

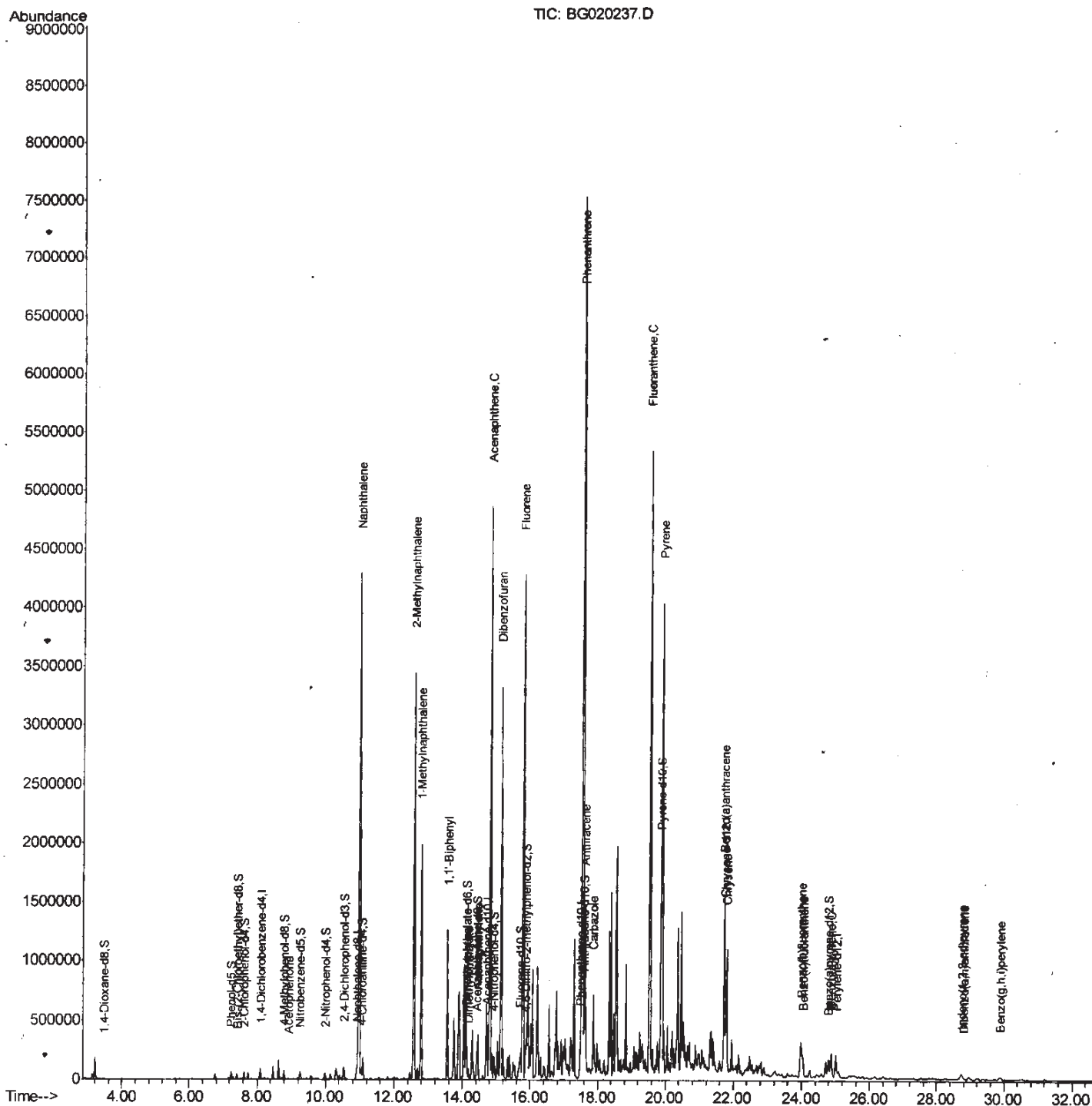
Data Path : Z:\HPCHEM1\BNA\_G\Data\BG121715\  
 Data File : BG020237.D  
 Acq On : 17 Dec 2015 1:28  
 Operator : UM/SJ  
 Sample : G4767-12  
 Misc :  
 ALS Vial : 23 Sample Multiplier: 1

Instrument :  
 BNA\_G  
 ClientSampleId :  
 D9N34

Quant Time: Dec 17 05:46:26 2015  
 Quant Method : Z:\HPCHEM1\BNA\_G\METHODS\SOM02.2-EPA-BG121415.M  
 Quant Title : SVOA CALIBRATION  
 QLast Update : Thu Dec 17 03:53:00 2015  
 Response via : Initial Calibration

Manual Integrations  
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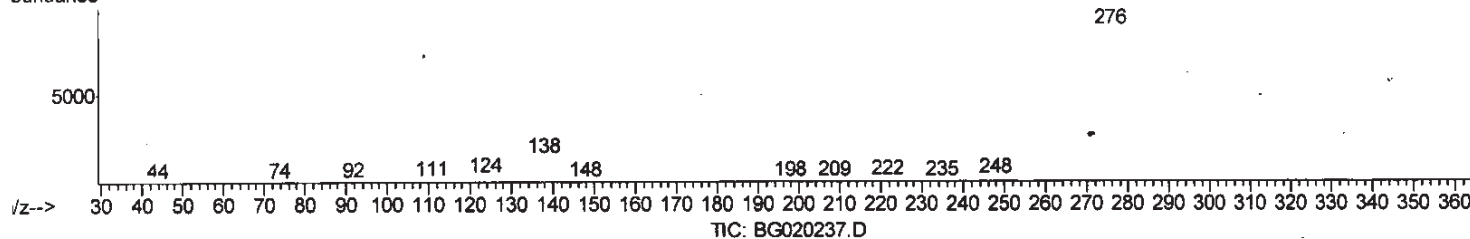
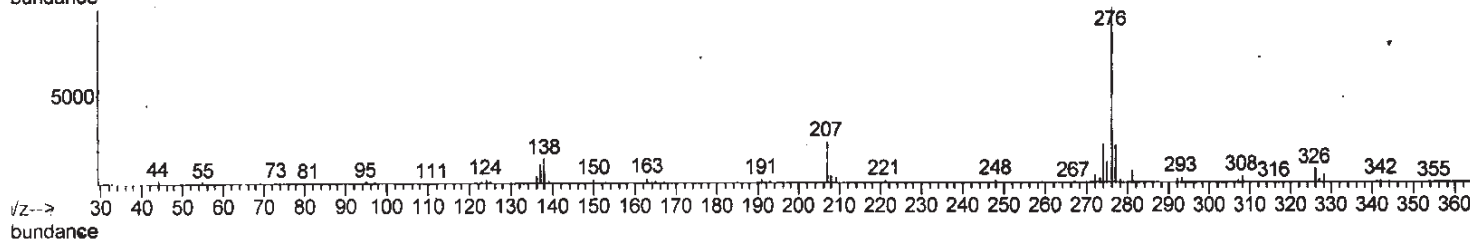
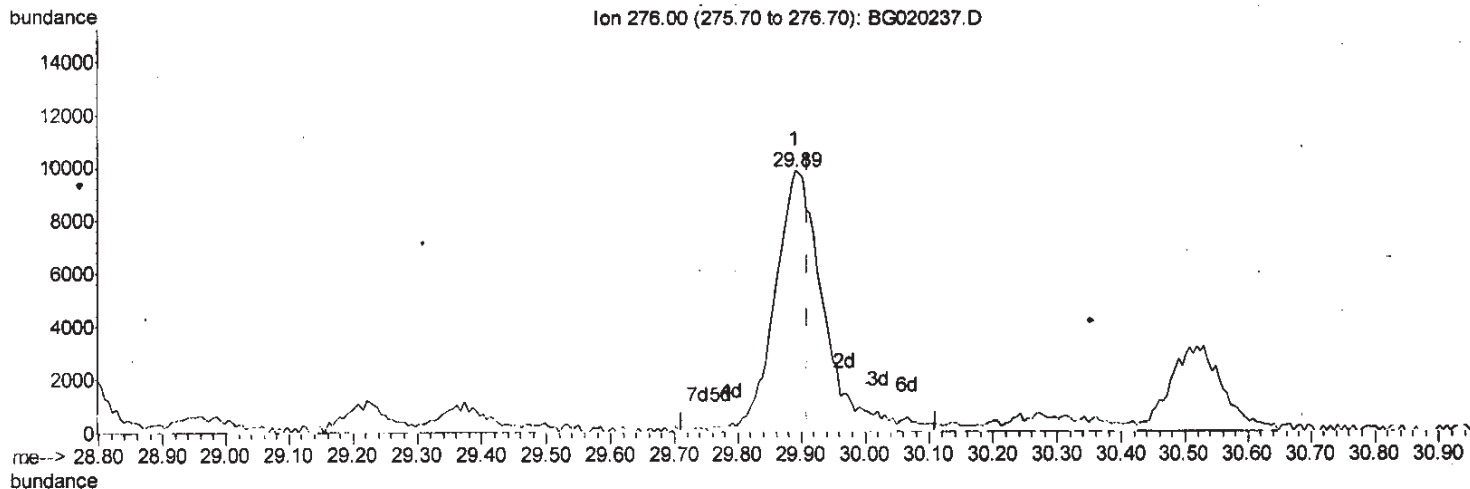
Data Path : Z:\HPCHEM1\BNA\_G\Data\BG121715\  
 Data File : BG020237.D  
 Acq On : 17 Dec 2015 1:28  
 Operator : UM/SJ  
 Sample : G4767-12  
 Misc :  
 Vial : 23 Sample Multiplier: 1

Instrument :  
 BNA\_G  
 ClientSampleId :  
 D9N34

Quant Time: Dec 17 05:45:10 2015  
 Quant Method : Z:\HPCHEM1\BNA\_G\METHODS\SOM02.2-EPA-BG121415.M  
 Quant Title : SVOA CALIBRATION  
 QLast Update : Thu Dec 17 03:53:00 2015  
 Response via : Initial Calibration

Manual Integrations  
 APPROVED

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 12/17/2015 12:00:29 PM



(94) Benzo(g,h,i)perylene  
 29.890min (-0.021) 4.95ng/ul m  
 response 51838

| Ion    | Exp%  | Act%  |
|--------|-------|-------|
| 276.00 | 100   | 100   |
| 138.00 | 13.50 | 15.38 |
| 277.00 | 24.90 | 22.43 |
| 0.00   | 0.00  | 0.00  |

*U.M.*  
*12/18/15*

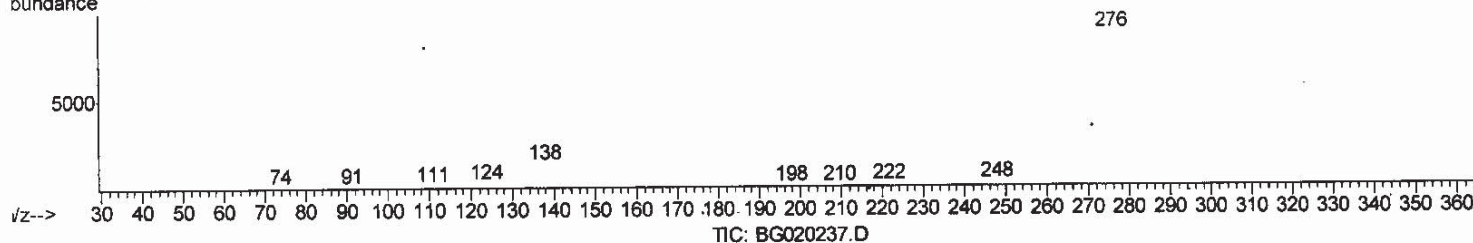
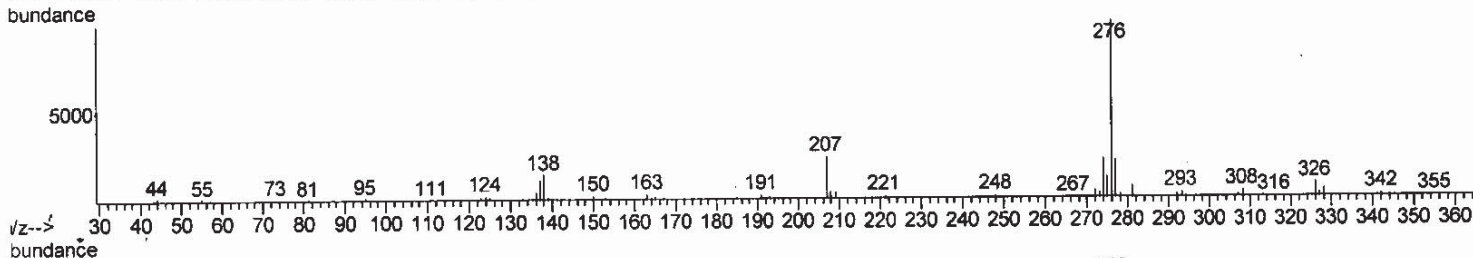
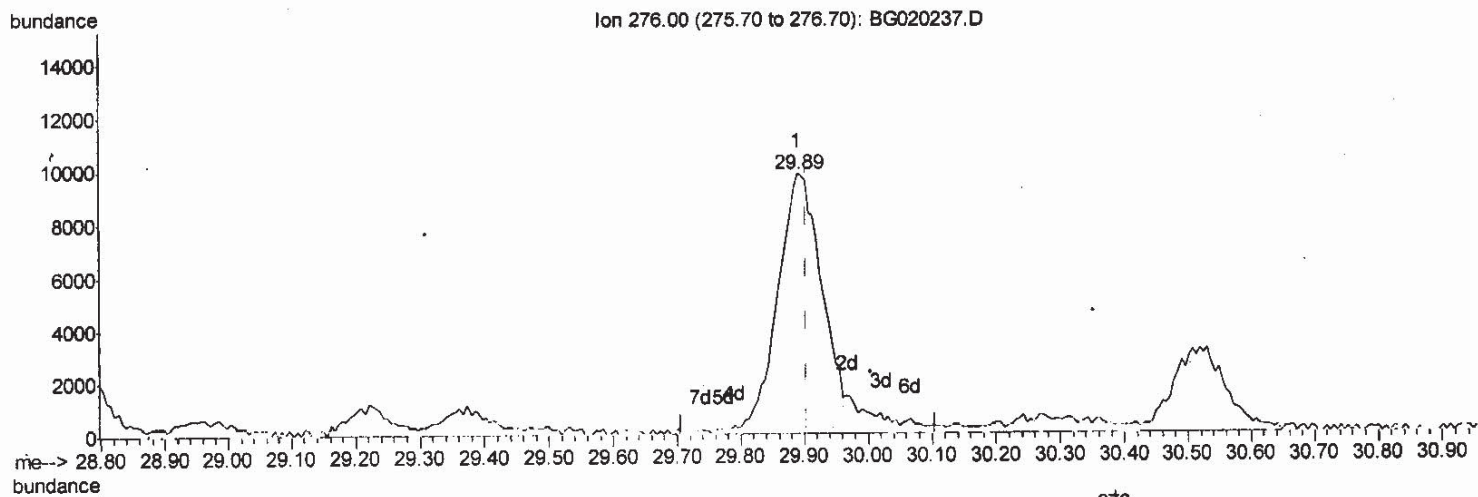
Data Path : Z:\HPCHEM1\BNA\_G\Data\BG121715\  
 Data File : BG020237.D  
 Acq On : 17 Dec 2015 1:28  
 Operator : UM/SJ  
 Sample : G4767-12  
 Misc :  
 ALS Vial : 23 Sample Multiplier: 1

Instrument :  
 BNA\_G  
 ClientSampleId :  
 D9N34

Quant Time: Dec 28 03:37:25 2015  
 Quant Method : Z:\HPCHEM1\BNA\_G\METHODS\SOM02.2-EPA-BG121415.M  
 Quant Title : SVOA CALIBRATION  
 QLast Update : Thu Dec 24 02:43:25 2015  
 Response via : Initial Calibration

Manual Integrations  
 APPROVED

MMdadoda  
 12/17/2015 12:00:29 PM



(94) Benzo(g,h,i)perylene

29.890min (-0.015) 4.34ng/ul

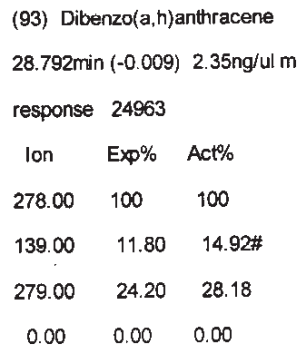
response 45510

| Ion    | Exp%  | Act%  |
|--------|-------|-------|
| 276.00 | 100   | 100   |
| 138.00 | 13.50 | 15.38 |
| 277.00 | 24.90 | 22.43 |
| 0.00   | 0.00  | 0.00  |

**Instrument :**  
BNA\_G  
**ClientSampleId :**  
D9N34

## Manual Integrations

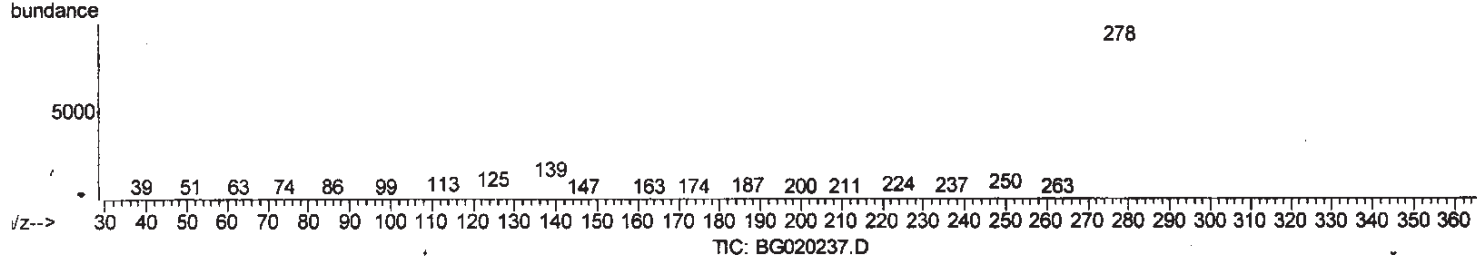
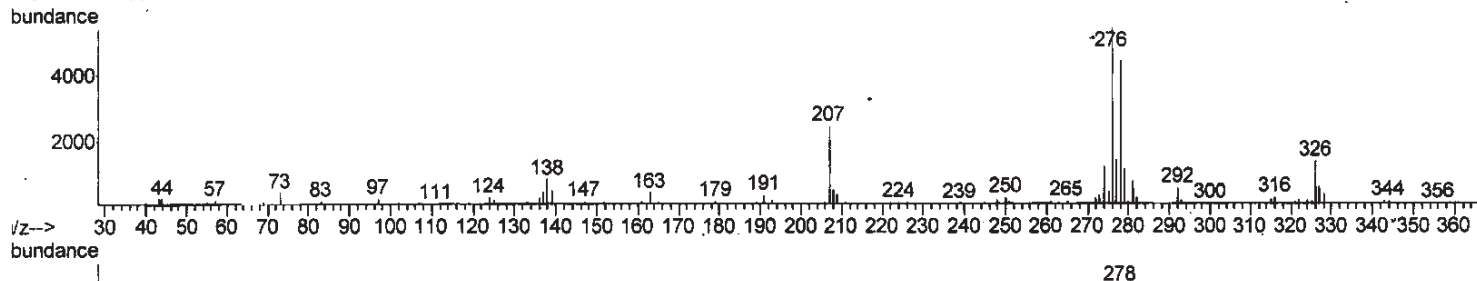
MMdadoda  
12/17/2015 12:00:29 PM


$$\frac{0.21}{12/18/15}$$

**Instrument :**  
BNA\_G  
**ClientSampleId :**  
D9N34

## Manual Integrations APPROVED

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12/17/2015 12:00:29 PM



response 1190

| Ion    | Exp%  | Act%  |
|--------|-------|-------|
| 278.00 | 100   | 100   |
| 139.00 | 11.80 | 11.99 |
| 279.00 | 24.20 | 27.22 |
| 0.00   | 0.00  | 0.00  |

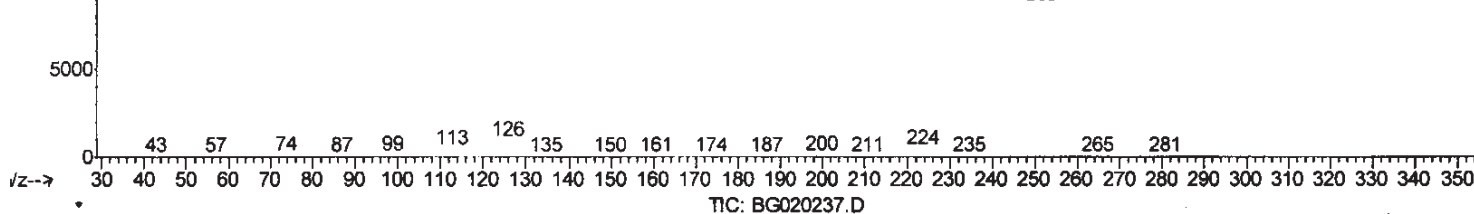
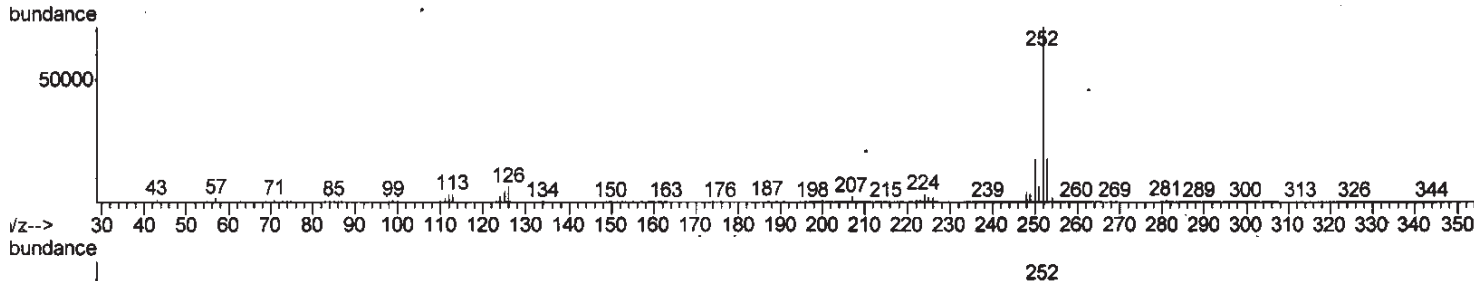
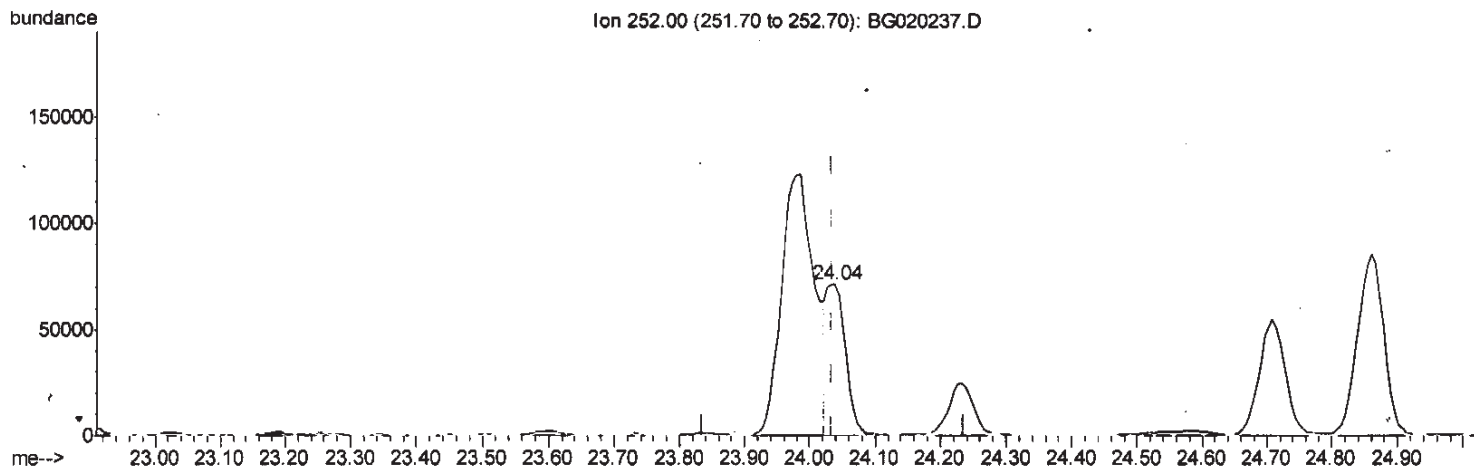
Data Path : Z:\HPCHEM1\BNA\_G\Data\BG121715\  
 Data File : BG020237.D  
 Acq On : 17 Dec 2015 1:28  
 Operator : UM/SJ  
 Sample : G4767-12  
 Misc :  
 ALS Vial : 23 Sample Multiplier: 1

Instrument :  
 BNA\_G  
 ClientSampleId :  
 D9N34

Quant Time: Dec 17 04:00:50 2015  
 Quant Method : Z:\HPCHEM1\BNA\_G\METHODS\SOM02.2-EPA-BG121415.M  
 Quant Title : SVOA CALIBRATION  
 QLast Update : Thu Dec 17 03:53:00 2015  
 Response via : Initial Calibration

Manual Integrations  
 APPROVED

MMdadoda  
 12/17/2015 12:00:29 PM



(89) Benzo(k)fluoranthene

24.038min (+0.003) 13.41ng/ul m

response 145713

| Ion    | Exp%  | Act%  |
|--------|-------|-------|
| 252.00 | 100   | 100   |
| 253.00 | 22.40 | 24.54 |
| 125.00 | 7.20  | 6.53  |
| 0.00   | 0.00  | 0.00  |

*UM*  
*12/18/15*

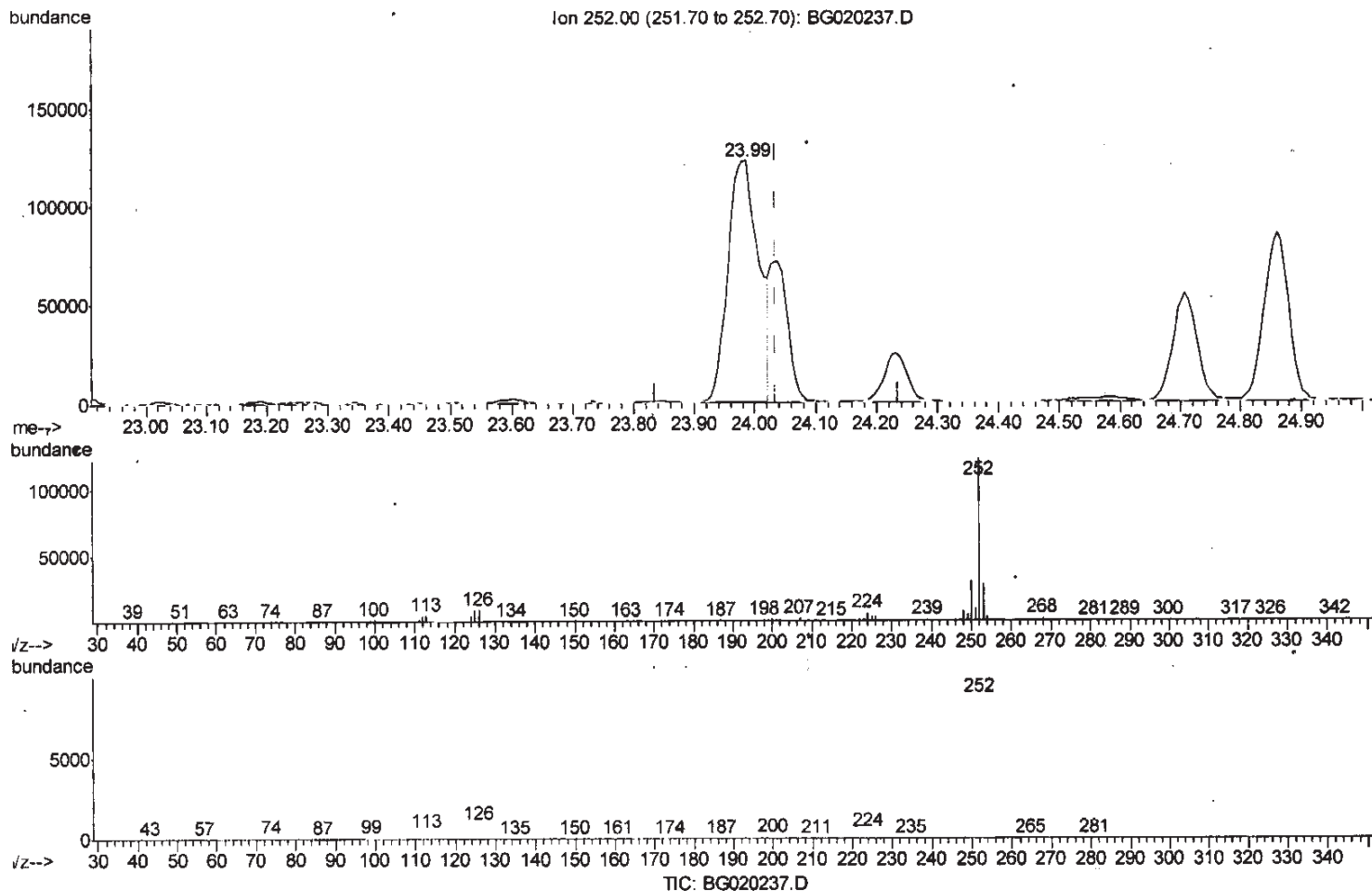
Data Path : Z:\HPCHEM1\BNA\_G\Data\BG121715\  
 Data File : BG020237.D  
 Acq On : 17 Dec 2015 1:28  
 Operator : UM/SJ  
 Sample : G4767-12  
 Misc :  
 ALS Vial : 23 Sample Multiplier: 1

Instrument :  
 BNA\_G  
 ClientSampleId :  
 D9N34

Quant Time: Dec 17 04:00:50 2015  
 Quant Method : Z:\HPCHEM1\BNA\_G\METHODS\SOM02.2-EPA-BG121415.M  
 Quant Title : SVOA CALIBRATION  
 QLast Update : Thu Dec 17 03:53:00 2015  
 Response via : Initial Calibration

Manual Integrations  
 APPROVED

MMdadoda  
 12/17/2015 12:00:29 PM



• (89) Benzo(k)fluoranthene  
 23.986min (-0.050) 39.58ng/ui  
 response 429954

| Ion    | Exp%  | Act%  |
|--------|-------|-------|
| 252.00 | 100   | 100   |
| 253.00 | 22.40 | 22.90 |
| 125.00 | 7.20  | 6.95  |
| 0.00   | 0.00  | 0.00  |

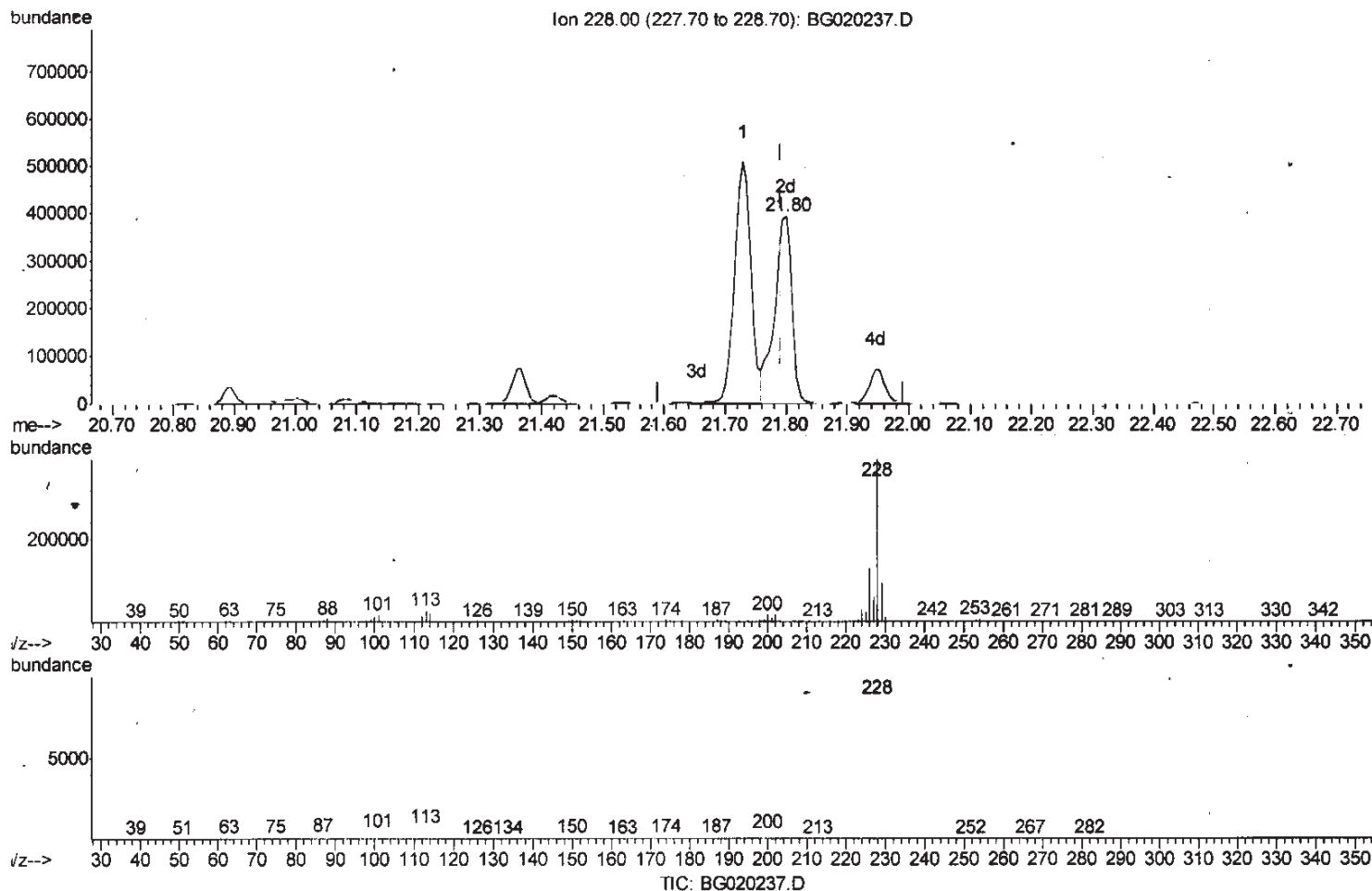
Data Path : Z:\HPCHEM1\BNA\_G\Data\BG121715\  
 Data File : BG020237.D  
 Acq On : 17 Dec 2015 1:28  
 Operator : UM/SJ  
 Sample : G4767-12  
 Misc :  
 ALS Vial : 23 Sample Multiplier: 1

Instrument :  
 BNA\_G  
 ClientSampleId :  
 D9N34

Quant Time: Dec 17 04:00:50 2015  
 Quant Method : Z:\HPCHEM1\BNA\_G\METHODS\SOM02.2-EPA-BG121415.M  
 Quant Title : SVOA CALIBRATION  
 QLast Update : Thu Dec 17 03:53:00 2015  
 Response via : Initial Calibration

Manual Integrations  
 APPROVED

MMdadoda  
 12/17/2015 12:00:29 PM



(85) Chrysene

21.800min (+0.008) 72.30ng/ul m

response 763896

| Ion    | Exp%  | Act%   |
|--------|-------|--------|
| 228.00 | 100   | 100    |
| 226.00 | 29.90 | 32.90  |
| 229.00 | 19.50 | 23.82# |
| 0.00   | 0.00  | 0.00   |

U.S.A.  
 12/18/15

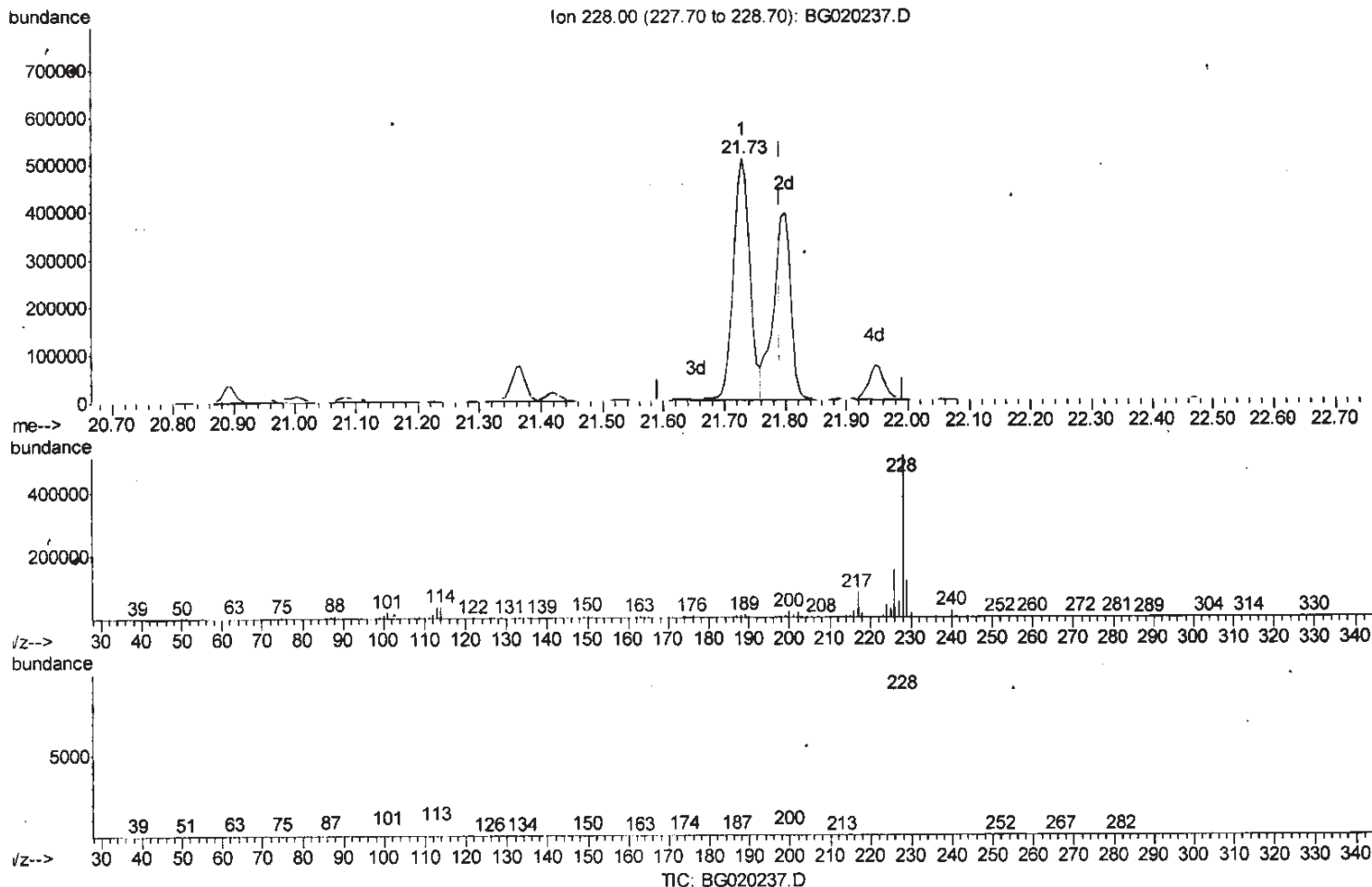
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 Data File : BG020237.D  
 Acq On : 17 Dec 2015 1:28  
 Operator : UM/SJ  
 Sample : G4767-12  
 Misc :  
 ALS Vial : 23 Sample Multiplier: 1

Instrument :  
 BNA\_G  
 ClientSampleId :  
 D9N34

Quant Time: Dec 17 04:00:50 2015  
 Quant Method : Z:\HPCHEM1\BNA\_G\METHODS\SOM02.2-EPA-BG121415.M  
 Quant Title : SVOA CALIBRATION  
 QLast Update : Thu Dec 17 03:53:00 2015  
 Response via : Initial Calibration

Manual Integrations  
 APPROVED

MMdadoda  
 12/17/2015 12:00:29 PM



(85) Chrysene

21.729min (-0.062) 89.65ng/ul

response 947179

| Ion    | Exp%  | Act%  |
|--------|-------|-------|
| 228.00 | 100   | 100   |
| 226.00 | 29.90 | 29.79 |
| 229.00 | 19.50 | 22.99 |
| 0.00   | 0.00  | 0.00  |

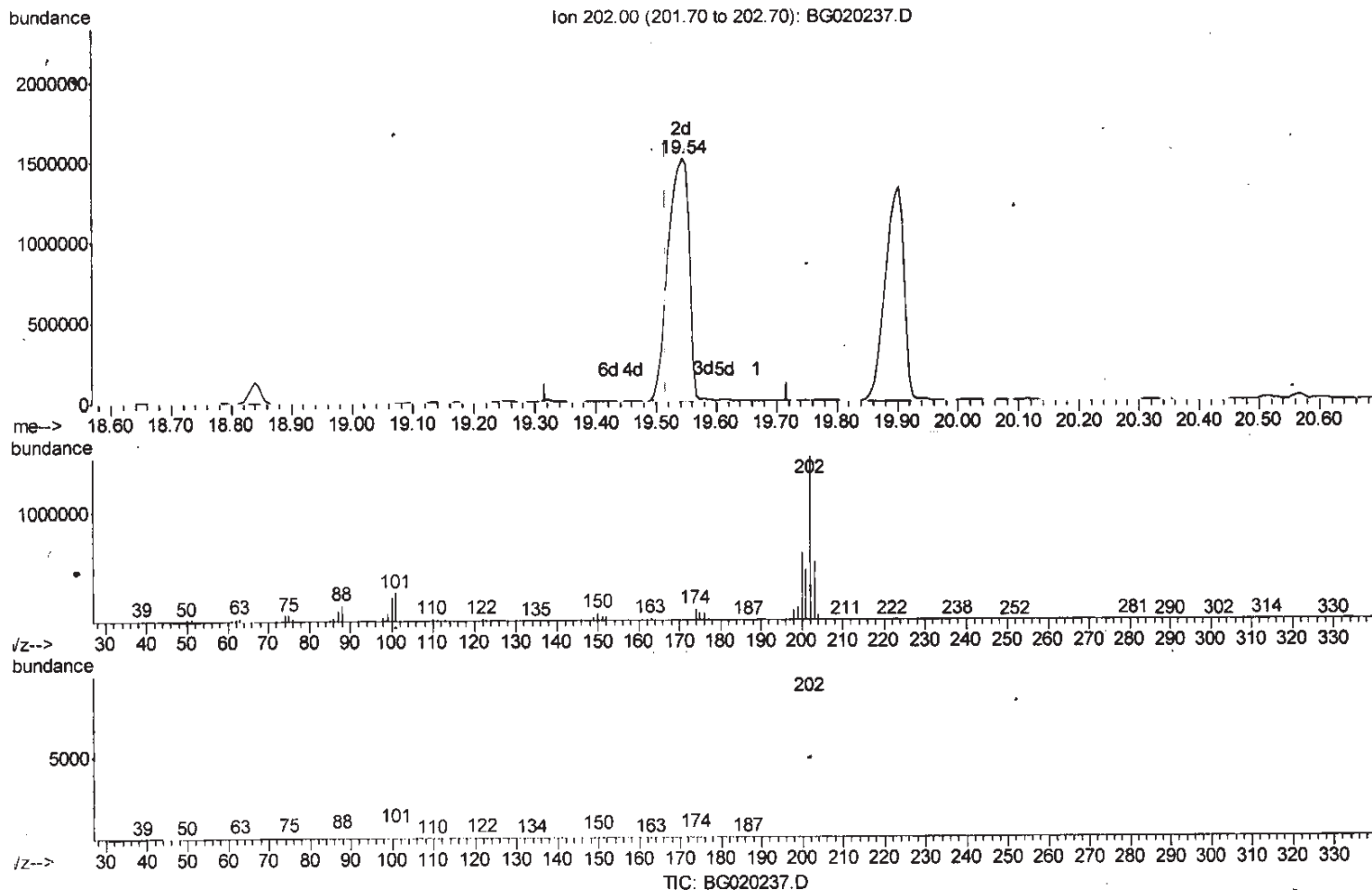
Data Path : Z:\HPCHEM1\BNA\_G\Data\BG121715\  
 Data File : BG020237.D  
 Acq On : 17 Dec 2015 1:28  
 Operator : UM/SJ  
 Sample : G4767-12  
 Misc :  
 ALS Vial : 23 Sample Multiplier: 1

Instrument :  
 BNA\_G  
 ClientSampleId :  
 D9N34

Quant Time: Dec 17 04:00:50 2015  
 Quant Method : Z:\HPCHEM1\BNA\_G\METHODS\SOM02.2-EPA-BG121415.M  
 Quant Title : SVOA CALIBRATION  
 QLast Update : Thu Dec 17 03:53:00 2015  
 Response via : Initial Calibration

Manual Integrations  
 APPROVED

MMdadoda  
 12/17/2015 12:00:29 PM



(77) Fluoranthene (C)

19.544min (+0.026) 338.93ng/ul m

response 3674229

| Ion    | Exp% | Act%   |
|--------|------|--------|
| 202.00 | 100  | 100    |
| 101.00 | 7.80 | 17.59# |
| 100.00 | 6.40 | 14.12# |
| 0.00   | 0.00 | 0.00   |

U.S.  
 12/18/15

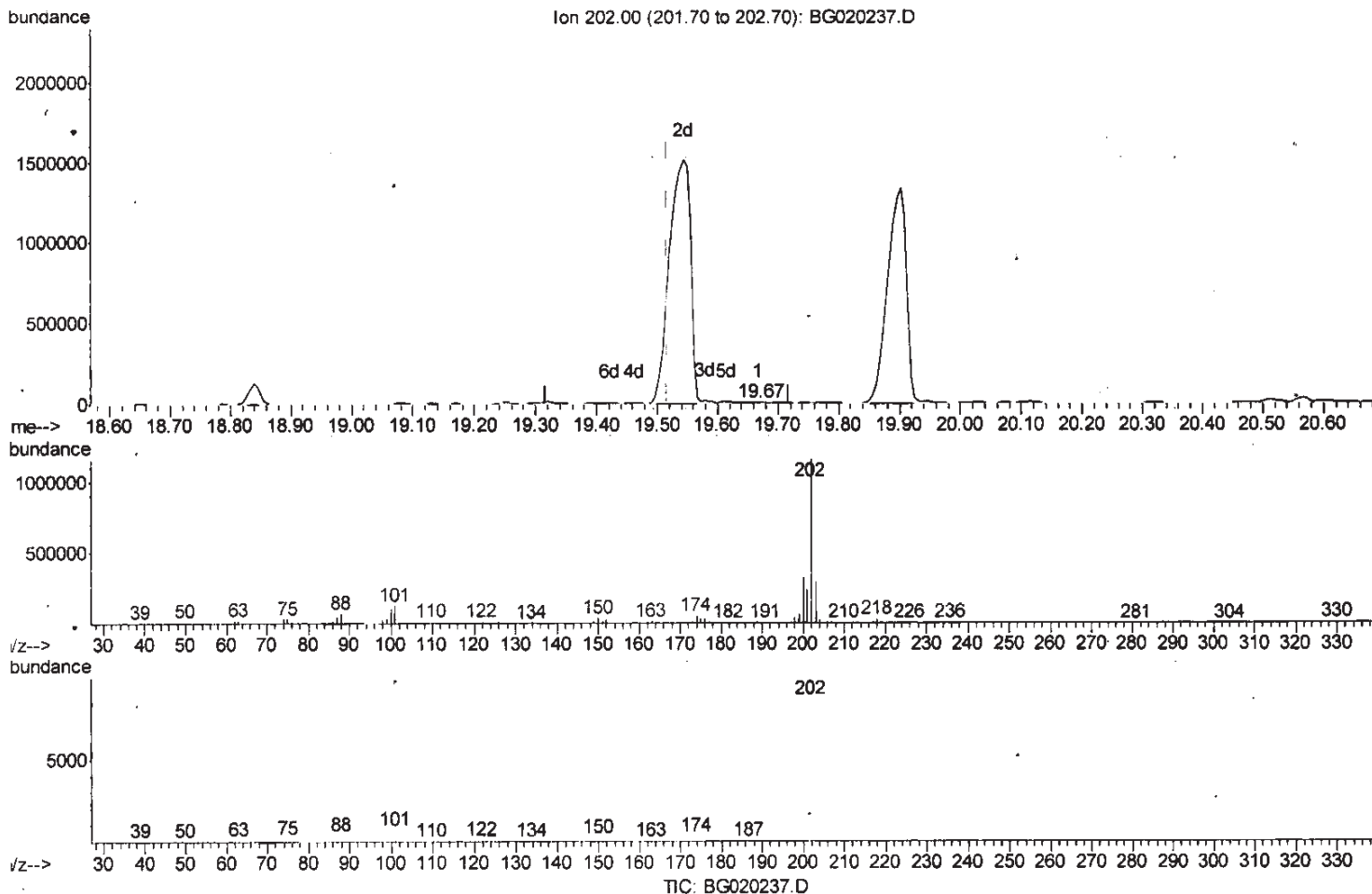
Data Path : Z:\HPCHEM1\BNA\_G\Data\BG121715\  
 Data File : BG020237.D  
 Acq On : 17 Dec 2015 1:28  
 Operator : UM/SJ  
 Sample : G4767-12  
 Misc :  
 ALS Vial : 23 Sample Multiplier: 1

Instrument :  
 BNA\_G  
 ClientSampleId :  
 D9N34

Quant Time: Dec 17 04:00:50 2015  
 Quant Method : Z:\HPCHEM1\BNA\_G\METHODS\SOM02.2-EPA-BG121415.M  
 Quant Title : SVOA CALIBRATION  
 QLast Update : Thu Dec 17 03:53:00 2015  
 Response via : Initial Calibration

Manual Integrations  
 APPROVED

MMdadoda  
 12/17/2015 12:00:29 PM



(77) Fluoranthene (C)

19.667min (+0.149) 0.85ng/ul

response 9184

| Ion    | Exp% | Act% |
|--------|------|------|
| 202.00 | 100  | 100  |
| 101.00 | 7.80 | 7.71 |
| 100.00 | 6.40 | 6.59 |
| 0.00   | 0.00 | 0.00 |

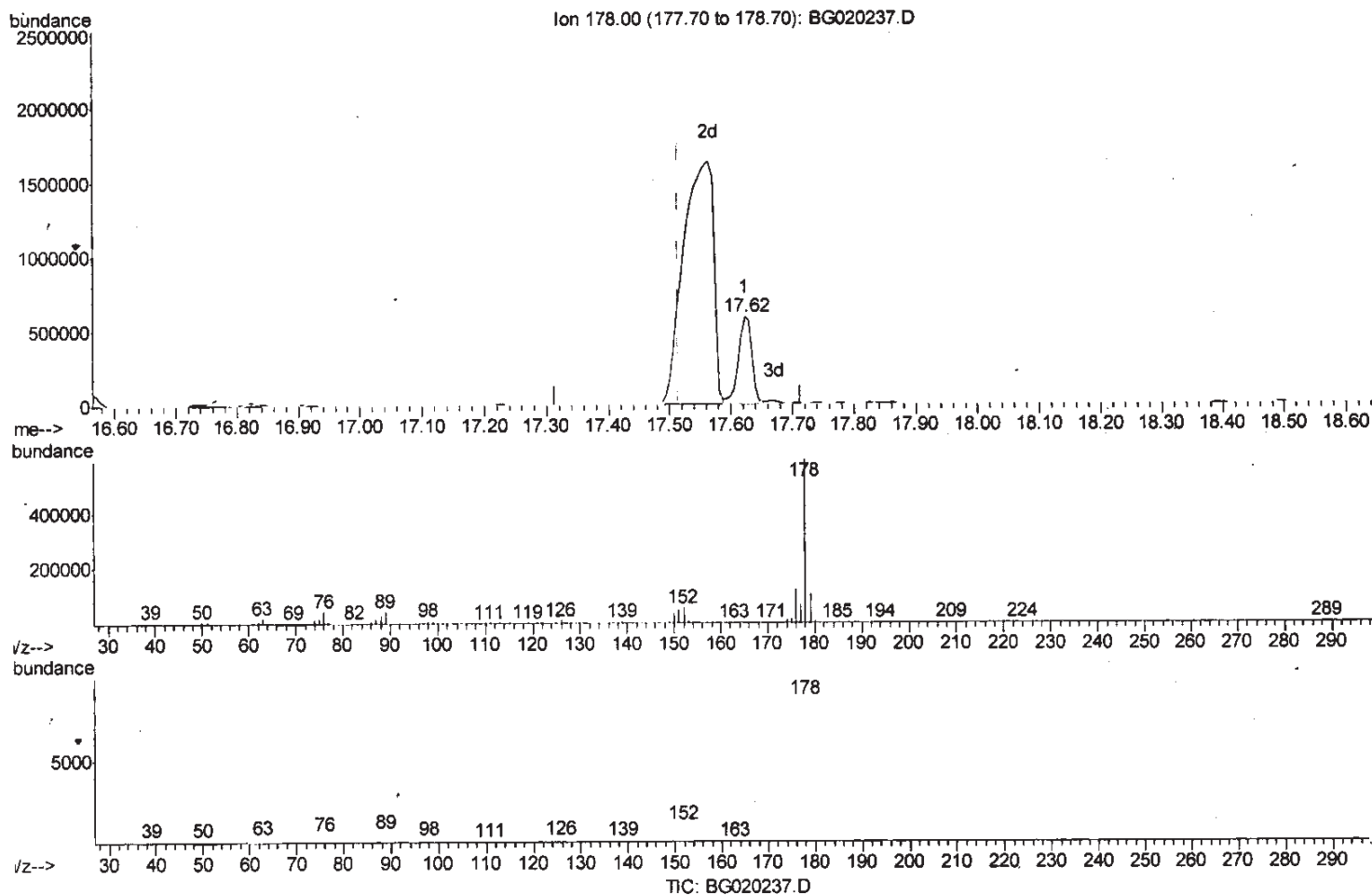
Data Path : Z:\HPCHEM1\BNA\_G\Data\BG121715\  
 Data File : BG020237.D  
 Acq On : 17 Dec 2015 1:28  
 Operator : UM/SJ  
 Sample : G4767-12  
 Misc :  
 ALS Vial : 23 Sample Multiplier: 1

Instrument :  
 BNA\_G  
 ClientSampleId :  
 D9N34

Quant Time: Dec 17 04:00:50 2015  
 Quant Method : Z:\HPCHEM1\BNA\_G\METHODS\SOM02.2-EPA-BG121415.M  
 Quant Title : SVOA CALIBRATION  
 QLast Update : Thu Dec 17 03:53:00 2015  
 Response via : Initial Calibration

Manual Integrations  
 APPROVED

MMdadoda  
 12/17/2015 12:00:29 PM



(70) Phenanthrene

17.622min (+0.108) 94.74ng/ul

response 878768

| Ion    | Exp%  | Act%  |
|--------|-------|-------|
| 178.00 | 100   | 100   |
| 179.00 | 16.10 | 17.89 |
| 176.00 | 19.10 | 20.25 |
| • 0.00 | 0.00  | 0.00  |

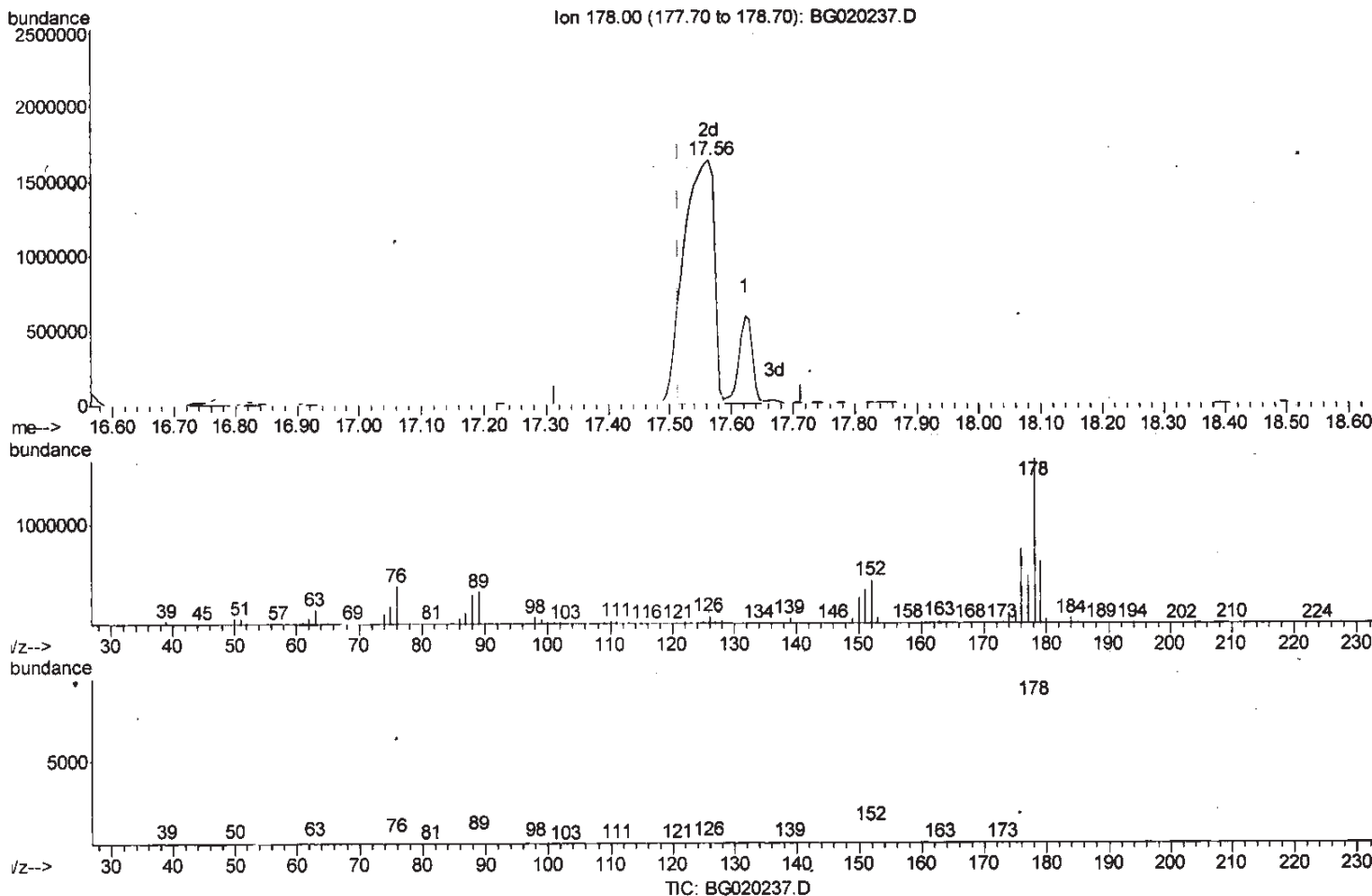
Data Path : Z:\HPCHEM1\BNA\_G\Data\BG121715\  
 Data File : BG020237.D  
 Acq On : 17 Dec 2015 1:28  
 Operator : UM/SJ  
 Sample : G4767-12  
 Misc :  
 ALS Vial : 23 Sample Multiplier: 1

Instrument :  
 BNA\_G  
 ClientSampleId :  
 D9N34

Manual Integrations  
 APPROVED

MMdadoda  
 12/17/2015 12:00:29 PM

Quant Time: Dec 17 04:00:50 2015  
 Quant Method : Z:\HPCHEM1\BNA\_G\METHODS\SOM02.2-EPA-BG121415.M  
 Quant Title : SVOA CALIBRATION  
 QLast Update : Thu Dec 17 03:53:00 2015  
 Response via : Initial Calibration



(70) Phenanthrene

17.564min (+0.050) 601.18ng/ul m

response 5576401

| Ion    | Exp%  | Act%   |
|--------|-------|--------|
| 178.00 | 100   | 100    |
| 179.00 | 16.10 | 37.46# |
| 176.00 | 19.10 | 44.95# |
| 0.00   | 0.00  | 0.00   |

U.M.  
 12/18/15

Data Path : Z:\HPCHEM1\BNA\_G\Data\BG121715\  
 Data File : BG020237.D  
 Acq On : 17 Dec 2015 1:28  
 Operator : UM/SJ  
 Sample : G4767-12  
 Misc :  
 ALS Vial : 23 Sample Multiplier: 1

Instrument :  
 BNA\_G  
 ClientSampleId :  
 D9N34

Quant Time: Dec 17 05:46:26 2015  
 Quant Method : Z:\HPCHEM1\BNA\_G\METHODS\SOM02.2-EPA-BG121415.M  
 Quant Title : SVOA CALIBRATION  
 QLast Update : Thu Dec 17 03:53:00 2015  
 Response via : Initial Calibration

Manual Integrations  
 APPROVED

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 12/17/2015 12:00:29 PM

| Internal Standards        | R.T.  | QIon | Response | Conc  | Units | Dev(Min) |
|---------------------------|-------|------|----------|-------|-------|----------|
| 1) 1,4-Dichlorobenzene-d4 | 8.10  | 152  | 24938    | 20.00 | ng/ul | 0.00     |
| 18) Naphthalene-d8        | 10.92 | 136  | 113150   | 20.00 | ng/ul | 0.00     |
| 36) Acenaphthene-d10      | 14.73 | 164  | 83030    | 20.00 | ng/ul | 0.00     |
| 62) Phenanthrene-d10      | 17.48 | 188  | 169579   | 20.00 | ng/ul | 0.00     |
| 78) Chrysene-d12          | 21.75 | 240  | 192254   | 20.00 | ng/ul | 0.00     |
| 86) Perylene-d12          | 25.01 | 264  | 188071   | 20.00 | ng/ul | 0.00     |

#### System Monitoring Compounds

|                                |       |     |        |       |       |      |
|--------------------------------|-------|-----|--------|-------|-------|------|
| 3) 1,4-Dioxane-d8              | 3.47  | 96  | 1242   | 2.75  | ng/uL | 0.00 |
| 5) Phenol-d5                   | 7.25  | 99  | 34501  | 15.69 | ng/ul | 0.00 |
| 7) Bis-(2-Chloroethyl)ether-d  | 7.42  | 67  | 21270  | 16.21 | ng/ul | 0.00 |
| 9) 2-Chlorophenol-d4           | 7.63  | 132 | 26354  | 16.48 | ng/ul | 0.00 |
| 13) 4-Methylphenol-d8          | 8.80  | 113 | 30696  | 16.32 | ng/ul | 0.00 |
| 19) Nitrobenzene-d5            | 9.26  | 128 | 15983  | 18.12 | ng/ul | 0.00 |
| 22) 2-Nitrophenol-d4           | 9.99  | 143 | 18416  | 18.76 | ng/ul | 0.00 |
| 26) 2,4-Dichlorophenol-d3      | 10.53 | 165 | 32334  | 16.26 | ng/ul | 0.00 |
| 29) 4-Chloroaniline-d4         | 11.05 | 131 | 44464  | 19.91 | ng/ul | 0.00 |
| 44) Dimethylphthalate-d6       | 14.13 | 166 | 107942 | 16.07 | ng/ul | 0.00 |
| 47) Acenaphthylene-d8          | 14.43 | 160 | 125007 | 16.00 | ng/ul | 0.00 |
| 52) 4-Nitrophenol-d4           | 14.92 | 143 | 15754  | 13.08 | ng/ul | 0.00 |
| 58) Fluorene-d10               | 15.72 | 176 | 94871  | 15.57 | ng/ul | 0.00 |
| 63) 4,6-Dinitro-2-methylphenol | 15.85 | 200 | 5980   | 5.95  | ng/ul | 0.03 |
| 71) Anthracene-d10             | 17.59 | 188 | 136744 | 17.50 | ng/ul | 0.03 |
| 79) Pyrene-d10                 | 19.86 | 212 | 154321 | 17.22 | ng/ul | 0.00 |
| 90) Benzo(a)pyrene-d12         | 24.79 | 264 | 170840 | 18.21 | ng/ul | 0.00 |

#### Target Compounds

|                            |       |     |          |         |        | Qvalue |
|----------------------------|-------|-----|----------|---------|--------|--------|
| 14) Acetophenone           | 8.92  | 105 | 3610     | 1.23    | ng/ul  | 96     |
| 28) Naphthalene            | 11.00 | 128 | 3908083  | 661.39  | ng/ul# | 72     |
| 34) 2-Methylnaphthalene    | 12.59 | 142 | 1803605  | 399.61  | ng/ul  | 99     |
| 35) 1-Methylnaphthalene    | 12.79 | 142 | 920054   | 212.04  | ng/ul# | 95     |
| 41) 1,1'-Biphenyl          | 13.57 | 154 | 654654   | 104.51  | ng/ul  | 99     |
| 45) Dimethylphthalate      | 14.18 | 163 | 47850    | 6.98    | ng/ul  | 98     |
| 48) Acenaphthylene         | 14.46 | 152 | 121431   | 14.63   | ng/ul# | 93     |
| 50) Acenaphthene           | 14.82 | 153 | 2357800  | 422.14  | ng/ul# | 89     |
| 54) Dibenzofuran           | 15.14 | 168 | 2288804  | 275.47  | ng/ul# | 80     |
| 59) Fluorene               | 15.80 | 166 | 2265247  | 339.50  | ng/ul# | 97     |
| 70) Phenanthrene           | 17.56 | 178 | 5576401m | 2601.18 | ng/ul  |        |
| 72) Anthracene             | 17.62 | 178 | 880347   | 93.57   | ng/ul  | 94     |
| 75) Carbazole              | 17.88 | 167 | 421112   | 53.27   | ng/ul  | 97     |
| 77) Fluoranthene           | 19.54 | 202 | 3674229m | 338.93  | ng/ul  |        |
| 80) Pyrene                 | 19.90 | 202 | 2852250  | 245.12  | ng/ul# | 86     |
| 83) Benzo(a)anthracene     | 21.73 | 228 | 958053   | 85.40   | ng/ul  | 94     |
| 85) Chrysene               | 21.80 | 228 | 763896m  | 72.30   | ng/ul  |        |
| 88) Benzo(b)fluoranthene   | 23.99 | 252 | 429954   | 37.98   | ng/ul  | 96     |
| 89) Benzo(k)fluoranthene   | 24.04 | 252 | 145713m  | 13.41   | ng/ul  |        |
| 91) Benzo(a)pyrene         | 24.86 | 252 | 235769   | 21.97   | ng/ul  | 99     |
| 92) Indeno(1,2,3-cd)pyrene | 28.73 | 276 | 68303    | 5.35    | ng/ul# | 90     |
| 93) Dibenzo(a,h)anthracene | 28.79 | 278 | 24963m   | 2.35    | ng/ul  |        |
| 94) Benzo(g,h,i)perylene   | 29.89 | 276 | 51838m   | 4.95    | ng/ul  |        |

U.M.  
 12/18/15

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Acq On : 17 Dec 2015 1:28  
Operator : UM/SJ  
Sample : G4767-12  
Misc :  
ALS Vial : 23 Sample Multiplier: 1

Instrument :  
BNA\_G  
ClientSampleId :  
D9N34

Quant Time: Dec 17 05:46:26 2015  
Quant Method : Z:\HPCHEM1\BNA\_G\METHODS\SOM02.2-EPA-BG121415.M  
Quant Title : SVOA CALIBRATION  
QLast Update : Thu Dec 17 03:53:00 2015  
Response via : Initial Calibration

Manual Integrations  
APPROVED

MMdadoda  
12/17/2015 12:00:29 PM

| Internal Standards | R.T. | QIon | Response | Conc | Units | Dev(Min) |
|--------------------|------|------|----------|------|-------|----------|
|--------------------|------|------|----------|------|-------|----------|

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