

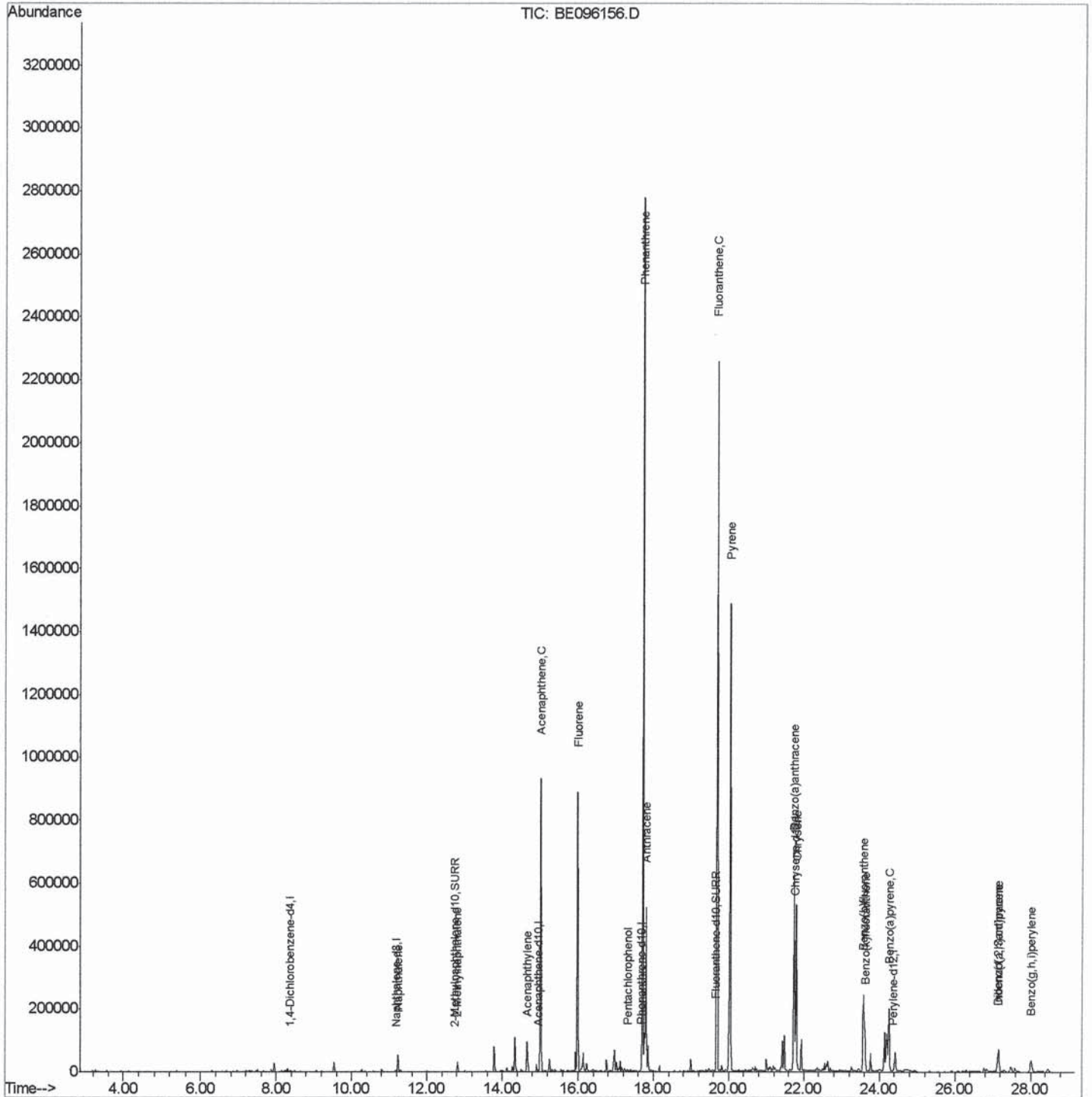
Quantitation Report (QT Reviewed)

Data Path : Z:\HPCHEM1\BNA\_E\Data\BE042518\  
 Data File : BE096156.D  
 Acq On : 25 Apr 2018 20:04  
 Operator : SJ/JU  
 Sample : J2431-07  
 Misc :  
 ALS Vial : 16 Sample Multiplier: 1

Instrument :  
 BNA\_E  
 Client Sampled :  
 DASN8

Manual Integrations  
**APPROVED**  
 Sohil  
 4/26/2018 6:19:57 PM

Quant Time: Apr 26 14:43:40 2018  
 Quant Method : Z:\HPCHEM1\BNA\_E\METHODS\SOM-EPA-SIM-BE042418.M  
 Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION  
 QLast Update : Thu Apr 26 06:40:54 2018  
 Response via : Initial Calibration



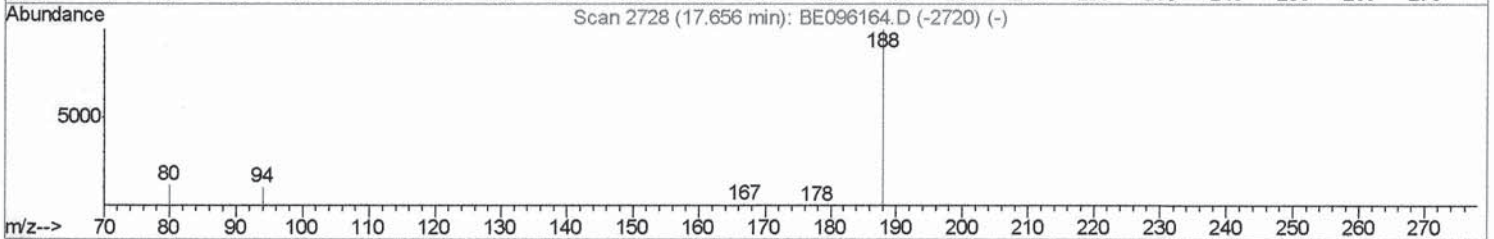
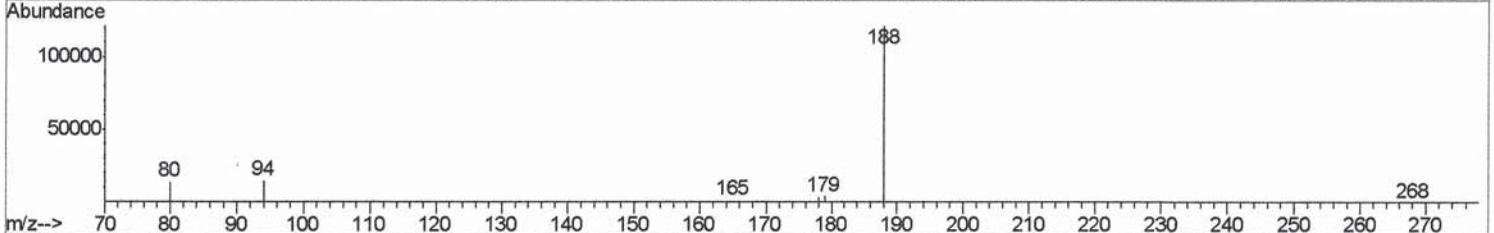
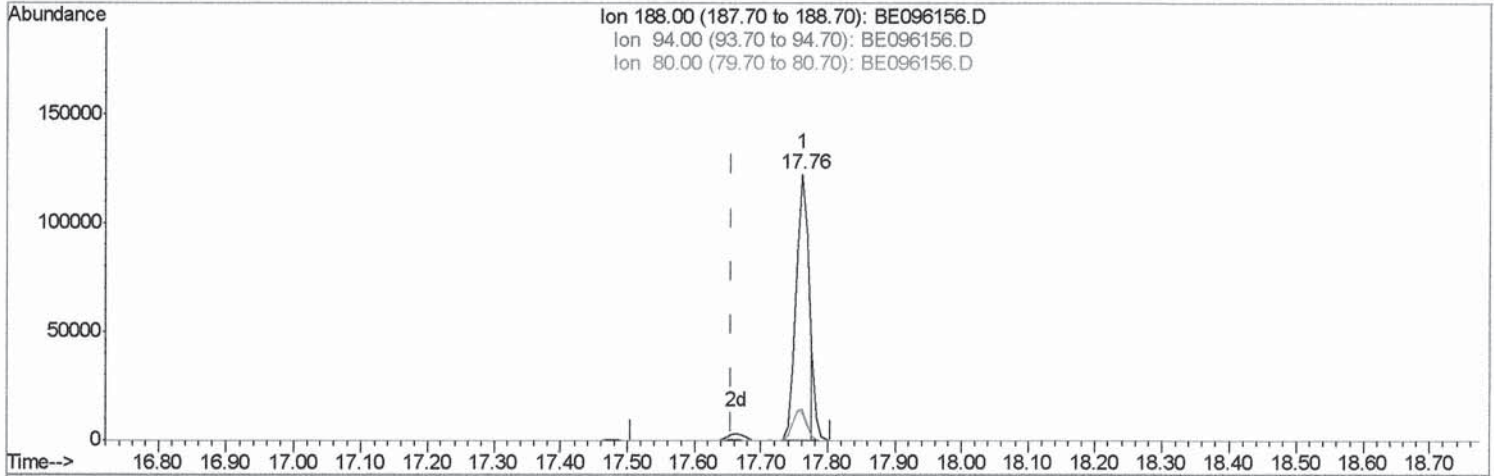
Quantitation Report (Qedit)

Data Path : Z:\HPCHEM1\BNA\_E\Data\BE042518\  
 Data File : BE096156.D  
 Acq On : 25 Apr 2018 20:04  
 Operator : SJ/JU  
 Sample : J2431-07  
 Misc :  
 ALS Vial : 16 Sample Multiplier: 1

Instrument :  
 BNA\_E  
 ClientSampled :  
 DASN8

Manual Integrations  
**APPROVED**  
 Sohil  
 4/26/2018 6:19:57 PM

Quant Time: Apr 26 14:29:03 2018  
 Quant Method : Z:\HPCHEM1\BNA\_E\METHODS\SOM-EPA-SIM-BE042418.M  
 Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION  
 QLast Update : Thu Apr 26 06:40:54 2018  
 Response via : Initial Calibration



TIC: BE096156.D

(10) Phenanthrene-d10 (I)  
 17.761min (+0.105) 0.40ng/ul  
 response 163173

Ion	Exp%	Act%
188.00	100	100
94.00	11.00	11.78
80.00	11.80	11.06
0.00	0.00	0.00

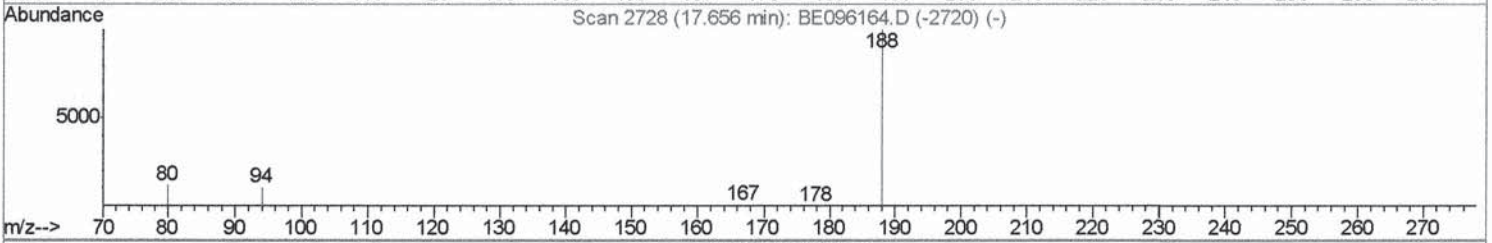
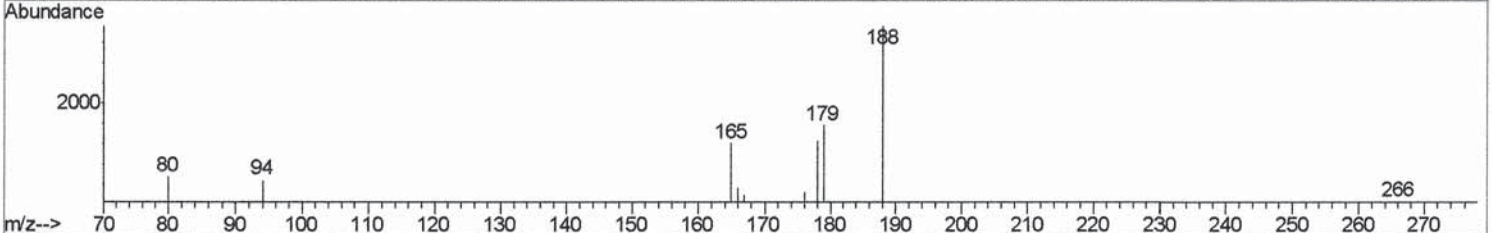
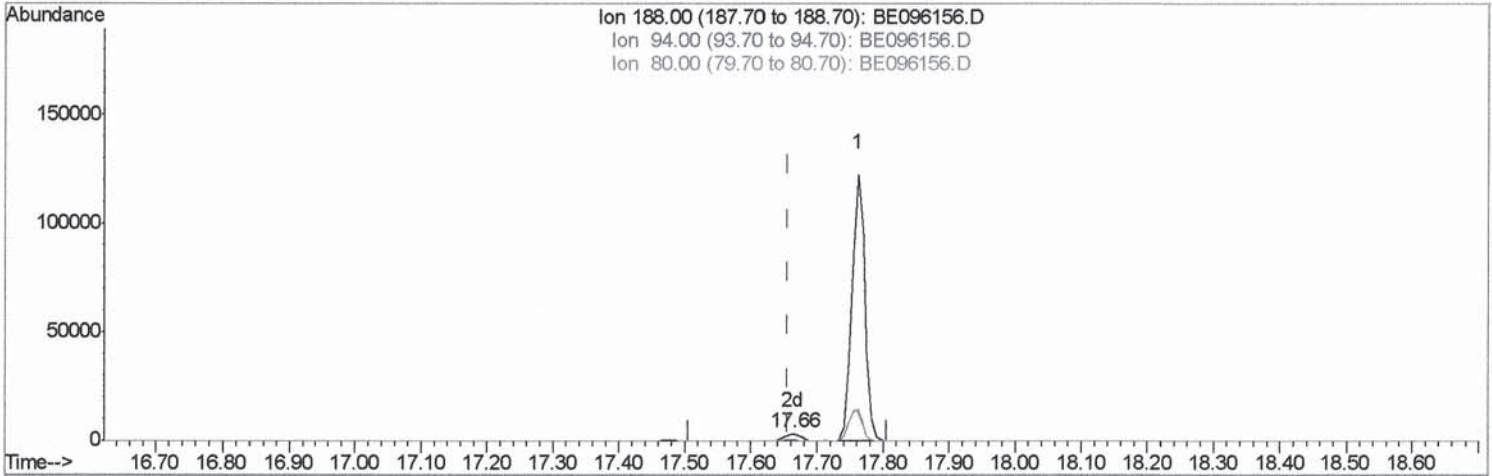
Quantitation Report (Qedit)

Data Path : Z:\HPCHEM1\BNA\_E\Data\BE042518\  
 Data File : BE096156.D  
 Acq On : 25 Apr 2018 20:04  
 Operator : SJ/JU  
 Sample : J2431-07  
 Misc :  
 ALS Vial : 16 Sample Multiplier: 1

Instrument :  
 BNA\_E  
 ClientSampled :  
 DASN8

Manual Integrations  
**APPROVED**  
 Sohil  
 4/26/2018 6:19:57 PM

Quant Time: Apr 26 14:29:03 2018  
 Quant Method : Z:\HPCHEM1\BNA\_E\METHODS\SOM-EPA-SIM-BE042418.M  
 Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION  
 QLast Update : Thu Apr 26 06:40:54 2018  
 Response via : Initial Calibration



TIC: BE096156.D

(10) Phenanthrene-d10 (l)

17.662min (+0.007) 0.40ng/ul m *July 12/18*

response 5876

Ion	Exp%	Act%
188.00	100	100
94.00	11.00	13.87#
80.00	11.80	15.59#
0.00	0.00	0.00

Quantitation Report (Qedit)

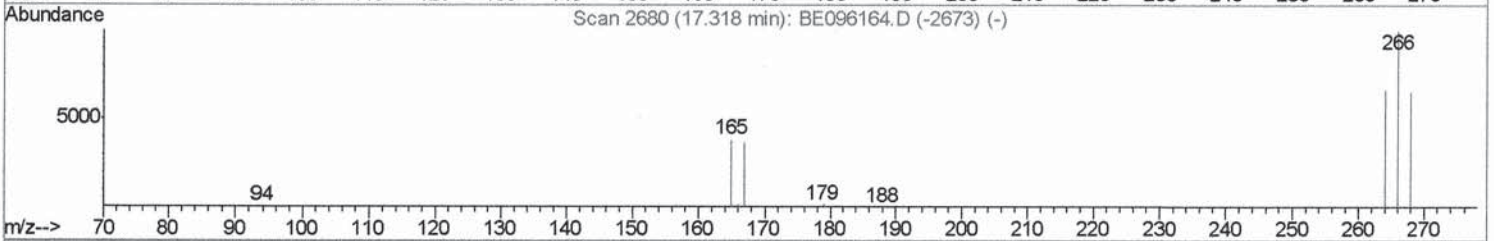
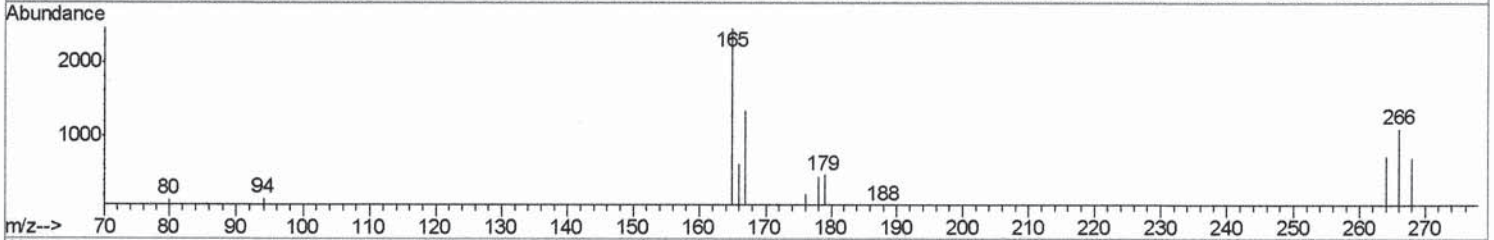
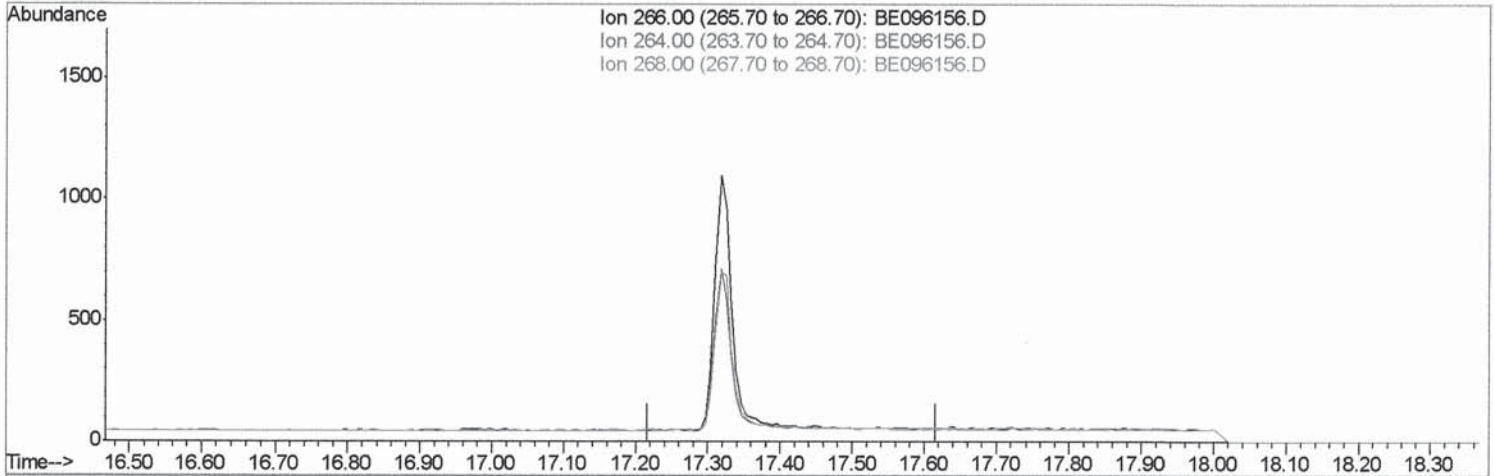
Data Path : Z:\HPCHEM1\BNA\_E\Data\BE042518\  
 Data File : BE096156.D  
 Acq On : 25 Apr 2018 20:04  
 Operator : SJ/JU  
 Sample : J2431-07  
 Misc :  
 ALS Vial : 16 Sample Multiplier: 1

Instrument :  
 BNA\_E  
 ClientSampleId :  
 DASN8

Manual Integrations  
 APPROVED

Sohil  
 4/26/2018 6:19:57 PM

Quant Time: Apr 26 14:30:50 2018  
 Quant Method : Z:\HPCHEM1\BNA\_E\METHODS\SOM-EPA-SIM-BE042418.M  
 Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION  
 QLast Update : Thu Apr 26 06:40:54 2018  
 Response via : Initial Calibration



TIC: BE096156.D

(11) Pentachlorophenol  
 17.318min (-17.318) 0.00ng/ul  
 response 0

Ion	Exp%	Act%
266.00	100	0.00
264.00	59.90	0.00#
268.00	62.30	0.00#
0.00	0.00	0.00

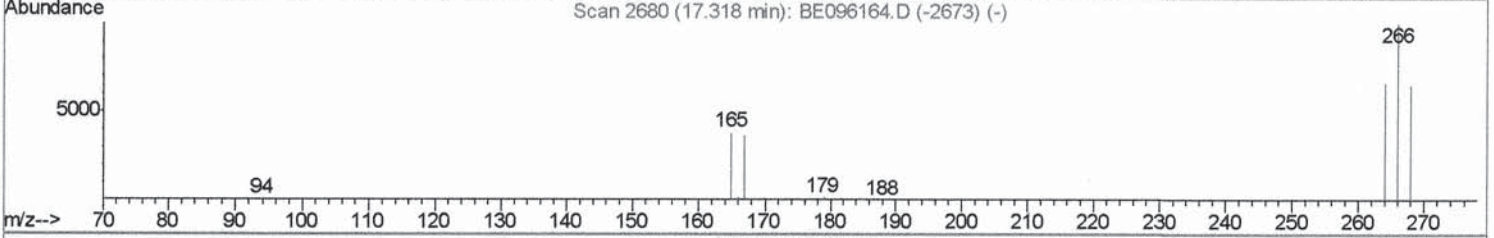
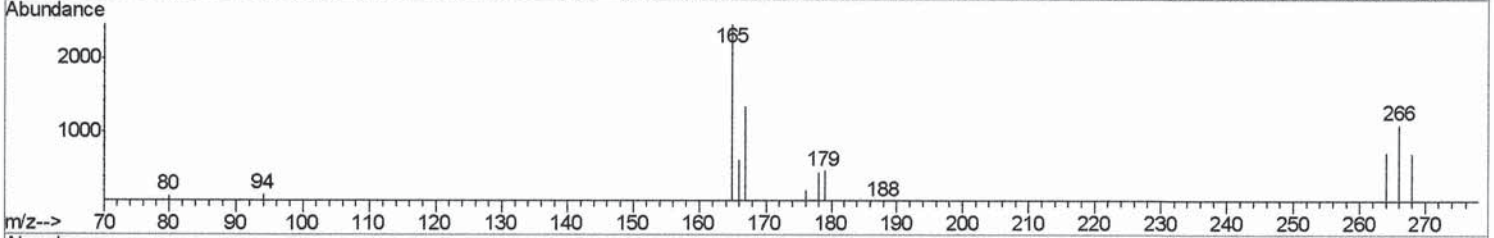
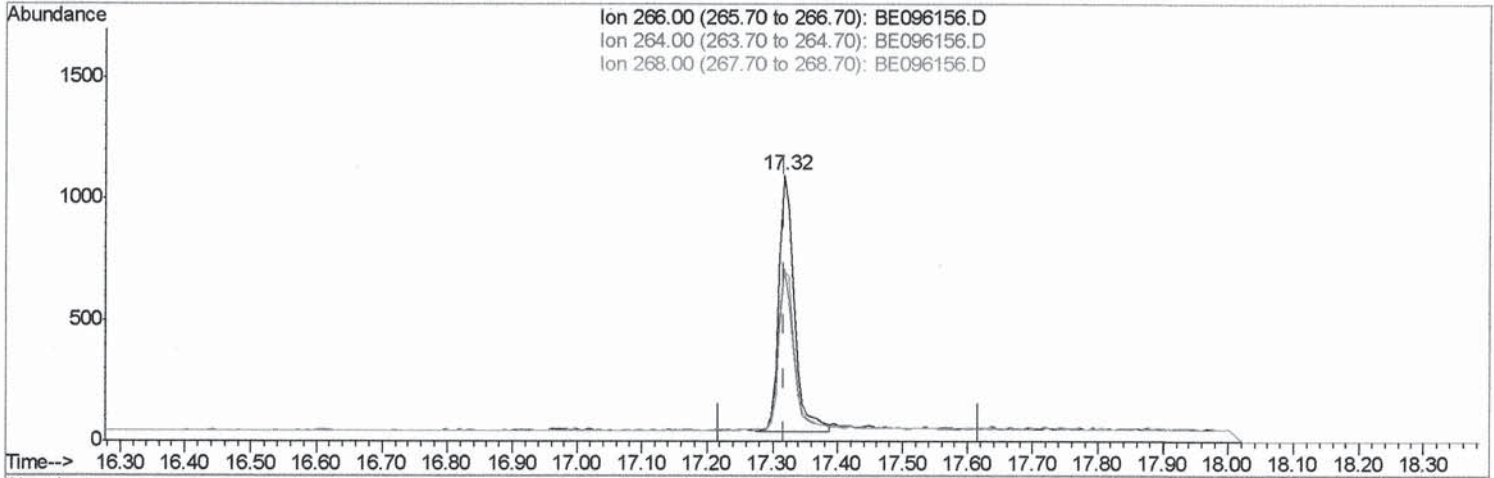
Quantitation Report (Qedit)

Data Path : Z:\HPCHEM1\BNA\_E\Data\BE042518\  
 Data File : BE096156.D  
 Acq On : 25 Apr 2018 20:04  
 Operator : SJ/JU  
 Sample : J2431-07  
 Misc :  
 ALS Vial : 16 Sample Multiplier: 1

Instrument :  
 BNA\_E  
 ClientSampled :  
 DASN8

Manual Integrations  
**APPROVED**  
 Sohil  
 4/26/2018 6:19:57 PM

Quant Time: Apr 26 14:30:50 2018  
 Quant Method : Z:\HPCHEM1\BNA\_E\METHODS\SOM-EPA-SIM-BE042418.M  
 Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION  
 QLast Update : Thu Apr 26 06:40:54 2018  
 Response via : Initial Calibration



TIC: BE096156.D

(11) Pentachlorophenol

17.317min (-0.000) 1.24ng/ul m *Done 4/23/18*  
 response 1756

Ion	Exp%	Act%
266.00	100	100
264.00	59.90	0.00#
268.00	62.30	0.00#
0.00	0.00	0.00

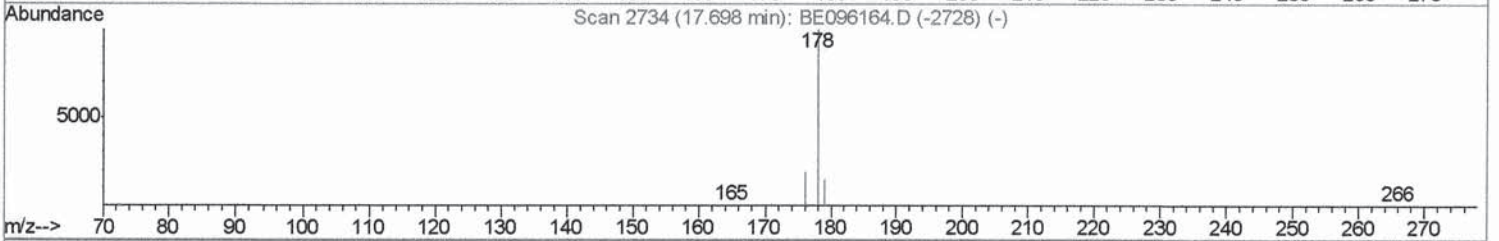
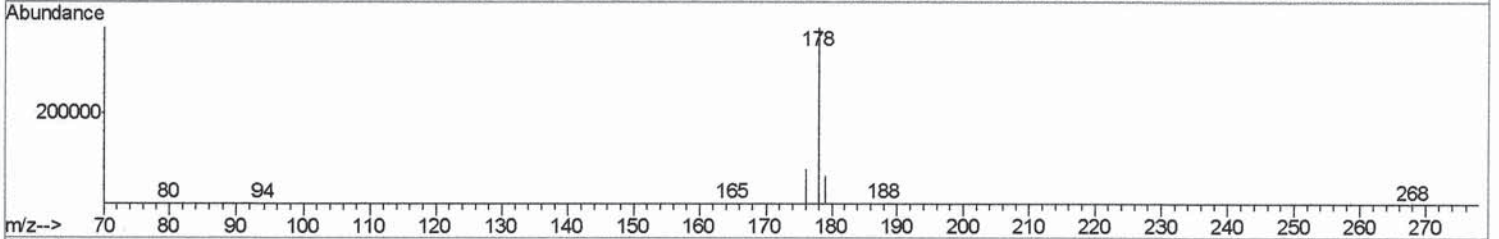
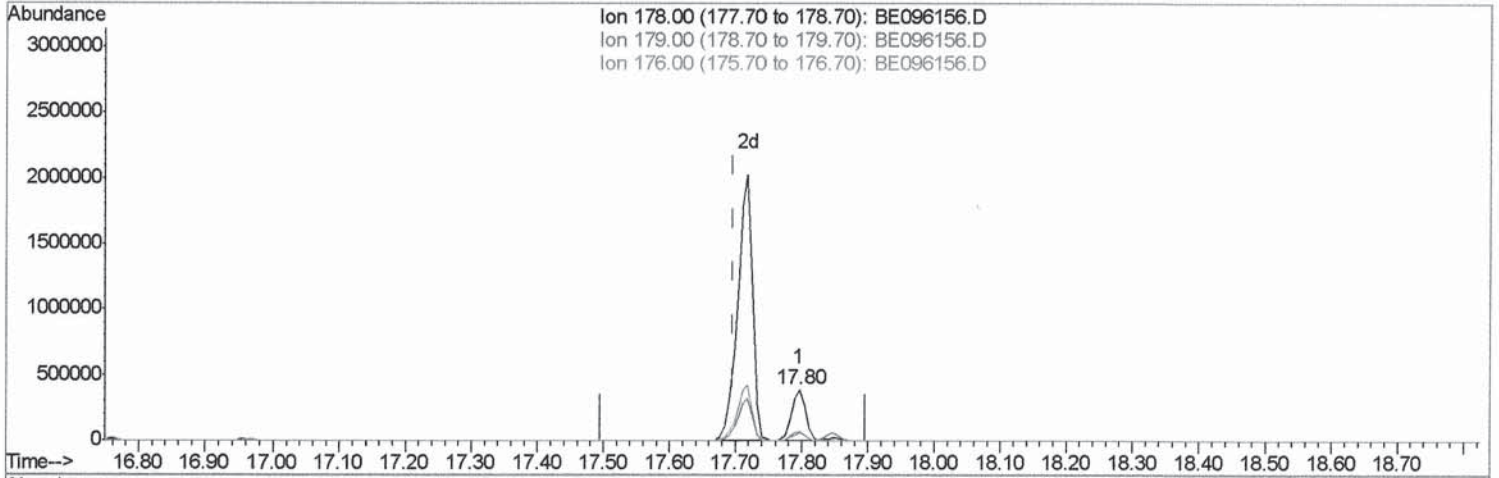
Quantitation Report (Qedit)

Data Path : Z:\HPCHEM1\BNA\_E\Data\BE042518\  
 Data File : BE096156.D  
 Acq On : 25 Apr 2018 20:04  
 Operator : SJ/JU  
 Sample : J2431-07  
 Misc :  
 ALS Vial : 16 Sample Multiplier: 1

Instrument :  
 BNA\_E  
 ClientSampled :  
 DASN8

Manual Integrations  
**APPROVED**  
 Sohil  
 4/26/2018 6:19:57 PM

Quant Time: Apr 26 14:30:50 2018  
 Quant Method : Z:\HPCHEM1\BNA\_E\METHODS\SOM-EPA-SIM-BE042418.M  
 Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION  
 QLast Update : Thu Apr 26 06:40:54 2018  
 Response via : Initial Calibration



TIC: BE096156.D

(12) Phenanthrene

17.796min (+0.098) 30.78ng/ul

response 532512

*2018/27/18*

Ion	Exp%	Act%
178.00	100	100
179.00	23.00	15.56#
176.00	17.00	19.62
0.00	0.00	0.00

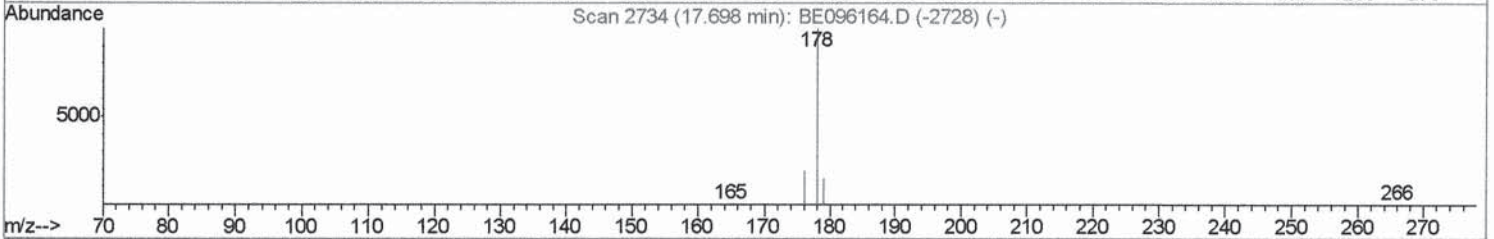
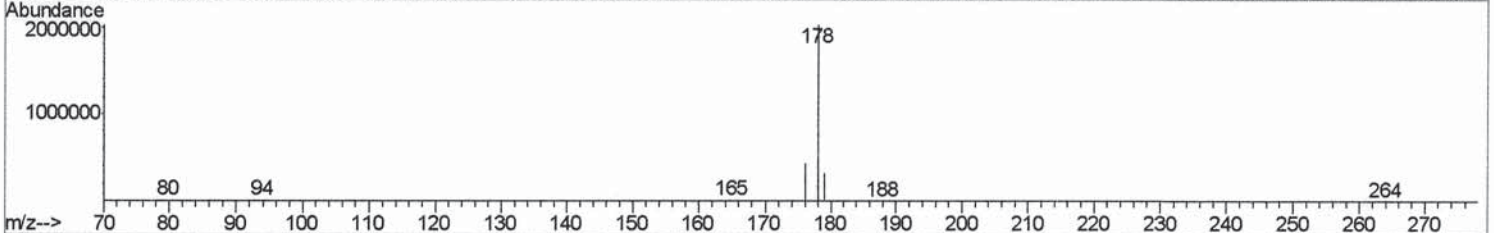
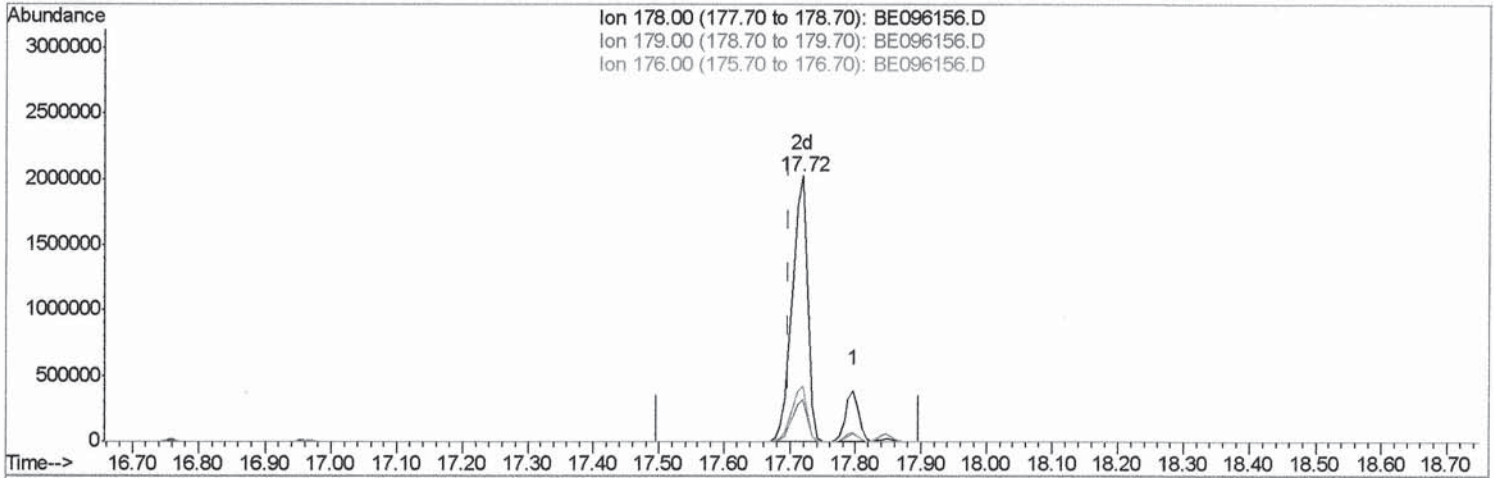
Quantitation Report (Qedit)

Data Path : Z:\HPCHEM1\BNA\_E\Data\BE042518\  
 Data File : BE096156.D  
 Acq On : 25 Apr 2018 20:04  
 Operator : SJ/JU  
 Sample : J2431-07  
 Misc :  
 ALS Vial : 16 Sample Multiplier: 1

Instrument :  
 BNA\_E  
 ClientSampled :  
 DASN8

Manual Integrations  
**APPROVED**  
 Sohil  
 4/26/2018 6:19:57 PM

Quant Time: Apr 26 14:30:50 2018  
 Quant Method : Z:\HPCHEM1\BNA\_E\METHODS\SOM-EPA-SIM-BE042418.M  
 Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION  
 QLast Update : Thu Apr 26 06:40:54 2018  
 Response via : Initial Calibration



TIC: BE096156.D

(12) Phenanthrene  
 17.719min (+0.021) 187.74ng/ul m  
 response 3247930  
*SJ/JU 4/27/18*

Ion	Exp%	Act%
178.00	100	100
179.00	23.00	16.08#
176.00	17.00	20.97#
0.00	0.00	0.00

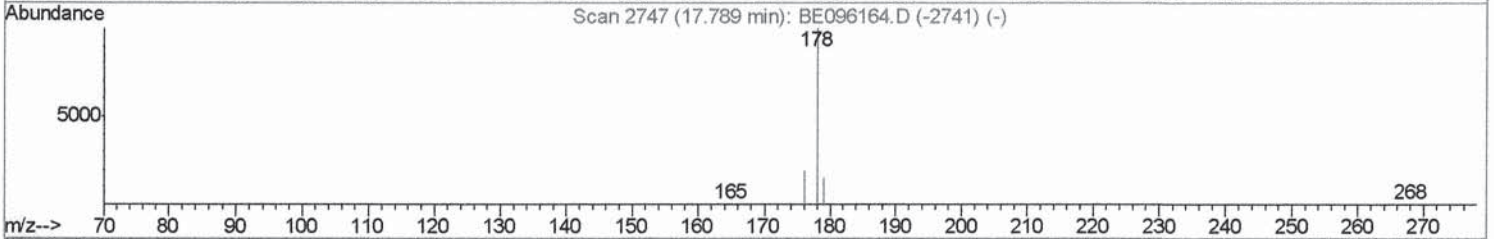
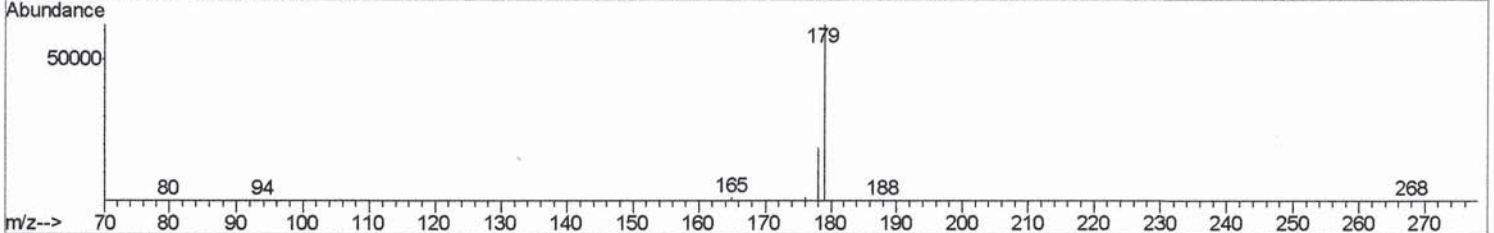
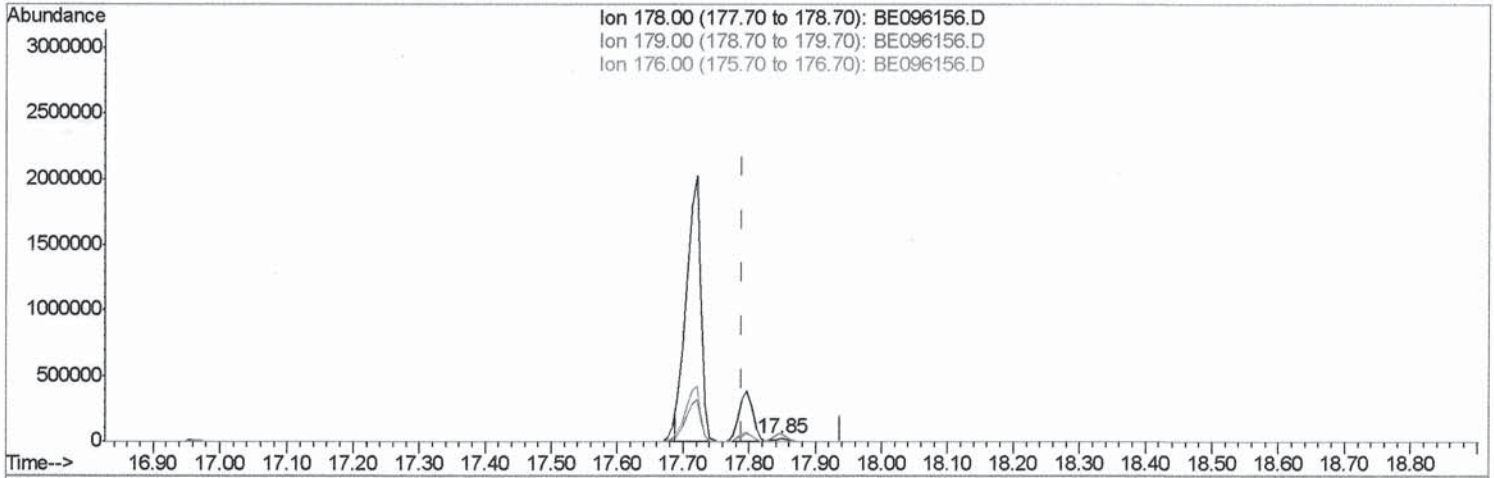
Quantitation Report (Qedit)

Data Path : Z:\HPCHEM1\BNA\_E\Data\BE042518\  
 Data File : BE096156.D  
 Acq On : 25 Apr 2018 20:04  
 Operator : SJ/JU  
 Sample : J2431-07  
 Misc :  
 ALS Vial : 16 Sample Multiplier: 1

Instrument :  
 BNA\_E  
 ClientSampled :  
 DASN8

Manual Integrations  
**APPROVED**  
 Sohil  
 4/26/2018 6:19:57 PM

Quant Time: Apr 26 14:30:50 2018  
 Quant Method : Z:\HPCHEM1\BNA\_E\METHODS\SOM-EPA-SIM-BE042418.M  
 Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION  
 QLast Update : Thu Apr 26 06:40:54 2018  
 Response via : Initial Calibration



(13) Anthracene

17.845min (+0.056) 1.39ng/ul

response 24081

Ion	Exp%	Act%
178.00	100	100
179.00	22.60	333.06#
176.00	18.40	8.25#
0.00	0.00	0.00



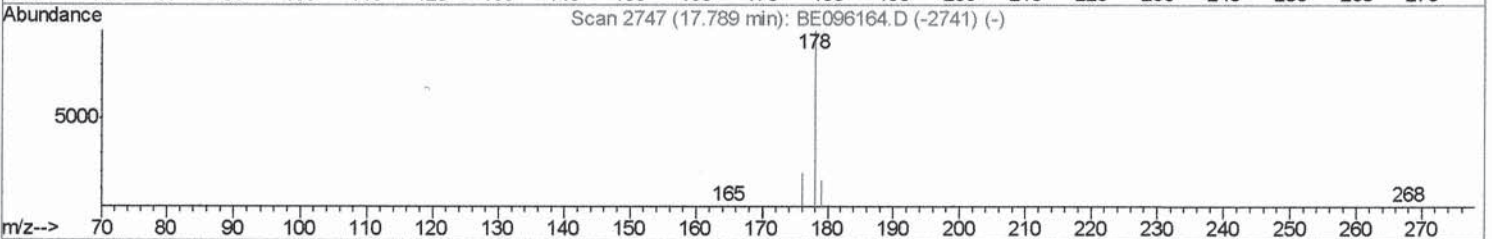
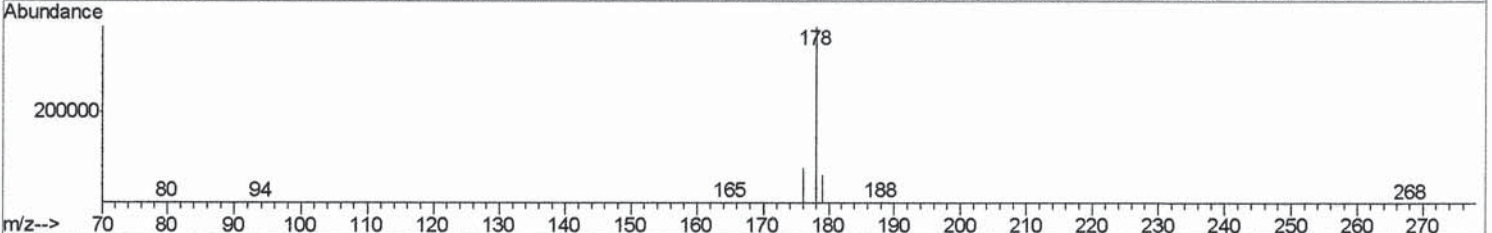
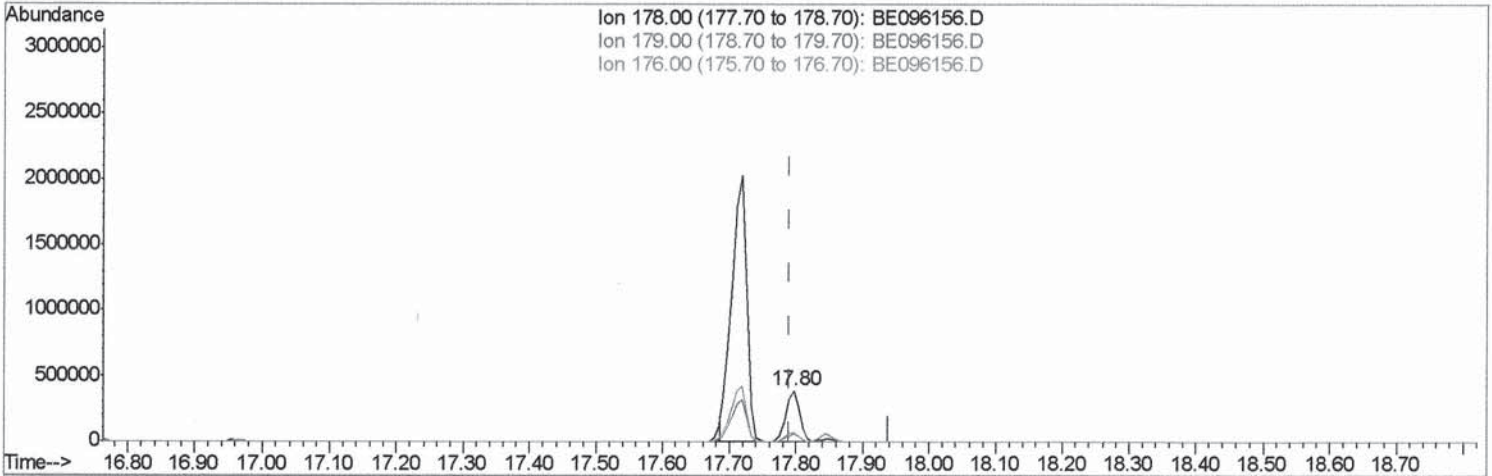
Quantitation Report (Qedit)

Data Path : Z:\HPCHEM1\BNA\_E\Data\BE042518\  
 Data File : BE096156.D  
 Acq On : 25 Apr 2018 20:04  
 Operator : SJ/JU  
 Sample : J2431-07  
 Misc :  
 ALS Vial : 16 Sample Multiplier: 1

Instrument :  
 BNA\_E  
 ClientSampled :  
 DASN8

Manual Integrations  
**APPROVED**  
 Sohil  
 4/26/2018 6:19:57 PM

Quant Time: Apr 26 14:30:50 2018  
 Quant Method : Z:\HPCHEM1\BNA\_E\METHODS\SOM-EPA-SIM-BE042418.M  
 Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION  
 QLast Update : Thu Apr 26 06:40:54 2018  
 Response via : Initial Calibration



TIC: BE096156.D

(13) Anthracene

17.796min (+0.007) 31.42ng/ul m *204/27/18*

response 545332

Ion	Exp%	Act%
178.00	100	100
179.00	22.60	15.56#
176.00	18.40	19.62
0.00	0.00	0.00

Quantitation Report (Qedit)

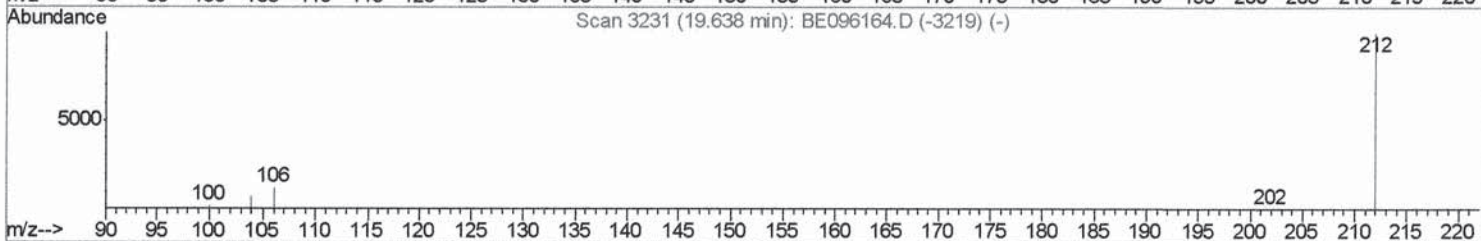
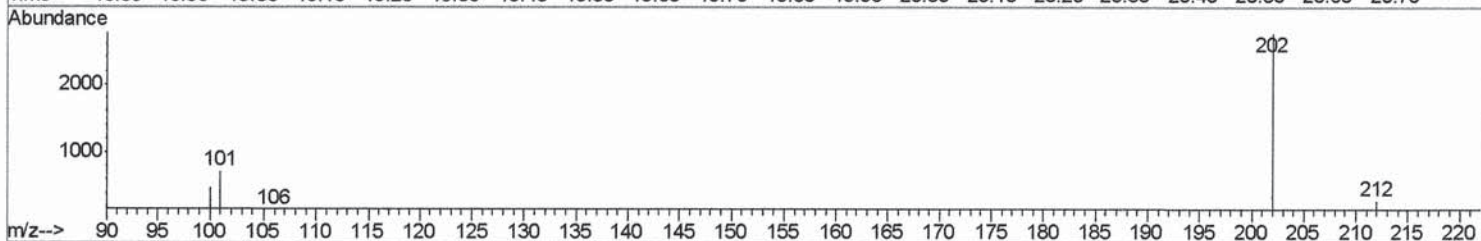
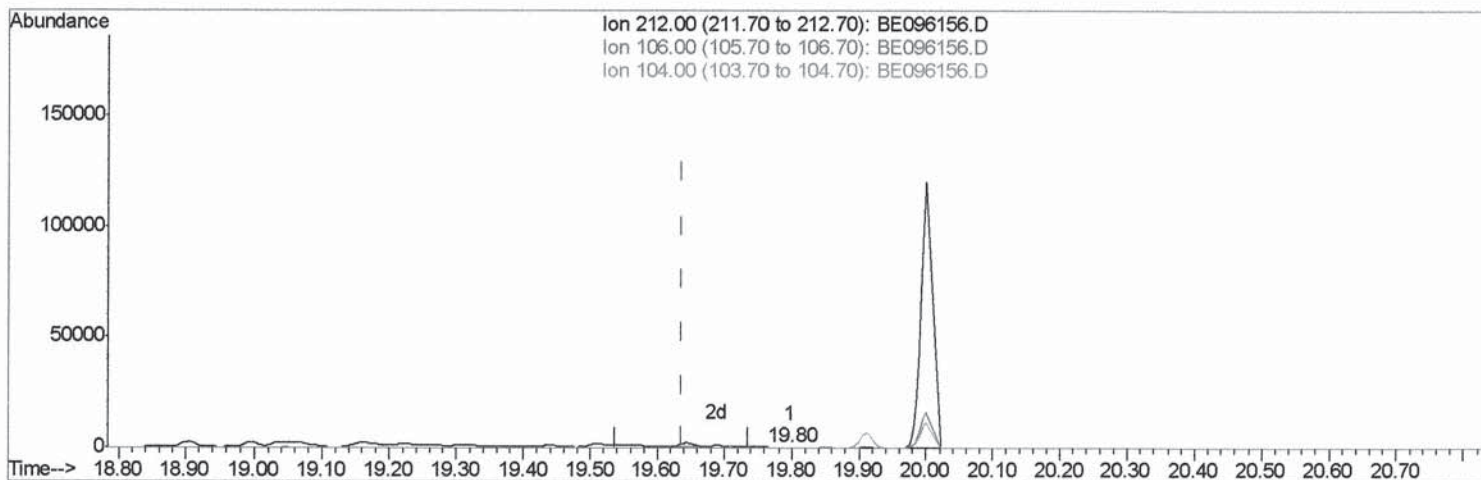
Data Path : Z:\HPCHEM1\BNA\_E\Data\BE042518\  
 Data File : BE096156.D  
 Acq On : 25 Apr 2018 20:04  
 Operator : SJ/JU  
 Sample : J2431-07  
 Misc :  
 ALS Vial : 16 Sample Multiplier: 1

Instrument :  
 BNA\_E  
 ClientSampleId :  
 DASN8

Manual Integrations  
 APPROVED

Sohil  
 4/26/2018 6:19:57 PM

Quant Time: Apr 26 14:30:50 2018  
 Quant Method : Z:\HPCHEM1\BNA\_E\METHODS\SOM-EPA-SIM-BE042418.M  
 Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION  
 QLast Update : Thu Apr 26 06:40:54 2018  
 Response via : Initial Calibration



TIC: BE096156.D

(14) Fluoranthene-d10 (SURR)

19.799min (+0.161) 0.01ng/ul

response 188

Ion	Exp%	Act%
212.00	100	100
106.00	18.30	9.57#
104.00	15.60	46.81#
0.00	0.00	0.00

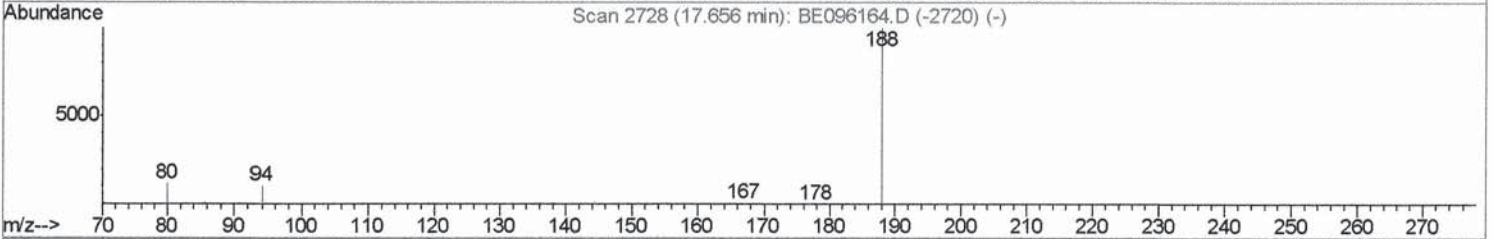
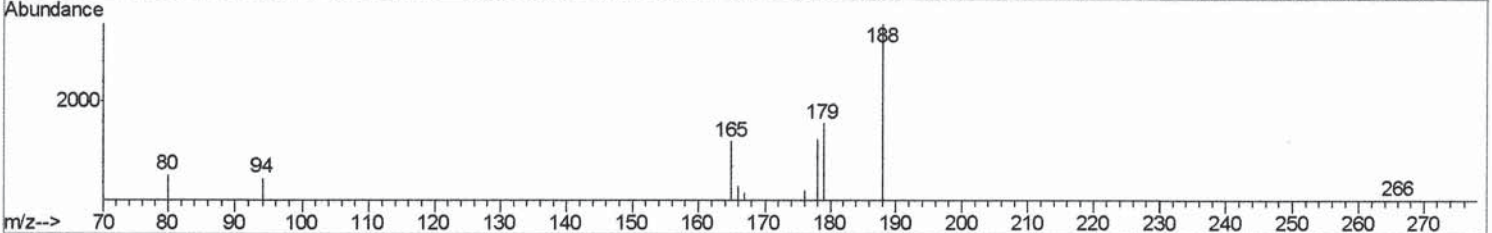
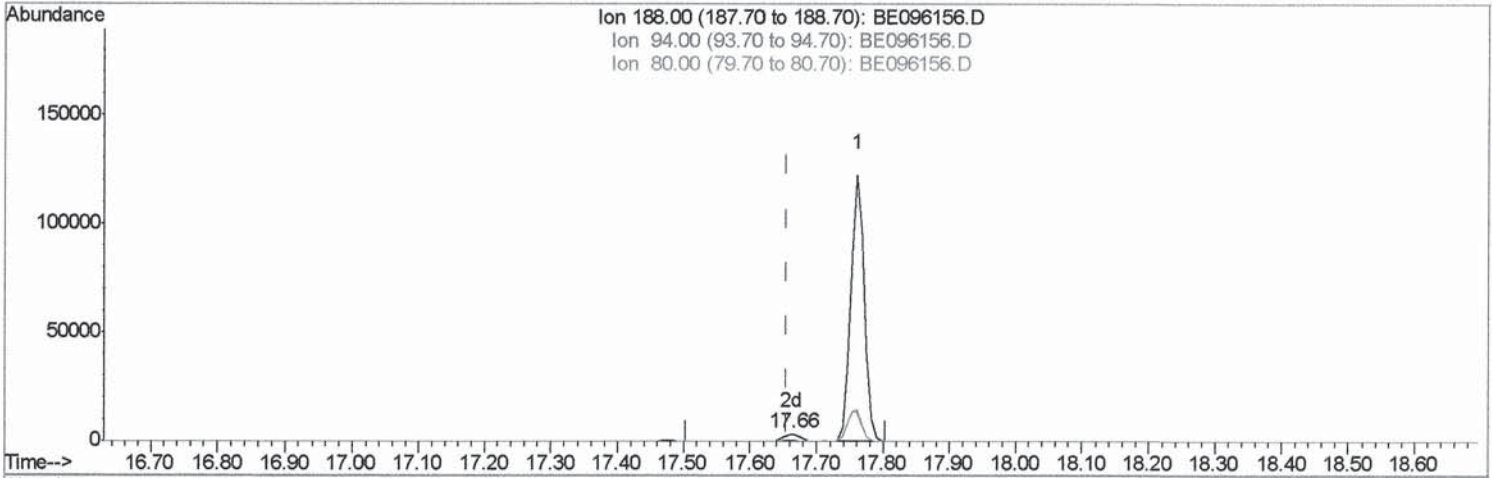
Quantitation Report (Qedit)

Data Path : Z:\HPCHEM1\BNA\_E\Data\BE042518\  
 Data File : BE096156.D  
 Acq On : 25 Apr 2018 20:04  
 Operator : SJ/JU  
 Sample : J2431-07  
 Misc :  
 ALS Vial : 16 Sample Multiplier: 1

Instrument :  
 BNA\_E  
 ClientSampled :  
 DASN8

Manual Integrations  
**APPROVED**  
 Sohil  
 4/26/2018 6:19:57 PM

Quant Time: Apr 26 14:30:50 2018  
 Quant Method : Z:\HPCHEM1\BNA\_E\METHODS\SOM-EPA-SIM-BE042418.M  
 Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION  
 QLast Update : Thu Apr 26 06:40:54 2018  
 Response via : Initial Calibration



TIC: BE096156.D

(10) Phenanthrene-d10 (I)

17.662min (+0.007) 0.40ng/ul m *2018/27/18*

response 5406

Ion	Exp%	Act%
188.00	100	100
94.00	11.00	13.87#
80.00	11.80	15.59#
0.00	0.00	0.00

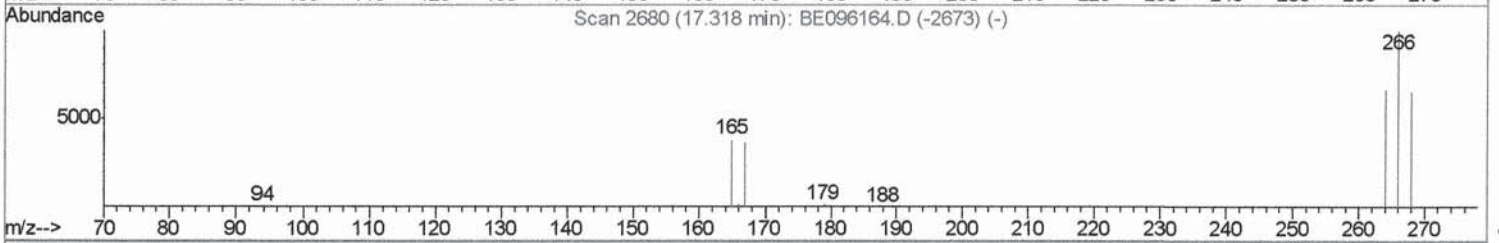
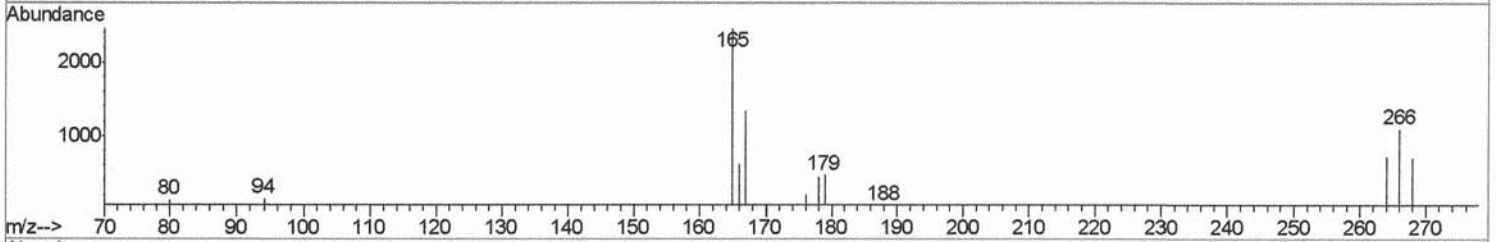
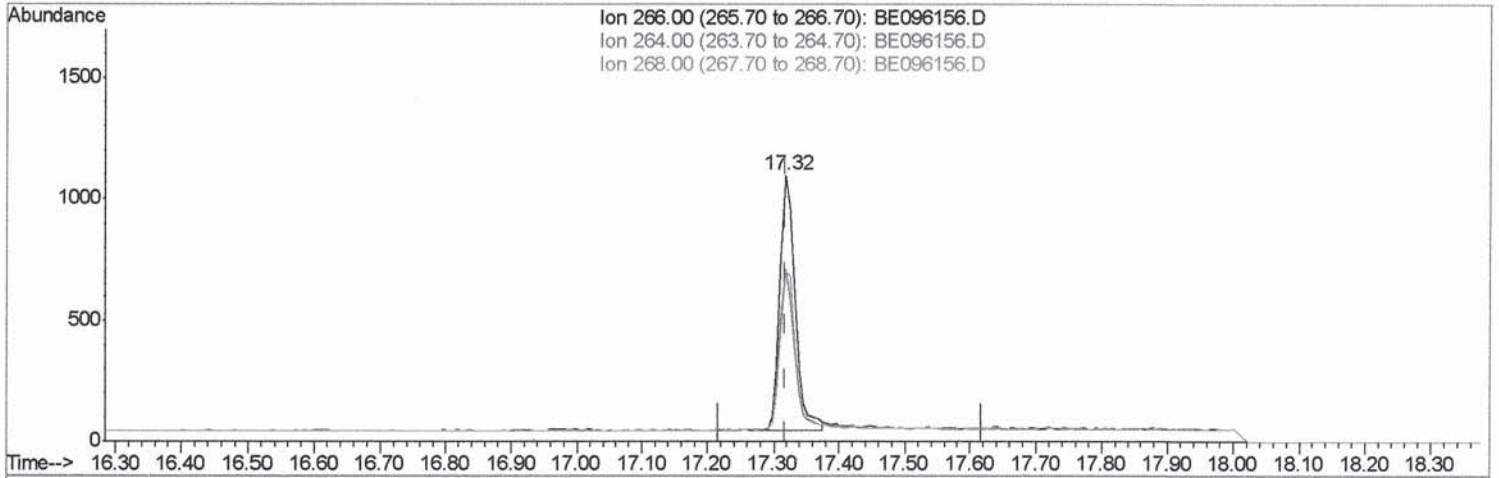
Quantitation Report (Qedit)

Data Path : Z:\HPCHEM1\BNA\_E\Data\BE042518\  
 Data File : BE096156.D  
 Acq On : 25 Apr 2018 20:04  
 Operator : SJ/JU  
 Sample : J2431-07  
 Misc :  
 ALS Vial : 16 Sample Multiplier: 1

Instrument :  
 BNA\_E  
 ClientSampled :  
 DASNB

Manual Integrations  
**APPROVED**  
 Sohil  
 4/26/2018 6:19:57 PM

Quant Time: Apr 26 14:36:30 2018  
 Quant Method : Z:\HPCHEM1\BNA\_E\METHODS\SOM-EPA-SIM-BE042418.M  
 Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION  
 QLast Update : Thu Apr 26 06:40:54 2018  
 Response via : Initial Calibration



TIC: BE096156.D

(11) Pentachlorophenol

17.317min (-0.000) 1.32ng/ul m

response 1711

*Drop 1/2/15*

Ion	Exp%	Act%
266.00	100	100
264.00	59.90	0.00#
268.00	62.30	0.00#
0.00	0.00	0.00

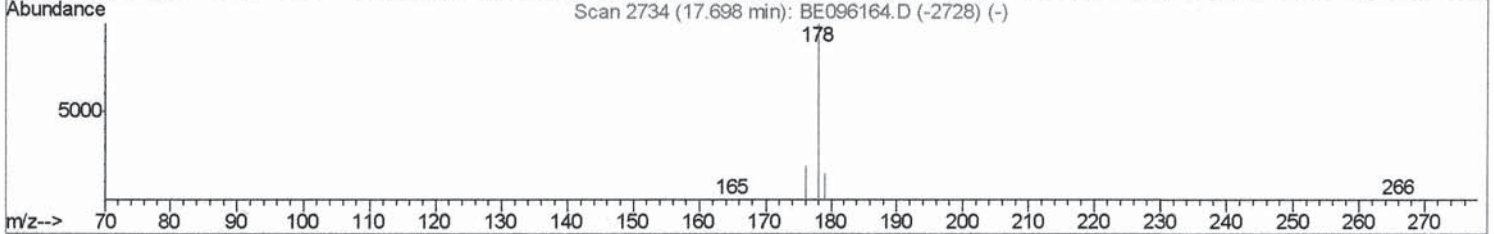
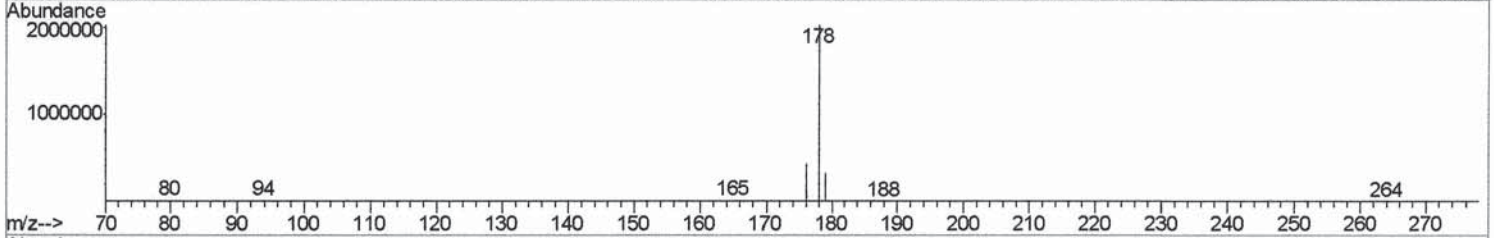
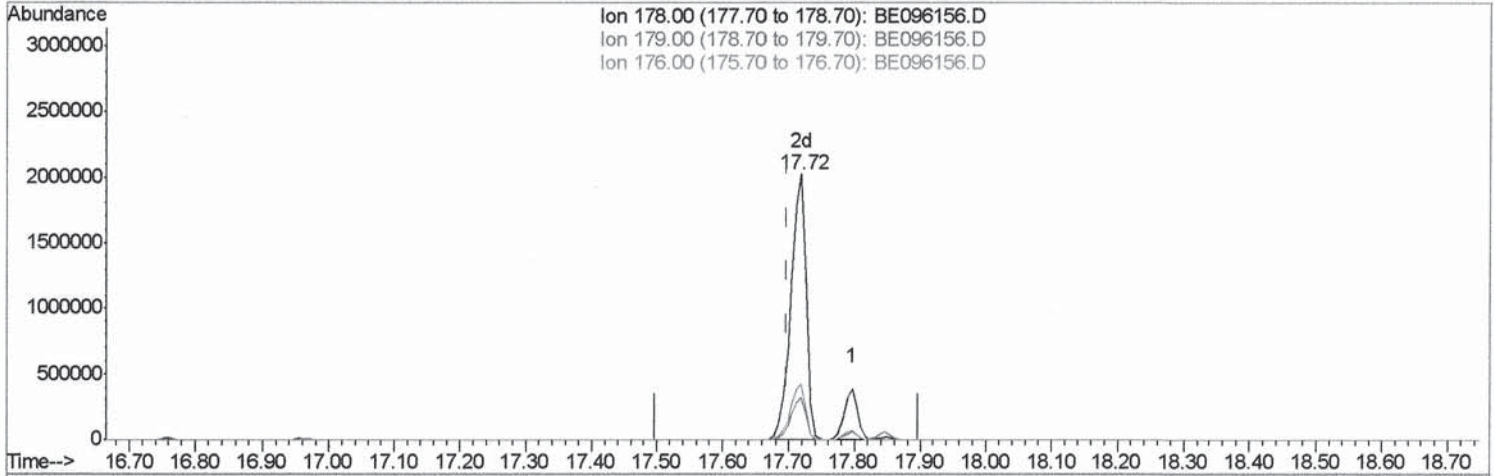
Quantitation Report (Qedit)

Data Path : Z:\HPCHEM1\BNA\_E\Data\BE042518\  
 Data File : BE096156.D  
 Acq On : 25 Apr 2018 20:04  
 Operator : SJ/JU  
 Sample : J2431-07  
 Misc :  
 ALS Vial : 16 Sample Multiplier: 1

Instrument :  
 BNA\_E  
 ClientSampled :  
 DASN8

Manual Integrations  
**APPROVED**  
 Sohil  
 4/26/2018 6:19:57 PM

Quant Time: Apr 26 14:36:30 2018  
 Quant Method : Z:\HPCHEM1\BNA\_E\METHODS\SOM-EPA-SIM-BE042418.M  
 Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION  
 QLast Update : Thu Apr 26 06:40:54 2018  
 Response via : Initial Calibration



TIC: BE096156.D

(12) Phenanthrene

17.719min (+0.021) 204.06ng/ul m *204/27/15*

response 3247930

Ion	Exp%	Act%
178.00	100	100
179.00	23.00	16.08#
176.00	17.00	20.97#
0.00	0.00	0.00

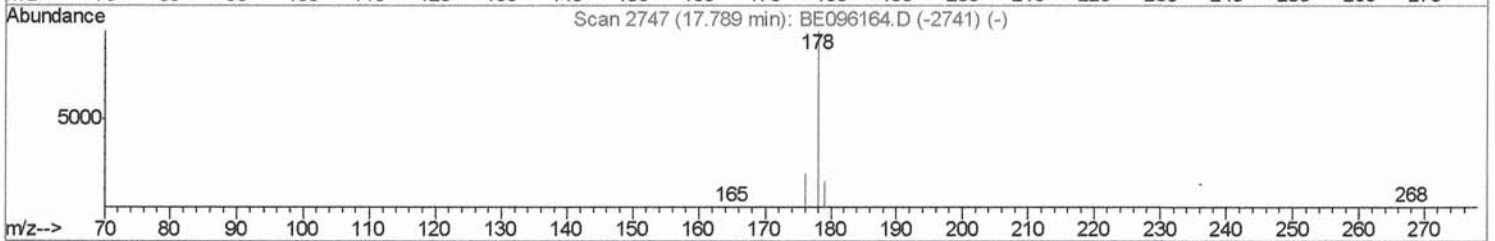
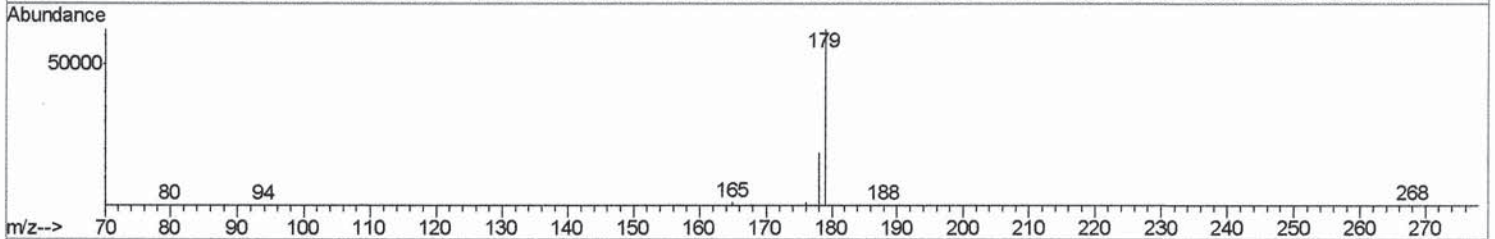
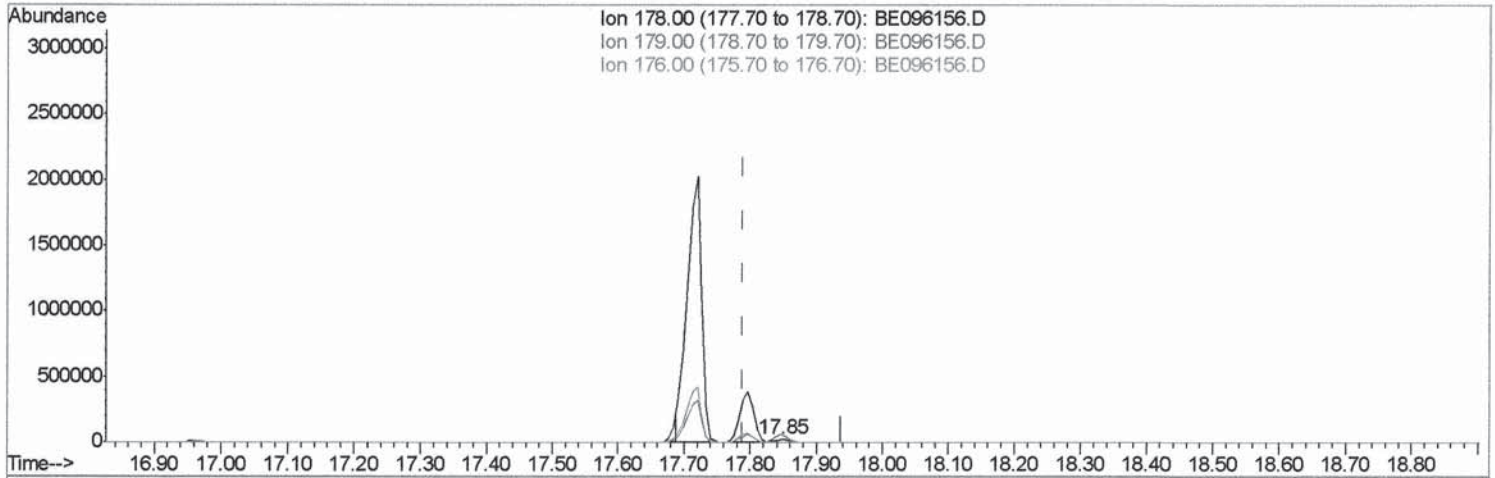
Quantitation Report (Qedit)

Data Path : Z:\HPCHEM1\BNA\_E\Data\BE042518\  
 Data File : BE096156.D  
 Acq On : 25 Apr 2018 20:04  
 Operator : SJ/JU  
 Sample : J2431-07  
 Misc :  
 ALS Vial : 16 Sample Multiplier: 1

Instrument :  
 BNA\_E  
 ClientSampled :  
 DASN8

Manual Integrations  
**APPROVED**  
 Sohil  
 4/26/2018 6:19:57 PM

Quant Time: Apr 26 14:36:30 2018  
 Quant Method : Z:\HPCHEM1\BNA\_E\METHODS\SOM-EPA-SIM-BE042418.M  
 Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION  
 QLast Update : Thu Apr 26 06:40:54 2018  
 Response via : Initial Calibration



TIC: BE096156.D

(13) Anthracene  
 17.845min (+0.056) 1.51ng/ul  
 response 24081

Ion	Exp%	Act%
178.00	100	100
179.00	22.60	333.06#
176.00	18.40	8.25#
0.00	0.00	0.00

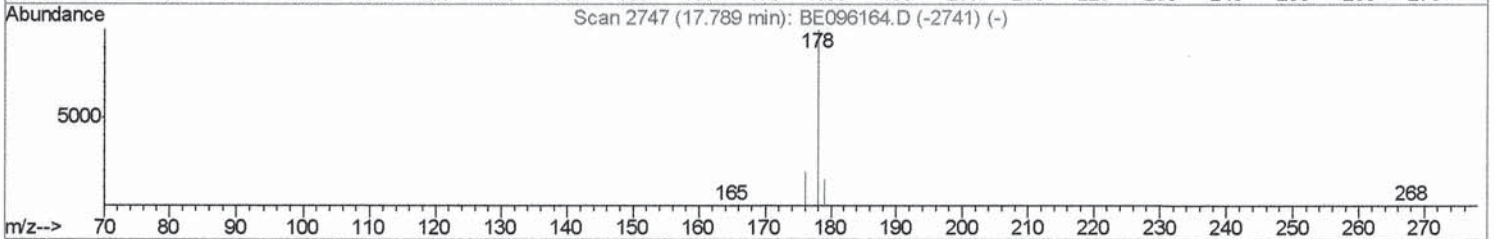
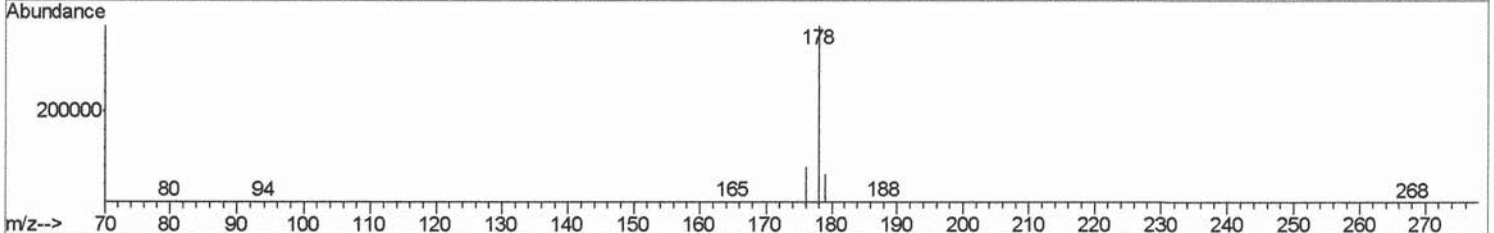
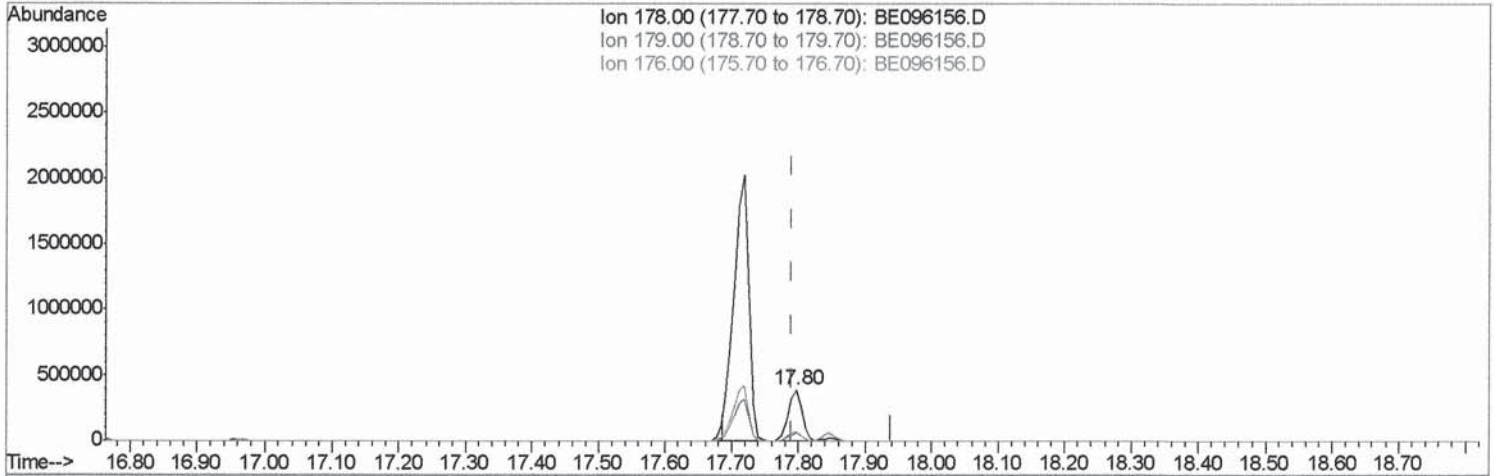
Quantitation Report (Qedit)

Data Path : Z:\HPCHEM1\BNA\_E\Data\BE042518\  
 Data File : BE096156.D  
 Acq On : 25 Apr 2018 20:04  
 Operator : SJ/JU  
 Sample : J2431-07  
 Misc :  
 ALS Vial : 16 Sample Multiplier: 1

Instrument :  
 BNA\_E  
 ClientSampled :  
 DASN8

Manual Integrations  
**APPROVED**  
 Sohil  
 4/26/2018 6:19:57 PM

Quant Time: Apr 26 14:36:30 2018  
 Quant Method : Z:\HPCHEM1\BNA\_E\METHODS\SOM-EPA-SIM-BE042418.M  
 Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION  
 QLast Update : Thu Apr 26 06:40:54 2018  
 Response via : Initial Calibration



(13) Anthracene

17.796min (+0.007) 34.15ng/ul m

response 545332

Ion	Exp%	Act%
178.00	100	100
179.00	22.60	15.56#
176.00	18.40	19.62
0.00	0.00	0.00

*JU 4/27/18*

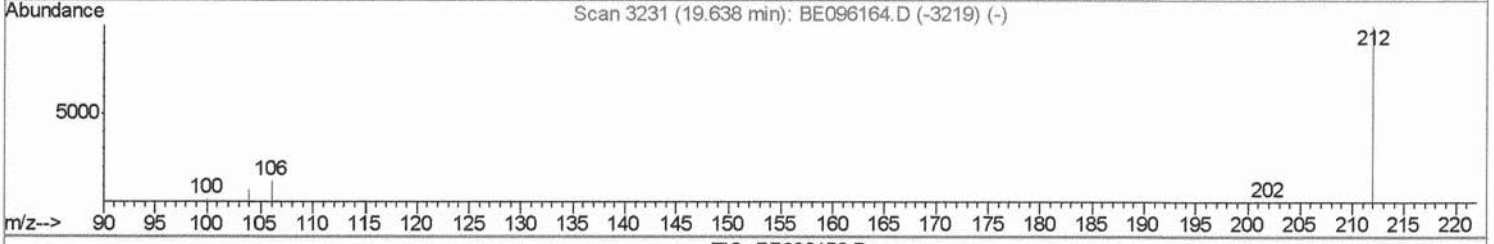
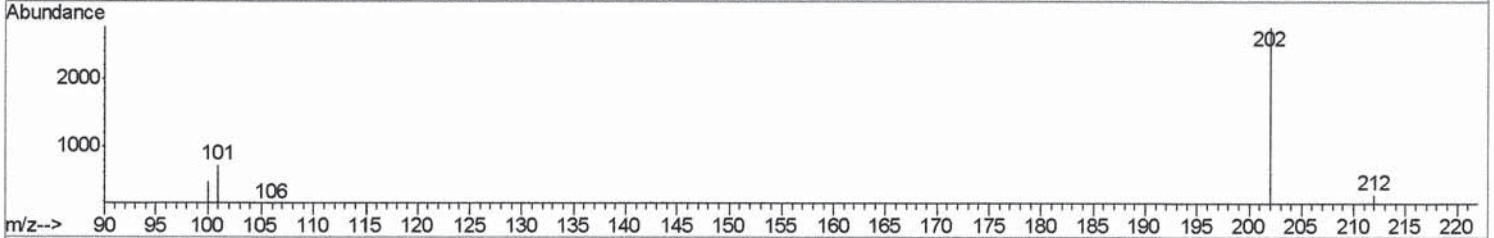
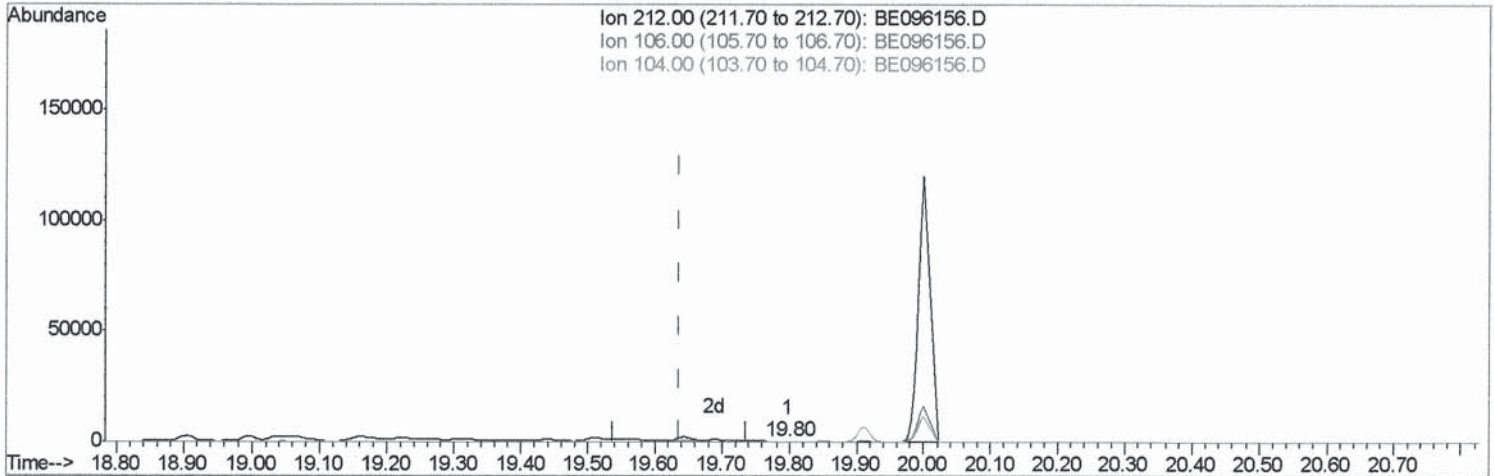
Quantitation Report (Qedit)

Data Path : Z:\HPCHEM1\BNA\_E\Data\BE042518\  
 Data File : BE096156.D  
 Acq On : 25 Apr 2018 20:04  
 Operator : SJ/JU  
 Sample : J2431-07  
 Misc :  
 ALS Vial : 16 Sample Multiplier: 1

Instrument :  
 BNA\_E  
 ClientSampled :  
 DASN8

Manual Integrations  
**APPROVED**  
 Sohil  
 4/26/2018 6:19:57 PM

Quant Time: Apr 26 14:36:30 2018  
 Quant Method : Z:\HPCHEM1\BNA\_E\METHODS\SOM-EPA-SIM-BE042418.M  
 Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION  
 QLast Update : Thu Apr 26 06:40:54 2018  
 Response via : Initial Calibration



TIC: BE096156.D

(14) Fluoranthene-d10 (SURR)  
 19.799min (+0.161) 0.01ng/ul  
 response 188

Ion	Exp%	Act%
212.00	100	100
106.00	18.30	9.57#
104.00	15.60	46.81#
0.00	0.00	0.00



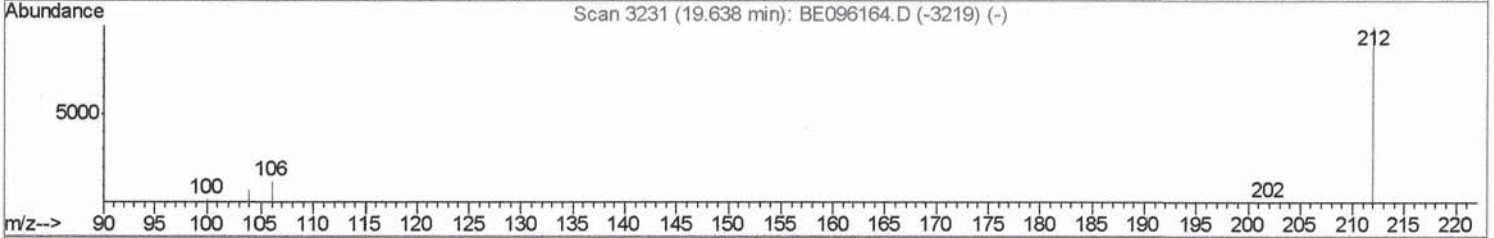
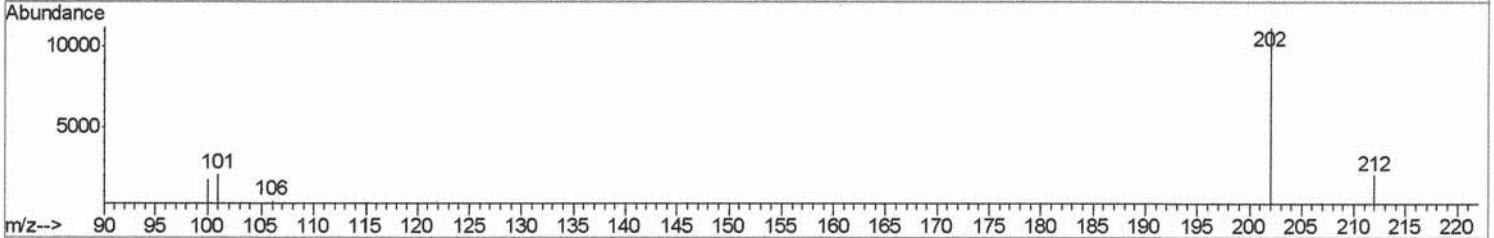
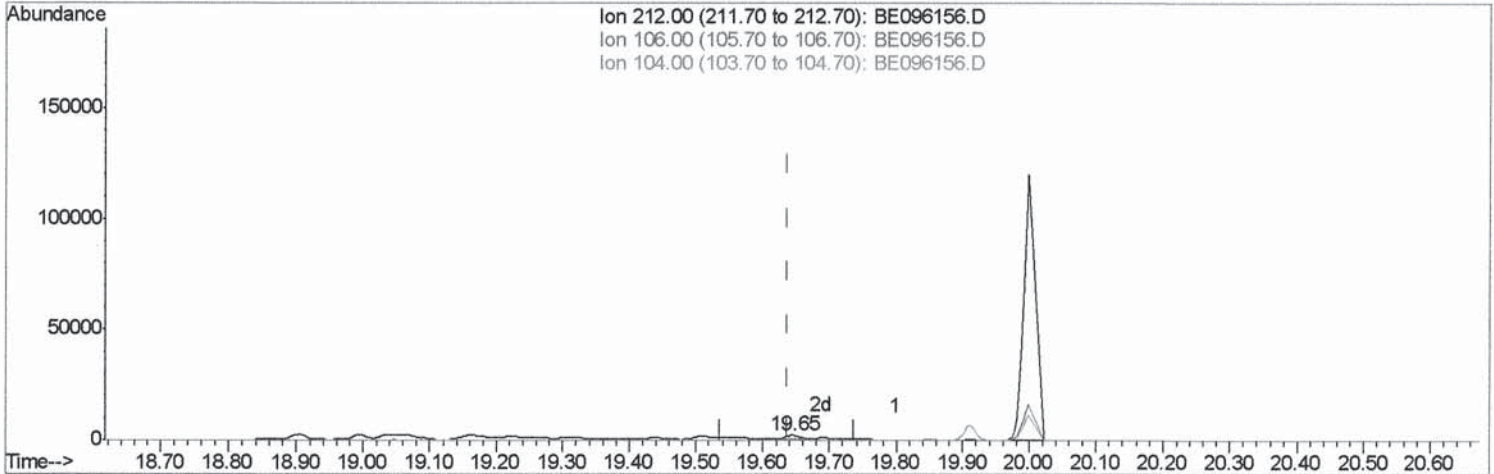
Quantitation Report (Qedit)

Data Path : Z:\HPCHEM1\BNA\_E\Data\BE042518\  
 Data File : BE096156.D  
 Acq On : 25 Apr 2018 20:04  
 Operator : SJ/JU  
 Sample : J2431-07  
 Misc :  
 ALS Vial : 16 Sample Multiplier: 1

Instrument :  
 BNA\_E  
 ClientSampled :  
 DASN8

Manual Integrations  
**APPROVED**  
 Sohil  
 4/26/2018 6:19:57 PM

Quant Time: Apr 26 14:36:30 2018  
 Quant Method : Z:\HPCHEM1\BNA\_E\METHODS\SOM-EPA-SIM-BE042418.M  
 Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION  
 QLast Update : Thu Apr 26 06:40:54 2018  
 Response via : Initial Calibration



TIC: BE096156.D

(14) Fluoranthene-d10 (SURRE)  
 19.645min (+0.008) 0.13ng/ul m *SJ/JU 4/27/18*  
 response 3337

Ion	Exp%	Act%
212.00	100	100
106.00	18.30	0.54#
104.00	15.60	2.64#
0.00	0.00	0.00

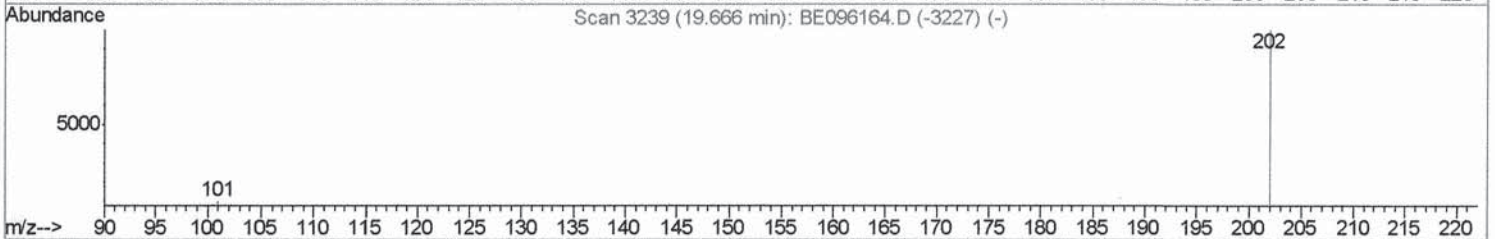
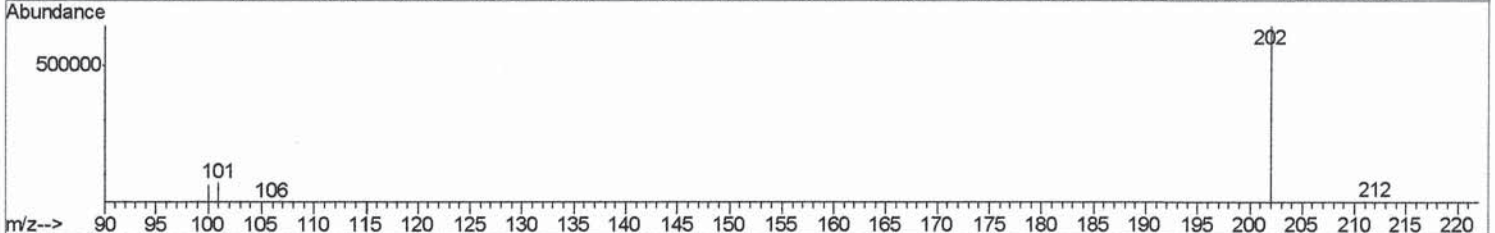
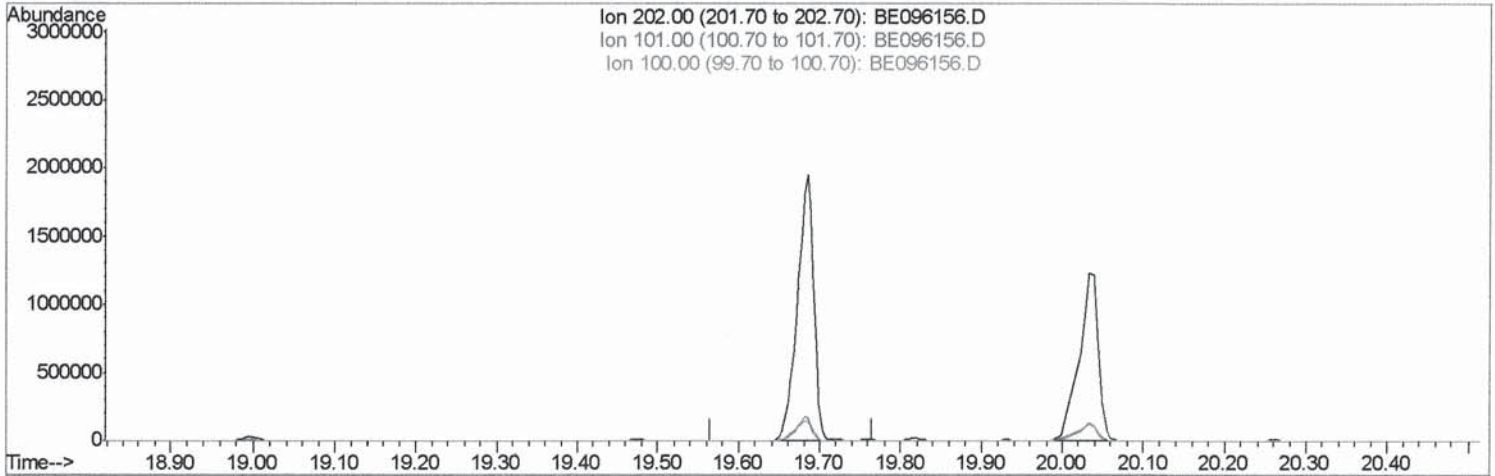
Quantitation Report (Qedit)

Data Path : Z:\HPCHEM1\BNA\_E\Data\BE042518\  
 Data File : BE096156.D  
 Acq On : 25 Apr 2018 20:04  
 Operator : SJ/JU  
 Sample : J2431-07  
 Misc :  
 ALS Vial : 16 Sample Multiplier: 1

Instrument :  
 BNA\_E  
 ClientSampled :  
 DASN8

Manual Integrations  
**APPROVED**  
 Sohil  
 4/26/2018 6:19:57 PM

Quant Time: Apr 26 14:36:30 2018  
 Quant Method : Z:\HPCHEM1\BNA\_E\METHODS\SOM-EPA-SIM-BE042418.M  
 Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION  
 QLast Update : Thu Apr 26 06:40:54 2018  
 Response via : Initial Calibration



TIC: BE096156.D

(15) Fluoranthene (C)  
 19.666min (-19.666) 0.00ng/ul  
 response 0

Ion	Exp%	Act%
202.00	100	0.00
101.00	10.30	0.00
100.00	19.50	0.00
0.00	0.00	0.00

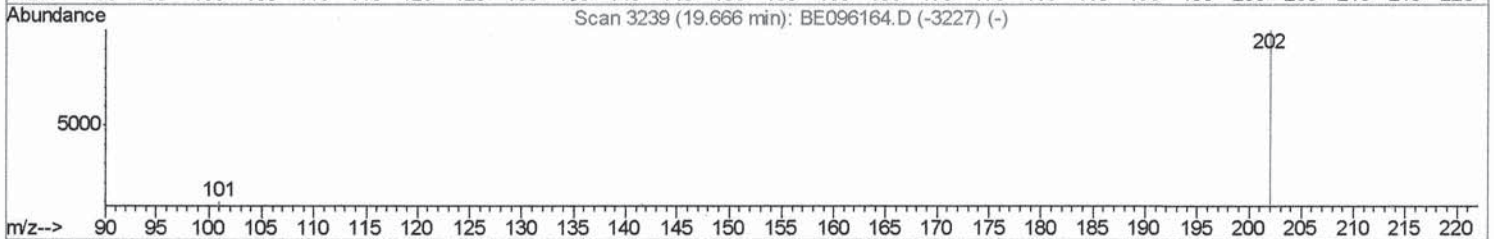
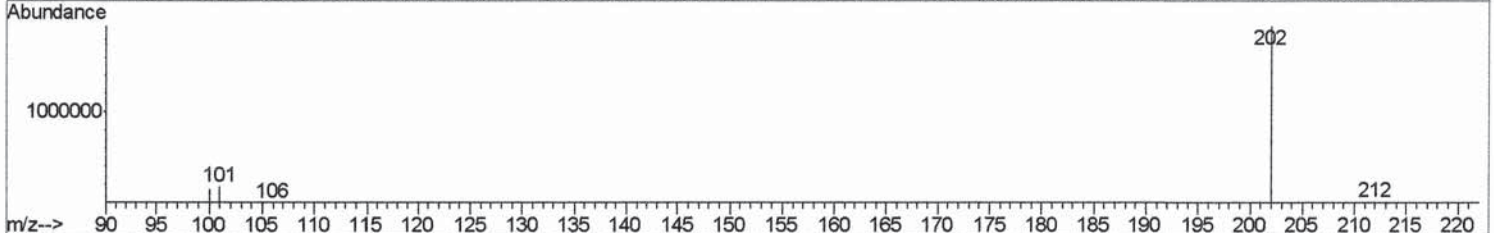
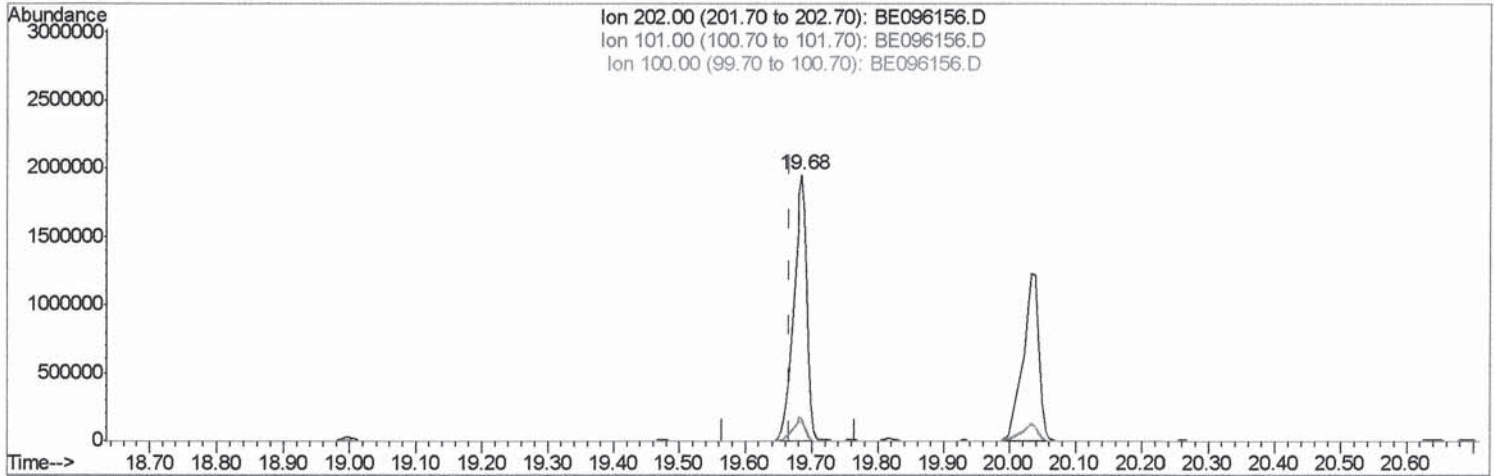
Quantitation Report (Qedit)

Data Path : Z:\HPCHEM1\BNA\_E\Data\BE042518\  
 Data File : BE096156.D  
 Acq On : 25 Apr 2018 20:04  
 Operator : SJ/JU  
 Sample : J2431-07  
 Misc :  
 ALS Vial : 16 Sample Multiplier: 1

Instrument :  
 BNA\_E  
 ClientSampled :  
 DASN8

Manual Integrations  
**APPROVED**  
 Sohil  
 4/26/2018 6:19:57 PM

Quant Time: Apr 26 14:36:30 2018  
 Quant Method : Z:\HPCHEM1\BNA\_E\METHODS\SOM-EPA-SIM-BE042418.M  
 Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION  
 QLast Update : Thu Apr 26 06:40:54 2018  
 Response via : Initial Calibration



(15) Fluoranthene (C)

19.685min (+0.018) 113.39ng/ul m

response 2758533

*Done 4/27/18*

Ion	Exp%	Act%
202.00	100	100
101.00	10.30	8.72
100.00	19.50	7.28
0.00	0.00	0.00

Quantitation Report (Qedit)

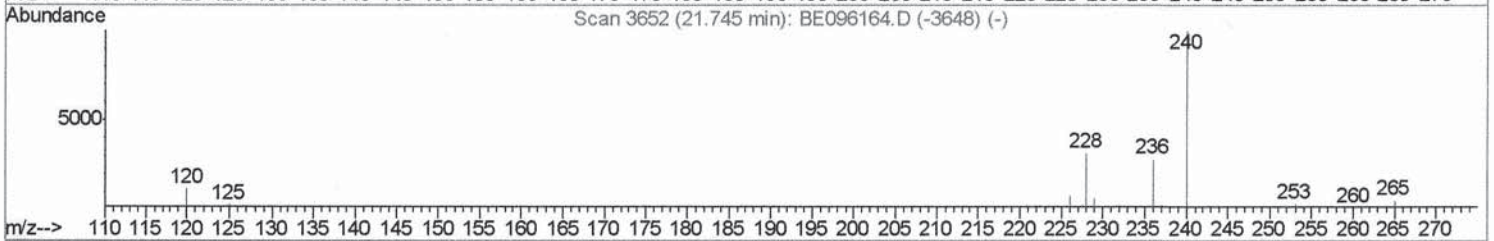
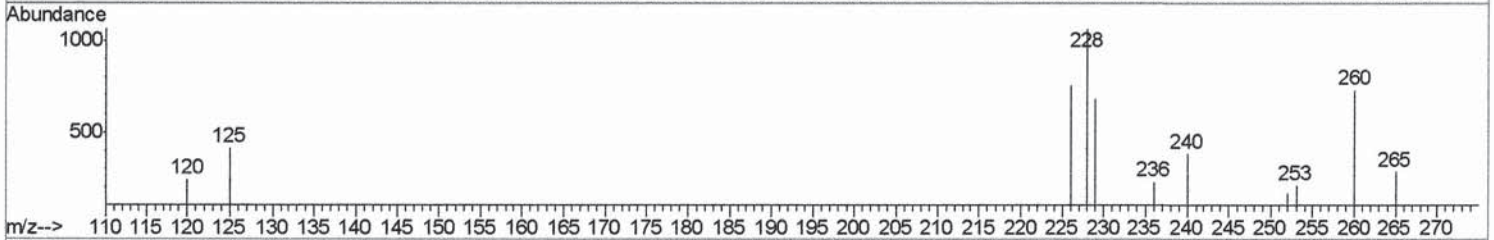
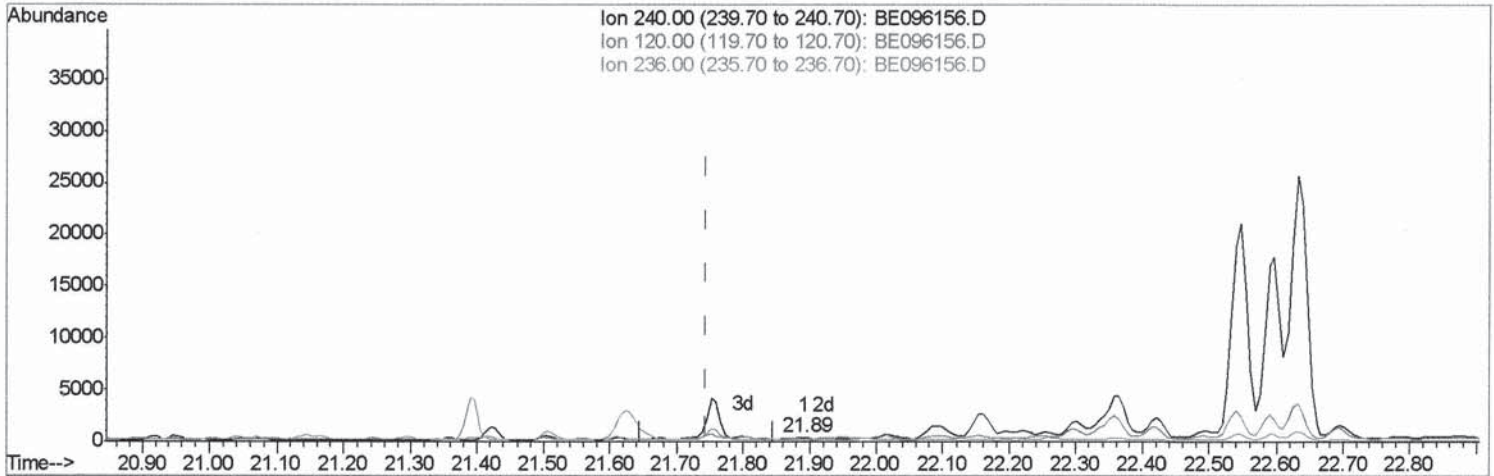
Data Path : Z:\HPCHEM1\BNA\_E\Data\BE042518\  
 Data File : BE096156.D  
 Acq On : 25 Apr 2018 20:04  
 Operator : SJ/JU  
 Sample : J2431-07  
 Misc :  
 ALS Vial : 16 Sample Multiplier: 1

Instrument :  
 BNA\_E  
 ClientSampled :  
 DASN8

Manual Integrations  
 APPROVED

Sohil  
 4/26/2018 6:19:57 PM

Quant Time: Apr 26 14:36:30 2018  
 Quant Method : Z:\HPCHEM1\BNA\_E\METHODS\SOM-EPA-SIM-BE042418.M  
 Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION  
 QLast Update : Thu Apr 26 06:40:54 2018  
 Response via : Initial Calibration



TIC: BE096156.D

(16) Chrysene-d12 (I)

21.893min (+0.147) 0.40ng/ul

response 407

Ion	Exp%	Act%
240.00	100	100
120.00	20.60	63.54#
236.00	34.90	59.64#
0.00	0.00	0.00

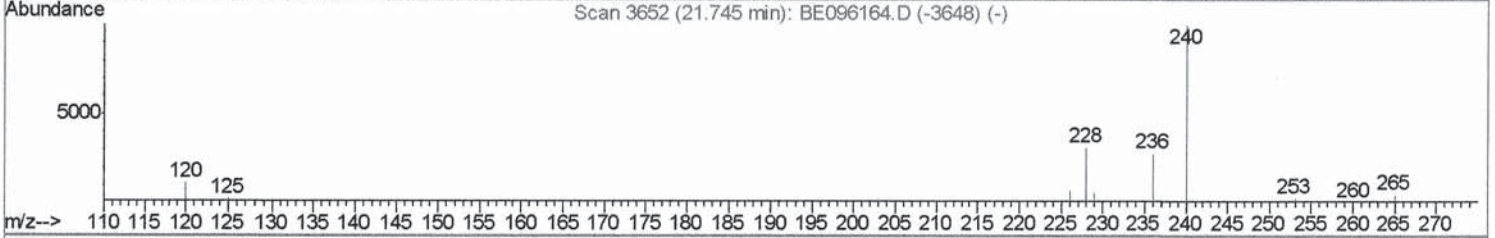
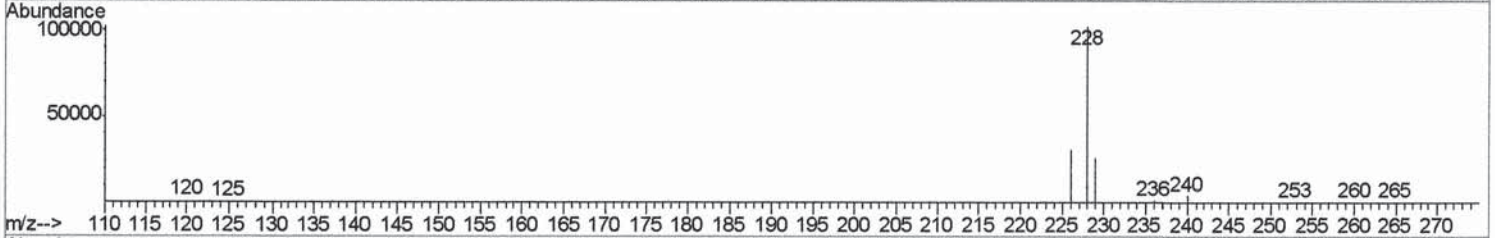
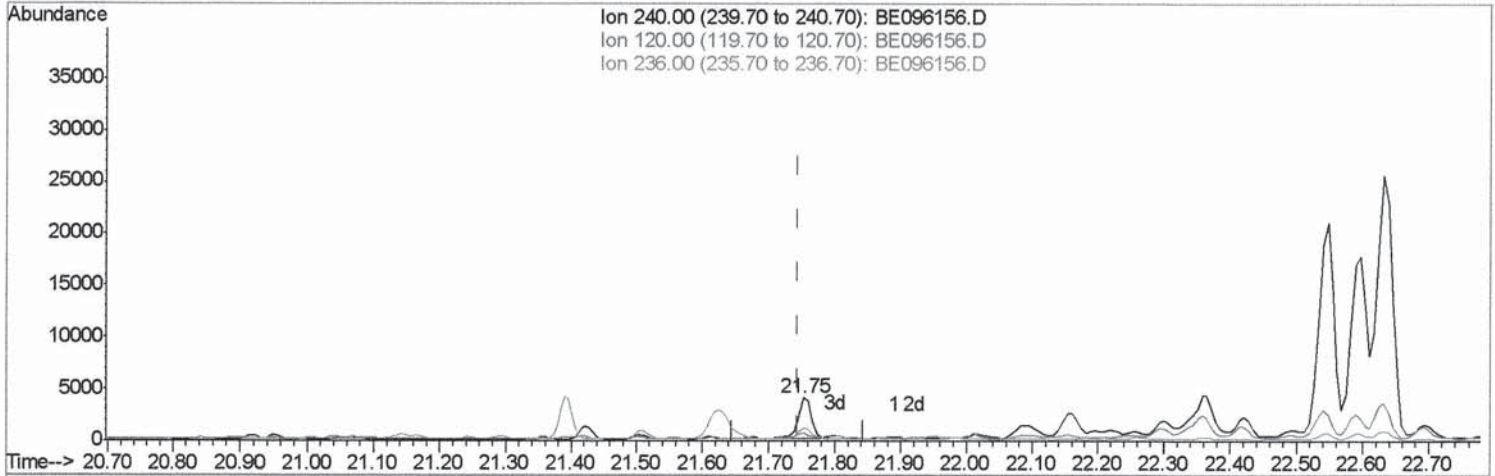
Quantitation Report (Qedit)

Data Path : Z:\HPCHEM1\BNA\_E\Data\BE042518\  
 Data File : BE096156.D  
 Acq On : 25 Apr 2018 20:04  
 Operator : SJ/JU  
 Sample : J2431-07  
 Misc :  
 ALS Vial : 16 Sample Multiplier: 1

Instrument :  
 BNA\_E  
 ClientSampled :  
 DASN8

Manual Integrations  
**APPROVED**  
 Sohil  
 4/26/2018 6:19:57 PM

Quant Time: Apr 26 14:36:30 2018  
 Quant Method : Z:\HPCHEM1\BNA\_E\METHODS\SOM-EPA-SIM-BE042418.M  
 Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION  
 QLast Update : Thu Apr 26 06:40:54 2018  
 Response via : Initial Calibration



TIC: BE096156.D

(16) Chrysene-d12 (l)  
 21.752min (+0.007) 0.40ng/ul m  
 response 7972

*26/4/2018*

Ion	Exp%	Act%
240.00	100	100
120.00	20.60	19.49
236.00	34.90	31.87
0.00	0.00	0.00

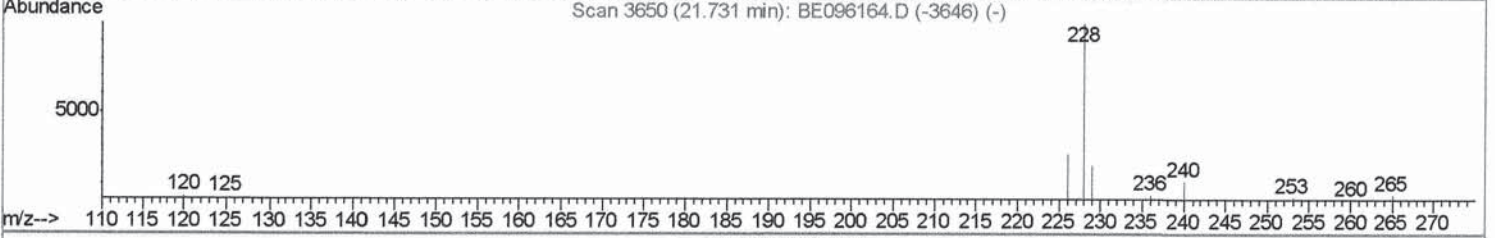
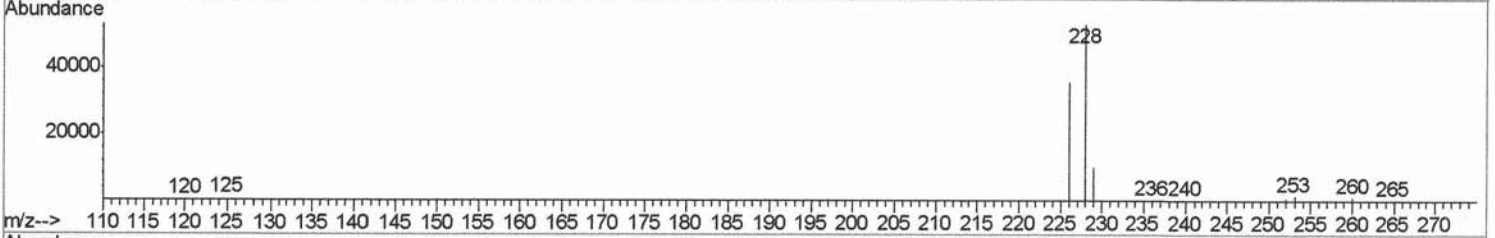
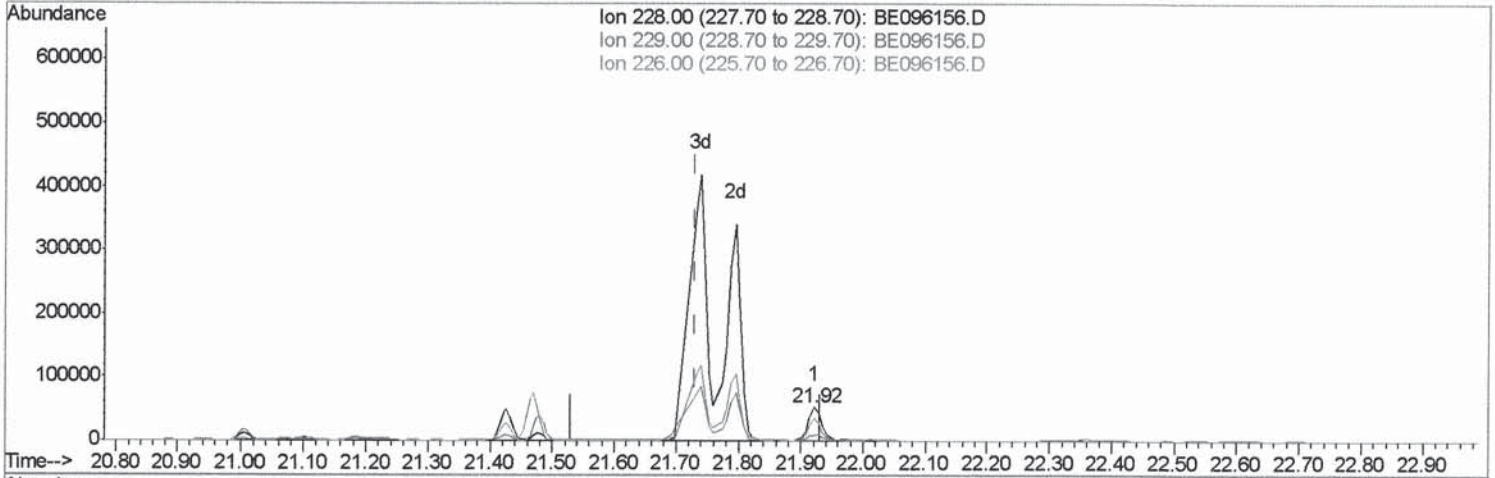
Quantitation Report (Qedit)

Data Path : Z:\HPCHEM1\BNA\_E\Data\BE042518\  
 Data File : BE096156.D  
 Acq On : 25 Apr 2018 20:04  
 Operator : SJ/JU  
 Sample : J2431-07  
 Misc :  
 ALS Vial : 16 Sample Multiplier: 1

Instrument :  
 BNA\_E  
 ClientSampled :  
 DASN8

Manual Integrations  
**APPROVED**  
 Sohil  
 4/26/2018 6:19:57 PM

Quant Time: Apr 26 14:39:52 2018  
 Quant Method : Z:\HPCHEM1\BNA\_E\METHODS\SOM-EPA-SIM-BE042418.M  
 Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION  
 QLast Update : Thu Apr 26 06:40:54 2018  
 Response via : Initial Calibration



TIC: BE096156.D

(18) Benzo(a)anthracene  
 21.921min (+0.190) 3.23ng/ul  
 response 78059

Ion	Exp%	Act%
228.00	100	100
229.00	28.50	19.27#
226.00	21.30	66.98#
0.00	0.00	0.00

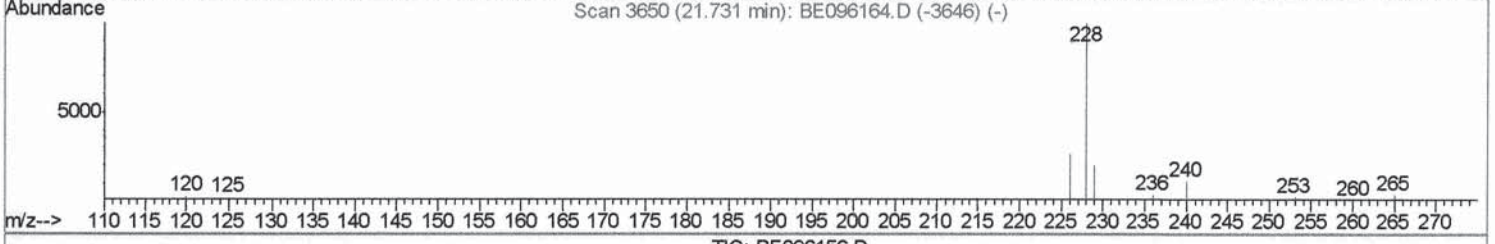
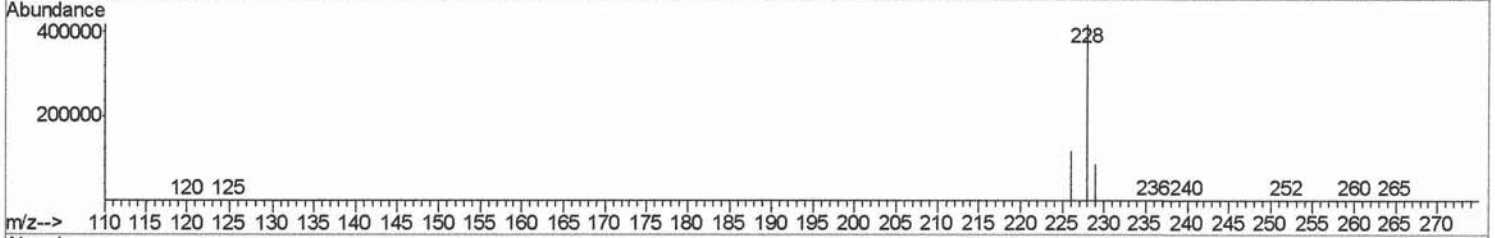
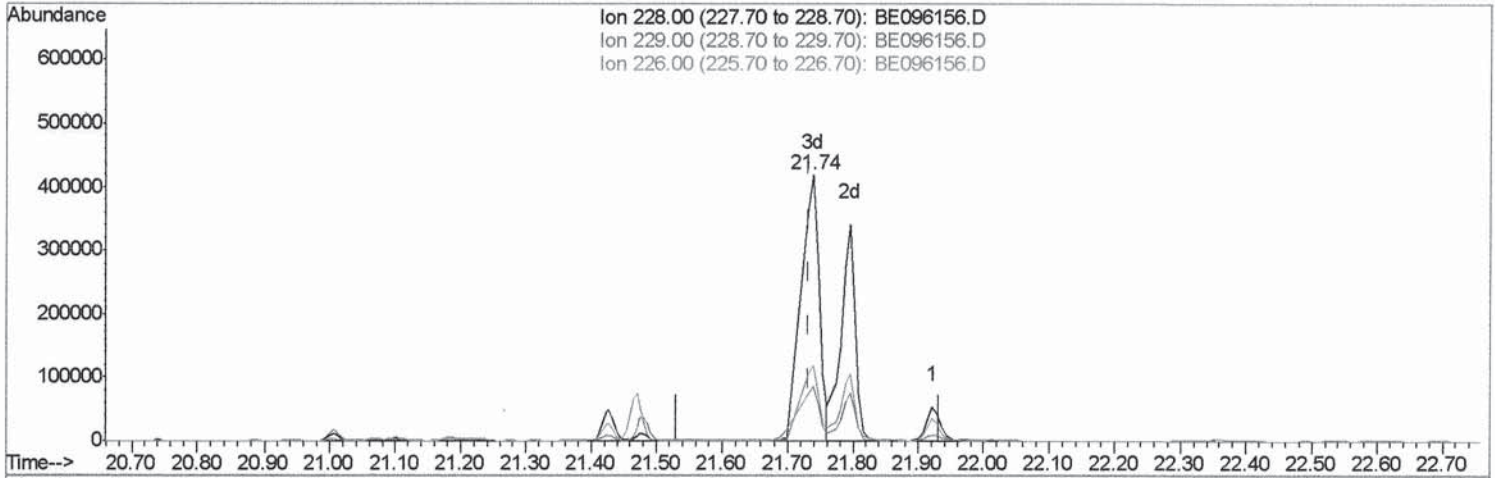
Quantitation Report (Qedit)

Data Path : Z:\HPCHEM1\BNA\_E\Data\BE042518\  
 Data File : BE096156.D  
 Acq On : 25 Apr 2018 20:04  
 Operator : SJ/JU  
 Sample : J2431-07  
 Misc :  
 ALS Vial : 16 Sample Multiplier: 1

**Instrument :**  
 BNA\_E  
**ClientSampled :**  
 DASN8

**Manual Integrations**  
**APPROVED**  
 Sohil  
 4/26/2018 6:19:57 PM

Quant Time: Apr 26 14:39:52 2018  
 Quant Method : Z:\HPCHEM1\BNA\_E\METHODS\SOM-EPA-SIM-BE042418.M  
 Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION  
 QLast Update : Thu Apr 26 06:40:54 2018  
 Response via : Initial Calibration



TIC: BE096156.D

(18) Benzo(a)anthracene

21.738min (+0.007) 25.33ng/ul m

response 611255

Ion	Exp%	Act%
228.00	100	100
229.00	28.50	20.64#
226.00	21.30	28.46#
0.00	0.00	0.00

*SJ/JU 4/27/18*

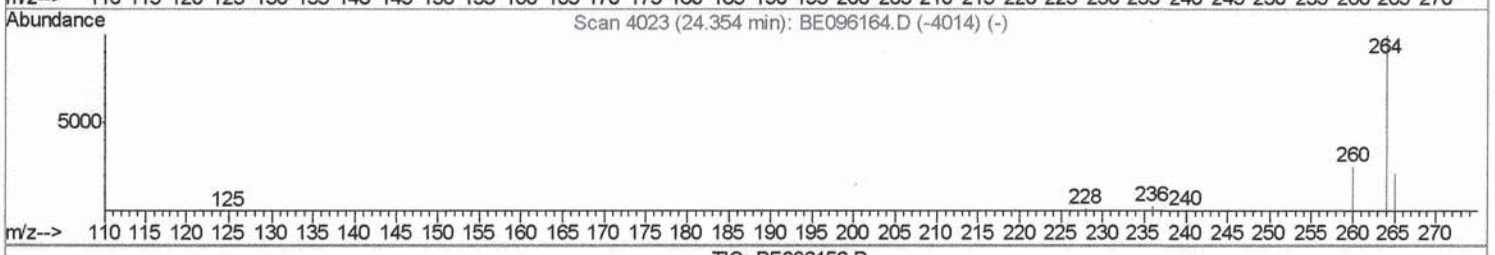
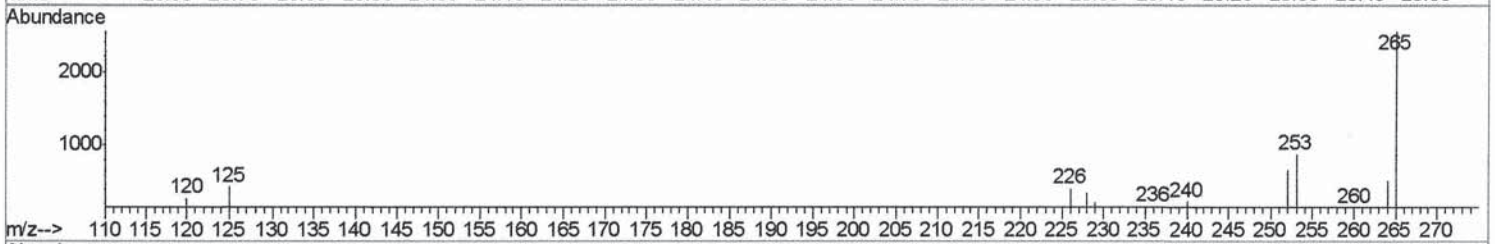
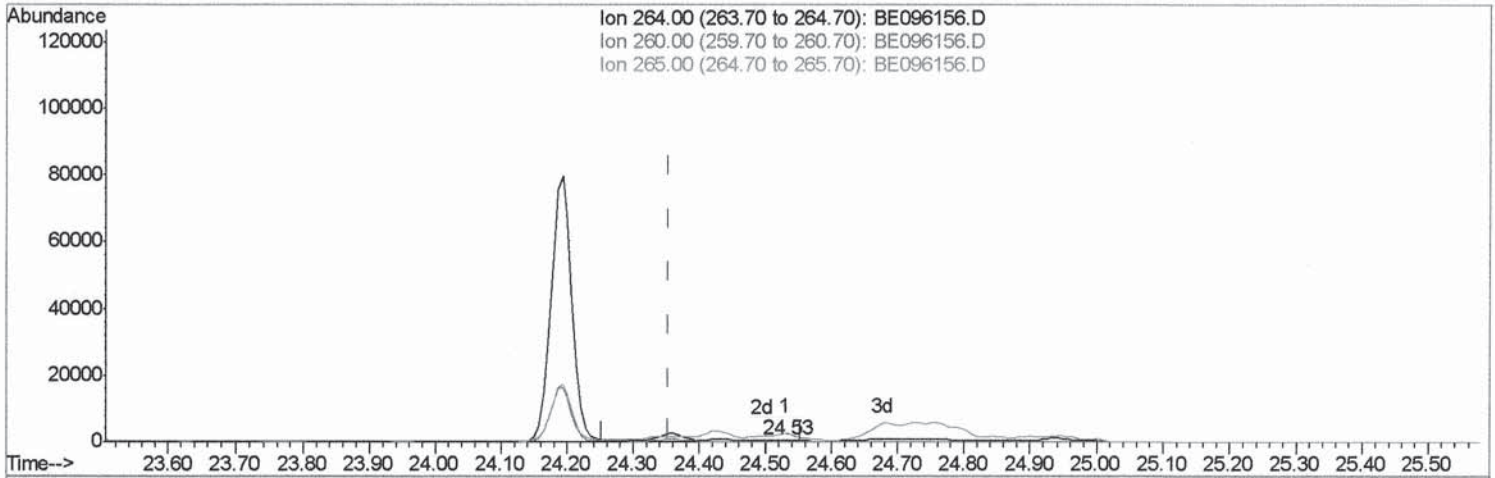
Quantitation Report (Qedit)

Data Path : Z:\HPCHEM1\BNA\_E\Data\BE042518\  
 Data File : BE096156.D  
 Acq On : 25 Apr 2018 20:04  
 Operator : SJ/JU  
 Sample : J2431-07  
 Misc :  
 ALS Vial : 16 Sample Multiplier: 1

Instrument :  
 BNA\_E  
 ClientSampleId :  
 DASN8

Manual Integrations  
**APPROVED**  
 Sohil  
 4/26/2018 6:19:57 PM

Quant Time: Apr 26 14:39:52 2018  
 Quant Method : Z:\HPCHEM1\BNA\_E\METHODS\SOM-EPA-SIM-BE042418.M  
 Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION  
 QLast Update : Thu Apr 26 06:40:54 2018  
 Response via : Initial Calibration



TIC: BE096156.D

(20) Perylene-d12 (I)

24.530min (+0.176) 0.40ng/ul

response 717

Ion	Exp%	Act%
264.00	100	100
260.00	30.10	28.96
265.00	103.50	492.66#
0.00	0.00	0.00



Quantitation Report (Qedit)

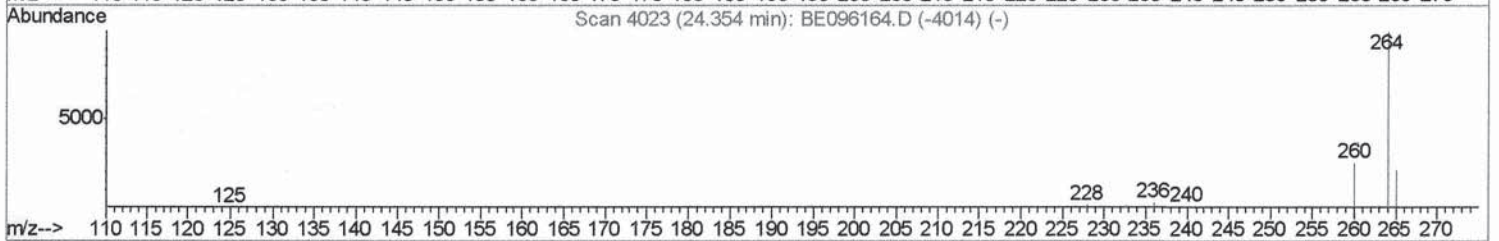
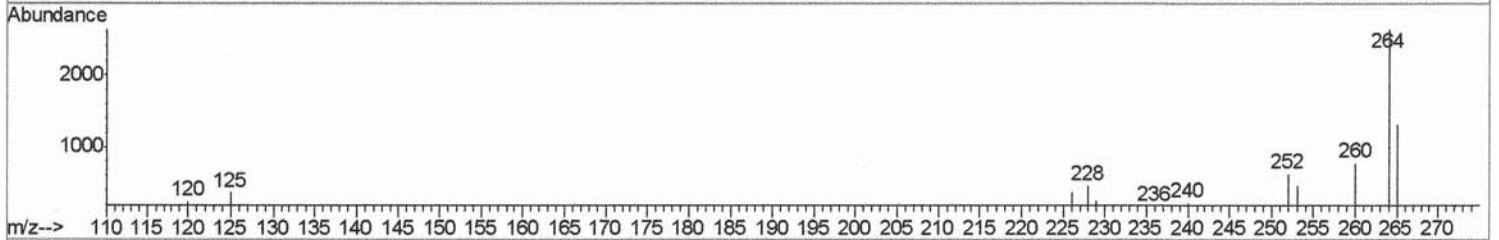
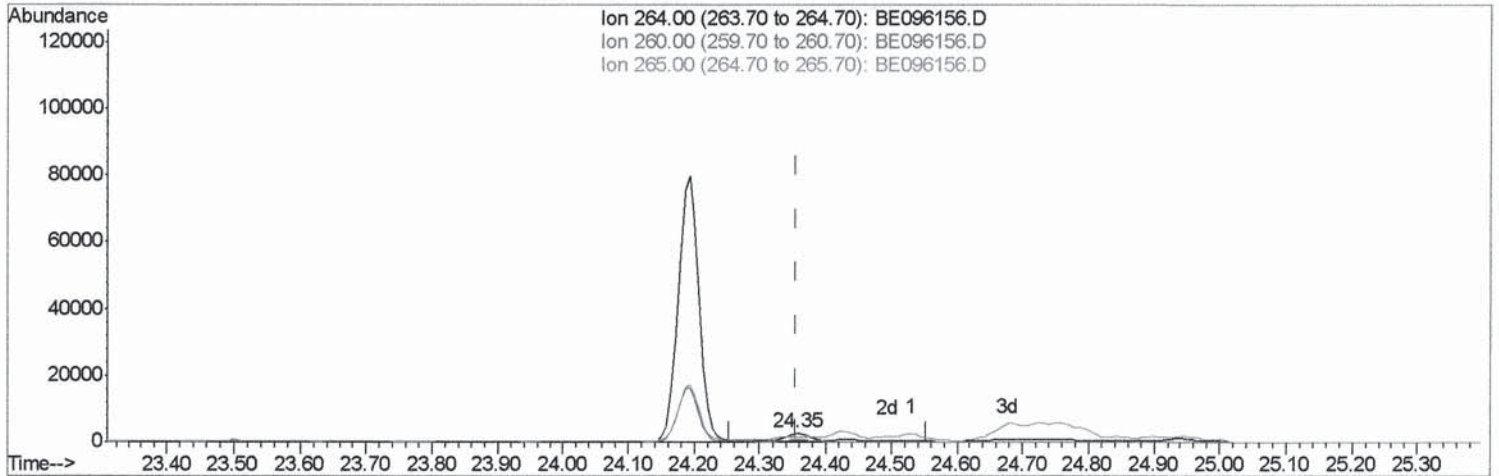
Data Path : Z:\HPCHEM1\BNA\_E\Data\BE042518\  
 Data File : BE096156.D  
 Acq On : 25 Apr 2018 20:04  
 Operator : SJ/JU  
 Sample : J2431-07  
 Misc :  
 ALS Vial : 16 Sample Multiplier: 1

Instrument :  
 BNA\_E  
 ClientSampleId :  
 DASN8

Manual Integrations  
 APPROVED

Sohil  
 4/26/2018 6:19:57 PM

Quant Time: Apr 26 14:39:52 2018  
 Quant Method : Z:\HPCHEM1\BNA\_E\METHODS\SOM-EPA-SIM-BE042418.M  
 Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION  
 QLast Update : Thu Apr 26 06:40:54 2018  
 Response via : Initial Calibration



TIC: BE096156.D

(20) Perylene-d12 (I)

24.354min (-0.000) 0.40ng/ul m

response 5048

Ion	Exp%	Act%
264.00	100	100
260.00	30.10	29.42
265.00	103.50	49.45#
0.00	0.00	0.00

*SJ/JU*  
 4/26/18

Quantitation Report (Qedit)

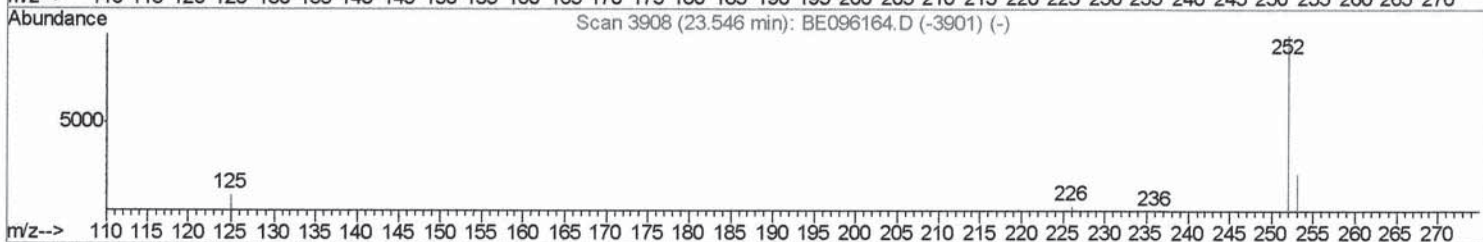
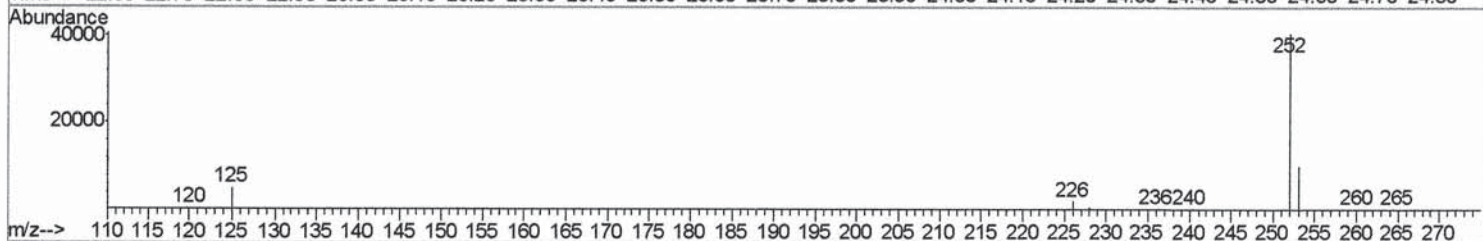
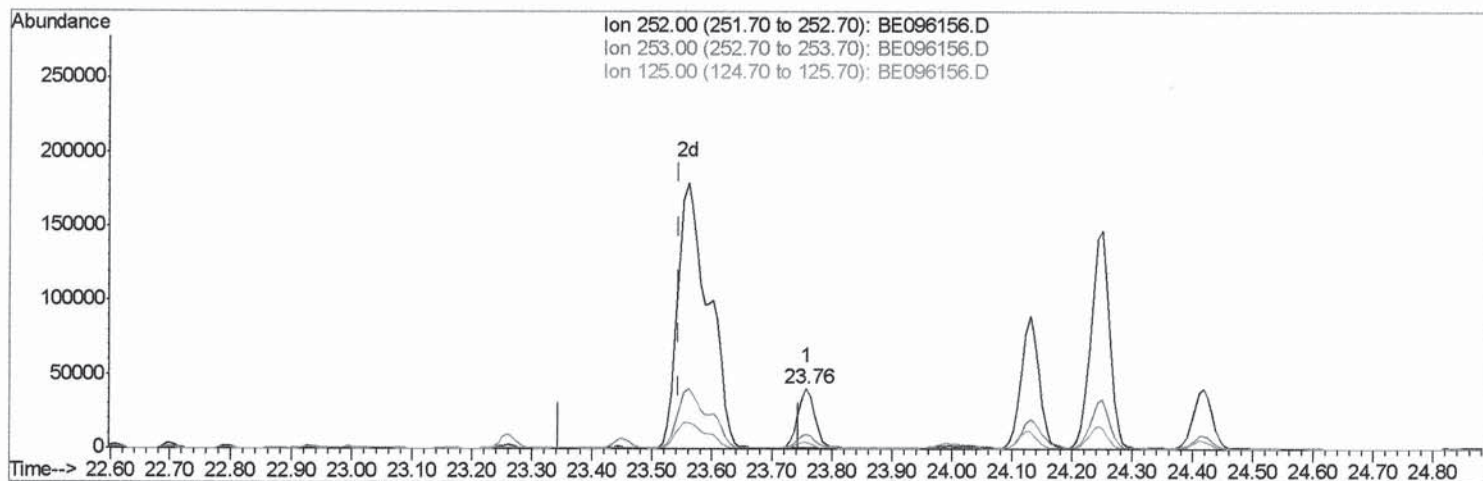
Data Path : Z:\HPCHEM1\BNA\_E\Data\BE042518\  
 Data File : BE096156.D  
 Acq On : 25 Apr 2018 20:04  
 Operator : SJ/JU  
 Sample : J2431-07  
 Misc :  
 ALS Vial : 16 Sample Multiplier: 1

Instrument :  
 BNA\_E  
 ClientSampleId :  
 DASN8

Manual Integrations  
 APPROVED

Sohil  
 4/26/2018 6:19:57 PM

Quant Time: Apr 26 14:40:58 2018  
 Quant Method : Z:\HPCHEM1\BNA\_E\METHODS\SOM-EPA-SIM-BE042418.M  
 Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION  
 QLast Update : Thu Apr 26 06:40:54 2018  
 Response via : Initial Calibration



TIC: BE096156.D

(21) Benzo(b)fluoranthene  
 23.756min (+0.211) 4.28ng/ul  
 response 81859

Ion	Exp%	Act%
252.00	100	100
253.00	32.10	25.05
125.00	17.50	12.12
0.00	0.00	0.00

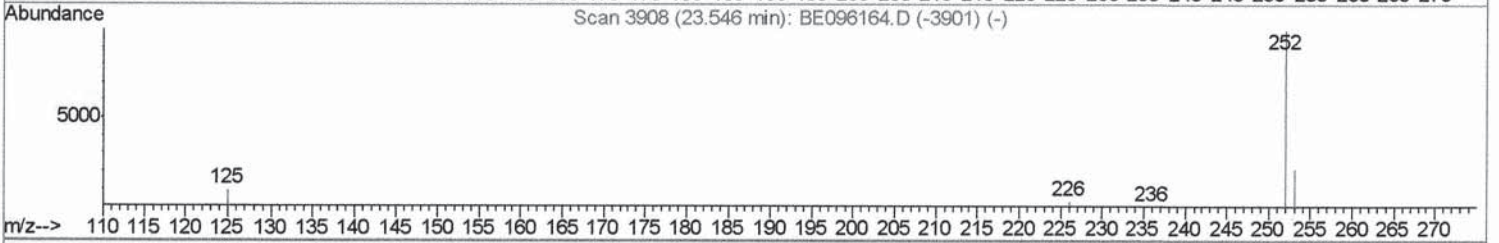
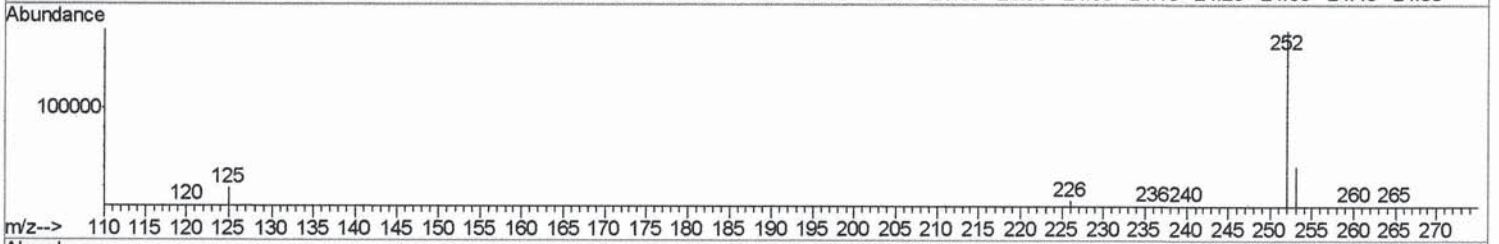
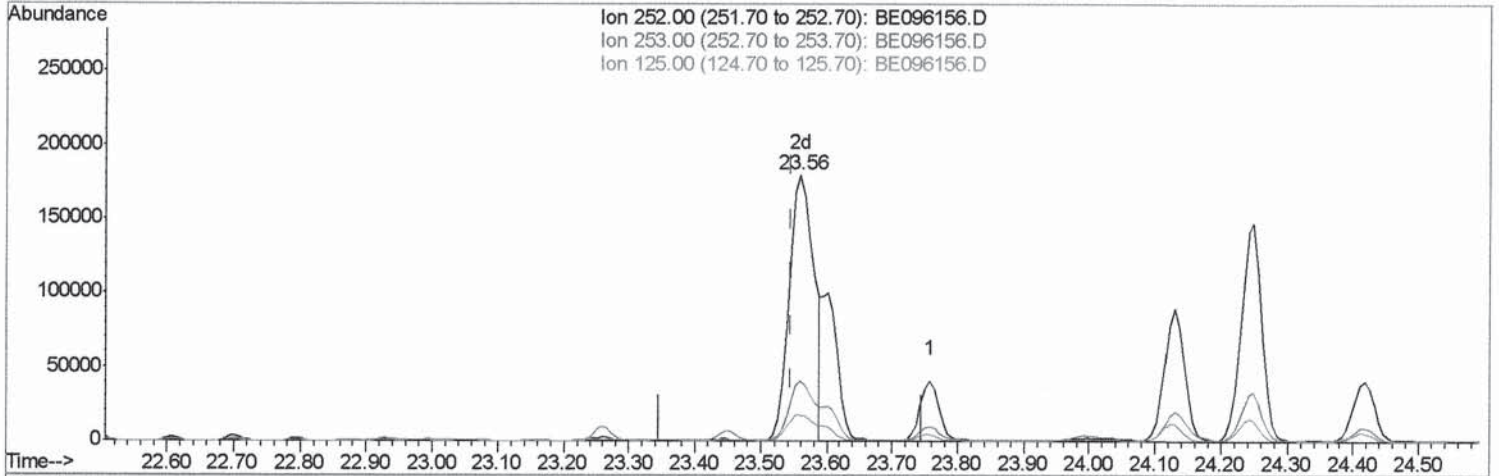
Quantitation Report (Qedit)

Data Path : Z:\HPCHEM1\BNA\_E\Data\BE042518\  
 Data File : BE096156.D  
 Acq On : 25 Apr 2018 20:04  
 Operator : SJ/JU  
 Sample : J2431-07  
 Misc :  
 ALS Vial : 16 Sample Multiplier: 1

Instrument :  
 BNA\_E  
 ClientSampled :  
 DASN8

Manual Integrations  
**APPROVED**  
 Sohil  
 4/26/2018 6:19:57 PM

Quant Time: Apr 26 14:40:58 2018  
 Quant Method : Z:\HPCHEM1\BNA\_E\METHODS\SOM-EPA-SIM-BE042418.M  
 Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION  
 QLast Update : Thu Apr 26 06:40:54 2018  
 Response via : Initial Calibration



(21) Benzo(b)fluoranthene

23.559min (+0.014) 24.90ng/ul m

response 475976

Ion	Exp%	Act%
252.00	100	100
253.00	32.10	22.58
125.00	17.50	10.15
0.00	0.00	0.00

*SJ/JU*

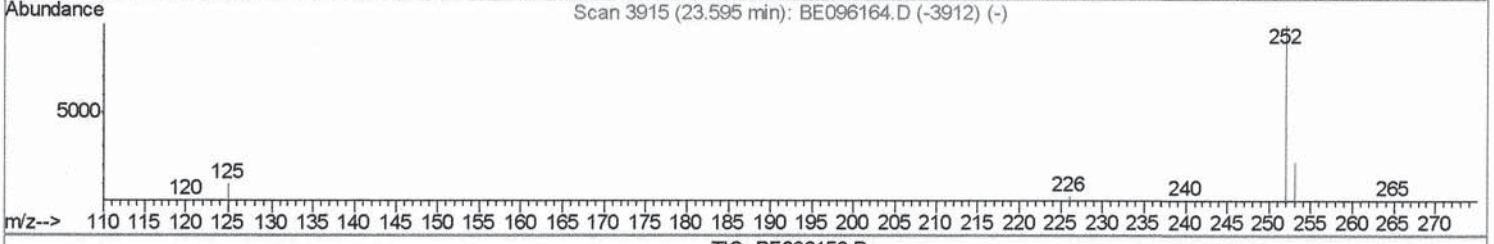
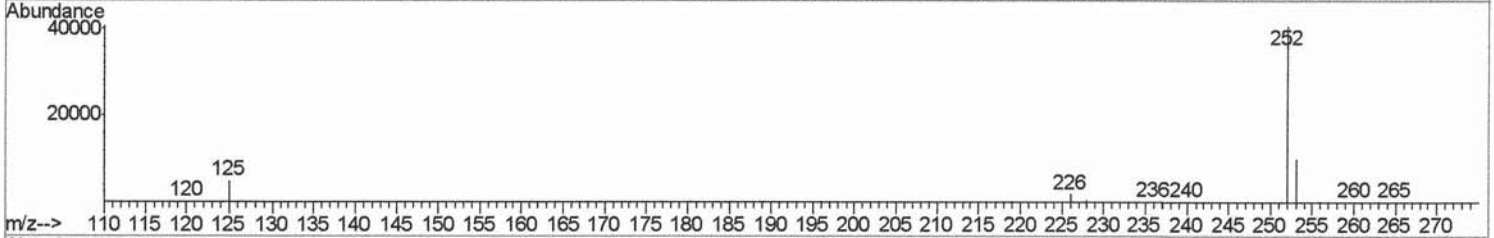
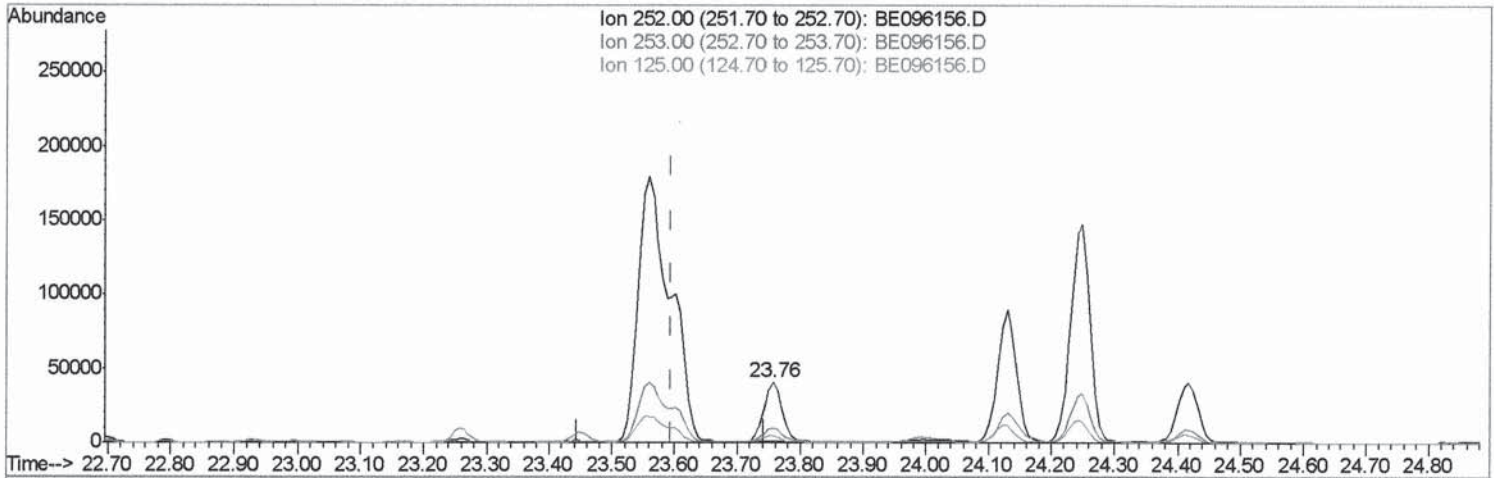
Quantitation Report (Qedit)

Data Path : Z:\HPCHEM1\BNA\_E\Data\BE042518\  
 Data File : BE096156.D  
 Acq On : 25 Apr 2018 20:04  
 Operator : SJ/JU  
 Sample : J2431-07  
 Misc :  
 ALS Vial : 16 Sample Multiplier: 1

Instrument :  
 BNA\_E  
 ClientSampled :  
 DASN8

Manual Integrations  
**APPROVED**  
 Sohil  
 4/26/2018 6:19:57 PM

Quant Time: Apr 26 14:40:58 2018  
 Quant Method : Z:\HPCHEM1\BNA\_E\METHODS\SOM-EPA-SIM-BE042418.M  
 Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION  
 QLast Update : Thu Apr 26 06:40:54 2018  
 Response via : Initial Calibration



TIC: BE096156.D

(22) Benzo(k)fluoranthene

23.756min (+0.161) 4.48ng/ul

response 81859

Ion	Exp%	Act%
252.00	100	100
253.00	30.60	25.05
125.00	17.10	12.12#
0.00	0.00	0.00

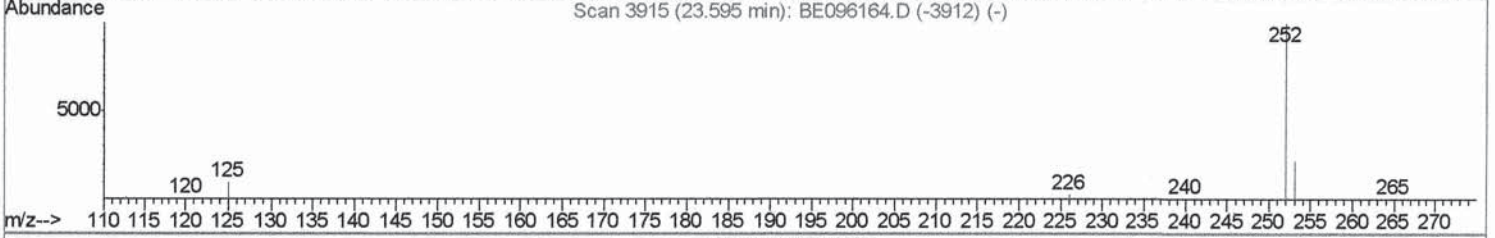
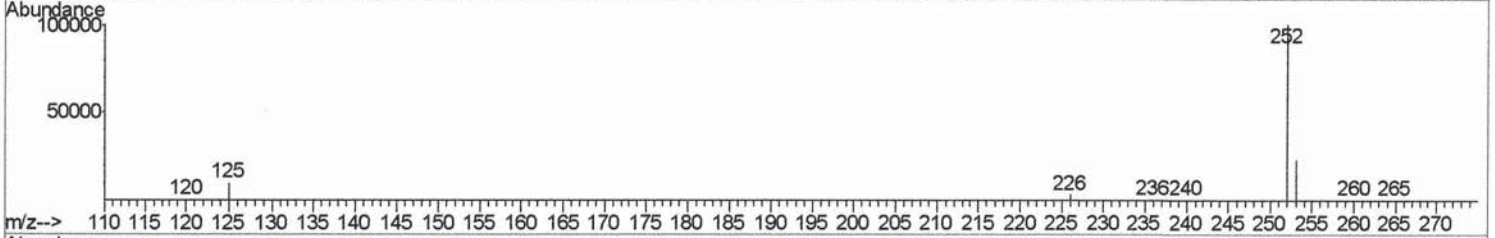
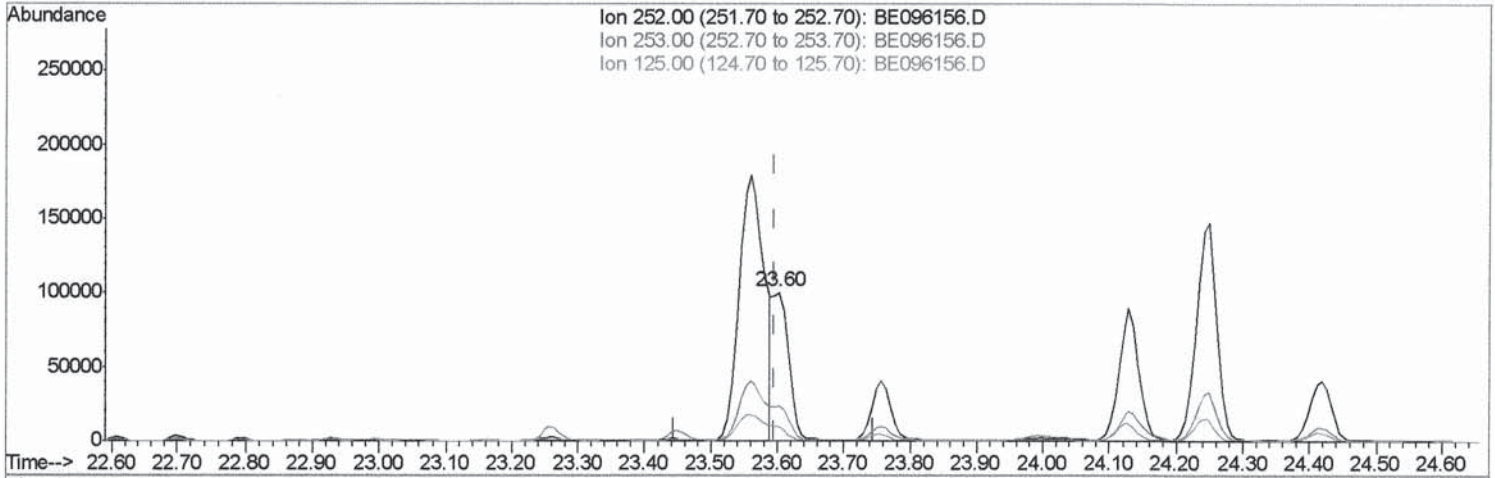
Quantitation Report (Qedit)

Data Path : Z:\HPCHEM1\BNA\_E\Data\BE042518\  
 Data File : BE096156.D  
 Acq On : 25 Apr 2018 20:04  
 Operator : SJ/JU  
 Sample : J2431-07  
 Misc :  
 ALS Vial : 16 Sample Multiplier: 1

Instrument :  
 BNA\_E  
 ClientSampleId :  
 DASN8

Manual Integrations  
**APPROVED**  
 Sohil  
 4/26/2018 6:19:57 PM

Quant Time: Apr 26 14:40:58 2018  
 Quant Method : Z:\HPCHEM1\BNA\_E\METHODS\SOM-EPA-SIM-BE042418.M  
 Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION  
 QLast Update : Thu Apr 26 06:40:54 2018  
 Response via : Initial Calibration



TIC: BE096156.D

(22) Benzo(k)fluoranthene

23.602min (+0.007) 9.12ng/ul m

response 166595

Ion Exp% Act%

252.00 100 100

253.00 30.60 23.23#

125.00 17.10 9.79#

0.00 0.00 0.00

*2020/27/18*

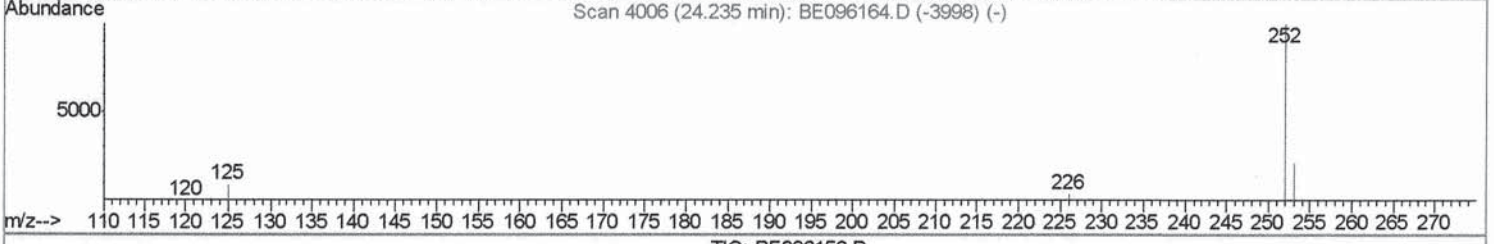
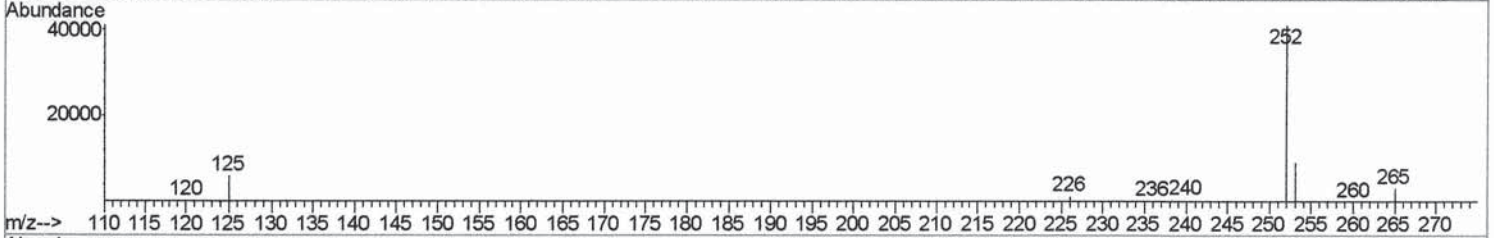
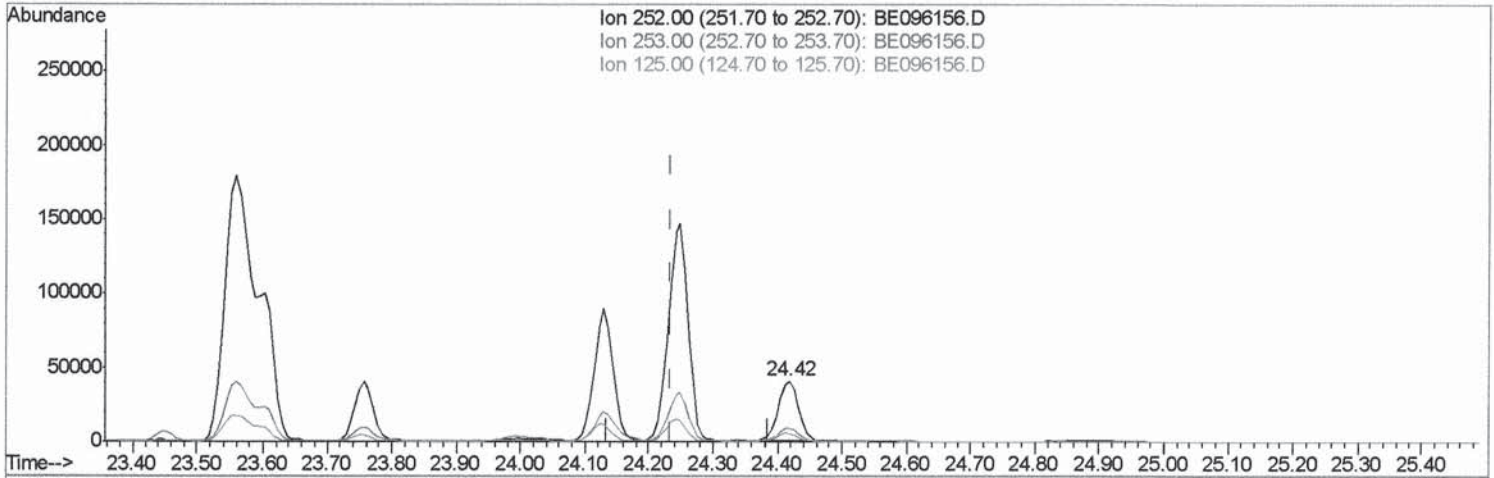
Quantitation Report (Qedit)

Data Path : Z:\HPCHEM1\BNA\_E\Data\BE042518\  
 Data File : BE096156.D  
 Acq On : 25 Apr 2018 20:04  
 Operator : SJ/JU  
 Sample : J2431-07  
 Misc :  
 ALS Vial : 16 Sample Multiplier: 1

Instrument :  
 BNA\_E  
 ClientSampled :  
 DASN8

Manual Integrations  
**APPROVED**  
 Sohil  
 4/26/2018 6:19:57 PM

Quant Time: Apr 26 14:40:58 2018  
 Quant Method : Z:\HPCHEM1\BNA\_E\METHODS\SOM-EPA-SIM-BE042418.M  
 Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION  
 QLast Update : Thu Apr 26 06:40:54 2018  
 Response via : Initial Calibration



TIC: BE096156.D

(23) Benzo(a)pyrene (C)		
24.417min (+0.183)	5.44ng/ul	
response	90356	
Ion	Exp%	Act%
252.00	100	100
253.00	35.60	22.60#
125.00	22.60	14.61#
0.00	0.00	0.00

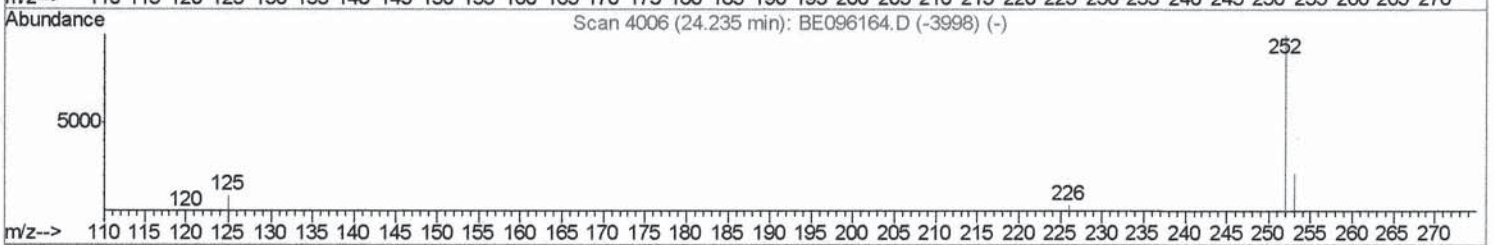
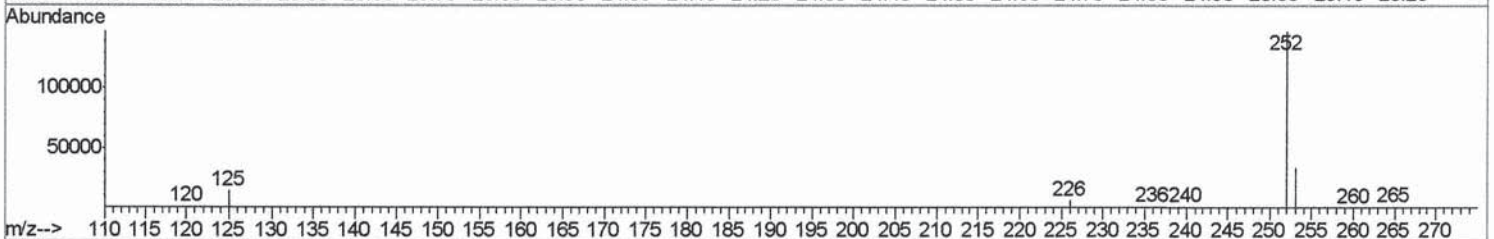
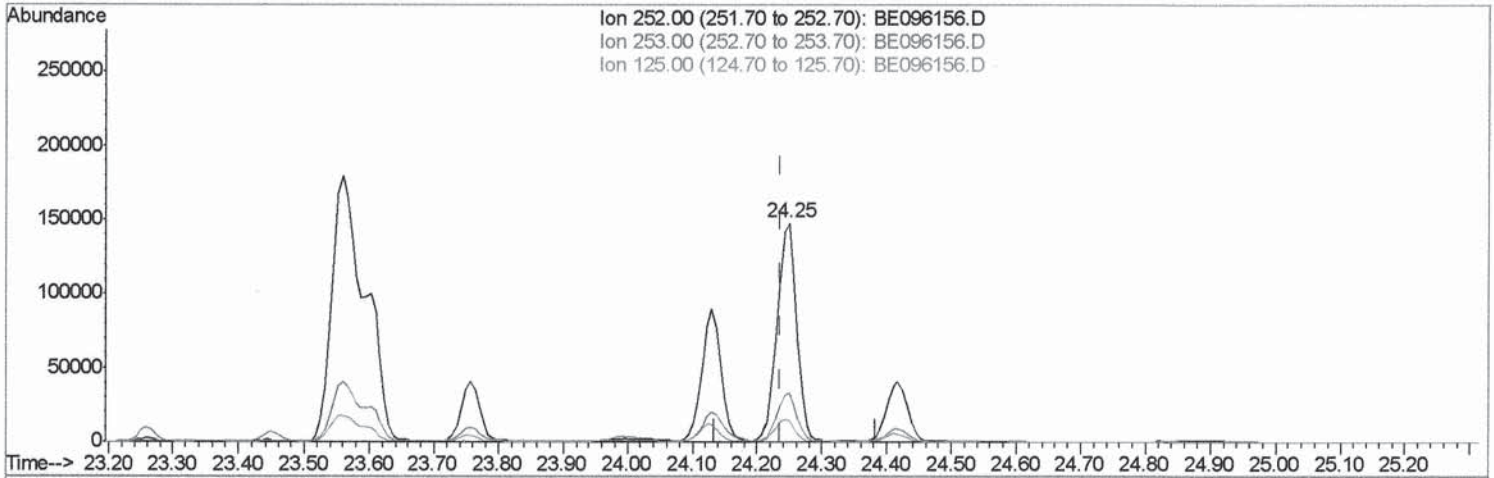
Quantitation Report (Qedit)

Data Path : Z:\HPCHEM1\BNA\_E\Data\BE042518\  
 Data File : BE096156.D  
 Acq On : 25 Apr 2018 20:04  
 Operator : SJ/JU  
 Sample : J2431-07  
 Misc :  
 ALS Vial : 16 Sample Multiplier: 1

Instrument :  
 BNA\_E  
 ClientSampled :  
 DASN8

Manual Integrations  
**APPROVED**  
 Sohil  
 4/26/2018 6:19:57 PM

Quant Time: Apr 26 14:40:58 2018  
 Quant Method : Z:\HPCHEM1\BNA\_E\METHODS\SOM-EPA-SIM-BE042418.M  
 Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION  
 QLast Update : Thu Apr 26 06:40:54 2018  
 Response via : Initial Calibration



TIC: BE096156.D

(23) Benzo(a)pyrene (C)

24.248min (+0.014) 19.08ng/ul m

response 316866

Ion	Exp%	Act%
252.00	100	100
253.00	35.60	22.69#
125.00	22.60	9.71#
0.00	0.00	0.00

*De 4/27/18*

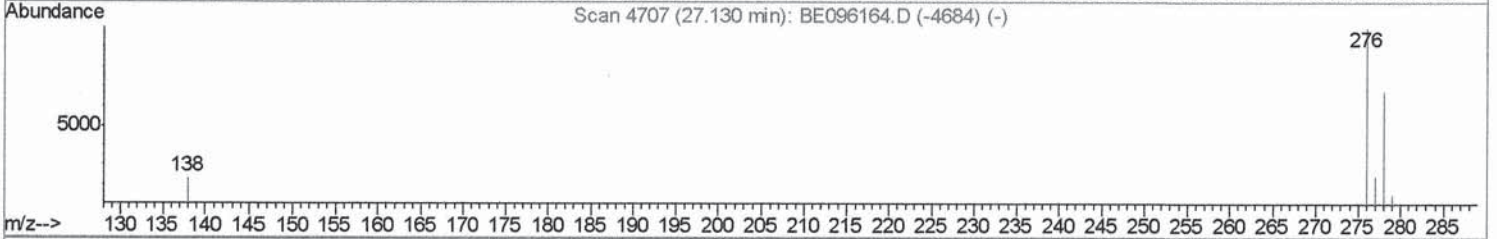
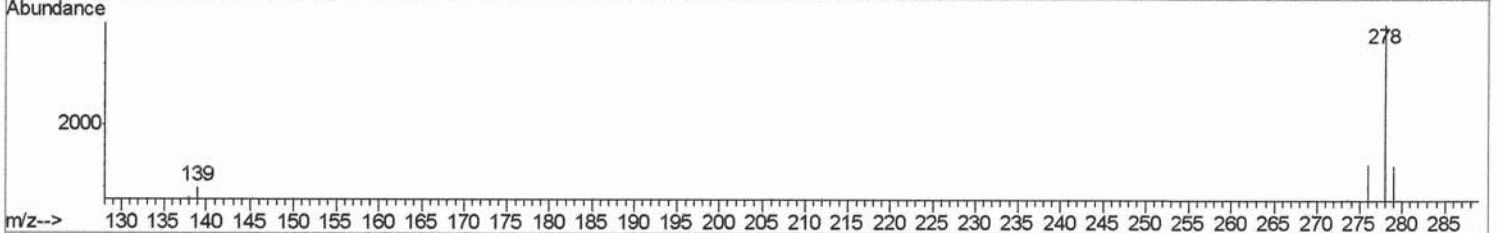
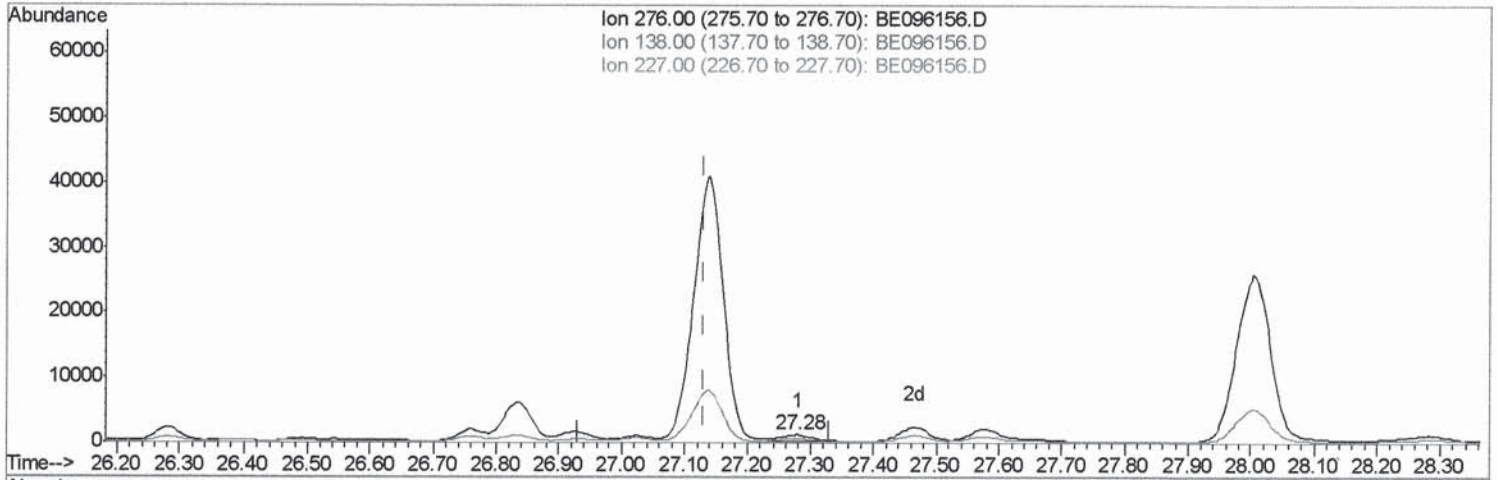
Quantitation Report (Qedit)

Data Path : Z:\HPCHEM1\BNA\_E\Data\BE042518\  
 Data File : BE096156.D  
 Acq On : 25 Apr 2018 20:04  
 Operator : SJ/JU  
 Sample : J2431-07  
 Misc :  
 ALS Vial : 16 Sample Multiplier: 1

Instrument :  
 BNA\_E  
 ClientSampleId :  
 DASN8

Manual Integrations  
**APPROVED**  
 Sohil  
 4/26/2018 6:19:57 PM

Quant Time: Apr 26 14:40:58 2018  
 Quant Method : Z:\HPCHEM1\BNA\_E\METHODS\SOM-EPA-SIM-BE042418.M  
 Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION  
 QLast Update : Thu Apr 26 06:40:54 2018  
 Response via : Initial Calibration



TIC: BE096156.D

(24) Indeno(1,2,3-cd)pyrene  
 27.280min (+0.149) 0.15ng/ul  
 response 3399

Ion	Exp%	Act%
276.00	100	100
138.00	35.00	43.84#
227.00	10.00	0.00#
0.00	0.00	0.00



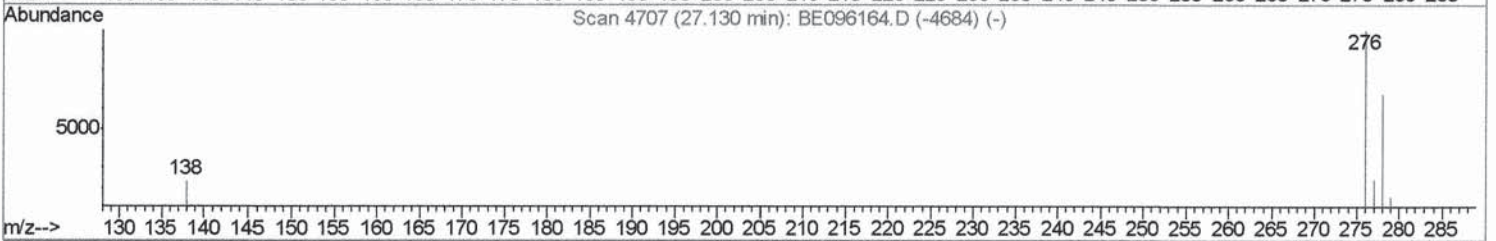
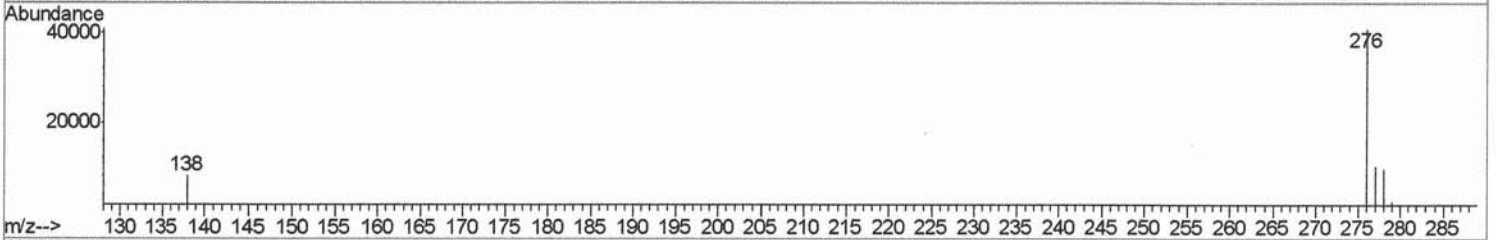
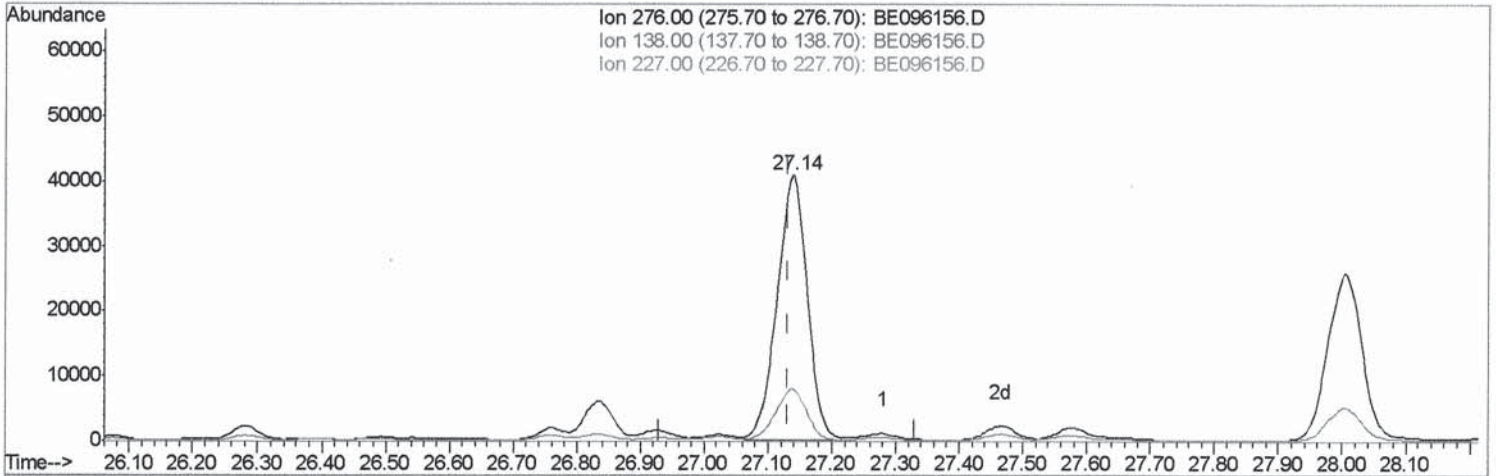
Quantitation Report (Qedit)

Data Path : Z:\HPCHEM1\BNA\_E\Data\BE042518\  
 Data File : BE096156.D  
 Acq On : 25 Apr 2018 20:04  
 Operator : SJ/JU  
 Sample : J2431-07  
 Misc :  
 ALS Vial : 16 Sample Multiplier: 1

Instrument :  
 BNA\_E  
 ClientSampled :  
 DASNB

Manual Integrations  
**APPROVED**  
 Sohil  
 4/26/2018 6:19:57 PM

Quant Time: Apr 26 14:40:58 2018  
 Quant Method : Z:\HPCHEM1\BNA\_E\METHODS\SOM-EPA-SIM-BE042418.M  
 Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION  
 QLast Update : Thu Apr 26 06:40:54 2018  
 Response via : Initial Calibration



TIC: BE096156.D

(24) Indeno(1,2,3-cd)pyrene  
 27.140min (+0.010) 5.99ng/ul m  
 response 133952

Ion	Exp%	Act%
276.00	100	100
138.00	35.00	1.11#
227.00	10.00	0.00#
0.00	0.00	0.00

*Dec 4/27/18*

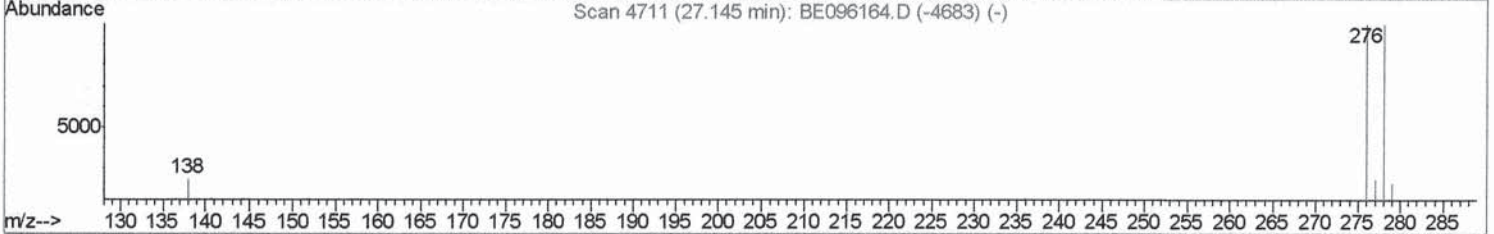
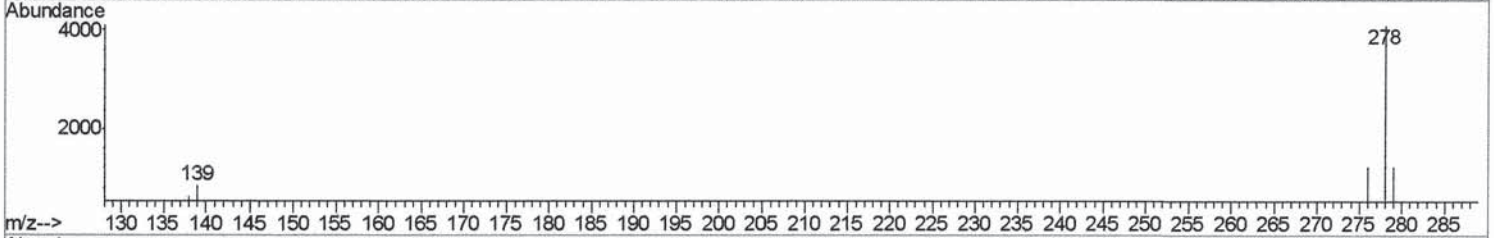
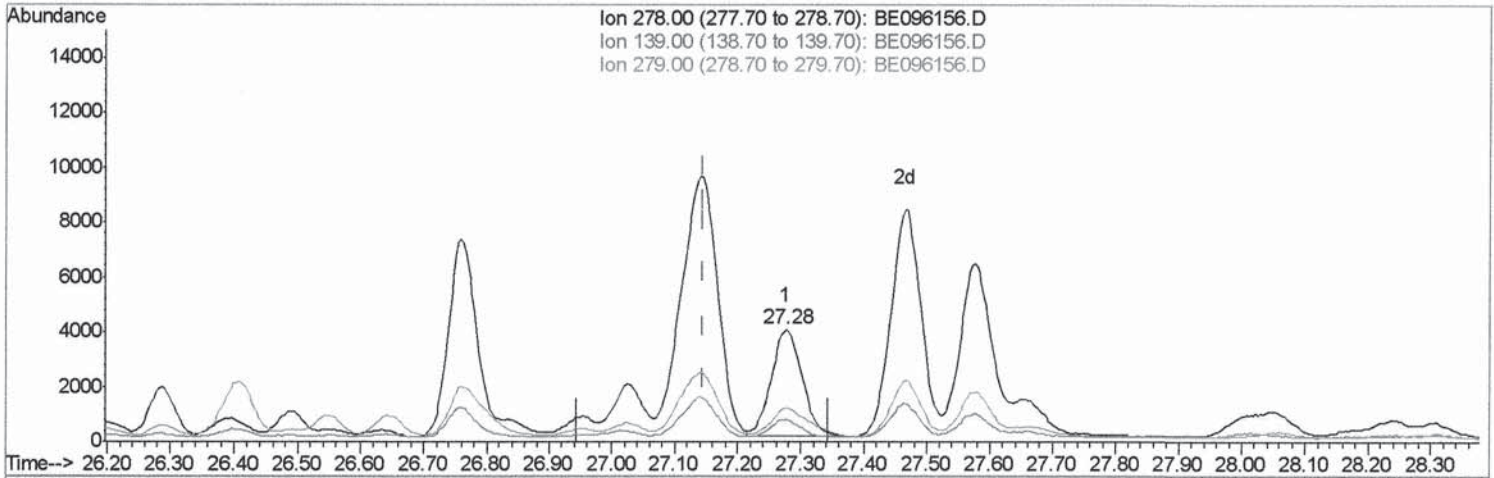
Quantitation Report (Qedit)

Data Path : Z:\HPCHEM1\BNA\_E\Data\BE042518\  
 Data File : BE096156.D  
 Acq On : 25 Apr 2018 20:04  
 Operator : SJ/JU  
 Sample : J2431-07  
 Misc :  
 ALS Vial : 16 Sample Multiplier: 1

Instrument :  
 BNA\_E  
 ClientSampled :  
 DASN8

Manual Integrations  
**APPROVED**  
 Sohil  
 4/26/2018 6:19:57 PM

Quant Time: Apr 26 14:40:58 2018  
 Quant Method : Z:\HPCHEM1\BNA\_E\METHODS\SOM-EPA-SIM-BE042418.M  
 Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION  
 QLast Update : Thu Apr 26 06:40:54 2018  
 Response via : Initial Calibration



TIC: BE096156.D

(25) Dibenzo(a,h)anthracene  
 27.276min (+0.131) 0.70ng/ul  
 response 13068

Ion	Exp%	Act%
278.00	100	100
139.00	21.70	20.23
279.00	32.40	29.89
0.00	0.00	0.00

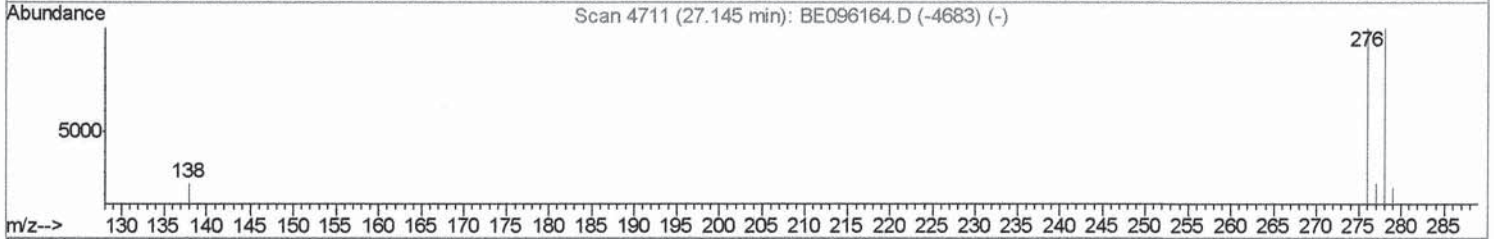
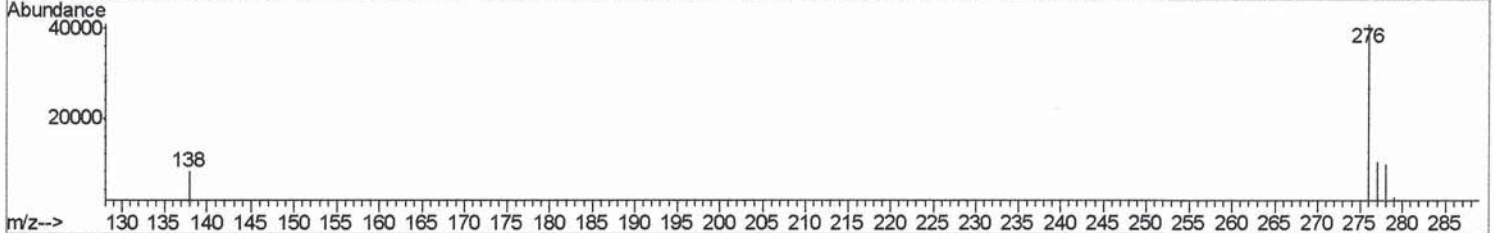
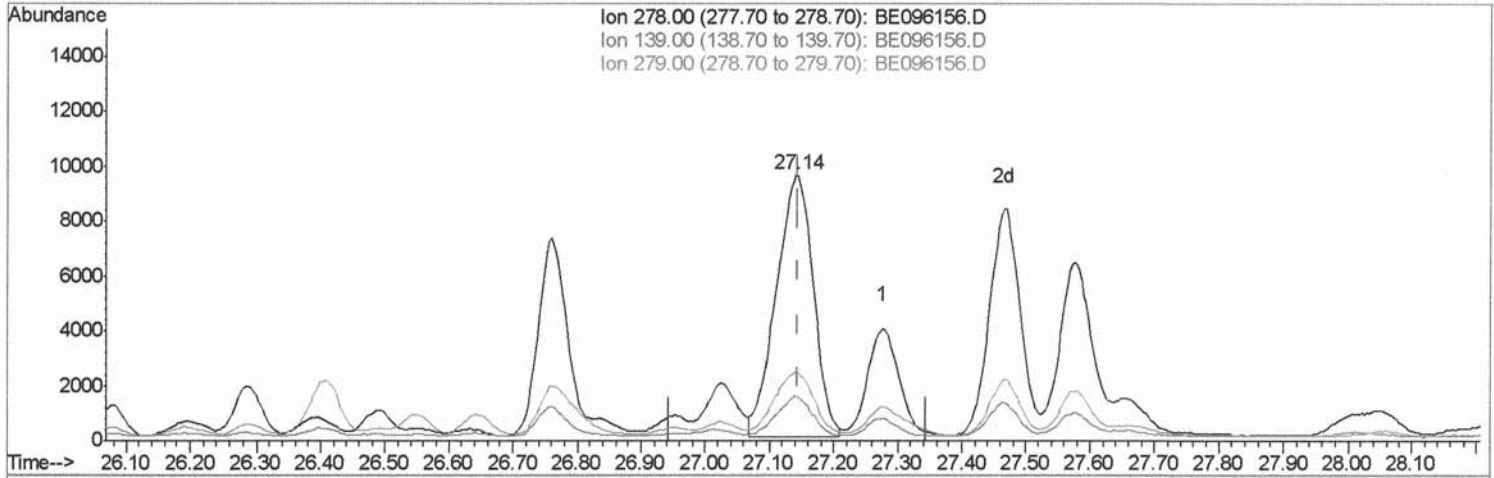
Quantitation Report (Qedit)

Data Path : Z:\HPCHEM1\BNA\_E\Data\BE042518\  
 Data File : BE096156.D  
 Acq On : 25 Apr 2018 20:04  
 Operator : SJ/JU  
 Sample : J2431-07  
 Misc :  
 ALS Vial : 16 Sample Multiplier: 1

Instrument :  
 BNA\_E  
 ClientSampled :  
 DASN8

Manual Integrations  
**APPROVED**  
 Sohil  
 4/26/2018 6:19:57 PM

Quant Time: Apr 26 14:40:58 2018  
 Quant Method : Z:\HPCHEM1\BNA\_E\METHODS\SOM-EPA-SIM-BE042418.M  
 Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION  
 QLast Update : Thu Apr 26 06:40:54 2018  
 Response via : Initial Calibration



TIC: BE096156.D

(25) Dibenzo(a,h)anthracene

27.140min (-0.004) 2.05ng/ul m *J204/27/18*

response 38326

Ion	Exp%	Act%
278.00	100	100
139.00	21.70	16.65#
279.00	32.40	26.34
0.00	0.00	0.00

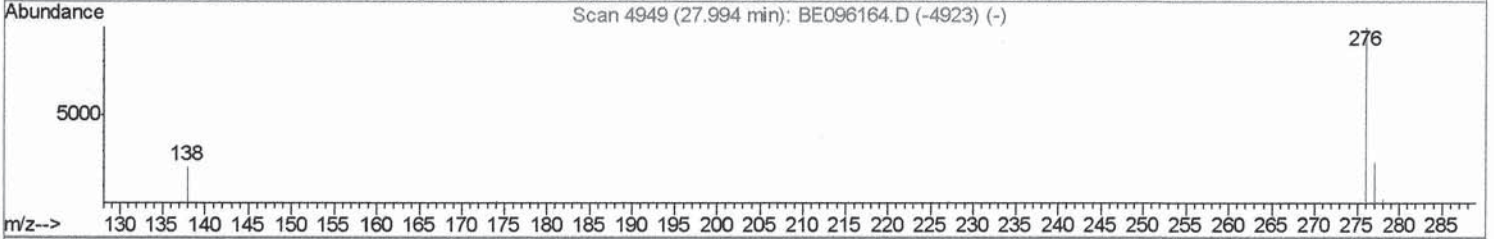
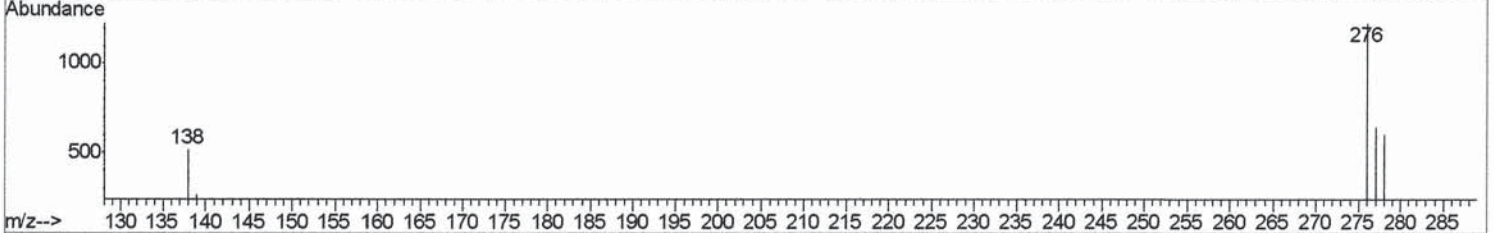
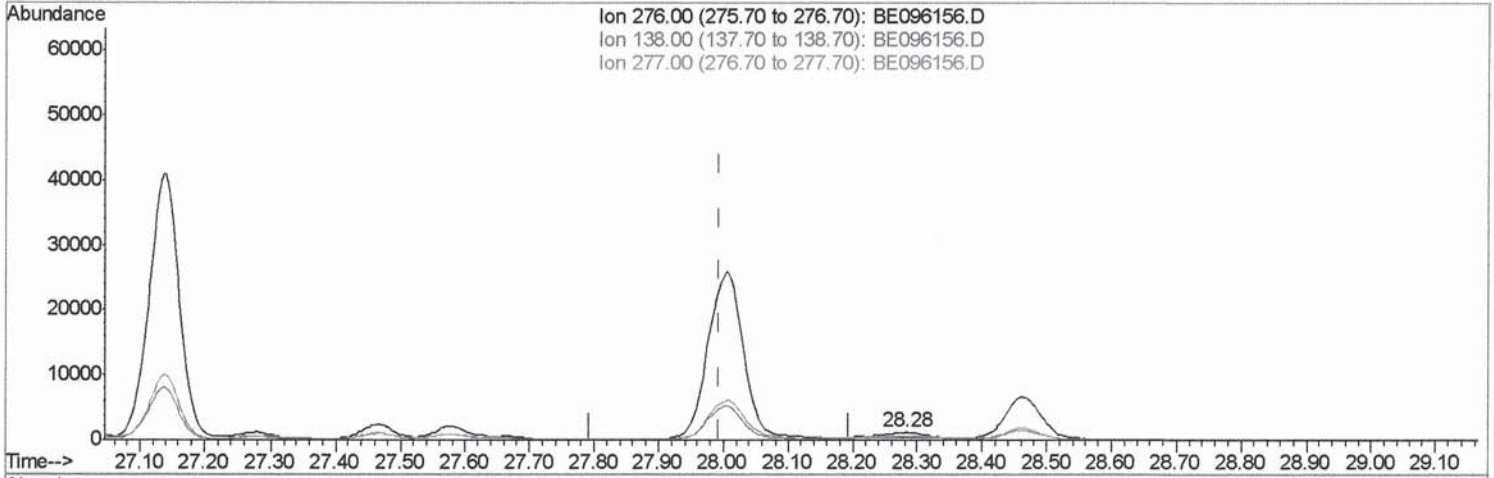
Quantitation Report (Qedit)

Data Path : Z:\HPCHEM1\BNA\_E\Data\BE042518\  
 Data File : BE096156.D  
 Acq On : 25 Apr 2018 20:04  
 Operator : SJ/JU  
 Sample : J2431-07  
 Misc :  
 ALS Vial : 16 Sample Multiplier: 1

Instrument :  
 BNA\_E  
 ClientSampled :  
 DASN8

Manual Integrations  
**APPROVED**  
 Sohil  
 4/26/2018 6:19:57 PM

Quant Time: Apr 26 14:40:58 2018  
 Quant Method : Z:\HPCHEM1\BNA\_E\METHODS\SOM-EPA-SIM-BE042418.M  
 Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION  
 QLast Update : Thu Apr 26 06:40:54 2018  
 Response via : Initial Calibration



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

28.282min (+0.288) 0.20ng/ul

response 3849

Ion	Exp%	Act%
276.00	100	100
138.00	27.30	42.17#
277.00	25.60	52.45#
0.00	0.00	0.00

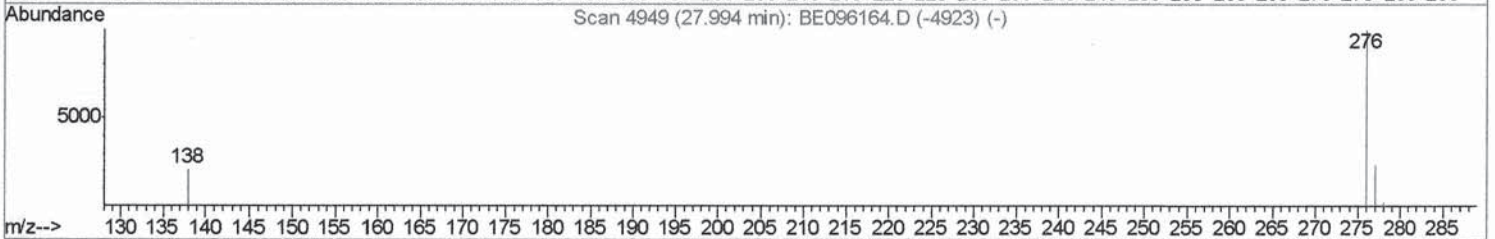
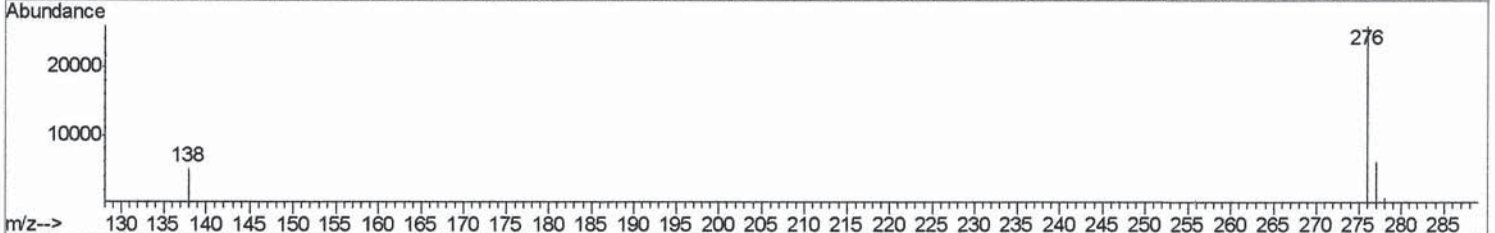
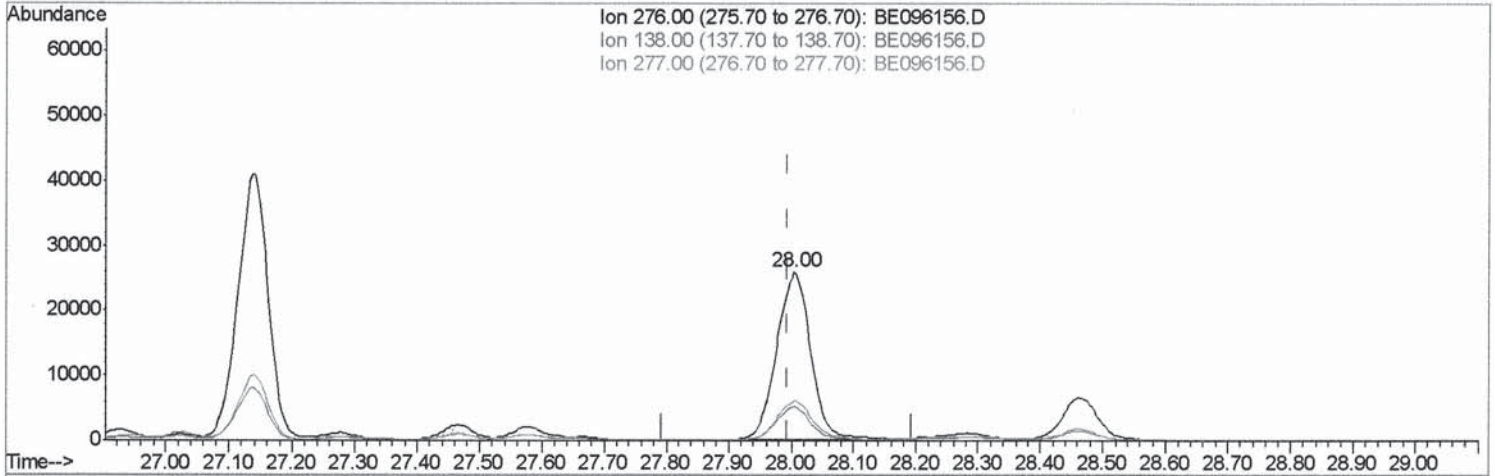
Quantitation Report (Qedit)

Data Path : Z:\HPCHEM1\BNA\_E\Data\BE042518\  
 Data File : BE096156.D  
 Acq On : 25 Apr 2018 20:04  
 Operator : SJ/JU  
 Sample : J2431-07  
 Misc :  
 ALS Vial : 16 Sample Multiplier: 1

Instrument :  
 BNA\_E  
 ClientSampleId :  
 DASN8

Manual Integrations  
**APPROVED**  
 Sohil  
 4/26/2018 6:19:57 PM

Quant Time: Apr 26 14:40:58 2018  
 Quant Method : Z:\HPCHEM1\BNA\_E\METHODS\SOM-EPA-SIM-BE042418.M  
 Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION  
 QLast Update : Thu Apr 26 06:40:54 2018  
 Response via : Initial Calibration



TIC: BE096156.D

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

28.004min (+0.010) 5.00ng/ul m

response 97296

Ion	Exp%	Act%
276.00	100	100
138.00	27.30	20.14#
277.00	25.60	23.97
0.00	0.00	0.00

*Handwritten note:* 24 6/27/18

Data Path : Z:\HPCHEM1\BNA\_E\Data\BE042518\  
 Data File : BE096156.D  
 Acq On : 25 Apr 2018 20:04  
 Operator : SJ/JU  
 Sample : J2431-07  
 Misc :  
 ALS Vial : 16 Sample Multiplier: 1

Instrument :  
 BNA\_E  
 Client Sampled :  
 DASN8

Manual Integrations  
 APPROVED

Sohil  
 4/26/2018 6:19:57 PM

Quant Time: Apr 26 14:43:40 2018  
 Quant Method : Z:\HPCHEM1\BNA\_E\METHODS\SOM-EPA-SIM-BE042418.M  
 Quant Title : ASP BNA STANDARDS FOR 5 POINT CALIBRATION  
 QLast Update : Thu Apr 26 06:40:54 2018  
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	8.36	152	800	0.40	ng/ul	0.00
2) Naphthalene-d8	11.18	136	3492	0.40	ng/ul	0.00
6) Acenaphthene-d10	14.95	164	2284	0.40	ng/ul	0.00
10) Phenanthrene-d10	17.66	188	5406m	0.40	ng/ul	0.00
16) Chrysene-d12	21.75	240	7972m	0.40	ng/ul	0.00
20) Perylene-d12	24.35	264	5048m	0.40	ng/ul	0.00
System Monitoring Compounds						
4) 2-Methylnaphthalene-d10	12.74	152	891	0.14	ng/ul	0.00
14) Fluoranthene-d10	19.65	212	3337m	0.13	ng/ul	0.00
Target Compounds						
						Qvalue
3) Naphthalene	11.23	128	77019	7.921	ng/ul#	88
5) 2-Methylnaphthalene	12.81	142	26283	4.035	ng/ul	100
7) Acenaphthylene	14.68	152	37262	3.165	ng/ul	98
8) Acenaphthene	15.01	153	571184	67.282	ng/ul	94
9) Fluorene	15.98	166	627175	55.835	ng/ul#	89
11) Pentachlorophenol	17.32	266	1711m	1.315	ng/ul	
12) Phenanthrene	17.72	178	3247930m	204.062	ng/ul	
13) Anthracene	17.80	178	545332m	34.151	ng/ul	
15) Fluoranthene	19.68	202	2758533m	113.385	ng/ul	
17) Pyrene	20.03	202	1744205	109.060	ng/ul#	77
18) Benzo(a)anthracene	21.74	228	611255m	25.326	ng/ul	
19) Chrysene	21.79	228	525711	23.704	ng/ul	97
21) Benzo(b)fluoranthene	23.56	252	475976m	24.902	ng/ul	
22) Benzo(k)fluoranthene	23.60	252	166595m	9.117	ng/ul	
23) Benzo(a)pyrene	24.25	252	316866m	19.082	ng/ul	
24) Indeno(1,2,3-cd)pyrene	27.14	276	133952m	5.987	ng/ul	
25) Dibenzo(a,h)anthracene	27.14	278	38326m	2.046	ng/ul	
26) Benzo(g,h,i)perylene	28.00	276	97296m	4.996	ng/ul	

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