k]fluoranthene | 14.396 | 252 | 138923 | 888.55 | ppb | 98 |
| 27) Benzo[a]pyrene | 14.914 | 252 | 125613 | 954.37 | ppb | 98 |
| 28) Indeno[1,2,3-cd]pyrene | 16.550 | 276 | 105654m | 917.86 | ppb | |
| 29) Dibenz[a,h]anthracene | 16.583 | 278 | 112427 | 913.44 | ppb | 97 |
| 30) Benzo[g,h,i]perylene | 16.875 | 276 | 115213 | 831.85 | ppb | 98 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2329\
Data File : R449080.D
Acq On : 14 May 2015 1:19 pm
Operator : mayrag
Sample : cc2318-5
Misc : op55419,sr2329,250,,,1,1,water
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 15 09:27:38 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Tue May 12 16:38:40 2015
Response via : Initial Calibration




SIM_LVR.M Fri May 15 09:27:56 2015 Page: 2

# Manual Integration Approval Summary



| | | | |
|---|---|---|---|
| **Sample Number:** | SR2329-CC2318 | **Method:** | SW846 8270D BY SIM |
| **Lab FileID:** | R449080.D | **Analyst approved:** | 05/15/15 11:08 Mayra Gonzalez |
| **Injection Time:** | 05/14/15 13:19 | **Supervisor approved:** | 05/15/15 13:59 Naresh Jiawan |

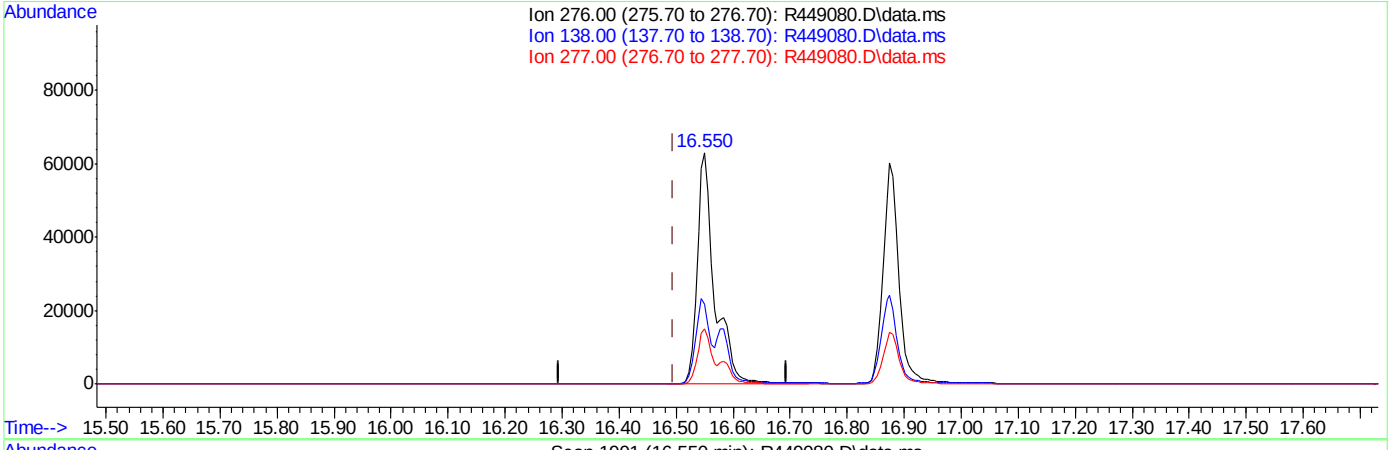
| Parameter | CAS | Sig# | R.T. (min.) | Reason |
|---|---|---|---|---|
| Indeno(1,2,3-cd)pyrene | 193-39-5 | | 16.55 | Overlapping peak |

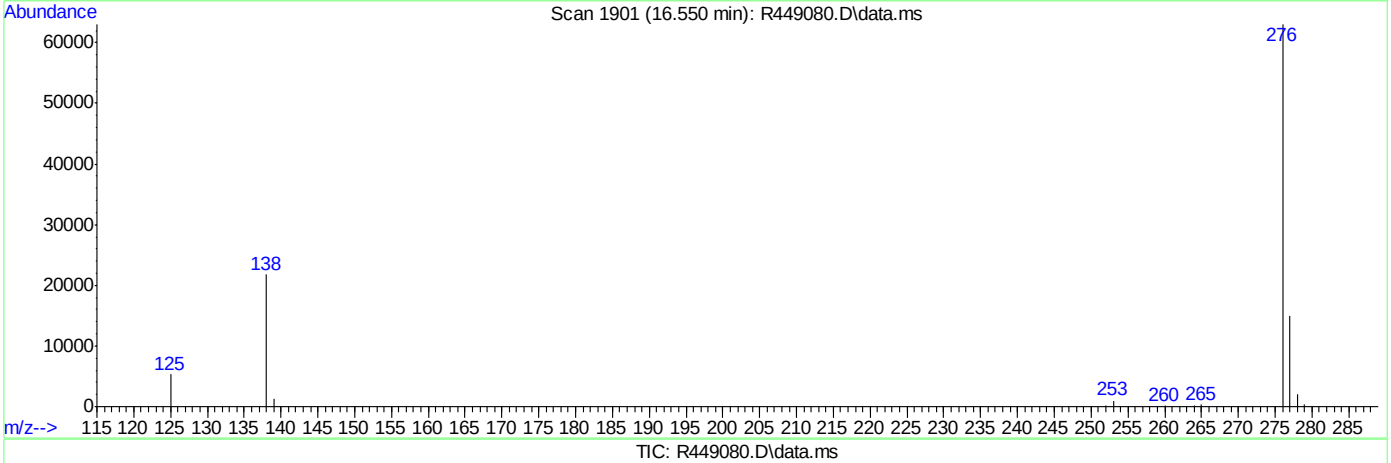
Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\SR2329\
Data File : R449080.D
Acq On    : 14 May 2015   1:19 pm
Operator  : mayrag
Sample    : cc2318-5
Misc      : op55419,sr2329,250,,,1,1,water
ALS Vial  : 2   Sample Multiplier: 1

Quant Time: May 15 09:12:03 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title  : PAH's by 8270D SIM Large Volume Inj
QLast Update : Tue May 12 16:38:40 2015
Response via : Initial Calibration
```






TIC: R449080.D\data.ms

(28) Indeno[1,2,3-cd]pyrene (P)

16.550min (+0.055) 1160.14ppb

response 133543

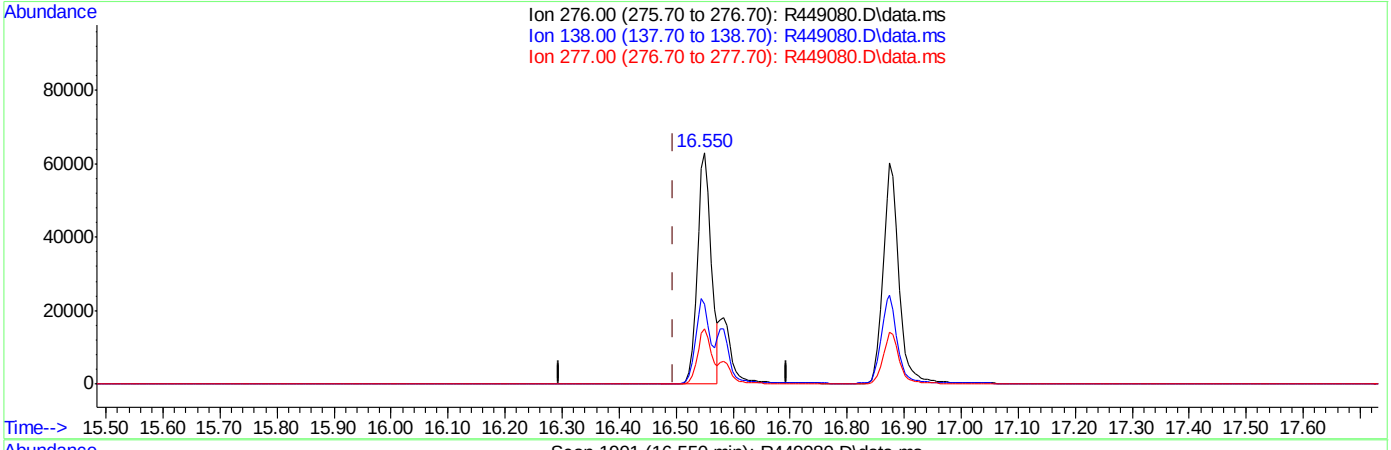
| Ion | Exp% | Act% |
|---|---|---|
| 276.00 | 100 | 100 |
| 138.00 | 42.70 | 34.28 |
| 277.00 | 23.60 | 23.64 |
| 0.00 | 0.00 | 0.00 |

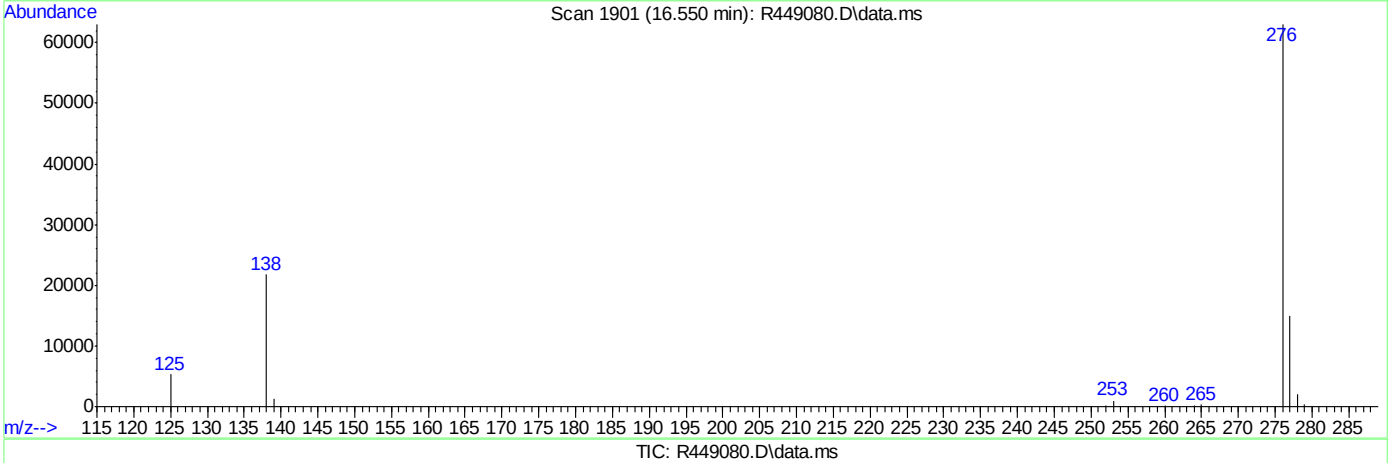
Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\SR2329\
Data File : R449080.D
Acq On    : 14 May 2015   1:19 pm
Operator  : mayrag
Sample    : cc2318-5
Misc      : op55419,sr2329,250,,,1,1,water
ALS Vial  : 2   Sample Multiplier: 1

Quant Time: May 15 09:12:03 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title  : PAH's by 8270D SIM Large Volume Inj
QLast Update : Tue May 12 16:38:40 2015
Response via : Initial Calibration
```






TIC: R449080.D\data.ms

(28) Indeno[1,2,3-cd]pyrene (P)

16.550min (+0.055) 917.86ppb m

response 105654

| Ion | Exp% | Act% |
|---|---|---|
| 276.00 | 100 | 100 |
| 138.00 | 42.70 | 34.54 |
| 277.00 | 23.60 | 23.78 |
| 0.00 | 0.00 | 0.00 |

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
05/15/15 14:01

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2329\
Data File : R449100.D
Acq On : 14 May 2015 10:07 pm
Operator : mayrag
Sample : ecc2318-5
Misc : op55419,sr2329,250,,,1,1,water
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 15 10:00:39 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Tue May 12 16:38:40 2015
Response via : Initial Calibration

| Internal Standards | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| 1) Naphthalene-d8 | 6.852 | 136 | 173324 | 500.00 | ppb | 0.02 |
| 6) Acenaphthene-d10 | 8.410 | 164 | 95655 | 500.00 | ppb | 0.01 |
| 12) Phenanthrene-d10 | 9.715 | 188 | 155738 | 500.00 | ppb | 0.02 |
| 19) Chrysene-d12 | 12.540 | 240 | 86552 | 500.00 | ppb | 0.04 |
| 24) Perylene-d12 | 15.019 | 264 | 52177 | 500.00 | ppb | 0.05 |

| System Monitoring Compounds | | | | | | |
|---|---|---|---|---|---|---|
| 2) Nitrobenzene-d5 | 6.252 | 82 | 199339 | 1917.90 | ppb | 0.02 |
| Spiked Amount 2000.000 | Range 41 - 129 | | Recovery = 95.90% | | | |
| 7) 2-Fluorobiphenyl | 7.821 | 172 | 472952 | 1961.20 | ppb | 0.01 |
| Spiked Amount 2000.000 | Range 41 - 118 | | Recovery = 98.06% | | | |
| 13) 2,4,6-Tribromophenol | 9.134 | 330 | 77221 | 3806.43 | ppb | 0.03 |
| Spiked Amount 4000.000 | Range 33 - 118 | | Recovery = 95.16% | | | |
| 21) Terphenyl-d14 | 11.202 | 244 | 299042 | 1863.22 | ppb | 0.02 |
| Spiked Amount 2000.000 | Range 45 - 145 | | Recovery = 93.16% | | | |

| Target Compounds | | | | | | Qvalue |
|---|---|---|---|---|---|---|
| 3) Naphthalene | 6.874 | 128 | 665458 | 1953.50 | ppb | 97 |
| 4) 2-Methylnaphthalene | 7.479 | 142 | 444745 | 1894.89 | ppb | 90 |
| 5) 1-Methylnaphthalene | 7.573 | 142 | 415007 | 1928.79 | ppb | 94 |
| 8) Acenaphthylene | 8.280 | 152 | 667484 | 1930.39 | ppb | 95 |
| 9) Acenaphthene | 8.439 | 153 | 427034 | 1997.70 | ppb | 94 |
| 10) Dibenzofuran | 8.584 | 168 | 571581 | 2004.14 | ppb | 85 |
| 11) Fluorene | 8.888 | 166 | 447661 | 1973.35 | ppb | 95 |
| 14) Pentachlorophenol | 9.633 | 266 | 77775 | 3035.63 | ppb | 93 |
| 15) Phenanthrene | 9.736 | 178 | 601725 | 1875.12 | ppb | 97 |
| 16) Anthracene | 9.776 | 178 | 328929 | 981.08 | ppb | 98 |
| 17) Carbazole | 9.947 | 167 | 272148 | 968.92 | ppb | 97 |
| 18) Fluoranthene | 10.811 | 202 | 605723 | 1995.45 | ppb | 98 |
| 20) Pyrene | 11.032 | 202 | 626455 | 1756.73 | ppb | 98 |
| 22) Benzo[a]anthracene | 12.513 | 228 | 200097 | 958.40 | ppb | 99 |
| 23) Chrysene | 12.573 | 228 | 192584 | 922.16 | ppb | 100 |
| 25) Benzo[b]fluoranthene | 14.352 | 252 | 157515 | 975.83 | ppb | 99 |
| 26) Benzo[k]fluoranthene | 14.396 | 252 | 148577 | 905.24 | ppb | 98 |
| 27) Benzo[a]pyrene | 14.919 | 252 | 132944 | 962.18 | ppb | 98 |
| 28) Indeno[1,2,3-cd]pyrene | 16.550 | 276 | 101771m | 842.20 | ppb | |
| 29) Dibenz[a,h]anthracene | 16.588 | 278 | 113470 | 878.20 | ppb | 92 |
| 30) Benzo[g,h,i]perylene | 16.880 | 276 | 118153 | 812.63 | ppb | 95 |

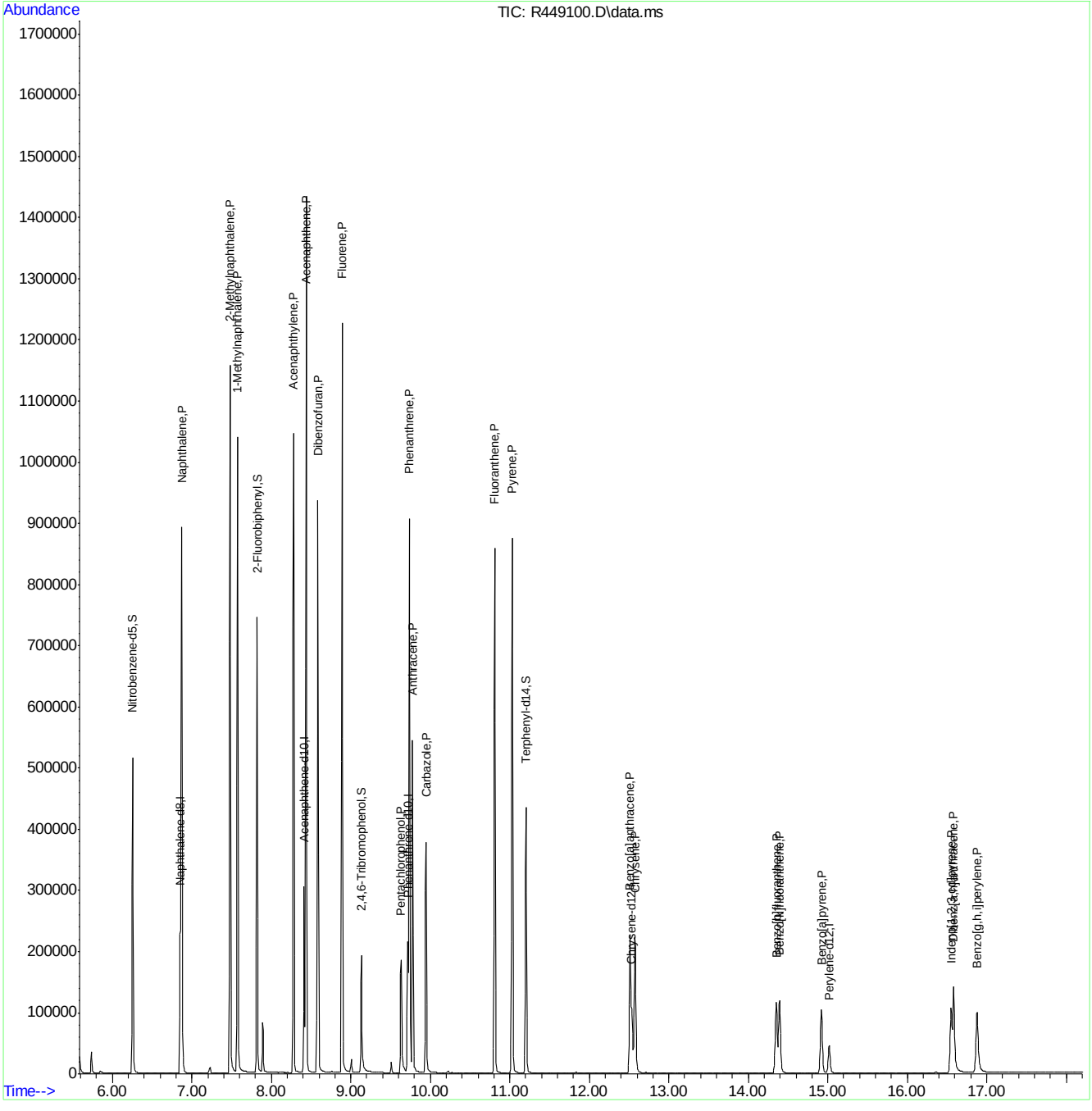
(#) = qualifier out of range (m) = manual integration (+) = signals summed

7.6.11
7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2329\
Data File : R449100.D
Acq On : 14 May 2015 10:07 pm
Operator : mayrag
Sample : ecc2318-5
Misc : op55419,sr2329,250,,,1,1,water
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 15 10:00:39 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Tue May 12 16:38:40 2015
Response via : Initial Calibration




SIM_LVR.M Fri May 15 10:01:05 2015 Page: 2





ACCUTEST LABORATORIES FA24234

# Manual Integration Approval Summary



| | | | |
|---|---|---|---|
| **Sample Number:** | SR2329-ECC2318 | **Method:** | SW846 8270D BY SIM |
| **Lab FileID:** | R449100.D | **Analyst approved:** | 05/15/15 11:08 Mayra Gonzalez |
| **Injection Time:** | 05/14/15 22:07 | **Supervisor approved:** | 05/15/15 14:01 Naresh Jiawan |

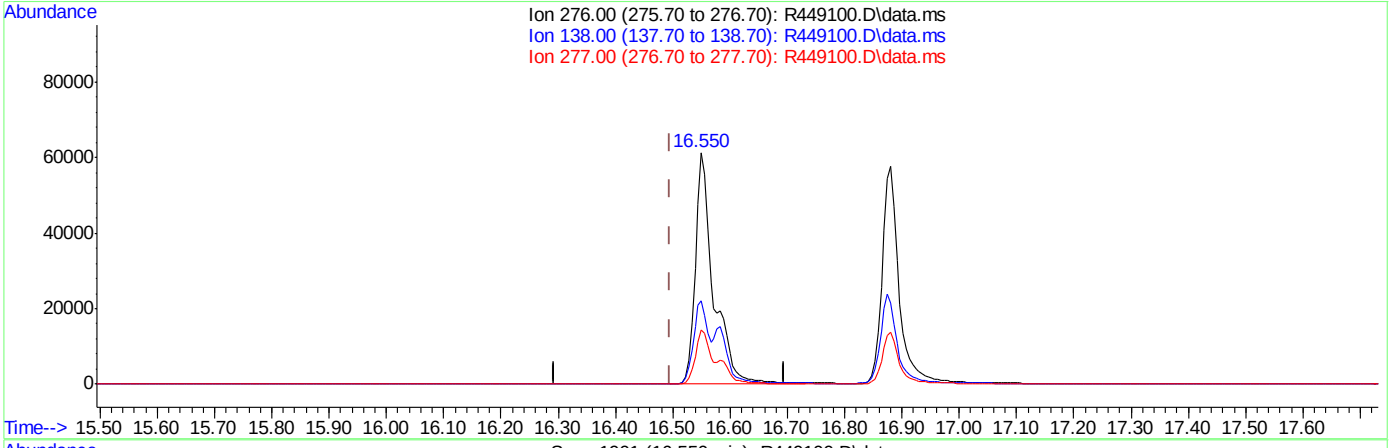
| Parameter | CAS | Sig# | R.T. (min.) | Reason |
|---|---|---|---|---|
| Indeno(1,2,3-cd)pyrene | 193-39-5 | | 16.55 | Overlapping peak |

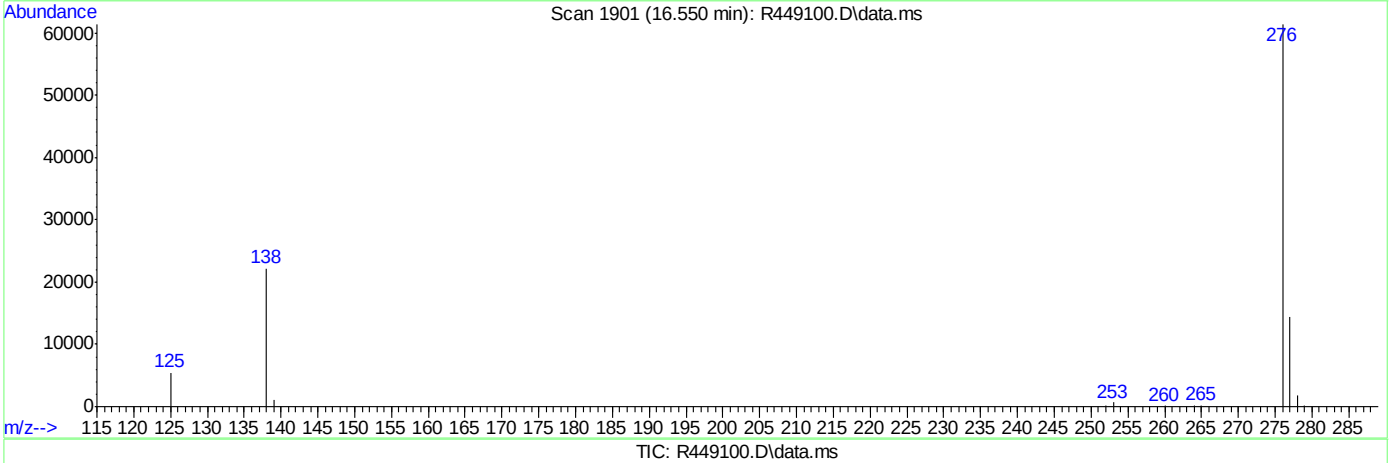
Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\SR2329\
Data File : R449100.D
Acq On : 14 May 2015 10:07 pm
Operator : mayrag
Sample : ecc2318-5
Misc : op55419,sr2329,250,,,1,1,water
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 15 09:12:43 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Tue May 12 16:38:40 2015
Response via : Initial Calibration






TIC: R449100.D\data.ms

(28) Indeno[1,2,3-cd]pyrene (P)

16.550min (+0.055) 1120.74ppb

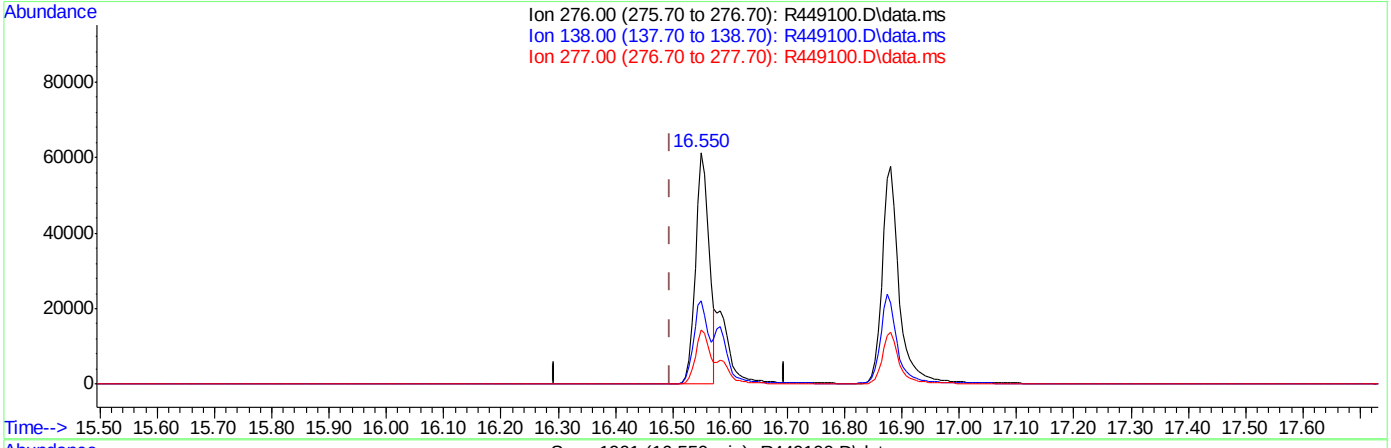
response 135429

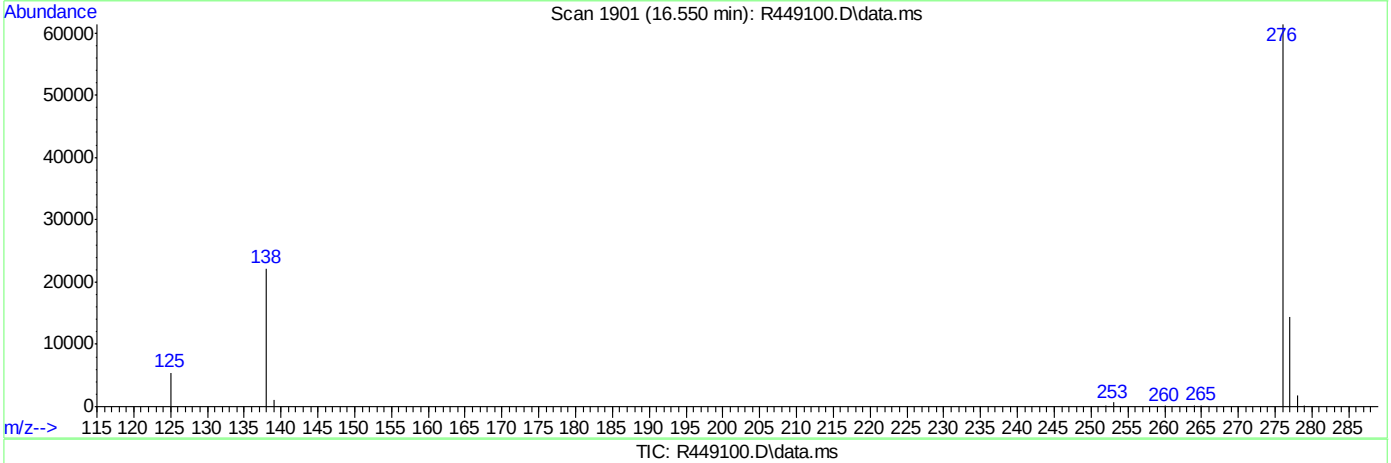
| Ion | Exp% | Act% |
|---|---|---|
| 276.00 | 100 | 100 |
| 138.00 | 42.70 | 35.90 |
| 277.00 | 23.60 | 23.27 |
| 0.00 | 0.00 | 0.00 |

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\SR2329\
Data File : R449100.D
Acq On    : 14 May 2015  10:07 pm
Operator  : mayrag
Sample    : ecc2318-5
Misc      : op55419,sr2329,250,,,1,1,water
ALS Vial  : 2   Sample Multiplier: 1

Quant Time: May 15 09:12:43 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title  : PAH's by 8270D SIM Large Volume Inj
QLast Update : Tue May 12 16:38:40 2015
Response via : Initial Calibration
```




TIC: R449100.D\data.ms

(28) Indeno[1,2,3-cd]pyrene (P)

16.550min (+0.055) 842.20ppb m

response 101771

| Ion | Exp% | Act% |
|---|---|---|
| 276.00 | 100 | 100 |
| 138.00 | 42.70 | 36.12 |
| 277.00 | 23.60 | 23.39 |
| 0.00 | 0.00 | 0.00 |

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2330\
Data File : R449104.D
Acq On : 15 May 2015 2:43 pm
Operator : mayrag
Sample : cc2318-5
Misc : op55419,sr2330,250,,,1,1,water
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 18 15:56:40 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Mon May 18 15:56:08 2015
Response via : Initial Calibration

| Internal Standards | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| 1) Naphthalene-d8 | 6.808 | 136 | 142825 | 500.00 | ppb | 0.00 |
| 6) Acenaphthene-d10 | 8.367 | 164 | 79982 | 500.00 | ppb | 0.00 |
| 12) Phenanthrene-d10 | 9.675 | 188 | 128115 | 500.00 | ppb | 0.00 |
| 19) Chrysene-d12 | 12.469 | 240 | 76593 | 500.00 | ppb | 0.00 |
| 24) Perylene-d12 | 14.936 | 264 | 49154 | 500.00 | ppb | 0.00 |

System Monitoring Compounds

| | | | | | | |
|---|---|---|---|---|---|---|
| 2) Nitrobenzene-d5 | 6.203 | 82 | 169852 | 1983.16 | ppb | 0.00 |
| Spiked Amount 2000.000 | Range 41 - 129 | | Recovery = 99.16% | | | |
| 7) 2-Fluorobiphenyl | 7.777 | 172 | 394723 | 1957.55 | ppb | 0.00 |
| Spiked Amount 2000.000 | Range 41 - 118 | | Recovery = 97.88% | | | |
| 13) 2,4,6-Tribromophenol | 9.084 | 330 | 64733 | 3878.85 | ppb | 0.00 |
| Spiked Amount 4000.000 | Range 33 - 118 | | Recovery = 96.97% | | | |
| 21) Terphenyl-d14 | 11.153 | 244 | 253943 | 1787.95 | ppb | 0.00 |
| Spiked Amount 2000.000 | Range 45 - 145 | | Recovery = 89.40% | | | |

Target Compounds

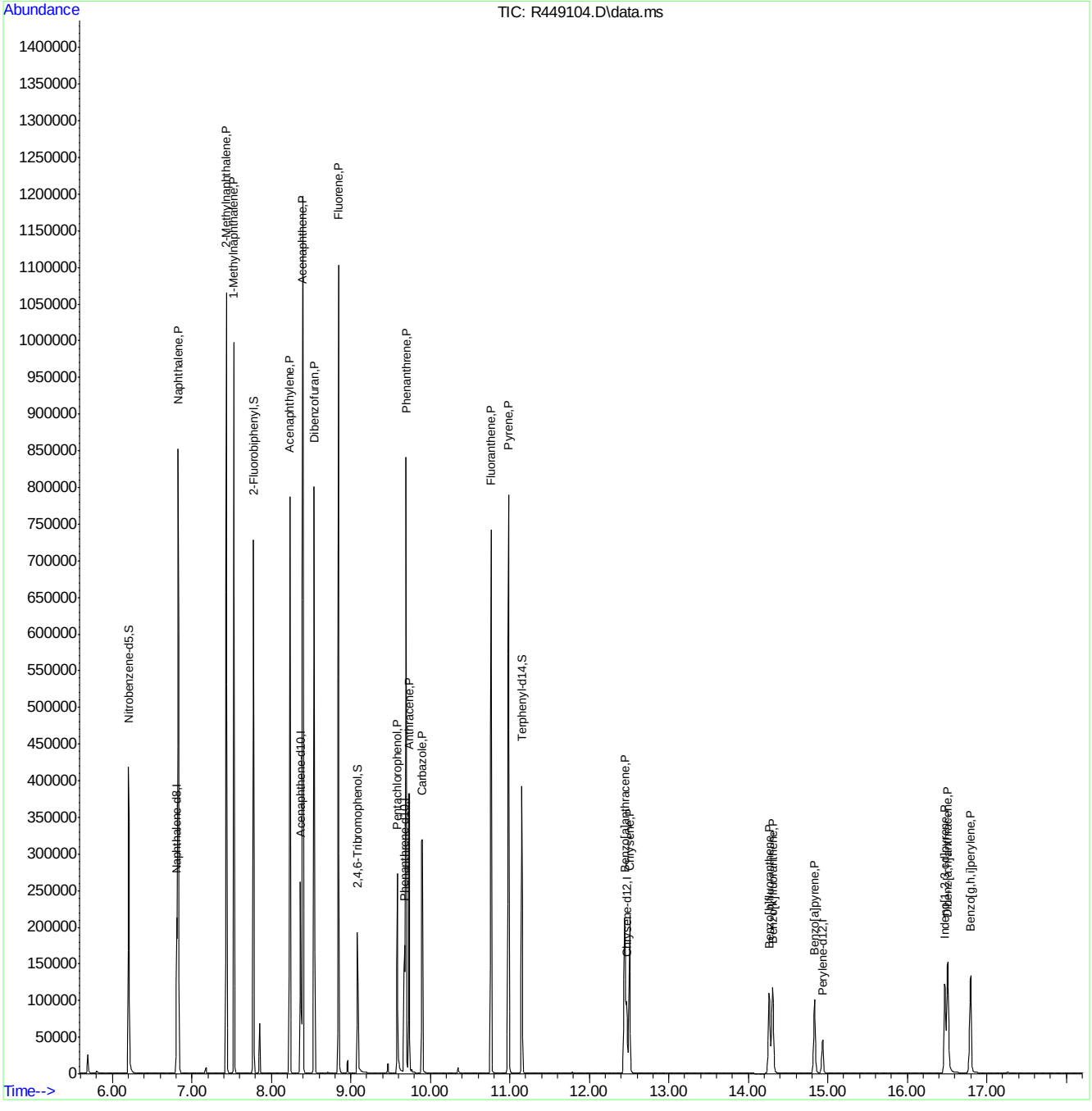
| | | | | | | Qvalue |
|---|---|---|---|---|---|---|
| 3) Naphthalene | 6.825 | 128 | 551720 | 1966.49 | ppb | 99 |
| 4) 2-Methylnaphthalene | 7.436 | 142 | 374368 | 1938.77 | ppb | 90 |
| 5) 1-Methylnaphthalene | 7.529 | 142 | 345842 | 1950.57 | ppb | 95 |
| 8) Acenaphthylene | 8.230 | 152 | 563413 | 1950.17 | ppb | 98 |
| 9) Acenaphthene | 8.396 | 153 | 354086 | 1979.81 | ppb | 93 |
| 10) Dibenzofuran | 8.541 | 168 | 472976 | 1983.37 | ppb | 95 |
| 11) Fluorene | 8.845 | 166 | 371028 | 1956.04 | ppb | 97 |
| 14) Pentachlorophenol | 9.586 | 266 | 85228 | 3522.38 | ppb | 94 |
| 15) Phenanthrene | 9.695 | 178 | 501997 | 1903.73 | ppb | 98 |
| 16) Anthracene | 9.736 | 178 | 267959 | 971.55 | ppb | 95 |
| 17) Carbazole | 9.899 | 167 | 228417 | 988.57 | ppb | 95 |
| 18) Fluoranthene | 10.762 | 202 | 505981 | 2026.26 | ppb | 97 |
| 20) Pyrene | 10.982 | 202 | 525503 | 1658.63 | ppb | 96 |
| 22) Benzo[a]anthracene | 12.447 | 228 | 177251 | 959.36 | ppb | 100 |
| 23) Chrysene | 12.508 | 228 | 169937 | 919.52 | ppb | 99 |
| 25) Benzo[b]fluoranthene | 14.264 | 252 | 145057 | 953.92 | ppb | 99 |
| 26) Benzo[k]fluoranthene | 14.308 | 252 | 135633 | 877.20 | ppb | 98 |
| 27) Benzo[a]pyrene | 14.832 | 252 | 123249 | 946.87 | ppb | 99 |
| 28) Indeno[1,2,3-cd]pyrene | 16.473 | 276 | 112630 | 989.39 | ppb | 89 |
| 29) Dibenz[a,h]anthracene | 16.511 | 278 | 113421 | 931.80 | ppb | 95 |
| 30) Benzo[g,h,i]perylene | 16.798 | 276 | 125008 | 912.65 | ppb | 95 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2330\
Data File : R449104.D
Acq On : 15 May 2015 2:43 pm
Operator : mayrag
Sample : cc2318-5
Misc : op55419,sr2330,250,,,1,1,water
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 18 15:56:40 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Mon May 18 15:56:08 2015
Response via : Initial Calibration

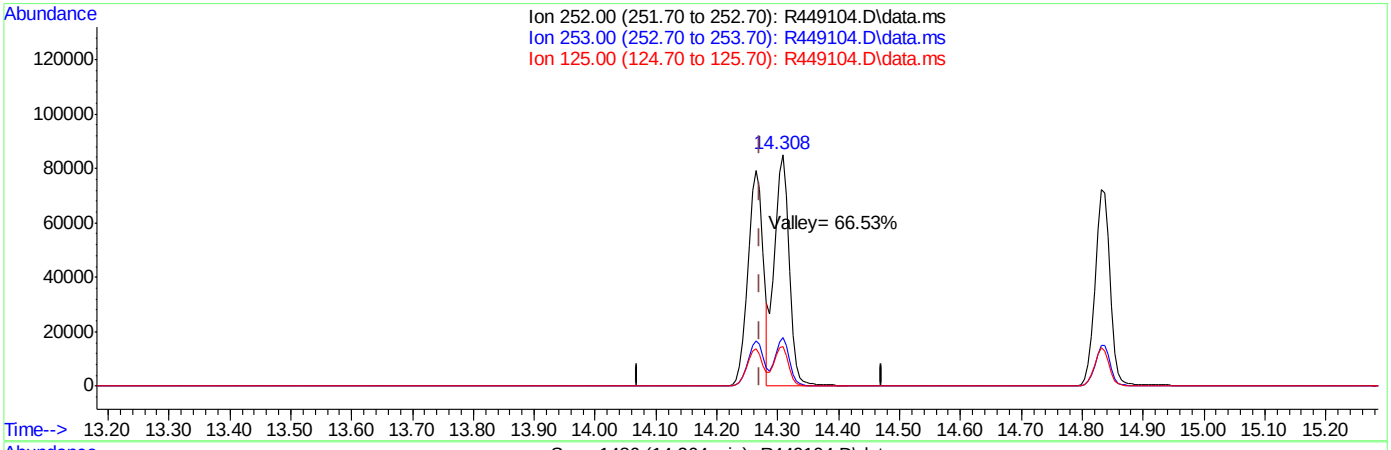


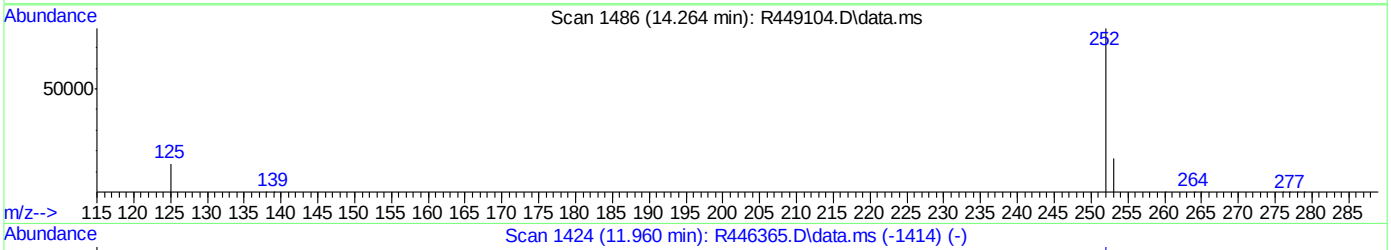

SIM_LVR.M Mon May 18 16:32:57 2015 Page: 2

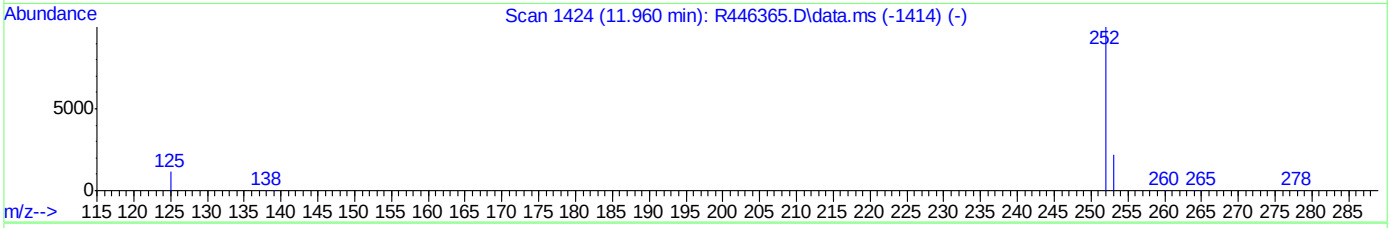
# Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\SR2330\
Data File : R449104.D
Acq On    : 15 May 2015   2:43 pm
Operator  : mayrag
Sample    : cc2318-5
Misc      : op55419,sr2330,250,,,1,1,water
ALS Vial  : 2   Sample Multiplier: 1

Quant Time: May 18 15:56:40 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title  : PAH's by 8270D SIM Large Volume Inj
QLast Update : Mon May 18 15:56:08 2015
Response via : Initial Calibration
```




TIC: R449104.D\data.ms

(25) Benzo[b]fluoranthene (P)

14.264min (-0.007) 953.92ppb

response 145057

| Ion | Exp% | Act% |
|---|---|---|
| 252.00 | 100 | 100 |
| 253.00 | 21.20 | 20.79 |
| 125.00 | 17.30 | 17.00 |
| 0.00 | 0.00 | 0.00 |

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2330\
Data File : R449127.D
Acq On : 16 May 2015 12:48 am
Operator : mayrag
Sample : ecc2318-5
Misc : op55419,sr2330,250,,,1,1,water
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 18 15:57:26 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Mon May 18 15:56:08 2015
Response via : Initial Calibration

| Internal Standards | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|---|---|---|---|---|---|---|
| 1) Naphthalene-d8 | 6.808 | 136 | 157462 | 500.00 | ppb | 0.00 |
| 6) Acenaphthene-d10 | 8.367 | 164 | 88606 | 500.00 | ppb | 0.00 |
| 12) Phenanthrene-d10 | 9.674 | 188 | 143168 | 500.00 | ppb | 0.00 |
| 19) Chrysene-d12 | 12.469 | 240 | 85984 | 500.00 | ppb | 0.00 |
| 24) Perylene-d12 | 14.936 | 264 | 55321 | 500.00 | ppb | 0.00 |

System Monitoring Compounds

| | | | | | | |
|---|---|---|---|---|---|---|
| 2) Nitrobenzene-d5 | 6.208 | 82 | 186936 | 1979.74 | ppb | 0.00 |
| Spiked Amount 2000.000 | Range 41 - 129 | | Recovery = 98.99% | | | |
| 7) 2-Fluorobiphenyl | 7.776 | 172 | 430243 | 1926.03 | ppb | 0.00 |
| Spiked Amount 2000.000 | Range 41 - 118 | | Recovery = 96.30% | | | |
| 13) 2,4,6-Tribromophenol | 9.090 | 330 | 76760 | 4115.92 | ppb | 0.00 |
| Spiked Amount 4000.000 | Range 33 - 118 | | Recovery = 102.90% | | | |
| 21) Terphenyl-d14 | 11.153 | 244 | 278997 | 1749.81 | ppb | 0.00 |
| Spiked Amount 2000.000 | Range 45 - 145 | | Recovery = 87.49% | | | |

Target Compounds

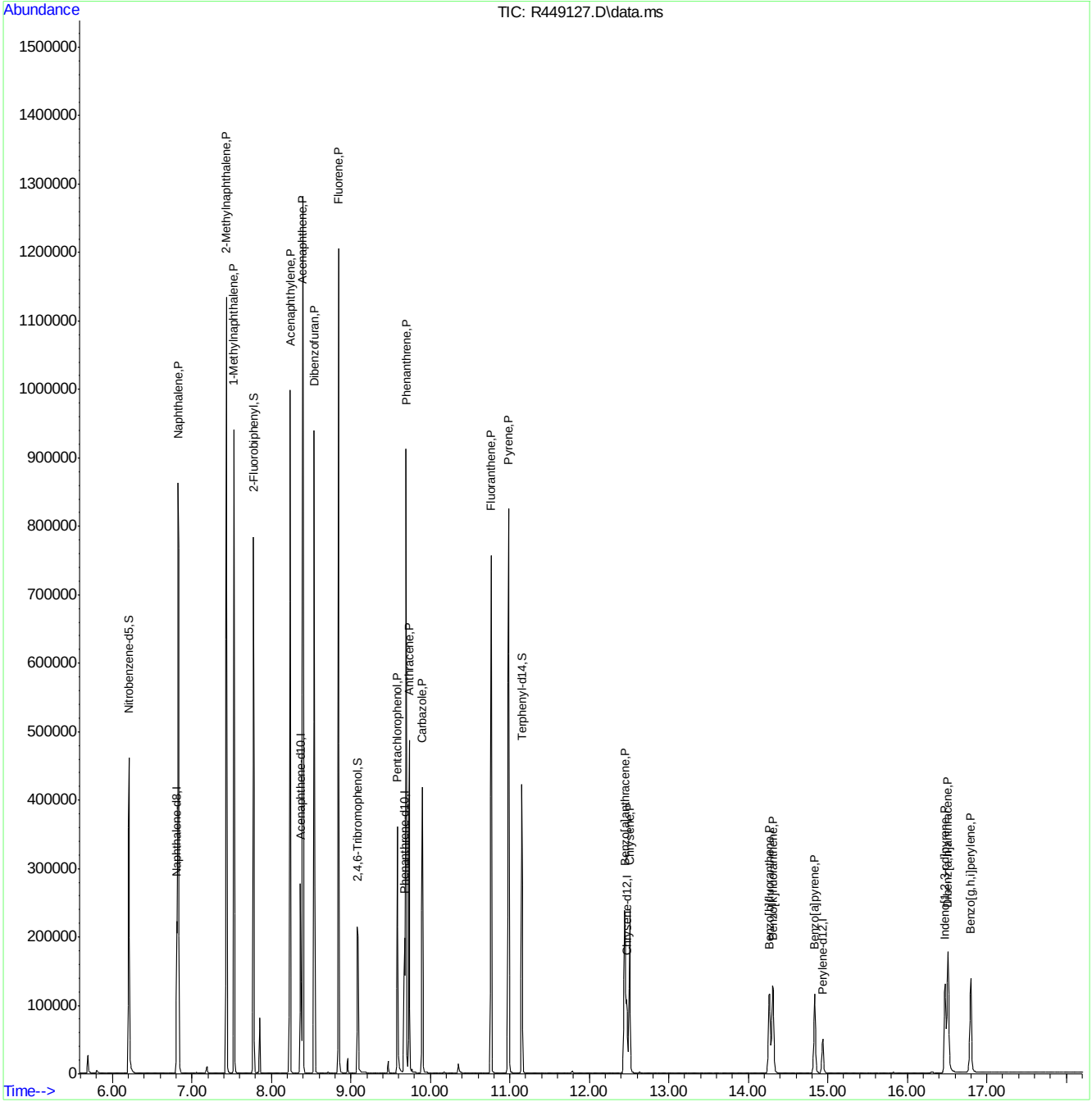
| | | | | | | Qvalue |
|---|---|---|---|---|---|---|
| 3) Naphthalene | 6.824 | 128 | 597645 | 1929.31 | ppb | 99 |
| 4) 2-Methylnaphthalene | 7.435 | 142 | 412493 | 1937.55 | ppb | 91 |
| 5) 1-Methylnaphthalene | 7.534 | 142 | 376182 | 1924.46 | ppb | 94 |
| 8) Acenaphthylene | 8.237 | 152 | 610207 | 1903.17 | ppb | 95 |
| 9) Acenaphthene | 8.396 | 153 | 381185 | 1919.92 | ppb | 94 |
| 10) Dibenzofuran | 8.540 | 168 | 518402 | 1962.28 | ppb | 89 |
| 11) Fluorene | 8.844 | 166 | 402567 | 1915.75 | ppb | 95 |
| 14) Pentachlorophenol | 9.586 | 266 | 109574 | 3786.98 | ppb | 93 |
| 15) Phenanthrene | 9.695 | 178 | 543353 | 1839.36 | ppb | 97 |
| 16) Anthracene | 9.735 | 178 | 298457 | 968.36 | ppb | 97 |
| 17) Carbazole | 9.899 | 167 | 253254 | 980.82 | ppb | 97 |
| 18) Fluoranthene | 10.762 | 202 | 556390 | 1993.86 | ppb | 95 |
| 20) Pyrene | 10.982 | 202 | 580449 | 1630.07 | ppb | 98 |
| 22) Benzo[a]anthracene | 12.447 | 228 | 199143 | 960.13 | ppb | 99 |
| 23) Chrysene | 12.507 | 228 | 188620 | 909.15 | ppb | 100 |
| 25) Benzo[b]fluoranthene | 14.269 | 252 | 158713 | 927.37 | ppb | 99 |
| 26) Benzo[k]fluoranthene | 14.308 | 252 | 155157 | 891.61 | ppb | 99 |
| 27) Benzo[a]pyrene | 14.837 | 252 | 139083 | 949.40 | ppb | 98 |
| 28) Indeno[1,2,3-cd]pyrene | 16.478 | 276 | 121025 | 944.62 | ppb | 89 |
| 29) Dibenz[a,h]anthracene | 16.516 | 278 | 126204 | 921.24 | ppb | 92 |
| 30) Benzo[g,h,i]perylene | 16.797 | 276 | 134505 | 872.52 | ppb | 99 |

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\SR2330\
Data File : R449127.D
Acq On : 16 May 2015 12:48 am
Operator : mayrag
Sample : ecc2318-5
Misc : op55419,sr2330,250,,,1,1,water
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 18 15:57:26 2015
Quant Method : C:\msdchem\1\METHODS\SIM_LVR.M
Quant Title : PAH's by 8270D SIM Large Volume Inj
QLast Update : Mon May 18 15:56:08 2015
Response via : Initial Calibration




SIM_LVR.M Mon May 18 16:33:09 2015 Page: 2

ACCUTEST LABORATORIES SE

| | |
|---|---|
| DATE: | 04-29-15 |
| COLUMN TYPE: | 285 Mi |
| AMOUNT INJECTED: | 5 ul |
| INSTRUMENT: | MSBNA03-R |

MS BNA03-R ANALYSIS LOG

| | |
|---|---|
| METHODS*: | 8270 D SIMPAH |
| ACQ. METHOD: | ACQ-CVR |
| PROC. METHOD: | SIM-CV |
| CALIB. DATE: | 04-24-15 |
| RUN BATCH: | SR 2318 |

| | |
|---|---|
| ANALYST: | MLA |
| MECL2 LOT #: | 1507059 |
| DFTPP RESPONSE: | 293567 |
| EM VOLTAGE: | 1612 |

MLA 04-29-15

| DATA FILE | ALS # | SAMPLE ID | SAMPLE METHOD | OP BATCH | DF | MANUALLY INTEGRATED PEAKS RATIONALE, PEAK # | COMMENTS I ~~55144~~ 55149 |
|---|---|---|---|---|---|---|---|
| R 448786 | 1 | dftpp | dftpp | | | | |
| R 87 | 2 | CC2316-5 | 8270 | | | | |
| R 88 | 3 | blk | ↓ | | | | |
| R 89 | 1 | dftpp | dftpp | 55142 | 1x | | PASS |
| R 90 | 2 | CC2316-5 | 8270 | 55164 | 5x 100+400 | | ↑ surr. |
| R 91 | 2 | ↓ ↓ | | | ↓ | | ↓ ↓ |
| R 92 | 2 | ic2318-1 | | | 10x 4+496 | | PASS |
| R 93 | 3 | -2 | | | 50x 10+490 | #28Mp | |
| R 94 | 4 | -3 | | | 25x 20+480 | | |
| R 95 | 5 | -4 | | | 10x 40+760 | | |
| R 96 | 6 | -5 | | | 5x 100+400 | | |
| R 97 | 7 | -6 | | | 2x 200+200 | | |
| R 98 | 8 | -7 | | ↓ | 1x | #26Mp | |
| R 99 | 9 | icv2318-4 | | E5134 | 20x 20+380 | | |
| R 448800 | 10 | blk | | OP5030 | 1x | | NO |
| R 01 | 11 | FC23711-8 | | | 1x ~~25x~~ | | / |
| R 02 | 12 | -4 | | | | | / |
| R 03 | 13 | -5 | | | 50x | | / |
| R 04 | 14 | -6 | | | 200x | | / M 1000x |
| R 05 | 15 | -7 | | ↓ | 100x | | / |

* For NELAC purposes, Method 625 includes analytes by SOP MS004 and 8270 includes analytes by SOP MS006
Manual Integration Rationale SOP QA029: MP Missed Peak, OP Overlapping Peak, SP Split Peak, PDB Poorly Defined Baseline, BR Baseline Ripple, PII Poor Instrument Integration
All strikeouts must be initialed and dated. If correction was not due to a transcription error, then list the reason for correction.

msbna03_r_log.xls NF rev. 08/09

Analyst's Signature: MLA

ACCUTEST LABORATORIES SE

| | |
|---|---|
| DATE: | 04-24-15 |
| COLUMN TYPE: | ZB-5MS i |
| AMOUNT INJECTED: | 5 ul |
| INSTRUMENT: | MSBNA03-R |

MS BNA03-R ANALYSIS LOG

| | |
|---|---|
| METHODS*: | 8270 SMPSH |
| ACQ. METHOD: | ACQ-UP |
| PROC. METHOD: | SM-LV |
| CALIB. DATE: | 04-24-15 |
| RUN BATCH: | SR 2318 |

| | |
|---|---|
| ANALYST: | MLA |
| MECL2 LOT #: | 1503058 |
| DFTPP RESPONSE: | 293567 |
| EM VOLTAGE: | 1612 |

| DATA FILE | ALS # | SAMPLE ID | SAMPLE METHOD | OP BATCH | DF | MANUALLY INTEGRATED PEAKS RATIONALE, PEAK # | COMMENTS |
|---|---|---|---|---|---|---|---|
| R 448806 | 16 | FA23711-9 | 8270 | OP55330 | 1000 | #1 MP | µ800X |
| R 07 | 17 | -10 | ↓ | ↓ | 500 | — | — |
| R 08 | 18 | FA23741-1 | | | 50 | #2 MP #3 MP | — |
| R 09 | 5 | ccc2318-4 | | 55164 | 100 40+360 | — | — |
| R | | | | | | | |
| R | | | | | | | |
| R | | | | | | | |
| R | | | | | | | |
| R | | | | | | | |
| R | | | | | | | |
| R | | | | | | | |
| R | | | | | | | |
| R | | | | | | | |
| R | | | | | | | |
| R | | | | | | | |
| R | | | | | | | |
| R | | | | | | | MLA 04-24-15 |
| R | | | | | | | |
| R | | | | | | | |
| R | | | | | | | |

* For NELAC purposes, Method 625 includes analytes by SOP MS004 and 8270 includes analytes by SOP MS006
Manual Integration Rationale SOP QA029: MP Missed Peak, OP Overlapping Peak, SP Split Peak, PDB Poorly Defined Baseline, BR Baseline Ripple, PII Poor Instrument Integration
All strikeouts must be initialed and dated. If correction was not due to a transcription error, then list the reason for correction.

msbna03_r_log.xls NF rev. 08/09

Analyst's Signature: [signature]







ACCUTEST LABORATORIES FA24234

ACCUTEST LABORATORIES SE

| | |
|---|---|
| DATE: | 05-13-15 |
| COLUMN TYPE: | 7.35 MS1 |
| AMOUNT INJECTED: | 5 ul |
| INSTRUMENT: | MSBNA03-R |

MS BNA03-R ANALYSIS LOG

| | |
|---|---|
| METHODS*: | 8270 D SIM PAH |
| ACQ. METHOD: | ACQ.WR |
| PROC. METHOD: | SIM.WR |
| CALIB. DATE: | 04-24-15 |
| RUN BATCH: SR | 2329 |

| | |
|---|---|
| ANALYST: | MLA |
| MECL2 LOT #: | 150358 |
| DFTPP RESPONSE: | 43395 |
| EM VOLTAGE: | 1612 |

| DATA FILE | ALS # | SAMPLE ID | SAMPLE METHOD | OP BATCH | DF | MANUALLY INTEGRATED PEAKS RATIONALE, PEAK # | COMMENTS LS 55149 |
|---|---|---|---|---|---|---|---|
| R 449022 | 1 | [illegible] | [illegible] | 55162 | 1X | | pass |
| R 23 | 2 | CCB8-4 | 8270 | 55164 | 5X 200/400 | | pass |
| R 24 | 3 | FA24209.B | | OP56034 | 5X 1X 100/400 | | — |
| R 25 | 4 | OP56034.B3 | | OP56034 | 1X | | — |
| R 26 | 5 | -MB | | | | | No |
| R 27 | 6 | FA24124-1 | | | | | — |
| R 28 | 7 | FA24171-10 | | | | | — |
| R 29 | 8 | FA24128-6 | | OP56024 | | | — |
| R 30 | 9 | -5 | | | 20X 200-380 | | — |
| R 31 | 10 | FA24125-12 | | | 10X 40-76 | | — |
| R 32 | 11 | FA24171-11 | | OP56034 | 1X | | No |
| R 33 | 12 | FA24180-1 | | | | | No |
| R 34 | 13 | FA24229-4 | | | | | — |
| R 35 | 14 | -6 | | | | | No |
| R 36 | 15 | FA24199-1 | | | | | — |
| R 37 | 16 | FA24208-1 | | | | | — MRox (Max .1x0 ug) |
| R 38 | 17 | FA24248-1 | | | | | — |
| R 39 | 18 | -2 | | | | | |
| R 40 | 19 | -3 | | | | #16 MP | MLA 5-14-15 No ✓ |
| R 41 | 20 | -4 | | | | 40 — | No |

*. For NELAC purposes, Method 625 includes analytes by SOP MS004 and 8270 includes analytes by SOP MS006
Manual Integration Rationale SOP QA029: MP Missed Peak, OP Overlapping Peak, SP Split Peak, PDB Poorly Defined Baseline, BR Baseline Ripple, PII Poor Instrument Integration
All strikeouts must be initialed and dated. If correction was not due to a transcription error, then list the reason for correction.

msbna03_r_log.xls NF rev. 08/09

Analyst's Signature: [signature]

ACCUTEST LABORATORIES SE

| | |
|---|---|
| DATE: | 05-13-15 |
| COLUMN TYPE: | 20.5MS |
| AMOUNT INJECTED: | 5 ul |
| INSTRUMENT: | MSBNA03-R |

MS BNA03-R ANALYSIS LOG

| | |
|---|---|
| METHODS*: | 8270D SIM |
| ACQ. METHOD: | ACQ-LVN |
| PROC. METHOD: | SIM-LVN |
| CALIB. DATE: | 04-24-15 |
| RUN BATCH: | SR 2329 |

| | |
|---|---|
| ANALYST: | MLX |
| MECL2 LOT #: | 150358 |
| DFTPP RESPONSE: | 43395 |
| EM VOLTAGE: | 1612 |

| DATA FILE | ALS # | SAMPLE ID | SAMPLE METHOD | OP BATCH | DF | MANUALLY INTEGRATED PEAKS RATIONALE, PEAK # | COMMENTS |
|---|---|---|---|---|---|---|---|
| R 44904 | 1 | DFTPP | DFTPP | 55162 | 1x | | PASS |
| R 43 | 2 | CC2348-5 | 8270 | 55164 | 5x 100+400 | | PASS |
| R 44 | 21 | FA24248-5 | | OP56034 | 1x | | NO |
| R 45 | 22 | -6 | | | | | — |
| R 46 | 23 | -7 | | | | | MLOX (Neg Ion) |
| R 47 | 24 | OP56067-BS | | OP56067 | | | — |
| R 48 | 25 | -MB | | | | | NO |
| R 49 | 26 | FA24201-6 | | | | | NO |
| R 50 | 27 | FA24248-8 | | | | | — MLOX (Neg Ion) |
| R 51 | 28 | -10 | | | | | — |
| R 52 | 29 | -12 | | | | | NO |
| R 53 | 30 | -13 | | | | | NO |
| R 54 | 31 | -14 | | | | | NO |
| R 55 | 32 | FA24282-1 | | | | | — MLOX (Neg. Ion) |
| R 56 | 33 | -2 | | | | | — MLOX (Neg. Ion) |
| R 57 | 34 | -3 | | | | | — MLXCO |
| R 58 | 35 | -4 | | | | | — MLOX |
| R 59 | 36 | -5 | | | | #2 Mp | — MLOX |
| R 60 | 37 | FA24234-1 | | | | | MLXCO |
| R 61 | 38 | FA24261-1 | | | | | NO |

* For NELAC purposes, Method 625 includes analytes by SOP MS004 and 8270 includes analytes by SOP MS006
Manual Integration Rationale SOP QA029: MP Missed Peak, OP Overlapping Peak, SP Split Peak, PDB Poorly Defined Baseline, BR Baseline Ripple, PII Poor Instrument Integration
All strikeouts must be initialed and dated. If correction was not due to a transcription error, then list the reason for correction.

msbna03_r_log.xls NF rev. 08/09

Analyst's Signature: MLX

ACCUTEST LABORATORIES SE

| | |
|---|---|
| DATE: | 05-13-15 |
| COLUMN TYPE: | ZB-5MS |
| AMOUNT INJECTED: | 5 ul |
| INSTRUMENT: | MSBNA03-R |

MS BNA03-R ANALYSIS LOG

| | |
|---|---|
| METHODS*: | 8270 DJ MPAH |
| ACQ. METHOD: | ACQ-LVM |
| PROC. METHOD: | STM_LV |
| CALIB. DATE: | 04-24-15 |
| RUN BATCH: | SR 2329 |

| | |
|---|---|
| ANALYST: | MGA |
| MECL2 LOT #: | 150758 |
| DFTPP RESPONSE: | 97395 |
| EM VOLTAGE: | 1112 |

| DATA FILE | ALS # | SAMPLE ID | SAMPLE METHOD | OP BATCH | DF | MANUALLY INTEGRATED PEAKS RATIONALE, PEAK # | COMMENTS |
|---|---|---|---|---|---|---|---|
| R 449062 | 1 | DFTPP | DFTPP | 55162 | 1X | | PASS |
| R 63 | 2 | CC2318-9 | 8270 | 55164 | 50X 100X 400X | | PASS |
| R 64 | 39 | FA24261-2 | | OP56067 | 1X | | NO |
| R 65 | 40 | -3 | | | | | NO |
| R 66 | 41 | FA24279-2 | | | | | NO |
| R 67 | 42 | -4 | | | | | / |
| R 68 | 43 | -7 | | | | | NO |
| R 69 | 44 | FA24282-6 | | | | | NO |
| R 70 | 45 | -8 | | | | | / |
| R 71 | 46 | OP56067-MS | | | | | - MS/SD only |
| R 72 | 47 | -MSD | | | | | - |
| R 73 | 48 | FA24208-1 | | OP56034 | 20X 200X 200X | | / |
| R 74 | 49 | OP56081-BS | | OP56081 | 1X | 8270 op | / |
| R 75 | 50 | -MB | | | | | NO |
| R 76 | 51 | FA24279-5 | | | | 24 MP | / |
| R 77 | 52 | FA24287-1 | | | | | MS25X only IS failed |
| R 78 | 53 | -2 | | | | | / |
| R 79 | 1 | DFTPP | DFTPP | 55162 | | | / |
| R 80 | 2 | CC2318-5 | 8270 | 55164 | 50X 100X | 8270 | / |
| R 81 | 54 | FA24287-3 | | OP56081 | 1X | | / |

* For NELAC purposes, Method 625 includes analytes by SOP MS004 and 8270 includes analytes by SOP MS006
Manual Integration Rationale SOP QA029: MP Missed Peak, OP Overlapping Peak, SP Split Peak, PDB Poorly Defined Baseline, BR Baseline Ripple, PII Poor Instrument Integration
All strikeouts must be initialed and dated. If correction was not due to a transcription error, then list the reason for correction.

msbna03_r_log.xls NF rev. 08/09

Analyst's Signature: MGA

ACCUTEST LABORATORIES SE

| | |
|---|---|
| DATE: | 05-13-15 |
| COLUMN TYPE: | ZB5ms |
| AMOUNT INJECTED: | 5 ul |
| INSTRUMENT: | MSBNA03-R |

MS BNA03-R ANALYSIS LOG

| | |
|---|---|
| METHODS*: | 8270 PSMWAN |
| ACQ. METHOD: | ACQ-WN |
| PROC. METHOD: | STM-WN |
| CALIB. DATE: | 04-24-15 |
| RUN BATCH: SR | 2329 |

| | |
|---|---|
| ANALYST: | MA |
| MECL2 LOT #: | 150258 |
| DFTPP RESPONSE: | 97295 |
| EM VOLTAGE: | 1872 |

| DATA FILE | ALS # | SAMPLE ID | SAMPLE METHOD | OP BATCH | DF | MANUALLY INTEGRATED PEAKS RATIONALE, PEAK # | COMMENTS |
|---|---|---|---|---|---|---|---|
| R 449082 | 55 | EG24287-4 | 8270 | OP56081 | 1X | — | — |
| R 83 | 56 | EG24311-1 | | | | #4 MP #9 OP | — |
| R 84 | 57 | -2 | | | | #4 MP | — |
| R 85 | 58 | -3 | | | | | — pmlox (MP-1X+20X) |
| R 86 | 59 | -4 | | | | #29 OP | — mlx Co |
| R 87 | 60 | EG24314-1 | | | | | ND |
| R 88 | 61 | -2 | | | | | No |
| R 89 | 62 | -3 | | | | | ~~ND~~ |
| R 90 | 63 | OP56081-MS | | | | #40 P | — |
| R 91 | 64 | -MSD | | | | | — |
| R 92 | 34 | EG24282-3 | | OP5607 | | | — |
| R 93 | 37 | EG24234-1 | | | | | — |
| R 94 | 65 | EG24248-7 | | | 10X 4+4760 | | — |
| R 95 | 66 | -9 | | | 20X 20+3840 | | — |
| R 96 | 67 | EG24282-1 | | | 50X 10+490 | | — |
| R 97 | 68 | -2 | | | | | — |
| R 98 | 69 | -4 | | | | | — |
| R 99 | 70 | -5 | | | 25X 20+480 | | — |
| R 449100 | 2 | LCC2316-5 | | 55164 | 5X 100+40 | #8 OP | — |
| R | | | | | | | |

MA 05-15-15

* For NELAC purposes, Method 625 includes analytes by SOP MS004 and 8270 includes analytes by SOP MS006
Manual Integration Rationale SOP QA029: MP Missed Peak, OP Overlapping Peak, SP Split Peak, PDB Poorly Defined Baseline, BR Baseline Ripple, PII Poor Instrument Integration
All strikeouts must be initialed and dated. If correction was not due to a transcription error, then list the reason for correction.

msbna03_r_log.xls NF rev. 08/09

Analyst's Signature: MA

ACCUTEST LABORATORIES SE

| | |
|---|---|
| DATE: | 05/15/15 |
| COLUMN TYPE: | TG5-MS |
| AMOUNT INJECTED: | 5 ul |
| INSTRUMENT: | MSBNA03-R |

MS BNA03-R ANALYSIS LOG

| | |
|---|---|
| METHODS*: | 8270D SIM PAH |
| ACQ. METHOD: | ACQ-LVR |
| PROC. METHOD: | SIM-LVR |
| CALIB. DATE: | 04/24/15 |
| RUN BATCH: SR | 2330 |

| | |
|---|---|
| ANALYST: | NV |
| MECL2 LOT #: | 150358 |
| DFTPP RESPONSE: | 202064 |
| EM VOLTAGE: | ~~1612~~ 1565 hydrolizin |

| DATA FILE | ALS # | SAMPLE ID | SAMPLE METHOD | OP BATCH | DF | MANUALLY INTEGRATED PEAKS RATIONALE, PEAK # | COMMENTS IS_ 5ng |
|---|---|---|---|---|---|---|---|
| R 499,01 | 1 | DFTPP | DFTPP | 55180 | 1 | | / |
| R 02 | 2 | CC23188-05 hydrolizis | 8270 | 55164 | TO5 | | Area fig to ↓Multiplier |
| R 03 | 1 | DFTPP hydrolizis | DFTPP | 55180 | hydrolizis | | PASS |
| R 04 | 2 | CC23188-05 | 8270 | 55164 | TO5 hydrolizis | | PASS |
| R 05 | 3 | BLK | | | | | ND |
| R 06 | 4 | FA24311-4 | | 56081 | 20 hydrolizis | | / |
| R 07 | 5 | -3 | | | 20 | | / |
| R 08 | 6 | q56067-M1 | | | 10 | | / |
| R 09 | 7 | -M1 | | | 10 | | / |
| R 10 | 8 | FA24287.1 | | | 25 | | / |
| R 11 | 9 | q56105-RS | | 56105 | 1 | | / |
| R 12 | 10 | -M17 | | | | | ND |
| R 13 | 11 | FA24287.6 | | | | | PAH +20% Pa 10x matrix IS- |
| R 14 | 12 | FA24368-1 | | | | | ND |
| R 15 | 13 | -2 | | | | | ND |
| R 16 | 14 | -3 | | | | | ND |
| R 17 | 15 | -4 | | | | | / |
| R 18 | 16 | -5 | | | | | / Pa 20x |
| R 19 | 17 | -6 | | | | | / |
| R 20 | 18 | -7 | | | | | / |

* For NELAC purposes, Method 625 includes analytes by SOP MS004 and 8270 includes analytes by SOP MS006
Manual Integration Rationale SOP QA029: MP Missed Peak, OP Overlapping Peak, SP Split Peak, PDB Poorly Defined Baseline, BR Baseline Ripple, PII Poor Instrument Integration
All strikeouts must be initialed and dated. If correction was not due to a transcription error, then list the reason for correction.

msbna03_r_log.xls NF rev. 08/09

Analyst's Signature: [signature]

ACCUTEST LABORATORIES SE

| | |
|---|---|
| DATE: | 05/15/15 |
| COLUMN TYPE: | T65-MS |
| AMOUNT INJECTED: | 2 ul |
| INSTRUMENT: | MSBNA03-R |

MS BNA03-R ANALYSIS LOG

| | |
|---|---|
| METHODS*: | 8270 SIM/MH |
| ACQ. METHOD: | ACQ-LVR |
| PROC. METHOD: | SIM-LVR |
| CALIB. DATE: | 04/24/15 |
| RUN BATCH: SR | 2330 |

| | |
|---|---|
| ANALYST: | NJ |
| MECL2 LOT #: | 15-358 |
| DFTPP RESPONSE: | 202064 |
| EM VOLTAGE: | ~~1412~~ 1565 |

ng25/18/15

| DATA FILE | ALS # | SAMPLE ID | SAMPLE METHOD | OP BATCH | DF | MANUALLY INTEGRATED PEAKS RATIONALE, PEAK # | COMMENTS |
|---|---|---|---|---|---|---|---|
| R 44 9121 | 19 | FA24368-8 | 8270 | 56105 | 1 | | ND |
| R 22 | 20 | -9 | | | | | ND |
| R 23 | 21 | -10 | | | | | ND |
| R 24 | 22 | -11 | | | | | ND |
| R 25 | 23 | bp-56105-ms | | | | | — |
| R 26 | 24 | -msd | | | | | — |
| R 27 | 2 | ECC2318-5 | | 55164 | ~~10~~ 5 | | — |
| R | | ng25/18/15 | | | ng25/18/15 | | |
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| R | | | | | | | |

NJ 05/18/15

* For NELAC purposes, Method 625 includes analytes by SOP MS004 and 8270 includes analytes by SOP MS006
Manual Integration Rationale SOP QA029: MP Missed Peak, OP Overlapping Peak, SP Split Peak, PDB Poorly Defined Baseline, BR Baseline Ripple, PII Poor Instrument Integration
All strikeouts must be initialed and dated. If correction was not due to a transcription error, then list the reason for correction.

msbna03_r_log.xls NF rev. 08/09

Analyst's Signature: [signature]

ACCUTEST LABORATORIES SE

LIQUID SAMPLE PREP REPORT

Date/Time: 05/12/15 1600 Started {mm/dd/yy 24:00}

Date/Time: 05/12/15 1800 Finished {mm/dd/yy 24:00}

Prep Method: 3510C 3580A or Method (circle)

Analytical Method: 8270 Sim PAH LVI

Batch#: OP56067 Ext. By: MJJ, JT, SP Conc. By: MJ Vialed By: MJ, SP, JT

| Sample ID | Bottle Number | Amount Extracted (ml) | Initial pH | Adjusted pH | Surrogate Amount | Spike Amount | Final Volume (ml) | Comments |
|---|---|---|---|---|---|---|---|---|
| OP 56067 MB | | 250 | 6 | <2, >11 | 0.5mL | | 1.0mL | nacl |
| OP 56067 BS | | 250 | | | | 0.1mL | | nacl |
| FA 24201-6 | 6 | 260 | | | | | | |
| FA 24248-9 | 2 | 250 | | | | | | |
| -10 | 1 | 240 | | | | | | |
| -12 | 1 | 250 | | | | | | |
| -13 | 2 | 220 | | | | | | |
| -14 | 1 | 230 | | | | | | |
| FA 24282-1 | 2 | 230 | | | | | | |
| -2 | 2 | 240 | | | | | | |
| -3 | 5 | 230 | | | | | | |
| -4 | 6 | 240 | | | | | | |
| -5 | 5 | 240 | | | | | | |
| FA 24234-1 | 1 | 240 | | | | | | |
| FA 24261-1 | 6 | 250 | | | | | | |
| -2 | 6 | 260 | | | | | | |
| -3 | 6 | 260 | | | | | | |
| FA 24279-2 | 6 | 260 | | | | | | |
| -4 | 6 | 250 | | | | | | |
| -7 | 6 | 250 | | | | | | |
| FA 24282-6 | 6 | 240 | | | | | | |
| -8 | 5 | 240 | | | | | | |
| FA 24248-9 MS | 1 | 130 | | | | 0.1mL | | |
| ↓ MSD | ↓ | 130 | ↓ | ↓ | ↓ | ↓ | ↓ | |
| DUP | | | | | | | | |

Comments:

Surr. ID: E5151-B Conc: 8/4ppm Exp. Date: 10/27/15 Inj. By: JT Ver. By MJJ

Spk. ID: E5134 C Conc: 10/20ppm Exp. Date: 10/14/15 Inj. By: JT Ver. By MJJ

Initial Bath Temp (Therm ID): TV# 5 Observed Temp °C: 45°C Corr. Temp °C: —

Exchange Bath/N-Evap Temp (Therm ID): — Observed Temp °C: — Corr. Temp °C: —

CH2CL2 Lot # 150358 Hexane Lot # — Na2SO4 Lot# _____

Acetonitrile Lot # — Methanol Lot # — Acetone Lot# —

Syringe Filter Lot# — Reagent # H2SO4 410327 Reagent # NaOH 167774

Copper Lot # — If Sulfur Cleaning is performed in Extractions (3660B)

Relinquished By: _____ Date: 05/12/15

Accepted By: _____ Date: 05/13/15

NF rev. 09/14/12 extwater 091412.xls

7.8.1

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