A Street
16L0317
Laurel Station
16L0326

Analysis	Matrix	Method
8270D-SIM PAH Low (0.01 ug/L - 0.5 ug/kg)	Water	EPA 8270D-SIM

Checklist: Initial Calibration Checklist-SVOA

#	Checklist Item	Response	Analyst Initials	Date
1	Element Calibration Code	YES	VTS	01/04/2017
	Comments: *ZL00083*			
2	DFTPP Tune met criteria	YES	VTS	01/04/2017
3	DDT breakdown <20%	YES	VTS	01/04/2017
4	Peak Tailing factor <= 2%	YES	VTS	01/04/2017
5	ICal meets 20% RSD, LR COD, and QR COD limits	YES	VTS	01/04/2017
6	NO ICAL Q Flag applied	YES	VTS	01/04/2017
7	Manual integrations include before/after pictures	YES	VTS	01/04/2017
8	Spectral Library matches updated	NA	VTS	01/04/2017
9	Internal Standard areas within 50-200% from reference	YES	VTS	01/04/2017
10	Minimum response factors met	YES	VTS	01/04/2017
11	All SCV within +/- 20% (DOD)	YES	VTS	01/04/2017
	Comments: *Solution expired 12/26/16. All within 20%*			
12	All SCV within +/- 30%	YES	VTS	01/04/2017
13	NO Linear or Quadratic fits used	YES	VTS	01/04/2017
14	NO Calibration points dropped	YES	VTS	01/04/2017
15	Additional notes	NA	VTS	01/04/2017
16	Reviewer approval (Reviewer)	YES	BB	01/04/2017

* = Indicates Automated Response from Element DataSyst

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 31-DEC-2016 08:28
End Cal Date : 31-DEC-2016 11:04
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP RTE
Method file : \\target\share\chem3\nt11.i\20161231.b\lowsim.m
Last Edit : 31-Dec-2016 12:31 van
Curve Type : Average

Calibration File Names:
Level 1: \\target\share\chem3\nt11.i\20161231.b\N1116123104.D
Level 2: \\target\share\chem3\nt11.i\20161231.b\N1116123106.D
Level 3: \\target\share\chem3\nt11.i\20161231.b\N1116123107.D
Level 4: \\target\share\chem3\nt11.i\20161231.b\N1116123102.D
Level 5: \\target\share\chem3\nt11.i\20161231.b\N1116123105.D
Level 6: \\target\share\chem3\nt11.i\20161231.b\N1116123103.D

Compound	10.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	RRF	% RSD
2 Naphthalene	1.00385	1.00127	0.97586	1.06260	0.98206	0.96297	0.99810	3.525
3 Benzo(b)thiophene	0.75950	0.79038	0.79340	0.88155	0.82401	0.82620	0.81251	5.149
5 2-Methylnaphthalene	0.91038	0.95088	0.95814	1.06781	1.01221	1.00283	0.98371	5.634
6 1-Methylnaphthalene	0.93074	0.95307	0.97179	1.10321	0.99602	0.98148	0.98939	6.086
7 2-Chloronaphthalene	1.29066	1.52595	1.47794	1.68068	1.56574	1.56756	1.51809	8.566
8 Biphenyl	1.81065	2.06316	1 97102	2.22216	2.04125	2.00375	2.01867	6.634
9 2,6-Dimethylnaphthalene	1.39283	1.48193	1.51604	1.75351	1.62569	1.62232	1.56538	8.153
10 Acenaphthylene	1.64743	1.74151	1.76134	1.99398	1.83320	1.80504	1.79708	6.437
12 Acenaphthene	1.11006	1.15621	1.16235	1.28137	1.19990	1.18935	1.18321	4.850
13 Dibenzofuran	1.58785	1.69447	1.75405	1.93621	1.80320	1.77758	1.75890	6.590
14 2,3,5-Trimethylnaphthalene	1.00007	1.04759	1.10342	1.25350	1.17736	1.17111	1.12551	8.282
16 Fluorene	1.32328	1.31521	1.35472	1.52290	1.45830	1.42703	1.40024	5.920
17 Dibenzothiophene	0.86551	0.91754	0.92192	1.00898	0.92351	0.90370	0.92353	5.102
19 Phenanthrene	1.15303	1.13573	1.15166	1.22655	1.11945	1.07428	1.14345	4.370
21 Anthracene	1.10524	1.13615	1.14992	1.29504	1.08543	1.06901	1.14013	7.166
22 Carbazole	1.26511	1.23665	1.27023	1.32972	1.22771	1.21992	1.25822	3.212
23 1-Methylphenanthrene	1.08572	1.14899	1.16099	1.29410	1.18423	1.16172	1.17263	5.816
25 Fluoranthene	1.29626	1.26398	1.30226	1.41066	1.28492	1.22416	1.29704	4.813
26 Pyrene	1.33853	1.26283	1.29611	1.41204	1.28142	1.20425	1.29919	5.437
27 Benzo(a)anthracene	1.15843	1.17068	1.19074	1.29914	1.22384	1.17287	1.20262	4.363
29 Chrysene	1.23241	1.22191	1.25093	1.31262	1.22375	1.16259	1.23403	3.940
30 Benzo(b)fluoranthene	1.05183	1.02228	1.04671	1.15113	1.10065	1.09595	1.07809	4.341
31 Benzo(k)fluoranthene	1.14473	1.10783	1.13786	1.25815	1.16516	1.15347	1.16120	4.414
32 Benzo(j)fluoranthene	0.97131	0.99214	0.98390	1.15295	1.06556	1.04459	1.03508	6.615
34 Benzo(e)pyrene	1.01853	1.04968	1.05395	1.15567	1.09420	1.08037	1.07540	4.397
35 Benzo(a)pyrene	0.98571	0.95031	0.98494	1.08309	1.00981	1.01645	1.00505	4.454
37 Perylene	1.03313	0.99943	1.03240	1.12091	1.05538	1.05495	1.04937	3.867
39 Dibenzo(a,h)anthracene	0.89629	0.77944	0.83406	0.93183	0.89775	0.93652	0.87932	6.952

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 31-DEC-2016 08:28
End Cal Date : 31-DEC-2016 11:04
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP RTE
Method file : \\target\share\chem3\nt11.i\20161231.b\lowsim.m
Last Edit : 31-Dec-2016 12:31 van
Curve Type : Average

	Compound	10.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	RRF	% RSD
	40 Indeno(1,2,3-cd)pyrene	1.10732	0.97809	1.05206	1.16699	1.11821	1.16100	1.09728	6.535
	41 Benzo(g,h,i)perylene	1.04328	0.92297	0.94770	1.02165	0.97112	1.00408	0.98513	4.660
$	4 2-Methylnaphthalene-d10	0.76718	0.79586	0.83161	0.97509	0.88886	0.89507	0.85894	8.842
$	15 Fluorene-d10	0.91974	0.91177	0.92607	1.04754	0.98062	0.97429	0.96001	5.390
$	20 Anthracene-d10	1.11208	0.93118	0.96346	1.04332	0.94594	0.94085	0.98947	7.325
$	24 Fluoranthene-d10	0.98710	1.05574	1 04851	1.16274	1.07232	1.04711	1.06225	5.376
$	33 Benzo(e)pyrene-d12	0.94169	0.96445	0.97436	1.06024	1.00264	1.00444	0.99130	4.165
$	38 Dibenzo(a,h)anthracene-d14	0.61676	0.56457	0.58155	0.70103	0.66657	0.70169	0.63870	9.361

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem3\nt11.i\20161231.b\lowsim.m
Batch File: \\target\share\chem3\nt11.i\20161231.b
Inst ID: nt11.i

ID:	RT01	RT02	RT03	RT04	RT05	RT06
FILENAME:	N1116123102	N1116123103	N1116123104	N1116123105	N1116123106	N1116123107
INJ.DATE:	31-DEC-2016	31-DEC-2016	31-DEC-2016	31-DEC-2016	31-DEC-2016	31-DEC-2016
INJ.TIME:	08:28	08:59	09:30	10:01	10:32	11:04

	Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
*	1 Naphthalene-d8	7.226	7.226	7.226	7.226	7.226	7.226	7.226	6.976-7.476	7.226	0.000
	2 Naphthalene	7.262	7.253	7.253	7.253	7.253	7.253	7.262	7.012-7.512	7.254	0.004
	3 Benzo(b)thiophene	7.515	7.515	7.515	7.515	7.515	7.515	7.515	7.265-7.765	7.515	0.000
$	4 2-Methylnaphthalene-d1	8.201	8.201	8.201	8.201	8.201	8.201	8.201	7.951-8.451	8.201	0.000
	5 2-Methylnaphthalene	8.254	8.254	8.254	8.254	8.254	8.254	8.254	8.004-8.504	8.254	0.000
	6 1-Methylnaphthalene	8.516	8.516	8.516	8.516	8.516	8.516	8.516	8.266-8.766	8.516	0.000
	7 2-Chloronaphthalene	9.168	9.168	9.168	9.168	9.168	9.168	9.168	8.918-9.418	9.168	0.000
	8 Biphenyl	9.136	9.126	9.136	9.126	9.126	9.126	9.136	8.886-9.386	9.129	0.005
	9 2,6-Dimethylnaphthalen	9.189	9.189	9.189	9.189	9.189	9.189	9.189	8.939-9.439	9.189	0.000
	10 Acenaphthylene	10.098	10.098	10.098	10.098	10.098	10.098	10.098	9.848-10.348	10.098	0.000
*	11 Acenaphthene-d10	10.252	10.252	10.252	10.252	10.252	10.252	10.252	10.002-10.502	10.252	0.000
	12 Acenaphthene	10.315	10.315	10.315	10.315	10.315	10.315	10.315	10.065-10.565	10.315	0.000
	13 Dibenzofuran	10.519	10.519	10.519	10.519	10.519	10.519	10.519	10.269-10.769	10.519	0.000
	14 2,3,5-Trimethylnaphtha	10.608	10.608	10.608	10.608	10.608	10.608	10.608	10.358-10.858	10.608	0.000
$	15 Fluorene-d10	11.088	11.088	11.088	11.088	11.088	11.088	11.088	10.838-11.338	11.088	0.000
	16 Fluorene	11.151	11.139	11.151	11.139	11.139	11.139	11.151	10.901-11.401	11.143	0.007
	17 Dibenzothiophene	12.778	12.767	12.767	12.767	12.767	12.767	12.778	12.528-13.028	12.769	0.004

Reviewer 1 VD Date: 12.31.16
Reviewer 2 Date: 1/4/17

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem3\nt11.i\20161231.b\lowsim.m
Batch File: \\target\share\chem3\nt11.i\20161231.b
Inst ID: nt11.i

	Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
*	18 Phenanthrene-d10	12.946	12.946	12.946	12.946	12.946	12.946	12.946	12.696-13.196	12.946	0 000
	19 Phenanthrene	12.988	12.988	12.988	12.988	12.988	12.988	12.988	12.738-13.238	12.988	0.000
$	20 Anthracene-d10	13.009	13.009	13.009	13.009	13.009	13.009	13.009	12.759-13.259	13.009	0.000
	21 Anthracene	13.040	13.040	13.040	13.040	13 040	13.040	13.040	12.790-13.290	13.040	0.000
	22 Carbazole	13.713	13.713	13.723	13.713	13.722	13.713	13.713	13.463-13.963	13.716	0.005
	23 1-Methylphenanthrene	13.984	13.985	13.985	13.984	13.984	13.984	13.984	13.734-14.234	13.984	0.000
$	24 Fluoranthene-d10	15.056	15.056	15.056	15.056	15.056	15.056	15.056	14.806-15.306	15.056	0.000
	25 Fluoranthene	15.084	15.085	15.085	15.084	15.084	15.084	15.084	14.834-15.334	15.084	0.000
	26 Pyrene	15.594	15.594	15.594	15.594	15.594	15.594	15.594	15.344-15.844	15.594	0.000
	27 Benzo(a)anthracene	17.611	17.603	17.603	17.602	17.602	17.602	17.611	17.361-17.861	17.604	0.003
*	28 Chrysene-d12	17.702	17.702	17.702	17.702	17.702	17.702	17.702	17.452-17.952	17.702	0.000
	29 Chrysene	17.752	17.752	17.752	17.752	17.752	17.752	17.752	17.502-18.002	17.752	0.000
	30 Benzo(b)fluoranthene	19.677	19.677	19.677	19.677	19.677	19.677	19.677	19.427-19.927	19.677	0.000
	31 Benzo(k)fluoranthene	19.734	19.735	19.725	19.734	19.735	19.735	19.734	19.484-19.984	19.733	0.004
	32 Benzo(j)fluoranthene	19.802	19.802	19.802	19.802	19.802	19.802	19.802	19.552-20.052	19.802	0.000
$	33 Benzo(e)pyrene-d12	20.484	20.475	20.475	20.474	20.474	20.474	20.484	20.234-20.734	20.476	0.004
	34 Benzo(e)pyrene	20.551	20.551	20.551	20.551	20.551	20.551	20.551	20.301-20.801	20.551	0.000
	35 Benzo(a)pyrene	20.686	20.686	20.686	20.676	20.686	20.686	20.686	20.436-20.936	20.684	0.004
*	36 Perylene-d12	20.926	20.917	20.917	20.916	20.916	20.916	20.926	20.676-21.176	20.918	0.004
	37 Perylene	20.993	20.993	20.993	20.993	20.993	20.993	20.993	20.743-21.243	20.993	0.000
$	38 Dibenzo(a,h)anthracene	23.808	23.809	23.798	23.797	23.809	23.809	23.808	23.558-24.058	23 805	0.006
	39 Dibenzo(a,h)anthracene	23.941	23.942	23.942	23.941	23.941	23.942	23.941	23.691-24.191	23.941	0.000

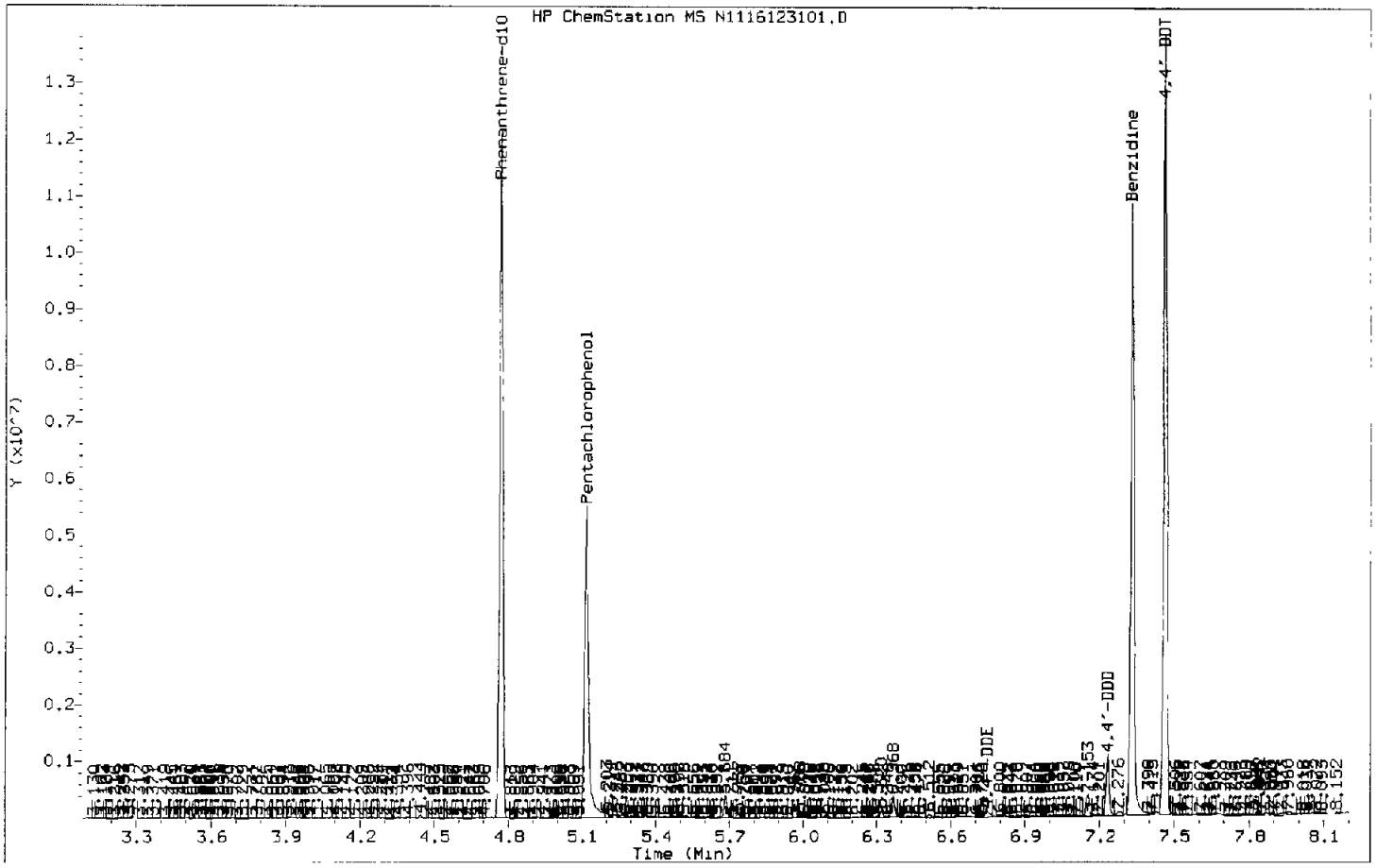
ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

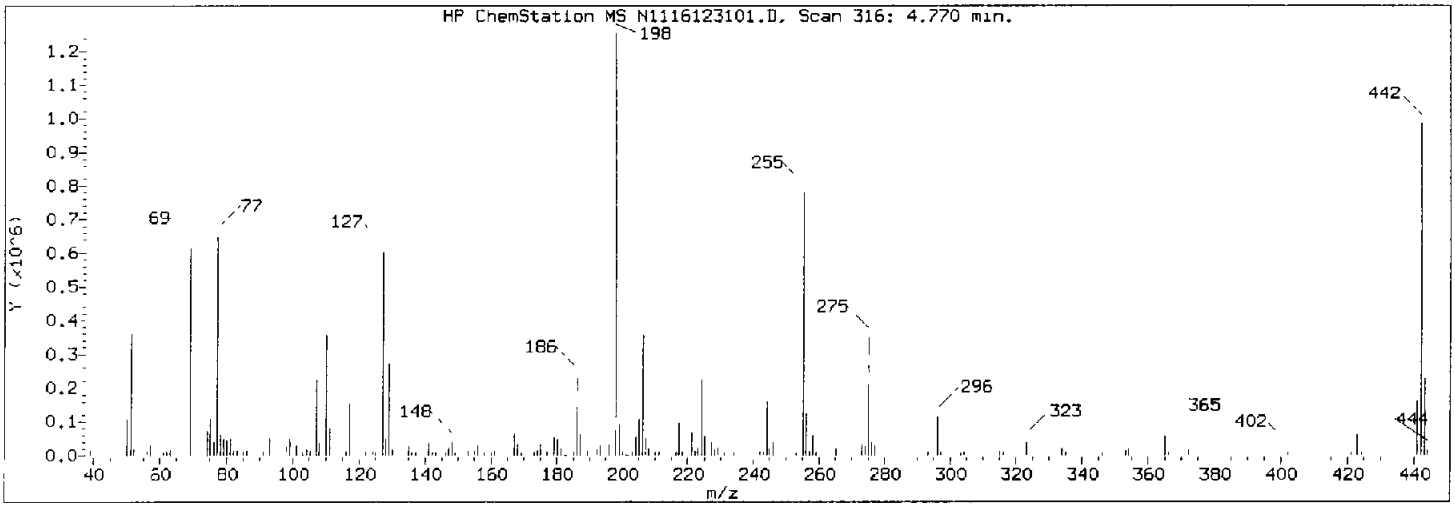
Method File: \\target\share\chem3\nt11.i\20161231.b\lowsim.m
Batch File: \\target\share\chem3\nt11.i\20161231.b
Inst ID: nt11.i

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
40 Indeno(1,2,3-cd)pyrene	23.986	23.986	23.975	23.975	23.975	23.975	23.986	23.736-24.236	23.978	0.006
41 Benzo(g,h,i)perylene	25.370	25.370	25.370	25.359	25.370	25.370	25.370	25.120-25.620	25.368	0.005

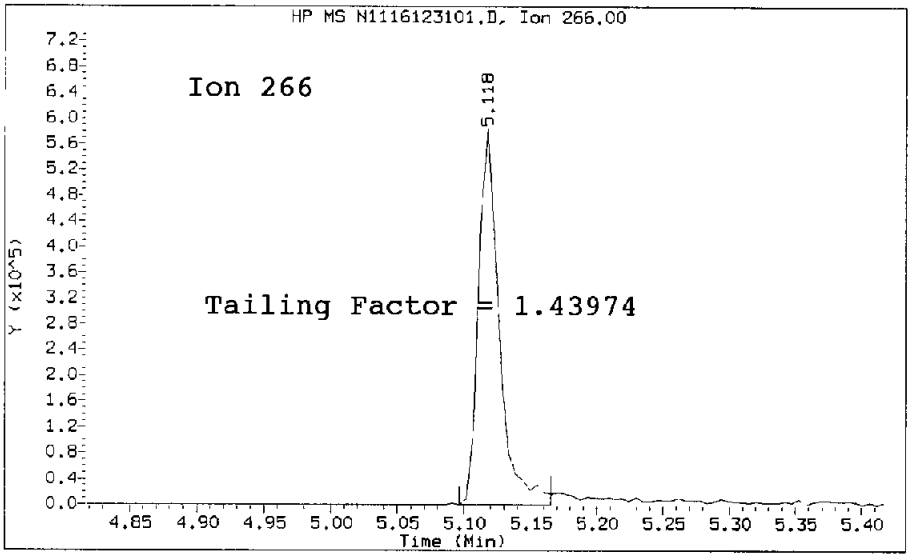
DFTPP TAILING FACTOR AND BREAKDOWN GRAPHIC REPORT

Datafile Analyzed: /20161231.b/N1116123101.D/N1116123101.D
Method Used: \20161231.b\DFTPP.m Inst: nt11
Injection Date: 31-DEC-2016 08:12 Operator: VTS
Sample Info: SEL0401-TUN1 SEL0401-TUN1
Report Date: 12/31/2016 12:45



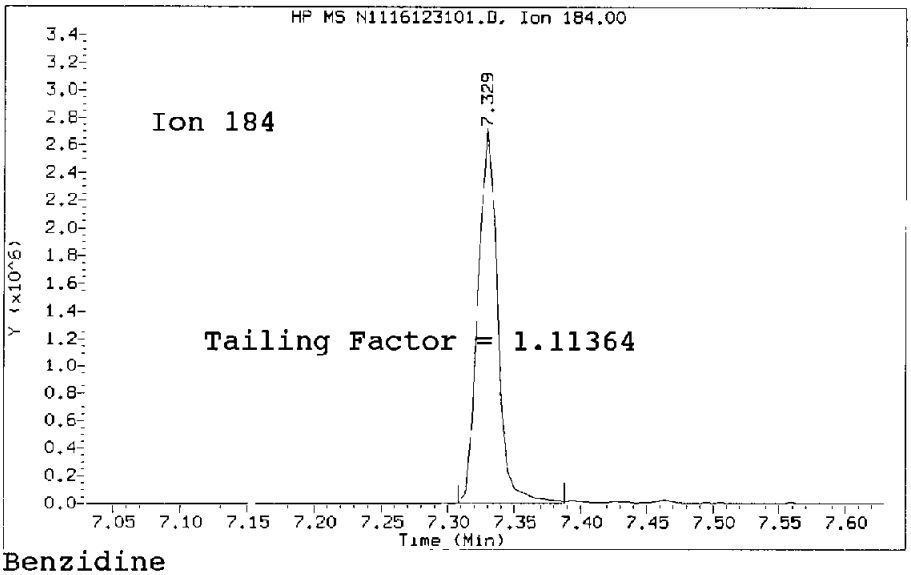


Datafile Analyzed: /20161231.b/N1116123101.D/N1116123101.D
Method Used: \20161231.b\DFTPP.m\sw846ddt.m Inst: nt11
Injection Date: 31-DEC-2016 08:12 Operator: JW
Sample Info: SEL0401-TUN1
Report Date: 12/31/2016 12:45



Pentachlorophenol
==========
Exp. RT = 5.118
Found RT = 5.118

Tail Factor = 1.440 Maximum Allowed = 2.0



Benzidine
==========
Exp. RT = 7.329
Found RT = 7.329

Tail Factor = 1.114 Maximum Allowed = 2.0

8270 TAILING FACTOR/BREAKDOWN SUMMARY RESULTS

TAILING ANALYSIS SUMMARY

Compound	Tail Factor	Max Allowed	Test
Pentachlorophenol	1.4397436	2.000	PASS
Benzidine	1.1136364	2.000	PASS

DDT DEGRADATION BREAKDOWN ANALYSIS SUMMARY

Compound	Response	%Breakdown	Max Allowed	Test
4,4-DDT	1823078			N/A
4,4-DDE	10805	0.6	20.0	PASS
4,4-DDD	178680	8.9	20.0	PASS
4,4-DDD + DDE	189485	9.4	20.0	PASS

Tuning Sample, nt11.i/20161231.b/N1116123101.D, *** PASSED ***

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
198	Base Peak, 100% relative abundance	100.00
51	10.00 - 80.00% of mass 198	27.42
68	Less than 2.00% of mass 69	0.00 (0.00)
69	Mass 69 relative abundance	50.60
70	Less than 2.00% of mass 69	0.36 (0.71)
127	10.00 - 80.00% of mass 198	47.99
197	Less than 2.00% of mass 198	0.00
199	5.00 - 9.00% of mass 198	7.22
275	10.00 - 60.00% of mass 198	27.50
365	Greater than 1.00% of mass 198	3.88
441	0.01 - 24.00% of mass 442	13.21 (16.44)
442	50.00 - 200.00% of mass 198	80.37
443	15.00 - 24.00% of mass 442	17.83 (22.19)

Data File: N1116123101.D
Spectrum: Avg. Scans 315-317 (4.77), Background Scan 310
Location of Maximum: 198.00
Number of points: 259

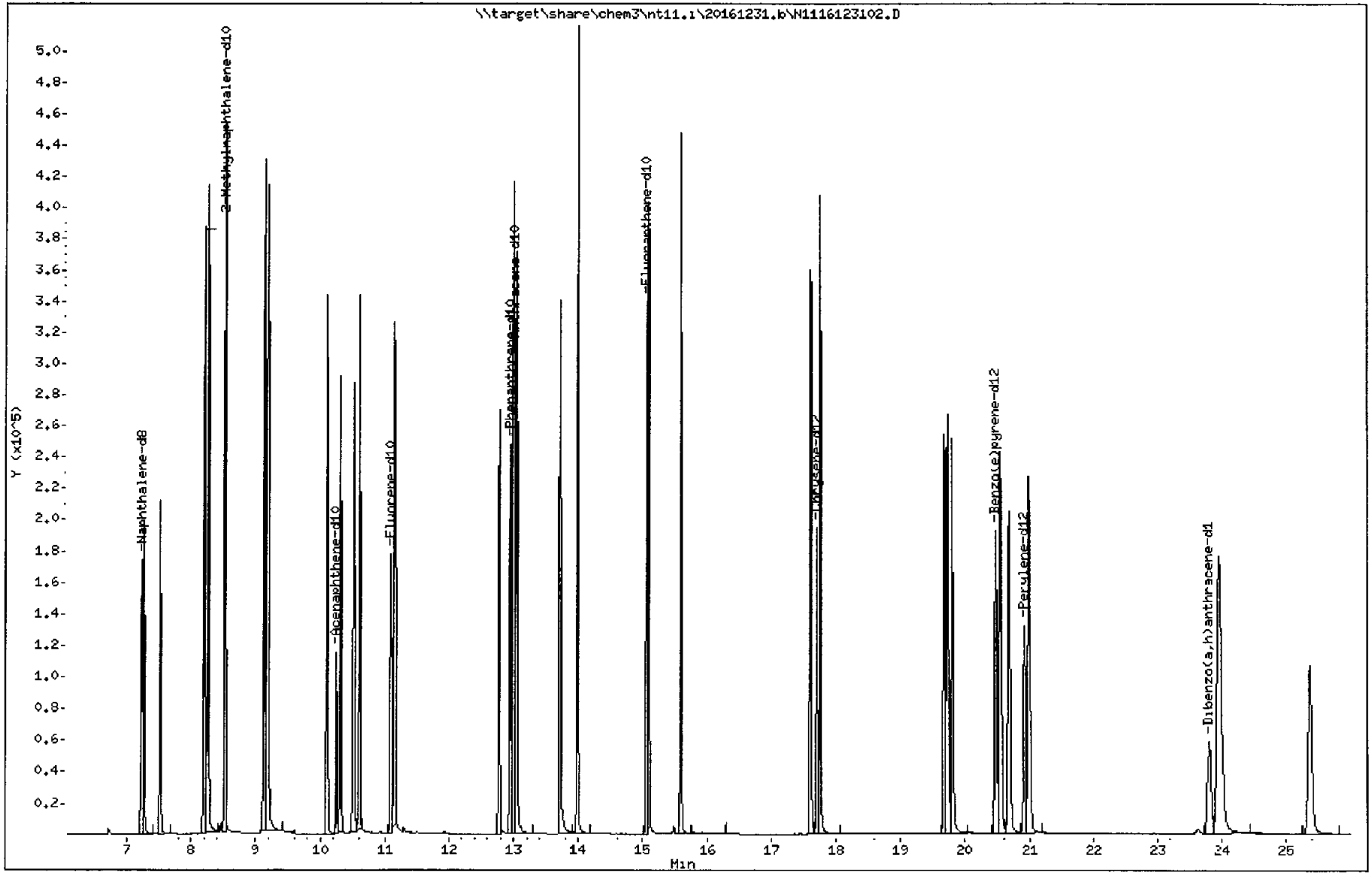
m/z	Y	m/z	Y	m/z	Y	m/z	Y
38.00	4112	127.00	472128	195.00	3783	276.00	35832
39.00	21872	128.00	35424	196.00	29136	277.00	24352
40.00	1591	129.00	200960	198.00	983872	278.00	1853
49.00	4352	130.00	17360	199.00	70992	283.00	1906
50.00	74792	131.00	2839	200.00	7543	285.00	4004
51.00	269824	132.00	889	201.00	4410	291.00	689
52.00	13561	134.00	5138	202.00	780	293.00	4172
55.00	789	135.00	14732	203.00	7183	294.00	886
56.00	10365	136.00	5834	204.00	37800	296.00	77968
57.00	26032	137.00	11901	205.00	76208	297.00	13062
61.00	6870	138.00	2543	206.00	284608	298.00	1321
62.00	5796	139.00	1910	207.00	37632	303.00	6888
63.00	15472	140.00	2791	208.00	15406	304.00	5144
64.00	2998	141.00	26608	209.00	3515	308.00	1139
65.00	7777	142.00	9094	210.00	3938	309.00	678
69.00	497792	143.00	6338	211.00	12659	310.00	864
70.00	3530	144.00	1120	212.00	5219	314.00	3485
71.00	1051	145.00	900	214.00	1328	315.00	10152
73.00	1859	146.00	5984	215.00	3055	316.00	8308
74.00	53200	147.00	13024	216.00	4570	317.00	847
75.00	78288	148.00	27952	217.00	75856	321.00	2592
76.00	30672	149.00	5354	218.00	9820	322.00	1406
77.00	512768	150.00	1705	220.00	766	323.00	26928
78.00	44392	151.00	5823	221.00	49304	324.00	5058
79.00	35568	153.00	9711	222.00	11169	327.00	3349
80.00	28552	154.00	5611	223.00	21232	329.00	784
81.00	40432	155.00	17800	224.00	174656	332.00	907
82.00	11373	156.00	25512	225.00	42944	333.00	710
83.00	10164	157.00	5182	226.00	3179	334.00	18216
84.00	2152	158.00	5392	227.00	79240	335.00	4623
85.00	8183	159.00	5750	228.00	11518	341.00	3116
86.00	12389	160.00	8734	229.00	12419	346.00	4062
87.00	4760	161.00	10188	231.00	6545	348.00	734
88.00	946	162.00	679	233.00	923	352.00	7346
91.00	10133	164.00	1681	234.00	3904	353.00	7570
92.00	9964	165.00	9710	235.00	5133	354.00	9753
93.00	62720	166.00	6278	236.00	2580	365.00	38208
94.00	2847	167.00	55048	237.00	2584	366.00	5638
96.00	3701	168.00	21792	239.00	1717	367.00	685
97.00	1665	169.00	3346	240.00	2183	370.00	738
98.00	38336	170.00	860	241.00	4842	371.00	882
99.00	37392	171.00	1565	242.00	9670	372.00	12613
100.00	3115	172.00	5740	243.00	10997	373.00	2840
101.00	21528	173.00	7105	244.00	121632	377.00	2390
102.00	2207	174.00	12440	245.00	15142	378.00	779
103.00	6397	175.00	25664	246.00	24496	383.00	3636
104.00	12228	176.00	6082	247.00	4057	384.00	775
105.00	12690	177.00	11109	248.00	1121	390.00	2090
106.00	1874	178.00	3887	249.00	3581	391.00	1461

107.00	172288	179.00	45320	250.00	2340	402.00	6904
108.00	26136	180.00	31904	251.00	830	403.00	7868
109.00	6103	181.00	17320	252.00	2065	404.00	3612
110.00	277696	182.00	2527	253.00	6217	405.00	854
111.00	55616	183.00	843	255.00	593856	421.00	8805
112.00	6239	184.00	4234	256.00	92000	422.00	6157
113.00	1118	185.00	19384	257.00	9514	423.00	49568
116.00	9080	186.00	165504	258.00	43800	424.00	8122
117.00	113552	187.00	47728	259.00	5413	425.00	1511
118.00	6157	188.00	4565	260.00	2007	426.00	717
120.00	2605	189.00	8903	265.00	13043	441.00	130000
121.00	711	190.00	2087	266.00	1555	442.00	790720
122.00	10998	191.00	4688	272.00	1799	443.00	175424
123.00	16246	192.00	17088	273.00	21744	444.00	14344
124.00	7190	193.00	17808	274.00	52248	445.00	950
125.00	7218	194.00	2470	275.00	270528		

Data File: \\target\share\chem3\nt11.1\20161231.b\N1116123102.D
Date : 31-DEC-2016 08:28
Client ID:
Sample Info: SEL0401-CAL4

Instrument: nt11.1
Operator: VTS
Column diameter: 0.25

Column phase: Rx1-17Sil MS



ARI Labs, Inc.

LOW LEVEL PNAs BY SW8270D-SIM

Data file : \\target\share\chem3\nt11.i\20161231.b\N1116123102.D
Lab Smp Id: SEL0401-CAL4
Inj Date : 31-DEC-2016 08:28 MS Autotune Date: 15-JAN-2015 15:59
Operator : VTS Inst ID: nt11.i
Smp Info : SEL0401-CAL4
Misc Info :
Comment :
Method : \\target\share\chem3\nt11.i\20161231.b\lowsim.m
Meth Date : 31-Dec-2016 12:34 van Quant Type: ISTD
Cal Date : 31-DEC-2016 09:30 Cal File: N1116123104.D
Als bottle: 2 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: allpna.sub
Target Version: 4.14
Processing Host: VANS

			QUANT SIG					AMOUNTS	
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ng/mL)	ON-COL (ng/mL)
*	1	Naphthalene-d8	136	7.225	7.225	(1.000)	219654	200.000	
	2	Naphthalene	128	7.261	7.253	(1.005)	291756	250.000	266
	3	Benzo(b)thiophene	134	7.514	7.515	(1.040)	242046	250.000	271
$	4	2-Methylnaphthalene-d10	152	8.201	8.201	(1.135)	267728	250.000	284
	5	2-Methylnaphthalene	142	8.253	8.253	(1.142)	293186	250.000	271
	6	1-Methylnaphthalene	142	8.516	8.516	(1.179)	302905	250.000	279
	7	2-Chloronaphthalene	162	9.167	9.167	(0.894)	284135	250.000	277
	8	Biphenyl	154	9.136	9.136	(0.891)	375678	250.000	275
	9	2,6-Dimethylnaphthalene	156	9.188	9.188	(0.896)	296448	250.000	280
	10	Acenaphthylene	152	10.098	10.098	(0.985)	337103	250.000	277
*	11	Acenaphthene-d10	164	10.251	10.252	(1.000)	135248	200.000	
	12	Acenaphthene	153	10.315	10.315	(1.006)	216629	250.000	271
	13	Dibenzofuran	168	10.519	10.519	(1.026)	327335	250.000	275
	14	2,3,5-Trimethylnaphthalene	170	10.607	10.607	(1.035)	211917	250.000	278
$	15	Fluorene-d10	174	11.087	11.088	(1.082)	177097	250.000	273
	16	Fluorene	166	11.151	11.151	(1.088)	257461	250.000	272
	17	Dibenzothiophene	184	12.777	12.767	(0.987)	324162	250.000	273
*	18	Phenanthrene-d10	188	12.945	12.945	(1.000)	257021	200.000	
	19	Phenanthrene	178	12.987	12.987	(1.003)	394060	250.000	268
$	20	Anthracene-d10	188	13.008	13.008	(1.005)	335193	250.000	264
	21	Anthracene	178	13.040	13.040	(1.007)	416065	250.000	284
	22	Carbazole	167	13.713	13.722	(1.059)	427208	250.000	264
	23	1-Methylphenanthrene	192	13.984	13.984	(1.080)	415765	250.000	276
$	24	Fluoranthene-d10	212	15.055	15.055	(1.163)	373562	250.000	274
	25	Fluoranthene	202	15.084	15.084	(1.165)	453211	250.000	272
	26	Pyrene	202	15.593	15.593	(0.881)	458050	250.000	272
	27	Benzo(a)anthracene	228	17.610	17.602	(0.995)	421425	250.000	270
*	28	Chrysene-d12	240	17.701	17.702	(1.000)	259511	200.000	
	29	Chrysene	228	17.751	17.751	(1.003)	425798	250.000	266
	30	Benzo(b)fluoranthene	252	19.676	19.677	(0.940)	370569	250.000	267
	31	Benzo(k)fluoranthene	252	19.734	19.725	(0.943)	405021	250.000	271
	32	Benzo(j)fluoranthene	252	19.801	19.801	(0.946)	371157	250.000	278
$	33	Benzo(e)pyrene-d12	264	20.483	20.474	(0.979)	341312	250.000	267

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ng/mL)	AMOUNTS ON-COL (ng/mL)
	34 Benzo(e)pyrene	252	20.551	20.551	(0.982)	372033	250.000	269
	35 Benzo(a)pyrene	252	20.685	20.685	(0.989)	348666	250.000	269
*	36 Perylene-d12	264	20.925	20.916	(1.000)	257335	200.000	
	37 Perylene	252	20.993	20.993	(1.003)	360843	250.000	267
$	38 Dibenzo(a,h)anthracene-d14	292	23.808	23.798	(1.130)	225676	250.000	274
	39 Dibenzo(a,h)anthracene	278	23.941	23.941	(1.144)	299975	250.000	265
	40 Indeno(1,2,3-cd)pyrene	276	23.985	23.974	(1.146)	375676	250.000	266
	41 Benzo(g,h,i)perylene	276	25.370	25.370	(1.212)	328867	250.000	259

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt11.i
Lab File ID: N1116123102.D
Lab Smp Id: SEL0401-CAL4
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: \\target\share\chem3\nt11.i\20161231.b\lowsim.m
Misc Info:

Calibration Date: 31-DEC-2016
Calibration Time: 08:28
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	219654	109827	439308	219654	0.00
11 Acenaphthene-d10	135248	67624	270496	135248	0.00
18 Phenanthrene-d10	257021	128511	514042	257021	0.00
28 Chrysene-d12	259511	129756	519022	259511	0.00
36 Perylene-d12	257535	128768	515070	257535	0.00

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	7.23	6.73	7.73	7.23	0.00
11 Acenaphthene-d10	10.25	9.75	10.75	10.25	0.00
18 Phenanthrene-d10	12.95	12.45	13.45	12.95	0.00
28 Chrysene-d12	17.70	17.20	18.20	17.70	0.00
36 Perylene-d12	20.93	20.43	21.43	20.93	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N1116123102.D

Lab ID: SEL0401-CAL4
nt11.i, 20161231.b\lowsim.m, 31-DEC-2016 08:28

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

On Column LOD for nt11.i, 20161231.b\lowsim.m, allpna.sub = 3.0000

Exception: Naphthalene 7.0000
Exception: Phenanthrene 2.5000
Exception: Anthracene 2.0000
Exception: Pyrene 4.0000
Exception: Benzo(j)fluoranthene 2.5000
Exception: Benzo(a)pyrene 2.0000
Exception: Perylene 3.5000
Exception: Benzo(e)pyrene 2.0000
Exception: Benzo(b)thiophene 2.0000
Exception: 2-Chloronaphthalene 2.0000
Exception: 2,6-Dimethylnaphthalene 2.0000
Exception: 2,3,5-Trimethylnaphthalene 2.0000
Exception: 1-Methylphenanthrene 2.0000
Exception: Dibenzothiophene 2.0000
Exception: Carbazole 2.0000
Exception: Biphenyl 2.0000
Exception: 2-Methylnaphthalene-d10 (Surr) 0.1000
Exception: Dibenzo(a,h)anthracene-d14 (Surr) 0.1000
Exception: Fluoranthene-d10 (Surr) 0.1000
Exception: Anthracene-d10 (Surr) 0.1000
Exception: Benzo(e)pyrene-d12 (Surr) 0.1000
Exception: Fluorene-d10 (Surr) 0.1000

Q-FLAG SUMMARY FOR DATABATCH - \\target\share\chem3\nt11.i\20161231.b

Instrument: nt11.i Date: 31-DEC-2016 Method: 20161231.b\lowsim.m

INITIAL CAL: 16-DEC-2016

Compound	%RSD or R^2
NO Q-FLAGS	

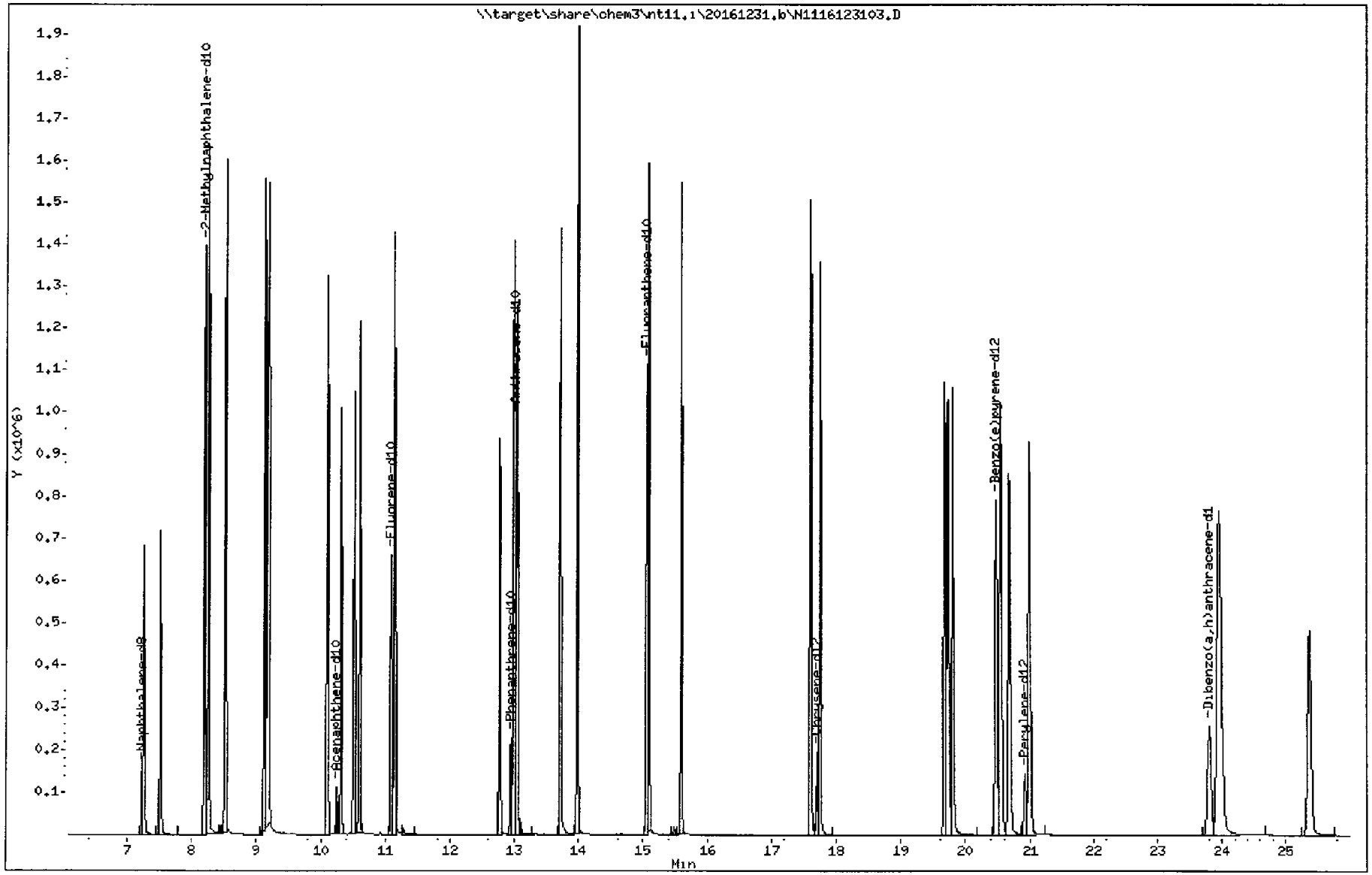
ICV CAL: N1116123102.D 31-DEC-2016 08:28

Compound	%D
Pyrene	28.3
Dibenzo(a,h)anthracene	21.8
Carbazole	24.0

Data File: \\target\share\chem3\nt11.1\20161231.b\N1116123103.D
Date : 31-DEC-2016 08:59
Client ID:
Sample Info: SEL0401-CAL6

Instrument: nt11.1
Operator: VTS
Column diameter: 0.25

Column phase: Rx1-17Sil MS



ARI Labs, Inc.

LOW LEVEL PNAs BY SW8270D-SIM

Data file : \\target\share\chem3\nt11.i\20161231.b\N1116123103.D
Lab Smp Id: SEL0401-CAL6
Inj Date : 31-DEC-2016 08:59 MS Autotune Date: 15-JAN-2015 15:59
Operator : VTS Inst ID: nt11.i
Smp Info : SEL0401-CAL6
Misc Info :
Comment :
Method : \\target\share\chem3\nt11.i\20161231.b\lowsim.m
Meth Date : 31-Dec-2016 12:34 van Quant Type: ISTD
Cal Date : 31-DEC-2016 09:30 Cal File: N1116123104.D
Als bottle: 3 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: allpna.sub
Target Version: 4.14
Processing Host: VANS

			QUANT SIG					AMOUNTS	
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ng/mL)	ON-COL (ng/mL)
*	1	Naphthalene-d8	136	7.225	7.225	(1.000)	213511	200.000	
	2	Naphthalene	128	7.253	7.253	(1.004)	1028019	1000.00	965
	3	Benzo(b)thiophene	134	7.515	7.515	(1.040)	882017	1000.00	1020
$	4	2-Methylnaphthalene-d10	152	8.201	8.201	(1.135)	955539	1000.00	1040
	5	2-Methylnaphthalene	142	8.253	8.253	(1.142)	1070576	1000.00	1020
	6	1-Methylnaphthalene	142	8.516	8.516	(1.179)	1047786	1000.00	992
	7	2-Chloronaphthalene	162	9.167	9.167	(0.894)	1047091	1000.00	1030
	8	Biphenyl	154	9.125	9.136	(0.890)	1338455	1000.00	993
	9	2,6-Dimethylnaphthalene	156	9.188	9.188	(0.896)	1083668	1000.00	1040
	10	Acenaphthylene	152	10.098	10.098	(0.985)	1205722	1000.00	1000
*	11	Acenaphthene-d10	164	10.252	10.252	(1.000)	133595	200.000	
	12	Acenaphthene	153	10.315	10.315	(1.006)	794453	1000.00	1010
	13	Dibenzofuran	168	10.519	10.519	(1.026)	1187380	1000.00	1010
	14	2,3,5-Trimethylnaphthalene	170	10.607	10.607	(1.035)	782273	1000.00	1040
$	15	Fluorene-d10	174	11.088	11.088	(1.082)	650800	1000.00	1010
	16	Fluorene	166	11.133	11.151	(1.086)	953220	1000.00	1020
	17	Dibenzothiophene	184	12.767	12.767	(0.986)	1159468	1000.00	979
*	18	Phenanthrene-d10	188	12.945	12.945	(1.000)	256606	200.000	
	19	Phenanthrene	178	12.987	12.987	(1.003)	1378329	1000.00	940
$	20	Anthracene-d10	188	13.008	13.008	(1.005)	1207138	1000.00	951
	21	Anthracene	178	13.040	13.040	(1.007)	1371576	1000.00	938
	22	Carbazole	167	13.713	13.722	(1.059)	1565189	1000.00	970
	23	1-Methylphenanthrene	192	13.984	13.984	(1.080)	1490518	1000.00	991
$	24	Fluoranthene-d10	212	15.055	15.055	(1.163)	1343475	1000.00	986
	25	Fluoranthene	202	15.084	15.084	(1.165)	1570634	1000.00	944
	26	Pyrene	202	15.593	15.593	(0.881)	1614986	1000.00	927
	27	Benzo(a)anthracene	228	17.602	17.602	(0.994)	1572902	1000.00	975
*	28	Chrysene-d12	240	17.702	17.702	(1.000)	266214	200.000	
	29	Chrysene	228	17.751	17.751	(1.003)	1559109	1000.00	942
	30	Benzo(b)fluoranthene	252	19.677	19.677	(0.941)	1529637	1000.00	1020
	31	Benzo(k)fluoranthene	252	19.734	19.725	(0.943)	1609918	1000.00	993
	32	Benzo(j)fluoranthene	252	19.801	19.801	(0.947)	1457956	1000.00	1010
$	33	Benzo(e)pyrene-d12	264	20.474	20.474	(0.979)	1401911	1000.00	1010

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ng/mL)	ON-COL (ng/mL)
34 Benzo(e)pyrene	252	20.551	20.551	(0.983)	1507862	1000.00	1000
35 Benzo(a)pyrene	252	20.685	20.685	(0.989)	1418678	1000.00	1010
* 36 Perylene-d12	264	20.916	20.916	(1.000)	279143	200.000	
37 Perylene	252	20.993	20.993	(1.004)	1472406	1000.00	1010
$ 38 Dibenzo(a,h)anthracene-d14	292	23.808	23.798	(1.138)	979357	1000.00	1100
39 Dibenzo(a,h)anthracene	278	23.941	23.941	(1.145)	1307120	1000.00	1070
40 Indeno(1,2,3-cd)pyrene	276	23.985	23.974	(1.147)	1620429	1000.00	1060
41 Benzo(g,h,i)perylene	276	25.370	25.370	(1.213)	1401414	1000.00	1020

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt11.i
Lab File ID: N1116123103.D
Lab Smp Id: SEL0401-CAL6
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: \\target\share\chem3\nt11.i\20161231.b\lowsim.m
Misc Info:

Calibration Date: 31-DEC-2016
Calibration Time: 08:28
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	219654	109827	439308	213511	-2.80
11 Acenaphthene-d10	135248	67624	270496	133595	-1.22
18 Phenanthrene-d10	257021	128511	514042	256606	-0.16
28 Chrysene-d12	259511	129756	519022	268214	3.35
36 Perylene-d12	257535	128768	515070	279143	8.39

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	7.23	6.73	7.73	7.23	0.00
11 Acenaphthene-d10	10.25	9.75	10.75	10.25	0.00
18 Phenanthrene-d10	12.95	12.45	13.45	12.95	0.00
28 Chrysene-d12	17.70	17.20	18.20	17.70	0.00
36 Perylene-d12	20.93	20.43	21.43	20.92	-0.04

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N1116123103.D

Lab ID: SEL0401-CAL6
nt11.i, 20161231.b\lowsim.m, 31-DEC-2016 08:59

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

On Column LOD for nt11.i, 20161231.b\lowsim.m, allpna.sub = 3.0000

Exception: Naphthalene 7.0000
Exception: Phenanthrene 2.5000
Exception: Anthracene 2.0000
Exception: Pyrene 4.0000
Exception: Benzo(j)fluoranthene 2.5000
Exception: Benzo(a)pyrene 2.0000
Exception: Perylene 3.5000
Exception: Benzo(e)pyrene 2.0000
Exception: Benzo(b)thiophene 2.0000
Exception: 2-Chloronaphthalene 2.0000
Exception: 2,6-Dimethylnaphthalene 2.0000
Exception: 2,3,5-Trimethylnaphthalene 2.0000
Exception: 1-Methylphenanthrene 2.0000
Exception: Dibenzothiophene 2.0000
Exception: Carbazole 2.0000
Exception: Biphenyl 2.0000
Exception: 2-Methylnaphthalene-d10 (Surr) 0.1000
Exception: Dibenzo(a,h)anthracene-d14 (Surr) 0.1000
Exception: Fluoranthene-d10 (Surr) 0.1000
Exception: Anthracene-d10 (Surr) 0.1000
Exception: Benzo(e)pyrene-d12 (Surr) 0.1000
Exception: Fluorene-d10 (Surr) 0.1000

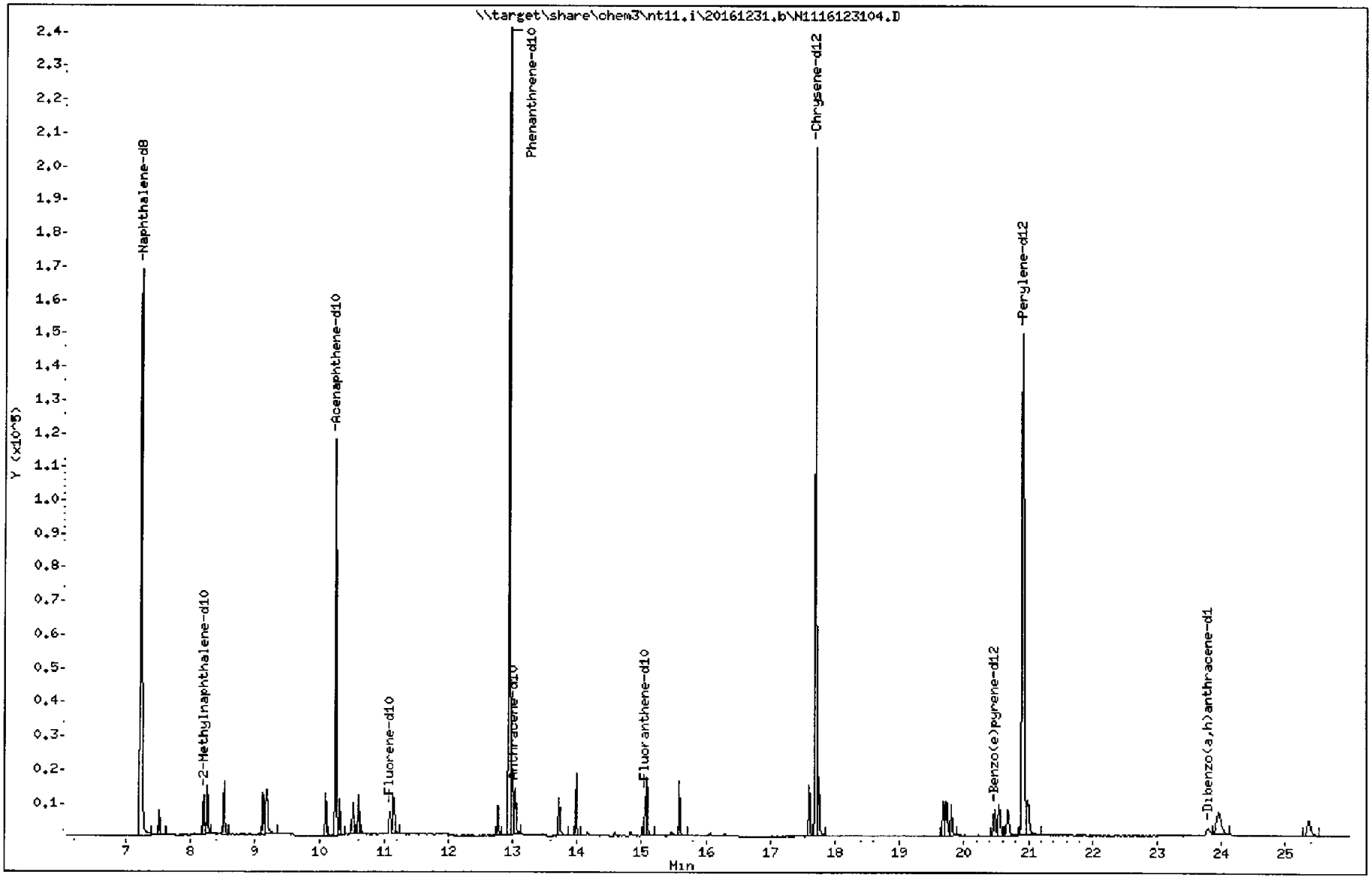
Data File: \\target\share\chem3\nt11.i\20161231.b\N1116123104.D
Date : 31-DEC-2016 09:30
Client ID:
Sample Info: SEL0401-CAL1

Instrument: nt11.i

Operator: VTS

Column phase: Rxi-17Sil MS

Column diameter: 0.25



ARI Labs, Inc.

LOW LEVEL PNAs BY SW8270D-SIM

Data file : \\target\share\chem3\nt11.i\20161231.b\N1116123104.D
Lab Smp Id: SEL0401-CAL1
Inj Date : 31-DEC-2016 09:30 MS Autotune Date: 15-JAN-2015 15:59
Operator : VTS Inst ID: nt11.i
Smp Info : SEL0401-CAL1
Misc Info :
Comment :
Method : \\target\share\chem3\nt11.i\20161231.b\lowsim.m
Meth Date : 31-Dec-2016 12:34 van Quant Type: ISTD
Cal Date : 31-DEC-2016 09:30 Cal File: N1116123104.D
Als bottle: 4 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: allpna.sub
Target Version: 4.14
Processing Host: VANS

		Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ng/mL)	ON-COL (ng/mL)
*	1	Naphthalene-d8	136	7.225	7.225	(1.000)	239658	200.000	
	2	Naphthalene	128	7.253	7.253	(1.004)	12029	10.0000	10.1
	3	Benzo(b)thiophene	134	7.515	7.515	(1.040)	9101	10.0000	9.35(M)
$	4	2-Methylnaphthalene-d10	152	8.201	8.201	(1.135)	9193	10.0000	8.93
	5	2-Methylnaphthalene	142	8.253	8.253	(1.142)	10909	10.0000	9.25
	6	1-Methylnaphthalene	142	8.516	8.516	(1.179)	11153	10.0000	9.41
	7	2-Chloronaphthalene	162	9.167	9.167	(0.894)	9576	10.0000	8.50(M)
	8	Biphenyl	154	9.136	9.136	(0.891)	13454	10.0000	8.97
	9	2,6-Dimethylnaphthalene	156	9.188	9.188	(0.896)	10334	10.0000	8.90
	10	Acenaphthylene	152	10.096	10.096	(0.985)	12223	10.0000	9.17
*	11	Acenaphthene-d10	164	10.252	10.252	(1.000)	148389	200.000	
	12	Acenaphthene	153	10.315	10.315	(1.006)	8236	10.0000	9.38
	13	Dibenzofuran	168	10.519	10.519	(1.026)	11781	10.0000	9.03
	14	2,3,5-Trimethylnaphthalene	170	10.607	10.607	(1.035)	7420	10.0000	8.89(M)
$	15	Fluorene-d10	174	11.088	11.086	(1.082)	6824	10.0000	9.58(M)
	16	Fluorene	166	11.151	11.151	(1.088)	9818	10.0000	9.45
	17	Dibenzothiophene	184	12.767	12.767	(0.986)	12279	10.0000	9.37
*	18	Phenanthrene-d10	188	12.945	12.945	(1.000)	283739	200.000	
	19	Phenanthrene	178	12.987	12.987	(1.003)	16358	10.0000	10.1
$	20	Anthracene-d10	188	13.008	13.008	(1.005)	15777	10.0000	11.2
	21	Anthracene	178	13.040	13.040	(1.007)	15680	10.0000	9.69
	22	Carbazole	167	13.722	13.722	(1.060)	17948	10.0000	10.1
	23	1-Methylphenanthrene	192	13.984	13.984	(1.080)	15403	10.0000	9.26
$	24	Fluoranthene-d10	212	15.055	15.055	(1.163)	14004	10.0000	9.29
	25	Fluoranthene	202	15.084	15.084	(1.165)	18390	10.0000	9.99
	26	Pyrene	202	15.593	15.593	(0.881)	18945	10.0000	10.3
	27	Benzo(a)anthracene	228	17.602	17.602	(0.994)	16396	10.0000	9.63
*	28	Chrysene-d12	240	17.702	17.702	(1.000)	283072	200.000	
	29	Chrysene	228	17.751	17.751	(1.003)	17443	10.0000	9.99
	30	Benzo(b)fluoranthene	252	19.677	19.677	(0.941)	15127	10.0000	9.76
	31	Benzo(k)fluoranthene	252	19.725	19.725	(0.943)	16463	10.0000	9.86
	32	Benzo(j)fluoranthene	252	19.801	19.801	(0.947)	13969	10.0000	9.38
$	33	Benzo(e)pyrene-d12	264	20.474	20.474	(0.979)	13543	10.0000	9.50

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ng/mL)	ON-COL (ng/mL)
	34 Benzo(e)pyrene	252	20.551	20.551	(0.983)	14648	10.0000	9.47
	35 Benzo(a)pyrene	252	20.685	20.685	(0.989)	14176	10.0000	9.61
*	36 Perylene-d12	264	20.916	20.916	(1.000)	287631	200.000	
	37 Perylene	252	20.993	20.993	(1.004)	14858	10.0000	9.85
S	38 Dibenzo(a,h)anthracene-d14	294	23.797	23.790	(1.138)	8870	10.0000	9.66(M)
	39 Dibenzo(a,h)arthracene	278	23.941	23.941	(1.145)	12890	10.0000	10.2
	40 Indeno(1,2,3-cd)pyrene	276	23.974	23.974	(1.146)	15925	10.0000	10.1
	41 Benzo(g,h,i)perylene	276	25.370	25.370	(1.213)	15001	10.0000	10.6

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt11.i
Lab File ID: N1116123104.D
Lab Smp Id: SEL0401-CAL1
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: \\target\share\chem3\nt11.i\20161231.b\lowsim.m
Misc Info:

Calibration Date: 31-DEC-2016
Calibration Time: 08:28
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	219654	109827	439308	239658	9.11
11 Acenaphthene-d10	135248	67624	270496	148389	9.72
18 Phenanthrene-d10	257021	128511	514042	283739	10.40
28 Chrysene-d12	259511	129756	519022	283072	9.08
36 Perylene-d12	257535	128768	515070	287631	11.69

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	7.23	6.73	7.73	7.23	0.00
11 Acenaphthene-d10	10.25	9.75	10.75	10.25	0.00
18 Phenanthrene-d10	12.95	12.45	13.45	12.95	0.00
28 Chrysene-d12	17.70	17.20	18.20	17.70	0.00
36 Perylene-d12	20.93	20.43	21.43	20.92	-0.04

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N1116123104.D

Lab ID: SEL0401-CAL1
nt11.i, 20161231.b\lowsim.m, 31-DEC-2016 09:30

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

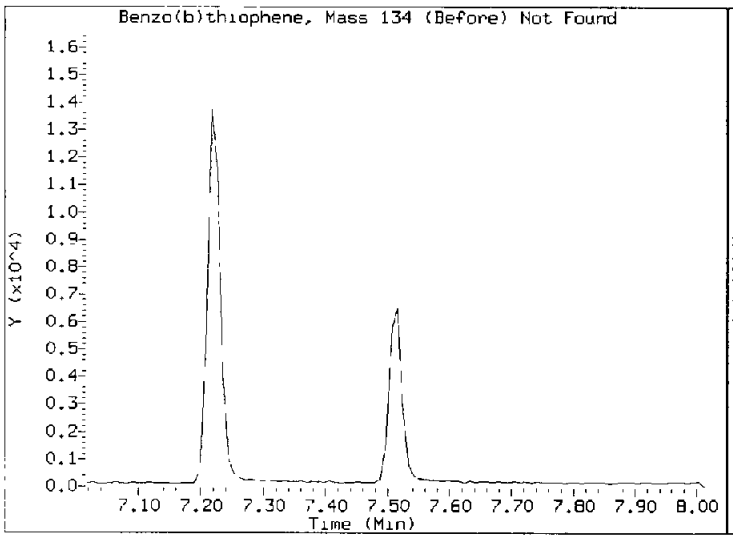
NONE

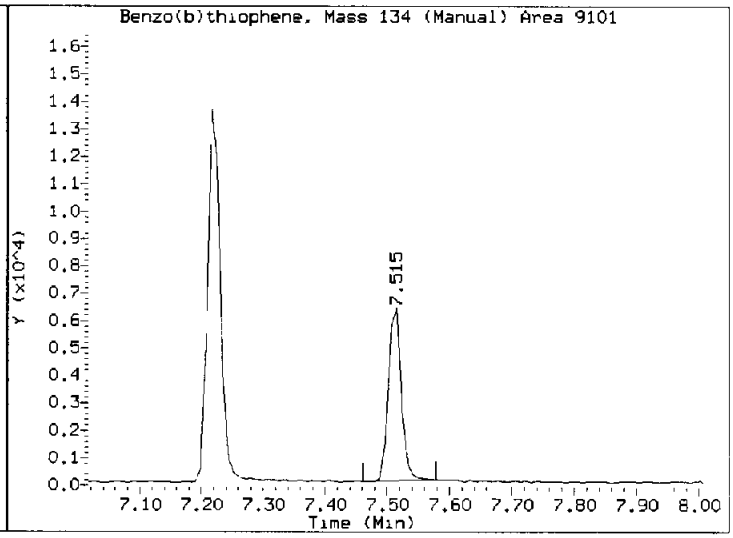
On Column LOD for nt11.i, 20161231.b\lowsim.m, allpna.sub = 3.0000

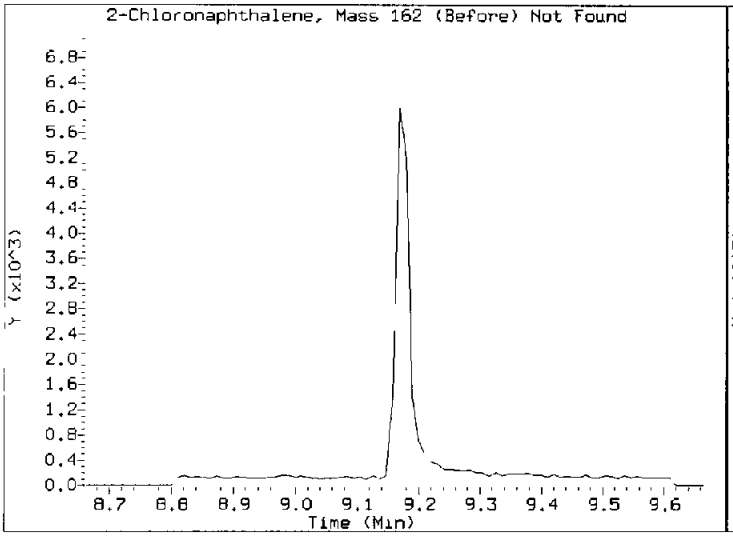
Exception: Naphthalene 7.0000
Exception: Phenanthrene 2.5000
Exception: Anthracene 2.0000
Exception: Pyrene 4.0000
Exception: Benzo(j)fluoranthene 2.5000
Exception: Benzo(a)pyrene 2.0000
Exception: Perylene 3.5000
Exception: Benzo(e)pyrene 2.0000
Exception: Benzo(b)thiophene 2.0000
Exception: 2-Chloronaphthalene 2.0000
Exception: 2,6-Dimethylnaphthalene 2.0000
Exception: 2,3,5-Trimethylnaphthalene 2.0000
Exception: 1-Methylphenanthrene 2.0000
Exception: Dibenzothiophene 2.0000
Exception: Carbazole 2.0000
Exception: Biphenyl 2.0000
Exception: 2-Methylnaphthalene-d10 (Surr) 0.1000
Exception: Dibenzo(a,h)anthracene-d14 (Surr) 0.1000
Exception: Fluoranthene-d10 (Surr) 0.1000
Exception: Anthracene-d10 (Surr) 0.1000
Exception: Benzo(e)pyrene-d12 (Surr) 0.1000
Exception: Fluorene-d10 (Surr) 0.1000

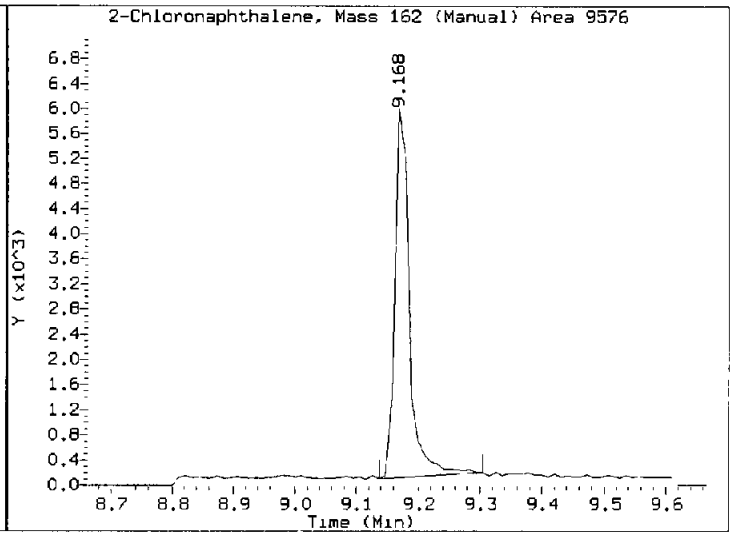
Quant Ion Manual Peak Adjustment Report

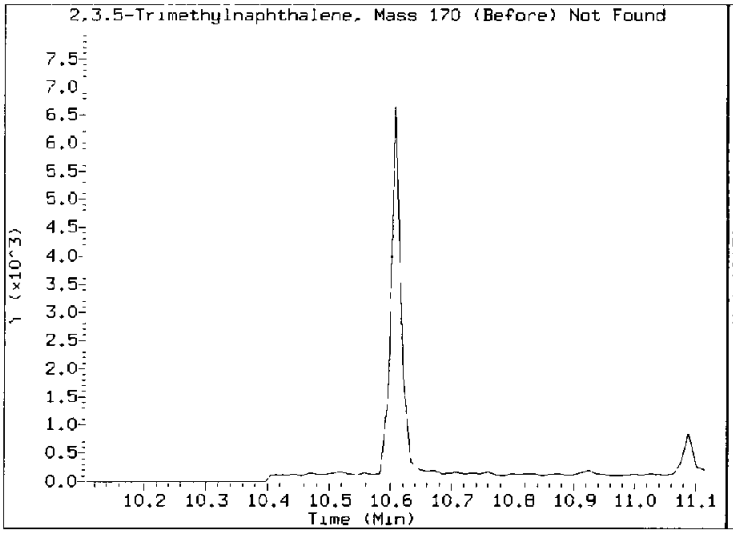
Datafile: //target/share/chem3/nt11.i/20161231.b/N1116123104.D
Injection Date: 31-DEC-2016 09:30
Lab ID:SEL0401-CAL1 Client ID:
Report Date: 12/31/2016 12:39

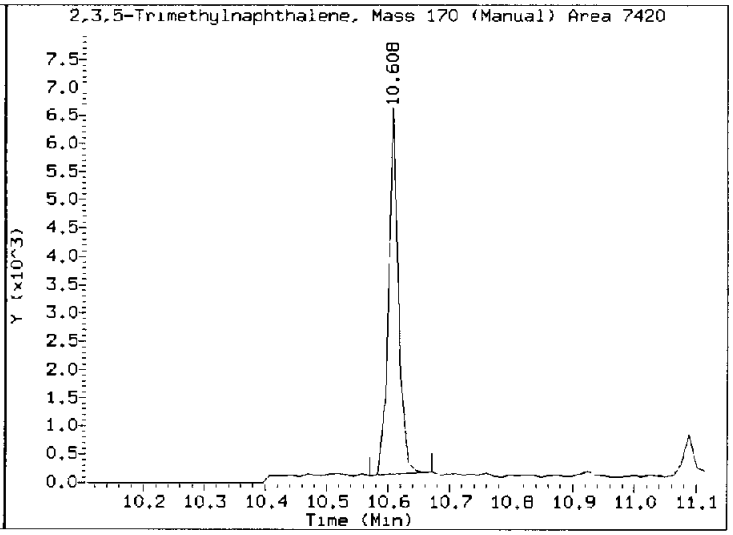






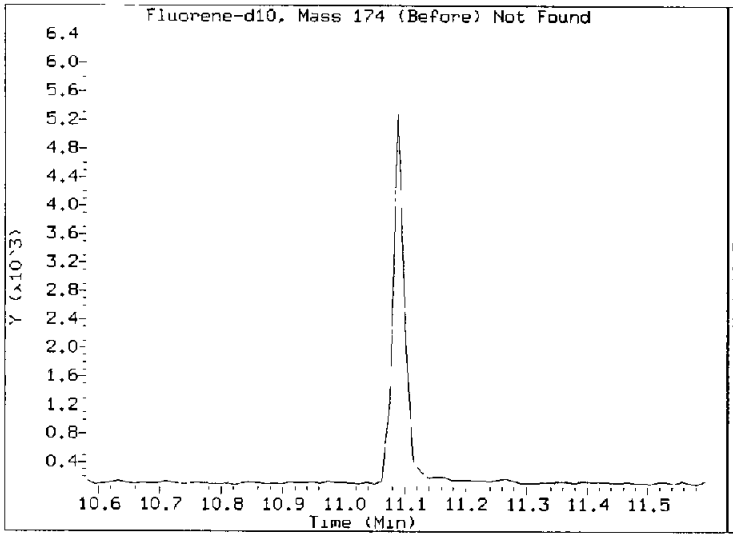


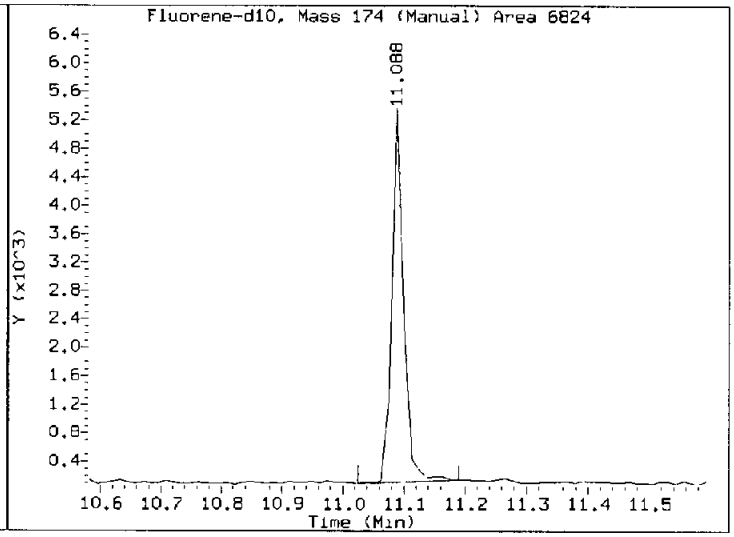


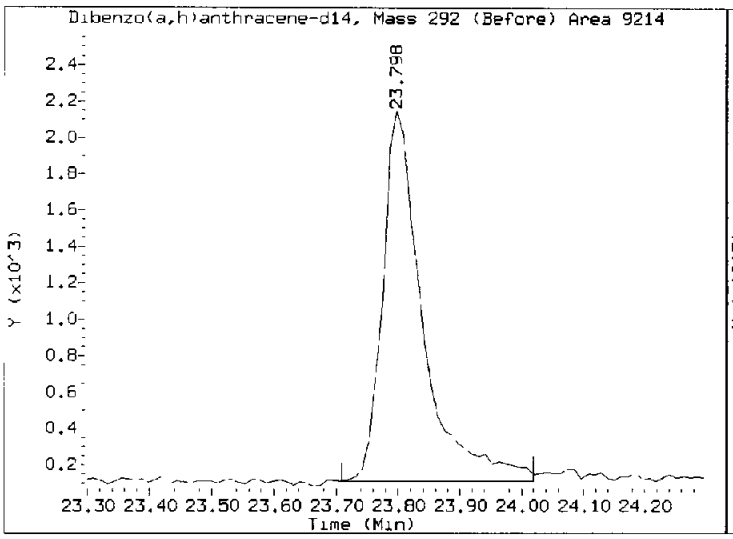


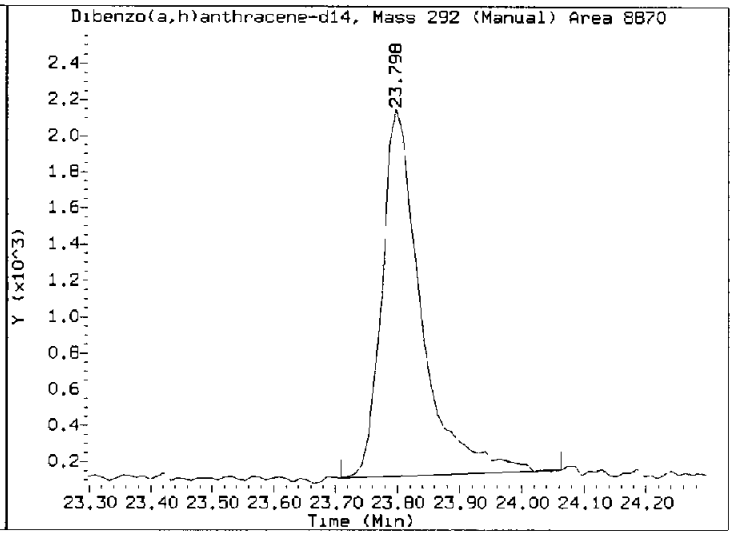
Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem3/nt11.i/20161231.b/N1116123104.D
Injection Date: 31-DEC-2016 09:30
Lab ID:SEL0401-CAL1 Client ID:
Report Date: 12/31/2016 12:39





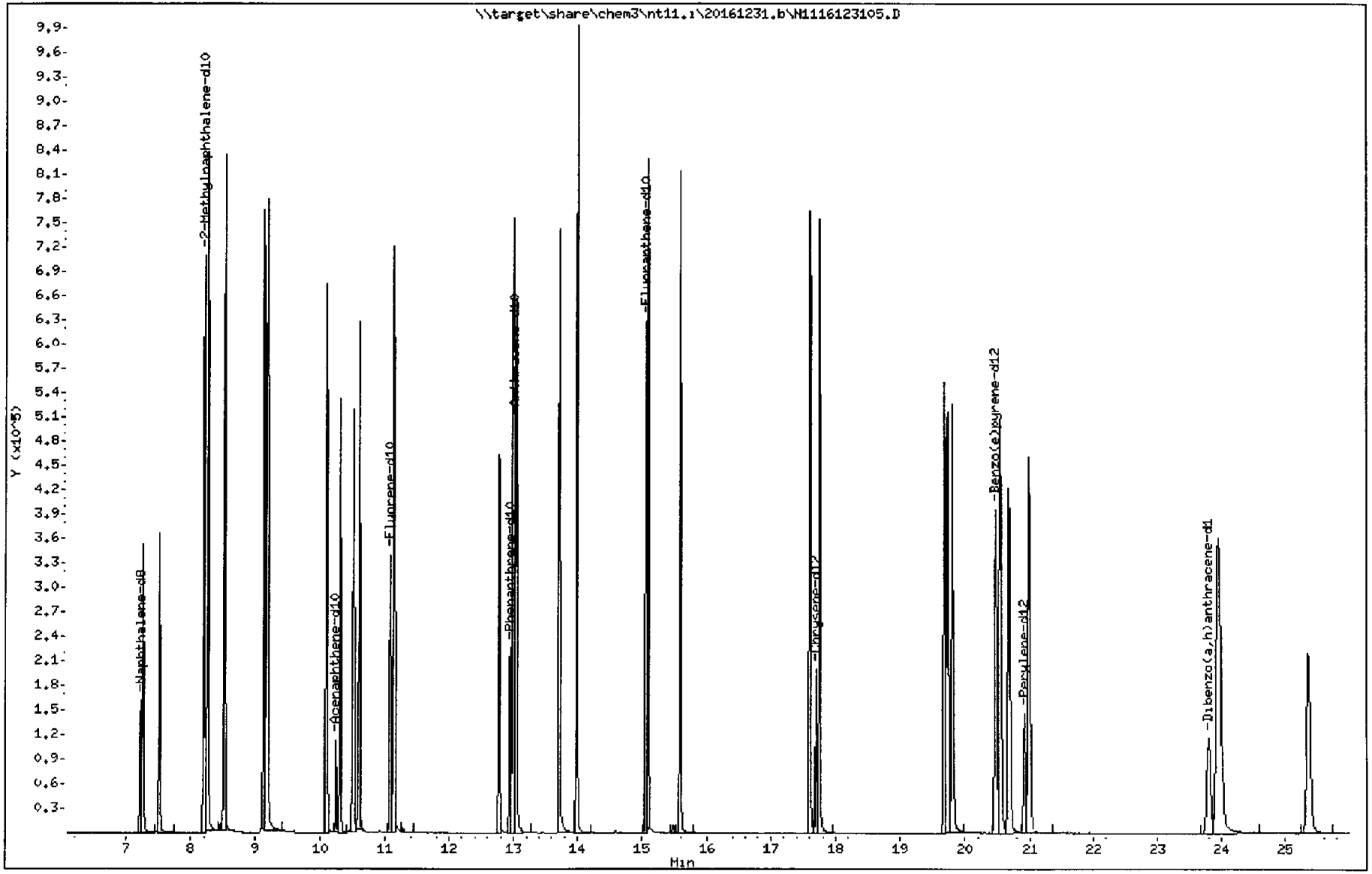




Data File: \\target\share\chem3\nt11.i\20161231.b\N1116123105.D
Date : 31-DEC-2016 10:01
Client ID:
Sample Info: SEL0401-CAL5

Instrument: nt11.i
Operator: VTS
Column diameter: 0.25

Column phase: Rxi-17Sil MS



ARI Labs, Inc.

LOW LEVEL PNAs BY SW8270D-SIM

Data file : \\target\share\chem3\nt11.i\20161231.b\N1116123105.D
Lab Smp Id: SEL0401-CAL5
Inj Date : 31-DEC-2016 10:01 MS Autotune Date: 15-JAN-2015 15:59
Operator : VTS Inst ID: nt11.i
Smp Info : SEL0401-CAL5
Misc Info :
Comment :
Method : \\target\share\chem3\nt11.i\20161231.b\lowsim.m
Meth Date : 31-Dec-2016 12:34 van Quant Type: ISTD
Cal Date : 31-DEC-2016 09:30 Cal File: N1116123104.D
Als bottle: 5 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: allpna.sub
Target Version: 4.14
Processing Host: VANS

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ng/mL)	ON-COL (ng/mL)
*	1 Naphthalene-d8	136	7.225	7.225	(1.000)	218999	200.000	
	2 Naphthalene	128	7.252	7.253	(1.004)	537673	500.000	492
	3 Benzo(b)thiophene	134	7.514	7.515	(1.040)	451143	500.000	507
$	4 1-Methylnaphthalene-d10	152	8.201	8.201	(1.135)	486648	500.000	517
	5 2-Methylnaphthalene	142	8.253	8.253	(1.142)	554185	500.000	514
	6 1-Methylnaphthalene	142	8.516	8.516	(1.179)	545318	500.000	503
	7 2-Chloronaphthalene	162	9.167	9.167	(0.894)	536396	500.000	516
	8 Biphenyl	154	9.125	9.130	(0.890)	699297	500.000	506
	9 2,6-Dimethylnaphthalene	156	9.188	9.188	(0.896)	556933	500.000	519
	10 Acenaphthylene	152	10.098	10.098	(0.985)	628021	500.000	510
*	11 Acenaphthene-d10	164	10.251	10.252	(1.000)	137033	200.000	
	12 Acenaphthene	153	10.315	10.315	(1.006)	411064	500.000	507
	13 Dibenzofuran	168	10.519	10.519	(1.026)	617745	500.000	513
	14 2,3,5-Trimethylnaphthalene	170	10.607	10.607	(1.035)	403344	500.000	523
$	15 Fluorene-d10	174	11.087	11.088	(1.082)	335944	500.000	511
	16 Fluorene	166	11.138	11.151	(1.086)	499588	500.000	521
	17 Dibenzothiophene	184	12.767	12.767	(0.986)	613283	500.000	500
*	18 Phenanthrene-d10	188	12.945	12.945	(1.000)	265632	200.000	
	19 Phenanthrene	178	12.987	12.987	(1.003)	743402	500.000	490
$	20 Anthracene-d10	188	13.008	13.008	(1.005)	620161	500.000	478
	21 Anthracene	178	13.040	13.040	(1.007)	720810	500.000	476
	22 Carbazole	167	13.713	13.722	(1.059)	815299	500.000	488
	23 1-Methylphenanthrene	192	13.984	13.984	(1.080)	786426	500.000	505
$	24 Fluoranthene-d10	212	15.055	15.055	(1.163)	712108	500.000	505
	25 Fluoranthene	202	15.084	15.084	(1.165)	853291	500.000	495
	26 Pyrene	202	15.593	15.593	(0.881)	869166	500.000	493
	27 Benzo(a)anthracene	228	17.602	17.602	(0.994)	830111	500.000	509
*	28 Chrysene-d12	240	17.701	17.702	(1.000)	271314	200.000	
	29 Chrysene	228	17.751	17.751	(1.003)	830048	500.000	496
	30 Benzo(b)fluoranthene	252	19.676	19.677	(0.941)	771176	500.000	510
	31 Benzo(k)fluoranthene	252	19.734	19.725	(0.943)	816376	500.000	502
	32 Benzo(j)fluoranthene	252	19.801	19.801	(0.947)	746567	500.000	515
$	33 Benzo(e)pyrene-d12	264	20.474	20.474	(0.979)	702503	500.000	506

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ng/mL)	AMOUNTS ON-COL (ng/mL)
	34 Benzo(e)pyrene	252	20.551	20.551	(0.983)	766660	500.000	509
	35 Benzo(a)pyrene	252	20.676	20.685	(0.989)	707530	500.000	502
*	36 Perylene-d12	264	20.916	20.916	(1.000)	280262	200.000	
	37 Perylene	252	20.993	20.993	(1.004)	739457	500.000	503
S	38 Dibenzo(a,h)anthracene-d14	292	23.797	23.798	(1.138)	467034	500.000	522
	39 Dibenzo(a,h)anthracene	278	23.941	23.941	(1.145)	629015	500.000	510
	40 Indeno(1,2,3-cd)pyrene	276	23.974	23.974	(1.146)	783480	500.000	510
	41 Benzo(g,h,i)perylene	276	25.359	25.370	(1.212)	680421	500.000	493

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt11.i
Lab File ID: N1116123105.D
Lab Smp Id: SEL0401-CAL5
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: \\target\share\chem3\nt11.i\20161231.b\lowsim.m
Misc Info:

Calibration Date: 31-DEC-2016
Calibration Time: 08:28
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	219654	109827	439308	218999	-0.30
11 Acenaphthene-d10	135248	67624	270496	137033	1.32
18 Phenanthrene-d10	257021	128511	514042	265632	3.35
28 Chrysene-d12	259511	129756	519022	271314	4.55
36 Perylene-d12	257535	128768	515070	280262	8.82

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	7.23	6.73	7.73	7.23	0.00
11 Acenaphthene-d10	10.25	9.75	10.75	10.25	0.00
18 Phenanthrene-d10	12.95	12.45	13.45	12.95	0.00
28 Chrysene-d12	17.70	17.20	18.20	17.70	0.00
36 Perylene-d12	20.93	20.43	21.43	20.92	-0.05

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N1116123105.D

Lab ID: SEL0401-CAL5
nt11.i, 20161231.b\lowsim.m, 31-DEC-2016 10:01

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

On Column LOD for nt11.i, 20161231.b\lowsim.m, allpna.sub = 3.0000

Exception: Naphthalene 7.0000
Exception: Phenanthrene 2.5000
Exception: Anthracene 2.0000
Exception: Pyrene 4.0000
Exception: Benzo(j)fluoranthene 2.5000
Exception: Benzo(a)pyrene 2.0000
Exception: Perylene 3.5000
Exception: Benzo(e)pyrene 2.0000
Exception: Benzo(b)thiophene 2.0000
Exception: 2-Chloronaphthalene 2.0000
Exception: 2,6-Dimethylnaphthalene 2.0000
Exception: 2,3,5-Trimethylnaphthalene 2.0000
Exception: 1-Methylphenanthrene 2.0000
Exception: Dibenzothiophene 2.0000
Exception: Carbazole 2.0000
Exception: Biphenyl 2.0000
Exception: 2-Methylnaphthalene-d10 (Surr) 0.1000
Exception: Dibenzo(a,h)anthracene-d14 (Surr) 0.1000
Exception: Fluoranthene-d10 (Surr) 0.1000
Exception: Anthracene-d10 (Surr) 0.1000
Exception: Benzo(e)pyrene-d12 (Surr) 0.1000
Exception: Fluorene-d10 (Surr) 0.1000

Data File: \\target\share\chem3\nt11.i\20161231.b\N1116123106.D

Date : 31-DEC-2016 10:32

Client ID:

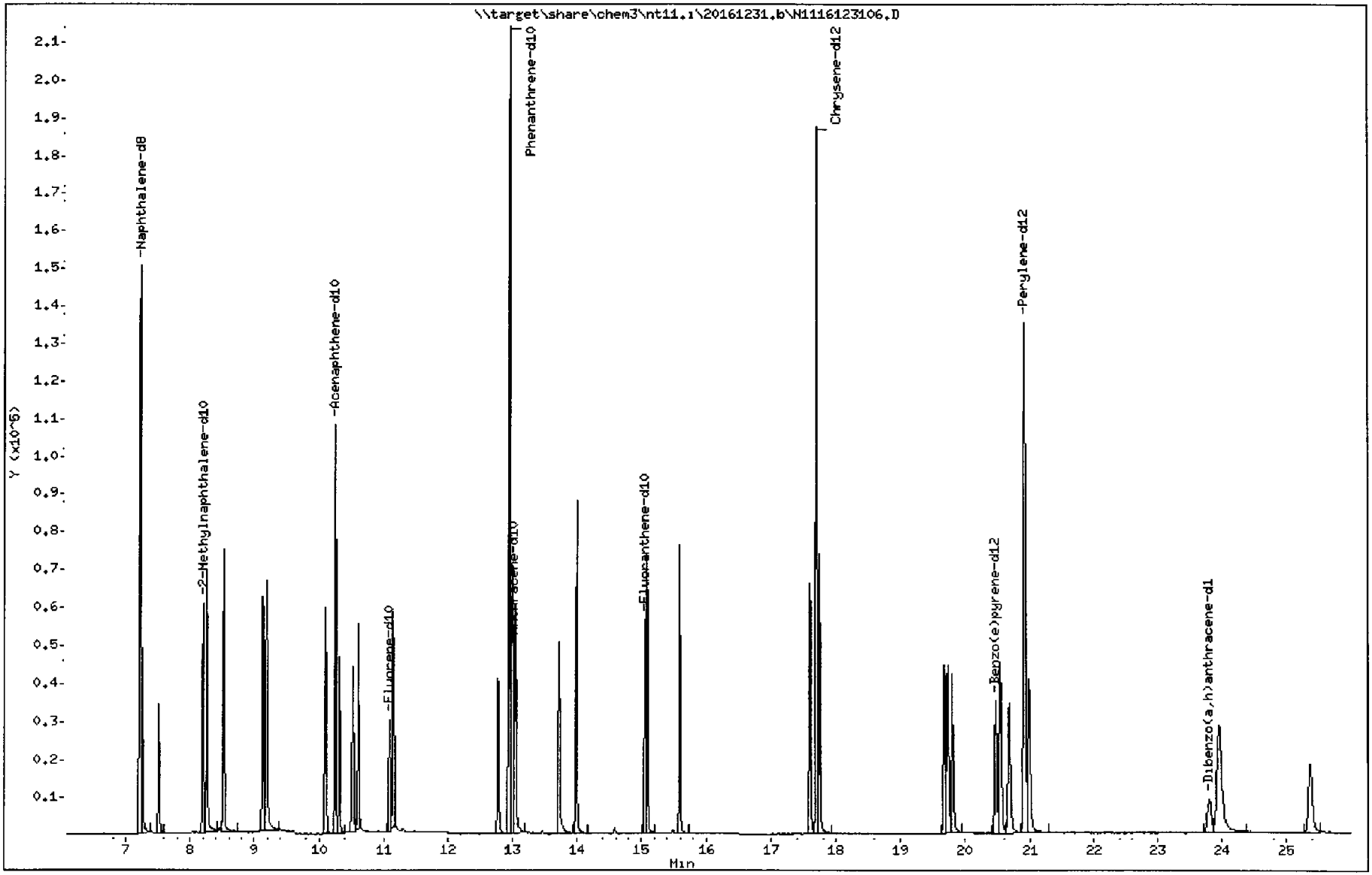
Instrument: nt11.i

Sample Info: SEL0401-CAL2

Operator: VTS

Column phase: Rx1-17Si1 MS

Column diameter: 0.25



ARI Labs, Inc.

LOW LEVEL PNAs BY SW8270D-SIM

Data file : \\target\share\chem3\nt11.i\20161231.b\N1116123106.D
Lab Smp Id: SEL0401-CAL2
Inj Date : 31-DEC-2016 10:32 MS Autotune Date: 15-JAN-2015 15:59
Operator : VTS Inst ID: nt11.i
Smp Info : SEL0401-CAL2
Misc Info : 16-
Comment :
Method : \\target\share\chem3\nt11.i\20161231.b\lowsim.m
Meth Date : 31-Dec-2016 12:34 van Quant Type: ISTD
Cal Date : 31-DEC-2016 09:30 Cal File: N1116123104.D
Als bottle: 1 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: allpna.sub
Target Version: 4.14
Processing Host: VANS

			QUANT SIG					AMOUNTS	
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ng/mL)	ON-COL (ng/mL)
*	1	Naphthalene-d8	136	7.225	7.225	(1.000)	212581	200.000	
	2	Naphthalene	128	7.252	7.253	(1.004)	53213	50.0000	50.2
	3	Benzo(b)thiophene	134	7.515	7.515	(1.040)	42005	50.0000	48.6(M)
$	4	2-Methylnaphthalene-d10	152	8.201	8.201	(1.135)	42296	50.0000	46.3(M)
	5	2-Methylnaphthalene	142	8.253	8.253	(1.142)	50535	50.0000	48.3
	6	1-Methylnaphthalene	142	8.516	8.516	(1.179)	50651	50.0000	48.2
	7	2-Chloronaphthalene	162	9.167	9.167	(0.894)	50672	50.0000	50.3
	8	Biphenyl	154	9.125	9.136	(0.890)	68511	50.0000	51.1
	9	2,6-Dimethylnaphthalene	156	9.188	9.188	(0.896)	49210	50.0000	47.3(M)
	10	Acenaphthylene	152	10.098	10.098	(0.985)	57830	50.0000	48.5
*	11	Acenaphthene-d10	164	10.251	10.252	(1.000)	132827	200.000	
	12	Acenaphthene	153	10.315	10.315	(1.006)	38394	50.0000	48.9
	13	Dibenzofuran	168	10.519	10.519	(1.026)	56268	50.0000	48.2
	14	2,3,5-Trimethylnaphthalene	170	10.607	10.607	(1.035)	34787	50.0000	46.5(M)
$	15	Fluorene-d10	174	11.088	11.088	(1.082)	30277	50.0000	47.5
	16	Fluorene	166	11.139	11.151	(1.086)	43674	50.0000	47.0
	17	Dibenzothiophene	184	12.767	12.767	(0.986)	56773	50.0000	49.7
*	18	Phenanthrene-d10	188	12.945	12.945	(1.000)	247500	200.000	
	19	Phenanthrene	178	12.987	12.987	(1.003)	70273	50.0000	49.7
$	20	Anthracene-d10	188	13.008	13.008	(1.005)	57617	50.0000	47.1
	21	Anthracene	178	13.040	13.040	(1.007)	70299	50.0000	49.8
	22	Carbazole	167	13.722	13.722	(1.060)	76518	50.0000	49.1
	23	1-Methylphenanthrene	192	13.984	13.984	(1.080)	71094	50.0000	49.0
$	24	Fluoranthene-d10	212	15.055	15.055	(1.163)	65324	50.0000	49.7
	25	Fluoranthene	202	15.084	15.084	(1.165)	78209	50.0000	48.7
	26	Pyrene	202	15.593	15.593	(0.881)	80860	50.0000	48.6
	27	Benzo(a)anthracene	228	17.602	17.602	(0.994)	74960	50.0000	48.7
*	28	Chrysene-d12	240	17.702	17.702	(1.000)	256124	200.000	
	29	Chrysene	228	17.751	17.751	(1.003)	78240	50.0000	49.5
	30	Benzo(b)fluoranthene	252	19.676	19.677	(0.941)	67228	50.0000	47.4
	31	Benzo(k)fluoranthene	252	19.734	19.725	(0.943)	72854	50.0000	47.7
	32	Benzo(j)fluoranthene	252	19.801	19.801	(0.947)	65246	50.0000	47.9(M)
$	33	Benzo(e)pyrene-d12	264	20.474	20.474	(0.979)	63425	50.0000	48.6(M)

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ng/mL)	AMOUNTS ON-COL (ng/mL)
34 Benzo(e)pyrene	252	20.551	20.551	(0.983)	69030	50.0000	48.8
35 Benzo(a)pyrene	252	20.685	20.685	(0.989)	62495	50.0000	47.3
S 36 Perylene-d12	264	20.916	20.916	(1.000)	263051	200.000	
37 Perylene	252	20.993	20.993	(1.004)	65725	50.0000	47.6
S 38 Dibenzo(a,h)anthracene-d14	292	23.808	23.798	(1.138)	37128	50.0000	44.2(M)
39 Dibenzo(a,h)anthracene	278	23.941	23.941	(1.145)	51258	50.0000	44.3
40 Indeno(1,2,3-cd)pyrene	276	23.974	23.974	(1.146)	64322	50.0000	44.6
41 Benzo(g,h,i)perylene	276	25.370	25.370	(1.213)	60697	50.0000	46.8

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt11.i
Lab File ID: N1116123106.D
Lab Smp Id: SEL0401-CAL2
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: \\target\share\chem3\nt11.i\20161231.b\lowsim.m
Misc Info: 16-

Calibration Date: 31-DEC-2016
Calibration Time: 08:28
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	219654	109827	439308	212581	-3.22
11 Acenaphthene-d10	135248	67624	270496	132827	-1.79
18 Phenanthrene-d10	257021	128511	514042	247500	-3.70
28 Chrysene-d12	259511	129756	519022	256124	-1.31
36 Perylene-d12	257535	128768	515070	263051	2.14

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	7.23	6.73	7.73	7.23	0.00
11 Acenaphthene-d10	10.25	9.75	10.75	10.25	0.00
18 Phenanthrene-d10	12.95	12.45	13.45	12.95	0.00
28 Chrysene-d12	17.70	17.20	18.20	17.70	0.00
36 Perylene-d12	20.93	20.43	21.43	20.92	-0.05

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N1116123106.D

Lab ID: SEL0401-CAL2
nt11.i, 20161231.b\lowsim.m, 31-DEC-2016 10:32

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

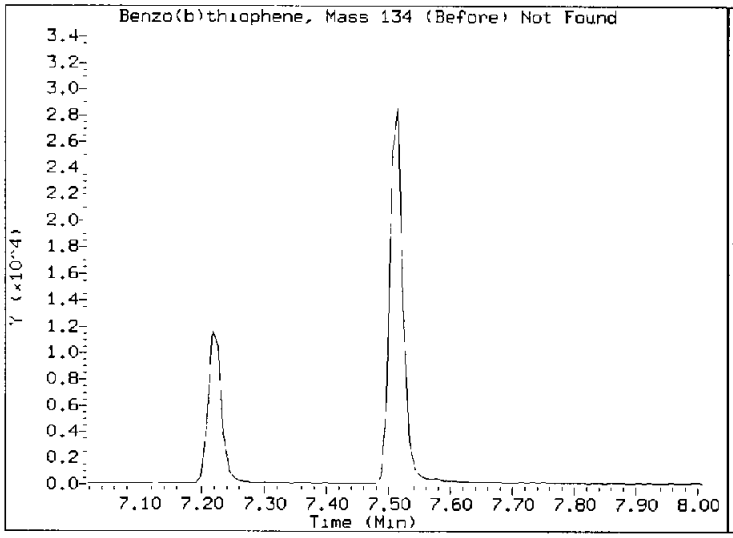
NONE

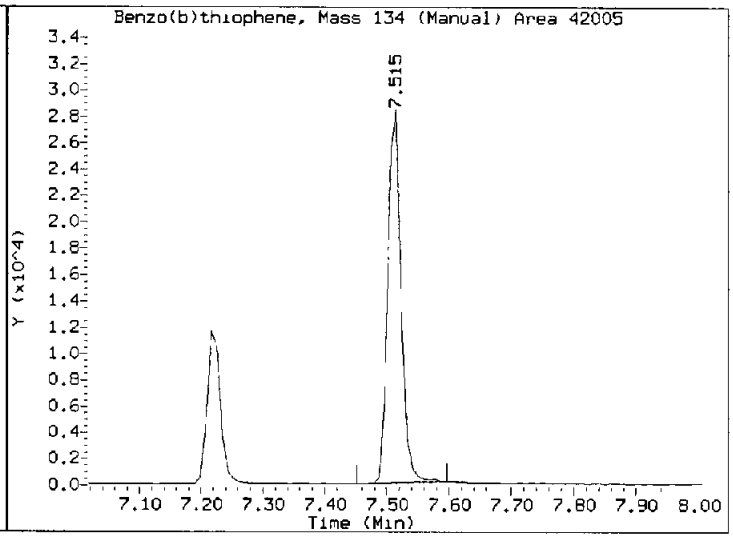
On Column LOD for nt11.i, 20161231.b\lowsim.m, allpna.sub = 3.0000

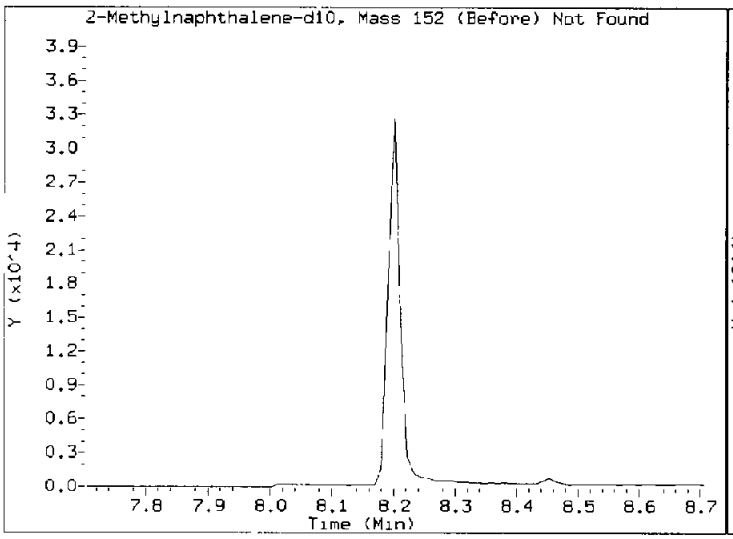
Exception: Naphthalene 7.0000
Exception: Phenanthrene 2.5000
Exception: Anthracene 2.0000
Exception: Pyrene 4.0000
Exception: Benzo(j)fluoranthene 2.5000
Exception: Benzo(a)pyrene 2.0000
Exception: Perylene 3.5000
Exception: Benzo(e)pyrene 2.0000
Exception: Benzo(b)thiophene 2.0000
Exception: 2-Chloronaphthalene 2.0000
Exception: 2,6-Dimethylnaphthalene 2.0000
Exception: 2,3,5-Trimethylnaphthalene 2.0000
Exception: 1-Methylphenanthrene 2.0000
Exception: Dibenzothiophene 2.0000
Exception: Carbazole 2.0000
Exception: Biphenyl 2.0000
Exception: 2-Methylnaphthalene-d10 (Surr) 0.1000
Exception: Dibenzo(a,h)anthracene-d14 (Surr) 0.1000
Exception: Fluoranthene-d10 (Surr) 0.1000
Exception: Anthracene-d10 (Surr) 0.1000
Exception: Benzo(e)pyrene-d12 (Surr) 0.1000
Exception: Fluorene-d10 (Surr) 0.1000

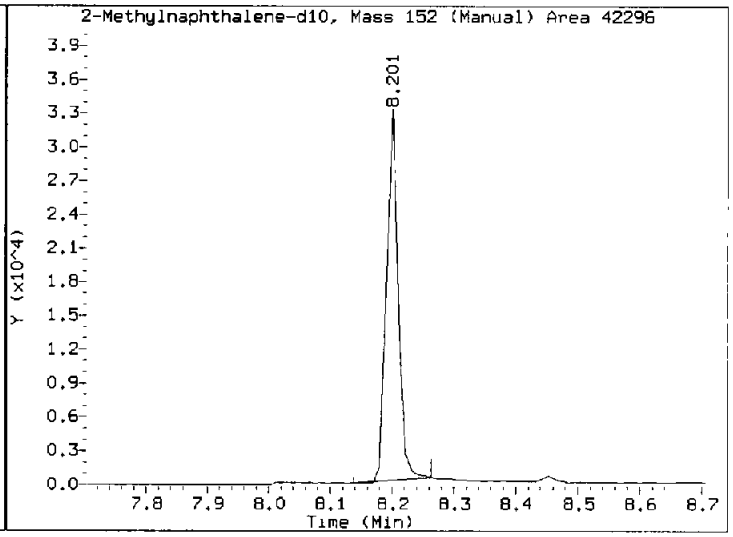
Quant Ion Manual Peak Adjustment Report

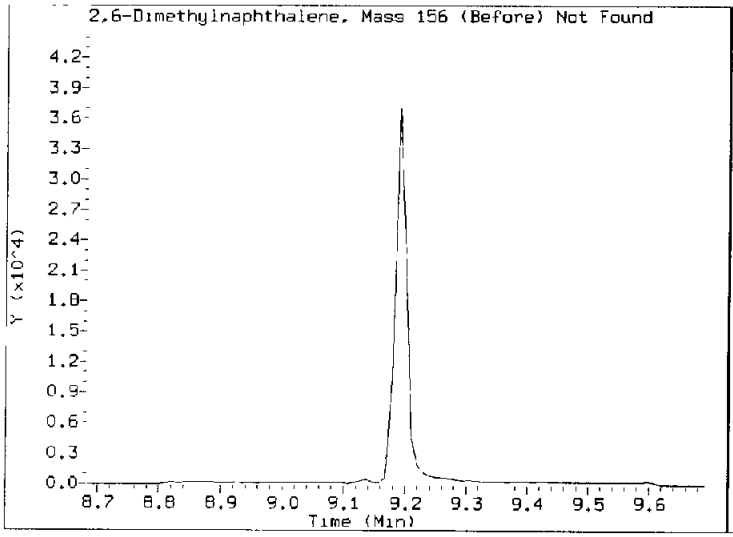
Datafile: //target/share/chem3/nt11.i/20161231.b/N1116123106.D
Injection Date: 31-DEC-2016 10:32
Lab ID:SEL0401-CAL2 Client ID:
Report Date: 12/31/2016 12:39

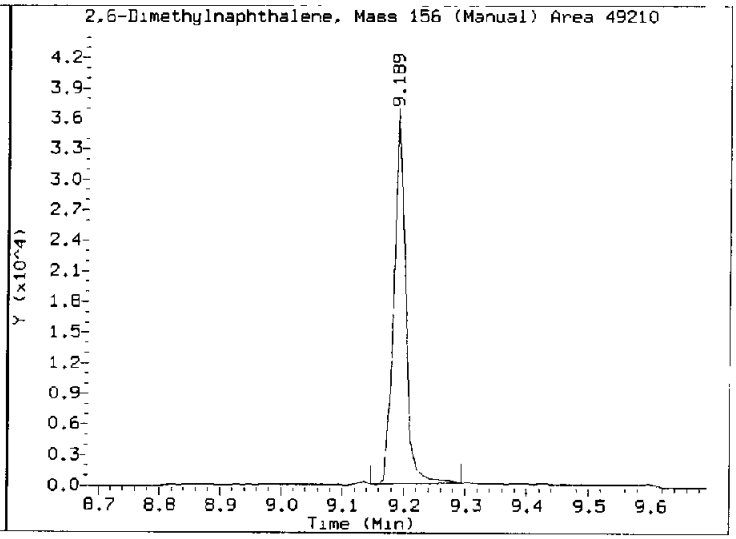






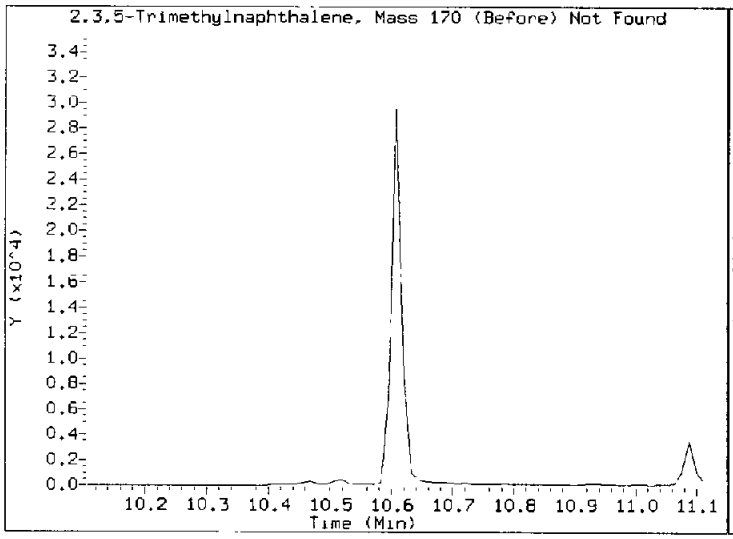


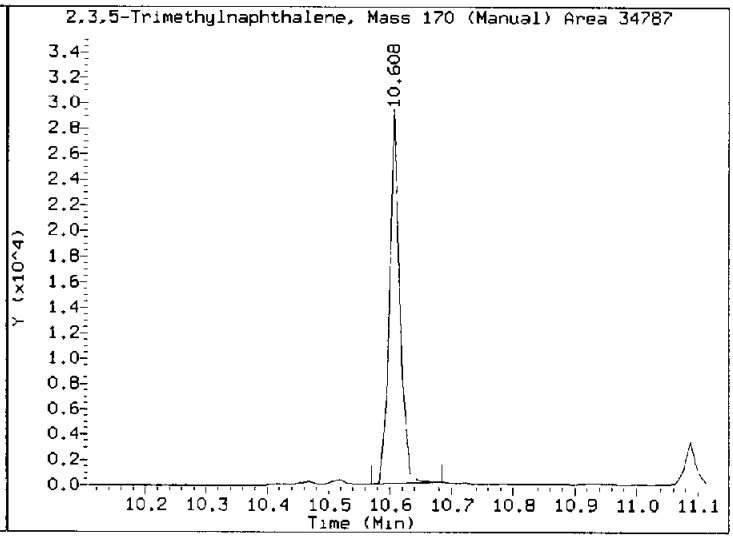


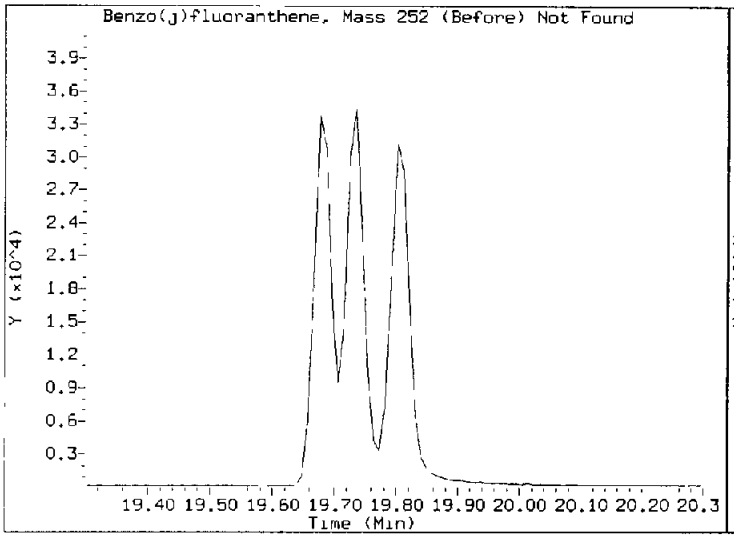


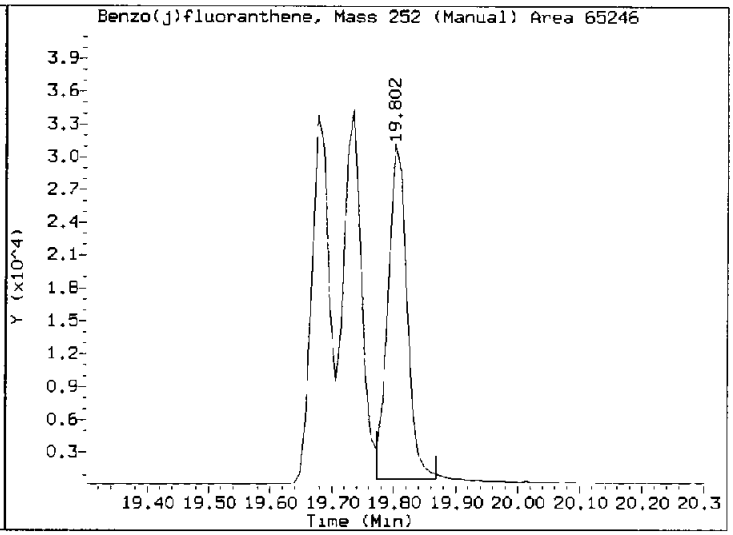
Quant Ion Manual Peak Adjustment Report

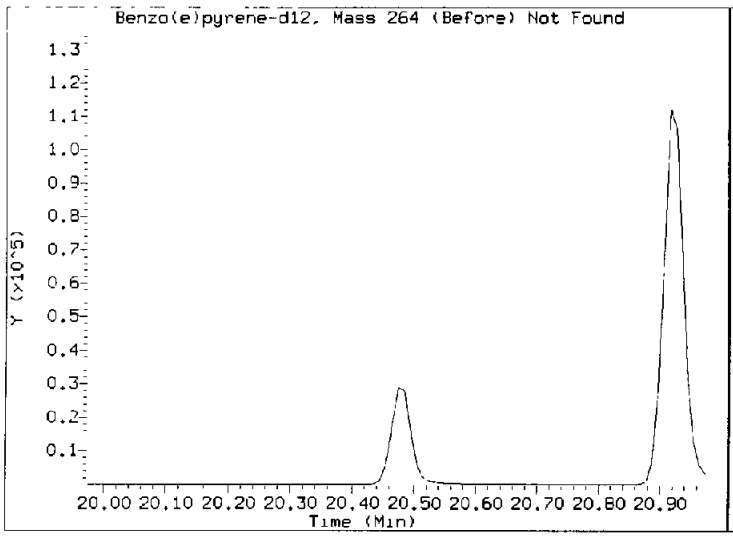
Datafile: //target/share/chem3/nt11.i/20161231.b/N1116123106.D
Injection Date: 31-DEC-2016 10:32
Lab ID:SEL0401-CAL2 Client ID:
Report Date: 12/31/2016 12:39

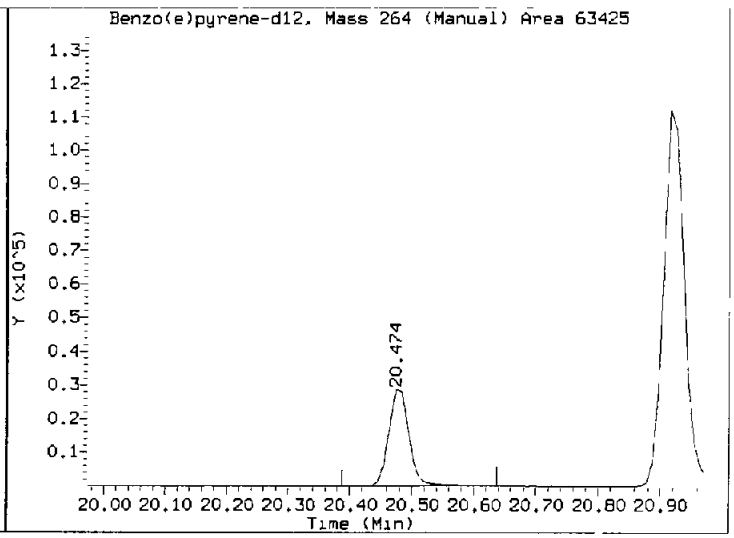






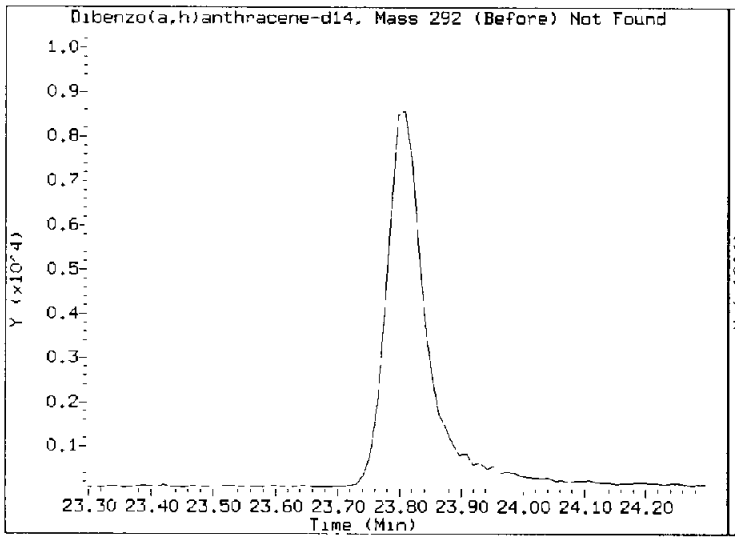


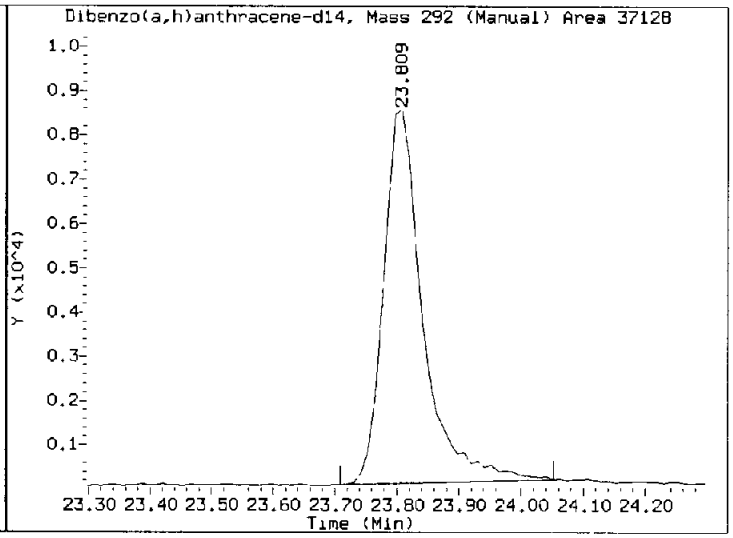




Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem3/nt11.i/20161231.b/N1116123106.D
Injection Date: 31-DEC-2016 10:32
Lab ID:SEL0401-CAL2 Client ID:
Report Date: 12/31/2016 12:39

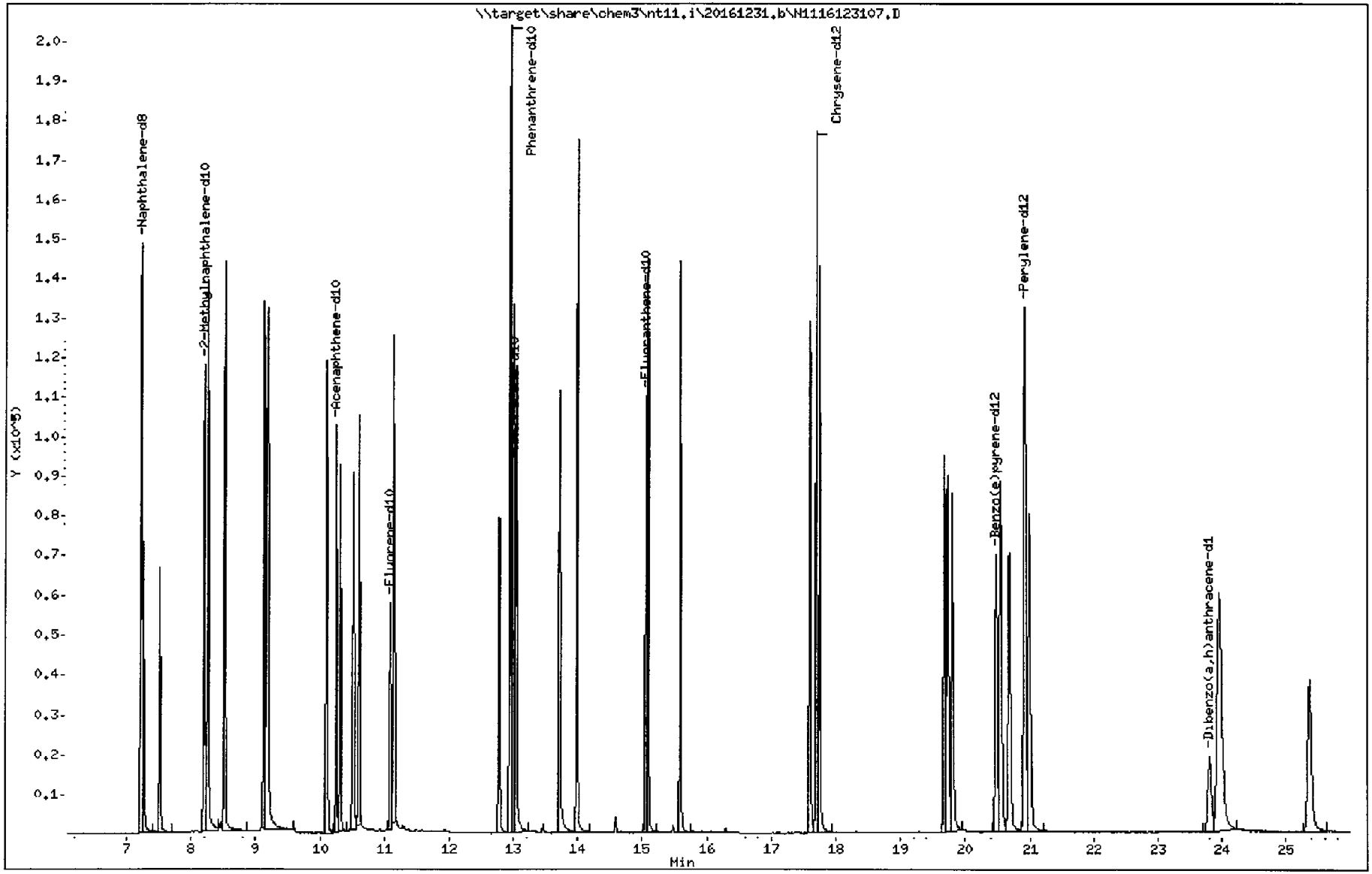




Data File: \\target\share\chem3\nt11.i\20161231.b\N1116123107.D
Date : 31-DEC-2016 11:04
Client ID:
Sample Info: SEL0401-CAL3

Instrument: nt11.i
Operator: VTS
Column diameter: 0.25

Column phase: Rxi-17Sil MS



ARI Labs, Inc.

LOW LEVEL PNAs BY SW8270D-SIM

Data file : \\target\share\chem3\nt11.i\20161231.b\N1116123107.D
Lab Smp Id: SEL0401-CAL3
Inj Date : 31-DEC-2016 11:04 MS Autotune Date: 15-JAN-2015 15:59
Operator : VTS Inst ID: nt11.i
Smp Info : SEL0401-CAL3
Misc Info : 16-
Comment :
Method : \\target\share\chem3\nt11.i\20161231.b\lowsim.m
Meth Date : 31-Dec-2016 12:34 van Quant Type: ISTD
Cal Date : 31-DEC-2016 09:30 Cal File: N1116123104.D
Als bottle: 1 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: allpna.sub
Target Version: 4.14
Processing Host: VANS

			QUANT SIG					AMOUNTS	
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ng/mL)	ON-COL (ng/mL)
*	1	Naphthalene-d8	136	7.225	7.225	(1.000)	208170	200.000	
	2	Naphthalene	128	7.253	7.253	(1.004)	101572	100.000	97.8
	3	Benzo(b)thiophene	134	7.515	7.515	(1.040)	82581	100.000	97.6(M)
$	4	2-Methylnaphthalene-d10	152	8.201	8.201	(1.135)	86558	100.000	96.8(M)
	5	2-Methylnaphthalene	142	8.253	8.253	(1.142)	99728	100.000	97.4
	6	1-Methylnaphthalene	142	8.516	8.516	(1.179)	101149	100.000	98.2
	7	2-Chloronaphthalene	162	9.167	9.167	(0.894)	94464	100.000	97.4(M)
	8	Biphenyl	154	9.125	9.136	(0.890)	125960	100.000	97.6(M)
	9	2,6-Dimethylnaphthalene	156	9.188	9.188	(0.896)	96899	100.000	96.8(M)
	10	Acenaphthylene	152	10.098	10.098	(0.985)	112578	100.000	98.0
*	11	Acenaphthene-d10	164	10.251	10.252	(1.000)	127832	200.000	
	12	Acenaphthene	153	10.315	10.315	(1.006)	74293	100.000	98.2
	13	Dibenzofuran	168	10.519	10.519	(1.026)	112112	100.000	99.7
	14	2,3,5-Trimethylnaphthalene	170	10.607	10.607	(1.035)	70526	100.000	98.0(M)
$	15	Fluorene-d10	174	11.086	11.088	(1.082)	59191	100.000	96.5
	16	Fluorene	166	11.138	11.151	(1.086)	80588	100.000	96.7
	17	Dibenzothiophene	184	12.767	12.767	(0.986)	109440	100.000	99.8
*	18	Phenanthrene-d10	188	12.945	12.945	(1.000)	237418	200.000	
	19	Phenanthrene	178	12.987	12.987	(1.003)	136712	100.000	101
$	20	Anthracene-d10	188	13.008	13.006	(1.005)	114371	100.000	97.4
	21	Anthracene	178	13.040	13.040	(1.007)	136506	100.000	101
	22	Carbazole	167	13.713	13.722	(1.059)	150788	100.000	101
	23	1-Methylphenanthrene	192	13.984	13.984	(1.080)	137820	100.000	99.0
$	24	Fluoranthene-d10	212	15.055	15.055	(1.163)	124467	100.000	98.7
	25	Fluoranthene	202	15.084	15.084	(1.165)	154590	100.000	100
	26	Pyrene	202	15.593	15.593	(0.881)	158191	100.000	99.8
	27	Benzo(a)anthracene	228	17.602	17.602	(0.994)	145331	100.000	99.0
*	28	Chrysene-d12	240	17.702	17.702	(1.000)	244102	200.000	
	29	Chrysene	228	17.751	17.751	(1.003)	152677	100.000	101
	30	Benzo(b)fluoranthene	252	19.676	19.677	(0.941)	135434	100.000	97.1
	31	Benzo(k)fluoranthene	252	19.734	19.725	(0.943)	147228	100.000	98.0
	32	Benzo(j)fluoranthene	252	19.801	19.801	(0.947)	127307	100.000	95.1(M)
$	33	Benzo(e)pyrene-d12	264	20.474	20.474	(0.979)	126073	100.000	98.3(M)

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ng/mL)	ON-COL (ng/mL)
	34 Benzo(e)pyrene	252	20.551	20.551	(0.983)	136371	100.000	98.0
	35 Benzo(a)pyrene	252	20.685	20.685	(0.989)	127441	100.000	98.0
*	36 Perylene-d12	264	20.916	20.916	(1.000)	258780	200.000	
	37 Perylene	252	20.993	20.993	(1.004)	133582	100.000	98.4
$	38 Dibenzo(a,h)arthracene-d14	292	23.808	23.798	(1.138)	75247	100.000	91.1(M)
	39 Dibenzo(a,h)arthracene	278	23.941	23.941	(1.145)	107919	100.000	94.3
	40 Indeno(1,2,3-cd)pyrene	276	23.974	23.974	(1.146)	136126	100.000	95.9
	41 Benzo(g,h,i)perylene	276	25.370	25.370	(1.213)	122623	100.000	96.2

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt11.i
Lab File ID: N1116123107.D
Lab Smp Id: SEL0401-CAL3
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: \\target\share\chem3\nt11.i\20161231.b\lowsim.m
Misc Info: 16-

Calibration Date: 31-DEC-2016
Calibration Time: 08:28
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	219654	109827	439308	208170	-5.23
11 Acenaphthene-d10	135248	67624	270496	127832	-5.48
18 Phenanthrene-d10	257021	128511	514042	237418	-7.63
28 Chrysene-d12	259511	129756	519022	244102	-5.94
36 Perylene-d12	257535	128768	515070	258780	0.48

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	7.23	6.73	7.73	7.23	0.00
11 Acenaphthene-d10	10.25	9.75	10.75	10.25	0.00
18 Phenanthrene-d10	12.95	12.45	13.45	12.95	0.00
28 Chrysene-d12	17.70	17.20	18.20	17.70	0.00
36 Perylene-d12	20.93	20.43	21.43	20.92	-0.05

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N1116123107.D

Lab ID: SEL0401-CAL3
nt11.i, 20161231.b\lowsim.m, 31-DEC-2016 11:04

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

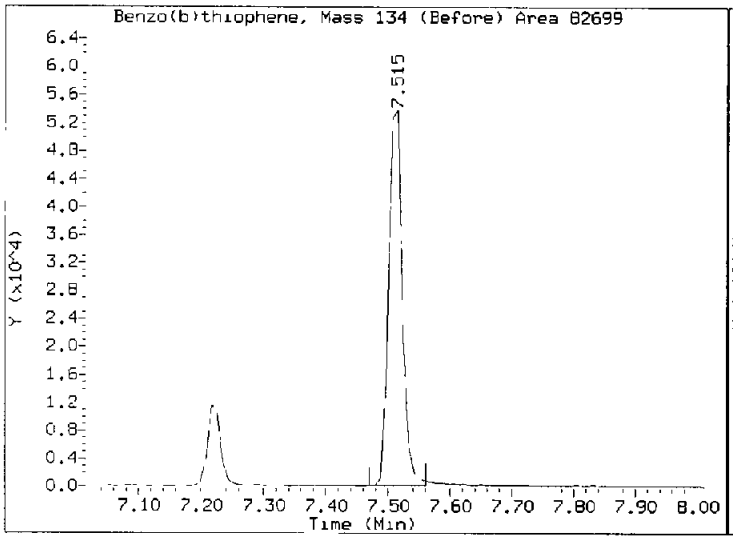
NONE

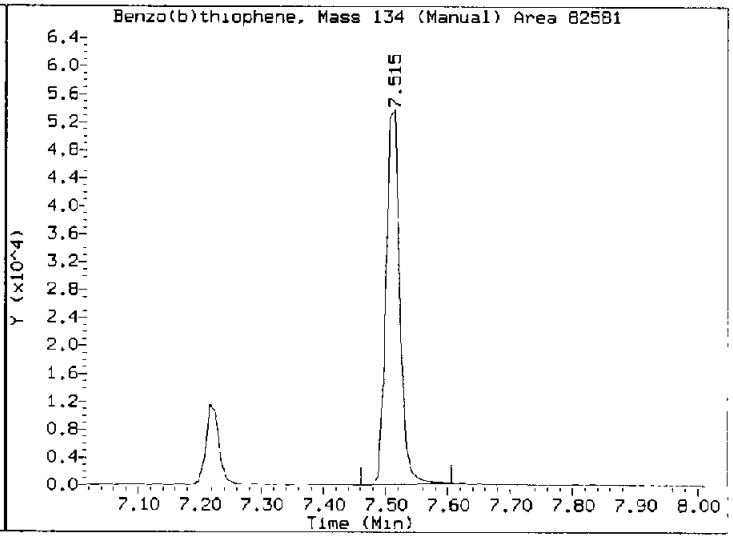
On Column LOD for nt11.i, 20161231.b\lowsim.m, allpna.sub = 3.0000

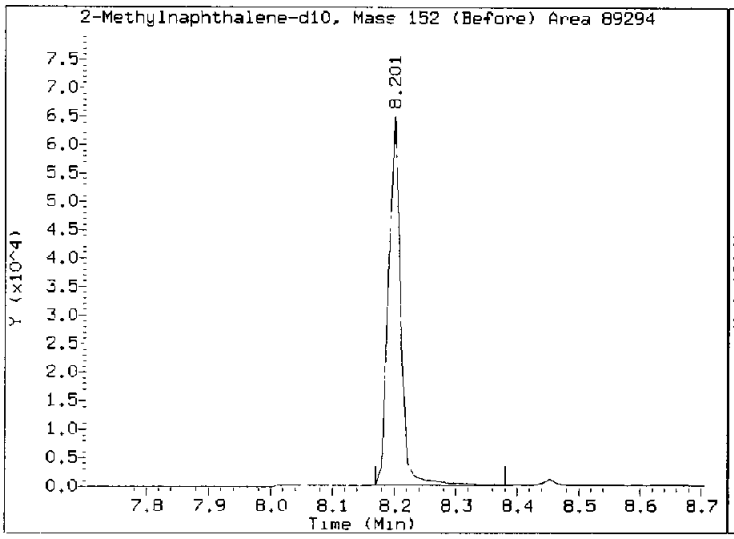
Exception: Naphthalene 7.0000
Exception: Phenanthrene 2.5000
Exception: Anthracene 2.0000
Exception: Pyrene 4.0000
Exception: Benzo(j)fluoranthene 2.5000
Exception: Benzo(a)pyrene 2.0000
Exception: Perylene 3.5000
Exception: Benzo(e)pyrene 2.0000
Exception: Benzo(b)thiophene 2.0000
Exception: 2-Chloronaphthalene 2.0000
Exception: 2,6-Dimethylnaphthalene 2.0000
Exception: 2,3,5-Trimethylnaphthalene 2.0000
Exception: 1-Methylphenanthrene 2.0000
Exception: Dibenzothiophene 2.0000
Exception: Carbazole 2.0000
Exception: Biphenyl 2.0000
Exception: 2-Methylnaphthalene-d10 (Surr) 0.1000
Exception: Dibenzo(a,h)anthracene-d14 (Surr) 0.1000
Exception: Fluoranthene-d10 (Surr) 0.1000
Exception: Anthracene-d10 (Surr) 0.1000
Exception: Benzo(e)pyrene-d12 (Surr) 0.1000
Exception: Fluorene-d10 (Surr) 0.1000

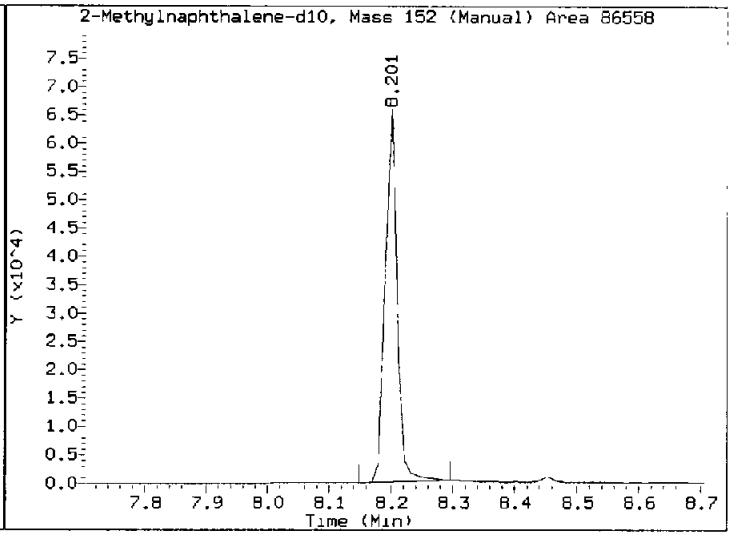
Quant Ion Manual Peak Adjustment Report

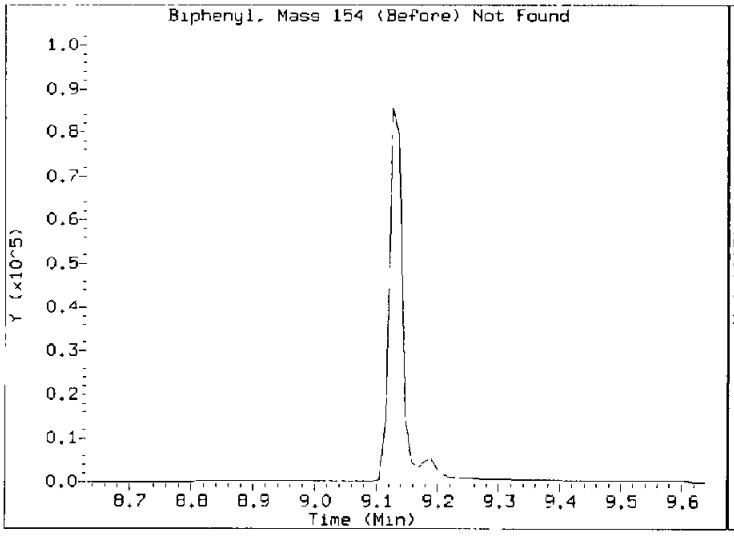
Datafile: //target/share/chem3/nt11.i/20161231.b/N1116123107.D
Injection Date: 31-DEC-2016 11:04
Lab ID:SEL0401-CAL3 Client ID:
Report Date: 12/31/2016 12:39

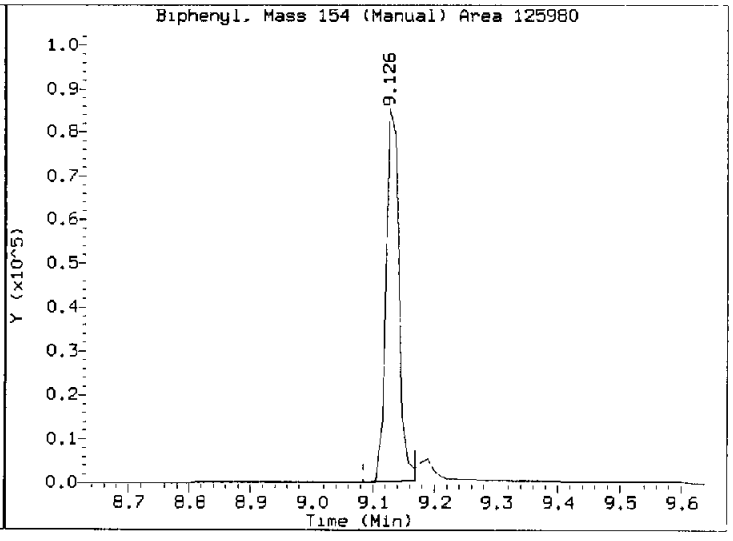






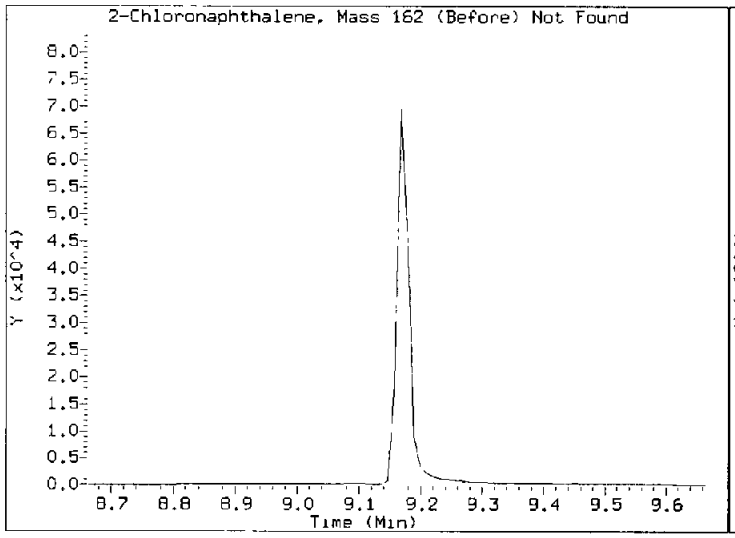


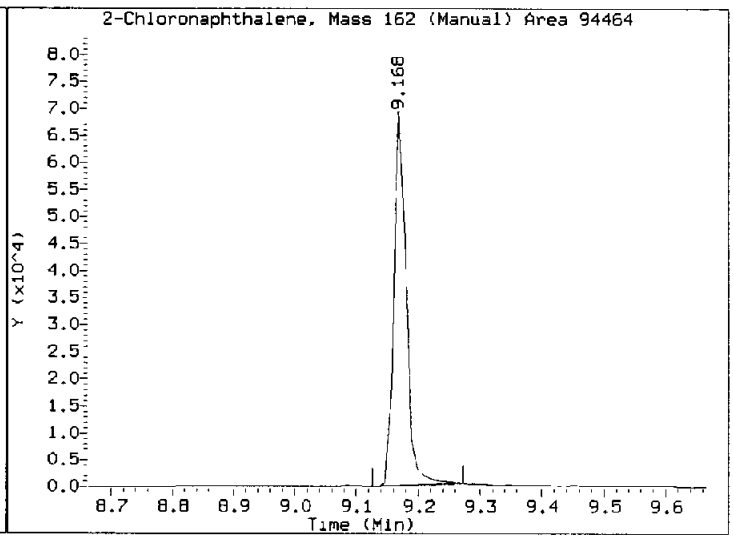


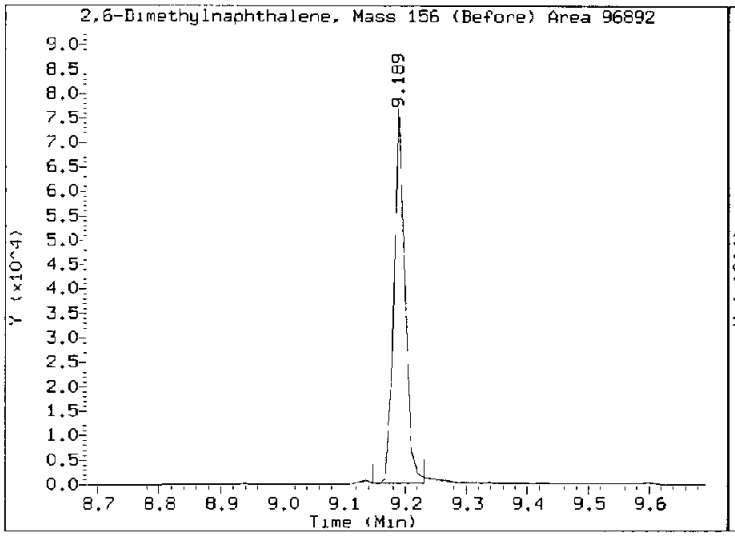


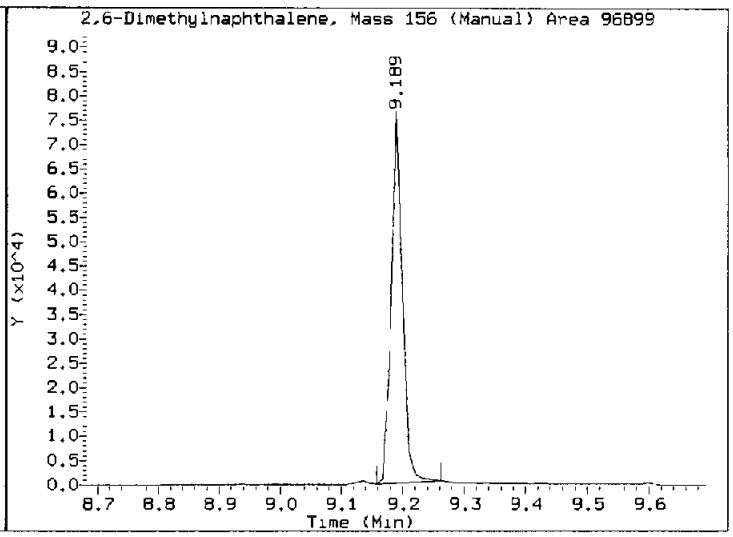
Quant Ion Manual Peak Adjustment Report

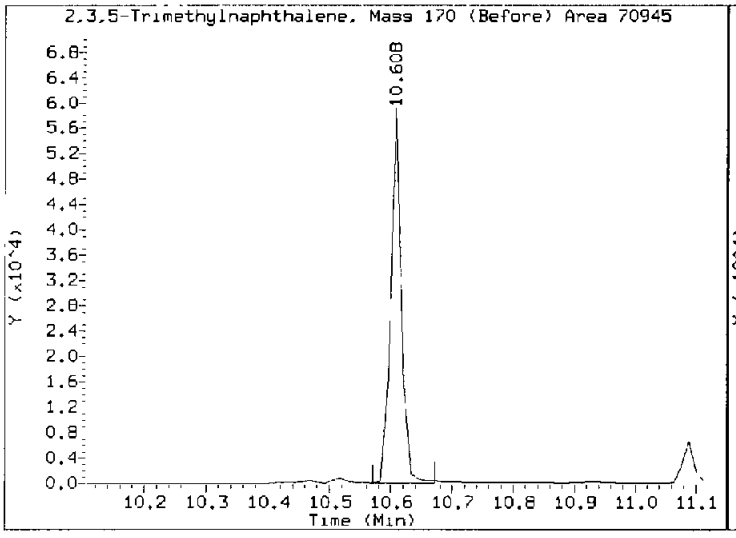
Datafile: //target/share/chem3/nt11.i/20161231.b/N1116123107.D
Injection Date: 31-DEC-2016 11:04
Lab ID:SEL0401-CAL3 Client ID:
Report Date: 12/31/2016 12:39

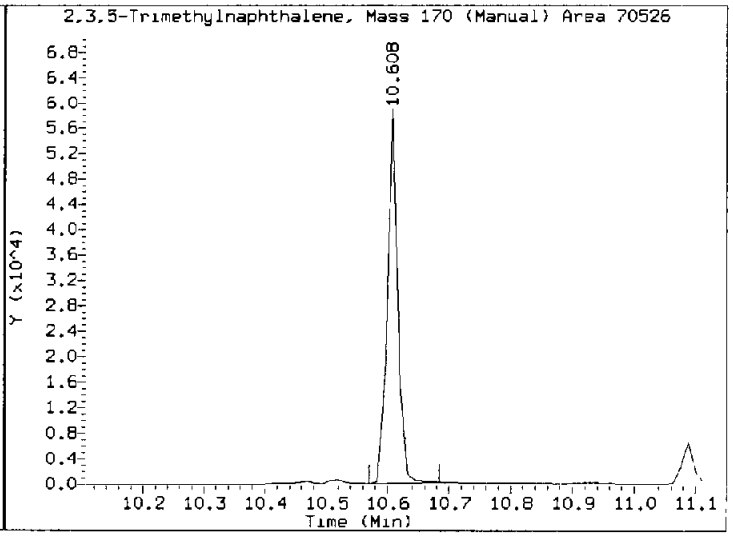






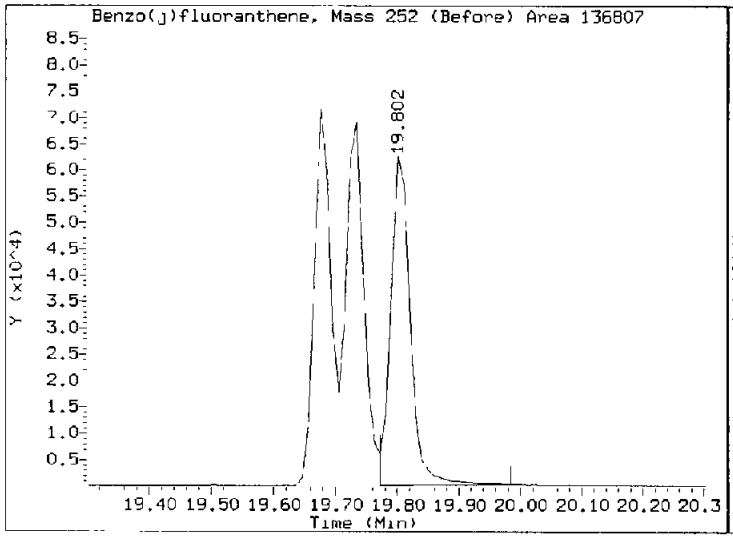


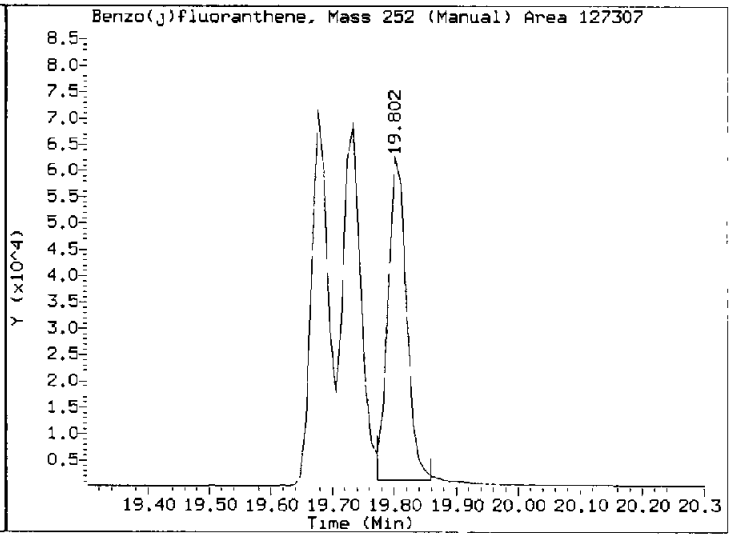


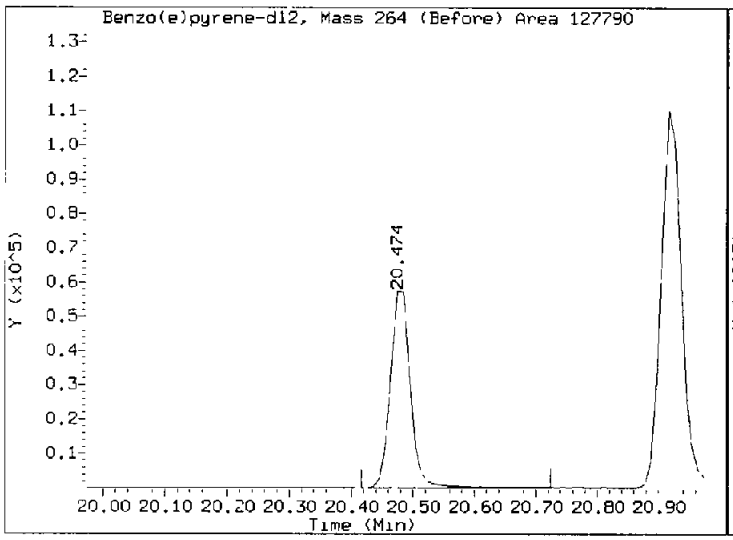


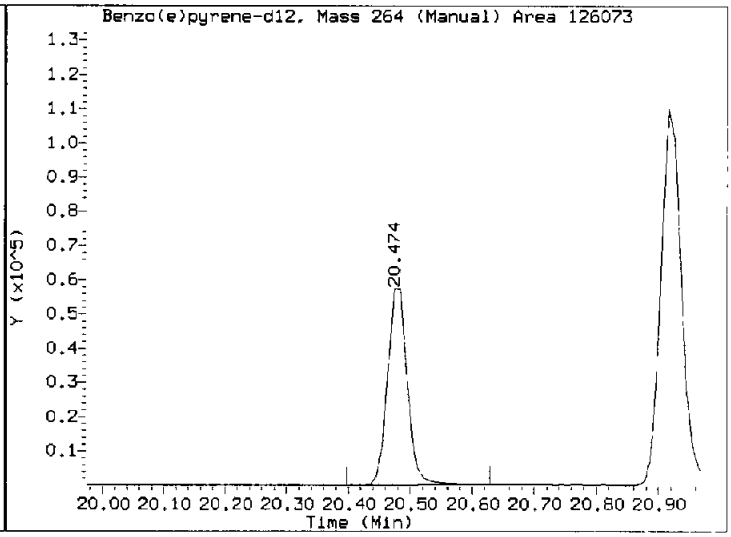
Quant Ion Manual Peak Adjustment Report

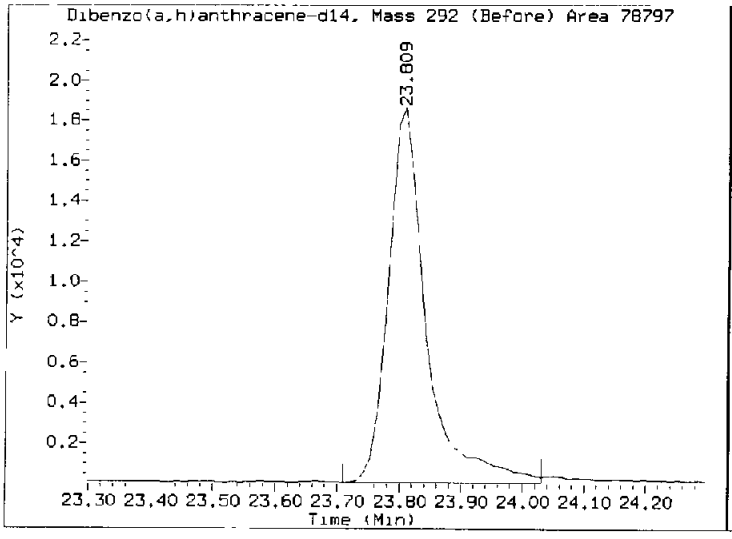
Datafile: //target/share/chem3/nt11.i/20161231.b/N1116123107.D
Injection Date: 31-DEC-2016 11:04
Lab ID:SEL0401-CAL3 Client ID:
Report Date: 12/31/2016 12:39

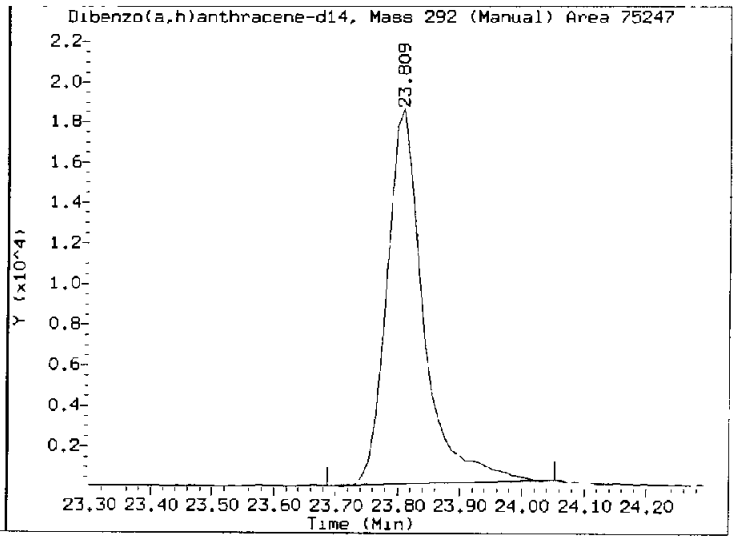












Data File: \\target\share\chem3\nt11.i\20161231.b\N1116123108.D

Date : 31-DEC-2016 11:35

Client ID:

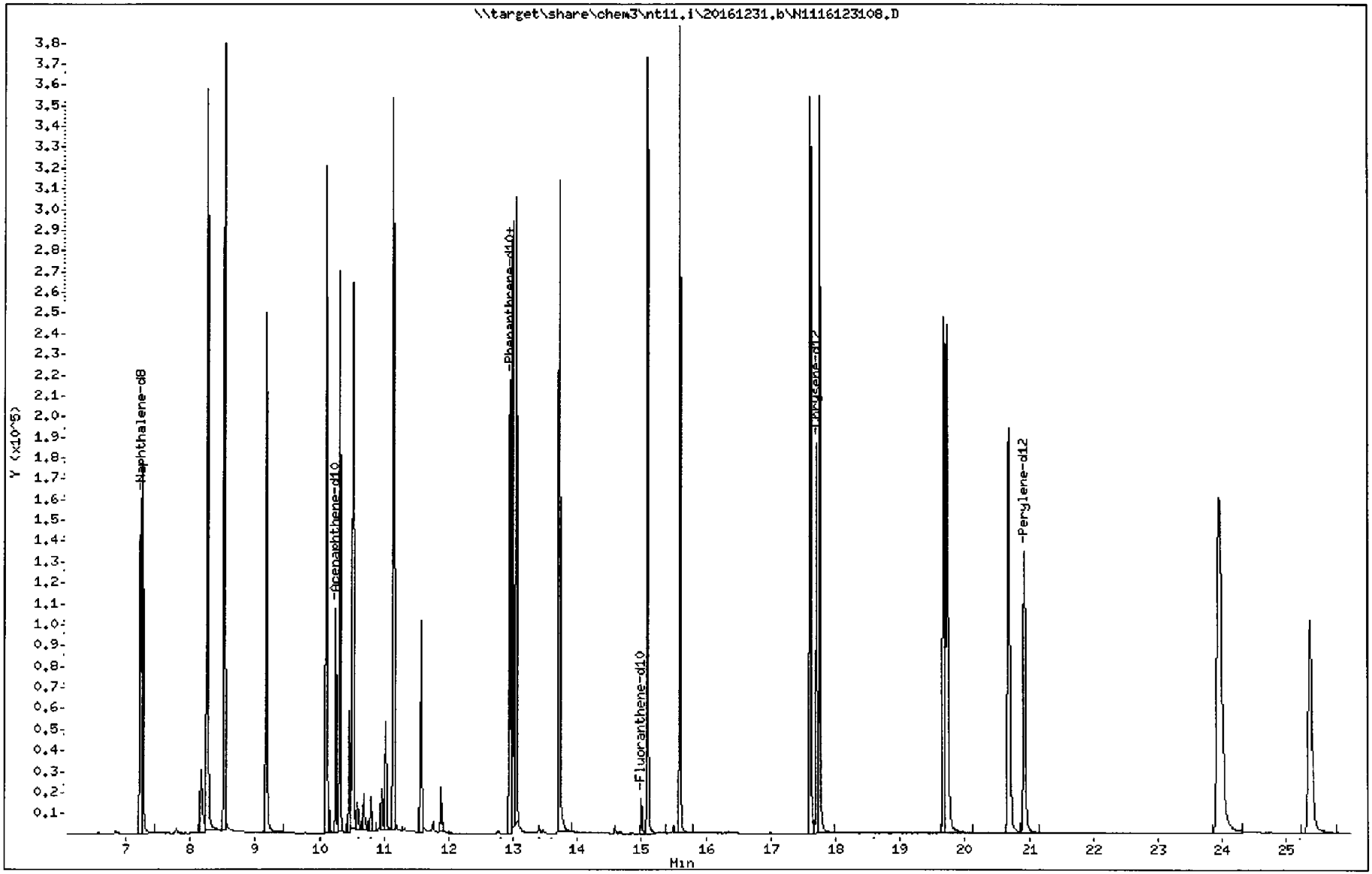
Instrument: nt11.i

Sample Info: SEL0401-SCV1

Operator: WTS

Column phase: Rx1-17Sil MS

Column diameter: 0.25



ARI Labs, Inc.

LOW LEVEL PNAs BY SW8270D-SIM

Data file : \\target\share\chem3\nt11.i\20161231.b\N1116123108.D
Lab Smp Id: SEL0401-SCV1
Inj Date : 31-DEC-2016 11:35 MS Autotune Date: 15-JAN-2015 15:59
Operator : VTS Inst ID: nt11.i
Smp Info : SEL0401-SCV1
Misc Info :
Comment :
Method : \\target\share\chem3\nt11.i\20161231.b\lowsim.m
Meth Date : 31-Dec-2016 12:34 van Quant Type: ISTD
Cal Date : 31-DEC-2016 09:30 Cal File: N1116123104.D
Als bottle: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: newpna.sub
Target Version: 4.14
Processing Host: VANS

		Compound	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ng/mL)	FINAL (ng/mL)
*	1	Naphthalene-d8	136	7.225	7.225	(1.000)	210327	200.000	
	2	Naphthalene	128	7.253	7.253	(1.004)	263035	250.596	251
$	4	2-Methylnaphthalene-d10	152	Compound Not Detected.					
	5	2-Methylnaphthalene	142	8.253	8.253	(1.142)	257930	249.327	249
	6	1-Methylnaphthalene	142	8.516	8.516	(1.179)	246162	236.587	237
	10	Acenaphthylene	152	10.098	10.098	(0.985)	293179	254.726	255
*	11	Acenaphthene-d10	164	10.252	10.252	(1.000)	128092	200.000	
	12	Acenaphthene	153	10.315	10.315	(1.006)	209513	276.477	276
	13	Dibenzofuran	168	10.519	10.519	(1.026)	321591	285.478	285
	16	Fluorene	166	11.138	11.151	(1.086)	240770	268.478	268
*	18	Phenanthrene-d10	188	12.945	12.945	(1.000)	246665	200.000	
	19	Phenanthrene	178	12.987	12.987	(1.003)	354560	251.418	251
	21	Anthracene	178	13.040	13.040	(1.007)	334329	237.762	238
$	24	Fluoranthene-d10	212	15.007	15.055	(1.159)	1972	1.50522	1.51
	25	Fluoranthene	202	15.084	15.084	(1.165)	404582	252.915	253
	26	Pyrene	202	15.593	15.593	(0.881)	409188	246.982	247
	27	Benzo(a)anthracene	228	17.602	17.602	(0.994)	388934	253.509	254
*	28	Chrysene-d12	240	17.702	17.702	(1.000)	255043	200.000	
	29	Chrysene	228	17.751	17.751	(1.003)	380528	241.811	242
	30	Benzo(b)fluoranthene	252	19.676	19.677	(0.941)	361602	252.797	253
	31	Benzo(k)fluoranthene	252	19.734	19.725	(0.943)	403824	262.109	262
	32	Benzo(j)fluoranthene	252	Compound Not Detected.					
	35	Benzo(a)pyrene	252	20.685	20.685	(0.989)	381475	248.577	249
*	36	Perylene-d12	264	20.916	20.916	(1.000)	265358	200.000	
	37	Perylene	252	Compound Not Detected.					
$	38	Dibenz(a,h)anthracene-d14	292	Compound Not Detected.					
	39	Dibenz(a,h)anthracene	278	23.941	23.941	(1.145)	280435	240.373	240
	40	Indeno(1,2,3-cd)pyrene	276	23.974	23.974	(1.146)	361280	248.156	248
	41	Benzo(g,h,i)perylene	276	25.370	25.370	(1.213)	322290	246.575	247

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt11.i
Lab File ID: N1116123108.D
Lab Smp Id: SEL0401-SCV1
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: \\target\share\chem3\nt11.i\20161231.b\lowsim.m
Misc Info:

Calibration Date: 31-DEC-2016
Calibration Time: 08:28
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	219654	109827	439308	210327	-4.25
11 Acenaphthene-d10	135248	67624	270496	128092	-5.29
18 Phenanthrene-d10	257021	128511	514042	246665	-4.03
28 Chrysene-d12	259511	129756	519022	255043	-1.72
36 Perylene-d12	257535	128768	515070	265358	3.04

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	7.23	6.73	7.73	7.23	0.00
11 Acenaphthene-d10	10.25	9.75	10.75	10.25	0.00
18 Phenanthrene-d10	12.95	12.45	13.45	12.95	0.00
28 Chrysene-d12	17.70	17.20	18.20	17.70	0.00
36 Perylene-d12	20.93	20.43	21.43	20.92	-0.05

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N1116123108.D

Lab ID: SEL0401-SCV1
nt11.i, 20161231.b\lowsim.m, 31-DEC-2016 11:35

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

On Column LOD for nt11.i, 20161231.b\lowsim.m, newpna.sub = 3.0000

Exception: Naphthalene 7.0000
Exception: Phenanthrene 2.5000
Exception: Anthracene 2.0000
Exception: Pyrene 4.0000
Exception: Benzo(j)fluoranthene 2.5000
Exception: Benzo(a)pyrene 2.0000
Exception: Perylene 3.5000
Exception: Fluoranthene-d10 (Surr) 0.0000
Exception: 2-Methylnaphthalene-d10 (Surr) 0.1000
Exception: Dibenzo(a,h)anthracene-d14 (Surr) 0.1000

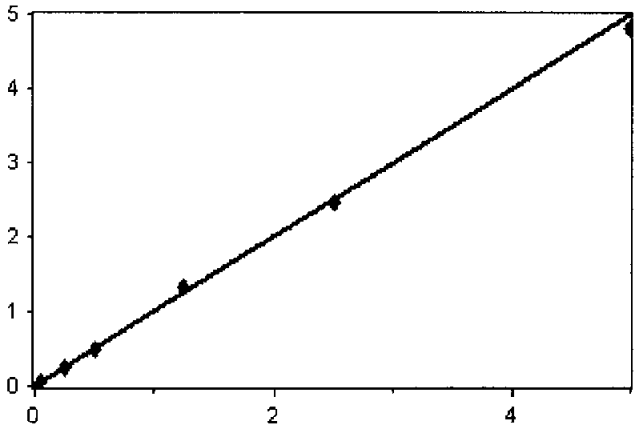
Calibration Report

Instrument:	**NT11**	**Calibration Date:**	**31-Dec-2016 12:55 By VTS**
Calibration ID:	**ZL00083**	**Last Edit Date:**	**31-Dec-2016 12:56 By VTS**

8270D-SIM PAH Low (0.0

Naphthalene

8270D-SIM PAH Low (0 01 ug/L - 0.5 ug/kg) - Naphthalene



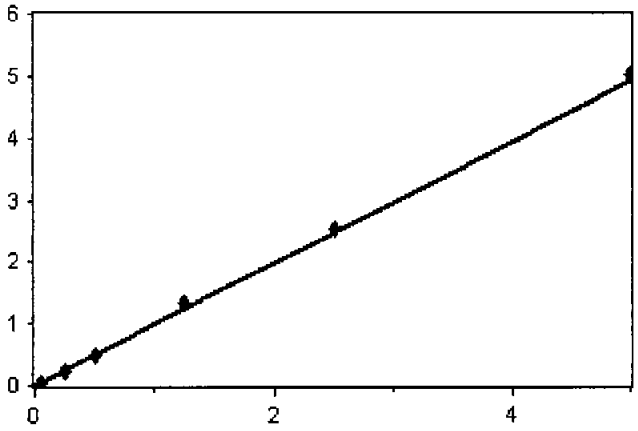
Average RF

RF RSD: 3.5253

[Conc] = 0.9981003 * [Response]

2-Methylnaphthalene

8270D-SIM PAH Low (0 01 ug/L - 0 5 ug/kg) - 2-Methylnaphthaler



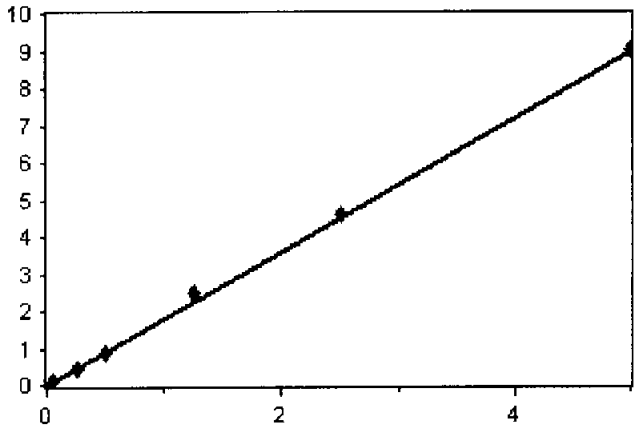
Average RF

RF RSD: 5.634266

[Conc] = 0.9837101 * [Response]

Acenaphthylene

8270D-SIM PAH Low (0 01 ug/L - 0 5 ug/kg) - Acenaphthylene



Average RF

RF RSD: 6.436631

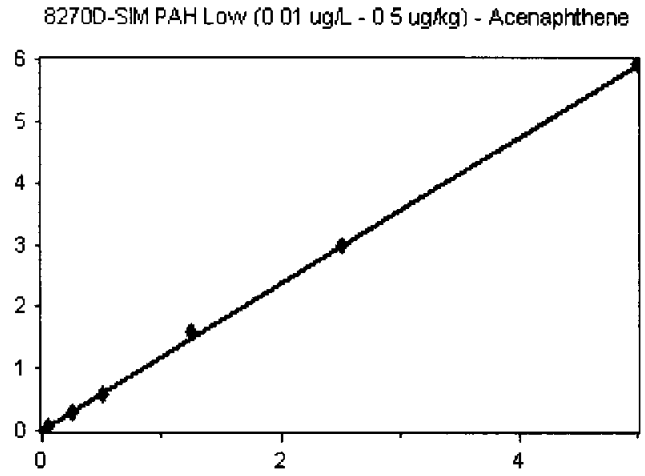
[Conc] = 1.797084 * [Response]

Calibration Report

Instrument:	**NT11**	**Calibration Date:**	**31-Dec-2016 12:55 By VTS**
Calibration ID:	**ZL00083**	**Last Edit Date:**	**31-Dec-2016 12:56 By VTS**

8270D-SIM PAH Low (0.0

Acenaphthene

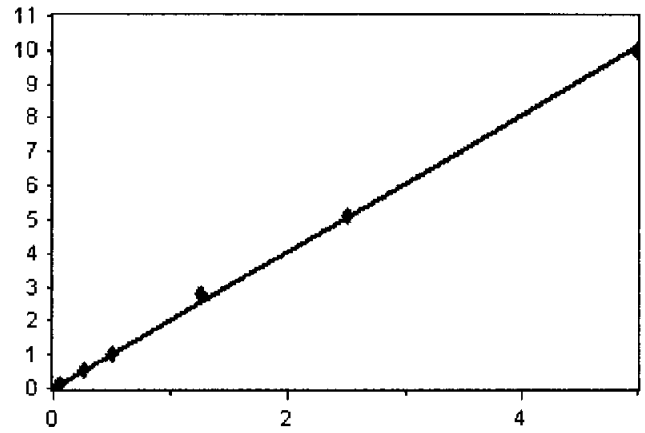


Average RF

RF RSD: 4.850335 ✓

[Conc] = 1.183206 * [Response]

Biphenyl

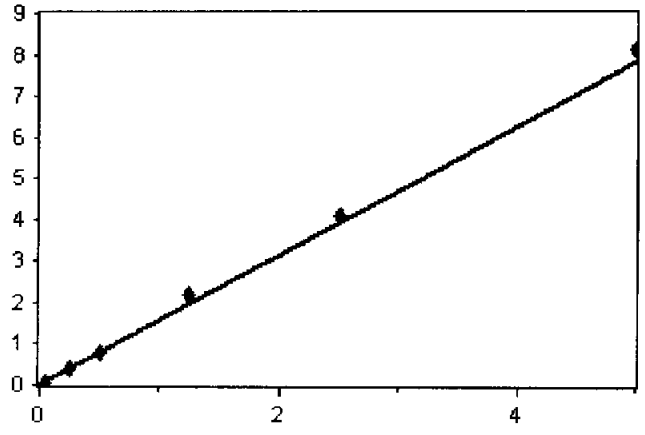


Average RF

RF RSD: 6.633739 ✓

[Conc] = 2.018666 * [Response]

2,6-Dimethylnaphthalene



Average RF

RF RSD: 8.153153 ✓

[Conc] = 1.565384 * [Response]

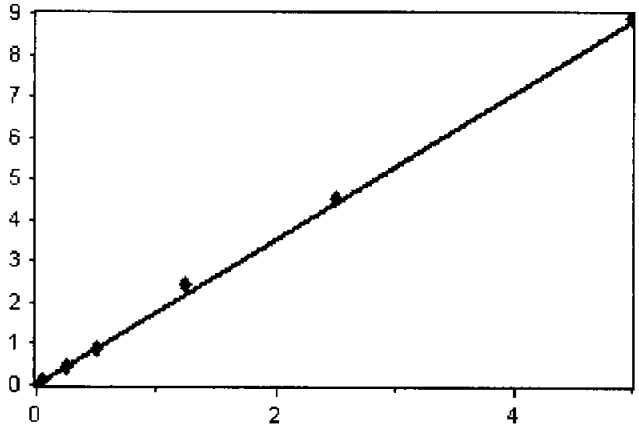
Calibration Report

Instrument:	**NT11**	**Calibration Date:**	**31-Dec-2016 12:55 By VTS**
Calibration ID:	**ZL00083**	**Last Edit Date:**	**31-Dec-2016 12:56 By VTS**

8270D-SIM PAH Low (0.0

Dibenzofuran

8270D-SIM PAH Low (0 01 ug/L - 0.5 ug/kg) - Dibenzofuran



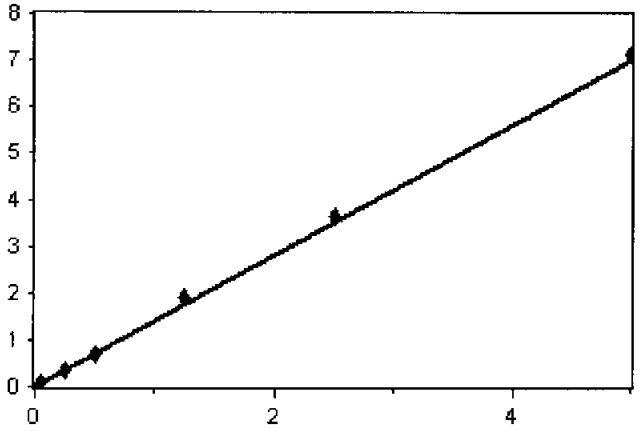
Average RF

RF RSD: 6.590145

[Conc] = 1.758895 * [Response]

Fluorene

8270D-SIM PAH Low (0.01 ug/L - 0 5 ug/kg) - Fluorene



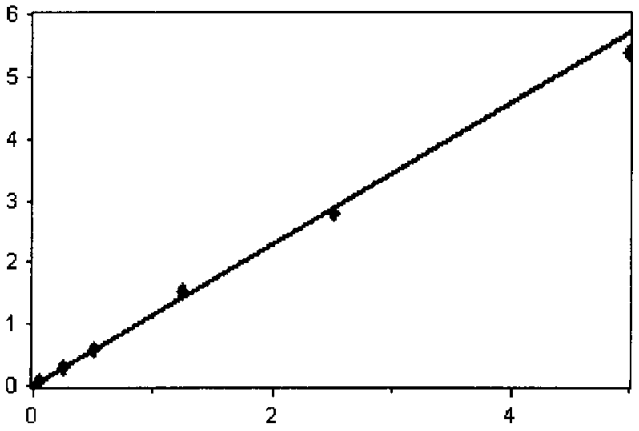
Average RF

RF RSD: 5.920069

[Conc] = 1.400239 * [Response]

Phenanthrene

8270D-SIM PAH Low (0 01 ug/L - 0 5 ug/kg) - Phenanthrene



Average RF

RF RSD: 4.370087

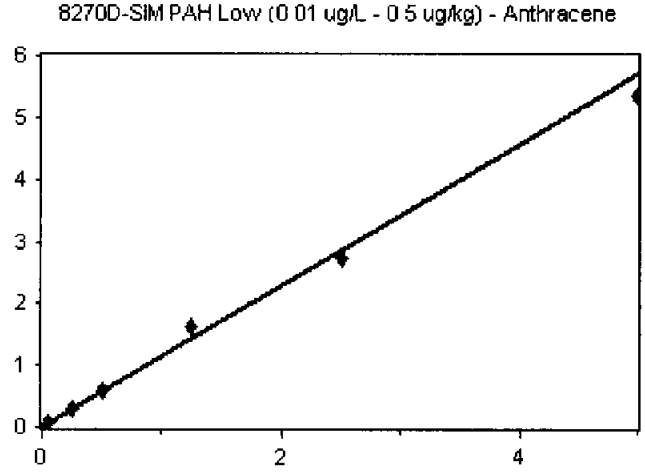
[Conc] = 1.143447 * [Response]

Calibration Report

Instrument:	**NT11**	**Calibration Date:**	**31-Dec-2016 12:55 By VTS**
Calibration ID:	**ZL00083**	**Last Edit Date:**	**31-Dec-2016 12:56 By VTS**

8270D-SIM PAH Low (0.0

Anthracene

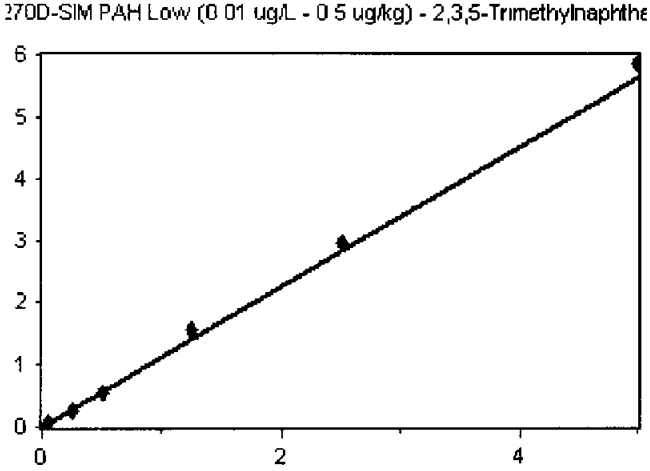


Average RF

RF RSD: 7.165979

[Conc] = 1.140131 * [Response]

2,3,5-Trimethylnaphthalene

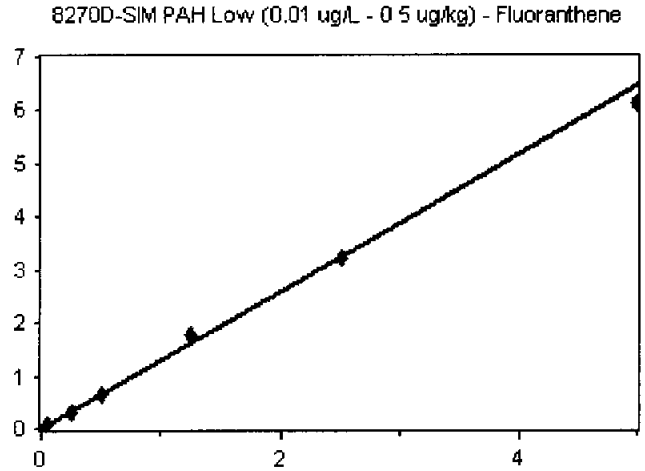


Average RF

RF RSD: 8.281944

[Conc] = 1.125509 * [Response]

Fluoranthene



Average RF

RF RSD: 4.813317

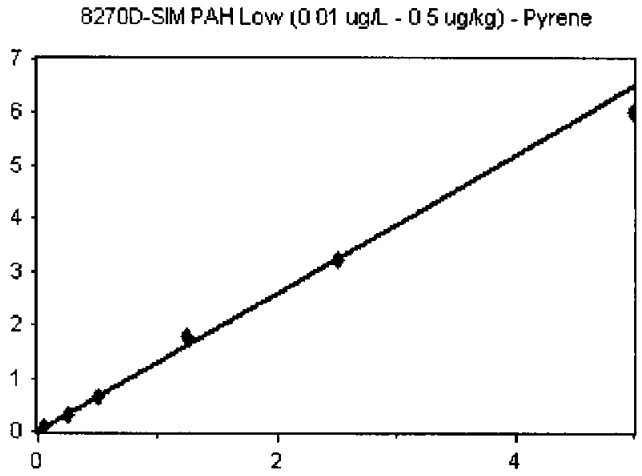
[Conc] = 1.297041 * [Response]

Calibration Report

Instrument:	**NT11**	**Calibration Date:**	**31-Dec-2016 12:55 By VTS**
Calibration ID:	**ZL00083**	**Last Edit Date:**	**31-Dec-2016 12:56 By VTS**

8270D-SIM PAH Low (0.0

Pyrene

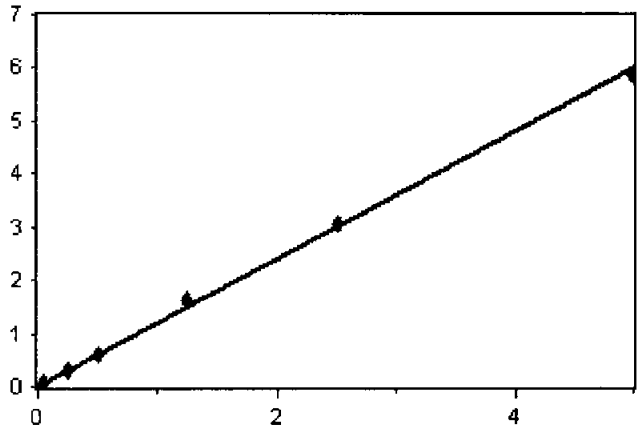


Average RF

RF RSD: 5.436503

[Conc] = 1.299195 * [Response]

Benzo(a)anthracene

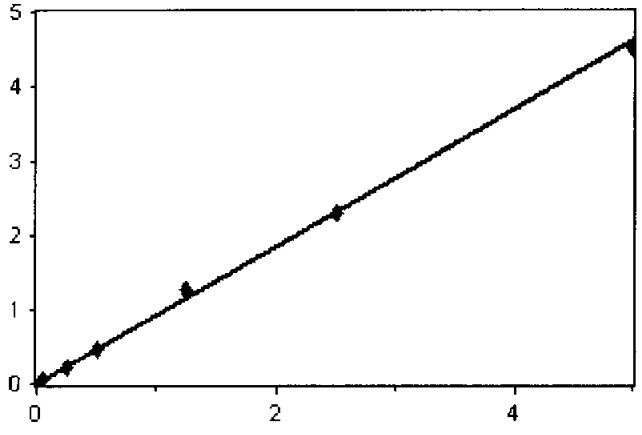


Average RF

RF RSD: 4.362763

[Conc] = 1.202617 * [Response]

Dibenzothiophene



Average RF

RF RSD: 5.101806

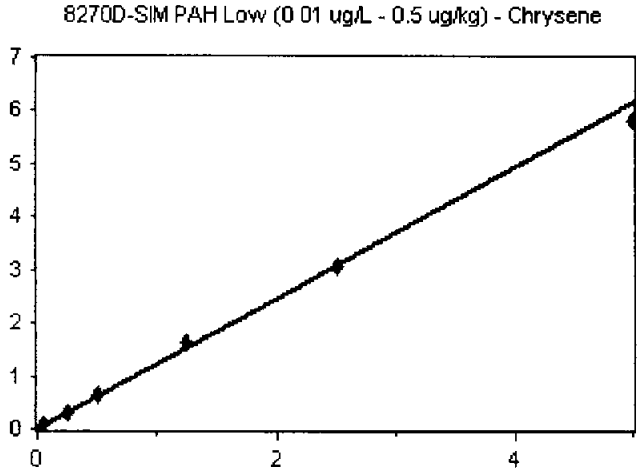
[Conc] = 0.9235267 * [Response]

Calibration Report

Instrument:	**NT11**	**Calibration Date:**	**31-Dec-2016 12:55 By VTS**
Calibration ID:	**ZL00083**	**Last Edit Date:**	**31-Dec-2016 12:56 By VTS**

8270D-SIM PAH Low (0.0

Chrysene

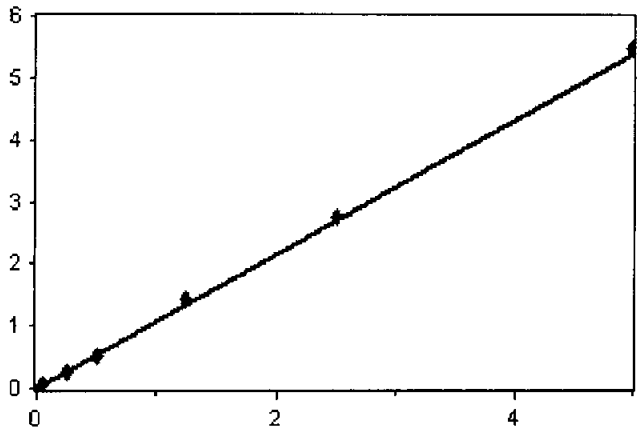


Average RF

RF RSD: 3.940153

[Conc] = 1.234032 * [Response]

Benzo(b)fluoranthene

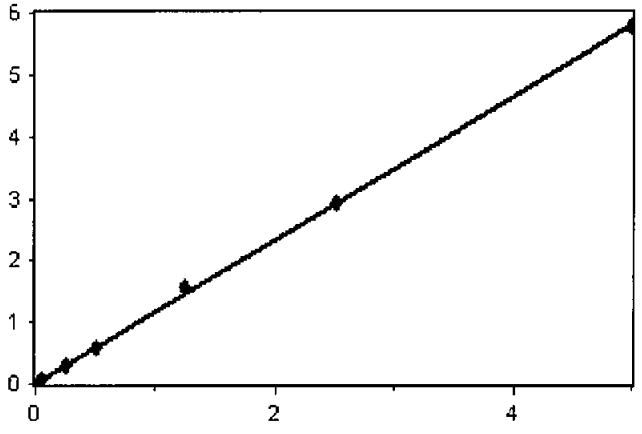


Average RF

RF RSD: 4.34092

[Conc] = 1.078092 * [Response]

Benzo(k)fluoranthene



Average RF

RF RSD: 4.41446

[Conc] = 1.161201 * [Response]

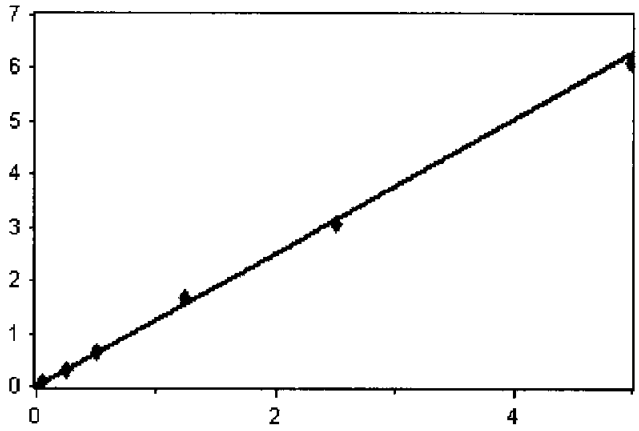
Calibration Report

Instrument:	**NT11**	**Calibration Date:**	**31-Dec-2016 12:55 By VTS**
Calibration ID:	**ZL00083**	**Last Edit Date:**	**31-Dec-2016 12:56 By VTS**

8270D-SIM PAH Low (0.0

Carbazole

8270D-SIM PAH Low (0 01 ug/L - 0 5 ug/kg) - Carbazole



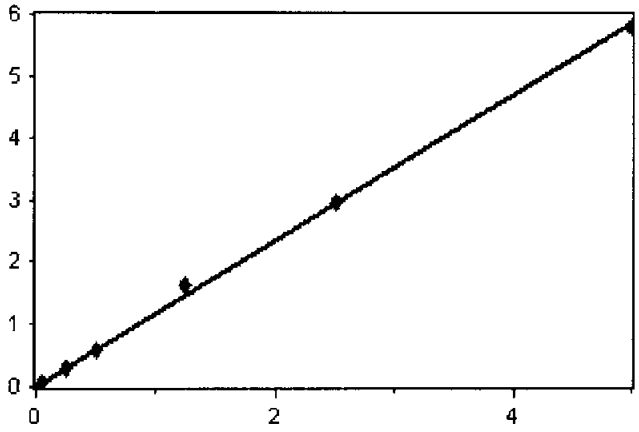
Average RF

RF RSD: 3.212159

[Conc] = 1.258224 * [Response]

1-Methylphenanthrene

8270D-SIM PAH Low (0 01 ug/L - 0 5 ug/kg) - 1-Methylphenanthre



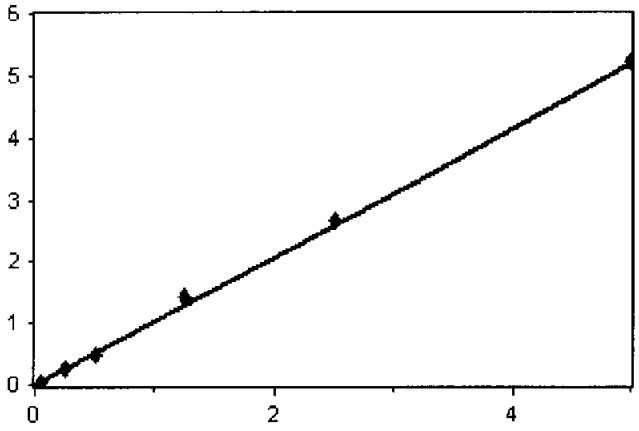
Average RF

RF RSD: 5.816212

[Conc] = 1.172626 * [Response]

Benzo(j)fluoranthene

8270D-SIM PAH Low (0 01 ug/L - 0.5 ug/kg) - Benzo(j)fluoranther



Average RF

RF RSD: 6.615181

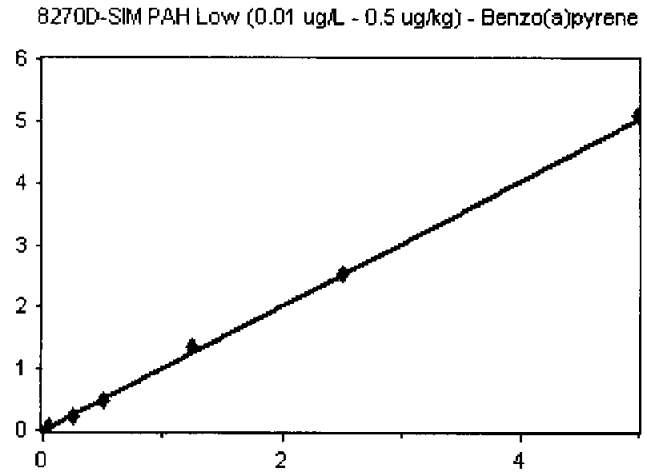
[Conc] = 1.035077 * [Response]

Calibration Report

Instrument:	**NT11**	**Calibration Date:**	**31-Dec-2016 12:55 By VTS**
Calibration ID:	**ZL00083**	**Last Edit Date:**	**31-Dec-2016 12:56 By VTS**

8270D-SIM PAH Low (0.0

Benzo(a)pyrene

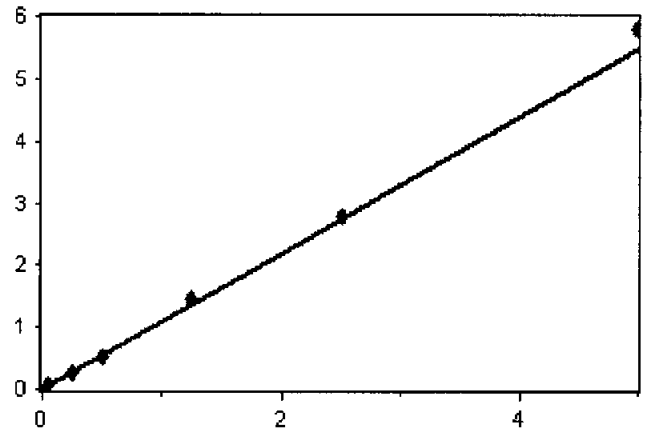


Average RF

RF RSD: 4.453594

[Conc] = 1.005051 * [Response]

Indeno(1,2,3-cd)pyrene

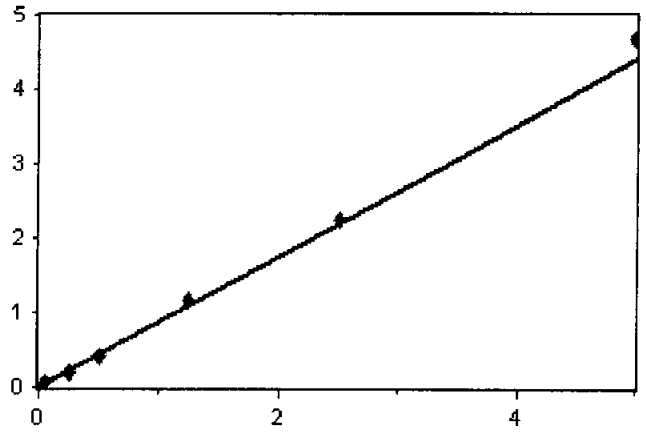


Average RF

RF RSD: 6.535008

[Conc] = 1.09728 * [Response]

Dibenzo(a,h)anthracene



Average RF

RF RSD: 6.951658

[Conc] = 0.879316 * [Response]

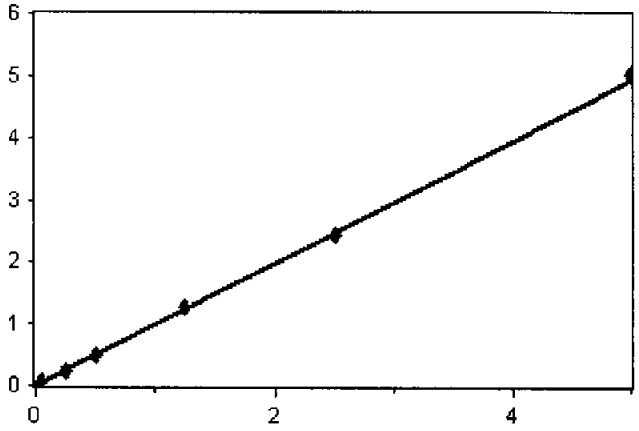
Calibration Report

Instrument:	**NT11**	**Calibration Date:**	**31-Dec-2016 12:55 By VTS**
Calibration ID:	**ZL00083**	**Last Edit Date:**	**31-Dec-2016 12:56 By VTS**

8270D-SIM PAH Low (0.0

Benzo(g,h,i)perylene

8270D-SIM PAH Low (0.01 ug/L - 0.5 ug/kg) - Benzo(g,h,i)perylen



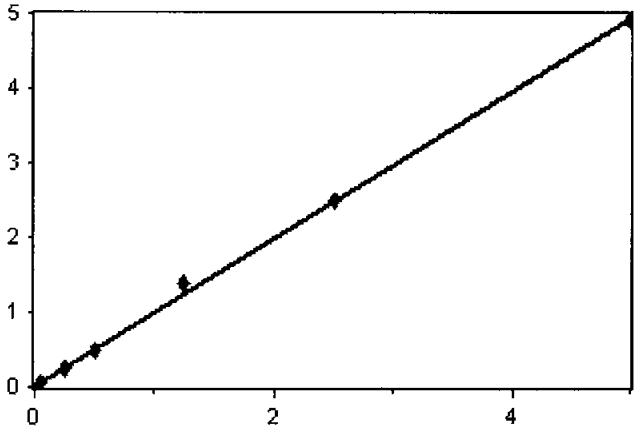
Average RF

RF RSD: 4.659534

[Conc] = 0.9851335 * [Response]

1-Methylnaphthalene

8270D-SIM PAH Low (0.01 ug/L - 0.5 ug/kg) - 1-Methylnaphthaler



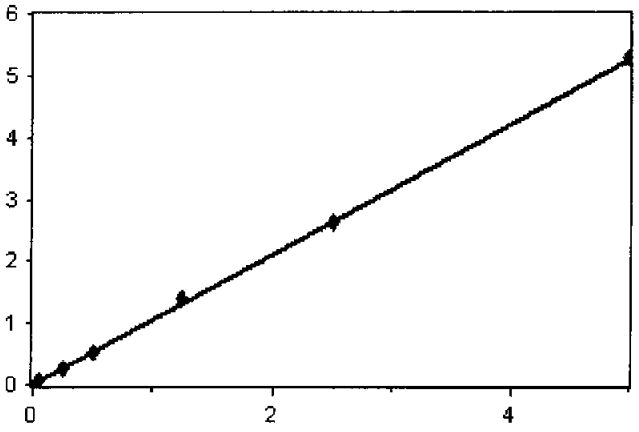
Average RF

RF RSD: 6.086142

[Conc] = 0.9893853 * [Response]

Perylene

8270D-SIM PAH Low (0.01 ug/L - 0.5 ug/kg) - Perylene



Average RF

RF RSD: 3.866678

[Conc] = 1.049366 * [Response]

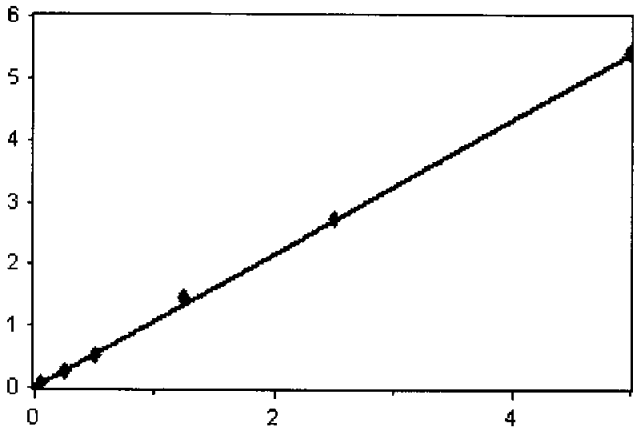
Calibration Report

Instrument:	**NT11**	**Calibration Date:**	**31-Dec-2016 12:55 By VTS**
Calibration ID:	**ZL00083**	**Last Edit Date:**	**31-Dec-2016 12:56 By VTS**

8270D-SIM PAH Low (0.0

Benzo(e)pyrene

8270D-SIM PAH Low (0 01 ug/L - 0 5 ug/kg) - Benzo(e)pyrene



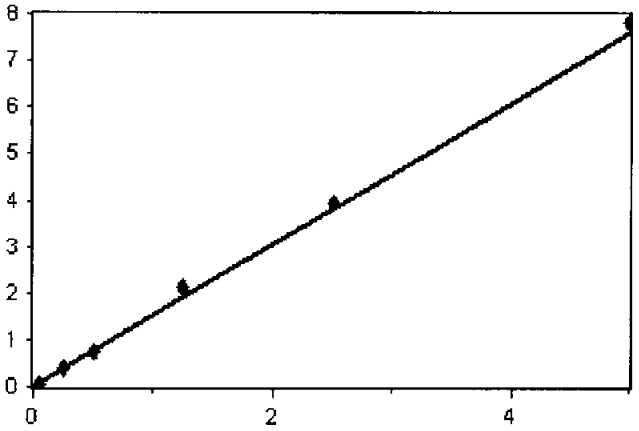
Average RF

RF RSD: 4.396722

[Conc] = 1.075401 * [Response]

2-Chloronaphthalene

8270D-SIM PAH Low (0 01 ug/L - 0 5 ug/kg) - 2-Chloronaphthaler



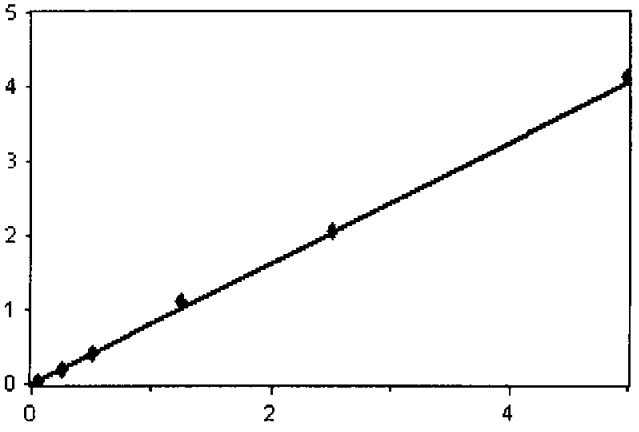
Average RF

RF RSD: 8.565905

[Conc] = 1.518089 * [Response]

Benzo(b)thiophene

8270D-SIM PAH Low (0 01 ug/L - 0 5 ug/kg) - Benzo(b)thiophene



Average RF

RF RSD: 5.149146

[Conc] = 0.8125076 * [Response]

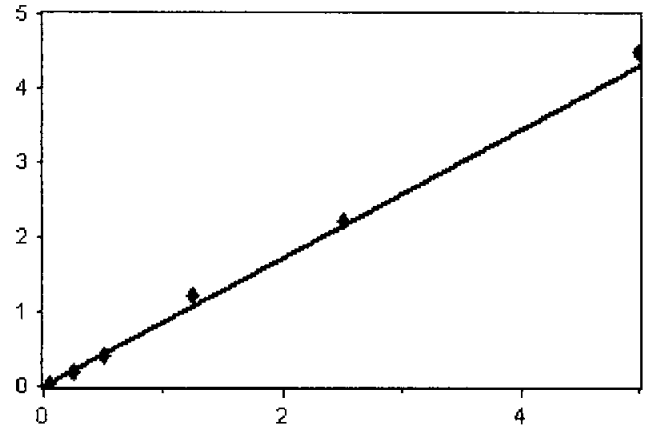
Calibration Report

Instrument:	**NT11**	**Calibration Date:**	**31-Dec-2016 12:55 By VTS**
Calibration ID:	**ZL00083**	**Last Edit Date:**	**31-Dec-2016 12:56 By VTS**

8270D-SIM PAH Low (0.0

2-Methylnaphthalene-d10

8270D-SIM PAH Low (0 01 ug/L - 0 5 ug/kg) - 2-Methylnaphthalene-



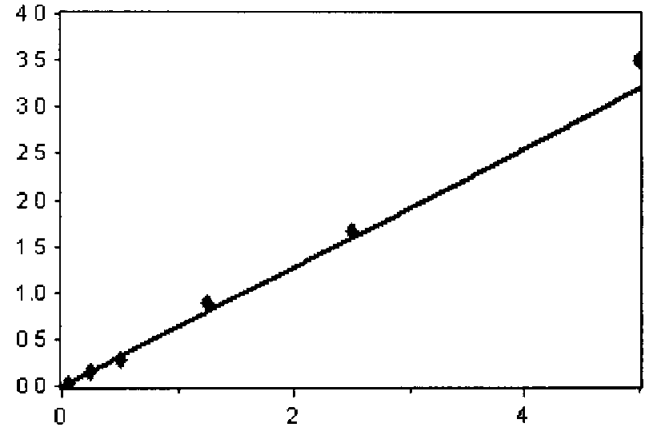
Average RF

RF RSD: 8.841695

[Conc] = 0.8589433 * [Response]

Dibenzo[a,h]anthracene-d14

270D-SIM PAH Low (0 01 ug/L - 0 5 ug/kg) - Dibenzo[a,h]anthracer



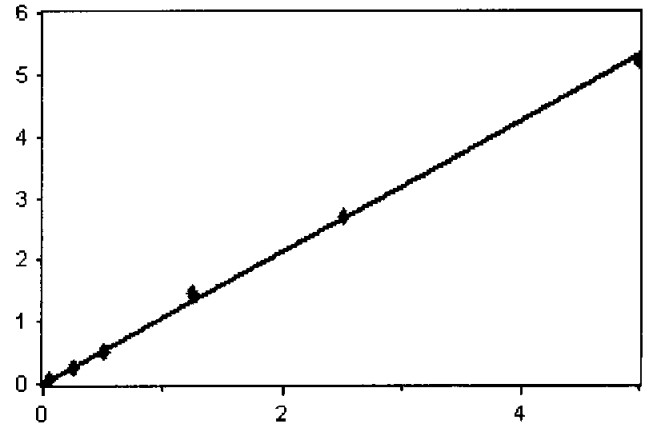
Average RF

RF RSD: 9.3605

[Conc] = 0.6386966 * [Response]

Fluoranthene-d10

8270D-SIM PAH Low (0 01 ug/L - 0.5 ug/kg) - Fluoranthene-d10



Average RF

RF RSD: 5.376334

[Conc] = 1.062255 * [Response]

Analytical Resources, Incorporated

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 8270D-SIM

Laboratory: Analytical Resources, Inc.
SDG: 17A0053
Client: Anchor QEA, LLC
Project: Port Gamble Shellfish Monitoring
Calibration: ZL00083
Laboratory ID: SEL0401-SCV1
Sequence: SEL0401
Sequence Name: SIMPNA SCV
Standard ID: E007699

ANALYTE	EXPECTED (ng/mL)	FOUND (ng/mL)	% DRIFT	QC LIMIT
Naphthalene	250.00	251	0.2	20.00
2-Methylnaphthalene	250.00	249	-0.3	20.00
Acenaphthylene	250.00	255	1.9	20.00
Acenaphthene	250.00	276	10.6	20.00
Dibenzofuran	250.00	285	14.2	20.00
Fluorene	250.00	268	7.4	20.00
Phenanthrene	250.00	251	0.6	20.00
Anthracene	250.00	238	-4.9	20.00
Fluoranthene	250.00	253	1.2	20.00
Pyrene	250.00	247	-1.2	20.00
Benzo(a)anthracene	250.00	254	1.4	20.00
Chrysene	250.00	242	-3.3	20.00
Benzo(b)fluoranthene	250.00	253	1.1	20.00
Benzo(k)fluoranthene	250.00	262	4.8	20.00
Benzo(a)pyrene	250.00	249	-0.6	20.00
Indeno(1,2,3-cd)pyrene	250.00	248	-0.7	20.00
Dibenzo(a,h)anthracene	250.00	240	-3.9	20.00
Benzo(g,h,i)perylene	250.00	247	-1.4	20.00
1-Methylnaphthalene	250.00	237	-5.4	20.00
Benzofluoranthenes, Total	500.00	515	3.0	

* Indicates values outside of QC limits

Data File: \\target\share\chem3\nt11.i\20161231.b\N1116123108.D

Page 1

Date : 31-DEC-2016 11:35

Client ID:

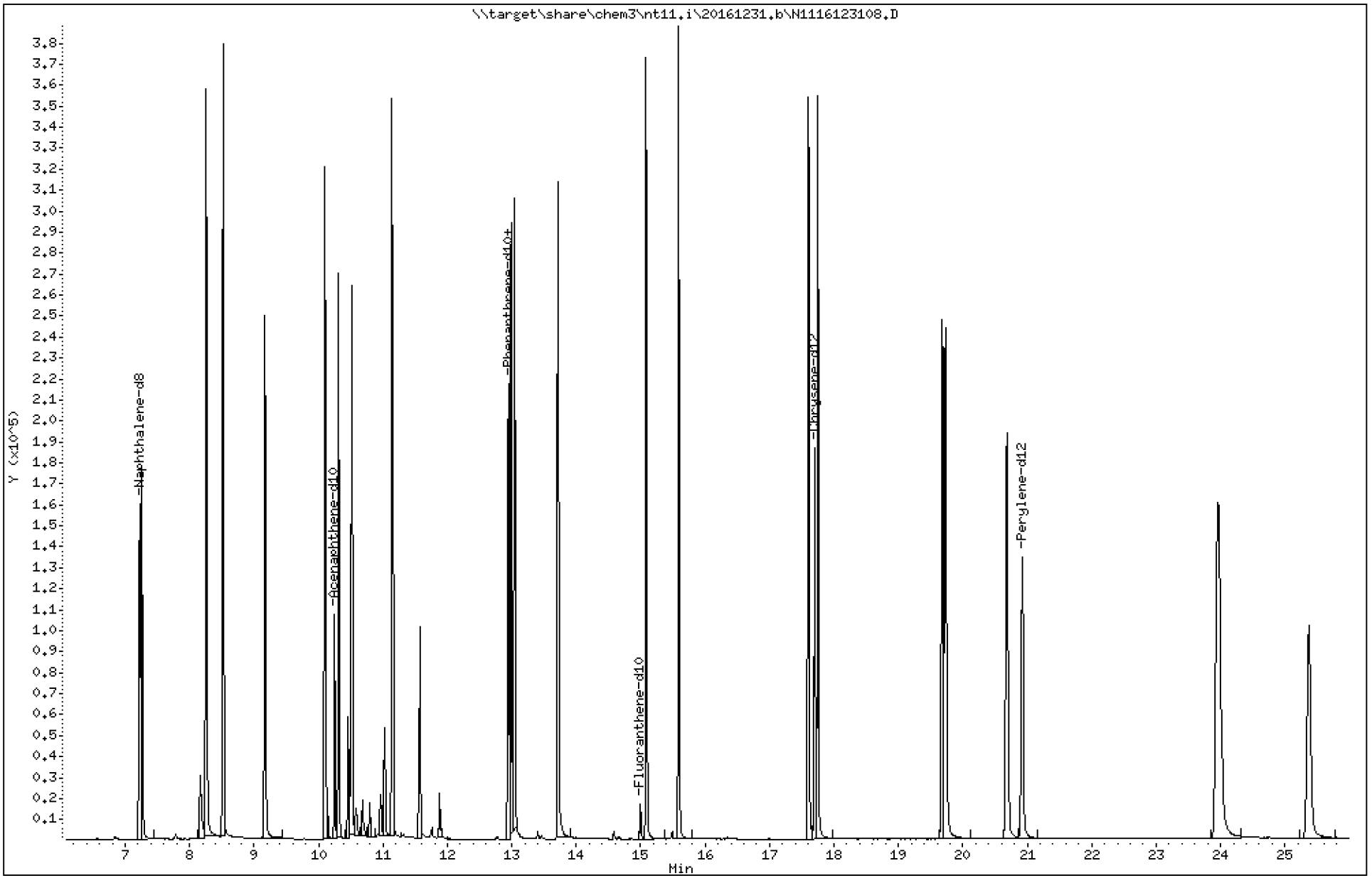
Instrument: nt11.i

Sample Info: SEL0401-SCV1

Operator: VTS

Column phase: Rxi-17Sil MS

Column diameter: 0.25



Data File: \\target\share\chem3\nt11.i\20161231.b\N1116123108.D

Date : 31-DEC-2016 11:35

Client ID:

Instrument: nt11.i

Sample Info: SEL0401-SCV1

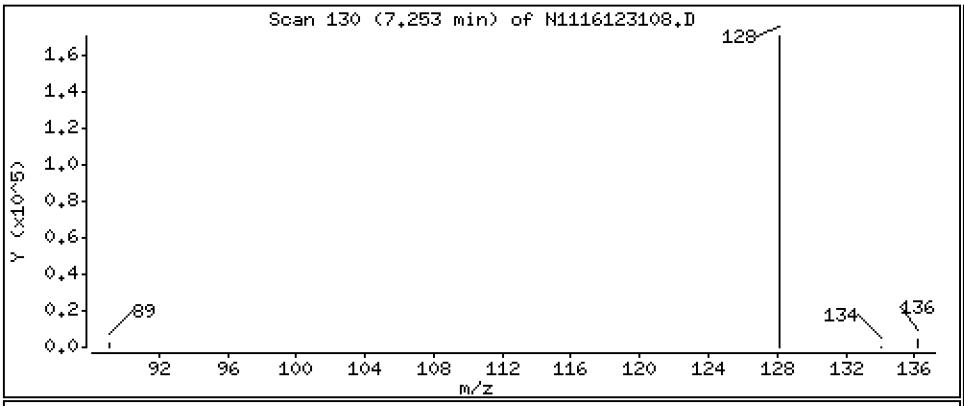
Operator: VTS

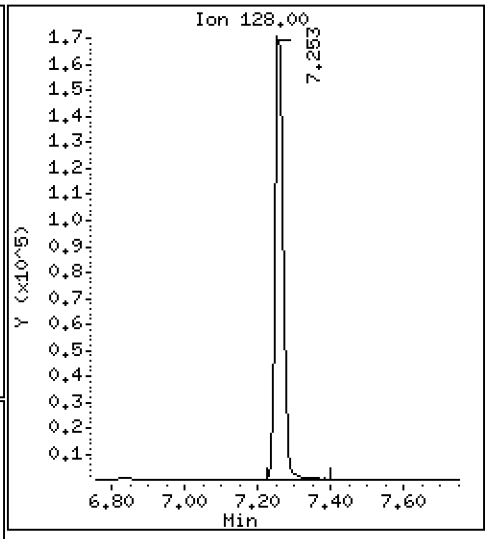
Column phase: Rxi-17Sil MS

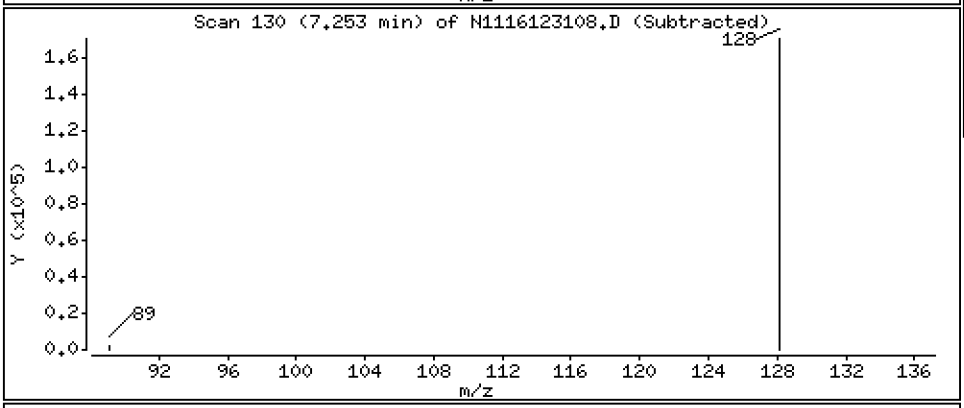
Column diameter: 0.25

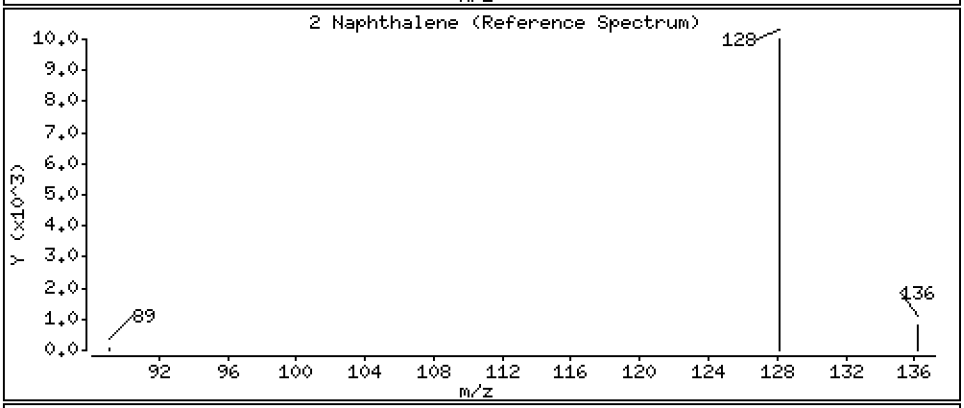
2 Naphthalene

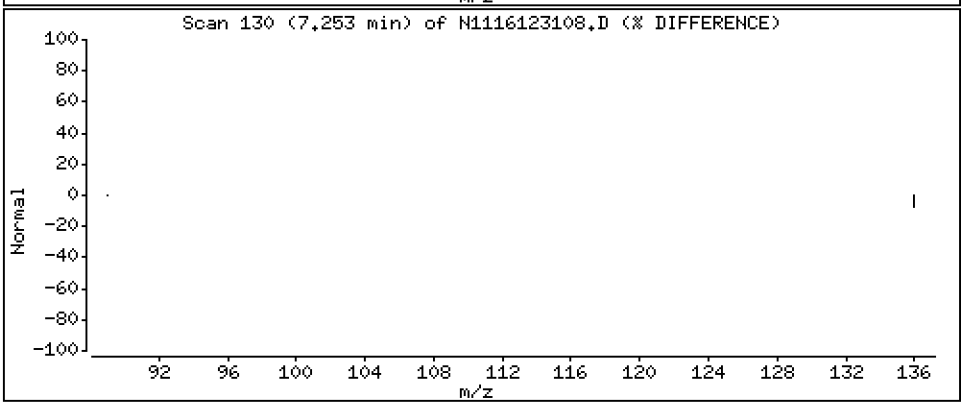
Concentration: 251 ng/mL











Data File: \\target\share\chem3\nt11.i\20161231.b\N1116123108.D

Date : 31-DEC-2016 11:35

Client ID:

Instrument: nt11.i

Sample Info: SEL0401-SCV1

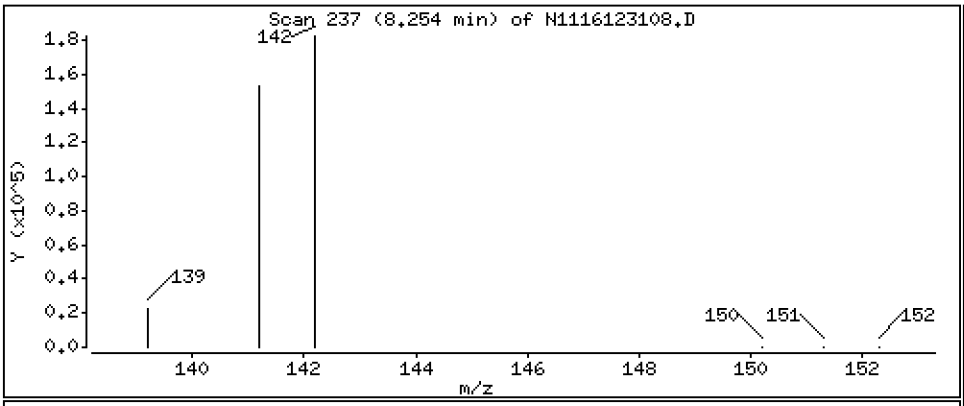
Operator: VTS

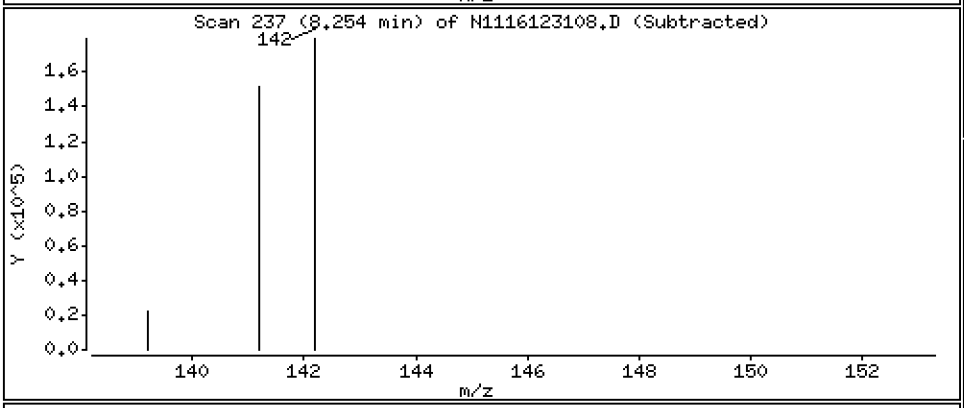
Column phase: Rxi-17Sil MS

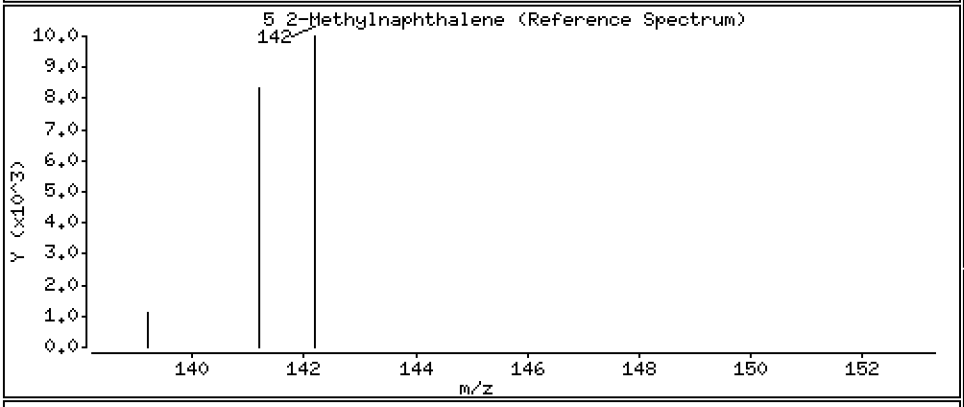
Column diameter: 0.25

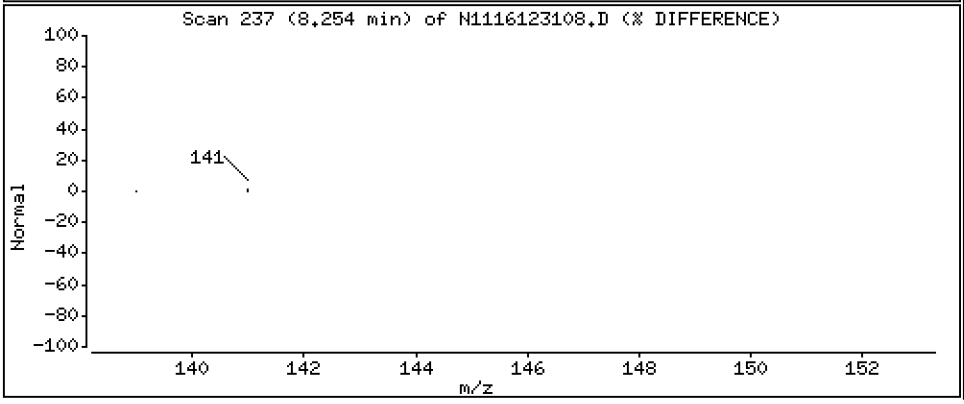
5 2-Methylnaphthalene

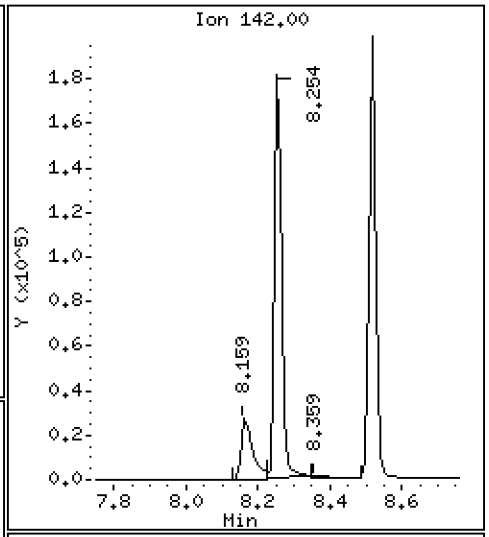
Concentration: 249 ng/mL

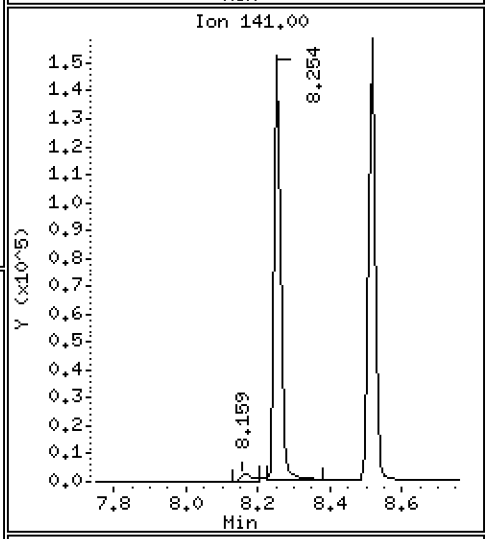


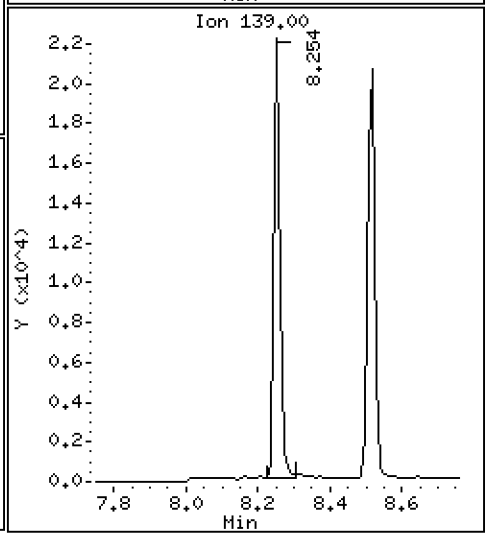












Data File: \\target\share\chem3\nt11.i\20161231.b\N1116123108.D

Date : 31-DEC-2016 11:35

Client ID:

Instrument: nt11.i

Sample Info: SEL0401-SCV1

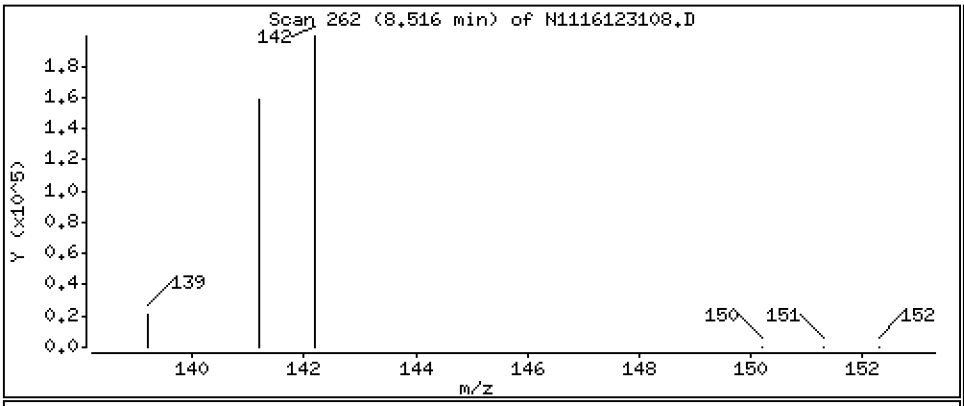
Operator: VTS

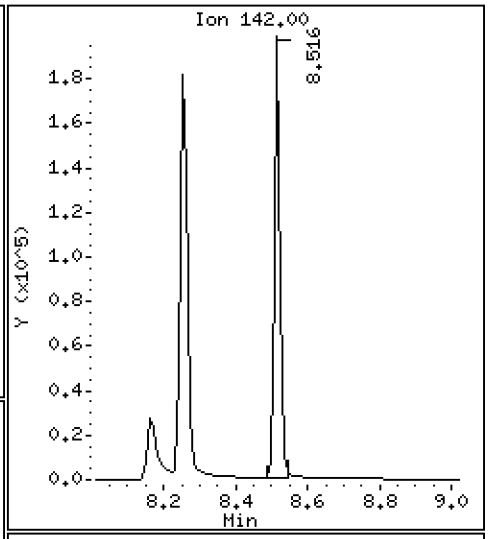
Column phase: Rxi-17Sil MS

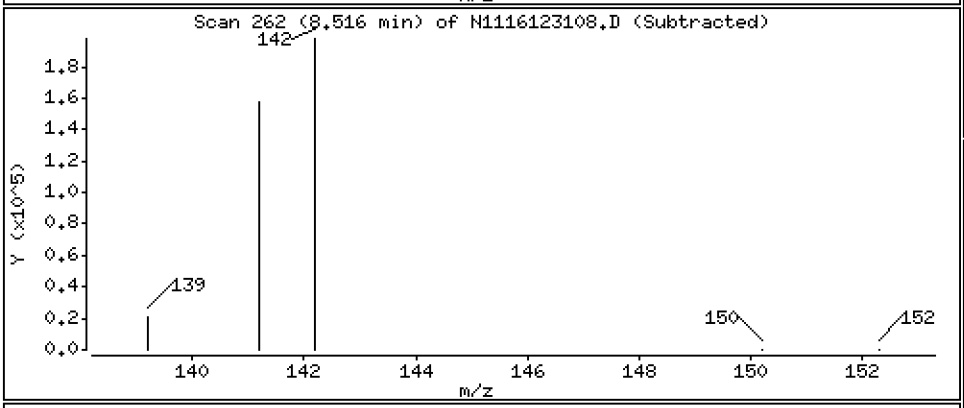
Column diameter: 0.25

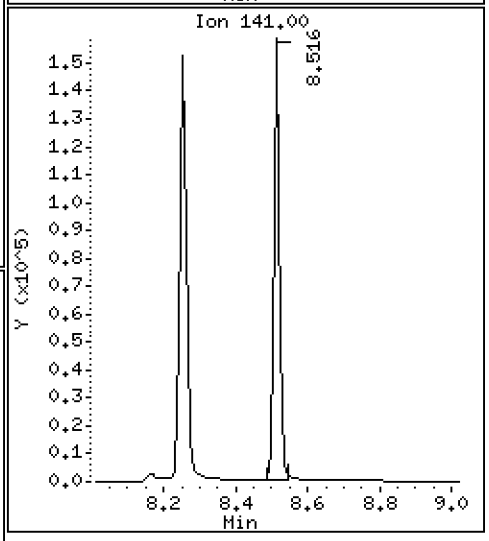
6 1-Methylnaphthalene

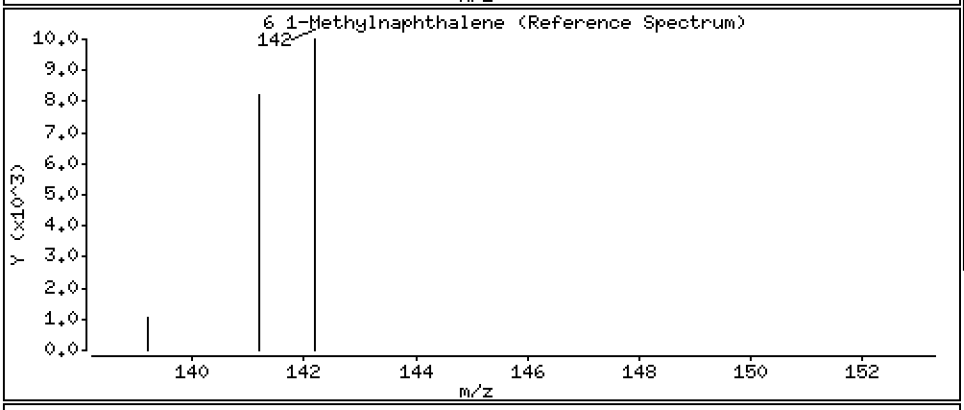
Concentration: 237 ng/mL

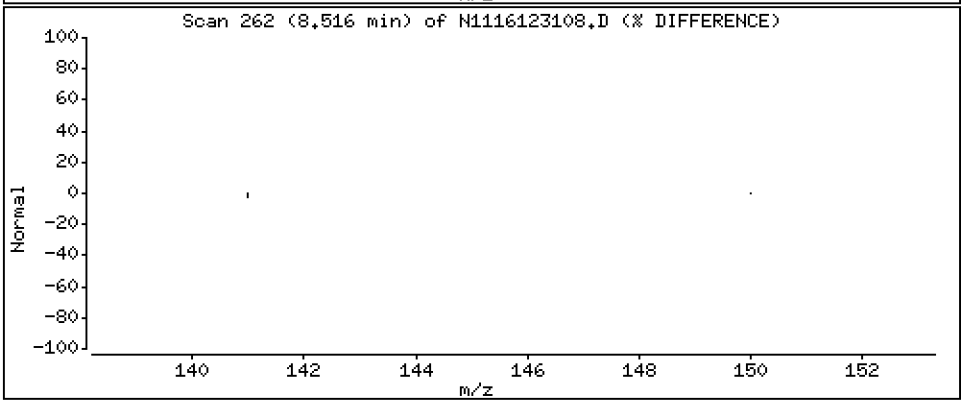












Data File: \\target\share\chem3\nt11.i\20161231.b\N1116123108.D

Date : 31-DEC-2016 11:35

Client ID:

Instrument: nt11.i

Sample Info: SEL0401-SCV1

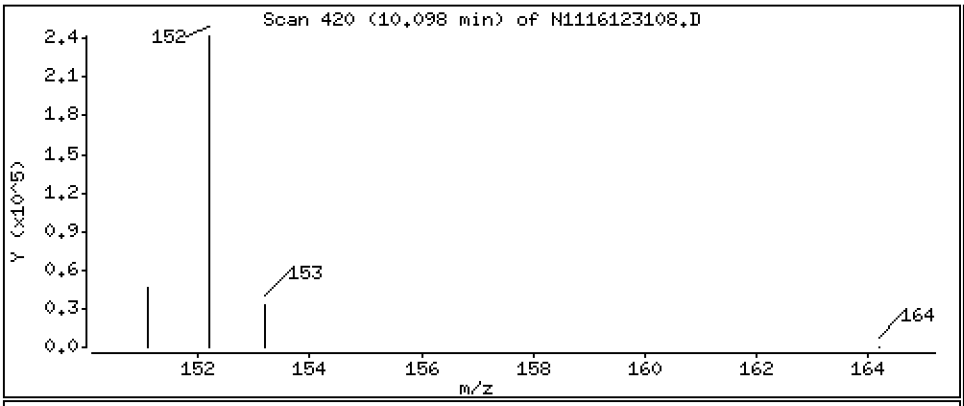
Operator: VTS

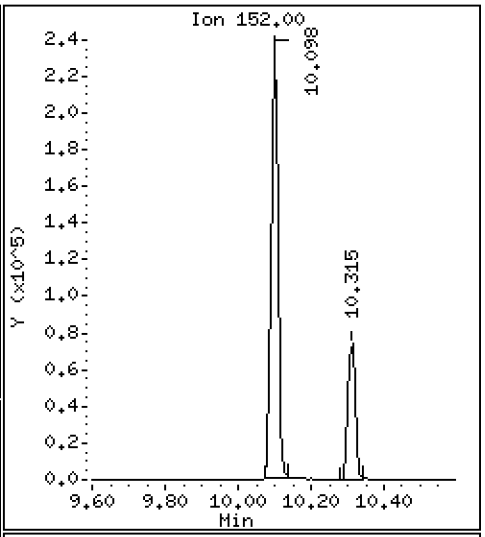
Column phase: Rxi-17Sil MS

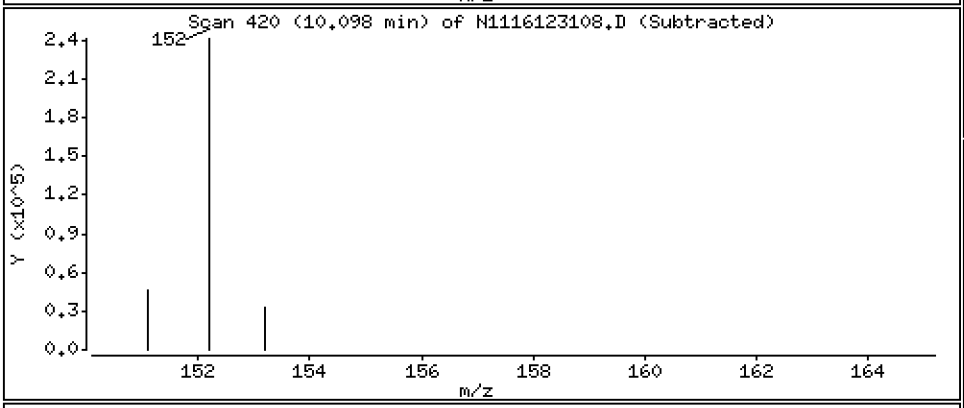
Column diameter: 0.25

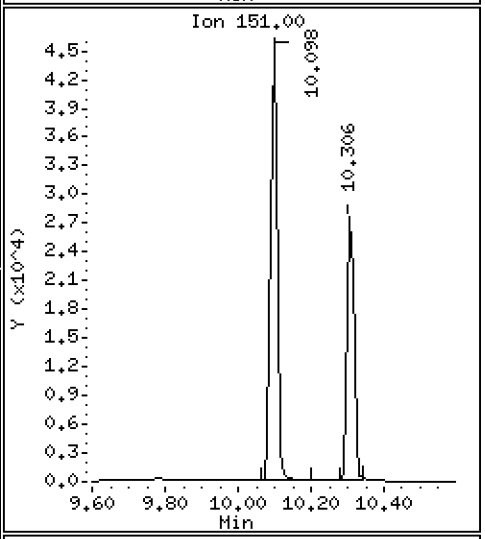
10 Acenaphthylene

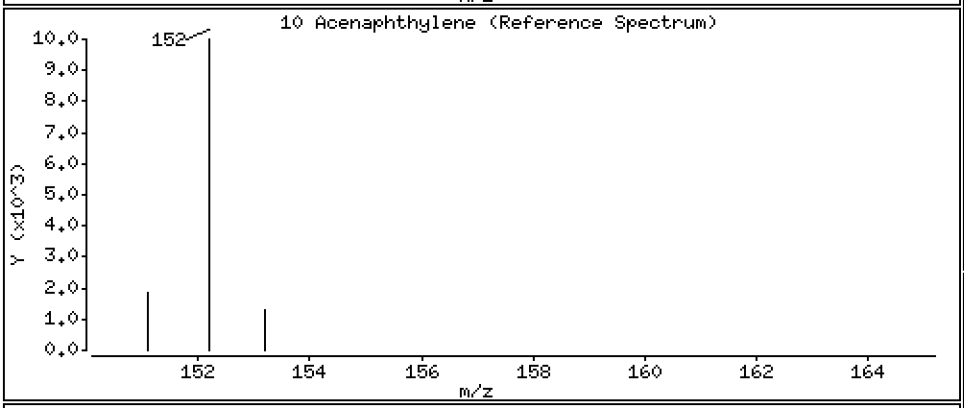
Concentration: 255 ng/mL

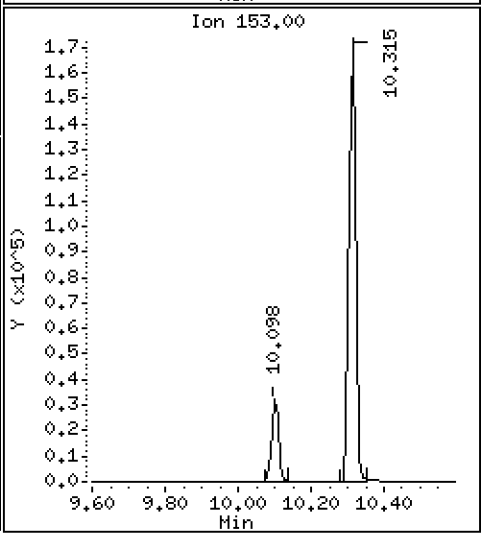


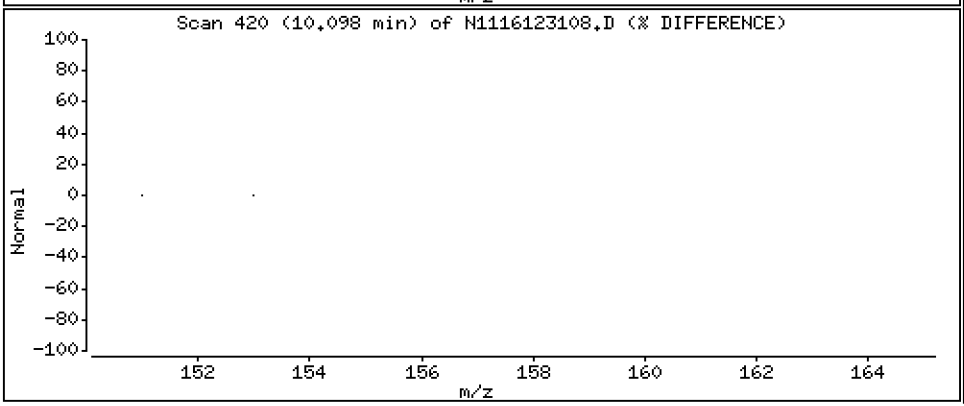












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Date : 31-DEC-2016 11:35

Client ID:

Instrument: nt11.i

Sample Info: SEL0401-SCV1

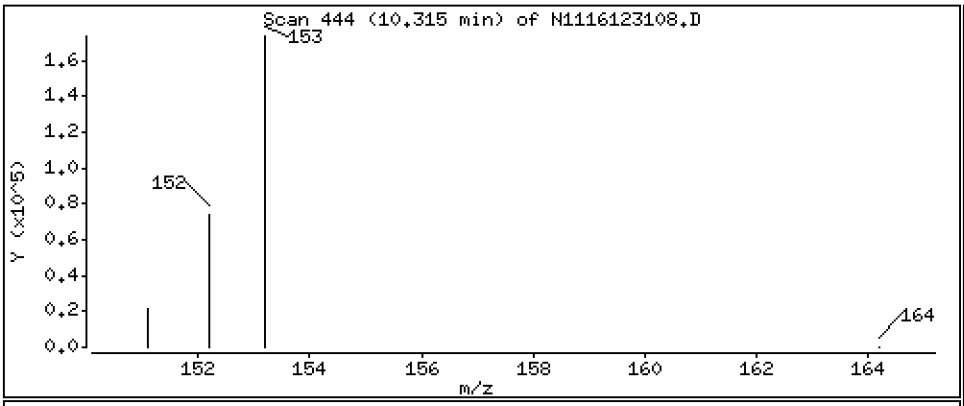
Operator: VTS

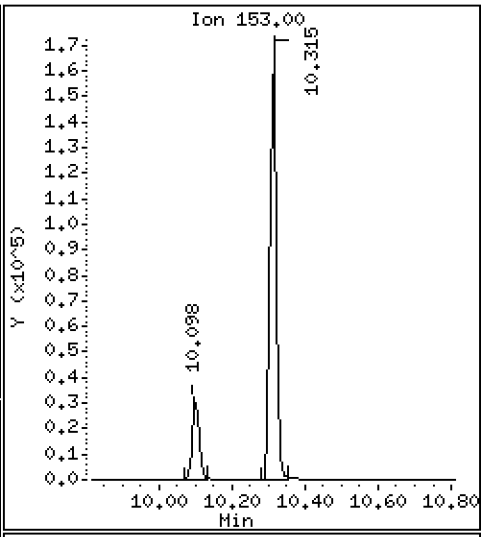
Column phase: Rxi-17Sil MS

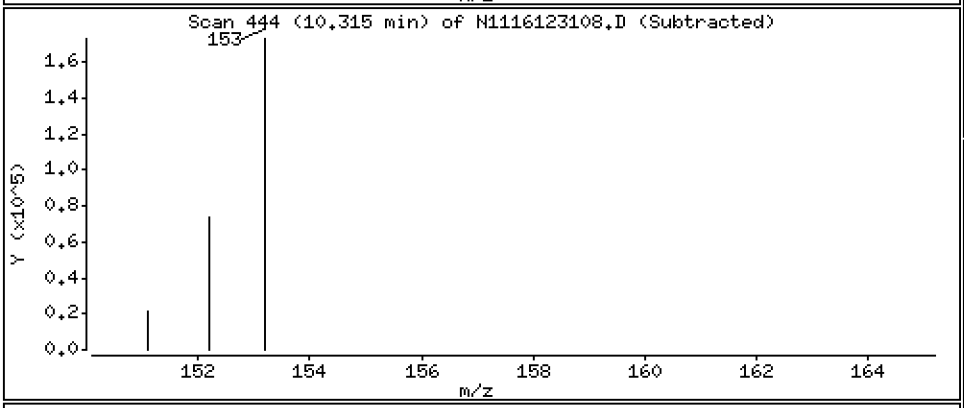
Column diameter: 0.25

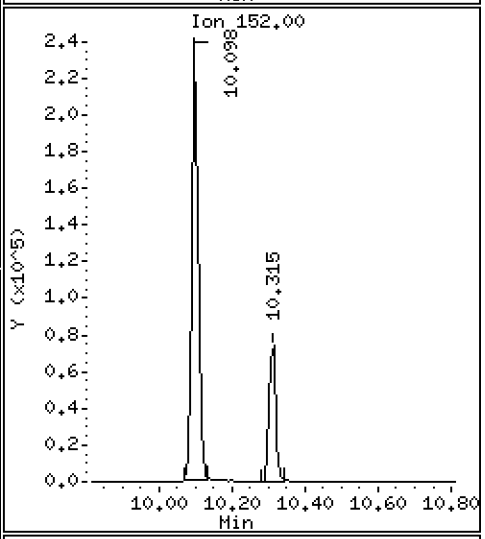
12 Acenaphthene

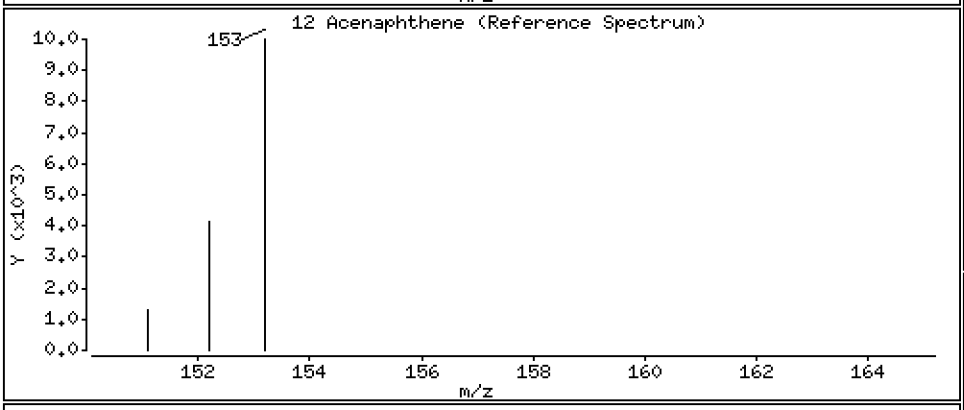
Concentration: 276 ng/mL

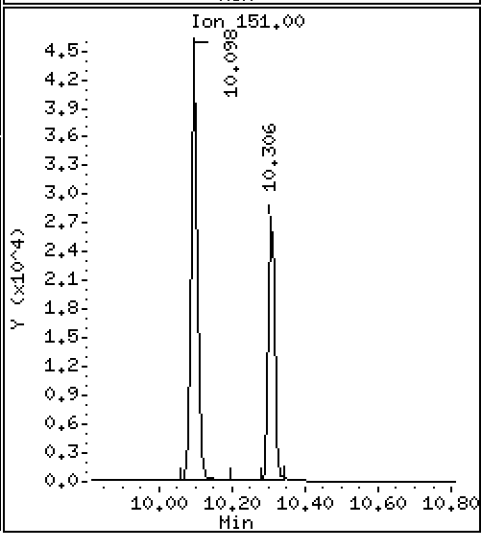


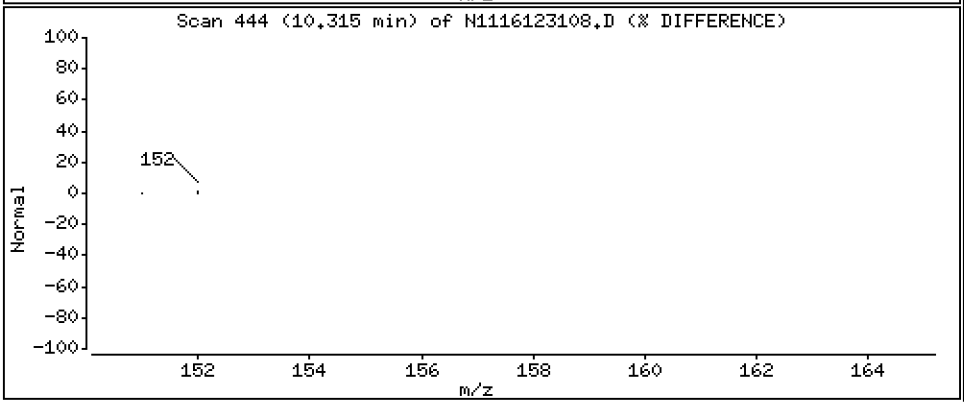












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Date : 31-DEC-2016 11:35

Client ID:

Instrument: nt11.i

Sample Info: SEL0401-SCV1

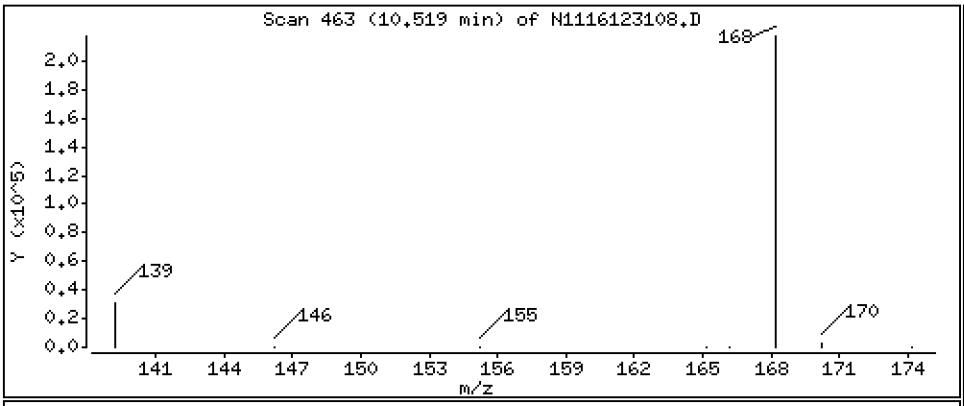
Operator: VTS

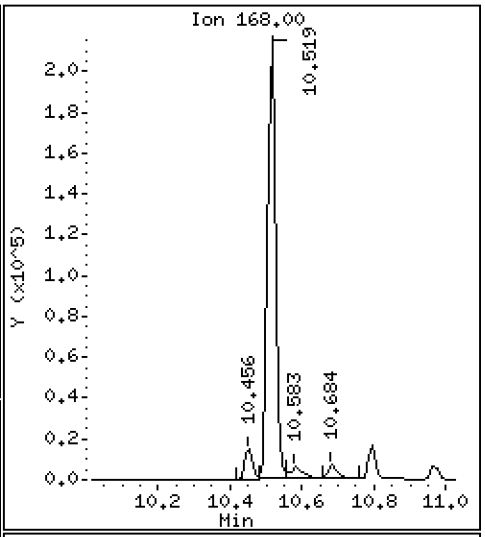
Column phase: Rxi-17Sil MS

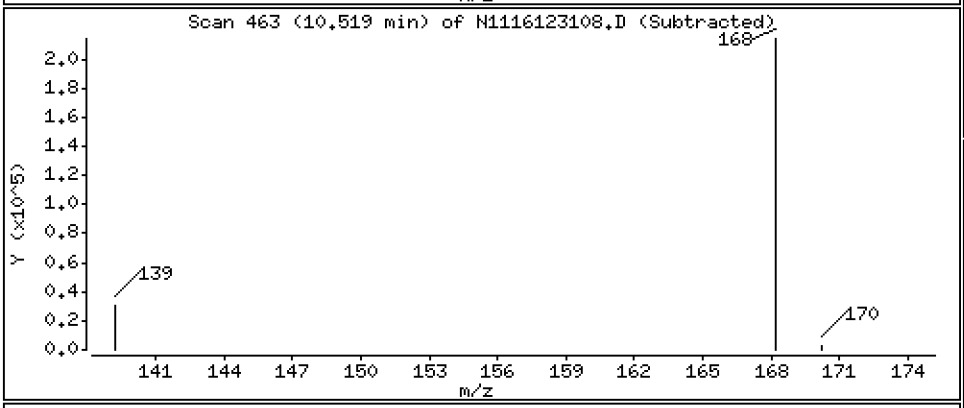
Column diameter: 0.25

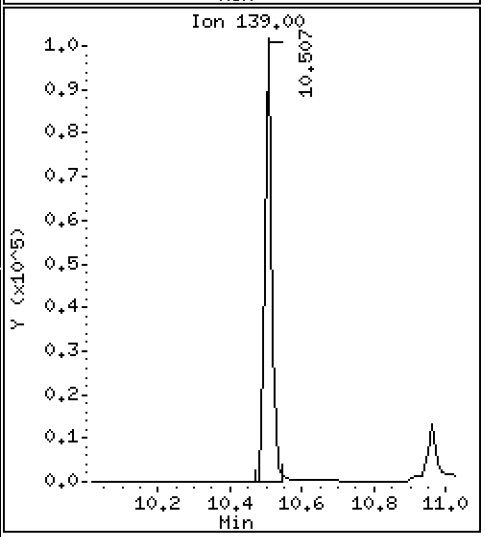
13 Dibenzofuran

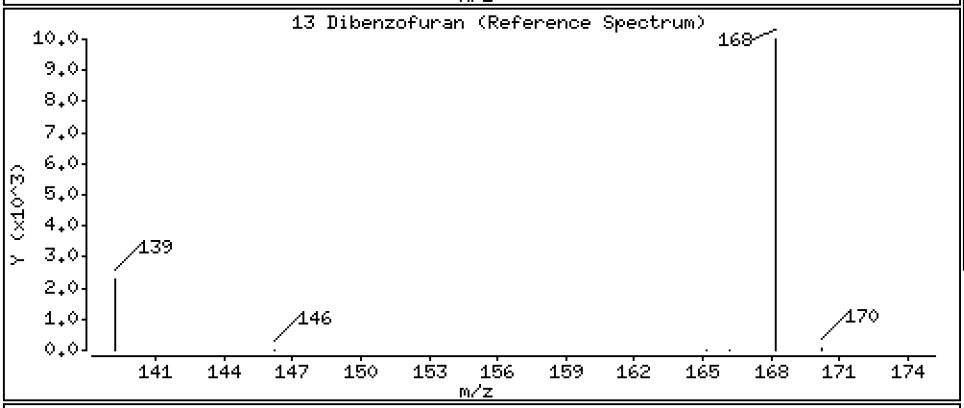
Concentration: 285 ng/mL

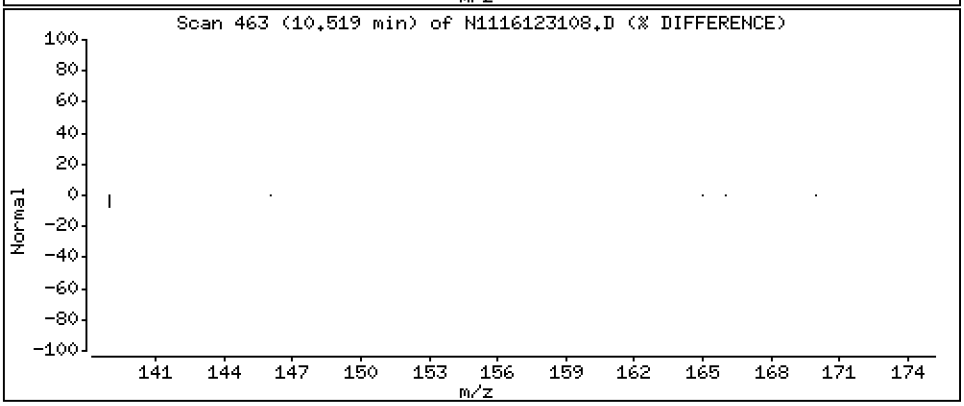












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Date : 31-DEC-2016 11:35

Client ID:

Instrument: nt11.i

Sample Info: SEL0401-SCV1

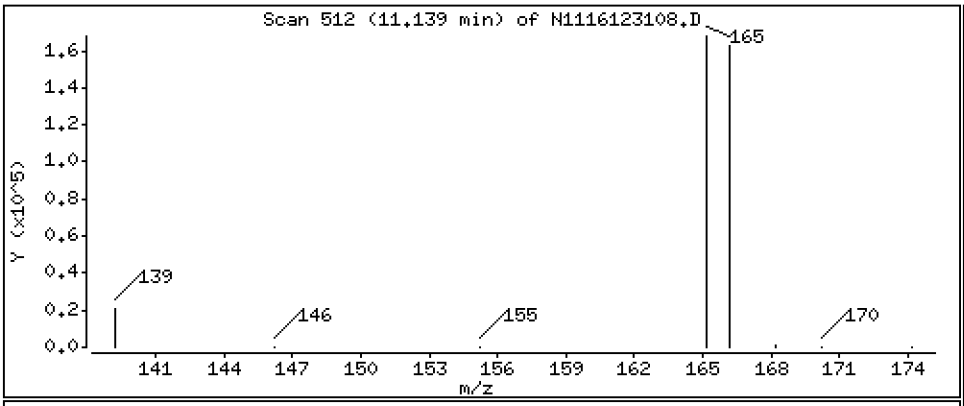
Operator: VTS

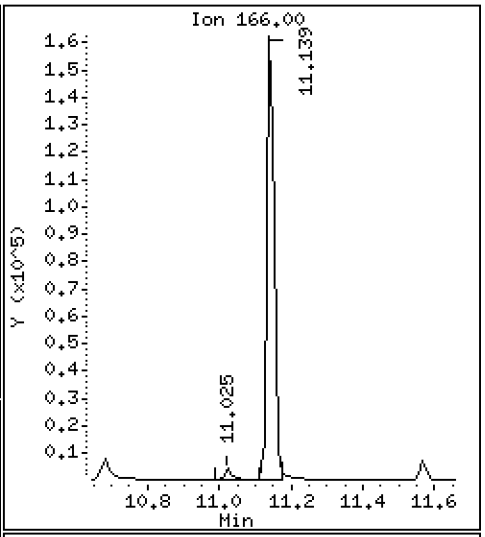
Column phase: Rxi-17Sil MS

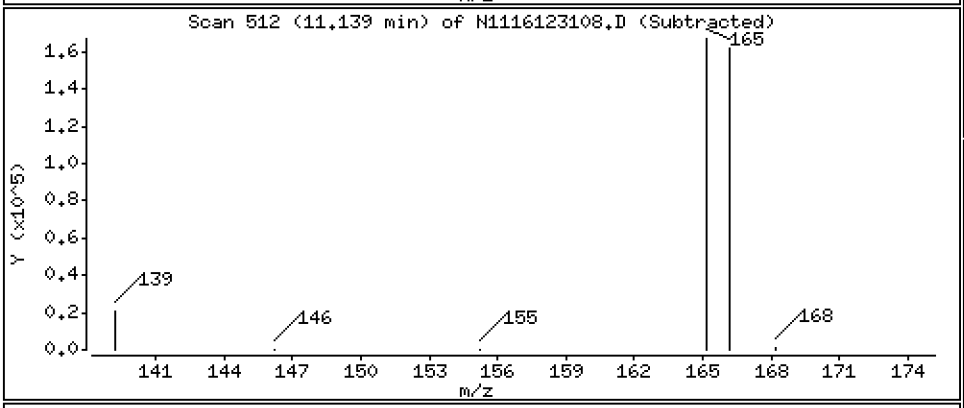
Column diameter: 0.25

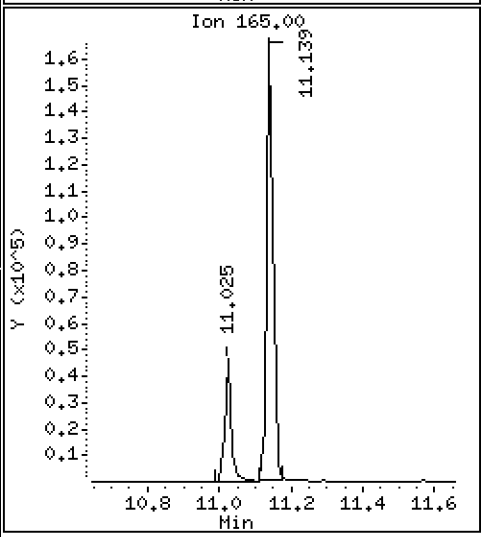
16 Fluorene

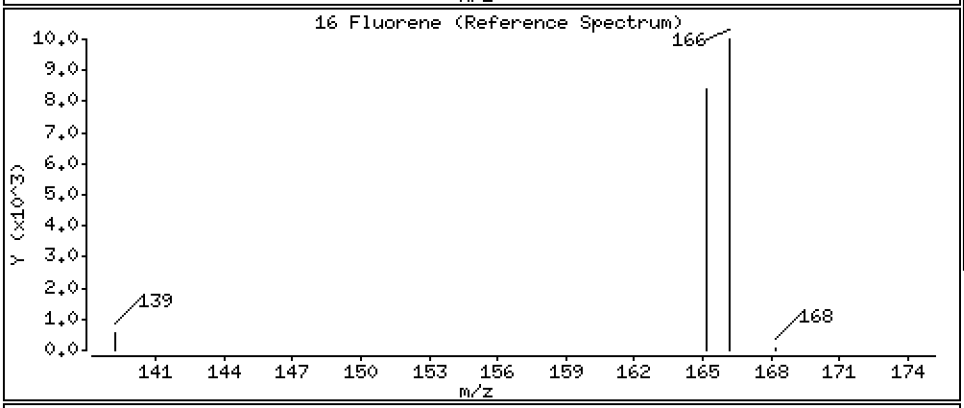
Concentration: 268 ng/mL

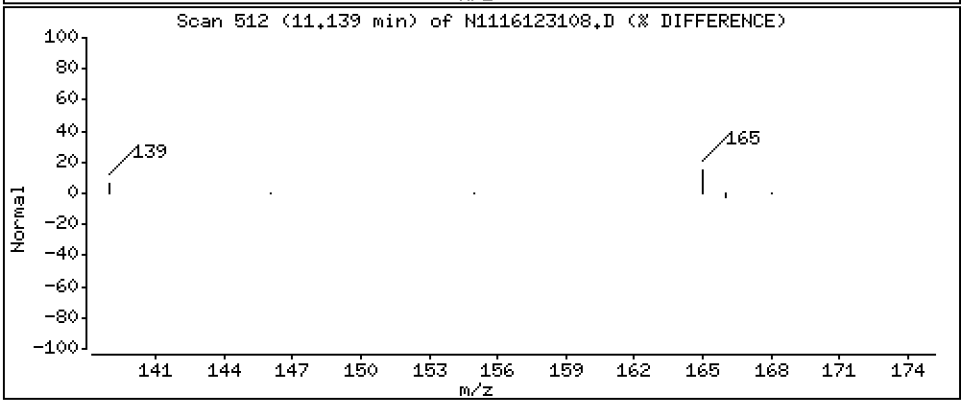












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Date : 31-DEC-2016 11:35

Client ID:

Instrument: nt11.i

Sample Info: SEL0401-SCV1

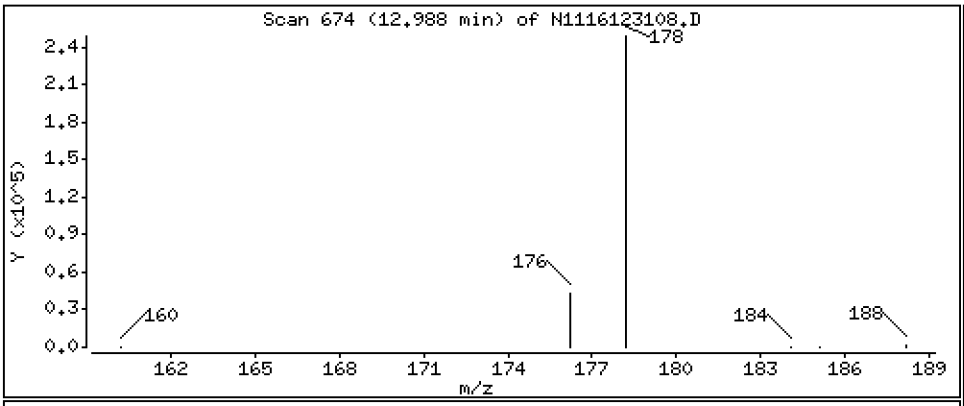
Operator: VTS

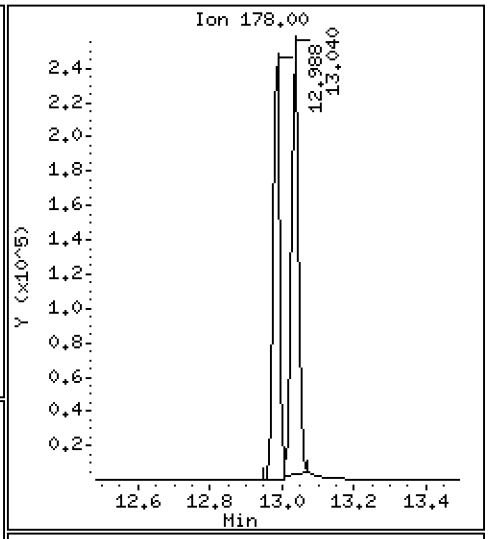
Column phase: Rxi-17Sil MS

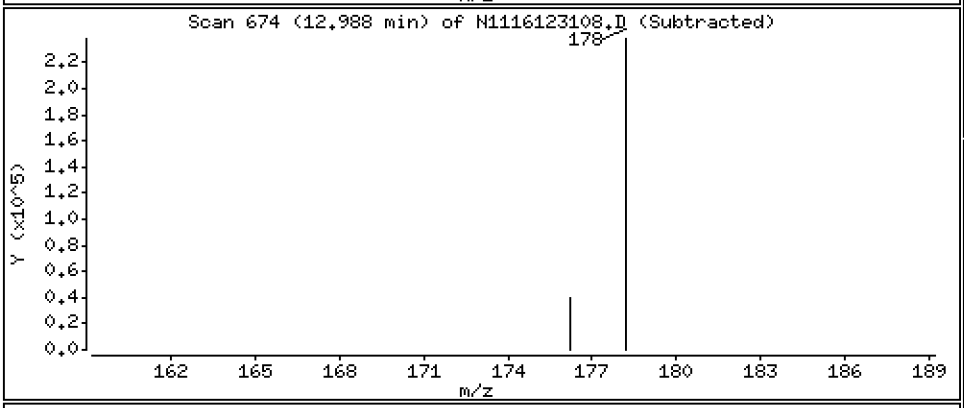
Column diameter: 0.25

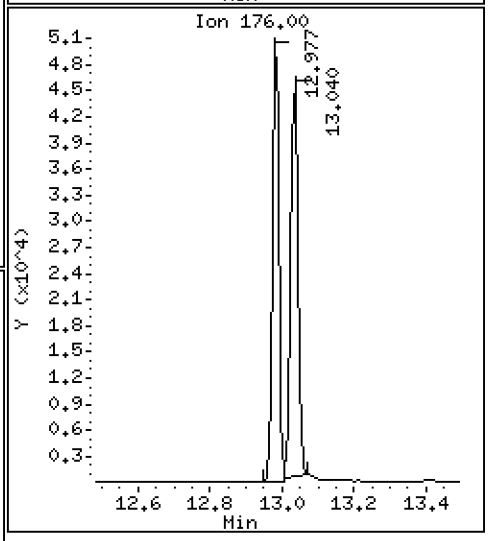
19 Phenanthrene

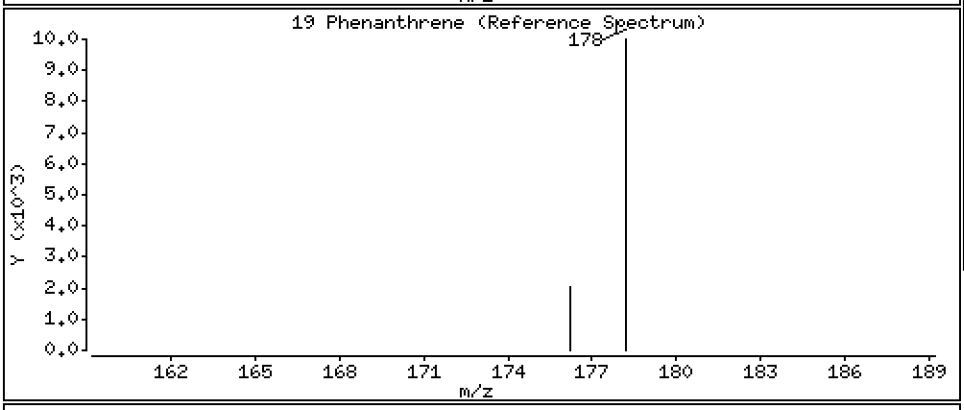
Concentration: 251 ng/mL

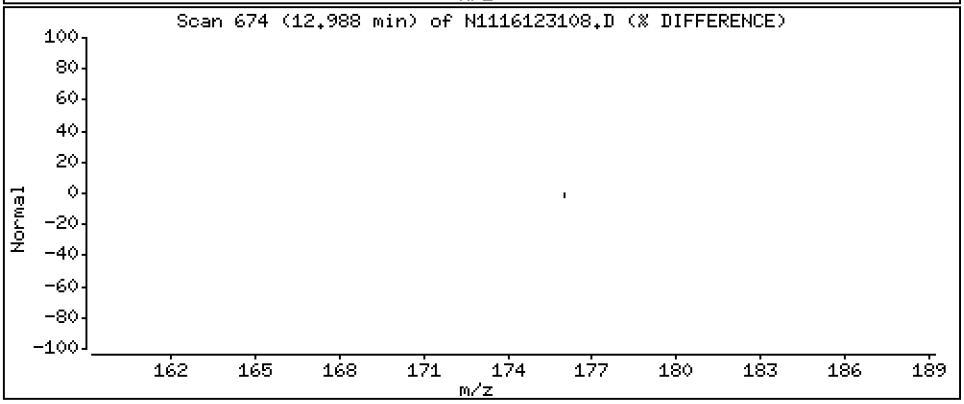












Data File: \\target\share\chem3\nt11.i\20161231.b\N1116123108.D

Date : 31-DEC-2016 11:35

Client ID:

Instrument: nt11.i

Sample Info: SEL0401-SCV1

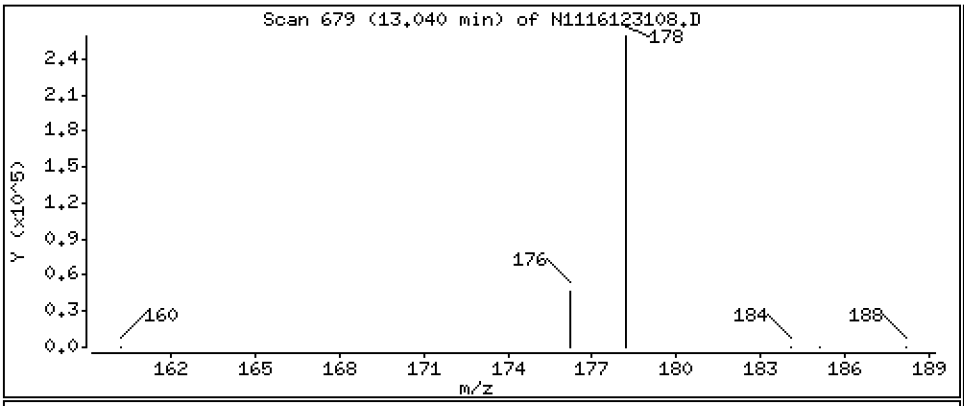
Operator: VTS

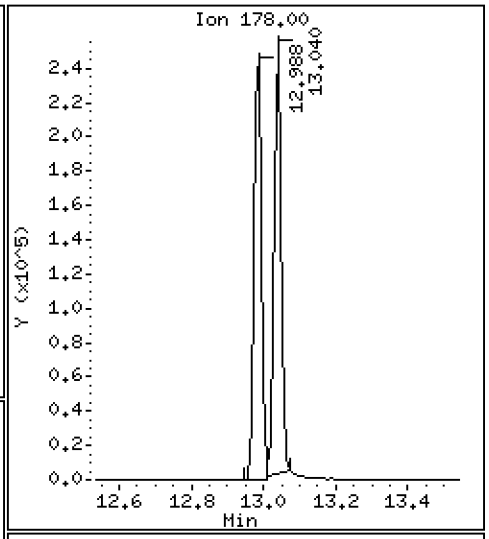
Column phase: Rxi-17Sil MS

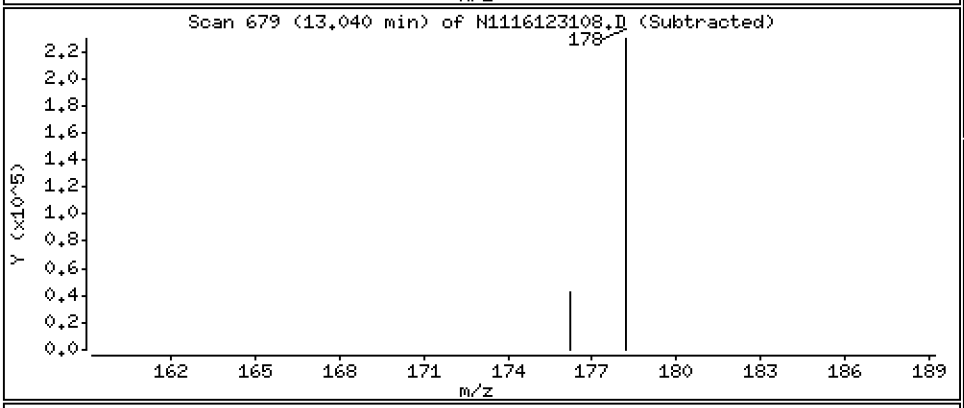
Column diameter: 0.25

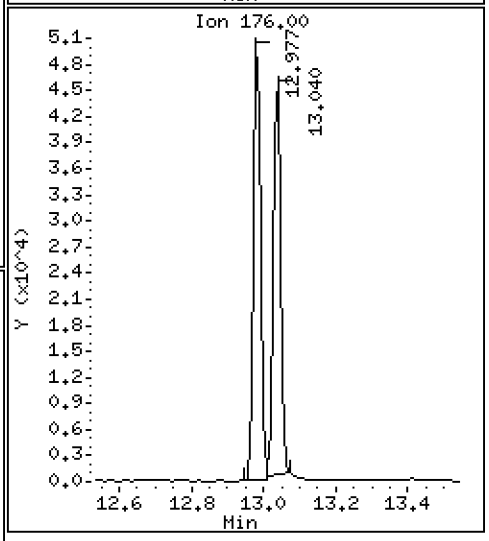
21 Anthracene

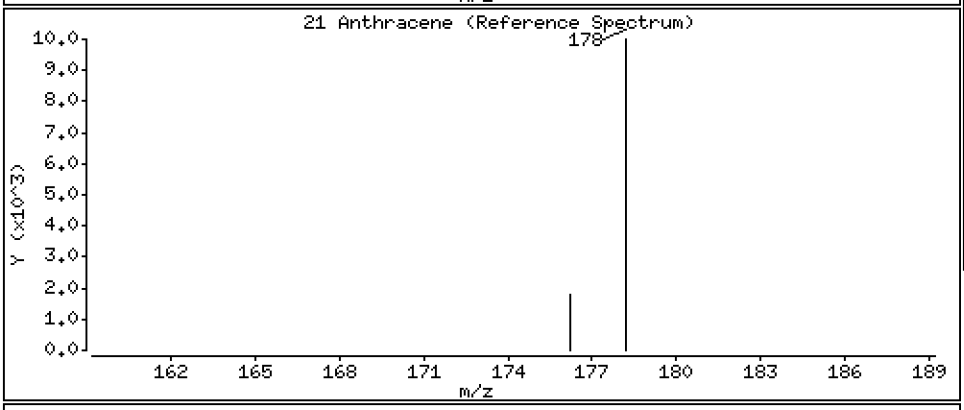
Concentration: 238 ng/mL

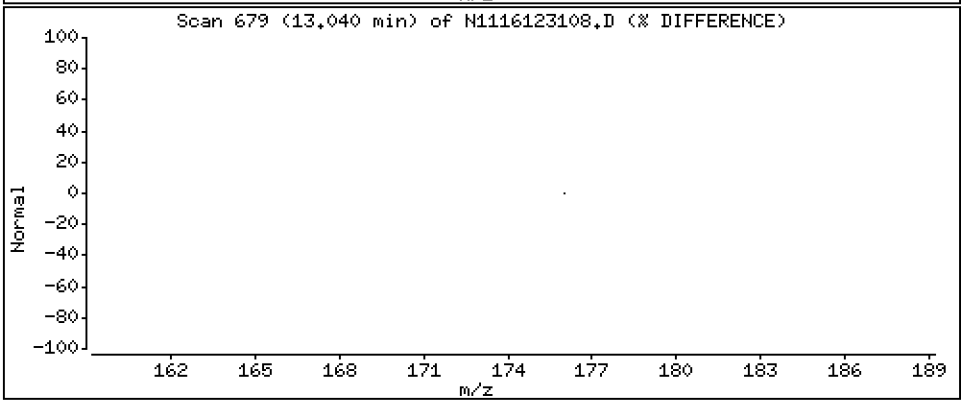












Data File: \\target\share\chem3\nt11.i\20161231.b\N1116123108.D

Date : 31-DEC-2016 11:35

Client ID:

Instrument: nt11.i

Sample Info: SEL0401-SCV1

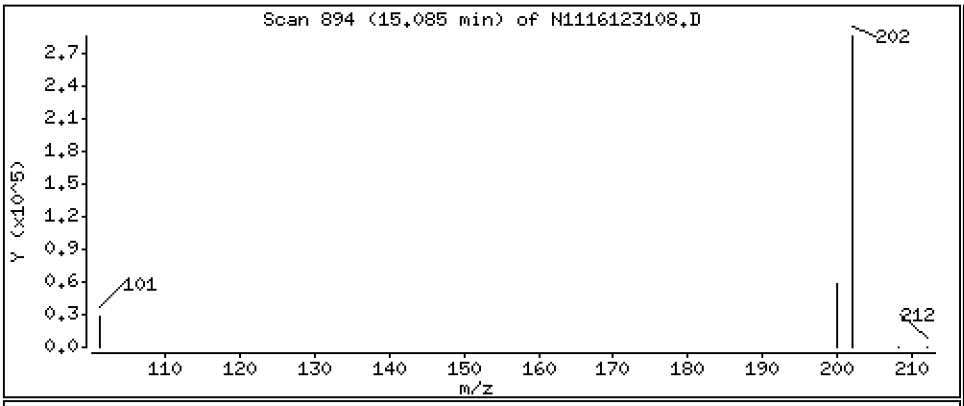
Operator: VTS

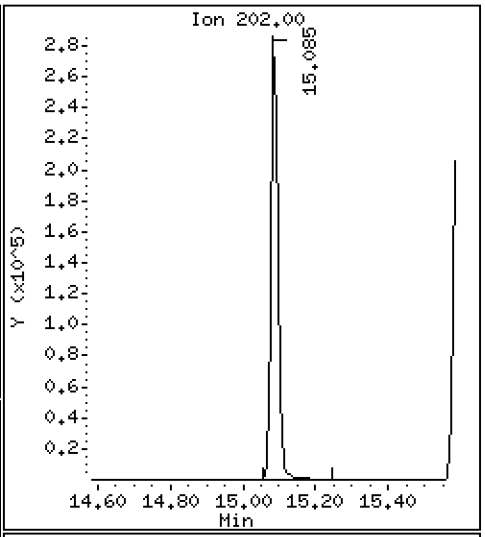
Column phase: Rxi-17Sil MS

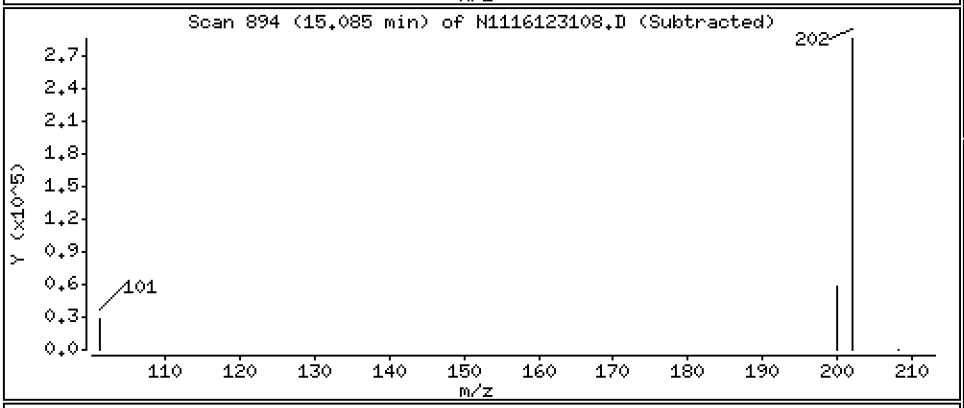
Column diameter: 0.25

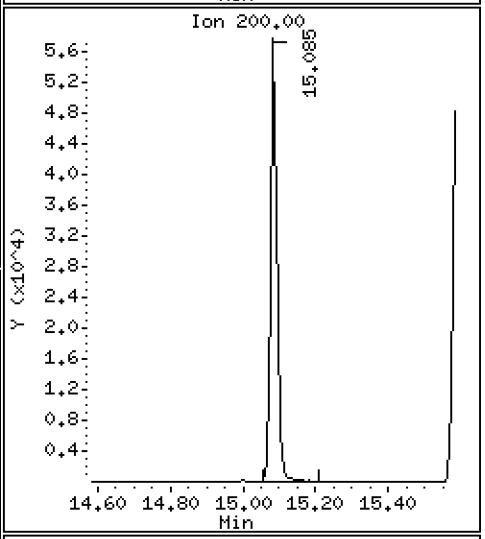
25 Fluoranthene

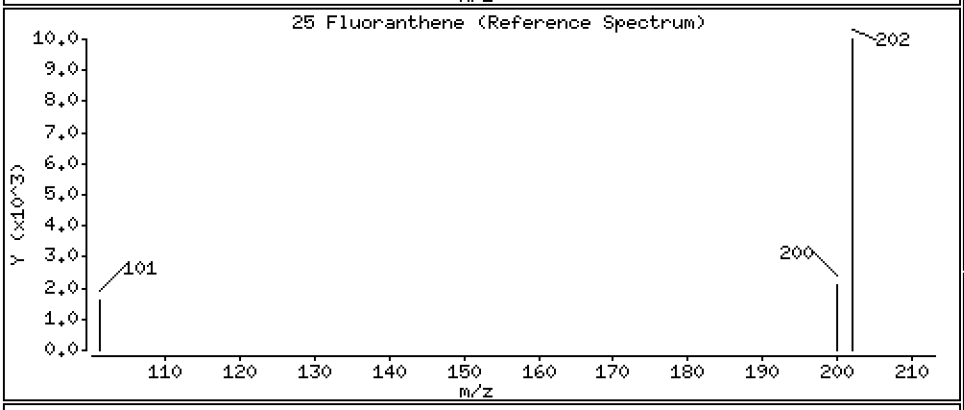
Concentration: 253 ng/mL

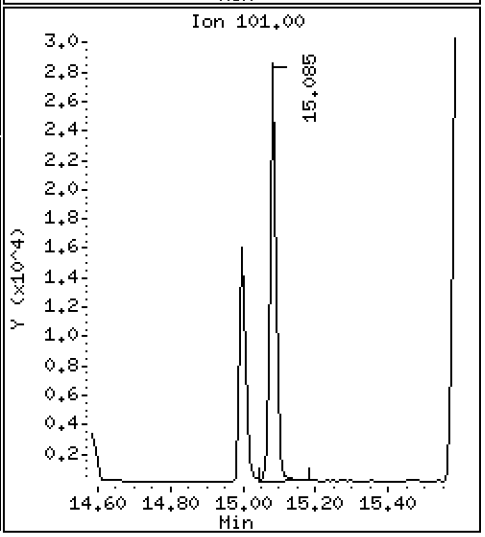


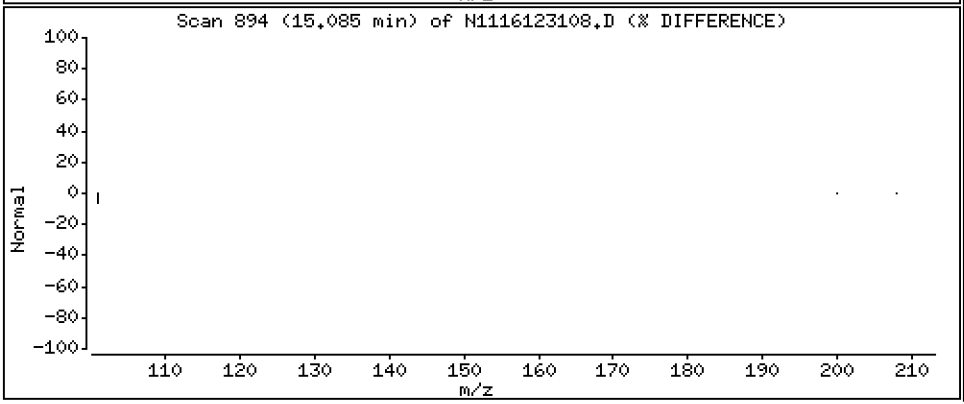












Data File: \\target\share\chem3\nt11.i\20161231.b\N1116123108.D

Date : 31-DEC-2016 11:35

Client ID:

Instrument: nt11.i

Sample Info: SEL0401-SCV1

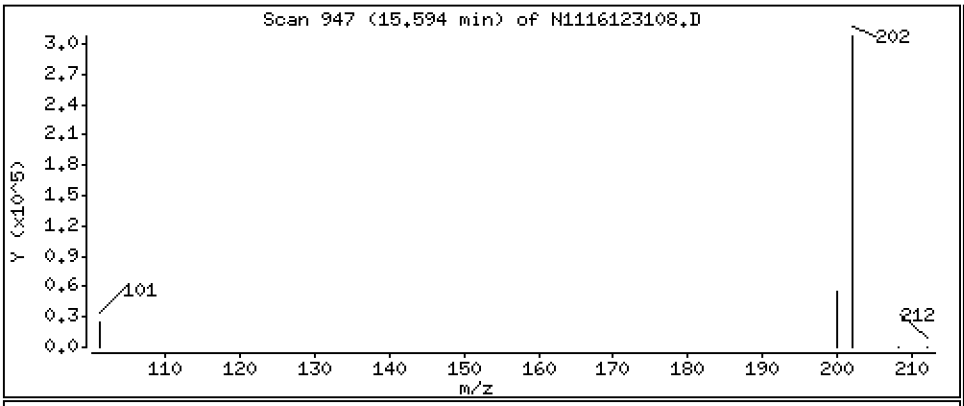
Operator: VTS

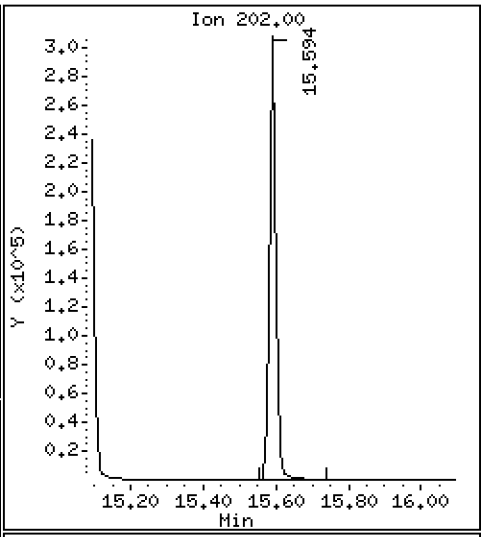
Column phase: Rxi-17Sil MS

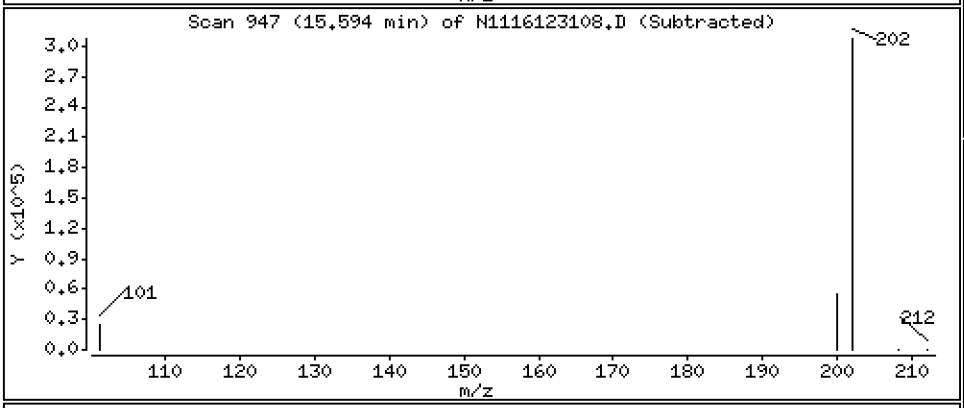
Column diameter: 0.25

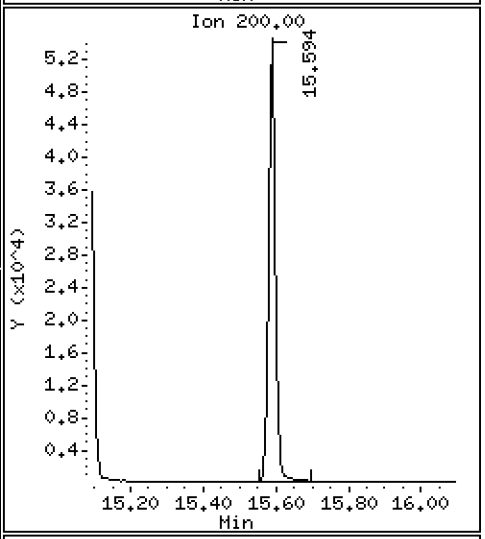
26 Pyrene

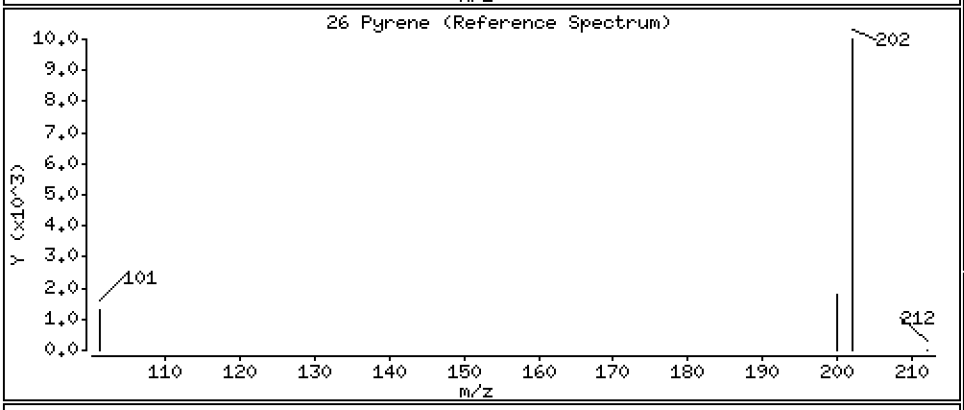
Concentration: 247 ng/mL

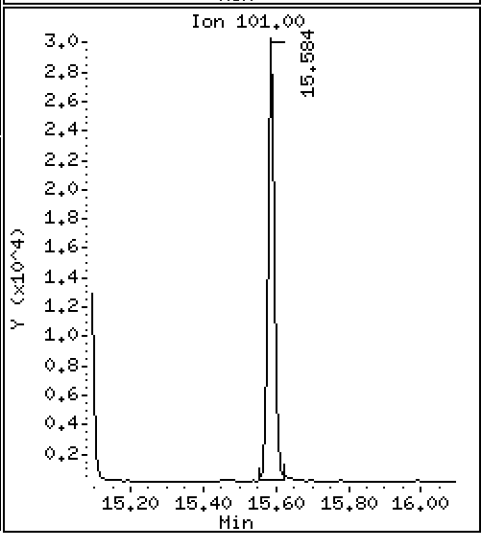


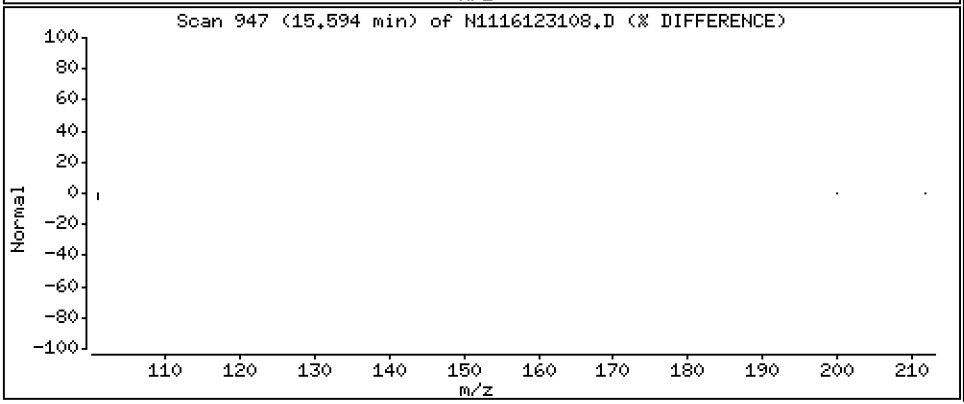












Data File: \\target\share\chem3\nt11.i\20161231.b\N1116123108.D

Date : 31-DEC-2016 11:35

Client ID:

Instrument: nt11.i

Sample Info: SEL0401-SCV1

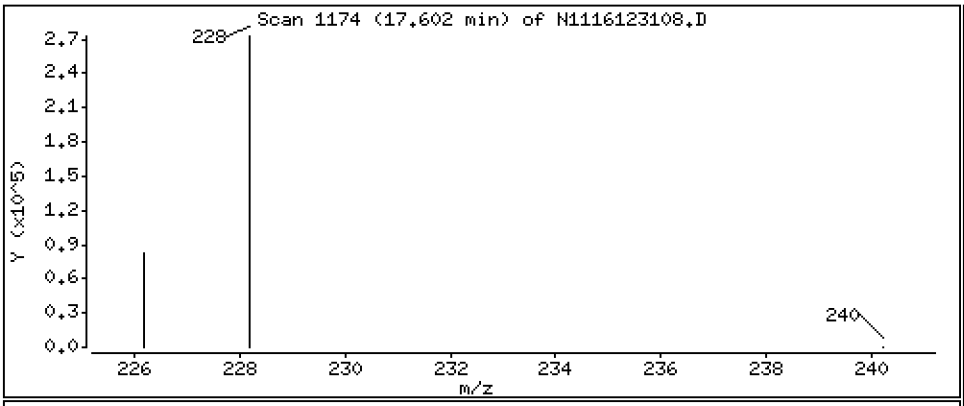
Operator: VTS

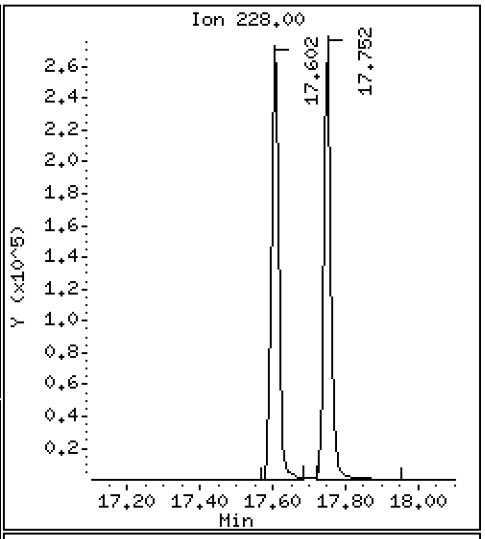
Column phase: Rxi-17Sil MS

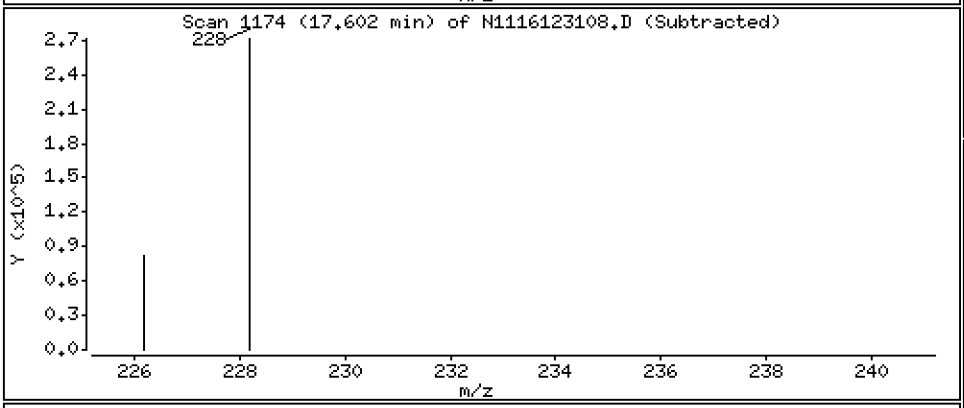
Column diameter: 0.25

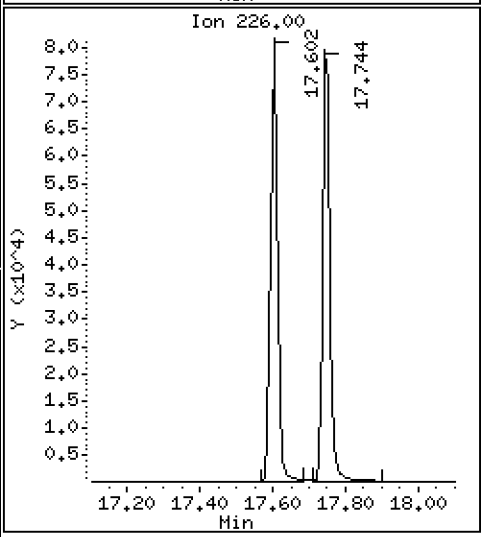
27 Benzo(a)anthracene

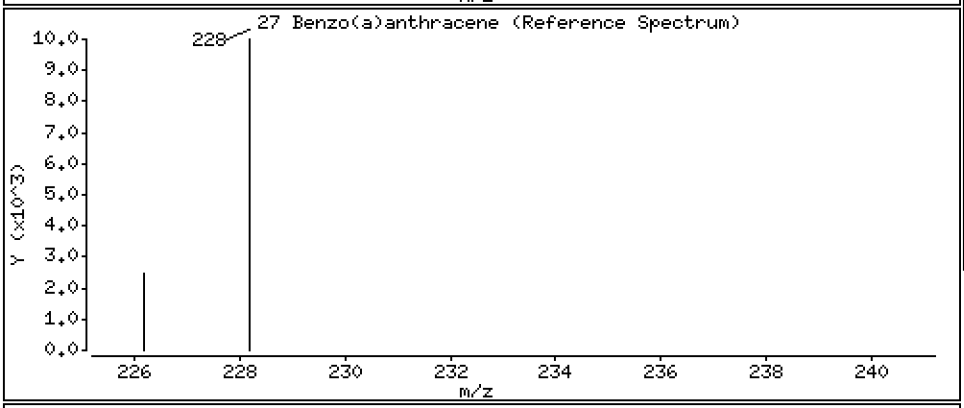
Concentration: 254 ng/mL

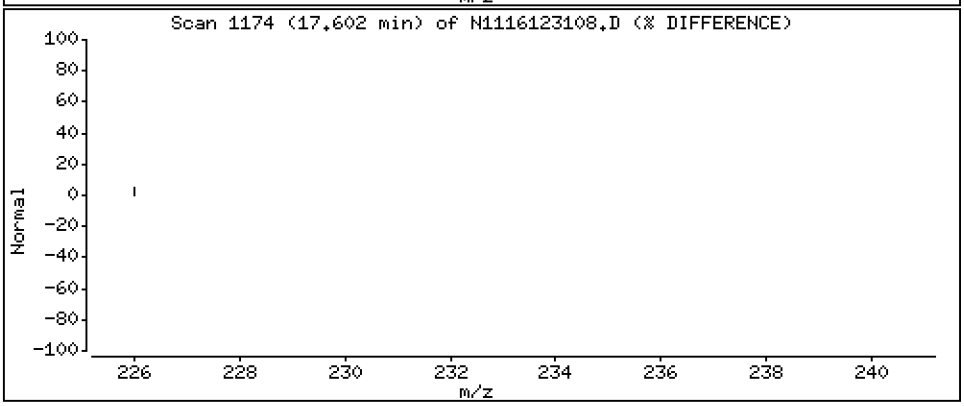












Data File: \\target\share\chem3\nt11.i\20161231.b\N1116123108.D

Date : 31-DEC-2016 11:35

Client ID:

Instrument: nt11.i

Sample Info: SEL0401-SCV1

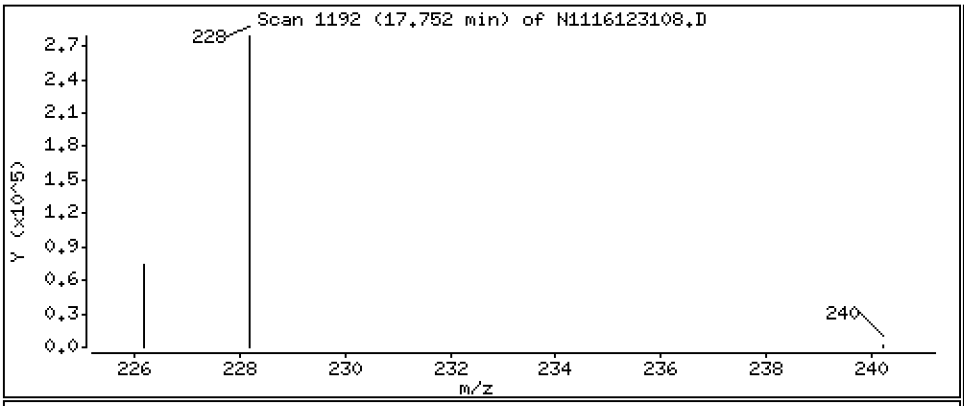
Operator: VTS

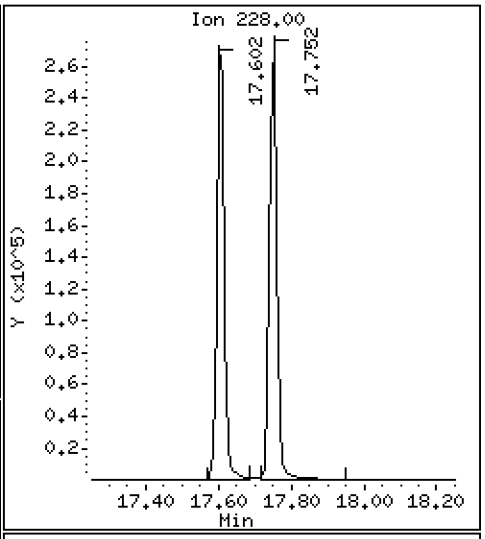
Column phase: Rxi-17Sil MS

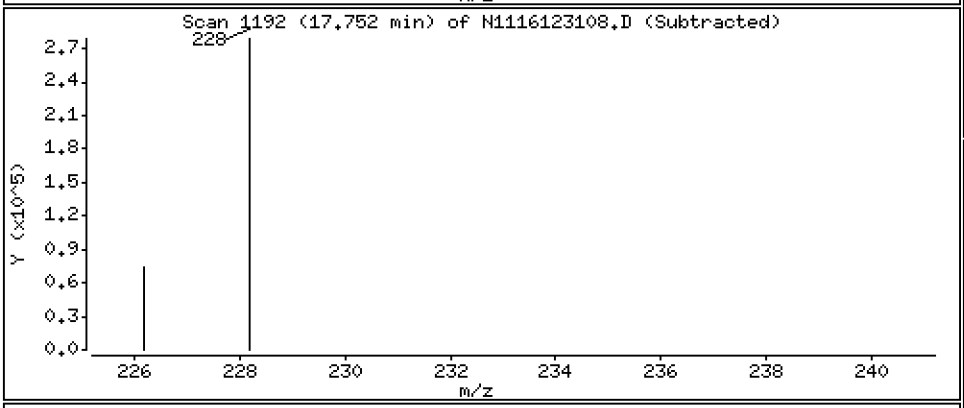
Column diameter: 0.25

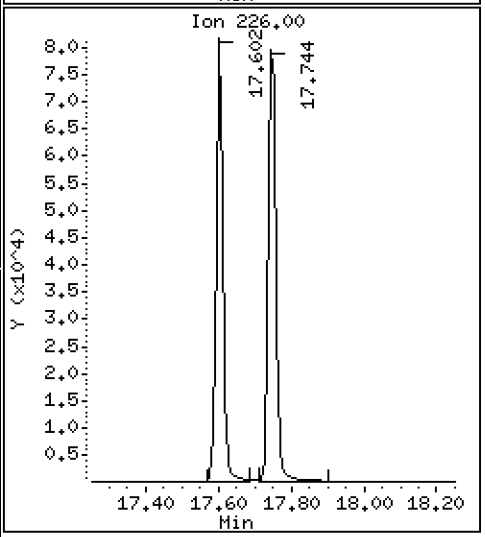
29 Chrysene

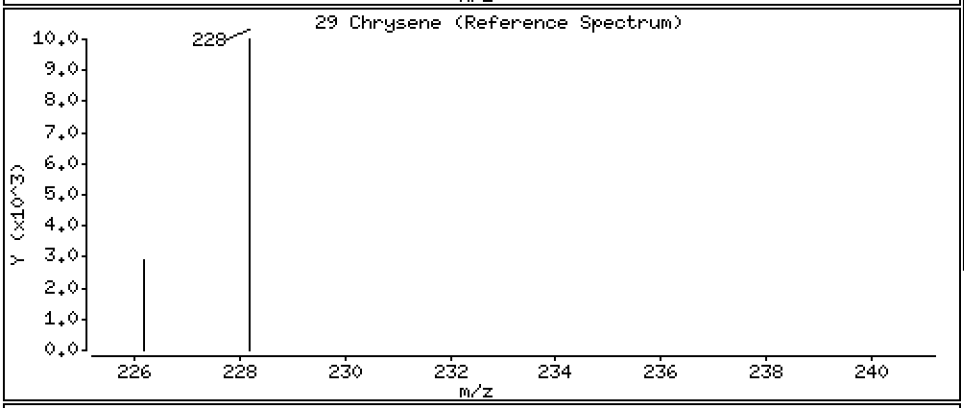
Concentration: 242 ng/mL

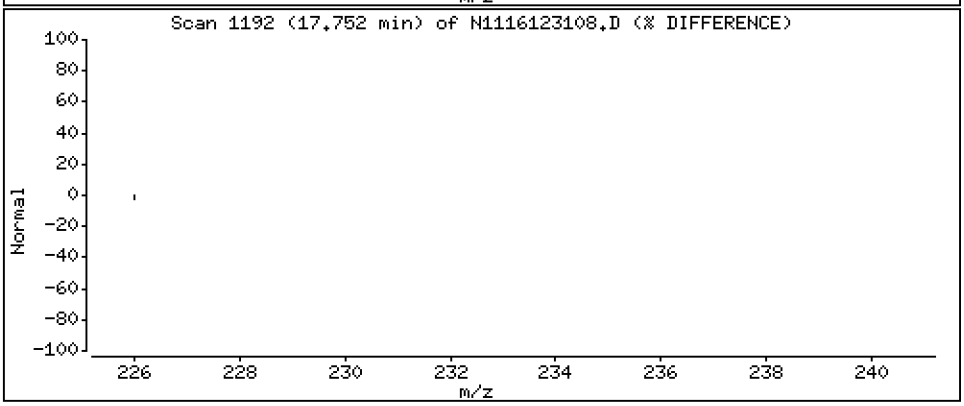












Data File: \\target\share\chem3\nt11.i\20161231.b\N1116123108.D

Date : 31-DEC-2016 11:35

Client ID:

Instrument: nt11.i

Sample Info: SEL0401-SCV1

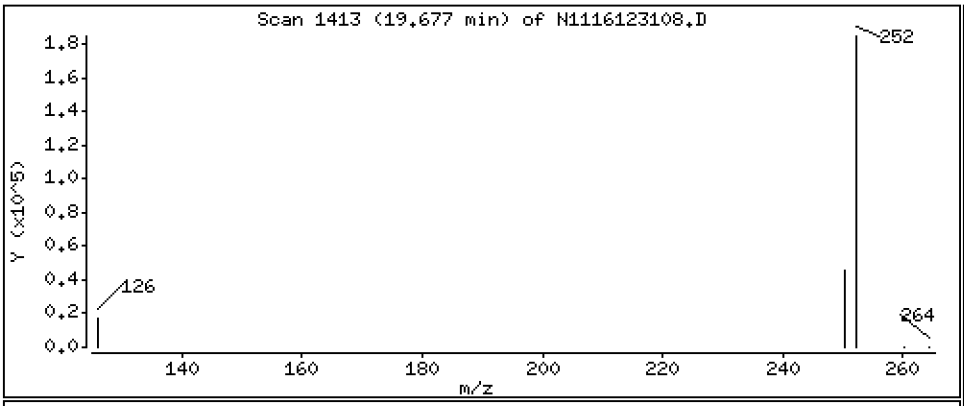
Operator: VTS

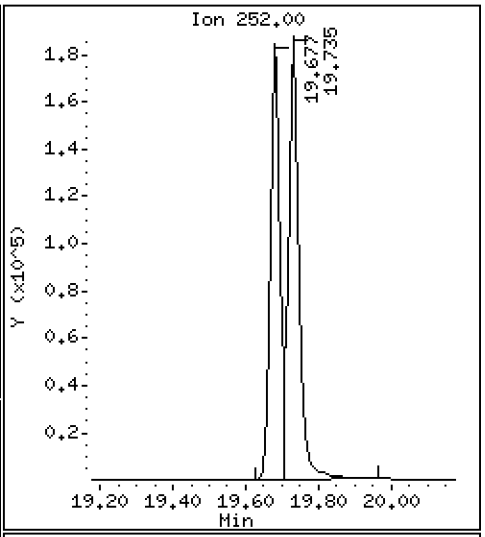
Column phase: Rxi-17Sil MS

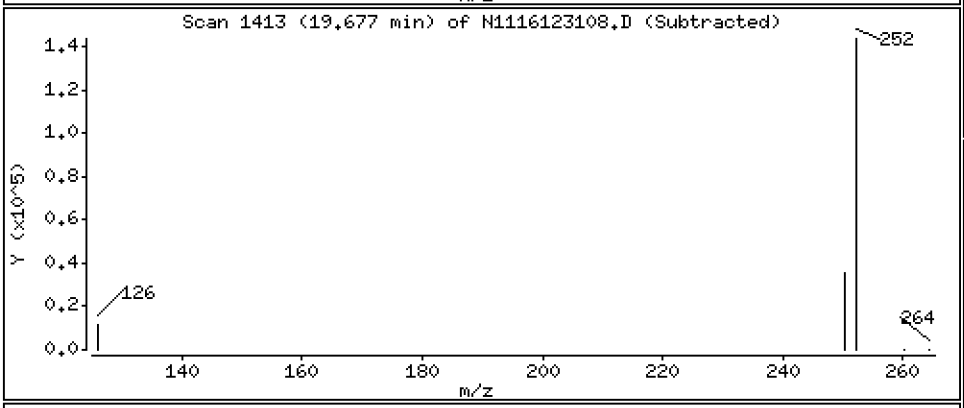
Column diameter: 0.25

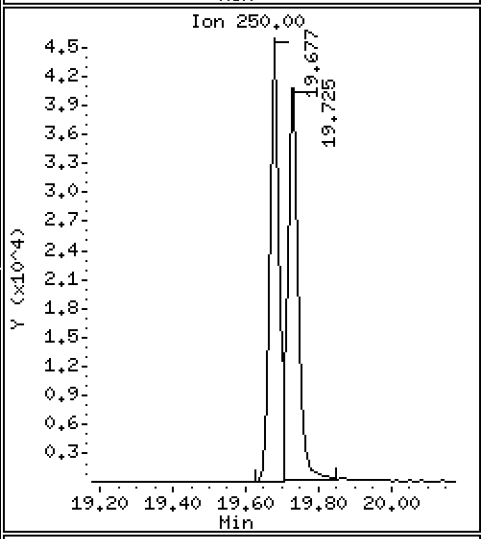
30 Benzo(b)fluoranthene

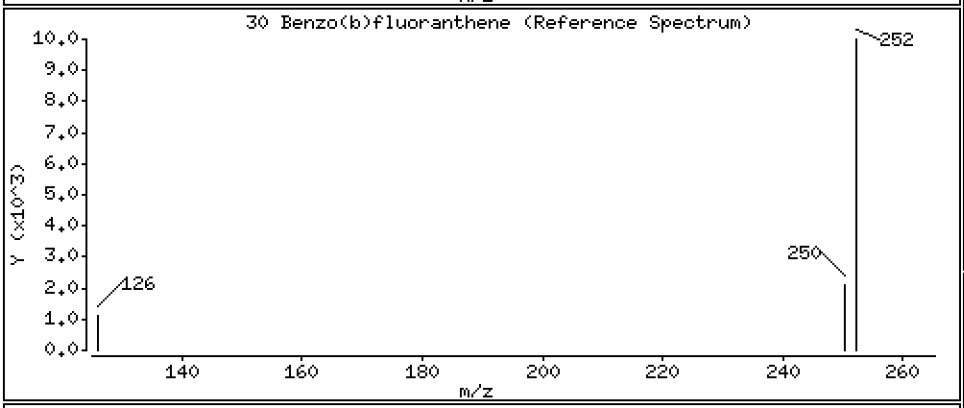
Concentration: 253 ng/mL

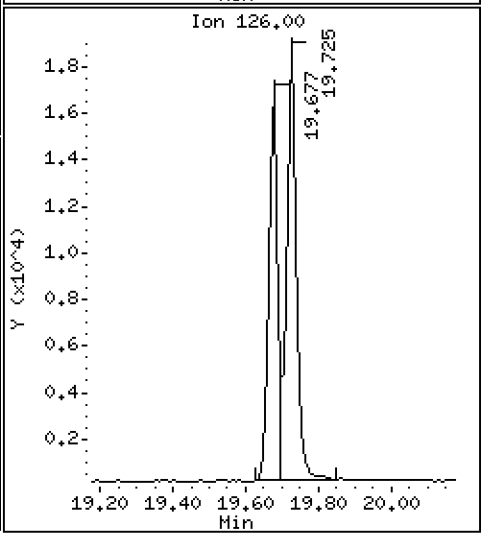


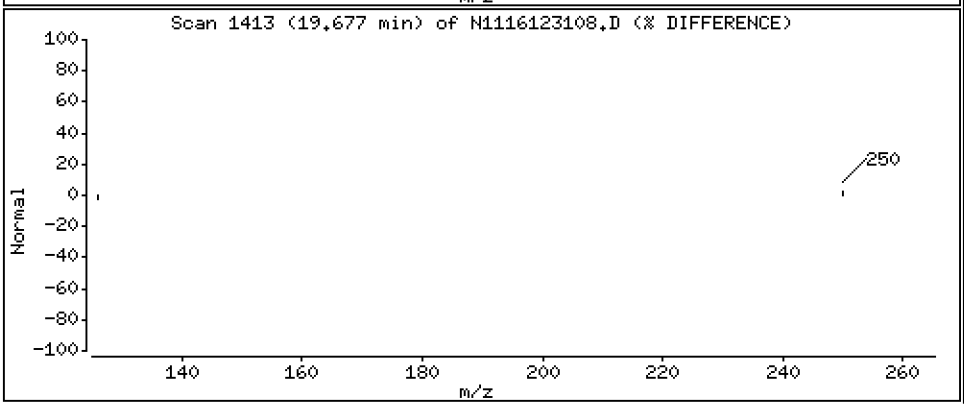












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Date : 31-DEC-2016 11:35

Client ID:

Instrument: nt11.i

Sample Info: SEL0401-SCV1

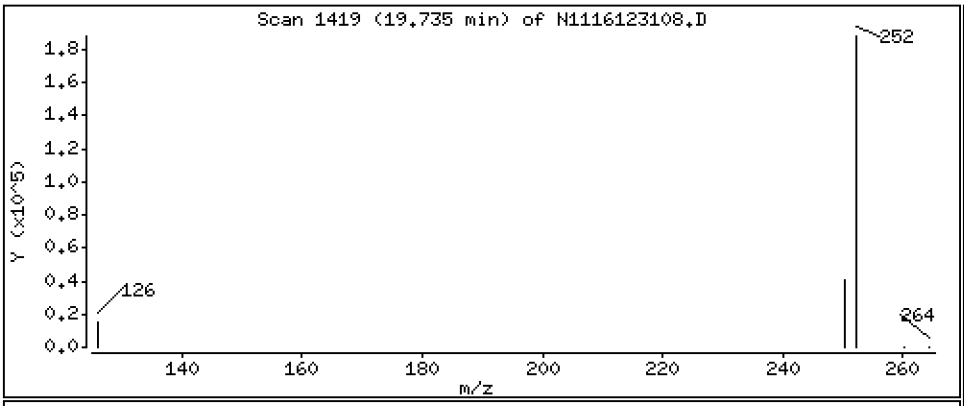
Operator: VTS

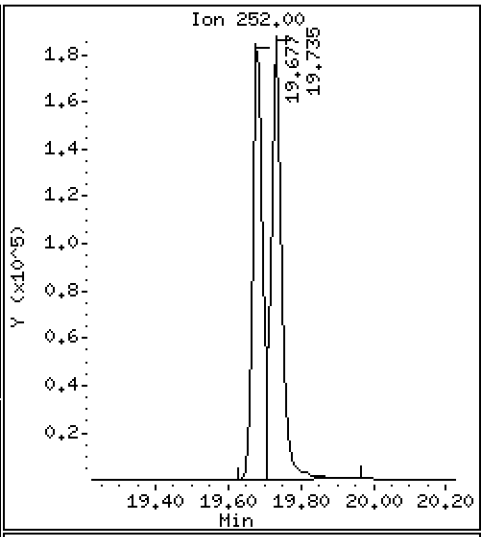
Column phase: Rxi-17Sil MS

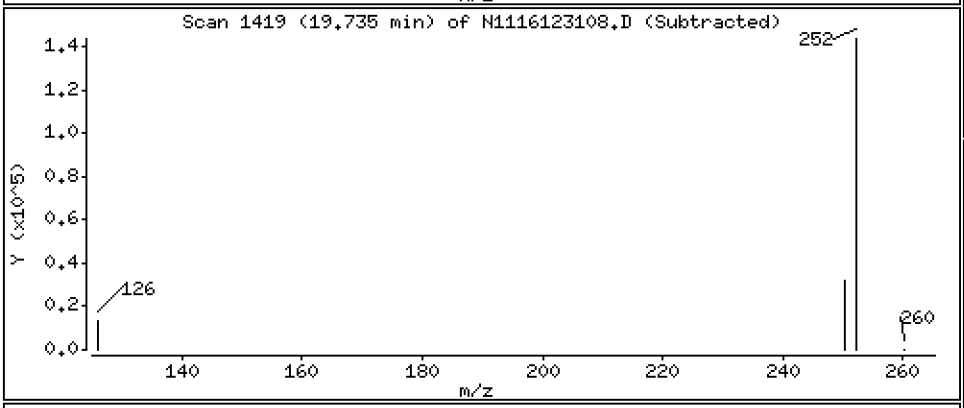
Column diameter: 0.25

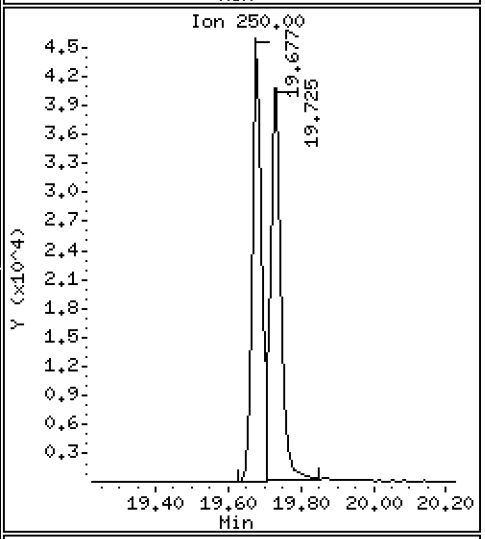
31 Benzo(k)fluoranthene

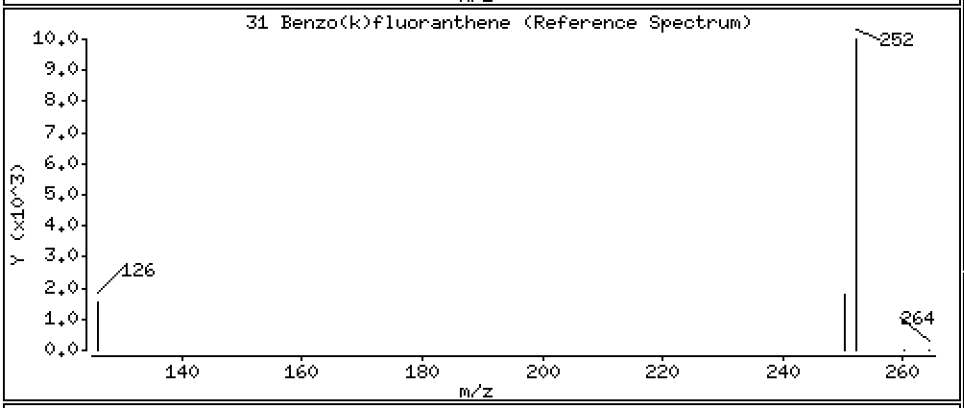
Concentration: 262 ng/mL

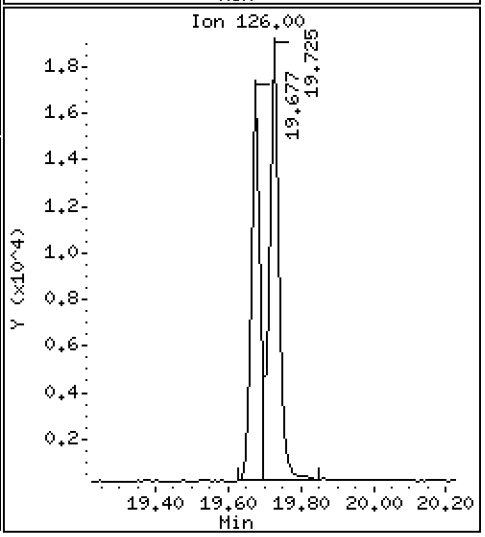


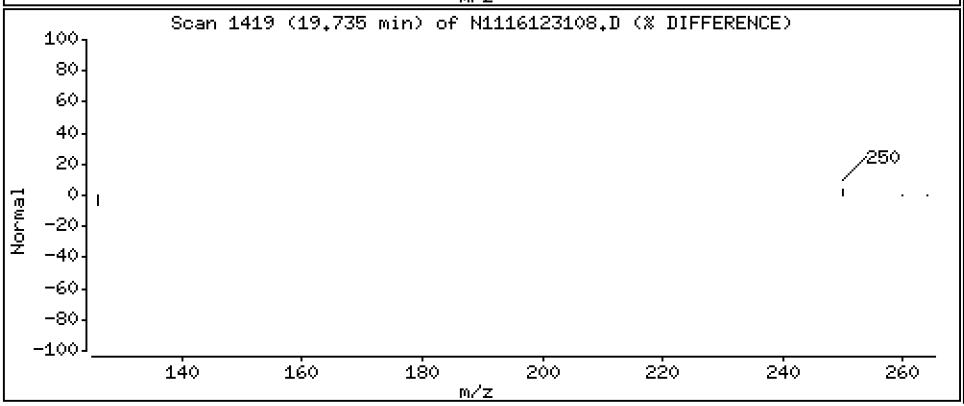












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Date : 31-DEC-2016 11:35

Client ID:

Instrument: nt11.i

Sample Info: SEL0401-SCV1

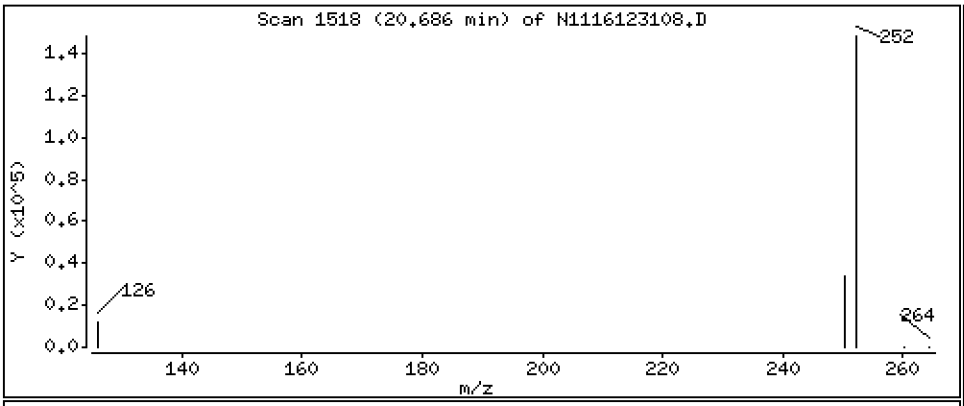
Operator: VTS

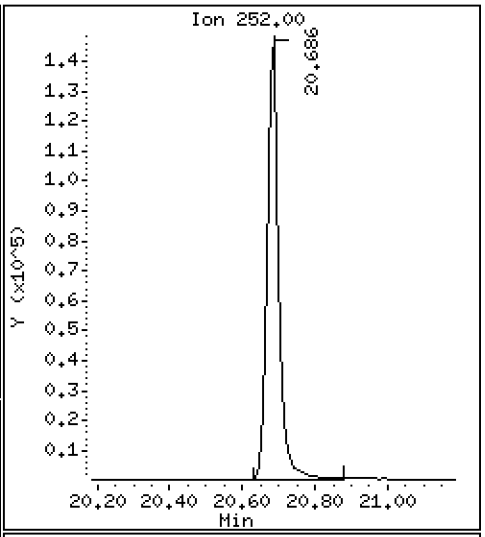
Column phase: Rxi-17Sil MS

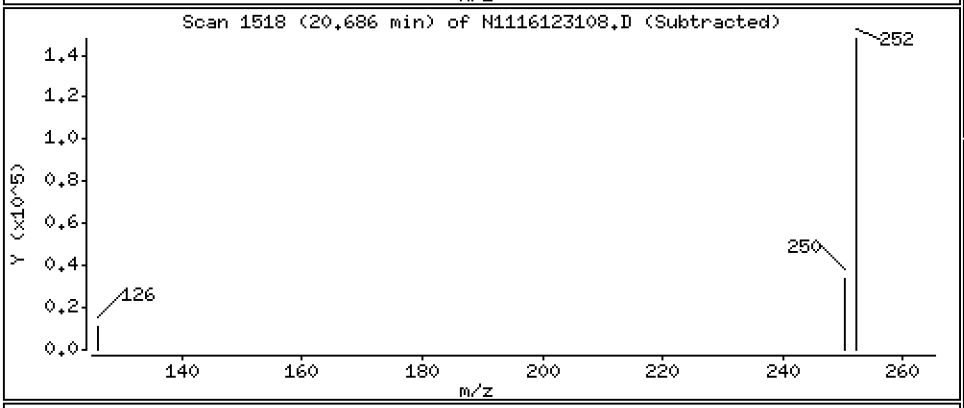
Column diameter: 0.25

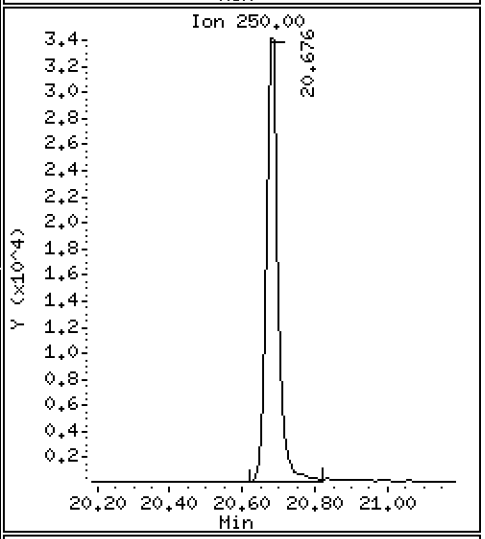
35 Benzo(a)pyrene

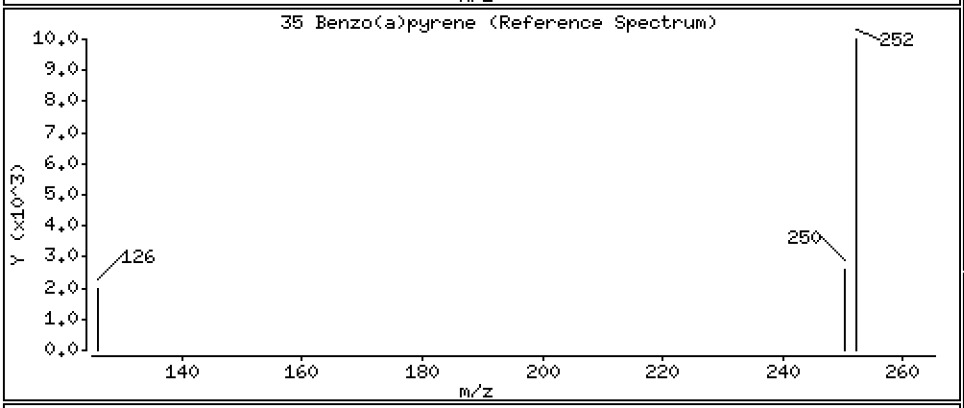
Concentration: 249 ng/mL

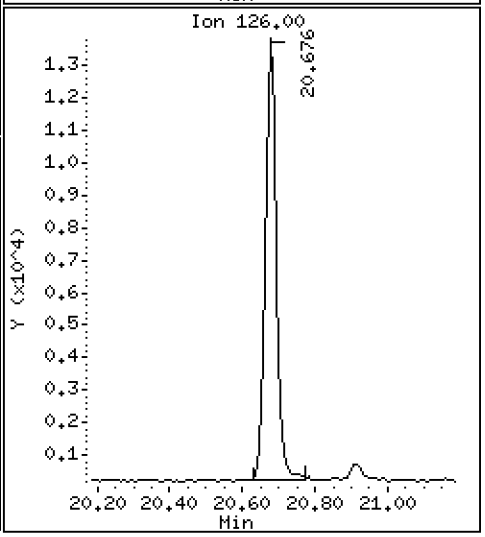


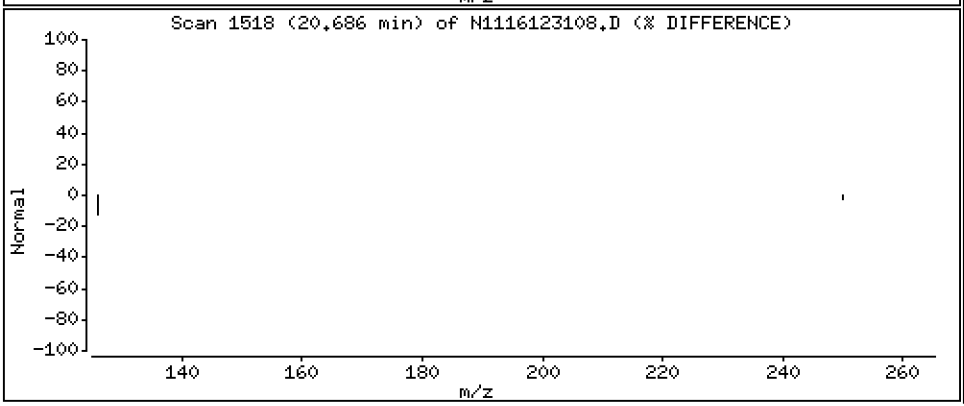












Data File: \\target\share\chem3\nt11.i\20161231.b\N1116123108.D

Date : 31-DEC-2016 11:35

Client ID:

Instrument: nt11.i

Sample Info: SEL0401-SCV1

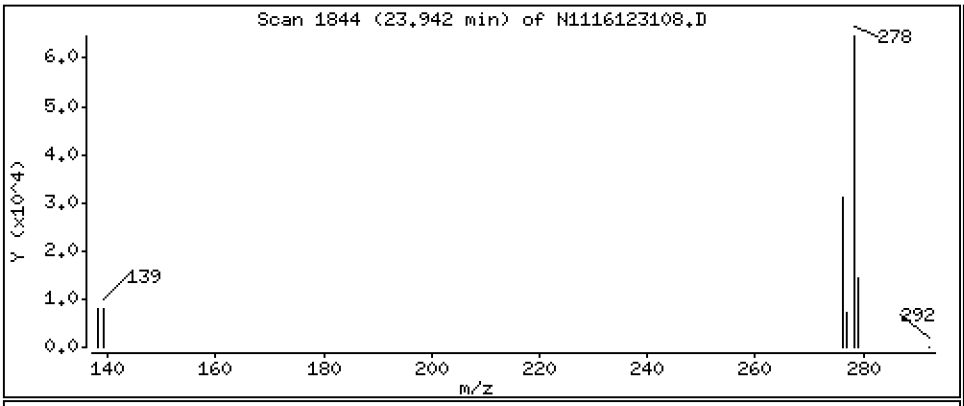
Operator: VTS

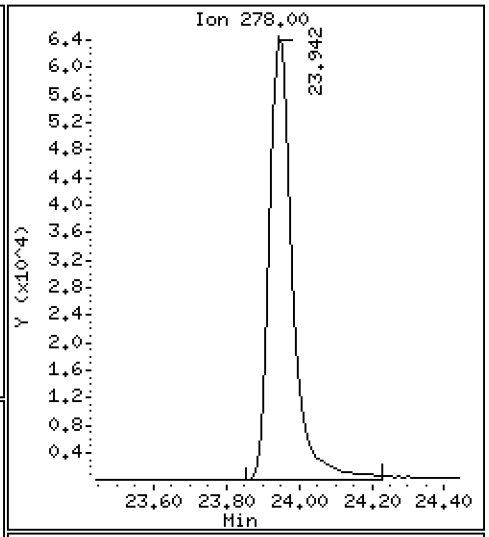
Column phase: Rxi-17Sil MS

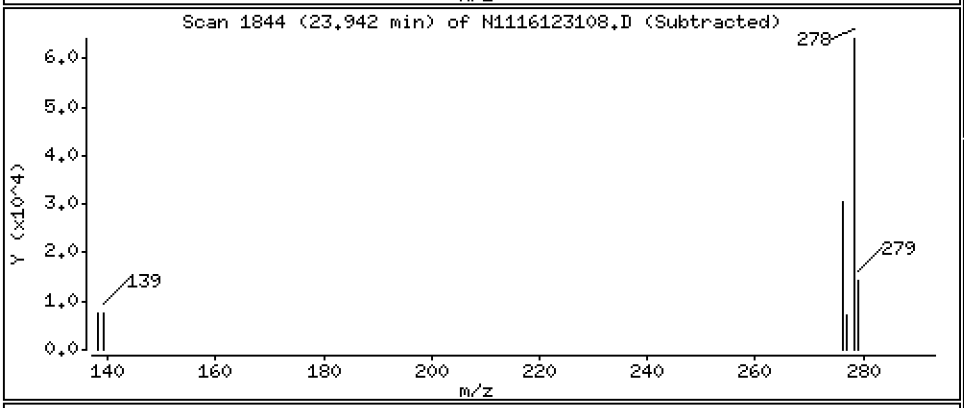
Column diameter: 0.25

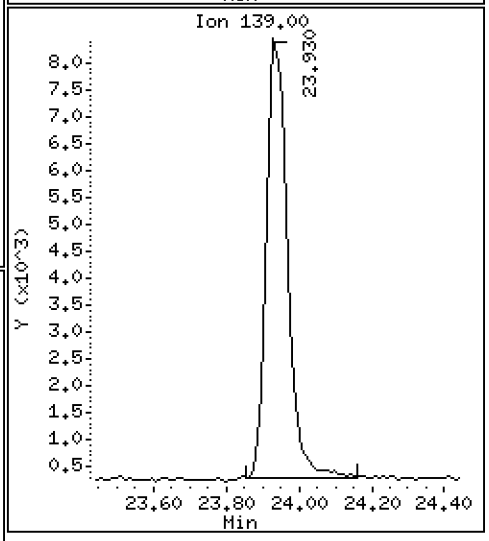
39 Dibenzo(a,h)anthracene

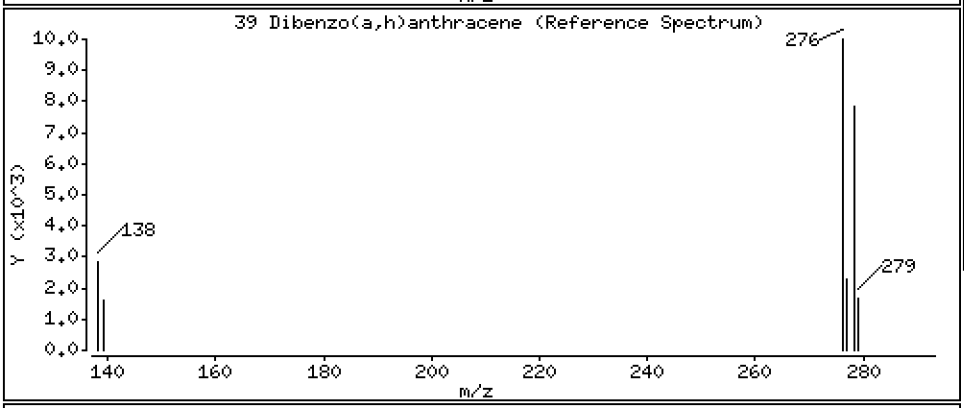
Concentration: 240 ng/mL

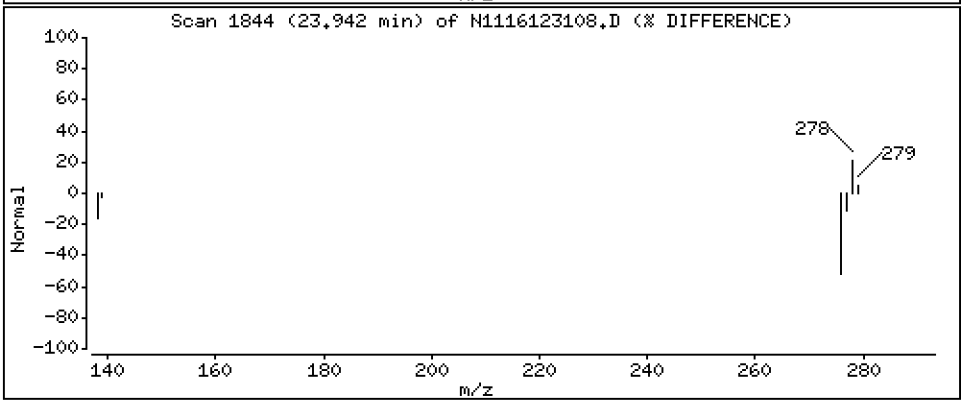












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Date : 31-DEC-2016 11:35

Client ID:

Instrument: nt11.i

Sample Info: SEL0401-SCV1

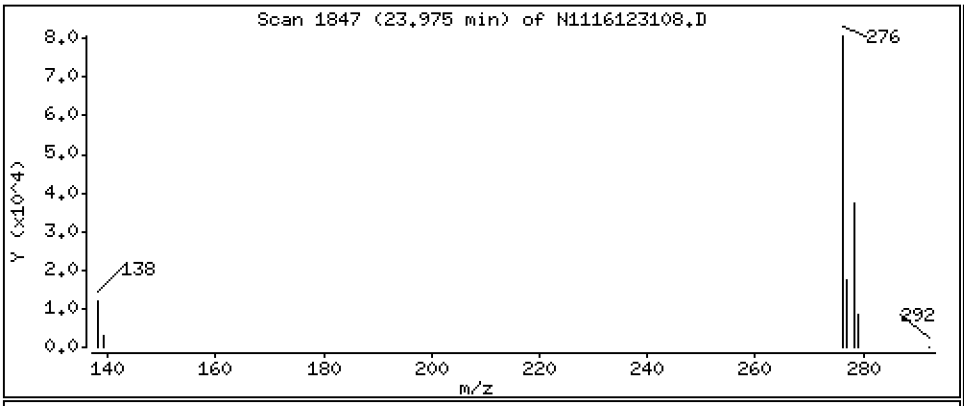
Operator: VTS

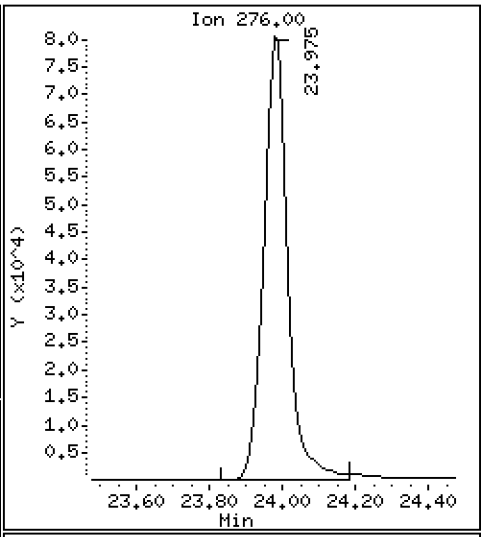
Column phase: Rxi-17Sil MS

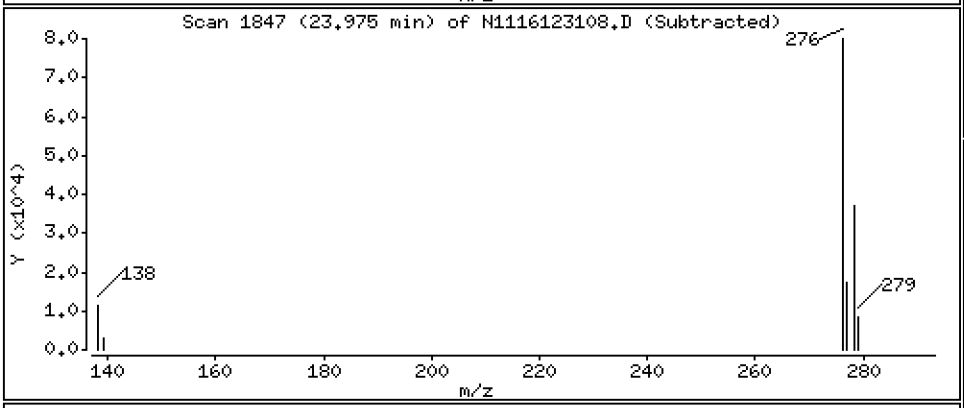
Column diameter: 0.25

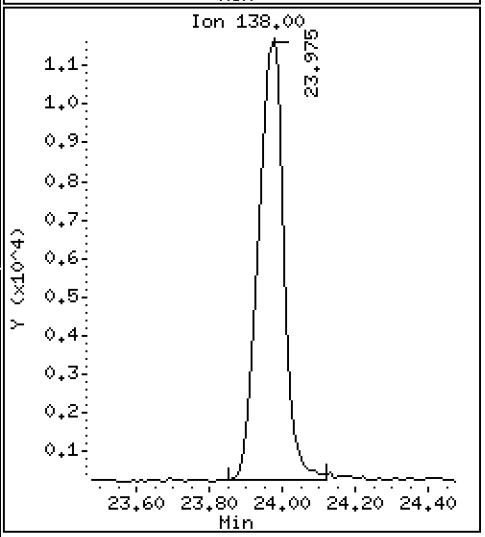
40 Indeno(1,2,3-cd)pyrene

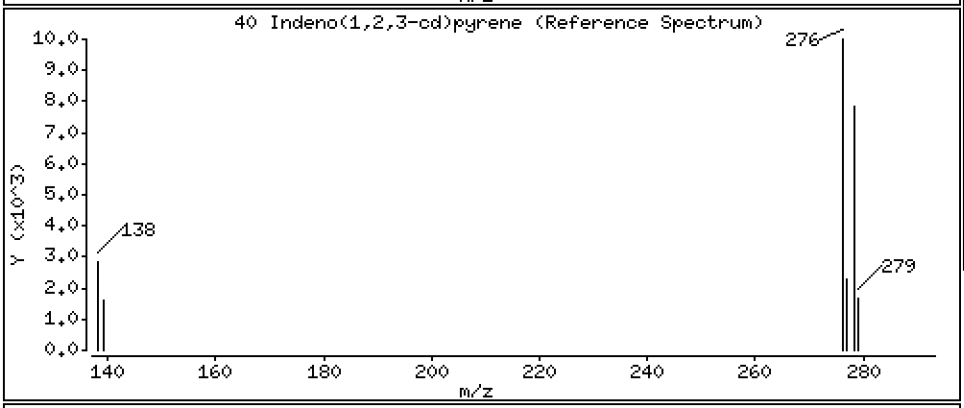
Concentration: 248 ng/mL

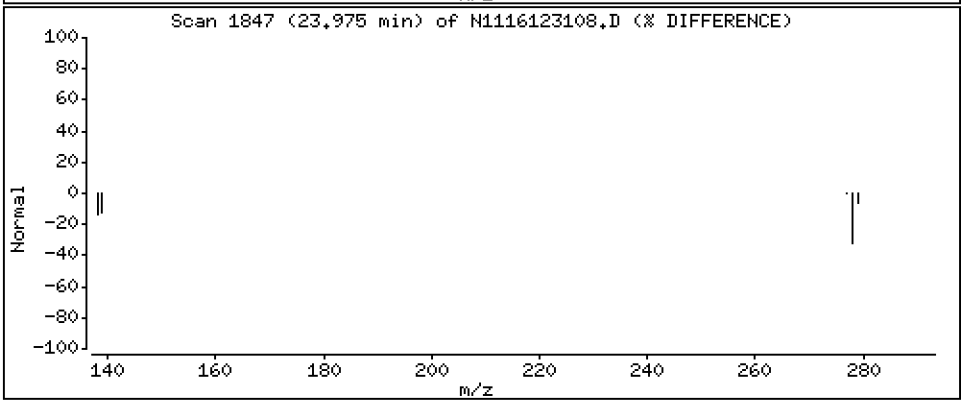












Data File: \\target\share\chem3\nt11.i\20161231.b\N1116123108.D

Date : 31-DEC-2016 11:35

Client ID:

Instrument: nt11.i

Sample Info: SEL0401-SCV1

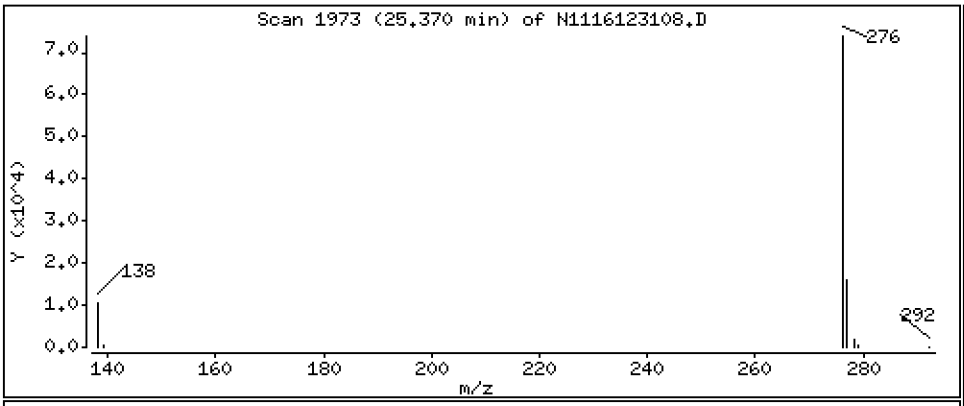
Operator: VTS

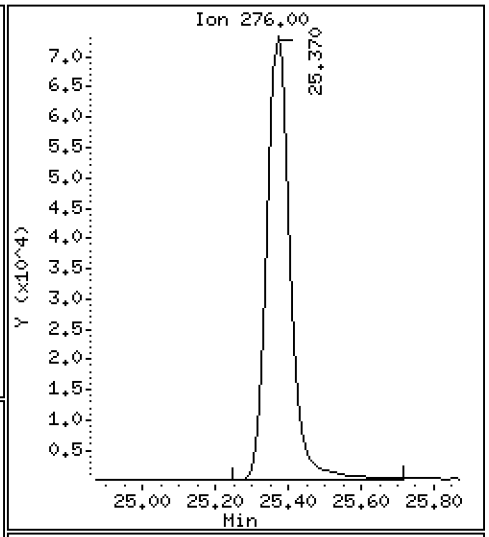
Column phase: Rxi-17Sil MS

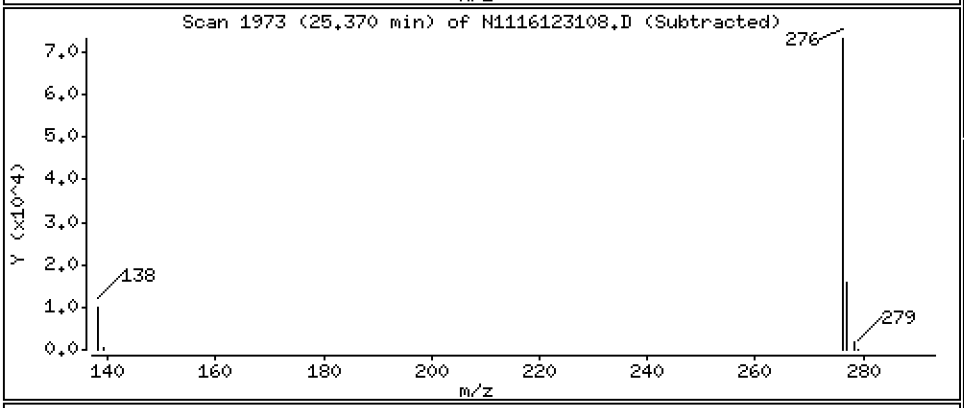
Column diameter: 0.25

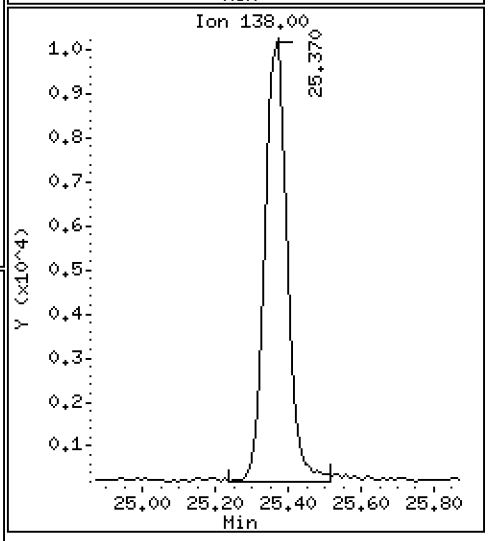
41 Benzo(g,h,i)perylene

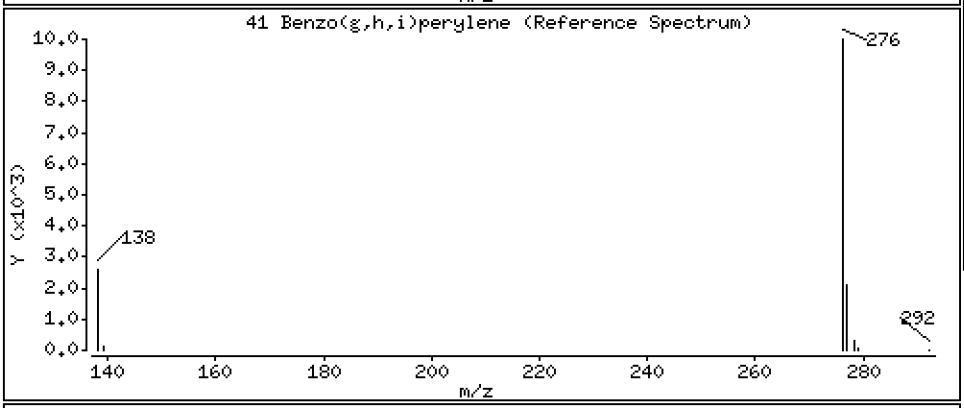
Concentration: 247 ng/mL

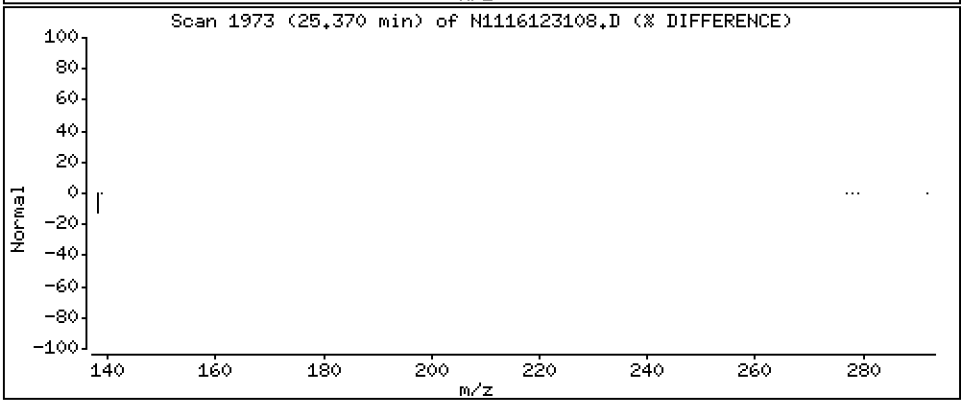












ARI Labs, Inc.

LOW LEVEL PNAs BY SW8270D-SIM

Data file : \\target\share\chem3\nt11.i\20161231.b\N1116123108.D
Lab Smp Id: SEL0401-SCV1
Inj Date : 31-DEC-2016 11:35 MS Autotune Date: 15-JAN-2015 15:59
Operator : VTS Inst ID: nt11.i
Smp Info : SEL0401-SCV1
Misc Info :
Comment   :
Method   : \\target\share\chem3\nt11.i\20161231.b\lowsim.m
Meth Date : 31-Dec-2016 12:34 van Quant Type: ISTD
Cal Date : 31-DEC-2016 09:30 Cal File: N1116123104.D
Als bottle: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: newpna.sub
Target Version: 4.14
Processing Host: VANS

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ng/mL)	FINAL (ng/mL)
*	1 Naphthalene-d8	136	7.225	7.225	(1.000)	210327	200.000	
	2 Naphthalene	128	7.253	7.253	(1.004)	263035	250.596	251
$	4 2-Methylnaphthalene-d10	152	Compound Not Detected.					
	5 2-Methylnaphthalene	142	8.253	8.253	(1.142)	257930	249.327	249
	6 1-Methylnaphthalene	142	8.516	8.516	(1.179)	246162	236.587	237
	10 Acenaphthylene	152	10.098	10.098	(0.985)	293179	254.726	255
*	11 Acenaphthene-d10	164	10.252	10.252	(1.000)	128092	200.000	
	12 Acenaphthene	153	10.315	10.315	(1.006)	209513	276.477	276
	13 Dibenzofuran	168	10.519	10.519	(1.026)	321591	285.478	285
	16 Fluorene	166	11.138	11.151	(1.086)	240770	268.478	268
*	18 Phenanthrene-d10	188	12.945	12.945	(1.000)	246665	200.000	
	19 Phenanthrene	178	12.987	12.987	(1.003)	354560	251.418	251
	21 Anthracene	178	13.040	13.040	(1.007)	334329	237.762	238
$	24 Fluoranthene-d10	212	15.007	15.055	(1.159)	1972	1.50522	1.51
	25 Fluoranthene	202	15.084	15.084	(1.165)	404582	252.915	253
	26 Pyrene	202	15.593	15.593	(0.881)	409188	246.982	247
	27 Benzo(a)anthracene	228	17.602	17.602	(0.994)	388934	253.609	254
*	28 Chrysene-d12	240	17.702	17.702	(1.000)	255043	200.000	
	29 Chrysene	228	17.751	17.751	(1.003)	380528	241.811	242
	30 Benzo(b)fluoranthene	252	19.676	19.677	(0.941)	361602	252.797	253
	31 Benzo(k)fluoranthene	252	19.734	19.725	(0.943)	403824	262.109	262
	32 Benzo(j)fluoranthene	252	Compound Not Detected.					
	35 Benzo(a)pyrene	252	20.685	20.685	(0.989)	331475	248.577	249
*	36 Perylene-d12	264	20.916	20.916	(1.000)	265358	200.000	
	37 Perylene	252	Compound Not Detected.					
$	38 Dibenzo(a,h)anthracene-d14	292	Compound Not Detected.					
	39 Dibenzo(a,h)anthracene	278	23.941	23.941	(1.145)	280435	240.373	240
	40 Indeno(1,2,3-cd)pyrene	276	23.974	23.974	(1.146)	361280	248.156	248
	41 Benzo(g,h,i)perylene	276	25.370	25.370	(1.213)	322290	246.575	247

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt11.i
Lab File ID: N1116123108.D
Lab Smp Id: SEL0401-SCV1
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: \\target\share\chem3\nt11.i\20161231.b\lowsim.m
Misc Info:

Calibration Date: 31-DEC-2016
Calibration Time: 08:28
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	219654	109827	439308	210327	-4.25
11 Acenaphthene-d10	135248	67624	270496	128092	-5.29
18 Phenanthrene-d10	257021	128511	514042	246665	-4.03
28 Chrysene-d12	259511	129756	519022	255043	-1.72
36 Perylene-d12	257535	128768	515070	265358	3.04

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	7.23	6.73	7.73	7.23	0.00
11 Acenaphthene-d10	10.25	9.75	10.75	10.25	0.00
18 Phenanthrene-d10	12.95	12.45	13.45	12.95	0.00
28 Chrysene-d12	17.70	17.20	18.20	17.70	0.00
36 Perylene-d12	20.93	20.43	21.43	20.92	-0.05

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N1116123108.D

Lab ID: SEL0401-SCV1
nt11.i, 20161231.b\lowsim.m,   31-DEC-2016 11:35

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

On Column LOD for nt11.i, 20161231.b\lowsim.m, newpna.sub = 3.0000

Exception: Naphthalene 7.0000
Exception: Phenanthrene 2.5000
Exception: Anthracene 2.0000
Exception: Pyrene 4.0000
Exception: Benzo(j)fluoranthene 2.5000
Exception: Benzo(a)pyrene 2.0000
Exception: Perylene 3.5000
Exception: Fluoranthene-d10 (Surr) 0.0000
Exception: 2-Methylnaphthalene-d10 (Surr) 0.1000
Exception: Dibenzo(a,h)anthracene-d14 (Surr) 0.1000

Analytical Resources, Incorporated

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 8270D-SIM

Laboratory: Analytical Resources, Inc.
SDG: 17A0053
Client: Anchor QEA, LLC
Project: Port Gamble Shellfish Monitoring
Calibration: ZL00083
Laboratory ID: SEL0401-SCV1
Sequence: SEL0401
Standard ID: E007699

ANALYTE	EXPECTED (ng/mL)	FOUND (ng/mL)	% DRIFT	QC LIMIT
Naphthalene	250.00	251	0.2	20.00
2-Methylnaphthalene	250.00	249	-0.3	20.00
Acenaphthylene	250.00	255	1.9	20.00
Acenaphthene	250.00	276	10.6	20.00
Dibenzofuran	250.00	285	14.2	20.00
Fluorene	250.00	268	7.4	20.00
Phenanthrene	250.00	251	0.6	20.00
Anthracene	250.00	238	-4.9	20.00
Fluoranthene	250.00	253	1.2	20.00
Pyrene	250.00	247	-1.2	20.00
Benzo(a)anthracene	250.00	254	1.4	20.00
Chrysene	250.00	242	-3.3	20.00
Benzo(b)fluoranthene	250.00	253	1.1	20.00
Benzo(k)fluoranthene	250.00	262	4.8	20.00
Benzo(a)pyrene	250.00	249	-0.6	20.00
Indeno(1,2,3-cd)pyrene	250.00	248	-0.7	20.00
Dibenzo(a,h)anthracene	250.00	240	-3.9	20.00
Benzo(g,h,i)perylene	250.00	247	-1.4	20.00
1-Methylnaphthalene	250.00	237	-5.4	20.00
Benzofluoranthenes, Total	500.00	515	3.0	

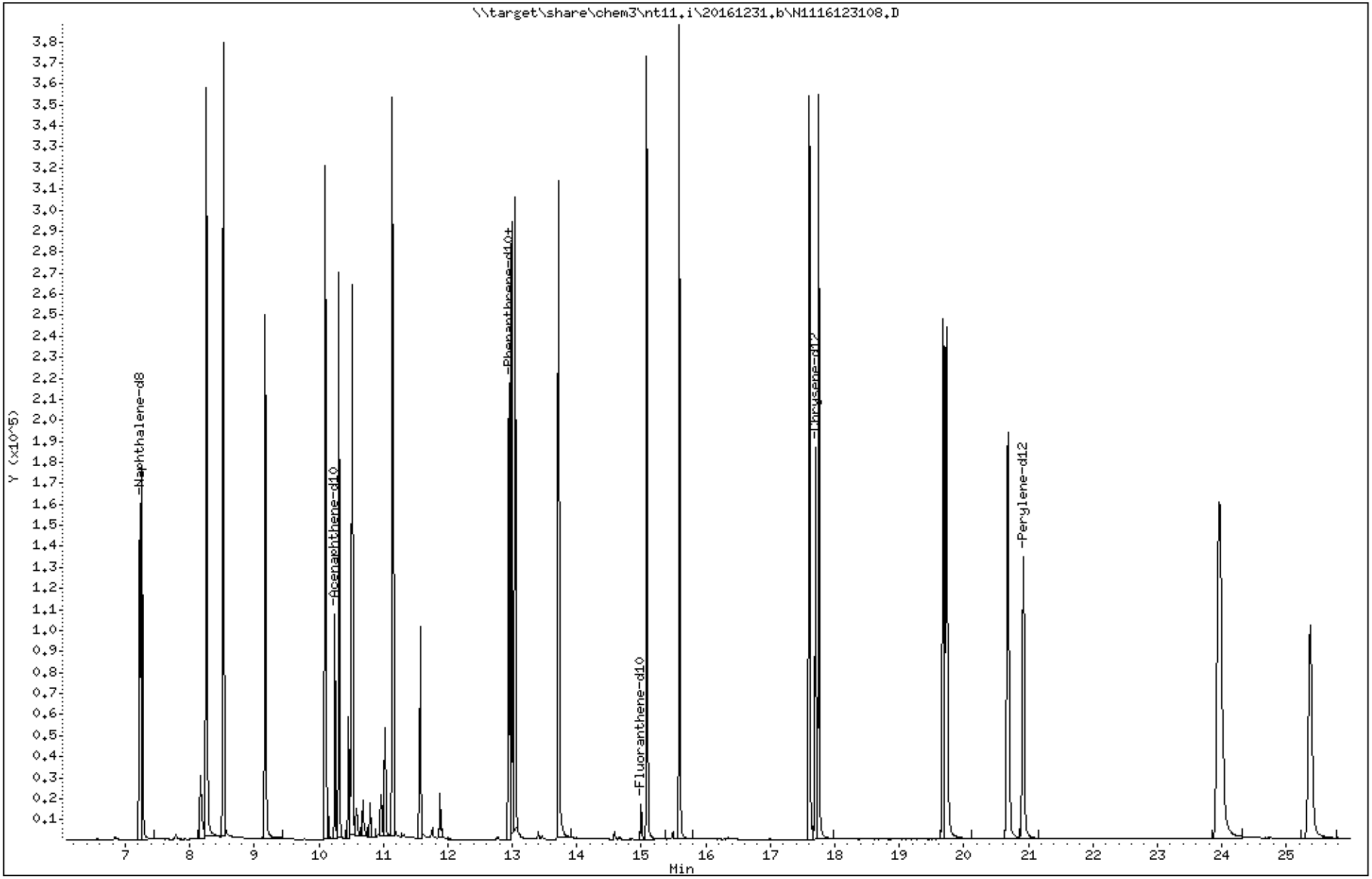
* Values outside of QC limits

Data File: \\target\share\chem3\nt11.i\20161231.b\N1116123108.D
Date : 31-DEC-2016 11:35
Client ID:
Sample Info: SEL0401-SCV1

Column phase: Rxi-17Sil MS

Instrument: nt11.i

Operator: VTS
Column diameter: 0.25



Data File: \\target\share\chem3\nt11.i\20161231.b\N1116123108.D

Date : 31-DEC-2016 11:35

Client ID:

Instrument: nt11.i

Sample Info: SEL0401-SCV1

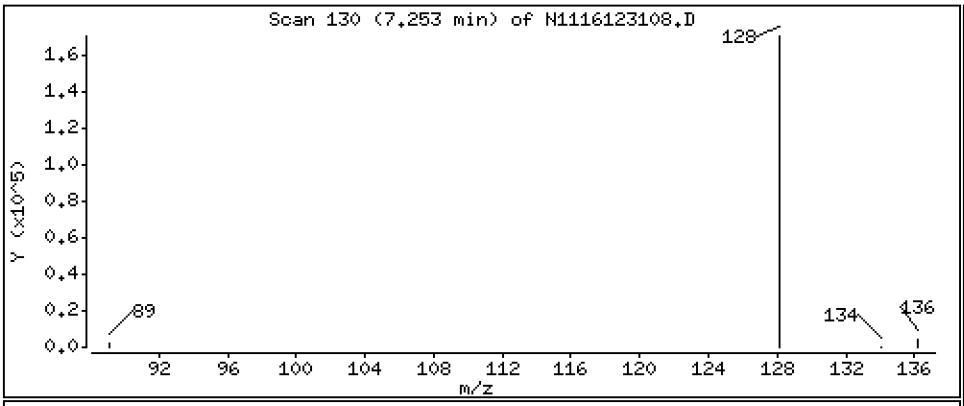
Operator: VTS

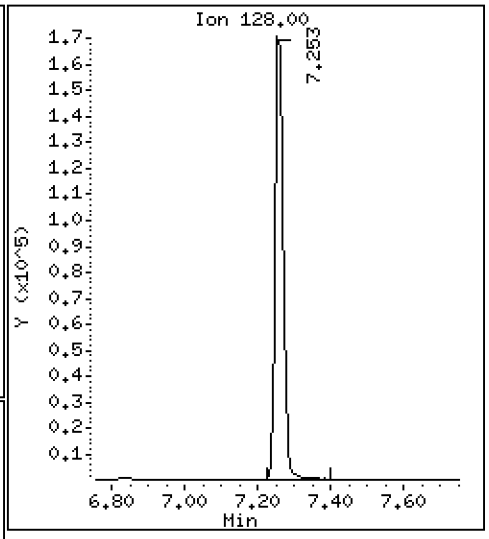
Column phase: Rxi-17Sil MS

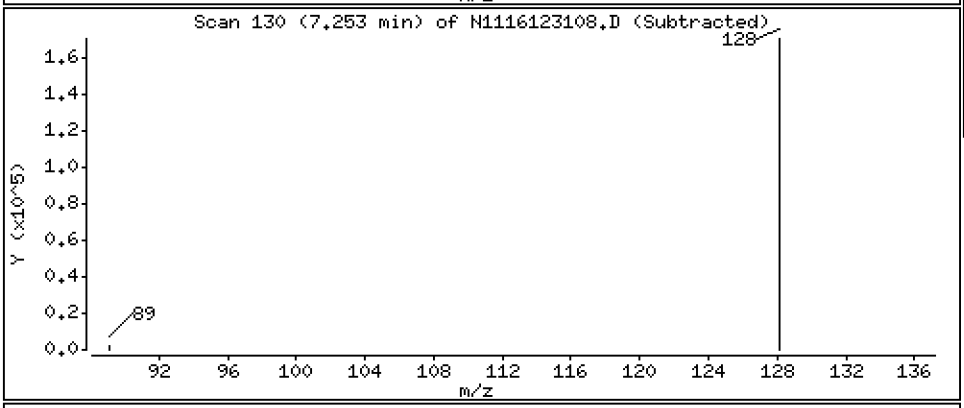
Column diameter: 0.25

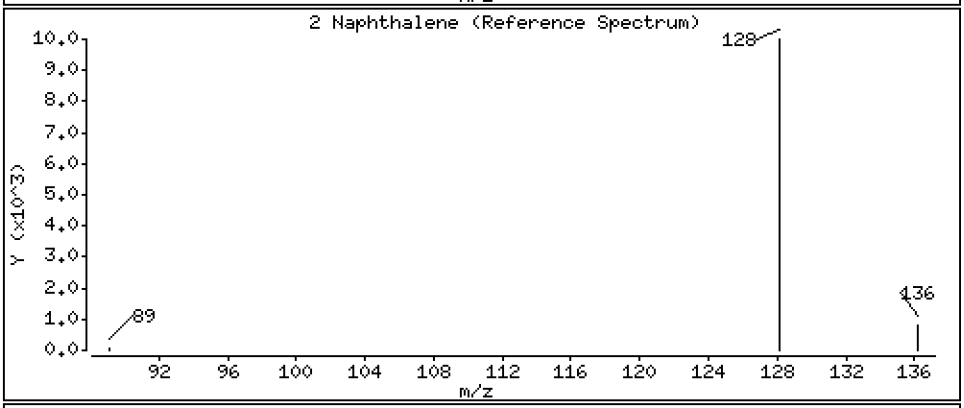
2 Naphthalene

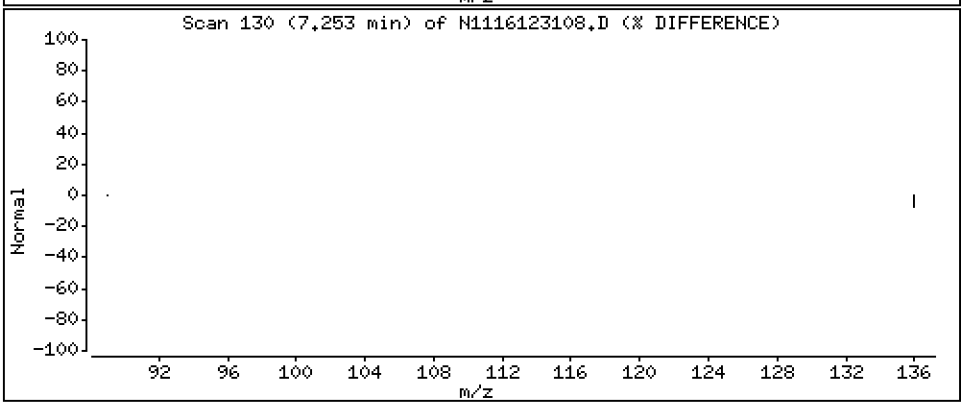
Concentration: 251 ng/mL











Data File: \\target\share\chem3\nt11.i\20161231.b\N1116123108.D

Date : 31-DEC-2016 11:35

Client ID:

Instrument: nt11.i

Sample Info: SEL0401-SCV1

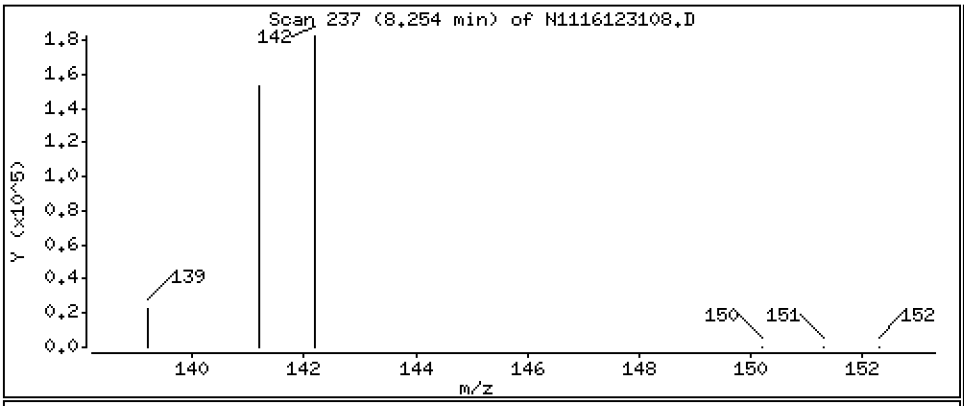
Operator: VTS

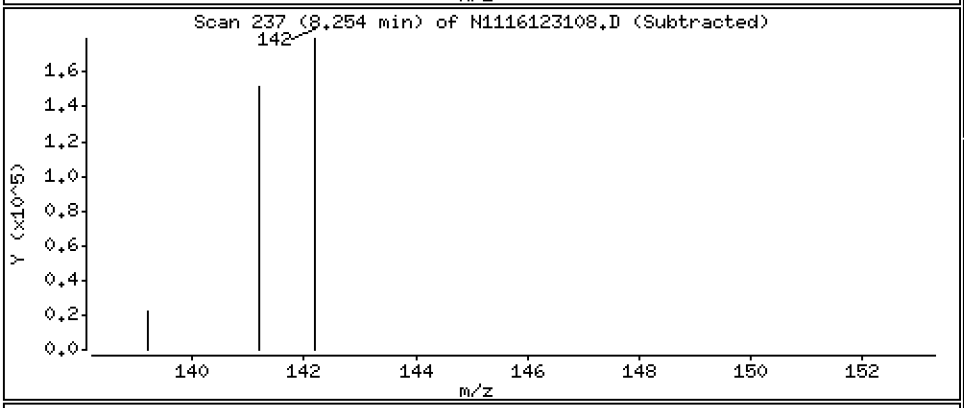
Column phase: Rxi-17Sil MS

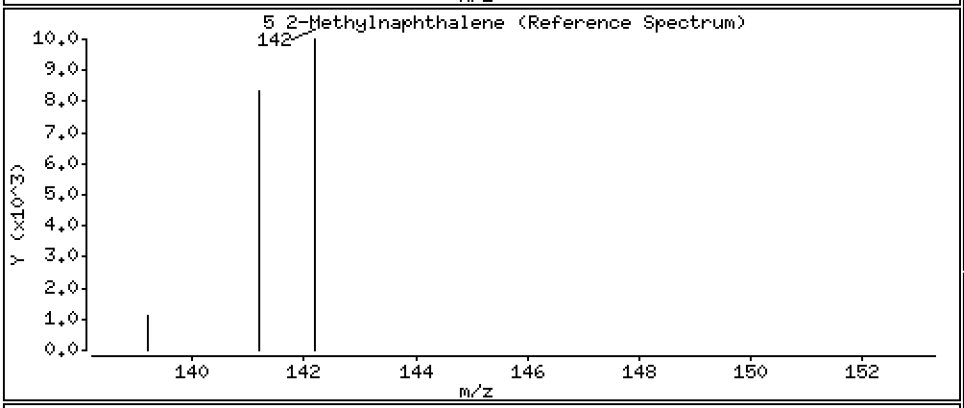
Column diameter: 0.25

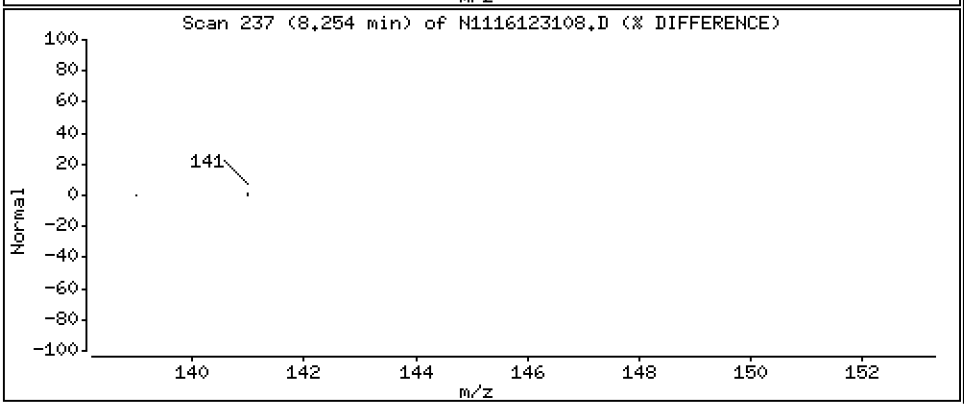
5 2-Methylnaphthalene

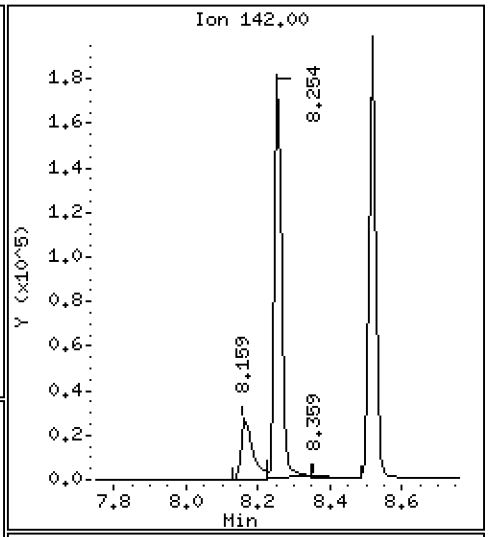
Concentration: 249 ng/mL

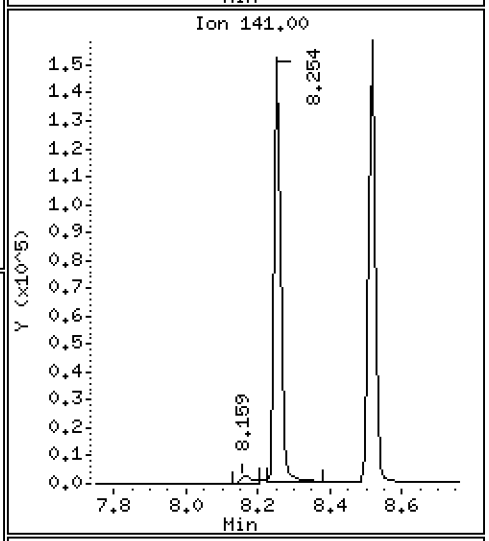


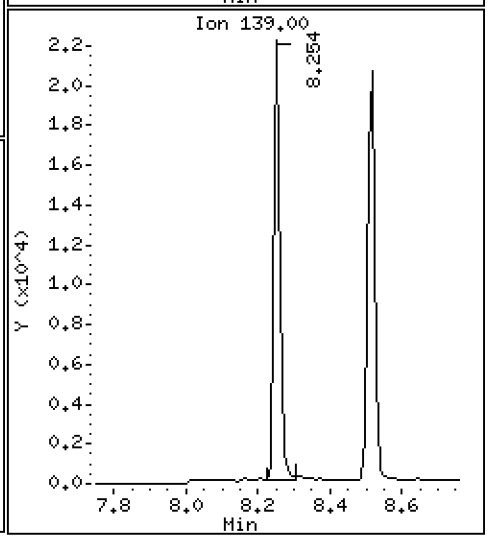












Data File: \\target\share\chem3\nt11.i\20161231.b\N1116123108.D

Date : 31-DEC-2016 11:35

Client ID:

Instrument: nt11.i

Sample Info: SEL0401-SCV1

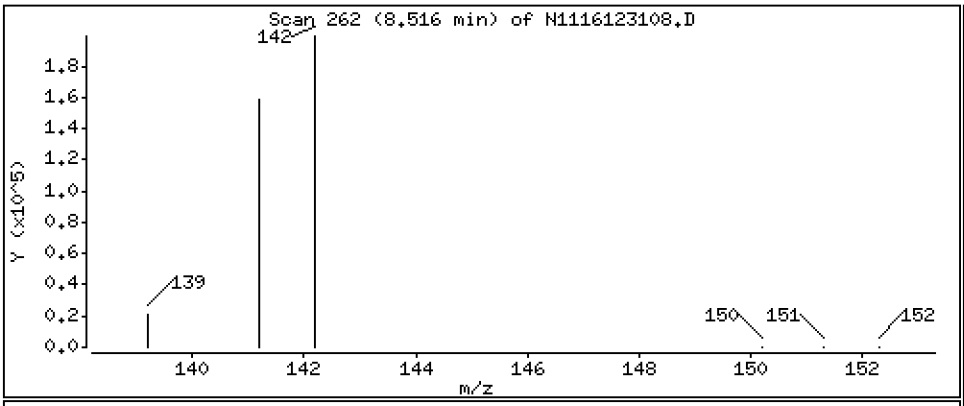
Operator: VTS

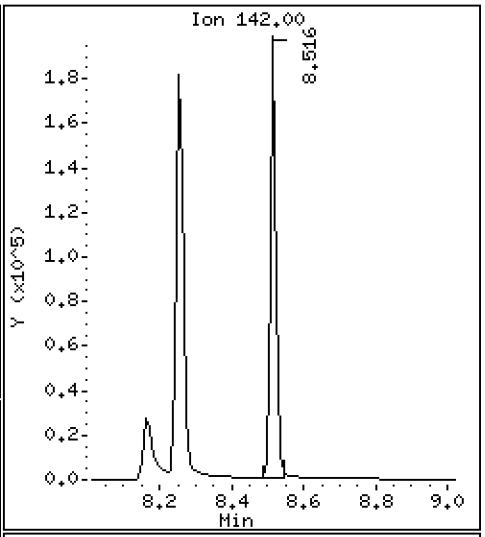
Column phase: Rxi-17Sil MS

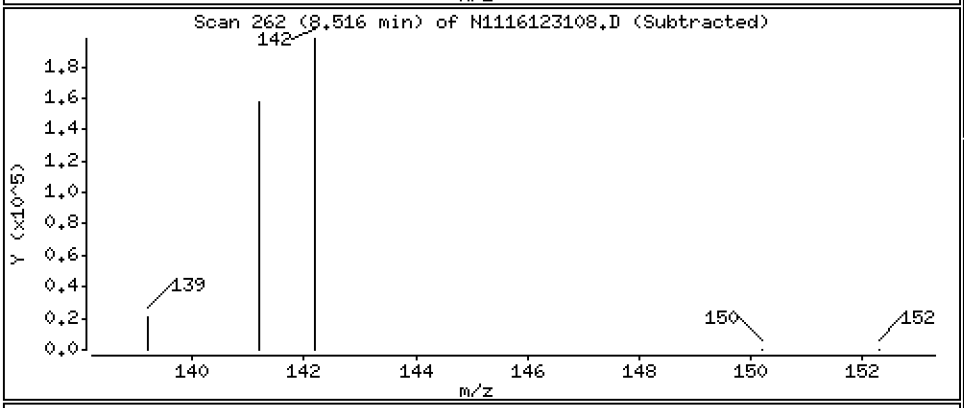
Column diameter: 0.25

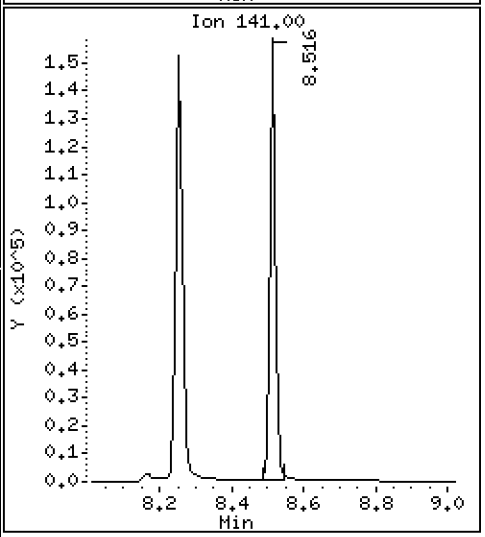
6 1-Methylnaphthalene

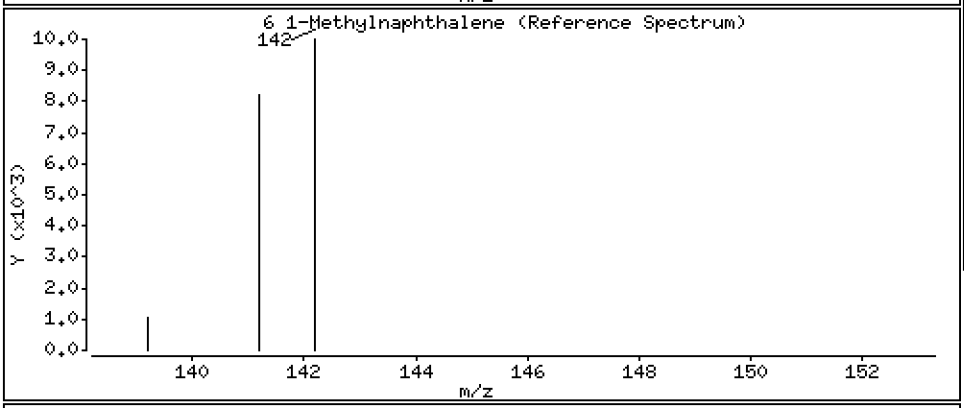
Concentration: 237 ng/mL

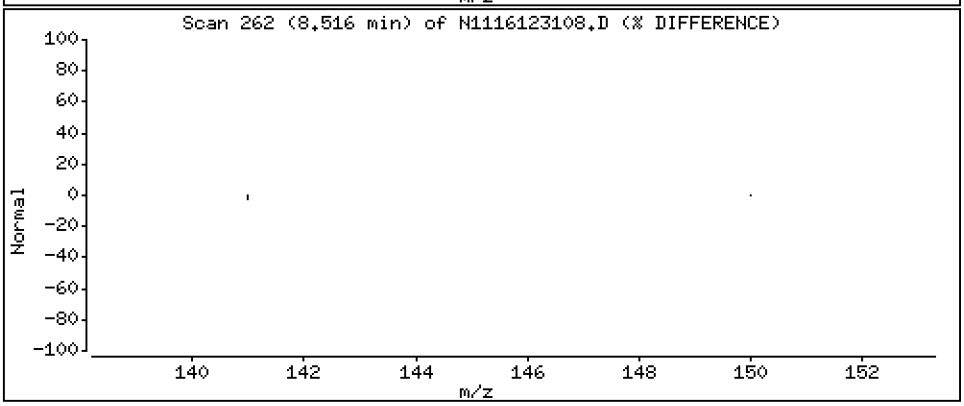












Data File: \\target\share\chem3\nt11.i\20161231.b\N1116123108.D

Date : 31-DEC-2016 11:35

Client ID:

Instrument: nt11.i

Sample Info: SEL0401-SCV1

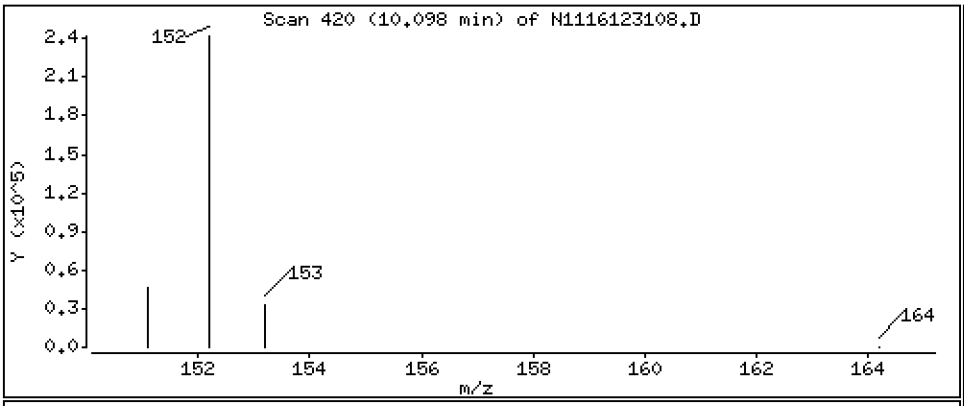
Operator: VTS

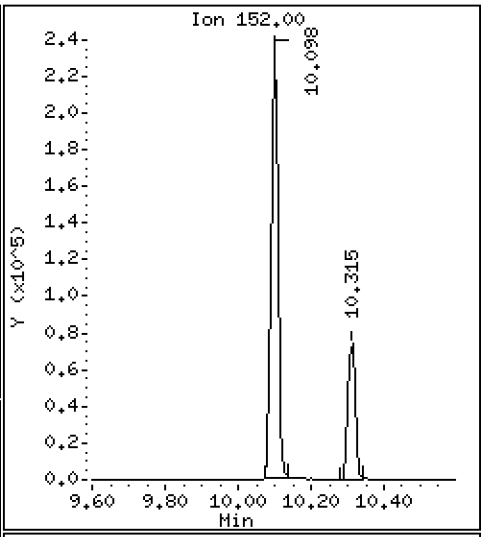
Column phase: Rxi-17Sil MS

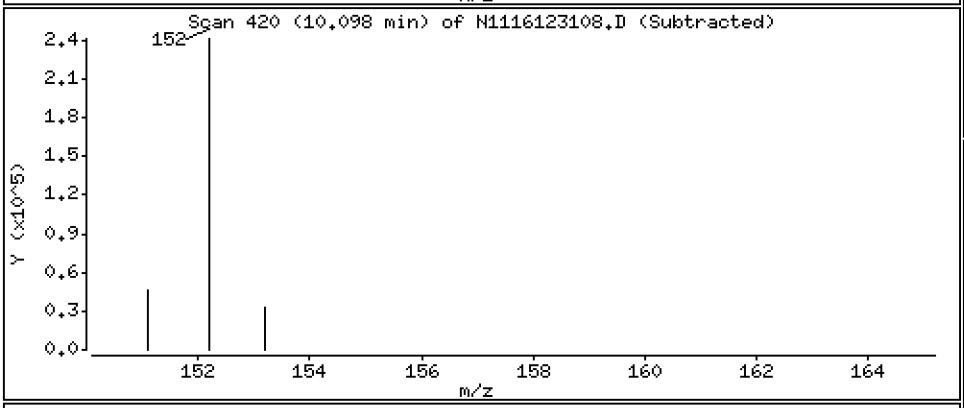
Column diameter: 0.25

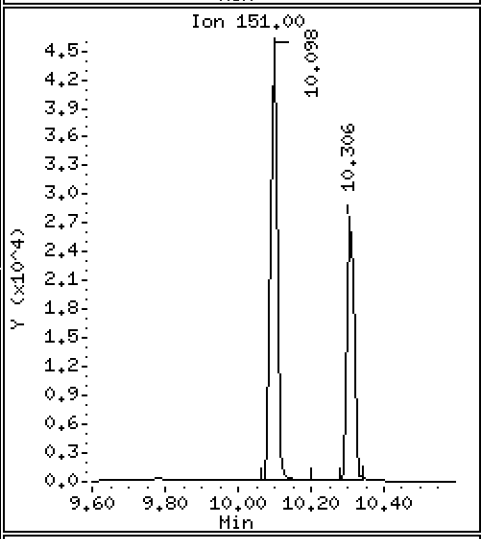
10 Acenaphthylene

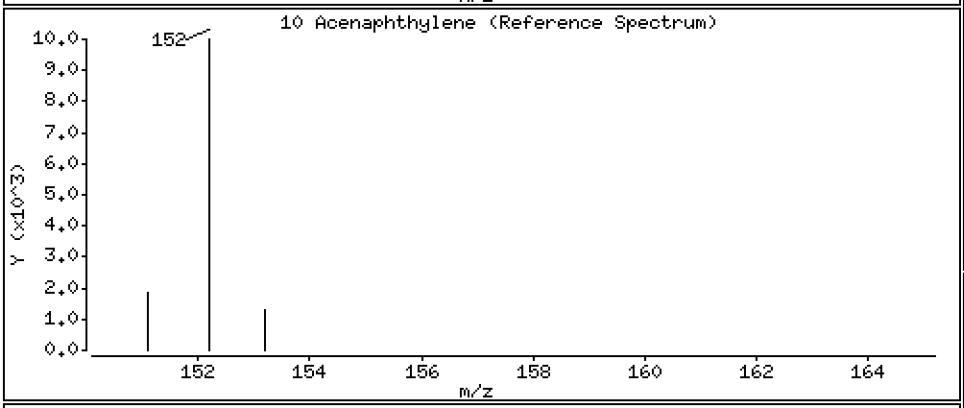
Concentration: 255 ng/mL

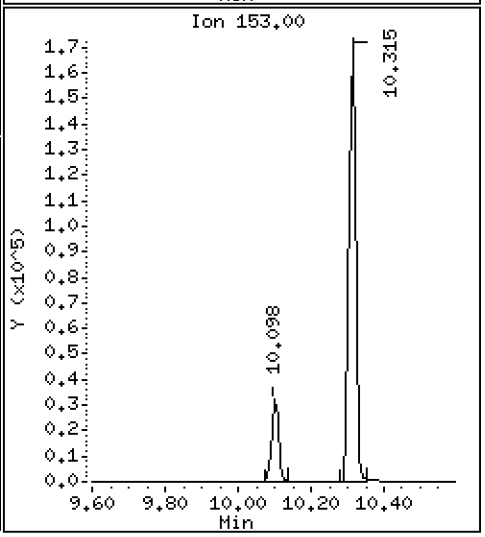


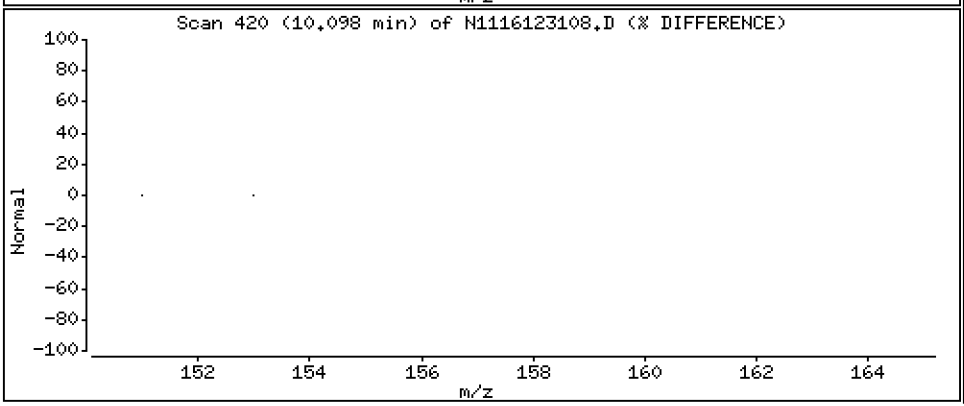












Data File: \\target\share\chem3\nt11.i\20161231.b\N1116123108.D

Date : 31-DEC-2016 11:35

Client ID:

Instrument: nt11.i

Sample Info: SEL0401-SCV1

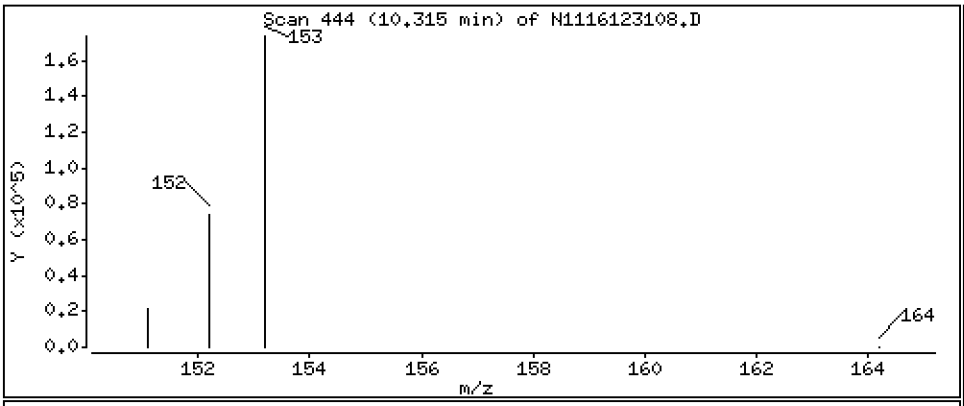
Operator: VTS

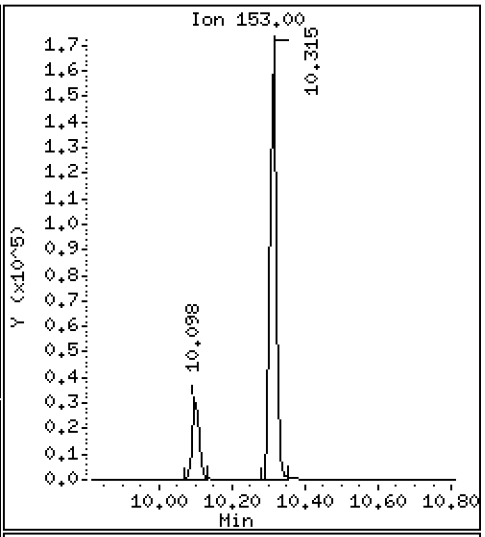
Column phase: Rxi-17Sil MS

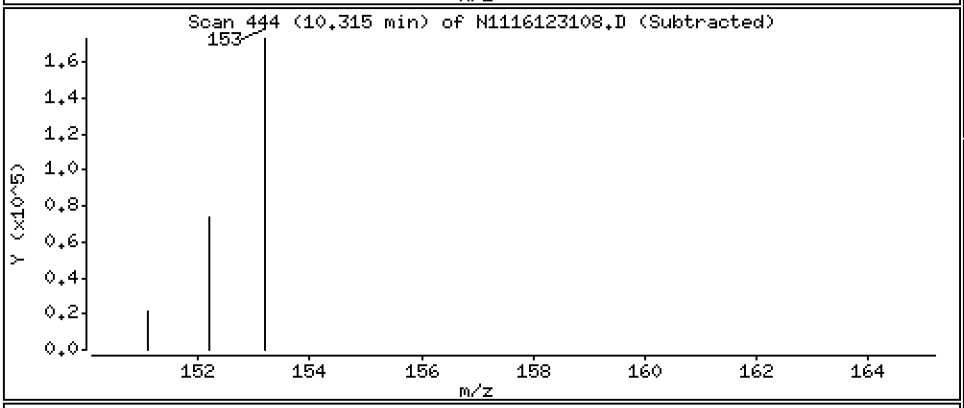
Column diameter: 0.25

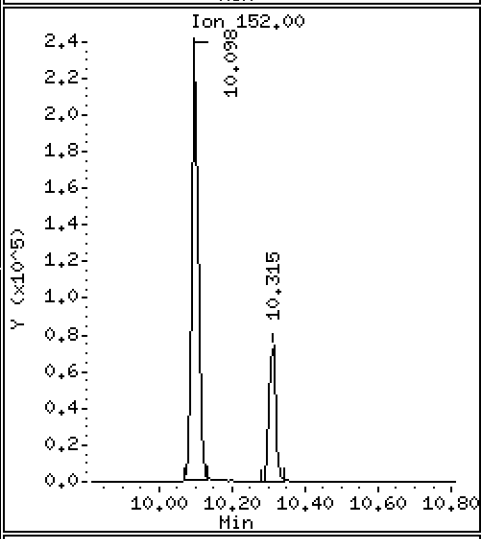
12 Acenaphthene

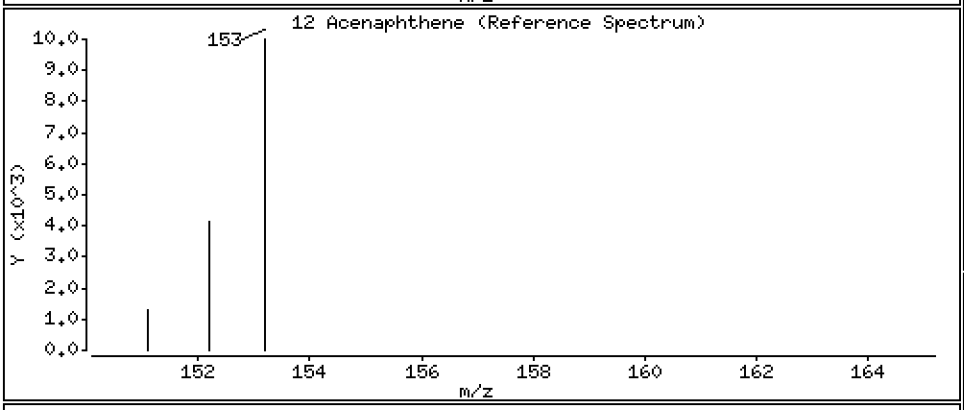
Concentration: 276 ng/mL

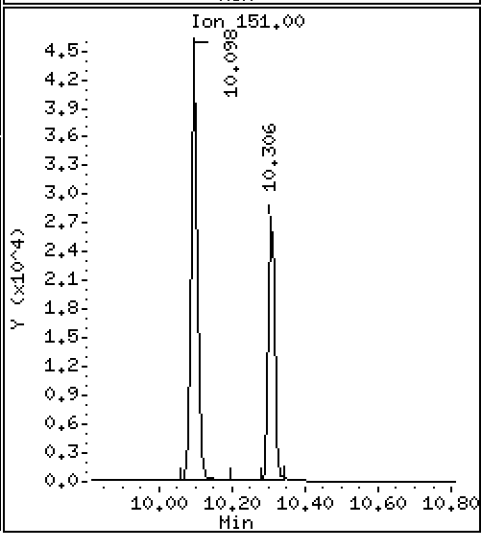


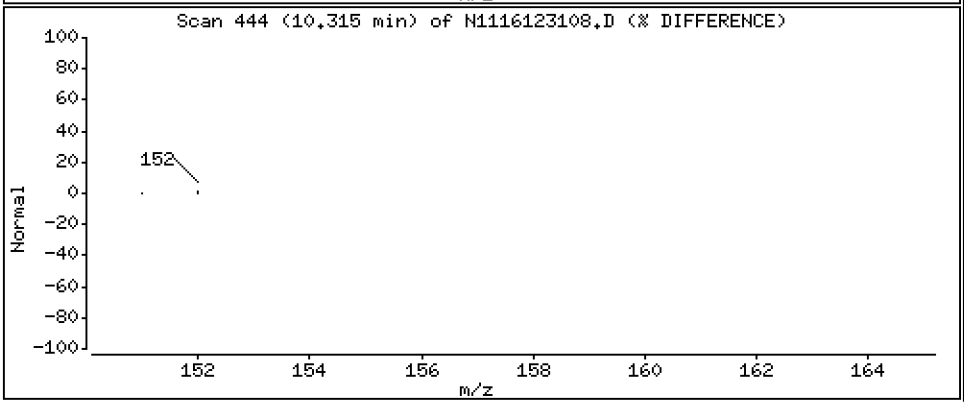












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Date : 31-DEC-2016 11:35

Client ID:

Instrument: nt11.i

Sample Info: SEL0401-SCV1

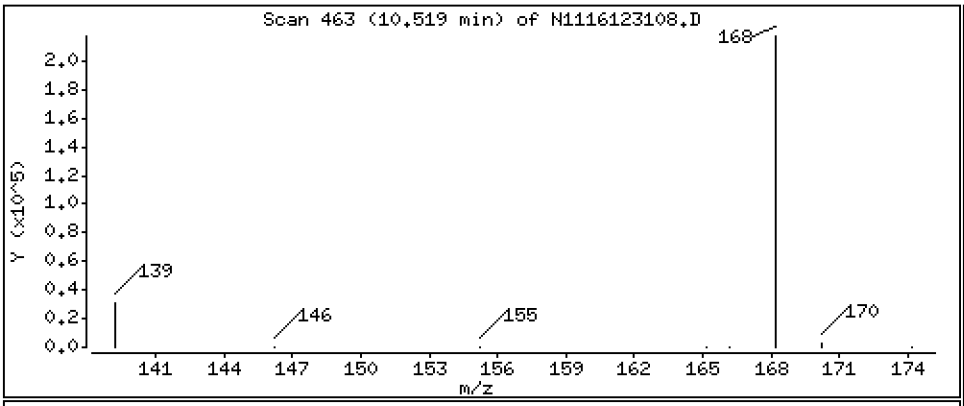
Operator: VTS

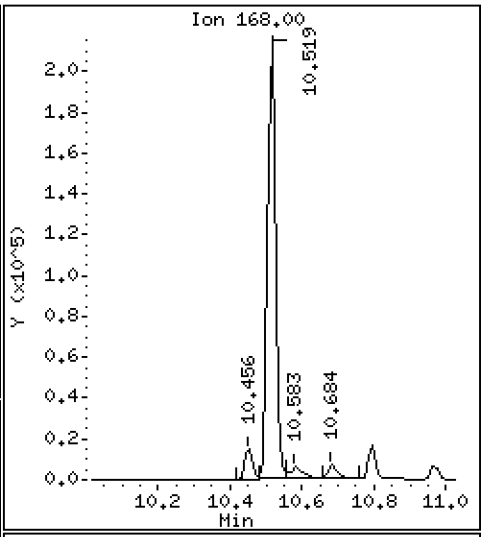
Column phase: Rxi-17Sil MS

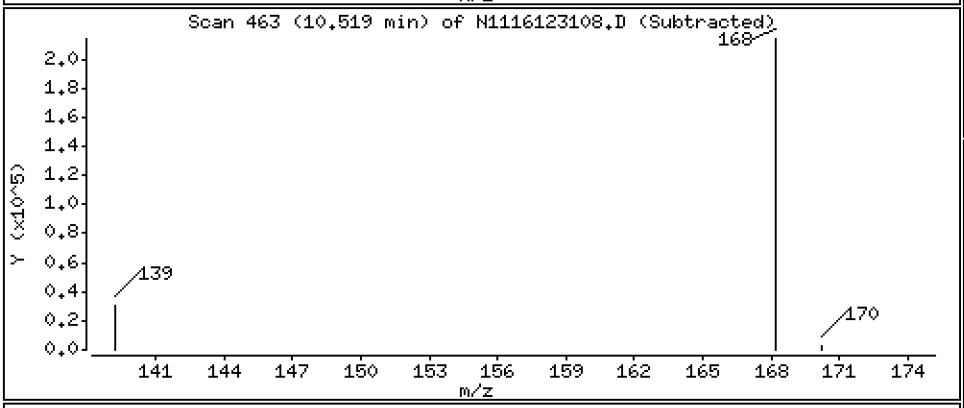
Column diameter: 0.25

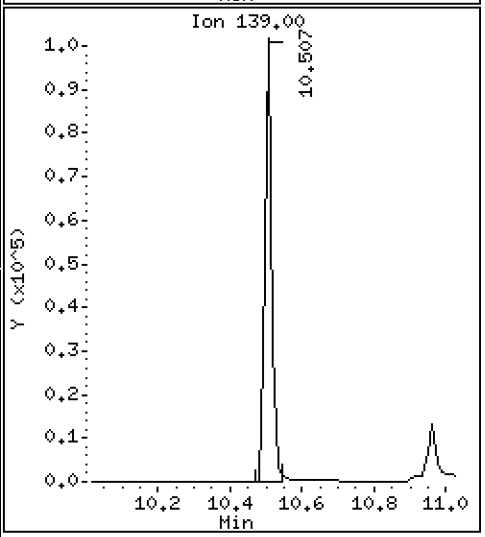
13 Dibenzofuran

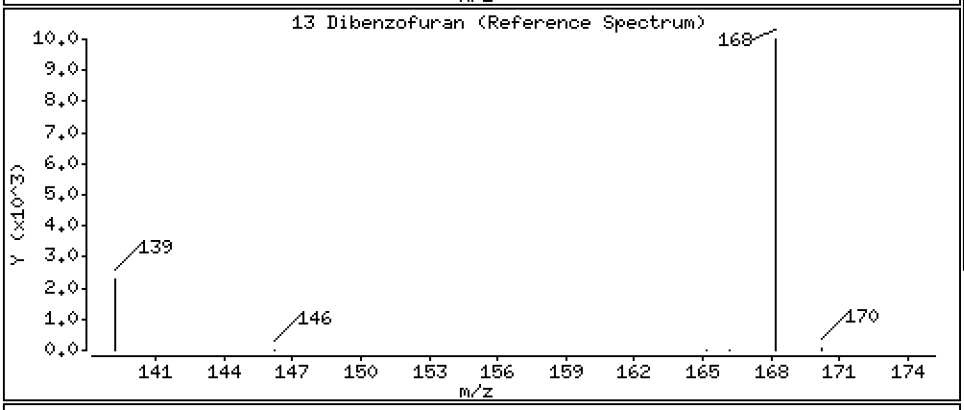
Concentration: 285 ng/mL

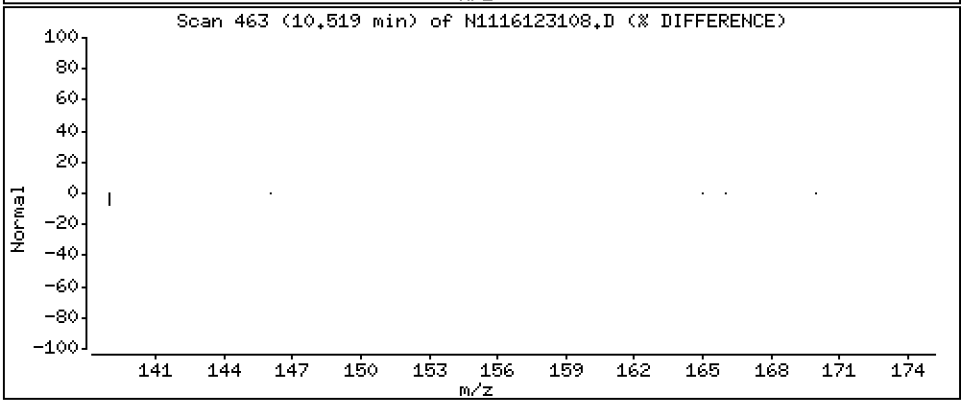












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Date : 31-DEC-2016 11:35

Client ID:

Instrument: nt11.i

Sample Info: SEL0401-SCV1

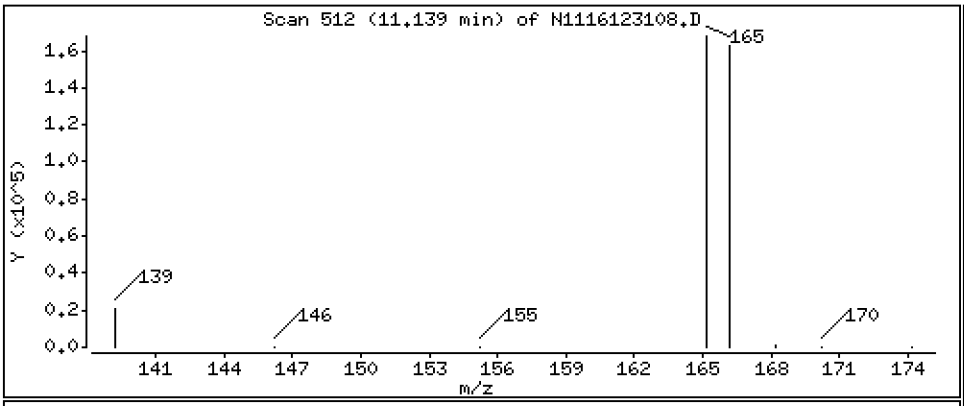
Operator: VTS

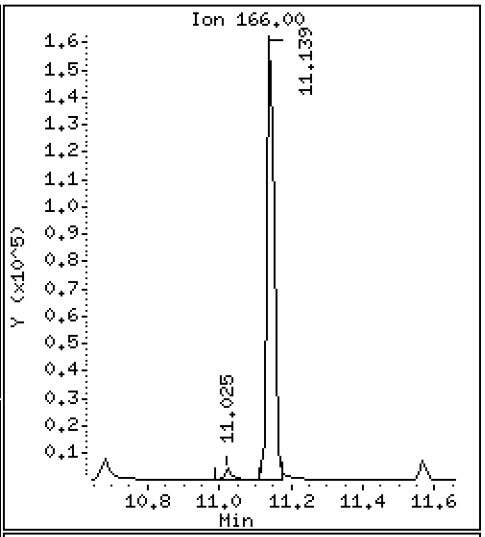
Column phase: Rxi-17Sil MS

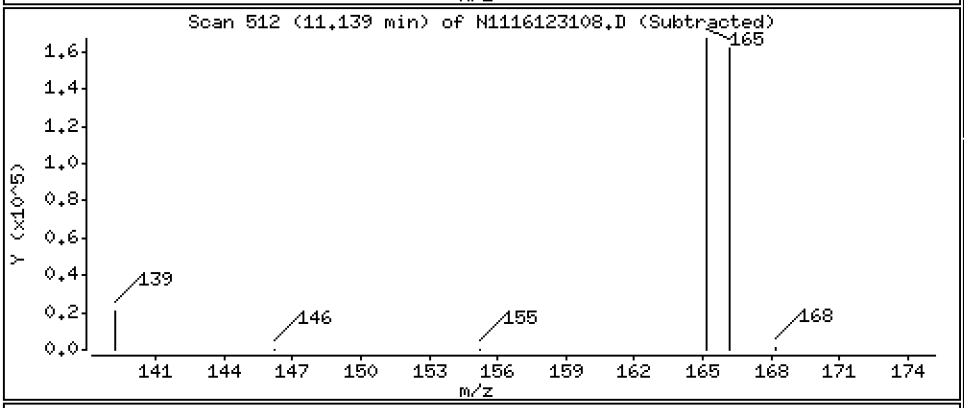
Column diameter: 0.25

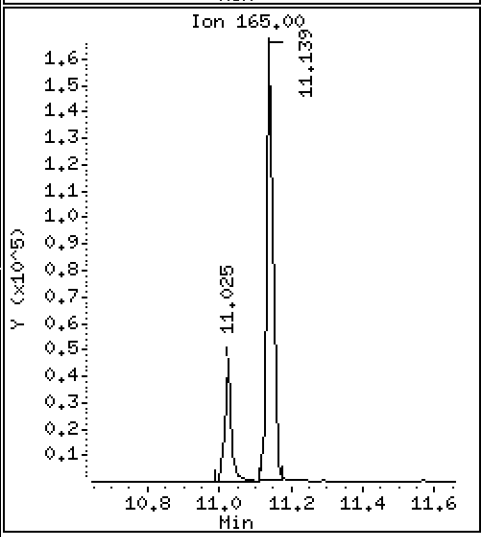
16 Fluorene

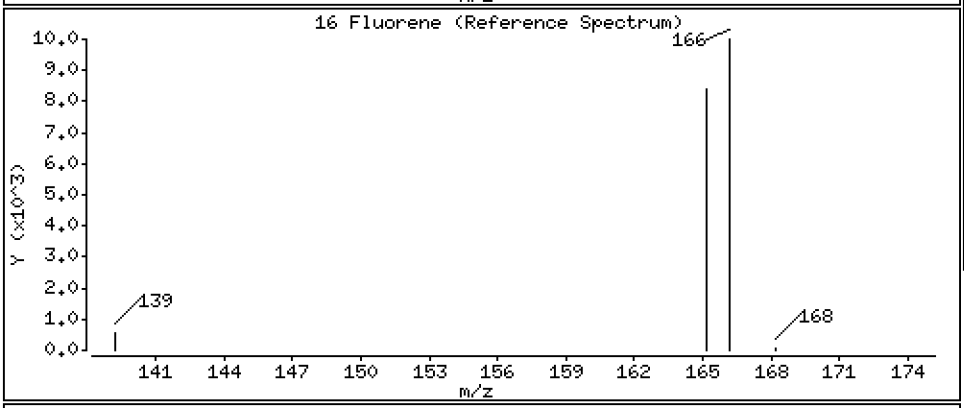
Concentration: 268 ng/mL

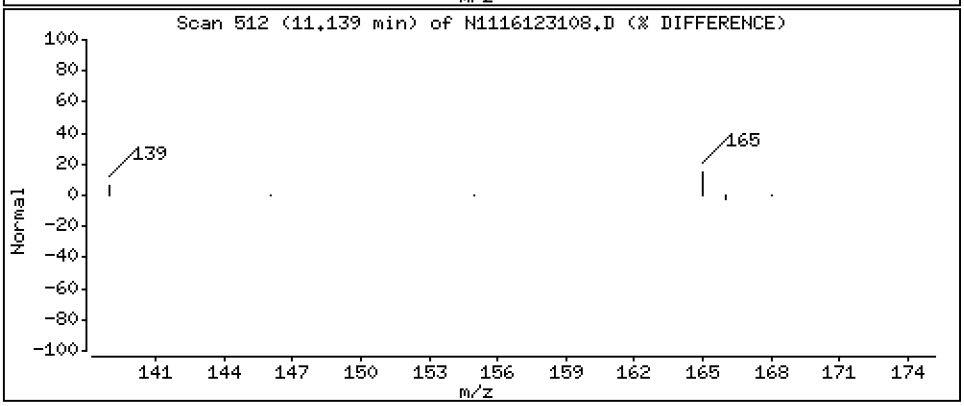












Data File: \\target\share\chem3\nt11.i\20161231.b\N1116123108.D

Date : 31-DEC-2016 11:35

Client ID:

Instrument: nt11.i

Sample Info: SEL0401-SCV1

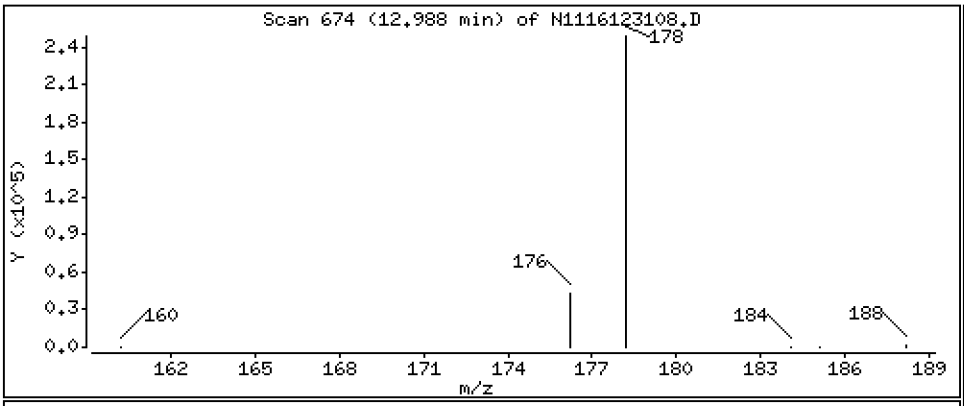
Operator: VTS

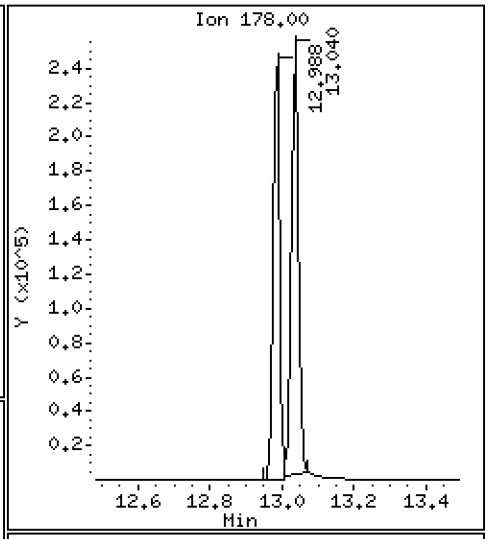
Column phase: Rxi-17Sil MS

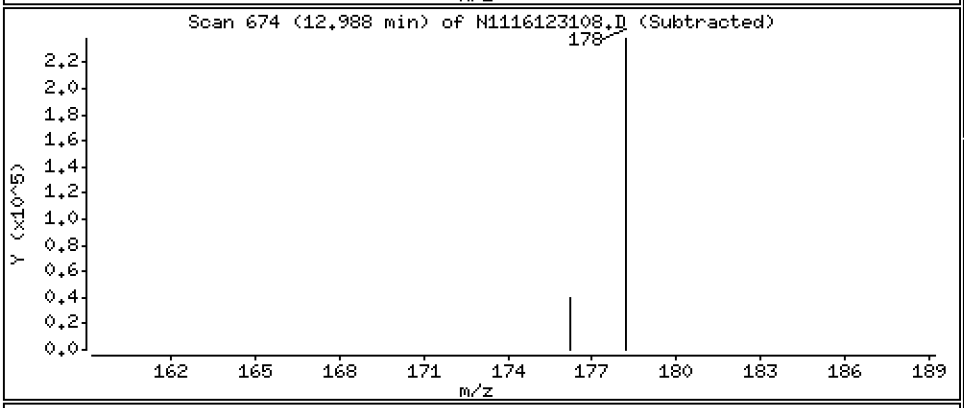
Column diameter: 0.25

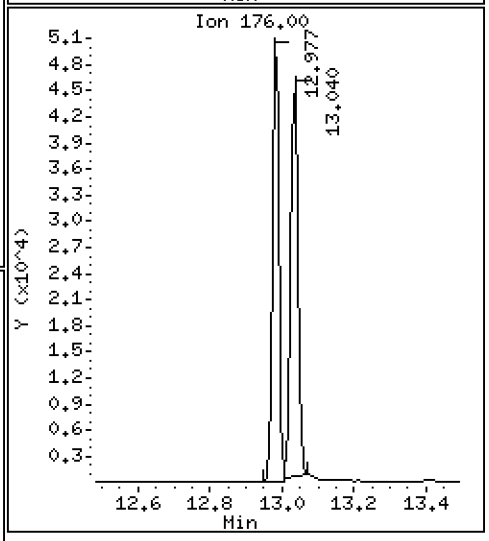
19 Phenanthrene

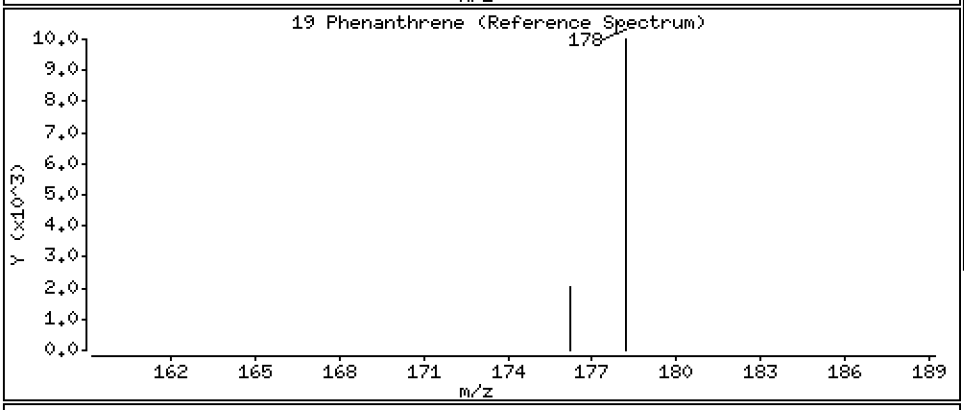
Concentration: 251 ng/mL

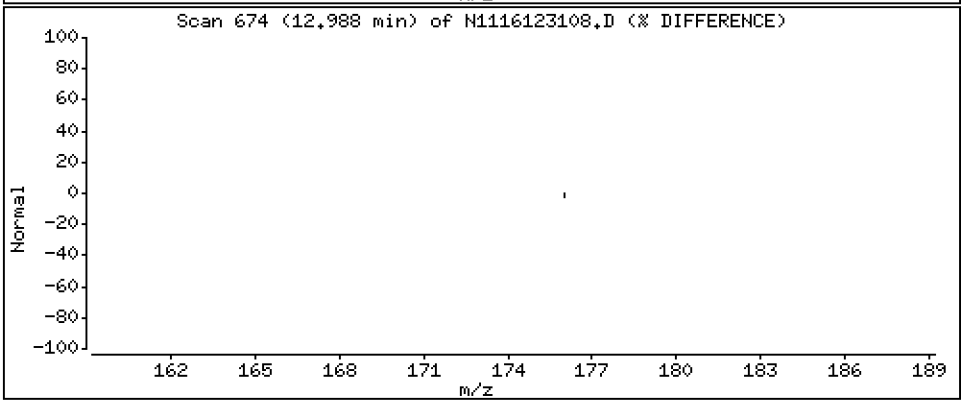












Data File: \\target\share\chem3\nt11.i\20161231.b\N1116123108.D

Date : 31-DEC-2016 11:35

Client ID:

Instrument: nt11.i

Sample Info: SEL0401-SCV1

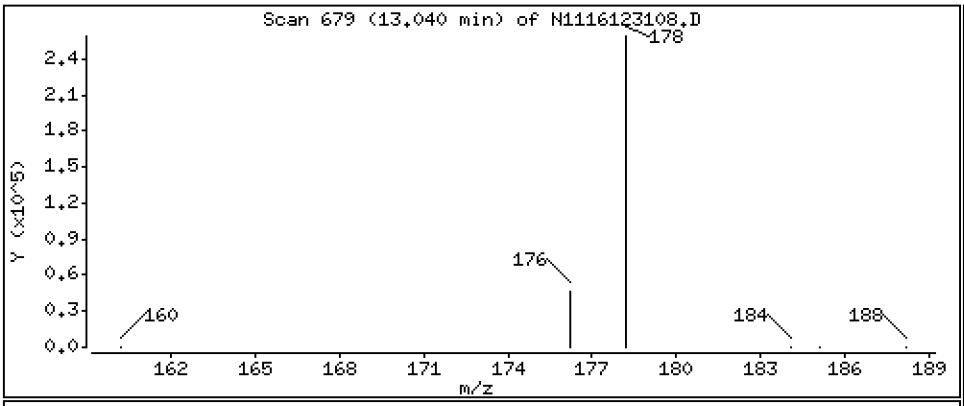
Operator: VTS

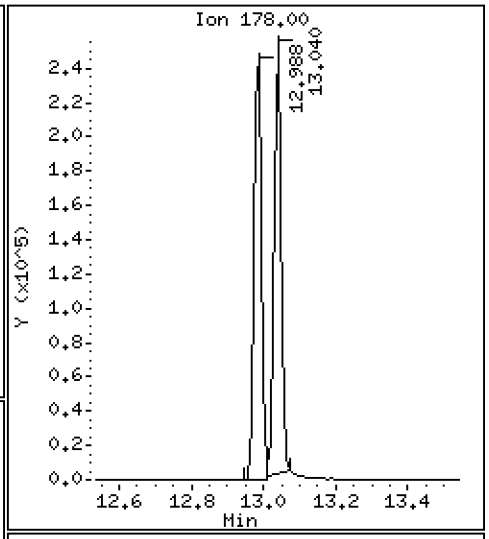
Column phase: Rxi-17Sil MS

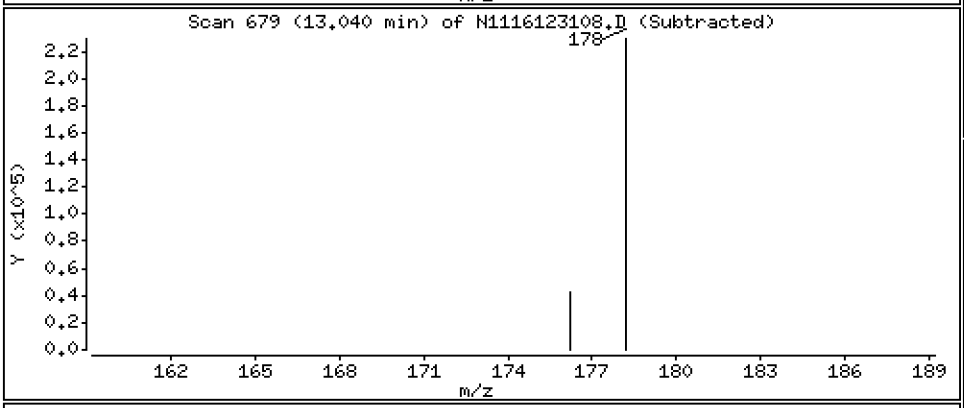
Column diameter: 0.25

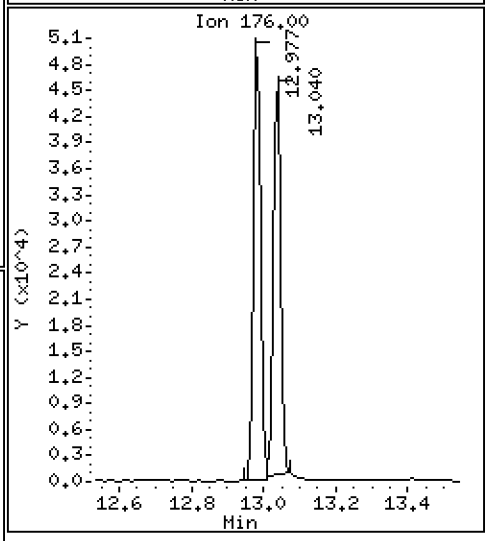
21 Anthracene

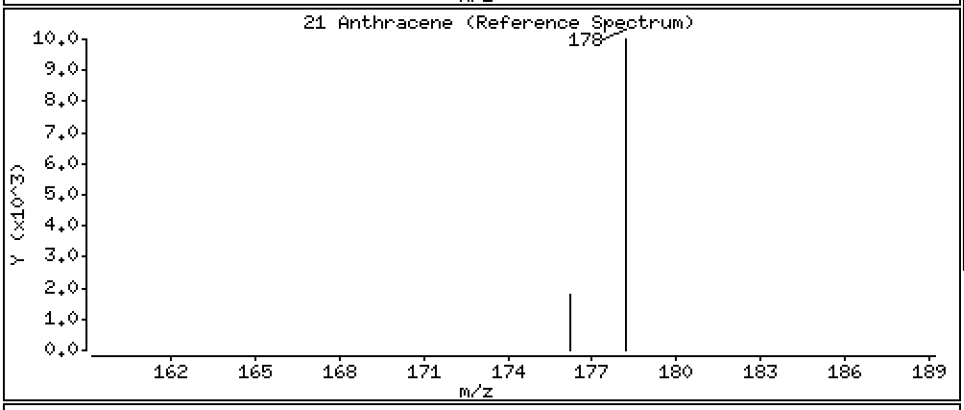
Concentration: 238 ng/mL

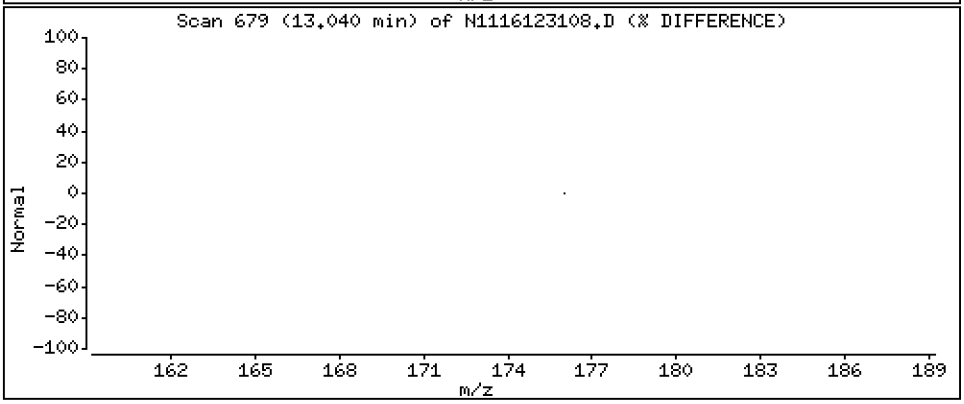












Data File: \\target\share\chem3\nt11.i\20161231.b\N1116123108.D

Date : 31-DEC-2016 11:35

Client ID:

Instrument: nt11.i

Sample Info: SEL0401-SCV1

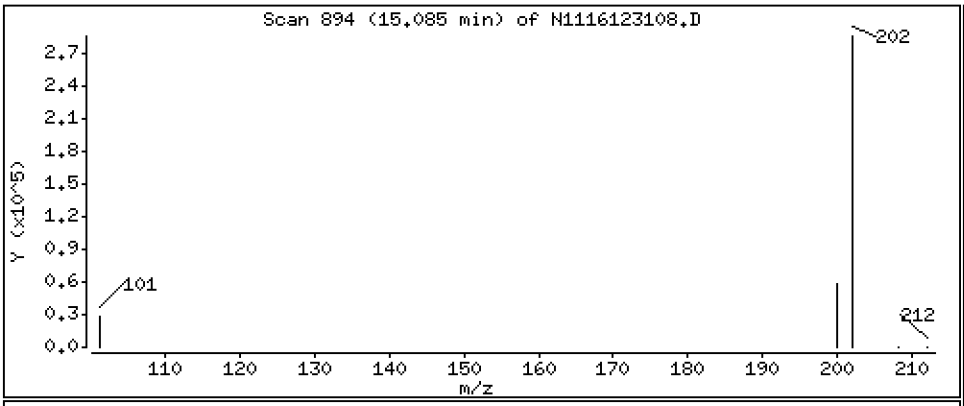
Operator: VTS

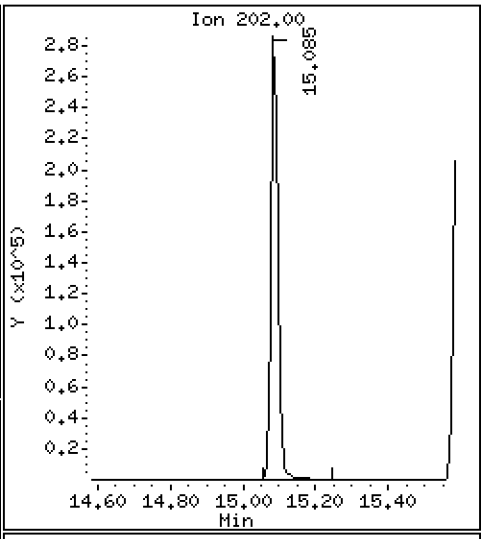
Column phase: Rxi-17Sil MS

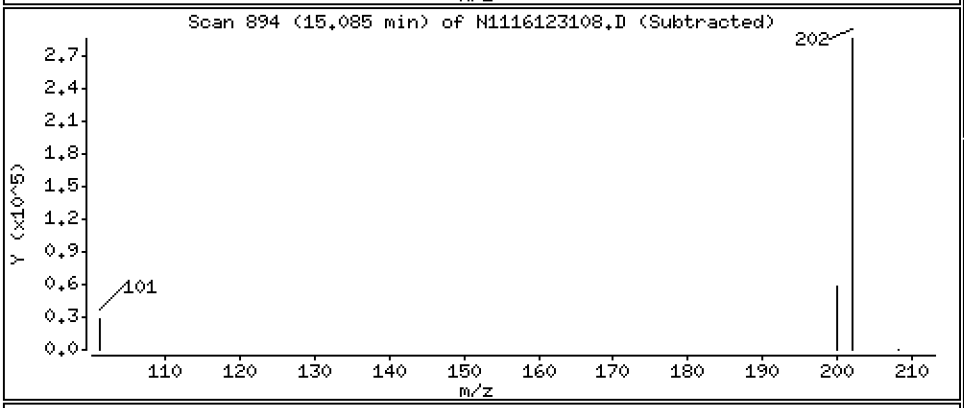
Column diameter: 0.25

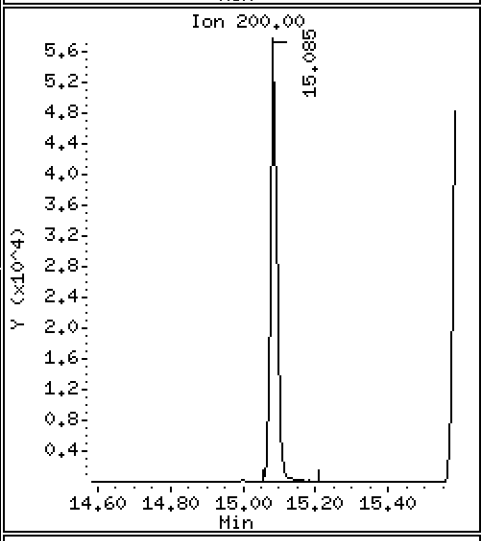
25 Fluoranthene

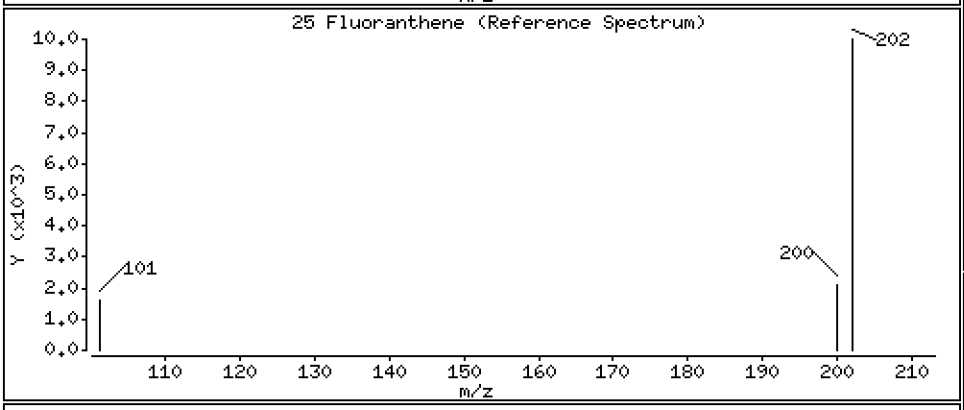
Concentration: 253 ng/mL

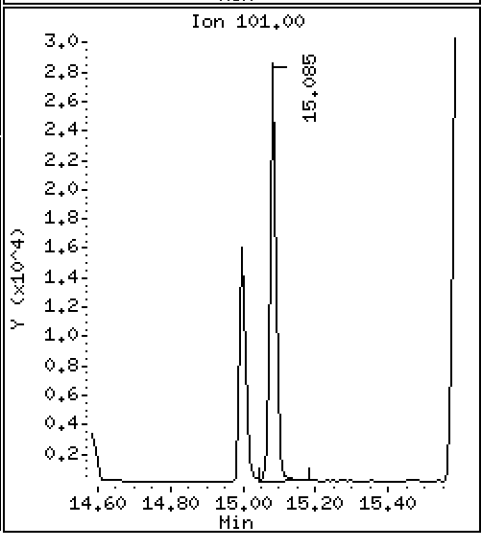


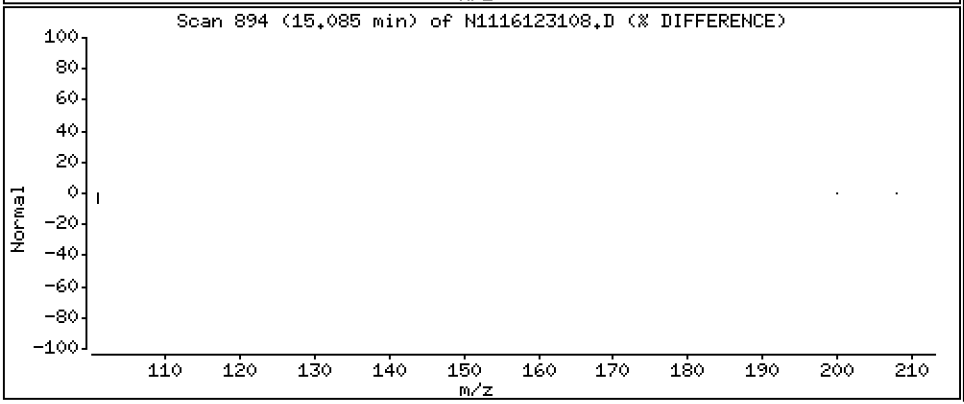












Date : 31-DEC-2016 11:35

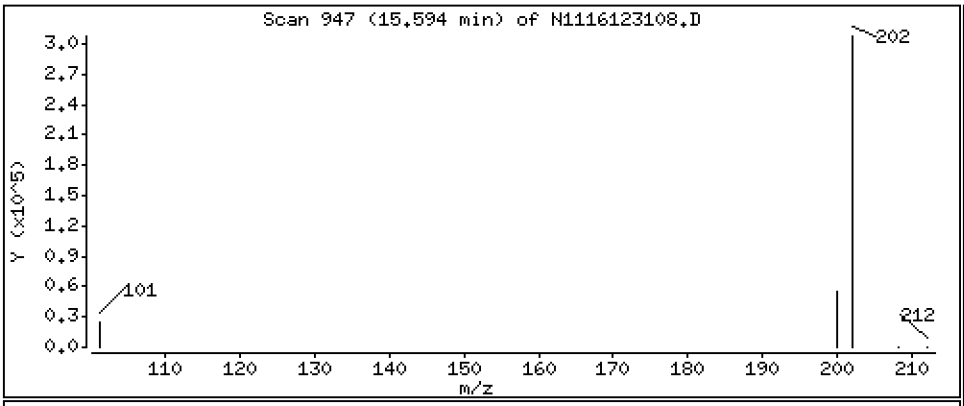
Client ID: Instrument: nt11.i

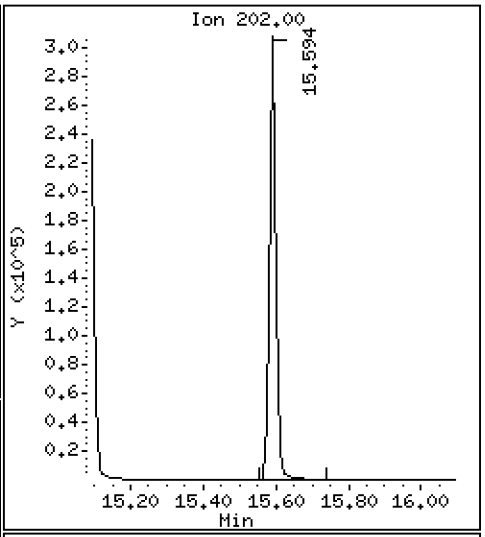
Sample Info: SEL0401-SCV1

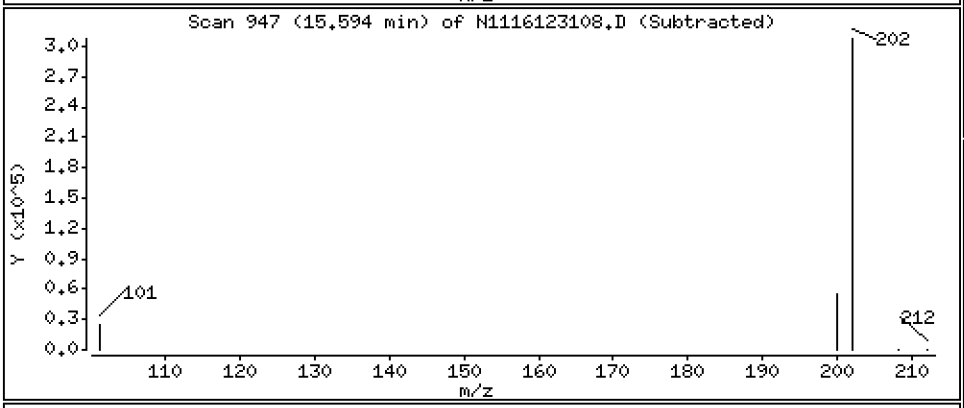
Operator: VTS

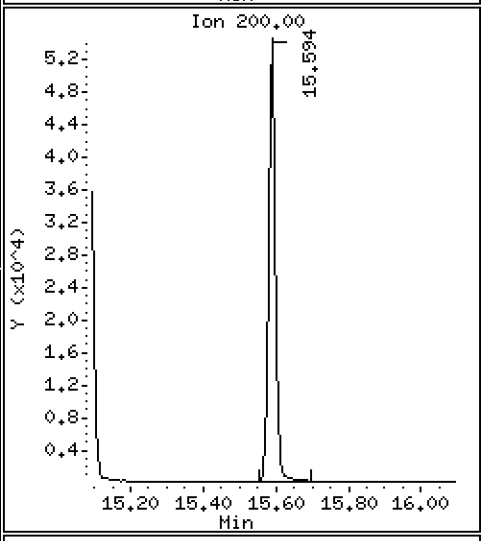
Column phase: Rxi-17Sil MS Column diameter: 0.25

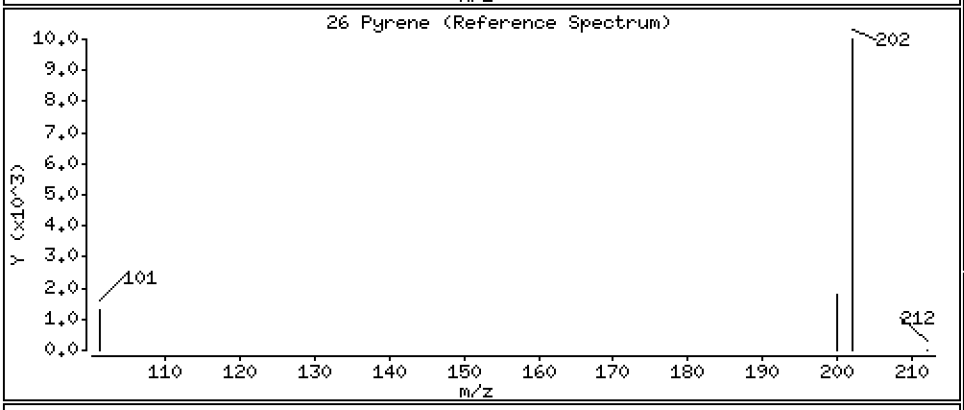
26 Pyrene Concentration: 247 ng/mL

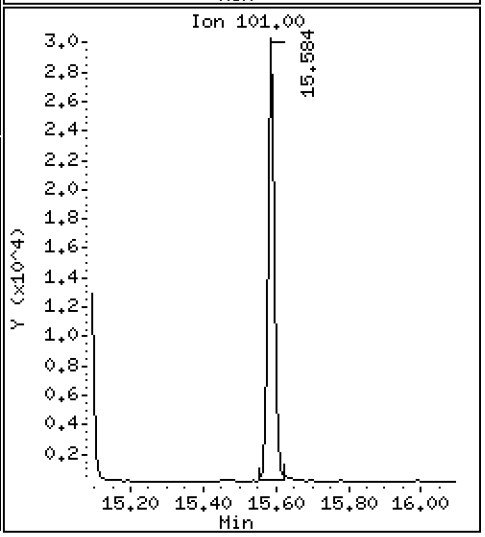


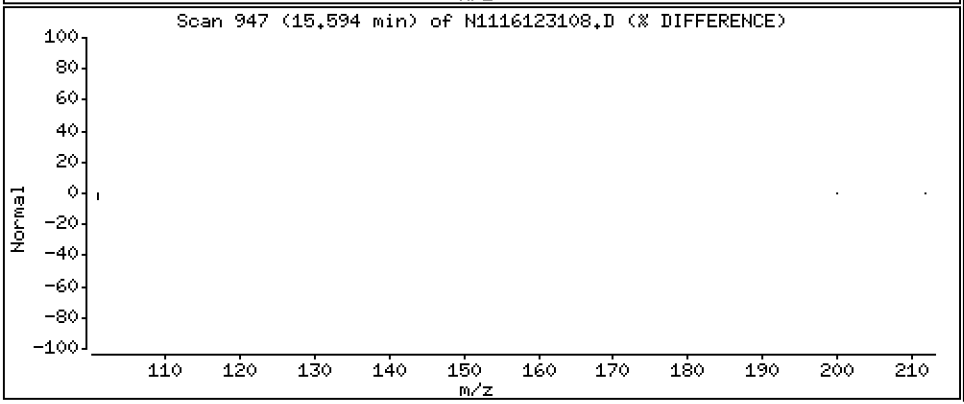












Data File: \\target\share\chem3\nt11.i\20161231.b\N1116123108.D

Date : 31-DEC-2016 11:35

Client ID:

Instrument: nt11.i

Sample Info: SEL0401-SCV1

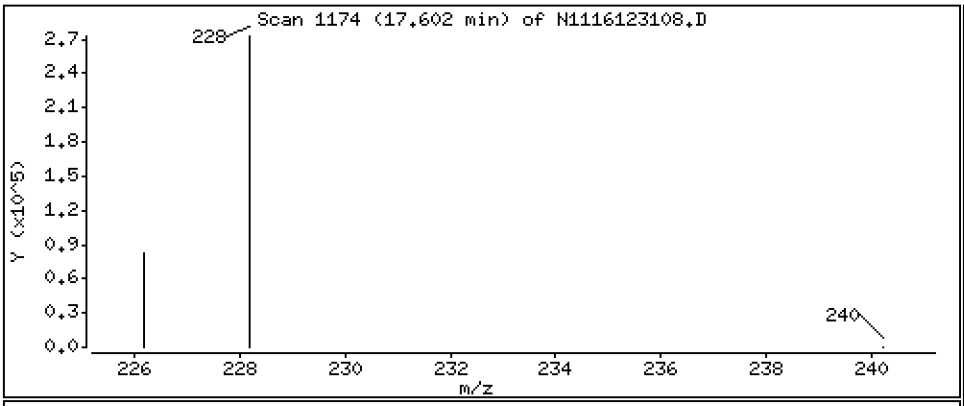
Operator: VTS

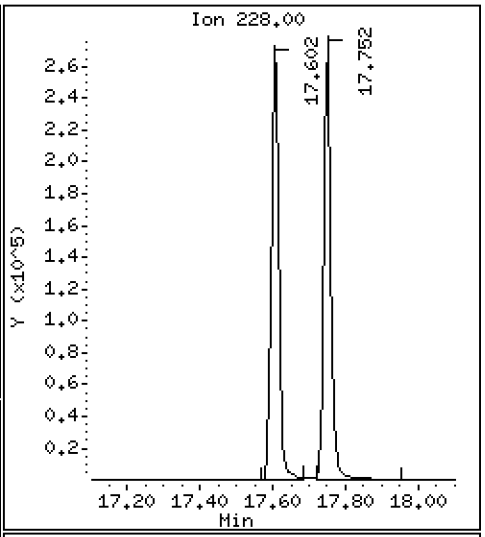
Column phase: Rxi-17Sil MS

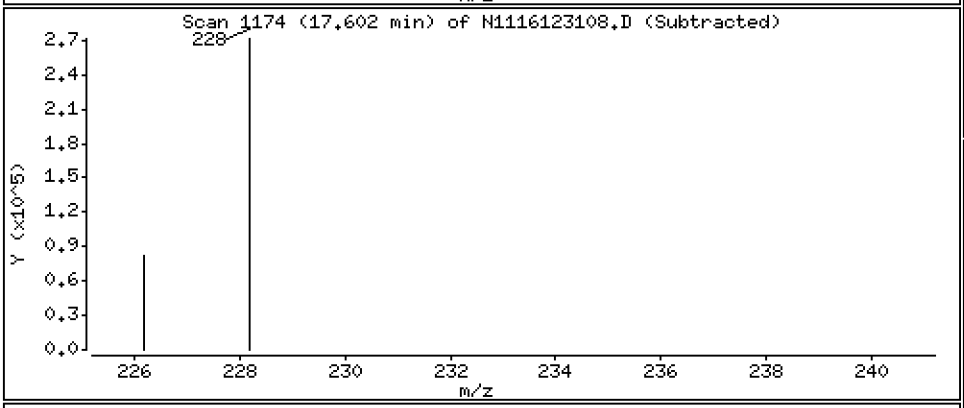
Column diameter: 0.25

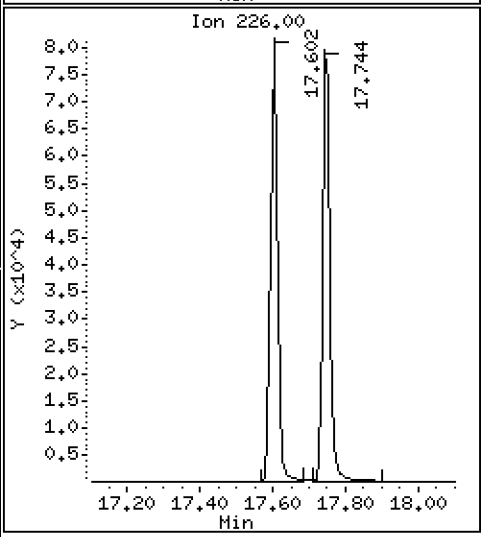
27 Benzo(a)anthracene

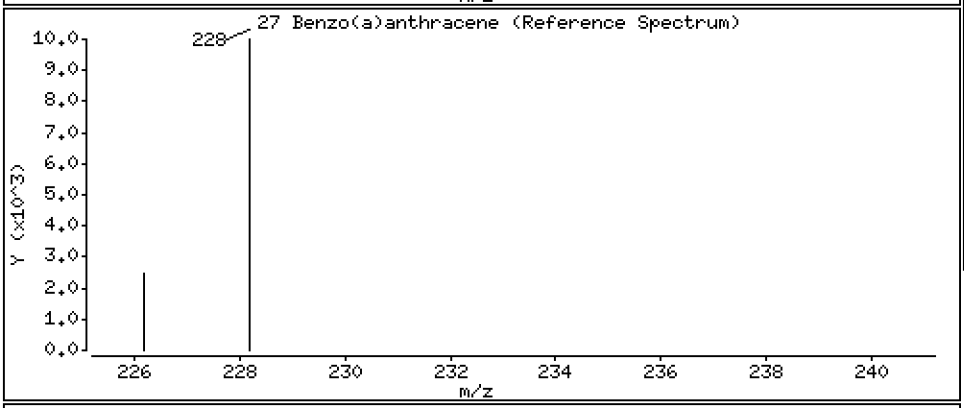
Concentration: 254 ng/mL

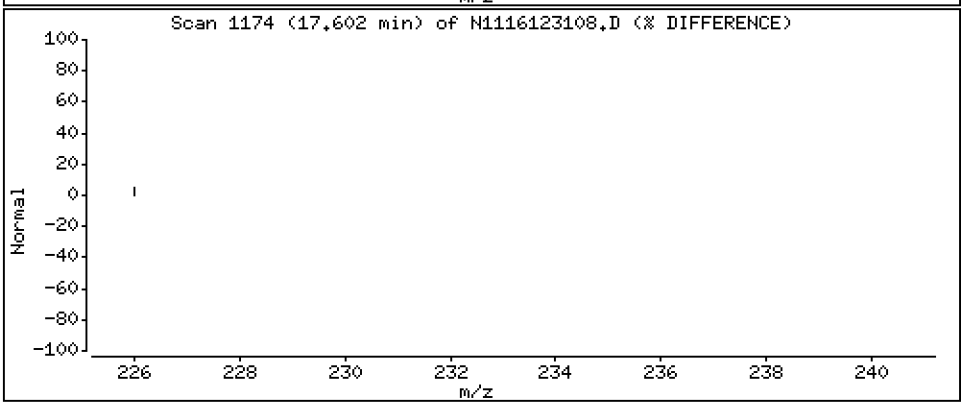












Data File: \\target\share\chem3\nt11.i\20161231.b\N1116123108.D

Date : 31-DEC-2016 11:35

Client ID:

Instrument: nt11.i

Sample Info: SEL0401-SCV1

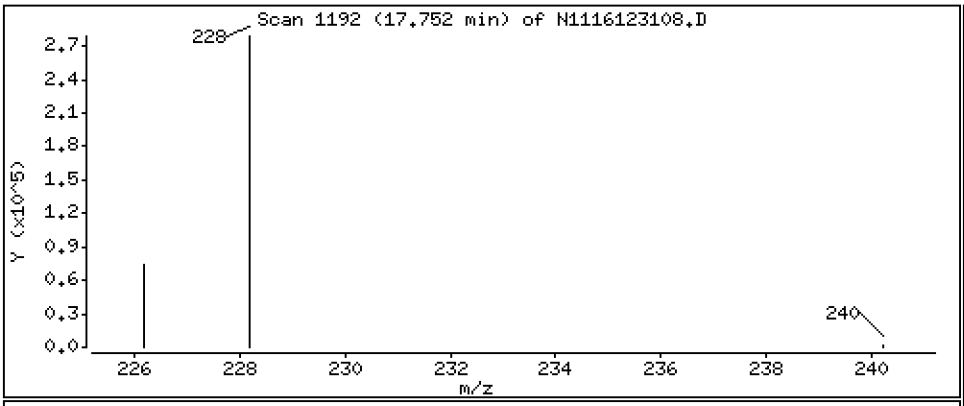
Operator: VTS

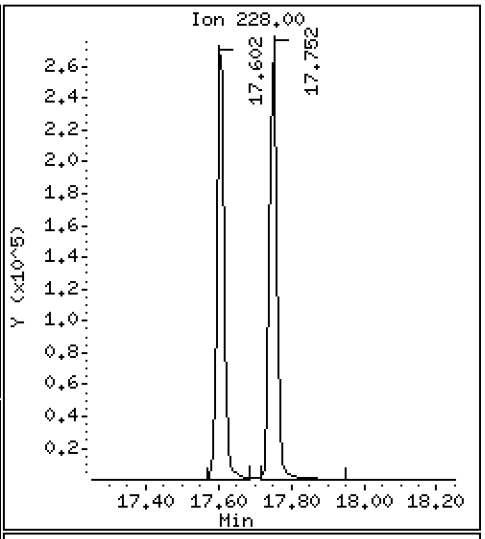
Column phase: Rxi-17Sil MS

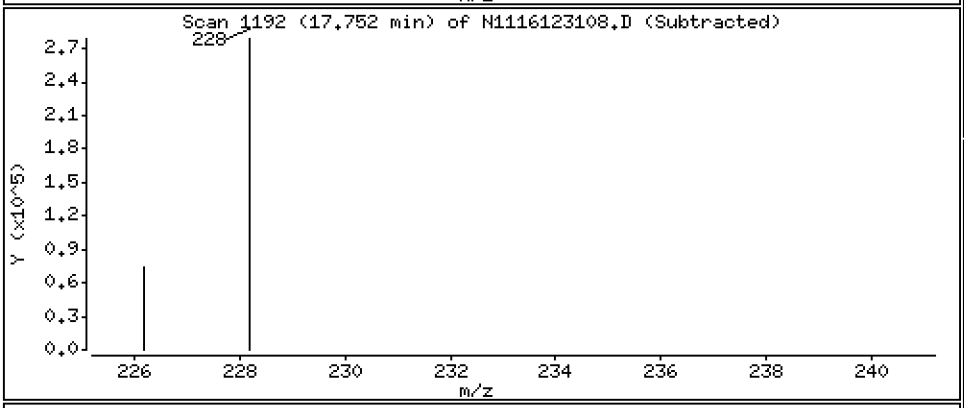
Column diameter: 0.25

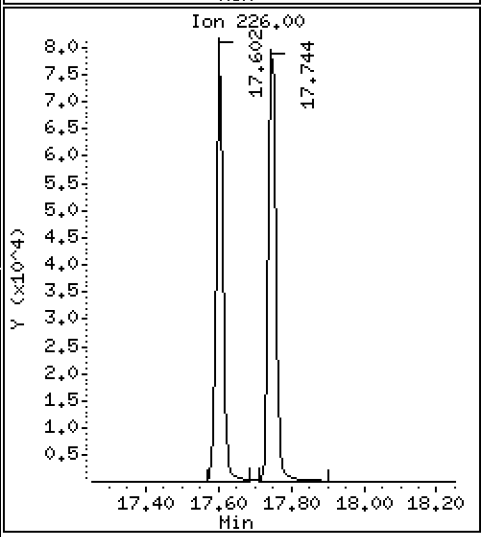
29 Chrysene

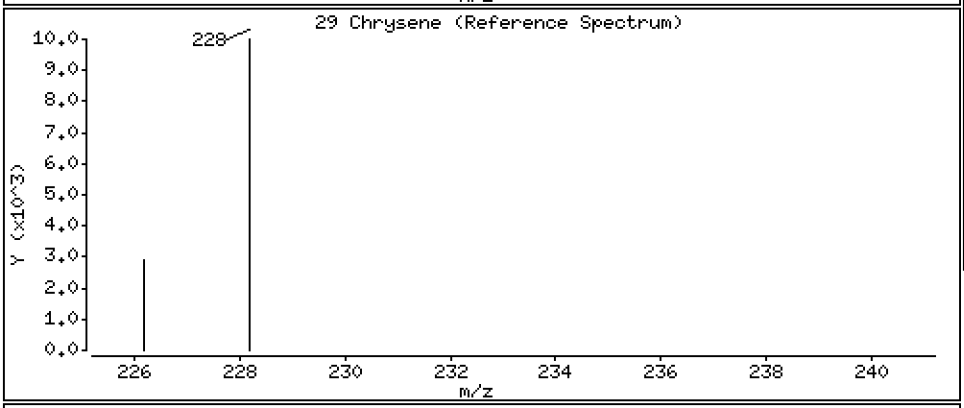
Concentration: 242 ng/mL

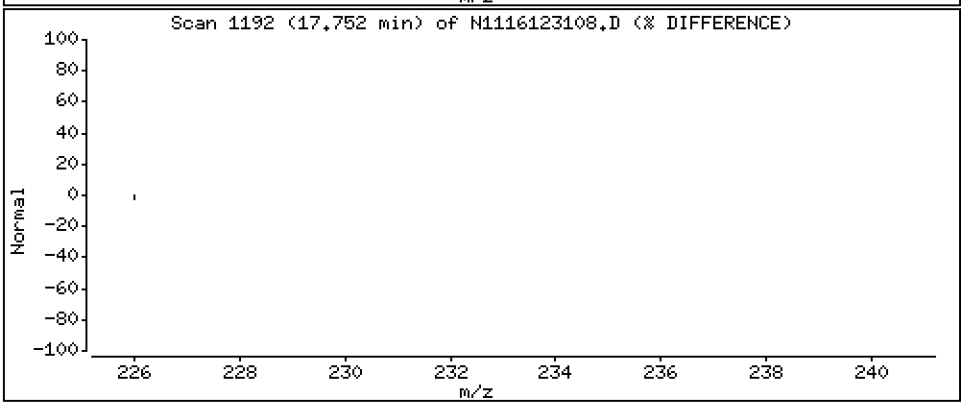












Data File: \\target\share\chem3\nt11.i\20161231.b\N1116123108.D

Date : 31-DEC-2016 11:35

Client ID:

Instrument: nt11.i

Sample Info: SEL0401-SCV1

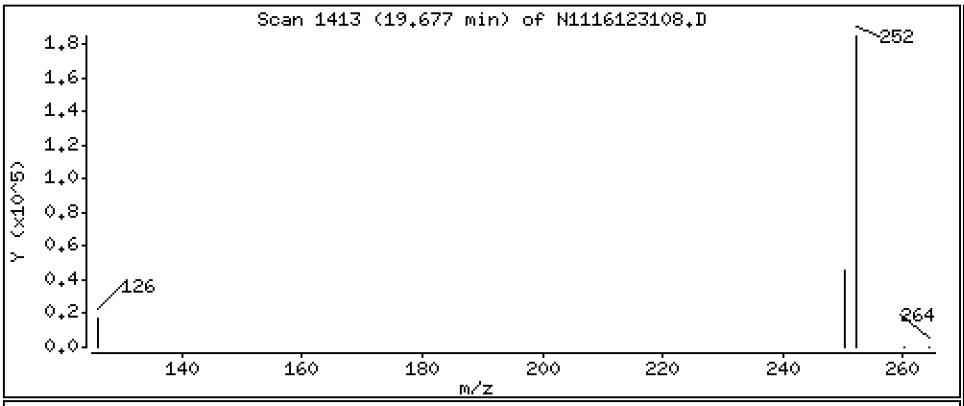
Operator: VTS

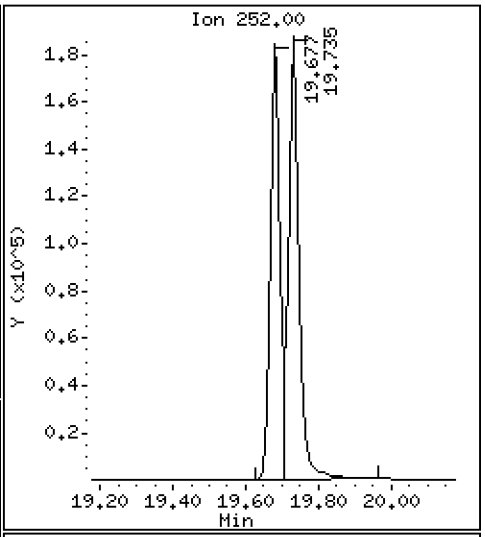
Column phase: Rxi-17Sil MS

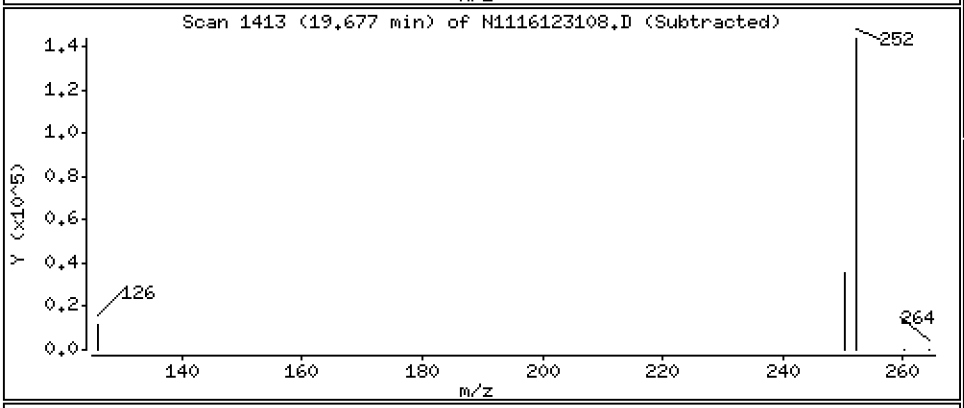
Column diameter: 0.25

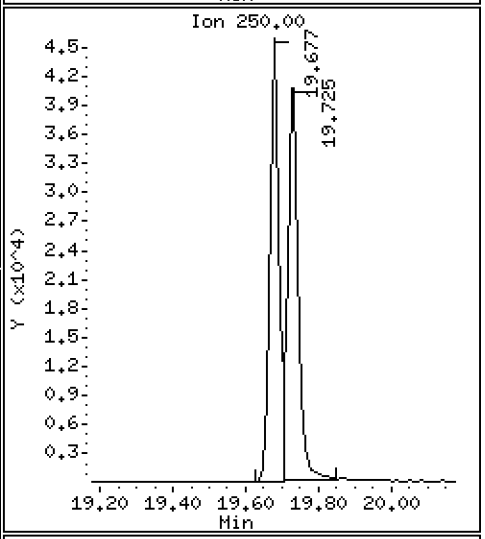
30 Benzo(b)fluoranthene

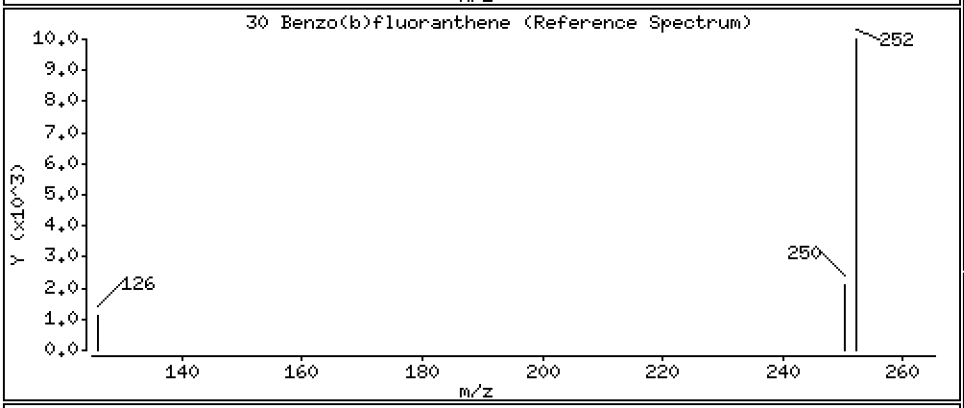
Concentration: 253 ng/mL

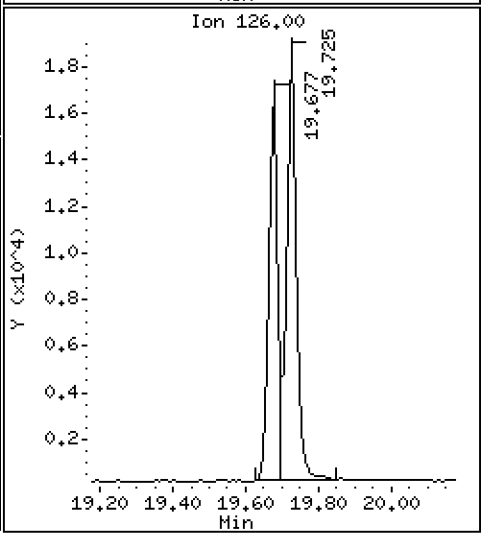


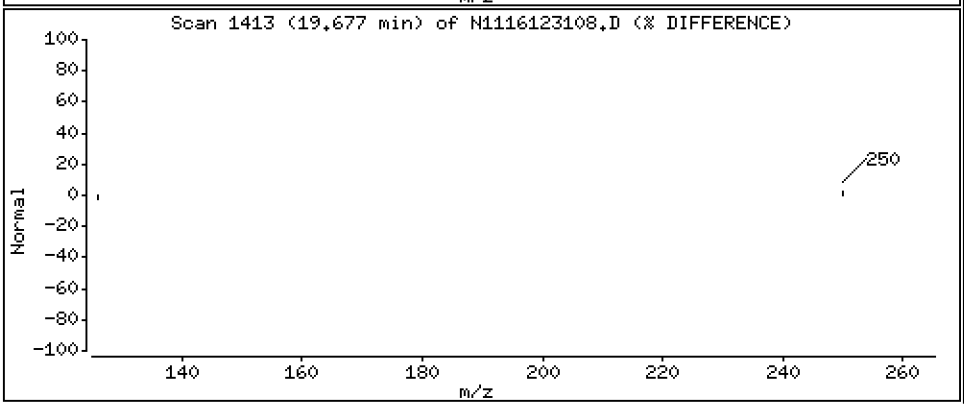












Data File: \\target\share\chem3\nt11.i\20161231.b\N1116123108.D

Date : 31-DEC-2016 11:35

Client ID:

Instrument: nt11.i

Sample Info: SEL0401-SCV1

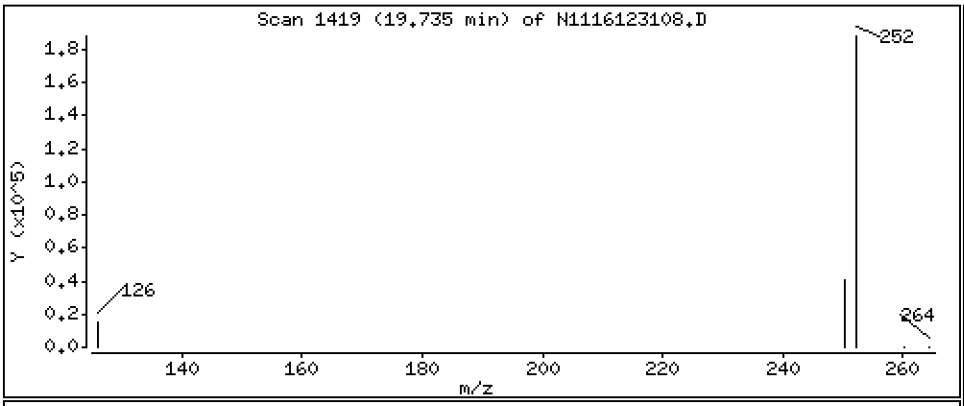
Operator: VTS

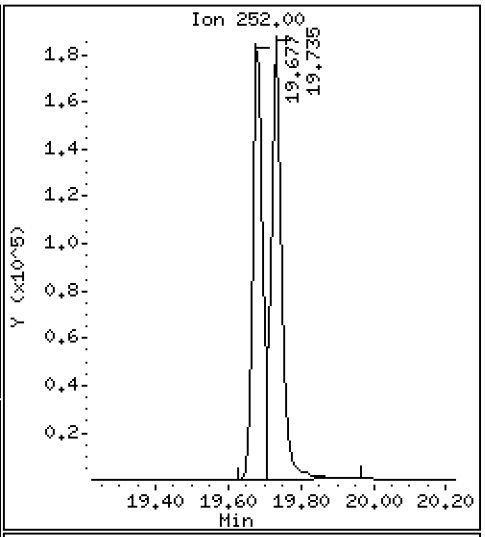
Column phase: Rxi-17Sil MS

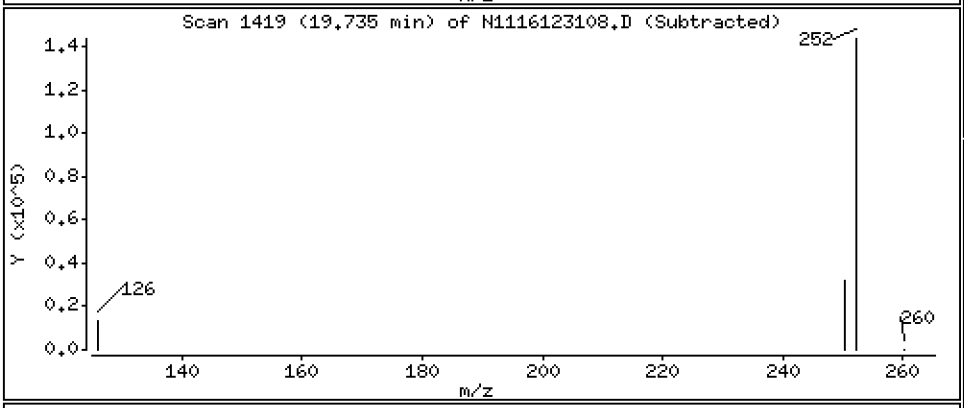
Column diameter: 0.25

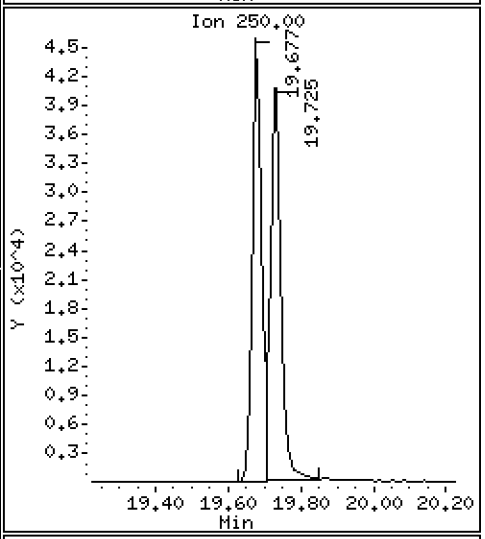
31 Benzo(k)fluoranthene

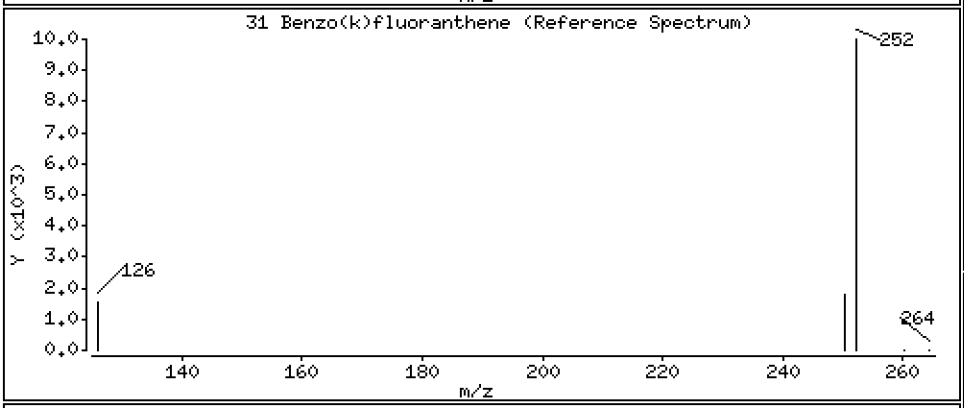
Concentration: 262 ng/mL

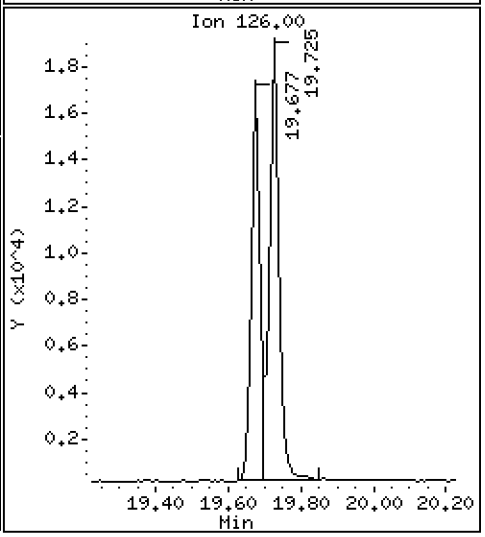


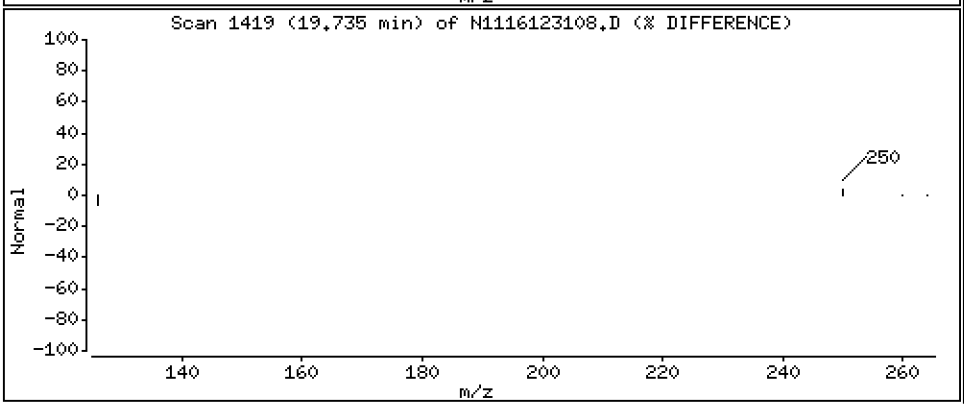












Data File: \\target\share\chem3\nt11.i\20161231.b\N1116123108.D

Date : 31-DEC-2016 11:35

Client ID:

Instrument: nt11.i

Sample Info: SEL0401-SCV1

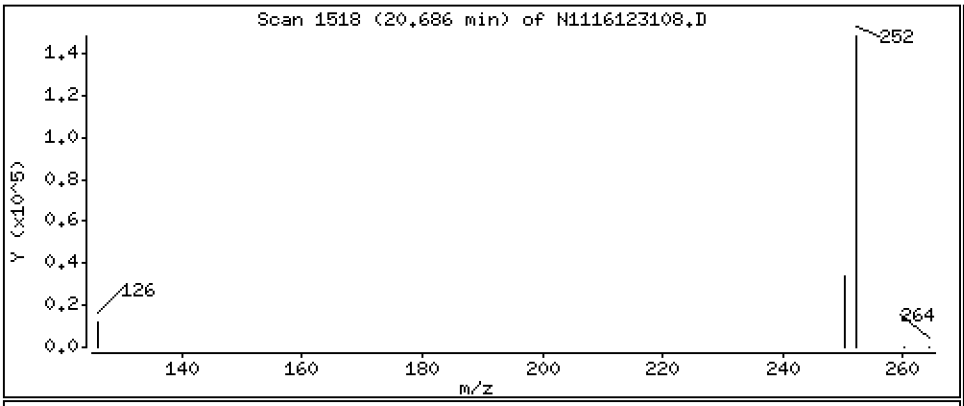
Operator: VTS

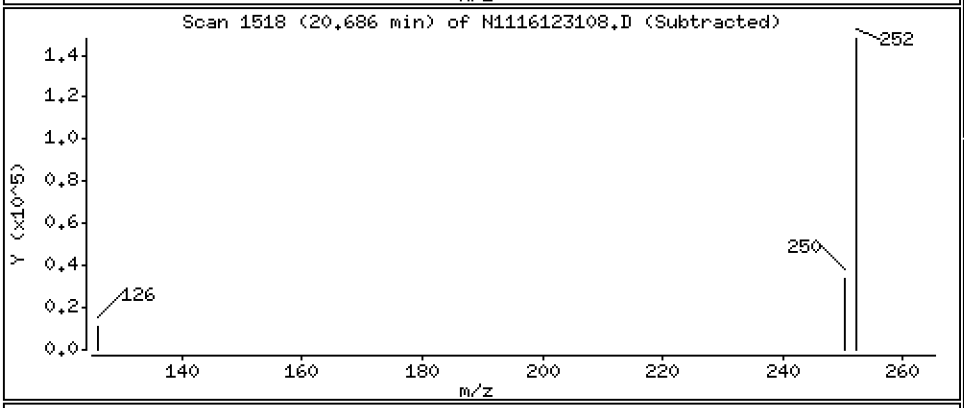
Column phase: Rxi-17Sil MS

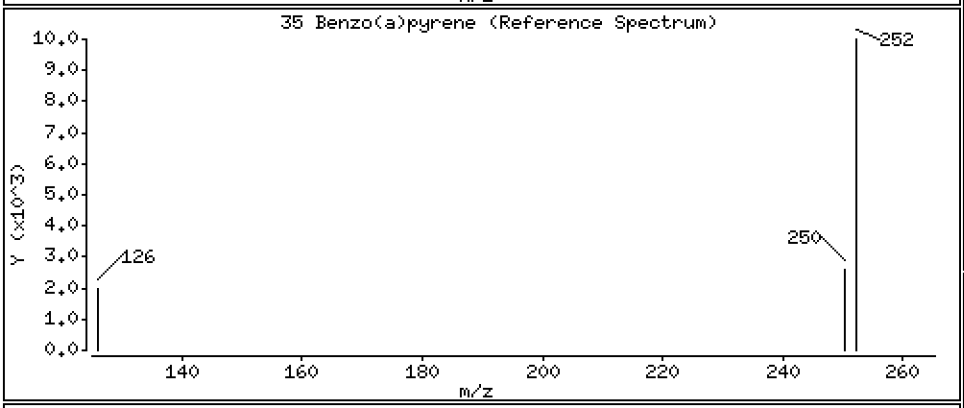
Column diameter: 0.25

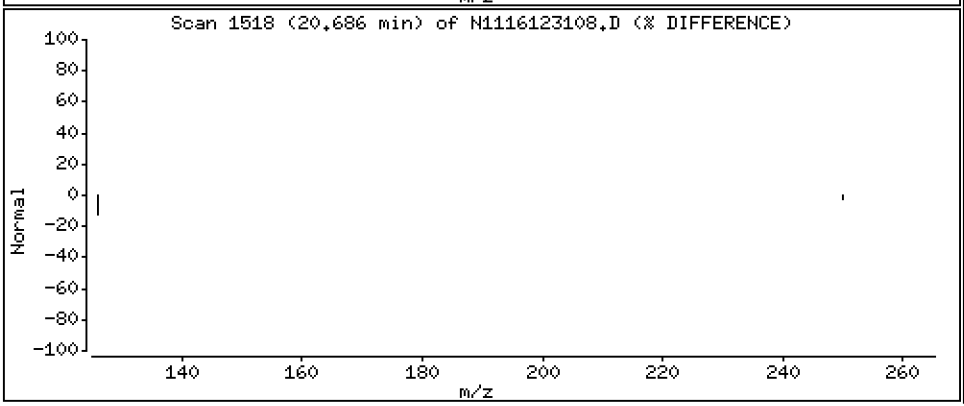
35 Benzo(a)pyrene

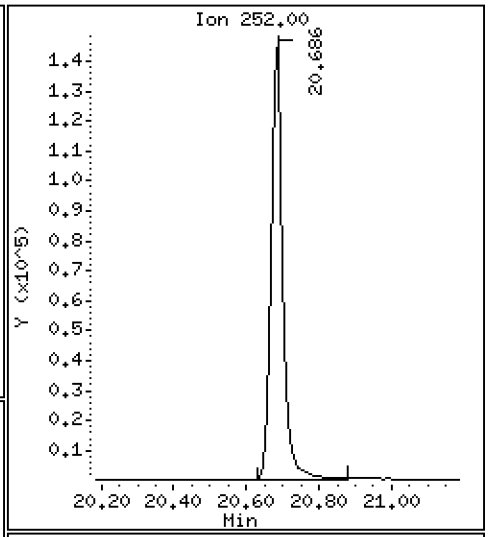
Concentration: 249 ng/mL

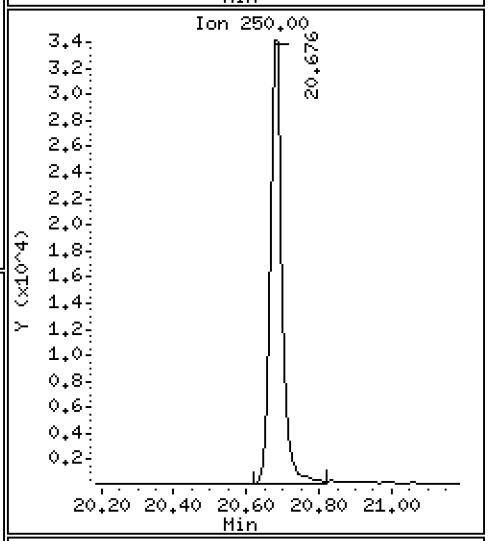


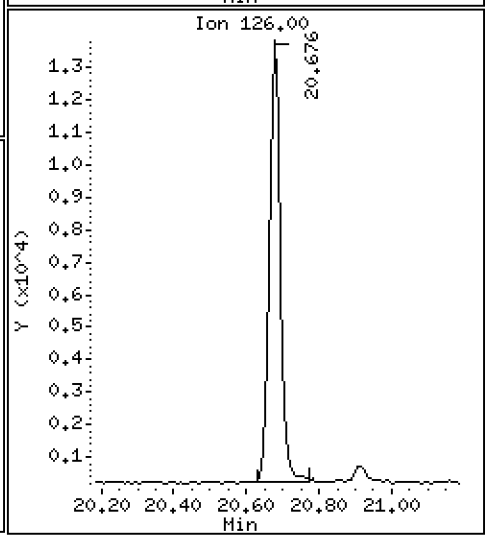












Data File: \\target\share\chem3\nt11.i\20161231.b\N1116123108.D

Date : 31-DEC-2016 11:35

Client ID:

Instrument: nt11.i

Sample Info: SEL0401-SCV1

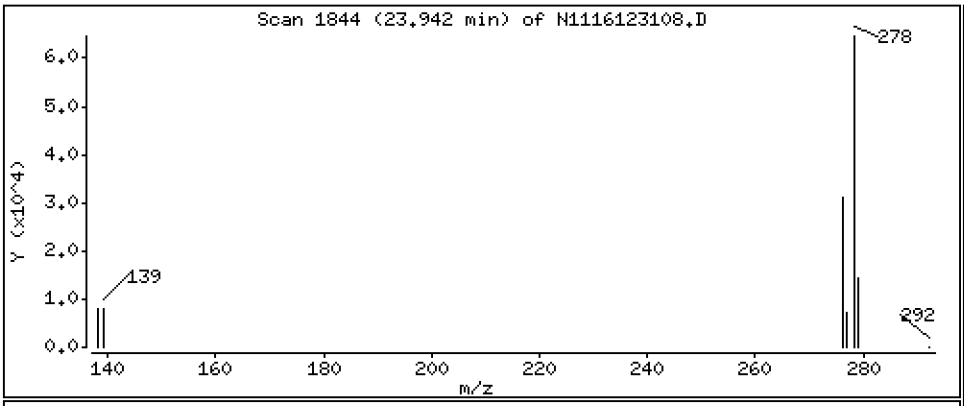
Operator: VTS

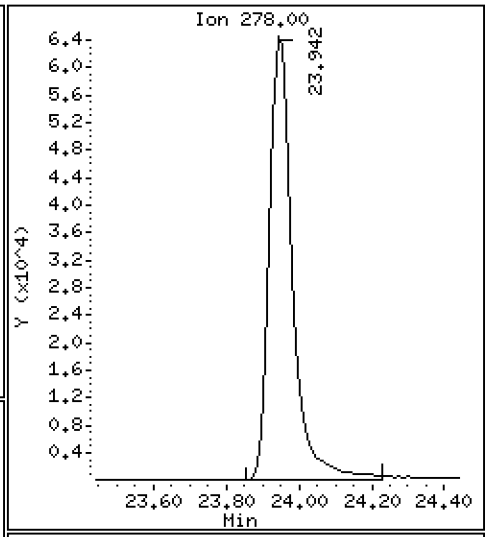
Column phase: Rxi-17Sil MS

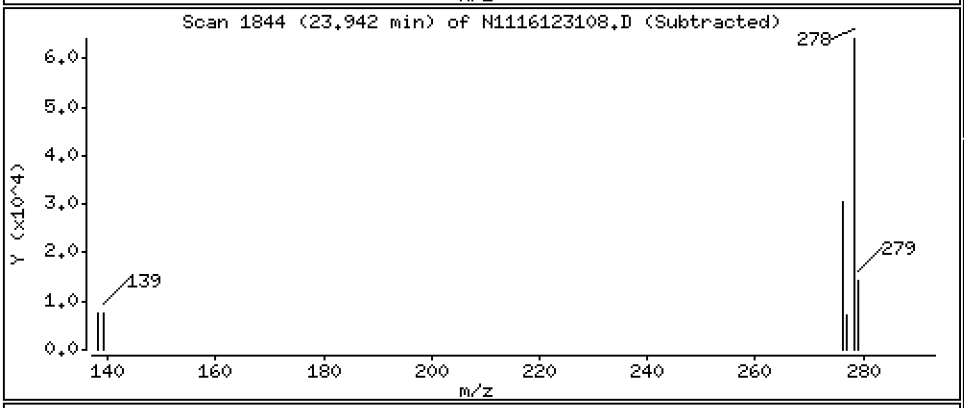
Column diameter: 0.25

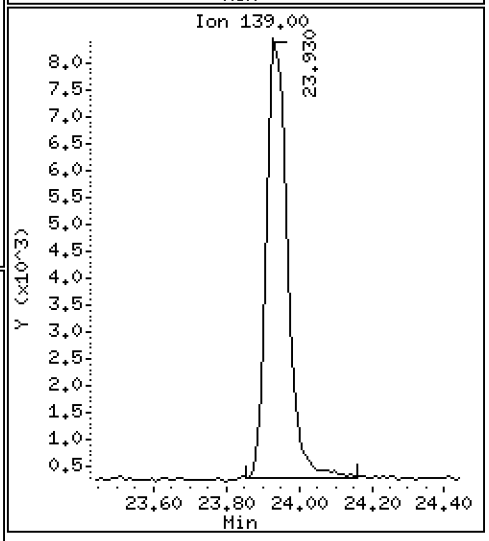
39 Dibenzo(a,h)anthracene

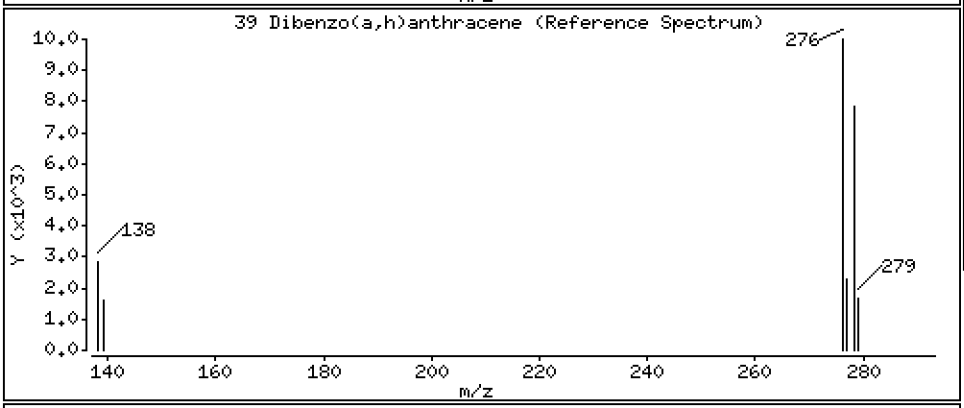
Concentration: 240 ng/mL

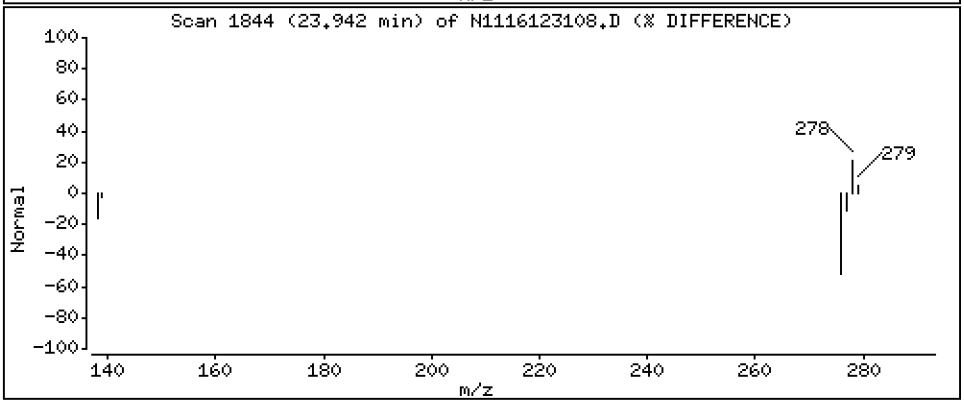












Data File: \\target\share\chem3\nt11.i\20161231.b\N1116123108.D

Date : 31-DEC-2016 11:35

Client ID:

Instrument: nt11.i

Sample Info: SEL0401-SCV1

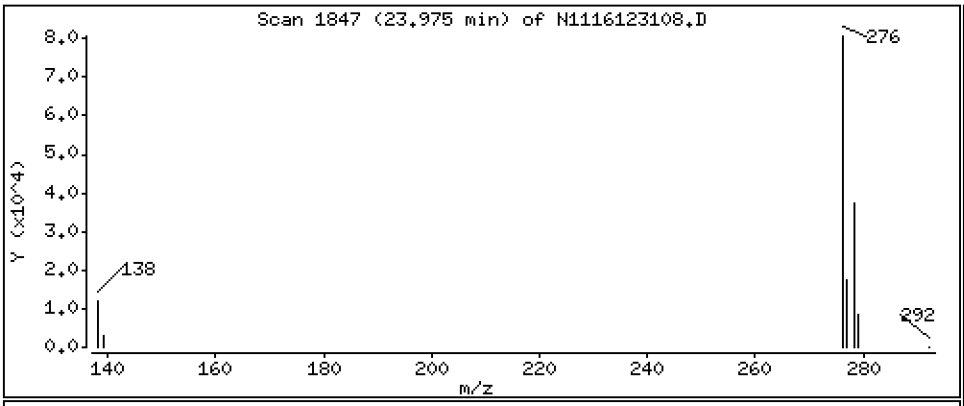
Operator: VTS

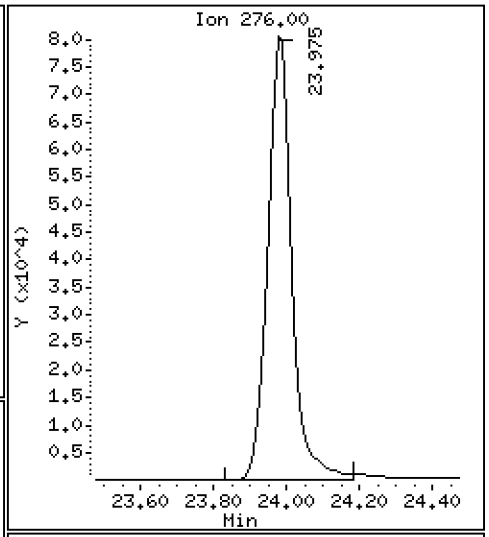
Column phase: Rxi-17Sil MS

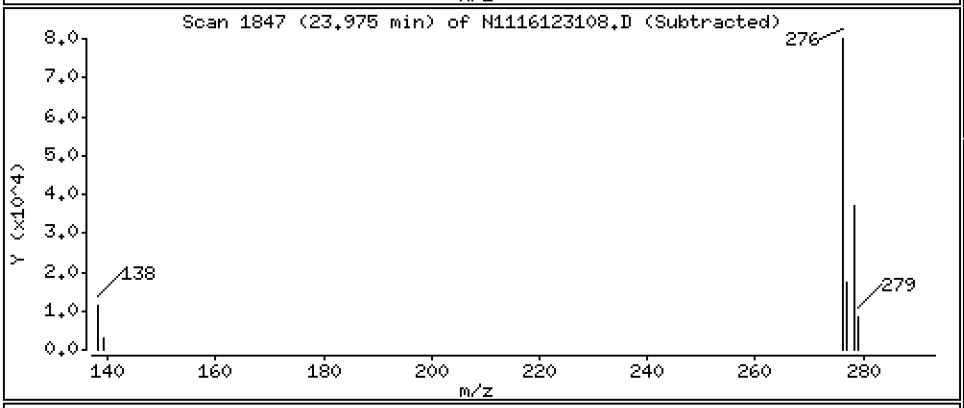
Column diameter: 0.25

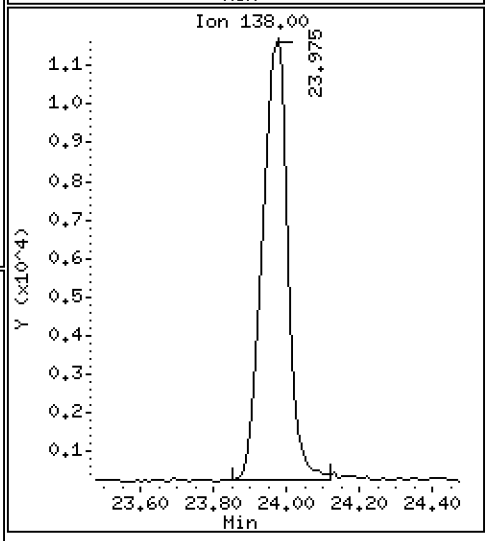
40 Indeno(1,2,3-cd)pyrene

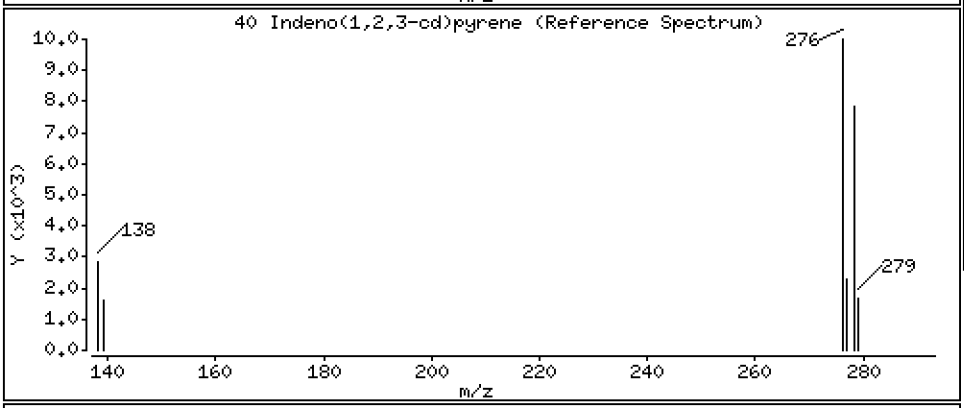
Concentration: 248 ng/mL

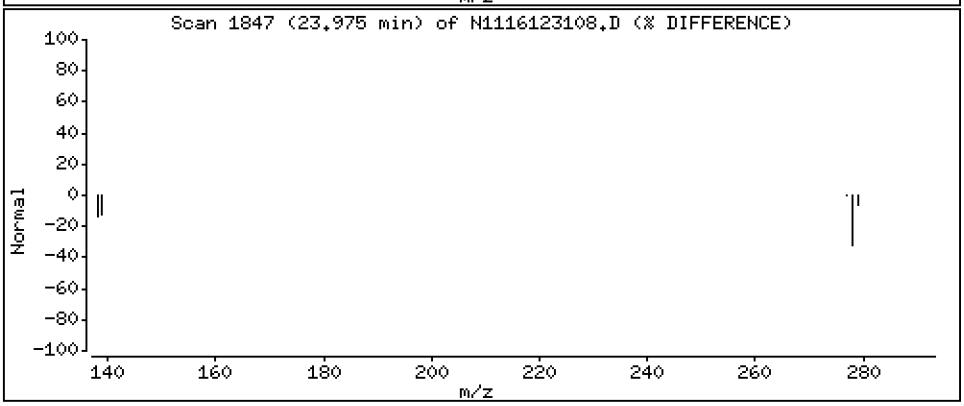












Data File: \\target\share\chem3\nt11.i\20161231.b\N1116123108.D

Date : 31-DEC-2016 11:35

Client ID:

Instrument: nt11.i

Sample Info: SEL0401-SCV1

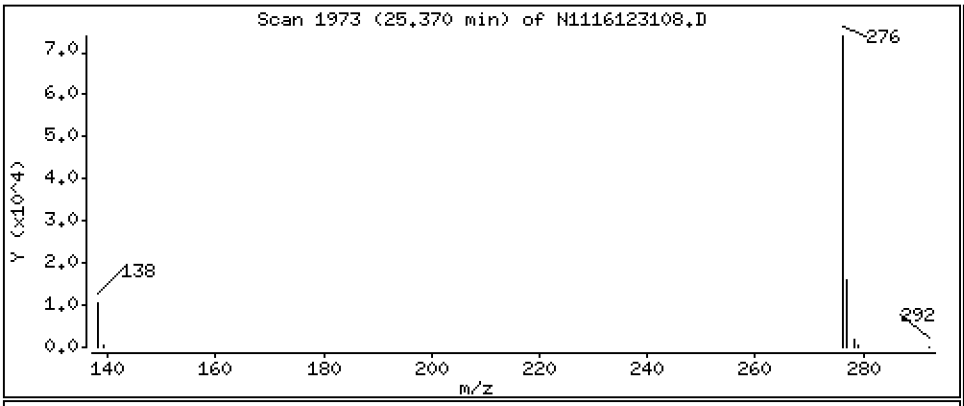
Operator: VTS

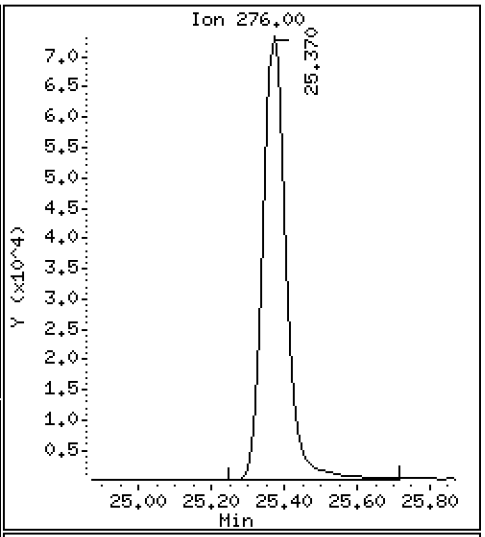
Column phase: Rxi-17Sil MS

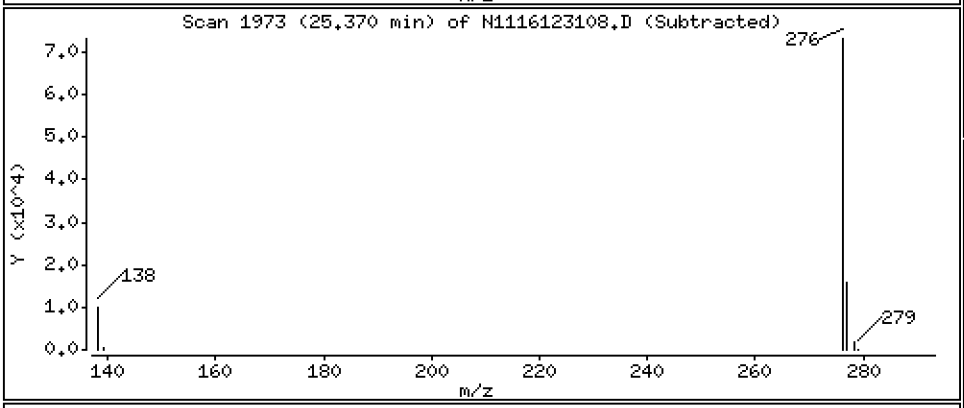
Column diameter: 0.25

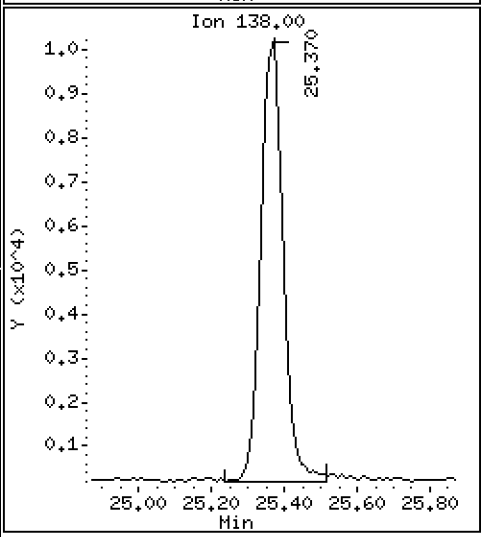
41 Benzo(g,h,i)perylene

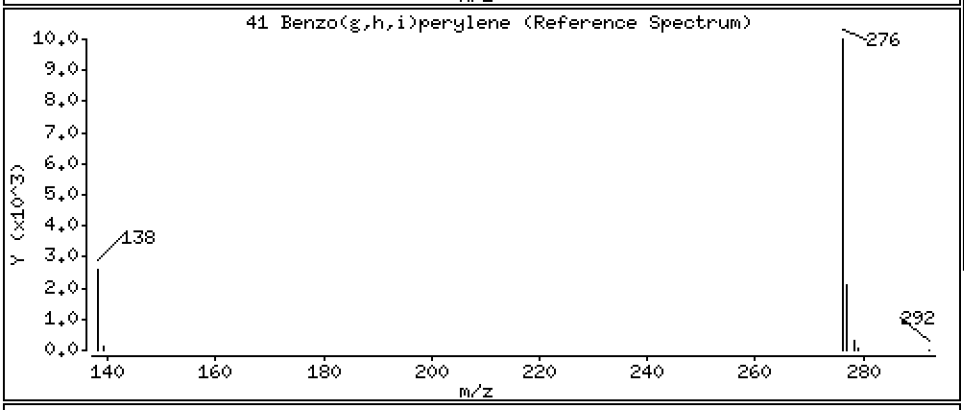
Concentration: 247 ng/mL

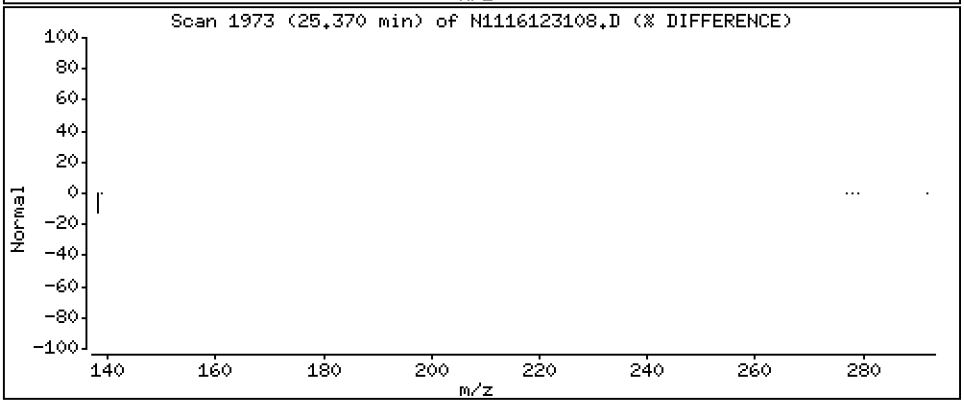












ARI Labs, Inc.

LOW LEVEL PNAs BY SW8270D-SIM

Data file : \\target\share\chem3\nt11.i\20161231.b\N1116123108.D
Lab Smp Id: SEL0401-SCV1
Inj Date : 31-DEC-2016 11:35 MS Autotune Date: 15-JAN-2015 15:59
Operator : VTS Inst ID: nt11.i
Smp Info : SEL0401-SCV1
Misc Info :
Comment   :
Method   : \\target\share\chem3\nt11.i\20161231.b\lowsim.m
Meth Date : 31-Dec-2016 12:34 van Quant Type: ISTD
Cal Date : 31-DEC-2016 09:30 Cal File: N1116123104.D
Als bottle: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: newpna.sub
Target Version: 4.14
Processing Host: VANS

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ng/mL)	FINAL (ng/mL)
*	1 Naphthalene-d8	136	7.225	7.225	(1.000)	210327	200.000	
	2 Naphthalene	128	7.253	7.253	(1.004)	263035	250.596	251
$	4 2-Methylnaphthalene-d10	152	Compound Not Detected.					
	5 2-Methylnaphthalene	142	8.253	8.253	(1.142)	257930	249.327	249
	6 1-Methylnaphthalene	142	8.516	8.516	(1.179)	246162	236.587	237
	10 Acenaphthylene	152	10.098	10.098	(0.985)	293179	254.726	255
*	11 Acenaphthene-d10	164	10.252	10.252	(1.000)	128092	200.000	
	12 Acenaphthene	153	10.315	10.315	(1.006)	209513	276.477	276
	13 Dibenzofuran	168	10.519	10.519	(1.026)	321591	285.478	285
	16 Fluorene	166	11.138	11.151	(1.086)	240770	268.478	268
*	18 Phenanthrene-d10	188	12.945	12.945	(1.000)	246665	200.000	
	19 Phenanthrene	178	12.987	12.987	(1.003)	354560	251.418	251
	21 Anthracene	178	13.040	13.040	(1.007)	334329	237.762	238
$	24 Fluoranthene-d10	212	15.007	15.055	(1.159)	1972	1.50522	1.51
	25 Fluoranthene	202	15.084	15.084	(1.165)	404582	252.915	253
	26 Pyrene	202	15.593	15.593	(0.881)	409188	246.982	247
	27 Benzo(a)anthracene	228	17.602	17.602	(0.994)	388934	253.609	254
*	28 Chrysene-d12	240	17.702	17.702	(1.000)	255043	200.000	
	29 Chrysene	228	17.751	17.751	(1.003)	380528	241.811	242
	30 Benzo(b)fluoranthene	252	19.676	19.677	(0.941)	361602	252.797	253
	31 Benzo(k)fluoranthene	252	19.734	19.725	(0.943)	403824	262.109	262
	32 Benzo(j)fluoranthene	252	Compound Not Detected.					
	35 Benzo(a)pyrene	252	20.685	20.685	(0.989)	331475	248.577	249
*	36 Perylene-d12	264	20.916	20.916	(1.000)	265358	200.000	
	37 Perylene	252	Compound Not Detected.					
$	38 Dibenzo(a,h)anthracene-d14	292	Compound Not Detected.					
	39 Dibenzo(a,h)anthracene	278	23.941	23.941	(1.145)	280435	240.373	240
	40 Indeno(1,2,3-cd)pyrene	276	23.974	23.974	(1.146)	361280	248.156	248
	41 Benzo(g,h,i)perylene	276	25.370	25.370	(1.213)	322290	246.575	247

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt11.i
Lab File ID: N1116123108.D
Lab Smp Id: SEL0401-SCV1
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: \\target\share\chem3\nt11.i\20161231.b\lowsim.m
Misc Info:

Calibration Date: 31-DEC-2016
Calibration Time: 08:28
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	219654	109827	439308	210327	-4.25
11 Acenaphthene-d10	135248	67624	270496	128092	-5.29
18 Phenanthrene-d10	257021	128511	514042	246665	-4.03
28 Chrysene-d12	259511	129756	519022	255043	-1.72
36 Perylene-d12	257535	128768	515070	265358	3.04

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	7.23	6.73	7.73	7.23	0.00
11 Acenaphthene-d10	10.25	9.75	10.75	10.25	0.00
18 Phenanthrene-d10	12.95	12.45	13.45	12.95	0.00
28 Chrysene-d12	17.70	17.20	18.20	17.70	0.00
36 Perylene-d12	20.93	20.43	21.43	20.92	-0.05

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N1116123108.D

Lab ID: SEL0401-SCV1
nt11.i, 20161231.b\lowsim.m,   31-DEC-2016 11:35

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

On Column LOD for nt11.i, 20161231.b\lowsim.m, newpna.sub = 3.0000

Exception: Naphthalene 7.0000
Exception: Phenanthrene 2.5000
Exception: Anthracene 2.0000
Exception: Pyrene 4.0000
Exception: Benzo(j)fluoranthene 2.5000
Exception: Benzo(a)pyrene 2.0000
Exception: Perylene 3.5000
Exception: Fluoranthene-d10 (Surr) 0.0000
Exception: 2-Methylnaphthalene-d10 (Surr) 0.1000
Exception: Dibenzo(a,h)anthracene-d14 (Surr) 0.1000

INITIAL CALIBRATION CHECK

EPA 8270D-SIM

Laboratory:	Analytical Resources, Inc.	SDG:	17A0053
Client:	Anchor QEA, LLC	Project:	Port Gamble Shellfish Monitoring
Instrument ID:	NT11	Calibration:	ZL00083
Lab File ID:	N1116123102ICV.D	Calibration Date:	12/31/16 12:55
Sequence:	SEL0401	Injection Date:	12/31/16
Lab Sample ID:	SEL0401-ICV1	Injection Time:	08:28
Sequence Name:	Initial Cal Check		

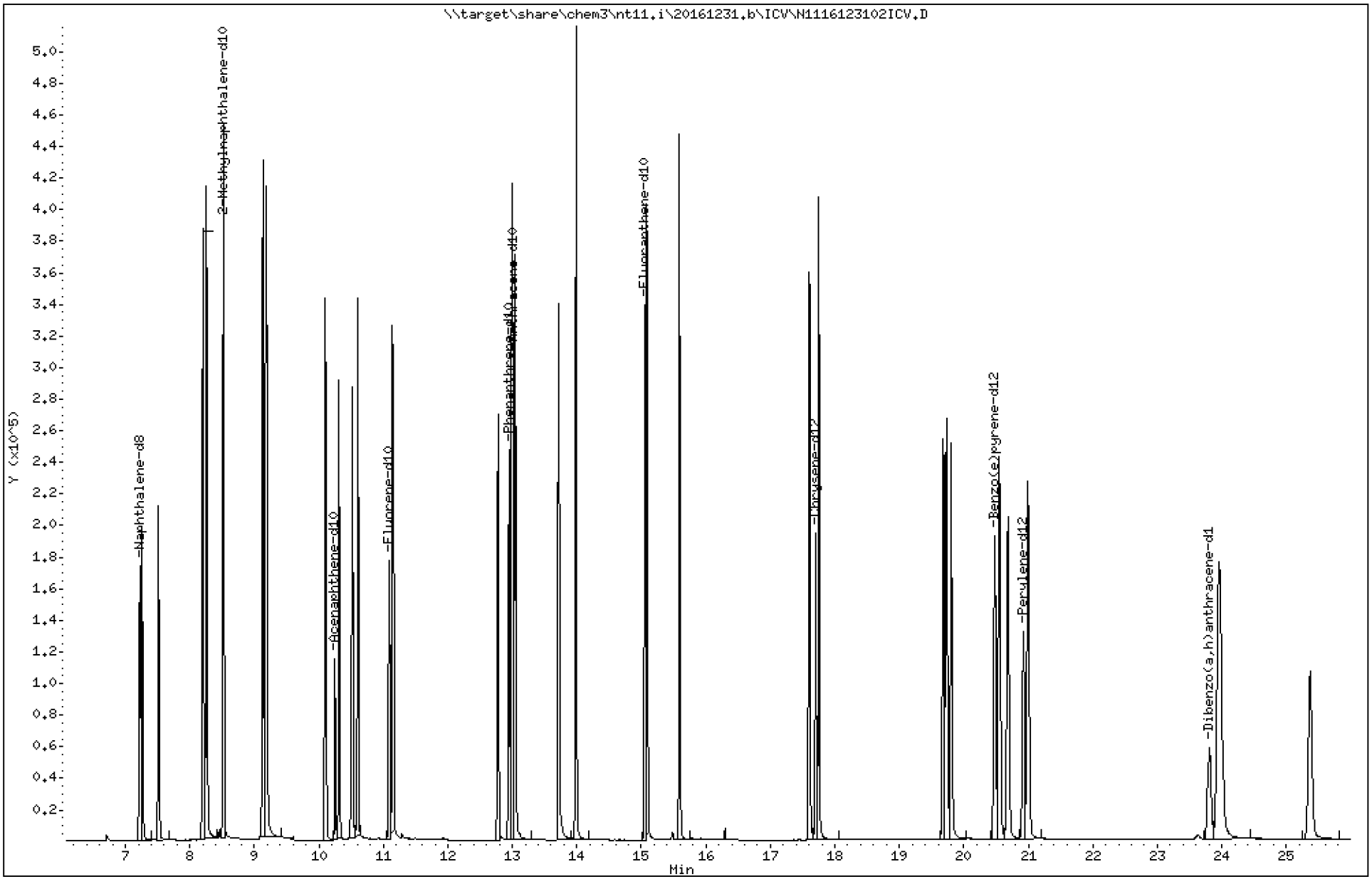
		CONC. (ng/mL)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
Naphthalene	A	250.00	266	0.9981003	1.0626020		6.4	20
2-Methylnaphthalene	A	250.00	271	0.9837101	1.0678100		8.4	20
1-Methylnaphthalene	A	250.00	279	0.9893853	1.1032080		11.6	20
Acenaphthylene	A	250.00	277	1.7970840	1.9939840		10.8	20
Acenaphthene	A	250.00	271	1.1832060	1.2813730		8.4	20
Dibenzofuran	A	250.00	275	1.7588950	1.9362060		10.0	20
Fluorene	A	250.00	272	1.4002390	1.5228970		8.8	20
Phenanthrene	A	250.00	268	1.1434470	1.2265460		7.2	20
Anthracene	A	250.00	284	1.1401310	1.2950380		13.6	20
Fluoranthene	A	250.00	272	1.2970410	1.4106580		8.8	20
Pyrene	A	250.00	272	1.2991950	1.4120400		8.8	20
Benzo(a)anthracene	A	250.00	270	1.2026170	1.2991360		8.0	20
Chrysene	A	250.00	266	1.2340320	1.3126160		6.4	20
Benzo(b)fluoranthene	A	250.00	267	1.0780920	1.1511260		6.8	20
Benzo(k)fluoranthene	A	250.00	271	1.1612010	1.2581470		8.4	20
Benzo(j)fluoranthene	A	250.00	278	1.0350770	1.1529520		11.2	20
Benzo(a)pyrene	A	250.00	269	1.0050510	1.0830870		7.6	20
Perylene	A	250.00	267	1.0493660	1.1209130		6.8	20
Indeno(1,2,3-cd)pyrene	A	250.00	266	1.0972800	1.1669900		6.4	20
Dibenzo(a,h)anthracene	A	250.00	265	0.8793160	0.9318345		6.0	20
Benzo(g,h,i)perylene	A	250.00	259	0.9851335	1.0216460		3.6	20
2-Methylnaphthalene-d10	A	250.00	284	0.8589433	0.9750899		13.6	20
Dibenzo[a,h]anthracene-d14	A	250.00	274	0.6386966	0.7010340		9.6	20
Fluoranthene-d10	A	250.00	274	1.0622550	1.1627440		9.6	20

* Values outside of QC limits

Data File: \\target\share\chem3\nt11.i\20161231.b\ICV\N1116123102ICV.D
Date : 31-DEC-2016 08:28
Client ID:
Sample Info: SEL0401-ICV1

Instrument: nt11.i
Operator: VTS
Column diameter: 0.25

Column phase: Rxi-17Sil MS



ARI Labs, Inc.

LOW LEVEL PNAs BY SW8270D-SIM

Data file : \\target\share\chem3\nt11.i\20161231.b\ICV\N1116123102ICV.D
Lab Smp Id: SEL0401-ICV1
Inj Date : 31-DEC-2016 08:28 MS Autotune Date: 15-JAN-2015 15:59
Operator : VTS Inst ID: nt11.i
Smp Info : SEL0401-ICV1
Misc Info :
Comment :
Method : \\target\share\chem3\nt11.i\20161231.b\ICV\lowsim.m
Meth Date : 04-Jan-2017 08:31 nt11.i Quant Type: ISTD
Cal Date : 31-DEC-2016 09:30 Cal File: N1116123104.D
Als bottle: 2 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: allpna.sub
Target Version: 4.14
Processing Host: VANS

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ng/mL)	ON-COL (ng/mL)
*	1 Naphthalene-d8	136	7.225	7.225	(1.000)	219654	200.000	
	2 Naphthalene	128	7.261	7.261	(1.005)	291756	250.000	266
	3 Benzo(b)thiophene	134	7.514	7.514	(1.040)	242046	250.000	271
$	4 2-Methylnaphthalene-d10	152	8.201	8.201	(1.135)	267728	250.000	284
	5 2-Methylnaphthalene	142	8.253	8.253	(1.142)	293186	250.000	271
	6 1-Methylnaphthalene	142	8.516	8.516	(1.179)	302905	250.000	279
	7 2-Chloronaphthalene	162	9.167	9.167	(0.894)	284135	250.000	277
	8 Biphenyl	154	9.136	9.136	(0.891)	375678	250.000	275
	9 2,6-Dimethylnaphthalene	156	9.188	9.188	(0.896)	296448	250.000	280
	10 Acenaphthylene	152	10.098	10.098	(0.985)	337103	250.000	277
*	11 Acenaphthene-d10	164	10.251	10.251	(1.000)	135248	200.000	
	12 Acenaphthene	153	10.315	10.315	(1.006)	216629	250.000	271
	13 Dibenzofuran	168	10.519	10.519	(1.026)	327335	250.000	275
	14 2,3,5-Trimethylnaphthalene	170	10.607	10.607	(1.035)	211917	250.000	278
$	15 Fluorene-d10	174	11.087	11.087	(1.082)	177097	250.000	273
	16 Fluorene	166	11.151	11.151	(1.088)	257461	250.000	272
	17 Dibenzothiophene	184	12.777	12.777	(0.987)	324162	250.000	273
*	18 Phenanthrene-d10	188	12.945	12.945	(1.000)	257021	200.000	
	19 Phenanthrene	178	12.987	12.987	(1.003)	394060	250.000	268
$	20 Anthracene-d10	188	13.008	13.008	(1.005)	335193	250.000	264
	21 Anthracene	178	13.040	13.040	(1.007)	416065	250.000	284
	22 Carbazole	167	13.713	13.713	(1.059)	427208	250.000	264
	23 1-Methylphenanthrene	192	13.984	13.984	(1.080)	415765	250.000	276
$	24 Fluoranthene-d10	212	15.055	15.055	(1.163)	373562	250.000	274
	25 Fluoranthene	202	15.084	15.084	(1.165)	453211	250.000	272
	26 Pyrene	202	15.593	15.593	(0.881)	458050	250.000	272
	27 Benzo(a)anthracene	228	17.610	17.610	(0.995)	421425	250.000	270
*	28 Chrysene-d12	240	17.701	17.701	(1.000)	259511	200.000	
	29 Chrysene	228	17.751	17.751	(1.003)	425798	250.000	266
	30 Benzo(b)fluoranthene	252	19.676	19.676	(0.940)	370569	250.000	267
	31 Benzo(k)fluoranthene	252	19.734	19.734	(0.943)	405021	250.000	271
	32 Benzo(j)fluoranthene	252	19.801	19.801	(0.946)	371157	250.000	278
$	33 Benzo(e)pyrene-d12	264	20.483	20.483	(0.979)	341312	250.000	267

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ng/mL)	AMOUNTS ON-COL (ng/mL)
	34 Benzo(e)pyrene	252	20.551	20.551	(0.982)	372033	250.000	269
	35 Benzo(a)pyrene	252	20.685	20.685	(0.989)	348666	250.000	269
*	36 Perylene-d12	264	20.925	20.925	(1.000)	257535	200.000	
	37 Perylene	252	20.993	20.993	(1.003)	360843	250.000	267
$	38 Dibenzo(a,h)anthracene-d14	292	23.808	23.808	(1.138)	225676	250.000	274
	39 Dibenzo(a,h)anthracene	278	23.941	23.941	(1.144)	299975	250.000	265
	40 Indeno(1,2,3-cd)pyrene	276	23.985	23.985	(1.146)	375676	250.000	266
	41 Benzo(g,h,i)perylene	276	25.370	25.370	(1.212)	328887	250.000	259

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt11.i
Lab File ID: N1116123102ICV.D
Lab Smp Id: SEL0401-ICV1
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: \\target\share\chem3\nt11.i\20161231.b\ICV\lowsim.m
Misc Info:

Calibration Date: 31-DEC-2016
Calibration Time: 08:28
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	219654	109827	439308	219654	0.00
11 Acenaphthene-d10	135248	67624	270496	135248	0.00
18 Phenanthrene-d10	257021	128511	514042	257021	0.00
28 Chrysene-d12	259511	129756	519022	259511	0.00
36 Perylene-d12	257535	128768	515070	257535	0.00

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	7.23	6.73	7.73	7.23	0.00
11 Acenaphthene-d10	10.25	9.75	10.75	10.25	0.00
18 Phenanthrene-d10	12.95	12.45	13.45	12.95	0.00
28 Chrysene-d12	17.70	17.20	18.20	17.70	0.00
36 Perylene-d12	20.93	20.43	21.43	20.93	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N1116123102ICV.D

Lab ID: SEL0401-ICV1
nt11.i, 20161231.b\ICV\lowsim.m,   31-DEC-2016 08:28

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

On Column LOD for nt11.i, 20161231.b\ICV\lowsim.m, allpna.sub = 3.0000

Exception: Naphthalene 7.0000
Exception: Phenanthrene 2.5000
Exception: Anthracene 2.0000
Exception: Pyrene 4.0000
Exception: Benzo(j)fluoranthene 2.5000
Exception: Benzo(a)pyrene 2.0000
Exception: Perylene 3.5000
Exception: Benzo(e)pyrene 2.0000
Exception: Benzo(b)thiophene 2.0000
Exception: 2-Chloronaphthalene 2.0000
Exception: 2,6-Dimethylnaphthalene 2.0000
Exception: 2,3,5-Trimethylnaphthalene 2.0000
Exception: 1-Methylphenanthrene 2.0000
Exception: Dibenzothiophene 2.0000
Exception: Carbazole 2.0000
Exception: Biphenyl 2.0000
Exception: 2-Methylnaphthalene-d10 (Surr) 0.1000
Exception: Dibenzo(a,h)anthracene-d14 (Surr) 0.1000
Exception: Fluoranthene-d10 (Surr) 0.1000
Exception: Anthracene-d10 (Surr) 0.1000
Exception: Benzo(e)pyrene-d12 (Surr) 0.1000
Exception: Fluorene-d10 (Surr) 0.1000

Q-FLAG SUMMARY FOR DATABATCH - \\target\share\chem3\nt11.i\20161231.b\ICV

Instrument: nt11.i Date: 31-DEC-2016 Method: 20161231.b\ICV\lowsim.m

INITIAL CAL: 31-DEC-2016

Compound	%RSD or R^2
NO Q-FLAGS	

ICV CAL: N1116123102ICV.D 31-DEC-2016 08:28

Compound	%D
NO Q-FLAGS	

INITIAL CALIBRATION CHECK

EPA 8270D-SIM

Laboratory:	Analytical Resources, Inc.	SDG:	17A0053
Client:	Anchor QEA, LLC	Project:	Port Gamble Shellfish Monitoring
Instrument ID:	NT11	Calibration:	ZL00083
Lab File ID:	N1117021005.D	Calibration Date:	12/31/16 12:55
Sequence:	SFB0130	Injection Date:	02/10/17
Lab Sample ID:	SFB0130-ICV1	Injection Time:	13:29
Sequence Name:	Initial Cal Check		

		CONC. (ng/mL)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
Naphthalene	A	250.00	229	0.9981003	0.9151454		-8.4	20
2-Methylnaphthalene	A	250.00	229	0.9837101	0.9027099		-8.4	20
Acenaphthylene	A	250.00	208	1.7970840	1.4961190		-16.8	20
Acenaphthene	A	250.00	211	1.1832060	0.9998882		-15.6	20
Fluorene	A	250.00	224	1.4002390	1.2528700		-10.4	20
Phenanthrene	A	250.00	220	1.1434470	1.0062620		-12.0	20
Anthracene	A	250.00	212	1.1401310	0.9682720		-15.2	20
Fluoranthene	A	250.00	211	1.2970410	1.0944750		-15.6	20
Pyrene	A	250.00	213	1.2991950	1.1063230		-14.8	20
Benzo(a)anthracene	A	250.00	212	1.2026170	1.0203560		-15.2	20
Chrysene	A	250.00	214	1.2340320	1.0580040		-14.4	20
Benzo(b)fluoranthene	A	250.00	252	1.0780920	1.0846830		0.8	20
Benzo(k)fluoranthene	A	250.00	235	1.1612010	1.0924460		-6.0	20
Benzo(e)pyrene	A	250.00	229	1.0754010	0.9866981		-8.4	20
Benzo(a)pyrene	A	250.00	230	1.0050510	0.9246120		-8.0	20
Indeno(1,2,3-cd)pyrene	A	250.00	225	1.0972800	0.9879481		-10.0	20
Dibenzo(a,h)anthracene	A	250.00	232	0.8793160	0.8174673		-7.2	20
Benzo(g,h,i)perylene	A	250.00	219	0.9851335	0.8644457		-12.4	20
Perylene	A	250.00	220	1.0493660	0.9254683		-12.0	20
2-Methylnaphthalene-d10	A	250.00	236	0.8589433	0.8125483		-5.6	20
Dibenzo[a,h]anthracene-d14	A	250.00	239	0.6386966	0.6108019		-4.4	20
Fluoranthene-d10	A	250.00	216	1.0622550	0.9175729		-13.6	20

* Values outside of QC limits

Data File: \\target\share\chem3\nt11.i\20170210.b\N1117021005.D

Date : 10-FEB-2017 13:29

Client ID:

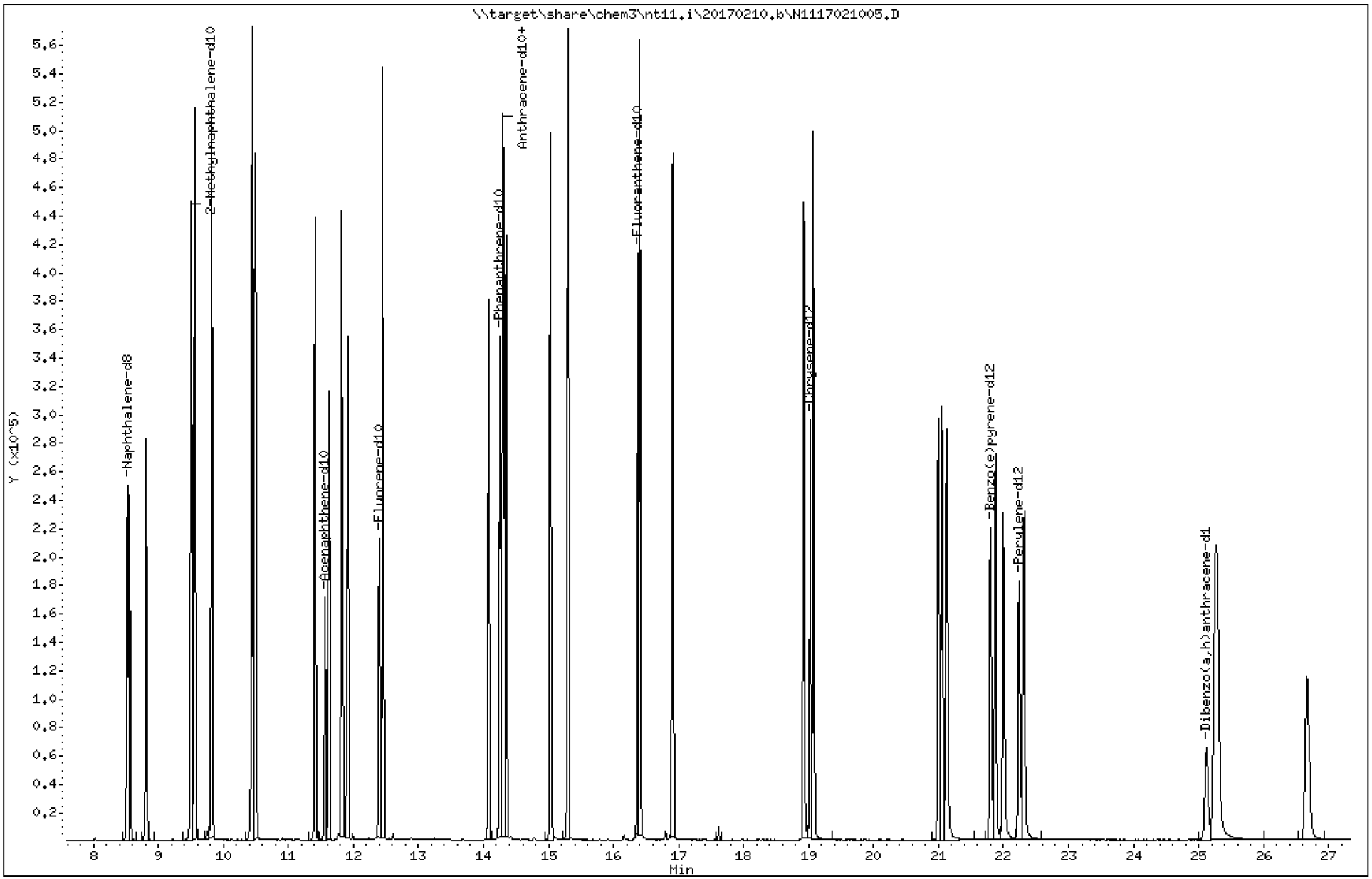
Sample Info: SFB0130-ICV1

Instrument: nt11.i

Operator: VTS

Column phase: Rxi-17Sil MS

Column diameter: 0.25



ARI Labs, Inc.

LOW LEVEL PNAs BY SW8270D-SIM

Data file : \\target\share\chem3\nt11.i\20170210.b\N1117021005.D
Lab Smp Id: SFB0130-ICV1
Inj Date : 10-FEB-2017 13:29 MS Autotune Date: 15-JAN-2015 15:59
Operator : VTS Inst ID: nt11.i
Smp Info : SFB0130-ICV1
Misc Info :
Comment   :
Method   : \\target\share\chem3\nt11.i\20170210.b\LOWSIM.m
Meth Date : 11-Feb-2017 08:35 nt11.i Quant Type: ISTD
Cal Date : 31-DEC-2016 09:30 Cal File: N1116123104.D
Als bottle: 1 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: allpna.sub
Target Version: 4.14
Processing Host: VANS

			QUANT SIG					AMOUNTS	
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ng/mL)	ON-COL (ng/mL)
*	1	Naphthalene-d8	136	8.526	8.526	(1.000)	326356	200.000	
	2	Naphthalene	128	8.554	8.554	(1.003)	373329	250.000	229
	3	Benzo(b)thiophene	134	8.816	8.816	(1.034)	313244	250.000	236
$	4	2-Methylnaphthalene-d10	152	9.508	9.508	(1.115)	331475	250.000	236
	5	2-Methylnaphthalene	142	9.561	9.561	(1.121)	368256	250.000	229
	6	1-Methylnaphthalene	142	9.823	9.823	(1.152)	358358	250.000	222
	7	2-Chloronaphthalene	162	10.475	10.475	(0.906)	372708	250.000	223
	8	Biphenyl	154	10.443	10.443	(0.903)	471651	250.000	212
	9	2,6-Dimethylnaphthalene	156	10.496	10.496	(0.908)	372643	250.000	216
	10	Acenaphthylene	152	11.410	11.410	(0.987)	411528	250.000	208
*	11	Acenaphthene-d10	164	11.564	11.564	(1.000)	220051	200.000	
	12	Acenaphthene	153	11.627	11.627	(1.005)	275033	250.000	211
	13	Dibenzofuran	168	11.822	11.822	(1.022)	426732	250.000	221
	14	2,3,5-Trimethylnaphthalene	170	11.923	11.923	(1.031)	285211	250.000	230
$	15	Fluorene-d10	174	12.404	12.404	(1.073)	235930	250.000	223
	16	Fluorene	166	12.454	12.454	(1.077)	344619	250.000	224
	17	Dibenzothiophene	184	14.083	14.083	(0.987)	441155	250.000	225
*	18	Phenanthrene-d10	188	14.262	14.262	(1.000)	424023	200.000	
	19	Phenanthrene	178	14.293	14.293	(1.002)	533348	250.000	220
$	20	Anthracene-d10	188	14.314	14.314	(1.004)	453093	250.000	216
	21	Anthracene	178	14.356	14.356	(1.007)	513212	250.000	212
	22	Carbazole	167	15.027	15.027	(1.054)	535271	250.000	201
	23	1-Methylphenanthrene	192	15.307	15.307	(1.073)	503765	250.000	203
$	24	Fluoranthene-d10	212	16.367	16.367	(1.148)	486340	250.000	216
	25	Fluoranthene	202	16.405	16.405	(1.150)	580103	250.000	211
	26	Pyrene	202	16.915	16.915	(0.889)	565995	250.000	213
	27	Benzo(a)anthracene	228	18.933	18.933	(0.995)	522014	250.000	212
*	28	Chrysene-d12	240	19.024	19.024	(1.000)	409280	200.000	
	29	Chrysene	228	19.074	19.074	(1.003)	541275	250.000	214
	30	Benzo(b)fluoranthene	252	21.001	21.001	(0.944)	471200	250.000	252
	31	Benzo(k)fluoranthene	252	21.049	21.049	(0.946)	474572	250.000	235
	32	Benzo(j)fluoranthene	252	21.125	21.125	(0.950)	452396	250.000	252
$	33	Benzo(e)pyrene-d12	264	21.798	21.798	(0.980)	392619	250.000	228

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ng/mL)	AMOUNTS ON-COL (ng/mL)
	34 Benzo(e)pyrene	252	21.875	21.875	(0.984)	428634	250.000	229
	35 Benzo(a)pyrene	252	22.000	22.000	(0.989)	401663	250.000	230
*	36 Perylene-d12	264	22.240	22.240	(1.000)	347530	200.000	
	37 Perylene	252	22.317	22.317	(1.003)	402035	250.000	220
$	38 Dibenzo(a,h)anthracene-d14	292	25.116	25.116	(1.129)	265340	250.000	239
	39 Dibenzo(a,h)anthracene	278	25.260	25.260	(1.136)	355118	250.000	232
	40 Indeno(1,2,3-cd)pyrene	276	25.282	25.282	(1.137)	429177	250.000	225
	41 Benzo(g,h,i)perylene	276	26.666	26.666	(1.199)	375526	250.000	219

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt11.i
Lab File ID: N1117021005.D
Lab Smp Id: SFB0130-ICV1
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: \\target\share\chem3\nt11.i\20170210.b\LOWSIM.m
Misc Info:

Calibration Date: 10-FEB-2017
Calibration Time: 12:05
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	219654	109827	439308	326356	48.58
11 Acenaphthene-d10	135248	67624	270496	220051	62.70
18 Phenanthrene-d10	257021	128511	514042	424023	64.98
28 Chrysene-d12	259511	129756	519022	409280	57.71
36 Perylene-d12	257535	128768	515070	347530	34.94

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	8.53	8.03	9.03	8.53	0.00
11 Acenaphthene-d10	11.56	11.06	12.06	11.56	0.00
18 Phenanthrene-d10	14.26	13.76	14.76	14.26	0.00
28 Chrysene-d12	19.02	18.52	19.52	19.02	0.00
36 Perylene-d12	22.24	21.74	22.74	22.24	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N1117021005.D

Lab ID: SFB0130-ICV1
nt11.i, 20170210.b\LOWSIM.m,   10-FEB-2017 13:29

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

On Column LOD for nt11.i, 20170210.b\LOWSIM.m, allpna.sub = 3.0000

Exception: Naphthalene 7.0000
Exception: Phenanthrene 2.5000
Exception: Anthracene 2.0000
Exception: Pyrene 4.0000
Exception: Benzo(j)fluoranthene 2.5000
Exception: Benzo(a)pyrene 2.0000
Exception: Perylene 3.5000
Exception: Benzo(e)pyrene 2.0000
Exception: Benzo(b)thiophene 2.0000
Exception: 2-Chloronaphthalene 2.0000
Exception: 2,6-Dimethylnaphthalene 2.0000
Exception: 2,3,5-Trimethylnaphthalene 2.0000
Exception: 1-Methylphenanthrene 2.0000
Exception: Dibenzothiophene 2.0000
Exception: Carbazole 2.0000
Exception: Biphenyl 2.0000
Exception: 2-Methylnaphthalene-d10 (Surr) 0.1000
Exception: Dibenzo(a,h)anthracene-d14 (Surr) 0.1000
Exception: Fluoranthene-d10 (Surr) 0.1000
Exception: Anthracene-d10 (Surr) 0.1000
Exception: Benzo(e)pyrene-d12 (Surr) 0.1000
Exception: Fluorene-d10 (Surr) 0.1000

Q-FLAG SUMMARY FOR DATABATCH - \\target\share\chem3\nt11.i\20170210.b

Instrument: nt11.i Date: 10-FEB-2017 Method: 20170210.b\LOWSIM.m

INITIAL CAL: 31-DEC-2016

Compound	%RSD or R^2
NO Q-FLAGS	

ICV CAL: N1117021005.D 10-FEB-2017 13:29

Compound	%D
NO Q-FLAGS	

INITIAL CALIBRATION CHECK

EPA 8270D-SIM

Laboratory:	Analytical Resources, Inc.	SDG:	17A0053
Client:	Anchor QEA, LLC	Project:	Port Gamble Shellfish Monitoring
Instrument ID:	NT11	Calibration:	ZL00083
Lab File ID:	N1117021102.D	Calibration Date:	12/31/16 12:55
Sequence:	SFB0152	Injection Date:	02/11/17
Lab Sample ID:	SFB0152-ICV1	Injection Time:	10:36
Sequence Name:	Initial Cal Check		

		CONC. (ng/mL)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
Naphthalene	A	250.00	227	0.9981003	0.9068753		-9.2	20
2-Methylnaphthalene	A	250.00	233	0.9837101	0.9166097		-6.8	20
Acenaphthylene	A	250.00	209	1.7970840	1.5036900		-16.4	20
Acenaphthene	A	250.00	208	1.1832060	0.9822100		-16.8	20
Fluorene	A	250.00	223	1.4002390	1.2468570		-10.8	20
Phenanthrene	A	250.00	217	1.1434470	0.9936872		-13.2	20
Anthracene	A	250.00	214	1.1401310	0.9748735		-14.4	20
Fluoranthene	A	250.00	207	1.2970410	1.0718740		-17.2	20
Pyrene	A	250.00	225	1.2991950	1.1668180		-10.0	20
Benzo(a)anthracene	A	250.00	221	1.2026170	1.0625220		-11.6	20
Chrysene	A	250.00	216	1.2340320	1.0670610		-13.6	20
Benzo(b)fluoranthene	A	250.00	249	1.0780920	1.0745050		-0.4	20
Benzo(k)fluoranthene	A	250.00	245	1.1612010	1.1372120		-2.0	20
Benzo(e)pyrene	A	250.00	221	1.0754010	0.9495634		-11.6	20
Benzo(a)pyrene	A	250.00	230	1.0050510	0.9236701		-8.0	20
Indeno(1,2,3-cd)pyrene	A	250.00	210	1.0972800	0.9205484		-16.0	20
Dibenzo(a,h)anthracene	A	250.00	216	0.8793160	0.7601322		-13.6	20
Benzo(g,h,i)perylene	A	250.00	213	0.9851335	0.8378204		-14.8	20
Perylene	A	250.00	224	1.0493660	0.9396639		-10.4	20
2-Methylnaphthalene-d10	A	250.00	238	0.8589433	0.8168851		-4.8	20
Dibenzo[a,h]anthracene-d14	A	250.00	223	0.6386966	0.5705407		-10.8	20
Fluoranthene-d10	A	250.00	218	1.0622550	0.9254209		-12.8	20

* Values outside of QC limits

Data File: \\target\share\chem3\nt11.i\20170211.b\N1117021102.D

Date : 11-FEB-2017 10:36

Client ID:

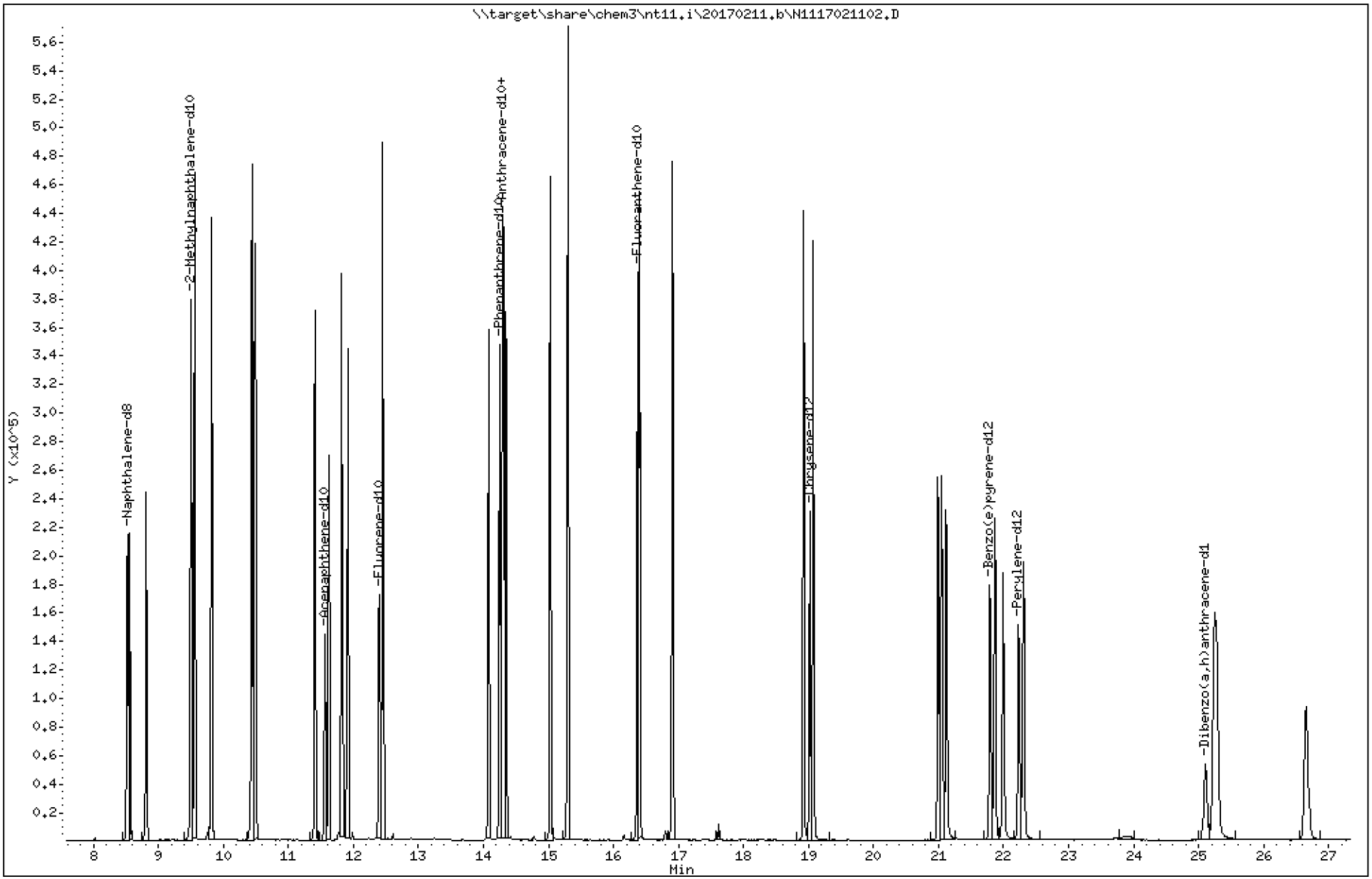
Sample Info: SFB0152-ICV1

Column phase: Rxi-17Sil MS

Instrument: nt11.i

Operator: VTS

Column diameter: 0.25



ARI Labs, Inc.

LOW LEVEL PNAs BY SW8270D-SIM

Data file : \\target\share\chem3\nt11.i\20170211.b\N1117021102.D
Lab Smp Id: SFB0152-ICV1
Inj Date : 11-FEB-2017 10:36 MS Autotune Date: 15-JAN-2015 15:59
Operator : VTS Inst ID: nt11.i
Smp Info : SFB0152-ICV1
Misc Info :
Comment   :
Method   : \\target\share\chem3\nt11.i\20170211.b\lowsim.m
Meth Date : 11-Feb-2017 13:29 nt11.i Quant Type: ISTD
Cal Date : 31-DEC-2016 09:30 Cal File: N1116123104.D
Als bottle: 2 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: allpna.sub
Target Version: 4.14
Processing Host: VANS

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ng/mL)	ON-COL (ng/mL)
*	1 Naphthalene-d8	136	8.527	8.527	(1.000)	279915	200.000	
	2 Naphthalene	128	8.554	8.554	(1.003)	317310	250.000	227
	3 Benzo(b)thiophene	134	8.816	8.816	(1.034)	269350	250.000	237
$	4 2-Methylnaphthalene-d10	152	9.508	9.508	(1.115)	285823	250.000	238
	5 2-Methylnaphthalene	142	9.561	9.561	(1.121)	320716	250.000	233
	6 1-Methylnaphthalene	142	9.824	9.824	(1.152)	310857	250.000	224
	7 2-Chloronaphthalene	162	10.475	10.475	(0.906)	318087	250.000	214
	8 Biphenyl	154	10.443	10.443	(0.903)	415756	250.000	211
	9 2,6-Dimethylnaphthalene	156	10.496	10.496	(0.908)	324476	250.000	212
	10 Acenaphthylene	152	11.410	11.410	(0.987)	367765	250.000	209
*	11 Acenaphthene-d10	164	11.564	11.564	(1.000)	195660	200.000	
	12 Acenaphthene	153	11.627	11.627	(1.005)	240224	250.000	208
	13 Dibenzofuran	168	11.822	11.822	(1.022)	378488	250.000	220
	14 2,3,5-Trimethylnaphthalene	170	11.924	11.924	(1.031)	248828	250.000	226
$	15 Fluorene-d10	174	12.404	12.404	(1.073)	212006	250.000	226
	16 Fluorene	166	12.454	12.454	(1.077)	304950	250.000	223
	17 Dibenzothiophene	184	14.083	14.083	(0.988)	396671	250.000	230
*	18 Phenanthrene-d10	188	14.251	14.251	(1.000)	373303	200.000	
	19 Phenanthrene	178	14.293	14.293	(1.003)	463683	250.000	217
$	20 Anthracene-d10	188	14.315	14.315	(1.004)	407329	250.000	221
	21 Anthracene	178	14.346	14.346	(1.007)	454904	250.000	214
	22 Carbazole	167	15.027	15.027	(1.054)	475723	250.000	203
	23 1-Methylphenanthrene	192	15.298	15.298	(1.073)	450218	250.000	206
$	24 Fluoranthene-d10	212	16.367	16.367	(1.148)	431828	250.000	218
	25 Fluoranthene	202	16.406	16.406	(1.151)	500167	250.000	207
	26 Pyrene	202	16.905	16.905	(0.889)	509691	250.000	225
	27 Benzo(a)anthracene	228	18.925	18.925	(0.995)	464132	250.000	221
*	28 Chrysene-d12	240	19.016	19.016	(1.000)	349457	200.000	
	29 Chrysene	228	19.066	19.066	(1.003)	466115	250.000	216
	30 Benzo(b)fluoranthene	252	20.991	20.991	(0.944)	382067	250.000	249
	31 Benzo(k)fluoranthene	252	21.049	21.049	(0.947)	404364	250.000	245
	32 Benzo(j)fluoranthene	252	21.116	21.116	(0.950)	360155	250.000	245
$	33 Benzo(e)pyrene-d12	264	21.789	21.789	(0.980)	313055	250.000	222

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ng/mL)	AMOUNTS ON-COL (ng/mL)
	34 Benzo(e)pyrene	252	21.865	21.865	(0.984)	337641	250.000	221
	35 Benzo(a)pyrene	252	21.990	21.990	(0.989)	328434	250.000	230
*	36 Perylene-d12	264	22.231	22.231	(1.000)	284460	200.000	
	37 Perylene	252	22.307	22.307	(1.003)	334121	250.000	224
$	38 Dibenzo(a,h)anthracene-d14	292	25.105	25.105	(1.129)	202870	250.000	223
	39 Dibenzo(a,h)anthracene	278	25.238	25.238	(1.135)	270284	250.000	216
	40 Indeno(1,2,3-cd)pyrene	276	25.271	25.271	(1.137)	327324	250.000	210
	41 Benzo(g,h,i)perylene	276	26.655	26.655	(1.199)	297908	250.000	213

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt11.i
Lab File ID: N1117021102.D
Lab Smp Id: SFB0152-ICV1
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: \\target\share\chem3\nt11.i\20170211.b\lowsim.m
Misc Info:

Calibration Date: 10-FEB-2017
Calibration Time: 13:29
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	219654	109827	439308	279915	27.43
11 Acenaphthene-d10	135248	67624	270496	195660	44.67
18 Phenanthrene-d10	257021	128511	514042	373303	45.24
28 Chrysene-d12	259511	129756	519022	349457	34.66
36 Perylene-d12	257535	128768	515070	284460	10.45

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	8.53	8.03	9.03	8.53	0.00
11 Acenaphthene-d10	11.56	11.06	12.06	11.56	0.00
18 Phenanthrene-d10	14.25	13.75	14.75	14.25	0.00
28 Chrysene-d12	19.02	18.52	19.52	19.02	0.00
36 Perylene-d12	22.23	21.73	22.73	22.23	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N1117021102.D

Lab ID: SFB0152-ICV1
nt11.i, 20170211.b\lowsim.m,   11-FEB-2017 10:36

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

On Column LOD for nt11.i, 20170211.b\lowsim.m, allpna.sub = 3.0000

Exception: Naphthalene 7.0000
Exception: Phenanthrene 2.5000
Exception: Anthracene 2.0000
Exception: Pyrene 4.0000
Exception: Benzo(j)fluoranthene 2.5000
Exception: Benzo(a)pyrene 2.0000
Exception: Perylene 3.5000
Exception: Benzo(e)pyrene 2.0000
Exception: Benzo(b)thiophene 2.0000
Exception: 2-Chloronaphthalene 2.0000
Exception: 2,6-Dimethylnaphthalene 2.0000
Exception: 2,3,5-Trimethylnaphthalene 2.0000
Exception: 1-Methylphenanthrene 2.0000
Exception: Dibenzothiophene 2.0000
Exception: Carbazole 2.0000
Exception: Biphenyl 2.0000
Exception: 2-Methylnaphthalene-d10 (Surr) 0.1000
Exception: Dibenzo(a,h)anthracene-d14 (Surr) 0.1000
Exception: Fluoranthene-d10 (Surr) 0.1000
Exception: Anthracene-d10 (Surr) 0.1000
Exception: Benzo(e)pyrene-d12 (Surr) 0.1000
Exception: Fluorene-d10 (Surr) 0.1000

Q-FLAG SUMMARY FOR DATABATCH - \\target\share\chem3\nt11.i\20170211.b

Instrument: nt11.i Date: 11-FEB-2017 Method: 20170211.b\lowsim.m

INITIAL CAL: 31-DEC-2016

Compound	%RSD or R^2
NO Q-FLAGS	

ICV CAL: N1117021102.D 11-FEB-2017 10:36

Compound	%D
NO Q-FLAGS	

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 8270D-SIM

Laboratory:	Analytical Resources, Inc.	SDG:	17A0053
Client:	Anchor QEA, LLC	Project:	Port Gamble Shellfish Monitoring
Sequence:	SFB0130	Instrument:	NT11
		Calibration:	ZL00083

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
DFTPP	SFB0130-TUN1	N1117021004.D	Tissue	02/10/17 13:08
Initial Cal Check	SFB0130-ICV1	N1117021005.D	Tissue	02/10/17 13:29
Blank	BFA0647-BLK1	N1117021007.D	Tissue	02/10/17 14:40
LCS	BFA0647-BS1	N1117021008.D	Tissue	02/10/17 15:16
ZZZZZ	16K0124-01	N1117021009.D	Tissue	02/10/17 15:52
PG-SMA1-1-MUS-170105	17A0053-01	N1117021010.D	Tissue	02/10/17 16:27
PG-SMA2-1-MUS-170105	17A0053-04	N1117021011.D	Tissue	02/10/17 17:03
PG-SMA2-2-MUS-170105	17A0053-05	N1117021012.D	Tissue	02/10/17 17:39
PG-SMA2-3-MUS-170105	17A0053-06	N1117021013.D	Tissue	02/10/17 18:14
PG-SMA2-4-MUS-170105	17A0053-07	N1117021014.D	Tissue	02/10/17 18:50
PG-SMA2-5-MUS-170105	17A0053-08	N1117021015.D	Tissue	02/10/17 19:25
PG-PJ-1-MUS-170105	17A0053-09	N1117021016.D	Tissue	02/10/17 20:01
PG-WS-1-MUS-170105	17A0053-11	N1117021018.D	Tissue	02/10/17 21:12
PG-SMA1-2-3-MUS-170105	17A0053-12	N1117021019.D	Tissue	02/10/17 21:48
PG-SMA2-2-MUS-170105	BFA0647-MS1	N1117021020.D	Tissue	02/10/17 22:23
PG-SMA2-2-MUS-170105	BFA0647-MSD1	N1117021021.D	Tissue	02/10/17 22:59
SIM PAH 250	SFB0130-CCV1	N1117021022.D	Tissue	02/10/17 23:35

Port Gamble Shellfish Monitoring

17A0053

Analysis	Matrix	Method
8270D-SIM PAH Low (0.01 ug/L - 0.5 ug/kg)	Tissue	EPA 8270D-SIM

Checklist: Analyst Checklist-SVOA

#	Checklist Item	Response		Analyst Initials	Date
1	DFTPP abundance and time criteria met	YES		VTS	02/11/2017
2	DDT Breakdown <20% and Peak Tailing <=2	YES		VTS	02/11/2017
3	ICV/CCV Meets %D	YES		VTS	02/11/2017
4	ICAL/ICV/CCV Q Flag - NONE required	YES		VTS	02/11/2017
5	Internal Standard areas within 50-200%	YES		VTS	02/11/2017
	Comments: *Samples 16K0124-01, 17a0053-01 and -05 are within limits. See dod-istd report.*				
6	Retention times within windows and Coelution summary checked	YES		VTS	02/11/2017
7	Manual integrations include summary and before/after pictures	YES		VTS	02/11/2017
8	Project specific requirements have been met	YES		VTS	02/11/2017
9	Sample dilution factors have been correctly applied	NA		VTS	02/11/2017
10	AUTOCHECK: Blank checked for exceedence of criteria	YES	*	VTS	02/11/2017
11	AUTOCHECK: Check blank spike recovery	YES	*	VTS	02/11/2017
12	AUTOCHECK: Check blank spike/blank spike duplicate RPD. If exceeded include outliers in exception report.	NA	*	VTS	02/11/2017
13	AUTOCHECK: Compounds in method designated as blank spike compounds are present	YES	*	VTS	02/11/2017
14	AUTOCHECK: Check %RPD between sample and sample duplicate	NA	*	VTS	02/11/2017
15	AUTOCHECK: Matrix spike recoveries within limits	NO	*	VTS	02/11/2017
	Comments: *Recoveries are advisory for tissue MS and MSD. Matrix Spike Recovery for Benzo(b)thiophene (27.0%) was outside acceptance limits (30-160) in BFA0647-MS1 for 8270D-SIM PAH Low (0.01 ug/L - 0.5 ug/kg) - Flagged value is not within established control limits.* *Matrix Spike Recovery for Fluoranthene (24.7%) was outside acceptance limits (30-160) in BFA0647-MS1 for 8270D-SIM PAH Low (0.01 ug/L - 0.5 ug/kg) - Flagged value is not within established control limits.* *Matrix Spike Recovery for Naphthalene (27.2%) was outside acceptance limits (30-160) in BFA0647-MS1 for 8270D-SIM PAH Low (0.01 ug/L - 0.5 ug/kg) - Flagged value is not within established control limits.*				
16	AUTOCHECK: Matrix spike/matrix spike duplicate RPD within limits	NO	*	VTS	02/11/2017
	Comments: *In general the MS recoveries are about 1/2 of msd including the surrogates which indicates an overall loss while processing the extracts. No corrective action taken. All recoveries and %RPD are advisory for a tissue matrix Matrix Spike Duplicate RPD for 1-Methylnaphthalene (55.9%) was above the acceptance limit (30) in BFA0647-MSD1 for 8270D-SIM PAH Low (0.01 ug/L - 0.5 ug/kg)*				

* = Indicates Automated Response from Element DataSyst

Port Gamble Shellfish Monitoring
17A0053

Analysis	Matrix	Method
8270D-SIM PAH Low (0.01 ug/L - 0.5 ug/kg)	Tissue	EPA 8270D-SIM

Checklist: Analyst Checklist-SVOA

#	Checklist Item	Response	Analyst Initials	Date

- Flagged value is not within established control limits.

Matrix Spike Duplicate RPD for 2-Chloronaphthalene (58.4%) was above the acceptance limit (30) in BFA0647-MSD1 for 8270D-SIM PAH Low (0.01 ug/L - 0.5 ug/kg)
- Flagged value is not within established control limits.

Matrix Spike Duplicate RPD for 2-Methylnaphthalene (54.8%) was above the acceptance limit (30) in BFA0647-MSD1 for 8270D-SIM PAH Low (0.01 ug/L - 0.5 ug/kg)
- Flagged value is not within established control limits.

Matrix Spike Duplicate RPD for Acenaphthene (52.3%) was above the acceptance limit (30) in BFA0647-MSD1 for 8270D-SIM PAH Low (0.01 ug/L - 0.5 ug/kg)
- Flagged value is not within established control limits.

Matrix Spike Duplicate RPD for Acenaphthylene (53.5%) was above the acceptance limit (30) in BFA0647-MSD1 for 8270D-SIM PAH Low (0.01 ug/L - 0.5 ug/kg)
- Flagged value is not within established control limits.

Matrix Spike Duplicate RPD for Anthracene (51.5%) was above the acceptance limit (30) in BFA0647-MSD1 for 8270D-SIM PAH Low (0.01 ug/L - 0.5 ug/kg)
- Flagged value is not within established control limits.

Matrix Spike Duplicate RPD for Benzo(a)anthracene (54.3%) was above the acceptance limit (30) in BFA0647-MSD1 for 8270D-SIM PAH Low (0.01 ug/L - 0.5 ug/kg)
- Flagged value is not within established control limits.

Matrix Spike Duplicate RPD for Benzo(a)pyrene (51.4%) was above the acceptance limit (30) in BFA0647-MSD1 for 8270D-SIM PAH Low (0.01 ug/L - 0.5 ug/kg)
- Flagged value is not within established control limits.

Matrix Spike Duplicate RPD for Benzo(b)fluoranthene (51.4%) was above the acceptance limit (30) in BFA0647-MSD1 for 8270D-SIM PAH Low (0.01 ug/L - 0.5 ug/kg)
- Flagged value is not within established control limits.

Matrix Spike Duplicate RPD for Benzo(b)thiophene (60.4%) was above the acceptance limit (30) in BFA0647-MSD1 for 8270D-SIM PAH Low (0.01 ug/L - 0.5 ug/kg)
- Flagged value is not within established control limits.

Matrix Spike Duplicate RPD for Benzo(g,h,i)perylene (52.2%) was above the acceptance limit (30) in BFA0647-MSD1 for 8270D-SIM PAH Low (0.01 ug/L - 0.5 ug/kg)
- Flagged value is not within established control limits.

Matrix Spike Duplicate RPD for Benzo(j)fluoranthene (52.5%) was above the acceptance limit (30) in BFA0647-MSD1 for 8270D-SIM PAH Low (0.01 ug/L - 0.5 ug/kg)
- Flagged value is not within established control limits.

Matrix Spike Duplicate RPD for Benzo(k)fluoranthene (52.2%) was above the acceptance limit (30) in BFA0647-MSD1 for 8270D-SIM PAH Low (0.01 ug/L - 0.5 ug/kg)

Port Gamble Shellfish Monitoring

17A0053

Analysis	Matrix	Method
8270D-SIM PAH Low (0.01 ug/L - 0.5 ug/kg)	Tissue	EPA 8270D-SIM

Checklist: Analyst Checklist-SVOA

#	Checklist Item	Response		Analyst Initials	Date
	- Flagged value is not within established control limits.				
	Matrix Spike Duplicate RPD for Chrysene (53.8%) was above the acceptance limit (30) in BFA0647-MSD1 for 8270D-SIM PAH Low (0.01 ug/L - 0.5 ug/kg) *- Flagged value is not within established control limits.*				
	Matrix Spike Duplicate RPD for Dibenzo(a,h)anthracene (50.6%) was above the acceptance limit (30) in BFA0647-MSD1 for 8270D-SIM PAH Low (0.01 ug/L - 0.5 ug/kg) *- Flagged value is not within established control limits.*				
	Matrix Spike Duplicate RPD for Dibenzofuran (52.7%) was above the acceptance limit (30) in BFA0647-MSD1 for 8270D-SIM PAH Low (0.01 ug/L - 0.5 ug/kg) *- Flagged value is not within established control limits.*				
	Matrix Spike Duplicate RPD for Fluoranthene (51.6%) was above the acceptance limit (30) in BFA0647-MSD1 for 8270D-SIM PAH Low (0.01 ug/L - 0.5 ug/kg) *- Flagged value is not within established control limits.*				
	Matrix Spike Duplicate RPD for Fluorene (48.7%) was above the acceptance limit (30) in BFA0647-MSD1 for 8270D-SIM PAH Low (0.01 ug/L - 0.5 ug/kg) *- Flagged value is not within established control limits.*				
	Matrix Spike Duplicate RPD for Indeno(1,2,3-cd)pyrene (51.2%) was above the acceptance limit (30) in BFA0647-MSD1 for 8270D-SIM PAH Low (0.01 ug/L - 0.5 ug/kg) *- Flagged value is not within established control limits.*				
	Matrix Spike Duplicate RPD for Naphthalene (59.1%) was above the acceptance limit (30) in BFA0647-MSD1 for 8270D-SIM PAH Low (0.01 ug/L - 0.5 ug/kg) *- Flagged value is not within established control limits.*				
	Matrix Spike Duplicate RPD for Phenanthrene (50.1%) was above the acceptance limit (30) in BFA0647-MSD1 for 8270D-SIM PAH Low (0.01 ug/L - 0.5 ug/kg) *- Flagged value is not within established control limits.*				
	Matrix Spike Duplicate RPD for Pyrene (52.5%) was above the acceptance limit (30) in BFA0647-MSD1 for 8270D-SIM PAH Low (0.01 ug/L - 0.5 ug/kg) *- Flagged value is not within established control limits.*				
17	AUTOCHECK: List of compounds listed as spiked are present	YES	*	VTS	02/11/2017
18	AUTOCHECK: Check SRM limits for exceedance	NA	*	VTS	02/11/2017
19	AUTOCHECK: Check Surrogate recoveries	YES	*	VTS	02/11/2017
20	AUTOCHECK: Checks Surrogate spike list against Analysis	YES	*	VTS	02/11/2017
21	Analyst checklist completed (PEER)	YES		BB	02/13/2017
22	Data is locked and Status is Analyzed (PEER)	YES		BB	02/13/2017
23	Data file, Calibration, Sequence, Batch, and Cleanup PDF's are attached (PEER)	YES		BB	02/13/2017

* = Indicates Automated Response from Element DataSyst

Port Gamble Shellfish Monitoring
17A0053

Analysis	Matrix	Method
8270D-SIM PAH Low (0.01 ug/L - 0.5 ug/kg)	Tissue	EPA 8270D-SIM

Checklist: Analyst Checklist-SVOA

#	Checklist Item	Response	Analyst Initials	Date
24	Color warnings have been addressed and (or) qualified (PEER)	YES	BB	02/13/2017
25	Qualifers have been correctly added (PEER)	YES	BB	02/13/2017
26	Checklist completed and status is peer reviewed (REVIEWER)	YES	BB	02/13/2017
27	Dilutions are linear (50-200%) and appropriate (REVIEWER)	NA	BB	02/13/2017
28	All requested samples have been reported (REVIEWER)	YES	BB	02/13/2017
29	Color warnings have been addressed, narrated and (or) qualified (REVIEWER)	YES	BB	02/13/2017
30	List of samples in this sequence that will require additional runs-verify reshot created (ANALYST)	YES	VTS	02/11/2017
	Comments: *Sample 17A0053-10 was mis-injected by the autosampler and is being rerun today in next sequence.*			
31	List of samples in this sequence that are re-analysis or dilutions of samples (ANALYST)	NA	VTS	02/11/2017
32	Additional Notes (ANALYST, PEER, and REVIEWER)	YES	VTS	02/11/2017
	Comments: *Sample 17A0053-10 was mis-injected by the autosampler and is being rerun today in next sequence.* *MS LOOKS TO BE 1/2 OF MSD (WIDE RPD'S) SEE #15,16*			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Printed: 2/11/2017 8:26:10AM

ANALYSIS SEQUENCE

SFB0130

Instrument: NT11 Element Column ID: E006481
Calibration ID: ZL00083 Tune File: 161216.U
EM Voltage: 2247

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SFB0130-TUN1	DFTPP	QC		1	E007446		
SFB0130-ICV1	Initial Cal Check	QC		2	E006577	E002870	
BFA0647-BLK1	Blank	QC		3		E002870	
BFA0647-BS1	LCS	QC		4		E002870	
16K0124-01	PG-T0-MUS-COC-161109	SIM PAH Low (0.01 ug/L - 0.	A 02	5		E002870	
17A0053-01	PG-SMA1-1-MUS-170105	SIM PAH Low (0.01 ug/L - 0.	A 02	6		E002870	
17A0053-04	PG-SMA2-1-MUS-170105	SIM PAH Low (0.01 ug/L - 0.	A 02	7		E002870	
17A0053-05	PG-SMA2-2-MUS-170105	SIM PAH Low (0.01 ug/L - 0.	A 02	8		E002870	
17A0053-06	PG-SMA2-3-MUS-170105	SIM PAH Low (0.01 ug/L - 0.	A 02	9		E002870	
17A0053-07	PG-SMA2-4-MUS-170105	SIM PAH Low (0.01 ug/L - 0.	A 02	10		E002870	
17A0053-08	PG-SMA2-5-MUS-170105	SIM PAH Low (0.01 ug/L - 0.	A 02	11		E002870	
17A0053-09	PG-PJ-1-MUS-170105	SIM PAH Low (0.01 ug/L - 0.	A 02	12		E002870	
17A0053-11	PG-WS-1-MUS-170105	SIM PAH Low (0.01 ug/L - 0.	A 02	13		E002870	
17A0053-12	PG-SMA1-2-3-MUS-170105	SIM PAH Low (0.01 ug/L - 0.	A 02	14		E002870	LIMITED VOLUME, only take minimum amount
BFA0647-MS1	Matrix Spike	QC		15		E002870	
BFA0647-MSD1	Matrix Spike Dup	QC		16		E002870	
SFB0130-CCV1	SIM PAH 250	QC		17	E006577	E002870	

INTERNAL STANDARD SUMMARY FOR DATABATCH - \\target\share\chem3\nt11.i\20170210.b

	Time	Filename	LabID	ClientId	DF								
1	1145	N1117021001.D	SFB0130-TUN1		1	NO ISTDS FOUND							
2	1205	N1117021002.D	SFB0130-ICV1		1	8.53	508392	11.56	354460	14.26	673289	19.02	627104	22.24	522109
3	1240	N1117021003.D			1	8.53	501918	11.56	350269	14.25	674154	19.02	619406	22.24	552136
4	1308	N1117021004.D	SFB0130-TUN1		1	NO ISTDS FOUND							
5	1329	N1117021005.D	SFB0130-ICV1		1	8.53	326356	11.56	220051	14.26	424023	19.02	409280	22.24	347530
6	1405	N1117021006.D	SFB0130-LCV1		1	8.53	319083	11.56	212604	14.25	420984	19.02	391743	22.24	351171
7	1440	N1117021007.D	BFA0647-BLK1		1	8.51	263642	11.56	181252	14.25	354769	19.02	344497	22.24	338290
8	1516	N1117021008.D	BFA0647-BS1		1	8.51	263463	11.56	184009	14.25	363382	19.02	352838	22.24	341159
9	1552	N1117021009.D	16K0124-01		1	8.51	251510	11.56	149373	14.25	238222	19.02	198528	22.24	214455
10	1627	N1117021010.D	17A0053-01		1	8.52	214273	11.56	144698	14.25	234960	19.02	201157	22.24	213059
11	1703	N1117021011.D	17A0053-04		1	8.51	214970	11.56	145064	14.25	237830	19.02	206658	22.24	216657
12	1739	N1117021012.D	17A0053-05		1	8.51	218333	11.56	147879	14.25	236713	19.02	203457	22.24	217634
13	1814	N1117021013.D	17A0053-06		1	8.52	220641	11.56	149754	14.25	241636	19.02	208692	22.24	226680
14	1850	N1117021014.D	17A0053-07		1	8.52	228488	11.56	156874	14.25	250109	19.02	219541	22.24	233325
15	1925	N1117021015.D	17A0053-08		1	8.52	219069	11.56	148509	14.25	240804	19.02	211300	22.24	224848
16	2001	N1117021016.D	17A0053-09		1	8.51	219004	11.56	151898	14.25	243924	19.02	208748	22.24	221150
17	2036	N1117021017.D	17A0053-10		1	NO ISTDS FOUND							
18	2112	N1117021018.D	17A0053-11		1	8.52	224155	11.56	150650	14.25	240836	19.02	214297	22.24	224273
19	2148	N1117021019.D	17A0053-12		1	8.52	227725	11.56	158745	14.25	251996	19.02	207529	22.23	228830
20	2223	N1117021020.D	BFA0647-MS1		1	8.52	240715	11.56	173279	14.25	262158	19.03	222392	22.23	238610

INTERNAL STANDARD SUMMARY FOR DATABATCH - \\target\share\chem3\nt11.i\20170210.b

	Time	Filename	LabID	ClientId	DF									
21	2259	N1117021021.D	BFA0647-MSD1		1	8.52	226075	11.56	157597	14.25	247966	19.02	209184	22.24	230152
22	2335	N1117021022.D	SFB0130-CCV1		1	8.53	278606	11.56	216962	14.25	406542	19.02	325570	22.23	266441

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem3\nt11.i\20170210.b

ARI Job No.: SFB0 Method: DFTPP.m Instrument: nt11.i Date: 10-FEB-2017

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1145	N1117021001.D	SFB0130-TUN1		1	NO MANUAL INTEGRATION
1205	N1117021002.D	SFB0130-ICV1		1	NO MANUAL INTEGRATION
1240	N1117021003.D			1	NO MANUAL INTEGRATION
1308	N1117021004.D	SFB0130-TUN1		1	NO MANUAL INTEGRATION
1329	N1117021005.D	SFB0130-ICV1		1	NO MANUAL INTEGRATION
1405	N1117021006.D	SFB0130-LCV1		1	NO MANUAL INTEGRATION
1440	N1117021007.D	BFA0647-BLK1		1	NO MANUAL INTEGRATION
1516	N1117021008.D	BFA0647-BS1		1	NO MANUAL INTEGRATION
1552	N1117021009.D	16K0124-01		1	NO MANUAL INTEGRATION
1627	N1117021010.D	17A0053-01		1	Acenaphthene, 1-Methylphenanthrene,
1703	N1117021011.D	17A0053-04		1	Acenaphthene, 1-Methylphenanthrene,
1739	N1117021012.D	17A0053-05		1	Acenaphthene, 1-Methylphenanthrene,
1814	N1117021013.D	17A0053-06		1	Acenaphthene, 2,3,5-Trimethylnaphthalene, 1-Methylphenanthrene, Dibenzothiophene,
1850	N1117021014.D	17A0053-07		1	Acenaphthene, 1-Methylphenanthrene, Dibenzothiophene,
1925	N1117021015.D	17A0053-08		1	2,3,5-Trimethylnaphthalene, 1-Methylphenanthrene,
2001	N1117021016.D	17A0053-09		1	Acenaphthene, 1-Methylphenanthrene,
2036	N1117021017.D	17A0053-10		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem3\nt11.i\20170210.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
2112	N1117021018.D	17A0053-11		1	1-Methylphenanthrene, Dibenzothiophene,
2148	N1117021019.D	17A0053-12		1	2,3,5-Trimethylnaphthalene, 1-Methylphenanthrene, Dibenzothiophene,
2223	N1117021020.D	BFA0647-MS1		1	NO MANUAL INTEGRATION
2259	N1117021021.D	BFA0647-MSD1		1	NO MANUAL INTEGRATION
2335	N1117021022.D	SFB0130-CCV1		1	NO MANUAL INTEGRATION

Autosampler Failed – sigh –

Data File: \\target\share\chem3\nt11.i\20170210.b\N1117021017.D

Date : 10-FEB-2017 20:36

Client ID:

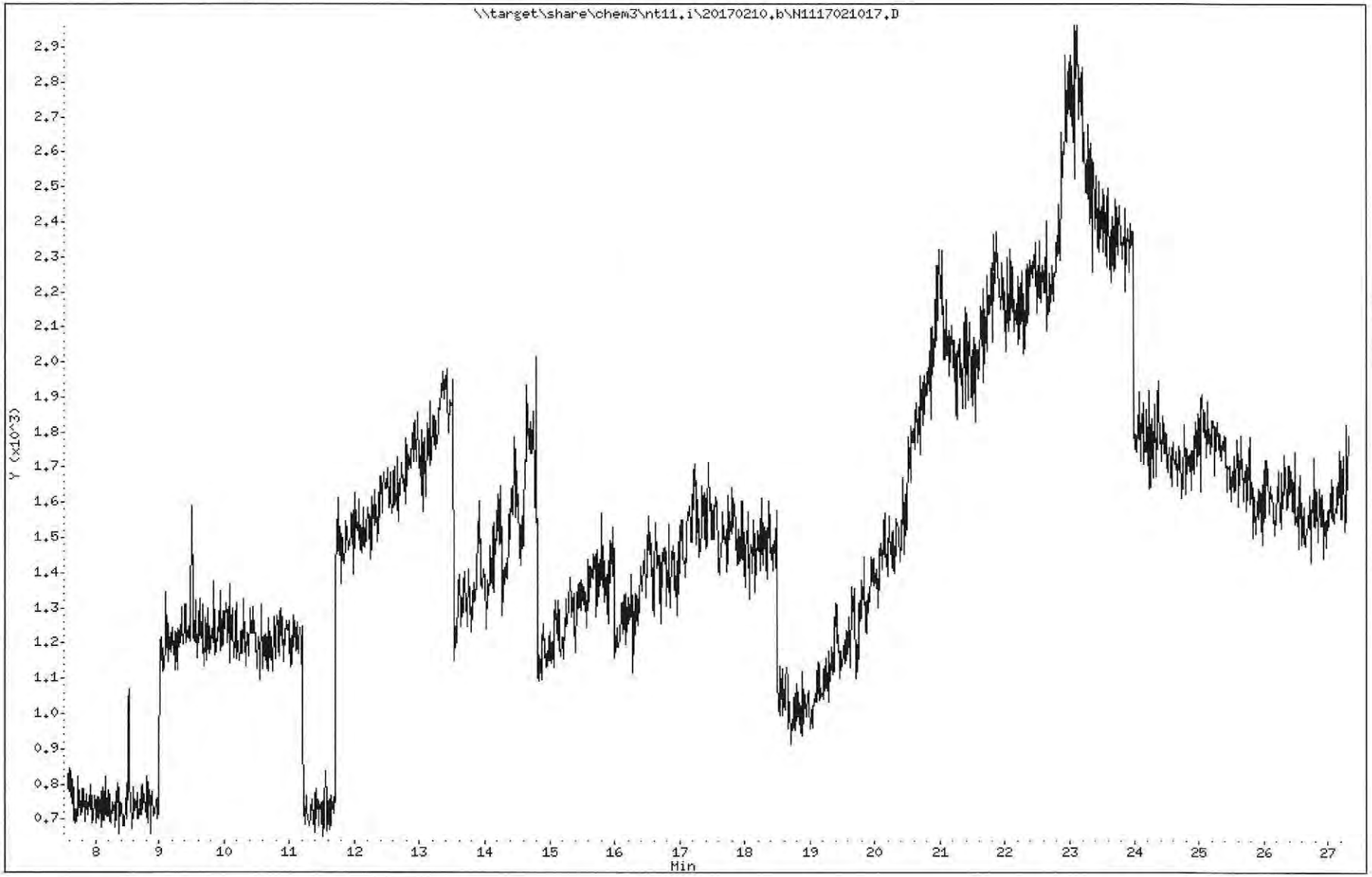
Sample Info: 17A0053-10

Instrument: nt11.i

Operator: VTS

Column phase: Rxi-17Sil MS

Column diameter: 0.25



ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 8270D-SIM

Laboratory:	Analytical Resources, Inc.	SDG:	17A0053
Client:	Anchor QEA, LLC	Project:	Port Gamble Shellfish Monitoring
Sequence:	SFB0152	Instrument:	NT11
		Calibration:	ZL00083

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
DFTPP	SFB0152-TUN1	N1117021101.D	Tissue	02/11/17 10:17
Initial Cal Check	SFB0152-ICV1	N1117021102.D	Tissue	02/11/17 10:36
PG-GP-1-MUS-170105	17A0053-10	N1117021103.D	Tissue	02/11/17 11:12
SIM PAH 250	SFB0152-CCV1	N1117021104.D	Tissue	02/11/17 11:47

Port Gamble Shellfish Monitoring

17A0053

Analysis	Matrix	Method
8270D-SIM PAH Low (0.01 ug/L - 0.5 ug/kg)	Tissue	EPA 8270D-SIM

Checklist: Analyst Checklist-SVOA

#	Checklist Item	Response		Analyst Initials	Date
1	DFTPP abundance and time criteria met	YES		VTS	02/11/2017
2	DDT Breakdown <20% and Peak Tailing <=2	YES		VTS	02/11/2017
3	ICV/CCV Meets %D	YES		VTS	02/11/2017
4	ICAL/ICV/CCV Q Flag - NONE required	YES		VTS	02/11/2017
5	Internal Standard areas within 50-200%	YES		VTS	02/11/2017
	Comments: *See dod-istd report. All internal standards are within limits.*				
6	Retention times within windows and Coelution summary checked	YES		VTS	02/11/2017
7	Manual integrations include summary and before/after pictures	YES		VTS	02/11/2017
8	Project specific requirements have been met	YES		VTS	02/11/2017
9	Sample dilution factors have been correctly applied	NA		VTS	02/11/2017
10	AUTOCHECK: Blank checked for exceedence of criteria	NR	*	VTS	02/11/2017
	Comments: *No blanks were analyzed in this sequence. see sfb0130*				
11	AUTOCHECK: Check blank spike recovery	YES	*	VTS	02/11/2017
12	AUTOCHECK: Check blank spike/blank spike duplicate RPD. If exceeded include outliers in exception report.	NA	*	VTS	02/11/2017
13	AUTOCHECK: Compounds in method designated as blank spike compounds are present	YES	*	VTS	02/11/2017
14	AUTOCHECK: Check %RPD between sample and sample duplicate	NA	*	VTS	02/11/2017
15	AUTOCHECK: Matrix spike recoveries within limits	YES	*	VTS	02/11/2017
16	AUTOCHECK: Matrix spike/matrix spike duplicate RPD within limits	NA	*	VTS	02/11/2017
17	AUTOCHECK: List of compounds listed as spiked are present	YES	*	VTS	02/11/2017
18	AUTOCHECK: Check SRM limits for exceedance	NA	*	VTS	02/11/2017
19	AUTOCHECK: Check Surrogate recoveries	YES	*	VTS	02/11/2017
20	AUTOCHECK: Checks Surrogate spike list against Analysis	YES	*	VTS	02/11/2017
21	Analyst checklist completed (PEER)	YES		BB	02/13/2017
22	Data is locked and Status is Analyzed (PEER)	YES		BB	02/13/2017
23	Data file, Calibration, Sequence, Batch, and Cleanup PDF's are attached (PEER)	YES		BB	02/13/2017
24	Color warnings have been addressed and (or) qualified (PEER)	YES		BB	02/13/2017
25	Qualifers have been correctly added (PEER)	YES		BB	02/13/2017

* = Indicates Automated Response from Element DataSyst

Port Gamble Shellfish Monitoring
17A0053

Analysis	Matrix	Method
8270D-SIM PAH Low (0.01 ug/L - 0.5 ug/kg)	Tissue	EPA 8270D-SIM

Checklist: Analyst Checklist-SVOA

#	Checklist Item	Response	Analyst Initials	Date
26	Checklist completed and status is peer reviewed (REVIEWER)	YES	BB	02/13/2017
27	Dilutions are linear (50-200%) and appropriate (REVIEWER)	NA	BB	02/13/2017
28	All requested samples have been reported (REVIEWER)	YES	BB	02/13/2017
29	Color warnings have been addressed, narrated and (or) qualified (REVIEWER)	YES	BB	02/13/2017
30	List of samples in this sequence that will require additional runs-verify reshot created (ANALYST)	NA	VTS	02/11/2017
31	List of samples in this sequence that are re-analysis or dilutions of samples (ANALYST)	YES	VTS	02/11/2017
	Comments: *17A0053-10 rerun due to autosampler failure in first queue*			
32	Additional Notes (ANALYST, PEER, and REVIEWER)	NA	VTS	02/11/2017

Printed: 2/11/2017 1:32:17PM

ANALYSIS SEQUENCE

SFB0152

Instrument: NT11 Element Column ID: E006481
Calibration ID: ZL00083 Tune File: 161216.U
EM Voltage: 2200

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SFB0152-TUN1	DFTPP	QC		1	E007446		
SFB0152-ICV1	Initial Cal Check	QC		2	E006577	E002870	
17A0053-10	PG-GP-1-MUS-170105	SIM PAH Low (0.01 ug/L - 0.	A 02	3		E002870	LIMITED VOLUME, only take minimum amount
SFB0152-CCV1	SIM PAH 250	QC		4	E006577	E002870	

INTERNAL STANDARD SUMMARY FOR DATABATCH - \\target\share\chem3\nt11.i\20170211.b

	Time	Filename	LabID	ClientId	DF	
1	1017	N1117021101.D	SFB0152-TUN1		1	|NO ISTDS FOUND||
2	1036	N1117021102.D	SFB0152-ICV1		1	| 8.53 279915||11.56 195660||14.25 373303||19.02 349457||22.23 284460|
3	1112	N1117021103.D	17A0053-10		1	| 8.51 185577||11.56 115607||14.25 182847||19.02 158037||22.23 165563|
4	1147	N1117021104.D	SFB0152		1	| 8.53 222333||11.56 174915||14.25 340745||19.02 288185||22.23 235835|

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem3\nt11.i\20170211.b

ARI Job No.: SFB0 Method: DFTPP.m Instrument: nt11.i Date: 11-FEB-2017

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1017	N1117021101.D	SFB0152-TUN1		1	NO MANUAL INTEGRATION
1036	N1117021102.D	SFB0152-ICV1		1	NO MANUAL INTEGRATION
1112	N1117021103.D	17A0053-10		1	Acenaphthene, Benzo(a)anthracene, 1-Methylphenanthrene,
1147	N1117021104.D	SFB0152		1	NO MANUAL INTEGRATION

Analytical Resources, Incorporated

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 8270D-SIM

Laboratory:	Analytical Resources, Inc.	SDG:	17A0053
Client:	Anchor QEA, LLC	Project:	Port Gamble Shellfish Monitoring
Sequence:	SEL0401	Instrument:	NT11
		Calibration:	ZL00083

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
DFTPP	SEL0401-TUN1	N1116123101.D	Water	12/31/16 08:12
Cal Standard	SEL0401-CAL4	N1116123102.D	Water	12/31/16 08:28
Initial Cal Check	SEL0401-ICV1	N1116123102ICV.D	Water	12/31/16 08:28
Cal Standard	SEL0401-CAL6	N1116123103.D	Water	12/31/16 08:59
Cal Standard	SEL0401-CAL1	N1116123104.D	Water	12/31/16 09:30
Cal Standard	SEL0401-CAL5	N1116123105.D	Water	12/31/16 10:01
Cal Standard	SEL0401-CAL2	N1116123106.D	Water	12/31/16 10:32
Cal Standard	SEL0401-CAL3	N1116123107.D	Water	12/31/16 11:04
SIMPNA SCV	SEL0401-SCV1	N1116123108.D	Water	12/31/16 11:35
ZZZZZ	BEL0603-BLK1	N1116123109.D	Water	12/31/16 12:06
ZZZZZ	BEL0603-BS1	N1116123110.D	Water	12/31/16 12:37
ZZZZZ	16L0317-01	N1116123111.D	Water	12/31/16 13:08
ZZZZZ	16L0317-02	N1116123114.D	Water	12/31/16 14:42
ZZZZZ	16L0317-03	N1116123115.D	Water	12/31/16 15:13
ZZZZZ	16L0317-04	N1116123116.D	Water	12/31/16 15:45
ZZZZZ	16L0317-05	N1116123117.D	Water	12/31/16 16:16
ZZZZZ	16L0317-06	N1116123118.D	Water	12/31/16 16:47
ZZZZZ	16L0317-07	N1116123119.D	Water	12/31/16 17:18
ZZZZZ	16L0317-08	N1116123120.D	Water	12/31/16 17:50
ZZZZZ	16L0317-09	N1116123121.D	Water	12/31/16 18:21
ZZZZZ	16L0326-01	N1116123122.D	Water	12/31/16 18:52
SIM PAH 250	SEL0401-CCV1	N1116123125.D	Water	12/31/16 20:26

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Printed: 1/4/2017 8:27:36AM

ANALYSIS SEQUENCE

SEL0401

Instrument: NT11 Element Column ID: E006480
Calibration ID: ZL00052 Tune File: 161216.U
EM Voltage: 2353

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SEL0401-TUN1	DFTPP	QC		1	E007446		
SEL0401-CAL4	Cal Standard	QC		2	E006577	E002870	
SEL0401-CAL6	Cal Standard	QC		3	E006579	E002870	
SEL0401-CAL1	Cal Standard	QC		4	E006574	E002870	
SEL0401-CAL5	Cal Standard	QC		5	E006578	E002870	
SEL0401-CAL2	Cal Standard	QC		6	E006575	E002870	
SEL0401-CAL3	Cal Standard	QC		7	E006576	E002870	
SEL0401-SCV1	SIMPNA SCV	QC		8	E007699	E002870	
SEL0401-ICV1	Initial Cal Check	QC		9	E006577	E002870	
BEL0603-BLK1	Blank	QC		10		E002870	
BEL0603-BS1	LCS	QC		11		E002870	
16L0317-01	A-HCMW2-122116	SIM PAH Low (0.01 ug/L - 0.	D 01	12		E002870	
BEL0603-MS1	Matrix Spike	QC		13		E002870	
BEL0603-MSD1	Matrix Spike Dup	QC		14		E002870	
16L0317-02	A-DOTMW4-122116	SIM PAH Low (0.01 ug/L - 0.	D 01	15		E002870	
16L0317-03	A-MW16-122016	SIM PAH Low (0.01 ug/L - 0.	D 01	16		E002870	
16L0317-04	A-MW24-122016	SIM PAH Low (0.01 ug/L - 0.	D 01	17		E002870	
16L0317-05	A-MW26-122016	SIM PAH Low (0.01 ug/L - 0.	D 01	18		E002870	
16L0317-06	A-MW28-122016	SIM PAH Low (0.01 ug/L - 0.	D 01	19		E002870	
16L0317-07	A-MW29-122016	SIM PAH Low (0.01 ug/L - 0.	D 01	20		E002870	
16L0317-08	A-MW30-122016	SIM PAH Low (0.01 ug/L - 0.	D 01	21		E002870	
16L0317-09	A-DUP1-122016	SIM PAH Low (0.01 ug/L - 0.	D 01	22		E002870	

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ANALYSIS SEQUENCE

SEL0401

Instrument: NT11 Element Column ID: E006480
Calibration ID: ZL00052 Tune File: 161216.U
EM Voltage: 2353

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
16L0326-01	MW-6	SIM PAH Low (0.01 ug/L - 0.	D 01	23		E002870	
BEL0603-MS2	Matrix Spike	QC		24		E002870	
BEL0603-MSD2	Matrix Spike Dup	QC		25		E002870	
SEL0401-CCV1	SIM PAH 250	QC		26	E006577	E002870	

INTERNAL STANDARD SUMMARY FOR DATABATCH - \\target\share\chem3\nt11.i\20161231.b

	Time	Filename	LabID	ClientId	DF									
1	0812	N1116123101.D	SEL0401-TUN1		1	NO ISTDS FOUND								
2	0828	N1116123102.D	SEL0401-CAL4		1	7.23	219654	10.25	135248	12.95	257021	17.70	259511	20.93	257535
3	0859	N1116123103.D	SEL0401-CAL6		1	7.23	213511	10.25	133595	12.95	256606	17.70	268214	20.92	279143
4	0930	N1116123104.D	SEL0401-CAL1		1	7.23	239658	10.25	148389	12.95	283739	17.70	283072	20.92	287631
5	1001	N1116123105.D	SEL0401-CAL5		1	7.23	218999	10.25	137033	12.95	265632	17.70	271314	20.92	280262
6	1032	N1116123106.D	SEL0401-CAL2		1	7.23	212581	10.25	132827	12.95	247500	17.70	256124	20.92	263051
7	1104	N1116123107.D	SEL0401-CAL3		1	7.23	208170	10.25	127832	12.95	237418	17.70	244102	20.92	258780
8	1135	N1116123108.D	SEL0401-SCV1		1	7.23	210327	10.25	128092	12.95	246665	17.70	255043	20.92	265358
9	1206	N1116123109.D	BEL0603-BLK1		1	7.23	215545	10.25	128323	12.95	248564	17.70	249010	20.93	243234
10	1237	N1116123110.D	BEL0603-BS1		1	7.23	206110	10.25	126178	12.95	240860	17.70	244295	20.93	246679
11	1308	N1116123111.D	16L0317-01		1	7.23	204933	10.25	119575	12.95	233788	17.70	233370	20.93	240033
12	1340	N1116123112.D	BEL0603-MS1		1	7.23	210247	10.25	127026	12.95	247336	17.70	253277	20.93	259486
13	1411	N1116123113.D	BEL0603-MSD1		1	7.23	216185	10.25	131547	12.95	254742	17.70	259479	20.93	272609
14	1442	N1116123114.D	16L0317-02		1	7.23	219441	10.25	127259	12.95	244027	17.70	255696	20.93	274985
15	1513	N1116123115.D	16L0317-03		1	7.23	201908	10.25	116067	12.95	214738	17.70	228289	20.93	251376
16	1545	N1116123116.D	16L0317-04		1	7.23	200171	10.26	148127	12.95	228712	17.70	217290	20.93	252799
17	1616	N1116123117.D	16L0317-05		1	7.23	211331	10.25	129954	12.95	237454	17.70	229653	20.93	246879
18	1647	N1116123118.D	16L0317-06		1	7.23	192570	10.25	111434	12.95	209330	17.70	201850	20.93	236366
19	1718	N1116123119.D	16L0317-07		1	7.23	215538	10.25	129527	12.95	243632	17.70	251142	20.93	273122
20	1750	N1116123120.D	16L0317-08		1	7.23	212351	10.25	124164	12.95	241635	17.70	251376	20.93	278226

INTERNAL STANDARD SUMMARY FOR DATABATCH - \\target\share\chem3\nt11.i\20161231.b

	Time	Filename	LabID	ClientId	DF									
21	1821	N1116123121.D	16L0317-09		1	7.23	200623	10.25	115063	12.95	219070	17.70	227704	20.93	245014
22	1852	N1116123122.D	16L0326-01		1	7.23	198305	10.25	116953	12.95	216978	17.70	219572	20.93	251218
23	1923	N1116123123.D	BEL0603-MS2		1	7.23	187113	10.25	111583	12.95	209184	17.70	223098	20.93	256608
24	1955	N1116123124.D	BEL0603-MSD2		1	7.23	209921	10.25	128082	12.95	240741	17.70	250308	20.93	282454
25	2026	N1116123125.D	SEL0401-CCV1		1	7.23	189529	10.25	116816	12.95	224943	17.70	244863	20.93	252132

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem3\nt11.i\20161231.b

ARI Job No.: SEL0 Method: DFTPP.m Instrument: nt11.i Date: 31-DEC-2016

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
0812	N1116123101.D	SEL0401-TUN1		1	NO MANUAL INTEGRATION
0828	N1116123102.D	SEL0401-CAL4		1	NO MANUAL INTEGRATION
0859	N1116123103.D	SEL0401-CAL6		1	NO MANUAL INTEGRATION
0930	N1116123104.D	SEL0401-CAL1		1	Benzo(b)thiophene, 2-Chloronaphthalene, 2,3,5-Trimethylnaphthalene, Dibenzo(a,h)anthracene-d14, Fluorene-d10,
1001	N1116123105.D	SEL0401-CAL5		1	NO MANUAL INTEGRATION
1032	N1116123106.D	SEL0401-CAL2		1	Benzo(j)fluoranthene, Benzo(b)thiophene, 2,6-Dimethylnaphthalene, 2,3,5-Trimethylnaphthalene, 2-Methylnaphthalene-d10, Dibenz Benzo(e)pyrene-d12,
1104	N1116123107.D	SEL0401-CAL3		1	Benzo(j)fluoranthene, Benzo(b)thiophene, 2-Chloronaphthalene, 2,6-Dimethylnaphthalene, 2,3,5-Trimethylnaphthalene, Biphenyl, 2-Methylnaphthalene-d10, Dibenzo(a,h)anthracene-d14, Benzo(e)pyrene-d12,
1135	N1116123108.D	SEL0401-SCV1		1	NO MANUAL INTEGRATION
1206	N1116123109.D	BEL0603-BLK1		1	NO MANUAL INTEGRATION
1237	N1116123110.D	BEL0603-BS1		1	NO MANUAL INTEGRATION
1308	N1116123111.D	16L0317-01		1	NO MANUAL INTEGRATION
1340	N1116123112.D	BEL0603-MS1		1	NO MANUAL INTEGRATION
1411	N1116123113.D	BEL0603-MSD1		1	NO MANUAL INTEGRATION
1442	N1116123114.D	16L0317-02		1	NO MANUAL INTEGRATION
1513	N1116123115.D	16L0317-03		1	NO MANUAL INTEGRATION
1545	N1116123116.D	16L0317-04		1	NO MANUAL INTEGRATION
1616	N1116123117.D	16L0317-05		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem3\nt11.i\20161231.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1647	N1116123118.D	16L0317-06		1	NO MANUAL INTEGRATION
1718	N1116123119.D	16L0317-07		1	NO MANUAL INTEGRATION
1750	N1116123120.D	16L0317-08		1	NO MANUAL INTEGRATION
1821	N1116123121.D	16L0317-09		1	NO MANUAL INTEGRATION
1852	N1116123122.D	16L0326-01		1	NO MANUAL INTEGRATION
1923	N1116123123.D	BEL0603-MS2		1	NO MANUAL INTEGRATION
1955	N1116123124.D	BEL0603-MSD2		1	NO MANUAL INTEGRATION
2026	N1116123125.D	SEL0401-CCV1		1	NO MANUAL INTEGRATION

SURROGATE RECOVERY AND RT SUMMARY

EPA 8270D-SIM

Laboratory: Analytical Resources, Inc.
SDG/WO: 17A0053
Client: Anchor QEA, LLC
Project: Port Gamble Shellfish Monitoring
Sequence: SFB0130
Instrument: NT11
Calibration: ZL00083
Calibration Date: 12/31/2016

Surrogate Compound	Spike Level ng/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
SFB0130-ICV1 (Tissue)				Lab File ID: N1117021005.D			Analyzed: 02/10/17 13:29	
2-Methylnaphthalene-d10	250.00	94.4	80 - 120	9.508	8.201	1.3070	N/A	
Dibenzo[a,h]anthracene-d14	250.00	95.6	80 - 120	25.116	23.80433	1.3117	N/A	
Fluoranthene-d10	250.00	86.4	80 - 120	16.367	15.055	1.3120	N/A	
BFA0647-BLK1 (Tissue)				Lab File ID: N1117021007.D			Analyzed: 02/10/17 14:40	
2-Methylnaphthalene-d10	15.000	52.5	30 - 160	9.498	8.201	1.2970	N/A	
Dibenzo[a,h]anthracene-d14	15.000	65.0	30 - 160	25.116	23.80433	1.3117	N/A	
Fluoranthene-d10	15.000	64.2	30 - 160	16.367	15.055	1.3120	N/A	
BFA0647-BS1 (Tissue)				Lab File ID: N1117021008.D			Analyzed: 02/10/17 15:16	
2-Methylnaphthalene-d10	15.000	56.2	30 - 160	9.498	8.201	1.2970	N/A	
Dibenzo[a,h]anthracene-d14	15.000	75.0	30 - 160	25.116	23.80433	1.3117	N/A	
Fluoranthene-d10	15.000	67.5	30 - 160	16.367	15.055	1.3120	N/A	
17A0053-01 (Tissue)				Lab File ID: N1117021010.D			Analyzed: 02/10/17 16:27	
2-Methylnaphthalene-d10	14.691	55.5	30 - 160	9.498	8.201	1.2970	N/A	
Dibenzo[a,h]anthracene-d14	14.691	67.8	30 - 160	25.116	23.80433	1.3117	N/A	
Fluoranthene-d10	14.691	59.3	30 - 160	16.367	15.055	1.3120	N/A	
17A0053-04 (Tissue)				Lab File ID: N1117021011.D			Analyzed: 02/10/17 17:03	
2-Methylnaphthalene-d10	14.940	61.8	30 - 160	9.498	8.201	1.2970	N/A	
Dibenzo[a,h]anthracene-d14	14.940	75.5	30 - 160	25.116	23.80433	1.3117	N/A	
Fluoranthene-d10	14.940	66.2	30 - 160	16.367	15.055	1.3120	N/A	
17A0053-05 (Tissue)				Lab File ID: N1117021012.D			Analyzed: 02/10/17 17:39	
2-Methylnaphthalene-d10	14.735	57.0	30 - 160	9.498	8.201	1.2970	N/A	
Dibenzo[a,h]anthracene-d14	14.735	67.7	30 - 160	25.105	23.80433	1.3007	N/A	
Fluoranthene-d10	14.735	61.2	30 - 160	16.367	15.055	1.3120	N/A	
17A0053-06 (Tissue)				Lab File ID: N1117021013.D			Analyzed: 02/10/17 18:14	
2-Methylnaphthalene-d10	14.955	52.1	30 - 160	9.498	8.201	1.2970	N/A	
Dibenzo[a,h]anthracene-d14	14.955	66.9	30 - 160	25.115	23.80433	1.3107	N/A	
Fluoranthene-d10	14.955	60.5	30 - 160	16.367	15.055	1.3120	N/A	

SURROGATE RECOVERY AND RT SUMMARY

EPA 8270D-SIM

Laboratory:	Analytical Resources, Inc.	SDG/WO:	17A0053
Client:	Anchor QEA, LLC	Project:	Port Gamble Shellfish Monitoring
Sequence:	SFB0130	Instrument:	NT11
Calibration:	ZL00083	Calibration Date:	12/31/2016

Surrogate Compound	Spike Level ug/kg	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
17A0053-07 (Tissue)			Lab File ID: N1117021014.D			Analyzed: 02/10/17 18:50		
2-Methylnaphthalene-d10	14.851	42.7	30 - 160	9.498	8.201	1.2970	N/A	
Dibenzo[a,h]anthracene-d14	14.851	52.4	30 - 160	25.116	23.80433	1.3117	N/A	
Fluoranthene-d10	14.851	47.3	30 - 160	16.367	15.055	1.3120	N/A	
17A0053-08 (Tissue)			Lab File ID: N1117021015.D			Analyzed: 02/10/17 19:25		
2-Methylnaphthalene-d10	14.955	54.6	30 - 160	9.498	8.201	1.2970	N/A	
Dibenzo[a,h]anthracene-d14	14.955	70.6	30 - 160	25.116	23.80433	1.3117	N/A	
Fluoranthene-d10	14.955	62.5	30 - 160	16.367	15.055	1.3120	N/A	
17A0053-09 (Tissue)			Lab File ID: N1117021016.D			Analyzed: 02/10/17 20:01		
2-Methylnaphthalene-d10	14.896	60.1	30 - 160	9.498	8.201	1.2970	N/A	
Dibenzo[a,h]anthracene-d14	14.896	72.5	30 - 160	25.105	23.80433	1.3007	N/A	
Fluoranthene-d10	14.896	62.1	30 - 160	16.367	15.055	1.3120	N/A	
17A0053-11 (Tissue)			Lab File ID: N1117021018.D			Analyzed: 02/10/17 21:12		
2-Methylnaphthalene-d10	14.706	59.0	30 - 160	9.498	8.201	1.2970	N/A	
Dibenzo[a,h]anthracene-d14	14.706	70.1	30 - 160	25.105	23.80433	1.3007	N/A	
Fluoranthene-d10	14.706	63.9	30 - 160	16.367	15.055	1.3120	N/A	
17A0053-12 (Tissue)			Lab File ID: N1117021019.D			Analyzed: 02/10/17 21:48		
2-Methylnaphthalene-d10	14.851	37.4	30 - 160	9.498	8.201	1.2970	N/A	
Dibenzo[a,h]anthracene-d14	14.851	46.4	30 - 160	25.105	23.80433	1.3007	N/A	
Fluoranthene-d10	14.851	41.6	30 - 160	16.367	15.055	1.3120	N/A	
BFA0647-MS1 (Tissue)			Lab File ID: N1117021020.D			Analyzed: 02/10/17 22:23		
2-Methylnaphthalene-d10	14.970	32.6	30 - 160	9.509	8.201	1.3080	N/A	
Dibenzo[a,h]anthracene-d14	14.970	41.6	30 - 160	25.105	23.80433	1.3007	N/A	
Fluoranthene-d10	14.970	37.7	30 - 160	16.367	15.055	1.3120	N/A	
BFA0647-MSD1 (Tissue)			Lab File ID: N1117021021.D			Analyzed: 02/10/17 22:59		
2-Methylnaphthalene-d10	14.851	57.9	30 - 160	9.498	8.201	1.2970	N/A	
Dibenzo[a,h]anthracene-d14	14.851	69.7	30 - 160	25.105	23.80433	1.3007	N/A	
Fluoranthene-d10	14.851	64.0	30 - 160	16.367	15.055	1.3120	N/A	

SURROGATE RECOVERY AND RT SUMMARY

EPA 8270D-SIM

Laboratory:	Analytical Resources, Inc.	SDG/WO:	17A0053
Client:	Anchor QEA, LLC	Project:	Port Gamble Shellfish Monitoring
Sequence:	SFB0152	Instrument:	NT11
Calibration:	ZL00083	Calibration Date:	12/31/2016

Surrogate Compound	Spike Level ng/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
SFB0152-ICV1 (Tissue)			Lab File ID: N1117021102.D			Analyzed: 02/11/17 10:36		
2-Methylnaphthalene-d10	250.00	95.2	80 - 120	9.508	8.201	1.3070	N/A	
Dibenzo[a,h]anthracene-d14	250.00	89.2	80 - 120	25.105	23.80433	1.3007	N/A	
Fluoranthene-d10	250.00	87.2	80 - 120	16.367	15.055	1.3120	N/A	
17A0053-10 (Tissue)			Lab File ID: N1117021103.D			Analyzed: 02/11/17 11:12		
2-Methylnaphthalene-d10	14.720	54.0	30 - 160	9.498	8.201	1.2970	N/A	
Dibenzo[a,h]anthracene-d14	14.720	72.6	30 - 160	25.105	23.80433	1.3007	N/A	
Fluoranthene-d10	14.720	61.7	30 - 160	16.367	15.055	1.3120	N/A	

SURROGATE RECOVERY AND RT SUMMARY

EPA 8270D-SIM

Laboratory:	Analytical Resources, Inc.	SDG/WO:	17A0053
Client:	Anchor QEA, LLC	Project:	Port Gamble Shellfish Monitoring
Sequence:	SEL0401	Instrument:	NT11
Calibration:	ZL00083	Calibration Date:	12/31/2016

Surrogate Compound	Spike Level ng/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
SEL0401-ICV1 (Water)			Lab File ID: N1116123102ICV.D				Analyzed: 12/31/16 08:28	
2-Methylnaphthalene-d10	250.00	114	80 - 120	8.201	8.201	0.0000	N/A	
Dibenzo[a,h]anthracene-d14	250.00	110	80 - 120	23.808	23.80433	0.0037	N/A	
Fluoranthene-d10	250.00	110	80 - 120	15.055	15.055	0.0000	N/A	

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8270D-SIM

Laboratory: Analytical Resources, Inc.
SDG: 17A0053
Client: Anchor QEA, LLC
Project: Port Gamble Shellfish Monitoring
Sequence: SEL0401
Instrument: NT11
Calibration: ZL00083

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Initial Cal Check (SEL0401-ICV1)		(Water)	Lab File ID: N1116123102ICV.D					Analyzed: 12/31/16 08:28	
Naphthalene-d8	219654	7.225	219654	7.225	100	50 - 200	0.0000	+/-0.50	
Acenaphthene-d10	135248	10.251	135248	10.251	100	50 - 200	0.0000	+/-0.50	
Phenanthrene-d10	257021	12.945	257021	12.945	100	50 - 200	0.0000	+/-0.50	
Chrysene-d12	259511	17.701	259511	17.701	100	50 - 200	0.0000	+/-0.50	
Perylene-d12	257535	20.925	257535	20.925	100	50 - 200	0.0000	+/-0.50	
Secondary Cal Check (SEL0401-SCV1)		(Water)	Lab File ID: N1116123108.D					Analyzed: 12/31/16 11:35	
Naphthalene-d8	210327	7.225	219654	7.225	96	50 - 200	0.0000	+/-0.50	
Acenaphthene-d10	128092	10.252	135248	10.251	95	50 - 200	-0.0010	+/-0.50	
Phenanthrene-d10	246665	12.945	257021	12.945	96	50 - 200	0.0000	+/-0.50	
Chrysene-d12	255043	17.702	259511	17.701	98	50 - 200	-0.0010	+/-0.50	
Perylene-d12	265358	20.916	257535	20.925	103	50 - 200	0.0090	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8270D-SIM

Laboratory: Analytical Resources, Inc.
SDG: 17A0053
Client: Anchor QEA, LLC
Project: Port Gamble Shellfish Monitoring
Sequence: SFB0130
Instrument: NT11
Calibration: ZL00083

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Initial Cal Check (SFB0130-ICV1)		(Tissue)		Lab File ID: N1117021005.D				Analyzed: 02/10/17 13:29	
Naphthalene-d8	326356	8.526	219654	7.225	149	50 - 200	-1.3010	+/-0.50	
Acenaphthene-d10	220051	11.564	135248	10.251	163	50 - 200	-1.3130	+/-0.50	
Phenanthrene-d10	424023	14.262	257021	12.945	165	50 - 200	-1.3170	+/-0.50	
Chrysene-d12	409280	19.024	259511	17.701	158	50 - 200	-1.3230	+/-0.50	
Perylene-d12	347530	22.24	257535	20.925	135	50 - 200	-1.3150	+/-0.50	
Blank (BFA0647-BLK1)		(Tissue)		Lab File ID: N1117021007.D				Analyzed: 02/10/17 14:40	
Naphthalene-d8	263642	8.509	219654	7.225	120	50 - 200	-1.2840	+/-0.50	
Acenaphthene-d10	181252	11.555	135248	10.251	134	50 - 200	-1.3040	+/-0.50	
Phenanthrene-d10	354769	14.252	257021	12.945	138	50 - 200	-1.3070	+/-0.50	
Chrysene-d12	344497	19.024	259511	17.701	133	50 - 200	-1.3230	+/-0.50	
Perylene-d12	338290	22.24	257535	20.925	131	50 - 200	-1.3150	+/-0.50	
LCS (BFA0647-BS1)		(Tissue)		Lab File ID: N1117021008.D				Analyzed: 02/10/17 15:16	
Naphthalene-d8	263463	8.509	219654	7.225	120	50 - 200	-1.2840	+/-0.50	
Acenaphthene-d10	184009	11.555	135248	10.251	136	50 - 200	-1.3040	+/-0.50	
Phenanthrene-d10	363382	14.252	257021	12.945	141	50 - 200	-1.3070	+/-0.50	
Chrysene-d12	352838	19.024	259511	17.701	136	50 - 200	-1.3230	+/-0.50	
Perylene-d12	341159	22.24	257535	20.925	132	50 - 200	-1.3150	+/-0.50	
PG-SMA1-1-MUS-170105 (17A0053-01)		(Tissue)		Lab File ID: N1117021010.D				Analyzed: 02/10/17 16:27	
Naphthalene-d8	214273	8.518	219654	7.225	98	50 - 200	-1.2930	+/-0.50	
Acenaphthene-d10	144698	11.555	135248	10.251	107	50 - 200	-1.3040	+/-0.50	
Phenanthrene-d10	234960	14.251	257021	12.945	91	50 - 200	-1.3060	+/-0.50	
Chrysene-d12	201157	19.024	259511	17.701	78	50 - 200	-1.3230	+/-0.50	
Perylene-d12	213059	22.24	257535	20.925	83	50 - 200	-1.3150	+/-0.50	
PG-SMA2-1-MUS-170105 (17A0053-04)		(Tissue)		Lab File ID: N1117021011.D				Analyzed: 02/10/17 17:03	
Naphthalene-d8	214970	8.509	219654	7.225	98	50 - 200	-1.2840	+/-0.50	
Acenaphthene-d10	145064	11.555	135248	10.251	107	50 - 200	-1.3040	+/-0.50	
Phenanthrene-d10	237830	14.251	257021	12.945	93	50 - 200	-1.3060	+/-0.50	
Chrysene-d12	206658	19.024	259511	17.701	80	50 - 200	-1.3230	+/-0.50	
Perylene-d12	216657	22.24	257535	20.925	84	50 - 200	-1.3150	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8270D-SIM

Laboratory: Analytical Resources, Inc.
SDG: 17A0053
Client: Anchor QEA, LLC
Project: Port Gamble Shellfish Monitoring
Sequence: SFB0130
Instrument: NT11
Calibration: ZL00083

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
PG-SMA2-2-MUS-170105 (17A0053-05)		(Tissue)		Lab File ID: N1117021012.D				Analyzed: 02/10/17 17:39	
Naphthalene-d8	218333	8.509	219654	7.225	99	50 - 200	-1.2840	+/-0.50	
Acenaphthene-d10	147879	11.555	135248	10.251	109	50 - 200	-1.3040	+/-0.50	
Phenanthrene-d10	236713	14.252	257021	12.945	92	50 - 200	-1.3070	+/-0.50	
Chrysene-d12	203457	19.024	259511	17.701	78	50 - 200	-1.3230	+/-0.50	
Perylene-d12	217634	22.24	257535	20.925	85	50 - 200	-1.3150	+/-0.50	
PG-SMA2-3-MUS-170105 (17A0053-06)		(Tissue)		Lab File ID: N1117021013.D				Analyzed: 02/10/17 18:14	
Naphthalene-d8	220641	8.517	219654	7.225	100	50 - 200	-1.2920	+/-0.50	
Acenaphthene-d10	149754	11.555	135248	10.251	111	50 - 200	-1.3040	+/-0.50	
Phenanthrene-d10	241636	14.251	257021	12.945	94	50 - 200	-1.3060	+/-0.50	
Chrysene-d12	208692	19.024	259511	17.701	80	50 - 200	-1.3230	+/-0.50	
Perylene-d12	226680	22.24	257535	20.925	88	50 - 200	-1.3150	+/-0.50	
PG-SMA2-4-MUS-170105 (17A0053-07)		(Tissue)		Lab File ID: N1117021014.D				Analyzed: 02/10/17 18:50	
Naphthalene-d8	228488	8.517	219654	7.225	104	50 - 200	-1.2920	+/-0.50	
Acenaphthene-d10	156874	11.555	135248	10.251	116	50 - 200	-1.3040	+/-0.50	
Phenanthrene-d10	250109	14.251	257021	12.945	97	50 - 200	-1.3060	+/-0.50	
Chrysene-d12	219541	19.024	259511	17.701	85	50 - 200	-1.3230	+/-0.50	
Perylene-d12	233325	22.24	257535	20.925	91	50 - 200	-1.3150	+/-0.50	
PG-SMA2-5-MUS-170105 (17A0053-08)		(Tissue)		Lab File ID: N1117021015.D				Analyzed: 02/10/17 19:25	
Naphthalene-d8	219069	8.517	219654	7.225	100	50 - 200	-1.2920	+/-0.50	
Acenaphthene-d10	148509	11.555	135248	10.251	110	50 - 200	-1.3040	+/-0.50	
Phenanthrene-d10	240804	14.251	257021	12.945	94	50 - 200	-1.3060	+/-0.50	
Chrysene-d12	211300	19.024	259511	17.701	81	50 - 200	-1.3230	+/-0.50	
Perylene-d12	224848	22.24	257535	20.925	87	50 - 200	-1.3150	+/-0.50	
PG-PJ-1-MUS-170105 (17A0053-09)		(Tissue)		Lab File ID: N1117021016.D				Analyzed: 02/10/17 20:01	
Naphthalene-d8	219004	8.508	219654	7.225	100	50 - 200	-1.2830	+/-0.50	
Acenaphthene-d10	151898	11.555	135248	10.251	112	50 - 200	-1.3040	+/-0.50	
Phenanthrene-d10	243924	14.251	257021	12.945	95	50 - 200	-1.3060	+/-0.50	
Chrysene-d12	208748	19.024	259511	17.701	80	50 - 200	-1.3230	+/-0.50	
Perylene-d12	221150	22.24	257535	20.925	86	50 - 200	-1.3150	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8270D-SIM

Laboratory: Analytical Resources, Inc.
SDG: 17A0053
Client: Anchor QEA, LLC
Project: Port Gamble Shellfish Monitoring
Sequence: SFB0130
Instrument: NT11
Calibration: ZL00083

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
PG-WS-1-MUS-170105 (17A0053-11)		(Tissue)		Lab File ID: N1117021018.D				Analyzed: 02/10/17 21:12	
Naphthalene-d8	224155	8.517	219654	7.225	102	50 - 200	-1.2920	+/-0.50	
Acenaphthene-d10	150650	11.555	135248	10.251	111	50 - 200	-1.3040	+/-0.50	
Phenanthrene-d10	240836	14.251	257021	12.945	94	50 - 200	-1.3060	+/-0.50	
Chrysene-d12	214297	19.024	259511	17.701	83	50 - 200	-1.3230	+/-0.50	
Perylene-d12	224273	22.24	257535	20.925	87	50 - 200	-1.3150	+/-0.50	
PG-SMA1-2-3-MUS-170105 (17A0053-12)		(Tissue)		Lab File ID: N1117021019.D				Analyzed: 02/10/17 21:48	
Naphthalene-d8	227725	8.518	219654	7.225	104	50 - 200	-1.2930	+/-0.50	
Acenaphthene-d10	158745	11.555	135248	10.251	117	50 - 200	-1.3040	+/-0.50	
Phenanthrene-d10	251996	14.252	257021	12.945	98	50 - 200	-1.3070	+/-0.50	
Chrysene-d12	207529	19.024	259511	17.701	80	50 - 200	-1.3230	+/-0.50	
Perylene-d12	228830	22.231	257535	20.925	89	50 - 200	-1.3060	+/-0.50	
Matrix Spike (BFA0647-MS1)		(Tissue)		Lab File ID: N1117021020.D				Analyzed: 02/10/17 22:23	
Naphthalene-d8	240715	8.518	219654	7.225	110	50 - 200	-1.2930	+/-0.50	
Acenaphthene-d10	173279	11.564	135248	10.251	128	50 - 200	-1.3130	+/-0.50	
Phenanthrene-d10	262158	14.252	257021	12.945	102	50 - 200	-1.3070	+/-0.50	
Chrysene-d12	222392	19.025	259511	17.701	86	50 - 200	-1.3240	+/-0.50	
Perylene-d12	238610	22.231	257535	20.925	93	50 - 200	-1.3060	+/-0.50	
Matrix Spike Dup (BFA0647-MSD1)		(Tissue)		Lab File ID: N1117021021.D				Analyzed: 02/10/17 22:59	
Naphthalene-d8	226075	8.518	219654	7.225	103	50 - 200	-1.2930	+/-0.50	
Acenaphthene-d10	157597	11.555	135248	10.251	117	50 - 200	-1.3040	+/-0.50	
Phenanthrene-d10	247966	14.251	257021	12.945	96	50 - 200	-1.3060	+/-0.50	
Chrysene-d12	209184	19.024	259511	17.701	81	50 - 200	-1.3230	+/-0.50	
Perylene-d12	230152	22.24	257535	20.925	89	50 - 200	-1.3150	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8270D-SIM

Laboratory: Analytical Resources, Inc.
SDG: 17A0053
Client: Anchor QEA, LLC
Project: Port Gamble Shellfish Monitoring
Sequence: SFB0152
Instrument: NT11
Calibration: ZL00083

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Initial Cal Check (SFB0152-ICV1)		(Tissue)		Lab File ID: N1117021102.D				Analyzed: 02/11/17 10:36	
Naphthalene-d8	279915	8.527	219654	7.225	127	50 - 200	-1.3020	+/-0.50	
Acenaphthene-d10	195660	11.564	135248	10.251	145	50 - 200	-1.3130	+/-0.50	
Phenanthrene-d10	373303	14.251	257021	12.945	145	50 - 200	-1.3060	+/-0.50	
Chrysene-d12	349457	19.016	259511	17.701	135	50 - 200	-1.3150	+/-0.50	
Perylene-d12	284460	22.231	257535	20.925	110	50 - 200	-1.3060	+/-0.50	
PG-GP-1-MUS-170105 (17A0053-10)		(Tissue)		Lab File ID: N1117021103.D				Analyzed: 02/11/17 11:12	
Naphthalene-d8	185577	8.509	219654	7.225	84	50 - 200	-1.2840	+/-0.50	
Acenaphthene-d10	115607	11.555	135248	10.251	85	50 - 200	-1.3040	+/-0.50	
Phenanthrene-d10	182847	14.252	257021	12.945	71	50 - 200	-1.3070	+/-0.50	
Chrysene-d12	158037	19.016	259511	17.701	61	50 - 200	-1.3150	+/-0.50	
Perylene-d12	165563	22.231	257535	20.925	64	50 - 200	-1.3060	+/-0.50	

Analytical Resources, Incorporated

HOLDING TIME SUMMARY

Analysis: EPA 8270D-SIM

Laboratory: Analytical Resources, Inc. SDG: 17A0053

Client: Anchor QEA, LLC Project: Port Gamble Shellfish Monitoring

Sample Name	Date Collected	Date Received	Date Prepared	Days to Prep	Max Days to Prep	Date Analyzed	Days to Analysis	Max Days to Analysis	Q
PG-SMA1-1-MUS-170105 17A0053-01	01/05/17 10:15	01/06/17 16:03	01/31/17 13:45	26	365	02/10/17 16:27	10	40	
PG-SMA2-1-MUS-170105 17A0053-04	01/05/17 13:02	01/06/17 16:03	01/31/17 13:45	26	365	02/10/17 17:03	10	40	
PG-SMA2-2-MUS-170105 17A0053-05	01/05/17 12:50	01/06/17 16:03	01/31/17 13:45	26	365	02/10/17 17:39	10	40	
PG-SMA2-3-MUS-170105 17A0053-06	01/05/17 12:40	01/06/17 16:03	01/31/17 13:45	26	365	02/10/17 18:14	10	40	
PG-SMA2-4-MUS-170105 17A0053-07	01/05/17 12:30	01/06/17 16:03	01/31/17 13:45	26	365	02/10/17 18:50	10	40	
PG-SMA2-5-MUS-170105 17A0053-08	01/05/17 12:20	01/06/17 16:03	01/31/17 13:45	26	365	02/10/17 19:25	10	40	
PG-PJ-1-MUS-170105 17A0053-09	01/05/17 14:53	01/06/17 16:03	01/31/17 13:45	25	365	02/10/17 20:01	10	40	
PG-GP-1-MUS-170105 17A0053-10	01/05/17 14:43	01/06/17 16:03	01/31/17 13:45	25	365	02/11/17 11:12	11	40	
PG-WS-1-MUS-170105 17A0053-11	01/05/17 14:35	01/06/17 16:03	01/31/17 13:45	25	365	02/10/17 21:12	10	40	
PG-SMA1-2-3-MUS-170105 17A0053-12	01/05/17 00:00	01/06/17 16:03	01/31/17 13:45	26	365	02/10/17 21:48	10	40	
Matrix Spike BFA0647-MS1	01/05/17 12:50	01/06/17 16:03	01/31/17 13:45	26	365	02/10/17 22:23	10	40	
Matrix Spike Dup BFA0647-MSD1	01/05/17 12:50	01/06/17 16:03	01/31/17 13:45	26	365	02/10/17 22:59	10	40	

* Indicates hold time exceedance.

Analytical Resources, Incorporated

METHOD DETECTION AND REPORTING LIMITS

EPA 8270D-SIM

Laboratory: Analytical Resources, Inc. SDG: 17A0053

Client: Anchor QEA, LLC Project: Port Gamble Shellfish Monitoring

Matrix: Tissue Instrument: NT11

Analyte	MDL	RL	Units
Naphthalene	0.50	0.60	ug/kg
2-Methylnaphthalene	0.50	0.50	ug/kg
Acenaphthylene	0.50	0.50	ug/kg
Acenaphthene	0.50	0.50	ug/kg
Fluorene	0.50	0.50	ug/kg
Phenanthrene	0.50	0.50	ug/kg
Anthracene	0.50	0.50	ug/kg
Fluoranthene	0.50	0.50	ug/kg
Pyrene	0.50	0.50	ug/kg
Benzo(a)anthracene	0.50	0.50	ug/kg
Chrysene	0.50	0.50	ug/kg
Benzo(b)fluoranthene	0.50	0.50	ug/kg
Benzo(k)fluoranthene	0.50	0.50	ug/kg
Benzo(e)pyrene	0.50	0.50	ug/kg
Benzo(a)pyrene	0.50	0.50	ug/kg
Indeno(1,2,3-cd)pyrene	0.50	0.50	ug/kg
Dibenzo(a,h)anthracene	0.50	0.50	ug/kg
Benzo(g,h,i)perylene	0.50	0.50	ug/kg
Perylene	0.50	0.50	ug/kg

Analytical Resources, Incorporated

METHOD DETECTION AND REPORTING LIMITS

EPA 8270D-SIM

Laboratory: Analytical Resources, Inc. SDG: 17A0053

Client: Anchor QEA, LLC Project: Port Gamble Shellfish Monitoring

Matrix: Water Instrument: NT11

Analyte	MDL	RL	Units
Naphthalene	0.001	0.010	ug/L
2-Methylnaphthalene	0.001	0.010	ug/L
1-Methylnaphthalene	0.0009	0.010	ug/L
2-Chloronaphthalene	0.001	0.010	ug/L
Acenaphthylene	0.002	0.010	ug/L
Acenaphthene	0.003	0.010	ug/L
Dibenzofuran	0.002	0.010	ug/L
Fluorene	0.002	0.010	ug/L
Phenanthrene	0.001	0.010	ug/L
Anthracene	0.001	0.010	ug/L
Carbazole	0.001	0.010	ug/L
Fluoranthene	0.002	0.010	ug/L
Pyrene	0.001	0.010	ug/L
Benzo(a)anthracene	0.0008	0.010	ug/L
Chrysene	0.0009	0.010	ug/L
Benzo(b)fluoranthene	0.0005	0.010	ug/L
Benzo(k)fluoranthene	0.003	0.010	ug/L
Benzo(j)fluoranthene	0.002	0.010	ug/L
Benzofluoranthenes, Total	0.004	0.010	ug/L
Benzo(a)pyrene	0.002	0.010	ug/L
Perylene	0.006	0.010	ug/L
Indeno(1,2,3-cd)pyrene	0.001	0.010	ug/L
Dibenzo(a,h)anthracene	0.001	0.010	ug/L
Benzo(g,h,i)perylene	0.001	0.010	ug/L

Analytical Resources, Incorporated

QUALIFIERS AND NOTES

Qualifier	Definition
U	This analyte is not detected above the applicable reporting or detection limit.
J	Estimated concentration value detected below the reporting limit.
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)
*	Flagged value is not within established control limits.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

Your Project #: PORT GAMBLE
Site#: PORT GAMBLE
Your C.O.C. #: na

Attention:Anchor QEA Reporting Group

Anchor QEA, LLC
720 Olive Way, Suite 1900
Seattle, WA
USA 98101

Report Date: 2017/03/03
Report #: R4379413
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B722292
Received: 2017/02/02, 13:40

Sample Matrix: TISSUE
Samples Received: 11

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
PCB Congeners in Tissue (1668A)	4	2017/02/13	2017/02/19	BRL SOP-00408 BRL SOP-00409	EPA 1668A m
PCB Congeners in Tissue (1668A)	7	2017/02/13	2017/02/20	BRL SOP-00408 BRL SOP-00409	EPA 1668A m

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported: unless indicated otherwise, associated sample data are not blank corrected.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods. Results relate to samples tested.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

U = Undetected at the limit of quantitation.
J = Estimated concentration between the EDL & RDL.
B = Blank Contamination.
Q = One or more quality control criteria failed.
E = Analyte concentration exceeds the maximum concentration level.
K = Estimated maximum possible concentration due to ion abundance ratio failure.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Your Project #: PORT GAMBLE
Site#: PORT GAMBLE
Your C.O.C. #: na

Attention:Anchor QEA Reporting Group

Anchor QEA, LLC
720 Olive Way, Suite 1900
Seattle, WA
USA 98101

Report Date: 2017/03/03
Report #: R4379413
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B722292
Received: 2017/02/02, 13:40

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Melissa DiGrazia, Customer Experience Team Lead
Email: MDiGrazia@maxxam.ca
Phone# (905) 817-5700

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU256							
Sampling Date		2016/11/09 09:00							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-T0-MUS-COC-161109	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
PCBs									
2-MonoCB-(1)	ng/g	0.00068 U	0.00068	0.0094	N/A	N/A	N/A	N/A	4869418
3-MonoCB-(2)	ng/g	0.00057 U	0.00057	0.0094	N/A	N/A	N/A	N/A	4869418
4-MonoCB-(3)	ng/g	0.00070 U	0.00070	0.0094	N/A	N/A	N/A	N/A	4869418
22'-DiCB-(4)	ng/g	0.0064 U	0.0064	0.0094	N/A	N/A	N/A	N/A	4869418
2,3-DiCB-(5)	ng/g	0.0050 U	0.0050	0.0094	N/A	N/A	N/A	N/A	4869418
2,3'-DiCB-(6)	ng/g	0.0041 U	0.0041	0.0094	N/A	N/A	N/A	N/A	4869418
2,4-DiCB-(7)	ng/g	0.0048 U	0.0048	0.0094	N/A	N/A	N/A	N/A	4869418
2,4'-DiCB-(8)	ng/g	0.0041 U	0.0041	0.0094	N/A	N/A	N/A	N/A	4869418
2,5-DiCB-(9)	ng/g	0.0042 U	0.0042	0.0094	N/A	N/A	N/A	N/A	4869418
2,6-DiCB-(10)	ng/g	0.0092 U	0.0092	0.0094	N/A	N/A	N/A	N/A	4869418
3,3'-DiCB-(11)	ng/g	0.0075 J	0.0043	0.0094	N/A	N/A	N/A	N/A	4869418
DiCB-(12)+(13)	ng/g	0.0046 U	0.0046	0.019	N/A	N/A	N/A	N/A	4869418
3,5-DiCB-(14)	ng/g	0.0041 U	0.0041	0.0094	N/A	N/A	N/A	N/A	4869418
4,4'-DiCB-(15)	ng/g	0.0082 U	0.0082	0.0094	N/A	N/A	N/A	N/A	4869418
22'3-TriCB-(16)	ng/g	0.013 U	0.013	0.0094	N/A	N/A	N/A	N/A	4869418
22'4-TriCB-(17)	ng/g	0.0081 U	0.0081	0.0094	N/A	N/A	N/A	N/A	4869418
TriCB-(18)+(30)	ng/g	0.0066 U	0.0066	0.019	N/A	N/A	N/A	N/A	4869418
22'6-TriCB-(19)	ng/g	0.0045 U	0.0045	0.0094	N/A	N/A	N/A	N/A	4869418
TriCB-(20) + (28)	ng/g	0.0136 J	0.00086	0.019	N/A	N/A	N/A	N/A	4869418
TriCB-(21)+(33)	ng/g	0.00368 J	0.00081	0.019	N/A	N/A	N/A	N/A	4869418
234'-TriCB-(22)	ng/g	0.0019 U (1)	0.0019	0.0094	N/A	N/A	N/A	N/A	4869418
235-TriCB-(23)	ng/g	0.00093 U	0.00093	0.0094	N/A	N/A	N/A	N/A	4869418
236-TriCB-(24)	ng/g	0.0061 U	0.0061	0.0094	N/A	N/A	N/A	N/A	4869418
23'4-TriCB-(25)	ng/g	0.00089 J	0.00077	0.0094	N/A	N/A	N/A	N/A	4869418
TriCB-(26)+(29)	ng/g	0.0014 U (1)	0.0014	0.019	N/A	N/A	N/A	N/A	4869418
23'6-TriCB-(27)	ng/g	0.0052 U	0.0052	0.0094	N/A	N/A	N/A	N/A	4869418
24'5-TriCB-(31)	ng/g	0.00739 J	0.00076	0.0094	N/A	N/A	N/A	N/A	4869418
24'6-TriCB-(32)	ng/g	0.0052 U	0.0052	0.0094	N/A	N/A	N/A	N/A	4869418
23'5'-TriCB-(34)	ng/g	0.00077 U	0.00077	0.0094	N/A	N/A	N/A	N/A	4869418

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

N/A = Not Applicable

(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU256							
Sampling Date		2016/11/09 09:00							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-T0-MUS-COC-161109	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'4-TriCB-(35)	ng/g	0.00078 U	0.00078	0.0094	N/A	N/A	N/A	N/A	4869418
33'5-TriCB-(36)	ng/g	0.00070 U	0.00070	0.0094	N/A	N/A	N/A	N/A	4869418
344'-TriCB-(37)	ng/g	0.0018 J	0.0014	0.0094	N/A	N/A	N/A	N/A	4869418
345-TriCB-(38)	ng/g	0.00082 U	0.00082	0.0094	N/A	N/A	N/A	N/A	4869418
34'5-TriCB-(39)	ng/g	0.00084 U	0.00084	0.0094	N/A	N/A	N/A	N/A	4869418
TetraCB-(40)+(41)+(71)	ng/g	0.0104 J	0.0031	0.028	N/A	N/A	N/A	N/A	4869418
22'34'-TetraCB-(42)	ng/g	0.0057 J	0.0034	0.0094	N/A	N/A	N/A	N/A	4869418
22'35-TetraCB-(43)	ng/g	0.0039 U	0.0039	0.0094	N/A	N/A	N/A	N/A	4869418
TetraCB-(44)+(47)+(65)	ng/g	0.0278 J	0.0028	0.028	N/A	N/A	N/A	N/A	4869418
TetraCB-(45)+(51)	ng/g	0.0032 U	0.0032	0.019	N/A	N/A	N/A	N/A	4869418
22'36'-TetraCB-(46)	ng/g	0.0036 U	0.0036	0.0094	N/A	N/A	N/A	N/A	4869418
22'45-TetraCB-(48)	ng/g	0.0042 J	0.0033	0.0094	N/A	N/A	N/A	N/A	4869418
TetraCB-(49)+TetraCB-(69)	ng/g	0.0173 J	0.0026	0.019	N/A	N/A	N/A	N/A	4869418
TetraCB-(50)+(53)	ng/g	0.0045 U (1)	0.0045	0.019	N/A	N/A	N/A	N/A	4869418
22'55'-TetraCB-(52)	ng/g	0.0373	0.0026	0.0094	N/A	N/A	N/A	N/A	4869418
22'66'-TetraCB-(54)	ng/g	0.00053 U	0.00053	0.0094	N/A	N/A	N/A	N/A	4869418
233'4-TetraCB-(55)	ng/g	0.00068 U	0.00068	0.0094	N/A	N/A	N/A	N/A	4869418
233'4'-Tetra CB(56)	ng/g	0.00383 J	0.00065	0.0094	N/A	N/A	N/A	N/A	4869418
233'5-TetraCB-(57)	ng/g	0.00058 U	0.00058	0.0094	N/A	N/A	N/A	N/A	4869418
233'5'-TetraCB-(58)	ng/g	0.00065 U	0.00065	0.0094	N/A	N/A	N/A	N/A	4869418
TetraCB-(59)+(62)+(75)	ng/g	0.0023 U	0.0023	0.028	N/A	N/A	N/A	N/A	4869418
2344'-TetraCB -(60)	ng/g	0.00282 J	0.00068	0.0094	N/A	N/A	N/A	N/A	4869418
TetraCB-(61)+(70)+(74)+(76)	ng/g	0.0290 J	0.00063	0.038	N/A	N/A	N/A	N/A	4869418
234'5-TetraCB-(63)	ng/g	0.00056 U	0.00056	0.0094	N/A	N/A	N/A	N/A	4869418
234'6-TetraCB-(64)	ng/g	0.0058 J	0.0024	0.0094	N/A	N/A	N/A	N/A	4869418
23'44'-TetraCB-(66)	ng/g	0.0121	0.00054	0.0094	N/A	N/A	N/A	N/A	4869418
23'45-TetraCB-(67)	ng/g	0.00055 U	0.00055	0.0094	N/A	N/A	N/A	N/A	4869418
23'45'-TetraCB-(68)	ng/g	0.00058 U	0.00058	0.0094	N/A	N/A	N/A	N/A	4869418
23'55'-TetraCB-(72)	ng/g	0.00055 U	0.00055	0.0094	N/A	N/A	N/A	N/A	4869418
23'5'6-TetraCB-(73)	ng/g	0.0026 U	0.0026	0.0094	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU256							
Sampling Date		2016/11/09 09:00							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-T0-MUS-COC-161109	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'44'-TetraCB-(77)	ng/g	0.0013 U (1)	0.0013	0.0094	N/A	0.000100	0.000000130	N/A	4869418
33'45-TetraCB-(78)	ng/g	0.00058 U	0.00058	0.0094	N/A	N/A	N/A	N/A	4869418
33'45'-TetraCB(79)	ng/g	0.00052 U	0.00052	0.0094	N/A	N/A	N/A	N/A	4869418
33'55'-TetraCB-(80)	ng/g	0.00051 U	0.00051	0.0094	N/A	N/A	N/A	N/A	4869418
344'5-TetraCB-(81)	ng/g	0.00085 U	0.00085	0.0094	N/A	0.000300	0.000000255	N/A	4869418
22'33'4-PentaCB-(82)	ng/g	0.0030 U	0.0030	0.0094	N/A	N/A	N/A	N/A	4869418
PentaCB-(83)+(99)	ng/g	0.0605	0.0027	0.019	N/A	N/A	N/A	N/A	4869418
22'33'6-PentaCB-(84)	ng/g	0.0089 J	0.0031	0.0094	N/A	N/A	N/A	N/A	4869418
PentaCB-(85)+(116)+(117)	ng/g	0.010 U (1)	0.010	0.028	N/A	N/A	N/A	N/A	4869418
PentaCB-(86)(87)(97)(109)(119)(125)	ng/g	0.0297 J	0.0023	0.057	N/A	N/A	N/A	N/A	4869418
PentaCB-(88)+(91)	ng/g	0.0053 J	0.0027	0.019	N/A	N/A	N/A	N/A	4869418
22'346'-PentaCB-(89)	ng/g	0.0028 U	0.0028	0.0094	N/A	N/A	N/A	N/A	4869418
PentaCB-(90)+(101)+(113)	ng/g	0.0732	0.0023	0.028	N/A	N/A	N/A	N/A	4869418
22'355'-PentaCB-(92)	ng/g	0.0146	0.0026	0.0094	N/A	N/A	N/A	N/A	4869418
PentaCB-(93)+(98)+(100)+(102)	ng/g	0.0028 U	0.0028	0.038	N/A	N/A	N/A	N/A	4869418
22'356'-PentaCB-(94)	ng/g	0.0031 U	0.0031	0.0094	N/A	N/A	N/A	N/A	4869418
22'35'6-PentaCB-(95)	ng/g	0.0400	0.0024	0.0094	N/A	N/A	N/A	N/A	4869418
22'366'-PentaCB-(96)	ng/g	0.0017 U	0.0017	0.0094	N/A	N/A	N/A	N/A	4869418
22'45'6-PentaCB-(103)	ng/g	0.0023 U	0.0023	0.0094	N/A	N/A	N/A	N/A	4869418
22'466'-PentaCB-(104)	ng/g	0.00078 U	0.00078	0.0094	N/A	N/A	N/A	N/A	4869418
233'44'-PentaCB-(105)	ng/g	0.0138	0.0011	0.0094	N/A	0.0000300	0.000000414	N/A	4869418
233'45-PentaCB-(106)	ng/g	0.00079 U	0.00079	0.0094	N/A	N/A	N/A	N/A	4869418
233'4'5-PentaCB-(107)	ng/g	0.0036 U (1)	0.0036	0.0094	N/A	N/A	N/A	N/A	4869418
PentaCB-(108)+(124)	ng/g	0.00129 J	0.00081	0.019	N/A	N/A	N/A	N/A	4869418
PentaCB-(110)+(115)	ng/g	0.0522	0.0021	0.019	N/A	N/A	N/A	N/A	4869418
233'55'-PentaCB-(111)	ng/g	0.0020 U	0.0020	0.0094	N/A	N/A	N/A	N/A	4869418
233'56-PentaCB-(112)	ng/g	0.0019 U	0.0019	0.0094	N/A	N/A	N/A	N/A	4869418
2344'5-PentaCB-(114)	ng/g	0.0010 U	0.0010	0.0094	N/A	0.0000300	0.0000000300	N/A	4869418
23'44'5-PentaCB-(118)	ng/g	0.0434	0.0011	0.0094	N/A	0.0000300	0.00000130	N/A	4869418
23'455'-PentaCB-(120)	ng/g	0.0017 U	0.0017	0.0094	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU256							
Sampling Date		2016/11/09 09:00							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-T0-MUS-COC-161109	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
23'45'6-PentaCB-(121)	ng/g	0.0020 U	0.0020	0.0094	N/A	N/A	N/A	N/A	4869418
233'4'5'-PentaCB-(122)	ng/g	0.00085 U	0.00085	0.0094	N/A	N/A	N/A	N/A	4869418
23'44'5'-PentaCB-(123)	ng/g	0.0012 U	0.0012	0.0094	N/A	0.0000300	0.0000000360	N/A	4869418
33'44'5-PentaCB-(126)	ng/g	0.0011 U	0.0011	0.0094	N/A	0.100	0.000110	N/A	4869418
33'455'-PentaCB-(127)	ng/g	0.00076 U	0.00076	0.0094	N/A	N/A	N/A	N/A	4869418
HexaCB-(128)+(166)	ng/g	0.0098 U (1)	0.0098	0.019	N/A	N/A	N/A	N/A	4869418
HexaCB-(129)+(138)+(163)	ng/g	0.0979	0.0024	0.028	N/A	N/A	N/A	N/A	4869418
22'33'45'-HexaCB-(130)	ng/g	0.0055 J	0.0027	0.0094	N/A	N/A	N/A	N/A	4869418
22'33'46-HexaCB-(131)	ng/g	0.0030 U	0.0030	0.0094	N/A	N/A	N/A	N/A	4869418
22'33'46'-HexaCB-(132)	ng/g	0.0129	0.0030	0.0094	N/A	N/A	N/A	N/A	4869418
22'33'55'-HexaCB-(133)	ng/g	0.0026 U	0.0026	0.0094	N/A	N/A	N/A	N/A	4869418
HexaCB-(134)+(143)	ng/g	0.0028 U	0.0028	0.019	N/A	N/A	N/A	N/A	4869418
HexaCB-(135)+(151)	ng/g	0.0262	0.0034	0.019	N/A	N/A	N/A	N/A	4869418
22'33'66'-HexaCB-(136)	ng/g	0.0053 J	0.0023	0.0094	N/A	N/A	N/A	N/A	4869418
22'344'5-HexaCB-(137)	ng/g	0.0027 U	0.0027	0.0094	N/A	N/A	N/A	N/A	4869418
HexaCB-(139)+(140)	ng/g	0.0024 U	0.0024	0.019	N/A	N/A	N/A	N/A	4869418
22'3455'-HexaCB-(141)	ng/g	0.0025 U	0.0025	0.0094	N/A	N/A	N/A	N/A	4869418
22'3456-HexaCB-(142)	ng/g	0.0027 U	0.0027	0.0094	N/A	N/A	N/A	N/A	4869418
22'345'6-HexaCB-(144)	ng/g	0.0031 U	0.0031	0.0094	N/A	N/A	N/A	N/A	4869418
22'3466'-HexaCB-(145)	ng/g	0.0026 U	0.0026	0.0094	N/A	N/A	N/A	N/A	4869418
22'34'55'-HexaCB-(146)	ng/g	0.0225	0.0023	0.0094	N/A	N/A	N/A	N/A	4869418
HexaCB-(147)+(149)	ng/g	0.0595	0.0024	0.019	N/A	N/A	N/A	N/A	4869418
22'34'56'-HexaCB-(148)	ng/g	0.0031 U	0.0031	0.0094	N/A	N/A	N/A	N/A	4869418
22'34'66'-HexaCB-(150)	ng/g	0.0025 U	0.0025	0.0094	N/A	N/A	N/A	N/A	4869418
22'3566'-HexaCB-(152)	ng/g	0.0023 U	0.0023	0.0094	N/A	N/A	N/A	N/A	4869418
HexaCB-(153)+(168)	ng/g	0.118	0.0020	0.0094	N/A	N/A	N/A	N/A	4869418
22'44'56'-HexaCB-(154)	ng/g	0.0028 U	0.0028	0.0094	N/A	N/A	N/A	N/A	4869418
22'44'66'-HexaCB-(155)	ng/g	0.0012 U	0.0012	0.0094	N/A	N/A	N/A	N/A	4869418
HexaCB-(156)+(157)	ng/g	0.00351 J	0.00067	0.019	N/A	0.0000300	0.000000105	N/A	4869418
233'44'6-HexaCB-(158)	ng/g	0.0050 J	0.0017	0.0094	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU256							
Sampling Date		2016/11/09 09:00							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-T0-MUS-COC-161109	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
233'455'-HexaCB-(159)	ng/g	0.00050 U	0.00050	0.0094	N/A	N/A	N/A	N/A	4869418
233'456-HexaCB-(160)	ng/g	0.0021 U	0.0021	0.0094	N/A	N/A	N/A	N/A	4869418
233'45'6-HexaCB-(161)	ng/g	0.0017 U	0.0017	0.0094	N/A	N/A	N/A	N/A	4869418
233'4'55'-HexaCB-(162)	ng/g	0.00055 U	0.00055	0.0094	N/A	N/A	N/A	N/A	4869418
233'4'5'6-HexaCB-(164)	ng/g	0.0019 U	0.0019	0.0094	N/A	N/A	N/A	N/A	4869418
233'55'6-HexaCB-(165)	ng/g	0.0021 U	0.0021	0.0094	N/A	N/A	N/A	N/A	4869418
23'44'55'-HexaCB-(167)	ng/g	0.00244 J	0.00072	0.0094	N/A	0.0000300	0.0000000732	N/A	4869418
33'44'55'-HexaCB-(169)	ng/g	0.00071 U	0.00071	0.0094	N/A	0.0300	0.0000213	N/A	4869418
22'33'44'5-HeptaCB-(170)	ng/g	0.00185 J	0.00090	0.0094	N/A	N/A	N/A	N/A	4869418
HeptaCB-(171)+(173)	ng/g	0.0029 J	0.0011	0.019	N/A	N/A	N/A	N/A	4869418
22'33'455'-HeptaCB-(172)	ng/g	0.0011 U	0.0011	0.0094	N/A	N/A	N/A	N/A	4869418
22'33'456'-HeptaCB-(174)	ng/g	0.0011 U	0.0011	0.0094	N/A	N/A	N/A	N/A	4869418
22'33'45'6-HeptaCB-(175)	ng/g	0.0018 U	0.0018	0.0094	N/A	N/A	N/A	N/A	4869418
22'33'466'-HeptaCB-(176)	ng/g	0.0013 U	0.0013	0.0094	N/A	N/A	N/A	N/A	4869418
22'33'45'6'-HeptaCB-(177)	ng/g	0.0064 J	0.0011	0.0094	N/A	N/A	N/A	N/A	4869418
22'33'55'6-HeptaCB-(178)	ng/g	0.0042 J	0.0019	0.0094	N/A	N/A	N/A	N/A	4869418
22'33'566'-HeptaCB-(179)	ng/g	0.0042 J	0.0012	0.0094	N/A	N/A	N/A	N/A	4869418
HeptaCB-(180)+(193)	ng/g	0.00897 J	0.00075	0.019	N/A	N/A	N/A	N/A	4869418
22'344'56-HeptaCB-(181)	ng/g	0.0011 U	0.0011	0.0094	N/A	N/A	N/A	N/A	4869418
22'344'56'-HeptaCB-(182)	ng/g	0.0018 U	0.0018	0.0094	N/A	N/A	N/A	N/A	4869418
22'344'5'6-HeptaCB-(183)	ng/g	0.00698 J	0.00086	0.0094	N/A	N/A	N/A	N/A	4869418
22'344'66'-HeptaCB-(184)	ng/g	0.0013 U	0.0013	0.0094	N/A	N/A	N/A	N/A	4869418
22'3455'6-HeptaCB-(185)	ng/g	0.0013 U	0.0013	0.0094	N/A	N/A	N/A	N/A	4869418
22'34566'-HeptaCB-(186)	ng/g	0.0015 U	0.0015	0.0094	N/A	N/A	N/A	N/A	4869418
22'34'55'6-HeptaCB-(187)	ng/g	0.0268	0.0018	0.0094	N/A	N/A	N/A	N/A	4869418
22'34'566'-HeptaCB-(188)	ng/g	0.0011 U	0.0011	0.0094	N/A	N/A	N/A	N/A	4869418
233'44'55'-HeptaCB-(189)	ng/g	0.00061 U	0.00061	0.0094	N/A	0.0000300	0.0000000183	N/A	4869418
233'44'56-HeptaCB-(190)	ng/g	0.00083 U	0.00083	0.0094	N/A	N/A	N/A	N/A	4869418
233'44'5'6-HeptaCB-(191)	ng/g	0.00077 U	0.00077	0.0094	N/A	N/A	N/A	N/A	4869418
233'455'6-HeptaCB-(192)	ng/g	0.00092 U	0.00092	0.0094	N/A	N/A	N/A	N/A	4869418
22'33'44'55'-OctaCB-(194)	ng/g	0.0020 U	0.0020	0.0094	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU256							
Sampling Date		2016/11/09 09:00							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-T0-MUS-COC-161109	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
22'33'44'56-OctaCB-(195)	ng/g	0.0023 U	0.0023	0.0094	N/A	N/A	N/A	N/A	4869418
22'33'44'56'-OctaCB-(196)	ng/g	0.0035 U	0.0035	0.0094	N/A	N/A	N/A	N/A	4869418
22'33'44'66'OctaCB-(197)	ng/g	0.0025 U	0.0025	0.0094	N/A	N/A	N/A	N/A	4869418
OctaCB-(198)+(199)	ng/g	0.0038 U	0.0038	0.019	N/A	N/A	N/A	N/A	4869418
22'33'4566'-OctaCB-(200)	ng/g	0.0026 U	0.0026	0.0094	N/A	N/A	N/A	N/A	4869418
22'33'45'66'-OctaCB-(201)	ng/g	0.0024 U	0.0024	0.0094	N/A	N/A	N/A	N/A	4869418
22'33'55'66'-OctaCB-(202)	ng/g	0.0023 U (1)	0.0023	0.0094	N/A	N/A	N/A	N/A	4869418
22'344'55'6-OctaCB-(203)	ng/g	0.0037 U	0.0037	0.0094	N/A	N/A	N/A	N/A	4869418
22'344'566'-OctaCB-(204)	ng/g	0.0024 U	0.0024	0.0094	N/A	N/A	N/A	N/A	4869418
233'44'55'6-OctaCB-(205)	ng/g	0.0022 U	0.0022	0.0094	N/A	N/A	N/A	N/A	4869418
22'33'44'55'6-NonaCB-(206)	ng/g	0.00090 U	0.00090	0.0094	N/A	N/A	N/A	N/A	4869418
22'33'44'566'-NonaCB-(207)	ng/g	0.00073 U	0.00073	0.0094	N/A	N/A	N/A	N/A	4869418
22'33'455'66'-NonaCB-(208)	ng/g	0.00090 U	0.00090	0.0094	N/A	N/A	N/A	N/A	4869418
DecaCB-(209)	ng/g	0.0014 U	0.0014	0.0094	N/A	N/A	N/A	N/A	4869418
Total PCB	ng/g	0.955	N/A	N/A	N/A	N/A	N/A	N/A	4869418
TOTAL TOXIC EQUIVALENCY	ng/g	N/A	N/A	N/A	N/A	N/A	0.000134	N/A	N/A
Surrogate Recovery (%)									
C13-2,44'-TriCB-(28)	%	111	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'33'44'55'6-NonaCB-(206)	%	91	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'33'44'5-HeptaCB-(170)	%	95	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'33'455'66'-NonaCB-(208)	%	83	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'33'55'66'-OctaCB-(202)	%	82	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'33'55'6-HeptaCB-(178)	%	96	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'344'55'-HeptaCB-(180)	%	97	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'34'566'-HeptaCB-(188)	%	98	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'44'66'-HexaCB-(155)	%	88	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'466'-PentaCB-(104)	%	96	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'66'-TetraCB-(54)	%	89	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'6-TriCB-(19)	%	72	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'-DiCB-(4)	%	66	N/A	N/A	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU256							
Sampling Date		2016/11/09 09:00							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-T0-MUS-COC-161109	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
C13-233'44'55'6-OctaCB-(205)	%	108	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-233'44'55'-HeptaCB-(189)	%	99	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-233'44'-PentaCB-(105)	%	129	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-233'55'-PentaCB-(111)	%	107	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-23'44'55'-HexaCB-(167)	%	112	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-2344'5-PentaCB-(114)	%	128	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-23'44'5-PentaCB-(118)	%	127	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-2'344'5-PentaCB-(123)	%	129	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-2-MonoCB-(1)	%	87	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-33'44'55'-HexaCB-(169)	%	77	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-33'44'5-PentaCB-(126)	%	123	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-33'44'-TetraCB-(77)	%	131	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-344'5-TetraCB-(81)	%	128	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-344'-TriCB-(37)	%	120	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-44'-DiCB-(15)	%	99	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-4-MonoCB-(3)	%	85	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-DecaCB-(209)	%	96	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-HexaCB-(156)+(157)	%	115	N/A	N/A	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU257							
Sampling Date		2017/01/05 10:15							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-SMA1-1-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
PCBs									
2-MonoCB-(1)	ng/g	0.00065 U	0.00065	0.0095	N/A	N/A	N/A	N/A	4869418
3-MonoCB-(2)	ng/g	0.00054 U	0.00054	0.0095	N/A	N/A	N/A	N/A	4869418
4-MonoCB-(3)	ng/g	0.00066 U	0.00066	0.0095	N/A	N/A	N/A	N/A	4869418
22'-DiCB-(4)	ng/g	0.011 U	0.011	0.0095	N/A	N/A	N/A	N/A	4869418
2,3-DiCB-(5)	ng/g	0.0056 U	0.0056	0.0095	N/A	N/A	N/A	N/A	4869418
2,3'-DiCB-(6)	ng/g	0.0046 U	0.0046	0.0095	N/A	N/A	N/A	N/A	4869418
2,4-DiCB-(7)	ng/g	0.0053 U	0.0053	0.0095	N/A	N/A	N/A	N/A	4869418
2,4'-DiCB-(8)	ng/g	0.0046 U	0.0046	0.0095	N/A	N/A	N/A	N/A	4869418
2,5-DiCB-(9)	ng/g	0.0047 U	0.0047	0.0095	N/A	N/A	N/A	N/A	4869418
2,6-DiCB-(10)	ng/g	0.016 U	0.016	0.0095	N/A	N/A	N/A	N/A	4869418
3,3'-DiCB-(11)	ng/g	0.0060 J	0.0047	0.0095	N/A	N/A	N/A	N/A	4869418
DiCB-(12)+(13)	ng/g	0.0051 U	0.0051	0.019	N/A	N/A	N/A	N/A	4869418
3,5-DiCB-(14)	ng/g	0.0046 U	0.0046	0.0095	N/A	N/A	N/A	N/A	4869418
4,4'-DiCB-(15)	ng/g	0.0091 U	0.0091	0.0095	N/A	N/A	N/A	N/A	4869418
22'3-TriCB-(16)	ng/g	0.0098 U	0.0098	0.0095	N/A	N/A	N/A	N/A	4869418
22'4-TriCB-(17)	ng/g	0.0059 U	0.0059	0.0095	N/A	N/A	N/A	N/A	4869418
TriCB-(18)+(30)	ng/g	0.0048 U	0.0048	0.019	N/A	N/A	N/A	N/A	4869418
22'6-TriCB-(19)	ng/g	0.0033 U	0.0033	0.0095	N/A	N/A	N/A	N/A	4869418
TriCB-(20) + (28)	ng/g	0.0128 J	0.00076	0.019	N/A	N/A	N/A	N/A	4869418
TriCB-(21)+(33)	ng/g	0.00312 J	0.00071	0.019	N/A	N/A	N/A	N/A	4869418
234'-TriCB-(22)	ng/g	0.0023 U (1)	0.0023	0.0095	N/A	N/A	N/A	N/A	4869418
235-TriCB-(23)	ng/g	0.00082 U	0.00082	0.0095	N/A	N/A	N/A	N/A	4869418
236-TriCB-(24)	ng/g	0.0044 U	0.0044	0.0095	N/A	N/A	N/A	N/A	4869418
23'4-TriCB-(25)	ng/g	0.00083 J	0.00068	0.0095	N/A	N/A	N/A	N/A	4869418
TriCB-(26)+(29)	ng/g	0.00173 J	0.00071	0.019	N/A	N/A	N/A	N/A	4869418
23'6-TriCB-(27)	ng/g	0.0038 U	0.0038	0.0095	N/A	N/A	N/A	N/A	4869418
24'5-TriCB-(31)	ng/g	0.00679 J	0.00067	0.0095	N/A	N/A	N/A	N/A	4869418
24'6-TriCB-(32)	ng/g	0.0038 U	0.0038	0.0095	N/A	N/A	N/A	N/A	4869418
23'5'-TriCB-(34)	ng/g	0.00068 U	0.00068	0.0095	N/A	N/A	N/A	N/A	4869418

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Maxxam Job #: B722292
Report Date: 2017/03/03

Anchor QEA, LLC
Client Project #: PORT GAMBLE

SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU257							
Sampling Date		2017/01/05 10:15							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-SMA1-1-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'4-TriCB-(35)	ng/g	0.00069 U	0.00069	0.0095	N/A	N/A	N/A	N/A	4869418
33'5-TriCB-(36)	ng/g	0.00062 U	0.00062	0.0095	N/A	N/A	N/A	N/A	4869418
344'-TriCB-(37)	ng/g	0.0023 J	0.0013	0.0095	N/A	N/A	N/A	N/A	4869418
345-TriCB-(38)	ng/g	0.00073 U	0.00073	0.0095	N/A	N/A	N/A	N/A	4869418
34'5-TriCB-(39)	ng/g	0.00074 U	0.00074	0.0095	N/A	N/A	N/A	N/A	4869418
TetraCB-(40)+(41)+(71)	ng/g	0.0092 U (1)	0.0092	0.029	N/A	N/A	N/A	N/A	4869418
22'34'-TetraCB-(42)	ng/g	0.0047 U (1)	0.0047	0.0095	N/A	N/A	N/A	N/A	4869418
22'35-TetraCB-(43)	ng/g	0.0028 U	0.0028	0.0095	N/A	N/A	N/A	N/A	4869418
TetraCB-(44)+(47)+(65)	ng/g	0.0215 J	0.0021	0.029	N/A	N/A	N/A	N/A	4869418
TetraCB-(45)+(51)	ng/g	0.0023 U	0.0023	0.019	N/A	N/A	N/A	N/A	4869418
22'36'-TetraCB-(46)	ng/g	0.0026 U	0.0026	0.0095	N/A	N/A	N/A	N/A	4869418
22'45-TetraCB-(48)	ng/g	0.0039 J	0.0024	0.0095	N/A	N/A	N/A	N/A	4869418
TetraCB-(49)+TetraCB-(69)	ng/g	0.0106 J	0.0019	0.019	N/A	N/A	N/A	N/A	4869418
TetraCB-(50)+(53)	ng/g	0.0029 U (1)	0.0029	0.019	N/A	N/A	N/A	N/A	4869418
22'55'-TetraCB-(52)	ng/g	0.0282	0.0019	0.0095	N/A	N/A	N/A	N/A	4869418
22'66'-TetraCB-(54)	ng/g	0.00050 U	0.00050	0.0095	N/A	N/A	N/A	N/A	4869418
233'4-TetraCB-(55)	ng/g	0.0016 U	0.0016	0.0095	N/A	N/A	N/A	N/A	4869418
233'4'-Tetra CB(56)	ng/g	0.0038 J	0.0016	0.0095	N/A	N/A	N/A	N/A	4869418
233'5-TetraCB-(57)	ng/g	0.0014 U	0.0014	0.0095	N/A	N/A	N/A	N/A	4869418
233'5'-TetraCB-(58)	ng/g	0.0016 U	0.0016	0.0095	N/A	N/A	N/A	N/A	4869418
TetraCB-(59)+(62)+(75)	ng/g	0.0025 J	0.0016	0.029	N/A	N/A	N/A	N/A	4869418
2344'-TetraCB -(60)	ng/g	0.0031 U (1)	0.0031	0.0095	N/A	N/A	N/A	N/A	4869418
TetraCB-(61)+(70)+(74)+(76)	ng/g	0.0288 J	0.0015	0.038	N/A	N/A	N/A	N/A	4869418
234'5-TetraCB-(63)	ng/g	0.0014 U	0.0014	0.0095	N/A	N/A	N/A	N/A	4869418
234'6-TetraCB-(64)	ng/g	0.0055 J	0.0017	0.0095	N/A	N/A	N/A	N/A	4869418
23'44'-TetraCB-(66)	ng/g	0.0120	0.0013	0.0095	N/A	N/A	N/A	N/A	4869418
23'45-TetraCB-(67)	ng/g	0.0013 U	0.0013	0.0095	N/A	N/A	N/A	N/A	4869418
23'45'-TetraCB-(68)	ng/g	0.0014 U	0.0014	0.0095	N/A	N/A	N/A	N/A	4869418
23'55'-TetraCB-(72)	ng/g	0.0013 U	0.0013	0.0095	N/A	N/A	N/A	N/A	4869418
23'5'6-TetraCB-(73)	ng/g	0.0019 U	0.0019	0.0095	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU257							
Sampling Date		2017/01/05 10:15							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-SMA1-1-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'44'-TetraCB-(77)	ng/g	0.0020 U	0.0020	0.0095	N/A	0.000100	0.000000200	N/A	4869418
33'45-TetraCB-(78)	ng/g	0.0014 U	0.0014	0.0095	N/A	N/A	N/A	N/A	4869418
33'45'-TetraCB(79)	ng/g	0.0012 U	0.0012	0.0095	N/A	N/A	N/A	N/A	4869418
33'55'-TetraCB-(80)	ng/g	0.0012 U	0.0012	0.0095	N/A	N/A	N/A	N/A	4869418
344'5-TetraCB-(81)	ng/g	0.0021 U	0.0021	0.0095	N/A	0.000300	0.000000630	N/A	4869418
22'33'4-PentaCB-(82)	ng/g	0.0041 J	0.0038	0.0095	N/A	N/A	N/A	N/A	4869418
PentaCB-(83)+(99)	ng/g	0.0505	0.0035	0.019	N/A	N/A	N/A	N/A	4869418
22'33'6-PentaCB-(84)	ng/g	0.0076 J	0.0039	0.0095	N/A	N/A	N/A	N/A	4869418
PentaCB-(85)+(116)+(117)	ng/g	0.0105 J	0.0027	0.029	N/A	N/A	N/A	N/A	4869418
PentaCB-(86)(87)(97)(109)(119)(125)	ng/g	0.0265 J	0.0029	0.057	N/A	N/A	N/A	N/A	4869418
PentaCB-(88)+(91)	ng/g	0.0044 J	0.0035	0.019	N/A	N/A	N/A	N/A	4869418
22'346'-PentaCB-(89)	ng/g	0.0035 U	0.0035	0.0095	N/A	N/A	N/A	N/A	4869418
PentaCB-(90)+(101)+(113)	ng/g	0.0654	0.0029	0.029	N/A	N/A	N/A	N/A	4869418
22'355'-PentaCB-(92)	ng/g	0.0121	0.0033	0.0095	N/A	N/A	N/A	N/A	4869418
PentaCB-(93)+(98)+(100)+(102)	ng/g	0.0035 U	0.0035	0.038	N/A	N/A	N/A	N/A	4869418
22'356'-PentaCB-(94)	ng/g	0.0039 U	0.0039	0.0095	N/A	N/A	N/A	N/A	4869418
22'35'6-PentaCB-(95)	ng/g	0.0350	0.0031	0.0095	N/A	N/A	N/A	N/A	4869418
22'366'-PentaCB-(96)	ng/g	0.0032 U	0.0032	0.0095	N/A	N/A	N/A	N/A	4869418
22'45'6-PentaCB-(103)	ng/g	0.0029 U	0.0029	0.0095	N/A	N/A	N/A	N/A	4869418
22'466'-PentaCB-(104)	ng/g	0.0015 U	0.0015	0.0095	N/A	N/A	N/A	N/A	4869418
233'44'-PentaCB-(105)	ng/g	0.0155	0.00090	0.0095	N/A	0.0000300	0.000000465	N/A	4869418
233'45-PentaCB-(106)	ng/g	0.00067 U	0.00067	0.0095	N/A	N/A	N/A	N/A	4869418
233'4'5-PentaCB-(107)	ng/g	0.00504 J	0.00066	0.0095	N/A	N/A	N/A	N/A	4869418
PentaCB-(108)+(124)	ng/g	0.00156 J	0.00068	0.019	N/A	N/A	N/A	N/A	4869418
PentaCB-(110)+(115)	ng/g	0.0483	0.0027	0.019	N/A	N/A	N/A	N/A	4869418
233'55'-PentaCB-(111)	ng/g	0.0026 U	0.0026	0.0095	N/A	N/A	N/A	N/A	4869418
233'56-PentaCB-(112)	ng/g	0.0024 U	0.0024	0.0095	N/A	N/A	N/A	N/A	4869418
2344'5-PentaCB-(114)	ng/g	0.00087 U	0.00087	0.0095	N/A	0.0000300	0.0000000261	N/A	4869418
23'44'5-PentaCB-(118)	ng/g	0.0486	0.00089	0.0095	N/A	0.0000300	0.00000146	N/A	4869418
23'455'-PentaCB-(120)	ng/g	0.0022 U	0.0022	0.0095	N/A	N/A	N/A	N/A	4869418
23'45'6-PentaCB-(121)	ng/g	0.0025 U	0.0025	0.0095	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU257							
Sampling Date		2017/01/05 10:15							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-SMA1-1-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
233'4'5'-PentaCB-(122)	ng/g	0.00072 U	0.00072	0.0095	N/A	N/A	N/A	N/A	4869418
23'44'5'-PentaCB-(123)	ng/g	0.00098 U	0.00098	0.0095	N/A	0.0000300	0.0000000294	N/A	4869418
33'44'5-PentaCB-(126)	ng/g	0.00090 U	0.00090	0.0095	N/A	0.100	0.0000900	N/A	4869418
33'455'-PentaCB-(127)	ng/g	0.00064 U	0.00064	0.0095	N/A	N/A	N/A	N/A	4869418
HexaCB-(128)+(166)	ng/g	0.0145 J	0.0016	0.019	N/A	N/A	N/A	N/A	4869418
HexaCB-(129)+(138)+(163)	ng/g	0.121	0.0017	0.029	N/A	N/A	N/A	N/A	4869418
22'33'45'-HexaCB-(130)	ng/g	0.0060 J	0.0019	0.0095	N/A	N/A	N/A	N/A	4869418
22'33'46-HexaCB-(131)	ng/g	0.0021 U	0.0021	0.0095	N/A	N/A	N/A	N/A	4869418
22'33'46'-HexaCB-(132)	ng/g	0.0149	0.0021	0.0095	N/A	N/A	N/A	N/A	4869418
22'33'55'-HexaCB-(133)	ng/g	0.0028 J	0.0018	0.0095	N/A	N/A	N/A	N/A	4869418
HexaCB-(134)+(143)	ng/g	0.0036 J	0.0020	0.019	N/A	N/A	N/A	N/A	4869418
HexaCB-(135)+(151)	ng/g	0.0315	0.0084	0.019	N/A	N/A	N/A	N/A	4869418
22'33'66'-HexaCB-(136)	ng/g	0.0073 J	0.0056	0.0095	N/A	N/A	N/A	N/A	4869418
22'344'5-HexaCB-(137)	ng/g	0.0019 U	0.0019	0.0095	N/A	N/A	N/A	N/A	4869418
HexaCB-(139)+(140)	ng/g	0.0017 U	0.0017	0.019	N/A	N/A	N/A	N/A	4869418
22'3455'-HexaCB-(141)	ng/g	0.0018 U	0.0018	0.0095	N/A	N/A	N/A	N/A	4869418
22'3456-HexaCB-(142)	ng/g	0.0019 U	0.0019	0.0095	N/A	N/A	N/A	N/A	4869418
22'345'6-HexaCB-(144)	ng/g	0.0077 U	0.0077	0.0095	N/A	N/A	N/A	N/A	4869418
22'3466'-HexaCB-(145)	ng/g	0.0064 U	0.0064	0.0095	N/A	N/A	N/A	N/A	4869418
22'34'55'-HexaCB-(146)	ng/g	0.0244	0.0016	0.0095	N/A	N/A	N/A	N/A	4869418
HexaCB-(147)+(149)	ng/g	0.0713	0.0017	0.019	N/A	N/A	N/A	N/A	4869418
22'34'56'-HexaCB-(148)	ng/g	0.0077 U	0.0077	0.0095	N/A	N/A	N/A	N/A	4869418
22'34'66'-HexaCB-(150)	ng/g	0.0061 U	0.0061	0.0095	N/A	N/A	N/A	N/A	4869418
22'3566'-HexaCB-(152)	ng/g	0.0057 U	0.0057	0.0095	N/A	N/A	N/A	N/A	4869418
HexaCB-(153)+(168)	ng/g	0.135	0.0014	0.0095	N/A	N/A	N/A	N/A	4869418
22'44'56'-HexaCB-(154)	ng/g	0.0069 U	0.0069	0.0095	N/A	N/A	N/A	N/A	4869418
22'44'66'-HexaCB-(155)	ng/g	0.0031 U	0.0031	0.0095	N/A	N/A	N/A	N/A	4869418
HexaCB-(156)+(157)	ng/g	0.00606 J	0.00084	0.019	N/A	0.0000300	0.000000182	N/A	4869418
233'44'6-HexaCB-(158)	ng/g	0.0073 J	0.0012	0.0095	N/A	N/A	N/A	N/A	4869418
233'455'-HexaCB-(159)	ng/g	0.00063 U	0.00063	0.0095	N/A	N/A	N/A	N/A	4869418
233'456-HexaCB-(160)	ng/g	0.0015 U	0.0015	0.0095	N/A	N/A	N/A	N/A	4869418

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The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU257							
Sampling Date		2017/01/05 10:15							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-SMA1-1-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
233'45'6-HexaCB-(161)	ng/g	0.0012 U	0.0012	0.0095	N/A	N/A	N/A	N/A	4869418
233'4'55'-HexaCB-(162)	ng/g	0.00070 U	0.00070	0.0095	N/A	N/A	N/A	N/A	4869418
233'4'5'6-HexaCB-(164)	ng/g	0.0013 U	0.0013	0.0095	N/A	N/A	N/A	N/A	4869418
233'55'6-HexaCB-(165)	ng/g	0.0015 U	0.0015	0.0095	N/A	N/A	N/A	N/A	4869418
23'44'55'-HexaCB-(167)	ng/g	0.0027 U (1)	0.0027	0.0095	N/A	0.0000300	0.0000000810	N/A	4869418
33'44'55'-HexaCB-(169)	ng/g	0.00090 U	0.00090	0.0095	N/A	0.0300	0.0000270	N/A	4869418
22'33'44'5-HeptaCB-(170)	ng/g	0.0039 U (1)	0.0039	0.0095	N/A	N/A	N/A	N/A	4869418
HeptaCB-(171)+(173)	ng/g	0.0053 J	0.0013	0.019	N/A	N/A	N/A	N/A	4869418
22'33'455'-HeptaCB-(172)	ng/g	0.0013 U	0.0013	0.0095	N/A	N/A	N/A	N/A	4869418
22'33'456'-HeptaCB-(174)	ng/g	0.0013 U	0.0013	0.0095	N/A	N/A	N/A	N/A	4869418
22'33'45'6-HeptaCB-(175)	ng/g	0.0035 U	0.0035	0.0095	N/A	N/A	N/A	N/A	4869418
22'33'466'-HeptaCB-(176)	ng/g	0.0025 U	0.0025	0.0095	N/A	N/A	N/A	N/A	4869418
22'33'45'6'-HeptaCB-(177)	ng/g	0.0112	0.0013	0.0095	N/A	N/A	N/A	N/A	4869418
22'33'55'6-HeptaCB-(178)	ng/g	0.0066 J	0.0037	0.0095	N/A	N/A	N/A	N/A	4869418
22'33'566'-HeptaCB-(179)	ng/g	0.0070 J	0.0024	0.0095	N/A	N/A	N/A	N/A	4869418
HeptaCB-(180)+(193)	ng/g	0.0170 J	0.00090	0.019	N/A	N/A	N/A	N/A	4869418
22'344'56-HeptaCB-(181)	ng/g	0.0014 U	0.0014	0.0095	N/A	N/A	N/A	N/A	4869418
22'344'56'-HeptaCB-(182)	ng/g	0.0035 U	0.0035	0.0095	N/A	N/A	N/A	N/A	4869418
22'344'5'6-HeptaCB-(183)	ng/g	0.0121	0.0010	0.0095	N/A	N/A	N/A	N/A	4869418
22'344'66'-HeptaCB-(184)	ng/g	0.0027 U	0.0027	0.0095	N/A	N/A	N/A	N/A	4869418
22'3455'6-HeptaCB-(185)	ng/g	0.0015 U	0.0015	0.0095	N/A	N/A	N/A	N/A	4869418
22'34566'-HeptaCB-(186)	ng/g	0.0029 U	0.0029	0.0095	N/A	N/A	N/A	N/A	4869418
22'34'55'6-HeptaCB-(187)	ng/g	0.0387	0.0037	0.0095	N/A	N/A	N/A	N/A	4869418
22'34'566'-HeptaCB-(188)	ng/g	0.0023 U	0.0023	0.0095	N/A	N/A	N/A	N/A	4869418
233'44'55'-HeptaCB-(189)	ng/g	0.0011 U	0.0011	0.0095	N/A	0.0000300	0.0000000330	N/A	4869418
233'44'56-HeptaCB-(190)	ng/g	0.00184 J	0.00099	0.0095	N/A	N/A	N/A	N/A	4869418
233'44'5'6-HeptaCB-(191)	ng/g	0.00092 U	0.00092	0.0095	N/A	N/A	N/A	N/A	4869418
233'455'6-HeptaCB-(192)	ng/g	0.0011 U	0.0011	0.0095	N/A	N/A	N/A	N/A	4869418
22'33'44'55'-OctaCB-(194)	ng/g	0.00188 J	0.00063	0.0095	N/A	N/A	N/A	N/A	4869418
22'33'44'56-OctaCB-(195)	ng/g	0.00071 U	0.00071	0.0095	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU257							
Sampling Date		2017/01/05 10:15							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-SMA1-1-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
22'33'44'56'-OctaCB-(196)	ng/g	0.0023 U	0.0023	0.0095	N/A	N/A	N/A	N/A	4869418
22'33'44'66'OctaCB-(197)	ng/g	0.0017 U	0.0017	0.0095	N/A	N/A	N/A	N/A	4869418
OctaCB-(198)+(199)	ng/g	0.0025 U	0.0025	0.019	N/A	N/A	N/A	N/A	4869418
22'33'4566'-OctaCB-(200)	ng/g	0.0017 U	0.0017	0.0095	N/A	N/A	N/A	N/A	4869418
22'33'45'66'-OctaCB-(201)	ng/g	0.0016 U	0.0016	0.0095	N/A	N/A	N/A	N/A	4869418
22'33'55'66'-OctaCB-(202)	ng/g	0.0036 U (1)	0.0036	0.0095	N/A	N/A	N/A	N/A	4869418
22'344'55'6-OctaCB-(203)	ng/g	0.0025 U	0.0025	0.0095	N/A	N/A	N/A	N/A	4869418
22'344'566'-OctaCB-(204)	ng/g	0.0016 U	0.0016	0.0095	N/A	N/A	N/A	N/A	4869418
233'44'55'6-OctaCB-(205)	ng/g	0.00069 U	0.00069	0.0095	N/A	N/A	N/A	N/A	4869418
22'33'44'55'6-NonaCB-(206)	ng/g	0.0015 U	0.0015	0.0095	N/A	N/A	N/A	N/A	4869418
22'33'44'566'-NonaCB-(207)	ng/g	0.0012 U	0.0012	0.0095	N/A	N/A	N/A	N/A	4869418
22'33'455'66'-NonaCB-(208)	ng/g	0.0015 U	0.0015	0.0095	N/A	N/A	N/A	N/A	4869418
DecaCB-(209)	ng/g	0.0024 U	0.0024	0.0095	N/A	N/A	N/A	N/A	4869418
Total PCB	ng/g	1.03	N/A	N/A	N/A	N/A	N/A	N/A	4869418
TOTAL TOXIC EQUIVALENCY	ng/g	N/A	N/A	N/A	N/A	N/A	0.000120	N/A	N/A
Surrogate Recovery (%)									
C13-2,44'-TriCB-(28)	%	106	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'33'44'55'6-NonaCB-(206)	%	75	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'33'44'5-HeptaCB-(170)	%	79	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'33'455'66'-NonaCB-(208)	%	71	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'33'55'66'-OctaCB-(202)	%	69	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'33'55'6-HeptaCB-(178)	%	97	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'344'55'-HeptaCB-(180)	%	80	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'34'566'-HeptaCB-(188)	%	84	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'44'66'-HexaCB-(155)	%	81	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'466'-PentaCB-(104)	%	80	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'66'-TetraCB-(54)	%	80	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'6-TriCB-(19)	%	65	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'-DiCB-(4)	%	58	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-233'44'55'6-OctaCB-(205)	%	92	N/A	N/A	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU257							
Sampling Date		2017/01/05 10:15							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-SMA1-1-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
C13-233'44'55'-HeptaCB-(189)	%	86	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-233'44'-PentaCB-(105)	%	110	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-233'55'-PentaCB-(111)	%	105	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-23'44'55'-HexaCB-(167)	%	100	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-2344'5-PentaCB-(114)	%	106	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-23'44'5-PentaCB-(118)	%	105	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-2'344'5-PentaCB-(123)	%	108	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-2-MonoCB-(1)	%	71	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-33'44'55'-HexaCB-(169)	%	58	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-33'44'5-PentaCB-(126)	%	100	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-33'44'-TetraCB-(77)	%	111	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-344'5-TetraCB-(81)	%	109	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-344'-TriCB-(37)	%	99	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-44'-DiCB-(15)	%	85	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-4-MonoCB-(3)	%	72	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-DecaCB-(209)	%	81	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-HexaCB-(156)+(157)	%	98	N/A	N/A	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU258							
Sampling Date		2017/01/05 13:02							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-SMA2-1-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
PCBs									
2-MonoCB-(1)	ng/g	0.00088 U	0.00088	0.0098	N/A	N/A	N/A	N/A	4869418
3-MonoCB-(2)	ng/g	0.00073 U	0.00073	0.0098	N/A	N/A	N/A	N/A	4869418
4-MonoCB-(3)	ng/g	0.00089 U	0.00089	0.0098	N/A	N/A	N/A	N/A	4869418
22'-DiCB-(4)	ng/g	0.012 U	0.012	0.0098	N/A	N/A	N/A	N/A	4869418
2,3-DiCB-(5)	ng/g	0.0078 U	0.0078	0.0098	N/A	N/A	N/A	N/A	4869418
2,3'-DiCB-(6)	ng/g	0.0064 U	0.0064	0.0098	N/A	N/A	N/A	N/A	4869418
2,4-DiCB-(7)	ng/g	0.0074 U	0.0074	0.0098	N/A	N/A	N/A	N/A	4869418
2,4'-DiCB-(8)	ng/g	0.0064 U	0.0064	0.0098	N/A	N/A	N/A	N/A	4869418
2,5-DiCB-(9)	ng/g	0.0065 U	0.0065	0.0098	N/A	N/A	N/A	N/A	4869418
2,6-DiCB-(10)	ng/g	0.018 U	0.018	0.0098	N/A	N/A	N/A	N/A	4869418
3,3'-DiCB-(11)	ng/g	0.0074 J	0.0066	0.0098	N/A	N/A	N/A	N/A	4869418
DiCB-(12)+(13)	ng/g	0.0072 U	0.0072	0.020	N/A	N/A	N/A	N/A	4869418
3,5-DiCB-(14)	ng/g	0.0064 U	0.0064	0.0098	N/A	N/A	N/A	N/A	4869418
4,4'-DiCB-(15)	ng/g	0.013 U	0.013	0.0098	N/A	N/A	N/A	N/A	4869418
22'3-TriCB-(16)	ng/g	0.0081 U	0.0081	0.0098	N/A	N/A	N/A	N/A	4869418
22'4-TriCB-(17)	ng/g	0.0049 U	0.0049	0.0098	N/A	N/A	N/A	N/A	4869418
TriCB-(18)+(30)	ng/g	0.0041 J	0.0040	0.020	N/A	N/A	N/A	N/A	4869418
22'6-TriCB-(19)	ng/g	0.0027 U	0.0027	0.0098	N/A	N/A	N/A	N/A	4869418
TriCB-(20) + (28)	ng/g	0.0187 J	0.0011	0.020	N/A	N/A	N/A	N/A	4869418
TriCB-(21)+(33)	ng/g	0.0044 J	0.0010	0.020	N/A	N/A	N/A	N/A	4869418
234'-TriCB-(22)	ng/g	0.0038 J	0.0011	0.0098	N/A	N/A	N/A	N/A	4869418
235-TriCB-(23)	ng/g	0.0012 U	0.0012	0.0098	N/A	N/A	N/A	N/A	4869418
236-TriCB-(24)	ng/g	0.0037 U	0.0037	0.0098	N/A	N/A	N/A	N/A	4869418
23'4-TriCB-(25)	ng/g	0.00121 J	0.00095	0.0098	N/A	N/A	N/A	N/A	4869418
TriCB-(26)+(29)	ng/g	0.0023 J	0.0010	0.020	N/A	N/A	N/A	N/A	4869418
23'6-TriCB-(27)	ng/g	0.0031 U	0.0031	0.0098	N/A	N/A	N/A	N/A	4869418
24'5-TriCB-(31)	ng/g	0.00970 J	0.00094	0.0098	N/A	N/A	N/A	N/A	4869418
24'6-TriCB-(32)	ng/g	0.0032 U	0.0032	0.0098	N/A	N/A	N/A	N/A	4869418
23'5'-TriCB-(34)	ng/g	0.00096 U	0.00096	0.0098	N/A	N/A	N/A	N/A	4869418
33'4-TriCB-(35)	ng/g	0.00096 U	0.00096	0.0098	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU258							
Sampling Date		2017/01/05 13:02							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-SMA2-1-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'5-TriCB-(36)	ng/g	0.00087 U	0.00087	0.0098	N/A	N/A	N/A	N/A	4869418
344'-TriCB-(37)	ng/g	0.0028 J	0.0018	0.0098	N/A	N/A	N/A	N/A	4869418
345-TriCB-(38)	ng/g	0.0010 U	0.0010	0.0098	N/A	N/A	N/A	N/A	4869418
34'5-TriCB-(39)	ng/g	0.0010 U	0.0010	0.0098	N/A	N/A	N/A	N/A	4869418
TetraCB-(40)+(41)+(71)	ng/g	0.0140 J	0.0029	0.029	N/A	N/A	N/A	N/A	4869418
22'34'-TetraCB-(42)	ng/g	0.0073 J	0.0033	0.0098	N/A	N/A	N/A	N/A	4869418
22'35-TetraCB-(43)	ng/g	0.0037 U	0.0037	0.0098	N/A	N/A	N/A	N/A	4869418
TetraCB-(44)+(47)+(65)	ng/g	0.0331	0.0027	0.029	N/A	N/A	N/A	N/A	4869418
TetraCB-(45)+(51)	ng/g	0.0030 U	0.0030	0.020	N/A	N/A	N/A	N/A	4869418
22'36'-TetraCB-(46)	ng/g	0.0034 U	0.0034	0.0098	N/A	N/A	N/A	N/A	4869418
22'45-TetraCB-(48)	ng/g	0.0053 U (1)	0.0053	0.0098	N/A	N/A	N/A	N/A	4869418
TetraCB-(49)+TetraCB-(69)	ng/g	0.0173 J	0.0025	0.020	N/A	N/A	N/A	N/A	4869418
TetraCB-(50)+(53)	ng/g	0.0044 J	0.0029	0.020	N/A	N/A	N/A	N/A	4869418
22'55'-TetraCB-(52)	ng/g	0.0401	0.0025	0.0098	N/A	N/A	N/A	N/A	4869418
22'66'-TetraCB-(54)	ng/g	0.00077 U	0.00077	0.0098	N/A	N/A	N/A	N/A	4869418
233'4-TetraCB-(55)	ng/g	0.0012 U	0.0012	0.0098	N/A	N/A	N/A	N/A	4869418
233'4'-Tetra CB(56)	ng/g	0.0054 J	0.0011	0.0098	N/A	N/A	N/A	N/A	4869418
233'5-TetraCB-(57)	ng/g	0.00098 U	0.00098	0.0098	N/A	N/A	N/A	N/A	4869418
233'5'-TetraCB-(58)	ng/g	0.0011 U	0.0011	0.0098	N/A	N/A	N/A	N/A	4869418
TetraCB-(59)+(62)+(75)	ng/g	0.0031 J	0.0021	0.029	N/A	N/A	N/A	N/A	4869418
2344'-TetraCB -(60)	ng/g	0.0044 U (1)	0.0044	0.0098	N/A	N/A	N/A	N/A	4869418
TetraCB-(61)+(70)+(74)+(76)	ng/g	0.0408	0.0011	0.039	N/A	N/A	N/A	N/A	4869418
234'5-TetraCB-(63)	ng/g	0.00095 U	0.00095	0.0098	N/A	N/A	N/A	N/A	4869418
234'6-TetraCB-(64)	ng/g	0.0083 J	0.0022	0.0098	N/A	N/A	N/A	N/A	4869418
23'44'-TetraCB-(66)	ng/g	0.0178	0.00092	0.0098	N/A	N/A	N/A	N/A	4869418
23'45-TetraCB-(67)	ng/g	0.00093 U	0.00093	0.0098	N/A	N/A	N/A	N/A	4869418
23'45'-TetraCB-(68)	ng/g	0.00099 U	0.00099	0.0098	N/A	N/A	N/A	N/A	4869418
23'55'-TetraCB-(72)	ng/g	0.00093 U	0.00093	0.0098	N/A	N/A	N/A	N/A	4869418
23'5'6-TetraCB-(73)	ng/g	0.0024 U	0.0024	0.0098	N/A	N/A	N/A	N/A	4869418
33'44'-TetraCB-(77)	ng/g	0.0020 J	0.0014	0.0098	N/A	0.000100	0.000000200	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU258							
Sampling Date		2017/01/05 13:02							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-SMA2-1-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'45-TetraCB-(78)	ng/g	0.00098 U	0.00098	0.0098	N/A	N/A	N/A	N/A	4869418
33'45'-TetraCB(79)	ng/g	0.00087 U	0.00087	0.0098	N/A	N/A	N/A	N/A	4869418
33'55'-TetraCB-(80)	ng/g	0.00087 U	0.00087	0.0098	N/A	N/A	N/A	N/A	4869418
344'5-TetraCB-(81)	ng/g	0.0014 U	0.0014	0.0098	N/A	0.000300	0.000000420	N/A	4869418
22'33'4-PentaCB-(82)	ng/g	0.0058 J	0.0033	0.0098	N/A	N/A	N/A	N/A	4869418
PentaCB-(83)+(99)	ng/g	0.0793	0.0030	0.020	N/A	N/A	N/A	N/A	4869418
22'33'6-PentaCB-(84)	ng/g	0.0121	0.0034	0.0098	N/A	N/A	N/A	N/A	4869418
PentaCB-(85)+(116)+(117)	ng/g	0.0154 J	0.0024	0.029	N/A	N/A	N/A	N/A	4869418
PentaCB-(86)(87)(97)(109)(119)(125)	ng/g	0.0422 J	0.0025	0.059	N/A	N/A	N/A	N/A	4869418
PentaCB-(88)+(91)	ng/g	0.0080 J	0.0030	0.020	N/A	N/A	N/A	N/A	4869418
22'346'-PentaCB-(89)	ng/g	0.0030 U	0.0030	0.0098	N/A	N/A	N/A	N/A	4869418
PentaCB-(90)+(101)+(113)	ng/g	0.102	0.0025	0.029	N/A	N/A	N/A	N/A	4869418
22'355'-PentaCB-(92)	ng/g	0.0193	0.0028	0.0098	N/A	N/A	N/A	N/A	4869418
PentaCB-(93)+(98)+(100)+(102)	ng/g	0.0052 J	0.0030	0.039	N/A	N/A	N/A	N/A	4869418
22'356'-PentaCB-(94)	ng/g	0.0034 U	0.0034	0.0098	N/A	N/A	N/A	N/A	4869418
22'35'6-PentaCB-(95)	ng/g	0.0558	0.0027	0.0098	N/A	N/A	N/A	N/A	4869418
22'366'-PentaCB-(96)	ng/g	0.0027 U	0.0027	0.0098	N/A	N/A	N/A	N/A	4869418
22'45'6-PentaCB-(103)	ng/g	0.0025 U	0.0025	0.0098	N/A	N/A	N/A	N/A	4869418
22'466'-PentaCB-(104)	ng/g	0.0013 U	0.0013	0.0098	N/A	N/A	N/A	N/A	4869418
233'44'-PentaCB-(105)	ng/g	0.0251	0.0016	0.0098	N/A	0.0000300	0.000000753	N/A	4869418
233'45-PentaCB-(106)	ng/g	0.0012 U	0.0012	0.0098	N/A	N/A	N/A	N/A	4869418
233'4'5-PentaCB-(107)	ng/g	0.0072 J	0.0012	0.0098	N/A	N/A	N/A	N/A	4869418
PentaCB-(108)+(124)	ng/g	0.0022 J	0.0012	0.020	N/A	N/A	N/A	N/A	4869418
PentaCB-(110)+(115)	ng/g	0.0802	0.0023	0.020	N/A	N/A	N/A	N/A	4869418
233'55'-PentaCB-(111)	ng/g	0.0022 U	0.0022	0.0098	N/A	N/A	N/A	N/A	4869418
233'56-PentaCB-(112)	ng/g	0.0021 U	0.0021	0.0098	N/A	N/A	N/A	N/A	4869418
2344'5-PentaCB-(114)	ng/g	0.0016 U	0.0016	0.0098	N/A	0.0000300	0.0000000480	N/A	4869418
23'44'5-PentaCB-(118)	ng/g	0.0693	0.0016	0.0098	N/A	0.0000300	0.00000208	N/A	4869418
23'455'-PentaCB-(120)	ng/g	0.0019 U	0.0019	0.0098	N/A	N/A	N/A	N/A	4869418
23'45'6-PentaCB-(121)	ng/g	0.0022 U	0.0022	0.0098	N/A	N/A	N/A	N/A	4869418
233'4'5'-PentaCB-(122)	ng/g	0.0013 U	0.0013	0.0098	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU258							
Sampling Date		2017/01/05 13:02							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-SMA2-1-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
23'44'5'-PentaCB-(123)	ng/g	0.0018 U	0.0018	0.0098	N/A	0.0000300	0.0000000540	N/A	4869418
33'44'5-PentaCB-(126)	ng/g	0.0016 U	0.0016	0.0098	N/A	0.100	0.000160	N/A	4869418
33'455'-PentaCB-(127)	ng/g	0.0012 U	0.0012	0.0098	N/A	N/A	N/A	N/A	4869418
HexaCB-(128)+(166)	ng/g	0.0193 J	0.0032	0.020	N/A	N/A	N/A	N/A	4869418
HexaCB-(129)+(138)+(163)	ng/g	0.178	0.0034	0.029	N/A	N/A	N/A	N/A	4869418
22'33'45'-HexaCB-(130)	ng/g	0.0104	0.0038	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'46-HexaCB-(131)	ng/g	0.0041 U	0.0041	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'46'-HexaCB-(132)	ng/g	0.0277	0.0042	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'55'-HexaCB-(133)	ng/g	0.0038 U (1)	0.0038	0.0098	N/A	N/A	N/A	N/A	4869418
HexaCB-(134)+(143)	ng/g	0.0044 U (1)	0.0044	0.020	N/A	N/A	N/A	N/A	4869418
HexaCB-(135)+(151)	ng/g	0.0504	0.0046	0.020	N/A	N/A	N/A	N/A	4869418
22'33'66'-HexaCB-(136)	ng/g	0.0124	0.0031	0.0098	N/A	N/A	N/A	N/A	4869418
22'344'5-HexaCB-(137)	ng/g	0.0038 U	0.0038	0.0098	N/A	N/A	N/A	N/A	4869418
HexaCB-(139)+(140)	ng/g	0.0034 U	0.0034	0.020	N/A	N/A	N/A	N/A	4869418
22'3455'-HexaCB-(141)	ng/g	0.0035 U	0.0035	0.0098	N/A	N/A	N/A	N/A	4869418
22'3456-HexaCB-(142)	ng/g	0.0038 U	0.0038	0.0098	N/A	N/A	N/A	N/A	4869418
22'345'6-HexaCB-(144)	ng/g	0.0056 J	0.0043	0.0098	N/A	N/A	N/A	N/A	4869418
22'3466'-HexaCB-(145)	ng/g	0.0035 U	0.0035	0.0098	N/A	N/A	N/A	N/A	4869418
22'34'55'-HexaCB-(146)	ng/g	0.0376	0.0033	0.0098	N/A	N/A	N/A	N/A	4869418
HexaCB-(147)+(149)	ng/g	0.120	0.0034	0.020	N/A	N/A	N/A	N/A	4869418
22'34'56'-HexaCB-(148)	ng/g	0.0042 U	0.0042	0.0098	N/A	N/A	N/A	N/A	4869418
22'34'66'-HexaCB-(150)	ng/g	0.0034 U	0.0034	0.0098	N/A	N/A	N/A	N/A	4869418
22'3566'-HexaCB-(152)	ng/g	0.0032 U	0.0032	0.0098	N/A	N/A	N/A	N/A	4869418
HexaCB-(153)+(168)	ng/g	0.206	0.0028	0.0098	N/A	N/A	N/A	N/A	4869418
22'44'56'-HexaCB-(154)	ng/g	0.0053 J	0.0038	0.0098	N/A	N/A	N/A	N/A	4869418
22'44'66'-HexaCB-(155)	ng/g	0.0017 U	0.0017	0.0098	N/A	N/A	N/A	N/A	4869418
HexaCB-(156)+(157)	ng/g	0.0076 J	0.0012	0.020	N/A	0.0000300	0.000000228	N/A	4869418
233'44'6-HexaCB-(158)	ng/g	0.0105	0.0024	0.0098	N/A	N/A	N/A	N/A	4869418
233'455'-HexaCB-(159)	ng/g	0.00089 U	0.00089	0.0098	N/A	N/A	N/A	N/A	4869418
233'456-HexaCB-(160)	ng/g	0.0029 U	0.0029	0.0098	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU258							
Sampling Date		2017/01/05 13:02							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-SMA2-1-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
233'45'6-HexaCB-(161)	ng/g	0.0024 U	0.0024	0.0098	N/A	N/A	N/A	N/A	4869418
233'4'55'-HexaCB-(162)	ng/g	0.00099 U	0.00099	0.0098	N/A	N/A	N/A	N/A	4869418
233'4'5'6-HexaCB-(164)	ng/g	0.0026 U	0.0026	0.0098	N/A	N/A	N/A	N/A	4869418
233'55'6-HexaCB-(165)	ng/g	0.0030 U	0.0030	0.0098	N/A	N/A	N/A	N/A	4869418
23'44'55'-HexaCB-(167)	ng/g	0.0043 J	0.0013	0.0098	N/A	0.0000300	0.000000129	N/A	4869418
33'44'55'-HexaCB-(169)	ng/g	0.0013 U	0.0013	0.0098	N/A	0.0300	0.0000390	N/A	4869418
22'33'44'5-HeptaCB-(170)	ng/g	0.00357 J	0.00093	0.0098	N/A	N/A	N/A	N/A	4869418
HeptaCB-(171)+(173)	ng/g	0.0063 U (1)	0.0063	0.020	N/A	N/A	N/A	N/A	4869418
22'33'455'-HeptaCB-(172)	ng/g	0.0011 U	0.0011	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'456'-HeptaCB-(174)	ng/g	0.0011 U	0.0011	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'45'6-HeptaCB-(175)	ng/g	0.0021 U	0.0021	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'466'-HeptaCB-(176)	ng/g	0.0031 J	0.0015	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'45'6'-HeptaCB-(177)	ng/g	0.0153	0.0011	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'55'6-HeptaCB-(178)	ng/g	0.0095 J	0.0022	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'566'-HeptaCB-(179)	ng/g	0.010 U (1)	0.010	0.0098	N/A	N/A	N/A	N/A	4869418
HeptaCB-(180)+(193)	ng/g	0.0188 J	0.00078	0.020	N/A	N/A	N/A	N/A	4869418
22'344'56-HeptaCB-(181)	ng/g	0.0012 U	0.0012	0.0098	N/A	N/A	N/A	N/A	4869418
22'344'56'-HeptaCB-(182)	ng/g	0.0021 U	0.0021	0.0098	N/A	N/A	N/A	N/A	4869418
22'344'5'6-HeptaCB-(183)	ng/g	0.0151	0.00089	0.0098	N/A	N/A	N/A	N/A	4869418
22'344'66'-HeptaCB-(184)	ng/g	0.0016 U	0.0016	0.0098	N/A	N/A	N/A	N/A	4869418
22'3455'6-HeptaCB-(185)	ng/g	0.0013 U	0.0013	0.0098	N/A	N/A	N/A	N/A	4869418
22'34566'-HeptaCB-(186)	ng/g	0.0018 U	0.0018	0.0098	N/A	N/A	N/A	N/A	4869418
22'34'55'6-HeptaCB-(187)	ng/g	0.0599	0.0022	0.0098	N/A	N/A	N/A	N/A	4869418
22'34'566'-HeptaCB-(188)	ng/g	0.0014 U	0.0014	0.0098	N/A	N/A	N/A	N/A	4869418
233'44'55'-HeptaCB-(189)	ng/g	0.0017 U	0.0017	0.0098	N/A	0.0000300	0.0000000510	N/A	4869418
233'44'56-HeptaCB-(190)	ng/g	0.0023 U (1)	0.0023	0.0098	N/A	N/A	N/A	N/A	4869418
233'44'5'6-HeptaCB-(191)	ng/g	0.00080 U	0.00080	0.0098	N/A	N/A	N/A	N/A	4869418
233'455'6-HeptaCB-(192)	ng/g	0.00095 U	0.00095	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'44'55'-OctaCB-(194)	ng/g	0.0027 U	0.0027	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'44'56-OctaCB-(195)	ng/g	0.0030 U	0.0030	0.0098	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU258							
Sampling Date		2017/01/05 13:02							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-SMA2-1-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
22'33'44'56'-OctaCB-(196)	ng/g	0.0046 U	0.0046	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'44'66'OctaCB-(197)	ng/g	0.0033 U	0.0033	0.0098	N/A	N/A	N/A	N/A	4869418
OctaCB-(198)+(199)	ng/g	0.0050 U	0.0050	0.020	N/A	N/A	N/A	N/A	4869418
22'33'4566'-OctaCB-(200)	ng/g	0.0034 U	0.0034	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'45'66'-OctaCB-(201)	ng/g	0.0031 U	0.0031	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'55'66'-OctaCB-(202)	ng/g	0.0053 U (1)	0.0053	0.0098	N/A	N/A	N/A	N/A	4869418
22'344'55'6-OctaCB-(203)	ng/g	0.0048 U	0.0048	0.0098	N/A	N/A	N/A	N/A	4869418
22'344'566'-OctaCB-(204)	ng/g	0.0031 U	0.0031	0.0098	N/A	N/A	N/A	N/A	4869418
233'44'55'6-OctaCB-(205)	ng/g	0.0029 U	0.0029	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'44'55'6-NonaCB-(206)	ng/g	0.0012 U	0.0012	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'44'566'-NonaCB-(207)	ng/g	0.00098 U	0.00098	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'455'66'-NonaCB-(208)	ng/g	0.0012 U	0.0012	0.0098	N/A	N/A	N/A	N/A	4869418
DecaCB-(209)	ng/g	0.0012 U	0.0012	0.0098	N/A	N/A	N/A	N/A	4869418
Total PCB	ng/g	1.60	N/A	N/A	N/A	N/A	N/A	N/A	4869418
TOTAL TOXIC EQUIVALENCY	ng/g	N/A	N/A	N/A	N/A	N/A	0.000203	N/A	N/A
Surrogate Recovery (%)									
C13-2,44'-TriCB-(28)	%	95	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'33'44'55'6-NonaCB-(206)	%	70	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'33'44'5-HeptaCB-(170)	%	72	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'33'455'66'-NonaCB-(208)	%	63	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'33'55'66'-OctaCB-(202)	%	65	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'33'55'6-HeptaCB-(178)	%	91	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'344'55'-HeptaCB-(180)	%	74	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'34'566'-HeptaCB-(188)	%	74	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'44'66'-HexaCB-(155)	%	71	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'466'-PentaCB-(104)	%	68	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'66'-TetraCB-(54)	%	68	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'6-TriCB-(19)	%	55	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'-DiCB-(4)	%	47	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-233'44'55'6-OctaCB-(205)	%	82	N/A	N/A	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU258							
Sampling Date		2017/01/05 13:02							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-SMA2-1-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
C13-233'44'55'-HeptaCB-(189)	%	77	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-233'44'-PentaCB-(105)	%	85	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-233'55'-PentaCB-(111)	%	94	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-23'44'55'-HexaCB-(167)	%	83	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-2344'5-PentaCB-(114)	%	85	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-23'44'5-PentaCB-(118)	%	86	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-2'344'5-PentaCB-(123)	%	85	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-2-MonoCB-(1)	%	50	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-33'44'55'-HexaCB-(169)	%	42	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-33'44'5-PentaCB-(126)	%	78	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-33'44'-TetraCB-(77)	%	92	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-344'5-TetraCB-(81)	%	93	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-344'-TriCB-(37)	%	82	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-44'-DiCB-(15)	%	70	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-4-MonoCB-(3)	%	51	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-DecaCB-(209)	%	72	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-HexaCB-(156)+(157)	%	81	N/A	N/A	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU259							
Sampling Date		2017/01/05 12:50							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-SMA2-2-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
PCBs									
2-MonoCB-(1)	ng/g	0.0017 U	0.0017	0.0093	N/A	N/A	N/A	N/A	4869418
3-MonoCB-(2)	ng/g	0.0014 U	0.0014	0.0093	N/A	N/A	N/A	N/A	4869418
4-MonoCB-(3)	ng/g	0.0017 U	0.0017	0.0093	N/A	N/A	N/A	N/A	4869418
22'-DiCB-(4)	ng/g	0.013 U	0.013	0.0093	N/A	N/A	N/A	N/A	4869418
2,3-DiCB-(5)	ng/g	0.0067 U	0.0067	0.0093	N/A	N/A	N/A	N/A	4869418
2,3'-DiCB-(6)	ng/g	0.0055 U	0.0055	0.0093	N/A	N/A	N/A	N/A	4869418
2,4-DiCB-(7)	ng/g	0.0064 U	0.0064	0.0093	N/A	N/A	N/A	N/A	4869418
2,4'-DiCB-(8)	ng/g	0.0055 U	0.0055	0.0093	N/A	N/A	N/A	N/A	4869418
2,5-DiCB-(9)	ng/g	0.0056 U	0.0056	0.0093	N/A	N/A	N/A	N/A	4869418
2,6-DiCB-(10)	ng/g	0.018 U	0.018	0.0093	N/A	N/A	N/A	N/A	4869418
3,3'-DiCB-(11)	ng/g	0.0057 U	0.0057	0.0093	N/A	N/A	N/A	N/A	4869418
DiCB-(12)+(13)	ng/g	0.0062 U	0.0062	0.019	N/A	N/A	N/A	N/A	4869418
3,5-DiCB-(14)	ng/g	0.0055 U	0.0055	0.0093	N/A	N/A	N/A	N/A	4869418
4,4'-DiCB-(15)	ng/g	0.011 U	0.011	0.0093	N/A	N/A	N/A	N/A	4869418
22'3-TriCB-(16)	ng/g	0.0085 U	0.0085	0.0093	N/A	N/A	N/A	N/A	4869418
22'4-TriCB-(17)	ng/g	0.0051 U	0.0051	0.0093	N/A	N/A	N/A	N/A	4869418
TriCB-(18)+(30)	ng/g	0.0044 J	0.0042	0.019	N/A	N/A	N/A	N/A	4869418
22'6-TriCB-(19)	ng/g	0.0029 U	0.0029	0.0093	N/A	N/A	N/A	N/A	4869418
TriCB-(20) + (28)	ng/g	0.0194	0.0013	0.019	N/A	N/A	N/A	N/A	4869418
TriCB-(21)+(33)	ng/g	0.0042 J	0.0012	0.019	N/A	N/A	N/A	N/A	4869418
234'-TriCB-(22)	ng/g	0.0042 J	0.0014	0.0093	N/A	N/A	N/A	N/A	4869418
235-TriCB-(23)	ng/g	0.0014 U	0.0014	0.0093	N/A	N/A	N/A	N/A	4869418
236-TriCB-(24)	ng/g	0.0038 U	0.0038	0.0093	N/A	N/A	N/A	N/A	4869418
23'4-TriCB-(25)	ng/g	0.0013 J	0.0011	0.0093	N/A	N/A	N/A	N/A	4869418
TriCB-(26)+(29)	ng/g	0.0020 U (1)	0.0020	0.019	N/A	N/A	N/A	N/A	4869418
23'6-TriCB-(27)	ng/g	0.0033 U	0.0033	0.0093	N/A	N/A	N/A	N/A	4869418
24'5-TriCB-(31)	ng/g	0.0096	0.0011	0.0093	N/A	N/A	N/A	N/A	4869418
24'6-TriCB-(32)	ng/g	0.0033 U	0.0033	0.0093	N/A	N/A	N/A	N/A	4869418
23'5'-TriCB-(34)	ng/g	0.0011 U	0.0011	0.0093	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU259							
Sampling Date		2017/01/05 12:50							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-SMA2-2-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'4-TriCB-(35)	ng/g	0.0011 U	0.0011	0.0093	N/A	N/A	N/A	N/A	4869418
33'5-TriCB-(36)	ng/g	0.0010 U	0.0010	0.0093	N/A	N/A	N/A	N/A	4869418
344'-TriCB-(37)	ng/g	0.0033 J	0.0021	0.0093	N/A	N/A	N/A	N/A	4869418
345-TriCB-(38)	ng/g	0.0012 U	0.0012	0.0093	N/A	N/A	N/A	N/A	4869418
34'5-TriCB-(39)	ng/g	0.0012 U	0.0012	0.0093	N/A	N/A	N/A	N/A	4869418
TetraCB-(40)+(41)+(71)	ng/g	0.0148 J	0.0018	0.028	N/A	N/A	N/A	N/A	4869418
22'34'-TetraCB-(42)	ng/g	0.0080 J	0.0021	0.0093	N/A	N/A	N/A	N/A	4869418
22'35-TetraCB-(43)	ng/g	0.0023 U	0.0023	0.0093	N/A	N/A	N/A	N/A	4869418
TetraCB-(44)+(47)+(65)	ng/g	0.0311	0.0017	0.028	N/A	N/A	N/A	N/A	4869418
TetraCB-(45)+(51)	ng/g	0.0020 U (1)	0.0020	0.019	N/A	N/A	N/A	N/A	4869418
22'36'-TetraCB-(46)	ng/g	0.0022 U	0.0022	0.0093	N/A	N/A	N/A	N/A	4869418
22'45-TetraCB-(48)	ng/g	0.0066 J	0.0020	0.0093	N/A	N/A	N/A	N/A	4869418
TetraCB-(49)+TetraCB-(69)	ng/g	0.0173 J	0.0016	0.019	N/A	N/A	N/A	N/A	4869418
TetraCB-(50)+(53)	ng/g	0.0042 U (1)	0.0042	0.019	N/A	N/A	N/A	N/A	4869418
22'55'-TetraCB-(52)	ng/g	0.0408	0.0016	0.0093	N/A	N/A	N/A	N/A	4869418
22'66'-TetraCB-(54)	ng/g	0.00098 U	0.00098	0.0093	N/A	N/A	N/A	N/A	4869418
233'4-TetraCB-(55)	ng/g	0.0012 U	0.0012	0.0093	N/A	N/A	N/A	N/A	4869418
233'4'-Tetra CB(56)	ng/g	0.0055 J	0.0011	0.0093	N/A	N/A	N/A	N/A	4869418
233'5-TetraCB-(57)	ng/g	0.0010 U	0.0010	0.0093	N/A	N/A	N/A	N/A	4869418
233'5'-TetraCB-(58)	ng/g	0.0011 U	0.0011	0.0093	N/A	N/A	N/A	N/A	4869418
TetraCB-(59)+(62)+(75)	ng/g	0.0032 J	0.0014	0.028	N/A	N/A	N/A	N/A	4869418
2344'-TetraCB -(60)	ng/g	0.0044 J	0.0012	0.0093	N/A	N/A	N/A	N/A	4869418
TetraCB-(61)+(70)+(74)+(76)	ng/g	0.0399	0.0011	0.037	N/A	N/A	N/A	N/A	4869418
234'5-TetraCB-(63)	ng/g	0.0011 U (1)	0.0011	0.0093	N/A	N/A	N/A	N/A	4869418
234'6-TetraCB-(64)	ng/g	0.0083 J	0.0014	0.0093	N/A	N/A	N/A	N/A	4869418
23'44'-TetraCB-(66)	ng/g	0.0179	0.00095	0.0093	N/A	N/A	N/A	N/A	4869418
23'45-TetraCB-(67)	ng/g	0.00096 U	0.00096	0.0093	N/A	N/A	N/A	N/A	4869418
23'45'-TetraCB-(68)	ng/g	0.0010 U	0.0010	0.0093	N/A	N/A	N/A	N/A	4869418
23'55'-TetraCB-(72)	ng/g	0.00096 U	0.00096	0.0093	N/A	N/A	N/A	N/A	4869418
23'5'6-TetraCB-(73)	ng/g	0.0016 U	0.0016	0.0093	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU259							
Sampling Date		2017/01/05 12:50							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-SMA2-2-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'44'-TetraCB-(77)	ng/g	0.0022 J	0.0014	0.0093	N/A	0.000100	0.000000220	N/A	4869418
33'45-TetraCB-(78)	ng/g	0.0010 U	0.0010	0.0093	N/A	N/A	N/A	N/A	4869418
33'45'-TetraCB(79)	ng/g	0.00090 U	0.00090	0.0093	N/A	N/A	N/A	N/A	4869418
33'55'-TetraCB-(80)	ng/g	0.00090 U	0.00090	0.0093	N/A	N/A	N/A	N/A	4869418
344'5-TetraCB-(81)	ng/g	0.0015 U	0.0015	0.0093	N/A	0.000300	0.000000450	N/A	4869418
22'33'4-PentaCB-(82)	ng/g	0.0057 J	0.0037	0.0093	N/A	N/A	N/A	N/A	4869418
PentaCB-(83)+(99)	ng/g	0.0773	0.0034	0.019	N/A	N/A	N/A	N/A	4869418
22'33'6-PentaCB-(84)	ng/g	0.0114	0.0039	0.0093	N/A	N/A	N/A	N/A	4869418
PentaCB-(85)+(116)+(117)	ng/g	0.0152 J	0.0027	0.028	N/A	N/A	N/A	N/A	4869418
PentaCB-(86)(87)(97)(109)(119)(125)	ng/g	0.0395 J	0.0028	0.056	N/A	N/A	N/A	N/A	4869418
PentaCB-(88)+(91)	ng/g	0.0074 J	0.0034	0.019	N/A	N/A	N/A	N/A	4869418
22'346'-PentaCB-(89)	ng/g	0.0035 U	0.0035	0.0093	N/A	N/A	N/A	N/A	4869418
PentaCB-(90)+(101)+(113)	ng/g	0.0988	0.0028	0.028	N/A	N/A	N/A	N/A	4869418
22'355'-PentaCB-(92)	ng/g	0.0184	0.0032	0.0093	N/A	N/A	N/A	N/A	4869418
PentaCB-(93)+(98)+(100)+(102)	ng/g	0.0035 U	0.0035	0.037	N/A	N/A	N/A	N/A	4869418
22'356'-PentaCB-(94)	ng/g	0.0039 U	0.0039	0.0093	N/A	N/A	N/A	N/A	4869418
22'35'6-PentaCB-(95)	ng/g	0.0529	0.0031	0.0093	N/A	N/A	N/A	N/A	4869418
22'366'-PentaCB-(96)	ng/g	0.0037 U	0.0037	0.0093	N/A	N/A	N/A	N/A	4869418
22'45'6-PentaCB-(103)	ng/g	0.0028 U	0.0028	0.0093	N/A	N/A	N/A	N/A	4869418
22'466'-PentaCB-(104)	ng/g	0.0017 U	0.0017	0.0093	N/A	N/A	N/A	N/A	4869418
233'44'-PentaCB-(105)	ng/g	0.0252	0.00097	0.0093	N/A	0.0000300	0.000000756	N/A	4869418
233'45-PentaCB-(106)	ng/g	0.00072 U	0.00072	0.0093	N/A	N/A	N/A	N/A	4869418
233'4'5-PentaCB-(107)	ng/g	0.00732 J	0.00071	0.0093	N/A	N/A	N/A	N/A	4869418
PentaCB-(108)+(124)	ng/g	0.00259 J	0.00074	0.019	N/A	N/A	N/A	N/A	4869418
PentaCB-(110)+(115)	ng/g	0.0722	0.0026	0.019	N/A	N/A	N/A	N/A	4869418
233'55'-PentaCB-(111)	ng/g	0.0025 U	0.0025	0.0093	N/A	N/A	N/A	N/A	4869418
233'56-PentaCB-(112)	ng/g	0.0024 U	0.0024	0.0093	N/A	N/A	N/A	N/A	4869418
2344'5-PentaCB-(114)	ng/g	0.00094 U	0.00094	0.0093	N/A	0.0000300	0.0000000282	N/A	4869418
23'44'5-PentaCB-(118)	ng/g	0.0772	0.00097	0.0093	N/A	0.0000300	0.00000232	N/A	4869418
23'455'-PentaCB-(120)	ng/g	0.0022 U	0.0022	0.0093	N/A	N/A	N/A	N/A	4869418
23'45'6-PentaCB-(121)	ng/g	0.0025 U	0.0025	0.0093	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU259							
Sampling Date		2017/01/05 12:50							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-SMA2-2-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
233'4'5'-PentaCB-(122)	ng/g	0.00078 U	0.00078	0.0093	N/A	N/A	N/A	N/A	4869418
23'44'5'-PentaCB-(123)	ng/g	0.0011 U	0.0011	0.0093	N/A	0.0000300	0.0000000330	N/A	4869418
33'44'5-PentaCB-(126)	ng/g	0.00097 U	0.00097	0.0093	N/A	0.100	0.0000970	N/A	4869418
33'455'-PentaCB-(127)	ng/g	0.00069 U	0.00069	0.0093	N/A	N/A	N/A	N/A	4869418
HexaCB-(128)+(166)	ng/g	0.0222	0.0015	0.019	N/A	N/A	N/A	N/A	4869418
HexaCB-(129)+(138)+(163)	ng/g	0.181	0.0016	0.028	N/A	N/A	N/A	N/A	4869418
22'33'45'-HexaCB-(130)	ng/g	0.0102	0.0018	0.0093	N/A	N/A	N/A	N/A	4869418
22'33'46-HexaCB-(131)	ng/g	0.0020 U	0.0020	0.0093	N/A	N/A	N/A	N/A	4869418
22'33'46'-HexaCB-(132)	ng/g	0.0231	0.0020	0.0093	N/A	N/A	N/A	N/A	4869418
22'33'55'-HexaCB-(133)	ng/g	0.0041 J	0.0017	0.0093	N/A	N/A	N/A	N/A	4869418
HexaCB-(134)+(143)	ng/g	0.0050 J	0.0019	0.019	N/A	N/A	N/A	N/A	4869418
HexaCB-(135)+(151)	ng/g	0.0503	0.0054	0.019	N/A	N/A	N/A	N/A	4869418
22'33'66'-HexaCB-(136)	ng/g	0.0123	0.0036	0.0093	N/A	N/A	N/A	N/A	4869418
22'344'5-HexaCB-(137)	ng/g	0.0018 U	0.0018	0.0093	N/A	N/A	N/A	N/A	4869418
HexaCB-(139)+(140)	ng/g	0.0016 U	0.0016	0.019	N/A	N/A	N/A	N/A	4869418
22'3455'-HexaCB-(141)	ng/g	0.0017 U	0.0017	0.0093	N/A	N/A	N/A	N/A	4869418
22'3456-HexaCB-(142)	ng/g	0.0018 U	0.0018	0.0093	N/A	N/A	N/A	N/A	4869418
22'345'6-HexaCB-(144)	ng/g	0.0050 U	0.0050	0.0093	N/A	N/A	N/A	N/A	4869418
22'3466'-HexaCB-(145)	ng/g	0.0041 U	0.0041	0.0093	N/A	N/A	N/A	N/A	4869418
22'34'55'-HexaCB-(146)	ng/g	0.0374	0.0015	0.0093	N/A	N/A	N/A	N/A	4869418
HexaCB-(147)+(149)	ng/g	0.096 U (1)	0.096	0.019	N/A	N/A	N/A	N/A	4869418
22'34'56'-HexaCB-(148)	ng/g	0.0049 U	0.0049	0.0093	N/A	N/A	N/A	N/A	4869418
22'34'66'-HexaCB-(150)	ng/g	0.0039 U	0.0039	0.0093	N/A	N/A	N/A	N/A	4869418
22'3566'-HexaCB-(152)	ng/g	0.0037 U	0.0037	0.0093	N/A	N/A	N/A	N/A	4869418
HexaCB-(153)+(168)	ng/g	0.204	0.0013	0.0093	N/A	N/A	N/A	N/A	4869418
22'44'56'-HexaCB-(154)	ng/g	0.0048 J	0.0044	0.0093	N/A	N/A	N/A	N/A	4869418
22'44'66'-HexaCB-(155)	ng/g	0.0020 U	0.0020	0.0093	N/A	N/A	N/A	N/A	4869418
HexaCB-(156)+(157)	ng/g	0.0082 J	0.0016	0.019	N/A	0.0000300	0.000000246	N/A	4869418
233'44'6-HexaCB-(158)	ng/g	0.0097	0.0011	0.0093	N/A	N/A	N/A	N/A	4869418
233'455'-HexaCB-(159)	ng/g	0.0012 U	0.0012	0.0093	N/A	N/A	N/A	N/A	4869418

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(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU259							
Sampling Date		2017/01/05 12:50							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-SMA2-2-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
233'456-HexaCB-(160)	ng/g	0.0014 U	0.0014	0.0093	N/A	N/A	N/A	N/A	4869418
233'45'6-HexaCB-(161)	ng/g	0.0011 U	0.0011	0.0093	N/A	N/A	N/A	N/A	4869418
233'4'55'-HexaCB-(162)	ng/g	0.0014 U	0.0014	0.0093	N/A	N/A	N/A	N/A	4869418
233'4'5'6-HexaCB-(164)	ng/g	0.0012 U	0.0012	0.0093	N/A	N/A	N/A	N/A	4869418
233'55'6-HexaCB-(165)	ng/g	0.0014 U	0.0014	0.0093	N/A	N/A	N/A	N/A	4869418
23'44'55'-HexaCB-(167)	ng/g	0.0048 J	0.0018	0.0093	N/A	0.0000300	0.000000144	N/A	4869418
33'44'55'-HexaCB-(169)	ng/g	0.0017 U	0.0017	0.0093	N/A	0.0300	0.0000510	N/A	4869418
22'33'44'5-HeptaCB-(170)	ng/g	0.0047 U (1)	0.0047	0.0093	N/A	N/A	N/A	N/A	4869418
HeptaCB-(171)+(173)	ng/g	0.0079 J	0.0016	0.019	N/A	N/A	N/A	N/A	4869418
22'33'455'-HeptaCB-(172)	ng/g	0.0016 U	0.0016	0.0093	N/A	N/A	N/A	N/A	4869418
22'33'456'-HeptaCB-(174)	ng/g	0.0016 U	0.0016	0.0093	N/A	N/A	N/A	N/A	4869418
22'33'45'6-HeptaCB-(175)	ng/g	0.0028 U	0.0028	0.0093	N/A	N/A	N/A	N/A	4869418
22'33'466'-HeptaCB-(176)	ng/g	0.0028 U (1)	0.0028	0.0093	N/A	N/A	N/A	N/A	4869418
22'33'45'6'-HeptaCB-(177)	ng/g	0.0174	0.0016	0.0093	N/A	N/A	N/A	N/A	4869418
22'33'55'6-HeptaCB-(178)	ng/g	0.0103	0.0030	0.0093	N/A	N/A	N/A	N/A	4869418
22'33'566'-HeptaCB-(179)	ng/g	0.0116	0.0020	0.0093	N/A	N/A	N/A	N/A	4869418
HeptaCB-(180)+(193)	ng/g	0.0229	0.0011	0.019	N/A	N/A	N/A	N/A	4869418
22'344'56-HeptaCB-(181)	ng/g	0.0017 U	0.0017	0.0093	N/A	N/A	N/A	N/A	4869418
22'344'56'-HeptaCB-(182)	ng/g	0.0028 U	0.0028	0.0093	N/A	N/A	N/A	N/A	4869418
22'344'5'6-HeptaCB-(183)	ng/g	0.0177	0.0013	0.0093	N/A	N/A	N/A	N/A	4869418
22'344'66'-HeptaCB-(184)	ng/g	0.0021 U	0.0021	0.0093	N/A	N/A	N/A	N/A	4869418
22'3455'6-HeptaCB-(185)	ng/g	0.0019 U	0.0019	0.0093	N/A	N/A	N/A	N/A	4869418
22'34566'-HeptaCB-(186)	ng/g	0.0024 U	0.0024	0.0093	N/A	N/A	N/A	N/A	4869418
22'34'55'6-HeptaCB-(187)	ng/g	0.0639	0.0030	0.0093	N/A	N/A	N/A	N/A	4869418
22'34'566'-HeptaCB-(188)	ng/g	0.0018 U	0.0018	0.0093	N/A	N/A	N/A	N/A	4869418
233'44'55'-HeptaCB-(189)	ng/g	0.0011 U	0.0011	0.0093	N/A	0.0000300	0.0000000330	N/A	4869418
233'44'56-HeptaCB-(190)	ng/g	0.0028 J	0.0012	0.0093	N/A	N/A	N/A	N/A	4869418
233'44'5'6-HeptaCB-(191)	ng/g	0.0011 U	0.0011	0.0093	N/A	N/A	N/A	N/A	4869418
233'455'6-HeptaCB-(192)	ng/g	0.0014 U	0.0014	0.0093	N/A	N/A	N/A	N/A	4869418
22'33'44'55'-OctaCB-(194)	ng/g	0.0031 U	0.0031	0.0093	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU259							
Sampling Date		2017/01/05 12:50							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-SMA2-2-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
22'33'44'56-OctaCB-(195)	ng/g	0.0035 U	0.0035	0.0093	N/A	N/A	N/A	N/A	4869418
22'33'44'56'-OctaCB-(196)	ng/g	0.0036 U	0.0036	0.0093	N/A	N/A	N/A	N/A	4869418
22'33'44'66'OctaCB-(197)	ng/g	0.0026 U	0.0026	0.0093	N/A	N/A	N/A	N/A	4869418
OctaCB-(198)+(199)	ng/g	0.0039 U	0.0039	0.019	N/A	N/A	N/A	N/A	4869418
22'33'4566'-OctaCB-(200)	ng/g	0.0027 U	0.0027	0.0093	N/A	N/A	N/A	N/A	4869418
22'33'45'66'-OctaCB-(201)	ng/g	0.0025 U	0.0025	0.0093	N/A	N/A	N/A	N/A	4869418
22'33'55'66'-OctaCB-(202)	ng/g	0.0057 J	0.0023	0.0093	N/A	N/A	N/A	N/A	4869418
22'344'55'6-OctaCB-(203)	ng/g	0.0038 U	0.0038	0.0093	N/A	N/A	N/A	N/A	4869418
22'344'566'-OctaCB-(204)	ng/g	0.0025 U	0.0025	0.0093	N/A	N/A	N/A	N/A	4869418
233'44'55'6-OctaCB-(205)	ng/g	0.0034 U	0.0034	0.0093	N/A	N/A	N/A	N/A	4869418
22'33'44'55'6-NonaCB-(206)	ng/g	0.0020 U	0.0020	0.0093	N/A	N/A	N/A	N/A	4869418
22'33'44'566'-NonaCB-(207)	ng/g	0.0016 U	0.0016	0.0093	N/A	N/A	N/A	N/A	4869418
22'33'455'66'-NonaCB-(208)	ng/g	0.0020 U	0.0020	0.0093	N/A	N/A	N/A	N/A	4869418
DecaCB-(209)	ng/g	0.0014 U	0.0014	0.0093	N/A	N/A	N/A	N/A	4869418
Total PCB	ng/g	1.49	N/A	N/A	N/A	N/A	N/A	N/A	4869418
TOTAL TOXIC EQUIVALENCY	ng/g	N/A	N/A	N/A	N/A	N/A	0.000152	N/A	N/A
Surrogate Recovery (%)									
C13-2,44'-TriCB-(28)	%	104	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'33'44'55'6-NonaCB-(206)	%	74	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'33'44'5-HeptaCB-(170)	%	75	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'33'455'66'-NonaCB-(208)	%	67	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'33'55'66'-OctaCB-(202)	%	67	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'33'55'6-HeptaCB-(178)	%	96	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'344'55'-HeptaCB-(180)	%	75	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'34'566'-HeptaCB-(188)	%	73	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'44'66'-HexaCB-(155)	%	70	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'466'-PentaCB-(104)	%	72	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'66'-TetraCB-(54)	%	74	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'6-TriCB-(19)	%	56	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'-DiCB-(4)	%	53	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-233'44'55'6-OctaCB-(205)	%	81	N/A	N/A	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU259							
Sampling Date		2017/01/05 12:50							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-SMA2-2-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
C13-233'44'55'-HeptaCB-(189)	%	78	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-233'44'-PentaCB-(105)	%	96	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-233'55'-PentaCB-(111)	%	102	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-23'44'55'-HexaCB-(167)	%	86	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-2344'5-PentaCB-(114)	%	95	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-23'44'5-PentaCB-(118)	%	93	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-2'344'5-PentaCB-(123)	%	94	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-2-MonoCB-(1)	%	65	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-33'44'55'-HexaCB-(169)	%	56	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-33'44'5-PentaCB-(126)	%	91	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-33'44'-TetraCB-(77)	%	98	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-344'5-TetraCB-(81)	%	95	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-344'-TriCB-(37)	%	89	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-44'-DiCB-(15)	%	71	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-4-MonoCB-(3)	%	65	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-DecaCB-(209)	%	79	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-HexaCB-(156)+(157)	%	86	N/A	N/A	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU259							
Sampling Date		2017/01/05 12:50							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-SMA2-2-MUS-170105 Lab-Dup	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
PCBs									
2-MonoCB-(1)	ng/g	0.0012 U	0.0012	0.0093	N/A	N/A	N/A	N/A	4869418
3-MonoCB-(2)	ng/g	0.0011 U	0.0011	0.0093	N/A	N/A	N/A	N/A	4869418
4-MonoCB-(3)	ng/g	0.0012 U	0.0012	0.0093	N/A	N/A	N/A	N/A	4869418
22'-DiCB-(4)	ng/g	0.010 U	0.010	0.0093	N/A	N/A	N/A	N/A	4869418
2,3-DiCB-(5)	ng/g	0.0038 U	0.0038	0.0093	N/A	N/A	N/A	N/A	4869418
2,3'-DiCB-(6)	ng/g	0.0030 U	0.0030	0.0093	N/A	N/A	N/A	N/A	4869418
2,4-DiCB-(7)	ng/g	0.0034 U	0.0034	0.0093	N/A	N/A	N/A	N/A	4869418
2,4'-DiCB-(8)	ng/g	0.0027 U	0.0027	0.0093	N/A	N/A	N/A	N/A	4869418
2,5-DiCB-(9)	ng/g	0.0029 U	0.0029	0.0093	N/A	N/A	N/A	N/A	4869418
2,6-DiCB-(10)	ng/g	0.015 U	0.015	0.0093	N/A	N/A	N/A	N/A	4869418
3,3'-DiCB-(11)	ng/g	0.0049 J	0.0029	0.0093	N/A	N/A	N/A	N/A	4869418
DiCB-(12)+(13)	ng/g	0.0032 U	0.0032	0.019	N/A	N/A	N/A	N/A	4869418
3,5-DiCB-(14)	ng/g	0.0028 U	0.0028	0.0093	N/A	N/A	N/A	N/A	4869418
4,4'-DiCB-(15)	ng/g	0.0057 U	0.0057	0.0093	N/A	N/A	N/A	N/A	4869418
22'3-TriCB-(16)	ng/g	0.010 U	0.010	0.0093	N/A	N/A	N/A	N/A	4869418
22'4-TriCB-(17)	ng/g	0.0073 U	0.0073	0.0093	N/A	N/A	N/A	N/A	4869418
TriCB-(18)+(30)	ng/g	0.0059 U	0.0059	0.019	N/A	N/A	N/A	N/A	4869418
22'6-TriCB-(19)	ng/g	0.0040 U	0.0040	0.0093	N/A	N/A	N/A	N/A	4869418
TriCB-(20) + (28)	ng/g	0.0143 J	0.0011	0.019	N/A	N/A	N/A	N/A	4869418
TriCB-(21)+(33)	ng/g	0.0026 U (1)	0.0026	0.019	N/A	N/A	N/A	N/A	4869418
234'-TriCB-(22)	ng/g	0.0031 J	0.0012	0.0093	N/A	N/A	N/A	N/A	4869418
235-TriCB-(23)	ng/g	0.0012 U	0.0012	0.0093	N/A	N/A	N/A	N/A	4869418
236-TriCB-(24)	ng/g	0.0056 U	0.0056	0.0093	N/A	N/A	N/A	N/A	4869418
23'4-TriCB-(25)	ng/g	0.0010 U	0.0010	0.0093	N/A	N/A	N/A	N/A	4869418
TriCB-(26)+(29)	ng/g	0.0015 U (1)	0.0015	0.019	N/A	N/A	N/A	N/A	4869418
23'6-TriCB-(27)	ng/g	0.0048 U	0.0048	0.0093	N/A	N/A	N/A	N/A	4869418
24'5-TriCB-(31)	ng/g	0.00660 J	0.00098	0.0093	N/A	N/A	N/A	N/A	4869418
24'6-TriCB-(32)	ng/g	0.0046 U	0.0046	0.0093	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU259							
Sampling Date		2017/01/05 12:50							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-SMA2-2-MUS-170105 Lab-Dup	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
23'5'-TriCB-(34)	ng/g	0.0010 U	0.0010	0.0093	N/A	N/A	N/A	N/A	4869418
33'4-TriCB-(35)	ng/g	0.0010 U	0.0010	0.0093	N/A	N/A	N/A	N/A	4869418
33'5-TriCB-(36)	ng/g	0.00092 U	0.00092	0.0093	N/A	N/A	N/A	N/A	4869418
344'-TriCB-(37)	ng/g	0.0028 J	0.0020	0.0093	N/A	N/A	N/A	N/A	4869418
345-TriCB-(38)	ng/g	0.0011 U	0.0011	0.0093	N/A	N/A	N/A	N/A	4869418
34'5-TriCB-(39)	ng/g	0.0011 U	0.0011	0.0093	N/A	N/A	N/A	N/A	4869418
TetraCB-(40)+(41)+(71)	ng/g	0.0142 J	0.0024	0.028	N/A	N/A	N/A	N/A	4869418
22'34'-TetraCB-(42)	ng/g	0.0065 U (1)	0.0065	0.0093	N/A	N/A	N/A	N/A	4869418
22'35-TetraCB-(43)	ng/g	0.0030 U	0.0030	0.0093	N/A	N/A	N/A	N/A	4869418
TetraCB-(44)+(47)+(65)	ng/g	0.0314	0.0021	0.028	N/A	N/A	N/A	N/A	4869418
TetraCB-(45)+(51)	ng/g	0.0024 U	0.0024	0.019	N/A	N/A	N/A	N/A	4869418
22'36'-TetraCB-(46)	ng/g	0.0028 U	0.0028	0.0093	N/A	N/A	N/A	N/A	4869418
22'45-TetraCB-(48)	ng/g	0.0051 U (1)	0.0051	0.0093	N/A	N/A	N/A	N/A	4869418
TetraCB-(49)+TetraCB-(69)	ng/g	0.0176 J	0.0020	0.019	N/A	N/A	N/A	N/A	4869418
TetraCB-(50)+(53)	ng/g	0.0044 J	0.0023	0.019	N/A	N/A	N/A	N/A	4869418
22'55'-TetraCB-(52)	ng/g	0.0394	0.0020	0.0093	N/A	N/A	N/A	N/A	4869418
22'66'-TetraCB-(54)	ng/g	0.00091 U	0.00091	0.0093	N/A	N/A	N/A	N/A	4869418
233'4-TetraCB-(55)	ng/g	0.0011 U	0.0011	0.0093	N/A	N/A	N/A	N/A	4869418
233'4'-Tetra CB(56)	ng/g	0.0049 J	0.0011	0.0093	N/A	N/A	N/A	N/A	4869418
233'5-TetraCB-(57)	ng/g	0.00091 U	0.00091	0.0093	N/A	N/A	N/A	N/A	4869418
233'5'-TetraCB-(58)	ng/g	0.0011 U	0.0011	0.0093	N/A	N/A	N/A	N/A	4869418
TetraCB-(59)+(62)+(75)	ng/g	0.0030 J	0.0017	0.028	N/A	N/A	N/A	N/A	4869418
2344'-TetraCB -(60)	ng/g	0.0042 J	0.0011	0.0093	N/A	N/A	N/A	N/A	4869418
TetraCB-(61)+(70)+(74)+(76)	ng/g	0.0363 J	0.0010	0.037	N/A	N/A	N/A	N/A	4869418
234'5-TetraCB-(63)	ng/g	0.00097 U (1)	0.00097	0.0093	N/A	N/A	N/A	N/A	4869418
234'6-TetraCB-(64)	ng/g	0.0072 J	0.0018	0.0093	N/A	N/A	N/A	N/A	4869418
23'44'-TetraCB-(66)	ng/g	0.0155	0.00086	0.0093	N/A	N/A	N/A	N/A	4869418
23'45-TetraCB-(67)	ng/g	0.00086 U	0.00086	0.0093	N/A	N/A	N/A	N/A	4869418
23'45'-TetraCB-(68)	ng/g	0.00092 U	0.00092	0.0093	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU259							
Sampling Date		2017/01/05 12:50							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-SMA2-2-MUS-170105 Lab-Dup	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
23'55'-TetraCB-(72)	ng/g	0.00088 U	0.00088	0.0093	N/A	N/A	N/A	N/A	4869418
23'5'6-TetraCB-(73)	ng/g	0.0020 U	0.0020	0.0093	N/A	N/A	N/A	N/A	4869418
33'44'-TetraCB-(77)	ng/g	0.0018 J	0.0013	0.0093	N/A	0.000100	0.000000180	N/A	4869418
33'45-TetraCB-(78)	ng/g	0.00092 U	0.00092	0.0093	N/A	N/A	N/A	N/A	4869418
33'45'-TetraCB(79)	ng/g	0.00083 U	0.00083	0.0093	N/A	N/A	N/A	N/A	4869418
33'55'-TetraCB-(80)	ng/g	0.00082 U	0.00082	0.0093	N/A	N/A	N/A	N/A	4869418
344'5-TetraCB-(81)	ng/g	0.0013 U	0.0013	0.0093	N/A	0.000300	0.000000390	N/A	4869418
22'33'4-PentaCB-(82)	ng/g	0.0051 J	0.0016	0.0093	N/A	N/A	N/A	N/A	4869418
PentaCB-(83)+(99)	ng/g	0.0787	0.0014	0.019	N/A	N/A	N/A	N/A	4869418
22'33'6-PentaCB-(84)	ng/g	0.0109	0.0016	0.0093	N/A	N/A	N/A	N/A	4869418
PentaCB-(85)+(116)+(117)	ng/g	0.0156 J	0.0012	0.028	N/A	N/A	N/A	N/A	4869418
PentaCB-(86)(87)(97)(109)(119)(125)	ng/g	0.0411 J	0.0012	0.056	N/A	N/A	N/A	N/A	4869418
PentaCB-(88)+(91)	ng/g	0.0074 J	0.0014	0.019	N/A	N/A	N/A	N/A	4869418
22'346'-PentaCB-(89)	ng/g	0.0015 U	0.0015	0.0093	N/A	N/A	N/A	N/A	4869418
PentaCB-(90)+(101)+(113)	ng/g	0.0974	0.0012	0.028	N/A	N/A	N/A	N/A	4869418
22'355'-PentaCB-(92)	ng/g	0.0183	0.0014	0.0093	N/A	N/A	N/A	N/A	4869418
PentaCB-(93)+(98)+(100)+(102)	ng/g	0.0050 J	0.0014	0.037	N/A	N/A	N/A	N/A	4869418
22'356'-PentaCB-(94)	ng/g	0.0016 U	0.0016	0.0093	N/A	N/A	N/A	N/A	4869418
22'35'6-PentaCB-(95)	ng/g	0.0518	0.0013	0.0093	N/A	N/A	N/A	N/A	4869418
22'366'-PentaCB-(96)	ng/g	0.0022 U	0.0022	0.0093	N/A	N/A	N/A	N/A	4869418
22'45'6-PentaCB-(103)	ng/g	0.0017 J	0.0012	0.0093	N/A	N/A	N/A	N/A	4869418
22'466'-PentaCB-(104)	ng/g	0.0010 U	0.0010	0.0093	N/A	N/A	N/A	N/A	4869418
233'44'-PentaCB-(105)	ng/g	0.0234	0.00086	0.0093	N/A	0.0000300	0.000000702	N/A	4869418
233'45-PentaCB-(106)	ng/g	0.00060 U	0.00060	0.0093	N/A	N/A	N/A	N/A	4869418
233'4'5-PentaCB-(107)	ng/g	0.00622 J	0.00056	0.0093	N/A	N/A	N/A	N/A	4869418
PentaCB-(108)+(124)	ng/g	0.00229 J	0.00065	0.019	N/A	N/A	N/A	N/A	4869418
PentaCB-(110)+(115)	ng/g	0.0711	0.0011	0.019	N/A	N/A	N/A	N/A	4869418
233'55'-PentaCB-(111)	ng/g	0.0011 U	0.0011	0.0093	N/A	N/A	N/A	N/A	4869418
233'56-PentaCB-(112)	ng/g	0.0011 U	0.0011	0.0093	N/A	N/A	N/A	N/A	4869418
2344'5-PentaCB-(114)	ng/g	0.00083 U	0.00083	0.0093	N/A	0.0000300	0.0000000249	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU259							
Sampling Date		2017/01/05 12:50							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-SMA2-2-MUS-170105 Lab-Dup	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
23'44'5-PentaCB-(118)	ng/g	0.0715	0.00086	0.0093	N/A	0.0000300	0.00000215	N/A	4869418
23'455'-PentaCB-(120)	ng/g	0.00090 U	0.00090	0.0093	N/A	N/A	N/A	N/A	4869418
23'45'6-PentaCB-(121)	ng/g	0.0011 U	0.0011	0.0093	N/A	N/A	N/A	N/A	4869418
233'4'5'-PentaCB-(122)	ng/g	0.00065 U	0.00065	0.0093	N/A	N/A	N/A	N/A	4869418
23'44'5'-PentaCB-(123)	ng/g	0.00098 U (1)	0.00098	0.0093	N/A	0.0000300	0.0000000294	N/A	4869418
33'44'5-PentaCB-(126)	ng/g	0.00086 U	0.00086	0.0093	N/A	0.100	0.0000860	N/A	4869418
33'455'-PentaCB-(127)	ng/g	0.00059 U	0.00059	0.0093	N/A	N/A	N/A	N/A	4869418
HexaCB-(128)+(166)	ng/g	0.0204	0.0025	0.019	N/A	N/A	N/A	N/A	4869418
HexaCB-(129)+(138)+(163)	ng/g	0.188	0.0027	0.028	N/A	N/A	N/A	N/A	4869418
22'33'45'-HexaCB-(130)	ng/g	0.0102	0.0030	0.0093	N/A	N/A	N/A	N/A	4869418
22'33'46-HexaCB-(131)	ng/g	0.0033 U	0.0033	0.0093	N/A	N/A	N/A	N/A	4869418
22'33'46'-HexaCB-(132)	ng/g	0.021 U (1)	0.021	0.0093	N/A	N/A	N/A	N/A	4869418
22'33'55'-HexaCB-(133)	ng/g	0.0044 J	0.0029	0.0093	N/A	N/A	N/A	N/A	4869418
HexaCB-(134)+(143)	ng/g	0.0052 J	0.0031	0.019	N/A	N/A	N/A	N/A	4869418
HexaCB-(135)+(151)	ng/g	0.0557	0.0035	0.019	N/A	N/A	N/A	N/A	4869418
22'33'66'-HexaCB-(136)	ng/g	0.0134	0.0023	0.0093	N/A	N/A	N/A	N/A	4869418
22'344'5-HexaCB-(137)	ng/g	0.0031 U	0.0031	0.0093	N/A	N/A	N/A	N/A	4869418
HexaCB-(139)+(140)	ng/g	0.0028 J	0.0027	0.019	N/A	N/A	N/A	N/A	4869418
22'3455'-HexaCB-(141)	ng/g	0.0028 U	0.0028	0.0093	N/A	N/A	N/A	N/A	4869418
22'3456-HexaCB-(142)	ng/g	0.0031 U	0.0031	0.0093	N/A	N/A	N/A	N/A	4869418
22'345'6-HexaCB-(144)	ng/g	0.0056 J	0.0032	0.0093	N/A	N/A	N/A	N/A	4869418
22'3466'-HexaCB-(145)	ng/g	0.0027 U	0.0027	0.0093	N/A	N/A	N/A	N/A	4869418
22'34'55'-HexaCB-(146)	ng/g	0.0357	0.0024	0.0093	N/A	N/A	N/A	N/A	4869418
HexaCB-(147)+(149)	ng/g	0.124	0.0027	0.019	N/A	N/A	N/A	N/A	4869418
22'34'56'-HexaCB-(148)	ng/g	0.0032 U	0.0032	0.0093	N/A	N/A	N/A	N/A	4869418
22'34'66'-HexaCB-(150)	ng/g	0.0026 U	0.0026	0.0093	N/A	N/A	N/A	N/A	4869418
22'3566'-HexaCB-(152)	ng/g	0.0023 U	0.0023	0.0093	N/A	N/A	N/A	N/A	4869418
HexaCB-(153)+(168)	ng/g	0.207	0.0022	0.0093	N/A	N/A	N/A	N/A	4869418
22'44'56'-HexaCB-(154)	ng/g	0.0053 J	0.0029	0.0093	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU259							
Sampling Date		2017/01/05 12:50							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-SMA2-2-MUS-170105 Lab-Dup	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
22'44'66'-HexaCB-(155)	ng/g	0.0012 U	0.0012	0.0093	N/A	N/A	N/A	N/A	4869418
HexaCB-(156)+(157)	ng/g	0.0082 J	0.0010	0.019	N/A	0.0000300	0.000000246	N/A	4869418
233'44'6-HexaCB-(158)	ng/g	0.0108	0.0019	0.0093	N/A	N/A	N/A	N/A	4869418
233'455'-HexaCB-(159)	ng/g	0.00075 U	0.00075	0.0093	N/A	N/A	N/A	N/A	4869418
233'456-HexaCB-(160)	ng/g	0.0023 U	0.0023	0.0093	N/A	N/A	N/A	N/A	4869418
233'45'6-HexaCB-(161)	ng/g	0.0020 U	0.0020	0.0093	N/A	N/A	N/A	N/A	4869418
233'4'55'-HexaCB-(162)	ng/g	0.00083 U	0.00083	0.0093	N/A	N/A	N/A	N/A	4869418
233'4'5'6-HexaCB-(164)	ng/g	0.0020 U	0.0020	0.0093	N/A	N/A	N/A	N/A	4869418
233'55'6-HexaCB-(165)	ng/g	0.0024 U	0.0024	0.0093	N/A	N/A	N/A	N/A	4869418
23'44'55'-HexaCB-(167)	ng/g	0.0037 U (1)	0.0037	0.0093	N/A	0.0000300	0.000000111	N/A	4869418
33'44'55'-HexaCB-(169)	ng/g	0.0011 U	0.0011	0.0093	N/A	0.0300	0.0000330	N/A	4869418
22'33'44'5-HeptaCB-(170)	ng/g	0.0039 U (1)	0.0039	0.0093	N/A	N/A	N/A	N/A	4869418
HeptaCB-(171)+(173)	ng/g	0.0082 J	0.0022	0.019	N/A	N/A	N/A	N/A	4869418
22'33'455'-HeptaCB-(172)	ng/g	0.0022 U	0.0022	0.0093	N/A	N/A	N/A	N/A	4869418
22'33'456'-HeptaCB-(174)	ng/g	0.0022 U	0.0022	0.0093	N/A	N/A	N/A	N/A	4869418
22'33'45'6-HeptaCB-(175)	ng/g	0.0022 U	0.0022	0.0093	N/A	N/A	N/A	N/A	4869418
22'33'466'-HeptaCB-(176)	ng/g	0.0029 J	0.0016	0.0093	N/A	N/A	N/A	N/A	4869418
22'33'45'6'-HeptaCB-(177)	ng/g	0.0185	0.0022	0.0093	N/A	N/A	N/A	N/A	4869418
22'33'55'6-HeptaCB-(178)	ng/g	0.0099	0.0023	0.0093	N/A	N/A	N/A	N/A	4869418
22'33'566'-HeptaCB-(179)	ng/g	0.0136	0.0016	0.0093	N/A	N/A	N/A	N/A	4869418
HeptaCB-(180)+(193)	ng/g	0.0215	0.0015	0.019	N/A	N/A	N/A	N/A	4869418
22'344'56-HeptaCB-(181)	ng/g	0.0023 U	0.0023	0.0093	N/A	N/A	N/A	N/A	4869418
22'344'56'-HeptaCB-(182)	ng/g	0.0023 U	0.0023	0.0093	N/A	N/A	N/A	N/A	4869418
22'344'5'6-HeptaCB-(183)	ng/g	0.0180	0.0017	0.0093	N/A	N/A	N/A	N/A	4869418
22'344'66'-HeptaCB-(184)	ng/g	0.0017 U	0.0017	0.0093	N/A	N/A	N/A	N/A	4869418
22'3455'6-HeptaCB-(185)	ng/g	0.0026 U	0.0026	0.0093	N/A	N/A	N/A	N/A	4869418
22'34566'-HeptaCB-(186)	ng/g	0.0019 U	0.0019	0.0093	N/A	N/A	N/A	N/A	4869418
22'34'55'6-HeptaCB-(187)	ng/g	0.0693	0.0023	0.0093	N/A	N/A	N/A	N/A	4869418
22'34'566'-HeptaCB-(188)	ng/g	0.0013 U	0.0013	0.0093	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU259							
Sampling Date		2017/01/05 12:50							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-SMA2-2-MUS-170105 Lab-Dup	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
233'44'55'-HeptaCB-(189)	ng/g	0.0011 U	0.0011	0.0093	N/A	0.0000300	0.0000000330	N/A	4869418
233'44'56-HeptaCB-(190)	ng/g	0.0023 J	0.0017	0.0093	N/A	N/A	N/A	N/A	4869418
233'44'5'6-HeptaCB-(191)	ng/g	0.0016 U	0.0016	0.0093	N/A	N/A	N/A	N/A	4869418
233'455'6-HeptaCB-(192)	ng/g	0.0018 U	0.0018	0.0093	N/A	N/A	N/A	N/A	4869418
22'33'44'55'-OctaCB-(194)	ng/g	0.00194 J	0.00083	0.0093	N/A	N/A	N/A	N/A	4869418
22'33'44'56-OctaCB-(195)	ng/g	0.00090 U	0.00090	0.0093	N/A	N/A	N/A	N/A	4869418
22'33'44'56'-OctaCB-(196)	ng/g	0.0019 U	0.0019	0.0093	N/A	N/A	N/A	N/A	4869418
22'33'44'66'OctaCB-(197)	ng/g	0.0015 U	0.0015	0.0093	N/A	N/A	N/A	N/A	4869418
OctaCB-(198)+(199)	ng/g	0.0021 U	0.0021	0.019	N/A	N/A	N/A	N/A	4869418
22'33'4566'-OctaCB-(200)	ng/g	0.0012 U	0.0012	0.0093	N/A	N/A	N/A	N/A	4869418
22'33'45'66'-OctaCB-(201)	ng/g	0.0028 J	0.0013	0.0093	N/A	N/A	N/A	N/A	4869418
22'33'55'66'-OctaCB-(202)	ng/g	0.0059 J	0.0012	0.0093	N/A	N/A	N/A	N/A	4869418
22'344'55'6-OctaCB-(203)	ng/g	0.0020 U	0.0020	0.0093	N/A	N/A	N/A	N/A	4869418
22'344'566'-OctaCB-(204)	ng/g	0.0013 U	0.0013	0.0093	N/A	N/A	N/A	N/A	4869418
233'44'55'6-OctaCB-(205)	ng/g	0.00092 U	0.00092	0.0093	N/A	N/A	N/A	N/A	4869418
22'33'44'55'6-NonaCB-(206)	ng/g	0.0022 U	0.0022	0.0093	N/A	N/A	N/A	N/A	4869418
22'33'44'566'-NonaCB-(207)	ng/g	0.0017 U	0.0017	0.0093	N/A	N/A	N/A	N/A	4869418
22'33'455'66'-NonaCB-(208)	ng/g	0.0022 U	0.0022	0.0093	N/A	N/A	N/A	N/A	4869418
DecaCB-(209)	ng/g	0.0027 U	0.0027	0.0093	N/A	N/A	N/A	N/A	4869418
Total PCB	ng/g	1.59	N/A	N/A	N/A	N/A	N/A	N/A	4869418
TOTAL TOXIC EQUIVALENCY	ng/g	N/A	N/A	N/A	N/A	N/A	0.000123	N/A	N/A
Surrogate Recovery (%)									
C13-2,44'-TriCB-(28)	%	107	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'33'44'55'6-NonaCB-(206)	%	73	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'33'44'5-HeptaCB-(170)	%	105	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'33'455'66'-NonaCB-(208)	%	85	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'33'55'66'-OctaCB-(202)	%	103	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'33'55'6-HeptaCB-(178)	%	101	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'344'55'-HeptaCB-(180)	%	108	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'34'566'-HeptaCB-(188)	%	90	N/A	N/A	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU259							
Sampling Date		2017/01/05 12:50							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-SMA2-2-MUS-170105 Lab-Dup	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
C13-22'44'66'-HexaCB-(155)	%	84	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'466'-PentaCB-(104)	%	77	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'66'-TetraCB-(54)	%	77	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'6-TriCB-(19)	%	57	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'-DiCB-(4)	%	49	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-233'44'55'6-OctaCB-(205)	%	89	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-233'44'55'-HeptaCB-(189)	%	100	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-233'44'-PentaCB-(105)	%	111	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-233'55'-PentaCB-(111)	%	112	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-23'44'55'-HexaCB-(167)	%	102	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-2344'5-PentaCB-(114)	%	108	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-23'44'5-PentaCB-(118)	%	105	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-2'344'5-PentaCB-(123)	%	107	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-2-MonoCB-(1)	%	57	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-33'44'55'-HexaCB-(169)	%	50	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-33'44'5-PentaCB-(126)	%	103	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-33'44'-TetraCB-(77)	%	122	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-344'5-TetraCB-(81)	%	121	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-344'-TriCB-(37)	%	100	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-44'-DiCB-(15)	%	89	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-4-MonoCB-(3)	%	61	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-DecaCB-(209)	%	72	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-HexaCB-(156)+(157)	%	103	N/A	N/A	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU260							
Sampling Date		2017/01/05 12:40							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-SMA2-3-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
PCBs									
2-MonoCB-(1)	ng/g	0.00084 U	0.00084	0.0098	N/A	N/A	N/A	N/A	4869418
3-MonoCB-(2)	ng/g	0.00075 U	0.00075	0.0098	N/A	N/A	N/A	N/A	4869418
4-MonoCB-(3)	ng/g	0.00085 U	0.00085	0.0098	N/A	N/A	N/A	N/A	4869418
22'-DiCB-(4)	ng/g	0.015 U	0.015	0.0098	N/A	N/A	N/A	N/A	4869418
2,3-DiCB-(5)	ng/g	0.0063 U	0.0063	0.0098	N/A	N/A	N/A	N/A	4869418
2,3'-DiCB-(6)	ng/g	0.0051 U	0.0051	0.0098	N/A	N/A	N/A	N/A	4869418
2,4-DiCB-(7)	ng/g	0.0057 U	0.0057	0.0098	N/A	N/A	N/A	N/A	4869418
2,4'-DiCB-(8)	ng/g	0.0045 U	0.0045	0.0098	N/A	N/A	N/A	N/A	4869418
2,5-DiCB-(9)	ng/g	0.0049 U	0.0049	0.0098	N/A	N/A	N/A	N/A	4869418
2,6-DiCB-(10)	ng/g	0.022 U	0.022	0.0098	N/A	N/A	N/A	N/A	4869418
3,3'-DiCB-(11)	ng/g	0.0069 U (1)	0.0069	0.0098	N/A	N/A	N/A	N/A	4869418
DiCB-(12)+(13)	ng/g	0.0053 U	0.0053	0.020	N/A	N/A	N/A	N/A	4869418
3,5-DiCB-(14)	ng/g	0.0047 U	0.0047	0.0098	N/A	N/A	N/A	N/A	4869418
4,4'-DiCB-(15)	ng/g	0.0095 U	0.0095	0.0098	N/A	N/A	N/A	N/A	4869418
22'3-TriCB-(16)	ng/g	0.0060 U	0.0060	0.0098	N/A	N/A	N/A	N/A	4869418
22'4-TriCB-(17)	ng/g	0.0043 U	0.0043	0.0098	N/A	N/A	N/A	N/A	4869418
TriCB-(18)+(30)	ng/g	0.0078 J	0.0035	0.020	N/A	N/A	N/A	N/A	4869418
22'6-TriCB-(19)	ng/g	0.0023 U	0.0023	0.0098	N/A	N/A	N/A	N/A	4869418
TriCB-(20) + (28)	ng/g	0.0271	0.0015	0.020	N/A	N/A	N/A	N/A	4869418
TriCB-(21)+(33)	ng/g	0.0055 J	0.0015	0.020	N/A	N/A	N/A	N/A	4869418
234'-TriCB-(22)	ng/g	0.0056 J	0.0016	0.0098	N/A	N/A	N/A	N/A	4869418
235-TriCB-(23)	ng/g	0.0016 U	0.0016	0.0098	N/A	N/A	N/A	N/A	4869418
236-TriCB-(24)	ng/g	0.0033 U	0.0033	0.0098	N/A	N/A	N/A	N/A	4869418
23'4-TriCB-(25)	ng/g	0.0016 J	0.0014	0.0098	N/A	N/A	N/A	N/A	4869418
TriCB-(26)+(29)	ng/g	0.0030 J	0.0014	0.020	N/A	N/A	N/A	N/A	4869418
23'6-TriCB-(27)	ng/g	0.0028 U	0.0028	0.0098	N/A	N/A	N/A	N/A	4869418
24'5-TriCB-(31)	ng/g	0.0128	0.0013	0.0098	N/A	N/A	N/A	N/A	4869418
24'6-TriCB-(32)	ng/g	0.0027 U	0.0027	0.0098	N/A	N/A	N/A	N/A	4869418
23'5'-TriCB-(34)	ng/g	0.0014 U	0.0014	0.0098	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU260							
Sampling Date		2017/01/05 12:40							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-SMA2-3-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'4-TriCB-(35)	ng/g	0.0014 U	0.0014	0.0098	N/A	N/A	N/A	N/A	4869418
33'5-TriCB-(36)	ng/g	0.0012 U	0.0012	0.0098	N/A	N/A	N/A	N/A	4869418
344'-TriCB-(37)	ng/g	0.0050 J	0.0027	0.0098	N/A	N/A	N/A	N/A	4869418
345-TriCB-(38)	ng/g	0.0014 U	0.0014	0.0098	N/A	N/A	N/A	N/A	4869418
34'5-TriCB-(39)	ng/g	0.0015 U	0.0015	0.0098	N/A	N/A	N/A	N/A	4869418
TetraCB-(40)+(41)+(71)	ng/g	0.0211 J	0.0026	0.030	N/A	N/A	N/A	N/A	4869418
22'34'-TetraCB-(42)	ng/g	0.0117	0.0029	0.0098	N/A	N/A	N/A	N/A	4869418
22'35-TetraCB-(43)	ng/g	0.0032 U	0.0032	0.0098	N/A	N/A	N/A	N/A	4869418
TetraCB-(44)+(47)+(65)	ng/g	0.0498	0.0023	0.030	N/A	N/A	N/A	N/A	4869418
TetraCB-(45)+(51)	ng/g	0.0041 J	0.0026	0.020	N/A	N/A	N/A	N/A	4869418
22'36'-TetraCB-(46)	ng/g	0.0031 U	0.0031	0.0098	N/A	N/A	N/A	N/A	4869418
22'45-TetraCB-(48)	ng/g	0.0098	0.0027	0.0098	N/A	N/A	N/A	N/A	4869418
TetraCB-(49)+TetraCB-(69)	ng/g	0.0284	0.0022	0.020	N/A	N/A	N/A	N/A	4869418
TetraCB-(50)+(53)	ng/g	0.0066 J	0.0025	0.020	N/A	N/A	N/A	N/A	4869418
22'55'-TetraCB-(52)	ng/g	0.0599	0.0022	0.0098	N/A	N/A	N/A	N/A	4869418
22'66'-TetraCB-(54)	ng/g	0.00088 U	0.00088	0.0098	N/A	N/A	N/A	N/A	4869418
233'4-TetraCB-(55)	ng/g	0.00088 U	0.00088	0.0098	N/A	N/A	N/A	N/A	4869418
233'4'-Tetra CB(56)	ng/g	0.00718 J	0.00085	0.0098	N/A	N/A	N/A	N/A	4869418
233'5-TetraCB-(57)	ng/g	0.00072 U	0.00072	0.0098	N/A	N/A	N/A	N/A	4869418
233'5'-TetraCB-(58)	ng/g	0.00084 U	0.00084	0.0098	N/A	N/A	N/A	N/A	4869418
TetraCB-(59)+(62)+(75)	ng/g	0.0047 J	0.0019	0.030	N/A	N/A	N/A	N/A	4869418
2344'-TetraCB -(60)	ng/g	0.0049 U (1)	0.0049	0.0098	N/A	N/A	N/A	N/A	4869418
TetraCB-(61)+(70)+(74)+(76)	ng/g	0.0516	0.00080	0.039	N/A	N/A	N/A	N/A	4869418
234'5-TetraCB-(63)	ng/g	0.00134 J	0.00071	0.0098	N/A	N/A	N/A	N/A	4869418
234'6-TetraCB-(64)	ng/g	0.0127	0.0019	0.0098	N/A	N/A	N/A	N/A	4869418
23'44'-TetraCB-(66)	ng/g	0.0218	0.00068	0.0098	N/A	N/A	N/A	N/A	4869418
23'45-TetraCB-(67)	ng/g	0.00098 J	0.00068	0.0098	N/A	N/A	N/A	N/A	4869418
23'45'-TetraCB-(68)	ng/g	0.00073 U	0.00073	0.0098	N/A	N/A	N/A	N/A	4869418
23'55'-TetraCB-(72)	ng/g	0.00100 J	0.00070	0.0098	N/A	N/A	N/A	N/A	4869418
23'5'6-TetraCB-(73)	ng/g	0.0021 U	0.0021	0.0098	N/A	N/A	N/A	N/A	4869418

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Maxxam Job #: B722292
Report Date: 2017/03/03

Anchor QEA, LLC
Client Project #: PORT GAMBLE

SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU260							
Sampling Date		2017/01/05 12:40							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-SMA2-3-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'44'-TetraCB-(77)	ng/g	0.0024 U (1)	0.0024	0.0098	N/A	0.000100	0.000000240	N/A	4869418
33'45-TetraCB-(78)	ng/g	0.00073 U	0.00073	0.0098	N/A	N/A	N/A	N/A	4869418
33'45'-TetraCB(79)	ng/g	0.00066 U	0.00066	0.0098	N/A	N/A	N/A	N/A	4869418
33'55'-TetraCB-(80)	ng/g	0.00065 U	0.00065	0.0098	N/A	N/A	N/A	N/A	4869418
344'5-TetraCB-(81)	ng/g	0.0011 U	0.0011	0.0098	N/A	0.000300	0.000000330	N/A	4869418
22'33'4-PentaCB-(82)	ng/g	0.0070 J	0.0032	0.0098	N/A	N/A	N/A	N/A	4869418
PentaCB-(83)+(99)	ng/g	0.0933	0.0028	0.020	N/A	N/A	N/A	N/A	4869418
22'33'6-PentaCB-(84)	ng/g	0.0148	0.0033	0.0098	N/A	N/A	N/A	N/A	4869418
PentaCB-(85)+(116)+(117)	ng/g	0.0186 J	0.0023	0.030	N/A	N/A	N/A	N/A	4869418
PentaCB-(86)(87)(97)(109)(119)(125)	ng/g	0.0525 J	0.0024	0.059	N/A	N/A	N/A	N/A	4869418
PentaCB-(88)+(91)	ng/g	0.0082 U (1)	0.0082	0.020	N/A	N/A	N/A	N/A	4869418
22'346'-PentaCB-(89)	ng/g	0.0030 U	0.0030	0.0098	N/A	N/A	N/A	N/A	4869418
PentaCB-(90)+(101)+(113)	ng/g	0.131	0.0025	0.030	N/A	N/A	N/A	N/A	4869418
22'355'-PentaCB-(92)	ng/g	0.0242	0.0028	0.0098	N/A	N/A	N/A	N/A	4869418
PentaCB-(93)+(98)+(100)+(102)	ng/g	0.0029 U	0.0029	0.039	N/A	N/A	N/A	N/A	4869418
22'356'-PentaCB-(94)	ng/g	0.0033 U	0.0033	0.0098	N/A	N/A	N/A	N/A	4869418
22'35'6-PentaCB-(95)	ng/g	0.0709	0.0026	0.0098	N/A	N/A	N/A	N/A	4869418
22'366'-PentaCB-(96)	ng/g	0.0025 U	0.0025	0.0098	N/A	N/A	N/A	N/A	4869418
22'45'6-PentaCB-(103)	ng/g	0.0024 U (1)	0.0024	0.0098	N/A	N/A	N/A	N/A	4869418
22'466'-PentaCB-(104)	ng/g	0.0011 U	0.0011	0.0098	N/A	N/A	N/A	N/A	4869418
233'44'-PentaCB-(105)	ng/g	0.0319	0.00068	0.0098	N/A	0.0000300	0.000000957	N/A	4869418
233'45-PentaCB-(106)	ng/g	0.00048 U	0.00048	0.0098	N/A	N/A	N/A	N/A	4869418
233'4'5-PentaCB-(107)	ng/g	0.00806 J	0.00045	0.0098	N/A	N/A	N/A	N/A	4869418
PentaCB-(108)+(124)	ng/g	0.0023 U (1)	0.0023	0.020	N/A	N/A	N/A	N/A	4869418
PentaCB-(110)+(115)	ng/g	0.0953	0.0022	0.020	N/A	N/A	N/A	N/A	4869418
233'55'-PentaCB-(111)	ng/g	0.0021 U	0.0021	0.0098	N/A	N/A	N/A	N/A	4869418
233'56-PentaCB-(112)	ng/g	0.0022 U	0.0022	0.0098	N/A	N/A	N/A	N/A	4869418
2344'5-PentaCB-(114)	ng/g	0.00148 J	0.00066	0.0098	N/A	0.0000300	0.0000000444	N/A	4869418
23'44'5-PentaCB-(118)	ng/g	0.0916	0.00068	0.0098	N/A	0.0000300	0.00000275	N/A	4869418
23'455'-PentaCB-(120)	ng/g	0.0018 U	0.0018	0.0098	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU260							
Sampling Date		2017/01/05 12:40							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-SMA2-3-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
23'45'6-PentaCB-(121)	ng/g	0.0021 U	0.0021	0.0098	N/A	N/A	N/A	N/A	4869418
233'4'5'-PentaCB-(122)	ng/g	0.00052 U	0.00052	0.0098	N/A	N/A	N/A	N/A	4869418
23'44'5'-PentaCB-(123)	ng/g	0.00075 U	0.00075	0.0098	N/A	0.0000300	0.0000000225	N/A	4869418
33'44'5-PentaCB-(126)	ng/g	0.00068 U	0.00068	0.0098	N/A	0.100	0.0000680	N/A	4869418
33'455'-PentaCB-(127)	ng/g	0.00047 U	0.00047	0.0098	N/A	N/A	N/A	N/A	4869418
HexaCB-(128)+(166)	ng/g	0.0269	0.0018	0.020	N/A	N/A	N/A	N/A	4869418
HexaCB-(129)+(138)+(163)	ng/g	0.236	0.0019	0.030	N/A	N/A	N/A	N/A	4869418
22'33'45'-HexaCB-(130)	ng/g	0.0128	0.0022	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'46-HexaCB-(131)	ng/g	0.0024 U	0.0024	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'46'-HexaCB-(132)	ng/g	0.0330	0.0024	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'55'-HexaCB-(133)	ng/g	0.0053 J	0.0020	0.0098	N/A	N/A	N/A	N/A	4869418
HexaCB-(134)+(143)	ng/g	0.0063 J	0.0022	0.020	N/A	N/A	N/A	N/A	4869418
HexaCB-(135)+(151)	ng/g	0.0721	0.0065	0.020	N/A	N/A	N/A	N/A	4869418
22'33'66'-HexaCB-(136)	ng/g	0.0168	0.0043	0.0098	N/A	N/A	N/A	N/A	4869418
22'344'5-HexaCB-(137)	ng/g	0.0022 U	0.0022	0.0098	N/A	N/A	N/A	N/A	4869418
HexaCB-(139)+(140)	ng/g	0.0030 U (1)	0.0030	0.020	N/A	N/A	N/A	N/A	4869418
22'3455'-HexaCB-(141)	ng/g	0.0020 U	0.0020	0.0098	N/A	N/A	N/A	N/A	4869418
22'3456-HexaCB-(142)	ng/g	0.0022 U	0.0022	0.0098	N/A	N/A	N/A	N/A	4869418
22'345'6-HexaCB-(144)	ng/g	0.0059 U	0.0059	0.0098	N/A	N/A	N/A	N/A	4869418
22'3466'-HexaCB-(145)	ng/g	0.0049 U	0.0049	0.0098	N/A	N/A	N/A	N/A	4869418
22'34'55'-HexaCB-(146)	ng/g	0.0458	0.0017	0.0098	N/A	N/A	N/A	N/A	4869418
HexaCB-(147)+(149)	ng/g	0.158	0.0019	0.020	N/A	N/A	N/A	N/A	4869418
22'34'56'-HexaCB-(148)	ng/g	0.0058 U	0.0058	0.0098	N/A	N/A	N/A	N/A	4869418
22'34'66'-HexaCB-(150)	ng/g	0.0048 U	0.0048	0.0098	N/A	N/A	N/A	N/A	4869418
22'3566'-HexaCB-(152)	ng/g	0.0042 U	0.0042	0.0098	N/A	N/A	N/A	N/A	4869418
HexaCB-(153)+(168)	ng/g	0.264	0.0015	0.0098	N/A	N/A	N/A	N/A	4869418
22'44'56'-HexaCB-(154)	ng/g	0.0062 J	0.0052	0.0098	N/A	N/A	N/A	N/A	4869418
22'44'66'-HexaCB-(155)	ng/g	0.0021 U	0.0021	0.0098	N/A	N/A	N/A	N/A	4869418
HexaCB-(156)+(157)	ng/g	0.0111 J	0.0014	0.020	N/A	0.0000300	0.000000333	N/A	4869418
233'44'6-HexaCB-(158)	ng/g	0.012 U (1)	0.012	0.0098	N/A	N/A	N/A	N/A	4869418

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(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU260							
Sampling Date		2017/01/05 12:40							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-SMA2-3-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
233'455'-HexaCB-(159)	ng/g	0.0010 U	0.0010	0.0098	N/A	N/A	N/A	N/A	4869418
233'456-HexaCB-(160)	ng/g	0.0016 U	0.0016	0.0098	N/A	N/A	N/A	N/A	4869418
233'45'6-HexaCB-(161)	ng/g	0.0014 U	0.0014	0.0098	N/A	N/A	N/A	N/A	4869418
233'4'55'-HexaCB-(162)	ng/g	0.0011 U	0.0011	0.0098	N/A	N/A	N/A	N/A	4869418
233'4'5'6-HexaCB-(164)	ng/g	0.0015 U	0.0015	0.0098	N/A	N/A	N/A	N/A	4869418
233'55'6-HexaCB-(165)	ng/g	0.0017 U	0.0017	0.0098	N/A	N/A	N/A	N/A	4869418
23'44'55'-HexaCB-(167)	ng/g	0.0061 J	0.0015	0.0098	N/A	0.0000300	0.000000183	N/A	4869418
33'44'55'-HexaCB-(169)	ng/g	0.0015 U	0.0015	0.0098	N/A	0.0300	0.0000450	N/A	4869418
22'33'44'5-HeptaCB-(170)	ng/g	0.0071 J	0.0011	0.0098	N/A	N/A	N/A	N/A	4869418
HeptaCB-(171)+(173)	ng/g	0.0095 J	0.0014	0.020	N/A	N/A	N/A	N/A	4869418
22'33'455'-HeptaCB-(172)	ng/g	0.0014 U	0.0014	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'456'-HeptaCB-(174)	ng/g	0.0014 U	0.0014	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'45'6-HeptaCB-(175)	ng/g	0.0040 U	0.0040	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'466'-HeptaCB-(176)	ng/g	0.0039 J	0.0029	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'45'6'-HeptaCB-(177)	ng/g	0.0220	0.0014	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'55'6-HeptaCB-(178)	ng/g	0.0134	0.0042	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'566'-HeptaCB-(179)	ng/g	0.0157	0.0029	0.0098	N/A	N/A	N/A	N/A	4869418
HeptaCB-(180)+(193)	ng/g	0.0307	0.00091	0.020	N/A	N/A	N/A	N/A	4869418
22'344'56-HeptaCB-(181)	ng/g	0.0014 U	0.0014	0.0098	N/A	N/A	N/A	N/A	4869418
22'344'56'-HeptaCB-(182)	ng/g	0.0041 U	0.0041	0.0098	N/A	N/A	N/A	N/A	4869418
22'344'5'6-HeptaCB-(183)	ng/g	0.0218	0.0011	0.0098	N/A	N/A	N/A	N/A	4869418
22'344'66'-HeptaCB-(184)	ng/g	0.0030 U	0.0030	0.0098	N/A	N/A	N/A	N/A	4869418
22'3455'6-HeptaCB-(185)	ng/g	0.0016 U	0.0016	0.0098	N/A	N/A	N/A	N/A	4869418
22'34566'-HeptaCB-(186)	ng/g	0.0034 U	0.0034	0.0098	N/A	N/A	N/A	N/A	4869418
22'34'55'6-HeptaCB-(187)	ng/g	0.0844	0.0042	0.0098	N/A	N/A	N/A	N/A	4869418
22'34'566'-HeptaCB-(188)	ng/g	0.0024 U	0.0024	0.0098	N/A	N/A	N/A	N/A	4869418
233'44'55'-HeptaCB-(189)	ng/g	0.00089 U	0.00089	0.0098	N/A	0.0000300	0.0000000267	N/A	4869418
233'44'56-HeptaCB-(190)	ng/g	0.0037 J	0.0010	0.0098	N/A	N/A	N/A	N/A	4869418
233'44'5'6-HeptaCB-(191)	ng/g	0.00096 U	0.00096	0.0098	N/A	N/A	N/A	N/A	4869418
233'455'6-HeptaCB-(192)	ng/g	0.0011 U	0.0011	0.0098	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU260							
Sampling Date		2017/01/05 12:40							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-SMA2-3-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
22'33'44'55'-OctaCB-(194)	ng/g	0.0020 U (1)	0.0020	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'44'56-OctaCB-(195)	ng/g	0.00084 U	0.00084	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'44'56'-OctaCB-(196)	ng/g	0.0028 U	0.0028	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'44'66'OctaCB-(197)	ng/g	0.0023 U	0.0023	0.0098	N/A	N/A	N/A	N/A	4869418
OctaCB-(198)+(199)	ng/g	0.0031 U	0.0031	0.020	N/A	N/A	N/A	N/A	4869418
22'33'4566'-OctaCB-(200)	ng/g	0.0019 U	0.0019	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'45'66'-OctaCB-(201)	ng/g	0.0037 J	0.0019	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'55'66'-OctaCB-(202)	ng/g	0.0074 J	0.0017	0.0098	N/A	N/A	N/A	N/A	4869418
22'344'55'6-OctaCB-(203)	ng/g	0.0030 U	0.0030	0.0098	N/A	N/A	N/A	N/A	4869418
22'344'566'-OctaCB-(204)	ng/g	0.0019 U	0.0019	0.0098	N/A	N/A	N/A	N/A	4869418
233'44'55'6-OctaCB-(205)	ng/g	0.00085 U	0.00085	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'44'55'6-NonaCB-(206)	ng/g	0.00092 U	0.00092	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'44'566'-NonaCB-(207)	ng/g	0.00072 U	0.00072	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'455'66'-NonaCB-(208)	ng/g	0.00091 U	0.00091	0.0098	N/A	N/A	N/A	N/A	4869418
DecaCB-(209)	ng/g	0.0018 U	0.0018	0.0098	N/A	N/A	N/A	N/A	4869418
Total PCB	ng/g	2.13	N/A	N/A	N/A	N/A	N/A	N/A	4869418
TOTAL TOXIC EQUIVALENCY	ng/g	N/A	N/A	N/A	N/A	N/A	0.000118	N/A	N/A
Surrogate Recovery (%)									
C13-2,44'-TriCB-(28)	%	105	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'33'44'55'6-NonaCB-(206)	%	85	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'33'44'5-HeptaCB-(170)	%	81	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'33'455'66'-NonaCB-(208)	%	77	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'33'55'66'-OctaCB-(202)	%	76	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'33'55'6-HeptaCB-(178)	%	99	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'344'55'-HeptaCB-(180)	%	83	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'34'566'-HeptaCB-(188)	%	88	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'44'66'-HexaCB-(155)	%	82	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'466'-PentaCB-(104)	%	88	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'66'-TetraCB-(54)	%	89	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'6-TriCB-(19)	%	66	N/A	N/A	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU260							
Sampling Date		2017/01/05 12:40							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-SMA2-3-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
C13-22'-DiCB-(4)	%	62	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-233'44'55'6-OctaCB-(205)	%	93	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-233'44'55'-HeptaCB-(189)	%	90	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-233'44'-PentaCB-(105)	%	115	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-233'55'-PentaCB-(111)	%	112	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-23'44'55'-HexaCB-(167)	%	101	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-2344'5-PentaCB-(114)	%	111	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-23'44'5-PentaCB-(118)	%	110	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-2'344'5-PentaCB-(123)	%	106	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-2-MonoCB-(1)	%	66	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-33'44'55'-HexaCB-(169)	%	57	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-33'44'5-PentaCB-(126)	%	104	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-33'44'-TetraCB-(77)	%	114	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-344'5-TetraCB-(81)	%	114	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-344'-TriCB-(37)	%	98	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-44'-DiCB-(15)	%	83	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-4-MonoCB-(3)	%	67	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-DecaCB-(209)	%	88	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-HexaCB-(156)+(157)	%	100	N/A	N/A	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU261							
Sampling Date		2017/01/05 12:30							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-SMA2-4-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
PCBs									
2-MonoCB-(1)	ng/g	0.0011 U	0.0011	0.0096	N/A	N/A	N/A	N/A	4869418
3-MonoCB-(2)	ng/g	0.00098 U	0.00098	0.0096	N/A	N/A	N/A	N/A	4869418
4-MonoCB-(3)	ng/g	0.0011 U	0.0011	0.0096	N/A	N/A	N/A	N/A	4869418
22'-DiCB-(4)	ng/g	0.015 U	0.015	0.0096	N/A	N/A	N/A	N/A	4869418
2,3-DiCB-(5)	ng/g	0.0073 U	0.0073	0.0096	N/A	N/A	N/A	N/A	4869418
2,3'-DiCB-(6)	ng/g	0.0059 U	0.0059	0.0096	N/A	N/A	N/A	N/A	4869418
2,4-DiCB-(7)	ng/g	0.0065 U	0.0065	0.0096	N/A	N/A	N/A	N/A	4869418
2,4'-DiCB-(8)	ng/g	0.0052 U	0.0052	0.0096	N/A	N/A	N/A	N/A	4869418
2,5-DiCB-(9)	ng/g	0.0056 U	0.0056	0.0096	N/A	N/A	N/A	N/A	4869418
2,6-DiCB-(10)	ng/g	0.022 U	0.022	0.0096	N/A	N/A	N/A	N/A	4869418
3,3'-DiCB-(11)	ng/g	0.0056 U (1)	0.0056	0.0096	N/A	N/A	N/A	N/A	4869418
DiCB-(12)+(13)	ng/g	0.0061 U	0.0061	0.019	N/A	N/A	N/A	N/A	4869418
3,5-DiCB-(14)	ng/g	0.0054 U	0.0054	0.0096	N/A	N/A	N/A	N/A	4869418
4,4'-DiCB-(15)	ng/g	0.011 U	0.011	0.0096	N/A	N/A	N/A	N/A	4869418
22'3-TriCB-(16)	ng/g	0.0082 U	0.0082	0.0096	N/A	N/A	N/A	N/A	4869418
22'4-TriCB-(17)	ng/g	0.0059 U	0.0059	0.0096	N/A	N/A	N/A	N/A	4869418
TriCB-(18)+(30)	ng/g	0.0061 J	0.0048	0.019	N/A	N/A	N/A	N/A	4869418
22'6-TriCB-(19)	ng/g	0.0032 U	0.0032	0.0096	N/A	N/A	N/A	N/A	4869418
TriCB-(20) + (28)	ng/g	0.0272	0.0012	0.019	N/A	N/A	N/A	N/A	4869418
TriCB-(21)+(33)	ng/g	0.0054 U (1)	0.0054	0.019	N/A	N/A	N/A	N/A	4869418
234'-TriCB-(22)	ng/g	0.0056 J	0.0013	0.0096	N/A	N/A	N/A	N/A	4869418
235-TriCB-(23)	ng/g	0.0013 U	0.0013	0.0096	N/A	N/A	N/A	N/A	4869418
236-TriCB-(24)	ng/g	0.0046 U	0.0046	0.0096	N/A	N/A	N/A	N/A	4869418
23'4-TriCB-(25)	ng/g	0.0013 U (1)	0.0013	0.0096	N/A	N/A	N/A	N/A	4869418
TriCB-(26)+(29)	ng/g	0.0029 J	0.0011	0.019	N/A	N/A	N/A	N/A	4869418
23'6-TriCB-(27)	ng/g	0.0039 U	0.0039	0.0096	N/A	N/A	N/A	N/A	4869418
24'5-TriCB-(31)	ng/g	0.0134	0.0011	0.0096	N/A	N/A	N/A	N/A	4869418
24'6-TriCB-(32)	ng/g	0.0037 U	0.0037	0.0096	N/A	N/A	N/A	N/A	4869418
23'5'-TriCB-(34)	ng/g	0.0011 U	0.0011	0.0096	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU261							
Sampling Date		2017/01/05 12:30							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-SMA2-4-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'4-TriCB-(35)	ng/g	0.0011 U	0.0011	0.0096	N/A	N/A	N/A	N/A	4869418
33'5-TriCB-(36)	ng/g	0.0010 U	0.0010	0.0096	N/A	N/A	N/A	N/A	4869418
344'-TriCB-(37)	ng/g	0.0048 J	0.0022	0.0096	N/A	N/A	N/A	N/A	4869418
345-TriCB-(38)	ng/g	0.0012 U	0.0012	0.0096	N/A	N/A	N/A	N/A	4869418
34'5-TriCB-(39)	ng/g	0.0012 U	0.0012	0.0096	N/A	N/A	N/A	N/A	4869418
TetraCB-(40)+(41)+(71)	ng/g	0.0203 J	0.0022	0.029	N/A	N/A	N/A	N/A	4869418
22'34'-TetraCB-(42)	ng/g	0.0109	0.0024	0.0096	N/A	N/A	N/A	N/A	4869418
22'35-TetraCB-(43)	ng/g	0.0027 U	0.0027	0.0096	N/A	N/A	N/A	N/A	4869418
TetraCB-(44)+(47)+(65)	ng/g	0.0440	0.0020	0.029	N/A	N/A	N/A	N/A	4869418
TetraCB-(45)+(51)	ng/g	0.0035 J	0.0022	0.019	N/A	N/A	N/A	N/A	4869418
22'36'-TetraCB-(46)	ng/g	0.0026 U	0.0026	0.0096	N/A	N/A	N/A	N/A	4869418
22'45-TetraCB-(48)	ng/g	0.0086 U (1)	0.0086	0.0096	N/A	N/A	N/A	N/A	4869418
TetraCB-(49)+TetraCB-(69)	ng/g	0.0235	0.0018	0.019	N/A	N/A	N/A	N/A	4869418
TetraCB-(50)+(53)	ng/g	0.0074 J	0.0021	0.019	N/A	N/A	N/A	N/A	4869418
22'55'-TetraCB-(52)	ng/g	0.0524	0.0018	0.0096	N/A	N/A	N/A	N/A	4869418
22'66'-TetraCB-(54)	ng/g	0.00051 U	0.00051	0.0096	N/A	N/A	N/A	N/A	4869418
233'4-TetraCB-(55)	ng/g	0.0016 U	0.0016	0.0096	N/A	N/A	N/A	N/A	4869418
233'4'-Tetra CB(56)	ng/g	0.0064 J	0.0015	0.0096	N/A	N/A	N/A	N/A	4869418
233'5-TetraCB-(57)	ng/g	0.0013 U	0.0013	0.0096	N/A	N/A	N/A	N/A	4869418
233'5'-TetraCB-(58)	ng/g	0.0015 U	0.0015	0.0096	N/A	N/A	N/A	N/A	4869418
TetraCB-(59)+(62)+(75)	ng/g	0.0037 U (1)	0.0037	0.029	N/A	N/A	N/A	N/A	4869418
2344'-TetraCB -(60)	ng/g	0.0056 J	0.0015	0.0096	N/A	N/A	N/A	N/A	4869418
TetraCB-(61)+(70)+(74)+(76)	ng/g	0.0491	0.0014	0.038	N/A	N/A	N/A	N/A	4869418
234'5-TetraCB-(63)	ng/g	0.0013 J	0.0013	0.0096	N/A	N/A	N/A	N/A	4869418
234'6-TetraCB-(64)	ng/g	0.0112	0.0016	0.0096	N/A	N/A	N/A	N/A	4869418
23'44'-TetraCB-(66)	ng/g	0.0206	0.0012	0.0096	N/A	N/A	N/A	N/A	4869418
23'45-TetraCB-(67)	ng/g	0.0012 U	0.0012	0.0096	N/A	N/A	N/A	N/A	4869418
23'45'-TetraCB-(68)	ng/g	0.0013 U	0.0013	0.0096	N/A	N/A	N/A	N/A	4869418
23'55'-TetraCB-(72)	ng/g	0.0013 U	0.0013	0.0096	N/A	N/A	N/A	N/A	4869418
23'5'6-TetraCB-(73)	ng/g	0.0018 U	0.0018	0.0096	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

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COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-SMA2-4-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'44'-TetraCB-(77)	ng/g	0.0027 J	0.0019	0.0096	N/A	0.000100	0.000000270	N/A	4869418
33'45-TetraCB-(78)	ng/g	0.0013 U	0.0013	0.0096	N/A	N/A	N/A	N/A	4869418
33'45'-TetraCB(79)	ng/g	0.0012 U	0.0012	0.0096	N/A	N/A	N/A	N/A	4869418
33'55'-TetraCB-(80)	ng/g	0.0012 U	0.0012	0.0096	N/A	N/A	N/A	N/A	4869418
344'5-TetraCB-(81)	ng/g	0.0019 U	0.0019	0.0096	N/A	0.000300	0.000000570	N/A	4869418
22'33'4-PentaCB-(82)	ng/g	0.0064 J	0.0021	0.0096	N/A	N/A	N/A	N/A	4869418
PentaCB-(83)+(99)	ng/g	0.0860	0.0019	0.019	N/A	N/A	N/A	N/A	4869418
22'33'6-PentaCB-(84)	ng/g	0.0128	0.0022	0.0096	N/A	N/A	N/A	N/A	4869418
PentaCB-(85)+(116)+(117)	ng/g	0.0191 J	0.0016	0.029	N/A	N/A	N/A	N/A	4869418
PentaCB-(86)(87)(97)(109)(119)(125)	ng/g	0.0472 J	0.0016	0.057	N/A	N/A	N/A	N/A	4869418
PentaCB-(88)+(91)	ng/g	0.0082 J	0.0020	0.019	N/A	N/A	N/A	N/A	4869418
22'346'-PentaCB-(89)	ng/g	0.0020 U	0.0020	0.0096	N/A	N/A	N/A	N/A	4869418
PentaCB-(90)+(101)+(113)	ng/g	0.113	0.0017	0.029	N/A	N/A	N/A	N/A	4869418
22'355'-PentaCB-(92)	ng/g	0.0218	0.0019	0.0096	N/A	N/A	N/A	N/A	4869418
PentaCB-(93)+(98)+(100)+(102)	ng/g	0.0055 J	0.0020	0.038	N/A	N/A	N/A	N/A	4869418
22'356'-PentaCB-(94)	ng/g	0.0022 U	0.0022	0.0096	N/A	N/A	N/A	N/A	4869418
22'35'6-PentaCB-(95)	ng/g	0.0628	0.0018	0.0096	N/A	N/A	N/A	N/A	4869418
22'366'-PentaCB-(96)	ng/g	0.0055 U	0.0055	0.0096	N/A	N/A	N/A	N/A	4869418
22'45'6-PentaCB-(103)	ng/g	0.0023 J	0.0016	0.0096	N/A	N/A	N/A	N/A	4869418
22'466'-PentaCB-(104)	ng/g	0.0025 U	0.0025	0.0096	N/A	N/A	N/A	N/A	4869418
233'44'-PentaCB-(105)	ng/g	0.0306	0.0010	0.0096	N/A	0.0000300	0.000000918	N/A	4869418
233'45-PentaCB-(106)	ng/g	0.00072 U	0.00072	0.0096	N/A	N/A	N/A	N/A	4869418
233'4'5-PentaCB-(107)	ng/g	0.00750 J	0.00067	0.0096	N/A	N/A	N/A	N/A	4869418
PentaCB-(108)+(124)	ng/g	0.0024 U (1)	0.0024	0.019	N/A	N/A	N/A	N/A	4869418
PentaCB-(110)+(115)	ng/g	0.0893	0.0015	0.019	N/A	N/A	N/A	N/A	4869418
233'55'-PentaCB-(111)	ng/g	0.0014 U	0.0014	0.0096	N/A	N/A	N/A	N/A	4869418
233'56-PentaCB-(112)	ng/g	0.0014 U	0.0014	0.0096	N/A	N/A	N/A	N/A	4869418
2344'5-PentaCB-(114)	ng/g	0.00151 J	0.00099	0.0096	N/A	0.0000300	0.0000000453	N/A	4869418
23'44'5-PentaCB-(118)	ng/g	0.0886	0.0010	0.0096	N/A	0.0000300	0.00000266	N/A	4869418
23'455'-PentaCB-(120)	ng/g	0.0012 U	0.0012	0.0096	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU261							
Sampling Date		2017/01/05 12:30							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-SMA2-4-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
23'45'6-PentaCB-(121)	ng/g	0.0014 U	0.0014	0.0096	N/A	N/A	N/A	N/A	4869418
233'4'5'-PentaCB-(122)	ng/g	0.00078 U	0.00078	0.0096	N/A	N/A	N/A	N/A	4869418
23'44'5'-PentaCB-(123)	ng/g	0.0012 U (1)	0.0012	0.0096	N/A	0.0000300	0.0000000360	N/A	4869418
33'44'5-PentaCB-(126)	ng/g	0.0010 U	0.0010	0.0096	N/A	0.100	0.000100	N/A	4869418
33'455'-PentaCB-(127)	ng/g	0.00071 U	0.00071	0.0096	N/A	N/A	N/A	N/A	4869418
HexaCB-(128)+(166)	ng/g	0.0247	0.0028	0.019	N/A	N/A	N/A	N/A	4869418
HexaCB-(129)+(138)+(163)	ng/g	0.214	0.0031	0.029	N/A	N/A	N/A	N/A	4869418
22'33'45'-HexaCB-(130)	ng/g	0.0118	0.0035	0.0096	N/A	N/A	N/A	N/A	4869418
22'33'46-HexaCB-(131)	ng/g	0.0038 U	0.0038	0.0096	N/A	N/A	N/A	N/A	4869418
22'33'46'-HexaCB-(132)	ng/g	0.0283	0.0038	0.0096	N/A	N/A	N/A	N/A	4869418
22'33'55'-HexaCB-(133)	ng/g	0.0047 J	0.0033	0.0096	N/A	N/A	N/A	N/A	4869418
HexaCB-(134)+(143)	ng/g	0.0050 U (1)	0.0050	0.019	N/A	N/A	N/A	N/A	4869418
HexaCB-(135)+(151)	ng/g	0.0604	0.0066	0.019	N/A	N/A	N/A	N/A	4869418
22'33'66'-HexaCB-(136)	ng/g	0.0141	0.0044	0.0096	N/A	N/A	N/A	N/A	4869418
22'344'5-HexaCB-(137)	ng/g	0.0035 U	0.0035	0.0096	N/A	N/A	N/A	N/A	4869418
HexaCB-(139)+(140)	ng/g	0.0030 U	0.0030	0.019	N/A	N/A	N/A	N/A	4869418
22'3455'-HexaCB-(141)	ng/g	0.0032 U	0.0032	0.0096	N/A	N/A	N/A	N/A	4869418
22'3456-HexaCB-(142)	ng/g	0.0035 U	0.0035	0.0096	N/A	N/A	N/A	N/A	4869418
22'345'6-HexaCB-(144)	ng/g	0.0061 U	0.0061	0.0096	N/A	N/A	N/A	N/A	4869418
22'3466'-HexaCB-(145)	ng/g	0.0050 U	0.0050	0.0096	N/A	N/A	N/A	N/A	4869418
22'34'55'-HexaCB-(146)	ng/g	0.0417	0.0028	0.0096	N/A	N/A	N/A	N/A	4869418
HexaCB-(147)+(149)	ng/g	0.127	0.0031	0.019	N/A	N/A	N/A	N/A	4869418
22'34'56'-HexaCB-(148)	ng/g	0.0060 U	0.0060	0.0096	N/A	N/A	N/A	N/A	4869418
22'34'66'-HexaCB-(150)	ng/g	0.0050 U	0.0050	0.0096	N/A	N/A	N/A	N/A	4869418
22'3566'-HexaCB-(152)	ng/g	0.0043 U	0.0043	0.0096	N/A	N/A	N/A	N/A	4869418
HexaCB-(153)+(168)	ng/g	0.239	0.0025	0.0096	N/A	N/A	N/A	N/A	4869418
22'44'56'-HexaCB-(154)	ng/g	0.0060 J	0.0054	0.0096	N/A	N/A	N/A	N/A	4869418
22'44'66'-HexaCB-(155)	ng/g	0.0022 U	0.0022	0.0096	N/A	N/A	N/A	N/A	4869418
HexaCB-(156)+(157)	ng/g	0.0102 J	0.0012	0.019	N/A	0.0000300	0.000000306	N/A	4869418
233'44'6-HexaCB-(158)	ng/g	0.0127	0.0022	0.0096	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU261							
Sampling Date		2017/01/05 12:30							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-SMA2-4-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
233'455'-HexaCB-(159)	ng/g	0.00085 U	0.00085	0.0096	N/A	N/A	N/A	N/A	4869418
233'456-HexaCB-(160)	ng/g	0.0026 U	0.0026	0.0096	N/A	N/A	N/A	N/A	4869418
233'45'6-HexaCB-(161)	ng/g	0.0023 U	0.0023	0.0096	N/A	N/A	N/A	N/A	4869418
233'4'55'-HexaCB-(162)	ng/g	0.00094 U	0.00094	0.0096	N/A	N/A	N/A	N/A	4869418
233'4'5'6-HexaCB-(164)	ng/g	0.0024 U (1)	0.0024	0.0096	N/A	N/A	N/A	N/A	4869418
233'55'6-HexaCB-(165)	ng/g	0.0027 U	0.0027	0.0096	N/A	N/A	N/A	N/A	4869418
23'44'55'-HexaCB-(167)	ng/g	0.0059 J	0.0013	0.0096	N/A	0.0000300	0.000000177	N/A	4869418
33'44'55'-HexaCB-(169)	ng/g	0.0012 U	0.0012	0.0096	N/A	0.0300	0.0000360	N/A	4869418
22'33'44'5-HeptaCB-(170)	ng/g	0.0067 J	0.0015	0.0096	N/A	N/A	N/A	N/A	4869418
HeptaCB-(171)+(173)	ng/g	0.0094 J	0.0019	0.019	N/A	N/A	N/A	N/A	4869418
22'33'455'-HeptaCB-(172)	ng/g	0.0019 U	0.0019	0.0096	N/A	N/A	N/A	N/A	4869418
22'33'456'-HeptaCB-(174)	ng/g	0.0019 U	0.0019	0.0096	N/A	N/A	N/A	N/A	4869418
22'33'45'6-HeptaCB-(175)	ng/g	0.0041 U	0.0041	0.0096	N/A	N/A	N/A	N/A	4869418
22'33'466'-HeptaCB-(176)	ng/g	0.0031 J	0.0030	0.0096	N/A	N/A	N/A	N/A	4869418
22'33'45'6'-HeptaCB-(177)	ng/g	0.0208	0.0019	0.0096	N/A	N/A	N/A	N/A	4869418
22'33'55'6-HeptaCB-(178)	ng/g	0.0124	0.0043	0.0096	N/A	N/A	N/A	N/A	4869418
22'33'566'-HeptaCB-(179)	ng/g	0.0145	0.0029	0.0096	N/A	N/A	N/A	N/A	4869418
HeptaCB-(180)+(193)	ng/g	0.0270	0.0013	0.019	N/A	N/A	N/A	N/A	4869418
22'344'56-HeptaCB-(181)	ng/g	0.0020 U	0.0020	0.0096	N/A	N/A	N/A	N/A	4869418
22'344'56'-HeptaCB-(182)	ng/g	0.0042 U	0.0042	0.0096	N/A	N/A	N/A	N/A	4869418
22'344'5'6-HeptaCB-(183)	ng/g	0.0210	0.0015	0.0096	N/A	N/A	N/A	N/A	4869418
22'344'66'-HeptaCB-(184)	ng/g	0.0031 U	0.0031	0.0096	N/A	N/A	N/A	N/A	4869418
22'3455'6-HeptaCB-(185)	ng/g	0.0022 U	0.0022	0.0096	N/A	N/A	N/A	N/A	4869418
22'34566'-HeptaCB-(186)	ng/g	0.0035 U	0.0035	0.0096	N/A	N/A	N/A	N/A	4869418
22'34'55'6-HeptaCB-(187)	ng/g	0.0769	0.0043	0.0096	N/A	N/A	N/A	N/A	4869418
22'34'566'-HeptaCB-(188)	ng/g	0.0025 U	0.0025	0.0096	N/A	N/A	N/A	N/A	4869418
233'44'55'-HeptaCB-(189)	ng/g	0.0010 U	0.0010	0.0096	N/A	0.0000300	0.0000000300	N/A	4869418
233'44'56-HeptaCB-(190)	ng/g	0.0029 J	0.0014	0.0096	N/A	N/A	N/A	N/A	4869418
233'44'5'6-HeptaCB-(191)	ng/g	0.0013 U	0.0013	0.0096	N/A	N/A	N/A	N/A	4869418
233'455'6-HeptaCB-(192)	ng/g	0.0016 U	0.0016	0.0096	N/A	N/A	N/A	N/A	4869418

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Sampling Date		2017/01/05 12:30							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-SMA2-4-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
22'33'44'55'-OctaCB-(194)	ng/g	0.0021 U (1)	0.0021	0.0096	N/A	N/A	N/A	N/A	4869418
22'33'44'56-OctaCB-(195)	ng/g	0.0014 U	0.0014	0.0096	N/A	N/A	N/A	N/A	4869418
22'33'44'56'-OctaCB-(196)	ng/g	0.0029 U	0.0029	0.0096	N/A	N/A	N/A	N/A	4869418
22'33'44'66'OctaCB-(197)	ng/g	0.0024 U	0.0024	0.0096	N/A	N/A	N/A	N/A	4869418
OctaCB-(198)+(199)	ng/g	0.0032 U	0.0032	0.019	N/A	N/A	N/A	N/A	4869418
22'33'4566'-OctaCB-(200)	ng/g	0.0020 U	0.0020	0.0096	N/A	N/A	N/A	N/A	4869418
22'33'45'66'-OctaCB-(201)	ng/g	0.0031 J	0.0020	0.0096	N/A	N/A	N/A	N/A	4869418
22'33'55'66'-OctaCB-(202)	ng/g	0.0063 U (1)	0.0063	0.0096	N/A	N/A	N/A	N/A	4869418
22'344'55'6-OctaCB-(203)	ng/g	0.0031 U	0.0031	0.0096	N/A	N/A	N/A	N/A	4869418
22'344'566'-OctaCB-(204)	ng/g	0.0020 U	0.0020	0.0096	N/A	N/A	N/A	N/A	4869418
233'44'55'6-OctaCB-(205)	ng/g	0.0014 U	0.0014	0.0096	N/A	N/A	N/A	N/A	4869418
22'33'44'55'6-NonaCB-(206)	ng/g	0.0011 U	0.0011	0.0096	N/A	N/A	N/A	N/A	4869418
22'33'44'566'-NonaCB-(207)	ng/g	0.00085 U	0.00085	0.0096	N/A	N/A	N/A	N/A	4869418
22'33'455'66'-NonaCB-(208)	ng/g	0.0011 U	0.0011	0.0096	N/A	N/A	N/A	N/A	4869418
DecaCB-(209)	ng/g	0.0031 U	0.0031	0.0096	N/A	N/A	N/A	N/A	4869418
Total PCB	ng/g	1.92	N/A	N/A	N/A	N/A	N/A	N/A	4869418
TOTAL TOXIC EQUIVALENCY	ng/g	N/A	N/A	N/A	N/A	N/A	0.000141	N/A	N/A
Surrogate Recovery (%)									
C13-2,44'-TriCB-(28)	%	105	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'33'44'55'6-NonaCB-(206)	%	81	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'33'44'5-HeptaCB-(170)	%	86	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'33'455'66'-NonaCB-(208)	%	77	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'33'55'66'-OctaCB-(202)	%	80	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'33'55'6-HeptaCB-(178)	%	97	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'344'55'-HeptaCB-(180)	%	90	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'34'566'-HeptaCB-(188)	%	89	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'44'66'-HexaCB-(155)	%	86	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'466'-PentaCB-(104)	%	85	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'66'-TetraCB-(54)	%	92	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'6-TriCB-(19)	%	63	N/A	N/A	N/A	N/A	N/A	N/A	4869418

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The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

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N/A = Not Applicable

(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU261							
Sampling Date		2017/01/05 12:30							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-SMA2-4-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
C13-22'-DiCB-(4)	%	60	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-233'44'55'6-OctaCB-(205)	%	95	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-233'44'55'-HeptaCB-(189)	%	98	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-233'44'-PentaCB-(105)	%	115	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-233'55'-PentaCB-(111)	%	100	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-23'44'55'-HexaCB-(167)	%	107	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-2344'5-PentaCB-(114)	%	112	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-23'44'5-PentaCB-(118)	%	112	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-2'344'5-PentaCB-(123)	%	112	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-2-MonoCB-(1)	%	60	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-33'44'55'-HexaCB-(169)	%	70	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-33'44'5-PentaCB-(126)	%	109	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-33'44'-TetraCB-(77)	%	117	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-344'5-TetraCB-(81)	%	118	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-344'-TriCB-(37)	%	106	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-44'-DiCB-(15)	%	82	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-4-MonoCB-(3)	%	63	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-DecaCB-(209)	%	85	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-HexaCB-(156)+(157)	%	109	N/A	N/A	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU262							
Sampling Date		2017/01/05 12:20							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-SMA2-5-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
PCBs									
2-MonoCB-(1)	ng/g	0.00059 U	0.00059	0.0095	N/A	N/A	N/A	N/A	4869418
3-MonoCB-(2)	ng/g	0.00053 U	0.00053	0.0095	N/A	N/A	N/A	N/A	4869418
4-MonoCB-(3)	ng/g	0.00060 U	0.00060	0.0095	N/A	N/A	N/A	N/A	4869418
22'-DiCB-(4)	ng/g	0.014 U	0.014	0.0095	N/A	N/A	N/A	N/A	4869418
2,3-DiCB-(5)	ng/g	0.0081 U	0.0081	0.0095	N/A	N/A	N/A	N/A	4869418
2,3'-DiCB-(6)	ng/g	0.0065 U	0.0065	0.0095	N/A	N/A	N/A	N/A	4869418
2,4-DiCB-(7)	ng/g	0.0073 U	0.0073	0.0095	N/A	N/A	N/A	N/A	4869418
2,4'-DiCB-(8)	ng/g	0.0057 U	0.0057	0.0095	N/A	N/A	N/A	N/A	4869418
2,5-DiCB-(9)	ng/g	0.0063 U	0.0063	0.0095	N/A	N/A	N/A	N/A	4869418
2,6-DiCB-(10)	ng/g	0.020 U	0.020	0.0095	N/A	N/A	N/A	N/A	4869418
3,3'-DiCB-(11)	ng/g	0.0061 U	0.0061	0.0095	N/A	N/A	N/A	N/A	4869418
DiCB-(12)+(13)	ng/g	0.0067 U	0.0067	0.019	N/A	N/A	N/A	N/A	4869418
3,5-DiCB-(14)	ng/g	0.0059 U	0.0059	0.0095	N/A	N/A	N/A	N/A	4869418
4,4'-DiCB-(15)	ng/g	0.012 U	0.012	0.0095	N/A	N/A	N/A	N/A	4869418
22'3-TriCB-(16)	ng/g	0.0059 U	0.0059	0.0095	N/A	N/A	N/A	N/A	4869418
22'4-TriCB-(17)	ng/g	0.0043 U	0.0043	0.0095	N/A	N/A	N/A	N/A	4869418
TriCB-(18)+(30)	ng/g	0.0069 J	0.0034	0.019	N/A	N/A	N/A	N/A	4869418
22'6-TriCB-(19)	ng/g	0.0023 U	0.0023	0.0095	N/A	N/A	N/A	N/A	4869418
TriCB-(20) + (28)	ng/g	0.0282	0.0010	0.019	N/A	N/A	N/A	N/A	4869418
TriCB-(21)+(33)	ng/g	0.00636 J	0.00099	0.019	N/A	N/A	N/A	N/A	4869418
234'-TriCB-(22)	ng/g	0.0058 J	0.0011	0.0095	N/A	N/A	N/A	N/A	4869418
235-TriCB-(23)	ng/g	0.0011 U	0.0011	0.0095	N/A	N/A	N/A	N/A	4869418
236-TriCB-(24)	ng/g	0.0033 U	0.0033	0.0095	N/A	N/A	N/A	N/A	4869418
23'4-TriCB-(25)	ng/g	0.00193 J	0.00098	0.0095	N/A	N/A	N/A	N/A	4869418
TriCB-(26)+(29)	ng/g	0.00316 J	0.00097	0.019	N/A	N/A	N/A	N/A	4869418
23'6-TriCB-(27)	ng/g	0.0028 U	0.0028	0.0095	N/A	N/A	N/A	N/A	4869418
24'5-TriCB-(31)	ng/g	0.0135	0.00092	0.0095	N/A	N/A	N/A	N/A	4869418
24'6-TriCB-(32)	ng/g	0.0027 U	0.0027	0.0095	N/A	N/A	N/A	N/A	4869418
23'5'-TriCB-(34)	ng/g	0.00097 U	0.00097	0.0095	N/A	N/A	N/A	N/A	4869418
33'4-TriCB-(35)	ng/g	0.00095 U	0.00095	0.0095	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU262							
Sampling Date		2017/01/05 12:20							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-SMA2-5-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'5-TriCB-(36)	ng/g	0.00085 U	0.00085	0.0095	N/A	N/A	N/A	N/A	4869418
344'-TriCB-(37)	ng/g	0.0049 J	0.0018	0.0095	N/A	N/A	N/A	N/A	4869418
345-TriCB-(38)	ng/g	0.00099 U	0.00099	0.0095	N/A	N/A	N/A	N/A	4869418
34'5-TriCB-(39)	ng/g	0.0010 U	0.0010	0.0095	N/A	N/A	N/A	N/A	4869418
TetraCB-(40)+(41)+(71)	ng/g	0.0216 J	0.0025	0.029	N/A	N/A	N/A	N/A	4869418
22'34'-TetraCB-(42)	ng/g	0.0110	0.0028	0.0095	N/A	N/A	N/A	N/A	4869418
22'35-TetraCB-(43)	ng/g	0.0032 U	0.0032	0.0095	N/A	N/A	N/A	N/A	4869418
TetraCB-(44)+(47)+(65)	ng/g	0.0502	0.0023	0.029	N/A	N/A	N/A	N/A	4869418
TetraCB-(45)+(51)	ng/g	0.0044 J	0.0026	0.019	N/A	N/A	N/A	N/A	4869418
22'36'-TetraCB-(46)	ng/g	0.0030 U	0.0030	0.0095	N/A	N/A	N/A	N/A	4869418
22'45-TetraCB-(48)	ng/g	0.0094 J	0.0027	0.0095	N/A	N/A	N/A	N/A	4869418
TetraCB-(49)+TetraCB-(69)	ng/g	0.0252	0.0021	0.019	N/A	N/A	N/A	N/A	4869418
TetraCB-(50)+(53)	ng/g	0.0066 U (1)	0.0066	0.019	N/A	N/A	N/A	N/A	4869418
22'55'-TetraCB-(52)	ng/g	0.0576	0.0021	0.0095	N/A	N/A	N/A	N/A	4869418
22'66'-TetraCB-(54)	ng/g	0.00088 U	0.00088	0.0095	N/A	N/A	N/A	N/A	4869418
233'4-TetraCB-(55)	ng/g	0.0012 U	0.0012	0.0095	N/A	N/A	N/A	N/A	4869418
233'4'-Tetra CB(56)	ng/g	0.0072 J	0.0012	0.0095	N/A	N/A	N/A	N/A	4869418
233'5-TetraCB-(57)	ng/g	0.00098 U	0.00098	0.0095	N/A	N/A	N/A	N/A	4869418
233'5'-TetraCB-(58)	ng/g	0.0011 U	0.0011	0.0095	N/A	N/A	N/A	N/A	4869418
TetraCB-(59)+(62)+(75)	ng/g	0.0039 J	0.0018	0.029	N/A	N/A	N/A	N/A	4869418
2344'-TetraCB -(60)	ng/g	0.0055 J	0.0011	0.0095	N/A	N/A	N/A	N/A	4869418
TetraCB-(61)+(70)+(74)+(76)	ng/g	0.0539	0.0011	0.038	N/A	N/A	N/A	N/A	4869418
234'5-TetraCB-(63)	ng/g	0.00164 J	0.00096	0.0095	N/A	N/A	N/A	N/A	4869418
234'6-TetraCB-(64)	ng/g	0.0121	0.0019	0.0095	N/A	N/A	N/A	N/A	4869418
23'44'-TetraCB-(66)	ng/g	0.0228	0.00092	0.0095	N/A	N/A	N/A	N/A	4869418
23'45-TetraCB-(67)	ng/g	0.00125 J	0.00092	0.0095	N/A	N/A	N/A	N/A	4869418
23'45'-TetraCB-(68)	ng/g	0.00119 J	0.00099	0.0095	N/A	N/A	N/A	N/A	4869418
23'55'-TetraCB-(72)	ng/g	0.00109 J	0.00094	0.0095	N/A	N/A	N/A	N/A	4869418
23'5'6-TetraCB-(73)	ng/g	0.0021 U	0.0021	0.0095	N/A	N/A	N/A	N/A	4869418
33'44'-TetraCB-(77)	ng/g	0.0028 J	0.0014	0.0095	N/A	0.000100	0.000000280	N/A	4869418

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(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU262							
Sampling Date		2017/01/05 12:20							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-SMA2-5-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'45-TetraCB-(78)	ng/g	0.00099 U	0.00099	0.0095	N/A	N/A	N/A	N/A	4869418
33'45'-TetraCB(79)	ng/g	0.00089 U	0.00089	0.0095	N/A	N/A	N/A	N/A	4869418
33'55'-TetraCB-(80)	ng/g	0.00088 U	0.00088	0.0095	N/A	N/A	N/A	N/A	4869418
344'5-TetraCB-(81)	ng/g	0.0014 U	0.0014	0.0095	N/A	0.000300	0.000000420	N/A	4869418
22'33'4-PentaCB-(82)	ng/g	0.0072 J	0.0017	0.0095	N/A	N/A	N/A	N/A	4869418
PentaCB-(83)+(99)	ng/g	0.0940	0.0015	0.019	N/A	N/A	N/A	N/A	4869418
22'33'6-PentaCB-(84)	ng/g	0.0145	0.0017	0.0095	N/A	N/A	N/A	N/A	4869418
PentaCB-(85)+(116)+(117)	ng/g	0.0200 J	0.0012	0.029	N/A	N/A	N/A	N/A	4869418
PentaCB-(86)(87)(97)(109)(119)(125)	ng/g	0.0508 J	0.0013	0.057	N/A	N/A	N/A	N/A	4869418
PentaCB-(88)+(91)	ng/g	0.0088 J	0.0015	0.019	N/A	N/A	N/A	N/A	4869418
22'346'-PentaCB-(89)	ng/g	0.0016 U	0.0016	0.0095	N/A	N/A	N/A	N/A	4869418
PentaCB-(90)+(101)+(113)	ng/g	0.130	0.0013	0.029	N/A	N/A	N/A	N/A	4869418
22'355'-PentaCB-(92)	ng/g	0.0245	0.0015	0.0095	N/A	N/A	N/A	N/A	4869418
PentaCB-(93)+(98)+(100)+(102)	ng/g	0.0053 U (1)	0.0053	0.038	N/A	N/A	N/A	N/A	4869418
22'356'-PentaCB-(94)	ng/g	0.0017 U	0.0017	0.0095	N/A	N/A	N/A	N/A	4869418
22'35'6-PentaCB-(95)	ng/g	0.0680	0.0014	0.0095	N/A	N/A	N/A	N/A	4869418
22'366'-PentaCB-(96)	ng/g	0.0017 U	0.0017	0.0095	N/A	N/A	N/A	N/A	4869418
22'45'6-PentaCB-(103)	ng/g	0.0023 J	0.0012	0.0095	N/A	N/A	N/A	N/A	4869418
22'466'-PentaCB-(104)	ng/g	0.00075 U	0.00075	0.0095	N/A	N/A	N/A	N/A	4869418
233'44'-PentaCB-(105)	ng/g	0.0333	0.00095	0.0095	N/A	0.0000300	0.000000999	N/A	4869418
233'45-PentaCB-(106)	ng/g	0.00067 U	0.00067	0.0095	N/A	N/A	N/A	N/A	4869418
233'4'5-PentaCB-(107)	ng/g	0.00799 J	0.00063	0.0095	N/A	N/A	N/A	N/A	4869418
PentaCB-(108)+(124)	ng/g	0.00337 J	0.00072	0.019	N/A	N/A	N/A	N/A	4869418
PentaCB-(110)+(115)	ng/g	0.0900	0.0011	0.019	N/A	N/A	N/A	N/A	4869418
233'55'-PentaCB-(111)	ng/g	0.0011 U	0.0011	0.0095	N/A	N/A	N/A	N/A	4869418
233'56-PentaCB-(112)	ng/g	0.0011 U	0.0011	0.0095	N/A	N/A	N/A	N/A	4869418
2344'5-PentaCB-(114)	ng/g	0.00146 J	0.00092	0.0095	N/A	0.0000300	0.0000000438	N/A	4869418
23'44'5-PentaCB-(118)	ng/g	0.0939	0.00095	0.0095	N/A	0.0000300	0.00000282	N/A	4869418
23'455'-PentaCB-(120)	ng/g	0.00095 U	0.00095	0.0095	N/A	N/A	N/A	N/A	4869418
23'45'6-PentaCB-(121)	ng/g	0.0011 U	0.0011	0.0095	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU262							
Sampling Date		2017/01/05 12:20							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-SMA2-5-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
233'4'5'-PentaCB-(122)	ng/g	0.00073 U	0.00073	0.0095	N/A	N/A	N/A	N/A	4869418
23'44'5'-PentaCB-(123)	ng/g	0.0016 J	0.0010	0.0095	N/A	0.0000300	0.0000000480	N/A	4869418
33'44'5-PentaCB-(126)	ng/g	0.00096 U	0.00096	0.0095	N/A	0.100	0.0000960	N/A	4869418
33'455'-PentaCB-(127)	ng/g	0.00066 U	0.00066	0.0095	N/A	N/A	N/A	N/A	4869418
HexaCB-(128)+(166)	ng/g	0.023 U (1)	0.023	0.019	N/A	N/A	N/A	N/A	4869418
HexaCB-(129)+(138)+(163)	ng/g	0.215	0.0022	0.029	N/A	N/A	N/A	N/A	4869418
22'33'45'-HexaCB-(130)	ng/g	0.0122	0.0025	0.0095	N/A	N/A	N/A	N/A	4869418
22'33'46-HexaCB-(131)	ng/g	0.0027 U	0.0027	0.0095	N/A	N/A	N/A	N/A	4869418
22'33'46'-HexaCB-(132)	ng/g	0.0293	0.0027	0.0095	N/A	N/A	N/A	N/A	4869418
22'33'55'-HexaCB-(133)	ng/g	0.0044 J	0.0023	0.0095	N/A	N/A	N/A	N/A	4869418
HexaCB-(134)+(143)	ng/g	0.0057 J	0.0025	0.019	N/A	N/A	N/A	N/A	4869418
HexaCB-(135)+(151)	ng/g	0.0614	0.0051	0.019	N/A	N/A	N/A	N/A	4869418
22'33'66'-HexaCB-(136)	ng/g	0.0153	0.0034	0.0095	N/A	N/A	N/A	N/A	4869418
22'344'5-HexaCB-(137)	ng/g	0.0025 U	0.0025	0.0095	N/A	N/A	N/A	N/A	4869418
HexaCB-(139)+(140)	ng/g	0.0022 U	0.0022	0.019	N/A	N/A	N/A	N/A	4869418
22'3455'-HexaCB-(141)	ng/g	0.0023 U	0.0023	0.0095	N/A	N/A	N/A	N/A	4869418
22'3456-HexaCB-(142)	ng/g	0.0025 U	0.0025	0.0095	N/A	N/A	N/A	N/A	4869418
22'345'6-HexaCB-(144)	ng/g	0.0068 J	0.0047	0.0095	N/A	N/A	N/A	N/A	4869418
22'3466'-HexaCB-(145)	ng/g	0.0039 U	0.0039	0.0095	N/A	N/A	N/A	N/A	4869418
22'34'55'-HexaCB-(146)	ng/g	0.0404	0.0020	0.0095	N/A	N/A	N/A	N/A	4869418
HexaCB-(147)+(149)	ng/g	0.138	0.0022	0.019	N/A	N/A	N/A	N/A	4869418
22'34'56'-HexaCB-(148)	ng/g	0.0046 U	0.0046	0.0095	N/A	N/A	N/A	N/A	4869418
22'34'66'-HexaCB-(150)	ng/g	0.0038 U	0.0038	0.0095	N/A	N/A	N/A	N/A	4869418
22'3566'-HexaCB-(152)	ng/g	0.0033 U	0.0033	0.0095	N/A	N/A	N/A	N/A	4869418
HexaCB-(153)+(168)	ng/g	0.236	0.0018	0.0095	N/A	N/A	N/A	N/A	4869418
22'44'56'-HexaCB-(154)	ng/g	0.0059 J	0.0042	0.0095	N/A	N/A	N/A	N/A	4869418
22'44'66'-HexaCB-(155)	ng/g	0.0017 U	0.0017	0.0095	N/A	N/A	N/A	N/A	4869418
HexaCB-(156)+(157)	ng/g	0.0122 J	0.0017	0.019	N/A	0.0000300	0.000000366	N/A	4869418
233'44'6-HexaCB-(158)	ng/g	0.0122	0.0016	0.0095	N/A	N/A	N/A	N/A	4869418
233'455'-HexaCB-(159)	ng/g	0.0013 U	0.0013	0.0095	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU262							
Sampling Date		2017/01/05 12:20							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-SMA2-5-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
233'456-HexaCB-(160)	ng/g	0.0018 U	0.0018	0.0095	N/A	N/A	N/A	N/A	4869418
233'45'6-HexaCB-(161)	ng/g	0.0016 U	0.0016	0.0095	N/A	N/A	N/A	N/A	4869418
233'4'55'-HexaCB-(162)	ng/g	0.0014 U	0.0014	0.0095	N/A	N/A	N/A	N/A	4869418
233'4'5'6-HexaCB-(164)	ng/g	0.0030 J	0.0017	0.0095	N/A	N/A	N/A	N/A	4869418
233'55'6-HexaCB-(165)	ng/g	0.0019 U	0.0019	0.0095	N/A	N/A	N/A	N/A	4869418
23'44'55'-HexaCB-(167)	ng/g	0.0061 J	0.0019	0.0095	N/A	0.0000300	0.000000183	N/A	4869418
33'44'55'-HexaCB-(169)	ng/g	0.0019 U	0.0019	0.0095	N/A	0.0300	0.0000570	N/A	4869418
22'33'44'5-HeptaCB-(170)	ng/g	0.0075 J	0.0012	0.0095	N/A	N/A	N/A	N/A	4869418
HeptaCB-(171)+(173)	ng/g	0.0092 J	0.0015	0.019	N/A	N/A	N/A	N/A	4869418
22'33'455'-HeptaCB-(172)	ng/g	0.0015 U	0.0015	0.0095	N/A	N/A	N/A	N/A	4869418
22'33'456'-HeptaCB-(174)	ng/g	0.0015 U	0.0015	0.0095	N/A	N/A	N/A	N/A	4869418
22'33'45'6-HeptaCB-(175)	ng/g	0.0030 U	0.0030	0.0095	N/A	N/A	N/A	N/A	4869418
22'33'466'-HeptaCB-(176)	ng/g	0.0036 J	0.0022	0.0095	N/A	N/A	N/A	N/A	4869418
22'33'45'6'-HeptaCB-(177)	ng/g	0.0201	0.0015	0.0095	N/A	N/A	N/A	N/A	4869418
22'33'55'6-HeptaCB-(178)	ng/g	0.0120	0.0032	0.0095	N/A	N/A	N/A	N/A	4869418
22'33'566'-HeptaCB-(179)	ng/g	0.0148	0.0021	0.0095	N/A	N/A	N/A	N/A	4869418
HeptaCB-(180)+(193)	ng/g	0.0319	0.0010	0.019	N/A	N/A	N/A	N/A	4869418
22'344'56-HeptaCB-(181)	ng/g	0.0016 U	0.0016	0.0095	N/A	N/A	N/A	N/A	4869418
22'344'56'-HeptaCB-(182)	ng/g	0.0031 U	0.0031	0.0095	N/A	N/A	N/A	N/A	4869418
22'344'5'6-HeptaCB-(183)	ng/g	0.0204	0.0012	0.0095	N/A	N/A	N/A	N/A	4869418
22'344'66'-HeptaCB-(184)	ng/g	0.0023 U	0.0023	0.0095	N/A	N/A	N/A	N/A	4869418
22'3455'6-HeptaCB-(185)	ng/g	0.0018 U	0.0018	0.0095	N/A	N/A	N/A	N/A	4869418
22'34566'-HeptaCB-(186)	ng/g	0.0025 U	0.0025	0.0095	N/A	N/A	N/A	N/A	4869418
22'34'55'6-HeptaCB-(187)	ng/g	0.0736	0.0031	0.0095	N/A	N/A	N/A	N/A	4869418
22'34'566'-HeptaCB-(188)	ng/g	0.0018 U	0.0018	0.0095	N/A	N/A	N/A	N/A	4869418
233'44'55'-HeptaCB-(189)	ng/g	0.00103 J	0.00077	0.0095	N/A	0.0000300	0.0000000309	N/A	4869418
233'44'56-HeptaCB-(190)	ng/g	0.0034 J	0.0011	0.0095	N/A	N/A	N/A	N/A	4869418
233'44'5'6-HeptaCB-(191)	ng/g	0.0011 U	0.0011	0.0095	N/A	N/A	N/A	N/A	4869418
233'455'6-HeptaCB-(192)	ng/g	0.0013 U	0.0013	0.0095	N/A	N/A	N/A	N/A	4869418
22'33'44'55'-OctaCB-(194)	ng/g	0.0023 U (1)	0.0023	0.0095	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU262							
Sampling Date		2017/01/05 12:20							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-SMA2-5-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
22'33'44'56-OctaCB-(195)	ng/g	0.0011 U	0.0011	0.0095	N/A	N/A	N/A	N/A	4869418
22'33'44'56'-OctaCB-(196)	ng/g	0.0023 U	0.0023	0.0095	N/A	N/A	N/A	N/A	4869418
22'33'44'66'OctaCB-(197)	ng/g	0.0018 U	0.0018	0.0095	N/A	N/A	N/A	N/A	4869418
OctaCB-(198)+(199)	ng/g	0.0025 U	0.0025	0.019	N/A	N/A	N/A	N/A	4869418
22'33'4566'-OctaCB-(200)	ng/g	0.0015 U	0.0015	0.0095	N/A	N/A	N/A	N/A	4869418
22'33'45'66'-OctaCB-(201)	ng/g	0.0030 J	0.0016	0.0095	N/A	N/A	N/A	N/A	4869418
22'33'55'66'-OctaCB-(202)	ng/g	0.0064 U (1)	0.0064	0.0095	N/A	N/A	N/A	N/A	4869418
22'344'55'6-OctaCB-(203)	ng/g	0.0024 U	0.0024	0.0095	N/A	N/A	N/A	N/A	4869418
22'344'566'-OctaCB-(204)	ng/g	0.0016 U	0.0016	0.0095	N/A	N/A	N/A	N/A	4869418
233'44'55'6-OctaCB-(205)	ng/g	0.0011 U	0.0011	0.0095	N/A	N/A	N/A	N/A	4869418
22'33'44'55'6-NonaCB-(206)	ng/g	0.0016 U	0.0016	0.0095	N/A	N/A	N/A	N/A	4869418
22'33'44'566'-NonaCB-(207)	ng/g	0.0013 U	0.0013	0.0095	N/A	N/A	N/A	N/A	4869418
22'33'455'66'-NonaCB-(208)	ng/g	0.0016 U	0.0016	0.0095	N/A	N/A	N/A	N/A	4869418
DecaCB-(209)	ng/g	0.0016 U	0.0016	0.0095	N/A	N/A	N/A	N/A	4869418
Total PCB	ng/g	2.02	N/A	N/A	N/A	N/A	N/A	N/A	4869418
TOTAL TOXIC EQUIVALENCY	ng/g	N/A	N/A	N/A	N/A	N/A	0.000158	N/A	N/A
Surrogate Recovery (%)									
C13-2,44'-TriCB-(28)	%	101	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'33'44'55'6-NonaCB-(206)	%	81	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'33'44'5-HeptaCB-(170)	%	82	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'33'455'66'-NonaCB-(208)	%	77	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'33'55'66'-OctaCB-(202)	%	73	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'33'55'6-HeptaCB-(178)	%	92	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'344'55'-HeptaCB-(180)	%	80	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'34'566'-HeptaCB-(188)	%	85	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'44'66'-HexaCB-(155)	%	86	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'466'-PentaCB-(104)	%	85	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'66'-TetraCB-(54)	%	92	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'6-TriCB-(19)	%	67	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'-DiCB-(4)	%	66	N/A	N/A	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU262							
Sampling Date		2017/01/05 12:20							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-SMA2-5-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
C13-233'44'55'6-OctaCB-(205)	%	95	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-233'44'55'-HeptaCB-(189)	%	95	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-233'44'-PentaCB-(105)	%	113	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-233'55'-PentaCB-(111)	%	96	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-23'44'55'-HexaCB-(167)	%	106	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-2344'5-PentaCB-(114)	%	109	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-23'44'5-PentaCB-(118)	%	109	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-2'344'5-PentaCB-(123)	%	106	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-2-MonoCB-(1)	%	69	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-33'44'55'-HexaCB-(169)	%	70	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-33'44'5-PentaCB-(126)	%	107	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-33'44'-TetraCB-(77)	%	116	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-344'5-TetraCB-(81)	%	115	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-344'-TriCB-(37)	%	103	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-44'-DiCB-(15)	%	86	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-4-MonoCB-(3)	%	70	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-DecaCB-(209)	%	83	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-HexaCB-(156)+(157)	%	106	N/A	N/A	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU263							
Sampling Date		2017/01/05 14:53							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-PJ-1-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
PCBs									
2-MonoCB-(1)	ng/g	0.00066 U	0.00066	0.0094	N/A	N/A	N/A	N/A	4869418
3-MonoCB-(2)	ng/g	0.00059 U	0.00059	0.0094	N/A	N/A	N/A	N/A	4869418
4-MonoCB-(3)	ng/g	0.00067 U	0.00067	0.0094	N/A	N/A	N/A	N/A	4869418
22'-DiCB-(4)	ng/g	0.013 U	0.013	0.0094	N/A	N/A	N/A	N/A	4869418
2,3-DiCB-(5)	ng/g	0.0070 U	0.0070	0.0094	N/A	N/A	N/A	N/A	4869418
2,3'-DiCB-(6)	ng/g	0.0057 U	0.0057	0.0094	N/A	N/A	N/A	N/A	4869418
2,4-DiCB-(7)	ng/g	0.0063 U	0.0063	0.0094	N/A	N/A	N/A	N/A	4869418
2,4'-DiCB-(8)	ng/g	0.0050 U	0.0050	0.0094	N/A	N/A	N/A	N/A	4869418
2,5-DiCB-(9)	ng/g	0.0055 U	0.0055	0.0094	N/A	N/A	N/A	N/A	4869418
2,6-DiCB-(10)	ng/g	0.018 U	0.018	0.0094	N/A	N/A	N/A	N/A	4869418
3,3'-DiCB-(11)	ng/g	0.0077 J	0.0053	0.0094	N/A	N/A	N/A	N/A	4869418
DiCB-(12)+(13)	ng/g	0.0059 U	0.0059	0.019	N/A	N/A	N/A	N/A	4869418
3,5-DiCB-(14)	ng/g	0.0052 U	0.0052	0.0094	N/A	N/A	N/A	N/A	4869418
4,4'-DiCB-(15)	ng/g	0.011 U	0.011	0.0094	N/A	N/A	N/A	N/A	4869418
22'3-TriCB-(16)	ng/g	0.0057 U	0.0057	0.0094	N/A	N/A	N/A	N/A	4869418
22'4-TriCB-(17)	ng/g	0.0041 U	0.0041	0.0094	N/A	N/A	N/A	N/A	4869418
TriCB-(18)+(30)	ng/g	0.0059 J	0.0033	0.019	N/A	N/A	N/A	N/A	4869418
22'6-TriCB-(19)	ng/g	0.0022 U	0.0022	0.0094	N/A	N/A	N/A	N/A	4869418
TriCB-(20) + (28)	ng/g	0.0218	0.0017	0.019	N/A	N/A	N/A	N/A	4869418
TriCB-(21)+(33)	ng/g	0.0046 U (1)	0.0046	0.019	N/A	N/A	N/A	N/A	4869418
234'-TriCB-(22)	ng/g	0.0039 J	0.0018	0.0094	N/A	N/A	N/A	N/A	4869418
235-TriCB-(23)	ng/g	0.0018 U	0.0018	0.0094	N/A	N/A	N/A	N/A	4869418
236-TriCB-(24)	ng/g	0.0032 U	0.0032	0.0094	N/A	N/A	N/A	N/A	4869418
23'4-TriCB-(25)	ng/g	0.0016 U	0.0016	0.0094	N/A	N/A	N/A	N/A	4869418
TriCB-(26)+(29)	ng/g	0.0026 J	0.0016	0.019	N/A	N/A	N/A	N/A	4869418
23'6-TriCB-(27)	ng/g	0.0027 U	0.0027	0.0094	N/A	N/A	N/A	N/A	4869418
24'5-TriCB-(31)	ng/g	0.0107	0.0015	0.0094	N/A	N/A	N/A	N/A	4869418
24'6-TriCB-(32)	ng/g	0.0026 U	0.0026	0.0094	N/A	N/A	N/A	N/A	4869418
23'5'-TriCB-(34)	ng/g	0.0016 U	0.0016	0.0094	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU263							
Sampling Date		2017/01/05 14:53							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-PJ-1-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'4-TriCB-(35)	ng/g	0.0015 U	0.0015	0.0094	N/A	N/A	N/A	N/A	4869418
33'5-TriCB-(36)	ng/g	0.0014 U	0.0014	0.0094	N/A	N/A	N/A	N/A	4869418
344'-TriCB-(37)	ng/g	0.0035 J	0.0030	0.0094	N/A	N/A	N/A	N/A	4869418
345-TriCB-(38)	ng/g	0.0016 U	0.0016	0.0094	N/A	N/A	N/A	N/A	4869418
34'5-TriCB-(39)	ng/g	0.0016 U	0.0016	0.0094	N/A	N/A	N/A	N/A	4869418
TetraCB-(40)+(41)+(71)	ng/g	0.0148 J	0.0015	0.028	N/A	N/A	N/A	N/A	4869418
22'34'-TetraCB-(42)	ng/g	0.0088 J	0.0016	0.0094	N/A	N/A	N/A	N/A	4869418
22'35-TetraCB-(43)	ng/g	0.0018 U	0.0018	0.0094	N/A	N/A	N/A	N/A	4869418
TetraCB-(44)+(47)+(65)	ng/g	0.0375	0.0013	0.028	N/A	N/A	N/A	N/A	4869418
TetraCB-(45)+(51)	ng/g	0.0026 J	0.0015	0.019	N/A	N/A	N/A	N/A	4869418
22'36'-TetraCB-(46)	ng/g	0.0017 U	0.0017	0.0094	N/A	N/A	N/A	N/A	4869418
22'45-TetraCB-(48)	ng/g	0.0067 J	0.0015	0.0094	N/A	N/A	N/A	N/A	4869418
TetraCB-(49)+TetraCB-(69)	ng/g	0.0177 J	0.0012	0.019	N/A	N/A	N/A	N/A	4869418
TetraCB-(50)+(53)	ng/g	0.0052 J	0.0014	0.019	N/A	N/A	N/A	N/A	4869418
22'55'-TetraCB-(52)	ng/g	0.0490	0.0012	0.0094	N/A	N/A	N/A	N/A	4869418
22'66'-TetraCB-(54)	ng/g	0.00067 U	0.00067	0.0094	N/A	N/A	N/A	N/A	4869418
233'4-TetraCB-(55)	ng/g	0.0015 U	0.0015	0.0094	N/A	N/A	N/A	N/A	4869418
233'4'-Tetra CB(56)	ng/g	0.0057 U (1)	0.0057	0.0094	N/A	N/A	N/A	N/A	4869418
233'5-TetraCB-(57)	ng/g	0.0012 U	0.0012	0.0094	N/A	N/A	N/A	N/A	4869418
233'5'-TetraCB-(58)	ng/g	0.0014 U	0.0014	0.0094	N/A	N/A	N/A	N/A	4869418
TetraCB-(59)+(62)+(75)	ng/g	0.0034 U (1)	0.0034	0.028	N/A	N/A	N/A	N/A	4869418
2344'-TetraCB -(60)	ng/g	0.0052 J	0.0014	0.0094	N/A	N/A	N/A	N/A	4869418
TetraCB-(61)+(70)+(74)+(76)	ng/g	0.0472	0.0014	0.038	N/A	N/A	N/A	N/A	4869418
234'5-TetraCB-(63)	ng/g	0.0015 J	0.0012	0.0094	N/A	N/A	N/A	N/A	4869418
234'6-TetraCB-(64)	ng/g	0.0073 J	0.0011	0.0094	N/A	N/A	N/A	N/A	4869418
23'44'-TetraCB-(66)	ng/g	0.0198	0.0012	0.0094	N/A	N/A	N/A	N/A	4869418
23'45-TetraCB-(67)	ng/g	0.0012 U	0.0012	0.0094	N/A	N/A	N/A	N/A	4869418
23'45'-TetraCB-(68)	ng/g	0.0013 U	0.0013	0.0094	N/A	N/A	N/A	N/A	4869418
23'55'-TetraCB-(72)	ng/g	0.0012 U	0.0012	0.0094	N/A	N/A	N/A	N/A	4869418
23'5'6-TetraCB-(73)	ng/g	0.0012 U	0.0012	0.0094	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU263							
Sampling Date		2017/01/05 14:53							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-PJ-1-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'44'-TetraCB-(77)	ng/g	0.0026 U (1)	0.0026	0.0094	N/A	0.000100	0.000000260	N/A	4869418
33'45-TetraCB-(78)	ng/g	0.0013 U	0.0013	0.0094	N/A	N/A	N/A	N/A	4869418
33'45'-TetraCB(79)	ng/g	0.0011 U	0.0011	0.0094	N/A	N/A	N/A	N/A	4869418
33'55'-TetraCB-(80)	ng/g	0.0011 U	0.0011	0.0094	N/A	N/A	N/A	N/A	4869418
344'5-TetraCB-(81)	ng/g	0.0018 U	0.0018	0.0094	N/A	0.000300	0.000000540	N/A	4869418
22'33'4-PentaCB-(82)	ng/g	0.0061 J	0.0014	0.0094	N/A	N/A	N/A	N/A	4869418
PentaCB-(83)+(99)	ng/g	0.0916	0.0013	0.019	N/A	N/A	N/A	N/A	4869418
22'33'6-PentaCB-(84)	ng/g	0.0115	0.0015	0.0094	N/A	N/A	N/A	N/A	4869418
PentaCB-(85)+(116)+(117)	ng/g	0.0190 J	0.0010	0.028	N/A	N/A	N/A	N/A	4869418
PentaCB-(86)(87)(97)(109)(119)(125)	ng/g	0.0459 J	0.0011	0.057	N/A	N/A	N/A	N/A	4869418
PentaCB-(88)+(91)	ng/g	0.0064 U (1)	0.0064	0.019	N/A	N/A	N/A	N/A	4869418
22'346'-PentaCB-(89)	ng/g	0.0013 U	0.0013	0.0094	N/A	N/A	N/A	N/A	4869418
PentaCB-(90)+(101)+(113)	ng/g	0.117	0.0011	0.028	N/A	N/A	N/A	N/A	4869418
22'355'-PentaCB-(92)	ng/g	0.0229	0.0013	0.0094	N/A	N/A	N/A	N/A	4869418
PentaCB-(93)+(98)+(100)+(102)	ng/g	0.0059 J	0.0013	0.038	N/A	N/A	N/A	N/A	4869418
22'356'-PentaCB-(94)	ng/g	0.0015 U	0.0015	0.0094	N/A	N/A	N/A	N/A	4869418
22'35'6-PentaCB-(95)	ng/g	0.0600	0.0012	0.0094	N/A	N/A	N/A	N/A	4869418
22'366'-PentaCB-(96)	ng/g	0.0036 U	0.0036	0.0094	N/A	N/A	N/A	N/A	4869418
22'45'6-PentaCB-(103)	ng/g	0.0018 J	0.0011	0.0094	N/A	N/A	N/A	N/A	4869418
22'466'-PentaCB-(104)	ng/g	0.0016 U	0.0016	0.0094	N/A	N/A	N/A	N/A	4869418
233'44'-PentaCB-(105)	ng/g	0.0293	0.0010	0.0094	N/A	0.0000300	0.000000879	N/A	4869418
233'45-PentaCB-(106)	ng/g	0.00071 U	0.00071	0.0094	N/A	N/A	N/A	N/A	4869418
233'4'5-PentaCB-(107)	ng/g	0.00751 J	0.00066	0.0094	N/A	N/A	N/A	N/A	4869418
PentaCB-(108)+(124)	ng/g	0.00256 J	0.00076	0.019	N/A	N/A	N/A	N/A	4869418
PentaCB-(110)+(115)	ng/g	0.0809	0.00097	0.019	N/A	N/A	N/A	N/A	4869418
233'55'-PentaCB-(111)	ng/g	0.00095 U	0.00095	0.0094	N/A	N/A	N/A	N/A	4869418
233'56-PentaCB-(112)	ng/g	0.00096 U	0.00096	0.0094	N/A	N/A	N/A	N/A	4869418
2344'5-PentaCB-(114)	ng/g	0.00097 U	0.00097	0.0094	N/A	0.0000300	0.0000000291	N/A	4869418
23'44'5-PentaCB-(118)	ng/g	0.0902	0.0010	0.0094	N/A	0.0000300	0.00000271	N/A	4869418
23'455'-PentaCB-(120)	ng/g	0.00082 U	0.00082	0.0094	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU263							
Sampling Date		2017/01/05 14:53							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-PJ-1-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
23'45'6-PentaCB-(121)	ng/g	0.00095 U	0.00095	0.0094	N/A	N/A	N/A	N/A	4869418
233'4'5'-PentaCB-(122)	ng/g	0.00077 U	0.00077	0.0094	N/A	N/A	N/A	N/A	4869418
23'44'5'-PentaCB-(123)	ng/g	0.0015 U (1)	0.0015	0.0094	N/A	0.0000300	0.0000000450	N/A	4869418
33'44'5-PentaCB-(126)	ng/g	0.0010 U	0.0010	0.0094	N/A	0.100	0.000100	N/A	4869418
33'455'-PentaCB-(127)	ng/g	0.00069 U	0.00069	0.0094	N/A	N/A	N/A	N/A	4869418
HexaCB-(128)+(166)	ng/g	0.0238	0.0030	0.019	N/A	N/A	N/A	N/A	4869418
HexaCB-(129)+(138)+(163)	ng/g	0.208	0.0032	0.028	N/A	N/A	N/A	N/A	4869418
22'33'45'-HexaCB-(130)	ng/g	0.0108	0.0036	0.0094	N/A	N/A	N/A	N/A	4869418
22'33'46-HexaCB-(131)	ng/g	0.0040 U	0.0040	0.0094	N/A	N/A	N/A	N/A	4869418
22'33'46'-HexaCB-(132)	ng/g	0.0250	0.0040	0.0094	N/A	N/A	N/A	N/A	4869418
22'33'55'-HexaCB-(133)	ng/g	0.0035 U (1)	0.0035	0.0094	N/A	N/A	N/A	N/A	4869418
HexaCB-(134)+(143)	ng/g	0.0056 J	0.0037	0.019	N/A	N/A	N/A	N/A	4869418
HexaCB-(135)+(151)	ng/g	0.0597	0.0032	0.019	N/A	N/A	N/A	N/A	4869418
22'33'66'-HexaCB-(136)	ng/g	0.0130	0.0021	0.0094	N/A	N/A	N/A	N/A	4869418
22'344'5-HexaCB-(137)	ng/g	0.0037 U	0.0037	0.0094	N/A	N/A	N/A	N/A	4869418
HexaCB-(139)+(140)	ng/g	0.0032 U	0.0032	0.019	N/A	N/A	N/A	N/A	4869418
22'3455'-HexaCB-(141)	ng/g	0.0034 U	0.0034	0.0094	N/A	N/A	N/A	N/A	4869418
22'3456-HexaCB-(142)	ng/g	0.0037 U	0.0037	0.0094	N/A	N/A	N/A	N/A	4869418
22'345'6-HexaCB-(144)	ng/g	0.0052 J	0.0029	0.0094	N/A	N/A	N/A	N/A	4869418
22'3466'-HexaCB-(145)	ng/g	0.0024 U	0.0024	0.0094	N/A	N/A	N/A	N/A	4869418
22'34'55'-HexaCB-(146)	ng/g	0.0395	0.0029	0.0094	N/A	N/A	N/A	N/A	4869418
HexaCB-(147)+(149)	ng/g	0.129	0.0033	0.019	N/A	N/A	N/A	N/A	4869418
22'34'56'-HexaCB-(148)	ng/g	0.0029 U	0.0029	0.0094	N/A	N/A	N/A	N/A	4869418
22'34'66'-HexaCB-(150)	ng/g	0.0024 U	0.0024	0.0094	N/A	N/A	N/A	N/A	4869418
22'3566'-HexaCB-(152)	ng/g	0.0021 U	0.0021	0.0094	N/A	N/A	N/A	N/A	4869418
HexaCB-(153)+(168)	ng/g	0.232	0.0026	0.0094	N/A	N/A	N/A	N/A	4869418
22'44'56'-HexaCB-(154)	ng/g	0.0064 J	0.0026	0.0094	N/A	N/A	N/A	N/A	4869418
22'44'66'-HexaCB-(155)	ng/g	0.0011 U	0.0011	0.0094	N/A	N/A	N/A	N/A	4869418
HexaCB-(156)+(157)	ng/g	0.0102 J	0.0013	0.019	N/A	0.0000300	0.000000306	N/A	4869418
233'44'6-HexaCB-(158)	ng/g	0.0116	0.0023	0.0094	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

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COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-PJ-1-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
233'455'-HexaCB-(159)	ng/g	0.00095 U	0.00095	0.0094	N/A	N/A	N/A	N/A	4869418
233'456-HexaCB-(160)	ng/g	0.0027 U	0.0027	0.0094	N/A	N/A	N/A	N/A	4869418
233'45'6-HexaCB-(161)	ng/g	0.0024 U	0.0024	0.0094	N/A	N/A	N/A	N/A	4869418
233'4'55'-HexaCB-(162)	ng/g	0.0011 U	0.0011	0.0094	N/A	N/A	N/A	N/A	4869418
233'4'5'6-HexaCB-(164)	ng/g	0.0033 J	0.0025	0.0094	N/A	N/A	N/A	N/A	4869418
233'55'6-HexaCB-(165)	ng/g	0.0029 U	0.0029	0.0094	N/A	N/A	N/A	N/A	4869418
23'44'55'-HexaCB-(167)	ng/g	0.0057 J	0.0014	0.0094	N/A	0.0000300	0.000000171	N/A	4869418
33'44'55'-HexaCB-(169)	ng/g	0.0014 U	0.0014	0.0094	N/A	0.0300	0.0000420	N/A	4869418
22'33'44'5-HeptaCB-(170)	ng/g	0.0063 J	0.0016	0.0094	N/A	N/A	N/A	N/A	4869418
HeptaCB-(171)+(173)	ng/g	0.0083 J	0.0020	0.019	N/A	N/A	N/A	N/A	4869418
22'33'455'-HeptaCB-(172)	ng/g	0.0020 U	0.0020	0.0094	N/A	N/A	N/A	N/A	4869418
22'33'456'-HeptaCB-(174)	ng/g	0.0020 U	0.0020	0.0094	N/A	N/A	N/A	N/A	4869418
22'33'45'6-HeptaCB-(175)	ng/g	0.0021 U	0.0021	0.0094	N/A	N/A	N/A	N/A	4869418
22'33'466'-HeptaCB-(176)	ng/g	0.0034 J	0.0015	0.0094	N/A	N/A	N/A	N/A	4869418
22'33'45'6'-HeptaCB-(177)	ng/g	0.0173	0.0020	0.0094	N/A	N/A	N/A	N/A	4869418
22'33'55'6-HeptaCB-(178)	ng/g	0.010 U (1)	0.010	0.0094	N/A	N/A	N/A	N/A	4869418
22'33'566'-HeptaCB-(179)	ng/g	0.0128	0.0015	0.0094	N/A	N/A	N/A	N/A	4869418
HeptaCB-(180)+(193)	ng/g	0.0261	0.0014	0.019	N/A	N/A	N/A	N/A	4869418
22'344'56-HeptaCB-(181)	ng/g	0.0021 U	0.0021	0.0094	N/A	N/A	N/A	N/A	4869418
22'344'56'-HeptaCB-(182)	ng/g	0.0022 U	0.0022	0.0094	N/A	N/A	N/A	N/A	4869418
22'344'5'6-HeptaCB-(183)	ng/g	0.0187	0.0016	0.0094	N/A	N/A	N/A	N/A	4869418
22'344'66'-HeptaCB-(184)	ng/g	0.0016 U	0.0016	0.0094	N/A	N/A	N/A	N/A	4869418
22'3455'6-HeptaCB-(185)	ng/g	0.0024 U	0.0024	0.0094	N/A	N/A	N/A	N/A	4869418
22'34566'-HeptaCB-(186)	ng/g	0.0018 U	0.0018	0.0094	N/A	N/A	N/A	N/A	4869418
22'34'55'6-HeptaCB-(187)	ng/g	0.0693	0.0022	0.0094	N/A	N/A	N/A	N/A	4869418
22'34'566'-HeptaCB-(188)	ng/g	0.0013 U	0.0013	0.0094	N/A	N/A	N/A	N/A	4869418
233'44'55'-HeptaCB-(189)	ng/g	0.0016 U	0.0016	0.0094	N/A	0.0000300	0.0000000480	N/A	4869418
233'44'56-HeptaCB-(190)	ng/g	0.0026 U (1)	0.0026	0.0094	N/A	N/A	N/A	N/A	4869418
233'44'5'6-HeptaCB-(191)	ng/g	0.0014 U	0.0014	0.0094	N/A	N/A	N/A	N/A	4869418
233'455'6-HeptaCB-(192)	ng/g	0.0017 U	0.0017	0.0094	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU263							
Sampling Date		2017/01/05 14:53							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-PJ-1-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
22'33'44'55'-OctaCB-(194)	ng/g	0.0017 U (1)	0.0017	0.0094	N/A	N/A	N/A	N/A	4869418
22'33'44'56-OctaCB-(195)	ng/g	0.0010 U	0.0010	0.0094	N/A	N/A	N/A	N/A	4869418
22'33'44'56'-OctaCB-(196)	ng/g	0.0034 U	0.0034	0.0094	N/A	N/A	N/A	N/A	4869418
22'33'44'66'OctaCB-(197)	ng/g	0.0028 U	0.0028	0.0094	N/A	N/A	N/A	N/A	4869418
OctaCB-(198)+(199)	ng/g	0.0037 U	0.0037	0.019	N/A	N/A	N/A	N/A	4869418
22'33'4566'-OctaCB-(200)	ng/g	0.0022 U	0.0022	0.0094	N/A	N/A	N/A	N/A	4869418
22'33'45'66'-OctaCB-(201)	ng/g	0.0030 J	0.0023	0.0094	N/A	N/A	N/A	N/A	4869418
22'33'55'66'-OctaCB-(202)	ng/g	0.0070 J	0.0021	0.0094	N/A	N/A	N/A	N/A	4869418
22'344'55'6-OctaCB-(203)	ng/g	0.0036 U	0.0036	0.0094	N/A	N/A	N/A	N/A	4869418
22'344'566'-OctaCB-(204)	ng/g	0.0023 U	0.0023	0.0094	N/A	N/A	N/A	N/A	4869418
233'44'55'6-OctaCB-(205)	ng/g	0.0010 U	0.0010	0.0094	N/A	N/A	N/A	N/A	4869418
22'33'44'55'6-NonaCB-(206)	ng/g	0.0017 U	0.0017	0.0094	N/A	N/A	N/A	N/A	4869418
22'33'44'566'-NonaCB-(207)	ng/g	0.0013 U	0.0013	0.0094	N/A	N/A	N/A	N/A	4869418
22'33'455'66'-NonaCB-(208)	ng/g	0.0017 U	0.0017	0.0094	N/A	N/A	N/A	N/A	4869418
DecaCB-(209)	ng/g	0.0021 U	0.0021	0.0094	N/A	N/A	N/A	N/A	4869418
Total PCB	ng/g	1.83	N/A	N/A	N/A	N/A	N/A	N/A	4869418
TOTAL TOXIC EQUIVALENCY	ng/g	N/A	N/A	N/A	N/A	N/A	0.000147	N/A	N/A
Surrogate Recovery (%)									
C13-2,44'-TriCB-(28)	%	102	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'33'44'55'6-NonaCB-(206)	%	80	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'33'44'5-HeptaCB-(170)	%	82	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'33'455'66'-NonaCB-(208)	%	75	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'33'55'66'-OctaCB-(202)	%	75	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'33'55'6-HeptaCB-(178)	%	96	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'344'55'-HeptaCB-(180)	%	84	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'34'566'-HeptaCB-(188)	%	89	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'44'66'-HexaCB-(155)	%	86	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'466'-PentaCB-(104)	%	88	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'66'-TetraCB-(54)	%	94	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'6-TriCB-(19)	%	67	N/A	N/A	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU263							
Sampling Date		2017/01/05 14:53							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-PJ-1-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
C13-22'-DiCB-(4)	%	66	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-233'44'55'6-OctaCB-(205)	%	96	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-233'44'55'-HeptaCB-(189)	%	92	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-233'44'-PentaCB-(105)	%	115	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-233'55'-PentaCB-(111)	%	105	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-23'44'55'-HexaCB-(167)	%	105	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-2344'5-PentaCB-(114)	%	110	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-23'44'5-PentaCB-(118)	%	111	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-2'344'5-PentaCB-(123)	%	109	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-2-MonoCB-(1)	%	75	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-33'44'55'-HexaCB-(169)	%	67	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-33'44'5-PentaCB-(126)	%	107	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-33'44'-TetraCB-(77)	%	114	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-344'5-TetraCB-(81)	%	116	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-344'-TriCB-(37)	%	101	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-44'-DiCB-(15)	%	82	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-4-MonoCB-(3)	%	74	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-DecaCB-(209)	%	88	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-HexaCB-(156)+(157)	%	105	N/A	N/A	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU264							
Sampling Date		2017/01/05 14:43							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-GP-1-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
PCBs									
2-MonoCB-(1)	ng/g	0.0010 U	0.0010	0.0098	N/A	N/A	N/A	N/A	4869418
3-MonoCB-(2)	ng/g	0.00093 U	0.00093	0.0098	N/A	N/A	N/A	N/A	4869418
4-MonoCB-(3)	ng/g	0.0010 U	0.0010	0.0098	N/A	N/A	N/A	N/A	4869418
22'-DiCB-(4)	ng/g	0.018 U	0.018	0.0098	N/A	N/A	N/A	N/A	4869418
2,3-DiCB-(5)	ng/g	0.0076 U	0.0076	0.0098	N/A	N/A	N/A	N/A	4869418
2,3'-DiCB-(6)	ng/g	0.0062 U	0.0062	0.0098	N/A	N/A	N/A	N/A	4869418
2,4-DiCB-(7)	ng/g	0.0069 U	0.0069	0.0098	N/A	N/A	N/A	N/A	4869418
2,4'-DiCB-(8)	ng/g	0.0054 U	0.0054	0.0098	N/A	N/A	N/A	N/A	4869418
2,5-DiCB-(9)	ng/g	0.0059 U	0.0059	0.0098	N/A	N/A	N/A	N/A	4869418
2,6-DiCB-(10)	ng/g	0.025 U	0.025	0.0098	N/A	N/A	N/A	N/A	4869418
3,3'-DiCB-(11)	ng/g	0.0086 J	0.0058	0.0098	N/A	N/A	N/A	N/A	4869418
DiCB-(12)+(13)	ng/g	0.0064 U	0.0064	0.020	N/A	N/A	N/A	N/A	4869418
3,5-DiCB-(14)	ng/g	0.0056 U	0.0056	0.0098	N/A	N/A	N/A	N/A	4869418
4,4'-DiCB-(15)	ng/g	0.011 U	0.011	0.0098	N/A	N/A	N/A	N/A	4869418
22'3-TriCB-(16)	ng/g	0.0082 U	0.0082	0.0098	N/A	N/A	N/A	N/A	4869418
22'4-TriCB-(17)	ng/g	0.0059 U	0.0059	0.0098	N/A	N/A	N/A	N/A	4869418
TriCB-(18)+(30)	ng/g	0.0057 J	0.0048	0.020	N/A	N/A	N/A	N/A	4869418
22'6-TriCB-(19)	ng/g	0.0032 U	0.0032	0.0098	N/A	N/A	N/A	N/A	4869418
TriCB-(20) + (28)	ng/g	0.0205	0.0018	0.020	N/A	N/A	N/A	N/A	4869418
TriCB-(21)+(33)	ng/g	0.0056 J	0.0017	0.020	N/A	N/A	N/A	N/A	4869418
234'-TriCB-(22)	ng/g	0.0037 U (1)	0.0037	0.0098	N/A	N/A	N/A	N/A	4869418
235-TriCB-(23)	ng/g	0.0019 U	0.0019	0.0098	N/A	N/A	N/A	N/A	4869418
236-TriCB-(24)	ng/g	0.0046 U	0.0046	0.0098	N/A	N/A	N/A	N/A	4869418
23'4-TriCB-(25)	ng/g	0.0016 U	0.0016	0.0098	N/A	N/A	N/A	N/A	4869418
TriCB-(26)+(29)	ng/g	0.0025 J	0.0016	0.020	N/A	N/A	N/A	N/A	4869418
23'6-TriCB-(27)	ng/g	0.0039 U	0.0039	0.0098	N/A	N/A	N/A	N/A	4869418
24'5-TriCB-(31)	ng/g	0.0089 J	0.0015	0.0098	N/A	N/A	N/A	N/A	4869418
24'6-TriCB-(32)	ng/g	0.0037 U	0.0037	0.0098	N/A	N/A	N/A	N/A	4869418
23'5'-TriCB-(34)	ng/g	0.0016 U	0.0016	0.0098	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU264							
Sampling Date		2017/01/05 14:43							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-GP-1-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'4-TriCB-(35)	ng/g	0.0016 U	0.0016	0.0098	N/A	N/A	N/A	N/A	4869418
33'5-TriCB-(36)	ng/g	0.0014 U	0.0014	0.0098	N/A	N/A	N/A	N/A	4869418
344'-TriCB-(37)	ng/g	0.0035 J	0.0031	0.0098	N/A	N/A	N/A	N/A	4869418
345-TriCB-(38)	ng/g	0.0017 U	0.0017	0.0098	N/A	N/A	N/A	N/A	4869418
34'5-TriCB-(39)	ng/g	0.0017 U	0.0017	0.0098	N/A	N/A	N/A	N/A	4869418
TetraCB-(40)+(41)+(71)	ng/g	0.0156 J	0.0026	0.029	N/A	N/A	N/A	N/A	4869418
22'34'-TetraCB-(42)	ng/g	0.0080 J	0.0028	0.0098	N/A	N/A	N/A	N/A	4869418
22'35-TetraCB-(43)	ng/g	0.0032 U	0.0032	0.0098	N/A	N/A	N/A	N/A	4869418
TetraCB-(44)+(47)+(65)	ng/g	0.0355	0.0023	0.029	N/A	N/A	N/A	N/A	4869418
TetraCB-(45)+(51)	ng/g	0.0027 J	0.0026	0.020	N/A	N/A	N/A	N/A	4869418
22'36'-TetraCB-(46)	ng/g	0.0030 U	0.0030	0.0098	N/A	N/A	N/A	N/A	4869418
22'45-TetraCB-(48)	ng/g	0.0066 J	0.0027	0.0098	N/A	N/A	N/A	N/A	4869418
TetraCB-(49)+TetraCB-(69)	ng/g	0.0178 J	0.0021	0.020	N/A	N/A	N/A	N/A	4869418
TetraCB-(50)+(53)	ng/g	0.0050 J	0.0025	0.020	N/A	N/A	N/A	N/A	4869418
22'55'-TetraCB-(52)	ng/g	0.0456	0.0022	0.0098	N/A	N/A	N/A	N/A	4869418
22'66'-TetraCB-(54)	ng/g	0.00058 U	0.00058	0.0098	N/A	N/A	N/A	N/A	4869418
233'4-TetraCB-(55)	ng/g	0.0017 U	0.0017	0.0098	N/A	N/A	N/A	N/A	4869418
233'4'-Tetra CB(56)	ng/g	0.0060 J	0.0017	0.0098	N/A	N/A	N/A	N/A	4869418
233'5-TetraCB-(57)	ng/g	0.0014 U	0.0014	0.0098	N/A	N/A	N/A	N/A	4869418
233'5'-TetraCB-(58)	ng/g	0.0016 U	0.0016	0.0098	N/A	N/A	N/A	N/A	4869418
TetraCB-(59)+(62)+(75)	ng/g	0.0037 J	0.0018	0.029	N/A	N/A	N/A	N/A	4869418
2344'-TetraCB -(60)	ng/g	0.0046 J	0.0016	0.0098	N/A	N/A	N/A	N/A	4869418
TetraCB-(61)+(70)+(74)+(76)	ng/g	0.0480	0.0015	0.039	N/A	N/A	N/A	N/A	4869418
234'5-TetraCB-(63)	ng/g	0.0014 U	0.0014	0.0098	N/A	N/A	N/A	N/A	4869418
234'6-TetraCB-(64)	ng/g	0.0075 J	0.0019	0.0098	N/A	N/A	N/A	N/A	4869418
23'44'-TetraCB-(66)	ng/g	0.0201	0.0013	0.0098	N/A	N/A	N/A	N/A	4869418
23'45-TetraCB-(67)	ng/g	0.0013 U	0.0013	0.0098	N/A	N/A	N/A	N/A	4869418
23'45'-TetraCB-(68)	ng/g	0.0014 U	0.0014	0.0098	N/A	N/A	N/A	N/A	4869418
23'55'-TetraCB-(72)	ng/g	0.0014 U	0.0014	0.0098	N/A	N/A	N/A	N/A	4869418
23'5'6-TetraCB-(73)	ng/g	0.0021 U	0.0021	0.0098	N/A	N/A	N/A	N/A	4869418
33'44'-TetraCB-(77)	ng/g	0.0027 J	0.0020	0.0098	N/A	0.000100	0.000000270	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU264							
Sampling Date		2017/01/05 14:43							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-GP-1-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'45-TetraCB-(78)	ng/g	0.0014 U	0.0014	0.0098	N/A	N/A	N/A	N/A	4869418
33'45'-TetraCB(79)	ng/g	0.0013 U	0.0013	0.0098	N/A	N/A	N/A	N/A	4869418
33'55'-TetraCB-(80)	ng/g	0.0013 U	0.0013	0.0098	N/A	N/A	N/A	N/A	4869418
344'5-TetraCB-(81)	ng/g	0.0021 U	0.0021	0.0098	N/A	0.000300	0.000000630	N/A	4869418
22'33'4-PentaCB-(82)	ng/g	0.0061 J	0.0020	0.0098	N/A	N/A	N/A	N/A	4869418
PentaCB-(83)+(99)	ng/g	0.0852	0.0018	0.020	N/A	N/A	N/A	N/A	4869418
22'33'6-PentaCB-(84)	ng/g	0.0115	0.0021	0.0098	N/A	N/A	N/A	N/A	4869418
PentaCB-(85)+(116)+(117)	ng/g	0.0162 J	0.0015	0.029	N/A	N/A	N/A	N/A	4869418
PentaCB-(86)(87)(97)(109)(119)(125)	ng/g	0.0461 J	0.0015	0.059	N/A	N/A	N/A	N/A	4869418
PentaCB-(88)+(91)	ng/g	0.0065 U (1)	0.0065	0.020	N/A	N/A	N/A	N/A	4869418
22'346'-PentaCB-(89)	ng/g	0.0019 U	0.0019	0.0098	N/A	N/A	N/A	N/A	4869418
PentaCB-(90)+(101)+(113)	ng/g	0.116	0.0016	0.029	N/A	N/A	N/A	N/A	4869418
22'355'-PentaCB-(92)	ng/g	0.0219	0.0018	0.0098	N/A	N/A	N/A	N/A	4869418
PentaCB-(93)+(98)+(100)+(102)	ng/g	0.0053 J	0.0019	0.039	N/A	N/A	N/A	N/A	4869418
22'356'-PentaCB-(94)	ng/g	0.0021 U	0.0021	0.0098	N/A	N/A	N/A	N/A	4869418
22'35'6-PentaCB-(95)	ng/g	0.0574	0.0017	0.0098	N/A	N/A	N/A	N/A	4869418
22'366'-PentaCB-(96)	ng/g	0.0035 U	0.0035	0.0098	N/A	N/A	N/A	N/A	4869418
22'45'6-PentaCB-(103)	ng/g	0.0018 J	0.0015	0.0098	N/A	N/A	N/A	N/A	4869418
22'466'-PentaCB-(104)	ng/g	0.0016 U	0.0016	0.0098	N/A	N/A	N/A	N/A	4869418
233'44'-PentaCB-(105)	ng/g	0.0299	0.0014	0.0098	N/A	0.0000300	0.000000897	N/A	4869418
233'45-PentaCB-(106)	ng/g	0.0010 U	0.0010	0.0098	N/A	N/A	N/A	N/A	4869418
233'4'5-PentaCB-(107)	ng/g	0.00763 J	0.00095	0.0098	N/A	N/A	N/A	N/A	4869418
PentaCB-(108)+(124)	ng/g	0.0027 U (1)	0.0027	0.020	N/A	N/A	N/A	N/A	4869418
PentaCB-(110)+(115)	ng/g	0.0805	0.0014	0.020	N/A	N/A	N/A	N/A	4869418
233'55'-PentaCB-(111)	ng/g	0.0014 U	0.0014	0.0098	N/A	N/A	N/A	N/A	4869418
233'56-PentaCB-(112)	ng/g	0.0014 U	0.0014	0.0098	N/A	N/A	N/A	N/A	4869418
2344'5-PentaCB-(114)	ng/g	0.0014 U	0.0014	0.0098	N/A	0.0000300	0.0000000420	N/A	4869418
23'44'5-PentaCB-(118)	ng/g	0.0844	0.0014	0.0098	N/A	0.0000300	0.00000253	N/A	4869418
23'455'-PentaCB-(120)	ng/g	0.0012 U	0.0012	0.0098	N/A	N/A	N/A	N/A	4869418
23'45'6-PentaCB-(121)	ng/g	0.0014 U	0.0014	0.0098	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU264							
Sampling Date		2017/01/05 14:43							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-GP-1-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
233'4'5'-PentaCB-(122)	ng/g	0.0011 U	0.0011	0.0098	N/A	N/A	N/A	N/A	4869418
23'44'5'-PentaCB-(123)	ng/g	0.0016 U	0.0016	0.0098	N/A	0.0000300	0.0000000480	N/A	4869418
33'44'5-PentaCB-(126)	ng/g	0.0014 U	0.0014	0.0098	N/A	0.100	0.000140	N/A	4869418
33'455'-PentaCB-(127)	ng/g	0.00099 U	0.00099	0.0098	N/A	N/A	N/A	N/A	4869418
HexaCB-(128)+(166)	ng/g	0.0240	0.0027	0.020	N/A	N/A	N/A	N/A	4869418
HexaCB-(129)+(138)+(163)	ng/g	0.209	0.0030	0.029	N/A	N/A	N/A	N/A	4869418
22'33'45'-HexaCB-(130)	ng/g	0.0122	0.0033	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'46-HexaCB-(131)	ng/g	0.0036 U	0.0036	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'46'-HexaCB-(132)	ng/g	0.0250	0.0037	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'55'-HexaCB-(133)	ng/g	0.0041 U (1)	0.0041	0.0098	N/A	N/A	N/A	N/A	4869418
HexaCB-(134)+(143)	ng/g	0.0049 J	0.0034	0.020	N/A	N/A	N/A	N/A	4869418
HexaCB-(135)+(151)	ng/g	0.0570	0.0055	0.020	N/A	N/A	N/A	N/A	4869418
22'33'66'-HexaCB-(136)	ng/g	0.0136	0.0036	0.0098	N/A	N/A	N/A	N/A	4869418
22'344'5-HexaCB-(137)	ng/g	0.0034 U	0.0034	0.0098	N/A	N/A	N/A	N/A	4869418
HexaCB-(139)+(140)	ng/g	0.0029 U	0.0029	0.020	N/A	N/A	N/A	N/A	4869418
22'3455'-HexaCB-(141)	ng/g	0.0031 U	0.0031	0.0098	N/A	N/A	N/A	N/A	4869418
22'3456-HexaCB-(142)	ng/g	0.0034 U	0.0034	0.0098	N/A	N/A	N/A	N/A	4869418
22'345'6-HexaCB-(144)	ng/g	0.0054 J	0.0050	0.0098	N/A	N/A	N/A	N/A	4869418
22'3466'-HexaCB-(145)	ng/g	0.0041 U	0.0041	0.0098	N/A	N/A	N/A	N/A	4869418
22'34'55'-HexaCB-(146)	ng/g	0.0400	0.0027	0.0098	N/A	N/A	N/A	N/A	4869418
HexaCB-(147)+(149)	ng/g	0.135	0.0030	0.020	N/A	N/A	N/A	N/A	4869418
22'34'56'-HexaCB-(148)	ng/g	0.0049 U	0.0049	0.0098	N/A	N/A	N/A	N/A	4869418
22'34'66'-HexaCB-(150)	ng/g	0.0041 U	0.0041	0.0098	N/A	N/A	N/A	N/A	4869418
22'3566'-HexaCB-(152)	ng/g	0.0035 U	0.0035	0.0098	N/A	N/A	N/A	N/A	4869418
HexaCB-(153)+(168)	ng/g	0.237	0.0024	0.0098	N/A	N/A	N/A	N/A	4869418
22'44'56'-HexaCB-(154)	ng/g	0.0062 J	0.0044	0.0098	N/A	N/A	N/A	N/A	4869418
22'44'66'-HexaCB-(155)	ng/g	0.0018 U	0.0018	0.0098	N/A	N/A	N/A	N/A	4869418
HexaCB-(156)+(157)	ng/g	0.0101 J	0.0012	0.020	N/A	0.0000300	0.000000303	N/A	4869418
233'44'6-HexaCB-(158)	ng/g	0.0117	0.0021	0.0098	N/A	N/A	N/A	N/A	4869418
233'455'-HexaCB-(159)	ng/g	0.00088 U	0.00088	0.0098	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU264							
Sampling Date		2017/01/05 14:43							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-GP-1-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
233'456-HexaCB-(160)	ng/g	0.0025 U	0.0025	0.0098	N/A	N/A	N/A	N/A	4869418
233'45'6-HexaCB-(161)	ng/g	0.0022 U	0.0022	0.0098	N/A	N/A	N/A	N/A	4869418
233'4'55'-HexaCB-(162)	ng/g	0.00098 U	0.00098	0.0098	N/A	N/A	N/A	N/A	4869418
233'4'5'6-HexaCB-(164)	ng/g	0.0037 J	0.0022	0.0098	N/A	N/A	N/A	N/A	4869418
233'55'6-HexaCB-(165)	ng/g	0.0026 U	0.0026	0.0098	N/A	N/A	N/A	N/A	4869418
23'44'55'-HexaCB-(167)	ng/g	0.0058 J	0.0013	0.0098	N/A	0.0000300	0.000000174	N/A	4869418
33'44'55'-HexaCB-(169)	ng/g	0.0013 U	0.0013	0.0098	N/A	0.0300	0.0000390	N/A	4869418
22'33'44'5-HeptaCB-(170)	ng/g	0.0062 U (1)	0.0062	0.0098	N/A	N/A	N/A	N/A	4869418
HeptaCB-(171)+(173)	ng/g	0.0095 J	0.0023	0.020	N/A	N/A	N/A	N/A	4869418
22'33'455'-HeptaCB-(172)	ng/g	0.0023 U	0.0023	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'456'-HeptaCB-(174)	ng/g	0.0023 U	0.0023	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'45'6-HeptaCB-(175)	ng/g	0.0040 U	0.0040	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'466'-HeptaCB-(176)	ng/g	0.0036 J	0.0029	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'45'6'-HeptaCB-(177)	ng/g	0.0202	0.0023	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'55'6-HeptaCB-(178)	ng/g	0.0120	0.0042	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'566'-HeptaCB-(179)	ng/g	0.0143	0.0028	0.0098	N/A	N/A	N/A	N/A	4869418
HeptaCB-(180)+(193)	ng/g	0.0279	0.0016	0.020	N/A	N/A	N/A	N/A	4869418
22'344'56-HeptaCB-(181)	ng/g	0.0024 U	0.0024	0.0098	N/A	N/A	N/A	N/A	4869418
22'344'56'-HeptaCB-(182)	ng/g	0.0040 U	0.0040	0.0098	N/A	N/A	N/A	N/A	4869418
22'344'5'6-HeptaCB-(183)	ng/g	0.0201	0.0018	0.0098	N/A	N/A	N/A	N/A	4869418
22'344'66'-HeptaCB-(184)	ng/g	0.0030 U	0.0030	0.0098	N/A	N/A	N/A	N/A	4869418
22'3455'6-HeptaCB-(185)	ng/g	0.0027 U	0.0027	0.0098	N/A	N/A	N/A	N/A	4869418
22'34566'-HeptaCB-(186)	ng/g	0.0033 U	0.0033	0.0098	N/A	N/A	N/A	N/A	4869418
22'34'55'6-HeptaCB-(187)	ng/g	0.0741	0.0041	0.0098	N/A	N/A	N/A	N/A	4869418
22'34'566'-HeptaCB-(188)	ng/g	0.0024 U	0.0024	0.0098	N/A	N/A	N/A	N/A	4869418
233'44'55'-HeptaCB-(189)	ng/g	0.0020 U	0.0020	0.0098	N/A	0.0000300	0.0000000600	N/A	4869418
233'44'56-HeptaCB-(190)	ng/g	0.0030 J	0.0017	0.0098	N/A	N/A	N/A	N/A	4869418
233'44'5'6-HeptaCB-(191)	ng/g	0.0016 U	0.0016	0.0098	N/A	N/A	N/A	N/A	4869418
233'455'6-HeptaCB-(192)	ng/g	0.0019 U	0.0019	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'44'55'-OctaCB-(194)	ng/g	0.0022 U	0.0022	0.0098	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU264							
Sampling Date		2017/01/05 14:43							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-GP-1-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
22'33'44'56-OctaCB-(195)	ng/g	0.0024 U	0.0024	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'44'56'-OctaCB-(196)	ng/g	0.0043 U	0.0043	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'44'66'OctaCB-(197)	ng/g	0.0035 U	0.0035	0.0098	N/A	N/A	N/A	N/A	4869418
OctaCB-(198)+(199)	ng/g	0.0047 U	0.0047	0.020	N/A	N/A	N/A	N/A	4869418
22'33'4566'-OctaCB-(200)	ng/g	0.0028 U	0.0028	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'45'66'-OctaCB-(201)	ng/g	0.0029 U	0.0029	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'55'66'-OctaCB-(202)	ng/g	0.0073 J	0.0026	0.0098	N/A	N/A	N/A	N/A	4869418
22'344'55'6-OctaCB-(203)	ng/g	0.0045 U	0.0045	0.0098	N/A	N/A	N/A	N/A	4869418
22'344'566'-OctaCB-(204)	ng/g	0.0030 U	0.0030	0.0098	N/A	N/A	N/A	N/A	4869418
233'44'55'6-OctaCB-(205)	ng/g	0.0025 U	0.0025	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'44'55'6-NonaCB-(206)	ng/g	0.0015 U	0.0015	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'44'566'-NonaCB-(207)	ng/g	0.0012 U	0.0012	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'455'66'-NonaCB-(208)	ng/g	0.0015 U	0.0015	0.0098	N/A	N/A	N/A	N/A	4869418
DecaCB-(209)	ng/g	0.0025 U	0.0025	0.0098	N/A	N/A	N/A	N/A	4869418
Total PCB	ng/g	1.85	N/A	N/A	N/A	N/A	N/A	N/A	4869418
TOTAL TOXIC EQUIVALENCY	ng/g	N/A	N/A	N/A	N/A	N/A	0.000184	N/A	N/A
Surrogate Recovery (%)									
C13-2,44'-TriCB-(28)	%	103	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'33'44'55'6-NonaCB-(206)	%	78	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'33'44'5-HeptaCB-(170)	%	91	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'33'455'66'-NonaCB-(208)	%	81	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'33'55'66'-OctaCB-(202)	%	85	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'33'55'6-HeptaCB-(178)	%	98	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'344'55'-HeptaCB-(180)	%	93	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'34'566'-HeptaCB-(188)	%	89	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'44'66'-HexaCB-(155)	%	86	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'466'-PentaCB-(104)	%	84	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'66'-TetraCB-(54)	%	91	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'6-TriCB-(19)	%	65	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'-DiCB-(4)	%	65	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-233'44'55'6-OctaCB-(205)	%	93	N/A	N/A	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU264							
Sampling Date		2017/01/05 14:43							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-GP-1-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
C13-233'44'55'-HeptaCB-(189)	%	99	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-233'44'-PentaCB-(105)	%	111	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-233'55'-PentaCB-(111)	%	108	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-23'44'55'-HexaCB-(167)	%	105	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-2344'5-PentaCB-(114)	%	112	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-23'44'5-PentaCB-(118)	%	112	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-2'344'5-PentaCB-(123)	%	112	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-2-MonoCB-(1)	%	73	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-33'44'55'-HexaCB-(169)	%	63	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-33'44'5-PentaCB-(126)	%	107	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-33'44'-TetraCB-(77)	%	114	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-344'5-TetraCB-(81)	%	112	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-344'-TriCB-(37)	%	100	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-44'-DiCB-(15)	%	79	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-4-MonoCB-(3)	%	71	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-DecaCB-(209)	%	76	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-HexaCB-(156)+(157)	%	106	N/A	N/A	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU265							
Sampling Date		2017/01/05 14:35							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-WS-1-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
PCBs									
2-MonoCB-(1)	ng/g	0.00092 U	0.00092	0.0098	N/A	N/A	N/A	N/A	4869418
3-MonoCB-(2)	ng/g	0.00083 U	0.00083	0.0098	N/A	N/A	N/A	N/A	4869418
4-MonoCB-(3)	ng/g	0.00094 U	0.00094	0.0098	N/A	N/A	N/A	N/A	4869418
22'-DiCB-(4)	ng/g	0.014 U	0.014	0.0098	N/A	N/A	N/A	N/A	4869418
2,3-DiCB-(5)	ng/g	0.0060 U	0.0060	0.0098	N/A	N/A	N/A	N/A	4869418
2,3'-DiCB-(6)	ng/g	0.0048 U	0.0048	0.0098	N/A	N/A	N/A	N/A	4869418
2,4-DiCB-(7)	ng/g	0.0054 U	0.0054	0.0098	N/A	N/A	N/A	N/A	4869418
2,4'-DiCB-(8)	ng/g	0.0043 U	0.0043	0.0098	N/A	N/A	N/A	N/A	4869418
2,5-DiCB-(9)	ng/g	0.0047 U	0.0047	0.0098	N/A	N/A	N/A	N/A	4869418
2,6-DiCB-(10)	ng/g	0.020 U	0.020	0.0098	N/A	N/A	N/A	N/A	4869418
3,3'-DiCB-(11)	ng/g	0.0088 J	0.0046	0.0098	N/A	N/A	N/A	N/A	4869418
DiCB-(12)+(13)	ng/g	0.0050 U	0.0050	0.020	N/A	N/A	N/A	N/A	4869418
3,5-DiCB-(14)	ng/g	0.0044 U	0.0044	0.0098	N/A	N/A	N/A	N/A	4869418
4,4'-DiCB-(15)	ng/g	0.0090 U	0.0090	0.0098	N/A	N/A	N/A	N/A	4869418
22'3-TriCB-(16)	ng/g	0.0058 U	0.0058	0.0098	N/A	N/A	N/A	N/A	4869418
22'4-TriCB-(17)	ng/g	0.0042 U	0.0042	0.0098	N/A	N/A	N/A	N/A	4869418
TriCB-(18)+(30)	ng/g	0.0069 J	0.0034	0.020	N/A	N/A	N/A	N/A	4869418
22'6-TriCB-(19)	ng/g	0.0023 U	0.0023	0.0098	N/A	N/A	N/A	N/A	4869418
TriCB-(20) + (28)	ng/g	0.0280	0.0014	0.020	N/A	N/A	N/A	N/A	4869418
TriCB-(21)+(33)	ng/g	0.0070 J	0.0013	0.020	N/A	N/A	N/A	N/A	4869418
234'-TriCB-(22)	ng/g	0.0045 U (1)	0.0045	0.0098	N/A	N/A	N/A	N/A	4869418
235-TriCB-(23)	ng/g	0.0015 U	0.0015	0.0098	N/A	N/A	N/A	N/A	4869418
236-TriCB-(24)	ng/g	0.0033 U	0.0033	0.0098	N/A	N/A	N/A	N/A	4869418
23'4-TriCB-(25)	ng/g	0.0018 J	0.0013	0.0098	N/A	N/A	N/A	N/A	4869418
TriCB-(26)+(29)	ng/g	0.0029 J	0.0013	0.020	N/A	N/A	N/A	N/A	4869418
23'6-TriCB-(27)	ng/g	0.0028 U	0.0028	0.0098	N/A	N/A	N/A	N/A	4869418
24'5-TriCB-(31)	ng/g	0.0139	0.0012	0.0098	N/A	N/A	N/A	N/A	4869418
24'6-TriCB-(32)	ng/g	0.0026 U	0.0026	0.0098	N/A	N/A	N/A	N/A	4869418
23'5'-TriCB-(34)	ng/g	0.0013 U	0.0013	0.0098	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU265							
Sampling Date		2017/01/05 14:35							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-WS-1-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'4-TriCB-(35)	ng/g	0.0013 U	0.0013	0.0098	N/A	N/A	N/A	N/A	4869418
33'5-TriCB-(36)	ng/g	0.0011 U	0.0011	0.0098	N/A	N/A	N/A	N/A	4869418
344'-TriCB-(37)	ng/g	0.0051 J	0.0024	0.0098	N/A	N/A	N/A	N/A	4869418
345-TriCB-(38)	ng/g	0.0013 U	0.0013	0.0098	N/A	N/A	N/A	N/A	4869418
34'5-TriCB-(39)	ng/g	0.0013 U	0.0013	0.0098	N/A	N/A	N/A	N/A	4869418
TetraCB-(40)+(41)+(71)	ng/g	0.0200 J	0.0034	0.029	N/A	N/A	N/A	N/A	4869418
22'34'-TetraCB-(42)	ng/g	0.0105	0.0037	0.0098	N/A	N/A	N/A	N/A	4869418
22'35-TetraCB-(43)	ng/g	0.0042 U	0.0042	0.0098	N/A	N/A	N/A	N/A	4869418
TetraCB-(44)+(47)+(65)	ng/g	0.0463	0.0030	0.029	N/A	N/A	N/A	N/A	4869418
TetraCB-(45)+(51)	ng/g	0.0034 U	0.0034	0.020	N/A	N/A	N/A	N/A	4869418
22'36'-TetraCB-(46)	ng/g	0.0040 U	0.0040	0.0098	N/A	N/A	N/A	N/A	4869418
22'45-TetraCB-(48)	ng/g	0.0088 J	0.0035	0.0098	N/A	N/A	N/A	N/A	4869418
TetraCB-(49)+TetraCB-(69)	ng/g	0.0228	0.0028	0.020	N/A	N/A	N/A	N/A	4869418
TetraCB-(50)+(53)	ng/g	0.0070 J	0.0032	0.020	N/A	N/A	N/A	N/A	4869418
22'55'-TetraCB-(52)	ng/g	0.0598	0.0029	0.0098	N/A	N/A	N/A	N/A	4869418
22'66'-TetraCB-(54)	ng/g	0.00094 U	0.00094	0.0098	N/A	N/A	N/A	N/A	4869418
233'4-TetraCB-(55)	ng/g	0.00088 U	0.00088	0.0098	N/A	N/A	N/A	N/A	4869418
233'4'-Tetra CB(56)	ng/g	0.00784 J	0.00085	0.0098	N/A	N/A	N/A	N/A	4869418
233'5-TetraCB-(57)	ng/g	0.00073 U	0.00073	0.0098	N/A	N/A	N/A	N/A	4869418
233'5'-TetraCB-(58)	ng/g	0.00084 U	0.00084	0.0098	N/A	N/A	N/A	N/A	4869418
TetraCB-(59)+(62)+(75)	ng/g	0.0039 U (1)	0.0039	0.029	N/A	N/A	N/A	N/A	4869418
2344'-TetraCB -(60)	ng/g	0.00642 J	0.00084	0.0098	N/A	N/A	N/A	N/A	4869418
TetraCB-(61)+(70)+(74)+(76)	ng/g	0.0596	0.00080	0.039	N/A	N/A	N/A	N/A	4869418
234'5-TetraCB-(63)	ng/g	0.00168 J	0.00071	0.0098	N/A	N/A	N/A	N/A	4869418
234'6-TetraCB-(64)	ng/g	0.0099	0.0025	0.0098	N/A	N/A	N/A	N/A	4869418
23'44'-TetraCB-(66)	ng/g	0.0263	0.00068	0.0098	N/A	N/A	N/A	N/A	4869418
23'45-TetraCB-(67)	ng/g	0.00102 J	0.00068	0.0098	N/A	N/A	N/A	N/A	4869418
23'45'-TetraCB-(68)	ng/g	0.00077 U (1)	0.00077	0.0098	N/A	N/A	N/A	N/A	4869418
23'55'-TetraCB-(72)	ng/g	0.00104 J	0.00070	0.0098	N/A	N/A	N/A	N/A	4869418
23'5'6-TetraCB-(73)	ng/g	0.0028 U	0.0028	0.0098	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU265							
Sampling Date		2017/01/05 14:35							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-WS-1-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'44'-TetraCB-(77)	ng/g	0.0032 J	0.0010	0.0098	N/A	0.000100	0.000000320	N/A	4869418
33'45-TetraCB-(78)	ng/g	0.00073 U	0.00073	0.0098	N/A	N/A	N/A	N/A	4869418
33'45'-TetraCB(79)	ng/g	0.00083 U (1)	0.00083	0.0098	N/A	N/A	N/A	N/A	4869418
33'55'-TetraCB-(80)	ng/g	0.00066 U	0.00066	0.0098	N/A	N/A	N/A	N/A	4869418
344'5-TetraCB-(81)	ng/g	0.0011 U	0.0011	0.0098	N/A	0.000300	0.000000330	N/A	4869418
22'33'4-PentaCB-(82)	ng/g	0.0073 J	0.0017	0.0098	N/A	N/A	N/A	N/A	4869418
PentaCB-(83)+(99)	ng/g	0.105	0.0015	0.020	N/A	N/A	N/A	N/A	4869418
22'33'6-PentaCB-(84)	ng/g	0.0139	0.0017	0.0098	N/A	N/A	N/A	N/A	4869418
PentaCB-(85)+(116)+(117)	ng/g	0.0214 J	0.0012	0.029	N/A	N/A	N/A	N/A	4869418
PentaCB-(86)(87)(97)(109)(119)(125)	ng/g	0.0547 J	0.0013	0.059	N/A	N/A	N/A	N/A	4869418
PentaCB-(88)+(91)	ng/g	0.0091 J	0.0015	0.020	N/A	N/A	N/A	N/A	4869418
22'346'-PentaCB-(89)	ng/g	0.0016 U	0.0016	0.0098	N/A	N/A	N/A	N/A	4869418
PentaCB-(90)+(101)+(113)	ng/g	0.144	0.0013	0.029	N/A	N/A	N/A	N/A	4869418
22'355'-PentaCB-(92)	ng/g	0.0263	0.0015	0.0098	N/A	N/A	N/A	N/A	4869418
PentaCB-(93)+(98)+(100)+(102)	ng/g	0.0069 J	0.0015	0.039	N/A	N/A	N/A	N/A	4869418
22'356'-PentaCB-(94)	ng/g	0.0017 U	0.0017	0.0098	N/A	N/A	N/A	N/A	4869418
22'35'6-PentaCB-(95)	ng/g	0.0717	0.0014	0.0098	N/A	N/A	N/A	N/A	4869418
22'366'-PentaCB-(96)	ng/g	0.0015 U	0.0015	0.0098	N/A	N/A	N/A	N/A	4869418
22'45'6-PentaCB-(103)	ng/g	0.0024 J	0.0012	0.0098	N/A	N/A	N/A	N/A	4869418
22'466'-PentaCB-(104)	ng/g	0.00068 U	0.00068	0.0098	N/A	N/A	N/A	N/A	4869418
233'44'-PentaCB-(105)	ng/g	0.0344	0.0010	0.0098	N/A	0.0000300	0.00000103	N/A	4869418
233'45-PentaCB-(106)	ng/g	0.00073 U	0.00073	0.0098	N/A	N/A	N/A	N/A	4869418
233'4'5-PentaCB-(107)	ng/g	0.00825 J	0.00069	0.0098	N/A	N/A	N/A	N/A	4869418
PentaCB-(108)+(124)	ng/g	0.0030 U (1)	0.0030	0.020	N/A	N/A	N/A	N/A	4869418
PentaCB-(110)+(115)	ng/g	0.0919	0.0011	0.020	N/A	N/A	N/A	N/A	4869418
233'55'-PentaCB-(111)	ng/g	0.0011 U	0.0011	0.0098	N/A	N/A	N/A	N/A	4869418
233'56-PentaCB-(112)	ng/g	0.0011 U	0.0011	0.0098	N/A	N/A	N/A	N/A	4869418
2344'5-PentaCB-(114)	ng/g	0.0014 U (1)	0.0014	0.0098	N/A	0.0000300	0.0000000420	N/A	4869418
23'44'5-PentaCB-(118)	ng/g	0.103	0.0010	0.0098	N/A	0.0000300	0.00000309	N/A	4869418
23'455'-PentaCB-(120)	ng/g	0.00096 U	0.00096	0.0098	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU265							
Sampling Date		2017/01/05 14:35							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-WS-1-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
23'45'6-PentaCB-(121)	ng/g	0.0011 U	0.0011	0.0098	N/A	N/A	N/A	N/A	4869418
233'4'5'-PentaCB-(122)	ng/g	0.00080 U	0.00080	0.0098	N/A	N/A	N/A	N/A	4869418
23'44'5'-PentaCB-(123)	ng/g	0.0015 J	0.0011	0.0098	N/A	0.0000300	0.0000000450	N/A	4869418
33'44'5-PentaCB-(126)	ng/g	0.0010 U	0.0010	0.0098	N/A	0.100	0.000100	N/A	4869418
33'455'-PentaCB-(127)	ng/g	0.00072 U	0.00072	0.0098	N/A	N/A	N/A	N/A	4869418
HexaCB-(128)+(166)	ng/g	0.0291	0.0016	0.020	N/A	N/A	N/A	N/A	4869418
HexaCB-(129)+(138)+(163)	ng/g	0.240	0.0018	0.029	N/A	N/A	N/A	N/A	4869418
22'33'45'-HexaCB-(130)	ng/g	0.011 U (1)	0.011	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'46-HexaCB-(131)	ng/g	0.0022 U	0.0022	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'46'-HexaCB-(132)	ng/g	0.0278	0.0022	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'55'-HexaCB-(133)	ng/g	0.0059 J	0.0019	0.0098	N/A	N/A	N/A	N/A	4869418
HexaCB-(134)+(143)	ng/g	0.0043 U (1)	0.0043	0.020	N/A	N/A	N/A	N/A	4869418
HexaCB-(135)+(151)	ng/g	0.0669	0.0044	0.020	N/A	N/A	N/A	N/A	4869418
22'33'66'-HexaCB-(136)	ng/g	0.0153	0.0029	0.0098	N/A	N/A	N/A	N/A	4869418
22'344'5-HexaCB-(137)	ng/g	0.0026 U (1)	0.0026	0.0098	N/A	N/A	N/A	N/A	4869418
HexaCB-(139)+(140)	ng/g	0.0033 J	0.0017	0.020	N/A	N/A	N/A	N/A	4869418
22'3455'-HexaCB-(141)	ng/g	0.0034 J	0.0018	0.0098	N/A	N/A	N/A	N/A	4869418
22'3456-HexaCB-(142)	ng/g	0.0020 U	0.0020	0.0098	N/A	N/A	N/A	N/A	4869418
22'345'6-HexaCB-(144)	ng/g	0.0061 J	0.0040	0.0098	N/A	N/A	N/A	N/A	4869418
22'3466'-HexaCB-(145)	ng/g	0.0033 U	0.0033	0.0098	N/A	N/A	N/A	N/A	4869418
22'34'55'-HexaCB-(146)	ng/g	0.0472	0.0016	0.0098	N/A	N/A	N/A	N/A	4869418
HexaCB-(147)+(149)	ng/g	0.139	0.0018	0.020	N/A	N/A	N/A	N/A	4869418
22'34'56'-HexaCB-(148)	ng/g	0.0039 U	0.0039	0.0098	N/A	N/A	N/A	N/A	4869418
22'34'66'-HexaCB-(150)	ng/g	0.0033 U	0.0033	0.0098	N/A	N/A	N/A	N/A	4869418
22'3566'-HexaCB-(152)	ng/g	0.0028 U	0.0028	0.0098	N/A	N/A	N/A	N/A	4869418
HexaCB-(153)+(168)	ng/g	0.270	0.0014	0.0098	N/A	N/A	N/A	N/A	4869418
22'44'56'-HexaCB-(154)	ng/g	0.0054 U (1)	0.0054	0.0098	N/A	N/A	N/A	N/A	4869418
22'44'66'-HexaCB-(155)	ng/g	0.0014 U	0.0014	0.0098	N/A	N/A	N/A	N/A	4869418
HexaCB-(156)+(157)	ng/g	0.0123 J	0.0013	0.020	N/A	0.0000300	0.000000369	N/A	4869418
233'44'6-HexaCB-(158)	ng/g	0.0134	0.0013	0.0098	N/A	N/A	N/A	N/A	4869418

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COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-WS-1-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
233'455'-HexaCB-(159)	ng/g	0.00096 U	0.00096	0.0098	N/A	N/A	N/A	N/A	4869418
233'456-HexaCB-(160)	ng/g	0.0015 U	0.0015	0.0098	N/A	N/A	N/A	N/A	4869418
233'45'6-HexaCB-(161)	ng/g	0.0013 U	0.0013	0.0098	N/A	N/A	N/A	N/A	4869418
233'4'55'-HexaCB-(162)	ng/g	0.0011 U	0.0011	0.0098	N/A	N/A	N/A	N/A	4869418
233'4'5'6-HexaCB-(164)	ng/g	0.0032 J	0.0013	0.0098	N/A	N/A	N/A	N/A	4869418
233'55'6-HexaCB-(165)	ng/g	0.0015 U	0.0015	0.0098	N/A	N/A	N/A	N/A	4869418
23'44'55'-HexaCB-(167)	ng/g	0.0065 J	0.0014	0.0098	N/A	0.0000300	0.000000195	N/A	4869418
33'44'55'-HexaCB-(169)	ng/g	0.0014 U	0.0014	0.0098	N/A	0.0300	0.0000420	N/A	4869418
22'33'44'5-HeptaCB-(170)	ng/g	0.0079 J	0.0015	0.0098	N/A	N/A	N/A	N/A	4869418
HeptaCB-(171)+(173)	ng/g	0.0097 J	0.0019	0.020	N/A	N/A	N/A	N/A	4869418
22'33'455'-HeptaCB-(172)	ng/g	0.0019 U	0.0019	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'456'-HeptaCB-(174)	ng/g	0.0018 U	0.0018	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'45'6-HeptaCB-(175)	ng/g	0.0048 U	0.0048	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'466'-HeptaCB-(176)	ng/g	0.0042 J	0.0034	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'45'6'-HeptaCB-(177)	ng/g	0.0218	0.0018	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'55'6-HeptaCB-(178)	ng/g	0.0123	0.0050	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'566'-HeptaCB-(179)	ng/g	0.0156	0.0034	0.0098	N/A	N/A	N/A	N/A	4869418
HeptaCB-(180)+(193)	ng/g	0.0338	0.0012	0.020	N/A	N/A	N/A	N/A	4869418
22'344'56-HeptaCB-(181)	ng/g	0.0019 U	0.0019	0.0098	N/A	N/A	N/A	N/A	4869418
22'344'56'-HeptaCB-(182)	ng/g	0.0048 U	0.0048	0.0098	N/A	N/A	N/A	N/A	4869418
22'344'5'6-HeptaCB-(183)	ng/g	0.0211	0.0015	0.0098	N/A	N/A	N/A	N/A	4869418
22'344'66'-HeptaCB-(184)	ng/g	0.0036 U	0.0036	0.0098	N/A	N/A	N/A	N/A	4869418
22'3455'6-HeptaCB-(185)	ng/g	0.0022 U	0.0022	0.0098	N/A	N/A	N/A	N/A	4869418
22'34566'-HeptaCB-(186)	ng/g	0.0040 U	0.0040	0.0098	N/A	N/A	N/A	N/A	4869418
22'34'55'6-HeptaCB-(187)	ng/g	0.0810	0.0049	0.0098	N/A	N/A	N/A	N/A	4869418
22'34'566'-HeptaCB-(188)	ng/g	0.0028 U	0.0028	0.0098	N/A	N/A	N/A	N/A	4869418
233'44'55'-HeptaCB-(189)	ng/g	0.00083 J	0.00058	0.0098	N/A	0.0000300	0.0000000249	N/A	4869418
233'44'56-HeptaCB-(190)	ng/g	0.0034 J	0.0014	0.0098	N/A	N/A	N/A	N/A	4869418
233'44'5'6-HeptaCB-(191)	ng/g	0.0013 U	0.0013	0.0098	N/A	N/A	N/A	N/A	4869418
233'455'6-HeptaCB-(192)	ng/g	0.0016 U	0.0016	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'44'55'-OctaCB-(194)	ng/g	0.0033 J	0.0013	0.0098	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU265							
Sampling Date		2017/01/05 14:35							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-WS-1-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
22'33'44'56-OctaCB-(195)	ng/g	0.0014 U	0.0014	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'44'56'-OctaCB-(196)	ng/g	0.0033 U	0.0033	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'44'66'OctaCB-(197)	ng/g	0.0027 U	0.0027	0.0098	N/A	N/A	N/A	N/A	4869418
OctaCB-(198)+(199)	ng/g	0.0036 U	0.0036	0.020	N/A	N/A	N/A	N/A	4869418
22'33'4566'-OctaCB-(200)	ng/g	0.0022 U	0.0022	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'45'66'-OctaCB-(201)	ng/g	0.0033 J	0.0023	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'55'66'-OctaCB-(202)	ng/g	0.0079 J	0.0021	0.0098	N/A	N/A	N/A	N/A	4869418
22'344'55'6-OctaCB-(203)	ng/g	0.0044 J	0.0035	0.0098	N/A	N/A	N/A	N/A	4869418
22'344'566'-OctaCB-(204)	ng/g	0.0023 U	0.0023	0.0098	N/A	N/A	N/A	N/A	4869418
233'44'55'6-OctaCB-(205)	ng/g	0.0014 U	0.0014	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'44'55'6-NonaCB-(206)	ng/g	0.0015 U	0.0015	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'44'566'-NonaCB-(207)	ng/g	0.0012 U	0.0012	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'455'66'-NonaCB-(208)	ng/g	0.0015 U	0.0015	0.0098	N/A	N/A	N/A	N/A	4869418
DecaCB-(209)	ng/g	0.0028 U	0.0028	0.0098	N/A	N/A	N/A	N/A	4869418
Total PCB	ng/g	2.19	N/A	N/A	N/A	N/A	N/A	N/A	4869418
TOTAL TOXIC EQUIVALENCY	ng/g	N/A	N/A	N/A	N/A	N/A	0.000147	N/A	N/A
Surrogate Recovery (%)									
C13-2,44'-TriCB-(28)	%	101	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'33'44'55'6-NonaCB-(206)	%	78	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'33'44'5-HeptaCB-(170)	%	80	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'33'455'66'-NonaCB-(208)	%	74	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'33'55'66'-OctaCB-(202)	%	73	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'33'55'6-HeptaCB-(178)	%	93	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'344'55'-HeptaCB-(180)	%	80	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'34'566'-HeptaCB-(188)	%	88	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'44'66'-HexaCB-(155)	%	82	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'466'-PentaCB-(104)	%	87	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'66'-TetraCB-(54)	%	94	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'6-TriCB-(19)	%	71	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'-DiCB-(4)	%	67	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-233'44'55'6-OctaCB-(205)	%	89	N/A	N/A	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU265							
Sampling Date		2017/01/05 14:35							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-WS-1-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
C13-233'44'55'-HeptaCB-(189)	%	92	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-233'44'-PentaCB-(105)	%	111	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-233'55'-PentaCB-(111)	%	98	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-23'44'55'-HexaCB-(167)	%	103	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-2344'5-PentaCB-(114)	%	111	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-23'44'5-PentaCB-(118)	%	111	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-2'344'5-PentaCB-(123)	%	99	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-2-MonoCB-(1)	%	74	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-33'44'55'-HexaCB-(169)	%	65	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-33'44'5-PentaCB-(126)	%	107	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-33'44'-TetraCB-(77)	%	118	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-344'5-TetraCB-(81)	%	109	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-344'-TriCB-(37)	%	102	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-44'-DiCB-(15)	%	83	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-4-MonoCB-(3)	%	72	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-DecaCB-(209)	%	83	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-HexaCB-(156)+(157)	%	106	N/A	N/A	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU266							
Sampling Date		2017/01/05							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-SMA1-2-3-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
PCBs									
2-MonoCB-(1)	ng/g	0.00095 U	0.00095	0.0098	N/A	N/A	N/A	N/A	4869418
3-MonoCB-(2)	ng/g	0.00086 U	0.00086	0.0098	N/A	N/A	N/A	N/A	4869418
4-MonoCB-(3)	ng/g	0.00097 U	0.00097	0.0098	N/A	N/A	N/A	N/A	4869418
22'-DiCB-(4)	ng/g	0.014 U	0.014	0.0098	N/A	N/A	N/A	N/A	4869418
2,3-DiCB-(5)	ng/g	0.0073 U	0.0073	0.0098	N/A	N/A	N/A	N/A	4869418
2,3'-DiCB-(6)	ng/g	0.0059 U	0.0059	0.0098	N/A	N/A	N/A	N/A	4869418
2,4-DiCB-(7)	ng/g	0.0066 U	0.0066	0.0098	N/A	N/A	N/A	N/A	4869418
2,4'-DiCB-(8)	ng/g	0.0052 U	0.0052	0.0098	N/A	N/A	N/A	N/A	4869418
2,5-DiCB-(9)	ng/g	0.0057 U	0.0057	0.0098	N/A	N/A	N/A	N/A	4869418
2,6-DiCB-(10)	ng/g	0.020 U	0.020	0.0098	N/A	N/A	N/A	N/A	4869418
3,3'-DiCB-(11)	ng/g	0.0072 J	0.0056	0.0098	N/A	N/A	N/A	N/A	4869418
DiCB-(12)+(13)	ng/g	0.0061 U	0.0061	0.020	N/A	N/A	N/A	N/A	4869418
3,5-DiCB-(14)	ng/g	0.0054 U	0.0054	0.0098	N/A	N/A	N/A	N/A	4869418
4,4'-DiCB-(15)	ng/g	0.011 U	0.011	0.0098	N/A	N/A	N/A	N/A	4869418
22'3-TriCB-(16)	ng/g	0.0076 U	0.0076	0.0098	N/A	N/A	N/A	N/A	4869418
22'4-TriCB-(17)	ng/g	0.0055 U	0.0055	0.0098	N/A	N/A	N/A	N/A	4869418
TriCB-(18)+(30)	ng/g	0.0051 U (1)	0.0051	0.020	N/A	N/A	N/A	N/A	4869418
22'6-TriCB-(19)	ng/g	0.0030 U	0.0030	0.0098	N/A	N/A	N/A	N/A	4869418
TriCB-(20) + (28)	ng/g	0.0207	0.0013	0.020	N/A	N/A	N/A	N/A	4869418
TriCB-(21)+(33)	ng/g	0.0050 J	0.0012	0.020	N/A	N/A	N/A	N/A	4869418
234'-TriCB-(22)	ng/g	0.0042 J	0.0014	0.0098	N/A	N/A	N/A	N/A	4869418
235-TriCB-(23)	ng/g	0.0014 U	0.0014	0.0098	N/A	N/A	N/A	N/A	4869418
236-TriCB-(24)	ng/g	0.0043 U	0.0043	0.0098	N/A	N/A	N/A	N/A	4869418
23'4-TriCB-(25)	ng/g	0.0016 J	0.0012	0.0098	N/A	N/A	N/A	N/A	4869418
TriCB-(26)+(29)	ng/g	0.0023 J	0.0012	0.020	N/A	N/A	N/A	N/A	4869418
23'6-TriCB-(27)	ng/g	0.0036 U	0.0036	0.0098	N/A	N/A	N/A	N/A	4869418
24'5-TriCB-(31)	ng/g	0.0106	0.0012	0.0098	N/A	N/A	N/A	N/A	4869418
24'6-TriCB-(32)	ng/g	0.0035 U	0.0035	0.0098	N/A	N/A	N/A	N/A	4869418
23'5'-TriCB-(34)	ng/g	0.0012 U	0.0012	0.0098	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU266							
Sampling Date		2017/01/05							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-SMA1-2-3-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'4-TriCB-(35)	ng/g	0.0012 U	0.0012	0.0098	N/A	N/A	N/A	N/A	4869418
33'5-TriCB-(36)	ng/g	0.0011 U	0.0011	0.0098	N/A	N/A	N/A	N/A	4869418
344'-TriCB-(37)	ng/g	0.0040 J	0.0023	0.0098	N/A	N/A	N/A	N/A	4869418
345-TriCB-(38)	ng/g	0.0012 U	0.0012	0.0098	N/A	N/A	N/A	N/A	4869418
34'5-TriCB-(39)	ng/g	0.0013 U	0.0013	0.0098	N/A	N/A	N/A	N/A	4869418
TetraCB-(40)+(41)+(71)	ng/g	0.0174 J	0.0017	0.029	N/A	N/A	N/A	N/A	4869418
22'34'-TetraCB-(42)	ng/g	0.0091 J	0.0019	0.0098	N/A	N/A	N/A	N/A	4869418
22'35-TetraCB-(43)	ng/g	0.0021 U	0.0021	0.0098	N/A	N/A	N/A	N/A	4869418
TetraCB-(44)+(47)+(65)	ng/g	0.0397	0.0015	0.029	N/A	N/A	N/A	N/A	4869418
TetraCB-(45)+(51)	ng/g	0.0030 U (1)	0.0030	0.020	N/A	N/A	N/A	N/A	4869418
22'36'-TetraCB-(46)	ng/g	0.0020 U	0.0020	0.0098	N/A	N/A	N/A	N/A	4869418
22'45-TetraCB-(48)	ng/g	0.0056 U (1)	0.0056	0.0098	N/A	N/A	N/A	N/A	4869418
TetraCB-(49)+TetraCB-(69)	ng/g	0.0219	0.0014	0.020	N/A	N/A	N/A	N/A	4869418
TetraCB-(50)+(53)	ng/g	0.0057 J	0.0016	0.020	N/A	N/A	N/A	N/A	4869418
22'55'-TetraCB-(52)	ng/g	0.0527	0.0014	0.0098	N/A	N/A	N/A	N/A	4869418
22'66'-TetraCB-(54)	ng/g	0.00060 U	0.00060	0.0098	N/A	N/A	N/A	N/A	4869418
233'4-TetraCB-(55)	ng/g	0.00077 U	0.00077	0.0098	N/A	N/A	N/A	N/A	4869418
233'4'-Tetra CB(56)	ng/g	0.00678 J	0.00075	0.0098	N/A	N/A	N/A	N/A	4869418
233'5-TetraCB-(57)	ng/g	0.00064 U	0.00064	0.0098	N/A	N/A	N/A	N/A	4869418
233'5'-TetraCB-(58)	ng/g	0.00074 U	0.00074	0.0098	N/A	N/A	N/A	N/A	4869418
TetraCB-(59)+(62)+(75)	ng/g	0.0034 J	0.0012	0.029	N/A	N/A	N/A	N/A	4869418
2344'-TetraCB -(60)	ng/g	0.0050 U (1)	0.0050	0.0098	N/A	N/A	N/A	N/A	4869418
TetraCB-(61)+(70)+(74)+(76)	ng/g	0.0495	0.00070	0.039	N/A	N/A	N/A	N/A	4869418
234'5-TetraCB-(63)	ng/g	0.00131 J	0.00062	0.0098	N/A	N/A	N/A	N/A	4869418
234'6-TetraCB-(64)	ng/g	0.0087 J	0.0013	0.0098	N/A	N/A	N/A	N/A	4869418
23'44'-TetraCB-(66)	ng/g	0.0200	0.00060	0.0098	N/A	N/A	N/A	N/A	4869418
23'45-TetraCB-(67)	ng/g	0.00090 J	0.00060	0.0098	N/A	N/A	N/A	N/A	4869418
23'45'-TetraCB-(68)	ng/g	0.00064 U	0.00064	0.0098	N/A	N/A	N/A	N/A	4869418
23'55'-TetraCB-(72)	ng/g	0.00102 J	0.00061	0.0098	N/A	N/A	N/A	N/A	4869418
23'5'6-TetraCB-(73)	ng/g	0.0014 U	0.0014	0.0098	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU266							
Sampling Date		2017/01/05							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-SMA1-2-3-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'44'-TetraCB-(77)	ng/g	0.00226 J	0.00091	0.0098	N/A	0.000100	0.000000226	N/A	4869418
33'45-TetraCB-(78)	ng/g	0.00064 U	0.00064	0.0098	N/A	N/A	N/A	N/A	4869418
33'45'-TetraCB(79)	ng/g	0.00058 U	0.00058	0.0098	N/A	N/A	N/A	N/A	4869418
33'55'-TetraCB-(80)	ng/g	0.00058 U	0.00058	0.0098	N/A	N/A	N/A	N/A	4869418
344'5-TetraCB-(81)	ng/g	0.00094 U	0.00094	0.0098	N/A	0.000300	0.000000282	N/A	4869418
22'33'4-PentaCB-(82)	ng/g	0.0075 J	0.0011	0.0098	N/A	N/A	N/A	N/A	4869418
PentaCB-(83)+(99)	ng/g	0.0872	0.00097	0.020	N/A	N/A	N/A	N/A	4869418
22'33'6-PentaCB-(84)	ng/g	0.0149	0.0011	0.0098	N/A	N/A	N/A	N/A	4869418
PentaCB-(85)+(116)+(117)	ng/g	0.0195 J	0.00081	0.029	N/A	N/A	N/A	N/A	4869418
PentaCB-(86)(87)(97)(109)(119)(125)	ng/g	0.0504 J	0.00083	0.059	N/A	N/A	N/A	N/A	4869418
PentaCB-(88)+(91)	ng/g	0.0082 J	0.0010	0.020	N/A	N/A	N/A	N/A	4869418
22'346'-PentaCB-(89)	ng/g	0.0010 U	0.0010	0.0098	N/A	N/A	N/A	N/A	4869418
PentaCB-(90)+(101)+(113)	ng/g	0.124	0.00085	0.029	N/A	N/A	N/A	N/A	4869418
22'355'-PentaCB-(92)	ng/g	0.0232	0.00097	0.0098	N/A	N/A	N/A	N/A	4869418
PentaCB-(93)+(98)+(100)+(102)	ng/g	0.0058 J	0.0010	0.039	N/A	N/A	N/A	N/A	4869418
22'356'-PentaCB-(94)	ng/g	0.0011 U	0.0011	0.0098	N/A	N/A	N/A	N/A	4869418
22'35'6-PentaCB-(95)	ng/g	0.0662	0.00090	0.0098	N/A	N/A	N/A	N/A	4869418
22'366'-PentaCB-(96)	ng/g	0.0017 U	0.0017	0.0098	N/A	N/A	N/A	N/A	4869418
22'45'6-PentaCB-(103)	ng/g	0.00196 J	0.00081	0.0098	N/A	N/A	N/A	N/A	4869418
22'466'-PentaCB-(104)	ng/g	0.00075 U	0.00075	0.0098	N/A	N/A	N/A	N/A	4869418
233'44'-PentaCB-(105)	ng/g	0.0314	0.00084	0.0098	N/A	0.0000300	0.000000942	N/A	4869418
233'45-PentaCB-(106)	ng/g	0.00059 U	0.00059	0.0098	N/A	N/A	N/A	N/A	4869418
233'4'5-PentaCB-(107)	ng/g	0.00750 J	0.00055	0.0098	N/A	N/A	N/A	N/A	4869418
PentaCB-(108)+(124)	ng/g	0.00304 J	0.00064	0.020	N/A	N/A	N/A	N/A	4869418
PentaCB-(110)+(115)	ng/g	0.0892	0.00075	0.020	N/A	N/A	N/A	N/A	4869418
233'55'-PentaCB-(111)	ng/g	0.00073 U	0.00073	0.0098	N/A	N/A	N/A	N/A	4869418
233'56-PentaCB-(112)	ng/g	0.00074 U	0.00074	0.0098	N/A	N/A	N/A	N/A	4869418
2344'5-PentaCB-(114)	ng/g	0.00154 J	0.00081	0.0098	N/A	0.0000300	0.0000000462	N/A	4869418
23'44'5-PentaCB-(118)	ng/g	0.0918	0.00084	0.0098	N/A	0.0000300	0.00000275	N/A	4869418
23'455'-PentaCB-(120)	ng/g	0.00063 U	0.00063	0.0098	N/A	N/A	N/A	N/A	4869418
23'45'6-PentaCB-(121)	ng/g	0.00073 U	0.00073	0.0098	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU266							
Sampling Date		2017/01/05							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-SMA1-2-3-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
233'4'5'-PentaCB-(122)	ng/g	0.00064 U	0.00064	0.0098	N/A	N/A	N/A	N/A	4869418
23'44'5'-PentaCB-(123)	ng/g	0.0012 U (1)	0.0012	0.0098	N/A	0.0000300	0.0000000360	N/A	4869418
33'44'5-PentaCB-(126)	ng/g	0.00085 U	0.00085	0.0098	N/A	0.100	0.0000850	N/A	4869418
33'455'-PentaCB-(127)	ng/g	0.00058 U	0.00058	0.0098	N/A	N/A	N/A	N/A	4869418
HexaCB-(128)+(166)	ng/g	0.0245	0.0029	0.020	N/A	N/A	N/A	N/A	4869418
HexaCB-(129)+(138)+(163)	ng/g	0.204	0.0032	0.029	N/A	N/A	N/A	N/A	4869418
22'33'45'-HexaCB-(130)	ng/g	0.0090 U (1)	0.0090	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'46-HexaCB-(131)	ng/g	0.0039 U	0.0039	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'46'-HexaCB-(132)	ng/g	0.0308	0.0040	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'55'-HexaCB-(133)	ng/g	0.0041 J	0.0034	0.0098	N/A	N/A	N/A	N/A	4869418
HexaCB-(134)+(143)	ng/g	0.0054 J	0.0037	0.020	N/A	N/A	N/A	N/A	4869418
HexaCB-(135)+(151)	ng/g	0.0604	0.0053	0.020	N/A	N/A	N/A	N/A	4869418
22'33'66'-HexaCB-(136)	ng/g	0.0139	0.0035	0.0098	N/A	N/A	N/A	N/A	4869418
22'344'5-HexaCB-(137)	ng/g	0.0036 U	0.0036	0.0098	N/A	N/A	N/A	N/A	4869418
HexaCB-(139)+(140)	ng/g	0.0032 J	0.0032	0.020	N/A	N/A	N/A	N/A	4869418
22'3455'-HexaCB-(141)	ng/g	0.0034 U	0.0034	0.0098	N/A	N/A	N/A	N/A	4869418
22'3456-HexaCB-(142)	ng/g	0.0037 U	0.0037	0.0098	N/A	N/A	N/A	N/A	4869418
22'345'6-HexaCB-(144)	ng/g	0.0063 J	0.0048	0.0098	N/A	N/A	N/A	N/A	4869418
22'3466'-HexaCB-(145)	ng/g	0.0040 U	0.0040	0.0098	N/A	N/A	N/A	N/A	4869418
22'34'55'-HexaCB-(146)	ng/g	0.0392	0.0029	0.0098	N/A	N/A	N/A	N/A	4869418
HexaCB-(147)+(149)	ng/g	0.134	0.0032	0.020	N/A	N/A	N/A	N/A	4869418
22'34'56'-HexaCB-(148)	ng/g	0.0047 U	0.0047	0.0098	N/A	N/A	N/A	N/A	4869418
22'34'66'-HexaCB-(150)	ng/g	0.0039 U	0.0039	0.0098	N/A	N/A	N/A	N/A	4869418
22'3566'-HexaCB-(152)	ng/g	0.0034 U	0.0034	0.0098	N/A	N/A	N/A	N/A	4869418
HexaCB-(153)+(168)	ng/g	0.227	0.0026	0.0098	N/A	N/A	N/A	N/A	4869418
22'44'56'-HexaCB-(154)	ng/g	0.0058 J	0.0042	0.0098	N/A	N/A	N/A	N/A	4869418
22'44'66'-HexaCB-(155)	ng/g	0.0017 U	0.0017	0.0098	N/A	N/A	N/A	N/A	4869418
HexaCB-(156)+(157)	ng/g	0.0101 J	0.0015	0.020	N/A	0.0000300	0.000000303	N/A	4869418
233'44'6-HexaCB-(158)	ng/g	0.0122	0.0023	0.0098	N/A	N/A	N/A	N/A	4869418
233'455'-HexaCB-(159)	ng/g	0.0011 U	0.0011	0.0098	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU266							
Sampling Date		2017/01/05							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-SMA1-2-3-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
233'456-HexaCB-(160)	ng/g	0.0027 U	0.0027	0.0098	N/A	N/A	N/A	N/A	4869418
233'45'6-HexaCB-(161)	ng/g	0.0024 U	0.0024	0.0098	N/A	N/A	N/A	N/A	4869418
233'4'55'-HexaCB-(162)	ng/g	0.0012 U	0.0012	0.0098	N/A	N/A	N/A	N/A	4869418
233'4'5'6-HexaCB-(164)	ng/g	0.0024 U	0.0024	0.0098	N/A	N/A	N/A	N/A	4869418
233'55'6-HexaCB-(165)	ng/g	0.0028 U	0.0028	0.0098	N/A	N/A	N/A	N/A	4869418
23'44'55'-HexaCB-(167)	ng/g	0.0053 U (1)	0.0053	0.0098	N/A	0.0000300	0.000000159	N/A	4869418
33'44'55'-HexaCB-(169)	ng/g	0.0016 U	0.0016	0.0098	N/A	0.0300	0.0000480	N/A	4869418
22'33'44'5-HeptaCB-(170)	ng/g	0.0057 J	0.0012	0.0098	N/A	N/A	N/A	N/A	4869418
HeptaCB-(171)+(173)	ng/g	0.0083 J	0.0015	0.020	N/A	N/A	N/A	N/A	4869418
22'33'455'-HeptaCB-(172)	ng/g	0.0015 U	0.0015	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'456'-HeptaCB-(174)	ng/g	0.0015 U	0.0015	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'45'6-HeptaCB-(175)	ng/g	0.0042 U	0.0042	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'466'-HeptaCB-(176)	ng/g	0.0031 U	0.0031	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'45'6'-HeptaCB-(177)	ng/g	0.0180	0.0015	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'55'6-HeptaCB-(178)	ng/g	0.0111	0.0045	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'566'-HeptaCB-(179)	ng/g	0.0131	0.0030	0.0098	N/A	N/A	N/A	N/A	4869418
HeptaCB-(180)+(193)	ng/g	0.0265	0.0010	0.020	N/A	N/A	N/A	N/A	4869418
22'344'56-HeptaCB-(181)	ng/g	0.0016 U	0.0016	0.0098	N/A	N/A	N/A	N/A	4869418
22'344'56'-HeptaCB-(182)	ng/g	0.0043 U	0.0043	0.0098	N/A	N/A	N/A	N/A	4869418
22'344'5'6-HeptaCB-(183)	ng/g	0.0185	0.0012	0.0098	N/A	N/A	N/A	N/A	4869418
22'344'66'-HeptaCB-(184)	ng/g	0.0032 U	0.0032	0.0098	N/A	N/A	N/A	N/A	4869418
22'3455'6-HeptaCB-(185)	ng/g	0.0018 U	0.0018	0.0098	N/A	N/A	N/A	N/A	4869418
22'34566'-HeptaCB-(186)	ng/g	0.0036 U	0.0036	0.0098	N/A	N/A	N/A	N/A	4869418
22'34'55'6-HeptaCB-(187)	ng/g	0.0683	0.0044	0.0098	N/A	N/A	N/A	N/A	4869418
22'34'566'-HeptaCB-(188)	ng/g	0.0025 U	0.0025	0.0098	N/A	N/A	N/A	N/A	4869418
233'44'55'-HeptaCB-(189)	ng/g	0.00075 U (1)	0.00075	0.0098	N/A	0.0000300	0.0000000225	N/A	4869418
233'44'56-HeptaCB-(190)	ng/g	0.0030 J	0.0011	0.0098	N/A	N/A	N/A	N/A	4869418
233'44'5'6-HeptaCB-(191)	ng/g	0.0011 U	0.0011	0.0098	N/A	N/A	N/A	N/A	4869418
233'455'6-HeptaCB-(192)	ng/g	0.0013 U	0.0013	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'44'55'-OctaCB-(194)	ng/g	0.0016 U (1)	0.0016	0.0098	N/A	N/A	N/A	N/A	4869418

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Maxxam Job #: B722292
Report Date: 2017/03/03

Anchor QEA, LLC
Client Project #: PORT GAMBLE

SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU266							
Sampling Date		2017/01/05							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-SMA1-2-3-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
22'33'44'56-OctaCB-(195)	ng/g	0.0013 U	0.0013	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'44'56'-OctaCB-(196)	ng/g	0.0044 U	0.0044	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'44'66'OctaCB-(197)	ng/g	0.0036 U	0.0036	0.0098	N/A	N/A	N/A	N/A	4869418
OctaCB-(198)+(199)	ng/g	0.0049 U	0.0049	0.020	N/A	N/A	N/A	N/A	4869418
22'33'4566'-OctaCB-(200)	ng/g	0.0029 U	0.0029	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'45'66'-OctaCB-(201)	ng/g	0.0030 U	0.0030	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'55'66'-OctaCB-(202)	ng/g	0.0063 J	0.0027	0.0098	N/A	N/A	N/A	N/A	4869418
22'344'55'6-OctaCB-(203)	ng/g	0.0047 U	0.0047	0.0098	N/A	N/A	N/A	N/A	4869418
22'344'566'-OctaCB-(204)	ng/g	0.0031 U	0.0031	0.0098	N/A	N/A	N/A	N/A	4869418
233'44'55'6-OctaCB-(205)	ng/g	0.0013 U	0.0013	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'44'55'6-NonaCB-(206)	ng/g	0.0011 U	0.0011	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'44'566'-NonaCB-(207)	ng/g	0.00083 U	0.00083	0.0098	N/A	N/A	N/A	N/A	4869418
22'33'455'66'-NonaCB-(208)	ng/g	0.0011 U	0.0011	0.0098	N/A	N/A	N/A	N/A	4869418
DecaCB-(209)	ng/g	0.0020 U	0.0020	0.0098	N/A	N/A	N/A	N/A	4869418
Total PCB	ng/g	1.89	N/A	N/A	N/A	N/A	N/A	N/A	4869418
TOTAL TOXIC EQUIVALENCY	ng/g	N/A	N/A	N/A	N/A	N/A	0.000138	N/A	N/A
Surrogate Recovery (%)									
C13-2,44'-TriCB-(28)	%	101	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'33'44'55'6-NonaCB-(206)	%	82	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'33'44'5-HeptaCB-(170)	%	84	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'33'455'66'-NonaCB-(208)	%	76	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'33'55'66'-OctaCB-(202)	%	77	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'33'55'6-HeptaCB-(178)	%	99	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'344'55'-HeptaCB-(180)	%	86	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'34'566'-HeptaCB-(188)	%	89	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'44'66'-HexaCB-(155)	%	85	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'466'-PentaCB-(104)	%	85	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'66'-TetraCB-(54)	%	91	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'6-TriCB-(19)	%	67	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-22'-DiCB-(4)	%	70	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-233'44'55'6-OctaCB-(205)	%	96	N/A	N/A	N/A	N/A	N/A	N/A	4869418

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SEMI-VOLATILE ORGANICS BY HRMS (TISSUE)

Maxxam ID		DVU266							
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COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	PG-SMA1-2-3-MUS-170105	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
C13-233'44'55'-HeptaCB-(189)	%	95	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-233'44'-PentaCB-(105)	%	113	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-233'55'-PentaCB-(111)	%	102	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-23'44'55'-HexaCB-(167)	%	110	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-2344'5-PentaCB-(114)	%	112	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-23'44'5-PentaCB-(118)	%	113	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-2'344'5-PentaCB-(123)	%	110	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-2-MonoCB-(1)	%	69	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-33'44'55'-HexaCB-(169)	%	64	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-33'44'5-PentaCB-(126)	%	109	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-33'44'-TetraCB-(77)	%	118	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-344'5-TetraCB-(81)	%	119	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-344'-TriCB-(37)	%	107	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-44'-DiCB-(15)	%	85	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-4-MonoCB-(3)	%	68	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-DecaCB-(209)	%	88	N/A	N/A	N/A	N/A	N/A	N/A	4869418
C13-HexaCB-(156)+(157)	%	110	N/A	N/A	N/A	N/A	N/A	N/A	4869418

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

N/A = Not Applicable

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TEST SUMMARY

Maxxam ID: DVU256 **Collected:** 2016/11/09
Sample ID: PG-T0-MUS-COC-161109 **Shipped:**
Matrix: TISSUE **Received:** 2017/02/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
PCB Congeners in Tissue (1668A)	HRMS/MS	4869418	2017/02/13	2017/02/19	Cathy Xu

Maxxam ID: DVU257 **Collected:** 2017/01/05
Sample ID: PG-SMA1-1-MUS-170105 **Shipped:**
Matrix: TISSUE **Received:** 2017/02/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
PCB Congeners in Tissue (1668A)	HRMS/MS	4869418	2017/02/13	2017/02/19	Cathy Xu

Maxxam ID: DVU258 **Collected:** 2017/01/05
Sample ID: PG-SMA2-1-MUS-170105 **Shipped:**
Matrix: TISSUE **Received:** 2017/02/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
PCB Congeners in Tissue (1668A)	HRMS/MS	4869418	2017/02/13	2017/02/19	Cathy Xu

Maxxam ID: DVU259 **Collected:** 2017/01/05
Sample ID: PG-SMA2-2-MUS-170105 **Shipped:**
Matrix: TISSUE **Received:** 2017/02/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
PCB Congeners in Tissue (1668A)	HRMS/MS	4869418	2017/02/13	2017/02/19	Cathy Xu

Maxxam ID: DVU259 Dup **Collected:** 2017/01/05
Sample ID: PG-SMA2-2-MUS-170105 **Shipped:**
Matrix: TISSUE **Received:** 2017/02/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
PCB Congeners in Tissue (1668A)	HRMS/MS	4869418	2017/02/13	2017/02/20	Cathy Xu

Maxxam ID: DVU260 **Collected:** 2017/01/05
Sample ID: PG-SMA2-3-MUS-170105 **Shipped:**
Matrix: TISSUE **Received:** 2017/02/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
PCB Congeners in Tissue (1668A)	HRMS/MS	4869418	2017/02/13	2017/02/20	Cathy Xu

Maxxam ID: DVU261 **Collected:** 2017/01/05
Sample ID: PG-SMA2-4-MUS-170105 **Shipped:**
Matrix: TISSUE **Received:** 2017/02/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
PCB Congeners in Tissue (1668A)	HRMS/MS	4869418	2017/02/13	2017/02/20	Cathy Xu

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TEST SUMMARY

Maxxam ID: DVU262 **Collected:** 2017/01/05
Sample ID: PG-SMA2-5-MUS-170105 **Shipped:**
Matrix: TISSUE **Received:** 2017/02/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
PCB Congeners in Tissue (1668A)	HRMS/MS	4869418	2017/02/13	2017/02/20	Cathy Xu

Maxxam ID: DVU263 **Collected:** 2017/01/05
Sample ID: PG-PJ-1-MUS-170105 **Shipped:**
Matrix: TISSUE **Received:** 2017/02/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
PCB Congeners in Tissue (1668A)	HRMS/MS	4869418	2017/02/13	2017/02/20	Cathy Xu

Maxxam ID: DVU264 **Collected:** 2017/01/05
Sample ID: PG-GP-1-MUS-170105 **Shipped:**
Matrix: TISSUE **Received:** 2017/02/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
PCB Congeners in Tissue (1668A)	HRMS/MS	4869418	2017/02/13	2017/02/20	Cathy Xu

Maxxam ID: DVU265 **Collected:** 2017/01/05
Sample ID: PG-WS-1-MUS-170105 **Shipped:**
Matrix: TISSUE **Received:** 2017/02/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
PCB Congeners in Tissue (1668A)	HRMS/MS	4869418	2017/02/13	2017/02/20	Cathy Xu

Maxxam ID: DVU266 **Collected:** 2017/01/05
Sample ID: PG-SMA1-2-3-MUS-170105 **Shipped:**
Matrix: TISSUE **Received:** 2017/02/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
PCB Congeners in Tissue (1668A)	HRMS/MS	4869418	2017/02/13	2017/02/20	Cathy Xu

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GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	4.4°C

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
4869418	CXU	Matrix Spike(DVU263)	C13-2,44'-TriCB-(28)	2017/02/19		75	%	40 - 125
			C13-22'33'44'55'6-NonaCB-(206)	2017/02/19		93	%	30 - 140
			C13-22'33'44'5-HeptaCB-(170)	2017/02/19		96	%	30 - 140
			C13-22'33'455'66'-NonaCB-(208)	2017/02/19		83	%	30 - 140
			C13-22'33'55'66'-OctaCB-(202)	2017/02/19		83	%	30 - 140
			C13-22'33'55'6-HeptaCB-(178)	2017/02/19		66	%	40 - 125
			C13-22'344'55'-HeptaCB-(180)	2017/02/19		99	%	30 - 140
			C13-22'34'566'-HeptaCB-(188)	2017/02/19		99	%	30 - 140
			C13-22'44'66'-HexaCB-(155)	2017/02/19		90	%	30 - 140
			C13-22'466'-PentaCB-(104)	2017/02/19		97	%	30 - 140
			C13-22'66'-TetraCB-(54)	2017/02/19		99	%	30 - 140
			C13-22'6-TriCB-(19)	2017/02/19		80	%	30 - 140
			C13-22'-DiCB-(4)	2017/02/19		80	%	30 - 140
			C13-233'44'55'6-OctaCB-(205)	2017/02/19		108	%	30 - 140
			C13-233'44'55'-HeptaCB-(189)	2017/02/19		94	%	30 - 140
			C13-233'44'-PentaCB-(105)	2017/02/19		129	%	30 - 140
			C13-233'55'-PentaCB-(111)	2017/02/19		73	%	40 - 125
			C13-23'44'55'-HexaCB-(167)	2017/02/19		113	%	30 - 140
			C13-2344'5-PentaCB-(114)	2017/02/19		128	%	30 - 140
			C13-23'44'5-PentaCB-(118)	2017/02/19		127	%	30 - 140
			C13-2'344'5-PentaCB-(123)	2017/02/19		127	%	30 - 140
			C13-2-MonoCB-(1)	2017/02/19		101	%	15 - 140
			C13-33'44'55'-HexaCB-(169)	2017/02/19		70	%	30 - 140
			C13-33'44'5-PentaCB-(126)	2017/02/19		121	%	30 - 140
			C13-33'44'-TetraCB-(77)	2017/02/19		131	%	30 - 140
			C13-344'5-TetraCB-(81)	2017/02/19		132	%	30 - 140
			C13-344'-TriCB-(37)	2017/02/19		120	%	30 - 140
			C13-44'-DiCB-(15)	2017/02/19		103	%	30 - 140
			C13-4-MonoCB-(3)	2017/02/19		97	%	15 - 140
			C13-DecaCB-(209)	2017/02/19		93	%	30 - 140
			C13-HexaCB-(156)+(157)	2017/02/19		111	%	30 - 140
			2-MonoCB-(1)	2017/02/19		84	%	50 - 150
			3-MonoCB-(2)	2017/02/19		0	%	N/A
			4-MonoCB-(3)	2017/02/19		87	%	50 - 150
			22'-DiCB-(4)	2017/02/19		93	%	50 - 150
			2,3-DiCB-(5)	2017/02/19		0	%	N/A
			2,3'-DiCB-(6)	2017/02/19		0	%	N/A
			2,4-DiCB-(7)	2017/02/19		0	%	N/A
			2,4'-DiCB-(8)	2017/02/19		0	%	N/A
			2,5-DiCB-(9)	2017/02/19		0	%	N/A
			2,6-DiCB-(10)	2017/02/19		0	%	N/A
			3,3'-DiCB-(11)	2017/02/19		0	%	N/A
			DiCB-(12)+(13)	2017/02/19		0	%	N/A
			3,5-DiCB-(14)	2017/02/19		0	%	N/A
			4,4'-DiCB-(15)	2017/02/19		85	%	50 - 150
			22'3-TriCB-(16)	2017/02/19		0	%	N/A
			22'4-TriCB-(17)	2017/02/19		0	%	N/A
			TriCB-(18)+(30)	2017/02/19		0	%	N/A
			22'6-TriCB-(19)	2017/02/19		91	%	50 - 150
			TriCB-(20) + (28)	2017/02/19		0	%	N/A
			TriCB-(21)+(33)	2017/02/19		0	%	N/A
			234'-TriCB-(22)	2017/02/19		0	%	N/A
			235-TriCB-(23)	2017/02/19		83	%	50 - 150
			236-TriCB-(24)	2017/02/19		0	%	N/A

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			23'4-TriCB-(25)	2017/02/19		0	%	N/A
			TriCB-(26)+(29)	2017/02/19		0	%	N/A
			23'6-TriCB-(27)	2017/02/19		0	%	N/A
			24'5-TriCB-(31)	2017/02/19		0	%	N/A
			24'6-TriCB-(32)	2017/02/19		0	%	N/A
			23'5'-TriCB-(34)	2017/02/19		74	%	50 - 150
			33'4-TriCB-(35)	2017/02/19		0	%	N/A
			33'5-TriCB-(36)	2017/02/19		0	%	N/A
			344'-TriCB-(37)	2017/02/19		84	%	50 - 150
			345-TriCB-(38)	2017/02/19		0	%	N/A
			34'5-TriCB-(39)	2017/02/19		0	%	N/A
			TetraCB-(40)+(41)+(71)	2017/02/19		0	%	N/A
			22'34'-TetraCB-(42)	2017/02/19		0	%	N/A
			22'35-TetraCB-(43)	2017/02/19		0	%	N/A
			TetraCB-(44)+(47)+(65)	2017/02/19		0	%	N/A
			TetraCB-(45)+(51)	2017/02/19		0	%	N/A
			22'36'-TetraCB-(46)	2017/02/19		0	%	N/A
			22'45-TetraCB-(48)	2017/02/19		0	%	N/A
			TetraCB-(49)+TetraCB-(69)	2017/02/19		0	%	N/A
			TetraCB-(50)+(53)	2017/02/19		0	%	N/A
			22'55'-TetraCB-(52)	2017/02/19		0	%	N/A
			22'66'-TetraCB-(54)	2017/02/19		86	%	50 - 150
			233'4-TetraCB-(55)	2017/02/19		0	%	N/A
			233'4'-Tetra CB(56)	2017/02/19		0	%	N/A
			233'5-TetraCB-(57)	2017/02/19		0	%	N/A
			233'5'-TetraCB-(58)	2017/02/19		0	%	N/A
			TetraCB-(59)+(62)+(75)	2017/02/19		0	%	N/A
			2344'-TetraCB -(60)	2017/02/19		0	%	N/A
			TetraCB-(61)+(70)+(74)+(76)	2017/02/19		0	%	N/A
			234'5-TetraCB-(63)	2017/02/19		0	%	N/A
			234'6-TetraCB-(64)	2017/02/19		0	%	N/A
			23'44'-TetraCB-(66)	2017/02/19		0	%	N/A
			23'45-TetraCB-(67)	2017/02/19		0	%	N/A
			23'45'-TetraCB-(68)	2017/02/19		0	%	N/A
			23'55'-TetraCB-(72)	2017/02/19		0	%	N/A
			23'5'6-TetraCB-(73)	2017/02/19		0	%	N/A
			33'44'-TetraCB-(77)	2017/02/19		82	%	50 - 150
			33'45-TetraCB-(78)	2017/02/19		0	%	N/A
			33'45'-TetraCB(79)	2017/02/19		0	%	N/A
			33'55'-TetraCB-(80)	2017/02/19		0	%	N/A
			344'5-TetraCB-(81)	2017/02/19		80	%	50 - 150
			22'33'4-PentaCB-(82)	2017/02/19		0	%	N/A
			PentaCB-(83)+(99)	2017/02/19		0	%	N/A
			22'33'6-PentaCB-(84)	2017/02/19		0	%	N/A
			PentaCB-(85)+(116)+(117)	2017/02/19		0	%	N/A
			PentaCB-(86)(87)(97)(109)(119)(125)	2017/02/19		0	%	N/A
			PentaCB-(88)+(91)	2017/02/19		0	%	N/A
			22'346'-PentaCB-(89)	2017/02/19		0	%	N/A
			PentaCB-(90)+(101)+(113)	2017/02/19		0	%	N/A
			22'355'-PentaCB-(92)	2017/02/19		0	%	N/A
			PentaCB-(93)+(98)+(100)+(102)	2017/02/19		0	%	N/A
			22'356'-PentaCB-(94)	2017/02/19		0	%	N/A
			22'35'6-PentaCB-(95)	2017/02/19		0	%	N/A
			22'366'-PentaCB-(96)	2017/02/19		0	%	N/A

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			22'45'6-PentaCB-(103)	2017/02/19		0	%	N/A
			22'466'-PentaCB-(104)	2017/02/19		87	%	50 - 150
			233'44'-PentaCB-(105)	2017/02/19		83	%	50 - 150
			233'45-PentaCB-(106)	2017/02/19		0	%	N/A
			233'4'5-PentaCB-(107)	2017/02/19		0	%	N/A
			PentaCB-(108)+(124)	2017/02/19		0	%	N/A
			PentaCB-(110)+(115)	2017/02/19		0	%	N/A
			233'55'-PentaCB-(111)	2017/02/19		0	%	N/A
			233'56-PentaCB-(112)	2017/02/19		0	%	N/A
			2344'5-PentaCB-(114)	2017/02/19		86	%	50 - 150
			23'44'5-PentaCB-(118)	2017/02/19		75	%	50 - 150
			23'455'-PentaCB-(120)	2017/02/19		0	%	N/A
			23'45'6-PentaCB-(121)	2017/02/19		0	%	N/A
			233'4'5'-PentaCB-(122)	2017/02/19		0	%	N/A
			23'44'5'-PentaCB-(123)	2017/02/19		98	%	50 - 150
			33'44'5-PentaCB-(126)	2017/02/19		87	%	50 - 150
			33'455'-PentaCB-(127)	2017/02/19		0	%	N/A
			HexaCB-(128)+(166)	2017/02/19		0	%	N/A
			HexaCB-(129)+(138)+(163)	2017/02/19		0	%	N/A
			22'33'45'-HexaCB-(130)	2017/02/19		0	%	N/A
			22'33'46-HexaCB-(131)	2017/02/19		0	%	N/A
			22'33'46'-HexaCB-(132)	2017/02/19		0	%	N/A
			22'33'55'-HexaCB-(133)	2017/02/19		0	%	N/A
			HexaCB-(134)+(143)	2017/02/19		0	%	N/A
			HexaCB-(135)+(151)	2017/02/19		0	%	N/A
			22'33'66'-HexaCB-(136)	2017/02/19		0	%	N/A
			22'344'5-HexaCB-(137)	2017/02/19		0	%	N/A
			HexaCB-(139)+(140)	2017/02/19		0	%	N/A
			22'3455'-HexaCB-(141)	2017/02/19		0	%	N/A
			22'3456-HexaCB-(142)	2017/02/19		0	%	N/A
			22'345'6-HexaCB-(144)	2017/02/19		0	%	N/A
			22'3466'-HexaCB-(145)	2017/02/19		0	%	N/A
			22'34'55'-HexaCB-(146)	2017/02/19		0	%	N/A
			HexaCB-(147)+(149)	2017/02/19		0	%	N/A
			22'34'56'-HexaCB-(148)	2017/02/19		0	%	N/A
			22'34'66'-HexaCB-(150)	2017/02/19		0	%	N/A
			22'3566'-HexaCB-(152)	2017/02/19		0	%	N/A
			HexaCB-(153)+(168)	2017/02/19		0	%	N/A
			22'44'56'-HexaCB-(154)	2017/02/19		0	%	N/A
			22'44'66'-HexaCB-(155)	2017/02/19		89	%	50 - 150
			HexaCB-(156)+(157)	2017/02/19		90	%	50 - 150
			233'44'6-HexaCB-(158)	2017/02/19		0	%	N/A
			233'455'-HexaCB-(159)	2017/02/19		0	%	N/A
			233'456-HexaCB-(160)	2017/02/19		0	%	N/A
			233'45'6-HexaCB-(161)	2017/02/19		0	%	N/A
			233'4'55'-HexaCB-(162)	2017/02/19		0	%	N/A
			233'4'5'6-HexaCB-(164)	2017/02/19		0	%	N/A
			233'55'6-HexaCB-(165)	2017/02/19		0	%	N/A
			23'44'55'-HexaCB-(167)	2017/02/19		89	%	50 - 150
			33'44'55'-HexaCB-(169)	2017/02/19		88	%	50 - 150
			22'33'44'5-HeptaCB-(170)	2017/02/19		91	%	50 - 150
			HeptaCB-(171)+(173)	2017/02/19		0	%	N/A
			22'33'455'-HeptaCB-(172)	2017/02/19		0	%	N/A
			22'33'456'-HeptaCB-(174)	2017/02/19		0	%	N/A

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			22'33'45'6-HeptaCB-(175)	2017/02/19		0	%	N/A
			22'33'466'-HeptaCB-(176)	2017/02/19		0	%	N/A
			22'33'45'6'-HeptaCB-(177)	2017/02/19		0	%	N/A
			22'33'55'6-HeptaCB-(178)	2017/02/19		0	%	N/A
			22'33'566'-HeptaCB-(179)	2017/02/19		0	%	N/A
			HeptaCB-(180)+(193)	2017/02/19		68	%	50 - 150
			22'344'56-HeptaCB-(181)	2017/02/19		0	%	N/A
			22'344'56'-HeptaCB-(182)	2017/02/19		74	%	50 - 150
			22'344'5'6-HeptaCB-(183)	2017/02/19		0	%	N/A
			22'344'66'-HeptaCB-(184)	2017/02/19		0	%	N/A
			22'3455'6-HeptaCB-(185)	2017/02/19		0	%	N/A
			22'34566'-HeptaCB-(186)	2017/02/19		0	%	N/A
			22'34'55'6-HeptaCB-(187)	2017/02/19		71	%	50 - 150
			22'34'566'-HeptaCB-(188)	2017/02/19		86	%	50 - 150
			233'44'55'-HeptaCB-(189)	2017/02/19		90	%	50 - 150
			233'44'56-HeptaCB-(190)	2017/02/19		0	%	N/A
			233'44'5'6-HeptaCB-(191)	2017/02/19		0	%	N/A
			233'455'6-HeptaCB-(192)	2017/02/19		0	%	N/A
			22'33'44'55'-OctaCB-(194)	2017/02/19		0	%	N/A
			22'33'44'56-OctaCB-(195)	2017/02/19		0	%	N/A
			22'33'44'56'-OctaCB-(196)	2017/02/19		0	%	N/A
			22'33'44'66'OctaCB-(197)	2017/02/19		0	%	N/A
			OctaCB-(198)+(199)	2017/02/19		0	%	N/A
			22'33'4566'-OctaCB-(200)	2017/02/19		0	%	N/A
			22'33'45'66'-OctaCB-(201)	2017/02/19		0	%	N/A
			22'33'55'66'-OctaCB-(202)	2017/02/19		84	%	50 - 150
			22'344'55'6-OctaCB-(203)	2017/02/19		0	%	N/A
			22'344'566'-OctaCB-(204)	2017/02/19		0	%	N/A
			233'44'55'6-OctaCB-(205)	2017/02/19		87	%	50 - 150
			22'33'44'55'6-NonaCB-(206)	2017/02/19		82	%	50 - 150
			22'33'44'566'-NonaCB-(207)	2017/02/19		0	%	N/A
			22'33'455'66'-NonaCB-(208)	2017/02/19		87	%	50 - 150
			DecaCB-(209)	2017/02/19		85	%	50 - 150
4869418	CXU	Spiked Blank	C13-2,44'-TriCB-(28)	2017/02/19		93	%	40 - 125
			C13-22'33'44'55'6-NonaCB-(206)	2017/02/19		92	%	30 - 140
			C13-22'33'44'5-HeptaCB-(170)	2017/02/19		95	%	30 - 140
			C13-22'33'455'66'-NonaCB-(208)	2017/02/19		82	%	30 - 140
			C13-22'33'55'66'-OctaCB-(202)	2017/02/19		83	%	30 - 140
			C13-22'33'55'6-HeptaCB-(178)	2017/02/19		90	%	40 - 125
			C13-22'344'55'-HeptaCB-(180)	2017/02/19		95	%	30 - 140
			C13-22'34'566'-HeptaCB-(188)	2017/02/19		96	%	30 - 140
			C13-22'44'66'-HexaCB-(155)	2017/02/19		92	%	30 - 140
			C13-22'466'-PentaCB-(104)	2017/02/19		91	%	30 - 140
			C13-22'66'-TetraCB-(54)	2017/02/19		86	%	30 - 140
			C13-22'6-TriCB-(19)	2017/02/19		71	%	30 - 140
			C13-22'-DiCB-(4)	2017/02/19		69	%	30 - 140
			C13-233'44'55'6-OctaCB-(205)	2017/02/19		109	%	30 - 140
			C13-233'44'55'-HeptaCB-(189)	2017/02/19		98	%	30 - 140
			C13-233'44'-PentaCB-(105)	2017/02/19		124	%	30 - 140
			C13-233'55'-PentaCB-(111)	2017/02/19		98	%	40 - 125
			C13-23'44'55'-HexaCB-(167)	2017/02/19		111	%	30 - 140
			C13-2344'5-PentaCB-(114)	2017/02/19		120	%	30 - 140
			C13-23'44'5-PentaCB-(118)	2017/02/19		121	%	30 - 140
			C13-2'344'5-PentaCB-(123)	2017/02/19		119	%	30 - 140

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			C13-2-MonoCB-(1)	2017/02/19		84	%	15 - 140
			C13-33'44'55'-HexaCB-(169)	2017/02/19		65	%	30 - 140
			C13-33'44'5-PentaCB-(126)	2017/02/19		114	%	30 - 140
			C13-33'44'-TetraCB-(77)	2017/02/19		126	%	30 - 140
			C13-344'5-TetraCB-(81)	2017/02/19		124	%	30 - 140
			C13-344'-TriCB-(37)	2017/02/19		111	%	30 - 140
			C13-44'-DiCB-(15)	2017/02/19		90	%	30 - 140
			C13-4-MonoCB-(3)	2017/02/19		81	%	15 - 140
			C13-DecaCB-(209)	2017/02/19		97	%	30 - 140
			C13-HexaCB-(156)+(157)	2017/02/19		110	%	30 - 140
			2-MonoCB-(1)	2017/02/19		88	%	50 - 150
			4-MonoCB-(3)	2017/02/19		92	%	50 - 150
			22'-DiCB-(4)	2017/02/19		95	%	50 - 150
			4,4'-DiCB-(15)	2017/02/19		82	%	50 - 150
			22'6-TriCB-(19)	2017/02/19		80	%	50 - 150
			235-TriCB-(23)	2017/02/19		79	%	50 - 150
			23'5'-TriCB-(34)	2017/02/19		66	%	50 - 150
			344'-TriCB-(37)	2017/02/19		83	%	50 - 150
			22'66'-TetraCB-(54)	2017/02/19		84	%	50 - 150
			33'44'-TetraCB-(77)	2017/02/19		80	%	50 - 150
			344'5-TetraCB-(81)	2017/02/19		82	%	50 - 150
			22'466'-PentaCB-(104)	2017/02/19		87	%	50 - 150
			233'44'-PentaCB-(105)	2017/02/19		86	%	50 - 150
			2344'5-PentaCB-(114)	2017/02/19		85	%	50 - 150
			23'44'5-PentaCB-(118)	2017/02/19		91	%	50 - 150
			23'44'5'-PentaCB-(123)	2017/02/19		88	%	50 - 150
			33'44'5-PentaCB-(126)	2017/02/19		84	%	50 - 150
			22'44'66'-HexaCB-(155)	2017/02/19		88	%	50 - 150
			HexaCB-(156)+(157)	2017/02/19		88	%	50 - 150
			23'44'55'-HexaCB-(167)	2017/02/19		91	%	50 - 150
			33'44'55'-HexaCB-(169)	2017/02/19		84	%	50 - 150
			22'33'44'5-HeptaCB-(170)	2017/02/19		94	%	50 - 150
			HeptaCB-(180)+(193)	2017/02/19		77	%	50 - 150
			22'344'56'-HeptaCB-(182)	2017/02/19		74	%	50 - 150
			22'34'55'6-HeptaCB-(187)	2017/02/19		83	%	50 - 150
			22'34'566'-HeptaCB-(188)	2017/02/19		87	%	50 - 150
			233'44'55'-HeptaCB-(189)	2017/02/19		85	%	50 - 150
			22'33'55'66'-OctaCB-(202)	2017/02/19		87	%	50 - 150
			233'44'55'6-OctaCB-(205)	2017/02/19		87	%	50 - 150
			22'33'44'55'6-NonaCB-(206)	2017/02/19		82	%	50 - 150
			22'33'455'66'-NonaCB-(208)	2017/02/19		84	%	50 - 150
			DecaCB-(209)	2017/02/19		81	%	50 - 150
4869418	CXU	Spiked Blank DUP	C13-2,44'-TriCB-(28)	2017/02/19		99	%	40 - 125
			C13-22'33'44'55'6-NonaCB-(206)	2017/02/19		82	%	30 - 140
			C13-22'33'44'5-HeptaCB-(170)	2017/02/19		98	%	30 - 140
			C13-22'33'455'66'-NonaCB-(208)	2017/02/19		84	%	30 - 140
			C13-22'33'55'66'-OctaCB-(202)	2017/02/19		87	%	30 - 140
			C13-22'33'55'6-HeptaCB-(178)	2017/02/19		97	%	40 - 125
			C13-22'344'55'-HeptaCB-(180)	2017/02/19		103	%	30 - 140
			C13-22'34'566'-HeptaCB-(188)	2017/02/19		95	%	30 - 140
			C13-22'44'66'-HexaCB-(155)	2017/02/19		91	%	30 - 140
			C13-22'466'-PentaCB-(104)	2017/02/19		84	%	30 - 140
			C13-22'66'-TetraCB-(54)	2017/02/19		84	%	30 - 140
			C13-22'6-TriCB-(19)	2017/02/19		63	%	30 - 140

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			C13-22'-DiCB-(4)	2017/02/19		61	%	30 - 140
			C13-233'44'55'6-OctaCB-(205)	2017/02/19		104	%	30 - 140
			C13-233'44'55'-HeptaCB-(189)	2017/02/19		96	%	30 - 140
			C13-233'44'-PentaCB-(105)	2017/02/19		121	%	30 - 140
			C13-233'55'-PentaCB-(111)	2017/02/19		103	%	40 - 125
			C13-23'44'55'-HexaCB-(167)	2017/02/19		110	%	30 - 140
			C13-2344'5-PentaCB-(114)	2017/02/19		121	%	30 - 140
			C13-23'44'5-PentaCB-(118)	2017/02/19		117	%	30 - 140
			C13-2'344'5-PentaCB-(123)	2017/02/19		119	%	30 - 140
			C13-2-MonoCB-(1)	2017/02/19		73	%	15 - 140
			C13-33'44'55'-HexaCB-(169)	2017/02/19		67	%	30 - 140
			C13-33'44'5-PentaCB-(126)	2017/02/19		113	%	30 - 140
			C13-33'44'-TetraCB-(77)	2017/02/19		123	%	30 - 140
			C13-344'5-TetraCB-(81)	2017/02/19		122	%	30 - 140
			C13-344'-TriCB-(37)	2017/02/19		108	%	30 - 140
			C13-44'-DiCB-(15)	2017/02/19		84	%	30 - 140
			C13-4-MonoCB-(3)	2017/02/19		72	%	15 - 140
			C13-DecaCB-(209)	2017/02/19		84	%	30 - 140
			C13-HexaCB-(156)+(157)	2017/02/19		111	%	30 - 140
			2-MonoCB-(1)	2017/02/19		85	%	50 - 150
			4-MonoCB-(3)	2017/02/19		90	%	50 - 150
			22'-DiCB-(4)	2017/02/19		95	%	50 - 150
			4,4'-DiCB-(15)	2017/02/19		84	%	50 - 150
			22'6-TriCB-(19)	2017/02/19		88	%	50 - 150
			235-TriCB-(23)	2017/02/19		84	%	50 - 150
			23'5'-TriCB-(34)	2017/02/19		67	%	50 - 150
			344'-TriCB-(37)	2017/02/19		84	%	50 - 150
			22'66'-TetraCB-(54)	2017/02/19		81	%	50 - 150
			33'44'-TetraCB-(77)	2017/02/19		80	%	50 - 150
			344'5-TetraCB-(81)	2017/02/19		82	%	50 - 150
			22'466'-PentaCB-(104)	2017/02/19		92	%	50 - 150
			233'44'-PentaCB-(105)	2017/02/19		86	%	50 - 150
			2344'5-PentaCB-(114)	2017/02/19		86	%	50 - 150
			23'44'5-PentaCB-(118)	2017/02/19		95	%	50 - 150
			23'44'5'-PentaCB-(123)	2017/02/19		87	%	50 - 150
			33'44'5-PentaCB-(126)	2017/02/19		85	%	50 - 150
			22'44'66'-HexaCB-(155)	2017/02/19		85	%	50 - 150
			HexaCB-(156)+(157)	2017/02/19		88	%	50 - 150
			23'44'55'-HexaCB-(167)	2017/02/19		91	%	50 - 150
			33'44'55'-HexaCB-(169)	2017/02/19		87	%	50 - 150
			22'33'44'5-HeptaCB-(170)	2017/02/19		94	%	50 - 150
			HeptaCB-(180)+(193)	2017/02/19		76	%	50 - 150
			22'344'56'-HeptaCB-(182)	2017/02/19		80	%	50 - 150
			22'34'55'6-HeptaCB-(187)	2017/02/19		83	%	50 - 150
			22'34'566'-HeptaCB-(188)	2017/02/19		86	%	50 - 150
			233'44'55'-HeptaCB-(189)	2017/02/19		89	%	50 - 150
			22'33'55'66'-OctaCB-(202)	2017/02/19		87	%	50 - 150
			233'44'55'6-OctaCB-(205)	2017/02/19		86	%	50 - 150
			22'33'44'55'6-NonaCB-(206)	2017/02/19		84	%	50 - 150
			22'33'455'66'-NonaCB-(208)	2017/02/19		87	%	50 - 150
			DecaCB-(209)	2017/02/19		84	%	50 - 150
4869418	CXU	RPD	2-MonoCB-(1)	2017/02/19	3.5		%	30
			4-MonoCB-(3)	2017/02/19	2.2		%	30
			22'-DiCB-(4)	2017/02/19	0		%	30

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			4,4'-DiCB-(15)	2017/02/19	2.4		%	30
			22'6-TriCB-(19)	2017/02/19	9.5		%	30
			235-TriCB-(23)	2017/02/19	6.1		%	30
			23'5'-TriCB-(34)	2017/02/19	1.5		%	30
			344'-TriCB-(37)	2017/02/19	1.2		%	30
			22'66'-TetraCB-(54)	2017/02/19	3.6		%	30
			33'44'-TetraCB-(77)	2017/02/19	0		%	30
			344'5-TetraCB-(81)	2017/02/19	0		%	30
			22'466'-PentaCB-(104)	2017/02/19	5.6		%	30
			233'44'-PentaCB-(105)	2017/02/19	0		%	30
			2344'5-PentaCB-(114)	2017/02/19	1.2		%	30
			23'44'5-PentaCB-(118)	2017/02/19	4.3		%	30
			23'44'5'-PentaCB-(123)	2017/02/19	1.1		%	30
			33'44'5-PentaCB-(126)	2017/02/19	1.2		%	30
			22'44'66'-HexaCB-(155)	2017/02/19	3.5		%	30
			HexaCB-(156)+(157)	2017/02/19	0		%	30
			23'44'55'-HexaCB-(167)	2017/02/19	0		%	30
			33'44'55'-HexaCB-(169)	2017/02/19	3.5		%	30
			22'33'44'5-HeptaCB-(170)	2017/02/19	0		%	30
			HeptaCB-(180)+(193)	2017/02/19	1.3		%	30
			22'344'56'-HeptaCB-(182)	2017/02/19	7.8		%	30
			22'34'55'6-HeptaCB-(187)	2017/02/19	0		%	30
			22'34'566'-HeptaCB-(188)	2017/02/19	1.2		%	30
			233'44'55'-HeptaCB-(189)	2017/02/19	4.6		%	30
			22'33'55'66'-OctaCB-(202)	2017/02/19	0		%	30
			233'44'55'6-OctaCB-(205)	2017/02/19	1.2		%	30
			22'33'44'55'6-NonaCB-(206)	2017/02/19	2.4		%	30
			22'33'455'66'-NonaCB-(208)	2017/02/19	3.5		%	30
			DecaCB-(209)	2017/02/19	3.6		%	30
4869418	CXU	Method Blank	C13-2,44'-TriCB-(28)	2017/02/20		98	%	40 - 125
			C13-22'33'44'55'6-NonaCB-(206)	2017/02/20		99	%	30 - 140
			C13-22'33'44'5-HeptaCB-(170)	2017/02/20		100	%	30 - 140
			C13-22'33'455'66'-NonaCB-(208)	2017/02/20		93	%	30 - 140
			C13-22'33'55'66'-OctaCB-(202)	2017/02/20		92	%	30 - 140
			C13-22'33'55'6-HeptaCB-(178)	2017/02/20		99	%	40 - 125
			C13-22'344'55'-HeptaCB-(180)	2017/02/20		104	%	30 - 140
			C13-22'34'566'-HeptaCB-(188)	2017/02/20		106	%	30 - 140
			C13-22'44'66'-HexaCB-(155)	2017/02/20		106	%	30 - 140
			C13-22'466'-PentaCB-(104)	2017/02/20		100	%	30 - 140
			C13-22'66'-TetraCB-(54)	2017/02/20		97	%	30 - 140
			C13-22'6-TriCB-(19)	2017/02/20		79	%	30 - 140
			C13-22'-DiCB-(4)	2017/02/20		69	%	30 - 140
			C13-233'44'55'6-OctaCB-(205)	2017/02/20		113	%	30 - 140
			C13-233'44'55'-HeptaCB-(189)	2017/02/20		108	%	30 - 140
			C13-233'44'-PentaCB-(105)	2017/02/20		122	%	30 - 140
			C13-233'55'-PentaCB-(111)	2017/02/20		100	%	40 - 125
			C13-23'44'55'-HexaCB-(167)	2017/02/20		117	%	30 - 140
			C13-2344'5-PentaCB-(114)	2017/02/20		120	%	30 - 140
			C13-23'44'5-PentaCB-(118)	2017/02/20		116	%	30 - 140
			C13-2'344'5-PentaCB-(123)	2017/02/20		118	%	30 - 140
			C13-2-MonoCB-(1)	2017/02/20		67	%	15 - 140
			C13-33'44'55'-HexaCB-(169)	2017/02/20		69	%	30 - 140
			C13-33'44'5-PentaCB-(126)	2017/02/20		111	%	30 - 140
			C13-33'44'-TetraCB-(77)	2017/02/20		120	%	30 - 140

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			C13-344'5-TetraCB-(81)	2017/02/20		121	%	30 - 140
			C13-344'-TriCB-(37)	2017/02/20		105	%	30 - 140
			C13-44'-DiCB-(15)	2017/02/20		98	%	30 - 140
			C13-4-MonoCB-(3)	2017/02/20		70	%	15 - 140
			C13-DecaCB-(209)	2017/02/20		108	%	30 - 140
			C13-HexaCB-(156)+(157)	2017/02/20		119	%	30 - 140
			2-MonoCB-(1)	2017/02/20	0.00053 U, EDL=0.00053		ng/g	
			3-MonoCB-(2)	2017/02/20	0.00048 U, EDL=0.00048		ng/g	
			4-MonoCB-(3)	2017/02/20	0.00054 U, EDL=0.00054		ng/g	
			22'-DiCB-(4)	2017/02/20	0.0097 U, EDL=0.0097		ng/g	
			2,3-DiCB-(5)	2017/02/20	0.0059 U, EDL=0.0059		ng/g	
			2,3'-DiCB-(6)	2017/02/20	0.0047 U, EDL=0.0047		ng/g	
			2,4-DiCB-(7)	2017/02/20	0.0053 U, EDL=0.0053		ng/g	
			2,4'-DiCB-(8)	2017/02/20	0.0042 U, EDL=0.0042		ng/g	
			2,5-DiCB-(9)	2017/02/20	0.0046 U, EDL=0.0046		ng/g	
			2,6-DiCB-(10)	2017/02/20	0.014 U, EDL=0.014		ng/g	
			3,3'-DiCB-(11)	2017/02/20	0.0045 U, EDL=0.0045		ng/g	
			DiCB-(12)+(13)	2017/02/20	0.0049 U, EDL=0.0049		ng/g	
			3,5-DiCB-(14)	2017/02/20	0.0043 U, EDL=0.0043		ng/g	
			4,4'-DiCB-(15)	2017/02/20	0.0088 U, EDL=0.0088		ng/g	
			22'3-TriCB-(16)	2017/02/20	0.0070 U, EDL=0.0070		ng/g	
			22'4-TriCB-(17)	2017/02/20	0.0051 U, EDL=0.0051		ng/g	
			TriCB-(18)+(30)	2017/02/20	0.0041 U, EDL=0.0041		ng/g	
			22'6-TriCB-(19)	2017/02/20	0.0027 U, EDL=0.0027		ng/g	
			TriCB-(20) + (28)	2017/02/20	0.00158 J, EDL=0.00082		ng/g	
			TriCB-(21)+(33)	2017/02/20	0.00078 U, EDL=0.00078		ng/g	
			234'-TriCB-(22)	2017/02/20	0.00087 U, EDL=0.00087		ng/g	
			235-TriCB-(23)	2017/02/20	0.00088 U, EDL=0.00088		ng/g	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			236-TriCB-(24)	2017/02/20	0.0039 U, EDL=0.0039		ng/g	
			23'4-TriCB-(25)	2017/02/20	0.00077 U, EDL=0.00077		ng/g	
			TriCB-(26)+(29)	2017/02/20	0.00076 U, EDL=0.00076		ng/g	
			23'6-TriCB-(27)	2017/02/20	0.0033 U, EDL=0.0033		ng/g	
			24'5-TriCB-(31)	2017/02/20	0.00126 J, EDL=0.00072		ng/g	
			24'6-TriCB-(32)	2017/02/20	0.0032 U, EDL=0.0032		ng/g	
			23'5'-TriCB-(34)	2017/02/20	0.00076 U, EDL=0.00076		ng/g	
			33'4-TriCB-(35)	2017/02/20	0.00074 U, EDL=0.00074		ng/g	
			33'5-TriCB-(36)	2017/02/20	0.00067 U, EDL=0.00067		ng/g	
			344'-TriCB-(37)	2017/02/20	0.0014 U, EDL=0.0014		ng/g	
			345-TriCB-(38)	2017/02/20	0.00077 U, EDL=0.00077		ng/g	
			34'5-TriCB-(39)	2017/02/20	0.00080 U, EDL=0.00080		ng/g	
			TetraCB-(40)+(41)+(71)	2017/02/20	0.0015 U, EDL=0.0015		ng/g	
			22'34'-TetraCB-(42)	2017/02/20	0.0016 U, EDL=0.0016		ng/g	
			22'35-TetraCB-(43)	2017/02/20	0.0018 U, EDL=0.0018		ng/g	
			TetraCB-(44)+(47)+(65)	2017/02/20	0.0013 U, EDL=0.0013		ng/g	
			TetraCB-(45)+(51)	2017/02/20	0.0015 U, EDL=0.0015		ng/g	
			22'36'-TetraCB-(46)	2017/02/20	0.0017 U, EDL=0.0017		ng/g	
			22'45-TetraCB-(48)	2017/02/20	0.0015 U, EDL=0.0015		ng/g	
			TetraCB-(49)+TetraCB-(69)	2017/02/20	0.0012 U, EDL=0.0012		ng/g	
			TetraCB-(50)+(53)	2017/02/20	0.0014 U, EDL=0.0014		ng/g	
			22'55'-TetraCB-(52)	2017/02/20	0.0012 U, EDL=0.0012		ng/g	
			22'66'-TetraCB-(54)	2017/02/20	0.00038 U, EDL=0.00038		ng/g	
			233'4-TetraCB-(55)	2017/02/20	0.00050 U, EDL=0.00050		ng/g	
			233'4'-Tetra CB(56)	2017/02/20	0.00049 U, EDL=0.00049		ng/g	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			233'5-TetraCB-(57)	2017/02/20	0.00042 U, EDL=0.00042		ng/g	
			233'5'-TetraCB-(58)	2017/02/20	0.00048 U, EDL=0.00048		ng/g	
			TetraCB-(59)+(62)+(75)	2017/02/20	0.0011 U, EDL=0.0011		ng/g	
			2344'-TetraCB -(60)	2017/02/20	0.00048 U, EDL=0.00048		ng/g	
			TetraCB-(61)+(70)+(74)+(76)	2017/02/20	0.0020 U, EDL=0.0020 (1)		ng/g	
			234'5-TetraCB-(63)	2017/02/20	0.00041 U, EDL=0.00041		ng/g	
			234'6-TetraCB-(64)	2017/02/20	0.0011 U, EDL=0.0011		ng/g	
			23'44'-TetraCB-(66)	2017/02/20	0.00129 J, EDL=0.00039		ng/g	
			23'45-TetraCB-(67)	2017/02/20	0.00039 U, EDL=0.00039		ng/g	
			23'45'-TetraCB-(68)	2017/02/20	0.00042 U, EDL=0.00042		ng/g	
			23'55'-TetraCB-(72)	2017/02/20	0.00040 U, EDL=0.00040		ng/g	
			23'5'6-TetraCB-(73)	2017/02/20	0.0012 U, EDL=0.0012		ng/g	
			33'44'-TetraCB-(77)	2017/02/20	0.00059 U, EDL=0.00059		ng/g	
			33'45-TetraCB-(78)	2017/02/20	0.00042 U, EDL=0.00042		ng/g	
			33'45'-TetraCB(79)	2017/02/20	0.00038 U, EDL=0.00038		ng/g	
			33'55'-TetraCB-(80)	2017/02/20	0.00038 U, EDL=0.00038		ng/g	
			344'5-TetraCB-(81)	2017/02/20	0.00062 U, EDL=0.00062		ng/g	
			22'33'4-PentaCB-(82)	2017/02/20	0.0014 U, EDL=0.0014		ng/g	
			PentaCB-(83)+(99)	2017/02/20	0.0018 J, EDL=0.0013		ng/g	
			22'33'6-PentaCB-(84)	2017/02/20	0.0015 U, EDL=0.0015		ng/g	
			PentaCB-(85)+(116)+(117)	2017/02/20	0.0011 U, EDL=0.0011		ng/g	
			PentaCB-(86)(87)(97)(109)(119)(125)	2017/02/20	0.0011 U, EDL=0.0011		ng/g	
			PentaCB-(88)+(91)	2017/02/20	0.0013 U, EDL=0.0013		ng/g	
			22'346'-PentaCB-(89)	2017/02/20	0.0014 U, EDL=0.0014		ng/g	
			PentaCB-(90)+(101)+(113)	2017/02/20	0.0021 U, EDL=0.0021 (1)		ng/g	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			22'355'-PentaCB-(92)	2017/02/20	0.0013 U, EDL=0.0013		ng/g	
			PentaCB-(93)+(98)+(100)+(102)	2017/02/20	0.0013 U, EDL=0.0013		ng/g	
			22'356'-PentaCB-(94)	2017/02/20	0.0015 U, EDL=0.0015		ng/g	
			22'35'6-PentaCB-(95)	2017/02/20	0.0012 U, EDL=0.0012		ng/g	
			22'366'-PentaCB-(96)	2017/02/20	0.00087 U, EDL=0.00087		ng/g	
			22'45'6-PentaCB-(103)	2017/02/20	0.0011 U, EDL=0.0011		ng/g	
			22'466'-PentaCB-(104)	2017/02/20	0.00039 U, EDL=0.00039		ng/g	
			233'44'-PentaCB-(105)	2017/02/20	0.00105 J, EDL=0.00060		ng/g	
			233'45-PentaCB-(106)	2017/02/20	0.00042 U, EDL=0.00042		ng/g	
			233'4'5-PentaCB-(107)	2017/02/20	0.00039 U, EDL=0.00039		ng/g	
			PentaCB-(108)+(124)	2017/02/20	0.00045 U, EDL=0.00045		ng/g	
			PentaCB-(110)+(115)	2017/02/20	0.00099 U, EDL=0.00099		ng/g	
			233'55'-PentaCB-(111)	2017/02/20	0.00097 U, EDL=0.00097		ng/g	
			233'56-PentaCB-(112)	2017/02/20	0.00098 U, EDL=0.00098		ng/g	
			2344'5-PentaCB-(114)	2017/02/20	0.00058 U, EDL=0.00058		ng/g	
			23'44'5-PentaCB-(118)	2017/02/20	0.00314 J, EDL=0.00060		ng/g	
			23'455'-PentaCB-(120)	2017/02/20	0.00084 U, EDL=0.00084		ng/g	
			23'45'6-PentaCB-(121)	2017/02/20	0.00097 U, EDL=0.00097		ng/g	
			233'4'5'-PentaCB-(122)	2017/02/20	0.00046 U, EDL=0.00046		ng/g	
			23'44'5'-PentaCB-(123)	2017/02/20	0.00066 U, EDL=0.00066		ng/g	
			33'44'5-PentaCB-(126)	2017/02/20	0.00060 U, EDL=0.00060		ng/g	
			33'455'-PentaCB-(127)	2017/02/20	0.00041 U, EDL=0.00041		ng/g	
			HexaCB-(128)+(166)	2017/02/20	0.0017 U, EDL=0.0017		ng/g	
			HexaCB-(129)+(138)+(163)	2017/02/20	0.0053 J, EDL=0.0018		ng/g	
			22'33'45'-HexaCB-(130)	2017/02/20	0.0020 U, EDL=0.0020		ng/g	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			22'33'46-HexaCB-(131)	2017/02/20	0.0022 U, EDL=0.0022		ng/g	
			22'33'46'-HexaCB-(132)	2017/02/20	0.0023 U, EDL=0.0023		ng/g	
			22'33'55'-HexaCB-(133)	2017/02/20	0.0019 U, EDL=0.0019		ng/g	
			HexaCB-(134)+(143)	2017/02/20	0.0021 U, EDL=0.0021		ng/g	
			HexaCB-(135)+(151)	2017/02/20	0.0031 U, EDL=0.0031		ng/g	
			22'33'66'-HexaCB-(136)	2017/02/20	0.0020 U, EDL=0.0020		ng/g	
			22'344'5-HexaCB-(137)	2017/02/20	0.0021 U, EDL=0.0021		ng/g	
			HexaCB-(139)+(140)	2017/02/20	0.0018 U, EDL=0.0018		ng/g	
			22'3455'-HexaCB-(141)	2017/02/20	0.0019 U, EDL=0.0019		ng/g	
			22'3456-HexaCB-(142)	2017/02/20	0.0021 U, EDL=0.0021		ng/g	
			22'345'6-HexaCB-(144)	2017/02/20	0.0028 U, EDL=0.0028		ng/g	
			22'3466'-HexaCB-(145)	2017/02/20	0.0023 U, EDL=0.0023		ng/g	
			22'34'55'-HexaCB-(146)	2017/02/20	0.0016 U, EDL=0.0016		ng/g	
			HexaCB-(147)+(149)	2017/02/20	0.0018 U, EDL=0.0018		ng/g	
			22'34'56'-HexaCB-(148)	2017/02/20	0.0028 U, EDL=0.0028		ng/g	
			22'34'66'-HexaCB-(150)	2017/02/20	0.0023 U, EDL=0.0023		ng/g	
			22'3566'-HexaCB-(152)	2017/02/20	0.0020 U, EDL=0.0020		ng/g	
			HexaCB-(153)+(168)	2017/02/20	0.0045 J, EDL=0.0015		ng/g	
			22'44'56'-HexaCB-(154)	2017/02/20	0.0025 U, EDL=0.0025		ng/g	
			22'44'66'-HexaCB-(155)	2017/02/20	0.0010 U, EDL=0.0010		ng/g	
			HexaCB-(156)+(157)	2017/02/20	0.00084 U, EDL=0.00084		ng/g	
			233'44'6-HexaCB-(158)	2017/02/20	0.0013 U, EDL=0.0013		ng/g	
			233'455'-HexaCB-(159)	2017/02/20	0.00061 U, EDL=0.00061		ng/g	
			233'456-HexaCB-(160)	2017/02/20	0.0015 U, EDL=0.0015		ng/g	
			233'45'6-HexaCB-(161)	2017/02/20	0.0013 U, EDL=0.0013		ng/g	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			233'4'55'-HexaCB-(162)	2017/02/20	0.00067 U, EDL=0.00067		ng/g	
			233'4'5'6-HexaCB-(164)	2017/02/20	0.0014 U, EDL=0.0014		ng/g	
			233'55'6-HexaCB-(165)	2017/02/20	0.0016 U, EDL=0.0016		ng/g	
			23'44'55'-HexaCB-(167)	2017/02/20	0.00092 U, EDL=0.00092		ng/g	
			33'44'55'-HexaCB-(169)	2017/02/20	0.00090 U, EDL=0.00090		ng/g	
			22'33'44'5-HeptaCB-(170)	2017/02/20	0.00098 U, EDL=0.00098		ng/g	
			HeptaCB-(171)+(173)	2017/02/20	0.0012 U, EDL=0.0012		ng/g	
			22'33'455'-HeptaCB-(172)	2017/02/20	0.0012 U, EDL=0.0012		ng/g	
			22'33'456'-HeptaCB-(174)	2017/02/20	0.0012 U, EDL=0.0012		ng/g	
			22'33'45'6-HeptaCB-(175)	2017/02/20	0.0020 U, EDL=0.0020		ng/g	
			22'33'466'-HeptaCB-(176)	2017/02/20	0.0015 U, EDL=0.0015		ng/g	
			22'33'45'6'-HeptaCB-(177)	2017/02/20	0.0012 U, EDL=0.0012		ng/g	
			22'33'55'6-HeptaCB-(178)	2017/02/20	0.0021 U, EDL=0.0021		ng/g	
			22'33'566'-HeptaCB-(179)	2017/02/20	0.0014 U, EDL=0.0014		ng/g	
			HeptaCB-(180)+(193)	2017/02/20	0.0015 U, EDL=0.0015 (1)		ng/g	
			22'344'56-HeptaCB-(181)	2017/02/20	0.0013 U, EDL=0.0013		ng/g	
			22'344'56'-HeptaCB-(182)	2017/02/20	0.0020 U, EDL=0.0020		ng/g	
			22'344'5'6-HeptaCB-(183)	2017/02/20	0.00096 U, EDL=0.00096		ng/g	
			22'344'66'-HeptaCB-(184)	2017/02/20	0.0015 U, EDL=0.0015		ng/g	
			22'3455'6-HeptaCB-(185)	2017/02/20	0.0014 U, EDL=0.0014		ng/g	
			22'34566'-HeptaCB-(186)	2017/02/20	0.0017 U, EDL=0.0017		ng/g	
			22'34'55'6-HeptaCB-(187)	2017/02/20	0.0021 U, EDL=0.0021		ng/g	
			22'34'566'-HeptaCB-(188)	2017/02/20	0.0012 U, EDL=0.0012		ng/g	
			233'44'55'-HeptaCB-(189)	2017/02/20	0.00043 U, EDL=0.00043		ng/g	
			233'44'56-HeptaCB-(190)	2017/02/20	0.00092 U, EDL=0.00092		ng/g	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			233'44'5'6-HeptaCB-(191)	2017/02/20	0.00086 U, EDL=0.00086		ng/g	
			233'455'6-HeptaCB-(192)	2017/02/20	0.0010 U, EDL=0.0010		ng/g	
			22'33'44'55'-OctaCB-(194)	2017/02/20	0.00078 U, EDL=0.00078		ng/g	
			22'33'44'56-OctaCB-(195)	2017/02/20	0.00084 U, EDL=0.00084		ng/g	
			22'33'44'56'-OctaCB-(196)	2017/02/20	0.00078 U, EDL=0.00078		ng/g	
			22'33'44'66'OctaCB-(197)	2017/02/20	0.00064 U, EDL=0.00064		ng/g	
			OctaCB-(198)+(199)	2017/02/20	0.00086 U, EDL=0.00086		ng/g	
			22'33'4566'-OctaCB-(200)	2017/02/20	0.00052 U, EDL=0.00052		ng/g	
			22'33'45'66'-OctaCB-(201)	2017/02/20	0.00054 U, EDL=0.00054		ng/g	
			22'33'55'66'-OctaCB-(202)	2017/02/20	0.00048 U, EDL=0.00048		ng/g	
			22'344'55'6-OctaCB-(203)	2017/02/20	0.00083 U, EDL=0.00083		ng/g	
			22'344'566'-OctaCB-(204)	2017/02/20	0.00054 U, EDL=0.00054		ng/g	
			233'44'55'6-OctaCB-(205)	2017/02/20	0.00086 U, EDL=0.00086		ng/g	
			22'33'44'55'6-NonaCB-(206)	2017/02/20	0.00085 U, EDL=0.00085		ng/g	
			22'33'44'566'-NonaCB-(207)	2017/02/20	0.00067 U, EDL=0.00067		ng/g	
			22'33'455'66'-NonaCB-(208)	2017/02/20	0.00085 U, EDL=0.00085		ng/g	
			DecaCB-(209)	2017/02/20	0.00098 U, EDL=0.00098		ng/g	
			Total PCB	2017/02/20	0.0199		ng/g	
4869418	CXU	RPD - Sample/Sample Dup	2-MonoCB-(1)	2017/02/20	NC		%	30
			3-MonoCB-(2)	2017/02/20	NC		%	30
			4-MonoCB-(3)	2017/02/20	NC		%	30
			22'-DiCB-(4)	2017/02/20	NC		%	30
			2,3-DiCB-(5)	2017/02/20	NC		%	30
			2,3'-DiCB-(6)	2017/02/20	NC		%	30
			2,4-DiCB-(7)	2017/02/20	NC		%	30
			2,4'-DiCB-(8)	2017/02/20	NC		%	30
			2,5-DiCB-(9)	2017/02/20	NC		%	30
			2,6-DiCB-(10)	2017/02/20	NC		%	30
			3,3'-DiCB-(11)	2017/02/20	NC		%	30
			DiCB-(12)+(13)	2017/02/20	NC		%	30
			3,5-DiCB-(14)	2017/02/20	NC		%	30
			4,4'-DiCB-(15)	2017/02/20	NC		%	30
			22'3-TriCB-(16)	2017/02/20	NC		%	30
			22'4-TriCB-(17)	2017/02/20	NC		%	30
			TriCB-(18)+(30)	2017/02/20	NC		%	30

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			22'6-TriCB-(19)	2017/02/20	NC		%	30
			TriCB-(20) + (28)	2017/02/20	NC		%	30
			TriCB-(21)+(33)	2017/02/20	NC (1)		%	30
			234'-TriCB-(22)	2017/02/20	NC		%	30
			235-TriCB-(23)	2017/02/20	NC		%	30
			236-TriCB-(24)	2017/02/20	NC		%	30
			23'4-TriCB-(25)	2017/02/20	NC		%	30
			TriCB-(26)+(29)	2017/02/20	NC (1)		%	30
			23'6-TriCB-(27)	2017/02/20	NC		%	30
			24'5-TriCB-(31)	2017/02/20	NC		%	30
			24'6-TriCB-(32)	2017/02/20	NC		%	30
			23'5'-TriCB-(34)	2017/02/20	NC		%	30
			33'4-TriCB-(35)	2017/02/20	NC		%	30
			33'5-TriCB-(36)	2017/02/20	NC		%	30
			344'-TriCB-(37)	2017/02/20	NC		%	30
			345-TriCB-(38)	2017/02/20	NC		%	30
			34'5-TriCB-(39)	2017/02/20	NC		%	30
			TetraCB-(40)+(41)+(71)	2017/02/20	NC		%	30
			22'34'-TetraCB-(42)	2017/02/20	NC (1)		%	30
			22'35-TetraCB-(43)	2017/02/20	NC		%	30
			TetraCB-(44)+(47)+(65)	2017/02/20	NC		%	30
			TetraCB-(45)+(51)	2017/02/20	NC		%	30
			22'36'-TetraCB-(46)	2017/02/20	NC		%	30
			22'45-TetraCB-(48)	2017/02/20	NC (1)		%	30
			TetraCB-(49)+TetraCB-(69)	2017/02/20	NC		%	30
			TetraCB-(50)+(53)	2017/02/20	NC		%	30
			22'55'-TetraCB-(52)	2017/02/20	NC		%	30
			22'66'-TetraCB-(54)	2017/02/20	NC		%	30
			233'4-TetraCB-(55)	2017/02/20	NC		%	30
			233'4'-Tetra CB(56)	2017/02/20	NC		%	30
			233'5-TetraCB-(57)	2017/02/20	NC		%	30
			233'5'-TetraCB-(58)	2017/02/20	NC		%	30
			TetraCB-(59)+(62)+(75)	2017/02/20	NC		%	30
			2344'-TetraCB -(60)	2017/02/20	NC		%	30
			TetraCB-(61)+(70)+(74)+(76)	2017/02/20	NC		%	30
			234'5-TetraCB-(63)	2017/02/20	NC (1)		%	30
			234'6-TetraCB-(64)	2017/02/20	NC		%	30
			23'44'-TetraCB-(66)	2017/02/20	NC		%	30
			23'45-TetraCB-(67)	2017/02/20	NC		%	30
			23'45'-TetraCB-(68)	2017/02/20	NC		%	30
			23'55'-TetraCB-(72)	2017/02/20	NC		%	30
			23'5'6-TetraCB-(73)	2017/02/20	NC		%	30
			33'44'-TetraCB-(77)	2017/02/20	NC		%	30
			33'45-TetraCB-(78)	2017/02/20	NC		%	30
			33'45'-TetraCB(79)	2017/02/20	NC		%	30
			33'55'-TetraCB-(80)	2017/02/20	NC		%	30
			344'5-TetraCB-(81)	2017/02/20	NC		%	30
			22'33'4-PentaCB-(82)	2017/02/20	NC		%	30
			PentaCB-(83)+(99)	2017/02/20	NC		%	30
			22'33'6-PentaCB-(84)	2017/02/20	NC		%	30
			PentaCB-(85)+(116)+(117)	2017/02/20	NC		%	30
			PentaCB-(86)(87)(97)(109)(119)(125)	2017/02/20	NC		%	30
			PentaCB-(88)+(91)	2017/02/20	NC		%	30
			22'346'-PentaCB-(89)	2017/02/20	NC		%	30

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			PentaCB-(90)+(101)+(113)	2017/02/20	NC		%	30
			22'355'-PentaCB-(92)	2017/02/20	NC		%	30
			PentaCB-(93)+(98)+(100)+(102)	2017/02/20	NC		%	30
			22'356'-PentaCB-(94)	2017/02/20	NC		%	30
			22'35'6-PentaCB-(95)	2017/02/20	2.3		%	30
			22'366'-PentaCB-(96)	2017/02/20	NC		%	30
			22'45'6-PentaCB-(103)	2017/02/20	NC		%	30
			22'466'-PentaCB-(104)	2017/02/20	NC		%	30
			233'44'-PentaCB-(105)	2017/02/20	NC		%	30
			233'45-PentaCB-(106)	2017/02/20	NC		%	30
			233'4'5-PentaCB-(107)	2017/02/20	NC		%	30
			PentaCB-(108)+(124)	2017/02/20	NC		%	30
			PentaCB-(110)+(115)	2017/02/20	NC		%	30
			233'55'-PentaCB-(111)	2017/02/20	NC		%	30
			233'56-PentaCB-(112)	2017/02/20	NC		%	30
			2344'5-PentaCB-(114)	2017/02/20	NC		%	30
			23'44'5-PentaCB-(118)	2017/02/20	7.7		%	30
			23'455'-PentaCB-(120)	2017/02/20	NC		%	30
			23'45'6-PentaCB-(121)	2017/02/20	NC		%	30
			233'4'5'-PentaCB-(122)	2017/02/20	NC		%	30
			23'44'5'-PentaCB-(123)	2017/02/20	NC (1)		%	30
			33'44'5-PentaCB-(126)	2017/02/20	NC		%	30
			33'455'-PentaCB-(127)	2017/02/20	NC		%	30
			HexaCB-(128)+(166)	2017/02/20	NC		%	30
			HexaCB-(129)+(138)+(163)	2017/02/20	3.6		%	30
			22'33'45'-HexaCB-(130)	2017/02/20	NC		%	30
			22'33'46-HexaCB-(131)	2017/02/20	NC		%	30
			22'33'46'-HexaCB-(132)	2017/02/20	NC (1)		%	30
			22'33'55'-HexaCB-(133)	2017/02/20	NC		%	30
			HexaCB-(134)+(143)	2017/02/20	NC		%	30
			HexaCB-(135)+(151)	2017/02/20	NC		%	30
			22'33'66'-HexaCB-(136)	2017/02/20	NC		%	30
			22'344'5-HexaCB-(137)	2017/02/20	NC		%	30
			HexaCB-(139)+(140)	2017/02/20	NC		%	30
			22'3455'-HexaCB-(141)	2017/02/20	NC		%	30
			22'3456-HexaCB-(142)	2017/02/20	NC		%	30
			22'345'6-HexaCB-(144)	2017/02/20	NC		%	30
			22'3466'-HexaCB-(145)	2017/02/20	NC		%	30
			22'34'55'-HexaCB-(146)	2017/02/20	NC		%	30
			HexaCB-(147)+(149)	2017/02/20	NC		%	30
			22'34'56'-HexaCB-(148)	2017/02/20	NC		%	30
			22'34'66'-HexaCB-(150)	2017/02/20	NC		%	30
			22'3566'-HexaCB-(152)	2017/02/20	NC		%	30
			HexaCB-(153)+(168)	2017/02/20	1.5		%	30
			22'44'56'-HexaCB-(154)	2017/02/20	NC		%	30
			22'44'66'-HexaCB-(155)	2017/02/20	NC		%	30
			HexaCB-(156)+(157)	2017/02/20	NC		%	30
			233'44'6-HexaCB-(158)	2017/02/20	NC		%	30
			233'455'-HexaCB-(159)	2017/02/20	NC		%	30
			233'456-HexaCB-(160)	2017/02/20	NC		%	30
			233'45'6-HexaCB-(161)	2017/02/20	NC		%	30
			233'4'55'-HexaCB-(162)	2017/02/20	NC		%	30
			233'4'5'6-HexaCB-(164)	2017/02/20	NC		%	30
			233'55'6-HexaCB-(165)	2017/02/20	NC		%	30

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			23'44'55'-HexaCB-(167)	2017/02/20	NC (1)		%	30
			33'44'55'-HexaCB-(169)	2017/02/20	NC		%	30
			22'33'44'5-HeptaCB-(170)	2017/02/20	NC (1)		%	30
			HeptaCB-(171)+(173)	2017/02/20	NC		%	30
			22'33'455'-HeptaCB-(172)	2017/02/20	NC		%	30
			22'33'456'-HeptaCB-(174)	2017/02/20	NC		%	30
			22'33'45'6-HeptaCB-(175)	2017/02/20	NC		%	30
			22'33'466'-HeptaCB-(176)	2017/02/20	NC		%	30
			22'33'45'6'-HeptaCB-(177)	2017/02/20	NC		%	30
			22'33'55'6-HeptaCB-(178)	2017/02/20	NC		%	30
			22'33'566'-HeptaCB-(179)	2017/02/20	NC		%	30
			HeptaCB-(180)+(193)	2017/02/20	NC		%	30
			22'344'56-HeptaCB-(181)	2017/02/20	NC		%	30
			22'344'56'-HeptaCB-(182)	2017/02/20	NC		%	30
			22'344'5'6-HeptaCB-(183)	2017/02/20	NC		%	30
			22'344'66'-HeptaCB-(184)	2017/02/20	NC		%	30
			22'3455'6-HeptaCB-(185)	2017/02/20	NC		%	30
			22'34566'-HeptaCB-(186)	2017/02/20	NC		%	30
			22'34'55'6-HeptaCB-(187)	2017/02/20	8.1		%	30
			22'34'566'-HeptaCB-(188)	2017/02/20	NC		%	30
			233'44'55'-HeptaCB-(189)	2017/02/20	NC		%	30
			233'44'56-HeptaCB-(190)	2017/02/20	NC		%	30
			233'44'5'6-HeptaCB-(191)	2017/02/20	NC		%	30
			233'455'6-HeptaCB-(192)	2017/02/20	NC		%	30
			22'33'44'55'-OctaCB-(194)	2017/02/20	NC		%	30
			22'33'44'56-OctaCB-(195)	2017/02/20	NC		%	30
			22'33'44'56'-OctaCB-(196)	2017/02/20	NC		%	30
			22'33'44'66'OctaCB-(197)	2017/02/20	NC		%	30
			OctaCB-(198)+(199)	2017/02/20	NC		%	30
			22'33'4566'-OctaCB-(200)	2017/02/20	NC		%	30
			22'33'45'66'-OctaCB-(201)	2017/02/20	NC		%	30
			22'33'55'66'-OctaCB-(202)	2017/02/20	NC		%	30
			22'344'55'6-OctaCB-(203)	2017/02/20	NC		%	30
			22'344'566'-OctaCB-(204)	2017/02/20	NC		%	30
			233'44'55'6-OctaCB-(205)	2017/02/20	NC		%	30
			22'33'44'55'6-NonaCB-(206)	2017/02/20	NC		%	30
			22'33'44'566'-NonaCB-(207)	2017/02/20	NC		%	30
			22'33'455'66'-NonaCB-(208)	2017/02/20	NC		%	30
			DecaCB-(209)	2017/02/20	NC		%	30
			Total PCB	2017/02/20	6.2		%	N/A

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

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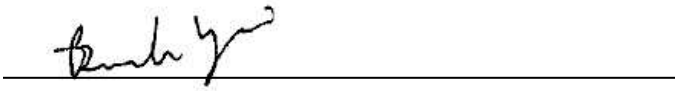
VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Branko Vrzic, A.SC.T., Senior Analyst, HRMS Services

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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Attachment E
Year 2 Data Validation Reports

Year 2 Data Validation Reports
Event 1

LABORATORY DATA CONSULTANTS, INC.
2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

Anchor Environmental, LLC
720 Olive Way, Suite 1900
Seattle, WA 98101
ATTN: Ms. Cindy Fields

October 27, 2016

SUBJECT: Port Gamble, Shellfish Monitoring, Data Validation

Dear Ms. Fields,

Enclosed is the final validation report for the fraction listed below. This SDG was received on October 6, 2016. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project #37220:

SDG #	Fraction
16I0160	Polynuclear Aromatic Hydrocarbons

The data validation was performed under Stage 2B guidelines. The analyses were validated using the following documents, as applicable to each method:

- Shellfish Monitoring Plan for Port Gamble Bay Cleanup Project, May 2015
- USEPA, Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; update IV, February 2007, update V, July 2014

Please feel free to contact us if you have any questions.

Sincerely,

Christina Rink

Christina Rink
Project Manager/Chemist

LABORATORY DATA CONSULTANTS, INC.
2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

Anchor Environmental, LLC
720 Olive Way, Suite 1900
Seattle, WA 98101
ATTN: Ms. Cindy Fields

April 19, 2017

SUBJECT: Revised Port Gamble, Shellfish Monitoring, Data Validation

Dear Ms. Fields,

Enclosed is the revised validation report for the fraction listed below. Please replace the previously submitted report with the enclosed report.

LDC Project #37220:

SDG #	Fraction
16I0160	Polynuclear Aromatic Hydrocarbons

Please feel free to contact us if you have any questions.

Sincerely,

Christina Rink

Christina Rink
Project Manager/Chemist

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Port Gamble, Shellfish Monitoring

LDC Report Date: April 18, 2017

Parameters: Polynuclear Aromatic Hydrocarbons

Validation Level: Stage 2B

Laboratory: Analytical Resources, Inc.

Sample Delivery Group (SDG): 16I0160

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
PG-SMA1-1-PEMD-160909-A	16I0160-01	Tissue	09/09/16
PG-SMA1-2-PEMD-160909-A	16I0160-03	Tissue	09/09/16
PG-SMA1-102-PEMD-160909-A	16I0160-04	Tissue	09/09/16
PG-SMA1-3-PEMD-160909-A	16I0160-05	Tissue	09/09/16
PG-PJ-1-PEMD-160909-A	16I0160-07	Tissue	09/09/16
PG-GP-1-PEMD-160909-A	16I0160-09	Tissue	09/09/16
PG-WS-1-PEMD-160909-A	16I0160-11	Tissue	09/09/16
PG-FB-PEMD-160909	16I0160-13	Tissue	09/09/16
PG-TB-PEMD-160909	16I0160-14	Tissue	09/09/16

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Shellfish Monitoring Plan for Port Gamble Bay Cleanup Project (May 2015) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Superfund Organic Methods Data Review (June 2008). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Polynuclear Aromatic Hydrocarbons (PAHs) by Environmental Protection Agency (EPA) SW 846 Method 8270D in Selected Ion Monitoring (SIM) mode

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A decafluorotriphenylphosphine (DFTPP) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

Average relative response factors (RRF) for all compounds were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 30.0% for all compounds.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all compounds.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks with the following exceptions:

Blank ID	Extraction Date	Compound	Concentration	Associated Samples
BEI0260-BLK1	09/10/16	Naphthalene 2-Methylnaphthalene	2.20 ug/Kg 1.13 ug/Kg	All samples in SDG 16I0160

Sample concentrations were compared to concentrations detected in the laboratory blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated laboratory blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
PG-SMA1-2-PEMD-160909-A	Naphthalene 2-Methylnaphthalene	8.24 ug/Kg 3.60 ug/Kg	8.24U ug/Kg 3.60U ug/Kg
PG-SMA1-1-PEMD-160909-A	Naphthalene 2-Methylnaphthalene	3.80 ug/Kg 2.42 ug/Kg	3.80U ug/Kg 2.42U ug/Kg
PG-SMA1-102-PEMD-160909-A	Naphthalene 2-Methylnaphthalene	7.90 ug/Kg 3.83 ug/Kg	7.90U ug/Kg 3.83U ug/Kg
PG-SMA1-3-PEMD-160909-A	Naphthalene 2-Methylnaphthalene	9.43 ug/Kg 4.32 ug/Kg	9.43U ug/Kg 4.32U ug/Kg
PG-PJ-1-PEMD-160909-A	Naphthalene 2-Methylnaphthalene	8.95 ug/Kg 6.03 ug/Kg	8.95U ug/Kg 6.03U ug/Kg
PG-GP-1-PEMD-160909-A	Naphthalene 2-Methylnaphthalene	6.72 ug/Kg 5.39 ug/Kg	6.72U ug/Kg 5.39U ug/Kg
PG-WS-1-PEMD-160909-A	Naphthalene 2-Methylnaphthalene	8.65 ug/Kg 5.25 ug/Kg	8.65U ug/Kg 5.25U ug/Kg

VI. Field Blanks

Sample PG-TB-PEMD-160909 was identified as a trip blank. No contaminants were found with the following exceptions:

Blank ID	Compound	Concentration
PG-TB-PEMD-160909	Naphthalene 2-Methylnaphthalene Acenaphthene Fluorene Phenanthrene Fluoranthene Pyrene	14.4 ug/kg 12.8 ug/kg 4.07 ug/kg 2.17 ug/kg 3.20 ug/kg 1.86 ug/kg 1.70 ug/kg

Sample PG-FB-PEMD-160909 was identified as a field blank. No contaminants were found with the following exceptions:

Blank ID	Compound	Concentration
PG-FB-PEMD-160909	Naphthalene	17.4 ug/Kg
	2-Methylnaphthalene	24.4 ug/Kg
	Acenaphthylene	2.09 ug/Kg
	Acenaphthene	44.4 ug/Kg
	Fluorene	30.0 ug/Kg
	Phenanthrene	43.1 ug/Kg
	Anthracene	5.60 ug/Kg
	Fluoranthene	18.5 ug/Kg
	Pyrene	10.9 ug/Kg
	Chrysene	1.19 ug/Kg

VII. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VIII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

IX. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

X. Field Duplicates

Samples PG-SMA1-2-PEMD-160909-A and PG-SMA1-102-PEMD-160909-A were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/Kg)		RPD
	PG-SMA1-2-PEMD-160909-A	PG-SMA1-102-PEMD-160909-A	
Naphthalene	8.24	7.90	4
2-Methylnaphthalene	3.6	3.83	6
Acenaphthene	3.78	3.96	5
Fluorene	3.11	3.08	1
Phenanthrene	13.9	14.2	2
Anthracene	2.52	2.03	22

Compound	Concentration (ug/Kg)		RPD
	PG-SMA1-2-PEMD-160909-A	PG-SMA1-102-PEMD-160909-A	
Fluoranthene	25.2	27.1	7
Pyrene	14.1	14.6	3
Benzo(a)anthracene	1.89	1.61	16
Chrysene	2.71	2.59	5

XI. Internal Standards

All internal standard areas and retention times were within QC limits.

XII. Compound Quantitation

Raw data were not reviewed for Stage 2B validation.

XIII. Target Compound Identifications

Raw data were not reviewed for Stage 2B validation.

XIV. System Performance

Raw data were not reviewed for Stage 2B validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Due to laboratory blank contamination, data were qualified as not detected in seven samples.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Based upon the data validation all other results are considered valid and usable for all purposes.

Port Gamble, Shellfish Monitoring
Polynuclear Aromatic Hydrocarbons - Data Qualification Summary - SDG 16I0160

No Sample Data Qualified in this SDG

Port Gamble, Shellfish Monitoring
Polynuclear Aromatic Hydrocarbons - Laboratory Blank Data Qualification Summary - SDG 16I0160

Sample	Compound	Modified Final Concentration	A or P
PG-SMA1-2-PEMD-160909-A	Naphthalene 2-Methylnaphthalene	8.24U ug/Kg 3.60U ug/Kg	A
PG-SMA1-1-PEMD-160909-A	Naphthalene 2-Methylnaphthalene	3.80U ug/Kg 2.42U ug/Kg	A
PG-SMA1-102-PEMD-160909-A	Naphthalene 2-Methylnaphthalene	7.90U ug/Kg 3.83U ug/Kg	A
PG-SMA1-3-PEMD-160909-A	Naphthalene 2-Methylnaphthalene	9.43U ug/Kg 4.32U ug/Kg	A
PG-PJ-1-PEMD-160909-A	Naphthalene 2-Methylnaphthalene	8.95U ug/Kg 6.03U ug/Kg	A
PG-GP-1-PEMD-160909-A	Naphthalene 2-Methylnaphthalene	6.72U ug/Kg 5.39U ug/Kg	A
PG-WS-1-PEMD-160909-A	Naphthalene 2-Methylnaphthalene	8.65U ug/Kg 5.25U ug/Kg	A

382 pages SF

Attachment 1

EDD Stage 2B

LDC #37220 (Anchor Environmental-Seattle WA / Port Gamble, Shellfish Monitoring)

LDC	SDG#	DATE REC'D	(3) DATE DUE	PAHs (8270D -SIM)																															
Matrix:	Water/Soil/Tissue			W	T	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	16I0160	10/06/16	10/27/16	0	9																														
Total	T/CR			0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9

Shaded cells indicate Stage 4 validation (all other cells are Stage 2B validation). These sample counts do not include MS, MSD, or DUP's.

L:\Anchor\Port Gamble\Shellfish\37220ST.wpd

LDC #: 37220

EDD POPULATION COMPLETENESS WORKSHEET

Anchor

Date: 10/24/16

2nd Reviewer: [illegible]

The LDC job number listed above was entered by KK.

	EDD Process	Y/N	Init	Comments/Action
I.	EDD Completeness	-		
Ia.	- All methods present?	Y	KK	
Ib.	- All samples present/match report?	Y	KK	
Ic.	- All reported analytes present?	Y	KK	
Id	-10% verification of EDD?	Y	KK	
II.	EDD Preparation/Entry	-		
IIa.	- QC Level applied? (EPAStage2B or EPAStage4)	Y	KK	
IIb.	- Laboratory EMPC qualified results qualified (J with reason code 23)?	NA	KK	
III.	Reasonableness Checks	-		
IIIa.	- Do all qualified ND results have ND qualifier (i.e. UJ)?	Y	KK	
IIIb.	- Do all qualified detect results have detect qualifier (i.e. J)?	Y	KK	
IIIc.	- If reason codes used, do all qualified results have reason code field populated, and vice versa?	Y	KK	
IIId.	- Do blank concentrations in report match EDD, where data was qualified due to blank?	Y	KK	
IIIe.	- Were any results reported above calibration range? If so, were results qualified appropriately?	N/A	KK	
IIIf.	- Are all results marked reportable "Yes" unless rejected for overall assessment in the data validation report?	Y	KK	
IIIg.	-Are there any lab "R" qualified data? / Are the entry columns blank for these results?	N/A	KK	
IIIh.	- Is the detect flag set to "N" for all "U" qualified blank results?	Y	KK	

Notes: *see readme

LDC #: 37220A2b **VALIDATION COMPLETENESS WORKSHEET** Date: 10/21/16
SDG #: ~~16I060~~ 16I160 Stage 2B Page: 1 of 1
Laboratory: Analytical Resources, Inc. Reviewer: EF
2nd Reviewer: AL

METHOD: GC/MS Polynuclear Aromatic Hydrocarbons (EPA SW 846 Method 8270D-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A / A	%RSD ≤ 20 ICV ≤ 30
IV.	Continuing calibration	A	CCV ≤ 20
V.	Laboratory Blanks	SW	
VI.	Field blanks	SW	FB = 8 TB = 9
VII.	Surrogate spikes	SW	
VIII.	Matrix spike/Matrix spike duplicates	N	CS
IX.	Laboratory control samples	A	LCS
X.	Field duplicates	SW	D = 2, 3
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	

Note: A = Acceptable ND = No compounds detected D = Duplicate SB=Source blank
N = Not provided/applicable R = Rinsate TB = Trip blank OTHER:
SW = See worksheet FB = Field blank EB = Equipment blank

	Client ID	Lab ID	Matrix	Date
1	~~PG-SMA1-PEMD-160909-A~~ PG-SMA1-1-PEMD-160909A	16I0160-01	Tissue	09/09/16
2	PG-SMA1-2-PEMD-160909-A D	16I0160-03	Tissue	09/09/16
3	PG-SMA1-102-PEMD-160909-A D	16I0160-04	Tissue	09/09/16
4	PG-SMA1-3-PEMD-160909-A	16I0160-05	Tissue	09/09/16
5	PG-PJ-1-PEMD-160909-A	16I0160-07	Tissue	09/09/16
6	PG-GP-1-PEMD-160909-A	16I0160-09	Tissue	09/09/16
7	PG-WS-1-PEMD-160909-A	16I0160-11	Tissue	09/09/16
8	PG-FB-PEMD-160909	16I0160-13	Tissue	09/09/16
9	PG-TB-PEMD-160909	16I0160-14	Tissue	09/09/16
10				
11				
12	BEI0260			
13				

VALIDATION FINDINGS WORKSHEET

METHOD: GC/MS SVOA

A. Phenol	AA. 2-Chloronaphthalene	AAA. Butylbenzylphthalate	AAAA. Dibenzothiophene	A1.
B. Bis (2-chloroethyl) ether	BB. 2-Nitroaniline	BBB. 3,3'-Dichlorobenzidine	BBBB. Benzo(a)fluoranthene	B1.
C. 2-Chlorophenol	CC. Dimethylphthalate	CCC. Benzo(a)anthracene	CCCC. Benzo(b)fluorene	C1.
D. 1,3-Dichlorobenzene	DD. Acenaphthylene	DDD. Chrysene	DDDD. cis/trans-Decalin	D1.
E. 1,4-Dichlorobenzene	EE. 2,6-Dinitrotoluene	EEE. Bis(2-ethylhexyl)phthalate	EEEE. Biphenyl	E1.
F. 1,2-Dichlorobenzene	FF. 3-Nitroaniline	FFF. Di-n-octylphthalate	FFFF. Retene	F1.
G. 2-Methylphenol	GG. Acenaphthene	GGG. Benzo(b)fluoranthene	GGGG. C30-Hopane	G1.
H. 2,2'-Oxybis(1-chloropropane)	HH. 2,4-Dinitrophenol	HHH. Benzo(k)fluoranthene	HHHH. 1-Methylphenanthrene	H1.
I. 4-Methylphenol	II. 4-Nitrophenol	III. Benzo(a)pyrene	IIII. 1,4-Dioxane	I1.
J. N-Nitroso-di-n-propylamine	JJ. Dibenzofuran	JJJ. Indeno(1,2,3-cd)pyrene	JJJJ. Acetophenone	J1.
K. Hexachloroethane	KK. 2,4-Dinitrotoluene	KKK. Dibenz(a,h)anthracene	KKKK. Atrazine	K1.
L. Nitrobenzene	LL. Diethylphthalate	LLL. Benzo(g,h,i)perylene	LLLL. Benzaldehyde	L1.
M. Isophorone	MM. 4-Chlorophenyl-phenyl ether	MMM. Bis(2-Chloroisopropyl)ether	MMMM. Caprolactam	M1.
N. 2-Nitrophenol	NN. Fluorene	NNN. Aniline	NNNN. 2,6-Dichlorophenol	N1.
O. 2,4-Dimethylphenol	OO. 4-Nitroaniline	OOO. N-Nitrosodimethylamine	OOOO. 2,6-Dinitrotoluene	O1.
P. Bis(2-chloroethoxy)methane	PP. 4,6-Dinitro-2-methylphenol	PPP. Benzoic Acid	PPPP. 3-Methylphenol	P1.
Q. 2,4-Dichlorophenol	QQ. N-Nitrosodiphenylamine	QQQ. Benzyl alcohol	QQQQ. 3&4 Methylphenol	Q1.
R. 1,2,4-Trichlorobenzene	RR. 4-Bromophenyl-phenylether	RRR. Pyridine	RRRR. 4-Dimethyldibenzothiphene (4MDT)	R1.
S. Naphthalene	SS. Hexachlorobenzene	SSS. Benzidine	SSSS. 2/3-Dimethyldibenzothiophene (4MDT)	S1.
T. 4-Chloroaniline	TT. Pentachlorophenol	TTT. 1-Methylnaphthalene	TTTT. 1-Methyldibenzothiophene (1MDT)	T1.
U. Hexachlorobutadiene	UU. Phenanthrene	UUU.Benzo(b)thiophene	UUUU.	U1.
V. 4-Chloro-3-methylphenol	VV. Anthracene	VVV.Benzonaphthothiophene	VVVV.	V1.
W. 2-Methylnaphthalene	WW. Carbazole	WWW.Benzo(e)pyrene	WWWW.	W1.
X. Hexachlorocyclopentadiene	XX. Di-n-butylphthalate	XXX. 2,6-Dimethylnaphthalene	XXXX.	X1.
Y. 2,4,6-Trichlorophenol	YY. Fluoranthene	YYY. 2,3,5-Trimethylnaphthalene	YYYY.	Y1.
Z. 2,4,5-Trichlorophenol	ZZ. Pyrene	ZZZ. Perylene	ZZZZ.	Z1.

LDC #: 37220A2b

VALIDATION FINDINGS WORKSHEET
Blanks

Page: 1 of 1
Reviewer: FT
2nd Reviewer: a

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a method blank analyzed for each matrix?
Y N N/A Was a method blank analyzed for each concentration preparation level?
Y N N/A Was a method blank associated with every sample?
Y N N/A Was the blank contaminated? If yes, please see qualification below.

Blank extraction date: 9/10/16 **Blank analysis date:** 9/23/16
Conc. units: ug/kg Associated Samples: All

Compound	Blank ID	5X							
[redacted]	BEI0260-BLK1	1	X 2	X 1	3	4	5	6	7
S	2.20	11	8.24 U	3.80U	7.90U	9.43U	8.95U	6.72U	8.65U
W	1.13	5.65	3.60U	2.42U	3.83U	4.32U	6.03U	5.39U	5.25U
			~~8~~ 7						

Blank extraction date: _____ **Blank analysis date:** _____
Conc. units: _____ Associated Samples: _____

Compound	Blank ID								
[redacted]									

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Common contaminants such as the phthalates and TICs noted above that were detected in samples within ten times the associated method blank concentration were qualified as not detected, "U". Other contaminants within five times the method blank concentration were also qualified as not detected, "U".

LDC #: 37220A26

VALIDATION FINDINGS WORKSHEET
Field Blanks

Page: 1 of 1
Reviewer: FT
2nd Reviewer:

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)

Y N N/A Were field blanks identified in this SDG?
Y N N/A Were target compounds detected in the field blanks?

Blank units: ug/kg **Associated sample units:** ug/kg
Sampling date: 9/9/16
Field blank type: (circle one) Field Blank / Rinsate / Other: TB Associated Samples: 1-8

Compound	Blank ID	Sample Identification								
	9	5X	*2	*1	3	4	5	6	7	8
S	14.4	72	8.24U	3.80U	7.90U	9.43U	8.95U	6.72U	8.65U	11.4U
W	12.8	64	3.60U	2.42U	3.83U	4.32U	6.03U	5.39U	5.25U	24.4U
GG	4.07	20.35	3.78U	3.54U	3.96U	3.72U	6.85U	5.45U	8.49U	-
NN	2.17	10.85	3.11U	3.34U	3.08U	2.94U	6.63U	5.25U	7.79U	-
UU	3.20	16	13.9U	13.9U	14.2U	11.8U	-	-	-	-
YY	1.86	9.3	-	-	-	-	-	-	-	-
ZZ	1.70	8.5	-	-	-	-	-	-	-	-

Blank units: _____ **Associated sample units:** _____
Sampling date: _____
Field blank type: (circle one) Field Blank / Rinsate / Other: _____ Associated Samples: _____

Compound	Blank ID	Sample Identification								

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Common contaminants such as the phthalates and TICs noted above that were detected in samples within ten times the associated field blank concentration were qualified as not detected, "U". Other contaminants within five times the field blank concentration were also qualified as not detected, "U".

LDC #: 37220A2b

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer: FT
2nd Reviewer: CL

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)
Y N N/A Were field blanks identified in this SDG?
Y N N/A Were target compounds detected in the field blanks?
Blank units: ug/kg **Associated sample units:** ug/kg
Sampling date: 9/09/16
Field blank type: (circle one) Field Blank / Rinsate / Other: FB Associated Samples: 1 → 7

Compound	Blank ID	5X	Sample Identification							
	8		~~2~~	~~1~~	3	4	5	6	7	
S	17.4	87	8.24 U	3.80 U	7.90 U	9.43 U	8.95 U	6.72 U	8.65 U	
W	24.4	122	3.60 U	2.42 U	3.83 U	4.32 U	6.03 U	5.39 U	5.25 U	
DD	2.09	10.45	-	-	-	-	-	-	-	
GG	44.4	222	3.78 U	3.54 U	3.96 U	3.72 U	6.85 U	5.45 U	8.49 U	
NN	30.8	150	3.11 U	3.34 U	3.08 U	2.94 U	6.63 U	5.25 U	7.79 U	
UU	43.1	215.5	13.9 U	13.9 U	14.2 U	14.8 U	19.9 U	18.6 U	34.1 U	
VV	5.60	28	2.52 U	2.16 U	2.03 U	1.53 U	1.95 U	2.05 U	3.39 U	
YY	18.5	92.5	25.2 U	18.1 U	27.1 U	23.7 U	19.7 U	18.4 U	42.9 U	
ZZ	10.9	54.5	14.1 U	10.4 U	14.6 U	11.9 U	10.3 U	8.93 U	25.3 U	
DDD	1.19	5.95	2.71 U	1.78 U	2.59 U	2.06 U	2.06 U	1.59 U	~~2.98 U~~	4.7 U
CRQL										

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Common contaminants such as the phthalates and TICs noted above that were detected in samples within ten times the associated field blank concentration were qualified as not detected, "U". Other contaminants within five times the field blank concentration were also qualified as not detected, "U".

LDC #: 37220A26

VALIDATION FINDINGS WORKSHEET
Surrogate Recovery

Reviewer: FT
2nd Reviewer: C

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)

Please see qualification below for all questions answered "N". Not applicable questions are identified as "N/A".

Y (N) N/A Were percent recoveries (%R) for surrogates within QC limits?
Y (N) N/A If 2 or more base neutral or acid surrogates were outside QC limits, was a reanalysis performed to confirm %R?
Y (N) N/A If any %R was less than 10 percent, was a reanalysis performed to confirm %R?

#	Sample ID	Surrogate	%R (Limits)	Qualifications
	2	Fluorene-d10	0.601 (30-160)	J/R/P ND + Det
		Anthracene-d10	6.08 (30-160)	↓
			( )	
			( )	
	1	↓	0.556 (↓)	↓ ND + Det
		↓	7.08 (↓)	↓
			( )	
	3	↓	0.642 (↓)	↓ ND + Det
		↓	3.67 (↓)	↓
			( )	
	4	↓	0.597 (↓)	↓ ND + Det
		↓	3.12 (↓)	↓
			( )	
	5	↓	3.41 (↓)	J/R/P ND + Det
		↓	23.4 (↓)	↓
			( )	
	6	↓	1.36 (↓)	↓ ND + Det
		↓	17.6 (↓)	↓
			( )	
	7	↓	2.71 (↓)	↓ ND + Det
		↓	21.4 (↓)	↓
			( )	
			( )	
			( )	
			( )	
			( )	

(NBZ) = Nitrobenzene - d5
(FBP) = 2-Fluorobiphenyl
(TPH) = Terphenyl - d14
(2FP) = 2-Fluorophenol
(TBP) = 2,4,6 -Tribromophenol
(2CP) = 2-Chlorophenol - d4

LDC#: 37220A2b **VALIDATION FINDINGS WORKSHEET**
Field Duplicates

Reviewer: FT
2nd Reviewer:

METHOD: GC/MS PAH (EPA SW 846 Method 8270D SIM)

Y N NA Were field duplicate pairs identified in this SDG?
Y N NA Were target analytes detected in the field duplicate pairs?

Compound	Concentration (ug/Kg)		RPD
	2	3	
S	8.24	7.90	4
W	3.6	3.83	6
GG	3.78	3.96	5
NN	3.11	3.08	1
UU	13.9	14.2	2
VV	2.52	2.03	22
YY	25.2	27.1	7
ZZ	14.1	14.6	3
CCC	1.89	1.61	16
DDD	2.71	2.59	5

LABORATORY DATA CONSULTANTS, INC.
2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

Anchor Environmental, LLC
720 Olive Way, Suite 1900
Seattle, WA 98101
ATTN: Ms. Cindy Fields

November 11, 2016

SUBJECT: Port Gamble, Shellfish Monitoring, Data Validation

Dear Ms. Fields,

Enclosed is the final validation report for the fraction listed below. This SDG was received on October 11, 2016. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project #37263:

SDG #	Fraction
16I0393	Polynuclear Aromatic Hydrocarbons

The data validation was performed under Stage 2B guidelines. The analyses were validated using the following documents, as applicable to each method:

- Shellfish Monitoring Plan for Port Gamble Bay Cleanup Project, May 2015
- USEPA, Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; update IV, February 2007, update V, July 2014

Please feel free to contact us if you have any questions.

Sincerely,

Christina Rink

Christina Rink
Project Manager/Chemist

EDD **Stage 2B**

LDC #37263 (Anchor Environmental-Seattle WA / Port Gamble, Shellfish Monitoring)

LDC	SDG#	DATE REC'D	(3) DATE DUE	PAHs (8270D -SIM)																															
Matrix:	Water/Soil/Tissue			W	T	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	16I0393	10/11/16	11/01/16	0	1																														
Total	T/CR			0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

Shaded cells indicate Stage 4 validation (all other cells are Stage 2B validation). These sample counts do not include MS, MSD, or DUP's.

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Port Gamble, Shellfish Monitoring

LDC Report Date: October 27, 2016

Parameters: Polynuclear Aromatic Hydrocarbons

Validation Level: Stage 2B

Laboratory: Analytical Resources, Inc.

Sample Delivery Group (SDG): 16I0393

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
PG-PEMD-BLK-20160913	16I0393-01	Tissue	09/13/16

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Shellfish Monitoring Plan for Port Gamble Bay Cleanup Project (May 2015) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Superfund Organic Methods Data Review (June 2008). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Polynuclear Aromatic Hydrocarbons (PAHs) by Environmental Protection Agency (EPA) SW 846 Method 8270D in Selected Ion Monitoring (SIM) mode

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A decafluorotriphenylphosphine (DFTPP) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

Average relative response factors (RRF) for all compounds were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 30.0% for all compounds.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all compounds.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were not analyzed.

VI. Field Blanks

Sample PG-PEMD-BLK-20160913 was identified as a field blanks. No contaminants were found with the following exceptions:

Blank ID	Compound	Concentration (ug/Kg)
PG-PEMD-BLK-20160913	Naphthalene	1.28

VII. Surrogates

Surrogates were added to all samples as required by the method. Surrogate recoveries (%R) were not within QC limits for sample PG-PEMD-BLK-20160913. Using professional judgment, no data were qualified when one surrogate %R was outside the QC limits and the %R was greater than or equal to 10%.

VIII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

IX. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits with the following exceptions:

LCS ID	Compound	%R (Limits)	Associated Samples	Flag	A or P
BEIO706-LCS	Naphthalene 2-Methylnaphthalene Acenaphthylene Acenaphthene Fluorene Anthracene Benzo(k)fluoranthene Benzo(a)pyrene Perylene Benzo(e)pyrene Total Benzofluoranthene	40.7 (50-150) 42.9 (50-150) 43.7 (50-150) 46.1 (50-150) 47.6 (50-150) 46.4 (50-150) 46.8 (50-150) 48.2 (50-150) 48.1 (50-150) 49.0 (50-150) 49.9 (50-150)	All samples in SDG 16I0393	J (all detects) UJ (all non-detects)	P

Relative percent differences (RPD) were within QC limits.

X. Field Duplicates

No field duplicates were identified in this SDG.

XI. Internal Standards

All internal standard areas and retention times were within QC limits with the following exceptions:

Sample	Internal Standards	Area (Limits)	Affected Compound	Flag	A or P
PG-PEMD-BLK-20160913	Acenaphthene-d10 Phenanthrene-d10 Chrysene-d12 Perylene-d12	608435 (148759-595036) 1093670 (261021-1044084) 836424 (194750-778998) 1037253 (215313-861252)	All compounds except Naphthalene 2-Methylnaphthalene	UJ (all non-detects)	P

XII. Compound Quantitation

Raw data were not reviewed for Stage 2B validation.

XIII. Target Compound Identifications

Raw data were not reviewed for Stage 2B validation.

XIV. System Performance

Raw data were not reviewed for Stage 2B validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Due to LCS %R and internal standards, data were qualified as estimated in one sample.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the data validation all other results are considered valid and usable for all purposes.

Port Gamble, Shellfish Monitoring
Polynuclear Aromatic Hydrocarbons - Data Qualification Summary - SDG 16I0393

Sample	Compound	Flag	A or P	Reason
PG-PEMD-BLK-20160913	Naphthalene 2-Methylnaphthalene Acenaphthylene Acenaphthene Fluorene Anthracene Benzo(k)fluoranthene Benzo(a)pyrene Perylene Benzo(e)pyrene Total Benzofluoranthene	J (all detects) UJ (all non-detects)	P	Laboratory control samples (%R)
PG-PEMD-BLK-20160913	All compounds except Naphthalene 2-Methylnaphthalene	UJ (all non-detects)	P	Internal standards (area)

Port Gamble, Shellfish Monitoring
Polynuclear Aromatic Hydrocarbons - Laboratory Blank Data Qualification Summary - SDG 16I0393

No Sample Data Qualified in this SDG

LDC #: 37263A2b

VALIDATION COMPLETENESS WORKSHEET

Stage 2B

Date: 10/21/16

SDG #: 16I0393

Page: 1 of 1

Laboratory: Analytical Resources, Inc.

Reviewer: RP

2nd Reviewer: a

METHOD: GC/MS Polynuclear Aromatic Hydrocarbons (EPA SW 846 Method 8270D-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A / A	%RSD ≤ 20 ICV ≤ 30
IV.	Continuing calibration	A	CCV ≤ 20
V.	Laboratory Blanks	N	
VI.	Field blanks	SW	Blk = 1
VII.	Surrogate spikes	SW	
VIII.	Matrix spike/Matrix spike duplicates	N	CS
IX.	Laboratory control samples	SW	LCS
X.	Field duplicates	N	
XI.	Internal standards	SW	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
+ 1	PG-PEMD-BLK-20160913	16I0393-01	Tissue	09/13/16
2				
3				
4				
5				
6				
7				
8				
9				

Notes:

	BEI0706-MB						

VALIDATION FINDINGS WORKSHEET

METHOD: GC/MS SVOA

A. Phenol	AA. 2-Chloronaphthalene	AAA. Butylbenzylphthalate	AAAA. Dibenzothiophene	A1.
B. Bis (2-chloroethyl) ether	BB. 2-Nitroaniline	BBB. 3,3'-Dichlorobenzidine	BBBB. Benzo(a)fluoranthene	B1.
C. 2-Chlorophenol	CC. Dimethylphthalate	CCC. Benzo(a)anthracene	CCCC. Benzo(b)fluorene	C1.
D. 1,3-Dichlorobenzene	DD. Acenaphthylene	DDD. Chrysene	DDDD. cis/trans-Decalin	D1.
E. 1,4-Dichlorobenzene	EE. 2,6-Dinitrotoluene	EEE. Bis(2-ethylhexyl)phthalate	EEEE. Biphenyl	E1.
F. 1,2-Dichlorobenzene	FF. 3-Nitroaniline	FFF. Di-n-octylphthalate	FFFF. Retene	F1.
G. 2-Methylphenol	GG. Acenaphthene	GGG. Benzo(b)fluoranthene	GGGG. C30-Hopane	G1.
H. 2,2'-Oxybis(1-chloropropane)	HH. 2,4-Dinitrophenol	HHH. Benzo(k)fluoranthene	HHHH. 1-Methylphenanthrene	H1.
I. 4-Methylphenol	II. 4-Nitrophenol	III. Benzo(a)pyrene	IIII. 1,4-Dioxane	I1.
J. N-Nitroso-di-n-propylamine	JJ. Dibenzofuran	JJJ. Indeno(1,2,3-cd)pyrene	JJJJ. Acetophenone	J1.
K. Hexachloroethane	KK. 2,4-Dinitrotoluene	KKK. Dibenz(a,h)anthracene	KKKK. Atrazine	K1.
L. Nitrobenzene	LL. Diethylphthalate	LLL. Benzo(g,h,i)perylene	LLLL. Benzaldehyde	L1.
M. Isophorone	MM. 4-Chlorophenyl-phenyl ether	MMM. Bis(2-Chloroisopropyl)ether	MMMM. Caprolactam	M1.
N. 2-Nitrophenol	NN. Fluorene	NNN. Aniline	NNNN. 2,6-Dichlorophenol	N1.
O. 2,4-Dimethylphenol	OO. 4-Nitroaniline	OOO. N-Nitrosodimethylamine	OOOO. 2,6-Dinitrotoluene	O1.
P. Bis(2-chloroethoxy)methane	PP. 4,6-Dinitro-2-methylphenol	PPP. Benzoic Acid	PPPP. 3-Methylphenol	P1.
Q. 2,4-Dichlorophenol	QQ. N-Nitrosodiphenylamine	QQQ. Benzyl alcohol	QQQQ. 3&4 Methylphenol	Q1.
R. 1,2,4-Trichlorobenzene	RR. 4-Bromophenyl-phenylether	RRR. Pyridine	RRRR. 4-Dimethyldibenzothiphene (4MDT)	R1.
S. Naphthalene	SS. Hexachlorobenzene	SSS. Benzidine	SSSS. 2/3-Dimethyldibenzothiophene (4MDT)	S1.
T. 4-Chloroaniline	TT. Pentachlorophenol	TTT. 1-Methylnaphthalene	TTTT. 1-Methyldibenzothiophene (1MDT)	T1.
U. Hexachlorobutadiene	UU. Phenanthrene	UUU.Benzo(b)thiophene	UUUU. Benzo(e) pyrene	U1.
V. 4-Chloro-3-methylphenol	VV. Anthracene	VVV.Benzonaphthothiophene	VVVV. Benzofluoranthenes (total)	V1.
W. 2-Methylnaphthalene	WW. Carbazole	WWW.Benzo(e)pyrene	WWWW.	W1.
X. Hexachlorocyclopentadiene	XX. Di-n-butylphthalate	XXX. 2,6-Dimethylnaphthalene	XXXX.	X1.
Y. 2,4,6-Trichlorophenol	YY. Fluoranthene	YYY. 2,3,5-Trimethylnaphthalene	YYYY.	Y1.
Z. 2,4,5-Trichlorophenol	ZZ. Pyrene	ZZZ. Perylene	ZZZZ.	Z1.

LDC #: 37263A2b

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer: FT
2nd reviewer:

METHOD: GC/MS PAH (EPA SW 846 Method 8270D-sim)

Y N N/A Were field blanks identified in this SDG?
Y N N/A Were target compounds detected in the field blanks?

Sample: #1 = BLK Field Blank / Trip Blank / Rinsate (circle one)

Compound	Concentration Units (ng/kg)
5	1.28

LDC #: 37263A2b

VALIDATION FINDINGS WORKSHEET
Surrogate Recovery

Reviewer: FT
2nd Reviewer: a

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)

Please see qualification below for all questions answered "N". Not applicable questions are identified as "N/A".

Y (N) N/A	Were percent recoveries (%R) for surrogates within QC limits?
Y N (N/A)	If 2 or more base neutral or acid surrogates were outside QC limits, was a reanalysis performed to confirm %R?
Y N (N/A)	If any %R was less than 10 percent, was a reanalysis performed to confirm %R?

#	Sample ID	Surrogate	%R (Limits)	Qualifications
	1	W - d10	29.7 (30-160)	no qual
			( )	
			( )	
			( )	
			( )	
			( )	
			( )	
			( )	
			( )	
			( )	
			( )	
			( )	
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			( )	
			( )	
			( )	
			( )	
			( )	
			( )	
			( )	
			( )	
			( )	
			( )	

(NBZ) = Nitrobenzene - d5
(FBP) = 2-Fluorobiphenyl
(TPH) = Terphenyl - d14
(2FP) = 2-Fluorophenol
(TBP) = 2,4,6 -Tribromophenol
(2CP) = 2-Chlorophenol - d4

LDC #: 37263A26

VALIDATION FINDINGS WORKSHEET
Laboratory Control Samples (LCS)

Page: 1 of 1
Reviewer: FT
2nd Reviewer: a

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a LCS required?

Y N N/A Were the LCS/LCSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

#	LCS/LCSD ID	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
	BE I0706-LCS	S	40.7 (50-150)	( )	( )	all	J/UJ/P ND+Dt
		W	42.9 ( )	( )	( )		
		DD	43.7 ( )	( )	( )		
		GG	46.1 ( )	( )	( )		
		NN	47.6 ( )	( )	( )		
		VV	46.4 ( )	( )	( )		
		HHH	46.8 ( )	( )	( )		
		III	48.2 ( )	( )	( )		
		ZZZ	48.1 ( )	( )	( )		
		UUUU	49.0 ( )	( )	( )		
		VVVV	49.9 ( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		

LDC #: 37263A2b

VALIDATION FINDINGS WORKSHEET
Internal Standards

Reviewer: FT
2nd Reviewer:

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y (N) N/A Were all internal standard area counts within -50 to +100 of the associated calibration standard?

Y (N) N/A Were the retention times of the internal standards within +/- 30 seconds of the retention times of the associated calibration standard?

#	Date	Sample ID	Internal Standard	Area (Limits)	RT (Limits)	Qualifications
		1	ANT	608435 (148759 - 595036)		J/UJ/P all NP
			PHN	1093670 (261021 - 1044084)		
			CRY	836424 (194750 - 778998)		
			PRY	1037253 (215313 - 861252)		
						qual all TCL except S, W

* QC limits are advisory

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10
IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

The attached zipped file contains two files:

File	Format	Description
1) Readme_PortGamble_111116.doc	MS Word 2003	A "Readme" file (this document).
2) LDC37263_16I0393_VEDD_20161110.xlsx	MS Excel 2007	A spreadsheet for the following SDG(s): 16I0393 37263A

No discrepancies were observed between the hardcopy data packages and the electronic data deliverables during EDD population of validation qualifiers. A 100% verification of the EDD was not performed.

Please contact Christina Rink at (760) 827-1100 if you have any questions regarding this electronic data submittal.

LDC #: 37263

EDD POPULATION COMPLETENESS WORKSHEET

Anchor

Date: 11/11/14

2nd Reviewer:

The LDC job number listed above was entered by

	EDD Process	Y/N	Init	Comments/Action
I.	EDD Completeness	-		
Ia.	- All methods present?	y		
Ib.	- All samples present/match report?	y		
Ic.	- All reported analytes present?	y		
Id	-10% verification of EDD?	y		
II.	EDD Preparation/Entry	-		
IIa.	- QC Level applied? (EPAStage2B or EPAStage4)	y		
IIb.	- Laboratory EMPC qualified results qualified (J with reason code 23)?	NA		
III.	Reasonableness Checks	-		
IIIa.	- Do all qualified ND results have ND qualifier (i.e. UJ)?	y		
IIIb.	- Do all qualified detect results have detect qualifier (i.e. J)?	y		
IIIc.	- If reason codes used, do all qualified results have reason code field populated, and vice versa?	y		
IIId.	- Do blank concentrations in report match EDD, where data was qualified due to blank?	NA		
IIIe.	- Were any results reported above calibration range? If so, were results qualified appropriately?	N, NA		
IIIf.	- Are all results marked reportable "Yes" unless rejected for overall assessment in the data validation report?	y		
IIIg.	-Are there any lab "R" qualified data? / Are the entry columns blank for these results?	N, NA		
IIIh.	- Is the detect flag set to "N" for all "U" qualified blank results?	NA		

Notes: *see readme

LABORATORY DATA CONSULTANTS, INC.
2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

Anchor Environmental, LLC
720 Olive Way, Suite 1900
Seattle, WA 98101
ATTN: Ms. Cindy Fields

December 8, 2016

SUBJECT: Port Gamble, Shellfish Monitoring, Data Validation

Dear Ms. Fields,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on November 17, 2016. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project #37506:

SDG #	Fraction
16H0147 16H0268 16J0187	Polynuclear Aromatic Hydrocarbons, Cadmium, Wet Chemistry, Polychlorinated Dioxins/Dibenszofurans

The data validation was performed under Stage 2B & 4 guidelines. The analyses were validated using the following documents, as applicable to each method:

- Shellfish Monitoring Plan for Port Gamble Bay Cleanup Project, May 2015
- USEPA, Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA, Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- USEPA, Contract Laboratory Program National Functional Guidelines for Chlorinated Dibenzo-p-Dioxins and Chlorinated Dibenzofurans, Data Review, September 2011
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; update IV, February 2007, update V, July 2014

Please feel free to contact us if you have any questions.

Sincerely,

Christina Rink

Christina Rink
Project Manager/Chemist

EDD Stage 2B

LDC #37506 (Anchor Environmental-Seattle WA / Port Gamble, Shellfish Monitoring)

LDC	SDG#	DATE REC'D	(3) DATE DUE	PAHs (8270D -SIM)		Cd (6010C)		Dioxins (1613B)		% Lipids (BD)		% Solids (2540G)																							
Matrix:	Water/Soil/Tissue			W	T	W	T	W	T	W	T	W	T	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	16H0147	11/17/16	12/12/16	0	1	0	1	0	1	0	1	0	1																						
B	16H0268	11/17/16	12/12/16	0	1	0	1	0	1	0	1	0	1																						
C	16J0187	11/17/16	12/12/16	0	6	0	6	0	6	0	6	0	6																						
Total	T/CR			0	8	0	8	0	8	0	8	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40

Shaded cells indicate Stage 4 validation (all other cells are Stage 2B validation). These sample counts do not include MS, MSD, or DUP's.

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Port Gamble, Shellfish Monitoring

LDC Report Date: December 1, 2016

Parameters: Polynuclear Aromatic Hydrocarbons

Validation Level: Stage 2B

Laboratory: Analytical Resources, Inc.

Sample Delivery Group (SDG): 16H0147

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
PG-T0-MUS-COC-160816	16H0147-01	Tissue	08/16/16

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Shellfish Monitoring Plan for Port Gamble Bay Cleanup Project (May 2015) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Superfund Organic Methods Data Review (June 2008). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Polynuclear Aromatic Hydrocarbons (PAHs) by Environmental Protection Agency (EPA) SW 846 Method 8270D in Selected Ion Monitoring (SIM) mode

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A decafluorotriphenylphosphine (DFTPP) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

Average relative response factors (RRF) for all compounds were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 30.0% for all compounds.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all compounds.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were not analyzed.

VI. Field Blanks

No field blanks were identified in this SDG.

VII. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VIII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

IX. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits with the following exceptions:

LCS ID	Compound	%R (Limits)	Associated Samples	Flag	A or P
BEJ0794-BS1	Naphthalene 2-Methylnaphthalene Acenaphthylene	46.5 (50-150) 45.9 (50-150) 41.3 (50-150)	All samples in SDG 16H0147	J (all detects) UJ (all non-detects)	P

X. Field Duplicates

No field duplicates were identified in this SDG.

XI. Internal Standards

All internal standard areas and retention times were within QC limits.

XII. Compound Quantitation

Raw data were not reviewed for Stage 2B validation.

XIII. Target Compound Identifications

Raw data were not reviewed for Stage 2B validation.

XIV. System Performance

Raw data were not reviewed for Stage 2B validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Due to LCS %R, data were qualified as estimated in one sample.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the data validation all other results are considered valid and usable for all purposes.

Port Gamble, Shellfish Monitoring
Polynuclear Aromatic Hydrocarbons - Data Qualification Summary - SDG 16H0147

Sample	Compound	Flag	A or P	Reason
PG-T0-MUS-COC-160816	Naphthalene 2-Methylnaphthalene Acenaphthylene	J (all detects) UJ (all non-detects)	P	Laboratory control samples (%R)

Port Gamble, Shellfish Monitoring
Polynuclear Aromatic Hydrocarbons - Laboratory Blank Data Qualification Summary - SDG 16H0147

No Sample Data Qualified in this SDG

LDC #: 37506A2b **VALIDATION COMPLETENESS WORKSHEET** Date: 11/26/16
SDG #: 16H0147 Stage 2B Page: 1 of 1
Laboratory: Analytical Resources, Inc. Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC/MS Polynuclear Aromatic Hydrocarbons (EPA SW 846 Method 8270D-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A/A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A/A	RSD ≤ 20 ICV ≤ 30
IV.	Continuing calibration	A	D ≤ 20
V.	Laboratory Blanks	A	
VI.	Field blanks	N	
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	N	
IX.	Laboratory control samples	SW	LCS
X.	Field duplicates	N	
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	

Note: A = Acceptable ND = No compounds detected D = Duplicate SB=Source blank
N = Not provided/applicable R = Rinsate TB = Trip blank OTHER:
SW = See worksheet FB = Field blank EB = Equipment blank

	Client ID	Lab ID	Matrix	Date
1	PG-T0-MUS-COC-160816	16H0147-01	Tissue	08/16/16
2				
3				
4				
5				
6				
7				
8				
9				

Notes:

	BEJ0794-BLK1						

VALIDATION FINDINGS WORKSHEET

METHOD: GC/MS SVOA

A. Phenol	T. 4-Chloroaniline	MM. 4-Chlorophenyl-phenyl ether	FFF. Di-n-octylphthalate	YYY. 2,3,5-Trimethylnaphthalene
B. Bis (2-chloroethyl) ether	U. Hexachlorobutadiene	NN. Fluorene	GGG. Benzo(b)fluoranthene	ZZZ. Perylene
C. 2-Chlorophenol	V. 4-Chloro-3-methylphenol	OO. 4-Nitroaniline	HHH. Benzo(k)fluoranthene	AAAA. Dibenzothiophene
D. 1,3-Dichlorobenzene	W. 2-Methylnaphthalene	PP. 4,6-Dinitro-2-methylphenol	III. Benzo(a)pyrene	BBBB. Benzo(a)fluoranthene
E. 1,4-Dichlorobenzene	X. Hexachlorocyclopentadiene	QQ. N-Nitrosodiphenylamine	JJJ. Indeno(1,2,3-cd)pyrene	CCCC. Benzo(b)fluorene
F. 1,2-Dichlorobenzene	Y. 2,4,6-Trichlorophenol	RR. 4-Bromophenyl-phenylether	KKK. Dibenz(a,h)anthracene	DDDD. cis/trans-Decalin
G. 2-Methylphenol	Z. 2,4,5-Trichlorophenol	SS. Hexachlorobenzene	LLL. Benzo(g,h,i)perylene	EEEE. Biphenyl
H. 2,2'-Oxybis(1-chloropropane)	AA. 2-Chloronaphthalene	TT. Pentachlorophenol	MMM. Bis(2-Chloroisopropyl)ether	FFFF. Retene
I. 4-Methylphenol	BB. 2-Nitroaniline	UU. Phenanthrene	NNN. Aniline	GGGG. C30-Hopane
J. N-Nitroso-di-n-propylamine	CC. Dimethylphthalate	VV. Anthracene	OOO. N-Nitrosodimethylamine	HHHH. 1-Methylphenanthrene
K. Hexachloroethane	DD. Acenaphthylene	WW. Carbazole	PPP. Benzoic Acid	IIII. 1,4-Dioxane
L. Nitrobenzene	EE. 2,6-Dinitrotoluene	XX. Di-n-butylphthalate	QQQ. Benzyl alcohol	JJJJ. Acetophenone
M. Isophorone	FF. 3-Nitroaniline	YY. Fluoranthene	RRR. Pyridine	KKKK. Atrazine
N. 2-Nitrophenol	GG. Acenaphthene	ZZ. Pyrene	SSS. Benzidine	LLLL. Benzaldehyde
O. 2,4-Dimethylphenol	HH. 2,4-Dinitrophenol	AAA. Butylbenzylphthalate	TTT. 1-Methylnaphthalene	MMMM. Caprolactam
P. Bis(2-chloroethoxy)methane	II. 4-Nitrophenol	BBB. 3,3'-Dichlorobenzidine	UUU.Benzo(b)thiophene	NNNN.
Q. 2,4-Dichlorophenol	JJ. Dibenzofuran	CCC. Benzo(a)anthracene	VVV.Benzonaphthothiophene	OOOO.
R. 1,2,4-Trichlorobenzene	KK. 2,4-Dinitrotoluene	DDD. Chrysene	WWW.Benzo(e)pyrene	PPPP.
S. Naphthalene	LL. Diethylphthalate	EEE. Bis(2-ethylhexyl)phthalate	XXX. 2,6-Dimethylnaphthalene	QQQQ.

LDC #: 37506A2b

VALIDATION FINDINGS WORKSHEET
Laboratory Control Samples (LCS)

Page: 1 of 1
Reviewer: JT
2nd Reviewer: C

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Was a LCS required?

Y (N) N/A Were the LCS/LCSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

#	Date	LCS/LCSD ID	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
		BEJ0794-BS1	S	46.5 (50-150)	( )	( )	All (det/ND)	J/UJ/P
			W	45.9 (↓)	( )	( )		↓
			DD	41.3 (↓)	( )	( )		↓

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Port Gamble, Shellfish Monitoring

LDC Report Date: December 1, 2016

Parameters: Cadmium

Validation Level: Stage 2B

Laboratory: Analytical Resources, Inc.

Sample Delivery Group (SDG): 16H0147

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
PG-T0-MUS-COC-160816	16H0147-01	Tissue	08/16/16

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Shellfish Monitoring Plan for Port Gamble Bay Cleanup Project (May 2015) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Inorganic Superfund Data Review (January 2010). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Cadmium by Environmental Protection Agency (EPA) SW 846 Method 6010C

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition.

All technical holding time requirements were met.

II. Instrument Calibration

Initial and continuing calibrations were performed as required by the method.

The initial calibration verification (ICV) and continuing calibration verification (CCV) standards were within QC limits.

III. ICP Interference Check Sample Analysis

The frequency of interference check sample (ICS) analysis was met. All criteria were within QC limits.

IV. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

V. Field Blanks

No field blanks were identified in this SDG.

VI. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VII. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

VIII. Serial Dilution

Serial dilution was not performed for this SDG.

IX. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

X. Field Duplicates

No field duplicates were identified in this SDG.

XI. Sample Result Verification

Raw data were not reviewed for Stage 2B validation.

XII. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable. Based upon the data validation all results are considered valid and usable for all purposes.

Port Gamble, Shellfish Monitoring
Cadmium - Data Qualification Summary - SDG 16H0147

No Sample Data Qualified in this SDG

Port Gamble, Shellfish Monitoring
Cadmium - Laboratory Blank Data Qualification Summary - SDG 16H0147

No Sample Data Qualified in this SDG

LDC #: 37506A4b

VALIDATION COMPLETENESS WORKSHEET

Stage 2B

Date: 11/21/16

SDG #: 16H0147

Page: 1 of 1

Laboratory: Analytical Resources, Inc.

Reviewer: JB

2nd Reviewer: AMY

METHOD: Cadmium (EPA SW 846 Method 6010C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II.	Instrument Calibration	A	
III.	ICP Interference Check Sample (ICS) Analysis	A	
IV.	Laboratory Blanks	A	
V.	Field Blanks	N	
VI.	Matrix Spike/Matrix Spike Duplicates	N	
VII.	Duplicate sample analysis	N	
VIII.	Serial Dilution	N	
IX.	Laboratory control samples	A	LCS
X.	Field Duplicates	N	
XI.	Sample Result Verification	N	
XII.	Overall Assessment of Data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	PG-T0-MUS-COC-160816	16H0147-01	Tissue	08/16/16
2				
3				
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Notes:

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Port Gamble, Shellfish Monitoring

LDC Report Date: December 1, 2016

Parameters: Wet Chemistry

Validation Level: Stage 2B

Laboratory: Analytical Resources, Inc.

Sample Delivery Group (SDG): 16H0147

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
PG-T0-MUS-COC-160816	16H0147-01	Tissue	08/16/16

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Shellfish Monitoring Plan for Port Gamble Bay Cleanup Project (May 2015) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Inorganic Superfund Data Review (January 2010). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following methods:

Percent Lipids by Bligh and Dyer Method
Total Solids by Standard Method 2540G

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition.

All technical holding time requirements were met.

II. Initial Calibration

All criteria for the initial calibration were met.

III. Continuing Calibration

Continuing calibration frequency and analysis criteria were met.

IV. Laboratory Blanks

Laboratory blanks were analyzed as required by the methods. No contaminants were found in the laboratory blanks with the following exceptions:

Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	% Lipids	0.20%	All samples in SDG 16H0147

Data qualification by the laboratory blanks was based on the maximum contaminant concentration in the laboratory blanks in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated laboratory blanks.

V. Field Blanks

No field blanks were identified in this SDG.

VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were not required by the method.

VII. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) were not required by the method.

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Sample Result Verification

Raw data were not reviewed for Stage 2B validation.

XI. Overall Assessment of Data

The analysis was conducted within all specifications of the methods. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable. Based upon the data validation all results are considered valid and usable for all purposes.

Port Gamble, Shellfish Monitoring
Wet Chemistry - Data Qualification Summary - SDG 16H0147

No Sample Data Qualified in this SDG

Port Gamble, Shellfish Monitoring
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 16H0147

No Sample Data Qualified in this SDG

LDC #: 37506A6 **VALIDATION COMPLETENESS WORKSHEET** Date: 11/21/16

SDG #: 16H0147 Stage 2B Page: 1 of 1

Laboratory: Analytical Resources, Inc. Reviewer: VB

2nd Reviewer: gmg

METHOD: (Analyte) Percent Lipids (Bligh & Dyre), Total Solids (SM2540G)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A /A	
II	Initial calibration	A	
III.	Calibration verification	A	
IV	Laboratory Blanks	SW	
V	Field blanks	N	
VI.	Matrix Spike/Matrix Spike Duplicates	N	
VII.	Duplicate sample analysis	N	
VIII.	Laboratory control samples	N	
IX.	Field duplicates	N	
X.	Sample result verification	N	
XI	Overall assessment of data	A	

Note: A = Acceptable ND = No compounds detected D = Duplicate SB=Source blank
N = Not provided/applicable R = Rinsate TB = Trip blank OTHER:
SW = See worksheet FB = Field blank EB = Equipment blank

	Client ID	Lab ID	Matrix	Date
1	PG-T0-MUS-COC-160816	16H0147-01	Tissue	08/16/16
2				
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Notes:

DC #: 37506A4

VALIDATION FINDINGS WORKSHEET
Sample Specific Analysis Reference

Reviewer: JB
2nd reviewer: MM

l circled methods are applicable to each sample.

Sample ID	Parameter
1	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4 (Lipids) (TS)
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4

mments:

LDC #: 37506A6

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer: JB
2nd Reviewer: AMH

METHOD: Inorganics, Method See Cover

Conc. units: % **Associated Samples:** All

Analyte	Blank ID	Blank ID	Blank Action Limit									
	PB	ICB/CCB (mg/L)		No Qualifiers								
% Lipids	0.20		1									

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
All contaminants within five times the method blank concentration were qualified as not detected, "U".

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Port Gamble, Shellfish Monitoring

LDC Report Date: December 8, 2016

Parameters: Polychlorinated Dioxins/Dibenzofurans

Validation Level: Stage 4

Laboratory: Analytical Resources, Inc.

Sample Delivery Group (SDG): 16H0147

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
PG-T0-MUS-COC-160816	16H0147-01	Tissue	08/16/16

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Shellfish Monitoring Plan for Port Gamble Bay Cleanup Project (May 2015) and the USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Chlorinated Dibenzo-p-Dioxins (CDDs) and Chlorinated Dibenzofurans (CDFs) Data Review (September 2011). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Polychlorinated Dioxins/Dibenzofurans by Environmental Protection Agency (EPA) Method 1613B

All sample results were subjected to Stage 4 data validation, which is comprised of the quality control (QC) summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered not detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. HRGC/HRMS Instrument Performance Check

Instrument performance was checked at the required frequency.

Retention time windows were established for all homologues. The chromatographic resolution between 2,3,7,8-TCDD and peaks representing any other unlabeled TCDD isomer was less than or equal to 25%.

The static resolving power was at least 10,000 (10% valley definition).

III. Initial Calibration

A five point initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for unlabeled compounds.

The ion abundance ratios for all PCDDs and PCDFs were within validation criteria.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration results were within the QC limits for unlabeled compounds and labeled compounds.

The ion abundance ratios for all PCDDs and PCDFs were within method and validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks with the following exceptions:

Blank ID	Extraction Date	Compound	Concentration	Associated Samples
BEJ0775-BLK1	10/26/16	1,2,3,7,8-PeCDF 1,2,3,7,8,9-HxCDF 1,2,3,4,6,7,8-HpCDD OCDF OCDD Total TCDF Total PeCDF Total HxCDF Total HpCDD	0.0396 ng/Kg 0.0899 ng/Kg 0.0625 ng/Kg 0.0923 ng/Kg 0.933 ng/Kg 0.0344 ng/Kg 0.0396 ng/Kg 0.0899 ng/Kg 0.170 ng/Kg	All samples in SDG 16H0147

Sample concentrations were compared to concentrations detected in the laboratory blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated laboratory blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
PG-T0-MUS-COC-160816	1,2,3,7,8-PeCDF 1,2,3,7,8,9-HxCDF Total TCDF Total PeCDF Total HxCDF	0.070 ng/Kg 0.116 ng/Kg 0.074 ng/Kg 0.157 ng/Kg 0.188 ng/Kg	0.070U ng/Kg 0.116U ng/Kg 0.074J ng/Kg 0.157J ng/Kg 0.188J ng/Kg

VI. Field Blanks

No field blanks were identified in this SDG.

VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Internal Standards

All internal standard recoveries (%R) were within QC limits.

XI. Compound Quantitation

All compound quantitations were within validation criteria with the following exceptions:

Sample	Compound	Flag	A or P
All samples in SDG 16H0147	All compounds reported as estimated maximum possible concentration (EMPC)	J (all detects)	A

XII. Target Compound Identifications

All target compound identifications met validation criteria.

XIII. System Performance

The system performance was acceptable.

XIV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Due to results reported by the laboratory as EMPCs, data were qualified as estimated in one sample.

Due to laboratory blank contamination, data were qualified as not detected or estimated in one sample.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the data validation all other results are considered valid and usable for all purposes.

Port Gamble, Shellfish Monitoring
Polychlorinated Dioxins/Dibenzofurans - Data Qualification Summary - SDG 16H0147

Sample	Compound	Flag	A or P	Reason
PG-T0-MUS-COC-160816	All compounds reported as estimated maximum possible concentration (EMPC)	J (all detects)	A	Compound quantitation (EMPC)

Port Gamble, Shellfish Monitoring
Polychlorinated Dioxins/Dibenzofurans - Laboratory Blank Data Qualification Summary - SDG 16H0147

Sample	Compound	Modified Final Concentration	A or P
PG-T0-MUS-COC-160816	1,2,3,7,8-PeCDF 1,2,3,7,8,9-HxCDF Total TCDF Total PeCDF Total HxCDF	0.070U ng/Kg 0.116U ng/Kg 0.074J ng/Kg 0.157J ng/Kg 0.188J ng/Kg	A

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Port Gamble, Shellfish Monitoring

LDC Report Date: December 1, 2016

Parameters: Polynuclear Aromatic Hydrocarbons

Validation Level: Stage 2B

Laboratory: Analytical Resources, Inc.

Sample Delivery Group (SDG): 16H0268

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
PG-T0B-MUS-COC-160829	16H0268-01	Tissue	08/29/16

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Shellfish Monitoring Plan for Port Gamble Bay Cleanup Project (May 2015) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Superfund Organic Methods Data Review (June 2008). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Polynuclear Aromatic Hydrocarbons (PAHs) by Environmental Protection Agency (EPA) SW 846 Method 8270D in Selected Ion Monitoring (SIM) mode

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A decafluorotriphenylphosphine (DFTPP) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

Average relative response factors (RRF) for all compounds were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 30.0% for all compounds.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all compounds.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were not analyzed.

VI. Field Blanks

No field blanks were identified in this SDG.

VII. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VIII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

IX. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits with the following exceptions:

LCS ID	Compound	%R (Limits)	Associated Samples	Flag	A or P
BEJ0794-BS1	Naphthalene 2-Methylnaphthalene Acenaphthylene	46.5 (50-150) 45.9 (50-150) 41.3 (50-150)	All samples in SDG 16H0268	J (all detects) UJ (all non-detects)	P

X. Field Duplicates

No field duplicates were identified in this SDG.

XI. Internal Standards

All internal standard areas and retention times were within QC limits.

XII. Compound Quantitation

Raw data were not reviewed for Stage 2B validation.

XIII. Target Compound Identifications

Raw data were not reviewed for Stage 2B validation.

XIV. System Performance

Raw data were not reviewed for Stage 2B validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Due to LCS %R, data were qualified as estimated in one sample.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the data validation all other results are considered valid and usable for all purposes.

Port Gamble, Shellfish Monitoring
Polynuclear Aromatic Hydrocarbons - Data Qualification Summary - SDG 16H0268

Sample	Compound	Flag	A or P	Reason
PG-T0B-MUS-COC-160829	Naphthalene 2-Methylnaphthalene Acenaphthylene	J (all detects) UJ (all non-detects)	P	Laboratory control samples (%R)

Port Gamble, Shellfish Monitoring
Polynuclear Aromatic Hydrocarbons - Laboratory Blank Data Qualification Summary - SDG 16H0268

No Sample Data Qualified in this SDG

LDC #: 37506B2b **VALIDATION COMPLETENESS WORKSHEET** Date: 1/26/16
SDG #: 16H0268 Stage 2B Page: 1 of 1
Laboratory: Analytical Resources, Inc. Reviewer: JT
2nd Reviewer:

METHOD: GC/MS Polynuclear Aromatic Hydrocarbons (EPA SW 846 Method 8270D-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A / A	RSD≤20 %D≤30
IV.	Continuing calibration	A	D≤20
V.	Laboratory Blanks	A	
VI.	Field blanks	N	
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	N	
IX.	Laboratory control samples	SW	LCS
X.	Field duplicates	N	
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	PG-T0B-MUS-COC-160829	16H0268-01	Tissue	08/29/16
2				
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Notes:

	BEJ0794-BLK1						

VALIDATION FINDINGS WORKSHEET

METHOD: GC/MS SVOA

A. Phenol	T. 4-Chloroaniline	MM. 4-Chlorophenyl-phenyl ether	FFF. Di-n-octylphthalate	YYY. 2,3,5-Trimethylnaphthalene
B. Bis (2-chloroethyl) ether	U. Hexachlorobutadiene	NN. Fluorene	GGG. Benzo(b)fluoranthene	ZZZ. Perylene
C. 2-Chlorophenol	V. 4-Chloro-3-methylphenol	OO. 4-Nitroaniline	HHH. Benzo(k)fluoranthene	AAAA. Dibenzothiophene
D. 1,3-Dichlorobenzene	W. 2-Methylnaphthalene	PP. 4,6-Dinitro-2-methylphenol	III. Benzo(a)pyrene	BBBB. Benzo(a)fluoranthene
E. 1,4-Dichlorobenzene	X. Hexachlorocyclopentadiene	QQ. N-Nitrosodiphenylamine	JJJ. Indeno(1,2,3-cd)pyrene	CCCC. Benzo(b)fluorene
F. 1,2-Dichlorobenzene	Y. 2,4,6-Trichlorophenol	RR. 4-Bromophenyl-phenylether	KKK. Dibenz(a,h)anthracene	DDDD. cis/trans-Decalin
G. 2-Methylphenol	Z. 2,4,5-Trichlorophenol	SS. Hexachlorobenzene	LLL. Benzo(g,h,i)perylene	EEEE. Biphenyl
H. 2,2'-Oxybis(1-chloropropane)	AA. 2-Chloronaphthalene	TT. Pentachlorophenol	MMM. Bis(2-Chloroisopropyl)ether	FFFF. Retene
I. 4-Methylphenol	BB. 2-Nitroaniline	UU. Phenanthrene	NNN. Aniline	GGGG. C30-Hopane
J. N-Nitroso-di-n-propylamine	CC. Dimethylphthalate	VV. Anthracene	OOO. N-Nitrosodimethylamine	HHHH. 1-Methylphenanthrene
K. Hexachloroethane	DD. Acenaphthylene	WW. Carbazole	PPP. Benzoic Acid	IIII. 1,4-Dioxane
L. Nitrobenzene	EE. 2,6-Dinitrotoluene	XX. Di-n-butylphthalate	QQQ. Benzyl alcohol	JJJJ. Acetophenone
M. Isophorone	FF. 3-Nitroaniline	YY. Fluoranthene	RRR. Pyridine	KKKK. Atrazine
N. 2-Nitrophenol	GG. Acenaphthene	ZZ. Pyrene	SSS. Benzidine	LLLL. Benzaldehyde
O. 2,4-Dimethylphenol	HH. 2,4-Dinitrophenol	AAA. Butylbenzylphthalate	TTT. 1-Methylnaphthalene	MMMM. Caprolactam
P. Bis(2-chloroethoxy)methane	II. 4-Nitrophenol	BBB. 3,3'-Dichlorobenzidine	UUU.Benzo(b)thiophene	NNNN.
Q. 2,4-Dichlorophenol	JJ. Dibenzofuran	CCC. Benzo(a)anthracene	VVV.Benzonaphthothiophene	OOOO.
R. 1,2,4-Trichlorobenzene	KK. 2,4-Dinitrotoluene	DDD. Chrysene	WWW.Benzo(e)pyrene	PPPP.
S. Naphthalene	LL. Diethylphthalate	EEE. Bis(2-ethylhexyl)phthalate	XXX. 2,6-Dimethylnaphthalene	QQQQ.

LDC #: 37506B28

Reviewer: [illegible]
2nd Reviewer: [illegible]

VALIDATION FINDINGS WORKSHEET
Laboratory Control Samples (LCS)

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Was a LCS required?

Y (N) N/A Were the LCS/LCSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

#	Date	LCS/LCSD ID	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
		BEJ0794-BS1	S	46.5 (50-150)	( )	( )	All (det/ND)	J/UJ/P
			W	45.9 (↓)	( )	( )		↓
			DD	41.3 (↓)	( )	( )		↓
				( )	( )	( )		

LCSLCSD.2SD

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Port Gamble, Shellfish Monitoring

LDC Report Date: December 1, 2016

Parameters: Cadmium

Validation Level: Stage 2B

Laboratory: Analytical Resources, Inc.

Sample Delivery Group (SDG): 16H0268

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
PG-T0B-MUS-COC-160829	16H0268-01	Tissue	08/29/16

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Shellfish Monitoring Plan for Port Gamble Bay Cleanup Project (May 2015) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Inorganic Superfund Data Review (January 2010). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Cadmium by Environmental Protection Agency (EPA) SW 846 Method 6010C

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition.

All technical holding time requirements were met.

II. Instrument Calibration

Initial and continuing calibrations were performed as required by the method.

The initial calibration verification (ICV) and continuing calibration verification (CCV) standards were within QC limits.

III. ICP Interference Check Sample Analysis

The frequency of interference check sample (ICS) analysis was met. All criteria were within QC limits.

IV. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

V. Field Blanks

No field blanks were identified in this SDG.

VI. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VII. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

VIII. Serial Dilution

Serial dilution was not performed for this SDG.

IX. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

X. Field Duplicates

No field duplicates were identified in this SDG.

XI. Sample Result Verification

Raw data were not reviewed for Stage 2B validation.

XII. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable. Based upon the data validation all results are considered valid and usable for all purposes.

Port Gamble, Shellfish Monitoring
Cadmium - Data Qualification Summary - SDG 16H0268

No Sample Data Qualified in this SDG

Port Gamble, Shellfish Monitoring
Cadmium - Laboratory Blank Data Qualification Summary - SDG 16H0268

No Sample Data Qualified in this SDG

LDC #: 37506B4b

SDG #: 16H0268

Laboratory: Analytical Resources, Inc.

VALIDATION COMPLETENESS WORKSHEET

Stage 2B

Date: 11/21/16

Page: 1 of 1

Reviewer: JB

2nd Reviewer: AM

METHOD: Cadmium (EPA SW 846 Method 6010C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A/A	
II.	Instrument Calibration	A	
III.	ICP Interference Check Sample (ICS) Analysis	A	
IV.	Laboratory Blanks	A	
V.	Field Blanks	N	
VI.	Matrix Spike/Matrix Spike Duplicates	N	
VII.	Duplicate sample analysis	N	
VIII.	Serial Dilution	N	
IX.	Laboratory control samples	A	LCS
X.	Field Duplicates	N	
XI.	Sample Result Verification	N	
XII	Overall Assessment of Data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	PG-T0B-MUS-COC-160829	16H0268-01	Tissue	08/29/16
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				

Notes:

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Port Gamble, Shellfish Monitoring

LDC Report Date: December 1, 2016

Parameters: Wet Chemistry

Validation Level: Stage 2B

Laboratory: Analytical Resources, Inc.

Sample Delivery Group (SDG): 16H0268

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
PG-T0B-MUS-COC-160829	16H0268-01	Tissue	08/29/16

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Shellfish Monitoring Plan for Port Gamble Bay Cleanup Project (May 2015) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Inorganic Superfund Data Review (January 2010). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following methods:

Percent Lipids by Bligh and Dyer Method
Total Solids by Standard Method 2540G

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition.

All technical holding time requirements were met.

II. Initial Calibration

All criteria for the initial calibration were met.

III. Continuing Calibration

Continuing calibration frequency and analysis criteria were met.

IV. Laboratory Blanks

Laboratory blanks were analyzed as required by the methods. No contaminants were found in the laboratory blanks with the following exceptions:

Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	% Lipids	0.20%	All samples in SDG 16H0268

Data qualification by the laboratory blanks was based on the maximum contaminant concentration in the laboratory blanks in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated laboratory blanks.

V. Field Blanks

No field blanks were identified in this SDG.

VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were not required by the method.

VII. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) were not required by the method.

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Sample Result Verification

Raw data were not reviewed for Stage 2B validation.

XI. Overall Assessment of Data

The analysis was conducted within all specifications of the methods. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable. Based upon the data validation all results are considered valid and usable for all purposes.

Port Gamble, Shellfish Monitoring
Wet Chemistry - Data Qualification Summary - SDG 16H0268

No Sample Data Qualified in this SDG

Port Gamble, Shellfish Monitoring
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 16H0268

No Sample Data Qualified in this SDG

LDC #: 37506B6 **VALIDATION COMPLETENESS WORKSHEET** Date: 11/21/16
SDG #: 16H0268 Stage 2B Page: 1 of 1
Laboratory: Analytical Resources, Inc. Reviewer: VB
2nd Reviewer: amf

METHOD: (Analyte) Percent Lipids (Bligh & Dyre), Total Solids (SM2540G)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II	Initial calibration	A	
III.	Calibration verification	A	
IV	Laboratory Blanks	SW	
V	Field blanks	N	
VI.	Matrix Spike/Matrix Spike Duplicates	N	
VII.	Duplicate sample analysis	N	
VIII.	Laboratory control samples	N	
IX.	Field duplicates	N	
X.	Sample result verification	N	
XI.	Overall assessment of data	A	

Note: A = Acceptable ND = No compounds detected D = Duplicate SB=Source blank
N = Not provided/applicable R = Rinsate TB = Trip blank OTHER:
SW = See worksheet FB = Field blank EB = Equipment blank

	Client ID	Lab ID	Matrix	Date
1	PG-T0B-MUS-COC-160829	16H0268-01	Tissue	08/29/16
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				

Notes:

C #: 37506B4

VALIDATION FINDINGS WORKSHEET
Sample Specific Analysis Reference

Reviewer: JB
2nd reviewer: amk

circled methods are applicable to each sample.

ample ID	Parameter
1	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4 (Lipids) (TS)
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4

mments:

LDC #: 37506B6

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer: JB
2nd Reviewer: OMA

METHOD: Inorganics, Method See Cover

Conc. units: % **Associated Samples:** All

Analyte	Blank ID	Blank ID	Blank Action Limit									
	PB	ICB/CCB (mg/L)		No Qualifiers								
% Lipids	0.20		1									

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
All contaminants within five times the method blank concentration were qualified as not detected, "U".

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Port Gamble, Shellfish Monitoring

LDC Report Date: December 8, 2016

Parameters: Polychlorinated Dioxins/Dibenzofurans

Validation Level: Stage 4

Laboratory: Analytical Resources, Inc.

Sample Delivery Group (SDG): 16H0268

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
PG-T0B-MUS-COC-160829	16H0268-01	Tissue	08/29/16

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Shellfish Monitoring Plan for Port Gamble Bay Cleanup Project (May 2015) and the USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Chlorinated Dibenzo-p-Dioxins (CDDs) and Chlorinated Dibenzofurans (CDFs) Data Review (September 2011). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Polychlorinated Dioxins/Dibenzofurans by Environmental Protection Agency (EPA) Method 1613B

All sample results were subjected to Stage 4 data validation, which is comprised of the quality control (QC) summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered not detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. HRGC/HRMS Instrument Performance Check

Instrument performance was checked at the required frequency.

Retention time windows were established for all homologues. The chromatographic resolution between 2,3,7,8-TCDD and peaks representing any other unlabeled TCDD isomer was less than or equal to 25%.

The static resolving power was at least 10,000 (10% valley definition).

III. Initial Calibration

A five point initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for unlabeled compounds.

The ion abundance ratios for all PCDDs and PCDFs were within validation criteria.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration results were within the QC limits for unlabeled compounds and labeled compounds.

The ion abundance ratios for all PCDDs and PCDFs were within method and validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks with the following exceptions:

Blank ID	Extraction Date	Compound	Concentration	Associated Samples
BEJ0775-BLK1	10/26/16	1,2,3,7,8-PeCDF 1,2,3,7,8,9-HxCDF 1,2,3,4,6,7,8-HpCDD OCDF OCDD Total TCDF Total PeCDF Total HxCDF Total HpCDD	0.0396 ng/Kg 0.0899 ng/Kg 0.0625 ng/Kg 0.0923 ng/Kg 0.933 ng/Kg 0.0344 ng/Kg 0.0396 ng/Kg 0.0899 ng/Kg 0.170 ng/Kg	All samples in SDG 16H0268

Sample concentrations were compared to concentrations detected in the laboratory blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated laboratory blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
PG-T0B-MUS-COC-160829	1,2,3,7,8-PeCDF 1,2,3,7,8,9-HxCDF 1,2,3,4,6,7,8-HpCDD OCDF OCDD Total TCDF Total PeCDF Total HxCDF Total HpCDD	0.038 ng/Kg 0.069 ng/Kg 0.119 ng/Kg 0.109 ng/Kg 1.35 ng/Kg 0.093 ng/Kg 0.115 ng/Kg 0.069 ng/Kg 0.234 ng/Kg	0.038U ng/Kg 0.069U ng/Kg 0.119U ng/Kg 0.109U ng/Kg 1.35U ng/Kg 0.093J ng/Kg 0.115J ng/Kg 0.069J ng/Kg 0.234J ng/Kg

VI. Field Blanks

No field blanks were identified in this SDG.

VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Internal Standards

All internal standard recoveries (%R) were within QC limits.

XI. Compound Quantitation

All compound quantitations were within validation criteria with the following exceptions:

Sample	Compound	Flag	A or P
All samples in SDG 16H0268	All compounds reported as estimated maximum possible concentration (EMPC)	J (all detects)	A

XII. Target Compound Identifications

All target compound identifications met validation criteria.

XIII. System Performance

The system performance was acceptable.

XIV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Due to results reported by the laboratory as EMPCs, data were qualified as estimated in one sample.

Due to laboratory blank contamination, data were qualified as not detected or estimated in one sample.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the data validation all other results are considered valid and usable for all purposes.

Port Gamble, Shellfish Monitoring
Polychlorinated Dioxins/Dibenzofurans - Data Qualification Summary - SDG 16H0268

Sample	Compound	Flag	A or P	Reason
PG-T0B-MUS-COC-160829	All compounds reported as estimated maximum possible concentration (EMPC)	J (all detects)	A	Compound quantitation (EMPC)

Port Gamble, Shellfish Monitoring
Polychlorinated Dioxins/Dibenzofurans - Laboratory Blank Data Qualification Summary - SDG 16H0268

Sample	Compound	Modified Final Concentration	A or P
PG-T0B-MUS-COC-160829	1,2,3,7,8-PeCDF	0.038U ng/Kg	A
	1,2,3,7,8,9-HxCDF	0.069U ng/Kg	
	1,2,3,4,6,7,8-HpCDD	0.119U ng/Kg	
	OCDF	0.109U ng/Kg	
	OCDD	1.35U ng/Kg	
	Total TCDF	0.093J ng/Kg	
	Total PeCDF	0.115J ng/Kg	
	Total HxCDF	0.069J ng/Kg	
	Total HpCDD	0.234J ng/Kg	

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Port Gamble, Shellfish Monitoring

LDC Report Date: December 1, 2016

Parameters: Polynuclear Aromatic Hydrocarbons

Validation Level: Stage 2B

Laboratory: Analytical Resources, Inc.

Sample Delivery Group (SDG): 16J0187

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
PG-SMA-1-1-161011	16J0187-01	Tissue	10/11/16
PG-SMA-1-2-161011	16J0187-02	Tissue	10/11/16
PG-SMA-1-3-161011	16J0187-03	Tissue	10/11/16
PG-REF-PJ-1-161011	16J0187-04	Tissue	10/11/16
PG-REF-WS-1-161011	16J0187-05	Tissue	10/11/16
PG-REF-GP-1-161011	16J0187-06	Tissue	10/11/16

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Shellfish Monitoring Plan for Port Gamble Bay Cleanup Project (May 2015) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Superfund Organic Methods Data Review (June 2008). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Polynuclear Aromatic Hydrocarbons (PAHs) by Environmental Protection Agency (EPA) SW 846 Method 8270D in Selected Ion Monitoring (SIM) mode

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A decafluorotriphenylphosphine (DFTPP) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

Average relative response factors (RRF) for all compounds were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 30.0% for all compounds.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all compounds.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were not analyzed.

VI. Field Blanks

No field blanks were identified in this SDG.

VII. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VIII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

IX. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits with the following exceptions:

LCS ID	Compound	%R (Limits)	Associated Samples	Flag	A or P
BEJ0794-BS1	Naphthalene 2-Methylnaphthalene Acenaphthylene	46.5 (50-150) 45.9 (50-150) 41.3 (50-150)	All samples in SDG 16J0187	J (all detects) UJ (all non-detects)	P

X. Field Duplicates

No field duplicates were identified in this SDG.

XI. Internal Standards

All internal standard areas and retention times were within QC limits.

XII. Compound Quantitation

Raw data were not reviewed for Stage 2B validation.

XIII. Target Compound Identifications

Raw data were not reviewed for Stage 2B validation.

XIV. System Performance

Raw data were not reviewed for Stage 2B validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Due to LCS %R, data were qualified as estimated in six samples.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the data validation all other results are considered valid and usable for all purposes.

Port Gamble, Shellfish Monitoring
Polynuclear Aromatic Hydrocarbons - Data Qualification Summary - SDG 16J0187

Sample	Compound	Flag	A or P	Reason
PG-SMA-1-1-161011 PG-SMA-1-2-161011 PG-SMA-1-3-161011 PG-REF-PJ-1-161011 PG-REF-WS-1-161011 PG-REF-GP-1-161011	Naphthalene 2-Methylnaphthalene Acenaphthylene	J (all detects) UJ (all non-detects)	P	Laboratory control samples (%R)

Port Gamble, Shellfish Monitoring
Polynuclear Aromatic Hydrocarbons - Laboratory Blank Data Qualification Summary - SDG 16J0187

No Sample Data Qualified in this SDG

LDC #: 37506C2b

SDG #: 16J0187

Laboratory: Analytical Resources, Inc.

VALIDATION COMPLETENESS WORKSHEET

Stage 2B

Date: 11/16/16

Page: 1 of 1

Reviewer: SK

2nd Reviewer: C

METHOD: GC/MS Polynuclear Aromatic Hydrocarbons (EPA SW 846 Method 8270D-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A / A	RSD ≤ 20 ICV ≤ 30
IV.	Continuing calibration	A	D ≤ 20
V.	Laboratory Blanks	A	
VI.	Field blanks	N	
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	N	
IX.	Laboratory control samples	SW	LCS
X.	Field duplicates	N	
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	PG-SMA-1-1-161011	16J0187-01	Tissue	10/11/16
2	PG-SMA-1-2-161011	16J0187-02	Tissue	10/11/16
3	PG-SMA-1-3-161011	16J0187-03	Tissue	10/11/16
4	PG-REF-PJ-1-161011	16J0187-04	Tissue	10/11/16
5	PG-REF-WS-1-161011	16J0187-05	Tissue	10/11/16
6	PG-REF-GP-1-161011	16J0187-06	Tissue	10/11/16
7				
8				
9				

Notes:

	BEI0794-BK1						

VALIDATION FINDINGS WORKSHEET

METHOD: GC/MS SVOA

A. Phenol	T. 4-Chloroaniline	MM. 4-Chlorophenyl-phenyl ether	FFF. Di-n-octylphthalate	YYY. 2,3,5-Trimethylnaphthalene
B. Bis (2-chloroethyl) ether	U. Hexachlorobutadiene	NN. Fluorene	GGG. Benzo(b)fluoranthene	ZZZ. Perylene
C. 2-Chlorophenol	V. 4-Chloro-3-methylphenol	OO. 4-Nitroaniline	HHH. Benzo(k)fluoranthene	AAAA. Dibenzothiophene
D. 1,3-Dichlorobenzene	W. 2-Methylnaphthalene	PP. 4,6-Dinitro-2-methylphenol	III. Benzo(a)pyrene	BBBB. Benzo(a)fluoranthene
E. 1,4-Dichlorobenzene	X. Hexachlorocyclopentadiene	QQ. N-Nitrosodiphenylamine	JJJ. Indeno(1,2,3-cd)pyrene	CCCC. Benzo(b)fluorene
F. 1,2-Dichlorobenzene	Y. 2,4,6-Trichlorophenol	RR. 4-Bromophenyl-phenylether	KKK. Dibenz(a,h)anthracene	DDDD. cis/trans-Decalin
G. 2-Methylphenol	Z. 2,4,5-Trichlorophenol	SS. Hexachlorobenzene	LLL. Benzo(g,h,i)perylene	EEEE. Biphenyl
H. 2,2'-Oxybis(1-chloropropane)	AA. 2-Chloronaphthalene	TT. Pentachlorophenol	MMM. Bis(2-Chloroisopropyl)ether	FFFF. Retene
I. 4-Methylphenol	BB. 2-Nitroaniline	UU. Phenanthrene	NNN. Aniline	GGGG. C30-Hopane
J. N-Nitroso-di-n-propylamine	CC. Dimethylphthalate	VV. Anthracene	OOO. N-Nitrosodimethylamine	HHHH. 1-Methylphenanthrene
K. Hexachloroethane	DD. Acenaphthylene	WW. Carbazole	PPP. Benzoic Acid	IIII. 1,4-Dioxane
L. Nitrobenzene	EE. 2,6-Dinitrotoluene	XX. Di-n-butylphthalate	QQQ. Benzyl alcohol	JJJJ. Acetophenone
M. Isophorone	FF. 3-Nitroaniline	YY. Fluoranthene	RRR. Pyridine	KKKK. Atrazine
N. 2-Nitrophenol	GG. Acenaphthene	ZZ. Pyrene	SSS. Benzidine	LLLL. Benzaldehyde
O. 2,4-Dimethylphenol	HH. 2,4-Dinitrophenol	AAA. Butylbenzylphthalate	TTT. 1-Methylnaphthalene	MMMM. Caprolactam
P. Bis(2-chloroethoxy)methane	II. 4-Nitrophenol	BBB. 3,3'-Dichlorobenzidine	UUU.Benzo(b)thiophene	NNNN.
Q. 2,4-Dichlorophenol	JJ. Dibenzofuran	CCC. Benzo(a)anthracene	VVV.Benzonaphthothiophene	OOOO.
R. 1,2,4-Trichlorobenzene	KK. 2,4-Dinitrotoluene	DDD. Chrysene	WWW.Benzo(e)pyrene	PPPP.
S. Naphthalene	LL. Diethylphthalate	EEE. Bis(2-ethylhexyl)phthalate	XXX. 2,6-Dimethylnaphthalene	QQQQ.

LDC #: 37506C2b

VALIDATION FINDINGS WORKSHEET
Laboratory Control Samples (LCS)

Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Was a LCS required?

Y (N) N/A Were the LCS/LCSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

#	Date	LCS/LCSD ID	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
		BEJ0794-BS1	S	46.5 (50-150)	( )	( )	All (det/ND)	J/UJ/P
			W	45.9 (↓)	( )	( )		↓
			DD	41.3 (↓)	( )	( )		↓
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
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				( )	( )	( )		
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				( )	( )	( )		
				( )	( )	( )		

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Port Gamble, Shellfish Monitoring

LDC Report Date: December 1, 2016

Parameters: Cadmium

Validation Level: Stage 2B

Laboratory: Analytical Resources, Inc.

Sample Delivery Group (SDG): 16J0187

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
PG-SMA-1-1-161011	16J0187-01	Tissue	10/11/16
PG-SMA-1-2-161011	16J0187-02	Tissue	10/11/16
PG-SMA-1-3-161011	16J0187-03	Tissue	10/11/16
PG-REF-PJ-1-161011	16J0187-04	Tissue	10/11/16
PG-REF-WS-1-161011	16J0187-05	Tissue	10/11/16
PG-REF-GP-1-161011	16J0187-06	Tissue	10/11/16
PG-SMA-1-1-161011MS	16J0187-01MS	Tissue	10/11/16
PG-SMA-1-1-161011DUP	16J0187-01DUP	Tissue	10/11/16

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Shellfish Monitoring Plan for Port Gamble Bay Cleanup Project (May 2015) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Inorganic Superfund Data Review (January 2010). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Cadmium by Environmental Protection Agency (EPA) SW 846 Method 6010C

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition.

All technical holding time requirements were met.

II. Instrument Calibration

Initial and continuing calibrations were performed as required by the method.

The initial calibration verification (ICV) and continuing calibration verification (CCV) standards were within QC limits.

III. ICP Interference Check Sample Analysis

The frequency of interference check sample (ICS) analysis was met. All criteria were within QC limits.

IV. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

V. Field Blanks

No field blanks were identified in this SDG.

VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits.

VII. Duplicate Sample Analysis

Duplicate (DUP) sample analysis was performed on an associated project sample. Results were within QC limits.

VIII. Serial Dilution

Serial dilution was not performed for this SDG.

IX. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

X. Field Duplicates

No field duplicates were identified in this SDG.

XI. Sample Result Verification

Raw data were not reviewed for Stage 2B validation.

XII. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable. Based upon the data validation all results are considered valid and usable for all purposes.

Port Gamble, Shellfish Monitoring
Cadmium - Data Qualification Summary - SDG 16J0187

No Sample Data Qualified in this SDG

Port Gamble, Shellfish Monitoring
Cadmium - Laboratory Blank Data Qualification Summary - SDG 16J0187

No Sample Data Qualified in this SDG

LDC #: 37506C4b

SDG #: 16J0187

Laboratory: Analytical Resources, Inc.

VALIDATION COMPLETENESS WORKSHEET

Stage 2B

Date: 11/21/16

Page: 1 of 1

Reviewer: JB

2nd Reviewer: amA

METHOD: Cadmium (EPA SW 846 Method 6010C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A, A	
II.	Instrument Calibration	A	
III.	ICP Interference Check Sample (ICS) Analysis	A	
IV.	Laboratory Blanks	A	
V.	Field Blanks	N	
VI.	Matrix Spike/Matrix Spike Duplicates	A	7
VII.	Duplicate sample analysis	A	8
VIII.	Serial Dilution	N	
IX.	Laboratory control samples	A	LCS
X.	Field Duplicates	N	
XI.	Sample Result Verification	N	
XII.	Overall Assessment of Data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	PG-SMA-1-1-161011	16J0187-01	Tissue	10/11/16
2	PG-SMA-1-2-161011	16J0187-02	Tissue	10/11/16
3	PG-SMA-1-3-161011	16J0187-03	Tissue	10/11/16
4	PG-REF-PJ-1-161011	16J0187-04	Tissue	10/11/16
5	PG-REF-WS-1-161011	16J0187-05	Tissue	10/11/16
6	PG-REF-GP-1-161011	16J0187-06	Tissue	10/11/16
7	PG-SMA-1-1-161011MS	16J0187-01MS	Tissue	10/11/16
8	PG-SMA-1-1-161011DUP	16J0187-01DUP	Tissue	10/11/16
9				
10				
11				
12				
13				
14				

Notes:

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Port Gamble, Shellfish Monitoring

LDC Report Date: December 1, 2016

Parameters: Wet Chemistry

Validation Level: Stage 2B

Laboratory: Analytical Resources, Inc.

Sample Delivery Group (SDG): 16J0187

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
PG-SMA-1-1-161011	16J0187-01	Tissue	10/11/16
PG-SMA-1-2-161011	16J0187-02	Tissue	10/11/16
PG-SMA-1-3-161011	16J0187-03	Tissue	10/11/16
PG-REF-PJ-1-161011	16J0187-04	Tissue	10/11/16
PG-REF-WS-1-161011	16J0187-05	Tissue	10/11/16
PG-REF-GP-1-161011	16J0187-06	Tissue	10/11/16

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Shellfish Monitoring Plan for Port Gamble Bay Cleanup Project (May 2015) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Inorganic Superfund Data Review (January 2010). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following methods:

Percent Lipids by Bligh and Dyer Method
Total Solids by Standard Method 2540G

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition.

All technical holding time requirements were met.

II. Initial Calibration

All criteria for the initial calibration were met.

III. Continuing Calibration

Continuing calibration frequency and analysis criteria were met.

IV. Laboratory Blanks

Laboratory blanks were analyzed as required by the methods. No contaminants were found in the laboratory blanks with the following exceptions:

Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	% Lipids	0.20%	All samples in SDG 16J0187

Data qualification by the laboratory blanks was based on the maximum contaminant concentration in the laboratory blanks in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated laboratory blanks.

V. Field Blanks

No field blanks were identified in this SDG.

VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were not required by the method.

VII. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) were not required by the method.

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Sample Result Verification

Raw data were not reviewed for Stage 2B validation.

XI. Overall Assessment of Data

The analysis was conducted within all specifications of the methods. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable. Based upon the data validation all results are considered valid and usable for all purposes.

Port Gamble, Shellfish Monitoring
Wet Chemistry - Data Qualification Summary - SDG 16J0187

No Sample Data Qualified in this SDG

Port Gamble, Shellfish Monitoring
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 16J0187

No Sample Data Qualified in this SDG

LDC #: 37506C6 **VALIDATION COMPLETENESS WORKSHEET** Date: 11/21/16
SDG #: 16J0187 Stage 2B Page: 1 of 1
Laboratory: Analytical Resources, Inc. Reviewer: JB
2nd Reviewer: OMS

METHOD: (Analyte) Percent Lipids (Bligh & Dyre), Total Solids (SM2540G)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A/A	
II	Initial calibration	A	
III.	Calibration verification	A	
IV	Laboratory Blanks	SW	
V	Field blanks	N	
VI.	Matrix Spike/Matrix Spike Duplicates	N	
VII.	Duplicate sample analysis	N	
VIII.	Laboratory control samples	N	
IX.	Field duplicates	N	
X.	Sample result verification	N	
XI	Overall assessment of data	A	

Note: A = Acceptable
N = Not provided/applicable
SW = See worksheet
ND = No compounds detected
R = Rinsate
FB = Field blank
D = Duplicate
TB = Trip blank
EB = Equipment blank
SB=Source blank
OTHER:

	Client ID	Lab ID	Matrix	Date
1	PG-SMA-1-1-161011	16J0187-01	Tissue	10/11/16
2	PG-SMA-1-2-161011	16J0187-02	Tissue	10/11/16
3	PG-SMA-1-3-161011	16J0187-03	Tissue	10/11/16
4	PG-REF-PJ-1-161011	16J0187-04	Tissue	10/11/16
5	PG-REF-WS-1-161011	16J0187-05	Tissue	10/11/16
6	PG-REF-GP-1-161011	16J0187-06	Tissue	10/11/16
7				
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14				
15				

Notes:

C #: 37506C6

VALIDATION FINDINGS WORKSHEET
Sample Specific Analysis Reference

Page: 1 of 1
Reviewer: JB
2nd reviewer: OMH

circled methods are applicable to each sample.

ample ID	Parameter
1-6	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4 (Lipids) (TS)
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4

omments:

LDC #: 37506C6

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer: JB
2nd Reviewer: GMB

METHOD: Inorganics, Method See Cover

Conc. units: % **Associated Samples:** All

Analyte	Blank ID	Blank ID	Blank Action Limit									
	PB	ICB/CCB (mg/L)		No Qualifiers								
% Lipids	0.20		1									

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
All contaminants within five times the method blank concentration were qualified as not detected, "U".

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Port Gamble, Shellfish Monitoring

LDC Report Date: December 8, 2016

Parameters: Polychlorinated Dioxins/Dibenzofurans

Validation Level: Stage 4

Laboratory: Analytical Resources, Inc.

Sample Delivery Group (SDG): 16J0187

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
PG-SMA-1-1-161011	16J0187-01	Tissue	10/11/16
PG-SMA-1-2-161011	16J0187-02	Tissue	10/11/16
PG-SMA-1-3-161011	16J0187-03	Tissue	10/11/16
PG-REF-PJ-1-161011	16J0187-04	Tissue	10/11/16
PG-REF-WS-1-161011	16J0187-05	Tissue	10/11/16
PG-REF-GP-1-161011	16J0187-06	Tissue	10/11/16

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Shellfish Monitoring Plan for Port Gamble Bay Cleanup Project (May 2015) and the USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Chlorinated Dibenzo-p-Dioxins (CDDs) and Chlorinated Dibenzofurans (CDFs) Data Review (September 2011). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Polychlorinated Dioxins/Dibenzofurans by Environmental Protection Agency (EPA) Method 1613B

All sample results were subjected to Stage 4 data validation, which is comprised of the quality control (QC) summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered not detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. HRGC/HRMS Instrument Performance Check

Instrument performance was checked at the required frequency.

Retention time windows were established for all homologues. The chromatographic resolution between 2,3,7,8-TCDD and peaks representing any other unlabeled TCDD isomer was less than or equal to 25%.

The static resolving power was at least 10,000 (10% valley definition).

III. Initial Calibration

A five point initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for unlabeled compounds.

The ion abundance ratios for all PCDDs and PCDFs were within validation criteria.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration results were within the QC limits for unlabeled compounds and labeled compounds.

The ion abundance ratios for all PCDDs and PCDFs were within method and validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks with the following exceptions:

Blank ID	Extraction Date	Compound	Concentration	Associated Samples
BEJ0775-BLK1	10/26/16	1,2,3,7,8-PeCDF 1,2,3,7,8,9-HxCDF 1,2,3,4,6,7,8-HpCDD OCDF OCDD Total TCDF Total PeCDF Total HxCDF Total HpCDD	0.0396 ng/Kg 0.0899 ng/Kg 0.0625 ng/Kg 0.0923 ng/Kg 0.933 ng/Kg 0.0344 ng/Kg 0.0396 ng/Kg 0.0899 ng/Kg 0.170 ng/Kg	All samples in SDG 16J0187

Sample concentrations were compared to concentrations detected in the laboratory blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated laboratory blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
PG-SMA-1-1-161011	1,2,3,7,8,9-HxCDF OCDF OCDD Total HxCDF	0.055 ng/Kg 0.132 ng/Kg 2.81 ng/Kg 0.070 ng/Kg	0.055U ng/Kg 0.132U ng/Kg 2.81U ng/Kg 0.070J ng/Kg
PG-SMA-1-2-161011	1,2,3,7,8,9-HxCDF OCDF OCDD Total HxCDF	0.045 ng/Kg 0.091 ng/Kg 3.03 ng/Kg 0.045 ng/Kg	0.045U ng/Kg 0.091U ng/Kg 3.03U ng/Kg 0.045J ng/Kg
PG-SMA-1-3-161011	1,2,3,7,8-PeCDF 1,2,3,7,8,9-HxCDF Total PeCDF Total HxCDF	0.027 ng/Kg 0.089 ng/Kg 0.165 ng/Kg 0.169 ng/Kg	0.027U ng/Kg 0.089U ng/Kg 0.165J ng/Kg 0.169J ng/Kg
PG-REF-PJ-1-161011	1,2,3,7,8,9-HxCDF Total HxCDF	0.068 ng/Kg 0.124 ng/Kg	0.068U ng/Kg 0.124J ng/Kg
PG-REF-WS-1-161011	1,2,3,7,8-PeCDF Total HxCDF	0.058 ng/Kg 0.083 ng/Kg	0.058U ng/Kg 0.083J ng/Kg
PG-REF-GP-1-161011	1,2,3,7,8,9-HxCDF OCDF OCDD Total TCDF Total HxCDF	0.075 ng/Kg 0.302 ng/Kg 4.11 ng/Kg 0.108 ng/Kg 0.112 ng/Kg	0.075U ng/Kg 0.302U ng/Kg 4.11U ng/Kg 0.108J ng/Kg 0.112J ng/Kg

VI. Field Blanks

No field blanks were identified in this SDG.

VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Internal Standards

All internal standard recoveries (%R) were within QC limits.

XI. Compound Quantitation

All compound quantitations were within validation criteria with the following exceptions:

Sample	Compound	Flag	A or P
All samples in SDG 16J0187	All compounds reported as estimated maximum possible concentration (EMPC)	J (all detects)	A

XII. Target Compound Identifications

All target compound identifications met validation criteria.

XIII. System Performance

The system performance was acceptable.

XIV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Due to results reported by the laboratory as EMPCs, data were qualified as estimated in six samples.

Due to laboratory blank contamination, data were qualified as not detected or estimated in six samples.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the data validation all other results are considered valid and usable for all purposes.

Port Gamble, Shellfish Monitoring
Polychlorinated Dioxins/Dibenzofurans - Data Qualification Summary - SDG 16J0187

Sample	Compound	Flag	A or P	Reason
PG-SMA-1-1-161011 PG-SMA-1-2-161011 PG-SMA-1-3-161011 PG-REF-PJ-1-161011 PG-REF-WS-1-161011 PG-REF-GP-1-161011	All compounds reported as estimated maximum possible concentration (EMPC)	J (all detects)	A	Compound quantitation (EMPC)

Port Gamble, Shellfish Monitoring
Polychlorinated Dioxins/Dibenzofurans - Laboratory Blank Data Qualification Summary - SDG 16J0187

Sample	Compound	Modified Final Concentration	A or P
PG-SMA-1-1-161011	1,2,3,7,8,9-HxCDF OCDF OCDD Total HxCDF	0.055U ng/Kg 0.132U ng/Kg 2.81U ng/Kg 0.070J ng/Kg	A
PG-SMA-1-2-161011	1,2,3,7,8,9-HxCDF OCDF OCDD Total HxCDF	0.045U ng/Kg 0.091U ng/Kg 3.03U ng/Kg 0.045J ng/Kg	A
PG-SMA-1-3-161011	1,2,3,7,8-PeCDF 1,2,3,7,8,9-HxCDF Total PeCDF Total HxCDF	0.027U ng/Kg 0.089U ng/Kg 0.165J ng/Kg 0.169J ng/Kg	A
PG-REF-PJ-1-161011	1,2,3,7,8,9-HxCDF Total HxCDF	0.068U ng/Kg 0.124J ng/Kg	A
PG-REF-WS-1-161011	1,2,3,7,8-PeCDF Total HxCDF	0.058U ng/Kg 0.083J ng/Kg	A
PG-REF-GP-1-161011	1,2,3,7,8,9-HxCDF OCDF OCDD Total TCDF Total HxCDF	0.075U ng/Kg 0.302U ng/Kg 4.11U ng/Kg 0.108J ng/Kg 0.112J ng/Kg	A

The attached zipped file contains two files:

File	Format	Description
1) Readme_PortGamble_120716.doc	MS Word 2003	A "Readme" file (this document).
2) LDC37506_VEDDxlsx	MS Excel 2007	A spreadsheet for the following SDG(s): 16H0147 37506A 16H0268 37506B 16J0187 37506C

No discrepancies were observed between the hardcopy data packages and the electronic data deliverables during EDD population of validation qualifiers. A 100% verification of the EDD was not performed.

Please contact Christina Rink at (760) 827-1100 if you have any questions regarding this electronic data submittal.

LDC #: 37506

EDD POPULATION COMPLETENESS WORKSHEET

Anchor

Date: 12/7/16

2nd Reviewer: KK

The LDC job number listed above was entered by BA.

	EDD Process	Y/N	Init	Comments/Action
I.	EDD Completeness	-		
Ia.	- All methods present?	Y	BA	
Ib.	- All samples present/match report?	Y	BA	
Ic.	- All reported analytes present?	Y	BA	
Id	10% verification of EDD?	Y	BA	
II.	EDD Preparation/Entry	-		
IIa.	- QC Level applied? (EPAStage2B or EPAStage4)	Y	BA	2B + 4
IIb.	- Laboratory EMPC qualified results qualified (J with reason code 23)?	Y	BA	
III.	Reasonableness Checks	-		
IIIa.	- Do all qualified ND results have ND qualifier (i.e. UJ)?	Y	BA	
IIIb.	- Do all qualified detect results have detect qualifier (i.e. J)?	Y	BA	
IIIc.	- If reason codes used, do all qualified results have reason code field populated, and vice versa?	Y	BA	
IIId.	- Do blank concentrations in report match EDD, where data was qualified due to blank?	Y	BA	
IIIe.	- Were any results reported above calibration range? If so, were results qualified appropriately?	N/A	BA	
IIIf.	- Are all results marked reportable "Yes" unless rejected for overall assessment in the data validation report?	Y	BA	
IIIg.	-Are there any lab "R" qualified data? / Are the entry columns blank for these results?	N/A	BA	
IIIh.	- Is the detect flag set to "N" for all "U" qualified blank results?	Y	BA	

Notes: *see readme

LABORATORY DATA CONSULTANTS, INC.
2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

Anchor Environmental, LLC
720 Olive Way, Suite 1900
Seattle, WA 98101
ATTN: Ms. Cindy Fields

January 16, 2017

SUBJECT: Port Gamble, Shellfish Monitoring, Data Validation

Dear Ms. Fields,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on December 20, 2016. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project #37781:

SDG #	Fraction
B6N4556	Polychlorinated Biphenyls as Congeners

The data validation was performed under Stage 2B guidelines. The analyses were validated using the following documents, as applicable to each method:

- Shellfish Monitoring Plan for Port Gamble Bay Cleanup Project, May 2015
- USEPA, Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008

Please feel free to contact us if you have any questions.

Sincerely,

Christina Rink

Christina Rink
Project Manager/Chemist

88 Pages SF

Attachment 1

EDD Stage 2B **LDC #37781 (Anchor Environmental-Seattle WA / Port Gamble, Shellfish Monitoring)**

LDC	SDG#	DATE REC'D	(3) DATE DUE	PCB Cong. (1668A)																																	
Matrix:	Water/Soil/Tissue			W	T	W	T	W	T	W	T	W	T	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	B6N4556	12/20/16	01/12/17	0	8																																
Total	T/CR			0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8

Shaded cells indicate Stage 4 validation (all other cells are Stage 2B validation). These sample counts do not include MS, MSD, or DUP's.

L:\Anchor\Port Gamble\Shellfish\37781ST.wpd

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Port Gamble, Shellfish Monitoring

LDC Report Date: January 12, 2017

Parameters: Polychlorinated Biphenyls as Congeners

Validation Level: Stage 2B

Laboratory: Maxxam

Sample Delivery Group (SDG): B6N4556

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
PG-T0-MUS-COC-160816	DIS272	Tissue	08/16/16
PG-T0-MUS-COC-160829	DIS273	Tissue	08/29/16
PG-SMA-1-1-161011	DIS274	Tissue	10/11/16
PG-SMA-1-2-161011	DIS275	Tissue	10/11/16
PG-SMA-1-3-161011	DIS276	Tissue	10/11/16
PG-REF-PJ-1-161011	DIS277	Tissue	10/11/16
PG-REF-WS-1-161011	DIS278	Tissue	10/11/16
PG-REF-GP-1-161011	DIS279	Tissue	10/11/16
PG-SMA-1-2-161011DUP	DIS275DUP	Tissue	10/11/16
PG-T0-MUS-COC-160816MS	DIS272MS	Tissue	08/16/16

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Shellfish Monitoring Plan for Port Gamble Bay Cleanup Project (May 2015) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Superfund Organic Methods Data Review (June 2008). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Polychlorinated Biphenyls (PCBs) as Congeners by Environmental Protection Agency (EPA) Method 1668A

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. HRGC/HRMS Instrument Performance Check

Instrument performance was checked at the required frequency.

Retention time windows were established for all congeners. The chromatographic resolution between the congeners PCB-23 and PCB-34 and congeners PCB-182 and PCB-187 was resolved with a valley of less than or equal to 40%.

The static resolving power was at least 10,000 (10% valley definition).

III. Initial Calibration and Initial Calibration Verification

A five point initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for unlabeled compounds and labeled compounds.

The ion abundance ratios for all compounds were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 30.0% for unlabeled compounds and less than or equal to 50.0% for labeled compounds.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 30.0% for unlabeled compounds and less than or equal to 50.0% for labeled compounds.

The ion abundance ratios for all compounds were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks with the following exceptions:

Blank ID	Extraction Date	Compound	Concentration	Associated Samples
4779396MB	11/28/16	PCB-20/28 PCB-61/70/74/76 PCB-90/101/113 PCB-95 PCB-105 PCB-110/115 PCB-118 PCB-129/138/163	0.00092 ng/g 0.00169 ng/g 0.0013 ng/g 0.0011 ng/g 0.00127 ng/g 0.0025 ng/g 0.00454 ng/g 0.0020 ng/g	All samples in SDG B6N4556

Sample concentrations were compared to concentrations detected in the laboratory blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated laboratory blanks.

VI. Field Blanks

No field blanks were identified in this SDG.

VII. Matrix Spike/Matrix Spike Duplicates/Duplicate Sample Analysis

Matrix spike (MS) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits.

Duplicate (DUP) sample analysis was performed on an associated project sample. Results were within QC limits.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Internal Standards

All internal standard recoveries (%R) were within QC limits.

XI. Compound Quantitation

All compound quantitations were within validation criteria with the following exceptions:

Sample	Compound	Flag	A or P
PG-SMA-1-1-161011	Results were flagged "K" by the laboratory to indicate results reported as estimated maximum possible concentration (EMPC)	J (all detects)	A

Raw data were not reviewed for Stage 2B validation.

XII. Target Compound Identification

Raw data were not reviewed for Stage 2B validation.

XIII. System Performance

Raw data were not reviewed for Stage 2B validation.

XIV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Due to results reported by the laboratory as EMPC, data were qualified as estimated in one sample.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the data validation all other results are considered valid and usable for all purposes.

Port Gamble, Shellfish Monitoring
Polychlorinated Biphenyls as Congeners - Data Qualification Summary - SDG B6N4556

Sample	Compound	Flag	A or P	Reason
PG-SMA-1-1-161011	Results were flagged "K" by the laboratory to indicate results reported as estimated maximum possible concentration (EMPC)	J (all detects)	A	Compound quantitation (EMPC)

Port Gamble, Shellfish Monitoring
Polychlorinated Biphenyls as Congeners - Laboratory Blank Data Qualification Summary - SDG B6N4556

No Sample Data Qualified in this SDG

LDC #: 37781A31 **VALIDATION COMPLETENESS WORKSHEET** Date: 1/11/17
SDG #: B6N4556 Stage 2B Page: 1 of 1
Laboratory: Maxxam Reviewer: R
2nd Reviewer: C

METHOD: HRGC/HRMS Polychlorinated Biphenyl Congeners (EPA Method 1668A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II.	HRGC/HRMS Instrument performance check	A	
III.	Initial calibration/ICV	A / A	RSD ≤ 20 RF ≤ 30/50
IV.	Continuing calibration	A	D ≤ 30/50
V.	Laboratory Blanks	SW	
VI.	Field blanks	N	
VII.	Matrix spike/Matrix spike duplicates /DUP	A/A	
VIII.	Laboratory control samples	A	LCS/D
IX.	Field duplicates	N	
X.	Internal standards	A	
XI.	Compound quantitation RL/LOQ/LODs	SW	
XII.	Target compound identification	N	
XIII.	System performance	N	
XIV.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	PG-T0-MUS-COC-160816	DIS272	Tissue	08/16/16
2	PG-T0-MUS-COC-160829	DIS273	Tissue	08/29/16
3	PG-SMA-1-1-161011	DIS274	Tissue	10/11/16
4	PG-SMA-1-2-161011	DIS275	Tissue	10/11/16
5	PG-SMA-1-3-161011	DIS276	Tissue	10/11/16
6	PG-REF-PJ-1-161011	DIS277	Tissue	10/11/16
7	PG-REF-WS-1-161011	DIS278	Tissue	10/11/16
8	PG-REF-GP-1-161011	DIS279	Tissue	10/11/16
9	PG-SMA-1-2-161011DUP	DIS275DUP	Tissue	10/11/16
10	PG-T0-MUS-COC-160816MS	DIS272MS	Tissue	08/16/16
11				

Notes:

LDC #: 37781A31

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: HRGC/HRMS PCB Congeners (EPA Method 1668)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were all samples associated with a method blank?
Y N N/A Was a method blank performed for each matrix and whenever a sample extraction was performed?
Y N N/A Was the method blank contaminated? If yes, please see qualification below.

Blank extraction date: 11/28/16 **Blank analysis date:** 12/06/16
Conc. units: ng/g Associated Samples: All

Compound	Blank ID	Sample Identification								
[illegible]	4779396MB	5X								
PCB-20/28	0.00092	0.0046								
PCB-61/70/74/76	0.00169	0.00845								
PCB-90/101/113	0.0013	0.0065								
PCB-95	0.0011	0.0055								
PCB-105	0.00127	0.00635								
PCB-110/115	0.0025	0.0125								
PCB-118	0.00454	0.0227								
PCB-129/138/163	0.0050	0.025								

LDC #: 37781A31

VALIDATION FINDINGS WORKSHEET
Compound Quantitation and Reported CRQLs

Reviewer: A
2nd Reviewer: [signature]

METHOD: HRGC/HRMS PCB Congeners (EPA Method 1668A)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were the correct internal standard (IS), quantitation ions and relative response factors (RRF) used to quantitate the compound?
Y N N/A Compound quantitation and CRQLs were adjusted to reflect all sample dilutions and dry weight factors (if necessary).

#	Date	Sample ID	Finding	Associated Samples	Qualifications
		3	Results flagged "K" as EMPC	All	Jdets/A

Comments: See sample calculation verification worksheet for recalculations

The attached zipped file contains two files:

File	Format	Description
1) Readme_PortGamble_011217.doc	MS Word 2003	A "Readme" file (this document).
2) LDC37781_VEDD_20170110.xlsx	MS Excel 2003	A spreadsheet for the following SDG(s): B6N4556 37781A

No discrepancies were observed between the hardcopy data packages and the electronic data deliverables during EDD population of validation qualifiers. A 100% verification of the EDD was not performed.

Please contact Christina Rink at (760) 827-1100 if you have any questions regarding this electronic data submittal.

LDC #: 37781

EDD POPULATION COMPLETENESS WORKSHEET

Anchor

Date: 1/12/17
Page: 1 of 1
2nd Reviewer:

The LDC job number listed above was entered by BA.

	EDD Process	Y/N	Init	Comments/Action
I.	EDD Completeness	-		
Ia.	- All methods present?	Y	BA	
Ib.	- All samples present/match report?	Y	BA	
Ic.	- All reported analytes present?	Y	BA	
Id	-10% verification of EDD?	Y	BA	
II.	EDD Preparation/Entry	-		
IIa.	- QC Level applied? (EPAStage2B or EPAStage4)	Y	BA	
IIb.	- Laboratory EMPC qualified results qualified (J with reason code 23)?	Y	BA	
III.	Reasonableness Checks	-		
IIIa.	- Do all qualified ND results have ND qualifier (i.e. UJ)?	N/A	BA	
IIIb.	- Do all qualified detect results have detect qualifier (i.e. J)?	Y	BA	
IIIc.	- If reason codes used, do all qualified results have reason code field populated, and vice versa?	Y	BA	
IIId.	- Do blank concentrations in report match EDD, where data was qualified due to blank?	N/A	BA	
IIIe.	- Were any results reported above calibration range? If so, were results qualified appropriately?	N/A	BA	
IIIf.	- Are all results marked reportable "Yes" unless rejected for overall assessment in the data validation report?	Y	BA	
IIIg.	-Are there any lab "R" qualified data? / Are the entry columns blank for these results?	N/A	BA	
IIIh.	- Is the detect flag set to "N" for all "U" qualified blank results?	Y	BA	

Notes: *see readme

Year 2 Data Validation Reports
Event 2

LABORATORY DATA CONSULTANTS, INC.
2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

Anchor Environmental, LLC
720 Olive Way, Suite 1900
Seattle, WA 98101
ATTN: Ms. Cindy Fields

January 19, 2017

SUBJECT: Port Gamble, Shellfish Monitoring, Data Validation

Dear Ms. Fields,

Enclosed is the final validation report for the fraction listed below. This SDG was received on November 29, 2016. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project #37811:

SDG #	Fraction
16K0321	Polynuclear Aromatic Hydrocarbons

The data validation was performed under Stage 2B guidelines. The analyses were validated using the following documents, as applicable to each method:

- Shellfish Monitoring Plan for Port Gamble Bay Cleanup Project, May 2015
- USEPA, Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; update IV, February 2007; update V, July 2014

Please feel free to contact us if you have any questions.

Sincerely,

Christina Rink

Christina Rink
Project Manager/Chemist

LABORATORY DATA CONSULTANTS, INC.
2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

Anchor Environmental, LLC
720 Olive Way, Suite 1900
Seattle, WA 98101
ATTN: Ms. Cindy Fields

February 1, 2017

SUBJECT: Revised Port Gamble, Shellfish Monitoring, Data Validation

Dear Ms. Fields,

Enclosed is the revised validation report for the fraction listed below. Please replace the previously submitted report with the enclosed revised report.

LDC Project #37811:

SDG #	Fraction
16K0321	Polynuclear Aromatic Hydrocarbons

- Revision: Per client request, associated the field blanks and trip blank were associated to the samples and qualified accordingly

Please feel free to contact us if you have any questions.

Sincerely,

Christina Rink

Christina Rink
Project Manager/Chemist

LABORATORY DATA CONSULTANTS, INC.
2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

Anchor Environmental, LLC
720 Olive Way, Suite 1900
Seattle, WA 98101
ATTN: Ms. Cindy Fields

April 19, 2017

SUBJECT: Revised Port Gamble, Shellfish Monitoring, Data Validation

Dear Ms. Fields,

Enclosed is the revised validation report for the fraction listed below. Please replace the previously submitted report with the enclosed revised report.

LDC Project #37811:

SDG #	Fraction
16K0321	Polynuclear Aromatic Hydrocarbons

Please feel free to contact us if you have any questions.

Sincerely,

Christina Rink

Christina Rink
Project Manager/Chemist

1,410 pages SF

Attachment 1

EDD Stage 2B **LDC #37811 (Anchor Environmental-Seattle WA / Port Gamble, Shellfish Monitoring)**

LDC	SDG#	DATE REC'D	(3) DATE DUE	PCB Cong. (1668A)																																	
Matrix:	Water/Soil/Tissue			W	T	W	T	W	T	W	T	W	T	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	16K0321	11/29/16	01/20/17	0	29																																
Total	T/CR			0	29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	29

Shaded cells indicate Stage 4 validation (all other cells are Stage 2B validation). These sample counts do not include MS, MSD, or DUP's.

L:\Anchor\Port Gamble\Shellfish\37811ST.wpd

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Port Gamble, Shellfish Monitoring

LDC Report Date: April 18, 2017

Parameters: Polynuclear Aromatic Hydrocarbons

Validation Level: Stage 2B

Laboratory: Analytical Resources, Inc.

Sample Delivery Group (SDG): 16K0321

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
PG-SMA1-1-PEMD-161122-A	16K0321-1	Tissue	11/22/16
PG-SMA1-1-PEMD-161122-ARE	16K0321-1RE	Tissue	11/22/16
PG-SMA1-2-PEMD-161122-A	16K0321-3	Tissue	11/22/16
PG-SMA1-2-PEMD-161122-ARE	16K0321-3RE	Tissue	11/22/16
PG-SMA1-3-PEMD-161122-A	16K0321-5	Tissue	11/22/16
PG-SMA1-3-PEMD-161122-ARE	16K0321-5RE	Tissue	11/22/16
PG-SMA1-103-PEMD-161122-A	16K0321-6	Tissue	11/22/16
PG-SMA1-103-PEMD-161122-ARE	16K0321-6RE	Tissue	11/22/16
PG-SMA2-1-PEMD-161122-A	16K0321-7	Tissue	11/22/16
PG-SMA2-1-PEMD-161122-ARE	16K0321-7RE	Tissue	11/22/16
PG-SMA2-2-PEMD-161122-A	16K0321-9	Tissue	11/22/16
PG-SMA2-2-PEMD-161122-ARE	16K0321-9RE	Tissue	11/22/16
PG-SMA2-102-PEMD-161122-A	16K0321-10	Tissue	11/22/16
PG-SMA2-102-PEMD-161122-ARE	16K0321-10RE	Tissue	11/22/16
PG-SMA2-3-PEMD-161122-A	16K0321-11	Tissue	11/22/16
PG-SMA2-3-PEMD-161122-ARE	16K0321-11RE	Tissue	11/22/16
PG-SMA2-4-PEMD-161122-A	16K0321-13	Tissue	11/22/16
PG-SMA2-4-PEMD-161122-ARE	16K0321-13RE	Tissue	11/22/16
PG-SMA2-5-PEMD-161122-A	16K0321-15	Tissue	11/22/16
PG-SMA2-5-PEMD-161122-ARE	16K0321-15RE	Tissue	11/22/16
PG-PJ-1-PEMD-161122-A	16K0321-17	Tissue	11/22/16
PG-PJ-1-PEMD-161122-ARE	16K0321-17RE	Tissue	11/22/16
PG-GP-1-PEMD-161122-A	16K0321-19	Tissue	11/22/16
PG-GP-1-PEMD-161122-ARE	16K0321-19RE	Tissue	11/22/16
PG-WS-1-PEMD-161122-A	16K0321-21	Tissue	11/22/16
PG-WS-1-PEMD-161122-ARE	16K0321-21RE	Tissue	11/22/16

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
PG-FB-SMA1-PEMD-161122	16K0321-23	Tissue	11/22/16
PG-FB-SMA2-PEMD-161122	16K0321-24	Tissue	11/22/16
PG-TB-PEMD-161122	16K0321-25	Tissue	11/22/16

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Shellfish Monitoring Plan for Port Gamble Bay Cleanup Project (May 2015) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Superfund Organic Methods Data Review (June 2008). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Polynuclear Aromatic Hydrocarbons (PAHs) by Environmental Protection Agency (EPA) SW 846 Method 8270D in Selected Ion Monitoring (SIM) mode

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A decafluorotriphenylphosphine (DFTPP) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

Average relative response factors (RRF) for all compounds were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 30.0% for all compounds.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
12/13/16	Anthracene	26.0	PG-SMA1-2-PEMD-161122-ARE PG-SMA1-103-PEMD-161122-ARE PG-SMA2-1-PEMD-161122-ARE PG-SMA2-2-PEMD-161122-ARE PG-SMA2-102-PEMD-161122-ARE PG-PJ-1-PEMD-161122-ARE	J (all detects)	A
12/16/16	Indeno(1,2,3-cd)pyrene Dibenzo(a,h)anthracene Benzo(g,h,i)perylene	34.4 37.2 32.0	PG-SMA1-1-PEMD-161122-ARE PG-SMA1-3-PEMD-161122-ARE PG-SMA2-3-PEMD-161122-ARE PG-SMA2-4-PEMD-161122-ARE PG-SMA2-5-PEMD-161122-ARE	UJ (all non-detects) UJ (all non-detects) UJ (all non-detects)	A

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks with the following exceptions:

Blank ID	Extraction Date	Compound	Concentration	Associated Samples
BEK0627-BLK2	11/28/16	Naphthalene 2-Methylnaphthalene	2.58 ug/Kg 1.29 ug/Kg	PG-SMA1-1-PEMD-161122-A PG-SMA1-1-PEMD-161122-ARE PG-SMA1-2-PEMD-161122-A PG-SMA1-2-PEMD-161122-ARE PG-SMA1-3-PEMD-161122-A PG-SMA1-3-PEMD-161122-ARE PG-SMA1-103-PEMD-161122-A PG-SMA1-103-PEMD-161122-ARE PG-SMA2-1-PEMD-161122-A PG-SMA2-1-PEMD-161122-ARE PG-SMA2-2-PEMD-161122-A PG-SMA2-2-PEMD-161122-ARE PG-SMA2-102-PEMD-161122-A PG-SMA2-102-PEMD-161122-ARE PG-SMA2-3-PEMD-161122-A PG-SMA2-3-PEMD-161122-ARE PG-SMA2-4-PEMD-161122-A PG-SMA2-4-PEMD-161122-ARE PG-SMA2-5-PEMD-161122-A PG-SMA2-5-PEMD-161122-ARE PG-PJ-1-PEMD-161122-A PG-PJ-1-PEMD-161122-ARE
BEK0658-BLK1	11/24/16	Naphthalene	1.64 ug/Kg	PG-GP-1-PEMD-161122-A PG-GP-1-PEMD-161122-ARE PG-WS-1-PEMD-161122-A PG-WS-1-PEMD-161122-ARE PG-FB-SMA1-PEMD-161122 PG-FB-SMA2-PEMD-161122 PG-TB-PEMD-161122

Sample concentrations were compared to concentrations detected in the laboratory blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated laboratory blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
PG-SMA1-1-PEMD-161122-ARE (10X)	Naphthalene 2-Methylnaphthalene	21.6 ug/Kg 47.8 ug/Kg	21.6U ug/Kg 47.8U ug/Kg
PG-SMA1-2-PEMD-161122-A	Naphthalene	10.8 ug/Kg	10.8U ug/Kg
PG-SMA1-2-PEMD-161122-ARE (5X)	Naphthalene 2-Methylnaphthalene	9.76 ug/Kg 21.1 ug/Kg	9.76U ug/Kg 21.1U ug/Kg
PG-SMA1-3-PEMD-161122-A	Naphthalene	5.67 ug/Kg	5.67U ug/Kg

Sample	Compound	Reported Concentration	Modified Final Concentration
PG-SMA1-3-PEMD-161122-ARE (5X)	Naphthalene 2-Methylnaphthalene	6.90 ug/Kg 17.9 ug/Kg	6.90U ug/Kg 17.9U ug/Kg
PG-SMA2-1-PEMD-161122-A	Naphthalene	9.58 ug/Kg	9.58U ug/Kg
PG-SMA2-1-PEMD-161122-ARE (5X)	Naphthalene 2-Methylnaphthalene	9.22 ug/Kg 9.92 ug/Kg	9.22U ug/Kg 9.92U ug/Kg
PG-SMA2-2-PEMD-161122-A	Naphthalene	12.6 ug/Kg	12.6U ug/Kg
PG-SMA2-2-PEMD-161122-ARE (20X)	2-Methylnaphthalene	33.6 ug/Kg	33.6U ug/Kg
PG-SMA2-102-PEMD-161122-A (20X)	2-Methylnaphthalene	112 ug/Kg	112U ug/Kg
PG-SMA2-3-PEMD-161122-ARE (20X)	2-Methylnaphthalene	27.7 ug/Kg	27.7U ug/Kg
PG-SMA2-4-PEMD-161122-ARE (20X)	2-Methylnaphthalene	32.1 ug/Kg	32.1U ug/Kg
PG-PJ-1-PEMD-161122-ARE (5X)	Naphthalene 2-Methylnaphthalene	9.34 ug/Kg 8.25 ug/Kg	9.34U ug/Kg 8.25U ug/Kg

VI. Field Blanks

Sample PG-TB-PEMD-161122 was identified as a trip blank. No contaminants were found with the following exceptions:

Blank ID	Collection Date	Compound	Concentration	Associated Samples
PG-TB-PEMD-161122	11/22/16	Naphthalene 2-Methylnaphthalene Acenaphthene Phenanthrene Fluoranthene Pyrene	18.9 ug/Kg 13.9 ug/Kg 1.48 ug/Kg 2.24 ug/Kg 1.44 ug/Kg 2.74 ug/Kg	PG-SMA1-1-PEMD-161122-A PG-SMA1-1-PEMD-161122-ARE PG-SMA1-2-PEMD-161122-A PG-SMA1-2-PEMD-161122-ARE PG-SMA1-3-PEMD-161122-A PG-SMA1-3-PEMD-161122-ARE PG-SMA1-103-PEMD-161122-A PG-SMA1-103-PEMD-161122-ARE PG-SMA2-1-PEMD-161122-A PG-SMA2-1-PEMD-161122-ARE PG-SMA2-2-PEMD-161122-A PG-SMA2-2-PEMD-161122-ARE PG-SMA2-102-PEMD-161122-A PG-SMA2-102-PEMD-161122-ARE PG-SMA2-3-PEMD-161122-A PG-SMA2-3-PEMD-161122-ARE PG-SMA2-4-PEMD-161122-A PG-SMA2-4-PEMD-161122-ARE PG-SMA2-5-PEMD-161122-A PG-SMA2-5-PEMD-161122-ARE PG-PJ-1-PEMD-161122-A PG-PJ-1-PEMD-161122-ARE PG-GP-1-PEMD-161122-A PG-GP-1-PEMD-161122-ARE PG-WS-1-PEMD-161122-A PG-WS-1-PEMD-161122-ARE PG-FB-SMA1-PEMD-161122 PG-FB-SMA2-PEMD-161122

Samples PG-FB-SMA1-PEMD-161122 and PG-FB-SMA2-PEMD-161122 were identified as field blanks. No contaminants were found with the following exceptions:

Blank ID	Collection Date	Compound	Concentration	Associated Samples
PG-FB-SMA1-PEMD-161122	11/22/16	Naphthalene 2-Methylnaphthalene Acenaphthene Fluorene Phenanthrene Fluoranthene Pyrene	13.4 ug/Kg 14.3 ug/Kg 1.88 ug/Kg 2.33 ug/Kg 4.85 ug/Kg 2.07 ug/Kg 1.97 ug/Kg	PG-SMA1-1-PEMD-161122-A PG-SMA1-1-PEMD-161122-ARE PG-SMA1-2-PEMD-161122-A PG-SMA1-2-PEMD-161122-ARE PG-SMA1-3-PEMD-161122-A PG-SMA1-3-PEMD-161122-ARE PG-SMA1-103-PEMD-161122-A PG-SMA1-103-PEMD-161122-ARE
PG-FB-SMA2-PEMD-161122	11/22/16	Naphthalene 2-Methylnaphthalene Acenaphthene Fluorene Phenanthrene Fluoranthene Pyrene	18.2 ug/Kg 24.1 ug/Kg 12.6 ug/Kg 7.16 ug/Kg 10.4 ug/Kg 4.76 ug/Kg 5.92 ug/Kg	PG-SMA2-1-PEMD-161122-A PG-SMA2-1-PEMD-161122-ARE PG-SMA2-2-PEMD-161122-A PG-SMA2-2-PEMD-161122-ARE PG-SMA2-102-PEMD-161122-A PG-SMA2-102-PEMD-161122-ARE PG-SMA2-3-PEMD-161122-A PG-SMA2-3-PEMD-161122-ARE PG-SMA2-4-PEMD-161122-A PG-SMA2-4-PEMD-161122-ARE PG-SMA2-5-PEMD-161122-A PG-SMA2-5-PEMD-161122-ARE

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
PG-SMA1-1-PEMD-161122-A	Naphthalene 2-Methylnaphthalene	21.1 ug/Kg 40.2 ug/Kg	21.1U ug/Kg 40.2U ug/Kg
PG-SMA1-1-PEMD-161122-ARE	Naphthalene 2-Methylnaphthalene	21.6 ug/Kg 47.8 ug/Kg	21.6U ug/Kg 47.8U ug/Kg
PG-SMA1-2-PEMD-161122-A	Naphthalene 2-Methylnaphthalene	10.8 ug/Kg 26.6 ug/Kg	10.8U ug/Kg 26.6U ug/Kg
PG-SMA1-2-PEMD-161122-ARE	Naphthalene 2-Methylnaphthalene	9.76 ug/Kg 21.1 ug/Kg	9.76U ug/Kg 21.1U ug/Kg
PG-SMA1-3-PEMD-161122-A	Naphthalene 2-Methylnaphthalene	5.67 ug/Kg 11.8 ug/Kg	5.67U ug/Kg 11.8U ug/Kg
PG-SMA1-3-PEMD-161122-ARE	Naphthalene 2-Methylnaphthalene	6.90 ug/Kg 17.9 ug/Kg	6.90U ug/Kg 17.9U ug/Kg
PG-SMA1-103-PEMD-161122-A	Naphthalene 2-Methylnaphthalene	11.2 ug/Kg 18.2 ug/Kg	11.2U ug/Kg 18.2U ug/Kg
PG-SMA2-1-PEMD-161122-A	Naphthalene 2-Methylnaphthalene	9.58 ug/Kg 14.6 ug/Kg	9.58U ug/Kg 14.6U ug/Kg
PG-SMA2-1-PEMD-161122-ARE	Naphthalene 2-Methylnaphthalene	9.22 ug/Kg 9.92 ug/Kg	9.22U ug/Kg 9.92U ug/Kg
PG-SMA2-2-PEMD-161122-A	Naphthalene 2-Methylnaphthalene	12.6 ug/Kg 87.3 ug/Kg	12.6U ug/Kg 87.3U ug/Kg
PG-SMA2-2-PEMD-161122-ARE	2-Methylnaphthalene	33.6 ug/Kg	33.6U ug/Kg
PG-SMA2-102-PEMD-161122-A	Naphthalene	25.6 ug/Kg	25.6U ug/Kg
PG-SMA2-3-PEMD-161122-A	Naphthalene 2-Methylnaphthalene	15.0 ug/Kg 31.0 ug/Kg	15.0U ug/Kg 31.0U ug/Kg
PG-SMA2-3-PEMD-161122-ARE	2-Methylnaphthalene	27.7 ug/Kg	27.7U ug/Kg
PG-SMA2-4-PEMD-161122-A	Naphthalene 2-Methylnaphthalene	17.1 ug/Kg 37.9 ug/Kg	17.1U ug/Kg 37.9U ug/Kg
PG-SMA2-4-PEMD-161122-ARE	2-Methylnaphthalene	32.1 ug/Kg	32.1U ug/Kg

Sample	Compound	Reported Concentration	Modified Final Concentration
PG-SMA2-5-PEMD-161122-A	Naphthalene 2-Methylnaphthalene	14.1 ug/Kg 37.0 ug/Kg	14.1U ug/Kg 37.0U ug/Kg
PG-PJ-1-PEMD-161122-A	Naphthalene 2-Methylnaphthalene	13.1 ug/Kg 17.1 ug/Kg	13.1U ug/Kg 17.1U ug/Kg
PG-PJ-1-PEMD-161122-ARE	Naphthalene 2-Methylnaphthalene	9.34 ug/Kg 8.25 ug/Kg	9.34U ug/Kg 8.25U ug/Kg
PG-GP-1-PEMD-161122-A	Naphthalene 2-Methylnaphthalene	9.31 ug/Kg 24.8 ug/Kg	9.31U ug/Kg 24.8U ug/Kg
PG-GP-1-PEMD-161122-ARE	2-Methylnaphthalene	21.2 ug/Kg	21.2U ug/Kg
PG-WS-1-PEMD-161122-A	Naphthalene 2-Methylnaphthalene	10.6 ug/Kg 18.1 ug/Kg	10.6U ug/Kg 18.1U ug/Kg
PG-WS-1-PEMD-161122-ARE	2-Methylnaphthalene	15.2 ug/Kg	15.2U ug/Kg
PG-FB-SMA1-PEMD-161122	Naphthalene 2-Methylnaphthalene Acenaphthene Phenanthrene Fluoranthene Pyrene	13.4 ug/Kg 14.3 ug/Kg 1.88 ug/Kg 4.85 ug/Kg 2.07 ug/Kg 1.97 ug/Kg	13.4U ug/Kg 14.3U ug/Kg 1.88U ug/Kg 4.85U ug/Kg 2.07U ug/Kg 1.97U ug/Kg
PG-FB-SMA2-PEMD-161122	Naphthalene 2-Methylnaphthalene Phenanthrene Fluoranthene Pyrene	18.2 ug/Kg 24.1 ug/Kg 10.4 ug/Kg 4.76 ug/Kg 5.92 ug/Kg	18.2U ug/Kg 24.1U ug/Kg 10.4U ug/Kg 4.76U ug/Kg 5.92U ug/Kg

VII. Surrogates

Surrogate recoveries (%R) were not within QC limits for several samples. No data were qualified for samples analyzed at greater than or equal to 5X dilution.

VIII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

IX. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits with the following exceptions:

LCS ID	Compound	%R (Limits)	Associated Samples	Flag	A or P
BEK0657-BS1	Naphthalene 2-Methylnaphthalene Acenaphthylene Acenaphthene Fluorene Benzo(k)fluoranthene Benzo(a)pyrene Benzo(g,h,i)perylene Perylene Benzo(e)pyrene	43.5 (50-150) 45.7 (50-150) 44.2 (50-150) 47.5 (50-150) 49.1 (50-150) 48.8 (50-150) 45.0 (50-150) 49.3 (50-150) 28.2 (50-150) 49.0 (50-150)	PG-SMA1-1-PEMD-161122-A PG-SMA1-1-PEMD-161122-ARE PG-SMA1-2-PEMD-161122-A PG-SMA1-2-PEMD-161122-ARE PG-SMA1-3-PEMD-161122-A PG-SMA1-3-PEMD-161122-ARE PG-SMA1-103-PEMD-161122-A PG-SMA1-103-PEMD-161122-ARE PG-SMA2-1-PEMD-161122-A PG-SMA2-1-PEMD-161122-ARE PG-SMA2-2-PEMD-161122-A PG-SMA2-2-PEMD-161122-ARE PG-SMA2-102-PEMD-161122-A PG-SMA2-102-PEMD-161122-ARE PG-SMA2-3-PEMD-161122-A PG-SMA2-3-PEMD-161122-ARE PG-SMA2-4-PEMD-161122-A PG-SMA2-4-PEMD-161122-ARE PG-SMA2-5-PEMD-161122-A PG-SMA2-5-PEMD-161122-ARE PG-PJ-1-PEMD-161122-A PG-PJ-1-PEMD-161122-ARE	J (all detects) UJ (all non-detects)	P
BEK0657-BS2	Naphthalene Acenaphthylene Benzo(a)pyrene Perylene	42.9 (50-150) 45.1 (50-150) 49.8 (50-150) 24.4 (50-150)	PG-SMA1-1-PEMD-161122-A PG-SMA1-1-PEMD-161122-ARE PG-SMA1-2-PEMD-161122-A PG-SMA1-2-PEMD-161122-ARE PG-SMA1-3-PEMD-161122-A PG-SMA1-3-PEMD-161122-ARE PG-SMA1-103-PEMD-161122-A PG-SMA1-103-PEMD-161122-ARE PG-SMA2-1-PEMD-161122-A PG-SMA2-1-PEMD-161122-ARE PG-SMA2-2-PEMD-161122-A PG-SMA2-2-PEMD-161122-ARE PG-SMA2-102-PEMD-161122-A PG-SMA2-102-PEMD-161122-ARE PG-SMA2-3-PEMD-161122-A PG-SMA2-3-PEMD-161122-ARE PG-SMA2-4-PEMD-161122-A PG-SMA2-4-PEMD-161122-ARE PG-SMA2-5-PEMD-161122-A PG-SMA2-5-PEMD-161122-ARE PG-PJ-1-PEMD-161122-A PG-PJ-1-PEMD-161122-ARE	J (all detects) UJ (all non-detects)	P
BEK0658-BS1	Naphthalene Perylene	48.7 (50-150) 25.6 (50-150)	PG-GP-1-PEMD-161122-A PG-GP-1-PEMD-161122-ARE PG-WS-1-PEMD-161122-A PG-WS-1-PEMD-161122-ARE PG-FB-SMA1-PEMD-161122 PG-FB-SMA2-PEMD-161122 PG-TB-PEMD-161122	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P

X. Field Duplicates

Samples PG-SMA1-3-PEMD-161122-A and PG-SMA1-103-PEMD-161122-A and samples PG-SMA2-2-PEMD-161122-A and PG-SMA2-102-PEMD-161122-A were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/Kg)		RPD
	PG-SMA1-3-PEMD-161122-A	PG-SMA1-103-PEMD-161122-A	
Naphthalene	5.67	11.2	66
2-Methylnaphthalene	11.8	18.2	43
Acenaphthylene	2.07	3.19	43
Acenaphthene	61.3	92.2	40
Fluorene	65.9	94.7	36
Anthracene	25.2	42.7	52
Benzo(a)anthracene	19.8	23.3	16
Chrysene	14.7	18.4	22
Benzo(b)fluoranthene	4.42	4.11	7
Benzo(k)fluoranthene	2.11	1.63	26
Benzo(a)pyrene	2.78	2.04	31
Benzo(e)pyrene	2.72	2.61	4

Compound	Concentration (ug/Kg)		RPD
	PG-SMA1-3-PEMD-161122-ARE	PG-SMA1-103-PEMD-161122-ARE	
Phenanthrene	423	387	9
Fluoranthene	401	331	19
Pyrene	238	228	4

Compound	Concentration (ug/Kg)		RPD
	PG-SMA2-2-PEMD-161122-A	PG-SMA2-102-PEMD-161122-A	
Naphthalene	12.6	25.6	68
Acenaphthylene	9.45	9.93	5
Benzo(a)anthracene	66.3	84.6	24

Compound	Concentration (ug/Kg)		RPD
	PG-SMA2-2-PEMD-161122-A	PG-SMA2-102-PEMD-161122-A	
Chrysene	42.4	50.0	16
Benzo(b)fluoranthene	11.3	19.0	51
Benzo(k)fluoranthene	5.87	8.56	37
Benzo(a)pyrene	8.02	12.3	42
Indeno(1,2,3-cd)pyrene	1.16	1.50	26
Benzo(g,h,i)perylene	1.18	1.61	31
Perylene	1.87	3.40	58
Benzo(e)pyrene	7.17	11.1	43

Compound	Concentration (ug/Kg)		RPD
	PG-SMA2-2-PEMD-161122-ARE	PG-SMA2-102-PEMD-161122-ARE	
Acenaphthene	454	696	42
Fluorene	452	715	45
Phenanthrene	1490	1890	24
Anthracene	319	319	0
Fluoranthene	834	949	13
Pyrene	578	671	15

Compound	Concentration (ug/Kg)		RPD
	PG-SMA2-2-PEMD-161122-A	PG-SMA2-102-PEMD-161122-ARE	
2-Methylnaphthalene	87.3	112	25

XI. Internal Standards

All internal standard areas and retention times were within QC limits.

XII. Compound Quantitation

All compound quantitations met validation criteria with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
PG-SMA1-1-PEMD-161122-A PG-SMA2-3-PEMD-161122-A PG-SMA2-4-PEMD-161122-A	Acenaphthene Fluorene Phenanthrene Fluoranthene Pyrene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects) J (all detects) J (all detects) J (all detects)	A
PG-SMA1-2-PEMD-161122-A PG-SMA1-3-PEMD-161122-A PG-SMA1-103-PEMD-161122-A PG-SMA2-1-PEMD-161122-A PG-PJ-1-PEMD-161122-A PG-GP-1-PEMD-161122-A PG-WS-1-PEMD-161122-A	Phenanthrene Fluoranthene Pyrene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects) J (all detects)	A
PG-SMA2-2-PEMD-161122-A PG-SMA2-5-PEMD-161122-A	Acenaphthene Fluorene Phenanthrene Anthracene Fluoranthene Pyrene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects)	A
PG-SMA2-102-PEMD-161122-A	2-Methylnaphthalene Acenaphthene Fluorene Phenanthrene Anthracene Fluoranthene Pyrene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects)	A

Raw data were not reviewed for Stage 2B validation.

XIII. Target Compound Identifications

Raw data were not reviewed for Stage 2B validation.

XIV. System Performance

Raw data were not reviewed for Stage 2B validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method.

In the case where more than one result was reported for an individual sample, the least technically acceptable results were deemed unusable as follows:

Sample	Compound	Flag	A or P
PG-SMA1-1-PEMD-161122-A PG-SMA2-3-PEMD-161122-A PG-SMA2-4-PEMD-161122-A	Acenaphthene Fluorene Phenanthrene Fluoranthene Pyrene	R R R R R	A
PG-SMA1-1-PEMD-161122-ARE PG-SMA2-3-PEMD-161122-ARE PG-SMA2-4-PEMD-161122-ARE	All compounds except Acenaphthene Fluorene Phenanthrene Fluoranthene Pyrene	R	A
PG-SMA1-2-PEMD-161122-A PG-SMA1-3-PEMD-161122-A PG-SMA1-103-PEMD-161122-A PG-SMA2-1-PEMD-161122-A PG-PJ-1-PEMD-161122-A PG-GP-1-PEMD-161122-A PG-WS-1-PEMD-161122-A	Phenanthrene Fluoranthene Pyrene	R R R	A
PG-SMA1-2-PEMD-161122-ARE PG-SMA1-3-PEMD-161122-ARE PG-SMA1-103-PEMD-161122-ARE PG-SMA2-1-PEMD-161122-ARE PG-PJ-1-PEMD-161122-ARE PG-GP-1-PEMD-161122-ARE PG-WS-1-PEMD-161122-ARE	All compounds except Phenanthrene Fluoranthene Pyrene	R	A
PG-SMA2-2-PEMD-161122-A PG-SMA2-5-PEMD-161122-A	Acenaphthene Fluorene Phenanthrene Anthracene Fluoranthene Pyrene	R R R R R R	A
PG-SMA2-2-PEMD-161122-ARE PG-SMA2-5-PEMD-161122-ARE	All compounds except Acenaphthene Fluorene Phenanthrene Anthracene Fluoranthene Pyrene	R	A
PG-SMA2-102-PEMD-161122-A	2-Methylnaphthalene Acenaphthene Fluorene Phenanthrene Anthracene Fluoranthene Pyrene	R R R R R R R	A
PG-SMA2-102-PEMD-161122-ARE	All compounds except 2-Methylnaphthalene Acenaphthene Fluorene Phenanthrene Anthracene Fluoranthene Pyrene	R	A

Due to continuing calibration %D and LCS %R, data were qualified as estimated in sixteen samples.

Due to laboratory blank contamination, data were qualified as not detected in five samples.

Due to trip blank contamination, data were qualified as not detected in fifteen samples.

Due to field blank contamination, data were qualified as not detected in ten samples.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the data validation all other results are considered valid and usable for all purposes.

Port Gamble, Shellfish Monitoring
Polynuclear Aromatic Hydrocarbons - Data Qualification Summary - SDG 16K0321

Sample	Compound	Flag	A or P	Reason
PG-SMA2-2-PEMD-161122-ARE PG-SMA2-102-PEMD-161122-ARE	Anthracene	J (all detects)	A	Continuing calibration (%D)
PG-SMA1-1-PEMD-161122-A PG-SMA1-2-PEMD-161122-A PG-SMA1-3-PEMD-161122-A PG-SMA1-103-PEMD-161122-A PG-SMA2-1-PEMD-161122-A PG-SMA2-2-PEMD-161122-A PG-SMA2-102-PEMD-161122-A PG-SMA2-3-PEMD-161122-A PG-SMA2-4-PEMD-161122-A PG-SMA2-5-PEMD-161122-A PG-PJ-1-PEMD-161122-A	Naphthalene Acenaphthylene Benzo(k)fluoranthene Benzo(a)pyrene Benzo(g,h,i)perylene Perylene Benzo(e)pyrene	J (all detects) UJ (all non-detects)	P	Laboratory control samples (%R)
PG-SMA1-1-PEMD-161122-ARE PG-SMA1-2-PEMD-161122-A PG-SMA1-3-PEMD-161122-A PG-SMA1-103-PEMD-161122-A PG-SMA2-1-PEMD-161122-A PG-SMA2-2-PEMD-161122-ARE PG-SMA2-102-PEMD-161122-ARE PG-SMA2-3-PEMD-161122-ARE PG-SMA2-4-PEMD-161122-ARE PG-SMA2-5-PEMD-161122-ARE PG-PJ-1-PEMD-161122-A	Acenaphthene Fluorene	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P	Laboratory control samples (%R)
PG-SMA1-1-PEMD-161122-A PG-SMA1-2-PEMD-161122-A PG-SMA1-3-PEMD-161122-A PG-SMA1-103-PEMD-161122-A PG-SMA2-1-PEMD-161122-A PG-SMA2-2-PEMD-161122-A PG-SMA2-102-PEMD-161122-ARE PG-SMA2-3-PEMD-161122-A PG-SMA2-4-PEMD-161122-A PG-SMA2-5-PEMD-161122-A PG-PJ-1-PEMD-161122-A	2-Methylnaphthalene	J (all detects) UJ (all non-detects)	P	Laboratory control samples (%R)
PG-GP-1-PEMD-161122-A PG-WS-1-PEMD-161122-A PG-FB-SMA1-PEMD-161122 PG-FB-SMA2-PEMD-161122 PG-TB-PEMD-161122	Naphthalene Perylene	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P	Laboratory control samples (%R)
PG-SMA1-1-PEMD-161122-A PG-SMA2-3-PEMD-161122-A PG-SMA2-4-PEMD-161122-A	Acenaphthene Fluorene Phenanthrene Fluoranthene Pyrene	R R R R R	A	Overall assessment of data
PG-SMA1-1-PEMD-161122-ARE PG-SMA2-3-PEMD-161122-ARE PG-SMA2-4-PEMD-161122-ARE	All compounds except Acenaphthene Fluorene Phenanthrene Fluoranthene Pyrene	R	A	Overall assessment of data

Sample	Compound	Flag	A or P	Reason
PG-SMA1-2-PEMD-161122-A PG-SMA1-3-PEMD-161122-A PG-SMA1-103-PEMD-161122-A PG-SMA2-1-PEMD-161122-A PG-PJ-1-PEMD-161122-A PG-GP-1-PEMD-161122-A PG-WS-1-PEMD-161122-A	Phenanthrene Fluoranthene Pyrene	R R R	A	Overall assessment of data
PG-SMA1-2-PEMD-161122-ARE PG-SMA1-3-PEMD-161122-ARE PG-SMA1-103-PEMD-161122-ARE PG-SMA2-1-PEMD-161122-ARE PG-PJ-1-PEMD-161122-ARE PG-GP-1-PEMD-161122-ARE PG-WS-1-PEMD-161122-ARE	All compounds except Phenanthrene Fluoranthene Pyrene	R	A	Overall assessment of data
PG-SMA2-2-PEMD-161122-A PG-SMA2-5-PEMD-161122-A	Acenaphthene Fluorene Phenanthrene Anthracene Fluoranthene Pyrene	R R R R R R	A	Overall assessment of data
PG-SMA2-2-PEMD-161122-ARE PG-SMA2-5-PEMD-161122-ARE	All compounds except Acenaphthene Fluorene Phenanthrene Anthracene Fluoranthene Pyrene	R	A	Overall assessment of data
PG-SMA2-102-PEMD-161122-A	2-Methylnaphthalene Acenaphthene Fluorene Phenanthrene Anthracene Fluoranthene Pyrene	R R R R R R R	A	Overall assessment of data
PG-SMA2-102-PEMD-161122-ARE	All compounds except 2-Methylnaphthalene Acenaphthene Fluorene Phenanthrene Anthracene Fluoranthene Pyrene	R	A	Overall assessment of data

Port Gamble, Shellfish Monitoring
Polynuclear Aromatic Hydrocarbons - Laboratory Blank Data Qualification Summary - SDG 16K0321

Sample	Compound	Modified Final Concentration	A or P
PG-SMA1-2-PEMD-161122-A	Naphthalene	10.8U ug/Kg	A

Sample	Compound	Modified Final Concentration	A or P
PG-SMA1-3-PEMD-161122-A	Naphthalene	5.67U ug/Kg	A
PG-SMA2-1-PEMD-161122-A	Naphthalene	9.58U ug/Kg	A
PG-SMA2-2-PEMD-161122-A	Naphthalene	12.6U ug/Kg	A

Port Gamble, Shellfish Monitoring
Polynuclear Aromatic Hydrocarbons - Field Blank Data Qualification Summary - SDG 16K0321

Sample	Compound	Modified Final Concentration	A or P
PG-SMA1-1-PEMD-161122-A	Naphthalene 2-Methylnaphthalene	21.1U ug/Kg 40.2U ug/Kg	A
PG-SMA1-2-PEMD-161122-A	Naphthalene 2-Methylnaphthalene	10.8U ug/Kg 26.6U ug/Kg	A
PG-SMA1-3-PEMD-161122-A	Naphthalene 2-Methylnaphthalene	5.67U ug/Kg 11.8U ug/Kg	A
PG-SMA1-103-PEMD-161122-A	Naphthalene 2-Methylnaphthalene	11.2U ug/Kg 18.2U ug/Kg	A
PG-SMA2-1-PEMD-161122-A	Naphthalene 2-Methylnaphthalene	9.58U ug/Kg 14.6U ug/Kg	A
PG-SMA2-2-PEMD-161122-A	Naphthalene 2-Methylnaphthalene	12.6U ug/Kg 87.3U ug/Kg	A
PG-SMA2-102-PEMD-161122-A	Naphthalene	25.6U ug/Kg	A
PG-SMA2-3-PEMD-161122-A	Naphthalene 2-Methylnaphthalene	15.0U ug/Kg 31.0U ug/Kg	A
PG-SMA2-4-PEMD-161122-A	Naphthalene 2-Methylnaphthalene	17.1U ug/Kg 37.9U ug/Kg	A
PG-SMA2-5-PEMD-161122-A	Naphthalene 2-Methylnaphthalene	14.1U ug/Kg 37.0U ug/Kg	A
PG-PJ-1-PEMD-161122-A	Naphthalene 2-Methylnaphthalene	13.1U ug/Kg 17.1U ug/Kg	A
PG-GP-1-PEMD-161122-A	Naphthalene 2-Methylnaphthalene	9.31U ug/Kg 24.8U ug/Kg	A

Sample	Compound	Modified Final Concentration	A or P
PG-WS-1-PEMD-161122-A	Naphthalene 2-Methylnaphthalene	10.6U ug/Kg 18.1U ug/Kg	A
PG-FB-SMA1-PEMD-161122	Naphthalene 2-Methylnaphthalene Acenaphthene Phenanthrene Fluoranthene Pyrene	13.4U ug/Kg 14.3U ug/Kg 1.88U ug/Kg 4.85U ug/Kg 2.07U ug/Kg 1.97U ug/Kg	A
PG-FB-SMA2-PEMD-161122	Naphthalene 2-Methylnaphthalene Phenanthrene Fluoranthene Pyrene	18.2U ug/Kg 24.1U ug/Kg 10.4U ug/Kg 4.76U ug/Kg 5.92U ug/Kg	A

LDC #: 37811A2b **VALIDATION COMPLETENESS WORKSHEET** Date: 01/17/17
SDG #: 16K0321 Stage 2B Page: 1 of 1
Laboratory: Analytical Resources, Inc. Reviewer: SW
2nd Reviewer:

METHOD: GC/MS Polynuclear Aromatic Hydrocarbons (EPA SW 846 Method 8270D-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A / A	ICAV ≤ 20 % ICV ≤ 30 %
IV.	Continuing calibration	SW	CCV ≤ 20 %
V.	Laboratory Blanks	SW	
VI.	Field blanks	SW	FB = 27, 28 TB = 29
VII.	Surrogate spikes	SW	
VIII.	Matrix spike/Matrix spike duplicates	N	CS
IX.	Laboratory control samples	SW	LCS 08
X.	Field duplicates	SW	D = 5/7, 6/8, 11/13, 12/14
XI.	Internal standards	SW	
XII.	Compound quantitation RL/LOQ/LODs	SW	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	SW	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	PG-SMA1-1-PEMD-161122-A	16K0321-1	Tissue	11/22/16
2	PG-SMA1-1-PEMD-161122-ARE	16K0321-1RE	Tissue	11/22/16
3	PG-SMA1-2-PEMD-161122-A	16K0321-3	Tissue	11/22/16
4	PG-SMA1-2-PEMD-161122-ARE	16K0321-3RE	Tissue	11/22/16
5	PG-SMA1-3-PEMD-161122-A D1	16K0321-5	Tissue	11/22/16
6	PG-SMA1-3-PEMD-161122-ARE D2	16K0321-5RE	Tissue	11/22/16
7	PG-SMA1-103-PEMD-161122-A D1	16K0321-6	Tissue	11/22/16
8	PG-SMA1-103-PEMD-161122-ARE D2	16K0321-6RE	Tissue	11/22/16
9	PG-SMA2-1-PEMD-161122-A	16K0321-7	Tissue	11/22/16
10	PG-SMA2-1-PEMD-161122-ARE	16K0321-7RE	Tissue	11/22/16
11	PG-SMA2-2-PEMD-161122-A D3	16K0321-9	Tissue	11/22/16
12	PG-SMA2-2-PEMD-161122-ARE D4	16K0321-9RE	Tissue	11/22/16
13	PG-SMA2-102-PEMD-161122-A D3	16K0321-10	Tissue	11/22/16

LDC #: 37811A2b **VALIDATION COMPLETENESS WORKSHEET** Date: 01/17/17
SDG #: 16K0321 Stage 2B Page: 2 of 2
Laboratory: Analytical Resources, Inc. Reviewer: JV6
2nd Reviewer:

METHOD: GC/MS Polynuclear Aromatic Hydrocarbons (EPA SW 846 Method 8270D-SIM)

	Client ID	Lab ID	Matrix	Date
14	PG-SMA2-102-PEMD-161122-ARE D4	16K0321-10RE	Tissue	11/22/16
15	PG-SMA2-3-PEMD-161122-A	16K0321-11	Tissue	11/22/16
16	PG-SMA2-3-PEMD-161122-ARE	16K0321-11RE	Tissue	11/22/16
17	PG-SMA2-4-PEMD-161122-A	16K0321-13	Tissue	11/22/16
18	PG-SMA2-4-PEMD-161122-ARE	16K0321-13RE	Tissue	11/22/16
19	PG-SMA2-5-PEMD-161122-A	16K0321-15	Tissue	11/22/16
20	PG-SMA2-5-PEMD-161122-ARE	16K0321-15RE	Tissue	11/22/16
21	PG-PJ-1-PEMD-161122-A	16K0321-17	Tissue	11/22/16
22	PG-PJ-1-PEMD-161122-ARE	16K0321-17RE	Tissue	11/22/16
23	PG-GP-1-PEMD-161122-A	16K0321-19	Tissue	11/22/16
24	PG-GP-1-PEMD-161122-ARE	16K0321-19RE	Tissue	11/22/16
25	PG-WS-1-PEMD-161122-A	16K0321-21	Tissue	11/22/16
26	PG-WS-1-PEMD-161122-ARE	16K0321-21RE	Tissue	11/22/16
27	PG-FB-SMA1-PEMD-161122	16K0321-23	Tissue	11/22/16
28	PG-FB-SMA2-PEMD-161122	16K0321-24	Tissue	11/22/16
29	PG-TB-PEMD-161122	16K0321-25	Tissue	11/22/16
30				
31				
32				
33				
34				

Notes:

1	BEK0657-BLK1						
✓	BEK0658-BLK1						
1	BEK0657-BLK2						

VALIDATION FINDINGS WORKSHEET

METHOD: GC/MS SVOA

A. Phenol	AA. 2-Chloronaphthalene	AAA. Butylbenzylphthalate	AAAA. Dibenzothiophene	A1.
B. Bis (2-chloroethyl) ether	BB. 2-Nitroaniline	BBB. 3,3'-Dichlorobenzidine	BBBB. Benzo(a)fluoranthene	B1.
C. 2-Chlorophenol	CC. Dimethylphthalate	CCC. Benzo(a)anthracene	CCCC. Benzo(b)fluorene	C1.
D. 1,3-Dichlorobenzene	DD. Acenaphthylene	DDD. Chrysene	DDDD. cis/trans-Decalin	D1.
E. 1,4-Dichlorobenzene	EE. 2,6-Dinitrotoluene	EEE. Bis(2-ethylhexyl)phthalate	EEEE. Biphenyl	E1.
F. 1,2-Dichlorobenzene	FF. 3-Nitroaniline	FFF. Di-n-octylphthalate	FFFF. Retene	F1.
G. 2-Methylphenol	GG. Acenaphthene	GGG. Benzo(b)fluoranthene	GGGG. C30-Hopane	G1.
H. 2,2'-Oxybis(1-chloropropane)	HH. 2,4-Dinitrophenol	HHH. Benzo(k)fluoranthene	HHHH. 1-Methylphenanthrene	H1.
I. 4-Methylphenol	II. 4-Nitrophenol	III. Benzo(a)pyrene	IIII. 1,4-Dioxane	I1.
J. N-Nitroso-di-n-propylamine	JJ. Dibenzofuran	JJJ. Indeno(1,2,3-cd)pyrene	JJJJ. Acetophenone	J1.
K. Hexachloroethane	KK. 2,4-Dinitrotoluene	KKK. Dibenz(a,h)anthracene	KKKK. Atrazine	K1.
L. Nitrobenzene	LL. Diethylphthalate	LLL. Benzo(g,h,i)perylene	LLLL. Benzaldehyde	L1.
M. Isophorone	MM. 4-Chlorophenyl-phenyl ether	MMM. Bis(2-Chloroisopropyl)ether	MMMM. Caprolactam	M1.
N. 2-Nitrophenol	NN. Fluorene	NNN. Aniline	NNNN. 2,6-Dichlorophenol	N1.
O. 2,4-Dimethylphenol	OO. 4-Nitroaniline	OOO. N-Nitrosodimethylamine	OOOO. 2,6-Dinitrotoluene	O1.
P. Bis(2-chloroethoxy)methane	PP. 4,6-Dinitro-2-methylphenol	PPP. Benzoic Acid	PPPP. 3-Methylphenol	P1.
Q. 2,4-Dichlorophenol	QQ. N-Nitrosodiphenylamine	QQQ. Benzyl alcohol	QQQQ. 3&4 Methylphenol	Q1.
R. 1,2,4-Trichlorobenzene	RR. 4-Bromophenyl-phenylether	RRR. Pyridine	RRRR.	R1.
S. Naphthalene	SS. Hexachlorobenzene	SSS. Benzidine	SSSS.	S1.
T. 4-Chloroaniline	TT. Pentachlorophenol	TTT. 1-Methylnaphthalene	TTTT.	T1.
U. Hexachlorobutadiene	UU. Phenanthrene	UUU.Benzo(b)thiophene	UUUU.	U1.
V. 4-Chloro-3-methylphenol	VV. Anthracene	VVV.Benzonaphthothiophene	VVVV.	V1.
W. 2-Methylnaphthalene	WW. Carbazole	WWW.Benzo(e)pyrene	WWWW.	W1.
X. Hexachlorocyclopentadiene	XX. Di-n-butylphthalate	XXX. 2,6-Dimethylnaphthalene	XXXX.	X1.
Y. 2,4,6-Trichlorophenol	YY. Fluoranthene	YYY. 2,3,5-Trimethylnaphthalene	YYYY.	Y1.
Z. 2,4,5-Trichlorophenol	ZZ. Pyrene	ZZZ. Perylene	ZZZZ.	Z1.

LDC #: 37811 A 26

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Reviewer: JVG
2nd Reviewer:

METHOD: GC/MS PAH (EPA SW 846 Method 8270D-SIM)
Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?
Y (N) N/A Were percent differences (%D) ≤20 % and relative response factors (RRF) within the method criteria?

#	Date	Standard ID	Compound	Finding %D (Limit: <20.0%)	Finding RRF (Limit)	Associated Samples	Qualifications
	12/13/16	N111612B07	VV	26.0		4, 8, 10, 12, 14, 22	J/UJ/A (Det)
	12/16/16	N111612B02	JJJ	34.4		2, 6, 16, 18, 20	(ND)
			KKK	37.2			
			LLL	32.0			

LDC #: 37811 A 26

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer: JVG
2nd Reviewer:

METHOD: GC/MS PAH (EPA SW 846 Method 8270D-SIM)
Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a method blank analyzed for each matrix?
Y N N/A Was a method blank analyzed for each concentration preparation level?
Y N N/A Was a method blank associated with every sample?
Y N N/A Was the blank contaminated? If yes, please see qualification below.

Blank extraction date: 11/28/16 **Blank analysis date:** 12/10/16
Conc. units: ug/kg Associated Samples: 1-22

Compound	Blank ID								
	BEK0627-BLK2 (5x)	2 (10x)	3	4 (5x)	5	6 (5x)	9	10 (5x)	
S	2.58	12.9	21.6/U	10.8/U	9.76/U	5.67/U	6.90/U	9.58/U	9.22/U
W	1.29	6.45	47.8/J		21.1/J		17.9/J		9.92/J

Blank extraction date: _____ **Blank analysis date:** _____
Conc. units: _____ Associated Samples: same as above

Compound	Blank ID								
	BEK0627-BLK2 (5x)	11	12 (20x)	13 (20x)	16 (20x)	18 (20x)	23 (5x)		
S	2.58	12.9	12.6/U				9.34/U		
W	1.29	6.45		33.6/U	112/U	27.7/U	32.1/U	8.25/J	

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Common contaminants such as the phthalates and TICs noted above that were detected in samples within ten times the associated method blank concentration were qualified as not detected, "U". Other contaminants within five times the method blank concentration were also qualified as not detected, "U".

LDC #: 37811 A 26

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer: JVG
2nd Reviewer: [illegible]

METHOD: GC/MS PAH (EPA SW 846 Method 8270D-SIM)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a method blank analyzed for each matrix?
Y N N/A Was a method blank analyzed for each concentration preparation level?
Y N N/A Was a method blank associated with every sample?
Y N N/A Was the blank contaminated? If yes, please see qualification below.

Blank extraction date: 11/29/16 **Blank analysis date:** 12/17/16
Conc. units: ug/kg Associated Samples: 23 - 29

(either ND or >5X)

Compound	Blank ID								
	BEK0658-BLK1 (5X)								
S	1.64	8.2							

Blank extraction date: _____ **Blank analysis date:** _____
Conc. units: _____ Associated Samples: _____

Compound	Blank ID								

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Common contaminants such as the phthalates and TICs noted above that were detected in samples within ten times the associated method blank concentration were qualified as not detected, "U". Other contaminants within five times the method blank concentration were also qualified as not detected, "U".

LDC #: 37811A26

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer: JVG
2nd Reviewer:

METHOD: GC/MS PAH (EPA SW 846 Method 8270D-SIM)

Y N N/A Were field blanks identified in this SDG?
Y N N/A Were target compounds detected in the field blanks?

Blank units: ug/kg **Associated sample units:** ug/kg
Sampling date: 11/22/16
Field blank type: (circle one) Field Blank / Rinsate / Other: TB Associated Samples: All except 29 qual U

Compound	Blank ID	Sample Identification									
	29	(5x)	1	2	3	4	5	6	7	8 9	
S	18.9	94.5	21.1	21.6	10.8	9.76	5.67	6.90	11.2	9.58	
W	13.9	67.5	40.2	47.8	26.6	21.1	11.8	17.9	18.2	14.6	
GG	1.48	7.4									
UU	2.24	11.2									
YY	1.44	7.2									
ZZ	2.74	13.7									

Blank units: **Associated sample units:**
Sampling date:
Field blank type: (circle one) Field Blank / Rinsate / Other: Associated Samples: same as above

Compound	Blank ID	Sample Identification									
			10	11	12	13	15	16	17	18	
S			9.22	12.6		25.6	15.0		17.1		
W			9.92		33.6		31.0	27.7	37.9	32.1	
GG											
UU											
YY											
ZZ											

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Common contaminants such as the phthalates and TICs noted above that were detected in samples within ten times the associated field blank concentration were qualified as not detected, "U". Other contaminants within five times the field blank concentration were also qualified as not detected, "U".

LDC #: 37811 A2h

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer: JVG
2nd Reviewer: a

METHOD: GC/MS PAH (EPA SW 846 Method 8270D-SIM)

Y N N/A Were field blanks identified in this SDG?
Y N N/A Were target compounds detected in the field blanks?

Blank units: ug kg **Associated sample units:** ug kg
Sampling date: 11/22/16
Field blank type: (circle one) Field Blank / Rinsate / Other: TB Associated Samples: All except 29 qual U

Compound	Blank ID	Sample Identification									
	29	(5x)	19	21	22	23	24	25	26	27	28
S	18.9	94.5	14.1	13.1	9.34	9.31		10.6		13.4	18.2
W	13.9	67.5	37.0	17.1	8.25	24.8	21.2	18.1	15.2	14.3	24.1
GG	1.48	7.4								1.88	
UU	2.24	11.2								4.85	10.4
YY	1.44	7.2								2.07	4.76
ZZ	2.74	13.7								1.97	5.92

Blank units: ug kg **Associated sample units:** ug kg
Sampling date: 11/22/16
Field blank type: (circle one) ~~Field Blank~~ / Rinsate / Other: Associated Samples: 1 – 8 qual U

Compound	Blank ID	Sample Identification									
	27	(5x)	1	2	3	4	5	6	7		
S	13.4	67	21.1	21.6	10.8	9.76	5.67	6.90	11.2		
W	14.3	71.5	40.2	47.8	26.6	21.1	11.8	17.9	18.2		
GG	1.88	9.4									
NN	2.33	11.65									
UU	4.85	24.25									
YY	2.07	10.35									
ZZ	1.97	9.85									

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Common contaminants such as the phthalates and TICs noted above that were detected in samples within ten times the associated field blank concentration were qualified as not detected, "U". Other contaminants within five times the field blank concentration were also qualified as not detected, "U".

LDC #: 37811A26

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer: JVG
2nd Reviewer:

METHOD: GC/MS PAH (EPA SW 846 Method 8270D-SIM)

(Y) N N/A Were field blanks identified in this SDG?
(Y) N N/A Were target compounds detected in the field blanks?

Blank units: ug/kg **Associated sample units:** ug/kg
Sampling date: 11/22/16
Field blank type: (circle one) Field Blank / Rinsate / Other: Associated Samples: 9 – 20 and U

Compound	Blank ID	Sample Identification								
	28	(5x)	9	10	11	12	13	14	15	16
S	18.2	91	9.58	9.22	12.6		25.6		15.0	
W	24.1	120.5	14.6	9.92	87.3	33.6		112	31.0	27.7
GG	12.6	63								
NN	7.16	35.8								
UU	10.4	52								
YY	4.76	23.8								
ZZ	5.92	29.6								

Blank units: **Associated sample units:**
Sampling date:
Field blank type: (circle one) Field Blank / Rinsate / Other: Associated Samples: Same as above

Compound	Blank ID	Sample Identification								
	28		17	18	19					
S			17.1		14.1					
W			37.9	32.1	37.0					
GG										
NN										
UU										
YY										
ZZ										

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Common contaminants such as the phthalates and TICs noted above that were detected in samples within ten times the associated field blank concentration were qualified as not detected, "U". Other contaminants within five times the field blank concentration were also qualified as not detected, "U".

LDC #: 37811 A26

VALIDATION FINDINGS WORKSHEET
Surrogate Recovery

Page: 1 of 1
Reviewer: JVG
2nd Reviewer: a

METHOD: GC/MS PAH (EPA SW 846 Method 8270D-SIM)

Please see qualification below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were percent recoveries (%R) for surrogates within QC limits?
Y N N/A If 2 or more base neutral or acid surrogates were outside QC limits, was a reanalysis performed to confirm %R?
Y N N/A If any %R was less than 10 percent, was a reanalysis performed to confirm %R?

#	Date	Sample ID	Surrogate	%R (Limits)	Qualifications
		1, 3, 5, 7, 9, 11, 13, 15,	NN-d10	0 (30-160)	J/R/A (ND +Det)
		17, 19, 21, 23, 25	VV-d10	0 (↓)	↓
				( )	
				( )	
		2, 4, 6, 8, 10, 12, 14, 16,	Surrogates not recovered or	( )	No qual (dil)
		18, 20, 22, 24, 26	recovered below limits	( )	
		(5X – 50X)		( )	
				( )	
				( )	
		BEK0657-BLK1	W-d10	23.3 (30-160)	J/UJ/P
			XXX-d14	27.4 (↓)	↓
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
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				( )	
				( )	
				( )	
				( )	
				( )	
				( )	

(NBZ) = Nitrobenzene-d5
(FBP) = 2-Fluorobiphenyl
(TPH) = Terphenyl-d14
(DCB) = 1,2-Dichlorobenzene-d4

LDC #: 37811 A26

VALIDATION FINDINGS WORKSHEET
Laboratory Control Samples (LCS)

Page: 1 of 1
Reviewer: JVG
2nd Reviewer:

METHOD: GC/MS PAH (EPA SW 846 Method 8270D-SIM)
Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Was a LCS required?
Y (N) N/A Were the LCS/LCSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

#	Date	LCS/LCSD ID	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
		BEK0657-BS1	S	43.5 (50-150)	( )	( )	1-22, BEK0657-Blk1	J/UJ/P (ND+Det)
			W	45.7 ( )	( )	( )	BEK0657-Blk2	
			DD	44.2 ( )	( )	( )		
			GG	47.5 ( )	( )	( )		
			NN	49.1 ( )	( )	( )		
			HHH	48.8 ( )	( )	( )		
			III	45.0 ( )	( )	( )		
			LLL	49.3 ( )	( )	( )		
			ZZZ	28.2 ( )	( )	( )		
			WWW	49.0 ( )	( )	( )		
				( )	( )	( )		
		BEK0657-BS2	S	42.9 ( )	( )	( )		
			DD	45.1 ( )	( )	( )		
			III	49.8 ( )	( )	( )		
			ZZZ	24.4 ( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
		BEK0658-BS1	S	48.7 ( )	( )	( )	23-29, BEK0658-Blk1	(ND+Det)
			ZZZ	25.6 ( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		

LDC#: 37811A2b

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: JVG
2nd Reviewer: [signature]

METHOD: GC MS PAH (EPA SW 846 Method 8270D-SIM)
Y N NA Were field duplicate pairs identified in this SDG?
Y N NA Were target analytes detected in the field duplicate pairs?

Compound	Concentration (ug/Kg)		RPD
	5	7	
S	5.67	11.2	66
W	11.8	18.2	43
DD	2.07	3.19	43
GG	61.3	92.2	40
NN	65.9	94.7	36
VV	25.2	42.7	52
CCC	19.8	23.3	16
DDD	14.7	18.4	22
GGG	4.42	4.11	7
HHH	2.11	1.63	26
III	2.78	2.04	31
WWW	2.72	2.61	4

Compound	Concentration (ug/Kg)		RPD
	6	8	
UU	423	387	9
YY	401	331	19
ZZ	238	228	4

Compound	Concentration (ug/Kg)		RPD
	11	13	
S	12.6	25.6	68
DD	9.45	9.93	5
CCC	66.3	84.6	24
DDD	42.4	50.0	16
GGG	11.3	19.0	51
HHH	5.87	8.56	37
III	8.02	12.3	42
JJJ	1.16	1.50	26
LLL	1.18	1.61	31

METHOD: GC MS PAH (EPA SW 846 Method 8270D-SIM)

Y N NA Were field duplicate pairs identified in this SDG?

Y N NA Were target analytes detected in the field duplicate pairs?

Compound	Concentration (ug/Kg)		RPD
	11	13	
ZZZ	1.87	3.40	58
WWW	7.17	11.1	43

Compound	Concentration (ug/Kg)		RPD
	12	14	
GG	454	696	42
NN	452	715	45
UU	1490	1890	24
VV	319	319	0
YY	834	949	13
ZZ	578	671	15

Compound	Concentration (ug/Kg)		RPD
	11	14	
W	87.3	112	25

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LDC #: 37811 A26

VALIDATION FINDINGS WORKSHEET
Internal Standards

Reviewer: JVG
2nd Reviewer:

METHOD: GC/MS PAH (EPA SW 846 Method 8270D-SIM)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y (N) N/A Were all internal standard area counts within -50 to +100 of the associated calibration standard?

(Y) N N/A Were the retention times of the internal standards within +/- 30 seconds of the retention times of the associated calibration standard?

#	Date	Sample ID	Internal Standard	Area (Limits)	RT (Limits)	Qualifications
		BEK0657-blk1	ANT	469612 (113252 - 453010)		J/UJ/P
			PHN	820573 (198723 - 794892)		
			PRY	747252 (180546 - 722182)		

* QC limits are advisory

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10
IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

LDC #: 37811 A26

VALIDATION FINDINGS WORKSHEET
Compound Quantitation and Reported RLs

Reviewer: JVG
2nd Reviewer: [signature]

METHOD: GC/MS PAH (EPA SW 846 Method 8270D-SIM)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y (N) N/A Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?

Y (N) N/A Were compound quantitation and RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?

#	Date	Sample ID	Compound	Finding	Qualifications
		1, 15, 17	GG, NN, UU, YY, ZZ	> cal range	J dets /A
		3, 5, 7, 9, 21, 23, 25	UU, YY, ZZ		
		11, 19	GG, NN, UU, VV, YY, ZZ		
		13	W, GG, NN, UU, VV, YY, ZZ		

Comments: See sample calculation verification worksheet for recalculations

LDC #: 37811 A2b

VALIDATION FINDINGS WORKSHEET
Overall Assessment of Data

Page: 1 of 1
Reviewer: JVG
2nd Reviewer: G

METHOD: GC/MS PAH (EPA SW 846 Method 8270D-SIM)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".
All available information pertaining to the data were reviewed using professional judgement to compliment the determination of the overall quality of the data.

Y N N/A Was the overall quality and usability of the data acceptable?

#	Date	Sample ID	Compound	Finding	Qualifications
		1, 15, 17	GG, NN, UU, YY, ZZ	> cal range	R/A
		16			
		2, ~~3~~, 18	All except above	dil	
		3, 5, 7, 9, 21, 23, 25	UU, YY, ZZ	> cal range	
		4, 6, 8, 10, 22, 24, 26	All except above	dil	
		11, 19	GG, NN, UU, VV, YY, ZZ	> cal range	
		12, 20	All except above	dil	
		13	W, GG, NN, UU, VV, YY, ZZ	> cal range	
		14	All except above	dil	✓

Comments: _____

OVR.wpd

LDC #: 37811

EDD POPULATION COMPLETENESS WORKSHEET

Anchor

Date: 1/19/17
Page: 1 of 1
2nd Reviewer: JE

The LDC job number listed above was entered by BA.

	EDD Process	Y/N	Init	Comments/Action
I.	EDD Completeness	-		
Ia.	- All methods present?	Y	BA	
Ib.	- All samples present/match report?	Y	BA	
Ic.	- All reported analytes present?	Y	BA	
Id	-10% verification of EDD?	Y	BA	
II.	EDD Preparation/Entry	-		
IIa.	- ~~QC Level applied~~? (EPAStage2B or EPAStage4)	Y	BA	
IIb.	- Laboratory EMPC qualified results qualified (J with reason code 23)?	N/A	BA	
III.	Reasonableness Checks	-		
IIIa.	- Do all qualified ND results have ND qualifier (i.e. UJ)?	Y	BA	
IIIb.	- Do all qualified detect results have detect qualifier (i.e. J)?	Y	BA	
IIIc.	- If reason codes used, do all qualified results have reason code field populated, and vice versa?	Y	BA	
IIId.	- Do blank concentrations in report match EDD, where data was qualified due to blank?	Y	BA	
IIIe.	- Were any results reported above calibration range? If so, were results qualified appropriately?	Y/Y		
IIIf.	- Are all results marked reportable "Yes" unless rejected for overall assessment in the data validation report?	Y	BA	
IIIg.	-Are there any lab "R" qualified data? / Are the entry columns blank for these results?	N/A	BA	
IIIh.	- Is the detect flag set to "N" for all "U" qualified blank results?	Y	BA	

Notes: *see readme

The attached zipped file contains two files:

File	Format	Description
1) Readme_PortGamble_011917.doc	MS Word 2003	A "Readme" file (this document).
2) LDC37811.xlsx	MS Excel 2003	A spreadsheet for the following SDG(s): 16K0321 37811A

No discrepancies were observed between the hardcopy data packages and the electronic data deliverables during EDD population of validation qualifiers. A 100% verification of the EDD was not performed.

Please contact Christina Rink at (760) 827-1100 if you have any questions regarding this electronic data submittal.

LABORATORY DATA CONSULTANTS, INC.
2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

Anchor Environmental, LLC
720 Olive Way, Suite 1900
Seattle, WA 98101
ATTN: Ms. Cindy Fields

March 21, 2017

SUBJECT: Port Gamble, Shellfish Monitoring, Data Validation

Dear Ms. Fields,

Enclosed is the final validation report for the fraction listed below. This SDG was received on March 7, 2017. Attachment 1 is a summary of the samples that were reviewed for analysis.

LDC Project #38231:

SDG #	Fraction
B722292	PCB as Congeners

The data validation was performed under Stage 2B guidelines. The analyses were validated using the following documents, as applicable to each method:

- Shellfish Monitoring Plan for Port Gamble Bay Cleanup Project, May 2015
- USEPA, Contract Laboratory Program National Functional Guidelines for Chlorinated Dibenzo-p-Dioxins, and Chlorinated Dibenzofurans Data Review, September 2011
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; update IV, February 2007; update V, July 2014

Please feel free to contact us if you have any questions.

Sincerely,

Christina Rink

Christina Rink
Project Manager/Chemist

1,306 pages SF

Attachment 1

EDD Stage 2B

LDC #38231 (Anchor Environmental-Seattle WA / Port Gamble, Shellfish Monitoring)

LDC	SDG#	DATE REC'D	(3) DATE DUE	PCB Cong. (1668A)																															
Matrix:	Water/Soil/Tissue			W	T	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	B722292	03/07/17	03/28/17	0	11																														
Total	T/CR			0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11

Shaded cells indicate Stage 4 validation (all other cells are Stage 2B validation). These sample counts do not include MS, MSD, or DUP's.

L:\Anchor\Port Gamble\Shellfish\38231ST.wpd

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Port Gamble, Shellfish Monitoring

LDC Report Date: March 20, 2017

Parameters: Polychlorinated Biphenyls as Congeners

Validation Level: Stage 2B

Laboratory: Maxxam

Sample Delivery Group (SDG): B722292

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
PG-T0-MUS-COC-161109	DVU256	Tissue	11/09/16
PG-SMA1-1-MUS-170105	DVU257	Tissue	01/05/17
PG-SMA2-1-MUS-170105	DVU258	Tissue	01/05/17
PG-SMA2-2-MUS-170105	DVU259	Tissue	01/05/17
PG-SMA2-3-MUS-170105	DVU260	Tissue	01/05/17
PG-SMA2-4-MUS-170105	DVU261	Tissue	01/05/17
PG-SMA2-5-MUS-170105	DVU262	Tissue	01/05/17
PG-PJ-1-MUS-170105	DVU263	Tissue	01/05/17
PG-GP-1-MUS-170105	DVU264	Tissue	01/05/17
PG-WS-1-MUS-170105	DVU265	Tissue	01/05/17
PG-SMA1-2-3-MUS-170105	DVU266	Tissue	01/05/17
PG-SMA2-2-MUS-170105DUP	DVU259DUP	Tissue	01/05/17
PG-PJ-1-MUS-170105MS	DVU263MS	Tissue	01/05/17

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Shellfish Monitoring Plan for Port Gamble Bay Cleanup Project (May 2015) and the USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Chlorinated Dibenzo-p-Dioxins (CDDs) and Chlorinated Dibenzofurans (CDFs) Data Review (September 2011). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Polychlorinated Biphenyls (PCBs) as Congeners by Environmental Protection Agency (EPA) Method 1668A

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. HRGC/HRMS Instrument Performance Check

Instrument performance was checked at the required frequency.

Retention time windows were established for all congeners. The chromatographic resolution between the congeners PCB-23 and PCB-34 and congeners PCB-182 and PCB-187 was resolved with a valley of less than or equal to 40%.

The static resolving power was at least 10,000 (10% valley definition).

III. Initial Calibration and Initial Calibration Verification

A five point initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for unlabeled compounds and labeled compounds.

The ion abundance ratios for all compounds were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 30.0% for unlabeled compounds and less than or equal to 50.0% for labeled compounds.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 30.0% for unlabeled compounds and less than or equal to 50.0% for labeled compounds.

The ion abundance ratios for all compounds were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks with the following exceptions:

Blank ID	Extraction Date	Compound	Concentration	Associated Samples
4869418MB	02/13/17	PCB-20/28 PCB-31 PCB-66 PCB-83/99 PCB-105 PCB-118 PCB-129/138/163 PCB-153/168	0.00158 ng/g 0.00126 ng/g 0.00129 ng/g 0.0018 ng/g 0.00105 ng/g 0.00314 ng/g 0.0053 ng/g 0.0045 ng/g	All samples in SDG B722292

Sample concentrations were compared to concentrations detected in the laboratory blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated laboratory blanks.

VI. Field Blanks

No field blanks were identified in this SDG.

VII. Matrix Spike/Matrix Spike Duplicates/Duplicates

Matrix spike (MS) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits.

Duplicate (DUP) sample analysis was performed on an associated project sample. Results were within QC limits.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Internal Standards

All internal standard recoveries (%R) were within QC limits.

XI. Compound Quantitation

Raw data were not reviewed for Stage 2B validation.

XII. Target Compound Identification

Raw data were not reviewed for Stage 2B validation.

XIII. System Performance

Raw data were not reviewed for Stage 2B validation.

XIV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable. Based upon the data validation all results are considered valid and usable for all purposes.

Port Gamble, Shellfish Monitoring
Polychlorinated Biphenyls as Congeners - Data Qualification Summary - SDG B722292

No Sample Data Qualified in this SDG

Port Gamble, Shellfish Monitoring
Polychlorinated Biphenyls as Congeners - Laboratory Blank Data Qualification Summary - SDG B722292

No Sample Data Qualified in this SDG

LDC #: 38231A31
SDG #: B722292
Laboratory: Maxxam

VALIDATION COMPLETENESS WORKSHEET
Stage 2B

Date: 3/14/17
Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: HRGC/HRMS Polychlorinated Biphenyl Congeners (EPA Method 1668A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II.	HRGC/HRMS Instrument performance check	A	
III.	Initial calibration/ICV	A / A	RSD≤ 20 ICV≤ 30/50
IV.	Continuing calibration	A	D≤ 30/50
V.	Laboratory Blanks	SW	
VI.	Field blanks	N	
VII.	Matrix spike/~~Matrix spike~~ Duplicates	A / A	
VIII.	Laboratory control samples	A	LCS/D
IX.	Field duplicates	N	
X.	Internal standards	A	
XI.	Compound quantitation RL/LOQ/LODs	N	
XII.	Target compound identification	N	
XIII.	System performance	N	
XIV.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	PG-T0-MUS-COC-161109	DVU256	Tissue	11/09/16
2	PG-SMA1-1-MUS-170105	DVU257	Tissue	01/05/17
3	PG-SMA2-1-MUS-170105	DVU258	Tissue	01/05/17
4	PG-SMA2-2-MUS-170105	DVU259	Tissue	01/05/17
5	PG-SMA2-3-MUS-170105	DVU260	Tissue	01/05/17
6	PG-SMA2-4-MUS-170105	DVU261	Tissue	01/05/17
7	PG-SMA2-5-MUS-170105	DVU262	Tissue	01/05/17
8	PG-PJ-1-MUS-170105	DVU263	Tissue	01/05/17
9	PG-GP-1-MUS-170105	DVU264	Tissue	01/05/17
10	PG-WS-1-MUS-170105	DVU265	Tissue	01/05/17
11	PG-SMA1-2-3-MUS-170105	DVU266	Tissue	01/05/17
12	PG-SMA2-2-MUS-170105DUP	DVU259DUP	Tissue	01/05/17
13	PG-PJ-1-MUS-170105MS	DVU263MS	Tissue	01/05/17
14				

4869418MB

LDC #: 38231A31

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer: BR
2nd Reviewer: AR

METHOD: HRGC/HRMS PCB Congeners (EPA Method 1668)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Were all samples associated with a method blank?
Y N N/A Was a method blank performed for each matrix and whenever a sample extraction was performed?
Y N N/A Was the method blank contaminated? If yes, please see qualification below.

Blank extraction date: 02/13/17 **Blank analysis date:** 02/20/17
Conc. units: ng/g Associated Samples: All

Compound	Blank ID	Sample Identification								
	4869418MB	5X								
PCB-20/28	0.00158	0.0079								
PCB-31	0.00126	0.0063								
PCB-66	0.00129	0.00645								
PCB-83/99	0.0018	0.009								
PCB-105	0.00105	0.00525								
PCB-118	0.00314	0.0157								
PCB-129/138/163	0.0053	0.0265								
PCB-153/168	0.0045	0.0225								

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Common contaminants such as the phthalates and TICs noted above that were detected in samples within ten times the associated method blank concentration were qualified as not detected, "U". Other contaminants within five times the method blank concentration were also qualified as not detected, "U".

LDC #: 38231

EDD POPULATION COMPLETENESS WORKSHEET

Anchor

Date: 3/29/17

2nd Reviewer: OQ

The LDC job number listed above was entered by BA.

	EDD Process	Y/N	Initial	Comments/Action
I.	EDD Completeness	-		
Ia.	- All methods present?	Y	BA	
Ib.	- All samples present/match report?	Y	BA	
Ic.	- All reported analytes present?	Y	BA	
Id.	- 10% or 100% verification of EDD?	Y	BA	
II.	EDD Preparation/Entry	-		
IIa.	- QC Level applied? (EPAStage2B or EPAStage4)	Y	BA	
IIb.	- Laboratory EMPC qualified results qualified (J with reason code 23)?	N/A	BA	
III.	Reasonableness Checks	-		
IIIa.	- Do all qualified ND results have ND qualifier (e.g. UJ)?	N/A	BA	
IIIb.	- Do all qualified detect results have detect qualifier (e.g. J)?		BA	
IIIc.	- If reason codes are used, do all qualified results have reason code field populated, and vice versa?		BA	
IIId.	- Do blank concentrations in report match EDD, where data was qualified due to blank?		BA	
IIIe.	- Were any results reported above calibration range? If so, were results qualified appropriately?		BA	
IIIf.	-Are all results marked reportable "Yes" unless rejected for overall assessment in the data validation report?	Y	BA	
IIIg.	-Are there any lab "R" qualified data? / Are the entry columns blank for these results?	N/A	BA	
IIIh.	- Is the detect flag set to "N" for all "U" qualified blank results?	Y	BA	

Notes: *see discrepancy sheet

The attached zipped file contains two files:

File	Format	Description
1) Readme_PortGamble_032017.docx	MS Word 2003	A "Readme" file (this document).
2) LDC38231_B722292_VEDD_20170315.xlsx	MS Excel 2003	A spreadsheet for the following SDG(s): B722292 38231A

No discrepancies were observed between the hardcopy data packages and the electronic data deliverables during EDD population of validation qualifiers. A 100% verification of the EDD was not performed.

Please contact Christina Rink at (760) 827-1100 if you have any questions regarding this electronic data submittal.

LABORATORY DATA CONSULTANTS, INC.
2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

Anchor Environmental, LLC
720 Olive Way, Suite 1900
Seattle, WA 98101
ATTN: Ms. Cindy Fields

March 24, 2017

SUBJECT: Port Gamble, Shellfish Monitoring, Data Validation

Dear Ms. Fields,

Enclosed are the final validation reports for the fractions listed below. This SDG was received on March 7, 2017. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project #38239:

SDG #	Fraction
17A0053	Polynuclear Aromatic Hydrocarbons, Cadmium, Wet Chemistry, Polychlorinated Dioxins/Dibenzofurans

The data validation was performed under Stage 2B guidelines. The analyses were validated using the following documents, as applicable to each method:

- Shellfish Monitoring Plan for Port Gamble Bay Cleanup Project, May 2015
- USEPA, Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA, Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- USEPA, Contract Laboratory Program National Functional Guidelines for Chlorinated Dibenzo-p-Dioxins and Chlorinated Dibenzofurans, Data Review, September 2011
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; update IV, February 2007, update V, July 2014

Please feel free to contact us if you have any questions.

Sincerely,

Christina Rink

Christina Rink
Project Manager/Chemist

LABORATORY DATA CONSULTANTS, INC.
2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

Anchor Environmental, LLC
720 Olive Way, Suite 1900
Seattle, WA 98101
ATTN: Ms. Cindy Fields

March 31, 2017

SUBJECT: Revised Port Gamble, Shellfish Monitoring, Data Validation

Dear Ms. Fields,

Enclosed is the revised validation report for the fraction listed below. Please replace the previously submitted report with the enclosed revised report.

LDC Project #38239:

SDG #	Fraction
17A0053	Polychlorinated Dioxins/Dibenzofurans

- Revision: Qualified OCDD in sample PG-GP-1-MUS-170105 as non-detect (U) due to method blank contamination.

Please feel free to contact us if you have any questions.

Sincerely,

Christina Rink

Christina Rink
Project Manager/Chemist

1,429 pages SF

Attachment 1

EDD Stage 2B

LDC #38239 (Anchor Environmental-Seattle WA / Port Gamble, Shellfish Monitoring)

LDC	SDG#	DATE REC'D	(3) DATE DUE	PAHs (8270 -SIM)		Cd (6010C)		Dioxins (1613B)		% Lipids (BD)		% Solids (2540G)																							
Matrix:	Water/Soil/Tissue			W	T	W	T	W	T	W	T	W	T	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	17A0053	03/07/17	03/28/17	0	10	0	9	0	10	0	10	0	10																						
Total	J/CR			0	10	0	9	0	10	0	10	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49

Shaded cells indicate Stage 4 validation (all other cells are Stage 2B validation). These sample counts do not include MS, MSD, or DUP's.

V:\LOGIN\Anchor\Port Gamble\Shellfish\38239ST.wpd

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Port Gamble, Shellfish Monitoring

LDC Report Date: March 22, 2017

Parameters: Polynuclear Aromatic Hydrocarbons

Validation Level: Stage 2B

Laboratory: Analytical Resources, Inc.

Sample Delivery Group (SDG): 17A0053

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
PG-SMA1-1-MUS-170105	17A0053-01	Tissue	01/05/17
PG-SMA2-1-MUS-170105	17A0053-04	Tissue	01/05/17
PG-SMA2-2-MUS-170105	17A0053-05	Tissue	01/05/17
PG-SMA2-3-MUS-170105	17A0053-06	Tissue	01/05/17
PG-SMA2-4-MUS-170105	17A0053-07	Tissue	01/05/17
PG-SMA2-5-MUS-170105	17A0053-08	Tissue	01/05/17
PG-PJ-1-MUS-170105	17A0053-09	Tissue	01/05/17
PG-GP-1-MUS-170105	17A0053-10	Tissue	01/05/17
PG-WS-1-MUS-170105	17A0053-11	Tissue	01/05/17
PG-SMA1-2-3-MUS-170105	17A0053-12	Tissue	01/05/17
PG-SMA2-2-MUS-170105MS	17A0053-05MS	Tissue	01/05/17
PG-SMA2-2-MUS-170105MSD	17A0053-05MSD	Tissue	01/05/17

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Shellfish Monitoring Plan for Port Gamble Bay Cleanup Project (May 2015) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Superfund Organic Methods Data Review (June 2008). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Polynuclear Aromatic Hydrocarbons (PAHs) by Environmental Protection Agency (EPA) SW 846 Method 8270D in Selected Ion Monitoring (SIM) mode

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A decafluorotriphenylphosphine (DFTPP) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

Average relative response factors (RRF) for all compounds were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 30.0% for all compounds.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all compounds.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

No field blanks were identified in this SDG.

VII. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VIII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	Flag	A or P
PG-SMA2-2-MUS-170105MS/MSD (PG-SMA2-2-MUS-170105)	Naphthalene	27.2 (50-150)	-	J (all detects)	A
	2-Methylnaphthalene	33.5 (50-150)	-	UJ (all non-detects)	
	Acenaphthylene	34.0 (50-150)	-		
	Acenaphthene	35.0 (50-150)	-		
	Fluorene	40.6 (50-150)	-		
	Phenanthrene	31.4 (50-150)	-		
	Anthracene	36.6 (50-150)	-		
	Fluoranthene	24.7 (50-150)	-		
	Pyrene	30.0 (50-150)	-		
	Benzo(a)anthracene	38.3 (50-150)	-		
	Chrysene	34.3 (50-150)	-		
	Benzo(b)fluoranthene	33.9 (50-150)	-		
	Benzo(k)fluoranthene	37.5 (50-150)	-		
	Benzo(a)pyrene	41.0 (50-150)	-		
	Indeno(1,2,3-cd)pyrene	41.3 (50-150)	-		
	Dibenzo(a,h)anthracene	41.8 (50-150)	-		
	Benzo(g,h,i)perylene	40.1 (50-150)	-		
	Perylene	37.1 (50-150)	-		
	Benzo(e)pyrene	30.3 (50-150)	-		

Relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	RPD (Limits)	Flag	A or P
PG-SMA2-2-MUS-170105MS/MSD (PG-SMA2-2-MUS-170105)	Fluorene	48.7 (≤35)	J (all detects)	A
	Phenanthrene	50.1 (≤35)	J (all detects)	
	Anthracene	51.5 (≤35)	J (all detects)	
	Fluoranthene	51.6 (≤35)	J (all detects)	
	Pyrene	52.5 (≤35)	J (all detects)	
	Benzo(a)anthracene	54.3 (≤35)	J (all detects)	
	Chrysene	53.8 (≤35)	J (all detects)	
	Benzo(b)fluoranthene	51.4 (≤35)	J (all detects)	
	Benzo(k)fluoranthene	52.2 (≤35)	J (all detects)	
	Perylene	51.1 (≤35)	J (all detects)	
	Benzo(e)pyrene	51.1 (≤35)	J (all detects)	
PG-SMA2-2-MUS-170105MS/MSD (PG-SMA2-2-MUS-170105)	Naphthalene	59.1 (≤35)	NA	-
	2-Methylnaphthalene	54.8 (≤35)	NA	
	Acenaphthylene	53.5 (≤35)	NA	
	Acenaphthene	52.3 (≤35)	NA	
	Benzo(a)pyrene	51.4 (≤35)	NA	
	Indeno(1,2,3-cd)pyrene	51.2 (≤35)	NA	
	Dibenzo(a,h)anthracene	50.6 (≤35)	NA	
	Benzo(g,h,i)perylene)	52.2 (≤35)	NA	

IX. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits with the following exceptions:

LCS ID	Compound	%R (Limits)	Associated Samples	Flag	A or P
BFA0647-BS1	Acenaphthylene	44.4 (50-150)	All samples in SDG 17A0053	UJ (all non-detects)	P

X. Field Duplicates

No field duplicates were identified in this SDG.

XI. Internal Standards

All internal standard areas and retention times were within QC limits.

XII. Compound Quantitation

Raw data were not reviewed for Stage 2B validation.

XIII. Target Compound Identifications

Raw data were not reviewed for Stage 2B validation.

XIV. System Performance

Raw data were not reviewed for Stage 2B validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Due to MS/MSD %R and RPD and LCS %R, data were qualified as estimated in ten samples.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the data validation all other results are considered valid and usable for all purposes.

Port Gamble, Shellfish Monitoring
Polynuclear Aromatic Hydrocarbons - Data Qualification Summary - SDG 17A0053

Sample	Compound	Flag	A or P	Reason
PG-SMA2-2-MUS-170105	Naphthalene 2-Methylnaphthalene Acenaphthylene Acenaphthene Fluorene Phenanthrene Anthracene Fluoranthene Pyrene Benzo(a)anthracene Chrysene Benzo(b)fluoranthene Benzo(k)fluoranthene Benzo(a)pyrene Indeno(1,2,3-cd)pyrene Dibenzo(a,h)anthracene Benzo(g,h,i)perylene Perylene Benzo(e)pyrene	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicate (%R)
PG-SMA2-2-MUS-170105	Fluorene Phenanthrene Anthracene Fluoranthene Pyrene Benzo(a)anthracene Chrysene Benzo(b)fluoranthene Benzo(k)fluoranthene Perylene Benzo(e)pyrene	J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects)	A	Matrix spike/Matrix spike duplicate (RPD)
PG-SMA1-1-MUS-170105 PG-SMA2-1-MUS-170105 PG-SMA2-2-MUS-170105 PG-SMA2-3-MUS-170105 PG-SMA2-4-MUS-170105 PG-SMA2-5-MUS-170105 PG-PJ-1-MUS-170105 PG-GP-1-MUS-170105 PG-WS-1-MUS-170105 PG-SMA1-2-3-MUS-170105	Acenaphthylene	UJ (all non-detects)	P	Laboratory control samples (%R)

Port Gamble, Shellfish Monitoring
Polynuclear Aromatic Hydrocarbons - Laboratory Blank Data Qualification Summary - SDG 17A0053

No Sample Data Qualified in this SDG

LDC #: 38239A2b **VALIDATION COMPLETENESS WORKSHEET** Date: 3/20/17
SDG #: 17A0053 Stage 2B Page: 1 of 1
Laboratory: Analytical Resources, Inc. Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC/MS Polynuclear Aromatic Hydrocarbons (EPA SW 846 Method 8270D-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A, A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A, A	RSD≤20 ICV≤30
IV.	Continuing calibration	A	D≤20
V.	Laboratory Blanks	A	
VI.	Field blanks	N	
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	SW	
IX.	Laboratory control samples	SW	LCS
X.	Field duplicates	N	
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	

Note: A = Acceptable ND = No compounds detected D = Duplicate SB=Source blank
N = Not provided/applicable R = Rinsate TB = Trip blank OTHER:
SW = See worksheet FB = Field blank EB = Equipment blank

	Client ID	Lab ID	Matrix	Date
1	PG-SMA1-1-MUS-170105	17A0053-01	Tissue	01/05/17
2	PG-SMA2-1-MUS-170105	17A0053-04	Tissue	01/05/17
3	PG-SMA2-2-MUS-170105	17A0053-05	Tissue	01/05/17
4	PG-SMA2-3-MUS-170105	17A0053-06	Tissue	01/05/17
5	PG-SMA2-4-MUS-170105	17A0053-07	Tissue	01/05/17
6	PG-SMA2-5-MUS-170105	17A0053-08	Tissue	01/05/17
7	PG-PJ-1-MUS-170105	17A0053-09	Tissue	01/05/17
8	PG-GP-1-MUS-170105	17A0053-10	Tissue	01/05/17
9	PG-WS-1-MUS-170105	17A0053-11	Tissue	01/05/17
10	PG-SMA1-2-3-MUS-170105	17A0053-12	Tissue	01/05/17
11	PG-SMA2-2-MUS-170105MS	17A0053-05MS	Tissue	01/05/17
12	PG-SMA2-2-MUS-170105MSD	17A0053-05MSD	Tissue	01/05/17
13				

VALIDATION FINDINGS WORKSHEET

METHOD: GC/MS SVOA

A. Phenol	AA. 2-Chloronaphthalene	AAA. Butylbenzylphthalate	AAAA. Dibenzothiophene	A1. N-Nitrosodiethylamine
B. Bis (2-chloroethyl) ether	BB. 2-Nitroaniline	BBB. 3,3'-Dichlorobenzidine	BBBB. Benzo(a)fluoranthene	B1. N-Nitrosodi-n-butylamine
C. 2-Chlorophenol	CC. Dimethylphthalate	CCC. Benzo(a)anthracene	CCCC. Benzo(b)fluorene	C1. N-Nitrosomethylethylamine
D. 1,3-Dichlorobenzene	DD. Acenaphthylene	DDD. Chrysene	DDDD. cis/trans-Decalin	D1. N-Nitrosomorpholine
E. 1,4-Dichlorobenzene	EE. 2,6-Dinitrotoluene	EEE. Bis(2-ethylhexyl)phthalate	EEEE. Biphenyl	E1. N-Nitrosopyrrolidine
F. 1,2-Dichlorobenzene	FF. 3-Nitroaniline	FFF. Di-n-octylphthalate	FFFF. Retene	F1. Phenacetin
G. 2-Methylphenol	GG. Acenaphthene	GGG. Benzo(b)fluoranthene	GGGG. C30-Hopane	G1. 2-Acetylaminofluorene
H. 2,2'-Oxybis(1-chloropropane)	HH. 2,4-Dinitrophenol	HHH. Benzo(k)fluoranthene	HHHH. 1-Methylphenanthrene	H1. Pronamide
I. 4-Methylphenol	II. 4-Nitrophenol	III. Benzo(a)pyrene	IIII. 1,4-Dioxane	I1. Methyl methanesulfonate
J. N-Nitroso-di-n-propylamine	JJ. Dibenzofuran	JJJ. Indeno(1,2,3-cd)pyrene	JJJJ. Acetophenone	J1. Ethyl methanesulfonate
K. Hexachloroethane	KK. 2,4-Dinitrotoluene	KKK. Dibenz(a,h)anthracene	KKKK. Atrazine	K1. o,o',o''-Triethylphosphorothioate
L. Nitrobenzene	LL. Diethylphthalate	LLL. Benzo(g,h,i)perylene	LLLL. Benzaldehyde	L1. n-Phenylene diamine
M. Isophorone	MM. 4-Chlorophenyl-phenyl ether	MMM. Bis(2-Chloroisopropyl)ether	MMMM. Caprolactam	M1. 1,4-Naphthoquinone
N. 2-Nitrophenol	NN. Fluorene	NNN. Aniline	NNNN. 2,6-Dichlorophenol	N1. N-Nitro-o-toluidine
O. 2,4-Dimethylphenol	OO. 4-Nitroaniline	OOO. N-Nitrosodimethylamine	OOOO. 1,2-Diphenylhydrazine	O1. 1,3,5-Trinitrobenzene
P. Bis(2-chloroethoxy)methane	PP. 4,6-Dinitro-2-methylphenol	PPP. Benzoic Acid	PPPP. 3-Methylphenol	P1. Pentachlorobenzene
Q. 2,4-Dichlorophenol	QQ. N-Nitrosodiphenylamine	QQQ. Benzyl alcohol	QQQQ. 3&4-Methylphenol	Q1. 4-Aminobiphenyl
R. 1,2,4-Trichlorobenzene	RR. 4-Bromophenyl-phenylether	RRR. Pyridine	RRRR. 4-Dimethyldibenzothiophene (4MDT)	R1. 2-Naphthylamine
S. Naphthalene	SS. Hexachlorobenzene	SSS. Benzidine	SSSS. 2/3-Dimethyldibenzothiophene (4MDT)	S1.
T. 4-Chloroaniline	TT. Pentachlorophenol	TTT. 1-Methylnaphthalene	TTTT. 1-Methyldibenzothiophene (1MDT)	T1.
U. Hexachlorobutadiene	UU. Phenanthrene	UUU.Benzo(b)thiophene	UUUU.. 2,3,4,6-Tetrachlorophenol	U1.
V. 4-Chloro-3-methylphenol	VV. Anthracene	VVV.Benzonaphthothiophene	VVVV. 1,2,4,5-Tetrachlorobenzene	V1.
W. 2-Methylnaphthalene	WW. Carbazole	WWW.Benzo(e)pyrene	WWWW.. 2-Picoline	W1.
X. Hexachlorocyclopentadiene	XX. Di-n-butylphthalate	XXX. 2,6-Dimethylnaphthalene	XXXX. 3-Methylcholanthrene	X1.
Y. 2,4,6-Trichlorophenol	YY. Fluoranthene	YYY. 2,3,5-Trimethylnaphthalene	YYYY. a,a-Dimethylphenethylamine	Y1.
Z. 2,4,5-Trichlorophenol	ZZ. Pyrene	ZZZ. Perylene	ZZZZ. Hexachloropropene	Z1.

LDC #: 38239A2b

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.

(Y) N N/A Was a MS/MSD analyzed every 20 samples of each matrix?

Y (N) N/A Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

#	Date	MS/MSD ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
		11/12	su	attached ( )	( )	( )	3 (det/ND)	J/UJ/R (%R)
				( )	( )	( )		Jdets/A (RPD)
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
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				( )	( )	( )		
				( )	( )	( )		

Analytical Resources, Incorporated
Analytical Chemists and Consultants

PG-SMA2-2-MUS-170105

MS / MS DUPLICATE RECOVERY
EPA 8270D-SIM

Laboratory:	Analytical Resources, Inc.	SDG:	17A0053
Client:	Anchor QEA, LLC	Project:	Port Gamble Shellfish Monitoring
Matrix:	Tissue	Analyzed:	02/10/17 22:23
Batch:	BFA0647	Laboratory ID:	BFA0647-MS1
Preparation:	EPA 3550C-Mod (Ultrasonic)	Sequence Name::	Matrix Spike
Initial/Final:	10.02 g / 0.5 mL	Source Sample:	PG-SMA2-2-MUS-170105

50-150

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONCENTRATION (ug/kg)	MS CONCENTRATION (ug/kg)	MS % REC. #	QC LIMITS REC.
Naphthalene S	15.0	ND	4.07	27.2 *	~~30 - 160~~
2-Methylnaphthalene N	15.0	ND	5.01	33.5	30 - 160
Acenaphthylene DD	15.0	ND	5.09	34.0	30 - 160
Acenaphthene GG	15.0	ND	5.24	35.0	30 - 160
Fluorene NN	15.0	0.50 dups	6.07	40.6	30 - 160
Phenanthrene UU	15.0	2.80	7.49	31.4	30 - 160
Anthracene VV	15.0	0.86	6.33	36.6	30 - 160
Fluoranthene YY	15.0	4.06	7.76	24.7 *	30 - 160
Pyrene ZZ	15.0	4.94	9.44	30.0	30 - 160
Benzo(a)anthracene CCC	15.0	1.37	7.10	38.3	30 - 160
Chrysene DDD	15.0	2.60	7.73	34.3	30 - 160
Benzo(b)fluoranthene GGG	15.0	1.53	6.61	33.9	30 - 160
Benzo(k)fluoranthene HHH	15.0	0.77	6.39	37.5	30 - 160
Benzo(a)pyrene III	15.0	ND	6.14	41.0	30 - 160
Indeno(1,2,3-cd)pyrene JJJ	15.0	ND	6.18	41.3	30 - 160
Dibenzo(a,h)anthracene KKK	15.0	ND	6.26	41.8	30 - 160
Benzo(g,h,i)perylene LLL	15.0	ND	6.00	40.1	30 - 160
Perylene ZZZ	15.0	0.74 dups	6.29	37.1	30 - 160
Benzo(e)pyrene WWW	15.0	2.75	7.29	30.3	~~30 - 160~~

* Values outside of QC limits

MS / MS DUPLICATE RECOVERY
EPA 8270D-SIM

Laboratory:	Analytical Resources, Inc.	SDG:	17A0053
Client:	Anchor QEA, LLC	Project:	Port Gamble Shellfish Monitoring
Matrix:	Tissue	Analyzed:	02/10/17 22:59
Batch:	BFA0647	Laboratory ID:	BFA0647-MSD1
Preparation:	EPA 3550C-Mod (Ultrasonic)	Sequence Name::	Matrix Spike Dup
Initial/Final:	10.1 g / 0.5 mL	Source Sample:	PG-SMA2-2-MUS-170105

COMPOUND	SPIKE ADDED (ug/kg)	MSD CONCENTRATION (ug/kg)	MSD % REC. #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Naphthalene	14.9	7.49	50.5	59.1 *	30	30 - 160
2-Methylnaphthalene	14.9	8.79	59.2	54.8 *	30	30 - 160
Acenaphthylene	14.9	8.81	59.3	53.5 *	30	30 - 160
Acenaphthene	14.9	8.95	60.2	52.3 *	30	30 - 160
Fluorene	14.9	9.99	63.9	48.7 *	30	30 - 160
Phenanthrene	14.9	12.5	65.4	50.1 *	30	30 - 160
Anthracene	14.9	10.7	66.5	51.5 *	30	30 - 160
Fluoranthene	14.9	13.2	61.3	51.6 *	30	30 - 160
Pyrene	14.9	16.1	75.5	52.5 *	30	30 - 160
Benzo(a)anthracene	14.9	12.4	74.2	54.3 *	30	30 - 160
Chrysene	14.9	13.4	72.9	53.8 *	30	30 - 160
Benzo(b)fluoranthene	14.9	11.2	64.9	51.4 *	30	30 - 160
Benzo(k)fluoranthene	14.9	10.9	68.2	52.2 *	30	30 - 160
Benzo(a)pyrene	14.9	10.4	69.9	51.4 *	30	30 - 160
Indeno(1,2,3-cd)pyrene	14.9	10.4	70.3	51.2 *	30	30 - 160
Dibenzo(a,h)anthracene	14.9	10.5	70.7	50.6 *	30	30 - 160
Benzo(g,h,i)perylene	14.9	10.2	69.0	52.2 *	30	30 - 160
Perylene	14.9	10.6	66.4	51.1 *	30	30 - 160
Benzo(e)pyrene	14.9	12.3	64.3	51.1 *	30	30 - 160

* Values outside of QC limits

LDC #: 38239A26

VALIDATION FINDINGS WORKSHEET
Laboratory Control Samples (LCS)

Page: 1 of 1
Reviewer: 8
2nd Reviewer: [illegible]

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Was a LCS required?

Y (N) N/A Were the LCS/LCSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

#	Date	LCS/LCSD ID	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
		BFA0647-BS1	DD	44.4 (50-150)	( )	( )	All (ND)	J/UJ/P
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
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				( )	( )	( )		
				( )	( )	( )		

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Port Gamble, Shellfish Monitoring

LDC Report Date: March 20, 2017

Parameters: Cadmium

Validation Level: Stage 2B

Laboratory: Analytical Resources, Inc.

Sample Delivery Group (SDG): 17A0053

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
PG-SMA1-1-MUS-170105	17A0053-01	Tissue	01/05/17
PG-SMA2-1-MUS-170105	17A0053-04	Tissue	01/05/17
PG-SMA2-2-MUS-170105	17A0053-05	Tissue	01/05/17
PG-SMA2-3-MUS-170105	17A0053-06	Tissue	01/05/17
PG-SMA2-4-MUS-170105	17A0053-07	Tissue	01/05/17
PG-SMA2-5-MUS-170105	17A0053-08	Tissue	01/05/17
PG-PJ-1-MUS-170105	17A0053-09	Tissue	01/05/17
PG-WS-1-MUS-170105	17A0053-11	Tissue	01/05/17
PG-SMA1-2-3-MUS-170105	17A0053-12	Tissue	01/05/17
PG-SMA2-2-MUS-170105MS	17A0053-05MS	Tissue	01/05/17
PG-SMA2-2-MUS-170105DUP	17A0053-05DUP	Tissue	01/05/17

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Shellfish Monitoring Plan for Port Gamble Bay Cleanup Project (May 2015) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Inorganic Superfund Data Review (January 2010). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Cadmium by Environmental Protection Agency (EPA) SW 846 Method 6010C

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition.

All technical holding time requirements were met.

II. Instrument Calibration

Initial and continuing calibrations were performed as required by the method.

The initial calibration verification (ICV) and continuing calibration verification (CCV) standards were within QC limits.

III. ICP Interference Check Sample Analysis

The frequency of interference check sample (ICS) analysis was met. All criteria were within QC limits.

IV. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks with the following exceptions:

Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Cadmium	0.0035 mg/Kg	All samples in SDG 17A0053
ICB/CCB	Cadmium	0.0005 mg/L	All samples in SDG 17A0053

Data qualification by the laboratory blanks was based on the maximum contaminant concentration in the laboratory blanks in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated laboratory blanks.

V. Field Blanks

No field blanks were identified in this SDG.

VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits.

VII. Duplicate Sample Analysis

Duplicate (DUP) sample analysis was performed on an associated project sample. Results were within QC limits.

VIII. Serial Dilution

Serial dilution was not performed for this SDG.

IX. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

X. Field Duplicates

No field duplicates were identified in this SDG.

XI. Sample Result Verification

Raw data were not reviewed for Stage 2B validation.

XII. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable. Based upon the data validation all results are considered valid and usable for all purposes.

Port Gamble, Shellfish Monitoring
Cadmium - Data Qualification Summary - SDG 17A0053

No Sample Data Qualified in this SDG

Port Gamble, Shellfish Monitoring
Cadmium - Laboratory Blank Data Qualification Summary - SDG 17A0053

No Sample Data Qualified in this SDG

LDC #: 38239A4b **VALIDATION COMPLETENESS WORKSHEET** Date: 03/15/17
SDG #: 17A0053 Stage 2B Page: 1 of 1
Laboratory: Analytical Resources, Inc. Reviewer: ATC
2nd Reviewer: a

METHOD: Cadmium (EPA SW 846 Method 6010C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II.	Instrument Calibration	A	
III.	ICP Interference Check Sample (ICS) Analysis	A	
IV.	Laboratory Blanks	SW	
V.	Field Blanks	N	
VI.	Matrix Spike/Matrix Spike Duplicates	A	
VII.	Duplicate sample analysis	A	
VIII.	Serial Dilution	N	
IX.	Laboratory control samples	A	LCS
X.	Field Duplicates	N	
XI.	Sample Result Verification	N	
XII.	Overall Assessment of Data	A	

Note: A = Acceptable ND = No compounds detected D = Duplicate SB=Source blank
N = Not provided/applicable R = Rinsate TB = Trip blank OTHER:
SW = See worksheet FB = Field blank EB = Equipment blank

	Client ID	Lab ID	Matrix	Date
1	PG-SMA1-1-MUS-170105	17A0053-01	Tissue	01/05/17
2	PG-SMA2-1-MUS-170105	17A0053-04	Tissue	01/05/17
3	PG-SMA2-2-MUS-170105	17A0053-05	Tissue	01/05/17
4	PG-SMA2-3-MUS-170105	17A0053-06	Tissue	01/05/17
5	PG-SMA2-4-MUS-170105	17A0053-07	Tissue	01/05/17
6	PG-SMA2-5-MUS-170105	17A0053-08	Tissue	01/05/17
7	PG-PJ-1-MUS-170105	17A0053-09	Tissue	01/05/17
8	PG-WS-1-MUS-170105	17A0053-11	Tissue	01/05/17
9	PG-SMA1-2-3-MUS-170105	17A0053-12	Tissue	01/05/17
10	PG-SMA2-2-MUS-170105MS	17A0053-05MS	Tissue	01/05/17
11	PG-SMA2-2-MUS-170105DUP	17A0053-05DUP	Tissue	01/05/17
12				
13				
14				

Notes:

LDC #: 38239A4b

VALIDATION FINDINGS WORKSHEET
PB/ICB/CCB QUALIFIED SAMPLES

Reviewer: ATL
2nd Reviewer:

METHOD: Trace metals (EPA SW 864 Method 6010B/6020/7000)
Soil preparation factor applied: ~~NA~~ 10X 20X
Sample Concentration units, unless otherwise noted: mg/kg
Associated Samples: All

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/l)	Maximum ICB/CCB[a] (mg/l)	Action Level	no qualifiers (>5x)								
Cd	0.0035		0.0005	0.050									

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".
Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Port Gamble, Shellfish Monitoring

LDC Report Date: March 20, 2017

Parameters: Wet Chemistry

Validation Level: Stage 2B

Laboratory: Analytical Resources, Inc.

Sample Delivery Group (SDG): 17A0053

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
PG-SMA1-1-MUS-170105	17A0053-01	Tissue	01/05/17
PG-SMA2-1-MUS-170105	17A0053-04	Tissue	01/05/17
PG-SMA2-2-MUS-170105	17A0053-05	Tissue	01/05/17
PG-SMA2-3-MUS-170105	17A0053-06	Tissue	01/05/17
PG-SMA2-4-MUS-170105	17A0053-07	Tissue	01/05/17
PG-SMA2-5-MUS-170105	17A0053-08	Tissue	01/05/17
PG-PJ-1-MUS-170105	17A0053-09	Tissue	01/05/17
PG-GP-1-MUS-170105	17A0053-10	Tissue	01/05/17
PG-WS-1-MUS-170105	17A0053-11	Tissue	01/05/17
PG-SMA1-2-3-MUS-170105	17A0053-12	Tissue	01/05/17
PG-SMA2-2-MUS-170105DUP	17A0053-05DUP	Tissue	01/05/17

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Shellfish Monitoring Plan for Port Gamble Bay Cleanup Project (May 2015) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Inorganic Superfund Data Review (January 2010). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following methods:

Percent Lipids by Bligh and Dyer Method
Total Solids by Standard Method 2540G

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition.

All technical holding time requirements were met.

II. Initial Calibration

All criteria for the initial calibration of each method were met.

III. Continuing Calibration

Continuing calibration frequency and analysis criteria were met for each method when applicable.

IV. Laboratory Blanks

Laboratory blanks were analyzed as required by the methods. No contaminants were found in the laboratory blanks with the following exceptions:

Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	% Lipids	0.014 %	All samples in SDG 17A0053

Data qualification by the laboratory blanks was based on the maximum contaminant concentration in the laboratory blanks in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated laboratory blanks.

V. Field Blanks

No field blanks were identified in this SDG.

VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were not required by the method.

VII. Duplicate Sample Analysis

Duplicate (DUP) sample analysis was performed on an associated project sample. Results were within QC limits.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) were not required by the method.

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Sample Result Verification

Raw data were not reviewed for Stage 2B validation.

XI. Overall Assessment of Data

The analysis was conducted within all specifications of the methods. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable. Based upon the data validation all results are considered valid and usable for all purposes.

Port Gamble, Shellfish Monitoring
Wet Chemistry - Data Qualification Summary - SDG 17A0053

No Sample Data Qualified in this SDG

Port Gamble, Shellfish Monitoring
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 17A0053

No Sample Data Qualified in this SDG

LDC #: 38239A6 **VALIDATION COMPLETENESS WORKSHEET** Date: 03/16/17
SDG #: 17A0053 Stage 2B Page: 1 of 1
Laboratory: Analytical Resources, Inc. Reviewer: ATL
2nd Reviewer:

METHOD: (Analyte) Percent Lipids (Bligh & Dyre), Total Solids (SM2540G)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II	Initial calibration	A	
III.	Calibration verification	A	
IV	Laboratory Blanks	SW	
V	Field blanks	N	
VI.	Matrix Spike/Matrix Spike Duplicates	N	not required
VII.	Duplicate sample analysis	A	
VIII.	Laboratory control samples	N	not required
IX.	Field duplicates	N	
X.	Sample result verification	N	
XI	Overall assessment of data	A	

Note: A = Acceptable ND = No compounds detected D = Duplicate SB=Source blank
N = Not provided/applicable R = Rinsate TB = Trip blank OTHER:
SW = See worksheet FB = Field blank EB = Equipment blank

	Client ID	Lab ID	Matrix	Date
1	PG-SMA1-1-MUS-170105	17A0053-01	Tissue	01/05/17
2	PG-SMA2-1-MUS-170105	17A0053-04	Tissue	01/05/17
3	PG-SMA2-2-MUS-170105	17A0053-05	Tissue	01/05/17
4	PG-SMA2-3-MUS-170105	17A0053-06	Tissue	01/05/17
5	PG-SMA2-4-MUS-170105	17A0053-07	Tissue	01/05/17
6	PG-SMA2-5-MUS-170105	17A0053-08	Tissue	01/05/17
7	PG-PJ-1-MUS-170105	17A0053-09	Tissue	01/05/17
8	PG-GP-1-MUS-170105	17A0053-10	Tissue	01/05/17
9	PG-WS-1-MUS-170105	17A0053-11	Tissue	01/05/17
10	PG-SMA1-2-3-MUS-170105	17A0053-12	Tissue	01/05/17
11	PG-SMA2-2-MUS-170105DUP	17A0053-05DUP	Tissue	01/05/17
12				
13				
14				
15				

Notes:

DC #: 38239A6

VALIDATION FINDINGS WORKSHEET
Sample Specific Analysis Reference

Reviewer: ATL
2nd reviewer: [signature]

All circled methods are applicable to each sample.

Sample ID	Parameter
1-10	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4 (% Lipid) (Total Solids)
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4

Comments:

LDC #: 38239A6

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer: ATL
2nd Reviewer:

METHOD: Inorganics, Method Percent Lipids

Conc. units: % **Associated Samples:** All

Analyte	Blank ID	Blank ID	Blank Action Limit									
	PB	ICB/CCB (mg/kg)		No Qualifiers								
percent lipids	0.014		0.07									

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
All contaminants within five times the method blank concentration were qualified as not detected, "U".

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Port Gamble, Shellfish Monitoring

LDC Report Date: March 30, 2017

Parameters: Polychlorinated Dioxins/Dibenzofurans

Validation Level: Stage 2B

Laboratory: Analytical Resources, Inc.

Sample Delivery Group (SDG): 17A0053

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
PG-SMA1-1-MUS-170105	17A0053-01	Tissue	01/05/17
PG-SMA2-1-MUS-170105	17A0053-04	Tissue	01/05/17
PG-SMA2-2-MUS-170105	17A0053-05	Tissue	01/05/17
PG-SMA2-3-MUS-170105	17A0053-06	Tissue	01/05/17
PG-SMA2-4-MUS-170105	17A0053-07	Tissue	01/05/17
PG-SMA2-5-MUS-170105	17A0053-08	Tissue	01/05/17
PG-PJ-1-MUS-170105	17A0053-09	Tissue	01/05/17
PG-GP-1-MUS-170105	17A0053-10	Tissue	01/05/17
PG-WS-1-MUS-170105	17A0053-11	Tissue	01/05/17
PG-SMA1-2-3-MUS-170105	17A0053-12	Tissue	01/05/17

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Shellfish Monitoring Plan for Port Gamble Bay Cleanup Project (May 2015) and the USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Chlorinated Dibenzo-p-Dioxins (CDDs) and Chlorinated Dibenzofurans (CDFs) Data Review (September 2011). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Polychlorinated Dioxins/Dibenzofurans by Environmental Protection Agency (EPA) Method 1613B

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered not detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. HRGC/HRMS Instrument Performance Check

Instrument performance was checked at the required frequency.

Retention time windows were established for all homologues. The chromatographic resolution between 2,3,7,8-TCDD and peaks representing any other unlabeled TCDD isomer was less than or equal to 25%.

The static resolving power was at least 10,000 (10% valley definition).

III. Initial Calibration and Initial Calibration Verification

A five point initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for unlabeled compounds.

The ion abundance ratios for all PCDDs and PCDFs were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were within the QC limits for unlabeled compounds and labeled compounds.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration results were within the QC limits for unlabeled compounds and labeled compounds with the following exceptions:

Date	Compound	Concentration (Limits)	Associated Samples	Affected Compound	Flag	A or P
02/09/17	^{13}C-1,2,3,7,8-PeCDD	35.6 ng/mL (62-160)	PG-GP-1-MUS-170105 PG-SMA1-2-3-MUS-170105	1,2,3,7,8-PeCDD Total PeCDD	UJ (all non-detects) UJ (all non-detects)	P

For samples PG-GP-1-MUS-170105 and PG-SMA1-2-3-MUS-170105, the ending continuing calibration verifications (CCVs) were analyzed outside the 12 hour period.

The ion abundance ratios for all PCDDs and PCDFs were within method and validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks with the following exceptions:

Blank ID	Extraction Date	Compound	Concentration	Associated Samples
BFA0657-BLK1	01/31/17	2,3,7,8-TCDD 1,2,3,7,8-PeCDD 1,2,3,4,7,8-HxCDF 1,2,3,7,8,9-HxCDF 1,2,3,4,6,7,8-HpCDF 1,2,3,4,6,7,8-HpCDD OCDF OCDD Total TCDF Total PeCDD Total HxCDF Total HpCDF Total HpCDD	0.0561 ng/Kg 0.0363 ng/Kg 0.0450 ng/Kg 0.0754 ng/Kg 0.0997 ng/Kg 0.190 ng/Kg 0.287 ng/Kg 1.82 ng/Kg 0.110 ng/Kg 0.0363 ng/Kg 0.186 ng/Kg 0.0997 ng/Kg 0.344 ng/Kg	PG-GP-1-MUS-170105 PG-SMA1-2-3-MUS-170105
BFB0538-BLK1	02/22/17	1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF 1,2,3,7,8,9-HxCDD 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF 1,2,3,4,6,7,8-HpCDD OCDF OCDD Total HxCDF Total HxCDD Total HpCDF Total HpCDD	0.0697 ng/Kg 0.0326 ng/Kg 0.0663 ng/Kg 0.116 ng/Kg 0.179 ng/Kg 0.285 ng/Kg 0.0633 ng/Kg 0.472 ng/Kg 0.745 ng/Kg 4.98 ng/Kg 0.309 ng/Kg 0.179 ng/Kg 0.529 ng/Kg 0.766 ng/Kg	PG-SMA1-1-MUS-170105 PG-SMA2-1-MUS-170105 PG-SMA2-2-MUS-170105 PG-SMA2-3-MUS-170105 PG-SMA2-4-MUS-170105 PG-SMA2-5-MUS-170105 PG-PJ-1-MUS-170105 PG-WS-1-MUS-170105

Sample concentrations were compared to concentrations detected in the laboratory blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated laboratory blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
PG-GP-1-MUS-170105	1,2,3,4,6,7,8-HpCDF OCDD Total TCDF	0.205 ng/Kg 7.51 ng/Kg 0.192 ng/Kg	0.205U ng/Kg 7.51U ng/Kg 0.192J ng/Kg
PG-SMA1-2-3-MUS-170105	1,2,3,4,6,7,8-HpCDF OCDF	0.230 ng/Kg 0.652 ng/Kg	0.230U ng/Kg 0.652U ng/Kg

Sample	Compound	Reported Concentration	Modified Final Concentration
PG-SMA1-1-MUS-170105	1,2,3,7,8,9-HxCDF	0.074 ng/Kg	0.074U ng/Kg
	1,2,3,4,6,7,8-HpCDF	0.137 ng/Kg	0.137U ng/Kg
	1,2,3,4,6,7,8-HpCDD	0.649 ng/Kg	0.649U ng/Kg
	OCDF	0.424 ng/Kg	0.424U ng/Kg
	OCDD	4.90 ng/Kg	4.90U ng/Kg
	Total HxCDF	0.074 ng/Kg	0.074J ng/Kg
	Total HpCDF	0.344 ng/Kg	0.344J ng/Kg
	Total HpCDD	2.08 ng/Kg	2.08J ng/Kg
PG-SMA2-1-MUS-170105	1,2,3,4,7,8-HxCDF	0.037 ng/Kg	0.037U ng/Kg
	1,2,3,6,7,8-HxCDF	0.108 ng/Kg	0.108U ng/Kg
	2,3,4,6,7,8-HxCDF	0.079 ng/Kg	0.079U ng/Kg
	1,2,3,7,8,9-HxCDF	0.135 ng/Kg	0.135U ng/Kg
	1,2,3,7,8,9-HxCDD	0.309 ng/Kg	0.309U ng/Kg
	1,2,3,4,6,7,8-HpCDF	0.331 ng/Kg	0.331U ng/Kg
	1,2,3,4,7,8,9-HpCDF	0.160 ng/Kg	0.160U ng/Kg
	1,2,3,4,6,7,8-HpCDD	1.01 ng/Kg	1.01U ng/Kg
	OCDF	0.677 ng/Kg	0.677U ng/Kg
	OCDD	7.09 ng/Kg	7.09U ng/Kg
	Total HxCDF	0.583 ng/Kg	0.583J ng/Kg
	Total HpCDF	0.794 ng/Kg	0.794J ng/Kg
	Total HpCDD	2.57 ng/Kg	2.57J ng/Kg
PG-SMA2-2-MUS-170105	1,2,3,4,6,7,8-HpCDF	0.220 ng/Kg	0.220U ng/Kg
	1,2,3,4,6,7,8-HpCDD	0.753 ng/Kg	0.753U ng/Kg
	OCDF	0.538 ng/Kg	0.538U ng/Kg
	OCDD	5.92 ng/Kg	5.92U ng/Kg
	Total HpCDF	0.410 ng/Kg	0.410J ng/Kg
	Total HpCDD	2.41 ng/Kg	2.41J ng/Kg
PG-SMA2-3-MUS-170105	1,2,3,4,6,7,8-HpCDF	0.109 ng/Kg	0.109U ng/Kg
	1,2,3,4,6,7,8-HpCDD	2.02 ng/Kg	2.02U ng/Kg
	OCDF	1.16 ng/Kg	1.16U ng/Kg
	OCDD	17.6 ng/Kg	17.6U ng/Kg
	Total HxCDF	0.203 ng/Kg	0.203J ng/Kg
	Total HxCDD	0.852 ng/Kg	0.852J ng/Kg
	Total HpCDF	0.583 ng/Kg	0.583J ng/Kg
PG-SMA2-4-MUS-170105	1,2,3,7,8,9-HxCDF	0.153 ng/Kg	0.153U ng/Kg
	1,2,3,7,8,9-HxCDD	0.357 ng/Kg	0.357U ng/Kg
	1,2,3,4,6,7,8-HpCDF	0.530 ng/Kg	0.530U ng/Kg
	1,2,3,4,7,8,9-HpCDF	0.238 ng/Kg	0.238U ng/Kg
	1,2,3,4,6,7,8-HpCDD	1.99 ng/Kg	1.99U ng/Kg
	OCDF	1.48 ng/Kg	1.48U ng/Kg
	OCDD	15.0 ng/Kg	15.0U ng/Kg
	Total HxCDF	0.473 ng/Kg	0.473J ng/Kg
	Total HpCDF	1.26 ng/Kg	1.26J ng/Kg
PG-SMA2-5-MUS-170105	1,2,3,7,8,9-HxCDF	0.125 ng/Kg	0.125U ng/Kg
	1,2,3,4,6,7,8-HpCDF	0.213 ng/Kg	0.213U ng/Kg
	1,2,3,4,7,8,9-HpCDF	0.062 ng/Kg	0.062U ng/Kg
	1,2,3,4,6,7,8-HpCDD	1.22 ng/Kg	1.22U ng/Kg
	OCDF	0.665 ng/Kg	0.665U ng/Kg
	OCDD	8.04 ng/Kg	8.04U ng/Kg
	Total HxCDF	0.332 ng/Kg	0.332J ng/Kg
	Total HxCDD	0.414 ng/Kg	0.414J ng/Kg
	Total HpCDF	0.603 ng/Kg	0.603J ng/Kg

Sample	Compound	Reported Concentration	Modified Final Concentration
PG-PJ-1-MUS-170105	1,2,3,7,8,9-HxCDF	0.107 ng/Kg	0.107U ng/Kg
	1,2,3,7,8,9-HxCDD	0.148 ng/Kg	0.148U ng/Kg
	1,2,3,4,6,7,8-HpCDF	0.290 ng/Kg	0.290U ng/Kg
	1,2,3,4,7,8,9-HpCDF	0.088 ng/Kg	0.088U ng/Kg
	1,2,3,4,6,7,8-HpCDD	1.15 ng/Kg	1.15U ng/Kg
	OCDF	0.675 ng/Kg	0.675U ng/Kg
	OCDD	8.41 ng/Kg	8.41U ng/Kg
	Total HxCDF	0.272 ng/Kg	0.272J ng/Kg
	Total HxCDD	0.731 ng/Kg	0.731J ng/Kg
	Total HpCDF	0.670 ng/Kg	0.670J ng/Kg
	Total HpCDD	3.51 ng/Kg	3.51J ng/Kg
PG-WS-1-MUS-170105	1,2,3,7,8,9-HxCDF	0.172 ng/Kg	0.172U ng/Kg
	1,2,3,4,6,7,8-HpCDF	0.367 ng/Kg	0.367U ng/Kg
	1,2,3,4,7,8,9-HpCDF	0.195 ng/Kg	0.195U ng/Kg
	1,2,3,4,6,7,8-HpCDD	1.31 ng/Kg	1.31U ng/Kg
	OCDF	0.875 ng/Kg	0.875U ng/Kg
	OCDD	8.51 ng/Kg	8.51U ng/Kg
	Total HxCDF	0.172 ng/Kg	0.172J ng/Kg
	Total HxCDD	0.540 ng/Kg	0.540J ng/Kg
	Total HpCDF	0.877 ng/Kg	0.877J ng/Kg
	Total HpCDD	3.47 ng/Kg	3.47J ng/Kg

VI. Field Blanks

No field blanks were identified in this SDG.

VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Internal Standards

All internal standard recoveries (%R) were within QC limits with the following exceptions:

Sample	Internal Standards	%R (Limits)	Affected Compound	Flag	A or P
PG-SMA2-4-MUS-170105	^{13}C-2,3,4,6,7,8-HxCDF ^{13}C-1,2,3,4,7,8-HxCDD ^{13}C-1,2,3,4,6,7,8-HpCDF	26.8 (28-136) 28.3 (32-141) 27.4 (28-143)	2,3,4,6,7,8-HxCDF Total HxCDF 1,2,3,4,7,8-HxCDD Total HxCDD 1,2,3,4,6,7,8-HpCDF Total HpCDF	J (all detects) UJ (all non-detects)	P
PG-GP-1-MUS-170105	^{13}C-2,3,7,8-TCDF ^{13}C-2,3,7,8-TCDD ^{13}C-1,2,3,7,8-PeCDF ^{13}C-1,2,3,7,8-PeCDD ^{13}C-1,2,3,4,7,8-HxCDF ^{13}C-1,2,3,6,7,8-HxCDF ^{13}C-2,3,4,6,7,8-HxCDF ^{13}C-1,2,3,7,8,9-HxCDF ^{13}C-1,2,3,4,7,8-HxCDD ^{13}C-1,2,3,6,7,8-HxCDD ^{13}C-1,2,3,4,6,7,8-HpCDF ^{13}C-1,2,3,4,7,8,9-HpCDF ^{13}C-1,2,3,4,6,7,8-HpCDD	20.6 (24-169) 21.1 (25-164) 20.7 (24-185) 21.9 (25-181) 19.8 (26-152) 19.4 (26-123) 19.3 (28-136) 22.0 (29-147) 19.8 (32-141) 19.9 (28-130) 19.5 (28-143) 22.7 (26-138) 21.0 (23-140)	2,3,7,8-TCDF Total TCDF 2,3,7,8-TCDD Total TCDD 1,2,3,7,8-PeCDF Total PeCDF 1,2,3,7,8-PeCDD Total PeCDD 1,2,3,4,7,8-HxCDF Total HxCDF 1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF 1,2,3,4,7,8-HxCDD Total HxCDD 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD 1,2,3,4,6,7,8-HpCDF Total HpCDF 1,2,3,4,7,8,9-HpCDF 1,2,3,4,6,7,8-HpCDD Total HpCDD	J (all detects) UJ (all non-detects)	P
PG-SMA1-2-3-MUS-170105	^{13}C-2,3,7,8-TCDF ^{13}C-2,3,7,8-TCDD ^{13}C-1,2,3,7,8-PeCDF ^{13}C-2,3,4,7,8-PeCDF ^{13}C-1,2,3,7,8-PeCDD ^{13}C-1,2,3,4,7,8-HxCDF ^{13}C-1,2,3,6,7,8-HxCDF ^{13}C-2,3,4,6,7,8-HxCDF ^{13}C-1,2,3,7,8,9-HxCDF ^{13}C-1,2,3,4,7,8-HxCDD ^{13}C-1,2,3,6,7,8-HxCDD ^{13}C-1,2,3,4,6,7,8-HpCDF ^{13}C-1,2,3,4,7,8,9-HpCDF ^{13}C-1,2,3,4,6,7,8-HpCDD ^{13}C-OCDD	16.8 (24-169) 16.9 (25-164) 15.5 (24-185) 15.7 (21-178) 16.0 (25-181) 16.1 (26-152) 16.0 (26-123) 15.9 (28-136) 17.9 (29-147) 16.6 (32-141) 15.9 (28-130) 16.8 (28-143) 19.0 (26-138) 18.2 (23-140) 15.2 (17-157)	2,3,7,8-TCDF Total TCDF 2,3,7,8-TCDD Total TCDD 1,2,3,7,8-PeCDF Total PeCDF 2,3,4,7,8-PeCDF 1,2,3,7,8-PeCDD Total PeCDD 1,2,3,4,7,8-HxCDF Total HxCDF 1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF 1,2,3,4,7,8-HxCDD Total HxCDD 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD 1,2,3,4,6,7,8-HpCDF Total HpCDF 1,2,3,4,7,8,9-HpCDF 1,2,3,4,6,7,8-HpCDD Total HpCDD OCDD OCDF	J (all detects) UJ (all non-detects)	P

XI. Compound Quantitation

All compound quantitations were within validation criteria with the following exceptions:

Sample	Compound	Flag	A or P
All samples in SDG 17A0053	All compounds reported as estimated maximum possible concentration (EMPC)	J (all detects)	A

Raw data were not reviewed for Stage 2B validation.

XII. Target Compound Identifications

Raw data were not reviewed for Stage 2B validation.

XIII. System Performance

Raw data were not reviewed for Stage 2B validation.

XIV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Due to continuing calibration concentration, internal standard %R, and results reported by the laboratory as EMPCs, data were qualified as estimated in ten samples.

Due to laboratory blank contamination, data were qualified as not detected or estimated in ten samples.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the data validation all other results are considered valid and usable for all purposes.

Port Gamble, Shellfish Monitoring
Polychlorinated Dioxins/Dibenzofurans - Data Qualification Summary - SDG 17A0053

Sample	Compound	Flag	A or P	Reason
PG-GP-1-MUS-170105 PG-SMA1-2-3-MUS-170105	1,2,3,7,8-PeCDD Total PeCDD	UJ (all non-detects) UJ (all non-detects)	P	Continuing calibration (concentration)
PG-SMA2-4-MUS-170105	2,3,4,6,7,8-HxCDF Total HxCDF 1,2,3,4,7,8-HxCDD Total HxCDD 1,2,3,4,6,7,8-HpCDF Total HpCDF	J (all detects) UJ (all non-detects)	P	Internal standards (%R)
PG-GP-1-MUS-170105	2,3,7,8-TCDF Total TCDF 2,3,7,8-TCDD Total TCDD 1,2,3,7,8-PeCDF Total PeCDF 1,2,3,7,8-PeCDD Total PeCDD 1,2,3,4,7,8-HxCDF Total HxCDF 1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF 1,2,3,4,7,8-HxCDD Total HxCDD 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD 1,2,3,4,6,7,8-HpCDF Total HpCDF 1,2,3,4,7,8,9-HpCDF 1,2,3,4,6,7,8-HpCDD Total HpCDD	J (all detects) UJ (all non-detects)	P	Internal standards (%R)
PG-SMA1-2-3-MUS-170105	2,3,7,8-TCDF Total TCDF 2,3,7,8-TCDD Total TCDD 1,2,3,7,8-PeCDF Total PeCDF 2,3,4,7,8-PeCDF 1,2,3,7,8-PeCDD Total PeCDD 1,2,3,4,7,8-HxCDF Total HxCDF 1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF 1,2,3,4,7,8-HxCDD Total HxCDD 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD 1,2,3,4,6,7,8-HpCDF Total HpCDF 1,2,3,4,7,8,9-HpCDF 1,2,3,4,6,7,8-HpCDD Total HpCDD OCDD OCDF	J (all detects) UJ (all non-detects)	P	Internal standards (%R)

Sample	Compound	Flag	A or P	Reason
PG-SMA1-1-MUS-170105 PG-SMA2-1-MUS-170105 PG-SMA2-2-MUS-170105 PG-SMA2-3-MUS-170105 PG-SMA2-4-MUS-170105 PG-SMA2-5-MUS-170105 PG-PJ-1-MUS-170105 PG-GP-1-MUS-170105 PG-WS-1-MUS-170105 PG-SMA1-2-3-MUS-170105	All compounds reported as estimated maximum possible concentration (EMPC)	J (all detects)	A	Compound quantitation (EMPC)

Port Gamble, Shellfish Monitoring
Polychlorinated Dioxins/Dibenzofurans - Laboratory Blank Data Qualification Summary - SDG 17A0053

Sample	Compound	Modified Final Concentration	A or P
PG-GP-1-MUS-170105	1,2,3,4,6,7,8-HpCDF OCDD Total TCDF	0.205U ng/Kg 7.51U ng/Kg 0.192J ng/Kg	A
PG-SMA1-2-3-MUS-170105	1,2,3,4,6,7,8-HpCDF OCDF	0.230U ng/Kg 0.652U ng/Kg	A
PG-SMA1-1-MUS-170105	1,2,3,7,8,9-HxCDF 1,2,3,4,6,7,8-HpCDF 1,2,3,4,6,7,8-HpCDD OCDF OCDD Total HxCDF Total HpCDF Total HpCDD	0.074U ng/Kg 0.137U ng/Kg 0.649U ng/Kg 0.424U ng/Kg 4.90U ng/Kg 0.074J ng/Kg 0.344J ng/Kg 2.08J ng/Kg	A
PG-SMA2-1-MUS-170105	1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF 1,2,3,7,8,9-HxCDD 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF 1,2,3,4,6,7,8-HpCDD OCDF OCDD Total HxCDF Total HpCDF Total HpCDD	0.037U ng/Kg 0.108U ng/Kg 0.079U ng/Kg 0.135U ng/Kg 0.309U ng/Kg 0.331U ng/Kg 0.160U ng/Kg 1.01U ng/Kg 0.677U ng/Kg 7.09U ng/Kg 0.583J ng/Kg 0.794J ng/Kg 2.57J ng/Kg	A
PG-SMA2-2-MUS-170105	1,2,3,4,6,7,8-HpCDF 1,2,3,4,6,7,8-HpCDD OCDF OCDD Total HpCDF Total HpCDD	0.220U ng/Kg 0.753U ng/Kg 0.538U ng/Kg 5.92U ng/Kg 0.410J ng/Kg 2.41J ng/Kg	A

Sample	Compound	Modified Final Concentration	A or P
PG-SMA2-3-MUS-170105	1,2,3,4,6,7,8-HpCDF 1,2,3,4,6,7,8-HpCDD OCDF OCDD Total HxCDF Total HxCDD Total HpCDF	0.109U ng/Kg 2.02U ng/Kg 1.16U ng/Kg 17.6U ng/Kg 0.203J ng/Kg 0.852J ng/Kg 0.583J ng/Kg	A
PG-SMA2-4-MUS-170105	1,2,3,7,8,9-HxCDF 1,2,3,7,8,9-HxCDD 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF 1,2,3,4,6,7,8-HpCDD OCDF OCDD Total HxCDF Total HpCDF	0.153U ng/Kg 0.357U ng/Kg 0.530U ng/Kg 0.238U ng/Kg 1.99U ng/Kg 1.48U ng/Kg 15.0U ng/Kg 0.473J ng/Kg 1.26J ng/Kg	A
PG-SMA2-5-MUS-170105	1,2,3,7,8,9-HxCDF 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF 1,2,3,4,6,7,8-HpCDD OCDF OCDD Total HxCDF Total HxCDD Total HpCDF	0.125U ng/Kg 0.213U ng/Kg 0.062U ng/Kg 1.22U ng/Kg 0.665U ng/Kg 8.04U ng/Kg 0.332J ng/Kg 0.414J ng/Kg 0.603J ng/Kg	A
PG-PJ-1-MUS-170105	1,2,3,7,8,9-HxCDF 1,2,3,7,8,9-HxCDD 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF 1,2,3,4,6,7,8-HpCDD OCDF OCDD Total HxCDF Total HxCDD Total HpCDF Total HpCDD	0.107U ng/Kg 0.148U ng/Kg 0.290U ng/Kg 0.088U ng/Kg 1.15U ng/Kg 0.675U ng/Kg 8.41U ng/Kg 0.272J ng/Kg 0.731J ng/Kg 0.670J ng/Kg 3.51J ng/Kg	A
PG-WS-1-MUS-170105	1,2,3,7,8,9-HxCDF 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF 1,2,3,4,6,7,8-HpCDD OCDF OCDD Total HxCDF Total HxCDD Total HpCDF Total HpCDD	0.172U ng/Kg 0.367U ng/Kg 0.195U ng/Kg 1.31U ng/Kg 0.875U ng/Kg 8.51U ng/Kg 0.172J ng/Kg 0.540J ng/Kg 0.877J ng/Kg 3.47J ng/Kg	A

LDC #: 38239A21 **VALIDATION COMPLETENESS WORKSHEET** Date: 3/20/17
SDG #: 17A0053 Stage 2B Page: 1 of 1
Laboratory: Analytical Resources, Inc. Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: HRGC/HRMS Polychlorinated Dioxins/Dibenzofurans (EPA Method 1613B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II.	HRGC/HRMS Instrument performance check	A	
III.	Initial calibration/ICV	A / A	RSD ≤ 20 unlabelled ICV ≤ QC limits
IV.	Continuing calibration	SW	D ≤ QC limits
V.	Laboratory Blanks	SW	
VI.	Field blanks	N	
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	A	LCS/D
IX.	Field duplicates	N	
X.	Internal standards	SW	
XI.	Compound quantitation RL/LOQ/LODs	SW	
XII.	Target compound identification	N	
XIII.	System performance	N	
XIV.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	PG-SMA1-1-MUS-170105	17A0053-01	Tissue	01/05/17
2	PG-SMA2-1-MUS-170105	17A0053-04	Tissue	01/05/17
3	PG-SMA2-2-MUS-170105	17A0053-05	Tissue	01/05/17
4	PG-SMA2-3-MUS-170105	17A0053-06	Tissue	01/05/17
5	PG-SMA2-4-MUS-170105	17A0053-07	Tissue	01/05/17
6	PG-SMA2-5-MUS-170105	17A0053-08	Tissue	01/05/17
7	PG-PJ-1-MUS-170105	17A0053-09	Tissue	01/05/17
8 [2]	PG-GP-1-MUS-170105	17A0053-10	Tissue	01/05/17
9	PG-WS-1-MUS-170105	17A0053-11	Tissue	01/05/17
10 [2]	PG-SMA1-2-3-MUS-170105	17A0053-12	Tissue	01/05/17
11				
12				

Notes:

1	BFB0538						
2	BFA0657						

VALIDATION FINDINGS WORKSHEET

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA Method 1613B)

A. 2,3,7,8-TCDD	F. 1,2,3,4,6,7,8-HpCDD	K. 1,2,3,4,7,8-HxCDF	P. 1,2,3,4,7,8,9-HpCDF	U. Total HpCDD
B. 1,2,3,7,8-PeCDD	G. OCDD	L. 1,2,3,6,7,8-HxCDF	Q. OCDF	V. Total TCDF
C. 1,2,3,4,7,8-HxCDD	H. 2,3,7,8-TCDF	M. 2,3,4,6,7,8-HxCDF	R. Total TCDD	W. Total PeCDF
D. 1,2,3,6,7,8-HxCDD	I. 1,2,3,7,8-PeCDF	N. 1,2,3,7,8,9-HxCDF	S. Total PeCDD	X. Total HxCDF
E. 1,2,3,7,8,9-HxCDD	J. 2,3,4,7,8-PeCDF	O. 1,2,3,4,6,7,8-HpCDF	T. Total HxCDD	Y. Total HpCDF

Notes:

LDC #: 38239A21

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA Method 1613B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y (N) N/A Was a routine calibration performed at the beginning of each 12 hour period?
Y (N) N/A Were all concentrations within method QC limits for unlabeled and labeled compounds?
Y (N) N/A Did all routine calibration standards meet the Ion Abundance Ratio criteria?

#	Date	Standard ID	Compound	conc (ng/mL) Finding ~~%R~~	Finding Ion Abundance Ratio	Associated Samples	Qualifications
	02/09/17	170208L9	13C-B	35.6 (62-160)		8,10 (ND)	J/UJ/P (B,S)
		ending CAL	analyzed outside 12 hr	period		8,10	text

V:\Validation Worksheets\Dioxins\1613\CONCAL.wpd

LDC #: 38239A21

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer: A
2nd Reviewer: Q

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA Method 1613B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were all samples associated with a method blank?
Y N N/A Was a method blank performed for each matrix and whenever a sample extraction was performed?
Y N N/A Was the method blank contaminated?

Blank extraction date: 01/31/17 **Blank analysis date:** 02/08/17
Conc. units: ng/Kg **Associated samples:** 8,10

Compound	Blank ID	Sample Identification								
	BFA0657-BLK1	5X	8	10						
A	0.0561*	0.2805								
B	0.0363	0.1815								
K	0.0450*	0.225								
N	0.0754	0.377								
O	0.0997	0.4985	0.205*/U	0.230/U						
F	0.190*	0.95								
Q	0.287*	1.435		0.652*/U						
G	1.82	9.1	7.51/U							
V	0.110	0.55	0.192/J							
S	0.0363	0.1815								
X	0.186	0.93								
Y	0.0997	0.4985								
U	0.344	1.72								

*EMPC

LDC #: 38239A21

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer: AL
2nd Reviewer: AL

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA Method 1613B)

Blank extraction date: 02/22/17 **Blank analysis date:** 02/24/17
Conc. units: ng/Kg **Associated samples:** 1-7,9

Compound	Blank ID	Sample Identification								
	BFB0538-BLK1	5X	1	2	3	4	5	6	7	9
K	0.0697	0.3485		0.037*/U						
L	0.0326	0.163		0.108*/U						
M	0.0663*	0.3315		0.079*/U						
N	0.116*	0.58	0.074*/U	0.135*/U			0.153/U	0.125*/U	0.107*/U	0.172*/U
E	0.179*	0.895		0.309*/U			0.357/U		0.148*/U	
O	0.285	1.425	0.137*/U	0.331*/U	0.220*/U	0.109*/U	0.530/U	0.213*/U	0.290/U	0.367/U
P	0.0633*	0.3165		0.160/U			0.238*/U	0.062/U	0.088*/U	0.195*/U
F	0.472*	2.36	0.649/U	1.01/U	0.753/U	2.02/U	1.99/U	1.22/U	1.15/U	1.31*/U
Q	0.745*	3.725	0.424/U	0.677/U	0.538*/U	1.16*/U	1.48/U	0.665/U	0.675/U	0.875*/U
G	4.98	24.9	4.90/U	7.09/U	5.92/U	17.6/U	15.0/U	8.04/U	8.41/U	8.51/U
X	0.309	1.545	0.074/J	0.583/J		0.203/J	0.473/J	0.332/J	0.272/J	0.172/J
T	0.179	0.895				0.852/J		0.414/J	0.731/J	0.540/J
Y	0.529	2.645	0.344/J	0.794/J	0.410/J	0.583/J	1.26/J	0.603/J	0.670/J	0.877/J
U	0.766	3.83	2.08/J	2.57/J	2.41/J				3.51/J	3.47/J

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
All contaminants within five times the method blank concentration were qualified as not detected, "U".

LDC #: 38239A21

VALIDATION FINDINGS WORKSHEET
Internal Standards

Reviewer: SR
2nd Reviewer: G

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA Method 1613B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y (N) N/A Are all internal standard recoveries were within the QC criteria?

Y N (N/A) Was the S/N ratio all internal standard peaks ≥ 10?

#	Date	Lab ID/Reference	Internal Standard	% Recovery (Limit)	Qualifications
		5 (dup/ND)	^{13}C-M	26.8 (28-136)	J/UJ/P (M, X)
			^{13}C-C	28.3 (32-141)	(C, T)
			^{13}C-O	27.4 (28-143)	(O, Y)
		8 (dup/ND)	^{13}C-H	20.6 (24-169)	(H, V)
			A	21.1 (25-164)	(A, R)
			I	20.7 (24-185)	(I, W)
			B	21.9 (25-181)	(B, S)
			K	19.8 (26-152)	(K, X)
			L	19.4 (26-123)	(L)
			M	19.3 (28-136)	(M)
			N	22.0 (29-147)	(N)
			C	19.8 (32-141)	(C, T)
			D	19.9 (28-130)	(D, E)
			O	19.5 (28-143)	(O, Y)
			P	22.7 (26-138)	(P)
			F	21.0 (23-140)	(F, U)
		10 (dup/ND)	H	16.8 see above	
			A	16.9	
			I	15.5	
			J	15.7 (21-178)	(J)
			B	16.0 see above	
			K	16.1	
			L	16.0	
			M	15.9	

LDC #: 38239A21

VALIDATION FINDINGS WORKSHEET
Internal Standards

Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA Method 1613B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A — Are all internal standard recoveries were within the QC criteria? (N circled)

Y N N/A — Was the S/N ratio all internal standard peaks ≥ 10? (N/A circled)

#	Date	Lab ID/Reference	Internal Standard	% Recovery (Limit)	Qualifications
		10 cont'd	13C-N	17.9 all pg	J/UJ/P
		(dets/ND)	C	16.6	↓
			D	15.9	↓
			O	16.8	↓
			P	19.0	↓
			F	18.2	↓
			G	15.2 (17-157)	↓ (G,Q)

LDC #: 38239A21

VALIDATION FINDINGS WORKSHEET
Compound Quantitation and Reported RLs

Reviewer: M
2nd Reviewer: C

METHOD: GC/MS Dioxins/Dibenzofurans (Method 1613B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were the correct internal standard (IS), quantitation ions and relative response factors (RRF) used to quantitate the compound?
Y N N/A Compound quantitation and RLs were adjusted to reflect all sample dilutions and dry weight factors (if necessary).

#	Date	Sample ID	Finding	Associated Samples	Qualifications
		All	EMPC	All	Jdets/A

Comments: See sample calculation verification worksheet for recalculations

LDC #: 38239

EDD POPULATION COMPLETENESS WORKSHEET

Anchor

Date: 3/23/17

2nd Reviewer: AG

The LDC job number listed above was entered by BA.

	EDD Process	Y/N	Initial	Comments/Action
I.	EDD Completeness	-		
Ia.	- All methods present?	Y	BA	
Ib.	- All samples present/match report?	Y	BA	
Ic.	- All reported analytes present?	Y	BA	
Id.	10% or 100% verification of EDD?	Y	BA	
II.	EDD Preparation/Entry	-		
IIa.	- QC Level applied? (EPAStage2B or EPAStage4)	Y	BA	
IIb.	- Laboratory EMPC qualified results qualified (J with reason code 23)?	Y	BA	
III.	Reasonableness Checks	-		
IIIa.	- Do all qualified ND results have ND qualifier (e.g. UJ)?	Y	BA	
IIIb.	- Do all qualified detect results have detect qualifier (e.g. J)?	Y	BA	
IIIc.	- If reason codes are used, do all qualified results have reason code field populated, and vice versa?	Y	BA	
IIId.	- Do blank concentrations in report match EDD, where data was qualified due to blank?	Y	BA	
IIIe.	- Were any results reported above calibration range? If so, were results qualified appropriately?	Y/Y	BA	
IIIf.	-Are all results marked reportable "Yes" unless rejected for overall assessment in the data validation report?	Y	BA	
IIIg.	-Are there any lab "R" qualified data? / Are the entry columns blank for these results?	N/A	BA	
IIIh.	- Is the detect flag set to "N" for all "U" qualified blank results?	Y	BA	

Notes: *see discrepancy sheet

The attached zipped file contains two files:

File	Format	Description
1) Readme_PortGamble_032317.docx	MS Word 2003	A "Readme" file (this document).
2) LDC38239_17A0053_VEDD_20170322_rev.xlsx	MS Excel 2003	A spreadsheet for the following SDG(s): 17A0053 38239A

No discrepancies were observed between the hardcopy data packages and the electronic data deliverables during EDD population of validation qualifiers. A 100% verification of the EDD was not performed.

Please contact Christina Rink at (760) 827-1100 if you have any questions regarding this electronic data submittal.

LABORATORY DATA CONSULTANTS, INC.
2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

Anchor Environmental, LLC
720 Olive Way, Suite 1900
Seattle, WA 98101
ATTN: Ms. Cindy Fields

March 31, 2017

SUBJECT: Port Gamble, Shellfish Monitoring, Data Validation

Dear Ms. Fields,

Enclosed are the final validation reports for the fractions listed below. This SDG was received on March 29, 2017. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project #38333:

SDG #	Fraction
16K0124	Polynuclear Aromatic Hydrocarbons, Cadmium, Wet Chemistry, Polychlorinated Dioxins/Dibenzofurans

The data validation was performed under Stage 2B guidelines. The analyses were validated using the following documents, as applicable to each method:

- Shellfish Monitoring Plan for Port Gamble Bay Cleanup Project, May 2015
- USEPA, Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA, Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- USEPA, Contract Laboratory Program National Functional Guidelines for Chlorinated Dibenzo-p-Dioxins and Chlorinated Dibenzofurans, Data Review, September 2011
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; update IV, February 2007, update V, July 2014

Please feel free to contact us if you have any questions.

Sincerely,

Christina Rink

Christina Rink
Project Manager/Chemist

684 pages SF 3 DAY TAT Attachment 1

EDD Stage 2B

LDC #38333 (Anchor Environmental-Seattle WA / Port Gamble, Shellfish Monitoring)

LDC	SDG#	DATE REC'D	(3) DATE DUE	PAHs (8270 -SIM)		Cd (6010C)		Dioxins (1613B)		% Lipids (BD)																									
Matrix:	Water/Soil/Tissue			W	T	W	T	W	T	W	T	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	16K0124	03/29/17	04/03/17	0	1	0	1	0	1	0	1																								
Total	T/CR			0	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4

Shaded cells indicate Stage 4 validation (all other cells are Stage 2B validation). These sample counts do not include MS, MSD, or DUP's.

L:\Anchor\Port Gamble\Shellfish\38333ST.wpd

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Port Gamble, Shellfish Monitoring

LDC Report Date: March 29, 2017

Parameters: Polynuclear Aromatic Hydrocarbons

Validation Level: Stage 2B

Laboratory: Analytical Resources, Inc.

Sample Delivery Group (SDG): 16K0124

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
PG-T0-MUS-COC-161109	16K0124-01	Tissue	11/09/16

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Shellfish Monitoring Plan for Port Gamble Bay Cleanup Project (May 2015) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Superfund Organic Methods Data Review (June 2008). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Polynuclear Aromatic Hydrocarbons (PAHs) by Environmental Protection Agency (EPA) SW 846 Method 8270D in Selected Ion Monitoring (SIM) mode

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition.

The chain-of-custodies were reviewed for documentation of cooler temperatures. Cooler temperatures for samples in this SDG were reported at 14.3°C upon receipt by the laboratory. Since the samples were received the same day that they were collected, time did not allow for sufficient cooling of the samples, therefore no data were qualified.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A decafluorotriphenylphosphine (DFTPP) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

Average relative response factors (RRF) for all compounds were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 30.0% for all compounds.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all compounds.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

No field blanks were identified in this SDG.

VII. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VIII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

IX. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits with the following exceptions:

LCS ID	Compound	%R (Limits)	Associated Samples	Flag	A or P
BFA0647-BS1	Acenaphthylene	44.4 (50-150)	All samples in SDG 16K0124	UJ (all non-detects)	P

X. Field Duplicates

No field duplicates were identified in this SDG.

XI. Internal Standards

All internal standard areas and retention times were within QC limits.

XII. Compound Quantitation

Raw data were not reviewed for Stage 2B validation.

XIII. Target Compound Identifications

Raw data were not reviewed for Stage 2B validation.

XIV. System Performance

Raw data were not reviewed for Stage 2B validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Due to LCS %R, data were qualified as estimated in one sample.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the data validation all other results are considered valid and usable for all purposes.

Port Gamble, Shellfish Monitoring
Polynuclear Aromatic Hydrocarbons - Data Qualification Summary - SDG 16K0124

Sample	Compound	Flag	A or P	Reason
PG-T0-MUS-COC-161109	Acenaphthylene	UJ (all non-detects)	P	Laboratory control samples (%R)

Port Gamble, Shellfish Monitoring
Polynuclear Aromatic Hydrocarbons - Laboratory Blank Data Qualification Summary - SDG 16K0124

No Sample Data Qualified in this SDG

LDC #: 38333A2b

SDG #: 16K0124

Laboratory: Analytical Resources, Inc.

VALIDATION COMPLETENESS WORKSHEET

Stage 2B

Date: 3/29/17

Page: 1 of 1

Reviewer: EJ

2nd Reviewer: G

METHOD: GC/MS Polynuclear Aromatic Hydrocarbons (EPA SW 846 Method 8270D-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

cooler temp = 14.3 not enough time to cool down

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A/Δ	
II.	GC/MS Instrument performance check	Δ	
III.	Initial calibration/ICV	Δ/Δ	%RSD ≤ 20 ICV ≤ 30
IV.	Continuing calibration	Δ	CCV ≤ 20
V.	Laboratory Blanks	A	
VI.	Field blanks	N	
VII.	Surrogate spikes	Δ	
VIII.	Matrix spike/Matrix spike duplicates	N	CS
IX.	Laboratory control samples	SW	LCS
X.	Field duplicates	N	
XI.	Internal standards	Δ	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	PG-T0-MUS-COC-161109	16K0124-01	Tissue	11/09/16
2				
3				
4				
5				
6				
7				
8				

Notes:

	BFA0647						

VALIDATION FINDINGS WORKSHEET

METHOD: GC/MS SVOA

A. Phenol	AA. 2-Chloronaphthalene	AAA. Butylbenzylphthalate	AAAA. Dibenzothiophene	A1.
B. Bis (2-chloroethyl) ether	BB. 2-Nitroaniline	BBB. 3,3'-Dichlorobenzidine	BBBB. Benzo(a)fluoranthene	B1.
C. 2-Chlorophenol	CC. Dimethylphthalate	CCC. Benzo(a)anthracene	CCCC. Benzo(b)fluorene	C1.
D. 1,3-Dichlorobenzene	DD. Acenaphthylene	DDD. Chrysene	DDDD. cis/trans-Decalin	D1.
E. 1,4-Dichlorobenzene	EE. 2,6-Dinitrotoluene	EEE. Bis(2-ethylhexyl)phthalate	EEEE. Biphenyl	E1.
F. 1,2-Dichlorobenzene	FF. 3-Nitroaniline	FFF. Di-n-octylphthalate	FFFF. Retene	F1.
G. 2-Methylphenol	GG. Acenaphthene	GGG. Benzo(b)fluoranthene	GGGG. C30-Hopane	G1.
H. 2,2'-Oxybis(1-chloropropane)	HH. 2,4-Dinitrophenol	HHH. Benzo(k)fluoranthene	HHHH. 1-Methylphenanthrene	H1.
I. 4-Methylphenol	II. 4-Nitrophenol	III. Benzo(a)pyrene	IIII. 1,4-Dioxane	I1.
J. N-Nitroso-di-n-propylamine	JJ. Dibenzofuran	JJJ. Indeno(1,2,3-cd)pyrene	JJJJ. Acetophenone	J1.
K. Hexachloroethane	KK. 2,4-Dinitrotoluene	KKK. Dibenz(a,h)anthracene	KKKK. Atrazine	K1.
L. Nitrobenzene	LL. Diethylphthalate	LLL. Benzo(g,h,i)perylene	LLLL. Benzaldehyde	L1.
M. Isophorone	MM. 4-Chlorophenyl-phenyl ether	MMM. Bis(2-Chloroisopropyl)ether	MMMM. Caprolactam	M1.
N. 2-Nitrophenol	NN. Fluorene	NNN. Aniline	NNNN. 2,6-Dichlorophenol	N1.
O. 2,4-Dimethylphenol	OO. 4-Nitroaniline	OOO. N-Nitrosodimethylamine	OOOO. 2,6-Dinitrotoluene	O1.
P. Bis(2-chloroethoxy)methane	PP. 4,6-Dinitro-2-methylphenol	PPP. Benzoic Acid	PPPP. 3-Methylphenol	P1.
Q. 2,4-Dichlorophenol	QQ. N-Nitrosodiphenylamine	QQQ. Benzyl alcohol	QQQQ. 3&4 Methylphenol	Q1.
R. 1,2,4-Trichlorobenzene	RR. 4-Bromophenyl-phenylether	RRR. Pyridine	RRRR. 4-Dimethyldibenzothiphene (4MDT)	R1.
S. Naphthalene	SS. Hexachlorobenzene	SSS. Benzidine	SSSS. 2/3-Dimethyldibenzothiophene (4MDT)	S1.
T. 4-Chloroaniline	TT. Pentachlorophenol	TTT. 1-Methylnaphthalene	TTTT. 1-Methyldibenzothiophene (1MDT)	T1.
U. Hexachlorobutadiene	UU. Phenanthrene	UUU.Benzo(b)thiophene	UUUU.	U1.
V. 4-Chloro-3-methylphenol	VV. Anthracene	VVV.Benzonaphthothiophene	VVVV.	V1.
W. 2-Methylnaphthalene	WW. Carbazole	WWW.Benzo(e)pyrene	WWWW.	W1.
X. Hexachlorocyclopentadiene	XX. Di-n-butylphthalate	XXX. 2,6-Dimethylnaphthalene	XXXX.	X1.
Y. 2,4,6-Trichlorophenol	YY. Fluoranthene	YYY. 2,3,5-Trimethylnaphthalene	YYYY.	Y1.
Z. 2,4,5-Trichlorophenol	ZZ. Pyrene	ZZZ. Perylene	ZZZZ.	Z1.

LDC #: 38333A 2b

VALIDATION FINDINGS WORKSHEET
Laboratory Control Samples (LCS)

Reviewer: FT
2nd Reviewer: Q

METHOD: GC/MS BNA (EPA SW 846 Method 8270C)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".
(Y) N N/A Was a LCS required?
Y (N) N/A Were the LCS/LCSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

#	LCS/LCSD ID	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
	BFA0647-BS1	DD	44.4 (50-150)	( )	( )	all	J/UJ/P (ND)
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
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			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Port Gamble, Shellfish Monitoring

LDC Report Date: March 29, 2017

Parameters: Cadmium

Validation Level: Stage 2B

Laboratory: Analytical Resources, Inc.

Sample Delivery Group (SDG): 16K0124

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
PG-T0-MUS-COC-161109	16K0124-01	Tissue	11/09/16

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Shellfish Monitoring Plan for Port Gamble Bay Cleanup Project (May 2015) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Inorganic Superfund Data Review (January 2010). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Cadmium by Environmental Protection Agency (EPA) SW 846 Method 6010C

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition.

All technical holding time requirements were met.

II. Instrument Calibration

Initial and continuing calibrations were performed as required by the method.

The initial calibration verification (ICV) and continuing calibration verification (CCV) standards were within QC limits.

III. ICP Interference Check Sample Analysis

The frequency of interference check sample (ICS) analysis was met. All criteria were within QC limits.

IV. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks with the following exceptions:

Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Cadmium	0.0035 mg/Kg	All samples in SDG 16K0124
ICB/CCB	Cadmium	0.0005 mg/L	All samples in SDG 16K0124

Data qualification by the laboratory blanks was based on the maximum contaminant concentration in the laboratory blanks in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated laboratory blanks.

V. Field Blanks

No field blanks were identified in this SDG.

VI. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VII. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

VIII. Serial Dilution

Serial dilution was not performed for this SDG.

IX. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

X. Field Duplicates

No field duplicates were identified in this SDG.

XI. Sample Result Verification

Raw data were not reviewed for Stage 2B validation.

XII. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable. Based upon the data validation all results are considered valid and usable for all purposes.

Port Gamble, Shellfish Monitoring
Cadmium - Data Qualification Summary - SDG 16K0124

No Sample Data Qualified in this SDG

Port Gamble, Shellfish Monitoring
Cadmium - Laboratory Blank Data Qualification Summary - SDG 16K0124

No Sample Data Qualified in this SDG

LDC #: 38333A4b

SDG #: 16K0124

Laboratory: Analytical Resources, Inc.

VALIDATION COMPLETENESS WORKSHEET

Stage 2B

Date: 3/29/17

Page: 1 of 1

Reviewer: AT

2nd Reviewer: KW

METHOD: Cadmium (EPA SW 846 Method 6010C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II.	Instrument Calibration	A	
III.	ICP Interference Check Sample (ICS) Analysis	A	
IV.	Laboratory Blanks	SW	
V.	Field Blanks	N	
VI.	Matrix Spike/Matrix Spike Duplicates	AN	CS
VII.	Duplicate sample analysis	N	
VIII.	Serial Dilution	N	
IX.	Laboratory control samples	A	LCS
X.	Field Duplicates	N	
XI.	Sample Result Verification	N	
XII.	Overall Assessment of Data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	PG-T0-MUS-COC-161109	16K0124-01	Tissue	11/09/16
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				

Notes:

LDC #: 38333A4b

VALIDATION FINDINGS WORKSHEET
PB/ICB/CCB QUALIFIED SAMPLES

Reviewer: a
2nd Reviewer: KM

METHOD: Trace metals (EPA SW 864 Method 6010B/6020/7000) Preparation factor applied: 20x
Sample Concentration units, unless otherwise noted: mg/Kg Associated Samples: All

				Sample Identification										
Analyte	Maximum PB[a] (mg/Kg)	Maximum ICB/CCB[a] (mg/L)	Action Level	No qualifiers (>5x)										
Cd	0.0035	0.0005	0.05											

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".
Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Port Gamble, Shellfish Monitoring

LDC Report Date: March 29, 2017

Parameters: Wet Chemistry

Validation Level: Stage 2B

Laboratory: Analytical Resources, Inc.

Sample Delivery Group (SDG): 16K0124

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
PG-T0-MUS-COC-161109	16K0124-01	Tissue	11/09/16

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Shellfish Monitoring Plan for Port Gamble Bay Cleanup Project (May 2015) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Inorganic Superfund Data Review (January 2010). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Percent Lipids by Bligh and Dyer Method

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition.

All technical holding time requirements were met.

II. Initial Calibration

All criteria for the initial calibration of each method were met.

III. Continuing Calibration

Continuing calibration frequency and analysis criteria were met for each method when applicable.

IV. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks with the following exceptions:

Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	% Lipids	0.014 %	All samples in SDG 16K0124

Data qualification by the laboratory blanks was based on the maximum contaminant concentration in the laboratory blanks in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated laboratory blanks.

V. Field Blanks

No field blanks were identified in this SDG.

VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were not required by the method.

VII. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) were not required by the method.

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Sample Result Verification

Raw data were not reviewed for Stage 2B validation.

XI. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable. Based upon the data validation all results are considered valid and usable for all purposes.

Port Gamble, Shellfish Monitoring
Wet Chemistry - Data Qualification Summary - SDG 16K0124

No Sample Data Qualified in this SDG

Port Gamble, Shellfish Monitoring
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 16K0124

No Sample Data Qualified in this SDG

LDC #: 38333A6 **VALIDATION COMPLETENESS WORKSHEET** Date: 3/29/17
SDG #: 16K0124 Stage 2B Page: 1 of 1
Laboratory: Analytical Resources, Inc. Reviewer: a
2nd Reviewer: [illegible]

METHOD: (Analyte) Percent Lipids (Bligh & Dyre)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A /A	
II	Initial calibration	A	
III.	Calibration verification	A	
IV	Laboratory Blanks	SW	
V	Field blanks	N	
VI.	Matrix Spike/Matrix Spike Duplicates	N	not required
VII.	Duplicate sample analysis	N	CS
VIII.	Laboratory control samples	N	not required
IX.	Field duplicates	N	
X.	Sample result verification	N	
XI	Overall assessment of data	A	

Note: A = Acceptable ND = No compounds detected D = Duplicate SB=Source blank
N = Not provided/applicable R = Rinsate TB = Trip blank OTHER:
SW = See worksheet FB = Field blank EB = Equipment blank

	Client ID	Lab ID	Matrix	Date
1	PG-T0-MUS-COC-161109	16K0124-01	Tissue	11/09/16
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				

Notes:

LDC #: 38333A6

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer:
2nd Reviewer:

METHOD: Inorganics, Method See Cover

Conc. units: % **Associated Samples:** All

Analyte	Blank ID	Blank ID	Blank Action Limit									
	PB	ICB/CCB (mg/L)		No qual (>5x)								
Percent Lipids	0.014		0.07									

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
All contaminants within five times the method blank concentration were qualified as not detected, "U".

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Port Gamble, Shellfish Monitoring

LDC Report Date: March 29, 2017

Parameters: Polychlorinated Dioxins/Dibenzofurans

Validation Level: Stage 2B

Laboratory: Analytical Resources, Inc.

Sample Delivery Group (SDG): 16K0124

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
PG-T0-MUS-COC-161109	16K0124-01	Tissue	11/09/16

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Shellfish Monitoring Plan for Port Gamble Bay Cleanup Project (May 2015) and the USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Chlorinated Dibenzo-p-Dioxins (CDDs) and Chlorinated Dibenzofurans (CDFs) Data Review (September 2011). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Polychlorinated Dioxins/Dibenzofurans by Environmental Protection Agency (EPA) Method 1613B

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered not detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition.

The chain-of-custodies were reviewed for documentation of cooler temperatures. Cooler temperatures for samples in this SDG were reported at 14.3°C upon receipt by the laboratory. Since the samples were received the same day that they were collected, time did not allow for sufficient cooling of the samples, therefore no data were qualified.

All technical holding time requirements were met.

II. HRGC/HRMS Instrument Performance Check

Instrument performance was checked at the required frequency.

Retention time windows were established for all homologues. The chromatographic resolution between 2,3,7,8-TCDD and peaks representing any other unlabeled TCDD isomer was less than or equal to 25%.

The static resolving power was at least 10,000 (10% valley definition).

III. Initial Calibration and Initial Calibration Verification

A five point initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for unlabeled compounds.

The ion abundance ratios for all PCDDs and PCDFs were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0% for unlabeled compounds and less than or equal to 30.0% for labeled compounds.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration results were within the QC limits for unlabeled compounds and labeled compounds.

The ion abundance ratios for all PCDDs and PCDFs were within method and validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks with the following exceptions:

Blank ID	Extraction Date	Compound	Concentration	Associated Samples
PFB0538-MB	02/22/17	1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF 1,2,3,7,8,9-HxCDD 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF 1,2,3,4,6,7,8-HpCDD OCDF OCDD Total HxCDF Total HxCDD Total HpCDF Total HpCDD	0.0697 ng/Kg 0.0326 ng/Kg 0.0663 ng/Kg 0.116 ng/Kg 0.179 ng/Kg 0.285 ng/Kg 0.0633 ng/Kg 0.472 ng/Kg 0.745 ng/Kg 4.98 ng/Kg 0.309 ng/Kg 0.179 ng/Kg 0.529 ng/Kg 0.766 ng/Kg	All samples in SDG 16K0124

Sample concentrations were compared to concentrations detected in the laboratory blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated laboratory blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
PG-T0-MUS-COC-161109	1,2,3,7,8,9-HxCDF 1,2,3,7,8,9-HxCDD 1,2,3,4,6,7,8-HpCDF 1,2,3,4,6,7,8-HpCDD OCDF OCDD Total HxCDF Total HxCDD Total HpCDF Total HpCDD	0.133 ng/Kg 0.104 ng/Kg 0.152 ng/Kg 0.578 ng/Kg 0.534 ng/Kg 3.44 ng/Kg 0.133 ng/Kg 0.104 ng/Kg 0.152 ng/Kg 1.01 ng/Kg	0.133U ng/Kg 0.104U ng/Kg 0.152U ng/Kg 0.578U ng/Kg 0.534U ng/Kg 3.44U ng/Kg 0.133J ng/Kg 0.104J ng/Kg 0.152J ng/Kg 1.01J ng/Kg

VI. Field Blanks

No field blanks were identified in this SDG.

VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Internal Standards

All internal standard recoveries (%R) were within QC limits.

XI. Compound Quantitation

All compound quantitations were within validation criteria with the following exceptions:

Sample	Compound	Flag	A or P
All samples in SDG 16K0124	All compounds reported as estimated maximum possible concentration (EMPC)	J (all detects)	A

Raw data were not reviewed for Stage 2B validation.

XII. Target Compound Identifications

Raw data were not reviewed for Stage 2B validation.

XIII. System Performance

Raw data were not reviewed for Stage 2B validation.

XIV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Due to results reported by the laboratory as EMPCs, data were qualified as estimated in one sample.

Due to laboratory blank contamination, data were qualified as not detected or estimated in one sample.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the data validation all other results are considered valid and usable for all purposes.

Port Gamble, Shellfish Monitoring
Polychlorinated Dioxins/Dibenzofurans - Data Qualification Summary - SDG 16K0124

Sample	Compound	Flag	A or P	Reason
PG-T0-MUS-COC-161109	All compounds reported as estimated maximum possible concentration (EMPC)	J (all detects)	A	Compound quantitation (EMPC)

Port Gamble, Shellfish Monitoring
Polychlorinated Dioxins/Dibenzofurans - Laboratory Blank Data Qualification Summary - SDG 16K0124

Sample	Compound	Modified Final Concentration	A or P
PG-T0-MUS-COC-161109	1,2,3,7,8,9-HxCDF	0.133U ng/Kg	A
	1,2,3,7,8,9-HxCDD	0.104U ng/Kg	
	1,2,3,4,6,7,8-HpCDF	0.152U ng/Kg	
	1,2,3,4,6,7,8-HpCDD	0.578U ng/Kg	
	OCDF	0.534U ng/Kg	
	OCDD	3.44U ng/Kg	
	Total HxCDF	0.133J ng/Kg	
	Total HxCDD	0.104J ng/Kg	
	Total HpCDF	0.152J ng/Kg	
	Total HpCDD	1.01J ng/Kg	

LDC #: 38333A21 **VALIDATION COMPLETENESS WORKSHEET** Date: 3/29/17
SDG #: 16K0124 Stage 2B Page: 1 of 1
Laboratory: Analytical Resources, Inc. Reviewer: FD
2nd Reviewer: [signature]

METHOD: HRGC/HRMS Polychlorinated Dioxins/Dibenzofurans (EPA Method 1613B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

cooler temp = 14.3 not enough time to cool down

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A/Δ	
II.	HRGC/HRMS Instrument performance check	A	
III.	Initial calibration/ICV	A/Δ	%RSD ≤ 20% unlabeled ICV ≤ 20% unlabeled 30% labeled
IV.	Continuing calibration	A	%DCCV ≤ QC limits
V.	Laboratory Blanks	SW	
VI.	Field blanks	N	
VII.	Matrix spike/Matrix spike duplicates	N	CS
VIII.	Laboratory control samples	A	
IX.	Field duplicates	N	
X.	Internal standards	A	
XI.	Compound quantitation RL/LOQ/LODs	SW	
XII.	Target compound identification	N	
XIII.	System performance	N	
XIV.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	PG-T0-MUS-COC-161109	16K0124-01	Tissue	11/09/16
2				
3				
4				
5				
6				
7				
8				
9				
10				

Notes:

	BFB0538						

VALIDATION FINDINGS WORKSHEET

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 1613B)

A. 2,3,7,8-TCDD	F. 1,2,3,4,6,7,8-HpCDD	K. 1,2,3,4,7,8-HxCDF	P. 1,2,3,4,7,8,9-HpCDF	U. Total HpCDD
B. 1,2,3,7,8-PeCDD	G. OCDD	L. 1,2,3,6,7,8-HxCDF	Q. OCDF	V. Total TCDF
C. 1,2,3,4,7,8-HxCDD	H. 2,3,7,8-TCDF	M. 2,3,4,6,7,8-HxCDF	R. Total TCDD	W. Total PeCDF
D. 1,2,3,6,7,8-HxCDD	I. 1,2,3,7,8-PeCDF	N. 1,2,3,7,8,9-HxCDF	S. Total PeCDD	X. Total HxCDF
E. 1,2,3,7,8,9-HxCDD	J. 2,3,4,7,8-PeCDF	O. 1,2,3,4,6,7,8-HpCDF	T. Total HxCDD	Y. Total HpCDF

Notes:_____

LDC #: 38334A21

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer: FT
2nd Reviewer: [signature]

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 1613B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A". * EMPC

Y N N/A Were all samples associated with a method blank?
Y N N/A Was a method blank performed for each matrix and whenever a sample extraction was performed?
Y N N/A Was the method blank contaminated?

Blank extraction date: 2/22/17 **Blank analysis date:** 2/24/17 **Associated samples:** all

Conc. units: ng/kg

Compound	Blank ID	SX								
	BFB0538-MB			1						
K	0.0697									
L	0.0326									
M	0.0663*									
N	0.116 *			0.1334*						
E	0.179 *			0.104U*						
~~B~~	0.285			0.152U*						
P	0.0633*									
F	0.472 *			0.578U						
~~Q~~ Q	0.745 *			0.534U*						
G	4.98			3.44U*						
X	0.309			0.133J						
T	0.179			0.104J						
Y	0.529			0.152J						
U	0.766			1.01J						

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
All contaminants within five times the method blank concentration were qualified as not detected, "U".

LDC #: 38333A21

VALIDATION FINDINGS WORKSHEET
Compound Quantitation and Reported CRQLs

Page: 1 of 1
Reviewer: FT
2nd Reviewer: [illegible]

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 1613B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N (N/A) Were the correct internal standard (IS), quantitation ions and relative response factors (RRF) used to quantitate the compound?
Y N (N/A) Compound quantitation and CRQLs were adjusted to reflect all sample dilutions and dry weight factors (if necessary).

#	Date	Sample ID	Finding	Associated Samples	Qualifications
		1	All compounds reported as estimated possible concentration (EMPC		Jdit / A

Comments: See sample calculation verification worksheet for recalculations

The attached zipped file contains two files:

File	Format	Description
1) Readme_PortGamble_033017.docx	MS Word 2003	A "Readme" file (this document).
2) LDC38333_16K0124_VEDD_20170329.xls	MS Excel 2003	A spreadsheet for the following SDG(s): 16K0124 38333A

No discrepancies were observed between the hardcopy data packages and the electronic data deliverables during EDD population of validation qualifiers. A 100% verification of the EDD was not performed.

Please contact Christina Rink at (760) 827-1100 if you have any questions regarding this electronic data submittal.

LDC #: 38333

EDD POPULATION COMPLETENESS WORKSHEET

Anchor

Date: 3/30/17
Page: 1 of 1
2nd Reviewer:

The LDC job number listed above was entered by BA.

	EDD Process	Y/N	Initial	Comments/Action
I.	EDD Completeness	-		
Ia.	- All methods present?	Y	BA	
Ib.	- All samples present/match report?	Y	BA	
Ic.	- All reported analytes present?	Y	BA	
Id.	- 10% or 100% verification of EDD?	Y	BA	
II.	EDD Preparation/Entry	-		
IIa.	- QC Level applied? (EPAStage2B or EPAStage4)	Y	BA	
IIb.	- Laboratory EMPC qualified results qualified (J with reason code 23)?	Y	BA	
III.	Reasonableness Checks	-		
IIIa.	- Do all qualified ND results have ND qualifier (e.g. UJ)?	Y	BA	
IIIb.	- Do all qualified detect results have detect qualifier (e.g. J)?	Y	BA	
IIIc.	- If reason codes are used, do all qualified results have reason code field populated, and vice versa?	Y	BA	
IIId.	- Do blank concentrations in report match EDD, where data was qualified due to blank?	Y	BA	
IIIe.	- Were any results reported above calibration range? If so, were results qualified appropriately?	N/A	BA	
IIIf.	-Are all results marked reportable "Yes" unless rejected for overall assessment in the data validation report?	Y	BA	
IIIg.	-Are there any lab "R" qualified data? / Are the entry columns blank for these results?	N/A	BA	
IIIh.	- Is the detect flag set to "N" for all "U" qualified blank results?	Y	BA	

Notes: *see discrepancy sheet

Attachment F
Year 2 Data Tables

Table F-1
Season 2 Event 1 Wet Weight Caged Mussel Results

Task	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1
Location Name	Penn Cove Stock	WS-1	GP-1	PJ-1	SMA-1-1	SMA-1-2	SMA-1-3
Location ID	Composite	PG-WS-1_2016	PG-GP-1_2016	PG-PJ-1_2016	PG-SMA1-1_2016	PG-SMA1-2_2016	PG-SMA1-3_2016
Sample ID	PG-T0-MUS-COC-160816	PG-REF-WS-1-161011	PG-REF-GP-1-161011	PG-REF-PJ-1-161011	PG-SMA-1-1-161011	PG-SMA-1-2-161011	PG-SMA-1-3-161011
Sample Date	8/16/2016	10/11/2016	10/11/2016	10/11/2016	10/11/2016	10/11/2016	10/11/2016
Sample Type	N	N	N	N	N	N	N
Matrix	TA	TA	TA	TA	TA	TA	TA
X	--	1210321.538	1213717.772	1213795.915	1211773.254	1212039.379	1212205.620
Y	--	312255.182	313573.470	315509.149	317963.919	317543.542	317081.123
Conventional Parameters (pct)							
Lipids	**1.7**	**1.2**	**1.3**	**1.2**	**1.2**	**1.1**	**1.2**
Total solids	**18.6**	**17.1**	**18.8**	**15.7**	**17.3**	**16.4**	**15.9**
Metals (mg/kg)							
Cadmium	**0.994**	**0.43**	**0.572**	**0.451**	**0.557**	**0.586**	**0.662**
Polycyclic Aromatic Hydrocarbons (µg/kg)							
2-Methylnaphthalene	0.5 UJ	0.49 UJ	0.5 UJ	0.49 UJ	0.5 UJ	0.49 UJ	0.49 UJ
Acenaphthene	0.5 U	**0.64**	0.5 U	0.49 U	0.5 U	0.49 U	0.49 U
Acenaphthylene	0.5 UJ	0.49 UJ	0.5 UJ	0.49 UJ	0.5 UJ	0.49 UJ	0.49 UJ
Anthracene	0.5 U	**0.65**	**0.78**	0.49 U	0.5 U	0.49 U	**0.65**
Benzo(a)anthracene	0.5 U	0.49 U	0.5 U	0.49 U	0.5 U	0.49 U	0.49 U
Benzo(a)pyrene	0.5 U	0.49 U	0.5 U	0.49 U	0.5 U	0.49 U	0.49 U
Benzo(b)fluoranthene	0.5 U	0.49 U	0.5 U	0.49 U	0.5 U	0.49 U	0.49 U
Benzo(e)pyrene	0.5 U	0.49 U	0.5 U	0.49 U	0.5 U	0.49 U	0.49 U
Benzo(g,h,i)perylene	0.5 U	0.49 U	0.5 U	0.49 U	0.5 U	0.49 U	0.49 U
Benzo(k)fluoranthene	0.5 U	0.49 U	0.5 U	0.49 U	0.5 U	0.49 U	0.49 U
Chrysene	0.5 U	**0.6**	0.5 U	0.49 U	0.5 U	0.49 U	0.49 U
Dibenzo(a,h)anthracene	0.5 U	0.49 U	0.5 U	0.49 U	0.5 U	0.49 U	0.49 U
Fluoranthene	0.5 U	**1.66**	**1.08**	**0.92**	**1.32**	**0.62**	**0.62**
Fluorene	0.5 U	**0.53**	0.5 U	0.49 U	0.5 U	0.49 U	0.49 U
Indeno(1,2,3-c,d)pyrene	0.5 U	0.49 U	0.5 U	0.49 U	0.5 U	0.49 U	0.49 U
Naphthalene	**0.66 J**	**0.62 J**	**0.59 J**	**0.57 J**	**0.59 J**	**0.61 J**	**0.53 J**
Perylene	0.5 U	0.49 U	0.5 U	0.49 U	0.5 U	0.49 U	0.49 U
Phenanthrene	0.5 U	**1.94**	**1.82**	**1.13**	**1.48**	**0.77**	**0.68**
Pyrene	0.5 U	**1.66**	**1.58**	**0.64**	**1.03**	**0.56**	**1.13**
Total cPAH TEQ (7 minimum CAEPA 2005) (U = 1/2)	0.5 U	**0.37**	0.5 U	0.49 U	0.5 U	0.49 U	0.49 U
Total PAH (19) (U = 1/2)	**5.2 J**	**11 J**	**9.4 J**	**6.9 J**	**8.2 J**	**6.2 J**	**7 J**
Total HPAH (SMS) (U = 1/2)	0.5 U	**5.6**	**4.7**	**3.5**	**4.4**	**3.1**	**3.7**
Total LPAH (SMS) (U = 1/2)	**1.9 J**	**4.6 J**	**3.9 J**	**2.7 J**	**3.1 J**	**2.4 J**	**2.6 J**
Total PAH (SMS) (U = 1/2)	**4.4 J**	**10 J**	**8.6 J**	**6.2 J**	**7.4 J**	**5.5 J**	**6.3 J**
Total cPAH TEQ (7 minimum CAEPA 2005) (U = 0)	0.5 U	**0.006**	0.5 U	0.49 U	0.5 U	0.49 U	0.49 U
Total PAH (19) (U = 0)	**0.66 J**	**8.3 J**	**5.9 J**	**3.3 J**	**4.4 J**	**2.6 J**	**3.6 J**
Total HPAH (SMS) (U = 0)	0.5 U	**3.9**	**2.7**	**1.6**	**2.4**	**1.2**	**1.8**
Total LPAH (SMS) (U = 0)	**0.66 J**	**4.4 J**	**3.2 J**	**1.7 J**	**2.1 J**	**1.4 J**	**1.9 J**
Total PAH (SMS) (U = 0)	**0.66 J**	**8.3 J**	**5.9 J**	**3.3 J**	**4.4 J**	**2.6 J**	**3.6 J**
Dioxin Furans (ng/kg)							
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	0.046 U	0.038 U	0.081 U	0.056 U	0.035 U	0.039 U	0.06 U
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	**0.037 J**	0.062 U	0.106 U	0.098 U	0.052 U	0.049 U	0.083 U
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	0.048 U	0.043 U	0.084 U	0.079 U	0.049 U	0.048 U	0.072 U
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	**0.039 J**	0.049 U	0.086 U	0.082 U	0.049 U	**0.045 J**	0.073 U
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	**0.064 J**	**0.058 J**	0.09 U	0.085 U	0.052 U	0.051 U	**0.053 J**
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	**0.47 J**	**0.709 J**	**0.404 J**	**0.531 J**	**0.349 J**	**0.269 J**	**0.67 J**
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	**5.93 J**	**11.2**	4.11 U	**11.5**	2.81 U	3.03 U	**11.3**

Table F-1
Season 2 Event 1 Wet Weight Caged Mussel Results

Task	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1
Location Name	Penn Cove Stock	WS-1	GP-1	PJ-1	SMA-1-1	SMA-1-2	SMA-1-3
Location ID	Composite	PG-WS-1_2016	PG-GP-1_2016	PG-PJ-1_2016	PG-SMA1-1_2016	PG-SMA1-2_2016	PG-SMA1-3_2016
Sample ID	PG-T0-MUS-COC-160816	PG-REF-WS-1-161011	PG-REF-GP-1-161011	PG-REF-PJ-1-161011	PG-SMA-1-1-161011	PG-SMA-1-2-161011	PG-SMA-1-3-161011
Sample Date	8/16/2016	10/11/2016	10/11/2016	10/11/2016	10/11/2016	10/11/2016	10/11/2016
Sample Type	N	N	N	N	N	N	N
Matrix	TA	TA	TA	TA	TA	TA	TA
X	--	1210321.538	1213717.772	1213795.915	1211773.254	1212039.379	1212205.620
Y	--	312255.182	313573.470	315509.149	317963.919	317543.542	317081.123
Total Tetrachlorodibenzo-p-dioxin (TCDD)	**0.048**	**0.339**	**0.119**	**0.246**	**0.221**	**0.157**	**0.264**
Total Pentachlorodibenzo-p-dioxin (PeCDD)	**0.083**	0.034 U	0.063 U	0.054 U	**0.053**	0.031 U	**0.053**
Total Hexachlorodibenzo-p-dioxin (HxCDD)	**0.103**	**0.282**	0.05 U	**0.159**	**0.182**	**0.207**	**0.169**
Total Heptachlorodibenzo-p-dioxin (HpCDD)	**1.13**	**2.46**	**1.82**	**1.78**	**2.18**	**1.81**	**2.06**
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	**0.074 J**	**0.084 J**	**0.06 J**	**0.057 J**	**0.084 J**	**0.085 J**	**0.081 J**
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	0.07 U	0.058 U	0.105 U	0.066 U	0.035 U	0.04 U	0.027 U
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	0.039 U	0.045 U	0.102 U	0.065 U	0.033 U	0.038 U	0.058 U
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	**0.033 J**	**0.021 J**	**0.037 J**	0.046 U	0.029 U	0.029 U	0.046 U
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	0.027 U	**0.021 J**	0.045 U	0.046 U	0.029 U	0.029 U	**0.05 J**
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	0.116 U	0.042 U	0.075 U	0.068 U	0.055 U	0.045 U	0.089 U
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	**0.039 J**	0.034 U	0.048 U	0.048 U	0.03 U	0.03 U	0.046 U
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	**0.111 J**	**0.162 J**	**0.049 J**	**0.071 J**	**0.031 J**	**0.048 J**	**0.146 J**
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	**0.039 J**	**0.018 J**	0.076 U	0.085 U	**0.017 J**	0.025 U	**0.029 J**
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	**0.539 J**	**0.799 J**	0.302 U	**1.01 J**	0.132 U	0.091 U	**1.16 J**
Total Tetrachlorodibenzofuran (TCDF)	**0.074 J**	**0.392**	**0.108 J**	**0.285**	**0.263**	**0.21**	**0.343**
Total Pentachlorodibenzofuran (PeCDF)	**0.157 J**	**0.234**	**0.21**	**0.261**	**0.279**	**0.219**	**0.165 J**
Total Hexachlorodibenzofuran (HxCDF)	**0.188 J**	**0.083 J**	**0.112 J**	**0.124 J**	**0.07 J**	**0.045 J**	**0.169 J**
Total Heptachlorodibenzofuran (HpCDF)	**0.304**	**0.488**	**0.173**	**0.433**	**0.1**	**0.074**	**0.578**
Total Dioxin/Furan (U = 1/2)	**7.5 J**	**13 J**	**3.2 J**	**14 J**	**2.2 J**	**2.2 J**	**14 J**
Total Dioxin/Furan TEQ 2005 (Mammal) (U = 1/2)	**0.11 J**	**0.097 J**	**0.15 J**	**0.13 J**	**0.076 J**	**0.079 J**	**0.13 J**
Total Dioxin/Furan (U = 0)	**7.4 J**	**13 J**	**0.55 J**	**13 J**	**0.48 J**	**0.45 J**	**13 J**
Total Dioxin/Furan TEQ 2005 (Mammal) (U = 0)	**0.07 J**	**0.031 J**	**0.014 J**	**0.015 J**	**0.012 J**	**0.016 J**	**0.031 J**
PCB Congeners (ng/kg)							
PCB-001	1.1 U	0.86 U	0.61 U	0.56 U	1 U	1.3 U	1.3 U
PCB-002	0.81 U	0.69 U	0.49 U	0.45 U	0.78 U	1 U	1 U
PCB-003	1.1 U	0.87 U	0.62 U	0.57 U	1 U	1.4 U	1.4 U
PCB-004	18 U	8.4 U	5.9 U	11 U	21 U	22 U	25 U
PCB-005	7 U	3.1 U	3.2 U	3.5 U	9.1 U	7.7 U	10 U
PCB-006	5.5 U	2.7 U	2.8 U	3 U	7.1 U	6 U	7.9 U
PCB-007	6.2 U	3 U	3.1 U	3.3 U	8.1 U	6.8 U	8.9 U
PCB-008	5.1 U	2.7 U	2.8 U	3 U	6.7 U	5.7 U	7.4 U
PCB-009	5.4 U	2.7 U	2.8 U	3 U	7 U	5.9 U	7.8 U
PCB-010	21 U	9.7 U	6.8 U	13 U	25 U	26 U	30 U
PCB-011	8.3 U	**10.1**	**10.9**	**11.4**	**9.3 J**	**8.7 J**	8.3 U
PCB-012/013	6.3 U	3.1 U	3.2 U	3.4 U	8.2 U	6.9 U	9.1 U
PCB-014	5.4 U	2.6 U	2.7 U	2.9 U	7.1 U	6 U	7.9 U
PCB-015	12 U	5.5 U	5.7 U	6.1 U	16 U	13 U	17 U
PCB-016	3.6 U	**2.6 J**	3.2 U	5.4 U	8.7 U	6.5 U	4.7 U
PCB-017	3.2 U	1.4 U	2.3 U	3.9 U	7.8 U	5.8 U	4.2 U
PCB-018/030	**4.2 J**	4.5 U	**4 J**	**3.5 J**	6.2 U	4.6 U	3.3 U
PCB-019	1.9 U	0.95 U	1.6 U	2.6 U	4.6 U	3.5 U	2.5 U
PCB-020/028	**12.6 J**	**27.2**	**15.5 J**	**16.1 J**	**18 J**	**14.7 J**	**14.3 J**
PCB-021/033	2.5 U	**7 J**	**3.61 J**	**3.84 J**	**4.01 J**	**3 J**	**3.54 J**

Table F-1
Season 2 Event 1 Wet Weight Caged Mussel Results

Task	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1
Location Name	Penn Cove Stock	WS-1	GP-1	PJ-1	SMA-1-1	SMA-1-2	SMA-1-3
Location ID	Composite	PG-WS-1_2016	PG-GP-1_2016	PG-PJ-1_2016	PG-SMA1-1_2016	PG-SMA1-2_2016	PG-SMA1-3_2016
Sample ID	PG-T0-MUS-COC-160816	PG-REF-WS-1-161011	PG-REF-GP-1-161011	PG-REF-PJ-1-161011	PG-SMA-1-1-161011	PG-SMA-1-2-161011	PG-SMA-1-3-161011
Sample Date	8/16/2016	10/11/2016	10/11/2016	10/11/2016	10/11/2016	10/11/2016	10/11/2016
Sample Type	N	N	N	N	N	N	N
Matrix	TA	TA	TA	TA	TA	TA	TA
X	--	1210321.538	1213717.772	1213795.915	1211773.254	1212039.379	1212205.620
Y	--	312255.182	313573.470	315509.149	317963.919	317543.542	317081.123
PCB-022	1.3 U	**3.74 J**	**2.59 J**	**2.08 J**	**1.73 J**	**1.6 J**	**1.98 J**
PCB-023	0.77 U	0.58 U	0.81 U	0.63 U	0.74 U	1.3 U	0.43 U
PCB-024	2.8 U	1.2 U	1.9 U	3.3 U	6.7 U	5 U	3.6 U
PCB-025	0.94 U	**1.44 J**	**0.87 J**	**0.92 J**	0.87 U	1.2 U	**0.92 J**
PCB-026/029	**1.49 J**	**2.7 J**	1.6 U	**1.89 J**	1.6 U	**1.4 J**	**1.63 J**
PCB-027	2.2 U	0.99 U	1.6 U	2.7 U	5.3 U	4 U	2.9 U
PCB-031	**6.22 J**	**12.1**	**7.33 J**	**7.58 J**	**7.26 J**	**6.5 J**	**6.51 J**
PCB-032	2 U	0.93 U	1.5 U	2.6 U	4.9 U	3.6 U	2.6 U
PCB-034	0.68 U	0.46 U	0.65 U	0.51 U	0.66 U	1.2 U	0.38 U
PCB-035	0.71 U	0.51 U	0.72 U	0.56 U	0.69 U	1.2 U	0.4 U
PCB-036	0.61 U	0.43 U	0.6 U	0.47 U	0.59 U	1.1 U	0.35 U
PCB-037	**2.1 J**	5.1 U	**2.6 J**	**3 J**	**3 J**	**2.6 J**	**2.53 J**
PCB-038	0.73 U	0.51 U	0.71 U	0.56 U	0.7 U	1.2 U	0.41 U
PCB-039	0.74 U	0.52 U	0.73 U	0.57 U	0.72 U	1.3 U	0.42 U
PCB-040/041/071	6.4 U	**11.4 J**	**9.2 J**	**9.9 J**	**10.1 J**	**8.7 J**	**9.6 J**
PCB-042	**3.9 J**	**6 J**	**5.5 J**	**5.2 J**	**4.2 J**	4.2 U	**4.5 J**
PCB-043	2.3 U	1.7 U	2.6 U	3.7 U	2.5 U	5.6 U	2.6 U
PCB-044/047/065	**26.4 J**	**31.2**	**26.2 J**	**27 J**	**28.7 J**	**25.7 J**	**25.1 J**
PCB-045/051	1.5 U	**2 J**	1.9 U	2.7 U	1.7 U	3.7 U	1.7 U
PCB-046	1.7 U	1.5 U	2.2 U	3.2 U	1.9 U	4.2 U	1.9 U
PCB-048	**3.6 J**	**6.6 J**	**4.1 J**	**5.6 J**	**5.2 J**	4.2 U	**4.1 J**
PCB-049/069	**10.1 J**	**11.9 J**	**13.2 J**	**10.5 J**	**7.7 J**	**7.9 J**	**9.4 J**
PCB-050/053	**5.3 J**	**4.9 J**	**3.7 J**	**4 J**	3.9 U	**3.8 J**	**4.2 J**
PCB-052	**35.2**	**44.4**	**39.9**	**43.1**	**35.7**	**31.1**	**31.2**
PCB-054	0.7 U	0.55 U	0.45 U	0.32 U	0.86 U	1.3 U	0.56 U
PCB-055	0.78 U	0.73 U	1.1 U	1.4 U	0.75 U	0.84 U	0.79 U
PCB-056	**2.29 J**	**4.63 J**	**3.6 J**	**3.7 J**	2.2 U	**2.44 J**	**2.88 J**
PCB-057	0.67 U	0.57 U	0.85 U	1.1 U	0.64 U	0.73 U	0.68 U
PCB-058	0.74 U	0.68 U	1 U	1.3 U	0.72 U	0.81 U	0.76 U
PCB-059/062/075	**2.4 J**	**2.81 J**	**2 J**	2 U	**2.3 J**	2.7 U	**2.3 J**
PCB-060	2.3 U	**4.96 J**	**2.8 J**	**3.7 J**	**2.95 J**	**3.11 J**	2.4 U
PCB-061/070/074/076	**26.1 J**	**44.5**	**31.1 J**	**40.9**	**32 J**	**31.6 J**	**29.7 J**
PCB-063	**0.93 J**	**1.15 J**	0.85 U	1.1 U	**0.91 J**	**0.97 J**	0.85 U
PCB-064	**2.4 J**	**5.2 J**	**4.3 J**	**3.8 J**	**2.2 J**	2.9 U	**3.3 J**
PCB-066	**12.4**	**20.2**	**13.3**	**18.1**	**15.6**	13 U	**13.7**
PCB-067	0.62 U	**0.88 J**	0.8 U	1.1 U	0.6 U	0.68 U	0.64 U
PCB-068	1.1 U	**0.86 J**	0.87 U	1.2 U	1.1 U	0.9 U	0.92 U
PCB-072	**0.87 J**	**0.88 J**	0.82 U	1.1 U	**0.79 J**	**0.71 J**	**0.74 J**
PCB-073	1.1 U	0.91 U	1.4 U	2 U	1.2 U	2.7 U	1.2 U
PCB-077	**1.4 J**	2.7 U	**2.2 J**	**1.9 J**	1.8 U	**2.2 J**	**1.9 J**
PCB-078	0.71 U	0.61 U	0.91 U	1.2 U	0.68 U	0.77 U	0.72 U
PCB-079	0.63 U	0.53 U	0.8 U	1.1 U	0.6 U	0.68 U	0.64 U
PCB-080	0.61 U	0.53 U	0.79 U	1.1 U	0.59 U	0.66 U	0.62 U

Table F-1
Season 2 Event 1 Wet Weight Caged Mussel Results

Task	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1
Location Name	Penn Cove Stock	WS-1	GP-1	PJ-1	SMA-1-1	SMA-1-2	SMA-1-3
Location ID	Composite	PG-WS-1_2016	PG-GP-1_2016	PG-PJ-1_2016	PG-SMA1-1_2016	PG-SMA1-2_2016	PG-SMA1-3_2016
Sample ID	PG-T0-MUS-COC-160816	PG-REF-WS-1-161011	PG-REF-GP-1-161011	PG-REF-PJ-1-161011	PG-SMA-1-1-161011	PG-SMA-1-2-161011	PG-SMA-1-3-161011
Sample Date	8/16/2016	10/11/2016	10/11/2016	10/11/2016	10/11/2016	10/11/2016	10/11/2016
Sample Type	N	N	N	N	N	N	N
Matrix	TA	TA	TA	TA	TA	TA	TA
X	--	1210321.538	1213717.772	1213795.915	1211773.254	1212039.379	1212205.620
Y	--	312255.182	313573.470	315509.149	317963.919	317543.542	317081.123
PCB-081	1.1 U	0.9 U	1.3 U	1.8 U	1.1 U	1.2 U	1.1 U
PCB-082	2.8 U	**3.54 J**	**5.2 J**	3.3 U	**2.8 J**	2.5 U	**2.9 J**
PCB-083/099	**71.4**	**78**	**65.9**	**81.2**	**73.6**	**79.7**	**70**
PCB-084	**5.7 J**	**6.61 J**	**10.8**	7.4 U	**5.4 J**	**6.3 J**	**6.3 J**
PCB-085/116/117	**12 J**	**13.2 J**	**11.9 J**	**14.9 J**	**13.4 J**	**12.6 J**	**11.6 J**
PCB-086/087/097/109/119/125	**25.4 J**	**29.5 J**	**34.7 J**	**32.1 J**	**25.1 J**	**24.5 J**	**24.9 J**
PCB-088/091	**3.1 J**	2.9 U	**5.84 J**	**4.01 J**	**2.5 J**	**3.7 J**	**3.8 J**
PCB-089	1.5 U	0.74 U	0.91 U	0.97 U	1.7 U	2.3 U	1.2 U
PCB-090/101/113	**80.6**	**89**	**82**	**90**	**83.3**	**85.9**	**76.1**
PCB-092	**16.8**	**17.9**	**16.1**	**16.8**	**17.4**	**17.9**	**15.9**
PCB-093/098/100/102	4.1 U	3.8 U	**3.5 J**	**3.93 J**	1.6 U	4.9 U	**4.4 J**
PCB-094	1.6 U	0.83 U	1 U	1.1 U	1.8 U	2.5 U	1.3 U
PCB-095	**38.6**	**42.2**	**45.1**	**44**	**39**	**41**	**36.5**
PCB-096	0.98 U	**0.51 J**	0.42 U	0.25 U	1.8 U	2.1 U	0.54 U
PCB-103	**2 J**	1.4 U	**1.23 J**	**1.57 J**	1.3 U	**2.3 J**	**1.4 J**
PCB-104	0.56 U	0.15 U	0.11 U	0.13 U	1 U	1.2 U	0.2 U
PCB-105	**15.2**	**23.6**	**19.5**	**25**	**20**	**20.3**	**18.4**
PCB-106	0.9 U	0.7 U	0.75 U	0.82 U	0.94 U	1.2 U	0.94 U
PCB-107	**4.6 J**	**5.86 J**	**4.7 J**	**6.21 J**	**4.97 J**	**5.7 J**	**4.8 J**
PCB-108/124	**1.73 J**	2.3 U	**2.5 J**	**1.73 J**	**1.95 J**	**2 J**	**1.8 J**
PCB-110/115	**44.7**	**54**	**65.1**	**61.8**	**42.7**	**43.2**	**43.9**
PCB-111	1.2 U	0.58 U	0.71 U	0.76 U	1.3 U	1.8 U	0.92 U
PCB-112	1.1 U	0.51 U	0.63 U	0.67 U	1.2 U	1.6 U	0.82 U
PCB-114	1.2 U	1.1 U	0.96 U	1 U	1.3 U	1.6 U	1.3 U
PCB-118	**55.7**	**74.9**	**64.6**	**79.2**	**64.5**	**69.4**	**62.2**
PCB-120	1 U	0.51 U	0.62 U	0.66 U	1.2 U	1.6 U	0.81 U
PCB-121	1.1 U	0.56 U	0.68 U	0.73 U	1.2 U	1.7 U	0.88 U
PCB-122	0.93 U	0.71 U	0.77 U	0.84 U	0.97 U	1.2 U	0.97 U
PCB-123	1.4 U	1.2 U	1.1 U	1.2 U	1.5 U	1.8 U	1.4 U
PCB-126	1.3 U	0.93 U	1 U	1.1 U	1.3 U	1.7 U	1.3 U
PCB-127	0.83 U	0.66 U	0.71 U	0.77 U	0.87 U	1.1 U	0.87 U
PCB-128/166	**13.3 J**	**18.3 J**	**19.1**	13 U	**16.2 J**	**16.8 J**	**17.5 J**
PCB-129/138/163	**117**	**158**	**143**	**141**	**145**	**161**	**141**
PCB-130	**6.7 J**	**8.6 J**	7.3 U	**7.8 J**	**8.3 J**	**8.8 J**	**7.1 J**
PCB-131	4.4 U	2.7 U	1.7 U	3.2 U	5.3 U	6.5 U	2.2 U
PCB-132	**9.6 J**	**15.7**	**23.9**	**14.2**	**10.2**	**10.9**	**14**
PCB-133	3.8 U	**4.7 J**	**3.3 J**	**3.4 J**	**4.7 J**	5.6 U	**4.2 J**
PCB-134/143	4 U	**4.9 J**	**4.3 J**	**4.6 J**	**5.3 J**	5.9 U	**4.7 J**
PCB-135/151	**38.6**	**51.1**	**40.9**	**43.2**	**54.4**	**60.3**	**50**
PCB-136	**7.5 J**	**10.5**	**9.8**	**9.9**	**12.1**	**12.6**	**10.4**
PCB-137	4.1 U	2.5 U	1.7 U	2.9 U	5 U	6.1 U	2.1 U
PCB-139/140	3.5 U	2.8 U	2 U	**2.9 J**	4.3 U	5.2 U	1.8 U
PCB-141	3.6 U	2.3 U	**5.5 J**	2.8 U	4.4 U	5.4 U	1.9 U

Table F-1
Season 2 Event 1 Wet Weight Caged Mussel Results

Task	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1
Location Name	Penn Cove Stock	WS-1	GP-1	PJ-1	SMA-1-1	SMA-1-2	SMA-1-3
Location ID	Composite	PG-WS-1_2016	PG-GP-1_2016	PG-PJ-1_2016	PG-SMA1-1_2016	PG-SMA1-2_2016	PG-SMA1-3_2016
Sample ID	PG-T0-MUS-COC-160816	PG-REF-WS-1-161011	PG-REF-GP-1-161011	PG-REF-PJ-1-161011	PG-SMA-1-1-161011	PG-SMA-1-2-161011	PG-SMA-1-3-161011
Sample Date	8/16/2016	10/11/2016	10/11/2016	10/11/2016	10/11/2016	10/11/2016	10/11/2016
Sample Type	N	N	N	N	N	N	N
Matrix	TA	TA	TA	TA	TA	TA	TA
X	--	1210321.538	1213717.772	1213795.915	1211773.254	1212039.379	1212205.620
Y	--	312255.182	313573.470	315509.149	317963.919	317543.542	317081.123
PCB-142	3.9 U	2.5 U	1.5 U	2.9 U	4.8 U	5.8 U	2 U
PCB-144	**2.8 J**	**5.1 J**	**4.2 J**	**4.5 J**	4.7 U	5.6 U	**4.9 J**
PCB-145	1.8 U	1.2 U	1.8 U	1.8 U	1.5 U	2.6 U	2 U
PCB-146	**30.1**	**37.5**	**29.6**	**29.7**	**37**	**40.2**	**35.3**
PCB-147/149	**84.7**	**100**	**92.9**	**84.2**	**106**	**115**	**92.8**
PCB-148	2.1 U	1.4 U	2.1 U	2.1 U	1.7 U	3 U	2.3 U
PCB-150	1.7 U	1.1 U	1.7 U	1.7 U	1.4 U	2.4 U	1.8 U
PCB-152	1.5 U	0.99 U	1.5 U	1.5 U	1.2 U	2.1 U	1.6 U
PCB-153/168	**168**	**211**	**178**	**186**	**210**	**233**	**197**
PCB-154	**5.3 J**	**6.3 J**	**4.7 J**	**4.7 J**	**6.2 J**	7.3 U	**5.8 J**
PCB-155	0.97 U	0.69 U	1.1 U	1.1 U	0.79 U	1.4 U	1 U
PCB-156/157	3.9 U	**8.19 J**	7.3 U	**7.4 J**	**6.25 J**	**6.5 J**	**5.9 J**
PCB-158	**6.2 J**	8.9 U	**9.2 J**	**8.9 J**	**9.2 J**	**10.2**	**8.5 J**
PCB-159	1.1 U	0.62 U	0.82 U	0.99 U	0.66 U	0.96 U	0.61 U
PCB-160	3.4 U	2.2 U	1.3 U	2.5 U	4.1 U	5 U	1.7 U
PCB-161	2.7 U	1.7 U	1.1 U	2 U	3.3 U	4 U	1.4 U
PCB-162	1.2 U	0.69 U	0.91 U	1.1 U	0.74 U	1.1 U	0.68 U
PCB-164	3 U	**2.7 J**	3.2 U	2.2 U	3.6 U	4.4 U	1.7 U
PCB-165	3.2 U	2.1 U	1.3 U	2.5 U	3.9 U	4.8 U	1.6 U
PCB-167	3 U	**5.34 J**	**4.8 J**	**3.9 J**	**3.9 J**	**5.4 J**	**4.48 J**
PCB-169	1.7 U	0.91 U	1.2 U	1.4 U	1 U	1.5 U	0.93 U
PCB-170	1.6 U	**4.8 J**	**5.1 J**	**3.53 J**	**3.5 J**	1.4 U	1.1 U
PCB-171/173	4.1 U	**7.3 J**	**6.6 J**	5.1 U	**6.6 J**	**6.9 J**	**7.3 J**
PCB-172	2.2 U	2.1 U	1.7 U	1.4 U	1.5 U	1.9 U	1.5 U
PCB-174	2.2 U	1.9 U	2.4 U	1.3 U	1.5 U	1.9 U	1.5 U
PCB-175	1 U	0.88 U	0.87 U	1 U	1.6 U	2.5 U	2.3 U
PCB-176	**1.61 J**	**3.27 J**	2.4 U	**2.46 J**	**3.3 J**	**3.9 J**	2.7 U
PCB-177	**8.3 J**	**16.8**	**13**	**13.3**	**15**	17 U	**14.5**
PCB-178	**7.1 J**	**10.1**	**8.15 J**	8 U	**10**	**12.2**	10 U
PCB-179	**7.99 J**	11 U	**10**	**10**	**12.7**	13 U	**12.2**
PCB-180/193	**12.4 J**	**21.4**	**18.1 J**	**17.2 J**	**16.7 J**	**19.3**	**15.2 J**
PCB-181	2.2 U	2.1 U	1.8 U	1.4 U	1.6 U	2 U	1.5 U
PCB-182	1.1 U	0.9 U	0.88 U	1 U	1.7 U	2.6 U	2.4 U
PCB-183	**11.3**	**20.7**	**15.6**	**15.7**	**15.8**	**20.6**	**17.4**
PCB-184	0.81 U	0.68 U	0.67 U	0.77 U	1.3 U	2 U	1.8 U
PCB-185	2.5 U	2.1 U	1.8 U	1.4 U	1.8 U	2.2 U	1.8 U
PCB-186	0.89 U	0.75 U	0.74 U	0.85 U	1.4 U	2.2 U	1.9 U
PCB-187	**44.3**	**63.4**	**52.2**	**56.2**	**63.7**	**70.7**	**63.5**
PCB-188	0.69 U	0.63 U	0.62 U	0.71 U	1.1 U	1.7 U	1.5 U
PCB-189	1.1 U	1.7 U	1.2 U	1.5 U	2 U	1.5 U	1.1 U
PCB-190	1.7 U	1.6 U	**1.7 J**	1.1 U	1.2 U	1.5 U	1.2 U
PCB-191	1.6 U	1.5 U	1.3 U	1 U	1.2 U	1.4 U	1.1 U
PCB-192	1.9 U	1.8 U	1.5 U	1.2 U	1.4 U	1.7 U	1.3 U

Table F-1
Season 2 Event 1 Wet Weight Caged Mussel Results

Task	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1
Location Name	Penn Cove Stock	WS-1	GP-1	PJ-1	SMA-1-1	SMA-1-2	SMA-1-3
Location ID	Composite	PG-WS-1_2016	PG-GP-1_2016	PG-PJ-1_2016	PG-SMA1-1_2016	PG-SMA1-2_2016	PG-SMA1-3_2016
Sample ID	PG-T0-MUS-COC-160816	PG-REF-WS-1-161011	PG-REF-GP-1-161011	PG-REF-PJ-1-161011	PG-SMA-1-1-161011	PG-SMA-1-2-161011	PG-SMA-1-3-161011
Sample Date	8/16/2016	10/11/2016	10/11/2016	10/11/2016	10/11/2016	10/11/2016	10/11/2016
Sample Type	N	N	N	N	N	N	N
Matrix	TA	TA	TA	TA	TA	TA	TA
X	--	1210321.538	1213717.772	1213795.915	1211773.254	1212039.379	1212205.620
Y	--	312255.182	313573.470	315509.149	317963.919	317543.542	317081.123
PCB-194	1.5 U	1.3 U	3.3 U	4.2 U	1.5 U	3.9 U	2.6 U
PCB-195	1.6 U	0.99 U	3.6 U	4.6 U	1.6 U	4.1 U	2.8 U
PCB-196	1.1 U	1.4 U	4.8 U	4.5 U	2.1 U	13 U	2.3 U
PCB-197	0.89 U	1.1 U	3.8 U	3.6 U	1.8 U	10 U	1.8 U
PCB-198/199	1.1 U	1.5 U	5 U	4.7 U	2.3 U	14 U	2.4 U
PCB-200	0.69 U	0.95 U	3.3 U	3.1 U	1.4 U	8.8 U	1.6 U
PCB-201	0.72 U	**2.46 J**	3.3 U	3.1 U	1.4 U	9 U	**1.9 J**
PCB-202	**2.61 J**	**4.4 J**	3.4 U	3.8 U	**3.5 J**	9.2 U	3.1 U
PCB-203	1.1 U	1.5 U	4.9 U	4.7 U	2.2 U	14 U	2.4 U
PCB-204	0.73 U	0.98 U	3.3 U	3.1 U	1.5 U	9.1 U	1.6 U
PCB-205	1.5 U	0.88 U	0.54 U	1 U	1.5 U	2.8 U	1.7 U
PCB-206	1.3 U	2.4 U	1.6 U	3.3 U	2.1 U	3.3 U	1.6 U
PCB-207	1 U	2 U	1.3 U	2.7 U	1.7 U	2.7 U	1.3 U
PCB-208	1.3 U	2.4 U	1.6 U	3.3 U	2.1 U	3.3 U	1.6 U
PCB-209	2.4 U	2.7 U	1 U	3.6 U	1.4 U	3.4 U	3.2 U
Total PCB Congener (U = 1/2)	**1300 J**	**1600 J**	**1400 J**	**1500 J**	**1500 J**	**1600 J**	**1400 J**
Total PCB Congener TEQ 2005 (Mammal) (U = 1/2)	**0.093 J**	**0.064 J**	**0.071 J**	**0.08 J**	**0.083 J**	**0.11 J**	**0.082 J**
Total PCB Congener (U = 0)	**1100 J**	**1500 J**	**1400 J**	**1400 J**	**1400 J**	**1400 J**	**1300 J**
Total PCB Congener TEQ 2005 (Mammal) (U = 0)	**0.0023 J**	**0.0034 J**	**0.0029 J**	**0.0037 J**	**0.0028 J**	**0.0033 J**	**0.0029 J**

Table F-1
Season 2 Event 1 Wet Weight Caged Mussel Results

Task	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1
Location Name	Penn Cove Stock	WS-1	GP-1	PJ-1	SMA-1-1	SMA-1-2	SMA-1-3
Location ID	Composite	PG-WS-1_2016	PG-GP-1_2016	PG-PJ-1_2016	PG-SMA1-1_2016	PG-SMA1-2_2016	PG-SMA1-3_2016
Sample ID	PG-T0-MUS-COC-160816	PG-REF-WS-1-161011	PG-REF-GP-1-161011	PG-REF-PJ-1-161011	PG-SMA-1-1-161011	PG-SMA-1-2-161011	PG-SMA-1-3-161011
Sample Date	8/16/2016	10/11/2016	10/11/2016	10/11/2016	10/11/2016	10/11/2016	10/11/2016
Sample Type	N	N	N	N	N	N	N
Matrix	TA	TA	TA	TA	TA	TA	TA
X	--	1210321.538	1213717.772	1213795.915	1211773.254	1212039.379	1212205.620
Y	--	312255.182	313573.470	315509.149	317963.919	317543.542	317081.123
Dioxin Furans and PCB Congeners (ng/kg)							
Total Dioxin/Furan and PCB Congener TEQ 2005 (Mammal) (Calculated U = 1/2)	**0.2 J**	**0.16 J**	**0.22 J**	**0.21 J**	**0.16 J**	**0.19 J**	**0.21 J**
Total Dioxin/Furan and PCB Congener TEQ 2005 (Mammal) (Calculated U = 0)	**0.072 J**	**0.034 J**	**0.017 J**	**0.019 J**	**0.015 J**	**0.019 J**	**0.034 J**

Notes:
Horizontal coordinate datum is North American Datum 1983, State Plane Washington North FIPS 4601 (U.S. Survey Feet).
Results presented in this table are reported in wet-weight (as-received) basis.
All undetect results are reported at the reporting limit.
U.S. Environmental Protection Agency Stage 2B data validation was completed by Laboratory Data Consultants.
Totals are calculated as the sum of all detected results (U=0). If all results are not detected, the highest limit value is reported as the sum.
Totals are calculated as the sum of all detected results and half of the reporting limit of undetected results (U=1/2). If all results are not detected, the highest limit value is reported as the sum.
Total cPAH TEQ (7 minimum California Environmental Protection Agency 2005) calculation includes benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene and indeno(1,2,3-c,d)pyrene. Per Model Toxics Control Act cleanup Regulation, Table 708-2 "Toxicity Equivalency Factors for Minimum Required Carcinogenic Polyaromatic Hydrocarbons (cPAHs) under Washington Administrative Code 173-340-708(e).
Total PAH (19) is the total of 2-methylnaphthalene, acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(e)pyrene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-c,d)pyrene, naphthalene, perylene, phenanthrene, and pyrene.
Total HPAH (SMS) is the total of benzo(a)anthracene, benzo(a)pyrene, benzo(x)fluoranthenes, benzo(g,h,i)perylene, chrysene, dibenzo(a,h)anthracene, fluoranthene, indeno(1,2,3-c,d)pyrene, and pyrene.
Total LPAH (SMS) is the total of acenaphthene, acenaphthylene, anthracene, fluorene, naphthalene, and phenanthrene. 2-Methylnapthalene is not included in the sum of LPAHs.
Total PAH (SMS) is the total of acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(x)fluoranthenes, benzo(g,h,i)perylene, chrysene, dibenzo(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-c,d)pyrene, naphthalene, phenanthrene, and pyrene. 2-Methylnapthalene is not included.
Total PCB congeners is the sum of all PCB congeners listed in this table.
Total dioxin/furan is the sum of all individual dioxin/furans (non-homolog) listed in this table.
Dioxin/furan and PCB TEQ values were calculated with 2005 World Health Organization toxic equivalency factor values for mammals.

Bold: Detected result
--: results not reported or not applicable
µg/kg: micrograms per kilogram
cPAH: carcinogenic polycyclic aromatic hydrocarbon
FD: field duplicate sample
HPAH: high-molecular-weight polycyclic aromatic hydrocarbon
J: estimated value
LPAH: low-molecular-weight polycyclic aromatic hydrocarbon
mg/kg: milligrams per kilogram
N: normal environmental sample
ng/kg: nanograms per kilogram
PAH: polycyclic aromatic hydrocarbons
PCB: polychlorinated biphenyls
pct: percent
SMS: Sediment Management Standards
TA: tissue matrix
TEQ: toxic equivalency
U: compound analyzed, but not detected above detection limit
UJ: Compound analyzed, but not detected above estimated detection limit

Table F-2
Season 2 Event 2 Wet Weight Caged Mussel Results

Task	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2
Location Name	Penn Cove Stock	WS-1	GP-1	PJ-1	SMA-1-1	Composite
Location ID	Field QC	PG-WS-1_201611	PG-GP-1_201611	PG-PJ-1_201611	PG-SMA1-1_201611	Composite
Sample ID	PG-T0-MUS-COC-161109	PG-WS-1-MUS-170105	PG-GP-1-MUS-170105	PG-PJ-1-MUS-170105	PG-SMA1-1-MUS-170105	PG-SMA1-2-3-MUS-170105
Sample Date	11/9/2016	1/5/2017	1/5/2017	1/5/2017	1/5/2017	1/5/2017
Sample Type	N	N	N	N	N	N
Matrix	TA	TA	TA	TA	TA	TA
X	--	1210343.348	1213721.398	1213128.711	1211928.879	--
Y	--	312233.262	313616.757	315808.466	317839.131	--
Conventional Parameters (pct)						
Lipids	**1.7**	**1.3**	**1.2**	**1.2**	**0.83**	**1.3**
Total solids	**20**	**15.2**	**16.3**	**15.9**	**12.9**	**15**
Metals (mg/kg)						
Cadmium	**0.229**	**0.214**	--	**0.231**	**0.235**	**0.274**
Semivolatile Organics (µg/kg)						
2-Chloronaphthalene	0.49 U	--	--	--	--	--
Polycyclic Aromatic Hydrocarbons (µg/kg)						
1-Methylnaphthalene	0.49 U	--	--	--	--	--
2-Methylnaphthalene	0.49 U	0.49 U	0.49 U	0.5 U	0.49 U	0.5 U
Acenaphthene	0.49 U	0.49 U	0.49 U	0.5 U	0.49 U	**0.62**
Acenaphthylene	0.49 UJ	0.49 UJ	0.49 UJ	0.5 UJ	0.49 UJ	0.5 UJ
Anthracene	0.49 U	**0.81**	0.49 U	0.5 U	**0.61**	**1.81**
Benzo(a)anthracene	0.49 U	**1.14**	0.49 U	**0.56**	**0.87**	**2.35**
Benzo(a)pyrene	0.49 U	0.49 U	0.49 U	0.5 U	0.49 U	**0.55**
Benzo(b)fluoranthene	0.49 U	**1.18**	0.49 U	**0.65**	**0.9**	**1.98**
Benzo(e)pyrene	--	**2.62**	**0.68**	**0.96**	**1.51**	**2.81**
Benzo(g,h,i)perylene	0.49 U	0.49 U	0.49 U	0.5 U	0.49 U	0.5 U
Benzo(j)fluoranthene	0.49 U	--	--	--	--	--
Benzo(k)fluoranthene	0.49 U	**0.55**	0.49 U	0.5 U	**0.55**	**0.9**
Benzothiophene	0.49 U	--	--	--	--	--
Chrysene	**0.56**	**3.36**	**1.65**	**1.58**	**1.96**	**3.8**
Dibenzo(a,h)anthracene	0.49 U	0.49 U	0.49 U	0.5 U	0.49 U	0.5 U
Dibenzofuran	0.49 U	--	--	--	--	--
Fluoranthene	**0.98**	**6.26**	**1.99**	**2.53**	**2.9**	**9.05**
Fluorene	0.49 U	**0.57**	0.49 U	0.5 U	**0.51**	**1.28**
Indeno(1,2,3-c,d)pyrene	0.49 U	0.49 U	0.49 U	0.5 U	0.49 U	0.5 U
Naphthalene	0.59 U	**0.5 J**	0.59 U	0.6 U	0.59 U	0.59 U
Perylene	--	**0.58**	0.49 U	0.5 U	0.49 U	**0.75**
Phenanthrene	**1.2**	**3.07**	**1.73**	**1.86**	**2.76**	**7.45**
Pyrene	**1.16**	**5.69**	**1.66**	**2.77**	**2.9**	**10**
Total cPAH TEQ (7 minimum CAEPA 2005) (U = 1/2)	**0.37**	**0.61**	**0.38**	**0.46**	**0.55**	**1.2**
Total PAH (19) (U = 1/2)	**7.1 J**	**28 J**	**11 J**	**14 J**	**18 J**	**45 J**
Total HPAH (SMS) (U = 1/2)	**4.7**	**19**	**7**	**9.3**	**11**	**29**
Total LPAH (SMS) (U = 1/2)	**2.5 J**	**5.4 J**	**3 J**	**3.2 J**	**4.7 J**	**12 J**
Total PAH (SMS) (U = 1/2)	**7.1 J**	**25 J**	**10 J**	**13 J**	**16 J**	**41 J**
Total cPAH TEQ (7 minimum CAEPA 2005) (U = 0)	**0.0056**	**0.32**	**0.017**	**0.14**	**0.25**	**1.1**
Total PAH (19) (U = 0)	**3.9 J**	**26 J**	**7.7 J**	**11 J**	**15 J**	**43 J**
Total HPAH (SMS) (U = 0)	**2.7**	**18**	**5.3**	**8.1**	**10**	**29**
Total LPAH (SMS) (U = 0)	**1.2 J**	**5 J**	**1.7 J**	**1.9 J**	**3.9 J**	**11 J**
Total PAH (SMS) (U = 0)	**3.9 J**	**23 J**	**7 J**	**9.9 J**	**14 J**	**40 J**
Dioxin Furans (ng/kg)						
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	0.116 U	0.135 U	0.148 UJ	0.065 U	0.106 U	0.227 UJ

Table F-2
Season 2 Event 2 Wet Weight Caged Mussel Results

Task	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2
Location Name	Penn Cove Stock	WS-1	GP-1	PJ-1	SMA-1-1	Composite
Location ID	Field QC	PG-WS-1_201611	PG-GP-1_201611	PG-PJ-1_201611	PG-SMA1-1_201611	Composite
Sample ID	PG-T0-MUS-COC-161109	PG-WS-1-MUS-170105	PG-GP-1-MUS-170105	PG-PJ-1-MUS-170105	PG-SMA1-1-MUS-170105	PG-SMA1-2-3-MUS-170105
Sample Date	11/9/2016	1/5/2017	1/5/2017	1/5/2017	1/5/2017	1/5/2017
Sample Type	N	N	N	N	N	N
Matrix	TA	TA	TA	TA	TA	TA
X	--	1210343.348	1213721.398	1213128.711	1211928.879	--
Y	--	312233.262	313616.757	315808.466	317839.131	--
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	0.105 U	**0.09 J**	0.196 UJ	**0.102 J**	0.094 U	0.286 UJ
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	0.117 U	0.169 U	0.189 UJ	0.075 U	0.112 U	0.482 UJ
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	0.117 U	0.166 U	0.197 UJ	**0.109 J**	0.111 U	0.52 UJ
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	0.104 U	0.175 U	0.201 UJ	0.148 U	0.116 U	0.523 UJ
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	0.578 U	1.31 U	**1.01 J**	1.15 U	0.649 U	**1.27 J**
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	3.44 U	8.51 U	7.51 U	8.41 U	4.9 U	**11 J**
Total Tetrachlorodibenzo-p-dioxin (TCDD)	0 U	**0.332**	**0.272 J**	**0.556**	**0.153**	0.112 UJ
Total Pentachlorodibenzo-p-dioxin (PeCDD)	0 U	**0.239**	0.112 UJ	**0.102**	0.064 U	0.17 UJ
Total Hexachlorodibenzo-p-dioxin (HxCDD)	**0.104 J**	**0.54 J**	0.102 UJ	**0.731 J**	0.051 U	0.245 UJ
Total Heptachlorodibenzo-p-dioxin (HpCDD)	**1.01 J**	**3.47 J**	**2.92 J**	**3.51 J**	**2.08 J**	**3.41 J**
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	0.116 U	0.137 U	0.148 UJ	**0.21 J**	**0.153 J**	0.156 UJ
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	0.104 U	0.164 U	0.161 UJ	0.093 U	0.088 U	0.275 UJ
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	0.1 U	0.16 U	0.153 U	0.086 U	0.084 U	0.268 UJ
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	0.093 U	0.097 U	0.105 UJ	0.056 U	0.066 U	0.197 UJ
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	0.091 U	0.096 U	0.109 UJ	0.055 U	0.066 U	0.205 UJ
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	0.133 U	0.172 U	0.124 UJ	0.107 U	0.074 U	0.241 UJ
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	0.096 U	0.097 U	0.113 UJ	0.055 U	0.065 U	0.216 UJ
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	0.152 U	0.367 U	0.205 UJ	0.29 U	0.137 U	0.23 UJ
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	0.189 U	0.195 U	0.18 UJ	0.088 U	0.05 U	0.264 UJ
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	0.534 U	0.875 U	0.512 U	0.675 U	0.424 U	0.652 UJ
Total Tetrachlorodibenzofuran (TCDF)	0 U	**0.567**	**0.192 J**	**1.02**	**0.4**	0.077 UJ
Total Pentachlorodibenzofuran (PeCDF)	0 U	0.116 U	**0.144 J**	**0.105**	0.058 U	0.177 UJ
Total Hexachlorodibenzofuran (HxCDF)	**0.133 J**	**0.172 J**	0.056 UJ	**0.272 J**	**0.074 J**	0.132 UJ
Total Heptachlorodibenzofuran (HpCDF)	**0.152 J**	**0.877 J**	**0.582 J**	**0.67 J**	**0.344 J**	**0.718 J**
Total Dioxin/Furan (U = 1/2)	3.4 U	**6.5 J**	**6.14 J**	**6.1 J**	**3.7 J**	**14.6 J**
Total Dioxin/Furan TEQ 2005 (Mammal) (U = 1/2)	0.12 U	**0.25 J**	**0.27 J**	**0.21 J**	**0.16 J**	**0.446 J**
Total Dioxin/Furan (U = 0)	3.4 U	**0.09 J**	**1.01 J**	**0.42 J**	**0.15 J**	**12.3 J**
Total Dioxin/Furan TEQ 2005 (Mammal) (U = 0)	0.12 U	**0.09 J**	**0.0101 J**	**0.13 J**	**0.015 J**	**0.016 J**
PCB Congeners (ng/kg)						
PCB-001	0.68 U	0.92 U	1 U	0.66 U	0.65 U	0.95 U
PCB-002	0.57 U	0.83 U	0.93 U	0.59 U	0.54 U	0.86 U
PCB-003	0.7 U	0.94 U	1 U	0.67 U	0.66 U	0.97 U
PCB-004	6.4 U	14 U	18 U	13 U	11 U	14 U
PCB-005	5 U	6 U	7.6 U	7 U	5.6 U	7.3 U
PCB-006	4.1 U	4.8 U	6.2 U	5.7 U	4.6 U	5.9 U
PCB-007	4.8 U	5.4 U	6.9 U	6.3 U	5.3 U	6.6 U
PCB-008	4.1 U	4.3 U	5.4 U	5 U	4.6 U	5.2 U
PCB-009	4.2 U	4.7 U	5.9 U	5.5 U	4.7 U	5.7 U
PCB-010	9.2 U	20 U	25 U	18 U	16 U	20 U
PCB-011	**7.5 J**	**8.8 J**	**8.6 J**	**7.7 J**	**6 J**	**7.2 J**
PCB-012/013	4.6 U	5 U	6.4 U	5.9 U	5.1 U	6.1 U
PCB-014	4.1 U	4.4 U	5.6 U	5.2 U	4.6 U	5.4 U
PCB-015	8.2 U	9 U	11 U	11 U	9.1 U	11 U

Table F-2
Season 2 Event 2 Wet Weight Caged Mussel Results

Task	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2
Location Name	Penn Cove Stock	WS-1	GP-1	PJ-1	SMA-1-1	Composite
Location ID	Field QC	PG-WS-1_201611	PG-GP-1_201611	PG-PJ-1_201611	PG-SMA1-1_201611	Composite
Sample ID	PG-T0-MUS-COC-161109	PG-WS-1-MUS-170105	PG-GP-1-MUS-170105	PG-PJ-1-MUS-170105	PG-SMA1-1-MUS-170105	PG-SMA1-2-3-MUS-170105
Sample Date	11/9/2016	1/5/2017	1/5/2017	1/5/2017	1/5/2017	1/5/2017
Sample Type	N	N	N	N	N	N
Matrix	TA	TA	TA	TA	TA	TA
X	--	1210343.348	1213721.398	1213128.711	1211928.879	--
Y	--	312233.262	313616.757	315808.466	317839.131	--
PCB-016	13 U	5.8 U	8.2 U	5.7 U	9.8 U	7.6 U
PCB-017	8.1 U	4.2 U	5.9 U	4.1 U	5.9 U	5.5 U
PCB-018/030	6.6 U	**6.9 J**	**5.7 J**	**5.9 J**	4.8 U	5.1 U
PCB-019	4.5 U	2.3 U	3.2 U	2.2 U	3.3 U	3 U
PCB-020/028	**13.6 J**	**28**	**20.5**	**21.8**	**12.8 J**	**20.7**
PCB-021/033	**3.68 J**	**7 J**	**5.6 J**	4.6 U	**3.12 J**	**5 J**
PCB-022	1.9 U	4.5 U	3.7 U	**3.9 J**	2.3 U	**4.2 J**
PCB-023	0.93 U	1.5 U	1.9 U	1.8 U	0.82 U	1.4 U
PCB-024	6.1 U	3.3 U	4.6 U	3.2 U	4.4 U	4.3 U
PCB-025	**0.89 J**	**1.8 J**	1.6 U	1.6 U	**0.83 J**	**1.6 J**
PCB-026/029	1.4 U	**2.9 J**	**2.5 J**	**2.6 J**	**1.73 J**	**2.3 J**
PCB-027	5.2 U	2.8 U	3.9 U	2.7 U	3.8 U	3.6 U
PCB-031	**7.39 J**	**13.9**	**8.9 J**	**10.7**	**6.79 J**	**10.6**
PCB-032	5.2 U	2.6 U	3.7 U	2.6 U	3.8 U	3.5 U
PCB-034	0.77 U	1.3 U	1.6 U	1.6 U	0.68 U	1.2 U
PCB-035	0.78 U	1.3 U	1.6 U	1.5 U	0.69 U	1.2 U
PCB-036	0.7 U	1.1 U	1.4 U	1.4 U	0.62 U	1.1 U
PCB-037	**1.8 J**	**5.1 J**	**3.5 J**	**3.5 J**	**2.3 J**	**4 J**
PCB-038	0.82 U	1.3 U	1.7 U	1.6 U	0.73 U	1.2 U
PCB-039	0.84 U	1.3 U	1.7 U	1.6 U	0.74 U	1.3 U
PCB-040/041/071	**10.4 J**	**20 J**	**15.6 J**	**14.8 J**	9.2 U	**17.4 J**
PCB-042	**5.7 J**	**10.5**	**8 J**	**8.8 J**	4.7 U	**9.1 J**
PCB-043	3.9 U	4.2 U	3.2 U	1.8 U	2.8 U	2.1 U
PCB-044/047/065	**27.8 J**	**46.3**	**35.5**	**37.5**	**21.5 J**	**39.7**
PCB-045/051	3.2 U	3.4 U	**2.7 J**	**2.6 J**	2.3 U	3 U
PCB-046	3.6 U	4 U	3 U	1.7 U	2.6 U	2 U
PCB-048	**4.2 J**	**8.8 J**	**6.6 J**	**6.7 J**	**3.9 J**	5.6 U
PCB-049/069	**17.3 J**	**22.8**	**17.8 J**	**17.7 J**	**10.6 J**	**21.9**
PCB-050/053	4.5 U	**7 J**	**5 J**	**5.2 J**	2.9 U	**5.7 J**
PCB-052	**37.3**	**59.8**	**45.6**	**49**	**28.2**	**52.7**
PCB-054	0.53 U	0.94 U	0.58 U	0.67 U	0.5 U	0.6 U
PCB-055	0.68 U	0.88 U	1.7 U	1.5 U	1.6 U	0.77 U
PCB-056	**3.83 J**	**7.84 J**	**6 J**	5.7 U	**3.8 J**	**6.78 J**
PCB-057	0.58 U	0.73 U	1.4 U	1.2 U	1.4 U	0.64 U
PCB-058	0.65 U	0.84 U	1.6 U	1.4 U	1.6 U	0.74 U
PCB-059/062/075	2.3 U	3.9 U	**3.7 J**	3.4 U	**2.5 J**	**3.4 J**
PCB-060	**2.82 J**	**6.42 J**	**4.6 J**	**5.2 J**	3.1 U	5 U
PCB-061/070/074/076	**29 J**	**59.6**	**48**	**47.2**	**28.8 J**	**49.5**
PCB-063	0.56 U	**1.68 J**	1.4 U	**1.5 J**	1.4 U	**1.31 J**
PCB-064	**5.8 J**	**9.9**	**7.5 J**	**7.3 J**	**5.5 J**	**8.7 J**
PCB-066	**12.1**	**26.3**	**20.1**	**19.8**	**12**	**20**
PCB-067	0.55 U	**1.02 J**	1.3 U	1.2 U	1.3 U	**0.9 J**
PCB-068	0.58 U	0.77 U	1.4 U	1.3 U	1.4 U	0.64 U

Table F-2
Season 2 Event 2 Wet Weight Caged Mussel Results

Task	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2
Location Name	Penn Cove Stock	WS-1	GP-1	PJ-1	SMA-1-1	Composite
Location ID	Field QC	PG-WS-1_201611	PG-GP-1_201611	PG-PJ-1_201611	PG-SMA1-1_201611	Composite
Sample ID	PG-T0-MUS-COC-161109	PG-WS-1-MUS-170105	PG-GP-1-MUS-170105	PG-PJ-1-MUS-170105	PG-SMA1-1-MUS-170105	PG-SMA1-2-3-MUS-170105
Sample Date	11/9/2016	1/5/2017	1/5/2017	1/5/2017	1/5/2017	1/5/2017
Sample Type	N	N	N	N	N	N
Matrix	TA	TA	TA	TA	TA	TA
X	--	1210343.348	1213721.398	1213128.711	1211928.879	--
Y	--	312233.262	313616.757	315808.466	317839.131	--
PCB-072	0.55 U	**1.04 J**	1.4 U	1.2 U	1.3 U	**1.02 J**
PCB-073	2.6 U	2.8 U	2.1 U	1.2 U	1.9 U	1.4 U
PCB-077	1.3 U	**3.2 J**	**2.7 J**	2.6 U	2 U	**2.26 J**
PCB-078	0.58 U	0.73 U	1.4 U	1.3 U	1.4 U	0.64 U
PCB-079	0.52 U	0.83 U	1.3 U	1.1 U	1.2 U	0.58 U
PCB-080	0.51 U	0.66 U	1.3 U	1.1 U	1.2 U	0.58 U
PCB-081	0.85 U	1.1 U	2.1 U	1.8 U	2.1 U	0.94 U
PCB-082	3 U	**7.3 J**	**6.1 J**	**6.1 J**	**4.1 J**	**7.5 J**
PCB-083/099	**60.5**	**105**	**85.2**	**91.6**	**50.5**	**87.2**
PCB-084	**8.9 J**	**13.9**	**11.5**	**11.5**	**7.6 J**	**14.9**
PCB-085/116/117	10 U	**21.4 J**	**16.2 J**	**19 J**	**10.5 J**	**19.5 J**
PCB-086/087/097/109/119/125	**29.7 J**	**54.7 J**	**46.1 J**	**45.9 J**	**26.5 J**	**50.4 J**
PCB-088/091	**5.3 J**	**9.1 J**	6.5 U	6.4 U	**4.4 J**	**8.2 J**
PCB-089	2.8 U	1.6 U	1.9 U	1.3 U	3.5 U	1 U
PCB-090/101/113	**73.2**	**144**	**116**	**117**	**65.4**	**124**
PCB-092	**14.6**	**26.3**	**21.9**	**22.9**	**12.1**	**23.2**
PCB-093/098/100/102	2.8 U	**6.9 J**	**5.3 J**	**5.9 J**	3.5 U	**5.8 J**
PCB-094	3.1 U	1.7 U	2.1 U	1.5 U	3.9 U	1.1 U
PCB-095	**40**	**71.7**	**57.4**	**60**	**35**	**66.2**
PCB-096	1.7 U	1.5 U	3.5 U	3.6 U	3.2 U	1.7 U
PCB-103	2.3 U	**2.4 J**	**1.8 J**	**1.8 J**	2.9 U	**1.96 J**
PCB-104	0.78 U	0.68 U	1.6 U	1.6 U	1.5 U	0.75 U
PCB-105	**13.8**	**34.4**	**29.9**	**29.3**	**15.5**	**31.4**
PCB-106	0.79 U	0.73 U	1 U	0.71 U	0.67 U	0.59 U
PCB-107	3.6 U	**8.25 J**	**7.63 J**	**7.51 J**	**5.04 J**	**7.5 J**
PCB-108/124	**1.29 J**	3 U	2.7 U	**2.56 J**	**1.56 J**	**3.04 J**
PCB-110/115	**52.2**	**91.9**	**80.5**	**80.9**	**48.3**	**89.2**
PCB-111	2 U	1.1 U	1.4 U	0.95 U	2.6 U	0.73 U
PCB-112	1.9 U	1.1 U	1.4 U	0.96 U	2.4 U	0.74 U
PCB-114	1 U	1.4 U	1.4 U	0.97 U	0.87 U	**1.54 J**
PCB-118	**43.4**	**103**	**84.4**	**90.2**	**48.6**	**91.8**
PCB-120	1.7 U	0.96 U	1.2 U	0.82 U	2.2 U	0.63 U
PCB-121	2 U	1.1 U	1.4 U	0.95 U	2.5 U	0.73 U
PCB-122	0.85 U	0.8 U	1.1 U	0.77 U	0.72 U	0.64 U
PCB-123	1.2 U	**1.5 J**	1.6 U	1.5 U	0.98 U	1.2 U
PCB-126	1.1 U	1 U	1.4 U	1 U	0.9 U	0.85 U
PCB-127	0.76 U	0.72 U	0.99 U	0.69 U	0.64 U	0.58 U
PCB-128/166	9.8 U	**29.1**	**24**	**23.8**	**14.5 J**	**24.5**
PCB-129/138/163	**97.9**	**240**	**209**	**208**	**121**	**204**
PCB-130	**5.5 J**	11 U	**12.2**	**10.8**	**6 J**	9 U
PCB-131	3 U	2.2 U	3.6 U	4 U	2.1 U	3.9 U
PCB-132	**12.9**	**27.8**	**25**	**25**	**14.9**	**30.8**
PCB-133	2.6 U	**5.9 J**	4.1 U	3.5 U	**2.8 J**	**4.1 J**

Table F-2
Season 2 Event 2 Wet Weight Caged Mussel Results

Task	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2
Location Name	Penn Cove Stock	WS-1	GP-1	PJ-1	SMA-1-1	Composite
Location ID	Field QC	PG-WS-1_201611	PG-GP-1_201611	PG-PJ-1_201611	PG-SMA1-1_201611	Composite
Sample ID	PG-T0-MUS-COC-161109	PG-WS-1-MUS-170105	PG-GP-1-MUS-170105	PG-PJ-1-MUS-170105	PG-SMA1-1-MUS-170105	PG-SMA1-2-3-MUS-170105
Sample Date	11/9/2016	1/5/2017	1/5/2017	1/5/2017	1/5/2017	1/5/2017
Sample Type	N	N	N	N	N	N
Matrix	TA	TA	TA	TA	TA	TA
X	--	1210343.348	1213721.398	1213128.711	1211928.879	--
Y	--	312233.262	313616.757	315808.466	317839.131	--
PCB-134/143	2.8 U	4.3 U	**4.9 J**	**5.6 J**	**3.6 J**	**5.4 J**
PCB-135/151	**26.2**	**66.9**	**57**	**59.7**	**31.5**	**60.4**
PCB-136	**5.3 J**	**15.3**	**13.6**	**13**	**7.3 J**	**13.9**
PCB-137	2.7 U	2.6 U	3.4 U	3.7 U	1.9 U	3.6 U
PCB-139/140	2.4 U	**3.3 J**	2.9 U	3.2 U	1.7 U	**3.2 J**
PCB-141	2.5 U	**3.4 J**	3.1 U	3.4 U	1.8 U	3.4 U
PCB-142	2.7 U	2 U	3.4 U	3.7 U	1.9 U	3.7 U
PCB-144	3.1 U	**6.1 J**	**5.4 J**	**5.2 J**	7.7 U	**6.3 J**
PCB-145	2.6 U	3.3 U	4.1 U	2.4 U	6.4 U	4 U
PCB-146	**22.5**	**47.2**	**40**	**39.5**	**24.4**	**39.2**
PCB-147/149	**59.5**	**139**	**135**	**129**	**71.3**	**134**
PCB-148	3.1 U	3.9 U	4.9 U	2.9 U	7.7 U	4.7 U
PCB-150	2.5 U	3.3 U	4.1 U	2.4 U	6.1 U	3.9 U
PCB-152	2.3 U	2.8 U	3.5 U	2.1 U	5.7 U	3.4 U
PCB-153/168	**118**	**270**	**237**	**232**	**135**	**227**
PCB-154	2.8 U	5.4 U	**6.2 J**	**6.4 J**	6.9 U	**5.8 J**
PCB-155	1.2 U	1.4 U	1.8 U	1.1 U	3.1 U	1.7 U
PCB-156/157	**3.51 J**	**12.3 J**	**10.1 J**	**10.2 J**	**6.06 J**	**10.1 J**
PCB-158	**5 J**	**13.4**	**11.7**	**11.6**	**7.3 J**	**12.2**
PCB-159	0.5 U	0.96 U	0.88 U	0.95 U	0.63 U	1.1 U
PCB-160	2.1 U	1.5 U	2.5 U	2.7 U	1.5 U	2.7 U
PCB-161	1.7 U	1.3 U	2.2 U	2.4 U	1.2 U	2.4 U
PCB-162	0.55 U	1.1 U	0.98 U	1.1 U	0.7 U	1.2 U
PCB-164	1.9 U	**3.2 J**	**3.7 J**	**3.3 J**	1.3 U	2.4 U
PCB-165	2.1 U	1.5 U	2.6 U	2.9 U	1.5 U	2.8 U
PCB-167	**2.44 J**	**6.5 J**	**5.8 J**	**5.7 J**	2.7 U	5.3 U
PCB-169	0.71 U	1.4 U	1.3 U	1.4 U	0.9 U	1.6 U
PCB-170	**1.85 J**	**7.9 J**	6.2 U	**6.3 J**	3.9 U	**5.7 J**
PCB-171/173	**2.9 J**	**9.7 J**	**9.5 J**	**8.3 J**	**5.3 J**	**8.3 J**
PCB-172	1.1 U	1.9 U	2.3 U	2 U	1.3 U	1.5 U
PCB-174	1.1 U	1.8 U	2.3 U	2 U	1.3 U	1.5 U
PCB-175	1.8 U	4.8 U	4 U	2.1 U	3.5 U	4.2 U
PCB-176	1.3 U	**4.2 J**	**3.6 J**	**3.4 J**	2.5 U	3.1 U
PCB-177	**6.4 J**	**21.8**	**20.2**	**17.3**	**11.2**	**18**
PCB-178	**4.2 J**	**12.3**	**12**	10 U	**6.6 J**	**11.1**
PCB-179	**4.2 J**	**15.6**	**14.3**	**12.8**	**7 J**	**13.1**
PCB-180/193	**8.97 J**	**33.8**	**27.9**	**26.1**	**17 J**	**26.5**
PCB-181	1.1 U	1.9 U	2.4 U	2.1 U	1.4 U	1.6 U
PCB-182	1.8 U	4.8 U	4 U	2.2 U	3.5 U	4.3 U
PCB-183	**6.98 J**	**21.1**	**20.1**	**18.7**	**12.1**	**18.5**
PCB-184	1.3 U	3.6 U	3 U	1.6 U	2.7 U	3.2 U
PCB-185	1.3 U	2.2 U	2.7 U	2.4 U	1.5 U	1.8 U
PCB-186	1.5 U	4 U	3.3 U	1.8 U	2.9 U	3.6 U

Table F-2
Season 2 Event 2 Wet Weight Caged Mussel Results

Task	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2
Location Name	Penn Cove Stock	WS-1	GP-1	PJ-1	SMA-1-1	Composite
Location ID	Field QC	PG-WS-1_201611	PG-GP-1_201611	PG-PJ-1_201611	PG-SMA1-1_201611	Composite
Sample ID	PG-T0-MUS-COC-161109	PG-WS-1-MUS-170105	PG-GP-1-MUS-170105	PG-PJ-1-MUS-170105	PG-SMA1-1-MUS-170105	PG-SMA1-2-3-MUS-170105
Sample Date	11/9/2016	1/5/2017	1/5/2017	1/5/2017	1/5/2017	1/5/2017
Sample Type	N	N	N	N	N	N
Matrix	TA	TA	TA	TA	TA	TA
X	--	1210343.348	1213721.398	1213128.711	1211928.879	--
Y	--	312233.262	313616.757	315808.466	317839.131	--
PCB-187	**26.8**	**81**	**74.1**	**69.3**	**38.7**	**68.3**
PCB-188	1.1 U	2.8 U	2.4 U	1.3 U	2.3 U	2.5 U
PCB-189	0.61 U	**0.83 J**	2 U	1.6 U	1.1 U	0.75 U
PCB-190	0.83 U	**3.4 J**	**3 J**	2.6 U	**1.84 J**	**3 J**
PCB-191	0.77 U	1.3 U	1.6 U	1.4 U	0.92 U	1.1 U
PCB-192	0.92 U	1.6 U	1.9 U	1.7 U	1.1 U	1.3 U
PCB-194	2 U	**3.3 J**	2.2 U	1.7 U	**1.88 J**	1.6 U
PCB-195	2.3 U	1.4 U	2.4 U	1 U	0.71 U	1.3 U
PCB-196	3.5 U	3.3 U	4.3 U	3.4 U	2.3 U	4.4 U
PCB-197	2.5 U	2.7 U	3.5 U	2.8 U	1.7 U	3.6 U
PCB-198/199	3.8 U	3.6 U	4.7 U	3.7 U	2.5 U	4.9 U
PCB-200	2.6 U	2.2 U	2.8 U	2.2 U	1.7 U	2.9 U
PCB-201	2.4 U	**3.3 J**	2.9 U	**3 J**	1.6 U	3 U
PCB-202	2.3 U	**7.9 J**	**7.3 J**	**7 J**	3.6 U	**6.3 J**
PCB-203	3.7 U	**4.4 J**	4.5 U	3.6 U	2.5 U	4.7 U
PCB-204	2.4 U	2.3 U	3 U	2.3 U	1.6 U	3.1 U
PCB-205	2.2 U	1.4 U	2.5 U	1 U	0.69 U	1.3 U
PCB-206	0.9 U	1.5 U	1.5 U	1.7 U	1.5 U	1.1 U
PCB-207	0.73 U	1.2 U	1.2 U	1.3 U	1.2 U	0.83 U
PCB-208	0.9 U	1.5 U	1.5 U	1.7 U	1.5 U	1.1 U
PCB-209	1.4 U	2.8 U	2.5 U	2.1 U	2.4 U	2 U
Total PCB Congener (U = 1/2)	**1100 J**	**2300 J**	**2000 J**	**2000 J**	**1200 J**	**2000 J**
Total PCB Congener TEQ 2005 (Mammal) (U = 1/2)	**0.068 J**	**0.076 J**	**0.094 J**	**0.076 J**	**0.061 J**	**0.071 J**
Total PCB Congener (U = 0)	**960 J**	**2200 J**	**1800 J**	**1800 J**	**1000 J**	**1900 J**
Total PCB Congener TEQ 2005 (Mammal) (U = 0)	**0.0019 J**	**0.0051 J**	**0.0042 J**	**0.0041 J**	**0.0021 J**	**0.0043 J**
Dioxin Furans and PCB Congeners (ng/kg)						
Total Dioxin/Furan and PCB Congener TEQ 2005 (Mammal) (Calculated U = 1/2)	**0.24 J**	**0.33 J**	**0.36 J**	**0.29 J**	**0.23 J**	**0.52 J**
Total Dioxin/Furan and PCB Congener TEQ 2005 (Mammal) (Calculated U = 0)	**0.0019 J**	**0.095 J**	**0.014 J**	**0.14 J**	**0.017 J**	**0.02 J**

Table F-2
Season 2 Event 2 Wet Weight Caged Mussel Results

Task	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2
Location Name	SMA-2-1	SMA-2-2	SMA-2-3	SMA-2-4	SMA-2-5
Location ID	PG-SMA2-1_201611	PG-SMA2-2_201611	PG-SMA2-3_201611	PG-SMA2-4_201611	PG-SMA2-5_201611
Sample ID	PG-SMA2-1-MUS-170105	PG-SMA2-2-MUS-170105	PG-SMA2-3-MUS-170105	PG-SMA2-4-MUS-170105	PG-SMA2-5-MUS-170105
Sample Date	1/5/2017	1/5/2017	1/5/2017	1/5/2017	1/5/2017
Sample Type	N	N	N	N	N
Matrix	TA	TA	TA	TA	TA
X	1211969.012	1211987.052	1211724.053	1211439.086	1211124.183
Y	316677.558	316265.54	315819.717	315475.522	315104.921
Conventional Parameters (pct)					
Lipids	**0.93**	**0.91**	**1.2**	**1.1**	**1.3**
Total solids	**13.1**	**12.8**	**15.7**	**14.1**	**16.2**
Metals (mg/kg)					
Cadmium	**0.246**	**0.227**	**0.229**	**0.236**	**0.226**
Semivolatile Organics (µg/kg)					
2-Chloronaphthalene	--	--	--	--	--
Polycyclic Aromatic Hydrocarbons (µg/kg)					
1-Methylnaphthalene	--	--	--	--	--
2-Methylnaphthalene	0.5 U	0.49 UJ	0.5 U	0.5 U	**0.68**
Acenaphthene	0.5 U	0.49 UJ	0.5 U	0.5 U	**2.9**
Acenaphthylene	0.5 UJ	0.49 UJ	0.5 UJ	0.5 UJ	0.5 UJ
Anthracene	**0.74**	**0.86 J**	**2.23**	**1.12**	**2.71**
Benzo(a)anthracene	**1.16**	**1.37 J**	**4.56**	**2.73**	**5.25**
Benzo(a)pyrene	0.5 U	0.49 UJ	**1.34**	**0.85**	**1.42**
Benzo(b)fluoranthene	**1.07**	**1.53 J**	**5.17**	**3.41**	**4.45**
Benzo(e)pyrene	**2.1**	**2.75 J**	**9.03**	**6**	**5.76**
Benzo(g,h,i)perylene	0.5 U	0.49 UJ	**0.66**	**0.61**	**0.64**
Benzo(j)fluoranthene	--	--	--	--	--
Benzo(k)fluoranthene	**0.51**	**0.77 J**	**2.9**	**1.83**	**2.25**
Benzothiophene	--	--	--	--	--
Chrysene	**2.31**	**2.6 J**	**7.67**	**5.35**	**7.15**
Dibenzo(a,h)anthracene	0.5 U	0.49 UJ	0.5 U	0.5 U	0.5 U
Dibenzofuran	--	--	--	--	--
Fluoranthene	**3.43**	**4.06 J**	**24.8**	**9.35**	**17.5**
Fluorene	0.5 U	**0.5 J**	**0.83**	0.5 U	**3.28**
Indeno(1,2,3-c,d)pyrene	0.5 U	0.49 UJ	0.5 U	0.5 U	0.5 U
Naphthalene	0.6 U	0.59 UJ	0.6 U	0.59 U	**2.2**
Perylene	**0.6**	**0.74 J**	**2.11**	**1.42**	**1.42**
Phenanthrene	**2.62**	**2.8 J**	**7.09**	**3.04**	**11.9**
Pyrene	**4.58**	**4.94 J**	**25.5**	**10.3**	**16.8**
Total cPAH TEQ (7 minimum CAEPA 2005) (U = 1/2)	**0.6**	**0.69 J**	**2.7**	**1.8**	**2.7**
Total PAH (19) (U = 1/2)	**21 J**	**25 J**	**95 J**	**48 J**	**87 J**
Total HPAH (SMS) (U = 1/2)	**14**	**16 J**	**73**	**35**	**56**
Total LPAH (SMS) (U = 1/2)	**4.4 J**	**4.9 J**	**11 J**	**5.2 J**	**23 J**
Total PAH (SMS) (U = 1/2)	**18 J**	**21 J**	**84 J**	**40 J**	**79 J**
Total cPAH TEQ (7 minimum CAEPA 2005) (U = 0)	**0.3**	**0.39 J**	**2.7**	**1.7**	**2.7**
Total PAH (19) (U = 0)	**19 J**	**23 J**	**94 J**	**46 J**	**86 J**
Total HPAH (SMS) (U = 0)	**13**	**15 J**	**73**	**34**	**55**
Total LPAH (SMS) (U = 0)	**3.4 J**	**4.2 J**	**10 J**	**4.2 J**	**23 J**
Total PAH (SMS) (U = 0)	**16 J**	**19 J**	**83 J**	**39 J**	**78 J**
Dioxin Furans (ng/kg)					
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	0.068 U	0.14 U	0.152 U	0.127 U	0.122 U

Table F-2
Season 2 Event 2 Wet Weight Caged Mussel Results

Task	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2
Location Name	SMA-2-1	SMA-2-2	SMA-2-3	SMA-2-4	SMA-2-5
Location ID	PG-SMA2-1_201611	PG-SMA2-2_201611	PG-SMA2-3_201611	PG-SMA2-4_201611	PG-SMA2-5_201611
Sample ID	PG-SMA2-1-MUS-170105	PG-SMA2-2-MUS-170105	PG-SMA2-3-MUS-170105	PG-SMA2-4-MUS-170105	PG-SMA2-5-MUS-170105
Sample Date	1/5/2017	1/5/2017	1/5/2017	1/5/2017	1/5/2017
Sample Type	N	N	N	N	N
Matrix	TA	TA	TA	TA	TA
X	1211969.012	1211987.052	1211724.053	1211439.086	1211124.183
Y	316677.558	316265.54	315819.717	315475.522	315104.921
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	**0.12 J**	0.127 U	0.134 U	0.187 U	0.139 U
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	**0.066 J**	0.246 U	0.147 U	**0.271 J**	0.205 U
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	**0.164 J**	0.244 U	0.15 U	**0.314 J**	0.203 U
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	0.309 U	0.256 U	0.155 U	0.357 U	0.213 U
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	1.01 U	0.753 U	2.02 U	1.99 U	1.22 U
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	7.09 U	5.92 U	17.6 U	15 U	8.04 U
Total Tetrachlorodibenzo-p-dioxin (TCDD)	**0.178**	0.088 U	0.099 U	**0.524**	**0.278**
Total Pentachlorodibenzo-p-dioxin (PeCDD)	**0.12**	0.08 U	0.093 U	0.138 U	0.089 U
Total Hexachlorodibenzo-p-dioxin (HxCDD)	**0.993**	0.087 U	**0.852 J**	**1.32 J**	**0.414 J**
Total Heptachlorodibenzo-p-dioxin (HpCDD)	**2.57 J**	**2.41 J**	**10.8**	**6.4**	**4.72**
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	**0.184 J**	0.123 U	**0.17 J**	0.145 U	**0.156 J**
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	**0.136 J**	0.128 U	0.149 U	**0.147 J**	0.16 U
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	0.066 U	0.12 U	0.145 U	0.147 U	0.159 U
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	0.037 U	0.094 U	0.082 U	0.155 U	0.093 U
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	0.108 U	0.096 U	0.083 U	0.153 U	0.091 U
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	0.135 U	0.118 U	0.106 U	0.153 U	0.125 U
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	0.079 U	0.102 U	0.083 U	0.162 UJ	0.094 U
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	0.331 U	0.22 U	0.109 U	0.53 UJ	0.213 U
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	0.16 U	0.099 U	0.069 U	0.238 U	0.062 U
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	0.677 U	0.538 U	1.16 U	1.48 U	0.665 U
Total Tetrachlorodibenzofuran (TCDF)	**0.635**	0.052 U	**0.394**	**0.521**	**0.156**
Total Pentachlorodibenzofuran (PeCDF)	**0.237**	0.108 U	0.103 U	**0.223**	0.103 U
Total Hexachlorodibenzofuran (HxCDF)	**0.583 J**	0.05 U	**0.203 J**	**0.473 J**	**0.332 J**
Total Heptachlorodibenzofuran (HpCDF)	**0.794 J**	**0.41 J**	**0.583 J**	**1.26 J**	**0.603 J**
Total Dioxin/Furan (U = 1/2)	**5.7 J**	5.9 U	**11 J**	**11.1 J**	**6.1 J**
Total Dioxin/Furan TEQ 2005 (Mammal) (U = 1/2)	**0.25 J**	0.14 U	**0.24 J**	**0.314 J**	**0.23 J**
Total Dioxin/Furan (U = 0)	**0.67 J**	5.9 U	**0.17 J**	**0.732 J**	**0.16 J**
Total Dioxin/Furan TEQ 2005 (Mammal) (U = 0)	**0.17 J**	0.14 U	**0.017 J**	**0.0629 J**	**0.016 J**
PCB Congeners (ng/kg)					
PCB-001	0.88 U	1.7 U	0.84 U	1.1 U	0.59 U
PCB-002	0.73 U	1.4 U	0.75 U	0.98 U	0.53 U
PCB-003	0.89 U	1.7 U	0.85 U	1.1 U	0.6 U
PCB-004	12 U	13 U	15 U	15 U	14 U
PCB-005	7.8 U	6.7 U	6.3 U	7.3 U	8.1 U
PCB-006	6.4 U	5.5 U	5.1 U	5.9 U	6.5 U
PCB-007	7.4 U	6.4 U	5.7 U	6.5 U	7.3 U
PCB-008	6.4 U	5.5 U	4.5 U	5.2 U	5.7 U
PCB-009	6.5 U	5.6 U	4.9 U	5.6 U	6.3 U
PCB-010	18 U	18 U	22 U	22 U	20 U
PCB-011	**7.4 J**	5.7 U	6.9 U	5.6 U	6.1 U
PCB-012/013	7.2 U	6.2 U	5.3 U	6.1 U	6.7 U
PCB-014	6.4 U	5.5 U	4.7 U	5.4 U	5.9 U
PCB-015	13 U	11 U	9.5 U	11 U	12 U

Table F-2
Season 2 Event 2 Wet Weight Caged Mussel Results

Task	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2
Location Name	SMA-2-1	SMA-2-2	SMA-2-3	SMA-2-4	SMA-2-5
Location ID	PG-SMA2-1_201611	PG-SMA2-2_201611	PG-SMA2-3_201611	PG-SMA2-4_201611	PG-SMA2-5_201611
Sample ID	PG-SMA2-1-MUS-170105	PG-SMA2-2-MUS-170105	PG-SMA2-3-MUS-170105	PG-SMA2-4-MUS-170105	PG-SMA2-5-MUS-170105
Sample Date	1/5/2017	1/5/2017	1/5/2017	1/5/2017	1/5/2017
Sample Type	N	N	N	N	N
Matrix	TA	TA	TA	TA	TA
X	1211969.012	1211987.052	1211724.053	1211439.086	1211124.183
Y	316677.558	316265.54	315819.717	315475.522	315104.921
PCB-016	8.1 U	8.5 U	6 U	8.2 U	5.9 U
PCB-017	4.9 U	5.1 U	4.3 U	5.9 U	4.3 U
PCB-018/030	**4.1 J**	**4.4 J**	**7.8 J**	**6.1 J**	**6.9 J**
PCB-019	2.7 U	2.9 U	2.3 U	3.2 U	2.3 U
PCB-020/028	**18.7 J**	**19.4**	**27.1**	**27.2**	**28.2**
PCB-021/033	**4.4 J**	**4.2 J**	**5.5 J**	5.4 U	**6.36 J**
PCB-022	**3.8 J**	**4.2 J**	**5.6 J**	**5.6 J**	**5.8 J**
PCB-023	1.2 U	1.4 U	1.6 U	1.3 U	1.1 U
PCB-024	3.7 U	3.8 U	3.3 U	4.6 U	3.3 U
PCB-025	**1.21 J**	**1.3 J**	**1.6 J**	1.3 U	**1.93 J**
PCB-026/029	**2.3 J**	2 U	**3 J**	**2.9 J**	**3.16 J**
PCB-027	3.1 U	3.3 U	2.8 U	3.9 U	2.8 U
PCB-031	**9.7 J**	**9.6**	**12.8**	**13.4**	**13.5**
PCB-032	3.2 U	3.3 U	2.7 U	3.7 U	2.7 U
PCB-034	0.96 U	1.1 U	1.4 U	1.1 U	0.97 U
PCB-035	0.96 U	1.1 U	1.4 U	1.1 U	0.95 U
PCB-036	0.87 U	1 U	1.2 U	1 U	0.85 U
PCB-037	**2.8 J**	**3.3 J**	**5 J**	**4.8 J**	**4.9 J**
PCB-038	1 U	1.2 U	1.4 U	1.2 U	0.99 U
PCB-039	1 U	1.2 U	1.5 U	1.2 U	1 U
PCB-040/041/071	**14 J**	**14.8 J**	**21.1 J**	**20.3 J**	**21.6 J**
PCB-042	**7.3 J**	**8 J**	**11.7**	**10.9**	**11**
PCB-043	3.7 U	2.3 U	3.2 U	2.7 U	3.2 U
PCB-044/047/065	**33.1**	**31.1**	**49.8**	**44**	**50.2**
PCB-045/051	3 U	2 U	**4.1 J**	**3.5 J**	**4.4 J**
PCB-046	3.4 U	2.2 U	3.1 U	2.6 U	3 U
PCB-048	5.3 U	**6.6 J**	**9.8**	8.6 U	**9.4 J**
PCB-049/069	**17.3 J**	**17.3 J**	**28.4**	**23.5**	**25.2**
PCB-050/053	**4.4 J**	4.2 U	**6.6 J**	**7.4 J**	6.6 U
PCB-052	**40.1**	**40.8**	**59.9**	**52.4**	**57.6**
PCB-054	0.77 U	0.98 U	0.88 U	0.51 U	0.88 U
PCB-055	1.2 U	1.2 U	0.88 U	1.6 U	1.2 U
PCB-056	**5.4 J**	**5.5 J**	**7.18 J**	**6.4 J**	**7.2 J**
PCB-057	0.98 U	1 U	0.72 U	1.3 U	0.98 U
PCB-058	1.1 U	1.1 U	0.84 U	1.5 U	1.1 U
PCB-059/062/075	**3.1 J**	**3.2 J**	**4.7 J**	3.7 U	**3.9 J**
PCB-060	4.4 U	**4.4 J**	4.9 U	**5.6 J**	**5.5 J**
PCB-061/070/074/076	**40.8**	**39.9**	**51.6**	**49.1**	**53.9**
PCB-063	0.95 U	1.1 U	**1.34 J**	**1.3 J**	**1.64 J**
PCB-064	**8.3 J**	**8.3 J**	**12.7**	**11.2**	**12.1**
PCB-066	**17.8**	**17.9**	**21.8**	**20.6**	**22.8**
PCB-067	0.93 U	0.96 U	**0.98 J**	1.2 U	**1.25 J**
PCB-068	0.99 U	1 U	0.73 U	1.3 U	**1.19 J**

Table F-2
Season 2 Event 2 Wet Weight Caged Mussel Results

Task	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2
Location Name	SMA-2-1	SMA-2-2	SMA-2-3	SMA-2-4	SMA-2-5
Location ID	PG-SMA2-1_201611	PG-SMA2-2_201611	PG-SMA2-3_201611	PG-SMA2-4_201611	PG-SMA2-5_201611
Sample ID	PG-SMA2-1-MUS-170105	PG-SMA2-2-MUS-170105	PG-SMA2-3-MUS-170105	PG-SMA2-4-MUS-170105	PG-SMA2-5-MUS-170105
Sample Date	1/5/2017	1/5/2017	1/5/2017	1/5/2017	1/5/2017
Sample Type	N	N	N	N	N
Matrix	TA	TA	TA	TA	TA
X	1211969.012	1211987.052	1211724.053	1211439.086	1211124.183
Y	316677.558	316265.54	315819.717	315475.522	315104.921
PCB-072	0.93 U	0.96 U	**1 J**	1.3 U	**1.09 J**
PCB-073	2.4 U	1.6 U	2.1 U	1.8 U	2.1 U
PCB-077	**2 J**	**2.2 J**	2.4 U	**2.7 J**	**2.8 J**
PCB-078	0.98 U	1 U	0.73 U	1.3 U	0.99 U
PCB-079	0.87 U	0.9 U	0.66 U	1.2 U	0.89 U
PCB-080	0.87 U	0.9 U	0.65 U	1.2 U	0.88 U
PCB-081	1.4 U	1.5 U	1.1 U	1.9 U	1.4 U
PCB-082	**5.8 J**	**5.7 J**	**7 J**	**6.4 J**	**7.2 J**
PCB-083/099	**79.3**	**77.3**	**93.3**	**86**	**94**
PCB-084	**12.1**	**11.4**	**14.8**	**12.8**	**14.5**
PCB-085/116/117	**15.4 J**	**15.2 J**	**18.6 J**	**19.1 J**	**20 J**
PCB-086/087/097/109/119/125	**42.2 J**	**39.5 J**	**52.5 J**	**47.2 J**	**50.8 J**
PCB-088/091	**8 J**	**7.4 J**	8.2 U	**8.2 J**	**8.8 J**
PCB-089	3 U	3.5 U	3 U	2 U	1.6 U
PCB-090/101/113	**102**	**98.8**	**131**	**113**	**130**
PCB-092	**19.3**	**18.4**	**24.2**	**21.8**	**24.5**
PCB-093/098/100/102	**5.2 J**	3.5 U	2.9 U	**5.5 J**	5.3 U
PCB-094	3.4 U	3.9 U	3.3 U	2.2 U	1.7 U
PCB-095	**55.8**	**52.9**	**70.9**	**62.8**	**68**
PCB-096	2.7 U	3.7 U	2.5 U	5.5 U	1.7 U
PCB-103	2.5 U	2.8 U	2.4 U	**2.3 J**	**2.3 J**
PCB-104	1.3 U	1.7 U	1.1 U	2.5 U	0.75 U
PCB-105	**25.1**	**25.2**	**31.9**	**30.6**	**33.3**
PCB-106	1.2 U	0.72 U	0.48 U	0.72 U	0.67 U
PCB-107	**7.2 J**	**7.32 J**	**8.06 J**	**7.5 J**	**7.99 J**
PCB-108/124	**2.2 J**	**2.59 J**	2.3 U	2.4 U	**3.37 J**
PCB-110/115	**80.2**	**72.2**	**95.3**	**89.3**	**90**
PCB-111	2.2 U	2.5 U	2.1 U	1.4 U	1.1 U
PCB-112	2.1 U	2.4 U	2.2 U	1.4 U	1.1 U
PCB-114	1.6 U	0.94 U	**1.48 J**	**1.51 J**	**1.46 J**
PCB-118	**69.3**	**77.2**	**91.6**	**88.6**	**93.9**
PCB-120	1.9 U	2.2 U	1.8 U	1.2 U	0.95 U
PCB-121	2.2 U	2.5 U	2.1 U	1.4 U	1.1 U
PCB-122	1.3 U	0.78 U	0.52 U	0.78 U	0.73 U
PCB-123	1.8 U	1.1 U	0.75 U	1.2 U	**1.6 J**
PCB-126	1.6 U	0.97 U	0.68 U	1 U	0.96 U
PCB-127	1.2 U	0.69 U	0.47 U	0.71 U	0.66 U
PCB-128/166	**19.3 J**	**22.2**	**26.9**	**24.7**	23 U
PCB-129/138/163	**178**	**181**	**236**	**214**	**215**
PCB-130	**10.4**	**10.2**	**12.8**	**11.8**	**12.2**
PCB-131	4.1 U	2 U	2.4 U	3.8 U	2.7 U
PCB-132	**27.7**	**23.1**	**33**	**28.3**	**29.3**
PCB-133	3.8 U	**4.1 J**	**5.3 J**	**4.7 J**	**4.4 J**

Table F-2
Season 2 Event 2 Wet Weight Caged Mussel Results

Task	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2
Location Name	SMA-2-1	SMA-2-2	SMA-2-3	SMA-2-4	SMA-2-5
Location ID	PG-SMA2-1_201611	PG-SMA2-2_201611	PG-SMA2-3_201611	PG-SMA2-4_201611	PG-SMA2-5_201611
Sample ID	PG-SMA2-1-MUS-170105	PG-SMA2-2-MUS-170105	PG-SMA2-3-MUS-170105	PG-SMA2-4-MUS-170105	PG-SMA2-5-MUS-170105
Sample Date	1/5/2017	1/5/2017	1/5/2017	1/5/2017	1/5/2017
Sample Type	N	N	N	N	N
Matrix	TA	TA	TA	TA	TA
X	1211969.012	1211987.052	1211724.053	1211439.086	1211124.183
Y	316677.558	316265.54	315819.717	315475.522	315104.921
PCB-134/143	4.4 U	**5 J**	**6.3 J**	5 U	**5.7 J**
PCB-135/151	**50.4**	**50.3**	**72.1**	**60.4**	**61.4**
PCB-136	**12.4**	**12.3**	**16.8**	**14.1**	**15.3**
PCB-137	3.8 U	1.8 U	2.2 U	3.5 U	2.5 U
PCB-139/140	3.4 U	1.6 U	3 U	3 U	2.2 U
PCB-141	3.5 U	1.7 U	2 U	3.2 U	2.3 U
PCB-142	3.8 U	1.8 U	2.2 U	3.5 U	2.5 U
PCB-144	**5.6 J**	5 U	5.9 U	6.1 U	**6.8 J**
PCB-145	3.5 U	4.1 U	4.9 U	5 U	3.9 U
PCB-146	**37.6**	**37.4**	**45.8**	**41.7**	**40.4**
PCB-147/149	**120**	96 U	**158**	**127**	**138**
PCB-148	4.2 U	4.9 U	5.8 U	6 U	4.6 U
PCB-150	3.4 U	3.9 U	4.8 U	5 U	3.8 U
PCB-152	3.2 U	3.7 U	4.2 U	4.3 U	3.3 U
PCB-153/168	**206**	**204**	**264**	**239**	**236**
PCB-154	**5.3 J**	**4.8 J**	**6.2 J**	**6 J**	**5.9 J**
PCB-155	1.7 U	2 U	2.1 U	2.2 U	1.7 U
PCB-156/157	**7.6 J**	**8.2 J**	**11.1 J**	**10.2 J**	**12.2 J**
PCB-158	**10.5**	**9.7**	12 U	**12.7**	**12.2**
PCB-159	0.89 U	1.2 U	1 U	0.85 U	1.3 U
PCB-160	2.9 U	1.4 U	1.6 U	2.6 U	1.8 U
PCB-161	2.4 U	1.1 U	1.4 U	2.3 U	1.6 U
PCB-162	0.99 U	1.4 U	1.1 U	0.94 U	1.4 U
PCB-164	2.6 U	1.2 U	1.5 U	2.4 U	**3 J**
PCB-165	3 U	1.4 U	1.7 U	2.7 U	1.9 U
PCB-167	**4.3 J**	**4.8 J**	**6.1 J**	**5.9 J**	**6.1 J**
PCB-169	1.3 U	1.7 U	1.5 U	1.2 U	1.9 U
PCB-170	**3.57 J**	4.7 U	**7.1 J**	**6.7 J**	**7.5 J**
PCB-171/173	6.3 U	**7.9 J**	**9.5 J**	**9.4 J**	**9.2 J**
PCB-172	1.1 U	1.6 U	1.4 U	1.9 U	1.5 U
PCB-174	1.1 U	1.6 U	1.4 U	1.9 U	1.5 U
PCB-175	2.1 U	2.8 U	4 U	4.1 U	3 U
PCB-176	**3.1 J**	2.8 U	**3.9 J**	**3.1 J**	**3.6 J**
PCB-177	**15.3**	**17.4**	**22**	**20.8**	**20.1**
PCB-178	**9.5 J**	**10.3**	**13.4**	**12.4**	**12**
PCB-179	10 U	**11.6**	**15.7**	**14.5**	**14.8**
PCB-180/193	**18.8 J**	**22.9**	**30.7**	**27**	**31.9**
PCB-181	1.2 U	1.7 U	1.4 U	2 U	1.6 U
PCB-182	2.1 U	2.8 U	4.1 U	4.2 U	3.1 U
PCB-183	**15.1**	**17.7**	**21.8**	**21**	**20.4**
PCB-184	1.6 U	2.1 U	3 U	3.1 U	2.3 U
PCB-185	1.3 U	1.9 U	1.6 U	2.2 U	1.8 U
PCB-186	1.8 U	2.4 U	3.4 U	3.5 U	2.5 U

Table F-2
Season 2 Event 2 Wet Weight Caged Mussel Results

Task	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2
Location Name	SMA-2-1	SMA-2-2	SMA-2-3	SMA-2-4	SMA-2-5
Location ID	PG-SMA2-1_201611	PG-SMA2-2_201611	PG-SMA2-3_201611	PG-SMA2-4_201611	PG-SMA2-5_201611
Sample ID	PG-SMA2-1-MUS-170105	PG-SMA2-2-MUS-170105	PG-SMA2-3-MUS-170105	PG-SMA2-4-MUS-170105	PG-SMA2-5-MUS-170105
Sample Date	1/5/2017	1/5/2017	1/5/2017	1/5/2017	1/5/2017
Sample Type	N	N	N	N	N
Matrix	TA	TA	TA	TA	TA
X	1211969.012	1211987.052	1211724.053	1211439.086	1211124.183
Y	316677.558	316265.54	315819.717	315475.522	315104.921
PCB-187	**59.9**	**63.9**	**84.4**	**76.9**	**73.6**
PCB-188	1.4 U	1.8 U	2.4 U	2.5 U	1.8 U
PCB-189	1.7 U	1.1 U	0.89 U	1 U	**1.03 J**
PCB-190	2.3 U	**2.8 J**	**3.7 J**	**2.9 J**	**3.4 J**
PCB-191	0.8 U	1.1 U	0.96 U	1.3 U	1.1 U
PCB-192	0.95 U	1.4 U	1.1 U	1.6 U	1.3 U
PCB-194	2.7 U	3.1 U	2 U	2.1 U	2.3 U
PCB-195	3 U	3.5 U	0.84 U	1.4 U	1.1 U
PCB-196	4.6 U	3.6 U	2.8 U	2.9 U	2.3 U
PCB-197	3.3 U	2.6 U	2.3 U	2.4 U	1.8 U
PCB-198/199	5 U	3.9 U	3.1 U	3.2 U	2.5 U
PCB-200	3.4 U	2.7 U	1.9 U	2 U	1.5 U
PCB-201	3.1 U	2.5 U	**3.7 J**	**3.1 J**	**3 J**
PCB-202	5.3 U	**5.7 J**	**7.4 J**	6.3 U	6.4 U
PCB-203	4.8 U	3.8 U	3 U	3.1 U	2.4 U
PCB-204	3.1 U	2.5 U	1.9 U	2 U	1.6 U
PCB-205	2.9 U	3.4 U	0.85 U	1.4 U	1.1 U
PCB-206	1.2 U	2 U	0.92 U	1.1 U	1.6 U
PCB-207	0.98 U	1.6 U	0.72 U	0.85 U	1.3 U
PCB-208	1.2 U	2 U	0.91 U	1.1 U	1.6 U
PCB-209	1.2 U	1.4 U	1.8 U	3.1 U	1.6 U
Total PCB Congener (U = 1/2)	**1800 J**	**1700 J**	**2300 J**	**2100 J**	**2200 J**
Total PCB Congener TEQ 2005 (Mammal) (U = 1/2)	**0.1 J**	**0.078 J**	**0.061 J**	**0.073 J**	**0.081 J**
Total PCB Congener (U = 0)	**1600 J**	**1500 J**	**2100 J**	**1900 J**	**2000 J**
Total PCB Congener TEQ 2005 (Mammal) (U = 0)	**0.0034 J**	**0.0037 J**	**0.0043 J**	**0.0044 J**	**0.0048 J**
Dioxin Furans and PCB Congeners (ng/kg)					
Total Dioxin/Furan and PCB Congener TEQ 2005 (Mammal) (Calculated U = 1/2)	**0.35 J**	**0.3 J**	**0.3 J**	**0.39 J**	**0.31 J**
Total Dioxin/Furan and PCB Congener TEQ 2005 (Mammal) (Calculated U = 0)	**0.17 J**	**0.0037 J**	**0.021 J**	**0.067 J**	**0.02 J**

Table F-2
Season 2 Event 2 Wet Weight Caged Mussel Results

Notes:

Horizontal coordinate datum is North American Datum 1983, State Plane Washington North FIPS 4601 (U.S. Survey Feet).

Results presented in this table are reported in wet-weight (as-received) basis.

All undetect results are reported at the reporting limit.

U.S. Environmental Protection Agency Stage 2B data validation was completed by Laboratory Data Consultants.

Totals are calculated as the sum of all detected results (U=0). If all results are not detected, the highest limit value is reported as the sum.

Totals are calculated as the sum of all detected results and half of the reporting limit of undetected results (U=1/2). If all results are not detected, the highest limit value is reported as the sum.

Total cPAH TEQ (7 minimum California Environmental Protection Agency 2005) calculation includes benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene and indeno(1,2,3-c,d)pyrene. Per Model Toxics Control Act cleanup Regulation, Table 708-2 "Toxicity Equivalency Factors for Minimum Required Carcinogenic Polyaromatic Hydrocarbons (cPAHs) under Washington Administrative Code 173-340-708(e).
Total PAH (19) is the total of 2-methylnaphthalene, acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(e)pyrene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-c,d)pyrene, naphthalene, perylene, phenanthrene, and pyrene.
Total HPAH (SMS) is the total of benzo(a)anthracene, benzo(a)pyrene, benzo(x)fluoranthenes, benzo(g,h,i)perylene, chrysene, dibenzo(a,h)anthracene, fluoranthene, indeno(1,2,3-c,d)pyrene, and pyrene.

Total LPAH (SMS) is the total of acenaphthene, acenaphthylene, anthracene, fluorene, naphthalene, and phenanthrene. 2-Methylnaphthalene is not included in the sum of LPAHs.

Total PAH (SMS) is the total of acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(x)fluoranthenes, benzo(g,h,i)perylene, chrysene, dibenzo(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-c,d)pyrene, naphthalene, phenanthrene, and pyrene. 2-Methylnaphthalene is not included.

Total PCB congeners is the sum of all PCB congeners listed in this table.

Total dioxin/furan is the sum of all individual dioxin/furans (non-homolog) listed in this table.

Dioxin/furan and PCB TEQ values were calculated with 2005 World Health Organization toxic equivalency factor values for mammals.

Bold: Detected result

--: results not reported or not applicable

µg/kg: micrograms per kilogram

cPAH: carcinogenic polycyclic aromatic hydrocarbon

FD: field duplicate sample

HPAH: high-molecular-weight polycyclic aromatic hydrocarbon

J: estimated value

LPAH: low-molecular-weight polycyclic aromatic hydrocarbon

mg/kg: milligrams per kilogram

N: normal environmental sample

ng/kg: nanograms per kilogram

PAH: polycyclic aromatic hydrocarbons

PCB: polychlorinated biphenyls

pct: percent

SMS: Sediment Management Standards

TA: tissue matrix

TEQ: toxic equivalency

U: Compound analyzed, but not detected above detection limit

UJ: Compound analyzed, but not detected above estimated detection limit

Table F-3
Season 2 Event 1 Dry Weight Caged Mussel Results

Task	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1
Location Name	Penn Cove Stock	WS-1	GP-1	PJ-1	SMA-1-1	SMA-1-2	SMA-1-3
Location ID	Composite	PG-WS-1_2016	PG-GP-1_2016	PG-PJ-1_2016	PG-SMA1-1_2016	PG-SMA1-2_2016	PG-SMA1-3_2016
Sample ID	PG-T0-MUS-COC-160816	PG-REF-WS-1-161011	PG-REF-GP-1-161011	PG-REF-PJ-1-161011	PG-SMA-1-1-161011	PG-SMA-1-2-161011	PG-SMA-1-3-161011
Sample Date	8/16/2016	10/11/2016	10/11/2016	10/11/2016	10/11/2016	10/11/2016	10/11/2016
Sample Type	N	N	N	N	N	N	N
Matrix	TA	TA	TA	TA	TA	TA	TA
X	--	1210321.538	1213717.772	1213795.915	1211773.254	1212039.379	1212205.620
Y	--	312255.182	313573.470	315509.149	317963.919	317543.542	317081.123
Conventional Parameters (pct)							
Total solids	**18.6**	**17.1**	**18.8**	**15.7**	**17.3**	**16.4**	**15.9**
Metals (mg/kg)							
Cadmium	**5.34**	**2.51**	**3.04**	**2.87**	**3.22**	**3.57**	**4.16**
Polycyclic Aromatic Hydrocarbons (µg/kg)							
2-Methylnaphthalene	2.69 UJ	2.87 UJ	2.66 UJ	3.12 UJ	2.89 UJ	2.99 UJ	3.08 UJ
Acenaphthene	2.69 U	**3.74**	2.66 U	3.12 U	2.89 U	2.99 U	3.08 U
Acenaphthylene	2.69 UJ	2.87 UJ	2.66 UJ	3.12 UJ	2.89 UJ	2.99 UJ	3.08 UJ
Anthracene	2.69 U	**3.8**	**4.15**	3.12 U	2.89 U	2.99 U	**4.09**
Benzo(a)anthracene	2.69 U	2.87 U	2.66 U	3.12 U	2.89 U	2.99 U	3.08 U
Benzo(a)pyrene	2.69 U	2.87 U	2.66 U	3.12 U	2.89 U	2.99 U	3.08 U
Benzo(b)fluoranthene	2.69 U	2.87 U	2.66 U	3.12 U	2.89 U	2.99 U	3.08 U
Benzo(e)pyrene	2.69 U	2.87 U	2.66 U	3.12 U	2.89 U	2.99 U	3.08 U
Benzo(g,h,i)perylene	2.69 U	2.87 U	2.66 U	3.12 U	2.89 U	2.99 U	3.08 U
Benzo(k)fluoranthene	2.69 U	2.87 U	2.66 U	3.12 U	2.89 U	2.99 U	3.08 U
Chrysene	2.69 U	**3.51**	2.66 U	3.12 U	2.89 U	2.99 U	3.08 U
Dibenzo(a,h)anthracene	2.69 U	2.87 U	2.66 U	3.12 U	2.89 U	2.99 U	3.08 U
Fluoranthene	2.69 U	**9.71**	**5.74**	**5.86**	**7.63**	**3.78**	**3.9**
Fluorene	2.69 U	**3.1**	2.66 U	3.12 U	2.89 U	2.99 U	3.08 U
Indeno(1,2,3-c,d)pyrene	2.69 U	2.87 U	2.66 U	3.12 U	2.89 U	2.99 U	3.08 U
Naphthalene	**3.55 J**	**3.63 J**	**3.14 J**	**3.63 J**	**3.41 J**	**3.72 J**	**3.33 J**
Perylene	2.69 U	2.87 U	2.66 U	3.12 U	2.89 U	2.99 U	3.08 U
Phenanthrene	2.69 U	**11.3**	**9.68**	**7.2**	**8.55**	**4.7**	**4.28**
Pyrene	2.69 U	**9.71**	**8.4**	**4.08**	**5.95**	**3.41**	**7.11**
Total cPAH TEQ (7 minimum CAEPA 2005) (U = 1/2)	2.69 U	**2.19**	2.66 U	3.12 U	2.89 U	2.99 U	3.08 U
Total PAH (19) (U = 1/2)	**27.8 J**	**64.3 J**	**49.7 J**	**44.2 J**	**47.2 J**	**38 J**	**44.3 J**
Total HPAH (SMS) (U = 1/2)	2.69 U	**33**	**24.8**	**22.4**	**25.1**	**19.2**	**23.3**
Total LPAH (SMS) (U = 1/2)	**10.3 J**	**27 J**	**21 J**	**17.1 J**	**17.7 J**	**14.4 J**	**16.3 J**
Total PAH (SMS) (U = 1/2)	**23.7 J**	**60 J**	**45.7 J**	**39.5 J**	**42.9 J**	**33.6 J**	**39.7 J**
Total cPAH TEQ (7 minimum CAEPA 2005) (U = 0)	2.69 U	**0.0351**	2.66 U	3.12 U	2.89 U	2.99 U	3.08 U
Total PAH (19) (U = 0)	**3.55 J**	**48.5 J**	**31.1 J**	**20.8 J**	**25.5 J**	**15.6 J**	**22.7 J**
Total HPAH (SMS) (U = 0)	2.69 U	**22.9**	**14.1**	**9.94**	**13.6**	**7.19**	**11**
Total LPAH (SMS) (U = 0)	**3.55 J**	**25.6 J**	**17 J**	**10.8 J**	**12 J**	**8.42 J**	**11.7 J**
Total PAH (SMS) (U = 0)	**3.55 J**	**48.5 J**	**31.1 J**	**20.8 J**	**25.5 J**	**15.6 J**	**22.7 J**
Dioxin Furans (ng/kg)							
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	0.247 U	0.222 U	0.431 U	0.357 U	0.202 U	0.238 U	0.377 U
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	**0.199 J**	0.363 U	0.564 U	0.624 U	0.301 U	0.299 U	0.522 U
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	0.258 U	0.251 U	0.447 U	0.503 U	0.283 U	0.293 U	0.453 U
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	**0.21 J**	0.287 U	0.457 U	0.522 U	0.283 U	**0.274 J**	0.459 U
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	**0.344 J**	**0.339 J**	0.479 U	0.541 U	0.301 U	0.311 U	**0.333 J**
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	**2.53 J**	**4.15 J**	**2.15 J**	**3.38 J**	**2.02 J**	**1.64 J**	**4.21 J**
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	**31.9 J**	**65.5**	21.9 U	**73.2**	16.2 U	18.5 U	**71.1**
Total Tetrachlorodibenzo-p-dioxin (TCDD)	**0.258**	**1.98**	**0.633**	**1.57**	**1.28**	**0.957**	**1.66**

Table F-3
Season 2 Event 1 Dry Weight Caged Mussel Results

Task	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1
Location Name	Penn Cove Stock	WS-1	GP-1	PJ-1	SMA-1-1	SMA-1-2	SMA-1-3
Location ID	Composite	PG-WS-1_2016	PG-GP-1_2016	PG-PJ-1_2016	PG-SMA1-1_2016	PG-SMA1-2_2016	PG-SMA1-3_2016
Sample ID	PG-T0-MUS-COC-160816	PG-REF-WS-1-161011	PG-REF-GP-1-161011	PG-REF-PJ-1-161011	PG-SMA-1-1-161011	PG-SMA-1-2-161011	PG-SMA-1-3-161011
Sample Date	8/16/2016	10/11/2016	10/11/2016	10/11/2016	10/11/2016	10/11/2016	10/11/2016
Sample Type	N	N	N	N	N	N	N
Matrix	TA	TA	TA	TA	TA	TA	TA
X	--	1210321.538	1213717.772	1213795.915	1211773.254	1212039.379	1212205.620
Y	--	312255.182	313573.470	315509.149	317963.919	317543.542	317081.123
Total Pentachlorodibenzo-p-dioxin (PeCDD)	**0.446**	0.199 U	0.335 U	0.344 U	**0.306**	0.189 U	**0.333**
Total Hexachlorodibenzo-p-dioxin (HxCDD)	**0.554**	**1.65**	0.266 U	**1.01**	**1.05**	**1.26**	**1.06**
Total Heptachlorodibenzo-p-dioxin (HpCDD)	**6.08**	**14.4**	**9.68**	**11.3**	**12.6**	**11**	**13**
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	**0.398 J**	**0.491 J**	**0.319 J**	**0.363 J**	**0.486 J**	**0.518 J**	**0.509 J**
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	0.376 U	0.339 U	0.559 U	0.42 U	0.202 U	0.244 U	0.17 U
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	0.21 U	0.263 U	0.543 U	0.414 U	0.191 U	0.232 U	0.365 U
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	**0.177 J**	**0.123 J**	**0.197 J**	0.293 U	0.168 U	0.177 U	0.289 U
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	0.145 U	**0.123 J**	0.239 U	0.293 U	0.168 U	0.177 U	**0.314 J**
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	0.624 U	0.246 U	0.399 U	0.433 U	0.318 U	0.274 U	0.56 U
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	**0.21 J**	0.199 U	0.255 U	0.306 U	0.173 U	0.183 U	0.289 U
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	**0.597 J**	**0.947 J**	**0.261 J**	**0.452 J**	**0.179 J**	**0.293 J**	**0.918 J**
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	**0.21 J**	**0.105 J**	0.404 U	0.541 U	**0.0983 J**	0.152 U	**0.182 J**
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	**2.9 J**	**4.67 J**	1.61 U	**6.43 J**	0.763 U	0.555 U	**7.3 J**
Total Tetrachlorodibenzofuran (TCDF)	**0.398 J**	**2.29**	**0.574 J**	**1.82**	**1.52**	**1.28**	**2.16**
Total Pentachlorodibenzofuran (PeCDF)	**0.844 J**	**1.37**	**1.12**	**1.66**	**1.61**	**1.34**	**1.04 J**
Total Hexachlorodibenzofuran (HxCDF)	**1.01 J**	**0.485 J**	**0.596 J**	**0.79 J**	**0.405 J**	**0.274 J**	**1.06 J**
Total Heptachlorodibenzofuran (HpCDF)	**1.63**	**2.85**	**0.92**	**2.76**	**0.578**	**0.451**	**3.64**
Total Dioxin/Furan (U = 1/2)	**40.6 J**	**77.5 J**	**17.1 J**	**86.4 J**	**12.6 J**	**13.5 J**	**86.6 J**
Total Dioxin/Furan TEQ 2005 (Mammal) (U = 1/2)	**0.589 J**	**0.567 J**	**0.782 J**	**0.805 J**	**0.442 J**	**0.48 J**	**0.802 J**
Total Dioxin/Furan (U = 0)	**39.7 J**	**76.4 J**	**2.93 J**	**83.8 J**	**2.78 J**	**2.73 J**	**84.9 J**
Total Dioxin/Furan TEQ 2005 (Mammal) (U = 0)	**0.377 J**	**0.181 J**	**0.0757 J**	**0.0985 J**	**0.0716 J**	**0.0985 J**	**0.192 J**
PCB Congeners (ng/kg)							
PCB-001	5.91 U	5.03 U	3.24 U	3.57 U	5.78 U	7.93 U	8.18 U
PCB-002	4.35 U	4.04 U	2.61 U	2.87 U	4.51 U	6.1 U	6.29 U
PCB-003	5.91 U	5.09 U	3.3 U	3.63 U	5.78 U	8.54 U	8.81 U
PCB-004	96.8 U	49.1 U	31.4 U	70.1 U	121 U	134 U	157 U
PCB-005	37.6 U	18.1 U	17 U	22.3 U	52.6 U	47 U	62.9 U
PCB-006	29.6 U	15.8 U	14.9 U	19.1 U	41 U	36.6 U	49.7 U
PCB-007	33.3 U	17.5 U	16.5 U	21 U	46.8 U	41.5 U	56 U
PCB-008	27.4 U	15.8 U	14.9 U	19.1 U	38.7 U	34.8 U	46.5 U
PCB-009	29 U	15.8 U	14.9 U	19.1 U	40.5 U	36 U	49.1 U
PCB-010	113 U	56.7 U	36.2 U	82.8 U	145 U	159 U	189 U
PCB-011	44.6 U	**59.1**	**58**	**72.6**	**53.8 J**	**53 J**	52.2 U
PCB-012/013	33.9 U	18.1 U	17 U	21.7 U	47.4 U	42.1 U	57.2 U
PCB-014	29 U	15.2 U	14.4 U	18.5 U	41 U	36.6 U	49.7 U
PCB-015	64.5 U	32.2 U	30.3 U	38.9 U	92.5 U	79.3 U	107 U
PCB-016	19.4 U	**15.2 J**	17 U	34.4 U	50.3 U	39.6 U	29.6 U
PCB-017	17.2 U	8.19 U	12.2 U	24.8 U	45.1 U	35.4 U	26.4 U
PCB-018/030	**22.6 J**	26.3 U	**21.3 J**	**22.3 J**	35.8 U	28 U	20.8 U
PCB-019	10.2 U	5.56 U	8.51 U	16.6 U	26.6 U	21.3 U	15.7 U
PCB-020/028	**67.7 J**	**159**	**82.4 J**	**103 J**	**104 J**	**89.6 J**	**89.9 J**
PCB-021/033	13.4 U	**40.9 J**	**19.2 J**	**24.5 J**	**23.2 J**	**18.3 J**	**22.3 J**
PCB-022	6.99 U	**21.9 J**	**13.8 J**	**13.2 J**	**10 J**	**9.76 J**	**12.5 J**

Table F-3
Season 2 Event 1 Dry Weight Caged Mussel Results

Task	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1
Location Name	Penn Cove Stock	WS-1	GP-1	PJ-1	SMA-1-1	SMA-1-2	SMA-1-3
Location ID	Composite	PG-WS-1_2016	PG-GP-1_2016	PG-PJ-1_2016	PG-SMA1-1_2016	PG-SMA1-2_2016	PG-SMA1-3_2016
Sample ID	PG-T0-MUS-COC-160816	PG-REF-WS-1-161011	PG-REF-GP-1-161011	PG-REF-PJ-1-161011	PG-SMA-1-1-161011	PG-SMA-1-2-161011	PG-SMA-1-3-161011
Sample Date	8/16/2016	10/11/2016	10/11/2016	10/11/2016	10/11/2016	10/11/2016	10/11/2016
Sample Type	N	N	N	N	N	N	N
Matrix	TA	TA	TA	TA	TA	TA	TA
X	--	1210321.538	1213717.772	1213795.915	1211773.254	1212039.379	1212205.620
Y	--	312255.182	313573.470	315509.149	317963.919	317543.542	317081.123
PCB-023	4.14 U	3.39 U	4.31 U	4.01 U	4.28 U	7.93 U	2.7 U
PCB-024	15.1 U	7.02 U	10.1 U	21 U	38.7 U	30.5 U	22.6 U
PCB-025	5.05 U	**8.42 J**	**4.63 J**	**5.86 J**	5.03 U	7.32 U	**5.79 J**
PCB-026/029	**8.01 J**	**15.8 J**	8.51 U	**12 J**	9.25 U	**8.54 J**	**10.3 J**
PCB-027	11.8 U	5.79 U	8.51 U	17.2 U	30.6 U	24.4 U	18.2 U
PCB-031	**33.4 J**	**70.8**	**39 J**	**48.3 J**	**42 J**	**39.6 J**	**40.9 J**
PCB-032	10.8 U	5.44 U	7.98 U	16.6 U	28.3 U	22 U	16.4 U
PCB-034	3.66 U	2.69 U	3.46 U	3.25 U	3.82 U	7.32 U	2.39 U
PCB-035	3.82 U	2.98 U	3.83 U	3.57 U	3.99 U	7.32 U	2.52 U
PCB-036	3.28 U	2.51 U	3.19 U	2.99 U	3.41 U	6.71 U	2.2 U
PCB-037	**11.3 J**	29.8 U	**13.8 J**	**19.1 J**	**17.3 J**	**15.9 J**	**15.9 J**
PCB-038	3.92 U	2.98 U	3.78 U	3.57 U	4.05 U	7.32 U	2.58 U
PCB-039	3.98 U	3.04 U	3.88 U	3.63 U	4.16 U	7.93 U	2.64 U
PCB-040/041/071	34.4 U	**66.7 J**	**48.9 J**	**63.1 J**	**58.4 J**	**53 J**	**60.4 J**
PCB-042	**21 J**	**35.1 J**	**29.3 J**	**33.1 J**	**24.3 J**	25.6 U	**28.3 J**
PCB-043	12.4 U	9.94 U	13.8 U	23.6 U	14.5 U	34.1 U	16.4 U
PCB-044/047/065	**142 J**	**182**	**139 J**	**172 J**	**166 J**	**157 J**	**158 J**
PCB-045/051	8.06 U	**11.7 J**	10.1 U	17.2 U	9.83 U	22.6 U	10.7 U
PCB-046	9.14 U	8.77 U	11.7 U	20.4 U	11 U	25.6 U	11.9 U
PCB-048	**19.4 J**	**38.6 J**	**21.8 J**	**35.7 J**	**30.1 J**	25.6 U	**25.8 J**
PCB-049/069	**54.3 J**	**69.6 J**	**70.2 J**	**66.9 J**	**44.5 J**	**48.2 J**	**59.1 J**
PCB-050/053	**28.5 J**	**28.7 J**	**19.7 J**	**25.5 J**	22.5 U	**23.2 J**	**26.4 J**
PCB-052	**189**	**260**	**212**	**275**	**206**	**190**	**196**
PCB-054	3.76 U	3.22 U	2.39 U	2.04 U	4.97 U	7.93 U	3.52 U
PCB-055	4.19 U	4.27 U	5.85 U	8.92 U	4.34 U	5.12 U	4.97 U
PCB-056	**12.3 J**	**27.1 J**	**19.1 J**	**23.6 J**	12.7 U	**14.9 J**	**18.1 J**
PCB-057	3.6 U	3.33 U	4.52 U	7.01 U	3.7 U	4.45 U	4.28 U
PCB-058	3.98 U	3.98 U	5.32 U	8.28 U	4.16 U	4.94 U	4.78 U
PCB-059/062/075	**12.9 J**	**16.4 J**	**10.6 J**	12.7 U	**13.3 J**	16.5 U	**14.5 J**
PCB-060	12.4 U	**29 J**	**14.9 J**	**23.6 J**	**17.1 J**	**19 J**	15.1 U
PCB-061/070/074/076	**140 J**	**260**	**165 J**	**261**	**185 J**	**193 J**	**187 J**
PCB-063	**5 J**	**6.73 J**	4.52 U	7.01 U	**5.26 J**	**5.91 J**	5.35 U
PCB-064	**12.9 J**	**30.4 J**	**22.9 J**	**24.2 J**	**12.7 J**	17.7 U	**20.8 J**
PCB-066	**66.7**	**118**	**70.7**	**115**	**90.2**	79.3 U	**86.2**
PCB-067	3.33 U	**5.15 J**	4.26 U	7.01 U	3.47 U	4.15 U	4.03 U
PCB-068	5.91 U	**5.03 J**	4.63 U	7.64 U	6.36 U	5.49 U	5.79 U
PCB-072	**4.68 J**	**5.15 J**	4.36 U	7.01 U	**4.57 J**	**4.33 J**	**4.65 J**
PCB-073	5.91 U	5.32 U	7.45 U	12.7 U	6.94 U	16.5 U	7.55 U
PCB-077	**7.53 J**	15.8 U	**11.7 J**	**12.1 J**	10.4 U	**13.4 J**	**11.9 J**
PCB-078	3.82 U	3.57 U	4.84 U	7.64 U	3.93 U	4.7 U	4.53 U
PCB-079	3.39 U	3.1 U	4.26 U	7.01 U	3.47 U	4.15 U	4.03 U
PCB-080	3.28 U	3.1 U	4.2 U	7.01 U	3.41 U	4.02 U	3.9 U
PCB-081	5.91 U	5.26 U	6.91 U	11.5 U	6.36 U	7.32 U	6.92 U

Table F-3
Season 2 Event 1 Dry Weight Caged Mussel Results

Task	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1
Location Name	Penn Cove Stock	WS-1	GP-1	PJ-1	SMA-1-1	SMA-1-2	SMA-1-3
Location ID	Composite	PG-WS-1_2016	PG-GP-1_2016	PG-PJ-1_2016	PG-SMA1-1_2016	PG-SMA1-2_2016	PG-SMA1-3_2016
Sample ID	PG-T0-MUS-COC-160816	PG-REF-WS-1-161011	PG-REF-GP-1-161011	PG-REF-PJ-1-161011	PG-SMA-1-1-161011	PG-SMA-1-2-161011	PG-SMA-1-3-161011
Sample Date	8/16/2016	10/11/2016	10/11/2016	10/11/2016	10/11/2016	10/11/2016	10/11/2016
Sample Type	N	N	N	N	N	N	N
Matrix	TA	TA	TA	TA	TA	TA	TA
X	--	1210321.538	1213717.772	1213795.915	1211773.254	1212039.379	1212205.620
Y	--	312255.182	313573.470	315509.149	317963.919	317543.542	317081.123
PCB-082	15.1 U	**20.7 J**	**27.7 J**	21 U	**16.2 J**	15.2 U	**18.2 J**
PCB-083/099	**384**	**456**	**351**	**517**	**425**	**486**	**440**
PCB-084	**30.6 J**	**38.7 J**	**57.4**	47.1 U	**31.2 J**	**38.4 J**	**39.6 J**
PCB-085/116/117	**64.5 J**	**77.2 J**	**63.3 J**	**94.9 J**	**77.5 J**	**76.8 J**	**73 J**
PCB-086/087/097/109/119/125	**137 J**	**173 J**	**185 J**	**204 J**	**145 J**	**149 J**	**157 J**
PCB-088/091	**16.7 J**	17 U	**31.1 J**	**25.5 J**	**14.5 J**	**22.6 J**	**23.9 J**
PCB-089	8.06 U	4.33 U	4.84 U	6.18 U	9.83 U	14 U	7.55 U
PCB-090/101/113	**433**	**520**	**436**	**573**	**482**	**524**	**479**
PCB-092	**90.3**	**105**	**85.6**	**107**	**101**	**109**	**100**
PCB-093/098/100/102	22 U	22.2 U	**18.6 J**	**25 J**	9.25 U	29.9 U	**27.7 J**
PCB-094	8.6 U	4.85 U	5.32 U	7.01 U	10.4 U	15.2 U	8.18 U
PCB-095	**208**	**247**	**240**	**280**	**225**	**250**	**230**
PCB-096	5.27 U	**2.98 J**	2.23 U	1.59 U	10.4 U	12.8 U	3.4 U
PCB-103	**10.8 J**	8.19 U	**6.54 J**	**10 J**	7.51 U	**14 J**	**8.81 J**
PCB-104	3.01 U	0.877 U	0.585 U	0.828 U	5.78 U	7.32 U	1.26 U
PCB-105	**81.7**	**138**	**104**	**159**	**116**	**124**	**116**
PCB-106	4.84 U	4.09 U	3.99 U	5.22 U	5.43 U	7.32 U	5.91 U
PCB-107	**24.7 J**	**34.3 J**	**25 J**	**39.6 J**	**28.7 J**	**34.8 J**	**30.2 J**
PCB-108/124	**9.3 J**	13.5 U	**13.3 J**	**11 J**	**11.3 J**	**12.2 J**	**11.3 J**
PCB-110/115	**240**	**316**	**346**	**394**	**247**	**263**	**276**
PCB-111	6.45 U	3.39 U	3.78 U	4.84 U	7.51 U	11 U	5.79 U
PCB-112	5.91 U	2.98 U	3.35 U	4.27 U	6.94 U	9.76 U	5.16 U
PCB-114	6.45 U	6.43 U	5.11 U	6.37 U	7.51 U	9.76 U	8.18 U
PCB-118	**299**	**438**	**344**	**504**	**373**	**423**	**391**
PCB-120	5.38 U	2.98 U	3.3 U	4.2 U	6.94 U	9.76 U	5.09 U
PCB-121	5.91 U	3.27 U	3.62 U	4.65 U	6.94 U	10.4 U	5.53 U
PCB-122	5 U	4.15 U	4.1 U	5.35 U	5.61 U	7.32 U	6.1 U
PCB-123	7.53 U	7.02 U	5.85 U	7.64 U	8.67 U	11 U	8.81 U
PCB-126	6.99 U	5.44 U	5.32 U	7.01 U	7.51 U	10.4 U	8.18 U
PCB-127	4.46 U	3.86 U	3.78 U	4.9 U	5.03 U	6.71 U	5.47 U
PCB-128/166	**71.5 J**	**107 J**	**102**	82.8 U	**93.6 J**	**102 J**	**110 J**
PCB-129/138/163	**629**	**924**	**761**	**898**	**838**	**982**	**887**
PCB-130	**36 J**	**50.3 J**	38.8 U	**49.7 J**	**48 J**	**53.7 J**	**44.7 J**
PCB-131	23.7 U	15.8 U	9.04 U	20.4 U	30.6 U	39.6 U	13.8 U
PCB-132	**51.6 J**	**91.8**	**127**	**90.4**	**59**	**66.5**	**88.1**
PCB-133	20.4 U	**27.5 J**	**17.6 J**	**21.7 J**	**27.2 J**	34.1 U	**26.4 J**
PCB-134/143	21.5 U	**28.7 J**	**22.9 J**	**29.3 J**	**30.6 J**	36 U	**29.6 J**
PCB-135/151	**208**	**299**	**218**	**275**	**314**	**368**	**314**
PCB-136	**40.3 J**	**61.4**	**52.1**	**63.1**	**69.9**	**76.8**	**65.4**
PCB-137	22 U	14.6 U	9.04 U	18.5 U	28.9 U	37.2 U	13.2 U
PCB-139/140	18.8 U	16.4 U	10.6 U	**18.5 J**	24.9 U	31.7 U	11.3 U
PCB-141	19.4 U	13.5 U	**29.3 J**	17.8 U	25.4 U	32.9 U	11.9 U
PCB-142	21 U	14.6 U	7.98 U	18.5 U	27.7 U	35.4 U	12.6 U

Table F-3
Season 2 Event 1 Dry Weight Caged Mussel Results

Task	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1
Location Name	Penn Cove Stock	WS-1	GP-1	PJ-1	SMA-1-1	SMA-1-2	SMA-1-3
Location ID	Composite	PG-WS-1_2016	PG-GP-1_2016	PG-PJ-1_2016	PG-SMA1-1_2016	PG-SMA1-2_2016	PG-SMA1-3_2016
Sample ID	PG-T0-MUS-COC-160816	PG-REF-WS-1-161011	PG-REF-GP-1-161011	PG-REF-PJ-1-161011	PG-SMA-1-1-161011	PG-SMA-1-2-161011	PG-SMA-1-3-161011
Sample Date	8/16/2016	10/11/2016	10/11/2016	10/11/2016	10/11/2016	10/11/2016	10/11/2016
Sample Type	N	N	N	N	N	N	N
Matrix	TA	TA	TA	TA	TA	TA	TA
X	--	1210321.538	1213717.772	1213795.915	1211773.254	1212039.379	1212205.620
Y	--	312255.182	313573.470	315509.149	317963.919	317543.542	317081.123
PCB-144	**15.1 J**	**29.8 J**	**22.3 J**	**28.7 J**	27.2 U	34.1 U	**30.8 J**
PCB-145	9.68 U	7.02 U	9.57 U	11.5 U	8.67 U	15.9 U	12.6 U
PCB-146	**162**	**219**	**157**	**189**	**214**	**245**	**222**
PCB-147/149	**455**	**585**	**494**	**536**	**613**	**701**	**584**
PCB-148	11.3 U	8.19 U	11.2 U	13.4 U	9.83 U	18.3 U	14.5 U
PCB-150	9.14 U	6.43 U	9.04 U	10.8 U	8.09 U	14.6 U	11.3 U
PCB-152	8.06 U	5.79 U	7.98 U	9.55 U	6.94 U	12.8 U	10.1 U
PCB-153/168	**903**	**1230**	**947**	**1180**	**1210**	**1420**	**1240**
PCB-154	**28.5 J**	**36.8 J**	**25 J**	**29.9 J**	**35.8 J**	44.5 U	**36.5 J**
PCB-155	5.22 U	4.04 U	5.85 U	7.01 U	4.57 U	8.54 U	6.29 U
PCB-156/157	21 U	**47.9 J**	38.8 U	**47.1 J**	**36.1 J**	**39.6 J**	**37.1 J**
PCB-158	**33.3 J**	52 U	**48.9 J**	**56.7 J**	**53.2 J**	**62.2**	**53.5 J**
PCB-159	5.91 U	3.63 U	4.36 U	6.31 U	3.82 U	5.85 U	3.84 U
PCB-160	18.3 U	12.9 U	6.91 U	15.9 U	23.7 U	30.5 U	10.7 U
PCB-161	14.5 U	9.94 U	5.85 U	12.7 U	19.1 U	24.4 U	8.81 U
PCB-162	6.45 U	4.04 U	4.84 U	7.01 U	4.28 U	6.71 U	4.28 U
PCB-164	16.1 U	**15.8 J**	17 U	14 U	20.8 U	26.8 U	10.7 U
PCB-165	17.2 U	12.3 U	6.91 U	15.9 U	22.5 U	29.3 U	10.1 U
PCB-167	16.1 U	**31.2 J**	**25.5 J**	**24.8 J**	**22.5 J**	**32.9 J**	**28.2 J**
PCB-169	9.14 U	5.32 U	6.38 U	8.92 U	5.78 U	9.15 U	5.85 U
PCB-170	8.6 U	**28.1 J**	**27.1 J**	**22.5 J**	**20.2 J**	8.54 U	6.92 U
PCB-171/173	22 U	**42.7 J**	**35.1 J**	32.5 U	**38.2 J**	**42.1 J**	**45.9 J**
PCB-172	11.8 U	12.3 U	9.04 U	8.92 U	8.67 U	11.6 U	9.43 U
PCB-174	11.8 U	11.1 U	12.8 U	8.28 U	8.67 U	11.6 U	9.43 U
PCB-175	5.38 U	5.15 U	4.63 U	6.37 U	9.25 U	15.2 U	14.5 U
PCB-176	**8.66 J**	**19.1 J**	12.8 U	**15.7 J**	**19.1 J**	**23.8 J**	17 U
PCB-177	**44.6 J**	**98.2**	**69.1**	**84.7**	**86.7**	104 U	**91.2**
PCB-178	**38.2 J**	**59.1**	**43.4 J**	51 U	**57.8**	**74.4**	62.9 U
PCB-179	**43 J**	64.3 U	**53.2**	**63.7**	**73.4**	79.3 U	**76.7**
PCB-180/193	**66.7 J**	**125**	**96.3 J**	**110 J**	**96.5 J**	**118**	**95.6 J**
PCB-181	11.8 U	12.3 U	9.57 U	8.92 U	9.25 U	12.2 U	9.43 U
PCB-182	5.91 U	5.26 U	4.68 U	6.37 U	9.83 U	15.9 U	15.1 U
PCB-183	**60.8**	**121**	**83**	**100**	**91.3**	**126**	**109**
PCB-184	4.35 U	3.98 U	3.56 U	4.9 U	7.51 U	12.2 U	11.3 U
PCB-185	13.4 U	12.3 U	9.57 U	8.92 U	10.4 U	13.4 U	11.3 U
PCB-186	4.78 U	4.39 U	3.94 U	5.41 U	8.09 U	13.4 U	11.9 U
PCB-187	**238**	**371**	**278**	**358**	**368**	**431**	**399**
PCB-188	3.71 U	3.68 U	3.3 U	4.52 U	6.36 U	10.4 U	9.43 U
PCB-189	5.91 U	9.94 U	6.38 U	9.55 U	11.6 U	9.15 U	6.92 U
PCB-190	9.14 U	9.36 U	**9.04 J**	7.01 U	6.94 U	9.15 U	7.55 U
PCB-191	8.6 U	8.77 U	6.91 U	6.37 U	6.94 U	8.54 U	6.92 U
PCB-192	10.2 U	10.5 U	7.98 U	7.64 U	8.09 U	10.4 U	8.18 U
PCB-194	8.06 U	7.6 U	17.6 U	26.8 U	8.67 U	23.8 U	16.4 U

Table F-3
Season 2 Event 1 Dry Weight Caged Mussel Results

Task	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1
Location Name	Penn Cove Stock	WS-1	GP-1	PJ-1	SMA-1-1	SMA-1-2	SMA-1-3
Location ID	Composite	PG-WS-1_2016	PG-GP-1_2016	PG-PJ-1_2016	PG-SMA1-1_2016	PG-SMA1-2_2016	PG-SMA1-3_2016
Sample ID	PG-T0-MUS-COC-160816	PG-REF-WS-1-161011	PG-REF-GP-1-161011	PG-REF-PJ-1-161011	PG-SMA-1-1-161011	PG-SMA-1-2-161011	PG-SMA-1-3-161011
Sample Date	8/16/2016	10/11/2016	10/11/2016	10/11/2016	10/11/2016	10/11/2016	10/11/2016
Sample Type	N	N	N	N	N	N	N
Matrix	TA	TA	TA	TA	TA	TA	TA
X	--	1210321.538	1213717.772	1213795.915	1211773.254	1212039.379	1212205.620
Y	--	312255.182	313573.470	315509.149	317963.919	317543.542	317081.123
PCB-195	8.6 U	5.79 U	19.1 U	29.3 U	9.25 U	25 U	17.6 U
PCB-196	5.91 U	8.19 U	25.5 U	28.7 U	12.1 U	79.3 U	14.5 U
PCB-197	4.78 U	6.43 U	20.2 U	22.9 U	10.4 U	61 U	11.3 U
PCB-198/199	5.91 U	8.77 U	26.6 U	29.9 U	13.3 U	85.4 U	15.1 U
PCB-200	3.71 U	5.56 U	17.6 U	19.7 U	8.09 U	53.7 U	10.1 U
PCB-201	3.87 U	**14.4 J**	17.6 U	19.7 U	8.09 U	54.9 U	**11.9 J**
PCB-202	**14 J**	**25.7 J**	18.1 U	24.2 U	**20.2 J**	56.1 U	19.5 U
PCB-203	5.91 U	8.77 U	26.1 U	29.9 U	12.7 U	85.4 U	15.1 U
PCB-204	3.92 U	5.73 U	17.6 U	19.7 U	8.67 U	55.5 U	10.1 U
PCB-205	8.06 U	5.15 U	2.87 U	6.37 U	8.67 U	17.1 U	10.7 U
PCB-206	6.99 U	14 U	8.51 U	21 U	12.1 U	20.1 U	10.1 U
PCB-207	5.38 U	11.7 U	6.91 U	17.2 U	9.83 U	16.5 U	8.18 U
PCB-208	6.99 U	14 U	8.51 U	21 U	12.1 U	20.1 U	10.1 U
PCB-209	12.9 U	15.8 U	5.32 U	22.9 U	8.09 U	20.7 U	20.1 U
Total PCB Congener (U = 1/2)	**6770 J**	**9370 J**	**7690 J**	**9500 J**	**8830 J**	**9940 J**	**9060 J**
Total PCB Congener TEQ 2005 (Mammal) (U = 1/2)	**0.501 J**	**0.373 J**	**0.379 J**	**0.51 J**	**0.481 J**	**0.679 J**	**0.517 J**
Total PCB Congener (U = 0)	**6040 J**	**8840 J**	**7190 J**	**8690 J**	**7940 J**	**8450 J**	**8140 J**
Total PCB Congener TEQ 2005 (Mammal) (U = 0)	**0.0122 J**	**0.0197 J**	**0.0154 J**	**0.0233 J**	**0.0164 J**	**0.0199 J**	**0.0184 J**

Table F-3
Season 2 Event 1 Dry Weight Caged Mussel Results

Task	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1
Location Name	Penn Cove Stock	WS-1	GP-1	PJ-1	SMA-1-1	SMA-1-2	SMA-1-3
Location ID	Composite	PG-WS-1_2016	PG-GP-1_2016	PG-PJ-1_2016	PG-SMA1-1_2016	PG-SMA1-2_2016	PG-SMA1-3_2016
Sample ID	PG-T0-MUS-COC-160816	PG-REF-WS-1-161011	PG-REF-GP-1-161011	PG-REF-PJ-1-161011	PG-SMA-1-1-161011	PG-SMA-1-2-161011	PG-SMA-1-3-161011
Sample Date	8/16/2016	10/11/2016	10/11/2016	10/11/2016	10/11/2016	10/11/2016	10/11/2016
Sample Type	N	N	N	N	N	N	N
Matrix	TA	TA	TA	TA	TA	TA	TA
X	--	1210321.538	1213717.772	1213795.915	1211773.254	1212039.379	1212205.620
Y	--	312255.182	313573.470	315509.149	317963.919	317543.542	317081.123
Dioxin Furans and PCB Congeners (ng/kg)							
Total Dioxin/Furan and PCB Congener TEQ 2005 (Mammal) (Calculated U = 1/2)	**1.09 J**	**0.94 J**	**1.16 J**	**1.31 J**	**0.923 J**	**1.16 J**	**1.32 J**
Total Dioxin/Furan and PCB Congener TEQ 2005 (Mammal) (Calculated U = 0)	**0.389 J**	**0.2 J**	**0.0911 J**	**0.122 J**	**0.088 J**	**0.118 J**	**0.211 J**

Notes:
Horizontal coordinate datum is North American Datum 1983, State Plane Washington North FIPS 4601 (U.S. Survey Feet).
Results presented are reported in dry-weight basis based on correction using total solids results shown in this table.
All undetect results are reported at the reporting limit.
U.S. Environmental Protection Agency Stage 2B data validation was completed by Laboratory Data Consultants.
Totals are calculated as the sum of all detected results (U=0). If all results are not detected, the highest limit value is reported as the sum.
Totals are calculated as the sum of all detected results and half of the reporting limit of undetected results (U=1/2). If all results are not detected, the highest limit value is reported as the sum.
Total cPAH TEQ (7 minimum California Environmental Protection Agency 2005) calculation includes benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene and indeno(1,2,3-c,d)pyrene. Per Model Toxics Control Act cleanup Regulation, Table 708-2 "Toxicity Equivalency Factors for Minimum Required Carcinogenic Polyaromatic Hydrocarbons (cPAHs) under Washington Administrative Code 173-340-708(e).
Total PAH (19) is the total of 2-methylnaphthalene, acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(e)pyrene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-c,d)pyrene, naphthalene, perylene, phenanthrene, and pyrene.
Total HPAH (SMS) is the total of benzo(a)anthracene, benzo(a)pyrene, benzo(x)fluoranthenes, benzo(g,h,i)perylene, chrysene, dibenzo(a,h)anthracene, fluoranthene, indeno(1,2,3-c,d)pyrene, and pyrene.
Total LPAH (SMS) is the total of acenaphthene, acenaphthylene, anthracene, fluorene, naphthalene, and phenanthrene. 2-Methylnapthalene is not included in the sum of LPAHs.
Total PAH (SMS) is the total of acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(x)fluoranthenes, benzo(g,h,i)perylene, chrysene, dibenzo(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-c,d)pyrene, naphthalene, phenanthrene, and pyrene. 2-Methylnapthalene is not included.
Total PCB congeners is the sum of all PCB congeners listed in this table.
Total dioxin/furan is the sum of all individual dioxin/furans (non-homolog) listed in this table.
Dioxin/furan and PCB TEQ values were calculated with 2005 World Health Organization toxic equivalency factor values for mammals.

Bold: Detected result
--: results not reported or not applicable
µg/kg: micrograms per kilogram
cPAH: carcinogenic polycyclic aromatic hydrocarbon
FD: field duplicate sample
HPAH: high-molecular-weight polycyclic aromatic hydrocarbon
J: estimated value
LPAH: low-molecular-weight polycyclic aromatic hydrocarbon
mg/kg: milligrams per kilogram
N: normal environmental sample
ng/kg: nanograms per kilogram
PAH: polycyclic aromatic hydrocarbons
PCB: polychlorinated biphenyls
pct: percent
SMS: Sediment Management Standards
TA: tissue matrix
TEQ: toxic equivalency
U: Compound analyzed, but not detected above detection limit
UJ: Compound analyzed, but not detected above estimated detection limit

Table F-4
Season 2 Event 2 Dry Weight Caged Mussel Results

Task	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2
Location Name	Penn Cove Stock	GP-1	PJ-1	SMA-1-1	Composite
Location ID	Field QC	PG-GP-1_201611	PG-PJ-1_201611	PG-SMA1-1_201611	Composite
Sample ID	PG-T0-MUS-COC-161109	PG-GP-1-MUS-170105	PG-PJ-1-MUS-170105	PG-SMA1-1-MUS-170105	PG-SMA1-2-3-MUS-170105
Sample Date	11/9/2016	1/5/2017	1/5/2017	1/5/2017	1/5/2017
Sample Type	N	N	N	N	N
Matrix	TA	TA	TA	TA	TA
X	--	1213721.398	1213128.711	1211928.879	--
Y	--	313616.757	315808.466	317839.131	--
Conventional Parameters (pct)					
Total solids	**20**	**16.3**	**15.9**	**12.9**	**15**
Metals (mg/kg)					
Cadmium	**1.15**	--	**1.45**	**1.82**	**1.83**
Semivolatile Organics (µg/kg)					
2-Chloronaphthalene	2.45 U	--	--	--	--
Polycyclic Aromatic Hydrocarbons (µg/kg)					
1-Methylnaphthalene	2.45 U	--	--	--	--
2-Methylnaphthalene	2.45 U	3.01 U	3.14 U	3.8 U	3.33 U
Acenaphthene	2.45 U	3.01 U	3.14 U	3.8 U	**4.13**
Acenaphthylene	2.45 UJ	3.01 UJ	3.14 UJ	3.8 UJ	3.33 UJ
Anthracene	2.45 U	3.01 U	3.14 U	**4.73**	**12.1**
Benzo(a)anthracene	2.45 U	3.01 U	**3.52**	**6.74**	**15.7**
Benzo(a)pyrene	2.45 U	3.01 U	3.14 U	3.8 U	**3.67**
Benzo(b)fluoranthene	2.45 U	3.01 U	**4.09**	**6.98**	**13.2**
Benzo(e)pyrene	--	**4.17**	**6.04**	**11.7**	**18.7**
Benzo(g,h,i)perylene	2.45 U	3.01 U	3.14 U	3.8 U	3.33 U
Benzo(j)fluoranthene	2.45 U	--	--	--	--
Benzo(k)fluoranthene	2.45 U	3.01 U	3.14 U	**4.26**	**6**
Benzothiophene	2.45 U	--	--	--	--
Chrysene	**2.8**	**10.1**	**9.94**	**15.2**	**25.3**
Dibenzo(a,h)anthracene	2.45 U	3.01 U	3.14 U	3.8 U	3.33 U
Dibenzofuran	2.45 U	--	--	--	--
Fluoranthene	**4.9**	**12.2**	**15.9**	**22.5**	**60.3**
Fluorene	2.45 U	3.01 U	3.14 U	**3.95**	**8.53**
Indeno(1,2,3-c,d)pyrene	2.45 U	3.01 U	3.14 U	3.8 U	3.33 U
Naphthalene	2.95 U	3.62 U	3.77 U	4.57 U	3.93 U
Perylene	--	3.01 U	3.14 U	3.8 U	**5**
Phenanthrene	**6**	**10.6**	**11.7**	**21.4**	**49.7**
Pyrene	**5.8**	**10.2**	**17.4**	**22.5**	**66.7**
Total cPAH TEQ (7 minimum CAEPA 2005) (U = 1/2)	**1.87**	**2.36**	**2.9**	**4.23**	**7.75**
Total PAH (19) (U = 1/2)	**35.7 J**	**68.6 J**	**87.7 J**	**137 J**	**299 J**
Total HPAH (SMS) (U = 1/2)	**23.3**	**43**	**58.7**	**85.8**	**196**
Total LPAH (SMS) (U = 1/2)	**12.4 J**	**18.4 J**	**19.9 J**	**36.2 J**	**78.1 J**
Total PAH (SMS) (U = 1/2)	**35.7 J**	**61.5 J**	**78.6 J**	**122 J**	**274 J**
Total cPAH TEQ (7 minimum CAEPA 2005) (U = 0)	**0.028**	**0.101**	**0.86**	**1.95**	**7.41**
Total PAH (19) (U = 0)	**19.5 J**	**47.3 J**	**68.6 J**	**120 J**	**289 J**
Total HPAH (SMS) (U = 0)	**13.5**	**32.5**	**50.9**	**78.2**	**191**
Total LPAH (SMS) (U = 0)	**6 J**	**10.6 J**	**11.7 J**	**30.1 J**	**74.5 J**
Total PAH (SMS) (U = 0)	**19.5 J**	**43.1 J**	**62.6 J**	**108 J**	**265 J**

Table F-4
Season 2 Event 2 Dry Weight Caged Mussel Results

Task	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2
Location Name	Penn Cove Stock	GP-1	PJ-1	SMA-1-1	Composite
Location ID	Field QC	PG-GP-1_201611	PG-PJ-1_201611	PG-SMA1-1_201611	Composite
Sample ID	PG-T0-MUS-COC-161109	PG-GP-1-MUS-170105	PG-PJ-1-MUS-170105	PG-SMA1-1-MUS-170105	PG-SMA1-2-3-MUS-170105
Sample Date	11/9/2016	1/5/2017	1/5/2017	1/5/2017	1/5/2017
Sample Type	N	N	N	N	N
Matrix	TA	TA	TA	TA	TA
X	--	1213721.398	1213128.711	1211928.879	--
Y	--	313616.757	315808.466	317839.131	--
Dioxin Furans (ng/kg)					
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	0.58 U	0.908 UJ	0.409 U	0.822 U	1.51 UJ
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	0.525 U	1.2 UJ	**0.642 J**	0.729 U	1.91 UJ
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	0.585 U	1.16 UJ	0.472 U	0.868 U	3.21 UJ
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	0.585 U	1.21 UJ	**0.686 J**	0.86 U	3.47 UJ
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	0.52 U	1.23 UJ	0.931 U	0.899 U	3.49 UJ
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	2.89 U	**6.2 J**	7.23 U	5.03 U	**8.47 J**
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	17.2 U	46.1 U	52.9 U	38 U	**73.3 J**
Total Tetrachlorodibenzo-p-dioxin (TCDD)	0 U	**1.67 J**	**3.5**	**1.19**	0.747 UJ
Total Pentachlorodibenzo-p-dioxin (PeCDD)	0 U	0.687 UJ	**0.642**	0.496 U	1.13 UJ
Total Hexachlorodibenzo-p-dioxin (HxCDD)	**0.52 J**	0.626 UJ	**4.6 J**	0.395 U	1.63 UJ
Total Heptachlorodibenzo-p-dioxin (HpCDD)	**5.05 J**	**17.9 J**	**22.1 J**	**16.1 J**	**22.7 J**
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	0.58 U	0.908 UJ	**1.32 J**	**1.19 J**	1.04 UJ
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	0.52 U	0.988 UJ	0.585 U	0.682 U	1.83 UJ
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	0.5 U	0.939 U	0.541 U	0.651 U	1.79 UJ
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	0.465 U	0.644 UJ	0.352 U	0.512 U	1.31 UJ
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	0.455 U	0.669 UJ	0.346 U	0.512 U	1.37 UJ
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	0.665 U	0.761 UJ	0.673 U	0.574 U	1.61 UJ
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	0.48 U	0.693 UJ	0.346 U	0.504 U	1.44 UJ
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	0.76 U	1.26 UJ	1.82 U	1.06 U	1.53 UJ
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	0.945 U	1.1 UJ	0.553 U	0.388 U	1.76 UJ
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	2.67 U	3.14 U	4.25 U	3.29 U	4.35 UJ
Total Tetrachlorodibenzofuran (TCDF)	0 U	**1.18 J**	**6.42**	**3.1**	0.513 UJ
Total Pentachlorodibenzofuran (PeCDF)	0 U	**0.883 J**	**0.66**	0.45 U	1.18 UJ
Total Hexachlorodibenzofuran (HxCDF)	**0.665 J**	0.344 UJ	**1.71 J**	**0.574 J**	0.88 UJ
Total Heptachlorodibenzofuran (HpCDF)	**0.76 J**	**3.57 J**	**4.21 J**	**2.67 J**	**4.79 J**
Total Dioxin/Furan (U = 1/2)	17.2 U	**37.7 J**	**38.4 J**	**28.9 J**	**97.6 J**
Total Dioxin/Furan (U = 0)	17.2 U	**6.2 J**	**2.65 J**	**1.19 J**	**81.8 J**
Total Dioxin/Furan TEQ 2005 (Mammal) (U = 1/2)	0.58 U	**1.65 J**	**1.35 J**	**1.28 J**	**2.98 J**
Total Dioxin/Furan TEQ 2005 (Mammal) (U = 0)	0.58 U	**0.062 J**	**0.843 J**	**0.119 J**	**0.107 J**
PCB Congeners (ng/kg)					
PCB-001	3.4 U	6.13 U	4.15 U	5.04 U	6.33 U
PCB-002	2.85 U	5.71 U	3.71 U	4.19 U	5.73 U
PCB-003	3.5 U	6.13 U	4.21 U	5.12 U	6.47 U
PCB-004	32 U	110 U	81.8 U	85.3 U	93.3 U
PCB-005	25 U	46.6 U	44 U	43.4 U	48.7 U
PCB-006	20.5 U	38 U	35.8 U	35.7 U	39.3 U
PCB-007	24 U	42.3 U	39.6 U	41.1 U	44 U
PCB-008	20.5 U	33.1 U	31.4 U	35.7 U	34.7 U
PCB-009	21 U	36.2 U	34.6 U	36.4 U	38 U

Table F-4
Season 2 Event 2 Dry Weight Caged Mussel Results

Task	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2
Location Name	Penn Cove Stock	GP-1	PJ-1	SMA-1-1	Composite
Location ID	Field QC	PG-GP-1_201611	PG-PJ-1_201611	PG-SMA1-1_201611	Composite
Sample ID	PG-T0-MUS-COC-161109	PG-GP-1-MUS-170105	PG-PJ-1-MUS-170105	PG-SMA1-1-MUS-170105	PG-SMA1-2-3-MUS-170105
Sample Date	11/9/2016	1/5/2017	1/5/2017	1/5/2017	1/5/2017
Sample Type	N	N	N	N	N
Matrix	TA	TA	TA	TA	TA
X	--	1213721.398	1213128.711	1211928.879	--
Y	--	313616.757	315808.466	317839.131	--
PCB-010	46 U	153 U	113 U	124 U	133 U
PCB-011	**37.5 J**	**52.8 J**	**48.4 J**	**46.5 J**	**48 J**
PCB-012/013	23 U	39.3 U	37.1 U	39.5 U	40.7 U
PCB-014	20.5 U	34.4 U	32.7 U	35.7 U	36 U
PCB-015	41 U	67.5 U	69.2 U	70.5 U	73.3 U
PCB-016	65 U	50.3 U	35.8 U	76 U	50.7 U
PCB-017	40.5 U	36.2 U	25.8 U	45.7 U	36.7 U
PCB-018/030	33 U	**35 J**	**37.1 J**	37.2 U	34 U
PCB-019	22.5 U	19.6 U	13.8 U	25.6 U	20 U
PCB-020/028	**68 J**	**126**	**137**	**99.2 J**	**138**
PCB-021/033	**18.4 J**	**34.4 J**	28.9 U	**24.2 J**	**33.3 J**
PCB-022	9.5 U	22.7 U	**24.5 J**	17.8 U	**28 J**
PCB-023	4.65 U	11.7 U	11.3 U	6.36 U	9.33 U
PCB-024	30.5 U	28.2 U	20.1 U	34.1 U	28.7 U
PCB-025	**4.45 J**	9.82 U	10.1 U	**6.43 J**	**10.7 J**
PCB-026/029	7 U	**15.3 J**	**16.4 J**	**13.4 J**	**15.3 J**
PCB-027	26 U	23.9 U	17 U	29.5 U	24 U
PCB-031	**37 J**	**54.6 J**	**67.3**	**52.6 J**	**70.7**
PCB-032	26 U	22.7 U	16.4 U	29.5 U	23.3 U
PCB-034	3.85 U	9.82 U	10.1 U	5.27 U	8 U
PCB-035	3.9 U	9.82 U	9.43 U	5.35 U	8 U
PCB-036	3.5 U	8.59 U	8.81 U	4.81 U	7.33 U
PCB-037	**9 J**	**21.5 J**	**22 J**	**17.8 J**	**26.7 J**
PCB-038	4.1 U	10.4 U	10.1 U	5.66 U	8 U
PCB-039	4.2 U	10.4 U	10.1 U	5.74 U	8.67 U
PCB-040/041/071	**52 J**	**95.7 J**	**93.1 J**	71.3 U	**116 J**
PCB-042	**28.5 J**	**49.1 J**	**55.3 J**	36.4 U	**60.7 J**
PCB-043	19.5 U	19.6 U	11.3 U	21.7 U	14 U
PCB-044/047/065	**139 J**	**218**	**236**	**167 J**	**265**
PCB-045/051	16 U	**16.6 J**	**16.4 J**	17.8 U	20 U
PCB-046	18 U	18.4 U	10.7 U	20.2 U	13.3 U
PCB-048	**21 J**	**40.5 J**	**42.1 J**	**30.2 J**	37.3 U
PCB-049/069	**86.5 J**	**109 J**	**111 J**	**82.2 J**	**146**
PCB-050/053	22.5 U	**30.7 J**	**32.7 J**	22.5 U	**38 J**
PCB-052	**187**	**280**	**308**	**219**	**351**
PCB-054	2.65 U	3.56 U	4.21 U	3.88 U	4 U
PCB-055	3.4 U	10.4 U	9.43 U	12.4 U	5.13 U
PCB-056	**19.2 J**	**36.8 J**	35.8 U	**29.5 J**	**45.2 J**
PCB-057	2.9 U	8.59 U	7.55 U	10.9 U	4.27 U
PCB-058	3.25 U	9.82 U	8.81 U	12.4 U	4.93 U

Table F-4
Season 2 Event 2 Dry Weight Caged Mussel Results

Task	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2
Location Name	Penn Cove Stock	GP-1	PJ-1	SMA-1-1	Composite
Location ID	Field QC	PG-GP-1_201611	PG-PJ-1_201611	PG-SMA1-1_201611	Composite
Sample ID	PG-T0-MUS-COC-161109	PG-GP-1-MUS-170105	PG-PJ-1-MUS-170105	PG-SMA1-1-MUS-170105	PG-SMA1-2-3-MUS-170105
Sample Date	11/9/2016	1/5/2017	1/5/2017	1/5/2017	1/5/2017
Sample Type	N	N	N	N	N
Matrix	TA	TA	TA	TA	TA
X	--	1213721.398	1213128.711	1211928.879	--
Y	--	313616.757	315808.466	317839.131	--
PCB-059/062/075	11.5 U	**22.7 J**	21.4 U	**19.4 J**	**22.7 J**
PCB-060	**14.1 J**	**28.2 J**	**32.7 J**	24 U	33.3 U
PCB-061/070/074/076	**145 J**	**294**	**297**	**223 J**	**330**
PCB-063	2.8 U	8.59 U	**9.43 J**	10.9 U	**8.73 J**
PCB-064	**29 J**	**46 J**	**45.9 J**	**42.6 J**	**58 J**
PCB-066	**60.5**	**123**	**125**	**93**	**133**
PCB-067	2.75 U	7.98 U	7.55 U	10.1 U	**6 J**
PCB-068	2.9 U	8.59 U	8.18 U	10.9 U	4.27 U
PCB-072	2.75 U	8.59 U	7.55 U	10.1 U	**6.8 J**
PCB-073	13 U	12.9 U	7.55 U	14.7 U	9.33 U
PCB-077	6.5 U	**16.6 J**	16.4 U	15.5 U	**15.1 J**
PCB-078	2.9 U	8.59 U	8.18 U	10.9 U	4.27 U
PCB-079	2.6 U	7.98 U	6.92 U	9.3 U	3.87 U
PCB-080	2.55 U	7.98 U	6.92 U	9.3 U	3.87 U
PCB-081	4.25 U	12.9 U	11.3 U	16.3 U	6.27 U
PCB-082	15 U	**37.4 J**	**38.4 J**	**31.8 J**	**50 J**
PCB-083/099	**303**	**523**	**576**	**391**	**581**
PCB-084	**44.5 J**	**70.6**	**72.3**	**58.9 J**	**99.3**
PCB-085/116/117	50 U	**99.4 J**	**119 J**	**81.4 J**	**130 J**
PCB-086/087/097/109/119/125	**149 J**	**283 J**	**289 J**	**205 J**	**336 J**
PCB-088/091	**26.5 J**	39.9 U	40.3 U	**34.1 J**	**54.7 J**
PCB-089	14 U	11.7 U	8.18 U	27.1 U	6.67 U
PCB-090/101/113	**366**	**712**	**736**	**507**	**827**
PCB-092	**73**	**134**	**144**	**93.8**	**155**
PCB-093/098/100/102	14 U	**32.5 J**	**37.1 J**	27.1 U	**38.7 J**
PCB-094	15.5 U	12.9 U	9.43 U	30.2 U	7.33 U
PCB-095	**200**	**352**	**377**	**271**	**441**
PCB-096	8.5 U	21.5 U	22.6 U	24.8 U	11.3 U
PCB-103	11.5 U	**11 J**	**11.3 J**	22.5 U	**13.1 J**
PCB-104	3.9 U	9.82 U	10.1 U	11.6 U	5 U
PCB-105	**69**	**183**	**184**	**120**	**209**
PCB-106	3.95 U	6.13 U	4.47 U	5.19 U	3.93 U
PCB-107	18 U	**46.8 J**	**47.2 J**	**39.1 J**	**50 J**
PCB-108/124	**6.45 J**	16.6 U	**16.1 J**	**12.1 J**	**20.3 J**
PCB-110/115	**261**	**494**	**509**	**374**	**595**
PCB-111	10 U	8.59 U	5.97 U	20.2 U	4.87 U
PCB-112	9.5 U	8.59 U	6.04 U	18.6 U	4.93 U
PCB-114	5 U	8.59 U	6.1 U	6.74 U	**10.3 J**
PCB-118	**217**	**518**	**567**	**377**	**612**
PCB-120	8.5 U	7.36 U	5.16 U	17.1 U	4.2 U

Table F-4
Season 2 Event 2 Dry Weight Caged Mussel Results

Task	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2
Location Name	Penn Cove Stock	GP-1	PJ-1	SMA-1-1	Composite
Location ID	Field QC	PG-GP-1_201611	PG-PJ-1_201611	PG-SMA1-1_201611	Composite
Sample ID	PG-T0-MUS-COC-161109	PG-GP-1-MUS-170105	PG-PJ-1-MUS-170105	PG-SMA1-1-MUS-170105	PG-SMA1-2-3-MUS-170105
Sample Date	11/9/2016	1/5/2017	1/5/2017	1/5/2017	1/5/2017
Sample Type	N	N	N	N	N
Matrix	TA	TA	TA	TA	TA
X	--	1213721.398	1213128.711	1211928.879	--
Y	--	313616.757	315808.466	317839.131	--
PCB-121	10 U	8.59 U	5.97 U	19.4 U	4.87 U
PCB-122	4.25 U	6.75 U	4.84 U	5.58 U	4.27 U
PCB-123	6 U	9.82 U	9.43 U	7.6 U	8 U
PCB-126	5.5 U	8.59 U	6.29 U	6.98 U	5.67 U
PCB-127	3.8 U	6.07 U	4.34 U	4.96 U	3.87 U
PCB-128/166	49 U	**147**	**150**	**112 J**	**163**
PCB-129/138/163	**490**	**1280**	**1310**	**938**	**1360**
PCB-130	**27.5 J**	**74.8**	**67.9**	**46.5 J**	60 U
PCB-131	15 U	22.1 U	25.2 U	16.3 U	26 U
PCB-132	**64.5**	**153**	**157**	**116**	**205**
PCB-133	13 U	25.2 U	22 U	**21.7 J**	**27.3 J**
PCB-134/143	14 U	**30.1 J**	**35.2 J**	**27.9 J**	**36 J**
PCB-135/151	**131**	**350**	**375**	**244**	**403**
PCB-136	**26.5 J**	**83.4**	**81.8**	**56.6 J**	**92.7**
PCB-137	13.5 U	20.9 U	23.3 U	14.7 U	24 U
PCB-139/140	12 U	17.8 U	20.1 U	13.2 U	**21.3 J**
PCB-141	12.5 U	19 U	21.4 U	14 U	22.7 U
PCB-142	13.5 U	20.9 U	23.3 U	14.7 U	24.7 U
PCB-144	15.5 U	**33.1 J**	**32.7 J**	59.7 U	**42 J**
PCB-145	13 U	25.2 U	15.1 U	49.6 U	26.7 U
PCB-146	**113**	**245**	**248**	**189**	**261**
PCB-147/149	**298**	**828**	**811**	**553**	**893**
PCB-148	15.5 U	30.1 U	18.2 U	59.7 U	31.3 U
PCB-150	12.5 U	25.2 U	15.1 U	47.3 U	26 U
PCB-152	11.5 U	21.5 U	13.2 U	44.2 U	22.7 U
PCB-153/168	**590**	**1450**	**1460**	**1050**	**1510**
PCB-154	14 U	**38 J**	**40.3 J**	53.5 U	**38.7 J**
PCB-155	6 U	11 U	6.92 U	24 U	11.3 U
PCB-156/157	**17.6 J**	**62 J**	**64.2 J**	**47 J**	**67.3 J**
PCB-158	**25 J**	**71.8**	**73**	**56.6 J**	**81.3**
PCB-159	2.5 U	5.4 U	5.97 U	4.88 U	7.33 U
PCB-160	10.5 U	15.3 U	17 U	11.6 U	18 U
PCB-161	8.5 U	13.5 U	15.1 U	9.3 U	16 U
PCB-162	2.75 U	6.01 U	6.92 U	5.43 U	8 U
PCB-164	9.5 U	**22.7 J**	**20.8 J**	10.1 U	16 U
PCB-165	10.5 U	16 U	18.2 U	11.6 U	18.7 U
PCB-167	**12.2 J**	**35.6 J**	**35.8 J**	20.9 U	35.3 U
PCB-169	3.55 U	7.98 U	8.81 U	6.98 U	10.7 U
PCB-170	**9.25 J**	38 U	**39.6 J**	30.2 U	**38 J**
PCB-171/173	**14.5 J**	**58.3 J**	**52.2 J**	**41.1 J**	**55.3 J**

Table F-4
Season 2 Event 2 Dry Weight Caged Mussel Results

Task	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2
Location Name	Penn Cove Stock	GP-1	PJ-1	SMA-1-1	Composite
Location ID	Field QC	PG-GP-1_201611	PG-PJ-1_201611	PG-SMA1-1_201611	Composite
Sample ID	PG-T0-MUS-COC-161109	PG-GP-1-MUS-170105	PG-PJ-1-MUS-170105	PG-SMA1-1-MUS-170105	PG-SMA1-2-3-MUS-170105
Sample Date	11/9/2016	1/5/2017	1/5/2017	1/5/2017	1/5/2017
Sample Type	N	N	N	N	N
Matrix	TA	TA	TA	TA	TA
X	--	1213721.398	1213128.711	1211928.879	--
Y	--	313616.757	315808.466	317839.131	--
PCB-172	5.5 U	14.1 U	12.6 U	10.1 U	10 U
PCB-174	5.5 U	14.1 U	12.6 U	10.1 U	10 U
PCB-175	9 U	24.5 U	13.2 U	27.1 U	28 U
PCB-176	6.5 U	**22.1 J**	**21.4 J**	19.4 U	20.7 U
PCB-177	**32 J**	**124**	**109**	**86.8**	**120**
PCB-178	**21 J**	**73.6**	62.9 U	**51.2 J**	**74**
PCB-179	**21 J**	**87.7**	**80.5**	**54.3 J**	**87.3**
PCB-180/193	**44.9 J**	**171**	**164**	**132 J**	**177**
PCB-181	5.5 U	14.7 U	13.2 U	10.9 U	10.7 U
PCB-182	9 U	24.5 U	13.8 U	27.1 U	28.7 U
PCB-183	**34.9 J**	**123**	**118**	**93.8**	**123**
PCB-184	6.5 U	18.4 U	10.1 U	20.9 U	21.3 U
PCB-185	6.5 U	16.6 U	15.1 U	11.6 U	12 U
PCB-186	7.5 U	20.2 U	11.3 U	22.5 U	24 U
PCB-187	**134**	**455**	**436**	**300**	**455**
PCB-188	5.5 U	14.7 U	8.18 U	17.8 U	16.7 U
PCB-189	3.05 U	12.3 U	10.1 U	8.53 U	5 U
PCB-190	4.15 U	**18.4 J**	16.4 U	**14.3 J**	**20 J**
PCB-191	3.85 U	9.82 U	8.81 U	7.13 U	7.33 U
PCB-192	4.6 U	11.7 U	10.7 U	8.53 U	8.67 U
PCB-194	10 U	13.5 U	10.7 U	**14.6 J**	10.7 U
PCB-195	11.5 U	14.7 U	6.29 U	5.5 U	8.67 U
PCB-196	17.5 U	26.4 U	21.4 U	17.8 U	29.3 U
PCB-197	12.5 U	21.5 U	17.6 U	13.2 U	24 U
PCB-198/199	19 U	28.8 U	23.3 U	19.4 U	32.7 U
PCB-200	13 U	17.2 U	13.8 U	13.2 U	19.3 U
PCB-201	12 U	17.8 U	**18.9 J**	12.4 U	20 U
PCB-202	11.5 U	**44.8 J**	**44 J**	27.9 U	**42 J**
PCB-203	18.5 U	27.6 U	22.6 U	19.4 U	31.3 U
PCB-204	12 U	18.4 U	14.5 U	12.4 U	20.7 U
PCB-205	11 U	15.3 U	6.29 U	5.35 U	8.67 U
PCB-206	4.5 U	9.2 U	10.7 U	11.6 U	7.33 U
PCB-207	3.65 U	7.36 U	8.18 U	9.3 U	5.53 U
PCB-208	4.5 U	9.2 U	10.7 U	11.6 U	7.33 U
PCB-209	7 U	15.3 U	13.2 U	18.6 U	13.3 U
Total PCB Congener (U = 1/2)	**5510 J**	**12300 J**	**12400 J**	**9230 J**	**13600 J**
Total PCB Congener TEQ 2005 (Mammal) (U = 1/2)	**0.339 J**	**0.577 J**	**0.475 J**	**0.474 J**	**0.474 J**
Total PCB Congener (U = 0)	**4780 J**	**11300 J**	**11500 J**	**8010 J**	**12600 J**
Total PCB Congener TEQ 2005 (Mammal) (U = 0)	**0.00947 J**	**0.0256 J**	**0.0255 J**	**0.0163 J**	**0.0285 J**
Dioxin Furans and PCB Congeners (ng/kg)					

Table F-4
Season 2 Event 2 Dry Weight Caged Mussel Results

Task	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2
Location Name	Penn Cove Stock	GP-1	PJ-1	SMA-1-1	Composite
Location ID	Field QC	PG-GP-1_201611	PG-PJ-1_201611	PG-SMA1-1_201611	Composite
Sample ID	PG-T0-MUS-COC-161109	PG-GP-1-MUS-170105	PG-PJ-1-MUS-170105	PG-SMA1-1-MUS-170105	PG-SMA1-2-3-MUS-170105
Sample Date	11/9/2016	1/5/2017	1/5/2017	1/5/2017	1/5/2017
Sample Type	N	N	N	N	N
Matrix	TA	TA	TA	TA	TA
X	--	1213721.398	1213128.711	1211928.879	--
Y	--	313616.757	315808.466	317839.131	--
Total Dioxin/Furan and PCB Congener TEQ 2005 (Mammal) (Calculated U = 1/2)	**1.22 J**	**2.23 J**	**1.82 J**	**1.75 J**	**3.45 J**
Total Dioxin/Furan and PCB Congener TEQ 2005 (Mammal) (Calculated U = 0)	**0.00947 J**	**0.0876 J**	**0.868 J**	**0.135 J**	**0.135 J**

Table F-4
Season 2 Event 2 Dry Weight Caged Mussel Results

Task	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2
Location Name	SMA-2-1	SMA-2-2	SMA-2-3	SMA-2-4	SMA-2-5	WS-1
Location ID	PG-SMA2-1_201611	PG-SMA2-2_201611	PG-SMA2-3_201611	PG-SMA2-4_201611	PG-SMA2-5_201611	PG-WS-1_201611
Sample ID	PG-SMA2-1-MUS-170105	PG-SMA2-2-MUS-170105	PG-SMA2-3-MUS-170105	PG-SMA2-4-MUS-170105	PG-SMA2-5-MUS-170105	PG-WS-1-MUS-170105
Sample Date	1/5/2017	1/5/2017	1/5/2017	1/5/2017	1/5/2017	1/5/2017
Sample Type	N	N	N	N	N	N
Matrix	TA	TA	TA	TA	TA	TA
X	1211969.012	1211987.052	1211724.053	1211439.086	1211124.183	1210343.348
Y	316677.558	316265.54	315819.717	315475.522	315104.921	312233.262
Conventional Parameters (pct)						
Total solids	**13.1**	**12.8**	**15.7**	**14.1**	**16.2**	**15.2**
Metals (mg/kg)						
Cadmium	**1.88**	**1.77**	**1.46**	**1.67**	**1.4**	**1.41**
Semivolatile Organics (µg/kg)						
2-Chloronaphthalene	--	--	--	--	--	--
Polycyclic Aromatic Hydrocarbons (µg/kg)						
1-Methylnaphthalene	--	--	--	--	--	--
2-Methylnaphthalene	3.82 U	3.83 UJ	3.18 U	3.55 U	**4.2**	3.22 U
Acenaphthene	3.82 U	3.83 UJ	3.18 U	3.55 U	**17.9**	3.22 U
Acenaphthylene	3.82 UJ	3.83 UJ	3.18 UJ	3.55 UJ	3.09 UJ	3.22 UJ
Anthracene	**5.65**	**6.72 J**	**14.2**	**7.94**	**16.7**	**5.33**
Benzo(a)anthracene	**8.85**	**10.7 J**	**29**	**19.4**	**32.4**	**7.5**
Benzo(a)pyrene	3.82 U	3.83 UJ	**8.54**	**6.03**	**8.77**	3.22 U
Benzo(b)fluoranthene	**8.17**	**12 J**	**32.9**	**24.2**	**27.5**	**7.76**
Benzo(e)pyrene	**16**	**21.5 J**	**57.5**	**42.6**	**35.6**	**17.2**
Benzo(g,h,i)perylene	3.82 U	3.83 UJ	**4.2**	**4.33**	**3.95**	3.22 U
Benzo(j)fluoranthene	--	--	--	--	--	--
Benzo(k)fluoranthene	**3.89**	**6.02 J**	**18.5**	**13**	**13.9**	**3.62**
Benzothiophene	--	--	--	--	--	--
Chrysene	**17.6**	**20.3 J**	**48.9**	**37.9**	**44.1**	**22.1**
Dibenzo(a,h)anthracene	3.82 U	3.83 UJ	3.18 U	3.55 U	3.09 U	3.22 U
Dibenzofuran	--	--	--	--	--	--
Fluoranthene	**26.2**	**31.7 J**	**158**	**66.3**	**108**	**41.2**
Fluorene	3.82 U	**3.91 J**	**5.29**	3.55 U	**20.2**	**3.75**
Indeno(1,2,3-c,d)pyrene	3.82 U	3.83 UJ	3.18 U	3.55 U	3.09 U	3.22 U
Naphthalene	4.58 U	4.61 UJ	3.82 U	4.18 U	**13.6**	**3.29 J**
Perylene	**4.58**	**5.78 J**	**13.4**	**10.1**	**8.77**	**3.82**
Phenanthrene	**20**	**21.9 J**	**45.2**	**21.6**	**73.5**	**20.2**
Pyrene	**35**	**38.6 J**	**162**	**73**	**104**	**37.4**
Total cPAH TEQ (7 minimum CAEPA 2005) (U = 1/2)	**4.56**	**5.37 J**	**17.4**	**12.4**	**16.9**	**4.04**
Total PAH (19) (U = 1/2)	**164 J**	**195 J**	**607 J**	**339 J**	**538 J**	**184 J**
Total HPAH (SMS) (U = 1/2)	**107**	**127 J**	**465**	**248**	**346**	**126**
Total LPAH (SMS) (U = 1/2)	**33.7 J**	**38.7 J**	**69.8 J**	**37 J**	**143 J**	**35.8 J**
Total PAH (SMS) (U = 1/2)	**141 J**	**166 J**	**535 J**	**285 J**	**489 J**	**162 J**
Total cPAH TEQ (7 minimum CAEPA 2005) (U = 0)	**2.27**	**3.08 J**	**17.1**	**12.1**	**16.6**	**2.11**
Total PAH (19) (U = 0)	**146 J**	**179 J**	**598 J**	**326 J**	**533 J**	**173 J**
Total HPAH (SMS) (U = 0)	**99.7**	**119 J**	**462**	**244**	**343**	**120**
Total LPAH (SMS) (U = 0)	**25.7 J**	**32.5 J**	**64.7 J**	**29.5 J**	**142 J**	**32.6 J**
Total PAH (SMS) (U = 0)	**125 J**	**152 J**	**527 J**	**274 J**	**485 J**	**152 J**

Table F-4
Season 2 Event 2 Dry Weight Caged Mussel Results

Task	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2
Location Name	SMA-2-1	SMA-2-2	SMA-2-3	SMA-2-4	SMA-2-5	WS-1
Location ID	PG-SMA2-1_201611	PG-SMA2-2_201611	PG-SMA2-3_201611	PG-SMA2-4_201611	PG-SMA2-5_201611	PG-WS-1_201611
Sample ID	PG-SMA2-1-MUS-170105	PG-SMA2-2-MUS-170105	PG-SMA2-3-MUS-170105	PG-SMA2-4-MUS-170105	PG-SMA2-5-MUS-170105	PG-WS-1-MUS-170105
Sample Date	1/5/2017	1/5/2017	1/5/2017	1/5/2017	1/5/2017	1/5/2017
Sample Type	N	N	N	N	N	N
Matrix	TA	TA	TA	TA	TA	TA
X	1211969.012	1211987.052	1211724.053	1211439.086	1211124.183	1210343.348
Y	316677.558	316265.54	315819.717	315475.522	315104.921	312233.262
Dioxin Furans (ng/kg)						
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	0.519 U	1.09 U	0.968 U	0.901 U	0.753 U	0.888 U
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	**0.916 J**	0.992 U	0.854 U	1.33 U	0.858 U	**0.592 J**
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	**0.504 J**	1.92 U	0.936 U	**1.92 J**	1.27 U	1.11 U
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	**1.25 J**	1.91 U	0.955 U	**2.23 J**	1.25 U	1.09 U
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	2.36 U	2 U	0.987 U	2.53 U	1.31 U	1.15 U
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	7.71 U	5.88 U	12.9 U	14.1 U	7.53 U	8.62 U
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	54.1 U	46.3 U	112 U	106 U	49.6 U	56 U
Total Tetrachlorodibenzo-p-dioxin (TCDD)	**1.36**	0.688 U	0.631 U	**3.72**	**1.72**	**2.18**
Total Pentachlorodibenzo-p-dioxin (PeCDD)	**0.916**	0.625 U	0.592 U	0.979 U	0.549 U	**1.57**
Total Hexachlorodibenzo-p-dioxin (HxCDD)	**7.58**	0.68 U	**5.43 J**	**9.36 J**	**2.56 J**	**3.55 J**
Total Heptachlorodibenzo-p-dioxin (HpCDD)	**19.6 J**	**18.8 J**	**68.8**	**45.4**	**29.1**	**22.8 J**
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	**1.4 J**	0.961 U	**1.08 J**	1.03 U	**0.963 J**	0.901 U
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	**1.04 J**	1 U	0.949 U	**1.04 J**	0.988 U	1.08 U
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	0.504 U	0.938 U	0.924 U	1.04 U	0.981 U	1.05 U
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	0.282 U	0.734 U	0.522 U	1.1 U	0.574 U	0.638 U
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	0.824 U	0.75 U	0.529 U	1.09 U	0.562 U	0.632 U
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	1.03 U	0.922 U	0.675 U	1.09 U	0.772 U	1.13 U
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	0.603 U	0.797 U	0.529 U	1.15 UJ	0.58 U	0.638 U
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	2.53 U	1.72 U	0.694 U	3.76 UJ	1.31 U	2.41 U
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	1.22 U	0.773 U	0.439 U	1.69 U	0.383 U	1.28 U
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	5.17 U	4.2 U	7.39 U	10.5 U	4.1 U	5.76 U
Total Tetrachlorodibenzofuran (TCDF)	**4.85**	0.406 U	**2.51**	**3.7**	**0.963**	**3.73**
Total Pentachlorodibenzofuran (PeCDF)	**1.81**	0.844 U	0.656 U	**1.58**	0.636 U	0.763 U
Total Hexachlorodibenzofuran (HxCDF)	**4.45 J**	0.391 U	**1.29 J**	**3.35 J**	**2.05 J**	**1.13 J**
Total Heptachlorodibenzofuran (HpCDF)	**6.06 J**	**3.2 J**	**3.71 J**	**8.94 J**	**3.72 J**	**5.77 J**
Total Dioxin/Furan (U = 1/2)	**43.5 J**	46.3 U	**72.2 J**	**78.8 J**	**37.4 J**	**42.8 J**
Total Dioxin/Furan (U = 0)	**5.11 J**	46.3 U	**1.08 J**	**5.19 J**	**0.963 J**	**0.592 J**
Total Dioxin/Furan TEQ 2005 (Mammal) (U = 1/2)	**1.92 J**	1.09 U	**1.52 J**	**2.23 J**	**1.43 J**	**1.64 J**
Total Dioxin/Furan TEQ 2005 (Mammal) (U = 0)	**1.26 J**	1.09 U	**0.108 J**	**0.446 J**	**0.0963 J**	**0.592 J**
PCB Congeners (ng/kg)						
PCB-001	6.72 U	13.3 U	5.35 U	7.8 U	3.64 U	6.05 U
PCB-002	5.57 U	10.9 U	4.78 U	6.95 U	3.27 U	5.46 U
PCB-003	6.79 U	13.3 U	5.41 U	7.8 U	3.7 U	6.18 U
PCB-004	91.6 U	102 U	95.5 U	106 U	86.4 U	92.1 U
PCB-005	59.5 U	52.3 U	40.1 U	51.8 U	50 U	39.5 U
PCB-006	48.9 U	43 U	32.5 U	41.8 U	40.1 U	31.6 U
PCB-007	56.5 U	50 U	36.3 U	46.1 U	45.1 U	35.5 U
PCB-008	48.9 U	43 U	28.7 U	36.9 U	35.2 U	28.3 U
PCB-009	49.6 U	43.8 U	31.2 U	39.7 U	38.9 U	30.9 U

Table F-4
Season 2 Event 2 Dry Weight Caged Mussel Results

Task	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2
Location Name	SMA-2-1	SMA-2-2	SMA-2-3	SMA-2-4	SMA-2-5	WS-1
Location ID	PG-SMA2-1_201611	PG-SMA2-2_201611	PG-SMA2-3_201611	PG-SMA2-4_201611	PG-SMA2-5_201611	PG-WS-1_201611
Sample ID	PG-SMA2-1-MUS-170105	PG-SMA2-2-MUS-170105	PG-SMA2-3-MUS-170105	PG-SMA2-4-MUS-170105	PG-SMA2-5-MUS-170105	PG-WS-1-MUS-170105
Sample Date	1/5/2017	1/5/2017	1/5/2017	1/5/2017	1/5/2017	1/5/2017
Sample Type	N	N	N	N	N	N
Matrix	TA	TA	TA	TA	TA	TA
X	1211969.012	1211987.052	1211724.053	1211439.086	1211124.183	1210343.348
Y	316677.558	316265.54	315819.717	315475.522	315104.921	312233.262
PCB-010	137 U	141 U	140 U	156 U	123 U	132 U
PCB-011	**56.5 J**	44.5 U	43.9 U	39.7 U	37.7 U	**57.9 J**
PCB-012/013	55 U	48.4 U	33.8 U	43.3 U	41.4 U	32.9 U
PCB-014	48.9 U	43 U	29.9 U	38.3 U	36.4 U	28.9 U
PCB-015	99.2 U	85.9 U	60.5 U	78 U	74.1 U	59.2 U
PCB-016	61.8 U	66.4 U	38.2 U	58.2 U	36.4 U	38.2 U
PCB-017	37.4 U	39.8 U	27.4 U	41.8 U	26.5 U	27.6 U
PCB-018/030	**31.3 J**	**34.4 J**	**49.7 J**	**43.3 J**	**42.6 J**	**45.4 J**
PCB-019	20.6 U	22.7 U	14.6 U	22.7 U	14.2 U	15.1 U
PCB-020/028	**143 J**	**152**	**173**	**193**	**174**	**184**
PCB-021/033	**33.6 J**	**32.8 J**	**35 J**	38.3 U	**39.3 J**	**46.1 J**
PCB-022	**29 J**	**32.8 J**	**35.7 J**	**39.7 J**	**35.8 J**	29.6 U
PCB-023	9.16 U	10.9 U	10.2 U	9.22 U	6.79 U	9.87 U
PCB-024	28.2 U	29.7 U	21 U	32.6 U	20.4 U	21.7 U
PCB-025	**9.24 J**	**10.2 J**	**10.2 J**	9.22 U	**11.9 J**	**11.8 J**
PCB-026/029	**17.6 J**	15.6 U	**19.1 J**	**20.6 J**	**19.5 J**	**19.1 J**
PCB-027	23.7 U	25.8 U	17.8 U	27.7 U	17.3 U	18.4 U
PCB-031	**74 J**	**75**	**81.5**	**95**	**83.3**	**91.4**
PCB-032	24.4 U	25.8 U	17.2 U	26.2 U	16.7 U	17.1 U
PCB-034	7.33 U	8.59 U	8.92 U	7.8 U	5.99 U	8.55 U
PCB-035	7.33 U	8.59 U	8.92 U	7.8 U	5.86 U	8.55 U
PCB-036	6.64 U	7.81 U	7.64 U	7.09 U	5.25 U	7.24 U
PCB-037	**21.4 J**	**25.8 J**	**31.8 J**	**34 J**	**30.2 J**	**33.6 J**
PCB-038	7.63 U	9.38 U	8.92 U	8.51 U	6.11 U	8.55 U
PCB-039	7.63 U	9.38 U	9.55 U	8.51 U	6.17 U	8.55 U
PCB-040/041/071	**107 J**	**116 J**	**134 J**	**144 J**	**133 J**	**132 J**
PCB-042	**55.7 J**	**62.5 J**	**74.5**	**77.3**	**67.9**	**69.1**
PCB-043	28.2 U	18 U	20.4 U	19.1 U	19.8 U	27.6 U
PCB-044/047/065	**253**	**243**	**317**	**312**	**310**	**305**
PCB-045/051	22.9 U	15.6 U	**26.1 J**	**24.8 J**	**27.2 J**	22.4 U
PCB-046	26 U	17.2 U	19.7 U	18.4 U	18.5 U	26.3 U
PCB-048	40.5 U	**51.6 J**	**62.4**	61 U	**58 J**	**57.9 J**
PCB-049/069	**132 J**	**135 J**	**181**	**167**	**156**	**150**
PCB-050/053	**33.6 J**	32.8 U	**42 J**	**52.5 J**	40.7 U	**46.1 J**
PCB-052	**306**	**319**	**382**	**372**	**356**	**393**
PCB-054	5.88 U	7.66 U	5.61 U	3.62 U	5.43 U	6.18 U
PCB-055	9.16 U	9.38 U	5.61 U	11.3 U	7.41 U	5.79 U
PCB-056	**41.2 J**	**43 J**	**45.7 J**	**45.4 J**	**44.4 J**	**51.6 J**
PCB-057	7.48 U	7.81 U	4.59 U	9.22 U	6.05 U	4.8 U
PCB-058	8.4 U	8.59 U	5.35 U	10.6 U	6.79 U	5.53 U

Table F-4
Season 2 Event 2 Dry Weight Caged Mussel Results

Task	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2
Location Name	SMA-2-1	SMA-2-2	SMA-2-3	SMA-2-4	SMA-2-5	WS-1
Location ID	PG-SMA2-1_201611	PG-SMA2-2_201611	PG-SMA2-3_201611	PG-SMA2-4_201611	PG-SMA2-5_201611	PG-WS-1_201611
Sample ID	PG-SMA2-1-MUS-170105	PG-SMA2-2-MUS-170105	PG-SMA2-3-MUS-170105	PG-SMA2-4-MUS-170105	PG-SMA2-5-MUS-170105	PG-WS-1-MUS-170105
Sample Date	1/5/2017	1/5/2017	1/5/2017	1/5/2017	1/5/2017	1/5/2017
Sample Type	N	N	N	N	N	N
Matrix	TA	TA	TA	TA	TA	TA
X	1211969.012	1211987.052	1211724.053	1211439.086	1211124.183	1210343.348
Y	316677.558	316265.54	315819.717	315475.522	315104.921	312233.262
PCB-059/062/075	**23.7 J**	**25 J**	**29.9 J**	26.2 U	**24.1 J**	25.7 U
PCB-060	33.6 U	**34.4 J**	31.2 U	**39.7 J**	**34 J**	**42.2 J**
PCB-061/070/074/076	**311**	**312**	**329**	**348**	**333**	**392**
PCB-063	7.25 U	8.59 U	**8.54 J**	**9.22 J**	**10.1 J**	**11.1 J**
PCB-064	**63.4 J**	**64.8 J**	**80.9**	**79.4**	**74.7**	**65.1**
PCB-066	**136**	**140**	**139**	**146**	**141**	**173**
PCB-067	7.1 U	7.5 U	**6.24 J**	8.51 U	**7.72 J**	**6.71 J**
PCB-068	7.56 U	7.81 U	4.65 U	9.22 U	**7.35 J**	5.07 U
PCB-072	7.1 U	7.5 U	**6.37 J**	9.22 U	**6.73 J**	**6.84 J**
PCB-073	18.3 U	12.5 U	13.4 U	12.8 U	13 U	18.4 U
PCB-077	**15.3 J**	**17.2 J**	15.3 U	**19.1 J**	**17.3 J**	**21.1 J**
PCB-078	7.48 U	7.81 U	4.65 U	9.22 U	6.11 U	4.8 U
PCB-079	6.64 U	7.03 U	4.2 U	8.51 U	5.49 U	5.46 U
PCB-080	6.64 U	7.03 U	4.14 U	8.51 U	5.43 U	4.34 U
PCB-081	10.7 U	11.7 U	7.01 U	13.5 U	8.64 U	7.24 U
PCB-082	**44.3 J**	**44.5 J**	**44.6 J**	**45.4 J**	**44.4 J**	**48 J**
PCB-083/099	**605**	**604**	**594**	**610**	**580**	**691**
PCB-084	**92.4**	**89.1**	**94.3**	**90.8**	**89.5**	**91.4**
PCB-085/116/117	**118 J**	**119 J**	**118 J**	**135 J**	**123 J**	**141 J**
PCB-086/087/097/109/119/125	**322 J**	**309 J**	**334 J**	**335 J**	**314 J**	**360 J**
PCB-088/091	**61.1 J**	**57.8 J**	52.2 U	**58.2 J**	**54.3 J**	**59.9 J**
PCB-089	22.9 U	27.3 U	19.1 U	14.2 U	9.88 U	10.5 U
PCB-090/101/113	**779**	**772**	**834**	**801**	**802**	**947**
PCB-092	**147**	**144**	**154**	**155**	**151**	**173**
PCB-093/098/100/102	**39.7 J**	27.3 U	18.5 U	**39 J**	32.7 U	**45.4 J**
PCB-094	26 U	30.5 U	21 U	15.6 U	10.5 U	11.2 U
PCB-095	**426**	**413**	**452**	**445**	**420**	**472**
PCB-096	20.6 U	28.9 U	15.9 U	39 U	10.5 U	9.87 U
PCB-103	19.1 U	21.9 U	15.3 U	**16.3 J**	**14.2 J**	**15.8 J**
PCB-104	9.92 U	13.3 U	7.01 U	17.7 U	4.63 U	4.47 U
PCB-105	**192**	**197**	**203**	**217**	**206**	**226**
PCB-106	9.16 U	5.63 U	3.06 U	5.11 U	4.14 U	4.8 U
PCB-107	**55 J**	**57.2 J**	**51.3 J**	**53.2 J**	**49.3 J**	**54.3 J**
PCB-108/124	**16.8 J**	**20.2 J**	14.6 U	17 U	**20.8 J**	19.7 U
PCB-110/115	**612**	**564**	**607**	**633**	**556**	**605**
PCB-111	16.8 U	19.5 U	13.4 U	9.93 U	6.79 U	7.24 U
PCB-112	16 U	18.8 U	14 U	9.93 U	6.79 U	7.24 U
PCB-114	12.2 U	7.34 U	**9.43 J**	**10.7 J**	**9.01 J**	9.21 U
PCB-118	**529**	**603**	**583**	**628**	**580**	**678**
PCB-120	14.5 U	17.2 U	11.5 U	8.51 U	5.86 U	6.32 U

Table F-4
Season 2 Event 2 Dry Weight Caged Mussel Results

Task	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2
Location Name	SMA-2-1	SMA-2-2	SMA-2-3	SMA-2-4	SMA-2-5	WS-1
Location ID	PG-SMA2-1_201611	PG-SMA2-2_201611	PG-SMA2-3_201611	PG-SMA2-4_201611	PG-SMA2-5_201611	PG-WS-1_201611
Sample ID	PG-SMA2-1-MUS-170105	PG-SMA2-2-MUS-170105	PG-SMA2-3-MUS-170105	PG-SMA2-4-MUS-170105	PG-SMA2-5-MUS-170105	PG-WS-1-MUS-170105
Sample Date	1/5/2017	1/5/2017	1/5/2017	1/5/2017	1/5/2017	1/5/2017
Sample Type	N	N	N	N	N	N
Matrix	TA	TA	TA	TA	TA	TA
X	1211969.012	1211987.052	1211724.053	1211439.086	1211124.183	1210343.348
Y	316677.558	316265.54	315819.717	315475.522	315104.921	312233.262
PCB-121	16.8 U	19.5 U	13.4 U	9.93 U	6.79 U	7.24 U
PCB-122	9.92 U	6.09 U	3.31 U	5.53 U	4.51 U	5.26 U
PCB-123	13.7 U	8.59 U	4.78 U	8.51 U	**9.88 J**	**9.87 J**
PCB-126	12.2 U	7.58 U	4.33 U	7.09 U	5.93 U	6.58 U
PCB-127	9.16 U	5.39 U	2.99 U	5.04 U	4.07 U	4.74 U
PCB-128/166	**147 J**	**173**	**171**	**175**	142 U	**191**
PCB-129/138/163	**1360**	**1410**	**1500**	**1520**	**1330**	**1580**
PCB-130	**79.4**	**79.7**	**81.5**	**83.7**	**75.3**	72.4 U
PCB-131	31.3 U	15.6 U	15.3 U	27 U	16.7 U	14.5 U
PCB-132	**211**	**180**	**210**	**201**	**181**	**183**
PCB-133	29 U	**32 J**	**33.8 J**	**33.3 J**	**27.2 J**	**38.8 J**
PCB-134/143	33.6 U	**39.1 J**	**40.1 J**	35.5 U	**35.2 J**	28.3 U
PCB-135/151	**385**	**393**	**459**	**428**	**379**	**440**
PCB-136	**94.7**	**96.1**	**107**	**100**	**94.4**	**101**
PCB-137	29 U	14.1 U	14 U	24.8 U	15.4 U	17.1 U
PCB-139/140	26 U	12.5 U	19.1 U	21.3 U	13.6 U	**21.7 J**
PCB-141	26.7 U	13.3 U	12.7 U	22.7 U	14.2 U	**22.4 J**
PCB-142	29 U	14.1 U	14 U	24.8 U	15.4 U	13.2 U
PCB-144	**42.7 J**	39.1 U	37.6 U	43.3 U	**42 J**	**40.1 J**
PCB-145	26.7 U	32 U	31.2 U	35.5 U	24.1 U	21.7 U
PCB-146	**287**	**292**	**292**	**296**	**249**	**311**
PCB-147/149	**916**	750 U	**1010**	**901**	**852**	**914**
PCB-148	32.1 U	38.3 U	36.9 U	42.6 U	28.4 U	25.7 U
PCB-150	26 U	30.5 U	30.6 U	35.5 U	23.5 U	21.7 U
PCB-152	24.4 U	28.9 U	26.8 U	30.5 U	20.4 U	18.4 U
PCB-153/168	**1570**	**1590**	**1680**	**1700**	**1460**	**1780**
PCB-154	**40.5 J**	**37.5 J**	**39.5 J**	**42.6 J**	**36.4 J**	35.5 U
PCB-155	13 U	15.6 U	13.4 U	15.6 U	10.5 U	9.21 U
PCB-156/157	**58 J**	**64.1 J**	**70.7 J**	**72.3 J**	**75.3 J**	**80.9 J**
PCB-158	**80.2**	**75.8**	76.4 U	**90.1**	**75.3**	**88.2**
PCB-159	6.79 U	9.38 U	6.37 U	6.03 U	8.02 U	6.32 U
PCB-160	22.1 U	10.9 U	10.2 U	18.4 U	11.1 U	9.87 U
PCB-161	18.3 U	8.59 U	8.92 U	16.3 U	9.88 U	8.55 U
PCB-162	7.56 U	10.9 U	7.01 U	6.67 U	8.64 U	7.24 U
PCB-164	19.8 U	9.38 U	9.55 U	17 U	**18.5 J**	**21.1 J**
PCB-165	22.9 U	10.9 U	10.8 U	19.1 U	11.7 U	9.87 U
PCB-167	**32.8 J**	**37.5 J**	**38.9 J**	**41.8 J**	**37.7 J**	**42.8 J**
PCB-169	9.92 U	13.3 U	9.55 U	8.51 U	11.7 U	9.21 U
PCB-170	**27.3 J**	36.7 U	**45.2 J**	**47.5 J**	**46.3 J**	**52 J**
PCB-171/173	48.1 U	**61.7 J**	**60.5 J**	**66.7 J**	**56.8 J**	**63.8 J**

Table F-4
Season 2 Event 2 Dry Weight Caged Mussel Results

Task	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2
Location Name	SMA-2-1	SMA-2-2	SMA-2-3	SMA-2-4	SMA-2-5	WS-1
Location ID	PG-SMA2-1_201611	PG-SMA2-2_201611	PG-SMA2-3_201611	PG-SMA2-4_201611	PG-SMA2-5_201611	PG-WS-1_201611
Sample ID	PG-SMA2-1-MUS-170105	PG-SMA2-2-MUS-170105	PG-SMA2-3-MUS-170105	PG-SMA2-4-MUS-170105	PG-SMA2-5-MUS-170105	PG-WS-1-MUS-170105
Sample Date	1/5/2017	1/5/2017	1/5/2017	1/5/2017	1/5/2017	1/5/2017
Sample Type	N	N	N	N	N	N
Matrix	TA	TA	TA	TA	TA	TA
X	1211969.012	1211987.052	1211724.053	1211439.086	1211124.183	1210343.348
Y	316677.558	316265.54	315819.717	315475.522	315104.921	312233.262
PCB-172	8.4 U	12.5 U	8.92 U	13.5 U	9.26 U	12.5 U
PCB-174	8.4 U	12.5 U	8.92 U	13.5 U	9.26 U	11.8 U
PCB-175	16 U	21.9 U	25.5 U	29.1 U	18.5 U	31.6 U
PCB-176	**23.7 J**	21.9 U	**24.8 J**	**22 J**	**22.2 J**	**27.6 J**
PCB-177	**117**	**136**	**140**	**148**	**124**	**143**
PCB-178	**72.5 J**	**80.5**	**85.4**	**87.9**	**74.1**	**80.9**
PCB-179	76.3 U	**90.6**	**100**	**103**	**91.4**	**103**
PCB-180/193	**144 J**	**179**	**196**	**191**	**197**	**222**
PCB-181	9.16 U	13.3 U	8.92 U	14.2 U	9.88 U	12.5 U
PCB-182	16 U	21.9 U	26.1 U	29.8 U	19.1 U	31.6 U
PCB-183	**115**	**138**	**139**	**149**	**126**	**139**
PCB-184	12.2 U	16.4 U	19.1 U	22 U	14.2 U	23.7 U
PCB-185	9.92 U	14.8 U	10.2 U	15.6 U	11.1 U	14.5 U
PCB-186	13.7 U	18.8 U	21.7 U	24.8 U	15.4 U	26.3 U
PCB-187	**457**	**499**	**538**	**545**	**454**	**533**
PCB-188	10.7 U	14.1 U	15.3 U	17.7 U	11.1 U	18.4 U
PCB-189	13 U	8.59 U	5.67 U	7.09 U	**6.36 J**	**5.46 J**
PCB-190	17.6 U	**21.9 J**	**23.6 J**	**20.6 J**	**21 J**	**22.4 J**
PCB-191	6.11 U	8.59 U	6.11 U	9.22 U	6.79 U	8.55 U
PCB-192	7.25 U	10.9 U	7.01 U	11.3 U	8.02 U	10.5 U
PCB-194	20.6 U	24.2 U	12.7 U	14.9 U	14.2 U	**21.7 J**
PCB-195	22.9 U	27.3 U	5.35 U	9.93 U	6.79 U	9.21 U
PCB-196	35.1 U	28.1 U	17.8 U	20.6 U	14.2 U	21.7 U
PCB-197	25.2 U	20.3 U	14.6 U	17 U	11.1 U	17.8 U
PCB-198/199	38.2 U	30.5 U	19.7 U	22.7 U	15.4 U	23.7 U
PCB-200	26 U	21.1 U	12.1 U	14.2 U	9.26 U	14.5 U
PCB-201	23.7 U	19.5 U	**23.6 J**	**22 J**	**18.5 J**	**21.7 J**
PCB-202	40.5 U	**44.5 J**	**47.1 J**	44.7 U	39.5 U	**52 J**
PCB-203	36.6 U	29.7 U	19.1 U	22 U	14.8 U	**28.9 J**
PCB-204	23.7 U	19.5 U	12.1 U	14.2 U	9.88 U	15.1 U
PCB-205	22.1 U	26.6 U	5.41 U	9.93 U	6.79 U	9.21 U
PCB-206	9.16 U	15.6 U	5.86 U	7.8 U	9.88 U	9.87 U
PCB-207	7.48 U	12.5 U	4.59 U	6.03 U	8.02 U	7.89 U
PCB-208	9.16 U	15.6 U	5.8 U	7.8 U	9.88 U	9.87 U
PCB-209	9.16 U	10.9 U	11.5 U	22 U	9.88 U	18.4 U
Total PCB Congener (U = 1/2)	**13400 J**	**13200 J**	**14500 J**	**14800 J**	**13300 J**	**15300 J**
Total PCB Congener TEQ 2005 (Mammal) (U = 1/2)	**0.787 J**	**0.609 J**	**0.389 J**	**0.515 J**	**0.503 J**	**0.502 J**
Total PCB Congener (U = 0)	**12200 J**	**11700 J**	**13500 J**	**13600 J**	**12500 J**	**14400 J**
Total PCB Congener TEQ 2005 (Mammal) (U = 0)	**0.0259 J**	**0.0288 J**	**0.0272 J**	**0.031 J**	**0.0295 J**	**0.0334 J**
Dioxin Furans and PCB Congeners (ng/kg)						

Table F-4
Season 2 Event 2 Dry Weight Caged Mussel Results

Task	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2
Location Name	SMA-2-1	SMA-2-2	SMA-2-3	SMA-2-4	SMA-2-5	WS-1
Location ID	PG-SMA2-1_201611	PG-SMA2-2_201611	PG-SMA2-3_201611	PG-SMA2-4_201611	PG-SMA2-5_201611	PG-WS-1_201611
Sample ID	PG-SMA2-1-MUS-170105	PG-SMA2-2-MUS-170105	PG-SMA2-3-MUS-170105	PG-SMA2-4-MUS-170105	PG-SMA2-5-MUS-170105	PG-WS-1-MUS-170105
Sample Date	1/5/2017	1/5/2017	1/5/2017	1/5/2017	1/5/2017	1/5/2017
Sample Type	N	N	N	N	N	N
Matrix	TA	TA	TA	TA	TA	TA
X	1211969.012	1211987.052	1211724.053	1211439.086	1211124.183	1210343.348
Y	316677.558	316265.54	315819.717	315475.522	315104.921	312233.262
Total Dioxin/Furan and PCB Congener TEQ 2005 (Mammal) (Calculated U = 1/2)	**2.71 J**	**2.36 J**	**1.91 J**	**2.75 J**	**1.94 J**	**2.15 J**
Total Dioxin/Furan and PCB Congener TEQ 2005 (Mammal) (Calculated U = 0)	**1.29 J**	**0.0288 J**	**0.135 J**	**0.477 J**	**0.126 J**	**0.625 J**

Table F-4
Season 2 Event 2 Dry Weight Caged Mussel Results

Notes:

Horizontal coordinate datum is North American Datum 1983, State Plane Washington North FIPS 4601 (U.S. Survey Feet).

Results presented are reported in dry-weight basis based on correction using total solids results shown in this table.

All undetect results are reported at the reporting limit.

U.S. Environmental Protection Agency Stage 2B data validation was completed by Laboratory Data Consultants.

Totals are calculated as the sum of all detected results (U=0). If all results are not detected, the highest limit value is reported as the sum.

Totals are calculated as the sum of all detected results and half of the reporting limit of undetected results (U=1/2). If all results are not detected, the highest limit value is reported as the sum.

Total cPAH TEQ (7 minimum California Environmental Protection Agency 2005) calculation includes benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene and indeno(1,2,3-c,d)pyrene. Per Model Toxics Control Act cleanup Regulation, Table 708-2 "Toxicity Equivalency Factors for Minimum Required Carcinogenic Polyaromatic Hydrocarbons (cPAHs) under Washington Administrative Code 173-340-708(e).

Total PAH (19) is the total of 2-methylnaphthalene, acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(e)pyrene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-c,d)pyrene, naphthalene, perylene, phenanthrene, and pyrene.

Total HPAH (SMS) is the total of benzo(a)anthracene, benzo(a)pyrene, benzo(x)fluoranthenes, benzo(g,h,i)perylene, chrysene, dibenzo(a,h)anthracene, fluoranthene, indeno(1,2,3-c,d)pyrene, and pyrene.

Total LPAH (SMS) is the total of acenaphthene, acenaphthylene, anthracene, fluorene, naphthalene, and phenanthrene. 2-Methylnaphthalene is not included in the sum of LPAHs.

Total PAH (SMS) is the total of acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(x)fluoranthenes, benzo(g,h,i)perylene, chrysene, dibenzo(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-c,d)pyrene, naphthalene, phenanthrene, and pyrene. 2-Methylnaphthalene is not included.

Total PCB congeners is the sum of all PCB congeners listed in this table.

Total dioxin/furan is the sum of all individual dioxin/furans (non-homolog) listed in this table.

Dioxin/furan and PCB TEQ values were calculated with 2005 World Health Organization toxic equivalency factor values for mammals.

Bold: Detected result

--: results not reported or not applicable

µg/kg: micrograms per kilogram

cPAH: carcinogenic polycyclic aromatic hydrocarbon

FD: field duplicate sample

HPAH: high-molecular-weight polycyclic aromatic hydrocarbon

J: estimated value

LPAH: low-molecular-weight polycyclic aromatic hydrocarbon

mg/kg: milligrams per kilogram

N: normal environmental sample

ng/kg: nanograms per kilogram

PAH: polycyclic aromatic hydrocarbons

PCB: polychlorinated biphenyls

pct: percent

SMS: Sediment Management Standards

TA: tissue matrix

TEQ: toxic equivalency

U: Compound analyzed, but not detected above detection limit

UJ: Compound analyzed, but not detected above estimated detection limit

Table F-5
Season 2 Event 1 Results Per PEMD

Task	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1
Location Name	WS-1	GP-1	PJ-1	SMA-1-1	SMA-1-2
Location ID	PG-WS-1_2016	PG-GP-1_2016	PG-PJ-1_2016	PG-SMA1-1_2016	PG-SMA1-2_2016
Sample ID	PG-WS-1-PEMD-160909-A	PG-GP-1-PEMD-160909-A	PG-PJ-1-PEMD-160909-A	PG-SMA1-1-PEMD-160909-A	PG-SMA1-2-PEMD-160909-A
Sample Date	9/9/2016	9/9/2016	9/9/2016	9/9/2016	9/9/2016
Sample Type	N	N	N	N	N
Matrix	PEMD	PEMD	PEMD	PEMD	PEMD
X	1210321.538	1213717.772	1213795.915	1211773.254	1212039.379
Y	312255.182	313573.470	315509.149	317963.919	317543.542
Polycyclic Aromatic Hydrocarbons (µg/kg)					
2-Methylnaphthalene	5.25 U	5.39 U	6.03 U	2.42 U	3.6 U
Acenaphthene	**8.49**	**5.45**	**6.85**	**3.54**	**3.78**
Acenaphthylene	1.13 U	1.13 U	1.13 U	1.13 U	1.13 U
Anthracene	**3.39**	**2.05**	**1.95**	**2.16**	**2.52**
Benzo(a)anthracene	**2.98**	1.13 U	**1.36**	**1.31**	**1.89**
Benzo(a)pyrene	1.13 U	1.13 U	1.13 U	1.13 U	1.13 U
Benzo(b)fluoranthene	**1.59**	1.13 U	1.13 U	1.13 U	1.13 U
Benzo(e)pyrene	1.13 U	1.13 U	1.13 U	1.13 U	1.13 U
Benzo(g,h,i)perylene	1.13 U	1.13 U	1.13 U	1.13 U	1.13 U
Benzo(k)fluoranthene	1.13 U	1.13 U	1.13 U	1.13 U	1.13 U
Chrysene	**4.71**	**1.59**	**2.06**	**1.78**	**2.71**
Dibenzo(a,h)anthracene	1.13 U	1.13 U	1.13 U	1.13 U	1.13 U
Fluoranthene	**42.9**	**18.4**	**19.7**	**18.1**	**25.2**
Fluorene	**7.79**	**5.25**	**6.63**	**3.34**	**3.11**
Indeno(1,2,3-c,d)pyrene	1.13 U	1.13 U	1.13 U	1.13 U	1.13 U
Naphthalene	8.65 U	6.72 U	8.95 U	3.8 U	8.24 U
Perylene	1.13 U	1.13 U	1.13 U	1.13 U	1.13 U
Phenanthrene	**34.1**	**18.6**	**19.9**	**13.9**	**13.9**
Pyrene	**25.3**	**8.93**	**10.3**	**10.4**	**14.1**
Total cPAH TEQ (7 minimum CAEPA 2005) (U = 1/2)	**1.24**	**0.863**	**0.948**	**0.94**	**1.01**
Total PAH (19) (U = 1/2)	**143**	**72**	**81.3**	**62.7**	**78.2**
Total HPAH (SMS) (U = 1/2)	**80.3**	**32.9**	**36.8**	**35**	**47.3**
Total LPAH (SMS) (U = 1/2)	**58.7**	**35.3**	**40.4**	**25.4**	**28**
Total PAH (SMS) (U = 1/2)	**139**	**68.2**	**77.2**	**60.4**	**75.3**
Total cPAH TEQ (7 minimum CAEPA 2005) (U = 0)	**0.504**	**0.0159**	**0.157**	**0.149**	**0.216**
Total PAH (19) (U = 0)	**131**	**60.3**	**68.8**	**54.5**	**67.2**
Total HPAH (SMS) (U = 0)	**77.5**	**28.9**	**33.4**	**31.6**	**43.9**
Total LPAH (SMS) (U = 0)	**53.8**	**31.4**	**35.3**	**22.9**	**23.3**
Total PAH (SMS) (U = 0)	**131**	**60.3**	**68.8**	**54.5**	**67.2**

Table F-5
Season 2 Event 1 Results Per PEMD

Task	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1
Location Name	SMA-1-2	SMA-1-3	FieldQC	FieldQC	FieldQC
Location ID	PG-SMA1-2_2016	PG-SMA1-3_2016	FieldQC	FieldQC	FieldQC
Sample ID	PG-SMA1-102-PEMD-160909-A	PG-SMA1-3-PEMD-160909-A	PG-FB-PEMD-160909	PG-PEMD-BLK-20160913	PG-TB-PEMD-160909
Sample Date	9/9/2016	9/9/2016	9/9/2016	9/13/2016	9/9/2016
Sample Type	FD	N	FB	N	TB
Matrix	PEMD	PEMD	PEMD	PEMD	PEMD
X	1212039.379	1212205.620	--	--	--
Y	317543.542	317081.123	--	--	--
Polycyclic Aromatic Hydrocarbons (µg/kg)					
2-Methylnaphthalene	3.83 U	4.32 U	**24.4**	1.15 UJ	**12.8**
Acenaphthene	**3.96**	**3.72**	**44.4**	1.15 UJ	**4.07**
Acenaphthylene	1.13 U	1.13 U	**2.09**	1.15 UJ	1.13 U
Anthracene	**2.03**	**1.53**	**5.6**	1.15 UJ	1.13 U
Benzo(a)anthracene	**1.61**	**1.16**	1.13 U	1.15 UJ	1.13 U
Benzo(a)pyrene	1.13 U	1.13 U	1.13 U	1.15 UJ	1.13 U
Benzo(b)fluoranthene	1.13 U	1.13 U	1.13 U	1.15 UJ	1.13 U
Benzo(e)pyrene	1.13 U	1.13 U	1.13 U	1.15 UJ	1.13 U
Benzo(g,h,i)perylene	1.13 U	1.13 U	1.13 U	1.15 UJ	1.13 U
Benzo(k)fluoranthene	1.13 U	1.13 U	1.13 U	1.15 UJ	1.13 U
Chrysene	**2.59**	**2.06**	**1.19**	1.15 UJ	1.13 U
Dibenzo(a,h)anthracene	1.13 U	1.13 U	1.13 U	1.15 UJ	1.13 U
Fluoranthene	**27.1**	**23.7**	**18.5**	1.15 UJ	**1.86**
Fluorene	**3.08**	**2.94**	**30**	1.15 UJ	**2.17**
Indeno(1,2,3-c,d)pyrene	1.13 U	1.13 U	1.13 U	1.15 UJ	1.13 U
Naphthalene	7.9 U	9.43 U	**17.4**	**1.28 J**	**14.4**
Perylene	1.13 U	1.13 U	1.13 U	1.15 UJ	1.13 U
Phenanthrene	**14.2**	**11.8**	**43.1**	1.15 UJ	**3.2**
Pyrene	**14.6**	**11.9**	**10.9**	1.15 UJ	**1.7**
Total cPAH TEQ (7 minimum CAEPA 2005) (U = 1/2)	**0.978**	**0.928**	**0.859**	1.15 UJ	1.13 U
Total PAH (19) (U = 1/2)	**80.1**	**70.8**	**203**	**11.6 J**	**47**
Total HPAH (SMS) (U = 1/2)	**49.3**	**42.2**	**34.5**	1.15 UJ	**8.08**
Total LPAH (SMS) (U = 1/2)	**27.8**	**25.3**	**143**	**4.16 J**	**25**
Total PAH (SMS) (U = 1/2)	**77.1**	**67.5**	**177**	**9.9 J**	**33.1**
Total cPAH TEQ (7 minimum CAEPA 2005) (U = 0)	**0.187**	**0.137**	**0.0119**	1.15 UJ	1.13 U
Total PAH (19) (U = 0)	**69.2**	**58.8**	**198**	**1.28 J**	**40.2**
Total HPAH (SMS) (U = 0)	**45.9**	**38.8**	**30.6**	1.15 UJ	**3.56**
Total LPAH (SMS) (U = 0)	**23.3**	**20**	**143**	**1.28 J**	**23.8**
Total PAH (SMS) (U = 0)	**69.2**	**58.8**	**173**	**1.28 J**	**27.4**

Table F-5
Season 2 Event 1 Results Per PEMD

Notes:

Horizontal coordinate datum is North American Datum 1983, State Plane Washington North FIPS 4601 (U.S. Survey Feet).

All undetect results are reported at the reporting limit.

U.S. Environmental Protection Agency Stage 2B data validation was completed by Laboratory Data Consultants.

Totals are calculated as the sum of all detected results (U=0). If all results are not detected, the highest limit value is reported as the sum.

Totals are calculated as the sum of all detected results and half of the reporting limit of undetected results (U=1/2). If all results are not detected, the highest limit value is reported as the sum.

Total cPAH TEQ (7 minimum California Environmental Protection Agency 2005) calculation includes benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene and indeno(1,2,3-c,d)pyrene. Per Model Toxics Control Act cleanup Regulation, Table 708-2 "Toxicity Equivalency Factors for Minimum Required Carcinogenic Polyaromatic Hydrocarbons (cPAHs) under Washington Administrative Code 173-340-708(e).

Total PAH (19) is the total of 2-methylnaphthalene, acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(e)pyrene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-c,d)pyrene, naphthalene, perylene, phenanthrene, and pyrene.

Total HPAH (SMS) is the total of benzo(a)anthracene, benzo(a)pyrene, benzo(x)fluoranthenes, benzo(g,h,i)perylene, chrysene, dibenzo(a,h)anthracene, fluoranthene, indeno(1,2,3-c,d)pyrene, and pyrene.

Total LPAH (SMS) is the total of acenaphthene, acenaphthylene, anthracene, fluorene, naphthalene, and phenanthrene. 2-Methylnaphthalene is not included in the sum of LPAHs.

Total PAH (SMS) is the total of acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(x)fluoranthenes, benzo(g,h,i)perylene, chrysene, dibenzo(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-c,d)pyrene, naphthalene, phenanthrene, and pyrene. 2-Methylnaphthalene is not included.

Bold: Detected result

--: results not reported or not applicable

µg/kg: micrograms per kilogram

cPAH: carcinogenic polycyclic aromatic hydrocarbon

FB: field blank sample

FD: field duplicate sample

HPAH: high-molecular-weight polycyclic aromatic hydrocarbon

J: estimated value

LPAH: low-molecular-weight polycyclic aromatic hydrocarbon

N: normal environmental sample

PAH: polycyclic aromatic hydrocarbons

PEMD: polyethylene membrane device matrix

SMS: Sediment Management Standards

TB: trip blank sample

TEQ: toxic equivalency

U: Compound analyzed, but not detected above detection limit

UJ: Compound analyzed, but not detected above estimated detection limit

Table F-6
Season 2 Event 2 Results Per PEMD

Task	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2
Location Name	WS-1	GP-1	PJ-1	SMA-1-1	SMA-1-2	SMA-1-3
Location ID	PG-WS-1_201611	PG-GP-1_201611	PG-PJ-1_201611	PG-SMA1-1_201611	PG-SMA1-2_201611	PG-SMA1-3_201611
Sample ID	PG-WS-1-PEMD-161122-A	PG-GP-1-PEMD-161122-A	PG-PJ-1-PEMD-161122-A	PG-SMA1-1-PEMD-161122-A	PG-SMA1-2-PEMD-161122-A	PG-SMA1-3-PEMD-161122-A
Sample Date	11/22/2016	11/22/2016	11/22/2016	11/22/2016	11/22/2016	11/22/2016
Sample Type	N	N	N	N	N	N
Matrix	PEMD	PEMD	PEMD	PEMD	PEMD	PEMD
X	1210343.348	1213721.398	1213128.711	1211928.879	1212026.164	1212058.549
Y	312233.262	313616.757	315808.466	317839.131	317393.21	316914.489
Polycyclic Aromatic Hydrocarbons (µg/kg)						
2-Methylnaphthalene	18.1 U	24.8 U	17.1 UJ	40.2 UJ	26.6 UJ	11.8 UJ
Acenaphthene	**70.1**	**69.8**	**60.7 J**	**179 J**	**97.5 J**	**61.3 J**
Acenaphthylene	1.13 U	**1.37**	**3.89 J**	**3.43 J**	**3.16 J**	**2.07 J**
Anthracene	**29.5**	**18.5**	**25.8**	**55.5**	**37.2**	**25.2**
Benzo(a)anthracene	**17.7**	**12.7**	**10.3**	**33.3**	**20.5**	**19.8**
Benzo(a)pyrene	**2.21**	**1.78**	1.13 U	**3.6 J**	**2.54 J**	**2.78 J**
Benzo(b)fluoranthene	**4.11**	**2.92**	**2.31**	**6.46**	**3.99**	**4.42**
Benzo(e)pyrene	**2.7**	**1.87**	**1.63 J**	**4.03 J**	**2.62 J**	**2.72 J**
Benzo(g,h,i)perylene	1.13 U	1.13 U	1.13 U	1.13 U	1.13 U	1.13 U
Benzo(k)fluoranthene	**1.82**	**1.28**	1.13 U	**3.26 J**	**2.22 J**	**2.11 J**
Chrysene	**15.1**	**11.1**	**9.98**	**23.9**	**15.4**	**14.7**
Dibenzo(a,h)anthracene	1.13 U	1.13 U	1.13 U	1.13 U	1.13 U	1.13 U
Fluoranthene	**228**	**165**	**152**	**532**	**326**	**401**
Fluorene	**70.2**	**60**	**57.7 J**	**184 J**	**93.9 J**	**65.9 J**
Indeno(1,2,3-c,d)pyrene	1.13 U	1.13 U	1.13 U	1.13 U	1.13 U	1.13 U
Naphthalene	10.6 UJ	9.31 UJ	13.1 UJ	21.1 UJ	10.8 UJ	5.67 UJ
Perylene	1.13 U	1.13 U	1.13 U	1.13 U	1.13 U	1.13 U
Phenanthrene	**299**	**215**	**174**	**655**	**424**	**423**
Pyrene	**159**	**108**	**102**	**319**	**233**	**238**
Total cPAH TEQ (7 minimum CAEPA 2005) (U = 1/2)	**4.84**	**3.69**	**2.1**	**8.25 J**	**5.48 J**	**5.67 J**
Total PAH (19) (U = 1/2)	**917 J**	**689 J**	**619 J**	**2040 J**	**1280 J**	**1270 J**
Total HPAH (SMS) (U = 1/2)	**430**	**304**	**279**	**923 J**	**605 J**	**685 J**
Total LPAH (SMS) (U = 1/2)	**475 J**	**369 J**	**329 J**	**1090 J**	**661 J**	**580 J**
Total PAH (SMS) (U = 1/2)	**904 J**	**674 J**	**608 J**	**2010 J**	**1270 J**	**1260 J**
Total cPAH TEQ (7 minimum CAEPA 2005) (U = 0)	**4.72**	**3.58**	**1.36**	**8.14 J**	**5.37 J**	**5.56 J**
Total PAH (19) (U = 0)	**899 J**	**669 J**	**600 J**	**2000 J**	**1260 J**	**1260 J**
Total HPAH (SMS) (U = 0)	**428**	**303**	**277**	**922 J**	**604 J**	**683 J**
Total LPAH (SMS) (U = 0)	**469 J**	**365 J**	**322 J**	**1080 J**	**656 J**	**577 J**
Total PAH (SMS) (U = 0)	**897 J**	**667 J**	**599 J**	**2000 J**	**1260 J**	**1260 J**

Table F-6
Season 2 Event 2 Results Per PEMD

Task	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2
Location Name	SMA-1-3	SMA-2-1	SMA-2-2	SMA-2-2	SMA-2-3
Location ID	PG-SMA1-3_201611	PG-SMA2-1_201611	PG-SMA2-2_201611	PG-SMA2-2_201611	PG-SMA2-3_201611
Sample ID	PG-SMA1-103-PEMD-161122-A	PG-SMA2-1-PEMD-161122-A	PG-SMA2-2-PEMD-161122-A	PG-SMA2-102-PEMD-161122-A	PG-SMA2-3-PEMD-161122-A
Sample Date	11/22/2016	11/22/2016	11/22/2016	11/22/2016	11/22/2016
Sample Type	FD	N	N	FD	N
Matrix	PEMD	PEMD	PEMD	PEMD	PEMD
X	1212058.549	1211969.012	1211987.052	1211987.052	1211724.053
Y	316914.489	316677.558	316265.540	316265.540	315819.717
Polycyclic Aromatic Hydrocarbons (µg/kg)					
2-Methylnaphthalene	18.2 UJ	14.6 UJ	87.3 UJ	**112 J**	31 UJ
Acenaphthene	**92.2 J**	**62.9 J**	**454 J**	**696 J**	**129 J**
Acenaphthylene	**3.19 J**	**3.57 J**	**9.45 J**	**9.93 J**	**4.81 J**
Anthracene	**42.7**	**26.8**	**319 J**	**319 J**	**100**
Benzo(a)anthracene	**23.3**	**16.3**	**66.3**	**84.6**	**61.6**
Benzo(a)pyrene	**2.04 J**	**1.75 J**	**8.02 J**	**12.3 J**	**6.1 J**
Benzo(b)fluoranthene	**4.11**	**3.11**	**11.3**	**19**	**12**
Benzo(e)pyrene	**2.61 J**	**2.19 J**	**7.17 J**	**11.1 J**	**7.83 J**
Benzo(g,h,i)perylene	1.13 U	1.13 U	**1.18 J**	**1.61 J**	1.13 U
Benzo(k)fluoranthene	**1.63 J**	**1.97 J**	**5.87 J**	**8.56 J**	**6.35 J**
Chrysene	**18.4**	**12.9**	**42.4**	**50**	**44.7**
Dibenzo(a,h)anthracene	1.13 U	1.13 U	1.13 U	1.13 U	1.13 U
Fluoranthene	**331**	**285**	**834**	**949**	**812**
Fluorene	**94.7 J**	**68.2 J**	**452 J**	**715 J**	**251 J**
Indeno(1,2,3-c,d)pyrene	1.13 U	1.13 U	**1.16**	**1.5**	1.13 U
Naphthalene	11.2 UJ	9.58 UJ	12.6 UJ	25.6 UJ	15 UJ
Perylene	1.13 U	1.13 U	**1.87 J**	**3.4 J**	1.13 U
Phenanthrene	**387**	**343**	**1490**	**1890**	**1010**
Pyrene	**228**	**198**	**578**	**671**	**414**
Total cPAH TEQ (7 minimum CAEPA 2005) (U = 1/2)	**5.24 J**	**4.13 J**	**17 J**	**24.2 J**	**14.7 J**
Total PAH (19) (U = 1/2)	**1250 J**	**1040 J**	**4330 J**	**5570 J**	**2900 J**
Total HPAH (SMS) (U = 1/2)	**610 J**	**521 J**	**1550 J**	**1800 J**	**1360 J**
Total LPAH (SMS) (U = 1/2)	**625 J**	**509 J**	**2730 J**	**3640 J**	**1500 J**
Total PAH (SMS) (U = 1/2)	**1240 J**	**1030 J**	**4280 J**	**5440 J**	**2900 J**
Total cPAH TEQ (7 minimum CAEPA 2005) (U = 0)	**5.13 J**	**4.02 J**	**16.9 J**	**24.2 J**	**14.5 J**
Total PAH (19) (U = 0)	**1230 J**	**1030 J**	**4280 J**	**5550 J**	**2900 J**
Total HPAH (SMS) (U = 0)	**608 J**	**519 J**	**1550 J**	**1800 J**	**1360 J**
Total LPAH (SMS) (U = 0)	**620 J**	**504 J**	**2720 J**	**3630 J**	**1500 J**
Total PAH (SMS) (U = 0)	**1230 J**	**1020 J**	**4270 J**	**5430 J**	**2900 J**

Table F-6
Season 2 Event 2 Results Per PEMD

Task	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2
Location Name	SMA-2-4	SMA-2-5	FieldQC	FieldQC	FieldQC
Location ID	PG-SMA2-4_201611	PG-SMA2-5_201611	FieldQC	FieldQC	FieldQC
Sample ID	PG-SMA2-4-PEMD-161122-A	PG-SMA2-5-PEMD-161122-A	PG-FB-SMA1-PEMD-161122	PG-FB-SMA2-PEMD-161122	PG-TB-PEMD-161122
Sample Date	11/22/2016	11/22/2016	11/22/2016	11/22/2016	11/22/2016
Sample Type	N	N	FB	FB	TB
Matrix	PEMD	PEMD	PEMD	PEMD	PEMD
X	1211439.086	1211124.183	--	--	--
Y	315475.522	315104.921	--	--	--
Polycyclic Aromatic Hydrocarbons (µg/kg)					
2-Methylnaphthalene	37.9 UJ	37 UJ	14.3 U	24.1 U	**13.9**
Acenaphthene	**165 J**	**320 J**	1.88 U	**12.6**	**1.48**
Acenaphthylene	**5.73 J**	**7.07 J**	1.13 U	1.13 U	1.13 U
Anthracene	**85.5**	**93.8**	1.13 U	1.13 U	1.13 U
Benzo(a)anthracene	**61**	**92.2**	1.13 U	1.13 U	1.13 U
Benzo(a)pyrene	**6.69 J**	**11.3 J**	1.13 U	1.13 U	1.13 U
Benzo(b)fluoranthene	**11.4**	**16.9**	1.13 U	1.13 U	1.13 U
Benzo(e)pyrene	**7.16 J**	**11.1 J**	1.13 U	1.13 U	1.13 U
Benzo(g,h,i)perylene	1.13 U	1.13 U	1.13 U	1.13 U	1.13 U
Benzo(k)fluoranthene	**5.46 J**	**9.31 J**	1.13 U	1.13 U	1.13 U
Chrysene	**43.1**	**70.5**	1.13 U	1.13 U	1.13 U
Dibenzo(a,h)anthracene	1.13 U	1.13 U	1.13 U	1.13 U	1.13 U
Fluoranthene	**715**	**1080**	2.07 U	4.76 U	**1.44**
Fluorene	**153 J**	**149 J**	**2.33**	**7.16**	1.13 U
Indeno(1,2,3-c,d)pyrene	1.13 U	1.13 U	1.13 U	1.13 U	1.13 U
Naphthalene	17.1 UJ	14.1 UJ	13.4 UJ	18.2 UJ	**18.9 J**
Perylene	**1.56 J**	**3.29 J**	1.13 UJ	1.13 UJ	1.13 UJ
Phenanthrene	**681**	**667**	4.85 U	10.4 U	**2.24**
Pyrene	**390**	**435**	1.97 U	5.92 U	**2.74**
Total cPAH TEQ (7 minimum CAEPA 2005) (U = 1/2)	**15 J**	**24 J**	1.13 U	1.13 U	1.13 U
Total PAH (19) (U = 1/2)	**2400 J**	**3000 J**	**28.3 J**	**58.2 J**	**48 J**
Total HPAH (SMS) (U = 1/2)	**1200 J**	**1720 J**	2.07 U	5.92 U	**8.7**
Total LPAH (SMS) (U = 1/2)	**1100 J**	**1200 J**	**13.5 J**	**35.2 J**	**24.3 J**
Total PAH (SMS) (U = 1/2)	**2300 J**	**3000 J**	**20.1 J**	**45.1 J**	**33 J**
Total cPAH TEQ (7 minimum CAEPA 2005) (U = 0)	**14.9 J**	**23.8 J**	1.13 U	1.13 U	1.13 U
Total PAH (19) (U = 0)	**2300 J**	**3000 J**	**2.33 J**	**19.8 J**	**40.7 J**
Total HPAH (SMS) (U = 0)	**1200 J**	**1720 J**	2.07 U	5.92 U	**4.18**
Total LPAH (SMS) (U = 0)	**1090 J**	**1200 J**	**2.33 J**	**19.8 J**	**22.6 J**
Total PAH (SMS) (U = 0)	**2300 J**	**3000 J**	**2.33 J**	**19.8 J**	**26.8 J**

Table F-6
Season 2 Event 2 Results Per PEMD

Notes:

Horizontal coordinate datum is North American Datum 1983, State Plane Washington North FIPS 4601 (U.S. Survey Feet).

All undetect results are reported at the reporting limit.

U.S. Environmental Protection Agency Stage 2B data validation was completed by Laboratory Data Consultants.

Totals are calculated as the sum of all detected results (U=0). If all results are not detected, the highest limit value is reported as the sum.

Totals are calculated as the sum of all detected results and half of the reporting limit of undetected results (U=1/2). If all results are not detected, the highest limit value is reported as the sum.

Total cPAH TEQ (7 minimum California Environmental Protection Agency 2005) calculation includes benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene and indeno(1,2,3-c,d)pyrene. Per Model Toxics Control Act cleanup Regulation, Table 708-2 "Toxicity Equivalency Factors for Minimum Required Carcinogenic Polyaromatic Hydrocarbons (cPAHs) under Washington Administrative Code 173-340-708(e).

Total PAH (19) is the total of 2-methylnaphthalene, acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(e)pyrene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-c,d)pyrene, naphthalene, perylene, phenanthrene, and pyrene.

Total HPAH (SMS) is the total of benzo(a)anthracene, benzo(a)pyrene, benzo(x)fluoranthenes, benzo(g,h,i)perylene, chrysene, dibenzo(a,h)anthracene, fluoranthene, indeno(1,2,3-c,d)pyrene, and pyrene.

Total LPAH (SMS) is the total of acenaphthene, acenaphthylene, anthracene, fluorene, naphthalene, and phenanthrene. 2-Methylnaphthalene is not included in the sum of LPAHs.

Total PAH (SMS) is the total of acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(x)fluoranthenes, benzo(g,h,i)perylene, chrysene, dibenzo(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-c,d)pyrene, naphthalene, phenanthrene, and pyrene. 2-Methylnaphthalene is not included.

Bold: Detected result

--: results not reported or not applicable

µg/kg: micrograms per kilogram

cPAH: carcinogenic polycyclic aromatic hydrocarbon

FB: field blank sample

FD: field duplicate sample

HPAH: high-molecular-weight polycyclic aromatic hydrocarbon

J: estimated value

LPAH: low-molecular-weight polycyclic aromatic hydrocarbon

N: normal environmental sample

PAH: polycyclic aromatic hydrocarbons

PEMD: polyethylene membrane device matrix

SMS: Sediment Management Standards

TB: trip blank sample

TEQ: toxic equivalency

U: Compound analyzed, but not detected above detection limit

UJ: Compound analyzed, but not detected above estimated detection limit

Table F-7
Season 2 Event 1 Calculated PEMD Surface Water Results

Task	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1
Location Name	WS-1	GP-1	PJ-1	SMA-1-1	SMA-1-2
Location ID	PG-WS-1_2016	PG-GP-1_2016	PG-PJ-1_2016	PG-SMA1-1_2016	PG-SMA1-2_2016
Sample ID	PG-WS-1-PEMD-160909-A	PG-GP-1-PEMD-160909-A	PG-PJ-1-PEMD-160909-A	PG-SMA1-1-PEMD-160909-A	PG-SMA1-2-PEMD-160909-A
Sample Date	9/9/2016	9/9/2016	9/9/2016	9/9/2016	9/9/2016
Sample Type	N	N	N	N	N
Matrix	PEMD	PEMD	PEMD	PEMD	PEMD
X	1210321.538	1213717.772	1213795.915	1211773.254	1212039.379
Y	312255.182	313573.470	315509.149	317963.919	317543.542
Polycyclic Aromatic Hydrocarbons (µg/L)					
2-Methylnaphthalene	0.00235 U	0.00241 U	0.0027 U	0.00108 U	0.00161 U
Acenaphthene	**0.00209**	**0.00134**	**0.00168**	**0.00087**	**0.000929**
Acenaphthylene	0.000782 U	0.000782 U	0.000782 U	0.000782 U	0.000782 U
Anthracene	**0.000239**	**0.000144**	**0.000137**	**0.000152**	**0.000177**
Benzo(a)anthracene	**0.0000194**	0.00000735 U	**0.00000885**	**0.00000852**	**0.0000123**
Benzo(a)pyrene	0.00000146 U	0.00000146 U	0.00000146 U	0.00000146 U	0.00000146 U
Benzo(b)fluoranthene	**0.00000951**	0.00000676 U	0.00000676 U	0.00000676 U	0.00000676 U
Benzo(e)pyrene	0.00000655 U	0.00000655 U	0.00000655 U	0.00000655 U	0.00000655 U
Benzo(g,h,i)perylene	0.00000549 U	0.00000549 U	0.00000549 U	0.00000549 U	0.00000549 U
Benzo(k)fluoranthene	0.0000175 U	0.0000175 U	0.0000175 U	0.0000175 U	0.0000175 U
Chrysene	**0.0000547**	**0.0000185**	**0.0000239**	**0.0000207**	**0.0000315**
Dibenzo(a,h)anthracene	0.00000541 U	0.00000541 U	0.00000541 U	0.00000541 U	0.00000541 U
Fluoranthene	**0.000998**	**0.000428**	**0.000458**	**0.000421**	**0.000586**
Fluorene	**0.0015**	**0.00101**	**0.00128**	**0.000645**	**0.000601**
Indeno(1,2,3-c,d)pyrene	0.0000045 U	0.0000045 U	0.0000045 U	0.0000045 U	0.0000045 U
Naphthalene	0.0134 U	0.0104 U	0.0139 U	0.00589 U	0.0128 U
Perylene	0.00000655 U	0.00000655 U	0.00000655 U	0.00000655 U	0.00000655 U
Phenanthrene	**0.00287**	**0.00157**	**0.00167**	**0.00117**	**0.00117**
Pyrene	**0.000353**	**0.000125**	**0.000144**	**0.000145**	**0.000197**
Total cPAH TEQ (7 minimum CAEPA 2005) (U = 1/2)	**0.00000554**	**0.00000299**	**0.00000356**	**0.0000035**	**0.00000398**
Total PAH (19) (U = 1/2)	**0.0164**	**0.0115**	**0.0141**	**0.00734**	**0.0113**
Total HPAH (SMS) (U = 1/2)	**0.00145**	**0.000596**	**0.000655**	**0.000616**	**0.000847**
Total LPAH (SMS) (U = 1/2)	**0.0138**	**0.00966**	**0.0121**	**0.00617**	**0.00967**
Total PAH (SMS) (U = 1/2)	**0.0152**	**0.0103**	**0.0128**	**0.00679**	**0.0105**
Total cPAH TEQ (7 minimum CAEPA 2005) (U = 0)	**0.00000344**	**0.000000185**	**0.00000112**	**0.00000106**	**0.00000155**
Total PAH (19) (U = 0)	**0.00813**	**0.00464**	**0.0054**	**0.00343**	**0.0037**
Total HPAH (SMS) (U = 0)	**0.00143**	**0.000572**	**0.000635**	**0.000595**	**0.000827**
Total LPAH (SMS) (U = 0)	**0.0067**	**0.00406**	**0.00477**	**0.00284**	**0.00288**
Total PAH (SMS) (U = 0)	**0.00813**	**0.00464**	**0.0054**	**0.00343**	**0.0037**

Table F-7
Season 2 Event 1 Calculated PEMD Surface Water Results

Task	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1	2016Shellfish1
Location Name	SMA-1-2	SMA-1-3	FieldQC	FieldQC	FieldQC
Location ID	PG-SMA1-2_2016	PG-SMA1-3_2016	FieldQC	FieldQC	FieldQC
Sample ID	PG-SMA1-102-PEMD-160909-A	PG-SMA1-3-PEMD-160909-A	PG-FB-PEMD-160909	PG-TB-PEMD-160909	PG-PEMD-BLK-20160913
Sample Date	9/9/2016	9/9/2016	9/9/2016	9/9/2016	9/13/2016
Sample Type	FD	N	FB	TB	N
Matrix	PEMD	PEMD	PEMD	PEMD	PEMD
X	1212039.379	1212205.620	--	--	--
Y	317543.542	317081.123	--	--	--
Polycyclic Aromatic Hydrocarbons (µg/L)					
2-Methylnaphthalene	0.00171 U	0.00193 U	**0.0109**	**0.00573**	0.000515 UJ
Acenaphthene	**0.000973**	**0.000914**	**0.0109**	**0.001**	0.000283 UJ
Acenaphthylene	0.000782 U	0.000782 U	**0.00145**	0.000782 U	0.000796 UJ
Anthracene	**0.000143**	**0.000108**	**0.000394**	0.0000796 U	0.000081 UJ
Benzo(a)anthracene	**0.0000105**	**0.00000754**	0.00000735 U	0.00000735 U	0.00000748 UJ
Benzo(a)pyrene	0.00000146 U	0.00000146 U	0.00000146 U	0.00000146 U	0.00000149 UJ
Benzo(b)fluoranthene	0.00000676 U	0.00000676 U	0.00000676 U	0.00000676 U	0.00000688 UJ
Benzo(e)pyrene	0.00000655 U	0.00000655 U	0.00000655 U	0.00000655 U	0.00000667 UJ
Benzo(g,h,i)perylene	0.00000549 U	0.00000549 U	0.00000549 U	0.00000549 U	0.00000558 UJ
Benzo(k)fluoranthene	0.0000175 U	0.0000175 U	0.0000175 U	0.0000175 U	0.0000178 UJ
Chrysene	**0.0000301**	**0.0000239**	**0.0000138**	0.0000131 U	0.0000134 UJ
Dibenzo(a,h)anthracene	0.00000541 U	0.00000541 U	0.00000541 U	0.00000541 U	0.0000055 UJ
Fluoranthene	**0.00063**	**0.000551**	**0.00043**	**0.0000433**	0.0000267 UJ
Fluorene	**0.000595**	**0.000568**	**0.00579**	**0.000419**	0.000222 UJ
Indeno(1,2,3-c,d)pyrene	0.0000045 U	0.0000045 U	0.0000045 U	0.0000045 U	0.00000458 UJ
Naphthalene	0.0122 U	0.0146 U	**0.0269**	**0.0223**	**0.00198 J**
Perylene	0.00000655 U	0.00000655 U	0.00000655 U	0.00000655 U	0.00000667 UJ
Phenanthrene	**0.00119**	**0.000993**	**0.00363**	**0.000269**	0.0000968 UJ
Pyrene	**0.000204**	**0.000166**	**0.000152**	**0.0000237**	0.0000161 UJ
Total cPAH TEQ (7 minimum CAEPA 2005) (U = 1/2)	**0.00000379**	**0.00000343**	**0.00000294**	0.00000175 U	0.00000178 UJ
Total PAH (19) (U = 1/2)	**0.0111**	**0.012**	**0.0606**	**0.0303**	**0.00304 J**
Total HPAH (SMS) (U = 1/2)	**0.000895**	**0.000769**	**0.00062**	**0.0000978**	0.0000267 UJ
Total LPAH (SMS) (U = 1/2)	**0.00939**	**0.0103**	**0.0491**	**0.0244**	**0.00272 J**
Total PAH (SMS) (U = 1/2)	**0.0103**	**0.011**	**0.0497**	**0.0245**	**0.00277 J**
Total cPAH TEQ (7 minimum CAEPA 2005) (U = 0)	**0.00000135**	**0.000000993**	**0.000000138**	0.00000175 U	0.00000178 UJ
Total PAH (19) (U = 0)	**0.00378**	**0.00333**	**0.0606**	**0.0298**	**0.00198 J**
Total HPAH (SMS) (U = 0)	**0.000875**	**0.000748**	**0.000596**	**0.000067**	0.0000267 UJ
Total LPAH (SMS) (U = 0)	**0.0029**	**0.00258**	**0.0491**	**0.024**	**0.00198 J**
Total PAH (SMS) (U = 0)	**0.00378**	**0.00333**	**0.0497**	**0.0241**	**0.00198 J**

Table F-7
Season 2 Event 1 Calculated PEMD Surface Water Results

Notes:

Horizontal coordinate datum is North American Datum 1983, State Plane Washington North FIPS 4601 (U.S. Survey Feet).

All undetect results are reported at the reporting limit.

U.S. Environmental Protection Agency Stage 2B data validation was completed by Laboratory Data Consultants.

Totals are calculated as the sum of all detected results (U=0). If all results are not detected, the highest limit value is reported as the sum.

Totals are calculated as the sum of all detected results and half of the reporting limit of undetected results (U=1/2). If all results are not detected, the highest limit value is reported as the sum.

Total cPAH TEQ (7 minimum California Environmental Protection Agency 2005) calculation includes benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene and indeno(1,2,3-c,d)pyrene. Per Model Toxics Control Act cleanup Regulation, Table 708-2 "Toxicity Equivalency Factors for Minimum Required Carcinogenic Polyaromatic Hydrocarbons (cPAHs) under Washington Administrative Code 173-340-708(e).

Total PAH (19) is the total of 2-methylnaphthalene, acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(e)pyrene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-c,d)pyrene, naphthalene, perylene, phenanthrene, and pyrene.

Total HPAH (SMS) is the total of benzo(a)anthracene, benzo(a)pyrene, benzo(x)fluoranthenes, benzo(g,h,i)perylene, chrysene, dibenzo(a,h)anthracene, fluoranthene, indeno(1,2,3-c,d)pyrene, and pyrene.

Total LPAH (SMS) is the total of acenaphthene, acenaphthylene, anthracene, fluorene, naphthalene, and phenanthrene. 2-Methylnaphthalene is not included in the sum of LPAHs.

Total PAH (SMS) is the total of acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(x)fluoranthenes, benzo(g,h,i)perylene, chrysene, dibenzo(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-c,d)pyrene, naphthalene, phenanthrene, and pyrene. 2-Methylnaphthalene is not included.

Bold: Detected result

--: results not reported or not applicable

µg/L: micrograms per liter

cPAH: carcinogenic polycyclic aromatic hydrocarbon

FB: field blank sample

FD: field duplicate sample

HPAH: high-molecular-weight polycyclic aromatic hydrocarbon

J: estimated value

LPAH: low-molecular-weight polycyclic aromatic hydrocarbon

N: normal environmental sample

PAH: polycyclic aromatic hydrocarbons

PEMD: polyethylene membrane device matrix

SMS: Sediment Management Standards

TB: trip blank sample

TEQ: toxic equivalency

U: Compound analyzed, but not detected above detection limit

UJ: Compound analyzed, but not detected above estimated detection limit

Table F-8
Season 2 Event 2 Calculated PEMD Surface Water Results

Task	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2
Location Name	WS-1	GP-1	PJ-1	SMA-1-1	SMA-1-2	SMA-1-3
Location ID	PG-WS-1_201611	PG-GP-1_201611	PG-PJ-1_201611	PG-SMA1-1_201611	PG-SMA1-2_201611	PG-SMA1-3_201611
Sample ID	PG-WS-1-PEMD-161122-A	PG-GP-1-PEMD-161122-A	PG-PJ-1-PEMD-161122-A	PG-SMA1-1-PEMD-161122-A	PG-SMA1-2-PEMD-161122-A	PG-SMA1-3-PEMD-161122-A
Sample Date	11/22/2016	11/22/2016	11/22/2016	11/22/2016	11/22/2016	11/22/2016
Sample Type	N	N	N	N	N	N
Matrix	PEMD	PEMD	PEMD	PEMD	PEMD	PEMD
X	1210343.348	1213721.398	1213128.711	1211928.879	1212026.164	1212058.549
Y	312233.262	313616.757	315808.466	317839.131	317393.210	316914.489
Polycyclic Aromatic Hydrocarbons (µg/L)						
2-Methylnaphthalene	0.0081 U	0.0111 U	0.00765 UJ	0.018 UJ	0.0119 UJ	0.00528 UJ
Acenaphthene	**0.0174**	**0.0174**	**0.0151 J**	**0.0445 J**	**0.0243 J**	**0.0153 J**
Acenaphthylene	0.000782 U	**0.000948**	**0.00269 J**	**0.00237 J**	**0.00219 J**	**0.00143 J**
Anthracene	**0.0019**	**0.00119**	**0.00166**	**0.00358**	**0.0024**	**0.00163**
Benzo(a)anthracene	**0.0000756**	**0.0000542**	**0.000044**	**0.000142**	**0.0000876**	**0.0000846**
Benzo(a)pyrene	**0.00000122**	**0.000000983**	0.000000624 U	**0.00000199 J**	**0.0000014 J**	**0.00000154 J**
Benzo(b)fluoranthene	**0.00000747**	**0.00000531**	**0.0000042**	**0.0000117**	**0.00000725**	**0.00000803**
Benzo(e)pyrene	**0.00000635**	**0.0000044**	**0.00000383 J**	**0.00000948 J**	**0.00000616 J**	**0.0000064 J**
Benzo(g,h,i)perylene	0.000000269 U	0.000000269 U	0.000000269 U	0.000000269 U	0.000000269 U	0.000000269 U
Benzo(k)fluoranthene	**0.00000175**	**0.00000123**	0.00000109 U	**0.00000313 J**	**0.00000213 J**	**0.00000203 J**
Chrysene	**0.000112**	**0.0000825**	**0.0000742**	**0.000178**	**0.000115**	**0.000109**
Dibenzo(a,h)anthracene	0.000000302 U	0.000000302 U	0.000000302 U	0.000000302 U	0.000000302 U	0.000000302 U
Fluoranthene	**0.00444**	**0.00321**	**0.00296**	**0.0104**	**0.00635**	**0.00781**
Fluorene	**0.0134**	**0.0115**	**0.011 J**	**0.0351 J**	**0.0179 J**	**0.0126 J**
Indeno(1,2,3-c,d)pyrene	0.000000254 U	0.000000254 U	0.000000254 U	0.000000254 U	0.000000254 U	0.000000254 U
Naphthalene	0.0164 UJ	0.0144 UJ	0.0203 UJ	0.0327 UJ	0.0167 UJ	0.00878 UJ
Perylene	0.00000266 U	0.00000266 U	0.00000266 U	0.00000266 U	0.00000266 U	0.00000266 U
Phenanthrene	**0.0236**	**0.0169**	**0.0137**	**0.0516**	**0.0334**	**0.0333**
Pyrene	**0.00194**	**0.00132**	**0.00124**	**0.00388**	**0.00284**	**0.0029**
Total cPAH TEQ (7 minimum CAEPA 2005) (U = 1/2)	**0.0000108**	**0.00000791**	**0.00000596**	**0.0000195 J**	**0.0000123 J**	**0.0000121 J**
Total PAH (19) (U = 1/2)	**0.0755 J**	**0.0654 J**	**0.0625 J**	**0.177 J**	**0.104 J**	**0.0822 J**
Total HPAH (SMS) (U = 1/2)	**0.00658**	**0.00467**	**0.00432**	**0.0146 J**	**0.0094 J**	**0.0109 J**
Total LPAH (SMS) (U = 1/2)	**0.0649 J**	**0.0551 J**	**0.0543 J**	**0.154 J**	**0.0885 J**	**0.0687 J**
Total PAH (SMS) (U = 1/2)	**0.0715 J**	**0.0598 J**	**0.0586 J**	**0.168 J**	**0.0979 J**	**0.0796 J**
Total cPAH TEQ (7 minimum CAEPA 2005) (U = 0)	**0.0000108**	**0.00000788**	**0.00000556**	**0.0000195 J**	**0.0000122 J**	**0.0000121 J**
Total PAH (19) (U = 0)	**0.0629 J**	**0.0526 J**	**0.0485 J**	**0.152 J**	**0.0896 J**	**0.0752 J**
Total HPAH (SMS) (U = 0)	**0.00658**	**0.00467**	**0.00432**	**0.0146 J**	**0.0094 J**	**0.0109 J**
Total LPAH (SMS) (U = 0)	**0.0563 J**	**0.0479 J**	**0.0442 J**	**0.137 J**	**0.0802 J**	**0.0643 J**
Total PAH (SMS) (U = 0)	**0.0629 J**	**0.0526 J**	**0.0485 J**	**0.152 J**	**0.0896 J**	**0.0752 J**

Table F-8
Season 2 Event 2 Calculated PEMD Surface Water Results

Task	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2
Location Name	SMA-1-3	SMA-2-1	SMA-2-2	SMA-2-2	SMA-2-3
Location ID	PG-SMA1-3_201611	PG-SMA2-1_201611	PG-SMA2-2_201611	PG-SMA2-2_201611	PG-SMA2-3_201611
Sample ID	PG-SMA1-103-PEMD-161122-A	PG-SMA2-1-PEMD-161122-A	PG-SMA2-2-PEMD-161122-A	PG-SMA2-102-PEMD-161122-A	PG-SMA2-3-PEMD-161122-A
Sample Date	11/22/2016	11/22/2016	11/22/2016	11/22/2016	11/22/2016
Sample Type	FD	N	N	FD	N
Matrix	PEMD	PEMD	PEMD	PEMD	PEMD
X	1212058.549	1211969.012	1211987.052	1211987.052	1211724.053
Y	316914.489	316677.558	316265.540	316265.540	315819.717
Polycyclic Aromatic Hydrocarbons (µg/L)					
2-Methylnaphthalene	0.00814 UJ	0.00653 UJ	0.0391 UJ	**0.0501 J**	0.0139 UJ
Acenaphthene	**0.0229 J**	**0.0157 J**	**0.113 J**	**0.173 J**	**0.0321 J**
Acenaphthylene	**0.00221 J**	**0.00247 J**	**0.00654 J**	**0.00687 J**	**0.00333 J**
Anthracene	**0.00275**	**0.00173**	**0.0206 J**	**0.0206 J**	**0.00645**
Benzo(a)anthracene	**0.0000995**	**0.0000696**	**0.000283**	**0.000361**	**0.000263**
Benzo(a)pyrene	**0.00000113 J**	**0.000000966 J**	**0.00000443 J**	**0.00000679 J**	**0.00000337 J**
Benzo(b)fluoranthene	**0.00000747**	**0.00000565**	**0.0000205**	**0.0000345**	**0.0000218**
Benzo(e)pyrene	**0.00000614 J**	**0.00000515 J**	**0.0000169 J**	**0.0000261 J**	**0.0000184 J**
Benzo(g,h,i)perylene	0.000000269 U	0.000000269 U	**0.000000281 J**	**0.000000384 J**	0.000000269 U
Benzo(k)fluoranthene	**0.00000157 J**	**0.00000189 J**	**0.00000564 J**	**0.00000823 J**	**0.0000061 J**
Chrysene	**0.000137**	**0.0000959**	**0.000315**	**0.000372**	**0.000332**
Dibenzo(a,h)anthracene	0.000000302 U	0.000000302 U	0.000000302 U	0.000000302 U	0.000000302 U
Fluoranthene	**0.00644**	**0.00555**	**0.0162**	**0.0185**	**0.0158**
Fluorene	**0.0181 J**	**0.013 J**	**0.0863 J**	**0.136 J**	**0.0479 J**
Indeno(1,2,3-c,d)pyrene	0.000000254 U	0.000000254 U	**0.000000261**	**0.000000338**	0.000000254 U
Naphthalene	0.0173 UJ	0.0148 UJ	0.0195 UJ	0.0396 UJ	0.0232 UJ
Perylene	0.00000266 U	0.00000266 U	**0.0000044 J**	**0.000008 J**	0.00000266 U
Phenanthrene	**0.0305**	**0.027**	**0.117**	**0.149**	**0.0796**
Pyrene	**0.00278**	**0.00241**	**0.00704**	**0.00817**	**0.00504**
Total cPAH TEQ (7 minimum CAEPA 2005) (U = 1/2)	**0.0000134 J**	**0.00000967 J**	**0.0000385 J**	**0.0000509 J**	**0.0000358 J**
Total PAH (19) (U = 1/2)	**0.0987 J**	**0.0787 J**	**0.397 J**	**0.583 J**	**0.209 J**
Total HPAH (SMS) (U = 1/2)	**0.00947 J**	**0.00813 J**	**0.0239 J**	**0.0275 J**	**0.0215 J**
Total LPAH (SMS) (U = 1/2)	**0.0851 J**	**0.0673 J**	**0.353 J**	**0.505 J**	**0.181 J**
Total PAH (SMS) (U = 1/2)	**0.0946 J**	**0.0754 J**	**0.377 J**	**0.533 J**	**0.202 J**
Total cPAH TEQ (7 minimum CAEPA 2005) (U = 0)	**0.0000134 J**	**0.00000964 J**	**0.0000385 J**	**0.0000509 J**	**0.0000358 J**
Total PAH (19) (U = 0)	**0.0859 J**	**0.068 J**	**0.367 J**	**0.563 J**	**0.191 J**
Total HPAH (SMS) (U = 0)	**0.00947 J**	**0.00813 J**	**0.0239 J**	**0.0275 J**	**0.0215 J**
Total LPAH (SMS) (U = 0)	**0.0765 J**	**0.0599 J**	**0.343 J**	**0.485 J**	**0.169 J**
Total PAH (SMS) (U = 0)	**0.0859 J**	**0.068 J**	**0.367 J**	**0.513 J**	**0.191 J**

Table F-8
Season 2 Event 2 Calculated PEMD Surface Water Results

Task	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2	2016Shellfish2
Location Name	SMA-2-4	SMA-2-5	FieldQC	FieldQC	FieldQC
Location ID	PG-SMA2-4_201611	PG-SMA2-5_201611	FieldQC	FieldQC	FieldQC
Sample ID	PG-SMA2-4-PEMD-161122-A	PG-SMA2-5-PEMD-161122-A	PG-FB-SMA1-PEMD-161122	PG-FB-SMA2-PEMD-161122	PG-TB-PEMD-161122
Sample Date	11/22/2016	11/22/2016	11/22/2016	11/22/2016	11/22/2016
Sample Type	N	N	FB	FB	TB
Matrix	PEMD	PEMD	PEMD	PEMD	PEMD
X	1211439.086	1211124.183	--	--	--
Y	315475.522	315104.921	--	--	--
Polycyclic Aromatic Hydrocarbons (µg/L)					
2-Methylnaphthalene	0.017 UJ	0.0166 UJ	0.0064 U	0.0108 U	**0.00622**
Acenaphthene	**0.0411 J**	**0.0796 J**	0.000468 U	**0.00314**	**0.000368**
Acenaphthylene	**0.00396 J**	**0.00489 J**	0.000782 U	0.000782 U	0.000782 U
Anthracene	**0.00551**	**0.00605**	0.0000729 U	0.0000729 U	0.0000729 U
Benzo(a)anthracene	**0.000261**	**0.000394**	0.00000483 U	0.00000483 U	0.00000483 U
Benzo(a)pyrene	**0.00000369 J**	**0.00000624 J**	0.000000624 U	0.000000624 U	0.000000624 U
Benzo(b)fluoranthene	**0.0000207**	**0.0000307**	0.00000205 U	0.00000205 U	0.00000205 U
Benzo(e)pyrene	**0.0000168 J**	**0.0000261 J**	0.00000266 U	0.00000266 U	0.00000266 U
Benzo(g,h,i)perylene	0.000000269 U	0.000000269 U	0.000000269 U	0.000000269 U	0.000000269 U
Benzo(k)fluoranthene	**0.00000525 J**	**0.00000895 J**	0.00000109 U	0.00000109 U	0.00000109 U
Chrysene	**0.000321**	**0.000524**	0.0000084 U	0.0000084 U	0.0000084 U
Dibenzo(a,h)anthracene	0.000000302 U	0.000000302 U	0.000000302 U	0.000000302 U	0.000000302 U
Fluoranthene	**0.0139**	**0.021**	0.0000403 U	0.0000927 U	**0.000028**
Fluorene	**0.0292 J**	**0.0284 J**	**0.000445**	**0.00137**	0.000216 U
Indeno(1,2,3-c,d)pyrene	0.000000254 U	0.000000254 U	0.000000254 U	0.000000254 U	0.000000254 U
Naphthalene	0.0265 UJ	0.0218 UJ	0.0208 UJ	0.0282 UJ	**0.0293 J**
Perylene	**0.00000367 J**	**0.00000774 J**	0.00000266 UJ	0.00000266 UJ	0.00000266 UJ
Phenanthrene	**0.0537**	**0.0526**	0.000382 U	0.000819 U	**0.000176**
Pyrene	**0.00475**	**0.0053**	0.000024 U	0.0000721 U	**0.0000334**
Total cPAH TEQ (7 minimum CAEPA 2005) (U = 1/2)	**0.0000356 J**	**0.0000549 J**	0.000000624 U	0.000000624 U	0.000000624 U
Total PAH (19) (U = 1/2)	**0.175 J**	**0.218 J**	**0.0149 J**	**0.0249 J**	**0.0367 J**
Total HPAH (SMS) (U = 1/2)	**0.0193 J**	**0.0273 J**	0.0000403 U	0.0000927 U	**0.0000703**
Total LPAH (SMS) (U = 1/2)	**0.147 J**	**0.182 J**	**0.0117 J**	**0.0194 J**	**0.0304 J**
Total PAH (SMS) (U = 1/2)	**0.166 J**	**0.21 J**	**0.0117 J**	**0.0195 J**	**0.0304 J**
Total cPAH TEQ (7 minimum CAEPA 2005) (U = 0)	**0.0000356 J**	**0.0000548 J**	0.000000624 U	0.000000624 U	0.000000624 U
Total PAH (19) (U = 0)	**0.153 J**	**0.199 J**	**0.000445 J**	**0.00451 J**	**0.0361 J**
Total HPAH (SMS) (U = 0)	**0.0193 J**	**0.0273 J**	0.0000403 U	0.0000927 U	**0.0000614**
Total LPAH (SMS) (U = 0)	**0.133 J**	**0.172 J**	**0.000445 J**	**0.00451 J**	**0.0298 J**
Total PAH (SMS) (U = 0)	**0.153 J**	**0.199 J**	**0.000445 J**	**0.00451 J**	**0.0299 J**

Table F-8
Season 2 Event 2 Calculated PEMD Surface Water Results

Notes:

Horizontal coordinate datum is North American Datum 1983, State Plane Washington North FIPS 4601 (U.S. Survey Feet).

All undetect results are reported at the reporting limit.

U.S. Environmental Protection Agency Stage 2B data validation was completed by Laboratory Data Consultants.

Totals are calculated as the sum of all detected results (U=0). If all results are not detected, the highest limit value is reported as the sum.

Totals are calculated as the sum of all detected results and half of the reporting limit of undetected results (U=1/2). If all results are not detected, the highest limit value is reported as the sum.

Total cPAH TEQ (7 minimum California Environmental Protection Agency 2005) calculation includes benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene and indeno(1,2,3-c,d)pyrene. Per Model Toxics Control Act cleanup Regulation, Table 708-2 "Toxicity Equivalency Factors for Minimum Required Carcinogenic Polyaromatic Hydrocarbons (cPAHs) under Washington Administrative Code 173-340-708(e).

Total PAH (19) is the total of 2-methylnaphthalene, acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(e)pyrene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-c,d)pyrene, naphthalene, perylene, phenanthrene, and pyrene.

Total HPAH (SMS) is the total of benzo(a)anthracene, benzo(a)pyrene, benzo(x)fluoranthenes, benzo(g,h,i)perylene, chrysene, dibenzo(a,h)anthracene, fluoranthene, indeno(1,2,3-c,d)pyrene, and pyrene.

Total LPAH (SMS) is the total of acenaphthene, acenaphthylene, anthracene, fluorene, naphthalene, and phenanthrene. 2-Methylnaphthalene is not included in the sum of LPAHs.

Total PAH (SMS) is the total of acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(x)fluoranthenes, benzo(g,h,i)perylene, chrysene, dibenzo(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-c,d)pyrene, naphthalene, phenanthrene, and pyrene. 2-Methylnaphthalene is not included.

Bold: Detected result

--: results not reported or not applicable

µg/L: micrograms per liter

cPAH: carcinogenic polycyclic aromatic hydrocarbon

FB: field blank sample

FD: field duplicate sample

HPAH: high-molecular-weight polycyclic aromatic hydrocarbon

J: estimated value

LPAH: low-molecular-weight polycyclic aromatic hydrocarbon

N: normal environmental sample

PAH: polycyclic aromatic hydrocarbons

PEMD: polyethylene membrane device matrix

SMS: Sediment Management Standards

TB: trip blank sample

TEQ: toxic equivalency

U: Compound analyzed, but not detected above detection limit

UJ: Compound analyzed, but not detected above estimated detection limit

Attachment G
Year 2 PEMD Calculation Methods

DRAFT

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ANCHOR QEA

Memorandum

April 28, 2017

Project: Port Gamble Bay Cleanup Project, Shellfish Monitoring

From: Nathan Soccorsy, Eli Patmont, and Alexandra Karpoff

Re: Calculating Polycyclic Aromatic Hydrocarbon Concentrations in Surface Water Using Polyethylene Membrane Devices

Introduction

This memorandum describes methods to calculate average dissolved surface water concentrations of hydrophobic organic contaminants using polyethylene membrane devices (PEMDs) spiked with performance reference compounds (PRCs). The steps presented in this memorandum were used to calculate polycyclic aromatic hydrocarbon (PAH) concentrations in seawater during Year 2 construction activities of the Port Gamble Bay Cleanup Project for monitoring Event 1 and Event 2. A full description of the PEMD sampling design and results can be found in the Shellfish Monitoring Plan (Anchor QEA 2015) and the Year 2 Port Gamble Bay Shellfish Monitoring Data Report to which this memorandum is attached.

Calculations to Determine Surface Water Concentrations

Step 1: Calculate the fractional equilibrium for performance reference compounds

The fractional equilibrium (f_e) for each PRC was calculated using the concentration of PRC pre-loaded into the PEMD and the concentration of the PRC after in situ exposure. PRCs used in the Port Gamble Bay Cleanup Project were anthracene-d10, benzo(e)pyrene-d12, and fluorene-d10.

PRC Fractional Equilibrium

$$f_e = 1 - \frac{C_{PRC}^t}{C_{PRC}^0}$$

where:

C_{PRC}^0 = concentration of PRC in PEMD at time 0

C_{PRC}^t = concentration of PRC in PEMD at time t

Step 2: Calculate the fractional equilibrium and K_{ow} regression

A logarithmic regression was created using the fractional equilibrium and compound-specific partitioning coefficient for PRCs. Regressions for Season 2 Event 1 and Event 2 are shown in Figures 1a and 1b, respectively.

Figure 1a – Season 2 Event 1
Regression of PRC Partitioning Coefficients and Fractional Equilibrium

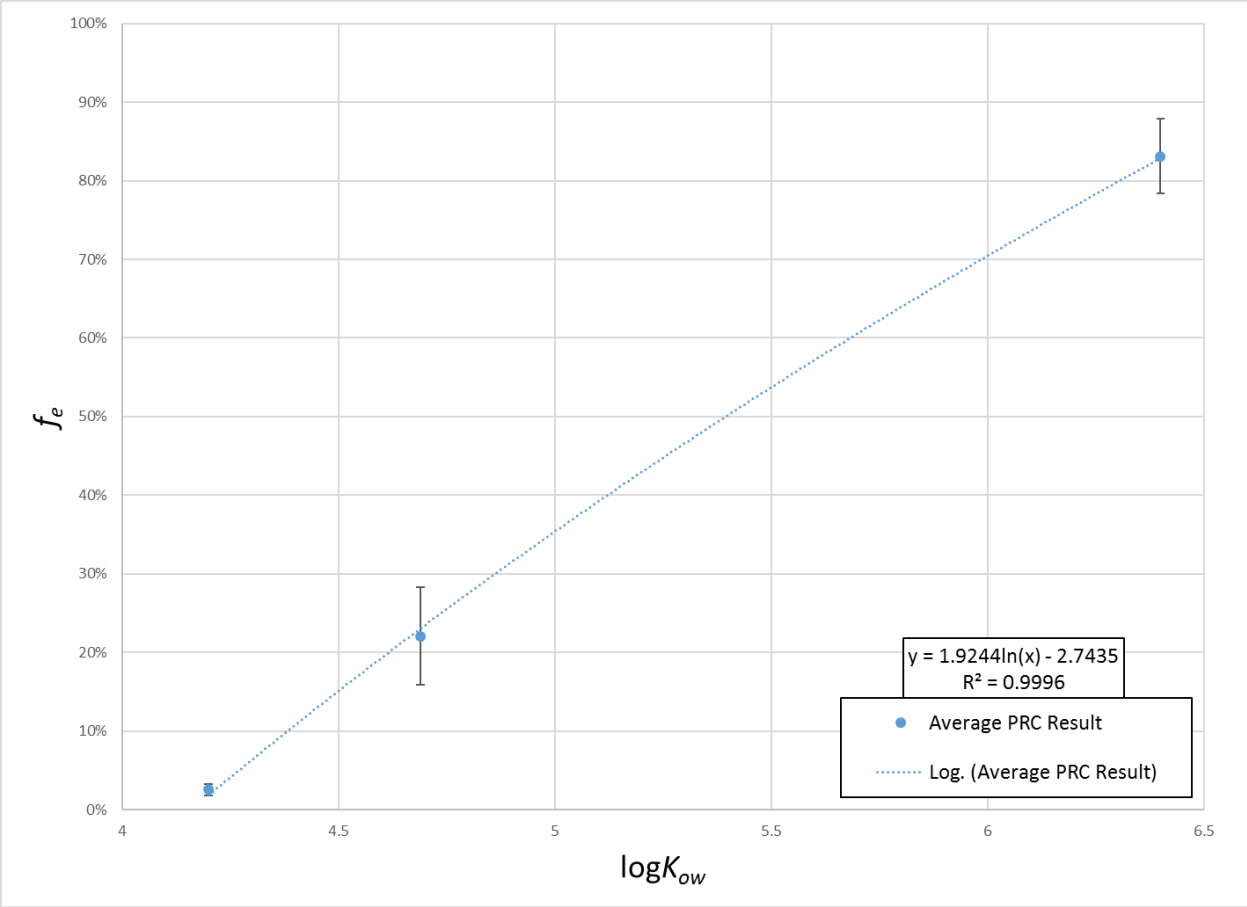
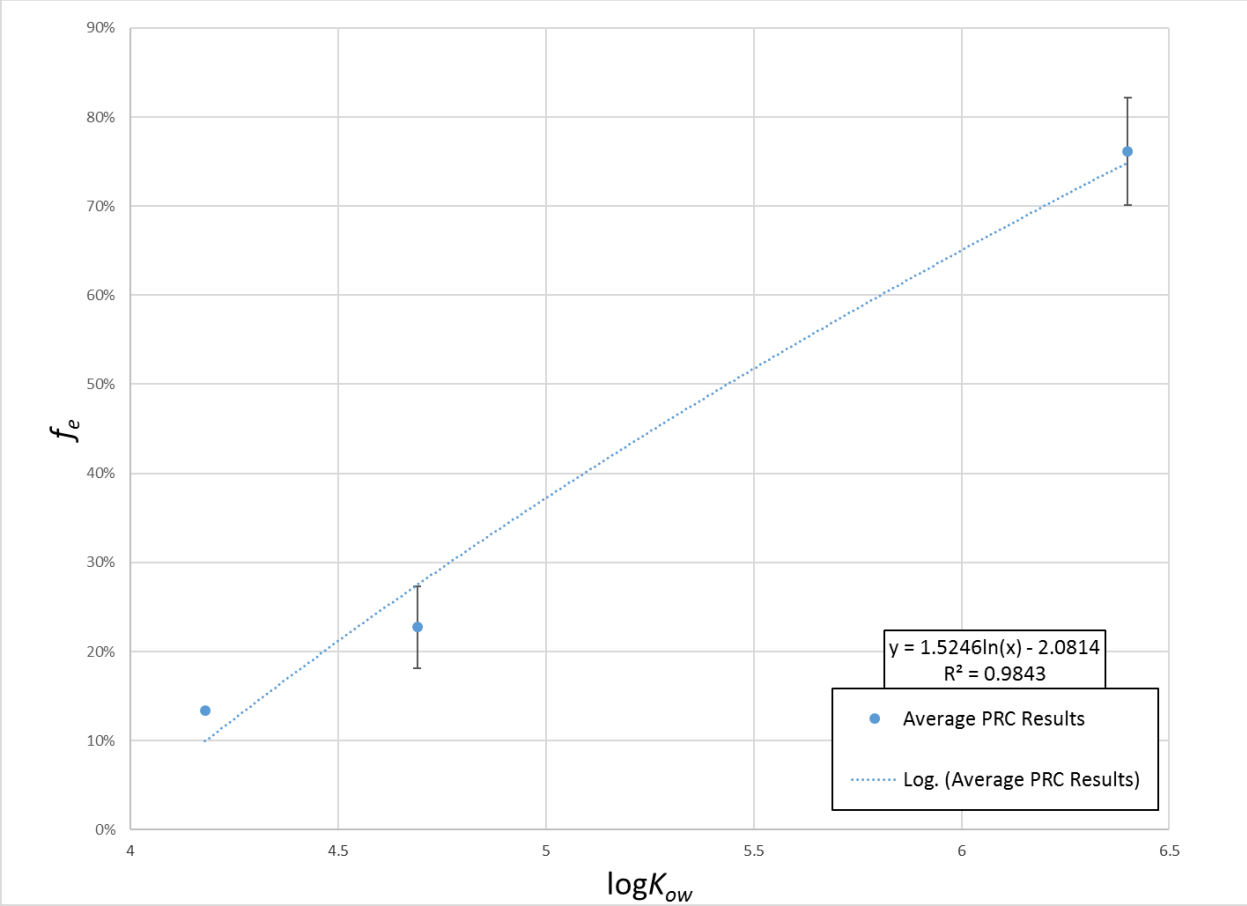


Figure 1b – Season 2 Event 2
Regression of PRC Partitioning Coefficients and Fractional Equilibrium



Step 3: Calculate fractional equilibrium of target analytes

The logarithmic regression from Step 2 is used from each event to estimate the fractional equilibrium for target PAH compounds. The compound-specific logK_{ow} values are presented in Hilal et al. (2004). For some hydrophobic compounds with relatively high K_{ow}, the regression model results in negative fractional equilibrium values. Where this occurs, the resulting correction factor was selected by applying best professional judgement. Fractional equilibrium values for each compound are presented for Season 1, Event1 and Season 2, Event 2, in Tables 1 and 2, respectively.

Target Analyte Fractional Equilibrium (f_e)

$$f_e = 1.9244 \times \ln(\log K_{ow}) - 2.7435 \text{ (Season 2 Event 1)}$$

$$f_e = 1.5246 \times \ln(logK_{ow}) - 2.0814 \text{ (Season 2 Event 2)}$$

Step 4: Calculate the correction factor

Compound-specific correction factors were calculated using the fractional equilibrium with the equation below. As described in Step 3, some highly hydrophobic compounds' f_e resulted in negative values. Where this occurred, a correction factor of 100 was applied to the results by applying best professional judgment. The selected correction factors for Season 1, Event 1, and Season 2, Event 2, are presented in Tables 1 and 2, respectively.

Correction Factor ($\frac{1}{f_e}$)

$$\text{Correction Factor} = \frac{1}{f_e}$$

where:

f_e = the fractional equilibrium

Step 5: Calculate the concentration of the target analyte in the PEMD at equilibrium

The target compound concentrations in the PEMDs at equilibria were estimated by applying the correction factors found in Step 4 to the compound concentrations in PEMDs reported by the analytical laboratory. Values are presented for Season 1, Event 1, and Season 2, Event 2, in Tables 1 and 2, respectively.

Target Compound Concentration in the PEMD at Equilibrium (C_{PE}^{∞})

$$C_{PE}^{\infty} = C_{PE}^{t} \times \frac{1}{f_e}$$

where:

C_{PE}^{t} = concentration of target analyte in the PEMD at time t

$\frac{1}{f_e}$ = correction factor

Step 6: Determine the PEMD partitioning coefficients

Compound-specific partitioning coefficients for water (K_{ow}) and polyethylene (K_{pew}) were determined using the PAH-specific literature-based values (Ghosh et al. 2014). Where compound specific K_{pew} values were not available, the logarithmic regression in the Ghosh et al. (2014) reference was used. The selected values are presented in Table 3.

Polyethylene to Water Partitioning Coefficient (logK_{pew}; Ghosh et al. 2014)

$$\log K_{pew} = 1.22 \times \log K_{ow} - 1.36$$

Step 7: Calculate the surface water concentrations

Surface water concentrations were calculated using the PAH compound concentrations in the PEMD at equilibrium (Step 5), and the PEMD partitioning coefficients calculated in Step 6. Analytical result values were used if applicable. If a result was non-detect, the calculations used the method reporting limit value. Surface water PAH results for the Port Gamble Bay Cleanup Project are presented in Attachment F, Tables F-6 and F-7, of the Year 2 Port Gamble Bay Shellfish Monitoring Data Report.

Surface Water Concentration (C_W)

$$C_W = \frac{C_{PE}^{\infty}}{10\text{^}\left(\log K_{pew}\right)}$$

where:

C_{PE}^{∞} = concentration of target analyte in the PEMD at equilibrium
$\log K_{pew}$ = polyethylene to water partitioning coefficient

References

Anchor QEA, 2015. *Shellfish Monitoring Plan, Port Gamble Bay Cleanup Project.* May 2015.

Ghosh, U., S. Driscoll, R. Burgess, M. Jonker, D. Reible, F. Gobas, Y. Choi, S. Apitz, K. Maruya, W. Gala, M. Mortimer, and C. Beegan, 2014. Passive Sampling Methods for Contaminated Sediments: Practical Guidance for Selection, Calibration, and Implementation. *Integrated Environmental Assessment and Management*. Volume 10(2):210–223.

Hilal, S.H., S. Karickhoff, and L. Carreira, 2004. Prediction of the Solubility, Activity Coefficient and Liquid/Liquid Partition Coefficient of Organic Compounds. *Osar & Combinatorial Science*. 23:709-720.

Tables

Table 1

Season 2 Event 1 PEMD Fraction Equilibrium Calculation and Correction Factor Selection

Parameter	K_{ow}	Percent PRC Retained	Percent PRC Lost (1-PRC Retained)	f_e (1-PRC lost)	$1/f_e$	Selected Correction Factor	Selected Correction Factor Basis
Acenaphthylene	3.22	-41%	141%	na	1	1	PRC
Naphthalene	3.36	-33%	133%	na	1	1	PRC
2-Methylnaphthalene	3.86	-5%	105%	na	1	1	PRC
Acenaphthene	4.01	2%	98%	0.976	1.0	1	PRC
Fluorene	4.21	12%	88%	0.879	1.1	1.1	PRC
Phenanthrene	4.57	28%	72%	0.716	1.4	1.4	PRC
Anthracene	4.69	34%	66%	0.664	1.5	1.5	PRC
Pyrene	4.92	43%	57%	0.569	1.8	1.8	PRC
Fluoranthene	5.08	49%	51%	0.505	2.0	2.0	PRC
Benzo(a)anthracene	5.67	71%	29%	0.286	3.5	3.5	PRC
Chrysene	5.71	73%	27%	0.272	3.7	3.7	PRC
Benzo(a)pyrene	6.11	86%	13.74%	0.137	7.3	7.3	PRC
Benzo(e)pyrene	6.14	87%	12.8%	0.128	7.8	7.8	PRC
Perylene	6.14	87%	12.8%	0.128	7.8	7.8	PRC
Benzo(b)fluoranthene	6.27	91%	8.6%	0.086	12	12	PRC
Benzo(b,j,k)fluoranthenes	6.28	92%	8%	0.083	12	12	PRC
Benzo(k)fluoranthene	6.50	99%	1%	0.014	71	71	PRC
Benzo(g,h,i)perylene	6.51	99%	1.1%	0.011	90	90	PRC
Dibenzo(a,h)anthracene	6.71	105%	-4.9%	-0.04923	-20	100	BPJ
Indeno(1,2,3-c,d)pyrene	6.72	105%	-5.2%	-0.05220	-19	100	BPJ

Notes:
BPJ: Best Professional Judgement
f_e: fractional equilibrium
K_{ow}: partitioning coefficient for water
na: not applicable
PRC: performance reference compound

Table 2

Season 2 Event 2 PEMD Fraction Equilibrium Calculation and Correction Factor Selection

Parameter	K_{ow}	Percent PRC Retained	Percent PRC Lost (1-PRC Retained)	f_e (1-PRC lost)	$1/f_e$	Selected Correction Factor	Selected Correction Factor Basis
Acenaphthylene	3.22	-30%	130%	na	1	1	PRC
Naphthalene	3.36	-23%	123%	na	1	1	PRC
2-Methylnaphthalene	3.86	-2%	102%	na	1	1	PRC
Acenaphthene	4.01	4%	96%	0.964	1.0	1	PRC
Fluorene	4.21	11%	89%	0.890	1.1	1.1	PRC
Phenanthrene	4.57	24%	76%	0.765	1.3	1.3	PRC
Anthracene	4.69	27%	73%	0.725	1.4	1.4	PRC
Pyrene	4.92	35%	65%	0.652	1.5	1.5	PRC
Fluoranthene	5.08	40%	60%	0.603	1.7	1.7	PRC
Benzo(a)anthracene	5.67	56%	44%	0.436	2.3	2.3	PRC
Chrysene	5.71	57%	43%	0.425	2.4	2.4	PRC
Benzo(a)pyrene	6.11	68%	32.20%	0.322	3.1	3.1	PRC
Benzo(e)pyrene	6.14	69%	31.5%	0.315	3.2	3.2	PRC
Perylene	6.14	69%	31.5%	0.315	3.2	3.2	PRC
Benzo(b)fluoranthene	6.27	72%	28.3%	0.283	4	4	PRC
Benzo(b,j,k)fluoranthenes	6.28	72%	28%	0.280	4	4	PRC
Benzo(k)fluoranthene	6.50	77%	23%	0.228	4	4	PRC
Benzo(g,h,i)perylene	6.51	77%	22.5%	0.225	4	4	PRC
Dibenzo(a,h)anthracene	6.71	82%	17.9%	0.17917	6	6	PRC
Indeno(1,2,3-c,d)pyrene	6.72	82%	17.7%	0.17690	6	6	PRC

Notes:

f_e: fractional equilibrium

K_{ow}: partitioning coefficient for water

na: not applicable

PRC: performance reference compound

Table 3
Water and Polyethylene Partitioning Coefficients

Parameter	K_{ow}	log K_{pew} (Ghosh 2014)
Acenaphthylene	3.22	3.16
Naphthalene	3.36	2.81
2-Methylnaphthalene	3.86	3.35[a]
Acenaphthene	4.01	3.62
Fluorene	4.21	3.77
Phenanthrene	4.57	4.22
Anthracene	4.69	4.33
Pyrene	4.92	5.10
Fluoranthene	5.08	4.93
Benzo(a)anthracene	5.67	5.73
Chrysene	5.71	5.50
Benzo(a)pyrene	6.11	6.75
Benzo(e)pyrene	6.14	6.13[a]
Perylene	6.14	6.13[a]
Benzo(b)fluoranthene	6.27	6.30[a]
Benzo(b,j,k)fluoranthenes[b]	6.28	6.30[a]
Benzo(k)fluoranthene	6.50	6.66
Benzo(g,h,i)perylene	6.51	7.27
Dibenzo(a,h)anthracene	6.71	7.32
Indeno(1,2,3-c,d)pyrene	6.72	7.40

Notes:
a. Calculated using Ghosh (2014) regression.
b. Average of benzo(b,j,k)fluoranthene K_{ow}.
K_{ow}: partitioning coefficient for water
K_{pew}: partitioning coefficient for polyethylene-water

Appendix A-2
Supplemental Port Gamble Bay In-Situ Shellfish Monitoring Data Memorandum

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206.287.9130

ANCHOR QEA

Final Data Memorandum

February 6, 2018

From: Clay Patmont and Nathan Soccorsy, Anchor QEA, LLC
Paul McCollum, Roma Call and Christine Raczka, Port Gamble S'Klallam Tribe

cc: Linda Berry-Maraist and Stephanie Foster, Pope Resources/Olympic Property Group

Re: Supplemental Port Gamble Bay In-Situ Shellfish Monitoring Data Memorandum

This data memorandum summarizes the results of in-situ shellfish monitoring performed following the completion of in-water construction activities in Port Gamble Bay, in accordance with the May 2015 *Port Gamble Bay Cleanup Project Shellfish Monitoring Plan* (SMP) prepared by Anchor QEA and the Port Gamble S'Klallam Tribe. Consistent with U.S. Army Corps of Engineers permit requirements for the Port Gamble Bay Cleanup Project (NWS-2013-1270), baseline shellfish monitoring locations and target species previously sampled by the Port Gamble S'Klallam Tribe between 2008 and 2012, and analyzed for chemicals of concern by the Washington State Department of Ecology, were resampled in 2017 to provide an updated characterization of in-situ shellfish tissue concentrations in Port Gamble Bay. This data memorandum summarizes sampling and analysis activities, validated tissue concentrations, and compares post-construction and baseline levels.

Post-construction Shellfish Sampling

In-situ shellfish sampling in Port Gamble Bay was successfully performed by the Port Gamble S'Klallam Tribe from April 24 to 28, 2017. All target species specified in the SMP were collected from the sampling beaches, as well as from subtidal areas of sediment management area (SMA)-3. Sampling areas are depicted on Figure 1. All specimens were submitted for laboratory testing without depuration. There were no sampling deviations from the SMP.

In-situ Shellfish Chemical Analyses

Post-construction tissue concentration data for Port Gamble Bay chemicals of concern (CoCs) identified in the SMP are summarized in Appendix A. Laboratory reports and data validation reports are included in Appendix B and C, respectively.

Data Validation and Usability

All analytical chemistry data presented in this memorandum were validated by Laboratory Data Consultants, Inc., of Carlsbad, California. Consistent with the SMP, data validation was performed following U.S. Environmental Protection Agency guidelines. Data validation verified that the target accuracy and precision of all chemical analyses. Data qualifiers assigned from the data validation are provided on each of the respective analytical results tables. Data qualified with a "J" indicates that the

associated numerical value is the approximate concentration of the analyte. Data qualified with a "U" indicates that the analyzed compound was not detected above the reporting limit. Data qualified with a "UJ" indicates the approximate reporting limit below which the analyte was not detected. Data qualifications did not impact the data quality objectives, and all data were determined to be useable for site characterization as reported from the laboratory or as qualified in this data report.

Reference Concentrations

Consistent with prior shellfish data monitoring reports prepared for the Port Gamble Bay Cleanup Project, 2017 post-construction Port Gamble Bay shellfish tissue CoC concentrations were evaluated relative to several reference levels to provide context for data comparisons. Reference levels included pre-construction baseline (2008 to 2012) levels measured in Port Gamble Bay, as well as regional shellfish tissue levels reported in other natural background and non-urban shellfish protection and harvest districts in the greater Puget Sound region. Data sources compiled for the regional non-urban comparison included the following:

- Natural background shellfish tissue concentrations reported in the Port Gamble Bay remedial investigation
- Non-urban bivalve (clams, mussels, and oysters) as well as fish and crab tissue concentrations in relatively pristine areas of Puget Sound reported in the Lower Duwamish Waterway remedial investigation, including tissue samples collected from Freshwater Bay (Straits of Juan de Fuca)
- Non-urban bivalve tissue concentrations in the Holmes Harbor shellfish protection and harvest district

Chemical-specific CoC analyses are summarized in the following subsections.

Note: To provide additional context, the charts presented in Figures 2-5 show pre-construction baseline concentrations as an average of the four Port Gamble Bay sampling locations, and the post-construction data as both an average of the same four locations, as well as the individual sampling area. For all CoCs, Point Julia tissue concentrations were among the lowest of the three sample sites. CoC-specific comparisons are summarized below.

Polycyclic Aromatic Hydrocarbons

Carcinogenic polycyclic aromatic hydrocarbons (cPAHs) were identified in the Port Gamble Bay remedial investigation as the primary Site-related human heath CoC in shellfish tissue, largely attributable to historical releases from creosote piling adjacent the former sawmill facility. As discussed in Cleanup Action Reports prepared for this Project, throughout the two in-water construction seasons, creosote piling were protectively removed from the Bay with minimal breakage. Post-construction cPAH toxicity equivalent (TEQ) concentrations in shellfish tissues were slightly lower than pre-construction baseline levels (Figure 2), consistent with similar declines in

caged mussel levels reported previously. Current post-construction cPAH TEQ concentrations in Port Gamble Bay shellfish are also within the range of non-urban Puget Sound bivalve levels.

Dioxins/Furans

Post-construction dioxin/furan TEQ concentrations in Port Gamble Bay shellfish tissues were also slightly lower than pre-construction baseline levels (Figure 3), within the range of non-urban Puget Sound bivalve levels.

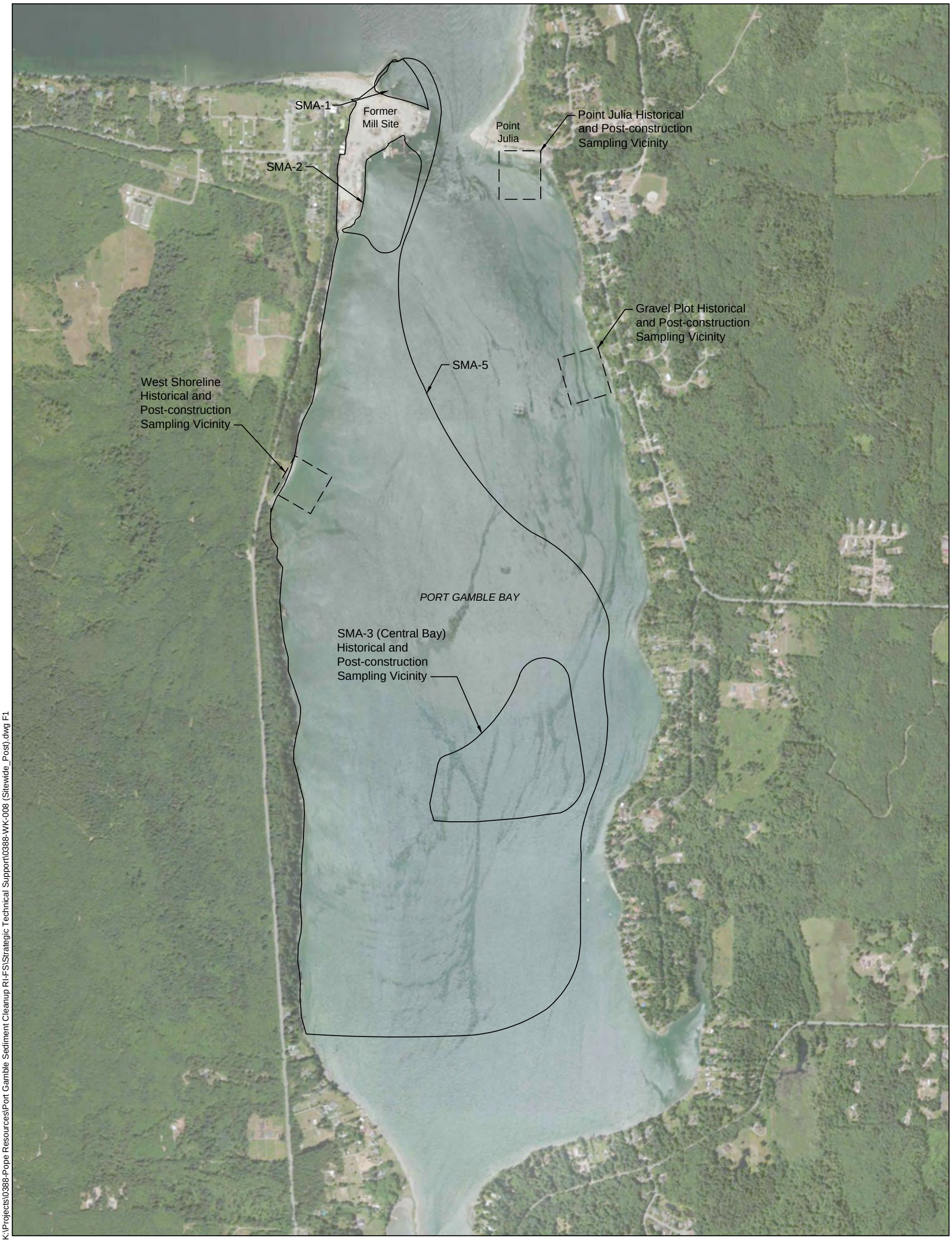
Cadmium

Post-construction cadmium concentrations in Port Gamble Bay shellfish tissues were slightly higher than pre-construction baseline levels (Figure 4), but within the range of statistical variability and also generally within the range of non-urban Puget Sound bivalve levels.

Polychlorinated Biphenyls

While not identified as a Site-related CoC, total polychlorinated biphenyls (PCBs; congener analyses) were included in the SMP to track changes over time. Compared to the other CoCs, post-construction total PCB concentrations in Port Gamble Bay shellfish tissues were significantly lower than pre-construction baseline levels (Figure 5); current concentrations are now within the range of non-urban Puget Sound bivalve levels.

Figures



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Aug 03, 2017 12:23pm chewett

HORIZONTAL DATUM: Washington State Plane North, NAD83, U.S. Feet.

NOTES:

1. For in-situ wild shellfish sampling, historical sampling areas were reoccupied and target species to collected consisted of those previously sampled.

LEGEND:

SMA Area

Wild Shellfish Sampling Area

0 1200

Scale in Feet

ANCHOR QEA

Figure 1

Supplemental Port Gamble Bay In Situ Shellfish Monitoring Data Memorandum
Port Gamble Bay Cleanup Project
Port Gamble, Washington

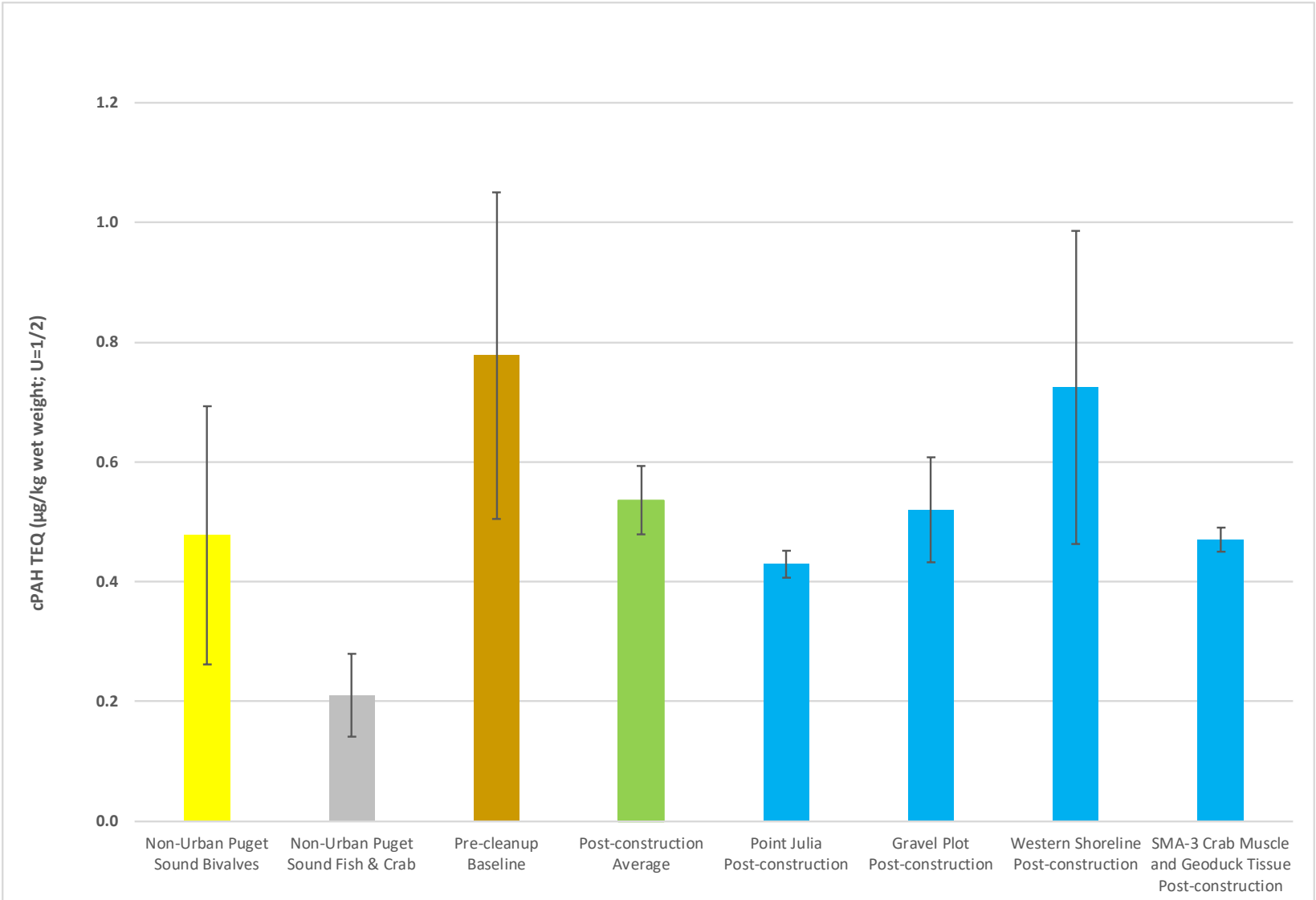

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Figure 2
cPAH TEQ Concentration Comparisons
Supplemental Port Gamble Bay In Situ Shellfish Monitoring Data Memorandum
Port Gamble Bay Cleanup Project

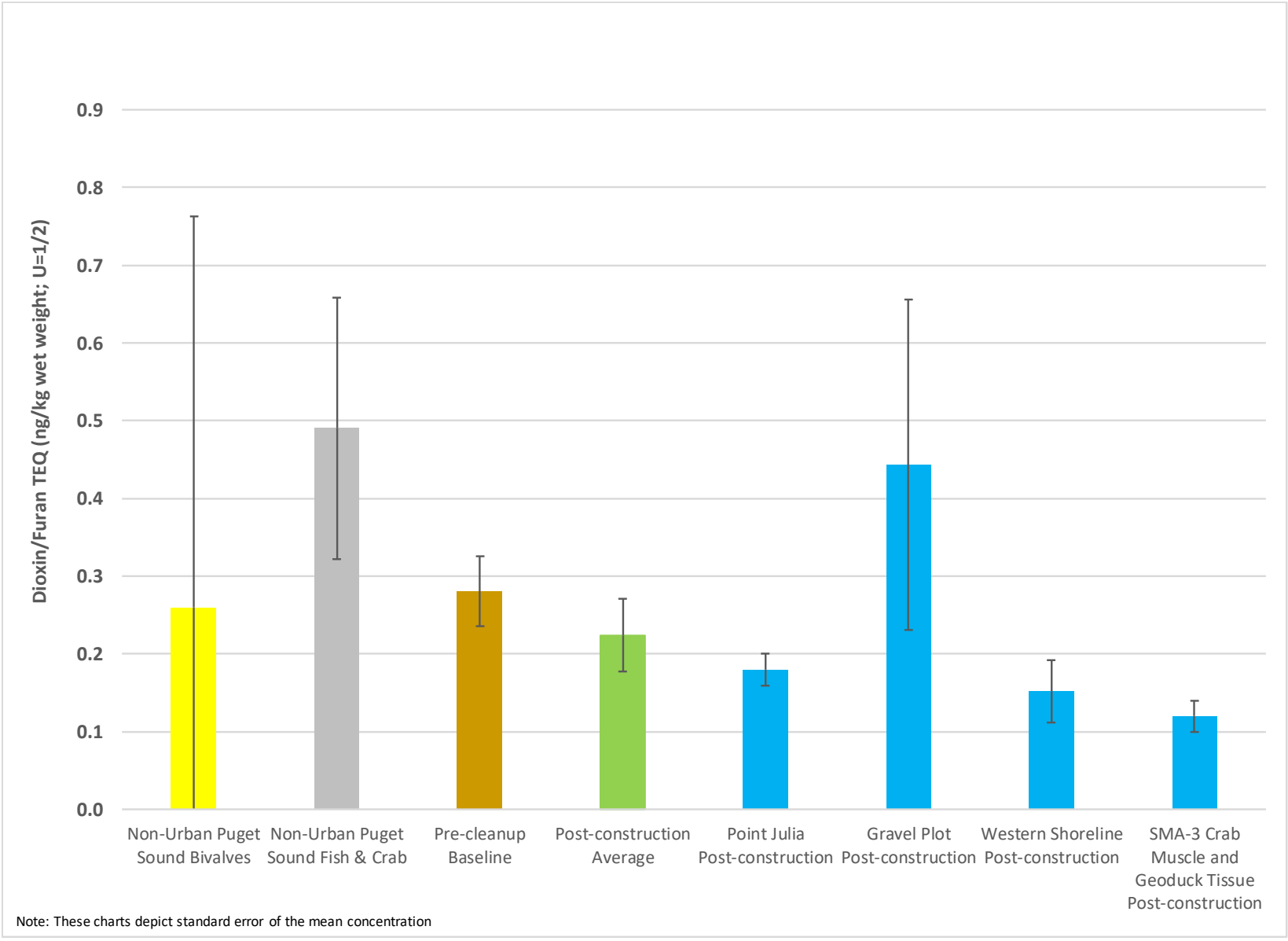

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Figure 3
Dioxin/Furan TEQ Concentration Comparisons
Supplemental Port Gamble Bay In Situ Shellfish Monitoring Data Memorandum
Port Gamble Bay Cleanup Project

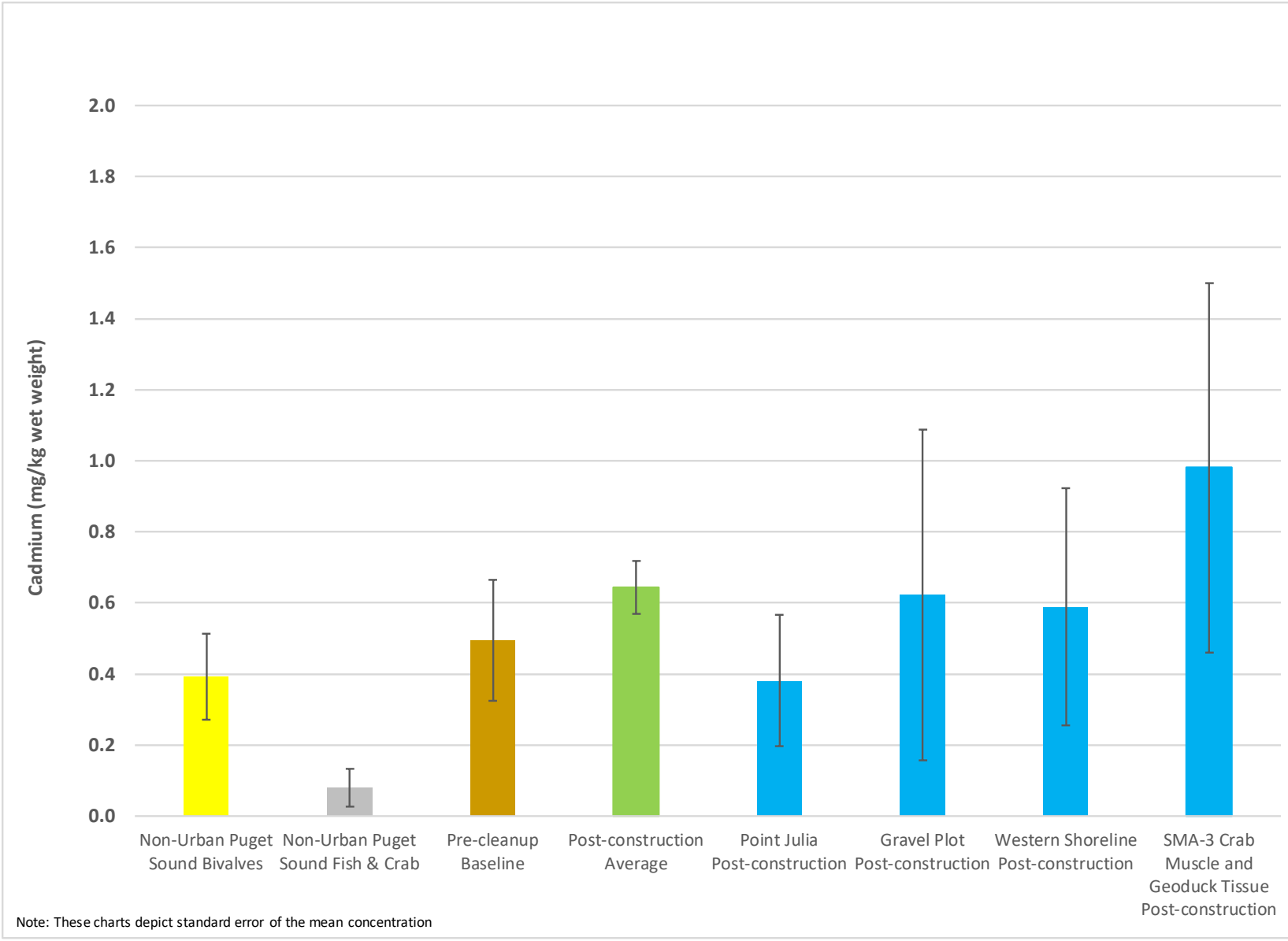

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Figure 4
Cadmium Concentration Comparisons
Supplemental Port Gamble Bay In Situ Shellfish Monitoring Data Memorandum
Port Gamble Bay Cleanup Project

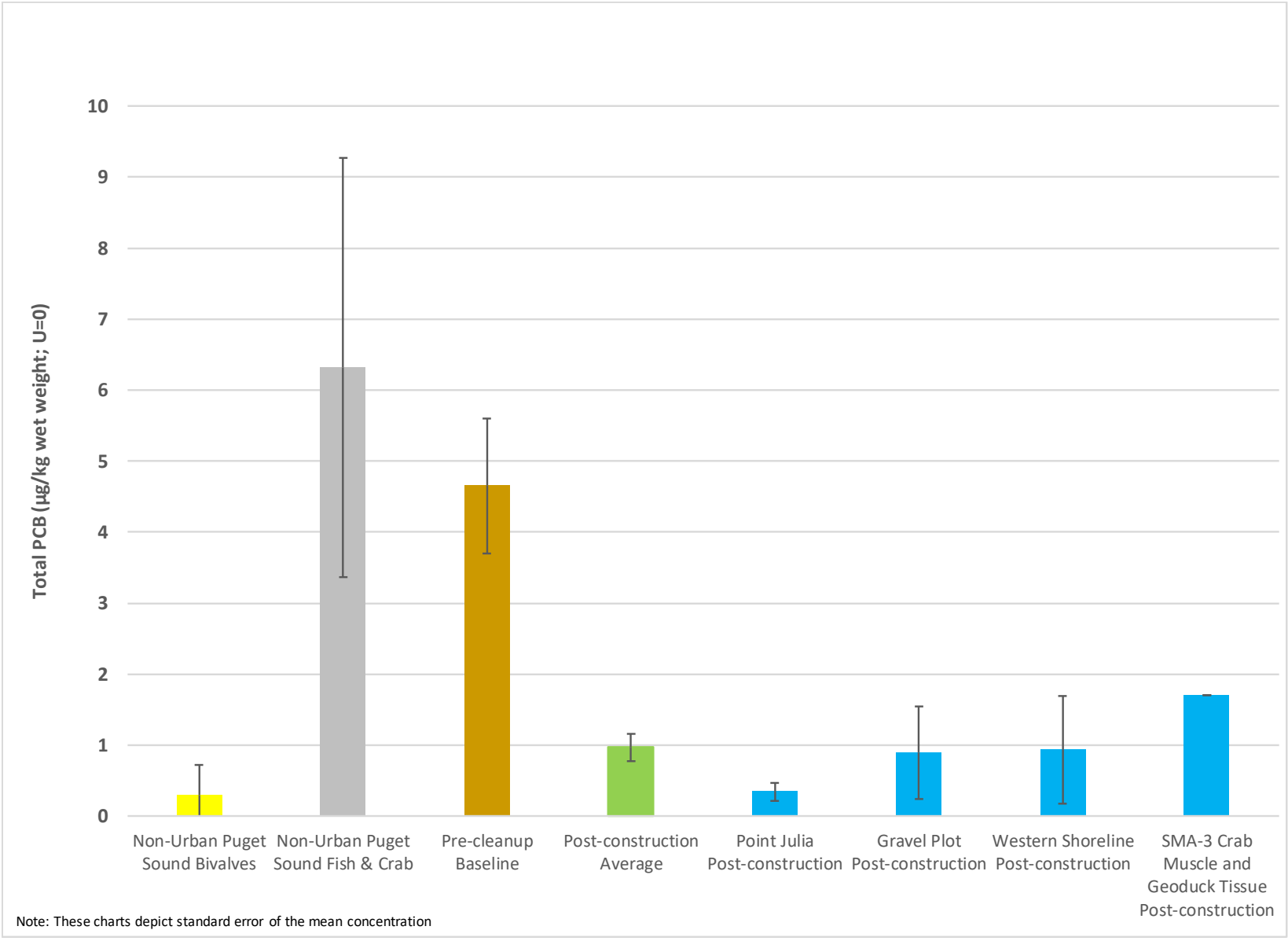

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Figure 5
PCB Concentration Comparisons
Supplemental Port Gamble Bay In Situ Shellfish Monitoring Data Memorandum
Port Gamble Bay Cleanup Project

Appendix A
Port Gamble In Situ Shellfish and Crab Monitoring Results

Appendix A
Port Gamble In Situ Shellfish and Crab Monitoring Results

Task	2017Shellfish1	2017Shellfish1	2017Shellfish1	2017Shellfish1	2017Shellfish1	2017Shellfish1
Location Name	PG-GP	PG-GP	PG-GP	PG-PJ	PG-PJ	PG-PJ
Location ID	PG-GP_InSitu	PG-GP_InSitu	PG-GP_InSitu	PG-PJ_InSitu	PG-PJ_InSitu	PG-PJ_InSitu
Sample ID	PG-GP-COC-COC-170424	PG-GP-LTN-COC-170424	PG-GP-OYS-COC-170424	PG-PJ-COC-COC-170427	PG-PJ-HC-COC-170428	PG-PJ-LTN-COC-170427
Sample Date	4/24/2017	4/24/2017	4/24/2017	4/27/2017	4/28/2017	4/27/2017
X	1214169.44	1214169.44	1214169.44	1213132.38	1213132.38	1213132.38
Y	313747.69	313747.69	313747.69	316435.36	316435.36	316435.36
Conventional Parameters (pct)						
Lipids	**1.4**	0.82 U	**2.4**	0.64 U	0.79 U	0.94 U
Total solids	**12.2**	**11.3**	**17**	**9.91**	**14.3**	**13.1**
Metals (mg/kg)						
Cadmium	**0.0823**	**0.235**	**1.55**	**0.0601**	**0.163**	**0.207**
Polycyclic Aromatic Hydrocarbons (µg/kg)						
2-Methylnaphthalene	**0.72**	**0.63**	0.5 U	0.48 U	0.49 U	0.5 U
Acenaphthene	0.5 U	0.5 U	0.5 U	0.48 U	0.49 U	0.5 U
Acenaphthylene	0.5 U	0.5 U	0.5 U	0.48 U	0.49 U	0.5 U
Anthracene	0.5 U	0.5 U	**0.52**	0.48 U	0.49 U	0.5 U
Benzo(a)anthracene	0.5 U	0.5 U	**1.49**	0.48 U	0.49 U	0.5 U
Benzo(a)pyrene	0.5 U	0.5 U	0.5 U	0.48 U	0.49 U	0.5 U
Benzo(b)fluoranthene	0.5 U	0.5 U	**1.39**	0.48 U	0.49 U	0.5 U
Benzo(e)pyrene	0.5 U	0.5 U	**1.21**	0.48 U	0.49 U	0.5 U
Benzo(g,h,i)perylene	0.5 U	0.5 U	0.5 U	0.48 U	0.49 U	0.5 U
Benzo(k)fluoranthene	0.5 U	0.5 U	**0.65**	0.48 U	0.49 U	0.5 U
Chrysene	**0.67**	0.5 U	**3.08**	0.48 U	0.49 U	**0.5**
Dibenzo(a,h)anthracene	0.5 U	0.5 U	0.5 U	0.48 U	0.49 U	0.5 U
Fluoranthene	**1**	**1.44**	**6.35**	**0.64**	0.49 U	**1.36**
Fluorene	0.5 U	0.5 U	0.5 U	0.48 U	0.49 U	0.5 U
Indeno(1,2,3-c,d)pyrene	0.5 U	0.5 U	0.5 U	0.48 U	0.49 U	0.5 U
Naphthalene	0.6 U	0.6 U	0.6 U	0.58 U	0.59 U	0.6 U
Perylene	0.5 U	0.5 U	0.5 U	0.48 U	0.49 U	0.5 U
Phenanthrene	**0.7**	**0.97**	**1.96**	0.48 U	0.49 U	**0.79**
Pyrene	**0.58**	**0.93**	**3.56**	0.48 U	0.49 U	**0.93**
Total cPAH TEQ (7 minimum CAEPA 2005) (U = 1/2)	**0.38**	0.5 U	**0.68**	0.48 U	0.49 U	**0.38**
Total PAH (19) (U = 1/2)	**7.2**	**7.8**	**23**	**5**	0.59 U	**7.4**
Total HPAH (SMS) (U = 1/2)	**4**	**4.4**	**18**	**2.8**	0.49 U	**4.5**
Total LPAH (SMS) (U = 1/2)	**2**	**2.3**	**3.5**	0.58 U	0.59 U	**2.1**
Total PAH (SMS) (U = 1/2)	**6**	**6.6**	**21**	**4.3**	0.59 U	**6.6**
Total cPAH TEQ (7 minimum CAEPA 2005) (U = 0)	**0.0067**	0.5 U	**0.38**	0.48 U	0.49 U	**0.005**
Total PAH (19) (U = 0)	**3.7**	**4**	**20**	**0.64**	0.59 U	**3.6**
Total HPAH (SMS) (U = 0)	**2.3**	**2.4**	**17**	**0.64**	0.49 U	**2.8**
Total LPAH (SMS) (U = 0)	**0.7**	**0.97**	**2.5**	0.58 U	0.59 U	**0.79**
Total PAH (SMS) (U = 0)	**3**	**3.3**	**19**	**0.64**	0.59 U	**3.6**
Dioxin Furans (ng/kg)						
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	0.277 U	0.061 U	0.084 U	0.049 U	0.048 U	0.227 U
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	0.135 U	0.13 U	**0.385 J**	0.056 U	0.114 U	0.069 U
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	0.153 U	0.077 U	**0.389 J**	0.081 U	0.077 U	0.079 U

Appendix A
Port Gamble In Situ Shellfish and Crab Monitoring Results

Task	2017Shellfish1	2017Shellfish1	2017Shellfish1	2017Shellfish1	2017Shellfish1	2017Shellfish1
Location Name	PG-GP	PG-GP	PG-GP	PG-PJ	PG-PJ	PG-PJ
Location ID	PG-GP_InSitu	PG-GP_InSitu	PG-GP_InSitu	PG-PJ_InSitu	PG-PJ_InSitu	PG-PJ_InSitu
Sample ID	PG-GP-COC-COC-170424	PG-GP-LTN-COC-170424	PG-GP-OYS-COC-170424	PG-PJ-COC-COC-170427	PG-PJ-HC-COC-170428	PG-PJ-LTN-COC-170427
Sample Date	4/24/2017	4/24/2017	4/24/2017	4/27/2017	4/28/2017	4/27/2017
X	1214169.44	1214169.44	1214169.44	1213132.38	1213132.38	1213132.38
Y	313747.69	313747.69	313747.69	316435.36	316435.36	316435.36
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	0.161 U	0.075 U	**0.453 J**	0.083 U	0.076 U	0.082 U
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	**0.221 J**	**0.103 J**	**0.657 J**	0.09 U	0.084 U	0.089 U
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	1.09 U	0.601 U	**1.89 J**	0.264 U	0.166 U	0.378 U
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	**10.4**	4.78 U	**15.3**	1.74 U	1.23 U	4.19 U
Total Tetrachlorodibenzo-p-dioxin (TCDD)	**0.277 J**	0 U	**1.51**	0 U	0 U	**0.227 J**
Total Pentachlorodibenzo-p-dioxin (PeCDD)	**0.135 J**	0 U	**1.19**	0 U	0 U	0 U
Total Hexachlorodibenzo-p-dioxin (HxCDD)	**0.869**	**0.232 J**	**2.6**	0 U	0 U	**0.149 J**
Total Heptachlorodibenzo-p-dioxin (HpCDD)	**4.03**	**2.1 J**	**6.59**	**0.976 J**	**0.325 J**	**1.74 J**
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	0.068 U	0.048 U	**0.378 J**	0.041 U	0.038 U	0.05 U
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	0.226 U	0.069 U	0.28 U	0.057 U	0.043 U	0.057 U
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	0.084 U	**0.074 J**	**0.275 J**	0.052 U	0.04 U	0.055 U
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	0.147 U	0.081 U	0.322 U	0.041 U	0.05 U	0.039 U
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	0.18 U	0.081 U	**0.361 J**	0.04 U	0.047 U	0.048 U
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	0.144 U	0.117 U	0.582 U	0.062 U	0.078 U	0.109 U
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	0.139 U	0.092 U	**0.432 J**	0.044 U	0.052 U	0.04 U
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	0.415 U	0.17 U	**0.775 J**	0.069 U	0.036 U	0.16 U
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	0.142 U	0.041 U	**0.582 J**	0.062 U	0.061 U	0.084 U
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	0.634 U	0.452 U	**1.79 J**	0.158 U	0.2 U	0.401 U
Total Tetrachlorodibenzofuran (TCDF)	0 U	0 U	**4.11**	0 U	0 U	0 U
Total Pentachlorodibenzofuran (PeCDF)	**0.319 J**	**0.143 J**	**1.77**	**0.056 J**	0 U	0 U
Total Hexachlorodibenzofuran (HxCDF)	**0.866 J**	**0.29 J**	**2.02**	0 U	**0.078 J**	**0.157 J**
Total Heptachlorodibenzofuran (HpCDF)	**0.834 J**	**0.378 J**	**1.89**	**0.069 J**	0 U	**0.304 J**
Total Dioxin/Furan (U = 1/2)	**13 J**	**3.6 J**	**24 J**	1.7 U	1.2 U	4.2 U
Total Dioxin/Furan TEQ 2005 (Mammal) (U = 1/2)	**0.31 J**	**0.16 J**	**0.86 J**	0.056 U	0.11 U	0.23 U
Total Dioxin/Furan (U = 0)	**11 J**	**0.18 J**	**24 J**	1.7 U	1.2 U	4.2 U
Total Dioxin/Furan TEQ 2005 (Mammal) (U = 0)	**0.025 J**	**0.033 J**	**0.77 J**	0.056 U	0.11 U	0.23 U
PCB Congeners (ng/kg)						
PCB-001	1.2 U	1 U	2.2 U	**0.21 J**	0.22 U	0.22 U
PCB-002	1 U	0.89 U	1.9 U	**0.47 J**	0.17 U	0.2 U
PCB-003	1.2 U	1 U	2.2 U	**0.32 J**	0.2 U	0.59 U
PCB-004	3.8 U	**6.3 J**	5 U	0.48 U	0.59 U	2.7 U
PCB-005	2.1 U	3.4 U	1.7 U	0.3 U	0.43 U	0.33 U
PCB-006	1.6 U	2.7 U	1.4 U	0.25 U	0.36 U	0.28 U
PCB-007	1.7 U	2.8 U	1.4 U	0.25 U	0.37 U	0.28 U
PCB-008	1.4 U	2.3 U	2.2 U	1 U	**1.16 J**	**1.08 J**
PCB-009	1.6 U	2.6 U	1.3 U	0.24 U	0.36 U	0.27 U
PCB-010	3.7 U	4.1 U	4.8 U	0.48 U	0.59 U	2.7 U
PCB-011	7.5 U	11 U	16.3 U	6.02 U	7.56 U	10.9 U
PCB-012/013	1.7 U	2.8 U	1.4 U	0.25 U	0.37 U	0.28 U

Appendix A
Port Gamble In Situ Shellfish and Crab Monitoring Results

Task	2017Shellfish1	2017Shellfish1	2017Shellfish1	2017Shellfish1	2017Shellfish1	2017Shellfish1
Location Name	PG-GP	PG-GP	PG-GP	PG-PJ	PG-PJ	PG-PJ
Location ID	PG-GP_InSitu	PG-GP_InSitu	PG-GP_InSitu	PG-PJ_InSitu	PG-PJ_InSitu	PG-PJ_InSitu
Sample ID	PG-GP-COC-COC-170424	PG-GP-LTN-COC-170424	PG-GP-OYS-COC-170424	PG-PJ-COC-COC-170427	PG-PJ-HC-COC-170428	PG-PJ-LTN-COC-170427
Sample Date	4/24/2017	4/24/2017	4/24/2017	4/27/2017	4/28/2017	4/27/2017
X	1214169.44	1214169.44	1214169.44	1213132.38	1213132.38	1213132.38
Y	313747.69	313747.69	313747.69	316435.36	316435.36	316435.36
PCB-014	1.6 U	2.6 U	1.3 U	0.25 U	0.36 U	0.28 U
PCB-015	2.6 U	4.3 U	2.2 U	0.96 U	0.88 U	1.1 U
PCB-016	3.9 U	1.4 U	3.3 U	0.93 U	1.1 U	0.74 U
PCB-017	3.4 U	**3 J**	**3.4 J**	0.82 U	**0.96 J**	**0.96 J**
PCB-018/030	2.8 U	**12.1 J**	6.4 U	**1.71 J**	**1.95 J**	3.3 U
PCB-019	2.7 U	0.99 U	2.3 U	0.65 U	0.74 U	0.42 U
PCB-020/028	6.53 U	4.06 U	29.1 U	4.33 U	4.17 U	4.13 U
PCB-021/033	**2.43 J**	**5.74 J**	**6.66 J**	**1.41 J**	**1.45 J**	**2.04 J**
PCB-022	1.84 U	0.75 U	6.94 U	1.21 U	1.15 U	0.78 U
PCB-023	0.42 U	0.55 U	0.64 U	0.25 U	0.22 U	0.19 U
PCB-024	2.6 U	0.93 U	2.1 U	0.62 U	0.71 U	0.4 U
PCB-025	0.39 U	**0.69 J**	1.7 U	**0.35 J**	**0.38 J**	**0.86 J**
PCB-026/029	0.67 U	**1.91 J**	**3.37 J**	0.57 U	0.65 U	**0.94 J**
PCB-027	2.4 U	0.89 U	2 U	0.56 U	0.64 U	0.37 U
PCB-031	**3.73 J**	**4.53 J**	**17**	2.1 U	**2.97 J**	**3.36 J**
PCB-032	2.2 U	0.79 U	**3.3 J**	**0.69 J**	0.64 U	0.41 U
PCB-034	0.4 U	0.53 U	0.62 U	0.25 U	0.21 U	0.18 U
PCB-035	0.4 U	0.53 U	0.69 U	0.24 U	0.24 U	**0.39 J**
PCB-036	0.34 U	0.45 U	**1.85 J**	0.21 U	0.18 U	0.29 U
PCB-037	**1.19 J**	**0.84 J**	**4.71 J**	**1.04 J**	1.3 U	0.77 U
PCB-038	0.39 U	0.51 U	0.6 U	0.23 U	0.2 U	0.45 U
PCB-039	0.38 U	0.51 U	0.59 U	0.23 U	0.2 U	0.17 U
PCB-040/041/071	4.5 U	1.6 U	**24.6 J**	**2.82 J**	2.6 U	**2.23 J**
PCB-042	**2.51 J**	1.1 U	**15.2**	1.2 U	**1.87 J**	0.71 U
PCB-043	0.88 U	1.4 U	1.9 U	0.48 U	0.63 U	0.28 U
PCB-044/047/065	12.8 U	7.4 U	58.9 U	11.3 U	13.3 U	14.3 U
PCB-045/051	1.1 U	1 U	5.2 U	**1.33 J**	1.3 U	**1.65 J**
PCB-046	0.74 U	1.2 U	**2.09 J**	0.42 U	0.56 U	**0.25 J**
PCB-048	**1.62 J**	**7.05 J**	**7.78 J**	**0.91 J**	0.92 U	**2.78 J**
PCB-049/069	**4.82 J**	**5.7 J**	**44.6**	**3.34 J**	4.5 U	**4.53 J**
PCB-050/053	**1 J**	0.98 U	**6.31 J**	0.47 U	**0.87 J**	**0.4 J**
PCB-052	13.3 U	26 U	86 U	7.83 U	9.55 U	12.4 U
PCB-054	0.61 U	0.44 U	0.66 U	0.27 U	0.78 U	0.4 U
PCB-055	0.58 U	0.54 U	0.91 U	0.18 U	0.54 U	0.16 U
PCB-056	2.3 U	**0.7 J**	**13.5**	**1.47 J**	1.6 U	**0.75 J**
PCB-057	0.53 U	0.5 U	0.84 U	0.16 U	0.51 U	0.15 U
PCB-058	0.57 U	0.54 U	0.9 U	0.17 U	0.52 U	0.16 U
PCB-059/062/075	0.73 U	0.76 U	**5.64 J**	**0.49 J**	0.63 U	0.21 U
PCB-060	**1.64 J**	0.54 U	**9.09 J**	**0.95 J**	**0.89 J**	0.65 U

Appendix A
Port Gamble In Situ Shellfish and Crab Monitoring Results

Task	2017Shellfish1	2017Shellfish1	2017Shellfish1	2017Shellfish1	2017Shellfish1	2017Shellfish1
Location Name	PG-GP	PG-GP	PG-GP	PG-PJ	PG-PJ	PG-PJ
Location ID	PG-GP_InSitu	PG-GP_InSitu	PG-GP_InSitu	PG-PJ_InSitu	PG-PJ_InSitu	PG-PJ_InSitu
Sample ID	PG-GP-COC-COC-170424	PG-GP-LTN-COC-170424	PG-GP-OYS-COC-170424	PG-PJ-COC-COC-170427	PG-PJ-HC-COC-170428	PG-PJ-LTN-COC-170427
Sample Date	4/24/2017	4/24/2017	4/24/2017	4/27/2017	4/28/2017	4/27/2017
X	1214169.44	1214169.44	1214169.44	1213132.38	1213132.38	1213132.38
Y	313747.69	313747.69	313747.69	316435.36	316435.36	316435.36
PCB-061/070/074/076	13.2 U	8.66 U	82.1 U	7.21 U	9.72 U	7.5 U
PCB-063	0.51 U	0.48 U	**1.94 J**	0.2 U	0.49 U	**0.25 J**
PCB-064	**3.85 J**	0.81 U	**24.1**	**2.77 J**	**2.96 J**	**1.91 J**
PCB-066/095	7.65 U	2.62 U	38.9 U	4.16 U	4.95 U	2.8 U
PCB-067	0.52 U	0.48 U	**1.7 J**	0.16 U	0.5 U	**0.42 J**
PCB-068	1.24 U	0.92 U	2.14 U	1.96 U	2.24 U	2.72 U
PCB-072	0.52 U	0.48 U	**1.23 J**	0.16 U	0.49 U	0.15 U
PCB-073	0.44 U	0.71 U	0.46 U	0.24 U	0.32 U	0.14 U
PCB-077	0.72 U	0.68 U	**5 J**	0.44 U	**0.88 J**	**0.24 J**
PCB-078	0.53 U	0.5 U	0.83 U	0.16 U	0.48 U	0.15 U
PCB-079	0.48 U	0.45 U	**2.09 J**	0.14 U	0.44 U	0.13 U
PCB-080	0.48 U	0.46 U	0.76 U	0.15 U	0.46 U	0.14 U
PCB-081	0.72 U	0.67 U	1.1 U	0.22 U	0.67 U	0.2 U
PCB-082	**2.27 J**	1 U	**9.49 J**	**0.96 J**	1.1 U	**0.63 J**
PCB-083/099	**19.2 J**	**7.44 J**	**162**	**10.7 J**	**15.9 J**	**8.28 J**
PCB-084	**3.83 J**	1 U	**26.1**	**2.33 J**	**3.08 J**	**1.37 J**
PCB-085/116/117	4.6 U	1.5 U	26.9 U	2.5 U	3.01 U	1.82 U
PCB-086/087/097/109/119/125	**10.5 J**	**4.84 J**	**94.1**	**6.15 J**	**9.57 J**	**5.62 J**
PCB-088/091	1.9 U	0.92 U	**23.6**	**1.37 J**	**2.42 J**	**0.92 J**
PCB-089	0.62 U	0.96 U	**1.38 J**	0.15 U	0.23 U	0.43 U
PCB-090/101/113	**25.3 J**	**39.6**	**210**	**13.1 J**	**20 J**	**24.6 J**
PCB-092	**5.18 J**	**2.91 J**	**40.4**	2.4 U	**4.45 J**	**3.12 J**
PCB-093/095/098/100/102	0.61 U	0.94 U	**9.1 J**	**0.54 J**	**0.85 J**	**0.5 J**
PCB-094	0.66 U	1 U	1.1 U	0.16 U	0.24 U	0.45 U
PCB-095	**10.7**	**3.28 J**	**116**	6.5 U	**9.99 J**	**5.37 J**
PCB-096	0.34 U	0.5 U	0.67 U	0.2 U	0.16 U	0.54 U
PCB-103	0.54 U	0.82 U	3.2 U	0.13 U	**0.31 J**	0.37 U
PCB-104	0.23 U	0.35 U	0.46 U	0.13 U	0.077 U	0.37 U
PCB-105	8.48 U	2.57 U	47.1 U	4.27 U	8.45 U	2.95 U
PCB-106	0.46 U	0.41 U	0.51 U	0.41 U	0.19 U	0.12 U
PCB-107	**2.85 J**	**1.03 J**	**17.2**	1.2 U	**1.59 J**	**0.85 J**
PCB-108/124	**0.87 J**	0.44 U	**5.83 J**	**0.47 J**	**0.6 J**	0.26 U
PCB-110/115	23 U	5.93 U	165 U	11 U	17.8 U	9.21 U
PCB-111	0.45 U	0.69 U	**0.7 J**	0.11 U	0.16 U	0.3 U
PCB-112	0.49 U	0.75 U	0.69 U	0.12 U	0.18 U	0.32 U
PCB-114	0.58 U	0.51 U	**2.42 J**	0.46 U	0.22 U	**0.18 J**
PCB-118	21 U	7.39 U	168 U	11.1 U	18.1 U	8.37 U
PCB-120	0.41 U	0.63 U	1.6 U	**0.125 J**	0.15 U	0.28 U
PCB-121	0.46 U	0.7 U	0.65 U	0.11 U	0.17 U	0.31 U

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Task	2017Shellfish1	2017Shellfish1	2017Shellfish1	2017Shellfish1	2017Shellfish1	2017Shellfish1
Location Name	PG-GP	PG-GP	PG-GP	PG-PJ	PG-PJ	PG-PJ
Location ID	PG-GP_InSitu	PG-GP_InSitu	PG-GP_InSitu	PG-PJ_InSitu	PG-PJ_InSitu	PG-PJ_InSitu
Sample ID	PG-GP-COC-COC-170424	PG-GP-LTN-COC-170424	PG-GP-OYS-COC-170424	PG-PJ-COC-COC-170427	PG-PJ-HC-COC-170428	PG-PJ-LTN-COC-170427
Sample Date	4/24/2017	4/24/2017	4/24/2017	4/27/2017	4/28/2017	4/27/2017
X	1214169.44	1214169.44	1214169.44	1213132.38	1213132.38	1213132.38
Y	313747.69	313747.69	313747.69	316435.36	316435.36	316435.36
PCB-122	0.51 U	0.45 U	**1.41 J**	0.41 U	0.19 U	0.12 U
PCB-123	0.64 U	0.57 U	**1.93 J**	0.51 U	0.29 U	0.15 U
PCB-126	0.54 U	0.48 U	0.6 U	0.43 U	0.2 U	0.13 U
PCB-127	0.47 U	0.42 U	0.52 U	0.36 U	0.17 U	0.11 U
PCB-128/166	**7.93 J**	**3.5 J**	**32.5**	**4.49 J**	**8.26 J**	**2.7 J**
PCB-129/138/163	57.7 U	26.6 U	382 U	36.5 U	60.1 U	31.4 U
PCB-130	**4.1 J**	1.4 U	**13.3**	**2.41 J**	2.7 U	**1.8 J**
PCB-131	1.2 U	1.5 U	2.3 U	0.54 U	0.71 U	0.66 U
PCB-132	**10.5**	**3.1 J**	**89.8**	**6.67 J**	**10.4**	**5.31 J**
PCB-133	**1.4 J**	1.3 U	9.7 U	0.68 U	**1.06 J**	**1.27 J**
PCB-134/143	**2.3 J**	1.4 U	**12.5 J**	1.2 U	1.3 U	**0.85 J**
PCB-135/151	**14.3 J**	**5.7 J**	**151**	**9.36 J**	**12.9 J**	**8.76 J**
PCB-136	**3.31 J**	0.84 U	**35.5**	**2.43 J**	2.5 U	**2.29 J**
PCB-137	1.1 U	1.4 U	**5.9 J**	0.49 U	**0.75 J**	1 U
PCB-139/140	**1.2 J**	1.2 U	**7.5 J**	0.64 U	0.71 U	0.52 U
PCB-141	**5 J**	**2.4 J**	**20.8**	**2.56 J**	**3.94 J**	1.7 U
PCB-142	1.1 U	1.4 U	1.9 U	0.48 U	0.64 U	0.59 U
PCB-144	1 U	1.1 U	**11**	**1.1 J**	**1.49 J**	**1.02 J**
PCB-145	0.8 U	0.9 U	0.76 U	0.27 U	0.31 U	0.27 U
PCB-146	**9.94 J**	**7.7 J**	**107**	**6.42 J**	8.4 U	5.7 U
PCB-147/149	**34**	**9.2 J**	**353**	**23.7**	**37**	**18.5 J**
PCB-148	1 U	1.1 U	**2.19 J**	0.32 U	0.37 U	0.33 U
PCB-150	0.73 U	0.82 U	**1.79 J**	0.27 U	0.31 U	0.27 U
PCB-152	0.75 U	0.84 U	0.71 U	0.23 U	0.26 U	0.23 U
PCB-153/168	57.4 U	29.8 U	642 U	36.8 U	70.8 U	37.1 U
PCB-154	1.2 U	1 U	**18.2**	0.79 U	**2.1 J**	**0.95 J**
PCB-155	0.55 U	0.62 U	0.53 U	0.18 U	0.2 U	0.18 U
PCB-156/157	**2.64 J**	1.2 U	**11.3 J**	**1.55 J**	1 U	**1.29 J**
PCB-158	**4.27 J**	**1.74 J**	**13.7**	2.1 U	**3.7 J**	1.5 U
PCB-159	0.6 U	0.39 U	0.93 U	0.17 U	0.24 U	0.31 U
PCB-160	0.86 U	1.1 U	1.4 U	0.36 U	0.48 U	0.44 U
PCB-161	0.73 U	0.89 U	1.2 U	0.33 U	0.44 U	0.4 U
PCB-162	0.61 U	0.4 U	**1.44 J**	0.17 U	0.24 U	0.31 U
PCB-164	**4.26 J**	0.91 U	**20.3**	**2.62 J**	**2.21 J**	1.1 U
PCB-165	0.81 U	0.99 U	1.3 U	0.35 U	0.46 U	0.43 U
PCB-167	**1.58 J**	0.44 U	**10.3**	0.72 U	**0.98 J**	**0.62 J**
PCB-169	0.69 U	0.45 U	1.1 U	0.19 U	0.28 U	0.36 U
PCB-170	5.2 U	3.6 U	5.9 U	**3.1 J**	2.4 U	3.2 UJ
PCB-171/173	**3 J**	3 U	**16.2 J**	1.4 U	1.6 U	**1.53 J**

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Task	2017Shellfish1	2017Shellfish1	2017Shellfish1	2017Shellfish1	2017Shellfish1	2017Shellfish1
Location Name	PG-GP	PG-GP	PG-GP	PG-PJ	PG-PJ	PG-PJ
Location ID	PG-GP_InSitu	PG-GP_InSitu	PG-GP_InSitu	PG-PJ_InSitu	PG-PJ_InSitu	PG-PJ_InSitu
Sample ID	PG-GP-COC-COC-170424	PG-GP-LTN-COC-170424	PG-GP-OYS-COC-170424	PG-PJ-COC-COC-170427	PG-PJ-HC-COC-170428	PG-PJ-LTN-COC-170427
Sample Date	4/24/2017	4/24/2017	4/24/2017	4/27/2017	4/28/2017	4/27/2017
X	1214169.44	1214169.44	1214169.44	1213132.38	1213132.38	1213132.38
Y	313747.69	313747.69	313747.69	316435.36	316435.36	316435.36
PCB-172	**1.3 J**	3 U	4.7 U	0.48 U	0.6 U	0.89 UJ
PCB-174	**6.6 J**	2.9 U	4.5 U	**4.4 J**	**8.56 J**	**3.63 J**
PCB-175	0.77 U	4 U	4 U	0.45 U	**0.81 J**	0.22 UJ
PCB-176	0.6 U	3.1 U	6.9 U	0.61 U	0.29 U	**0.75 J**
PCB-177	**8.1 J**	**4.2 J**	**48.3 J**	4.4 U	**9.35 J**	2.9 UJ
PCB-178	**5.58 J**	4.1 U	**33 J**	**2.72 J**	**5.1 J**	**3.41 J**
PCB-179	**4.34 J**	2.8 U	**29.4 J**	**2.9 J**	0.27 U	**2.45 J**
PCB-180/193	13.6 UJ	9.3 UJ	50.1 UJ	7.17 UJ	6.77 UJ	8.92 UJ
PCB-181	1.1 U	2.9 U	4.6 U	0.48 U	0.6 U	0.75 UJ
PCB-182	0.77 U	4 U	4.1 U	0.31 U	0.38 U	0.22 UJ
PCB-183	**6.02 J**	2.6 U	**32.8 J**	**3.84 J**	**9.52 J**	**3.98 J**
PCB-184	0.58 U	3 U	3.1 U	0.23 U	0.28 U	0.16 UJ
PCB-185	1.2 U	3.2 U	5 U	0.53 U	0.66 U	0.82 UJ
PCB-186	0.64 U	3.3 U	3.3 U	0.25 U	0.31 U	0.18 UJ
PCB-187	**23.9**	**9.4 J**	**177**	**11.4**	**34.3**	**16.4 J**
PCB-188	0.58 U	0.35 U	1.2 U	0.23 U	0.28 U	0.16 U
PCB-189	0.72 U	0.96 U	1.1 U	0.62 U	0.87 U	0.89 U
PCB-190	0.79 U	2.2 U	3.5 U	**0.6 J**	**0.53 J**	0.54 UJ
PCB-191	0.79 U	2.2 U	3.4 U	0.35 U	0.44 U	0.54 UJ
PCB-192	0.88 U	2.4 U	3.9 U	0.39 U	0.49 U	0.61 UJ
PCB-194	**3.3 J**	2.7 U	3.4 U	0.4 U	0.58 U	1.7 U
PCB-195	2.2 U	2 U	3.5 U	0.26 U	1 U	0.46 U
PCB-196	5.6 U	3.6 U	5.6 U	0.43 U	1 U	**2.1 J**
PCB-197	4.2 U	2.7 U	4.3 U	0.1 U	0.78 U	0.83 U
PCB-198/199	**8.3 J**	**6.2 J**	5.9 U	**4 J**	**9.6 J**	3.4 U
PCB-200	4.5 U	2.9 U	4.5 U	0.11 U	0.83 U	0.88 U
PCB-201	4.2 U	2.7 U	**6.7 J**	0.1 U	1 U	0.83 U
PCB-202	4.4 U	2.9 U	**19.3 J**	0.53 U	2.9 U	1.4 U
PCB-203	5.5 U	3.6 U	5.6 U	0.57 U	3.9 U	1.1 U
PCB-204	4.3 U	2.8 U	4.4 U	0.1 U	0.8 U	0.85 U
PCB-205	0.93 U	0.89 U	0.58 U	0.24 U	0.56 U	0.33 U
PCB-206	5.6 U	**8.9 J**	1.9 U	**3.83 J**	8.5 U	**6.29 J**
PCB-207	1.3 U	1.2 U	1.5 U	0.76 U	**2.5 J**	0.67 U
PCB-208	**5.2 J**	**5.5 J**	1.8 U	**2.9 J**	**6.11 J**	**3.07 J**
PCB-209	13 U	**15.3**	1.1 U	**5.21 J**	**11.1**	6 U
Total PCB Congener (U = 1/2)	**490 J**	**350 J**	**3200 J**	**270 J**	**430 J**	**280 J**
Total PCB Congener TEQ 2005 (Mammal) (U = 1/2)	**0.038 J**	0.048 U	**0.051 J**	**0.025 J**	**0.015 J**	**0.012 J**
Total PCB Congener (U = 0)	**290 J**	**190 J**	**2200 J**	**160 J**	**270 J**	**170 J**
Total PCB Congener TEQ 2005 (Mammal) (U = 0)	**0.00013 J**	0.048 U	**0.0013 J**	**0.000047 J**	**0.00012 J**	**0.000087 J**

Appendix A

Port Gamble In Situ Shellfish and Crab Monitoring Results

Task	2017Shellfish1	2017Shellfish1	2017Shellfish1	2017Shellfish1	2017Shellfish1	2017Shellfish1
Location Name	PG-GP	PG-GP	PG-GP	PG-PJ	PG-PJ	PG-PJ
Location ID	PG-GP_InSitu	PG-GP_InSitu	PG-GP_InSitu	PG-PJ_InSitu	PG-PJ_InSitu	PG-PJ_InSitu
Sample ID	PG-GP-COC-COC-170424	PG-GP-LTN-COC-170424	PG-GP-OYS-COC-170424	PG-PJ-COC-COC-170427	PG-PJ-HC-COC-170428	PG-PJ-LTN-COC-170427
Sample Date	4/24/2017	4/24/2017	4/24/2017	4/27/2017	4/28/2017	4/27/2017
X	1214169.44	1214169.44	1214169.44	1213132.38	1213132.38	1213132.38
Y	313747.69	313747.69	313747.69	316435.36	316435.36	316435.36
Dioxin Furans and PCB Congeners (ng/kg)						
Total Dioxin/Furan and PCB Congener TEQ 2005 (Mammal) (Calculated U = 1/2)	**0.34 J**	**0.19 J**	**0.91 J**	**0.11 J**	**0.13 J**	**0.2 J**
Total Dioxin/Furan and PCB Congener TEQ 2005 (Mammal) (Calculated U = 0)	**0.025 J**	**0.033 J**	**0.77 J**	**0.000047 J**	**0.00012 J**	**0.000087 J**

Appendix A
Port Gamble In Situ Shellfish and Crab Monitoring Results

Task	2017Shellfish1	2017Shellfish1	2017Shellfish1	2017Shellfish1	2017Shellfish1
Location Name	PG-PJ	PG-PJ	PG-PJ	PG-SMA3	PG-SMA3
Location ID	PG-PJ_InSitu	PG-PJ_InSitu	PG-PJ_InSitu	PG-SMA3_InSitu	PG-SMA3_InSitu
Sample ID	PG-PJ-MAN-COC-170427	PG-PJ-MUS-COC-170427	PG-PJ-OYS-COC-170427	PG-SMA3-DUNH-COC-170426	PG-SMA3-DUNM-COC-170426
Sample Date	4/27/2017	4/27/2017	4/27/2017	4/26/2017	4/26/2017
X	1213132.38	1213132.38	1213132.38	1212681.47	1212681.47
Y	316435.36	316435.36	316435.36	308268.92	308268.92
Conventional Parameters (pct)					
Lipids	0.73 U	0.72 U	**1.4**	**31**	0.46 U
Total solids	**14**	**10.9**	**13**	**21.7**	**21.3**
Metals (mg/kg)					
Cadmium	**0.218**	**0.36**	**1.28**	**4.97**	0.0396 U
Polycyclic Aromatic Hydrocarbons (µg/kg)					
2-Methylnaphthalene	0.49 U	0.5 U	0.49 U	**1.21**	0.49 U
Acenaphthene	0.49 U	0.5 U	0.49 U	**0.99**	0.49 U
Acenaphthylene	0.49 U	0.5 U	0.49 U	0.5 U	0.49 U
Anthracene	0.49 U	0.5 U	0.49 U	0.5 U	0.49 U
Benzo(a)anthracene	**0.78**	0.5 U	**0.65**	0.5 U	0.49 U
Benzo(a)pyrene	0.49 U	0.5 U	0.49 U	0.5 U	0.49 U
Benzo(b)fluoranthene	0.49 U	0.5 U	**0.73**	0.5 U	0.49 U
Benzo(e)pyrene	0.49 U	0.5 U	**0.55**	0.5 U	0.49 U
Benzo(g,h,i)perylene	0.49 U	0.5 U	0.49 U	0.5 U	0.49 U
Benzo(k)fluoranthene	0.49 U	0.5 U	0.49 U	0.5 U	0.49 U
Chrysene	**0.83**	**0.55**	**1.65**	0.5 U	0.49 U
Dibenzo(a,h)anthracene	0.49 U	0.5 U	0.49 U	0.5 U	0.49 U
Fluoranthene	**0.93**	**0.68**	**3.41**	0.5 U	0.49 U
Fluorene	0.49 U	0.5 U	0.49 U	0.5 U	0.49 U
Indeno(1,2,3-c,d)pyrene	0.49 U	0.5 U	0.49 U	0.5 U	0.49 U
Naphthalene	0.59 U	0.6 U	0.59 U	**0.84**	0.59 U
Perylene	0.49 U	0.5 U	0.49 U	0.5 U	0.49 U
Phenanthrene	**0.59**	**0.69**	**1.05**	0.5 U	0.49 U
Pyrene	**0.56**	0.5 U	**2.01**	0.5 U	0.49 U
Total cPAH TEQ (7 minimum CAEPA 2005) (U = 1/2)	**0.43**	**0.38**	**0.47**	0.5 U	0.49 U
Total PAH (19) (U = 1/2)	**7.2**	**6**	**13**	**7**	0.59 U
Total HPAH (SMS) (U = 1/2)	**4.6**	**3.2**	**9.7**	0.5 U	0.49 U
Total LPAH (SMS) (U = 1/2)	**1.9**	**2**	**2.3**	**2.8**	0.59 U
Total PAH (SMS) (U = 1/2)	**6.4**	**5.2**	**12**	**5.3**	0.59 U
Total cPAH TEQ (7 minimum CAEPA 2005) (U = 0)	**0.086**	**0.0055**	**0.15**	0.5 U	0.49 U
Total PAH (19) (U = 0)	**3.7**	**1.9**	**10**	**3**	0.59 U
Total HPAH (SMS) (U = 0)	**3.1**	**1.2**	**8.4**	0.5 U	0.49 U
Total LPAH (SMS) (U = 0)	**0.59**	**0.69**	**1.1**	**1.8**	0.59 U
Total PAH (SMS) (U = 0)	**3.7**	**1.9**	**9.5**	**1.8**	0.59 U
Dioxin Furans (ng/kg)					
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	0.085 U	0.159 U	0.164 U	0.369 U	0.075 U
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	0.127 U	0.065 U	0.102 U	**1.13 J**	0.101 U
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	0.156 U	0.106 U	0.062 U	**0.505 J**	0.093 U

Appendix A
Port Gamble In Situ Shellfish and Crab Monitoring Results

Task	2017Shellfish1	2017Shellfish1	2017Shellfish1	2017Shellfish1	2017Shellfish1
Location Name	PG-PJ	PG-PJ	PG-PJ	PG-SMA3	PG-SMA3
Location ID	PG-PJ_InSitu	PG-PJ_InSitu	PG-PJ_InSitu	PG-SMA3_InSitu	PG-SMA3_InSitu
Sample ID	PG-PJ-MAN-COC-170427	PG-PJ-MUS-COC-170427	PG-PJ-OYS-COC-170427	PG-SMA3-DUNH-COC-170426	PG-SMA3-DUNM-COC-170426
Sample Date	4/27/2017	4/27/2017	4/27/2017	4/26/2017	4/26/2017
X	1213132.38	1213132.38	1213132.38	1212681.47	1212681.47
Y	316435.36	316435.36	316435.36	308268.92	308268.92
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	0.1 U	0.116 U	0.092 U	**2.95 J**	0.098 U
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	**0.284 J**	0.122 U	**0.111 J**	**0.43 J**	0.105 U
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	**1.35 J**	0.565 U	0.435 U	**3.56 J**	0.267 U
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	**14.5**	3.73 U	2.91 U	2.01 U	1.94 U
Total Tetrachlorodibenzo-p-dioxin (TCDD)	0 U	**0.159 J**	**0.942 J**	**2.3**	0 U
Total Pentachlorodibenzo-p-dioxin (PeCDD)	0 U	0 U	**0.593**	**4.3**	0 U
Total Hexachlorodibenzo-p-dioxin (HxCDD)	**0.734 J**	**0.151 J**	**0.768 J**	**10.5**	0 U
Total Heptachlorodibenzo-p-dioxin (HpCDD)	**5.61**	**2.08 J**	**1.58 J**	**7.86**	**0.805 J**
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	0.056 U	0.033 U	0.202 U	**2.06**	0.042 U
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	0.117 UJ	0.05 U	0.076 U	0.396 U	0.086 U
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	0.103 U	0.046 U	0.044 U	**0.793 J**	0.08 U
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	0.091 U	0.032 U	0.046 U	0.416 U	0.066 U
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	0.087 U	0.033 U	0.08 U	0.227 U	0.064 U
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	0.152 UJ	0.045 U	0.107 U	0.2 U	0.097 UJ
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	0.102 U	0.034 U	0.06 U	0.204 U	0.07 U
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	0.51 UJ	0.118 U	0.141 U	**1.2 J**	0.073 UJ
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	0.152 UJ	0.055 U	0.085 U	0.09 U	0.12 U
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	1.36 U	0.132 U	0.28 U	0.154 U	0.345 U
Total Tetrachlorodibenzofuran (TCDF)	0 U	**0.083 J**	**2.13**	**10.7**	**0.042 J**
Total Pentachlorodibenzofuran (PeCDF)	0 UJ	**0.199 J**	**1.2**	**8.43**	0 U
Total Hexachlorodibenzofuran (HxCDF)	**0.243 J**	**0.061 J**	**0.51 J**	**5.88**	**0.097 J**
Total Heptachlorodibenzofuran (HpCDF)	**0.976 J**	**0.262 J**	**0.256 J**	**1.44**	0 UJ
Total Dioxin/Furan (U = 1/2)	**18 J**	3.7 U	**2.6 J**	**15 J**	1.9 UJ
Total Dioxin/Furan TEQ 2005 (Mammal) (U = 1/2)	**0.21 J**	0.16 U	**0.19 J**	**2.3 J**	0.1 UJ
Total Dioxin/Furan (U = 0)	**16 J**	3.7 U	**0.11 J**	**13 J**	1.9 UJ
Total Dioxin/Furan TEQ 2005 (Mammal) (U = 0)	**0.046 J**	0.16 U	**0.011 J**	**2 J**	0.1 UJ
PCB Congeners (ng/kg)					
PCB-001	1.2 U	0.24 U	1.1 U	2.2 U	0.87 U
PCB-002	0.94 U	0.24 U	0.92 U	1.8 U	0.71 U
PCB-003	1.1 U	0.29 U	1.1 U	2.1 U	0.87 U
PCB-004	19 U	0.55 U	14 U	15 U	3.1 U
PCB-005	19 U	0.19 U	22 U	9.2 U	2.3 U
PCB-006	15 U	0.16 U	17 U	7.4 U	1.9 U
PCB-007	16 U	0.16 U	18 U	7.5 U	1.9 U
PCB-008	14 U	**1.18 J**	15 U	**9.3 J**	1.7 U
PCB-009	16 U	0.15 U	18 U	7.5 U	1.9 U
PCB-010	20 U	0.55 U	14 U	15 U	3.2 U
PCB-011	16 U	8.08 U	18 U	12.7 U	3.4 U
PCB-012/013	17 U	0.16 U	19 U	7.9 U	2 U

Appendix A
Port Gamble In Situ Shellfish and Crab Monitoring Results

Task	2017Shellfish1	2017Shellfish1	2017Shellfish1	2017Shellfish1	2017Shellfish1
Location Name	PG-PJ	PG-PJ	PG-PJ	PG-SMA3	PG-SMA3
Location ID	PG-PJ_InSitu	PG-PJ_InSitu	PG-PJ_InSitu	PG-SMA3_InSitu	PG-SMA3_InSitu
Sample ID	PG-PJ-MAN-COC-170427	PG-PJ-MUS-COC-170427	PG-PJ-OYS-COC-170427	PG-SMA3-DUNH-COC-170426	PG-SMA3-DUNM-COC-170426
Sample Date	4/27/2017	4/27/2017	4/27/2017	4/26/2017	4/26/2017
X	1213132.38	1213132.38	1213132.38	1212681.47	1212681.47
Y	316435.36	316435.36	316435.36	308268.92	308268.92
PCB-014	15 U	0.16 U	17 U	7.3 U	1.8 U
PCB-015	27 U	1.1 U	31 U	**31**	7.3 U
PCB-016	34 U	**0.9 J**	20 U	32 U	6.9 U
PCB-017	26 U	0.79 U	16 U	**32**	5.3 U
PCB-018/030	21 U	1.8 U	12 U	**39**	4.2 U
PCB-019	19 U	0.6 U	11 U	18 U	3.8 U
PCB-020/028	4.7 U	6.14 U	12.9 U	**726**	52.7 U
PCB-021/033	2.5 U	**2.2 J**	4.6 U	**22.6**	2.2 U
PCB-022	2.5 U	1.1 U	4.6 U	64.7 U	5 U
PCB-023	2.5 U	0.21 U	4.5 U	3.9 U	2.2 U
PCB-024	18 U	0.58 U	11 U	17 U	3.7 U
PCB-025	2.3 U	0.36 U	4.3 U	**10.4**	2.1 U
PCB-026/029	2.2 U	**0.79 J**	4.1 U	**22**	2 U
PCB-027	18 U	0.52 U	11 U	17 U	3.7 U
PCB-031	**5.5 J**	**3.58 J**	**7.6 J**	**239**	**15.3**
PCB-032	17 U	0.59 U	9.8 U	**62**	3.3 U
PCB-034	2.3 U	0.21 U	4.2 U	3.6 U	2.1 U
PCB-035	2.4 U	0.49 U	4.4 U	3.8 U	2.2 U
PCB-036	2 U	**0.36 J**	3.7 U	3.2 U	1.8 U
PCB-037	4.2 U	1.1 U	7.7 U	**60.9**	11 U
PCB-038	2.5 U	0.19 U	4.7 U	4 U	2.3 U
PCB-039	2.2 U	0.19 U	4.2 U	3.6 U	2 U
PCB-040/041/071	7.2 U	**4.62 J**	**12 J**	**208**	**8.9 J**
PCB-042	8.3 U	**2.47 J**	12 U	**229**	**7 J**
PCB-043	9.6 U	0.63 U	14 U	**33**	7.4 U
PCB-044/047/065	11 U	17.6 U	35.4 U	1010 U	39.5 U
PCB-045/051	7.1 U	1.2 U	10 U	**17 J**	5.4 U
PCB-046	8.7 U	0.56 U	13 U	13 U	6.7 U
PCB-048	7.1 U	1.8 U	10 U	**93**	5.4 U
PCB-049/069	**8.4 J**	**5.87 J**	19 U	**772**	**22.4**
PCB-050/053	6.7 U	1.2 U	9.7 U	**14.1 J**	5.1 U
PCB-052	9.3 U	16.3 U	40.7 U	**1900**	57.2 U
PCB-054	1.1 U	0.25 U	1.4 U	2 U	1 U
PCB-055	4 U	0.56 U	6.7 U	9.6 U	2.4 U
PCB-056	3.9 U	**2.1 J**	**7.5 J**	**65.5**	**3.2 J**
PCB-057	3.4 U	0.53 U	5.7 U	8.2 U	2 U
PCB-058	3.5 U	0.54 U	5.9 U	8.4 U	2.1 U
PCB-059/062/075	5.2 U	**0.86 J**	7.5 U	**86.8**	4 U
PCB-060	4.3 U	**1.92 J**	7.1 U	**116**	**7.2 J**

Appendix A
Port Gamble In Situ Shellfish and Crab Monitoring Results

Task	2017Shellfish1	2017Shellfish1	2017Shellfish1	2017Shellfish1	2017Shellfish1
Location Name	PG-PJ	PG-PJ	PG-PJ	PG-SMA3	PG-SMA3
Location ID	PG-PJ_InSitu	PG-PJ_InSitu	PG-PJ_InSitu	PG-SMA3_InSitu	PG-SMA3_InSitu
Sample ID	PG-PJ-MAN-COC-170427	PG-PJ-MUS-COC-170427	PG-PJ-OYS-COC-170427	PG-SMA3-DUNH-COC-170426	PG-SMA3-DUNM-COC-170426
Sample Date	4/27/2017	4/27/2017	4/27/2017	4/26/2017	4/26/2017
X	1213132.38	1213132.38	1213132.38	1212681.47	1212681.47
Y	316435.36	316435.36	316435.36	308268.92	308268.92
PCB-061/070/074/076	10 U	18.2 U	48.2 U	**884**	52.2 U
PCB-063	3.4 U	0.5 U	5.7 U	**36**	2 U
PCB-064	5.7 U	**2.32 J**	10 U	**552**	**19**
PCB-066/095	3.6 U	8.74 U	22.6 U	**478**	26.9 U
PCB-067	3.3 U	0.52 U	5.5 U	**8.1 J**	1.9 U
PCB-068	3.1 U	2.32 U	5.2 U	13.6 U	2 U
PCB-072	3.1 U	0.51 U	5.2 U	**19.4**	1.8 U
PCB-073	4.9 U	0.32 U	7.2 U	7.3 U	3.8 U
PCB-077	5.1 U	**1.29 J**	8.5 U	**40**	3 U
PCB-078	4 U	0.5 U	6.6 U	9.5 U	2.3 U
PCB-079	3.4 U	0.46 U	5.7 U	**16.4**	2 U
PCB-080	3.5 U	0.48 U	5.8 U	8.4 U	2.1 U
PCB-081	5 U	0.7 U	8.4 U	12 U	3 U
PCB-082	7.6 U	2 U	11 U	**78**	6.2 U
PCB-083/099	**13.5 J**	**31.6**	**89.8**	**4610**	**167**
PCB-084	7.1 U	**4.15 J**	**13**	**158**	5.8 U
PCB-085/116/117	5.3 U	7.21 U	15 U	**798**	28.9 U
PCB-086/087/097/109/119/125	5.2 U	**17.8 J**	**51.2 J**	**1050**	**42.1 J**
PCB-088/091	6 U	2 U	**11.1 J**	**312**	**8.9 J**
PCB-089	6.4 U	0.24 U	9.3 U	13 U	5.2 U
PCB-090/101/113	**23 J**	**40.3**	**114**	**4300**	**141**
PCB-092	6.5 U	**7.96 J**	**20.6**	**766**	**23.5**
PCB-093/095/098/100/102	5.8 U	**1.67 J**	8.6 U	**54**	4.8 U
PCB-094	6.3 U	0.25 U	9.2 U	13 U	5.2 U
PCB-095	**8.5 J**	**19.2**	**54.3**	**1090**	**29.6**
PCB-096	0.43 U	0.39 U	1.1 U	3.8 U	1.7 U
PCB-103	5 U	0.4 U	7.3 U	**43**	4.1 U
PCB-104	0.35 U	0.27 U	0.88 U	3.1 U	1.4 U
PCB-105	5.7 U	14.7 U	30.7 U	**996**	43.8 U
PCB-106	3.9 U	0.087 U	5 U	7.5 U	1.1 U
PCB-107	3.3 U	**2.95 J**	**9.1 J**	**241**	**9.34 J**
PCB-108/124	3.6 U	**1.24 J**	4.6 U	**67.9**	**2.4 J**
PCB-110/115	14 U	30.5 U	95.4 U	**2230**	70.8 U
PCB-111	4.6 U	0.17 U	6.7 U	9.6 U	3.8 U
PCB-112	4.7 U	0.18 U	6.9 U	9.9 U	3.9 U
PCB-114	4.4 U	0.46 U	5.6 U	**55.1**	**2.7 J**
PCB-118	15 U	37.6 U	96.3 U	**2990**	122 U
PCB-120	4.3 U	**0.28 J**	6.3 U	9 U	3.6 U
PCB-121	4.5 U	0.17 U	6.6 U	9.4 U	3.7 U

Appendix A
Port Gamble In Situ Shellfish and Crab Monitoring Results

Task	2017Shellfish1	2017Shellfish1	2017Shellfish1	2017Shellfish1	2017Shellfish1
Location Name	PG-PJ	PG-PJ	PG-PJ	PG-SMA3	PG-SMA3
Location ID	PG-PJ_InSitu	PG-PJ_InSitu	PG-PJ_InSitu	PG-SMA3_InSitu	PG-SMA3_InSitu
Sample ID	PG-PJ-MAN-COC-170427	PG-PJ-MUS-COC-170427	PG-PJ-OYS-COC-170427	PG-SMA3-DUNH-COC-170426	PG-SMA3-DUNM-COC-170426
Sample Date	4/27/2017	4/27/2017	4/27/2017	4/26/2017	4/26/2017
X	1213132.38	1213132.38	1213132.38	1212681.47	1212681.47
Y	316435.36	316435.36	316435.36	308268.92	308268.92
PCB-122	3.9 U	**0.236 J**	5 U	**9.1 J**	1.1 U
PCB-123	4.9 U	0.19 U	6.3 U	23 U	1.4 U
PCB-126	4.1 U	0.12 U	5.3 U	8 U	1.2 U
PCB-127	3.6 U	0.077 U	4.6 U	6.9 U	1 U
PCB-128/166	14 U	**12.4 J**	14 U	**1330**	**54.6**
PCB-129/138/163	45 U	97.1 U	180 U	**16600**	555 U
PCB-130	18 U	**5.34 J**	17 U	**657**	**24.5**
PCB-131	20 U	0.49 U	20 U	**44**	8.5 U
PCB-132	19 U	**13.5**	**51**	**1170**	30 U
PCB-133	16 U	**2.4 J**	16 U	**343**	**10.9**
PCB-134/143	18 U	**3.53 J**	18 U	**159**	7.7 U
PCB-135/151	10 U	**27.3**	**71**	**2440**	**67.8**
PCB-136	6.8 U	**6.33 J**	**13**	**267**	**8.1 J**
PCB-137	17 U	**1.44 J**	16 U	**384**	**12.6**
PCB-139/140	15 U	**1.83 J**	15 U	**131**	6.2 U
PCB-141	17 U	**2.63 J**	17 U	**764**	**22.5**
PCB-142	18 U	0.43 U	17 U	23 U	7.5 U
PCB-144	9.4 U	**2.93 J**	14 U	**180**	5.9 U
PCB-145	7.5 U	0.32 U	11 U	11 U	3.7 U
PCB-146	14 U	**21.5**	**49**	**2960**	**87.4**
PCB-147/149	**21**	**66.3**	**178**	**6520**	**205**
PCB-148	9.3 U	0.39 U	14 U	14 U	4.5 U
PCB-150	6.8 U	0.32 U	10 U	**21**	3.3 U
PCB-152	6.8 U	0.28 U	10 U	10 U	3.3 U
PCB-153/168	43 U	129 U	325 U	**18000**	574 U
PCB-154	8.2 U	**2.88 J**	12 U	**258**	**8.4 J**
PCB-155	5.9 U	0.21 U	8.8 U	8.8 U	2.9 U
PCB-156/157	4.4 U	**5.02 J**	**5.5 J**	**591**	**24.1**
PCB-158	11 U	**6.46 J**	11 U	**590**	**21.6**
PCB-159	3.7 U	0.23 U	2.3 U	**34**	4.3 U
PCB-160	13 U	0.33 U	12 U	17 U	5.3 U
PCB-161	12 U	0.3 U	11 U	15 U	4.9 U
PCB-162	3.7 U	0.4 U	2.3 U	23 U	4.3 U
PCB-164	11 U	**2.32 J**	11 U	**274**	9.5 U
PCB-165	13 U	0.32 U	13 U	26 U	5.4 U
PCB-167	4.2 U	**2.66 J**	**6.5 J**	**202**	**7.3 J**
PCB-169	4.4 U	0.27 U	2.8 U	18 U	5.1 U
PCB-170	7.5 U	**3.89 J**	8.9 U	**1580**	**61.5**
PCB-171/173	11 U	**4.57 J**	13 U	**602**	**26.7**

Appendix A
Port Gamble In Situ Shellfish and Crab Monitoring Results

Task	2017Shellfish1	2017Shellfish1	2017Shellfish1	2017Shellfish1	2017Shellfish1
Location Name	PG-PJ	PG-PJ	PG-PJ	PG-SMA3	PG-SMA3
Location ID	PG-PJ_InSitu	PG-PJ_InSitu	PG-PJ_InSitu	PG-SMA3_InSitu	PG-SMA3_InSitu
Sample ID	PG-PJ-MAN-COC-170427	PG-PJ-MUS-COC-170427	PG-PJ-OYS-COC-170427	PG-SMA3-DUNH-COC-170426	PG-SMA3-DUNM-COC-170426
Sample Date	4/27/2017	4/27/2017	4/27/2017	4/26/2017	4/26/2017
X	1213132.38	1213132.38	1213132.38	1212681.47	1212681.47
Y	316435.36	316435.36	316435.36	308268.92	308268.92
PCB-172	11 U	0.54 U	13 U	**329**	**10.4**
PCB-174	10 U	**1.81 J**	12 U	**795**	**29.2**
PCB-175	7.4 U	0.7 U	11 U	**69**	4.7 U
PCB-176	6.1 U	**2.16 J**	9.3 U	**143**	**5.3 J**
PCB-177	11 U	**9.43 J**	**24**	**1440**	**50.1**
PCB-178	8.4 U	**6.74 J**	13 U	**991**	**29.5**
PCB-179	5.9 U	**8.48 J**	16 U	**612**	17 U
PCB-180/193	11 UJ	16.6 UJ	24 UJ	**4430 J**	157 UJ
PCB-181	11 U	0.54 U	13 U	41 U	3.9 U
PCB-182	8 U	0.23 U	12 U	16 U	5.1 U
PCB-183	9 U	**12.1**	**19**	**1760**	**61.1**
PCB-184	5.5 U	0.17 U	8.4 U	11 U	3.5 U
PCB-185	11 U	0.59 U	13 U	42 U	3.9 U
PCB-186	6.2 U	0.18 U	9.5 U	12 U	3.9 U
PCB-187	**20**	**41.8**	**100**	**5520**	**181**
PCB-188	6.4 U	**0.32 J**	9.7 U	**26**	4.1 U
PCB-189	2.3 U	**0.61 J**	4.4 U	**54**	3.6 U
PCB-190	8.4 U	**1.19 J**	10 U	**296**	**12.7**
PCB-191	7.8 U	0.39 U	9.2 U	**59**	2.8 U
PCB-192	8.8 U	0.44 U	10 U	34 U	3.2 U
PCB-194	9.8 U	1.3 U	3.4 U	**700 J**	**24.2**
PCB-195	10 U	0.33 U	3.5 U	**242 J**	**12**
PCB-196	18 U	0.96 U	15 U	**453 J**	15 U
PCB-197	12 U	0.73 U	10 U	**69 J**	3.7 U
PCB-198/199	19 U	1 U	16 U	**1150 J**	**42.1**
PCB-200	14 U	0.78 U	12 U	**59 J**	4.4 U
PCB-201	12 U	1.4 U	10 U	**147 J**	**6.2 J**
PCB-202	14 U	**6.51 J**	11 U	**508 J**	**18.9**
PCB-203	18 U	**3.02 J**	15 U	**654 J**	**23.3**
PCB-204	12 U	0.75 U	10 U	14 UJ	3.9 U
PCB-205	8.1 U	0.31 U	2.8 U	30 U	4.9 U
PCB-206	12 U	1.1 U	3.1 U	**392**	**12.7**
PCB-207	9.4 U	0.92 U	2.5 U	**36.3**	3.8 U
PCB-208	12 U	1.1 U	3.1 U	170 U	6.3 U
PCB-209	25 U	**3.41 J**	4.4 U	**231**	13 U
Total PCB Congener (U = 1/2)	**850 J**	**680 J**	**2000 J**	**100000 J**	**2800 J**
Total PCB Congener TEQ 2005 (Mammal) (U = 1/2)	0.41 U	**0.011 J**	**0.31 J**	**0.82**	**0.14 J**
Total PCB Congener (U = 0)	**100 J**	**450 J**	**910 J**	**100000 J**	**1700 J**
Total PCB Congener TEQ 2005 (Mammal) (U = 0)	0.41 U	**0.00038 J**	**0.00036 J**	**0.15**	**0.001 J**

Appendix A
Port Gamble In Situ Shellfish and Crab Monitoring Results

Task	2017Shellfish1	2017Shellfish1	2017Shellfish1	2017Shellfish1	2017Shellfish1
Location Name	PG-PJ	PG-PJ	PG-PJ	PG-SMA3	PG-SMA3
Location ID	PG-PJ_InSitu	PG-PJ_InSitu	PG-PJ_InSitu	PG-SMA3_InSitu	PG-SMA3_InSitu
Sample ID	PG-PJ-MAN-COC-170427	PG-PJ-MUS-COC-170427	PG-PJ-OYS-COC-170427	PG-SMA3-DUNH-COC-170426	PG-SMA3-DUNM-COC-170426
Sample Date	4/27/2017	4/27/2017	4/27/2017	4/26/2017	4/26/2017
X	1213132.38	1213132.38	1213132.38	1212681.47	1212681.47
Y	316435.36	316435.36	316435.36	308268.92	308268.92
Dioxin Furans and PCB Congeners (ng/kg)					
Total Dioxin/Furan and PCB Congener TEQ 2005 (Mammal) (Calculated U = 1/2)	**0.48 J**	**0.16 J**	**0.5 J**	**3.1 J**	**0.28 J**
Total Dioxin/Furan and PCB Congener TEQ 2005 (Mammal) (Calculated U = 0)	**0.046 J**	**0.00038 J**	**0.011 J**	**2.2 J**	**0.001 J**

Appendix A
Port Gamble In Situ Shellfish and Crab Monitoring Results

Task	2017Shellfish1	2017Shellfish1	2017Shellfish1	2017Shellfish1	2017Shellfish1
Location Name	PG-SMA3	PG-WS	PG-WS	PG-WS	PG-WS
Location ID	PG-SMA3_InSitu	PG-WS_InSitu	PG-WS_InSitu	PG-WS_InSitu	PG-WS_InSitu
Sample ID	PG-SMA3-GEO-COC-170426	PG-WS-COC-COC-170425	PG-WS-LTN-COC-170424	PG-WS-MAN-COC-170424	PG-WS-OYS-COC-170424
Sample Date	4/26/2017	4/25/2017	4/24/2017	4/24/2017	4/24/2017
X	1212681.47	1210177.34	1210177.34	1210177.34	1210177.34
Y	308268.92	312379.89	312379.89	312379.89	312379.89
Conventional Parameters (pct)					
Lipids	**1.5**	0.9 U	0.68 U	0.7 U	**2**
Total solids	**19.1**	**13.8**	**11.5**	**14.2**	**13.9**
Metals (mg/kg)					
Cadmium	**0.219**	**0.0929**	**0.392**	**0.303**	**1.57**
Polycyclic Aromatic Hydrocarbons (µg/kg)					
2-Methylnaphthalene	0.49 U	0.5 U	0.5 U	**0.59**	0.49 U
Acenaphthene	0.49 U	0.5 U	0.5 U	0.49 U	0.49 U
Acenaphthylene	0.49 U	0.5 U	0.5 U	0.49 U	0.49 U
Anthracene	0.49 U	0.5 U	0.5 U	0.49 U	**1.03**
Benzo(a)anthracene	**0.69**	**0.5**	**0.5**	**2.16**	**3.86**
Benzo(a)pyrene	0.49 U	0.5 U	0.5 U	0.49 U	**0.58**
Benzo(b)fluoranthene	**0.53**	0.5 U	0.5 U	0.49 U	**3.13**
Benzo(e)pyrene	**0.79**	**0.73**	0.5 U	0.49 U	**2**
Benzo(g,h,i)perylene	0.49 U	0.5 U	0.5 U	0.49 U	0.49 U
Benzo(k)fluoranthene	0.49 U	0.5 U	0.5 U	0.49 U	**1.52**
Chrysene	**0.82**	**0.75**	**0.5**	**1.76**	**5.52**
Dibenzo(a,h)anthracene	0.49 U	0.5 U	0.5 U	0.49 U	0.49 U
Fluoranthene	**0.78**	**1.39**	**1.07**	**1.65**	**11.2**
Fluorene	0.49 U	0.5 U	0.5 U	0.49 U	**0.51**
Indeno(1,2,3-c,d)pyrene	0.49 U	0.5 U	0.5 U	0.49 U	0.49 U
Naphthalene	0.59 U	0.6 U	0.6 U	0.59 U	**0.51 J**
Perylene	0.49 U	0.5 U	0.5 U	0.49 U	0.49 U
Phenanthrene	0.49 U	**0.72**	**0.97**	**0.87**	**2.52**
Pyrene	0.49 U	**0.87**	**1**	**1.19**	**8.68**
Total cPAH TEQ (7 minimum CAEPA 2005) (U = 1/2)	**0.45**	**0.41**	**0.41**	**0.58**	**1.5**
Total PAH (19) (U = 1/2)	**7.1**	**8.3**	**7.6**	**11**	**43 J**
Total HPAH (SMS) (U = 1/2)	**4.3**	**5**	**4.6**	**8.2**	**35**
Total LPAH (SMS) (U = 1/2)	0.59 U	**2**	**2.3**	**2.1**	**5.1 J**
Total PAH (SMS) (U = 1/2)	**5.8**	**7**	**6.8**	**10**	**40 J**
Total cPAH TEQ (7 minimum CAEPA 2005) (U = 0)	**0.13**	**0.058**	**0.055**	**0.23**	**1.5**
Total PAH (19) (U = 0)	**3.6**	**5**	**4**	**8.2**	**41 J**
Total HPAH (SMS) (U = 0)	**2.8**	**3.5**	**3.1**	**6.8**	**34**
Total LPAH (SMS) (U = 0)	0.59 U	**0.72**	**0.97**	**0.87**	**4.6 J**
Total PAH (SMS) (U = 0)	**2.8**	**4.2**	**4**	**7.6**	**39 J**
Dioxin Furans (ng/kg)					
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	0.068 U	0.112 U	0.059 U	0.129 U	0.234 U
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	0.077 U	0.148 U	0.067 U	0.114 U	0.082 U
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	0.088 U	0.141 U	0.085 U	0.113 UJ	0.119 U

Appendix A
Port Gamble In Situ Shellfish and Crab Monitoring Results

Task	2017Shellfish1	2017Shellfish1	2017Shellfish1	2017Shellfish1	2017Shellfish1
Location Name	PG-SMA3	PG-WS	PG-WS	PG-WS	PG-WS
Location ID	PG-SMA3_InSitu	PG-WS_InSitu	PG-WS_InSitu	PG-WS_InSitu	PG-WS_InSitu
Sample ID	PG-SMA3-GEO-COC-170426	PG-WS-COC-COC-170425	PG-WS-LTN-COC-170424	PG-WS-MAN-COC-170424	PG-WS-OYS-COC-170424
Sample Date	4/26/2017	4/25/2017	4/24/2017	4/24/2017	4/24/2017
X	1212681.47	1210177.34	1210177.34	1210177.34	1210177.34
Y	308268.92	312379.89	312379.89	312379.89	312379.89
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	0.117 U	0.151 U	0.094 U	0.125 U	0.106 U
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	**0.131 J**	0.161 U	0.099 U	0.131 U	0.123 U
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	0.565 U	0.715 U	0.269 U	0.184 U	0.252 U
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	5.01 U	4.86 U	1.83 U	2.48 U	1.48 U
Total Tetrachlorodibenzo-p-dioxin (TCDD)	**0.093 J**	0 U	**0.07 J**	0 U	**2.73**
Total Pentachlorodibenzo-p-dioxin (PeCDD)	**0.077 J**	0 U	0 U	0 U	**0.95**
Total Hexachlorodibenzo-p-dioxin (HxCDD)	**0.672 J**	**0.158 J**	0 U	0 U	**0.269 J**
Total Heptachlorodibenzo-p-dioxin (HpCDD)	**2.44 J**	**2.74 J**	**0.847 J**	**1.24 J**	**1.11 J**
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	0.18 U	0.067 U	0.046 U	0.098 U	**0.351 J**
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	0.072 U	0.1 U	0.05 U	0.106 U	0.071 U
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	0.064 U	0.094 U	0.046 U	0.102 U	**0.095 J**
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	0.062 U	0.09 U	0.043 U	0.079 U	0.061 U
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	0.078 U	0.088 U	0.043 U	0.079 U	0.063 U
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	0.109 U	0.126 U	0.077 U	0.113 UJ	0.088 U
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	0.081 U	0.091 U	0.047 U	0.084 UJ	0.061 U
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	0.169 U	0.2 U	0.054 U	0.054 UJ	0.075 U
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	0.099 U	0.162 U	0.075 U	0.135 UJ	0.113 U
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	0.417 U	0.527 U	0.153 U	0.283 U	0.136 U
Total Tetrachlorodibenzofuran (TCDF)	**0.43 J**	0 U	0 U	0 U	**3.45**
Total Pentachlorodibenzofuran (PeCDF)	**0.124 J**	0 U	0 U	0 U	**1.47**
Total Hexachlorodibenzofuran (HxCDF)	**0.12 J**	**0.09 J**	**0.116 J**	**0.113 J**	**0.137 J**
Total Heptachlorodibenzofuran (HpCDF)	**0.275 J**	**0.2 J**	**0.054 J**	**0.054 J**	0 U
Total Dioxin/Furan (U = 1/2)	**3.8 J**	4.9 U	1.8 U	2.5 UJ	**2 J**
Total Dioxin/Furan TEQ 2005 (Mammal) (U = 1/2)	**0.14 J**	0.15 U	0.067 U	0.13 UJ	**0.26 J**
Total Dioxin/Furan (U = 0)	**0.13 J**	4.9 U	1.8 U	2.5 UJ	**0.45 J**
Total Dioxin/Furan TEQ 2005 (Mammal) (U = 0)	**0.013 J**	0.15 U	0.067 U	0.13 UJ	**0.064 J**
PCB Congeners (ng/kg)					
PCB-001	1.4 U	1 U	1.2 U	1.6 U	0.73 U
PCB-002	1.1 U	0.82 U	1 U	1.3 U	0.64 U
PCB-003	1.4 U	1 U	1.2 U	1.6 U	0.72 U
PCB-004	5.5 U	3.2 U	**8.5 J**	1.4 U	1.8 U
PCB-005	1.2 U	1.4 U	1.2 U	2.6 U	1.2 U
PCB-006	0.95 U	1.1 U	0.91 U	2.1 U	1.2 U
PCB-007	0.97 U	1.1 U	0.96 U	2.1 U	1.2 U
PCB-008	2.6 U	0.96 U	1.7 U	1.8 U	**3.8 J**
PCB-009	0.97 U	1.1 U	0.89 U	2.1 U	1.1 U
PCB-010	5.7 U	3.3 U	3.4 U	1.4 U	1.8 U
PCB-011	13 U	13.1 U	8.77 U	9.7 U	13.9 U
PCB-012/013	1 U	1.2 U	0.96 U	2.2 U	1.2 U

Appendix A
Port Gamble In Situ Shellfish and Crab Monitoring Results

Task	2017Shellfish1	2017Shellfish1	2017Shellfish1	2017Shellfish1	2017Shellfish1
Location Name	PG-SMA3	PG-WS	PG-WS	PG-WS	PG-WS
Location ID	PG-SMA3_InSitu	PG-WS_InSitu	PG-WS_InSitu	PG-WS_InSitu	PG-WS_InSitu
Sample ID	PG-SMA3-GEO-COC-170426	PG-WS-COC-COC-170425	PG-WS-LTN-COC-170424	PG-WS-MAN-COC-170424	PG-WS-OYS-COC-170424
Sample Date	4/26/2017	4/25/2017	4/24/2017	4/24/2017	4/24/2017
X	1212681.47	1210177.34	1210177.34	1210177.34	1210177.34
Y	308268.92	312379.89	312379.89	312379.89	312379.89
PCB-014	0.93 U	1.1 U	0.89 U	2 U	1.2 U
PCB-015	4 U	1.9 U	1.4 U	3.7 U	**2.9 J**
PCB-016	10 U	6.1 U	2.3 U	19 U	5.5 U
PCB-017	8 U	4.7 U	**4.6 J**	15 U	**5.94 J**
PCB-018/030	6.4 U	3.7 U	**19.9 J**	12 U	**12.7 J**
PCB-019	5.7 U	3.3 U	1.6 U	11 U	**1.45 J**
PCB-020/028	32.2 U	8.35 U	4.33 U	6.9 U	46.7 U
PCB-021/033	**8 J**	3 U	**7.92 J**	2.6 U	**10.1 J**
PCB-022	**8.9 J**	2.2 U	0.71 U	1.8 U	10.1 U
PCB-023	1.5 U	1.1 U	0.62 U	1.8 U	0.28 U
PCB-024	5.6 U	3.2 U	1.5 U	10 U	0.41 U
PCB-025	**1.7 J**	0.99 U	0.58 U	1.7 U	**3.03 J**
PCB-026/029	**3.8 J**	**1.04 J**	2.1 U	1.6 U	**4.45 J**
PCB-027	5.6 U	3.3 U	1.4 U	10 U	**1.47 J**
PCB-031	**20.5**	3.3 U	**4.86 J**	**7.4 J**	**27.7**
PCB-032	5.1 U	2.9 U	1.3 U	9.3 U	**5.43 J**
PCB-034	1.4 U	0.98 U	0.6 U	1.6 U	0.26 U
PCB-035	1.4 U	1 U	0.6 U	1.7 U	0.57 U
PCB-036	1.2 U	0.86 U	0.51 U	1.4 U	**1.24 J**
PCB-037	6.7 U	1.8 U	0.86 U	3 U	**9.06 J**
PCB-038	1.5 U	1.1 U	0.58 U	1.8 U	0.25 U
PCB-039	1.4 U	0.96 U	0.57 U	1.6 U	0.26 U
PCB-040/041/071	**21 J**	4.2 U	**1.7 J**	6.4 U	**32**
PCB-042	**10.2**	3.9 U	1.5 U	7.4 U	**23.4**
PCB-043	2.1 U	4.5 U	1.8 U	8.6 U	**2.68 J**
PCB-044/047/065	44.2 U	13 U	7.4 U	12.3 U	82.8 U
PCB-045/051	**7.8 J**	3.3 U	1.3 U	6.3 U	**9.42 J**
PCB-046	1.9 U	4 U	1.5 U	7.8 U	**2.75 J**
PCB-048	**5.3 J**	3.3 U	**18**	6 U	**12.1**
PCB-049/069	**28.9**	4.3 U	5.9 U	**8.6 J**	**62.7**
PCB-050/053	**4.1 J**	3.1 U	1.3 U	6 U	8.1 U
PCB-052	83.2 U	14.7 U	33.4 U	10.4 U	104 U
PCB-054	1.9 U	0.83 U	0.24 U	1.1 U	0.47 U
PCB-055	1.9 U	2.5 U	0.6 U	5.7 U	0.66 U
PCB-056	**7.4 J**	**3.6 J**	**0.82 J**	5.6 U	**18.7**
PCB-057	1.6 U	2.1 U	0.55 U	4.9 U	0.61 U
PCB-058	**3.7 J**	2.2 U	0.59 U	5 U	0.68 U
PCB-059/062/075	**5.1 J**	2.4 U	0.99 U	4.7 U	**7.34 J**
PCB-060	**6 J**	2.7 U	0.6 U	6.1 U	**14**

Appendix A
Port Gamble In Situ Shellfish and Crab Monitoring Results

Task	2017Shellfish1	2017Shellfish1	2017Shellfish1	2017Shellfish1	2017Shellfish1
Location Name	PG-SMA3	PG-WS	PG-WS	PG-WS	PG-WS
Location ID	PG-SMA3_InSitu	PG-WS_InSitu	PG-WS_InSitu	PG-WS_InSitu	PG-WS_InSitu
Sample ID	PG-SMA3-GEO-COC-170426	PG-WS-COC-COC-170425	PG-WS-LTN-COC-170424	PG-WS-MAN-COC-170424	PG-WS-OYS-COC-170424
Sample Date	4/26/2017	4/25/2017	4/24/2017	4/24/2017	4/24/2017
X	1212681.47	1210177.34	1210177.34	1210177.34	1210177.34
Y	308268.92	312379.89	312379.89	312379.89	312379.89
PCB-061/070/074/076	50.8 U	15.2 U	11.6 U	14 U	112 U
PCB-063	1.6 U	2.1 U	0.53 U	4.9 U	**3.65 J**
PCB-064	**26.7**	4.2 U	1.1 U	5.1 U	**33.7**
PCB-066/095	22 U	10.6 U	2.57 U	7.4 U	56.3 U
PCB-067	1.5 U	2.1 U	0.58 U	4.7 U	**1.8 J**
PCB-068	2.1 U	1.9 U	0.85 U	4.4 U	2.62 U
PCB-072	1.5 U	2 U	0.53 U	4.5 U	1.3 U
PCB-073	1.1 U	2.3 U	0.93 U	4.4 U	0.48 U
PCB-077	**3.2 J**	3.2 U	0.75 U	7.3 U	**6.42 J**
PCB-078	1.8 U	2.5 U	0.55 U	5.6 U	0.59 U
PCB-079	1.6 U	2.1 U	0.49 U	4.9 U	**2.01 J**
PCB-080	1.6 U	2.2 U	0.5 U	5 U	0.55 U
PCB-081	2.3 U	3.1 U	0.74 U	7.2 U	0.81 U
PCB-082	5.2 U	2.5 U	1.5 U	6 U	**10.9**
PCB-083/099	**73**	**20.2**	**7.1 J**	**12.4 J**	**208**
PCB-084	14 U	4.1 U	1.5 U	5.6 U	**32.2**
PCB-085/116/117	15.5 U	5.8 U	1.8 U	4.2 U	34 U
PCB-086/087/097/109/119/125	**45.2 J**	**12 J**	**5 J**	4.1 U	**117**
PCB-088/091	**13.9 J**	**2.7 J**	1.4 U	4.7 U	**29.6**
PCB-089	2.8 U	2.1 U	1.4 U	5 U	**1.64 J**
PCB-090/101/113	**164**	**30.7**	**78.5**	**17.1 J**	**266**
PCB-092	**30.6**	**4.8 J**	2.8 U	5.1 U	**52.3**
PCB-093/095/098/100/102	2.6 U	1.9 U	1.4 U	4.6 U	**13.9 J**
PCB-094	2.8 U	2 U	1.5 U	4.9 U	**1.5 J**
PCB-095	**81.1**	**12.7**	**3.5 J**	5.5 U	**139**
PCB-096	4.2 U	1.3 U	0.29 U	0.44 U	1.2 U
PCB-103	2.4 U	1.6 U	1.2 U	3.9 U	**4.47 J**
PCB-104	3.4 U	1.1 U	0.2 U	0.35 U	0.26 U
PCB-105	29 U	10.7 U	2.72 U	4 U	61.8 U
PCB-106	4 U	2.4 U	0.72 U	1.7 U	0.45 U
PCB-107	**10.4**	**2.6 J**	**1 J**	1.4 U	**19.5**
PCB-108/124	3.7 U	2.3 U	0.77 U	1.6 U	**7.57 J**
PCB-110/115	106 U	26.6 U	5.2 U	10.2 U	213 U
PCB-111	2 U	1.5 U	1 U	3.6 U	**0.7 J**
PCB-112	2.1 U	1.5 U	1.1 U	3.7 U	0.59 U
PCB-114	4.6 U	2.8 U	0.89 U	1.9 U	**3.11 J**
PCB-118	92.9 U	24.3 U	8.67 U	11.3 U	232 U
PCB-120	1.9 U	1.4 U	0.94 U	3.4 U	2.5 U
PCB-121	2 U	1.5 U	1 U	3.5 U	0.55 U

Appendix A
Port Gamble In Situ Shellfish and Crab Monitoring Results

Task	2017Shellfish1	2017Shellfish1	2017Shellfish1	2017Shellfish1	2017Shellfish1
Location Name	PG-SMA3	PG-WS	PG-WS	PG-WS	PG-WS
Location ID	PG-SMA3_InSitu	PG-WS_InSitu	PG-WS_InSitu	PG-WS_InSitu	PG-WS_InSitu
Sample ID	PG-SMA3-GEO-COC-170426	PG-WS-COC-COC-170425	PG-WS-LTN-COC-170424	PG-WS-MAN-COC-170424	PG-WS-OYS-COC-170424
Sample Date	4/26/2017	4/25/2017	4/24/2017	4/24/2017	4/24/2017
X	1212681.47	1210177.34	1210177.34	1210177.34	1210177.34
Y	308268.92	312379.89	312379.89	312379.89	312379.89
PCB-122	4 U	2.4 U	0.79 U	1.7 U	1.4 U
PCB-123	5.1 U	3.1 U	0.99 U	2.2 U	**2.7 J**
PCB-126	4.3 U	2.6 U	0.84 U	1.8 U	0.75 U
PCB-127	3.7 U	2.2 U	0.73 U	1.6 U	0.45 U
PCB-128/166	**31.7**	6.3 U	**3.1 J**	5.8 U	**45.1**
PCB-129/138/163	261 U	62.4 U	29.4 U	40.1 U	531 U
PCB-130	**19.3**	5.9 U	**1.9 J**	7.4 U	**16.6**
PCB-131	7.3 U	6.7 U	1.7 U	8.4 U	**3.54 J**
PCB-132	**74.1**	11 U	2.8 U	7.8 U	**121**
PCB-133	**6.7 J**	5.4 U	1.4 U	6.7 U	**15.2**
PCB-134/143	**12.7 J**	6.1 U	1.6 U	7.6 U	**17.5 J**
PCB-135/151	**94.4**	**14.7 J**	**4.8 J**	7.6 U	**210**
PCB-136	**28.2**	3.4 U	0.93 U	5.1 U	**45.6**
PCB-137	6 U	5.5 U	1.5 U	6.9 U	**8.38 J**
PCB-139/140	5.4 U	5 U	1.4 U	6.2 U	**9.52 J**
PCB-141	**14**	5.6 U	**3 J**	7 U	**19.8**
PCB-142	6.5 U	6 U	1.5 U	7.5 U	0.6 U
PCB-144	12 U	4.7 U	1.2 U	7 U	**15.6**
PCB-145	2.6 U	3.7 U	1 U	5.6 U	0.86 U
PCB-146	**65.9**	**8.8 J**	**10.3**	6 U	**133**
PCB-147/149	**242**	**38.5**	**9.8 J**	20 U	**458**
PCB-148	3.2 U	4.6 U	1.2 U	6.9 U	**3.7 J**
PCB-150	2.4 U	3.4 U	0.91 U	5.1 U	**1.9 J**
PCB-152	2.3 U	3.4 U	0.93 U	5.1 U	0.76 U
PCB-153/168	333 U	54.1 U	35 U	44.8 U	985 U
PCB-154	2.8 U	4.1 U	1.1 U	6.2 U	**22.4**
PCB-155	2 U	2.9 U	0.69 U	4.4 U	0.59 U
PCB-156/157	**9.5 J**	**3 J**	**1.6 J**	6.8 U	**14.9 J**
PCB-158	**20**	**5.2 J**	**2.2 J**	4.5 U	**20.1**
PCB-159	4.1 U	2.2 U	0.64 U	5.7 U	0.39 U
PCB-160	4.6 U	4.2 U	1.2 U	5.3 U	0.46 U
PCB-161	4.3 U	3.9 U	0.99 U	4.9 U	0.43 U
PCB-162	4.1 U	2.2 U	0.65 U	5.7 U	**2.07 J**
PCB-164	15 U	3.8 U	1.1 U	4.7 U	**23.1**
PCB-165	4.7 U	4.3 U	1.1 U	5.4 U	**1.9 J**
PCB-167	6.4 U	2.5 U	0.75 U	6.4 U	**19.6**
PCB-169	4.9 U	2.6 U	0.73 U	6.9 UJ	0.48 U
PCB-170	9.5 UJ	**7.6 J**	**6.23 J**	6.4 U	**6.73 J**
PCB-171/173	**27.3 J**	6.7 U	1.9 U	7.1 U	**25.9**

Appendix A
Port Gamble In Situ Shellfish and Crab Monitoring Results

Task	2017Shellfish1	2017Shellfish1	2017Shellfish1	2017Shellfish1	2017Shellfish1
Location Name	PG-SMA3	PG-WS	PG-WS	PG-WS	PG-WS
Location ID	PG-SMA3_InSitu	PG-WS_InSitu	PG-WS_InSitu	PG-WS_InSitu	PG-WS_InSitu
Sample ID	PG-SMA3-GEO-COC-170426	PG-WS-COC-COC-170425	PG-WS-LTN-COC-170424	PG-WS-MAN-COC-170424	PG-WS-OYS-COC-170424
Sample Date	4/26/2017	4/25/2017	4/24/2017	4/24/2017	4/24/2017
X	1212681.47	1210177.34	1210177.34	1210177.34	1210177.34
Y	308268.92	312379.89	312379.89	312379.89	312379.89
PCB-172	5.5 UJ	6.6 U	**1.4 J**	7 U	**1.7 J**
PCB-174	**42.2 J**	6.7 U	**4.86 J**	**7 J**	**4.5 J**
PCB-175	2.8 UJ	6.4 U	0.98 U	3.6 U	**4.22 J**
PCB-176	11 UJ	5.2 U	0.75 U	2.9 U	**15.9**
PCB-177	**53.6 J**	**10.1**	**5.2 J**	**7.6 J**	**91.6**
PCB-178	**28.3 J**	7.2 U	**3.9 J**	4 U	**60.6**
PCB-179	**39.6 J**	5.1 U	1.2 U	2.8 U	**60.4**
PCB-180/193	59.8 UJ	17 UJ	14.8 UJ	20 UJ	61.8 UJ
PCB-181	5.4 UJ	6.5 U	0.99 U	6.9 U	1.1 U
PCB-182	3 UJ	6.9 U	0.98 U	3.9 U	0.64 U
PCB-183	**58.3 J**	**7.6 J**	**5.15 J**	6.3 U	**65.5**
PCB-184	2.1 UJ	4.8 U	0.74 U	2.7 U	0.48 U
PCB-185	5.5 UJ	6.6 U	1.1 U	7.1 U	1.2 U
PCB-186	2.4 UJ	5.4 U	0.81 U	3 U	0.53 U
PCB-187	**150 J**	**18.9**	**17.6**	22 U	**393**
PCB-188	2.4 U	5.5 U	0.74 U	3.1 U	1.7 U
PCB-189	5.7 UJ	2.2 U	1.1 U	3.3 U	0.47 U
PCB-190	8.9 UJ	5.1 U	0.74 U	5.4 U	0.87 U
PCB-191	3.9 UJ	4.7 U	0.74 U	5 U	**1.26 J**
PCB-192	4.4 UJ	5.3 U	0.82 U	5.7 U	0.95 U
PCB-194	5.4 UJ	7.3 U	3.8 U	6.2 U	1 U
PCB-195	**15.5 J**	7.6 U	2.4 U	6.4 U	0.6 U
PCB-196	**13.7 J**	16 U	4.3 U	7.9 U	**1.59 J**
PCB-197	4.7 UJ	11 U	3.3 U	5.1 U	**2.75 J**
PCB-198/199	**39.8 J**	17 U	**7.6 J**	**13.2 J**	**2.27 J**
PCB-200	3.2 UJ	13 U	3.5 U	6.1 U	0.47 U
PCB-201	**12.5 J**	11 U	3.3 U	5.3 U	**9.57 J**
PCB-202	**24.4 J**	12 U	3.4 U	5.9 U	**25.2**
PCB-203	**32.3 J**	16 U	4.3 U	7.9 U	0.58 U
PCB-204	2.8 UJ	11 U	3.3 U	5.3 U	0.45 U
PCB-205	4.5 U	6 U	0.51 U	5.1 U	0.56 U
PCB-206	19 U	7.9 U	4.9 U	4.7 U	0.85 U
PCB-207	6.2 U	6.2 U	0.96 U	3.7 U	0.67 U
PCB-208	19 U	7.8 U	**2.7 J**	4.6 U	0.83 U
PCB-209	37 U	11 U	5.6 U	12 U	1.8 U
Total PCB Congener (U = 1/2)	**2500 J**	**620 J**	**420 J**	**550 J**	**4500 J**
Total PCB Congener TEQ 2005 (Mammal) (U = 1/2)	**0.29 J**	**0.17 J**	**0.053 J**	0.21 UJ	**0.051 J**
Total PCB Congener (U = 0)	**1700 J**	**200 J**	**250 J**	**73 J**	**3200 J**
Total PCB Congener TEQ 2005 (Mammal) (U = 0)	**0.00061 J**	**0.00009 J**	**0.000048 J**	0.21 UJ	**0.0019 J**

Appendix A
Port Gamble In Situ Shellfish and Crab Monitoring Results

Task	2017Shellfish1	2017Shellfish1	2017Shellfish1	2017Shellfish1	2017Shellfish1
Location Name	PG-SMA3	PG-WS	PG-WS	PG-WS	PG-WS
Location ID	PG-SMA3_InSitu	PG-WS_InSitu	PG-WS_InSitu	PG-WS_InSitu	PG-WS_InSitu
Sample ID	PG-SMA3-GEO-COC-170426	PG-WS-COC-COC-170425	PG-WS-LTN-COC-170424	PG-WS-MAN-COC-170424	PG-WS-OYS-COC-170424
Sample Date	4/26/2017	4/25/2017	4/24/2017	4/24/2017	4/24/2017
X	1212681.47	1210177.34	1210177.34	1210177.34	1210177.34
Y	308268.92	312379.89	312379.89	312379.89	312379.89
Dioxin Furans and PCB Congeners (ng/kg)					
Total Dioxin/Furan and PCB Congener TEQ 2005 (Mammal) (Calculated U = 1/2)	**0.43 J**	**0.37 J**	**0.15 J**	0.21 UJ	**0.31 J**
Total Dioxin/Furan and PCB Congener TEQ 2005 (Mammal) (Calculated U = 0)	**0.014 J**	**0.00009 J**	**0.000048 J**	0.21 UJ	**0.065 J**

Appendix A
Port Gamble In Situ Shellfish and Crab Monitoring Results

Notes:
Bold = Detected result
-- = results not reported or not applicable

µg/kg = micrograms per kilogram
CAEPA = California Environmental Protection Agency
cPAH = carcinogenic polycyclic aromatic hydrocarbon
HPAH = high molecular weight PAH
J = estimated value
LPAH = low molecular weight PAH
mg/kg = milligrams per kilogram
N = normal environmental sample
ng/kg = nanograms per kilogram
PAH = polycyclic aromatic hydrocarbons
PCB = polychlorinated biphenyls
pct = percent
SMS = Sediment Management Standards
TA = tissue matrix
TEQ = Toxic Equivalents Quotient
U = compound analyzed, but not detected above detection limit
UJ = Compound analyzed, but not detected above estimated detection limit

Horizontal coordinate datum is North American Datum 1983 State Plane Washington North FIPS 4601 (US Survey Feet).
Results presented in this table are reported in wet-weight (as-received) basis.
U.S Environmental Protection Agency Stage 2B data validation was completed by Laboratory Data Consultants.
Totals are calculated as the sum of all detected results (U=0). If all results are not detected, the highest limit value is reported as the sum.
Totals are calculated as the sum of all detected results and half of the reporting limit of undetected results (U=1/2). If all results are not detected, the highest limit value is reported as the sum.
Total cPAH TEQ (7 minimum CAEPA 2005) calculation includes benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene and indeno(1,2,3-c,d)pyrene. Per Model Toxics Control Act cleanup Regulation, Table 708-2 "Toxicity Equivalency Factors for Minimum Required Carcinogenic Polyaromatic Hydrocarbons (cPAHs)" under Washington Administrative Code 173-340-708(e).
Total PAH (19) is the total of 2-methylnaphthalene, acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(e)pyrene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-c,d)pyrene, naphthalene, perylene, phenanthrene, and pyrene.
Total HPAH (SMS) is the total of benzo(a)anthracene, benzo(a)pyrene, benzo(x)fluoranthenes, benzo(g,h,i)perylene, chrysene, dibenzo(a,h)anthracene, fluoranthene, indeno(1,2,3-c,d)pyrene, and pyrene.
Total LPAH (SMS) is the total of acenaphthene, acenaphthylene, anthracene, fluorene, naphthalene, and phenanthrene. 2-Methylnapthalene is not included in the sum of LPAHs.
Total PAH (SMS) is the total of acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(x)fluoranthenes, benzo(g,h,i)perylene, chrysene, dibenzo(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-c,d)pyrene, naphthalene, phenanthrene, and pyrene. 2-Methylnapthalene is not included.
Total PCB congeners is the sum of all PCB congeners listed in this table.
Total dioxin/furan is the sum of all individual dioxin/furans (non-homolog) listed in this table.
Dioxin/furan and PCB TEQ values were calculated with 2005 World Health Organization toxic equivalency factor values for mammals.

Appendix B
Laboratory Reports

Analytical Resources, Incorporated
Analytical Chemists and Consultants

23 May 2017

Nathan Soccorsy
Anchor QEA, LLC
720 Olive Way, Suite 1900
Seattle, WA 98101

RE: Port Gamble Shellfish Monitoring

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)	Associated SDG ID(s)
17D0421	N/A

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the reqirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, Inc.

Amanda Volgardsen, Project Management Assistant

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Cert# 100006

PJLA Testing
Accreditation # 66169

4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202

17D0421

Chain of Custody Record & Laboratory Analysis Request

Laboratory Number:

Date: April 26, 2017
Project Name: Port Gamble Bay Sediment Monitoring
Project Number: 160366-01.01
Project Manager: Nathan Soccorsy
Phone Number: 206.287.9130
Shipment Method:

Line	Field Sample ID	Collection Date/Time	Matrix	Containers/bag	Grain Size	PAHs	Dioxin/Furans	Cadmium	PCB Congeners	Comments/Preservation
1	PG-GP-OYS-COC-	4/24/17 10:30	tissue	1	X	X	X	X	X	
2	PG-GP-Cockle-COC	4/24/17 10:45		1	X	X	X	X	X	
3	PG-GP-LTN-COC	4/24/17 11:00		1	X	X	X	X	X	
4	PG-WS-OYS-COC	4/24/17 11:30		1	X	X	X	X	X	
5	PG-WS-Cockle-COC	4/25/17 11:00		1	X	X	X	X	X	
6	PG-WS-LTN-COC	4/24/17 12:00		1	X	X	X	X	X	
7	PG-WS-Man-COC	4/24/17 12:45		1	X	X	X	X	X	
8	PG-SMAS-Geo-COC	4/26/17 7:00		1	X	X	X	X	X	
9	~~PG-PJ-OYS-COC~~									ARI
10	PG-PJ-Cockle-COC									
11	PG-PJ-LTN-COC									
12	PG-PJ-Man-COC									
13	PG-PJ-HC-COC									
14	PG-PJ-MUS-COC									
15										

Notes:
Append -170426 to the end of each sample ID

Relinquished By	Company	Received By	Company
Signature/Printed Name: Christine Buccola	Anchor QEA, LLC	Signature/Printed Name: Alexandra Kanoff	AQ
Date/Time: 4/26/17 7:15		Date/Time: 4/26/17 1450	
Signature/Printed Name: Alexandra Kanoff	AQ	Signature/Printed Name: Paul Mark	ARI
Date/Time: 4/26/17 1705		Date/Time: 4/26/2017 1705	

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Distribution: A copy will be made for the laboratory and client. The Project file will retain the original.

1705042

Chain of Custody Record & Laboratory Analysis Request

Laboratory Number:

Date: 4/26/17
Project Name: Port Gamble Bay Shellfish Monitoring
Project Number: 160388-01.01
Project Manager: Nathan Soccorsy
Phone Number: 206-287-9130
Shipment Method:

ANCHOR QEA

Line	Field Sample ID	Collection Date/Time	Matrix	Containers	PAHs	DIFs	Cadmium	PCBs	Lipids	TS	Comments/Preservation
1	PG-SMA3-DJNM-COC-170426	4/26/17 1200	T	1	X	X	X	X	X	X	
2		—	—								
3	PG-SMA3-DJNH-COC-170426	4/26/17 1215	T	1	X	X	X	X	X	X	
4		—	—								
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											

Notes:

Relinquished By:	Company: Anchor QEA, LLC
Miranda Kanyer	4/26/17 1705
Signature/Printed Name	Date/Time

Received By:	Company: ARI
Paul Mark Paul Mark	4/26/2017 1705
Signature/Printed Name	Date/Time

Relinquished By:	Company:
Signature/Printed Name	Date/Time

Received By:	Company:
Signature/Printed Name	Date/Time

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Distribution: A copy will be made for the laboratory client. The Project file will retain the original.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Anchor QEA Project Name: Port Gamble Bay Shellfish Monitoring

COC No(s): _____ NA Delivered by: Fed-Ex UPS Courier (Hand Delivered) Other: _____

Assigned ARI Job No: 17D0421 Tracking No: _____ NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler?	YES	(NO)
Were custody papers included with the cooler?	(YES)	NO
Were custody papers properly filled out (ink, signed, etc.)	(YES)	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry) 5.8
Time: _____

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: D005206

Cooler Accepted by: PM Date: 4/26/2017 Time: 1705

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	(NO)
What kind of packing material was used? ... Bubble Wrap (Wet Ice) Gel Packs (Baggies) Foam Block Paper Other: _____			
Was sufficient ice used (if appropriate)?	NA	(YES)	NO
Were all bottles sealed in individual plastic bags?		(YES)	NO
Did all bottles arrive in good condition (unbroken)?		(YES)	NO
Were all bottle labels complete and legible?		(YES)	NO
Did the number of containers listed on COC match with the number of containers received?		(YES)	NO
Did all bottle labels and tags agree with custody papers?		YES	(NO)
Were all bottles used correct for the requested analyses?		(YES)	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)...	(NA)	YES	NO
Were all VOC vials free of air bubbles?	(NA)	YES	NO
Was sufficient amount of sample sent in each bottle?		(YES)	NO
Date VOC Trip Blank was made at ARI	(NA)		

Was Sample Split by ARI : (NA) YES Date/Time: _____ Equipment: _____ Split by: _____

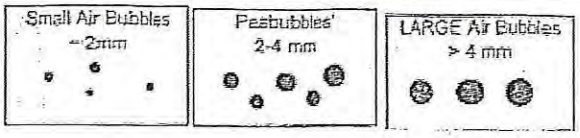
Samples Logged by: PM Date: 4/26/2017 Time: _____

*** Notify Project Manager of discrepancies or concerns ***

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC
PG-LTIN-COC	PG-GP-LTIN-COC		

Additional Notes, Discrepancies, & Resolutions:
Sample time for "PG-WS-Coctle-coc" is different on coc and bottle label.

By: PM Date: 4/26/2017



Small → "sm" (< 2 mm)
Peabubbles → "pb" (2 to < 4 mm)
Large → "lg" (4 to < 6 mm)
Headspace → "hs" (> 6 mm)

17D0421

Chain of Custody Record & Laboratory Analysis Request

Laboratory Number:

Date: April 26, 2017
Project Name: Port Gamble Bay Shellfish Monitoring
Project Number: 160388-01.01
Project Manager: Nathan Soccorsy
Phone Number: 206.287 9130
Shipment Method:

Line	Field Sample ID	Collection Date/Time	Matrix	Containers / bag	Lipids	PAHs	Dioxin/Furans	Cadmium	PCB Congeners	TS	Comments/Preservation
1	PG-GP-OYS-COC-	4/24/17 10:30	tissue	1	X	X	X	X	X	x	
2	PG-GP-Cockle-COC	4/24/17 10:45		1	X	X	X	X	X	x	PG-GP-COC-COC-170424
3	PG-GP-LTN-COC	4/24/17 11:00		1	X	X	X	X	X	x	PG-GP-LTN-COC-170424
4	PG-WS-OYS-COC	4/24/17 11:30		1	X	X	X	X	X	x	
5	PG-WS-Cockle-COC	4/25/17 11:00		1	X	X	X	X	X	x	PG-WS-COC-COC-170425
6	PG-WS-LTN-COC	4/24/17 12:00		1	X	X	X	X	X	x	PG-WS-LTN-COC-170424
7	PG-WS-Man-COC	4/24/17 12:48		1	X	X	X	X	X	x	PG-WS-MAN-COC-170424
8	PG-SMA3-Geo-COC	4/26/17 7:00		1	X	X	X	X	X	x	PG-SMA3-GEO-COC-17046
9	~~PG-PJ-OYS-COC~~										ARK
10	~~PG-PJ-Cockle-COC~~										
11	~~PG-PJ-LTN-COC~~										
12	~~PG-PJ-Man-COC~~										
13	~~PG-PJ-HC-COC~~										
14	~~PG-PJ-Mus-COC~~										
15											

Notes: Append -170426 to the end of each sample ID

Relinquished By:	Company: Anchor QEA, LLC	Received By:	Company: AG
Christine Baczga (Signature/Printed Name)	4/26/17 7:32 (Date/Time)	Alexandra Karpoff (Signature/Printed Name)	4/26/17 1450 (Date/Time)

Relinquished By:	Company: AG	Received By:	Company: ARI
Alexandra Karpoff (Signature/Printed Name)	4/26/17 1705 (Date/Time)	Paul Mork (Signature/Printed Name)	4/26/2017 1705 (Date/Time)

Revised COC by CMO, 05/01/2017

Distribution: A copy will be made for the laboratory and client. The Project file will retain the original.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Organic Extractions Prep Sheet Notes

ARI Job No.: 17D0421

Batch
~~Client ID~~: BFE0048

Parameter: Tissue Prep

~~Client Project~~:

Matrix: ~~Filter bag~~/tissue/~~other~~

Rinse w/ DI to remove any particulates
Shuck & homogenize, record weights. Once done check w/ supervisor before taking 25-30g split in 4oz jar. (Possible limited volume list)

#ϕ1 = 353.81g (oyster) ϕ2 = 81.16g (cockle) ϕ3 = 179.91g (clam)

#ϕ4 = 297.79g (oyster) ϕ5 = 102.41g (cockle) ϕ6 = 139.58g (clam)

#ϕ7 = 163.39g (malilaclam) ϕ8 = 4022.73g (Geo-coc) ϕ9 = 194.66g (mussle)

#10 = 164.13g (cockle)

Pre-Dry Prep Time: 13:00 - 17:00	Analyst/Date: YL/CT 05/02/17	Post-Dry Prep Time:	Analyst/Date: YL/CT 05/02/17	Balance ID: B3347 05/3 4

Special Instructions:

(8270) PNA Filter Bag:
1. Follow prep and extraction instructions on bench sheet.

~~Small~~ PCB Filter Bag:
1. Weigh wet filter bag and record weight on blue prep sheet. 2. Any solids splits taken at this time. (Record weights on blue prep sheet). 3. Filter bags are dried overnight by attaching them to the drying apparatus (wrapped in aluminum foil in a tube shape). 4. Re-weigh dried samples and record weight on blue prep sheet. 5. Cut off plastic rings and record weights on blue prep sheet. 6. Record sample dry weights without plastic rings on blue prep sheet and bench sheet. 7. Roll up filter bag and place in labeled 32oz jars. 8. Add Hexane until jar is half full. 9. Add 20g sodium sulfate to filter bag in jar. 10. Blanks=Weigh 10g Sodium Sulfate into labeled 32oz jars. Add Hexane until jar is ¼ full. 11. Add surr/spike. 12. Tighten lids and place in large ziplock bags. 13. Tumble for 12 hours (min 6 hours). 14. Record "prep time" on blue prep sheet. 15. KD (normal drying columns) on 100°C water bath. 16. Turbovap to approx. 4mL. 17. Vial with Hexane at 5mL in scintillation vials for required cleanups. (Acid/Sulfur/SPE). 18. Pre-SPE Screen 1mL. (Note: Determination of Required SPE cleanup is based on Pre-SPE Screen. 19. After cleanups: TurboVap and vial 1mL in Hexane.

Large PCB Filter Bag instructions on the back of this prep sheet. (Turn over)

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Organic Extractions Laboratory Analyst Notes

Extraction Parameter: Tissue Prep

Element Batch: BFE0048 Work Order(s): 17D0421

Screens: Soil/Sediment/Solid/Other:	Analyst/Date
☐ No Anomalies (standard soil/wet sediment/sand/gravel)=	
☐ Standing Water Decanted (Not shared)=	
☐ Standing Water Homogenized (Shared samples)=	
☐ Clay/Clumps (Difficult to homogenize)=	
☐ Rocks (%+size)?	
☐ Organics (Leaves/sticks/grass)=	
☐ Oily, obvious fuel/sulfur odors=	
☐ Received in 32oz jar(s)=Homogenized in Pyrex dish=	
☒ Other (Details)= #1 = oyster, #2 = cockle, #3 = clam, #4 = oysters, #5 = cockle, #6 = clam, #7 = Manila clam, #8 = Geoduc, #9 = mussle	MJ #5/#2/17 MJ #5/#2/17 MJ #5/#2/17
Aqueous: #10 = cockle.	
☐ No Anomalies	
☐ Turbid/Color=	
☐ Particulates(%)=(Note: >5%=Notify Supervisor/Lead)	
☐ Emulsions (%)=	
☐ Oily, obvious fuel/sulfur odors=	
☐ Other (Details)=	
☐ Received in 1.0L Bottle(s)=No Bottle Rinse=	
☐ Other Notes/Comments= (Note problems, concerns, corrective actions).	
☐ Share Samples Y / N	
☐ Multiple Jars Y / N	
☐ Sample Pre-Screens indicate analyte activity=	
☐ Sample weights/volumes reduced based on Pre-Screen=	

Anchor QEA, LLC	Project: Port Gamble Shellfish Monitoring	
720 Olive Way, Suite 1900	Project Number: 160388-01.01	**Reported:**
Seattle WA, 98101	Project Manager: Nathan Soccorsy	23-May-2017 16:53

Case Narrative

Sample Receipt

Ten tissue samples were received April 26, 2017 under ARI workorder 17D0421. For details regarding sample receipt, please refer to the Cooler Receipt Form. The samples were prepped in the lab on May 2, 2017. The PCB Congener analysis was transferred to Maxxam Analytical on May 9, 2017.

Dioxin/Furans - EPA Method 1613

The samples were extracted and analyzed within the recommended holding times. Analysis was performed using an application specific column recently developed by Restek. The RTX-DIoxin2 column has unique isomer separation for the 2378-TCDF, eliminating the need for confirmation analysis.

Initial and continuing calibrations were within method requirements.

Labeled internal standard areas were within limits.

Sample PG-WS-MAN-COC-170424 has low cleanup surrogate recoveries for 13C12-2,3,4,6,7,8-HxCDF, 13C12-1,2,3,7,8,9-HxCDF, 13C12-1,2,3,4,7,8-HxCDD, 13C12-1,2,3,4,6,7,8-HpCDF and 13C12-1,2,3,4,7,8,9-HpCDF. Sample PG-SMA3-DUNM-COC-170426 has low cleanup surrogate recoveries for 13C12-1,2,3,7,8,9-HxCDF and 13C12-1,2,3,4,6,7,8-HpCDF. Tissues generally have low surrogate recoveries. No corrective actions were taken.

Method blank BFE0233 contained reportable responses for several compounds below the reporting limits, these compounds have been flagged with “J” qualifiers on the method blank. Associated detected results have been flagged with a “B” qualifier. No further corrective action was taken.

The OPR (Ongoing Precision and Recovery) standard percent recoveries were within control limits.

Polynuclear Aromatic Hydrocarbons (PAH) - EPA Method SW8270D-SIM

The sample were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

There were no target compounds detected in the method blank.

Anchor QEA, LLC	Project: Port Gamble Shellfish Monitoring	
720 Olive Way, Suite 1900	Project Number: 160388-01.01	**Reported:**
Seattle WA, 98101	Project Manager: Nathan Soccorsy	23-May-2017 16:53

Case Narrative

The LCS percent recoveries were within control limits.

Total Cadmium - EPA Method 6010C

The samples were digested and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank BFE0167 has Cadmium contamination below the reporting limit. The Cadmium has been flagged with an “J” qualifier on the method blank. No further actions were taken.

The LCS percent recoveries were within control limits.

A matrix spike, and a matrix duplicate were prepared in conjunction with sample PG-SMA3-GEO-COC-170426. The matrix spike percent recovery and matrix duplicate RPD were within control limits.

Percent Lipids

The sample were prepared and analyzed within the recommended holding times.

The method blank was free of contaminates.

A matrix duplicate was prepared in conjunction with sample PG-SMA3-GEO-COC-170426. The matrix duplicate RPD was within control limits.

Anchor QEA, LLC	Project: Port Gamble Shellfish Monitoring	
720 Olive Way, Suite 1900	Project Number: 160388-01.01	**Reported:**
Seattle, WA 98101	Project Manager: Nathan Soccorsy	05/23/2017 16:53

ANALYTICAL REPORT FOR SAMPLES

Laboratory ID	Sample ID	Matrix	Date Sampled	Date Received
17D0421-01	PG-GP-OYS-COC-170424	Tissue	04/24/17 10:30	04/26/17 17:05
17D0421-02	PG-GP-COC-COC-170424	Tissue	04/24/17 10:45	04/26/17 17:05
17D0421-03	PG-GP-LTN-COC-170424	Tissue	04/24/17 11:00	04/26/17 17:05
17D0421-04	PG-WS-OYS-COC-170424	Tissue	04/24/17 11:30	04/26/17 17:05
17D0421-05	PG-WS-COC-COC-170425	Tissue	04/25/17 11:00	04/26/17 17:05
17D0421-06	PG-WS-LTN-COC-170424	Tissue	04/24/17 12:00	04/26/17 17:05
17D0421-07	PG-WS-MAN-COC-170424	Tissue	04/24/17 12:45	04/26/17 17:05
17D0421-08	PG-SMA3-GEO-COC-170426	Tissue	04/26/17 07:00	04/26/17 17:05
17D0421-09	PG-SMA3-DUNM-COC-170426	Tissue	04/26/17 12:00	04/26/17 17:05
17D0421-10	PG-SMA3-DUNH-COC-170426	Tissue	04/26/17 12:15	04/26/17 17:05

Analytical Resources, Incorporated

Internal Chain of Custody

Client:	Anchor QEA, LLC	Received:	26-Apr-2017 17:05
Project:	Port Gamble Shellfish Monitoring	Received By:	Paul Mork
Number:	160388-01.01	Temp (°C):	5.80

17D0421-01 (PG-GP-OYS-COC-170424) Sampled 04/24/2017 10:30

Current Status	*Out*	*Location*	*In*
17D0421-01 A [Miscellaneous Container]		*Hazard Info:Anthracene [0.5174402ug/kg];Benzo(a)anthracene [1.490398ug/kg];B*	
Sample Receiving	04/26/2017 17:31 by PAM	***START***	04/26/2017 17:31 by PAM
	04/26/2017 17:31 by PAM	***START***	04/26/2017 17:31 by PAM
	04/26/2017 17:31 by PAM	***START***	04/26/2017 17:31 by PAM
	04/26/2017 17:31 by PAM	***START***	04/26/2017 17:31 by PAM
	04/26/2017 17:31 by PAM	***START***	04/26/2017 17:31 by PAM
	04/26/2017 17:33 by PAM		04/26/2017 17:33 by PAM
	04/26/2017 17:33 by PAM		04/26/2017 17:33 by PAM
	04/26/2017 17:33 by PAM		04/26/2017 17:33 by PAM
	04/26/2017 17:33 by PAM		04/26/2017 17:33 by PAM
	04/26/2017 17:33 by PAM		04/26/2017 17:33 by PAM
Extractions	05/02/2017 13:21 by YQL	Organic Extractions	05/02/2017 16:54 by YQL
	05/02/2017 13:21 by YQL	Organic Extractions	05/02/2017 16:54 by YQL
	05/02/2017 13:21 by YQL	Organic Extractions	05/02/2017 16:54 by YQL
	05/02/2017 13:21 by YQL	Organic Extractions	05/02/2017 16:54 by YQL
	05/02/2017 13:21 by YQL	Organic Extractions	05/02/2017 16:54 by YQL
Organics	05/04/2017 17:24 by JLW	Organic Extractions	05/09/2017 10:05 by ACS
	05/04/2017 17:24 by JLW	Organic Extractions	05/09/2017 10:05 by ACS
	05/04/2017 17:24 by JLW	Organic Extractions	05/09/2017 10:05 by ACS
	05/04/2017 17:24 by JLW	Organic Extractions	05/09/2017 10:05 by ACS
	05/04/2017 17:24 by JLW	Organic Extractions	05/09/2017 10:05 by ACS
Extractions	05/09/2017 10:05 by ACS	Dioxin Lab	05/09/2017 16:41 by MCB
	05/09/2017 10:05 by ACS	Dioxin Lab	05/09/2017 16:41 by MCB
	05/09/2017 10:05 by ACS	Dioxin Lab	05/09/2017 16:41 by MCB
	05/09/2017 10:05 by ACS	Dioxin Lab	05/09/2017 16:41 by MCB
	05/09/2017 10:05 by ACS	Dioxin Lab	05/09/2017 16:41 by MCB
Metals	05/09/2017 16:41 by MCB	Metals Prep Lab	05/09/2017 16:42 by MCB
	05/09/2017 16:41 by MCB	Metals Prep Lab	05/09/2017 16:42 by MCB
	05/09/2017 16:41 by MCB	Metals Prep Lab	05/09/2017 16:42 by MCB
	05/09/2017 16:41 by MCB	Metals Prep Lab	05/09/2017 16:42 by MCB
	05/09/2017 16:41 by MCB	Metals Prep Lab	05/09/2017 16:42 by MCB
	05/09/2017 16:42 by MCB	F-51 K1-1	by
	05/09/2017 16:42 by MCB	F-51 K1-1	by
	05/09/2017 16:42 by MCB	F-51 K1-1	by
	05/09/2017 16:42 by MCB	F-51 K1-1	by
	05/09/2017 16:42 by MCB	F-51 K1-1	by

17D0421-02 (PG-GP-COC-COC-170424) Sampled 04/24/2017 10:45

Current Status	*Out*	*Location*	*In*
17D0421-02 A [Miscellaneous Container]		*Hazard Info:Chrysene [0.67467ug/kg];Fluoranthene [1.003385ug/kg];Phenanthren*	
Sample Receiving	04/26/2017 17:33 by PAM	***START***	04/26/2017 17:33 by PAM
	04/26/2017 17:33 by PAM	***START***	04/26/2017 17:33 by PAM
	04/26/2017 17:33 by PAM	***START***	04/26/2017 17:33 by PAM
	04/26/2017 17:33 by PAM	***START***	04/26/2017 17:33 by PAM
	04/26/2017 17:33 by PAM	***START***	04/26/2017 17:33 by PAM
Extractions	05/02/2017 13:21 by YQL	Organic Extractions	05/02/2017 16:54 by YQL

Analytical Resources, Incorporated

Internal Chain of Custody

Client:	Anchor QEA, LLC	Received:	26-Apr-2017 17:05
Project:	Port Gamble Shellfish Monitoring	Received By:	Paul Mork
Number:	160388-01.01	Temp (°C):	5.80

17D0421-02 (PG-GP-COC-COC-170424) Sampled 04/24/2017 10:45

Current Status	*Out*	*Location*	*In*
17D0421-02 A [Miscellaneous Container]		*Hazard Info:Chrysene [0.67467ug/kg];Fluoranthene [1.003385ug/kg];Phenanthren*	
Extractions	05/02/2017 13:21 by YQL	Organic Extractions	05/02/2017 16:54 by YQL
	05/02/2017 13:21 by YQL	Organic Extractions	05/02/2017 16:54 by YQL
	05/02/2017 13:21 by YQL	Organic Extractions	05/02/2017 16:54 by YQL
	05/02/2017 13:21 by YQL	Organic Extractions	05/02/2017 16:54 by YQL
Organics	05/04/2017 17:24 by JLW	Organic Extractions	05/09/2017 10:05 by ACS
	05/04/2017 17:24 by JLW	Organic Extractions	05/09/2017 10:05 by ACS
	05/04/2017 17:24 by JLW	Organic Extractions	05/09/2017 10:05 by ACS
	05/04/2017 17:24 by JLW	Organic Extractions	05/09/2017 10:05 by ACS
	05/04/2017 17:24 by JLW	Organic Extractions	05/09/2017 10:05 by ACS
Extractions	05/09/2017 10:05 by ACS	Dioxin Lab	05/09/2017 16:41 by MCB
	05/09/2017 10:05 by ACS	Dioxin Lab	05/09/2017 16:41 by MCB
	05/09/2017 10:05 by ACS	Dioxin Lab	05/09/2017 16:41 by MCB
	05/09/2017 10:05 by ACS	Dioxin Lab	05/09/2017 16:41 by MCB
	05/09/2017 10:05 by ACS	Dioxin Lab	05/09/2017 16:41 by MCB
Metals	05/09/2017 16:41 by MCB	Metals Prep Lab	05/09/2017 16:42 by MCB
	05/09/2017 16:41 by MCB	Metals Prep Lab	05/09/2017 16:42 by MCB
	05/09/2017 16:41 by MCB	Metals Prep Lab	05/09/2017 16:42 by MCB
	05/09/2017 16:41 by MCB	Metals Prep Lab	05/09/2017 16:42 by MCB
	05/09/2017 16:41 by MCB	Metals Prep Lab	05/09/2017 16:42 by MCB
	05/09/2017 16:42 by MCB	F-51 K1-1	by
	05/09/2017 16:42 by MCB	F-51 K1-1	by
	05/09/2017 16:42 by MCB	F-51 K1-1	by
	05/09/2017 16:42 by MCB	F-51 K1-1	by
	05/09/2017 16:42 by MCB	F-51 K1-1	by

17D0421-03 (PG-GP-LTN-COC-170424) Sampled 04/24/2017 11:00

Current Status	*Out*	*Location*	*In*
17D0421-03 A [Miscellaneous Container]		*Hazard Info:Fluoranthene [1.44103ug/kg];Phenanthrene [0.9721542ug/kg];Pyrene*	
Sample Receiving	04/26/2017 17:35 by PAM	***START***	04/26/2017 17:35 by PAM
	04/26/2017 17:35 by PAM	***START***	04/26/2017 17:35 by PAM
	04/26/2017 17:35 by PAM	***START***	04/26/2017 17:35 by PAM
	04/26/2017 17:35 by PAM	***START***	04/26/2017 17:35 by PAM
	04/26/2017 17:35 by PAM	***START***	04/26/2017 17:35 by PAM
Extractions	05/02/2017 13:21 by YQL	Organic Extractions	05/02/2017 16:54 by YQL
	05/02/2017 13:21 by YQL	Organic Extractions	05/02/2017 16:54 by YQL
	05/02/2017 13:21 by YQL	Organic Extractions	05/02/2017 16:54 by YQL
	05/02/2017 13:21 by YQL	Organic Extractions	05/02/2017 16:54 by YQL
	05/02/2017 13:21 by YQL	Organic Extractions	05/02/2017 16:54 by YQL
Organics	05/04/2017 17:24 by JLW	Organic Extractions	05/09/2017 10:05 by ACS
	05/04/2017 17:24 by JLW	Organic Extractions	05/09/2017 10:05 by ACS
	05/04/2017 17:24 by JLW	Organic Extractions	05/09/2017 10:05 by ACS
	05/04/2017 17:24 by JLW	Organic Extractions	05/09/2017 10:05 by ACS
	05/04/2017 17:24 by JLW	Organic Extractions	05/09/2017 10:05 by ACS
Extractions	05/09/2017 10:05 by ACS	Dioxin Lab	05/09/2017 16:41 by MCB
	05/09/2017 10:05 by ACS	Dioxin Lab	05/09/2017 16:41 by MCB

Analytical Resources, Incorporated

Internal Chain of Custody

Client:	Anchor QEA, LLC	Received:	26-Apr-2017 17:05
Project:	Port Gamble Shellfish Monitoring	Received By:	Paul Mork
Number:	160388-01.01	Temp (°C):	5.80

17D0421-03 (PG-GP-LTN-COC-170424) Sampled 04/24/2017 11:00

Current Status	*Out*	*Location*	*In*
17D0421-03 A [Miscellaneous Container]		*Hazard Info:Fluoranthene [1.44103ug/kg];Phenanthrene [0.9721542ug/kg];Pyrene*	
Extractions	05/09/2017 10:05 by ACS	Dioxin Lab	05/09/2017 16:41 by MCB
	05/09/2017 10:05 by ACS	Dioxin Lab	05/09/2017 16:41 by MCB
	05/09/2017 10:05 by ACS	Dioxin Lab	05/09/2017 16:41 by MCB
Metals	05/09/2017 16:41 by MCB	Metals Prep Lab	05/09/2017 16:42 by MCB
	05/09/2017 16:41 by MCB	Metals Prep Lab	05/09/2017 16:42 by MCB
	05/09/2017 16:41 by MCB	Metals Prep Lab	05/09/2017 16:42 by MCB
	05/09/2017 16:41 by MCB	Metals Prep Lab	05/09/2017 16:42 by MCB
	05/09/2017 16:41 by MCB	Metals Prep Lab	05/09/2017 16:42 by MCB
	05/09/2017 16:42 by MCB	F-51 K1-1	by
	05/09/2017 16:42 by MCB	F-51 K1-1	by
	05/09/2017 16:42 by MCB	F-51 K1-1	by
	05/09/2017 16:42 by MCB	F-51 K1-1	by
	05/09/2017 16:42 by MCB	F-51 K1-1	by

17D0421-04 (PG-WS-OYS-COC-170424) Sampled 04/24/2017 11:30

Current Status	*Out*	*Location*	*In*
17D0421-04 A [Miscellaneous Container]		*Hazard Info:Anthracene [1.028157ug/kg];Benzo(a)anthracene [3.859911ug/kg];Be*	
Sample Receiving	04/26/2017 17:35 by PAM	***START***	04/26/2017 17:35 by PAM
	04/26/2017 17:35 by PAM	***START***	04/26/2017 17:35 by PAM
	04/26/2017 17:35 by PAM	***START***	04/26/2017 17:35 by PAM
	04/26/2017 17:35 by PAM	***START***	04/26/2017 17:35 by PAM
	04/26/2017 17:35 by PAM	***START***	04/26/2017 17:35 by PAM
Extractions	05/02/2017 13:21 by YQL	Organic Extractions	05/02/2017 16:54 by YQL
	05/02/2017 13:21 by YQL	Organic Extractions	05/02/2017 16:54 by YQL
	05/02/2017 13:21 by YQL	Organic Extractions	05/02/2017 16:54 by YQL
	05/02/2017 13:21 by YQL	Organic Extractions	05/02/2017 16:54 by YQL
	05/02/2017 13:21 by YQL	Organic Extractions	05/02/2017 16:54 by YQL
Organics	05/04/2017 17:24 by JLW	Organic Extractions	05/09/2017 10:05 by ACS
	05/04/2017 17:24 by JLW	Organic Extractions	05/09/2017 10:05 by ACS
	05/04/2017 17:24 by JLW	Organic Extractions	05/09/2017 10:05 by ACS
	05/04/2017 17:24 by JLW	Organic Extractions	05/09/2017 10:05 by ACS
	05/04/2017 17:24 by JLW	Organic Extractions	05/09/2017 10:05 by ACS
Extractions	05/09/2017 10:05 by ACS	Dioxin Lab	05/09/2017 16:41 by MCB
	05/09/2017 10:05 by ACS	Dioxin Lab	05/09/2017 16:41 by MCB
	05/09/2017 10:05 by ACS	Dioxin Lab	05/09/2017 16:41 by MCB
	05/09/2017 10:05 by ACS	Dioxin Lab	05/09/2017 16:41 by MCB
	05/09/2017 10:05 by ACS	Dioxin Lab	05/09/2017 16:41 by MCB
Metals	05/09/2017 16:41 by MCB	Metals Prep Lab	05/09/2017 16:42 by MCB
	05/09/2017 16:41 by MCB	Metals Prep Lab	05/09/2017 16:42 by MCB
	05/09/2017 16:41 by MCB	Metals Prep Lab	05/09/2017 16:42 by MCB
	05/09/2017 16:41 by MCB	Metals Prep Lab	05/09/2017 16:42 by MCB
	05/09/2017 16:41 by MCB	Metals Prep Lab	05/09/2017 16:42 by MCB
	05/09/2017 16:42 by MCB	F-51 K1-1	by
	05/09/2017 16:42 by MCB	F-51 K1-1	by
	05/09/2017 16:42 by MCB	F-51 K1-1	by

Analytical Resources, Incorporated

Internal Chain of Custody

Client:	Anchor QEA, LLC	Received:	26-Apr-2017 17:05
Project:	Port Gamble Shellfish Monitoring	Received By:	Paul Mork
Number:	160388-01.01	Temp (°C):	5.80

17D0421-04 (PG-WS-OYS-COC-170424) Sampled 04/24/2017 11:30

Current Status	*Out*	*Location*	*In*
17D0421-04 A [Miscellaneous Container]		*Hazard Info:Anthracene [1.028157ug/kg];Benzo(a)anthracene [3.859911ug/kg];Be*	
Metals	05/09/2017 16:42 by MCB	F-51 K1-1	by
	05/09/2017 16:42 by MCB	F-51 K1-1	by

17D0421-05 (PG-WS-COC-COC-170425) Sampled 04/25/2017 11:00

Current Status	*Out*	*Location*	*In*
17D0421-05 A [Miscellaneous Container]		*Hazard Info:Benzo(a)anthracene [0.5024826ug/kg];Benzo(e)pyrene [0.7291956ug/*	
Sample Receiving	04/26/2017 17:35 by PAM	***START***	04/26/2017 17:35 by PAM
	04/26/2017 17:35 by PAM	***START***	04/26/2017 17:35 by PAM
	04/26/2017 17:35 by PAM	***START***	04/26/2017 17:35 by PAM
	04/26/2017 17:35 by PAM	***START***	04/26/2017 17:35 by PAM
	04/26/2017 17:35 by PAM	***START***	04/26/2017 17:35 by PAM
Extractions	05/02/2017 13:21 by YQL	Organic Extractions	05/02/2017 16:54 by YQL
	05/02/2017 13:21 by YQL	Organic Extractions	05/02/2017 16:54 by YQL
	05/02/2017 13:21 by YQL	Organic Extractions	05/02/2017 16:54 by YQL
	05/02/2017 13:21 by YQL	Organic Extractions	05/02/2017 16:54 by YQL
	05/02/2017 13:21 by YQL	Organic Extractions	05/02/2017 16:54 by YQL
Organics	05/04/2017 17:24 by JLW	Organic Extractions	05/09/2017 10:05 by ACS
	05/04/2017 17:24 by JLW	Organic Extractions	05/09/2017 10:05 by ACS
	05/04/2017 17:24 by JLW	Organic Extractions	05/09/2017 10:05 by ACS
	05/04/2017 17:24 by JLW	Organic Extractions	05/09/2017 10:05 by ACS
	05/04/2017 17:24 by JLW	Organic Extractions	05/09/2017 10:05 by ACS
Extractions	05/09/2017 10:05 by ACS	Dioxin Lab	05/09/2017 16:41 by MCB
	05/09/2017 10:05 by ACS	Dioxin Lab	05/09/2017 16:41 by MCB
	05/09/2017 10:05 by ACS	Dioxin Lab	05/09/2017 16:41 by MCB
	05/09/2017 10:05 by ACS	Dioxin Lab	05/09/2017 16:41 by MCB
	05/09/2017 10:05 by ACS	Dioxin Lab	05/09/2017 16:41 by MCB
Metals	05/09/2017 16:41 by MCB	Metals Prep Lab	05/09/2017 16:42 by MCB
	05/09/2017 16:41 by MCB	Metals Prep Lab	05/09/2017 16:42 by MCB
	05/09/2017 16:41 by MCB	Metals Prep Lab	05/09/2017 16:42 by MCB
	05/09/2017 16:41 by MCB	Metals Prep Lab	05/09/2017 16:42 by MCB
	05/09/2017 16:41 by MCB	Metals Prep Lab	05/09/2017 16:42 by MCB
	05/09/2017 16:42 by MCB	F-51 K1-1	by
	05/09/2017 16:42 by MCB	F-51 K1-1	by
	05/09/2017 16:42 by MCB	F-51 K1-1	by
	05/09/2017 16:42 by MCB	F-51 K1-1	by
	05/09/2017 16:42 by MCB	F-51 K1-1	by

17D0421-06 (PG-WS-LTN-COC-170424) Sampled 04/24/2017 12:00

Current Status	*Out*	*Location*	*In*
17D0421-06 A [Miscellaneous Container]		*Hazard Info:Benzo(a)anthracene [0.5038966ug/kg];Chrysene [0.4993986ug/kg];Fl*	
Sample Receiving	04/26/2017 17:36 by PAM	***START***	04/26/2017 17:36 by PAM
	04/26/2017 17:36 by PAM	***START***	04/26/2017 17:36 by PAM
	04/26/2017 17:36 by PAM	***START***	04/26/2017 17:36 by PAM
	04/26/2017 17:36 by PAM	***START***	04/26/2017 17:36 by PAM
	04/26/2017 17:36 by PAM	***START***	04/26/2017 17:36 by PAM

Analytical Resources, Incorporated

Internal Chain of Custody

Client:	Anchor QEA, LLC	Received:	26-Apr-2017 17:05
Project:	Port Gamble Shellfish Monitoring	Received By:	Paul Mork
Number:	160388-01.01	Temp (°C):	5.80

17D0421-06 (PG-WS-LTN-COC-170424) Sampled 04/24/2017 12:00

Current Status	*Out*	*Location*	*In*
17D0421-06 A [Miscellaneous Container]		*Hazard Info:Benzo(a)anthracene [0.5038966ug/kg];Chrysene [0.4993986ug/kg];Fl*	
Extractions	05/02/2017 13:21 by YQL	Organic Extractions	05/02/2017 16:54 by YQL
	05/02/2017 13:21 by YQL	Organic Extractions	05/02/2017 16:54 by YQL
	05/02/2017 13:21 by YQL	Organic Extractions	05/02/2017 16:54 by YQL
	05/02/2017 13:21 by YQL	Organic Extractions	05/02/2017 16:54 by YQL
	05/02/2017 13:21 by YQL	Organic Extractions	05/02/2017 16:54 by YQL
Organics	05/04/2017 17:24 by JLW	Organic Extractions	05/09/2017 10:05 by ACS
	05/04/2017 17:24 by JLW	Organic Extractions	05/09/2017 10:05 by ACS
	05/04/2017 17:24 by JLW	Organic Extractions	05/09/2017 10:05 by ACS
	05/04/2017 17:24 by JLW	Organic Extractions	05/09/2017 10:05 by ACS
	05/04/2017 17:24 by JLW	Organic Extractions	05/09/2017 10:05 by ACS
Extractions	05/09/2017 10:05 by ACS	Dioxin Lab	05/09/2017 16:41 by MCB
	05/09/2017 10:05 by ACS	Dioxin Lab	05/09/2017 16:41 by MCB
	05/09/2017 10:05 by ACS	Dioxin Lab	05/09/2017 16:41 by MCB
	05/09/2017 10:05 by ACS	Dioxin Lab	05/09/2017 16:41 by MCB
	05/09/2017 10:05 by ACS	Dioxin Lab	05/09/2017 16:41 by MCB
Metals	05/09/2017 16:41 by MCB	Metals Prep Lab	05/09/2017 16:42 by MCB
	05/09/2017 16:41 by MCB	Metals Prep Lab	05/09/2017 16:42 by MCB
	05/09/2017 16:41 by MCB	Metals Prep Lab	05/09/2017 16:42 by MCB
	05/09/2017 16:41 by MCB	Metals Prep Lab	05/09/2017 16:42 by MCB
	05/09/2017 16:41 by MCB	Metals Prep Lab	05/09/2017 16:42 by MCB
	05/09/2017 16:42 by MCB	F-51 K1-1	by
	05/09/2017 16:42 by MCB	F-51 K1-1	by
	05/09/2017 16:42 by MCB	F-51 K1-1	by
	05/09/2017 16:42 by MCB	F-51 K1-1	by
	05/09/2017 16:42 by MCB	F-51 K1-1	by

17D0421-07 (PG-WS-MAN-COC-170424) Sampled 04/24/2017 12:45

Current Status	*Out*	*Location*	*In*
17D0421-07 A [Miscellaneous Container]		*Hazard Info:Benzo(a)anthracene [2.161046ug/kg];Chrysene [1.755722ug/kg];Fluo*	
Sample Receiving	04/26/2017 17:41 by PAM	***START***	04/26/2017 17:41 by PAM
	04/26/2017 17:41 by PAM	***START***	04/26/2017 17:41 by PAM
	04/26/2017 17:41 by PAM	***START***	04/26/2017 17:41 by PAM
	04/26/2017 17:41 by PAM	***START***	04/26/2017 17:41 by PAM
	04/26/2017 17:41 by PAM	***START***	04/26/2017 17:41 by PAM
Extractions	05/02/2017 13:21 by YQL	Organic Extractions	05/02/2017 16:54 by YQL
	05/02/2017 13:21 by YQL	Organic Extractions	05/02/2017 16:54 by YQL
	05/02/2017 13:21 by YQL	Organic Extractions	05/02/2017 16:54 by YQL
	05/02/2017 13:21 by YQL	Organic Extractions	05/02/2017 16:54 by YQL
	05/02/2017 13:21 by YQL	Organic Extractions	05/02/2017 16:54 by YQL
Organics	05/04/2017 17:24 by JLW	Organic Extractions	05/09/2017 10:05 by ACS
	05/04/2017 17:24 by JLW	Organic Extractions	05/09/2017 10:05 by ACS
	05/04/2017 17:24 by JLW	Organic Extractions	05/09/2017 10:05 by ACS
	05/04/2017 17:24 by JLW	Organic Extractions	05/09/2017 10:05 by ACS
	05/04/2017 17:24 by JLW	Organic Extractions	05/09/2017 10:05 by ACS
Extractions	05/09/2017 10:05 by ACS	Dioxin Lab	05/09/2017 16:41 by MCB

Analytical Resources, Incorporated

Internal Chain of Custody

Client:	Anchor QEA, LLC	Received:	26-Apr-2017 17:05
Project:	Port Gamble Shellfish Monitoring	Received By:	Paul Mork
Number:	160388-01.01	Temp (°C):	5.80

17D0421-07 (PG-WS-MAN-COC-170424) Sampled 04/24/2017 12:45

Current Status	*Out*	*Location*	*In*
17D0421-07 A [Miscellaneous Container]		*Hazard Info:Benzo(a)anthracene [2.161046ug/kg];Chrysene [1.755722ug/kg];Fluo*	
Extractions	05/09/2017 10:05 by ACS	Dioxin Lab	05/09/2017 16:41 by MCB
	05/09/2017 10:05 by ACS	Dioxin Lab	05/09/2017 16:41 by MCB
	05/09/2017 10:05 by ACS	Dioxin Lab	05/09/2017 16:41 by MCB
	05/09/2017 10:05 by ACS	Dioxin Lab	05/09/2017 16:41 by MCB
Metals	05/09/2017 16:41 by MCB	Metals Prep Lab	05/09/2017 16:42 by MCB
	05/09/2017 16:41 by MCB	Metals Prep Lab	05/09/2017 16:42 by MCB
	05/09/2017 16:41 by MCB	Metals Prep Lab	05/09/2017 16:42 by MCB
	05/09/2017 16:41 by MCB	Metals Prep Lab	05/09/2017 16:42 by MCB
	05/09/2017 16:41 by MCB	Metals Prep Lab	05/09/2017 16:42 by MCB
	05/09/2017 16:42 by MCB	F-51 K1-1	by
	05/09/2017 16:42 by MCB	F-51 K1-1	by
	05/09/2017 16:42 by MCB	F-51 K1-1	by
	05/09/2017 16:42 by MCB	F-51 K1-1	by
	05/09/2017 16:42 by MCB	F-51 K1-1	by

17D0421-08 (PG-SMA3-GEO-COC-170426) Sampled 04/26/2017 07:00

Current Status	*Out*	*Location*	*In*
17D0421-08 A [Miscellaneous Container]		*Hazard Info:Benzo(a)anthracene [0.6896351ug/kg];Benzo(b)fluoranthene [0.52519*	
Sample Receiving	04/26/2017 17:42 by PAM	***START***	04/26/2017 17:42 by PAM
	04/26/2017 17:42 by PAM	***START***	04/26/2017 17:42 by PAM
	04/26/2017 17:42 by PAM	***START***	04/26/2017 17:42 by PAM
	04/26/2017 17:42 by PAM	***START***	04/26/2017 17:42 by PAM
	04/26/2017 17:42 by PAM	***START***	04/26/2017 17:42 by PAM
	04/26/2017 17:55 by PAM	F-51 K1-1	04/26/2017 17:55 by PAM
	04/26/2017 17:55 by PAM	F-51 K1-1	04/26/2017 17:55 by PAM
	04/26/2017 17:55 by PAM	F-51 K1-1	04/26/2017 17:55 by PAM
	04/26/2017 17:55 by PAM	F-51 K1-1	04/26/2017 17:55 by PAM
	04/26/2017 17:55 by PAM	F-51 K1-1	04/26/2017 17:55 by PAM
Extractions	05/02/2017 13:21 by YQL	Organic Extractions	05/02/2017 16:54 by YQL
	05/02/2017 13:21 by YQL	Organic Extractions	05/02/2017 16:54 by YQL
	05/02/2017 13:21 by YQL	Organic Extractions	05/02/2017 16:54 by YQL
	05/02/2017 13:21 by YQL	Organic Extractions	05/02/2017 16:54 by YQL
	05/02/2017 13:21 by YQL	Organic Extractions	05/02/2017 16:54 by YQL
Organics	05/04/2017 17:24 by JLW	Organic Extractions	05/09/2017 10:05 by ACS
	05/04/2017 17:24 by JLW	Organic Extractions	05/09/2017 10:05 by ACS
	05/04/2017 17:24 by JLW	Organic Extractions	05/09/2017 10:05 by ACS
	05/04/2017 17:24 by JLW	Organic Extractions	05/09/2017 10:05 by ACS
	05/04/2017 17:24 by JLW	Organic Extractions	05/09/2017 10:05 by ACS
Extractions	05/09/2017 10:05 by ACS	Dioxin Lab	05/09/2017 16:41 by MCB
	05/09/2017 10:05 by ACS	Dioxin Lab	05/09/2017 16:41 by MCB
	05/09/2017 10:05 by ACS	Dioxin Lab	05/09/2017 16:41 by MCB
	05/09/2017 10:05 by ACS	Dioxin Lab	05/09/2017 16:41 by MCB
	05/09/2017 10:05 by ACS	Dioxin Lab	05/09/2017 16:41 by MCB
Metals	05/09/2017 16:41 by MCB	Metals Prep Lab	05/09/2017 16:42 by MCB
	05/09/2017 16:41 by MCB	Metals Prep Lab	05/09/2017 16:42 by MCB

Analytical Resources, Incorporated

Internal Chain of Custody

Client:	Anchor QEA, LLC	Received:	26-Apr-2017 17:05
Project:	Port Gamble Shellfish Monitoring	Received By:	Paul Mork
Number:	160388-01.01	Temp (°C):	5.80

17D0421-08 (PG-SMA3-GEO-COC-170426) Sampled 04/26/2017 07:00

Current Status	*Out*	*Location*	*In*
17D0421-08 A [Miscellaneous Container]		*Hazard Info:Benzo(a)anthracene [0.6896351ug/kg];Benzo(b)fluoranthene [0.52519*	
Metals	05/09/2017 16:41 by MCB	Metals Prep Lab	05/09/2017 16:42 by MCB
	05/09/2017 16:41 by MCB	Metals Prep Lab	05/09/2017 16:42 by MCB
	05/09/2017 16:41 by MCB	Metals Prep Lab	05/09/2017 16:42 by MCB
	05/09/2017 16:42 by MCB	F-51 K1-1	by
	05/09/2017 16:42 by MCB	F-51 K1-1	by
	05/09/2017 16:42 by MCB	F-51 K1-1	by
	05/09/2017 16:42 by MCB	F-51 K1-1	by
	05/09/2017 16:42 by MCB	F-51 K1-1	by

17D0421-09 (PG-SMA3-DUNM-COC-170426) Sampled 04/26/2017 12:00

Current Status	*Out*	*Location*	*In*
17D0421-09 A [Glass WM, Clear, 16 oz]		*Hazard Info:2,3,7,8-TCDF [4.162495E-02ng/kg];OCDD [1.935961ng/kg];Total Hp*	
Sample Receiving	04/26/2017 17:44 by PAM	***START***	04/26/2017 17:44 by PAM
	04/26/2017 17:44 by PAM	***START***	04/26/2017 17:44 by PAM
	04/26/2017 17:44 by PAM	***START***	04/26/2017 17:44 by PAM
	04/26/2017 17:44 by PAM	***START***	04/26/2017 17:44 by PAM
	04/26/2017 17:44 by PAM	***START***	04/26/2017 17:44 by PAM
Extractions	05/02/2017 13:21 by YQL	Organic Extractions	05/02/2017 16:54 by YQL
	05/02/2017 13:21 by YQL	Organic Extractions	05/02/2017 16:54 by YQL
	05/02/2017 13:21 by YQL	Organic Extractions	05/02/2017 16:54 by YQL
	05/02/2017 13:21 by YQL	Organic Extractions	05/02/2017 16:54 by YQL
	05/02/2017 13:21 by YQL	Organic Extractions	05/02/2017 16:54 by YQL
Organics	05/04/2017 17:24 by JLW	Organic Extractions	05/09/2017 10:05 by ACS
	05/04/2017 17:24 by JLW	Organic Extractions	05/09/2017 10:05 by ACS
	05/04/2017 17:24 by JLW	Organic Extractions	05/09/2017 10:05 by ACS
	05/04/2017 17:24 by JLW	Organic Extractions	05/09/2017 10:05 by ACS
	05/04/2017 17:24 by JLW	Organic Extractions	05/09/2017 10:05 by ACS
Extractions	05/09/2017 10:05 by ACS	Dioxin Lab	05/09/2017 16:41 by MCB
	05/09/2017 10:05 by ACS	Dioxin Lab	05/09/2017 16:41 by MCB
	05/09/2017 10:05 by ACS	Dioxin Lab	05/09/2017 16:41 by MCB
	05/09/2017 10:05 by ACS	Dioxin Lab	05/09/2017 16:41 by MCB
	05/09/2017 10:05 by ACS	Dioxin Lab	05/09/2017 16:41 by MCB
Metals	05/09/2017 16:41 by MCB	Metals Prep Lab	05/09/2017 16:42 by MCB
	05/09/2017 16:41 by MCB	Metals Prep Lab	05/09/2017 16:42 by MCB
	05/09/2017 16:41 by MCB	Metals Prep Lab	05/09/2017 16:42 by MCB
	05/09/2017 16:41 by MCB	Metals Prep Lab	05/09/2017 16:42 by MCB
	05/09/2017 16:41 by MCB	Metals Prep Lab	05/09/2017 16:42 by MCB
	05/09/2017 16:42 by MCB	F-51 K1-1	by
	05/09/2017 16:42 by MCB	F-51 K1-1	by
	05/09/2017 16:42 by MCB	F-51 K1-1	by
	05/09/2017 16:42 by MCB	F-51 K1-1	by
	05/09/2017 16:42 by MCB	F-51 K1-1	by

17D0421-10 (PG-SMA3-DUNH-COC-170426) Sampled 04/26/2017 12:15

Current Status	*Out*	*Location*	*In*

Analytical Resources, Incorporated

Internal Chain of Custody

Client:	Anchor QEA, LLC	Received:	26-Apr-2017 17:05
Project:	Port Gamble Shellfish Monitoring	Received By:	Paul Mork
Number:	160388-01.01	Temp (°C):	5.80

17D0421-10 (PG-SMA3-DUNH-COC-170426) Sampled 04/26/2017 12:15

Current Status	*Out*	*Location*	*In*
17D0421-10 A [Glass WM, Clear, 16 oz]		*Hazard Info:Acenaphthene [0.9909642ug/kg];1,2,3,4,6,7,8-HpCDD [3.555708ng/k*	
Sample Receiving	04/26/2017 17:44 by PAM	***START***	04/26/2017 17:44 by PAM
	04/26/2017 17:44 by PAM	***START***	04/26/2017 17:44 by PAM
	04/26/2017 17:44 by PAM	***START***	04/26/2017 17:44 by PAM
	04/26/2017 17:44 by PAM	***START***	04/26/2017 17:44 by PAM
	04/26/2017 17:44 by PAM	***START***	04/26/2017 17:44 by PAM
Extractions	05/02/2017 13:21 by YQL	Organic Extractions	05/02/2017 16:54 by YQL
	05/02/2017 13:21 by YQL	Organic Extractions	05/02/2017 16:54 by YQL
	05/02/2017 13:21 by YQL	Organic Extractions	05/02/2017 16:54 by YQL
	05/02/2017 13:21 by YQL	Organic Extractions	05/02/2017 16:54 by YQL
	05/02/2017 13:21 by YQL	Organic Extractions	05/02/2017 16:54 by YQL
Organics	05/04/2017 17:24 by JLW	Organic Extractions	05/09/2017 10:05 by ACS
	05/04/2017 17:24 by JLW	Organic Extractions	05/09/2017 10:05 by ACS
	05/04/2017 17:24 by JLW	Organic Extractions	05/09/2017 10:05 by ACS
	05/04/2017 17:24 by JLW	Organic Extractions	05/09/2017 10:05 by ACS
	05/04/2017 17:24 by JLW	Organic Extractions	05/09/2017 10:05 by ACS
Extractions	05/09/2017 10:05 by ACS	Dioxin Lab	05/09/2017 16:41 by MCB
	05/09/2017 10:05 by ACS	Dioxin Lab	05/09/2017 16:41 by MCB
	05/09/2017 10:05 by ACS	Dioxin Lab	05/09/2017 16:41 by MCB
	05/09/2017 10:05 by ACS	Dioxin Lab	05/09/2017 16:41 by MCB
	05/09/2017 10:05 by ACS	Dioxin Lab	05/09/2017 16:41 by MCB
Metals	05/09/2017 16:41 by MCB	Metals Prep Lab	05/09/2017 16:42 by MCB
	05/09/2017 16:41 by MCB	Metals Prep Lab	05/09/2017 16:42 by MCB
	05/09/2017 16:41 by MCB	Metals Prep Lab	05/09/2017 16:42 by MCB
	05/09/2017 16:41 by MCB	Metals Prep Lab	05/09/2017 16:42 by MCB
	05/09/2017 16:41 by MCB	Metals Prep Lab	05/09/2017 16:42 by MCB
	05/09/2017 16:42 by MCB	F-51 K1-1	by
	05/09/2017 16:42 by MCB	F-51 K1-1	by
	05/09/2017 16:42 by MCB	F-51 K1-1	by
	05/09/2017 16:42 by MCB	F-51 K1-1	by
	05/09/2017 16:42 by MCB	F-51 K1-1	by

Analytical Resources, Incorporated

QUALIFIERS AND NOTES

Qualifier	Definition
U	This analyte is not detected above the applicable reporting or detection limit.
J	Estimated concentration value detected below the reporting limit.
EMPC	Estimated Maximum Possible Concentration qualifier for HRGCMS Dioxin
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)
D	The reported value is from a dilution
B	This analyte was detected in the method blank.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

PG-GP-OYS-COC-170424

Form I

ORGANIC ANALYSIS DATA SHEET

EPA 8270D-SIM

Polynuclear Aromatic Hydrocarbons - low level

Laboratory:	Analytical Resources, Inc.			SDG:	17D0421
Client:	Anchor QEA, LLC			Project:	Port Gamble Shellfish Monitoring
Matrix:	Tissue	Laboratory ID:	17D0421-01	File ID:	N1117051605.D
Sampled:	04/24/17 10:30	Prepared:	05/09/17 13:50	Analyzed:	05/16/17 12:48
Solids:		Preparation:	EPA 3550C-Mod (Ultrasonic	Initial/Final:	10.04 g / 0.5 mL
Batch:	BFE0160	Sequence:	SFE0208	Calibration:	AE00020
Instrument:	NT11	Column:	RXi-17Sil-MS		

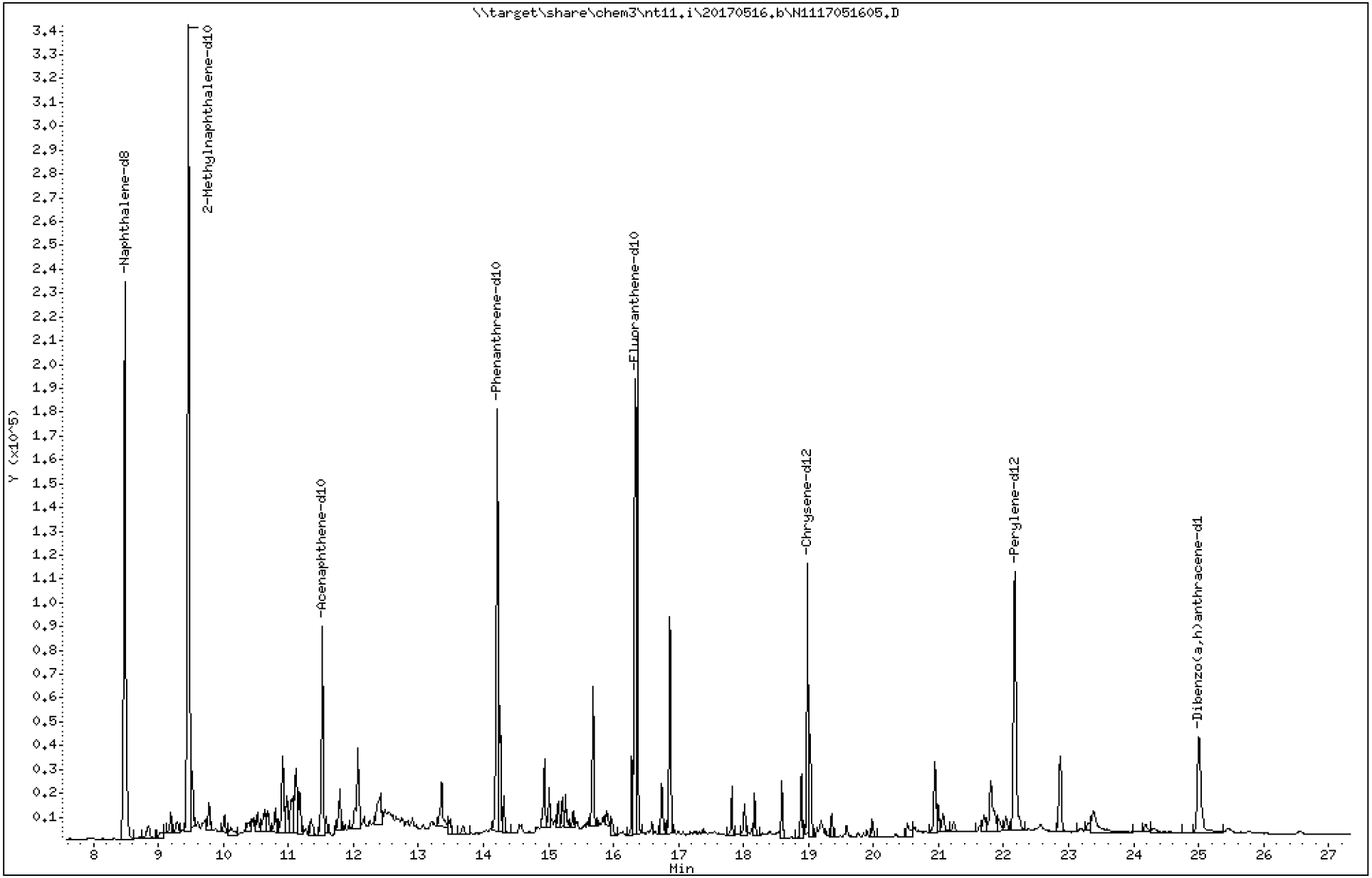
CAS NO.	COMPOUND	DILUTION	CONC. (ug/kg)	Q	DL	RL
91-20-3	Naphthalene	1	0.60	U	0.50	0.60
91-57-6	2-Methylnaphthalene	1	0.50	U	0.50	0.50
208-96-8	Acenaphthylene	1	0.50	U	0.50	0.50
83-32-9	Acenaphthene	1	0.50	U	0.50	0.50
86-73-7	Fluorene	1	0.50	U	0.50	0.50
85-01-8	Phenanthrene	1	1.96		0.50	0.50
120-12-7	Anthracene	1	0.52		0.50	0.50
206-44-0	Fluoranthene	1	6.35		0.50	0.50
129-00-0	Pyrene	1	3.56		0.50	0.50
56-55-3	Benzo(a)anthracene	1	1.49		0.50	0.50
218-01-9	Chrysene	1	3.08		0.50	0.50
205-99-2	Benzo(b)fluoranthene	1	1.39		0.50	0.50
207-08-9	Benzo(k)fluoranthene	1	0.65		0.50	0.50
50-32-8	Benzo(a)pyrene	1	0.50	U	0.50	0.50
193-39-5	Indeno(1,2,3-cd)pyrene	1	0.50	U	0.50	0.50
53-70-3	Dibenzo(a,h)anthracene	1	0.50	U	0.50	0.50
191-24-2	Benzo(g,h,i)perylene	1	0.50	U	0.50	0.50
1985-5-0	Perylene	1	0.50	U	0.50	0.50
197-97-2	Benzo(e)pyrene	1	1.21		0.50	0.50

SURROGATES	ADDED (ug/kg)	CONC (ug/kg)	% REC	QC LIMITS	Q
2-Methylnaphthalene-d10	14.940	9.23	61.8	30 - 160	
Dibenzo[a,h]anthracene-d14	14.940	9.34	62.5	30 - 160	
Fluoranthene-d10	14.940	10.5	70.4	30 - 160	

Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051605.D
Date : 16-MAY-2017 12:48
Client ID:
Sample Info: 17D0421-01

Instrument: nt11.i
Operator: VTS
Column diameter: 0.25

Column phase: Rxi-17Sil MS



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Date : 16-MAY-2017 12:48

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-01

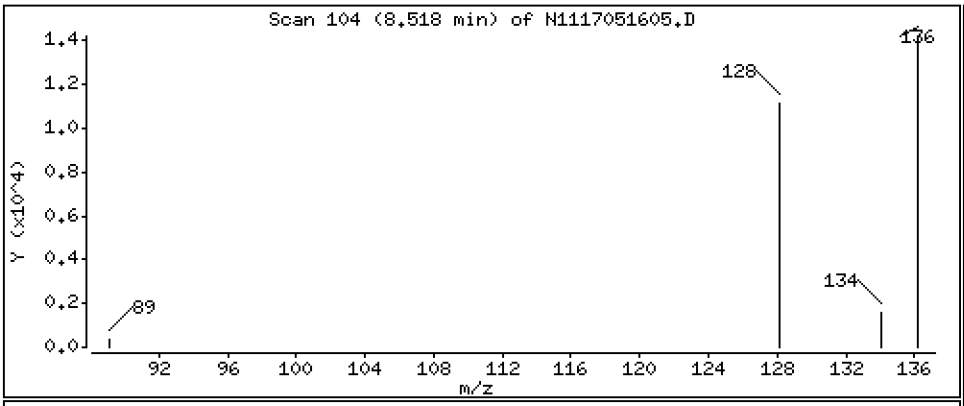
Operator: VTS

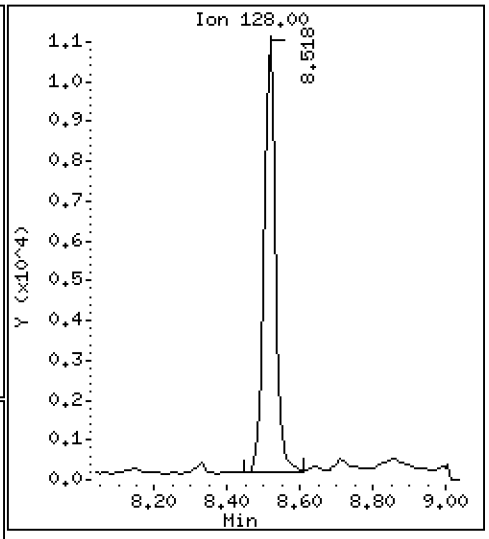
Column phase: Rxi-17Sil MS

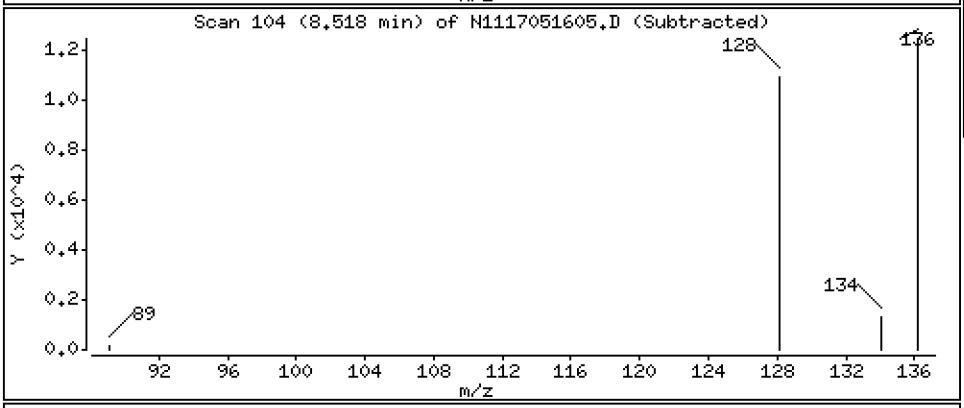
Column diameter: 0.25

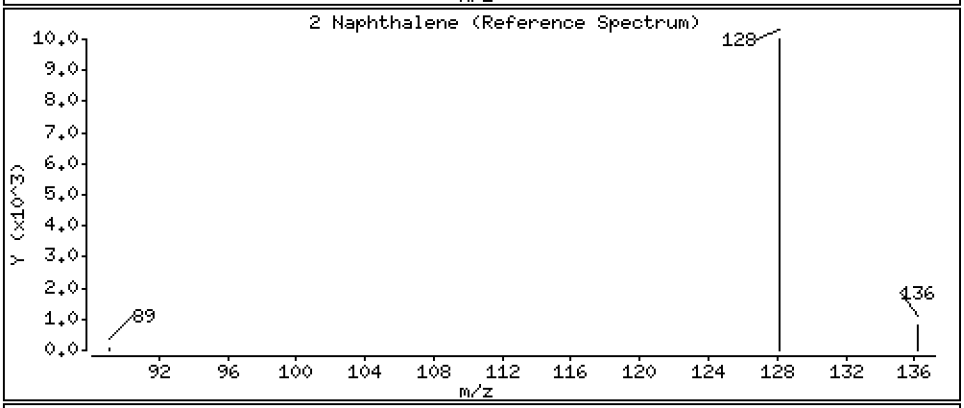
2 Naphthalene

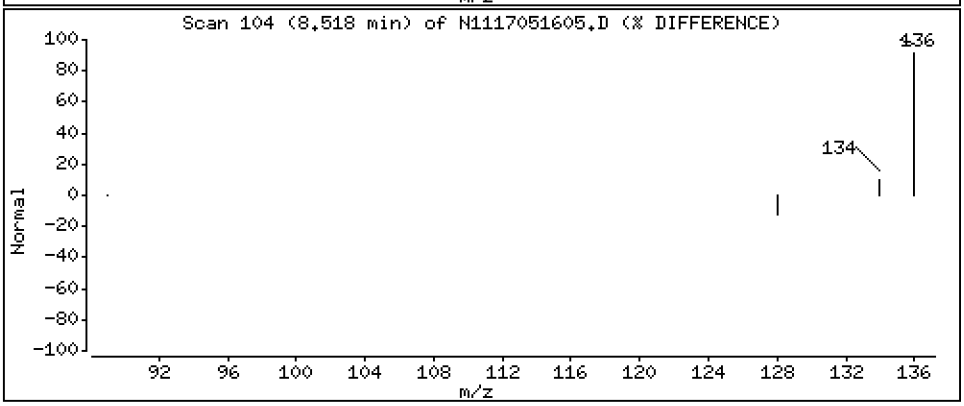
Concentration: 9.84 ng/mL











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Date : 16-MAY-2017 12:48

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-01

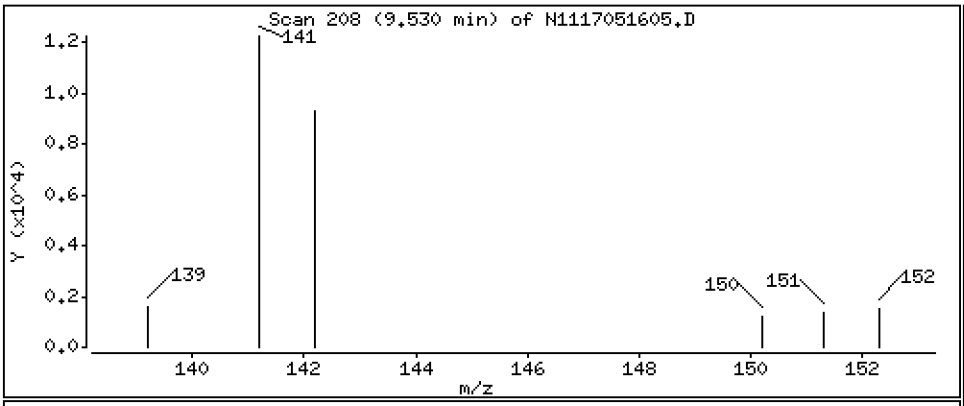
Operator: VTS

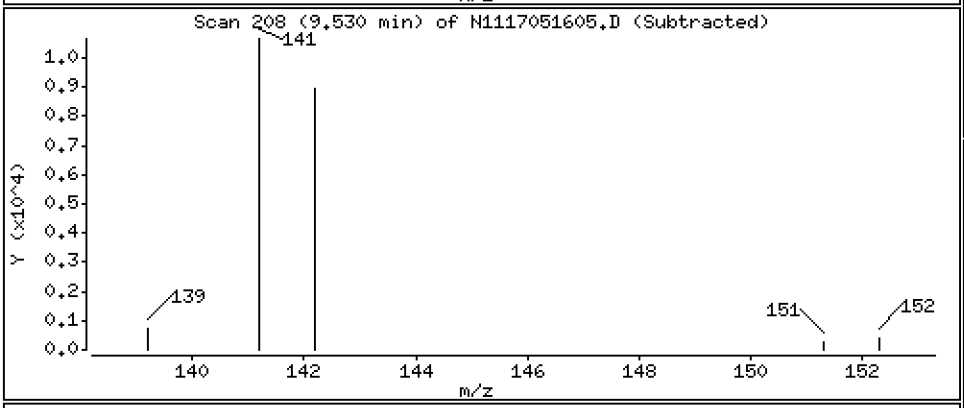
Column phase: Rxi-17Sil MS

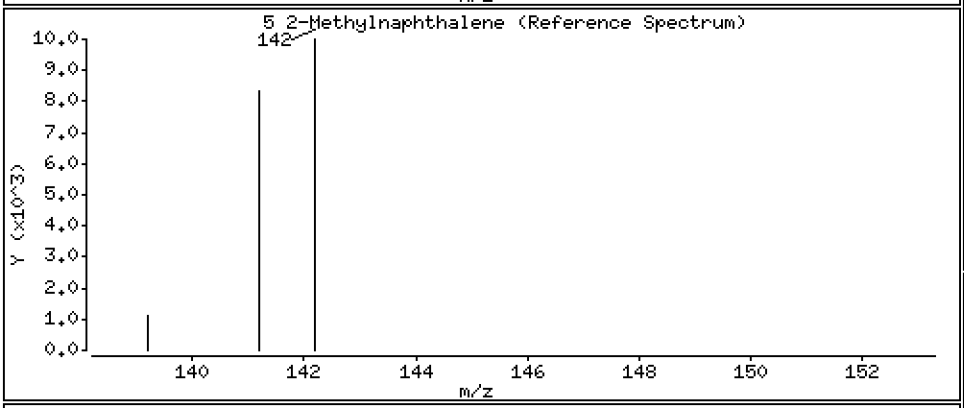
Column diameter: 0.25

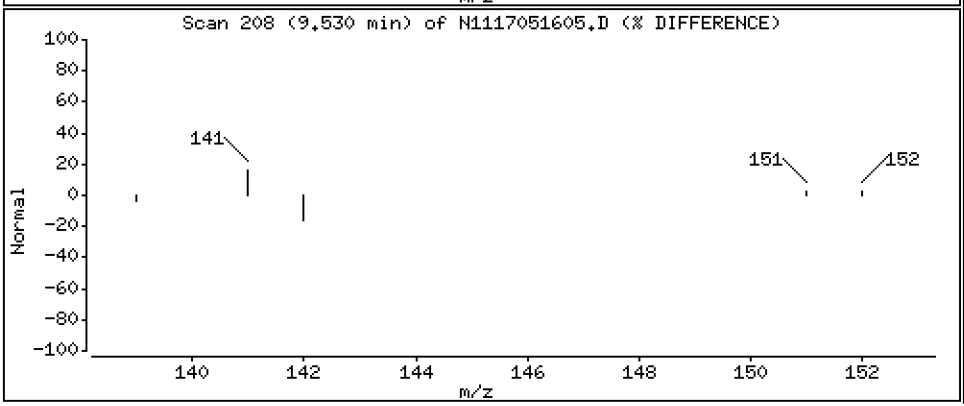
5 2-Methylnaphthalene

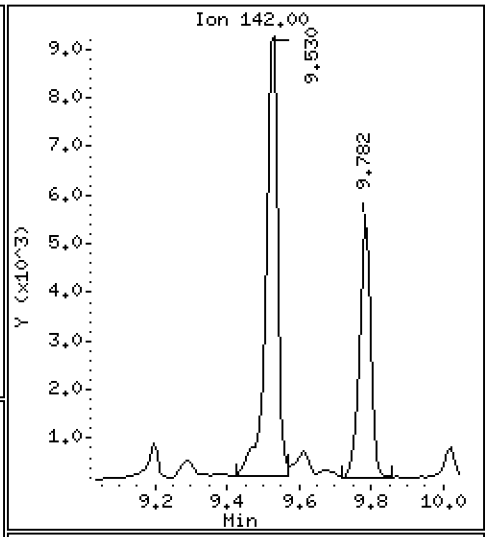
Concentration: 9.84 ng/mL

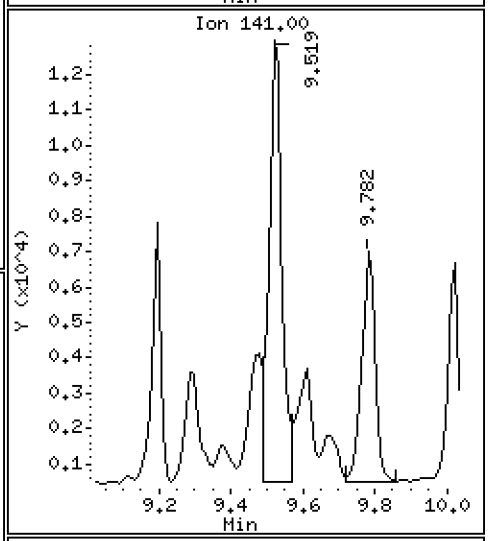


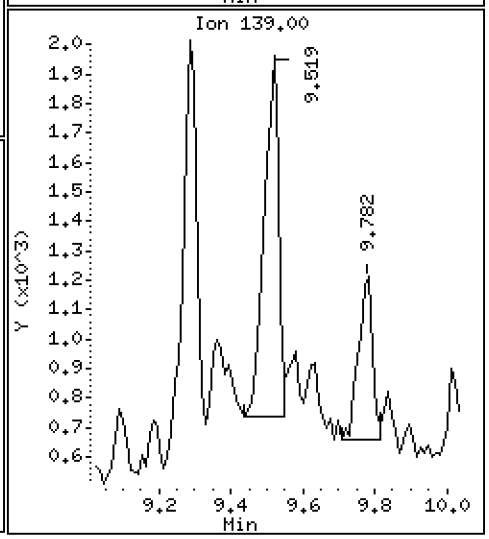












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Date : 16-MAY-2017 12:48

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-01

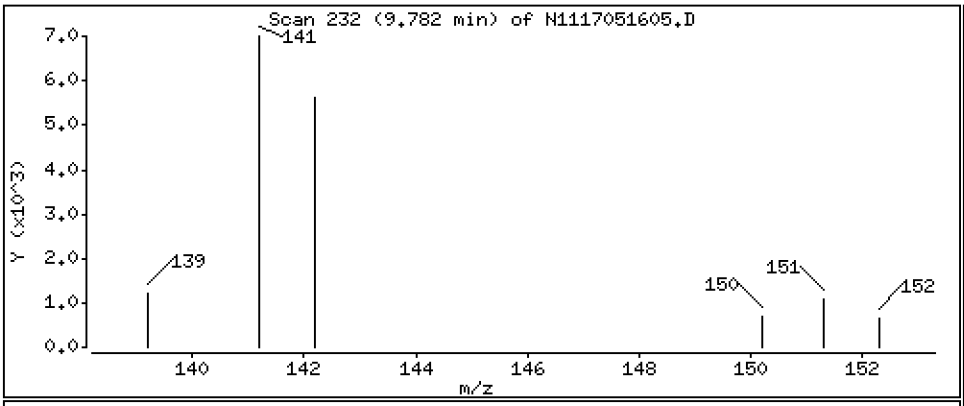
Operator: VTS

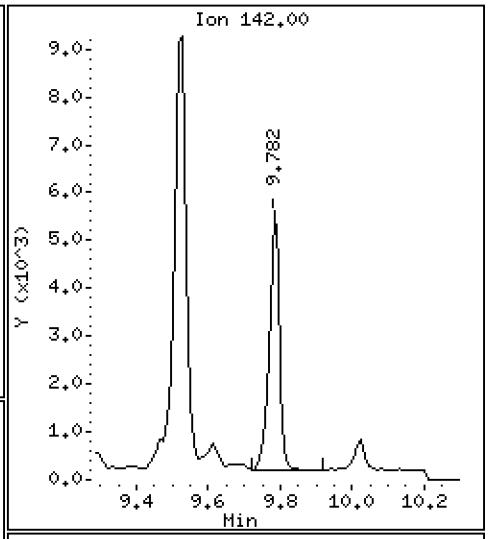
Column phase: Rxi-17Sil MS

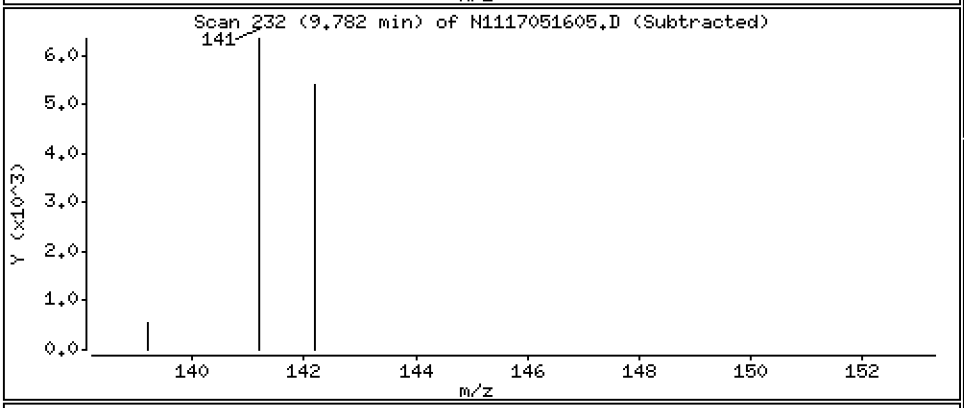
Column diameter: 0.25

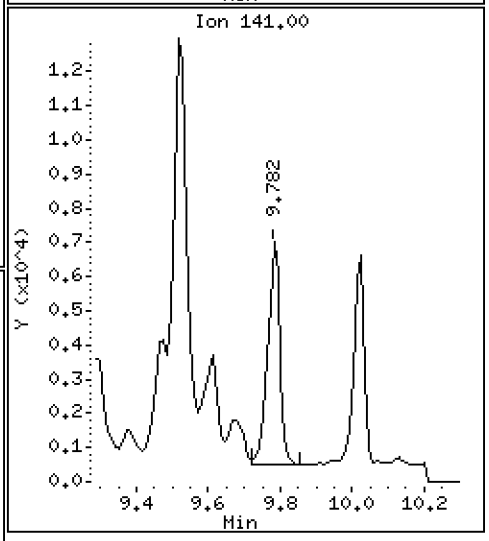
6 1-Methylnaphthalene

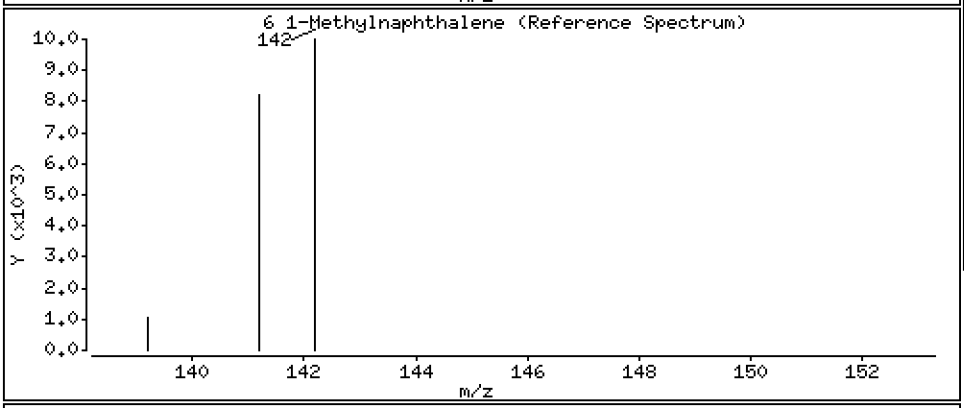
Concentration: 5.42 ng/mL

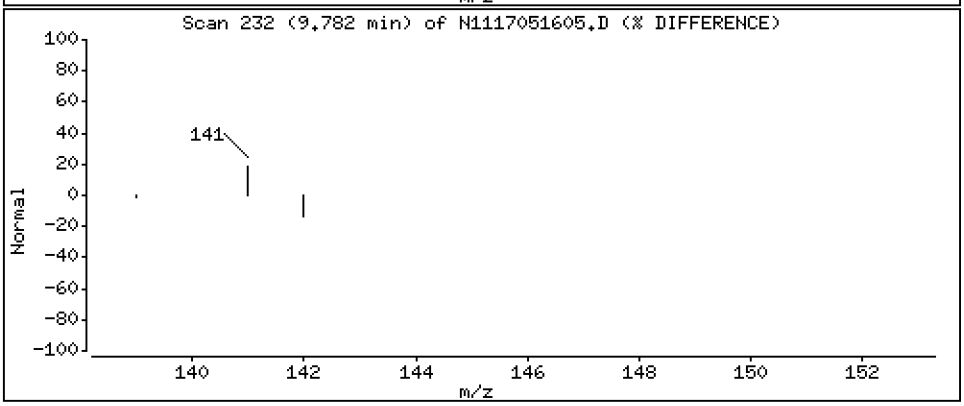












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Date : 16-MAY-2017 12:48

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-01

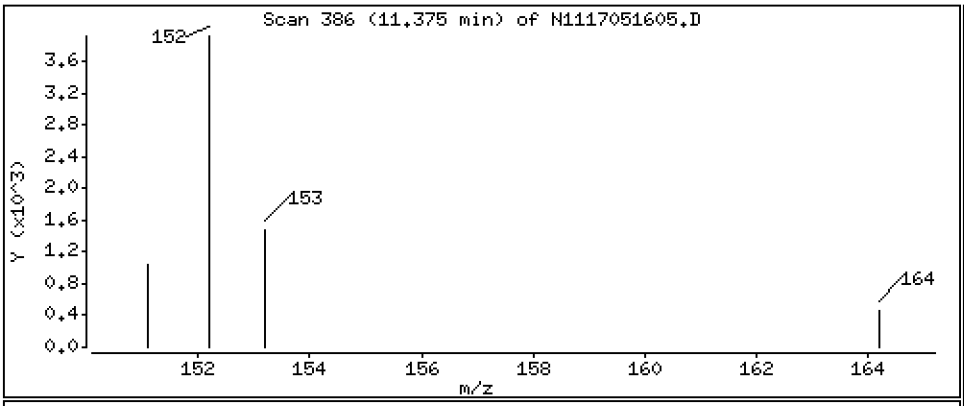
Operator: VTS

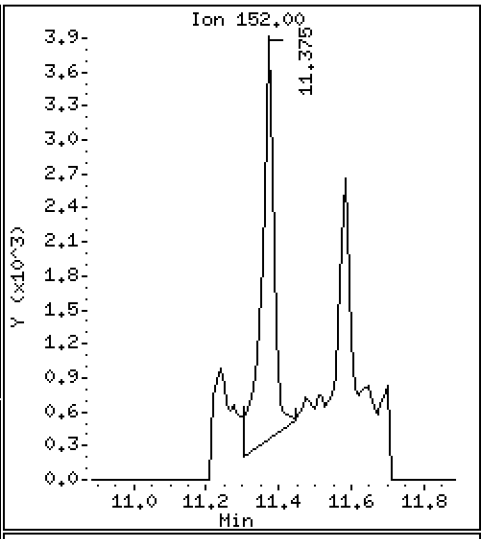
Column phase: Rxi-17Sil MS

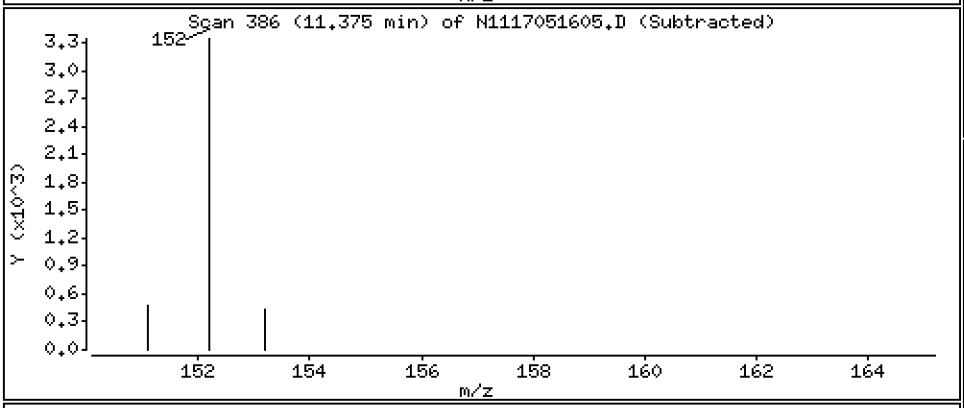
Column diameter: 0.25

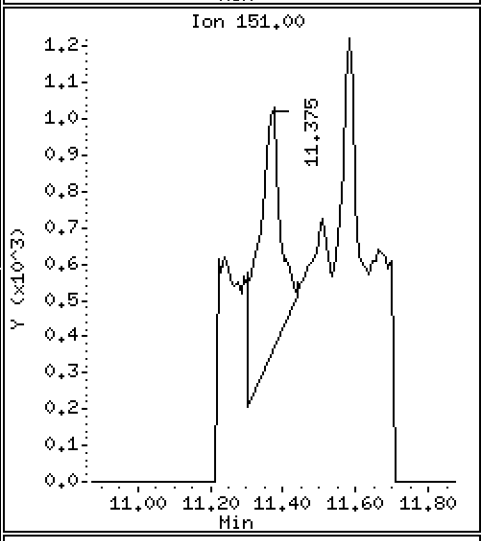
10 Acenaphthylene

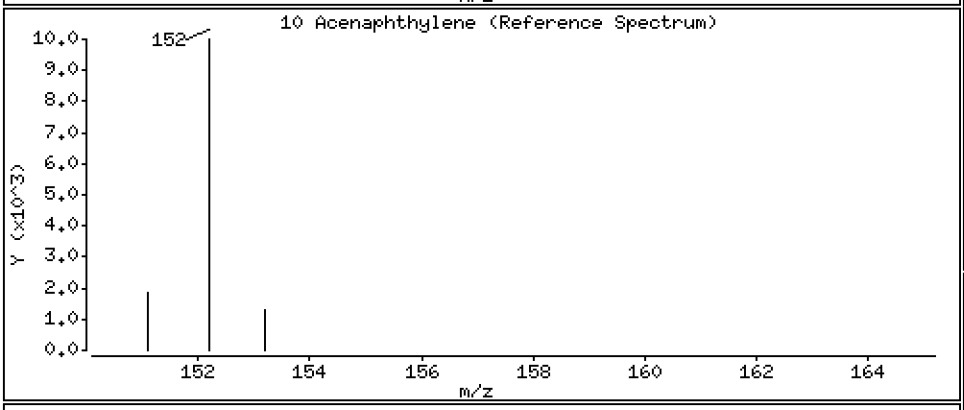
Concentration: 3.99 ng/mL

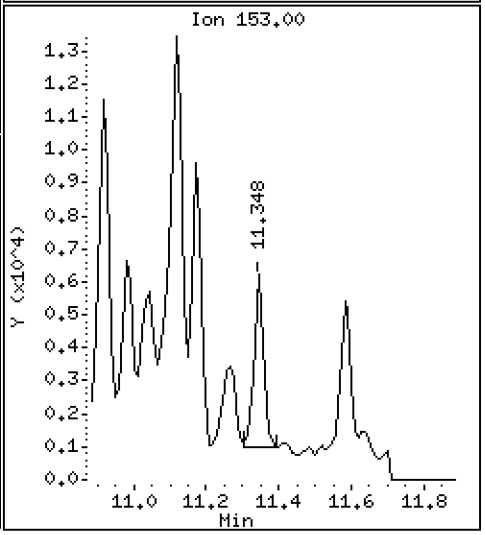


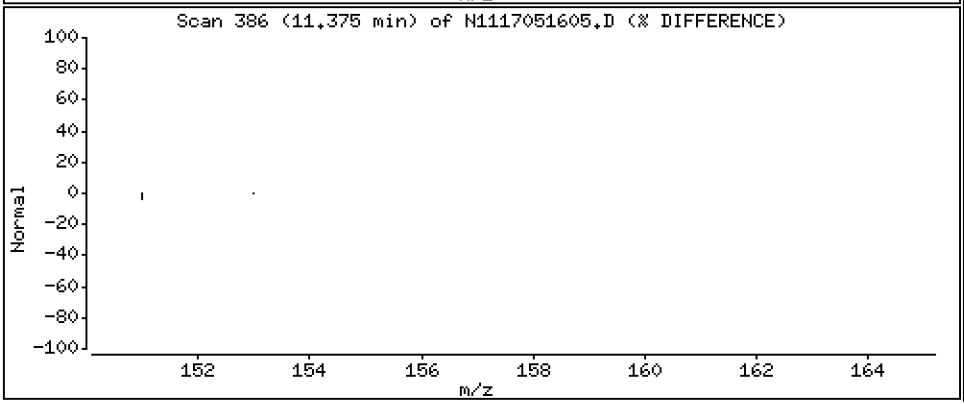












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Date : 16-MAY-2017 12:48

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-01

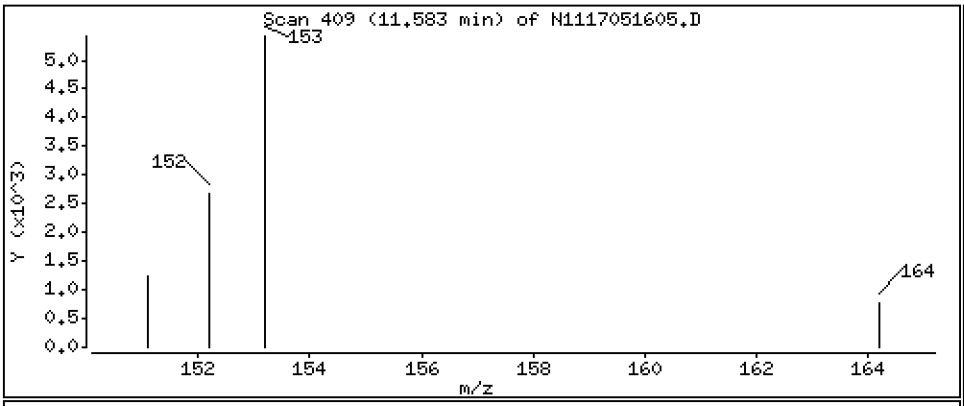
Operator: VTS

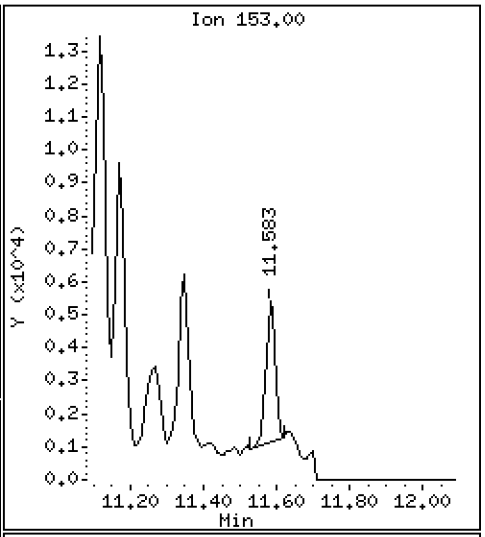
Column phase: Rxi-17Sil MS

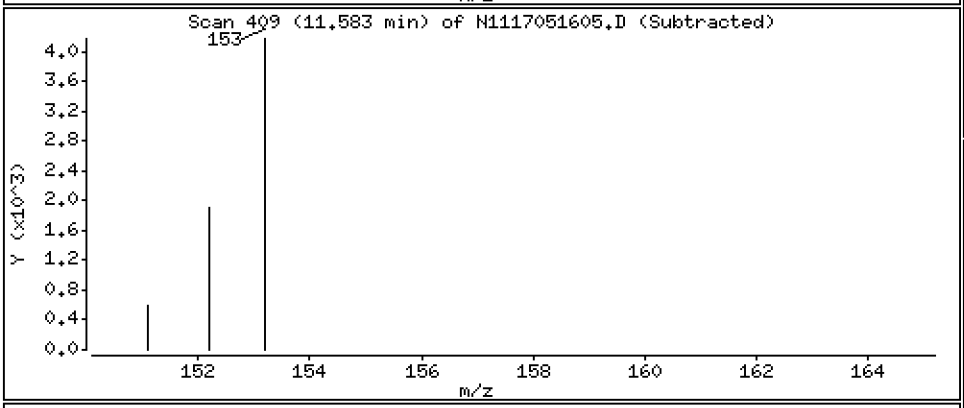
Column diameter: 0.25

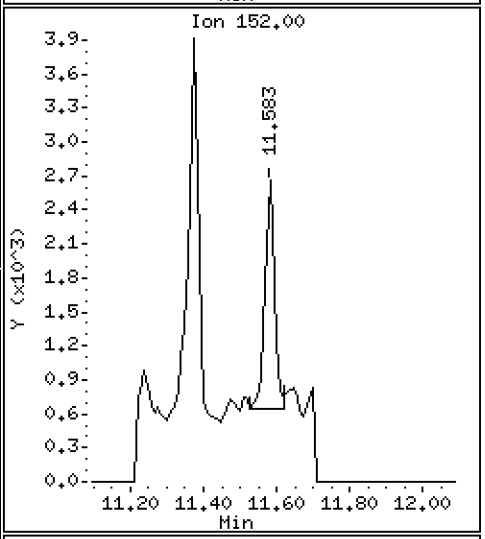
12 Acenaphthene

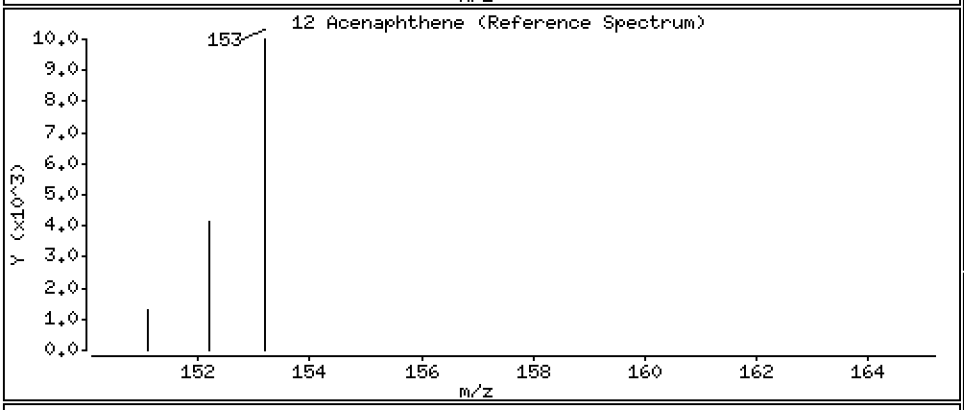
Concentration: 5.72 ng/mL

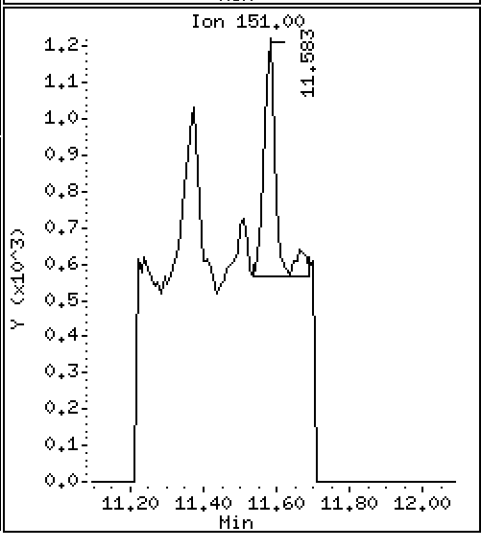


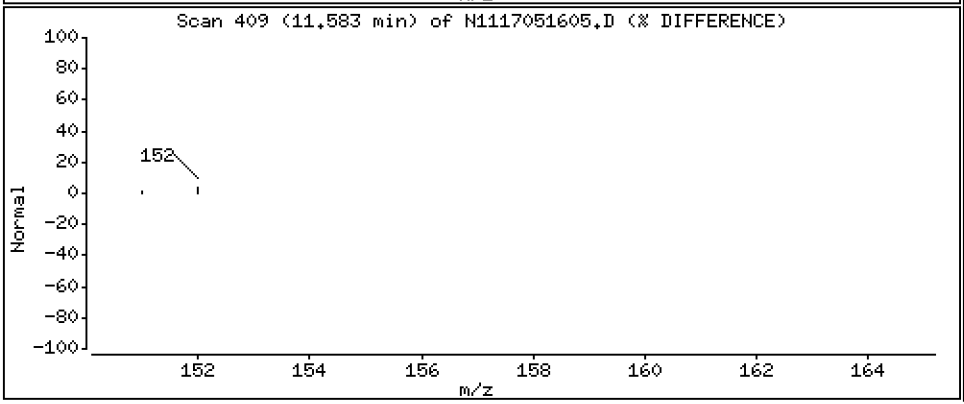












Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051605.D

Date : 16-MAY-2017 12:48

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-01

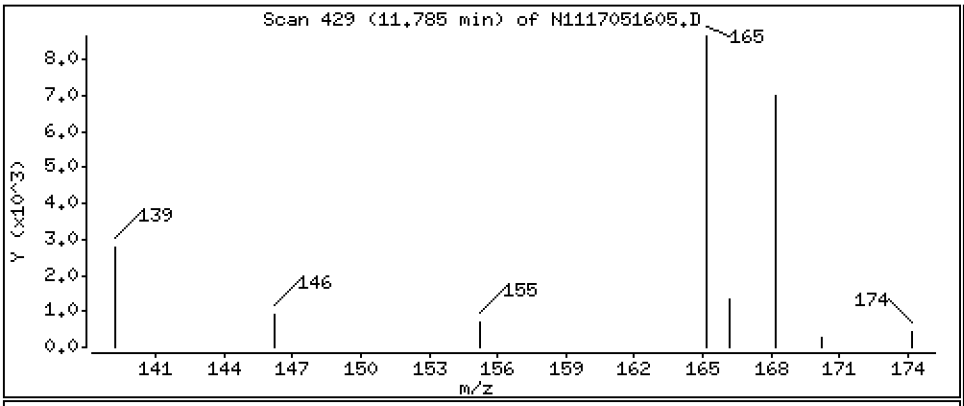
Operator: VTS

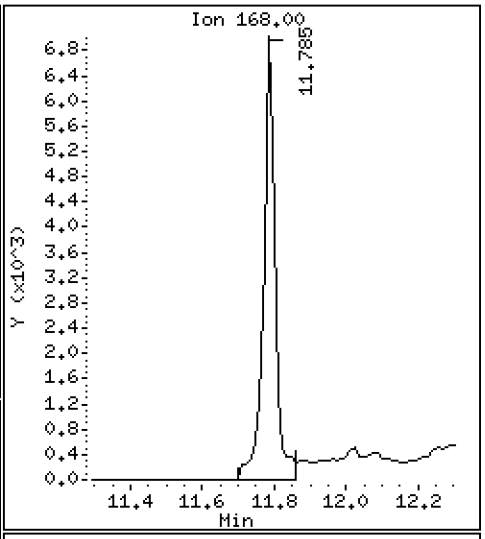
Column phase: Rxi-17Sil MS

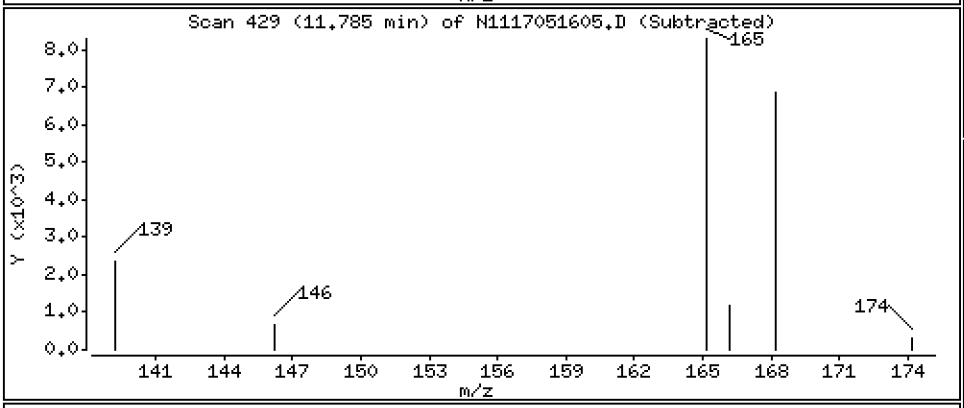
Column diameter: 0.25

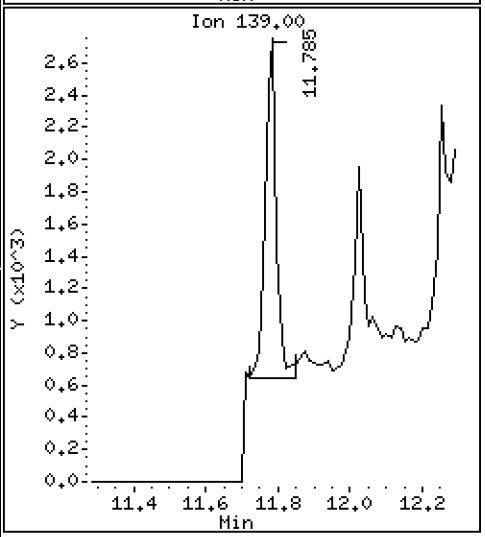
13 Dibenzofuran

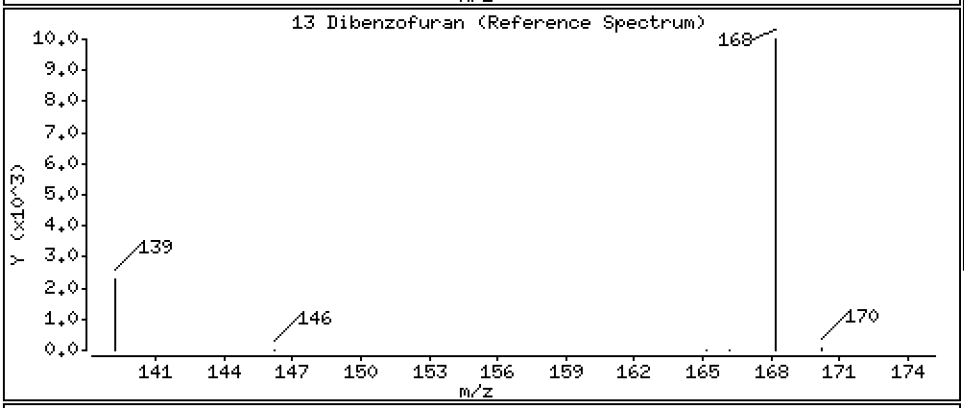
Concentration: 8.41 ng/mL

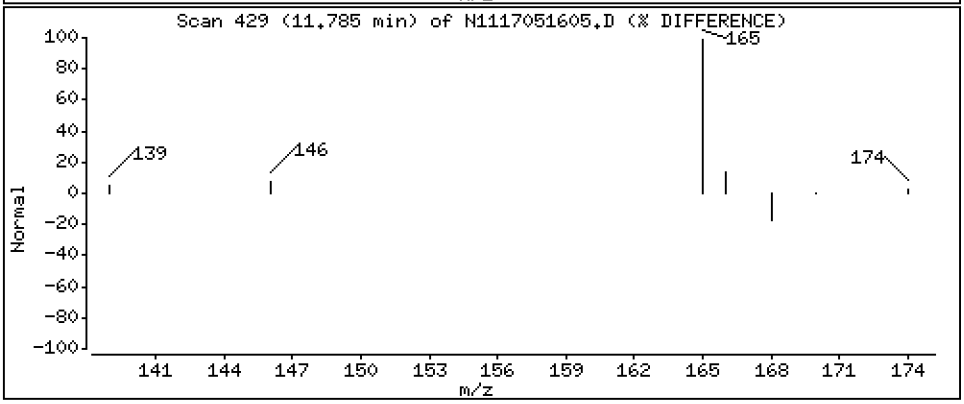












Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051605.D

Date : 16-MAY-2017 12:48

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-01

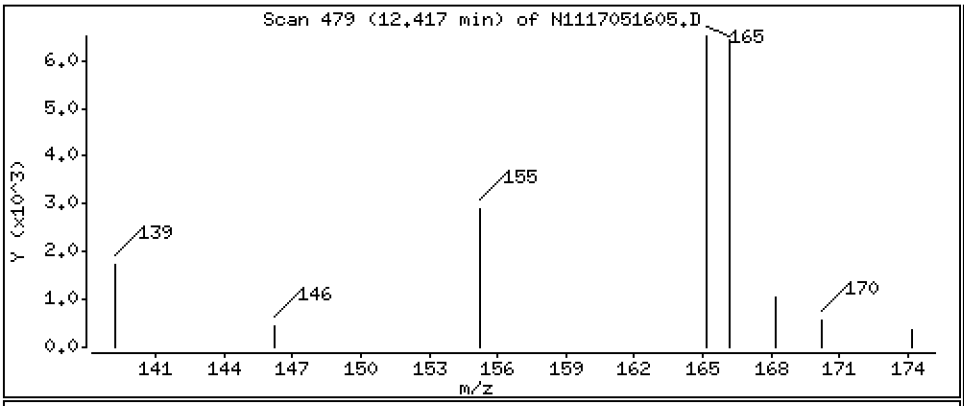
Operator: VTS

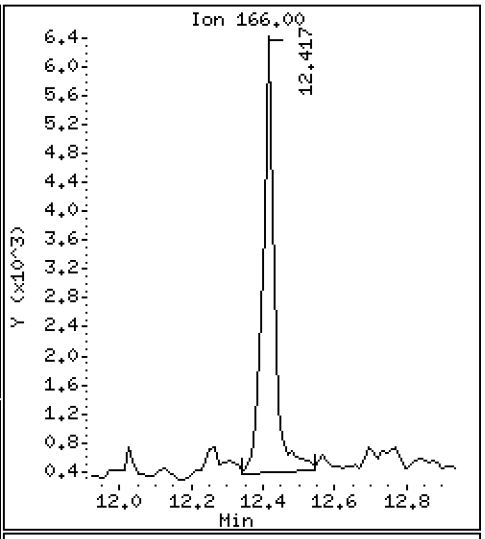
Column phase: Rxi-17Sil MS

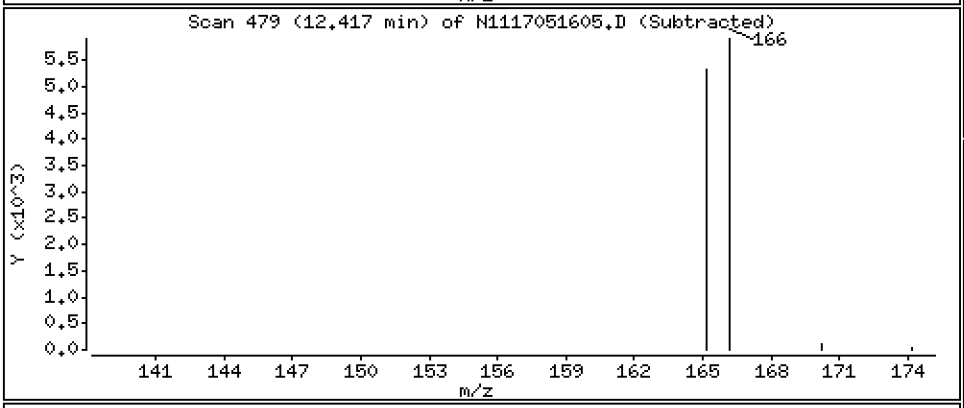
Column diameter: 0.25

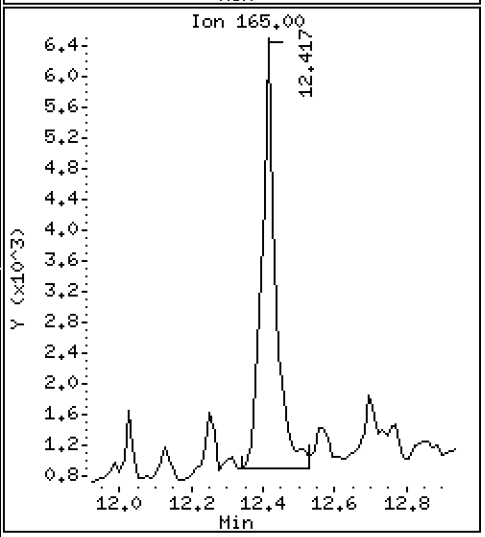
16 Fluorene

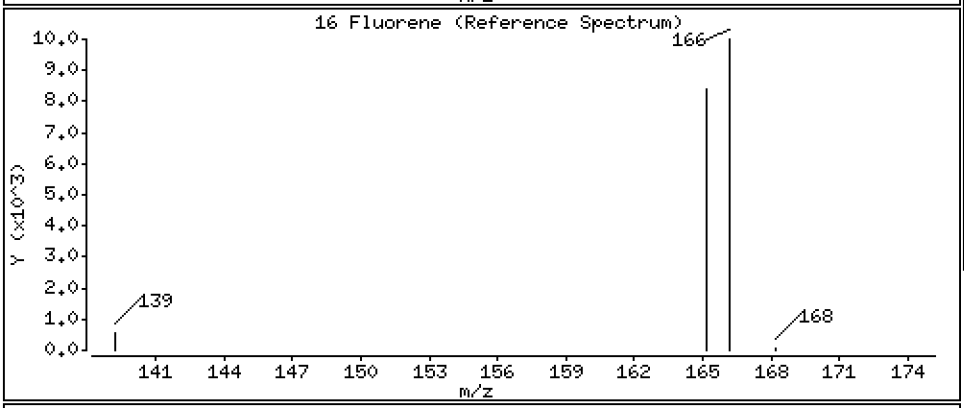
Concentration: 9.39 ng/mL

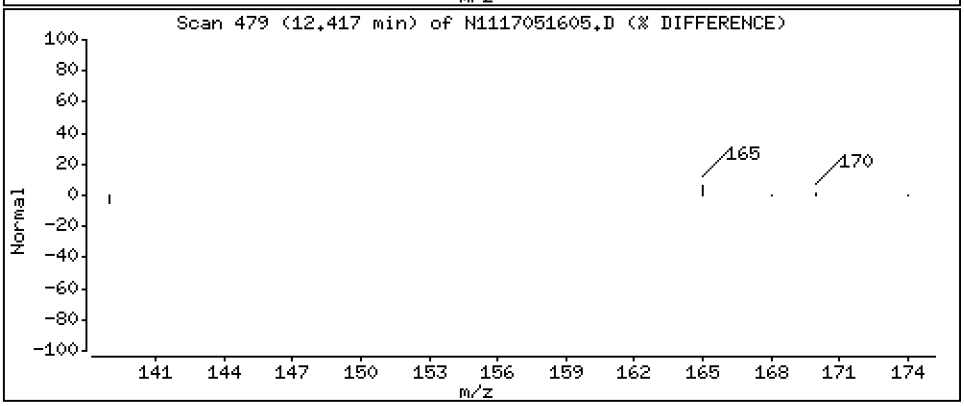












Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051605.D

Date : 16-MAY-2017 12:48

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-01

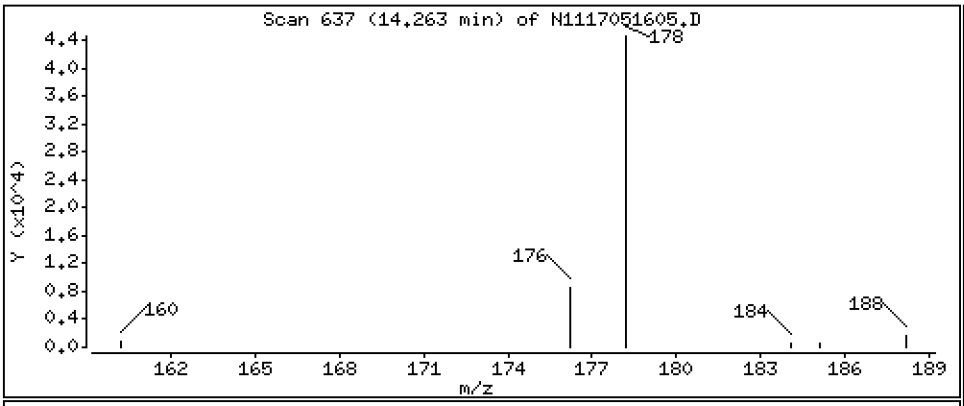
Operator: VTS

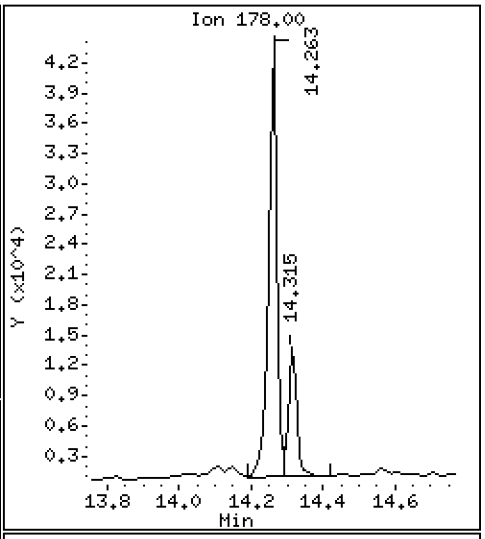
Column phase: Rxi-17Sil MS

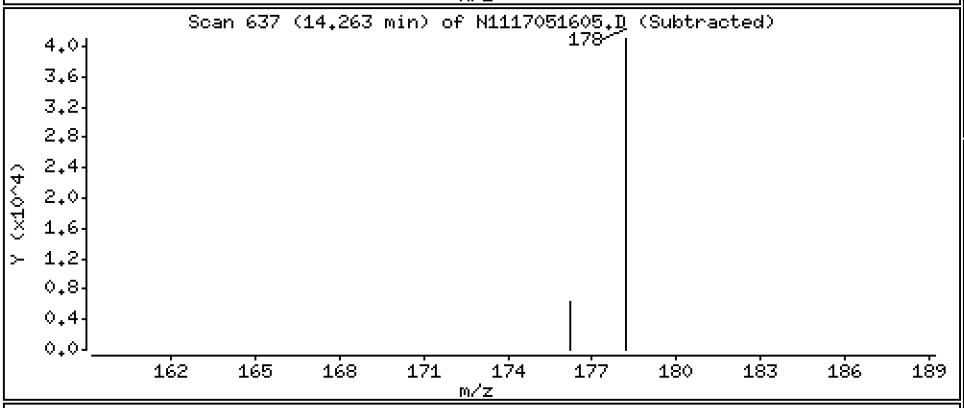
Column diameter: 0.25

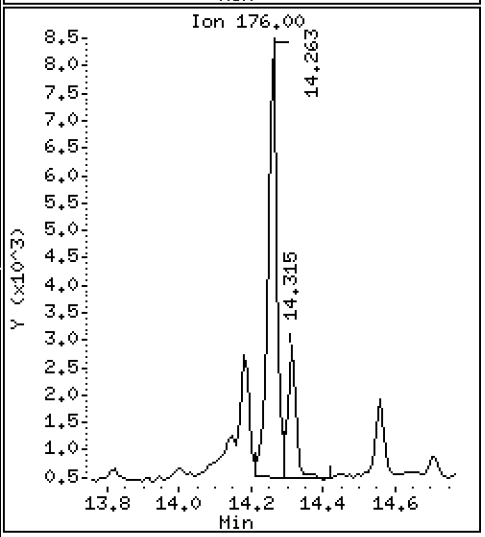
19 Phenanthrene

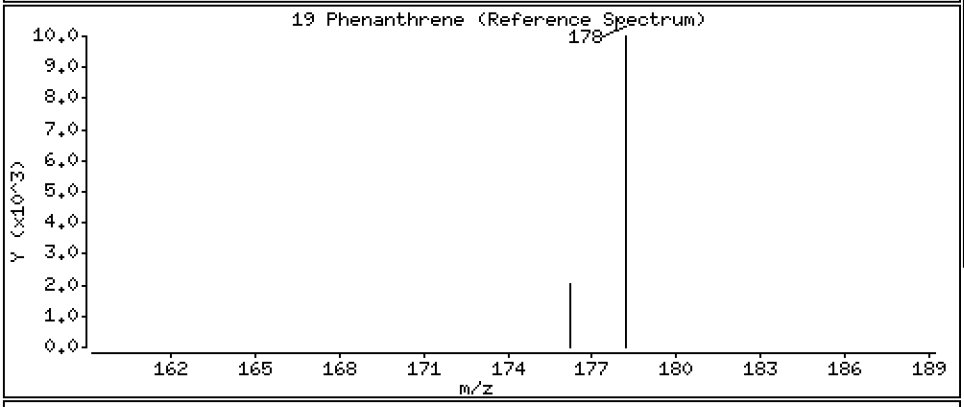
Concentration: 39.4 ng/mL

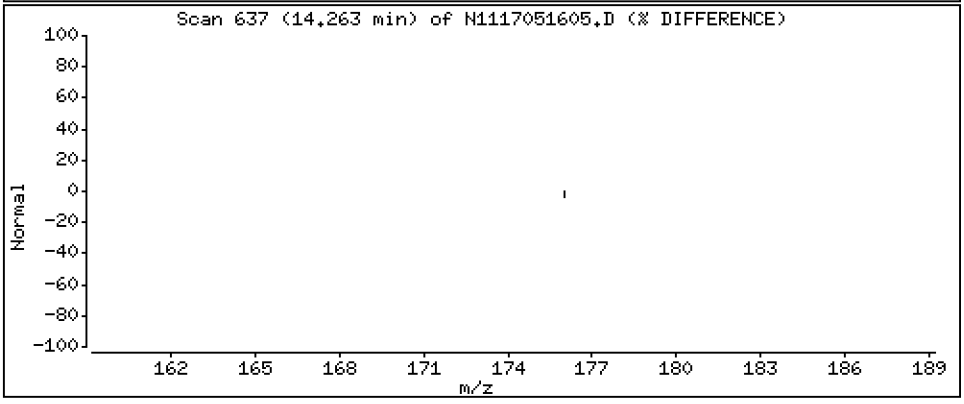












Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051605.D

Date : 16-MAY-2017 12:48

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-01

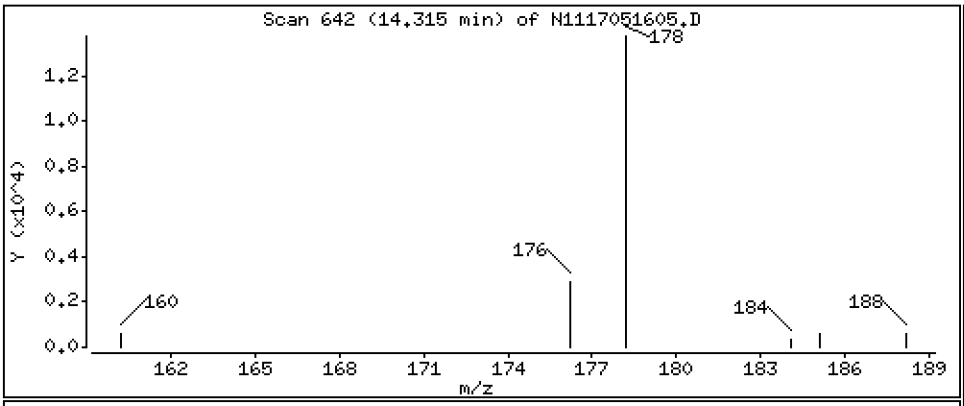
Operator: VTS

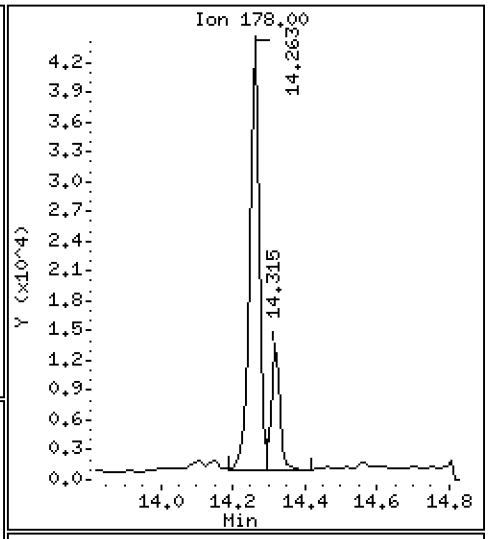
Column phase: Rxi-17Sil MS

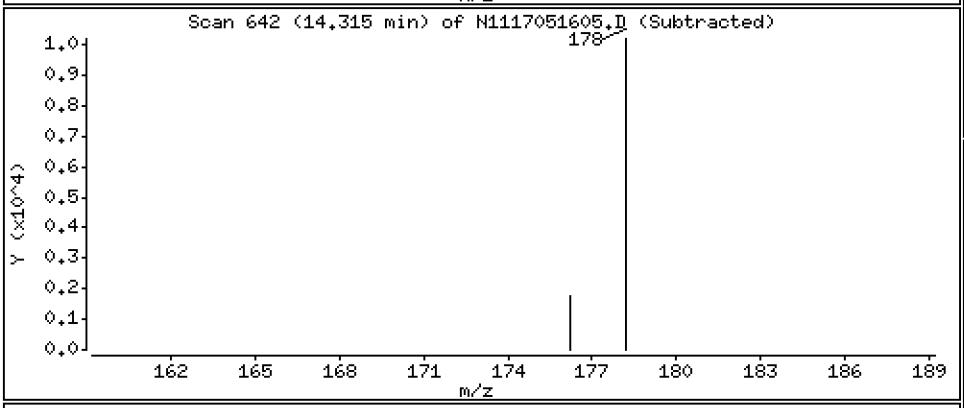
Column diameter: 0.25

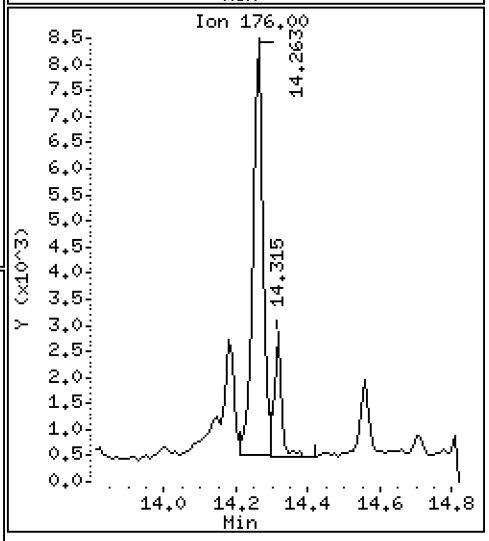
21 Anthracene

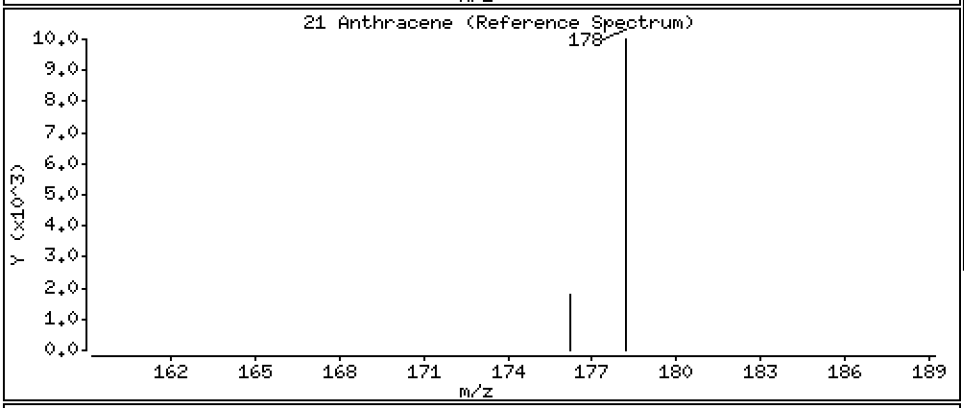
Concentration: 10.4 ng/mL

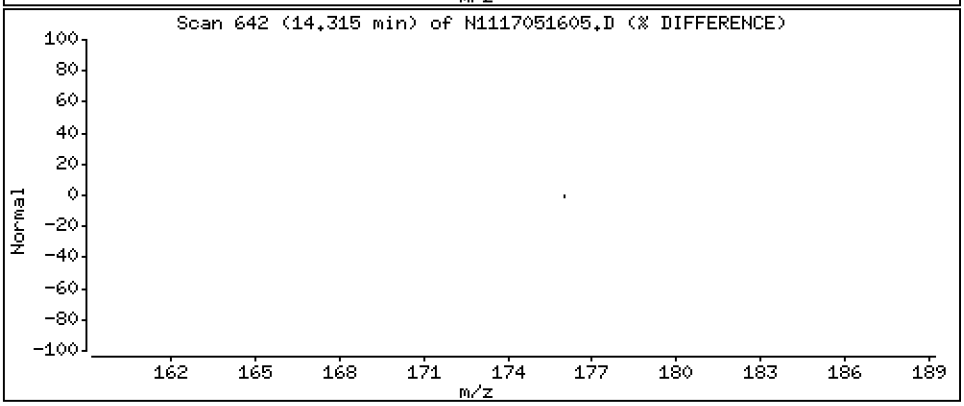












Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051605.D

Date : 16-MAY-2017 12:48

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-01

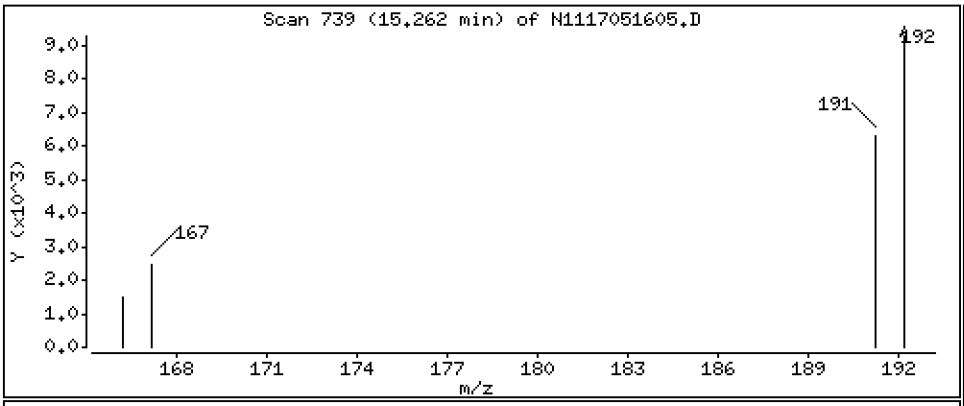
Operator: VTS

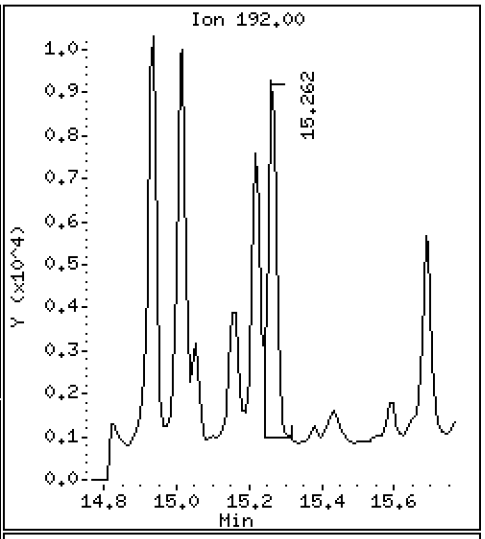
Column phase: Rxi-17Sil MS

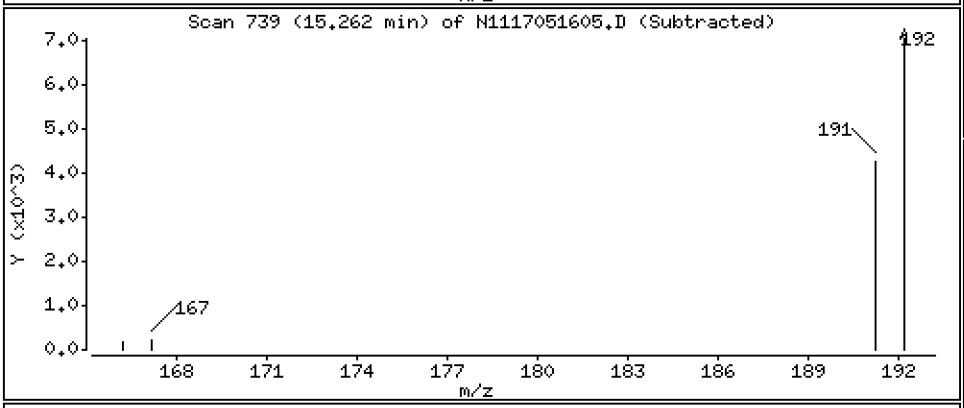
Column diameter: 0.25

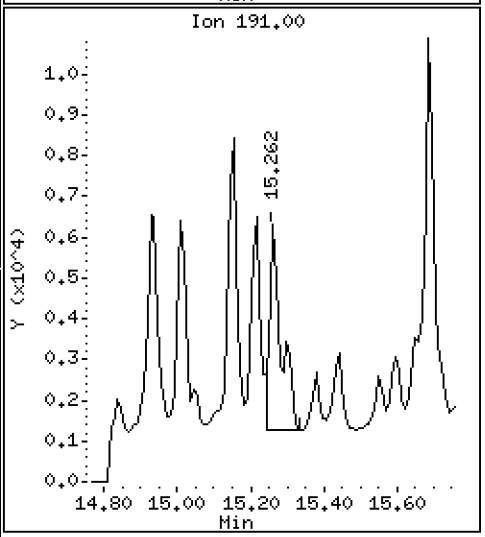
23 1-Methylphenanthrene

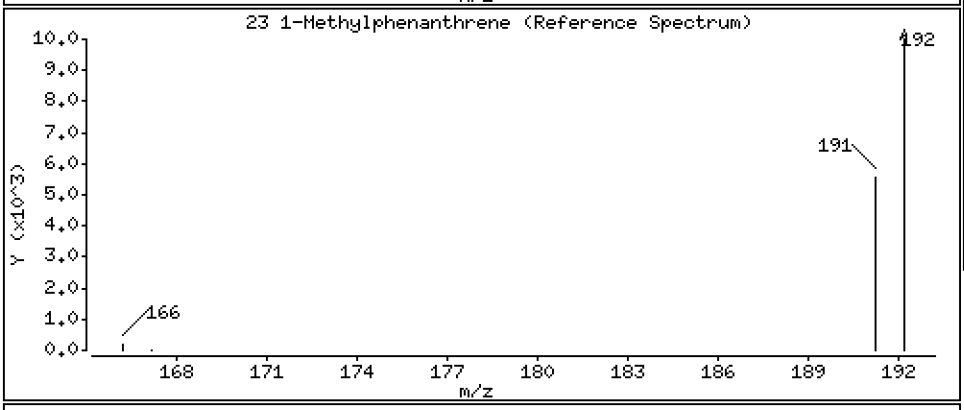
Concentration: 7.55 ng/mL

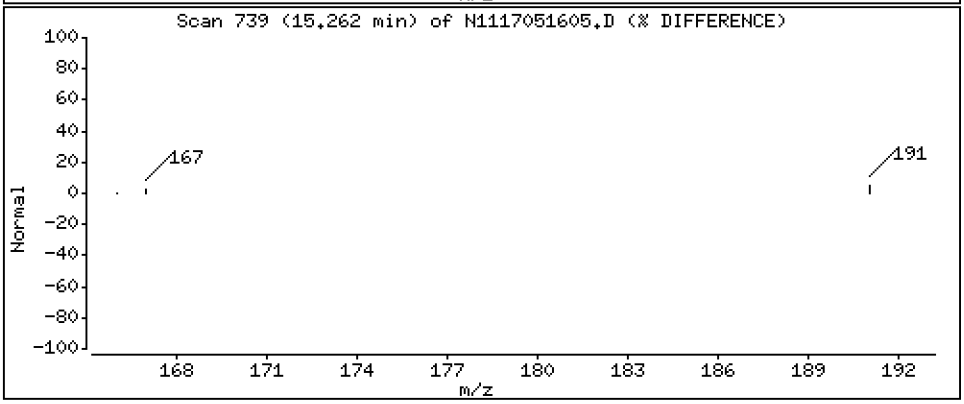












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Date : 16-MAY-2017 12:48

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-01

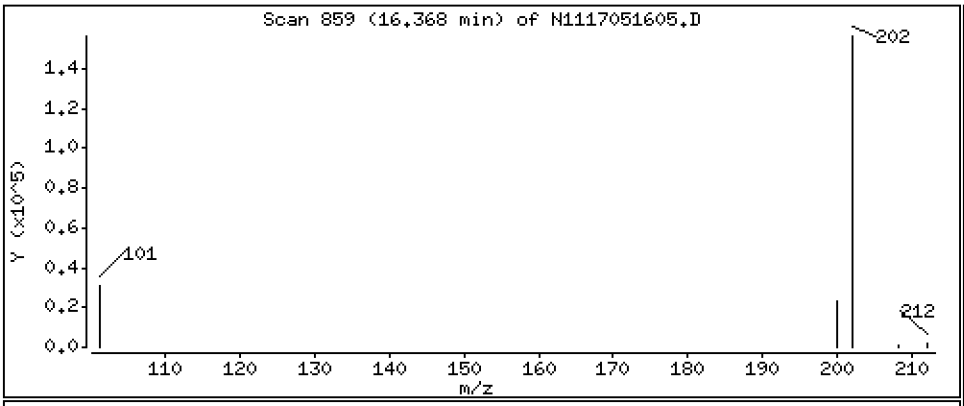
Operator: VTS

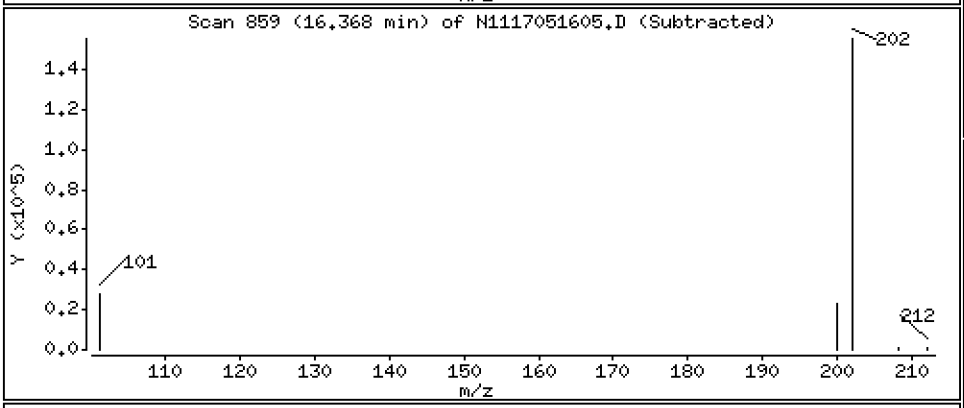
Column phase: Rxi-17Sil MS

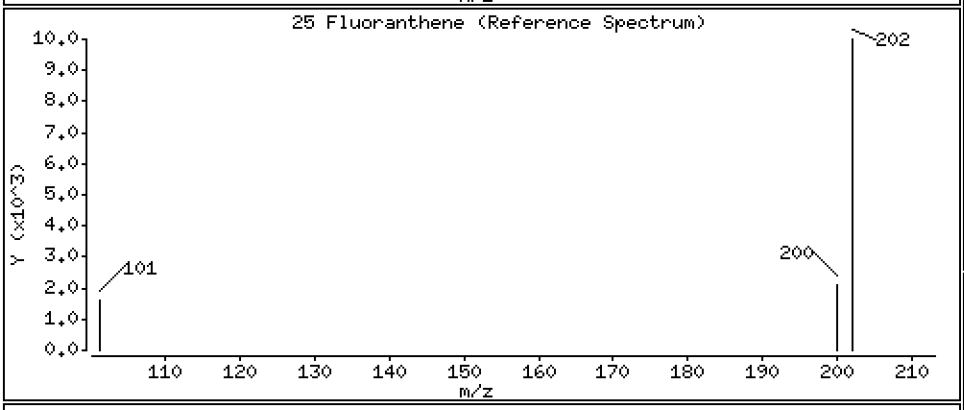
Column diameter: 0.25

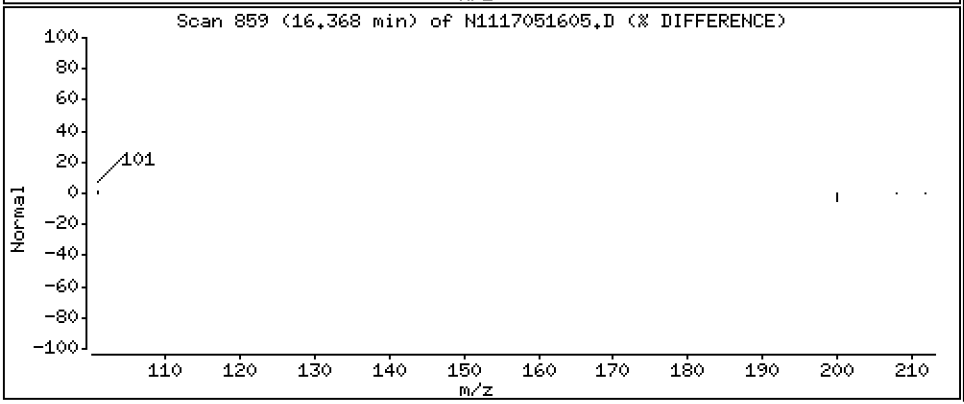
25 Fluoranthene

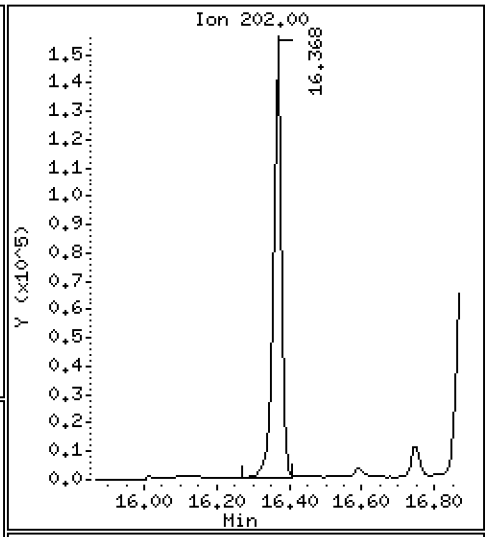
Concentration: 127 ng/mL

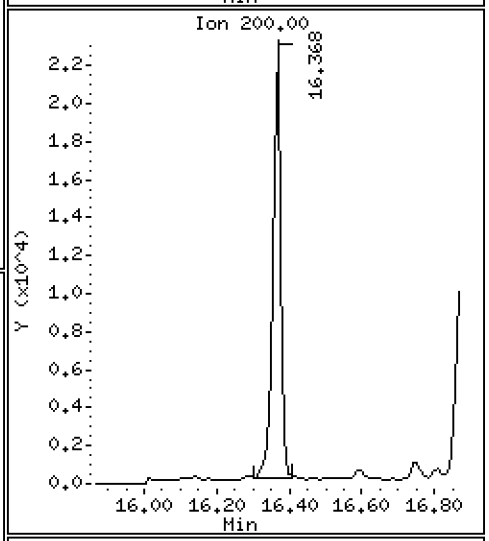


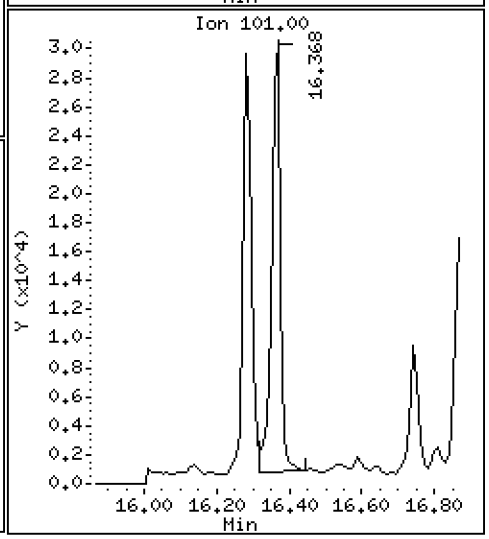












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Date : 16-MAY-2017 12:48

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-01

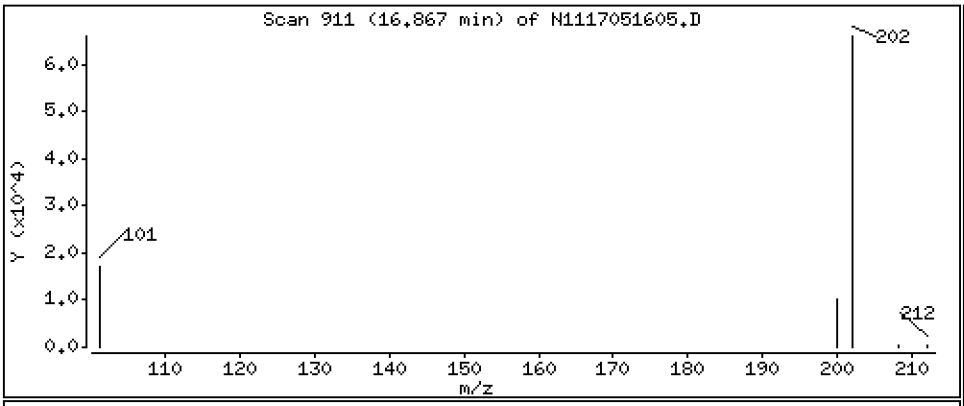
Operator: VTS

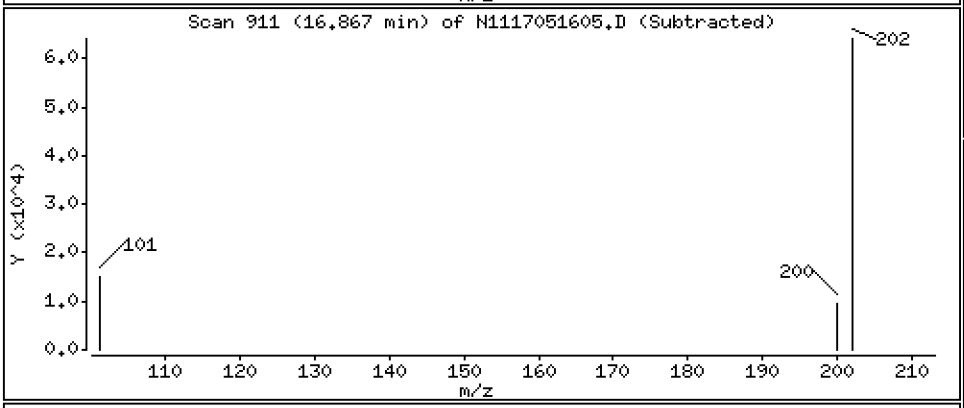
Column phase: Rxi-17Sil MS

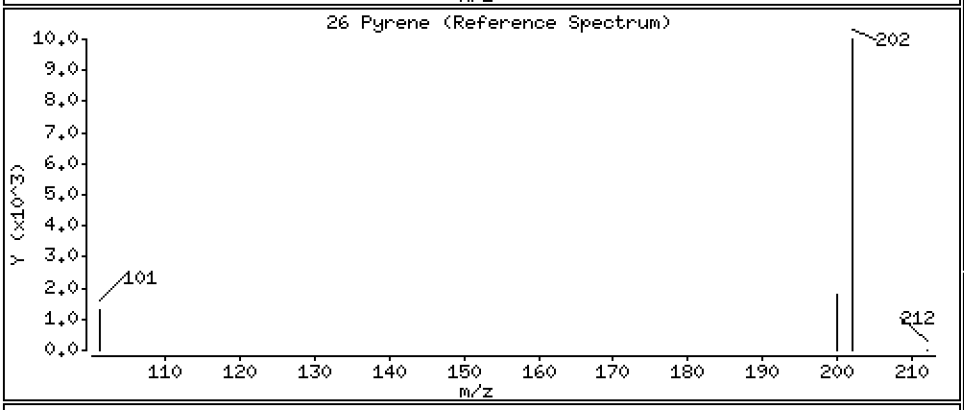
Column diameter: 0.25

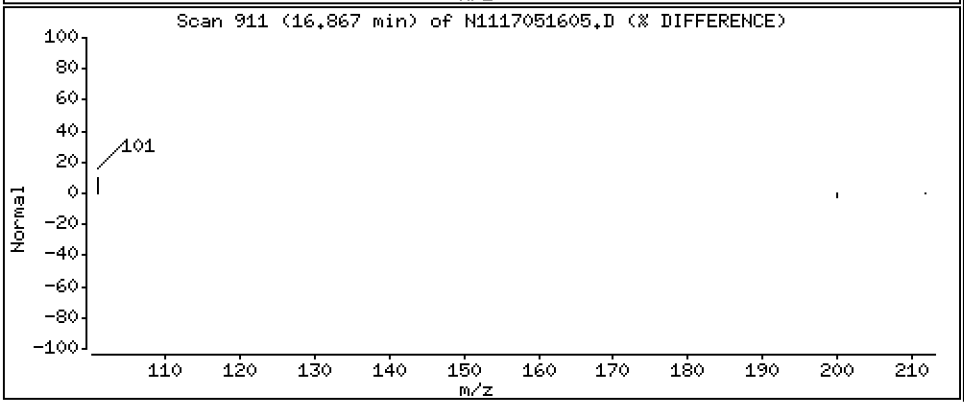
26 Pyrene

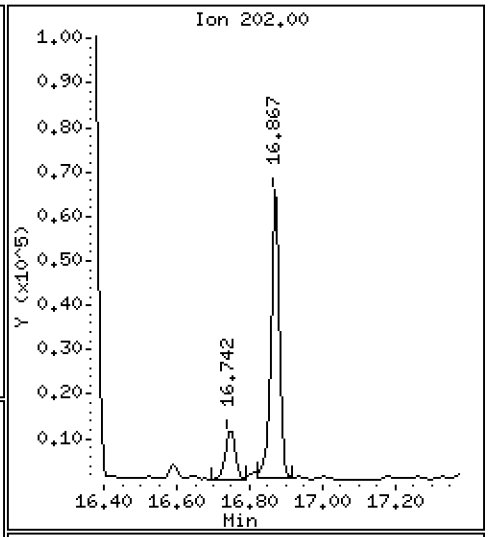
Concentration: 71.6 ng/mL

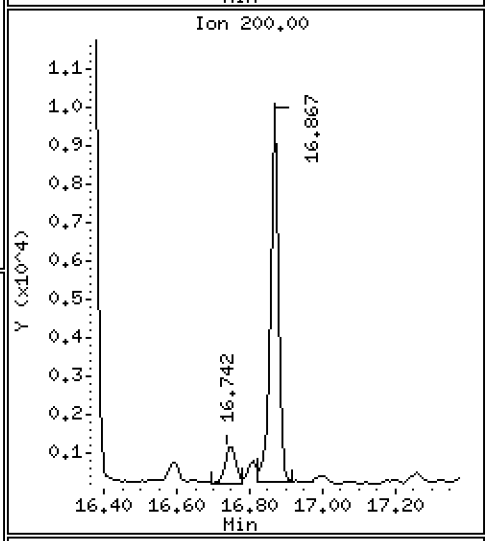


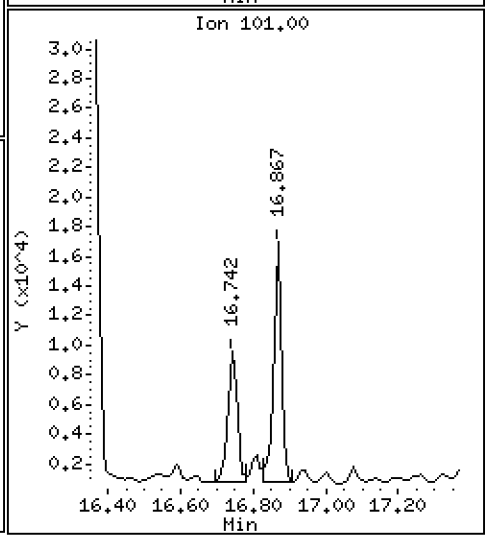












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Date : 16-MAY-2017 12:48

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-01

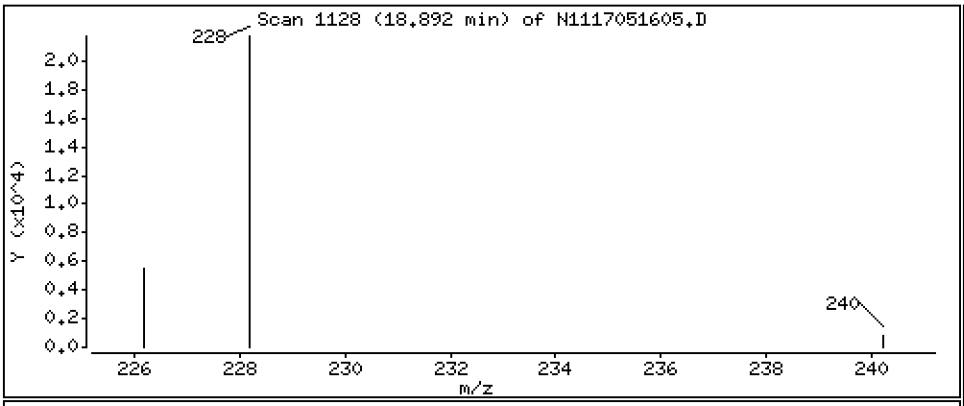
Operator: VTS

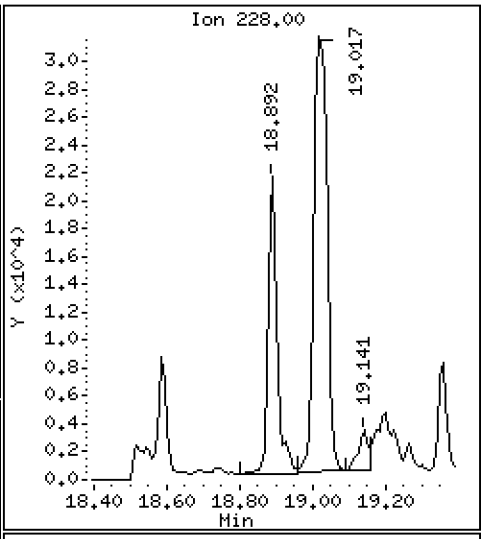
Column phase: Rxi-17Sil MS

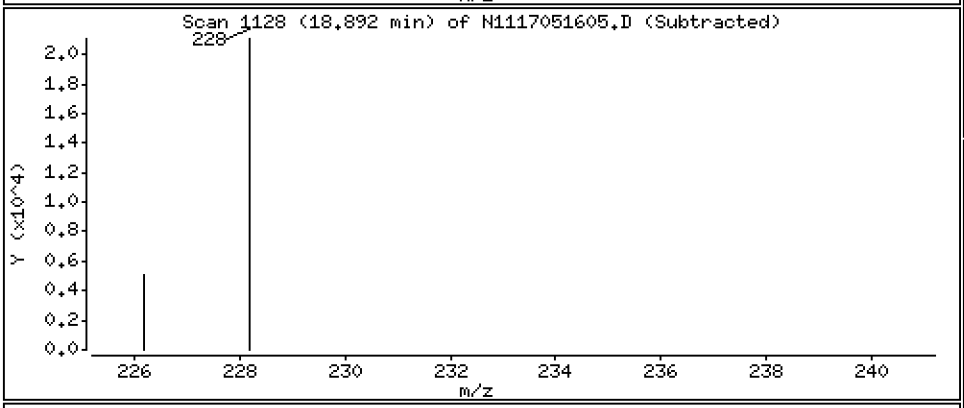
Column diameter: 0.25

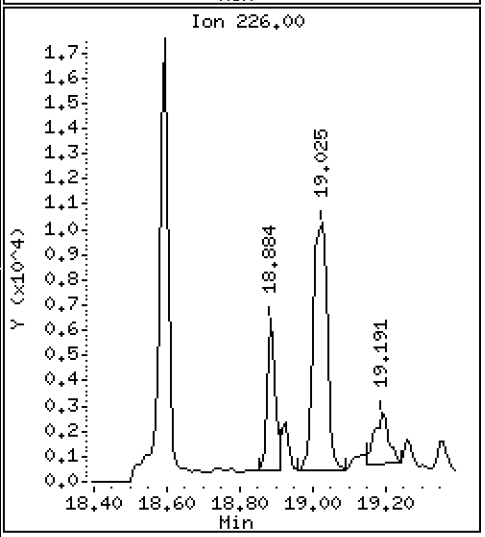
27 Benzo(a)anthracene

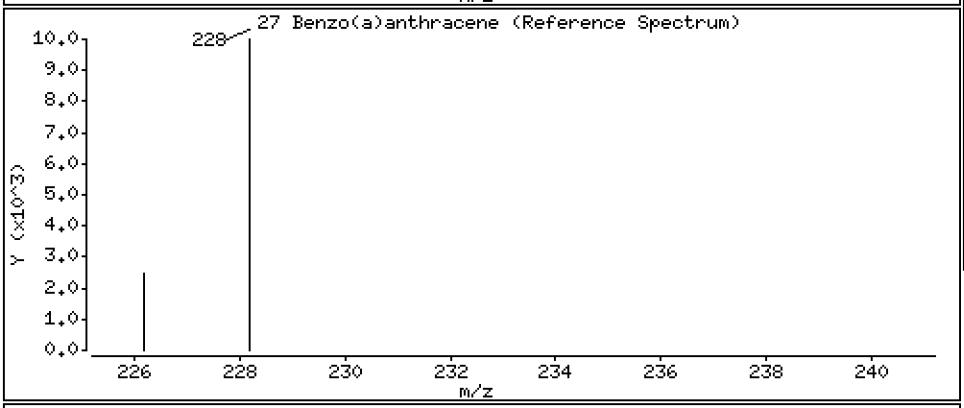
Concentration: 29.9 ng/mL

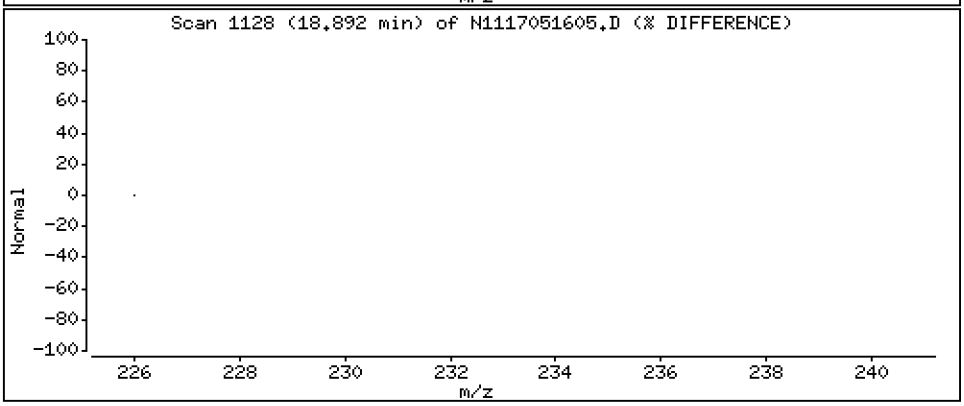












Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051605.D

Date : 16-MAY-2017 12:48

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-01

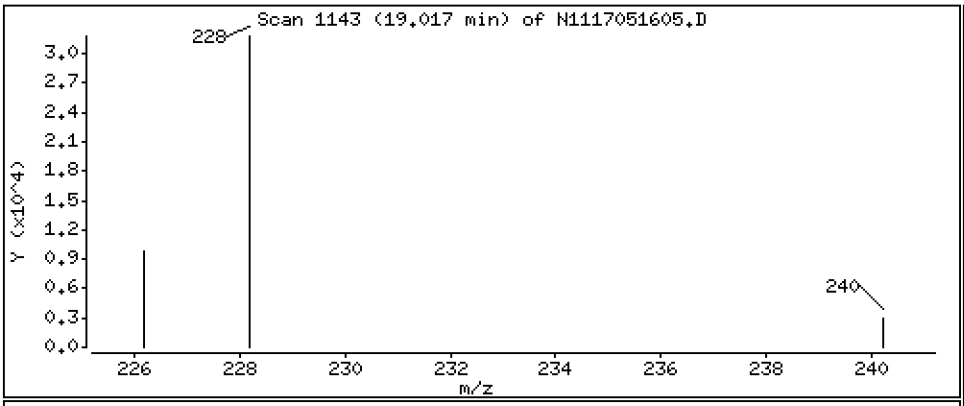
Operator: VTS

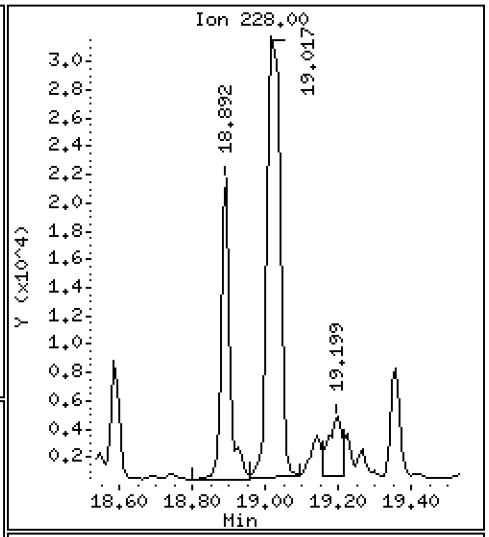
Column phase: Rxi-17Sil MS

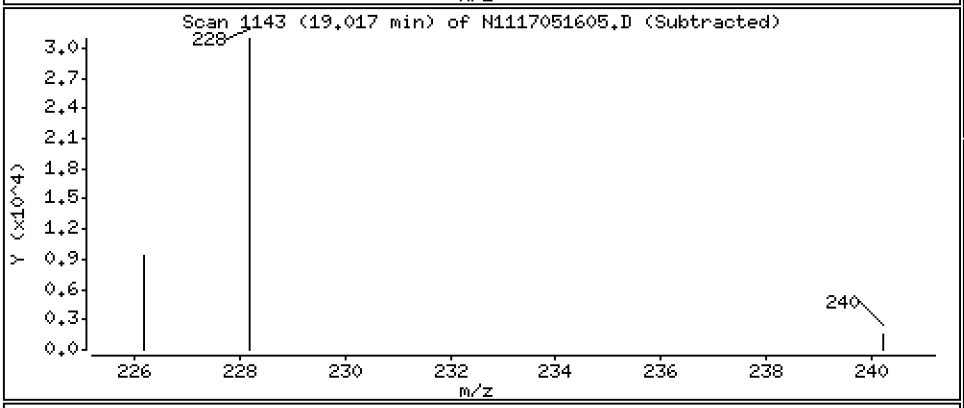
Column diameter: 0.25

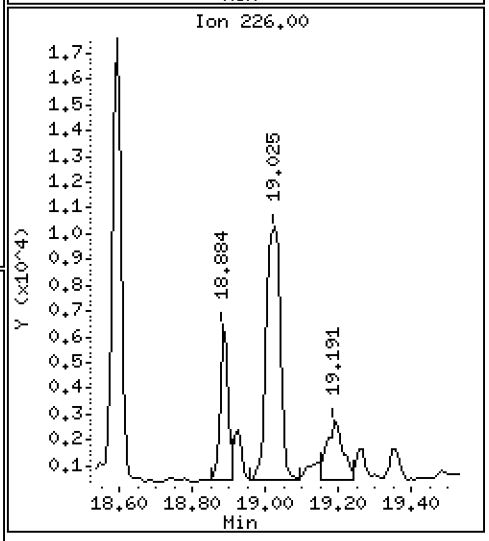
29 Chrysene

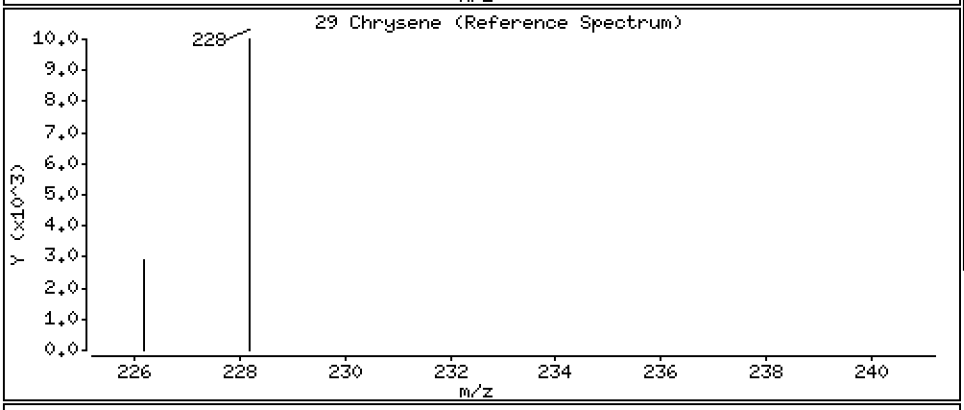
Concentration: 61.9 ng/mL

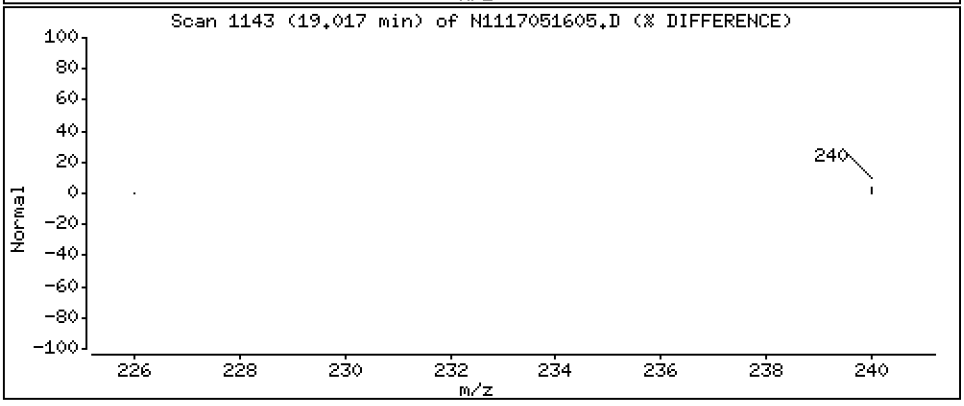












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Date : 16-MAY-2017 12:48

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-01

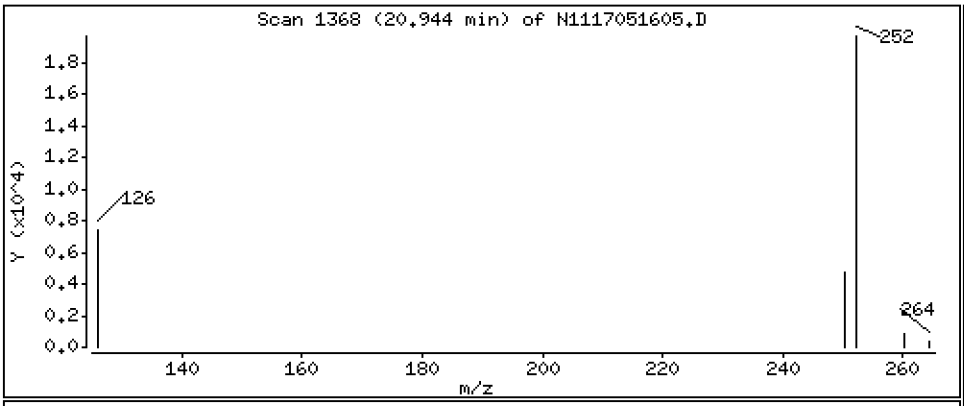
Operator: VTS

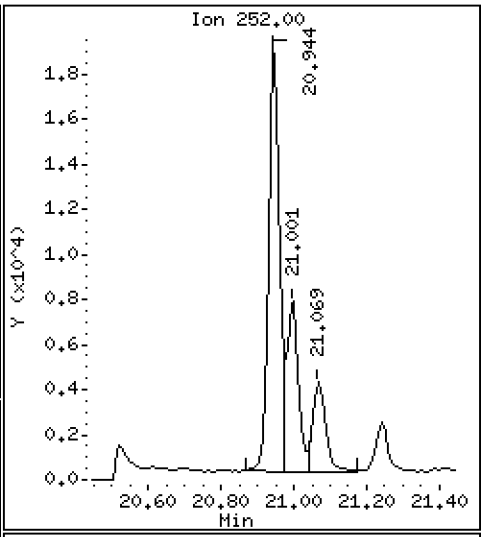
Column phase: Rxi-17Sil MS

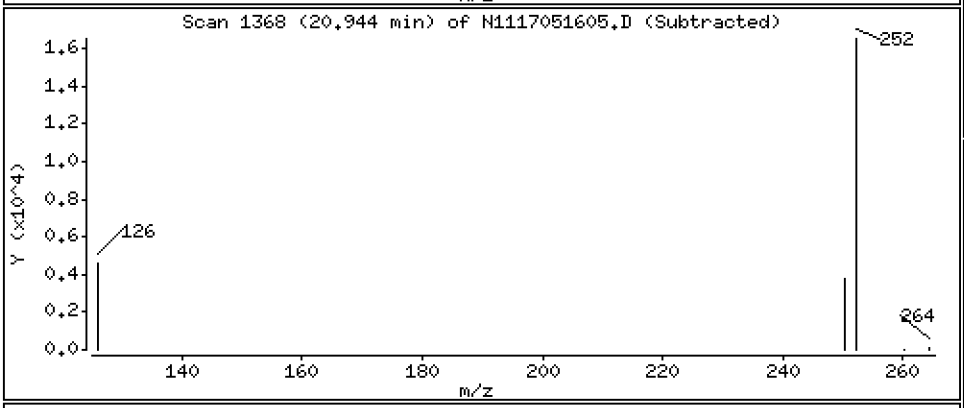
Column diameter: 0.25

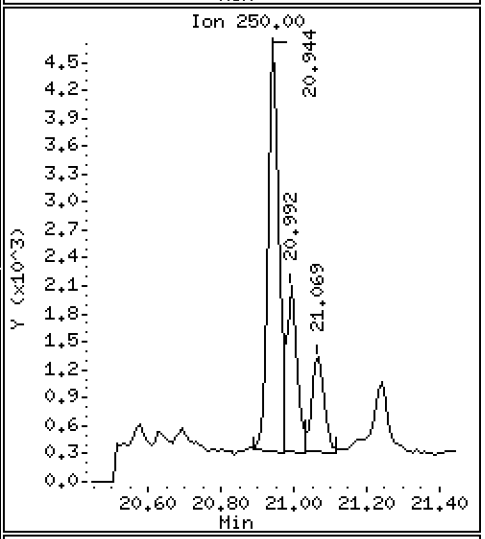
30 Benzo(b)fluoranthene

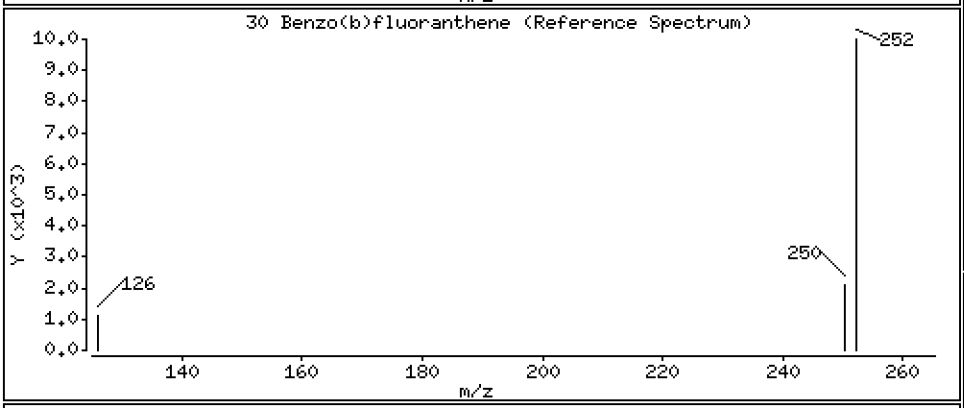
Concentration: 28.0 ng/mL

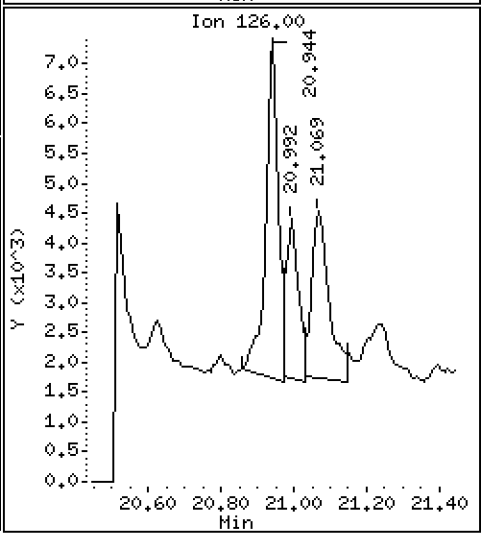


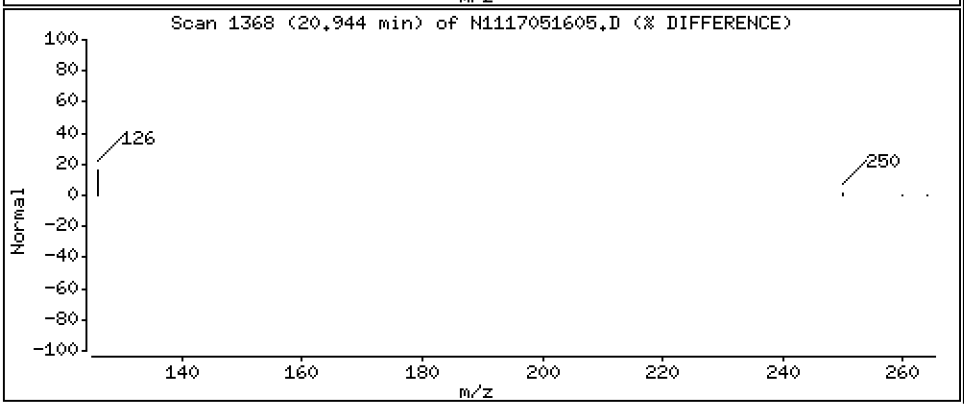












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Date : 16-MAY-2017 12:48

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-01

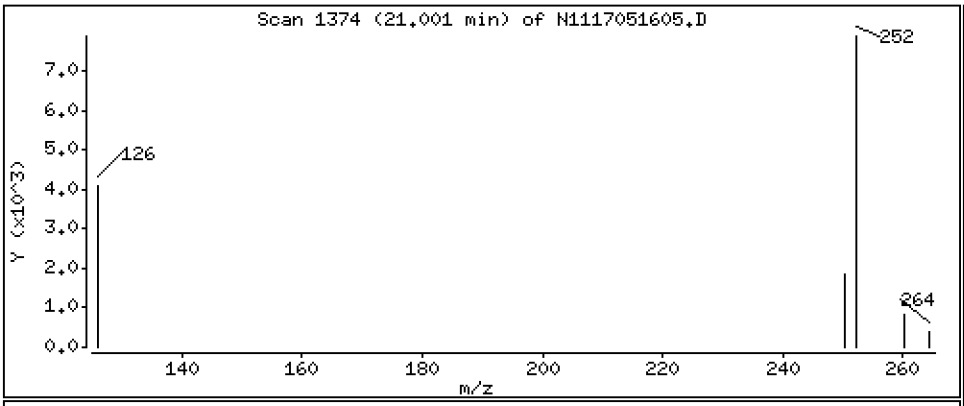
Operator: VTS

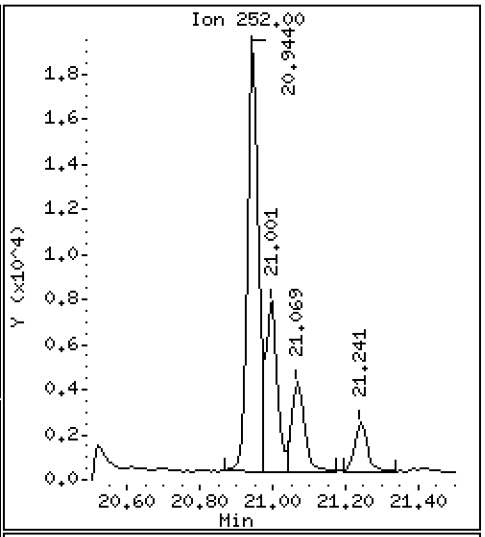
Column phase: Rxi-17Sil MS

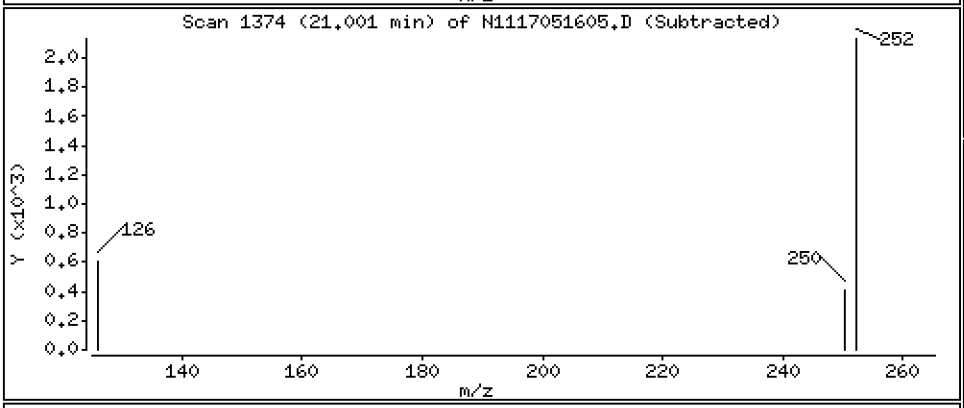
Column diameter: 0.25

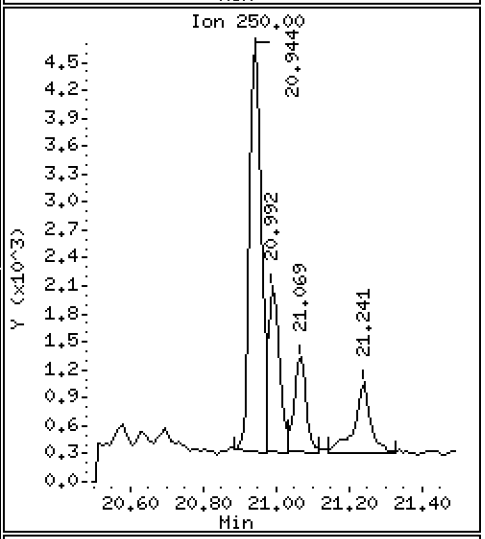
31 Benzo(k)fluoranthene

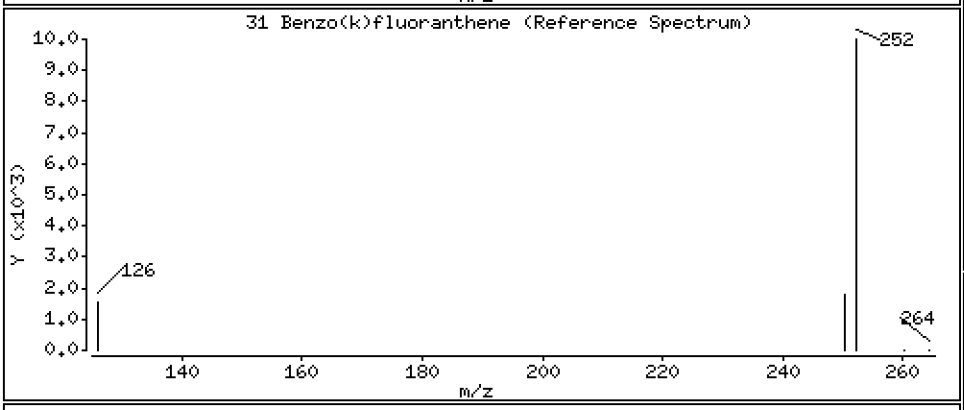
Concentration: 13.1 ng/mL

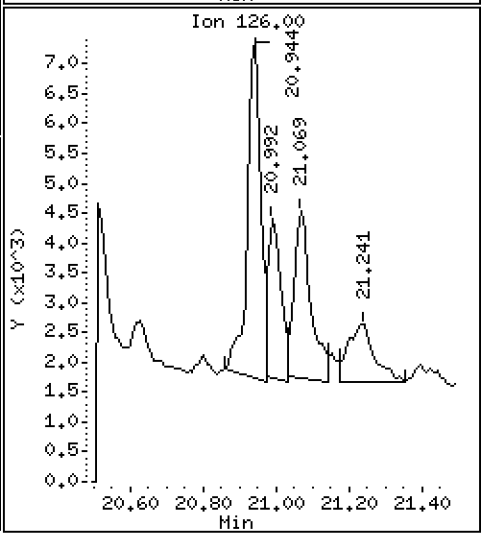


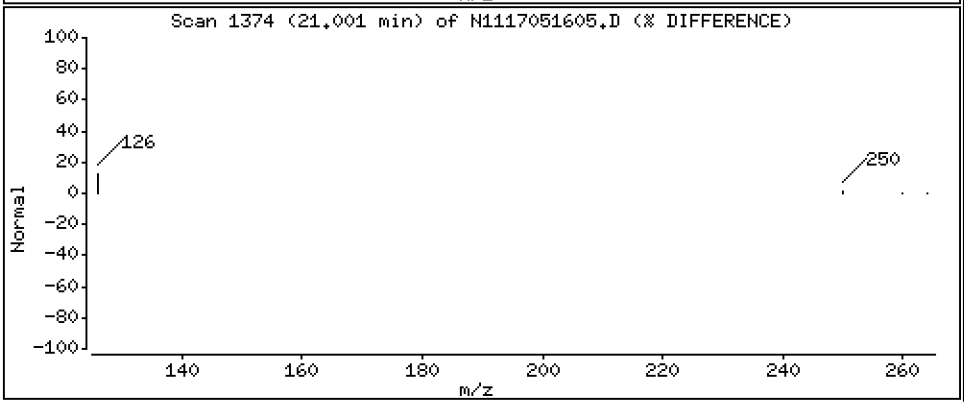












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Date : 16-MAY-2017 12:48

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-01

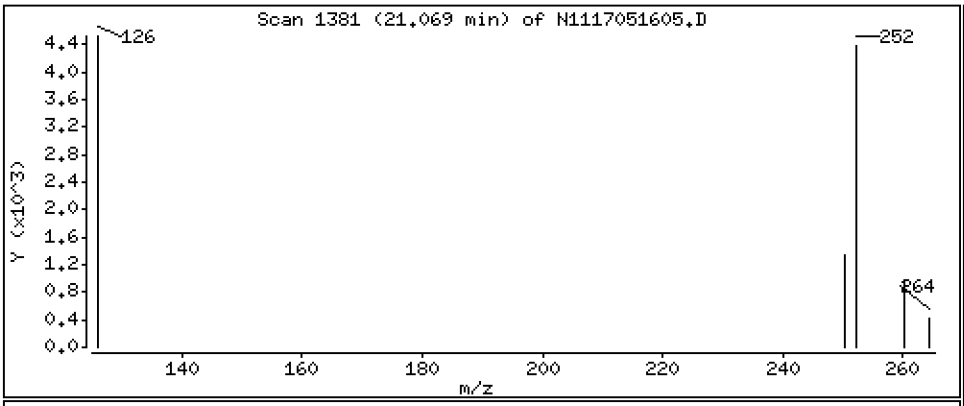
Operator: VTS

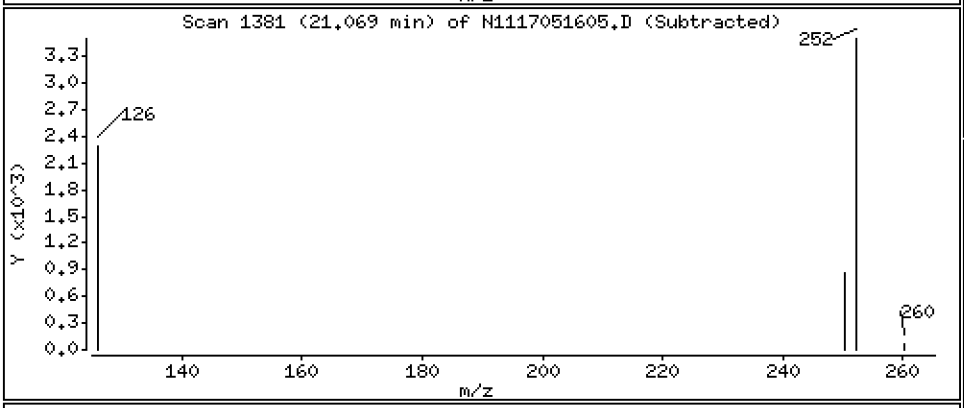
Column phase: Rxi-17Sil MS

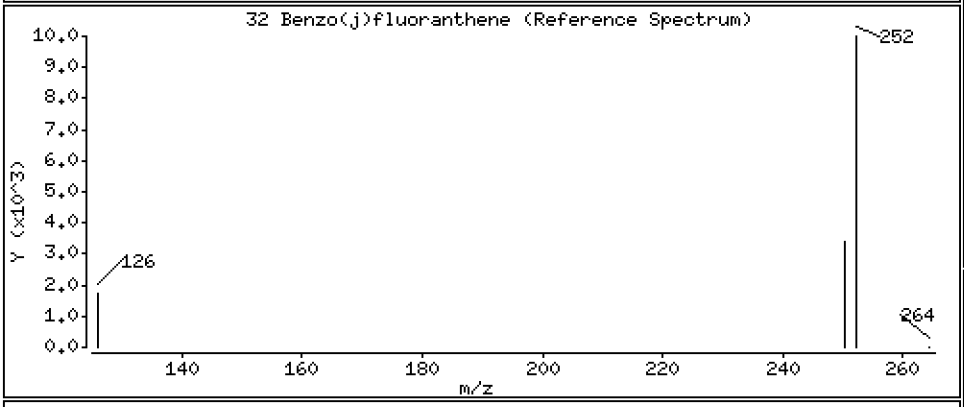
Column diameter: 0.25

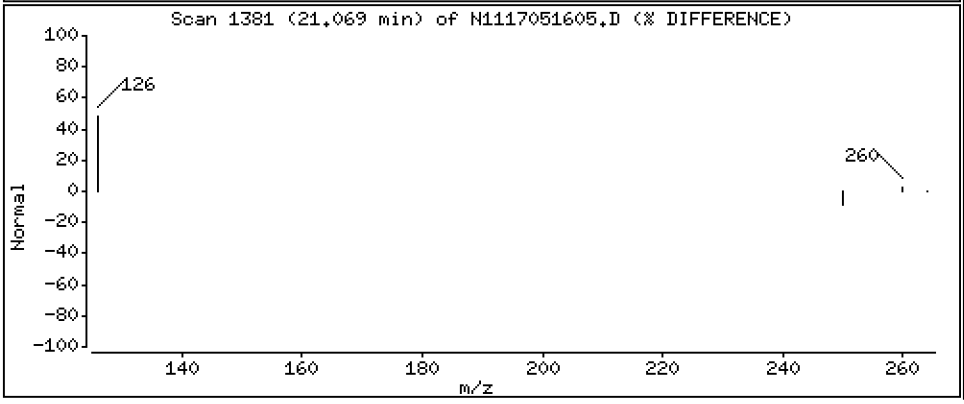
32 Benzo(j)fluoranthene

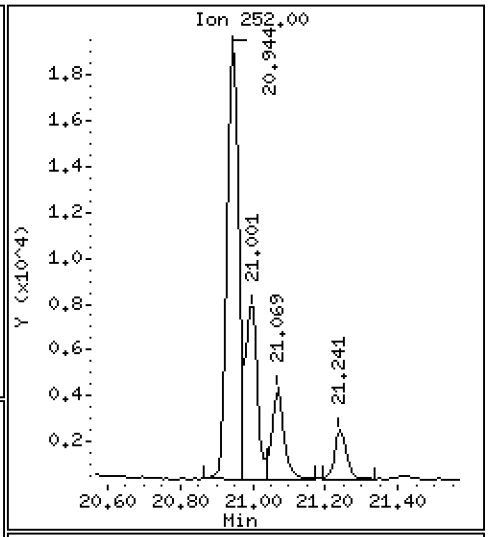
Concentration: 6.98 ng/mL

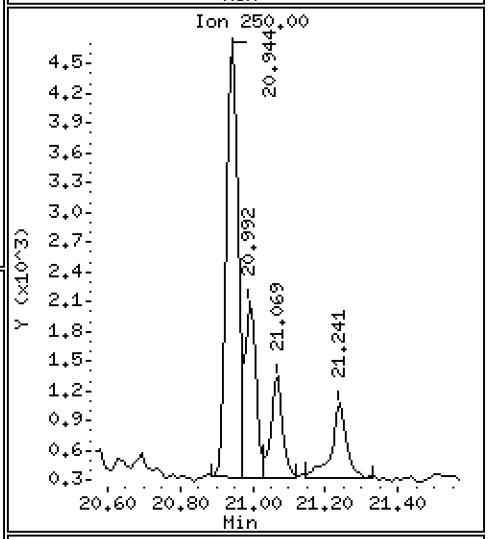


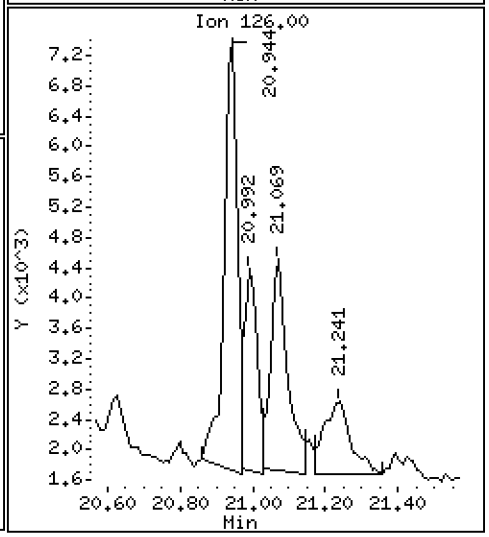












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Date : 16-MAY-2017 12:48

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-01

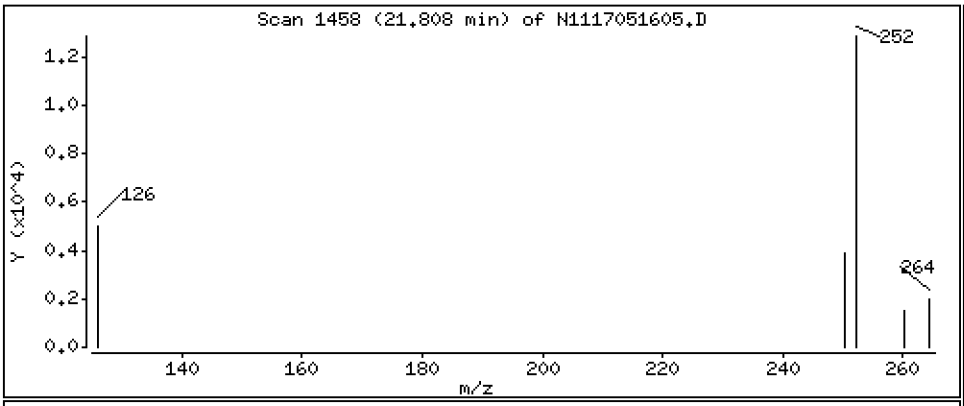
Operator: VTS

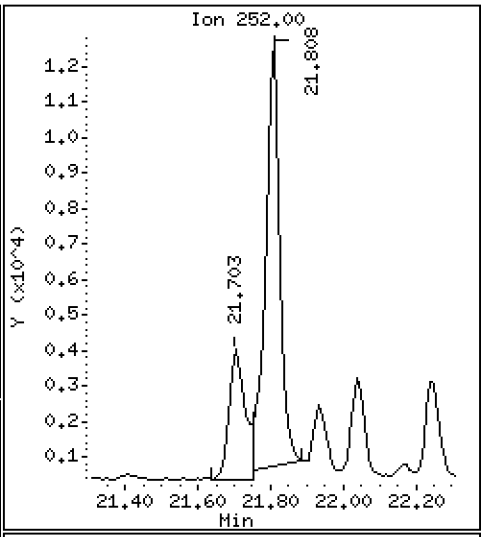
Column phase: Rxi-17Sil MS

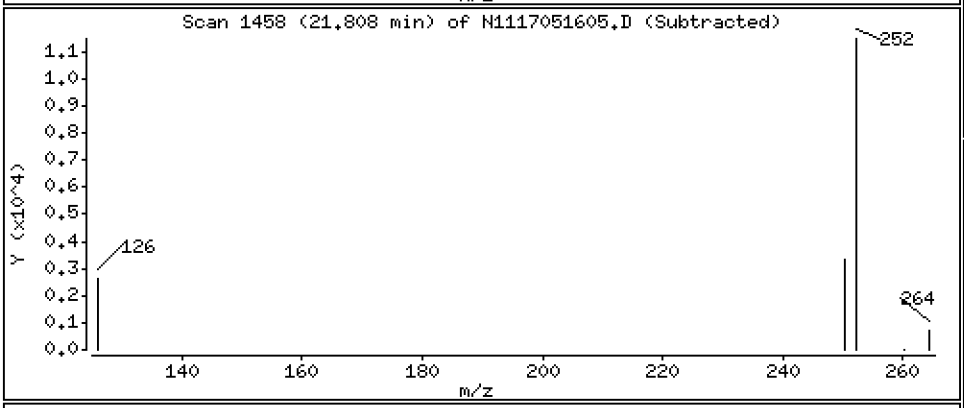
Column diameter: 0.25

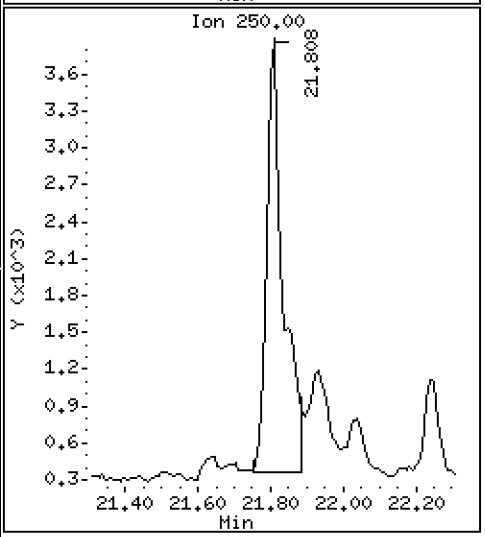
34 Benzo(e)pyrene

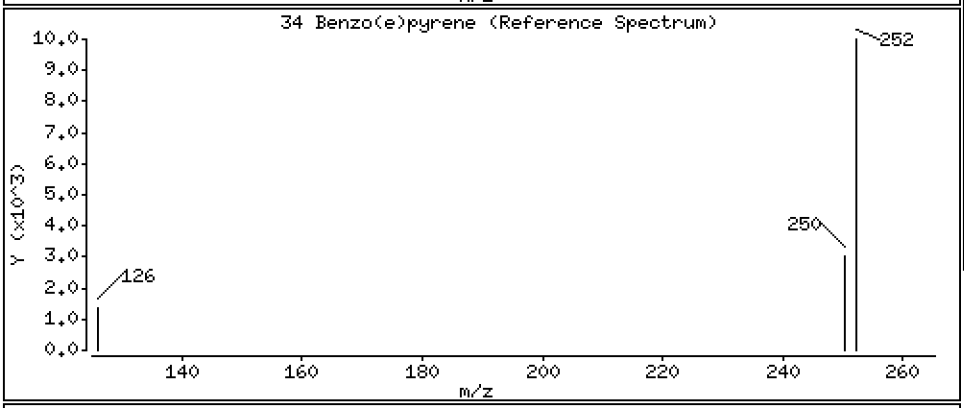
Concentration: 24.4 ng/mL

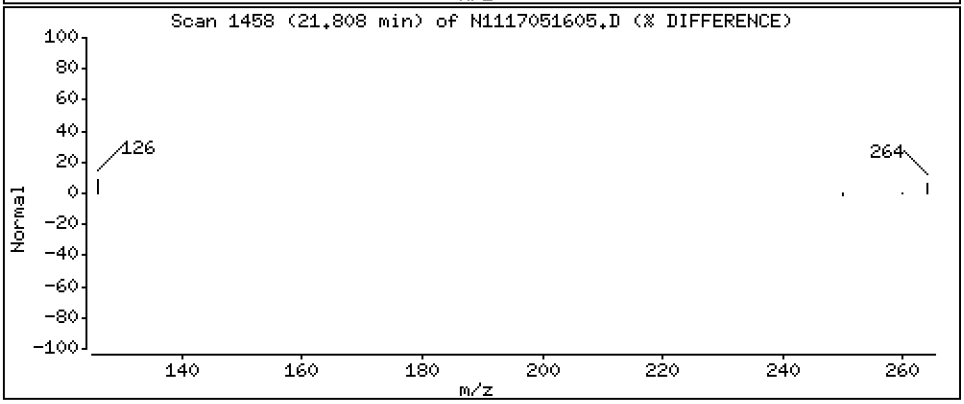












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Date : 16-MAY-2017 12:48

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-01

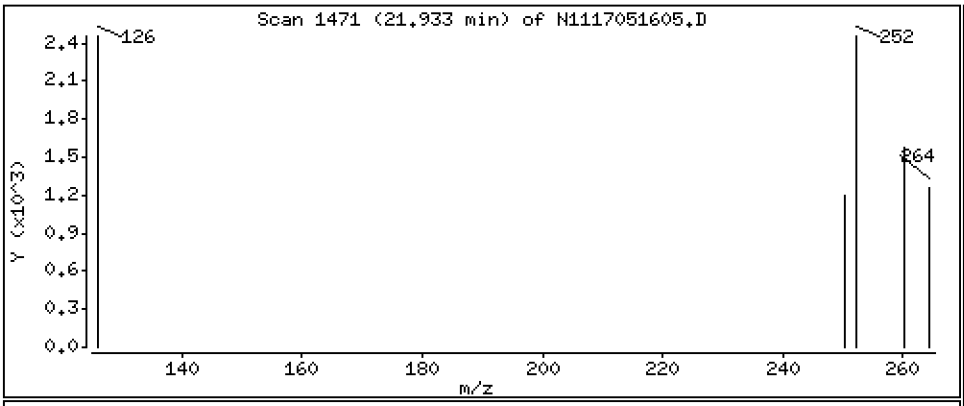
Operator: VTS

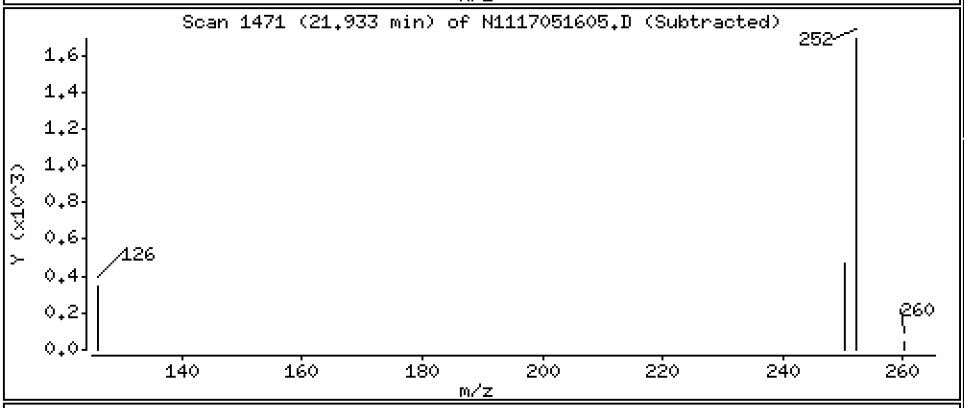
Column phase: Rxi-17Sil MS

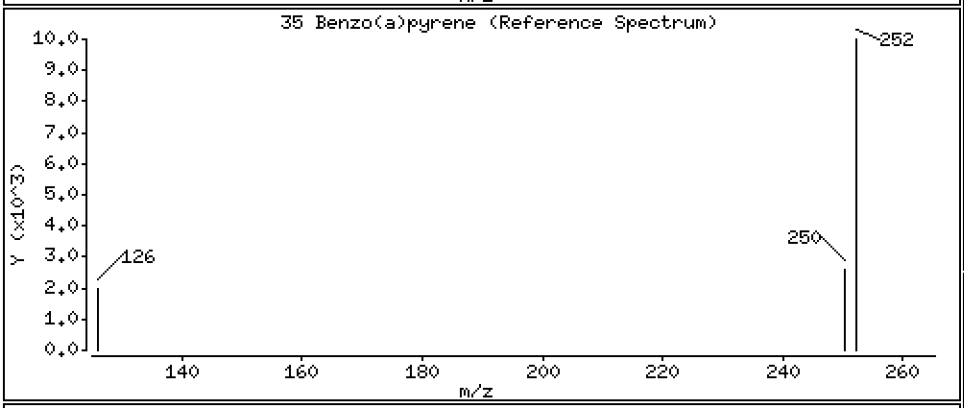
Column diameter: 0.25

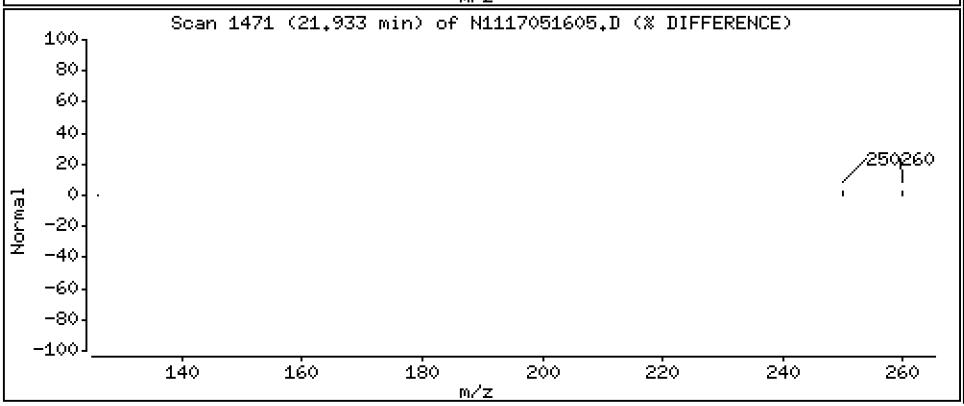
35 Benzo(a)pyrene

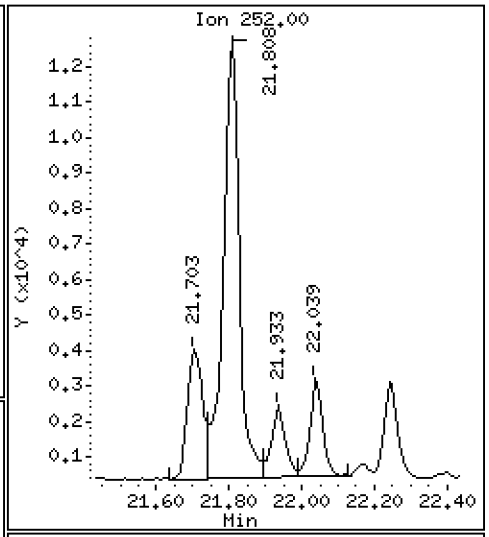
Concentration: 4.13 ng/mL

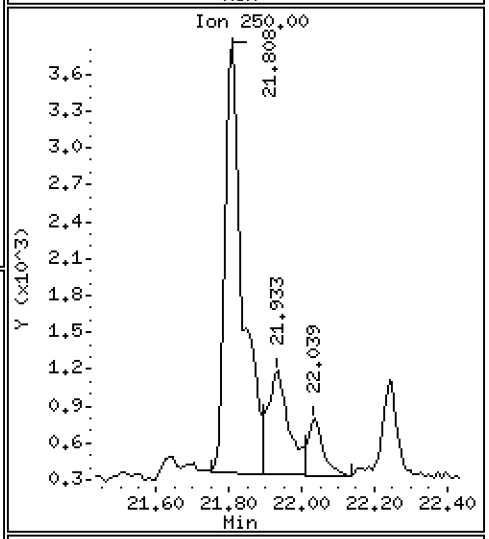


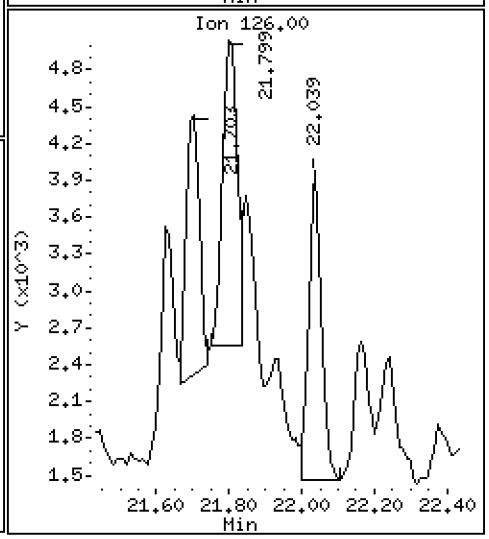












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Date : 16-MAY-2017 12:48

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-01

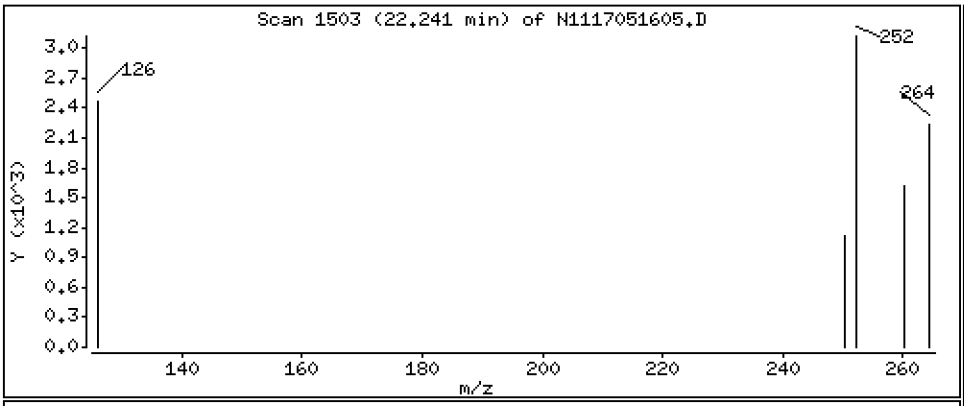
Operator: VTS

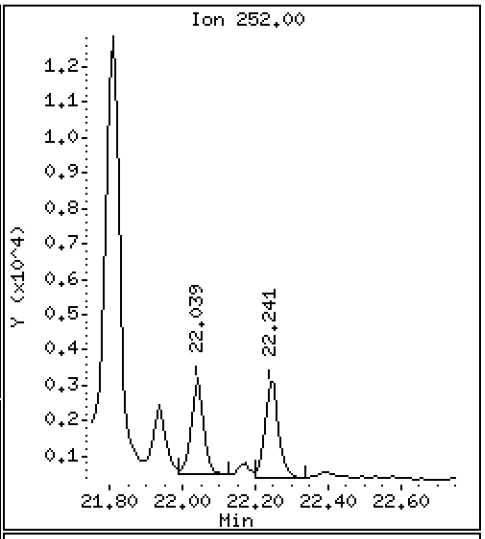
Column phase: Rxi-17Sil MS

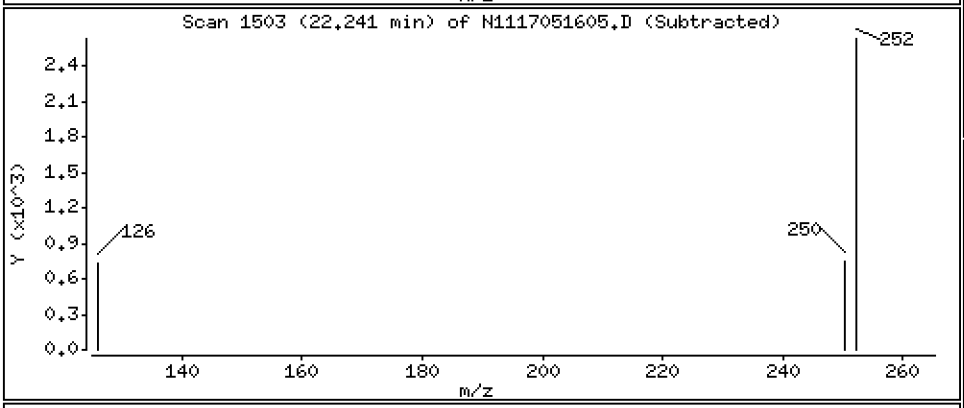
Column diameter: 0.25

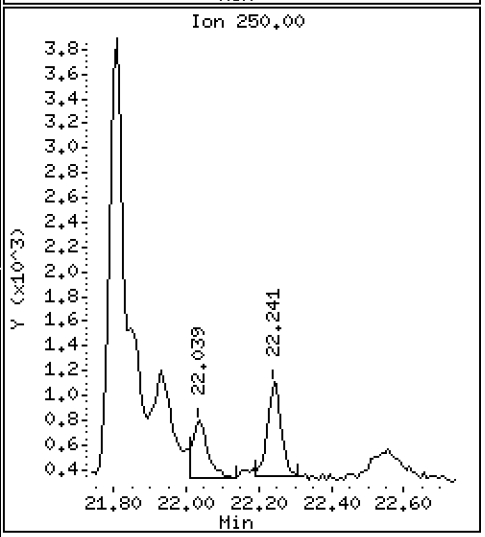
37 Perylene

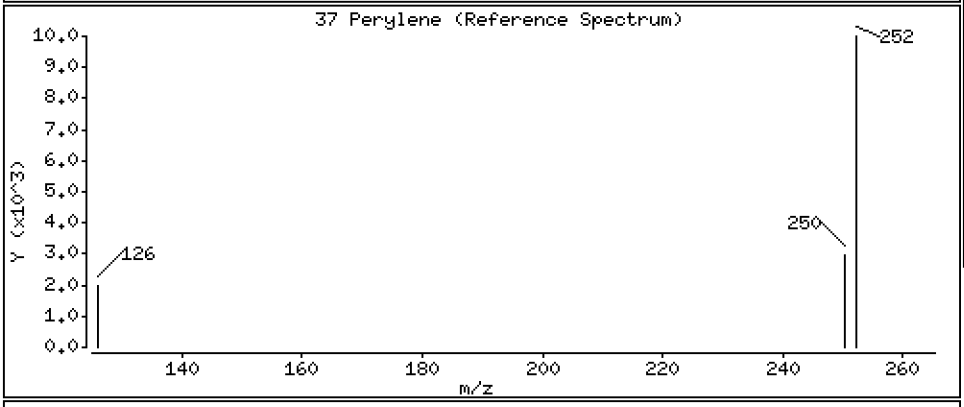
Concentration: 5.27 ng/mL

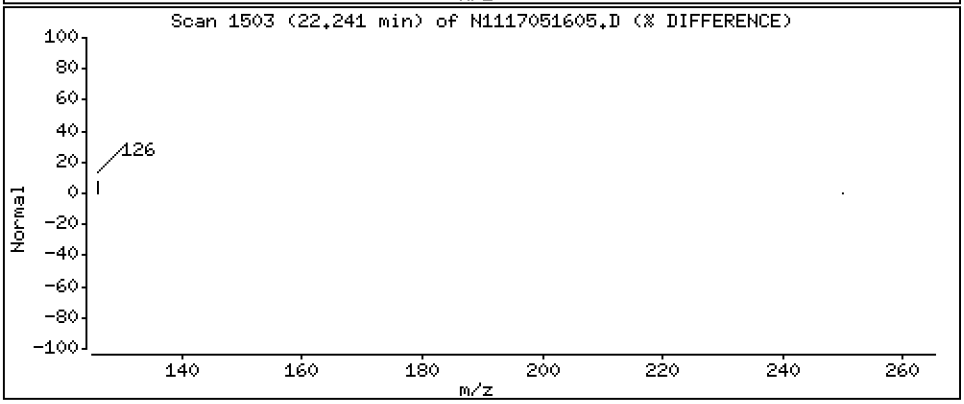












ARI Labs, Inc.

LOW LEVEL PNAs BY SW8270D-SIM

Data file : \\target\share\chem3\nt11.i\20170516.b\N1117051605.D
Lab Smp Id: 17D0421-01
Inj Date : 16-MAY-2017 12:48 MS Autotune Date: 15-JAN-2015 16:59
Operator : VTS Inst ID: nt11.i
Smp Info : 17D0421-01
Misc Info :
Comment   :
Method   : \\target\share\chem3\nt11.i\20170516.b\LOWSIM.m
Meth Date : 17-May-2017 08:15 nt11.i Quant Type: ISTD
Cal Date : 05-MAY-2017 14:47 Cal File: 17050508.D
Als bottle: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: allpna.sub
Target Version: 4.14
Processing Host: VANS

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ng/mL)	FINAL (ng/mL)
*	1 Naphthalene-d8	136	8.481	8.500	(1.000)	438404	200.000	
	2 Naphthalene	128	8.518	8.536	(1.004)	23180	9.83847	9.84
	3 Benzo(b)thiophene	134	Compound Not Detected.					
$	4 2-Methylnaphthalene-d10	152	9.466	9.477	(1.116)	348178	185.328	185
	5 2-Methylnaphthalene	142	9.529	9.540	(1.124)	21373	9.83501	9.84
	6 1-Methylnaphthalene	142	9.782	9.792	(1.153)	11384	5.41683	5.42
	7 2-Chloronaphthalene	162	Compound Not Detected.					
	8 Biphenyl	154	Compound Not Detected.					
	9 2,6-Dimethylnaphthalene	156	Compound Not Detected.					
	10 Acenaphthylene	152	11.374	11.383	(0.987)	8328	3.98719	3.99
*	11 Acenaphthene-d10	164	11.519	11.528	(1.000)	178201	200.000	
	12 Acenaphthene	153	11.582	11.591	(1.005)	7808	5.71671	5.72(M)
	13 Dibenzofuran	168	11.785	11.797	(1.023)	15855	8.41363	8.41
	14 2,3,5-Trimethylnaphthalene	170	Compound Not Detected.					
$	15 Fluorene-d10	174	Compound Not Detected.					
	16 Fluorene	166	12.417	12.429	(1.078)	13802	9.39203	9.39
	17 Dibenzothiophene	184	Compound Not Detected.					
*	18 Phenanthrene-d10	188	14.220	14.220	(1.000)	271028	200.000	
	19 Phenanthrene	178	14.262	14.262	(1.003)	79414	39.3617	39.4
$	20 Anthracene-d10	188	Compound Not Detected.					
	21 Anthracene	178	14.315	14.325	(1.007)	20652	10.3902	10.4
	22 Carbazole	167	Compound Not Detected.					
	23 1-Methylphenanthrene	192	15.262	15.271	(1.073)	13802	7.55382	7.55
$	24 Fluoranthene-d10	212	16.329	16.338	(1.148)	270479	211.105	211
	25 Fluoranthene	202	16.367	16.367	(1.151)	247168	127.480	127
	26 Pyrene	202	16.867	16.876	(0.889)	112175	71.5506	71.6
	27 Benzo(a)anthracene	228	18.892	18.892	(0.995)	36905	29.9272	29.9
*	28 Chrysene-d12	240	18.983	18.983	(1.000)	173174	200.000	
	29 Chrysene	228	19.016	19.033	(1.002)	78770	61.8920	61.9
	30 Benzo(b)fluoranthene	252	20.943	20.943	(0.945)	41422	27.9581	28.0
	31 Benzo(k)fluoranthene	252	21.001	21.001	(0.947)	19297	13.1384	13.1
	32 Benzo(j)fluoranthene	252	21.068	21.068	(0.950)	9607	6.98094	6.98
$	33 Benzo(e)pyrene-d12	264	Compound Not Detected.					

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ng/mL)	CONCENTRATIONS FINAL (ng/mL)
	34 Benzo(e)pyrene	252	21.808	21.808	(0.984)	33578	24.3800	24.4
	35 Benzo(a)pyrene	252	21.933	21.933	(0.989)	5540	4.13361	4.13
*	36 Perylene-d12	264	22.173	22.173	(1.000)	237101	200.000	
	37 Perylene	252	22.240	22.250	(1.003)	7271	5.26507	5.27
$	38 Dibenzo(a,h)anthracene-d14	292	25.005	25.016	(1.128)	165815	187.481	187
	39 Dibenzo(a,h)anthracene	278	Compound Not Detected.					
	40 Indeno(1,2,3-cd)pyrene	276	Compound Not Detected.					
	41 Benzo(g,h,i)perylene	276	Compound Not Detected.					

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt11.i
Lab File ID: N1117051605.D
Lab Smp Id: 17D0421-01
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: \\target\share\chem3\nt11.i\20170516.b\LOWSIM.m
Misc Info:

Calibration Date: 16-MAY-2017
Calibration Time: 10:47
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	371325	185663	742650	438404	18.06
11 Acenaphthene-d10	154428	77214	308856	178201	15.39
18 Phenanthrene-d10	256956	128478	513912	271028	5.48
28 Chrysene-d12	208629	104315	417258	173174	-16.99
36 Perylene-d12	225431	112716	450862	237101	5.18

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	8.50	8.00	9.00	8.48	-0.21
11 Acenaphthene-d10	11.53	11.03	12.03	11.52	-0.08
18 Phenanthrene-d10	14.22	13.72	14.72	14.22	0.00
28 Chrysene-d12	18.98	18.48	19.48	18.98	0.00
36 Perylene-d12	22.17	21.67	22.67	22.17	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N1117051605.D

Lab ID: 17D0421-01
nt11.i, 20170516.b\LOWSIM.m,   16-MAY-2017 12:48

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

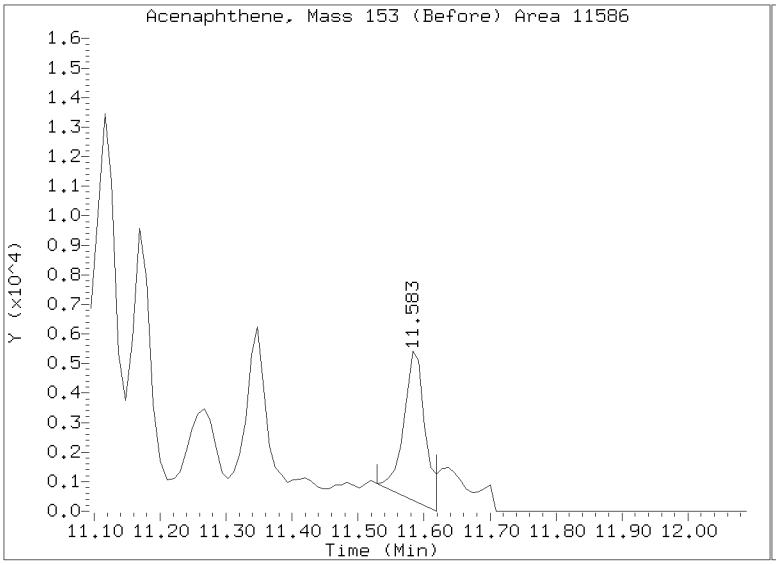
NONE

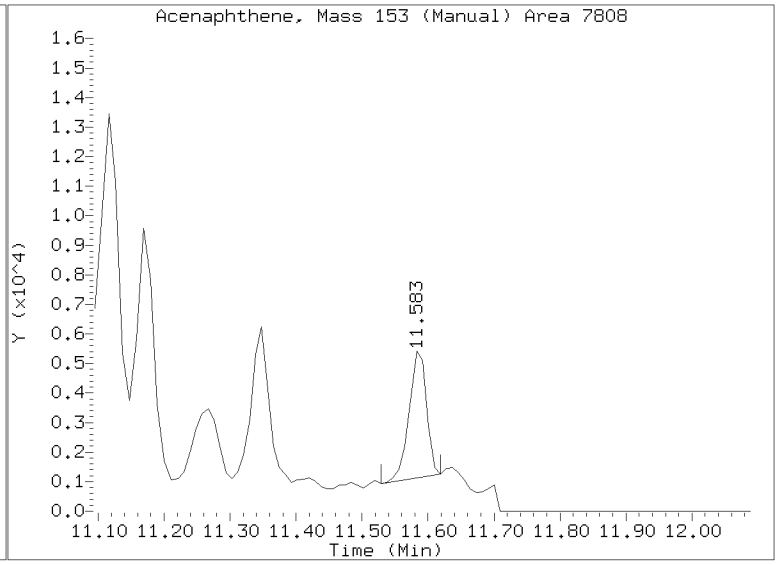
On Column LOD for nt11.i, 20170516.b\LOWSIM.m, allpna.sub = 3.0000

Exception: Naphthalene 6.0000
Exception: Phenanthrene 2.5000
Exception: Anthracene 2.0000
Exception: Pyrene 4.0000
Exception: Benzo(j)fluoranthene 2.5000
Exception: Benzo(a)pyrene 2.0000
Exception: Perylene 3.5000
Exception: Benzo(e)pyrene 2.0000
Exception: Benzo(b)thiophene 2.0000
Exception: 2-Chloronaphthalene 2.0000
Exception: 2,6-Dimethylnaphthalene 2.0000
Exception: 2,3,5-Trimethylnaphthalene 2.0000
Exception: 1-Methylphenanthrene 2.0000
Exception: Dibenzothiophene 2.0000
Exception: Carbazole 2.0000
Exception: Biphenyl 2.0000
Exception: 2-Methylnaphthalene-d10 (Surr) 0.1000
Exception: Dibenzo(a,h)anthracene-d14 (Surr) 0.1000
Exception: Fluoranthene-d10 (Surr) 0.1000
Exception: Anthracene-d10 (Surr) 0.1000
Exception: Benzo(e)pyrene-d12 (Surr) 0.1000
Exception: Fluorene-d10 (Surr) 0.1000

Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem3/nt11.i/20170516.b/N1117051605.D
Injection Date: 16-MAY-2017 12:48
Lab ID:17D0421-01 Client ID:
Report Date: 05/17/2017 08:15





PG-GP-COC-COC-170424

Form I

ORGANIC ANALYSIS DATA SHEET

EPA 8270D-SIM

Polynuclear Aromatic Hydrocarbons - low level

Laboratory:	Analytical Resources, Inc.			SDG:	17D0421
Client:	Anchor QEA, LLC			Project:	Port Gamble Shellfish Monitoring
Matrix:	Tissue	Laboratory ID:	17D0421-02	File ID:	N1117051606.D
Sampled:	04/24/17 10:45	Prepared:	05/09/17 13:50	Analyzed:	05/16/17 13:24
Solids:		Preparation:	EPA 3550C-Mod (Ultrasonic	Initial/Final:	10 g / 0.5 mL
Batch:	BFE0160	Sequence:	SFE0208	Calibration:	AE00020
Instrument:	NT11	Column:	RXi-17Sil-MS		

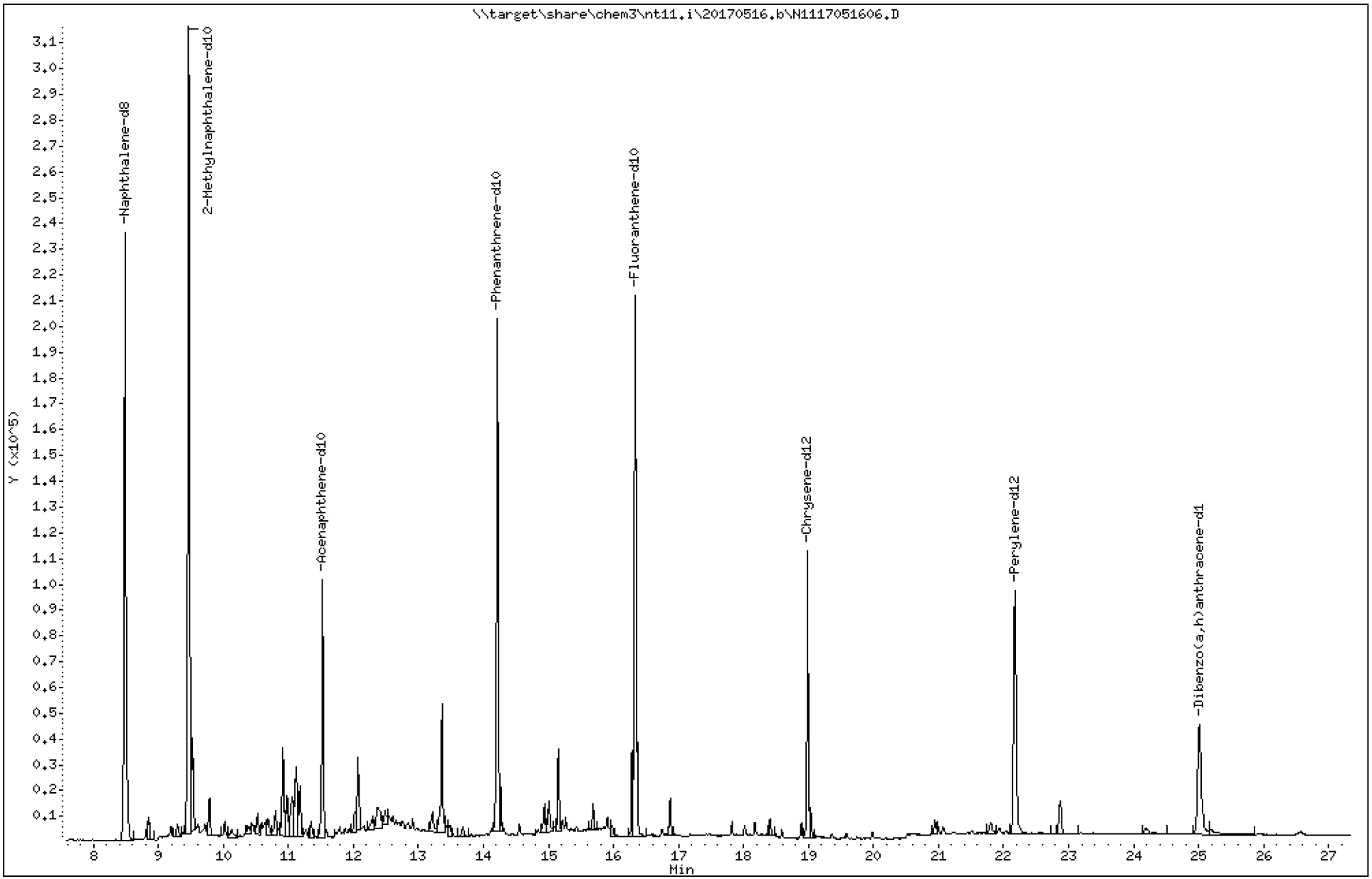
CAS NO.	COMPOUND	DILUTION	CONC. (ug/kg)	Q	DL	RL
91-20-3	Naphthalene	1	0.60	U	0.50	0.60
91-57-6	2-Methylnaphthalene	1	0.72		0.50	0.50
208-96-8	Acenaphthylene	1	0.50	U	0.50	0.50
83-32-9	Acenaphthene	1	0.50	U	0.50	0.50
86-73-7	Fluorene	1	0.50	U	0.50	0.50
85-01-8	Phenanthrene	1	0.70		0.50	0.50
120-12-7	Anthracene	1	0.50	U	0.50	0.50
206-44-0	Fluoranthene	1	1.00		0.50	0.50
129-00-0	Pyrene	1	0.58		0.50	0.50
56-55-3	Benzo(a)anthracene	1	0.50	U	0.50	0.50
218-01-9	Chrysene	1	0.67		0.50	0.50
205-99-2	Benzo(b)fluoranthene	1	0.50	U	0.50	0.50
207-08-9	Benzo(k)fluoranthene	1	0.50	U	0.50	0.50
50-32-8	Benzo(a)pyrene	1	0.50	U	0.50	0.50
193-39-5	Indeno(1,2,3-cd)pyrene	1	0.50	U	0.50	0.50
53-70-3	Dibenzo(a,h)anthracene	1	0.50	U	0.50	0.50
191-24-2	Benzo(g,h,i)perylene	1	0.50	U	0.50	0.50
1985-5-0	Perylene	1	0.50	U	0.50	0.50
197-97-2	Benzo(e)pyrene	1	0.50	U	0.50	0.50

SURROGATES	ADDED (ug/kg)	CONC (ug/kg)	% REC	QC LIMITS	Q
2-Methylnaphthalene-d10	15.000	8.47	56.5	30 - 160	
Dibenzo[a,h]anthracene-d14	15.000	11.3	75.5	30 - 160	
Fluoranthene-d10	15.000	11.2	74.6	30 - 160	

Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051606.D
Date : 16-MAY-2017 13:24
Client ID:
Sample Info: 17D0421-02

Instrument: nt11.i
Operator: VTS
Column diameter: 0.25

Column phase: Rxi-17Sil MS



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Date : 16-MAY-2017 13:24

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-02

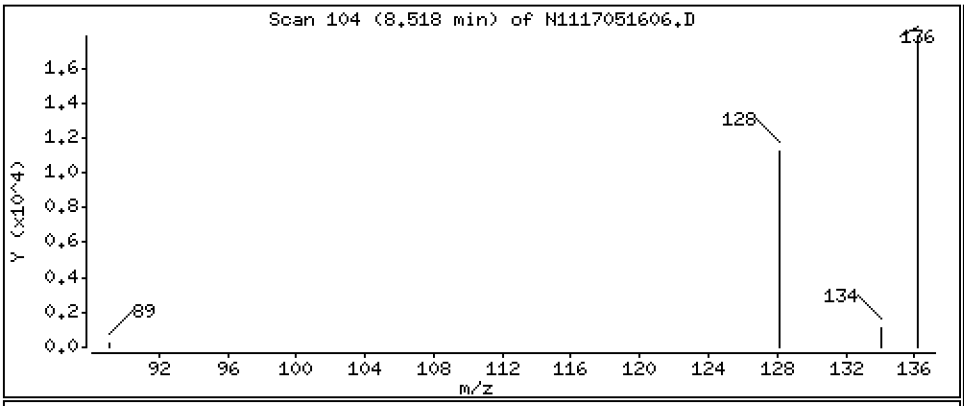
Operator: VTS

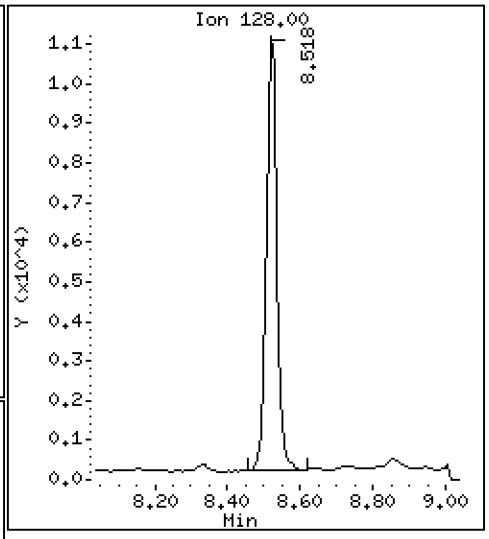
Column phase: Rxi-17Sil MS

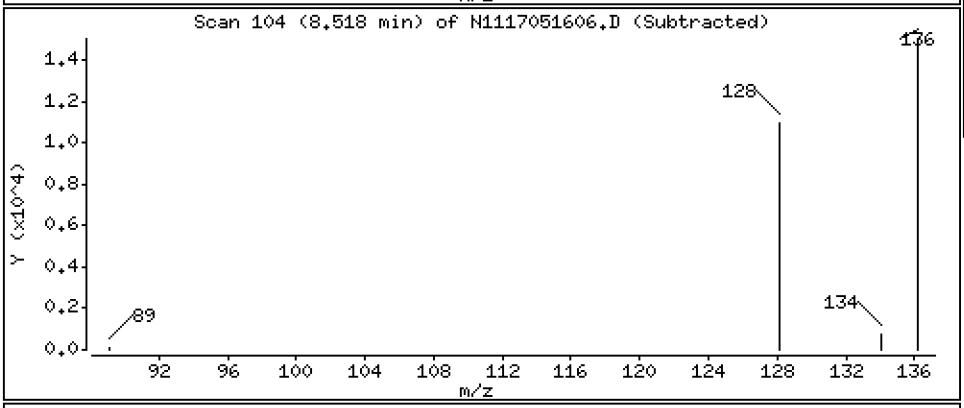
Column diameter: 0.25

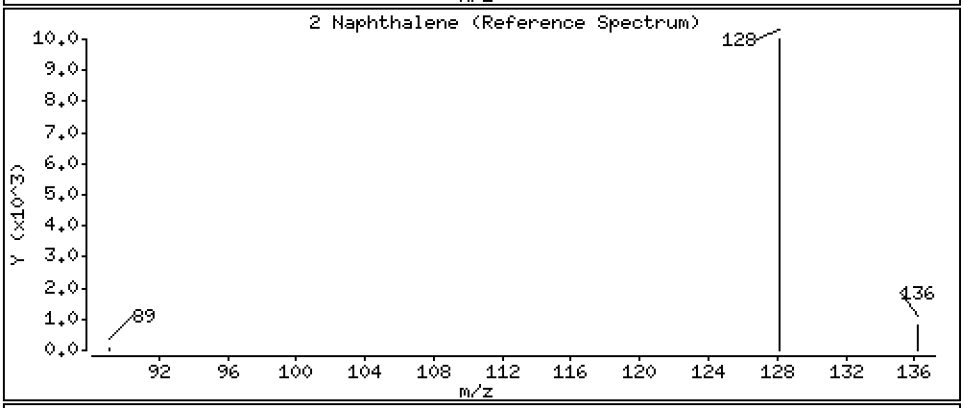
2 Naphthalene

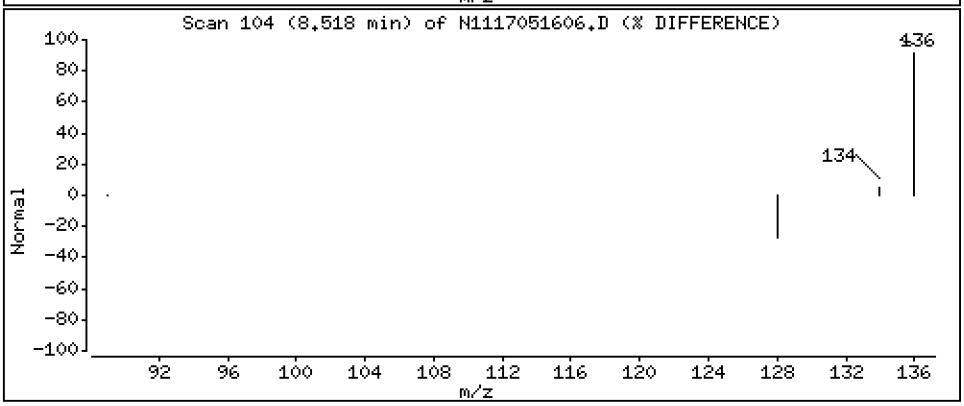
Concentration: 9.17 ng/mL











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Date : 16-MAY-2017 13:24

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-02

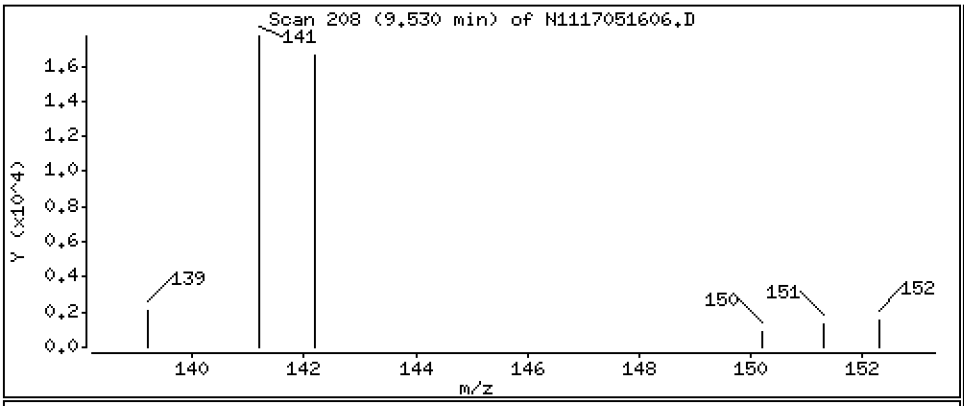
Operator: VTS

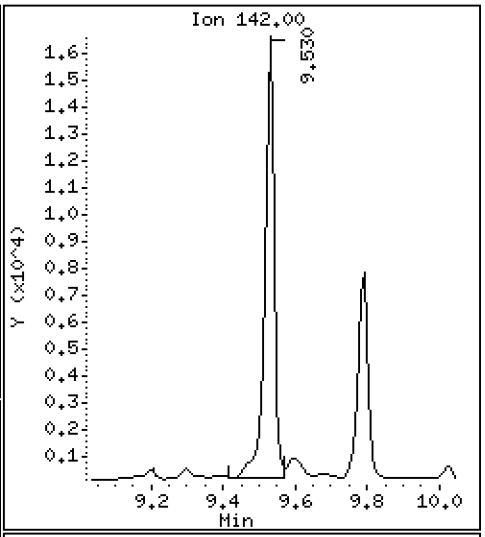
Column phase: Rxi-17Sil MS

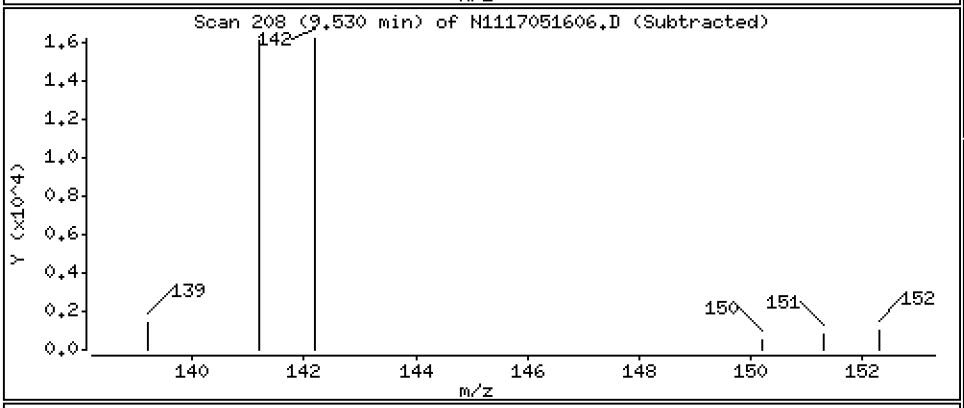
Column diameter: 0.25

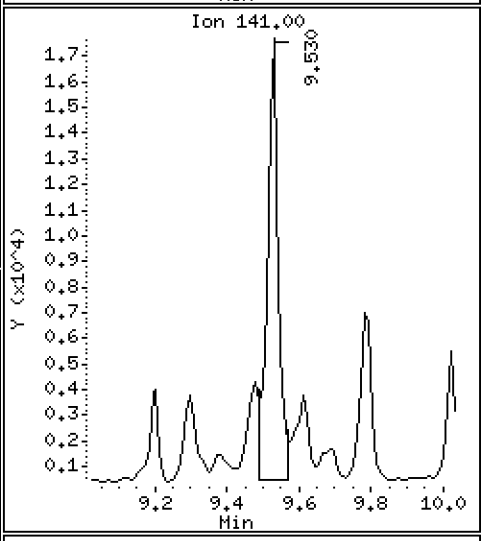
5 2-Methylnaphthalene

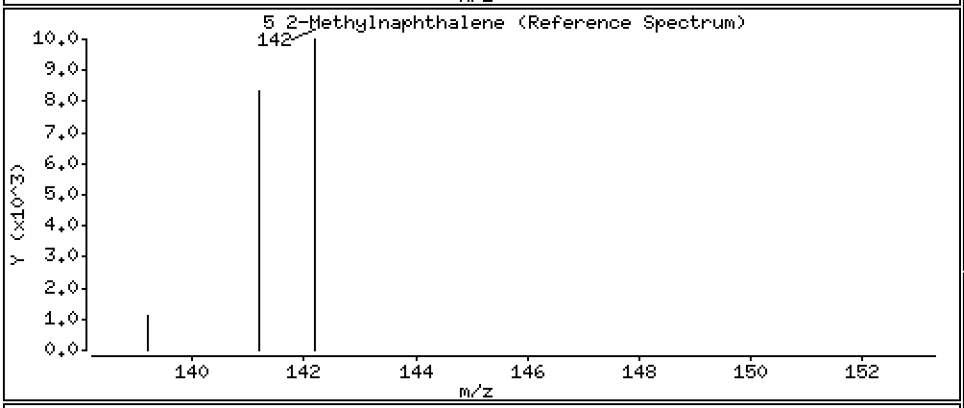
Concentration: 14.4 ng/mL

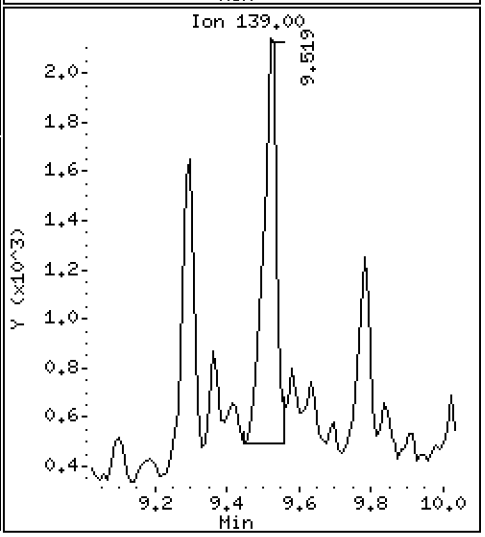


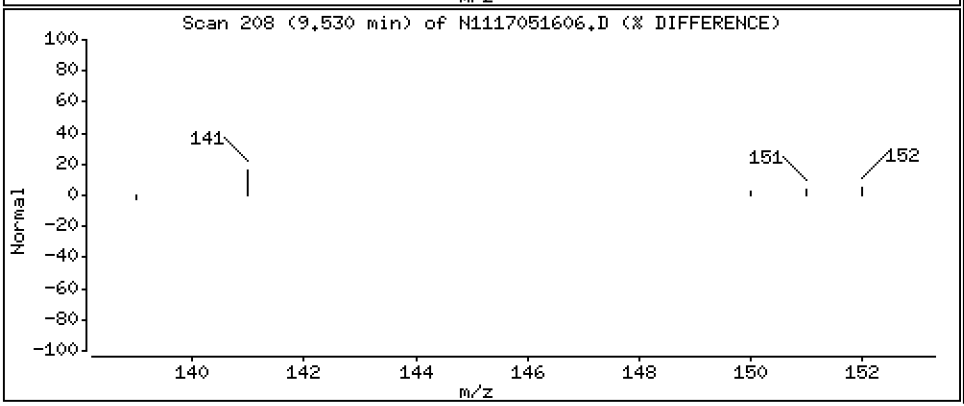












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Date : 16-MAY-2017 13:24

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-02

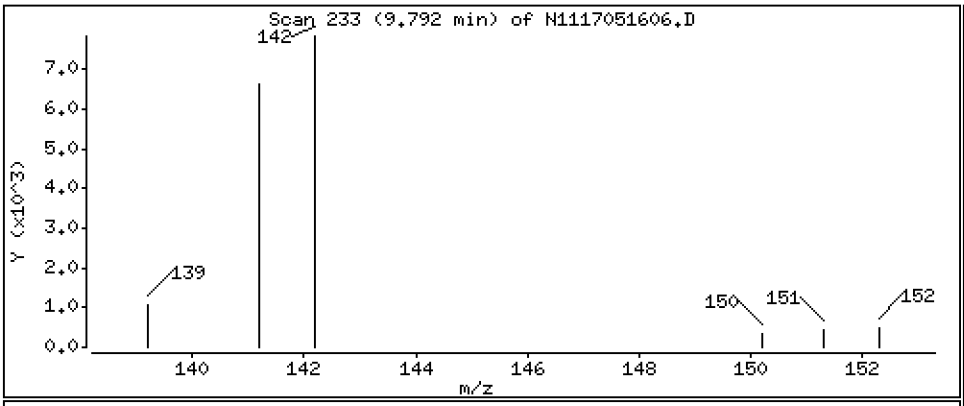
Operator: VTS

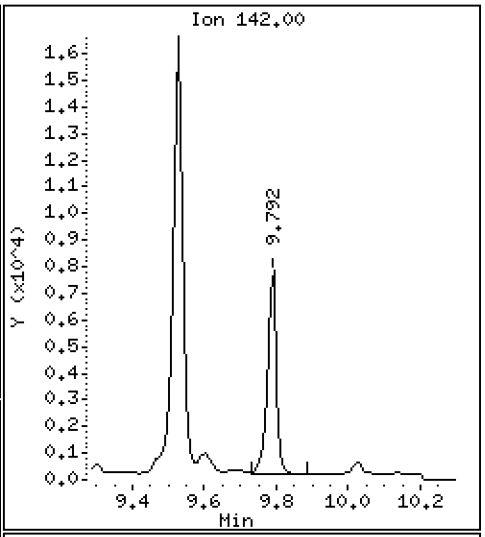
Column phase: Rxi-17Sil MS

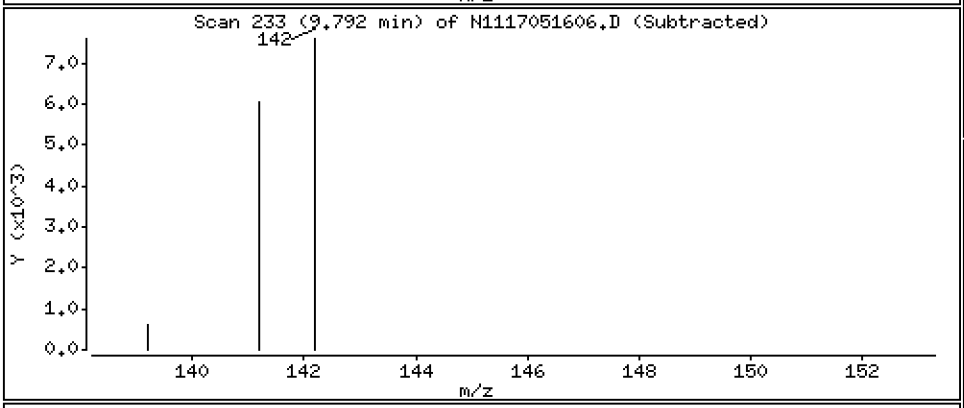
Column diameter: 0.25

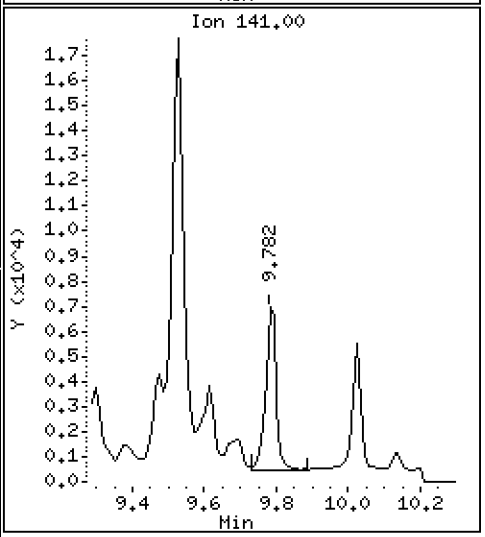
6 1-Methylnaphthalene

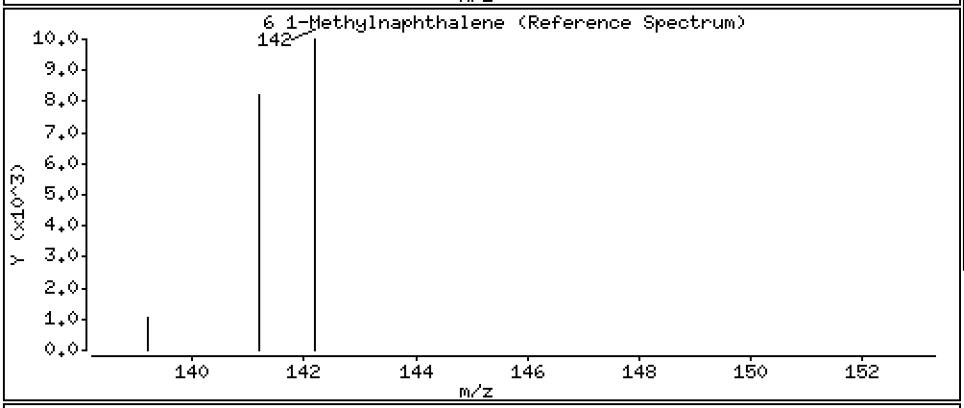
Concentration: 6.98 ng/mL

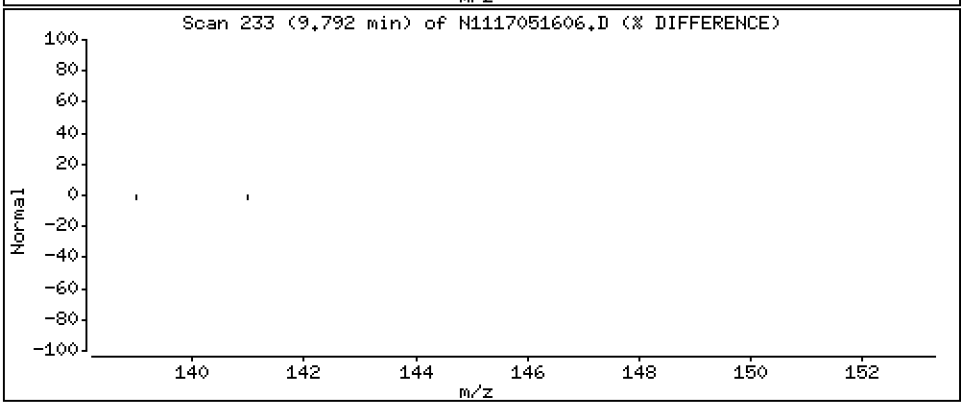












Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051606.D

Date : 16-MAY-2017 13:24

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-02

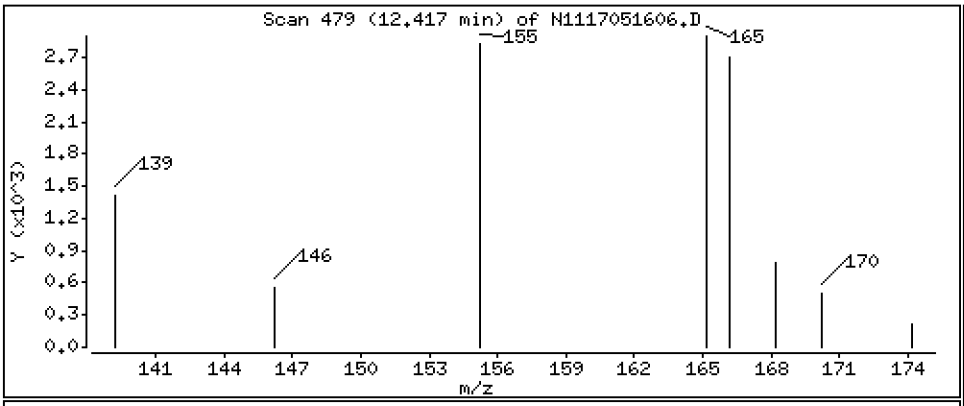
Operator: VTS

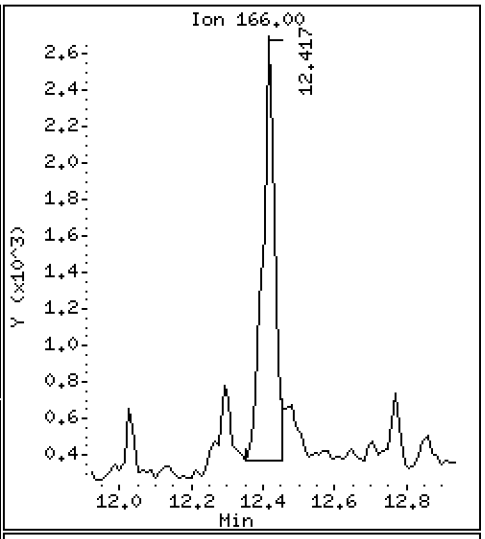
Column phase: Rxi-17Sil MS

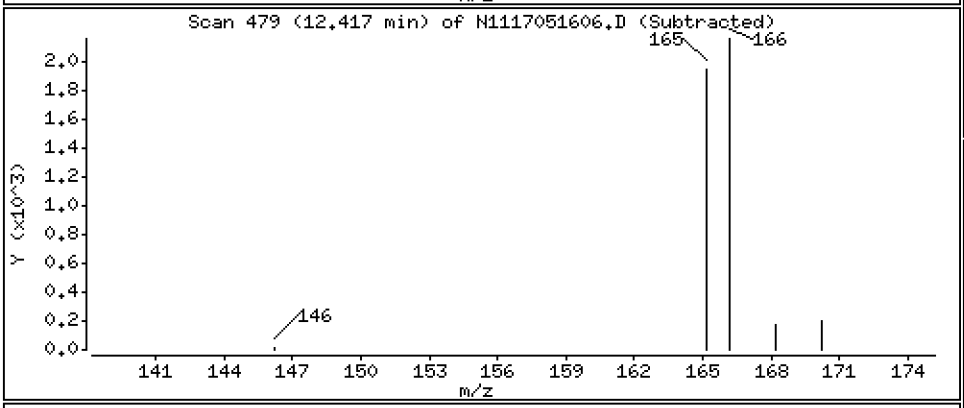
Column diameter: 0.25

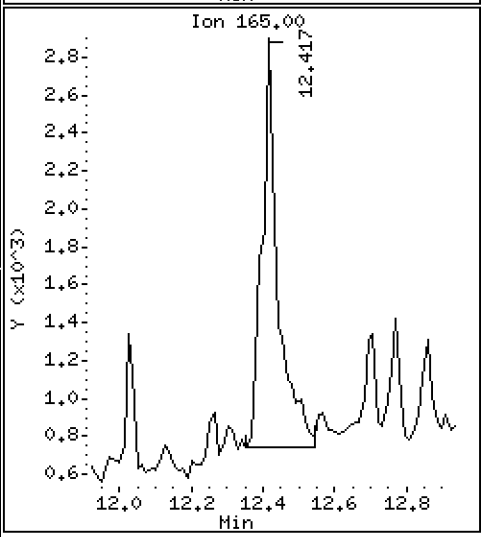
16 Fluorene

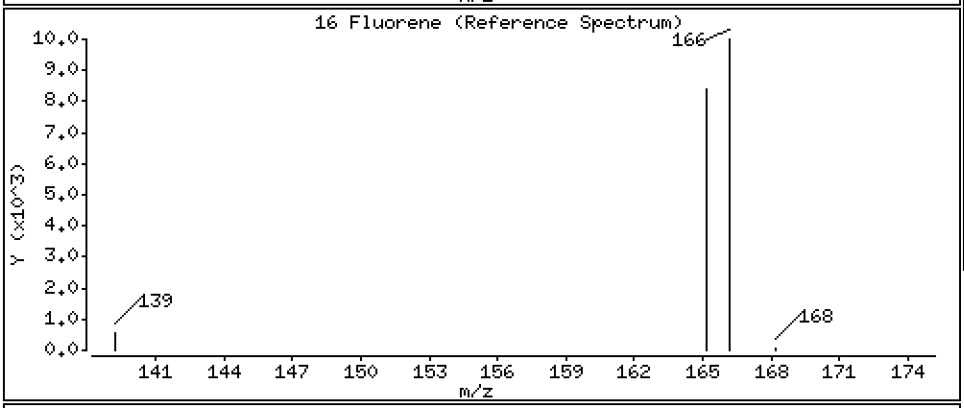
Concentration: 3.77 ng/mL

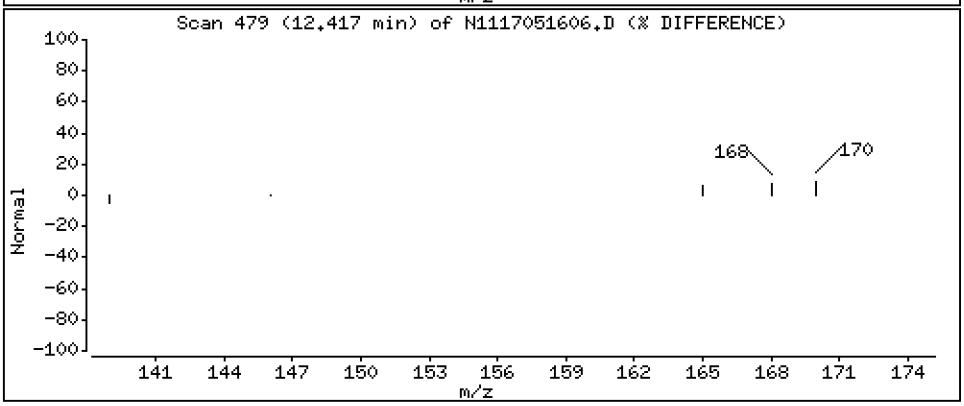












Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051606.D

Date : 16-MAY-2017 13:24

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-02

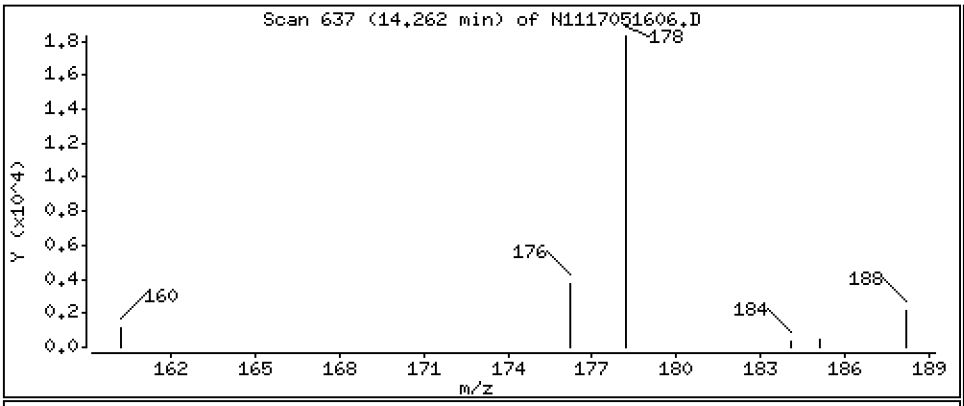
Operator: VTS

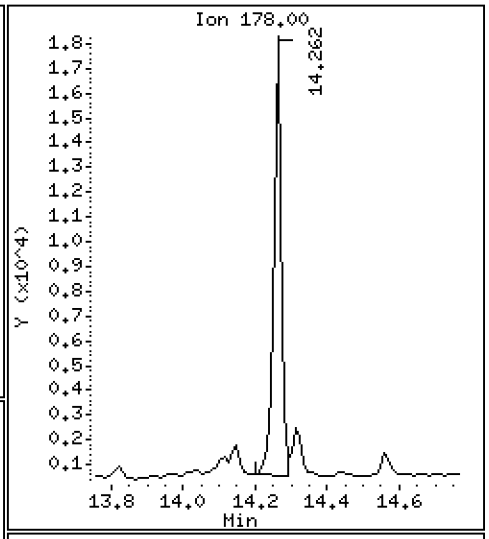
Column phase: Rxi-17Sil MS

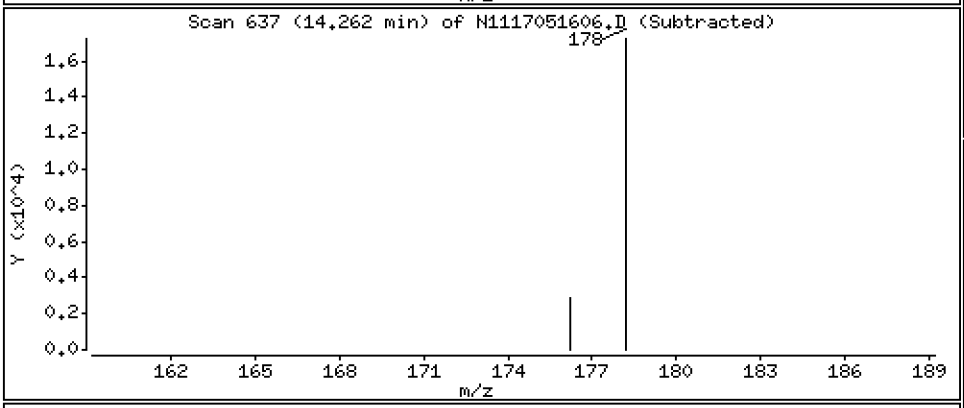
Column diameter: 0.25

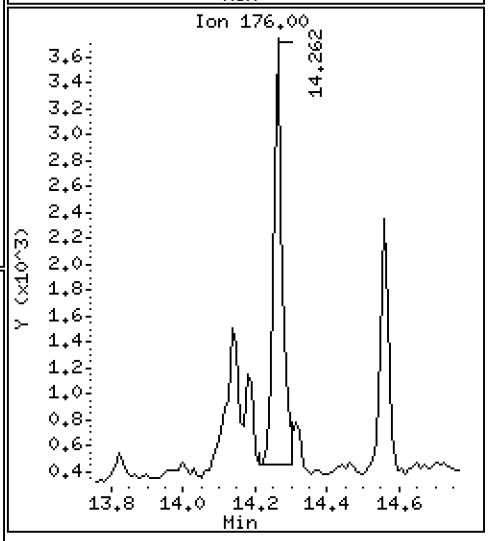
19 Phenanthrene

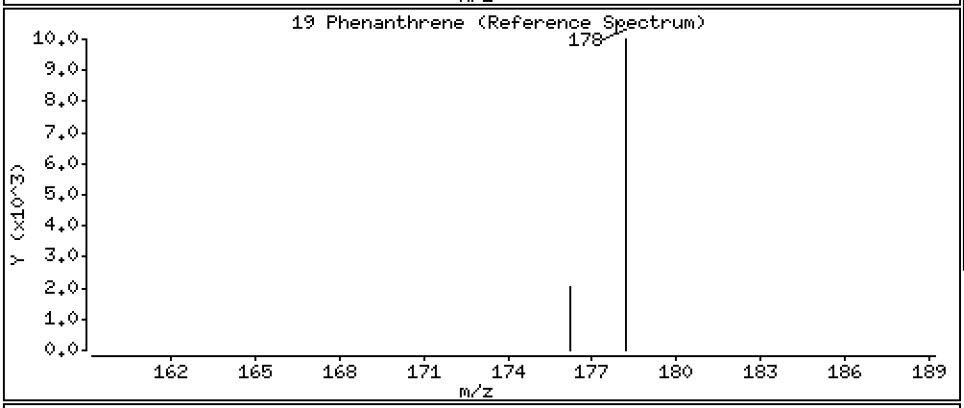
Concentration: 13.9 ng/mL

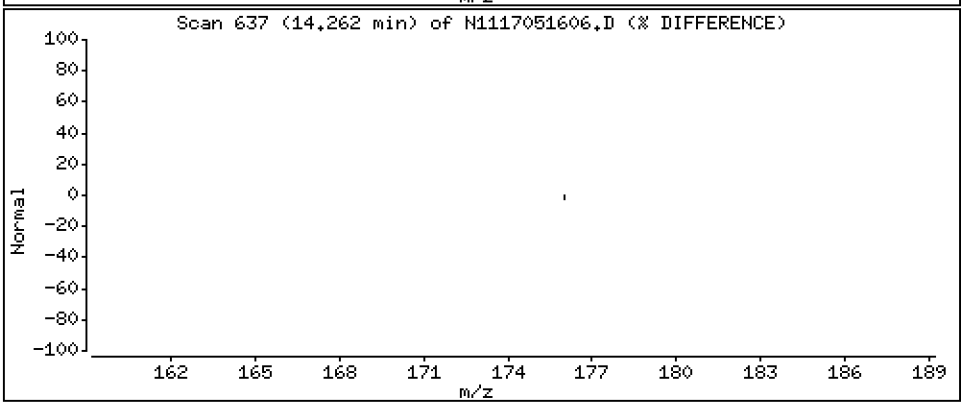












Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051606.D

Date : 16-MAY-2017 13:24

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-02

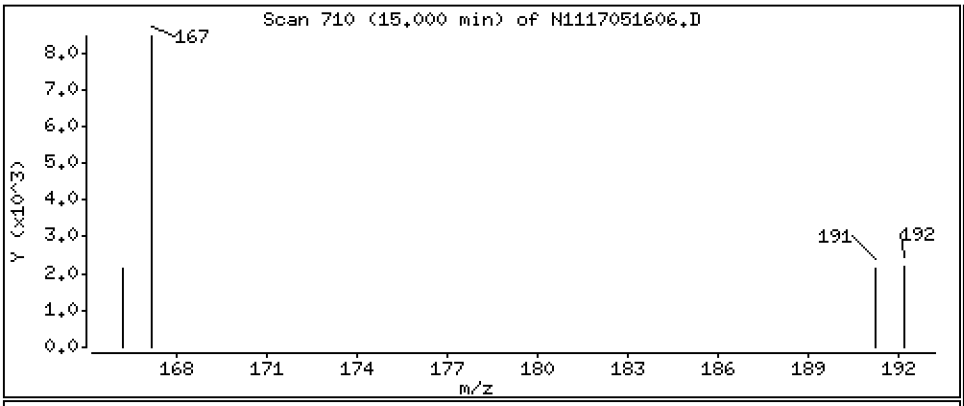
Operator: VTS

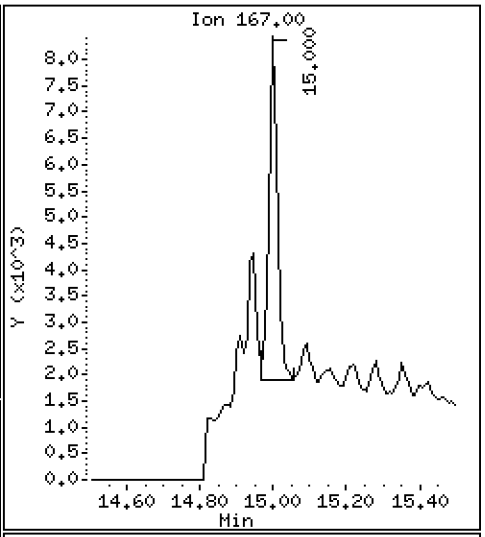
Column phase: Rxi-17Sil MS

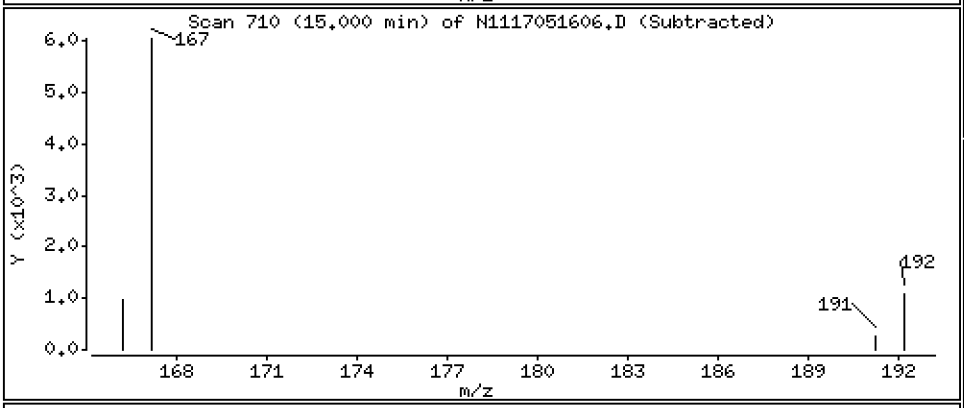
Column diameter: 0.25

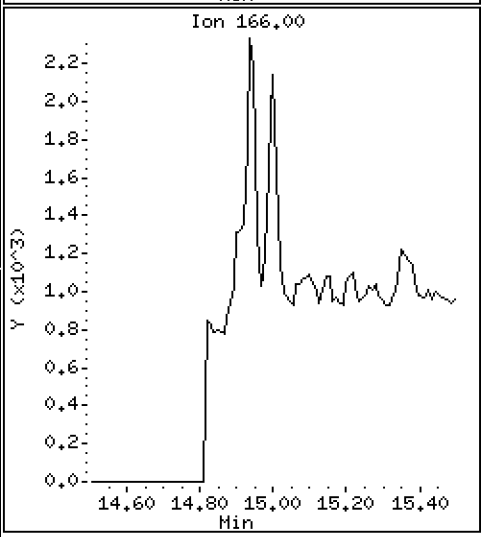
22 Carbazole

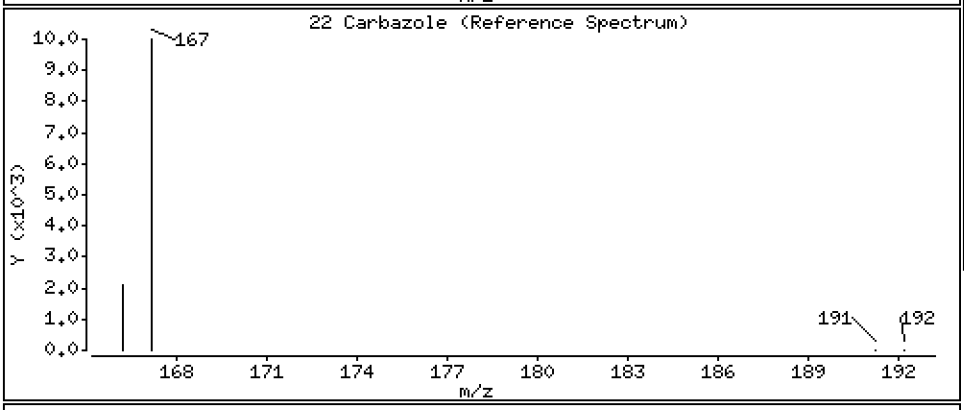
Concentration: 4.49 ng/mL

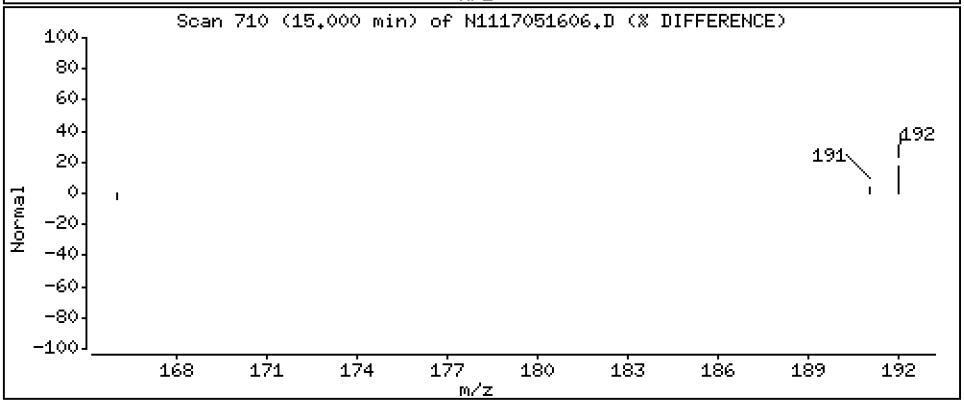












Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051606.D

Date : 16-MAY-2017 13:24

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-02

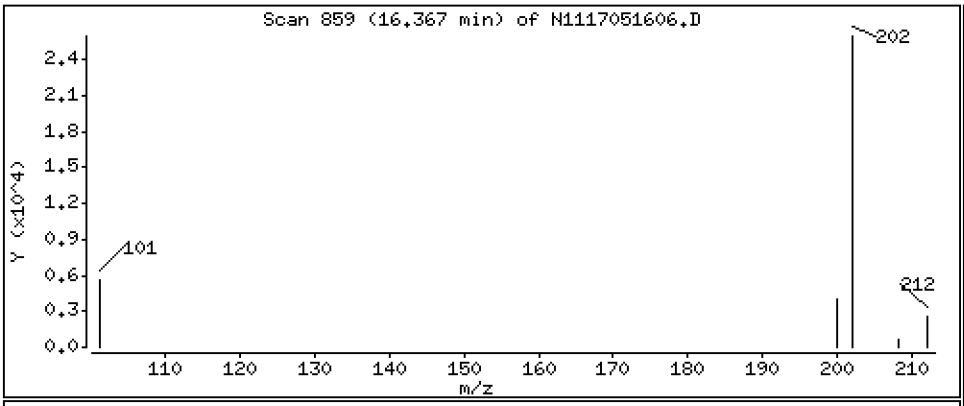
Operator: VTS

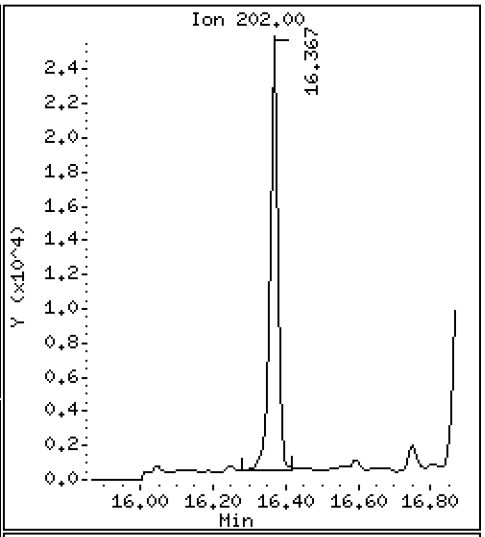
Column phase: Rxi-17Sil MS

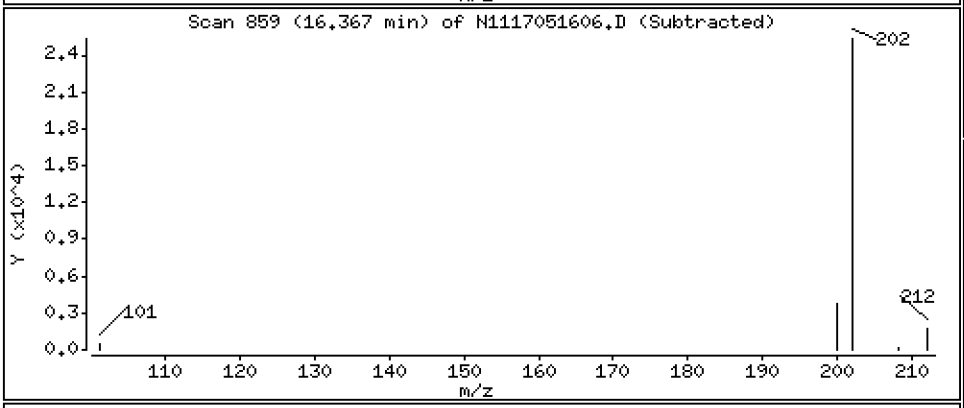
Column diameter: 0.25

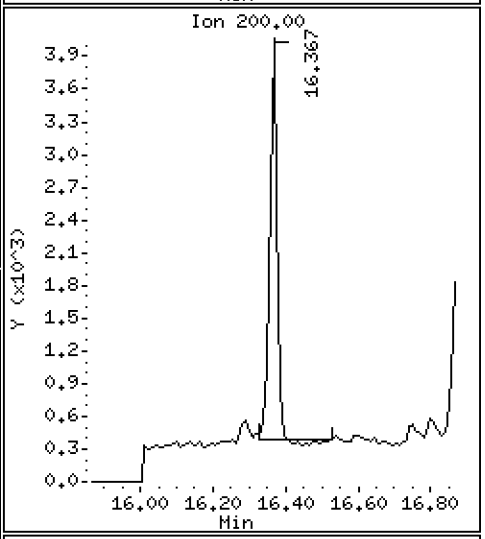
25 Fluoranthene

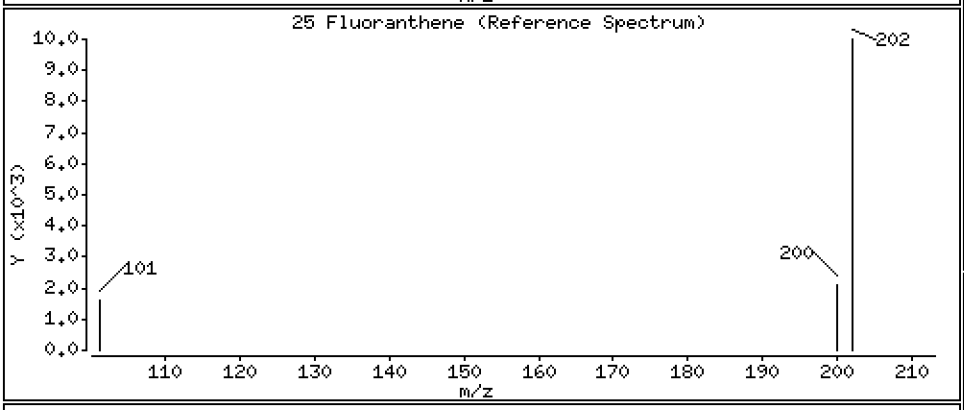
Concentration: 20.1 ng/mL

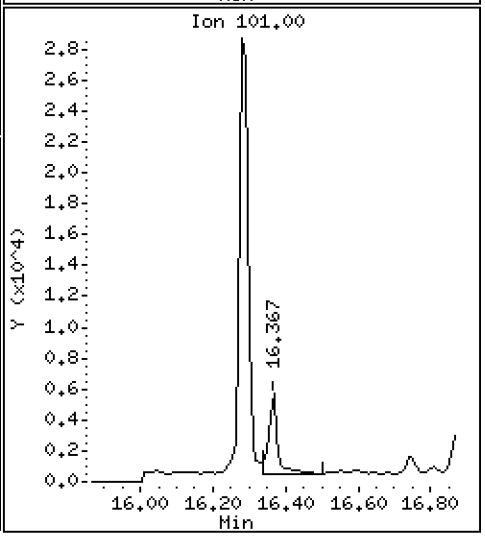


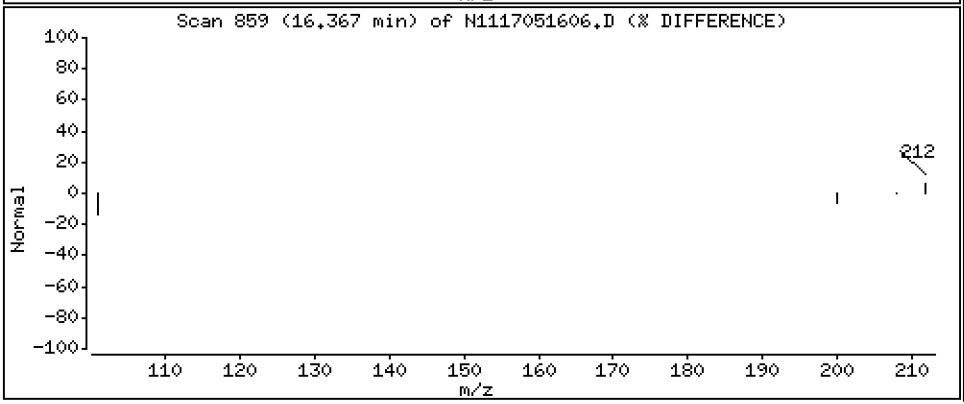












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Date : 16-MAY-2017 13:24

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-02

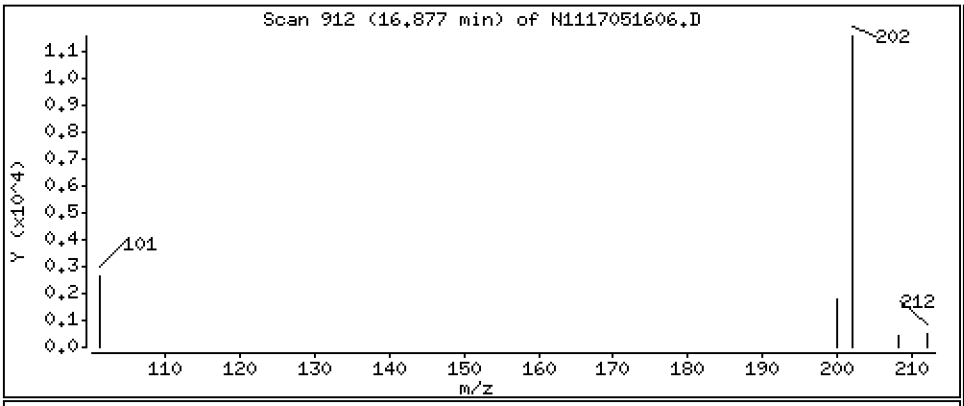
Operator: VTS

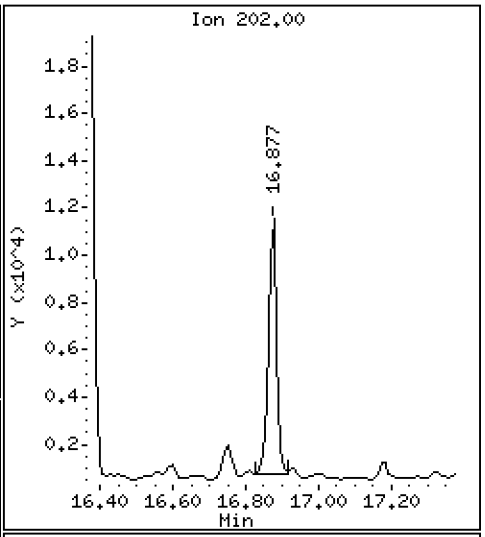
Column phase: Rxi-17Sil MS

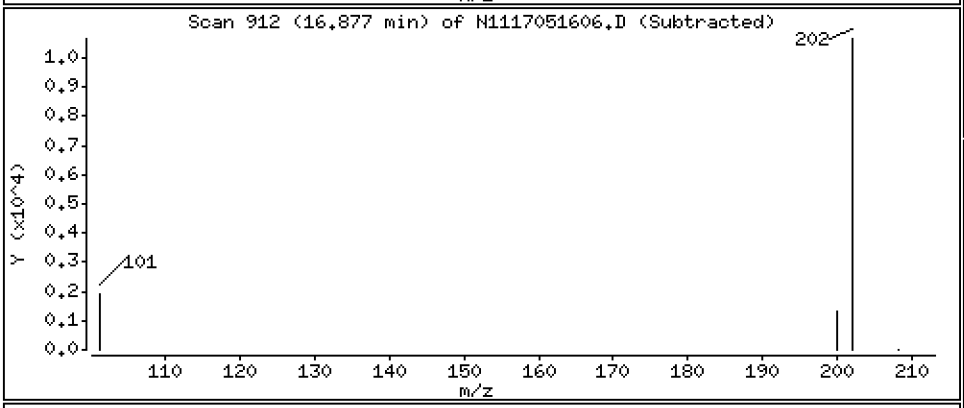
Column diameter: 0.25

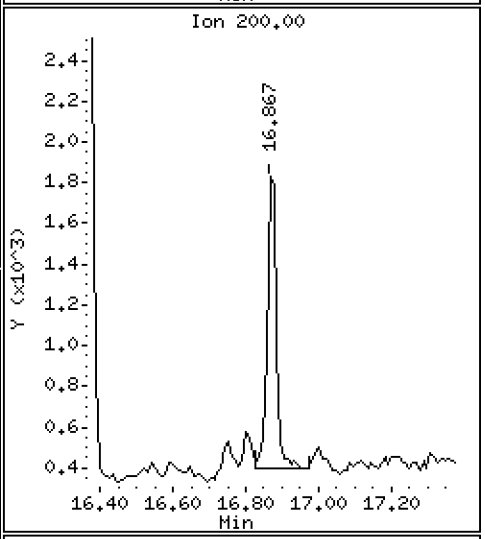
26 Pyrene

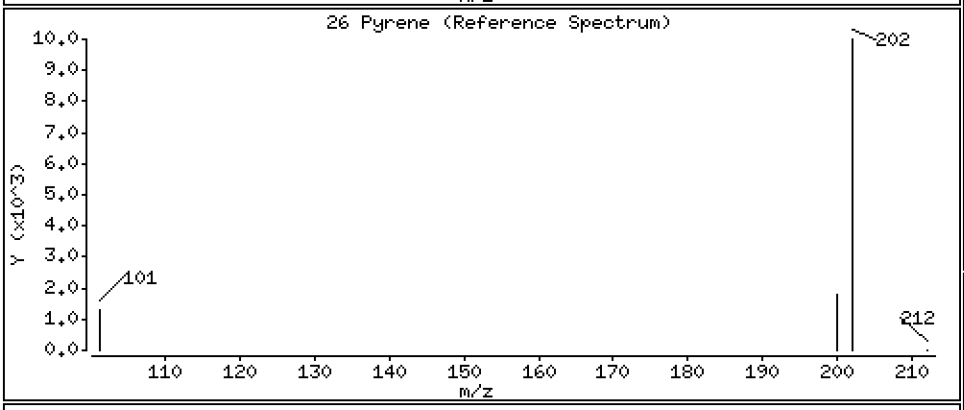
Concentration: 11.6 ng/mL

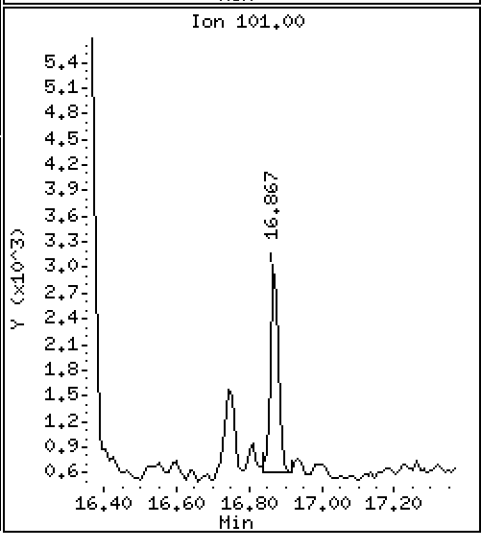


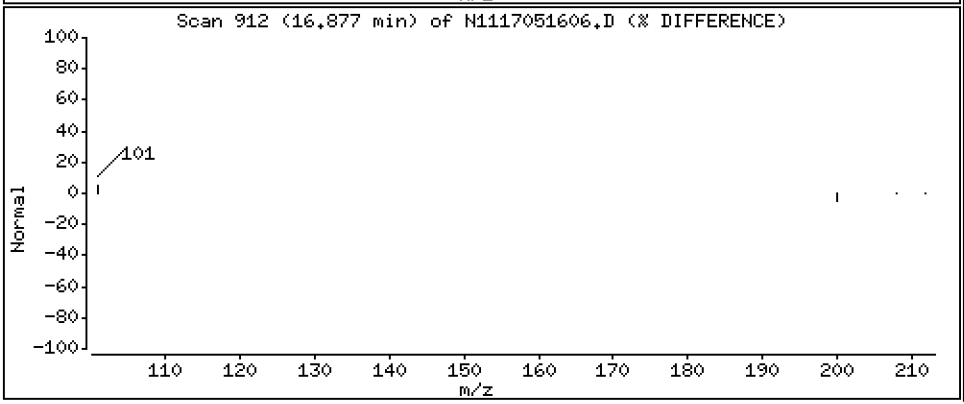












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Date : 16-MAY-2017 13:24

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-02

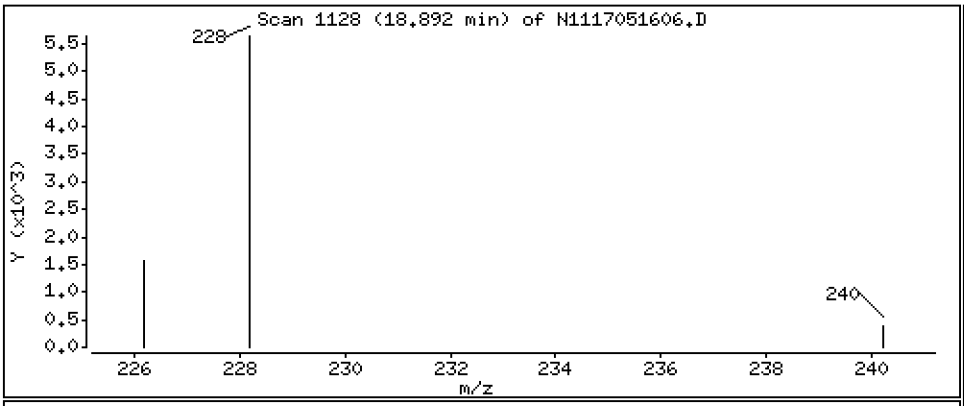
Operator: VTS

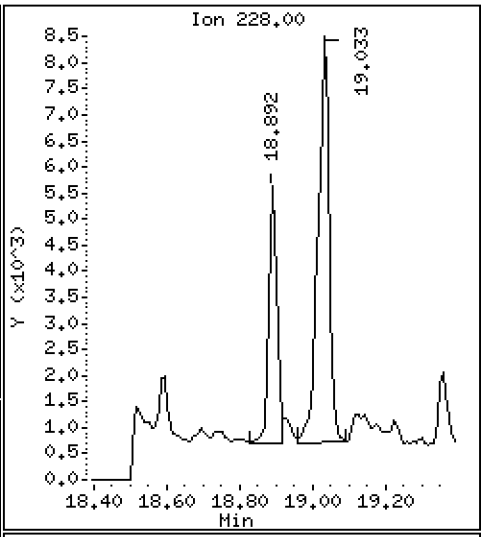
Column phase: Rxi-17Sil MS

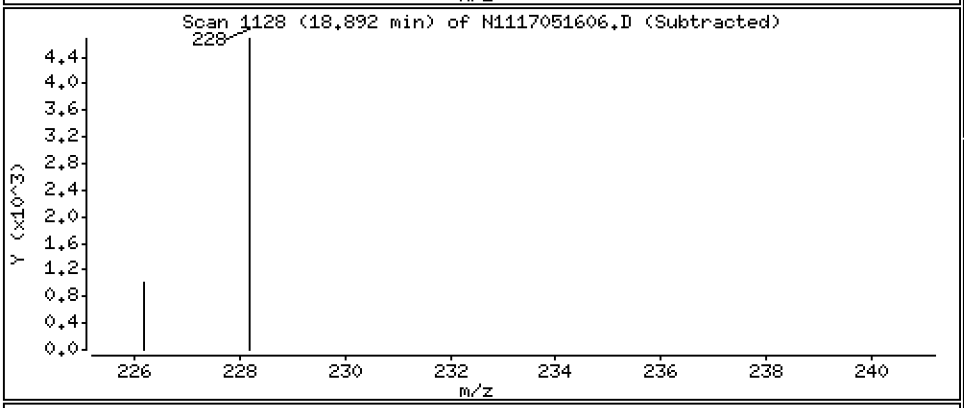
Column diameter: 0.25

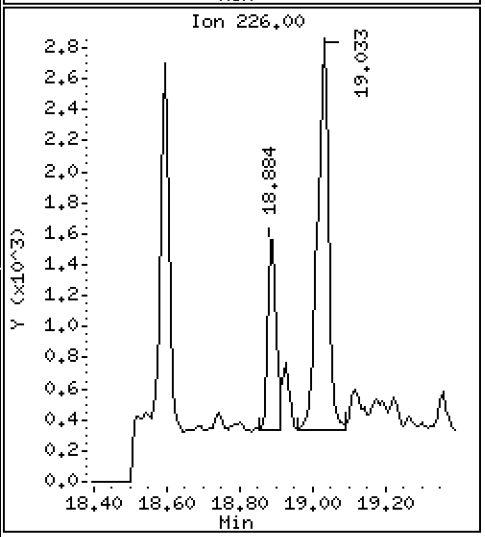
27 Benzo(a)anthracene

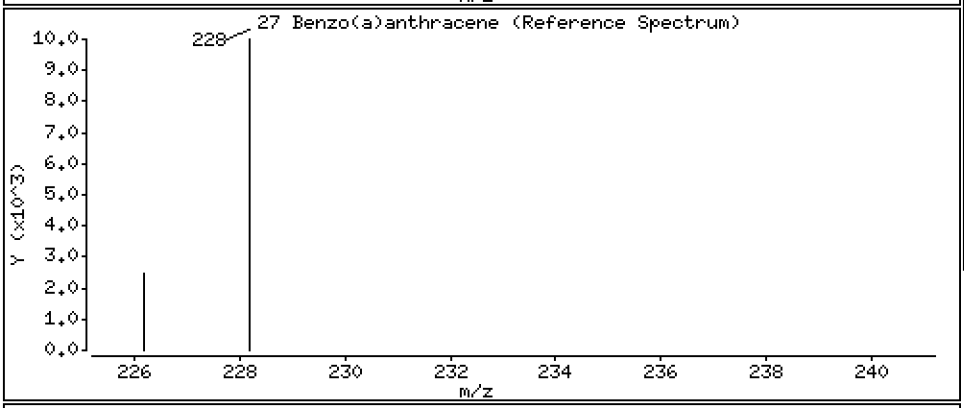
Concentration: 6.50 ng/mL

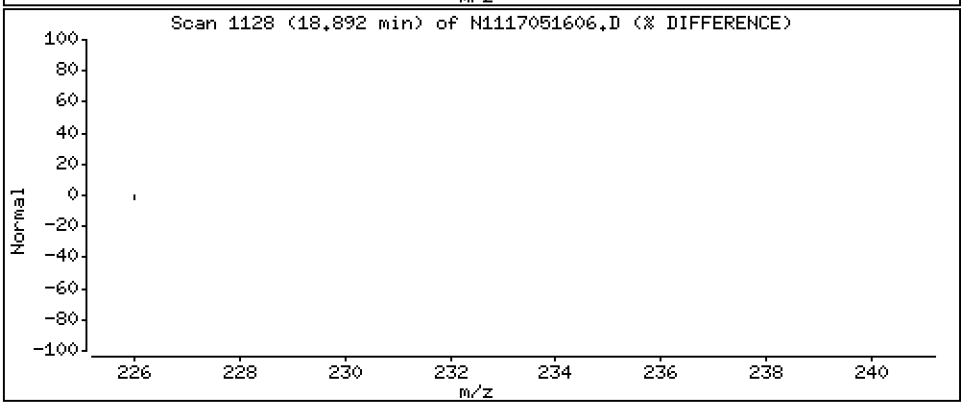












Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051606.D

Date : 16-MAY-2017 13:24

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-02

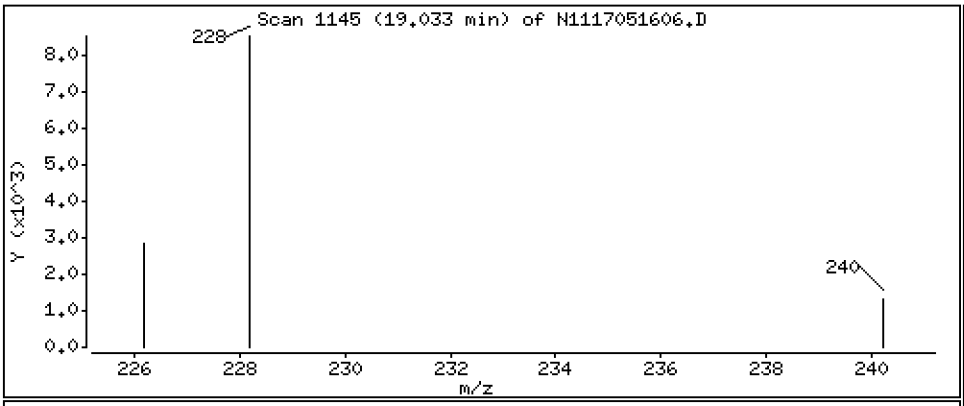
Operator: VTS

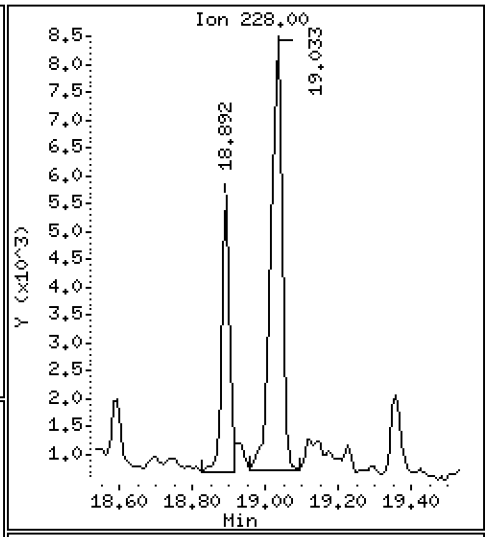
Column phase: Rxi-17Sil MS

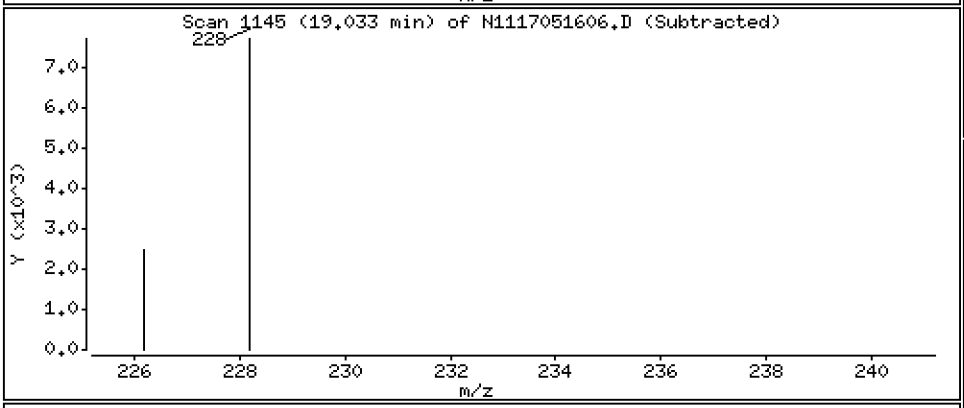
Column diameter: 0.25

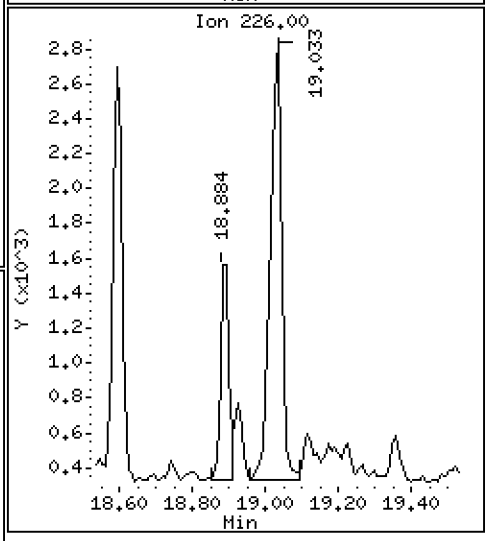
29 Chrysene

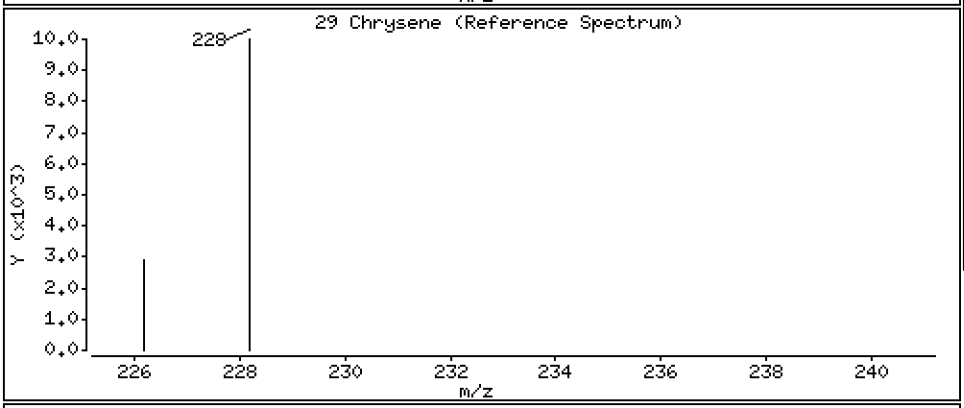
Concentration: 13.5 ng/mL

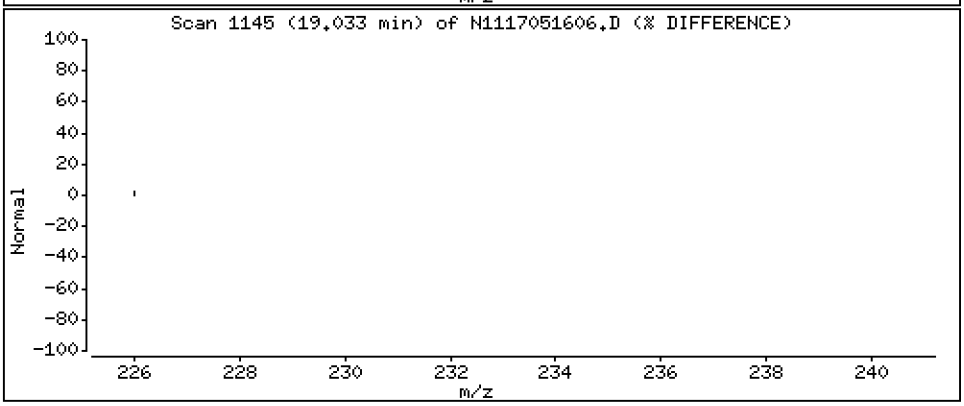












Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051606.D

Date : 16-MAY-2017 13:24

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-02

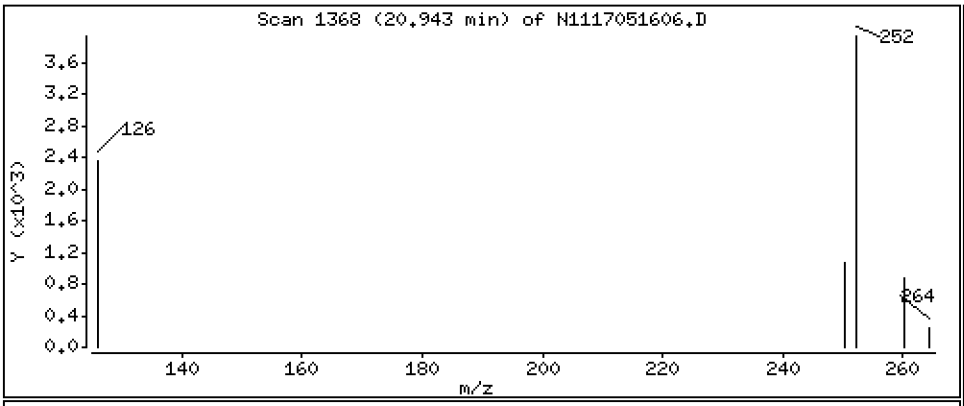
Operator: VTS

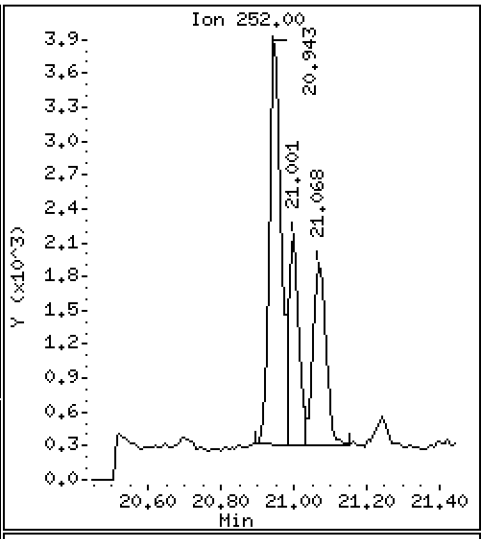
Column phase: Rxi-17Sil MS

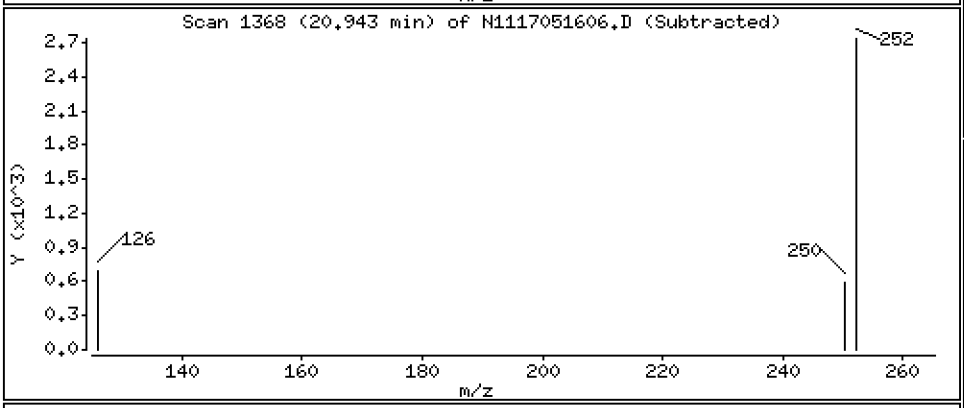
Column diameter: 0.25

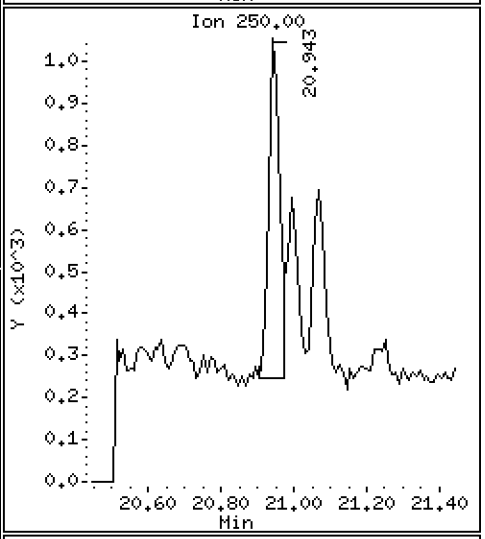
30 Benzo(b)fluoranthene

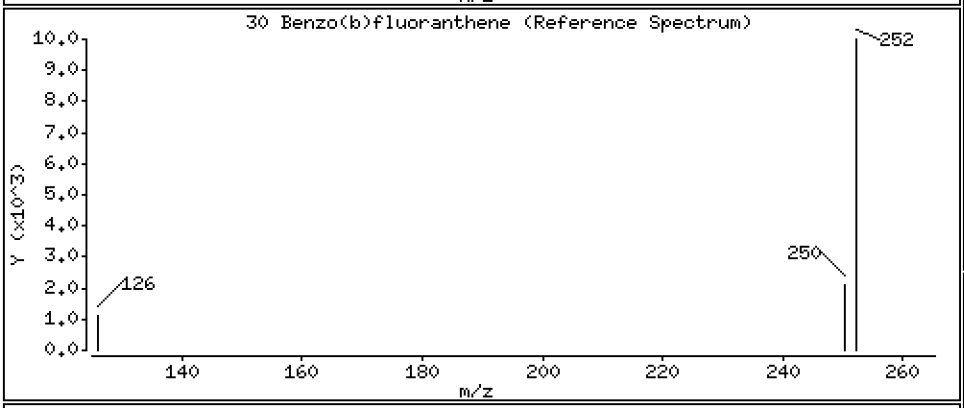
Concentration: 6.57 ng/mL

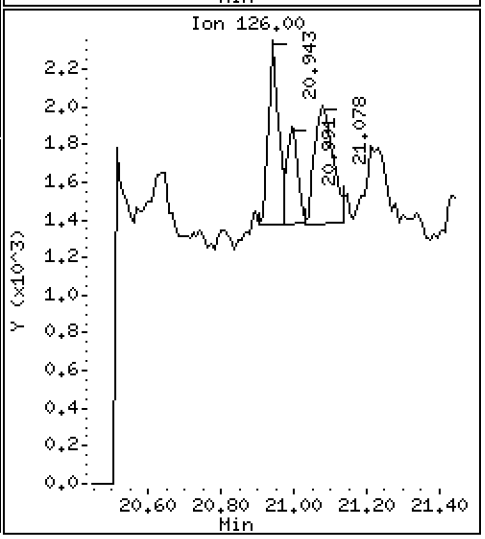


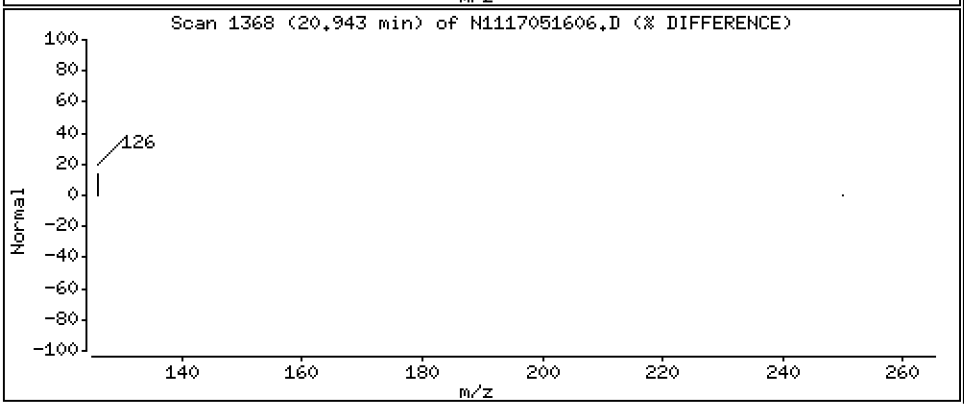












Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051606.D

Date : 16-MAY-2017 13:24

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-02

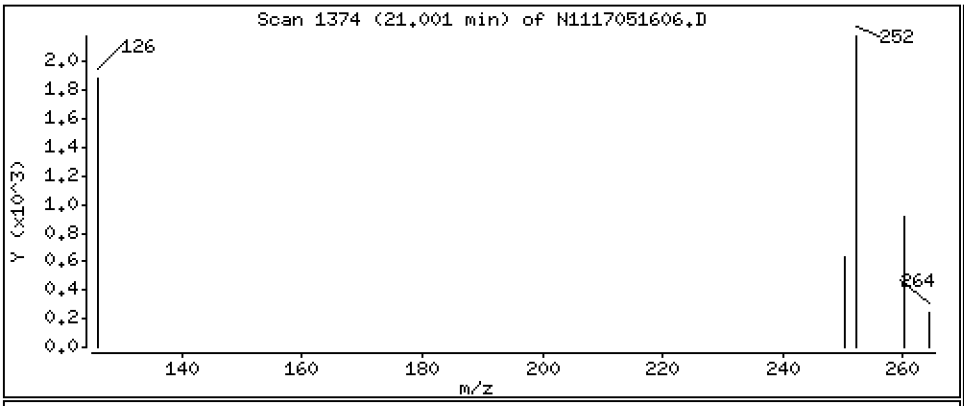
Operator: VTS

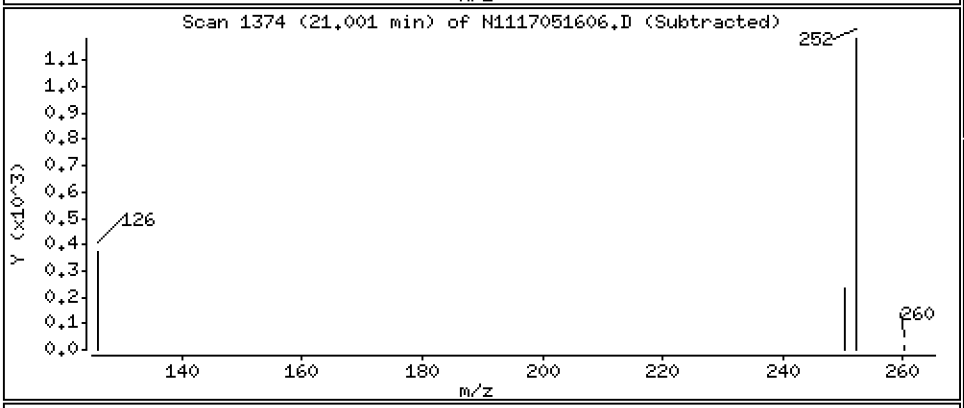
Column phase: Rxi-17Sil MS

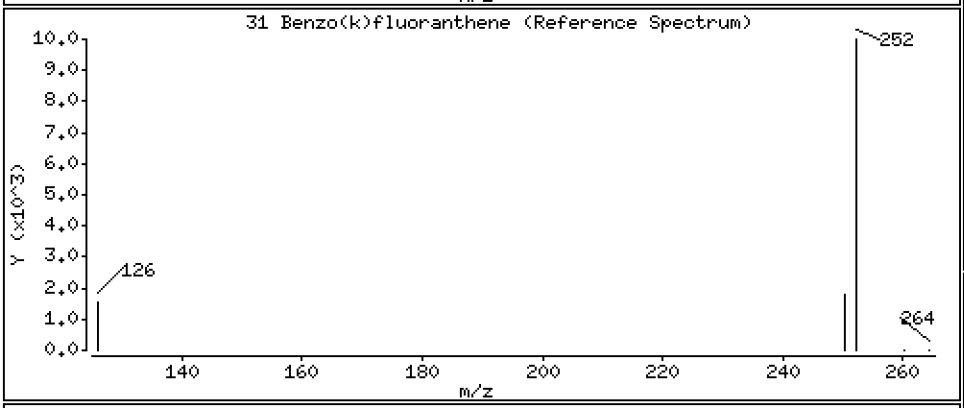
Column diameter: 0.25

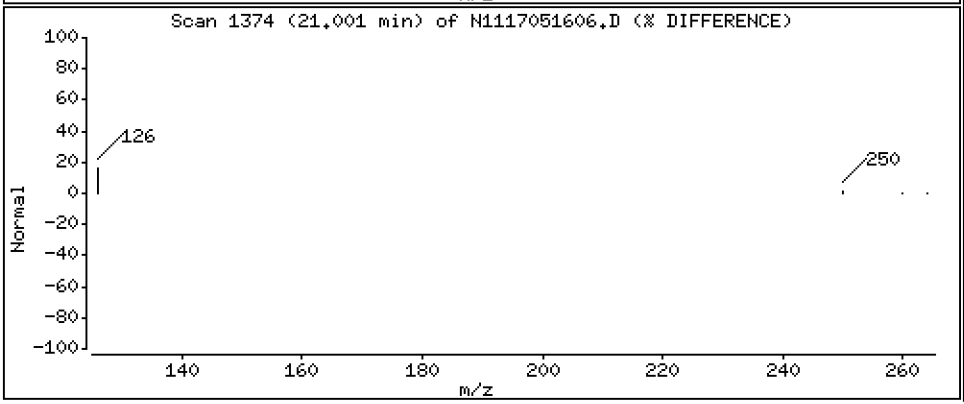
31 Benzo(k)fluoranthene

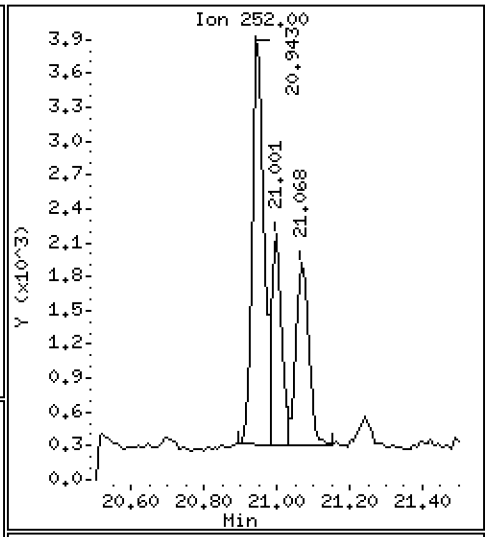
Concentration: 3.04 ng/mL

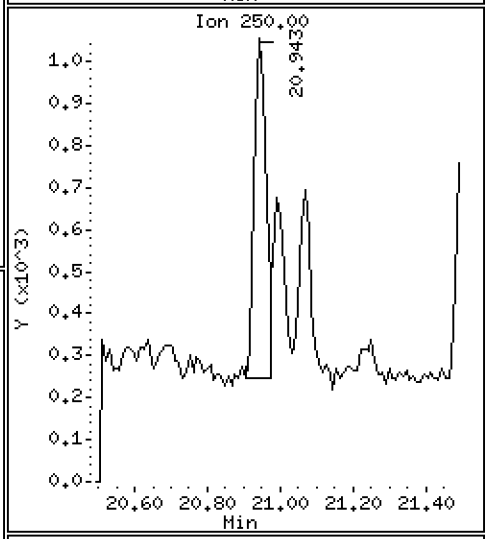


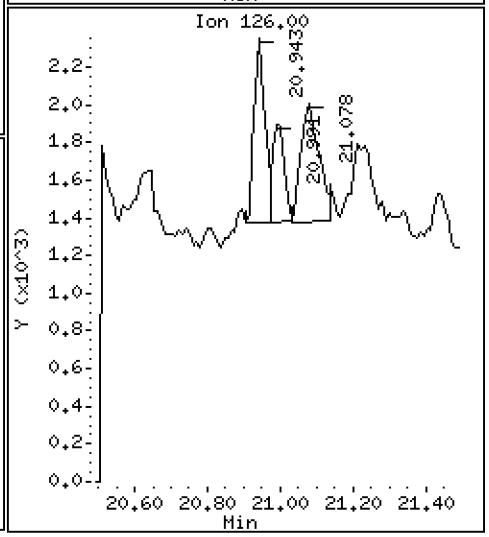












Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051606.D

Date : 16-MAY-2017 13:24

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-02

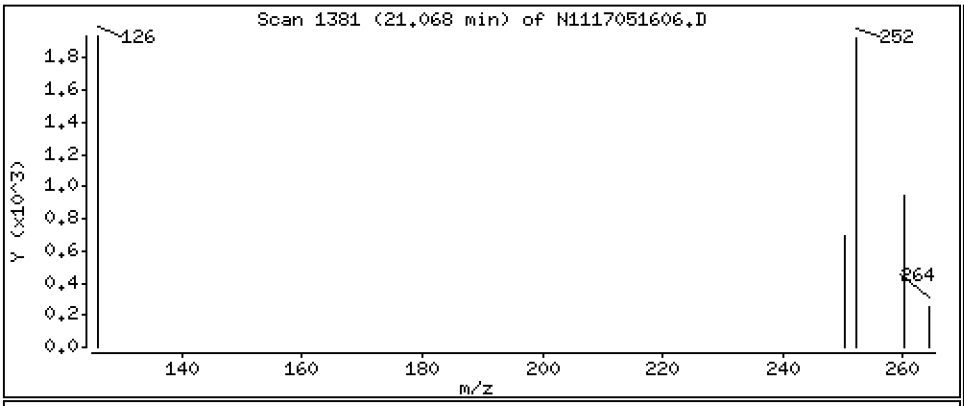
Operator: VTS

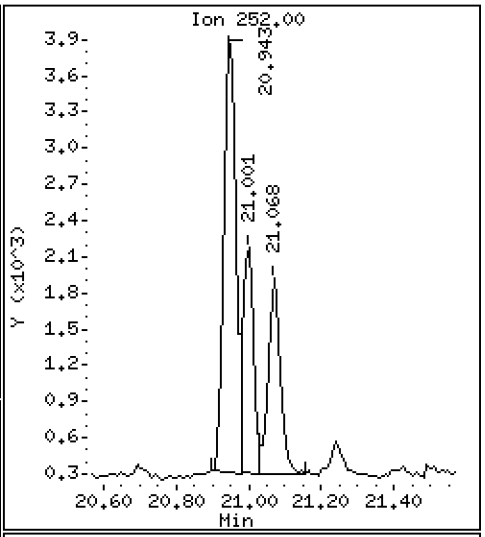
Column phase: Rxi-17Sil MS

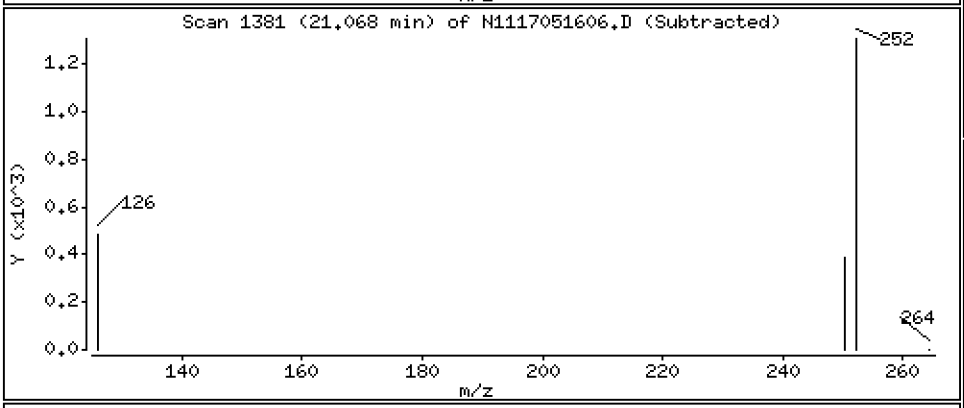
Column diameter: 0.25

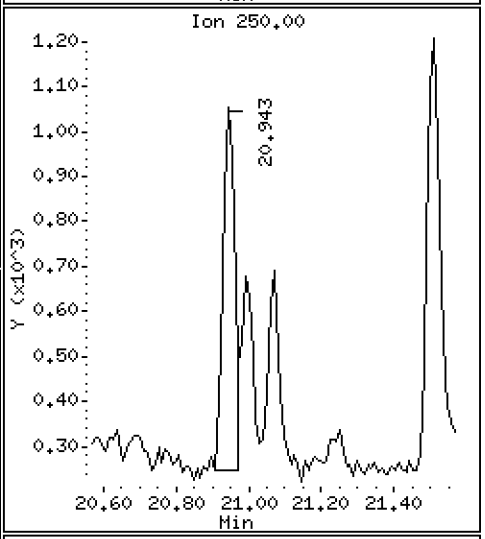
32 Benzo(j)fluoranthene

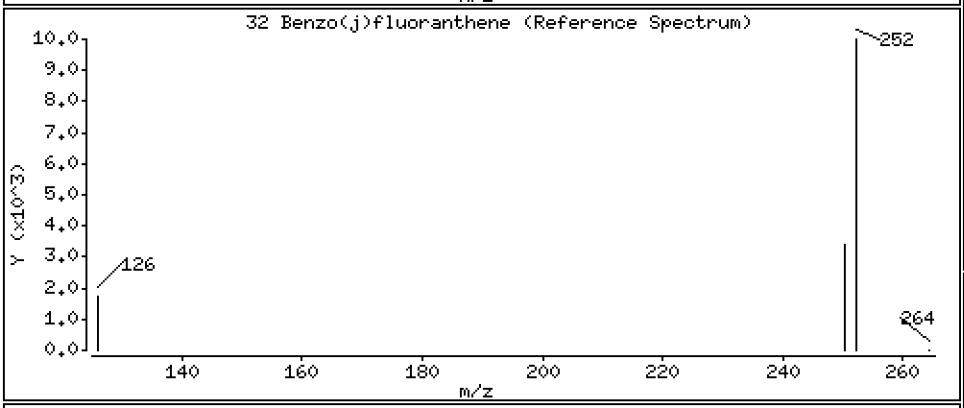
Concentration: 3.29 ng/mL

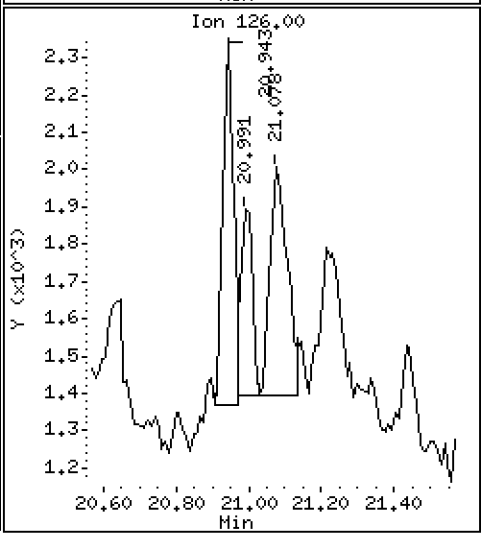


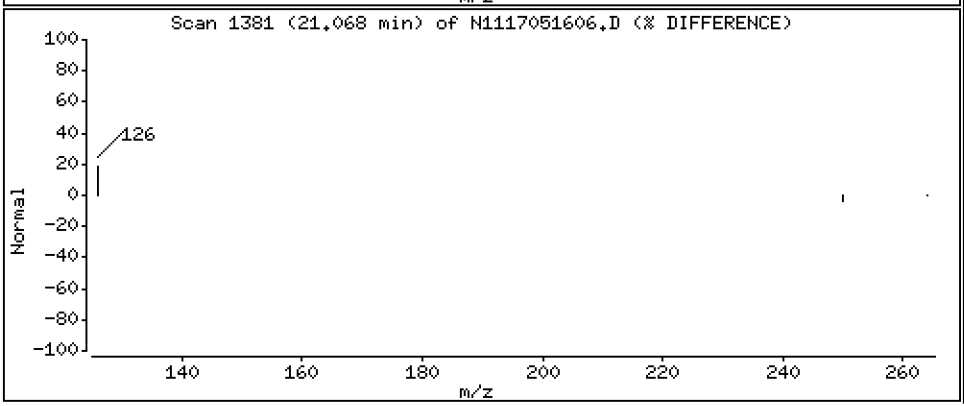












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Date : 16-MAY-2017 13:24

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-02

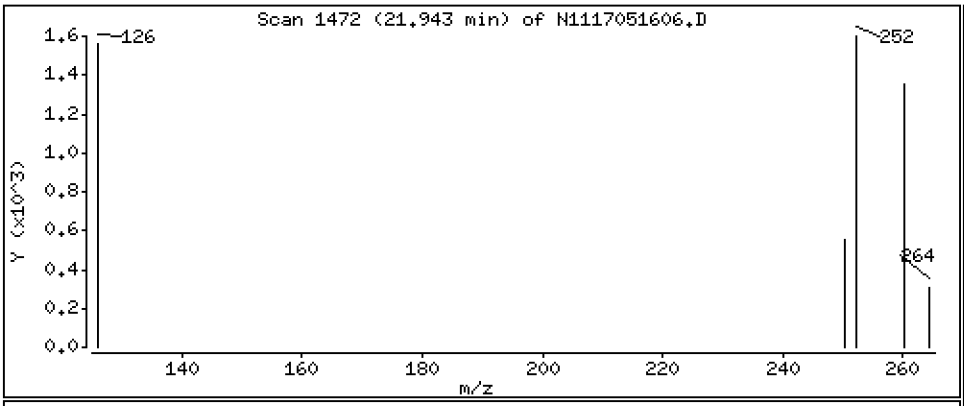
Operator: VTS

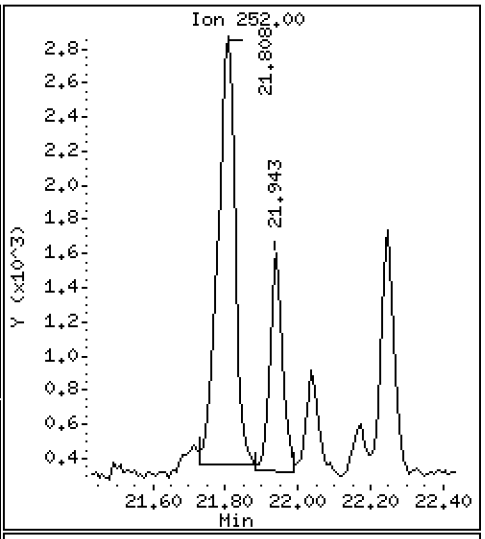
Column phase: Rxi-17Sil MS

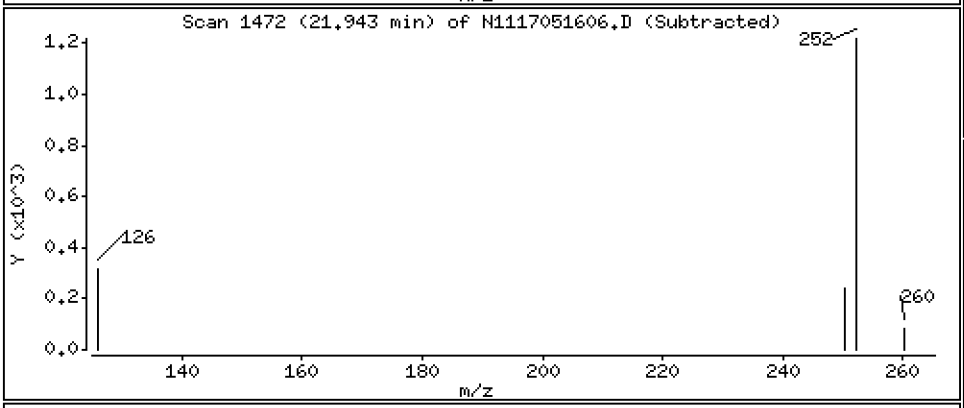
Column diameter: 0.25

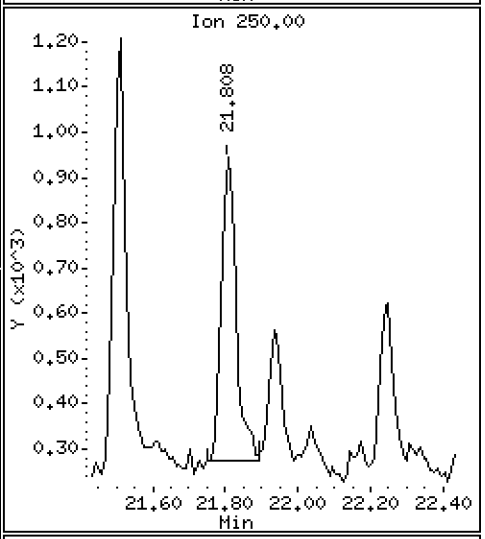
35 Benzo(a)pyrene

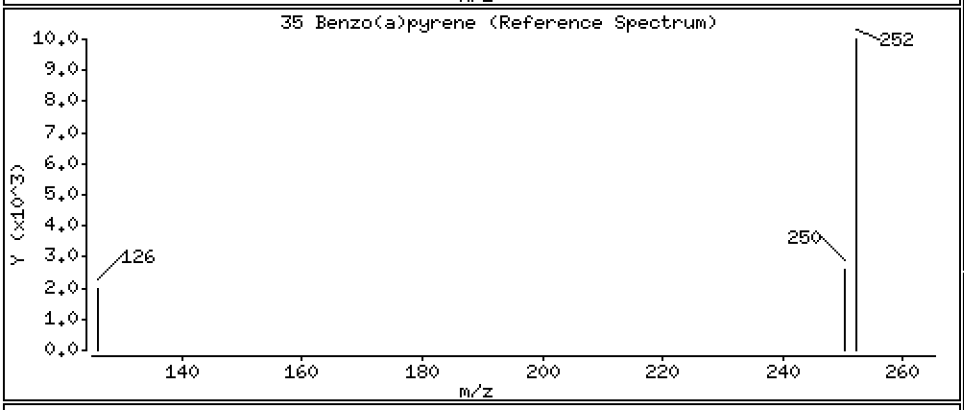
Concentration: 2.68 ng/mL

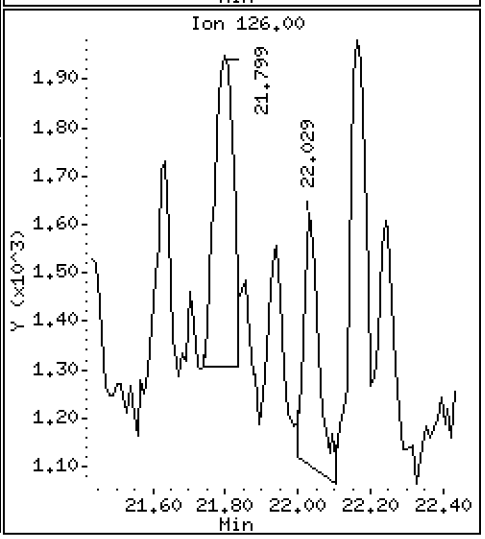


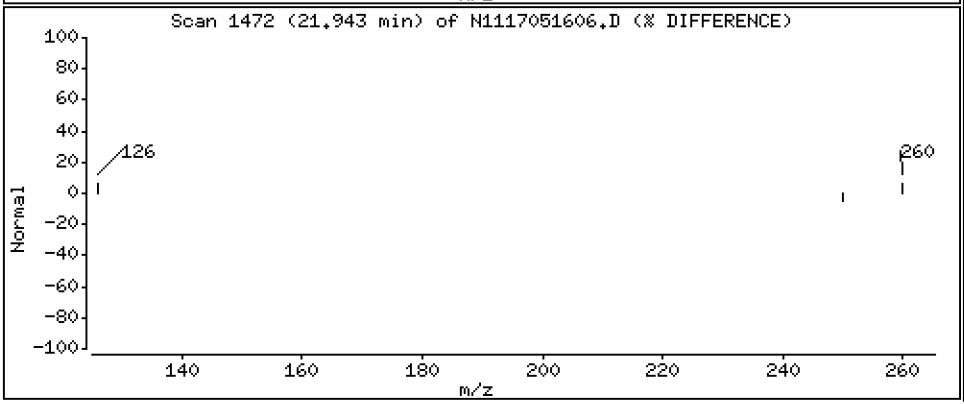












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Date : 16-MAY-2017 13:24

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-02

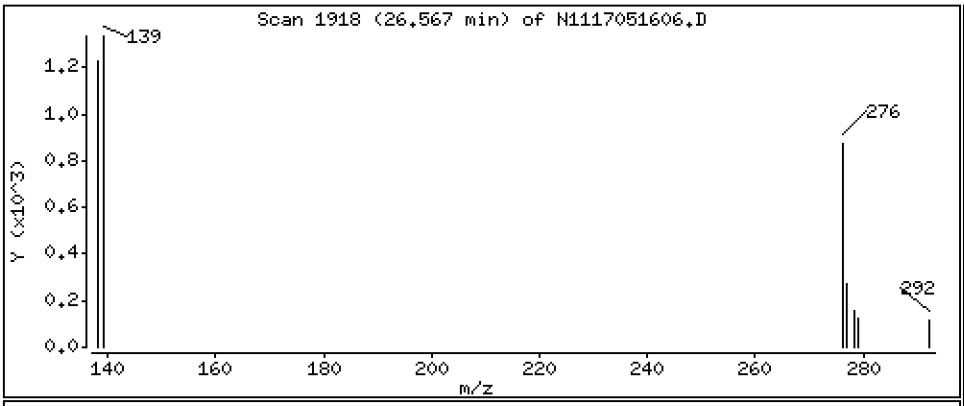
Operator: VTS

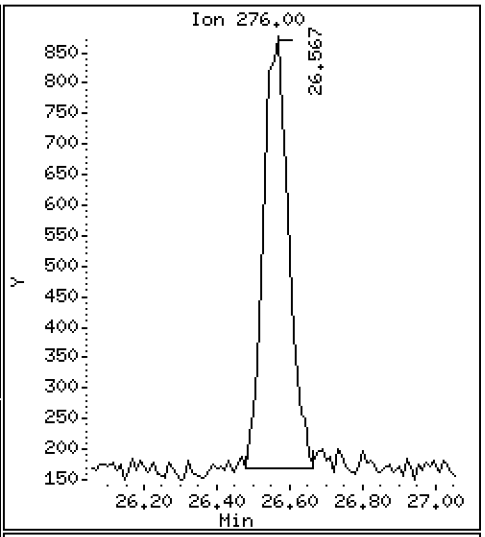
Column phase: Rxi-17Sil MS

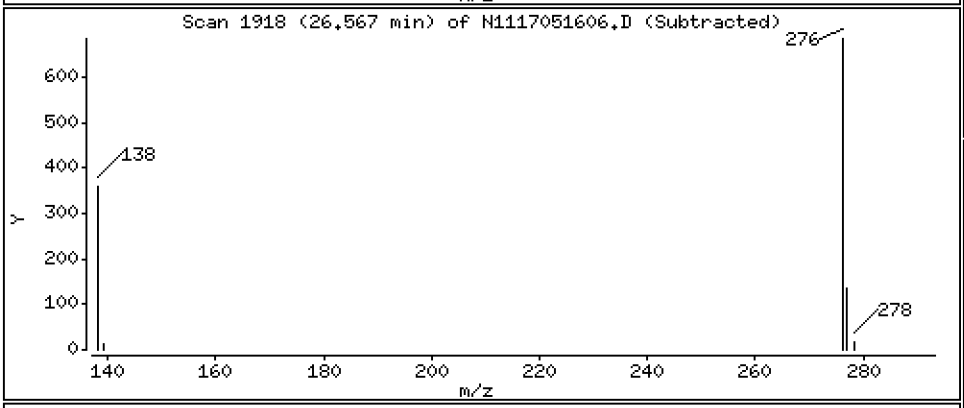
Column diameter: 0.25

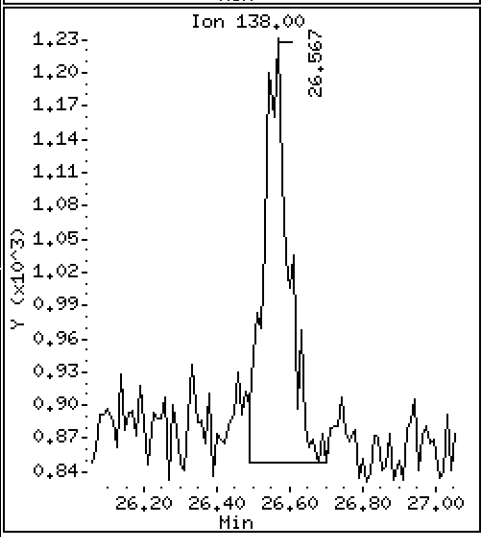
41 Benzo(g,h,i)perylene

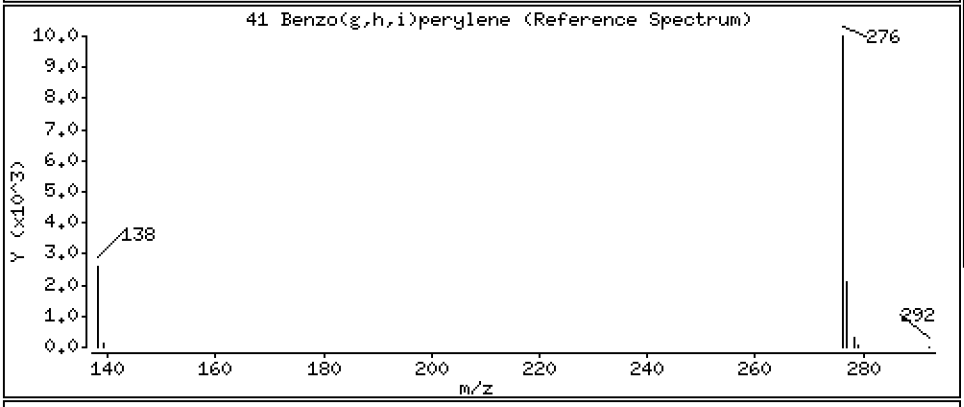
Concentration: 3.18 ng/mL

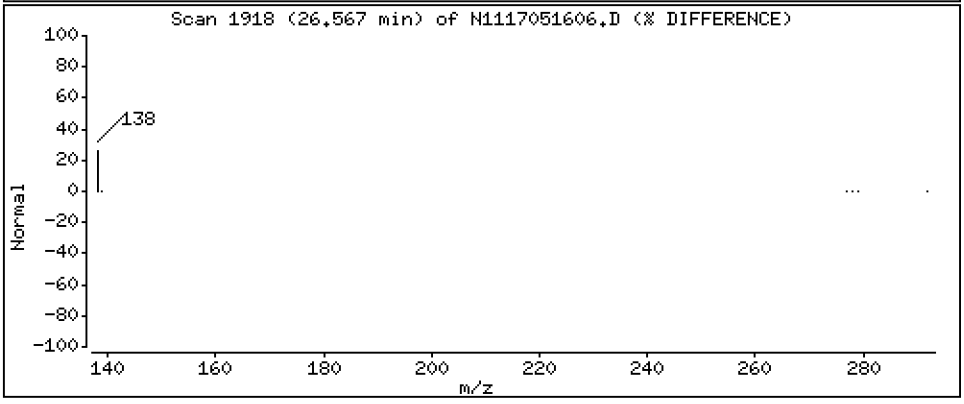












ARI Labs, Inc.

LOW LEVEL PNAs BY SW8270D-SIM

Data file : \\target\share\chem3\nt11.i\20170516.b\N1117051606.D
Lab Smp Id: 17D0421-02
Inj Date : 16-MAY-2017 13:24 MS Autotune Date: 15-JAN-2015 16:59
Operator : VTS Inst ID: nt11.i
Smp Info : 17D0421-02
Misc Info :
Comment   :
Method   : \\target\share\chem3\nt11.i\20170516.b\LOWSIM.m
Meth Date : 17-May-2017 08:15 nt11.i Quant Type: ISTD
Cal Date : 05-MAY-2017 14:47 Cal File: 17050508.D
Als bottle: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: allpna.sub
Target Version: 4.14
Processing Host: VANS

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ng/mL)	FINAL (ng/mL)
*	1 Naphthalene-d8	136	8.490	8.500	(1.000)	437443	200.000	
	2 Naphthalene	128	8.517	8.536	(1.003)	21548	9.16588	9.17
	3 Benzo(b)thiophene	134	Compound Not Detected.					
$	4 2-Methylnaphthalene-d10	152	9.466	9.477	(1.115)	317741	169.498	169
	5 2-Methylnaphthalene	142	9.529	9.540	(1.122)	31179	14.3789	14.4
	6 1-Methylnaphthalene	142	9.792	9.792	(1.153)	14640	6.98143	6.98
	7 2-Chloronaphthalene	162	Compound Not Detected.					
	8 Biphenyl	154	Compound Not Detected.					
	9 2,6-Dimethylnaphthalene	156	Compound Not Detected.					
	10 Acenaphthylene	152	Compound Not Detected.					
*	11 Acenaphthene-d10	164	11.528	11.528	(1.000)	181755	200.000	
	12 Acenaphthene	153	Compound Not Detected.					
	13 Dibenzofuran	168	Compound Not Detected.					
	14 2,3,5-Trimethylnaphthalene	170	Compound Not Detected.					
$	15 Fluorene-d10	174	Compound Not Detected.					
	16 Fluorene	166	12.416	12.429	(1.077)	5644	3.76555	3.77
	17 Dibenzothiophene	184	Compound Not Detected.					
*	18 Phenanthrene-d10	188	14.220	14.220	(1.000)	283234	200.000	
	19 Phenanthrene	178	14.262	14.262	(1.003)	29374	13.9319	13.9
$	20 Anthracene-d10	188	Compound Not Detected.					
	21 Anthracene	178	Compound Not Detected.					
	22 Carbazole	167	14.999	15.000	(1.055)	10845	4.48549	4.49
	23 1-Methylphenanthrene	192	Compound Not Detected.					
$	24 Fluoranthene-d10	212	16.338	16.338	(1.149)	299778	223.890	224
	25 Fluoranthene	202	16.367	16.367	(1.151)	40661	20.0677	20.1
	26 Pyrene	202	16.876	16.876	(0.889)	17520	11.5574	11.6
	27 Benzo(a)anthracene	228	18.891	18.892	(0.995)	7746	6.49630	6.50
*	28 Chrysene-d12	240	18.983	18.983	(1.000)	167446	200.000	
	29 Chrysene	228	19.033	19.033	(1.003)	16605	13.4934	13.5
	30 Benzo(b)fluoranthene	252	20.943	20.943	(0.945)	8547	6.57376	6.57
	31 Benzo(k)fluoranthene	252	21.001	21.001	(0.947)	3916	3.03822	3.04
	32 Benzo(j)fluoranthene	252	21.068	21.068	(0.950)	3971	3.28814	3.29
$	33 Benzo(e)pyrene-d12	264	Compound Not Detected.					

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ng/mL)	CONCENTRATIONS FINAL (ng/mL)
34	Benzo(e)pyrene	252	Compound Not Detected.					
35	Benzo(a)pyrene	252	21.942	21.933	(0.990)	3156	2.68337	2.68
* 36	Perylene-d12	264	22.173	22.173	(1.000)	208070	200.000	
37	Perylene	252	Compound Not Detected.					
$ 38	Dibenzo(a,h)anthracene-d14	292	25.016	25.016	(1.128)	175875	226.601	227
39	Dibenzo(a,h)anthracene	278	Compound Not Detected.					
40	Indeno(1,2,3-cd)pyrene	276	Compound Not Detected.					
41	Benzo(g,h,i)perylene	276	26.567	26.556	(1.198)	3379	3.18391	3.18

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt11.i
Lab File ID: N1117051606.D
Lab Smp Id: 17D0421-02
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: \\target\share\chem3\nt11.i\20170516.b\LOWSIM.m
Misc Info:

Calibration Date: 16-MAY-2017
Calibration Time: 10:47
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	371325	185663	742650	437443	17.81
11 Acenaphthene-d10	154428	77214	308856	181755	17.70
18 Phenanthrene-d10	256956	128478	513912	283234	10.23
28 Chrysene-d12	208629	104315	417258	167446	-19.74
36 Perylene-d12	225431	112716	450862	208070	-7.70

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	8.50	8.00	9.00	8.49	-0.11
11 Acenaphthene-d10	11.53	11.03	12.03	11.53	-0.00
18 Phenanthrene-d10	14.22	13.72	14.72	14.22	-0.00
28 Chrysene-d12	18.98	18.48	19.48	18.98	-0.00
36 Perylene-d12	22.17	21.67	22.67	22.17	-0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N1117051606.D

Lab ID: 17D0421-02
nt11.i, 20170516.b\LOWSIM.m,   16-MAY-2017 13:24

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

On Column LOD for nt11.i, 20170516.b\LOWSIM.m, allpna.sub = 3.0000

Exception: Naphthalene 6.0000
Exception: Phenanthrene 2.5000
Exception: Anthracene 2.0000
Exception: Pyrene 4.0000
Exception: Benzo(j)fluoranthene 2.5000
Exception: Benzo(a)pyrene 2.0000
Exception: Perylene 3.5000
Exception: Benzo(e)pyrene 2.0000
Exception: Benzo(b)thiophene 2.0000
Exception: 2-Chloronaphthalene 2.0000
Exception: 2,6-Dimethylnaphthalene 2.0000
Exception: 2,3,5-Trimethylnaphthalene 2.0000
Exception: 1-Methylphenanthrene 2.0000
Exception: Dibenzothiophene 2.0000
Exception: Carbazole 2.0000
Exception: Biphenyl 2.0000
Exception: 2-Methylnaphthalene-d10 (Surr) 0.1000
Exception: Dibenzo(a,h)anthracene-d14 (Surr) 0.1000
Exception: Fluoranthene-d10 (Surr) 0.1000
Exception: Anthracene-d10 (Surr) 0.1000
Exception: Benzo(e)pyrene-d12 (Surr) 0.1000
Exception: Fluorene-d10 (Surr) 0.1000

PG-GP-LTN-COC-170424

Form I

ORGANIC ANALYSIS DATA SHEET

EPA 8270D-SIM

Polynuclear Aromatic Hydrocarbons - low level

Laboratory:	Analytical Resources, Inc.			SDG:	17D0421
Client:	Anchor QEA, LLC			Project:	Port Gamble Shellfish Monitoring
Matrix:	Tissue	Laboratory ID:	17D0421-03	File ID:	N1117051703.D
Sampled:	04/24/17 11:00	Prepared:	05/09/17 13:50	Analyzed:	05/17/17 09:43
Solids:		Preparation:	EPA 3550C-Mod (Ultrasonic	Initial/Final:	10.05 g / 0.5 mL
Batch:	BFE0160	Sequence:	SFE0225	Calibration:	AE00020
Instrument:	NT11	Column:	RXi-17Sil-MS		

CAS NO.	COMPOUND	DILUTION	CONC. (ug/kg)	Q	DL	RL
91-20-3	Naphthalene	1	0.60	U	0.50	0.60
91-57-6	2-Methylnaphthalene	1	0.63		0.50	0.50
208-96-8	Acenaphthylene	1	0.50	U	0.50	0.50
83-32-9	Acenaphthene	1	0.50	U	0.50	0.50
86-73-7	Fluorene	1	0.50	U	0.50	0.50
85-01-8	Phenanthrene	1	0.97		0.50	0.50
120-12-7	Anthracene	1	0.50	U	0.50	0.50
206-44-0	Fluoranthene	1	1.44		0.50	0.50
129-00-0	Pyrene	1	0.93		0.50	0.50
56-55-3	Benzo(a)anthracene	1	0.50	U	0.50	0.50
218-01-9	Chrysene	1	0.50	U	0.50	0.50
205-99-2	Benzo(b)fluoranthene	1	0.50	U	0.50	0.50
207-08-9	Benzo(k)fluoranthene	1	0.50	U	0.50	0.50
50-32-8	Benzo(a)pyrene	1	0.50	U	0.50	0.50
193-39-5	Indeno(1,2,3-cd)pyrene	1	0.50	U	0.50	0.50
53-70-3	Dibenzo(a,h)anthracene	1	0.50	U	0.50	0.50
191-24-2	Benzo(g,h,i)perylene	1	0.50	U	0.50	0.50
1985-5-0	Perylene	1	0.50	U	0.50	0.50
197-97-2	Benzo(e)pyrene	1	0.50	U	0.50	0.50

SURROGATES	ADDED (ug/kg)	CONC (ug/kg)	% REC	QC LIMITS	Q
2-Methylnaphthalene-d10	14.925	8.64	57.9	30 - 160	
Dibenzo[a,h]anthracene-d14	14.925	12.0	80.6	30 - 160	
Fluoranthene-d10	14.925	11.9	79.8	30 - 160	

Data File: \\target\share\chem3\nt11.i\20170517.b\N1117051703.D

Date : 17-MAY-2017 09:43

Client ID:

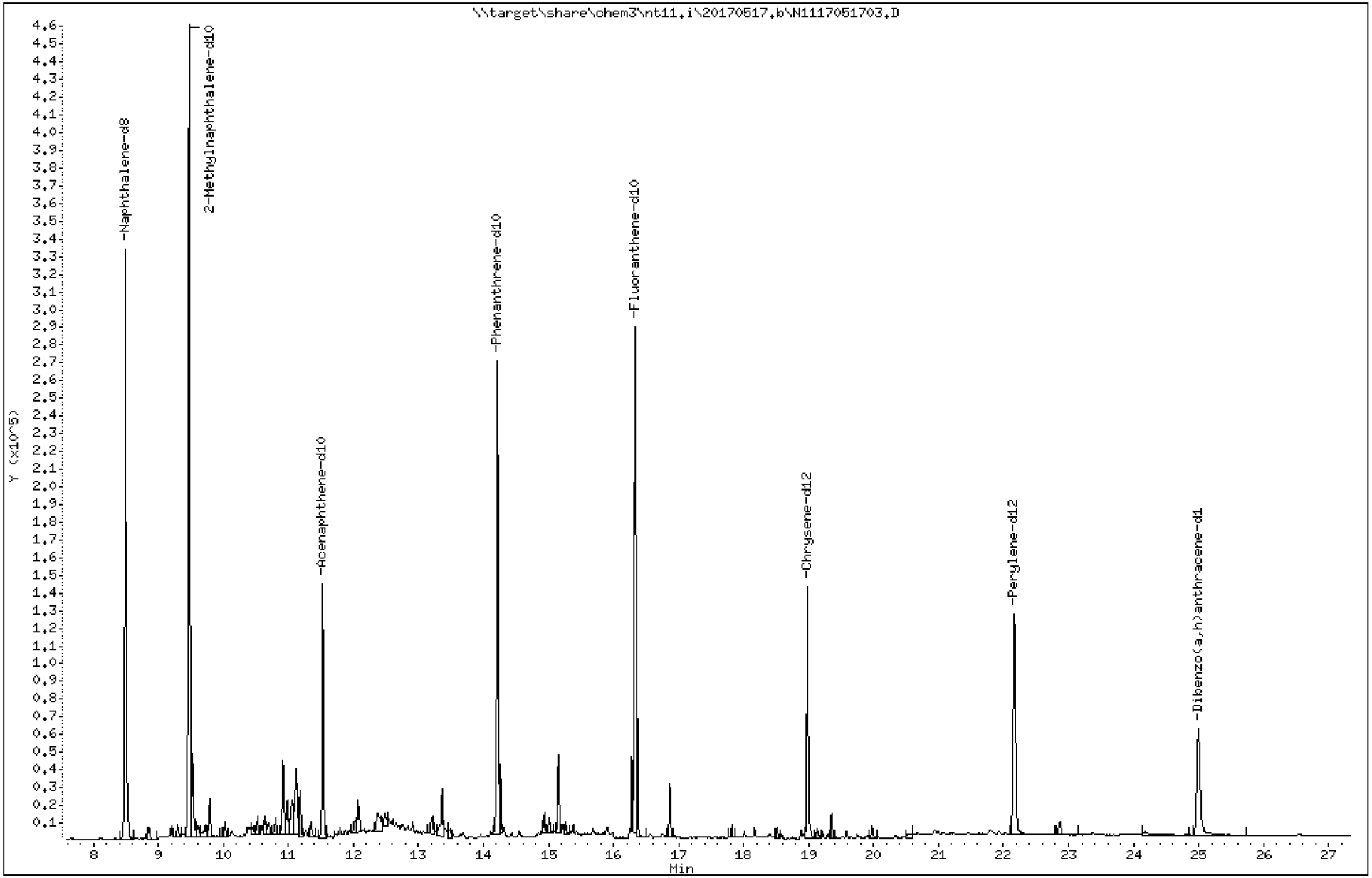
Sample Info: 17D0421-03

Instrument: nt11.i

Operator: VTS

Column phase: Rxi-17Sil MS

Column diameter: 0.25



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Date : 17-MAY-2017 09:43

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-03

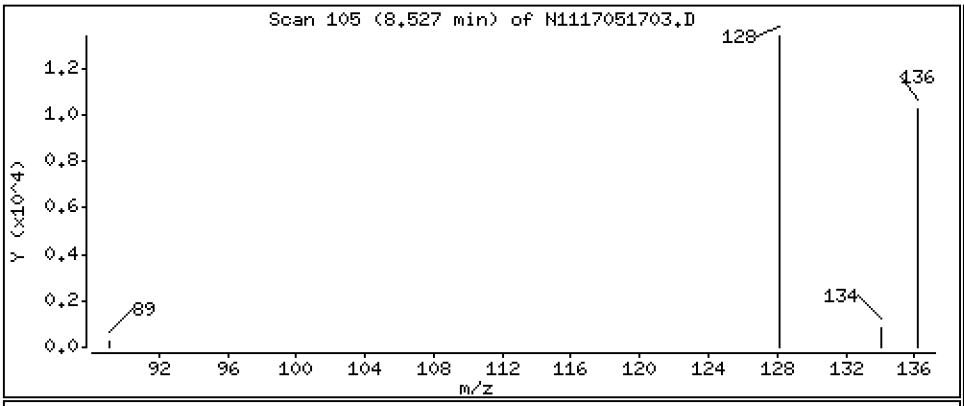
Operator: VTS

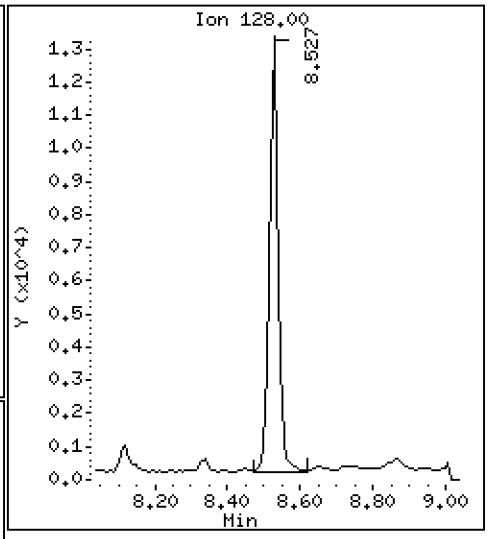
Column phase: Rxi-17Sil MS

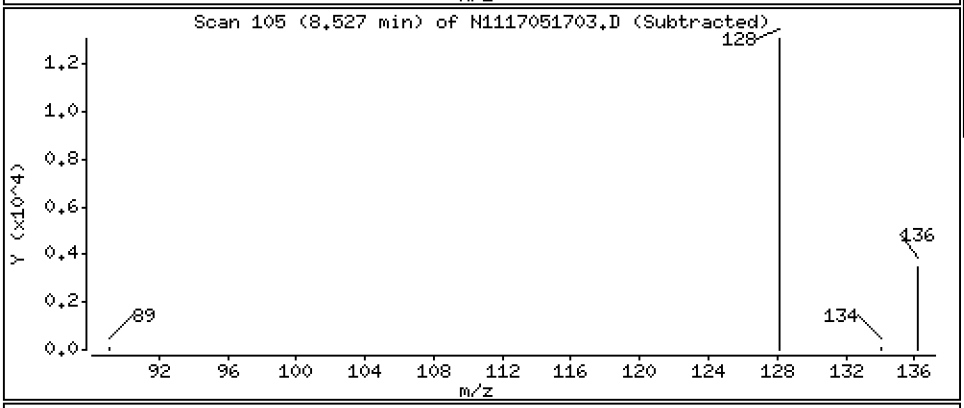
Column diameter: 0.25

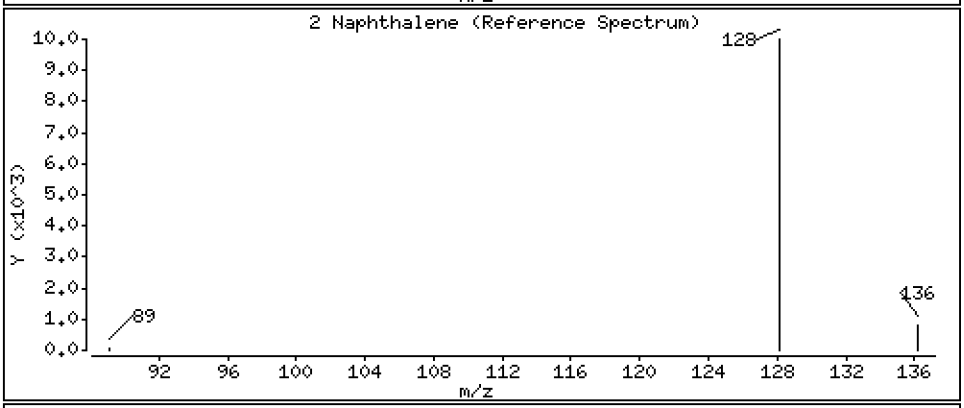
2 Naphthalene

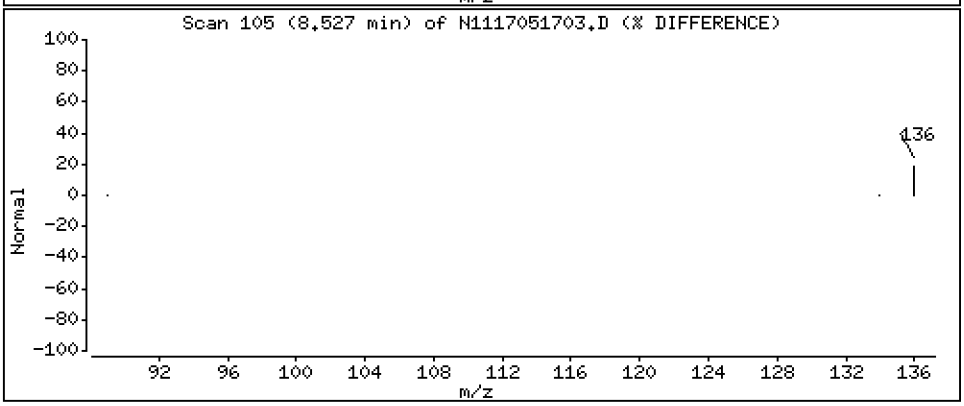
Concentration: 7.94 ng/mL











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Date : 17-MAY-2017 09:43

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-03

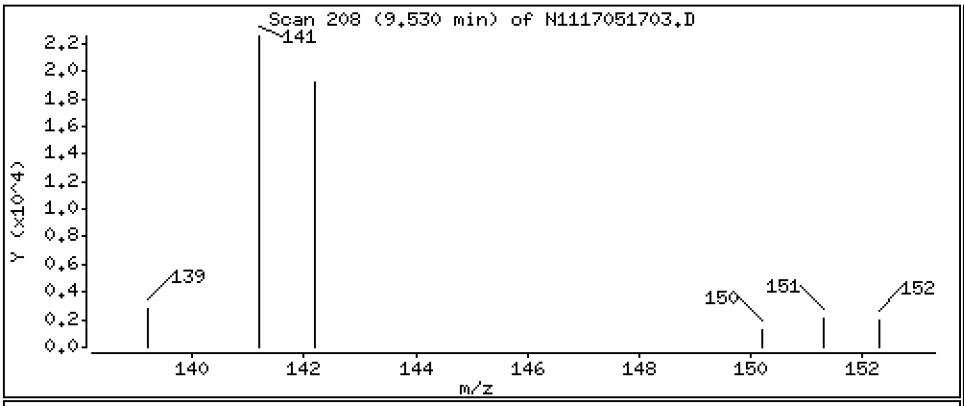
Operator: VTS

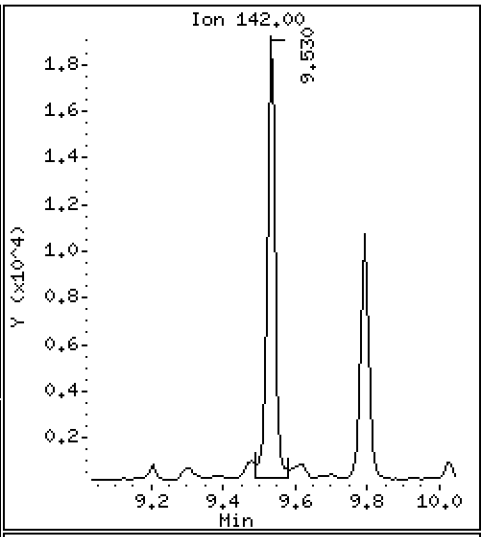
Column phase: Rxi-17Sil MS

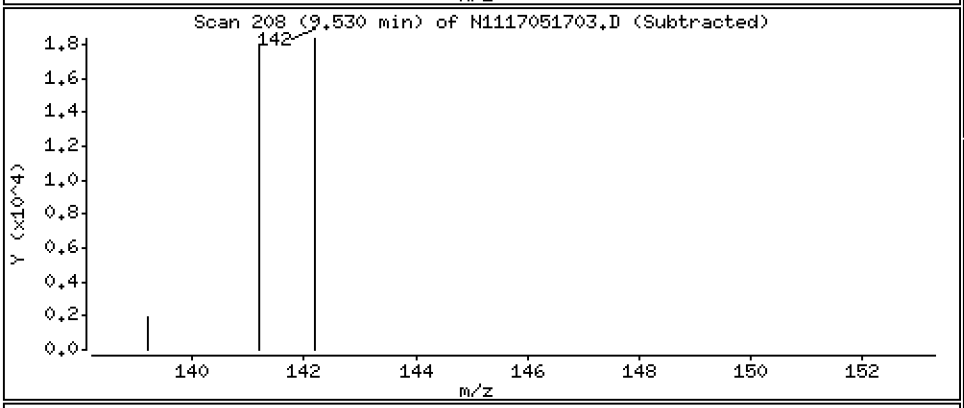
Column diameter: 0.25

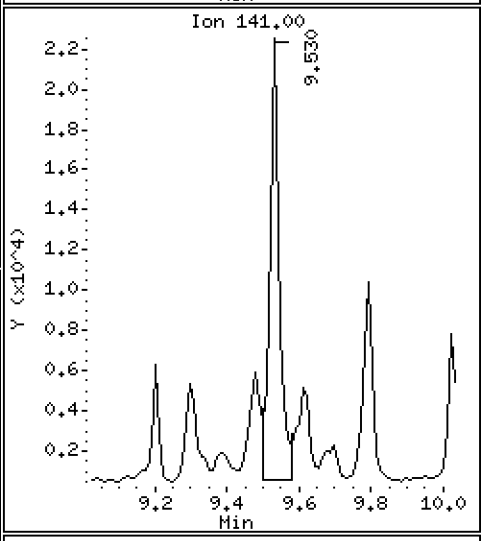
5 2-Methylnaphthalene

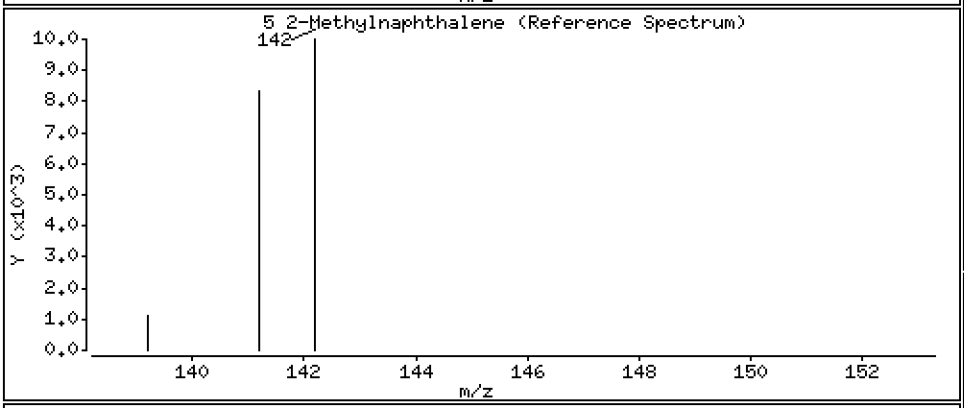
Concentration: 12.7 ng/mL

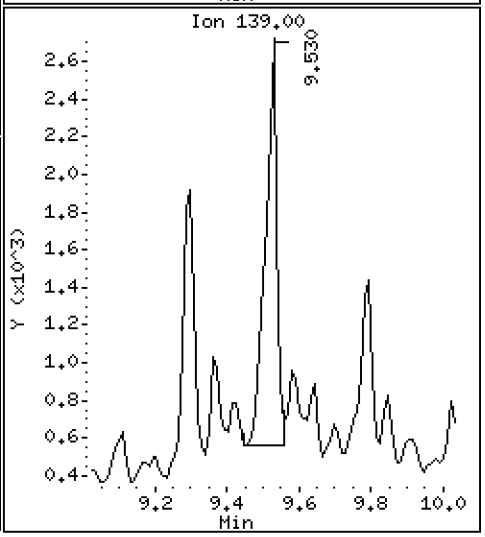


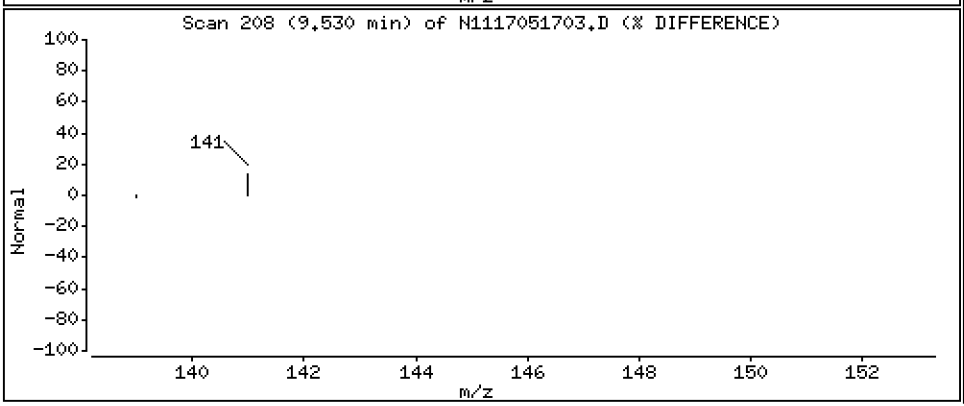












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Date : 17-MAY-2017 09:43

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-03

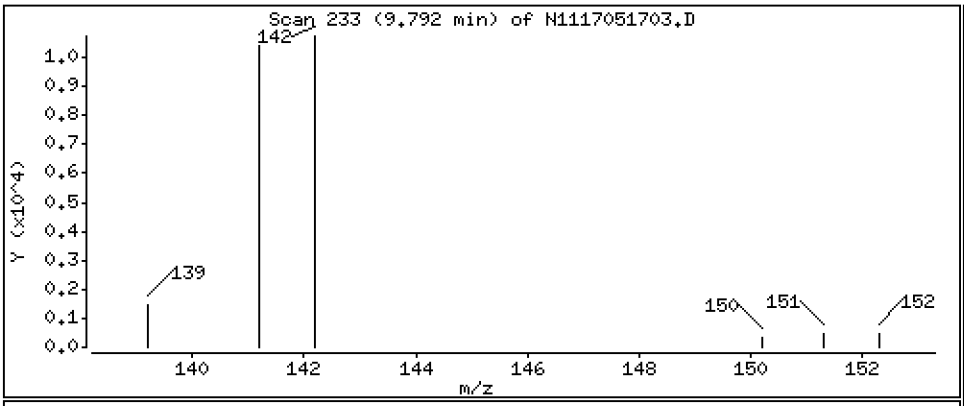
Operator: VTS

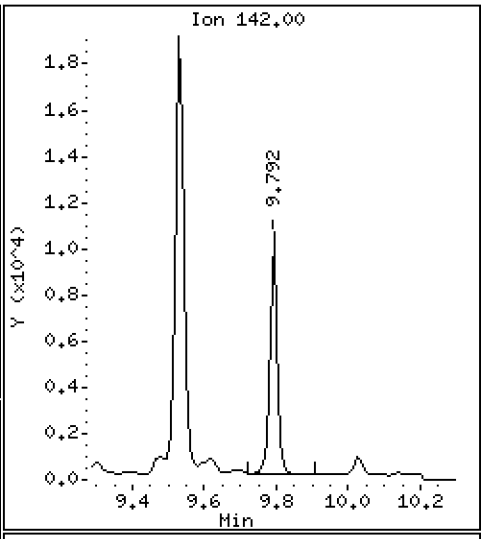
Column phase: Rxi-17Sil MS

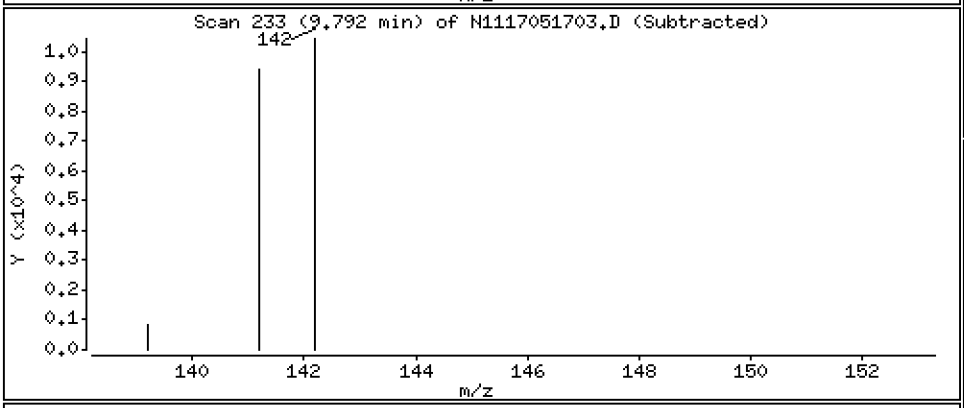
Column diameter: 0.25

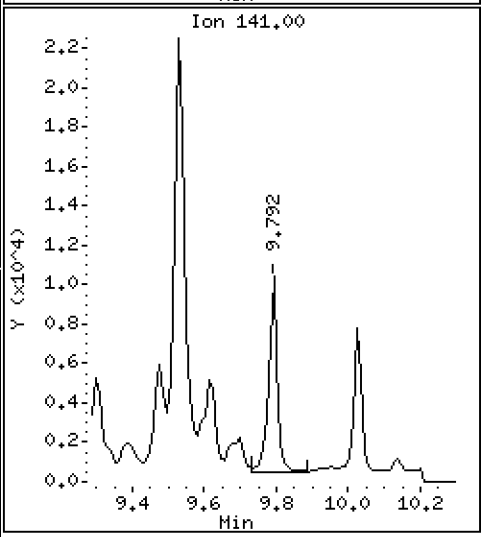
6 1-Methylnaphthalene

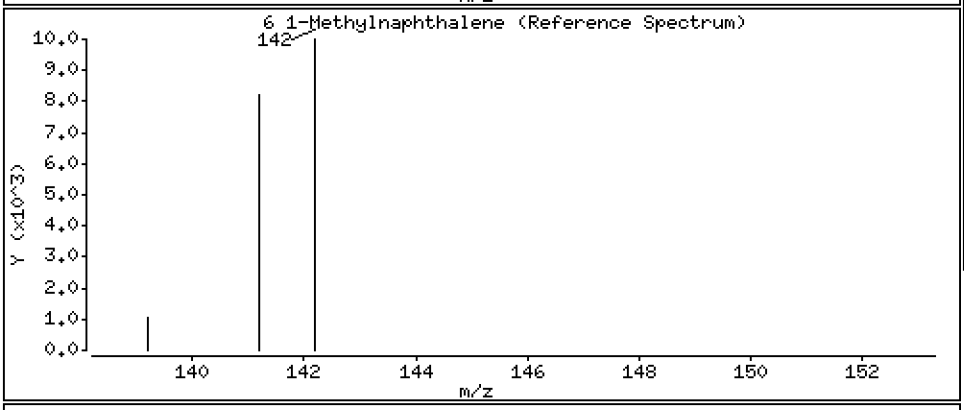
Concentration: 6.87 ng/mL

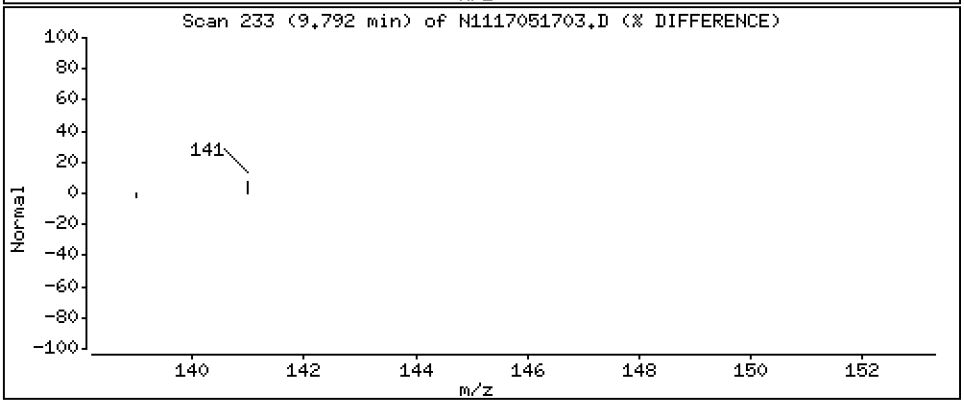












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Date : 17-MAY-2017 09:43

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-03

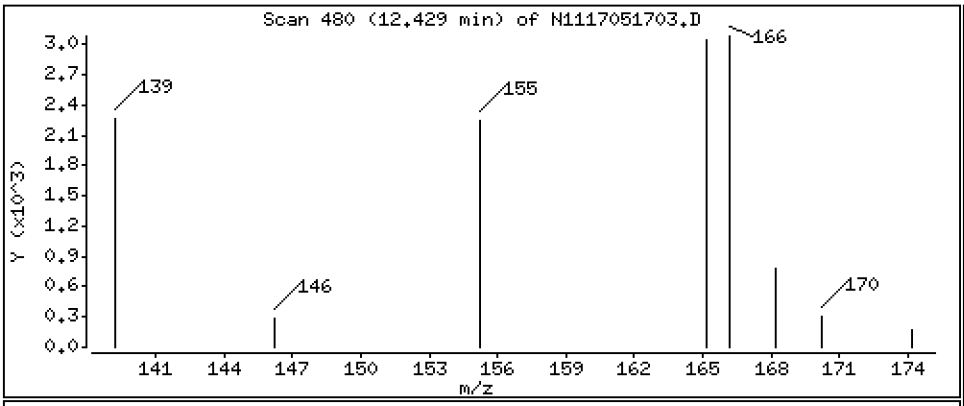
Operator: VTS

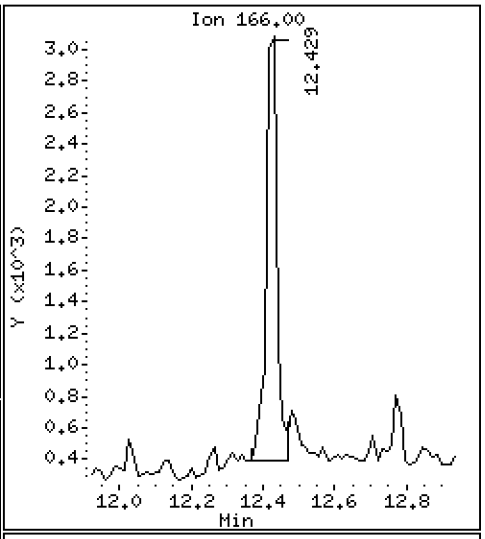
Column phase: Rxi-17Sil MS

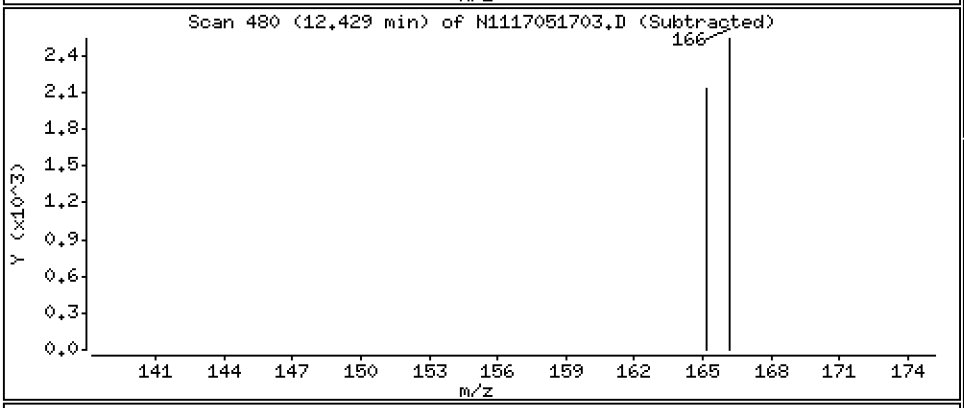
Column diameter: 0.25

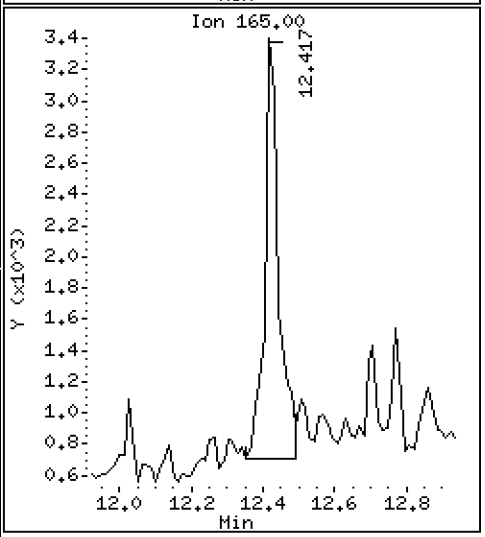
16 Fluorene

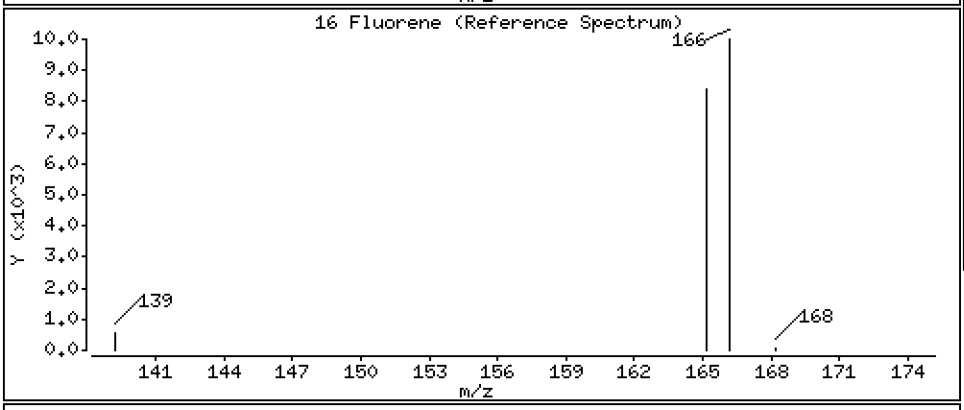
Concentration: 3.25 ng/mL

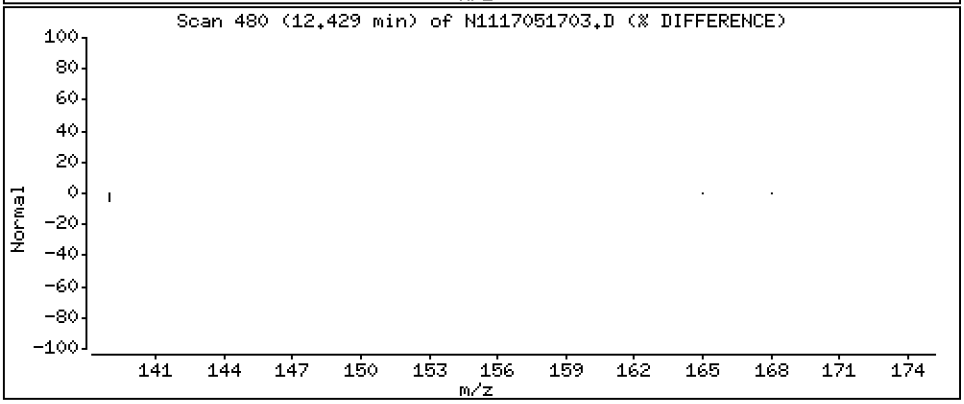












Data File: \\target\share\chem3\nt11.i\20170517.b\N1117051703.D

Date : 17-MAY-2017 09:43

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-03

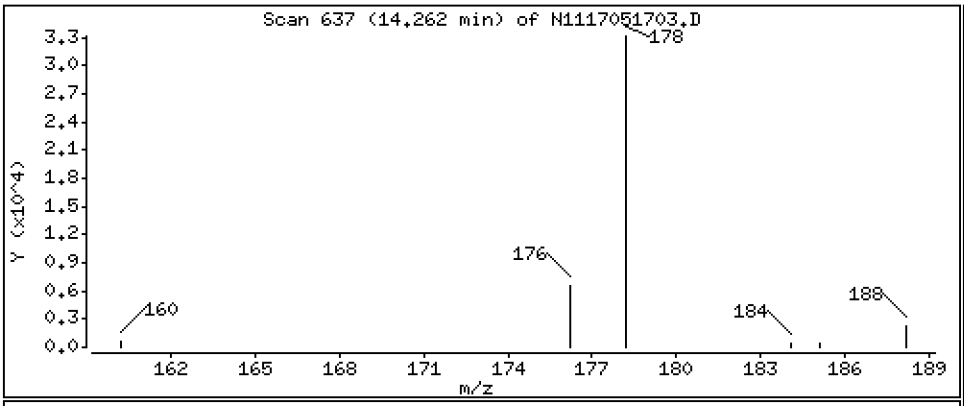
Operator: VTS

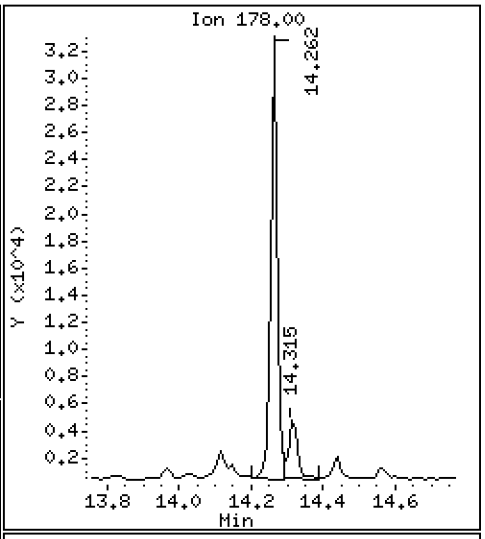
Column phase: Rxi-17Sil MS

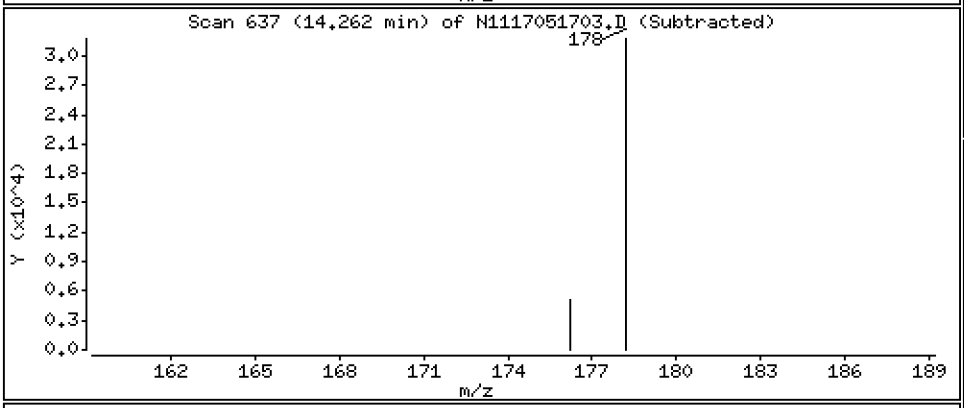
Column diameter: 0.25

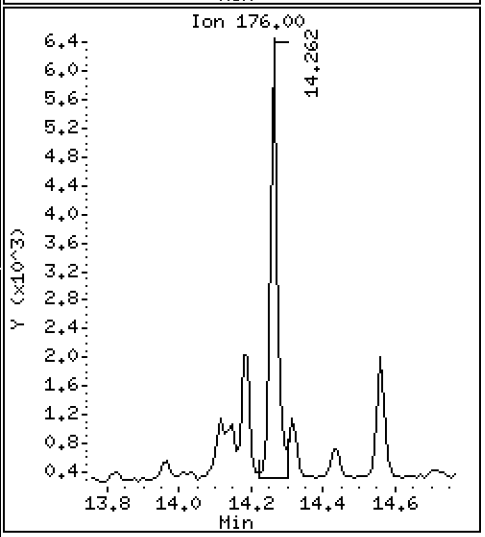
19 Phenanthrene

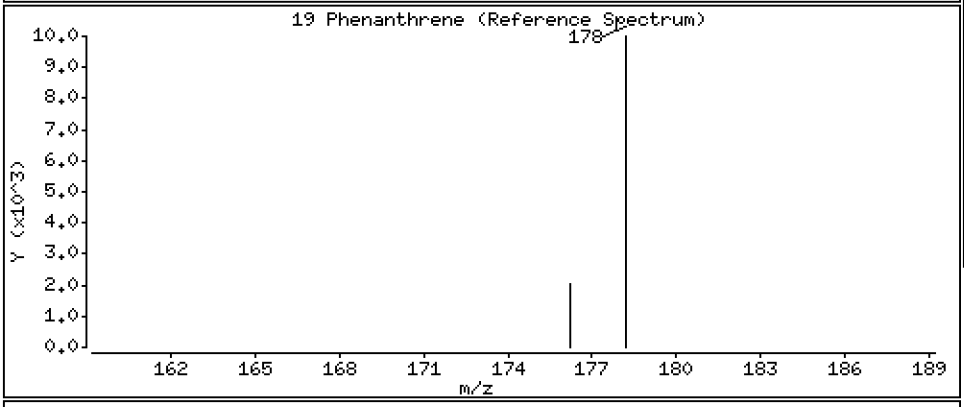
Concentration: 19.5 ng/mL

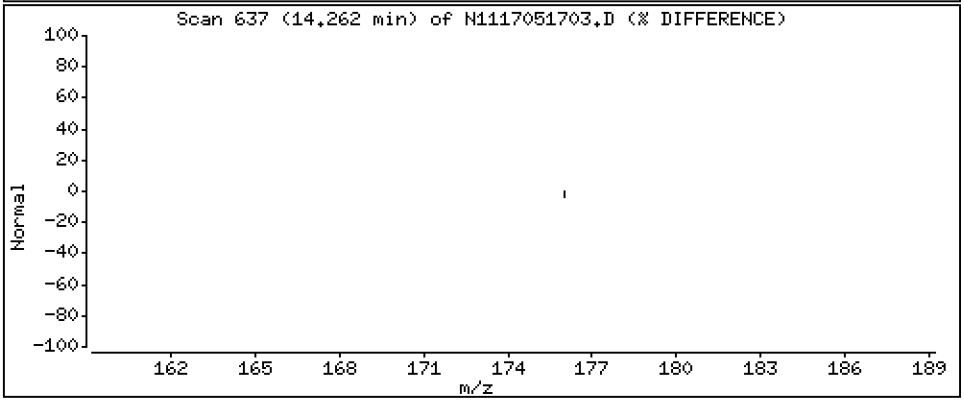












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Date : 17-MAY-2017 09:43

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-03

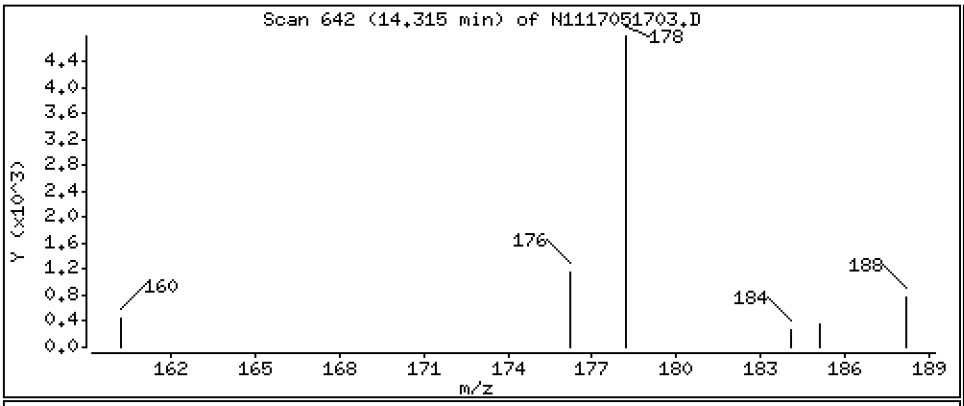
Operator: VTS

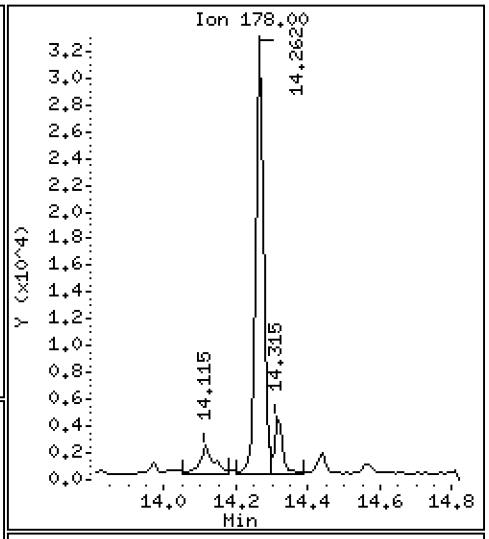
Column phase: Rxi-17Sil MS

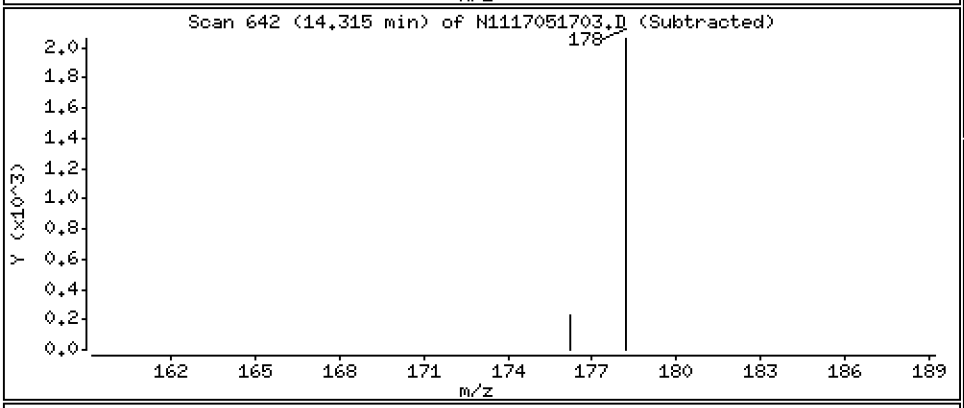
Column diameter: 0.25

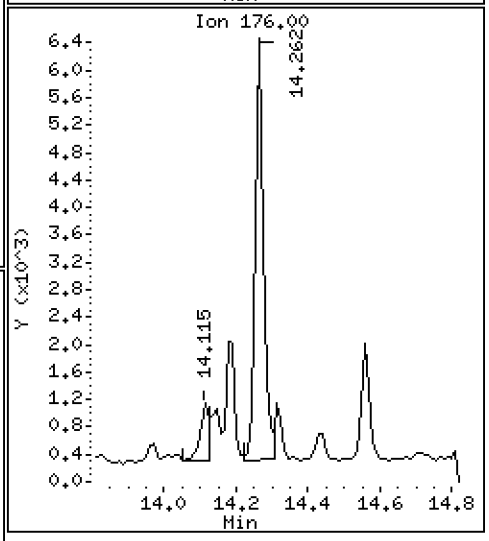
21 Anthracene

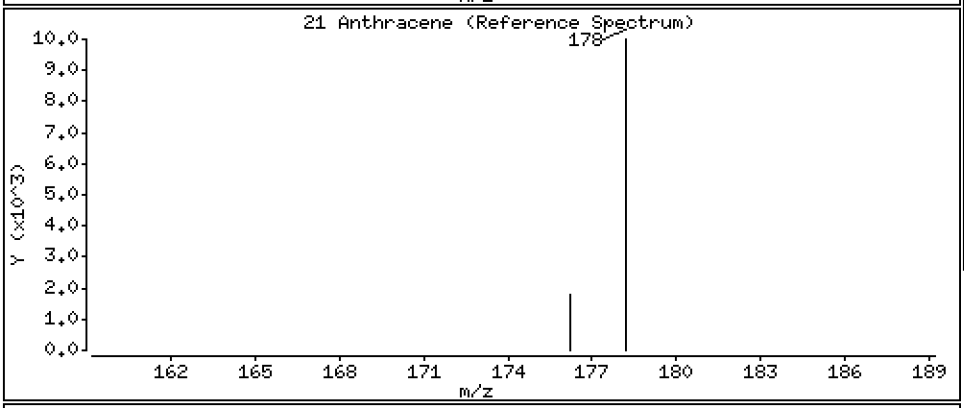
Concentration: 3.21 ng/mL

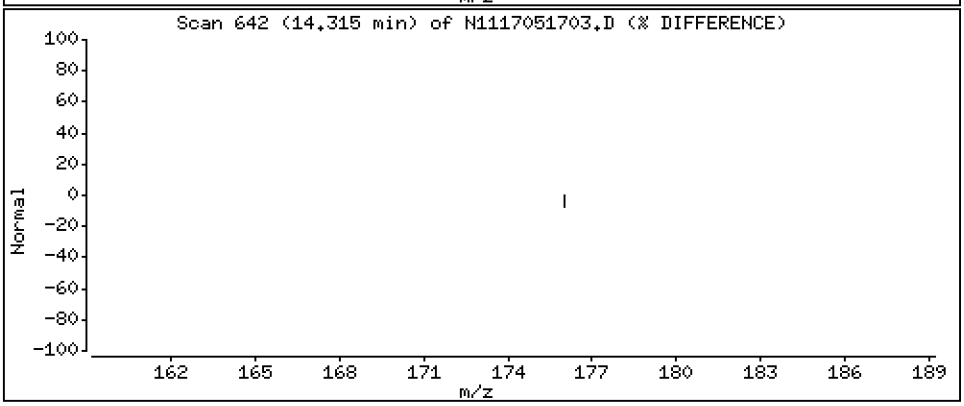












Data File: \\target\share\chem3\nt11.i\20170517.b\N1117051703.D

Date : 17-MAY-2017 09:43

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-03

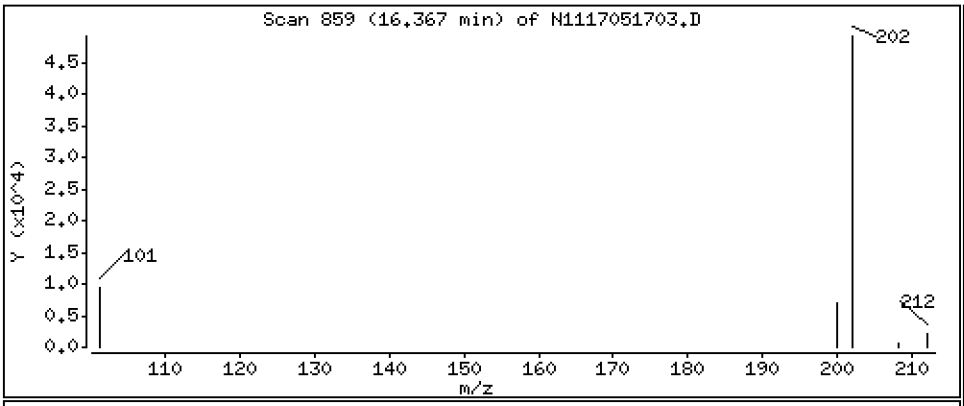
Operator: VTS

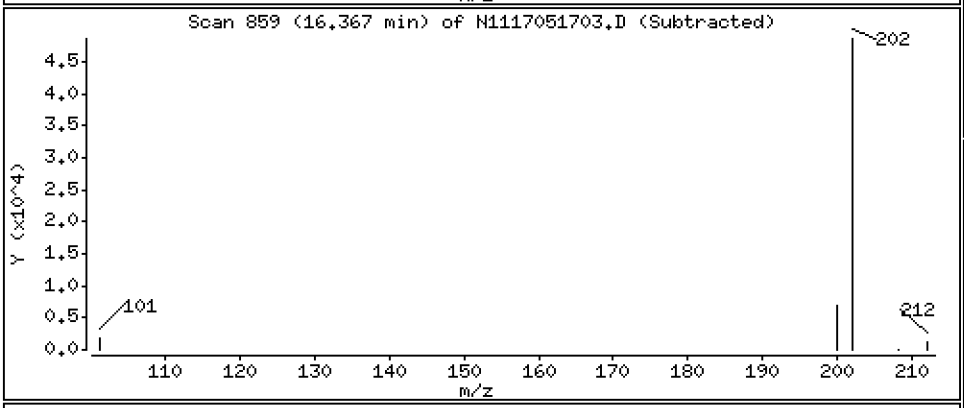
Column phase: Rxi-17Sil MS

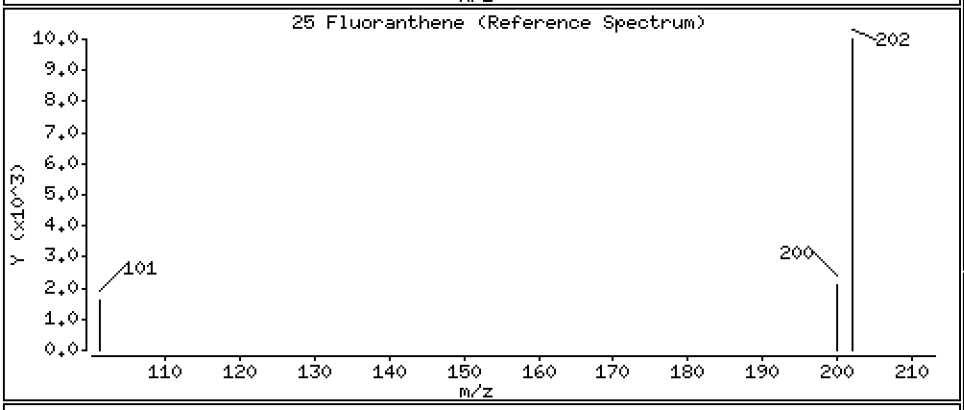
Column diameter: 0.25

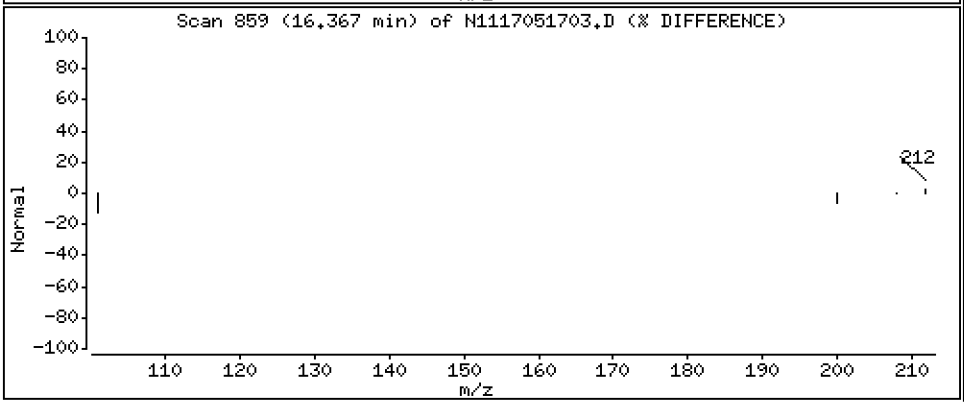
25 Fluoranthene

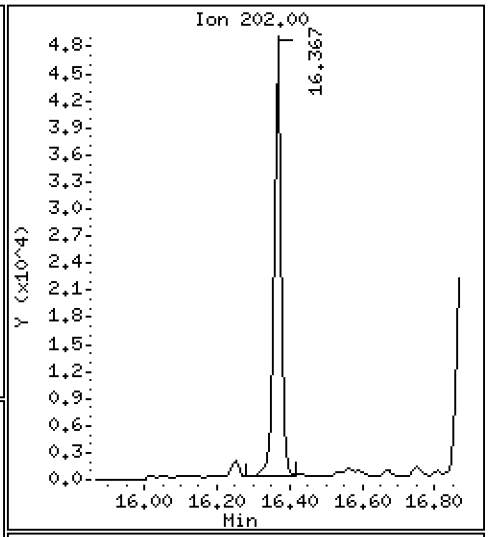
Concentration: 29.0 ng/mL

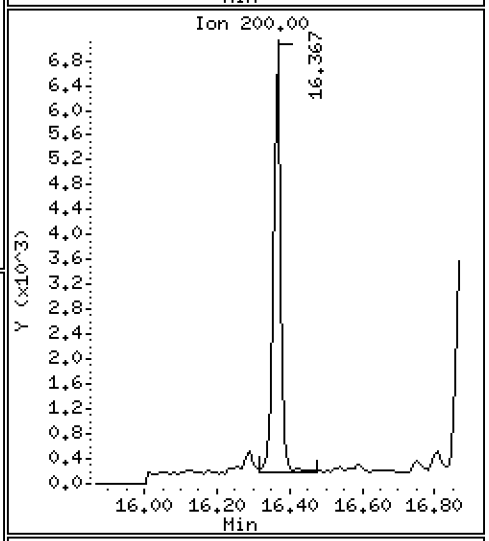


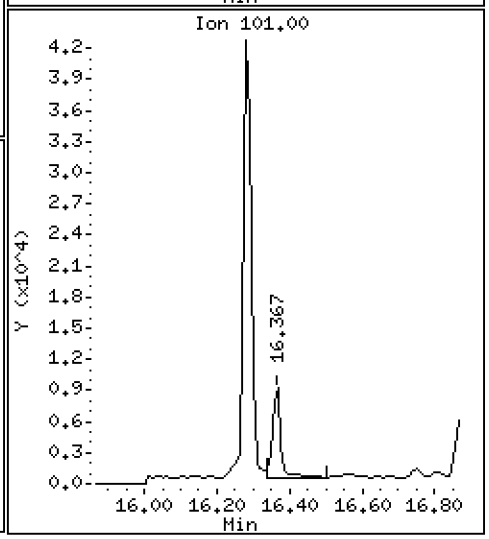












Data File: \\target\share\chem3\nt11.i\20170517.b\N1117051703.D

Date : 17-MAY-2017 09:43

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-03

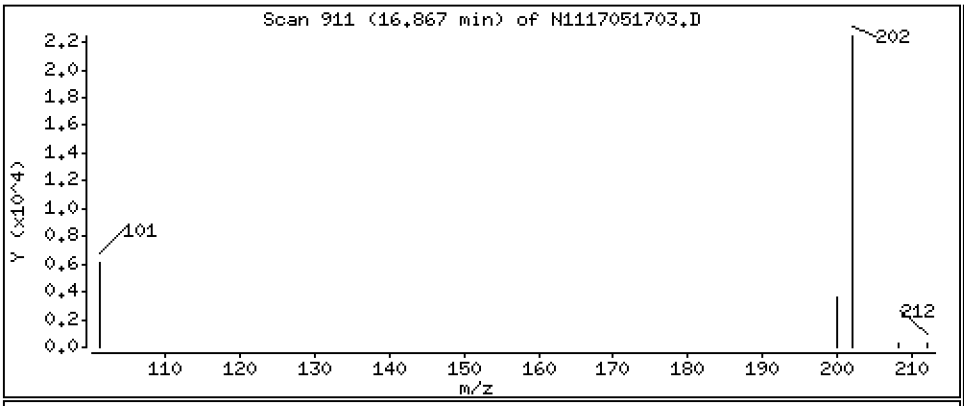
Operator: VTS

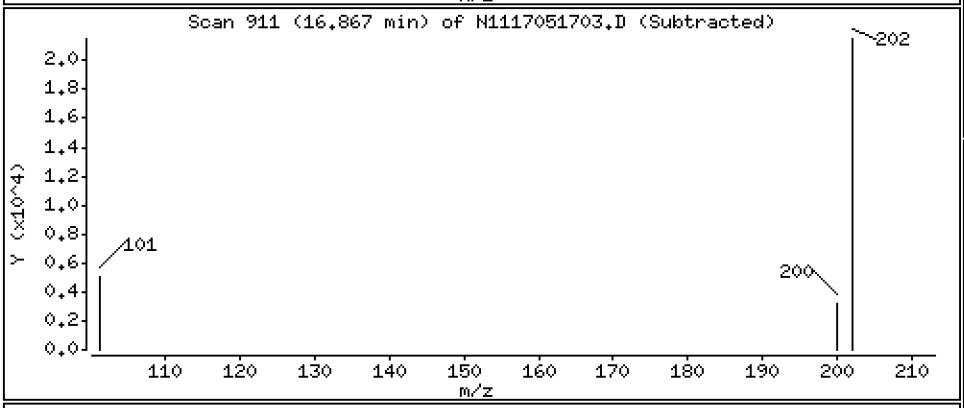
Column phase: Rxi-17Sil MS

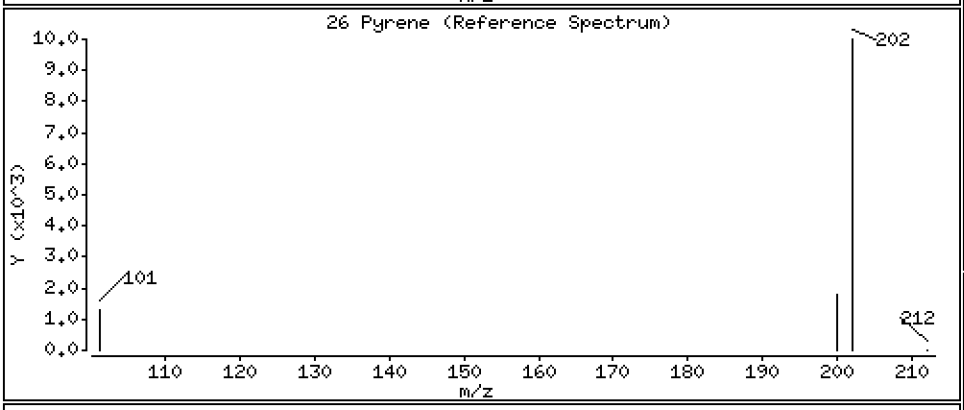
Column diameter: 0.25

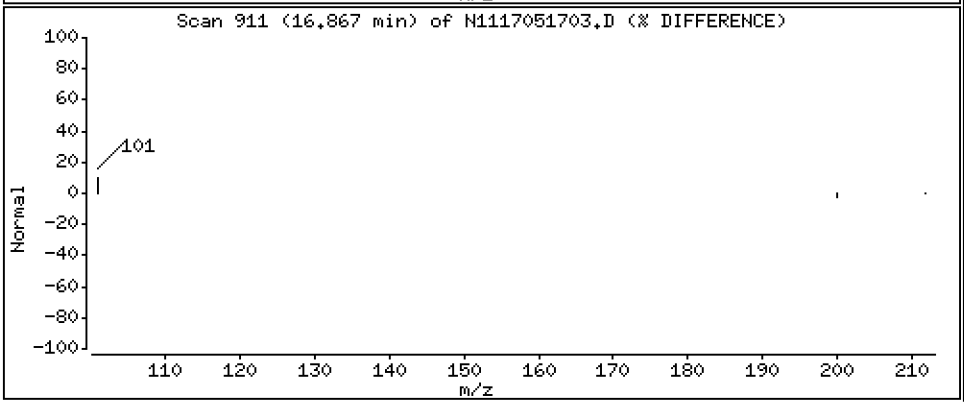
26 Pyrene

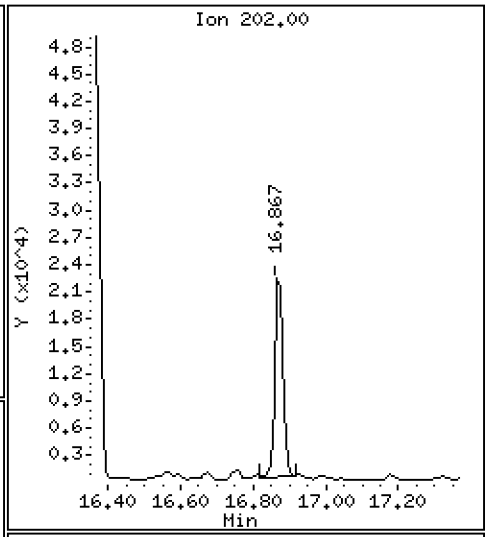
Concentration: 18.6 ng/mL

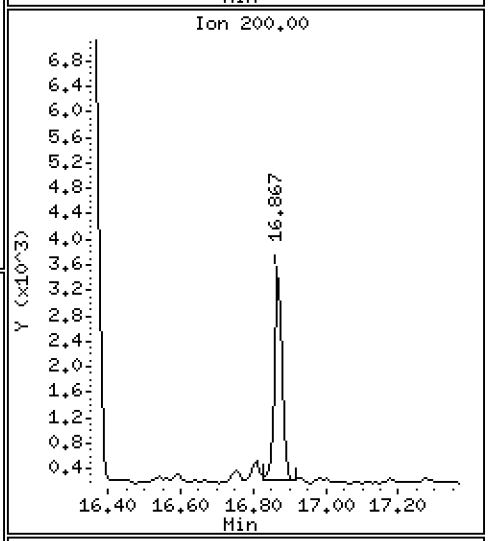


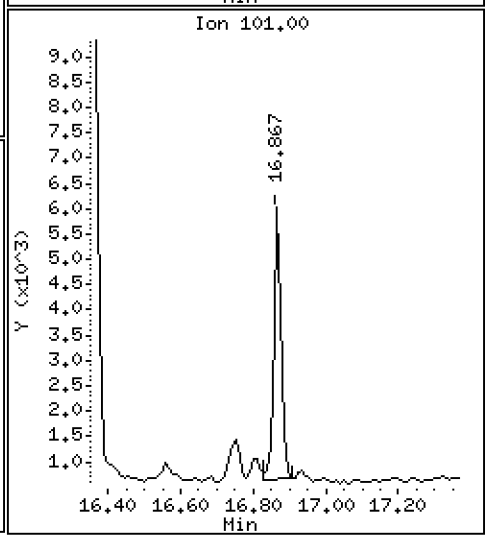












Data File: \\target\share\chem3\nt11.i\20170517.b\N1117051703.D

Date : 17-MAY-2017 09:43

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-03

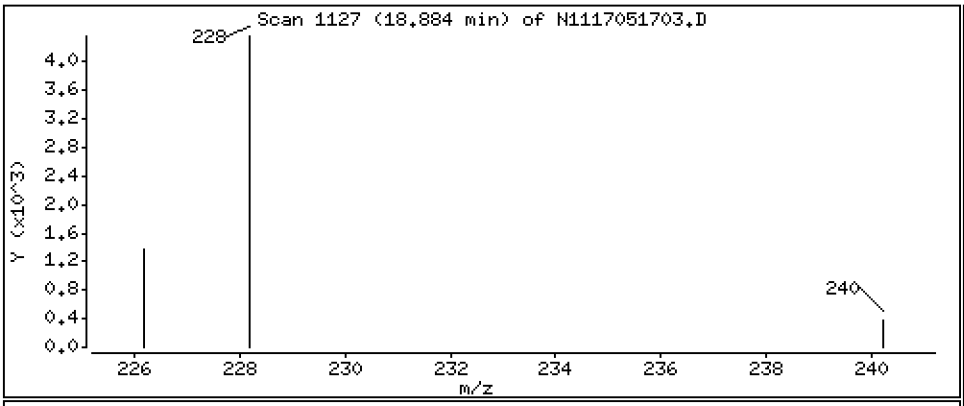
Operator: VTS

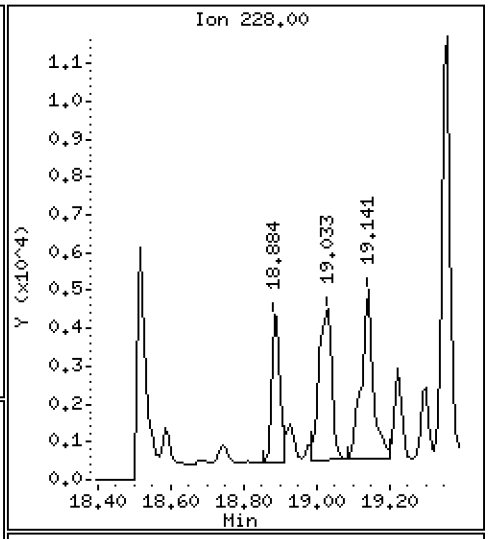
Column phase: Rxi-17Sil MS

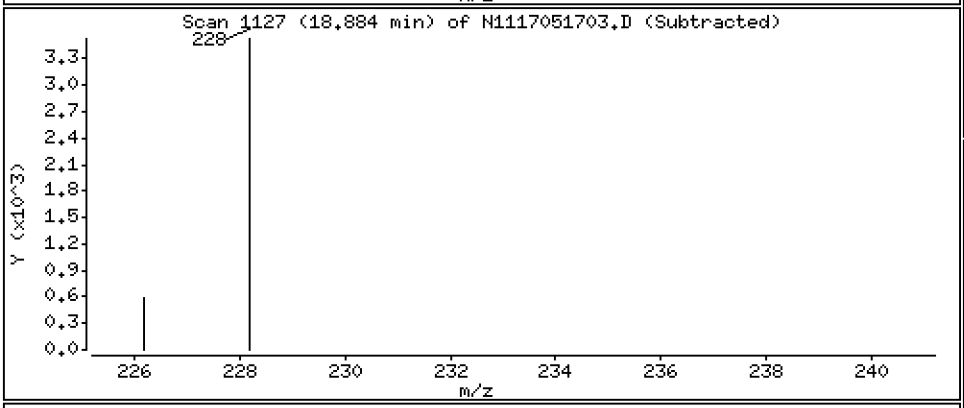
Column diameter: 0.25

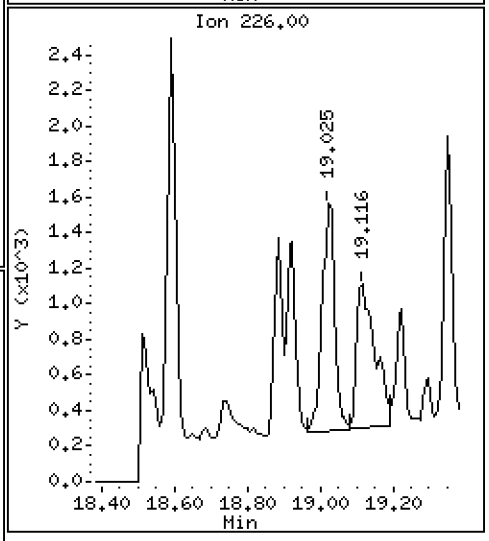
27 Benzo(a)anthracene

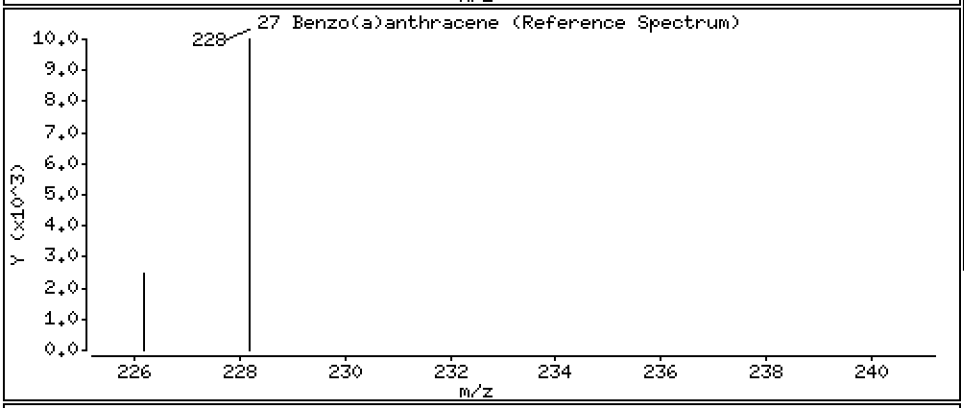
Concentration: 4.03 ng/mL

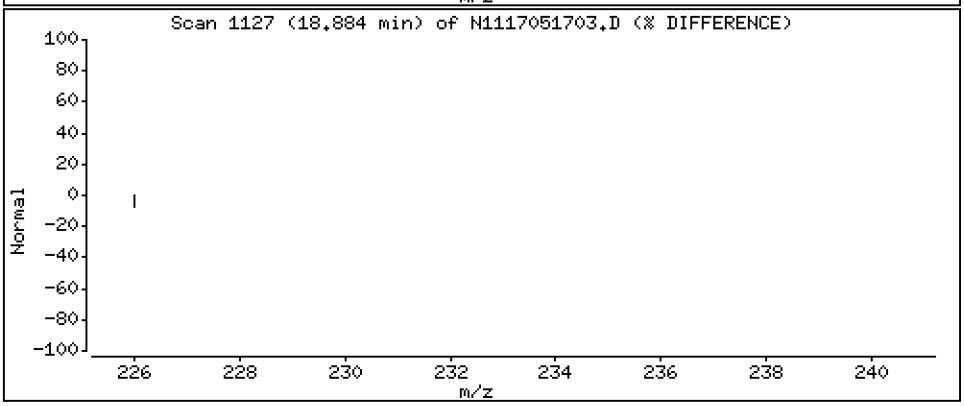












Data File: \\target\share\chem3\nt11.i\20170517.b\N1117051703.D

Date : 17-MAY-2017 09:43

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-03

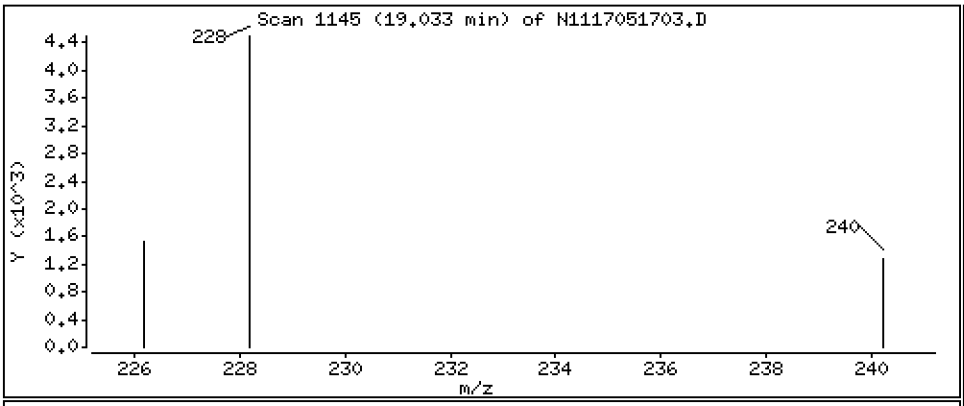
Operator: VTS

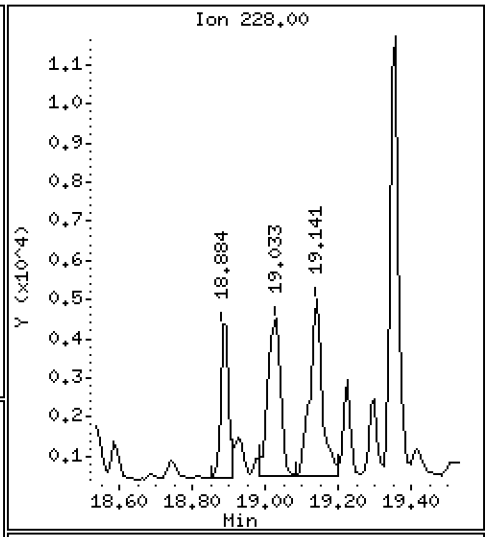
Column phase: Rxi-17Sil MS

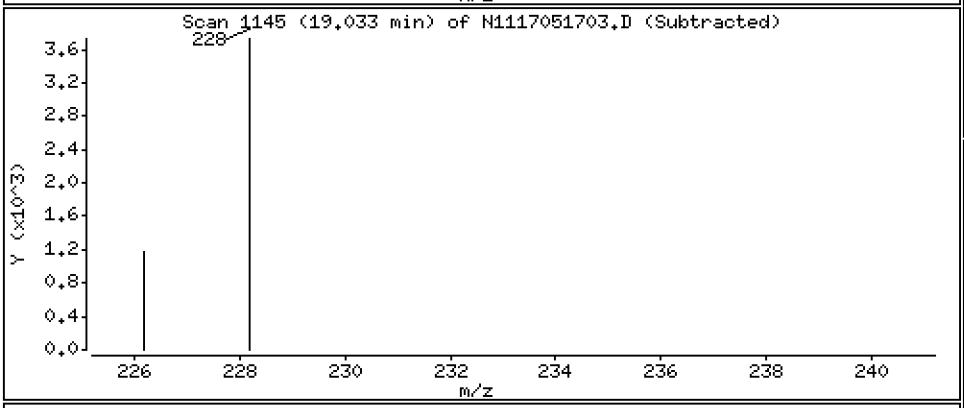
Column diameter: 0.25

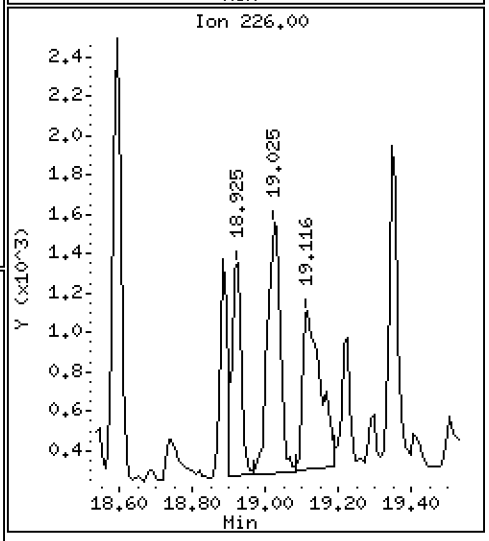
29 Chrysene

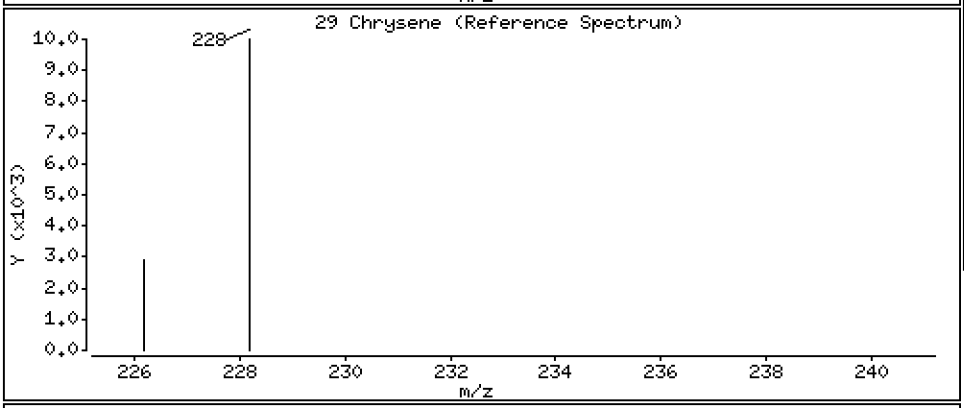
Concentration: 6.48 ng/mL

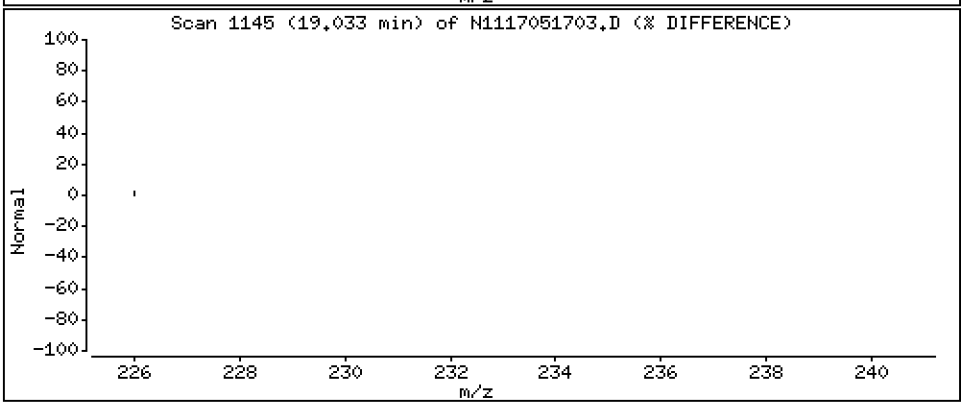












ARI Labs, Inc.

LOW LEVEL PNAs BY SW8270D-SIM

Data file : \\target\share\chem3\nt11.i\20170517.b\N1117051703.D
Lab Smp Id: 17D0421-03
Inj Date : 17-MAY-2017 09:43 MS Autotune Date: 15-JAN-2015 16:59
Operator : VTS Inst ID: nt11.i
Smp Info : 17D0421-03
Misc Info :
Comment   :
Method   : \\target\share\chem3\nt11.i\20170517.b\LOWSIM.m
Meth Date : 17-May-2017 11:47 nt11.i Quant Type: ISTD
Cal Date : 05-MAY-2017 14:47 Cal File: 17050508.D
Als bottle: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: allpna.sub
Target Version: 4.14
Processing Host: VANS

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ng/mL)	CONCENTRATIONS FINAL (ng/mL)
*	1 Naphthalene-d8	136	8.490	8.499	(1.000)	508505	200.000	
	2 Naphthalene	128	8.526	8.535	(1.004)	21702	7.94133	7.94
	3 Benzo(b)thiophene	134	Compound Not Detected.					
$	4 2-Methylnaphthalene-d10	152	9.477	9.477	(1.116)	378628	173.752	174
	5 2-Methylnaphthalene	142	9.529	9.540	(1.122)	31943	12.6726	12.7
	6 1-Methylnaphthalene	142	9.792	9.792	(1.153)	16749	6.87097	6.87
	7 2-Chloronaphthalene	162	Compound Not Detected.					
	8 Biphenyl	154	Compound Not Detected.					
	9 2,6-Dimethylnaphthalene	156	Compound Not Detected.					
	10 Acenaphthylene	152	Compound Not Detected.					
*	11 Acenaphthene-d10	164	11.528	11.528	(1.000)	212651	200.000	
	12 Acenaphthene	153	Compound Not Detected.					
	13 Dibenzofuran	168	Compound Not Detected.					
	14 2,3,5-Trimethylnaphthalene	170	Compound Not Detected.					
$	15 Fluorene-d10	174	Compound Not Detected.					
	16 Fluorene	166	12.429	12.429	(1.078)	5696	3.24810	3.25
	17 Dibenzothiophene	184	Compound Not Detected.					
*	18 Phenanthrene-d10	188	14.220	14.220	(1.000)	333565	200.000	
	19 Phenanthrene	178	14.262	14.262	(1.003)	48520	19.5403	19.5
$	20 Anthracene-d10	188	Compound Not Detected.					
	21 Anthracene	178	14.314	14.314	(1.007)	7864	3.21468	3.21
	22 Carbazole	167	Compound Not Detected.					
	23 1-Methylphenanthrene	192	Compound Not Detected.					
$	24 Fluoranthene-d10	212	16.329	16.338	(1.148)	377507	239.400	239
	25 Fluoranthene	202	16.367	16.367	(1.151)	69117	28.9647	29.0
	26 Pyrene	202	16.867	16.867	(0.889)	35477	18.6045	18.6
	27 Benzo(a)anthracene	228	18.883	18.891	(0.995)	6049	4.03291	4.03
*	28 Chrysene-d12	240	18.983	18.983	(1.000)	210634	200.000	
	29 Chrysene	228	19.033	19.033	(1.003)	10037	6.48383	6.48
	30 Benzo(b)fluoranthene	252	Compound Not Detected.					
	31 Benzo(k)fluoranthene	252	Compound Not Detected.					
	32 Benzo(j)fluoranthene	252	Compound Not Detected.					
$	33 Benzo(e)pyrene-d12	264	Compound Not Detected.					

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ng/mL)	CONCENTRATIONS FINAL (ng/mL)
34	Benzo(e)pyrene	252	Compound Not Detected.					
35	Benzo(a)pyrene	252	Compound Not Detected.					
* 36	Perylene-d12	264	22.163	22.163	(1.000)	262684	200.000	
37	Perylene	252	Compound Not Detected.					
$ 38	Dibenzo(a,h)anthracene-d14	292	24.994	25.005	(1.128)	236854	241.721	242
39	Dibenzo(a,h)anthracene	278	Compound Not Detected.					
40	Indeno(1,2,3-cd)pyrene	276	Compound Not Detected.					
41	Benzo(g,h,i)perylene	276	Compound Not Detected.					

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt11.i
Lab File ID: N1117051703.D
Lab Smp Id: 17D0421-03
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: \\target\share\chem3\nt11.i\20170517.b\LOWSIM.m
Misc Info:

Calibration Date: 17-MAY-2017
Calibration Time: 09:02
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	371325	185663	742650	508505	36.94
11 Acenaphthene-d10	154428	77214	308856	212651	37.70
18 Phenanthrene-d10	256956	128478	513912	333565	29.81
28 Chrysene-d12	208629	104315	417258	210634	0.96
36 Perylene-d12	225431	112716	450862	262684	16.53

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	8.50	8.00	9.00	8.49	-0.11
11 Acenaphthene-d10	11.53	11.03	12.03	11.53	-0.00
18 Phenanthrene-d10	14.22	13.72	14.72	14.22	0.00
28 Chrysene-d12	18.98	18.48	19.48	18.98	-0.00
36 Perylene-d12	22.16	21.66	22.66	22.16	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N1117051703.D

Lab ID: 17D0421-03
nt11.i, 20170517.b\LOWSIM.m,   17-MAY-2017 09:43

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

On Column LOD for nt11.i, 20170517.b\LOWSIM.m, allpna.sub = 3.0000

Exception: Naphthalene 6.0000
Exception: Phenanthrene 2.5000
Exception: Anthracene 2.0000
Exception: Pyrene 4.0000
Exception: Benzo(j)fluoranthene 2.5000
Exception: Benzo(a)pyrene 2.0000
Exception: Perylene 3.5000
Exception: Benzo(e)pyrene 2.0000
Exception: Benzo(b)thiophene 2.0000
Exception: 2-Chloronaphthalene 2.0000
Exception: 2,6-Dimethylnaphthalene 2.0000
Exception: 2,3,5-Trimethylnaphthalene 2.0000
Exception: 1-Methylphenanthrene 2.0000
Exception: Dibenzothiophene 2.0000
Exception: Carbazole 2.0000
Exception: Biphenyl 2.0000
Exception: 2-Methylnaphthalene-d10 (Surr) 0.1000
Exception: Dibenzo(a,h)anthracene-d14 (Surr) 0.1000
Exception: Fluoranthene-d10 (Surr) 0.1000
Exception: Anthracene-d10 (Surr) 0.1000
Exception: Benzo(e)pyrene-d12 (Surr) 0.1000
Exception: Fluorene-d10 (Surr) 0.1000

PG-WS-OYS-COC-170424

Form I

ORGANIC ANALYSIS DATA SHEET

EPA 8270D-SIM

Polynuclear Aromatic Hydrocarbons - low level

Laboratory:	Analytical Resources, Inc.			SDG:	17D0421
Client:	Anchor QEA, LLC			Project:	Port Gamble Shellfish Monitoring
Matrix:	Tissue	Laboratory ID:	17D0421-04	File ID:	N1117051608.D
Sampled:	04/24/17 11:30	Prepared:	05/09/17 13:50	Analyzed:	05/16/17 14:36
Solids:		Preparation:	EPA 3550C-Mod (Ultrasonic	Initial/Final:	10.12 g / 0.5 mL
Batch:	BFE0160	Sequence:	SFE0208	Calibration:	AE00020
Instrument:	NT11	Column:	RXi-17Sil-MS		

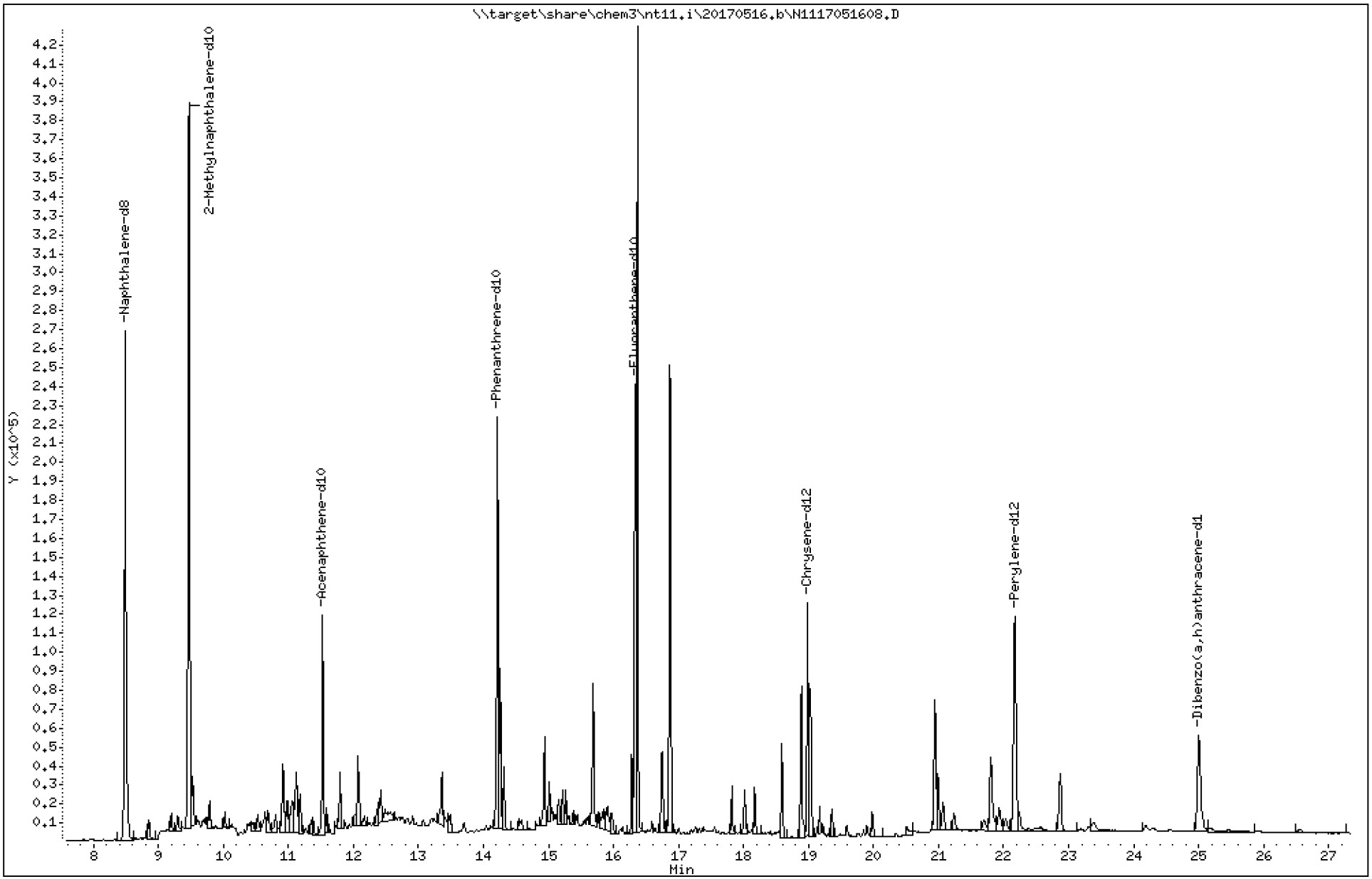
CAS NO.	COMPOUND	DILUTION	CONC. (ug/kg)	Q	DL	RL
91-20-3	Naphthalene	1	0.51	J	0.49	0.59
91-57-6	2-Methylnaphthalene	1	0.49	U	0.49	0.49
208-96-8	Acenaphthylene	1	0.49	U	0.49	0.49
83-32-9	Acenaphthene	1	0.49	U	0.49	0.49
86-73-7	Fluorene	1	0.51		0.49	0.49
85-01-8	Phenanthrene	1	2.52		0.49	0.49
120-12-7	Anthracene	1	1.03		0.49	0.49
206-44-0	Fluoranthene	1	11.2		0.49	0.49
129-00-0	Pyrene	1	8.68		0.49	0.49
56-55-3	Benzo(a)anthracene	1	3.86		0.49	0.49
218-01-9	Chrysene	1	5.52		0.49	0.49
205-99-2	Benzo(b)fluoranthene	1	3.13		0.49	0.49
207-08-9	Benzo(k)fluoranthene	1	1.52		0.49	0.49
50-32-8	Benzo(a)pyrene	1	0.58		0.49	0.49
193-39-5	Indeno(1,2,3-cd)pyrene	1	0.49	U	0.49	0.49
53-70-3	Dibenzo(a,h)anthracene	1	0.49	U	0.49	0.49
191-24-2	Benzo(g,h,i)perylene	1	0.49	U	0.49	0.49
1985-5-0	Perylene	1	0.49	U	0.49	0.49
197-97-2	Benzo(e)pyrene	1	2.00		0.49	0.49

SURROGATES	ADDED (ug/kg)	CONC (ug/kg)	% REC	QC LIMITS	Q
2-Methylnaphthalene-d10	14.822	9.63	65.0	30 - 160	
Dibenzo[a,h]anthracene-d14	14.822	10.1	68.2	30 - 160	
Fluoranthene-d10	14.822	12.1	81.7	30 - 160	

Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051608.D
Date : 16-MAY-2017 14:36
Client ID:
Sample Info: 17D0421-04

Instrument: nt11.i
Operator: VTS
Column diameter: 0.25

Column phase: Rxi-17Sil MS



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Date : 16-MAY-2017 14:36

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-04

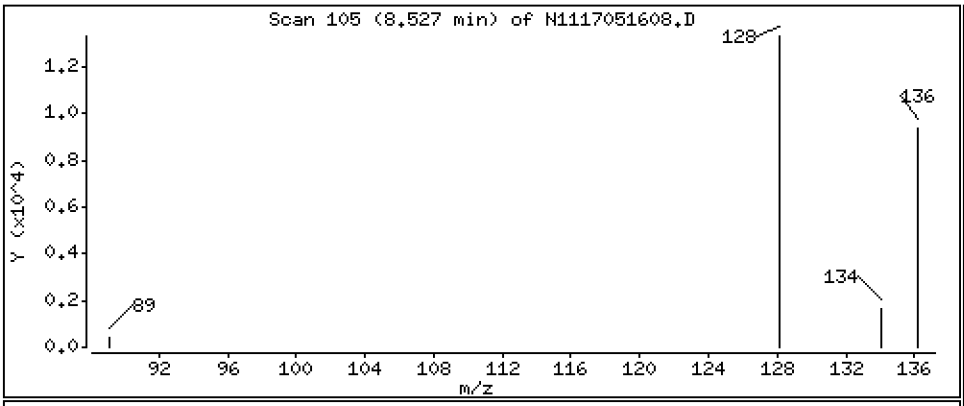
Operator: VTS

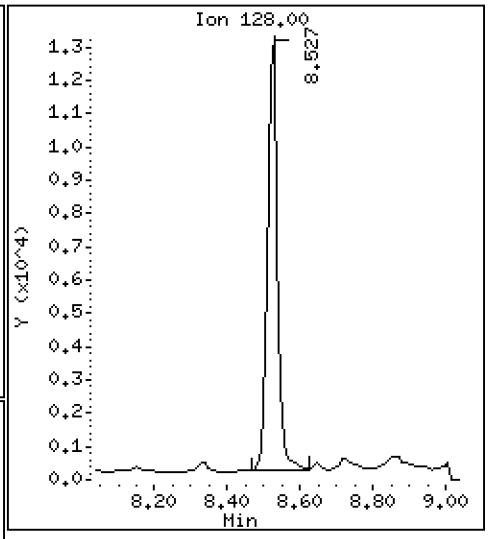
Column phase: Rxi-17Sil MS

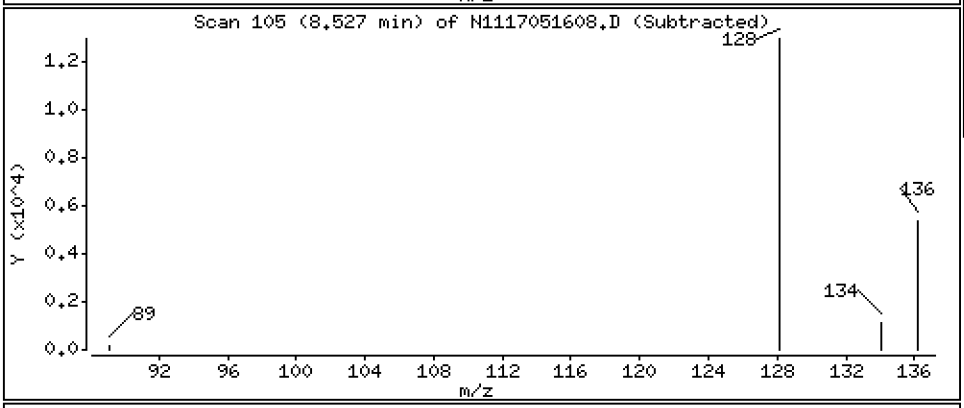
Column diameter: 0.25

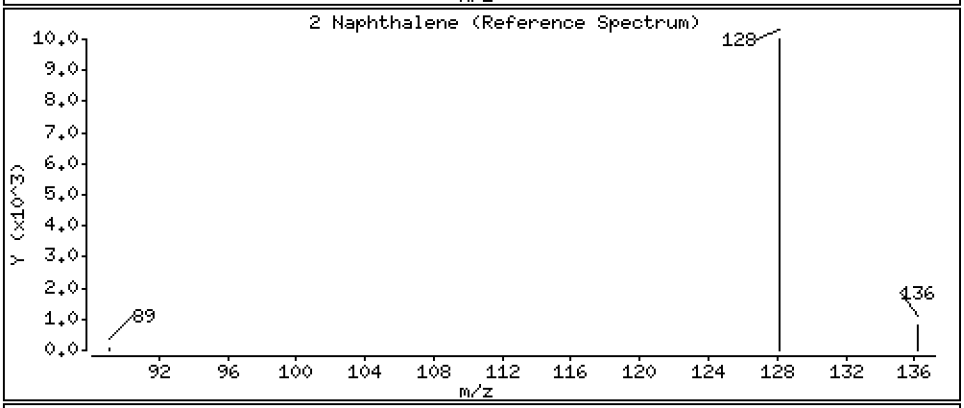
2 Naphthalene

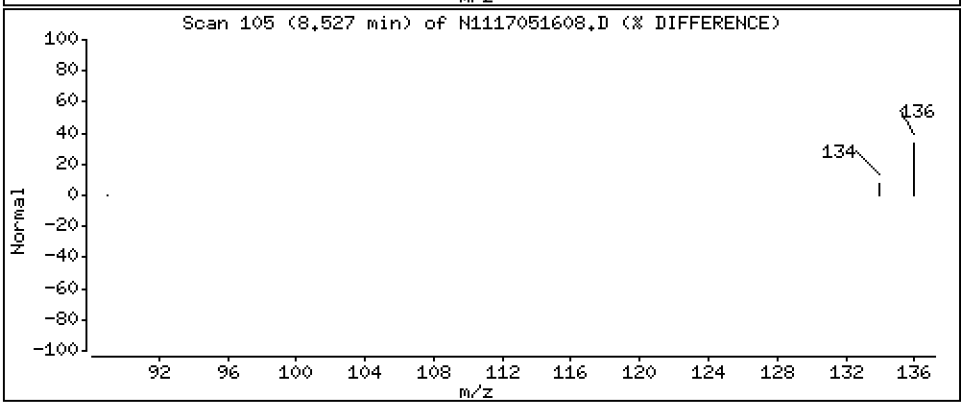
Concentration: 10.4 ng/mL











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Date : 16-MAY-2017 14:36

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-04

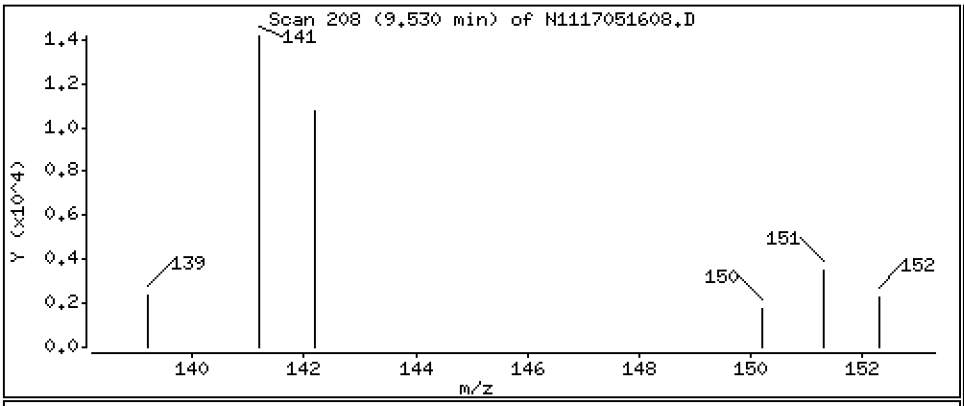
Operator: VTS

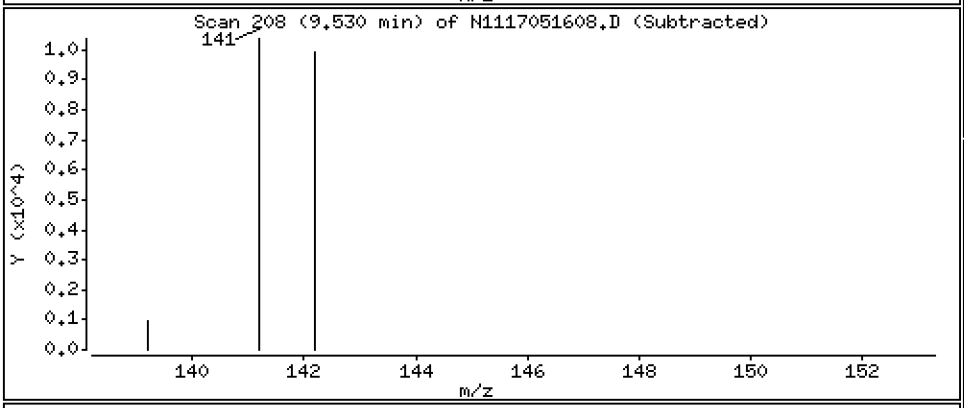
Column phase: Rxi-17Sil MS

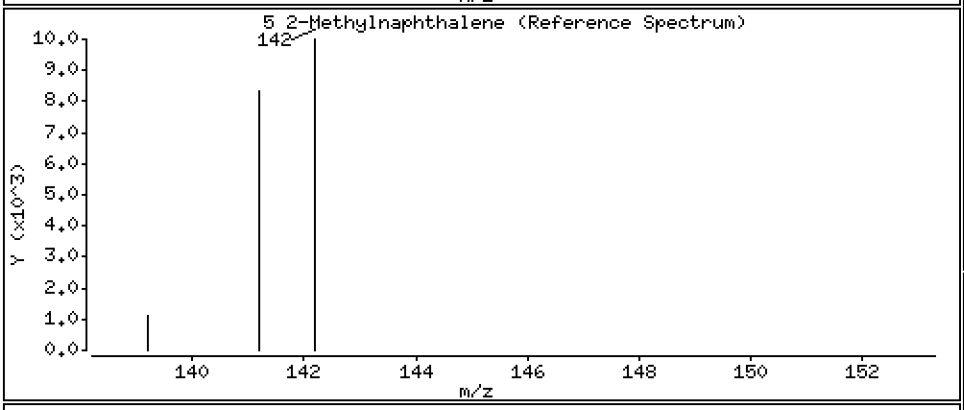
Column diameter: 0.25

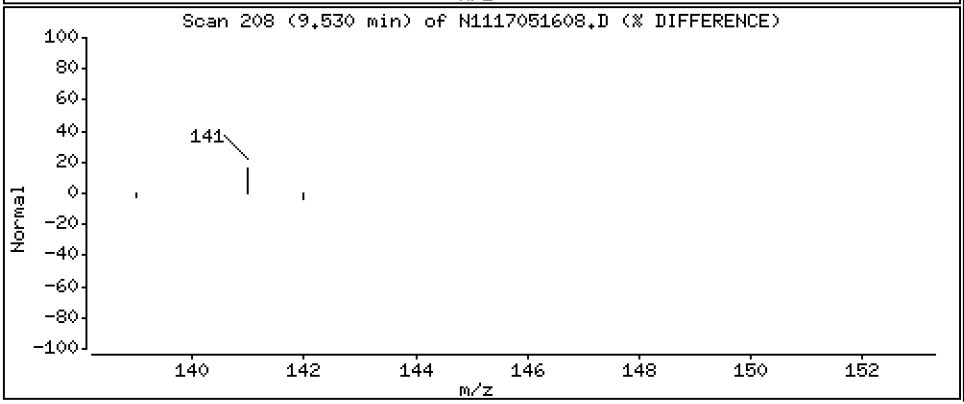
5 2-Methylnaphthalene

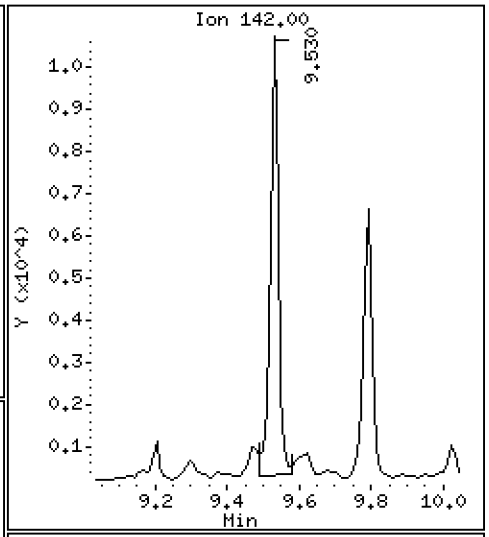
Concentration: 8.13 ng/mL

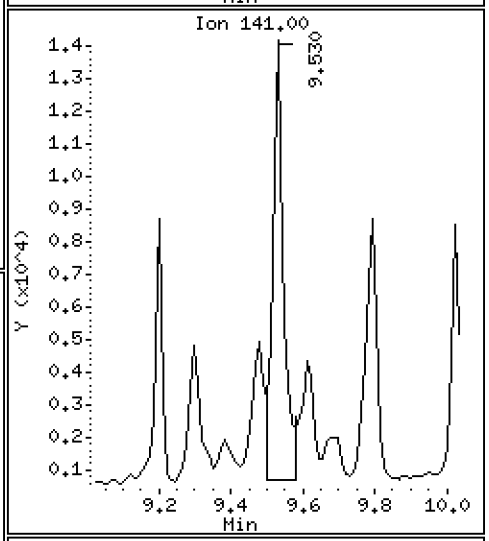


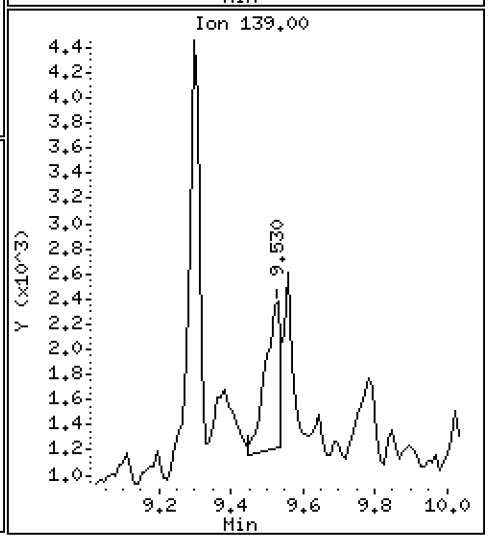












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Date : 16-MAY-2017 14:36

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-04

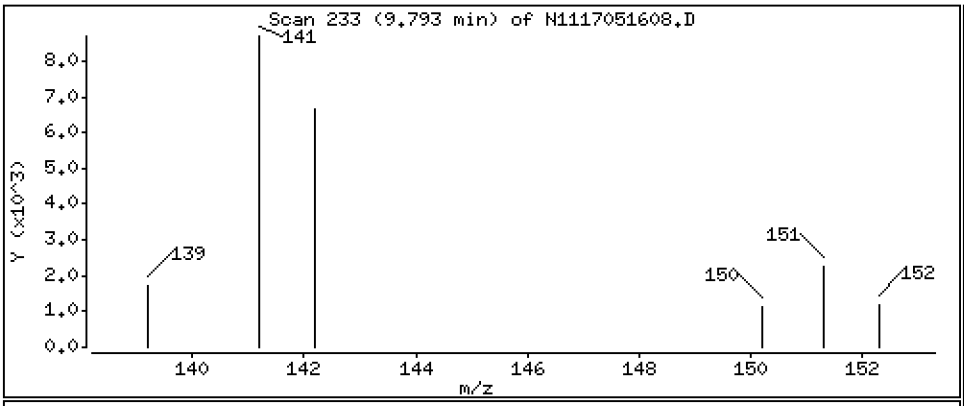
Operator: VTS

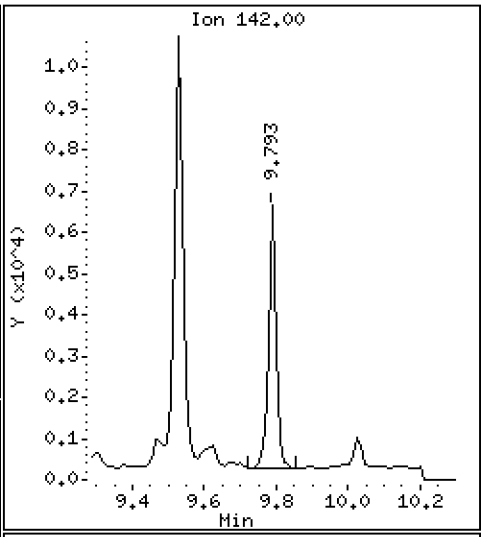
Column phase: Rxi-17Sil MS

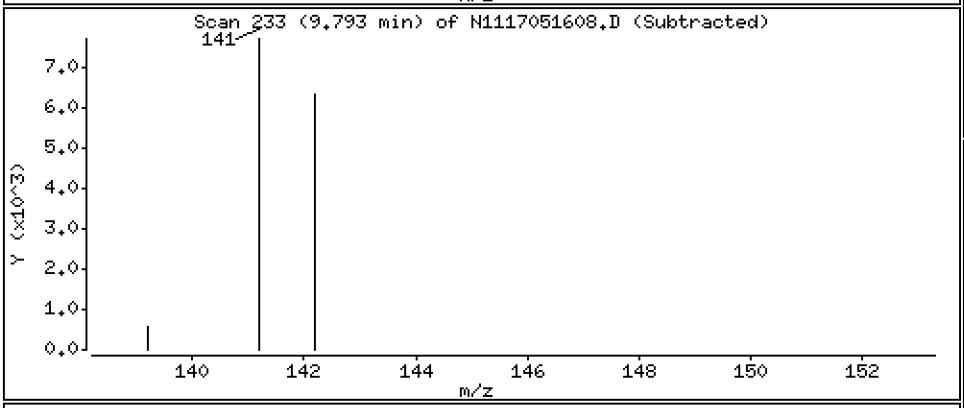
Column diameter: 0.25

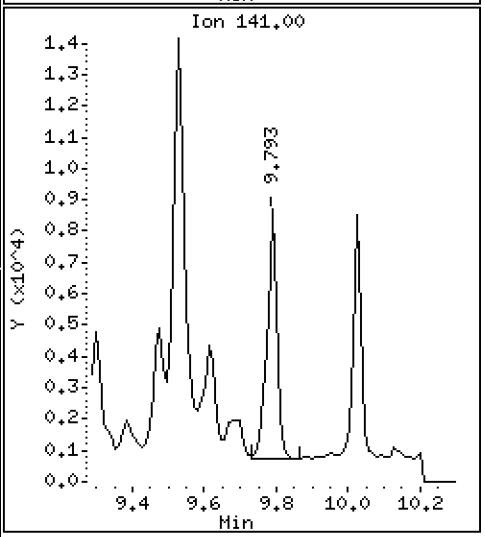
6 1-Methylnaphthalene

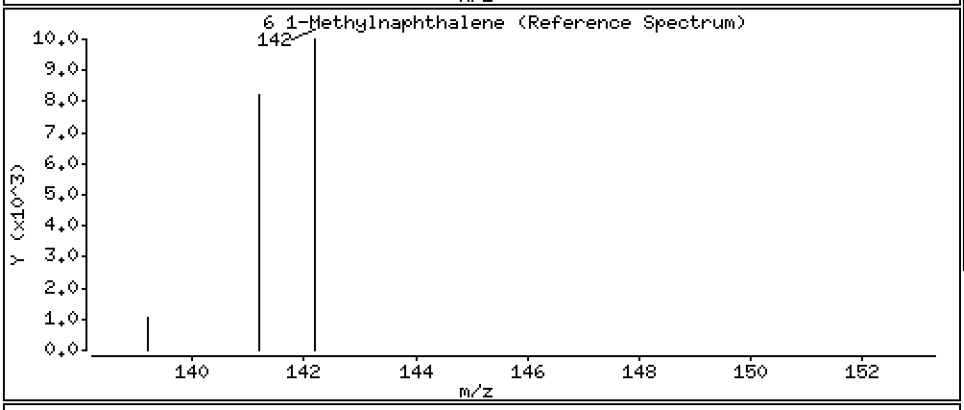
Concentration: 5.20 ng/mL

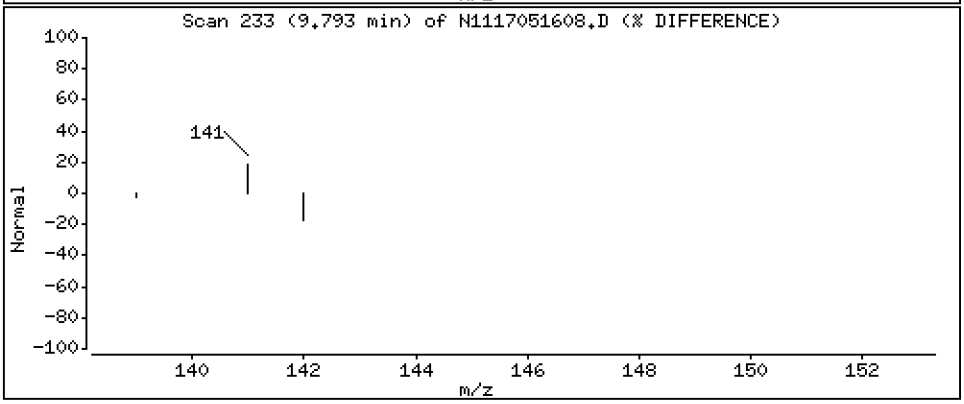












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Date : 16-MAY-2017 14:36

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-04

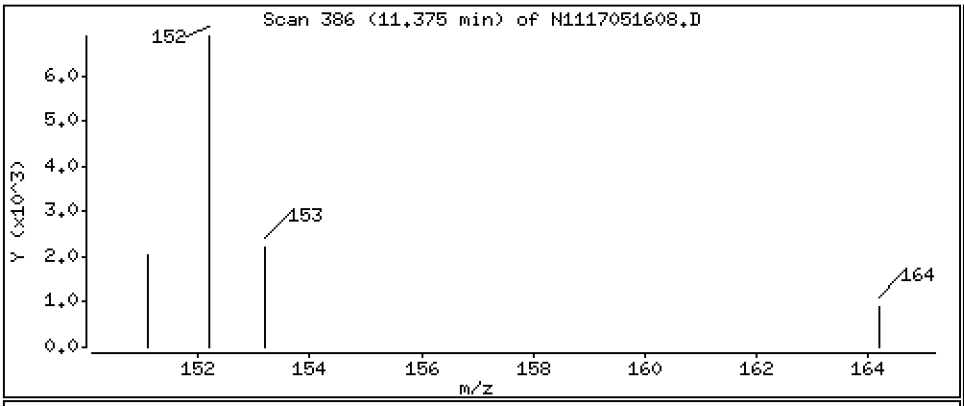
Operator: VTS

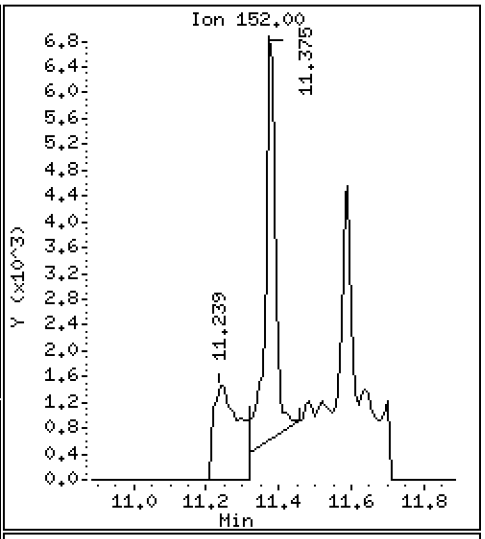
Column phase: Rxi-17Sil MS

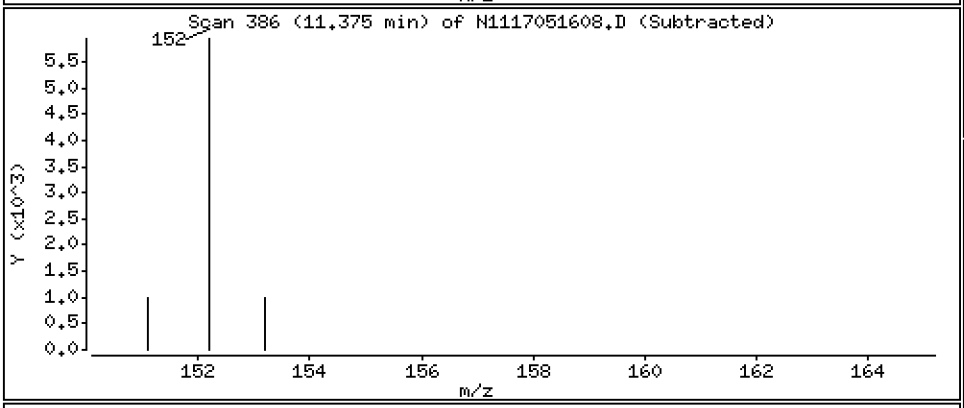
Column diameter: 0.25

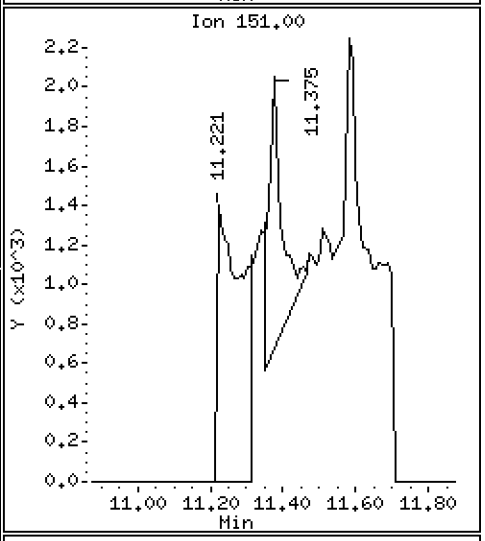
10 Acenaphthylene

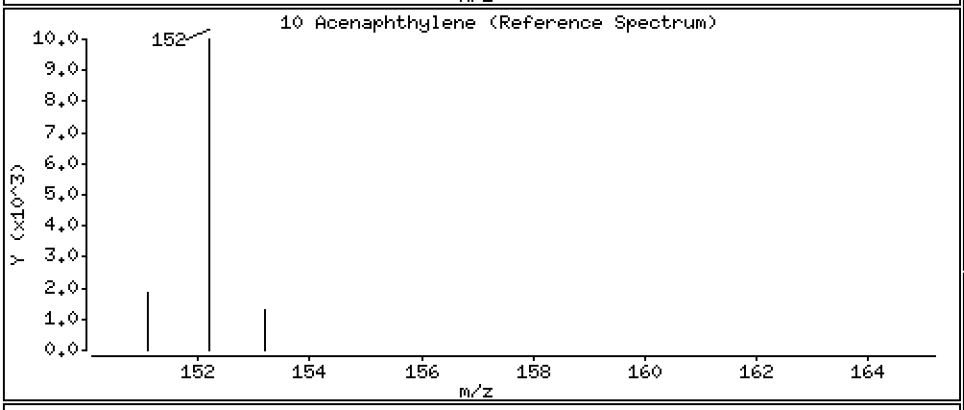
Concentration: 5.67 ng/mL

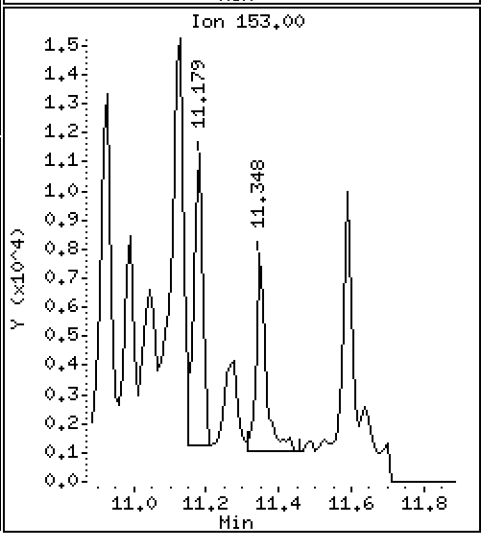


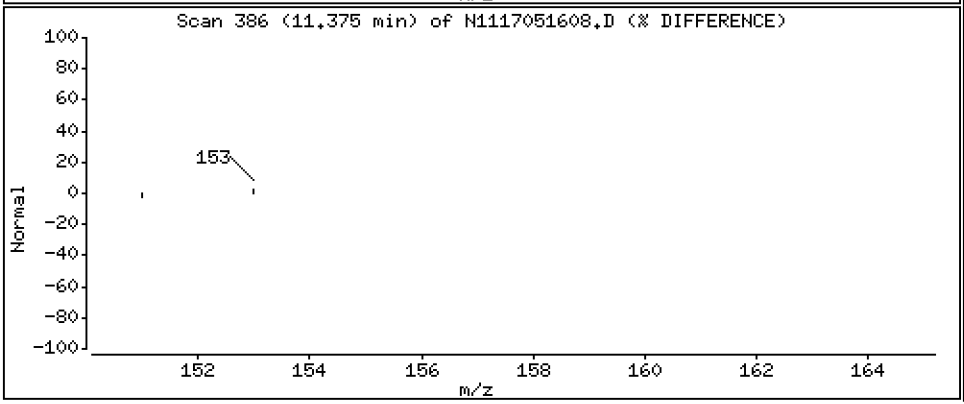












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Date : 16-MAY-2017 14:36

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-04

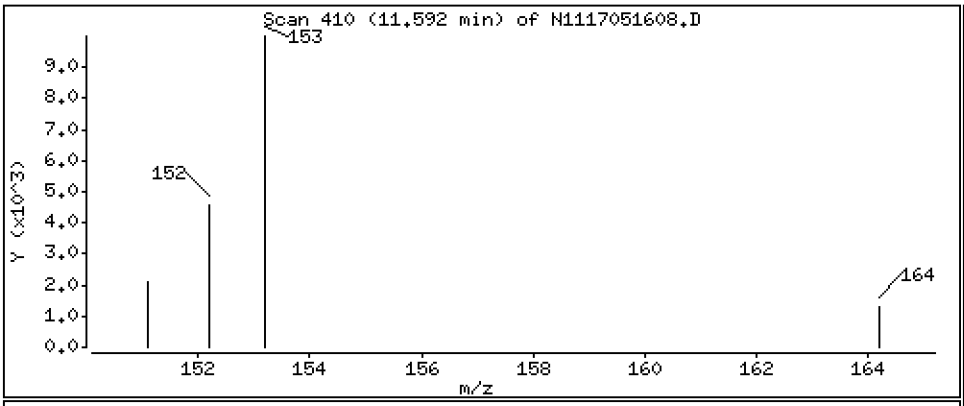
Operator: VTS

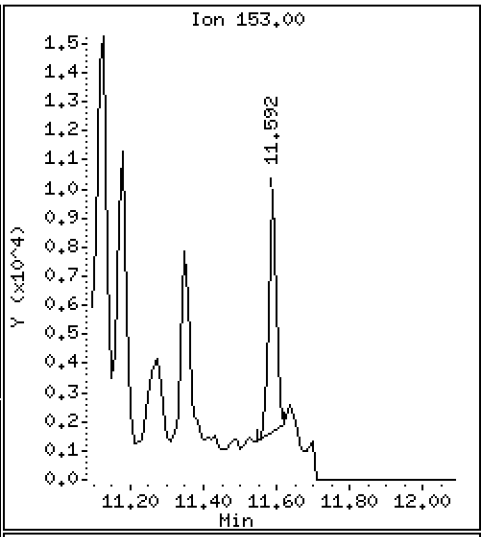
Column phase: Rxi-17Sil MS

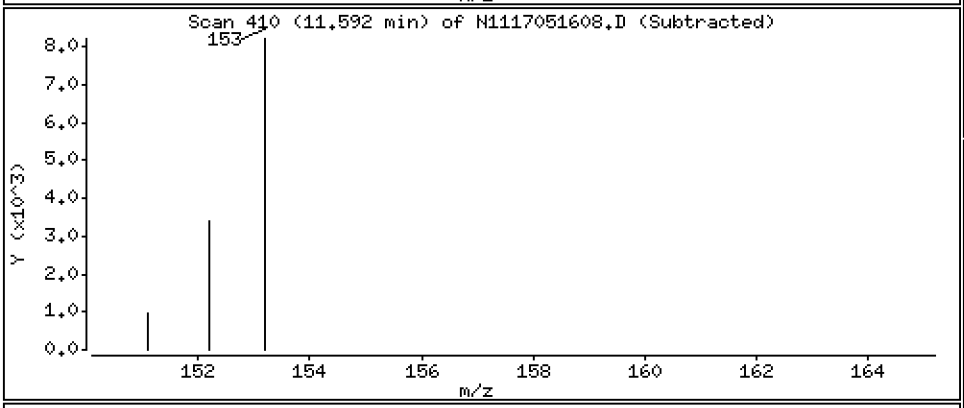
Column diameter: 0.25

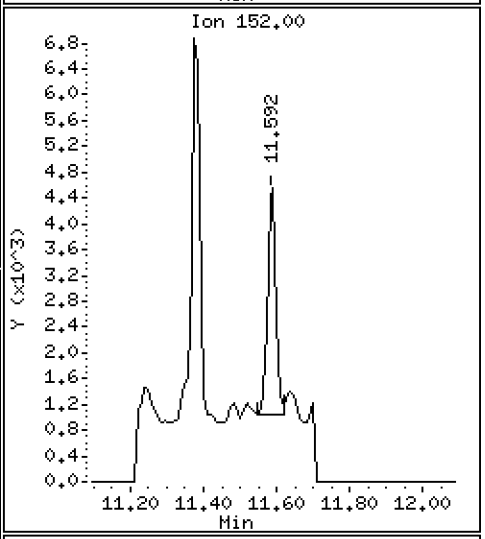
12 Acenaphthene

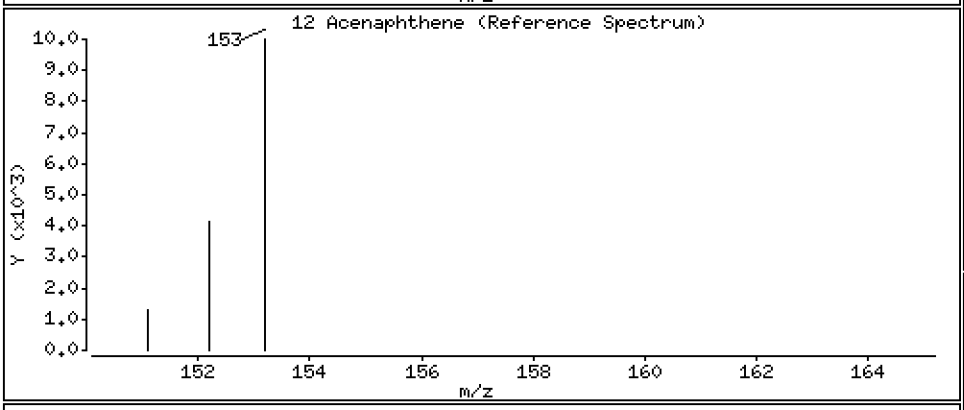
Concentration: 8.71 ng/mL

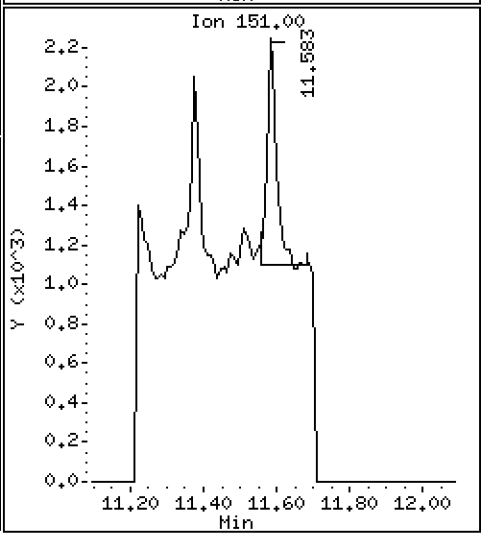


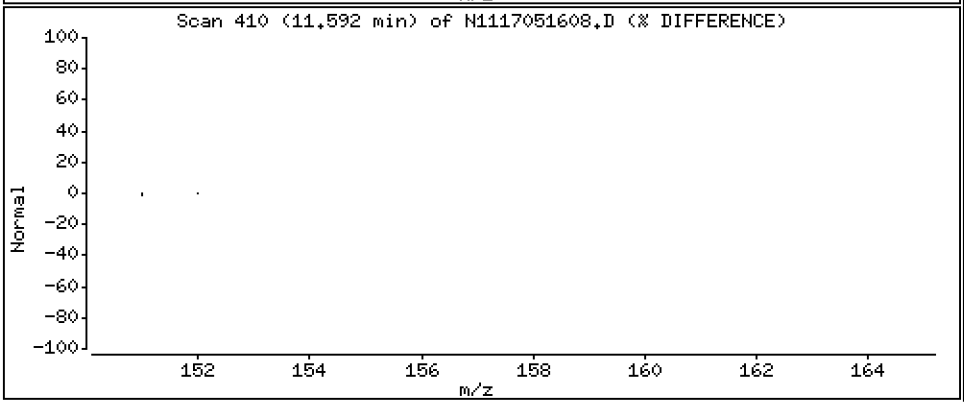












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Date : 16-MAY-2017 14:36

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-04

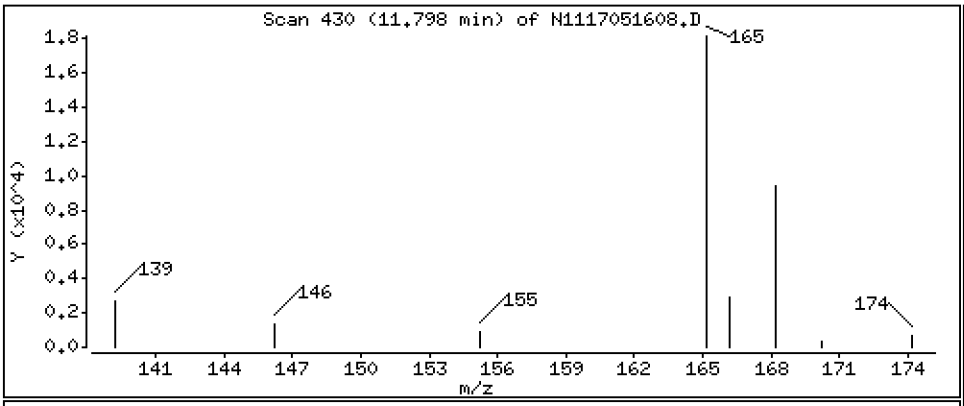
Operator: VTS

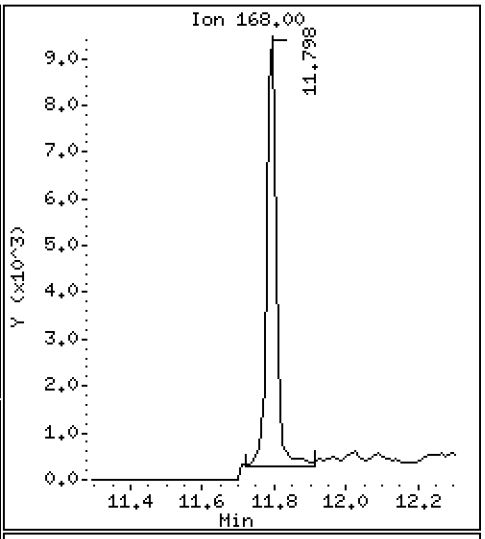
Column phase: Rxi-17Sil MS

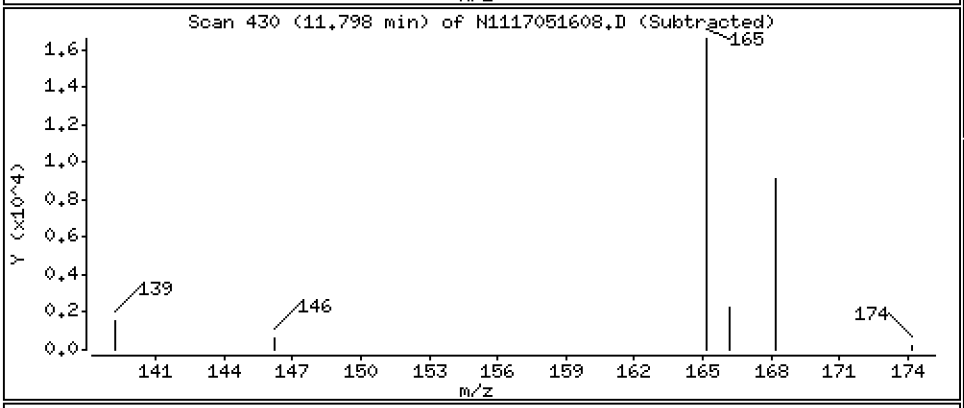
Column diameter: 0.25

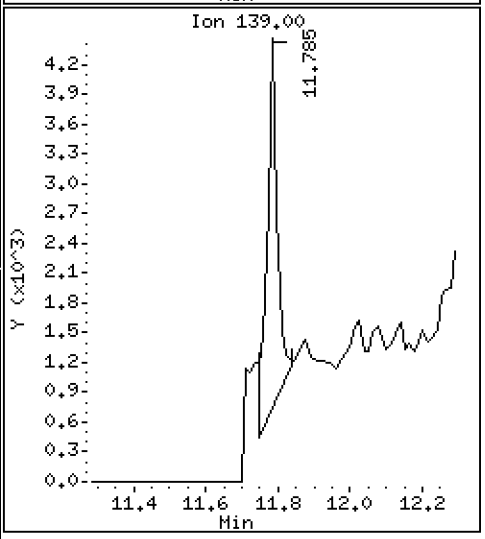
13 Dibenzofuran

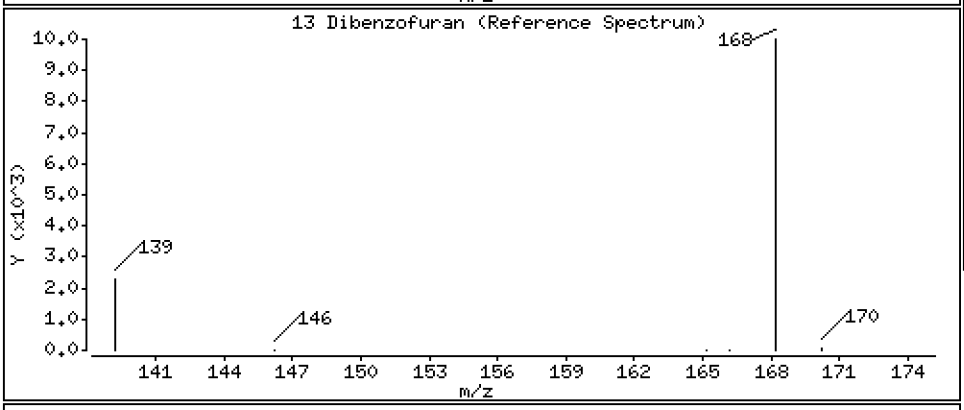
Concentration: 9.17 ng/mL

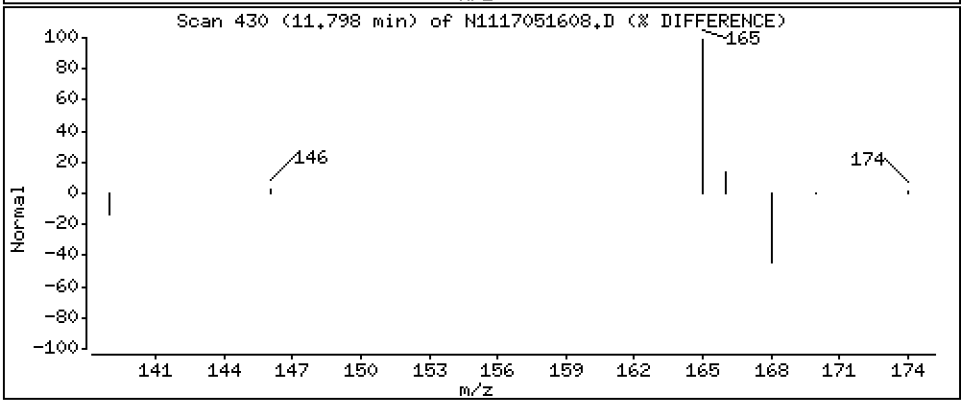












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Date : 16-MAY-2017 14:36

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-04

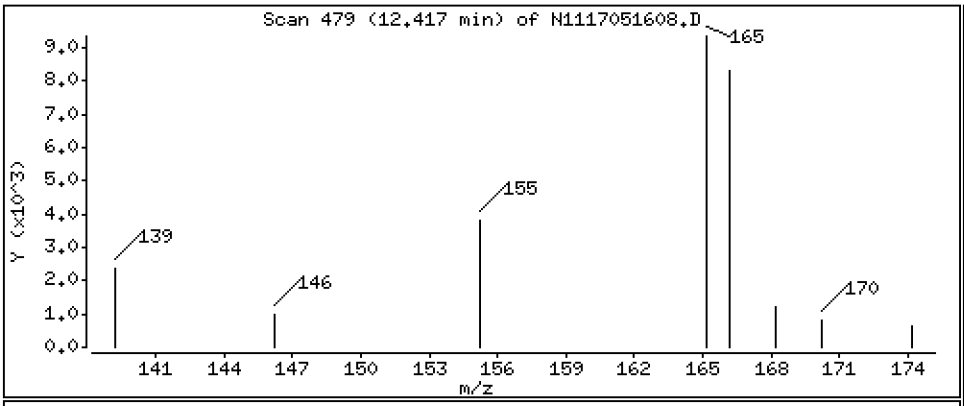
Operator: VTS

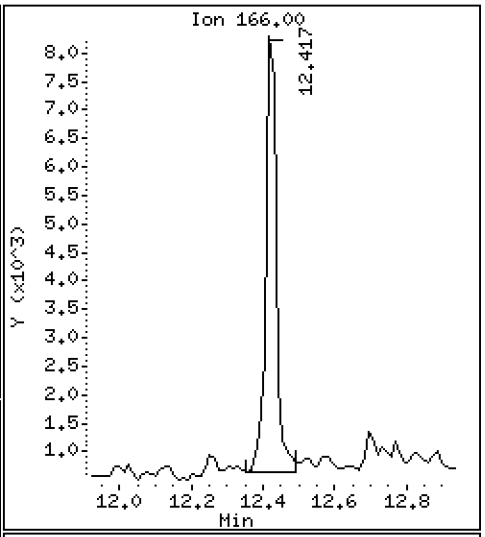
Column phase: Rxi-17Sil MS

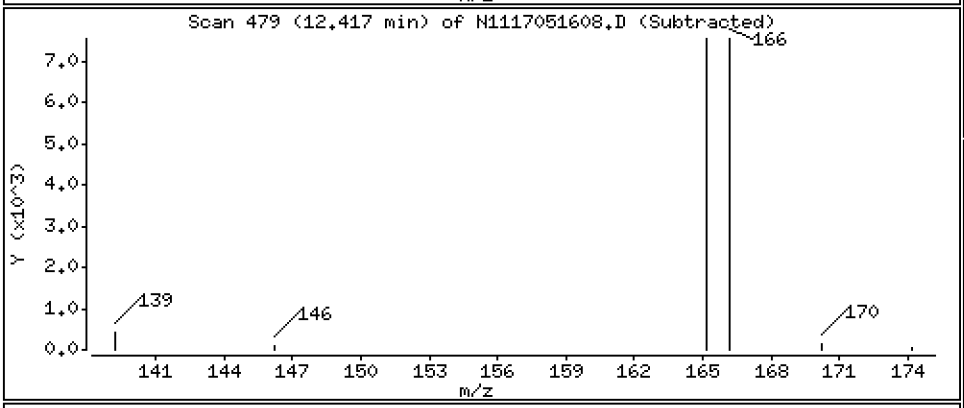
Column diameter: 0.25

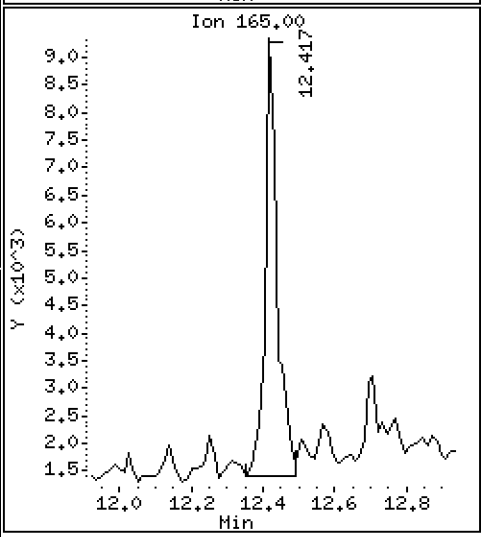
16 Fluorene

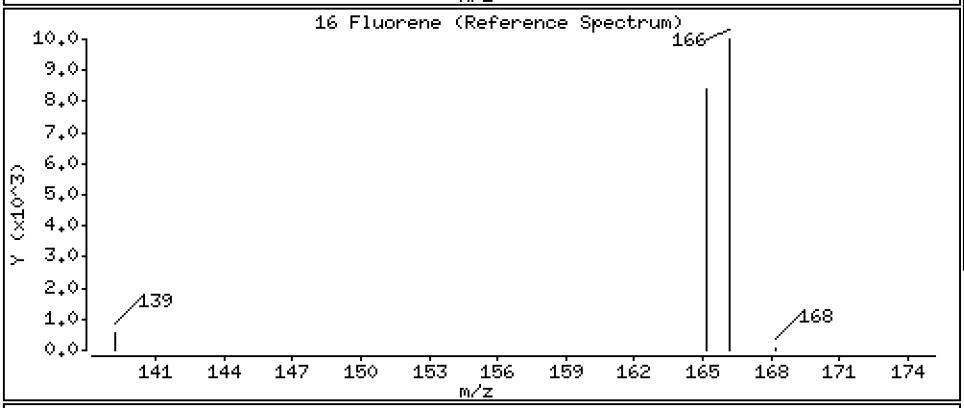
Concentration: 10.4 ng/mL

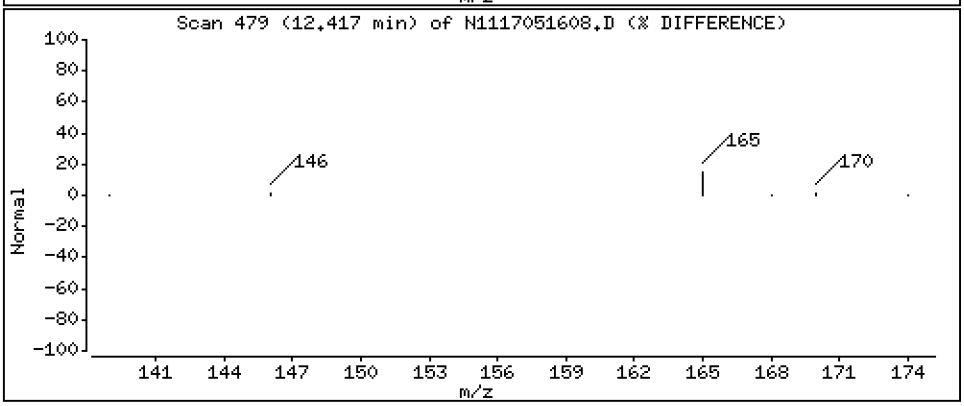












Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051608.D

Date : 16-MAY-2017 14:36

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-04

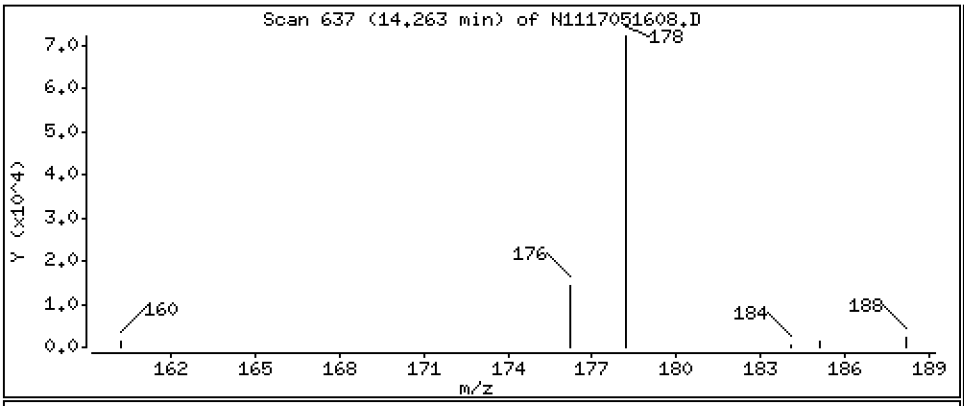
Operator: VTS

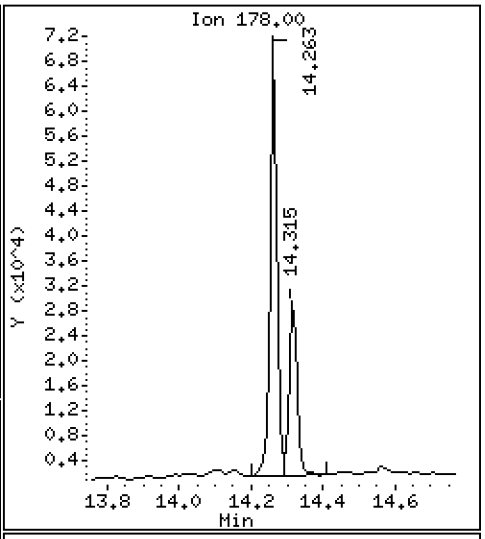
Column phase: Rxi-17Sil MS

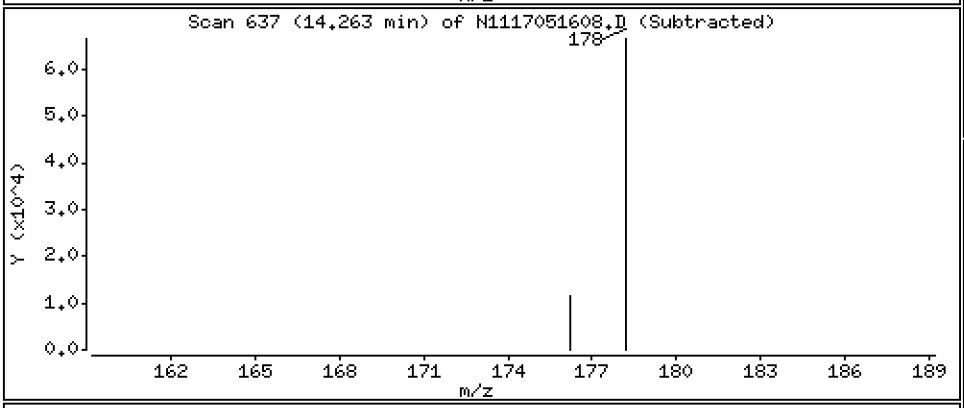
Column diameter: 0.25

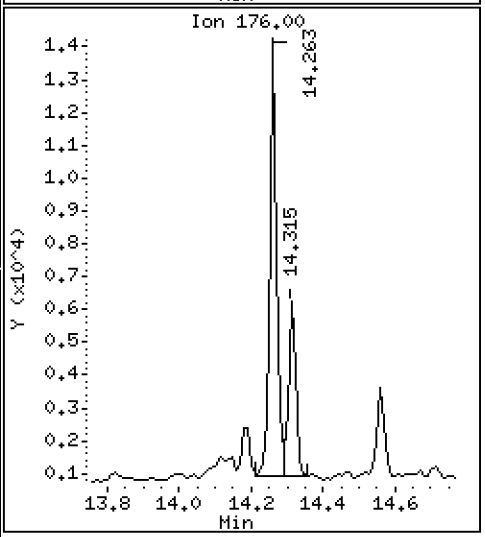
19 Phenanthrene

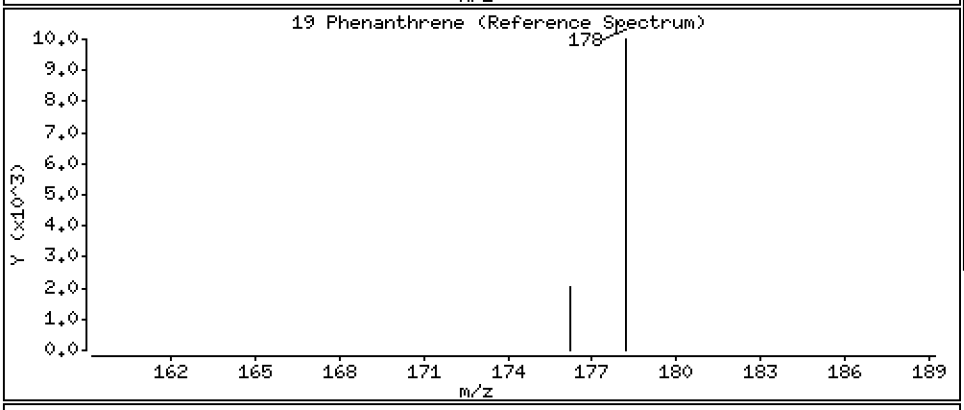
Concentration: 50.9 ng/mL

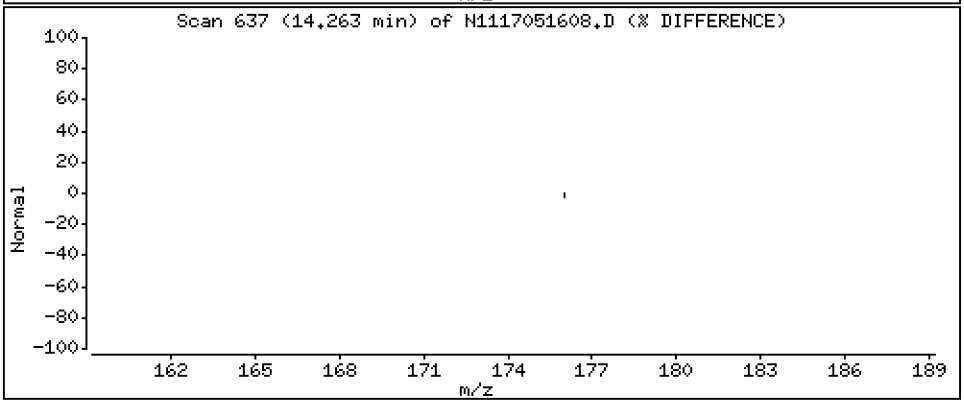












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Date : 16-MAY-2017 14:36

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-04

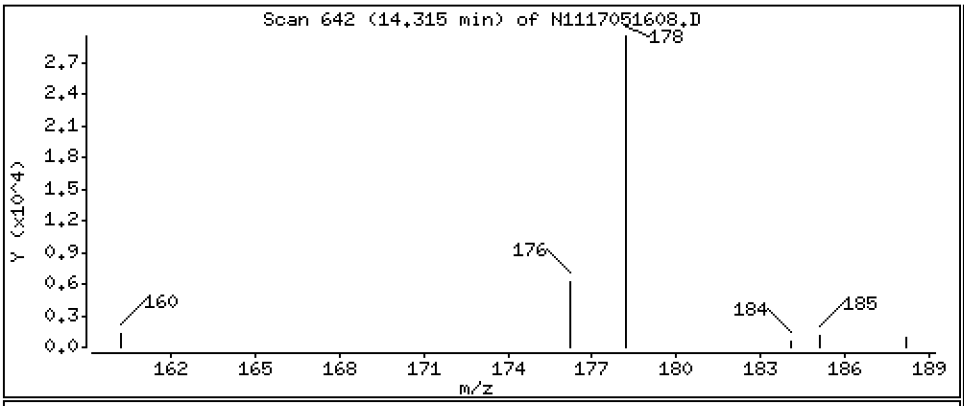
Operator: VTS

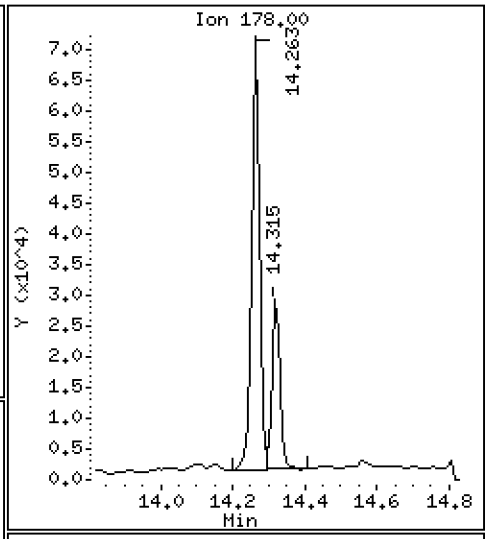
Column phase: Rxi-17Sil MS

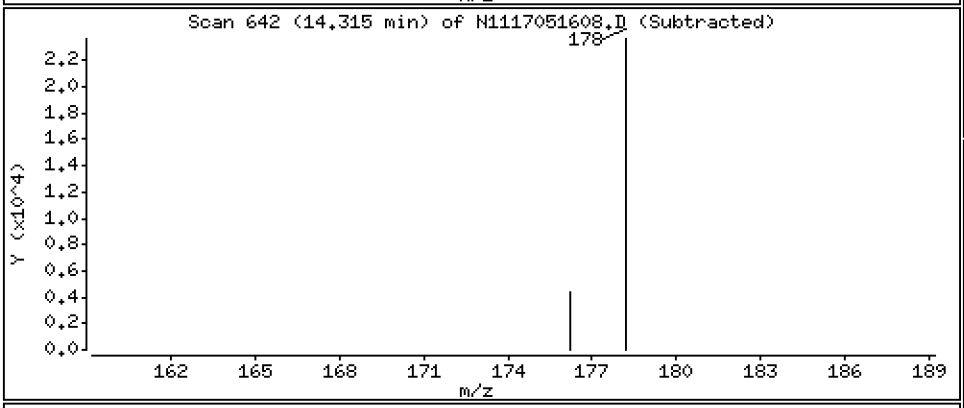
Column diameter: 0.25

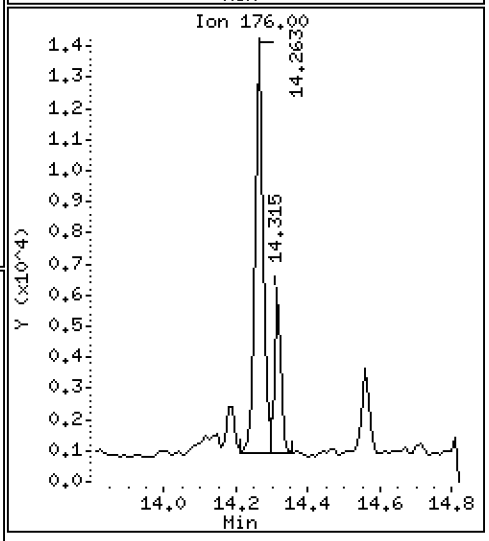
21 Anthracene

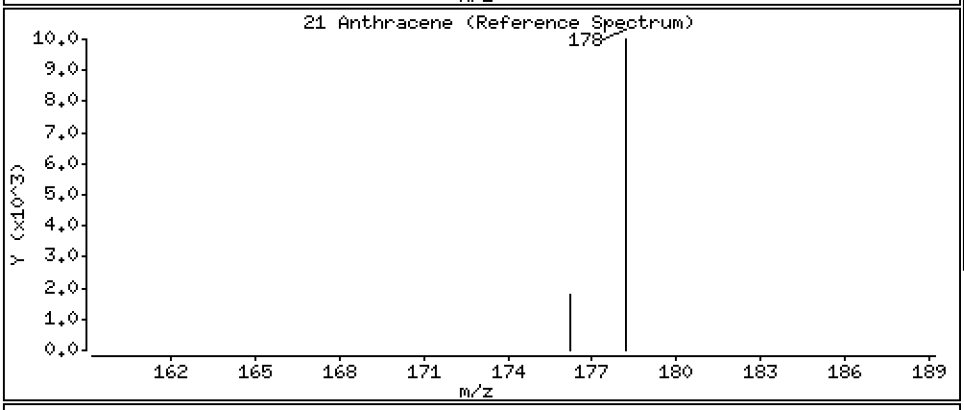
Concentration: 20.8 ng/mL

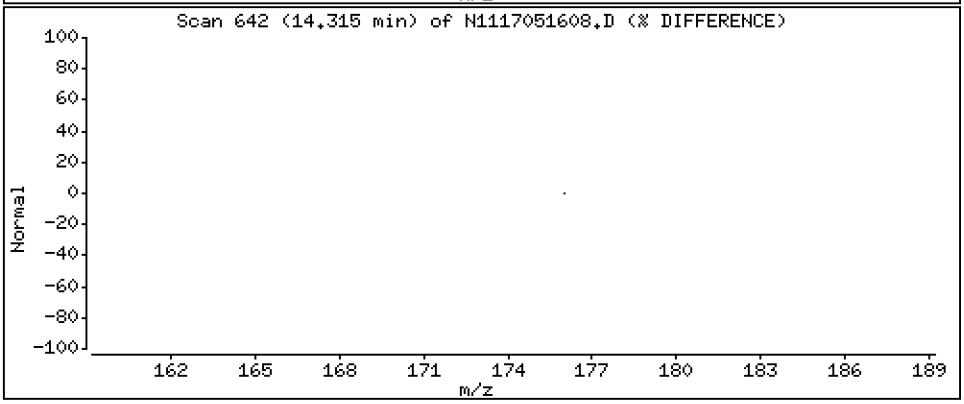












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Date : 16-MAY-2017 14:36

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-04

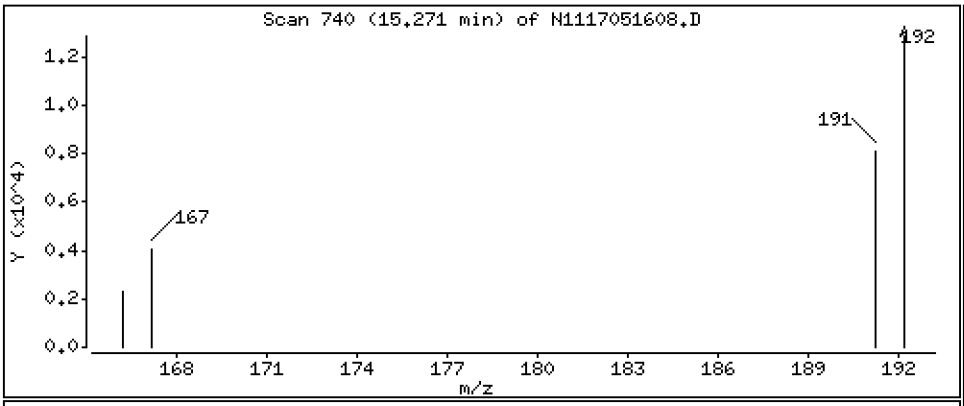
Operator: VTS

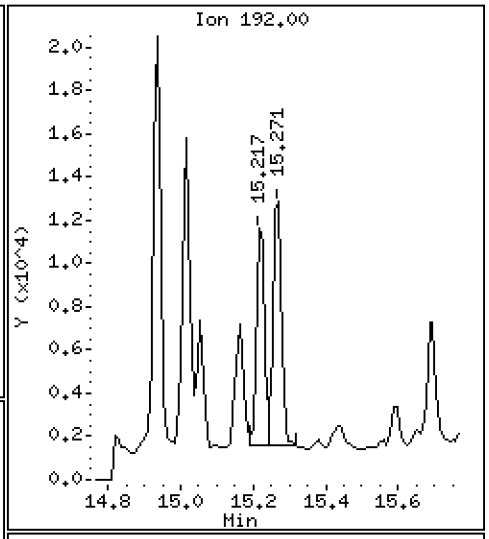
Column phase: Rxi-17Sil MS

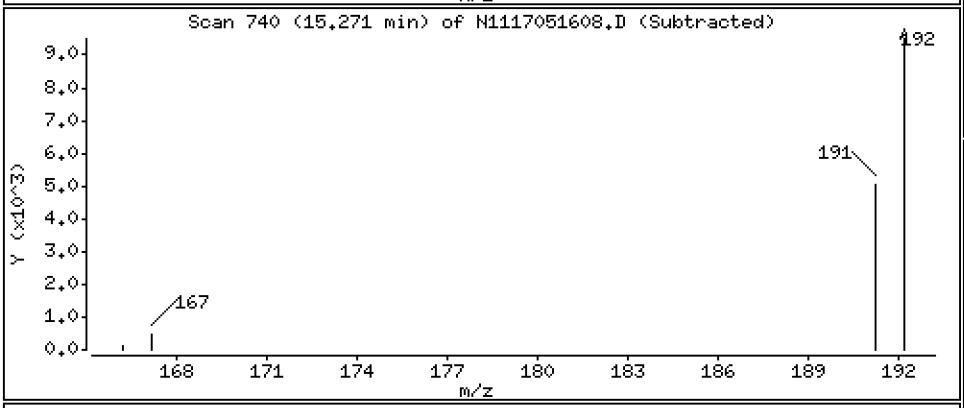
Column diameter: 0.25

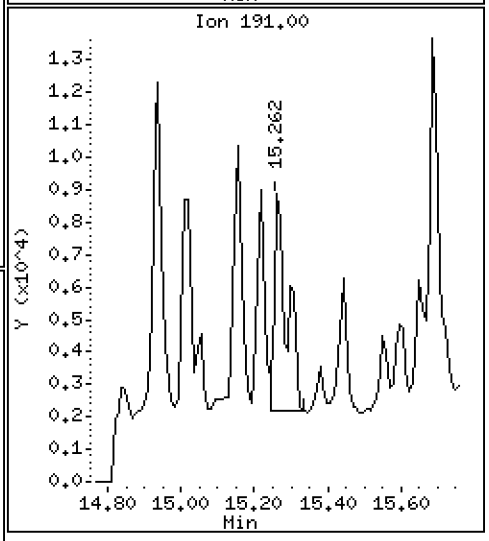
23 1-Methylphenanthrene

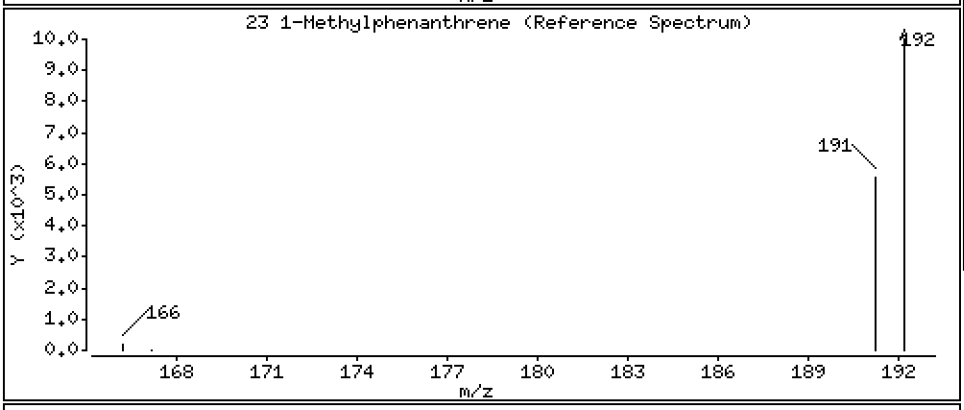
Concentration: 9.71 ng/mL

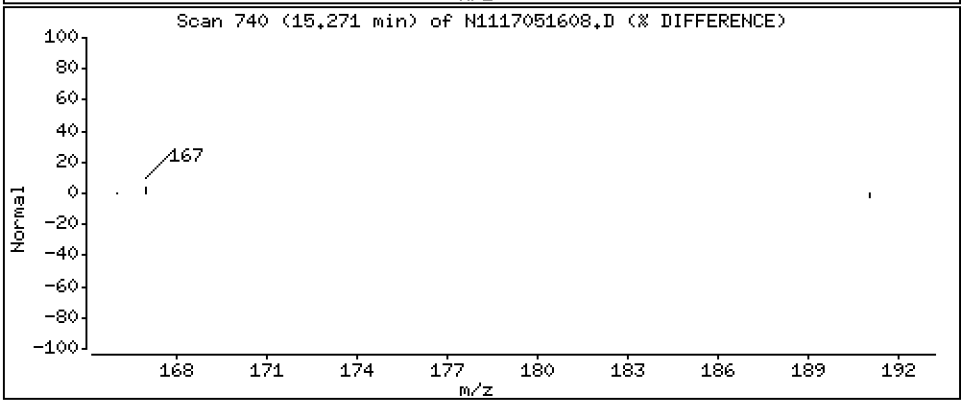












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Date : 16-MAY-2017 14:36

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-04

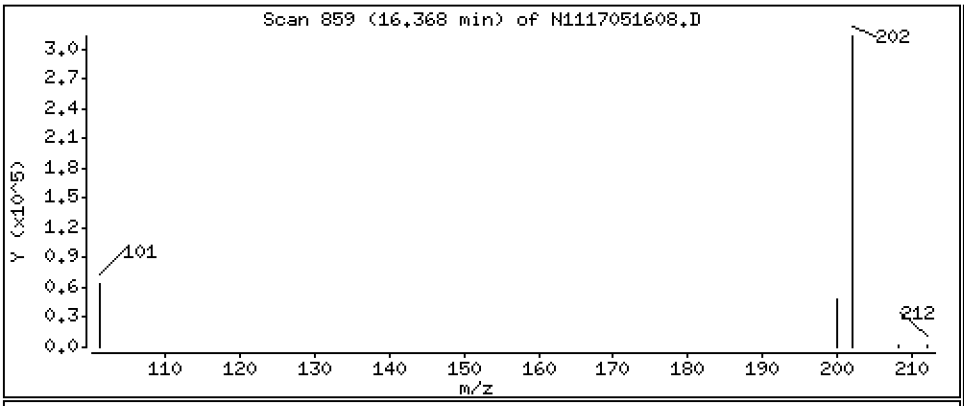
Operator: VTS

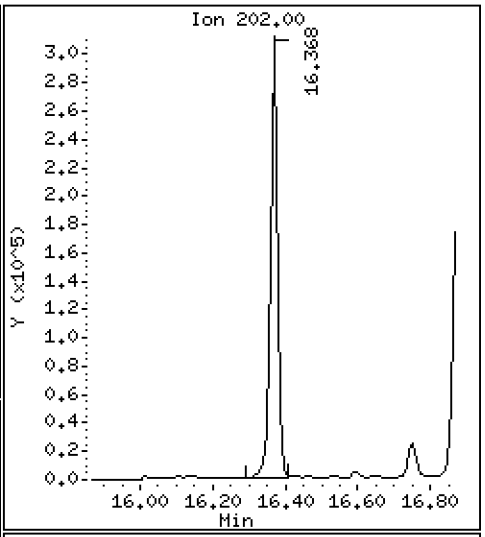
Column phase: Rxi-17Sil MS

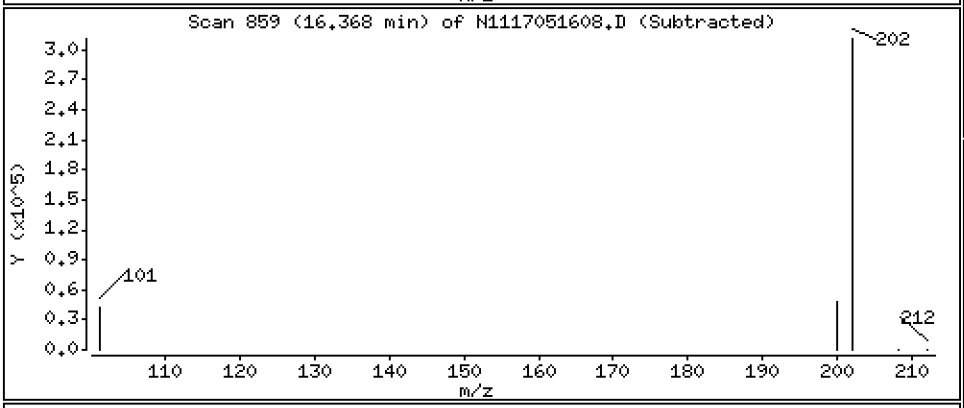
Column diameter: 0.25

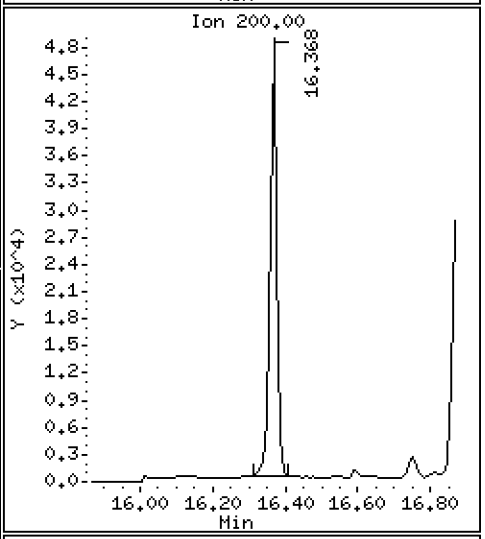
25 Fluoranthene

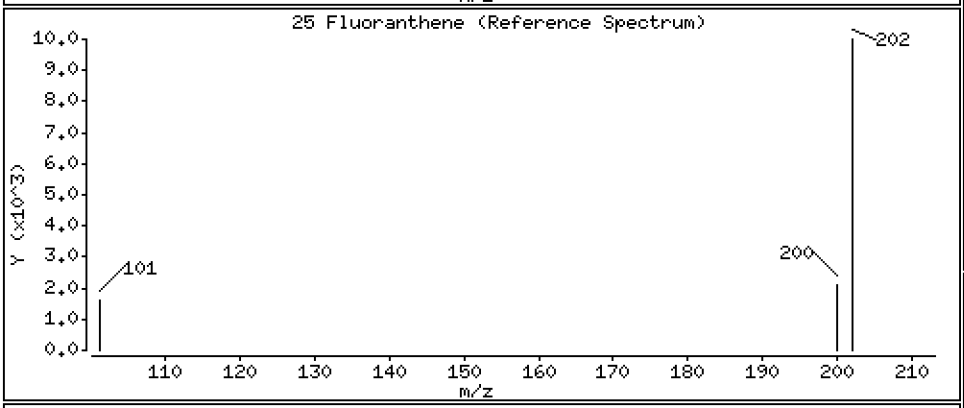
Concentration: 226 ng/mL

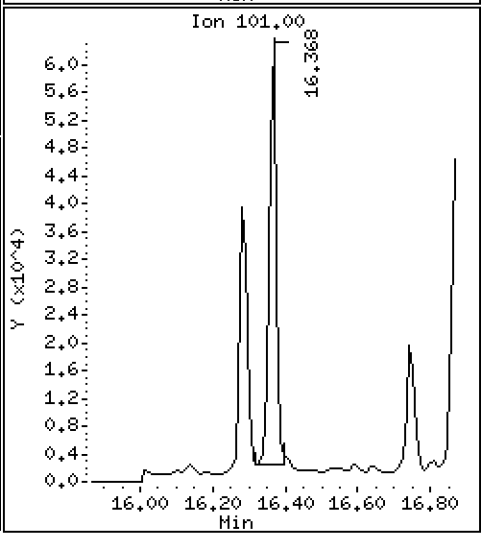


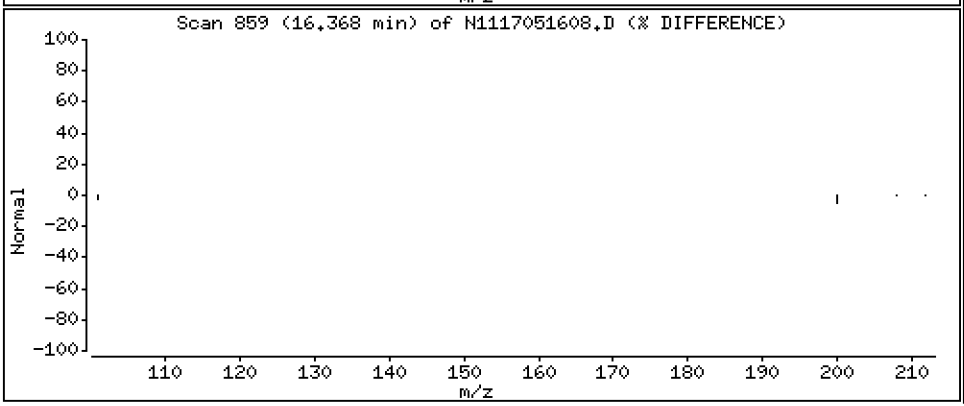












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Date : 16-MAY-2017 14:36

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-04

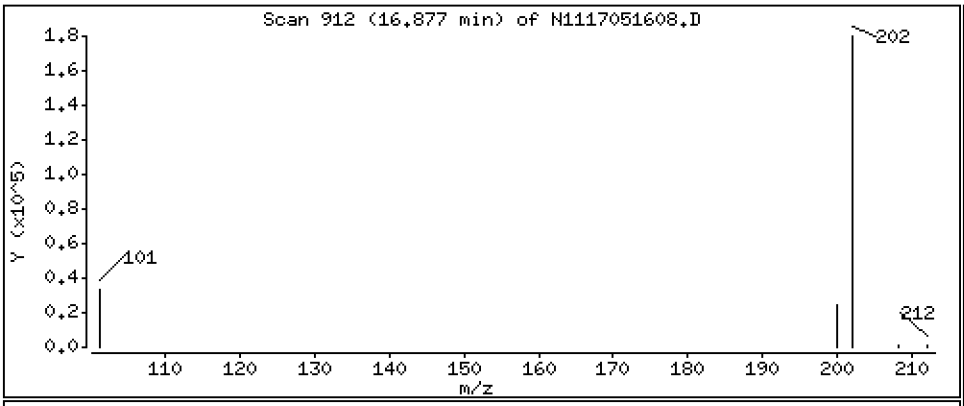
Operator: VTS

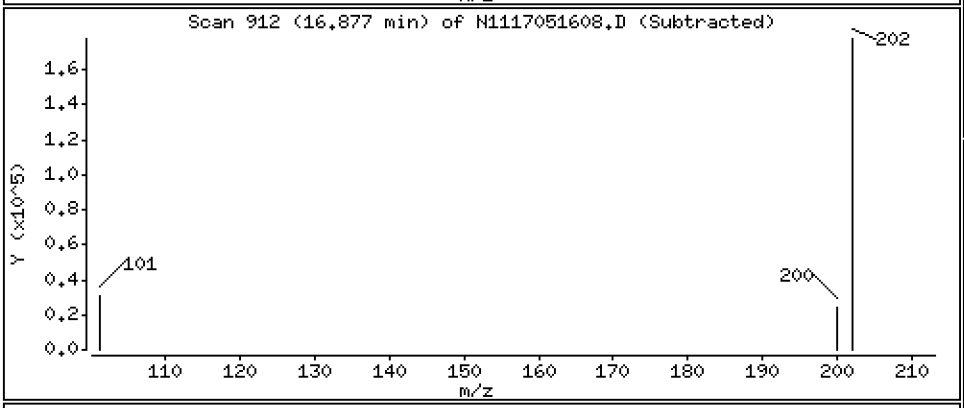
Column phase: Rxi-17Sil MS

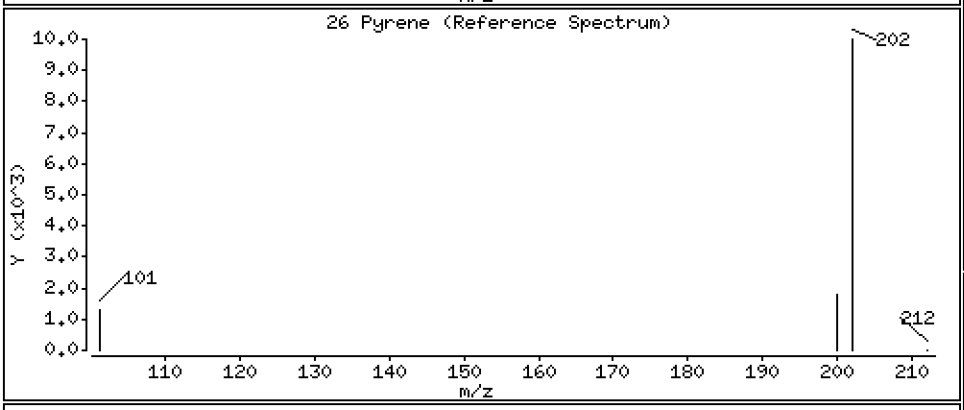
Column diameter: 0.25

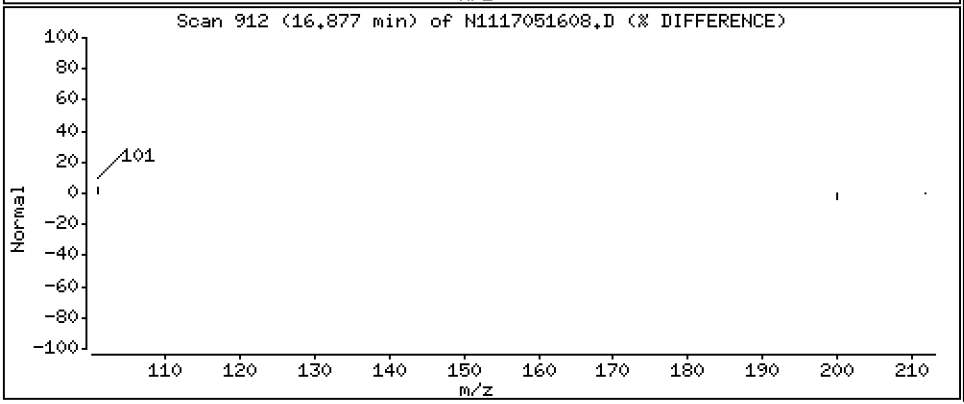
26 Pyrene

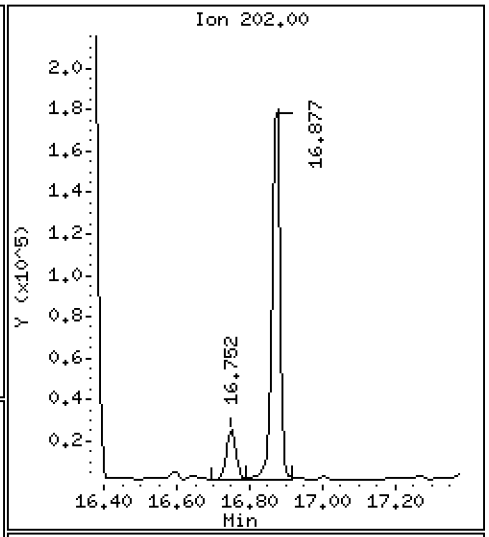
Concentration: 176 ng/mL

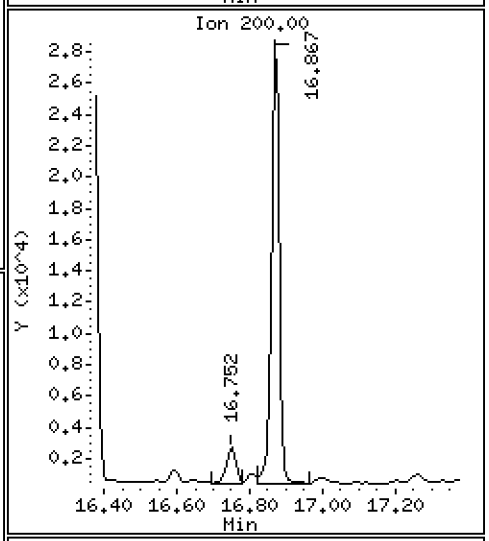


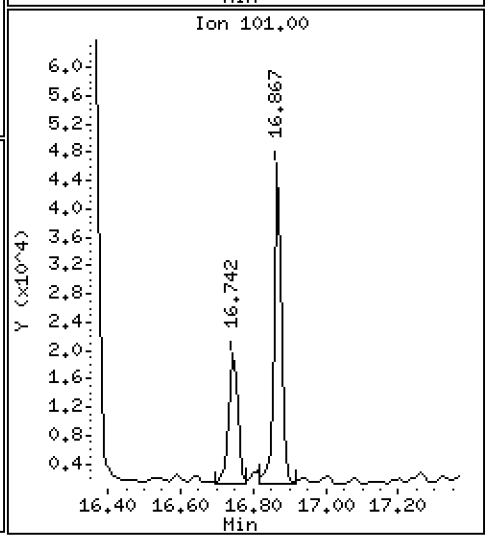












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Date : 16-MAY-2017 14:36

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-04

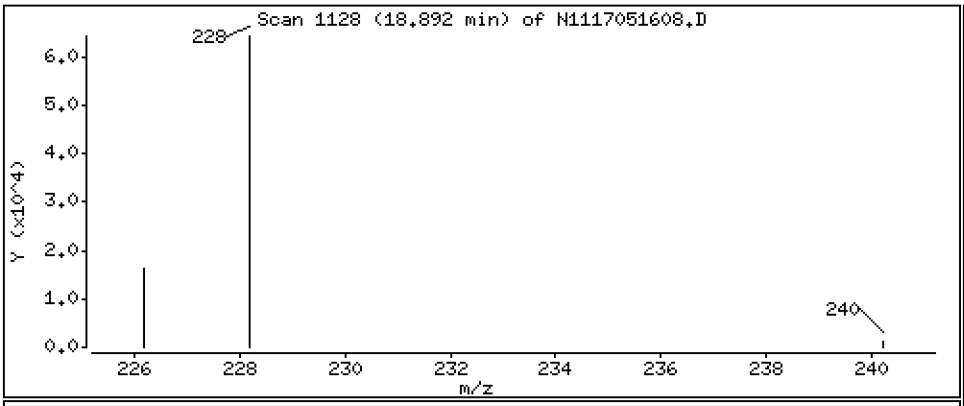
Operator: VTS

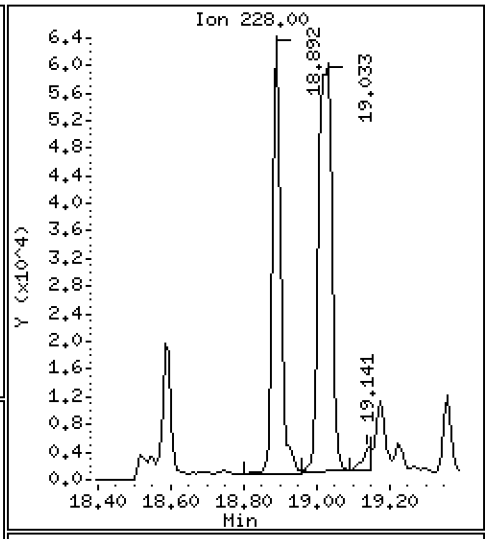
Column phase: Rxi-17Sil MS

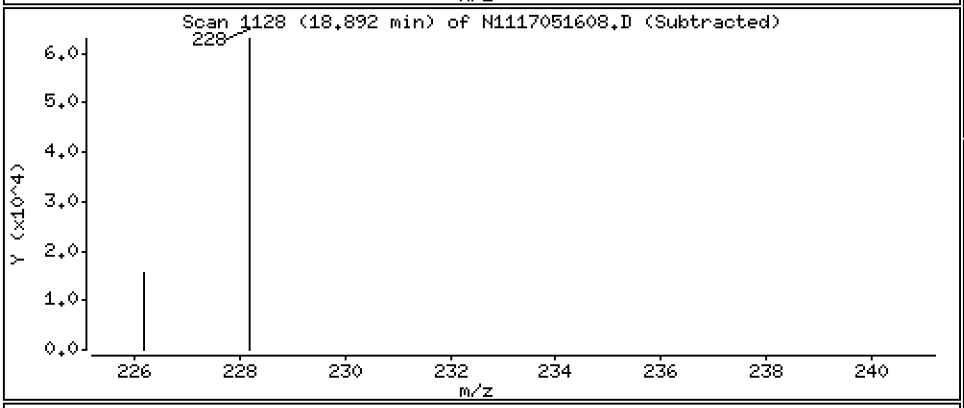
Column diameter: 0.25

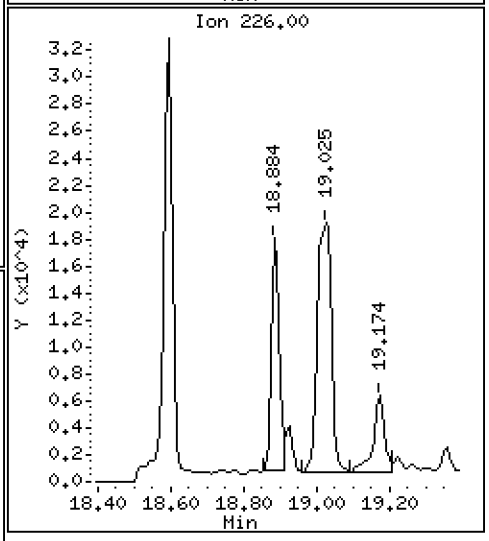
27 Benzo(a)anthracene

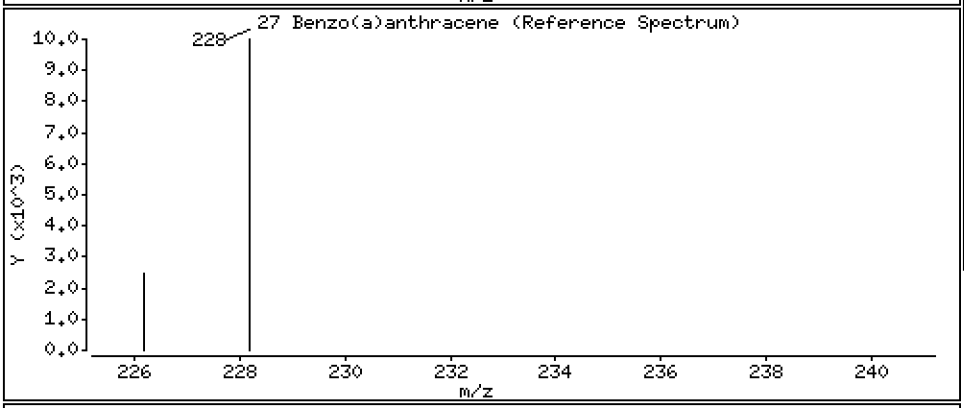
Concentration: 78.1 ng/mL

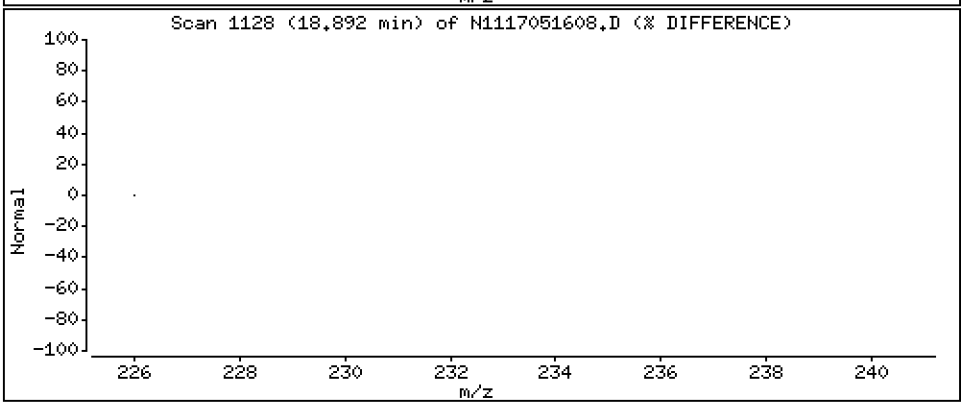












Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051608.D

Date : 16-MAY-2017 14:36

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-04

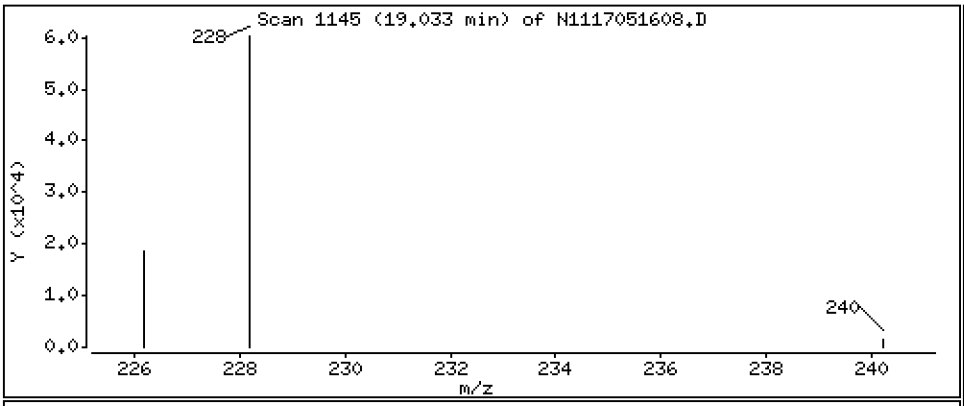
Operator: VTS

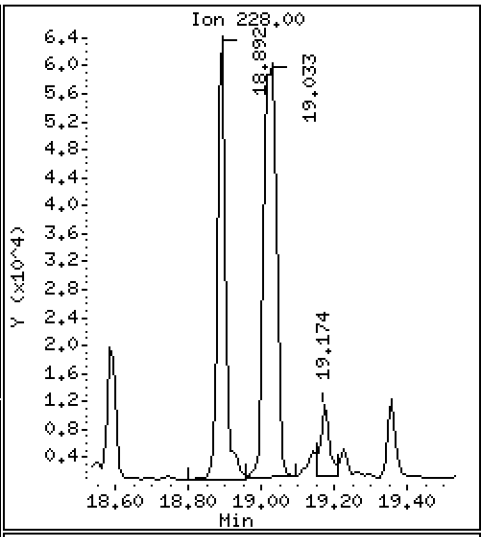
Column phase: Rxi-17Sil MS

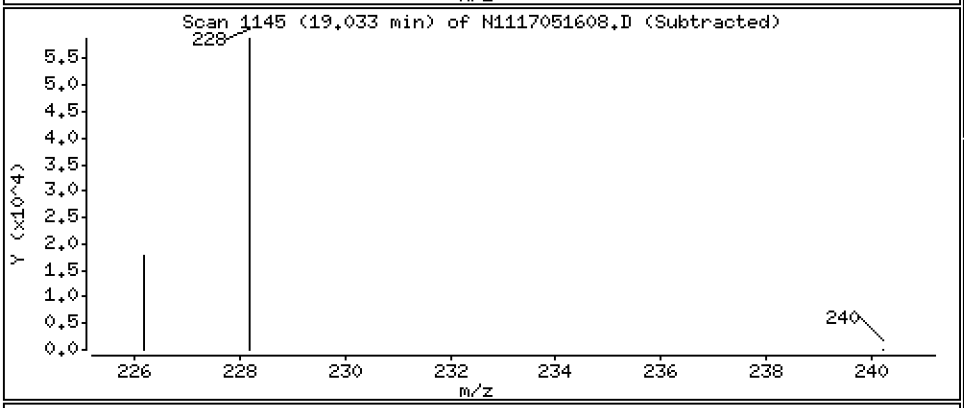
Column diameter: 0.25

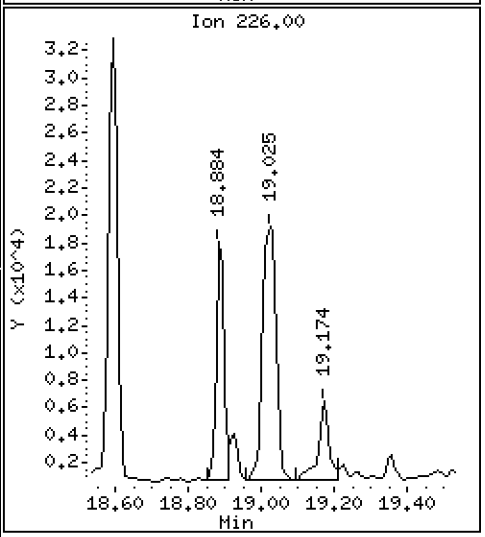
29 Chrysene

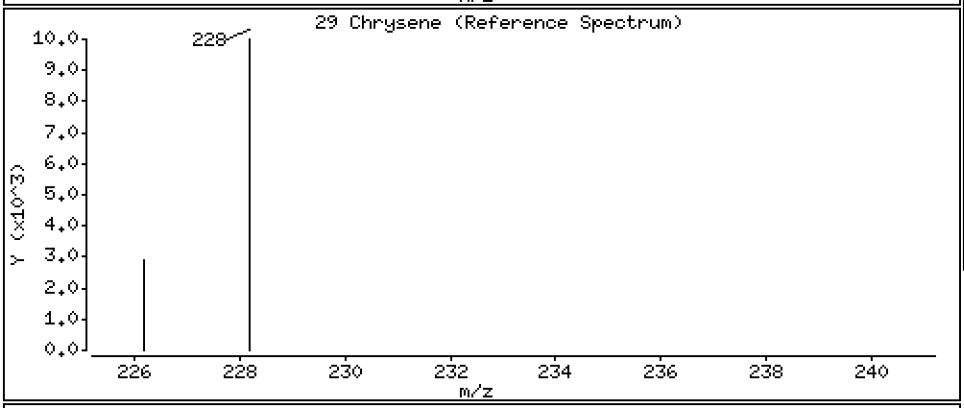
Concentration: 112 ng/mL

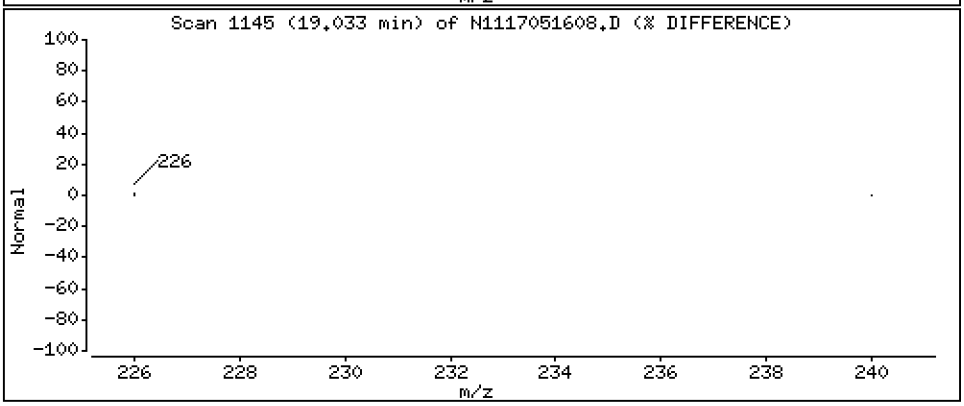












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Date : 16-MAY-2017 14:36

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-04

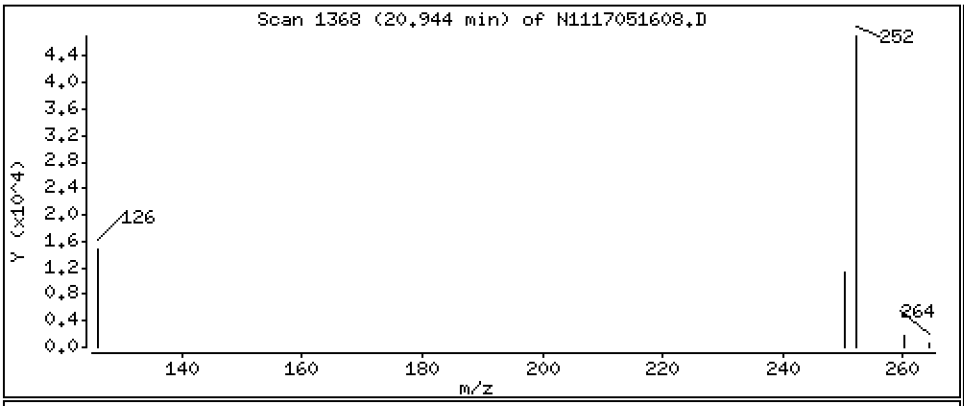
Operator: VTS

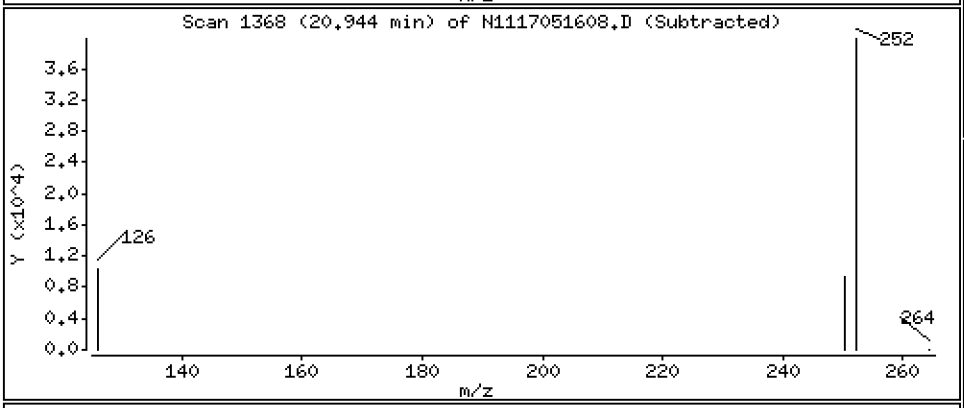
Column phase: Rxi-17Sil MS

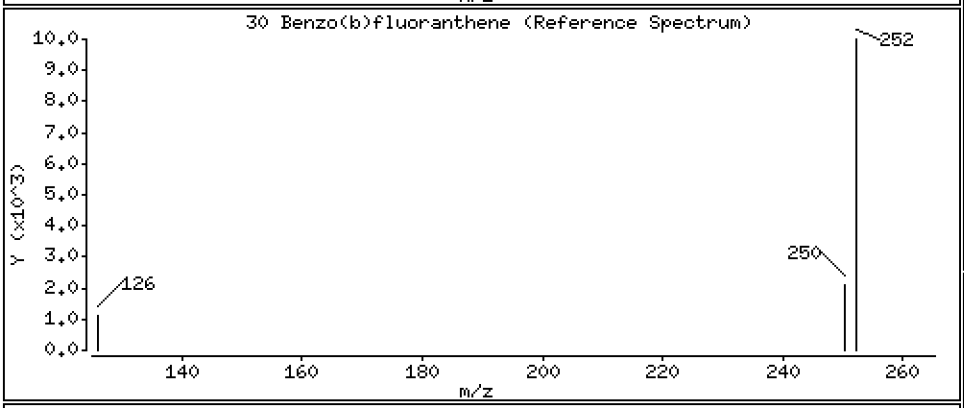
Column diameter: 0.25

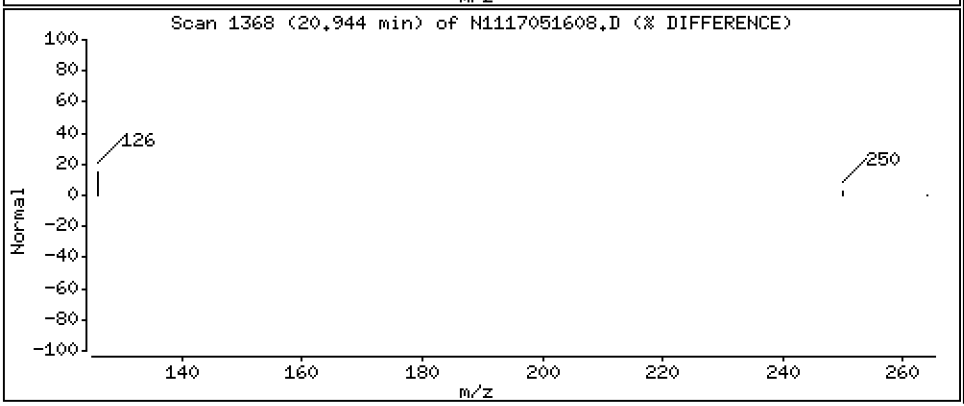
30 Benzo(b)fluoranthene

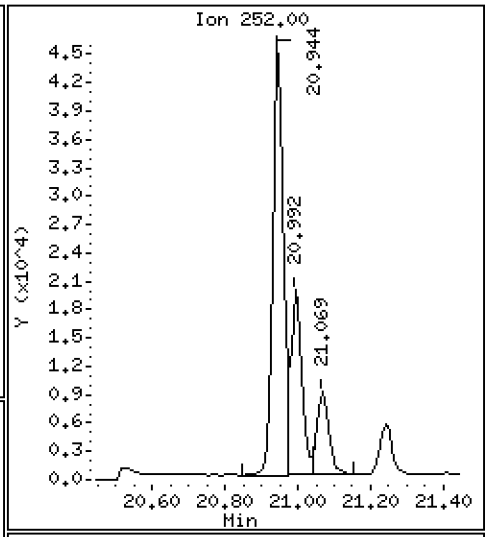
Concentration: 63.4 ng/mL

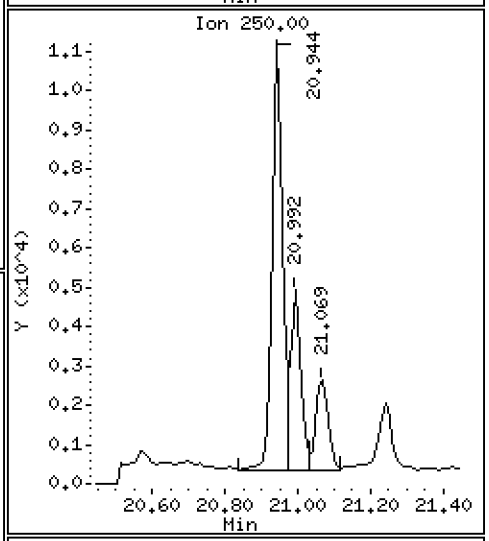


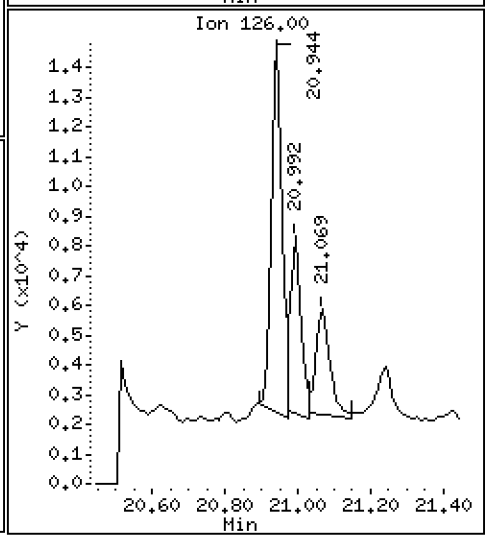












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Date : 16-MAY-2017 14:36

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-04

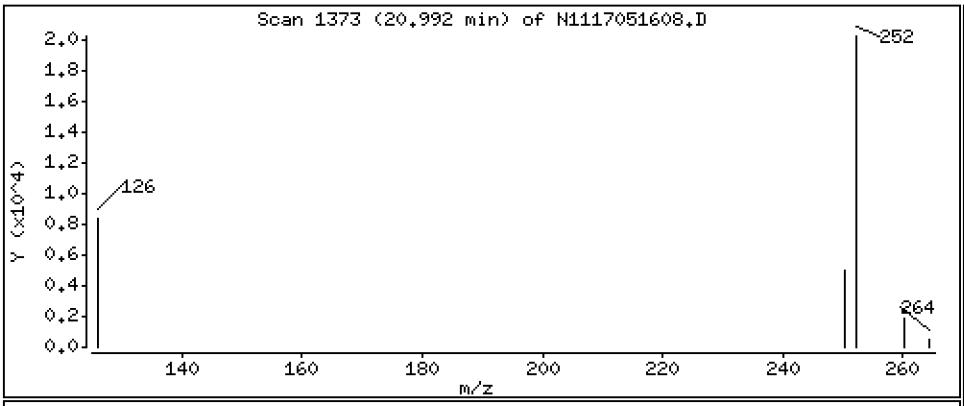
Operator: VTS

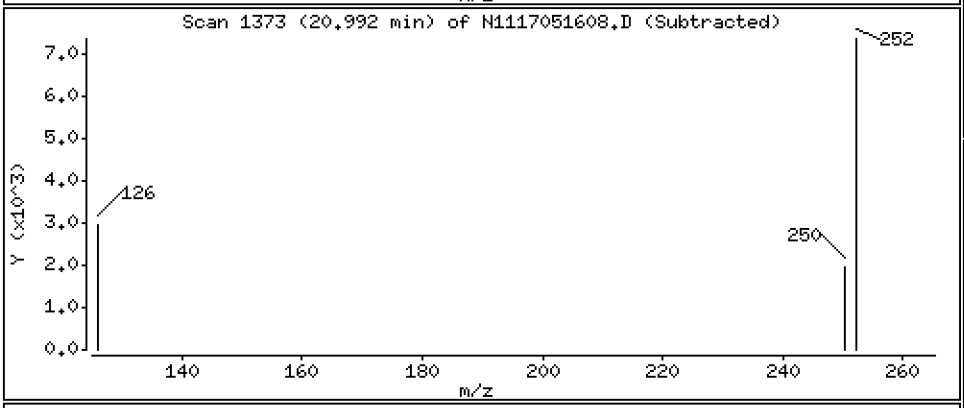
Column phase: Rxi-17Sil MS

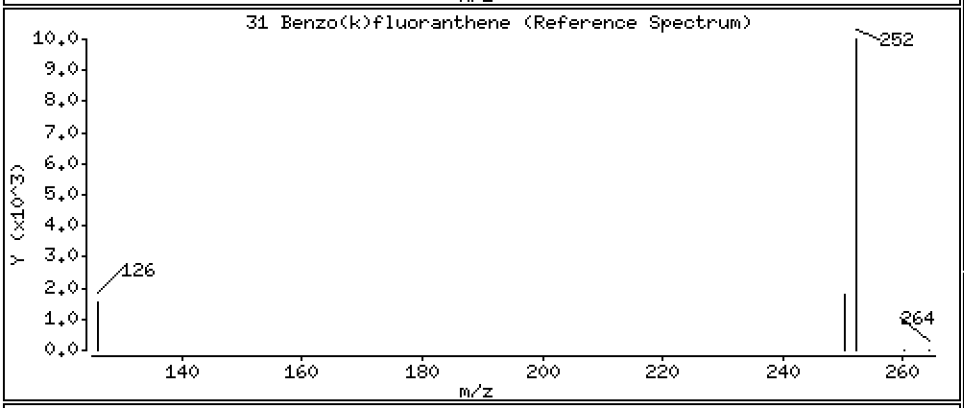
Column diameter: 0.25

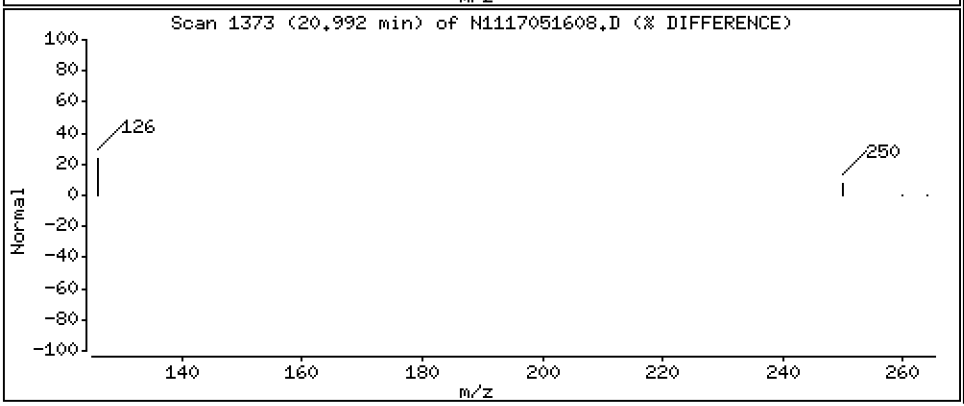
31 Benzo(k)fluoranthene

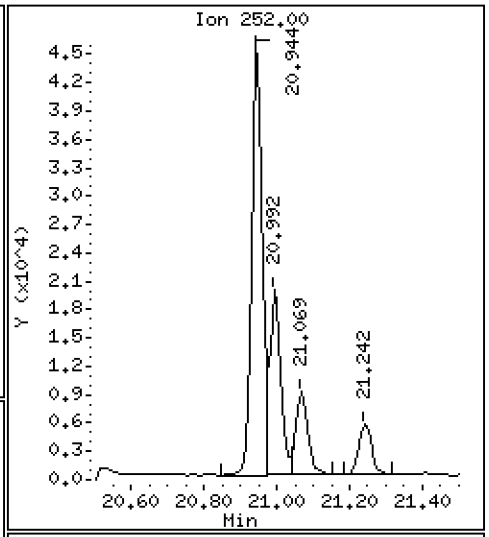
Concentration: 30.8 ng/mL

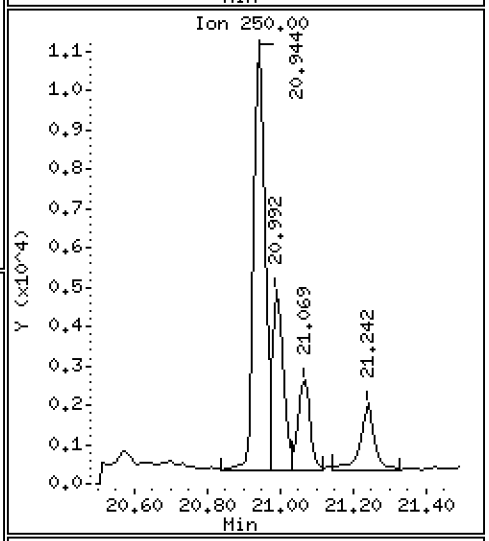


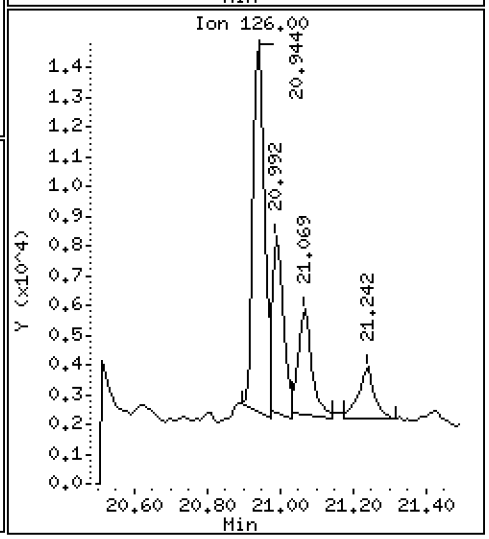












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Date : 16-MAY-2017 14:36

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-04

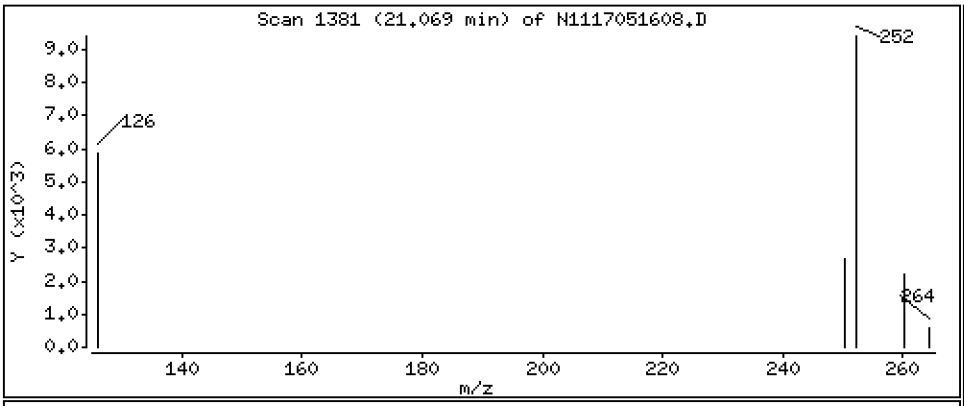
Operator: VTS

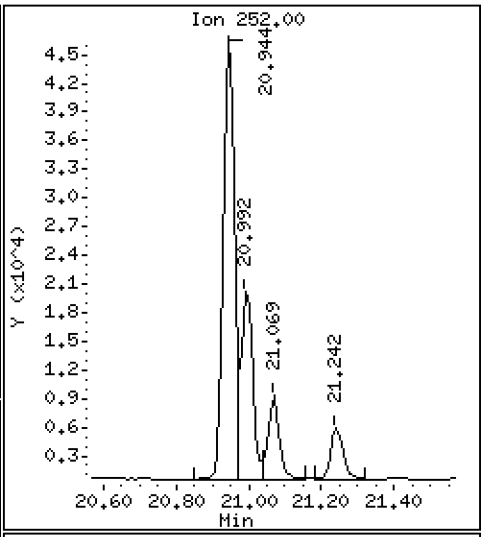
Column phase: Rxi-17Sil MS

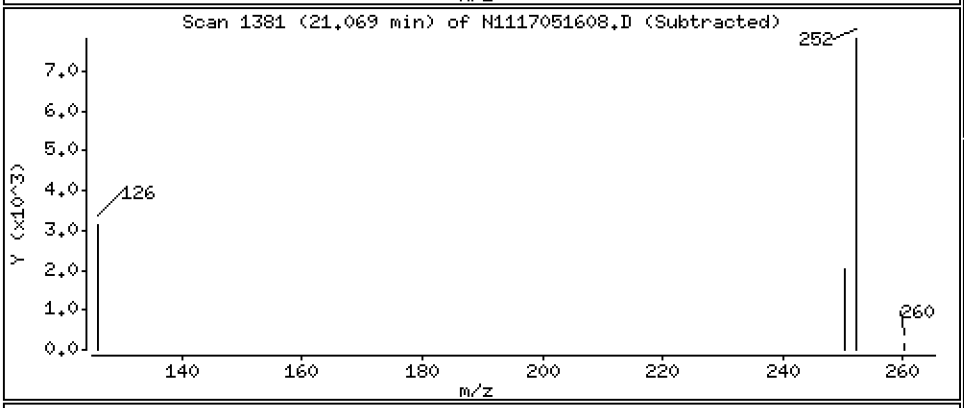
Column diameter: 0.25

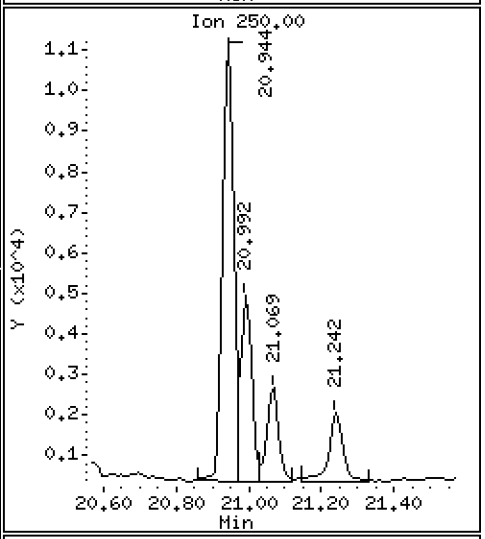
32 Benzo(j)fluoranthene

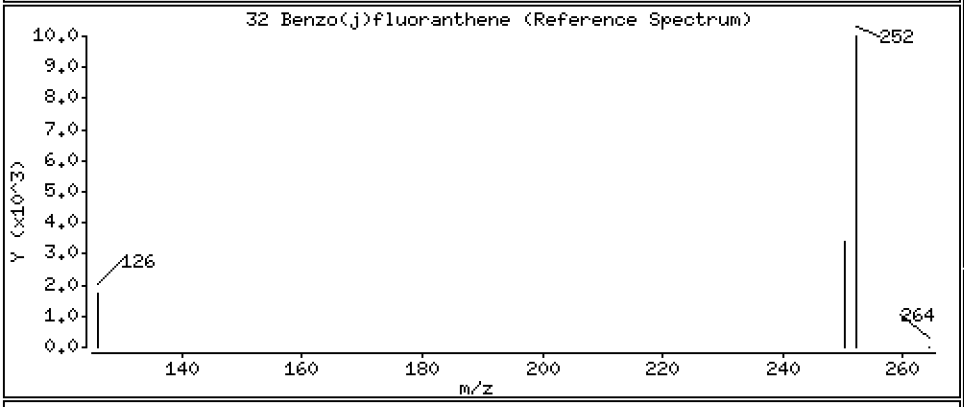
Concentration: 13.9 ng/mL

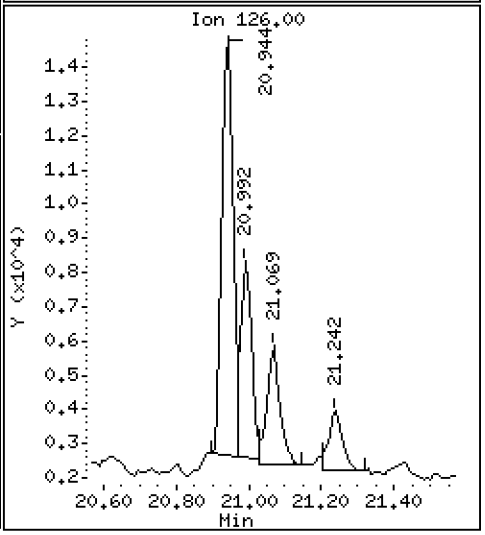


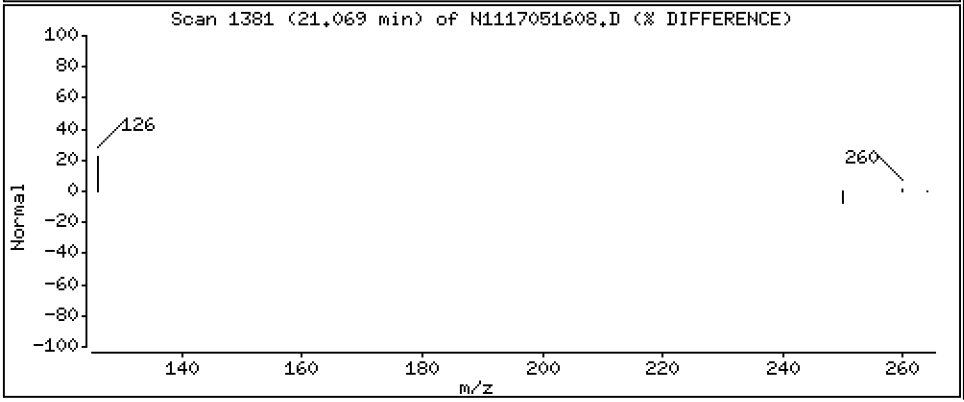












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Date : 16-MAY-2017 14:36

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-04

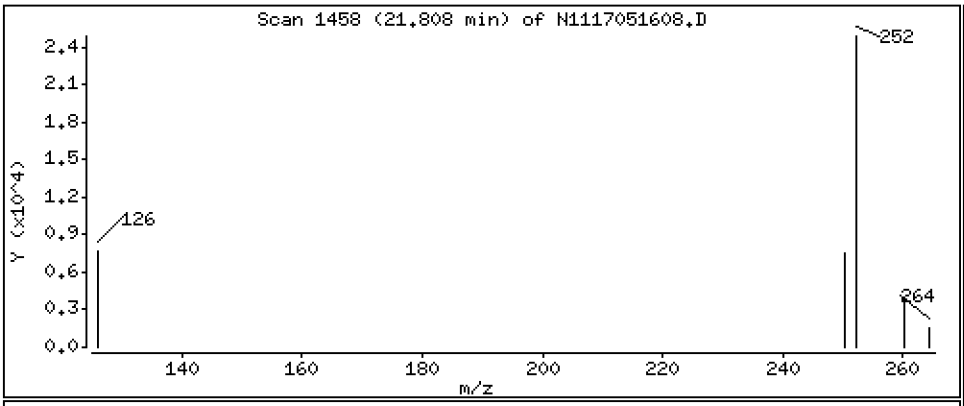
Operator: VTS

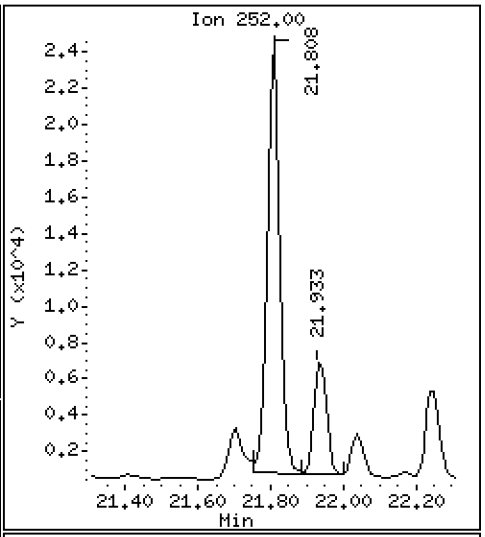
Column phase: Rxi-17Sil MS

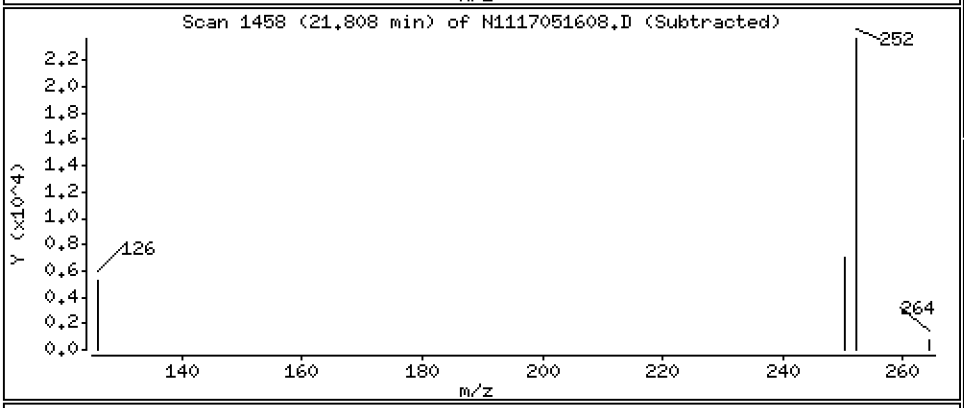
Column diameter: 0.25

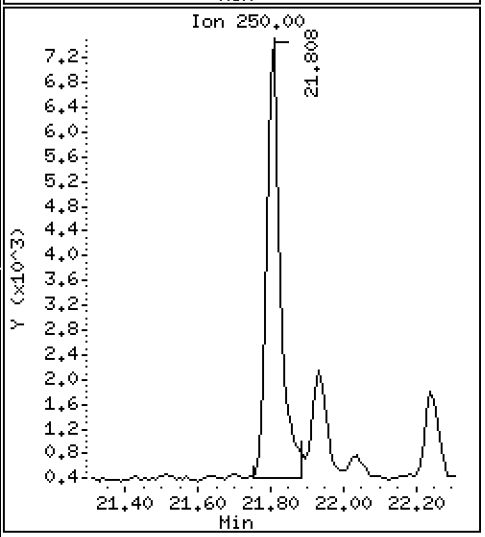
34 Benzo(e)pyrene

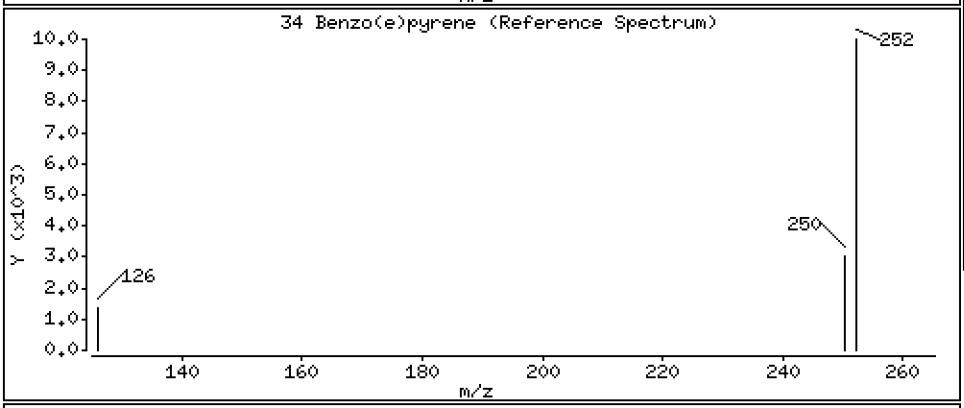
Concentration: 40.4 ng/mL

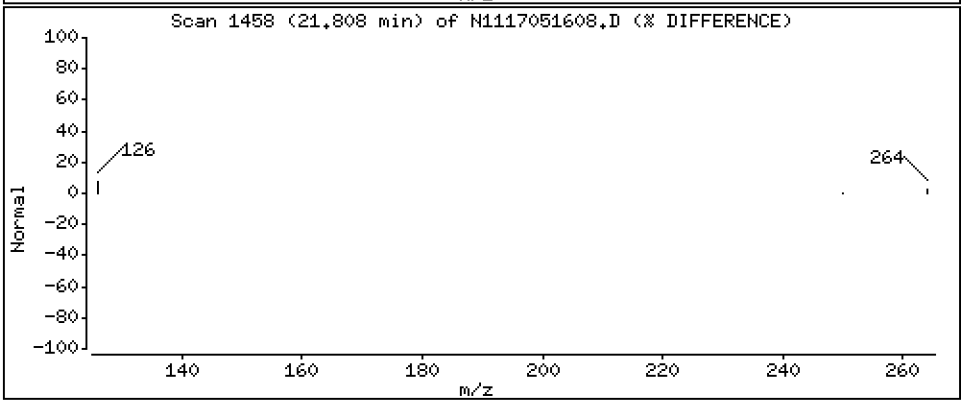












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Date : 16-MAY-2017 14:36

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-04

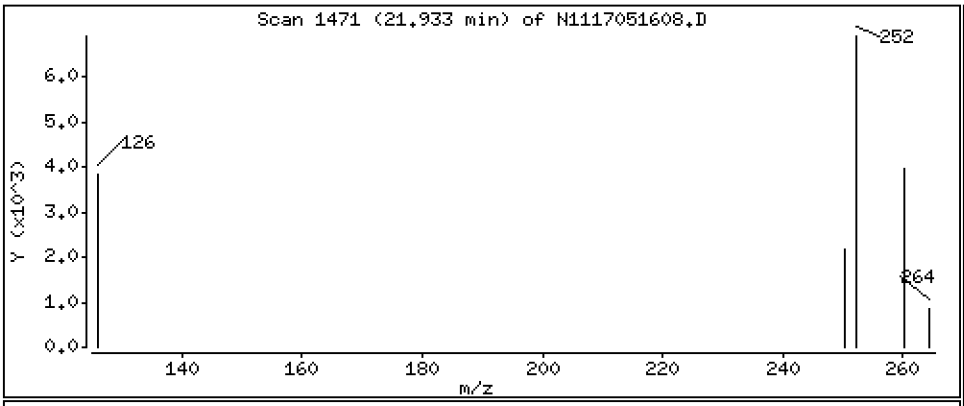
Operator: VTS

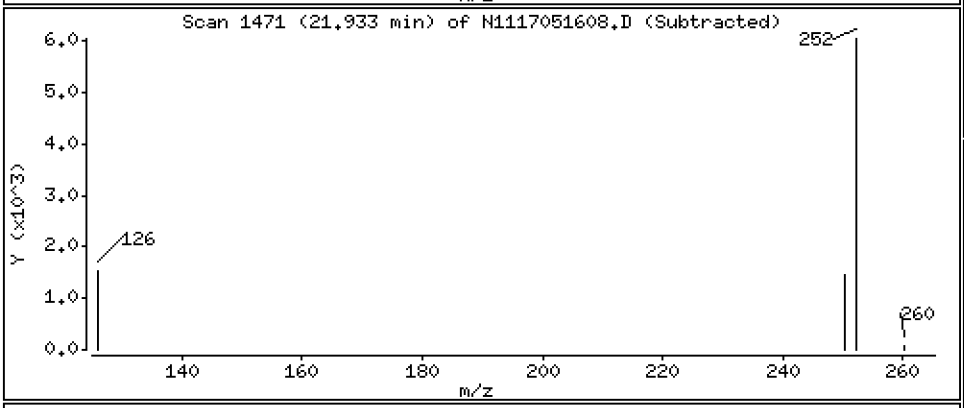
Column phase: Rxi-17Sil MS

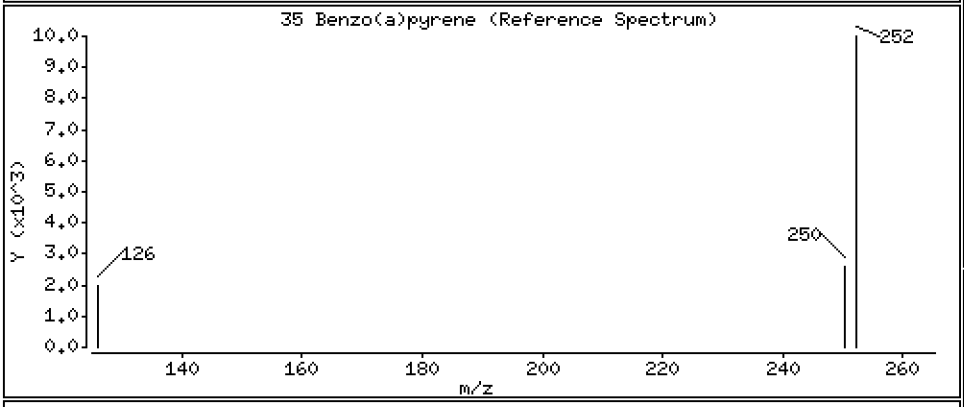
Column diameter: 0.25

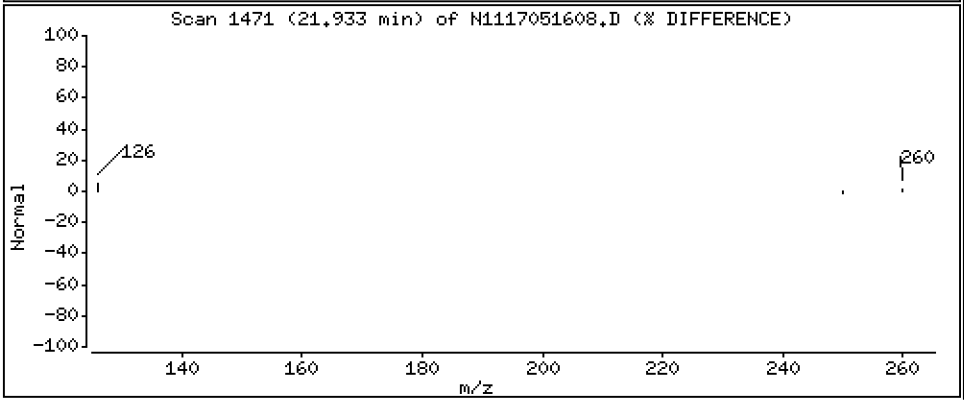
35 Benzo(a)pyrene

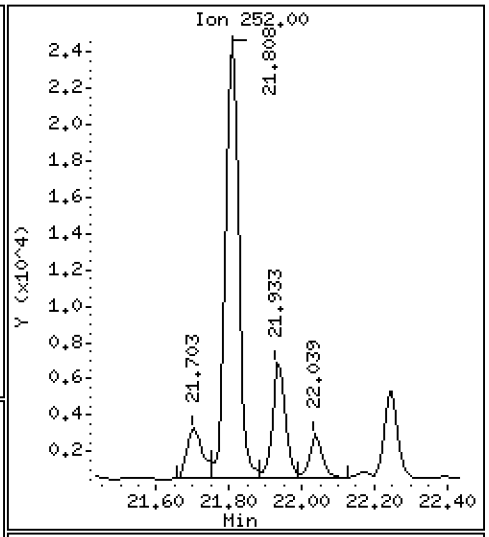
Concentration: 11.7 ng/mL

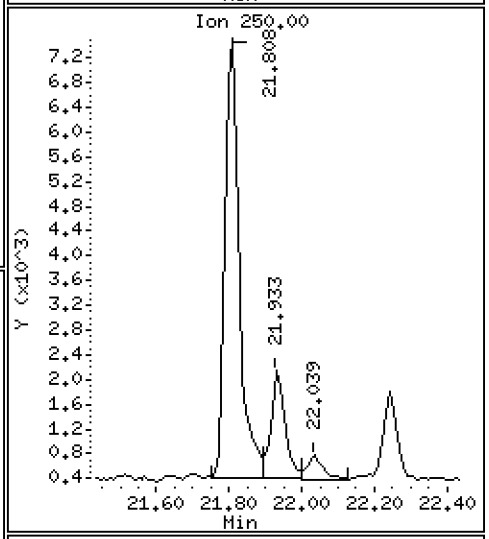


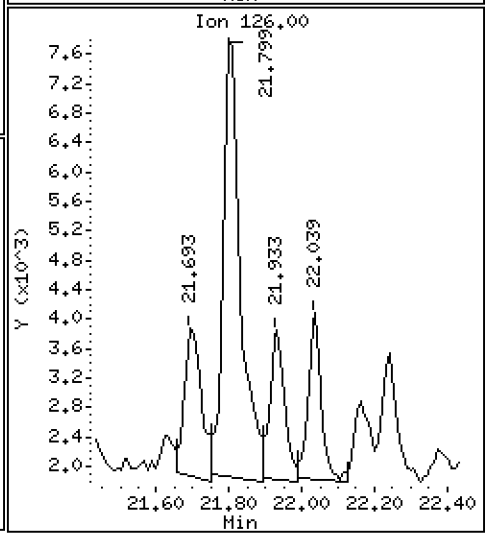












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Date : 16-MAY-2017 14:36

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-04

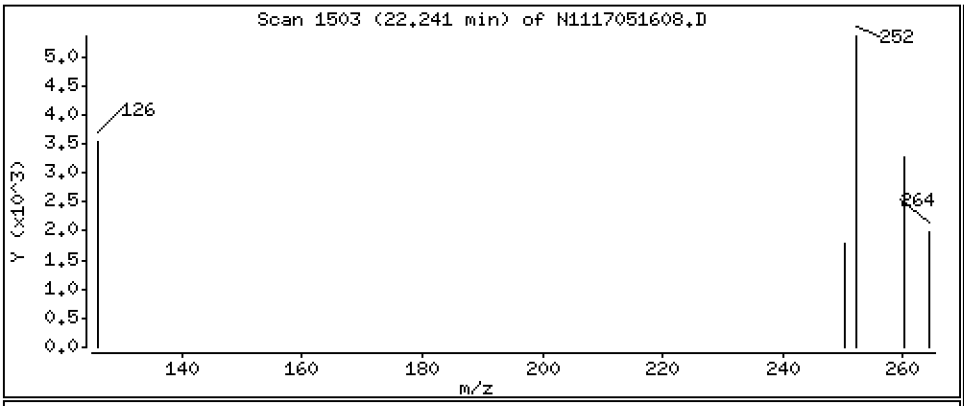
Operator: VTS

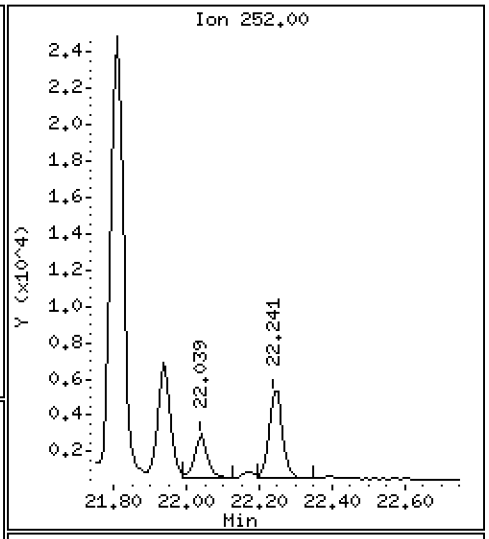
Column phase: Rxi-17Sil MS

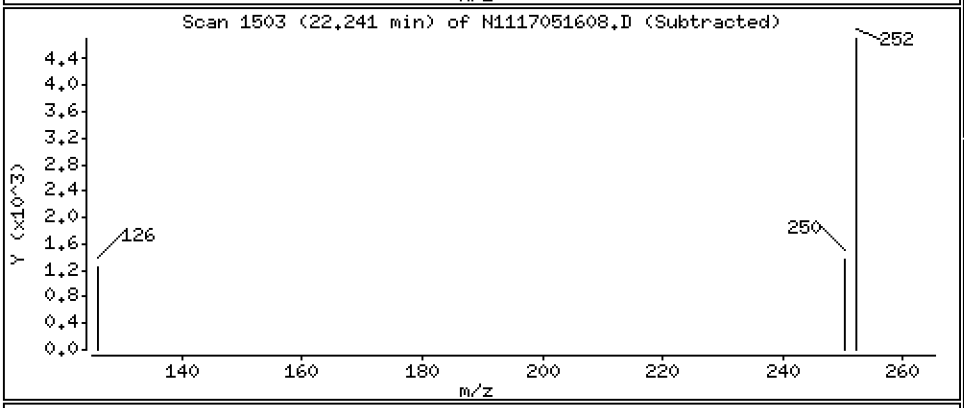
Column diameter: 0.25

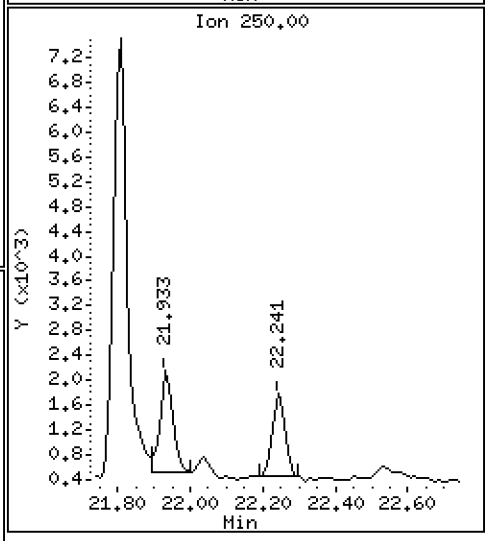
37 Perylene

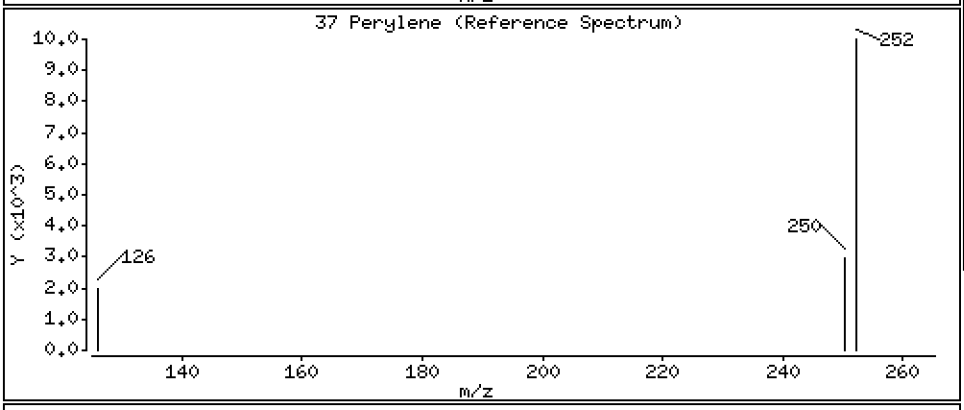
Concentration: 9.08 ng/mL

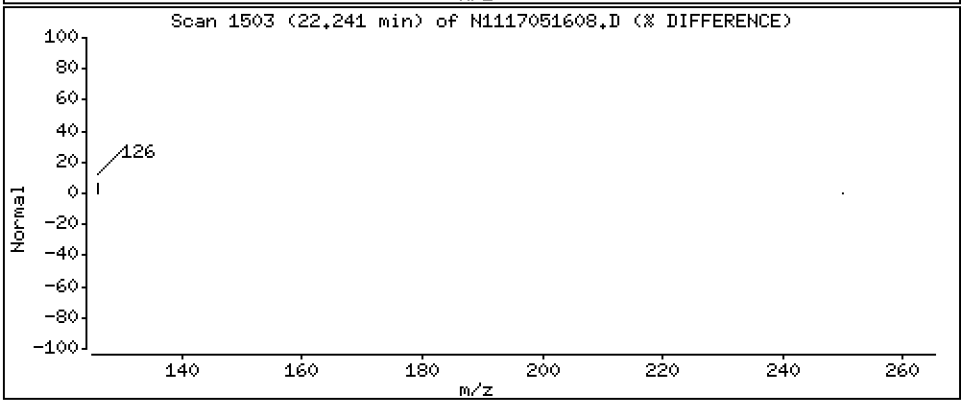












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Date : 16-MAY-2017 14:36

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-04

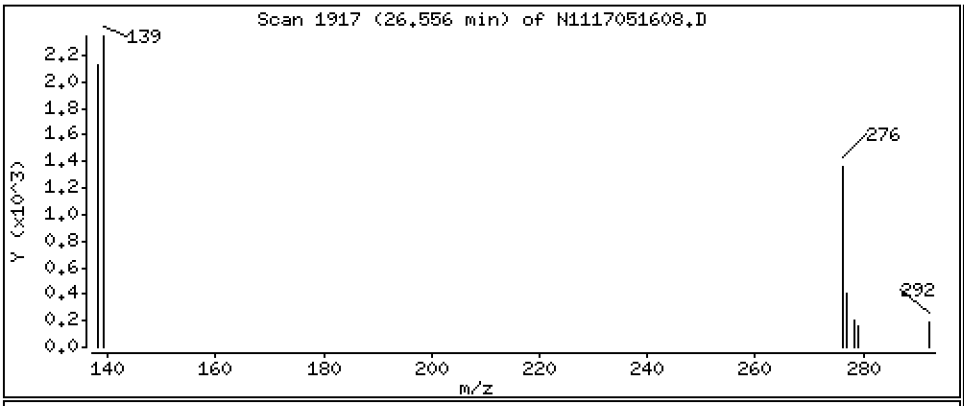
Operator: VTS

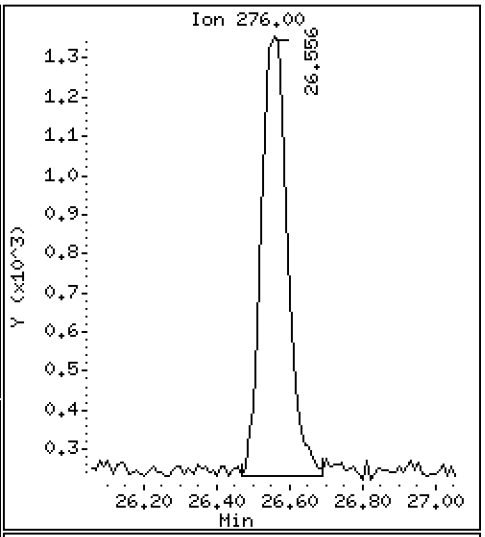
Column phase: Rxi-17Sil MS

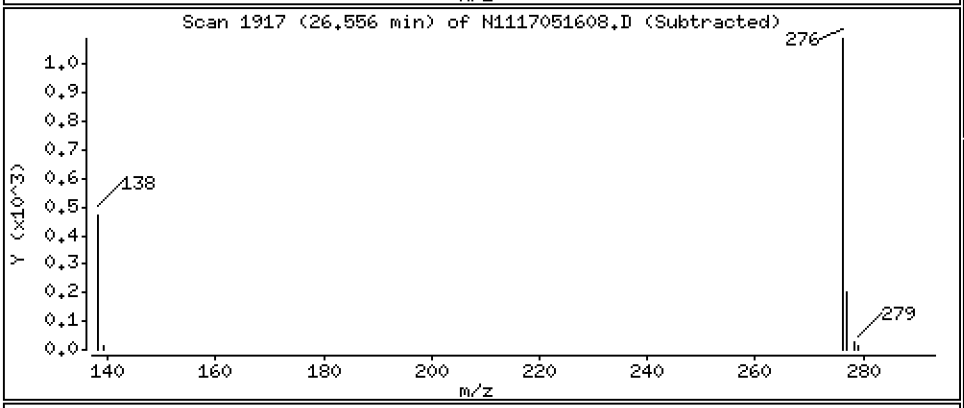
Column diameter: 0.25

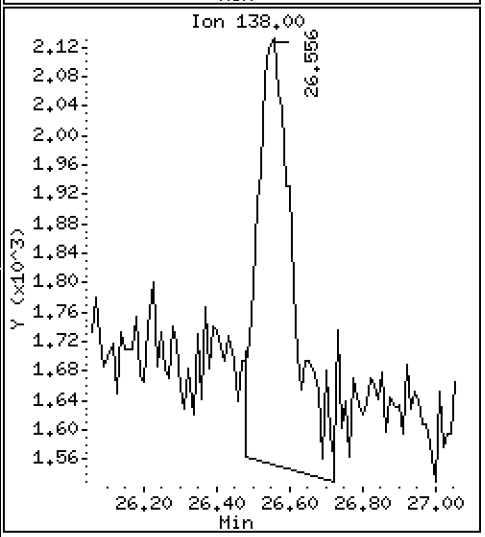
41 Benzo(g,h,i)perylene

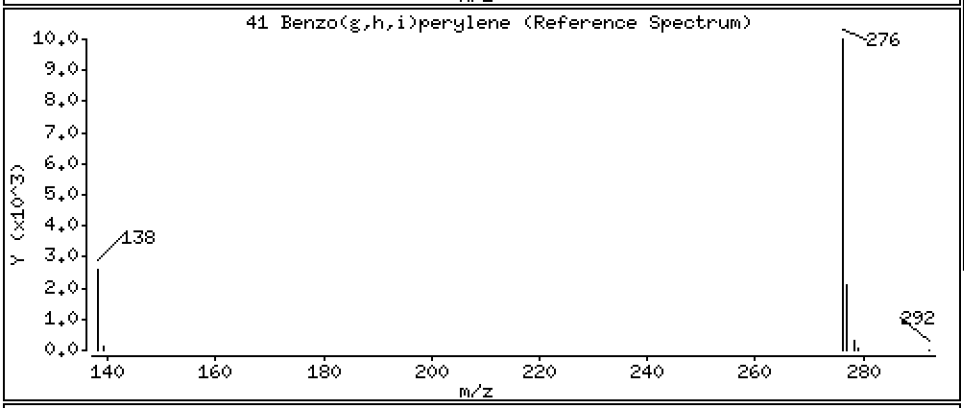
Concentration: 4.47 ng/mL

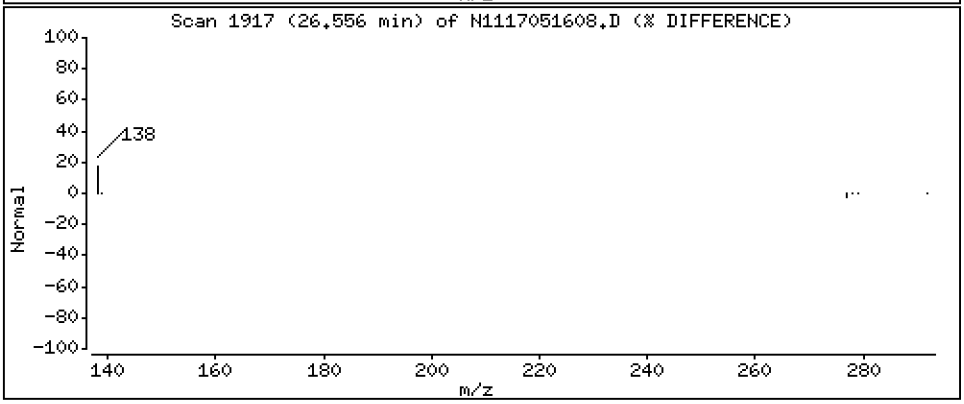












ARI Labs, Inc.

LOW LEVEL PNAs BY SW8270D-SIM

Data file : \\target\share\chem3\nt11.i\20170516.b\N1117051608.D
Lab Smp Id: 17D0421-04
Inj Date : 16-MAY-2017 14:36 MS Autotune Date: 15-JAN-2015 16:59
Operator : VTS Inst ID: nt11.i
Smp Info : 17D0421-04
Misc Info :
Comment   :
Method   : \\target\share\chem3\nt11.i\20170516.b\LOWSIM.m
Meth Date : 17-May-2017 08:15 nt11.i Quant Type: ISTD
Cal Date : 05-MAY-2017 14:47 Cal File: 17050508.D
Als bottle: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: allpna.sub
Target Version: 4.14
Processing Host: VANS

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ng/mL)	FINAL (ng/mL)	
*	1 Naphthalene-d8	136	8.491	8.500	(1.000)	436687	200.000		
	2 Naphthalene	128	8.527	8.536	(1.004)	24293	10.3514	10.4	
	3 Benzo(b)thiophene	134	Compound Not Detected.						
$	4 2-Methylnaphthalene-d10	152	9.477	9.477	(1.116)	364918	195.002	195	
	5 2-Methylnaphthalene	142	9.529	9.540	(1.122)	17609	8.13483	8.13	
	6 1-Methylnaphthalene	142	9.792	9.792	(1.153)	10879	5.19689	5.20	
	7 2-Chloronaphthalene	162	Compound Not Detected.						
	8 Biphenyl	154	Compound Not Detected.						
	9 2,6-Dimethylnaphthalene	156	Compound Not Detected.						
	10 Acenaphthylene	152	11.374	11.383	(0.987)	12075	5.66607	5.67	
*	11 Acenaphthene-d10	164	11.528	11.528	(1.000)	181820	200.000		(M)
	12 Acenaphthene	153	11.591	11.591	(1.005)	12135	8.70793	8.71	(M)
	13 Dibenzofuran	168	11.797	11.797	(1.023)	17632	9.17038	9.17	
	14 2,3,5-Trimethylnaphthalene	170	Compound Not Detected.						
$	15 Fluorene-d10	174	Compound Not Detected.						
	16 Fluorene	166	12.417	12.429	(1.077)	15558	10.3762	10.4	
	17 Dibenzothiophene	184	Compound Not Detected.						
*	18 Phenanthrene-d10	188	14.220	14.220	(1.000)	276664	200.000		
	19 Phenanthrene	178	14.262	14.262	(1.003)	104893	50.9313	50.9	
$	20 Anthracene-d10	188	Compound Not Detected.						
	21 Anthracene	178	14.315	14.325	(1.007)	42223	20.8099	20.8	
	22 Carbazole	167	Compound Not Detected.						
	23 1-Methylphenanthrene	192	15.271	15.271	(1.074)	18118	9.71396	9.71	
$	24 Fluoranthene-d10	212	16.338	16.338	(1.149)	320532	245.075	245	
	25 Fluoranthene	202	16.367	16.367	(1.151)	448229	226.471	226	
	26 Pyrene	202	16.876	16.876	(0.889)	289833	175.727	176	
	27 Benzo(a)anthracene	228	18.892	18.892	(0.995)	101352	78.1246	78.1	
*	28 Chrysene-d12	240	18.983	18.983	(1.000)	182183	200.000		
	29 Chrysene	228	19.033	19.033	(1.003)	149541	111.689	112	
	30 Benzo(b)fluoranthene	252	20.943	20.943	(0.945)	96902	63.3871	63.4	
	31 Benzo(k)fluoranthene	252	20.991	21.001	(0.947)	46610	30.7555	30.8	
	32 Benzo(j)fluoranthene	252	21.068	21.068	(0.950)	19800	13.9439	13.9	
$	33 Benzo(e)pyrene-d12	264	Compound Not Detected.						

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ng/mL)	CONCENTRATIONS FINAL (ng/mL)
	34 Benzo(e)pyrene	252	21.808	21.808	(0.984)	57455	40.4295	40.4
	35 Benzo(a)pyrene	252	21.933	21.933	(0.989)	16163	11.6878	11.7
*	36 Perylene-d12	264	22.173	22.173	(1.000)	244648	200.000	
	37 Perylene	252	22.240	22.250	(1.003)	12938	9.07964	9.08
$	38 Dibenzo(a,h)anthracene-d14	292	25.005	25.016	(1.128)	186735	204.622	205
	39 Dibenzo(a,h)anthracene	278	Compound Not Detected.					
	40 Indeno(1,2,3-cd)pyrene	276	Compound Not Detected.					
	41 Benzo(g,h,i)perylene	276	26.556	26.556	(1.198)	5573	4.46611	4.47

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt11.i
Lab File ID: N1117051608.D
Lab Smp Id: 17D0421-04
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: \\target\share\chem3\nt11.i\20170516.b\LOWSIM.m
Misc Info:

Calibration Date: 16-MAY-2017
Calibration Time: 10:47
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	371325	185663	742650	436687	17.60
11 Acenaphthene-d10	154428	77214	308856	181820	17.74
18 Phenanthrene-d10	256956	128478	513912	276664	7.67
28 Chrysene-d12	208629	104315	417258	182183	-12.68
36 Perylene-d12	225431	112716	450862	244648	8.52

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	8.50	8.00	9.00	8.49	-0.11
11 Acenaphthene-d10	11.53	11.03	12.03	11.53	0.00
18 Phenanthrene-d10	14.22	13.72	14.72	14.22	0.00
28 Chrysene-d12	18.98	18.48	19.48	18.98	0.00
36 Perylene-d12	22.17	21.67	22.67	22.17	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N1117051608.D

Lab ID: 17D0421-04
nt11.i, 20170516.b\LOWSIM.m,   16-MAY-2017 14:36

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

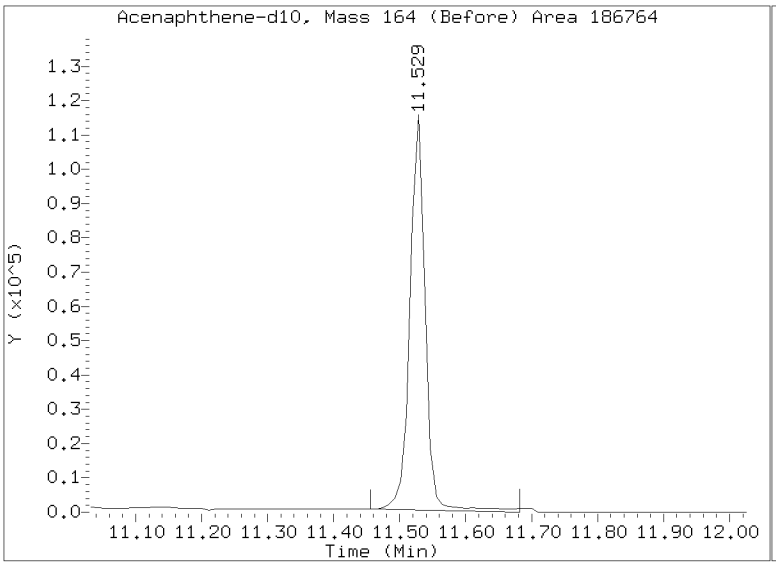
NONE

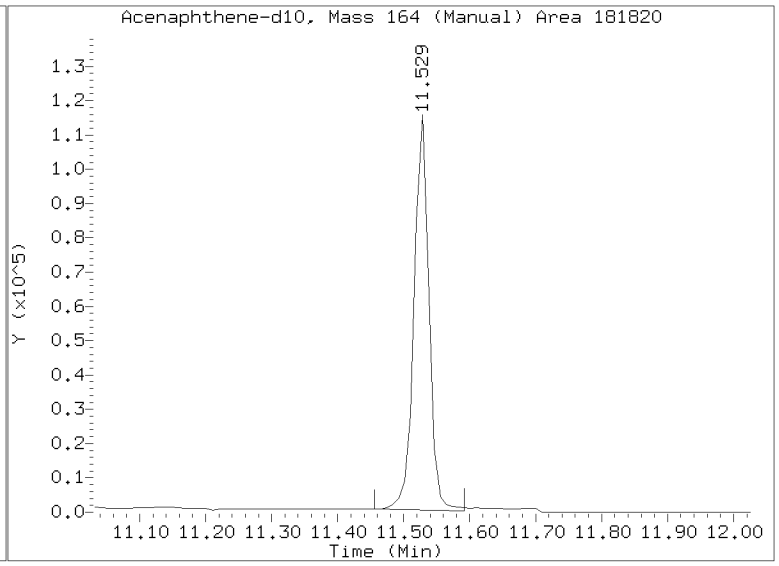
On Column LOD for nt11.i, 20170516.b\LOWSIM.m, allpna.sub = 3.0000

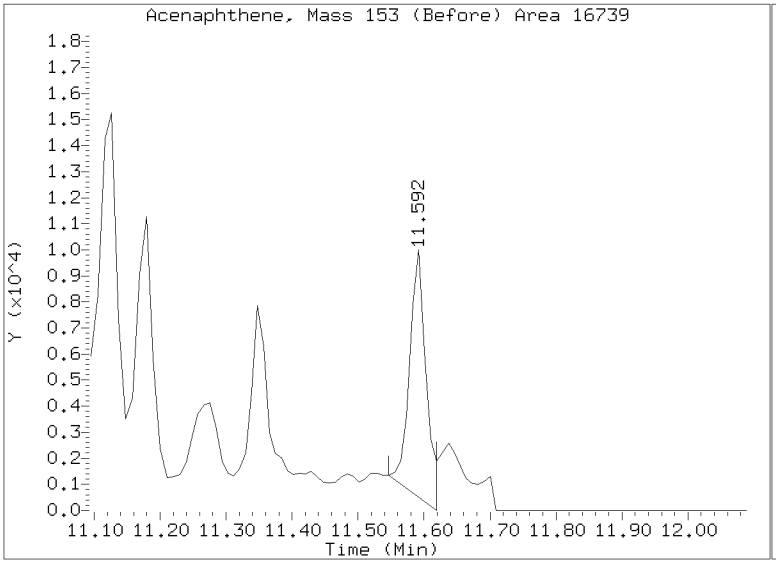
Exception: Naphthalene 6.0000
Exception: Phenanthrene 2.5000
Exception: Anthracene 2.0000
Exception: Pyrene 4.0000
Exception: Benzo(j)fluoranthene 2.5000
Exception: Benzo(a)pyrene 2.0000
Exception: Perylene 3.5000
Exception: Benzo(e)pyrene 2.0000
Exception: Benzo(b)thiophene 2.0000
Exception: 2-Chloronaphthalene 2.0000
Exception: 2,6-Dimethylnaphthalene 2.0000
Exception: 2,3,5-Trimethylnaphthalene 2.0000
Exception: 1-Methylphenanthrene 2.0000
Exception: Dibenzothiophene 2.0000
Exception: Carbazole 2.0000
Exception: Biphenyl 2.0000
Exception: 2-Methylnaphthalene-d10 (Surr) 0.1000
Exception: Dibenzo(a,h)anthracene-d14 (Surr) 0.1000
Exception: Fluoranthene-d10 (Surr) 0.1000
Exception: Anthracene-d10 (Surr) 0.1000
Exception: Benzo(e)pyrene-d12 (Surr) 0.1000
Exception: Fluorene-d10 (Surr) 0.1000

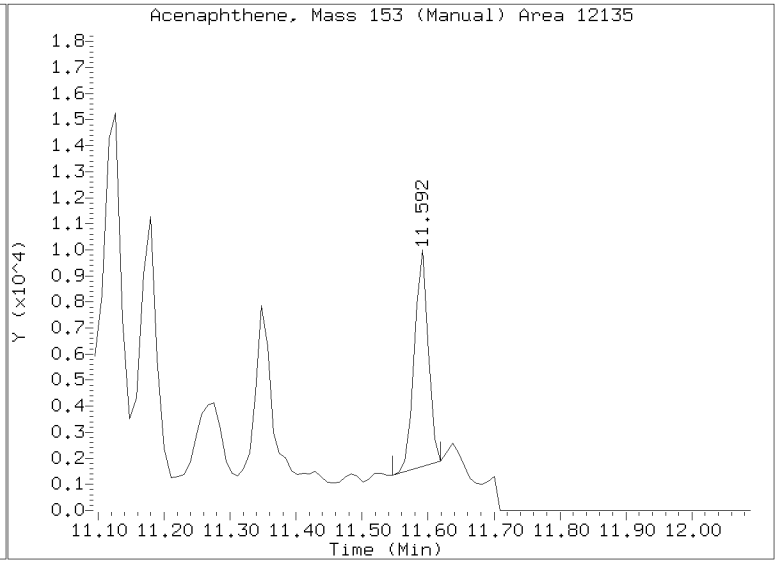
Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem3/nt11.i/20170516.b/N1117051608.D
Injection Date: 16-MAY-2017 14:36
Lab ID:17D0421-04 Client ID:
Report Date: 05/17/2017 08:15









PG-WS-COC-COC-170425

Form I

ORGANIC ANALYSIS DATA SHEET

EPA 8270D-SIM

Polynuclear Aromatic Hydrocarbons - low level

Laboratory:	Analytical Resources, Inc.			SDG:	17D0421
Client:	Anchor QEA, LLC			Project:	Port Gamble Shellfish Monitoring
Matrix:	Tissue	Laboratory ID:	17D0421-05	File ID:	N1117051609.D
Sampled:	04/25/17 11:00	Prepared:	05/09/17 13:50	Analyzed:	05/16/17 15:13
Solids:		Preparation:	EPA 3550C-Mod (Ultrasonic	Initial/Final:	10.07 g / 0.5 mL
Batch:	BFE0160	Sequence:	SFE0208	Calibration:	AE00020
Instrument:	NT11	Column:	RXi-17Sil-MS		

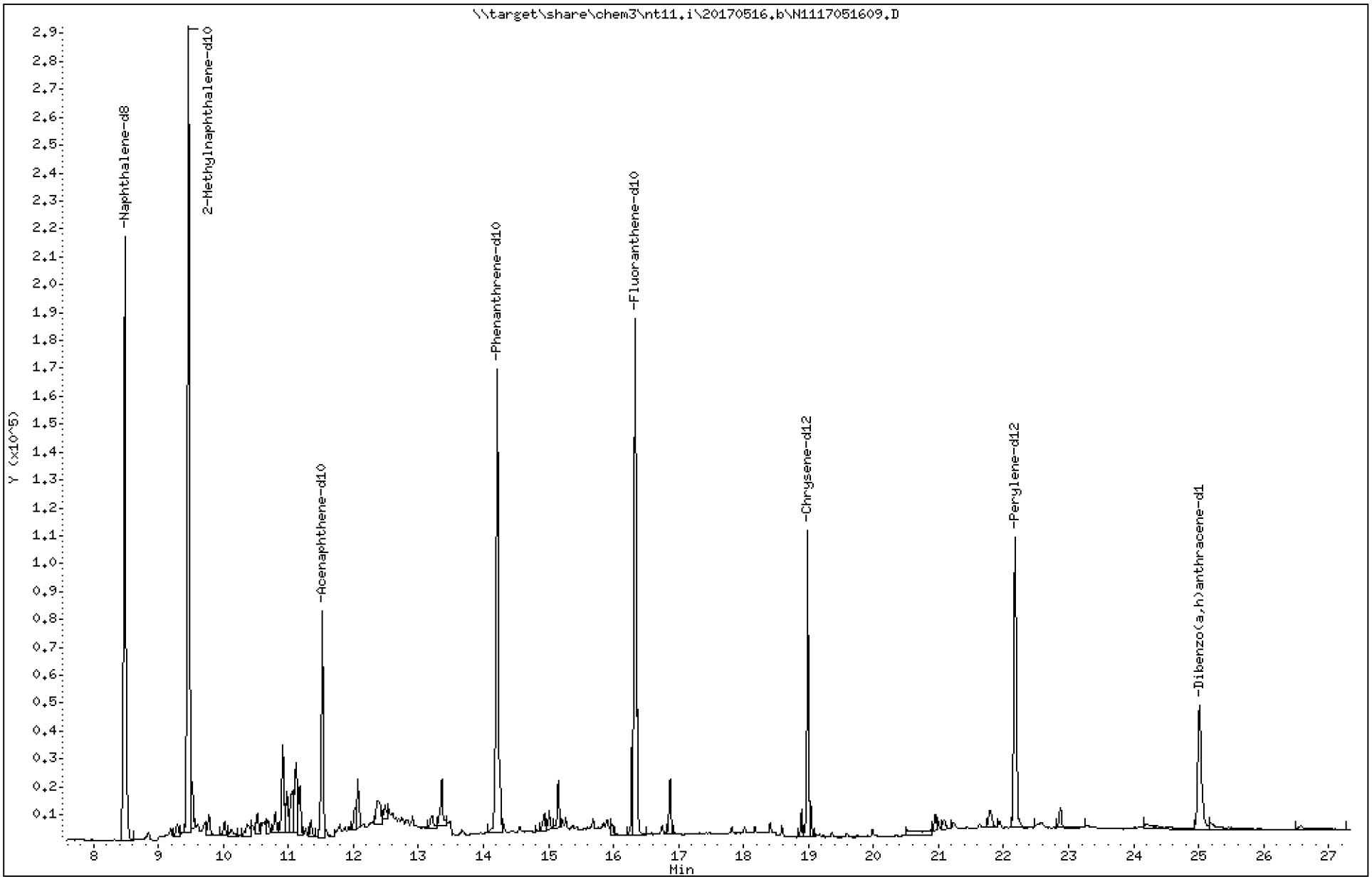
CAS NO.	COMPOUND	DILUTION	CONC. (ug/kg)	Q	DL	RL
91-20-3	Naphthalene	1	0.60	U	0.50	0.60
91-57-6	2-Methylnaphthalene	1	0.50	U	0.50	0.50
208-96-8	Acenaphthylene	1	0.50	U	0.50	0.50
83-32-9	Acenaphthene	1	0.50	U	0.50	0.50
86-73-7	Fluorene	1	0.50	U	0.50	0.50
85-01-8	Phenanthrene	1	0.72		0.50	0.50
120-12-7	Anthracene	1	0.50	U	0.50	0.50
206-44-0	Fluoranthene	1	1.39		0.50	0.50
129-00-0	Pyrene	1	0.87		0.50	0.50
56-55-3	Benzo(a)anthracene	1	0.50		0.50	0.50
218-01-9	Chrysene	1	0.75		0.50	0.50
205-99-2	Benzo(b)fluoranthene	1	0.50	U	0.50	0.50
207-08-9	Benzo(k)fluoranthene	1	0.50	U	0.50	0.50
50-32-8	Benzo(a)pyrene	1	0.50	U	0.50	0.50
193-39-5	Indeno(1,2,3-cd)pyrene	1	0.50	U	0.50	0.50
53-70-3	Dibenzo(a,h)anthracene	1	0.50	U	0.50	0.50
191-24-2	Benzo(g,h,i)perylene	1	0.50	U	0.50	0.50
1985-5-0	Perylene	1	0.50	U	0.50	0.50
197-97-2	Benzo(e)pyrene	1	0.73		0.50	0.50

SURROGATES	ADDED (ug/kg)	CONC (ug/kg)	% REC	QC LIMITS	Q
2-Methylnaphthalene-d10	14.896	8.68	58.3	30 - 160	
Dibenzo[a,h]anthracene-d14	14.896	10.4	69.8	30 - 160	
Fluoranthene-d10	14.896	11.0	74.2	30 - 160	

Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051609.D
Date : 16-MAY-2017 15:13
Client ID:
Sample Info: 17D0421-05

Instrument: nt11.i
Operator: VTS
Column diameter: 0.25

Column phase: Rxi-17Sil MS



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Date : 16-MAY-2017 15:13

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-05

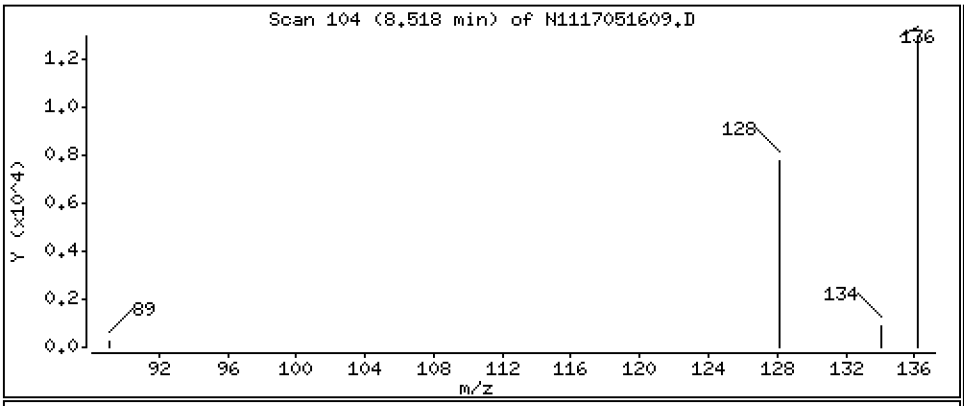
Operator: VTS

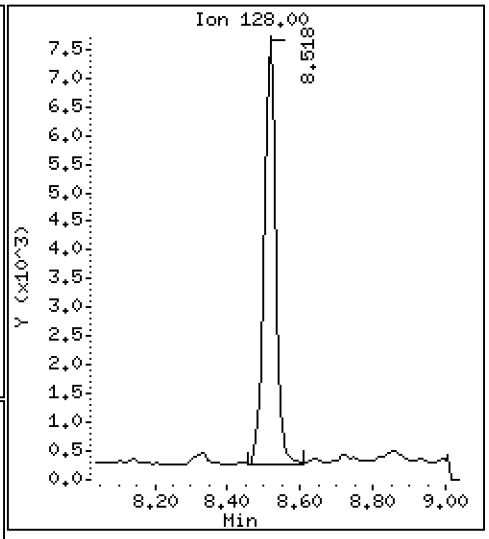
Column phase: Rxi-17Sil MS

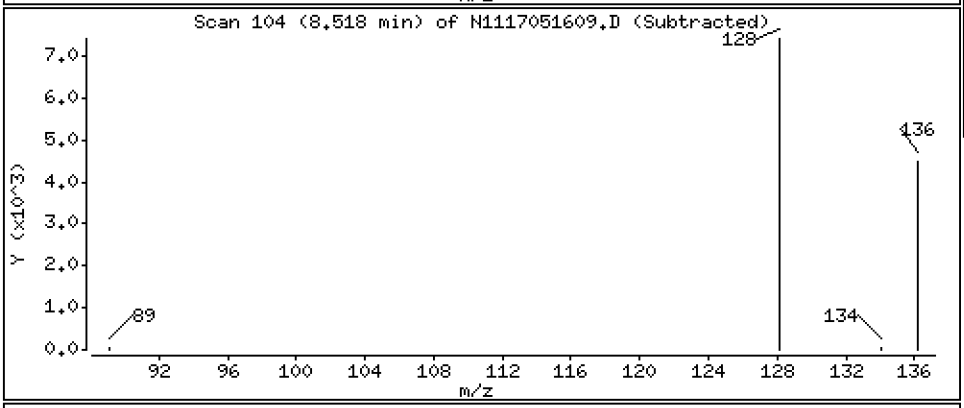
Column diameter: 0.25

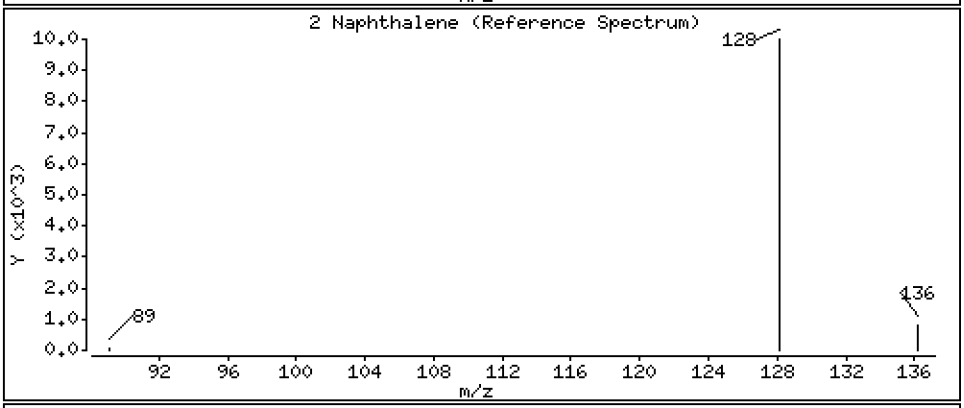
2 Naphthalene

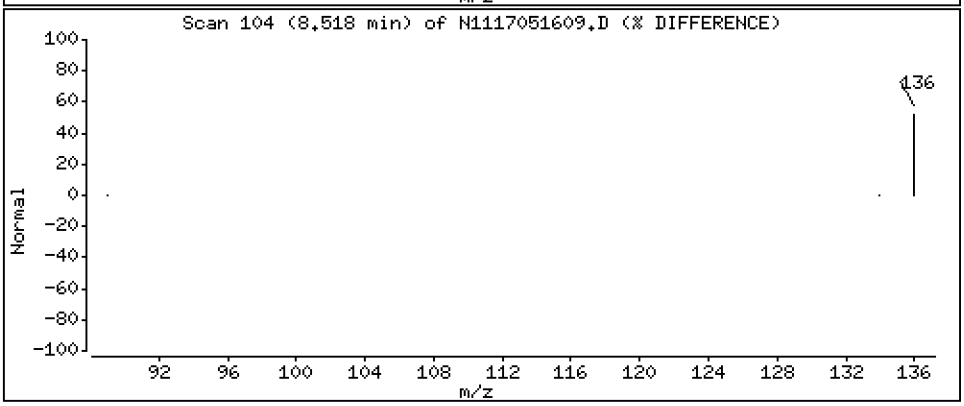
Concentration: 6.80 ng/mL











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Date : 16-MAY-2017 15:13

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-05

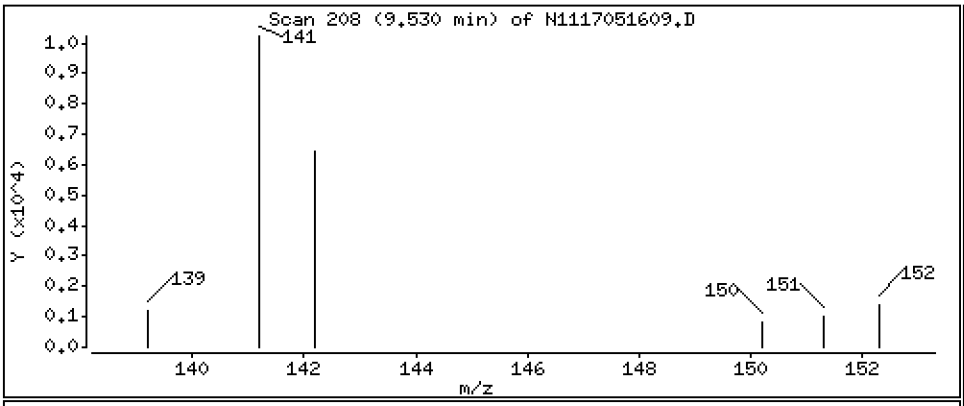
Operator: VTS

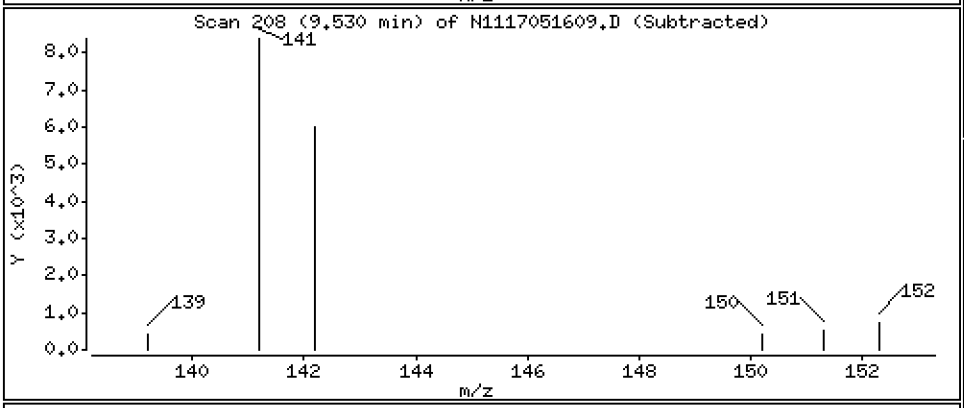
Column phase: Rxi-17Sil MS

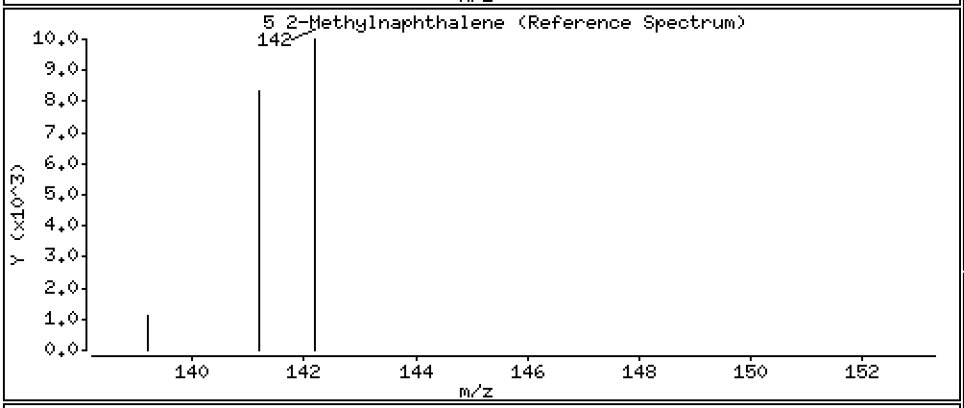
Column diameter: 0.25

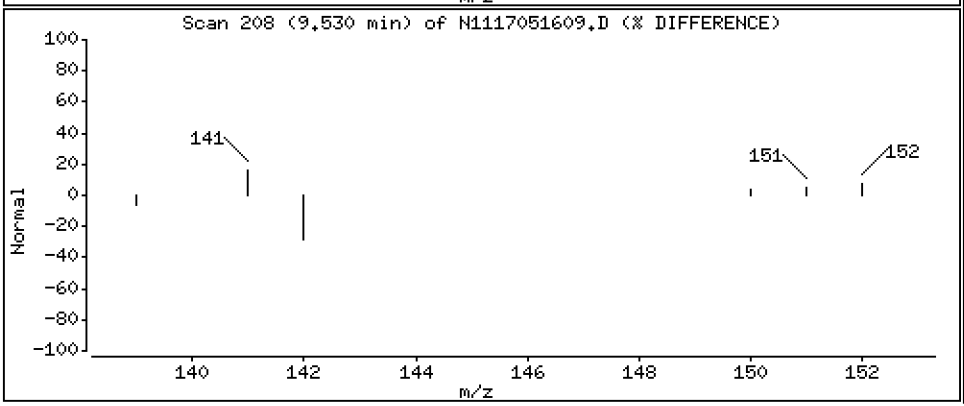
5 2-Methylnaphthalene

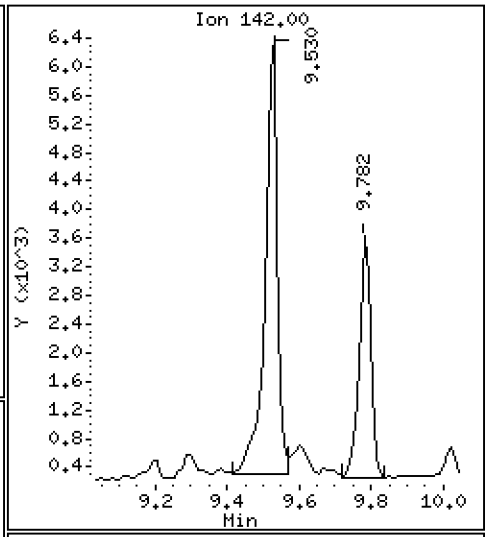
Concentration: 7.19 ng/mL

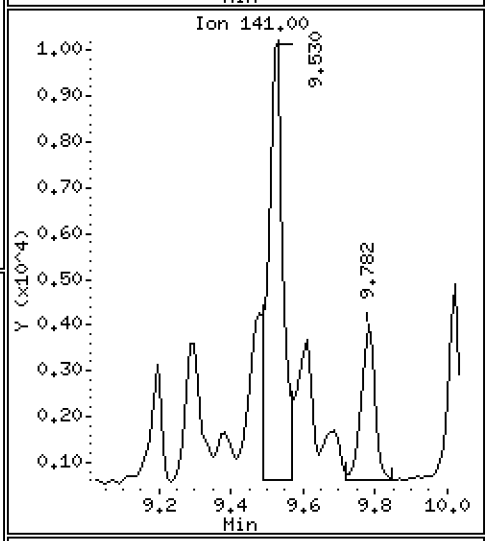


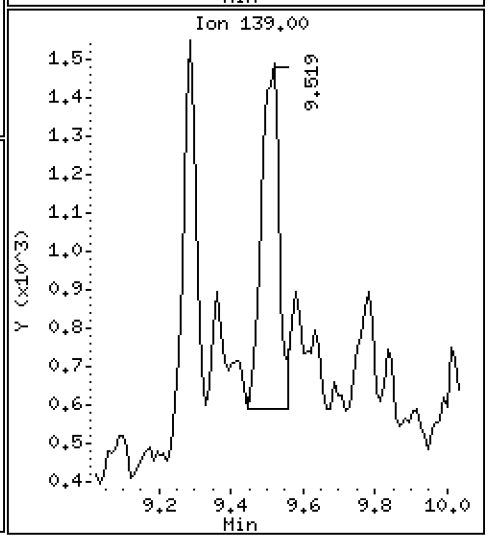












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Date : 16-MAY-2017 15:13

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-05

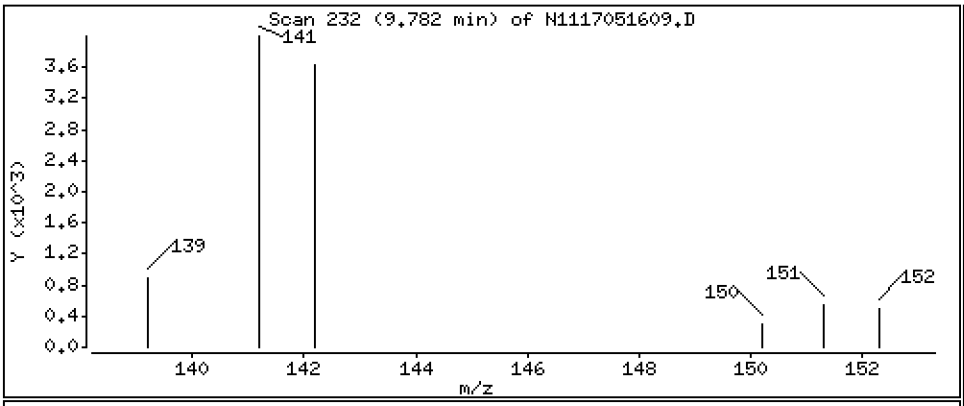
Operator: VTS

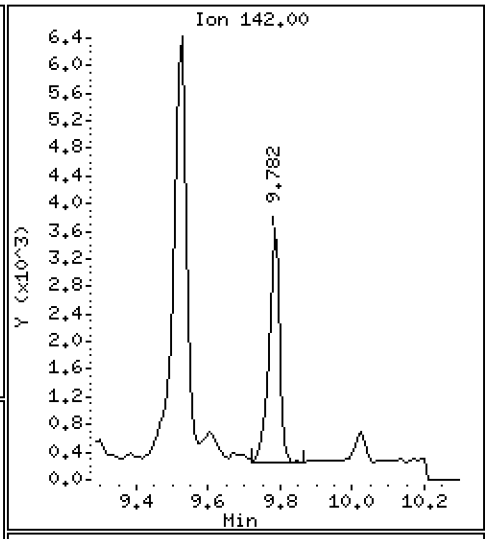
Column phase: Rxi-17Sil MS

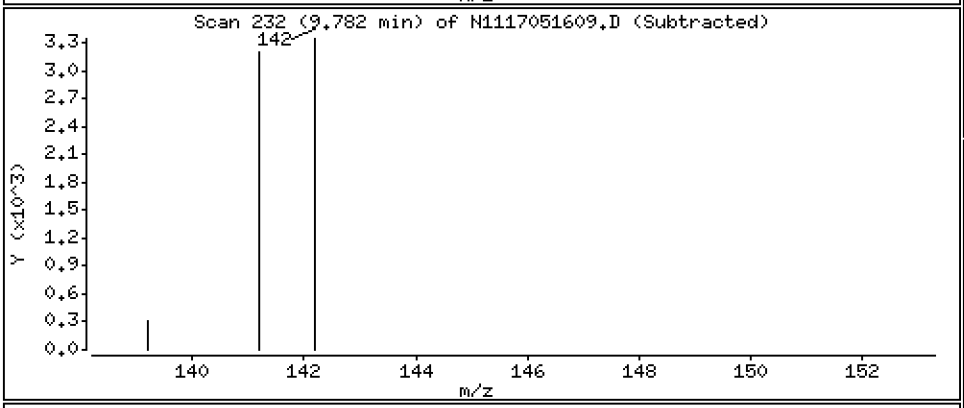
Column diameter: 0.25

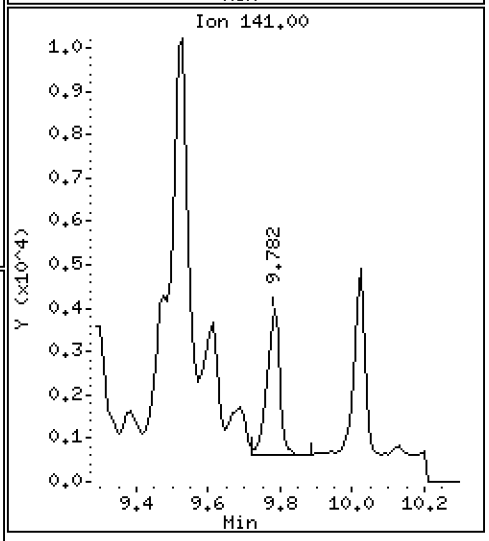
6 1-Methylnaphthalene

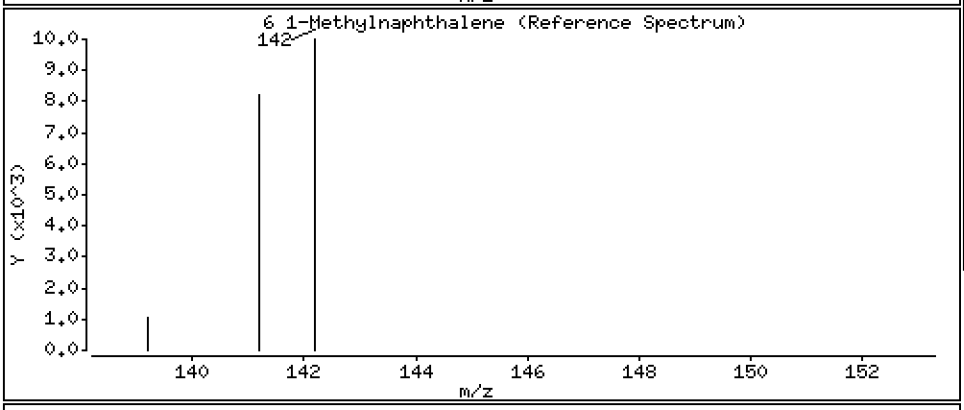
Concentration: 3.56 ng/mL

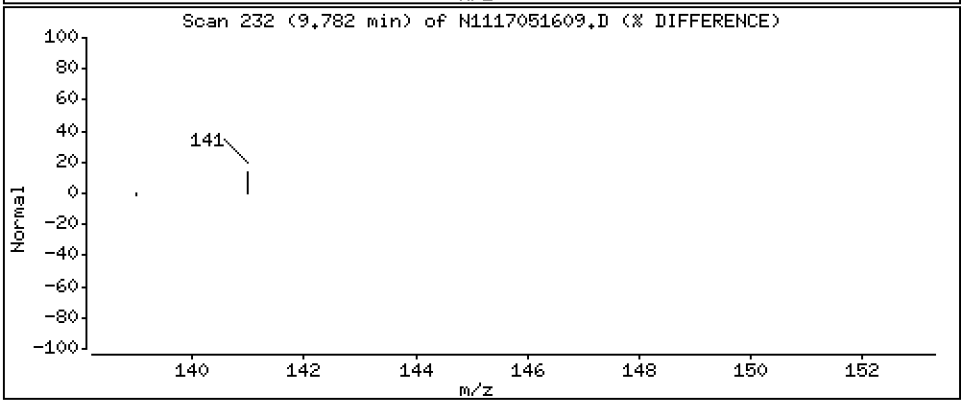












Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051609.D

Date : 16-MAY-2017 15:13

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-05

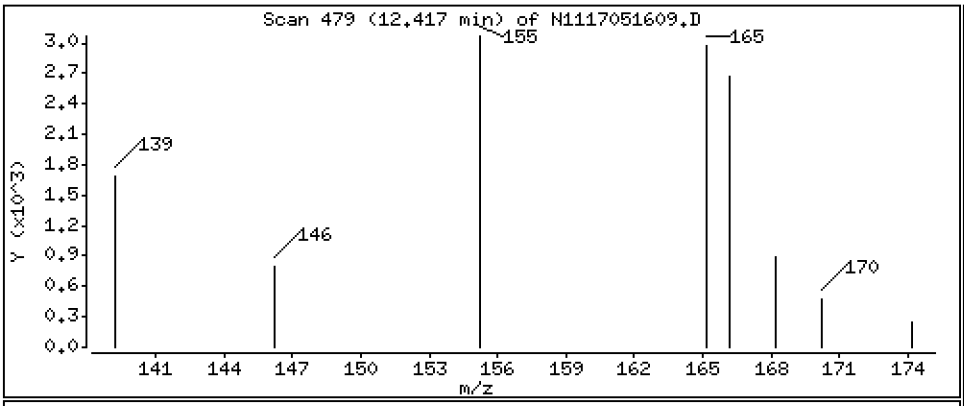
Operator: VTS

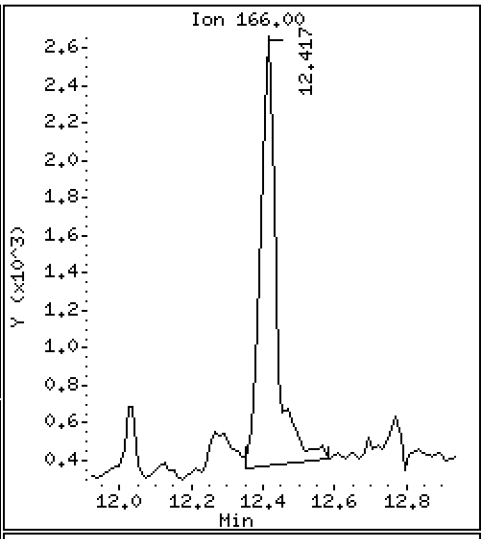
Column phase: Rxi-17Sil MS

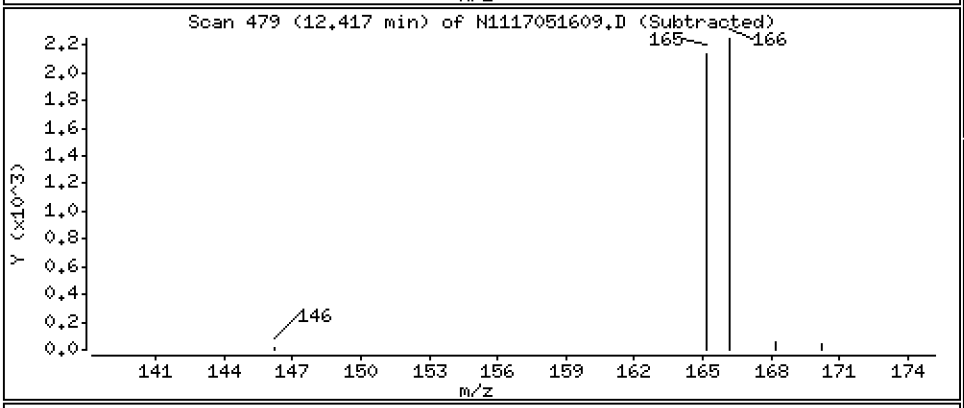
Column diameter: 0.25

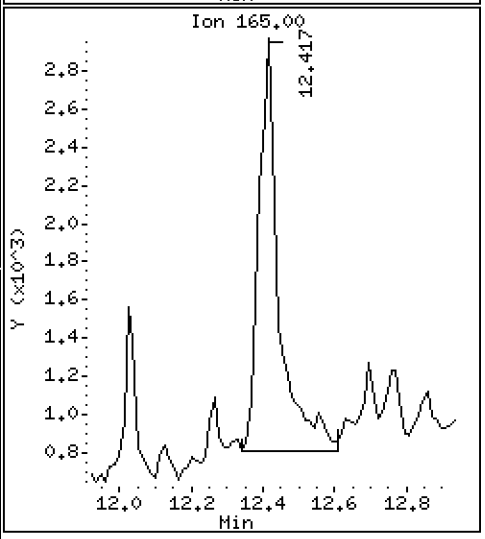
16 Fluorene

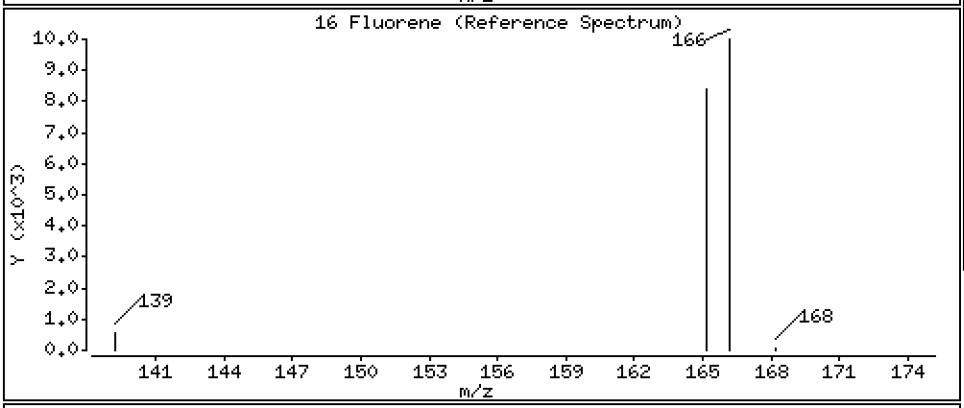
Concentration: 4.67 ng/mL

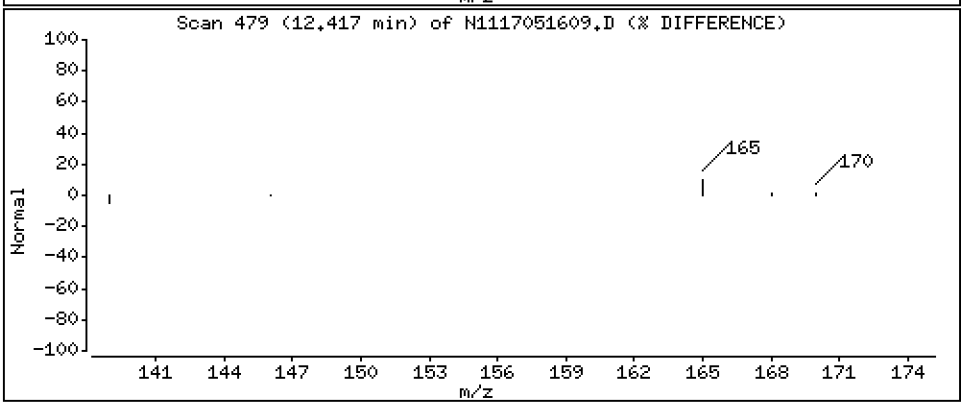












Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051609.D

Date : 16-MAY-2017 15:13

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-05

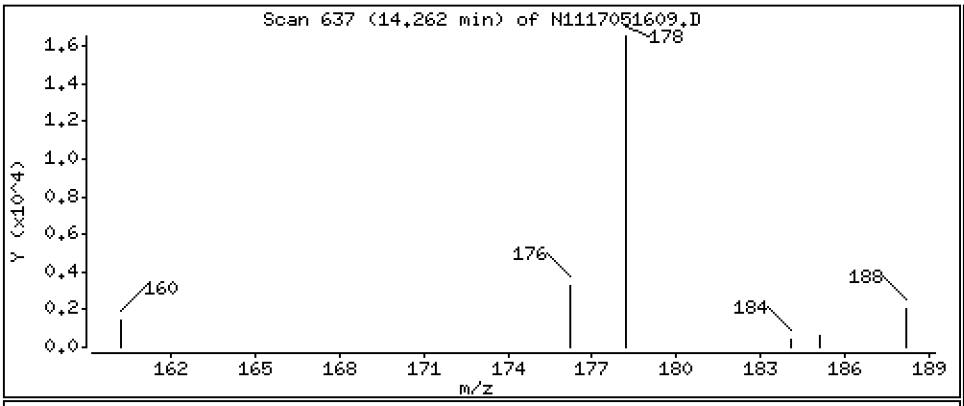
Operator: VTS

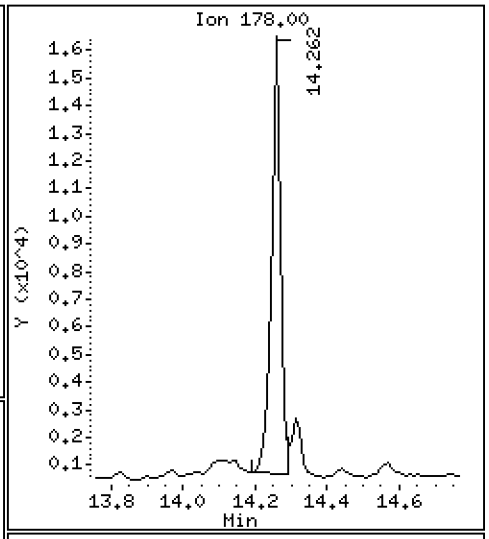
Column phase: Rxi-17Sil MS

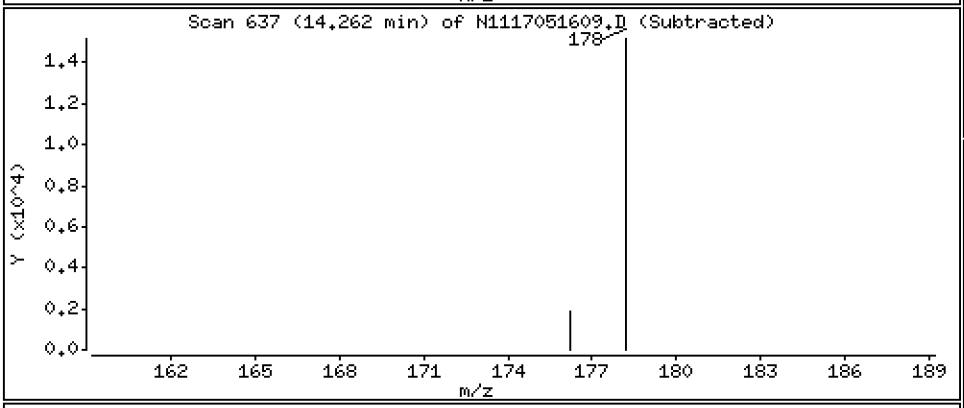
Column diameter: 0.25

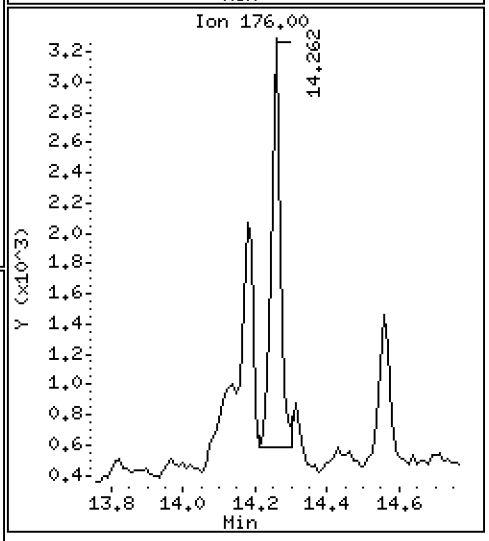
19 Phenanthrene

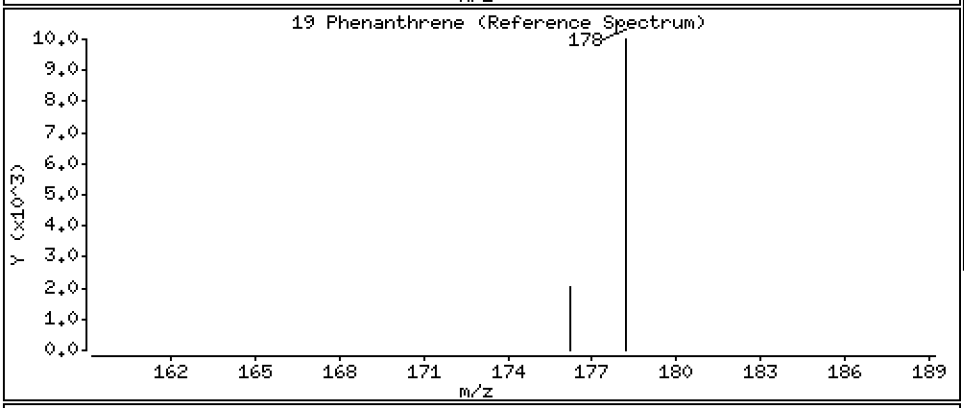
Concentration: 14.5 ng/mL

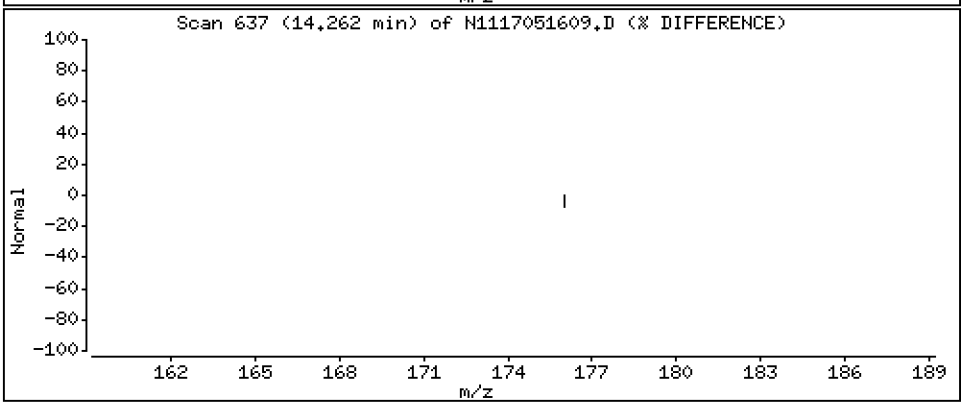












Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051609.D

Date : 16-MAY-2017 15:13

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-05

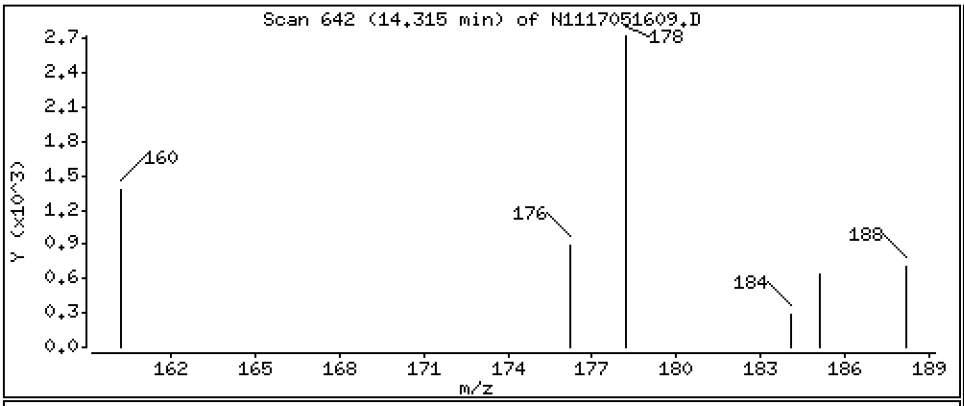
Operator: VTS

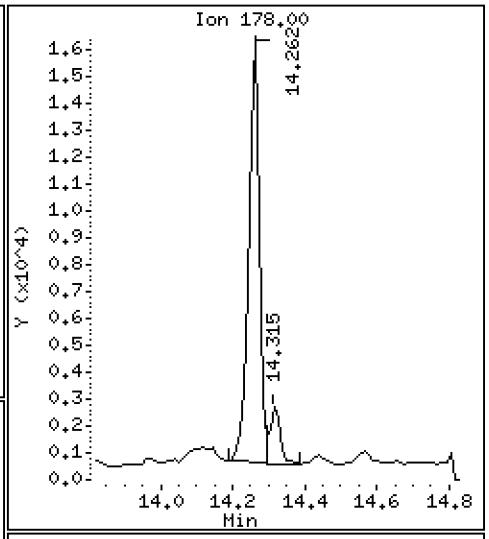
Column phase: Rxi-17Sil MS

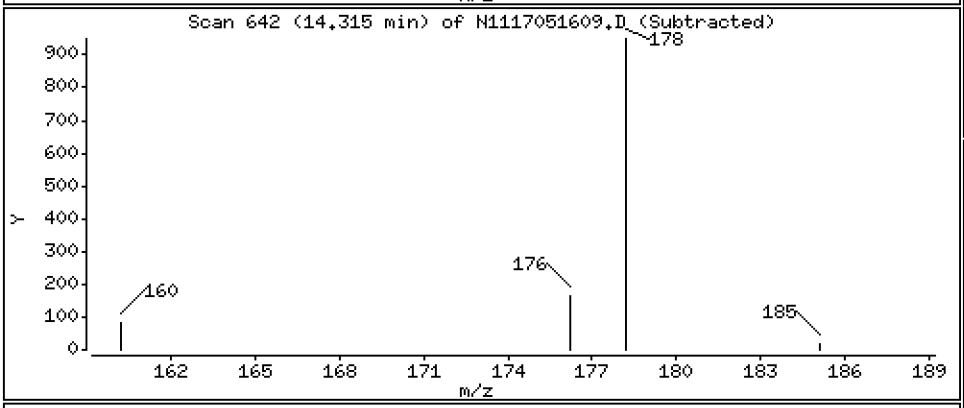
Column diameter: 0.25

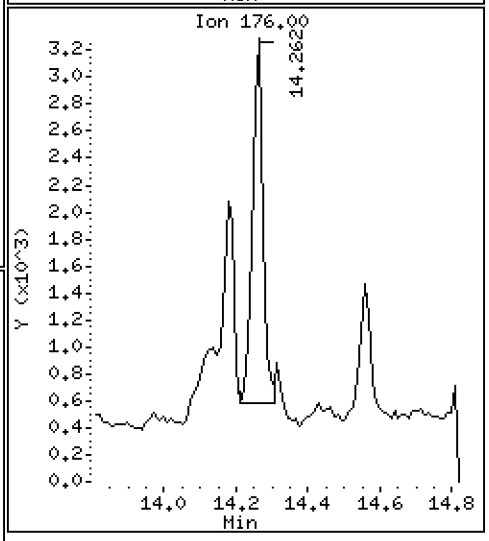
21 Anthracene

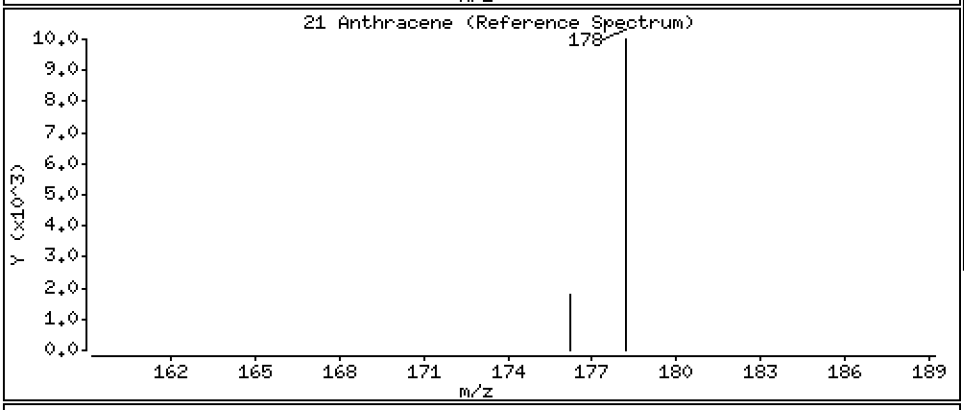
Concentration: 2.11 ng/mL

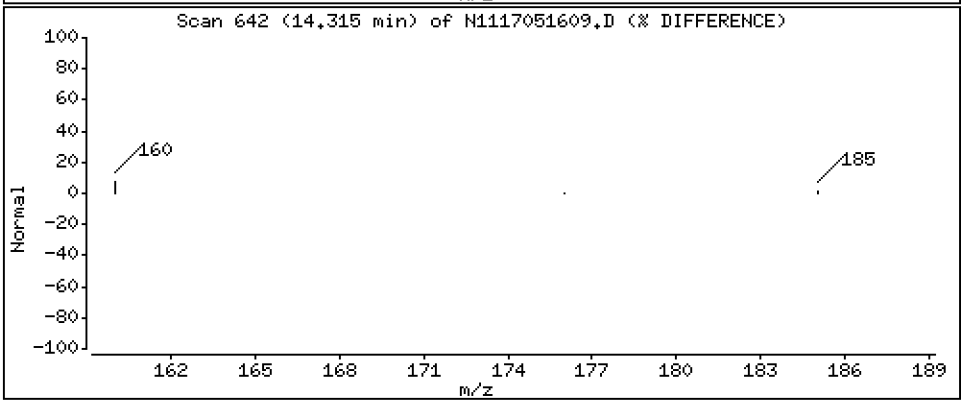












Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051609.D

Date : 16-MAY-2017 15:13

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-05

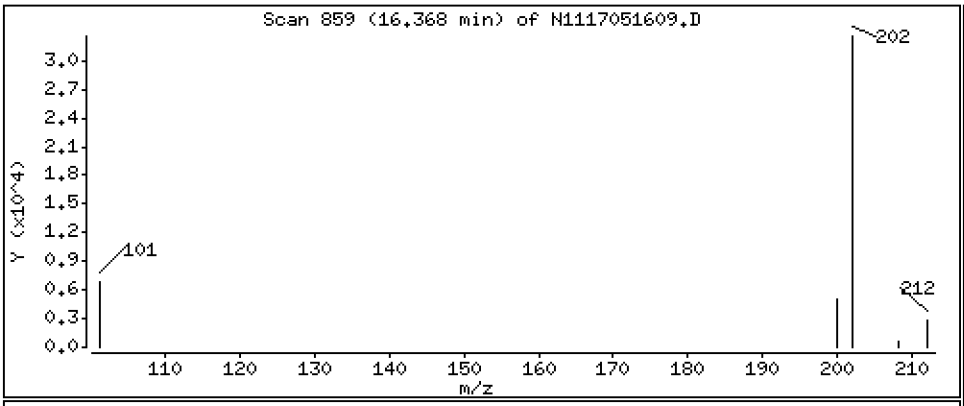
Operator: VTS

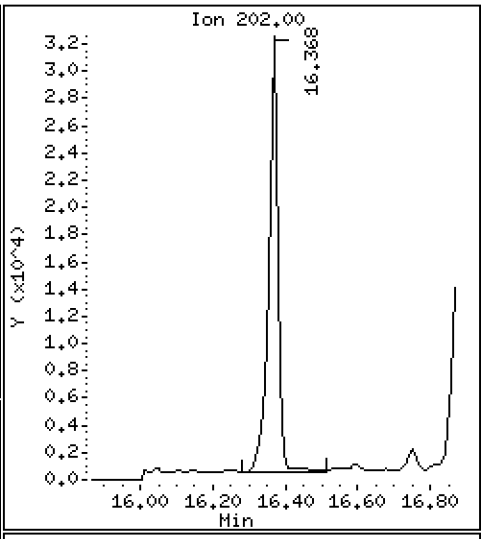
Column phase: Rxi-17Sil MS

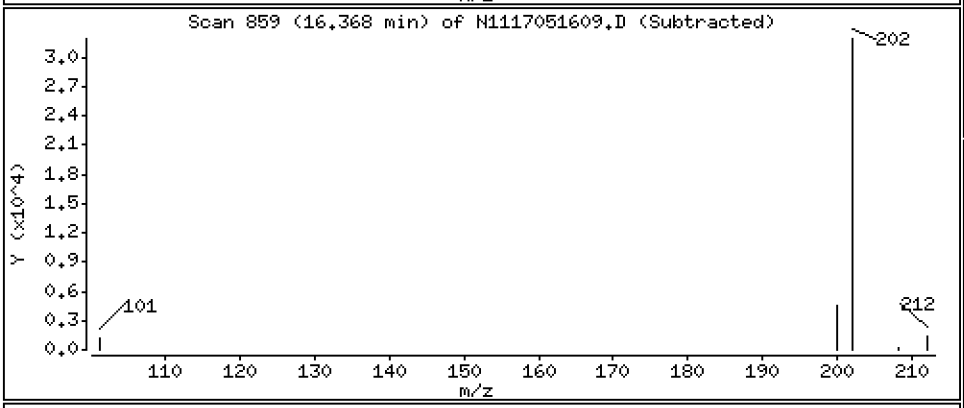
Column diameter: 0.25

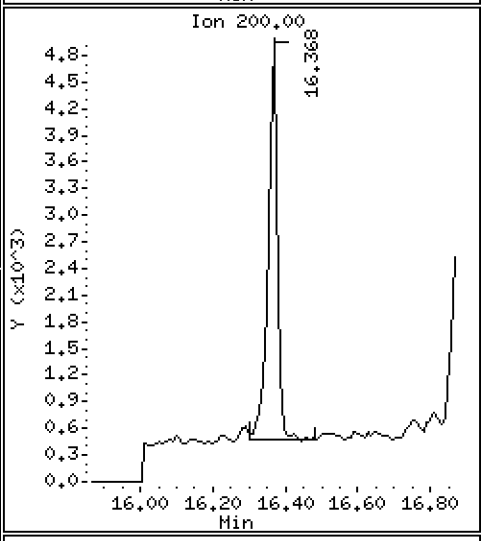
25 Fluoranthene

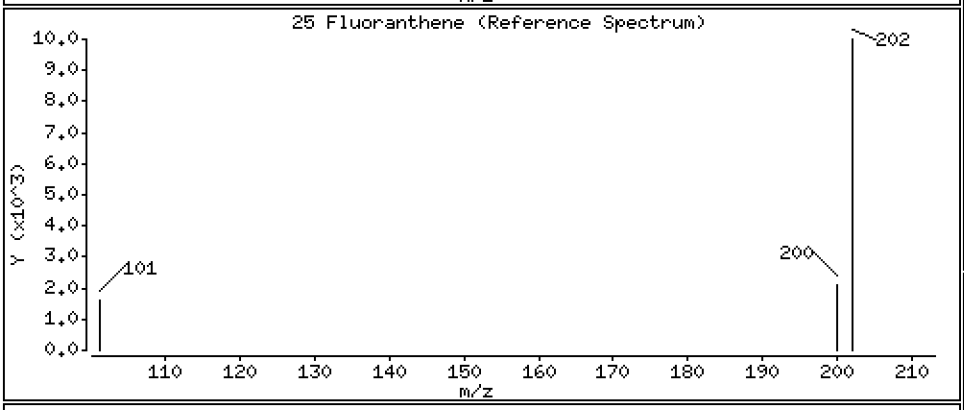
Concentration: 28.1 ng/mL

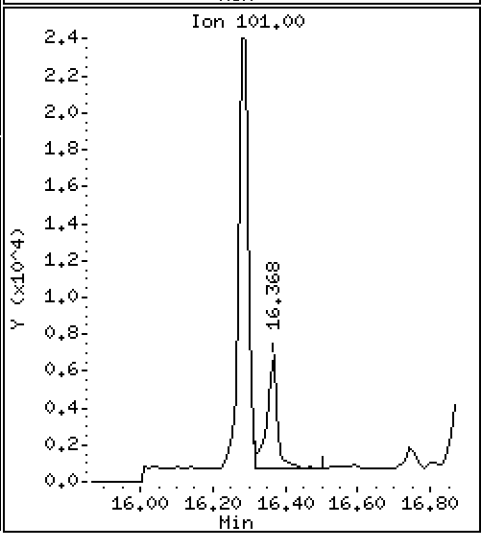


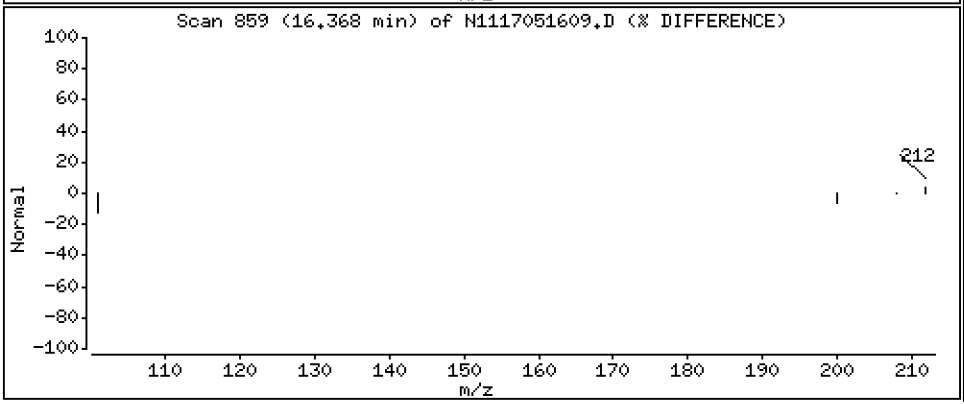












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Date : 16-MAY-2017 15:13

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-05

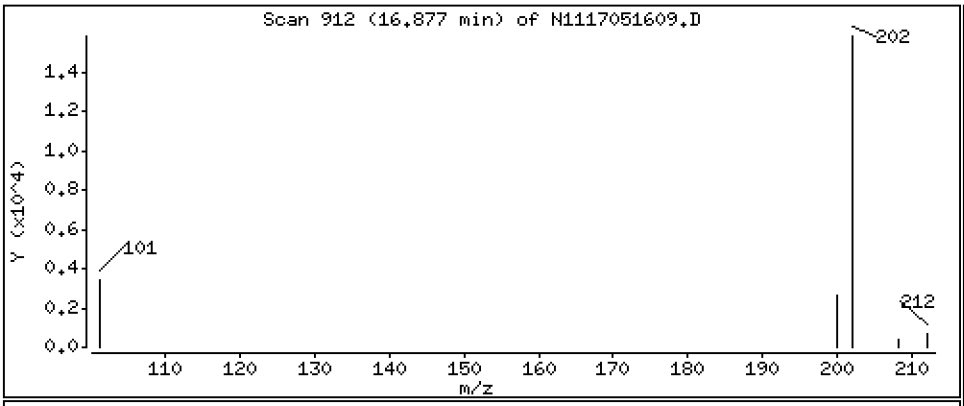
Operator: VTS

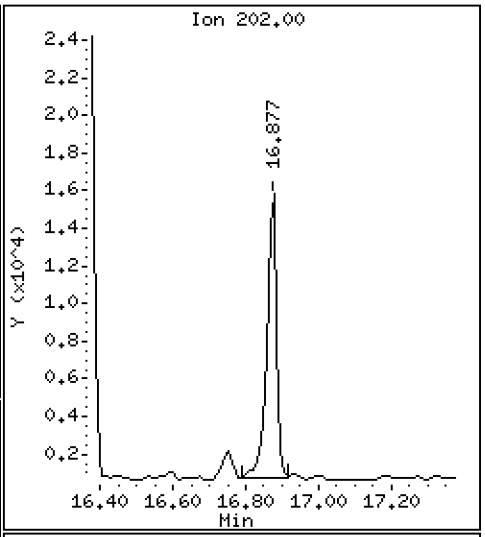
Column phase: Rxi-17Sil MS

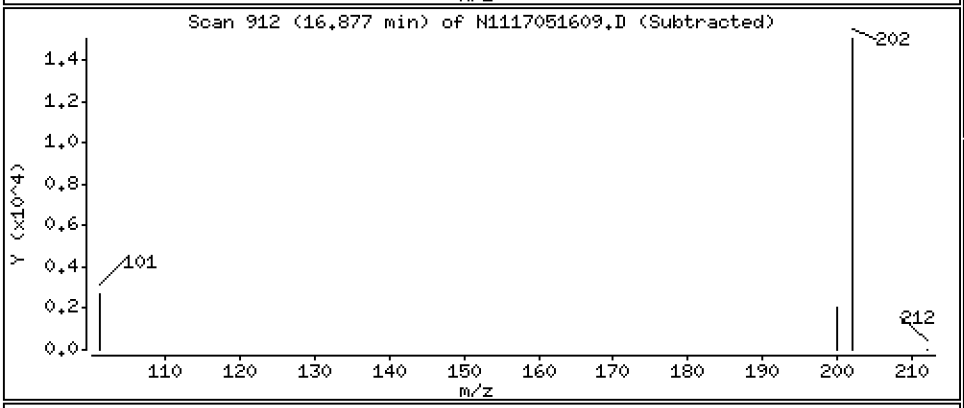
Column diameter: 0.25

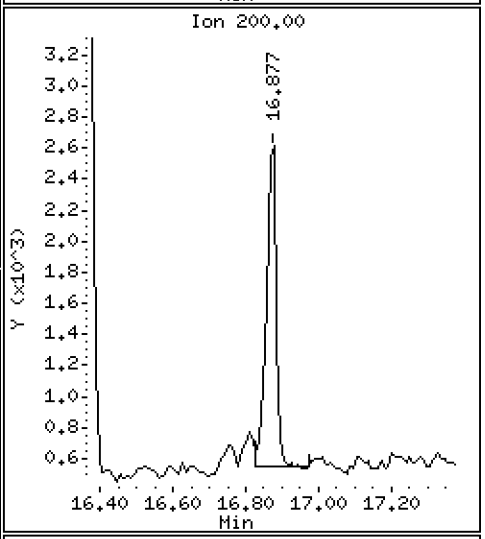
26 Pyrene

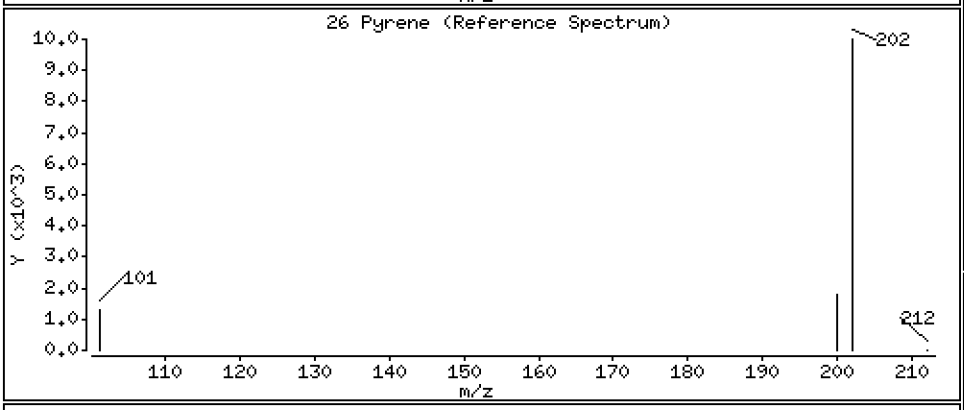
Concentration: 17.6 ng/mL

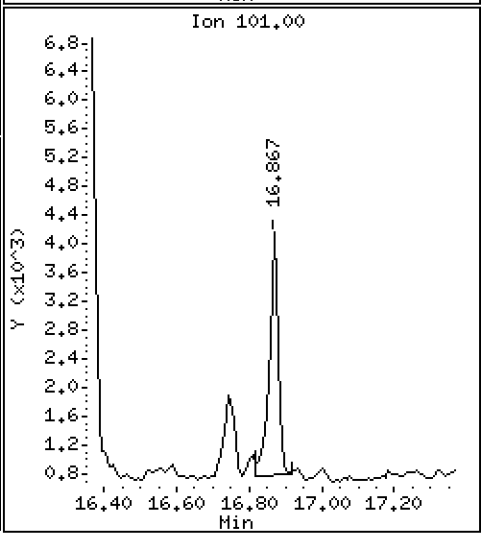


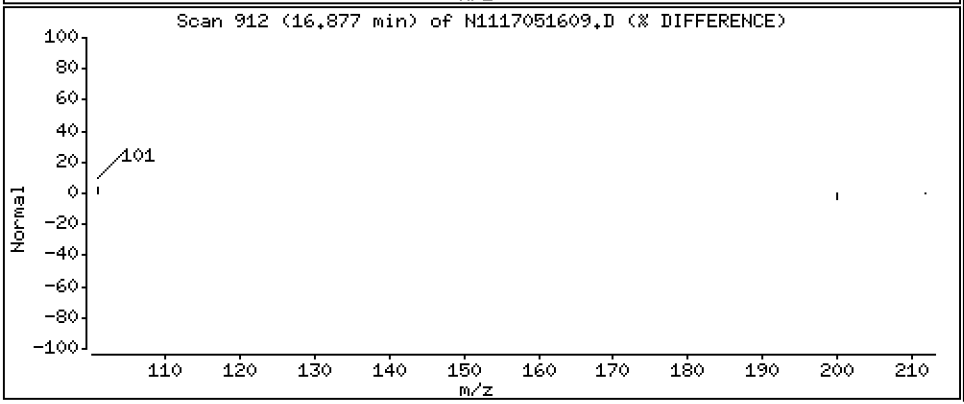












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Date : 16-MAY-2017 15:13

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-05

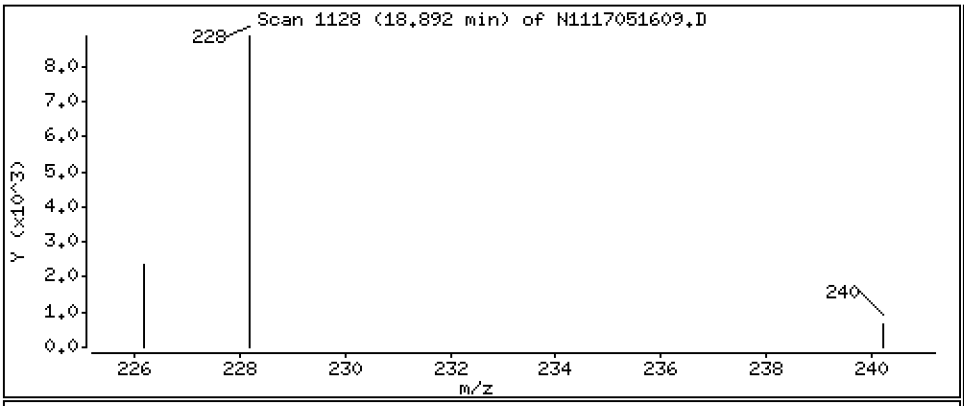
Operator: VTS

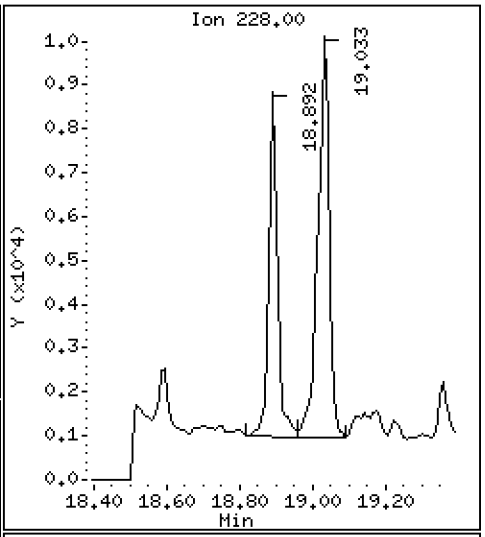
Column phase: Rxi-17Sil MS

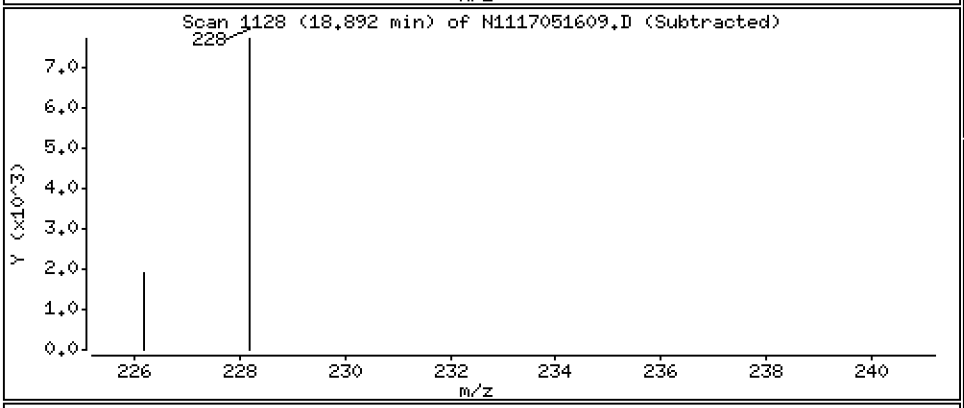
Column diameter: 0.25

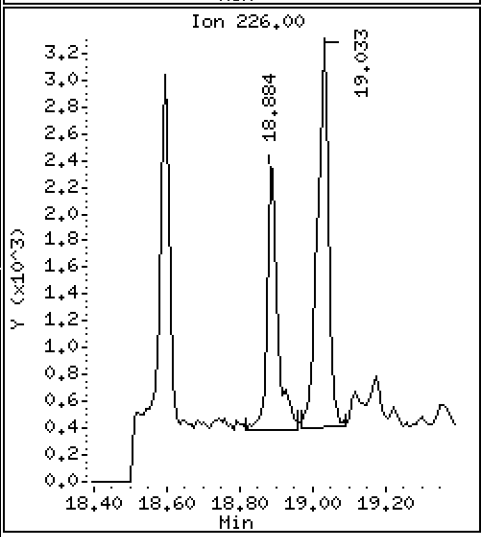
27 Benzo(a)anthracene

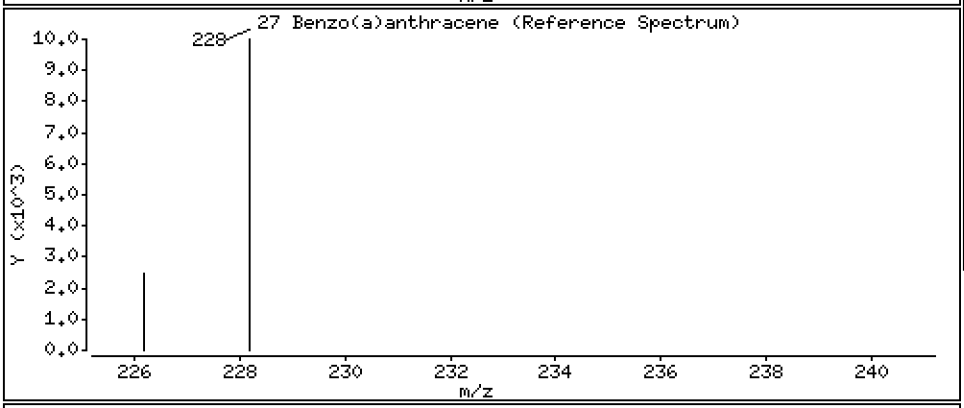
Concentration: 10.1 ng/mL

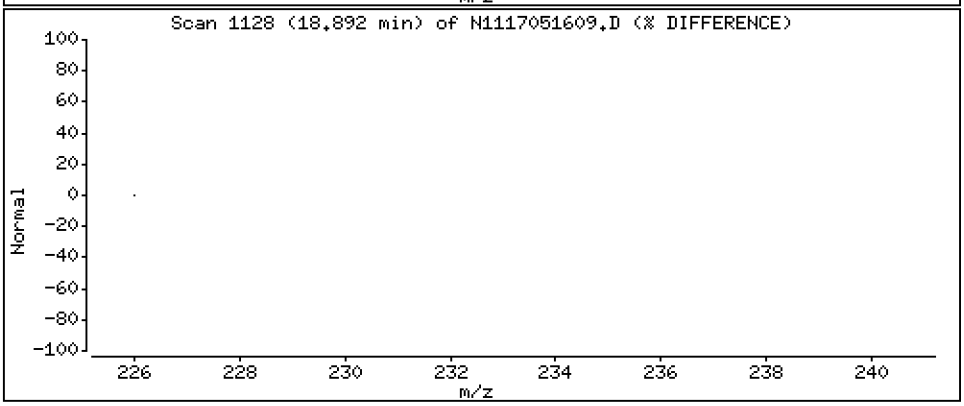












Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051609.D

Date : 16-MAY-2017 15:13

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-05

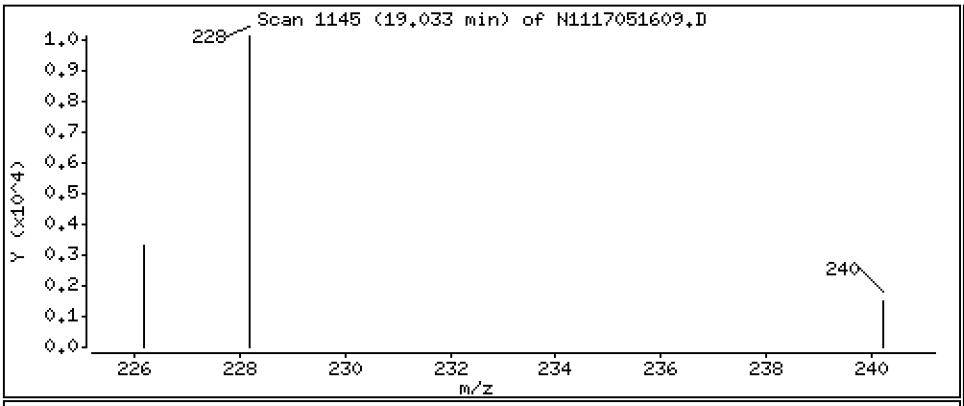
Operator: VTS

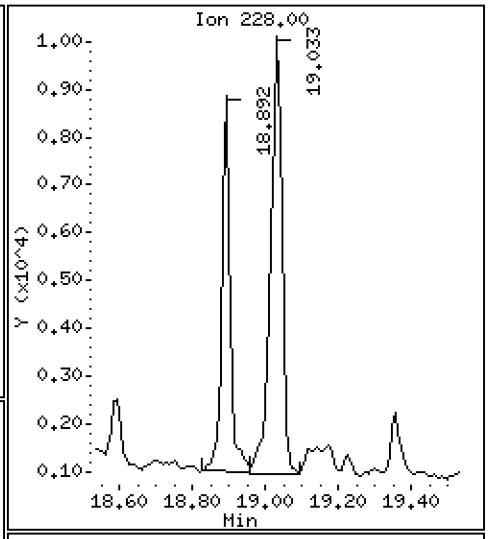
Column phase: Rxi-17Sil MS

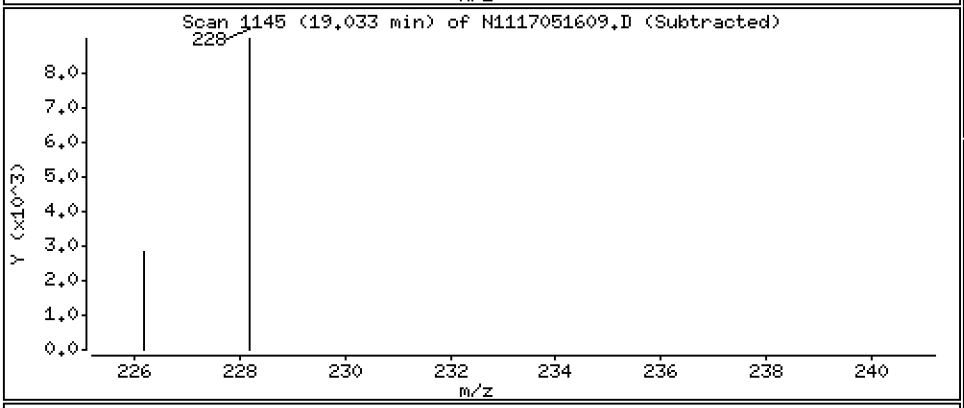
Column diameter: 0.25

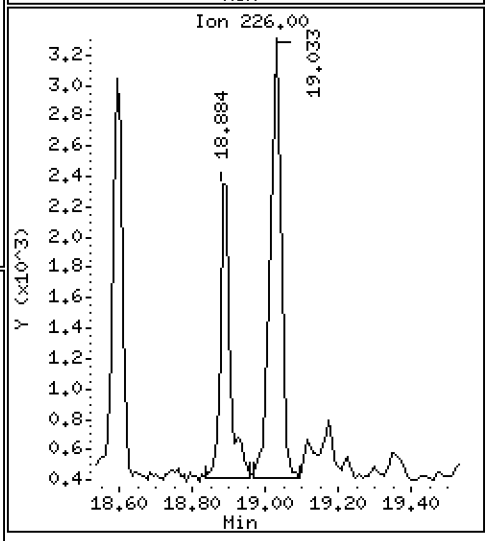
29 Chrysene

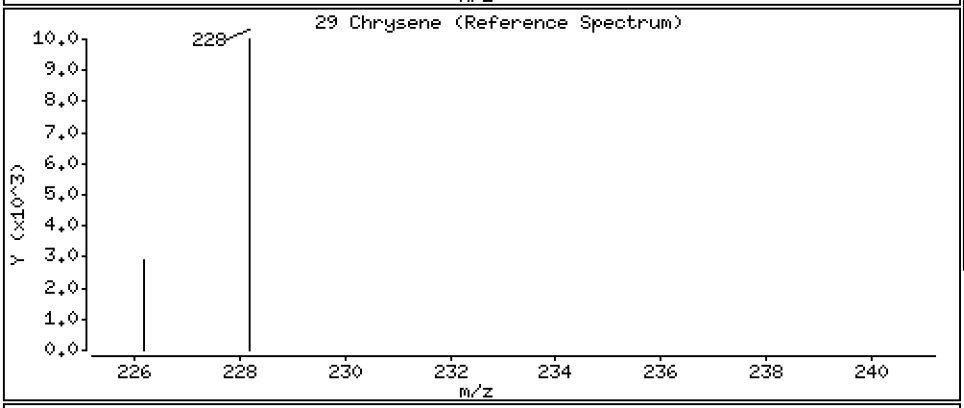
Concentration: 15.0 ng/mL

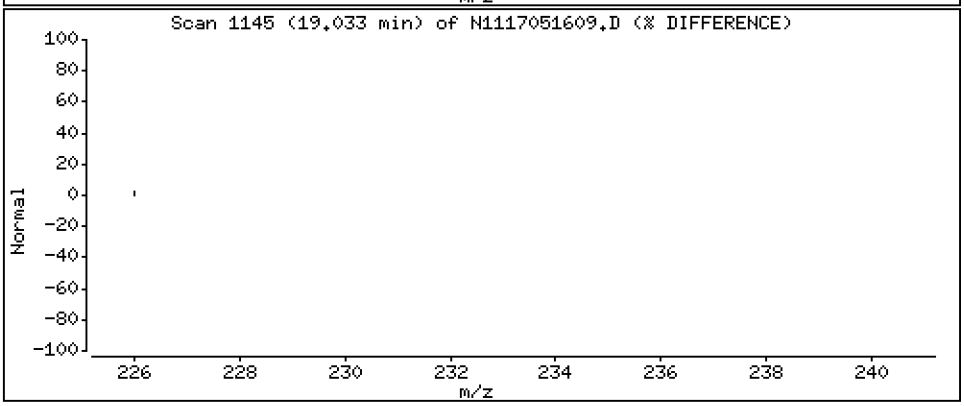












Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051609.D

Date : 16-MAY-2017 15:13

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-05

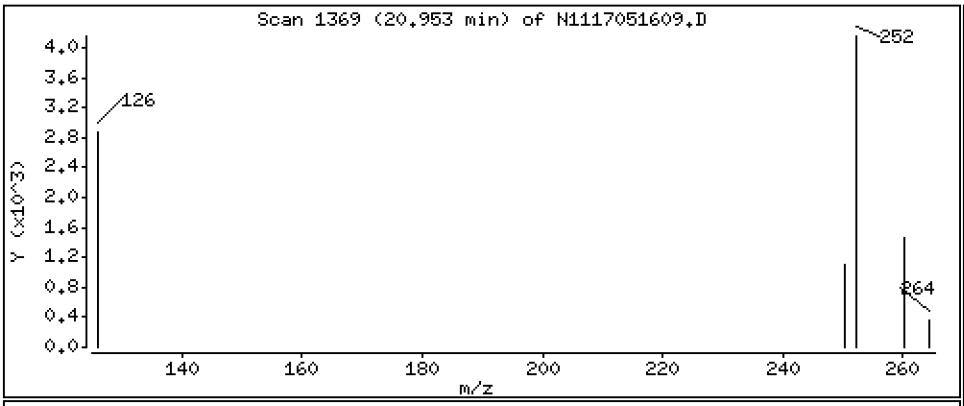
Operator: VTS

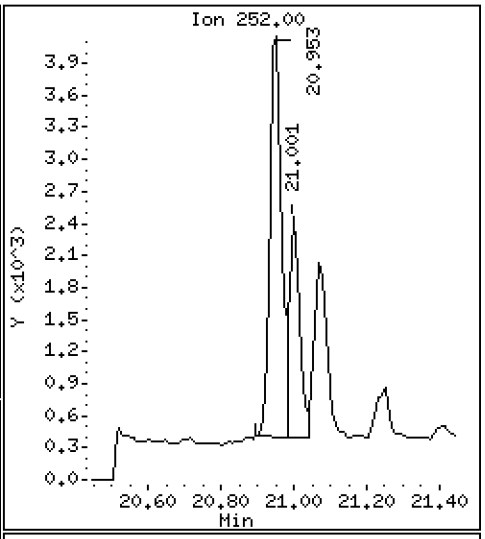
Column phase: Rxi-17Sil MS

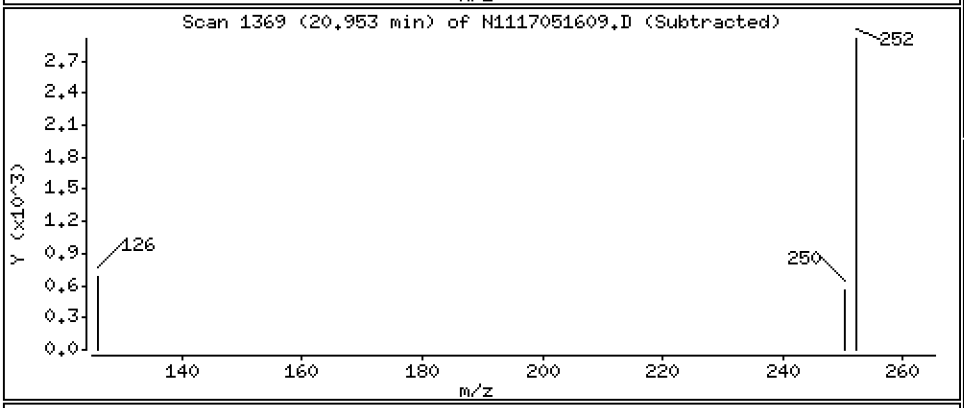
Column diameter: 0.25

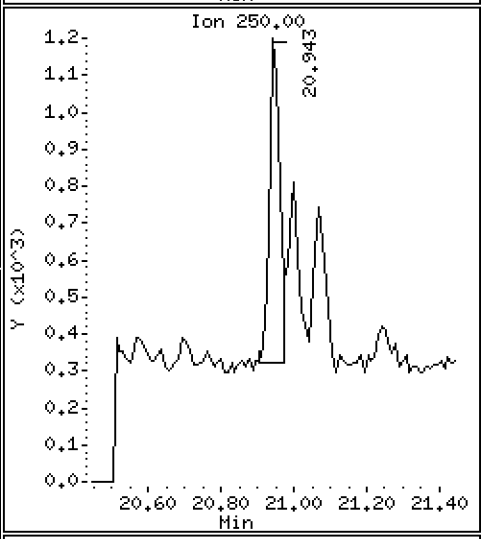
30 Benzo(b)fluoranthene

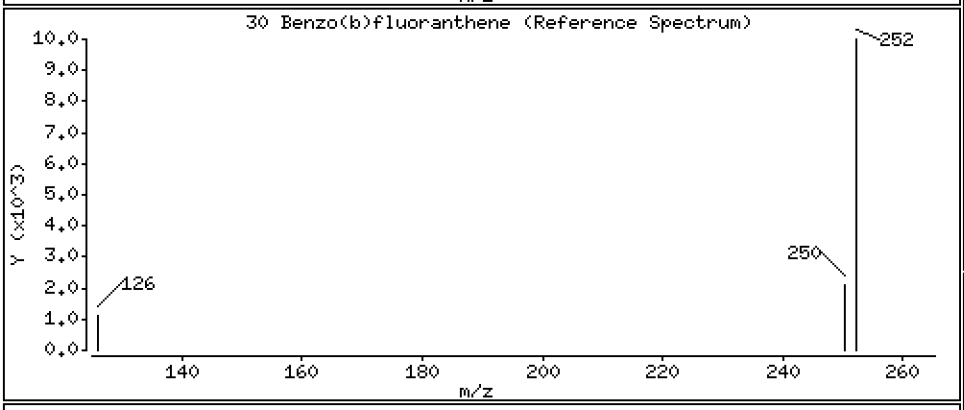
Concentration: 6.34 ng/mL

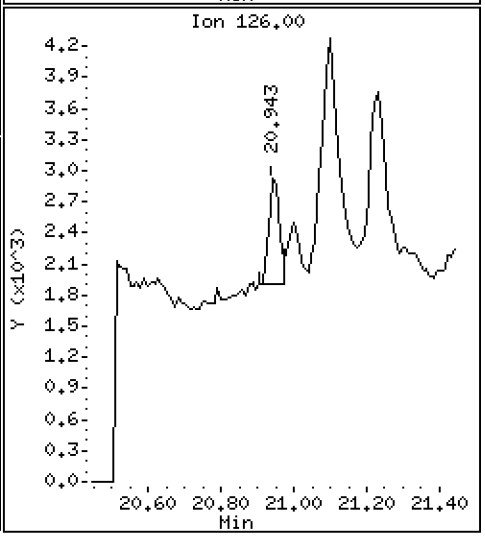


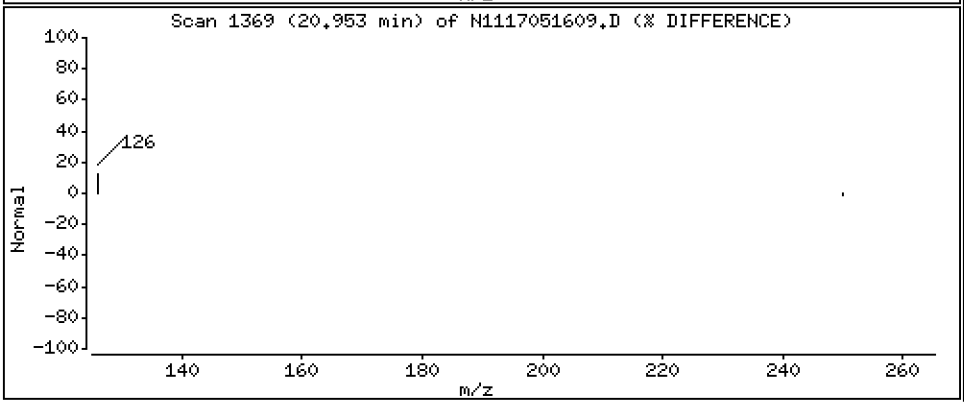












Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051609.D

Date : 16-MAY-2017 15:13

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-05

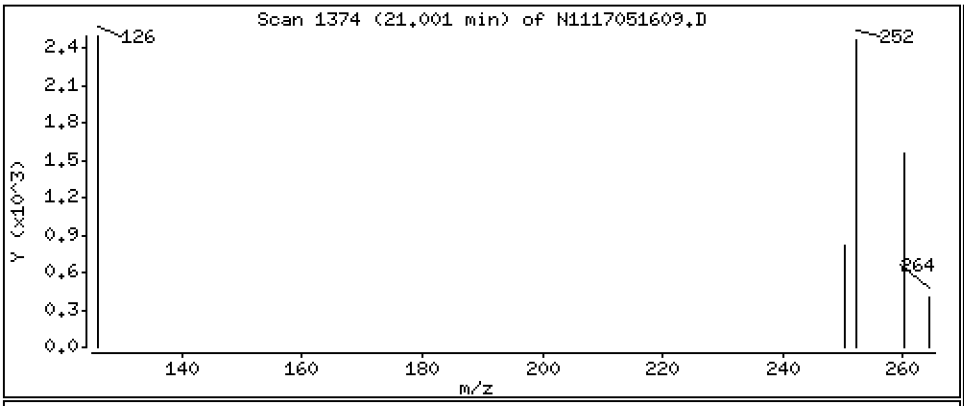
Operator: VTS

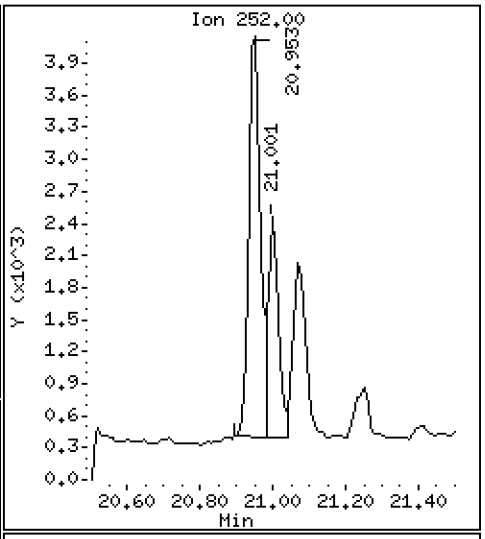
Column phase: Rxi-17Sil MS

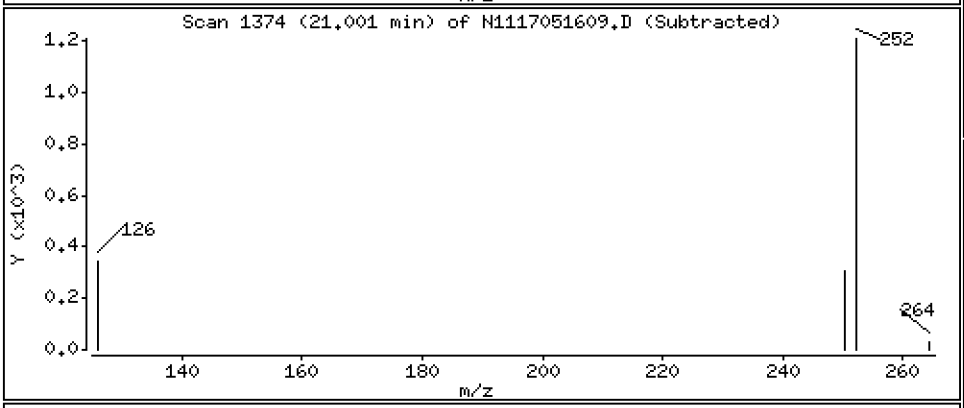
Column diameter: 0.25

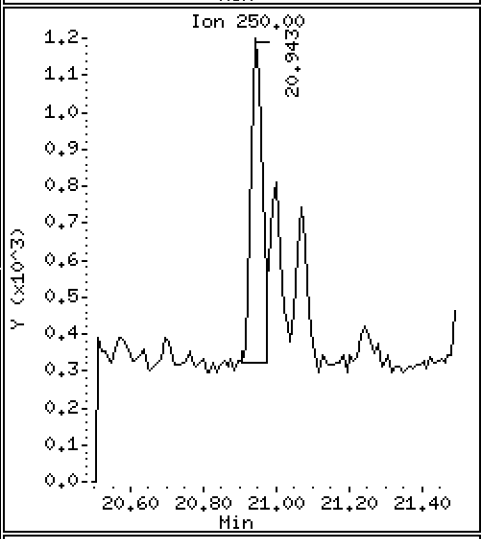
31 Benzo(k)fluoranthene

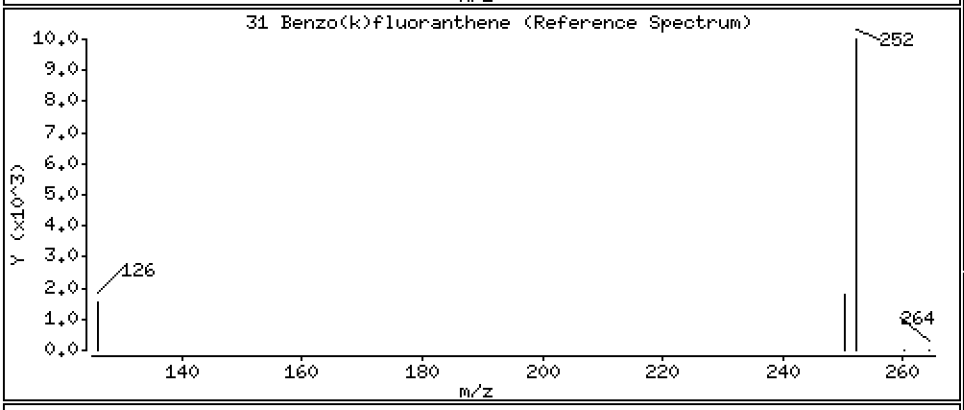
Concentration: 3.23 ng/mL

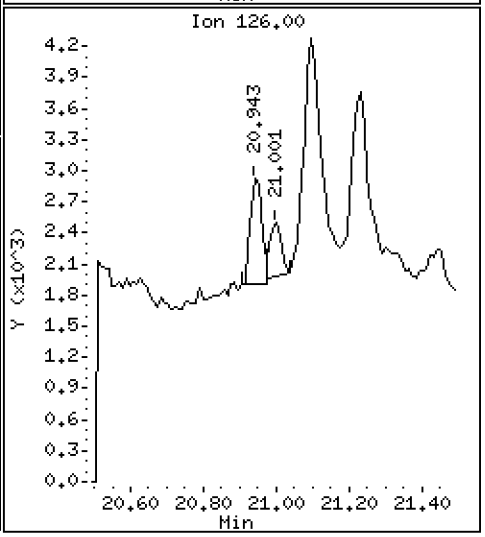


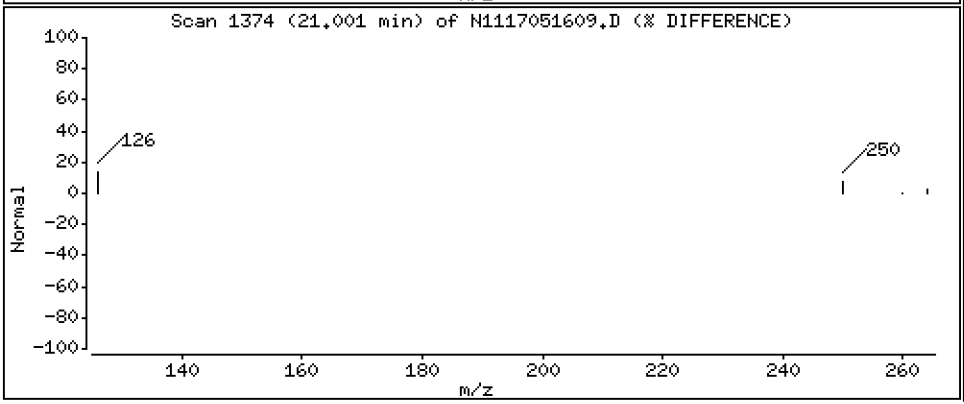












Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051609.D

Date : 16-MAY-2017 15:13

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-05

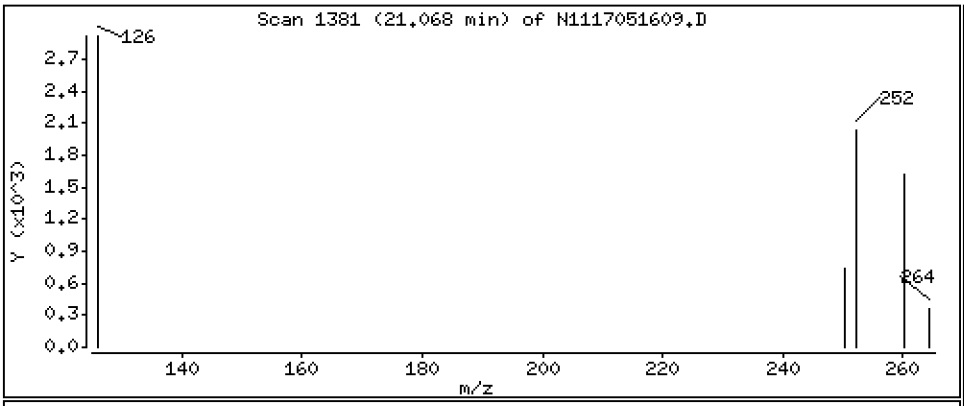
Operator: VTS

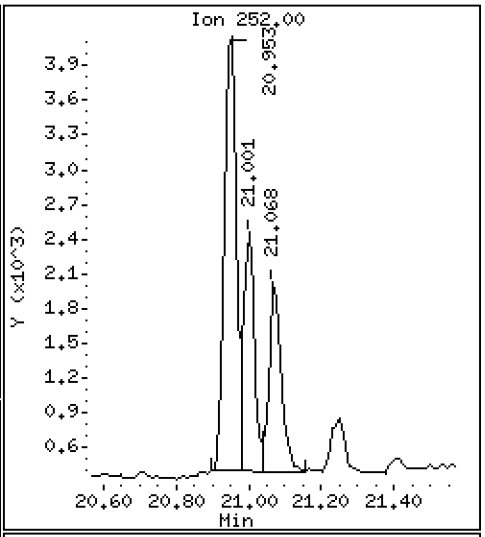
Column phase: Rxi-17Sil MS

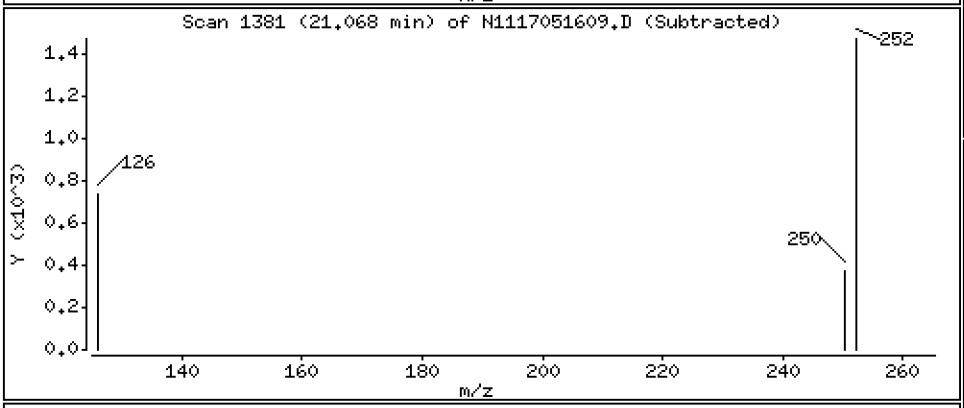
Column diameter: 0.25

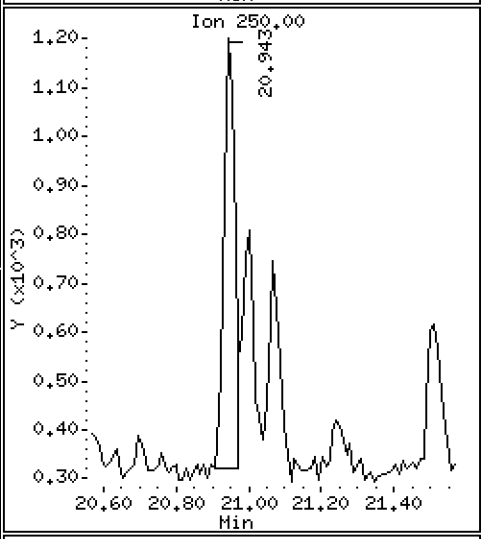
32 Benzo(j)fluoranthene

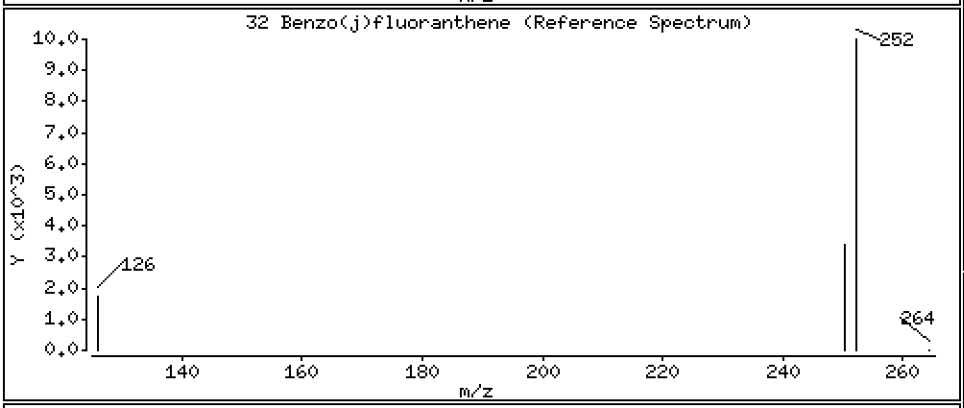
Concentration: 3.06 ng/mL

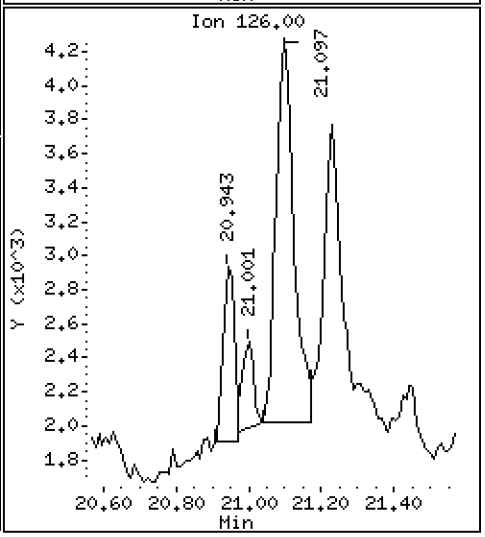


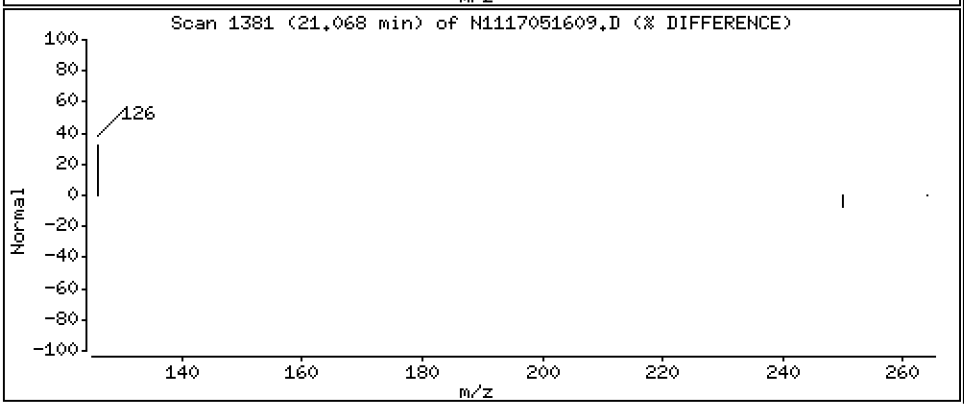












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Date : 16-MAY-2017 15:13

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-05

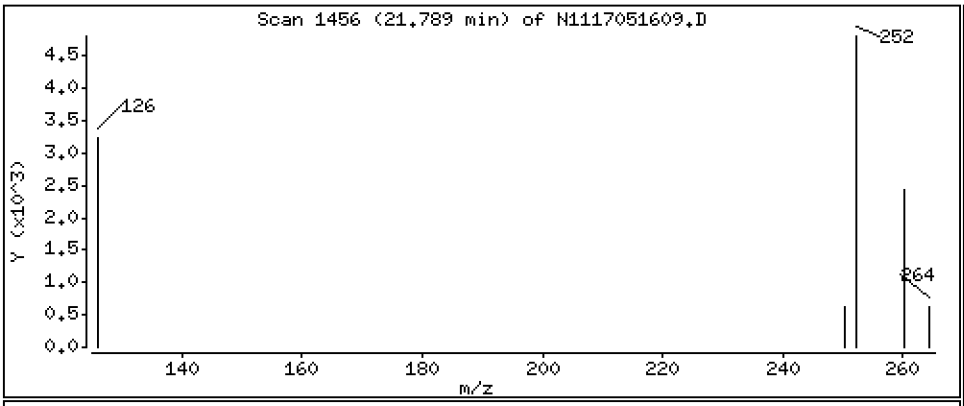
Operator: VTS

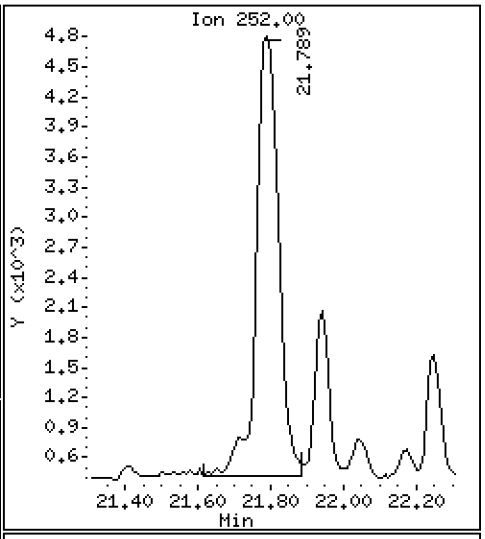
Column phase: Rxi-17Sil MS

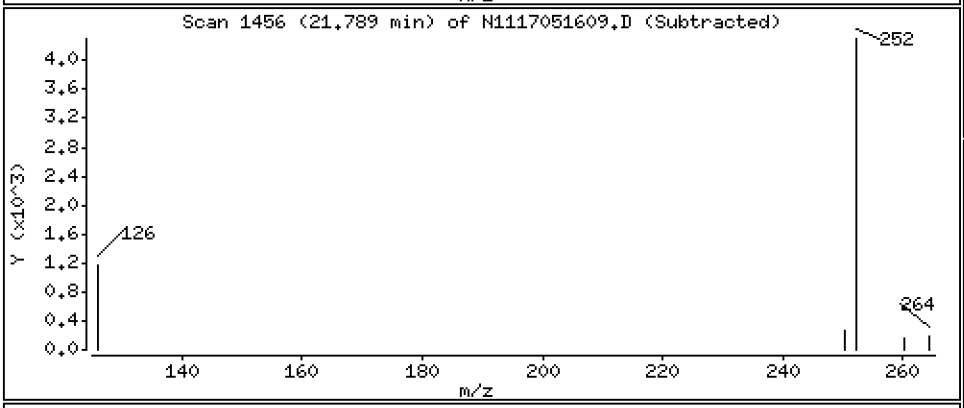
Column diameter: 0.25

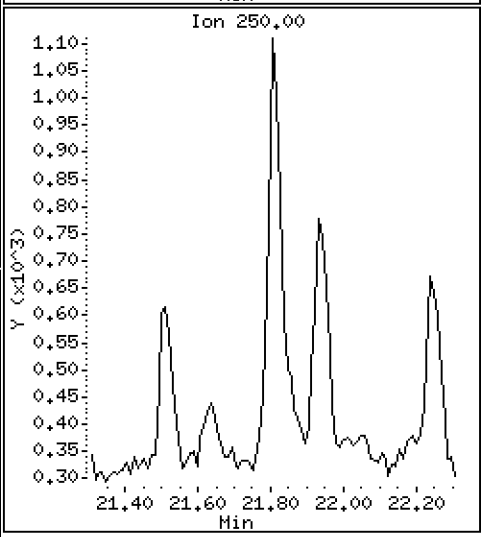
34 Benzo(e)pyrene

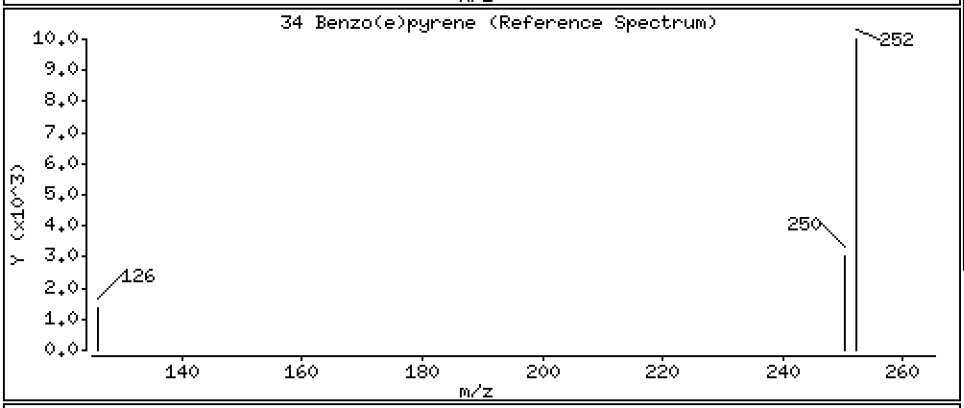
Concentration: 14.7 ng/mL

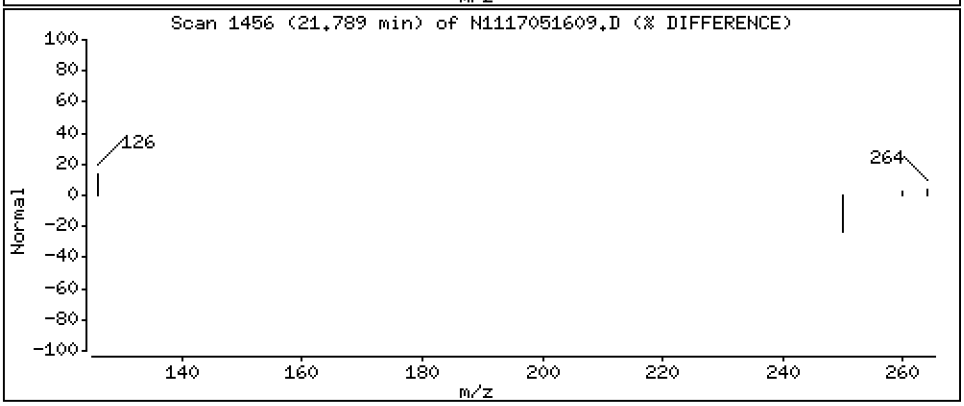












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Date : 16-MAY-2017 15:13

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-05

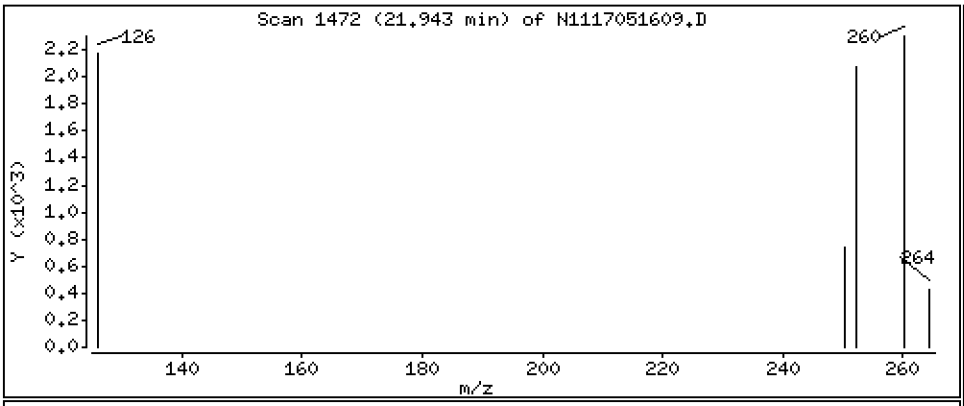
Operator: VTS

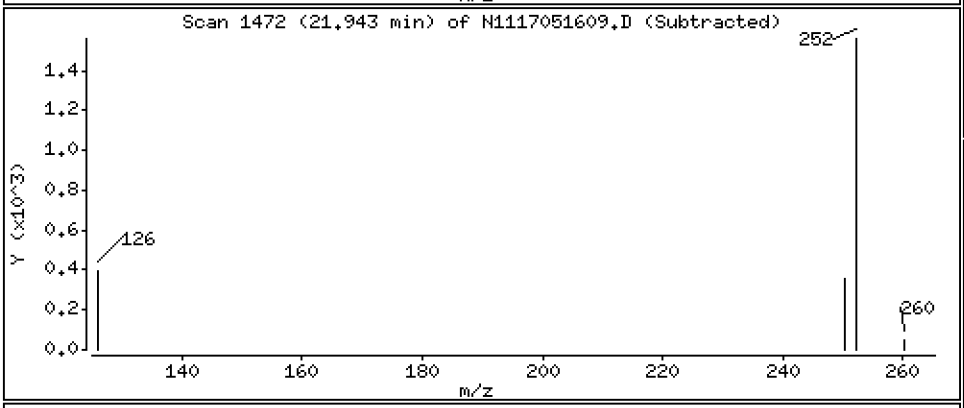
Column phase: Rxi-17Sil MS

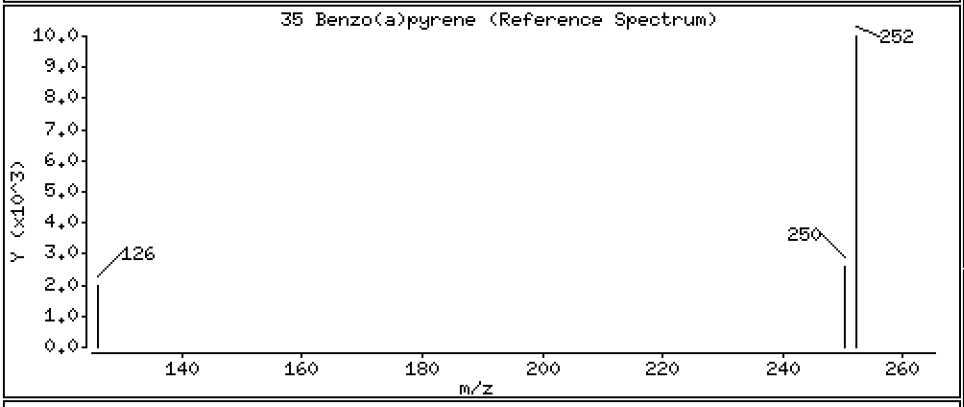
Column diameter: 0.25

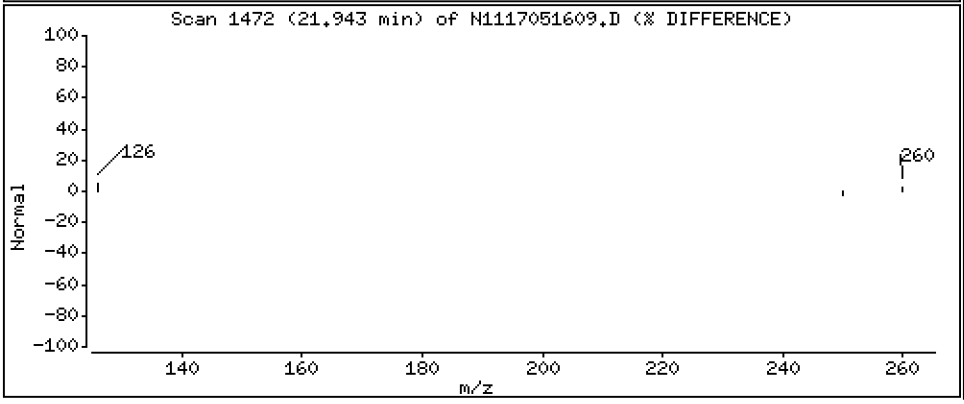
35 Benzo(a)pyrene

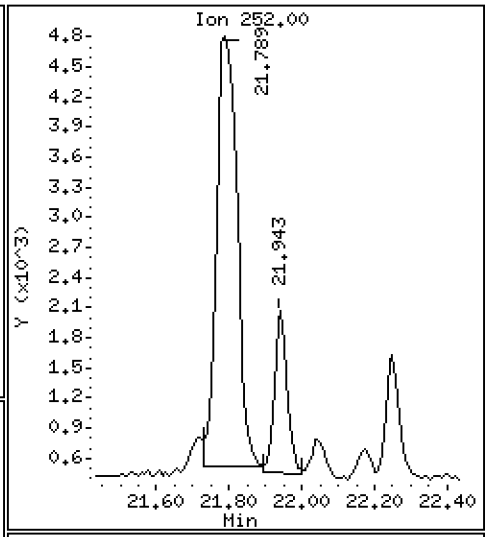
Concentration: 3.24 ng/mL

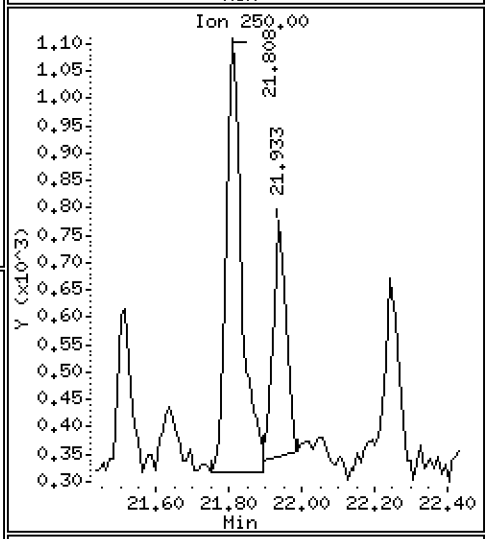


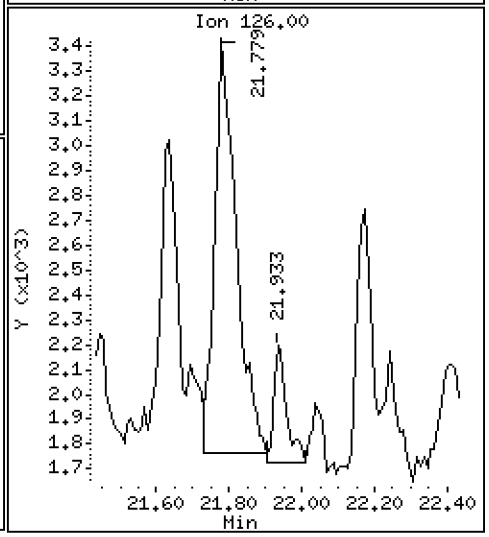












ARI Labs, Inc.

LOW LEVEL PNAs BY SW8270D-SIM

Data file : \\target\share\chem3\nt11.i\20170516.b\N1117051609.D
Lab Smp Id: 17D0421-05
Inj Date : 16-MAY-2017 15:13 MS Autotune Date: 15-JAN-2015 16:59
Operator : VTS Inst ID: nt11.i
Smp Info : 17D0421-05
Misc Info :
Comment   :
Method   : \\target\share\chem3\nt11.i\20170516.b\LOWSIM.m
Meth Date : 17-May-2017 08:15 nt11.i Quant Type: ISTD
Cal Date : 05-MAY-2017 14:47 Cal File: 17050508.D
Als bottle: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: allpna.sub
Target Version: 4.14
Processing Host: VANS

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ng/mL)	FINAL (ng/mL)
*	1 Naphthalene-d8	136	8.481	8.500	(1.000)	436733	200.000	
	2 Naphthalene	128	8.517	8.536	(1.004)	15950	6.79568	6.80
	3 Benzo(b)thiophene	134	Compound Not Detected.					
$	4 2-Methylnaphthalene-d10	152	9.466	9.477	(1.116)	327234	174.846	175
	5 2-Methylnaphthalene	142	9.529	9.540	(1.124)	15571	7.19257	7.19
	6 1-Methylnaphthalene	142	9.781	9.792	(1.153)	7461	3.56374	3.56
	7 2-Chloronaphthalene	162	Compound Not Detected.					
	8 Biphenyl	154	Compound Not Detected.					
	9 2,6-Dimethylnaphthalene	156	Compound Not Detected.					
	10 Acenaphthylene	152	Compound Not Detected.					
*	11 Acenaphthene-d10	164	11.519	11.528	(1.000)	183301	200.000	
	12 Acenaphthene	153	Compound Not Detected.					
	13 Dibenzofuran	168	Compound Not Detected.					
	14 2,3,5-Trimethylnaphthalene	170	Compound Not Detected.					
$	15 Fluorene-d10	174	Compound Not Detected.					
	16 Fluorene	166	12.416	12.429	(1.078)	7052	4.66525	4.67
	17 Dibenzothiophene	184	Compound Not Detected.					
*	18 Phenanthrene-d10	188	14.220	14.220	(1.000)	296284	200.000	
	19 Phenanthrene	178	14.262	14.262	(1.003)	32047	14.5302	14.5
$	20 Anthracene-d10	188	Compound Not Detected.					
	21 Anthracene	178	14.314	14.325	(1.007)	4582	2.10873	2.11
	22 Carbazole	167	Compound Not Detected.					
	23 1-Methylphenanthrene	192	Compound Not Detected.					
$	24 Fluoranthene-d10	212	16.338	16.338	(1.149)	311669	222.518	223
	25 Fluoranthene	202	16.367	16.367	(1.151)	59486	28.0654	28.1
	26 Pyrene	202	16.876	16.876	(0.889)	28648	17.5754	17.6
	27 Benzo(a)anthracene	228	18.892	18.892	(0.995)	12975	10.1200	10.1
*	28 Chrysene-d12	240	18.983	18.983	(1.000)	180048	200.000	
	29 Chrysene	228	19.033	19.033	(1.003)	19910	15.0466	15.0
	30 Benzo(b)fluoranthene	252	20.953	20.943	(0.945)	8816	6.34427	6.34
	31 Benzo(k)fluoranthene	252	21.001	21.001	(0.947)	4451	3.23105	3.23
	32 Benzo(j)fluoranthene	252	21.068	21.068	(0.950)	3949	3.05948	3.06
$	33 Benzo(e)pyrene-d12	264	Compound Not Detected.					

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ng/mL)	CONCENTRATIONS FINAL (ng/mL)
	34 Benzo(e)pyrene	252	21.789	21.808	(0.983)	18971	14.6860	14.7
	35 Benzo(a)pyrene	252	21.942	21.933	(0.990)	4074	3.24097	3.24
*	36 Perylene-d12	264	22.173	22.173	(1.000)	222382	200.000	
	37 Perylene	252	Compound Not Detected.					
$	38 Dibenzo(a,h)anthracene-d14	292	25.016	25.016	(1.128)	173590	209.263	209
	39 Dibenzo(a,h)anthracene	278	Compound Not Detected.					
	40 Indeno(1,2,3-cd)pyrene	276	Compound Not Detected.					
	41 Benzo(g,h,i)perylene	276	Compound Not Detected.					

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt11.i
Lab File ID: N1117051609.D
Lab Smp Id: 17D0421-05
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: \\target\share\chem3\nt11.i\20170516.b\LOWSIM.m
Misc Info:

Calibration Date: 16-MAY-2017
Calibration Time: 10:47
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	371325	185663	742650	436733	17.61
11 Acenaphthene-d10	154428	77214	308856	183301	18.70
18 Phenanthrene-d10	256956	128478	513912	296284	15.31
28 Chrysene-d12	208629	104315	417258	180048	-13.70
36 Perylene-d12	225431	112716	450862	222382	-1.35

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	8.50	8.00	9.00	8.48	-0.21
11 Acenaphthene-d10	11.53	11.03	12.03	11.52	-0.08
18 Phenanthrene-d10	14.22	13.72	14.72	14.22	-0.00
28 Chrysene-d12	18.98	18.48	19.48	18.98	-0.00
36 Perylene-d12	22.17	21.67	22.67	22.17	-0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N1117051609.D

Lab ID: 17D0421-05
nt11.i, 20170516.b\LOWSIM.m,   16-MAY-2017 15:13

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

On Column LOD for nt11.i, 20170516.b\LOWSIM.m, allpna.sub = 3.0000

Exception: Naphthalene 6.0000
Exception: Phenanthrene 2.5000
Exception: Anthracene 2.0000
Exception: Pyrene 4.0000
Exception: Benzo(j)fluoranthene 2.5000
Exception: Benzo(a)pyrene 2.0000
Exception: Perylene 3.5000
Exception: Benzo(e)pyrene 2.0000
Exception: Benzo(b)thiophene 2.0000
Exception: 2-Chloronaphthalene 2.0000
Exception: 2,6-Dimethylnaphthalene 2.0000
Exception: 2,3,5-Trimethylnaphthalene 2.0000
Exception: 1-Methylphenanthrene 2.0000
Exception: Dibenzothiophene 2.0000
Exception: Carbazole 2.0000
Exception: Biphenyl 2.0000
Exception: 2-Methylnaphthalene-d10 (Surr) 0.1000
Exception: Dibenzo(a,h)anthracene-d14 (Surr) 0.1000
Exception: Fluoranthene-d10 (Surr) 0.1000
Exception: Anthracene-d10 (Surr) 0.1000
Exception: Benzo(e)pyrene-d12 (Surr) 0.1000
Exception: Fluorene-d10 (Surr) 0.1000

PG-WS-LTN-COC-170424

Form I

ORGANIC ANALYSIS DATA SHEET

EPA 8270D-SIM

Polynuclear Aromatic Hydrocarbons - low level

Laboratory:	Analytical Resources, Inc.			SDG:	17D0421
Client:	Anchor QEA, LLC			Project:	Port Gamble Shellfish Monitoring
Matrix:	Tissue	Laboratory ID:	17D0421-06	File ID:	N1117051610.D
Sampled:	04/24/17 12:00	Prepared:	05/09/17 13:50	Analyzed:	05/16/17 15:49
Solids:		Preparation:	EPA 3550C-Mod (Ultrasonic	Initial/Final:	10.06 g / 0.5 mL
Batch:	BFE0160	Sequence:	SFE0208	Calibration:	AE00020
Instrument:	NT11	Column:	RXi-17Sil-MS		

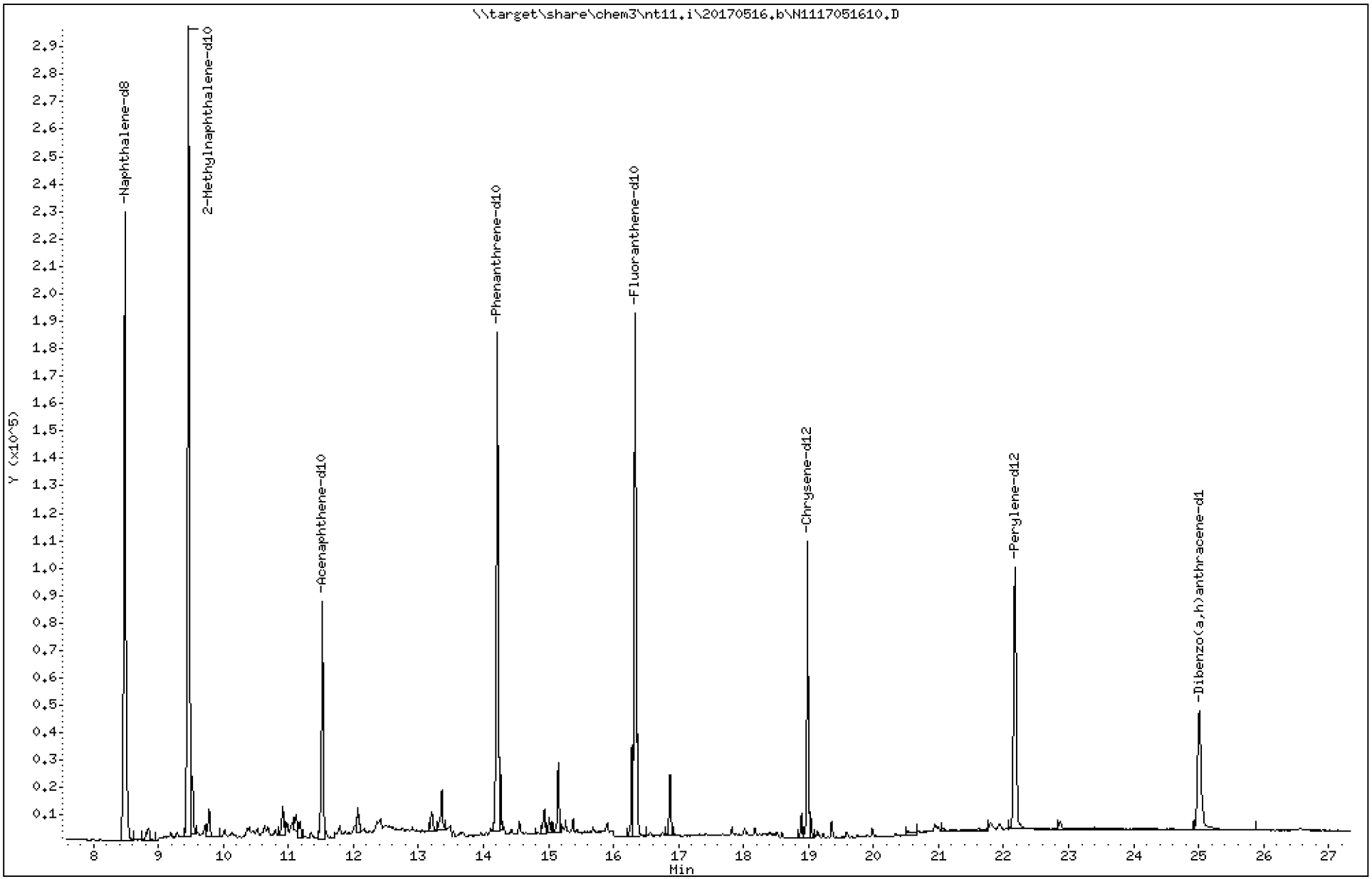
CAS NO.	COMPOUND	DILUTION	CONC. (ug/kg)	Q	DL	RL
91-20-3	Naphthalene	1	0.60	U	0.50	0.60
91-57-6	2-Methylnaphthalene	1	0.50	U	0.50	0.50
208-96-8	Acenaphthylene	1	0.50	U	0.50	0.50
83-32-9	Acenaphthene	1	0.50	U	0.50	0.50
86-73-7	Fluorene	1	0.50	U	0.50	0.50
85-01-8	Phenanthrene	1	0.97		0.50	0.50
120-12-7	Anthracene	1	0.50	U	0.50	0.50
206-44-0	Fluoranthene	1	1.07		0.50	0.50
129-00-0	Pyrene	1	1.00		0.50	0.50
56-55-3	Benzo(a)anthracene	1	0.50		0.50	0.50
218-01-9	Chrysene	1	0.50		0.50	0.50
205-99-2	Benzo(b)fluoranthene	1	0.50	U	0.50	0.50
207-08-9	Benzo(k)fluoranthene	1	0.50	U	0.50	0.50
50-32-8	Benzo(a)pyrene	1	0.50	U	0.50	0.50
193-39-5	Indeno(1,2,3-cd)pyrene	1	0.50	U	0.50	0.50
53-70-3	Dibenzo(a,h)anthracene	1	0.50	U	0.50	0.50
191-24-2	Benzo(g,h,i)perylene	1	0.50	U	0.50	0.50
1985-5-0	Perylene	1	0.50	U	0.50	0.50
197-97-2	Benzo(e)pyrene	1	0.50	U	0.50	0.50

SURROGATES	ADDED (ug/kg)	CONC (ug/kg)	% REC	QC LIMITS	Q
2-Methylnaphthalene-d10	14.911	8.09	54.2	30 - 160	
Dibenzo[a,h]anthracene-d14	14.911	11.1	74.4	30 - 160	
Fluoranthene-d10	14.911	10.7	72.0	30 - 160	

Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051610.D
Date : 16-MAY-2017 15:49
Client ID:
Sample Info: 17D0421-06

Instrument: nt11.i
Operator: VTS
Column diameter: 0.25

Column phase: Rxi-17Sil MS



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Date : 16-MAY-2017 15:49

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-06

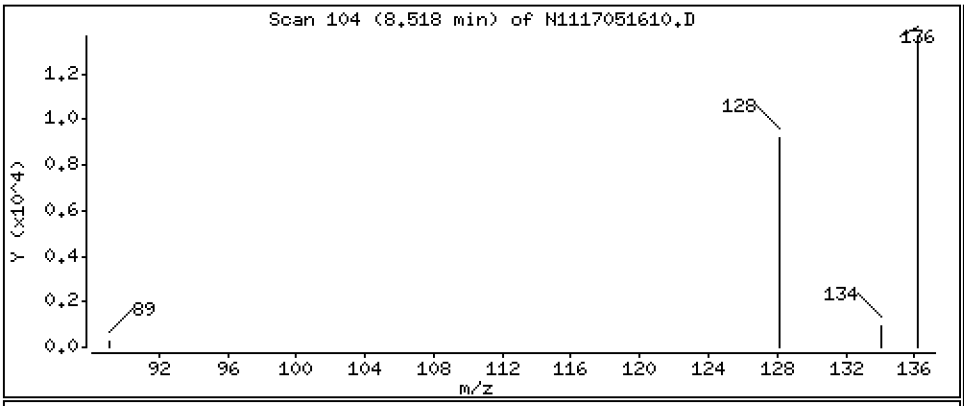
Operator: VTS

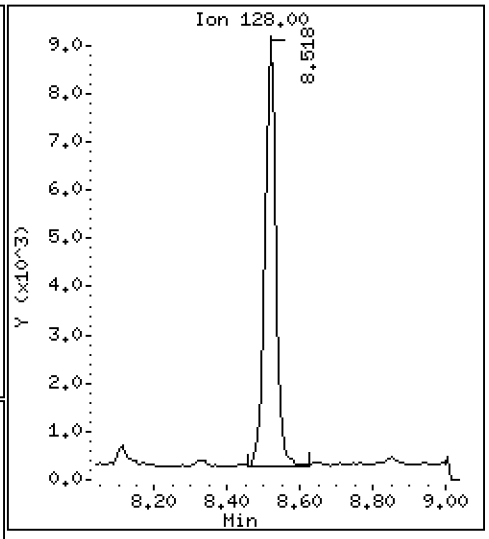
Column phase: Rxi-17Sil MS

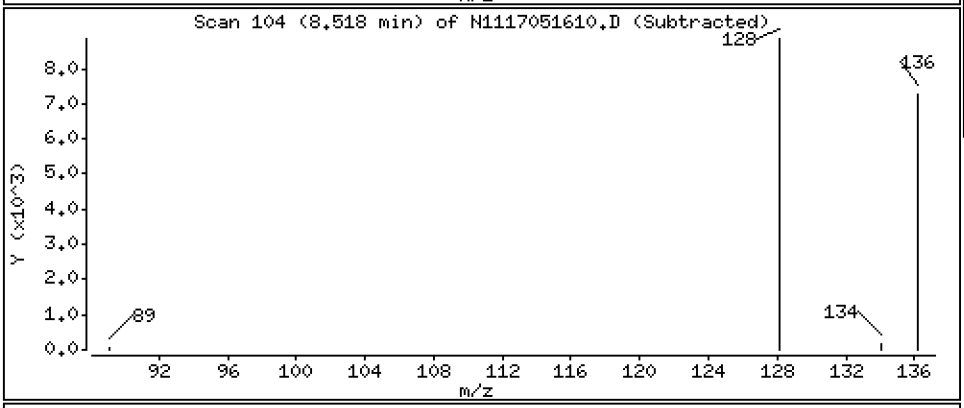
Column diameter: 0.25

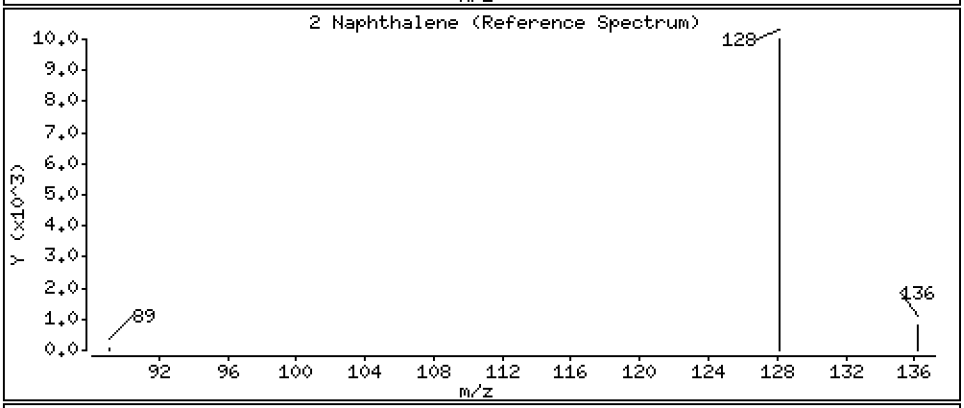
2 Naphthalene

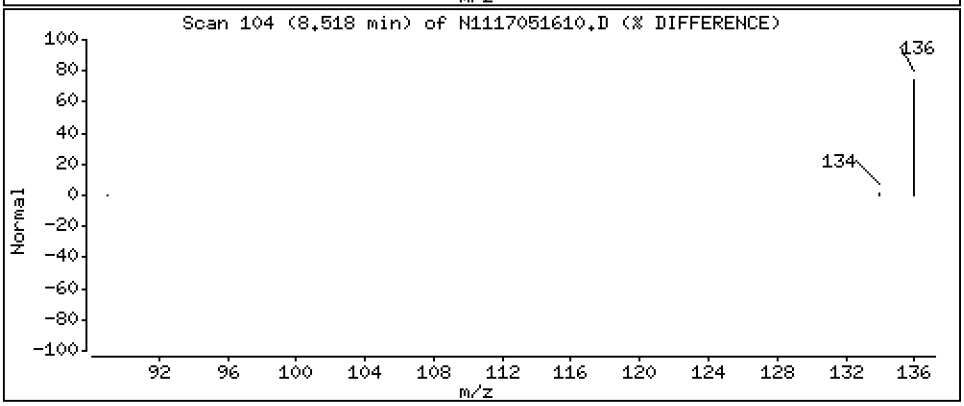
Concentration: 7.59 ng/mL











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Date : 16-MAY-2017 15:49

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-06

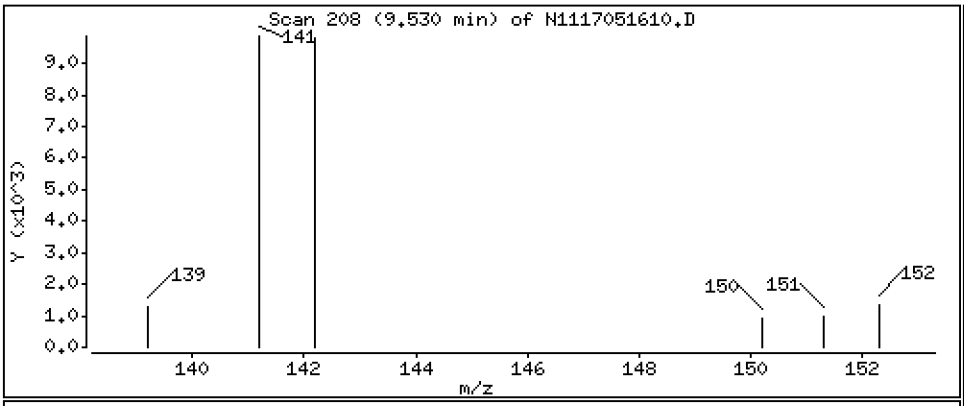
Operator: VTS

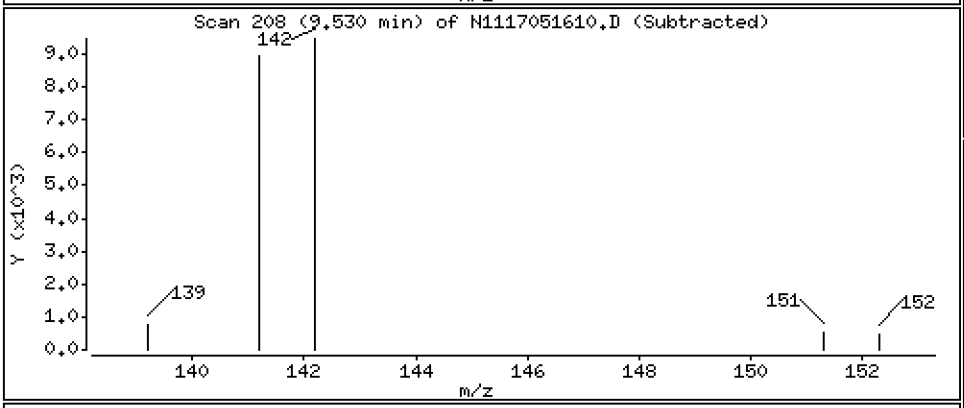
Column phase: Rxi-17Sil MS

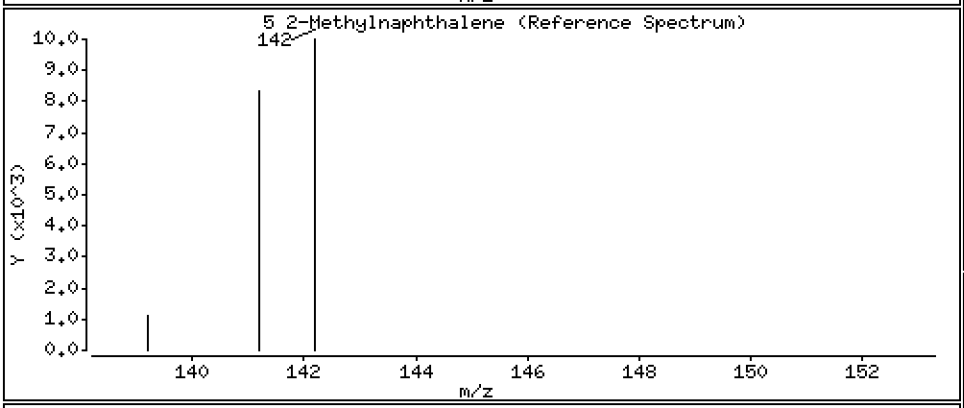
Column diameter: 0.25

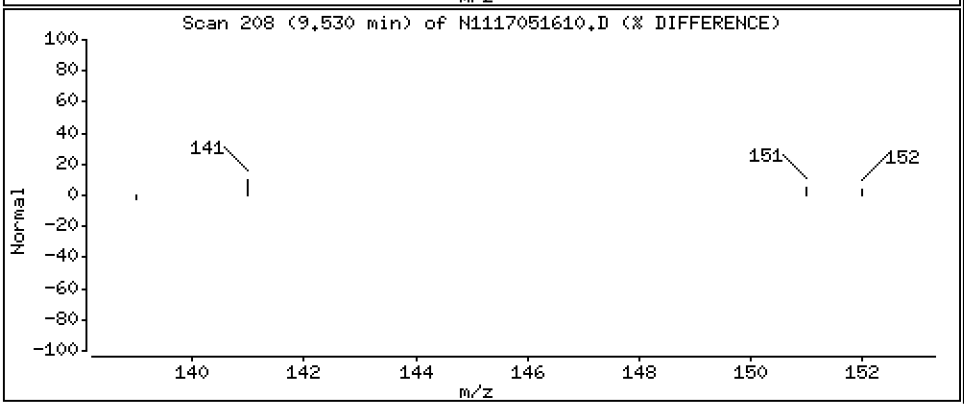
5 2-Methylnaphthalene

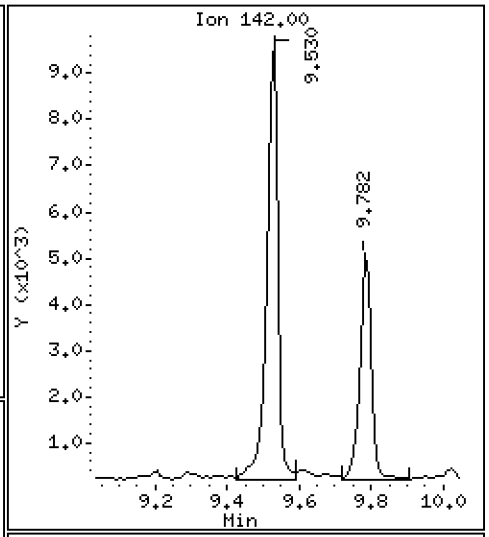
Concentration: 9.63 ng/mL

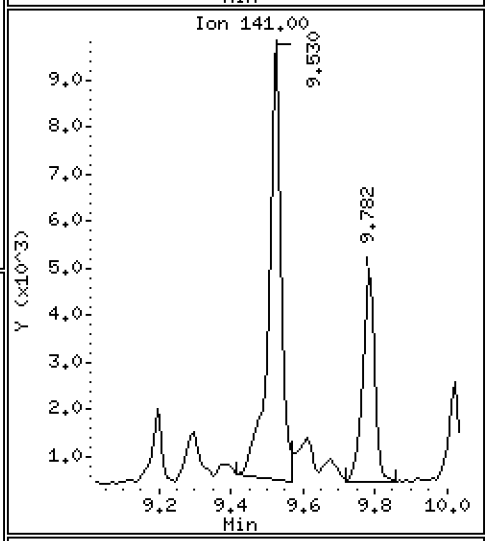


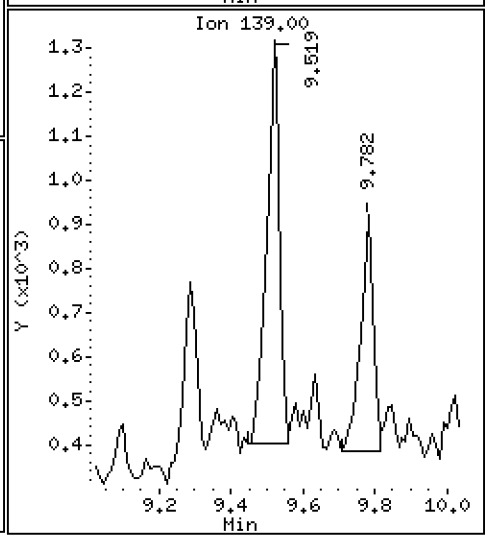












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Date : 16-MAY-2017 15:49

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-06

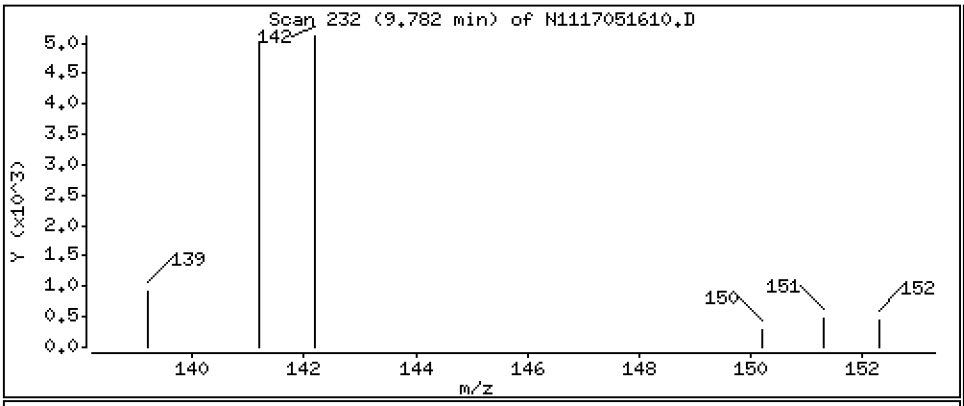
Operator: VTS

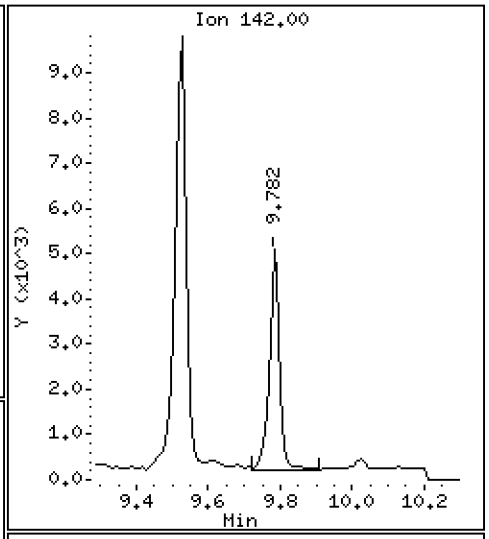
Column phase: Rxi-17Sil MS

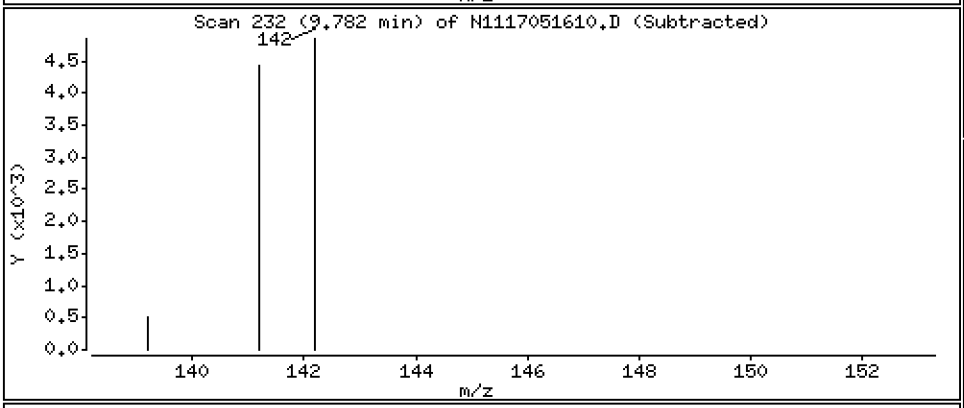
Column diameter: 0.25

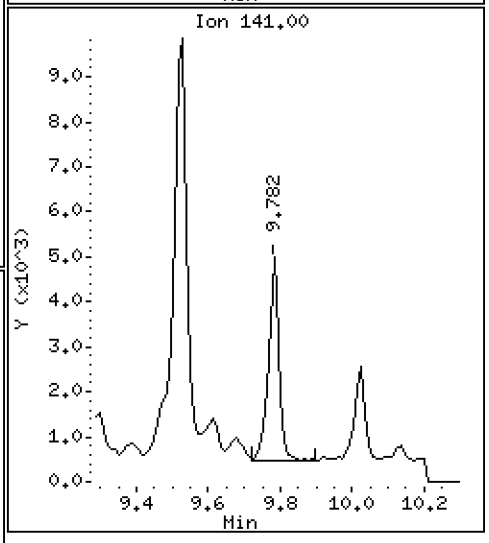
6 1-Methylnaphthalene

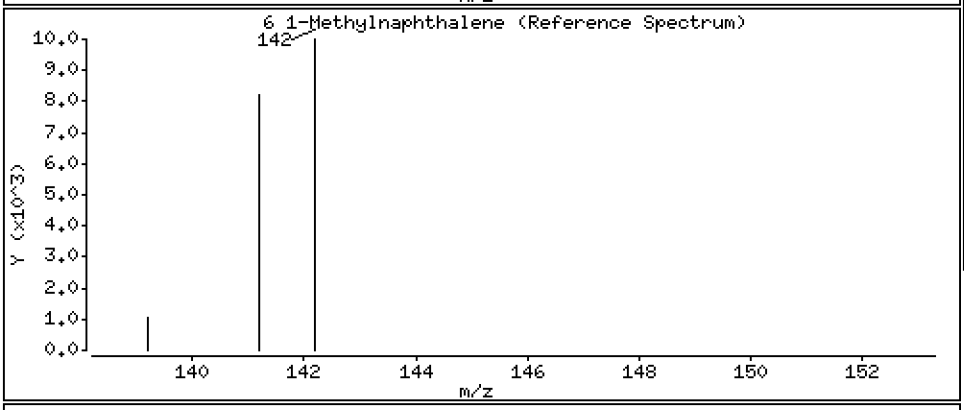
Concentration: 5.02 ng/mL

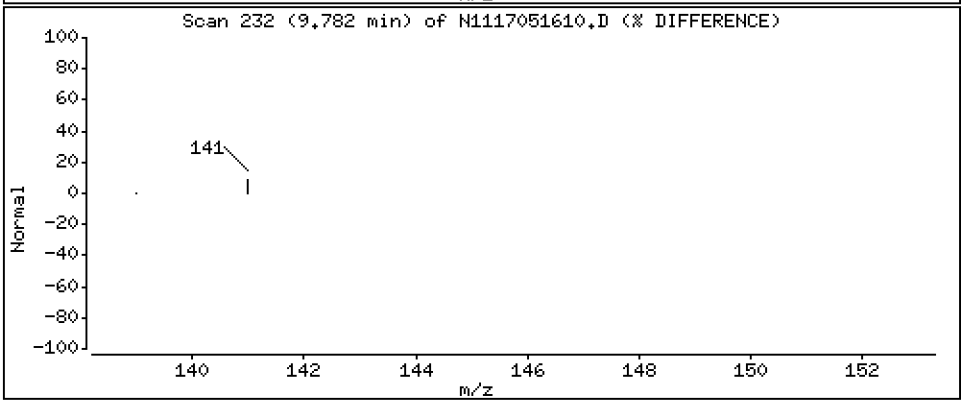












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Date : 16-MAY-2017 15:49

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-06

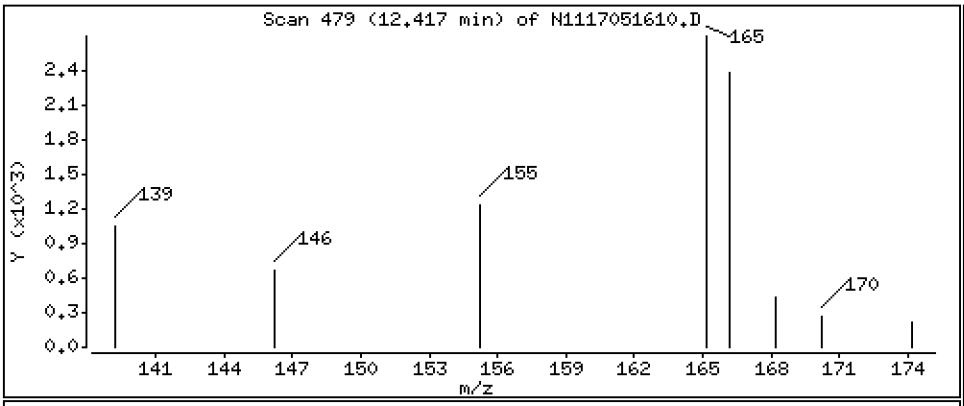
Operator: VTS

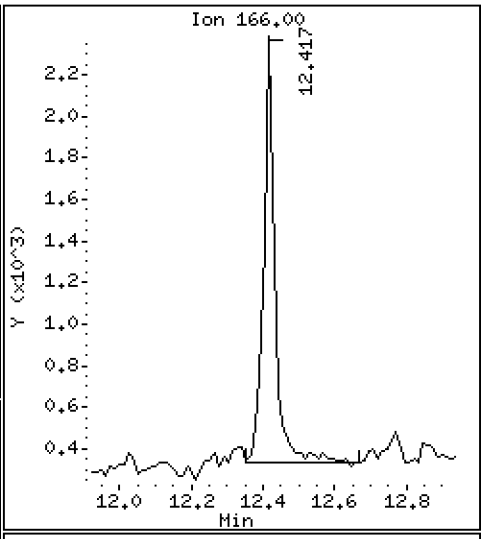
Column phase: Rxi-17Sil MS

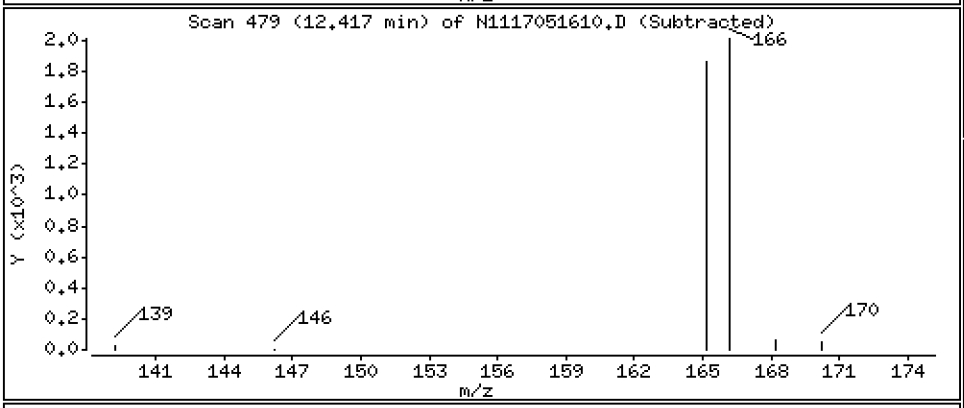
Column diameter: 0.25

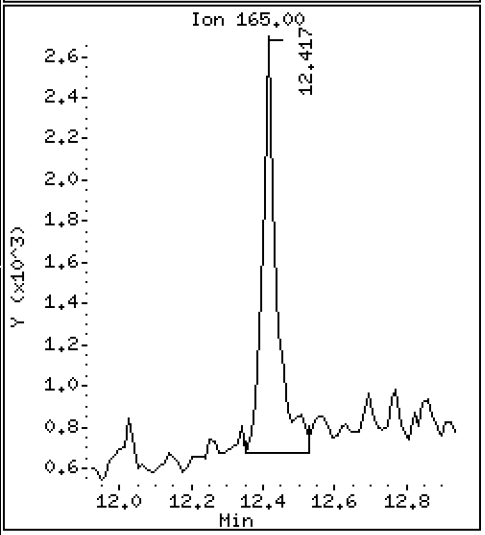
16 Fluorene

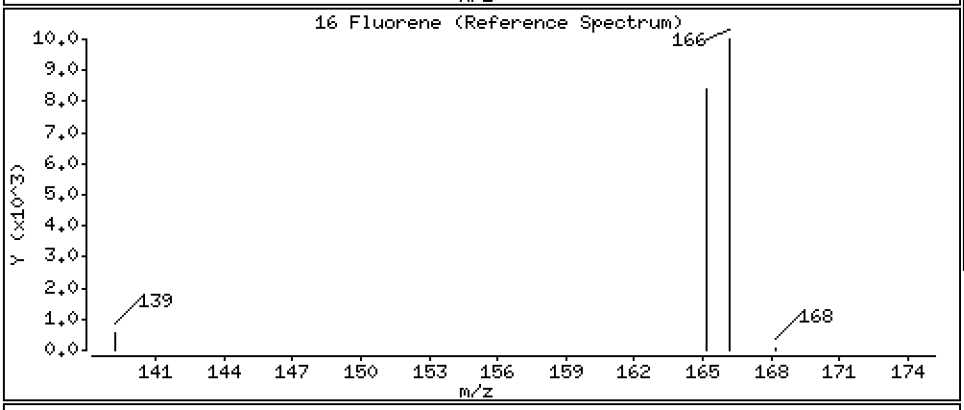
Concentration: 3.12 ng/mL

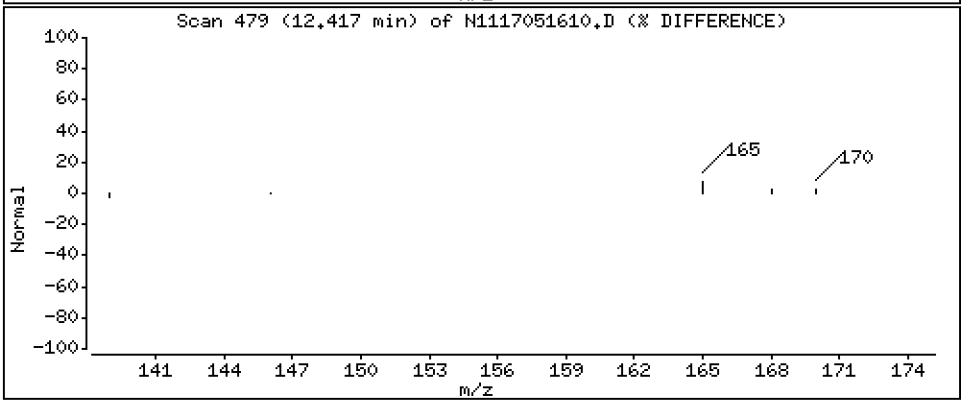












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Date : 16-MAY-2017 15:49

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-06

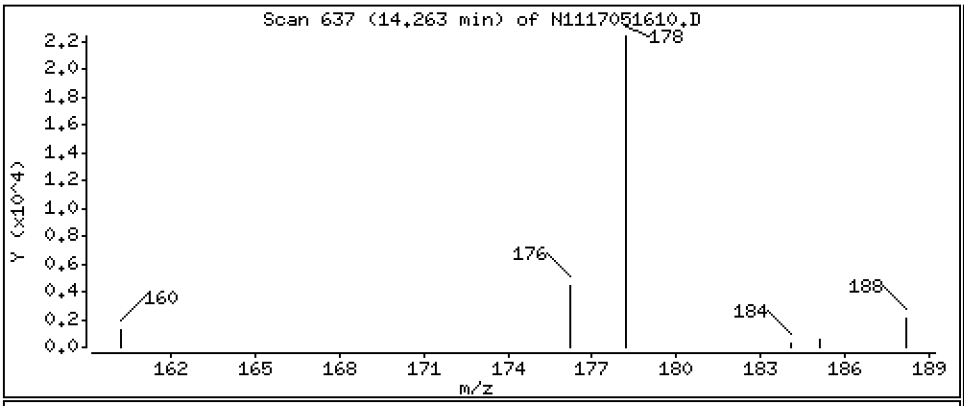
Operator: VTS

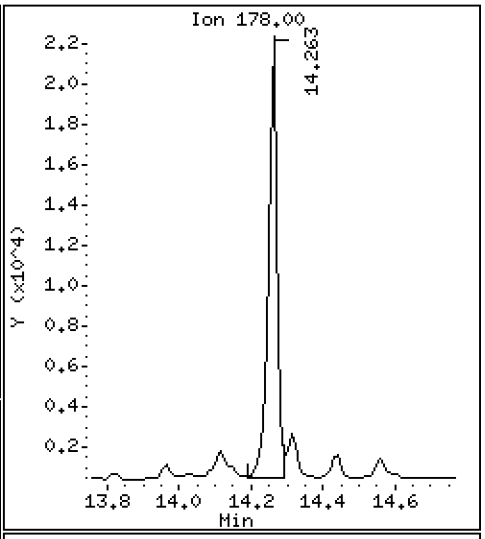
Column phase: Rxi-17Sil MS

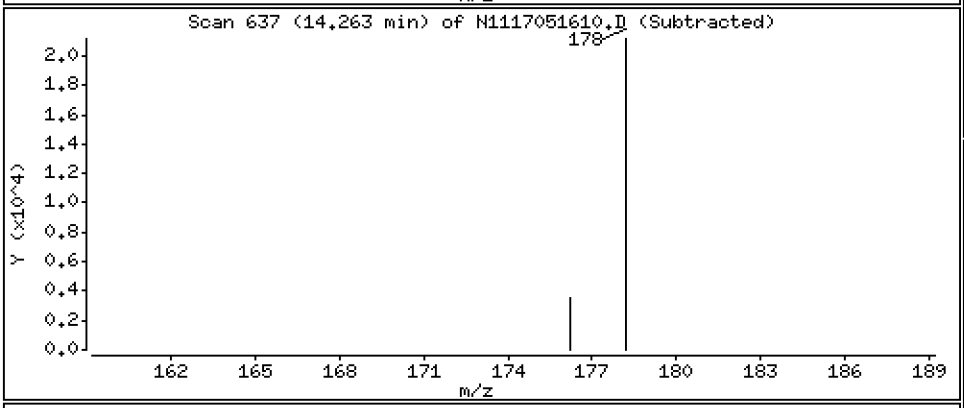
Column diameter: 0.25

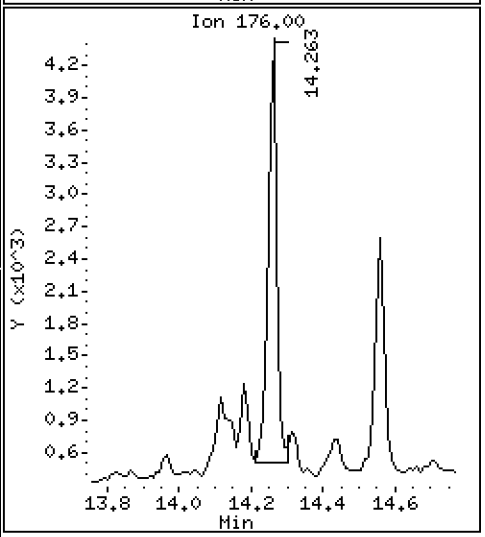
19 Phenanthrene

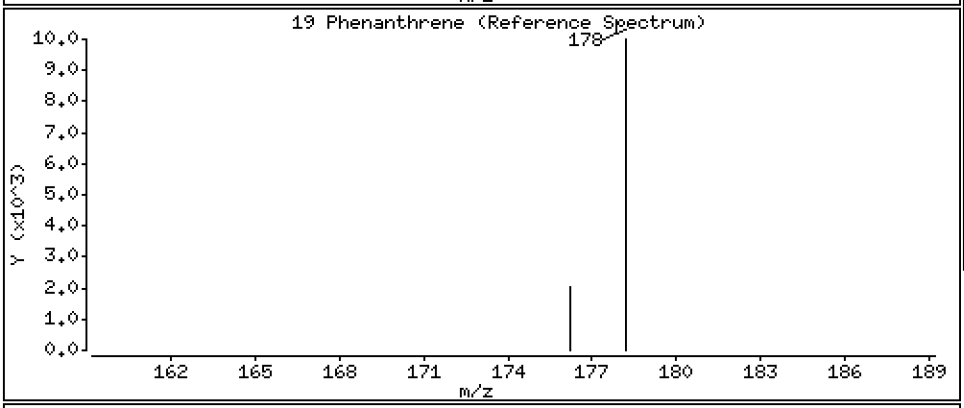
Concentration: 19.5 ng/mL

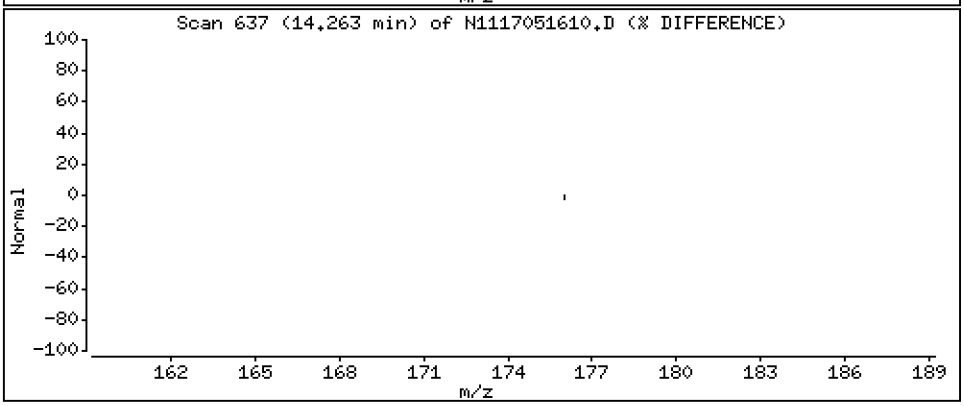












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Date : 16-MAY-2017 15:49

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-06

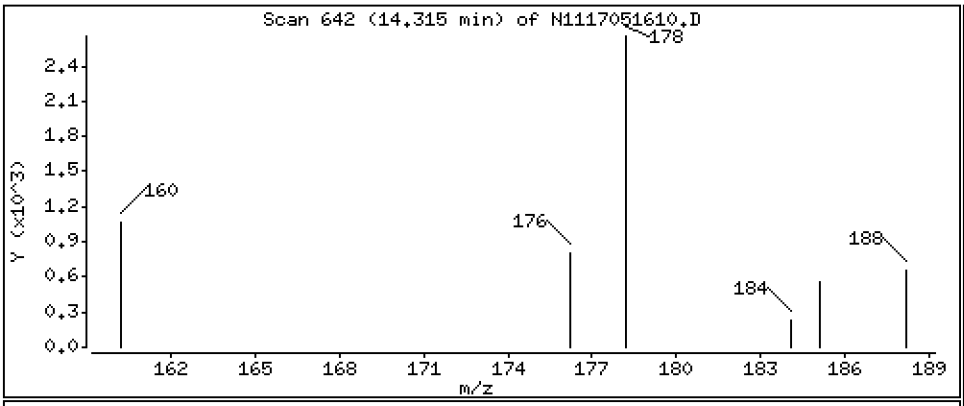
Operator: VTS

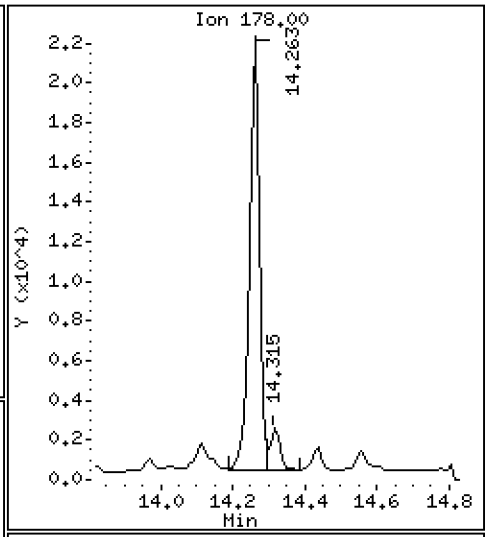
Column phase: Rxi-17Sil MS

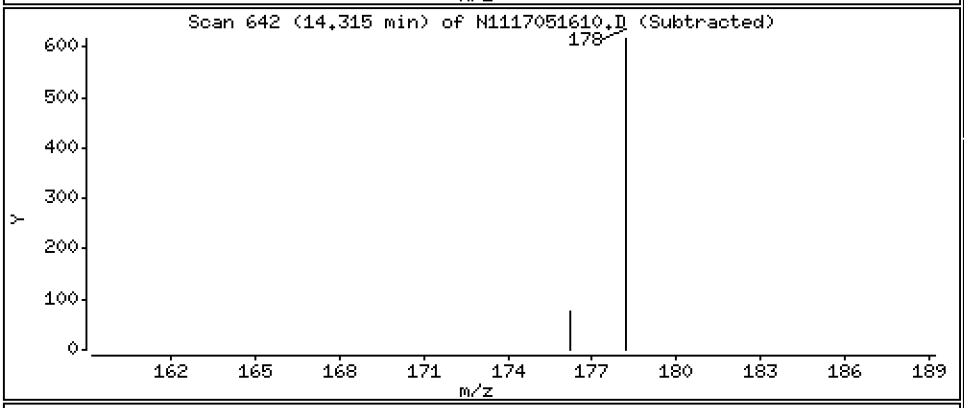
Column diameter: 0.25

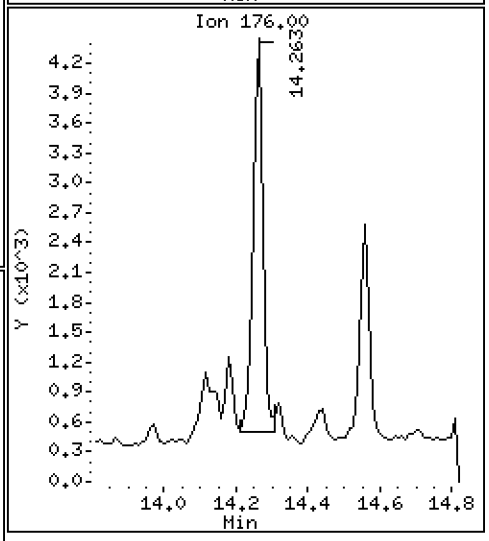
21 Anthracene

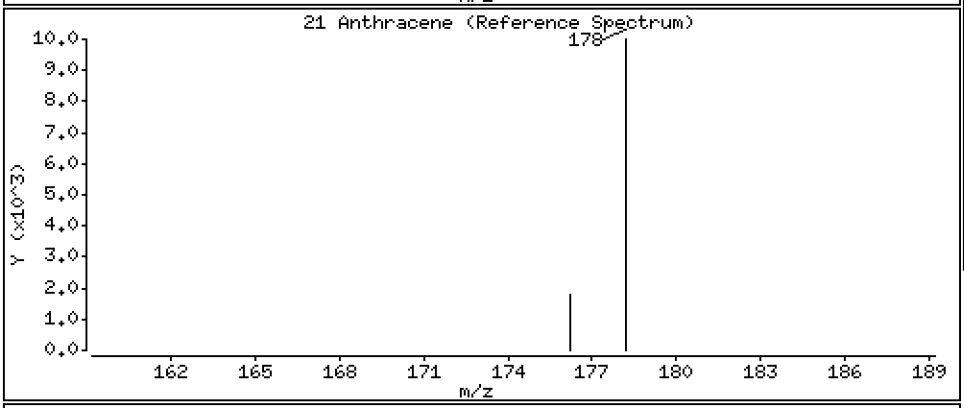
Concentration: 2.05 ng/mL

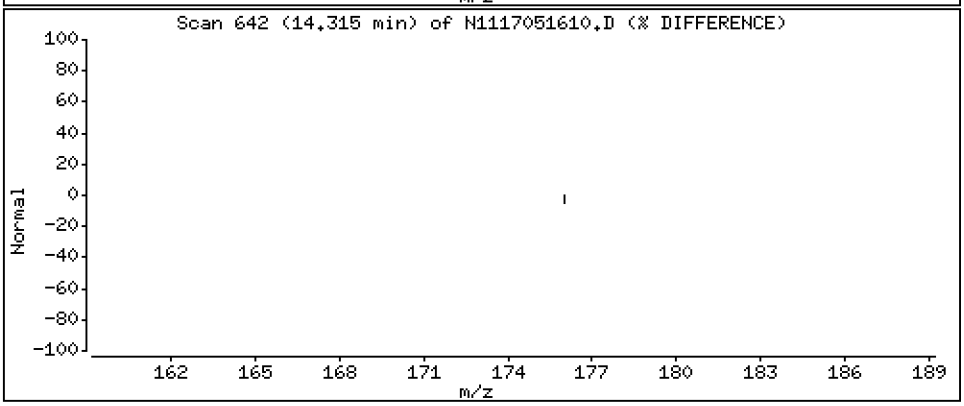












Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051610.D

Date : 16-MAY-2017 15:49

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-06

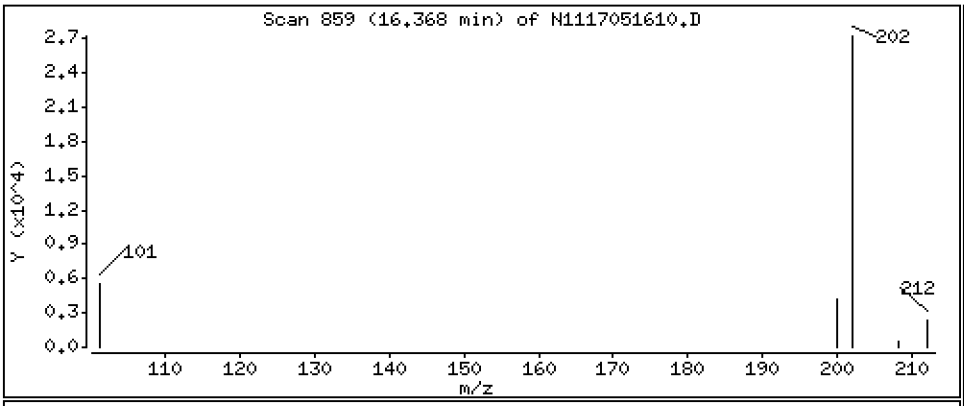
Operator: VTS

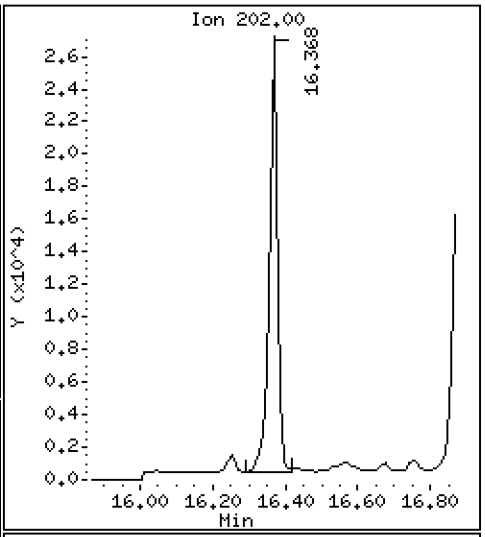
Column phase: Rxi-17Sil MS

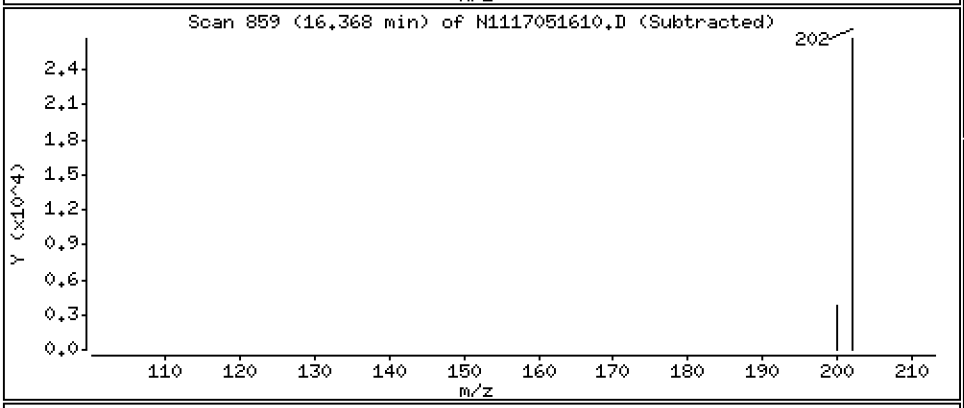
Column diameter: 0.25

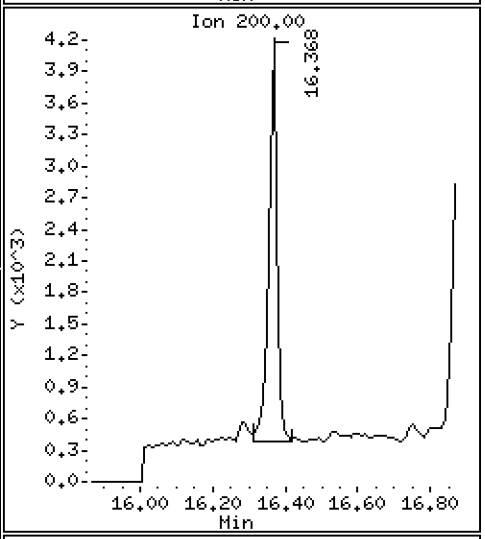
25 Fluoranthene

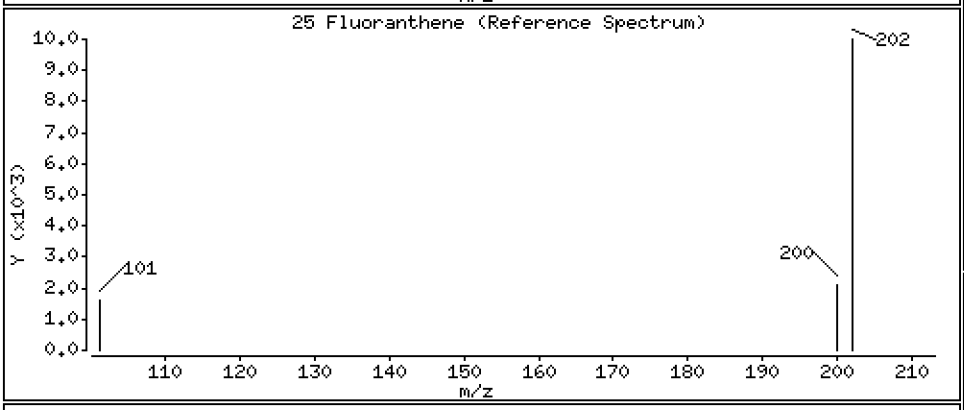
Concentration: 21.6 ng/mL

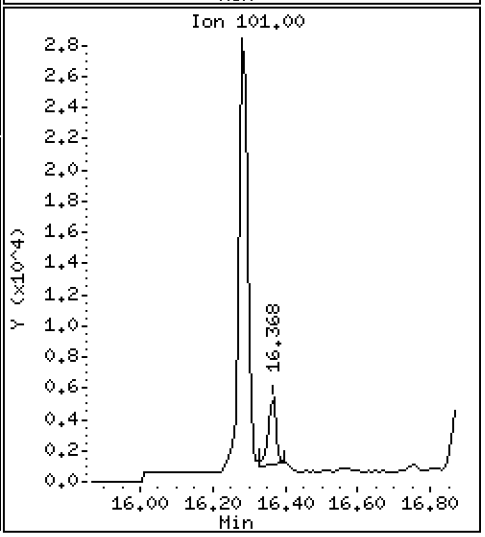


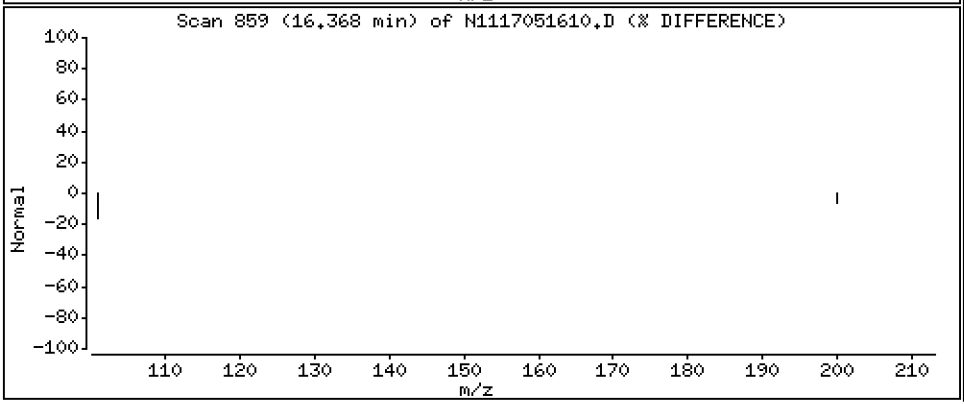












Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051610.D

Date : 16-MAY-2017 15:49

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-06

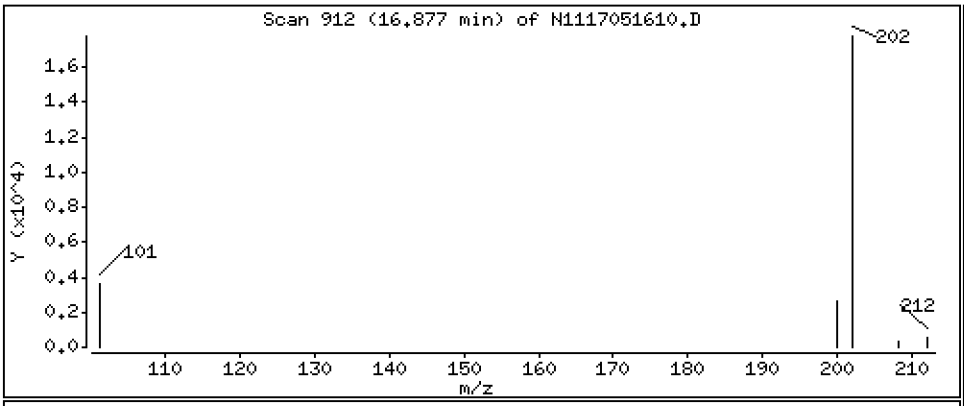
Operator: VTS

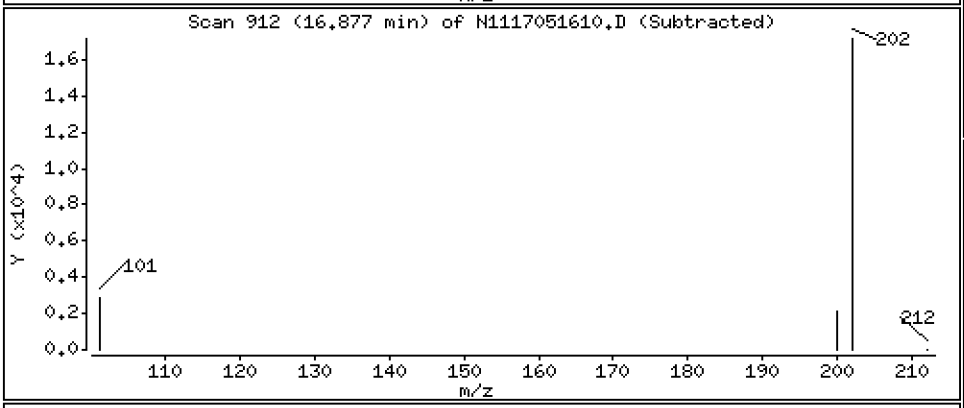
Column phase: Rxi-17Sil MS

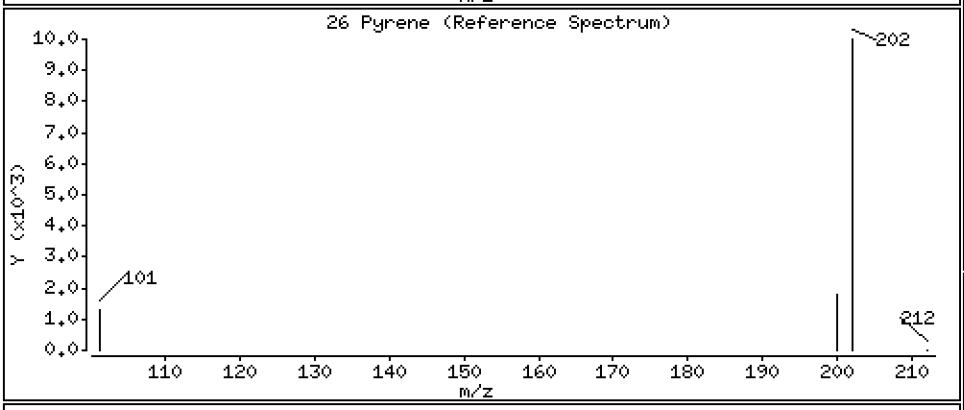
Column diameter: 0.25

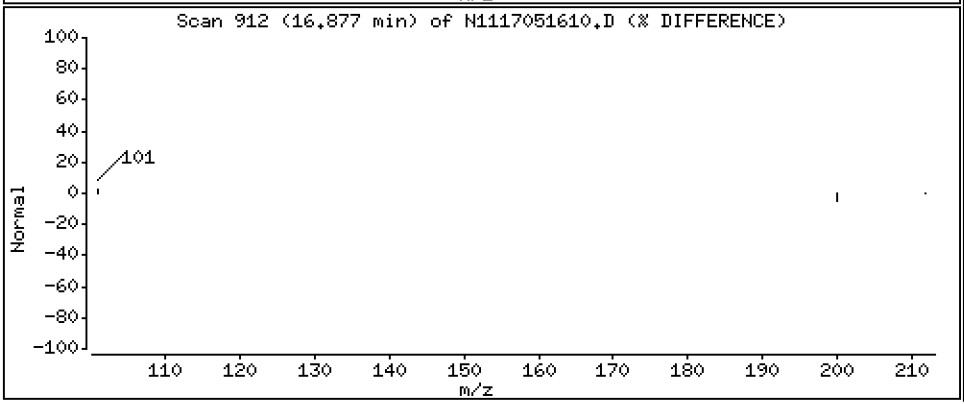
26 Pyrene

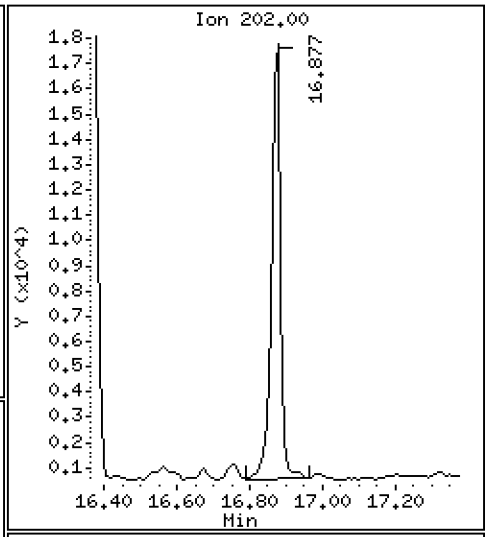
Concentration: 20.1 ng/mL

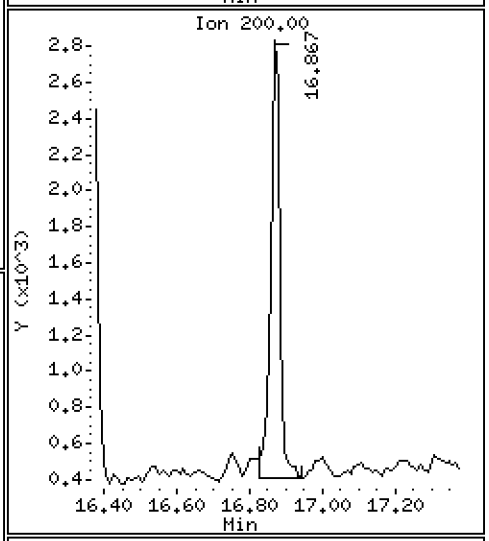


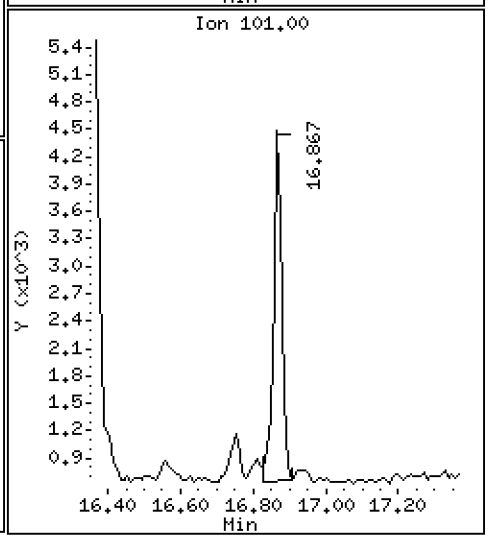












Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051610.D

Date : 16-MAY-2017 15:49

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-06

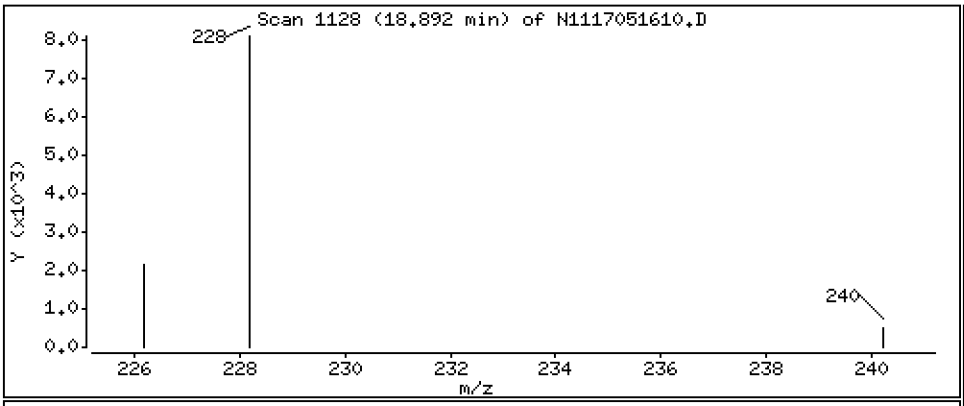
Operator: VTS

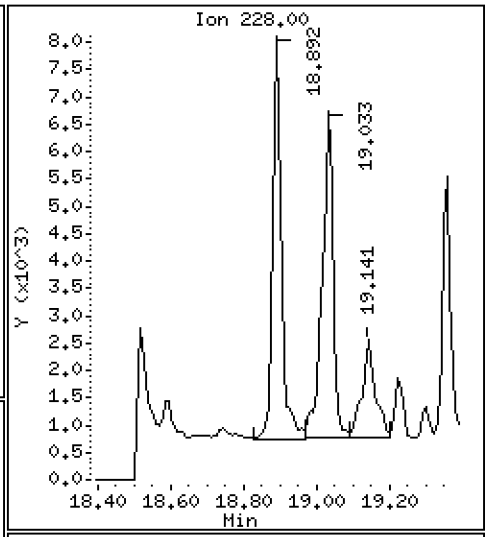
Column phase: Rxi-17Sil MS

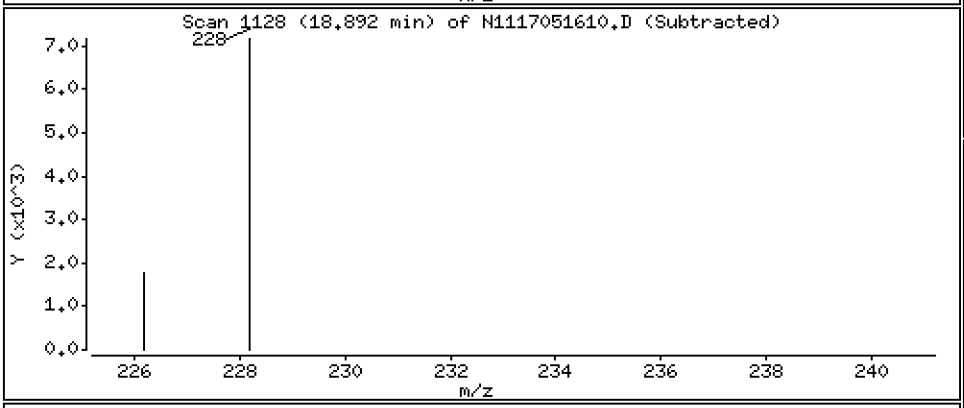
Column diameter: 0.25

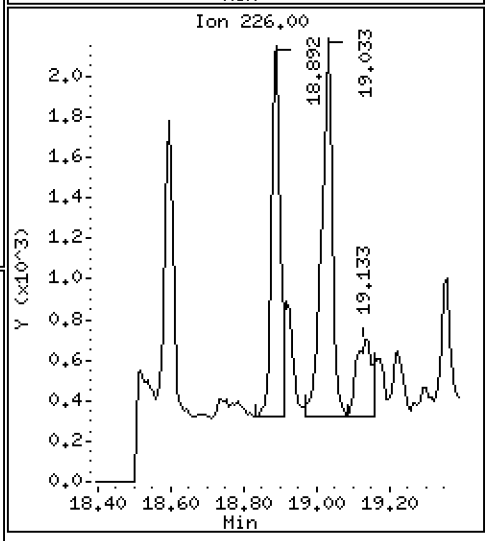
27 Benzo(a)anthracene

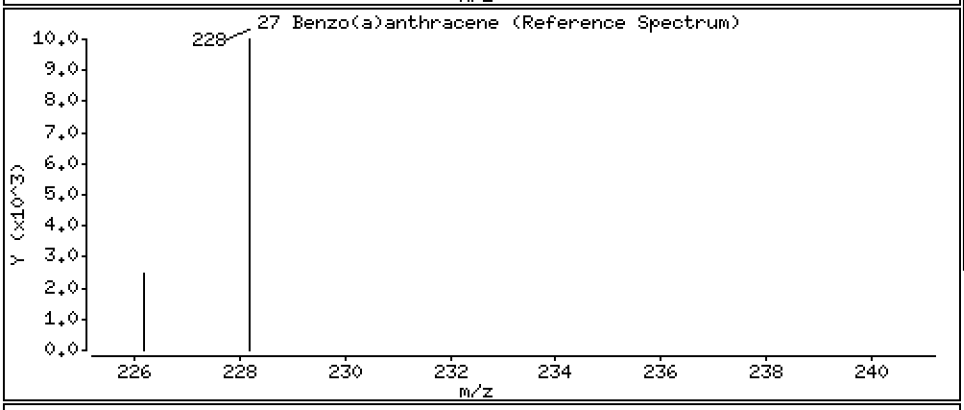
Concentration: 10.1 ng/mL

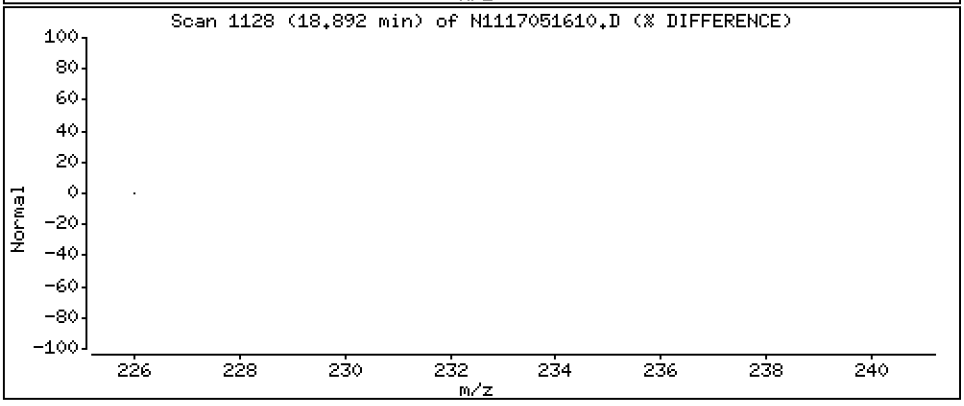












Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051610.D

Date : 16-MAY-2017 15:49

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-06

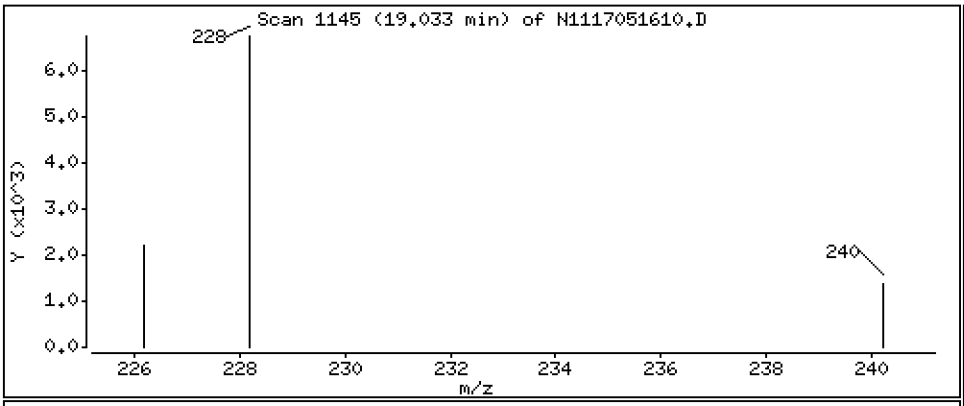
Operator: VTS

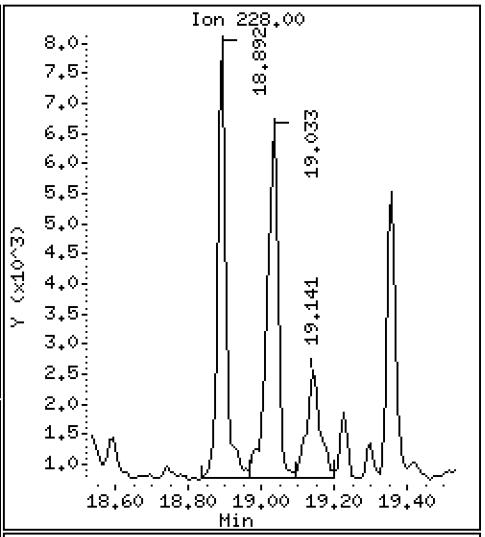
Column phase: Rxi-17Sil MS

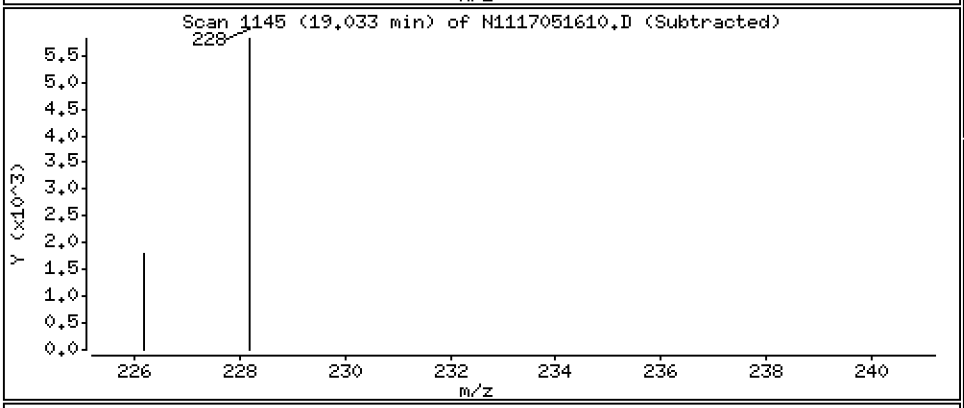
Column diameter: 0.25

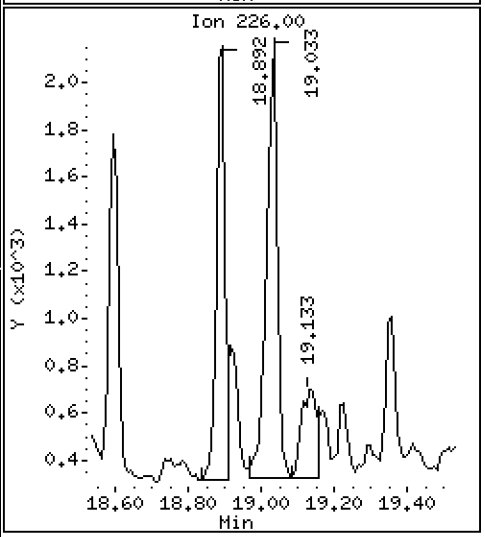
29 Chrysene

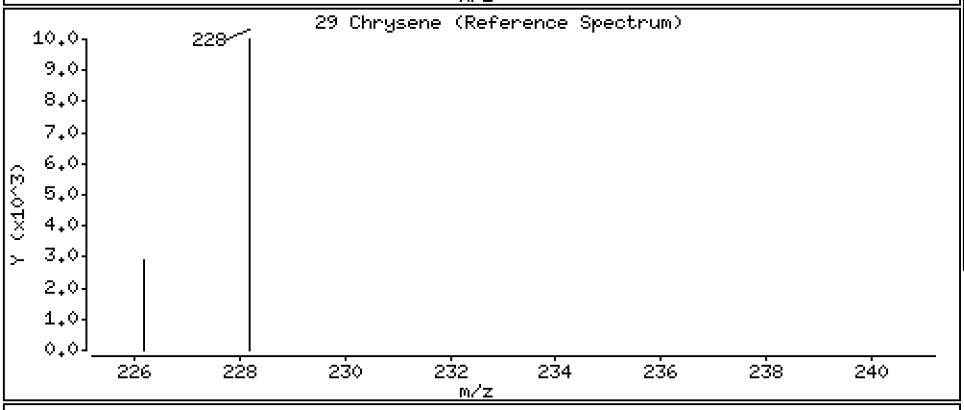
Concentration: 10.0 ng/mL

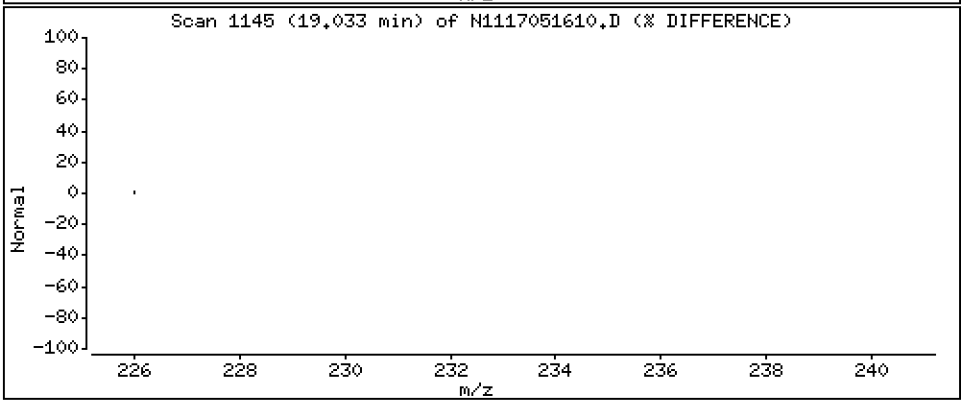












ARI Labs, Inc.

LOW LEVEL PNAs BY SW8270D-SIM

Data file : \\target\share\chem3\nt11.i\20170516.b\N1117051610.D
Lab Smp Id: 17D0421-06
Inj Date : 16-MAY-2017 15:49 MS Autotune Date: 15-JAN-2015 16:59
Operator : VTS Inst ID: nt11.i
Smp Info : 17D0421-06
Misc Info :
Comment   :
Method   : \\target\share\chem3\nt11.i\20170516.b\LOWSIM.m
Meth Date : 17-May-2017 08:15 nt11.i Quant Type: ISTD
Cal Date : 05-MAY-2017 14:47 Cal File: 17050508.D
Als bottle: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: allpna.sub
Target Version: 4.14
Processing Host: VANS

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ng/mL)	FINAL (ng/mL)
*	1 Naphthalene-d8	136	8.481	8.500	(1.000)	441679	200.000	
	2 Naphthalene	128	8.518	8.536	(1.004)	18023	7.59292	7.59
	3 Benzo(b)thiophene	134	Compound Not Detected.					
$	4 2-Methylnaphthalene-d10	152	9.466	9.477	(1.116)	308023	162.738	163
	5 2-Methylnaphthalene	142	9.529	9.540	(1.124)	21079	9.62780	9.63
	6 1-Methylnaphthalene	142	9.782	9.792	(1.153)	10625	5.01819	5.02
	7 2-Chloronaphthalene	162	Compound Not Detected.					
	8 Biphenyl	154	Compound Not Detected.					
	9 2,6-Dimethylnaphthalene	156	Compound Not Detected.					
	10 Acenaphthylene	152	Compound Not Detected.					
*	11 Acenaphthene-d10	164	11.519	11.528	(1.000)	180539	200.000	
	12 Acenaphthene	153	Compound Not Detected.					
	13 Dibenzofuran	168	Compound Not Detected.					
	14 2,3,5-Trimethylnaphthalene	170	Compound Not Detected.					
$	15 Fluorene-d10	174	Compound Not Detected.					
	16 Fluorene	166	12.417	12.429	(1.078)	4642	3.11790	3.12
	17 Dibenzothiophene	184	Compound Not Detected.					
*	18 Phenanthrene-d10	188	14.220	14.220	(1.000)	283851	200.000	
	19 Phenanthrene	178	14.262	14.262	(1.003)	41168	19.4832	19.5
$	20 Anthracene-d10	188	Compound Not Detected.					
	21 Anthracene	178	14.315	14.325	(1.007)	4264	2.04834	2.05
	22 Carbazole	167	Compound Not Detected.					
	23 1-Methylphenanthrene	192	Compound Not Detected.					
$	24 Fluoranthene-d10	212	16.329	16.338	(1.148)	289929	216.063	216
	25 Fluoranthene	202	16.367	16.367	(1.151)	43860	21.5995	21.6
	26 Pyrene	202	16.876	16.876	(0.889)	30768	20.1000	20.1
	27 Benzo(a)anthracene	228	18.892	18.892	(0.995)	12207	10.1384	10.1
*	28 Chrysene-d12	240	18.983	18.983	(1.000)	169084	200.000	
	29 Chrysene	228	19.033	19.033	(1.003)	12486	10.0479	10.0
	30 Benzo(b)fluoranthene	252	Compound Not Detected.					
	31 Benzo(k)fluoranthene	252	Compound Not Detected.					
	32 Benzo(j)fluoranthene	252	Compound Not Detected.					
$	33 Benzo(e)pyrene-d12	264	Compound Not Detected.					

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ng/mL)	CONCENTRATIONS FINAL (ng/mL)
34	Benzo(e)pyrene	252	Compound Not Detected.					
35	Benzo(a)pyrene	252	Compound Not Detected.					
* 36	Perylene-d12	264	22.173	22.173	(1.000)	210132	200.000	
37	Perylene	252	Compound Not Detected.					
$ 38	Dibenzo(a,h)anthracene-d14	292	25.016	25.016	(1.128)	175057	223.334	223
39	Dibenzo(a,h)anthracene	278	Compound Not Detected.					
40	Indeno(1,2,3-cd)pyrene	276	Compound Not Detected.					
41	Benzo(g,h,i)perylene	276	Compound Not Detected.					

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt11.i
Lab File ID: N1117051610.D
Lab Smp Id: 17D0421-06
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: \\target\share\chem3\nt11.i\20170516.b\LOWSIM.m
Misc Info:

Calibration Date: 16-MAY-2017
Calibration Time: 10:47
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	371325	185663	742650	441679	18.95
11 Acenaphthene-d10	154428	77214	308856	180539	16.91
18 Phenanthrene-d10	256956	128478	513912	283851	10.47
28 Chrysene-d12	208629	104315	417258	169084	-18.95
36 Perylene-d12	225431	112716	450862	210132	-6.79

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	8.50	8.00	9.00	8.48	-0.21
11 Acenaphthene-d10	11.53	11.03	12.03	11.52	-0.08
18 Phenanthrene-d10	14.22	13.72	14.72	14.22	-0.00
28 Chrysene-d12	18.98	18.48	19.48	18.98	0.00
36 Perylene-d12	22.17	21.67	22.67	22.17	-0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N1117051610.D

Lab ID: 17D0421-06
nt11.i, 20170516.b\LOWSIM.m,   16-MAY-2017 15:49

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

On Column LOD for nt11.i, 20170516.b\LOWSIM.m, allpna.sub = 3.0000

Exception: Naphthalene 6.0000
Exception: Phenanthrene 2.5000
Exception: Anthracene 2.0000
Exception: Pyrene 4.0000
Exception: Benzo(j)fluoranthene 2.5000
Exception: Benzo(a)pyrene 2.0000
Exception: Perylene 3.5000
Exception: Benzo(e)pyrene 2.0000
Exception: Benzo(b)thiophene 2.0000
Exception: 2-Chloronaphthalene 2.0000
Exception: 2,6-Dimethylnaphthalene 2.0000
Exception: 2,3,5-Trimethylnaphthalene 2.0000
Exception: 1-Methylphenanthrene 2.0000
Exception: Dibenzothiophene 2.0000
Exception: Carbazole 2.0000
Exception: Biphenyl 2.0000
Exception: 2-Methylnaphthalene-d10 (Surr) 0.1000
Exception: Dibenzo(a,h)anthracene-d14 (Surr) 0.1000
Exception: Fluoranthene-d10 (Surr) 0.1000
Exception: Anthracene-d10 (Surr) 0.1000
Exception: Benzo(e)pyrene-d12 (Surr) 0.1000
Exception: Fluorene-d10 (Surr) 0.1000

PG-WS-MAN-COC-170424

Form I

ORGANIC ANALYSIS DATA SHEET

EPA 8270D-SIM

Polynuclear Aromatic Hydrocarbons - low level

Laboratory:	Analytical Resources, Inc.			SDG:	17D0421
Client:	Anchor QEA, LLC			Project:	Port Gamble Shellfish Monitoring
Matrix:	Tissue	Laboratory ID:	17D0421-07	File ID:	N1117051611.D
Sampled:	04/24/17 12:45	Prepared:	05/09/17 13:50	Analyzed:	05/16/17 16:26
Solids:		Preparation:	EPA 3550C-Mod (Ultrasonic	Initial/Final:	10.18 g / 0.5 mL
Batch:	BFE0160	Sequence:	SFE0208	Calibration:	AE00020
Instrument:	NT11	Column:	RXi-17Sil-MS		

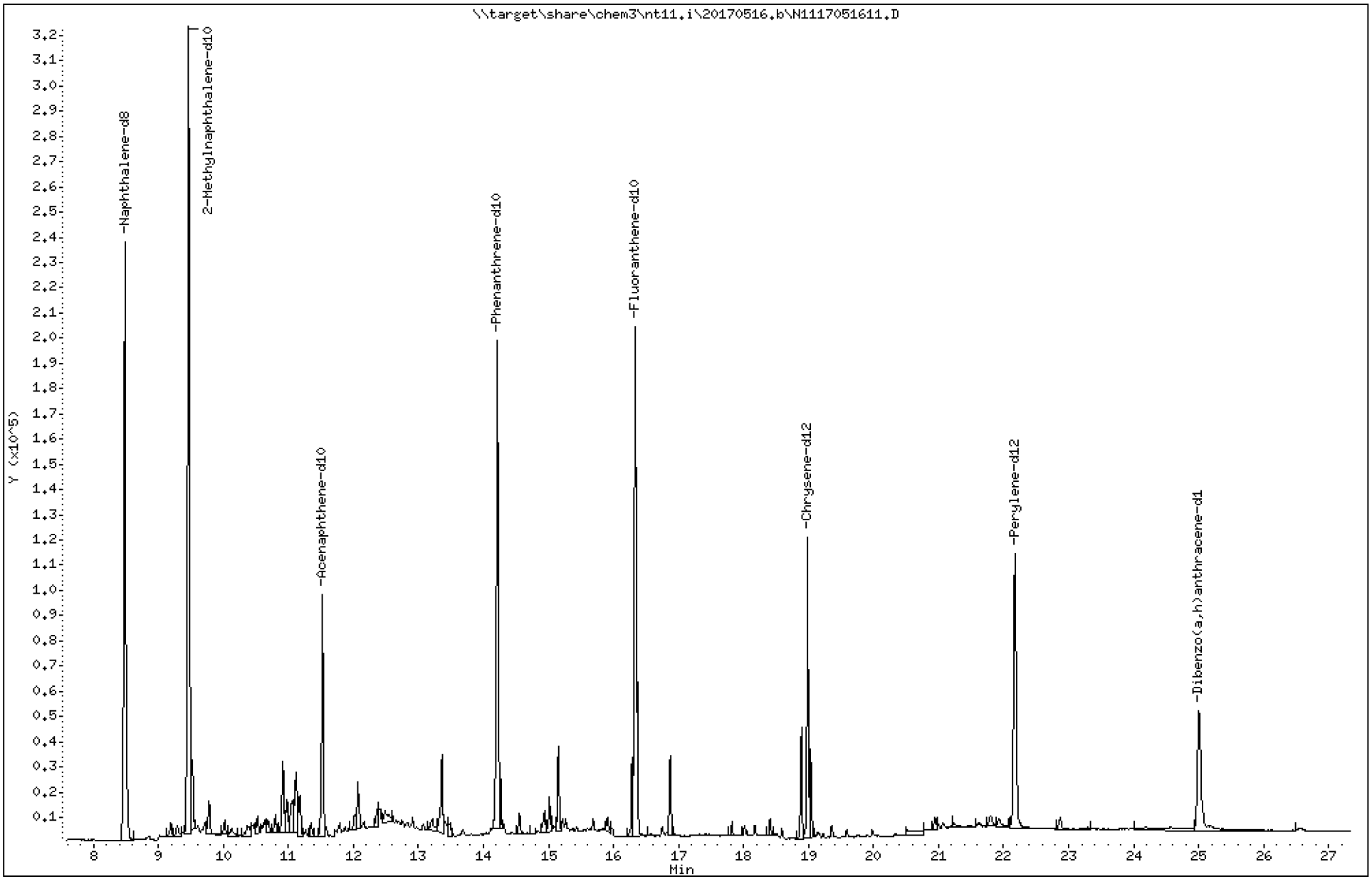
CAS NO.	COMPOUND	DILUTION	CONC. (ug/kg)	Q	DL	RL
91-20-3	Naphthalene	1	0.59	U	0.49	0.59
91-57-6	2-Methylnaphthalene	1	0.59		0.49	0.49
208-96-8	Acenaphthylene	1	0.49	U	0.49	0.49
83-32-9	Acenaphthene	1	0.49	U	0.49	0.49
86-73-7	Fluorene	1	0.49	U	0.49	0.49
85-01-8	Phenanthrene	1	0.87		0.49	0.49
120-12-7	Anthracene	1	0.49	U	0.49	0.49
206-44-0	Fluoranthene	1	1.65		0.49	0.49
129-00-0	Pyrene	1	1.19		0.49	0.49
56-55-3	Benzo(a)anthracene	1	2.16		0.49	0.49
218-01-9	Chrysene	1	1.76		0.49	0.49
205-99-2	Benzo(b)fluoranthene	1	0.49	U	0.49	0.49
207-08-9	Benzo(k)fluoranthene	1	0.49	U	0.49	0.49
50-32-8	Benzo(a)pyrene	1	0.49	U	0.49	0.49
193-39-5	Indeno(1,2,3-cd)pyrene	1	0.49	U	0.49	0.49
53-70-3	Dibenzo(a,h)anthracene	1	0.49	U	0.49	0.49
191-24-2	Benzo(g,h,i)perylene	1	0.49	U	0.49	0.49
1985-5-0	Perylene	1	0.49	U	0.49	0.49
197-97-2	Benzo(e)pyrene	1	0.49	U	0.49	0.49

SURROGATES	ADDED (ug/kg)	CONC (ug/kg)	% REC	QC LIMITS	Q
2-Methylnaphthalene-d10	14.735	8.32	56.5	30 - 160	
Dibenzo[a,h]anthracene-d14	14.735	10.6	71.7	30 - 160	
Fluoranthene-d10	14.735	10.5	71.5	30 - 160	

Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051611.D
Date : 16-MAY-2017 16:26
Client ID:
Sample Info: 17D0421-07

Instrument: nt11.i
Operator: VTS
Column diameter: 0.25

Column phase: Rxi-17Sil MS



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Date : 16-MAY-2017 16:26

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-07

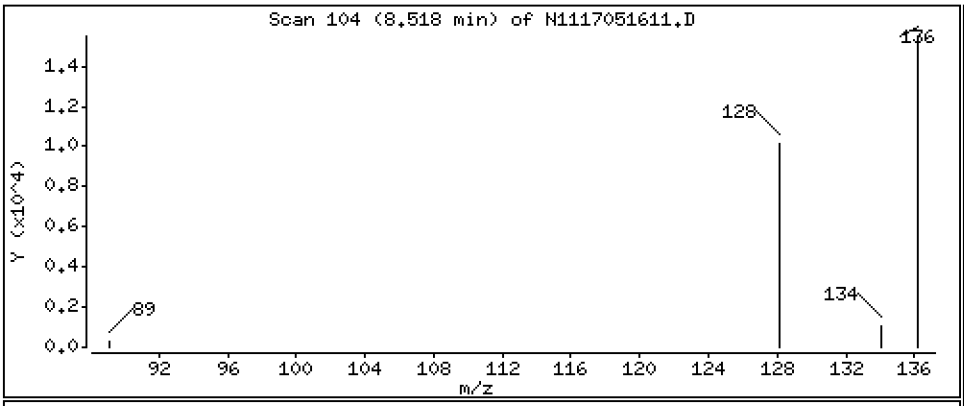
Operator: VTS

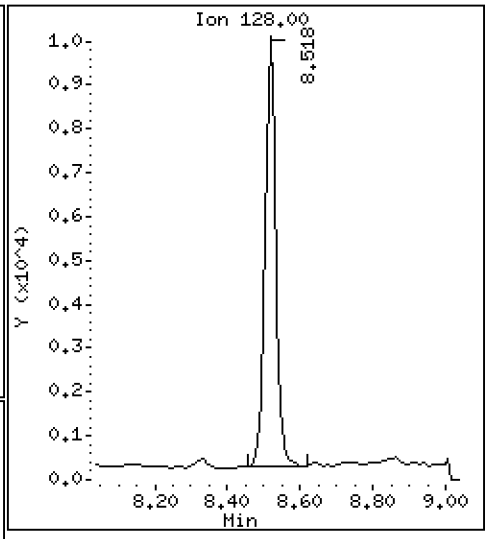
Column phase: Rxi-17Sil MS

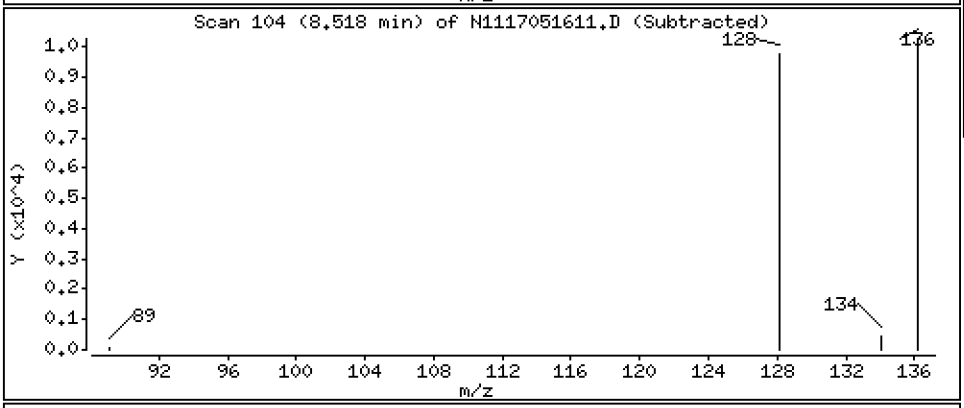
Column diameter: 0.25

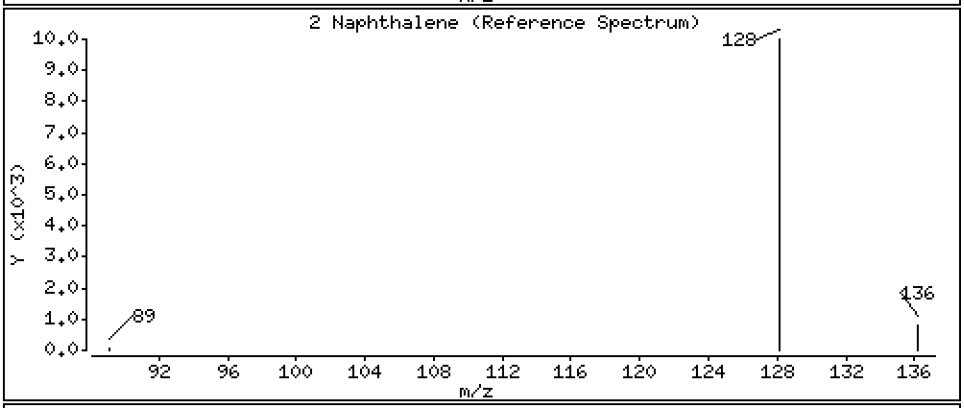
2 Naphthalene

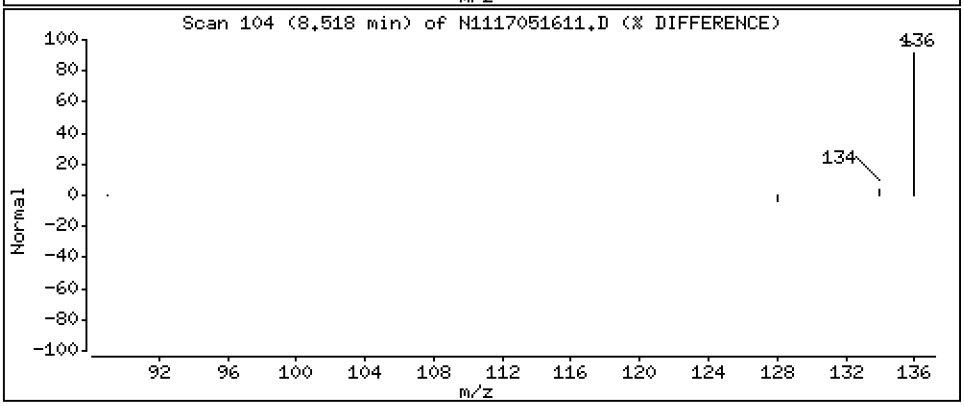
Concentration: 7.99 ng/mL











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Date : 16-MAY-2017 16:26

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-07

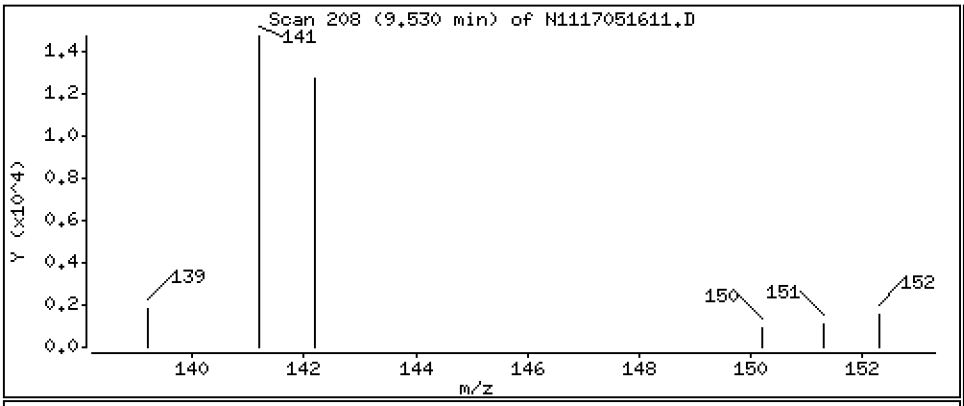
Operator: VTS

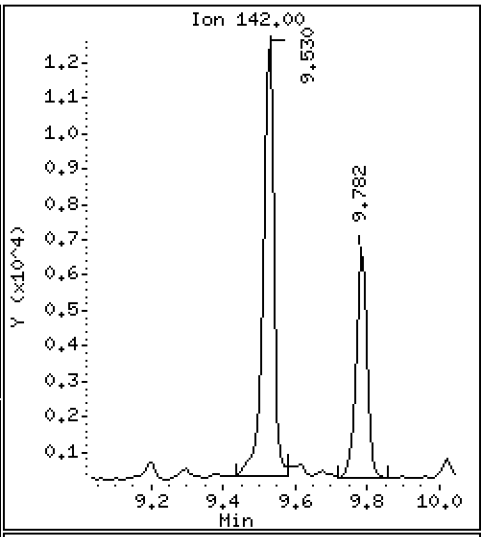
Column phase: Rxi-17Sil MS

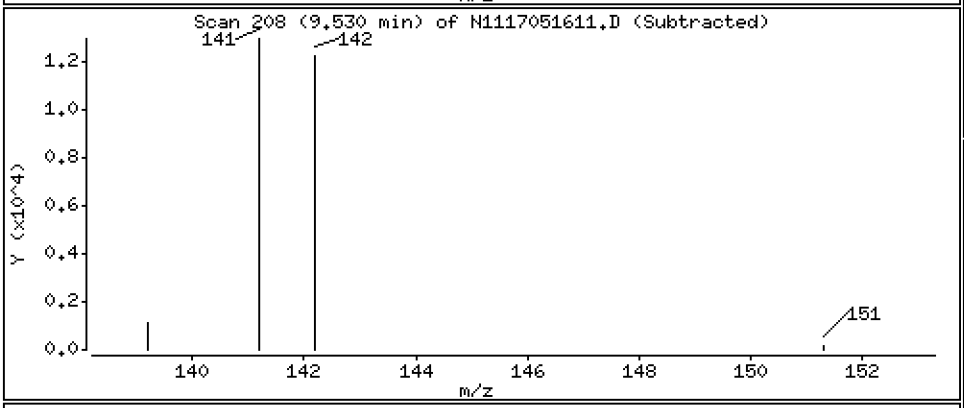
Column diameter: 0.25

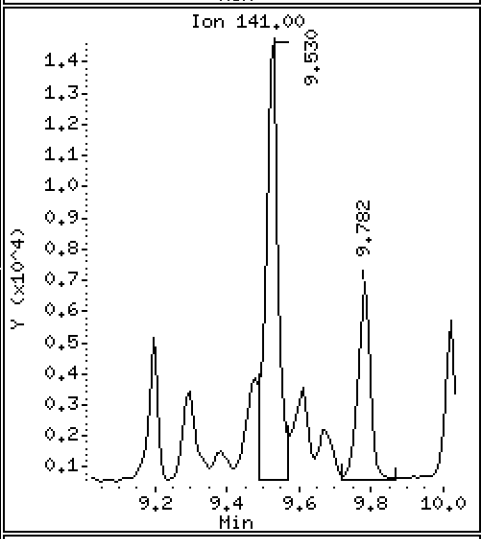
5 2-Methylnaphthalene

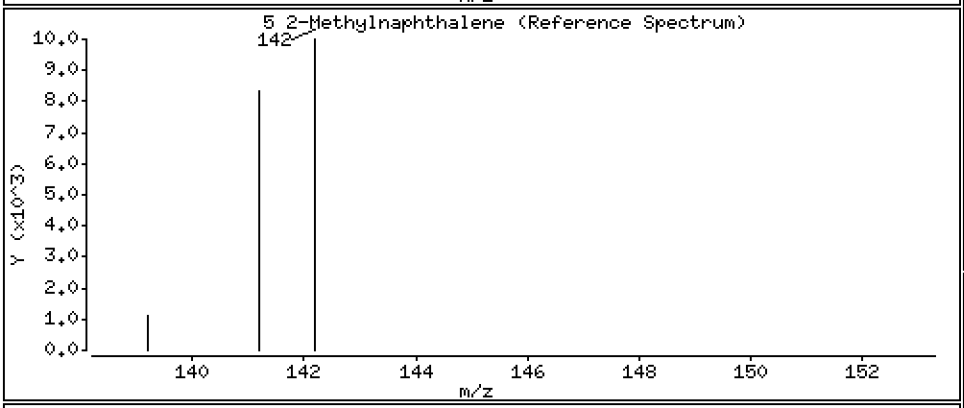
Concentration: 11.9 ng/mL

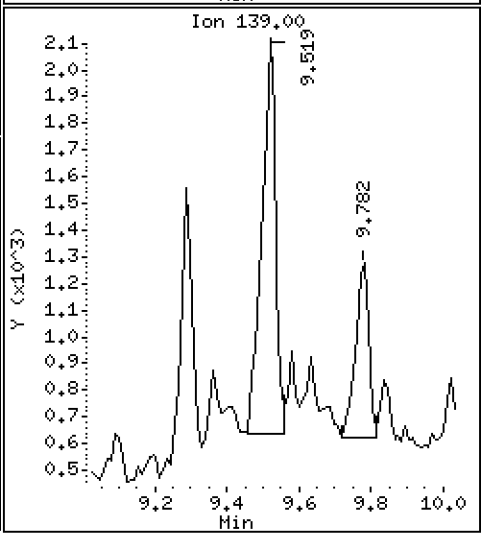


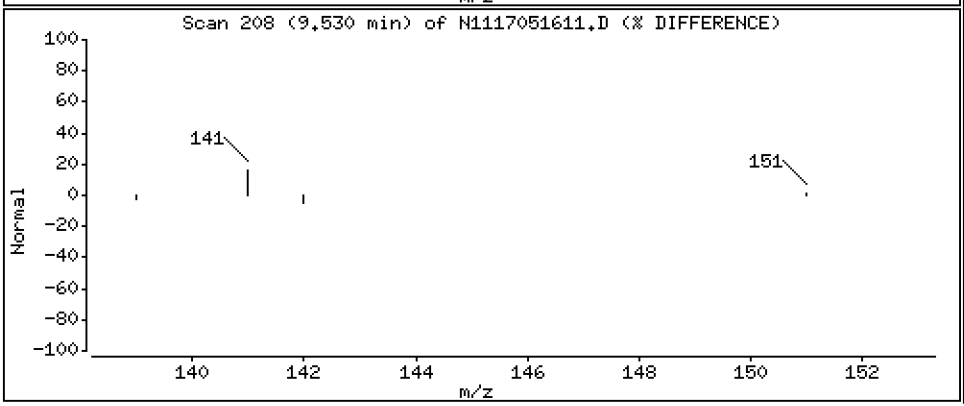












Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051611.D

Date : 16-MAY-2017 16:26

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-07

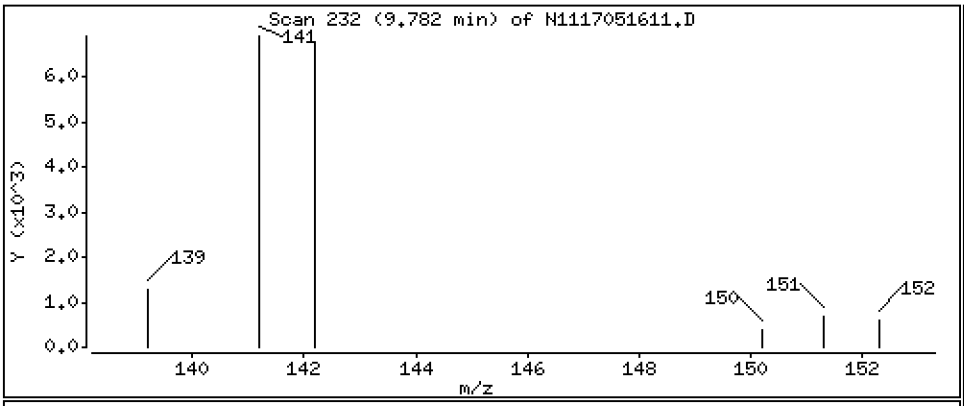
Operator: VTS

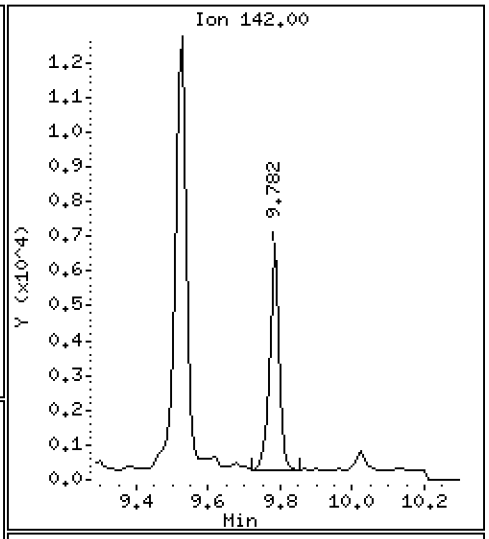
Column phase: Rxi-17Sil MS

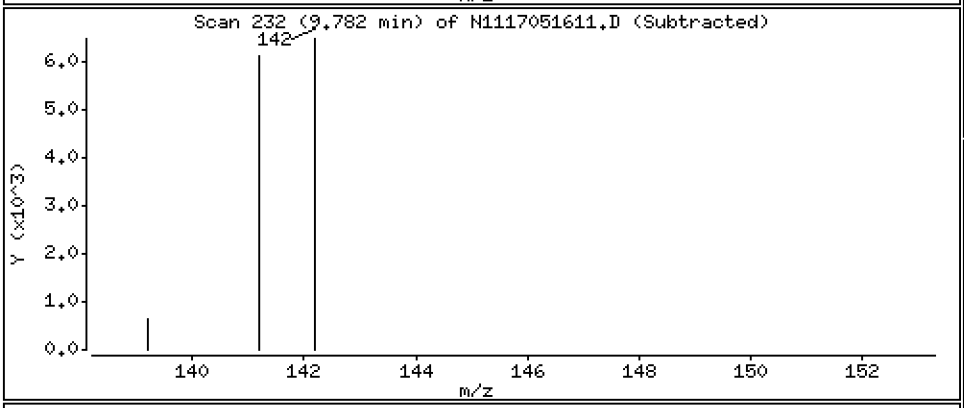
Column diameter: 0.25

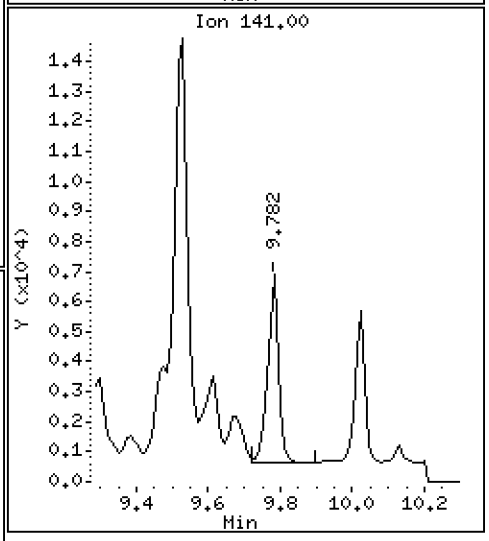
6 1-Methylnaphthalene

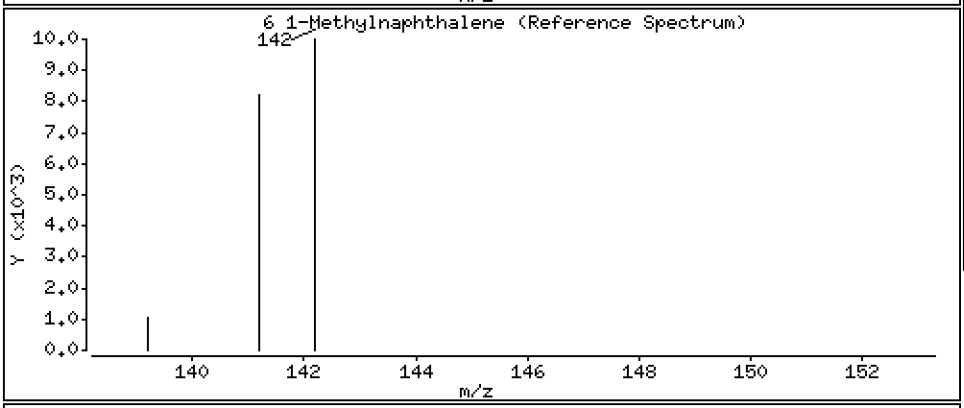
Concentration: 6.21 ng/mL

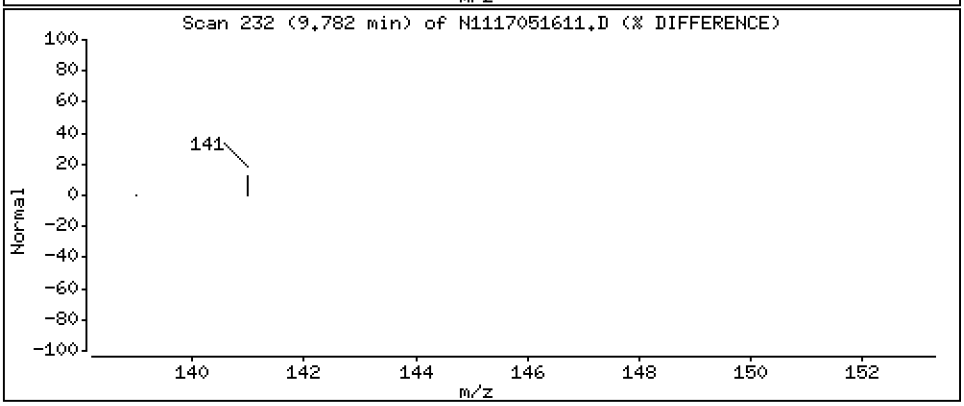












Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051611.D

Date : 16-MAY-2017 16:26

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-07

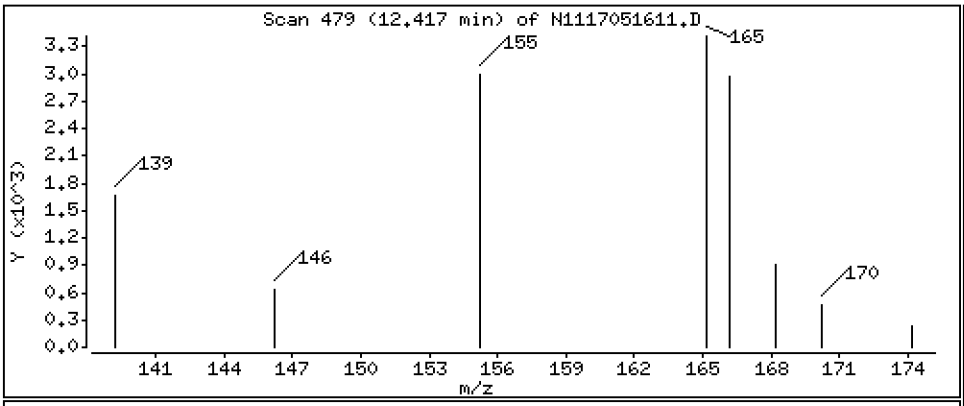
Operator: VTS

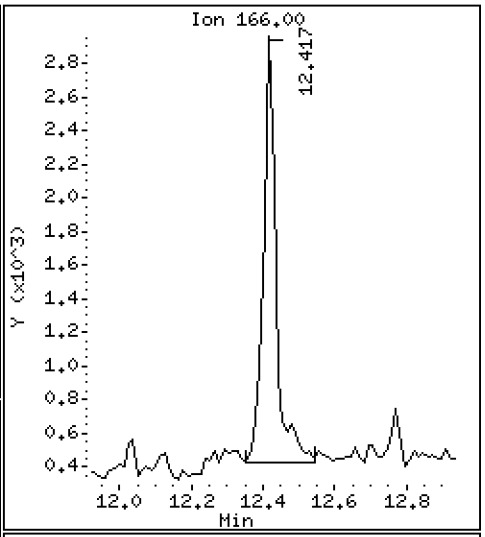
Column phase: Rxi-17Sil MS

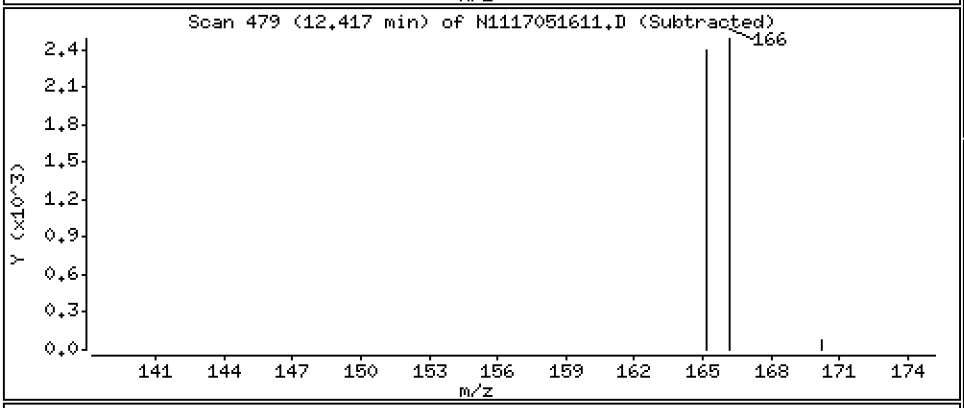
Column diameter: 0.25

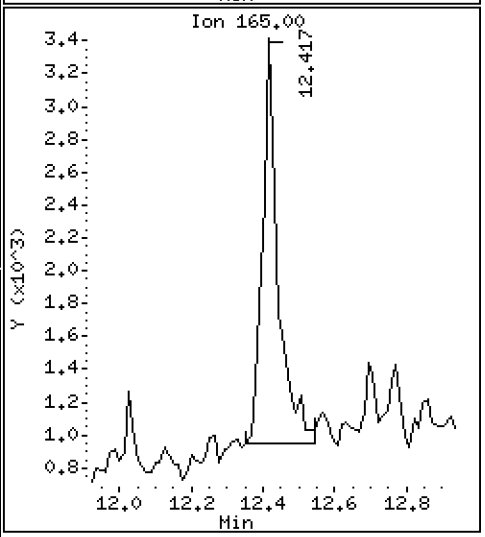
16 Fluorene

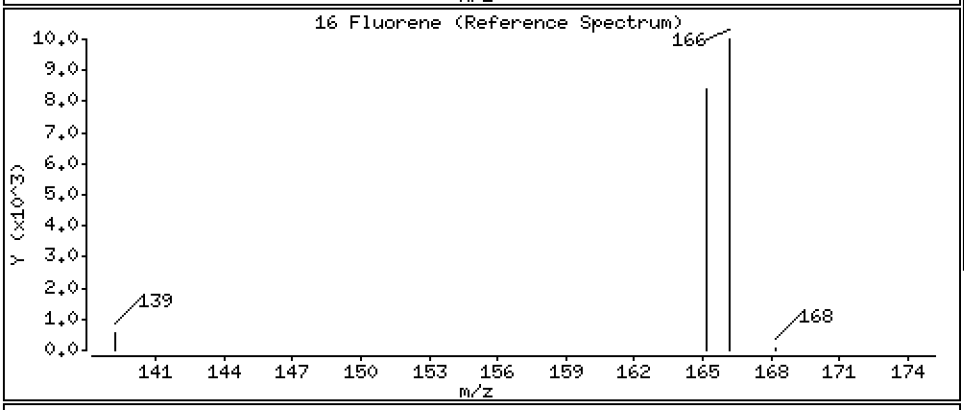
Concentration: 3.90 ng/mL

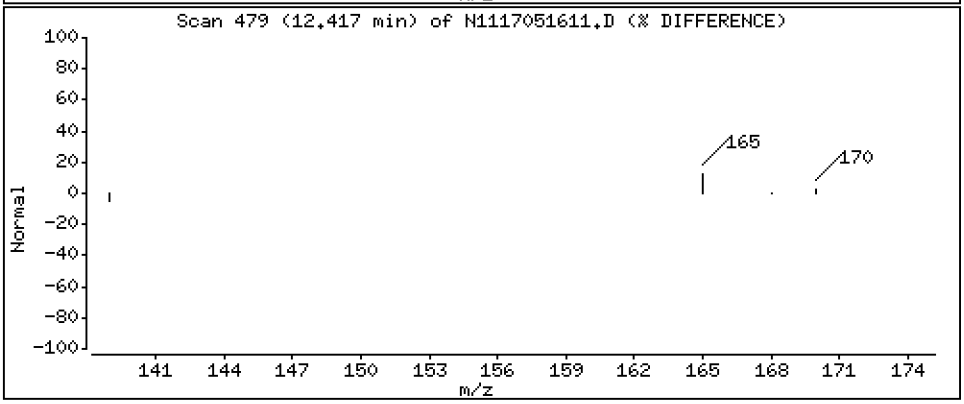












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Date : 16-MAY-2017 16:26

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-07

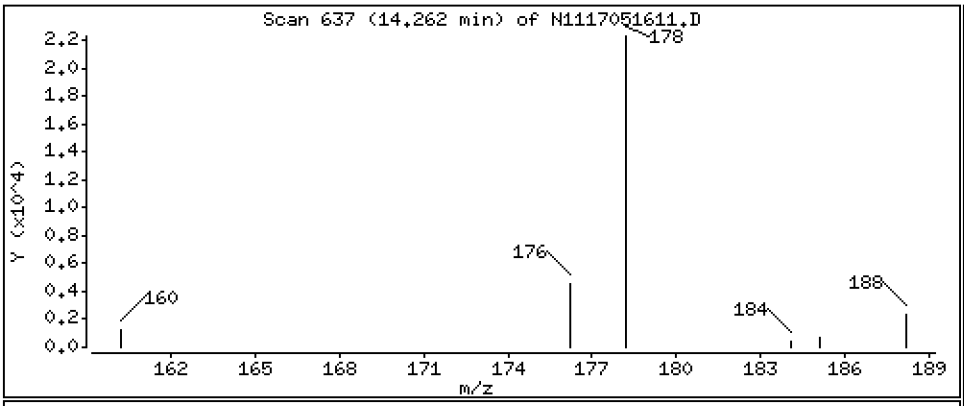
Operator: VTS

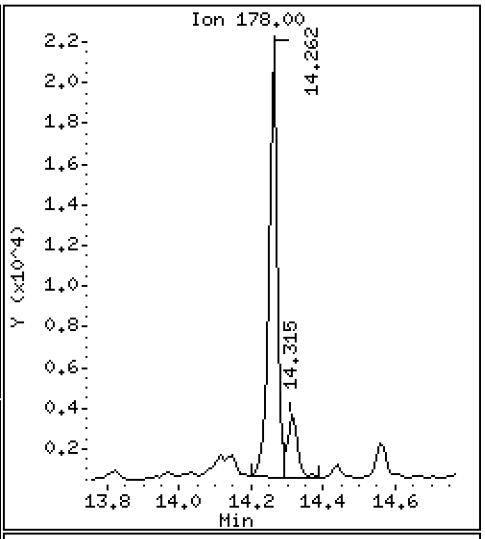
Column phase: Rxi-17Sil MS

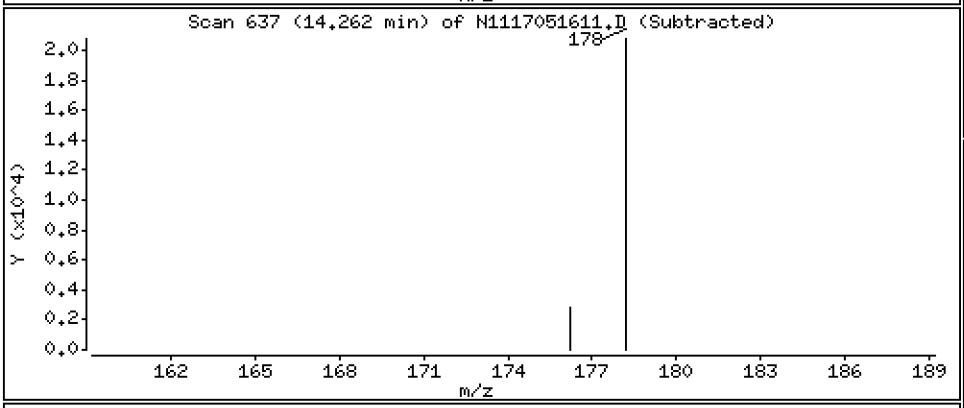
Column diameter: 0.25

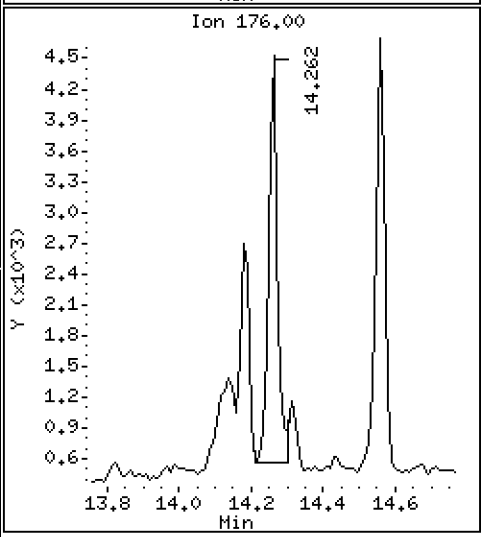
19 Phenanthrene

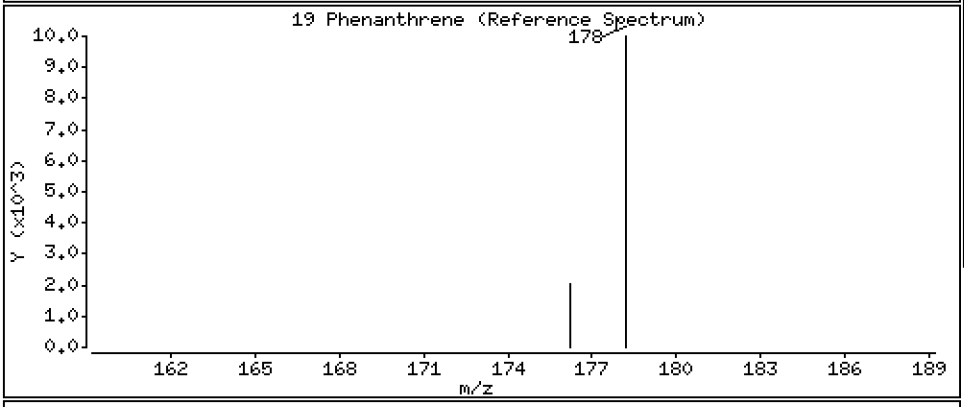
Concentration: 17.7 ng/mL

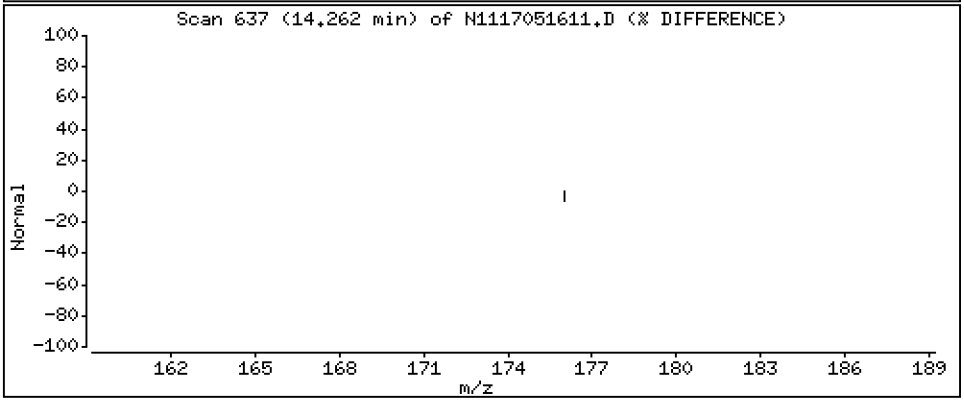












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Date : 16-MAY-2017 16:26

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-07

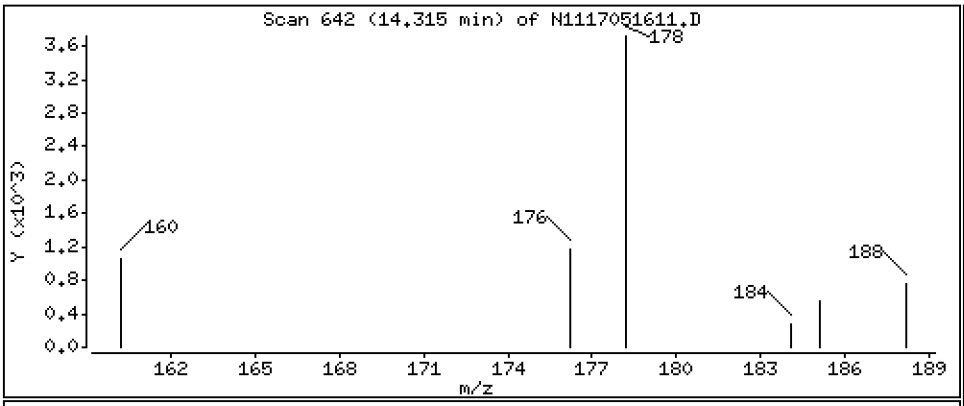
Operator: VTS

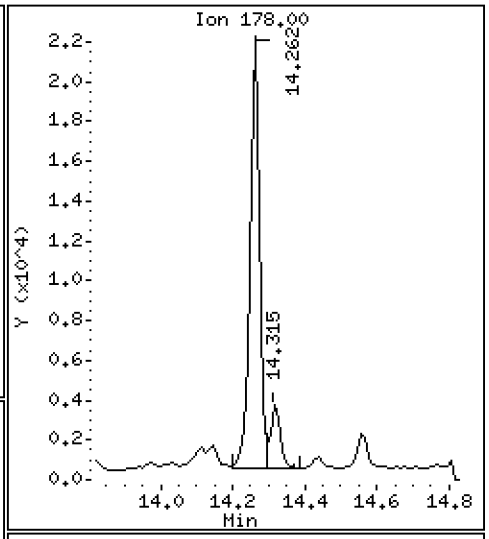
Column phase: Rxi-17Sil MS

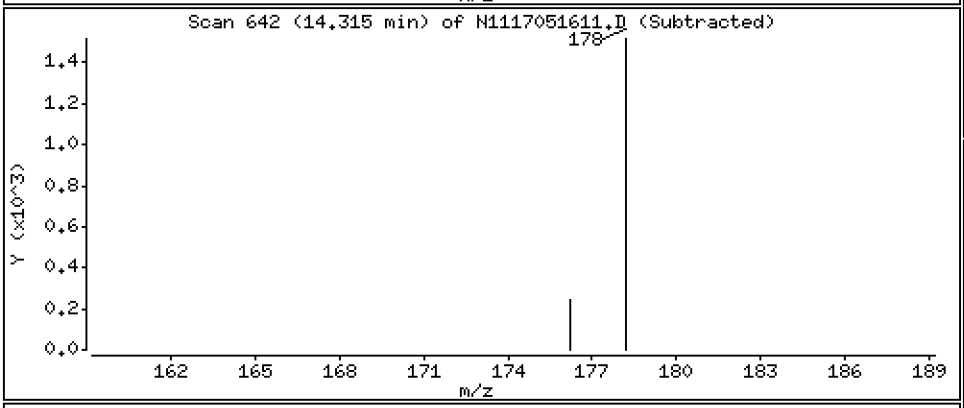
Column diameter: 0.25

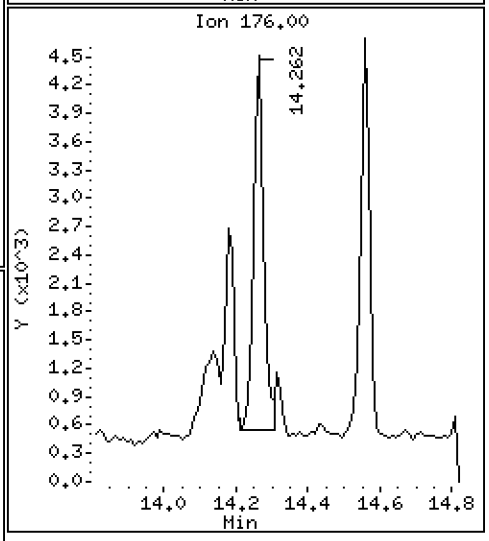
21 Anthracene

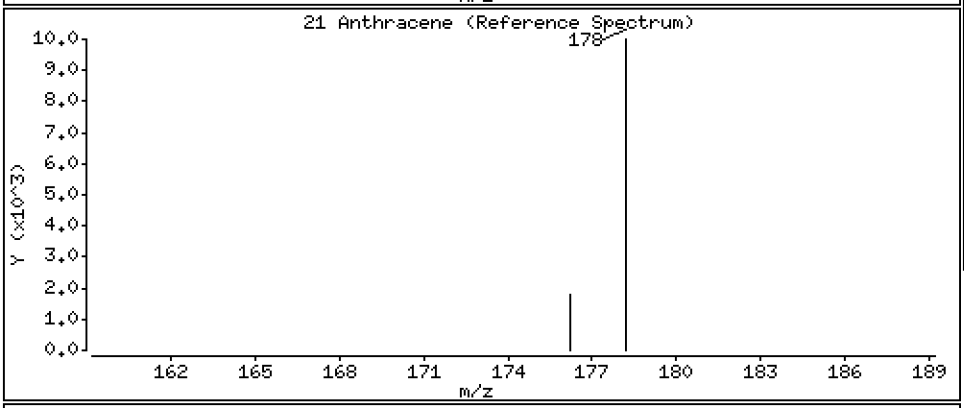
Concentration: 2.85 ng/mL

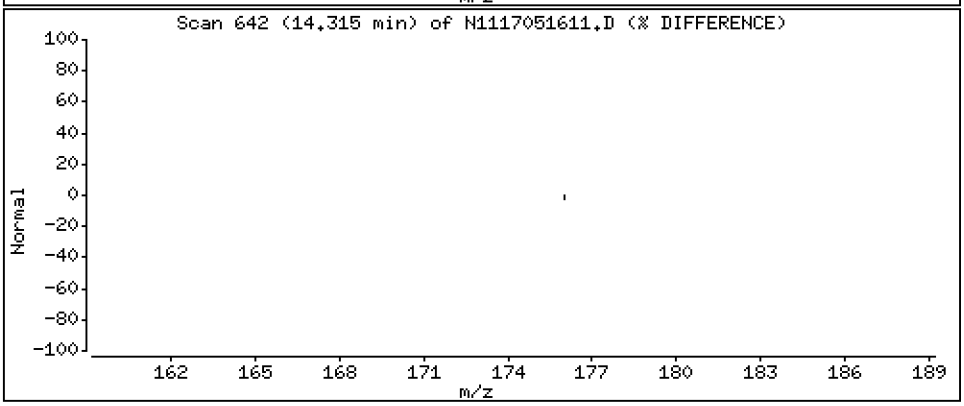












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Date : 16-MAY-2017 16:26

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-07

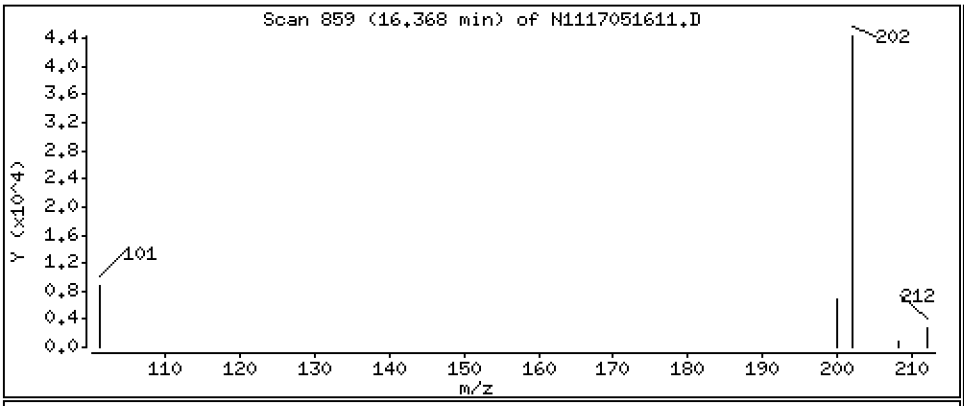
Operator: VTS

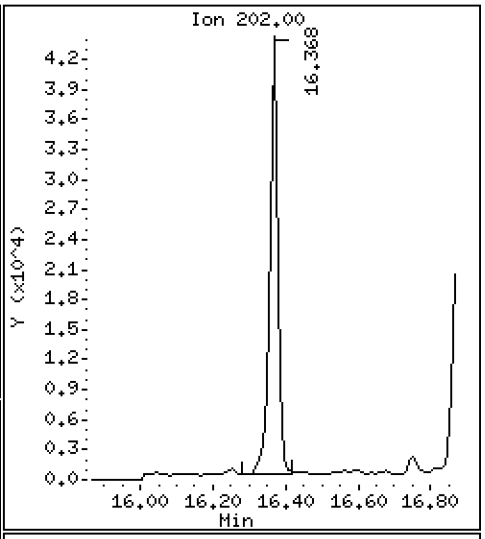
Column phase: Rxi-17Sil MS

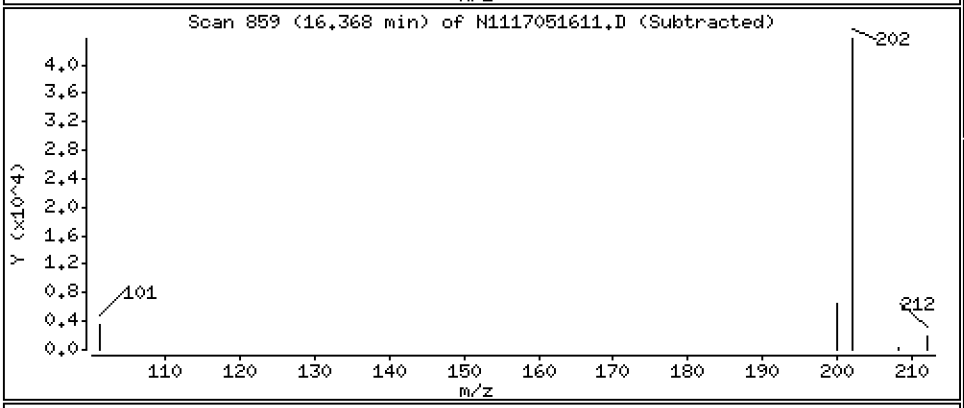
Column diameter: 0.25

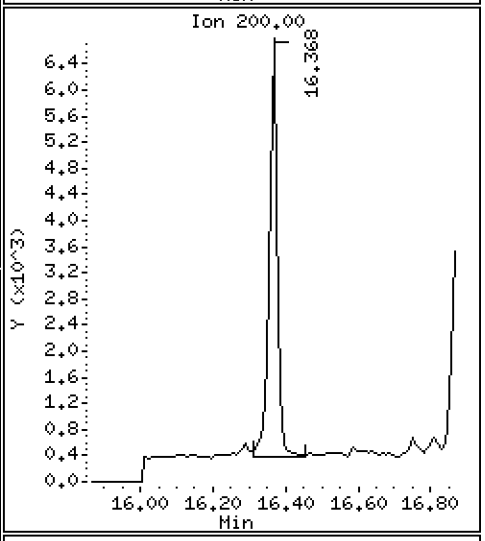
25 Fluoranthene

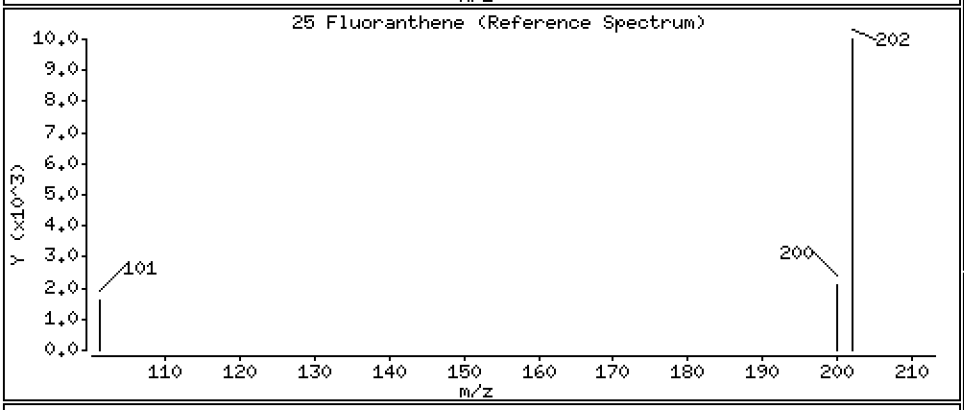
Concentration: 33.6 ng/mL

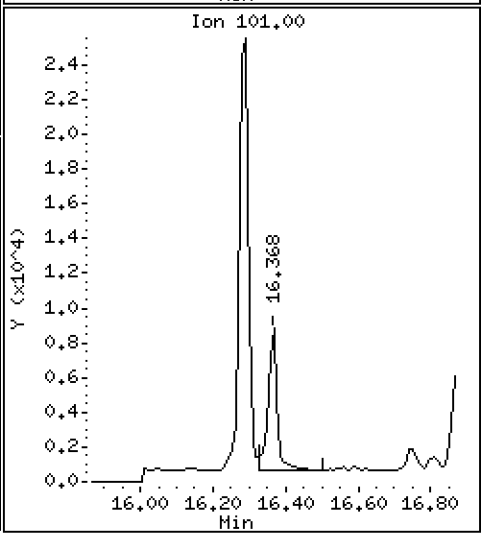


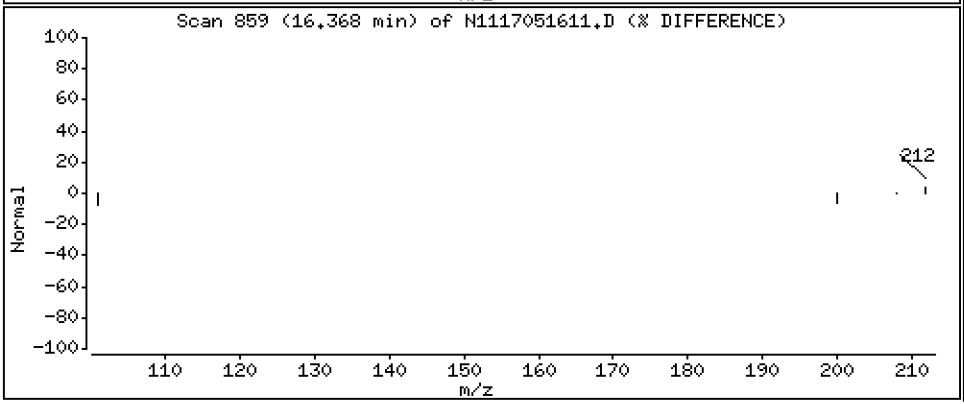












Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051611.D

Date : 16-MAY-2017 16:26

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-07

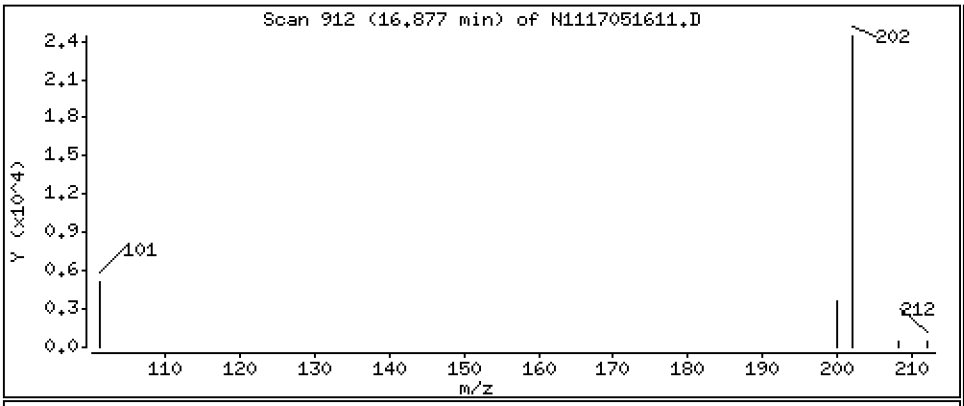
Operator: VTS

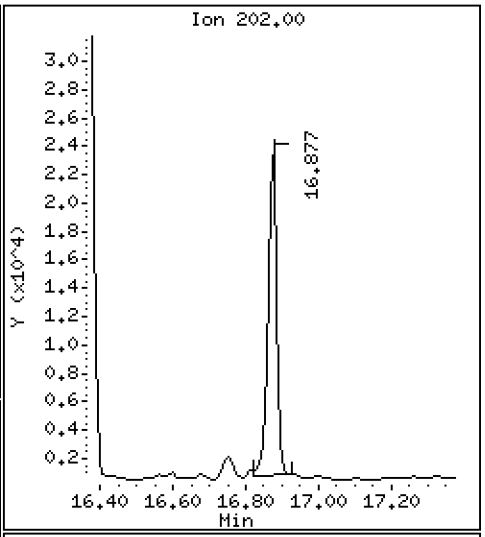
Column phase: Rxi-17Sil MS

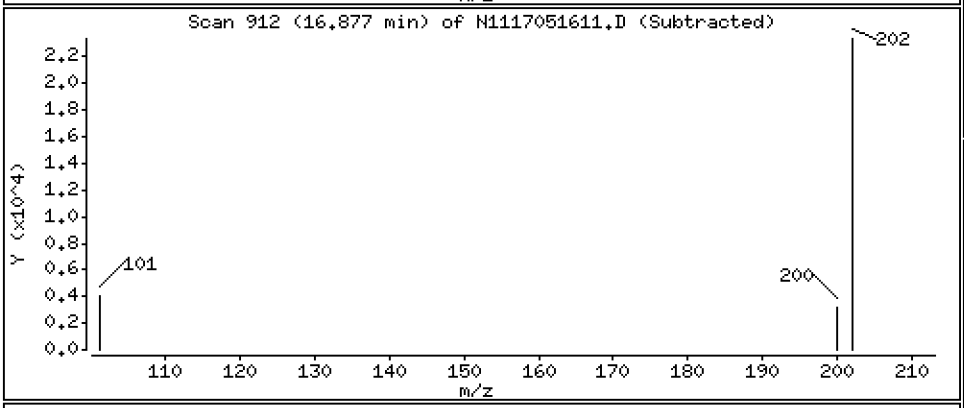
Column diameter: 0.25

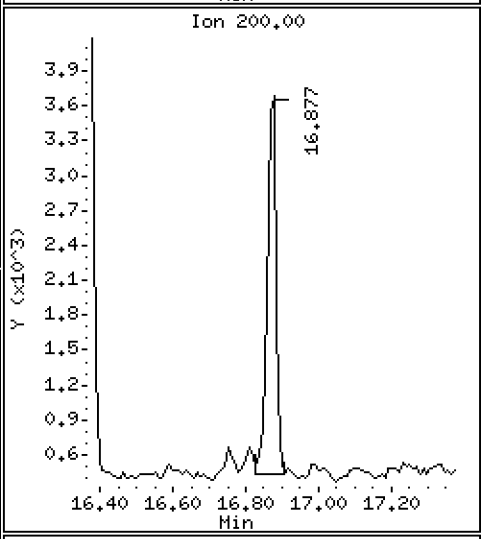
26 Pyrene

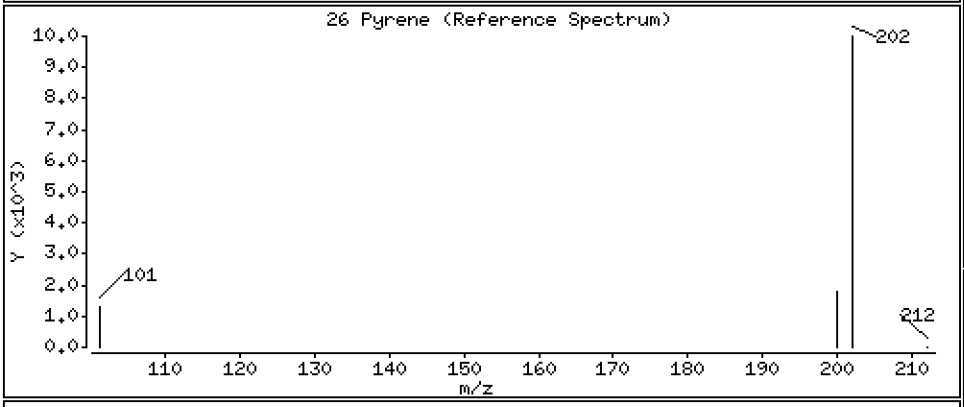
Concentration: 24.3 ng/mL

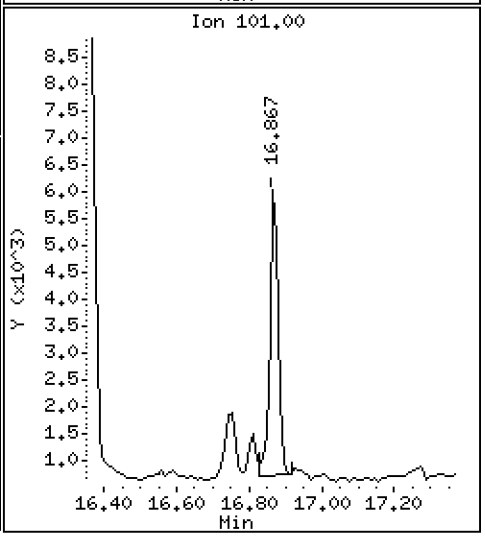


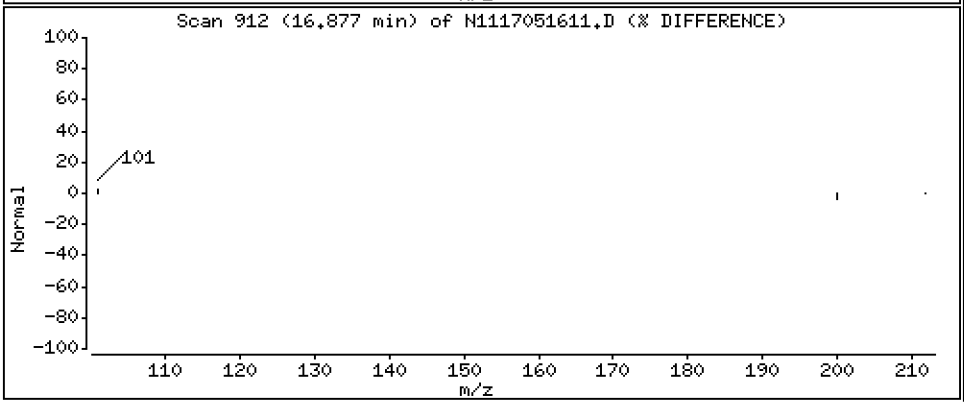












Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051611.D

Date : 16-MAY-2017 16:26

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-07

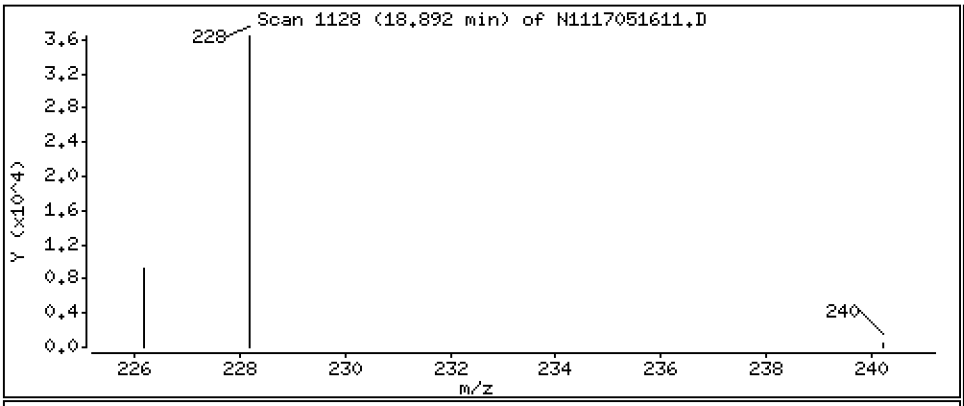
Operator: VTS

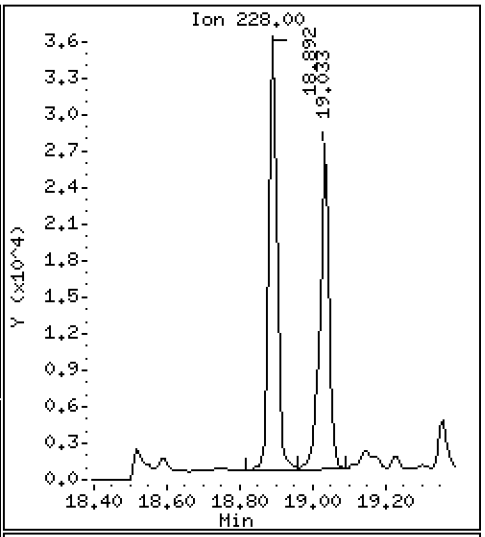
Column phase: Rxi-17Sil MS

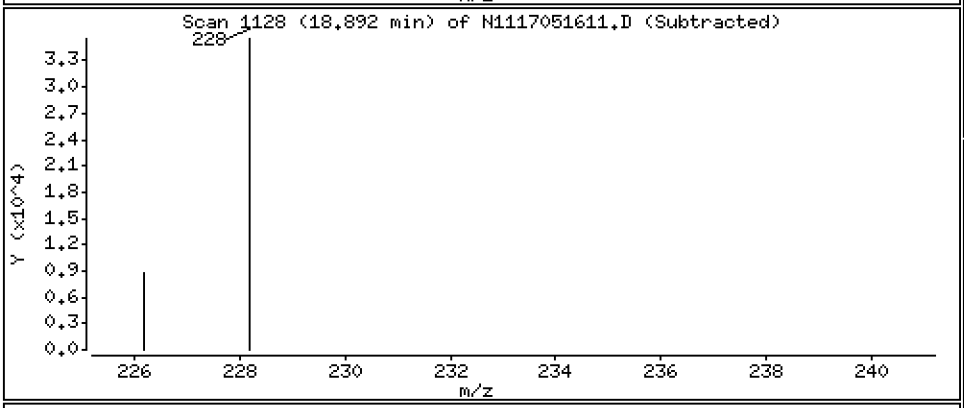
Column diameter: 0.25

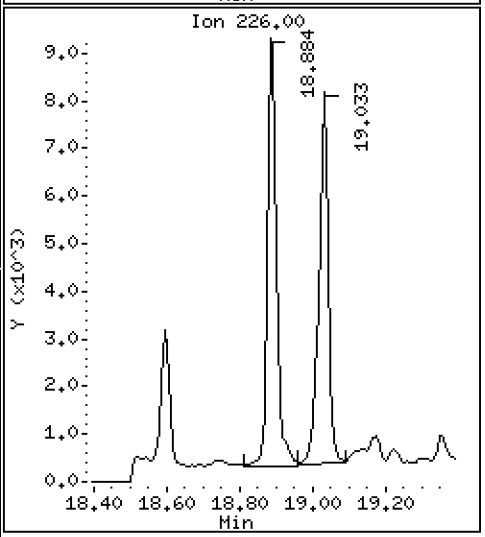
27 Benzo(a)anthracene

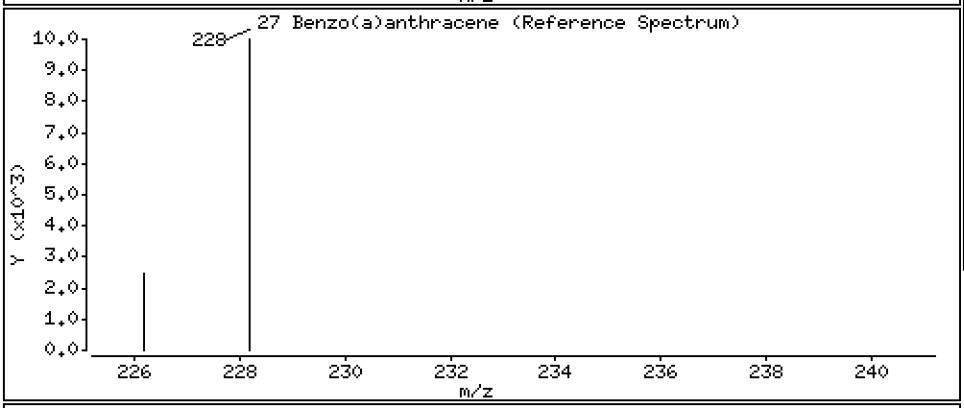
Concentration: 44.0 ng/mL

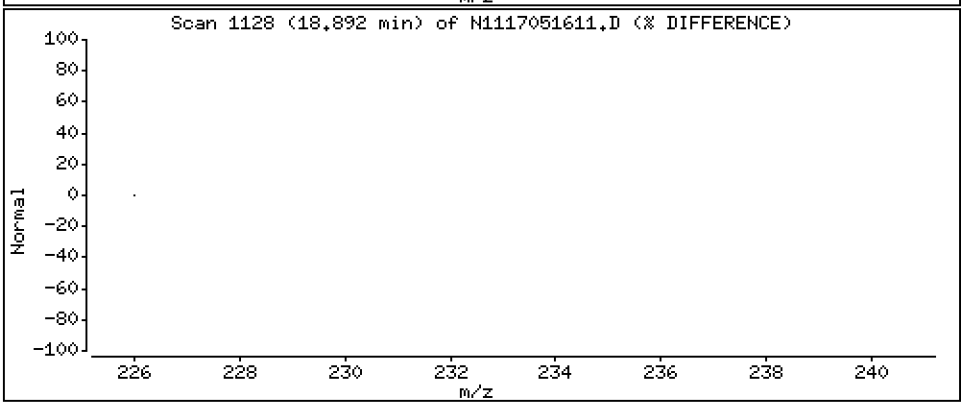












Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051611.D

Date : 16-MAY-2017 16:26

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-07

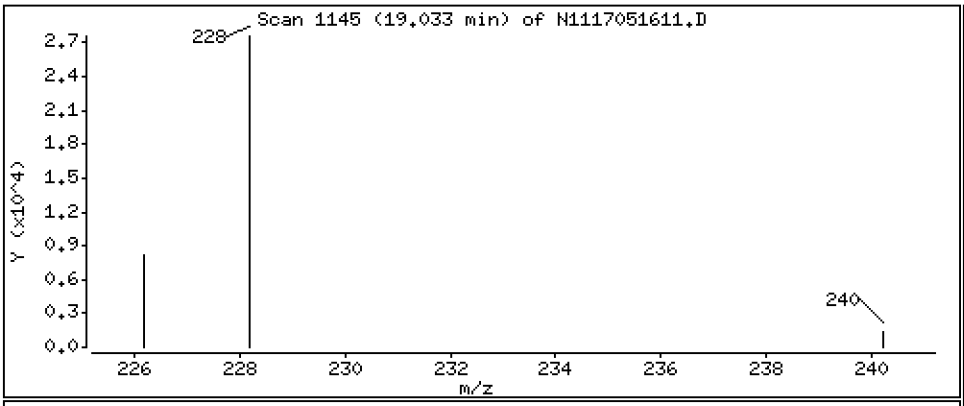
Operator: VTS

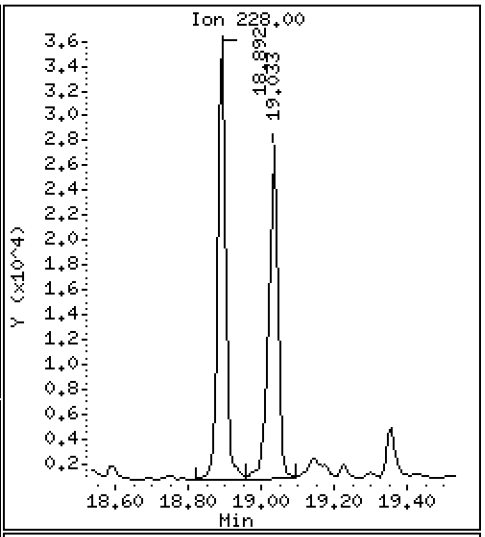
Column phase: Rxi-17Sil MS

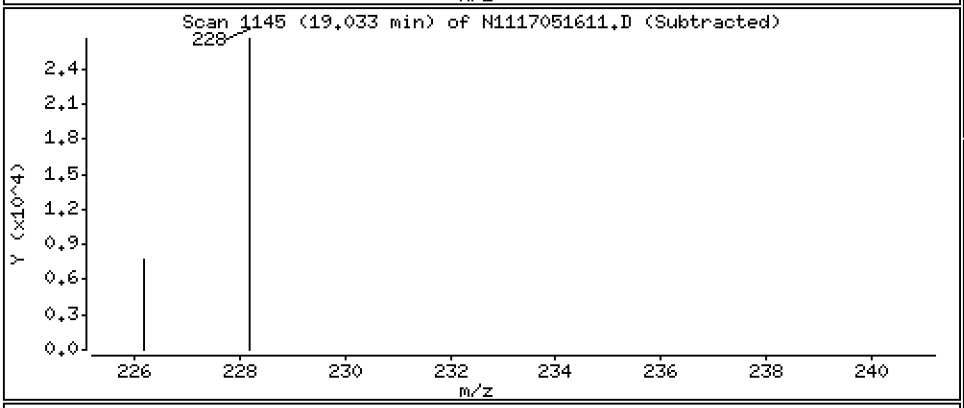
Column diameter: 0.25

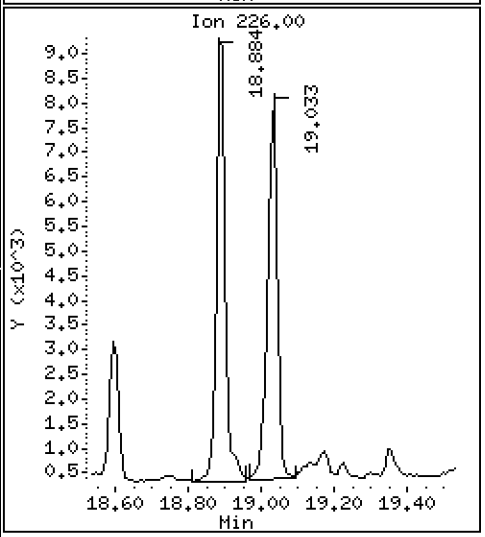
29 Chrysene

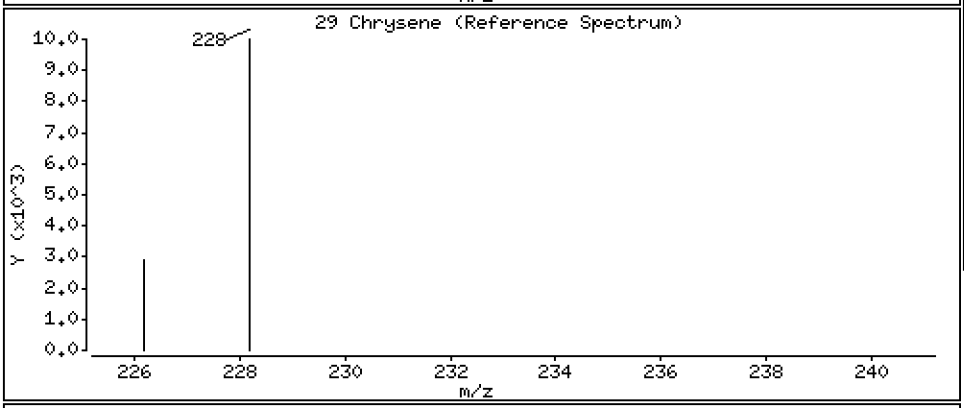
Concentration: 35.7 ng/mL

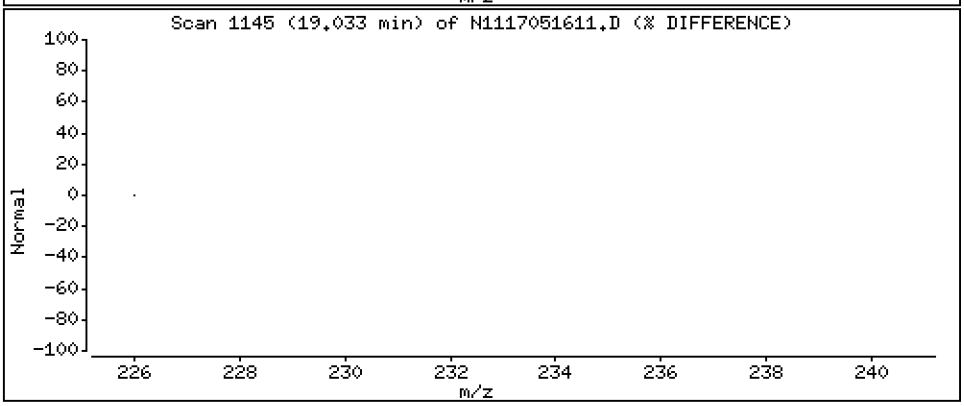












Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051611.D

Date : 16-MAY-2017 16:26

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-07

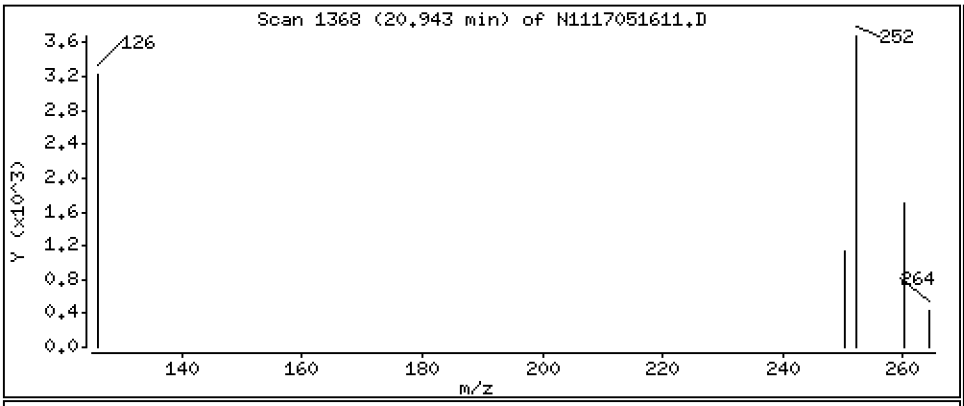
Operator: VTS

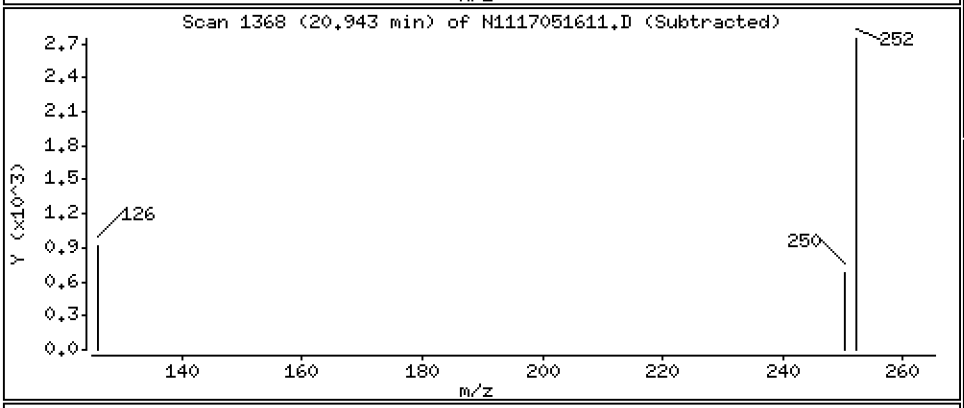
Column phase: Rxi-17Sil MS

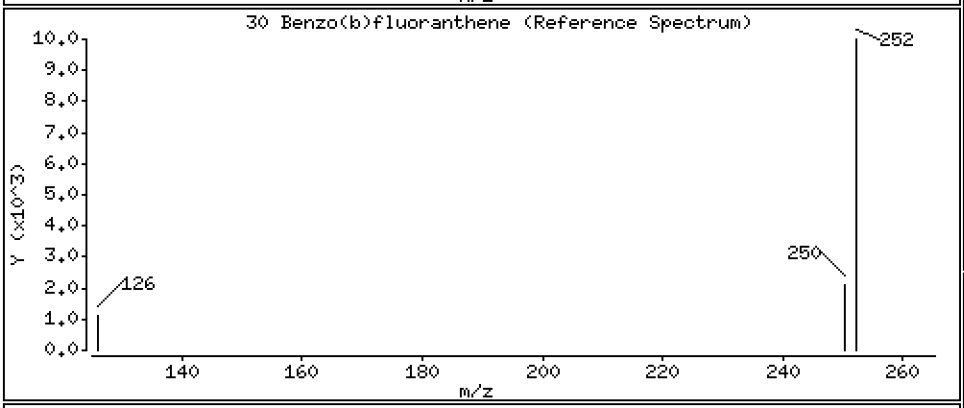
Column diameter: 0.25

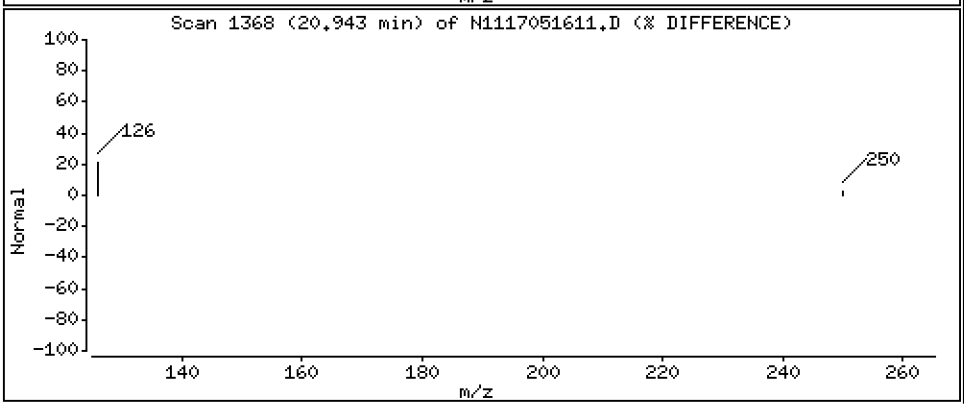
30 Benzo(b)fluoranthene

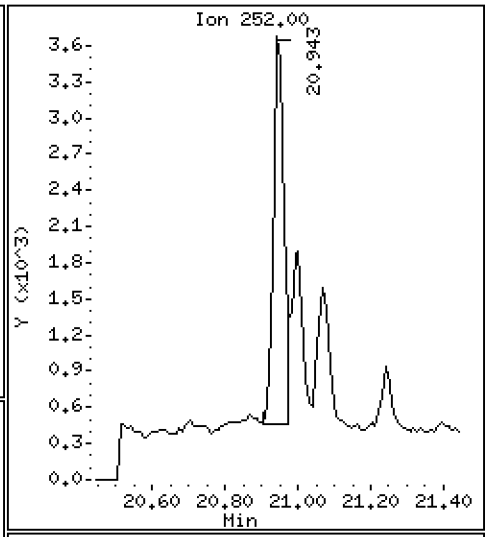
Concentration: 4.65 ng/mL

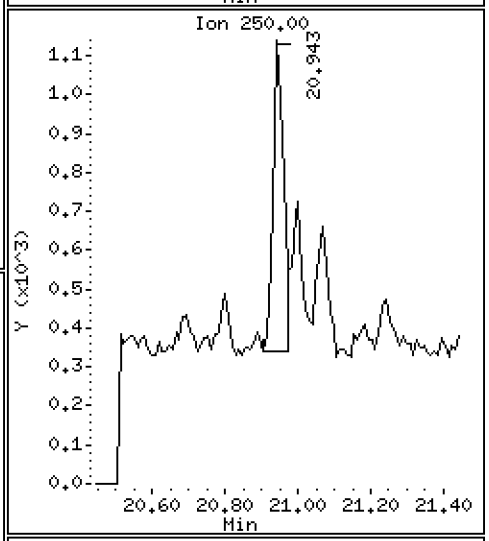


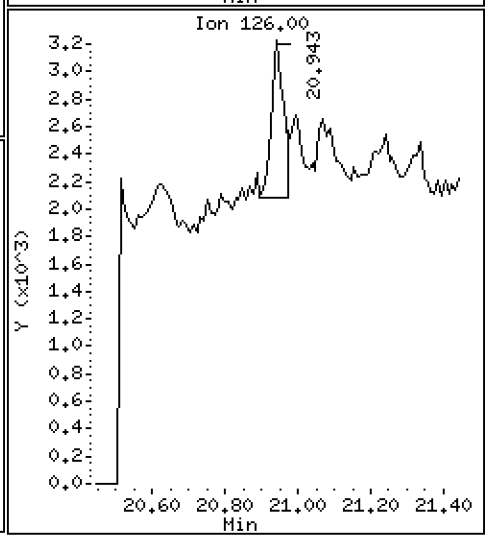












Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051611.D

Date : 16-MAY-2017 16:26

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-07

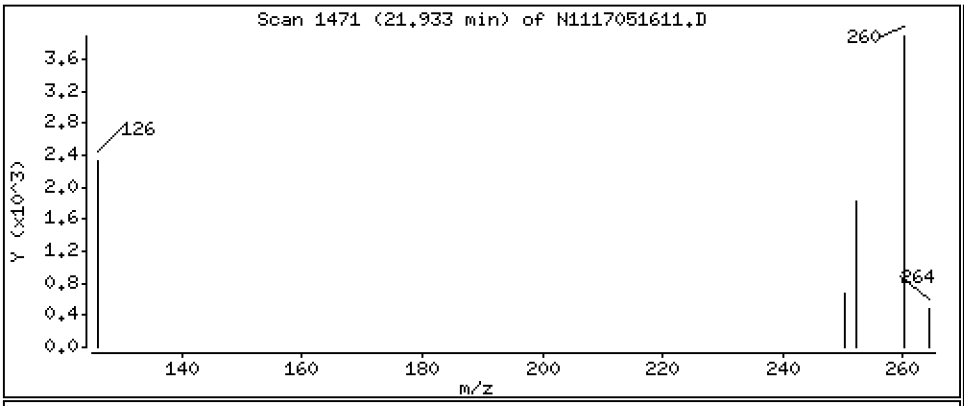
Operator: VTS

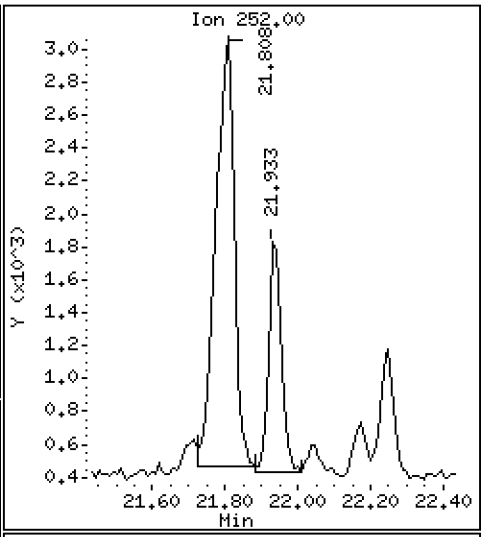
Column phase: Rxi-17Sil MS

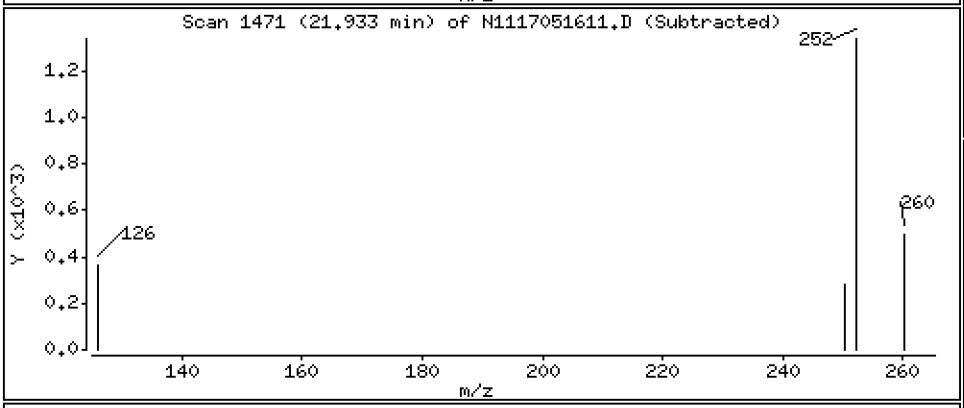
Column diameter: 0.25

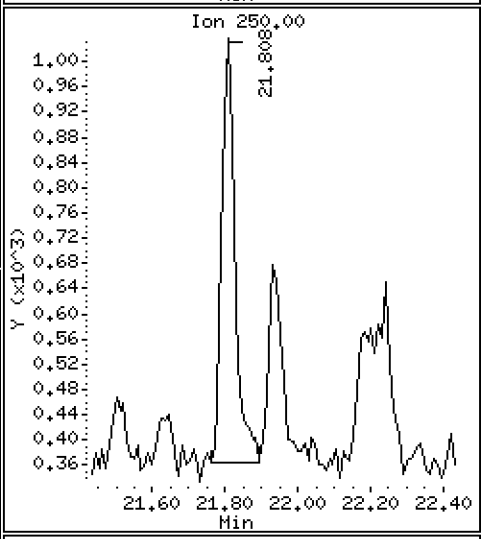
35 Benzo(a)pyrene

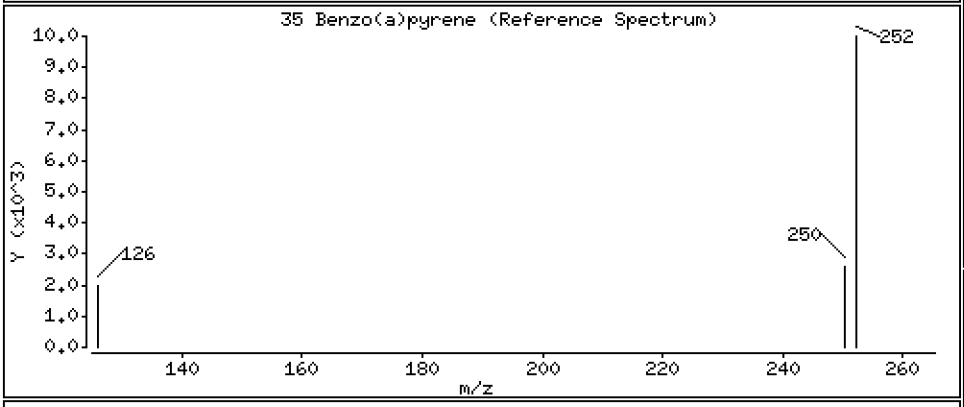
Concentration: 2.66 ng/mL

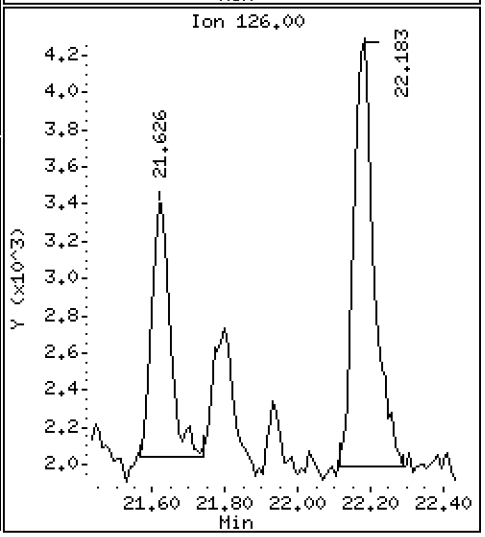


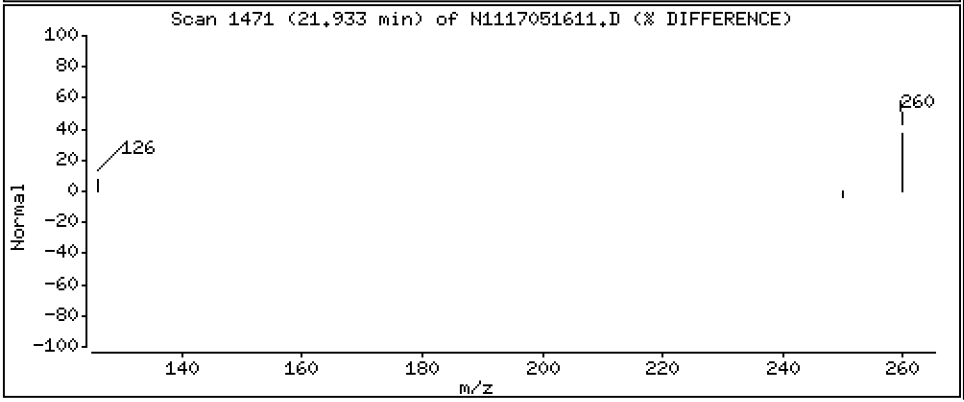












ARI Labs, Inc.

LOW LEVEL PNAs BY SW8270D-SIM

Data file : \\target\share\chem3\nt11.i\20170516.b\N1117051611.D
Lab Smp Id: 17D0421-07
Inj Date : 16-MAY-2017 16:26 MS Autotune Date: 15-JAN-2015 16:59
Operator : VTS Inst ID: nt11.i
Smp Info : 17D0421-07
Misc Info :
Comment   :
Method   : \\target\share\chem3\nt11.i\20170516.b\LOWSIM.m
Meth Date : 17-May-2017 08:15 nt11.i Quant Type: ISTD
Cal Date : 05-MAY-2017 14:47 Cal File: 17050508.D
Als bottle: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: allpna.sub
Target Version: 4.14
Processing Host: VANS

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ng/mL)	CONCENTRATIONS FINAL (ng/mL)
*	1 Naphthalene-d8	136	8.481	8.500	(1.000)	456040	200.000	
	2 Naphthalene	128	8.517	8.536	(1.004)	19580	7.98911	7.99
	3 Benzo(b)thiophene	134	Compound Not Detected.					
$	4 2-Methylnaphthalene-d10	152	9.466	9.477	(1.116)	330998	169.370	169
	5 2-Methylnaphthalene	142	9.529	9.540	(1.124)	26954	11.9235	11.9
	6 1-Methylnaphthalene	142	9.781	9.792	(1.153)	13574	6.20911	6.21
	7 2-Chloronaphthalene	162	Compound Not Detected.					
	8 Biphenyl	154	Compound Not Detected.					
	9 2,6-Dimethylnaphthalene	156	Compound Not Detected.					
	10 Acenaphthylene	152	Compound Not Detected.					
*	11 Acenaphthene-d10	164	11.528	11.528	(1.000)	191367	200.000	
	12 Acenaphthene	153	Compound Not Detected.					
	13 Dibenzofuran	168	Compound Not Detected.					
	14 2,3,5-Trimethylnaphthalene	170	Compound Not Detected.					
$	15 Fluorene-d10	174	Compound Not Detected.					
	16 Fluorene	166	12.416	12.429	(1.077)	6153	3.89895	3.90
	17 Dibenzothiophene	184	Compound Not Detected.					
*	18 Phenanthrene-d10	188	14.220	14.220	(1.000)	296883	200.000	
	19 Phenanthrene	178	14.262	14.262	(1.003)	39044	17.6669	17.7
$	20 Anthracene-d10	188	Compound Not Detected.					
	21 Anthracene	178	14.314	14.325	(1.007)	6208	2.85129	2.85
	22 Carbazole	167	Compound Not Detected.					
	23 1-Methylphenanthrene	192	Compound Not Detected.					
$	24 Fluoranthene-d10	212	16.338	16.338	(1.149)	300836	214.350	214
	25 Fluoranthene	202	16.367	16.367	(1.151)	71358	33.5987	33.6
	26 Pyrene	202	16.876	16.876	(0.889)	39906	24.3194	24.3
	27 Benzo(a)anthracene	228	18.891	18.892	(0.995)	56789	43.9989	44.0
*	28 Chrysene-d12	240	18.983	18.983	(1.000)	181253	200.000	
	29 Chrysene	228	19.033	19.033	(1.003)	47617	35.7465	35.7
	30 Benzo(b)fluoranthene	252	20.943	20.943	(0.945)	6758	4.64839	4.65
	31 Benzo(k)fluoranthene	252	Compound Not Detected.					
	32 Benzo(j)fluoranthene	252	Compound Not Detected.					
$	33 Benzo(e)pyrene-d12	264	Compound Not Detected.					

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ng/mL)	CONCENTRATIONS FINAL (ng/mL)
34	Benzo(e)pyrene	252	Compound Not Detected.					
35	Benzo(a)pyrene	252	21.933	21.933	(0.989)	3494	2.65675	2.66
* 36	Perylene-d12	264	22.173	22.173	(1.000)	232662	200.000	
37	Perylene	252	Compound Not Detected.					
$ 38	Dibenzo(a,h)anthracene-d14	292	25.005	25.016	(1.128)	186621	215.032	215
39	Dibenzo(a,h)anthracene	278	Compound Not Detected.					
40	Indeno(1,2,3-cd)pyrene	276	Compound Not Detected.					
41	Benzo(g,h,i)perylene	276	Compound Not Detected.					

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt11.i
Lab File ID: N1117051611.D
Lab Smp Id: 17D0421-07
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: \\target\share\chem3\nt11.i\20170516.b\LOWSIM.m
Misc Info:

Calibration Date: 16-MAY-2017
Calibration Time: 10:47
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	371325	185663	742650	456040	22.81
11 Acenaphthene-d10	154428	77214	308856	191367	23.92
18 Phenanthrene-d10	256956	128478	513912	296883	15.54
28 Chrysene-d12	208629	104315	417258	181253	-13.12
36 Perylene-d12	225431	112716	450862	232662	3.21

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	8.50	8.00	9.00	8.48	-0.21
11 Acenaphthene-d10	11.53	11.03	12.03	11.53	-0.00
18 Phenanthrene-d10	14.22	13.72	14.72	14.22	-0.00
28 Chrysene-d12	18.98	18.48	19.48	18.98	-0.00
36 Perylene-d12	22.17	21.67	22.67	22.17	-0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N1117051611.D

Lab ID: 17D0421-07
nt11.i, 20170516.b\LOWSIM.m,   16-MAY-2017 16:26

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

On Column LOD for nt11.i, 20170516.b\LOWSIM.m, allpna.sub = 3.0000

Exception: Naphthalene 6.0000
Exception: Phenanthrene 2.5000
Exception: Anthracene 2.0000
Exception: Pyrene 4.0000
Exception: Benzo(j)fluoranthene 2.5000
Exception: Benzo(a)pyrene 2.0000
Exception: Perylene 3.5000
Exception: Benzo(e)pyrene 2.0000
Exception: Benzo(b)thiophene 2.0000
Exception: 2-Chloronaphthalene 2.0000
Exception: 2,6-Dimethylnaphthalene 2.0000
Exception: 2,3,5-Trimethylnaphthalene 2.0000
Exception: 1-Methylphenanthrene 2.0000
Exception: Dibenzothiophene 2.0000
Exception: Carbazole 2.0000
Exception: Biphenyl 2.0000
Exception: 2-Methylnaphthalene-d10 (Surr) 0.1000
Exception: Dibenzo(a,h)anthracene-d14 (Surr) 0.1000
Exception: Fluoranthene-d10 (Surr) 0.1000
Exception: Anthracene-d10 (Surr) 0.1000
Exception: Benzo(e)pyrene-d12 (Surr) 0.1000
Exception: Fluorene-d10 (Surr) 0.1000

PG-SMA3-GEO-COC-170426

Form I

ORGANIC ANALYSIS DATA SHEET

EPA 8270D-SIM

Polynuclear Aromatic Hydrocarbons - low level

Laboratory:	Analytical Resources, Inc.			SDG:	17D0421
Client:	Anchor QEA, LLC			Project:	Port Gamble Shellfish Monitoring
Matrix:	Tissue	Laboratory ID:	17D0421-08	File ID:	N1117051612.D
Sampled:	04/26/17 07:00	Prepared:	05/09/17 13:50	Analyzed:	05/16/17 17:02
Solids:		Preparation:	EPA 3550C-Mod (Ultrasonic	Initial/Final:	10.14 g / 0.5 mL
Batch:	BFE0160	Sequence:	SFE0208	Calibration:	AE00020
Instrument:	NT11	Column:	RXi-17Sil-MS		

CAS NO.	COMPOUND	DILUTION	CONC. (ug/kg)	Q	DL	RL
91-20-3	Naphthalene	1	0.59	U	0.49	0.59
91-57-6	2-Methylnaphthalene	1	0.49	U	0.49	0.49
208-96-8	Acenaphthylene	1	0.49	U	0.49	0.49
83-32-9	Acenaphthene	1	0.49	U	0.49	0.49
86-73-7	Fluorene	1	0.49	U	0.49	0.49
85-01-8	Phenanthrene	1	0.49	U	0.49	0.49
120-12-7	Anthracene	1	0.49	U	0.49	0.49
206-44-0	Fluoranthene	1	0.78		0.49	0.49
129-00-0	Pyrene	1	0.49	U	0.49	0.49
56-55-3	Benzo(a)anthracene	1	0.69		0.49	0.49
218-01-9	Chrysene	1	0.82		0.49	0.49
205-99-2	Benzo(b)fluoranthene	1	0.53		0.49	0.49
207-08-9	Benzo(k)fluoranthene	1	0.49	U	0.49	0.49
50-32-8	Benzo(a)pyrene	1	0.49	U	0.49	0.49
193-39-5	Indeno(1,2,3-cd)pyrene	1	0.49	U	0.49	0.49
53-70-3	Dibenzo(a,h)anthracene	1	0.49	U	0.49	0.49
191-24-2	Benzo(g,h,i)perylene	1	0.49	U	0.49	0.49
1985-5-0	Perylene	1	0.49	U	0.49	0.49
197-97-2	Benzo(e)pyrene	1	0.79		0.49	0.49

SURROGATES	ADDED (ug/kg)	CONC (ug/kg)	% REC	QC LIMITS	Q
2-Methylnaphthalene-d10	14.793	8.58	58.0	30 - 160	
Dibenzo[a,h]anthracene-d14	14.793	10.9	74.0	30 - 160	
Fluoranthene-d10	14.793	10.7	72.4	30 - 160	

Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051612.D

Date : 16-MAY-2017 17:02

Client ID:

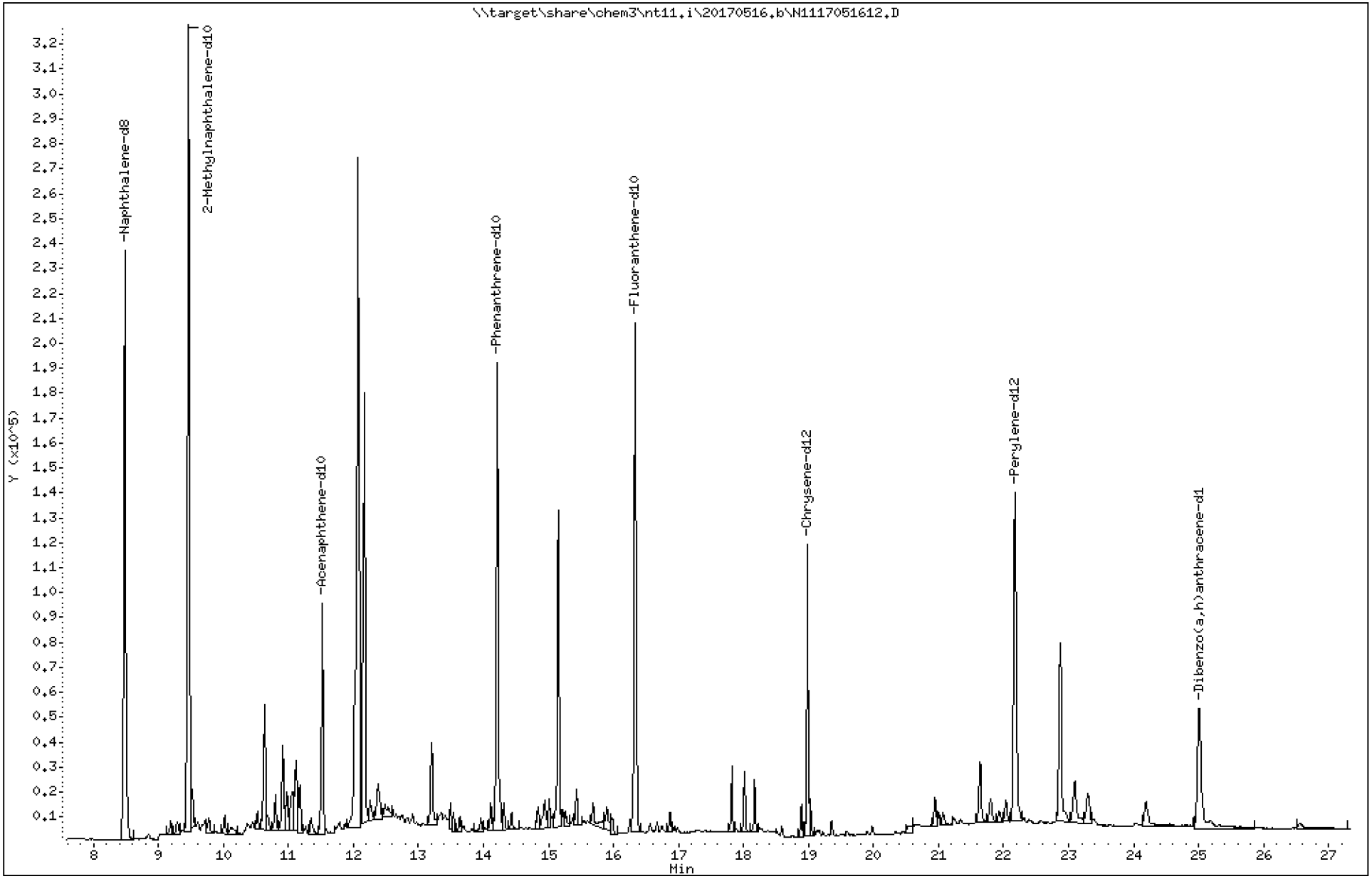
Sample Info: 17D0421-08

Instrument: nt11.i

Operator: VTS

Column phase: Rxi-17Sil MS

Column diameter: 0.25



Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051612.D

Date : 16-MAY-2017 17:02

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-08

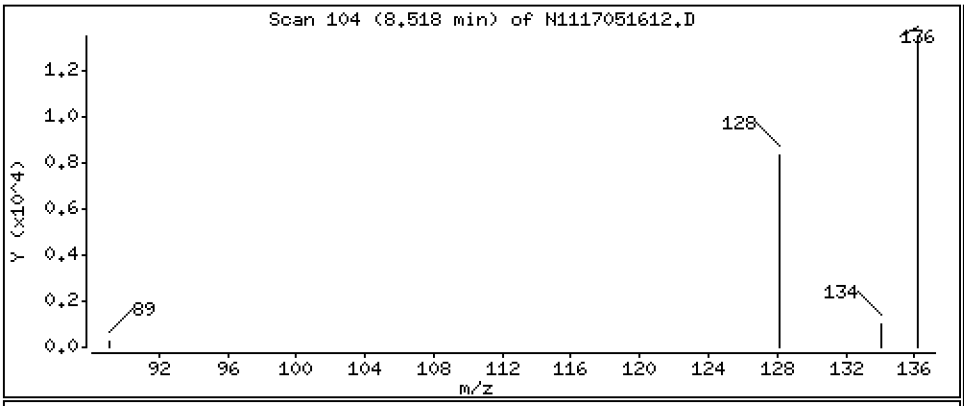
Operator: VTS

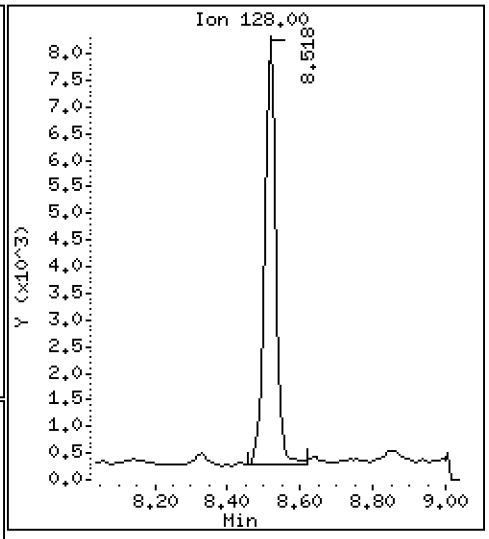
Column phase: Rxi-17Sil MS

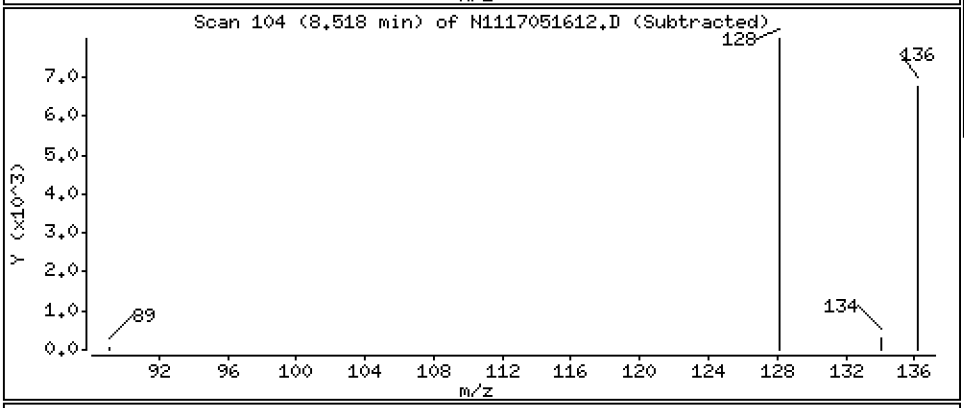
Column diameter: 0.25

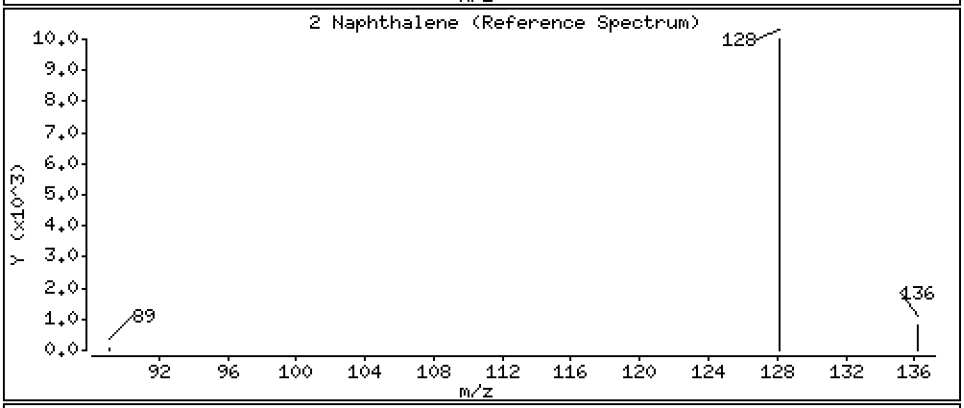
2 Naphthalene

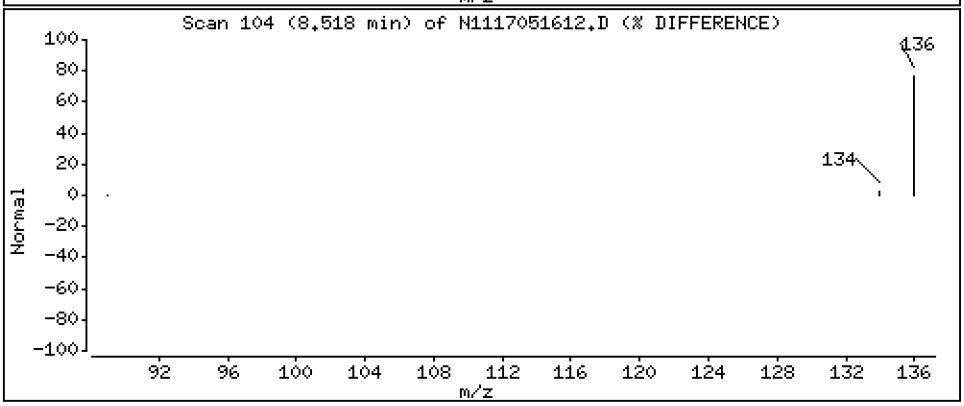
Concentration: 6.69 ng/mL











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Date : 16-MAY-2017 17:02

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-08

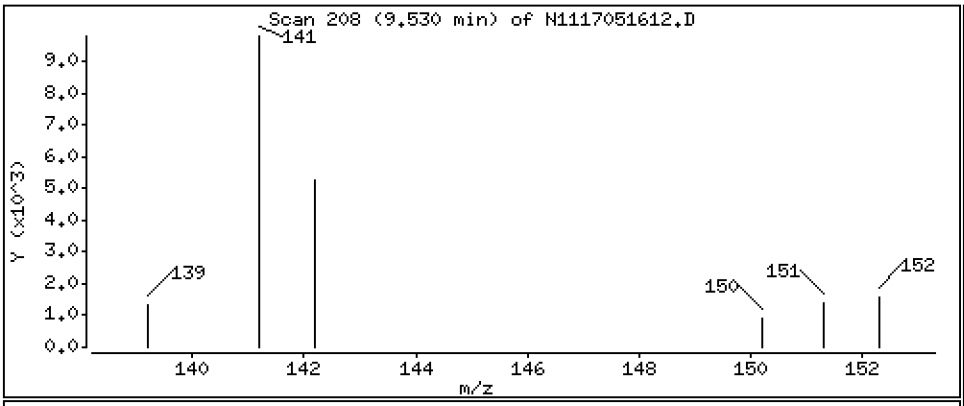
Operator: VTS

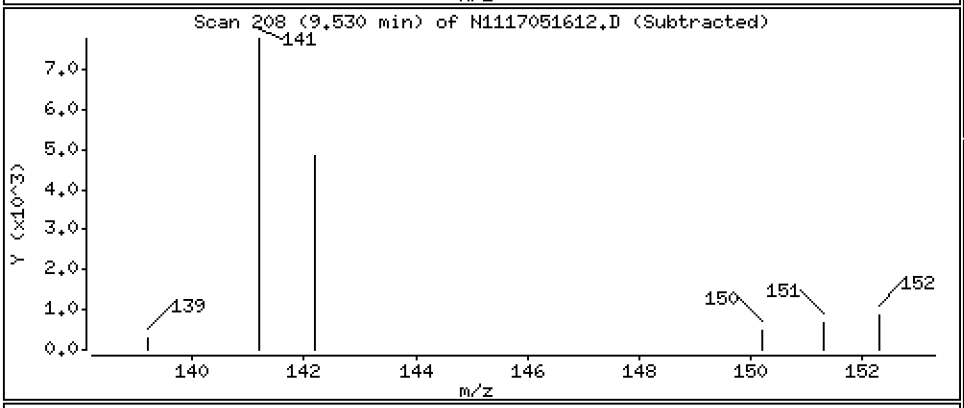
Column phase: Rxi-17Sil MS

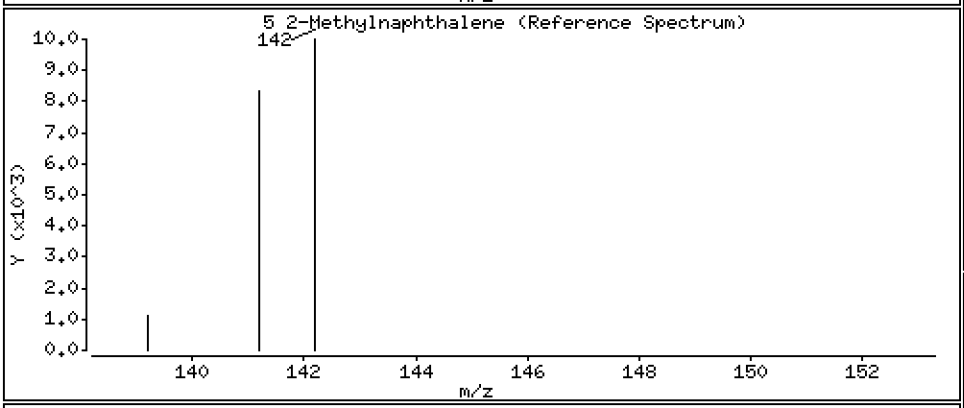
Column diameter: 0.25

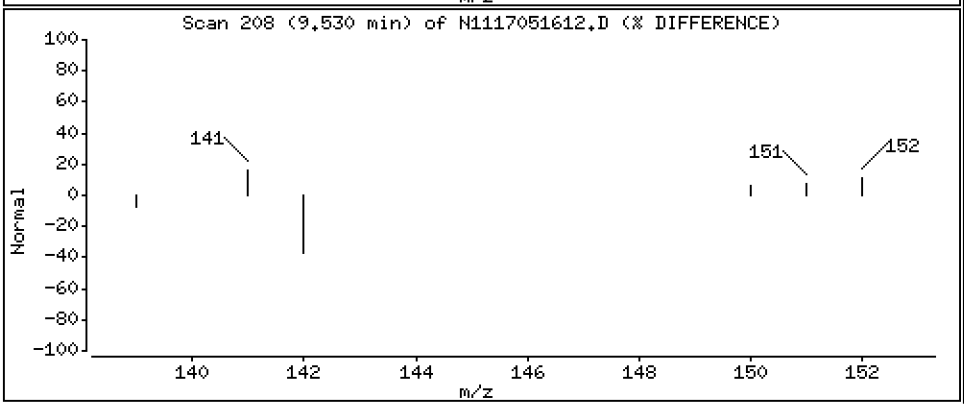
5 2-Methylnaphthalene

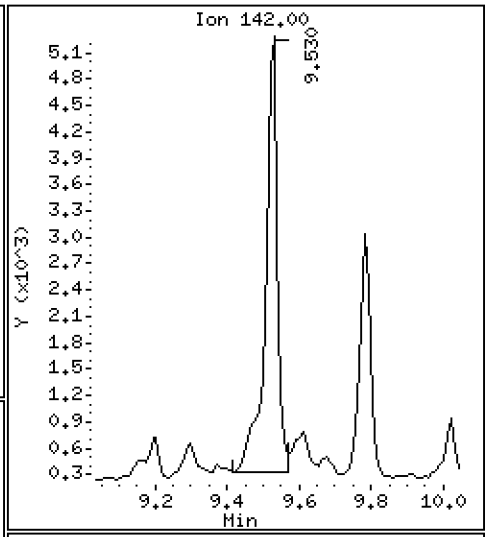
Concentration: 5.51 ng/mL

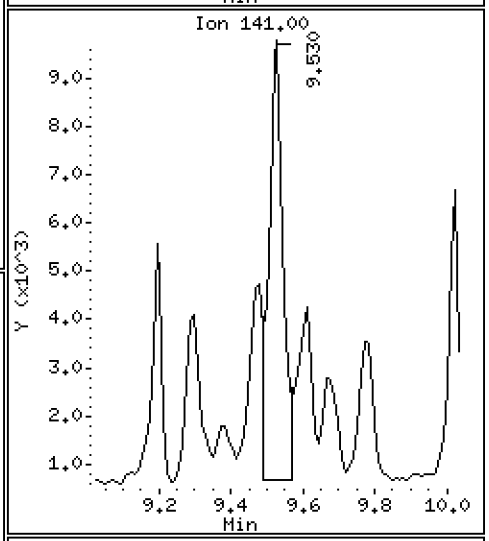


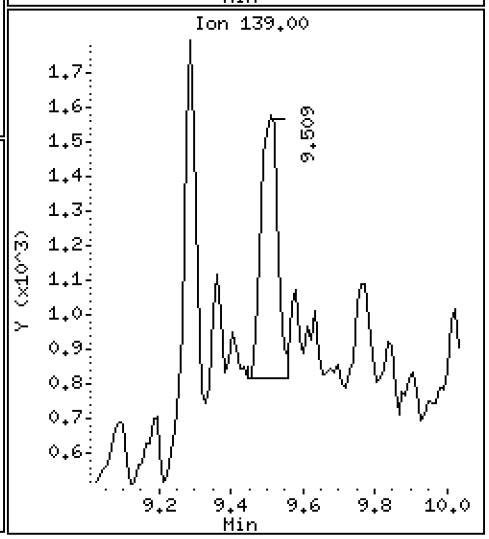












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Date : 16-MAY-2017 17:02

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-08

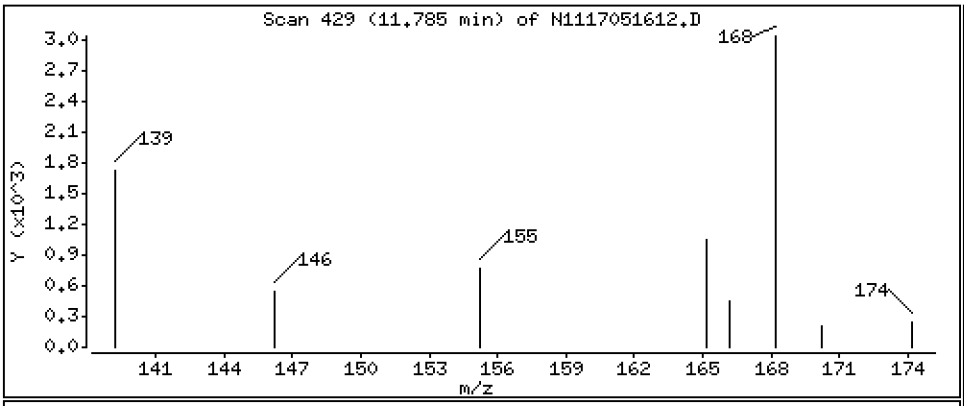
Operator: VTS

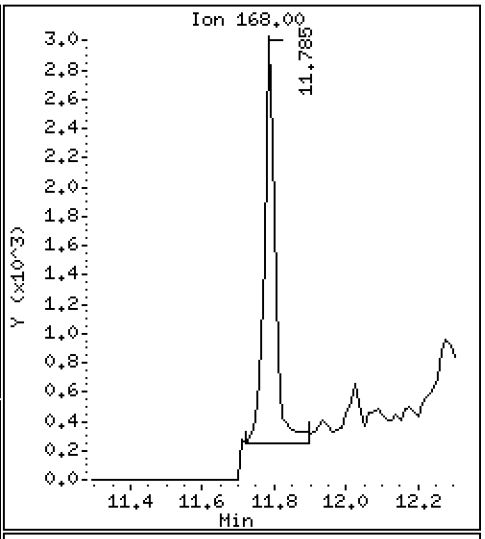
Column phase: Rxi-17Sil MS

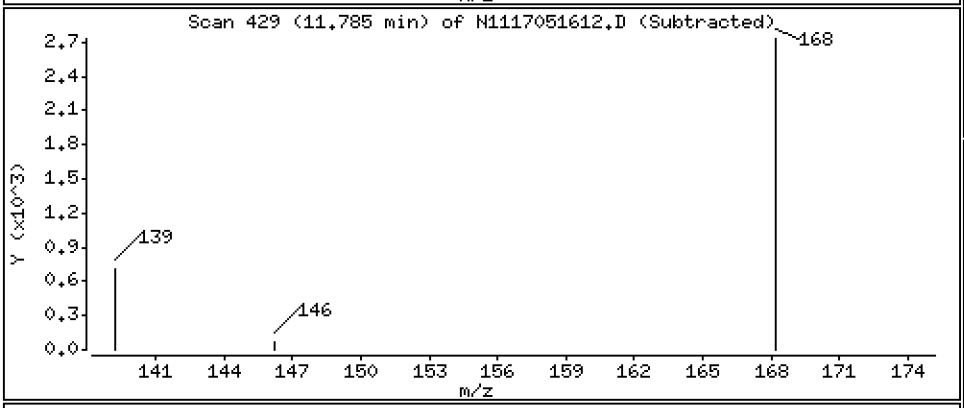
Column diameter: 0.25

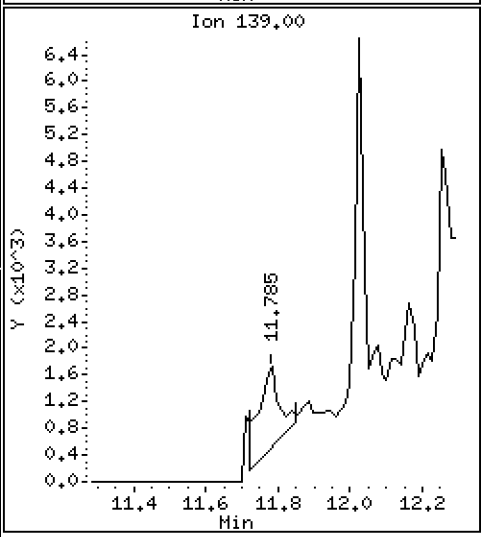
13 Dibenzofuran

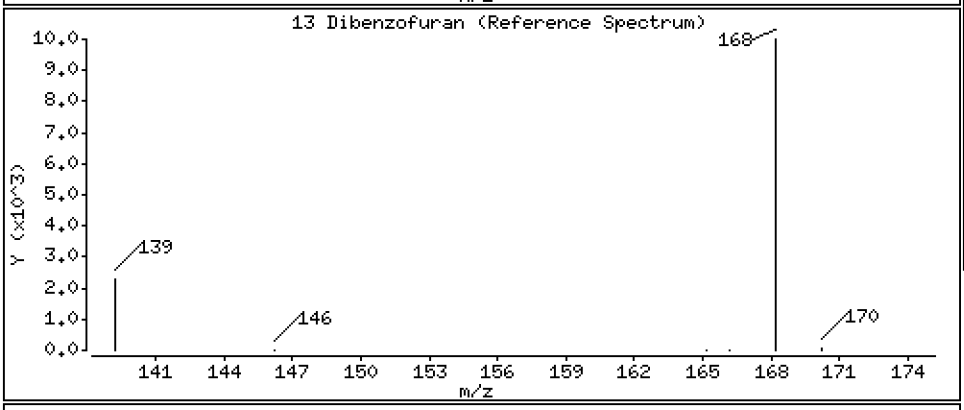
Concentration: 3.00 ng/mL

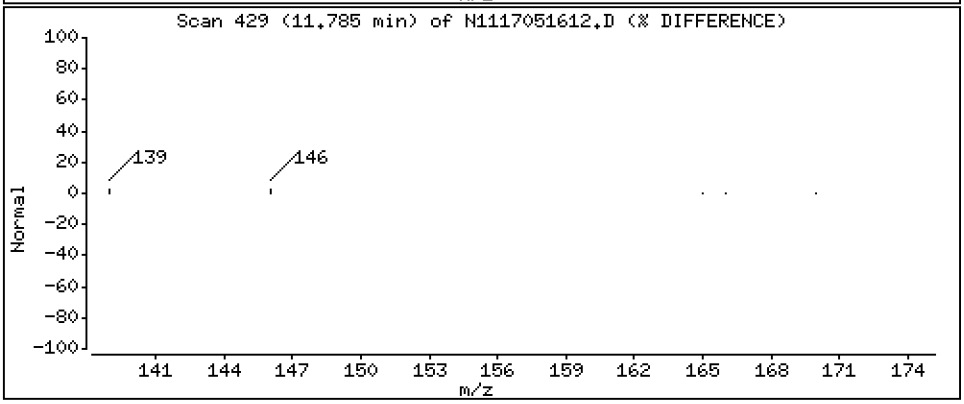












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Date : 16-MAY-2017 17:02

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-08

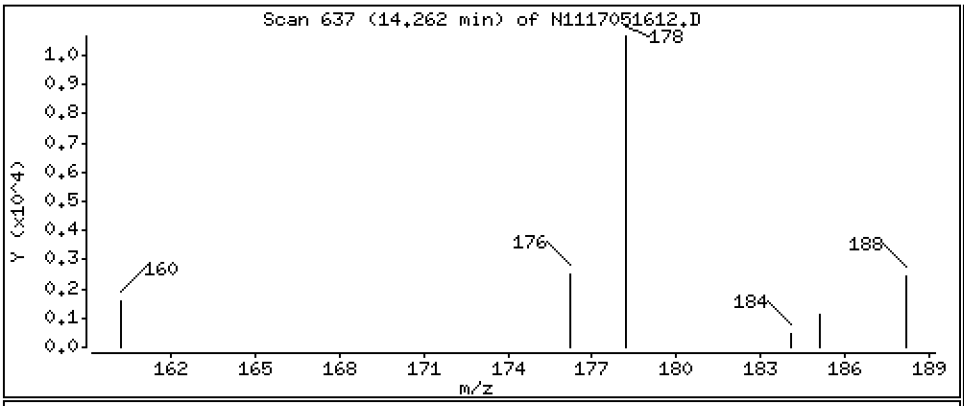
Operator: VTS

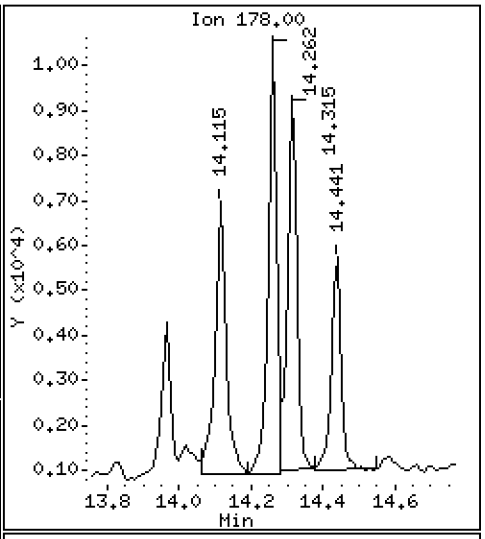
Column phase: Rxi-17Sil MS

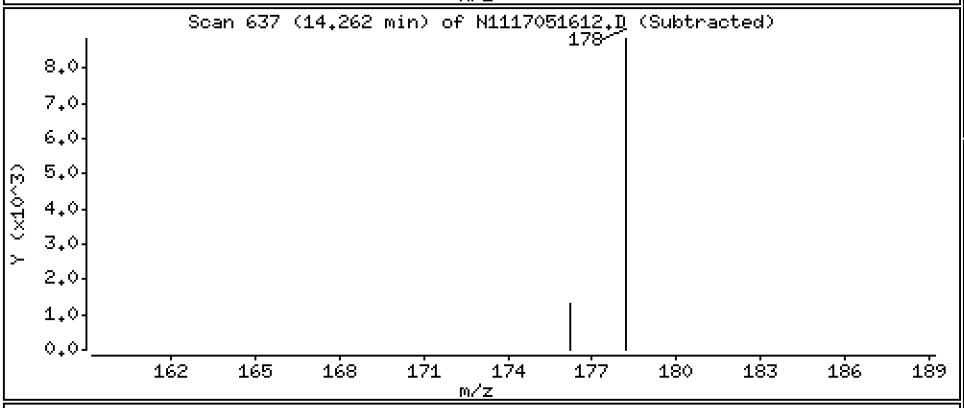
Column diameter: 0.25

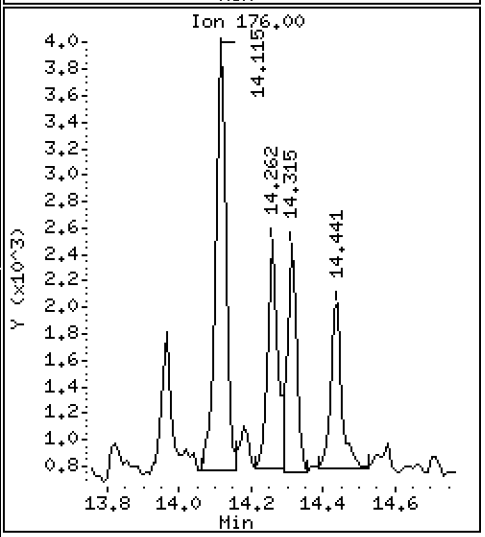
19 Phenanthrene

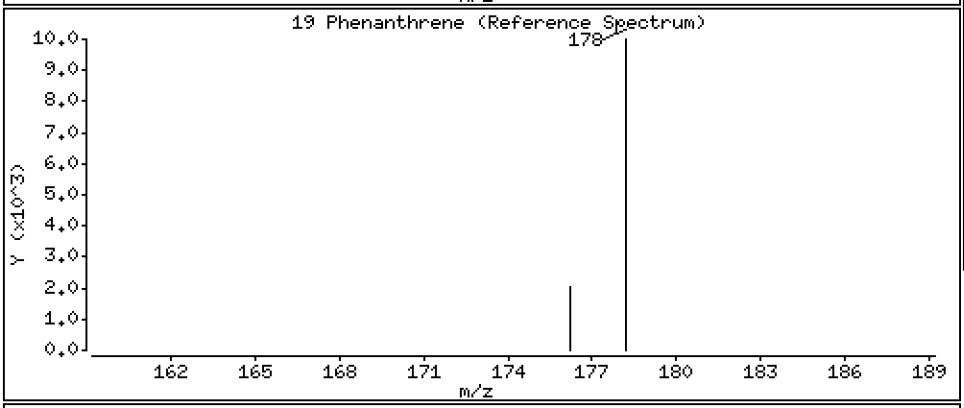
Concentration: 8.40 ng/mL

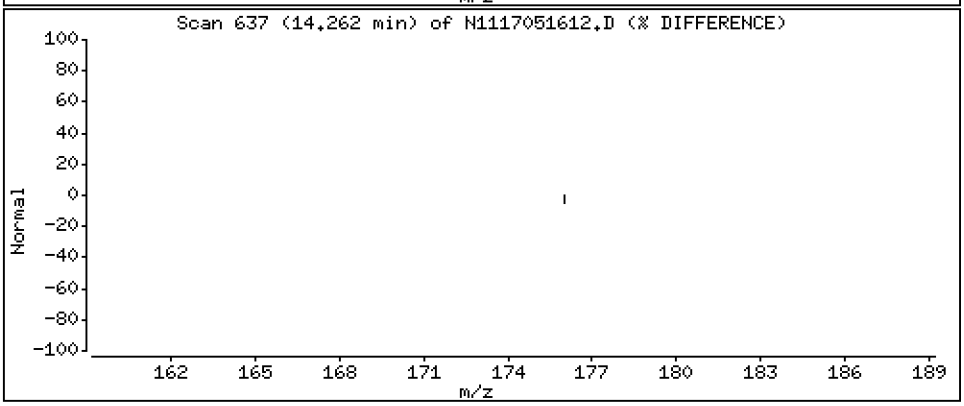












Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051612.D

Date : 16-MAY-2017 17:02

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-08

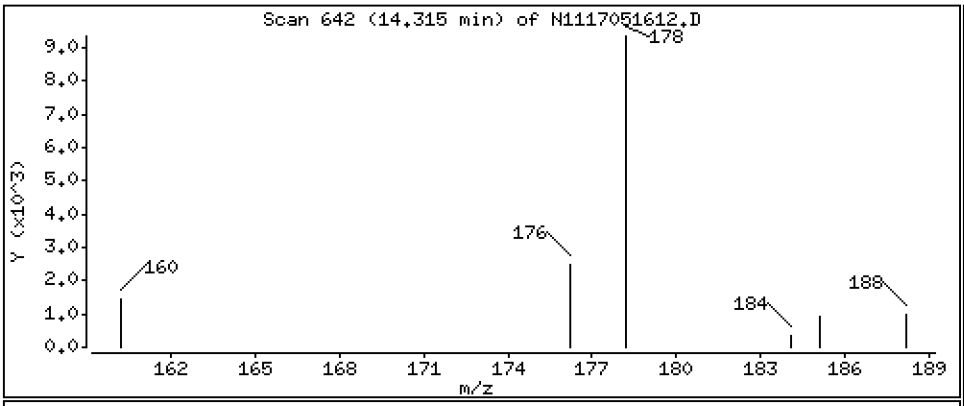
Operator: VTS

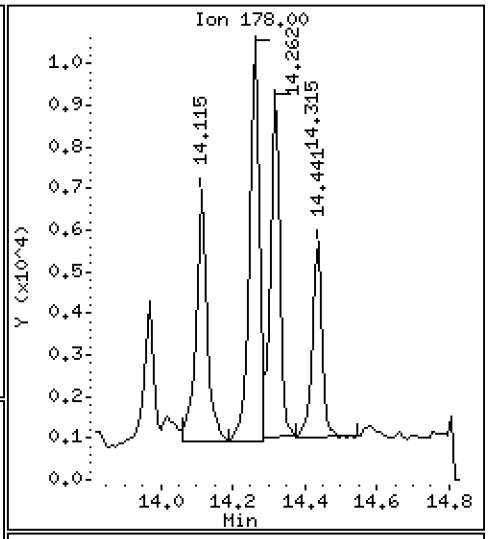
Column phase: Rxi-17Sil MS

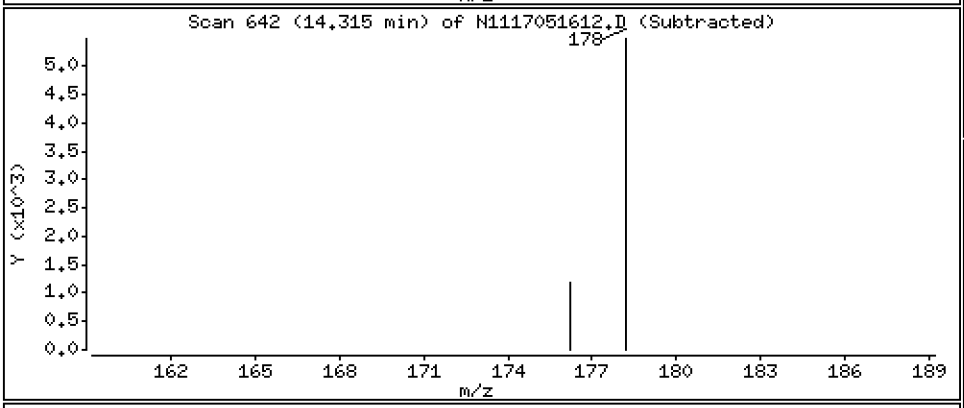
Column diameter: 0.25

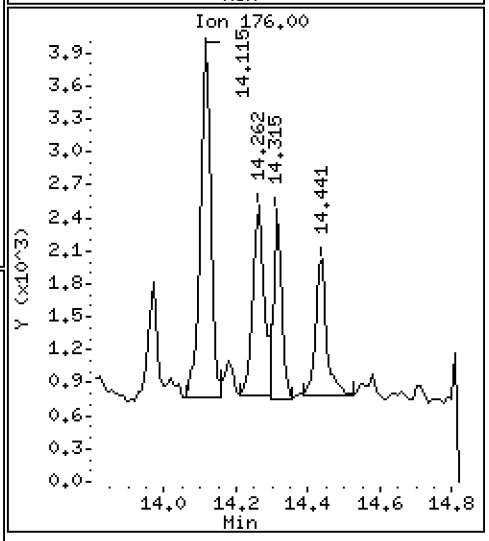
21 Anthracene

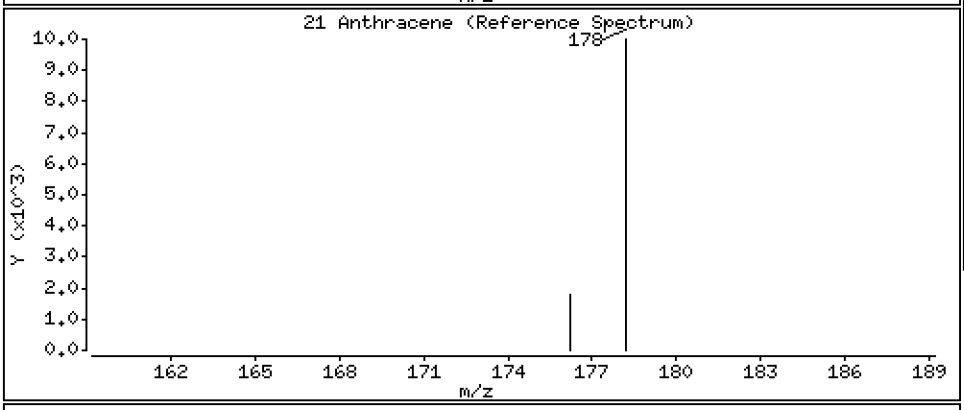
Concentration: 7.19 ng/mL

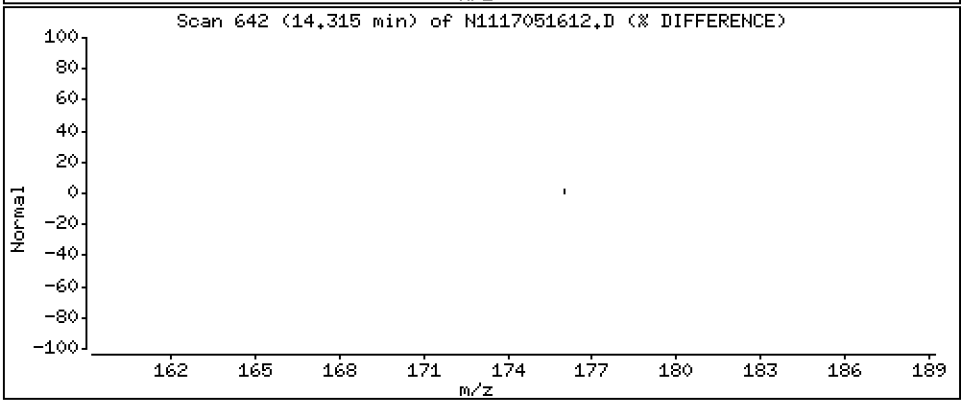












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Date : 16-MAY-2017 17:02

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-08

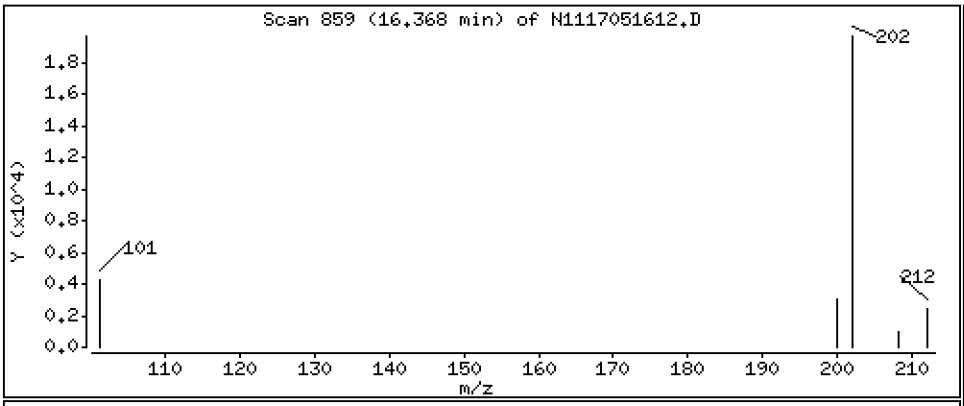
Operator: VTS

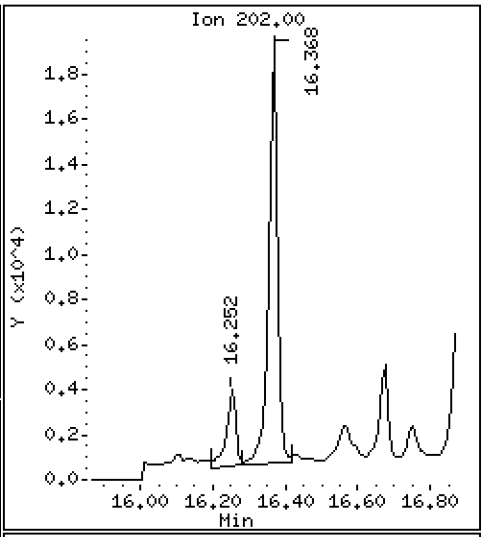
Column phase: Rxi-17Sil MS

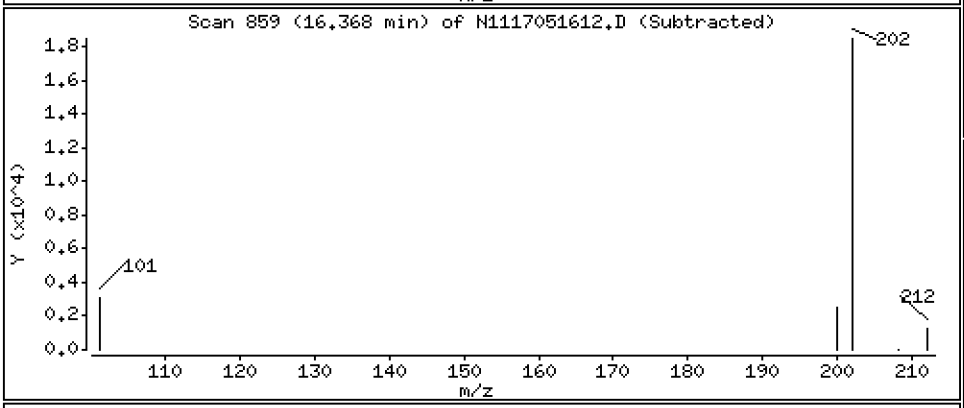
Column diameter: 0.25

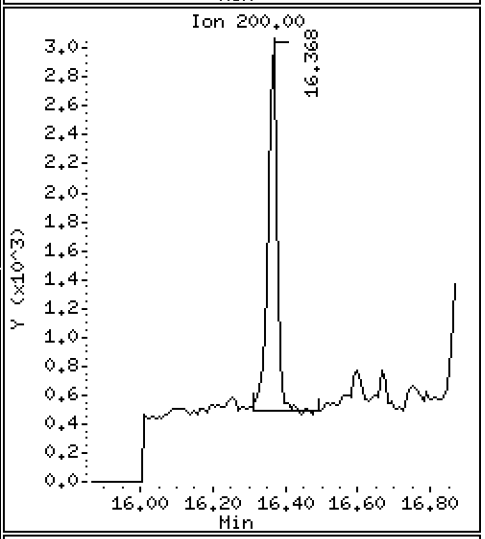
25 Fluoranthene

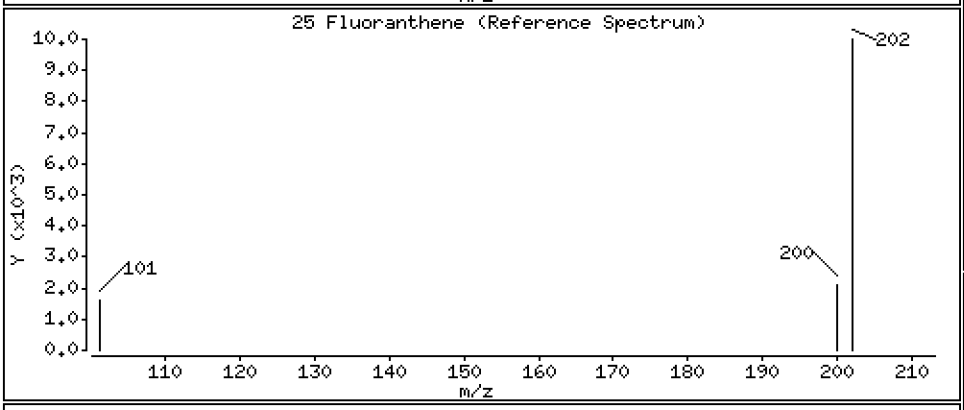
Concentration: 15.8 ng/mL

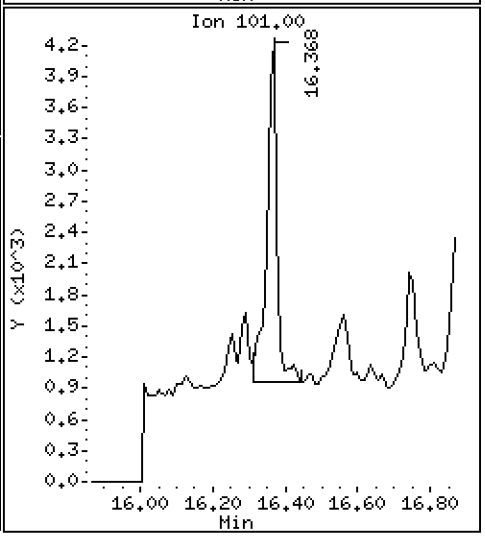


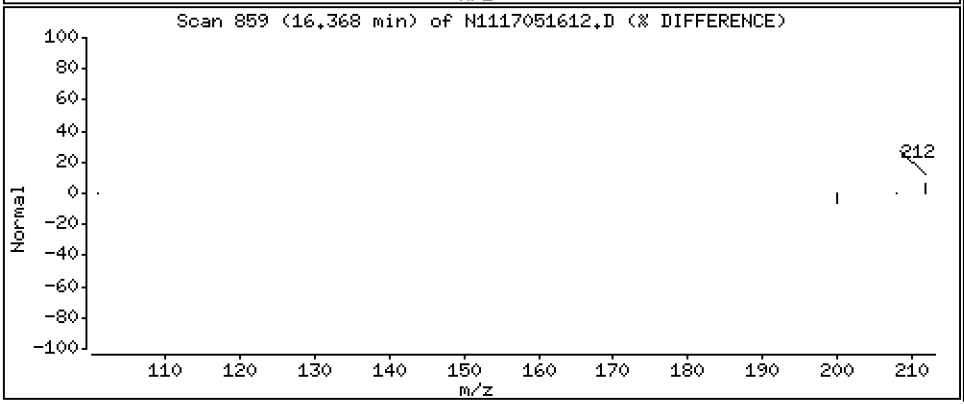












Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051612.D

Date : 16-MAY-2017 17:02

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-08

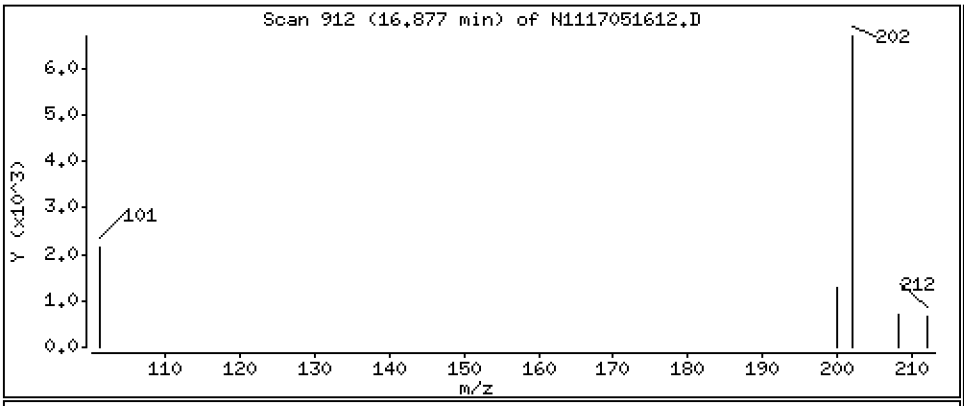
Operator: VTS

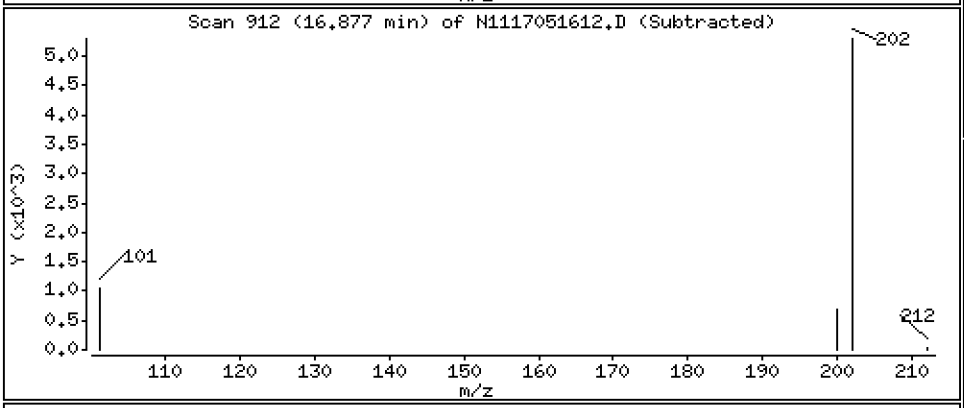
Column phase: Rxi-17Sil MS

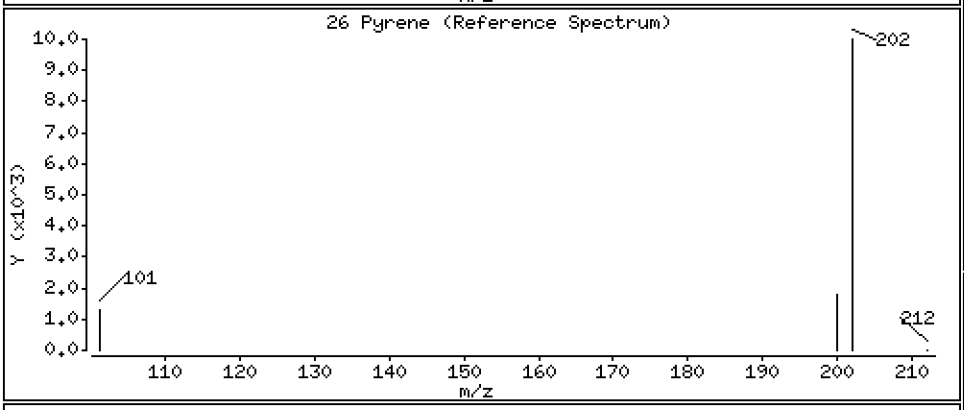
Column diameter: 0.25

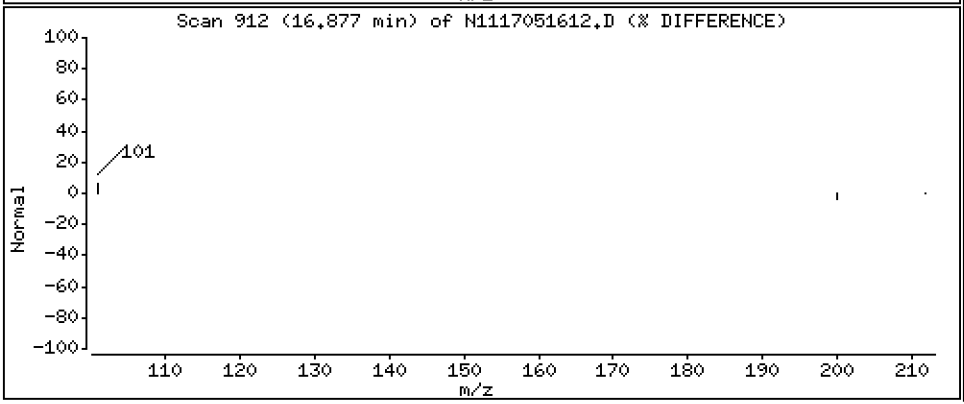
26 Pyrene

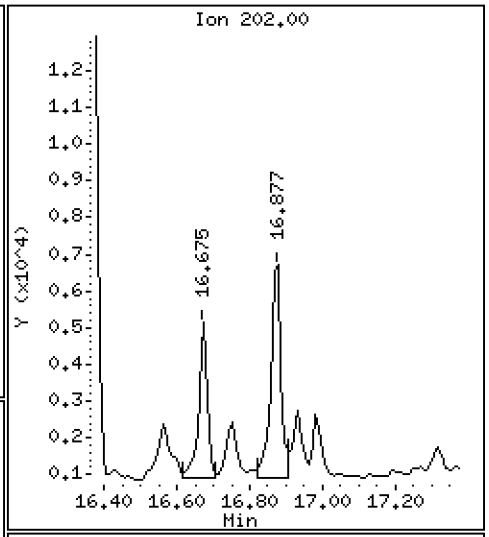
Concentration: 7.23 ng/mL

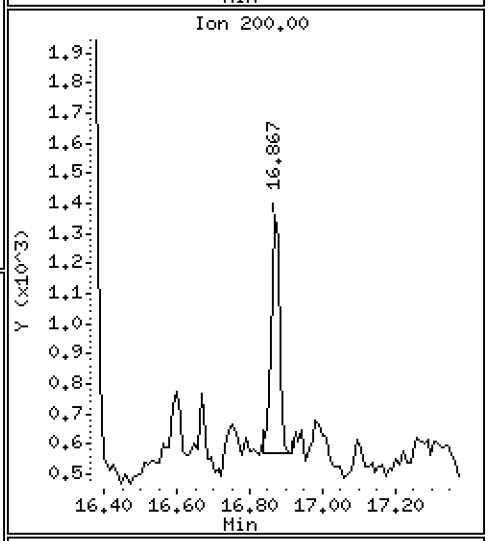


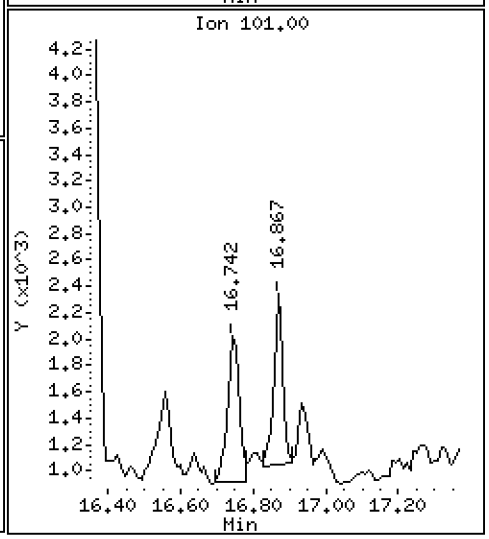












Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051612.D

Date : 16-MAY-2017 17:02

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-08

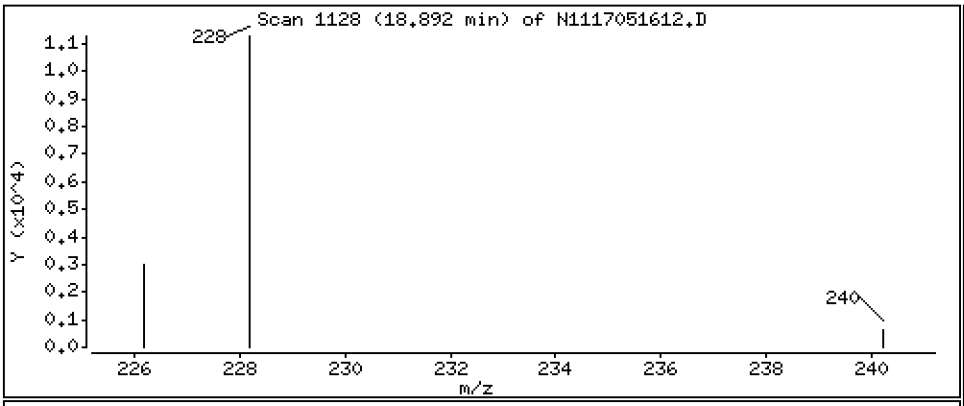
Operator: VTS

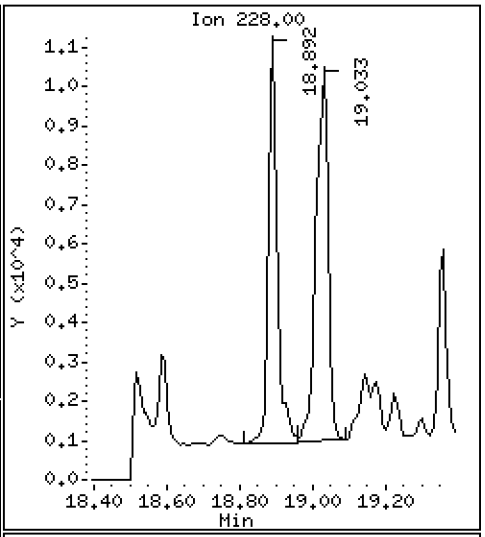
Column phase: Rxi-17Sil MS

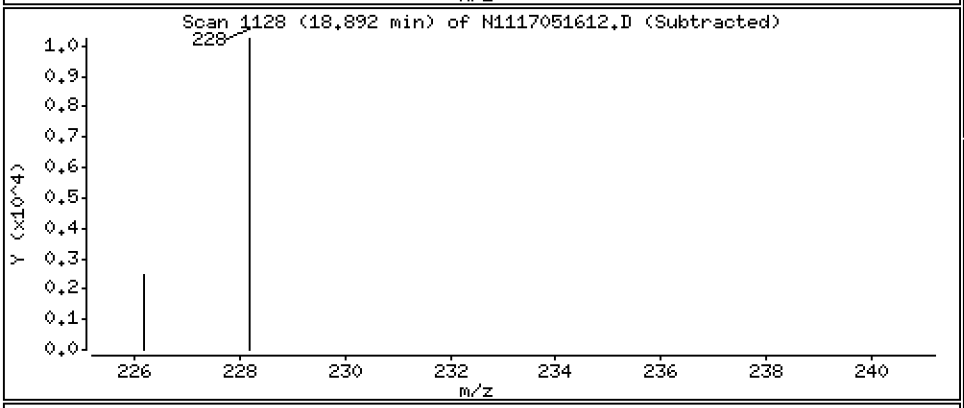
Column diameter: 0.25

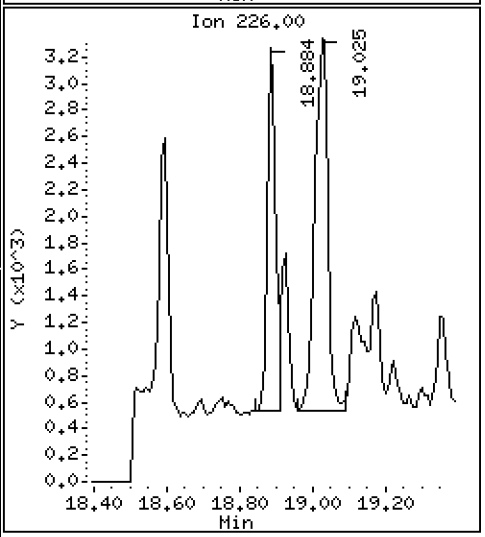
27 Benzo(a)anthracene

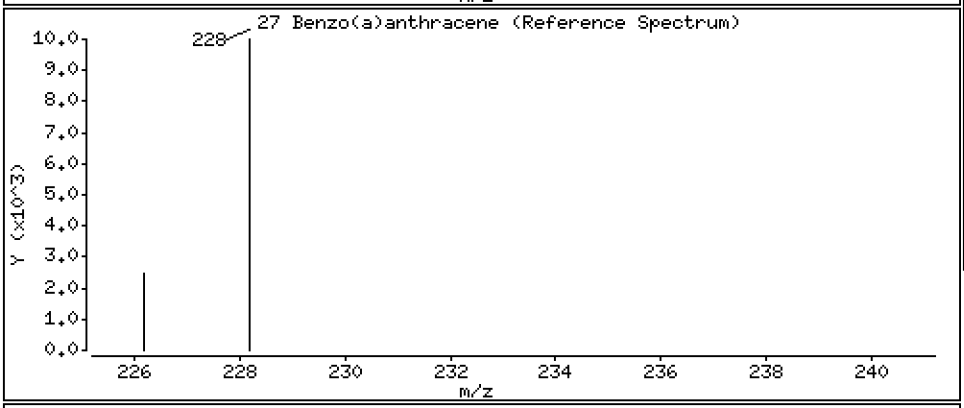
Concentration: 14.0 ng/mL

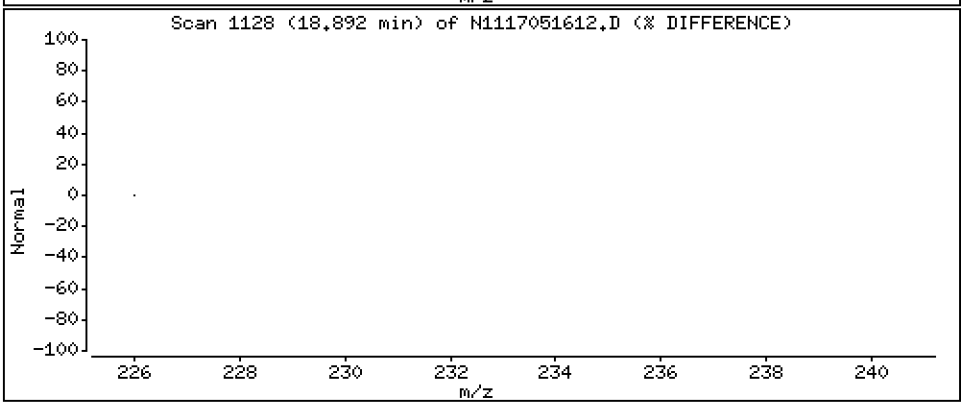












Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051612.D

Date : 16-MAY-2017 17:02

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-08

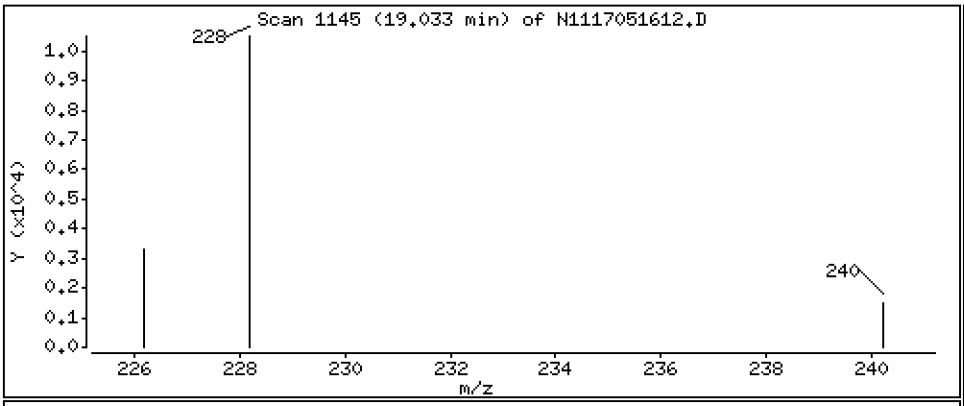
Operator: VTS

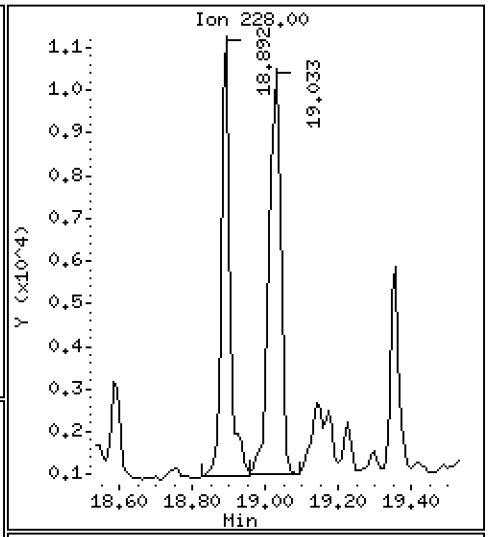
Column phase: Rxi-17Sil MS

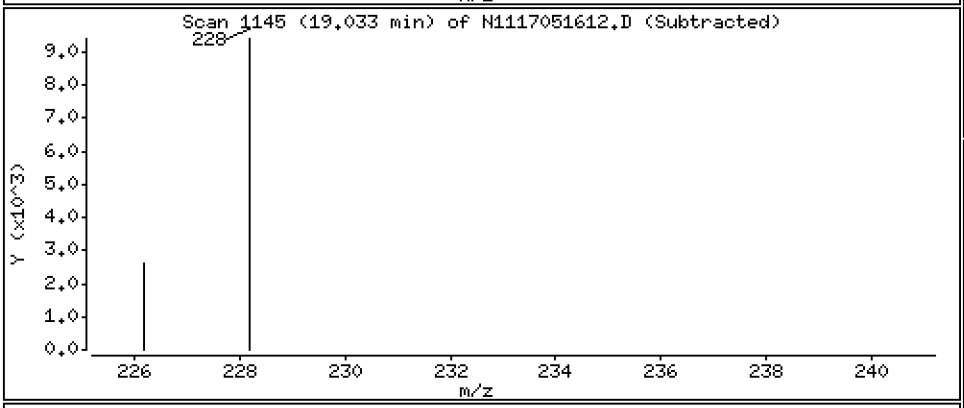
Column diameter: 0.25

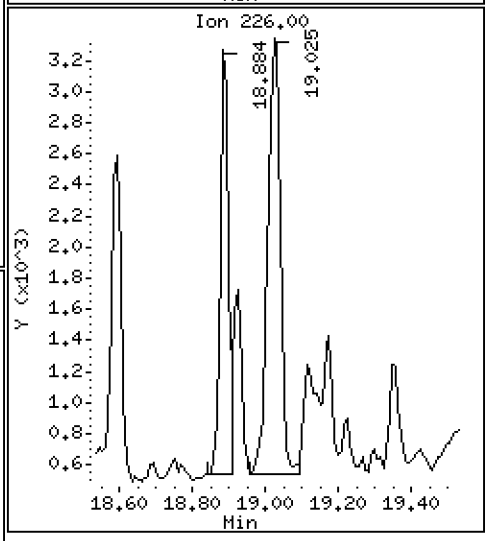
29 Chrysene

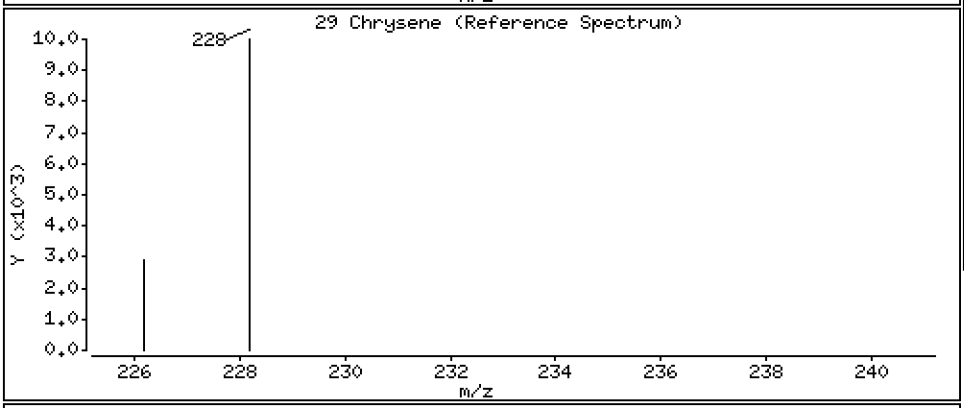
Concentration: 16.6 ng/mL

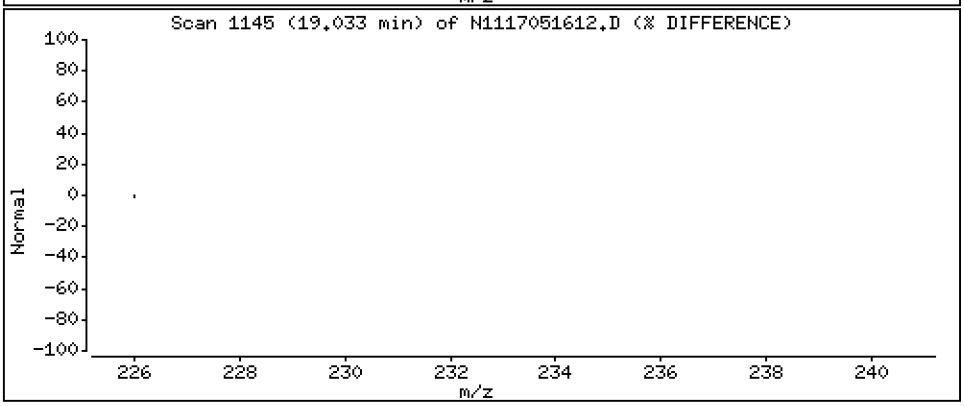












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Date : 16-MAY-2017 17:02

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-08

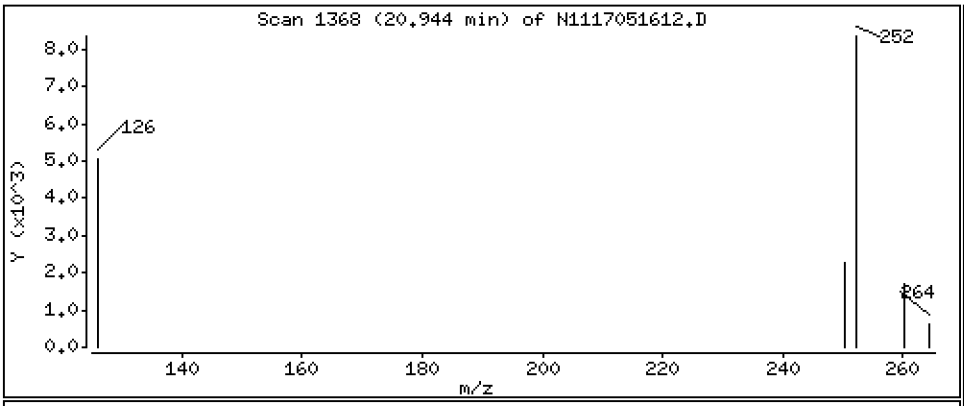
Operator: VTS

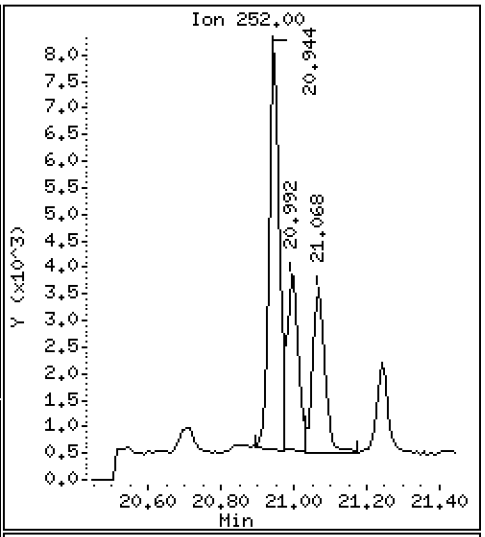
Column phase: Rxi-17Sil MS

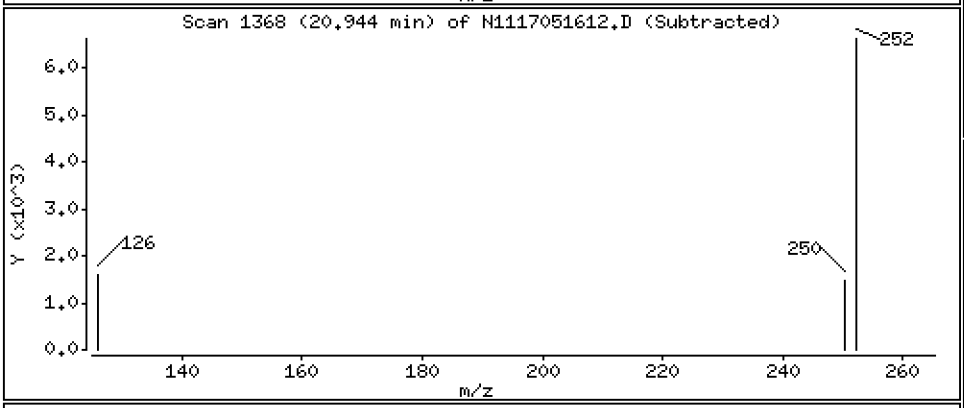
Column diameter: 0.25

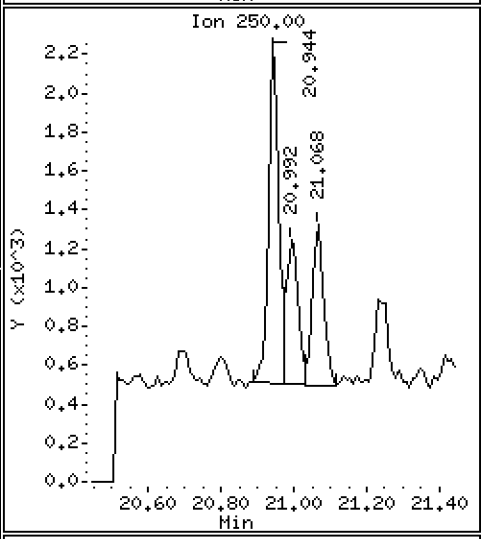
30 Benzo(b)fluoranthene

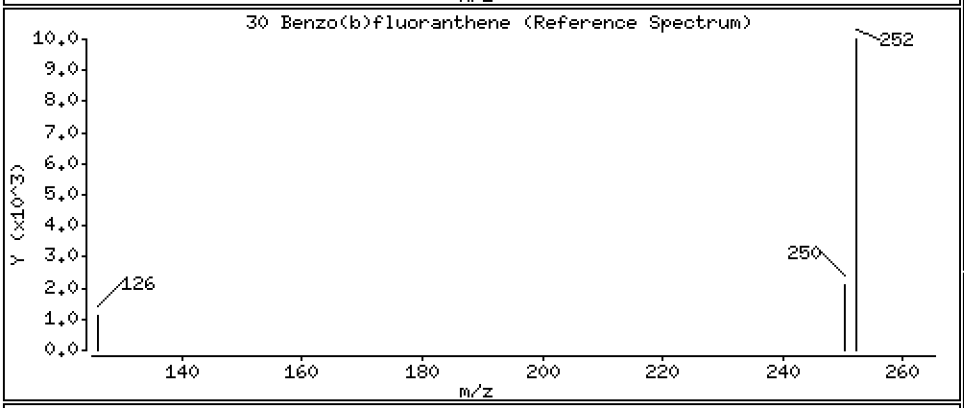
Concentration: 10.7 ng/mL

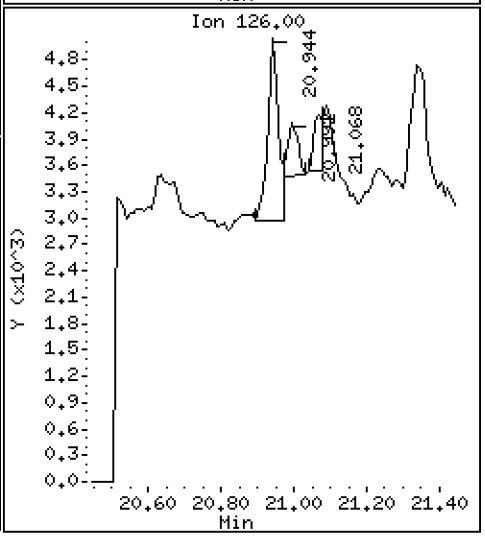


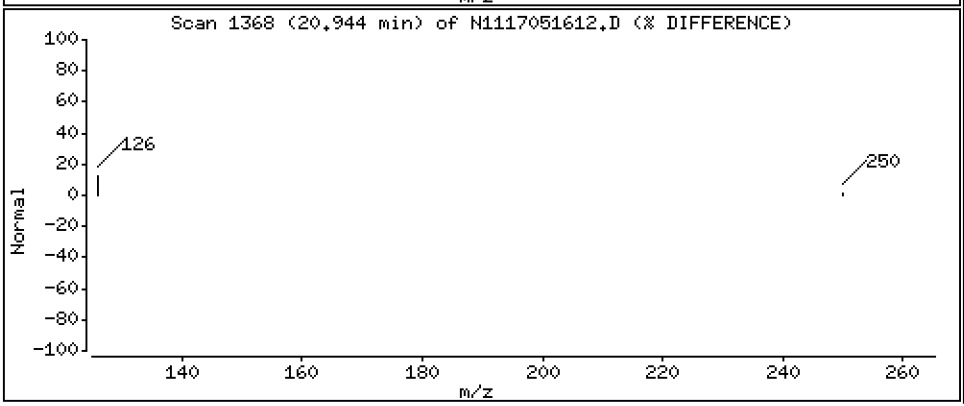












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Date : 16-MAY-2017 17:02

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-08

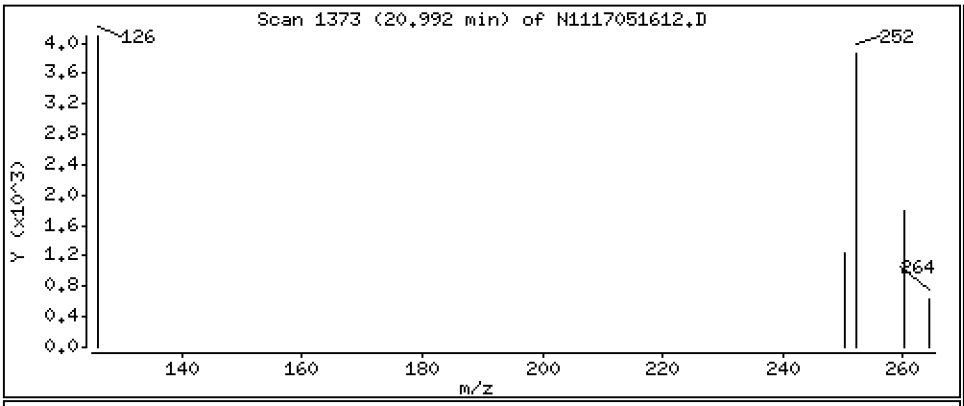
Operator: VTS

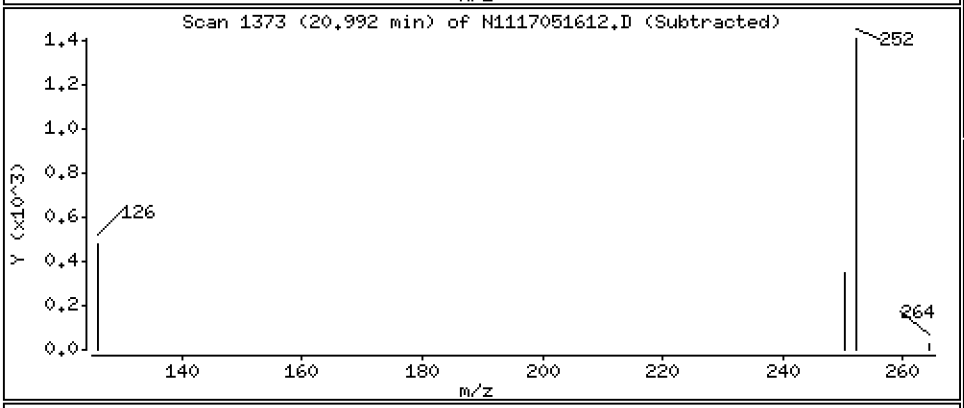
Column phase: Rxi-17Sil MS

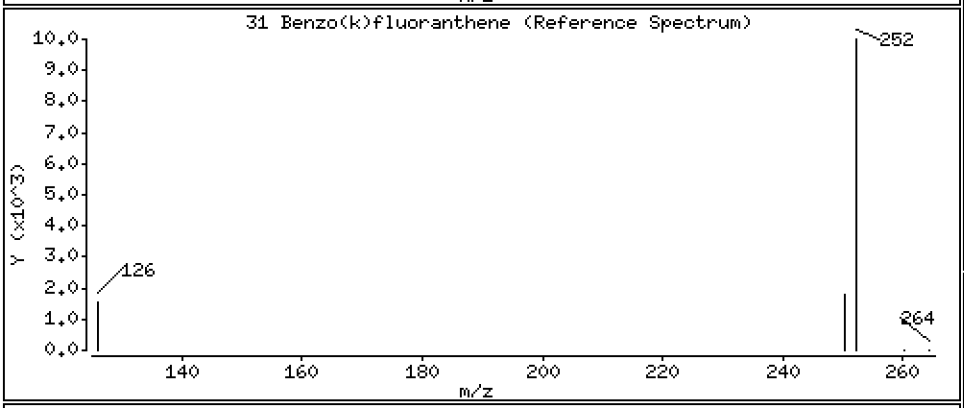
Column diameter: 0.25

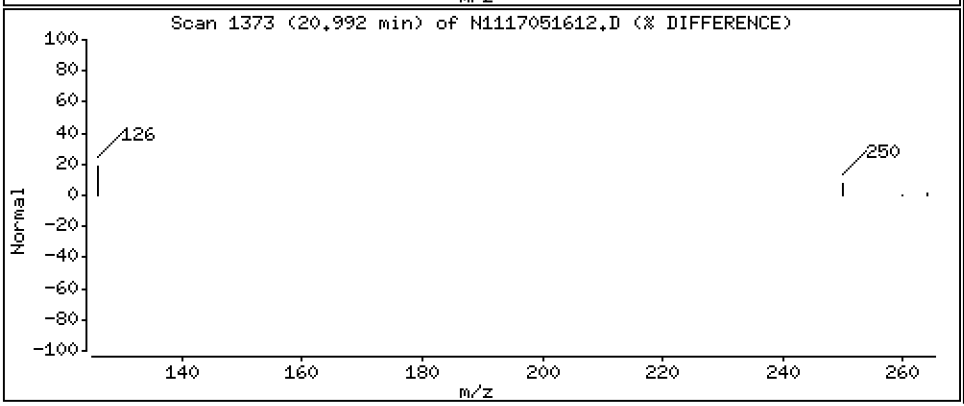
31 Benzo(k)fluoranthene

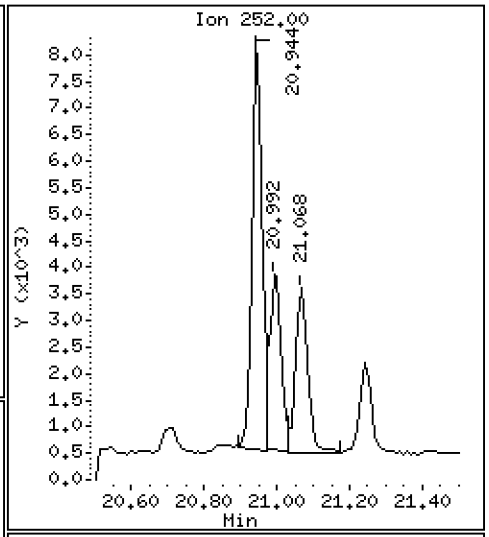
Concentration: 5.59 ng/mL

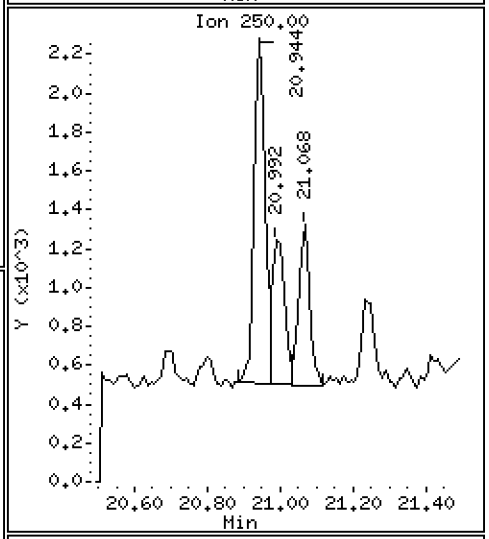


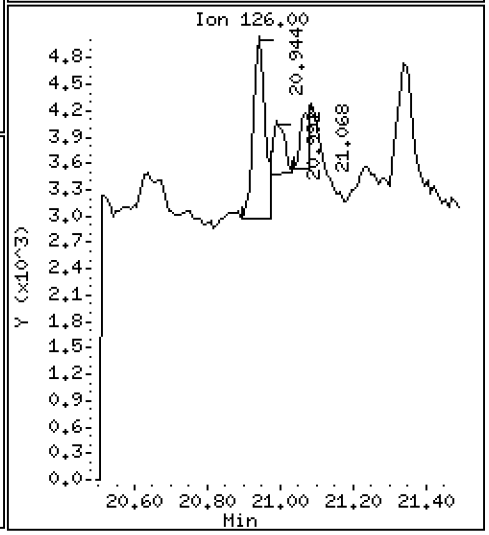












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Date : 16-MAY-2017 17:02

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-08

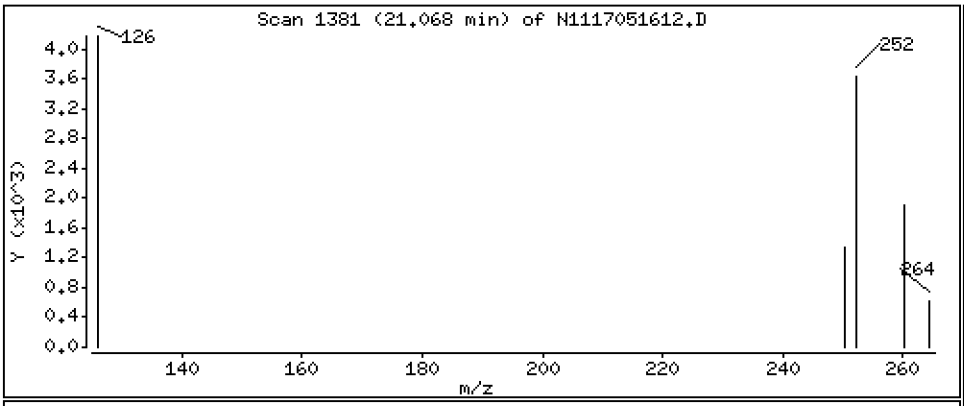
Operator: VTS

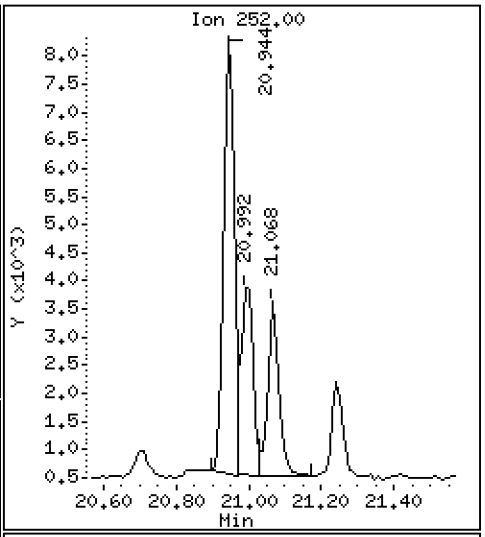
Column phase: Rxi-17Sil MS

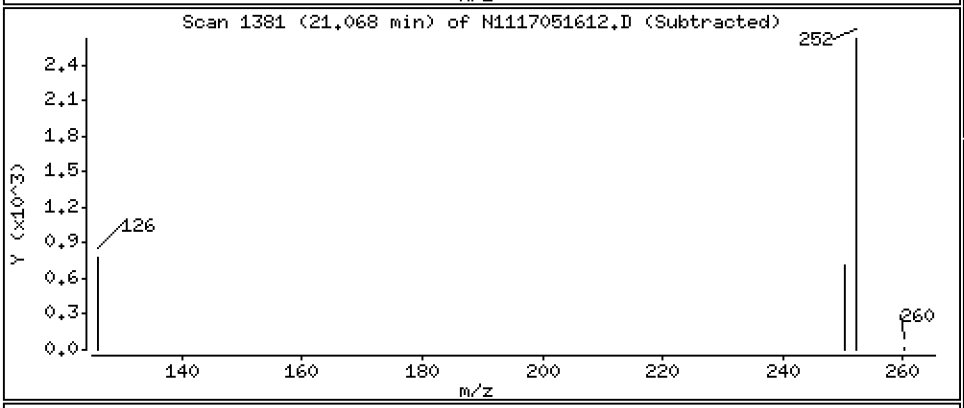
Column diameter: 0.25

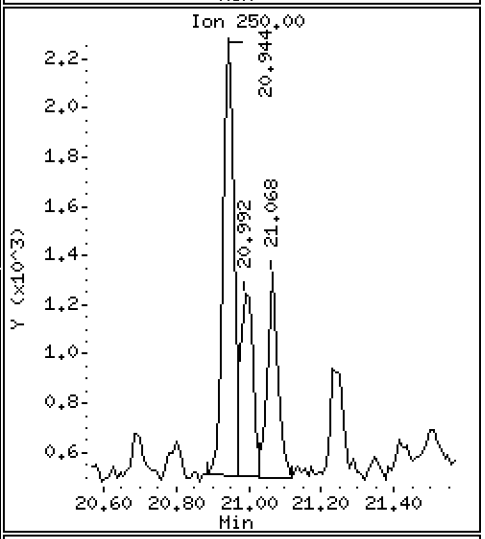
32 Benzo(j)fluoranthene

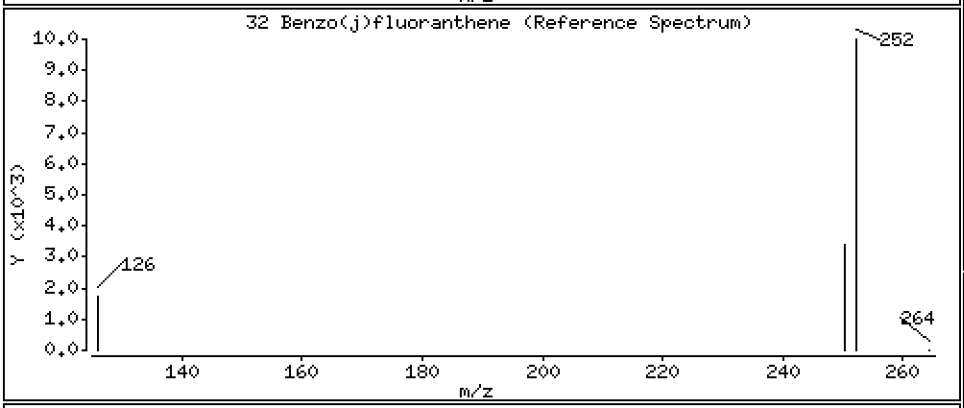
Concentration: 5.21 ng/mL

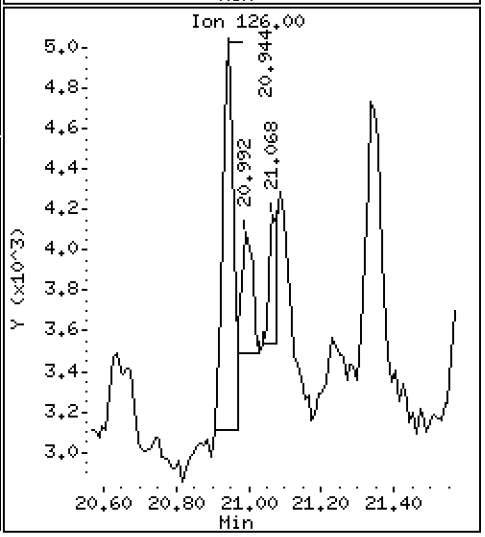


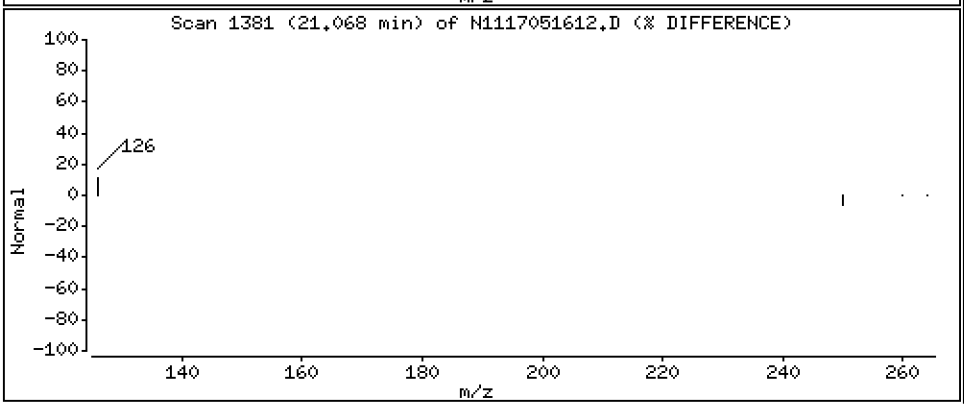












Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051612.D

Date : 16-MAY-2017 17:02

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-08

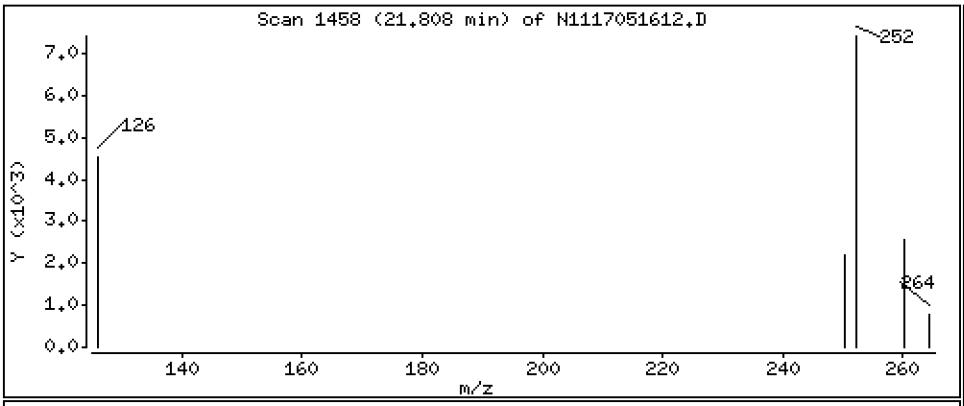
Operator: VTS

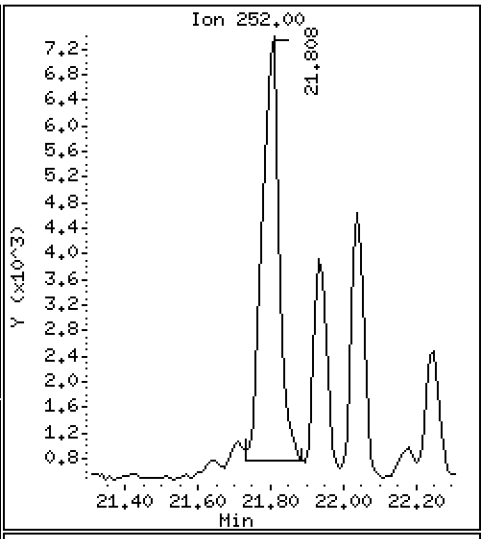
Column phase: Rxi-17Sil MS

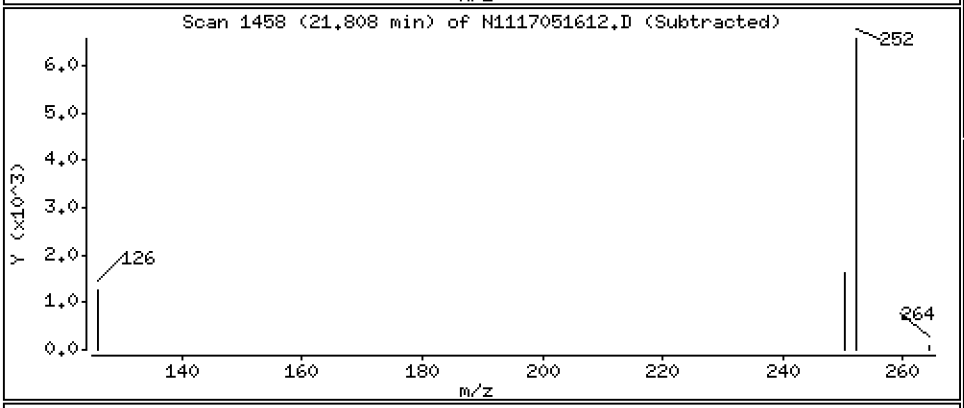
Column diameter: 0.25

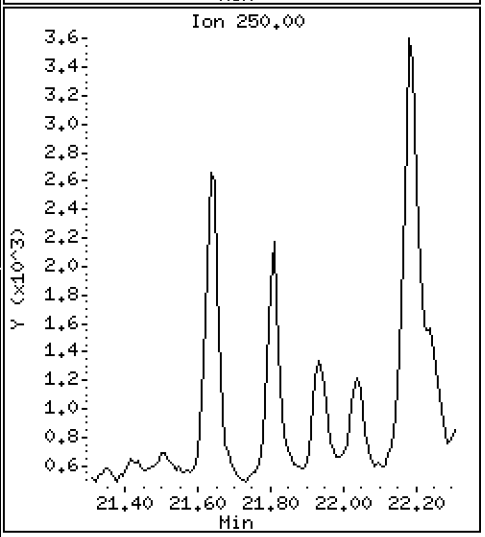
34 Benzo(e)pyrene

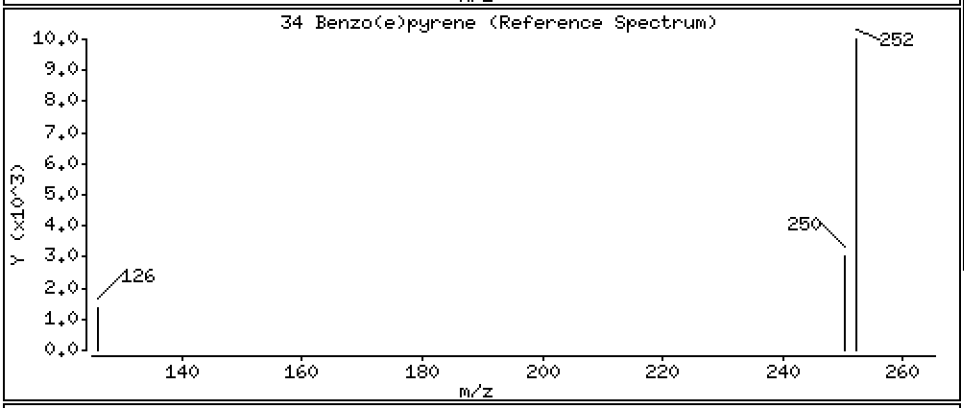
Concentration: 15.9 ng/mL

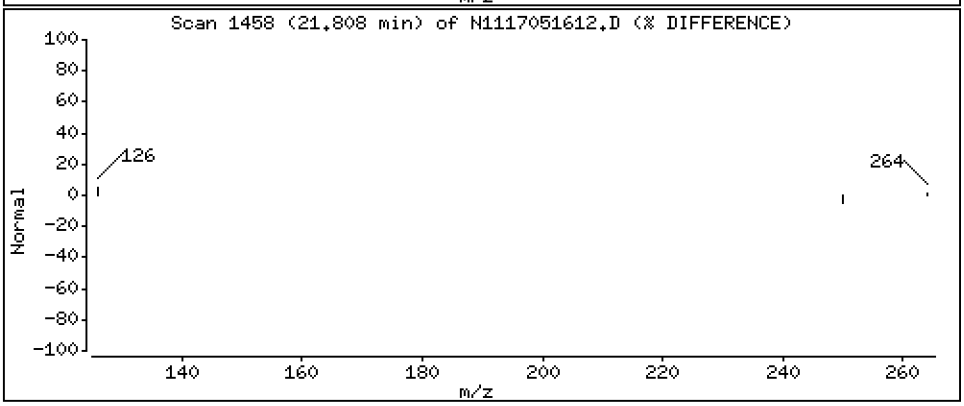












Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051612.D

Date : 16-MAY-2017 17:02

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-08

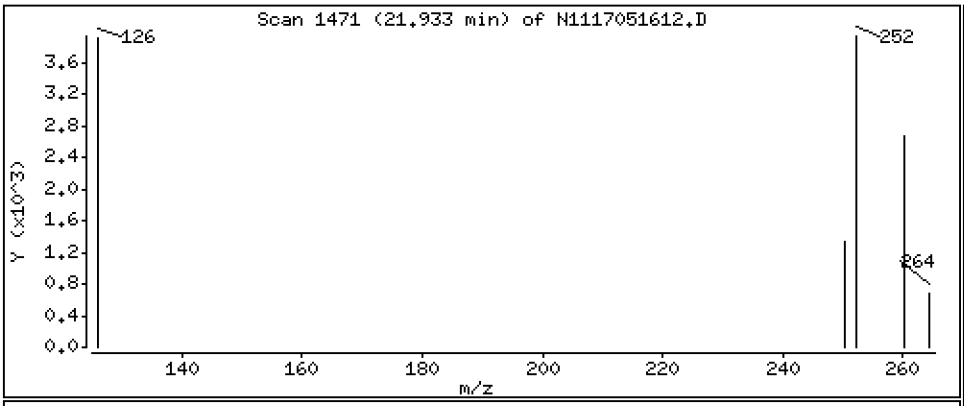
Operator: VTS

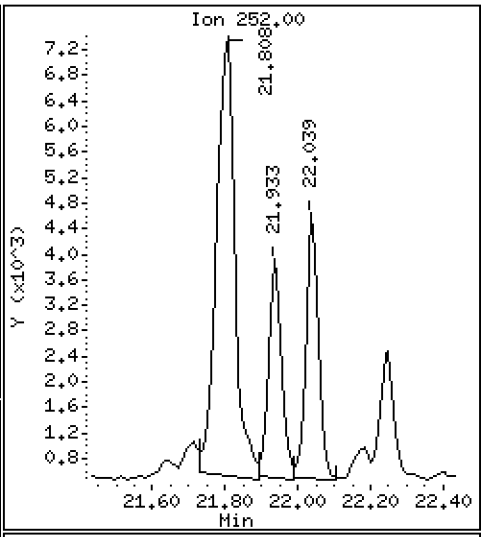
Column phase: Rxi-17Sil MS

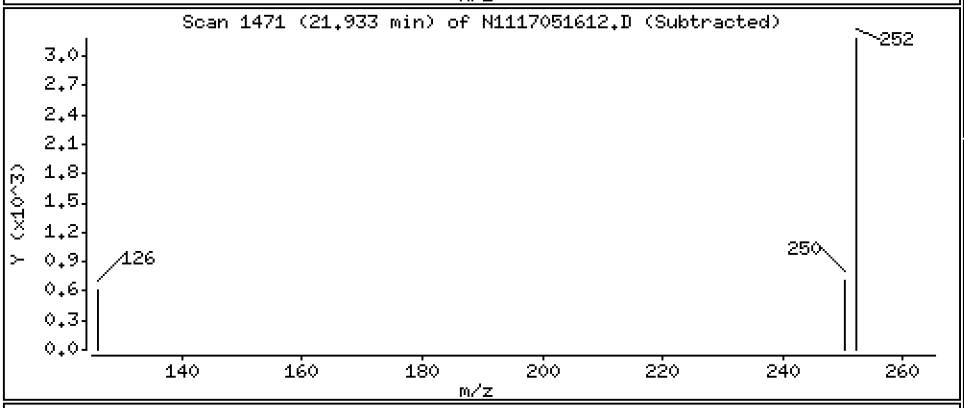
Column diameter: 0.25

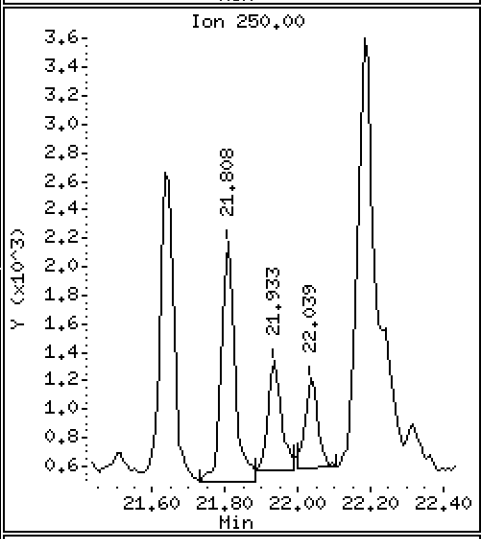
35 Benzo(a)pyrene

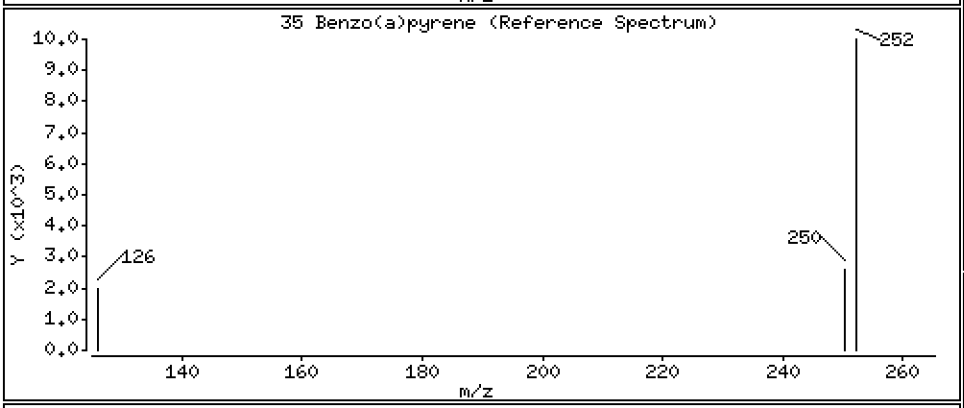
Concentration: 6.62 ng/mL

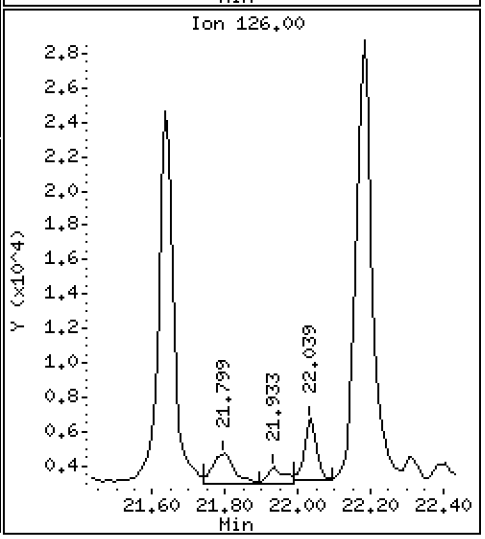


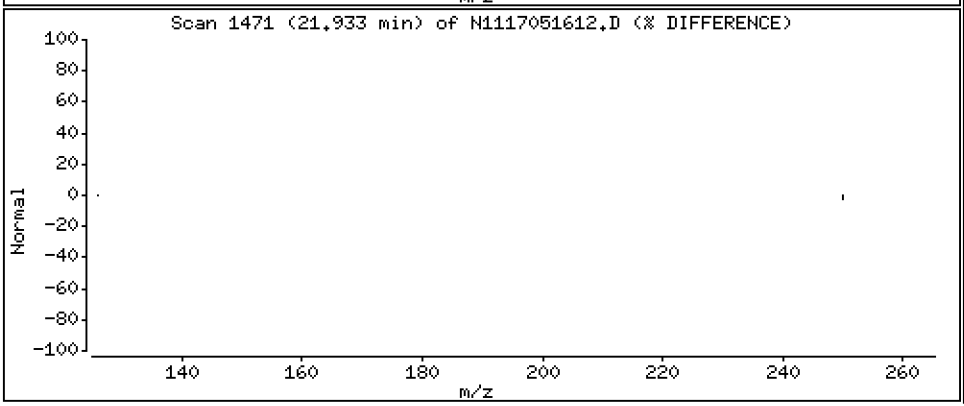












Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051612.D

Date : 16-MAY-2017 17:02

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-08

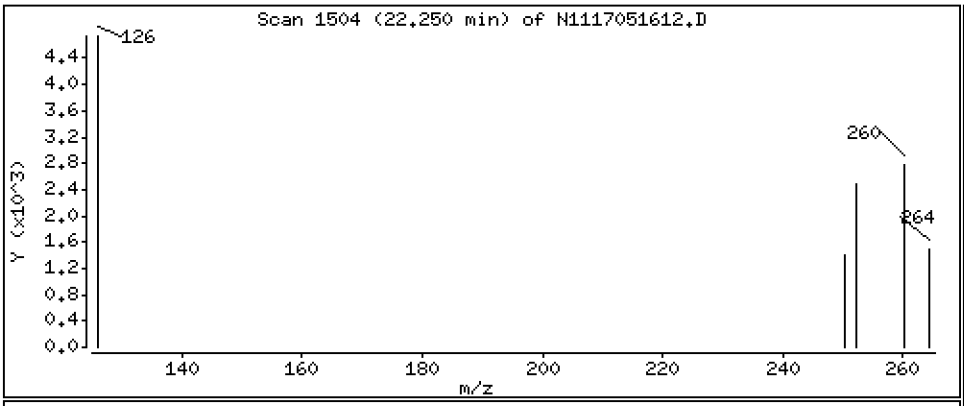
Operator: VTS

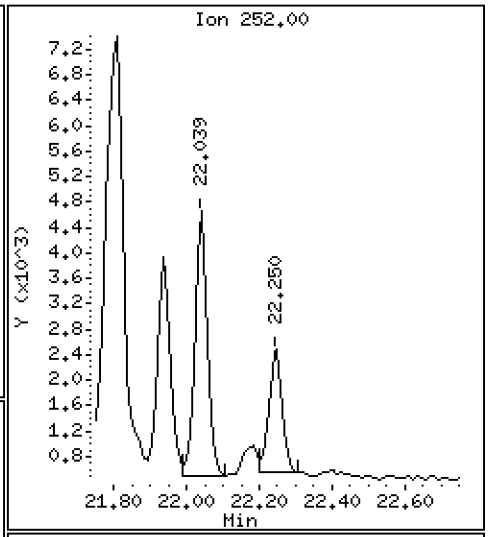
Column phase: Rxi-17Sil MS

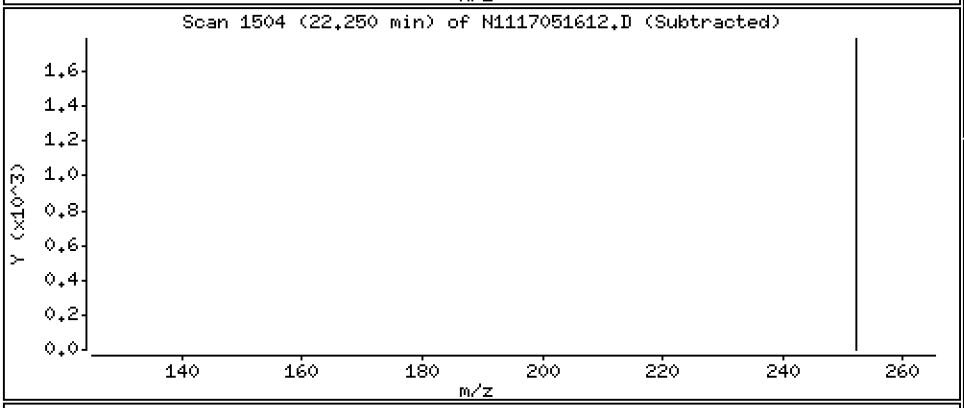
Column diameter: 0.25

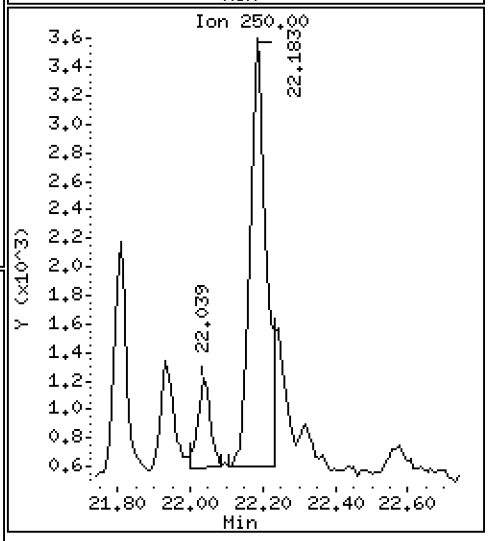
37 Perylene

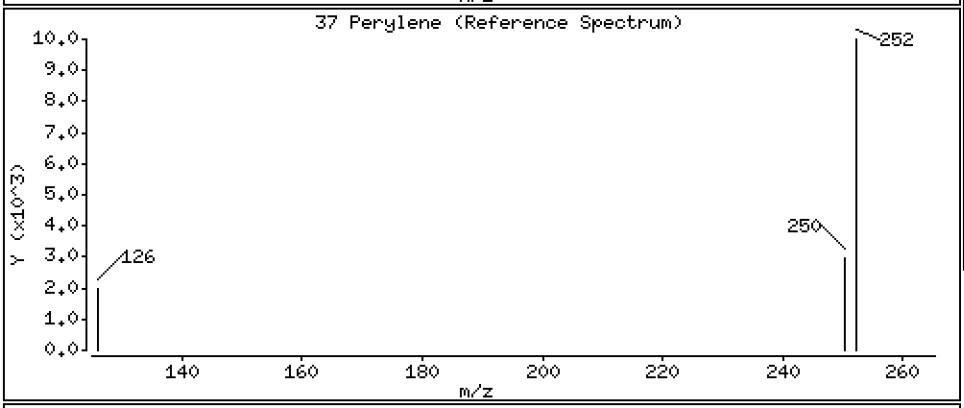
Concentration: 3.65 ng/mL

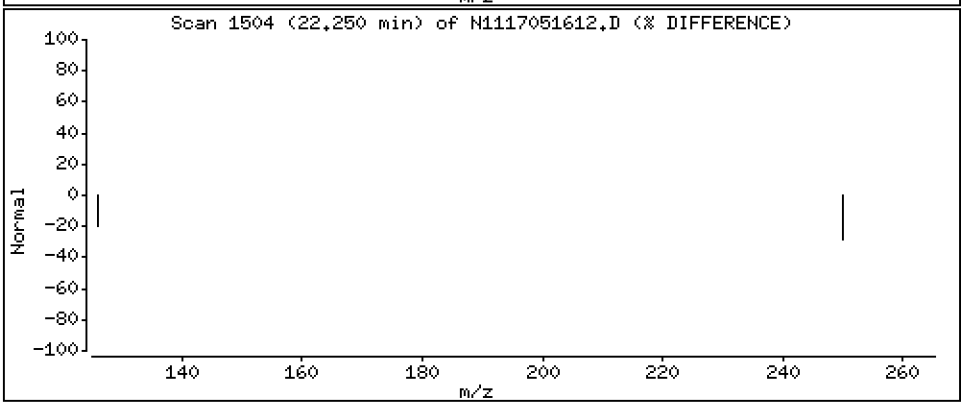












Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051612.D

Date : 16-MAY-2017 17:02

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-08

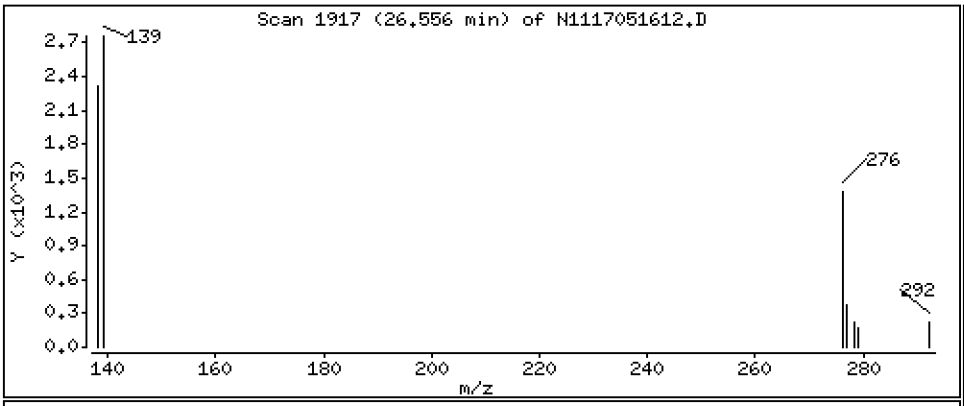
Operator: VTS

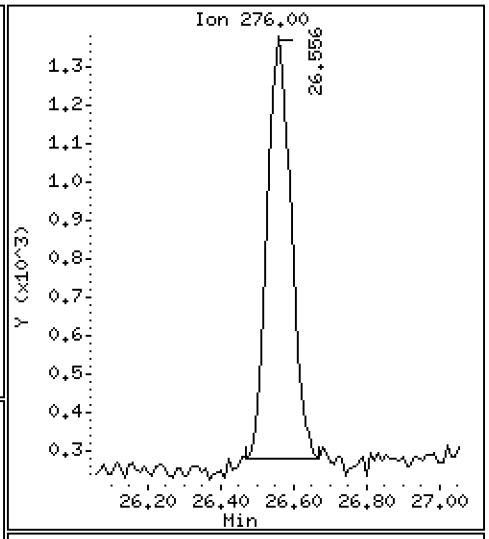
Column phase: Rxi-17Sil MS

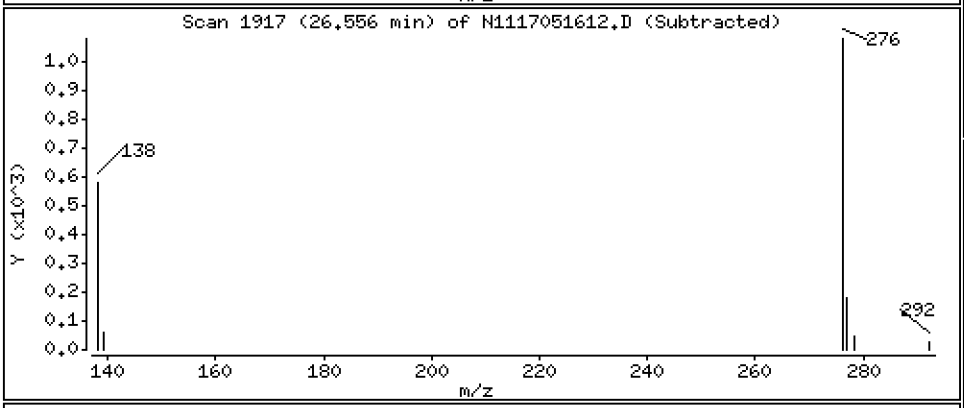
Column diameter: 0.25

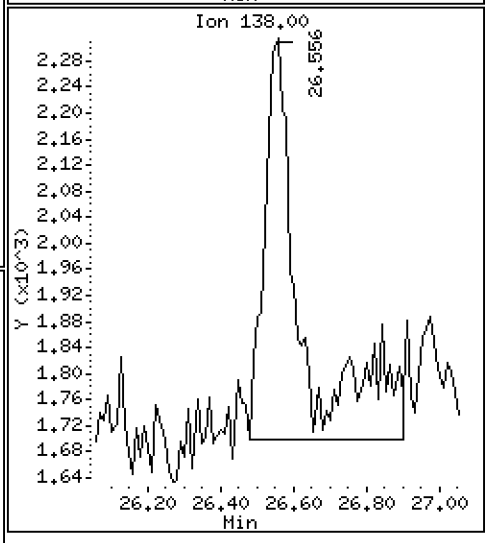
41 Benzo(g,h,i)perylene

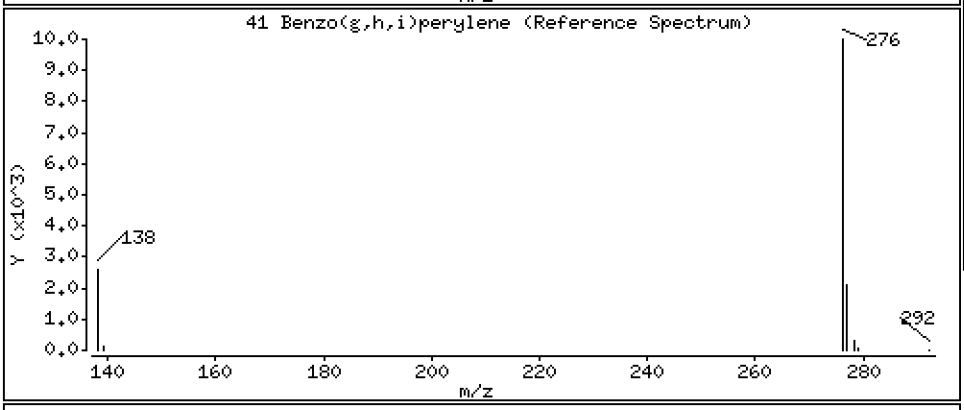
Concentration: 4.14 ng/mL

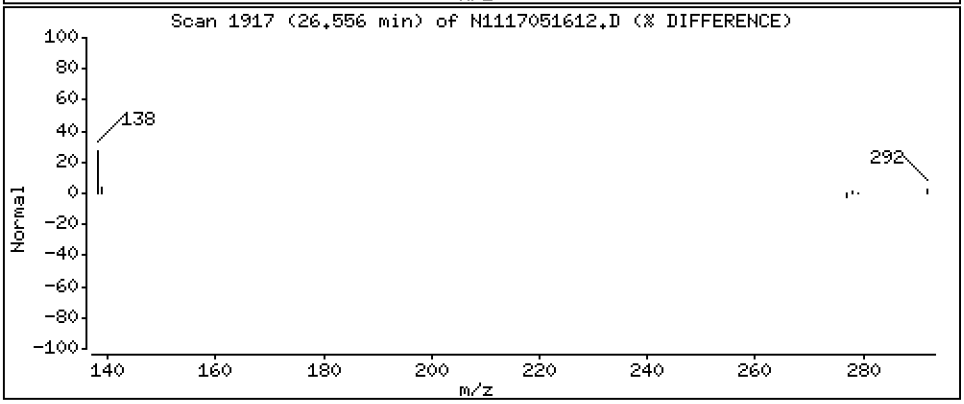












ARI Labs, Inc.

LOW LEVEL PNAs BY SW8270D-SIM

Data file : \\target\share\chem3\nt11.i\20170516.b\N1117051612.D
Lab Smp Id: 17D0421-08
Inj Date : 16-MAY-2017 17:02 MS Autotune Date: 15-JAN-2015 16:59
Operator : VTS Inst ID: nt11.i
Smp Info : 17D0421-08
Misc Info :
Comment   :
Method   : \\target\share\chem3\nt11.i\20170516.b\LOWSIM.m
Meth Date : 17-May-2017 08:15 nt11.i Quant Type: ISTD
Cal Date : 05-MAY-2017 14:47 Cal File: 17050508.D
Als bottle: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: allpna.sub
Target Version: 4.14
Processing Host: VANS

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ng/mL)	FINAL (ng/mL)
*	1 Naphthalene-d8	136	8.481	8.500	(1.000)	453794	200.000	
	2 Naphthalene	128	8.518	8.536	(1.004)	16316	6.69027	6.69
	3 Benzo(b)thiophene	134	Compound Not Detected.					
$	4 2-Methylnaphthalene-d10	152	9.466	9.477	(1.116)	338505	174.068	174
	5 2-Methylnaphthalene	142	9.529	9.540	(1.124)	12387	5.50670	5.51
	6 1-Methylnaphthalene	142	Compound Not Detected.					
	7 2-Chloronaphthalene	162	Compound Not Detected.					
	8 Biphenyl	154	Compound Not Detected.					
	9 2,6-Dimethylnaphthalene	156	Compound Not Detected.					
	10 Acenaphthylene	152	Compound Not Detected.					
*	11 Acenaphthene-d10	164	11.519	11.528	(1.000)	190580	200.000	
	12 Acenaphthene	153	Compound Not Detected.					
	13 Dibenzofuran	168	11.785	11.797	(1.023)	6052	3.00296	3.00
	14 2,3,5-Trimethylnaphthalene	170	Compound Not Detected.					
$	15 Fluorene-d10	174	Compound Not Detected.					
	16 Fluorene	166	Compound Not Detected.					
	17 Dibenzothiophene	184	Compound Not Detected.					
*	18 Phenanthrene-d10	188	14.220	14.220	(1.000)	292764	200.000	
	19 Phenanthrene	178	14.262	14.262	(1.003)	18315	8.40389	8.40
$	20 Anthracene-d10	188	Compound Not Detected.					
	21 Anthracene	178	14.314	14.325	(1.007)	15446	7.19404	7.19
	22 Carbazole	167	Compound Not Detected.					
	23 1-Methylphenanthrene	192	Compound Not Detected.					
$	24 Fluoranthene-d10	212	16.329	16.338	(1.148)	300600	217.196	217
	25 Fluoranthene	202	16.367	16.367	(1.151)	33030	15.7709	15.8
	26 Pyrene	202	16.876	16.876	(0.889)	11687	7.23097	7.23
	27 Benzo(a)anthracene	228	18.892	18.892	(0.995)	17780	13.9858	14.0
*	28 Chrysene-d12	240	18.983	18.983	(1.000)	178528	200.000	
	29 Chrysene	228	19.033	19.033	(1.003)	21811	16.6236	16.6
	30 Benzo(b)fluoranthene	252	20.943	20.943	(0.945)	15591	10.6509	10.7
	31 Benzo(k)fluoranthene	252	20.991	21.001	(0.947)	8110	5.58866	5.59
	32 Benzo(j)fluoranthene	252	21.068	21.068	(0.950)	7090	5.21444	5.21
$	33 Benzo(e)pyrene-d12	264	Compound Not Detected.					

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ng/mL)	CONCENTRATIONS FINAL (ng/mL)
	34 Benzo(e)pyrene	252	21.808	21.808	(0.984)	21683	15.9343	15.9
	35 Benzo(a)pyrene	252	21.933	21.933	(0.989)	8761	6.61620	6.62
*	36 Perylene-d12	264	22.173	22.173	(1.000)	234260	200.000	
	37 Perylene	252	22.250	22.250	(1.003)	4976	3.64691	3.65
$	38 Dibenzo(a,h)anthracene-d14	292	25.016	25.016	(1.128)	193966	221.971	222
	39 Dibenzo(a,h)anthracene	278	Compound Not Detected.					
	40 Indeno(1,2,3-cd)pyrene	276	Compound Not Detected.					
	41 Benzo(g,h,i)perylene	276	26.556	26.556	(1.198)	4941	4.13522	4.14

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt11.i
Lab File ID: N1117051612.D
Lab Smp Id: 17D0421-08
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: \\target\share\chem3\nt11.i\20170516.b\LOWSIM.m
Misc Info:

Calibration Date: 16-MAY-2017
Calibration Time: 10:47
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	371325	185663	742650	453794	22.21
11 Acenaphthene-d10	154428	77214	308856	190580	23.41
18 Phenanthrene-d10	256956	128478	513912	292764	13.94
28 Chrysene-d12	208629	104315	417258	178528	-14.43
36 Perylene-d12	225431	112716	450862	234260	3.92

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	8.50	8.00	9.00	8.48	-0.21
11 Acenaphthene-d10	11.53	11.03	12.03	11.52	-0.08
18 Phenanthrene-d10	14.22	13.72	14.72	14.22	-0.00
28 Chrysene-d12	18.98	18.48	19.48	18.98	-0.00
36 Perylene-d12	22.17	21.67	22.67	22.17	-0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N1117051612.D

Lab ID: 17D0421-08
nt11.i, 20170516.b\LOWSIM.m,   16-MAY-2017 17:02

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

On Column LOD for nt11.i, 20170516.b\LOWSIM.m, allpna.sub = 3.0000

Exception: Naphthalene 6.0000
Exception: Phenanthrene 2.5000
Exception: Anthracene 2.0000
Exception: Pyrene 4.0000
Exception: Benzo(j)fluoranthene 2.5000
Exception: Benzo(a)pyrene 2.0000
Exception: Perylene 3.5000
Exception: Benzo(e)pyrene 2.0000
Exception: Benzo(b)thiophene 2.0000
Exception: 2-Chloronaphthalene 2.0000
Exception: 2,6-Dimethylnaphthalene 2.0000
Exception: 2,3,5-Trimethylnaphthalene 2.0000
Exception: 1-Methylphenanthrene 2.0000
Exception: Dibenzothiophene 2.0000
Exception: Carbazole 2.0000
Exception: Biphenyl 2.0000
Exception: 2-Methylnaphthalene-d10 (Surr) 0.1000
Exception: Dibenzo(a,h)anthracene-d14 (Surr) 0.1000
Exception: Fluoranthene-d10 (Surr) 0.1000
Exception: Anthracene-d10 (Surr) 0.1000
Exception: Benzo(e)pyrene-d12 (Surr) 0.1000
Exception: Fluorene-d10 (Surr) 0.1000

PG-SMA3-DUNM-COC-170426

Form I

ORGANIC ANALYSIS DATA SHEET

EPA 8270D-SIM

Polynuclear Aromatic Hydrocarbons - low level

Laboratory:	Analytical Resources, Inc.			SDG:	17D0421
Client:	Anchor QEA, LLC			Project:	Port Gamble Shellfish Monitoring
Matrix:	Tissue	Laboratory ID:	17D0421-09	File ID:	N1117051613.D
Sampled:	04/26/17 12:00	Prepared:	05/09/17 13:50	Analyzed:	05/16/17 17:39
Solids:		Preparation:	EPA 3550C-Mod (Ultrasonic	Initial/Final:	10.25 g / 0.5 mL
Batch:	BFE0160	Sequence:	SFE0208	Calibration:	AE00020
Instrument:	NT11	Column:	RXi-17Sil-MS		

CAS NO.	COMPOUND	DILUTION	CONC. (ug/kg)	Q	DL	RL
91-20-3	Naphthalene	1	0.59	U	0.49	0.59
91-57-6	2-Methylnaphthalene	1	0.49	U	0.49	0.49
208-96-8	Acenaphthylene	1	0.49	U	0.49	0.49
83-32-9	Acenaphthene	1	0.49	U	0.49	0.49
86-73-7	Fluorene	1	0.49	U	0.49	0.49
85-01-8	Phenanthrene	1	0.49	U	0.49	0.49
120-12-7	Anthracene	1	0.49	U	0.49	0.49
206-44-0	Fluoranthene	1	0.49	U	0.49	0.49
129-00-0	Pyrene	1	0.49	U	0.49	0.49
56-55-3	Benzo(a)anthracene	1	0.49	U	0.49	0.49
218-01-9	Chrysene	1	0.49	U	0.49	0.49
205-99-2	Benzo(b)fluoranthene	1	0.49	U	0.49	0.49
207-08-9	Benzo(k)fluoranthene	1	0.49	U	0.49	0.49
50-32-8	Benzo(a)pyrene	1	0.49	U	0.49	0.49
193-39-5	Indeno(1,2,3-cd)pyrene	1	0.49	U	0.49	0.49
53-70-3	Dibenzo(a,h)anthracene	1	0.49	U	0.49	0.49
191-24-2	Benzo(g,h,i)perylene	1	0.49	U	0.49	0.49
1985-5-0	Perylene	1	0.49	U	0.49	0.49
197-97-2	Benzo(e)pyrene	1	0.49	U	0.49	0.49

SURROGATES	ADDED (ug/kg)	CONC (ug/kg)	% REC	QC LIMITS	Q
2-Methylnaphthalene-d10	14.634	8.65	59.1	30 - 160	
Dibenzo[a,h]anthracene-d14	14.634	11.4	77.8	30 - 160	
Fluoranthene-d10	14.634	11.1	75.8	30 - 160	

Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051613.D

Date : 16-MAY-2017 17:39

Client ID:

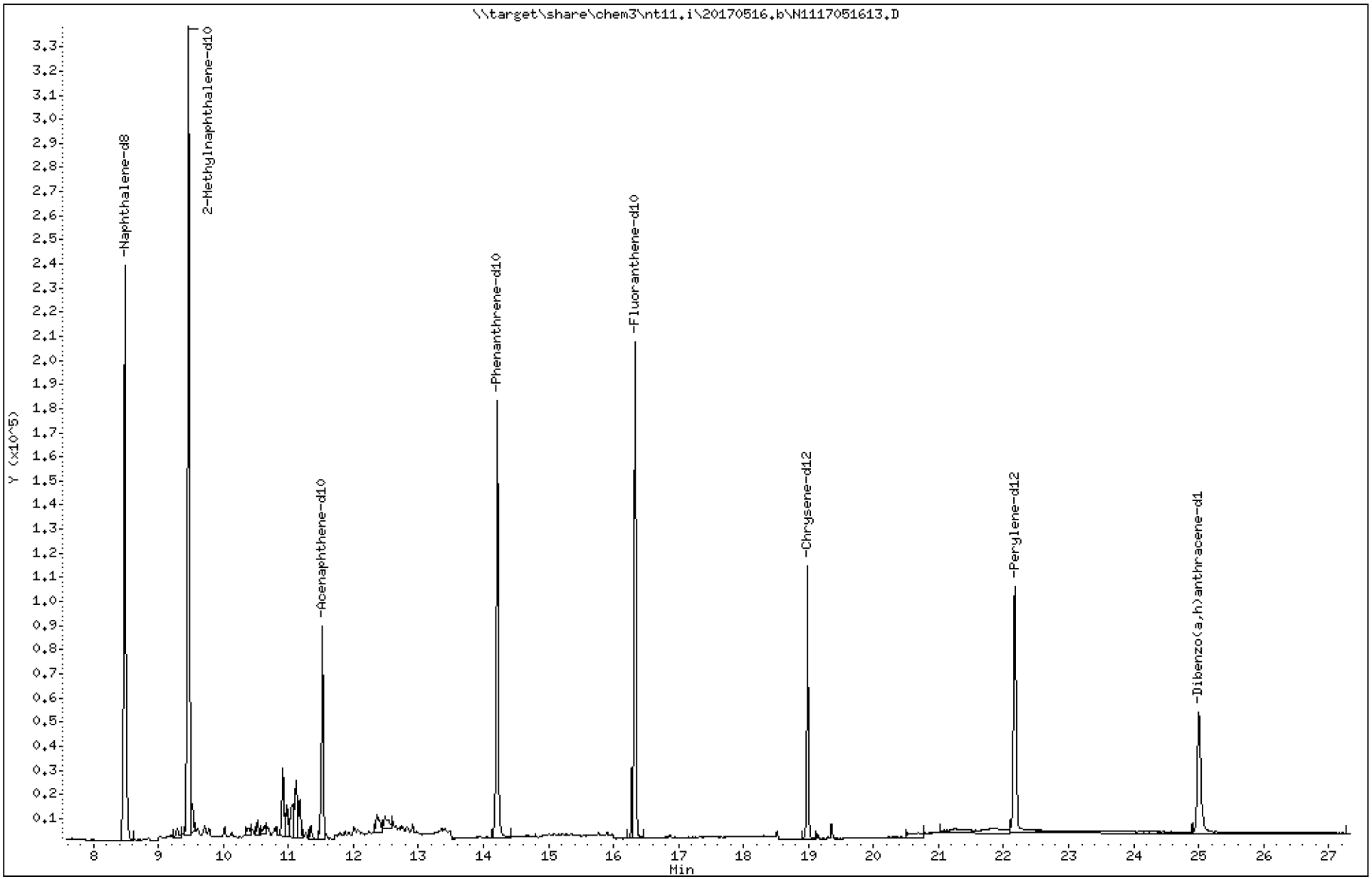
Sample Info: 17D0421-09

Instrument: nt11.i

Operator: VTS

Column phase: Rxi-17Sil MS

Column diameter: 0.25



Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051613.D

Date : 16-MAY-2017 17:39

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-09

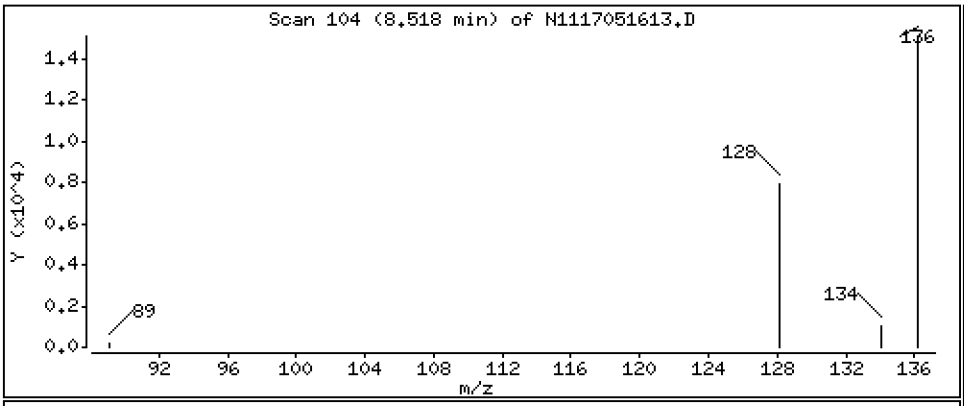
Operator: VTS

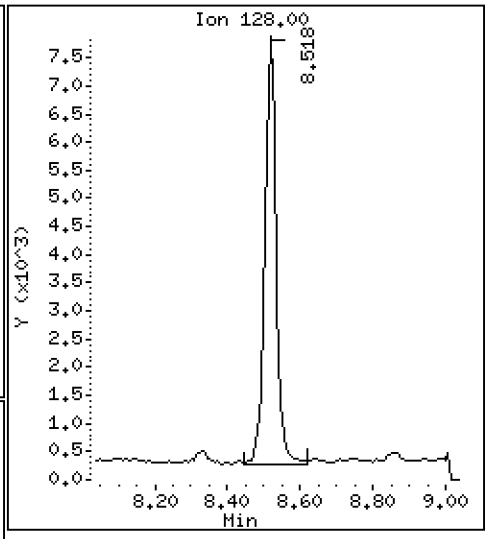
Column phase: Rxi-17Sil MS

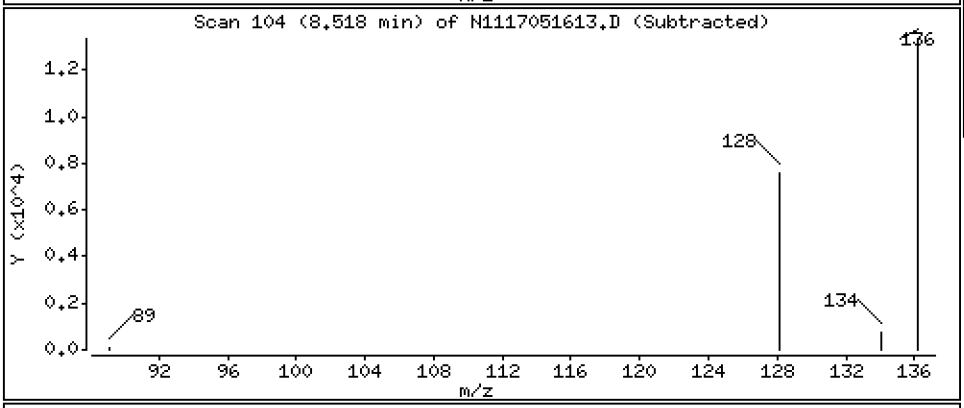
Column diameter: 0.25

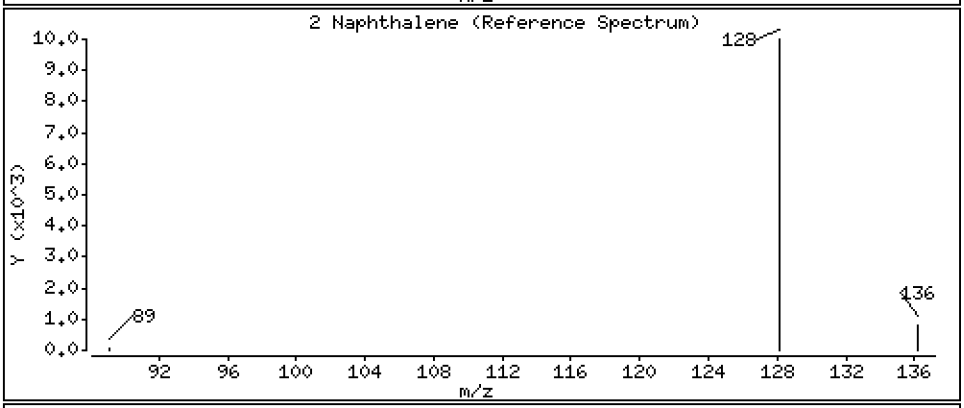
2 Naphthalene

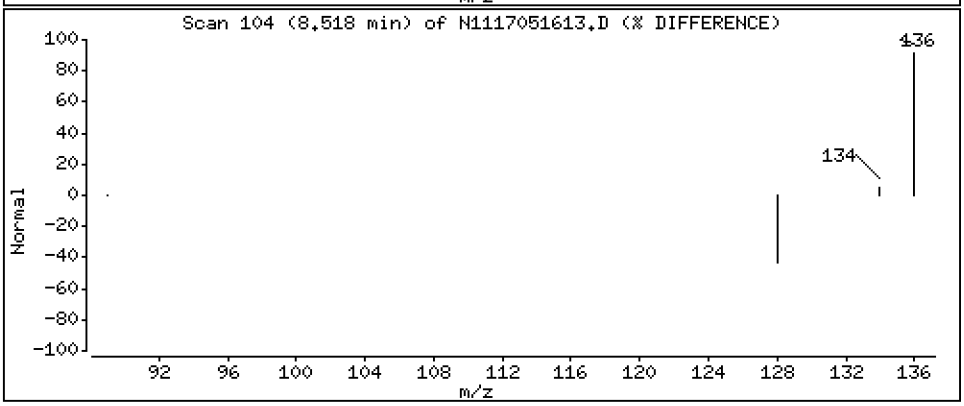
Concentration: 6.45 ng/mL











Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051613.D

Date : 16-MAY-2017 17:39

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-09

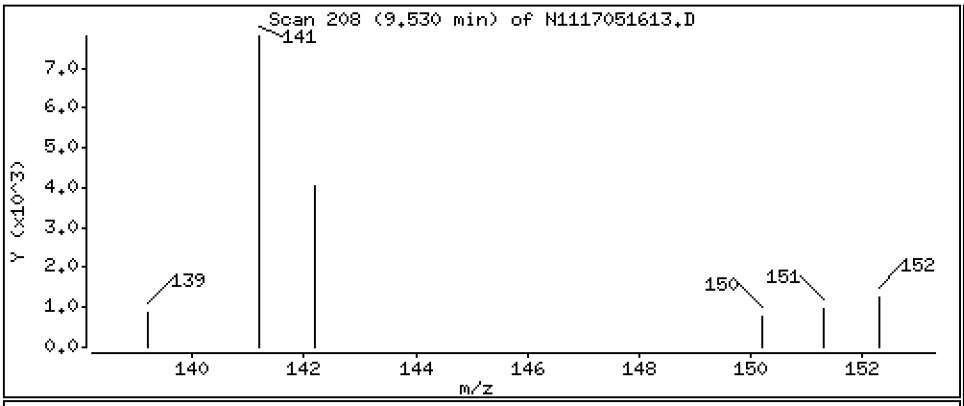
Operator: VTS

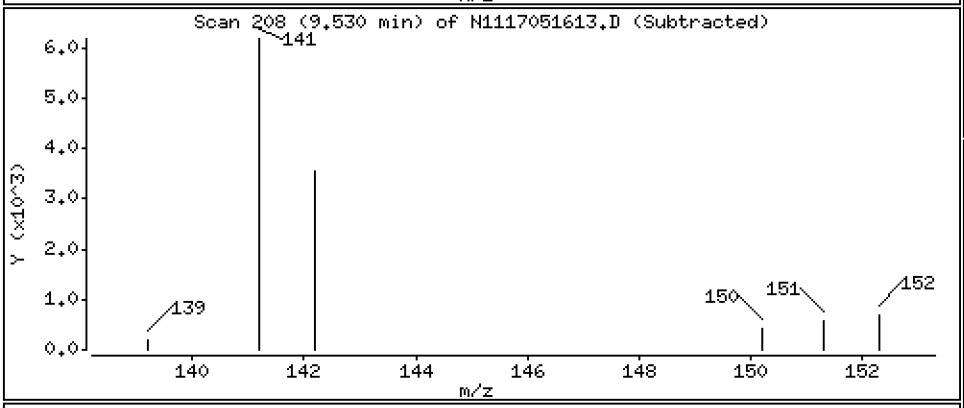
Column phase: Rxi-17Sil MS

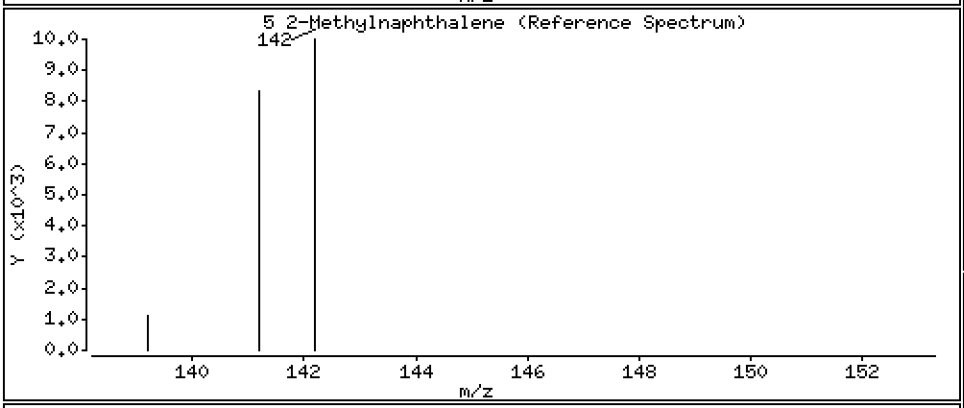
Column diameter: 0.25

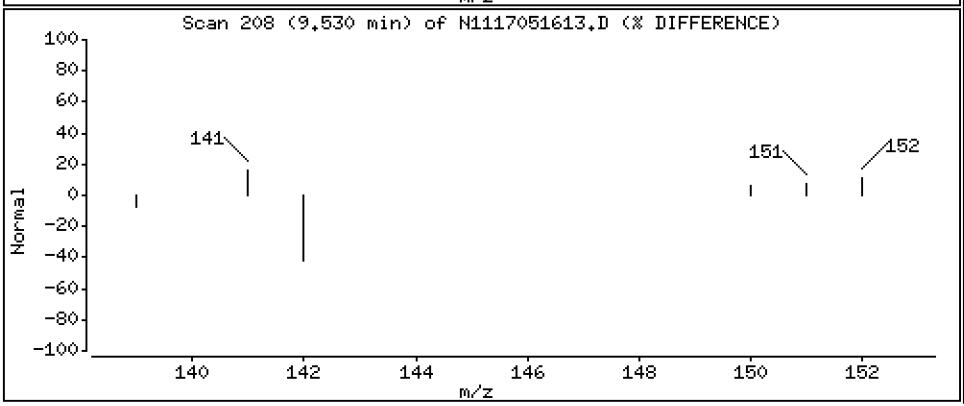
5 2-Methylnaphthalene

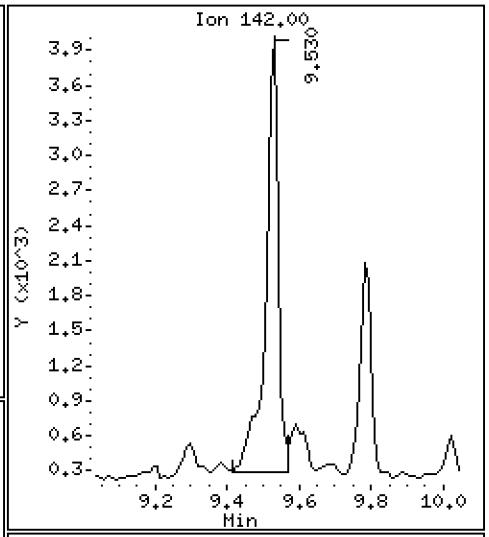
Concentration: 4.16 ng/mL

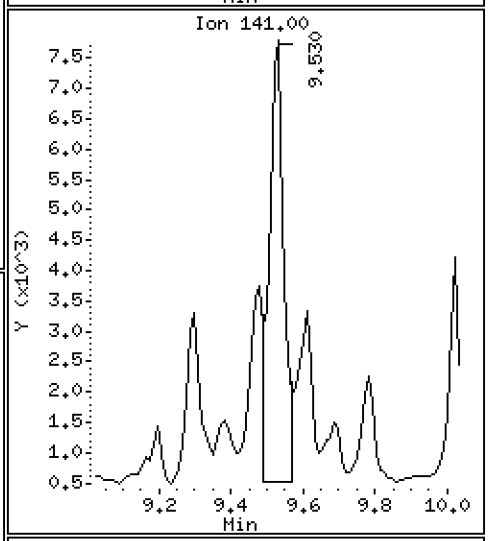


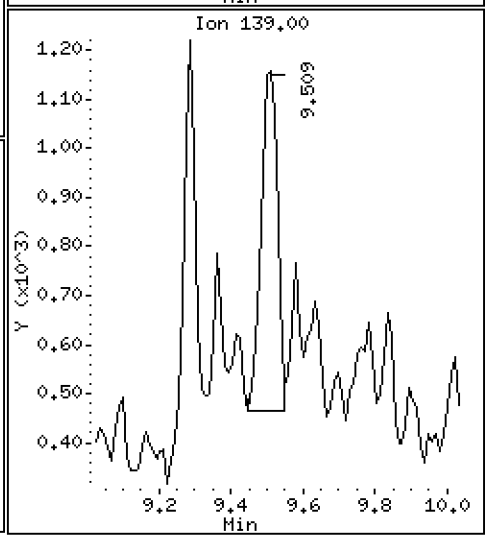












ARI Labs, Inc.

LOW LEVEL PNAs BY SW8270D-SIM

Data file : \\target\share\chem3\nt11.i\20170516.b\N1117051613.D
Lab Smp Id: 17D0421-09
Inj Date : 16-MAY-2017 17:39 MS Autotune Date: 15-JAN-2015 16:59
Operator : VTS Inst ID: nt11.i
Smp Info : 17D0421-09
Misc Info :
Comment   :
Method   : \\target\share\chem3\nt11.i\20170516.b\LOWSIM.m
Meth Date : 17-May-2017 08:15 nt11.i Quant Type: ISTD
Cal Date : 05-MAY-2017 14:47 Cal File: 17050508.D
Als bottle: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: allpna.sub
Target Version: 4.14
Processing Host: VANS

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ng/mL)	FINAL (ng/mL)
*	1 Naphthalene-d8	136	8.481	8.500	(1.000)	457636	200.000	
	2 Naphthalene	128	8.517	8.536	(1.004)	15875	6.45479	6.45
	3 Benzo(b)thiophene	134	Compound Not Detected.					
$	4 2-Methylnaphthalene-d10	152	9.466	9.477	(1.116)	347796	177.345	177
	5 2-Methylnaphthalene	142	9.529	9.540	(1.124)	9436	4.15960	4.16
	6 1-Methylnaphthalene	142	Compound Not Detected.					
	7 2-Chloronaphthalene	162	Compound Not Detected.					
	8 Biphenyl	154	Compound Not Detected.					
	9 2,6-Dimethylnaphthalene	156	Compound Not Detected.					
	10 Acenaphthylene	152	Compound Not Detected.					
*	11 Acenaphthene-d10	164	11.528	11.528	(1.000)	192940	200.000	
	12 Acenaphthene	153	Compound Not Detected.					
	13 Dibenzofuran	168	Compound Not Detected.					
	14 2,3,5-Trimethylnaphthalene	170	Compound Not Detected.					
$	15 Fluorene-d10	174	Compound Not Detected.					
	16 Fluorene	166	Compound Not Detected.					
	17 Dibenzothiophene	184	Compound Not Detected.					
*	18 Phenanthrene-d10	188	14.220	14.220	(1.000)	297733	200.000	
	19 Phenanthrene	178	Compound Not Detected.					
$	20 Anthracene-d10	188	Compound Not Detected.					
	21 Anthracene	178	Compound Not Detected.					
	22 Carbazole	167	Compound Not Detected.					
	23 1-Methylphenanthrene	192	Compound Not Detected.					
$	24 Fluoranthene-d10	212	16.329	16.338	(1.148)	319968	227.331	227
	25 Fluoranthene	202	Compound Not Detected.					
	26 Pyrene	202	Compound Not Detected.					
	27 Benzo(a)anthracene	228	Compound Not Detected.					
*	28 Chrysene-d12	240	18.983	18.983	(1.000)	180124	200.000	
	29 Chrysene	228	Compound Not Detected.					
	30 Benzo(b)fluoranthene	252	Compound Not Detected.					
	31 Benzo(k)fluoranthene	252	Compound Not Detected.					
	32 Benzo(j)fluoranthene	252	Compound Not Detected.					
$	33 Benzo(e)pyrene-d12	264	Compound Not Detected.					

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ng/mL)	CONCENTRATIONS FINAL (ng/mL)
34	Benzo(e)pyrene	252	Compound Not Detected.					
35	Benzo(a)pyrene	252	Compound Not Detected.					
* 36	Perylene-d12	264	22.173	22.173	(1.000)	227858	200.000	
37	Perylene	252	Compound Not Detected.					
$ 38	Dibenzo(a,h)anthracene-d14	292	25.005	25.016	(1.128)	198256	233.255	233
39	Dibenzo(a,h)anthracene	278	Compound Not Detected.					
40	Indeno(1,2,3-cd)pyrene	276	Compound Not Detected.					
41	Benzo(g,h,i)perylene	276	Compound Not Detected.					

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt11.i
Lab File ID: N1117051613.D
Lab Smp Id: 17D0421-09
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: \\target\share\chem3\nt11.i\20170516.b\LOWSIM.m
Misc Info:

Calibration Date: 16-MAY-2017
Calibration Time: 10:47
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	371325	185663	742650	457636	23.24
11 Acenaphthene-d10	154428	77214	308856	192940	24.94
18 Phenanthrene-d10	256956	128478	513912	297733	15.87
28 Chrysene-d12	208629	104315	417258	180124	-13.66
36 Perylene-d12	225431	112716	450862	227858	1.08

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	8.50	8.00	9.00	8.48	-0.21
11 Acenaphthene-d10	11.53	11.03	12.03	11.53	-0.00
18 Phenanthrene-d10	14.22	13.72	14.72	14.22	-0.00
28 Chrysene-d12	18.98	18.48	19.48	18.98	-0.00
36 Perylene-d12	22.17	21.67	22.67	22.17	-0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N1117051613.D

Lab ID: 17D0421-09
nt11.i, 20170516.b\LOWSIM.m,   16-MAY-2017 17:39

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

On Column LOD for nt11.i, 20170516.b\LOWSIM.m, allpna.sub = 3.0000

Exception: Naphthalene 6.0000
Exception: Phenanthrene 2.5000
Exception: Anthracene 2.0000
Exception: Pyrene 4.0000
Exception: Benzo(j)fluoranthene 2.5000
Exception: Benzo(a)pyrene 2.0000
Exception: Perylene 3.5000
Exception: Benzo(e)pyrene 2.0000
Exception: Benzo(b)thiophene 2.0000
Exception: 2-Chloronaphthalene 2.0000
Exception: 2,6-Dimethylnaphthalene 2.0000
Exception: 2,3,5-Trimethylnaphthalene 2.0000
Exception: 1-Methylphenanthrene 2.0000
Exception: Dibenzothiophene 2.0000
Exception: Carbazole 2.0000
Exception: Biphenyl 2.0000
Exception: 2-Methylnaphthalene-d10 (Surr) 0.1000
Exception: Dibenzo(a,h)anthracene-d14 (Surr) 0.1000
Exception: Fluoranthene-d10 (Surr) 0.1000
Exception: Anthracene-d10 (Surr) 0.1000
Exception: Benzo(e)pyrene-d12 (Surr) 0.1000
Exception: Fluorene-d10 (Surr) 0.1000

PG-SMA3-DUNH-COC-170426

Form I

ORGANIC ANALYSIS DATA SHEET

EPA 8270D-SIM

Polynuclear Aromatic Hydrocarbons - low level

Laboratory:	Analytical Resources, Inc.			SDG:	17D0421
Client:	Anchor QEA, LLC			Project:	Port Gamble Shellfish Monitoring
Matrix:	Tissue	Laboratory ID:	17D0421-10	File ID:	N1117051614.D
Sampled:	04/26/17 12:15	Prepared:	05/09/17 13:50	Analyzed:	05/16/17 18:15
Solids:		Preparation:	EPA 3550C-Mod (Ultrasonic	Initial/Final:	10.06 g / 0.5 mL
Batch:	BFE0160	Sequence:	SFE0208	Calibration:	AE00020
Instrument:	NT11	Column:	RXi-17Sil-MS		

CAS NO.	COMPOUND	DILUTION	CONC. (ug/kg)	Q	DL	RL
91-20-3	Naphthalene	1	0.84		0.50	0.60
91-57-6	2-Methylnaphthalene	1	1.21		0.50	0.50
208-96-8	Acenaphthylene	1	0.50	U	0.50	0.50
83-32-9	Acenaphthene	1	0.99		0.50	0.50
86-73-7	Fluorene	1	0.50	U	0.50	0.50
85-01-8	Phenanthrene	1	0.50	U	0.50	0.50
120-12-7	Anthracene	1	0.50	U	0.50	0.50
206-44-0	Fluoranthene	1	0.50	U	0.50	0.50
129-00-0	Pyrene	1	0.50	U	0.50	0.50
56-55-3	Benzo(a)anthracene	1	0.50	U	0.50	0.50
218-01-9	Chrysene	1	0.50	U	0.50	0.50
205-99-2	Benzo(b)fluoranthene	1	0.50	U	0.50	0.50
207-08-9	Benzo(k)fluoranthene	1	0.50	U	0.50	0.50
50-32-8	Benzo(a)pyrene	1	0.50	U	0.50	0.50
193-39-5	Indeno(1,2,3-cd)pyrene	1	0.50	U	0.50	0.50
53-70-3	Dibenzo(a,h)anthracene	1	0.50	U	0.50	0.50
191-24-2	Benzo(g,h,i)perylene	1	0.50	U	0.50	0.50
1985-5-0	Perylene	1	0.50	U	0.50	0.50
197-97-2	Benzo(e)pyrene	1	0.50	U	0.50	0.50

SURROGATES	ADDED (ug/kg)	CONC (ug/kg)	% REC	QC LIMITS	Q
2-Methylnaphthalene-d10	14.911	8.84	59.3	30 - 160	
Dibenzo[a,h]anthracene-d14	14.911	7.41	49.7	30 - 160	
Fluoranthene-d10	14.911	11.0	73.6	30 - 160	

Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051614.D

Date : 16-MAY-2017 18:15

Client ID:

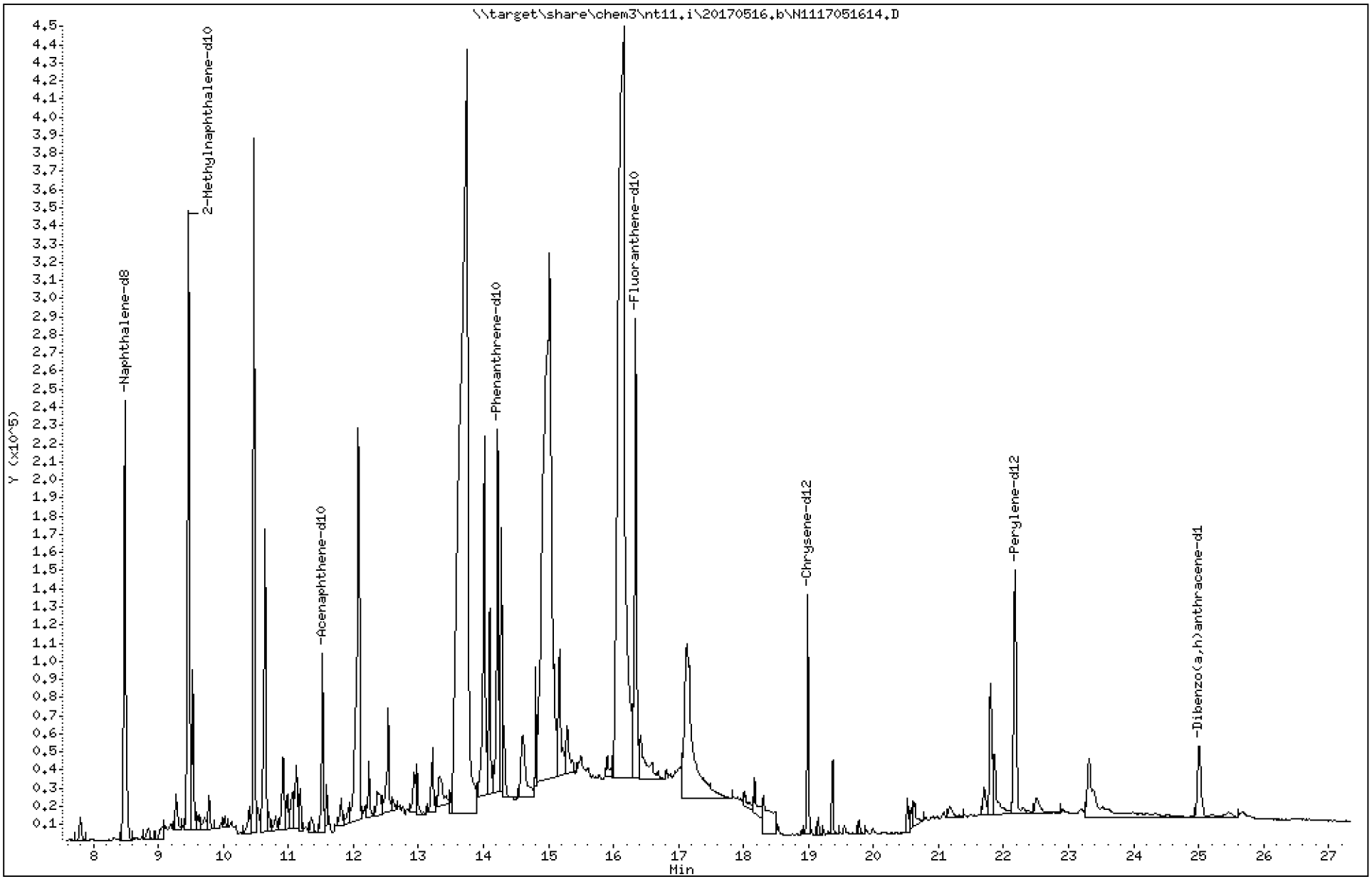
Sample Info: 17D0421-10

Instrument: nt11.i

Operator: VTS

Column phase: Rxi-17Sil MS

Column diameter: 0.25



Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051614.D

Date : 16-MAY-2017 18:15

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-10

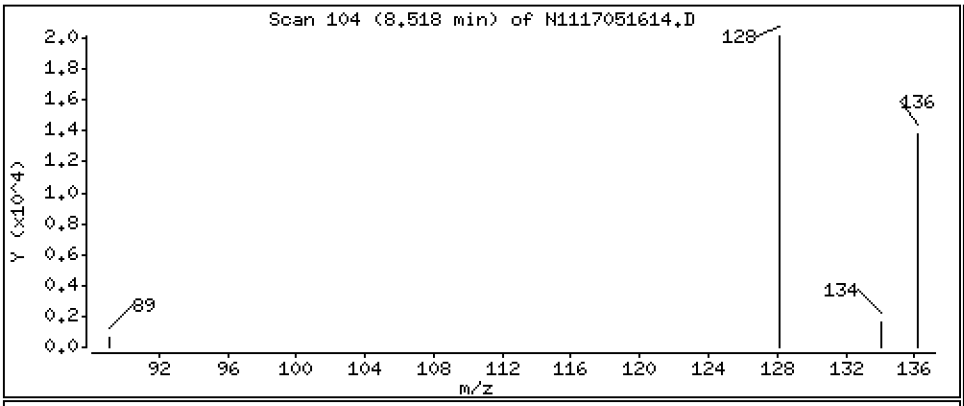
Operator: VTS

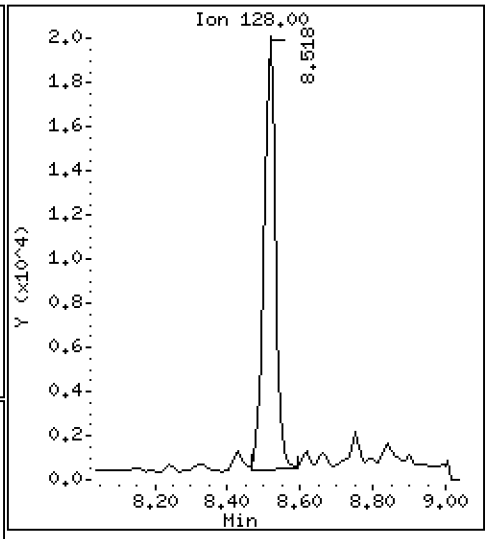
Column phase: Rxi-17Sil MS

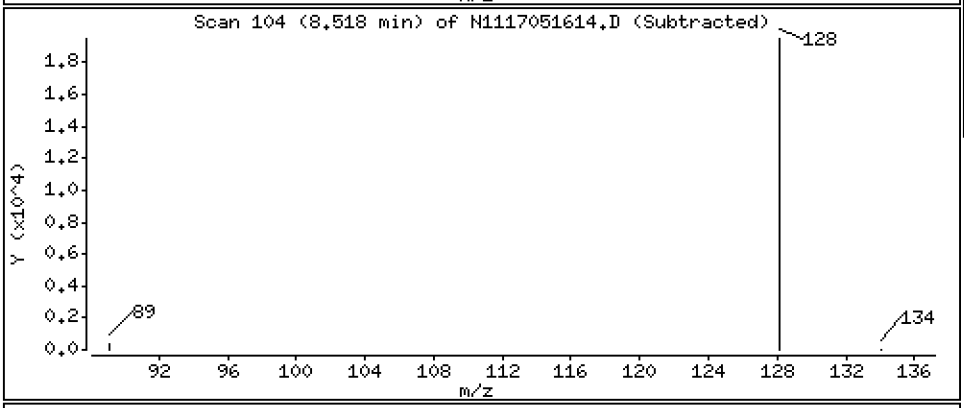
Column diameter: 0.25

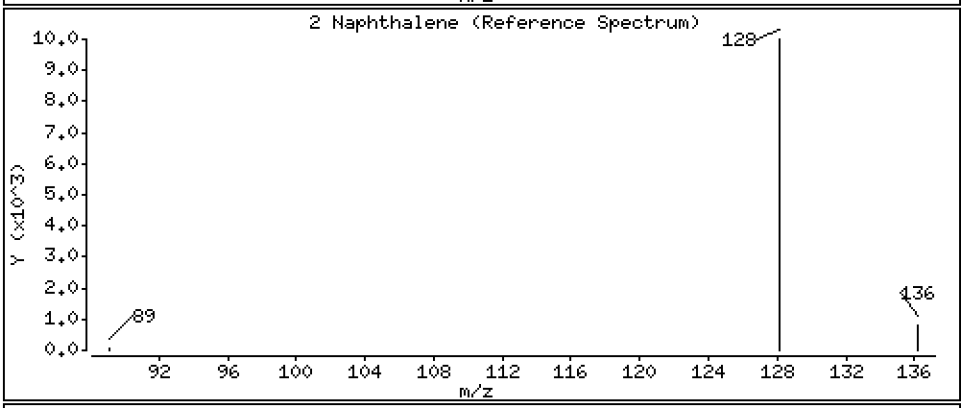
2 Naphthalene

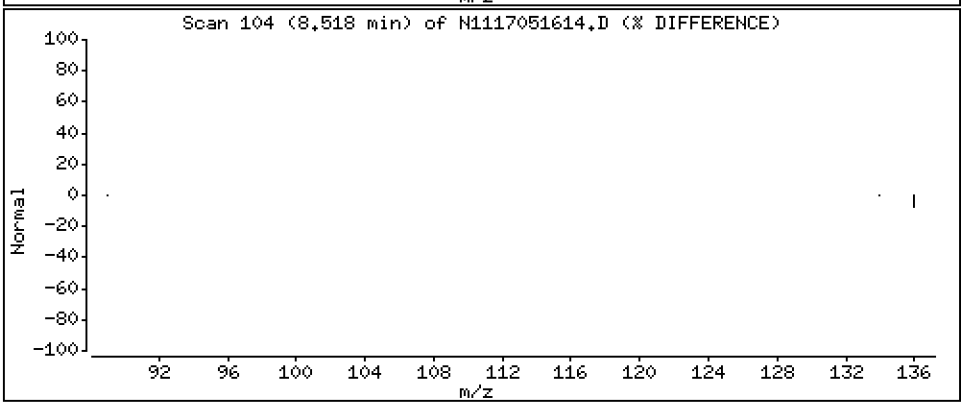
Concentration: 16.8 ng/mL











Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051614.D

Date : 16-MAY-2017 18:15

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-10

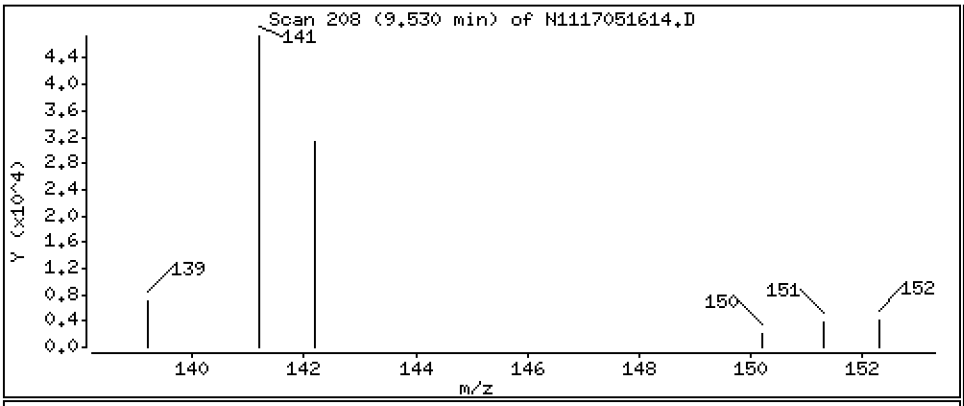
Operator: VTS

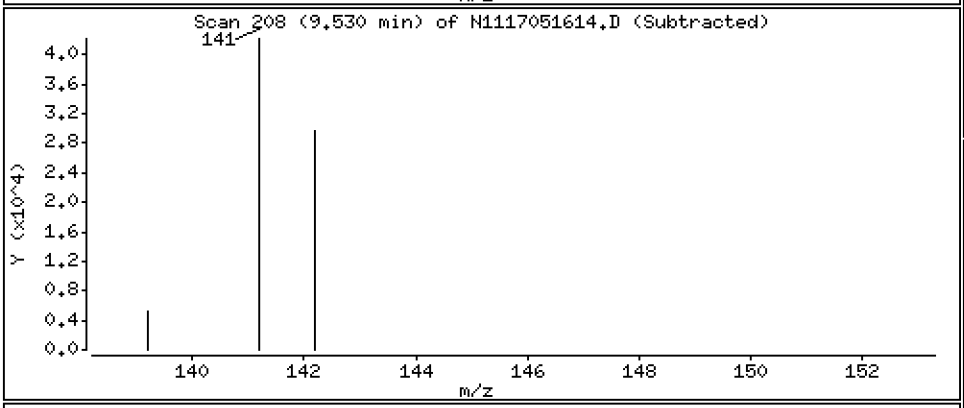
Column phase: Rxi-17Sil MS

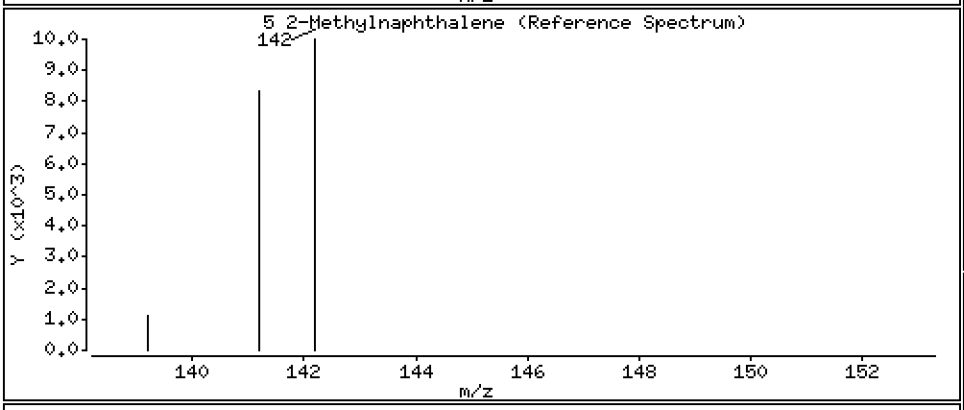
Column diameter: 0.25

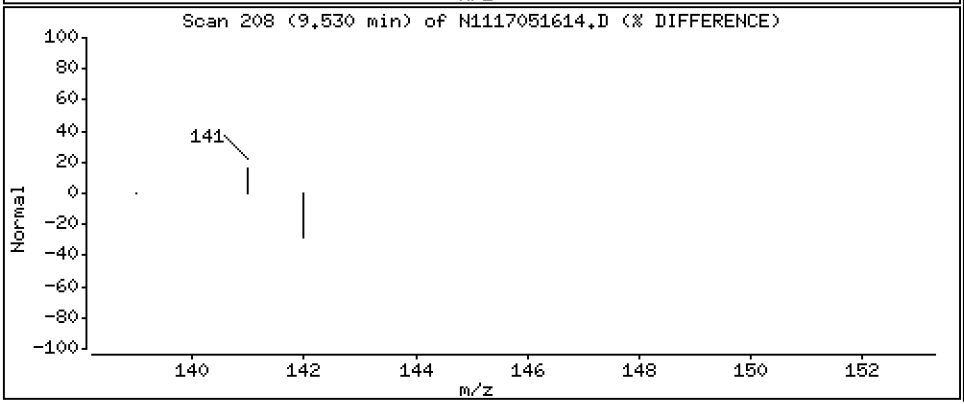
5 2-Methylnaphthalene

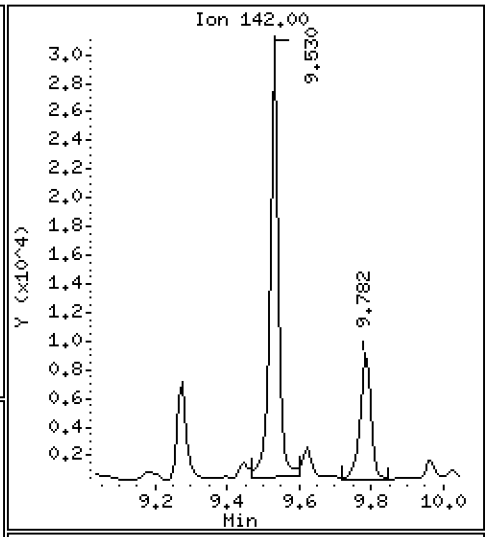
Concentration: 24.4 ng/mL

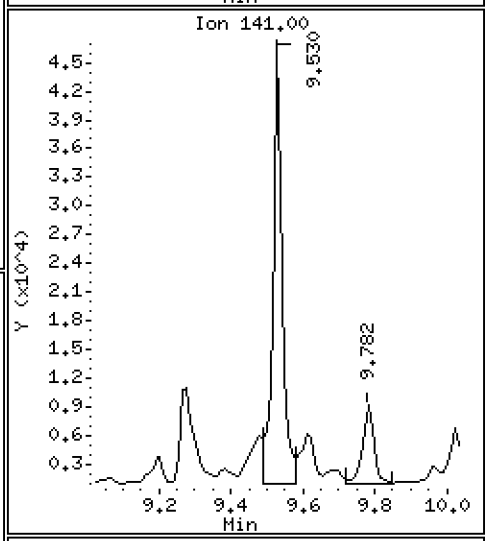


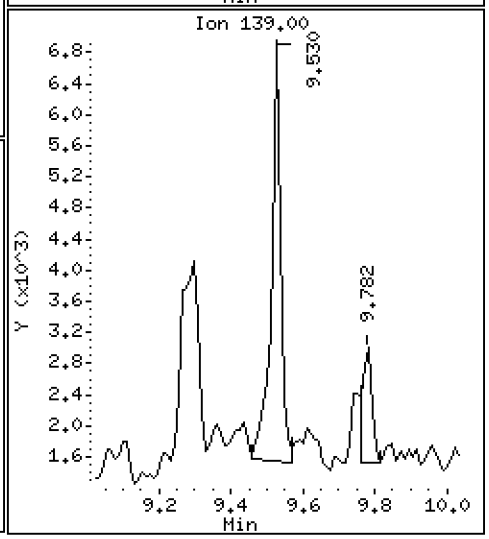












Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051614.D

Date : 16-MAY-2017 18:15

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-10

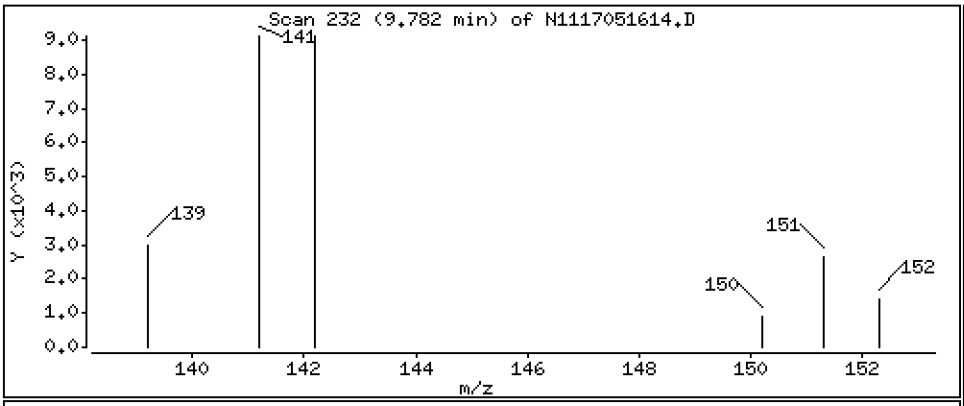
Operator: VTS

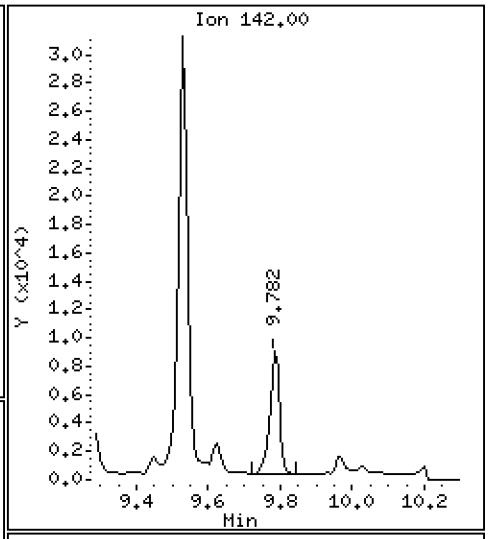
Column phase: Rxi-17Sil MS

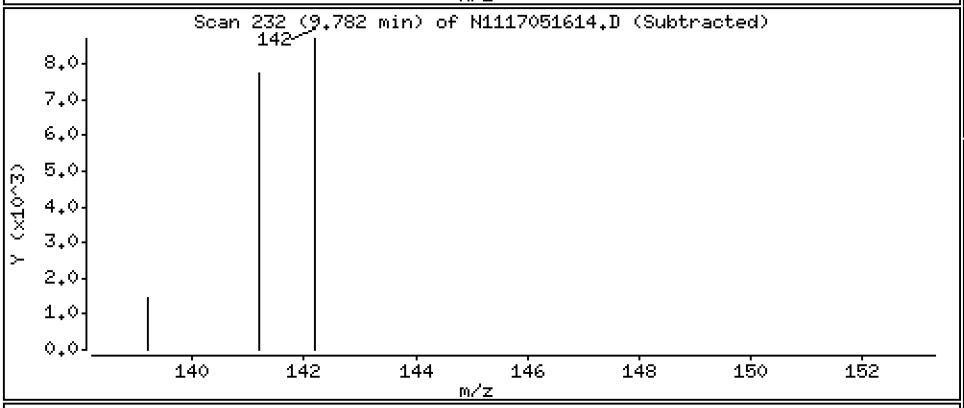
Column diameter: 0.25

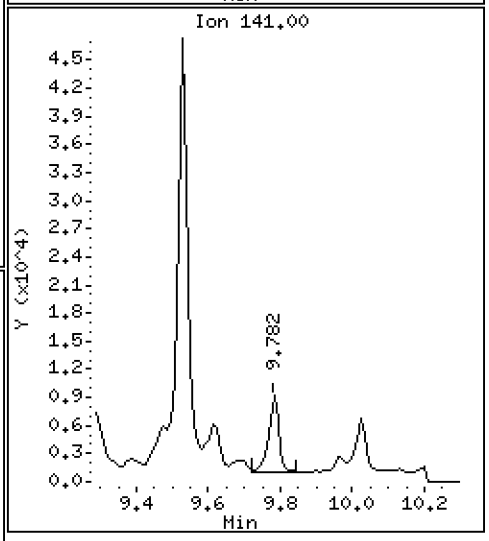
6 1-Methylnaphthalene

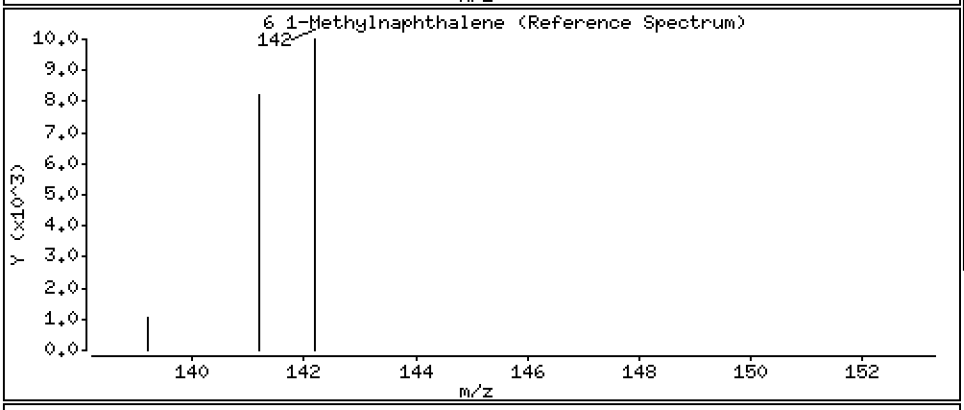
Concentration: 8.12 ng/mL

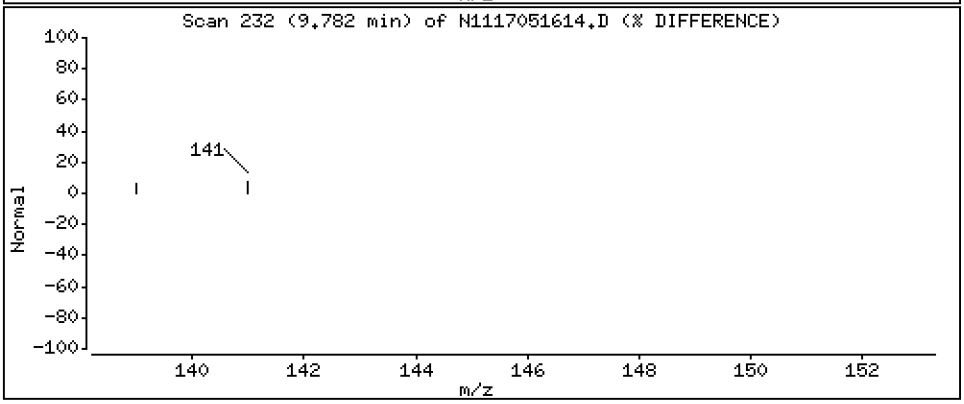












Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051614.D

Date : 16-MAY-2017 18:15

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-10

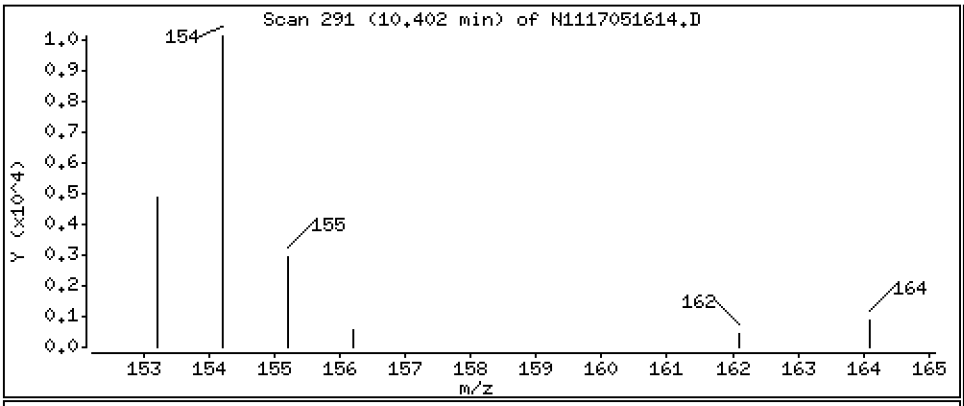
Operator: VTS

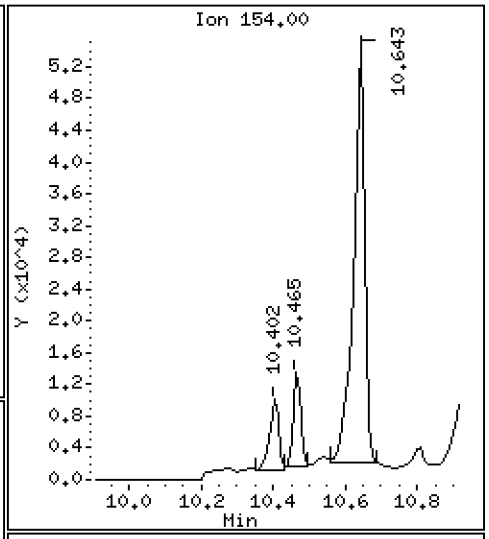
Column phase: Rxi-17Sil MS

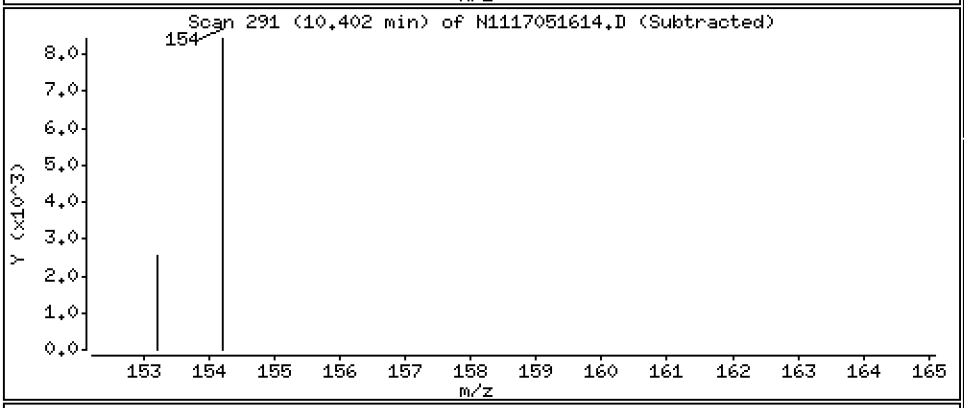
Column diameter: 0.25

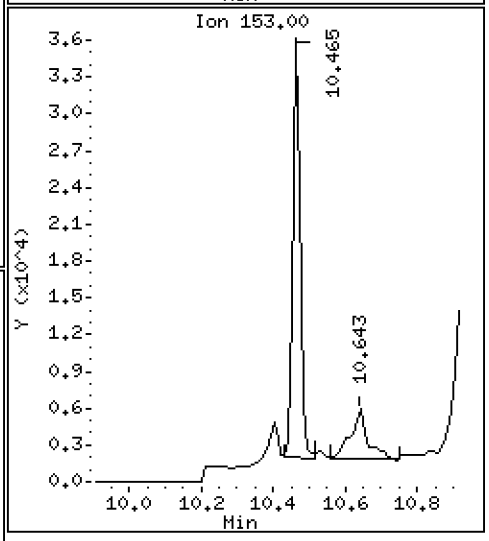
8 Biphenyl

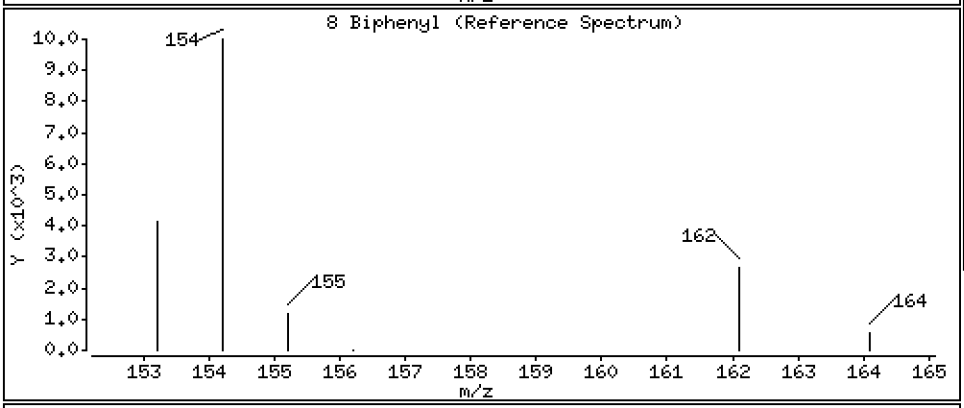
Concentration: 5.74 ng/mL

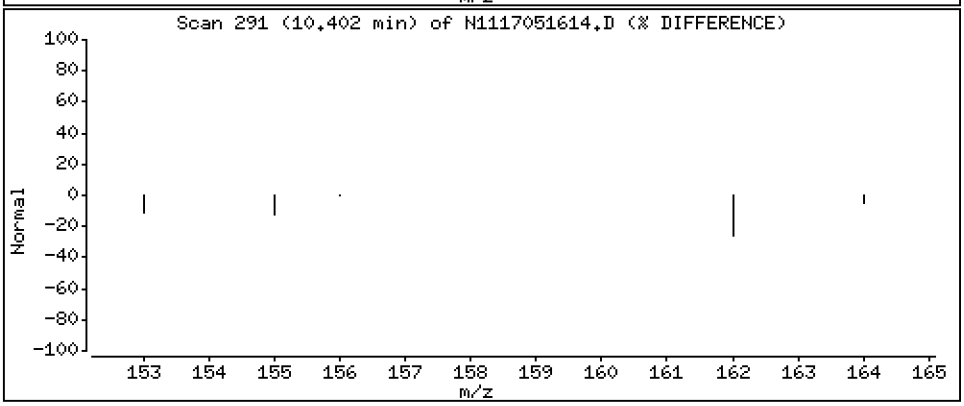












Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051614.D

Date : 16-MAY-2017 18:15

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-10

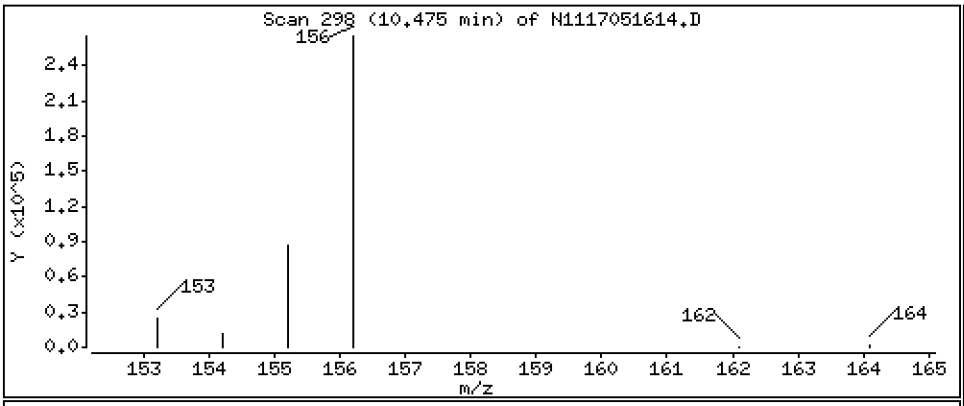
Operator: VTS

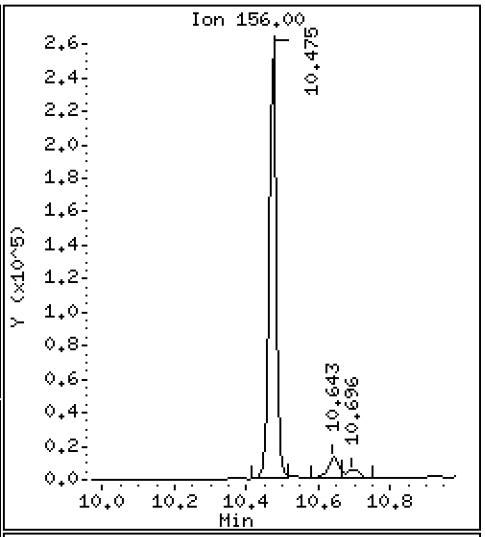
Column phase: Rxi-17Sil MS

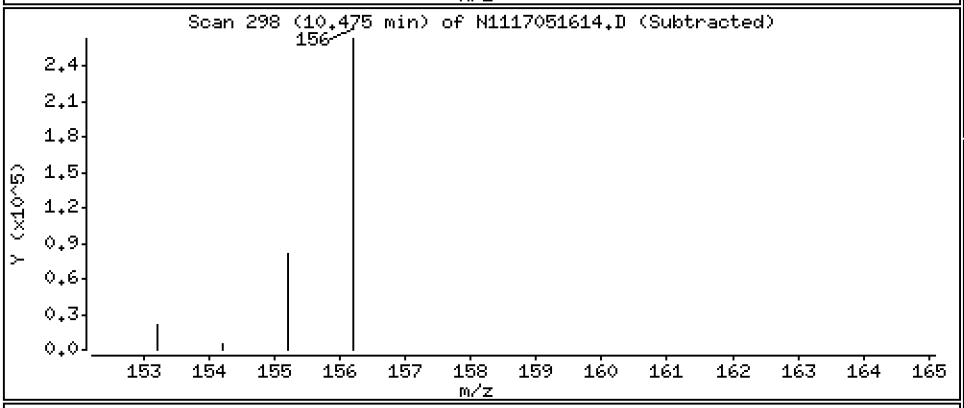
Column diameter: 0.25

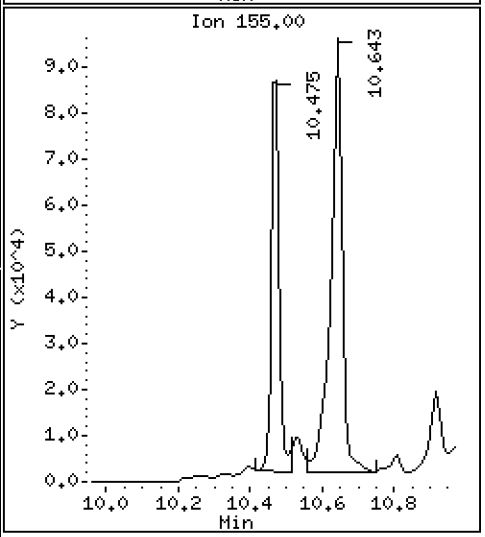
9 2,6-Dimethylnaphthalene

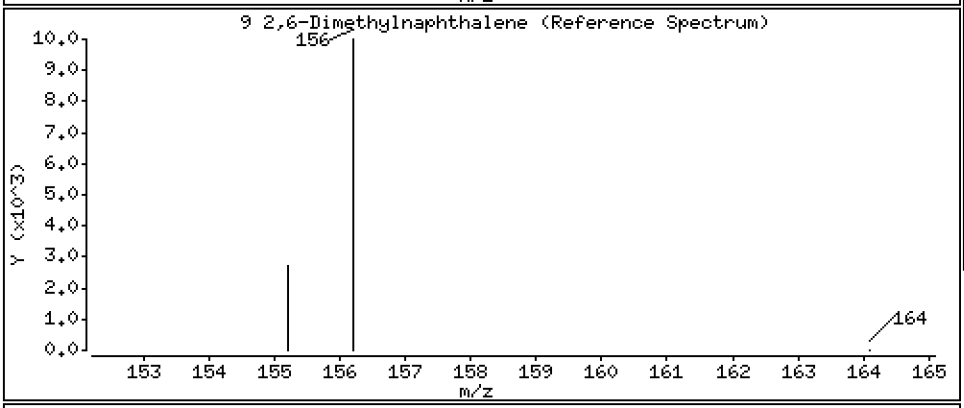
Concentration: 193 ng/mL

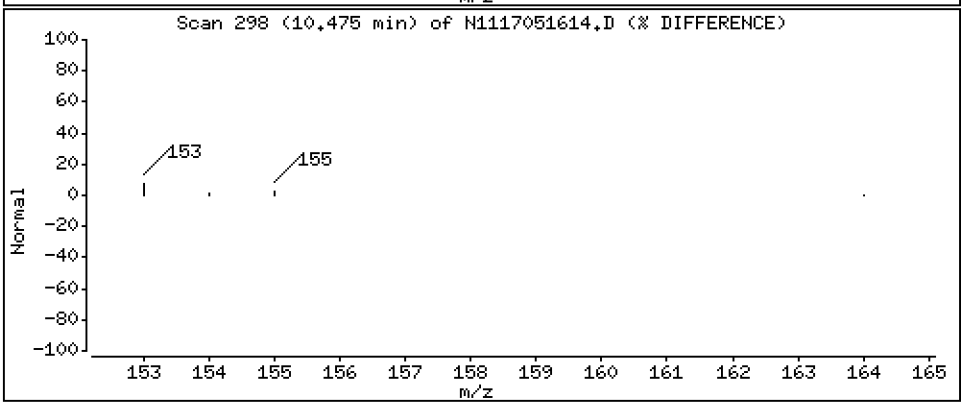












Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051614.D

Date : 16-MAY-2017 18:15

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-10

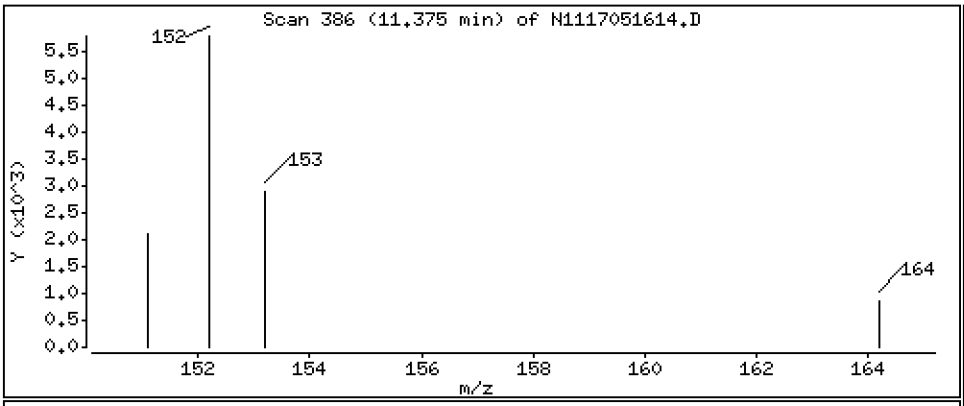
Operator: VTS

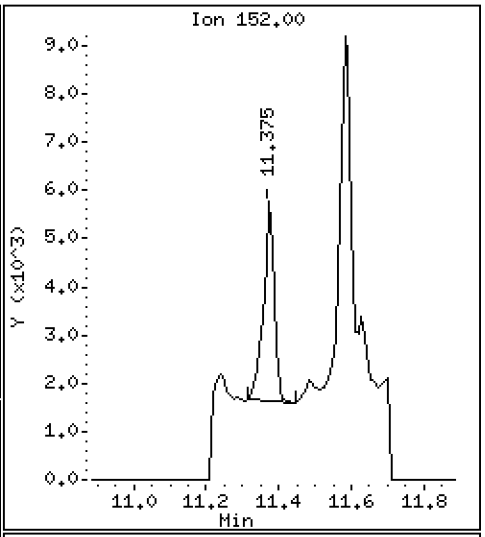
Column phase: Rxi-17Sil MS

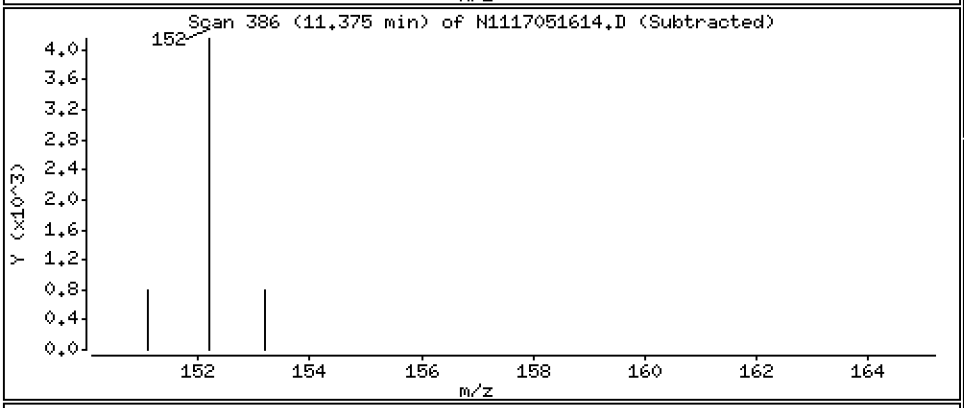
Column diameter: 0.25

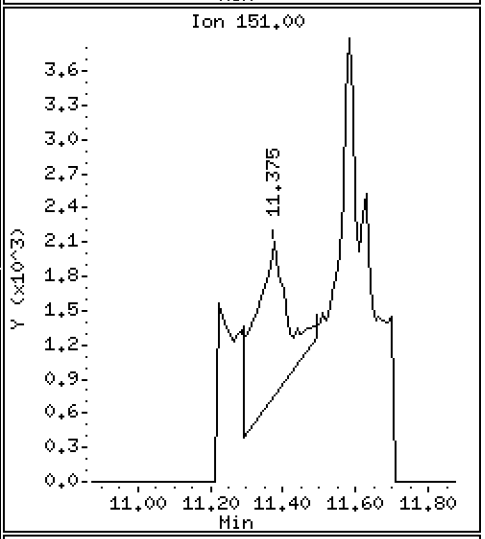
10 Acenaphthylene

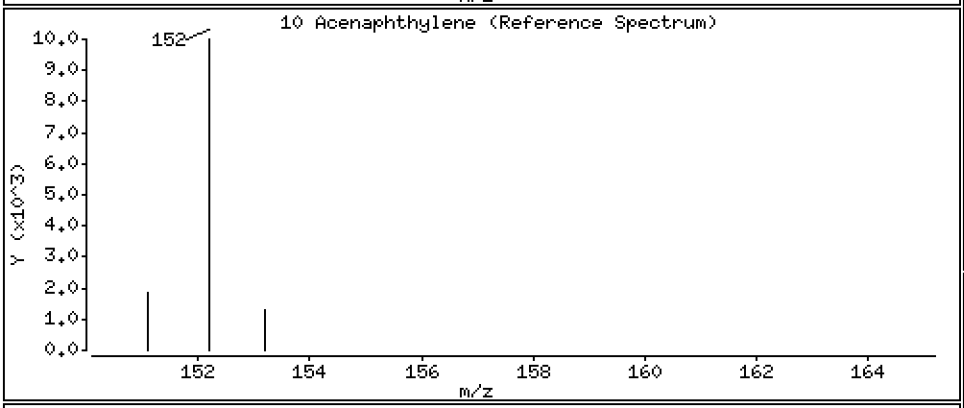
Concentration: 3.71 ng/mL

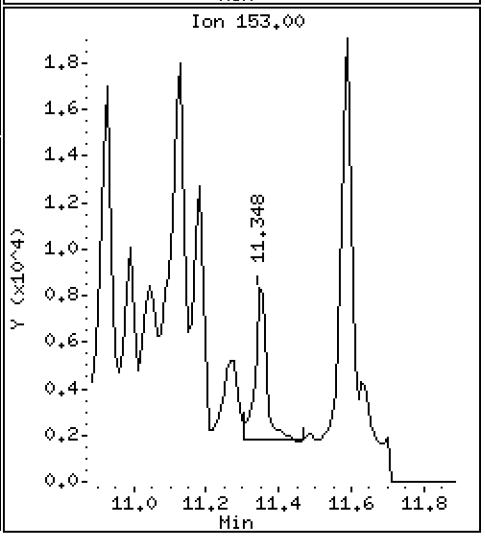


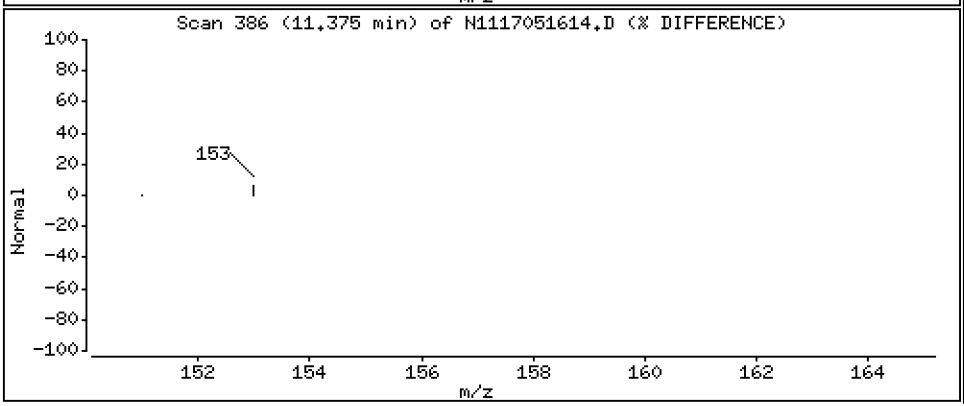












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Date : 16-MAY-2017 18:15

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-10

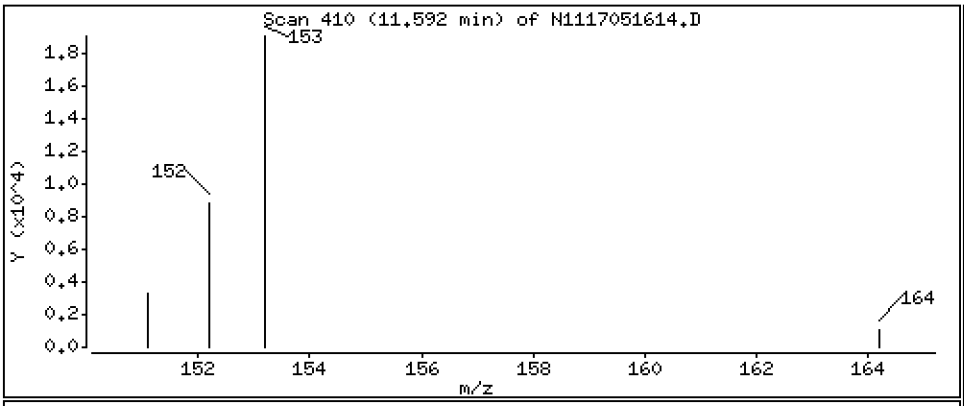
Operator: VTS

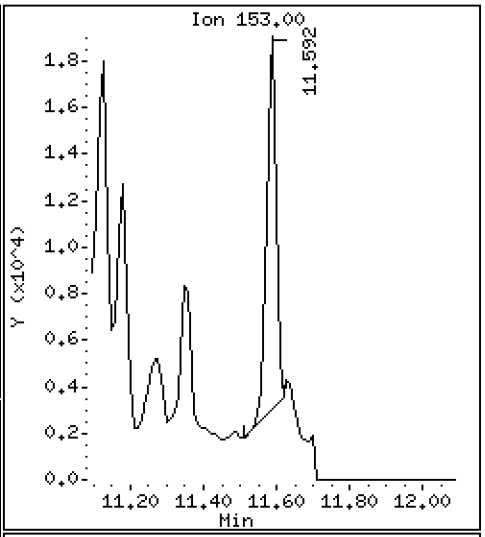
Column phase: Rxi-17Sil MS

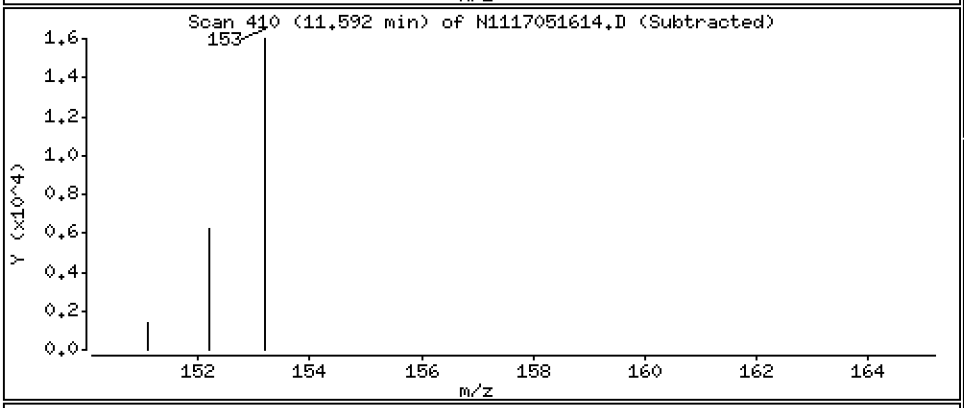
Column diameter: 0.25

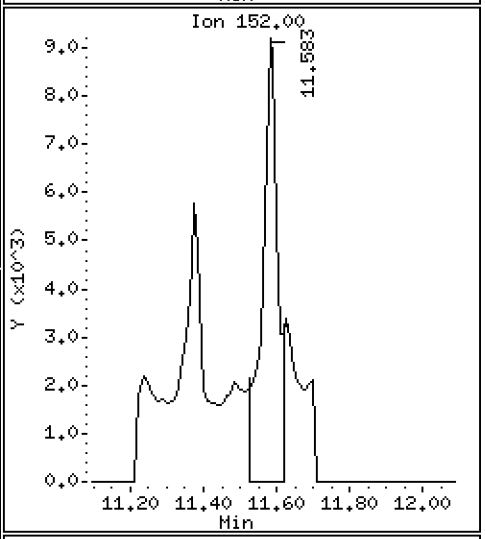
12 Acenaphthene

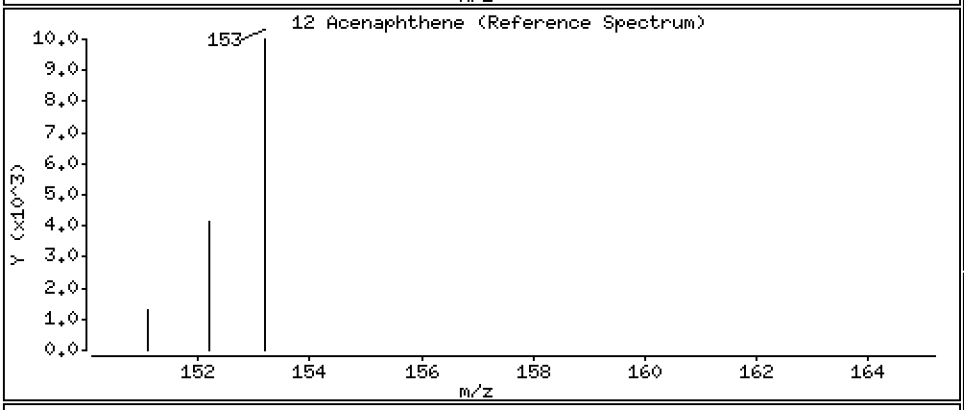
Concentration: 19.9 ng/mL

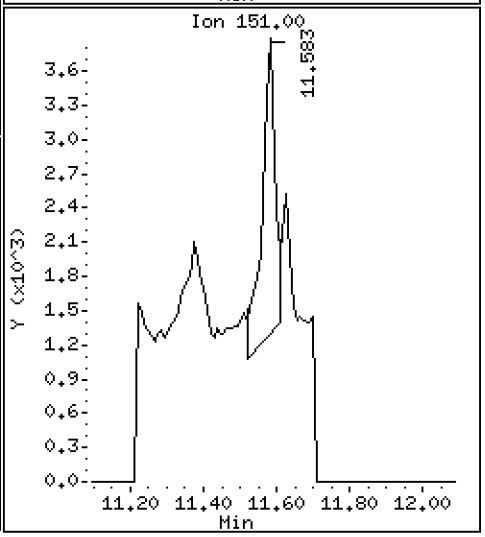


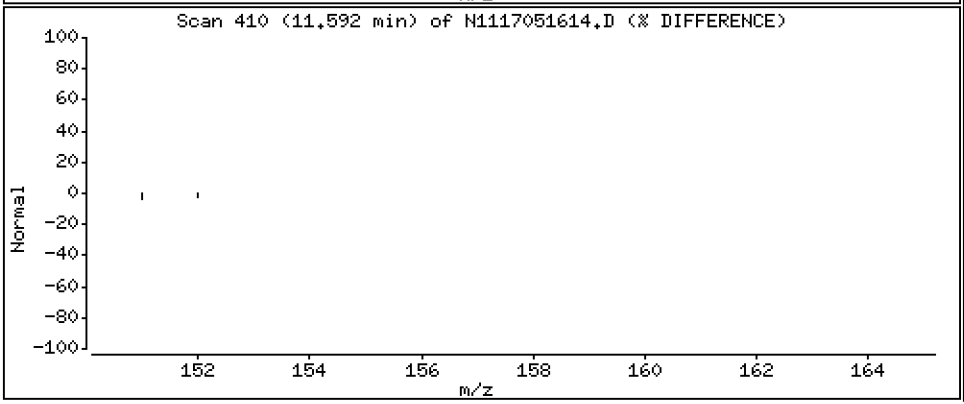












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Date : 16-MAY-2017 18:15

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-10

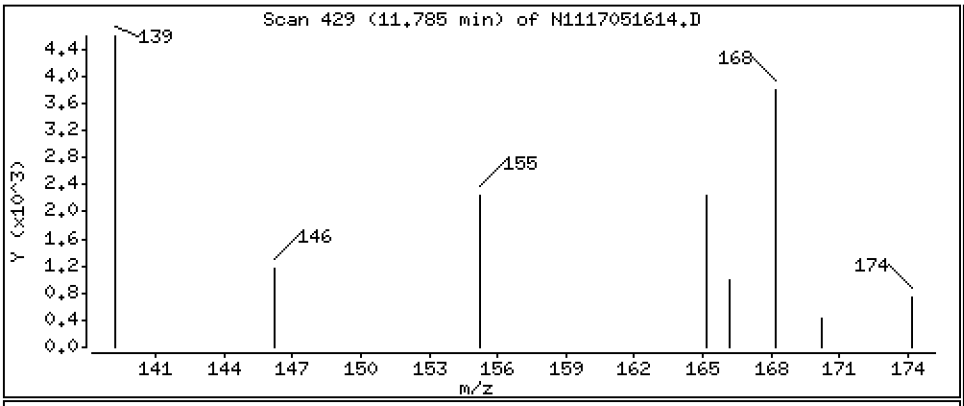
Operator: VTS

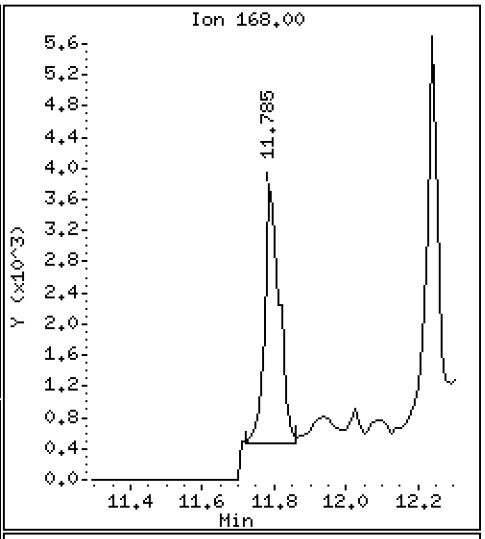
Column phase: Rxi-17Sil MS

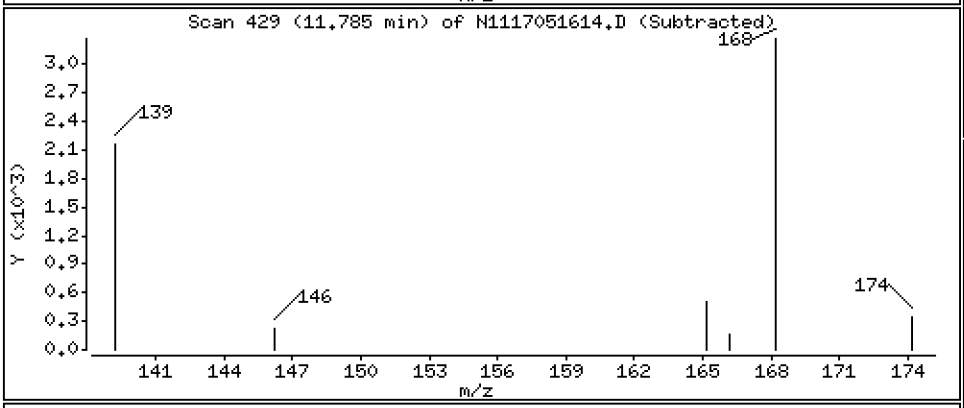
Column diameter: 0.25

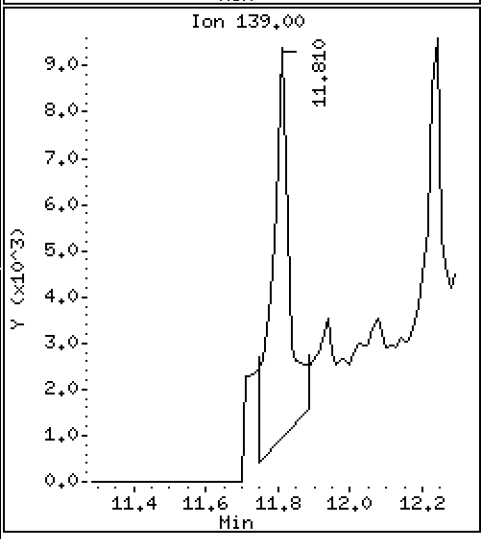
13 Dibenzofuran

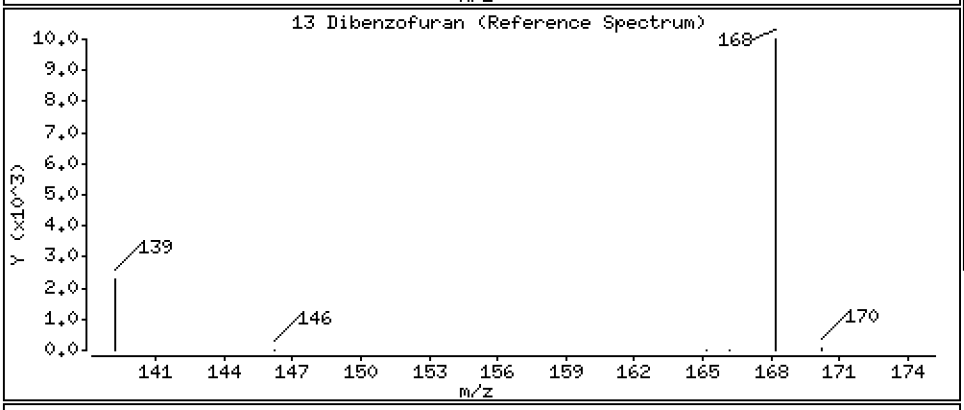
Concentration: 4.86 ng/mL

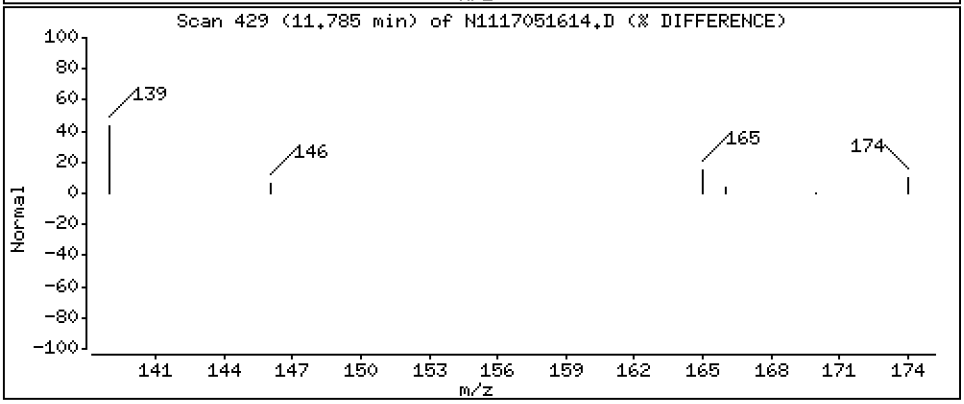












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Date : 16-MAY-2017 18:15

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-10

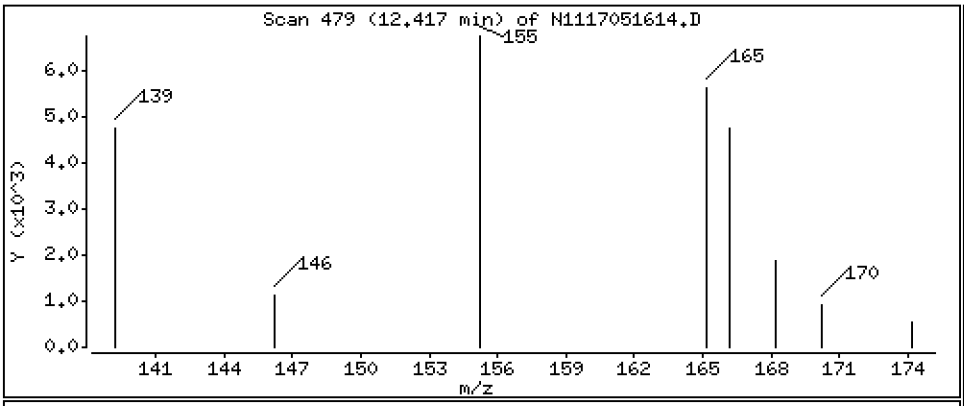
Operator: VTS

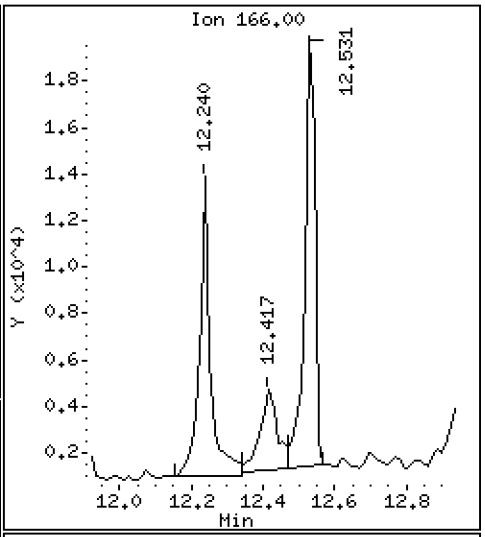
Column phase: Rxi-17Sil MS

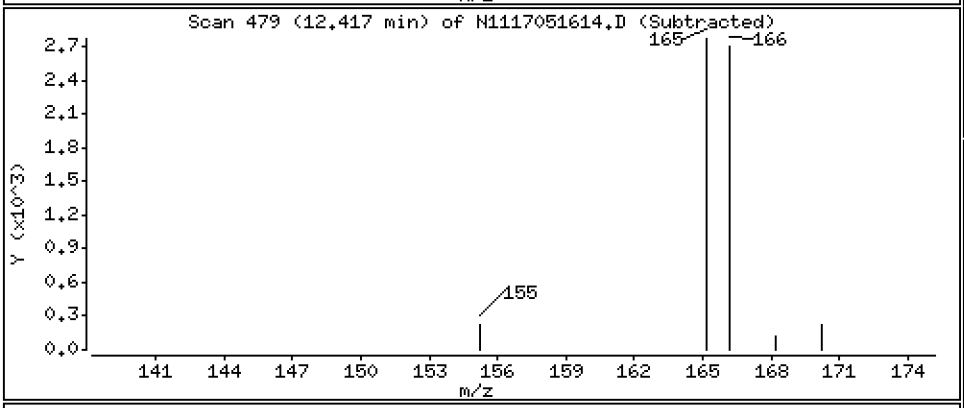
Column diameter: 0.25

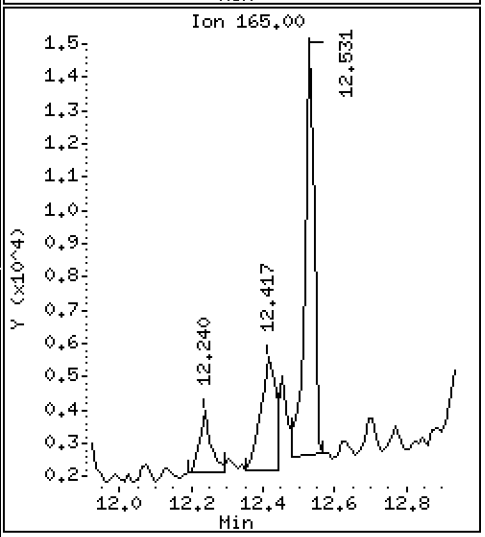
16 Fluorene

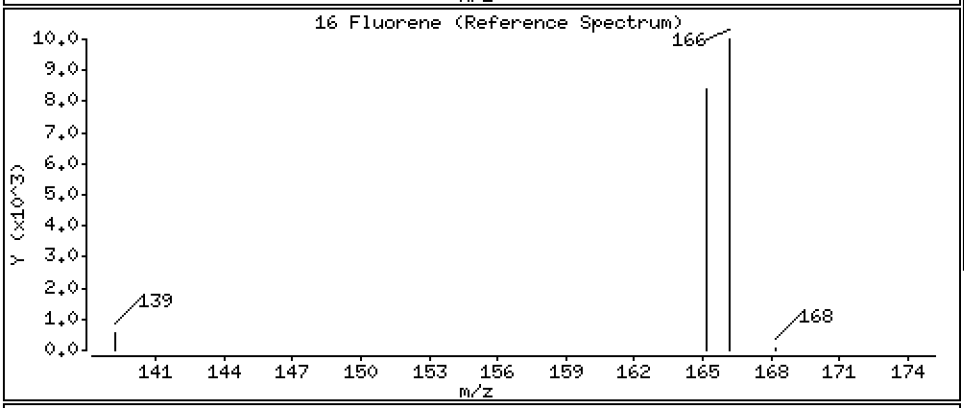
Concentration: 7.33 ng/mL

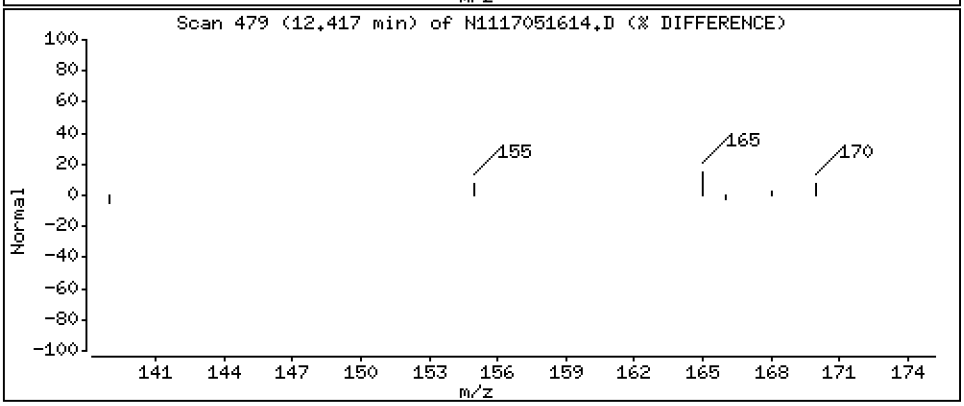












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Date : 16-MAY-2017 18:15

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-10

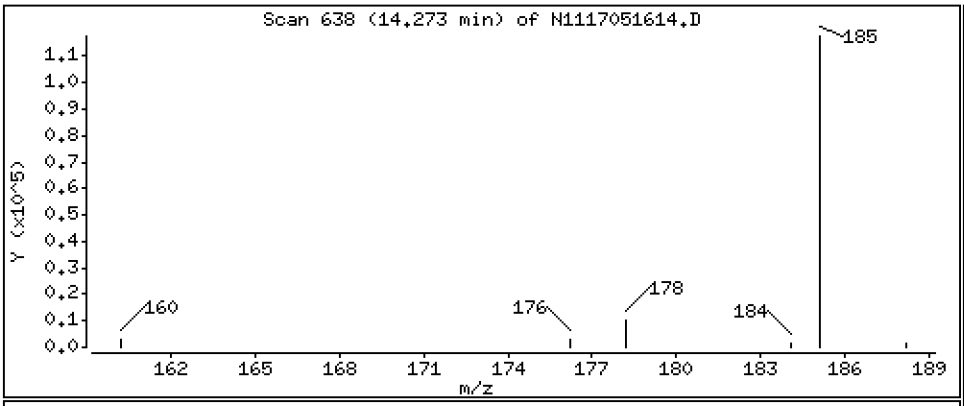
Operator: VTS

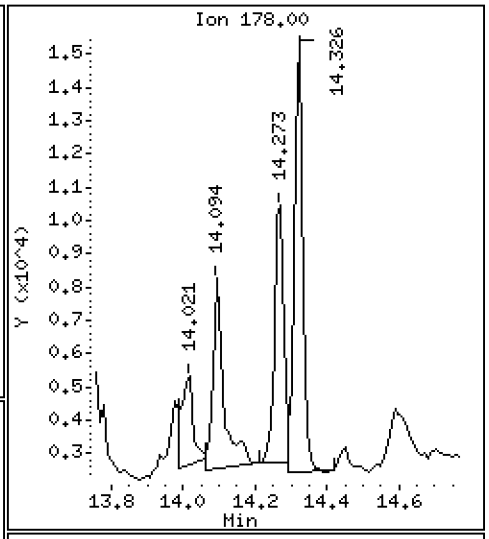
Column phase: Rxi-17Sil MS

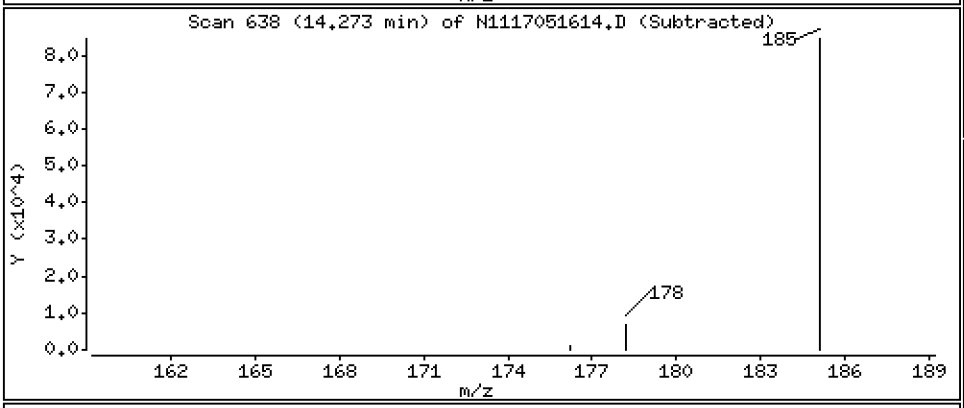
Column diameter: 0.25

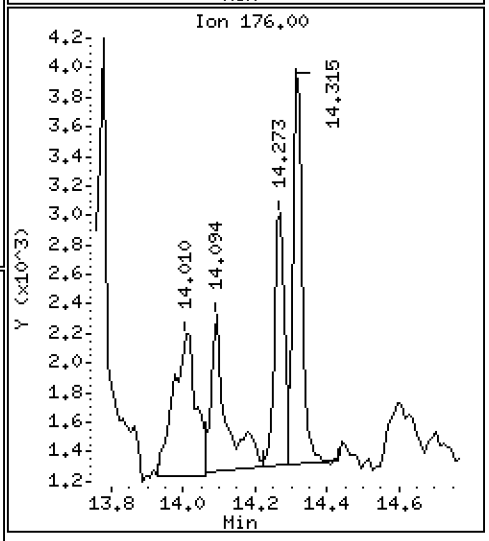
19 Phenanthrene

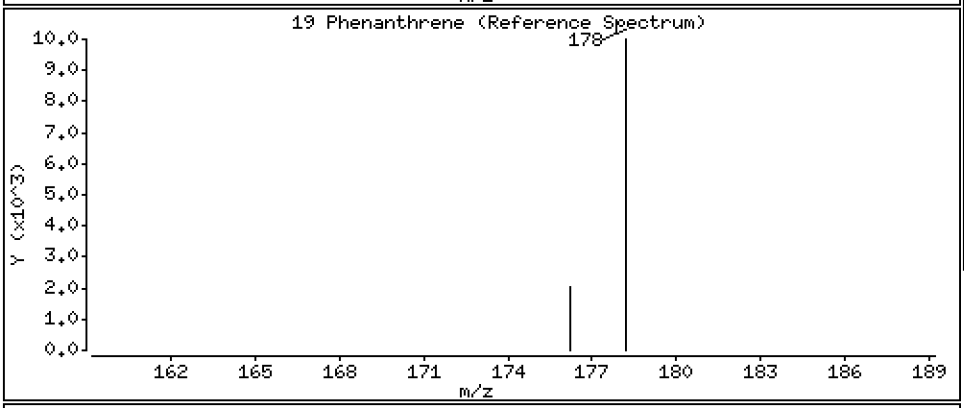
Concentration: 7.01 ng/mL

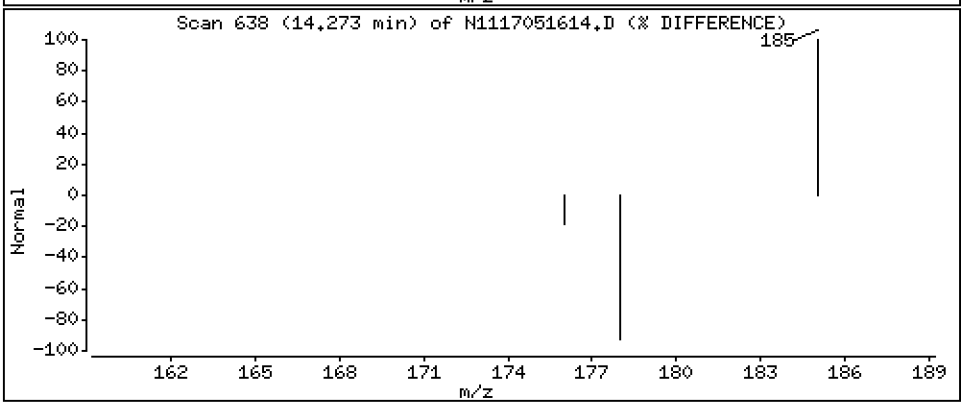












Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051614.D

Date : 16-MAY-2017 18:15

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-10

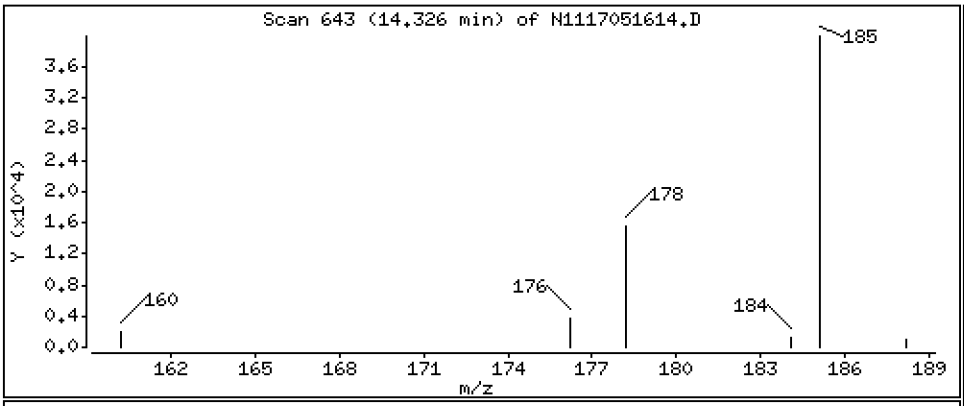
Operator: VTS

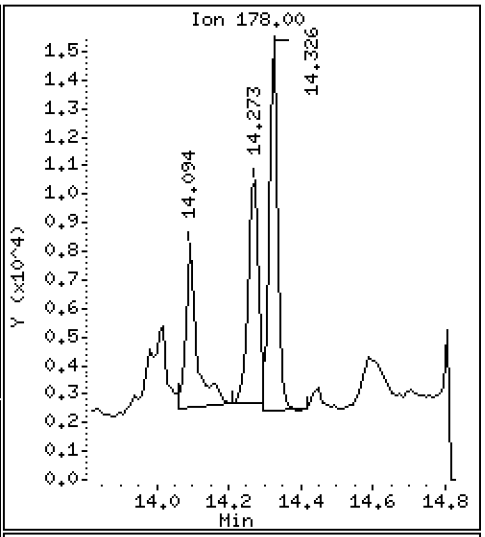
Column phase: Rxi-17Sil MS

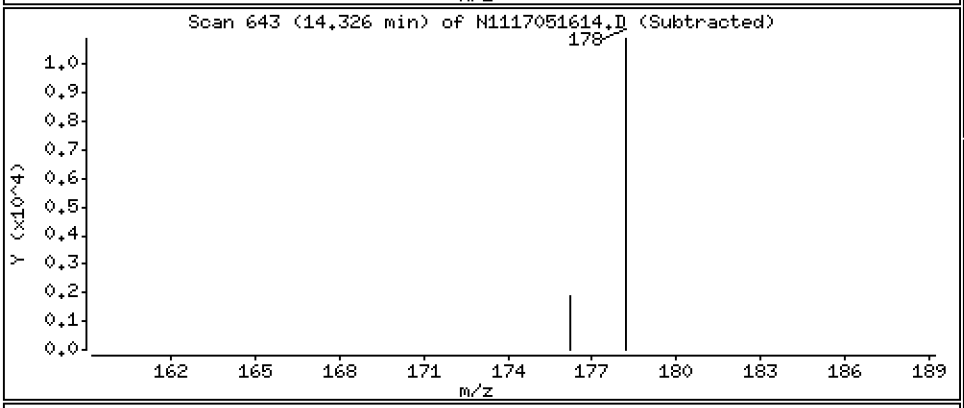
Column diameter: 0.25

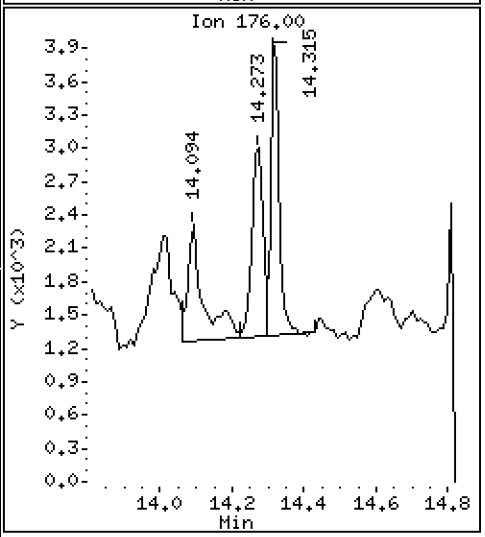
21 Anthracene

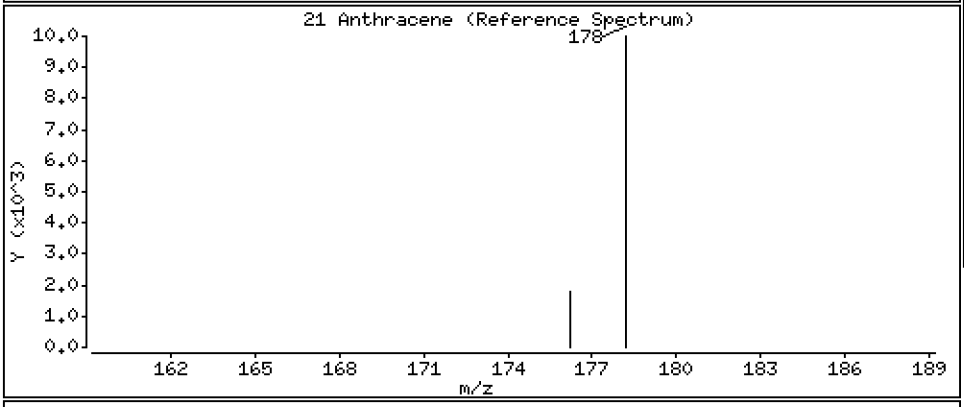
Concentration: 9.64 ng/mL

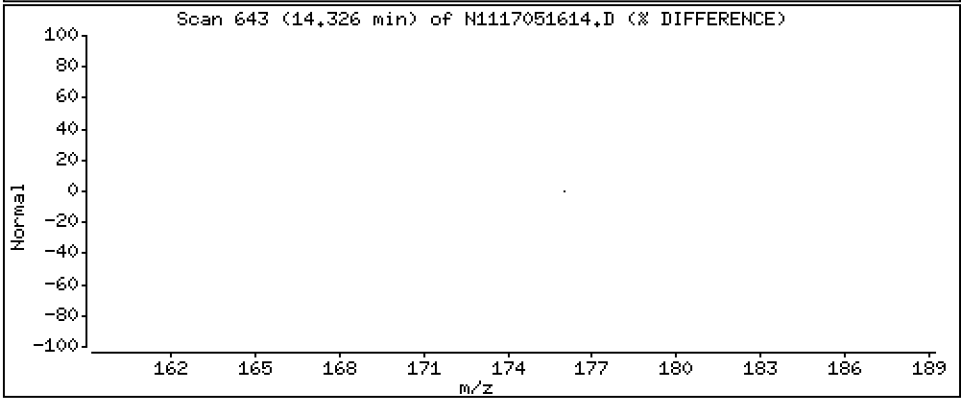












Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051614.D

Date : 16-MAY-2017 18:15

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-10

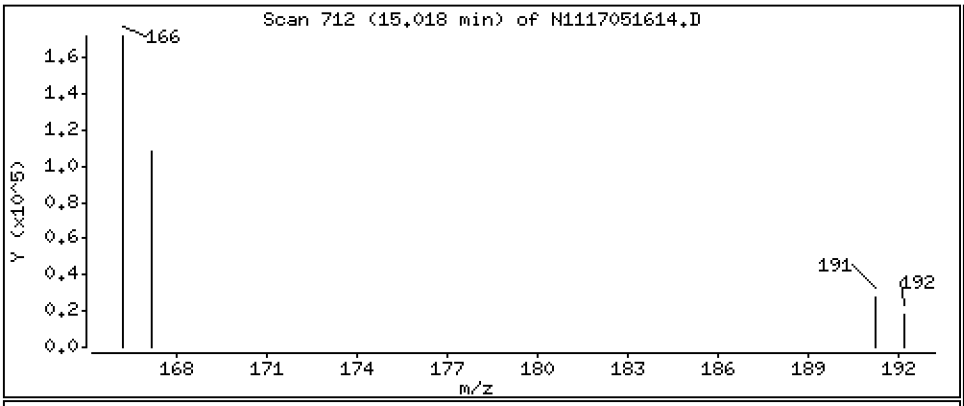
Operator: VTS

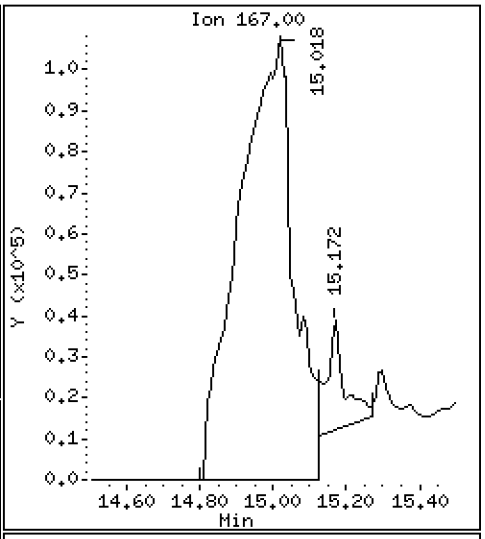
Column phase: Rxi-17Sil MS

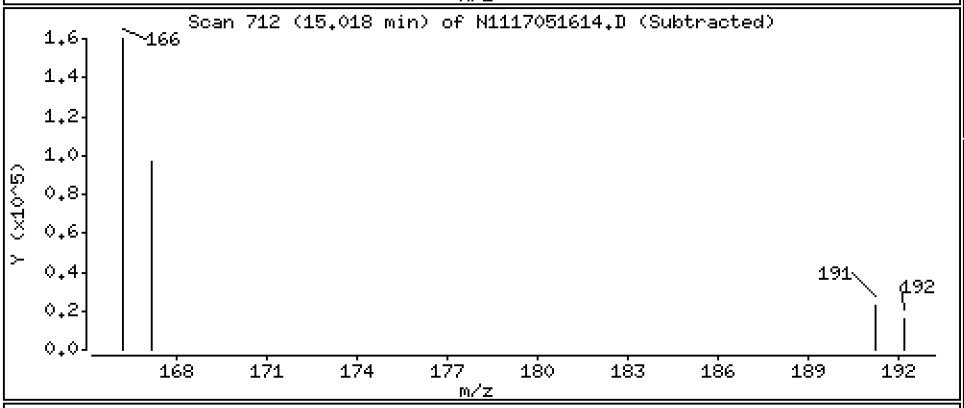
Column diameter: 0.25

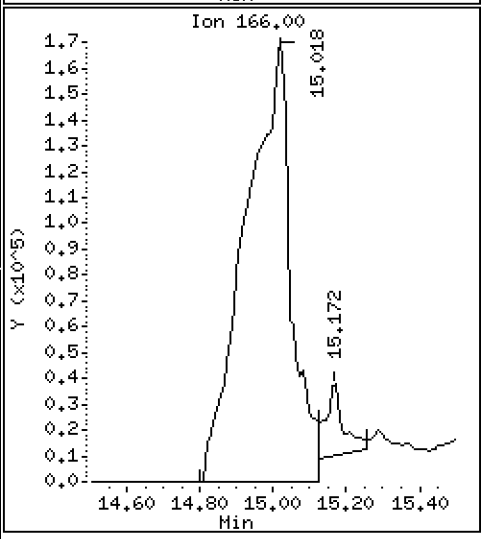
22 Carbazole

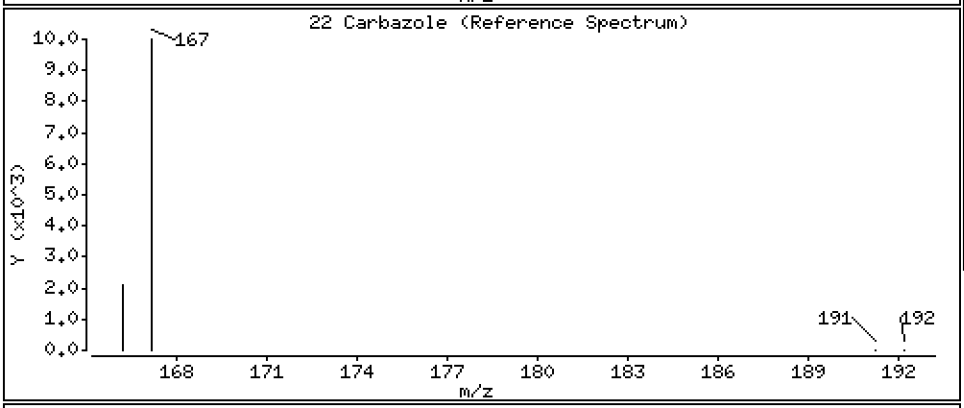
Concentration: 444 ng/mL

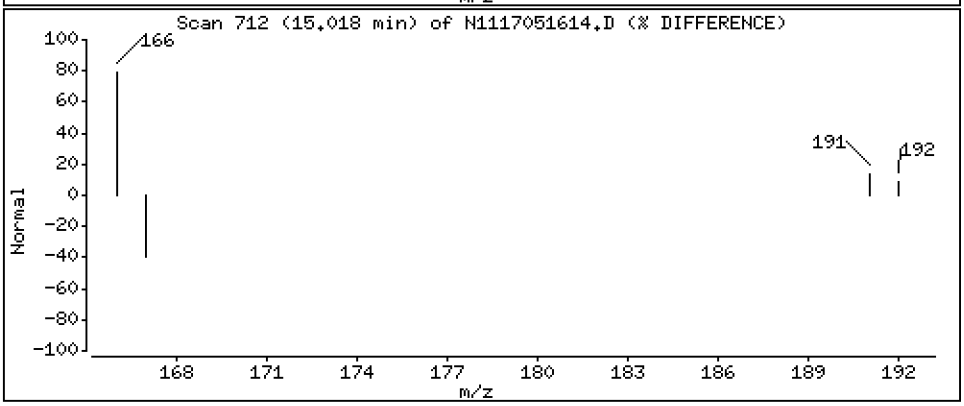












Data File: \\target\share\chem3\nt11.i\20170516.b\N1117051614.D

Date : 16-MAY-2017 18:15

Client ID:

Instrument: nt11.i

Sample Info: 17D0421-10

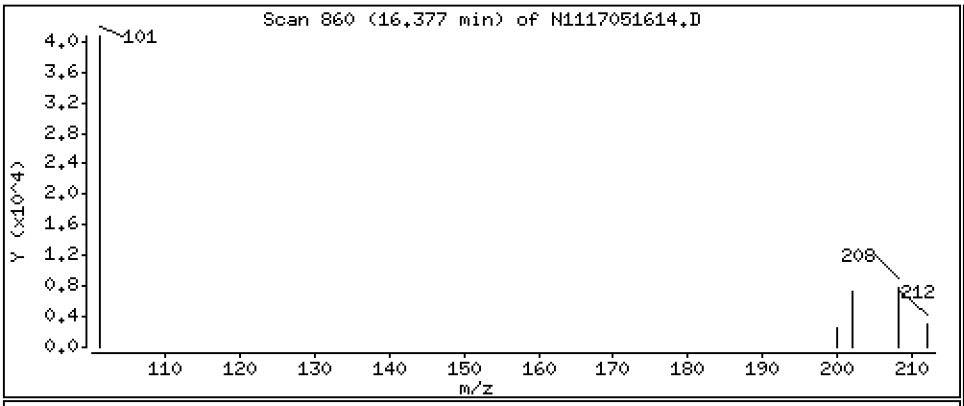
Operator: VTS

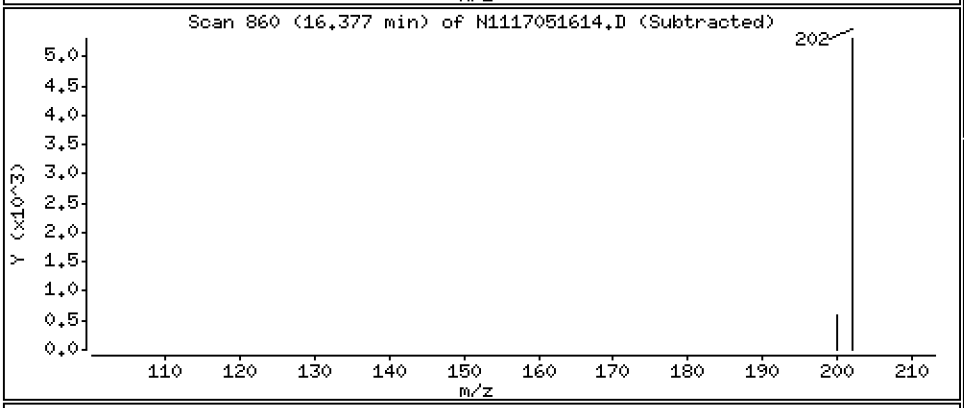
Column phase: Rxi-17Sil MS

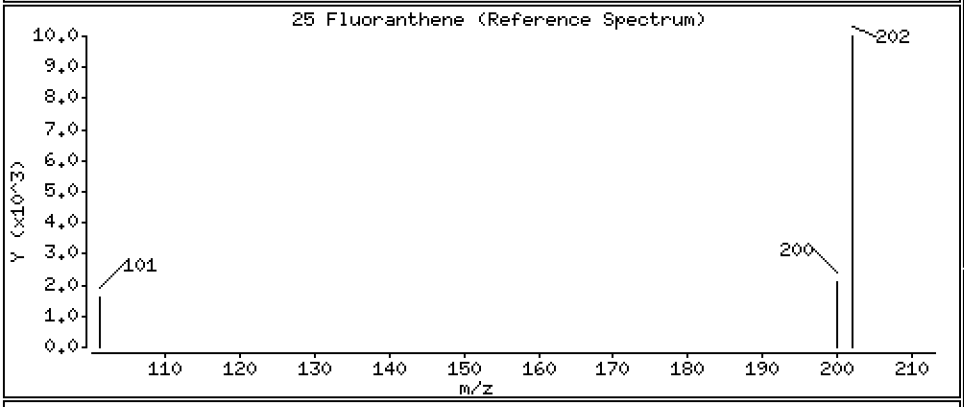
Column diameter: 0.25

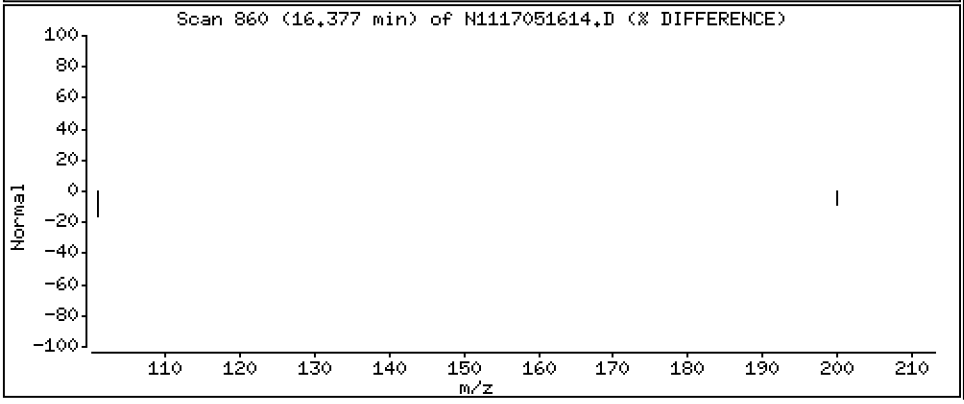
25 Fluoranthene

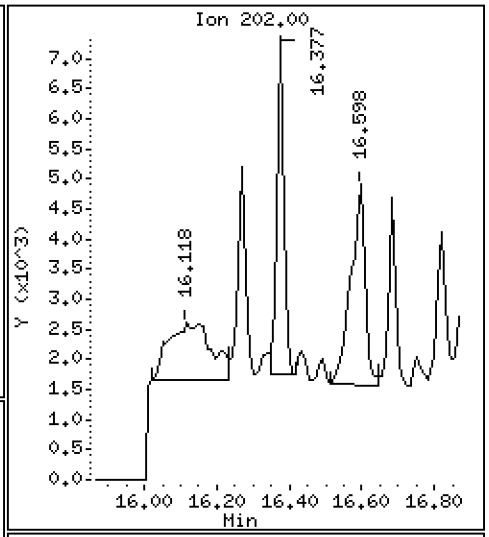
Concentration: 3.82 ng/mL

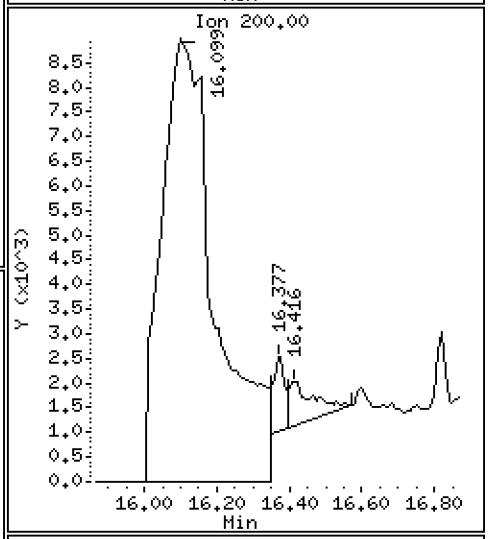


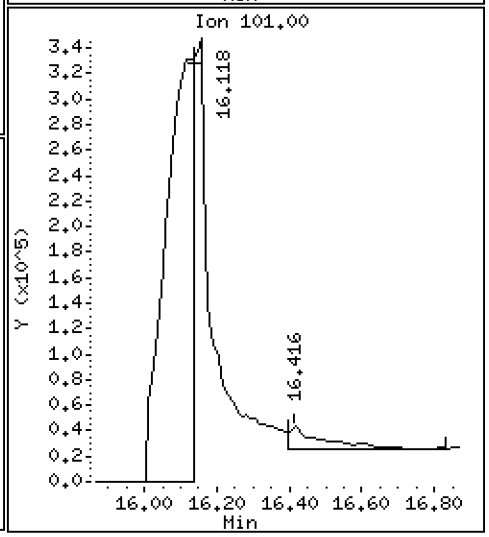












ARI Labs, Inc.

LOW LEVEL PNAs BY SW8270D-SIM

Data file : \\target\share\chem3\nt11.i\20170516.b\N1117051614.D
Lab Smp Id: 17D0421-10
Inj Date : 16-MAY-2017 18:15 MS Autotune Date: 15-JAN-2015 16:59
Operator : VTS Inst ID: nt11.i
Smp Info : 17D0421-10
Misc Info :
Comment   :
Method   : \\target\share\chem3\nt11.i\20170516.b\LOWSIM.m
Meth Date : 17-May-2017 08:15 nt11.i Quant Type: ISTD
Cal Date : 05-MAY-2017 14:47 Cal File: 17050508.D
Als bottle: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: allpna.sub
Target Version: 4.14
Processing Host: VANS

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ng/mL)	FINAL (ng/mL)
*	1 Naphthalene-d8	136	8.481	8.500	(1.000)	464123	200.000	
	2 Naphthalene	128	8.518	8.536	(1.004)	41949	16.8181	16.8
	3 Benzo(b)thiophene	134	Compound Not Detected.					
$	4 2-Methylnaphthalene-d10	152	9.466	9.477	(1.116)	353596	177.782	178
	5 2-Methylnaphthalene	142	9.529	9.540	(1.124)	56143	24.4032	24.4
	6 1-Methylnaphthalene	142	9.781	9.792	(1.153)	18056	8.11546	8.12
	7 2-Chloronaphthalene	162	Compound Not Detected.					
	8 Biphenyl	154	10.401	10.412	(0.902)	17168	5.73688	5.74
	9 2,6-Dimethylnaphthalene	156	10.475	10.475	(0.909)	405719	193.468	193
	10 Acenaphthylene	152	11.374	11.383	(0.987)	8353	3.70578	3.71(M)
*	11 Acenaphthene-d10	164	11.528	11.528	(1.000)	192309	200.000	
	12 Acenaphthene	153	11.591	11.591	(1.005)	29388	19.9382	19.9(M)
	13 Dibenzofuran	168	11.785	11.797	(1.022)	9882	4.85929	4.86
	14 2,3,5-Trimethylnaphthalene	170	Compound Not Detected.					
$	15 Fluorene-d10	174	Compound Not Detected.					
	16 Fluorene	166	12.416	12.429	(1.077)	11627	7.33155	7.33
	17 Dibenzothiophene	184	Compound Not Detected.					
*	18 Phenanthrene-d10	188	14.220	14.220	(1.000)	301685	200.000	
	19 Phenanthrene	178	14.272	14.262	(1.004)	15752	7.01412	7.01
$	20 Anthracene-d10	188	Compound Not Detected.					
	21 Anthracene	178	14.325	14.325	(1.007)	21322	9.63715	9.64
	22 Carbazole	167	15.018	15.000	(1.056)	1142353	443.581	444
	23 1-Methylphenanthrene	192	Compound Not Detected.					
$	24 Fluoranthene-d10	212	16.338	16.338	(1.149)	314798	220.728	221
	25 Fluoranthene	202	16.377	16.367	(1.152)	8246	3.82080	3.82
	26 Pyrene	202	Compound Not Detected.					
	27 Benzo(a)anthracene	228	Compound Not Detected.					
*	28 Chrysene-d12	240	18.991	18.983	(1.000)	212715	200.000	
	29 Chrysene	228	Compound Not Detected.					
	30 Benzo(b)fluoranthene	252	Compound Not Detected.					
	31 Benzo(k)fluoranthene	252	Compound Not Detected.					
	32 Benzo(j)fluoranthene	252	Compound Not Detected.					
$	33 Benzo(e)pyrene-d12	264	Compound Not Detected.					

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ng/mL)	CONCENTRATIONS FINAL (ng/mL)
	34 Benzo(e)pyrene	252	Compound Not Detected.					
	35 Benzo(a)pyrene	252	Compound Not Detected.					
*	36 Perylene-d12	264	22.173	22.173	(1.000)	275692	200.000	
	37 Perylene	252	Compound Not Detected.					
$	38 Dibenzo(a,h)anthracene-d14	292	25.005	25.016	(1.128)	153374	149.140	149
	39 Dibenzo(a,h)anthracene	278	Compound Not Detected.					
	40 Indeno(1,2,3-cd)pyrene	276	Compound Not Detected.					
	41 Benzo(g,h,i)perylene	276	Compound Not Detected.					

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt11.i
Lab File ID: N1117051614.D
Lab Smp Id: 17D0421-10
Analysis Type: SV
Quant Type: ISTD
Operator: VTS
Method File: \\target\share\chem3\nt11.i\20170516.b\LOWSIM.m
Misc Info:

Calibration Date: 16-MAY-2017
Calibration Time: 10:47
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	371325	185663	742650	464123	24.99
11 Acenaphthene-d10	154428	77214	308856	192309	24.53
18 Phenanthrene-d10	256956	128478	513912	301685	17.41
28 Chrysene-d12	208629	104315	417258	212715	1.96
36 Perylene-d12	225431	112716	450862	275692	22.30

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	8.50	8.00	9.00	8.48	-0.21
11 Acenaphthene-d10	11.53	11.03	12.03	11.53	-0.00
18 Phenanthrene-d10	14.22	13.72	14.72	14.22	-0.00
28 Chrysene-d12	18.98	18.48	19.48	18.99	0.04
36 Perylene-d12	22.17	21.67	22.67	22.17	-0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N1117051614.D

Lab ID: 17D0421-10
nt11.i, 20170516.b\LOWSIM.m,   16-MAY-2017 18:15

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

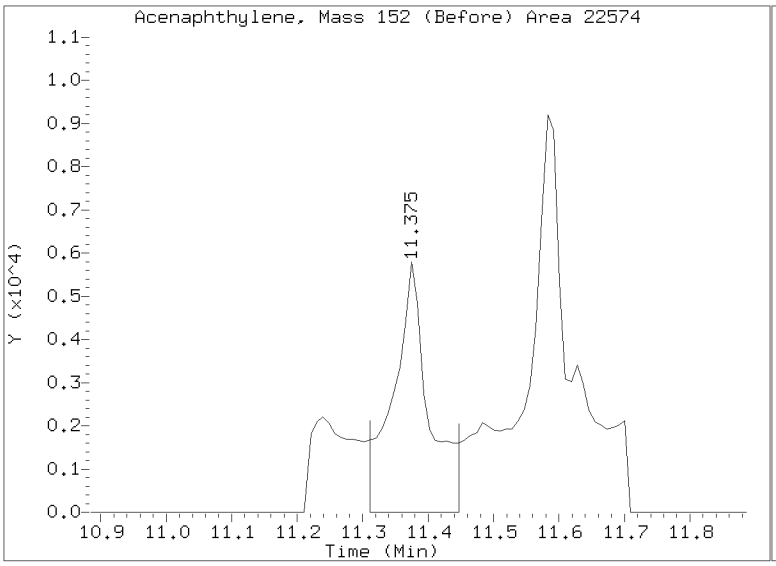
NONE

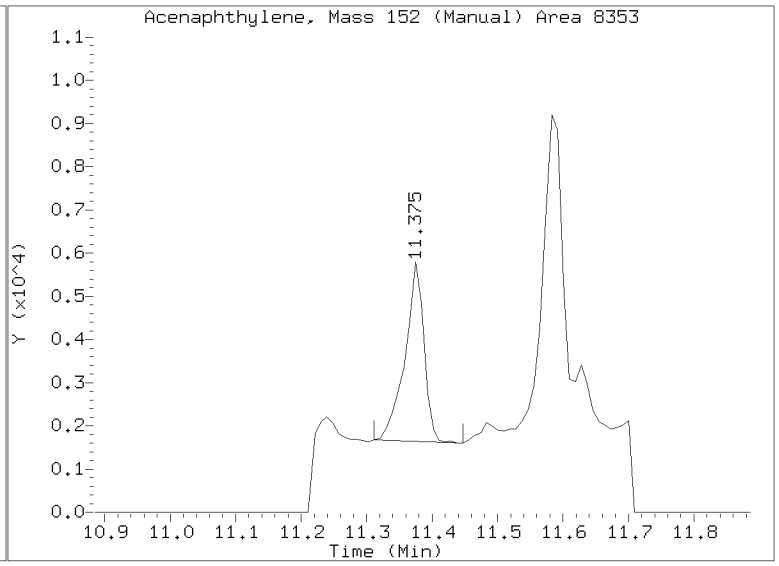
On Column LOD for nt11.i, 20170516.b\LOWSIM.m, allpna.sub = 3.0000

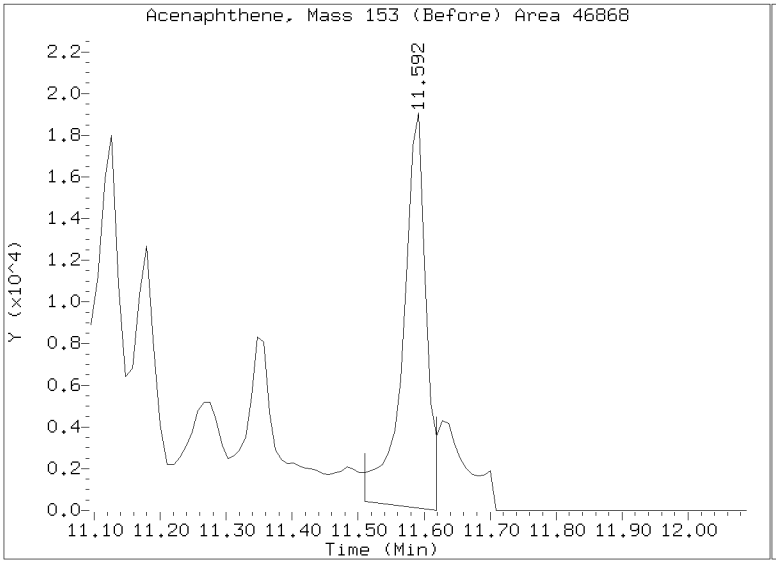
Exception: Naphthalene 6.0000
Exception: Phenanthrene 2.5000
Exception: Anthracene 2.0000
Exception: Pyrene 4.0000
Exception: Benzo(j)fluoranthene 2.5000
Exception: Benzo(a)pyrene 2.0000
Exception: Perylene 3.5000
Exception: Benzo(e)pyrene 2.0000
Exception: Benzo(b)thiophene 2.0000
Exception: 2-Chloronaphthalene 2.0000
Exception: 2,6-Dimethylnaphthalene 2.0000
Exception: 2,3,5-Trimethylnaphthalene 2.0000
Exception: 1-Methylphenanthrene 2.0000
Exception: Dibenzothiophene 2.0000
Exception: Carbazole 2.0000
Exception: Biphenyl 2.0000
Exception: 2-Methylnaphthalene-d10 (Surr) 0.1000
Exception: Dibenzo(a,h)anthracene-d14 (Surr) 0.1000
Exception: Fluoranthene-d10 (Surr) 0.1000
Exception: Anthracene-d10 (Surr) 0.1000
Exception: Benzo(e)pyrene-d12 (Surr) 0.1000
Exception: Fluorene-d10 (Surr) 0.1000

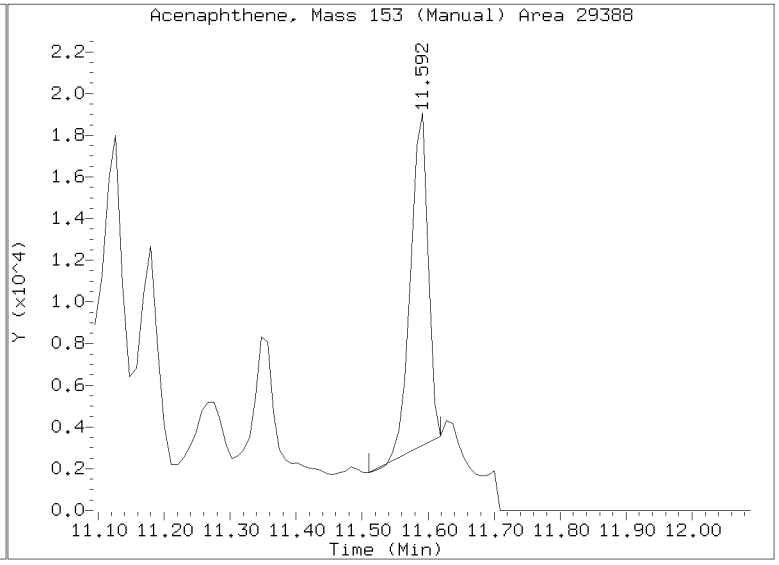
Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem3/nt11.i/20170516.b/N1117051614.D
Injection Date: 16-MAY-2017 18:15
Lab ID:17D0421-10 Client ID:
Report Date: 05/17/2017 08:15









PREPARATION BATCH SUMMARY

EPA 8270D-SIM

Laboratory: Analytical Resources, Inc. SDG: 17D0421

Client: Anchor QEA, LLC Project: Port Gamble Shellfish Monitoring

Batch: BFE0160 Batch Matrix: Tissue Preparation: EPA 3550C-Mod (Ultrasonic)

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
PG-GP-OYS-COC-170424	17D0421-01	N1117051605.D	05/09/17 13:50	
PG-GP-COC-COC-170424	17D0421-02	N1117051606.D	05/09/17 13:50	
PG-GP-LTN-COC-170424	17D0421-03	N1117051703.D	05/09/17 13:50	
PG-WS-OYS-COC-170424	17D0421-04	N1117051608.D	05/09/17 13:50	
PG-WS-COC-COC-170425	17D0421-05	N1117051609.D	05/09/17 13:50	
PG-WS-LTN-COC-170424	17D0421-06	N1117051610.D	05/09/17 13:50	
PG-WS-MAN-COC-170424	17D0421-07	N1117051611.D	05/09/17 13:50	
PG-SMA3-GEO-COC-170426	17D0421-08	N1117051612.D	05/09/17 13:50	
PG-SMA3-DUNM-COC-170426	17D0421-09	N1117051613.D	05/09/17 13:50	
PG-SMA3-DUNH-COC-170426	17D0421-10	N1117051614.D	05/09/17 13:50	
Blank	BFE0160-BLK1	N1117051603.D	05/09/17 13:50	
LCS	BFE0160-BS1	N1117051604.D	05/09/17 13:50	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

ORGANICS PREPARATION BENCH SHEET

Batch: BFE0160

Prepared using: EPA 3550C-Mod (Ultrasonic)

8270D-SIM PAH Low (0.01 ug/L - 0.5 ug/kg) in Tissue (Version:PG List)

Matrix: Tissue **Date Prepared:** 05/08/17 **Balance ID:** B139298002 **Set Up By:** JW

Analysis: 8270D-SIM PAH Low (0.01 ug/L - 0.5 ug/kg)

Lab Number & Container	Initial (g) Target Wet: 10 (Wet) Actual	(REQ) GPC (1:1) #2	(REQ) Silica Gel C/U (1:1) EPH Aro	Final Effective Vol (mL)	Vol to Lab	Extraction Comments
17D0421-01 A	(10.000) 10.04	(1:1)	(1:1)	0.5 ____	0.5 ____	
17D0421-02 A	(10.000) 10.00	(1:1)	(1:1)	0.5 ____	0.5 ____	
17D0421-03 A	(10.000) 10.05	(1:1)	(1:1)	0.5 ____	0.5 ____	
17D0421-04 A	(10.000) 10.12	(1:1)	(1:1)	0.5 ____	0.5 ____	
17D0421-05 A	(10.000) 10.07	(1:1)	(1:1)	0.5 ____	0.5 ____	
17D0421-06 A	(10.000) 10.06	(1:1)	(1:1)	0.5 ____	0.5 ____	
17D0421-07 A	(10.000) 10.18	(1:1)	(1:1)	0.5 ____	0.5 ____	
17D0421-08 A	(10.000) 10.14	(1:1)	(1:1)	0.5 ____	0.5 ____	
17D0421-09 A	(10.000) 10.25	(1:1)	(1:1)	0.5 ____	0.5 ____	
17D0421-10 A	(10.000) 10.06	(1:1)	(1:1)	0.5 ____	0.5 ____	
17E0012-01 A	(10.000) 10.25	(1:1)	(1:1)	0.5 ____	0.5 ____	
17E0012-02 A	(10.000) 10.31	(1:1)	(1:1)	0.5 ____	0.5 ____	
17E0012-03 A	(10.000) 10.05	(1:1)	(1:1)	0.5 ____	0.5 ____	
17E0012-04 A	(10.000) 10.24	(1:1)	(1:1)	0.5 ____	0.5 ____	
17E0012-05 A	(10.000) 10.13	(1:1)	(1:1)	0.5 ____	0.5 ____	
17E0012-06 A	(10.000) 10.05	(1:1)	(1:1)	0.5 ____	0.5 ____	

Batch QC

Lab Number	Initial (g) Target Wet: 10 (Wet) Actual	(REQ) GPC (1:1) #2	(REQ) Silica Gel C/U (1:1) EPH Aro	Final Effective Vol (mL)	Vol to Lab	Extraction Comments
BFE0160-BLK1	(10.000) 10.00	(1:1)	(1:1)	0.5 ____	0.5 ____	
BFE0160-BS1	(10.000) 10.00	(1:1)	(1:1)	0.5 ____	0.5 ____	

05/08/17
Client ID verified By Date

MW 5/12/17
Preparation Reviewed By Date

05/09/17 13:50
Extraction Date and Time

Printed: 5.5.2017 2:20:16PM