



30 December 2019

Delaney Peterson
Anchor QEA, LLC
1201 3rd Ave, Suite 2600
Seattle, WA 98101

RE: Gasco PDI

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.

<u>Associated Work Order(s)</u>	<u>Associated SDG ID(s)</u>
19K0228	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 requirements 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.

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.

Amanda Volgardsen, Project Manager





1201 3rd Avenue, Suite 2600, Seattle, WA 98101

ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: ARI-20191114-102611

POC: # Delaney Peterson (360-715-2707)

Project: Gasco PDI

Sample Custodian: SN

1605 Cornwell Avenue, Bellingham, WA 98225

Client: NW Natural

Lab: Analytical Resources Inc.

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Time	Containers #	Lab QC*	Test Request	Method	TAT**	Preservative
001	PDI-1142RAB-20-30.4-191112	FD	SO	11/12/2019		1	<input type="checkbox"/>	TBT	SW8270DSIM	30	4°C
002	PDI-142RAB-00-10-191112	N	SO	11/12/2019	11:20	1	<input type="checkbox"/>	TBT	SW8270DSIM	30	4°C
003	PDI-142RAB-10-20-191112	N	SO	11/12/2019	12:00	1	<input type="checkbox"/>	TBT	SW8270DSIM	30	4°C
004	PDI-142RAB-20-30.4-191112	N	SO	11/12/2019	14:35	1	<input type="checkbox"/>	TBT	SW8270DSIM	30	4°C
005	PDI-144RAB-00-10-191113	N	SO	11/13/2019	9:55	1	<input type="checkbox"/>	TBT	SW8270DSIM	30	4°C
006	PDI-144RAB-10-20-191113	N	SO	11/13/2019	11:20	1	<input type="checkbox"/>	TBT	SW8270DSIM	30	4°C
007	PDI-144RAB-20-29-191113	N	SO	11/13/2019	12:00	1	<input type="checkbox"/>	TBT	SW8270DSIM	30	4°C

Comment:

Relinquished By:	Received By:	Relinquished By:	Received By:
Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>
Print Name: <i>Sisavongvong</i>	Print Name: <i>Jacobs Walter</i>	Print Name: <i>[Signature]</i>	Print Name: <i>[Signature]</i>
Company: <i>Anchor OEA</i>	Company: <i>ARI</i>	Company: <i>[Signature]</i>	Company: <i>[Signature]</i>
Date/Time: <i>11/14/19 12:10</i>	Date/Time: <i>11/15/19 1044</i>	Date/Time: <i>[Signature]</i>	Date/Time: <i>[Signature]</i>

* Lab QC Requested for sample when box is checked ** TAT = Turn Around Time in DAYS # POC = Project Point of Contact



1201 3rd Avenue, Suite 2600, Seattle, WA 98101

19100228

ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

POC: Delaney Peterson (360-715-2707) **Project:** Gasco PDI **COC ID:** ARI-20191112-150117
 1605 Cornwall Avenue, Bellingham, WA 98225 **Client:** NW Natural **Sample Custodian:** SN
Lab: Analytical Resources Inc.

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Time	Containers #	Lab QC*	Test Request	Method	TAT**	Preservative
001	PDI-FB-1911121146	FB	WQ	11/12/2019	11:46	2	<input type="checkbox"/>	TBT	SW8270DSIM	30	4°C
002	PDI-RB-1911120944	RB	WQ	11/12/2019	9:44	2	<input type="checkbox"/>	TBT	SW8270DSIM	30	4°C
003	PDI-140RAB-00-10-191108	N	SO	11/08/2019	11:40	1	<input type="checkbox"/>	TBT	SW8270DSIM	30	4°C
004	PDI-140RAB-10-12.7-191108	N	SO	11/08/2019	12:15	1	<input type="checkbox"/>	TBT	SW8270DSIM	30	4°C
005	PDI-141RAB-00-10-191107	N	SO	11/07/2019	15:15	1	<input type="checkbox"/>	TBT	SW8270DSIM	30	4°C
006	PDI-141RAB-10-17.7-191107	N	SO	11/07/2019	16:45	1	<input type="checkbox"/>	TBT	SW8270DSIM	30	4°C
007	PDI-143RAB-00-10-191111	N	SO	11/11/2019	12:30	1	<input type="checkbox"/>	TBT	SW8270DSIM	30	4°C
008	PDI-143RAB-10-20-191111	N	SO	11/11/2019	14:05	1	<input type="checkbox"/>	TBT	SW8270DSIM	30	4°C
009	PDI-143RAB-20-31.1-191111	N	SO	11/11/2019	15:30	1	<input type="checkbox"/>	TBT	SW8270DSIM	30	4°C

Comment:

Received By:	Relinquished By:	Received By:
Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>
Print Name: <i>Sarah Norwood</i>	Print Name: <i>Sarah Norwood</i>	Print Name: <i>[Name]</i>
Company: <i>Anchor OEA</i>	Company: <i>Anchor OEA</i>	Company: <i>[Company]</i>
Date/Time: <i>11/14/19 1210</i>	Date/Time: <i>11/15/19 1044</i>	Date/Time: <i>[Date/Time]</i>

* Lab QC Requested for sample when box is checked ** TAT = Turn Around Time in DAYS # POC = Project Point of Contact



Cooler Receipt Form

ARI Client: Anchar QGA
 COC No(s): _____ (NA)
 Assigned ARI Job No: 1AK0228

Project Name: Gasco PDI
 Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____
 Tracking No: 7769 9178 7004 NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of the 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)
 Time 1044 2.4°C
 If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: DOO 506

Cooler Accepted by: JSu Date: 11/15/19 Time: 1044

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? YES NO 11/15/19
 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
 How were bottles sealed in plastic bags? _____ Individually Grouped Not
 Did all bottles arrive in good condition (unbroken)? _____ YES NO
 Were all bottle labels complete and legible? _____ YES NO 11/15/19
 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
 Were the sample(s) split by ARI? NA YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: A Sll Date: 11/15/19 Time: 1505 Labels checked by: AS

**** Notify Project Manager of discrepancies or concerns ****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:
COC does not list a sample time for PDI-1142.RAB-20-30.4-191112
container label lists it as 1440.

By: A Sll Date: 11/15/19



Anchor QEA, LLC
1201 3rd Ave, Suite 2600
Seattle WA, 98101

Project: Gasco PDI
Project Number: 000029-02.59
Project Manager: Delaney Peterson

Reported:
30-Dec-2019 15:11

Case Narrative

Sample receipt

Samples as listed on the preceding page were received November 15, 2019 under ARI work order 19K0228. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Butyl Tin(s) - EPA Method SW8270D-SIM

The samples were extracted and analyzed within the recommended holding times. Solid samples were kept frozen until extraction to extend holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

Samples PDI-142RAB-00-10-191112, PDI-144RAB-00-10-191113 and PDI-143RAB-10-20-191111 have low surrogate percent recoveries for Tripropylin. The samples are non-detect. All other surrogate percent recoveries were within control limits. No corrective action was taken.

The method blanks were clean at the reporting limits.

The LCS and/or LCSD percent recoveries and RPD were within control limits.

Matrix spikes and matrix spike duplicates were prepared in conjunction with samples PDI-FB- 191112146, PDI-1142RAB-20-30.4-191112 and PDI-140RAB-00-10-191108. The matrix spike/matrix spike duplicate percent recoveries and RPD were within QC limits.



Anchor QEA, LLC
1201 3rd Ave, Suite 2600
Seattle, WA 98101

Project: Gasco PDI
Project Number: 000029-02.59
Project Manager: Delaney Peterson

Reported:
12/30/2019 15:11

ANALYTICAL REPORT FOR SAMPLES

Laboratory ID	Sample ID	Matrix	Date Sampled	Date Received
19K0228-01	PDI-1142RAB-20-30.4-191112	Solid	11/12/19 00:00	11/15/19 10:44
19K0228-02	PDI-142RAB-00-10-191112	Solid	11/12/19 11:20	11/15/19 10:44
19K0228-03	PDI-142RAB-10-20-191112	Solid	11/12/19 12:00	11/15/19 10:44
19K0228-04	PDI-142RAB-20-30.4-191112	Solid	11/12/19 14:35	11/15/19 10:44
19K0228-05	PDI-144RAB-00-10-191113	Solid	11/13/19 09:55	11/15/19 10:44
19K0228-06	PDI-144RAB-10-20-191113	Solid	11/13/19 11:20	11/15/19 10:44
19K0228-07	PDI-144RAB-20-29-191113	Solid	11/13/19 12:00	11/15/19 10:44
19K0228-08	PDI-FB-191112146	Water	11/12/19 11:46	11/15/19 10:44
19K0228-09	PDI-RB-1911120944	Water	11/12/19 09:44	11/15/19 10:44
19K0228-10	PDI-140RAB-00-10-191108	Solid	11/08/19 11:40	11/15/19 10:44
19K0228-11	PDI-140RAB-10-12.7-191108	Solid	11/08/19 12:15	11/15/19 10:44
19K0228-12	PDI-141RAB-00-10-191107	Solid	11/07/19 15:15	11/15/19 10:44
19K0228-13	PDI-141RAB-10-17.7-191107	Solid	11/07/19 16:45	11/15/19 10:44
19K0228-14	PDI-143RAB-00-10-191111	Solid	11/11/19 12:30	11/15/19 10:44
19K0228-15	PDI-143RAB-10-20-191111	Solid	11/11/19 14:05	11/15/19 10:44
19K0228-16	PDI-143RAB-20-31.1-191111	Solid	11/11/19 15:30	11/15/19 10:44



QUALIFIERS AND NOTES

<u>Qualifier</u>	<u>Definition</u>
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
J	Estimated concentration value detected below the reporting limit.
H	Hold time violation - Hold time was exceeded.
*	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



Form I
ORGANIC ANALYSIS DATA SHEET
EPA 8270D-SIM
Butyl Tins

Laboratory: Analytical Resources, Inc.
 Client: Anchor OEA, LLC
 Project: Gasco PDI
 Matrix: Solid Laboratory ID: 19K0228-01 A SDG: 19K0228
 Sampled: 11/12/19 00:00 Prepared: 11/21/19 12:50 File ID: N819120234.D
 % Solids: 86.83 Preparation: EPA 3546 (Microwave) Analyzed: 12/02/19 18:47
 Batch: BHK0576 Sequence: SHL0025 Initial/Final: 5.76 g Wet / 0.5 mL
 Instrument: NT8 Column: RXI-17Sil ms Calibration: CK00068
 Cleanups: Silica Gel

CAS NO.	COMPOUND	DILUTION	CONC: (ug/kg dry)	Q	DL	RL
36643-28-4	Tributyltin Ion	1	3.86	U	0.450	3.86

SURROGATES	ADDED: (ug/kg dry)	FOUND: (ug/kg dry)	% REC	QC LIMITS	Q
Tripentyltin	45.164	28.2	62.4	30 - 160	
Tripropyltin	43.732	28.5	65.2	30 - 160	

Data File: \\target\share\chem3\nt8.1\201912024,b\N819120234.D

Date : 02-DEC-2019 18:47

Client ID:

Sample Info: 19K0228-01

Page 1

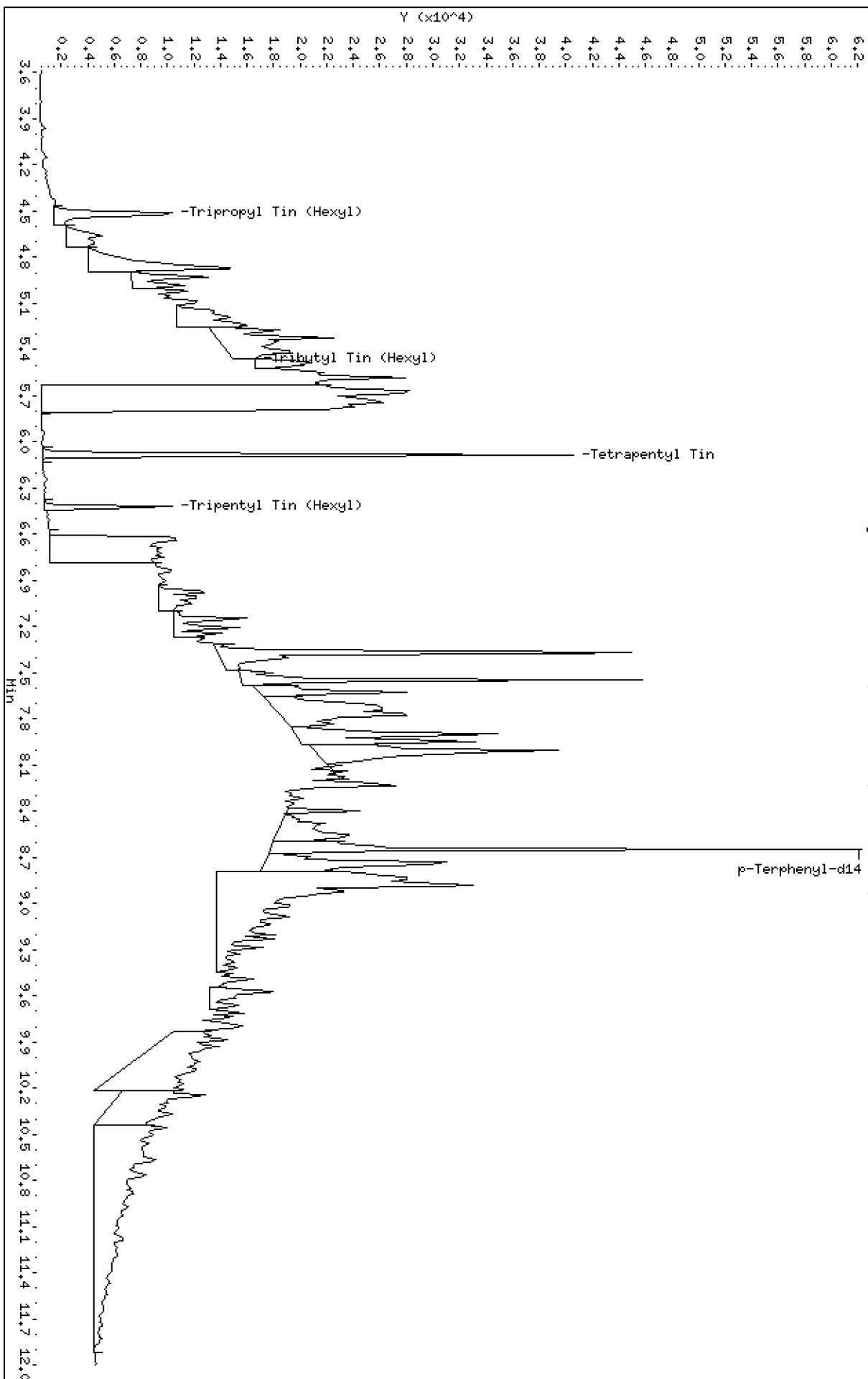
Instrument: nt8.1

Operator: JZ

Column diameter: 0.25

Column phase: ZB-5msi

\\target\share\chem3\nt8.1\201912024,b\N819120234.D



Date : 02-DEC-2019 18:47

Client ID:

Instrument: nt8.i

Sample Info: 19K0228-01

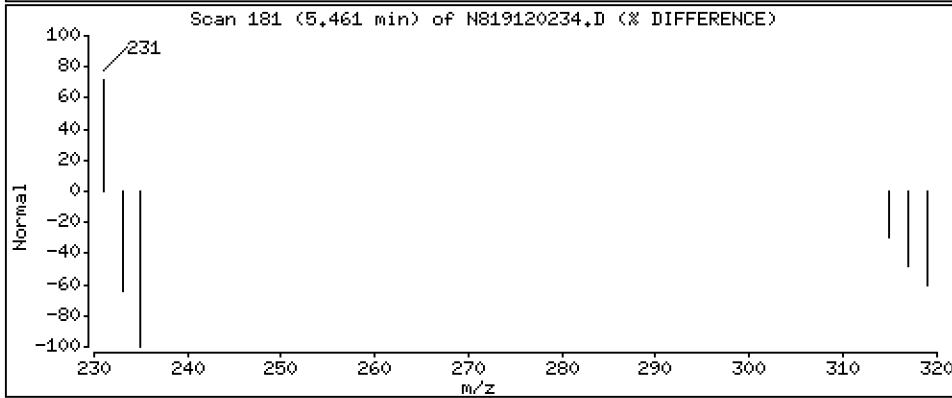
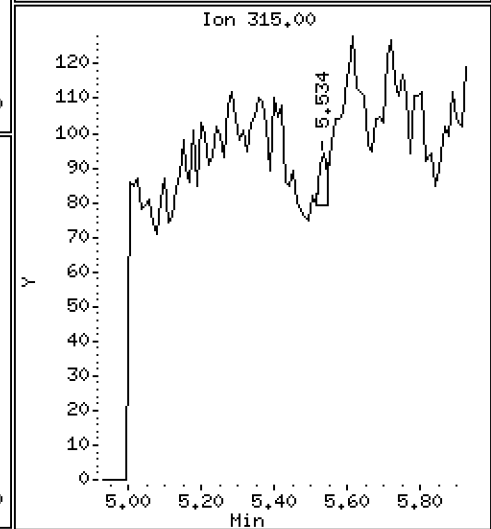
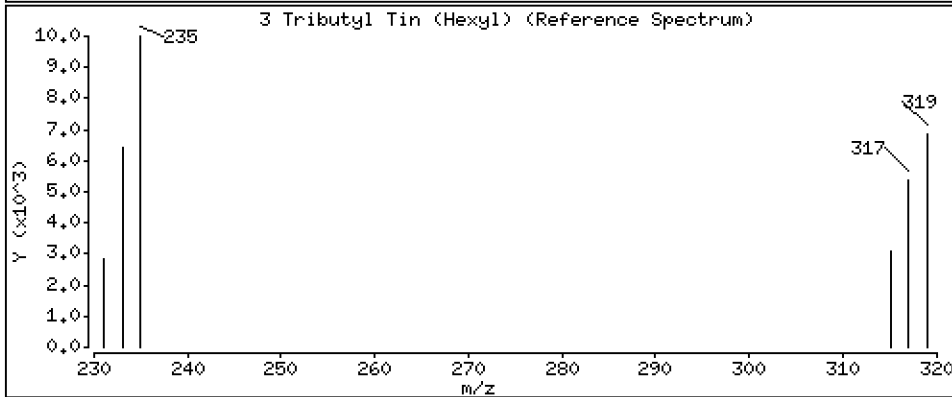
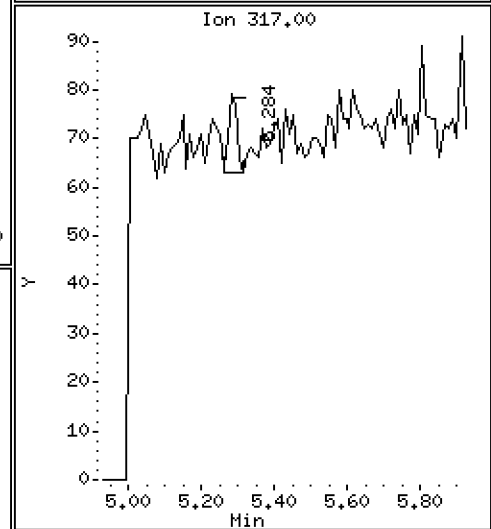
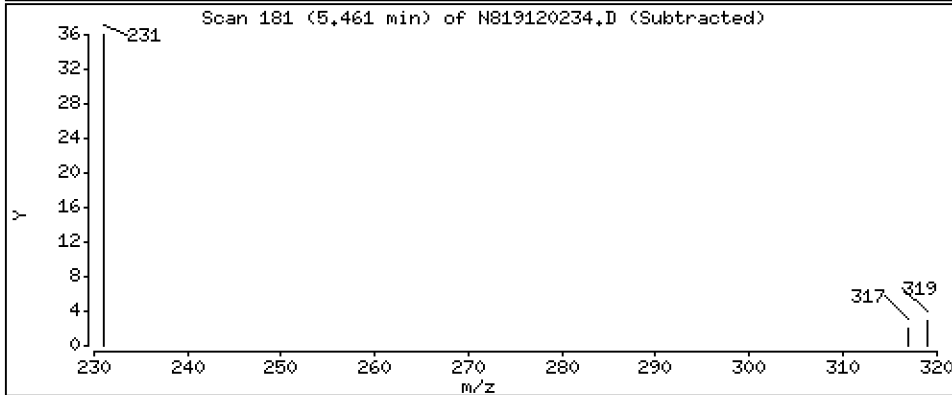
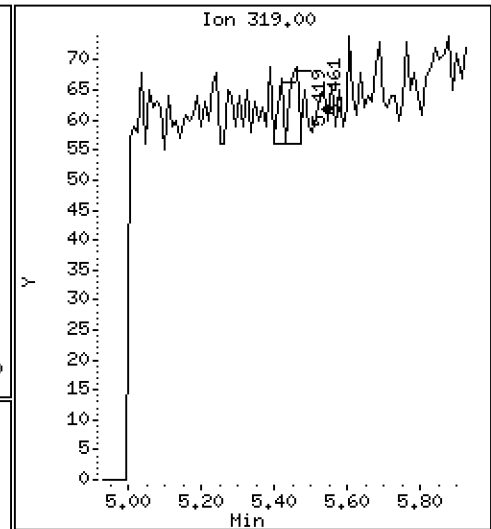
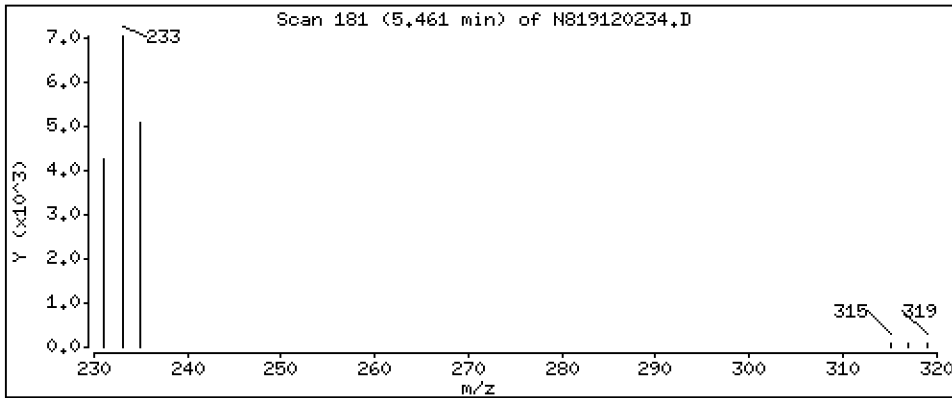
Operator: JZ

Column phase: ZB-5msi

Column diameter: 0,25

3 Tributyl Tin (Hexyl)

Concentration: 0,001607 ug/mL



ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20191202A.b\N819120234.D
 Lab Smp Id: 19K0228-01
 Inj Date : 02-DEC-2019 18:47 MS Autotune Date: 27-FEB-2008 03:32
 Operator : JZ Inst ID: nt8.i
 Smp Info : 19K0228-01
 Misc Info :
 Comment : 2 ul Injection
 Method : \\target\share\chem3\nt8.i\20191202A.b\TBT1125.m
 Meth Date : 03-Dec-2019 09:05 nt8.i Quant Type: ISTD
 Cal Date : 25-NOV-2019 15:29 Cal File: N819112507.D
 Als bottle: 5
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: sedmdl.sub
 Target Version: 4.14
 Processing Host: ORGDATA22

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN	FINAL
	MASS						(ug/mL)	(ug/mL)
\$ 1 Tripropyl Tin (Hexyl)	291		4.513	4.471	(0.742)	6793	0.38330	0.3833
2 Tetrabutyl Tin	289		Compound Not Detected.					
3 Tributyl Tin (Hexyl)	319		5.461	5.429	(0.898)	22	0.00161	0.001607(H)
* 4 Tetrapentyl Tin	333		6.082	6.070	(1.000)	45346	2.00000	
5 Dibutyl Tin (Hexyl)	347		Compound Not Detected.					
\$ 6 Tripentyl Tin (Hexyl)	347		6.421	6.409	(0.743)	4113	0.35431	0.3543
7 Butyl Tin (Hexyl)	347		Compound Not Detected.					
* 8 p-Terphenyl-d14	244		8.647	8.647	(1.000)	35814	0.20000	

QC Flag Legend

H - Operator selected an alternate compound hit.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
 AREA AND RT SUMMARY

Instrument ID: nt8.i Calibration Date: 02-DEC-2019
 Lab File ID: N819120234.D Calibration Time: 17:52
 Lab Smp Id: 19K0228-01
 Analysis Type: SV Level:
 Quant Type: ISTD Sample Type:
 Operator: JZ
 Method File: \\target\share\chem3\nt8.i\20191202A.b\TBT1125.m
 Misc Info:

Test Mode:
 Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	41592	20796	83184	45346	9.03
8 p-Terphenyl-d14	41162	20581	82324	35814	-12.99

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	6.07	5.57	6.57	6.08	0.20
8 p-Terphenyl-d14	8.65	8.15	9.15	8.65	-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 - N819120234.D

Lab ID: 19K0228-01
nt8.i, 20191202A.b\TBT1125.m, 02-DEC-2019 18:47

RT CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.742	0.737	0.0054	Tripropyl Tin (Hexyl)

RRT check based on Ccal File: N819120231.D

On Column LOD for nt8.i, 20191202A.b\TBT1125.m, sedmdl.sub = 0.0000

Exception: Tripropyl Tin (Hexyl) (Surr) 0.0010

* Only compounds listed in the work order have been verified by the analyst *



Form I
ORGANIC ANALYSIS DATA SHEET
EPA 8270D-SIM
Butyl Tins

Laboratory: Analytical Resources, Inc.
 Client: Anchor OEA, LLC
 Project: Gasco PDI
 Matrix: Solid Laboratory ID: 19K0228-02 A SDG: 19K0228
 Sampled: 11/12/19 11:20 Prepared: 11/21/19 12:50 File ID: N819120304.D
 % Solids: 91.84 Preparation: EPA 3546 (Microwave) Analyzed: 12/03/19 10:36
 Batch: BHK0576 Sequence: SHL0032 Initial/Final: 5.45 g Wet / 0.5 mL
 Instrument: NT8 Column: RXI-17Sil ms Calibration: CK00068
 Cleanups: Silica Gel

CAS NO.	COMPOUND	DILUTION	CONC: (ug/kg dry)	Q	DL	RL
36643-28-4	Tributyltin Ion	1	3.86	U	0.450	3.86

SURROGATES	ADDED: (ug/kg dry)	FOUND: (ug/kg dry)	% REC	QC LIMITS	Q
Tripentyltin	45.132	15.2	33.8	30 - 160	
Tripropyltin	43.701	10.9	24.9	30 - 160	*

Data File: \\target\share\chem3\nt8.1\20191203.B\N819120304.D

Date: 03-DEC-2019 10:36

Client ID:

Sample Info: 19K0228-02

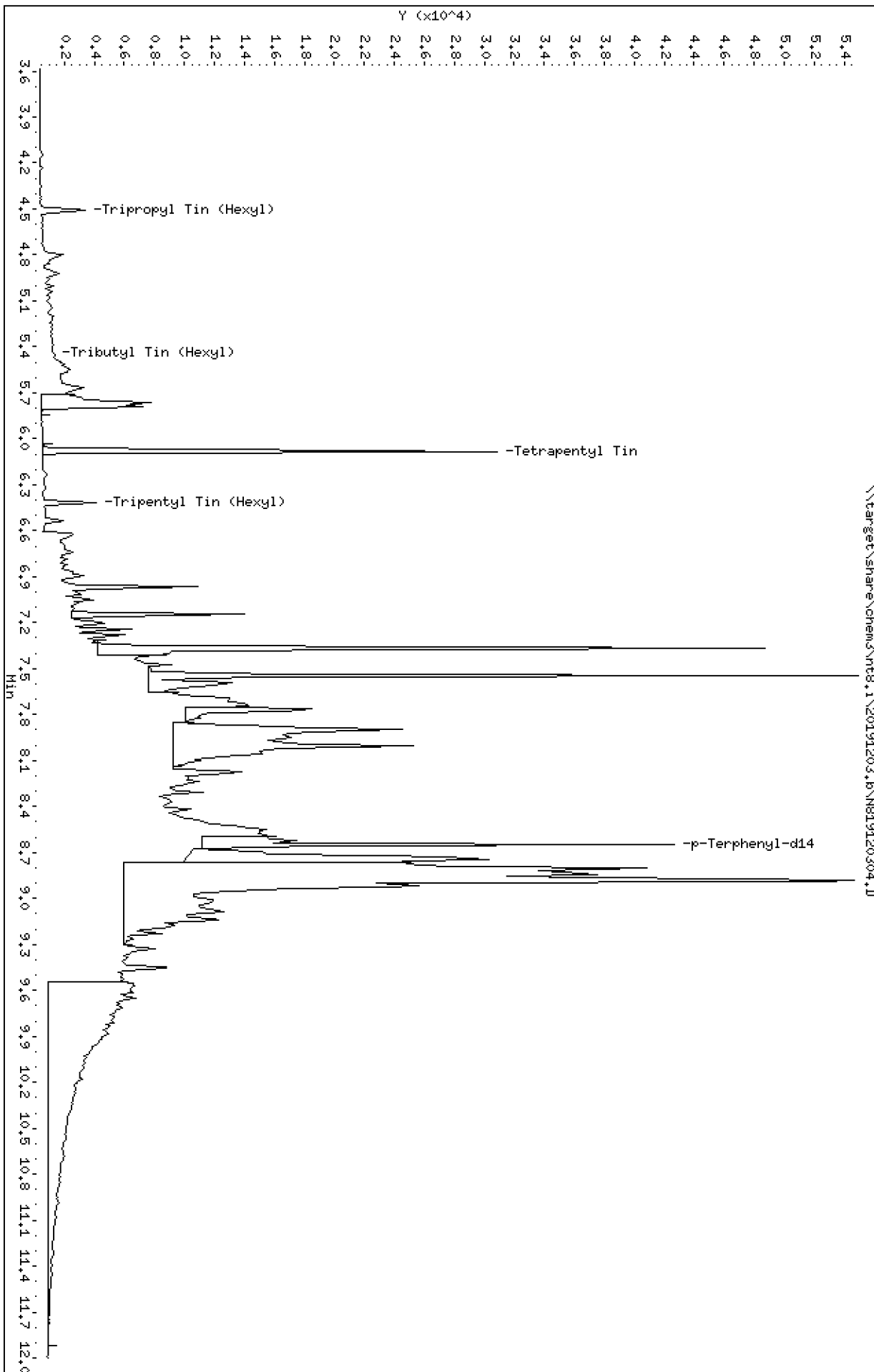
Column phase: ZB-5msi

Instrument: nt8.1

Operator: JZ

Column diameter: 0.25

Page 1



Date : 03-DEC-2019 10:36

Client ID:

Instrument: nt8.i

Sample Info: 19K0228-02

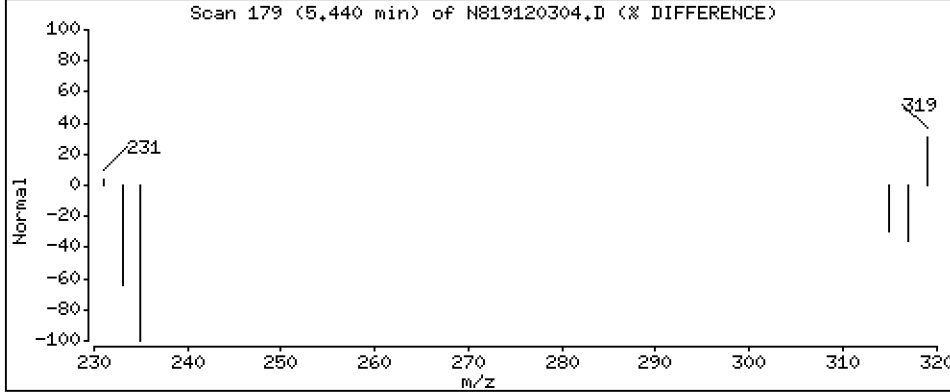
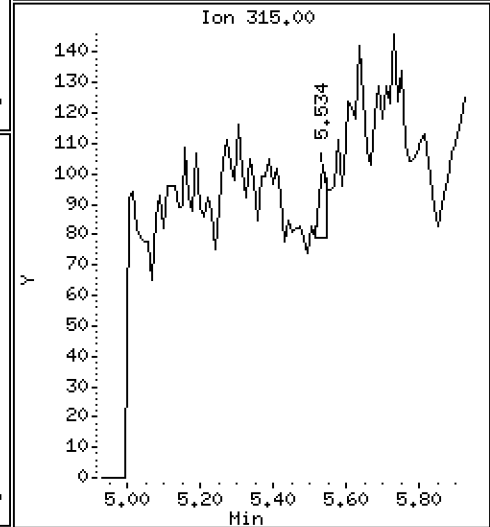
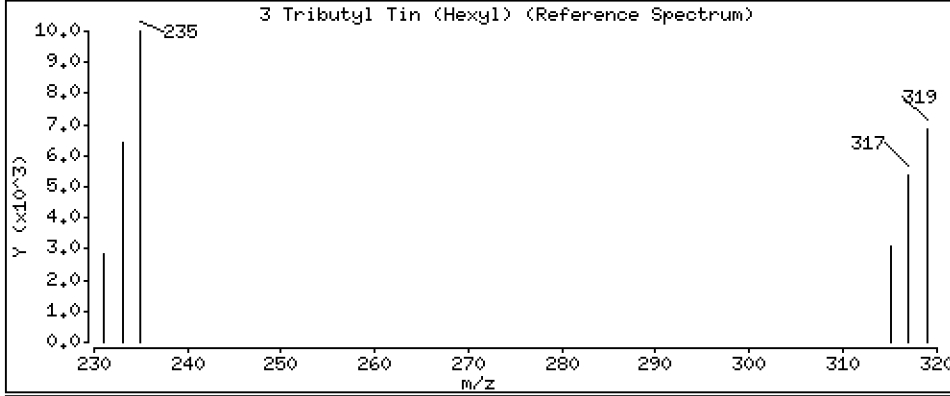
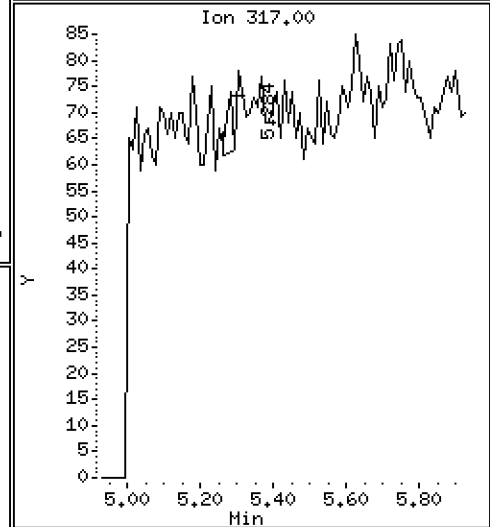
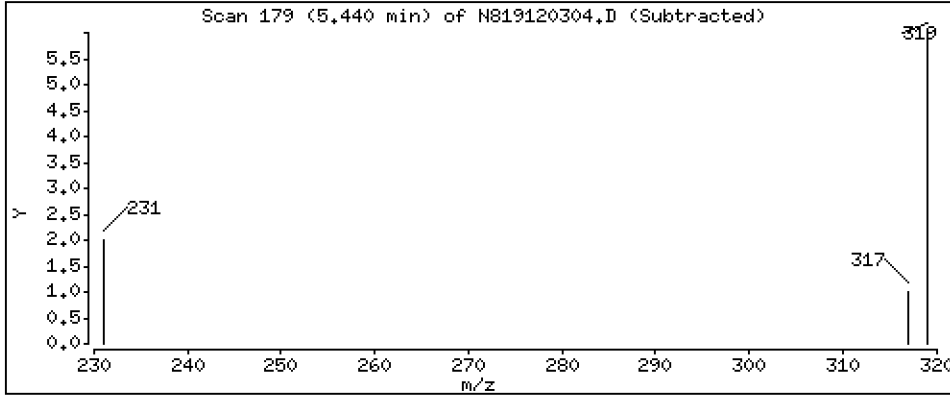
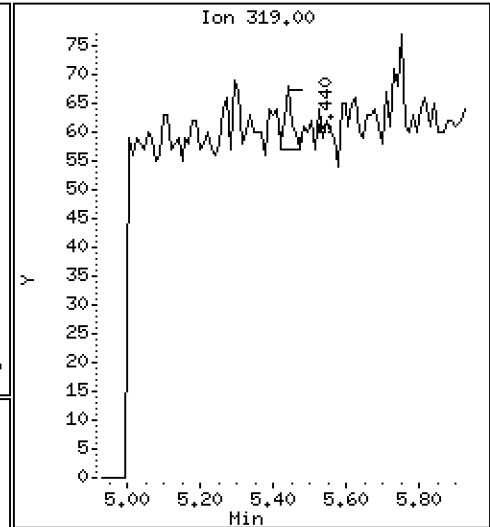
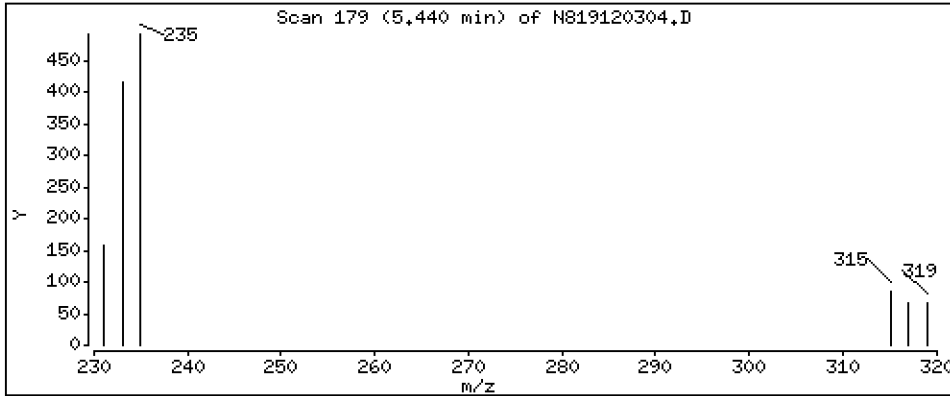
Operator: JZ

Column phase: ZB-5msi

Column diameter: 0,25

3 Tributyl Tin (Hexyl)

Concentration: 0,001569 ug/mL



ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20191203.b\N819120304.D
 Lab Smp Id: 19K0228-02
 Inj Date : 03-DEC-2019 10:36 MS Autotune Date: 27-FEB-2008 03:32
 Operator : JZ Inst ID: nt8.i
 Smp Info : 19K0228-02
 Misc Info :
 Comment : 2 ul Injection
 Method : \\target\share\chem3\nt8.i\20191203.b\TBT1125.m
 Meth Date : 03-Dec-2019 11:20 nt8.i Quant Type: ISTD
 Cal Date : 25-NOV-2019 15:29 Cal File: N819112507.D
 Als bottle: 4
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: sedmdl.sub
 Target Version: 4.14
 Processing Host: ORGDATA22

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN	FINAL
	MASS						(ug/mL)	(ug/mL)
=====	=====		=====	=====	=====	=====	=====	=====
\$ 1 Tripropyl Tin (Hexyl)	291		4.513	4.471	(0.742)	1813	0.14656	0.1466
2 Tetrabutyl Tin	289		Compound Not Detected.					
3 Tributyl Tin (Hexyl)	319		5.440	5.429	(0.894)	15	0.00157	0.001569
* 4 Tetrapentyl Tin	333		6.082	6.058	(1.000)	31652	2.00000	
5 Dibutyl Tin (Hexyl)	347		Compound Not Detected.					
\$ 6 Tripentyl Tin (Hexyl)	347		6.421	6.409	(0.743)	1557	0.19162	0.1916
7 Butyl Tin (Hexyl)	347		Compound Not Detected.					
* 8 p-Terphenyl-d14	244		8.647	8.647	(1.000)	25068	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
 AREA AND RT SUMMARY

Instrument ID: nt8.i Calibration Date: 03-DEC-2019
 Lab File ID: N819120304.D Calibration Time: 09:22
 Lab Smp Id: 19K0228-02
 Analysis Type: SV Level:
 Quant Type: ISTD Sample Type:
 Operator: JZ
 Method File: \\target\share\chem3\nt8.i\20191203.b\TBT1125.m
 Misc Info:

Test Mode:
 Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	41592	20796	83184	31652	-23.90
8 p-Terphenyl-d14	41162	20581	82324	25068	-39.10

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	6.06	5.56	6.56	6.08	0.40
8 p-Terphenyl-d14	8.65	8.15	9.15	8.65	-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 - N819120304.D

Lab ID: 19K0228-02

nt8.i, 20191203.b\TBT1125.m, 03-DEC-2019 10:36

RT CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV	RRT	DELTA	COMPOUND
-----	-----	-----	-------	----------

NONE

RRT check based on Ccal File: N819120302.D

On Column LOD for nt8.i, 20191203.b\TBT1125.m, sedmdl.sub = 0.0000

Exception: Tripropyl Tin (Hexyl) (Surr) 0.0010

* Only compounds listed in the work order have been verified by the analyst *



Form I
ORGANIC ANALYSIS DATA SHEET
EPA 8270D-SIM
Butyl Tins

Laboratory: Analytical Resources, Inc.

Client: Anchor OEA, LLC

Project: Gasco PDI

Matrix: Solid

Laboratory ID: 19K0228-03 A

SDG: 19K0228

Sampled: 11/12/19 12:00

Prepared: 11/21/19 12:50

File ID: N819120238.D

% Solids: 93.51

Preparation: EPA 3546 (Microwave)

Analyzed: 12/02/19 19:52

Batch: BHK0576

Sequence: SHL0025

Initial/Final: 5.4 g Wet / 0.5 mL

Instrument: NT8

Column: RXI-17Sil ms

Calibration: CK00068

Cleanups: Silica Gel

CAS NO.	COMPOUND	DILUTION	CONC: (ug/kg dry)	Q	DL	RL
36643-28-4	Tributyltin Ion	1	3.82	U	0.446	3.82

SURROGATES	ADDED: (ug/kg dry)	FOUND: (ug/kg dry)	% REC	QC LIMITS	Q
Tripentyltin	44.735	22.1	49.3	30 - 160	
Tripropyltin	43.317	18.6	43.0	30 - 160	

Data File: \\target\share\chem3\nt8.1\2019120204.b\N819120238.J

Date: 02-DEC-2019 19:52

Client ID:

Sample Info: 19K0228-03

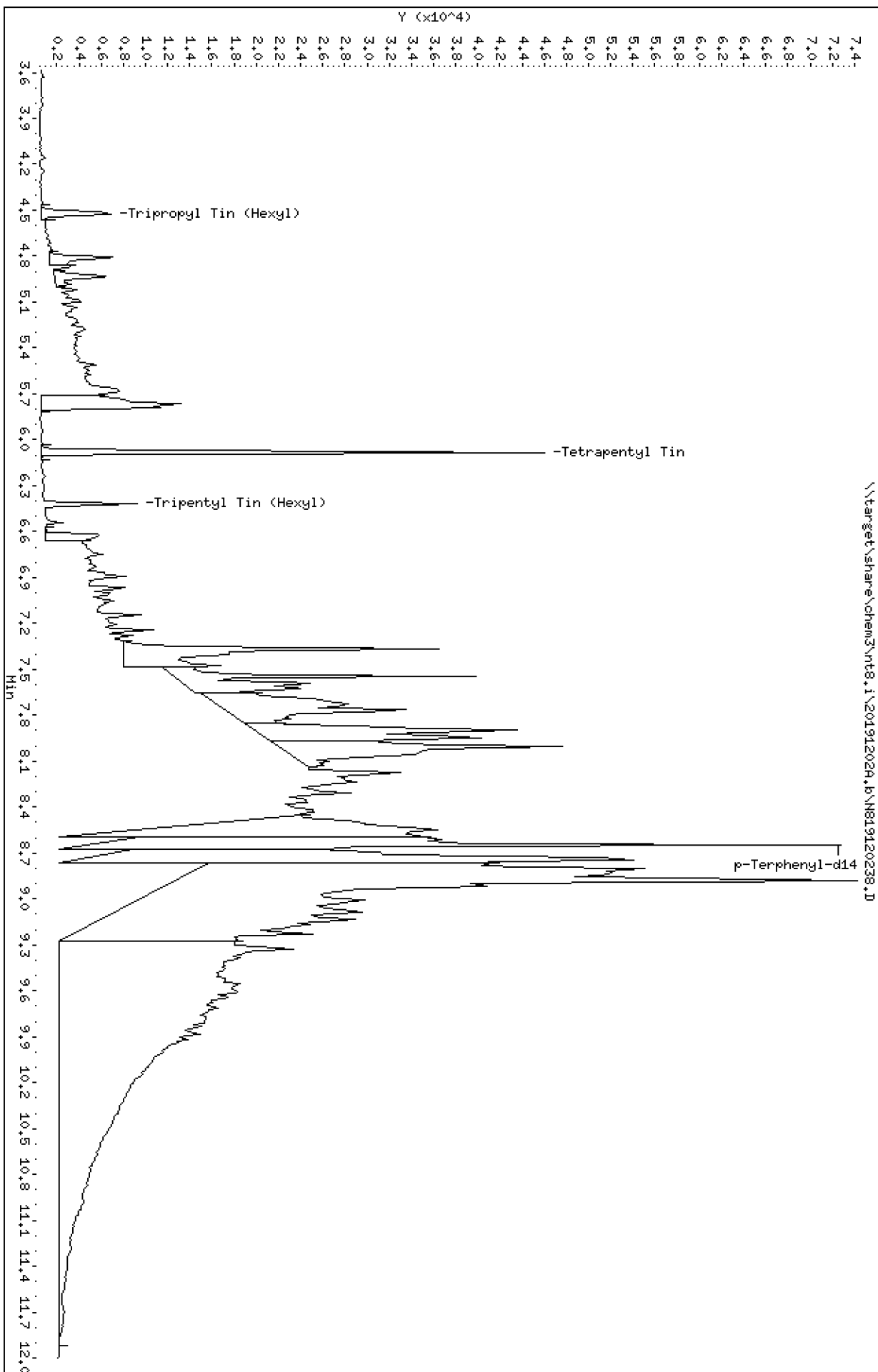
Column phase: ZB-5msi

Instrument: nt8.1

Operator: JZ

Column diameter: 0.25

Page 1



ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20191202A.b\N819120238.D
 Lab Smp Id: 19K0228-03
 Inj Date : 02-DEC-2019 19:52 MS Autotune Date: 27-FEB-2008 03:32
 Operator : JZ Inst ID: nt8.i
 Smp Info : 19K0228-03
 Misc Info :
 Comment : 2 ul Injection
 Method : \\target\share\chem3\nt8.i\20191202A.b\TBT1125.m
 Meth Date : 03-Dec-2019 09:05 nt8.i Quant Type: ISTD
 Cal Date : 25-NOV-2019 15:29 Cal File: N819112507.D
 Als bottle: 9
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: sedmdl.sub
 Target Version: 4.14
 Processing Host: ORGDATA22

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN	FINAL
	MASS						(ug/mL)	(ug/mL)
=====	=====		=====	=====	=====	=====	=====	=====
\$ 1 Tripropyl Tin (Hexyl)	291		4.523	4.471	(0.744)	4883	0.25265	0.2527
2 Tetrabutyl Tin	289		Compound Not Detected.					
3 Tributyl Tin (Hexyl)	319		Compound Not Detected.					
* 4 Tetrapentyl Tin	333		6.082	6.070	(1.000)	49451	2.00000	
5 Dibutyl Tin (Hexyl)	347		Compound Not Detected.					
\$ 6 Tripentyl Tin (Hexyl)	347		6.421	6.409	(0.743)	3351	0.28004	0.2800
7 Butyl Tin (Hexyl)	347		Compound Not Detected.					
* 8 p-Terphenyl-d14	244		8.647	8.647	(1.000)	36917	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
 AREA AND RT SUMMARY

Instrument ID: nt8.i Calibration Date: 02-DEC-2019
 Lab File ID: N819120238.D Calibration Time: 17:52
 Lab Smp Id: 19K0228-03
 Analysis Type: SV Level:
 Quant Type: ISTD Sample Type:
 Operator: JZ
 Method File: \\target\share\chem3\nt8.i\20191202A.b\TBT1125.m
 Misc Info:

Test Mode:
 Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	41592	20796	83184	49451	18.90
8 p-Terphenyl-d14	41162	20581	82324	36917	-10.31

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	6.07	5.57	6.57	6.08	0.20
8 p-Terphenyl-d14	8.65	8.15	9.15	8.65	-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 - N819120238.D

Lab ID: 19K0228-03

nt8.i, 20191202A.b\TBT1125.m, 02-DEC-2019 19:52

RT CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.744	0.737	0.0071	Tripropyl Tin (Hexyl)

RRT check based on Ccal File: N819120231.D

On Column LOD for nt8.i, 20191202A.b\TBT1125.m, sedmdl.sub = 0.0000

Exception: Tripropyl Tin (Hexyl) (Surr) 0.0010

* Only compounds listed in the work order have been verified by the analyst *



Form I
ORGANIC ANALYSIS DATA SHEET
EPA 8270D-SIM
Butyl Tins

Laboratory: Analytical Resources, Inc.
 Client: Anchor OEA, LLC
 Project: Gasco PDI
 Matrix: Solid Laboratory ID: 19K0228-04 A SDG: 19K0228
 Sampled: 11/12/19 14:35 Prepared: 11/21/19 12:50 File ID: N819120239.D
 % Solids: 87.39 Preparation: EPA 3546 (Microwave) Analyzed: 12/02/19 20:08
 Batch: BHK0576 Sequence: SHL0025 Initial/Final: 5.79 g Wet / 0.5 mL
 Instrument: NT8 Column: RXI-17Sil ms Calibration: CK00068
 Cleanups: Silica Gel

CAS NO.	COMPOUND	DILUTION	CONC: (ug/kg dry)	Q	DL	RL
36643-28-4	Tributyltin Ion	1	3.81	U	0.445	3.81

SURROGATES	ADDED: (ug/kg dry)	FOUND: (ug/kg dry)	% REC	QC LIMITS	Q
Tripentyltin	44.645	34.9	78.2	30 - 160	
Tripropyltin	43.230	32.7	75.5	30 - 160	

Data File: \\target\share\chem3\nt8.1\201912024,b\N819120239.D

Date: 02-DEC-2019 20:08

Client ID:

Sample Info: 19K0228-04

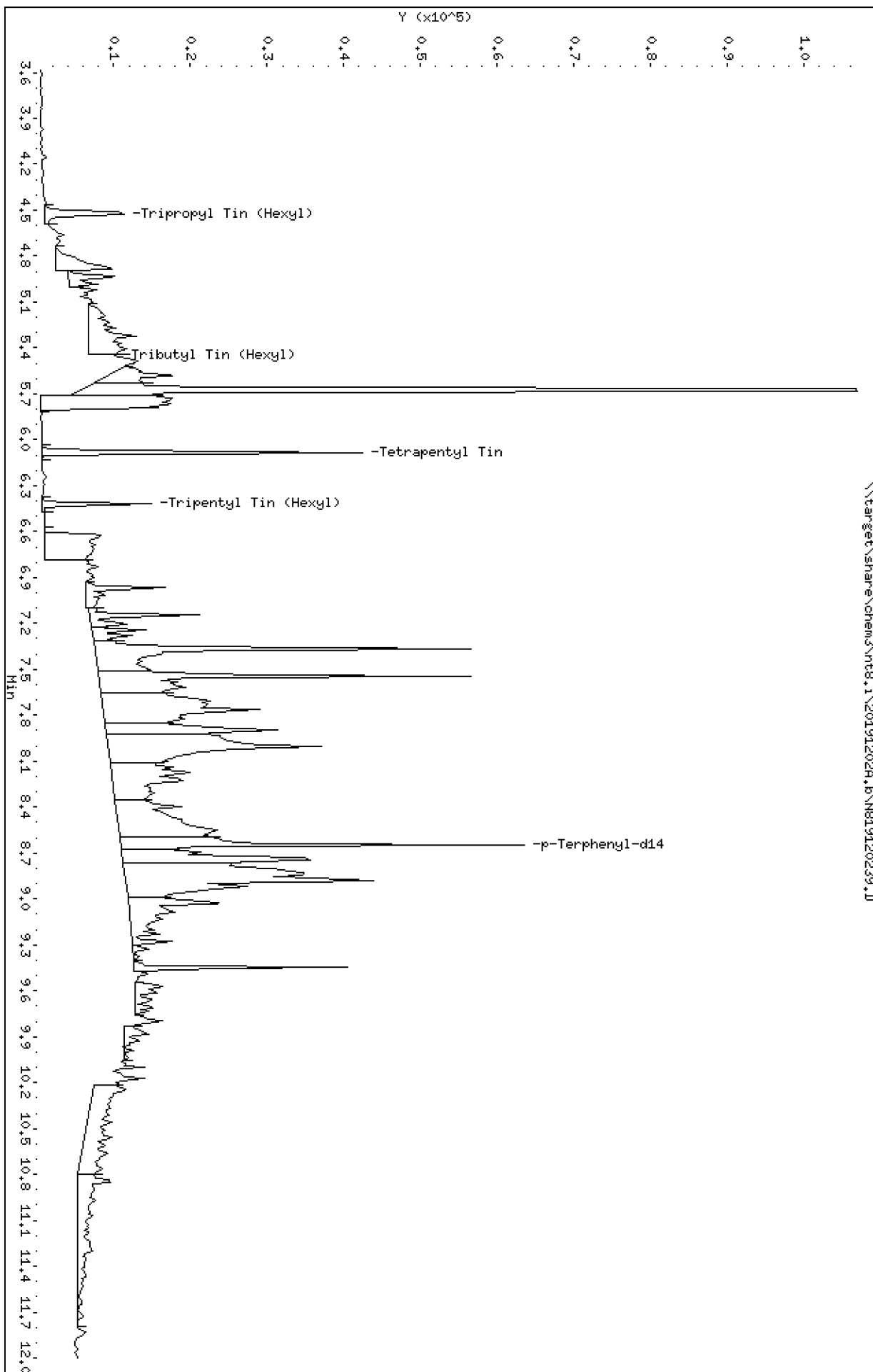
Column phase: ZB-5msi

Instrument: nt8.1

Operator: JZ

Column diameter: 0.25

Page 1



Date : 02-DEC-2019 20:08

Client ID:

Instrument: nt8.i

Sample Info: 19K0228-04

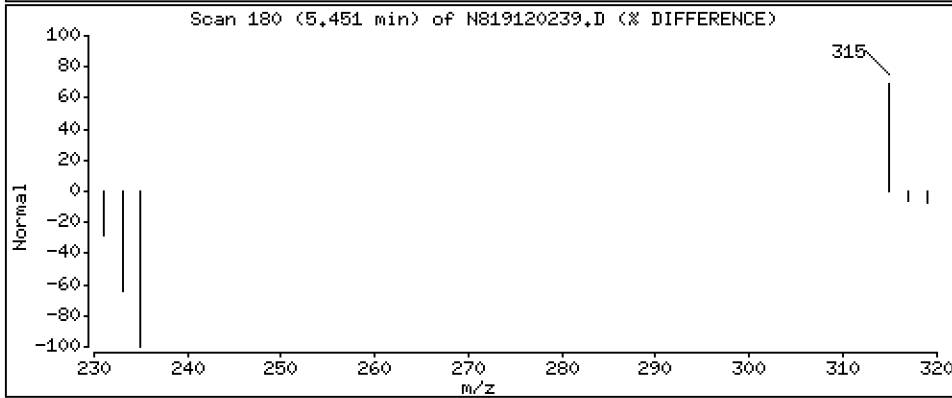
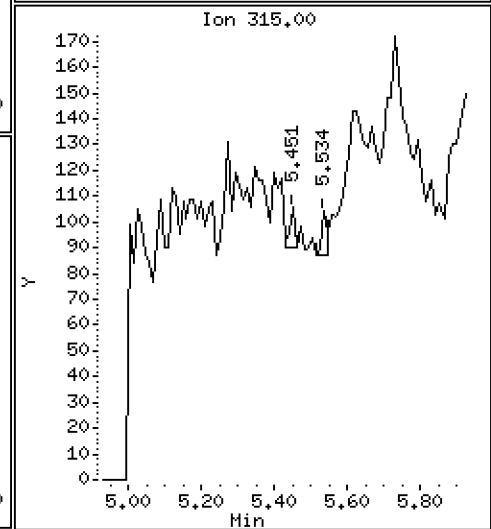
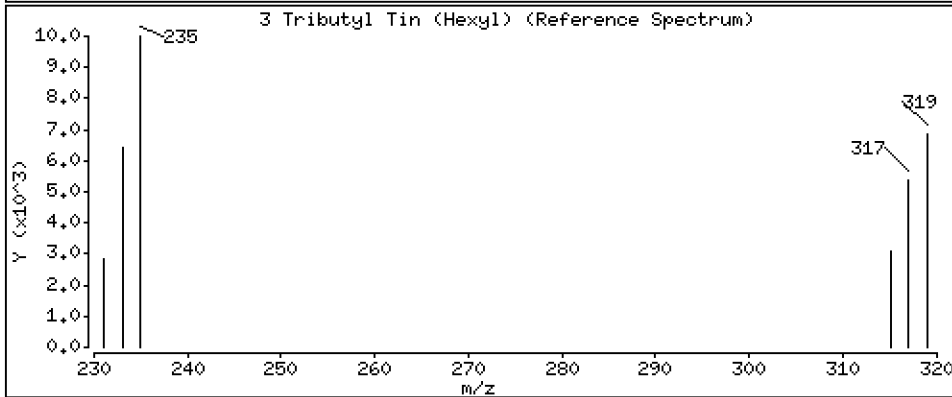
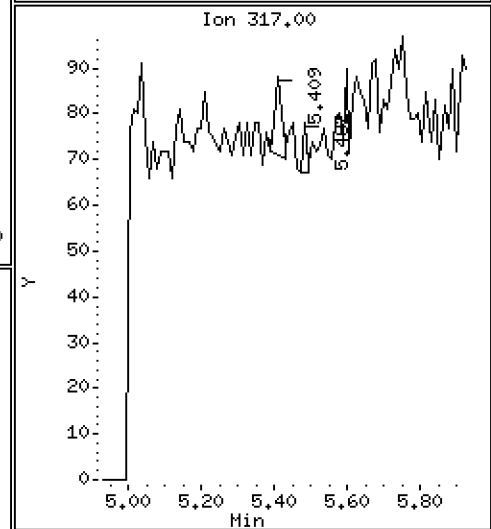
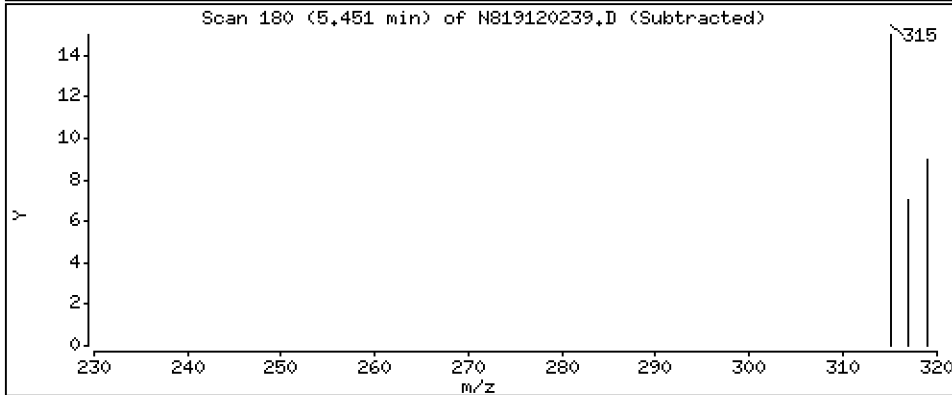
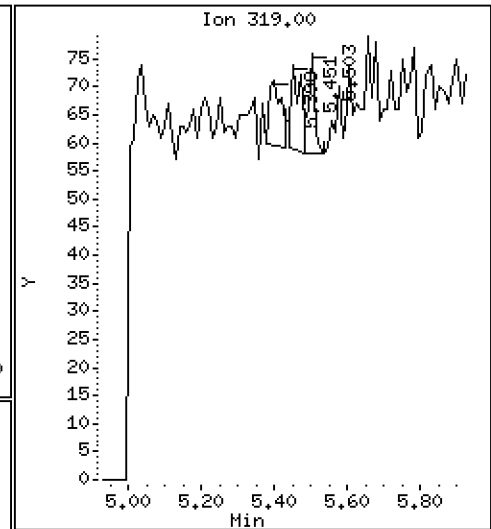
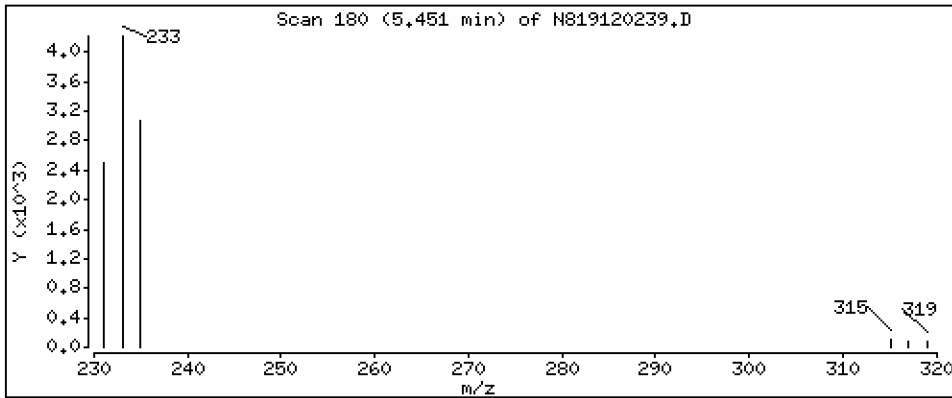
Operator: JZ

Column phase: ZB-5msi

Column diameter: 0,25

3 Tributyl Tin (Hexyl)

Concentration: 0,002051 ug/mL



ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20191202A.b\N819120239.D
 Lab Smp Id: 19K0228-04
 Inj Date : 02-DEC-2019 20:08 MS Autotune Date: 27-FEB-2008 03:32
 Operator : JZ Inst ID: nt8.i
 Smp Info : 19K0228-04
 Misc Info :
 Comment : 2 ul Injection
 Method : \\target\share\chem3\nt8.i\20191202A.b\TBT1125.m
 Meth Date : 03-Dec-2019 09:05 nt8.i Quant Type: ISTD
 Cal Date : 25-NOV-2019 15:29 Cal File: N819112507.D
 Als bottle: 10
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: sedmdl.sub
 Target Version: 4.14
 Processing Host: ORGDATA22

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN	FINAL
	MASS						(ug/mL)	(ug/mL)
=====	=====		=====	=====	=====	=====	=====	=====
\$ 1 Tripropyl Tin (Hexyl)	291		4.523	4.471	(0.744)	8404	0.44401	0.4440
2 Tetrabutyl Tin	289		Compound Not Detected.					
3 Tributyl Tin (Hexyl)	319		5.450	5.429	(0.896)	30	0.00205	0.002051
* 4 Tetrapentyl Tin	333		6.082	6.070	(1.000)	48429	2.00000	
5 Dibutyl Tin (Hexyl)	347		Compound Not Detected.					
\$ 6 Tripentyl Tin (Hexyl)	347		6.421	6.409	(0.743)	5532	0.44410	0.4441
7 Butyl Tin (Hexyl)	347		Compound Not Detected.					
* 8 p-Terphenyl-d14	244		8.647	8.647	(1.000)	38431	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
 AREA AND RT SUMMARY

Instrument ID: nt8.i Calibration Date: 02-DEC-2019
 Lab File ID: N819120239.D Calibration Time: 17:52
 Lab Smp Id: 19K0228-04
 Analysis Type: SV Level:
 Quant Type: ISTD Sample Type:
 Operator: JZ
 Method File: \\target\share\chem3\nt8.i\20191202A.b\TBT1125.m
 Misc Info:

Test Mode:
 Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	41592	20796	83184	48429	16.44
8 p-Terphenyl-d14	41162	20581	82324	38431	-6.63

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	6.07	5.57	6.57	6.08	0.20
8 p-Terphenyl-d14	8.65	8.15	9.15	8.65	-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 - N819120239.D

Lab ID: 19K0228-04

nt8.i, 20191202A.b\TBT1125.m, 02-DEC-2019 20:08

RT CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.744	0.737	0.0071	Tripropyl Tin (Hexyl)

RRT check based on Ccal File: N819120231.D

On Column LOD for nt8.i, 20191202A.b\TBT1125.m, sedmdl.sub = 0.0000

Exception: Tripropyl Tin (Hexyl) (Surr) 0.0010

* Only compounds listed in the work order have been verified by the analyst *



Form I
ORGANIC ANALYSIS DATA SHEET
EPA 8270D-SIM
Butyl Tins

Laboratory: Analytical Resources, Inc.

Client: Anchor OEA, LLC

Project: Gasco PDI

Matrix: Solid

Laboratory ID: 19K0228-05 A

SDG: 19K0228

Sampled: 11/13/19 09:55

Prepared: 11/21/19 12:50

File ID: N819120240.D

% Solids: 91.42

Preparation: EPA 3546 (Microwave)

Analyzed: 12/02/19 20:24

Batch: BHK0576

Sequence: SHL0025

Initial/Final: 5.47 g Wet / 0.5 mL

Instrument: NT8

Column: RXI-17Sil ms

Calibration: CK00068

Cleanups: Silica Gel

CAS NO.	COMPOUND	DILUTION	CONC: (ug/kg dry)	Q	DL	RL
36643-28-4	Tributyltin Ion	1	3.86	U	0.450	3.86

SURROGATES	ADDED: (ug/kg dry)	FOUND: (ug/kg dry)	% REC	QC LIMITS	Q
Tripentyltin	45.170	15.4	34.1	30 - 160	
Tripropyltin	43.738	12.3	28.2	30 - 160	*

Data File: \\target\share\chem3\nt8.1\201912024,b\N819120240.D

Date : 02-DEC-2019 20:24

Client ID:

Sample Info: 19K0228-05

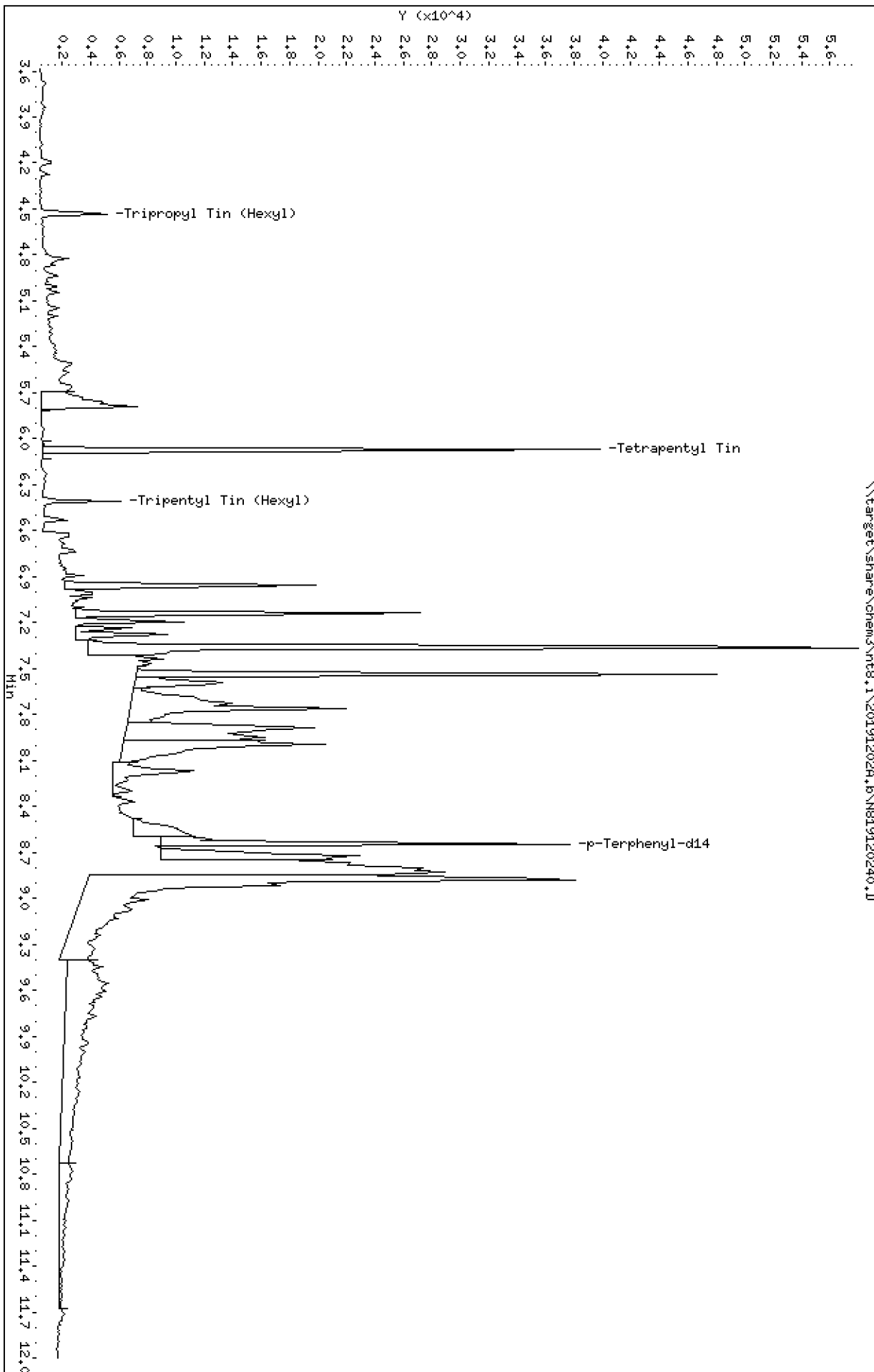
Column phase: ZB-5msi

Instrument: nt8.1

Operator: JZ

Column diameter: 0.25

Page 1



ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20191202A.b\N819120240.D
 Lab Smp Id: 19K0228-05
 Inj Date : 02-DEC-2019 20:24 MS Autotune Date: 27-FEB-2008 03:32
 Operator : JZ Inst ID: nt8.i
 Smp Info : 19K0228-05
 Misc Info :
 Comment : 2 ul Injection
 Method : \\target\share\chem3\nt8.i\20191202A.b\TBT1125.m
 Meth Date : 03-Dec-2019 09:05 nt8.i Quant Type: ISTD
 Cal Date : 25-NOV-2019 15:29 Cal File: N819112507.D
 Als bottle: 11
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: sedmdl.sub
 Target Version: 4.14
 Processing Host: ORGDATA22

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN	FINAL
	MASS						(ug/mL)	(ug/mL)
=====	=====		=====	=====	=====	=====	=====	=====
\$ 1 Tripropyl Tin (Hexyl)	291		4.534	4.471	(0.747)	2827	0.16578	0.1658
2 Tetrabutyl Tin	289		Compound Not Detected.					
3 Tributyl Tin (Hexyl)	319		Compound Not Detected.					
* 4 Tetrapentyl Tin	333		6.070	6.070	(1.000)	43633	2.00000	
5 Dibutyl Tin (Hexyl)	347		Compound Not Detected.					
\$ 6 Tripentyl Tin (Hexyl)	347		6.409	6.409	(0.741)	2135	0.19364	0.1936
7 Butyl Tin (Hexyl)	347		Compound Not Detected.					
* 8 p-Terphenyl-d14	244		8.647	8.647	(1.000)	34015	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
 AREA AND RT SUMMARY

Instrument ID: nt8.i Calibration Date: 02-DEC-2019
 Lab File ID: N819120240.D Calibration Time: 17:52
 Lab Smp Id: 19K0228-05
 Analysis Type: SV Level:
 Quant Type: ISTD Sample Type:
 Operator: JZ
 Method File: \\target\share\chem3\nt8.i\20191202A.b\TBT1125.m
 Misc Info:

Test Mode:
 Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	41592	20796	83184	43633	4.91
8 p-Terphenyl-d14	41162	20581	82324	34015	-17.36

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	6.07	5.57	6.57	6.07	-0.00
8 p-Terphenyl-d14	8.65	8.15	9.15	8.65	-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 - N819120240.D

Lab ID: 19K0228-05
nt8.i, 20191202A.b\TBT1125.m, 02-DEC-2019 20:24

RT CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.747	0.737	0.0103	Tripropyl Tin (Hexyl)

RRT check based on Ccal File: N819120231.D

On Column LOD for nt8.i, 20191202A.b\TBT1125.m, sedmdl.sub = 0.0000

Exception: Tripropyl Tin (Hexyl) (Surr) 0.0010

* Only compounds listed in the work order have been verified by the analyst *



Form I
ORGANIC ANALYSIS DATA SHEET
EPA 8270D-SIM
Butyl Tins

Laboratory: Analytical Resources, Inc.
 Client: Anchor OEA, LLC
 Project: Gasco PDI
 Matrix: Solid Laboratory ID: 19K0228-06 A SDG: 19K0228
 Sampled: 11/13/19 11:20 Prepared: 11/21/19 12:50 File ID: N819120241.D
 % Solids: 92.23 Preparation: EPA 3546 (Microwave) Analyzed: 12/02/19 20:41
 Batch: BHK0576 Sequence: SHL0025 Initial/Final: 5.46 g Wet / 0.5 mL
 Instrument: NT8 Column: RXI-17Sil ms Calibration: CK00068
 Cleanups: Silica Gel

CAS NO.	COMPOUND	DILUTION	CONC: (ug/kg dry)	Q	DL	RL
36643-28-4	Tributyltin Ion	1	3.83	U	0.447	3.83

SURROGATES	ADDED: (ug/kg dry)	FOUND: (ug/kg dry)	% REC	QC LIMITS	Q
Tripentyltin	44.855	17.1	38.1	30 - 160	
Tripropyltin	43.434	14.0	32.2	30 - 160	

Data File: \\target\share\chem3\nt8.1\201912024.1\N819120241.D

Date : 02-DEC-2019 20:41

Client ID:

Sample Info: 19K0228-06

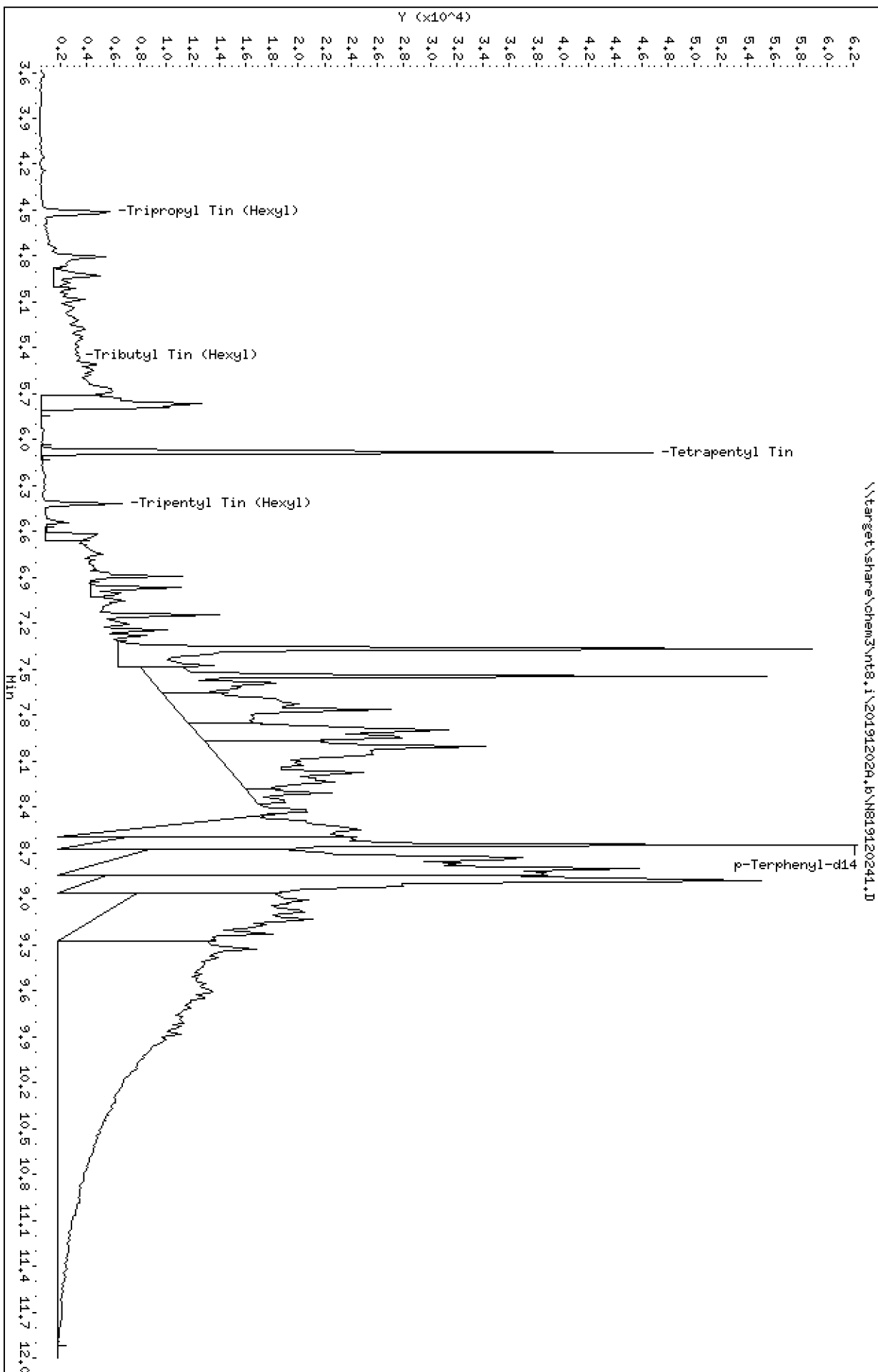
Page 1

Column phase: ZB-5msi

Instrument: nt8.1

Operator: JZ

Column diameter: 0.25



Date : 02-DEC-2019 20:41

Client ID:

Instrument: nt8.i

Sample Info: 19K0228-06

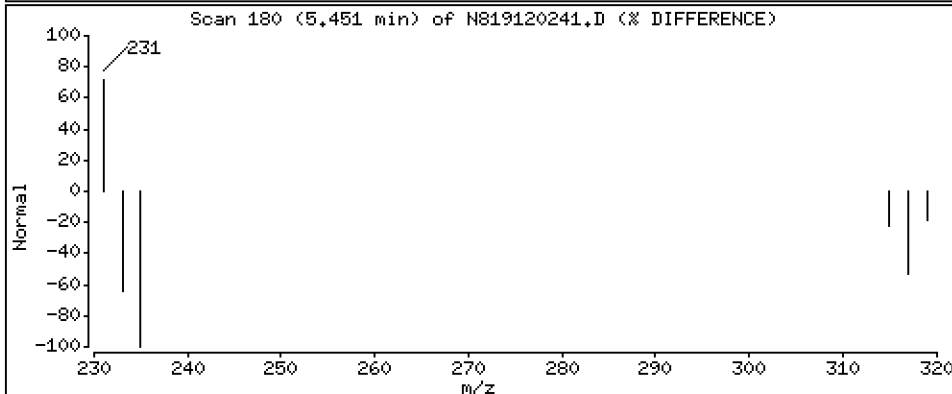
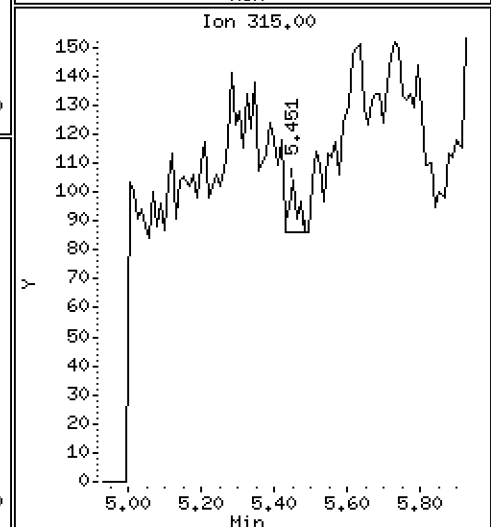
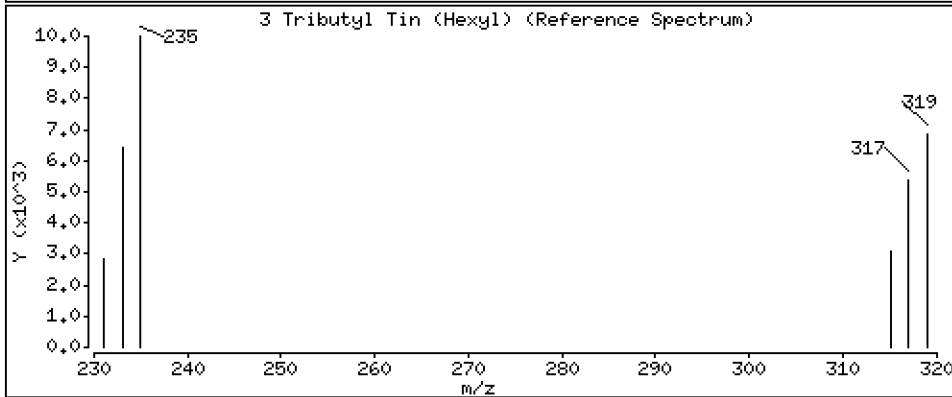
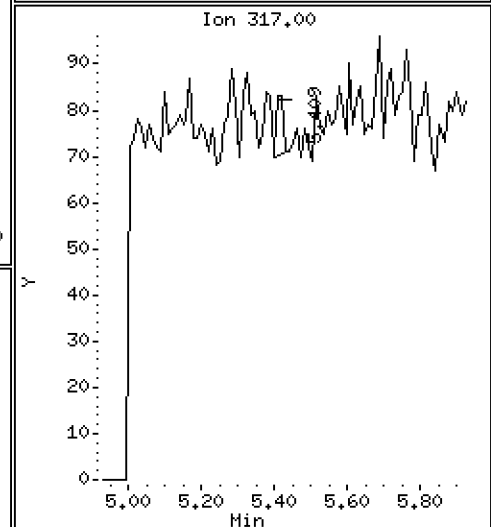
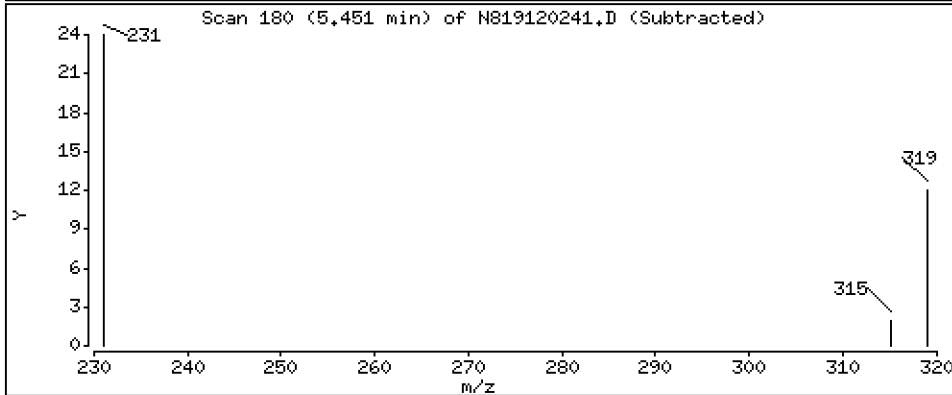
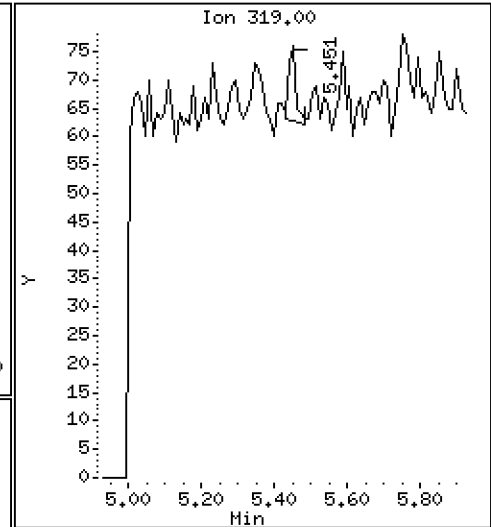
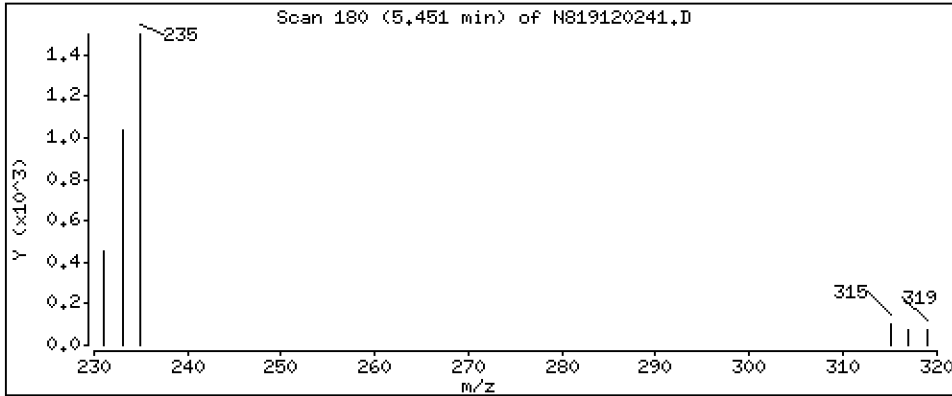
Operator: JZ

Column phase: ZB-5msi

Column diameter: 0,25

3 Tributyl Tin (Hexyl)

Concentration: 0,001195 ug/mL



ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20191202A.b\N819120241.D
 Lab Smp Id: 19K0228-06
 Inj Date : 02-DEC-2019 20:41 MS Autotune Date: 27-FEB-2008 03:32
 Operator : JZ Inst ID: nt8.i
 Smp Info : 19K0228-06
 Misc Info :
 Comment : 2 ul Injection
 Method : \\target\share\chem3\nt8.i\20191202A.b\TBT1125.m
 Meth Date : 03-Dec-2019 09:05 nt8.i Quant Type: ISTD
 Cal Date : 25-NOV-2019 15:29 Cal File: N819112507.D
 Als bottle: 12
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: sedmdl.sub
 Target Version: 4.14
 Processing Host: ORGDATA22

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN	FINAL
	MASS						(ug/mL)	(ug/mL)
=====	=====		=====	=====	=====	=====	=====	=====
\$ 1 Tripropyl Tin (Hexyl)	291		4.513	4.471	(0.742)	3688	0.18925	0.1893
2 Tetrabutyl Tin	289		Compound Not Detected.					
3 Tributyl Tin (Hexyl)	319		5.450	5.429	(0.896)	18	0.00120	0.001195
* 4 Tetrapentyl Tin	333		6.082	6.070	(1.000)	49861	2.00000	
5 Dibutyl Tin (Hexyl)	347		Compound Not Detected.					
\$ 6 Tripentyl Tin (Hexyl)	347		6.421	6.409	(0.743)	2557	0.21625	0.2163
7 Butyl Tin (Hexyl)	347		Compound Not Detected.					
* 8 p-Terphenyl-d14	244		8.647	8.647	(1.000)	36479	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
 AREA AND RT SUMMARY

Instrument ID: nt8.i Calibration Date: 02-DEC-2019
 Lab File ID: N819120241.D Calibration Time: 17:52
 Lab Smp Id: 19K0228-06
 Analysis Type: SV Level:
 Quant Type: ISTD Sample Type:
 Operator: JZ
 Method File: \\target\share\chem3\nt8.i\20191202A.b\TBT1125.m
 Misc Info:

Test Mode:
 Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	41592	20796	83184	49861	19.88
8 p-Terphenyl-d14	41162	20581	82324	36479	-11.38

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	6.07	5.57	6.57	6.08	0.20
8 p-Terphenyl-d14	8.65	8.15	9.15	8.65	-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 - N819120241.D

Lab ID: 19K0228-06

nt8.i, 20191202A.b\TBT1125.m, 02-DEC-2019 20:41

RT CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.742	0.737	0.0054	Tripropyl Tin (Hexyl)

RRT check based on Ccal File: N819120231.D

On Column LOD for nt8.i, 20191202A.b\TBT1125.m, sedmdl.sub = 0.0000

Exception: Tripropyl Tin (Hexyl) (Surr) 0.0010

* Only compounds listed in the work order have been verified by the analyst *



Form I
ORGANIC ANALYSIS DATA SHEET
EPA 8270D-SIM
Butyl Tins

Laboratory: Analytical Resources, Inc.
 Client: Anchor OEA, LLC
 Project: Gasco PDI
 Matrix: Solid Laboratory ID: 19K0228-07 A SDG: 19K0228
 Sampled: 11/13/19 12:00 Prepared: 11/21/19 12:50 File ID: N819120242.D
 % Solids: 92.96 Preparation: EPA 3546 (Microwave) Analyzed: 12/02/19 20:57
 Batch: BHK0576 Sequence: SHL0025 Initial/Final: 5.39 g Wet / 0.5 mL
 Instrument: NT8 Column: RXI-17Sil ms Calibration: CK00068
 Cleanups: Silica Gel

CAS NO.	COMPOUND	DILUTION	CONC: (ug/kg dry)	Q	DL	RL
36643-28-4	Tributyltin Ion	1	3.85	U	0.449	3.85

SURROGATES	ADDED: (ug/kg dry)	FOUND: (ug/kg dry)	% REC	QC LIMITS	Q
Tripentyltin	45.083	25.2	56.0	30 - 160	
Tripropyltin	43.654	20.5	46.9	30 - 160	

Data File: \\target\share\chem3\nt8.1\201912024.b\N819120242.D

Date : 02-DEC-2019 20:57

Client ID:

Sample Info: 19K0228-07

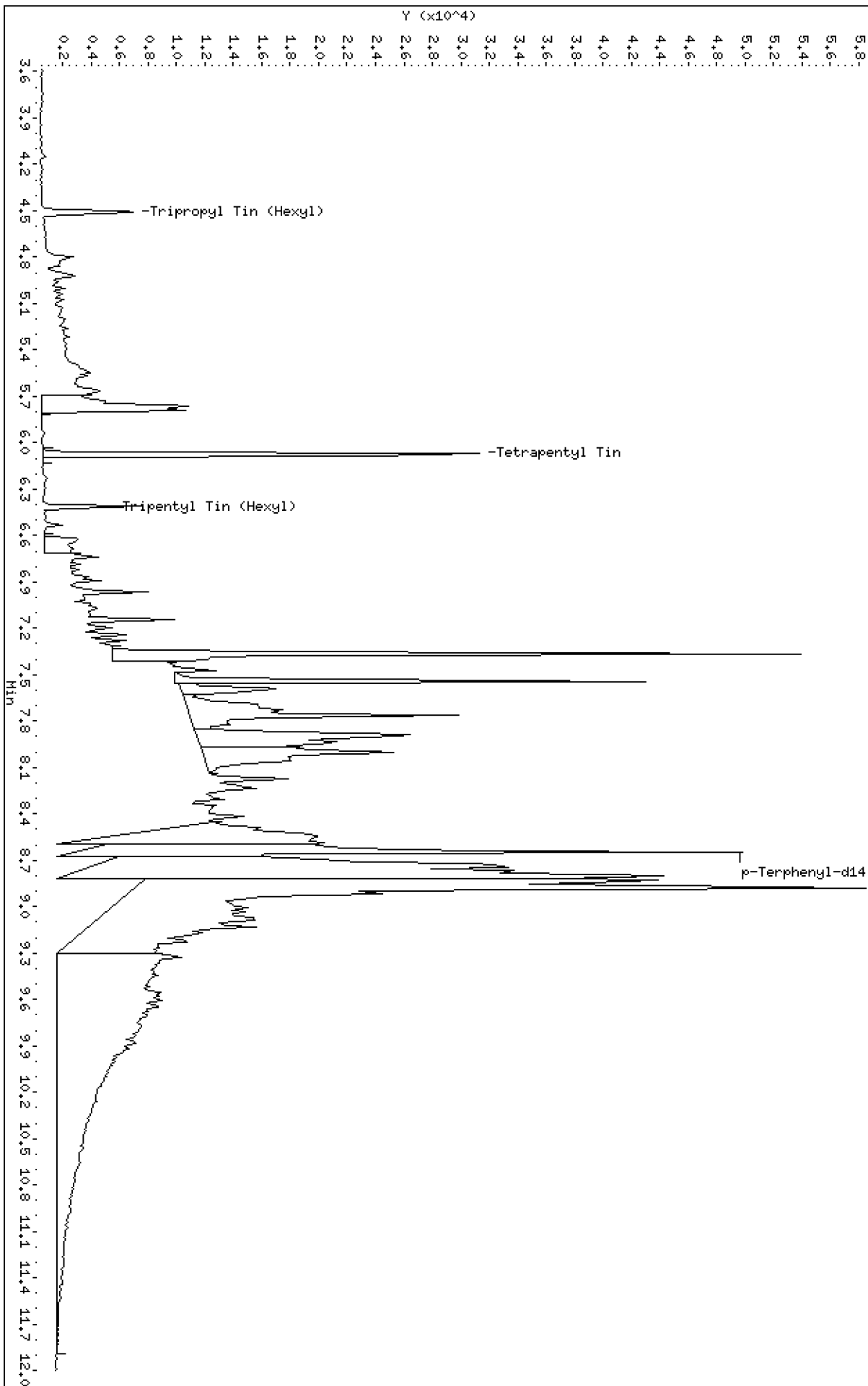
Column phase: ZB-5msi

Instrument: nt8.1

Operator: JZ

Column diameter: 0.25

\\target\share\chem3\nt8.1\201912024.b\N819120242.D



ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20191202A.b\N819120242.D
 Lab Smp Id: 19K0228-07
 Inj Date : 02-DEC-2019 20:57 MS Autotune Date: 27-FEB-2008 03:32
 Operator : JZ Inst ID: nt8.i
 Smp Info : 19K0228-07
 Misc Info :
 Comment : 2 ul Injection
 Method : \\target\share\chem3\nt8.i\20191202A.b\TBT1125.m
 Meth Date : 03-Dec-2019 09:05 nt8.i Quant Type: ISTD
 Cal Date : 25-NOV-2019 15:29 Cal File: N819112507.D
 Als bottle: 13
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: sedmdl.sub
 Target Version: 4.14
 Processing Host: ORGDATA22

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN	FINAL
	MASS						(ug/mL)	(ug/mL)
=====	=====		=====	=====	=====	=====	=====	=====
\$ 1 Tripropyl Tin (Hexyl)	291		4.513	4.471	(0.743)	4419	0.27561	0.2756
2 Tetrabutyl Tin	289		Compound Not Detected.					
3 Tributyl Tin (Hexyl)	319		Compound Not Detected.					
* 4 Tetrapentyl Tin	333		6.070	6.070	(1.000)	41024	2.00000	
5 Dibutyl Tin (Hexyl)	347		Compound Not Detected.					
\$ 6 Tripentyl Tin (Hexyl)	347		6.421	6.409	(0.743)	3267	0.31772	0.3177
7 Butyl Tin (Hexyl)	347		Compound Not Detected.					
* 8 p-Terphenyl-d14	244		8.647	8.647	(1.000)	31724	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
 AREA AND RT SUMMARY

Instrument ID: nt8.i Calibration Date: 02-DEC-2019
 Lab File ID: N819120242.D Calibration Time: 17:52
 Lab Smp Id: 19K0228-07
 Analysis Type: SV Level:
 Quant Type: ISTD Sample Type:
 Operator: JZ
 Method File: \\target\share\chem3\nt8.i\20191202A.b\TBT1125.m
 Misc Info:

Test Mode:
 Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	41592	20796	83184	41024	-1.37
8 p-Terphenyl-d14	41162	20581	82324	31724	-22.93

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	6.07	5.57	6.57	6.07	-0.00
8 p-Terphenyl-d14	8.65	8.15	9.15	8.65	-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 - N819120242.D

Lab ID: 19K0228-07

nt8.i, 20191202A.b\TBT1125.m, 02-DEC-2019 20:57

RT CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.743	0.737	0.0069	Tripropyl Tin (Hexyl)

RRT check based on Ccal File: N819120231.D

On Column LOD for nt8.i, 20191202A.b\TBT1125.m, sedmdl.sub = 0.0000

Exception: Tripropyl Tin (Hexyl) (Surr) 0.0010

* Only compounds listed in the work order have been verified by the analyst *



Form I
ORGANIC ANALYSIS DATA SHEET
EPA 8270D-SIM
Butyl Tins

Laboratory: Analytical Resources, Inc.
 Client: Anchor OEA, LLC
 Project: Gasco PDI
 Matrix: Water Laboratory ID: 19K0228-08 A SDG: 19K0228
 Sampled: 11/12/19 11:46 Prepared: 11/19/19 10:31 File ID: N819112514.D
 % Solids: Preparation: EPA 3510C SepF Analyzed: 11/25/19 17:50
 Batch: BHK0438 Sequence: SHK0352 Initial/Final: 100 mL / 0.5 mL
 Instrument: NT8 Column: RXI-17Sil ms Calibration: CK00068
 Cleanups: Silica Gel

CAS NO.	COMPOUND	DILUTION	(ug/L)	Q	DL	RL
36643-28-4	Tributyltin Ion	1	0.193	U	0.043	0.193

SURROGATES	ADDED:(ug/L)	(ug/L)	% REC	QC LIMITS	Q
Tripentyltin	2.2589	1.41	62.5	30 - 160	
Tripropyltin	2.1873	1.55	70.8	30 - 160	

Data File: \\target\share\chem3\nt8.1\2019112504.6\N819112514.D

Date: 25-NOV-2019 17:50

Client ID:

Sample Info: 19K0228-08,

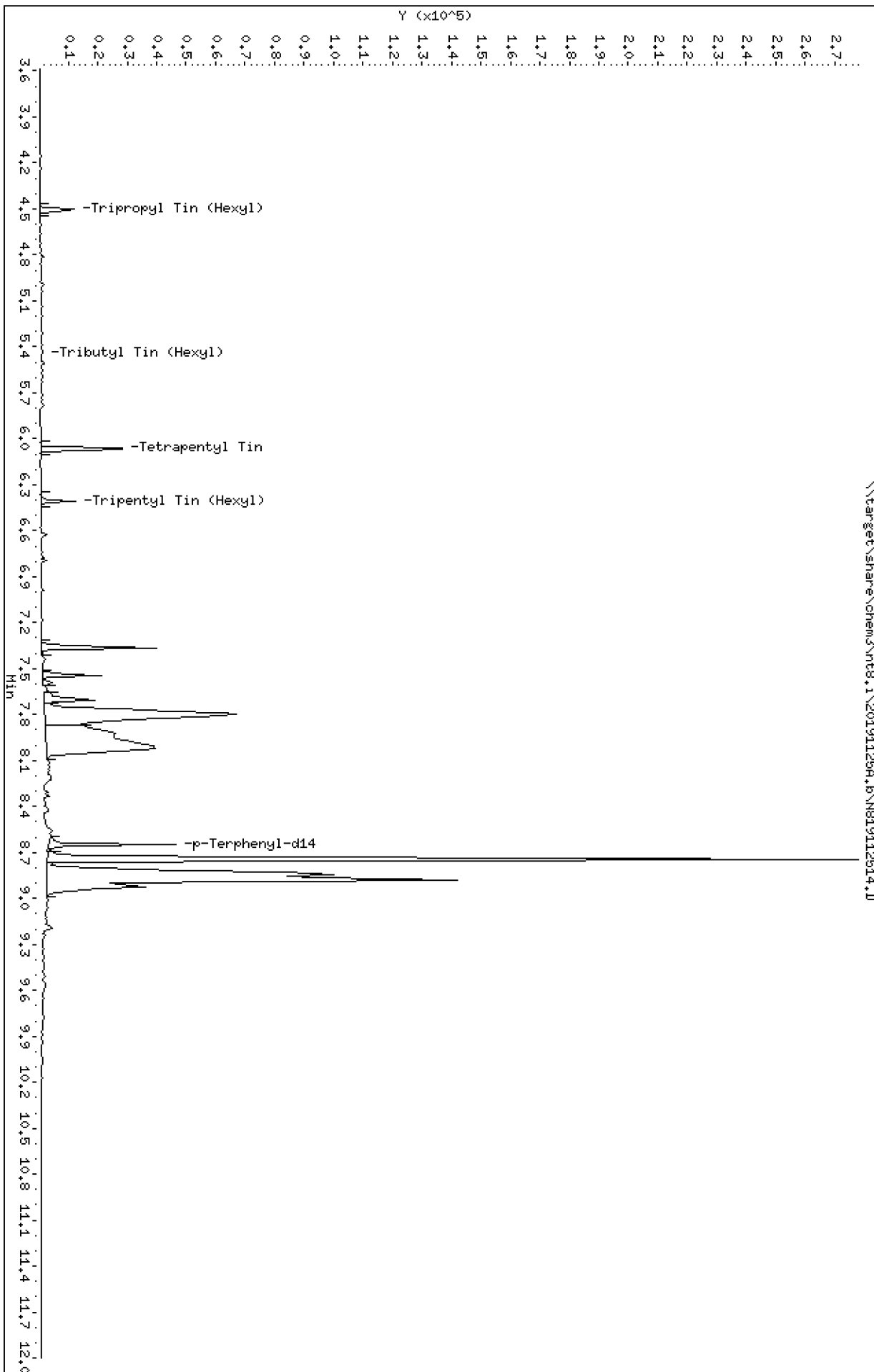
Column phase: ZB-5msi

Instrument: nt8.1

Operator: JZ

Column diameter: 0.25

Page 1



Date : 25-NOV-2019 17:50

Client ID:

Instrument: nt8.i

Sample Info: 19K0228-08,

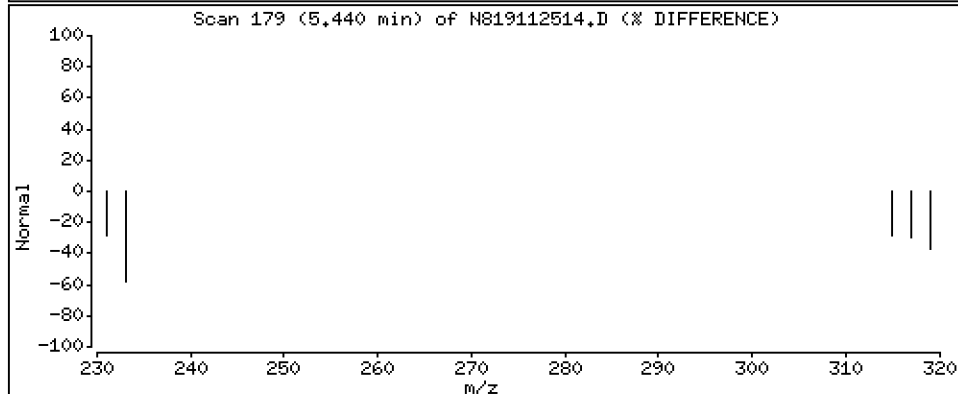
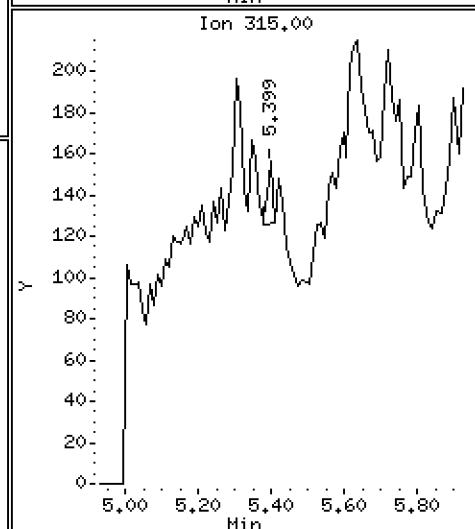
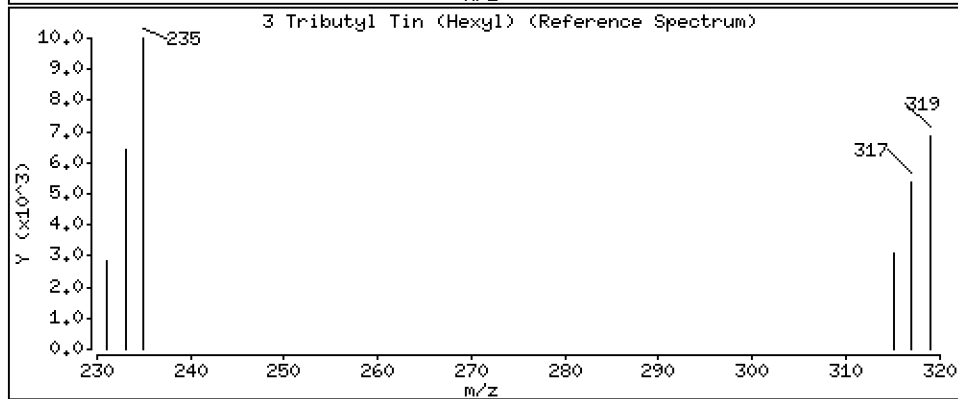
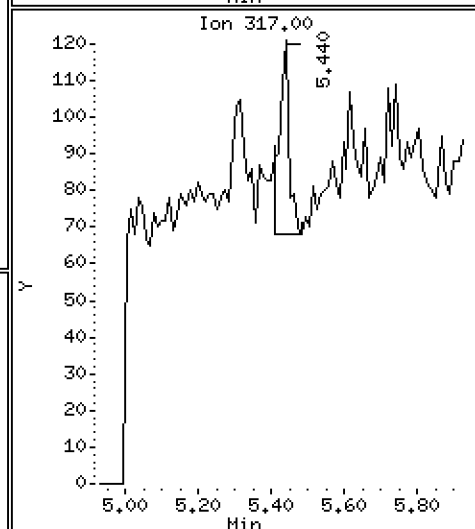
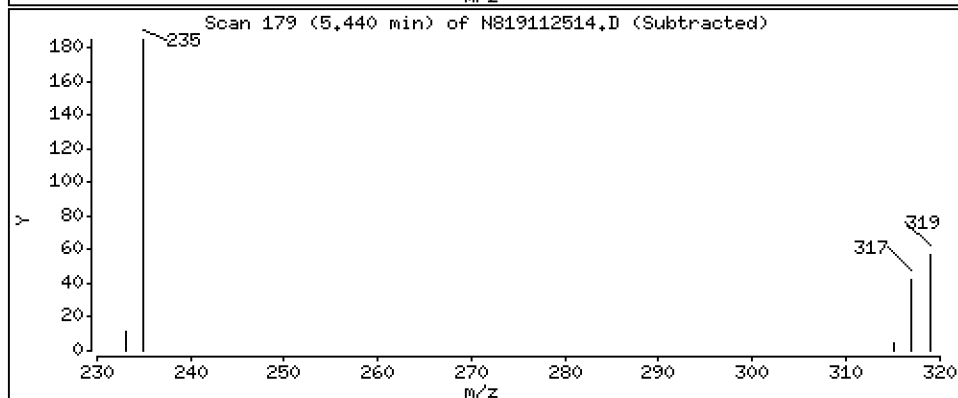
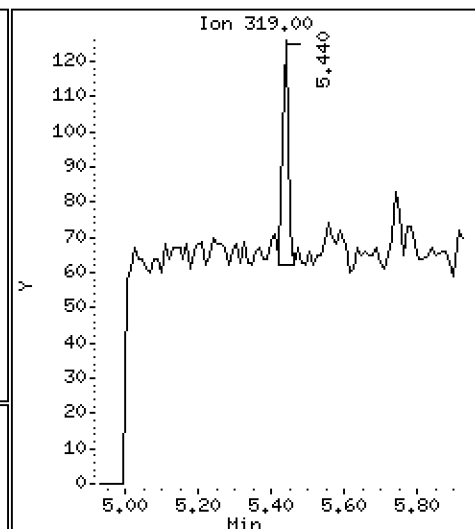
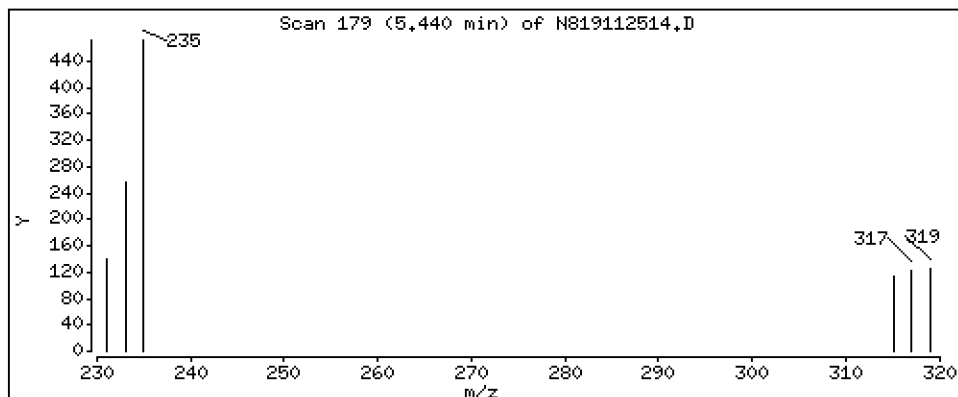
Operator: JZ

Column phase: ZB-5msi

Column diameter: 0,25

3 Tributyl Tin (Hexyl)

Concentration: 0,005764 ug/mL



ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20191125A.b\N819112514.D
 Lab Smp Id: 19K0228-08
 Inj Date : 25-NOV-2019 17:50
 Operator : JZ Inst ID: nt8.i
 Smp Info : 19K0228-08,
 Misc Info :
 Comment : 2 ul Injection
 Method : \\target\share\chem3\nt8.i\20191125A.b\TBT1125.m
 Meth Date : 26-Nov-2019 15:12 jianqing Quant Type: ISTD
 Cal Date : 25-NOV-2019 15:29 Cal File: N819112507.D
 Als bottle: 5
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: TBTmdl.sub
 Target Version: 4.14
 Processing Host: ORGDATA22

Compounds	QUANT SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN (ug/mL)	FINAL (ug/mL)
\$ 1 Tripropyl Tin (Hexyl)	291	4.513	4.471	(0.745)	6631	0.41596	0.4160
2 Tetrabutyl Tin	289	Compound Not Detected.					
3 Tributyl Tin (Hexyl)	319	5.440	5.429	(0.898)	71	0.00576	0.005764
* 4 Tetrapentyl Tin	333	6.058	6.070	(1.000)	40789	2.00000	
5 Dibutyl Tin (Hexyl)	347	Compound Not Detected.					
\$ 6 Tripentyl Tin (Hexyl)	347	6.409	6.409	(0.741)	4564	0.35490	0.3549
7 Butyl Tin (Hexyl)	347	Compound Not Detected.					
* 8 p-Terphenyl-d14	244	8.647	8.647	(1.000)	39675	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
 AREA AND RT SUMMARY

Instrument ID: nt8.i Calibration Date: 25-NOV-2019
 Lab File ID: N819112514.D Calibration Time: 16:56
 Lab Smp Id: 19K0228-08
 Analysis Type: SV Level:
 Quant Type: ISTD Sample Type:
 Operator: JZ
 Method File: \\target\share\chem3\nt8.i\20191125A.b\TBT1125.m
 Misc Info:

Test Mode:
 Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	41592	20796	83184	40789	-1.93
8 p-Terphenyl-d14	41162	20581	82324	39675	-3.61

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	6.07	5.57	6.57	6.06	-0.20
8 p-Terphenyl-d14	8.65	8.15	9.15	8.65	-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 - N819112514.D

Lab ID: 19K0228-08

nt8.i, 20191125A.b\TBT1125.m, 25-NOV-2019 17:50

RT CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.745	0.737	0.0083	Tripropyl Tin (Hexyl)

RRT check based on Ccal File: N819112511.D

On Column LOD for nt8.i, 20191125A.b\TBT1125.m, TBTmdl.sub = 0.0000

Exception: Tripropyl Tin (Hexyl) (Surr) 0.0010

* Only compounds listed in the work order have been verified by the analyst *



Form I
ORGANIC ANALYSIS DATA SHEET
EPA 8270D-SIM
Butyl Tins

Laboratory: Analytical Resources, Inc.
 Client: Anchor OEA, LLC
 Project: Gasco PDI
 Matrix: Water Laboratory ID: 19K0228-09 A SDG: 19K0228
 Sampled: 11/12/19 09:44 Prepared: 11/19/19 10:31 File ID: N819112515.D
 % Solids: Preparation: EPA 3510C SepF Analyzed: 11/25/19 18:06
 Batch: BHK0438 Sequence: SHK0352 Initial/Final: 100 mL / 0.5 mL
 Instrument: NT8 Column: RXI-17Sil ms Calibration: CK00068
 Cleanups: Silica Gel

CAS NO.	COMPOUND	DILUTION	(ug/L)	Q	DL	RL
36643-28-4	Tributyltin Ion	1	0.193	U	0.043	0.193

SURROGATES	ADDED:(ug/L)	(ug/L)	% REC	QC LIMITS	Q
Tripentyltin	2.2589	1.51	67.0	30 - 160	
Tripropyltin	2.1873	1.48	67.6	30 - 160	

Data File: \\target\share\chem3\nt8.1\2019112504.6\N819112515.D

Date: 25-NOV-2019 18:06

Client ID:

Sample Info: 19K0228-09

Page 1

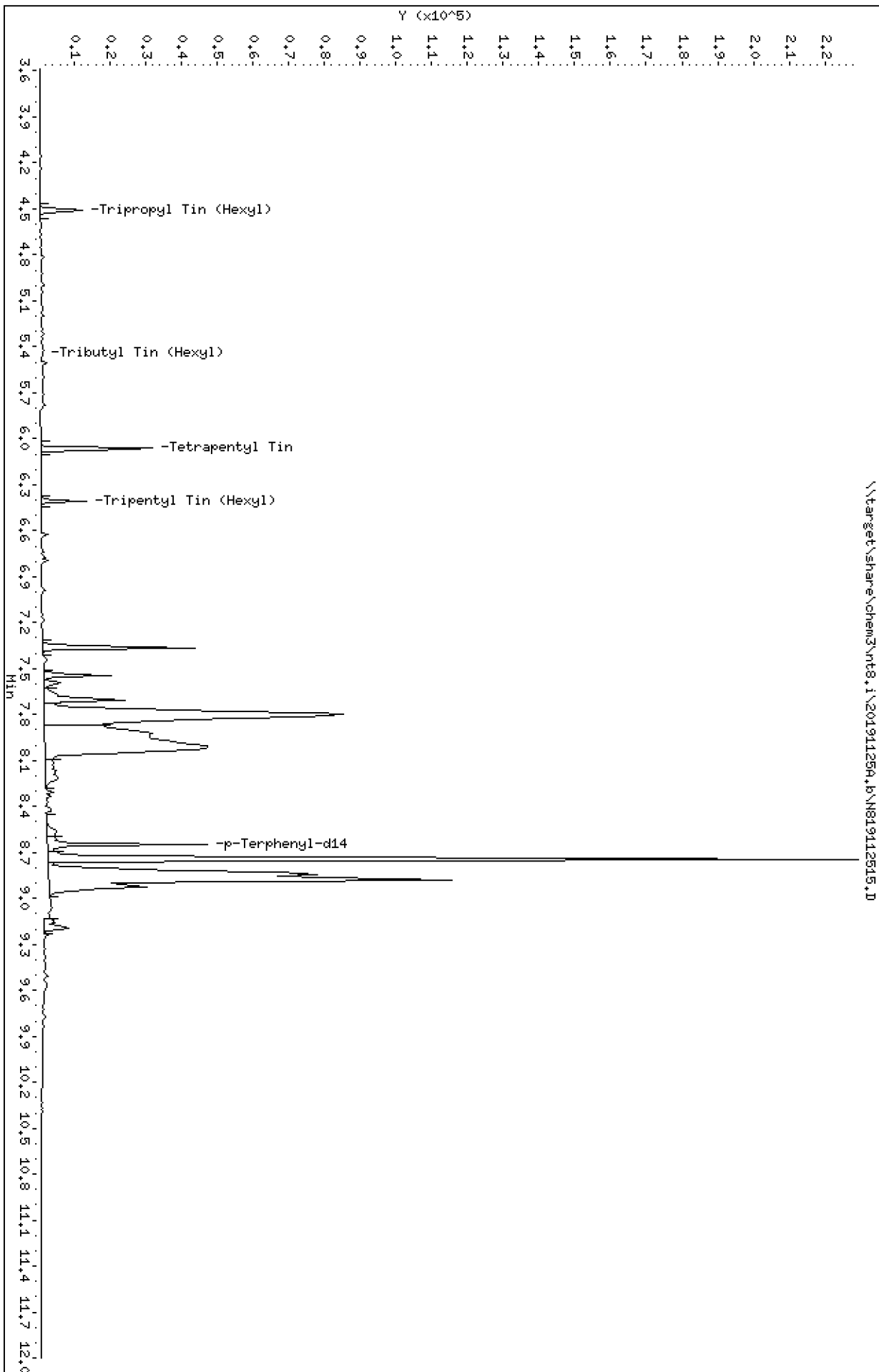
Instrument: nt8.1

Operator: JZ

Column diameter: 0.25

Column phase: ZB-5msi

\\target\share\chem3\nt8.1\2019112504.6\N819112515.D



Date : 25-NOV-2019 18:06

Client ID:

Instrument: nt8.i

Sample Info: 19K0228-09

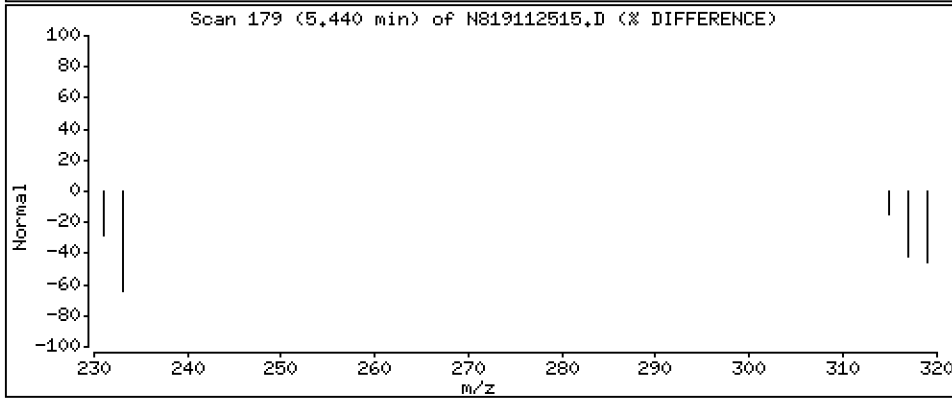
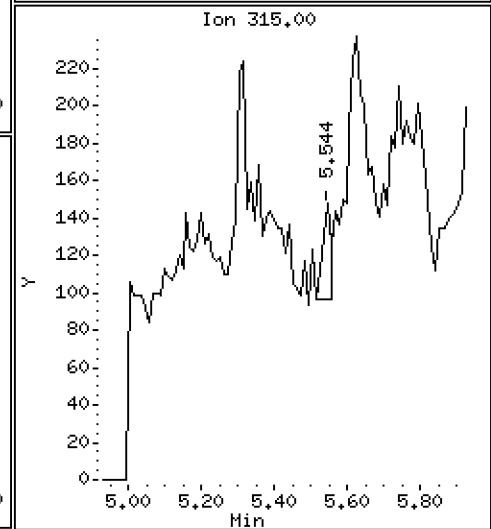
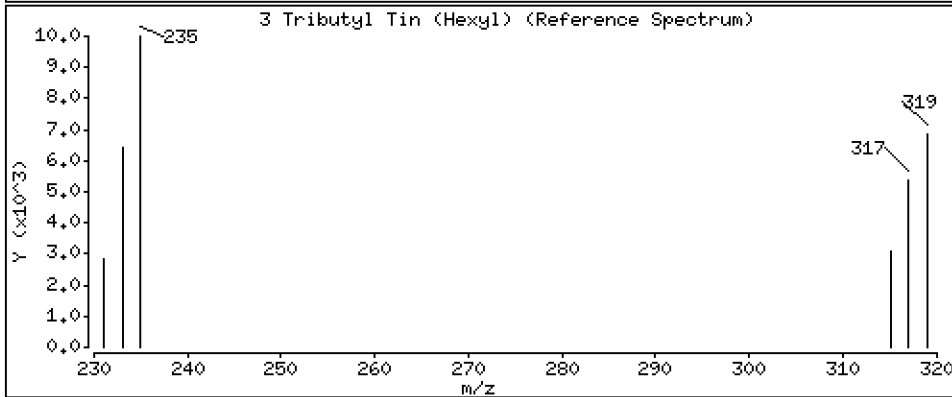
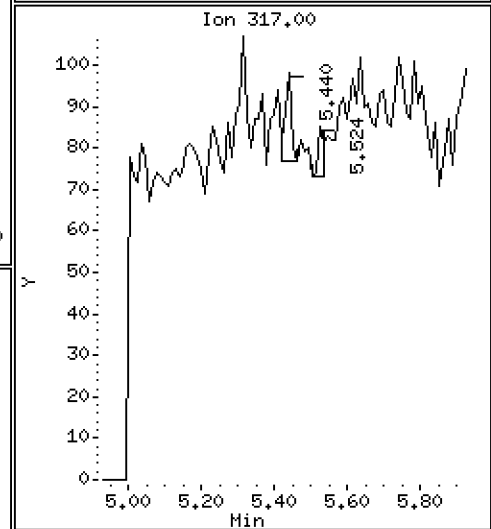
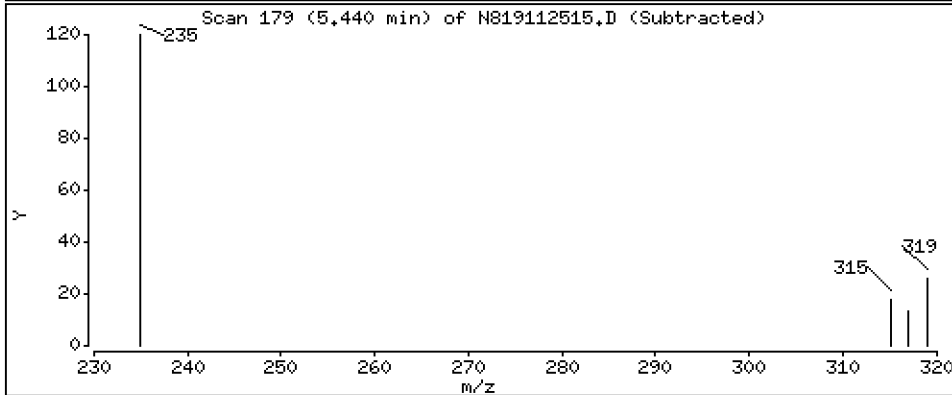
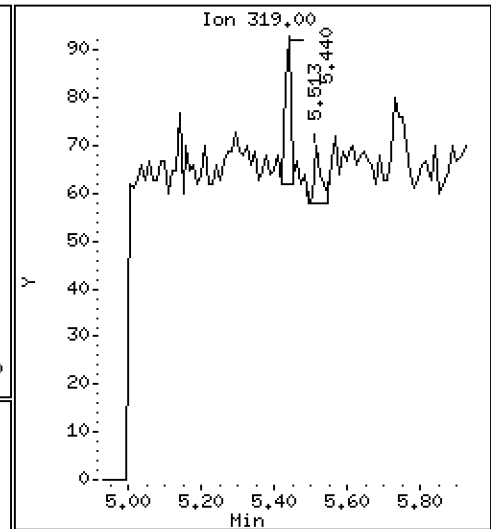
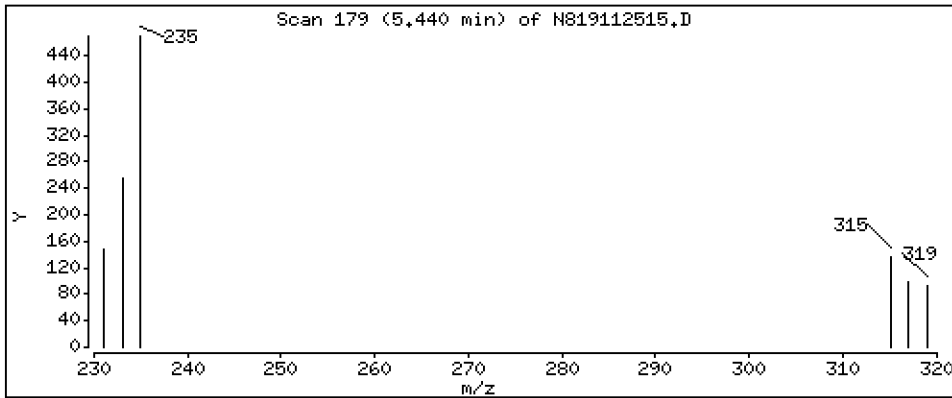
Operator: JZ

Column phase: ZB-5msi

Column diameter: 0,25

3 Tributyl Tin (Hexyl)

Concentration: 0,002605 ug/mL



ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20191125A.b\N819112515.D
 Lab Smp Id: 19K0228-09
 Inj Date : 25-NOV-2019 18:06
 Operator : JZ Inst ID: nt8.i
 Smp Info : 19K0228-09
 Misc Info :
 Comment : 2 ul Injection
 Method : \\target\share\chem3\nt8.i\20191125A.b\TBT1125.m
 Meth Date : 26-Nov-2019 15:12 jianqing Quant Type: ISTD
 Cal Date : 25-NOV-2019 15:29 Cal File: N819112507.D
 Als bottle: 6
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: TBTmdl.sub
 Target Version: 4.14
 Processing Host: ORGDATA22

Compounds	QUANT SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN (ug/mL)	FINAL (ug/mL)
\$ 1 Tripropyl Tin (Hexyl)	291	4.513	4.471	(0.745)	6515	0.39729	0.3973
2 Tetrabutyl Tin	289	Compound Not Detected.					
3 Tributyl Tin (Hexyl)	319	5.440	5.429	(0.898)	33	0.00260	0.002605
* 4 Tetrapentyl Tin	333	6.058	6.070	(1.000)	41958	2.00000	
5 Dibutyl Tin (Hexyl)	347	Compound Not Detected.					
\$ 6 Tripentyl Tin (Hexyl)	347	6.409	6.409	(0.741)	4812	0.38013	0.3801
7 Butyl Tin (Hexyl)	347	Compound Not Detected.					
* 8 p-Terphenyl-d14	244	8.647	8.647	(1.000)	39055	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
 AREA AND RT SUMMARY

Instrument ID: nt8.i Calibration Date: 25-NOV-2019
 Lab File ID: N819112515.D Calibration Time: 16:56
 Lab Smp Id: 19K0228-09
 Analysis Type: SV Level:
 Quant Type: ISTD Sample Type:
 Operator: JZ
 Method File: \\target\share\chem3\nt8.i\20191125A.b\TBT1125.m
 Misc Info:

Test Mode:
 Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	41592	20796	83184	41958	0.88
8 p-Terphenyl-d14	41162	20581	82324	39055	-5.12

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	6.07	5.57	6.57	6.06	-0.20
8 p-Terphenyl-d14	8.65	8.15	9.15	8.65	-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 - N819112515.D

Lab ID: 19K0228-09

nt8.i, 20191125A.b\TBT1125.m, 25-NOV-2019 18:06

RT CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.745	0.737	0.0083	Tripropyl Tin (Hexyl)

RRT check based on Ccal File: N819112511.D

On Column LOD for nt8.i, 20191125A.b\TBT1125.m, TBTmdl.sub = 0.0000

Exception: Tripropyl Tin (Hexyl) (Surr) 0.0010

* Only compounds listed in the work order have been verified by the analyst *



Form I
ORGANIC ANALYSIS DATA SHEET
EPA 8270D-SIM
Butyl Tins

Laboratory: Analytical Resources, Inc.
 Client: Anchor OEA, LLC
 Project: Gasco PDI
 Matrix: Solid Laboratory ID: 19K0228-10RE1 A SDG: 19K0228
 Sampled: 11/08/19 11:40 Prepared: 12/04/19 16:05 File ID: N819120506.D
 % Solids: 82.25 Preparation: EPA 3546 (Microwave) Analyzed: 12/05/19 12:30
 Batch: BHL0082 Sequence: SHL0077 Initial/Final: 6.13 g Wet / 0.5 mL
 Instrument: NT8 Column: RXI-17Sil ms Calibration: CK00068
 Cleanups: Silica Gel

CAS NO.	COMPOUND	DILUTION	CONC: (ug/kg dry)	Q	DL	RL
36643-28-4	Tributyltin Ion	1	3.83	U	0.446	3.83

SURROGATES	ADDED: (ug/kg dry)	FOUND: (ug/kg dry)	% REC	QC LIMITS	Q
Tripentyltin	44.800	17.8	39.8	30 - 160	
Tripropyltin	43.380	17.8	41.1	30 - 160	

Data File: \\target\share\chem3\nt8.1\20191205.b\N819120506.D

Date: 05-DEC-2019 12:30

Client ID:

Sample Info: 19K0228-10REL1,

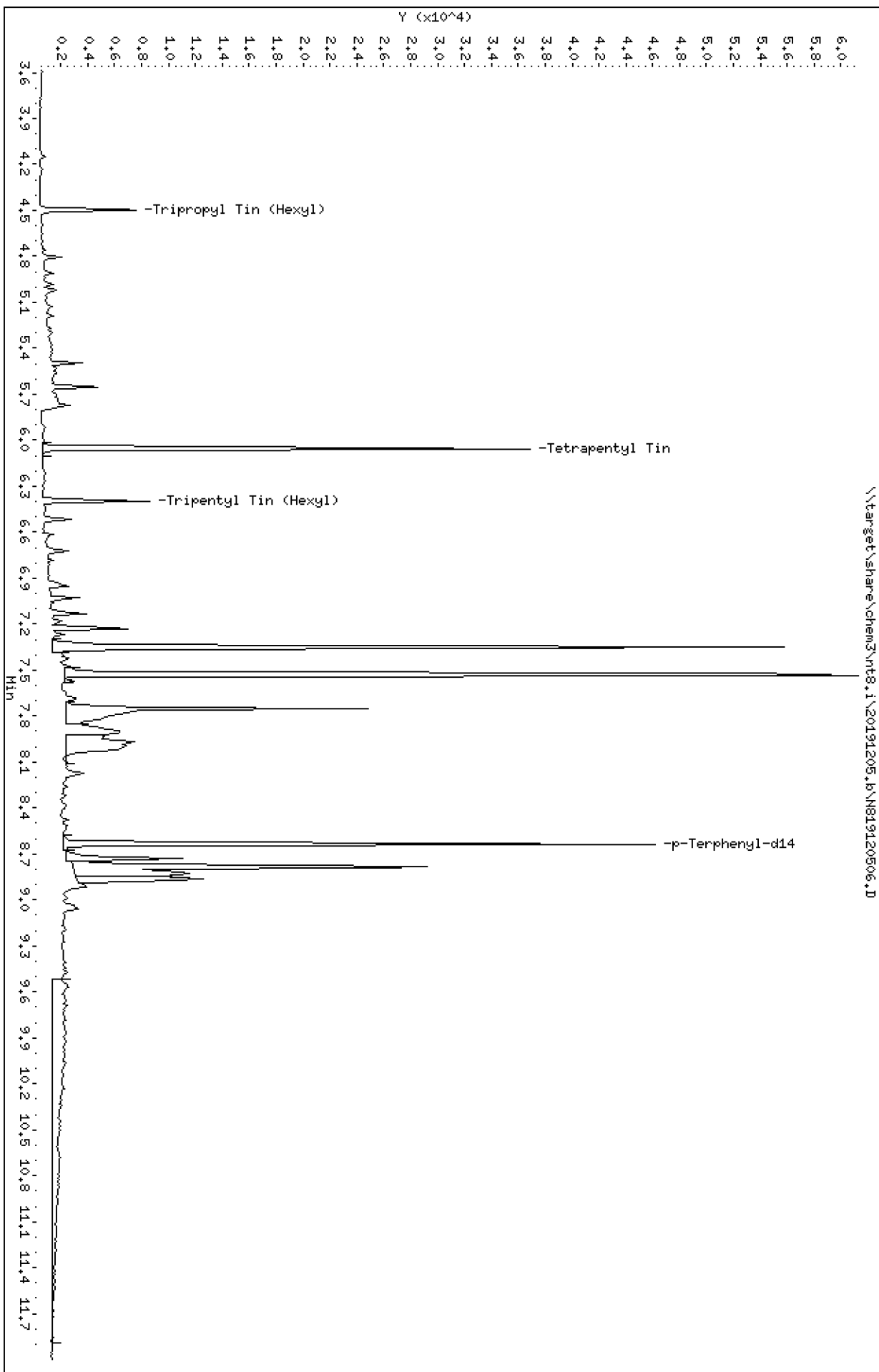
Column phase: ZB-5msi

Instrument: nt8.1

Operator: JZ

Column diameter: 0.25

Page 1



ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20191205.b\N819120506.D
 Lab Smp Id: 19K0228-10RE1
 Inj Date : 05-DEC-2019 12:30 MS Autotune Date: 27-FEB-2008 03:32
 Operator : JZ Inst ID: nt8.i
 Smp Info : 19K0228-10RE1,
 Misc Info :
 Comment : 2 ul Injection
 Method : \\target\share\chem3\nt8.i\20191205.b\TBT1125.m
 Meth Date : 05-Dec-2019 12:54 nt8.i Quant Type: ISTD
 Cal Date : 25-NOV-2019 15:29 Cal File: N819112507.D
 Als bottle: 6
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: sedmdl.sub
 Target Version: 4.14
 Processing Host: ORGDATA22

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN	FINAL
	MASS						(ug/mL)	(ug/mL)
=====	=====		=====	=====	=====	=====	=====	=====
\$ 1 Tripropyl Tin (Hexyl)	291		4.502	4.471	(0.743)	4281	0.24144	0.2414
2 Tetrabutyl Tin	289		Compound Not Detected.					
3 Tributyl Tin (Hexyl)	319		Compound Not Detected.					
* 4 Tetrapentyl Tin	333		6.058	6.058	(1.000)	45368	2.00000	
5 Dibutyl Tin (Hexyl)	347		Compound Not Detected.					
\$ 6 Tripentyl Tin (Hexyl)	347		6.396	6.397	(0.741)	2970	0.22580	0.2258
7 Butyl Tin (Hexyl)	347		Compound Not Detected.					
* 8 p-Terphenyl-d14	244		8.635	8.635	(1.000)	40580	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
 AREA AND RT SUMMARY

Instrument ID: nt8.i Calibration Date: 05-DEC-2019
 Lab File ID: N819120506.D Calibration Time: 11:17
 Lab Smp Id: 19K0228-10RE1
 Analysis Type: SV Level:
 Quant Type: ISTD Sample Type:
 Operator: JZ
 Method File: \\target\share\chem3\nt8.i\20191205.b\TBT1125.m
 Misc Info:

Test Mode:
 Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	41592	20796	83184	45368	9.08
8 p-Terphenyl-d14	41162	20581	82324	40580	-1.41

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	6.06	5.56	6.56	6.06	-0.01
8 p-Terphenyl-d14	8.64	8.14	9.14	8.64	-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 - N819120506.D

Lab ID: 19K0228-10RE1

nt8.i, 20191205.b\TBT1125.m, 05-DEC-2019 12:30

RT CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.743	0.738	0.0051	Tripropyl Tin (Hexyl)

RRT check based on Ccal File: N819120502.D

On Column LOD for nt8.i, 20191205.b\TBT1125.m, sedmdl.sub = 0.0000

Exception: Tripropyl Tin (Hexyl) (Surr) 0.0010

* Only compounds listed in the work order have been verified by the analyst *



Form I
ORGANIC ANALYSIS DATA SHEET
EPA 8270D-SIM
Butyl Tins

Laboratory: Analytical Resources, Inc.

Client: Anchor OEA, LLC

Project: Gasco PDI

Matrix: Solid

Laboratory ID: 19K0228-11 A

SDG: 19K0228

Sampled: 11/08/19 12:15

Prepared: 11/21/19 12:50

File ID: N819120244.D

% Solids: 79.82

Preparation: EPA 3546 (Microwave)

Analyzed: 12/02/19 21:29

Batch: BHK0576

Sequence: SHL0025

Initial/Final: 6.3 g Wet / 0.5 mL

Instrument: NT8

Column: RXI-17Sil ms

Calibration: CK00068

Cleanups: Silica Gel

CAS NO.	COMPOUND	DILUTION	CONC: (ug/kg dry)	Q	DL	RL
36643-28-4	Tributyltin Ion	1	3.84	U	0.447	3.84

SURROGATES	ADDED: (ug/kg dry)	FOUND: (ug/kg dry)	% REC	QC LIMITS	Q
Tripropyltin	44.920	16.6	37.1	30 - 160	
Tripentyltin	43.496	15.3	35.1	30 - 160	

Data File: \\target\share\chem3\nt8.1\201912024.b\N819120244.D

Date : 02-DEC-2019 21:29

Client ID:

Sample Info: 19K0228-11

Page 1

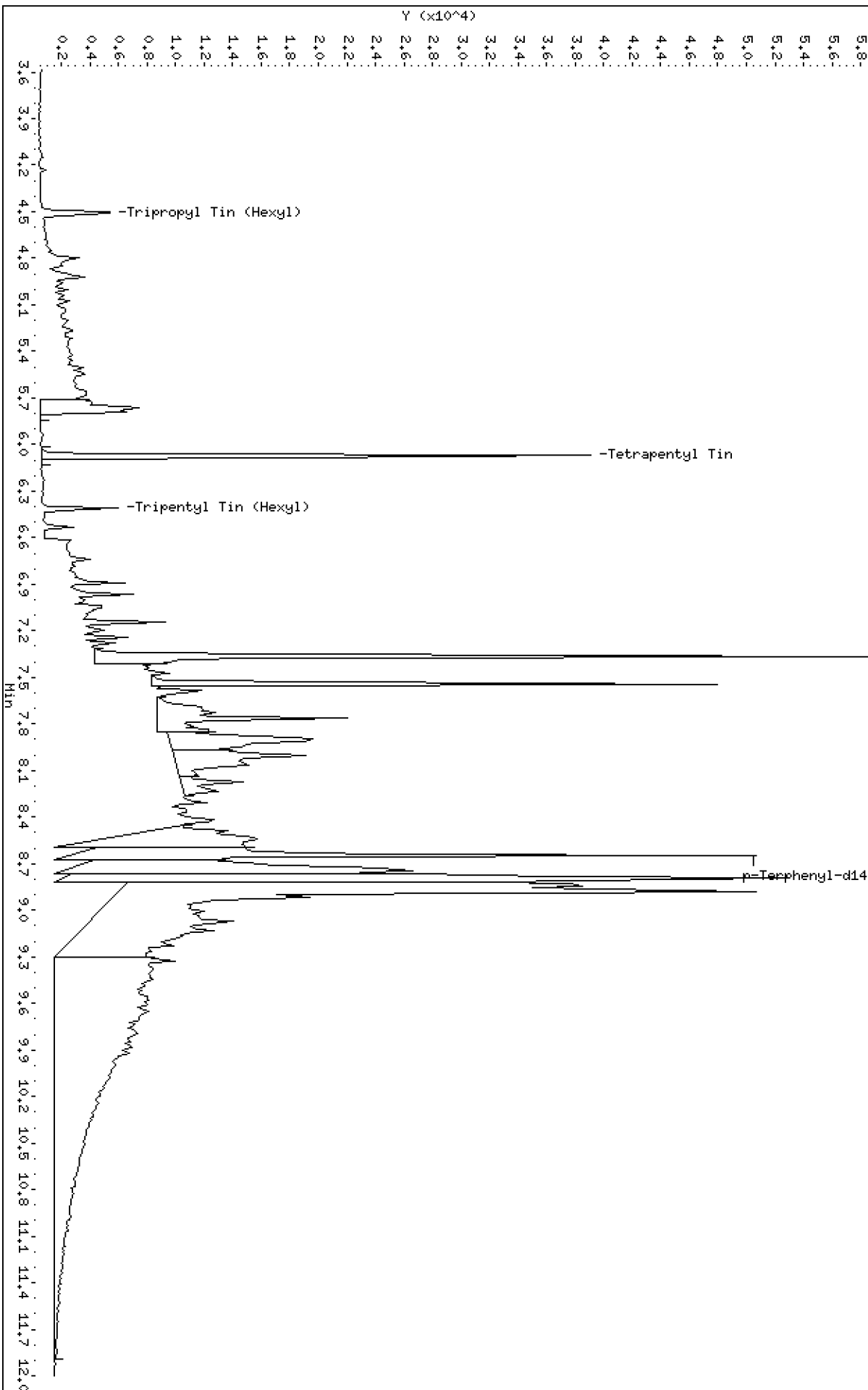
Instrument: nt8.1

Operator: JZ

Column diameter: 0.25

Column phase: ZB-5msi

\\target\share\chem3\nt8.1\201912024.b\N819120244.D



ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20191202A.b\N819120244.D
 Lab Smp Id: 19K0228-11
 Inj Date : 02-DEC-2019 21:29 MS Autotune Date: 27-FEB-2008 03:32
 Operator : JZ Inst ID: nt8.i
 Smp Info : 19K0228-11
 Misc Info :
 Comment : 2 ul Injection
 Method : \\target\share\chem3\nt8.i\20191202A.b\TBT1125.m
 Meth Date : 03-Dec-2019 09:05 nt8.i Quant Type: ISTD
 Cal Date : 25-NOV-2019 15:29 Cal File: N819112507.D
 Als bottle: 15
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: sedmdl.sub
 Target Version: 4.14
 Processing Host: ORGDATA22

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN	FINAL
	MASS						(ug/mL)	(ug/mL)
=====	=====		=====	=====	=====	=====	=====	=====
\$ 1 Tripropyl Tin (Hexyl)	291		4.513	4.471	(0.743)	3542	0.20653	0.2065
2 Tetrabutyl Tin	289		Compound Not Detected.					
3 Tributyl Tin (Hexyl)	319		Compound Not Detected.					
* 4 Tetrapentyl Tin	333		6.070	6.070	(1.000)	43880	2.00000	
5 Dibutyl Tin (Hexyl)	347		Compound Not Detected.					
\$ 6 Tripentyl Tin (Hexyl)	347		6.409	6.409	(0.741)	2382	0.21032	0.2103
7 Butyl Tin (Hexyl)	347		Compound Not Detected.					
* 8 p-Terphenyl-d14	244		8.647	8.647	(1.000)	34942	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i Calibration Date: 02-DEC-2019
Lab File ID: N819120244.D Calibration Time: 17:52
Lab Smp Id: 19K0228-11
Analysis Type: SV Level:
Quant Type: ISTD Sample Type:
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20191202A.b\TBT1125.m
Misc Info:

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	41592	20796	83184	43880	5.50
8 p-Terphenyl-d14	41162	20581	82324	34942	-15.11

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	6.07	5.57	6.57	6.07	-0.00
8 p-Terphenyl-d14	8.65	8.15	9.15	8.65	-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 - N819120244.D

Lab ID: 19K0228-11
nt8.i, 20191202A.b\TBT1125.m, 02-DEC-2019 21:29

RT CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.743	0.737	0.0068	Tripropyl Tin (Hexyl)

RRT check based on Ccal File: N819120231.D

On Column LOD for nt8.i, 20191202A.b\TBT1125.m, sedmdl.sub = 0.0000

Exception: Tripropyl Tin (Hexyl) (Surr) 0.0010

* Only compounds listed in the work order have been verified by the analyst *



Form I
ORGANIC ANALYSIS DATA SHEET
EPA 8270D-SIM
Butyl Tins

Laboratory: Analytical Resources, Inc.
 Client: Anchor OEA, LLC
 Project: Gasco PDI
 Matrix: Solid Laboratory ID: 19K0228-12 A SDG: 19K0228
 Sampled: 11/07/19 15:15 Prepared: 11/21/19 12:50 File ID: N819120245.D
 % Solids: 86.02 Preparation: EPA 3546 (Microwave) Analyzed: 12/02/19 21:46
 Batch: BHK0576 Sequence: SHL0025 Initial/Final: 5.9 g Wet / 0.5 mL
 Instrument: NT8 Column: RXI-17Sil ms Calibration: CK00068
 Cleanups: Silica Gel

CAS NO.	COMPOUND	DILUTION	CONC: (ug/kg dry)	Q	DL	RL
36643-28-4	Tributyltin Ion	1	3.80	U	0.443	3.80

SURROGATES	ADDED: (ug/kg dry)	FOUND: (ug/kg dry)	% REC	QC LIMITS	Q
Tripentyltin	44.511	20.7	46.4	30 - 160	
Tripropyltin	43.100	19.3	44.7	30 - 160	

Data File: \\target\share\chem3\nt8.1\2019120204.b\N819120245.D

Date : 02-DEC-2019 21:46

Client ID:

Sample Info: 19K0228-12

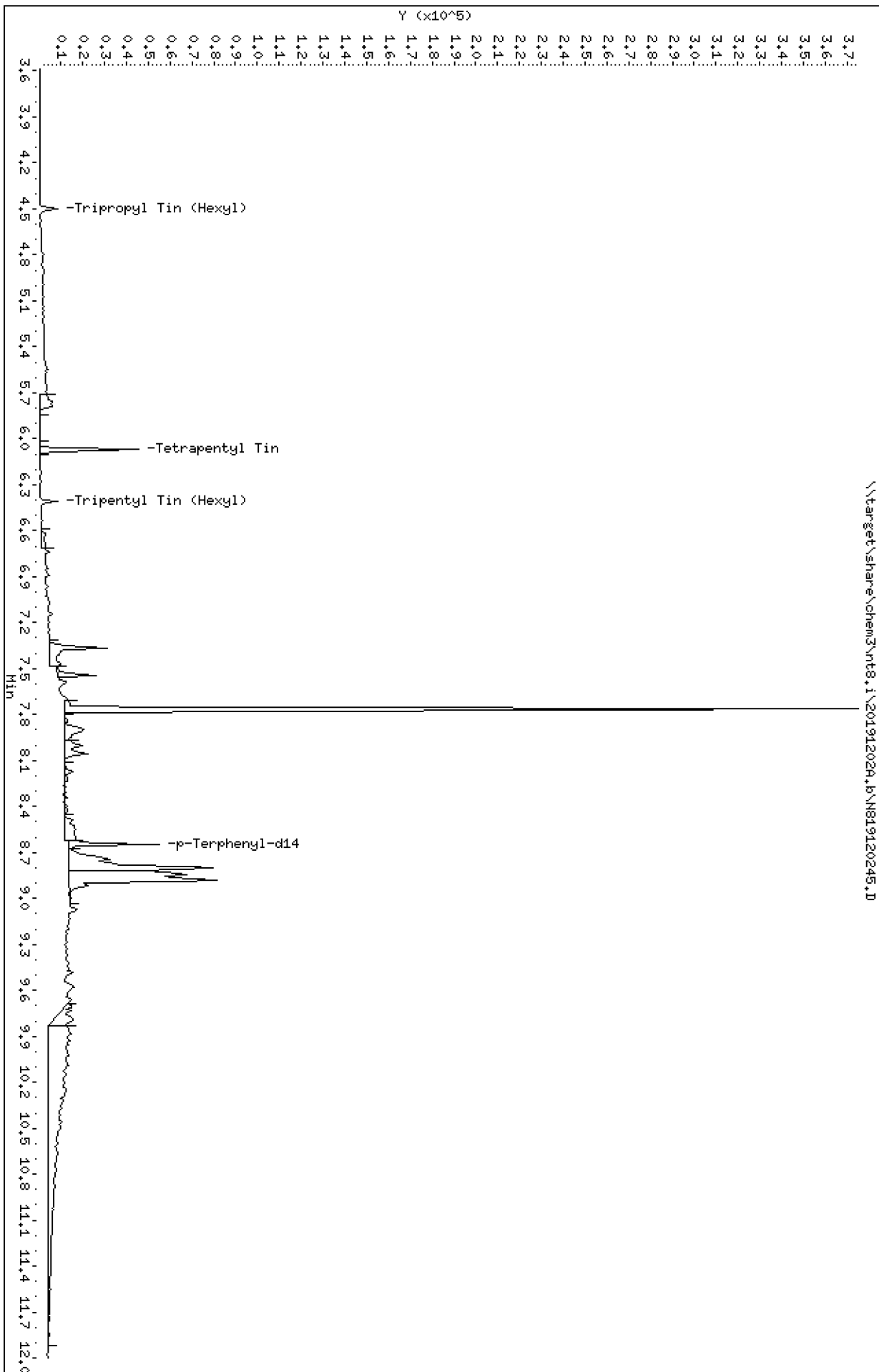
Column phase: ZB-5msi

Instrument: nt8.1

Operator: JZ

Column diameter: 0.25

Page 1



ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20191202A.b\N819120245.D
 Lab Smp Id: 19K0228-12
 Inj Date : 02-DEC-2019 21:46 MS Autotune Date: 27-FEB-2008 03:32
 Operator : JZ Inst ID: nt8.i
 Smp Info : 19K0228-12
 Misc Info :
 Comment : 2 ul Injection
 Method : \\target\share\chem3\nt8.i\20191202A.b\TBT1125.m
 Meth Date : 03-Dec-2019 09:05 nt8.i Quant Type: ISTD
 Cal Date : 25-NOV-2019 15:29 Cal File: N819112507.D
 Als bottle: 16
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: sedmdl.sub
 Target Version: 4.14
 Processing Host: ORGDATA22

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN	FINAL
	MASS						(ug/mL)	(ug/mL)
=====	=====		=====	=====	=====	=====	=====	=====
\$ 1 Tripropyl Tin (Hexyl)	291		4.502	4.471	(0.742)	4542	0.26292	0.2629
2 Tetrabutyl Tin	289		Compound Not Detected.					
3 Tributyl Tin (Hexyl)	319		Compound Not Detected.					
* 4 Tetrapentyl Tin	333		6.070	6.070	(1.000)	44202	2.00000	
5 Dibutyl Tin (Hexyl)	347		Compound Not Detected.					
\$ 6 Tripentyl Tin (Hexyl)	347		6.409	6.409	(0.741)	3161	0.26362	0.2636
7 Butyl Tin (Hexyl)	347		Compound Not Detected.					
* 8 p-Terphenyl-d14	244		8.647	8.647	(1.000)	36994	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
 AREA AND RT SUMMARY

Instrument ID: nt8.i Calibration Date: 02-DEC-2019
 Lab File ID: N819120245.D Calibration Time: 17:52
 Lab Smp Id: 19K0228-12
 Analysis Type: SV Level:
 Quant Type: ISTD Sample Type:
 Operator: JZ
 Method File: \\target\share\chem3\nt8.i\20191202A.b\TBT1125.m
 Misc Info:

Test Mode:
 Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	41592	20796	83184	44202	6.28
8 p-Terphenyl-d14	41162	20581	82324	36994	-10.13

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	6.07	5.57	6.57	6.07	-0.00
8 p-Terphenyl-d14	8.65	8.15	9.15	8.65	-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 - N819120245.D

Lab ID: 19K0228-12

nt8.i, 20191202A.b\TBT1125.m, 02-DEC-2019 21:46

RT CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.742	0.737	0.0051	Tripropyl Tin (Hexyl)

RRT check based on Ccal File: N819120231.D

On Column LOD for nt8.i, 20191202A.b\TBT1125.m, sedmdl.sub = 0.0000

Exception: Tripropyl Tin (Hexyl) (Surr) 0.0010

* Only compounds listed in the work order have been verified by the analyst *



Form I
ORGANIC ANALYSIS DATA SHEET
EPA 8270D-SIM
Butyl Tins

Laboratory: Analytical Resources, Inc.
 Client: Anchor OEA, LLC
 Project: Gasco PDI
 Matrix: Solid Laboratory ID: 19K0228-13 A SDG: 19K0228
 Sampled: 11/07/19 16:45 Prepared: 11/21/19 12:50 File ID: N819120246.D
 % Solids: 81.25 Preparation: EPA 3546 (Microwave) Analyzed: 12/02/19 22:02
 Batch: BHK0576 Sequence: SHL0025 Initial/Final: 6.2 g Wet / 0.5 mL
 Instrument: NT8 Column: RXI-17Sil ms Calibration: CK00068
 Cleanups: Silica Gel

CAS NO.	COMPOUND	DILUTION	CONC: (ug/kg dry)	Q	DL	RL
36643-28-4	Tributyltin Ion	1	3.83	U	0.447	3.83

SURROGATES	ADDED: (ug/kg dry)	FOUND: (ug/kg dry)	% REC	QC LIMITS	Q
Tripentyltin	44.843	27.8	62.1	30 - 160	
Tripropyltin	43.421	28.5	65.7	30 - 160	

Data File: \\target\share\chem3\nt8.1\201912024,b\N819120246.D

Date : 02-DEC-2019 22:02

Client ID:

Sample Info: 19K0228-13

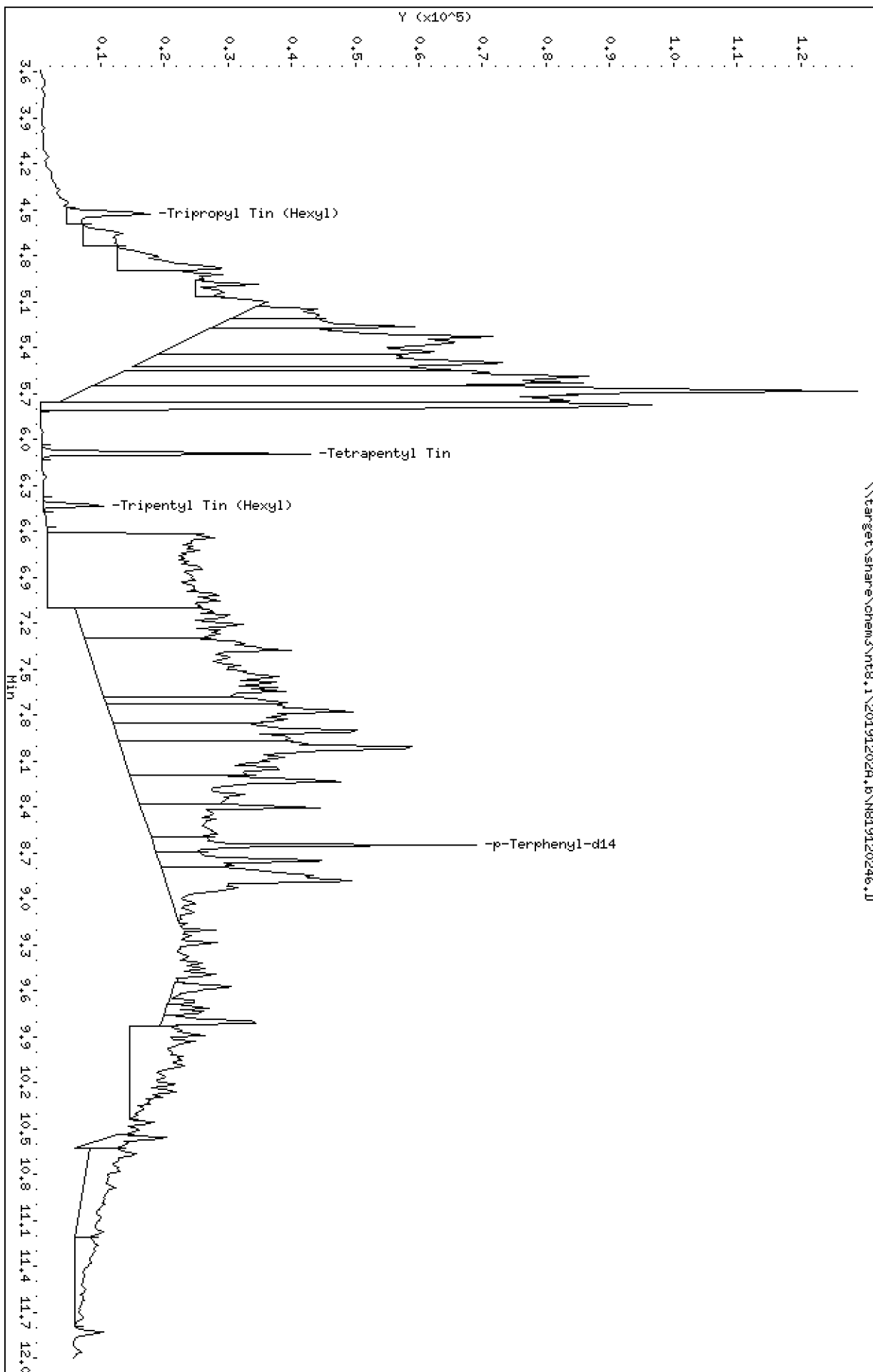
Column phase: ZB-5msi

Instrument: nt8.1

Operator: JZ

Column diameter: 0.25

Page 1



ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20191202A.b\N819120246.D
 Lab Smp Id: 19K0228-13
 Inj Date : 02-DEC-2019 22:02 MS Autotune Date: 27-FEB-2008 03:32
 Operator : JZ Inst ID: nt8.i
 Smp Info : 19K0228-13
 Misc Info :
 Comment : 2 ul Injection
 Method : \\target\share\chem3\nt8.i\20191202A.b\TBT1125.m
 Meth Date : 03-Dec-2019 09:05 nt8.i Quant Type: ISTD
 Cal Date : 25-NOV-2019 15:29 Cal File: N819112507.D
 Als bottle: 17
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: sedmdl.sub
 Target Version: 4.14
 Processing Host: ORGDATA22

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN	FINAL
	MASS						(ug/mL)	(ug/mL)
=====	=====		=====	=====	=====	=====	=====	=====
\$ 1 Tripropyl Tin (Hexyl)	291		4.523	4.471	(0.742)	8339	0.38614	0.3861
2 Tetrabutyl Tin	289		Compound Not Detected.					
3 Tributyl Tin (Hexyl)	319		Compound Not Detected.					
* 4 Tetrapentyl Tin	333		6.094	6.070	(1.000)	55256	2.00000	
5 Dibutyl Tin (Hexyl)	347		Compound Not Detected.					
\$ 6 Tripentyl Tin (Hexyl)	347		6.433	6.409	(0.744)	4617	0.35225	0.3522
7 Butyl Tin (Hexyl)	347		Compound Not Detected.					
* 8 p-Terphenyl-d14	244		8.647	8.647	(1.000)	40438	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
 AREA AND RT SUMMARY

Instrument ID: nt8.i Calibration Date: 02-DEC-2019
 Lab File ID: N819120246.D Calibration Time: 17:52
 Lab Smp Id: 19K0228-13
 Analysis Type: SV Level:
 Quant Type: ISTD Sample Type:
 Operator: JZ
 Method File: \\target\share\chem3\nt8.i\20191202A.b\TBT1125.m
 Misc Info:

Test Mode:
 Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	41592	20796	83184	55256	32.85
8 p-Terphenyl-d14	41162	20581	82324	40438	-1.76

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	6.07	5.57	6.57	6.09	0.40
8 p-Terphenyl-d14	8.65	8.15	9.15	8.65	-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 - N819120246.D

Lab ID: 19K0228-13
nt8.i, 20191202A.b\TBT1125.m, 02-DEC-2019 22:02

RT CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.742	0.737	0.0056	Tripropyl Tin (Hexyl)

RRT check based on Ccal File: N819120231.D

On Column LOD for nt8.i, 20191202A.b\TBT1125.m, sedmdl.sub = 0.0000

Exception: Tripropyl Tin (Hexyl) (Surr) 0.0010

* Only compounds listed in the work order have been verified by the analyst *



Form I
ORGANIC ANALYSIS DATA SHEET
EPA 8270D-SIM
Butyl Tins

Laboratory: Analytical Resources, Inc.
 Client: Anchor OEA, LLC
 Project: Gasco PDI
 Matrix: Solid Laboratory ID: 19K0228-14 A SDG: 19K0228
 Sampled: 11/11/19 12:30 Prepared: 11/21/19 12:50 File ID: N819120247.D
 % Solids: 92.43 Preparation: EPA 3546 (Microwave) Analyzed: 12/02/19 22:18
 Batch: BHK0576 Sequence: SHL0025 Initial/Final: 5.45 g Wet / 0.5 mL
 Instrument: NT8 Column: RXI-17Sil ms Calibration: CK00068
 Cleanups: Silica Gel

CAS NO.	COMPOUND	DILUTION	CONC: (ug/kg dry)	Q	DL	RL
36643-28-4	Tributyltin Ion	1	3.83	U	0.447	3.83

SURROGATES	ADDED: (ug/kg dry)	FOUND: (ug/kg dry)	% REC	QC LIMITS	Q
Tripentyltin	44.842	20.3	45.2	30 - 160	
Tripropyltin	43.421	15.9	36.5	30 - 160	

Data File: \\target\share\chem3\nt8.1\201912024.b\N819120247.D

Date : 02-DEC-2019 22:18

Client ID:

Sample Info: 19K0228-14

Page 1

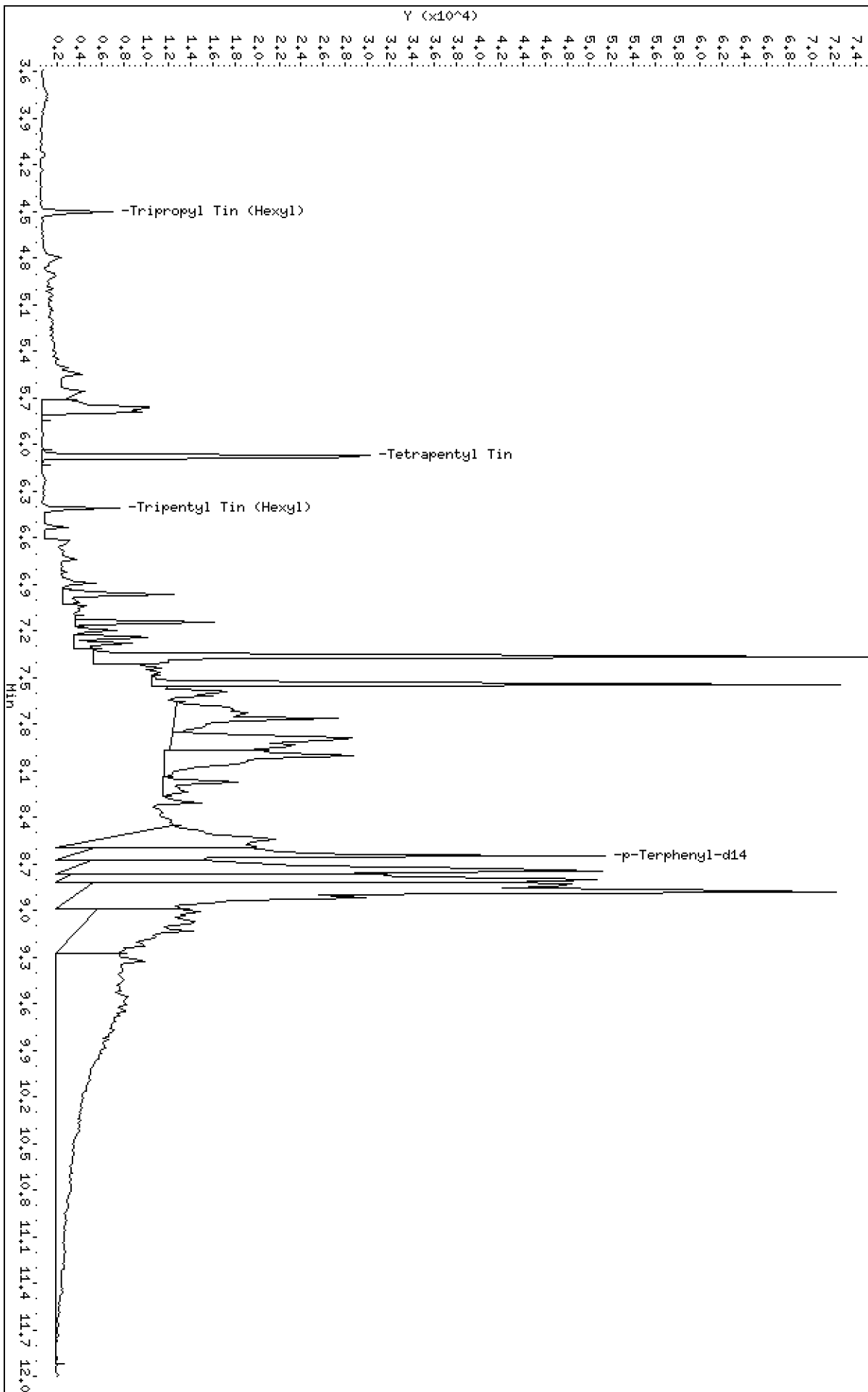
Instrument: nt8.1

Operator: JZ

Column diameter: 0.25

Column phase: ZB-5msi

\\target\share\chem3\nt8.1\201912024.b\N819120247.D



ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20191202A.b\N819120247.D
 Lab Smp Id: 19K0228-14
 Inj Date : 02-DEC-2019 22:18 MS Autotune Date: 27-FEB-2008 03:32
 Operator : JZ Inst ID: nt8.i
 Smp Info : 19K0228-14
 Misc Info :
 Comment : 2 ul Injection
 Method : \\target\share\chem3\nt8.i\20191202A.b\TBT1125.m
 Meth Date : 03-Dec-2019 09:05 nt8.i Quant Type: ISTD
 Cal Date : 25-NOV-2019 15:29 Cal File: N819112507.D
 Als bottle: 18
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: sedmdl.sub
 Target Version: 4.14
 Processing Host: ORGDATA22

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN	FINAL
	MASS						(ug/mL)	(ug/mL)
=====	=====		=====	=====	=====	=====	=====	=====
\$ 1 Tripropyl Tin (Hexyl)	291		4.502	4.471	(0.742)	3545	0.21477	0.2148
2 Tetrabutyl Tin	289		Compound Not Detected.					
3 Tributyl Tin (Hexyl)	319		Compound Not Detected.					
* 4 Tetrapentyl Tin	333		6.070	6.070	(1.000)	42233	2.00000	
5 Dibutyl Tin (Hexyl)	347		Compound Not Detected.					
\$ 6 Tripentyl Tin (Hexyl)	347		6.409	6.409	(0.741)	2723	0.25636	0.2564
7 Butyl Tin (Hexyl)	347		Compound Not Detected.					
* 8 p-Terphenyl-d14	244		8.647	8.647	(1.000)	32770	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
 AREA AND RT SUMMARY

Instrument ID: nt8.i Calibration Date: 02-DEC-2019
 Lab File ID: N819120247.D Calibration Time: 17:52
 Lab Smp Id: 19K0228-14
 Analysis Type: SV Level:
 Quant Type: ISTD Sample Type:
 Operator: JZ
 Method File: \\target\share\chem3\nt8.i\20191202A.b\TBT1125.m
 Misc Info:

Test Mode:
 Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	41592	20796	83184	42233	1.54
8 p-Terphenyl-d14	41162	20581	82324	32770	-20.39

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	6.07	5.57	6.57	6.07	-0.00
8 p-Terphenyl-d14	8.65	8.15	9.15	8.65	-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 - N819120247.D

Lab ID: 19K0228-14

nt8.i, 20191202A.b\TBT1125.m, 02-DEC-2019 22:18

RT CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.742	0.737	0.0051	Tripropyl Tin (Hexyl)

RRT check based on Ccal File: N819120231.D

On Column LOD for nt8.i, 20191202A.b\TBT1125.m, sedmdl.sub = 0.0000

Exception: Tripropyl Tin (Hexyl) (Surr) 0.0010

* Only compounds listed in the work order have been verified by the analyst *



Form I
ORGANIC ANALYSIS DATA SHEET
EPA 8270D-SIM
Butyl Tins

Laboratory: Analytical Resources, Inc.
 Client: Anchor OEA, LLC
 Project: Gasco PDI
 Matrix: Solid Laboratory ID: 19K0228-15 A SDG: 19K0228
 Sampled: 11/11/19 14:05 Prepared: 11/21/19 12:50 File ID: N819120248.D
 % Solids: 92.21 Preparation: EPA 3546 (Microwave) Analyzed: 12/02/19 22:34
 Batch: BHK0576 Sequence: SHL0025 Initial/Final: 5.44 g Wet / 0.5 mL
 Instrument: NT8 Column: RXI-17Sil ms Calibration: CK00068
 Cleanups: Silica Gel

CAS NO.	COMPOUND	DILUTION	CONC: (ug/kg dry)	Q	DL	RL
36643-28-4	Tributyltin Ion	1	3.85	U	0.449	3.85

SURROGATES	ADDED: (ug/kg dry)	FOUND: (ug/kg dry)	% REC	QC LIMITS	Q
Tripentyltin	45.030	17.8	39.5	30 - 160	
Tripropyltin	43.602	12.5	28.7	30 - 160	*

Data File: \\target\share\chem3\nt8.1\201912024,b\N819120248.D

Date : 02-DEC-2019 22:34

Client ID:

Sample Info: 19K0228-15

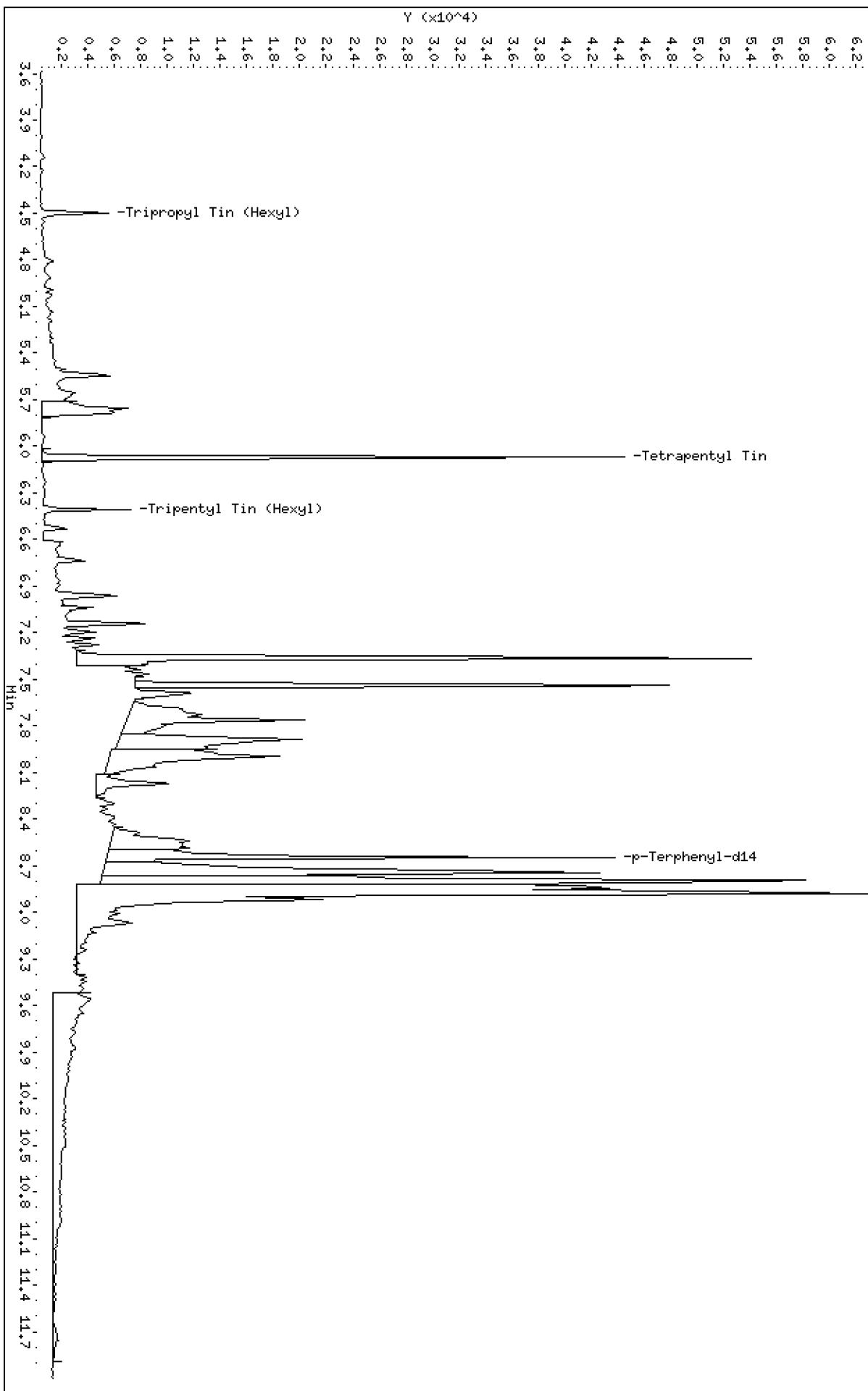
Column phase: ZB-5msi

Instrument: nt8.1

Operator: JZ

Column diameter: 0.25

\\target\share\chem3\nt8.1\201912024,b\N819120248.D



ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20191202A.b\N819120248.D
 Lab Smp Id: 19K0228-15
 Inj Date : 02-DEC-2019 22:34 MS Autotune Date: 27-FEB-2008 03:32
 Operator : JZ Inst ID: nt8.i
 Smp Info : 19K0228-15
 Misc Info :
 Comment : 2 ul Injection
 Method : \\target\share\chem3\nt8.i\20191202A.b\TBT1125.m
 Meth Date : 03-Dec-2019 09:05 nt8.i Quant Type: ISTD
 Cal Date : 25-NOV-2019 15:29 Cal File: N819112507.D
 Als bottle: 19
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: sedmdl.sub
 Target Version: 4.14
 Processing Host: ORGDATA22

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN	FINAL
	MASS						(ug/mL)	(ug/mL)
=====	=====		=====	=====	=====	=====	=====	=====
\$ 1 Tripropyl Tin (Hexyl)	291		4.502	4.471	(0.742)	2804	0.16845	0.1685
2 Tetrabutyl Tin	289		Compound Not Detected.					
3 Tributyl Tin (Hexyl)	319		Compound Not Detected.					
* 4 Tetrapentyl Tin	333		6.070	6.070	(1.000)	42590	2.00000	
5 Dibutyl Tin (Hexyl)	347		Compound Not Detected.					
\$ 6 Tripentyl Tin (Hexyl)	347		6.409	6.409	(0.741)	2467	0.22432	0.2243
7 Butyl Tin (Hexyl)	347		Compound Not Detected.					
* 8 p-Terphenyl-d14	244		8.647	8.647	(1.000)	33930	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
 AREA AND RT SUMMARY

Instrument ID: nt8.i Calibration Date: 02-DEC-2019
 Lab File ID: N819120248.D Calibration Time: 17:52
 Lab Smp Id: 19K0228-15
 Analysis Type: SV Level:
 Quant Type: ISTD Sample Type:
 Operator: JZ
 Method File: \\target\share\chem3\nt8.i\20191202A.b\TBT1125.m
 Misc Info:

Test Mode:
 Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	41592	20796	83184	42590	2.40
8 p-Terphenyl-d14	41162	20581	82324	33930	-17.57

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	6.07	5.57	6.57	6.07	-0.00
8 p-Terphenyl-d14	8.65	8.15	9.15	8.65	-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 - N819120248.D

Lab ID: 19K0228-15

nt8.i, 20191202A.b\TBT1125.m, 02-DEC-2019 22:34

RT CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.742	0.737	0.0051	Tripropyl Tin (Hexyl)

RRT check based on Ccal File: N819120231.D

On Column LOD for nt8.i, 20191202A.b\TBT1125.m, sedmdl.sub = 0.0000

Exception: Tripropyl Tin (Hexyl) (Surr) 0.0010

* Only compounds listed in the work order have been verified by the analyst *



Form I
ORGANIC ANALYSIS DATA SHEET
EPA 8270D-SIM
Butyl Tins

Laboratory: Analytical Resources, Inc.
 Client: Anchor OEA, LLC
 Project: Gasco PDI
 Matrix: Solid Laboratory ID: 19K0228-16 A SDG: 19K0228
 Sampled: 11/11/19 15:30 Prepared: 11/21/19 12:50 File ID: N819120249.D
 % Solids: 90.31 Preparation: EPA 3546 (Microwave) Analyzed: 12/02/19 22:51
 Batch: BHK0576 Sequence: SHL0025 Initial/Final: 5.56 g Wet / 0.5 mL
 Instrument: NT8 Column: RXI-17Sil ms Calibration: CK00068
 Cleanups: Silica Gel

CAS NO.	COMPOUND	DILUTION	CONC: (ug/kg dry)	Q	DL	RL
36643-28-4	Tributyltin Ion	1	3.84	U	0.448	3.84

SURROGATES	ADDED: (ug/kg dry)	FOUND: (ug/kg dry)	% REC	QC LIMITS	Q
Tripenyltin	44.989	32.3	71.8	30 - 160	
Tripropyltin	43.563	27.7	63.6	30 - 160	

Data File: \\target\share\chem3\nt8.1\201912024.1\N819120249.D

Date: 02-DEC-2019 22:51

Client ID:

Sample Info: 19K0228-16

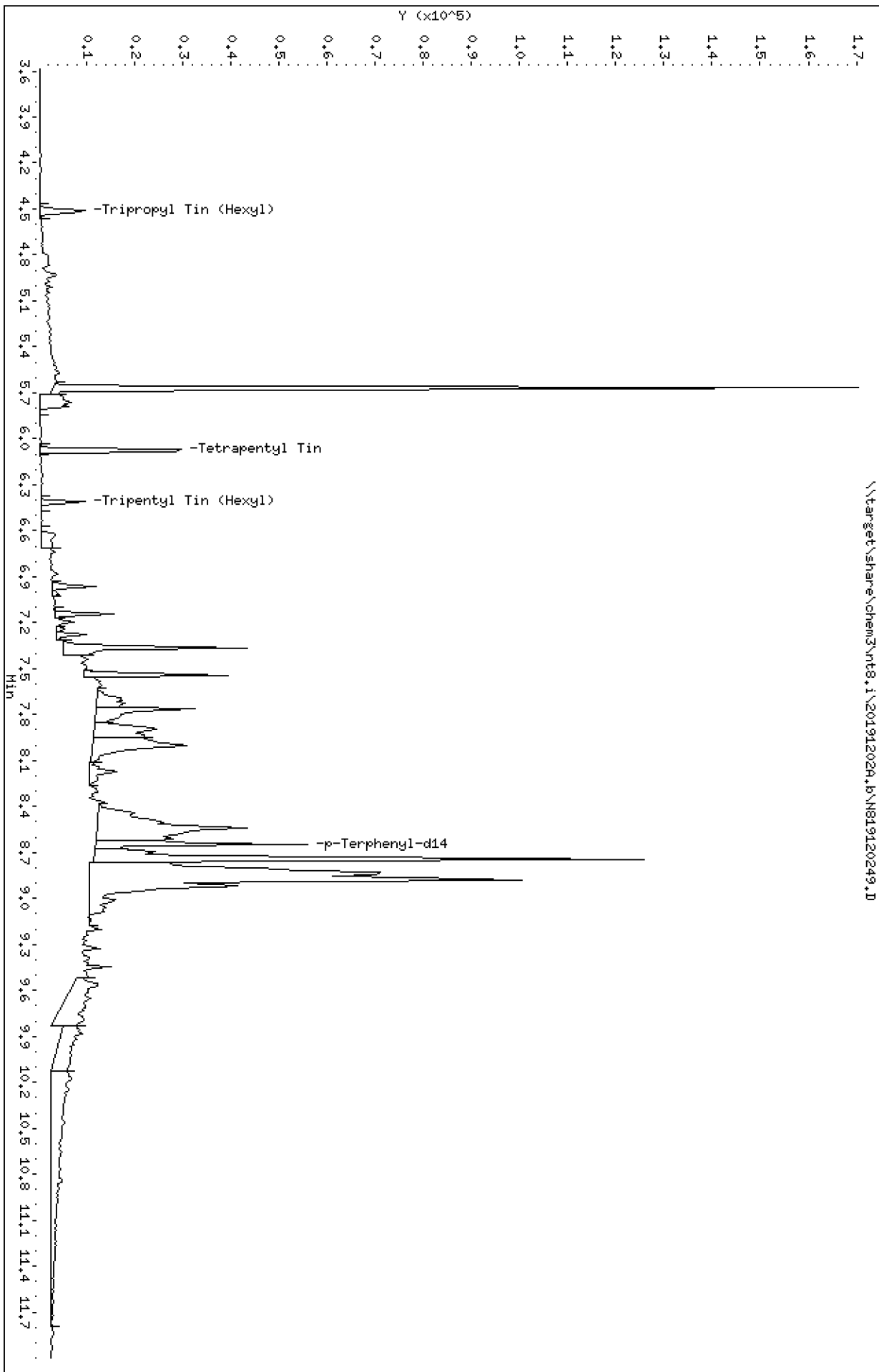
Page 1

Column phase: ZB-5msi

Instrument: nt8.1

Operator: JZ

Column diameter: 0.25



ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20191202A.b\N819120249.D
 Lab Smp Id: 19K0228-16
 Inj Date : 02-DEC-2019 22:51 MS Autotune Date: 27-FEB-2008 03:32
 Operator : JZ Inst ID: nt8.i
 Smp Info : 19K0228-16
 Misc Info :
 Comment : 2 ul Injection
 Method : \\target\share\chem3\nt8.i\20191202A.b\TBT1125.m
 Meth Date : 03-Dec-2019 09:05 nt8.i Quant Type: ISTD
 Cal Date : 25-NOV-2019 15:29 Cal File: N819112507.D
 Als bottle: 20
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: sedmdl.sub
 Target Version: 4.14
 Processing Host: ORGDATA22

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN	FINAL
	MASS						(ug/mL)	(ug/mL)
=====	=====		=====	=====	=====	=====	=====	=====
\$ 1 Tripropyl Tin (Hexyl)	291		4.513	4.471	(0.743)	6412	0.37387	0.3739
2 Tetrabutyl Tin	289		Compound Not Detected.					
3 Tributyl Tin (Hexyl)	319		Compound Not Detected.					
* 4 Tetrapentyl Tin	333		6.070	6.070	(1.000)	43882	2.00000	
5 Dibutyl Tin (Hexyl)	347		Compound Not Detected.					
\$ 6 Tripentyl Tin (Hexyl)	347		6.421	6.409	(0.743)	4690	0.40744	0.4074
7 Butyl Tin (Hexyl)	347		Compound Not Detected.					
* 8 p-Terphenyl-d14	244		8.647	8.647	(1.000)	35513	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
 AREA AND RT SUMMARY

Instrument ID: nt8.i Calibration Date: 02-DEC-2019
 Lab File ID: N819120249.D Calibration Time: 17:52
 Lab Smp Id: 19K0228-16
 Analysis Type: SV Level:
 Quant Type: ISTD Sample Type:
 Operator: JZ
 Method File: \\target\share\chem3\nt8.i\20191202A.b\TBT1125.m
 Misc Info:

Test Mode:
 Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	41592	20796	83184	43882	5.51
8 p-Terphenyl-d14	41162	20581	82324	35513	-13.72

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	6.07	5.57	6.57	6.07	-0.00
8 p-Terphenyl-d14	8.65	8.15	9.15	8.65	-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 - N819120249.D

Lab ID: 19K0228-16
nt8.i, 20191202A.b\TBT1125.m, 02-DEC-2019 22:51

RT CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.743	0.737	0.0068	Tripropyl Tin (Hexyl)

RRT check based on Ccal File: N819120231.D

On Column LOD for nt8.i, 20191202A.b\TBT1125.m, sedmdl.sub = 0.0000

Exception: Tripropyl Tin (Hexyl) (Surr) 0.0010

* Only compounds listed in the work order have been verified by the analyst *



PREPARATION BATCH SUMMARY
EPA 8270D-SIM

Laboratory: Analytical Resources, Inc. SDG: 19K0228
Client: Anchor QEA, LLC Project: Gasco PDI
Batch: BHK0438 Batch Matrix: Water Preparation: EPA 3510C SepF

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
PDI-FB-191112146	19K0228-08	N819112514.D	11/19/19 10:31	
PDI-RB-1911120944	19K0228-09	N819112515.D	11/19/19 10:31	
Blank	BHK0438-BLK1	N819112512.D	11/19/19 10:31	
LCS	BHK0438-BS1	N819112513.D	11/19/19 10:31	
PDI-FB-191112146	BHK0438-MS1	N819112516.D	11/19/19 10:31	
PDI-FB-191112146	BHK0438-MSD1	N819112517.D	11/19/19 10:31	



Batch: BHK0438

Prepared using: EPA 3510C SepF
8270D-SIM Butyl Tins in Water (Version: TBT Only)

Matrix: Water

Date Prepared: 11/19/19

Balance ID: N/A

Set Up By: RCM 11/18/19

The following standards may be missing from this batch!

Designator	Description
QLS 3	QLS Spike

Analysis: 8270D-SIM Butyl Tins

Lab Number & Container	Initial (mL) Actual	Actual	Final Effective Vol (mL)	Vol (mL) to Lab	Extraction Comments
19K0228-08 A	100.00	100.00	0.5	0.5	
19K0228-09 A	100.00		0.5	0.5	

Batch QC

Lab Number	Initial (mL) Actual	Actual	Final Effective Vol (mL)	Vol (mL) to Lab	Extraction Comments
BHK0438-BLK1	100.00	100.00	0.5	0.5	
BHK0438-BS1	100.00		0.5	0.5	
BHK0438-MS1	100.00		0.5	0.5	Use 19K0228-08
BHK0438-MSD1	100.00		0.5	0.5	Use 19K0228-08

SA 11/19/19
Client ID verified By _____ Date _____

SP 11-21-19
Preparation Reviewed By _____ Date _____

11/19/19 10:31
Extraction Date and Time _____



Extraction Parameter: TBT Extraction Batch BHK Q938

Total Solids Batch: N/A Work Order(s): 19K Q228

Screens: Soil/Sediment/Solid/Other:	Analyst/Date
<input type="checkbox"/> No Anomalies (standard soil/wet sediment/sand/gravel)=	
<input type="checkbox"/> Standing Water Decanted (Not shared)=	
<input type="checkbox"/> Standing Water Homogenized (Shared samples)=	
<input type="checkbox"/> Clay/Clumps (Difficult to homogenize)=	
<input type="checkbox"/> Rocks (%+size)?	
<input type="checkbox"/> Organics (Leaves/sticks/grass)=	
<input type="checkbox"/> Oily, obvious fuel/sulfur odors=	
<input type="checkbox"/> Received in 32oz jar(s)=Homogenized in Pyrex dish=	
<input type="checkbox"/> Previously Frozen =	
<input type="checkbox"/> Other (Details)=	
Aqueous:	
<input checked="" type="checkbox"/> No Anomalies	SH 11/19/19
<input type="checkbox"/> Turbid/Color=	
<input type="checkbox"/> Particulates(%)=(Note: >5%=Notify Supervisor/Lead)	
<input type="checkbox"/> Emulsions (%)=	
<input type="checkbox"/> Oily, obvious fuel/sulfur odors=	
<input type="checkbox"/> Other (Details)=	
<input type="checkbox"/> Received in 1.0L Bottle(s)=No Bottle Rinse=	
<input checked="" type="checkbox"/> Other Notes/Comments= (Note problems, concerns, corrective actions).	
228-φ9 possible she ink contamination	SH 11/19/19
BA SH 11/19/19 Blank and BS contain 30ml extra dm	SH 11/19/19
<input type="checkbox"/> Share Samples Y / N	
<input type="checkbox"/> Multiple Jars Y / N	
<input type="checkbox"/> Sample Pre-Screens indicate analyte activity=	
<input type="checkbox"/> Sample weights/volumes reduced based on Pre-Screen=	



Batch: BHK0438

Prepared using: EPA 3510C SepF
8270D-SIM Butyl Tins in Water (Version:TBT Only)

Prep Instructions	Cleaning Instructions
<p>SPECIAL INSTRUCTIONS: NOTE: TBT Extractions must be completed within 48 hours!</p> <ol style="list-style-type: none">1. Rinse all glassware with 0.02% Tropolone.2. Pre-wash blanks with 30mL DCM (2min shake) (Discard DCM)3. Add Surr/Spk.4. Acidify with 1:1 HCL.5. Check pH.6. Let sit 10 minutes-Check pH again.7. Extract 1 X with 30mL 0.02% Tropolone (4 min shake-SHAKE VIGOROUSLY). Plus 2 X 30mL DCM.8. KD rinsed with 0.02% Tropolone (NO Drying Column) at 80°.9. Exchange (2 X with 20mL) to Hexane at 100°.10. TurboVap to 3mL-Transfer with Hexane to 40mL VOA vial.11. Derivitize=1 pipet HexMgBr (Mix by hand) then Vortex. Let sit 45min (vortex every 10 min). Then let sit overnite.12. Hydrolysis: Add (1) pipet conc. HCL. Vortex. Draw off/discard HCL. Add 5mL DI H2O. Vortex. Draw off/discard H2O. Add 5mL DI H2O a second time. Vortex. Draw off/discard H2O.13. Add sodium sulfate-Let sit 15min.14. Turbovap to 1mL.15. SPE Clean, EPH darts.16. TurboVap.17. Vial in Hexane.18. NOTE: Derivitizations must be done in the hood to protect from potential chemical reactions, odors and fumes! <p>Archive <input checked="" type="checkbox"/> N</p>	<p>Vessel Cleaning Procedure:</p> <ol style="list-style-type: none">1. Rinse all glassware with 0.02% Tropolone.



PREPARATION BATCH SUMMARY

EPA 8270D-SIM

Laboratory: Analytical Resources, Inc. SDG: 19K0228
Client: Anchor QEA, LLC Project: Gasco PDI
Batch: BHK0576 Batch Matrix: Solid Preparation: EPA 3546 (Microwave)

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
PDI-1142RAB-20-30.4-191112	19K0228-01	N819120234.D	11/21/19 12:50	
PDI-142RAB-00-10-191112	19K0228-02	N819120304.D	11/21/19 12:50	
PDI-142RAB-10-20-191112	19K0228-03	N819120238.D	11/21/19 12:50	
PDI-142RAB-20-30.4-191112	19K0228-04	N819120239.D	11/21/19 12:50	
PDI-144RAB-00-10-191113	19K0228-05	N819120240.D	11/21/19 12:50	
PDI-144RAB-10-20-191113	19K0228-06	N819120241.D	11/21/19 12:50	
PDI-144RAB-20-29-191113	19K0228-07	N819120242.D	11/21/19 12:50	
PDI-140RAB-10-12.7-191108	19K0228-11	N819120244.D	11/21/19 12:50	
PDI-141RAB-00-10-191107	19K0228-12	N819120245.D	11/21/19 12:50	
PDI-141RAB-10-17.7-191107	19K0228-13	N819120246.D	11/21/19 12:50	
PDI-143RAB-00-10-191111	19K0228-14	N819120247.D	11/21/19 12:50	
PDI-143RAB-10-20-191111	19K0228-15	N819120248.D	11/21/19 12:50	
PDI-143RAB-20-31.1-191111	19K0228-16	N819120249.D	11/21/19 12:50	
Blank	BHK0576-BLK1	N819120232.D	11/21/19 12:50	
LCS	BHK0576-BS1	N819120233.D	11/21/19 12:50	
PDI-1142RAB-20-30.4-191112	BHK0576-MS1	N819120235.D	11/21/19 12:50	
PDI-1142RAB-20-30.4-191112	BHK0576-MSD1	N819120236.D	11/21/19 12:50	



Batch: BHK0576

Prepared using: EPA 3546 (Microwave)

8270D-SIM Butyl Tins in Solid (Version:TBT Only)

Matrix: Solid Date Prepared: 11/21/19

Balance ID: B146462614 Set Up By: WW 11/20/19

The following standards may be missing from this batch!

Designator	Description
QLS 3	QLS Spike

Analysis: 8270D-SIM Butyl Tins

Lab Number & Container	% Solids	Initial (g)		Actual Wet Wt (g)	Final Effective Vol (mL)	Vol (mL) to Lab	Extraction Comments
		Target Dry: 5 (Wet)	Actual				
19K0228-01 A	86.8	(5.76)		<u>5.76</u>	0.5	0.5	
19K0228-02 A	91.8	(5.44)		<u>5.45</u>	0.5	0.5	
19K0228-03 A	93.5	(5.35)		<u>5.40</u>	0.5	0.5	
19K0228-04 A	87.4	(5.72)		<u>5.79</u>	0.5	0.5	
19K0228-05 A	91.4	(5.47)		<u>5.47</u>	0.5	0.5	
19K0228-06 A	92.2	(5.42)		<u>5.46</u>	0.5	0.5	
19K0228-07 A	93.0	(5.38)		<u>5.39</u>	0.5	0.5	
19K0228-10 A	82.3	(6.08)		<u>6.09</u>	0.5	0.5	
19K0228-11 A	79.8	(6.26)		<u>6.30</u>	0.5	0.5	
19K0228-12 A	86.0	(5.81)		<u>5.90</u>	0.5	0.5	
19K0228-13 A	81.2	(6.15)		<u>6.20</u>	0.5	0.5	
19K0228-14 A	92.4	(5.41)		<u>5.45</u>	0.5	0.5	
19K0228-15 A	92.2	(5.42)		<u>5.44</u>	0.5	0.5	
19K0228-16 A	90.3	(5.54)		<u>5.56</u>	0.5	0.5	

Batch QC

Lab Number	% Solids	Initial (g)		Actual Wet Wt (g)	Final Effective Vol (mL)	Vol (mL) to Lab	Extraction Comments
		Target Dry: 5 (Wet)	Actual				
BHK0576-BLK1	100.0	(5.00)		<u>5.00</u>	0.5	0.5	
BHK0576-BS1	100.0	(5.00)		<u>5.00</u>	0.5	0.5	
BHK0576-MS1	86.8	(5.76)		<u>5.76</u>	0.5	0.5	Use 19K0228-01
BHK0576-MSD1	86.8	(5.76)		<u>5.76</u>	0.5	0.5	Use 19K0228-01

Client verified By: [Signature] Date: 11/21/19
 Preparation Reviewed By: SP Date: 12-2-19
 Extraction Date and Time: 11/21/19 12:54



Batch: BHK0576

Prepared using: EPA 3546 (Microwave)

8270D-SIM Butyl Tins in Solid (Version:TBT Only)

Prep Steps	Reagents Used	Surrogates & Spike Standards Used
Microwave 1 2 3 11/21/19 Analyst/Date	Station/Reagent Microwave Analyst: <i>CT/M</i> Date: <i>11/21/19</i>	Type Surrogate L <i>H009794</i> Exp: 12/08/2019 100µL Analyst: <i>CT</i> Witness: <i>[Signature]</i>
	Anhydrous Sodium Sulfate <i>H011134</i>	2.5µg/mL Spike 8 <i>G011499</i> Exp: 12/08/2019 100µL Analyst: <i>CT</i> Witness: <i>[Signature]</i>
TurboVap Hexane Exchange (15 mL) 1 2 3 4 5 11-21-19 Analyst/Date	0.10% Tropolone in Methylene Chloride <i>H016665</i>	2.5µg/mL
	Neutral Glass Wool <i>H016634</i>	
HexMgBr Addition Vortex 45min + Sit Overnight 1 2 3 11-21-19 Analyst/Date	Vialing/HexMgBr Addition Analyst: <i>RD/SH</i> Date: <i>11-21-19</i>	(V) indicates a virtual standard combining two or more physical standards. In these cases the Standard ID refers to the virtual standard, not the parent standards. If a Standard ID is missing, but should be present, check the standard definition in Element LIMS to be sure Standard Info 6 has the correct letter or number designator matching the vial designator in the Standard ID column. If it is correct, check the batch and bench sheet in Element LIMS to be sure the correct standards are selected for surrogate(s) and spike(s).
	(Turbovap exchange): Hexane: <i>H010257</i>	
	HexylMagnesiumBromide <i>H006681</i>	
	Hydrolysis/Silica/Final Vialing Analyst: <i>SE</i> Date: <i>12-2-19</i>	
(REQ) Hydrolysis (4mL) Vortex 1 2 3 12-2-19 Analyst/Date	1:1 HCL/DI H2O <i>H011424</i>	
	Anhydrous Sodium Sulfate <i>H011488</i>	
(REQ) SPE (1mL) 12-2-19 Analyst/Date	Silica Gel (SPE) Dart (EPH) <i>H010124</i>	
	(Final Vialing):Hexane <i>H010257</i>	
TurboVap Post SPE 1 2 3 4 5 12-2-19 Analyst/Date		
Vialing 12-2-19 Analyst/Date		



Extraction Parameter: TBT Extraction Batch BHK0576

Total Solids Batch: _____ Work Order(s): 19K0228

Screens: Soil/Sediment/Solid/Other:	Analyst/Date
<input checked="" type="checkbox"/> No Anomalies (standard soil/wet sediment/sand/gravel)= <u>φ2, φ5, φ6, φ7, ^{11/21/19} φ14.</u>	<u>SP 11/21/19</u>
<input type="checkbox"/> Standing Water Decanted (Not shared)=	
<input type="checkbox"/> Standing Water Homogenized (Shared samples)=	
<input checked="" type="checkbox"/> Clay/Clumps (Difficult to homogenize)= <u>1φ, 11, ^{10.0%} 20.0%</u>	<u>SP 11/21/19</u>
<input checked="" type="checkbox"/> Rocks (%+size)? <u>^{10.0%} 1/4 inch = φ3, φ4, φ5 = 1/2 inch 12, ^{10.0%} 1/4 inch 15, 16.</u>	<u>SP 11/21/19</u>
<input type="checkbox"/> Organics (Leaves/sticks/grass)= <u>11/21/19</u>	
<input type="checkbox"/> Oily, obvious fuel/sulfur odors=	
<input type="checkbox"/> Received in 32oz jar(s)=Homogenized in Pyrex dish=	
<input type="checkbox"/> Previously Frozen =	
<input checked="" type="checkbox"/> Other (Details)= <u>φ1 = unknown odor, 13 = unknown odor</u>	<u>SP 11/21/19</u>
Aqueous:	
<input type="checkbox"/> No Anomalies	
<input type="checkbox"/> Turbid/Color=	
<input type="checkbox"/> Particulates(%)=(Note: >5%=Notify Supervisor/Lead)	
<input type="checkbox"/> Emulsions (%)=	
<input type="checkbox"/> Oily, obvious fuel/sulfur odors=	
<input type="checkbox"/> Other (Details)=	
<input type="checkbox"/> Received in 1.0L Bottle(s)=No Bottle Rinse=	
<input checked="" type="checkbox"/> Other Notes/Comments= (Note problems, concerns, corrective actions). <u>Filtered BLK BS 19K0228-13 prior to SPE cleanup. SP 12-2-19</u> <u>19K0228-01, 13, BHK0576MS, MSD - yellow color after SPE.</u> <u>Concentrated to 1ml and re-cleaned. SP 12-2-19</u>	
<input checked="" type="checkbox"/> Share Samples Y/N <u>Y</u>	<u>SP 11/21/19</u>
<input checked="" type="checkbox"/> Multiple Jars Y/N <u>N</u>	<u>SP 11/21/19</u>
<input type="checkbox"/> Sample Pre-Screens indicate analyte activity=	
<input type="checkbox"/> Sample weights/volumes reduced based on Pre-Screen=	



Batch: BHK0576

Prepared using: EPA 3546 (Microwave)

8270D-SIM Butyl Tins in Solid (Version:TBT Only)

Prep Instructions

SPECIAL INSTRUCTIONS: NOTE: TBT Extractions must be completed within 48 hours!

1. Blanks = Solvent Only (NO Sulfate).
2. Weigh samples into 100mL beakers-dry with Sodium Sulfate.
3. Pre-Rinse microwave vessel with 0.10% Troponone in DCM.
4. Transfer soil to microwave vessel.
5. Add 0.10% Troponone in DCM to vessel until solvent is 1" above soil layer after homogenization).
6. Add surr/spike.
7. Microwave on appropriate power setting determined by # of samples.
8. After microwave-Re-homogenize while hot then let cool 15 min. in cold water bath. Re-homogenize while cool.
9. Decant into 0.10% troplone rinsed turbo tube with small Funnel containing glass wool and 1" sodium sulfate.
10. Add (2) 10mL Hexane rinses to vessel and transfer to turbo tube.
11. TurboVap to 2mL and add 15mL Hexane (X1)-mix well.
12. TurboVap to 3mL-Transfer with Hexane to 40mL VOA vial.
13. Derivitize=1 pipet HexMgBr (Mix by hand) then Vortex. Let sit 45min (vortex every 10 min) Then let sit overnite.
14. Hydrolisys: Add (2) pipet 1:1 HCL. Vortex. Draw off/discard HCL. Add 1 pipet 1:1 HCL and 5mL DI H2O. Vortex. Draw off/discard H2O. Add 5mL DI H2O. Vortex. Draw off/discard H2O.
15. Add sodium sulfate and Let sit 15min.
16. TurboVap to 1mL.
17. SPE Clean, EPH darts
18. TurboVap
19. Vial in hexane.

20. NOTE: DERIVITIZATIONS MUST BE DONE IN THE HOOD TO PROTECT FROM POTENTIAL CHEMICAL REACTIONS, ODORS AND FUMES.

A. Need Total Solids Y N

B. Archive/Freeze Y N



PREPARATION BATCH SUMMARY

Laboratory:

SDG:

Client:

Project:

Batch:

Batch Matrix:

Preparation:

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS



PREPARATION BATCH SUMMARY
EPA 8270D-SIM

Laboratory: Analytical Resources, Inc.

SDG: 19K0228

Client: Anchor QEA, LLC

Project: Gasco PDI

Batch: BHL0082

Batch Matrix: Solid

Preparation: EPA 3546 (Microwave)

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
PDI-140RAB-00-10-191108	19K0228-10RE1	N819120506.D	12/04/19 16:05	From BHL0043 by WPW on 04-Dec-2019
Blank	BHL0082-BLK1	N819120503.D	12/04/19 16:05	
LCS	BHL0082-BS1	N819120504.D	12/04/19 16:05	
LCS Dup	BHL0082-BSD1	N819120505.D	12/04/19 16:05	
PDI-140RAB-00-10-191108	BHL0082-MS1	N819120507.D	12/04/19 16:05	
PDI-140RAB-00-10-191108	BHL0082-MSD1	N819120508.D	12/04/19 16:05	



Batch: BHL0082

Prepared using: EPA 3546 (Microwave)

8270D-SIM Butyl Tins in Solid (Version: TBT Only)

8270D-SIM Butyl Tins in Solid

Matrix: Solid

Date Prepared: 12-4-19

Balance ID: B139298002

Set Up By: WW 12/4/19

The following standards may be missing from this batch!

Designator	Description
QLS 3	QLS Spike

Analysis: 8270D-SIM Butyl Tins

Lab Number & Container	% Solids	Initial (g)		Actual Wet Wt (g)	Final Effective Vol (mL)	Vol (mL) to Lab	Extraction Comments
		Target Dry: 5 (Wet)	Actual				
19K0228-10RE1 A	82.3	(6.08)		<u>6.13</u>	0.5	0.5	
19K0415-01 A	35.6	(14.05)		<u>14.11</u>	0.5	0.5	
19K0416-01 A	43.8	(11.41)		<u>11.61</u>	0.5	0.5	
19K0416-02 A	76.5	(6.54)		<u>6.75</u>	0.5	0.5	

Batch QC

Lab Number	% Solids	Initial (g)		Actual Wet Wt (g)	Final Effective Vol (mL)	Vol (mL) to Lab	Extraction Comments
		Target Dry: 5 (Wet)	Actual				
BHL0082-BLK1	100.0	(5.00)		<u>5.00</u>	0.5	0.5	Carboflon ↓ 11 ↓ 11
BHL0082-BS1	100.0	(5.00)		<u>5.00</u>	0.5	0.5	
BHL0082-BSD1	100.0	(5.00)		<u>5.00</u>	0.5	0.5	
BHL0082-MS1	82.3	(6.08)		<u>6.24</u>	0.5	0.5	Use 19K0228-10RE1
BHL0082-MSD1	82.3	(6.08)		<u>6.15</u>	0.5	0.5	Use 19K0228-10RE1

DM 12-4-19
Client ID verified By Date

SP 12-3-19
Preparation Reviewed By Date

12/4/19 16:05
Extraction Date and Time



Batch: BHL0082

Prepared using: EPA 3546 (Microwave)

8270D-SIM Butyl Tins in Solid (Version:TBT Only)

8270D-SIM Butyl Tins in Solid

Prep Steps	Reagents Used	Surrogates & Spike Standards Used					
	Station/Reagent	Standard ID	Type	Vial ID / Standard ID	Vol uL	Analyst	Witness
Microwave ① 2 3 DM 12-4-19 Analyst/Date	Microwave Analyst: DM Date: 12-4-19		Surrogate	L H009794 Exp: 12/08/2019	100µL	DM	mw
	Anhydrous Sodium Sulfate	H011488	2.5µg/mL				
TurboVap Hexane Exchange (15 mL) ① 2 3 4 5 PD 12-4-19 Analyst/Date	0.10% Tropolone in Methylene Chloride H011597		Spike	8 G011499 Exp: 12/08/2019	100µL	DM	mw
	Neutral Glass Wool	H010630					
HexMgBr Addition Vortex 45min + Sit Overnight 1 2 3 RD 12-4-19 Analyst/Date	Hexane H010257		(V) indicates a virtual standard combining two or more physical standards. In these cases the Standard ID refers to the virtual standard, not the parent standards. If a Standard ID is missing, but should be present, check the standard definition in Element LIMS to be sure Standard Info 6 has the correct letter or number designator matching the vial designator in the Standard ID column. If it is correct, check the batch and bench sheet in Element LIMS to be sure the correct standards are selected for surrogate(s) and spike(s).				
	Vialing/HexMgBr Addition Analyst: WW Date: 12-4-19						
(REQ) Hydrolysis (4mL) Vortex ① 2 3 SP 12-5-19 Analyst/Date	(Turbovap exchange): Hexane: H011211						
	HexylMagnesiumBromide H006691						
(REQ) SPE (1mL) SP 12-5-19 Analyst/Date	Hydrolysis/Silica/Final Vialing Analyst: SP Date: 12-5-19						
	1:1 HCL/DI H2O H011424						
TurboVap Post SPE 1 2 ③ 4 5 SP 12-5-19 Analyst/Date	Anhydrous Sodium Sulfate H011488						
	Silica Gel (SPE) Dart (EPH)						
Vialing SP 12-5-19 Analyst/Date	(Final Vialing):Hexane H011311						



Extraction Parameter: TBT Extraction Batch BHL0083 BHL0092

Total Solids Batch: BHK0827 Work Order(s): 19K0416

Screens: Soil/Sediment/Solid/Other:	Analyst/Date
<input type="checkbox"/> No Anomalies (standard soil/wet sediment/sand/gravel)=	
<input checked="" type="checkbox"/> Standing Water Decanted (Not shared)= <u>19K0416-01,02</u>	<u>MOB 11/30/2019</u>
<input type="checkbox"/> Standing Water Homogenized (Shared samples)=	
<input type="checkbox"/> Clay/Clumps (Difficult to homogenize)=	
<input type="checkbox"/> Rocks (%+size)?	
<input type="checkbox"/> Organics (Leaves/sticks/grass)=	
<input type="checkbox"/> Oily, obvious fuel/sulfur odors=	
<input type="checkbox"/> Received in 32oz jar(s)=Homogenized in Pyrex dish=	
<input type="checkbox"/> Previously Frozen =	
<input type="checkbox"/> Other (Details)=	
Aqueous:	
<input type="checkbox"/> No Anomalies	
<input type="checkbox"/> Turbid/Color=	
<input type="checkbox"/> Particulates(%)=(Note: >5%=Notify Supervisor/Lead)	
<input type="checkbox"/> Emulsions (%)=	
<input type="checkbox"/> Oily, obvious fuel/sulfur odors=	
<input type="checkbox"/> Other (Details)=	
<input type="checkbox"/> Received in 1.0L Bottle(s)=No Bottle Rinse=	
<input type="checkbox"/> Other Notes/Comments= (Note problems, concerns, corrective actions).	
<input checked="" type="checkbox"/> Share Samples Y/ <u>N</u>	<u>MOB 11/30/2019</u>
<input checked="" type="checkbox"/> Multiple Jars Y/ <u>N</u>	<u>MOB 11/30/2019</u>
<input type="checkbox"/> Sample Pre-Screens indicate analyte activity=	
<input type="checkbox"/> Sample weights/volumes reduced based on Pre-Screen=	



Extraction Parameter: TBT Extraction Batch: BH L092

Total Solids Batch: Bulk0825 Work Order(s): 19K0415

Screens: Soil/Sediment/Solid/Other:	Analyst/Date
<input type="checkbox"/> No Anomalies (standard soil/wet sediment/sand/gravel)=	
<input type="checkbox"/> Standing Water Decanted (Not shared)=	
<input type="checkbox"/> Standing Water Homogenized (Shared samples)=	
<input type="checkbox"/> Clay/Clumps (Difficult to homogenize)=	
<input type="checkbox"/> Rocks (%+size)?	
<input checked="" type="checkbox"/> Organics (Leaves/sticks/grass)= <u>19K0415-01</u>	<u>MDB 11/30/2019</u>
<input type="checkbox"/> Oily, obvious fuel/sulfur odors=	
<input type="checkbox"/> Received in 32oz jar(s)=Homogenized in Pyrex dish=	
<input type="checkbox"/> Previously Frozen =	
<input type="checkbox"/> Other (Details)=	
Aqueous:	
<input type="checkbox"/> No Anomalies	
<input type="checkbox"/> Turbid/Color=	
<input type="checkbox"/> Particulates(%)=(Note: >5%=Notify Supervisor/Lead)	
<input type="checkbox"/> Emulsions (%)=	
<input type="checkbox"/> Oily, obvious fuel/sulfur odors=	
<input type="checkbox"/> Other (Details)=	
<input type="checkbox"/> Received in 1.0L Bottle(s)=No Bottle Rinse=	
<input type="checkbox"/> Other Notes/Comments= (Note problems, concerns, corrective actions).	
<input checked="" type="checkbox"/> Share Samples Y / <u>N</u>	<u>MDB 11/30/2019</u>
<input checked="" type="checkbox"/> Multiple Jars Y / <u>N</u>	<u>MDB 11/30/2019</u>
<input type="checkbox"/> Sample Pre-Screens indicate analyte activity=	
<input type="checkbox"/> Sample weights/volumes reduced based on Pre-Screen=	



Extraction Parameter: 7BT Extraction Batch APL0443-B #20082

Total Solids Batch: _____ Work Order(s): 19KQ228

Screens: Soil/Sediment/Solid/Other:	Analyst/Date
<input type="checkbox"/> No Anomalies (standard soil/wet sediment/sand/gravel)=	
<input type="checkbox"/> Standing Water Decanted (Not shared)=	
<input type="checkbox"/> Standing Water Homogenized (Shared samples)=	
<input type="checkbox"/> Clay/Clumps (Difficult to homogenize)=	
<input type="checkbox"/> Rocks (%+size)?	
<input type="checkbox"/> Organics (Leaves/sticks/grass)=	
<input type="checkbox"/> Oily, obvious fuel/sulfur odors=	
<input type="checkbox"/> Received in 32oz jar(s)=Homogenized in Pyrex dish=	
<input type="checkbox"/> Previously Frozen =	
<input type="checkbox"/> Other (Details)=	
Aqueous:	
<input type="checkbox"/> No Anomalies	
<input type="checkbox"/> Turbid/Color=	
<input type="checkbox"/> Particulates(%)=(Note: >5%=Notify Supervisor/Lead)	
<input type="checkbox"/> Emulsions (%)=	
<input type="checkbox"/> Oily, obvious fuel/sulfur odors=	
<input type="checkbox"/> Other (Details)=	
<input type="checkbox"/> Received in 1.0L Bottle(s)=No Bottle Rinse=	
<input type="checkbox"/> Other Notes/Comments= (Note problems, concerns, corrective actions).	
<input type="checkbox"/> Share Samples Y / N	
<input type="checkbox"/> Multiple Jars Y / N	
<input type="checkbox"/> Sample Pre-Screens indicate analyte activity=	
<input type="checkbox"/> Sample weights/volumes reduced based on Pre-Screen=	



REQUEST FOR RE-EXTRACTION

/ RE-ANALYSIS
(Organic Analyses)

Today's Date: 12/3/19
Work Order: 19K0228
Element Batch: BHK0576

Turn Around Time: 12/2/19
Sample Matrix: Soil
Analysis: TBT

Criteria Flagged

- Unacceptable Blank:
- Unacceptable Duplicate:
- Unacceptable Spike:
- Overwrite LIMS:
- Re-Extract In Holding:
- Re-Extract Out of Holding:
- Unacceptable Surrogate:
- Instrument Problem:
- Other:
- Enter as Re-extract:
- Client Request:
- Frozen/HT Remaining:

Details of Problem / Recommended Corrective Action

SS recoveries out of RC low

Samples Affected

19K0228-10

Corrective Action Taken

Re-ex

Analyst: [Signature]
Date: 12/3/19

Supervisor: [Signature]
Date: 12/3/19

PM Approval: _____
Date: _____



Batch: BHL0082

Prepared using: EPA 3546 (Microwave)

8270D-SIM Butyl Tins in Solid (Version:TBT Only)

8270D-SIM Butyl Tins in Solid

Prep Instructions

SPECIAL INSTRUCTIONS: NOTE: TBT Extractions must be completed within 48 hours!

1. Blanks = Solvent Only (NO Sulfate).
2. Weigh samples into 100mL beakers-dry with Sodium Sulfate.
3. Pre-Rinse microwave vessel with 0.10% Tropolone in DCM.
4. Transfer soil to microwave vessel.
5. Add 0.10% Tropolone in DCM to vessel until solvent is 1" above soil layer after homogenization).
6. Add surr/spike.
7. Microwave on appropriate power setting determined by # of samples.
8. After microwave-Re-homogenize while hot then let cool 15 min. in cold water bath. Re-homogenize while cool.
9. Decant into 0.10% troplone rinsed turbo tube with small Funnel containing glass wool and 1" sodium sulfate.
10. Add (2) 10mL Hexane rinses to vessel and transfer to turbo tube.
11. TurboVap to 2mL and add 15mL Hexane (X1)-mix well.
12. TurboVap to 3mL-Transfer with Hexane to 40mL VOA vial.
13. Derivitize=1 pipet HexMgBr (Mix by hand) then Vortex. Let sit 45min (vortex every 10 min) Then let sit overnite.
14. Hydrolysis: Add (2) pipet 1:1 HCL. Vortex. Draw off/discard HCL. Add 1 pipet 1:1 HCL and 5mL DI H2O. Vortex. Draw off/discard H2O. Add 5mL DI H2O. Vortex. Draw off/discard H2O.
15. Add sodium sulfate and Let sit 15min.
16. TurboVap to 1mL.
17. SPE Clean, EPH darts
18. TurboVap
19. Vial in hexane.

20. NOTE: DERIVITIZATIONS MUST BE DONE IN THE HOOD TO PROTECT FROM POTENTIAL CHEMICAL REACTIONS, ODORS AND FUMES.

A. Need Total Solids Y N

B. Archive/Freeze Y N



CLEANUP BATCH SUMMARY

Laboratory: Analytical Resources, Inc.

SDG: 19K0228

Client: Anchor QEA, LLC

Project: Gasco PDI

Cleanup Batch: CHK0180

Cleanup Type: Silica Gel

Cleanup Method: EPA 3630C Silica Gel Cleanup

Analysis: EPA 8270D-SIM

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
PDI-FB-191112146	19K0228-08	N819112514.D	11/21/2019	
Matrix Spike	BHK0438-MS1	N819112516.D	11/21/2019	
LCS	BHK0438-BS1	N819112513.D	11/21/2019	
Blank	BHK0438-BLK1	N819112512.D	11/21/2019	
PDI-RB-1911120944	19K0228-09	N819112515.D	11/21/2019	
Matrix Spike Dup	BHK0438-MSD1	N819112517.D	11/21/2019	



CLEANUP BENCH SHEET

CHK0180

Matrix: Water **Cleanup using: Organics - EPA 3630C Silica Gel Cleanup** **Printed: 11/21/2019 12:50:28PM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (mL)	Final (mL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
19K0228-08	A	PDI-FB-191112146	A 01	0.5	0.5	8270D-SIM Butyl Tins	11/21/2019	SDP	
19K0228-09	A	PDI-FB-191120944	A 01	0.5	0.5	8270D-SIM Butyl Tins	11/21/2019	SDP	
BHK0438-BLK1	-	Blank	-	0.5	0.5	-	11/21/2019	SDP	
BHK0438-BS1	-	LCS	-	0.5	0.5	-	11/21/2019	SDP	
BHK0438-MS1	-	Matrix Spike	-	0.5	0.5	-	11/21/2019	SDP	
BHK0438-MSD1	-	Matrix Spike Dup	-	0.5	0.5	-	11/21/2019	SDP	



CLEANUP BATCH SUMMARY

Laboratory: Analytical Resources, Inc.

SDG: 19K0228

Client: Anchor QEA, LLC

Project: Gasco PDI

Cleanup Batch: CHL0020

Cleanup Type: Silica Gel

Cleanup Method: EPA 3630C Silica Gel Cleanup

Analysis: EPA 8270D-SIM

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
PDI-1142RAB-20-30.4-191112	19K0228-01	N819120234.D	12/02/2019	
PDI-143RAB-00-10-191111	19K0228-14	N819120247.D	12/02/2019	
PDI-142RAB-20-30.4-191112	19K0228-04	N819120239.D	12/02/2019	
PDI-142RAB-00-10-191112	19K0228-02	N819120304.D	12/02/2019	
PDI-144RAB-20-29-191113	19K0228-07	N819120242.D	12/02/2019	
PDI-141RAB-10-17.7-191107	19K0228-13	N819120246.D	12/02/2019	
PDI-141RAB-00-10-191107	19K0228-12	N819120245.D	12/02/2019	
PDI-143RAB-10-20-191111	19K0228-15	N819120248.D	12/02/2019	
PDI-140RAB-00-10-191108	19K0228-10		12/02/2019	
PDI-144RAB-00-10-191113	19K0228-05	N819120240.D	12/02/2019	
PDI-142RAB-10-20-191112	19K0228-03	N819120238.D	12/02/2019	
PDI-143RAB-20-31.1-191111	19K0228-16	N819120249.D	12/02/2019	
PDI-144RAB-10-20-191113	19K0228-06	N819120241.D	12/02/2019	
Blank	BHK0576-BLK1	N819120232.D	12/02/2019	
LCS	BHK0576-BS1	N819120233.D	12/02/2019	
Matrix Spike	BHK0576-MS1	N819120235.D	12/02/2019	
Matrix Spike Dup	BHK0576-MSD1	N819120236.D	12/02/2019	
PDI-140RAB-10-12.7-191108	19K0228-11	N819120244.D	12/02/2019	



CLEANUP BENCH SHEET

CHL0020

Printed: 12/2/2019 2:22:36PM

Cleanup using: Organics - EPA 3630C Silica Gel Cleanup

Matrix: Solid

Lab Number	Sample Container	Sample Name	Extract Container	Initial (mL)	Final (mL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
19K0228-07	A	PDI-144RAB-20-29-191113	A 01	0.5	0.5	8270D-SIM Butyl Tins	12/2/2019	SDP	
19K0228-16	A	PDI-143RAB-20-31.1-191111	A 01	0.5	0.5	8270D-SIM Butyl Tins	12/2/2019	SDP	
19K0228-14	A	PDI-143RAB-00-10-191111	A 01	0.5	0.5	8270D-SIM Butyl Tins	12/2/2019	SDP	
19K0228-15	A	PDI-143RAB-10-20-191111	A 01	0.5	0.5	8270D-SIM Butyl Tins	12/2/2019	SDP	
19K0228-12	A	PDI-141RAB-00-10-191107	A 01	0.5	0.5	8270D-SIM Butyl Tins	12/2/2019	SDP	
19K0228-13	A	PDI-141RAB-10-17.7-191107	A 01	0.5	0.5	8270D-SIM Butyl Tins	12/2/2019	SDP	
19K0228-01	A	PDI-1142RAB-20-30.4-191112	A 01	0.5	0.5	8270D-SIM Butyl Tins	12/2/2019	SDP	
19K0228-05	A	PDI-144RAB-00-10-191113	A 01	0.5	0.5	8270D-SIM Butyl Tins	12/2/2019	SDP	
19K0228-06	A	PDI-144RAB-10-20-191113	A 01	0.5	0.5	8270D-SIM Butyl Tins	12/2/2019	SDP	
19K0228-10	A	PDI-140RAB-00-10-191108	A 01	0.5	0.5	8270D-SIM Butyl Tins	12/2/2019	SDP	
19K0228-11	A	PDI-140RAB-10-12.7-191108	A 01	0.5	0.5	8270D-SIM Butyl Tins	12/2/2019	SDP	
19K0228-02	A	PDI-142RAB-00-10-191112	A 01	0.5	0.5	8270D-SIM Butyl Tins	12/2/2019	SDP	
19K0228-03	A	PDI-142RAB-10-20-191112	A 01	0.5	0.5	8270D-SIM Butyl Tins	12/2/2019	SDP	
19K0228-04	A	PDI-142RAB-20-30.4-191112	A 01	0.5	0.5	8270D-SIM Butyl Tins	12/2/2019	SDP	
BHK0576-MSD1	-	Matrix Spike Dup	-	0.5	0.5	-	12/2/2019	SDP	
BHK0576-MS1	-	Matrix Spike	-	0.5	0.5	-	12/2/2019	SDP	
BHK0576-BS1	-	LCS	-	0.5	0.5	-	12/2/2019	SDP	
BHK0576-BLK1	-	Blank	-	0.5	0.5	-	12/2/2019	SDP	



CLEANUP BATCH SUMMARY

Laboratory: Analytical Resources, Inc.

SDG: 19K0228

Client: Anchor QEA, LLC

Project: Gasco PDI

Cleanup Batch: CHL0038

Cleanup Type: Silica Gel

Cleanup Method: EPA 3630C Silica Gel Cleanup

Analysis: EPA 8270D-SIM

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
Matrix Spike	BHL0082-MS1	N819120507.D	12/05/2019	
LCS Dup	BHL0082-BSD1	N819120505.D	12/05/2019	
LCS	BHL0082-BS1	N819120504.D	12/05/2019	
Blank	BHL0082-BLK1	N819120503.D	12/05/2019	
PDI-140RAB-00-10-191108	19K0228-10RE1	N819120506.D	12/05/2019	
Matrix Spike Dup	BHL0082-MSD1	N819120508.D	12/05/2019	



CLEANUP BENCH SHEET

CHL0038

Printed: 12/5/2019 9:48:53AM

Cleanup using: Organics - EPA 3630C Silica Gel Cleanup

Matrix: Solid

Lab Number	Sample Container	Sample Name	Extract Container	Initial (mL)	Final (mL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
19K0228-10RE1	A	PDI-440RAB-00-10-191108	A 02	0.5	0.5	8270D-SIM Butyl Tins	12/5/2019	SDP	
19K0415-01	A	MH19-03	A 01	0.5	0.5	8270D-SIM Butyl Tins	12/5/2019	SDP	
19K0416-01	A	ODMDS-SED	A 01	0.5	0.5	8270D-SIM Butyl Tins	12/5/2019	SDP	
19K0416-02	A	RS-MOB-D	A 01	0.5	0.5	8270D-SIM Butyl Tins	12/5/2019	SDP	
BHL0082-BLK1	-	Blank	-	0.5	0.5	-	12/5/2019	SDP	
BHL0082-BS1	-	LCS	-	0.5	0.5	-	12/5/2019	SDP	
BHL0082-BSD1	-	LCS Dup	-	0.5	0.5	-	12/5/2019	SDP	
BHL0082-MS1	-	Matrix Spike	-	0.5	0.5	-	12/5/2019	SDP	
BHL0082-MSD1	-	Matrix Spike Dup	-	0.5	0.5	-	12/5/2019	SDP	



Form I
METHOD BLANK DATA SHEET
EPA 8270D-SIM

Blank

Laboratory:	<u>Analytical Resources, Inc.</u>	SDG:	<u>19K0228</u>
Client:	<u>Anchor QEA, LLC</u>	Project:	<u>Gasco PDI</u>
Matrix:	<u>Water</u>	Laboratory ID:	<u>BHK0438-BLK1</u>
Sampled:	<u>N/A</u>	File ID:	<u>N819112512.D</u>
Solids:		Prepared:	<u>11/19/19 10:31</u>
Batch:	<u>BHK0438</u>	Analyzed:	<u>11/25/19 17:17</u>
Instrument:	<u>NT8</u>	Preparation:	<u>EPA 3510C SepF</u>
		Initial/Final:	<u>100 mL / 0.5 mL</u>
		Calibration:	<u>CK00068</u>
		Column:	<u>RXI-17Sil ms</u>
		Cleanups:	<u>Silica Gel</u>

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	DL	RL
36643-28-4	Tributyltin Ion	1	0.193	U	0.043	0.193
SURROGATES		ADDED (ug/L)	CONC. (ug/L)	% REC	QC LIMITS	Q
Triphenyltin		2.2589	1.50	66.2	30 - 160	
Tripropyltin		2.1873	0.722	33.0	30 - 160	

Data File: \\target\share\chem3\nt8.1\2019112504.b\N819112512.D

Date: 25-NOV-2019 17:17

Client ID:

Sample Info: BHK0438-BLK1,

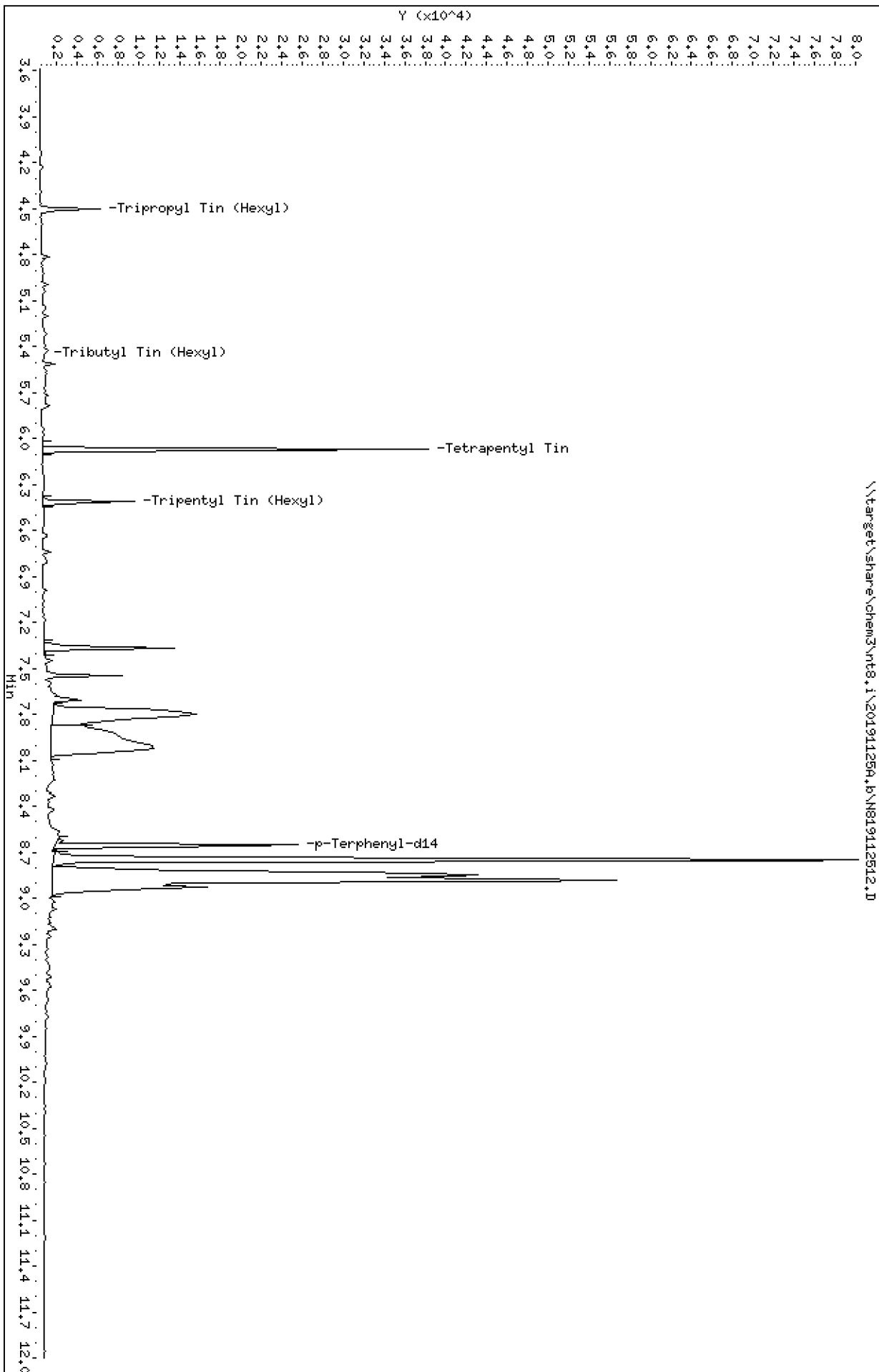
Column phase: ZB-5msi

Instrument: nt8.1

Operator: JZ

Column diameter: 0.25

Page 1



Date : 25-NOV-2019 17:17

Client ID:

Instrument: nt8.i

Sample Info: BHK0438-BLK1,

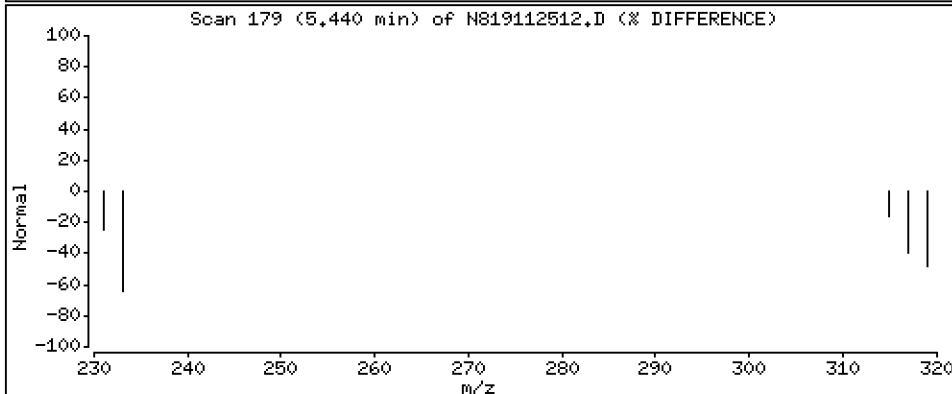
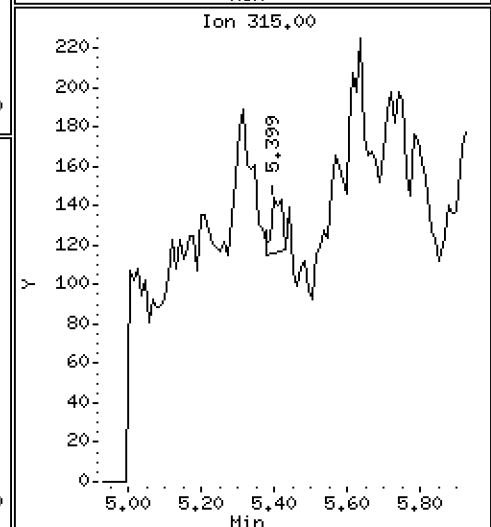
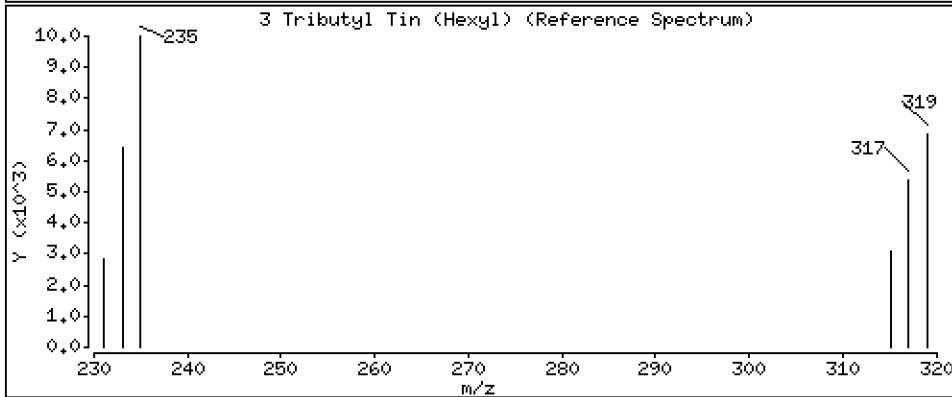
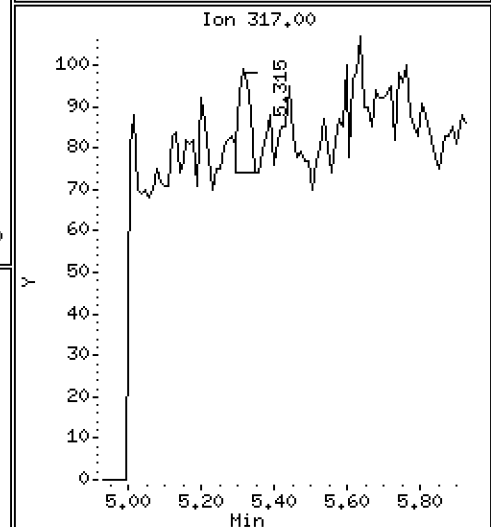
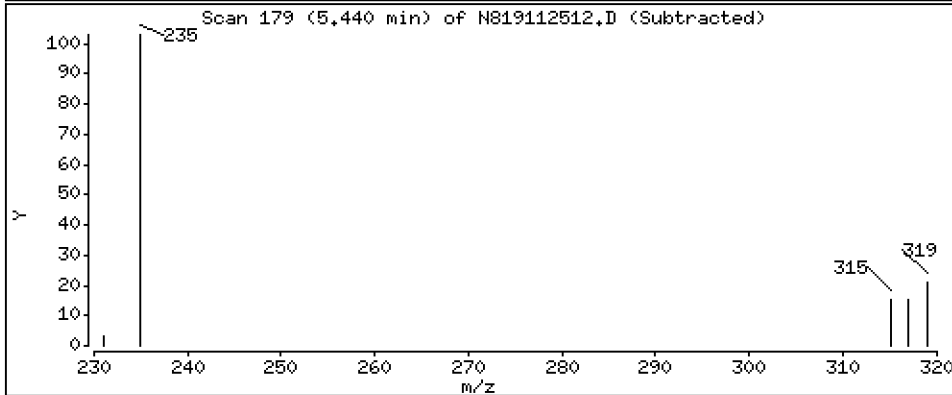
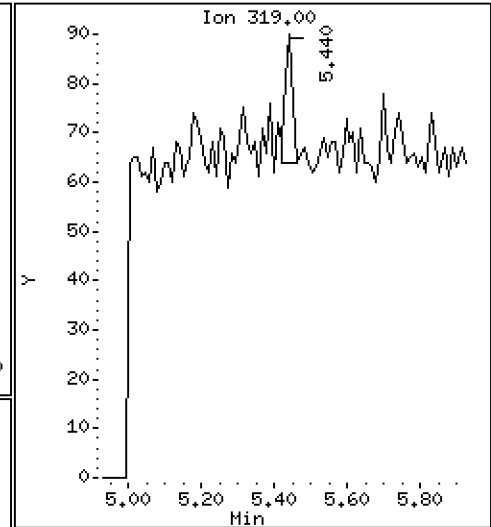
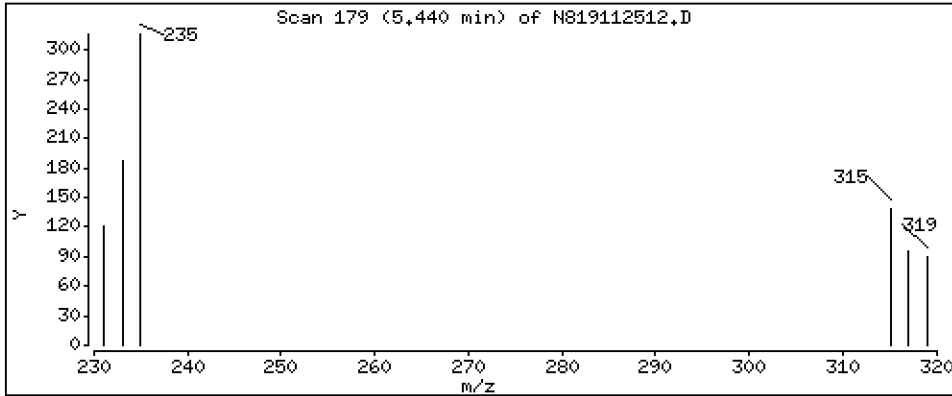
Operator: JZ

Column phase: ZB-5msi

Column diameter: 0,25

3 Tributyl Tin (Hexyl)

Concentration: 0,003423 ug/mL



ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20191125A.b\N819112512.D
 Lab Smp Id: BHK0438-BLK1
 Inj Date : 25-NOV-2019 17:17
 Operator : JZ Inst ID: nt8.i
 Smp Info : BHK0438-BLK1,
 Misc Info :
 Comment : 2 ul Injection
 Method : \\target\share\chem3\nt8.i\20191125A.b\TBT1125.m
 Meth Date : 26-Nov-2019 15:12 jianqing Quant Type: ISTD
 Cal Date : 25-NOV-2019 15:29 Cal File: N819112507.D
 Als bottle: 3
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: TBTmdl.sub
 Target Version: 4.14
 Processing Host: ORGDATA22

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN	FINAL
	MASS						(ug/mL)	(ug/mL)
=====	=====		=====	=====	=====	=====	=====	=====
\$ 1 Tripropyl Tin (Hexyl)	291		4.502	4.471	(0.742)	2642	0.19410	0.1941
2 Tetrabutyl Tin	289		Compound Not Detected.					
3 Tributyl Tin (Hexyl)	319		5.440	5.429	(0.896)	36	0.00342	0.003423
* 4 Tetrapentyl Tin	333		6.070	6.070	(1.000)	34827	2.00000	
5 Dibutyl Tin (Hexyl)	347		Compound Not Detected.					
\$ 6 Tripentyl Tin (Hexyl)	347		6.409	6.409	(0.741)	3863	0.37594	0.3759
7 Butyl Tin (Hexyl)	347		Compound Not Detected.					
* 8 p-Terphenyl-d14	244		8.647	8.647	(1.000)	31702	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
 AREA AND RT SUMMARY

Instrument ID: nt8.i Calibration Date: 25-NOV-2019
 Lab File ID: N819112512.D Calibration Time: 16:56
 Lab Smp Id: BHK0438-BLK1
 Analysis Type: SV Level:
 Quant Type: ISTD Sample Type:
 Operator: JZ
 Method File: \\target\share\chem3\nt8.i\20191125A.b\TBT1125.m
 Misc Info:

Test Mode:
 Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	41592	20796	83184	34827	-16.27
8 p-Terphenyl-d14	41162	20581	82324	31702	-22.98

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	6.07	5.57	6.57	6.07	-0.00
8 p-Terphenyl-d14	8.65	8.15	9.15	8.65	-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 - N819112512.D

Lab ID: BHK0438-BLK1

nt8.i, 20191125A.b\TBT1125.m, 25-NOV-2019 17:17

RT CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.742	0.737	0.0051	Tripropyl Tin (Hexyl)

RRT check based on Ccal File: N819112511.D

On Column LOD for nt8.i, 20191125A.b\TBT1125.m, TBTmdl.sub = 0.0000

Exception: Tripropyl Tin (Hexyl) (Surr) 0.0010

* Only compounds listed in the work order have been verified by the analyst *



Form I
METHOD BLANK DATA SHEET
EPA 8270D-SIM

Blank

Laboratory:	<u>Analytical Resources, Inc.</u>	SDG:	<u>19K0228</u>
Client:	<u>Anchor QEA, LLC</u>	Project:	<u>Gasco PDI</u>
Matrix:	<u>Solid</u>	Laboratory ID:	<u>BHK0576-BLK1</u>
Sampled:	<u>N/A</u>	Prepared:	<u>11/21/19 12:50</u>
Solids:		Preparation:	<u>EPA 3546 (Microwave)</u>
Batch:	<u>BHK0576</u>	Sequence:	<u>SHL0025</u>
Instrument:	<u>NT8</u>	Column:	<u>RXI-17Sil ms</u>
		Cleanups:	<u>Silica Gel</u>
File ID:	<u>N819120232.D</u>	Analyzed:	<u>12/02/19 18:09</u>
Initial/Final:	<u>5 g / 0.5 mL</u>	Calibration:	<u>CK00068</u>

CAS NO.	COMPOUND	DILUTION	CONC: (ug/kg wet)	Q	DL	RL
36643-28-4	Tributyltin Ion	1	3.86	U	0.450	3.86

SURROGATES	ADDED: (ug/kg wet)	FOUND: (ug/kg wet)	% REC	QC LIMITS	Q
Tripentyltin	45.178	28.1	62.3	30 - 160	
Tripropyltin	43.746	32.9	75.2	30 - 160	

Data File: \\target\share\chem3\nt8.1\201912024,b\N819120232.D

Date: 02-DEC-2019 18:09

Client ID:

Sample Info: BHK0576-BLK1,

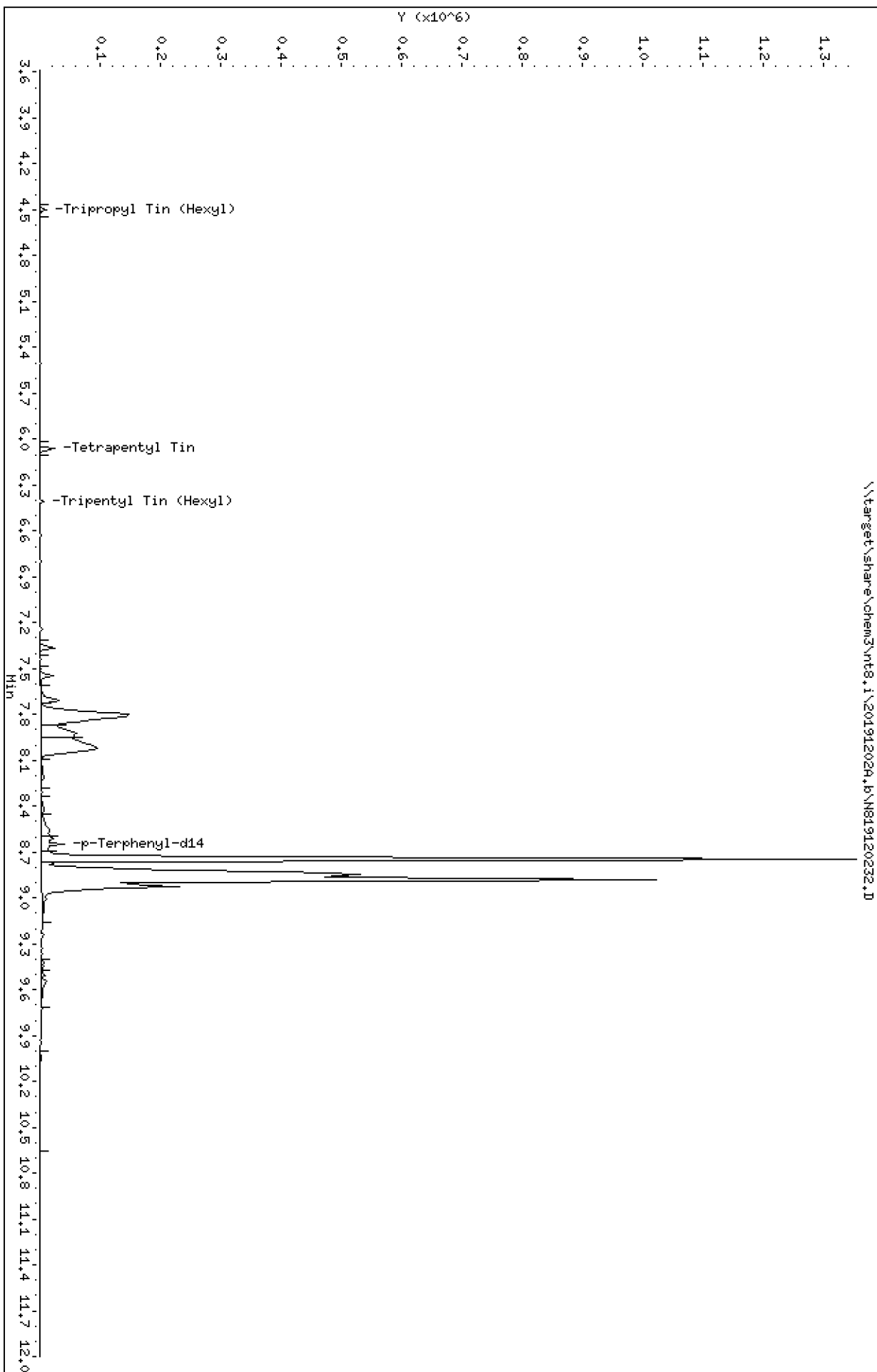
Column phase: ZB-5msi

Instrument: nt8.1

Operator: JZ

Column diameter: 0.25

\\target\share\chem3\nt8.1\201912024,b\N819120232.D



ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20191202A.b\N819120232.D
 Lab Smp Id: BHK0576-BLK1
 Inj Date : 02-DEC-2019 18:09 MS Autotune Date: 27-FEB-2008 03:32
 Operator : JZ Inst ID: nt8.i
 Smp Info : BHK0576-BLK1,
 Misc Info :
 Comment : 2 ul Injection
 Method : \\target\share\chem3\nt8.i\20191202A.b\TBT1125.m
 Meth Date : 03-Dec-2019 09:05 nt8.i Quant Type: ISTD
 Cal Date : 25-NOV-2019 15:29 Cal File: N819112507.D
 Als bottle: 3
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: sedmdl.sub
 Target Version: 4.14
 Processing Host: ORGDATA22

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN	FINAL
	MASS						(ug/mL)	(ug/mL)
=====	=====		=====	=====	=====	=====	=====	=====
\$ 1 Tripropyl Tin (Hexyl)	291		4.502	4.471	(0.743)	5331	0.44172	0.4417
2 Tetrabutyl Tin	289		Compound Not Detected.					
3 Tributyl Tin (Hexyl)	319		Compound Not Detected.					
* 4 Tetrapentyl Tin	333		6.058	6.070	(1.000)	30880	2.00000	
5 Dibutyl Tin (Hexyl)	347		Compound Not Detected.					
\$ 6 Tripentyl Tin (Hexyl)	347		6.409	6.409	(0.741)	3229	0.35354	0.3535
7 Butyl Tin (Hexyl)	347		Compound Not Detected.					
* 8 p-Terphenyl-d14	244		8.647	8.647	(1.000)	28178	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i Calibration Date: 02-DEC-2019
Lab File ID: N819120232.D Calibration Time: 17:52
Lab Smp Id: BHK0576-BLK1
Analysis Type: SV Level:
Quant Type: ISTD Sample Type:
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20191202A.b\TBT1125.m
Misc Info:

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	41592	20796	83184	30880	-25.75
8 p-Terphenyl-d14	41162	20581	82324	28178	-31.54

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	6.07	5.57	6.57	6.06	-0.20
8 p-Terphenyl-d14	8.65	8.15	9.15	8.65	-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 - N819120232.D

Lab ID: BHK0576-BLK1

nt8.i, 20191202A.b\TBT1125.m, 02-DEC-2019 18:09

RT CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.743	0.737	0.0066	Tripropyl Tin (Hexyl)

RRT check based on Ccal File: N819120231.D

On Column LOD for nt8.i, 20191202A.b\TBT1125.m, sedmdl.sub = 0.0000

Exception: Tripropyl Tin (Hexyl) (Surr) 0.0010

* Only compounds listed in the work order have been verified by the analyst *



Form I
METHOD BLANK DATA SHEET
EPA 8270D-SIM

Blank

Laboratory:	<u>Analytical Resources, Inc.</u>	SDG:	<u>19K0228</u>
Client:	<u>Anchor QEA, LLC</u>	Project:	<u>Gasco PDI</u>
Matrix:	<u>Solid</u>	Laboratory ID:	<u>BHL0082-BLK1</u>
Sampled:	<u>N/A</u>	Prepared:	<u>12/04/19 16:05</u>
Solids:		Preparation:	<u>EPA 3546 (Microwave)</u>
Batch:	<u>BHL0082</u>	Sequence:	<u>SHL0077</u>
Instrument:	<u>NT8</u>	Column:	<u>RXI-17Sil ms</u>
		Cleanups:	<u>Silica Gel</u>
File ID:	<u>N819120503.D</u>	Analyzed:	<u>12/05/19 11:41</u>
Initial/Final:	<u>5 g / 0.5 mL</u>	Calibration:	<u>CK00068</u>

CAS NO.	COMPOUND	DILUTION	CONC: (ug/kg wet)	Q	DL	RL
36643-28-4	Tributyltin Ion	1	3.86	U	0.450	3.86

SURROGATES	ADDED: (ug/kg wet)	FOUND: (ug/kg wet)	% REC	QC LIMITS	Q
Tripentyltin	45.178	30.4	67.2	30 - 160	
Tripopyltin	43.746	35.7	81.7	30 - 160	

Data File: \\target\share\chem3\nt8.1\20191205.b\N819120503.D

Date: 05-DEC-2019 11:41

Client ID:

Sample Info: BHL0082-BLK1,

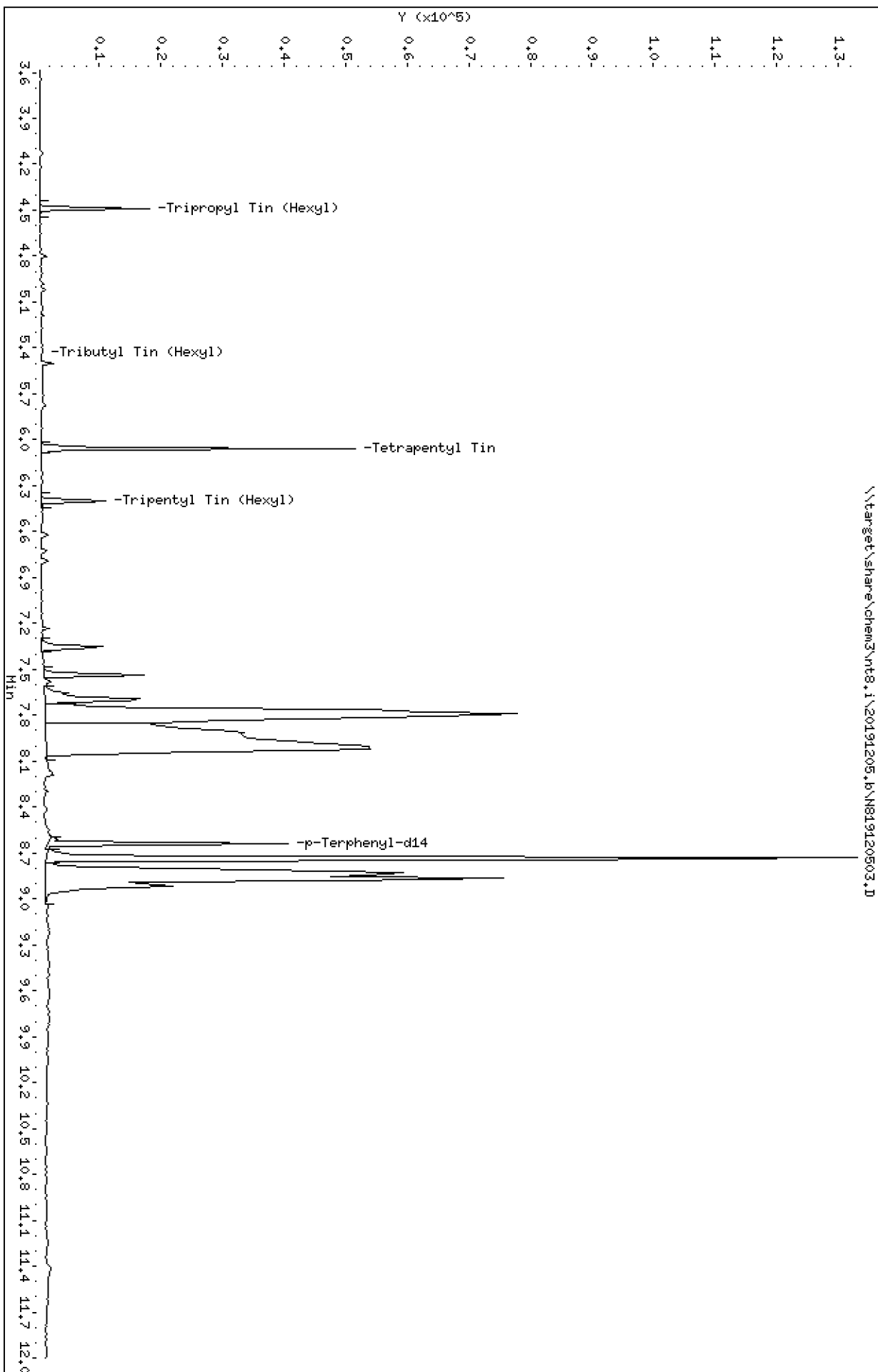
Column phase: ZB-5msi

Instrument: nt8.1

Operator: JZ

Column diameter: 0.25

Page 1



Date : 05-DEC-2019 11:41

Client ID:

Instrument: nt8.i

Sample Info: BHL0082-BLK1,

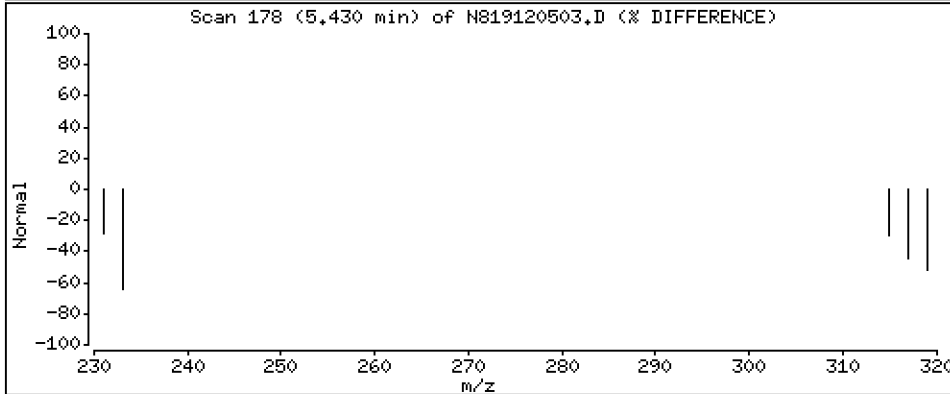
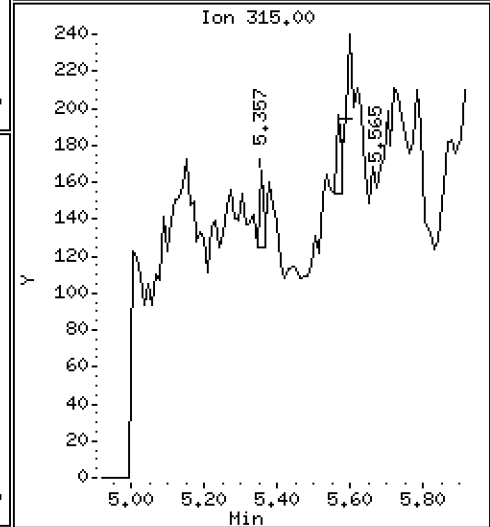
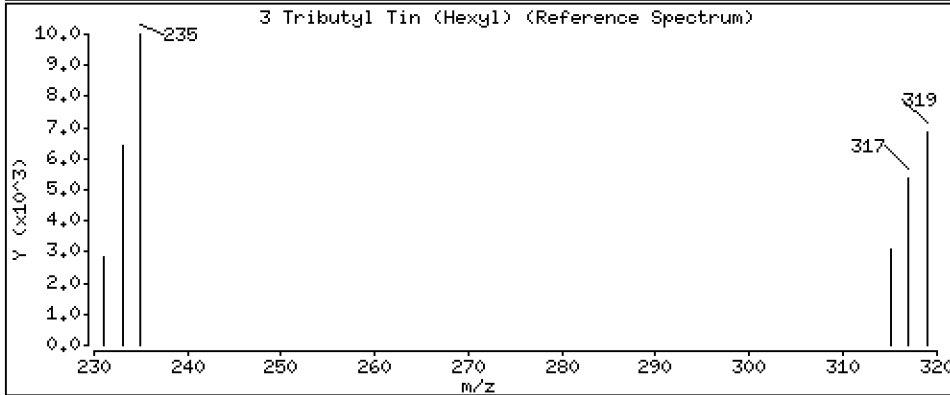
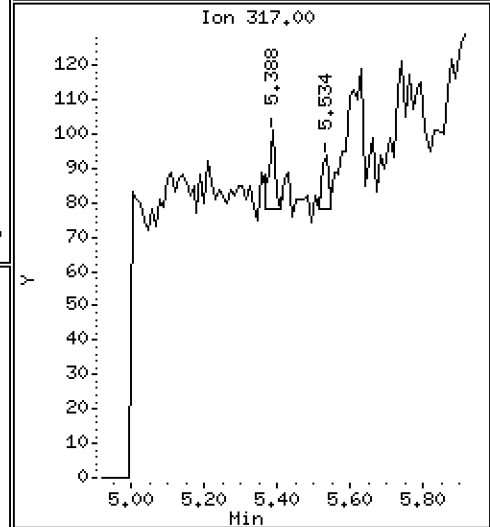
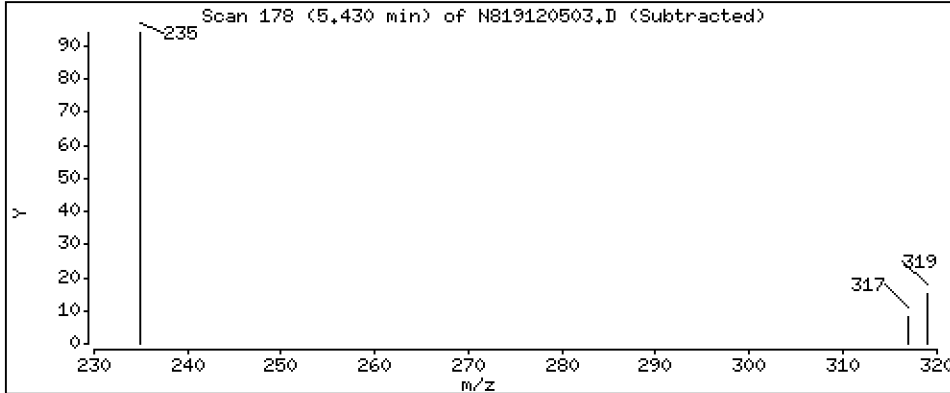
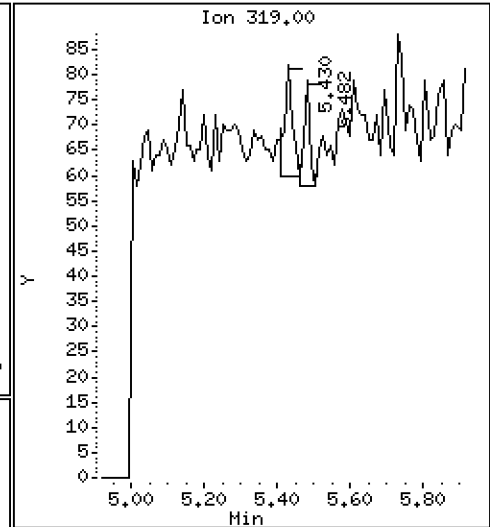
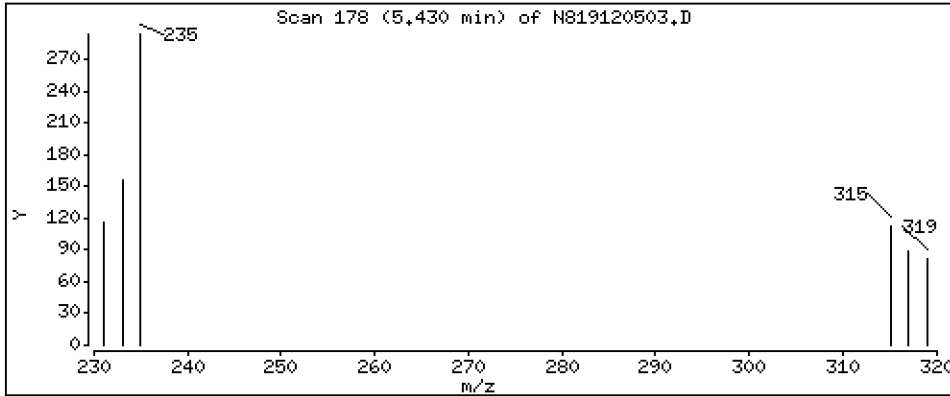
Operator: JZ

Column phase: ZB-5msi

Column diameter: 0,25

3 Tributyl Tin (Hexyl)

Concentration: 0,002312 ug/mL



ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20191205.b\N819120503.D
 Lab Smp Id: BHL0082-BLK1
 Inj Date : 05-DEC-2019 11:41 MS Autotune Date: 27-FEB-2008 03:32
 Operator : JZ Inst ID: nt8.i
 Smp Info : BHL0082-BLK1,
 Misc Info :
 Comment : 2 ul Injection
 Method : \\target\share\chem3\nt8.i\20191205.b\TBT1125.m
 Meth Date : 05-Dec-2019 12:54 nt8.i Quant Type: ISTD
 Cal Date : 25-NOV-2019 15:29 Cal File: N819112507.D
 Als bottle: 3
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: sedmdl.sub
 Target Version: 4.14
 Processing Host: ORGDATA22

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN	FINAL
	MASS						(ug/mL)	(ug/mL)
=====	=====		=====	=====	=====	=====	=====	=====
\$ 1 Tripropyl Tin (Hexyl)	291		4.492	4.471	(0.741)	8872	0.48029	0.4803
2 Tetrabutyl Tin	289		Compound Not Detected.					
3 Tributyl Tin (Hexyl)	319		5.429	5.419	(0.896)	33	0.00231	0.002312
* 4 Tetrapentyl Tin	333		6.058	6.058	(1.000)	47264	2.00000	
5 Dibutyl Tin (Hexyl)	347		Compound Not Detected.					
\$ 6 Tripentyl Tin (Hexyl)	347		6.409	6.397	(0.742)	5177	0.38140	0.3814
7 Butyl Tin (Hexyl)	347		Compound Not Detected.					
* 8 p-Terphenyl-d14	244		8.635	8.635	(1.000)	41877	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
 AREA AND RT SUMMARY

Instrument ID: nt8.i Calibration Date: 05-DEC-2019
 Lab File ID: N819120503.D Calibration Time: 11:17
 Lab Smp Id: BHL0082-BLK1
 Analysis Type: SV Level:
 Quant Type: ISTD Sample Type:
 Operator: JZ
 Method File: \\target\share\chem3\nt8.i\20191205.b\TBT1125.m
 Misc Info:

Test Mode:
 Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	41592	20796	83184	47264	13.64
8 p-Terphenyl-d14	41162	20581	82324	41877	1.74

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	6.06	5.56	6.56	6.06	-0.00
8 p-Terphenyl-d14	8.64	8.14	9.14	8.64	-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 - N819120503.D

Lab ID: BHL0082-BLK1

nt8.i, 20191205.b\TBT1125.m, 05-DEC-2019 11:41

RT CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV	RRT	DELTA	COMPOUND
-----	-----	-----	-------	----------

NONE

RRT check based on Ccal File: N819120502.D

On Column LOD for nt8.i, 20191205.b\TBT1125.m, sedmdl.sub = 0.0000

Exception: Tripropyl Tin (Hexyl) (Surr) 0.0010

* Only compounds listed in the work order have been verified by the analyst *



LCS / LCS DUPLICATE RECOVERY
EPA 8270D-SIM

Laboratory:	<u>Analytical Resources, Inc.</u>	SDG:	<u>19K0228</u>
Client:	<u>Anchor QEA, LLC</u>	Project:	<u>Gasco PDI</u>
Matrix:	<u>Water</u>	Analyzed:	<u>11/25/19 17:34</u>
Batch:	<u>BHK0438</u>	Laboratory ID:	<u>BHK0438-BS1</u>
Preparation:	<u>EPA 3510C SepF</u>	Sequence Name:	<u>LCS</u>
Initial/Final:	<u>100 mL / 0.5 mL</u>		

COMPOUND	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	Q	LCS % REC. #	QC LIMITS REC.
Tributyltin Ion	2.23	1.13		50.8	30 - 160

* Indicates values outside of QC limits

Data File: \\target\share\chem3\nt8.1\2019112504.6\N819112513.D

Date: 25-NOV-2019 17:34

Client ID:

Sample Info: BHK0438-BS1,

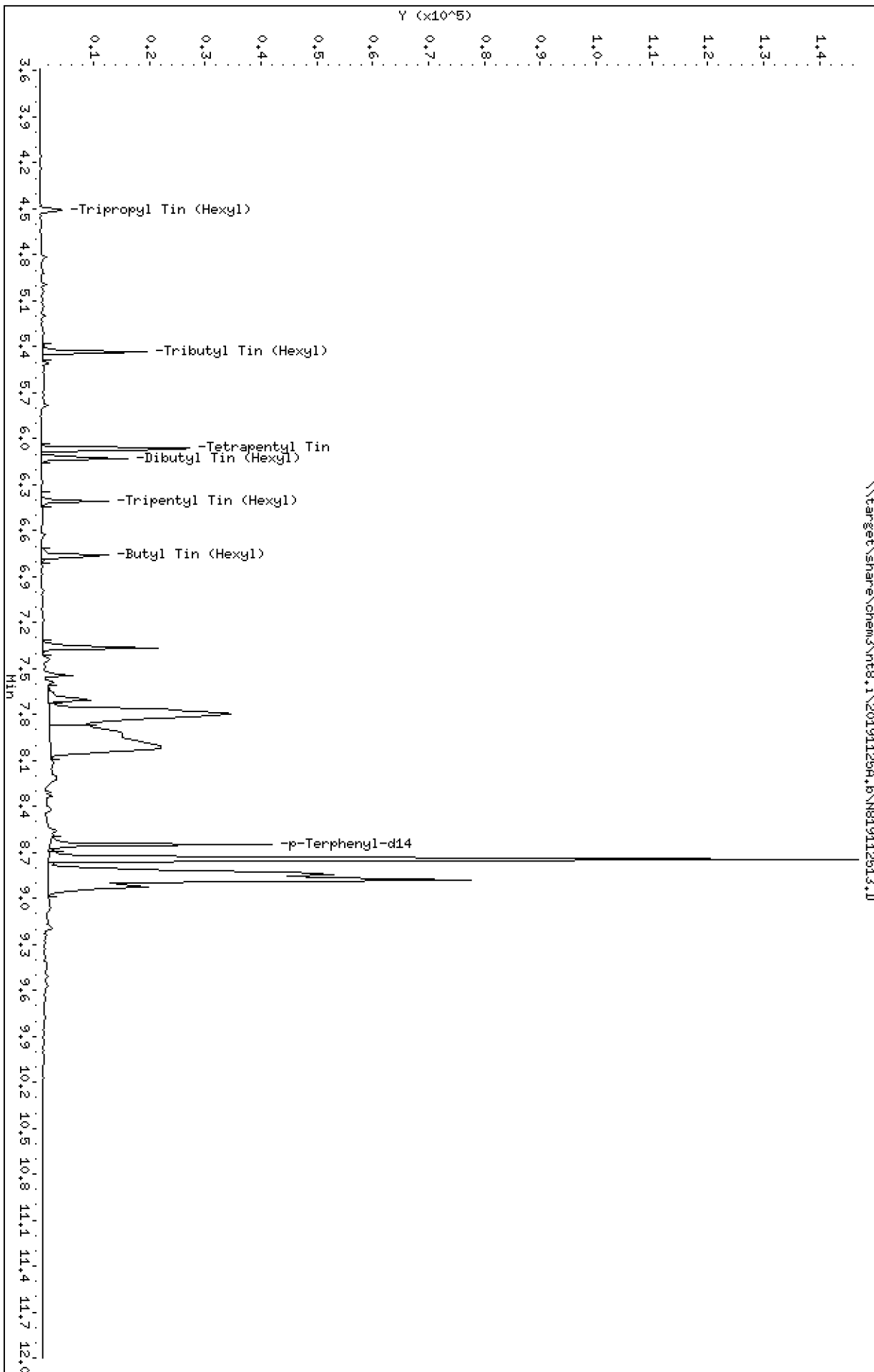
Column phase: ZB-5msi

Instrument: nt8.1

Operator: JZ

Column diameter: 0.25

\\target\share\chem3\nt8.1\2019112504.6\N819112513.D



Date : 25-NOV-2019 17:34

Client ID:

Instrument: nt8.i

Sample Info: BHK0438-BS1.

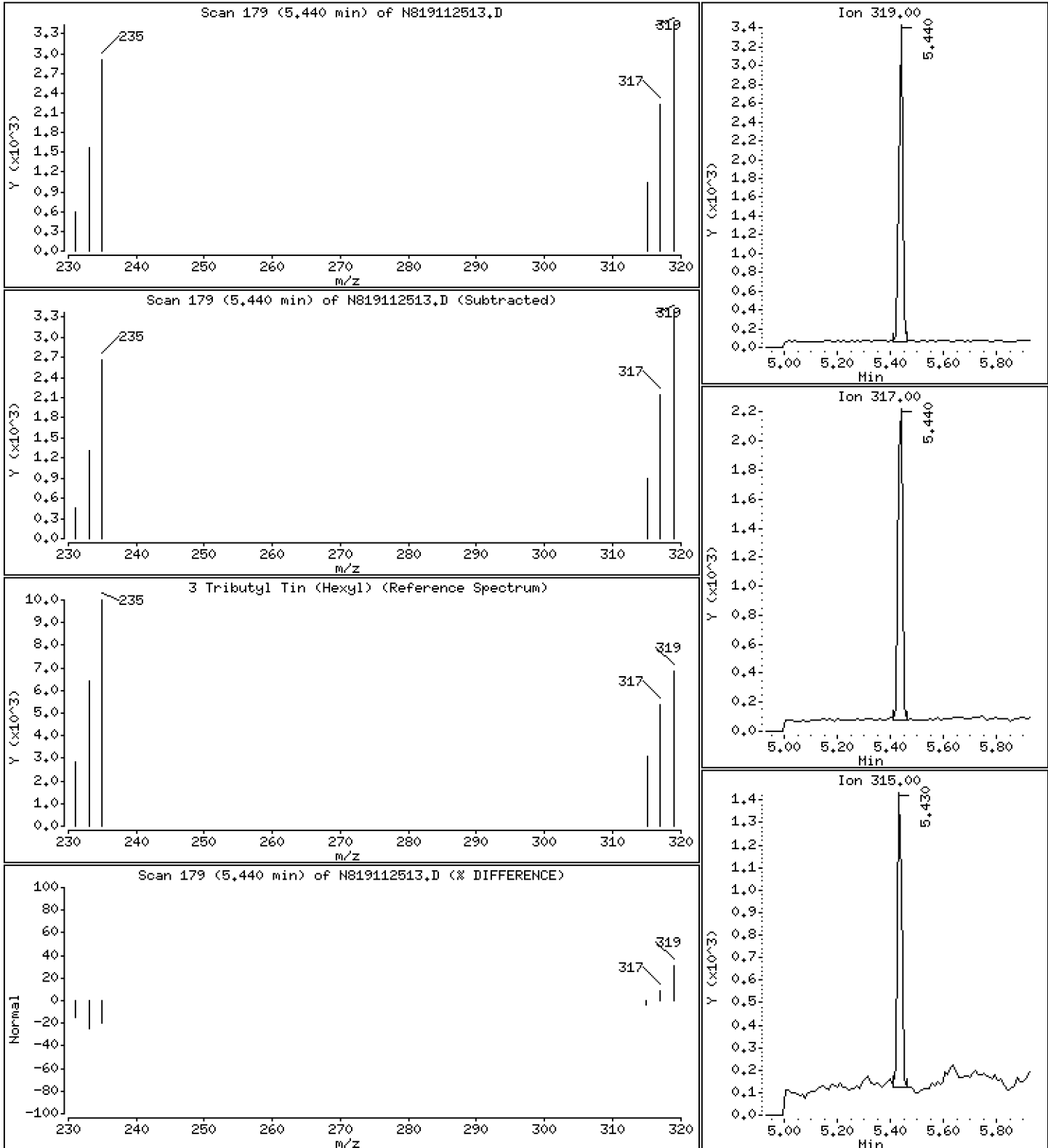
Operator: JZ

Column phase: ZB-5msi

Column diameter: 0,25

3 Tributyl Tin (Hexyl)

Concentration: 0,2930 ug/mL



Date : 25-NOV-2019 17:34

Client ID:

Instrument: nt8.i

Sample Info: BHK0438-BS1.

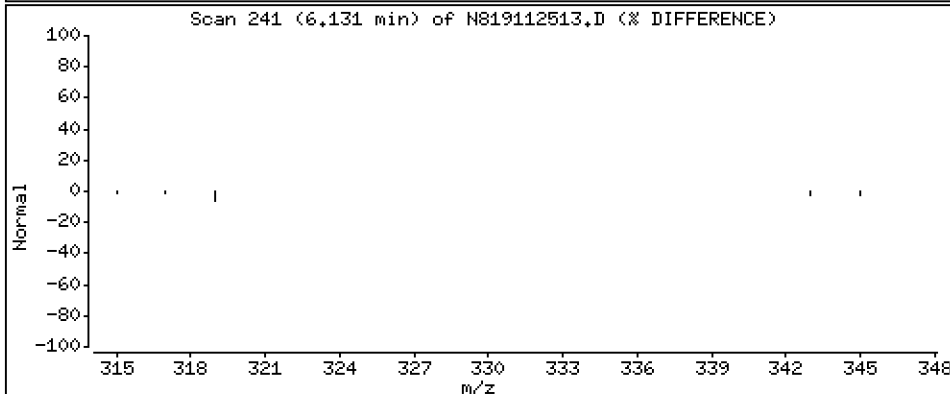
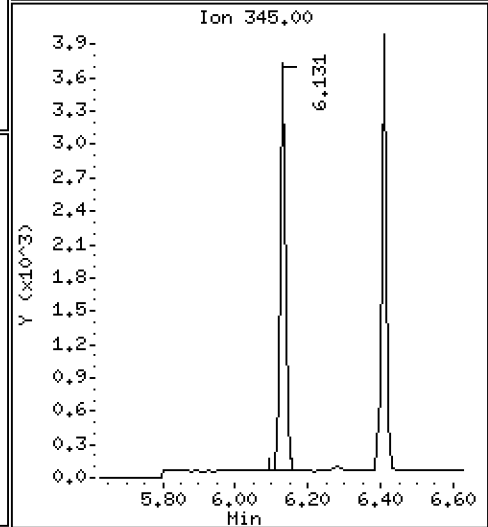
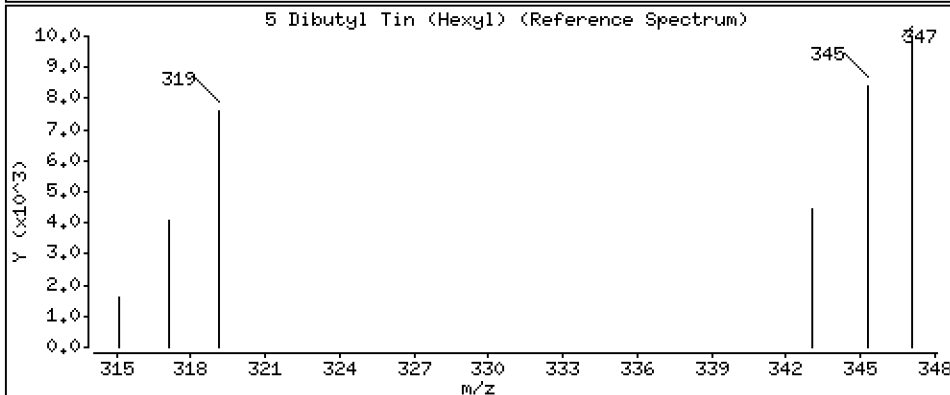
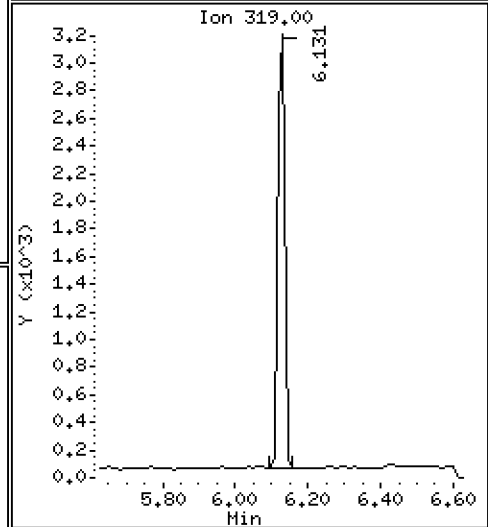
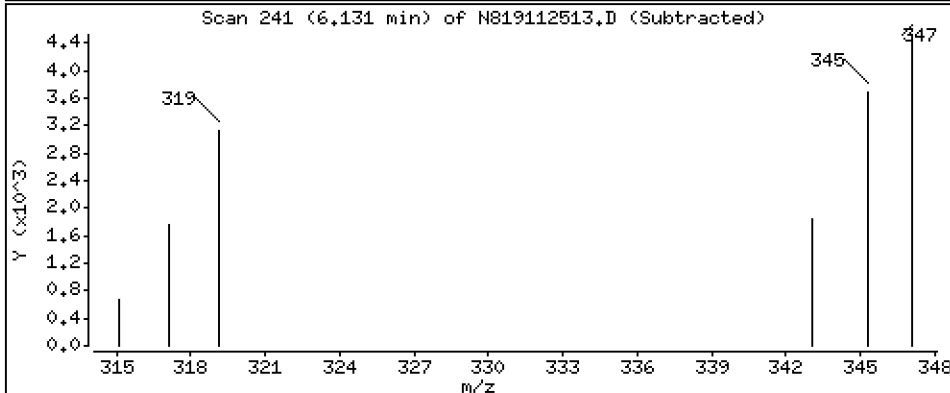
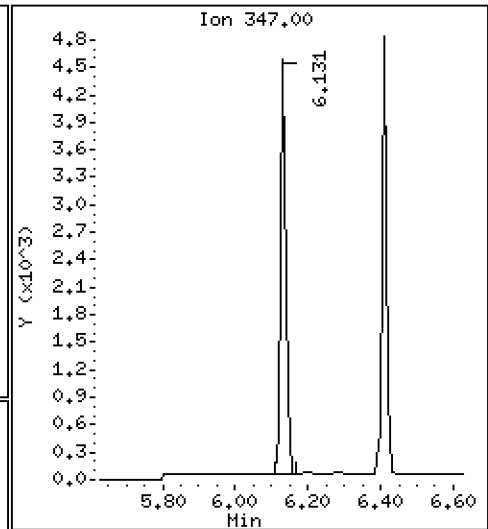
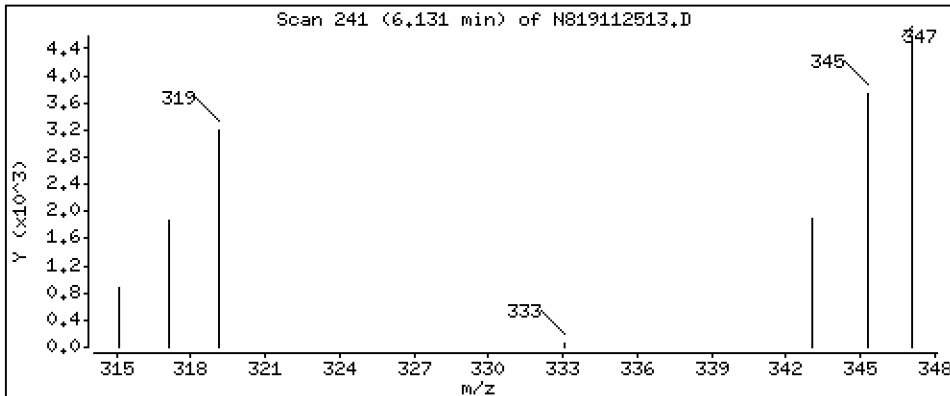
Operator: JZ

Column phase: ZB-5msi

Column diameter: 0,25

5 Dibutyl Tin (Hexyl)

Concentration: 0,5256 ug/mL



Date : 25-NOV-2019 17:34

Client ID:

Instrument: nt8.i

Sample Info: BHK0438-BS1.

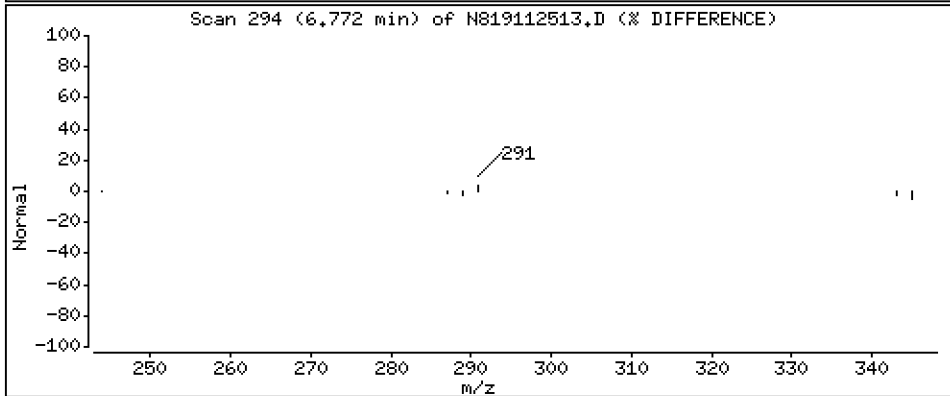
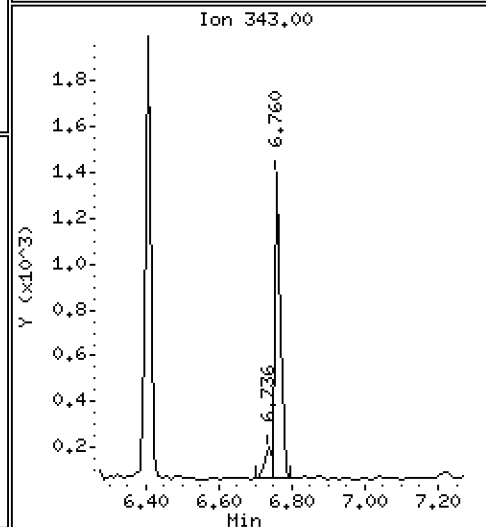
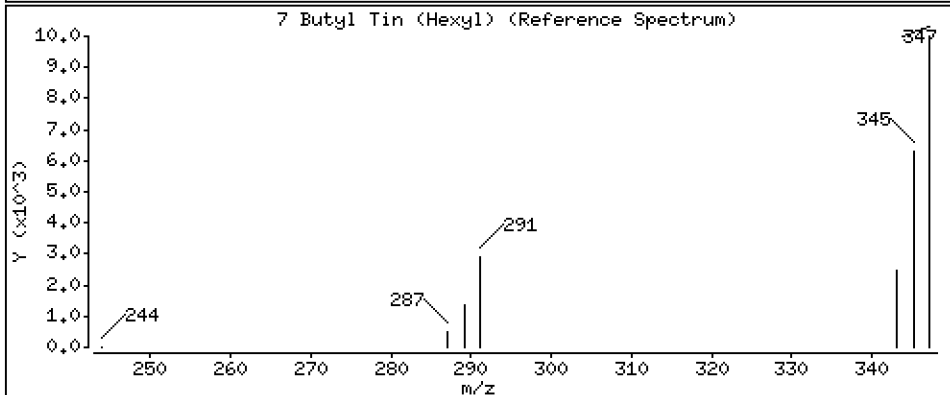
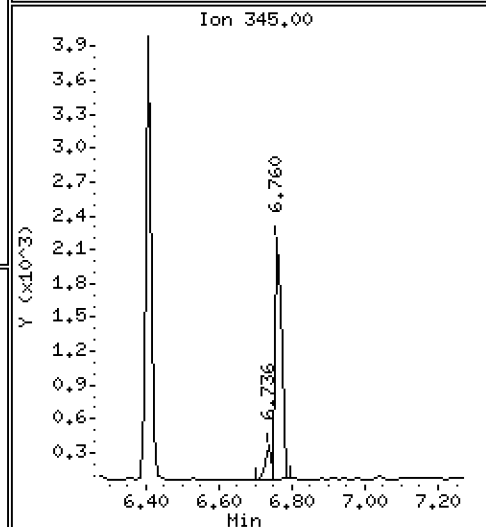
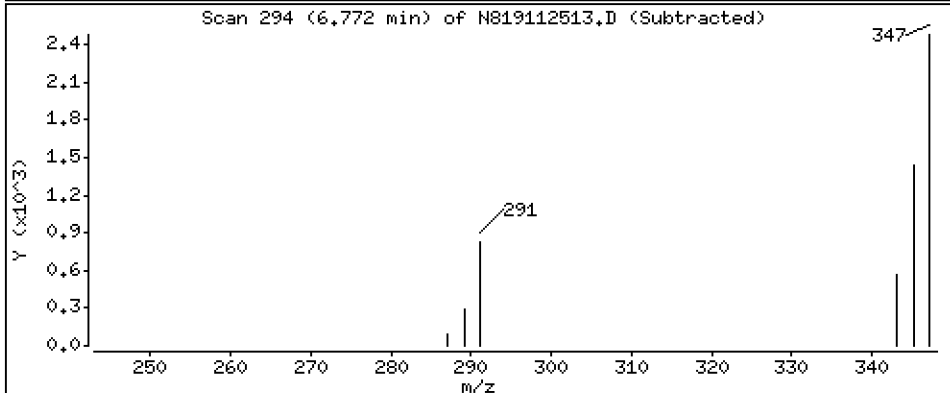
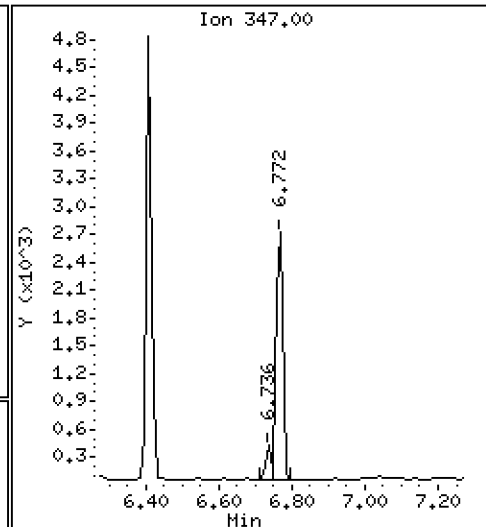
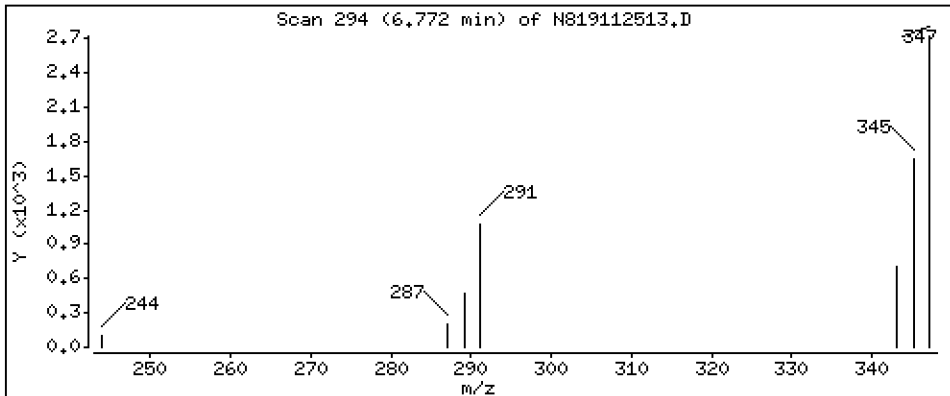
Operator: JZ

Column phase: ZB-5msi

Column diameter: 0.25

7 Butyl Tin (Hexyl)

Concentration: 0.2757 ug/mL



ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20191125A.b\N819112513.D
 Lab Smp Id: BHK0438-BS1
 Inj Date : 25-NOV-2019 17:34
 Operator : JZ Inst ID: nt8.i
 Smp Info : BHK0438-BS1,
 Misc Info :
 Comment : 2 ul Injection
 Method : \\target\share\chem3\nt8.i\20191125A.b\TBT1125.m
 Meth Date : 26-Nov-2019 15:12 jianqing Quant Type: ISTD
 Cal Date : 25-NOV-2019 15:29 Cal File: N819112507.D
 Als bottle: 4
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: TBTmdl.sub
 Target Version: 4.14
 Processing Host: ORGDATA22

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN	FINAL
	MASS						(ug/mL)	(ug/mL)
\$ 1 Tripropyl Tin (Hexyl)	291		4.513	4.471	(0.745)	2386	0.15921	0.1592
2 Tetrabutyl Tin	289		Compound Not Detected.					
3 Tributyl Tin (Hexyl)	319		5.440	5.429	(0.898)	3393	0.29302	0.2930
* 4 Tetrapentyl Tin	333		6.058	6.070	(1.000)	38346	2.00000	
5 Dibutyl Tin (Hexyl)	347		6.131	6.131	(0.709)	4222	0.52562	0.5256
\$ 6 Tripentyl Tin (Hexyl)	347		6.409	6.409	(0.741)	4420	0.37581	0.3758
7 Butyl Tin (Hexyl)	347		6.772	6.772	(0.783)	3500	0.27568	0.2757
* 8 p-Terphenyl-d14	244		8.647	8.647	(1.000)	36285	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
 AREA AND RT SUMMARY

Instrument ID: nt8.i Calibration Date: 25-NOV-2019
 Lab File ID: N819112513.D Calibration Time: 16:56
 Lab Smp Id: BHK0438-BS1
 Analysis Type: SV Level:
 Quant Type: ISTD Sample Type:
 Operator: JZ
 Method File: \\target\share\chem3\nt8.i\20191125A.b\TBT1125.m
 Misc Info:

Test Mode:
 Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	41592	20796	83184	38346	-7.80
8 p-Terphenyl-d14	41162	20581	82324	36285	-11.85

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	6.07	5.57	6.57	6.06	-0.20
8 p-Terphenyl-d14	8.65	8.15	9.15	8.65	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 - N819112513.D

Lab ID: BHK0438-BS1

nt8.i, 20191125A.b\TBT1125.m, 25-NOV-2019 17:34

RT CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.745	0.737	0.0083	Tripropyl Tin (Hexyl)

RRT check based on Ccal File: N819112511.D

On Column LOD for nt8.i, 20191125A.b\TBT1125.m, TBTmdl.sub = 0.0000

Exception: Tripropyl Tin (Hexyl) (Surr) 0.0010

* Only compounds listed in the work order have been verified by the analyst *



LCS / LCS DUPLICATE RECOVERY
EPA 8270D-SIM

Laboratory:	<u>Analytical Resources, Inc.</u>	SDG:	<u>19K0228</u>
Client:	<u>Anchor QEA, LLC</u>	Project:	<u>Gasco PDI</u>
Matrix:	<u>Solid</u>	Analyzed:	<u>12/02/19 18:30</u>
Batch:	<u>BHK0576</u>	Laboratory ID:	<u>BHK0576-BS1</u>
Preparation:	<u>EPA 3546 (Microwave)</u>	Sequence Name:	<u>LCS</u>
Initial/Final:	<u>5 g / 0.5 mL</u>		

COMPOUND	SPIKE ADDED (ug/kg wet)	LCS CONCENTRATION (ug/kg wet)	Q	LCS % REC. #	QC LIMITS REC.
Tributyltin Ion	44.6	39.4		88.3	30 - 160

* Indicates values outside of QC limits

Data File: \\target\share\chem3\nt8.1\201912024,b\N819120233.D

Date : 02-DEC-2019 18:30

Client ID:

Sample Info: BHK0576-BS1,

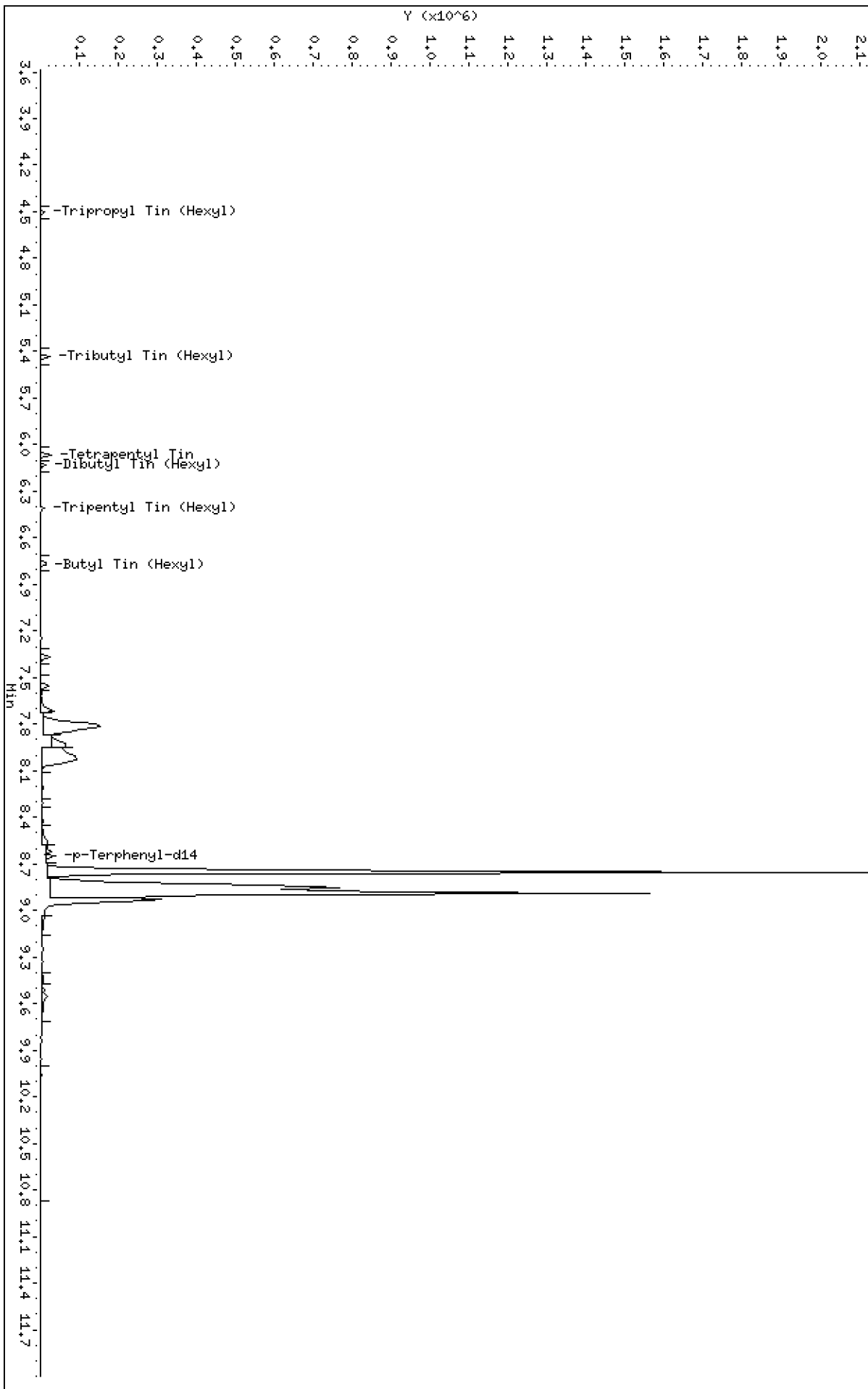
Column phase: ZB-5msi

Instrument: nt8.1

Operator: JZ

Column diameter: 0.25

\\target\share\chem3\nt8.1\201912024,b\N819120233.D



Date : 02-DEC-2019 18:30

Client ID:

Instrument: nt8.i

Sample Info: BHK0576-BS1.

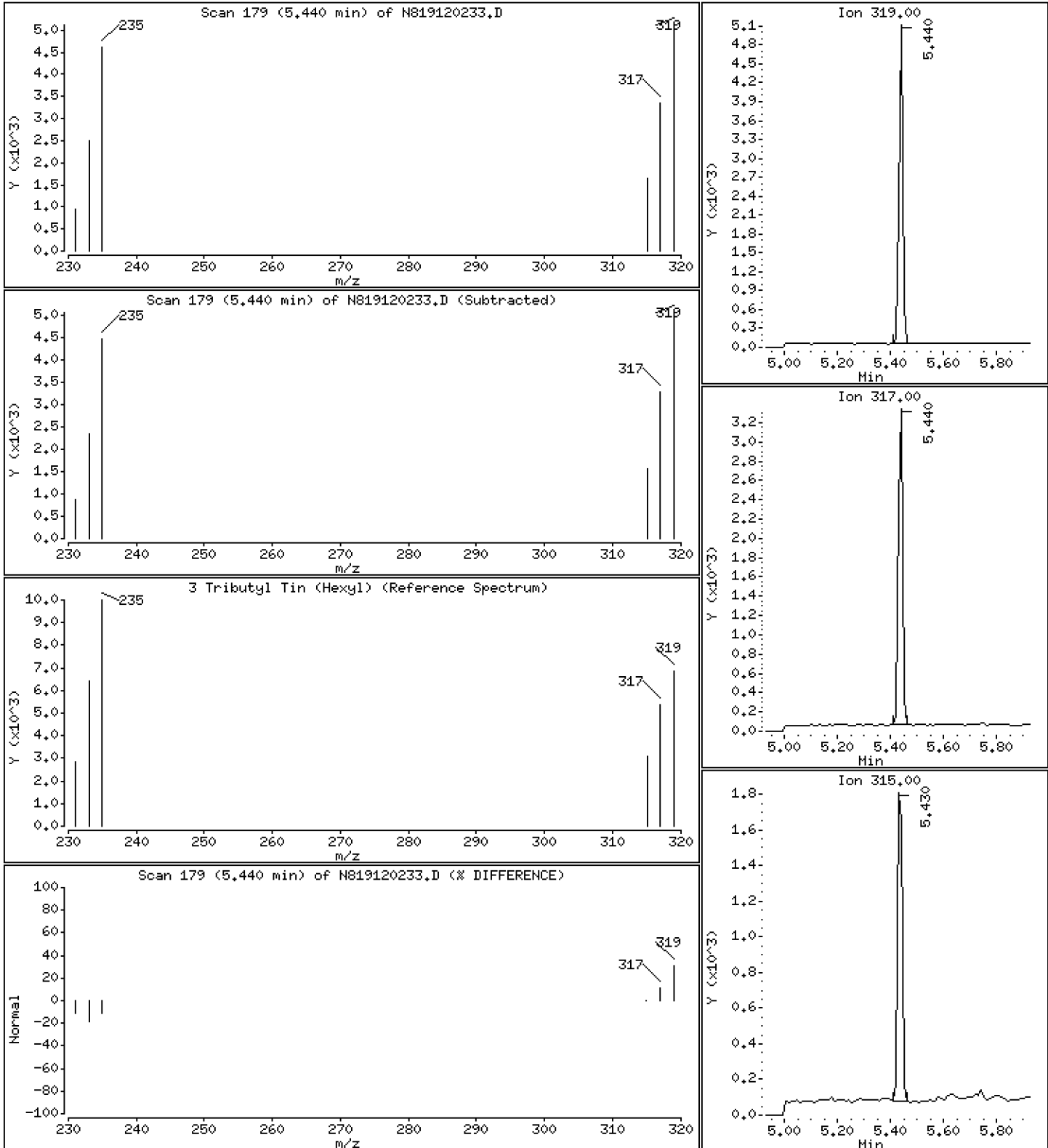
Operator: JZ

Column phase: ZB-5msi

Column diameter: 0,25

3 Tributyl Tin (Hexyl)

Concentration: 0,5091 ug/mL



Date : 02-DEC-2019 18:30

Client ID:

Instrument: nt8.i

Sample Info: BHK0576-BS1.

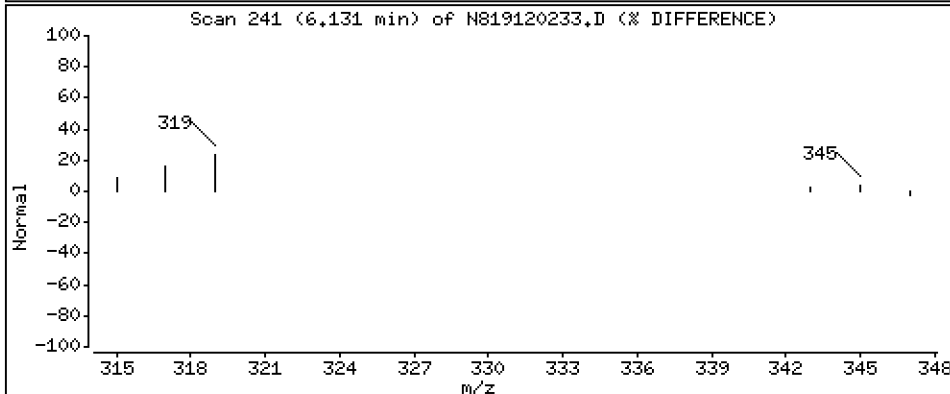
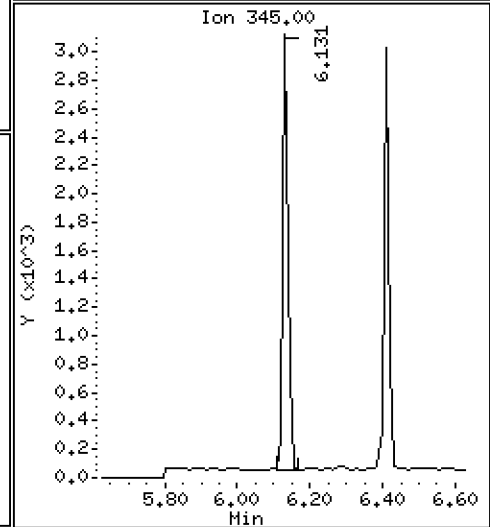
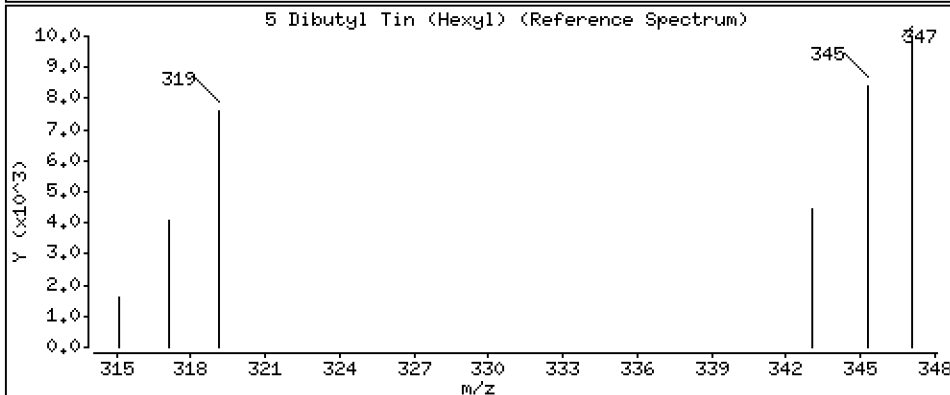
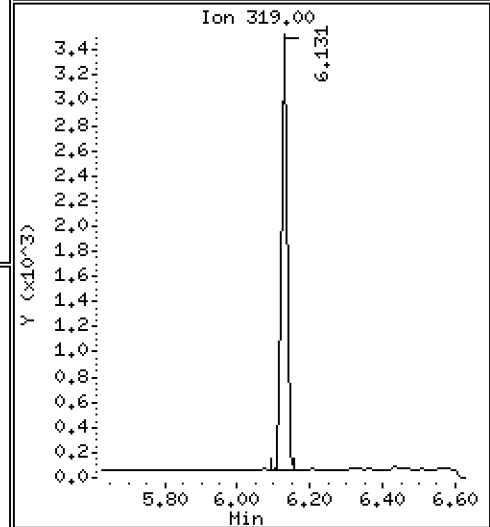
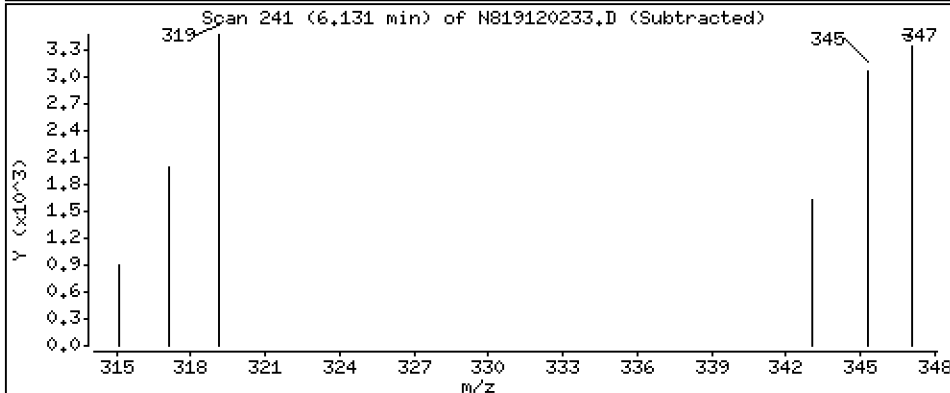
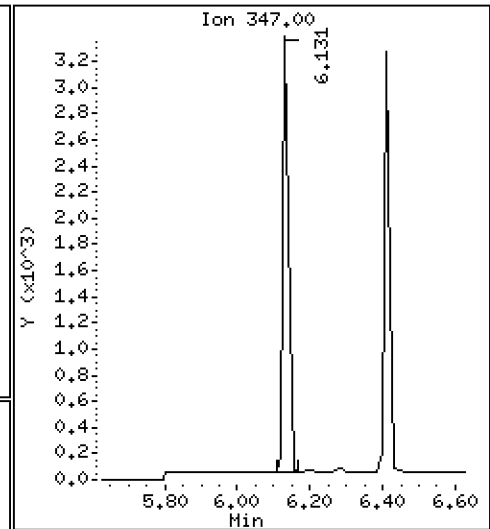
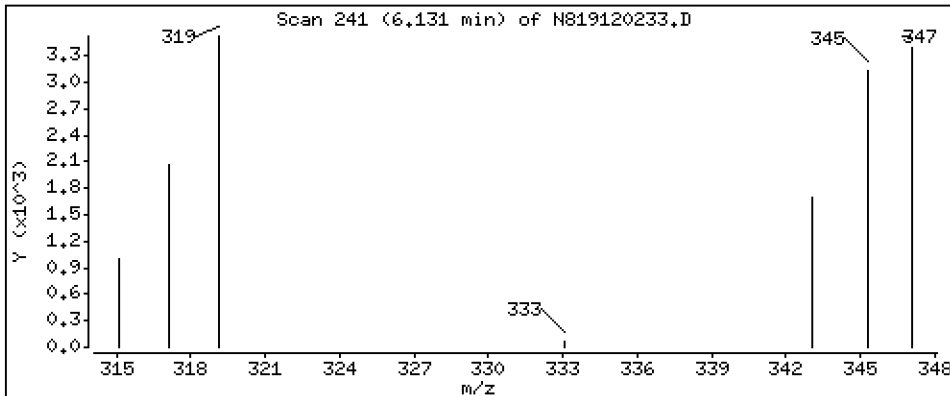
Operator: JZ

Column phase: ZB-5msi

Column diameter: 0.25

5 Dibutyl Tin (Hexyl)

Concentration: 0.5572 ug/mL



Date : 02-DEC-2019 18:30

Client ID:

Instrument: nt8.i

Sample Info: BHK0576-BS1.

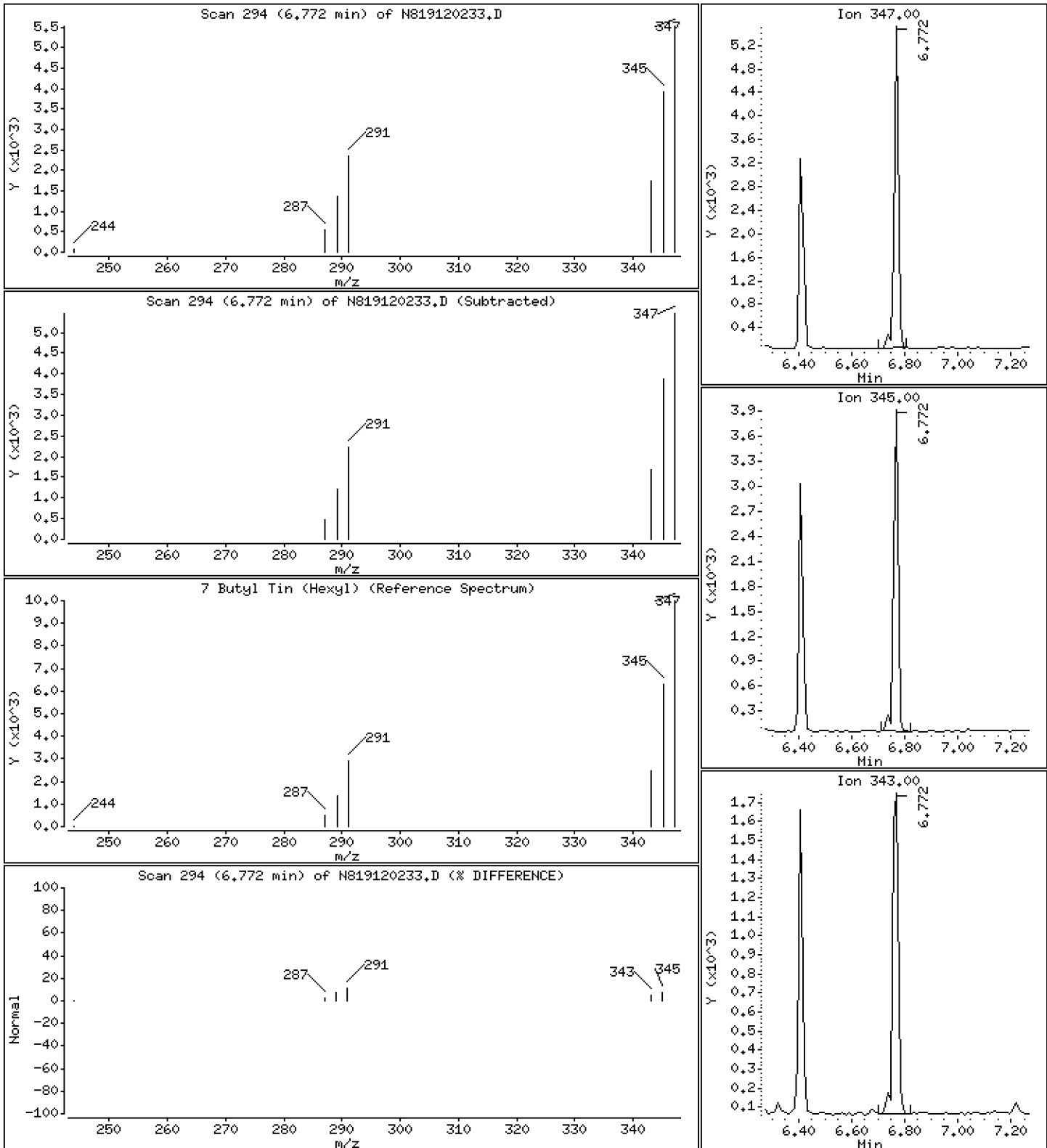
Operator: JZ

Column phase: ZB-5msi

Column diameter: 0,25

7 Butyl Tin (Hexyl)

Concentration: 0,5958 ug/mL



ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20191202A.b\N819120233.D
 Lab Smp Id: BHK0576-BS1
 Inj Date : 02-DEC-2019 18:30 MS Autotune Date: 27-FEB-2008 03:32
 Operator : JZ Inst ID: nt8.i
 Smp Info : BHK0576-BS1,
 Misc Info :
 Comment : 2 ul Injection
 Method : \\target\share\chem3\nt8.i\20191202A.b\TBT1125.m
 Meth Date : 03-Dec-2019 09:05 nt8.i Quant Type: ISTD
 Cal Date : 25-NOV-2019 15:29 Cal File: N819112507.D
 Als bottle: 4
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: sedmdl.sub
 Target Version: 4.14
 Processing Host: ORGDATA22

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN	FINAL
	MASS						(ug/mL)	(ug/mL)
\$ 1 Tripropyl Tin (Hexyl)	291		4.502	4.471	(0.742)	5609	0.44893	0.4489
2 Tetrabutyl Tin	289		Compound Not Detected.					
3 Tributyl Tin (Hexyl)	319		5.440	5.429	(0.896)	4915	0.50914	0.5091
* 4 Tetrapentyl Tin	333		6.070	6.070	(1.000)	31968	2.00000	
5 Dibutyl Tin (Hexyl)	347		6.131	6.131	(0.709)	3402	0.55719	0.5572
\$ 6 Tripentyl Tin (Hexyl)	347		6.409	6.409	(0.741)	3488	0.39016	0.3902
7 Butyl Tin (Hexyl)	347		6.771	6.772	(0.783)	5750	0.59582	0.5958 (M)
* 8 p-Terphenyl-d14	244		8.647	8.647	(1.000)	27581	0.20000	

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
 AREA AND RT SUMMARY

Instrument ID: nt8.i Calibration Date: 02-DEC-2019
 Lab File ID: N819120233.D Calibration Time: 17:52
 Lab Smp Id: BHK0576-BS1
 Analysis Type: SV Level:
 Quant Type: ISTD Sample Type:
 Operator: JZ
 Method File: \\target\share\chem3\nt8.i\20191202A.b\TBT1125.m
 Misc Info:

Test Mode:
 Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	41592	20796	83184	31968	-23.14
8 p-Terphenyl-d14	41162	20581	82324	27581	-32.99

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	6.07	5.57	6.57	6.07	-0.00
8 p-Terphenyl-d14	8.65	8.15	9.15	8.65	-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 - N819120233.D

Lab ID: BHK0576-BS1
nt8.i, 20191202A.b\TBT1125.m, 02-DEC-2019 18:30

RT CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.742	0.737	0.0051	Tripropyl Tin (Hexyl)

RRT check based on Ccal File: N819120231.D

On Column LOD for nt8.i, 20191202A.b\TBT1125.m, sedmdl.sub = 0.0000

Exception: Tripropyl Tin (Hexyl) (Surr) 0.0010

* Only compounds listed in the work order have been verified by the analyst *

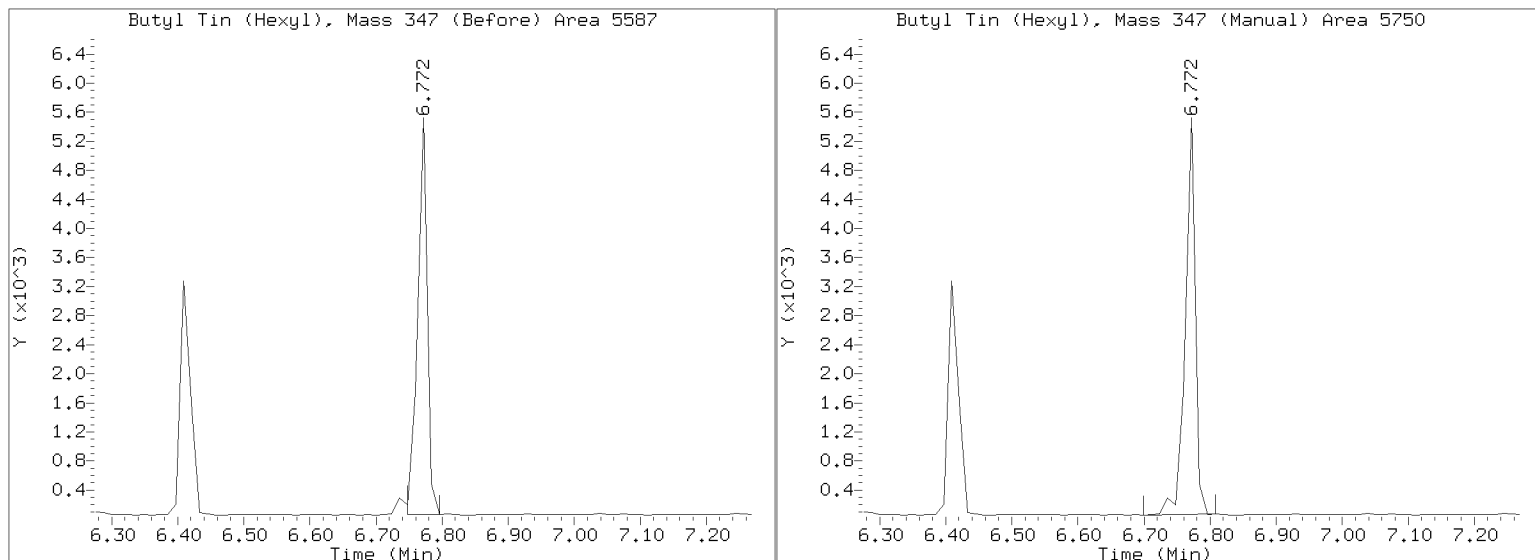
Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem3/nt8.i/20191202A.b/N819120233.D

Injection Date: 02-DEC-2019 18:30

Lab ID: BHK0576-BS1 Client ID:

Report Date: 12/03/2019 09:32





LCS / LCS DUPLICATE RECOVERY
EPA 8270D-SIM

Laboratory:	<u>Analytical Resources, Inc.</u>	SDG:	<u>19K0228</u>
Client:	<u>Anchor QEA, LLC</u>	Project:	<u>Gasco PDI</u>
Matrix:	<u>Solid</u>	Analyzed:	<u>12/05/19 11:58</u>
Batch:	<u>BHL0082</u>	Laboratory ID:	<u>BHL0082-BS1</u>
Preparation:	<u>EPA 3546 (Microwave)</u>	Sequence Name:	<u>LCS</u>
Initial/Final:	<u>5 g / 0.5 mL</u>		

COMPOUND	SPIKE ADDED (ug/kg wet)	LCS CONCENTRATION (ug/kg wet)	Q	LCS % REC. #	QC LIMITS REC.
Tributyltin Ion	44.6	36.2		81.3	30 - 160

* Indicates values outside of QC limits

COMPOUND	SPIKE ADDED (ug/kg wet)	LCSD CONCENTRATION (ug/kg wet)	Q	LCSD % REC. #	% RPD #	QC LIMITS	
						RPD	REC.
Tributyltin Ion	44.6	35.7		80.0	1.60	30	30 - 160

* Indicates values outside of QC limits

Data File: \\target\share\chem3\nt8.1\20191205.B\N819120504.D

Date: 05-DEC-2019 11:58

Client ID:

Sample Info: BHL0082-BS1,

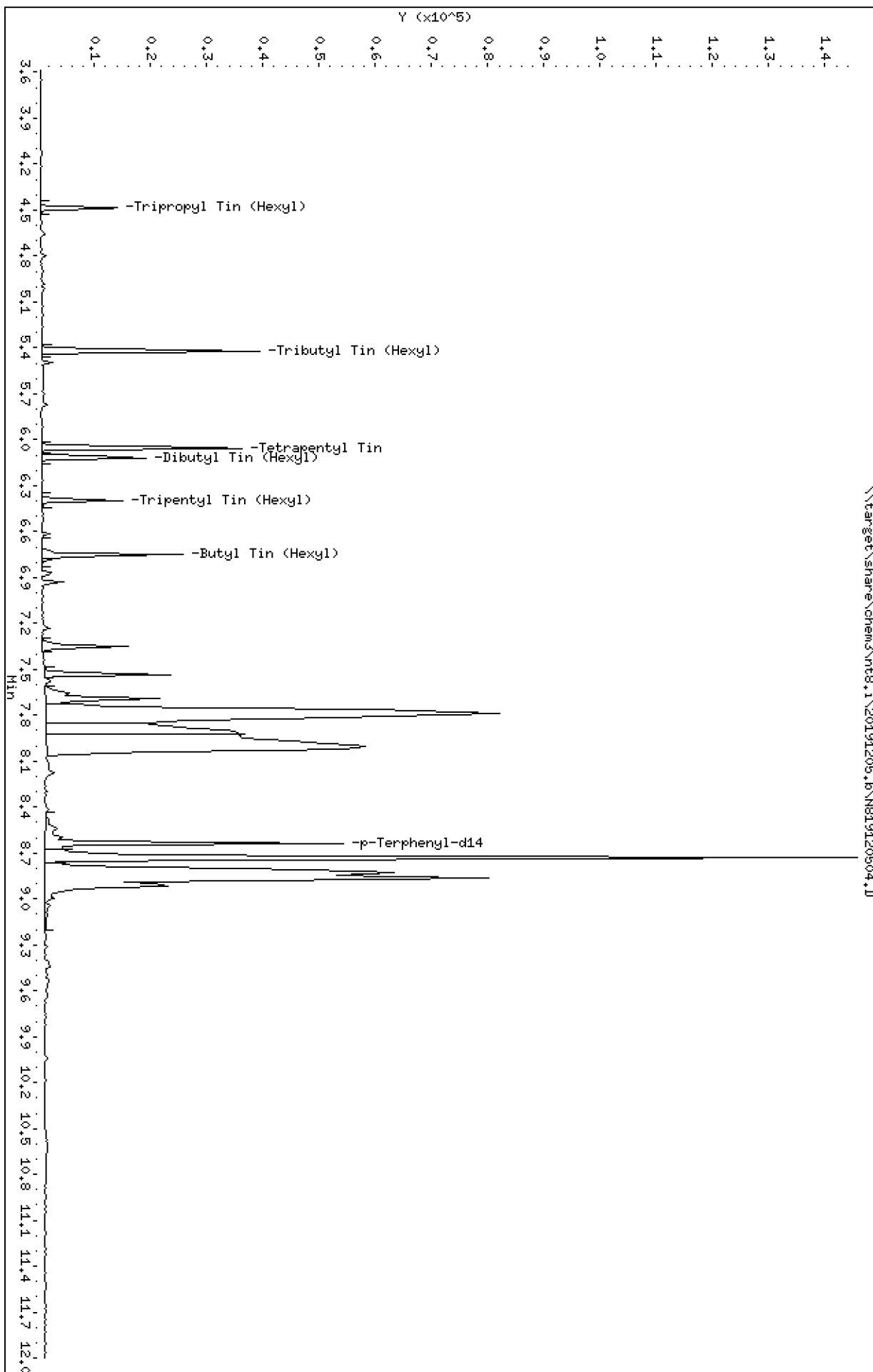
Column phase: ZB-5msi

Instrument: nt8.1

Operator: JZ

Column diameter: 0.25

Page 1



Date : 05-DEC-2019 11:58

Client ID:

Instrument: nt8.i

Sample Info: BHL0082-BS1.

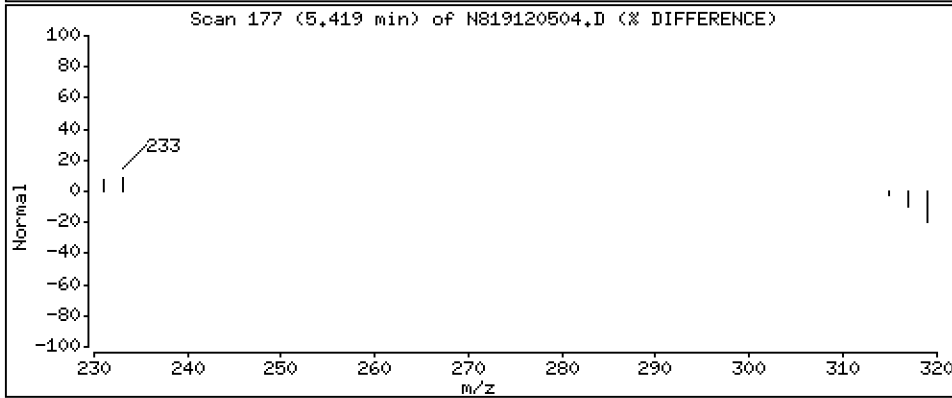
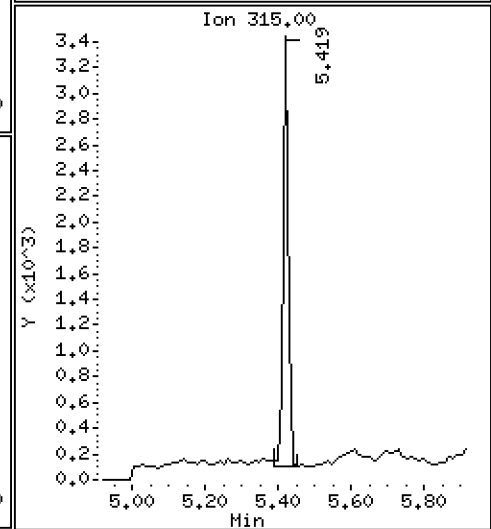
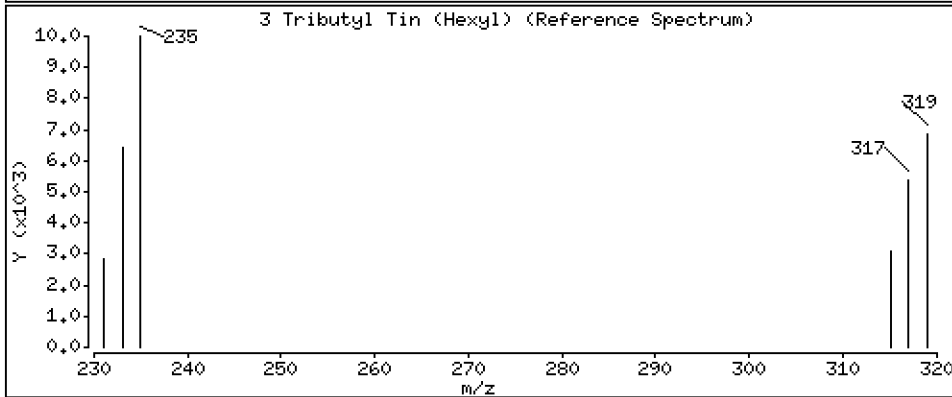
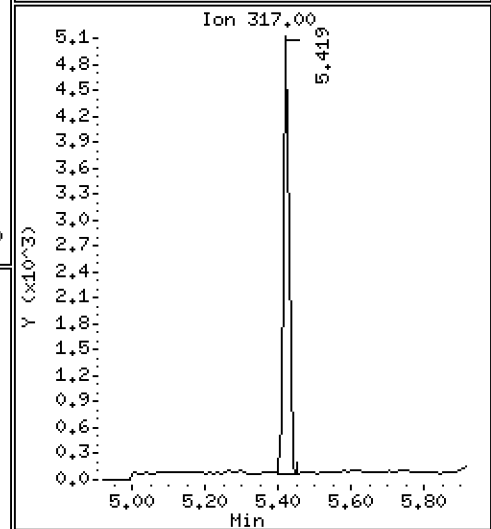
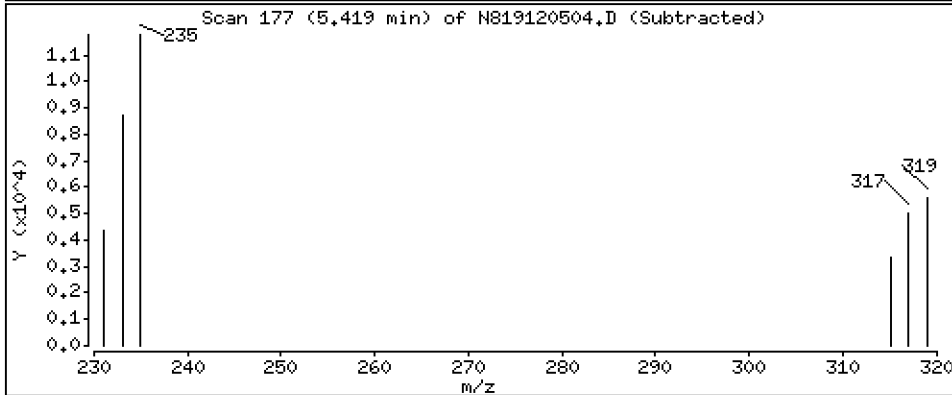
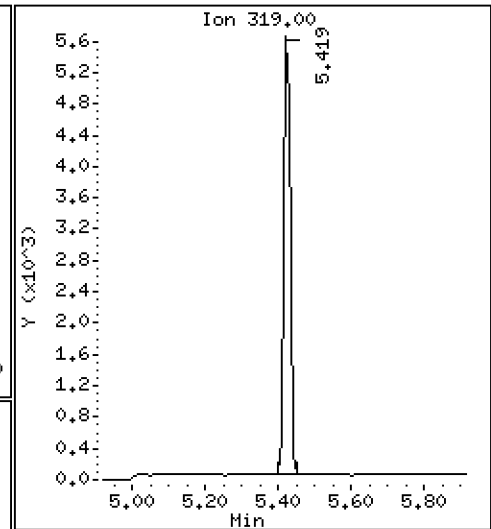
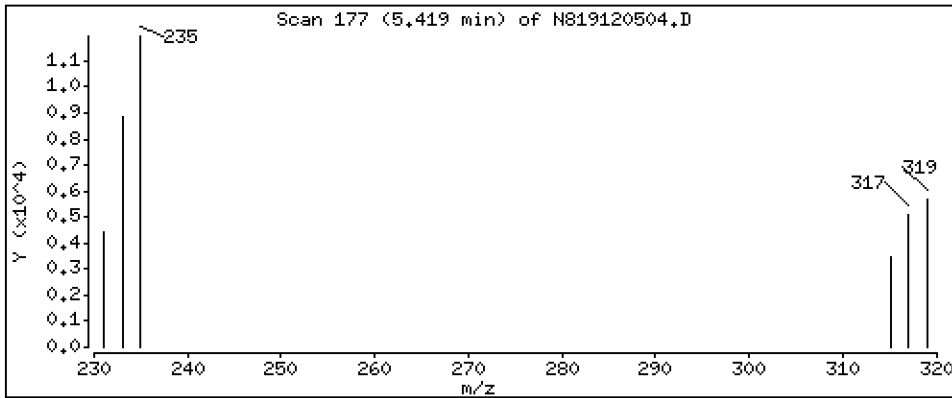
Operator: JZ

Column phase: ZB-5msi

Column diameter: 0.25

3 Tributyl Tin (Hexyl)

Concentration: 0.4687 ug/mL



Date : 05-DEC-2019 11:58

Client ID:

Instrument: nt8.i

Sample Info: BHL0082-BS1.

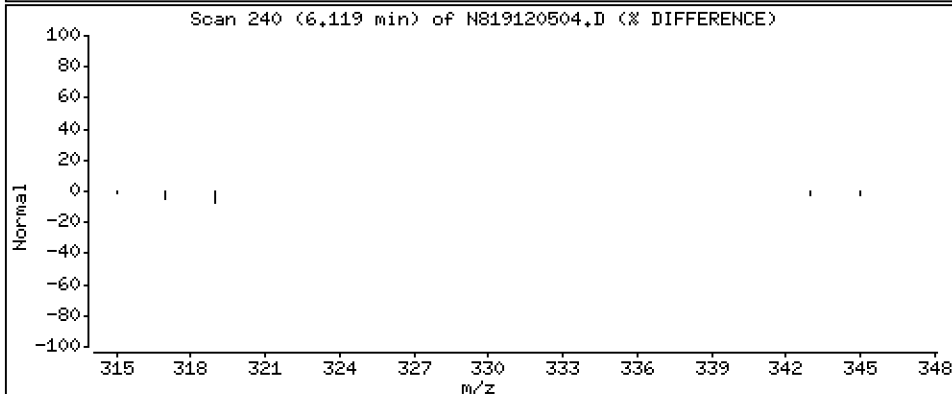
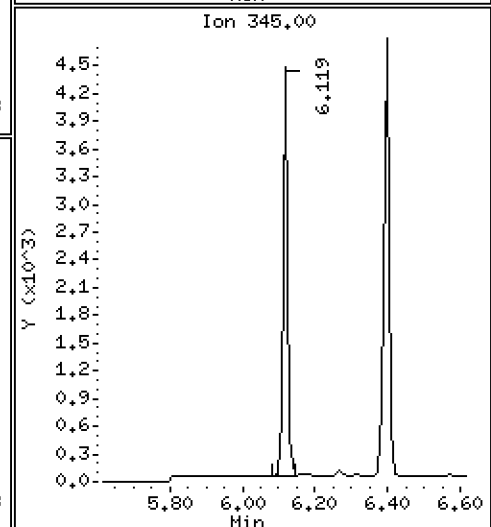
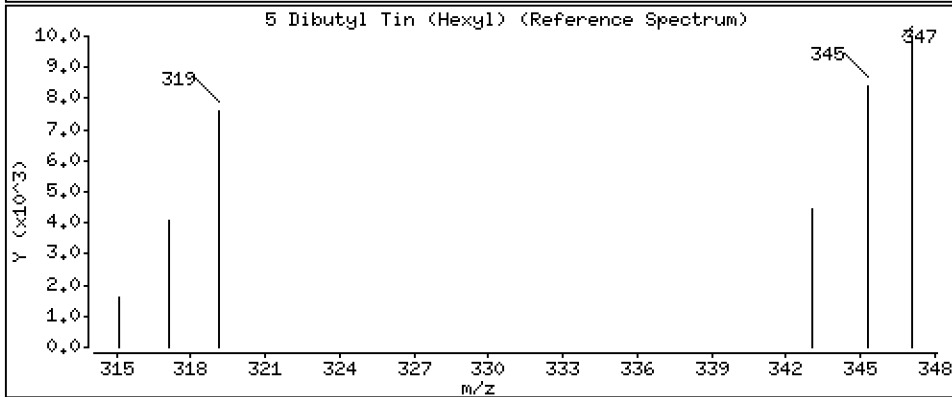
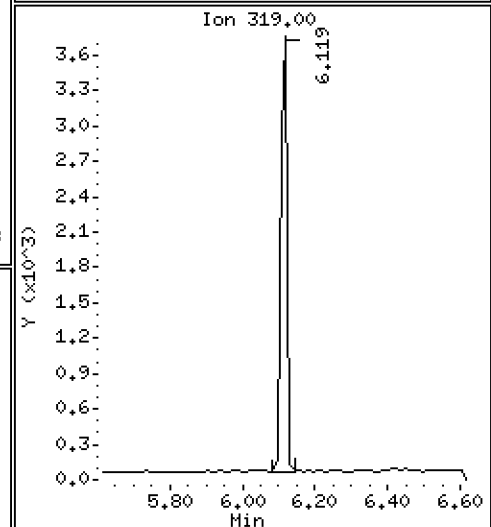
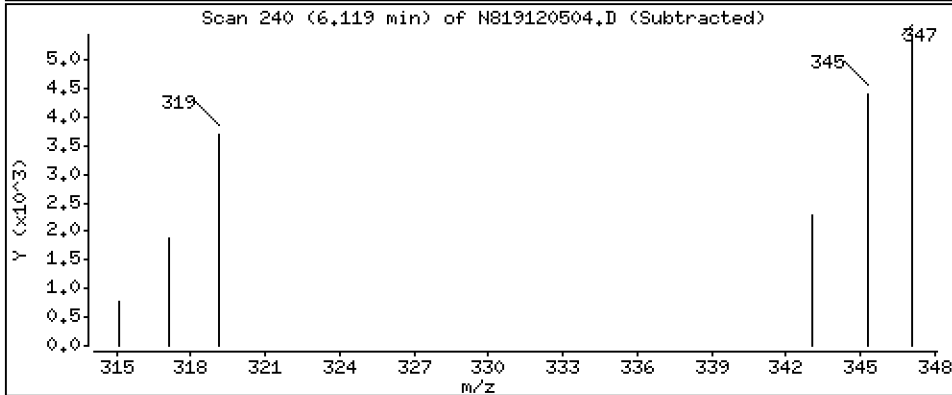
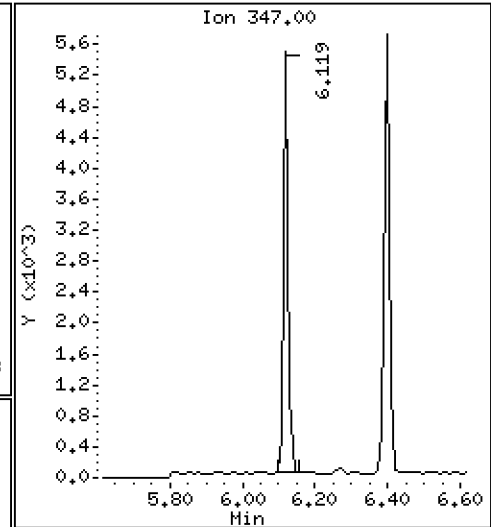
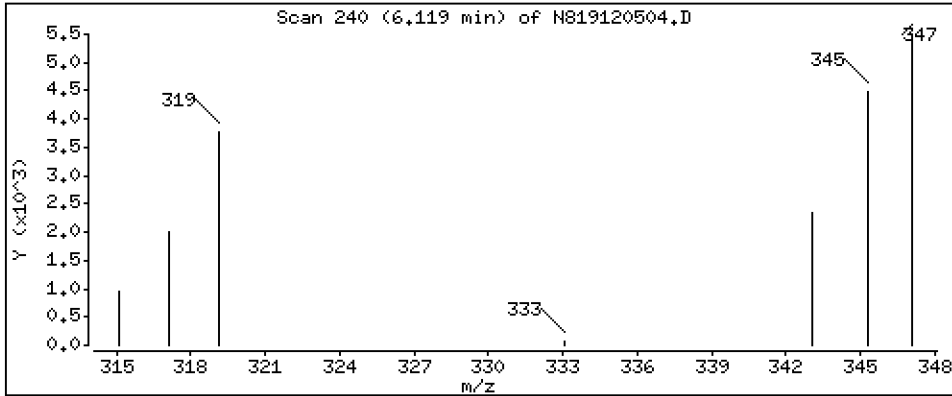
Operator: JZ

Column phase: ZB-5msi

Column diameter: 0,25

5 Dibutyl Tin (Hexyl)

Concentration: 0,4997 ug/mL



Date : 05-DEC-2019 11:58

Client ID:

Instrument: nt8.i

Sample Info: BHL0082-BS1.

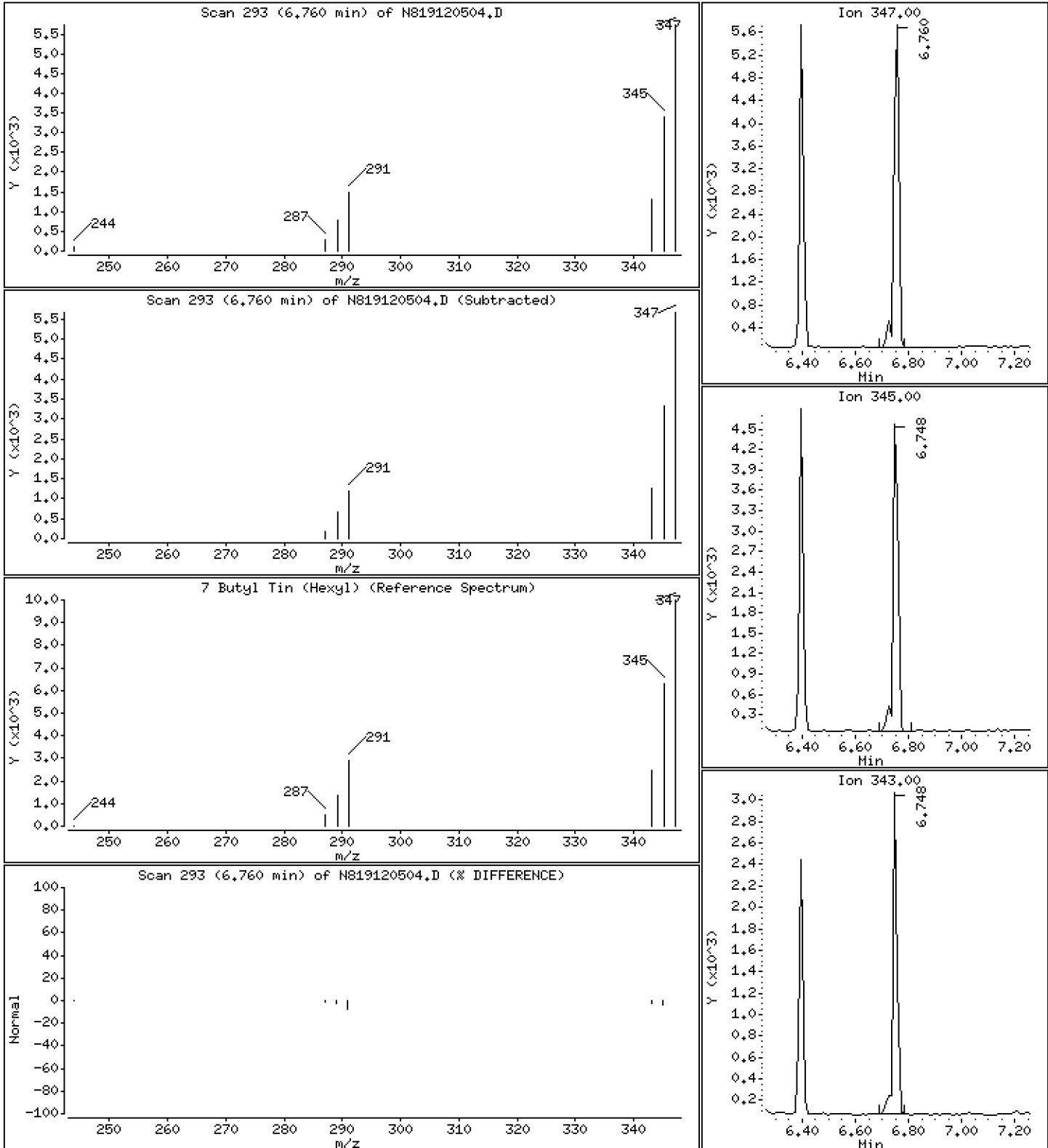
Operator: JZ

Column phase: ZB-5msi

Column diameter: 0.25

7 Butyl Tin (Hexyl)

Concentration: 0.4829 ug/mL



ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20191205.b\N819120504.D
 Lab Smp Id: BHL0082-BS1
 Inj Date : 05-DEC-2019 11:58 MS Autotune Date: 27-FEB-2008 03:32
 Operator : JZ Inst ID: nt8.i
 Smp Info : BHL0082-BS1,
 Misc Info :
 Comment : 2 ul Injection
 Method : \\target\share\chem3\nt8.i\20191205.b\TBT1125.m
 Meth Date : 05-Dec-2019 12:54 nt8.i Quant Type: ISTD
 Cal Date : 25-NOV-2019 15:29 Cal File: N819112507.D
 Als bottle: 4
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: sedmdl.sub
 Target Version: 4.14
 Processing Host: ORGDATA22

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN	FINAL
	MASS						(ug/mL)	(ug/mL)
\$ 1 Tripropyl Tin (Hexyl)	291		4.492	4.471	(0.741)	8344	0.43610	0.4361
2 Tetrabutyl Tin	289		Compound Not Detected.					
3 Tributyl Tin (Hexyl)	319		5.419	5.419	(0.894)	6929	0.46871	0.4687
* 4 Tetrapentyl Tin	333		6.058	6.058	(1.000)	48955	2.00000	
5 Dibutyl Tin (Hexyl)	347		6.119	6.119	(0.709)	4979	0.49973	0.4997
\$ 6 Tripentyl Tin (Hexyl)	347		6.397	6.397	(0.741)	5275	0.36158	0.3616
7 Butyl Tin (Hexyl)	347		6.760	6.760	(0.783)	7605	0.48291	0.4829 (M)
* 8 p-Terphenyl-d14	244		8.635	8.635	(1.000)	45008	0.20000	

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
 AREA AND RT SUMMARY

Instrument ID: nt8.i Calibration Date: 05-DEC-2019
 Lab File ID: N819120504.D Calibration Time: 11:17
 Lab Smp Id: BHL0082-BS1
 Analysis Type: SV Level:
 Quant Type: ISTD Sample Type:
 Operator: JZ
 Method File: \\target\share\chem3\nt8.i\20191205.b\TBT1125.m
 Misc Info:

Test Mode:
 Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	41592	20796	83184	48955	17.70
8 p-Terphenyl-d14	41162	20581	82324	45008	9.34

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	6.06	5.56	6.56	6.06	-0.00
8 p-Terphenyl-d14	8.64	8.14	9.14	8.64	-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 - N819120504.D

Lab ID: BHL0082-BS1
nt8.i, 20191205.b\TBT1125.m, 05-DEC-2019 11:58

RT CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV	RRT	DELTA	COMPOUND
-----	-----	-----	-------	----------

NONE

RRT check based on Ccal File: N819120502.D

On Column LOD for nt8.i, 20191205.b\TBT1125.m, sedmdl.sub = 0.0000

Exception: Tripropyl Tin (Hexyl) (Surr) 0.0010

* Only compounds listed in the work order have been verified by the analyst *

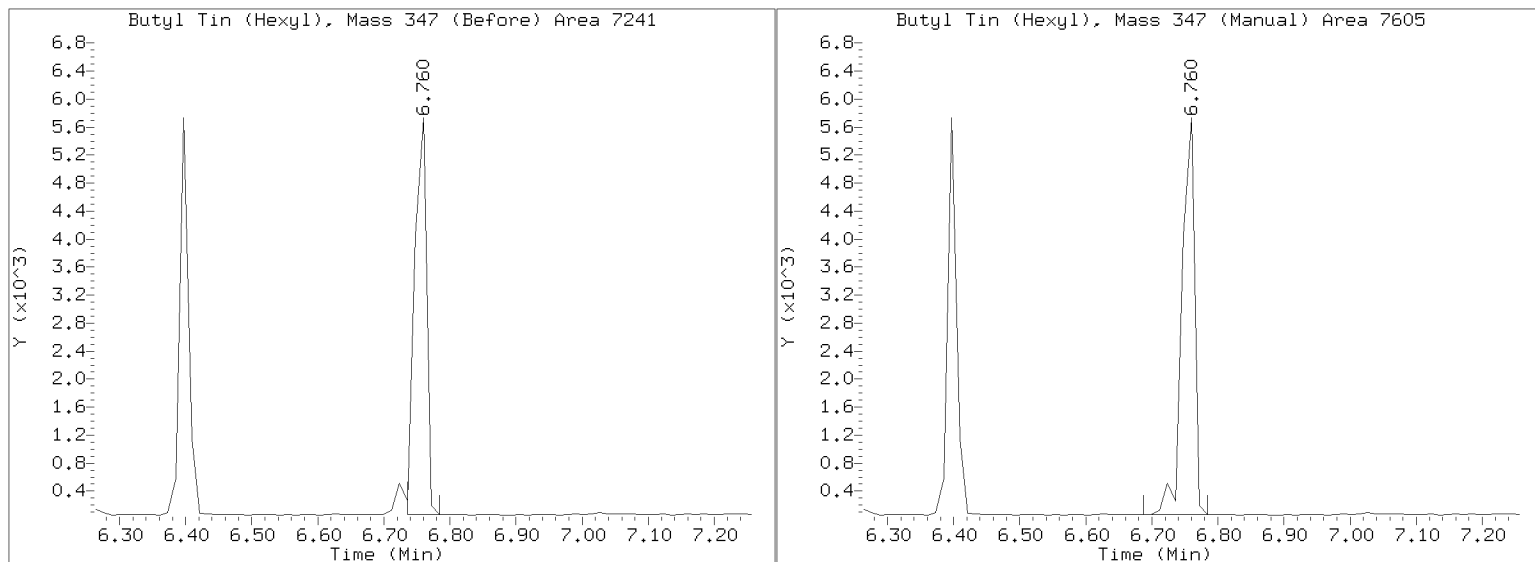
Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem3/nt8.i/20191205.b/N819120504.D

Injection Date: 05-DEC-2019 11:58

Lab ID: BHL0082-BS1 Client ID:

Report Date: 12/05/2019 13:00



Data File: \\target\share\chem3\nt8.1\20191205.B\N819120505.D

Date: 05-DEC-2019 12:14

Client ID:

Sample Info: BHL0082-BSM1,

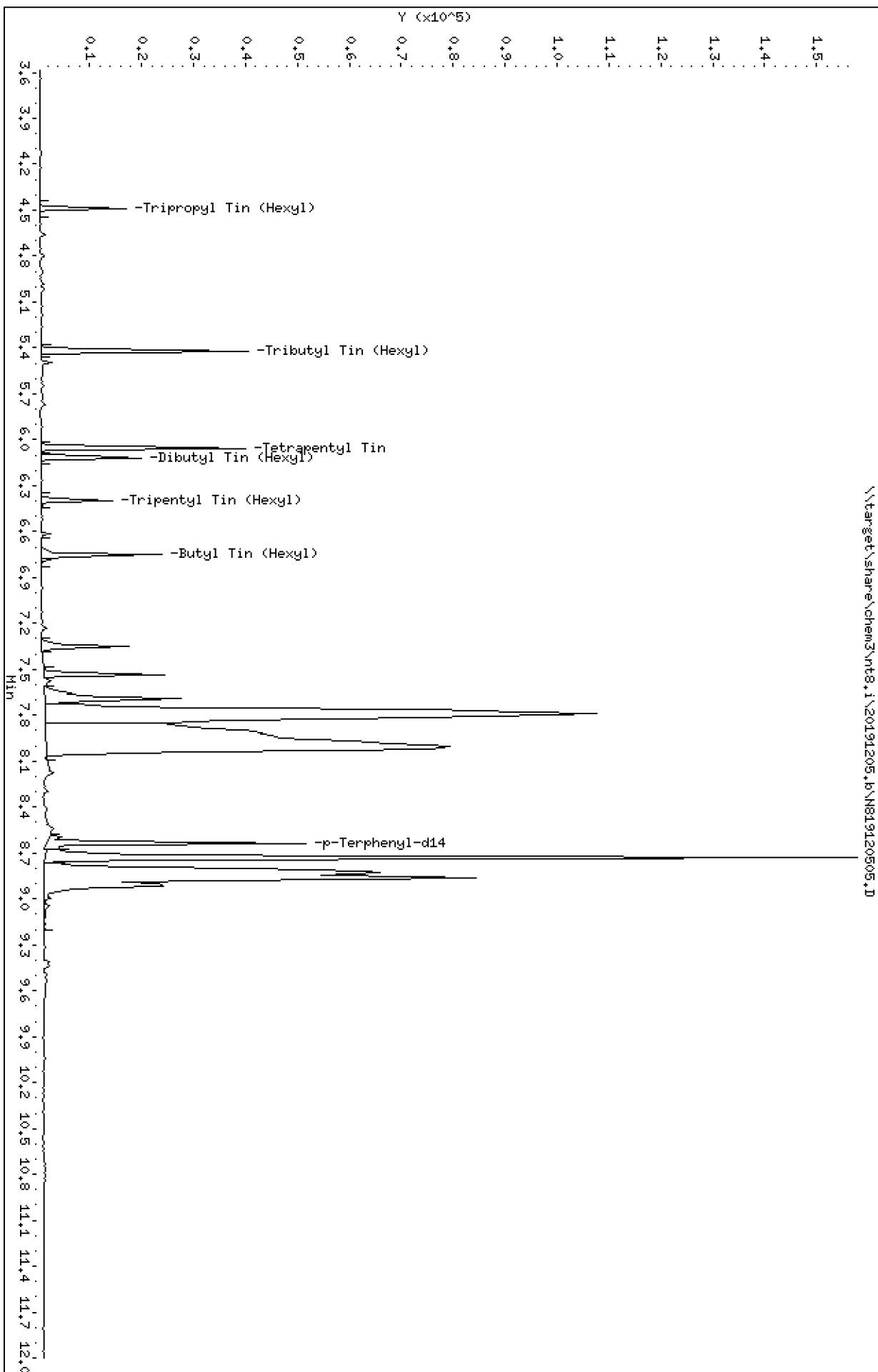
Column phase: ZB-5msi

Instrument: nt8.1

Operator: JZ

Column diameter: 0.25

\\target\share\chem3\nt8.1\20191205.B\N819120505.D



Date : 05-DEC-2019 12:14

Client ID:

Instrument: nt8.i

Sample Info: BHL0082-BSD1,

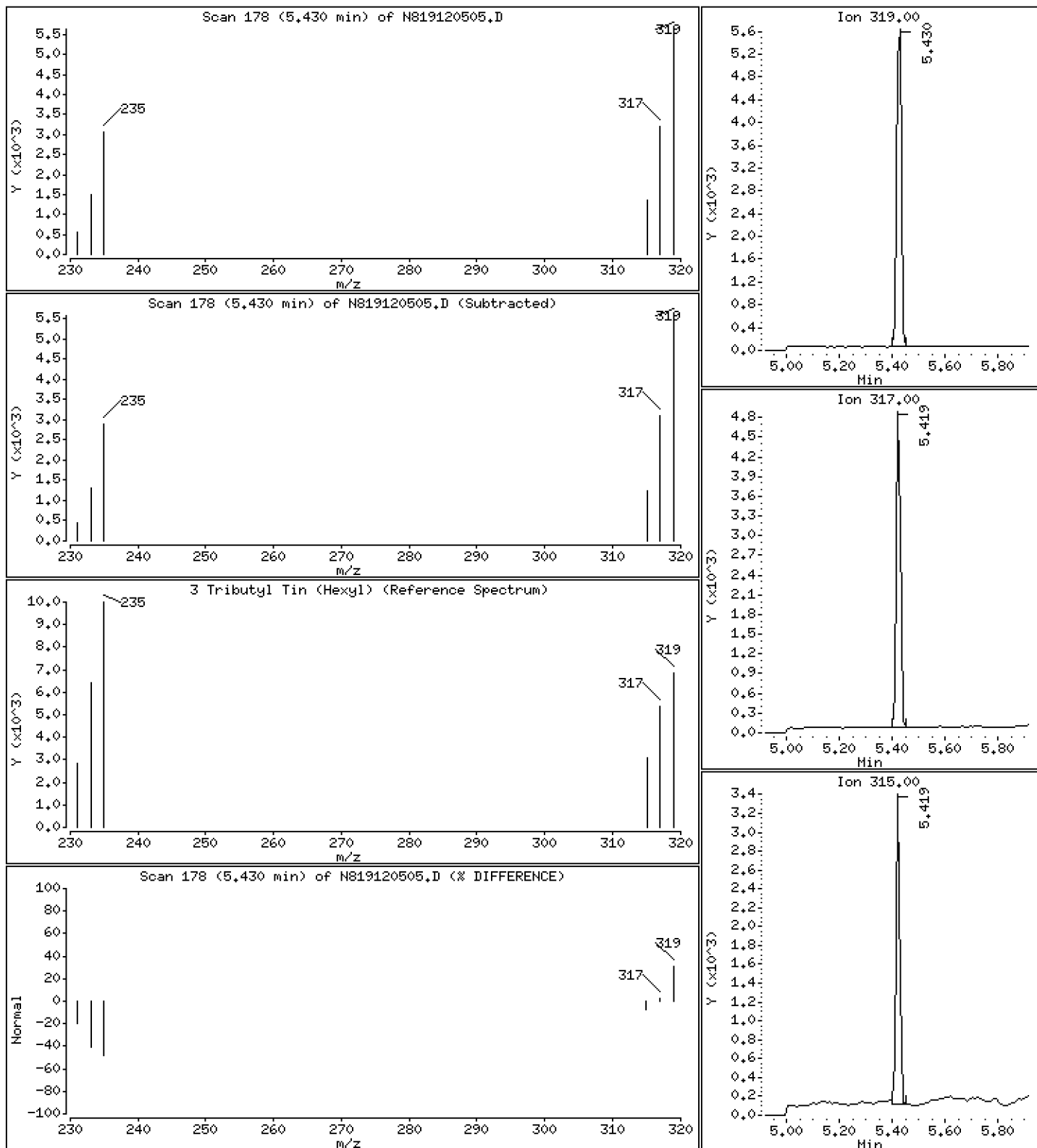
Operator: JZ

Column phase: ZB-5msi

Column diameter: 0.25

3 Tributyl Tin (Hexyl)

Concentration: 0.4613 ug/mL



Date : 05-DEC-2019 12:14

Client ID:

Instrument: nt8.i

Sample Info: BHL0082-BSD1,

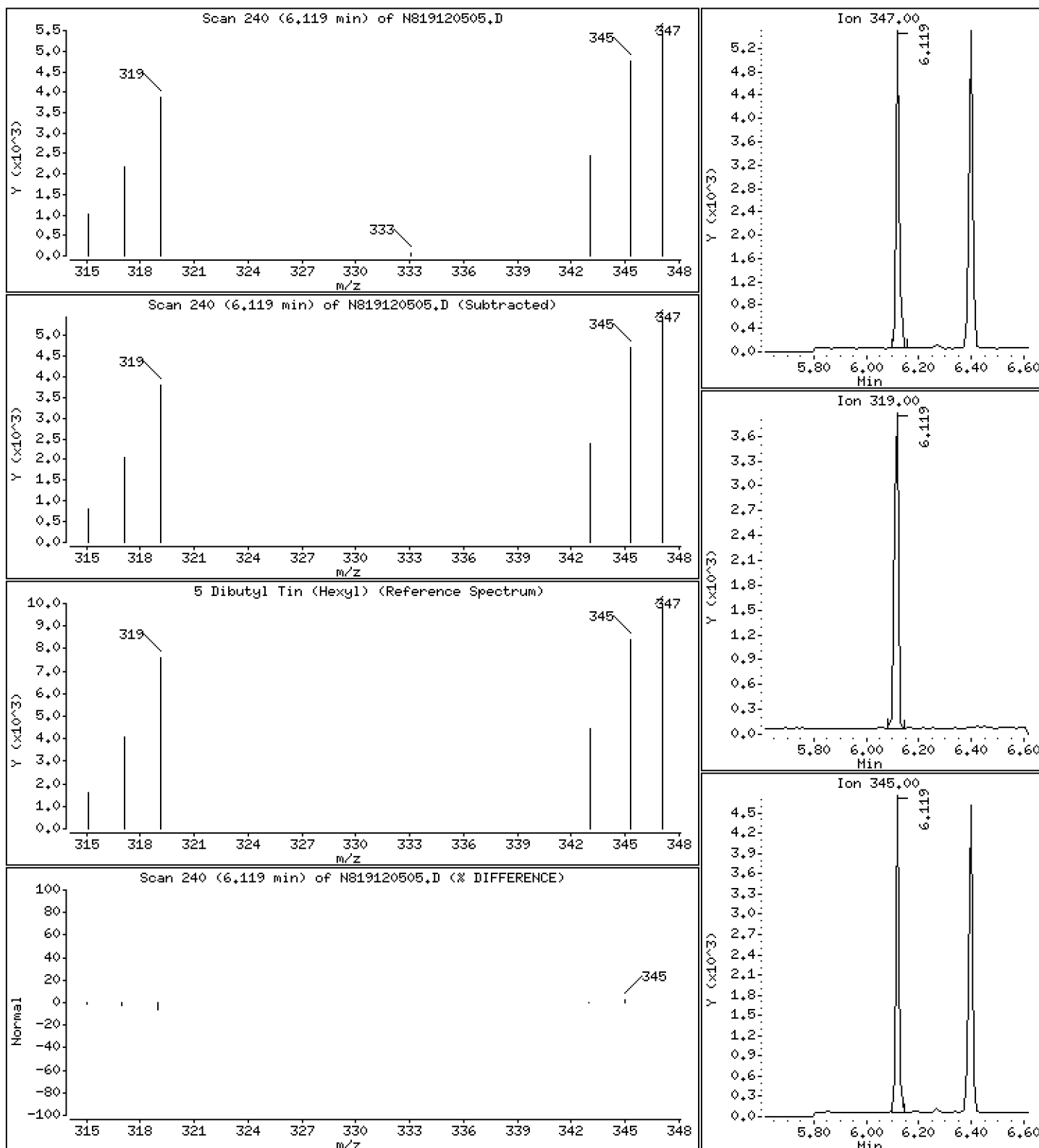
Operator: JZ

Column phase: ZB-5msi

Column diameter: 0,25

5 Dibutyl Tin (Hexyl)

Concentration: 0,5036 ug/mL



Date : 05-DEC-2019 12:14

Client ID:

Instrument: nt8.i

Sample Info: BHL0082-BSD1,

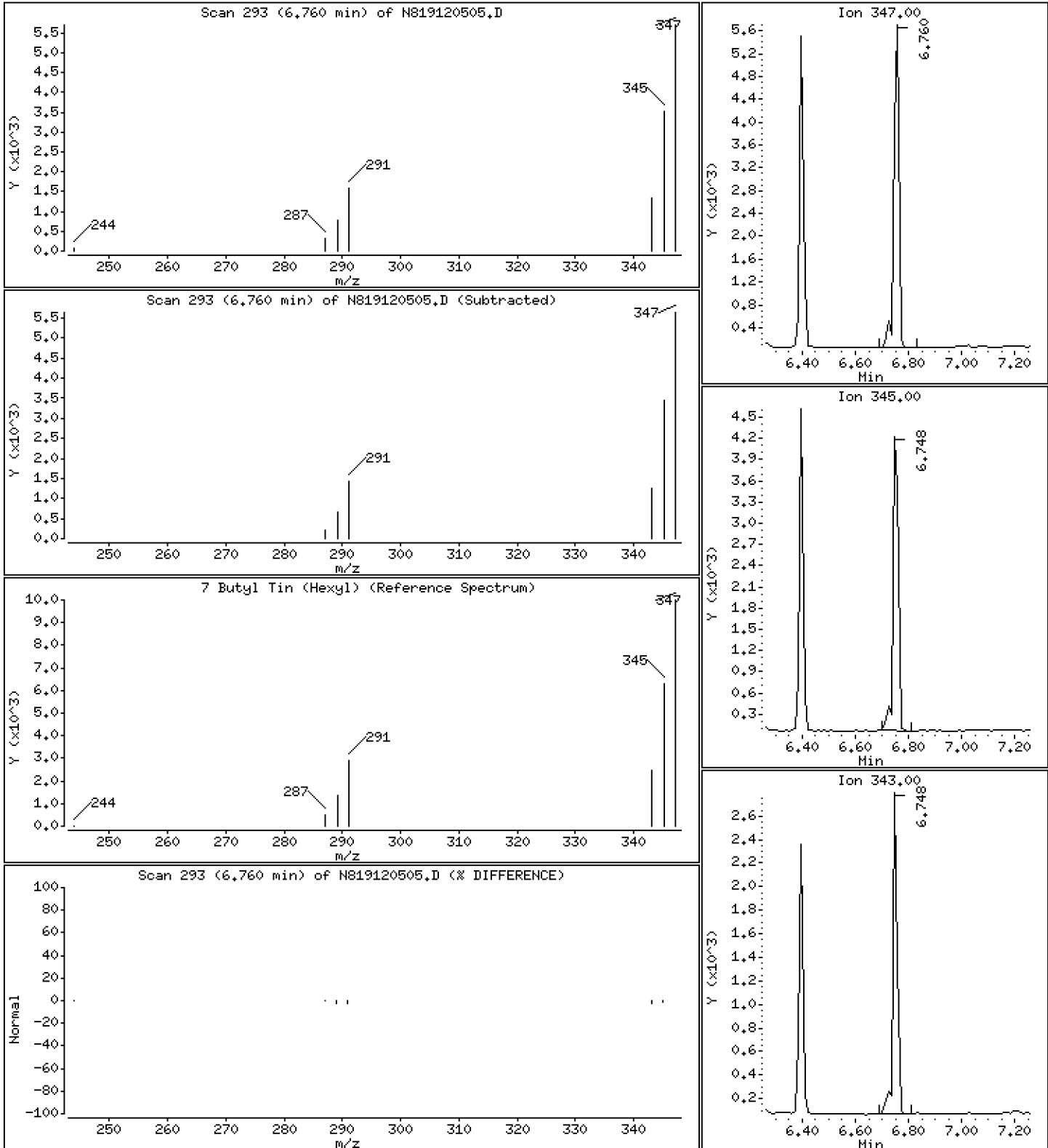
Operator: JZ

Column phase: ZB-5msi

Column diameter: 0,25

7 Butyl Tin (Hexyl)

Concentration: 0,4734 ug/mL



ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20191205.b\N819120505.D
 Lab Smp Id: BHL0082-BSD1
 Inj Date : 05-DEC-2019 12:14 MS Autotune Date: 27-FEB-2008 03:32
 Operator : JZ Inst ID: nt8.i
 Smp Info : BHL0082-BSD1,
 Misc Info :
 Comment : 2 ul Injection
 Method : \\target\share\chem3\nt8.i\20191205.b\TBT1125.m
 Meth Date : 05-Dec-2019 12:54 nt8.i Quant Type: ISTD
 Cal Date : 25-NOV-2019 15:29 Cal File: N819112507.D
 Als bottle: 5
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: sedmdl.sub
 Target Version: 4.14
 Processing Host: ORGDATA22

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN	FINAL
	MASS						(ug/mL)	(ug/mL)
\$ 1 Tripropyl Tin (Hexyl)	291		4.492	4.471	(0.741)	8526	0.42864	0.4286
2 Tetrabutyl Tin	289		Compound Not Detected.					
3 Tributyl Tin (Hexyl)	319		5.429	5.419	(0.896)	7089	0.46126	0.4613
* 4 Tetrapentyl Tin	333		6.058	6.058	(1.000)	50894	2.00000	
5 Dibutyl Tin (Hexyl)	347		6.119	6.119	(0.709)	5052	0.50358	0.5036
\$ 6 Tripentyl Tin (Hexyl)	347		6.397	6.397	(0.741)	5134	0.34950	0.3495
7 Butyl Tin (Hexyl)	347		6.759	6.760	(0.783)	7507	0.47342	0.4734 (M)
* 8 p-Terphenyl-d14	244		8.635	8.635	(1.000)	45319	0.20000	

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
 AREA AND RT SUMMARY

Instrument ID: nt8.i Calibration Date: 05-DEC-2019
 Lab File ID: N819120505.D Calibration Time: 11:17
 Lab Smp Id: BHL0082-BSD1
 Analysis Type: SV Level:
 Quant Type: ISTD Sample Type:
 Operator: JZ
 Method File: \\target\share\chem3\nt8.i\20191205.b\TBT1125.m
 Misc Info:

Test Mode:
 Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	41592	20796	83184	50894	22.36
8 p-Terphenyl-d14	41162	20581	82324	45319	10.10

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	6.06	5.56	6.56	6.06	-0.00
8 p-Terphenyl-d14	8.64	8.14	9.14	8.64	-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 - N819120505.D

Lab ID: BHL0082-BSD1

nt8.i, 20191205.b\TBT1125.m, 05-DEC-2019 12:14

RT CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV	RRT	DELTA	COMPOUND
-----	-----	-----	-------	----------

NONE

RRT check based on Ccal File: N819120502.D

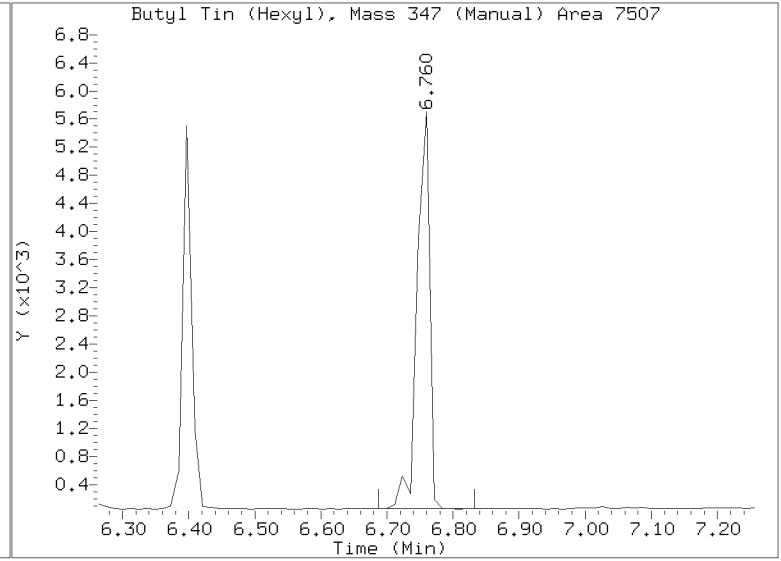
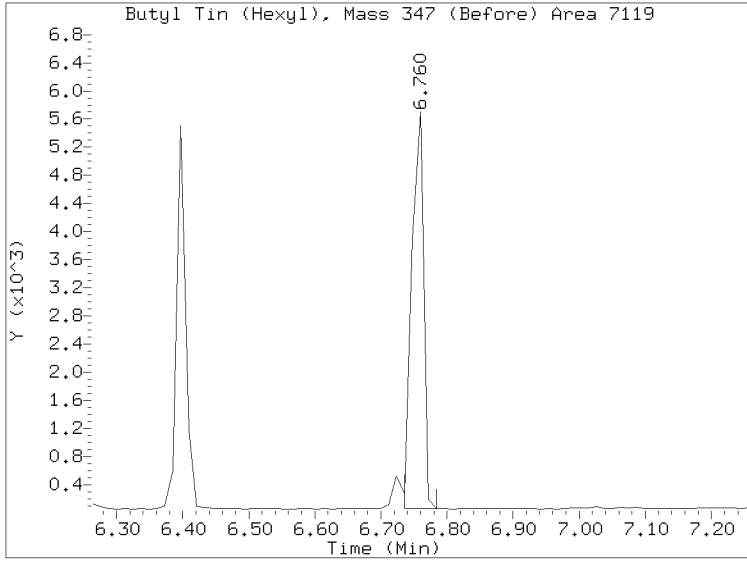
On Column LOD for nt8.i, 20191205.b\TBT1125.m, sedmdl.sub = 0.0000

Exception: Tripropyl Tin (Hexyl) (Surr) 0.0010

* Only compounds listed in the work order have been verified by the analyst *

Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem3/nt8.i/20191205.b/N819120505.D
Injection Date: 05-DEC-2019 12:14
Lab ID: BHL0082-BSD1 Client ID:
Report Date: 12/05/2019 13:00





MS / MS DUPLICATE RECOVERY
EPA 8270D-SIM

Laboratory:	<u>Analytical Resources, Inc.</u>	SDG:	<u>19K0228</u>
Client:	<u>Anchor QEA, LLC</u>	Project:	<u>Gasco PDI</u>
Matrix:	<u>Water</u>	Analyzed:	<u>11/25/19 18:23</u>
Batch:	<u>BHK0438</u>	Laboratory ID:	<u>BHK0438-MS1</u>
Preparation:	<u>EPA 3510C SepF</u>	Sequence Name:	<u>Matrix Spike</u>
Initial/Final:	<u>100 mL / 0.5 mL</u>	Source Sample:	<u>PDI-FB-191112146</u>

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	Q	MS CONCENTRATION (ug/L)	Q	MS % REC. #	QC LIMITS REC.
Tributyltin Ion	2.23	ND	U	1.33		59.6	30 - 160

* Values outside of QC limits



MS / MS DUPLICATE RECOVERY
EPA 8270D-SIM

Laboratory:	<u>Analytical Resources, Inc.</u>	SDG:	<u>19K0228</u>
Client:	<u>Anchor QEA, LLC</u>	Project:	<u>Gasco PDI</u>
Matrix:	<u>Water</u>	Analyzed:	<u>11/25/19 18:39</u>
Batch:	<u>BHK0438</u>	Laboratory ID:	<u>BHK0438-MSD1</u>
Preparation:	<u>EPA 3510C SepF</u>	Sequence Name:	<u>Matrix Spike Dup</u>
Initial/Final:	<u>100 mL / 0.5 mL</u>	Source Sample:	<u>PDI-FB-191112146</u>

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	Q	MSD % REC. #	% RPD #	QC LIMITS	
						RPD	REC.
Tributyltin Ion	2.23	1.69		76.0	24.1	30	30 - 160

* Values outside of QC limits

Data File: \\target\share\chem3\nt8.1\2019112504.b\N819112516.D

Date: 25-NOV-2019 18:23

Client ID:

Sample Info: BHK0438-HSI,

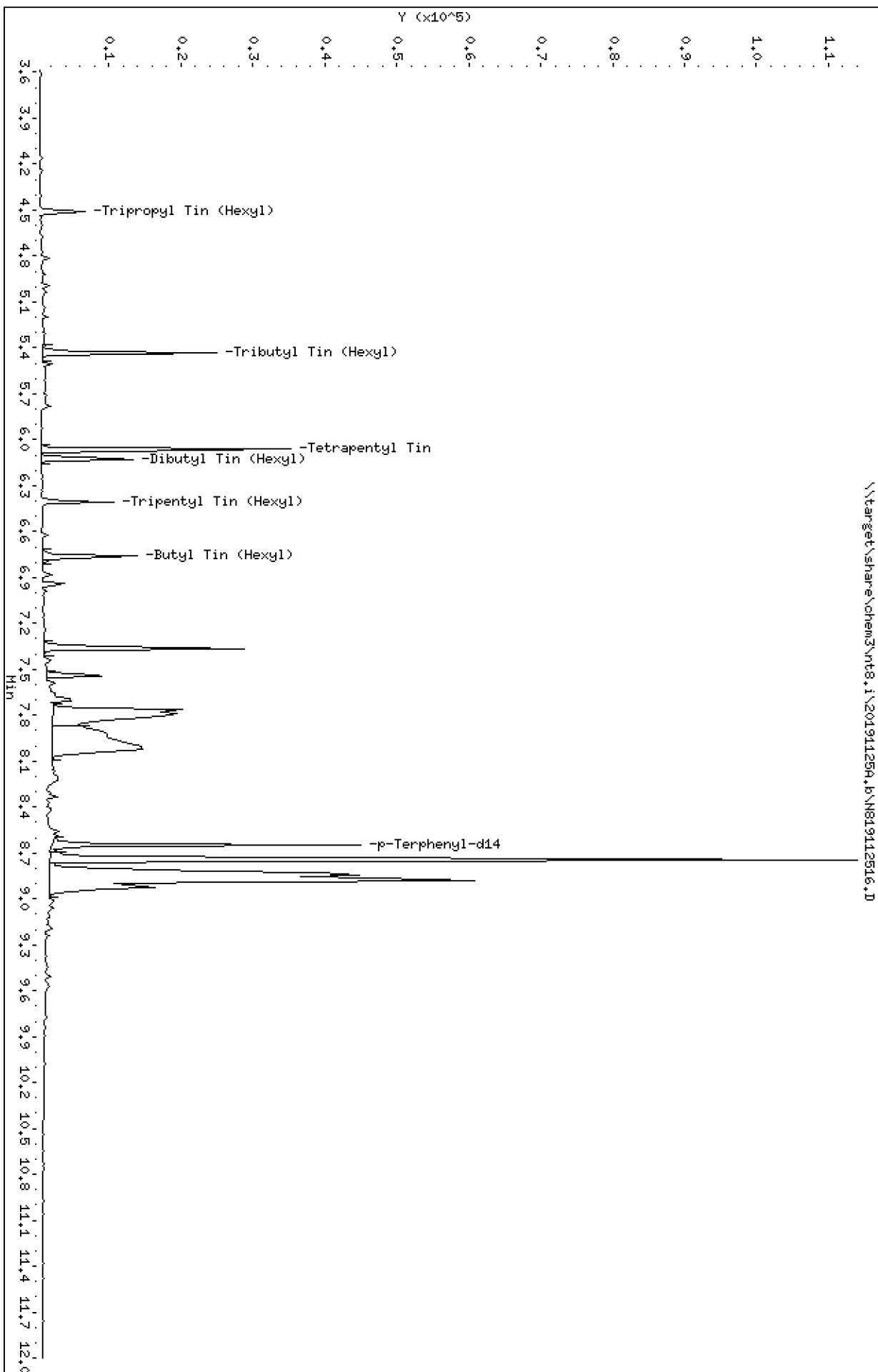
Column phase: ZB-5msi

Instrument: nt8.1

Operator: JZ

Column diameter: 0.25

\\target\share\chem3\nt8.1\2019112504.b\N819112516.D



Date : 25-NOV-2019 18:23

Client ID:

Instrument: nt8.i

Sample Info: BHK0438-MS1.

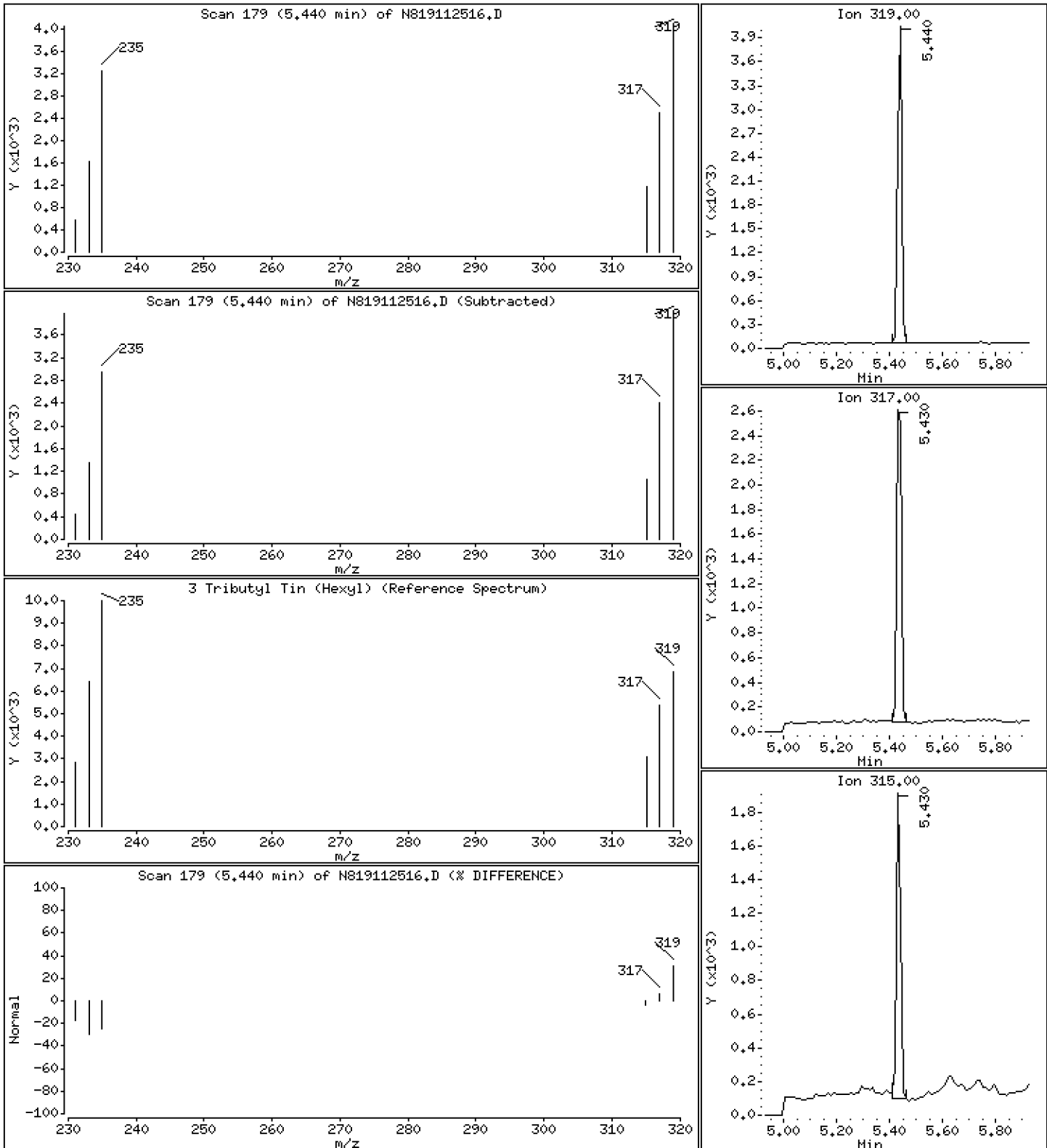
Operator: JZ

Column phase: ZB-5msi

Column diameter: 0,25

3 Tributyl Tin (Hexyl)

Concentration: 0,3437 ug/mL



Date : 25-NOV-2019 18:23

Client ID:

Instrument: nt8.i

Sample Info: BHK0438-MS1.

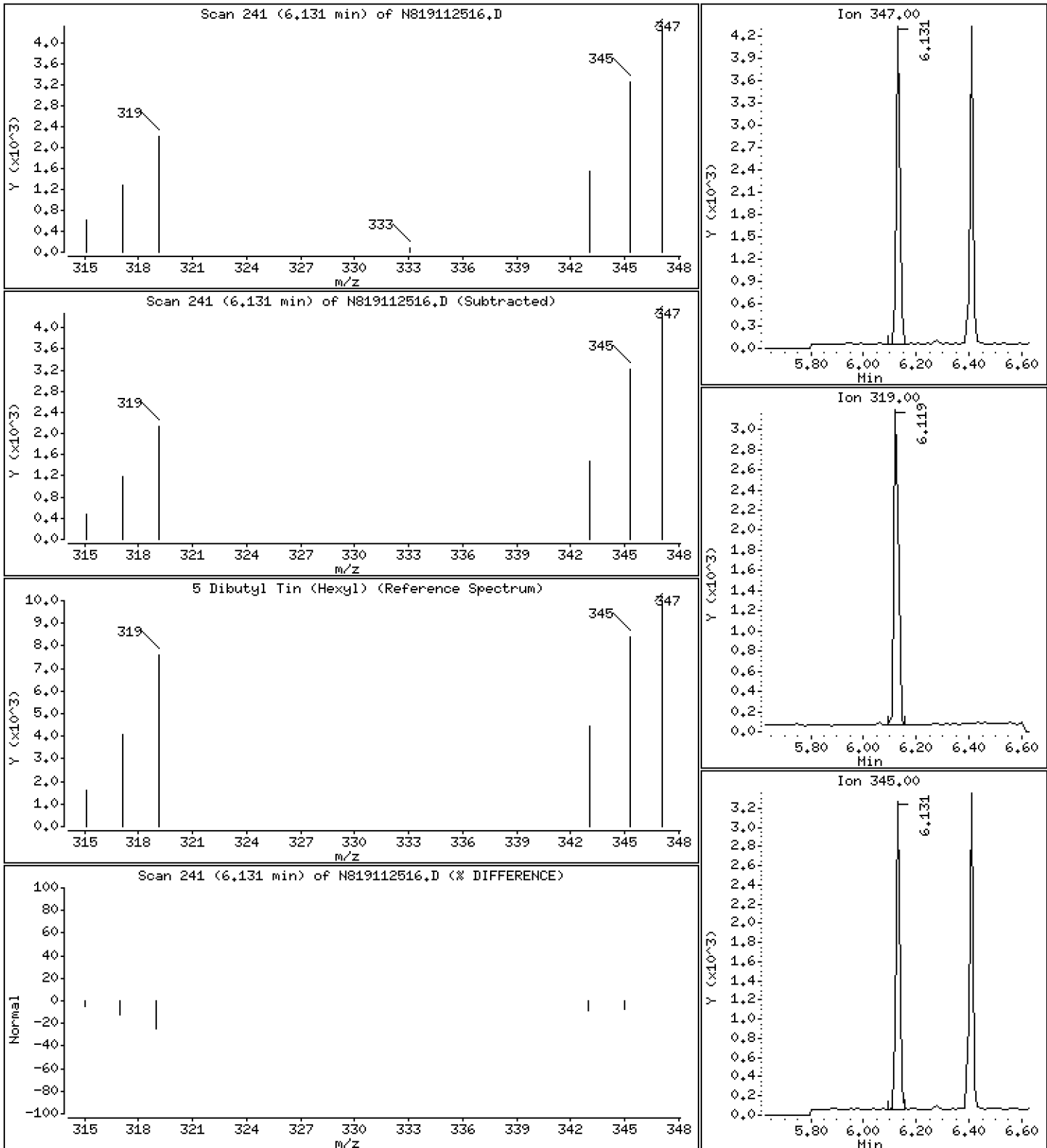
Operator: JZ

Column phase: ZB-5msi

Column diameter: 0.25

5 Dibutyl Tin (Hexyl)

Concentration: 0.4414 ug/mL



Date : 25-NOV-2019 18:23

Client ID:

Instrument: nt8.i

Sample Info: BHK0438-MS1.

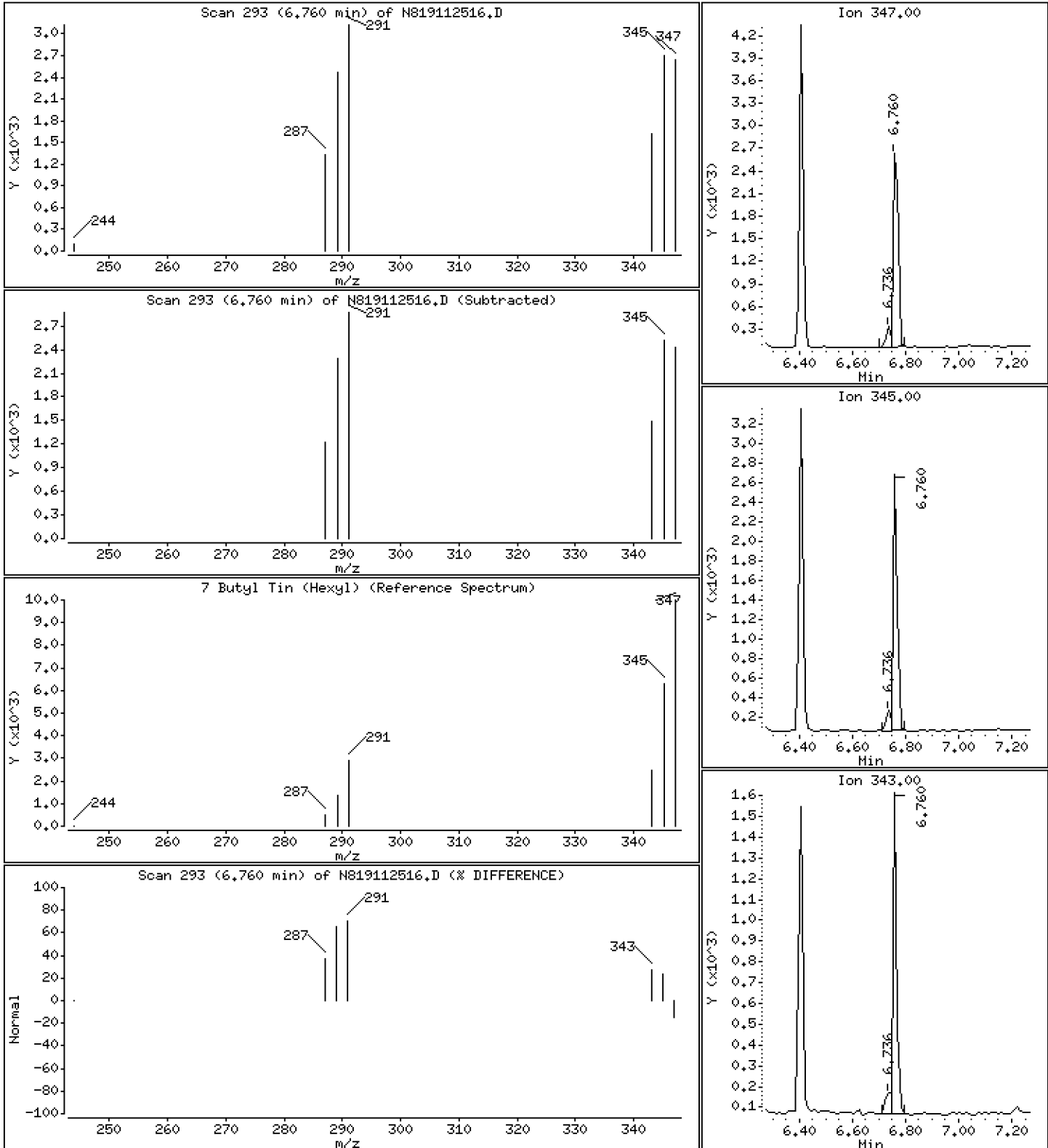
Operator: JZ

Column phase: ZB-5msi

Column diameter: 0.25

7 Butyl Tin (Hexyl)

Concentration: 0.2514 ug/mL



ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20191125A.b\N819112516.D
 Lab Smp Id: BHK0438-MS1
 Inj Date : 25-NOV-2019 18:23
 Operator : JZ Inst ID: nt8.i
 Smp Info : BHK0438-MS1,
 Misc Info :
 Comment : 2 ul Injection
 Method : \\target\share\chem3\nt8.i\20191125A.b\TBT1125.m
 Meth Date : 26-Nov-2019 15:12 jianqing Quant Type: ISTD
 Cal Date : 25-NOV-2019 15:29 Cal File: N819112507.D
 Als bottle: 7
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: TBTmdl.sub
 Target Version: 4.14
 Processing Host: ORGDATA22

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN	FINAL
	MASS						(ug/mL)	(ug/mL)
\$ 1 Tripropyl Tin (Hexyl)	291		4.513	4.471	(0.745)	3057	0.18806	0.1881
2 Tetrabutyl Tin	289		Compound Not Detected.					
3 Tributyl Tin (Hexyl)	319		5.440	5.429	(0.898)	4317	0.34372	0.3437
* 4 Tetrapentyl Tin	333		6.058	6.070	(1.000)	41592	2.00000	
5 Dibutyl Tin (Hexyl)	347		6.131	6.131	(0.709)	3889	0.44142	0.4414
\$ 6 Tripentyl Tin (Hexyl)	347		6.409	6.409	(0.741)	3887	0.30131	0.3013
7 Butyl Tin (Hexyl)	347		6.760	6.772	(0.782)	3501	0.25141	0.2514
* 8 p-Terphenyl-d14	244		8.647	8.647	(1.000)	39799	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
 AREA AND RT SUMMARY

Instrument ID: nt8.i Calibration Date: 25-NOV-2019
 Lab File ID: N819112516.D Calibration Time: 16:56
 Lab Smp Id: BHK0438-MS1
 Analysis Type: SV Level:
 Quant Type: ISTD Sample Type:
 Operator: JZ
 Method File: \\target\share\chem3\nt8.i\20191125A.b\TBT1125.m
 Misc Info:

Test Mode:
 Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	41592	20796	83184	41592	0.00
8 p-Terphenyl-d14	41162	20581	82324	39799	-3.31

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	6.07	5.57	6.57	6.06	-0.20
8 p-Terphenyl-d14	8.65	8.15	9.15	8.65	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 - N819112516.D

Lab ID: BHK0438-MS1
nt8.i, 20191125A.b\TBT1125.m, 25-NOV-2019 18:23

RT CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.745	0.737	0.0083	Tripropyl Tin (Hexyl)

RRT check based on Ccal File: N819112511.D

On Column LOD for nt8.i, 20191125A.b\TBT1125.m, TBTmdl.sub = 0.0000

Exception: Tripropyl Tin (Hexyl) (Surr) 0.0010

* Only compounds listed in the work order have been verified by the analyst *

Data File: \\target\share\chem3\nt8.1\2019112504.6\N819112517.D

Date: 25-NOV-2019 18:39

Client ID:

Sample Info: BHK0438-HSD1

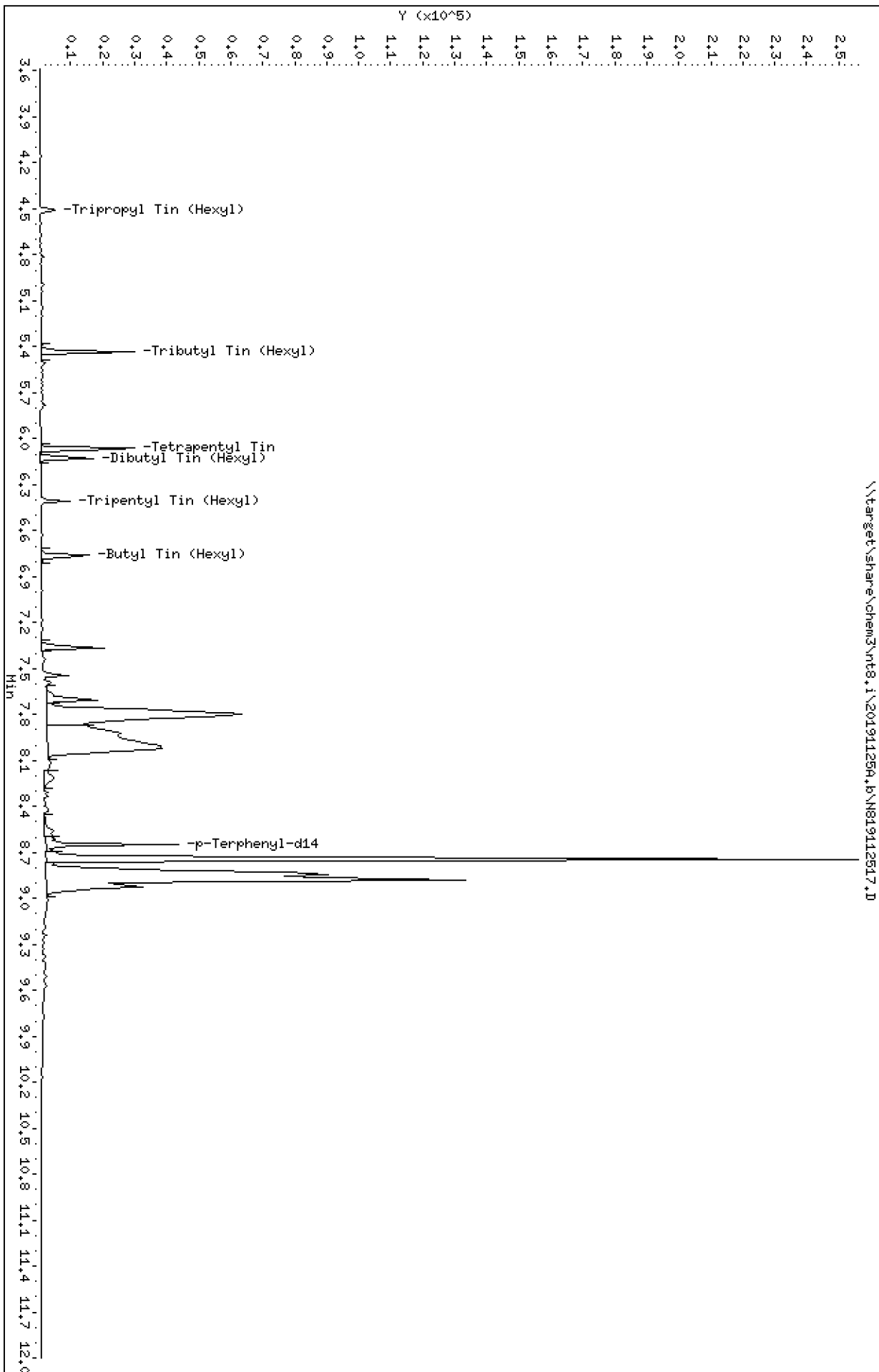
Column phase: ZB-5msi

Instrument: nt8.1

Operator: JZ

Column diameter: 0.25

Page 1



Date : 25-NOV-2019 18:39

Client ID:

Instrument: nt8.i

Sample Info: BHK0438-MSD1

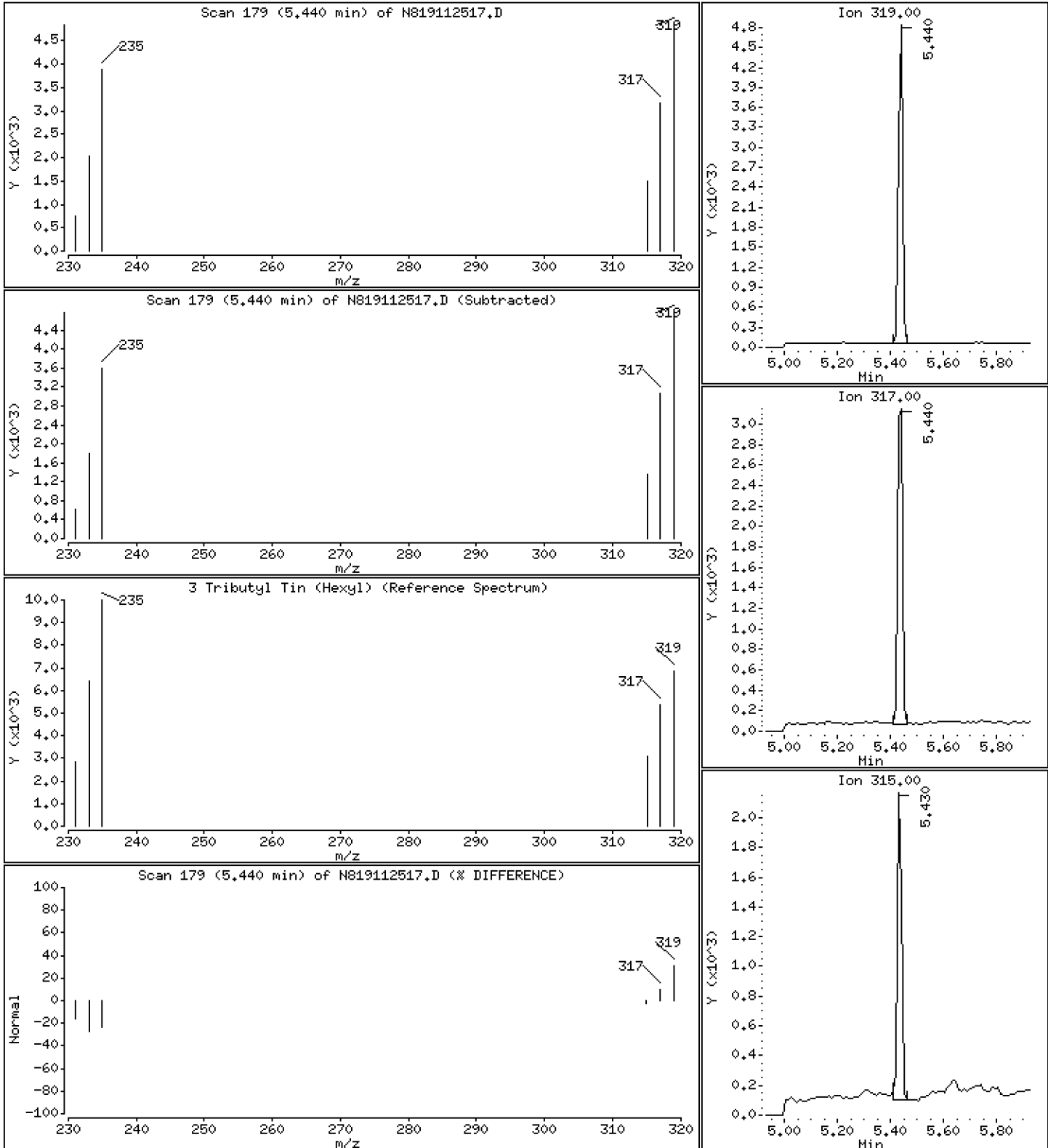
Operator: JZ

Column phase: ZB-5msi

Column diameter: 0,25

3 Tributyl Tin (Hexyl)

Concentration: 0,4379 ug/mL



Date : 25-NOV-2019 18:39

Client ID:

Instrument: nt8.i

Sample Info: BHK0438-MSD1

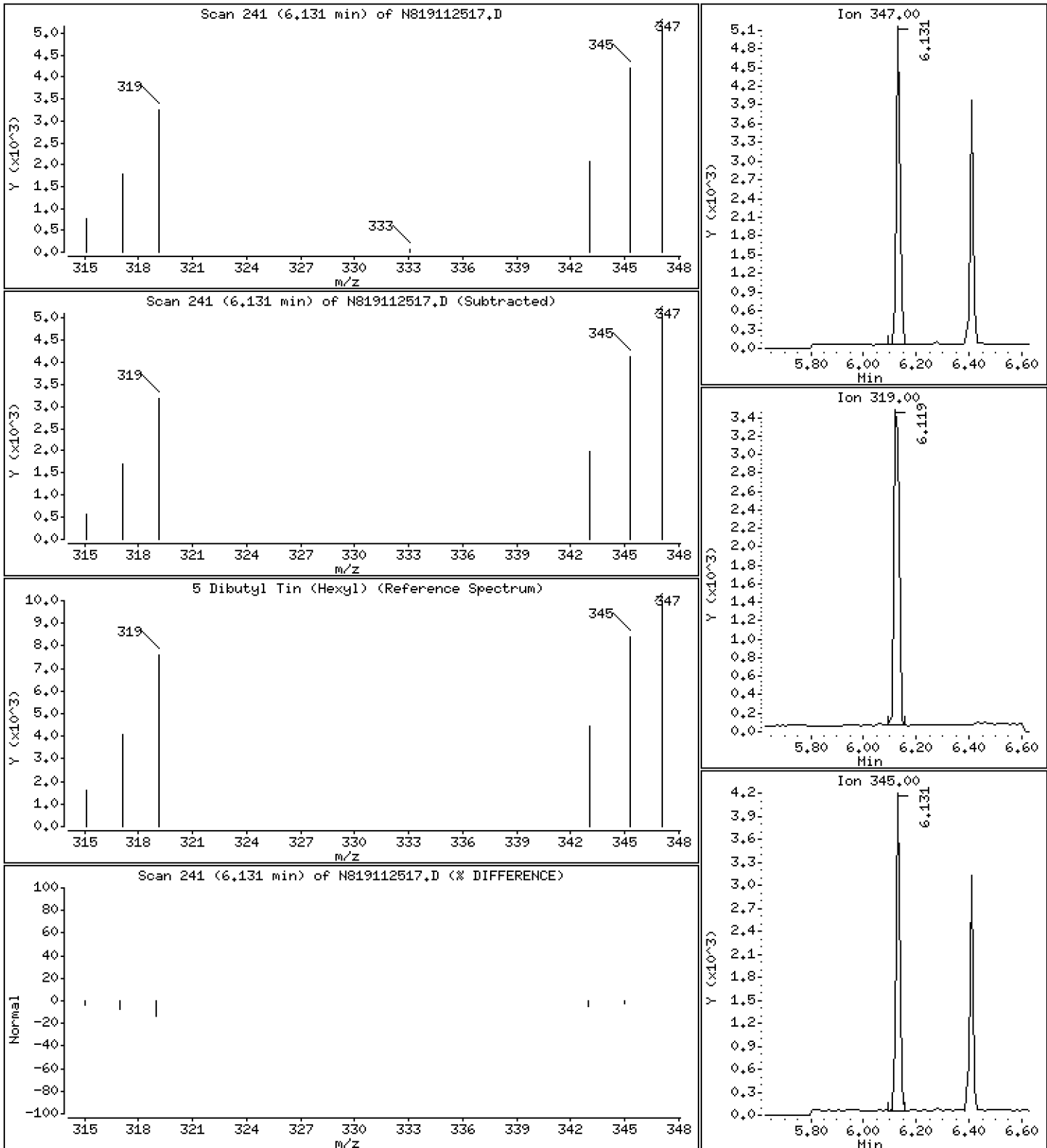
Operator: JZ

Column phase: ZB-5msi

Column diameter: 0,25

5 Dibutyl Tin (Hexyl)

Concentration: 0,5666 ug/mL



Date : 25-NOV-2019 18:39

Client ID:

Instrument: nt8.i

Sample Info: BHK0438-MSD1

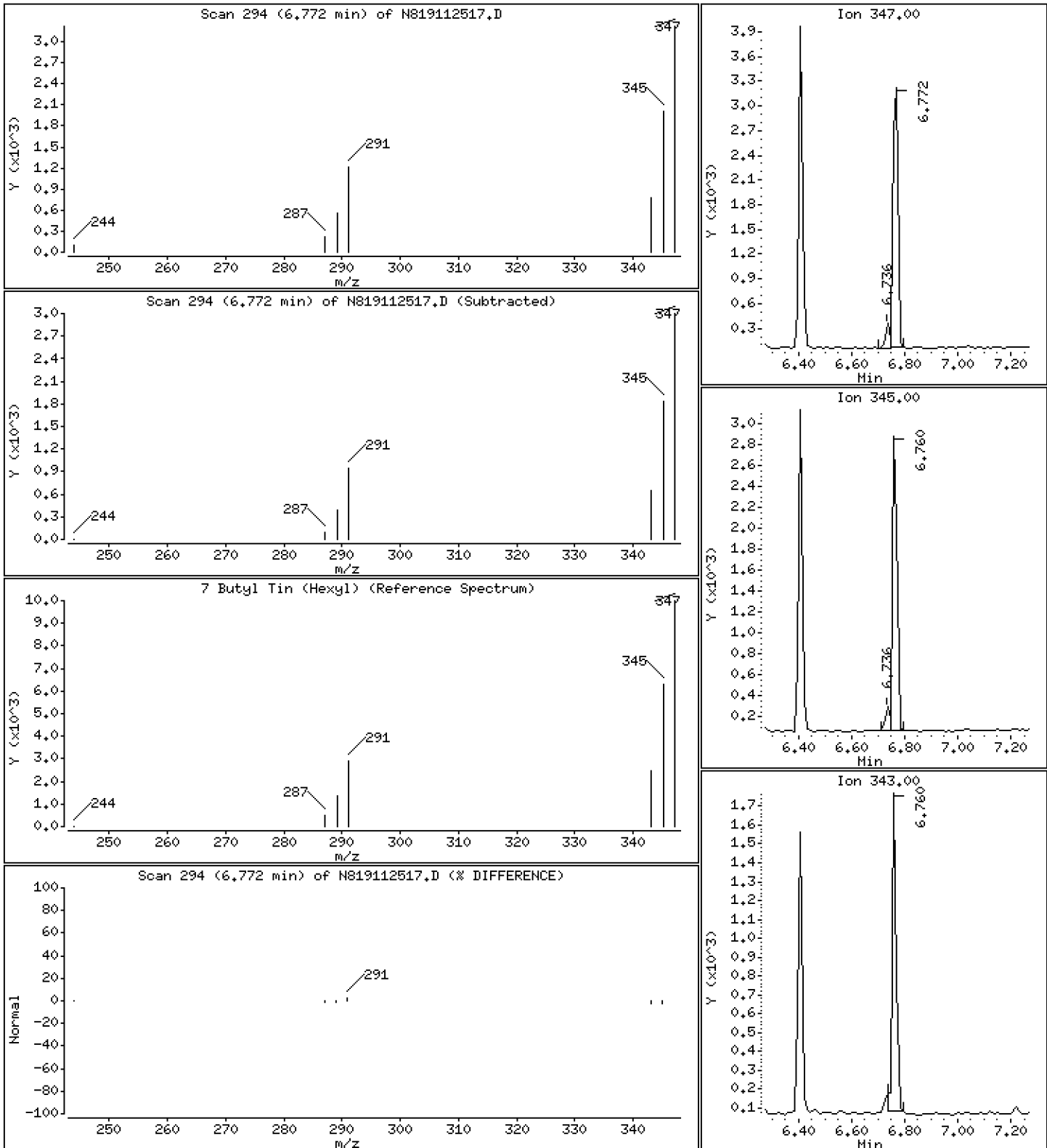
Operator: JZ

Column phase: ZB-5msi

Column diameter: 0.25

7 Butyl Tin (Hexyl)

Concentration: 0.3271 ug/mL



ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20191125A.b\N819112517.D
 Lab Smp Id: BHK0438-MSD1
 Inj Date : 25-NOV-2019 18:39
 Operator : JZ Inst ID: nt8.i
 Smp Info : BHK0438-MSD1
 Misc Info :
 Comment : 2 ul Injection
 Method : \\target\share\chem3\nt8.i\20191125A.b\TBT1125.m
 Meth Date : 26-Nov-2019 15:12 jianqing Quant Type: ISTD
 Cal Date : 25-NOV-2019 15:29 Cal File: N819112507.D
 Als bottle: 8
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: TBTmdl.sub
 Target Version: 4.14
 Processing Host: ORGDATA22

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN	FINAL
	MASS						(ug/mL)	(ug/mL)
\$ 1 Tripropyl Tin (Hexyl)	291		4.513	4.471	(0.745)	2699	0.17577	0.1758
2 Tetrabutyl Tin	289		Compound Not Detected.					
3 Tributyl Tin (Hexyl)	319		5.440	5.429	(0.898)	5195	0.43788	0.4379
* 4 Tetrapentyl Tin	333		6.058	6.070	(1.000)	39288	2.00000	
5 Dibutyl Tin (Hexyl)	347		6.131	6.131	(0.709)	4723	0.56660	0.5666
\$ 6 Tripentyl Tin (Hexyl)	347		6.409	6.409	(0.741)	3582	0.29348	0.2935
7 Butyl Tin (Hexyl)	347		6.772	6.772	(0.783)	4310	0.32712	0.3271
* 8 p-Terphenyl-d14	244		8.647	8.647	(1.000)	37655	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
 AREA AND RT SUMMARY

Instrument ID: nt8.i Calibration Date: 25-NOV-2019
 Lab File ID: N819112517.D Calibration Time: 16:56
 Lab Smp Id: BHK0438-MSD1
 Analysis Type: SV Level:
 Quant Type: ISTD Sample Type:
 Operator: JZ
 Method File: \\target\share\chem3\nt8.i\20191125A.b\TBT1125.m
 Misc Info:

Test Mode:
 Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	41592	20796	83184	39288	-5.54
8 p-Terphenyl-d14	41162	20581	82324	37655	-8.52

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	6.07	5.57	6.57	6.06	-0.20
8 p-Terphenyl-d14	8.65	8.15	9.15	8.65	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 - N819112517.D

Lab ID: BHK0438-MSD1

nt8.i, 20191125A.b\TBT1125.m, 25-NOV-2019 18:39

RT CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.745	0.737	0.0083	Tripropyl Tin (Hexyl)

RRT check based on Ccal File: N819112511.D

On Column LOD for nt8.i, 20191125A.b\TBT1125.m, TBTmdl.sub = 0.0000

Exception: Tripropyl Tin (Hexyl) (Surr) 0.0010

* Only compounds listed in the work order have been verified by the analyst *



MS / MS DUPLICATE RECOVERY
EPA 8270D-SIM

Laboratory:	<u>Analytical Resources, Inc.</u>	SDG:	<u>19K0228</u>
Client:	<u>Anchor QEA, LLC</u>	Project:	<u>Gasco PDI</u>
Matrix:	<u>Solid</u>	Analyzed:	<u>12/02/19 19:03</u>
Batch:	<u>BHK0576</u>	Laboratory ID:	<u>BHK0576-MS1</u>
Preparation:	<u>EPA 3546 (Microwave)</u>	Sequence Name:	<u>Matrix Spike</u>
Initial/Final:	<u>5.76 g / 0.5 mL</u>	Source Sample:	<u>PDI-1142RAB-20-30.4-191112</u>

COMPOUND	SPIKE ADDED (ug/kg dry)	SAMPLE CONCENTRATION (ug/kg dry)	Q	MS CONCENTRATION (ug/kg dry)	Q	MS % REC. #	QC LIMITS REC.
Tributyltin Ion	44.5	ND	U	19.5		43.8	30 - 160

* Values outside of QC limits



MS / MS DUPLICATE RECOVERY
EPA 8270D-SIM

Laboratory:	<u>Analytical Resources, Inc.</u>	SDG:	<u>19K0228</u>
Client:	<u>Anchor QEA, LLC</u>	Project:	<u>Gasco PDI</u>
Matrix:	<u>Solid</u>	Analyzed:	<u>12/02/19 19:19</u>
Batch:	<u>BHK0576</u>	Laboratory ID:	<u>BHK0576-MSD1</u>
Preparation:	<u>EPA 3546 (Microwave)</u>	Sequence Name:	<u>Matrix Spike Dup</u>
Initial/Final:	<u>5.76 g / 0.5 mL</u>	Source Sample:	<u>PDI-1142RAB-20-30.4-191112</u>

COMPOUND	SPIKE ADDED (ug/kg dry)	MSD CONCENTRATION (ug/kg dry)	Q	MSD % REC. #	% RPD #	QC LIMITS	
						RPD	REC.
Tributyltin Ion	44.5	21.8		48.8	10.9	30	30 - 160

* Values outside of QC limits

Data File: \\target\share\chem3\nt8.1\201912024.b\N819120235.D

Date: 02-DEC-2019 19:03

Client ID:

Sample Info: BHK0576-HSI,

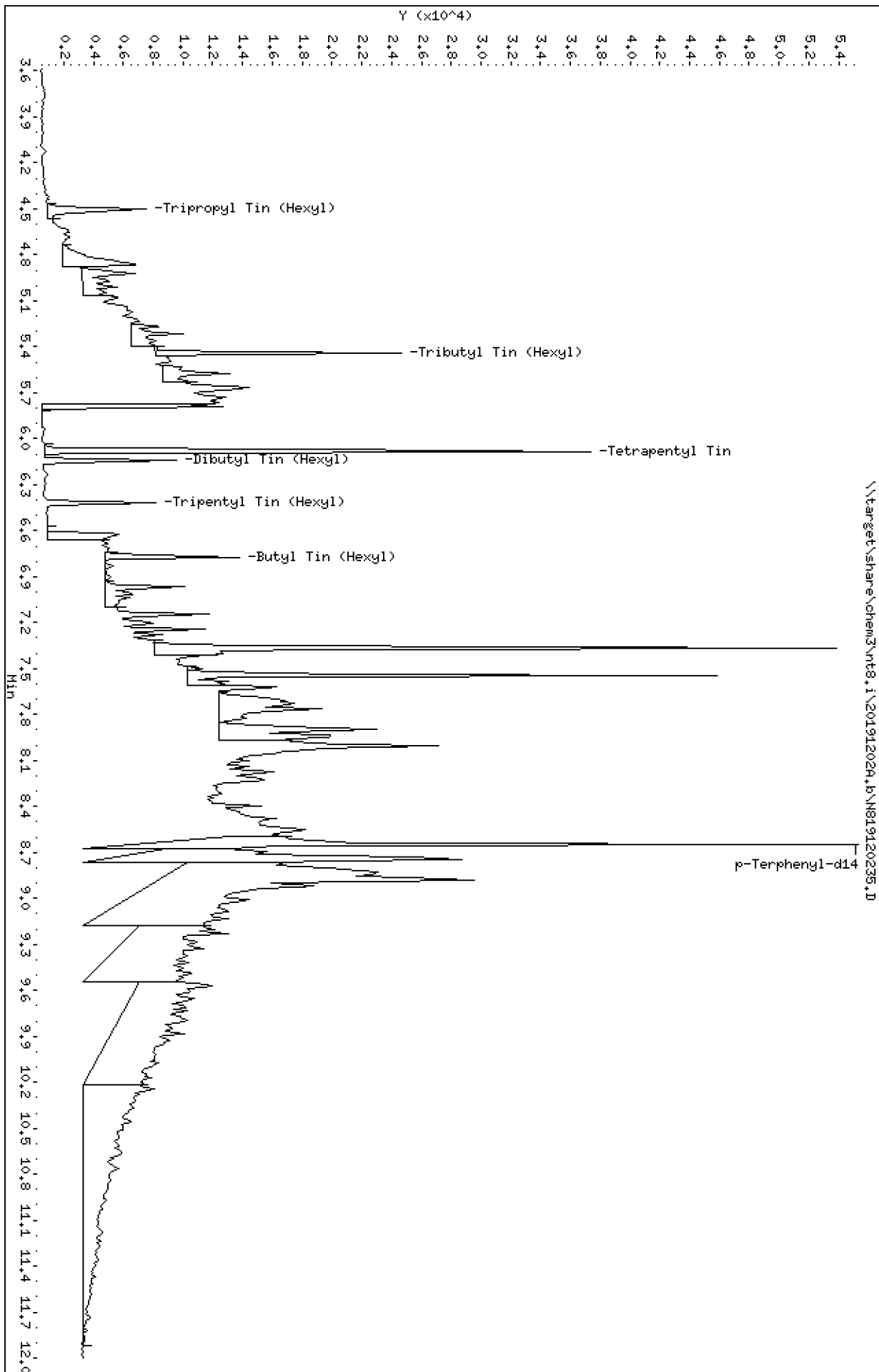
Column phase: ZB-5msi

Instrument: nt8.1

Operator: JZ

Column diameter: 0.25

Page 1



Date : 02-DEC-2019 19:03

Client ID:

Instrument: nt8.i

Sample Info: BHK0576-MS1.

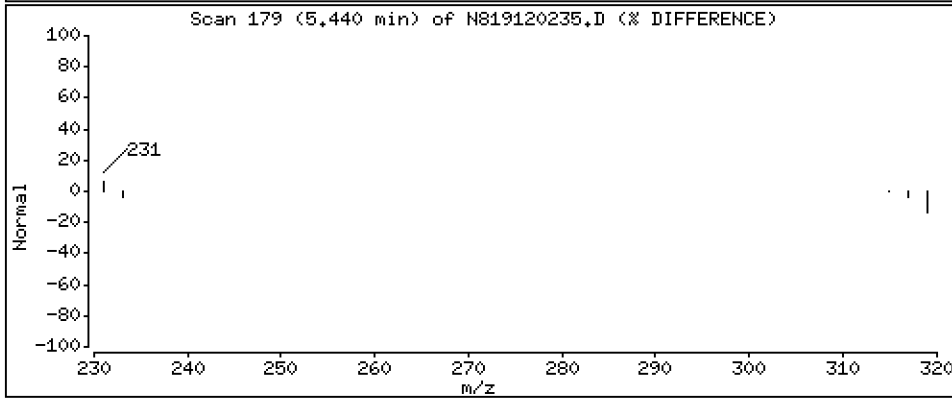
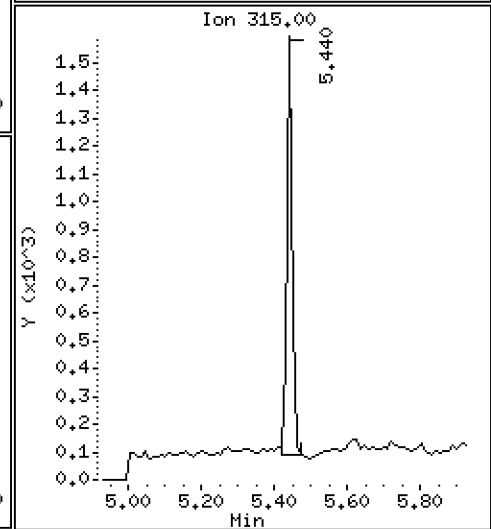
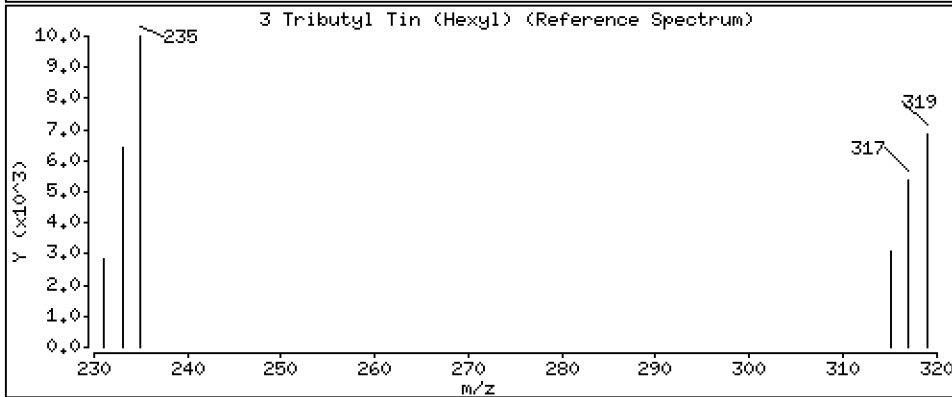
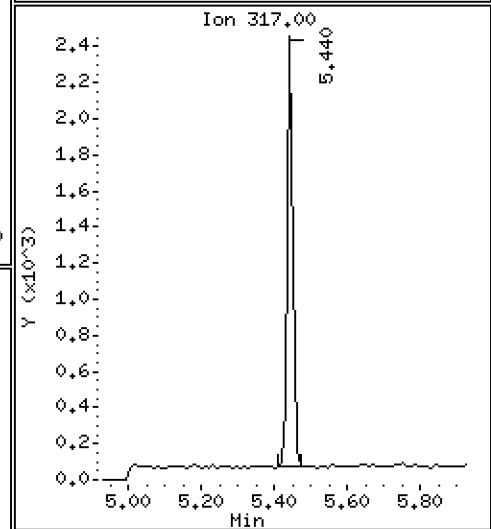
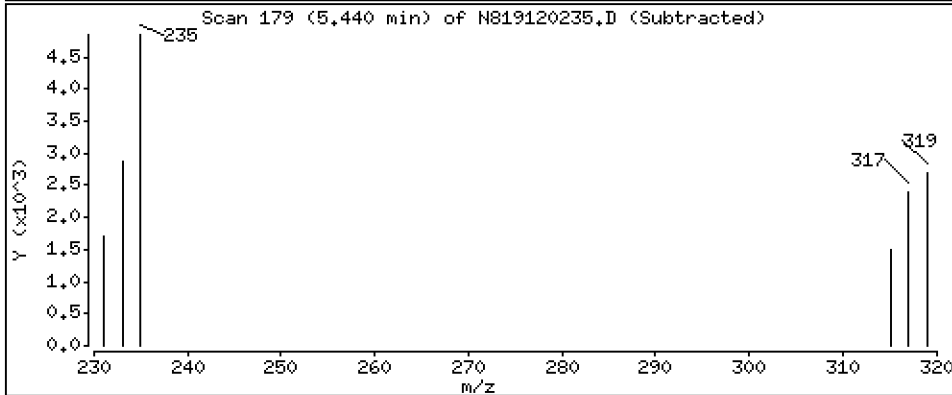
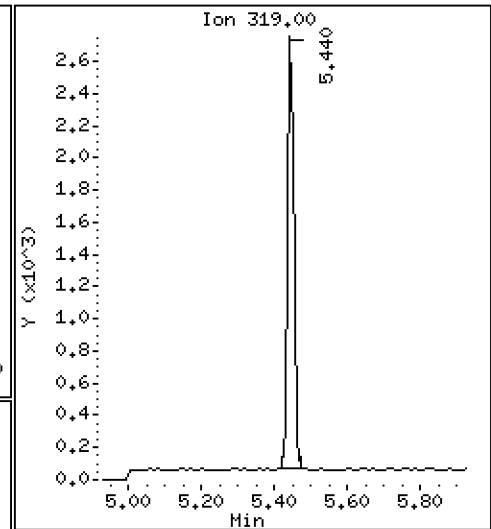
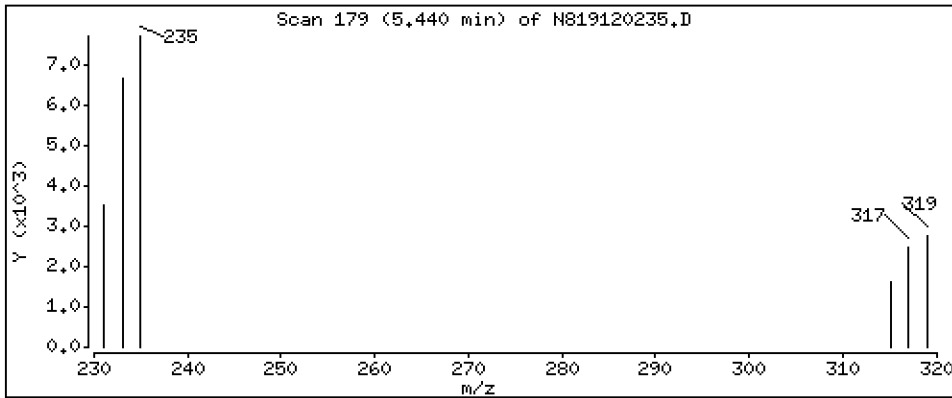
Operator: JZ

Column phase: ZB-5msi

Column diameter: 0,25

3 Tributyl Tin (Hexyl)

Concentration: 0,2524 ug/mL



Date : 02-DEC-2019 19:03

Client ID:

Instrument: nt8.i

Sample Info: BHK0576-MS1.

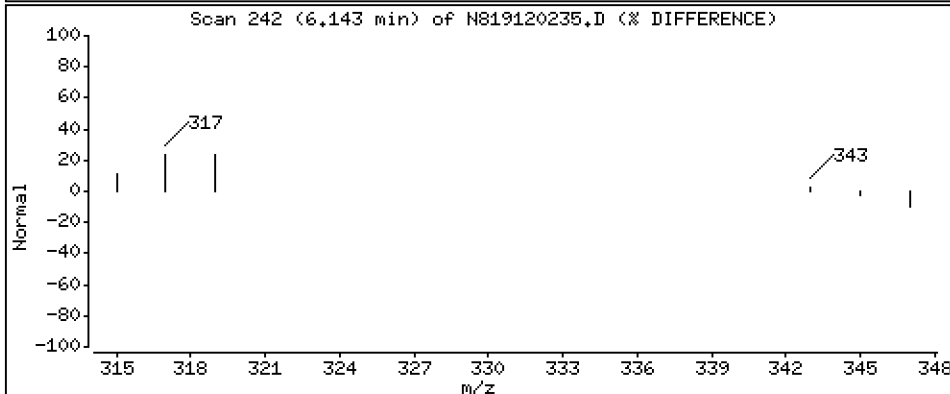
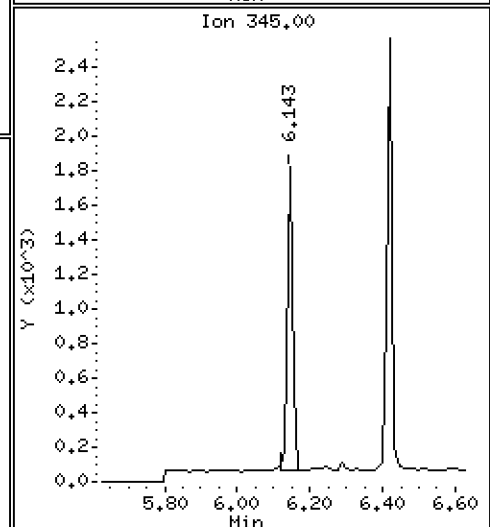
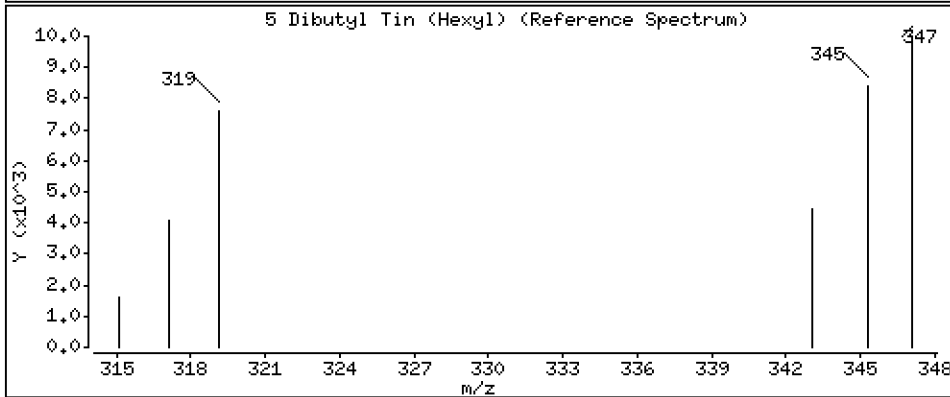
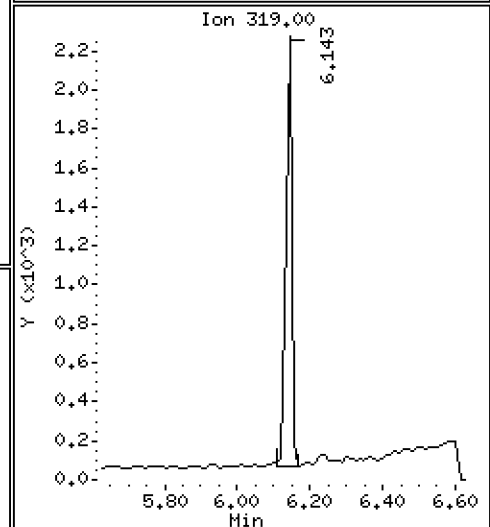
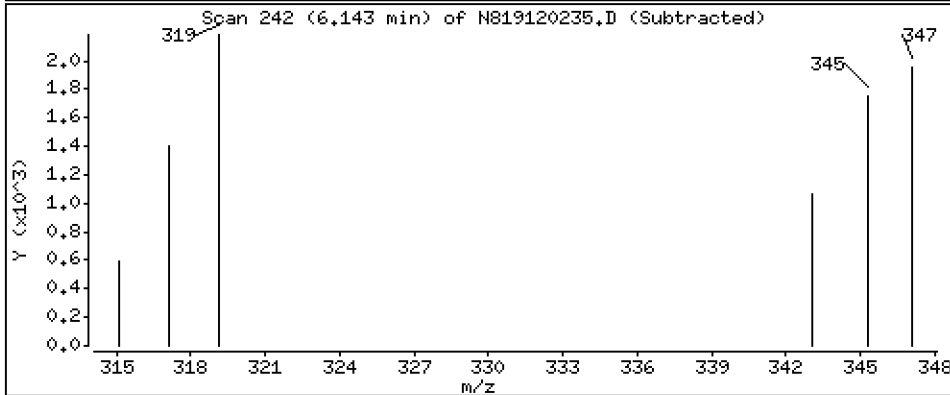
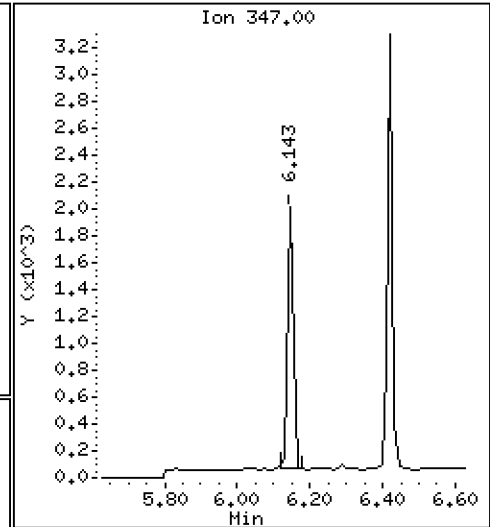
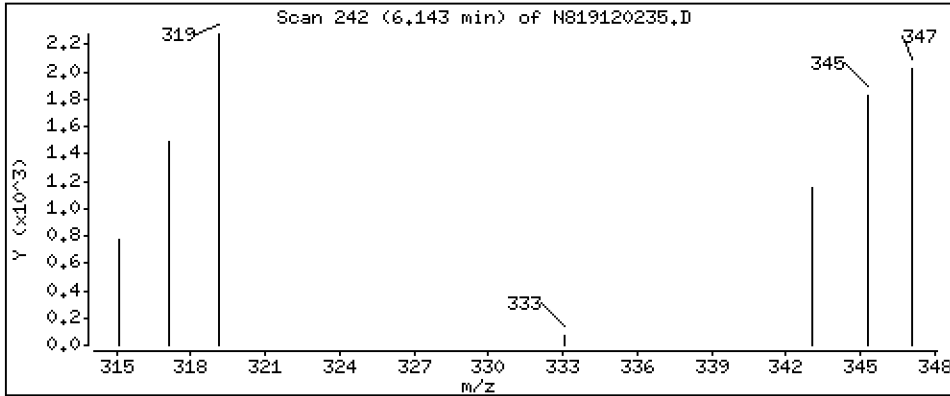
Operator: JZ

Column phase: ZB-5msi

Column diameter: 0.25

5 Dibutyl Tin (Hexyl)

Concentration: 0.2797 ug/mL



Date : 02-DEC-2019 19:03

Client ID:

Instrument: nt8.i

Sample Info: BHK0576-MS1.

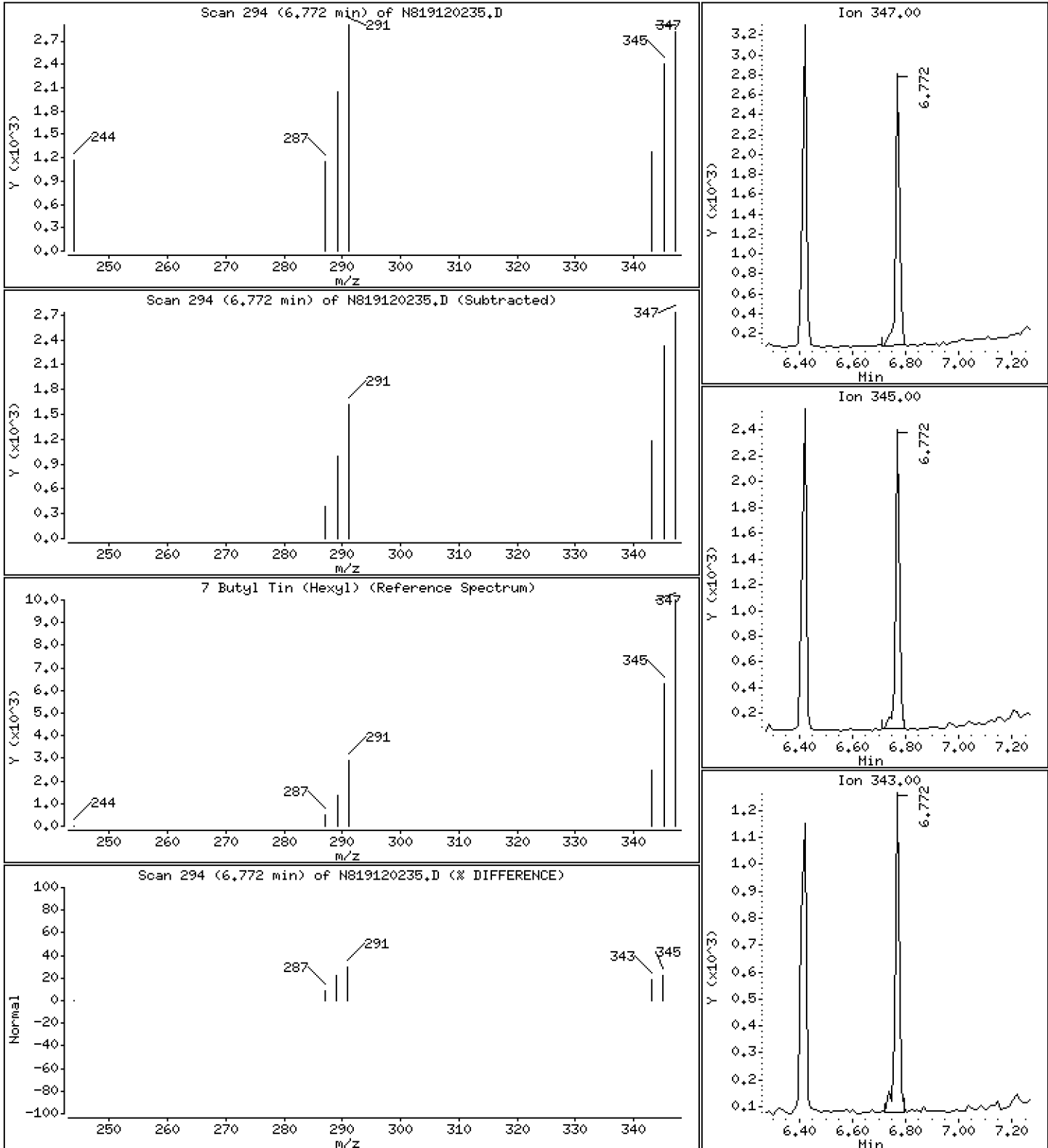
Operator: JZ

Column phase: ZB-5msi

Column diameter: 0.25

7 Butyl Tin (Hexyl)

Concentration: 0.2191 ug/mL



ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20191202A.b\N819120235.D
 Lab Smp Id: BHK0576-MS1
 Inj Date : 02-DEC-2019 19:03 MS Autotune Date: 27-FEB-2008 03:32
 Operator : JZ Inst ID: nt8.i
 Smp Info : BHK0576-MS1,
 Misc Info :
 Comment : 2 ul Injection
 Method : \\target\share\chem3\nt8.i\20191202A.b\TBT1125.m
 Meth Date : 03-Dec-2019 09:05 nt8.i Quant Type: ISTD
 Cal Date : 25-NOV-2019 15:29 Cal File: N819112507.D
 Als bottle: 6
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: sedmdl.sub
 Target Version: 4.14
 Processing Host: ORGDATA22

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN	FINAL
	MASS						(ug/mL)	(ug/mL)
\$ 1 Tripropyl Tin (Hexyl)	291		4.502	4.471	(0.740)	4677	0.28191	0.2819
2 Tetrabutyl Tin	289		Compound Not Detected.					
3 Tributyl Tin (Hexyl)	319		5.440	5.429	(0.894)	3235	0.25237	0.2524
* 4 Tetrapentyl Tin	333		6.082	6.070	(1.000)	42449	2.00000	
5 Dibutyl Tin (Hexyl)	347		6.143	6.131	(0.710)	2155	0.27967	0.2797
\$ 6 Tripentyl Tin (Hexyl)	347		6.421	6.409	(0.743)	3150	0.27920	0.2792
7 Butyl Tin (Hexyl)	347		6.772	6.772	(0.783)	2669	0.21914	0.2191 (M)
* 8 p-Terphenyl-d14	244		8.647	8.647	(1.000)	34808	0.20000	

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
 AREA AND RT SUMMARY

Instrument ID: nt8.i Calibration Date: 02-DEC-2019
 Lab File ID: N819120235.D Calibration Time: 17:52
 Lab Smp Id: BHK0576-MS1
 Analysis Type: SV Level:
 Quant Type: ISTD Sample Type:
 Operator: JZ
 Method File: \\target\share\chem3\nt8.i\20191202A.b\TBT1125.m
 Misc Info:

Test Mode:
 Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	41592	20796	83184	42449	2.06
8 p-Terphenyl-d14	41162	20581	82324	34808	-15.44

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	6.07	5.57	6.57	6.08	0.20
8 p-Terphenyl-d14	8.65	8.15	9.15	8.65	-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 - N819120235.D

Lab ID: BHK0576-MS1
nt8.i, 20191202A.b\TBT1125.m, 02-DEC-2019 19:03

RT CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV	RRT	DELTA	COMPOUND
-----	-----	-----	-------	----------

NONE

RRT check based on Ccal File: N819120231.D

On Column LOD for nt8.i, 20191202A.b\TBT1125.m, sedmdl.sub = 0.0000

Exception: Tripropyl Tin (Hexyl) (Surr) 0.0010

* Only compounds listed in the work order have been verified by the analyst *

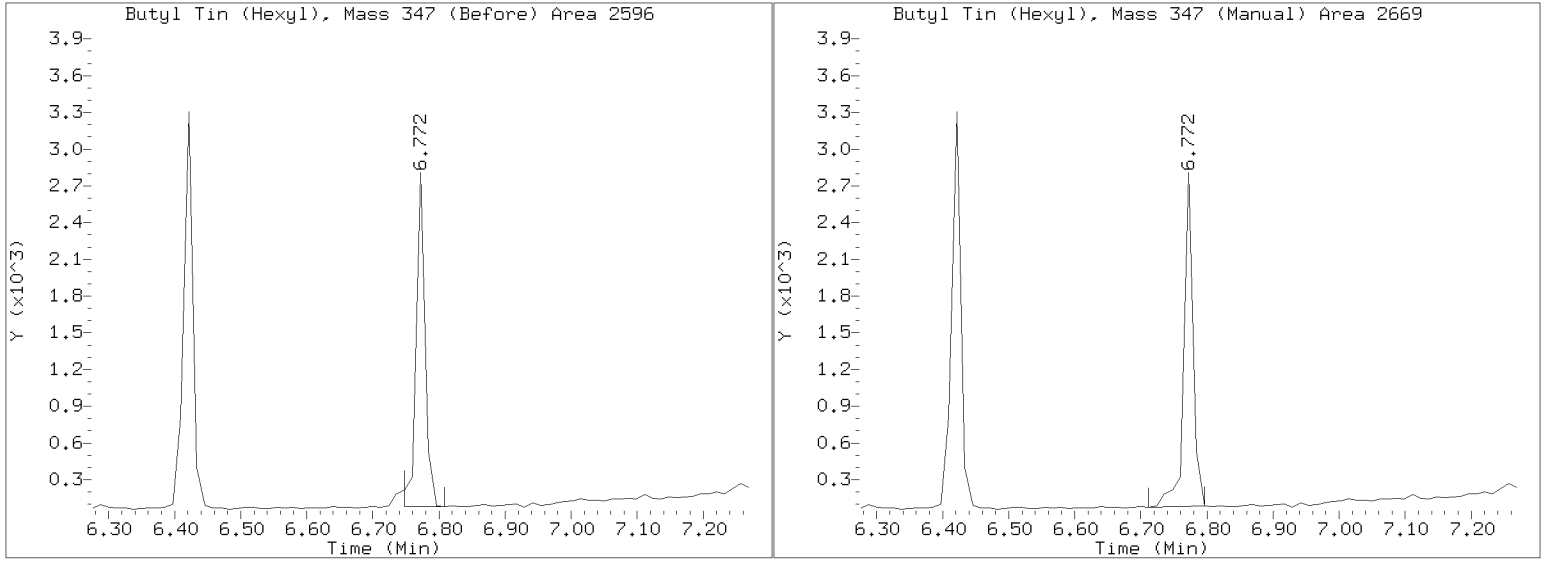
Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem3/nt8.i/20191202A.b/N819120235.D

Injection Date: 02-DEC-2019 19:03

Lab ID: BHK0576-MS1 Client ID:

Report Date: 12/03/2019 09:32



Data File: \\target\share\chem3\nt8.1\2019120284.b\N819120236.D

Date: 02-DEC-2019 19:19

Client ID:

Sample Info: BHK0576-HSD1,

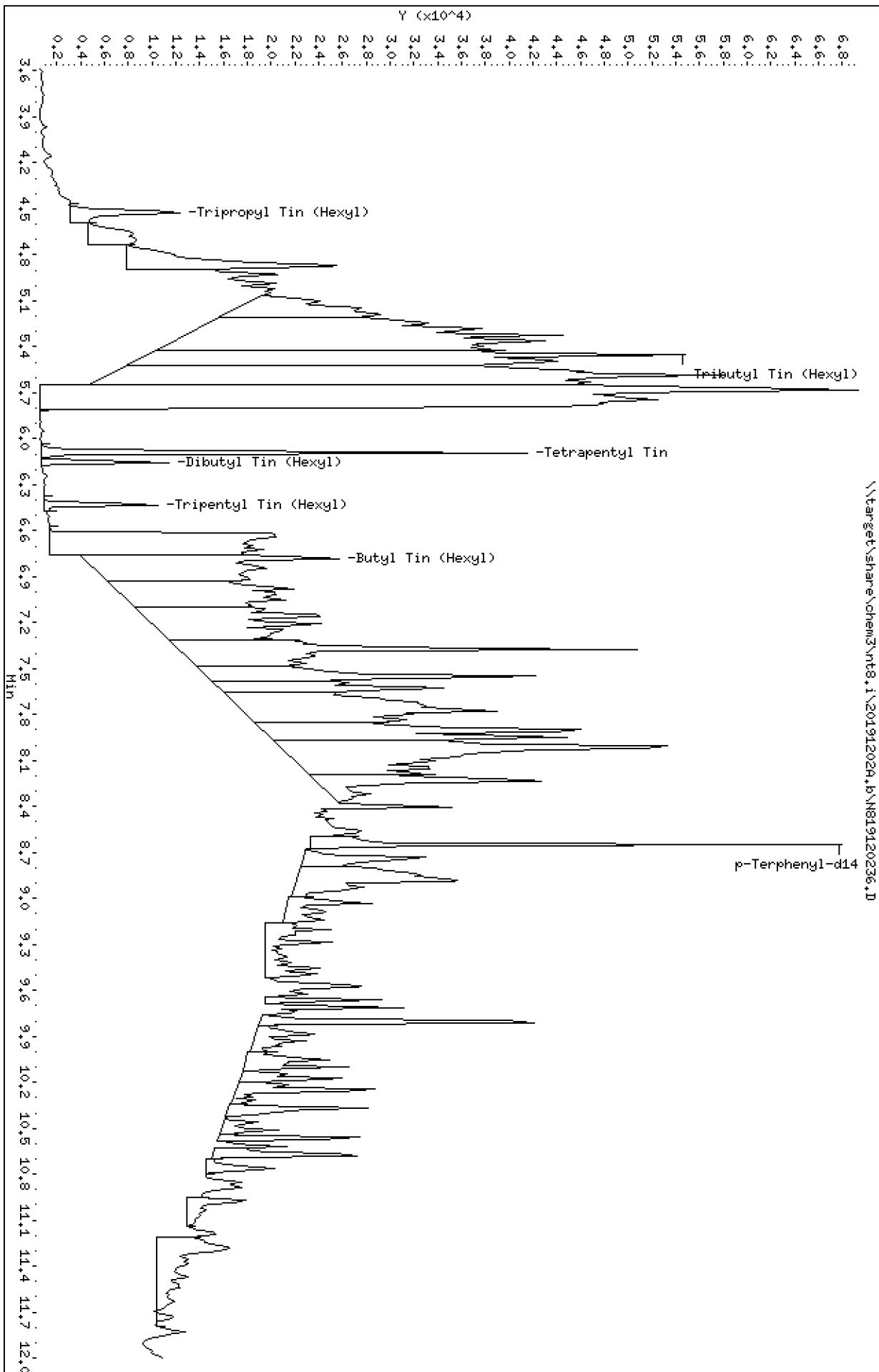
Column phase: ZB-5msi

Instrument: nt8.1

Operator: JZ

Column diameter: 0.25

\\target\share\chem3\nt8.1\2019120284.b\N819120236.D



Date : 02-DEC-2019 19:19

Client ID:

Instrument: nt8.i

Sample Info: BHK0576-MSD1,

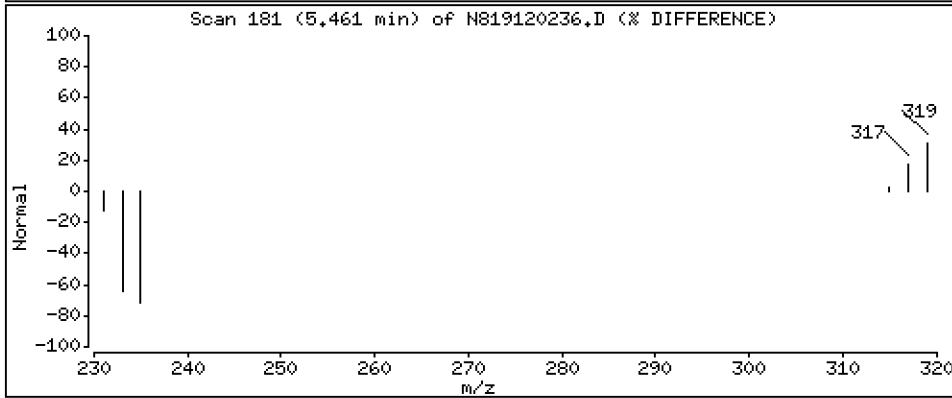
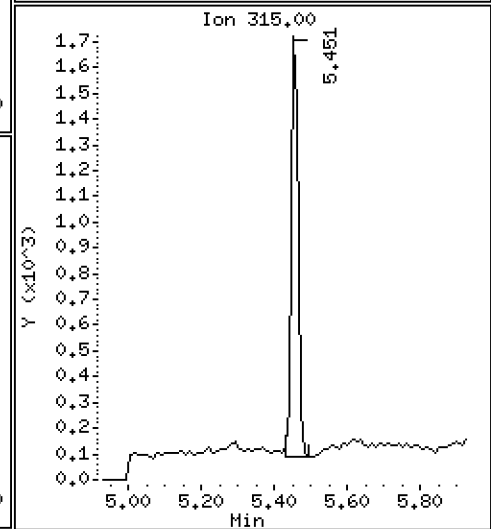
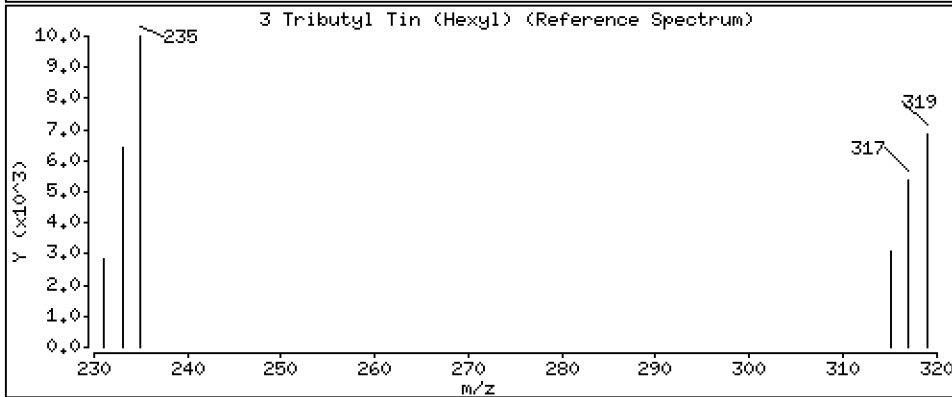
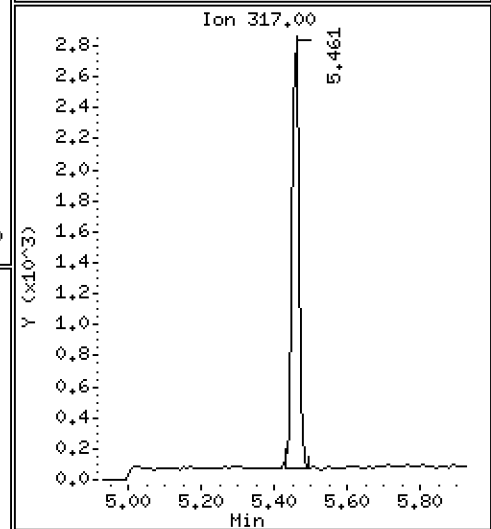
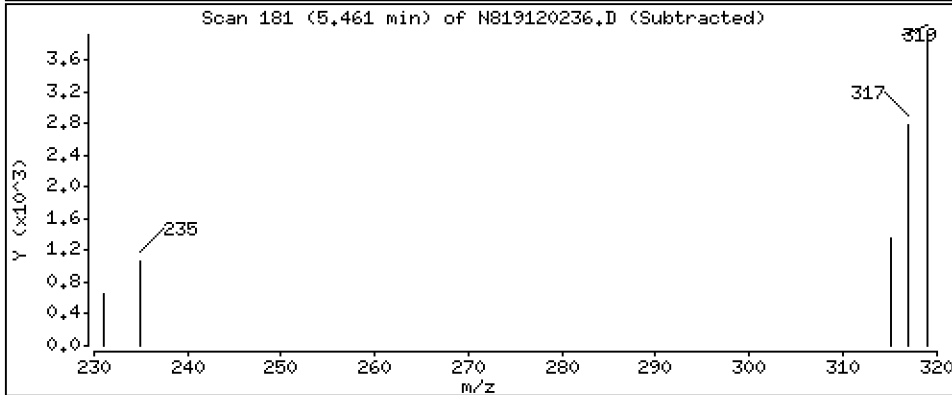
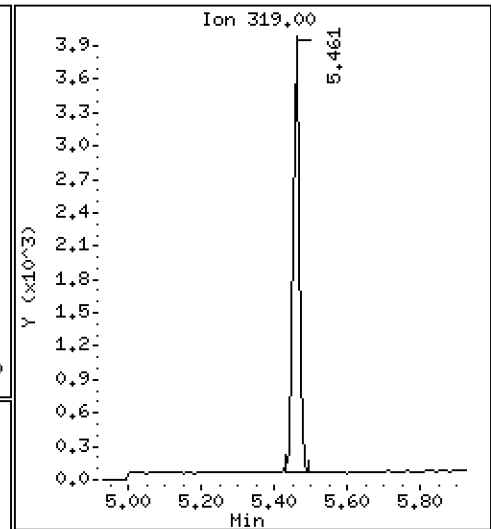
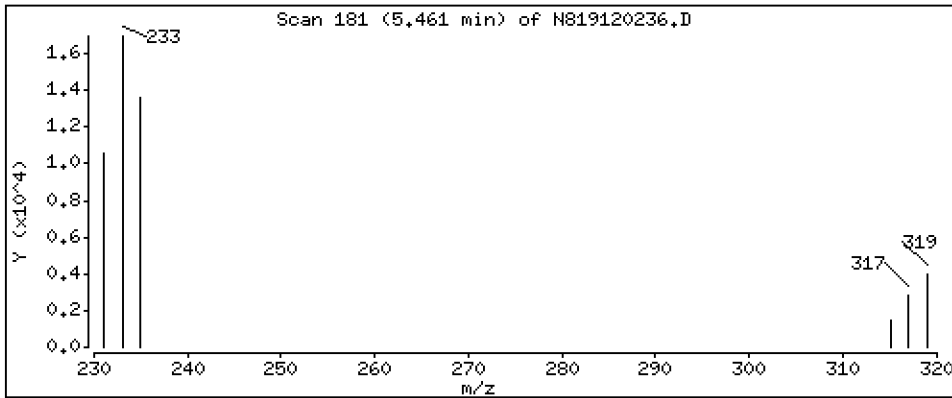
Operator: JZ

Column phase: ZB-5msi

Column diameter: 0,25

3 Tributyl Tin (Hexyl)

Concentration: 0,2815 ug/mL



Date : 02-DEC-2019 19:19

Client ID:

Instrument: nt8.i

Sample Info: BHK0576-MSD1,

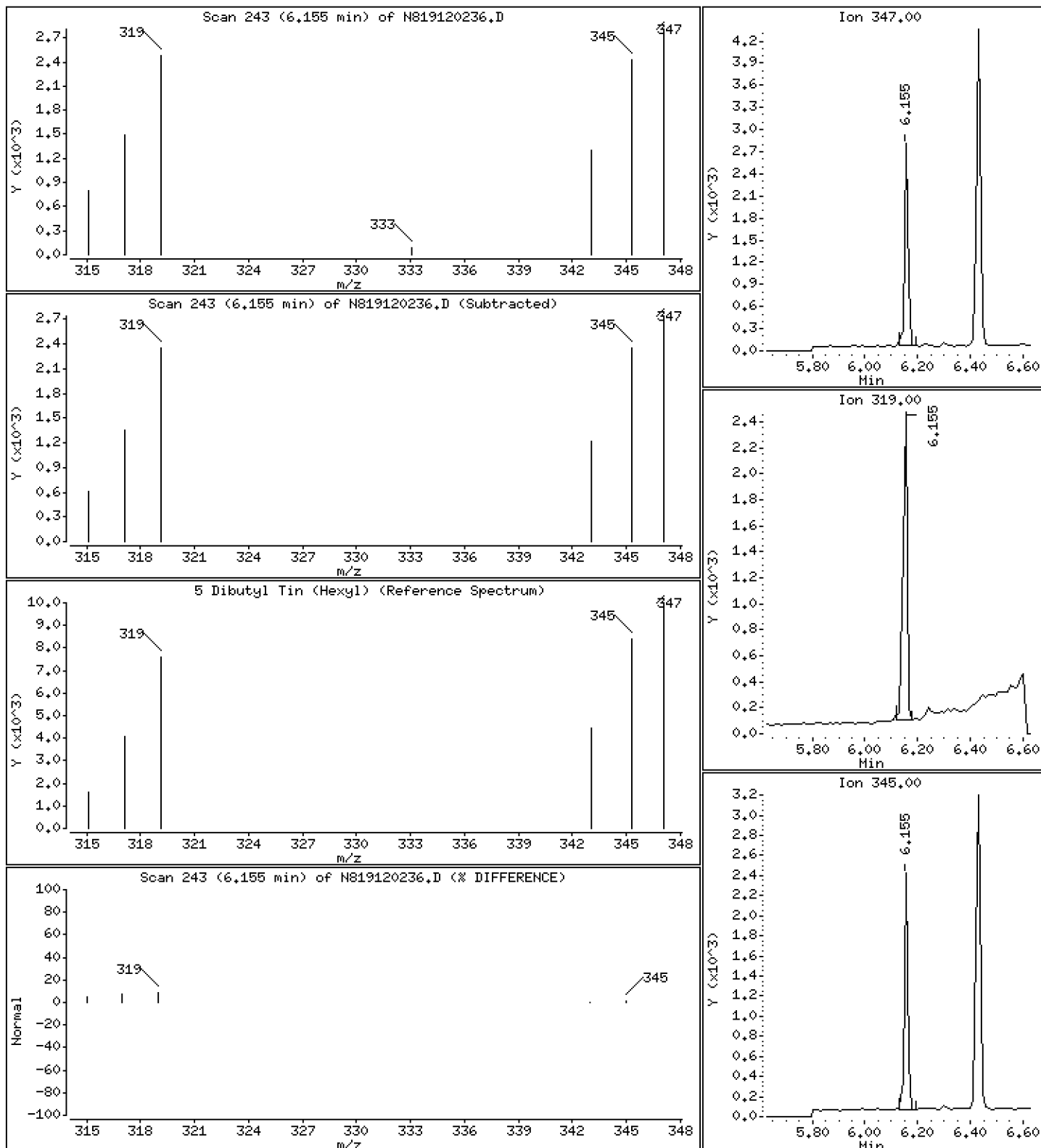
Operator: JZ

Column phase: ZB-5msi

Column diameter: 0,25

5 Dibutyl Tin (Hexyl)

Concentration: 0,3213 ug/mL



Date : 02-DEC-2019 19:19

Client ID:

Instrument: nt8.i

Sample Info: BHK0576-MSD1,

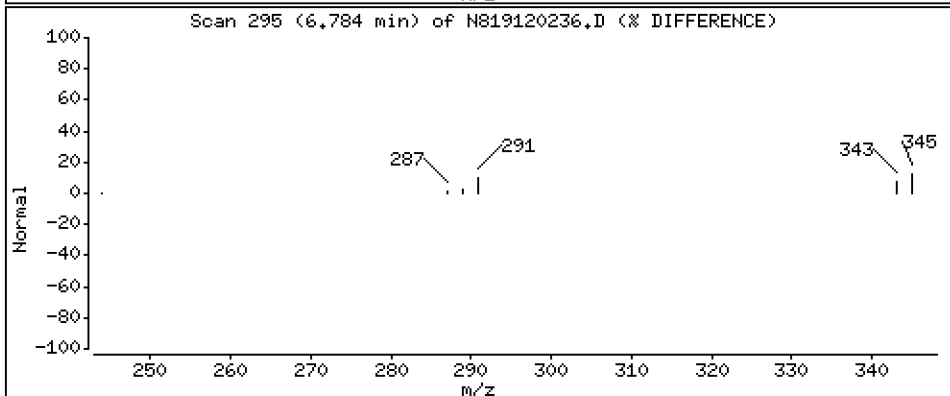
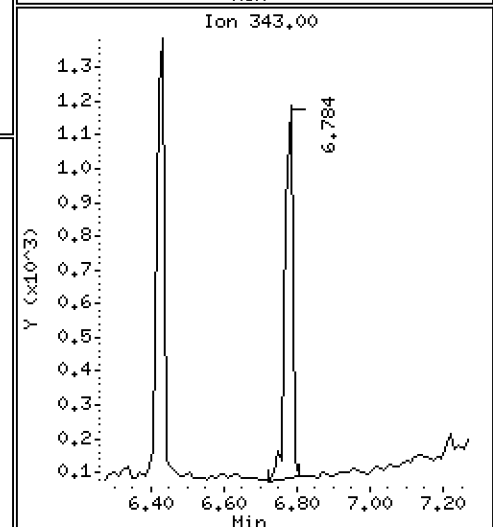
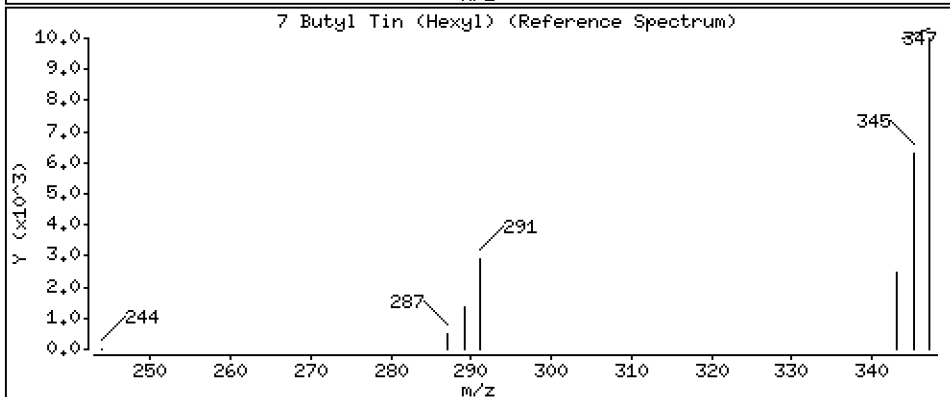
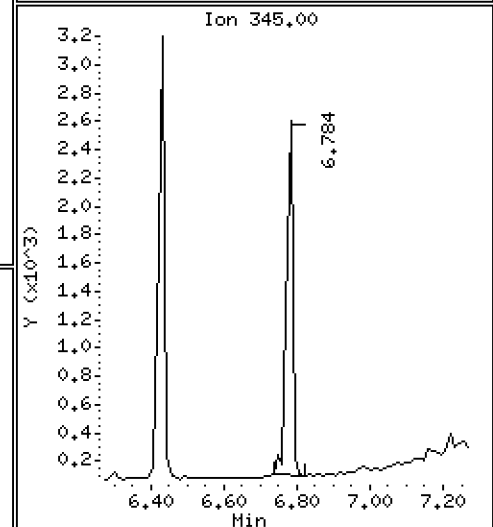
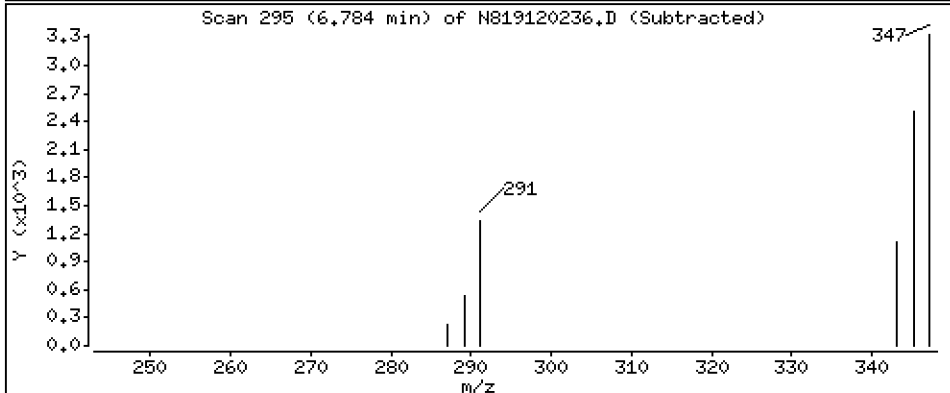
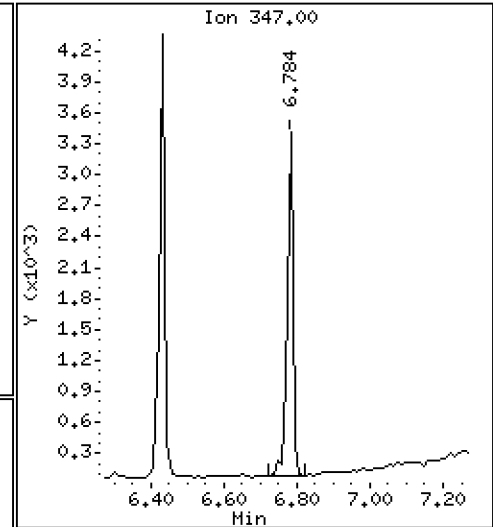
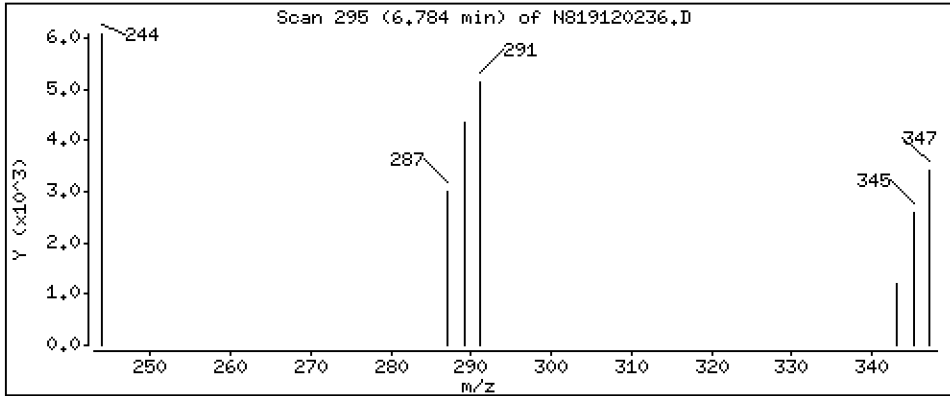
Operator: JZ

Column phase: ZB-5msi

Column diameter: 0,25

7 Butyl Tin (Hexyl)

Concentration: 0,2541 ug/mL



ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20191202A.b\N819120236.D
 Lab Smp Id: BHK0576-MSD1
 Inj Date : 02-DEC-2019 19:19 MS Autotune Date: 27-FEB-2008 03:32
 Operator : JZ Inst ID: nt8.i
 Smp Info : BHK0576-MSD1,
 Misc Info :
 Comment : 2 ul Injection
 Method : \\target\share\chem3\nt8.i\20191202A.b\TBT1125.m
 Meth Date : 03-Dec-2019 09:05 nt8.i Quant Type: ISTD
 Cal Date : 25-NOV-2019 15:29 Cal File: N819112507.D
 Als bottle: 7
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: sedmdl.sub
 Target Version: 4.14
 Processing Host: ORGDATA22

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN	FINAL
	MASS						(ug/mL)	(ug/mL)
\$ 1 Tripropyl Tin (Hexyl)	291		4.523	4.471	(0.742)	6533	0.31376	0.3138
2 Tetrabutyl Tin	289		Compound Not Detected.					
3 Tributyl Tin (Hexyl)	319		5.461	5.429	(0.896)	4529	0.28151	0.2815
* 4 Tetrapentyl Tin	333		6.094	6.070	(1.000)	53276	2.00000	
5 Dibutyl Tin (Hexyl)	347		6.155	6.131	(0.712)	2806	0.32134	0.3213
\$ 6 Tripentyl Tin (Hexyl)	347		6.433	6.409	(0.744)	4403	0.34437	0.3444
7 Butyl Tin (Hexyl)	347		6.784	6.772	(0.785)	3507	0.25409	0.2541 (M)
* 8 p-Terphenyl-d14	244		8.647	8.647	(1.000)	39446	0.20000	

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i Calibration Date: 02-DEC-2019
Lab File ID: N819120236.D Calibration Time: 17:52
Lab Smp Id: BHK0576-MSD1
Analysis Type: SV Level:
Quant Type: ISTD Sample Type:
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20191202A.b\TBT1125.m
Misc Info:

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	41592	20796	83184	53276	28.09
8 p-Terphenyl-d14	41162	20581	82324	39446	-4.17

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	6.07	5.57	6.57	6.09	0.40
8 p-Terphenyl-d14	8.65	8.15	9.15	8.65	-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 - N819120236.D

Lab ID: BHK0576-MSD1

nt8.i, 20191202A.b\TBT1125.m, 02-DEC-2019 19:19

RT CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.742	0.737	0.0056	Tripropyl Tin (Hexyl)

RRT check based on Ccal File: N819120231.D

On Column LOD for nt8.i, 20191202A.b\TBT1125.m, sedmdl.sub = 0.0000

Exception: Tripropyl Tin (Hexyl) (Surr) 0.0010

* Only compounds listed in the work order have been verified by the analyst *

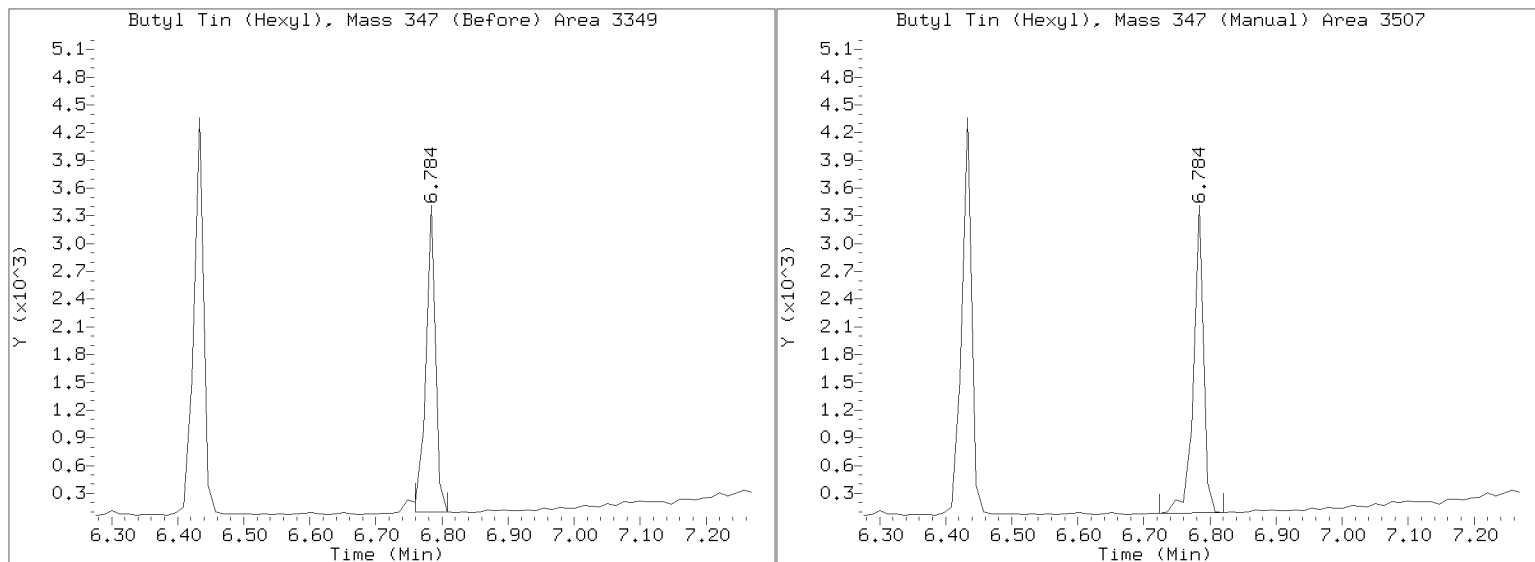
Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem3/nt8.i/20191202A.b/N819120236.D

Injection Date: 02-DEC-2019 19:19

Lab ID: BHK0576-MSD1 Client ID:

Report Date: 12/03/2019 09:32





MS / MS DUPLICATE RECOVERY
EPA 8270D-SIM

Laboratory:	<u>Analytical Resources, Inc.</u>	SDG:	<u>19K0228</u>
Client:	<u>Anchor QEA, LLC</u>	Project:	<u>Gasco PDI</u>
Matrix:	<u>Solid</u>	Analyzed:	<u>12/05/19 12:46</u>
Batch:	<u>BHL0082</u>	Laboratory ID:	<u>BHL0082-MS1</u>
Preparation:	<u>EPA 3546 (Microwave)</u>	Sequence Name:	<u>Matrix Spike</u>
Initial/Final:	<u>6.24 g / 0.5 mL</u>	Source Sample:	<u>PDI-140RAB-00-10-191108</u>

COMPOUND	SPIKE ADDED (ug/kg dry)	SAMPLE CONCENTRATION (ug/kg dry)	Q	MS CONCENTRATION (ug/kg dry)	Q	MS % REC. #	QC LIMITS REC.
Tributyltin Ion	43.4	ND	U	19.0		43.8	30 - 160

* Values outside of QC limits



MS / MS DUPLICATE RECOVERY
EPA 8270D-SIM

Laboratory:	<u>Analytical Resources, Inc.</u>	SDG:	<u>19K0228</u>
Client:	<u>Anchor QEA, LLC</u>	Project:	<u>Gasco PDI</u>
Matrix:	<u>Solid</u>	Analyzed:	<u>12/05/19 13:03</u>
Batch:	<u>BHL0082</u>	Laboratory ID:	<u>BHL0082-MSD1</u>
Preparation:	<u>EPA 3546 (Microwave)</u>	Sequence Name:	<u>Matrix Spike Dup</u>
Initial/Final:	<u>6.15 g / 0.5 mL</u>	Source Sample:	<u>PDI-140RAB-00-10-191108</u>

COMPOUND	SPIKE ADDED (ug/kg dry)	MSD CONCENTRATION (ug/kg dry)	Q	MSD % REC. #	% RPD #	QC LIMITS	
						RPD	REC.
Tributyltin Ion	44.0	21.6		49.0	12.5	30	30 - 160

* Values outside of QC limits

Data File: \\target\share\chem3\nt8.1\20191205.6\N819120507.D

Date: 05-DEC-2019 12:46

Client ID:

Sample Info: BHL0082-HSI,

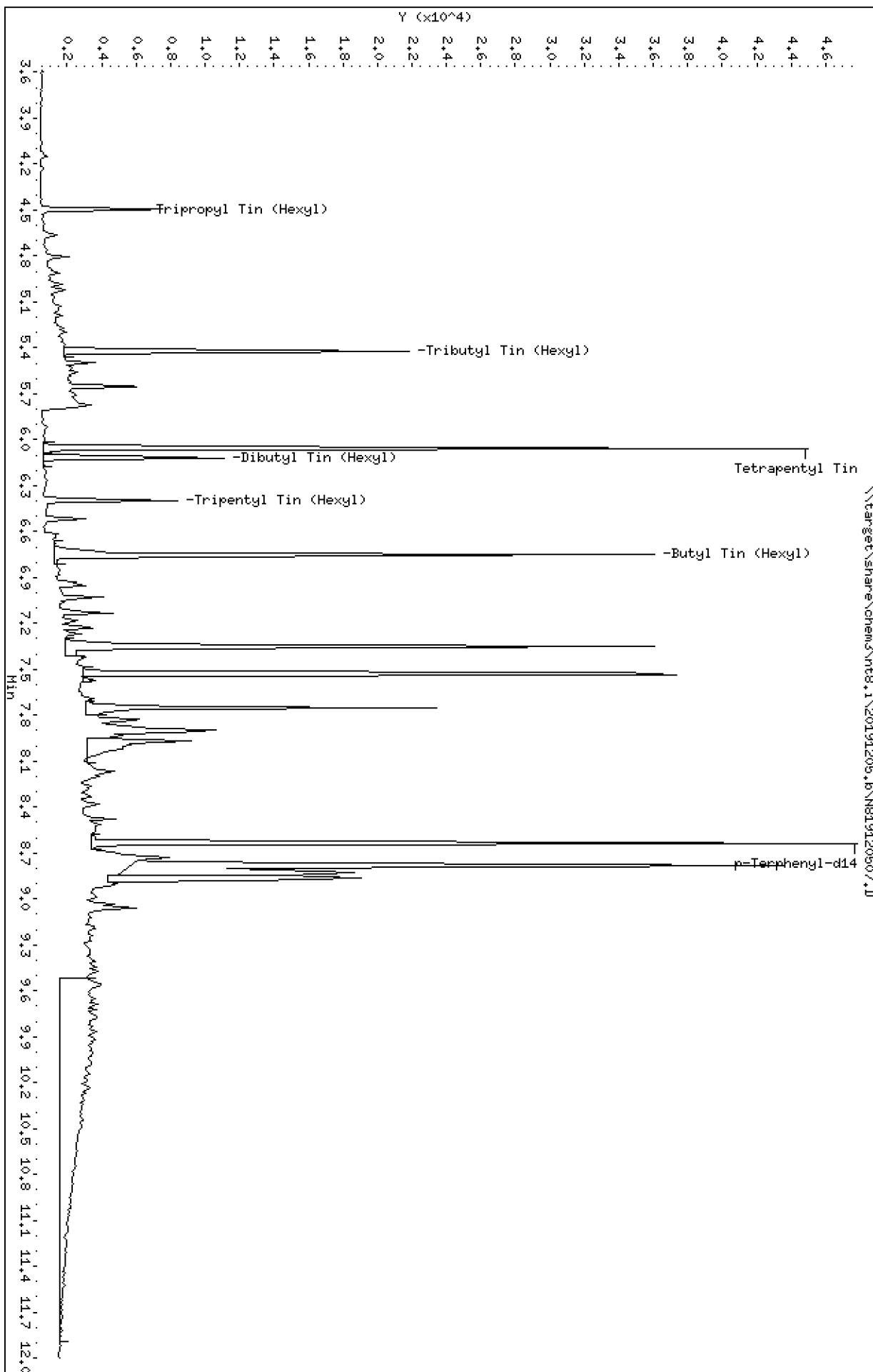
Column phase: ZB-5msi

Instrument: nt8.1

Operator: JZ

Column diameter: 0.25

Page 1



Date : 05-DEC-2019 12:46

Client ID:

Instrument: nt8.i

Sample Info: BHL0082-MS1.

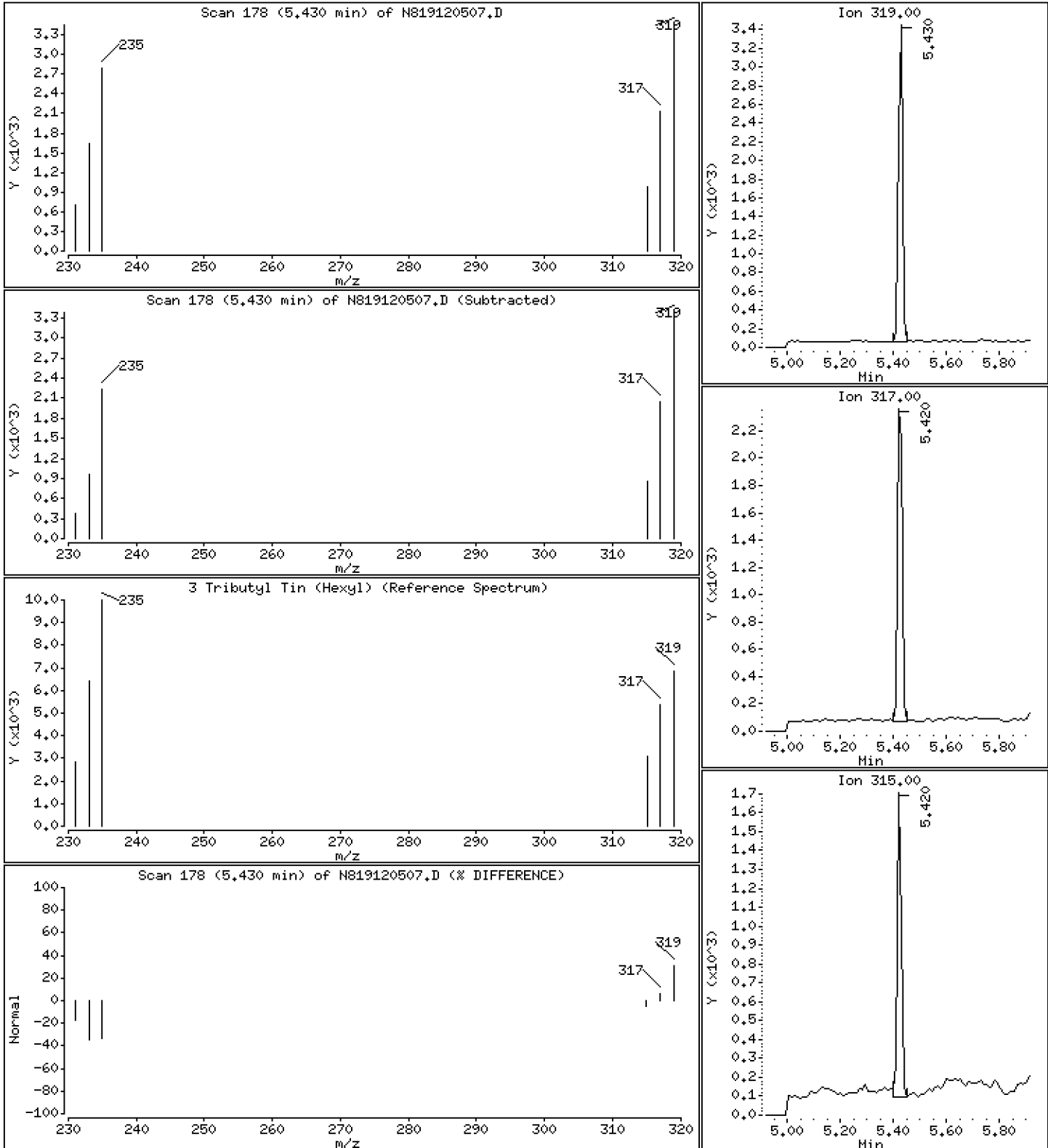
Operator: JZ

Column phase: ZB-5msi

Column diameter: 0.25

3 Tributyl Tin (Hexyl)

Concentration: 0.2527 ug/mL



Date : 05-DEC-2019 12:46

Client ID:

Instrument: nt8.i

Sample Info: BHL0082-MS1.

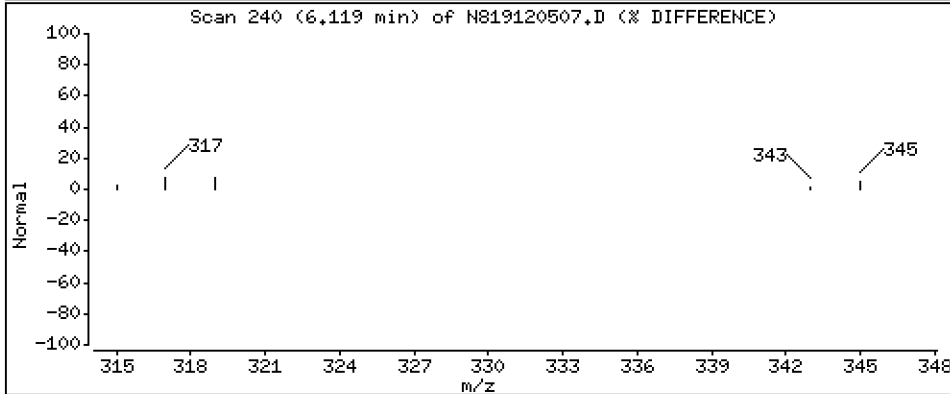
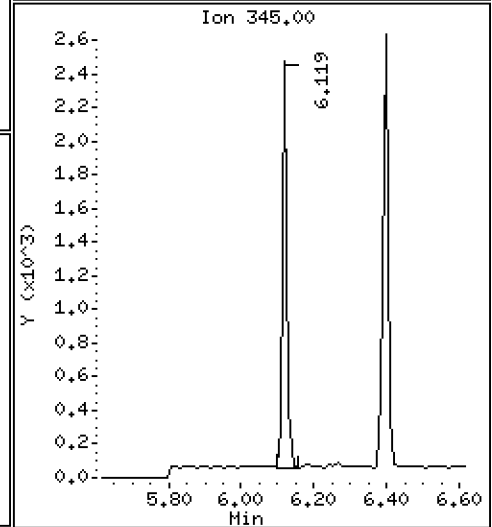
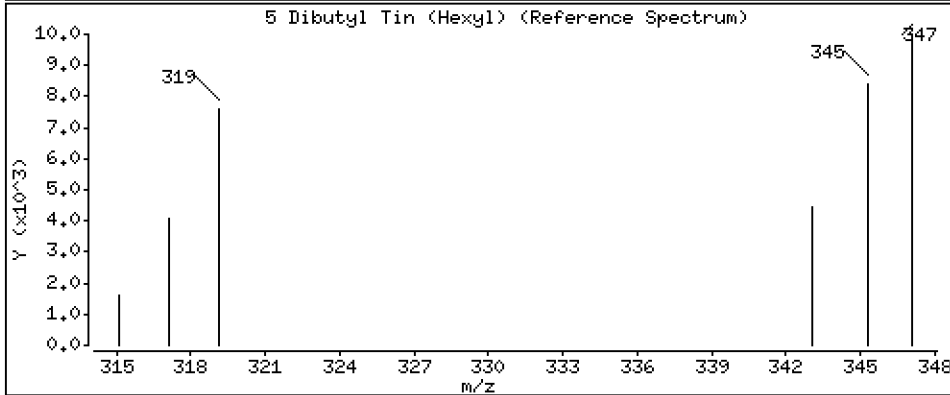
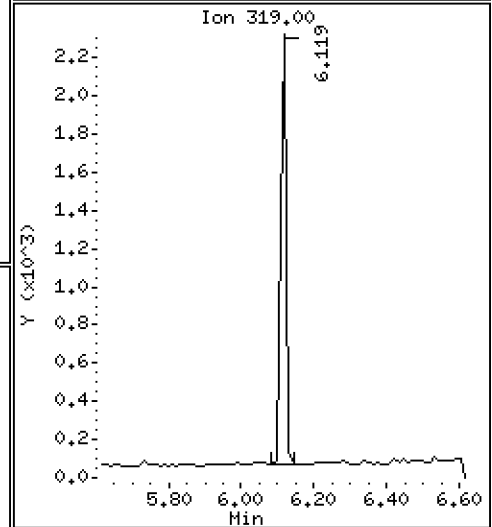
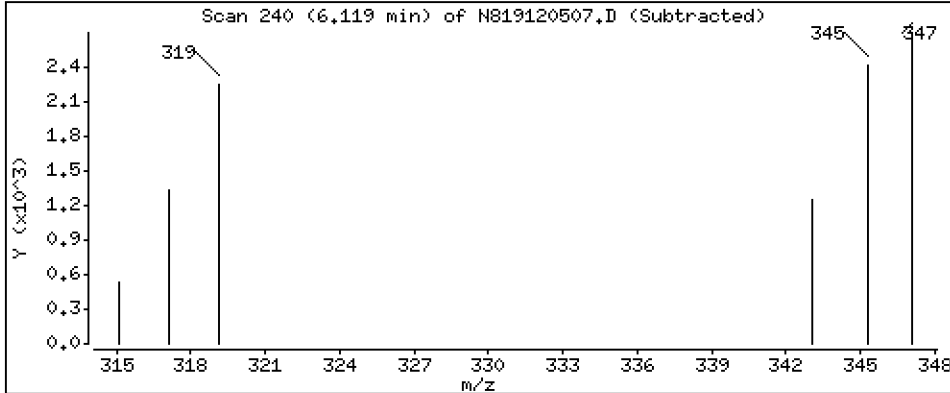
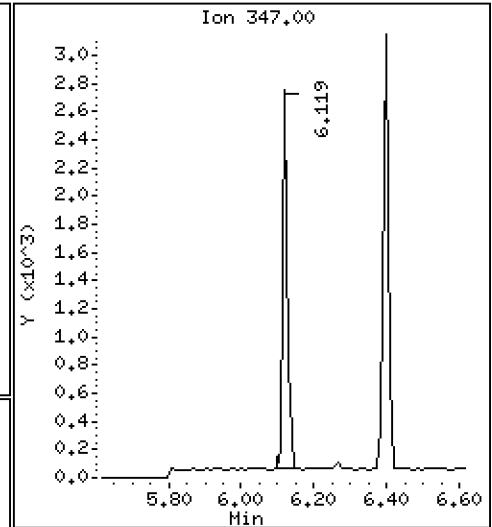
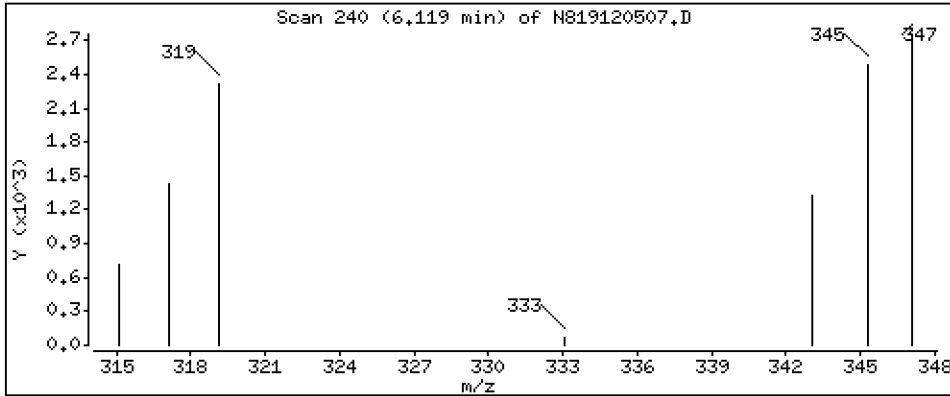
Operator: JZ

Column phase: ZB-5msi

Column diameter: 0.25

5 Dibutyl Tin (Hexyl)

Concentration: 0.2717 ug/mL



Date : 05-DEC-2019 12:46

Client ID:

Instrument: nt8.i

Sample Info: BHL0082-MS1.

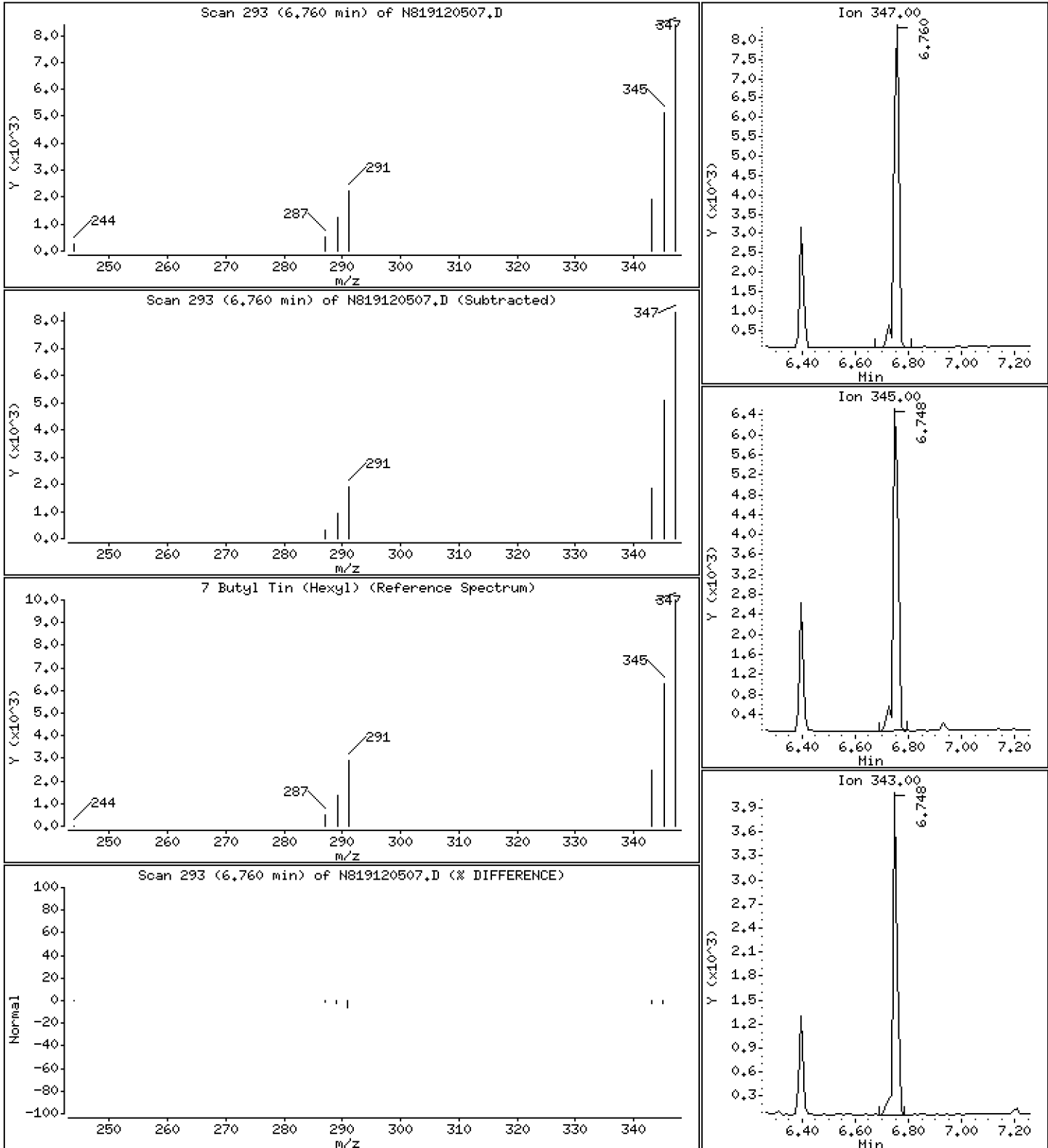
Operator: JZ

Column phase: ZB-5msi

Column diameter: 0.25

7 Butyl Tin (Hexyl)

Concentration: 0.7380 ug/mL



ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20191205.b\N819120507.D
 Lab Smp Id: BHL0082-MS1
 Inj Date : 05-DEC-2019 12:46 MS Autotune Date: 27-FEB-2008 03:32
 Operator : JZ Inst ID: nt8.i
 Smp Info : BHL0082-MS1,
 Misc Info :
 Comment : 2 ul Injection
 Method : \\target\share\chem3\nt8.i\20191205.b\TBT1125.m
 Meth Date : 05-Dec-2019 12:54 nt8.i Quant Type: ISTD
 Cal Date : 25-NOV-2019 15:29 Cal File: N819112507.D
 Als bottle: 7
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: sedmdl.sub
 Target Version: 4.14
 Processing Host: ORGDATA22

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN	FINAL
	MASS						(ug/mL)	(ug/mL)
\$ 1 Tripropyl Tin (Hexyl)	291		4.503	4.471	(0.743)	4007	0.21000	0.2100
2 Tetrabutyl Tin	289		Compound Not Detected.					
3 Tributyl Tin (Hexyl)	319		5.429	5.419	(0.896)	3725	0.25266	0.2527
* 4 Tetrapentyl Tin	333		6.058	6.058	(1.000)	48822	2.00000	
5 Dibutyl Tin (Hexyl)	347		6.119	6.119	(0.709)	2584	0.27166	0.2717
\$ 6 Tripentyl Tin (Hexyl)	347		6.397	6.397	(0.741)	2913	0.20916	0.2092
7 Butyl Tin (Hexyl)	347		6.760	6.760	(0.783)	11096	0.73804	0.7380 (M)
* 8 p-Terphenyl-d14	244		8.635	8.635	(1.000)	42968	0.20000	

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
 AREA AND RT SUMMARY

Instrument ID: nt8.i Calibration Date: 05-DEC-2019
 Lab File ID: N819120507.D Calibration Time: 11:17
 Lab Smp Id: BHL0082-MS1
 Analysis Type: SV Level:
 Quant Type: ISTD Sample Type:
 Operator: JZ
 Method File: \\target\share\chem3\nt8.i\20191205.b\TBT1125.m
 Misc Info:

Test Mode:
 Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	41592	20796	83184	48822	17.38
8 p-Terphenyl-d14	41162	20581	82324	42968	4.39

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	6.06	5.56	6.56	6.06	0.00
8 p-Terphenyl-d14	8.64	8.14	9.14	8.64	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 - N819120507.D

Lab ID: BHL0082-MS1

nt8.i, 20191205.b\TBT1125.m, 05-DEC-2019 12:46

RT CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.743	0.738	0.0052	Tripropyl Tin (Hexyl)

RRT check based on Ccal File: N819120502.D

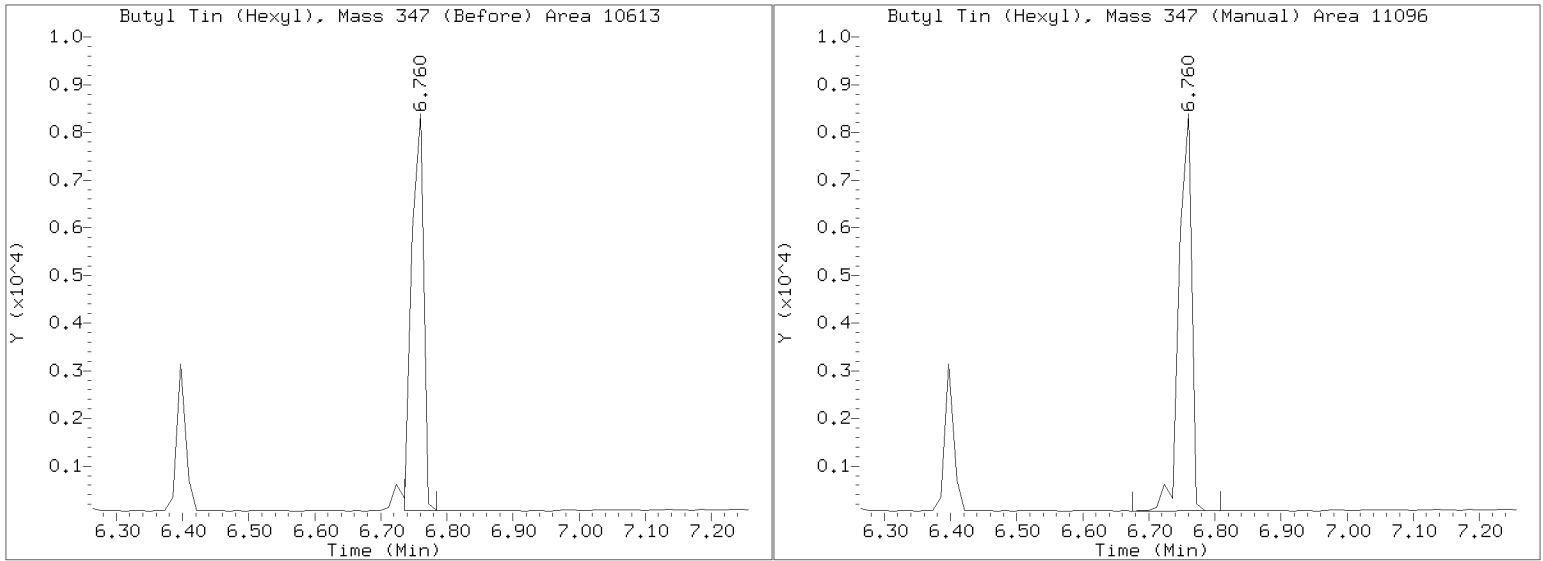
On Column LOD for nt8.i, 20191205.b\TBT1125.m, sedmdl.sub = 0.0000

Exception: Tripropyl Tin (Hexyl) (Surr) 0.0010

* Only compounds listed in the work order have been verified by the analyst *

Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem3/nt8.i/20191205.b/N819120507.D
Injection Date: 05-DEC-2019 12:46
Lab ID: BHL0082-MS1 Client ID:
Report Date: 12/05/2019 13:01



Data File: \\target\share\chem3\nt8.1\20191205.b\N819120508.D

Date : 05-DEC-2019 13:03

Client ID:

Sample Info: BHL0082-HSD1,

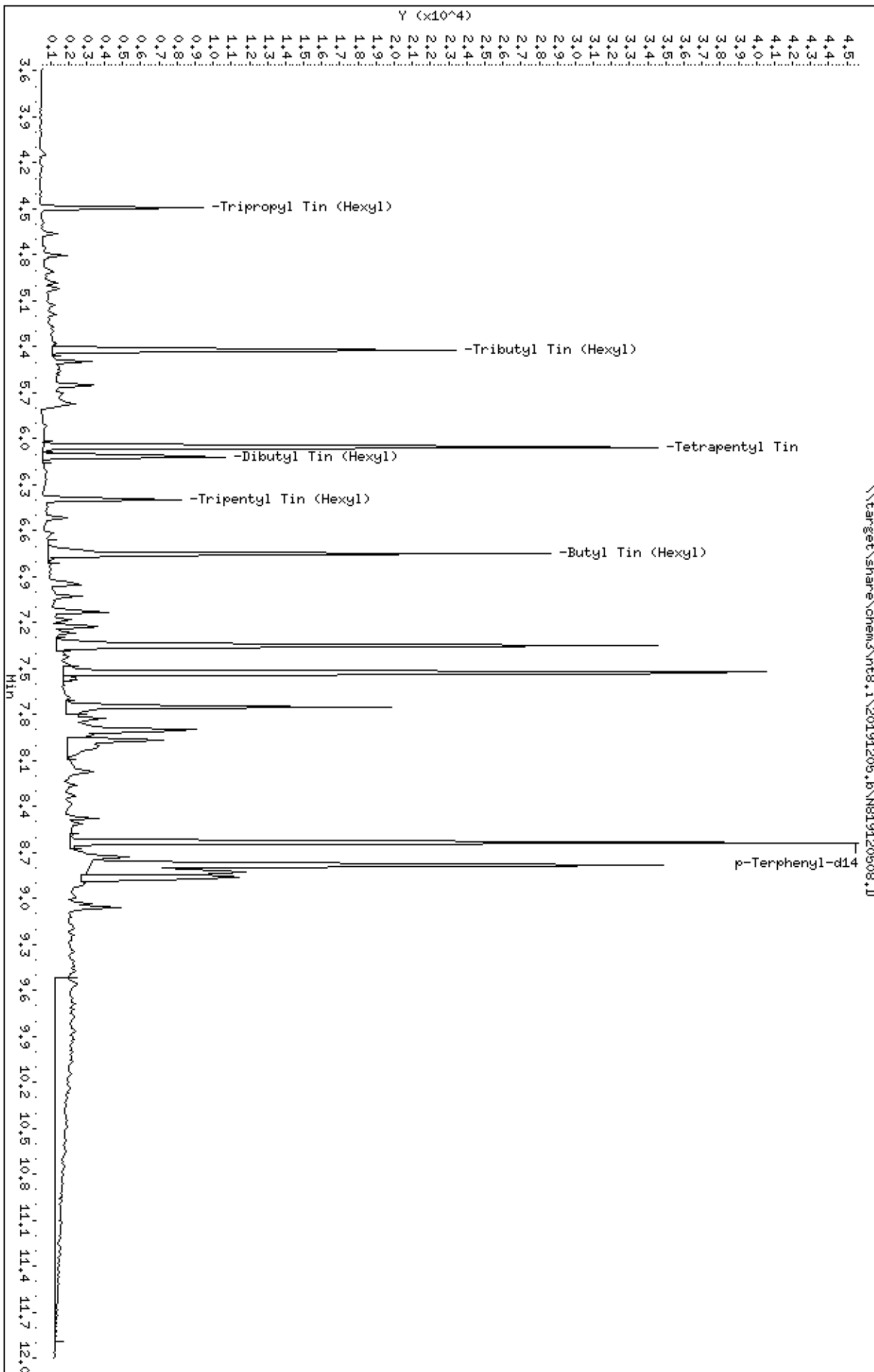
Column phase: ZB-5msi

Instrument: nt8.1

Operator: JZ

Column diameter: 0.25

Page 1



Date : 05-DEC-2019 13:03

Client ID:

Instrument: nt8.i

Sample Info: BHL0082-MSD1,

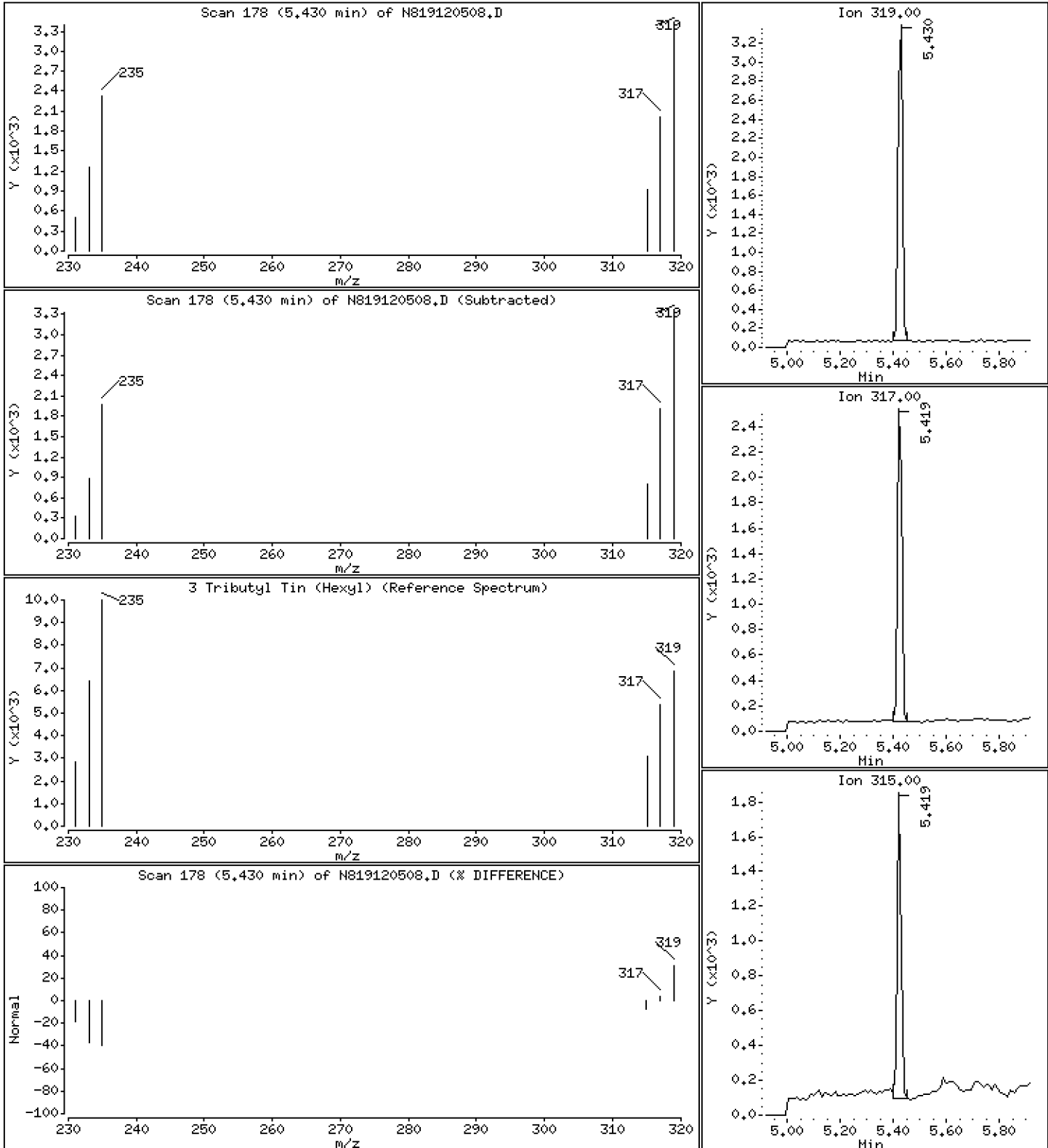
Operator: JZ

Column phase: ZB-5msi

Column diameter: 0,25

3 Tributyl Tin (Hexyl)

Concentration: 0,2822 ug/mL



Date : 05-DEC-2019 13:03

Client ID:

Instrument: nt8.i

Sample Info: BHL0082-MSD1,

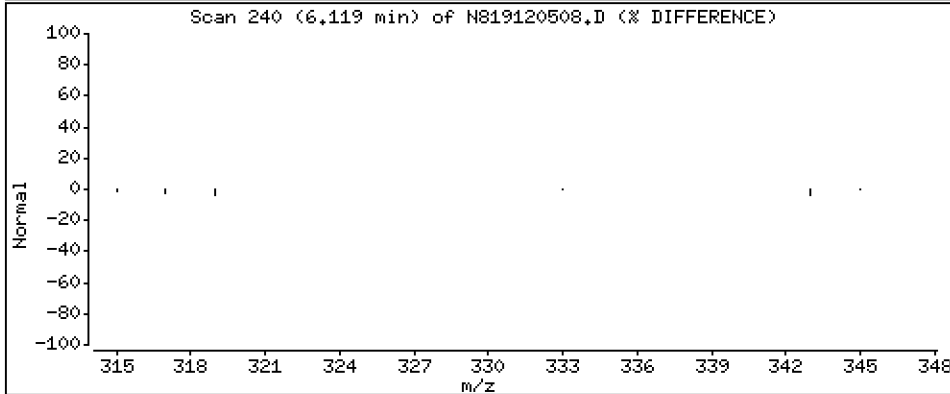
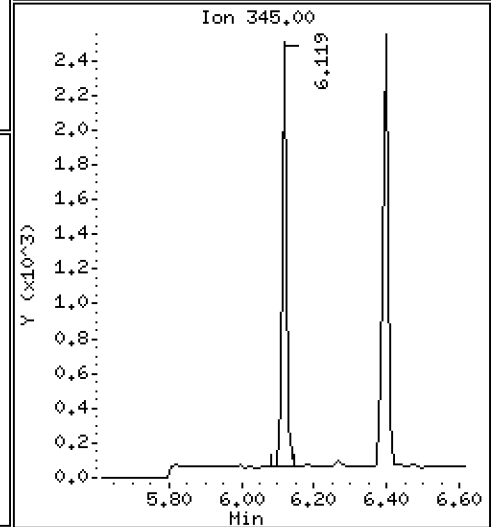
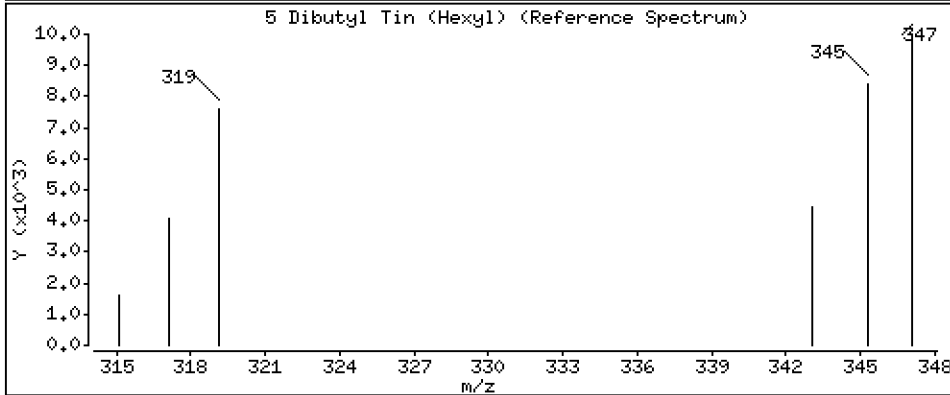
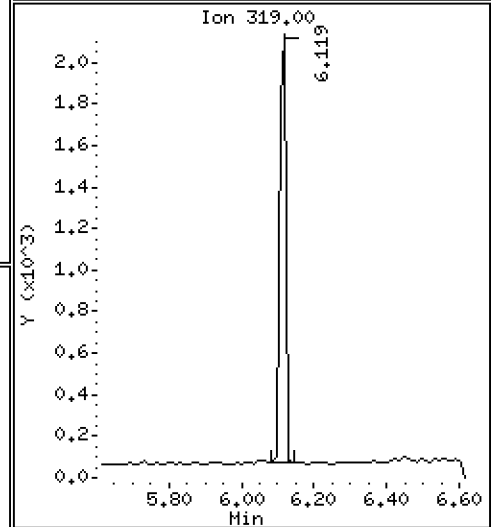
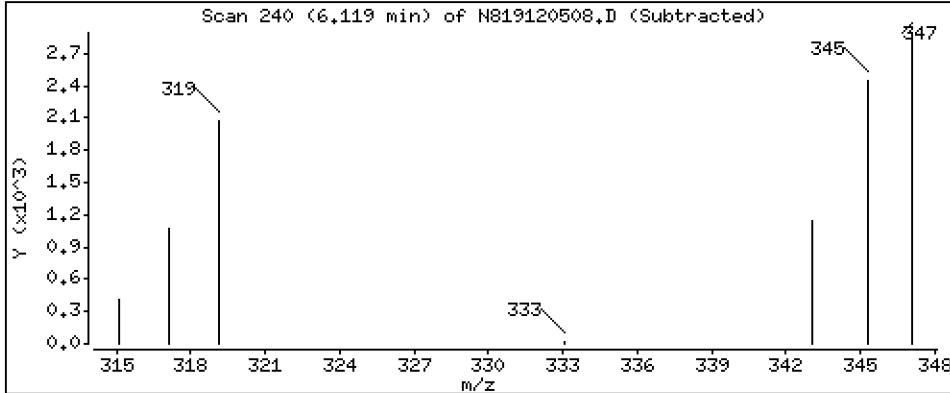
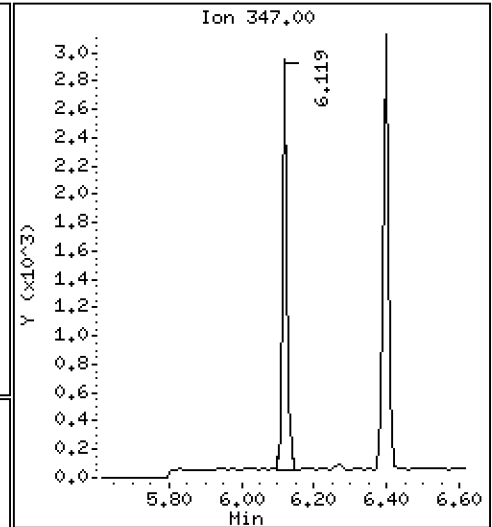
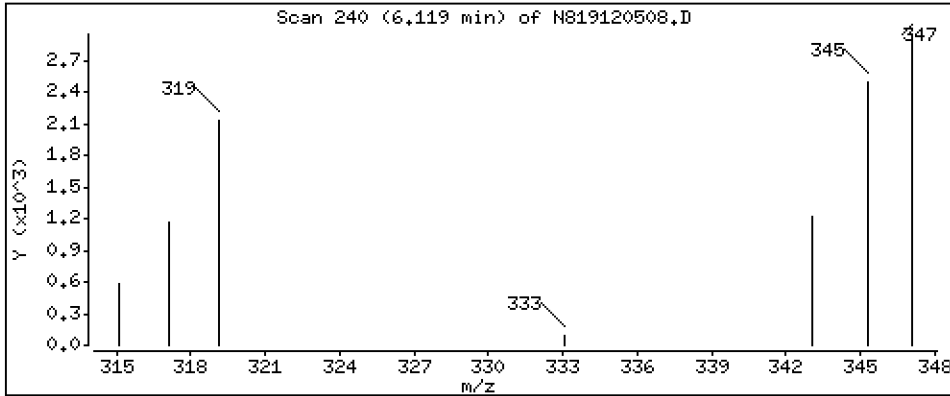
Operator: JZ

Column phase: ZB-5msi

Column diameter: 0,25

5 Dibutyl Tin (Hexyl)

Concentration: 0,2776 ug/mL



Date : 05-DEC-2019 13:03

Client ID:

Instrument: nt8.i

Sample Info: BHL0082-MSD1,

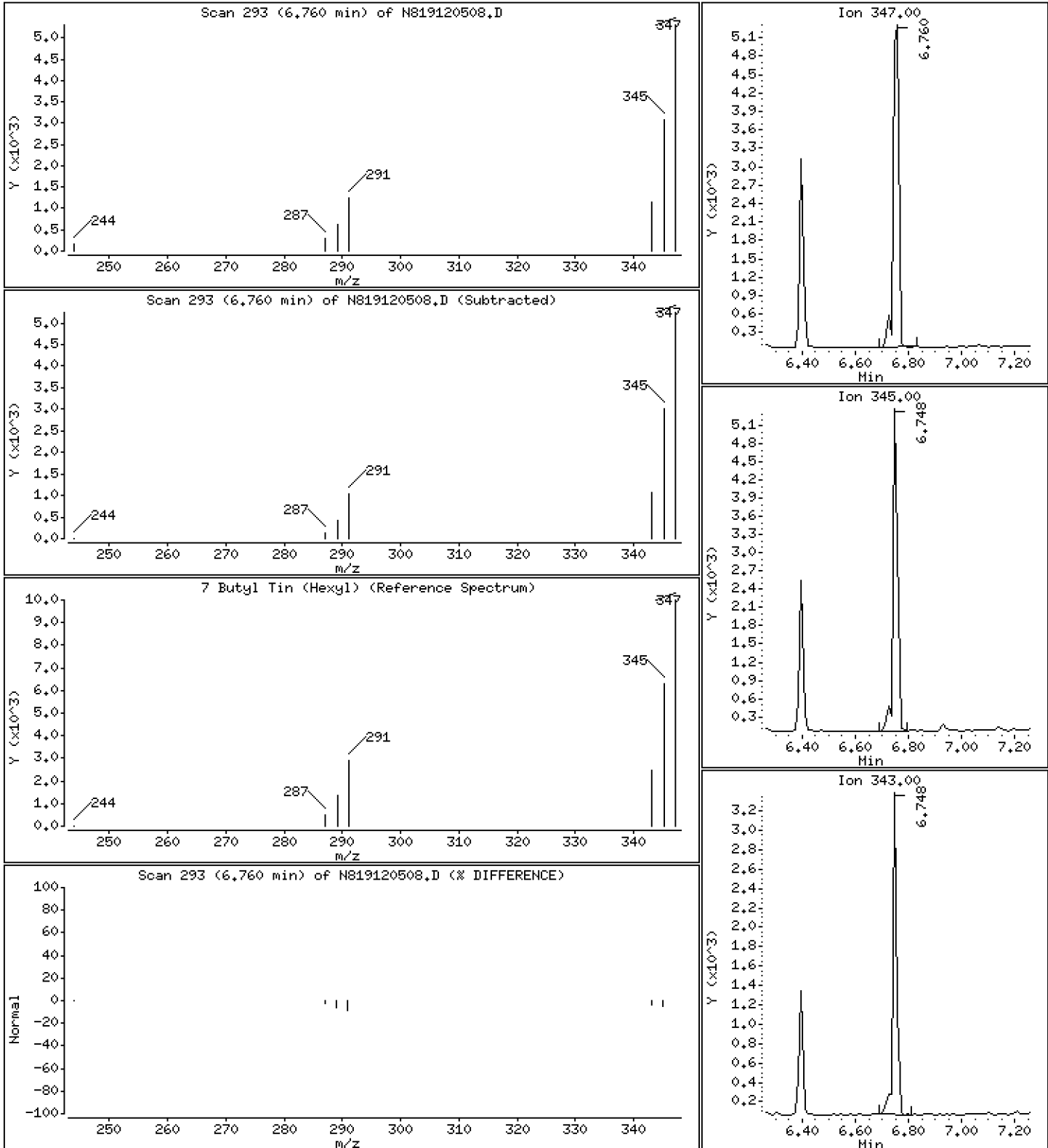
Operator: JZ

Column phase: ZB-5msi

Column diameter: 0,25

7 Butyl Tin (Hexyl)

Concentration: 0,5353 ug/mL



ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20191205.b\N819120508.D
 Lab Smp Id: BHL0082-MSD1
 Inj Date : 05-DEC-2019 13:03 MS Autotune Date: 27-FEB-2008 03:32
 Operator : JZ Inst ID: nt8.i
 Smp Info : BHL0082-MSD1,
 Misc Info :
 Comment : 2 ul Injection
 Method : \\target\share\chem3\nt8.i\20191205.b\TBT1125.m
 Meth Date : 05-Dec-2019 12:54 nt8.i Quant Type: ISTD
 Cal Date : 25-NOV-2019 15:29 Cal File: N819112507.D
 Als bottle: 8
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: sedmdl.sub
 Target Version: 4.14
 Processing Host: ORGDATA22

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN	FINAL
	MASS						(ug/mL)	(ug/mL)
\$ 1 Tripropyl Tin (Hexyl)	291		4.492	4.471	(0.741)	4281	0.23637	0.2364
2 Tetrabutyl Tin	289		Compound Not Detected.					
3 Tributyl Tin (Hexyl)	319		5.429	5.419	(0.896)	3949	0.28220	0.2822
* 4 Tetrapentyl Tin	333		6.058	6.058	(1.000)	46341	2.00000	
5 Dibutyl Tin (Hexyl)	347		6.119	6.119	(0.709)	2625	0.27758	0.2776
\$ 6 Tripentyl Tin (Hexyl)	347		6.397	6.397	(0.741)	2902	0.20958	0.2096
7 Butyl Tin (Hexyl)	347		6.760	6.760	(0.783)	8001	0.53527	0.5353 (M)
* 8 p-Terphenyl-d14	244		8.635	8.635	(1.000)	42720	0.20000	

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
 AREA AND RT SUMMARY

Instrument ID: nt8.i Calibration Date: 05-DEC-2019
 Lab File ID: N819120508.D Calibration Time: 11:17
 Lab Smp Id: BHL0082-MSD1
 Analysis Type: SV Level:
 Quant Type: ISTD Sample Type:
 Operator: JZ
 Method File: \\target\share\chem3\nt8.i\20191205.b\TBT1125.m
 Misc Info:

Test Mode:
 Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	41592	20796	83184	46341	11.42
8 p-Terphenyl-d14	41162	20581	82324	42720	3.79

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	6.06	5.56	6.56	6.06	-0.00
8 p-Terphenyl-d14	8.64	8.14	9.14	8.64	-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 - N819120508.D

Lab ID: BHL0082-MSD1

nt8.i, 20191205.b\TBT1125.m, 05-DEC-2019 13:03

RT CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV	RRT	DELTA	COMPOUND
-----	-----	-----	-------	----------

NONE

RRT check based on Ccal File: N819120502.D

On Column LOD for nt8.i, 20191205.b\TBT1125.m, sedmdl.sub = 0.0000

Exception: Tripropyl Tin (Hexyl) (Surr) 0.0010

* Only compounds listed in the work order have been verified by the analyst *

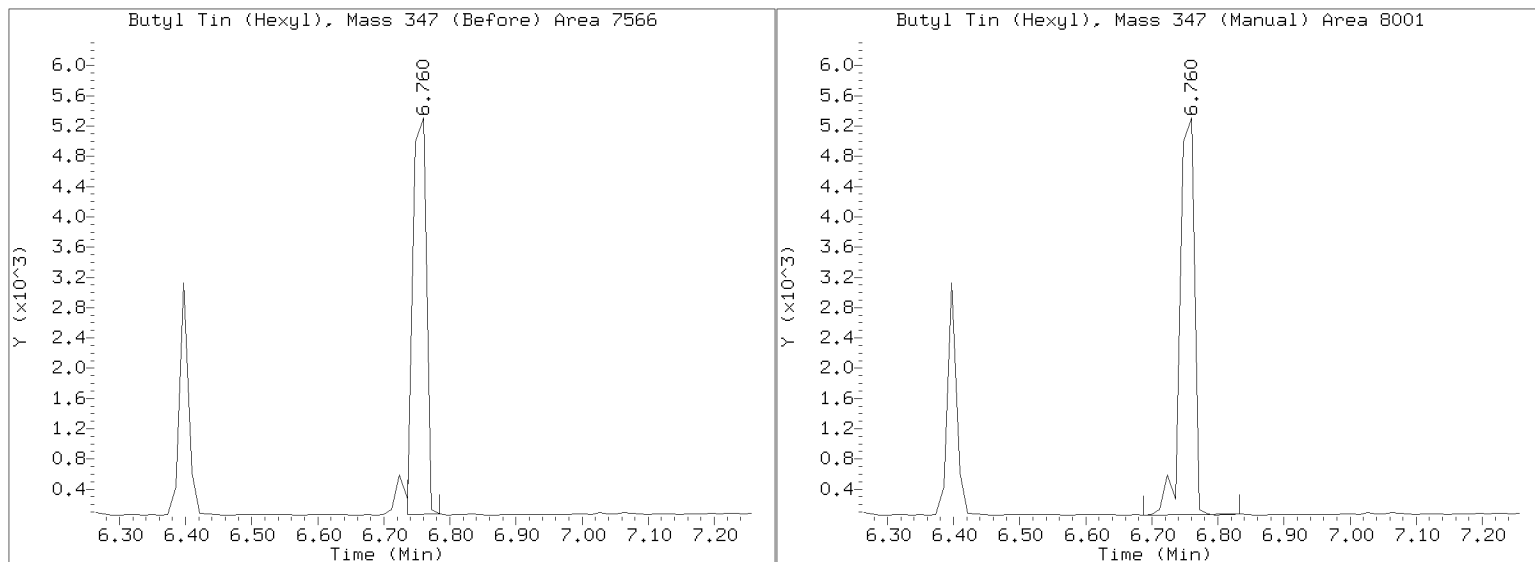
Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem3/nt8.i/20191205.b/N819120508.D

Injection Date: 05-DEC-2019 13:03

Lab ID: BHL0082-MSD1 Client ID:

Report Date: 12/05/2019 13:23





**MASS SPECTROMETER
INSTRUMENT PERFORMANCE CHECK
EPA 8270D-SIM**

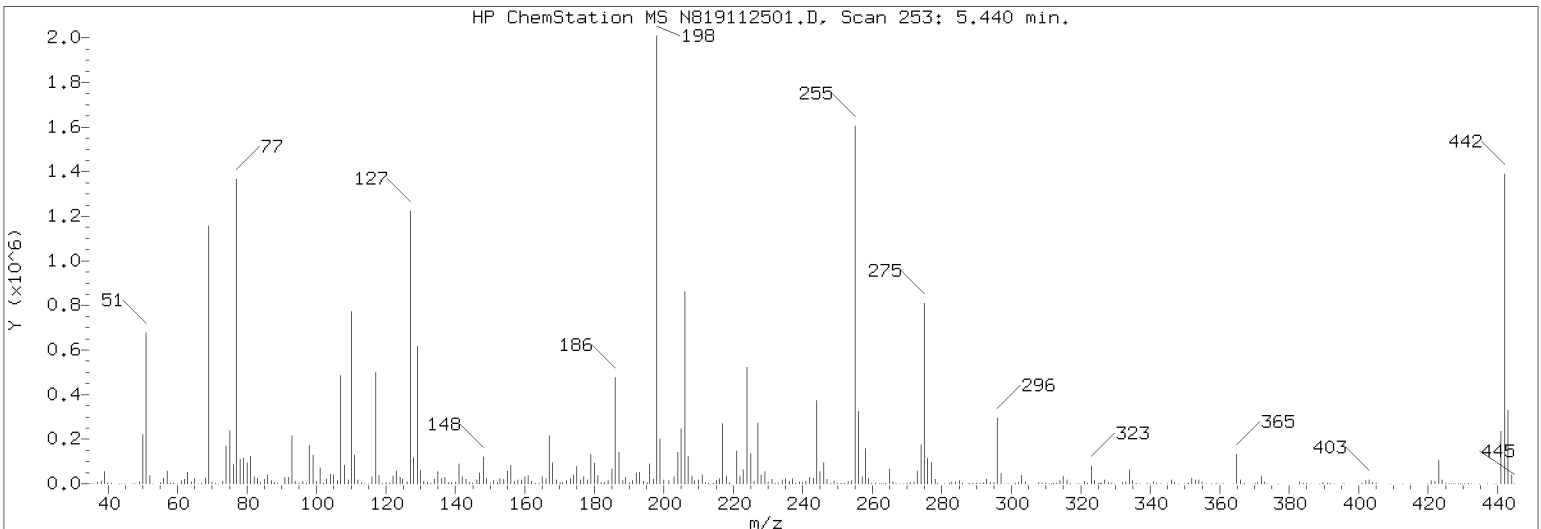
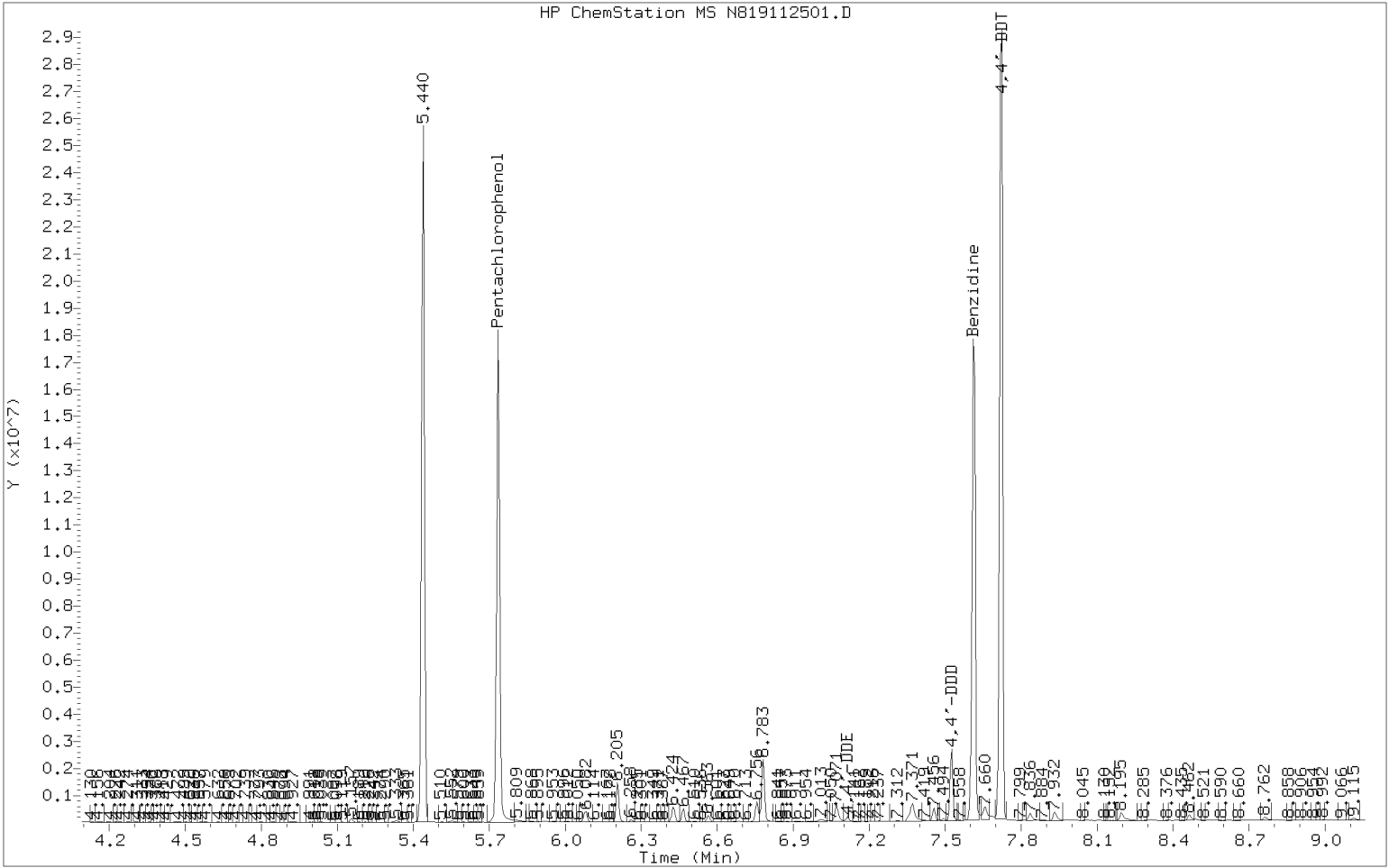
Laboratory:	<u>Analytical Resources, Inc.</u>	SDG:	<u>19K0228</u>
Client:	<u>Anchor OEA, LLC</u>	Project:	<u>Gasco PDI</u>
Lab File ID:	<u>N819112501.D</u>	Injection Date:	<u>11/25/19</u>
Instrument ID:	<u>NT8</u>	Injection Time:	<u>13:20</u>
Sequence:	<u>SHK0340</u>	Lab Sample ID:	<u>SHK0340-TUN1</u>

m/z	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
51	10 - 80% of 198	32.3	PASS
68	Less than 2% of 69	1.95	PASS
69	Less than 100% of 198	57.9	PASS
70	Less than 2% of 69	0.684	PASS
127	10 - 80% of 198	58.7	PASS
197	Less than 2% of 198	0.931	PASS
198	Base peak, 100% relative abundance	100	PASS
199	5 - 9% of 198	8.94	PASS
275	10 - 60% of 198	37	PASS
365	1 - 100% of 198	6.49	PASS
441	0.1 - 24% of 442	16	PASS
442	50 - 200% of 198	70	PASS
443	15 - 24% of 442	23.2	PASS
4,4'-DDD	Less than 20% of 4,4'-DDT		
4,4'-DDE	Less than 20% of 4,4'-DDT		
4,4'-DDT	Base peak, 100% relative abundance		

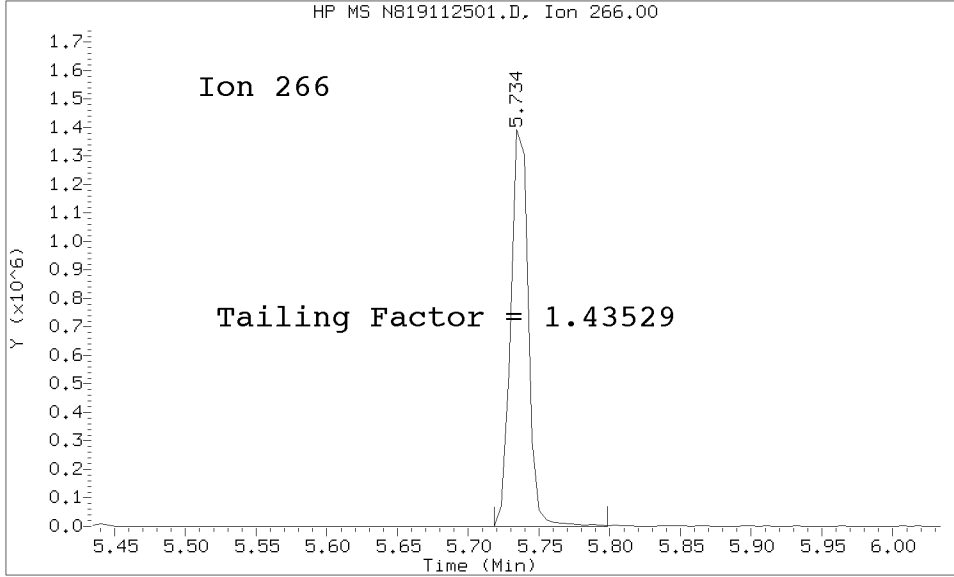
Client Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
MS Tune	SHK0340-TUN1	N819112501.D	11/25/2019	13:20
Cal Standard	SHK0340-CAL1	N819112502.D	11/25/2019	14:05
Cal Standard	SHK0340-CAL2	N819112503.D	11/25/2019	14:24
Cal Standard	SHK0340-CAL3	N819112504.D	11/25/2019	14:41
Cal Standard	SHK0340-CAL4	N819112505.D	11/25/2019	14:57
Cal Standard	SHK0340-CAL5	N819112506.D	11/25/2019	15:13
Cal Standard	SHK0340-CAL6	N819112507.D	11/25/2019	15:29
Secondary Cal Check	SHK0340-SCV1	N819112508.D	11/25/2019	16:02

DFTPP TAILING FACTOR AND BREAKDOWN GRAPHIC REPORT

Datafile Analyzed: /20191125.b/tune.b/N819112501.D/N819112501.D
Method Used: \20191125.b\tune.b\DFTTBT.m Inst: nt8
Injection Date: 25-NOV-2019 13:20 Operator: JZ
Sample Info: SHK0340-TUN1 DFTPP191125
Report Date: 11/26/2019 11:07



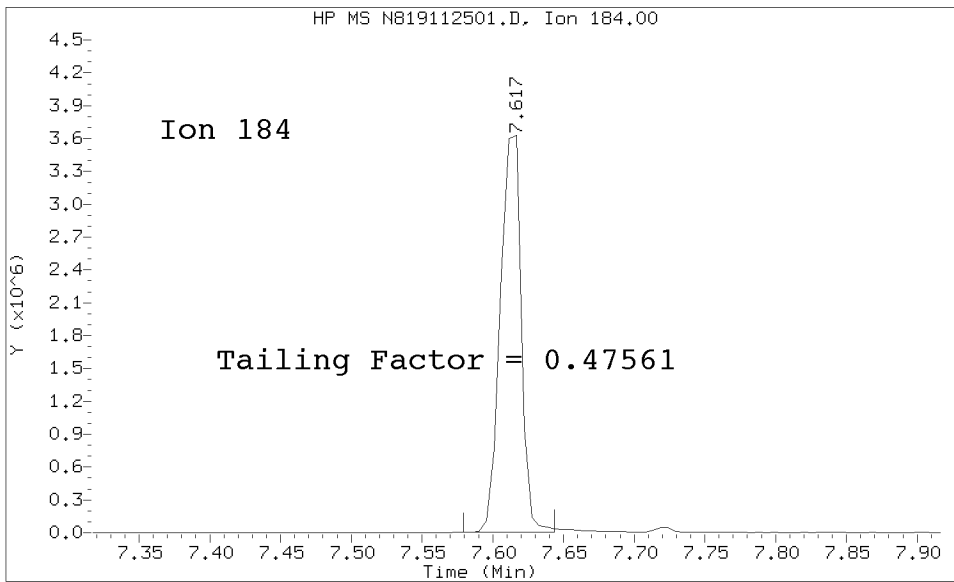
Datafile Analyzed: /20191125.b/tune.b/N819112501.D/N819112501.D
Method Used: \20191125.b\tune.b\DFTTBT.m\sw846ddt.m Inst: nt8
Injection Date: 25-NOV-2019 13:20 Operator: JZ
Sample Info: DFTPP191125
Report Date: 11/26/2019 11:07



Pentachlorophenol

=====
Exp. RT = 5.740
Found RT = 5.734

Tail Factor = 1.435 Maximum Allowed = 2.0



Benzidine

=====
Exp. RT = 7.649
Found RT = 7.617

Tail Factor = 0.476 Maximum Allowed = 2.0

8270 TAILING FACTOR/BREAKDOWN SUMMARY RESULTS

TAILING ANALYSIS SUMMARY

Compound	Tail Factor	Max Allowed	Test
Pentachlorophenol	1.4352941	2.000	PASS
Benzidine	0.4756098	2.000	PASS

DDT DEGRADATION BREAKDOWN ANALYSIS SUMMARY

Compound	Response	%Breakdown	Max Allowed	Test
4,4-DDT	2665847			N/A
4,4-DDE	11039	0.4	20.0	PASS
4,4-DDD	276865	9.4	20.0	PASS
4,4-DDD + DDE	287904	9.7	20.0	PASS

Tuning Sample, /nt8.i/20191125.b/tune.b/N819112501.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	32.32
68	Less than 2.00% of mass 69	1.13 (1.95)
69	Mass 69 relative abundance	57.92
70	Less than 2.00% of mass 69	0.40 (0.68)
127	10.00 - 80.00% of mass 198	58.73
197	Less than 2.00% of mass 198	0.93
199	5.00 - 9.00% of mass 198	8.94
275	10.00 - 60.00% of mass 198	37.03
365	Greater than 1.00% of mass 198	6.49
441	0.01 - 24.00% of mass 442	11.16 (15.96)
442	50.00 - 200.00% of mass 198	69.97
443	15.00 - 24.00% of mass 442	16.23 (23.19)

Data File: N819112501.D
Spectrum: Avg. Scans 252-254 (5.44), Background Scan 246
Location of Maximum: 198.00
Number of points: 375

m/z	Y	m/z	Y	m/z	Y	m/z	Y
35.00	626	135.00	37736	230.00	4922	327.00	12030
36.00	144	136.00	15737	231.00	13463	328.00	6275
37.00	3755	137.00	18752	232.00	2486	329.00	1169
38.00	8069	138.00	3357	233.00	2450	330.00	680
39.00	38488	139.00	2802	234.00	11367	332.00	4383
40.00	1484	140.00	6032	235.00	13102	333.00	6316
41.00	1680	141.00	60936	236.00	8647	334.00	39488
44.00	729	142.00	19568	237.00	13244	335.00	7991
45.00	897	143.00	12494	238.00	2079	336.00	1509
47.00	944	144.00	3142	239.00	6759	337.00	134
49.00	3440	145.00	1994	240.00	6045	339.00	1424
50.00	149056	146.00	11149	241.00	7937	340.00	651
51.00	470784	147.00	34896	242.00	19320	341.00	5688
52.00	27856	148.00	81744	243.00	20480	342.00	2468
53.00	632	149.00	16079	244.00	245184	343.00	294
55.00	2942	150.00	2914	245.00	35200	344.00	158
56.00	17960	151.00	10509	246.00	67528	345.00	690
57.00	41496	152.00	3106	247.00	13938	346.00	13112
58.00	1712	153.00	16194	248.00	2120	347.00	2669
59.00	1162	154.00	12242	249.00	9693	348.00	235
60.00	395	155.00	36624	250.00	2200	350.00	391
61.00	10309	156.00	51016	251.00	2784	351.00	1149
62.00	13807	157.00	7639	252.00	3442	352.00	17624
63.00	37936	158.00	10421	253.00	7032	353.00	11420
64.00	6462	159.00	8437	254.00	11213	354.00	12685
65.00	16672	160.00	21472	255.00	1161728	355.00	4026
66.00	1122	161.00	26800	256.00	211008	356.00	184
67.00	910	162.00	9367	257.00	18848	358.00	383
68.00	16432	163.00	2717	258.00	105328	359.00	1728
69.00	843712	164.00	2590	259.00	16904	360.00	847
70.00	5771	165.00	22792	260.00	2290	361.00	440
71.00	2019	166.00	16792	261.00	1854	362.00	283
72.00	771	167.00	147200	262.00	323	364.00	350
73.00	9151	168.00	66008	263.00	1063	365.00	94528
74.00	118952	169.00	10585	264.00	2608	366.00	11647
75.00	169984	170.00	4743	265.00	40992	367.00	1106
76.00	61648	171.00	4390	266.00	5410	369.00	186
77.00	1003328	172.00	10914	267.00	1005	370.00	1987
78.00	80792	173.00	14767	268.00	852	371.00	3809
79.00	86120	174.00	26472	269.00	102	372.00	24528
80.00	66544	175.00	54192	270.00	1932	373.00	6223
81.00	90792	176.00	11172	271.00	3567	374.00	805
82.00	21240	177.00	21216	272.00	5868	377.00	766
83.00	15738	178.00	10704	273.00	39968	378.00	211
84.00	1948	179.00	87072	274.00	114344	382.00	158
85.00	12601	180.00	64008	275.00	539328	383.00	5940
86.00	26568	181.00	24904	276.00	77096	384.00	2430
87.00	9024	182.00	4401	277.00	69696	385.00	1129
88.00	4523	183.00	3134	278.00	13490	386.00	120

89.00	2828	184.00	9505	279.00	3197	389.00	427
91.00	20400	185.00	43600	280.00	102	390.00	2592
92.00	19232	186.00	321280	281.00	110	391.00	2247
93.00	148160	187.00	96200	282.00	1249	392.00	1895
94.00	8559	188.00	9359	283.00	7269	393.00	805
95.00	2144	189.00	22368	284.00	4713	395.00	560
96.00	6151	190.00	4806	285.00	9367	396.00	87
97.00	2355	191.00	10540	286.00	2361	397.00	138
98.00	119720	192.00	30408	288.00	1350	400.00	514
99.00	84824	193.00	33808	289.00	2254	401.00	1201
100.00	6622	194.00	8263	290.00	1865	402.00	9237
101.00	47352	195.00	2253	291.00	1453	403.00	11777
102.00	2520	196.00	53936	292.00	2892	404.00	5313
103.00	14113	197.00	13560	293.00	13074	405.00	1337
104.00	28616	198.00	1456640	294.00	4312	409.00	117
105.00	29344	199.00	130296	295.00	4104	410.00	470
106.00	9425	200.00	11245	296.00	212672	412.00	131
107.00	345152	201.00	8148	297.00	30992	413.00	129
108.00	55792	203.00	19840	298.00	1110	415.00	781
109.00	9729	204.00	90536	299.00	538	420.00	292
110.00	522560	205.00	158720	301.00	2624	421.00	10344
111.00	91224	206.00	593728	302.00	3762	422.00	7981
112.00	12176	207.00	82288	303.00	25176	423.00	66952
113.00	4187	208.00	27504	304.00	6208	424.00	12029
114.00	1266	209.00	11073	305.00	847	425.00	2117
115.00	1326	210.00	11074	306.00	134	426.00	896
116.00	20880	211.00	28160	308.00	3218	427.00	880
117.00	363136	212.00	3946	309.00	2406	428.00	814
118.00	25088	213.00	2789	310.00	2322	429.00	788
119.00	2496	214.00	1069	311.00	1013	430.00	899
120.00	4774	215.00	10147	312.00	1001	431.00	1312
121.00	1371	216.00	16400	313.00	2569	432.00	444
122.00	25192	217.00	185856	314.00	9613	433.00	745
123.00	38528	218.00	23880	315.00	24688	434.00	509
124.00	18168	219.00	2394	316.00	11937	435.00	200
125.00	14752	220.00	2510	317.00	2184	437.00	303
126.00	4943	221.00	85632	318.00	248	439.00	363
127.00	855424	222.00	22888	319.00	317	440.00	263
128.00	79672	223.00	43032	320.00	361	441.00	162624
129.00	419968	224.00	360192	321.00	6533	442.00	1019264
130.00	37672	225.00	91800	322.00	2623	443.00	236416
131.00	7802	226.00	9821	323.00	57064	444.00	25696
132.00	3915	227.00	191872	324.00	9267	445.00	1269
133.00	1227	228.00	26944	325.00	1525	484.00	118
134.00	14724	229.00	39200	326.00	961		



**MASS SPECTROMETER
INSTRUMENT PERFORMANCE CHECK
EPA 8270D-SIM**

Laboratory:	<u>Analytical Resources, Inc.</u>	SDG:	<u>19K0228</u>
Client:	<u>Anchor QEA, LLC</u>	Project:	<u>Gasco PDI</u>
Lab File ID:	<u>N819112510.D</u>	Injection Date:	<u>11/25/19</u>
Instrument ID:	<u>NT8</u>	Injection Time:	<u>16:42</u>
Sequence:	<u>SHK0352</u>	Lab Sample ID:	<u>SHK0352-TUN1</u>

m/z	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
51	10 - 80% of 198	32.9	PASS
68	Less than 2% of 69	1.68	PASS
69	Less than 100% of 198	64.3	PASS
70	Less than 2% of 69	0.785	PASS
127	10 - 80% of 198	59.8	PASS
197	Less than 2% of 198	0.959	PASS
198	Base peak, 100% relative abundance	100	PASS
199	5 - 9% of 198	8.9	PASS
275	10 - 60% of 198	35.1	PASS
365	1 - 100% of 198	5.92	PASS
441	0.1 - 24% of 442	15.7	PASS
442	50 - 200% of 198	61.2	PASS
443	15 - 24% of 442	21.3	PASS
4,4'-DDD	Less than 20% of 4,4'-DDT		
4,4'-DDE	Less than 20% of 4,4'-DDT		
4,4'-DDT	Base peak, 100% relative abundance		



**MASS SPECTROMETER
INSTRUMENT PERFORMANCE CHECK
EPA 8270D-SIM**

Laboratory: Analytical Resources, Inc. SDG: 19K0228
 Client: Anchor QEA, LLC Project: Gasco PDI
 Lab File ID: N819112510.D Injection Date: 11/25/19
 Instrument ID: NT8 Injection Time: 16:42
 Sequence: SHK0352 Lab Sample ID: SHK0352-TUN1

m/z	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
51	10 - 80% of 198	32.9	PASS
68	Less than 2% of 69	1.68	PASS
69	Less than 100% of 198	64.3	PASS
70	Less than 2% of 69	0.785	PASS
127	10 - 80% of 198	59.8	PASS
197	Less than 2% of 198	0.959	PASS
198	Base peak, 100% relative abundance	100	PASS
199	5 - 9% of 198	8.9	PASS
275	10 - 60% of 198	35.1	PASS
365	1 - 100% of 198	5.92	PASS
441	0.1 - 24% of 442	15.7	PASS
442	50 - 200% of 198	61.2	PASS
443	15 - 24% of 442	21.3	PASS
4,4'-DDD	Less than 20% of 4,4'-DDT		
4,4'-DDE	Less than 20% of 4,4'-DDT		
4,4'-DDT	Base peak, 100% relative abundance		

Client Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
MS Tune	SHK0352-TUN1	N819112510.D	11/25/2019	16:42
Initial Cal Check	SHK0352-ICV1	N819112511.D	11/25/2019	16:56
Blank	BHK0438-BLK1	N819112512.D	11/25/2019	17:17
LCS	BHK0438-BS1	N819112513.D	11/25/2019	17:34
PDI-FB-191112146	19K0228-08	N819112514.D	11/25/2019	17:50
PDI-RB-1911120944	19K0228-09	N819112515.D	11/25/2019	18:06
Matrix Spike	BHK0438-MS1	N819112516.D	11/25/2019	18:23
Matrix Spike Dup	BHK0438-MSD1	N819112517.D	11/25/2019	18:39
LCS	BHK0465-BS1	N819112519.D	11/25/2019	19:11
LCS Dup	BHK0465-BSD1	N819112520.D	11/25/2019	19:28
Reference	BHK0465-SRM1	N819112521.D	11/25/2019	19:44
ZZZZZ	19K0231-01	N819112522.D	11/25/2019	20:00
ZZZZZ	19K0231-02	N819112525.D	11/25/2019	20:49
ZZZZZ	19K0231-03	N819112527.D	11/25/2019	21:22
ZZZZZ	19K0231-04	N819112528.D	11/25/2019	21:38
ZZZZZ	19K0231-05	N819112529.D	11/25/2019	21:54
ZZZZZ	19K0231-06	N819112530.D	11/25/2019	22:10
ZZZZZ	19K0231-07	N819112531.D	11/25/2019	22:27
ZZZZZ	19K0231-08	N819112532.D	11/25/2019	22:43
ZZZZZ	19K0231-09	N819112533.D	11/25/2019	22:59
ZZZZZ	19K0231-10	N819112534.D	11/25/2019	23:15
ZZZZZ	19K0231-11	N819112535.D	11/25/2019	23:32



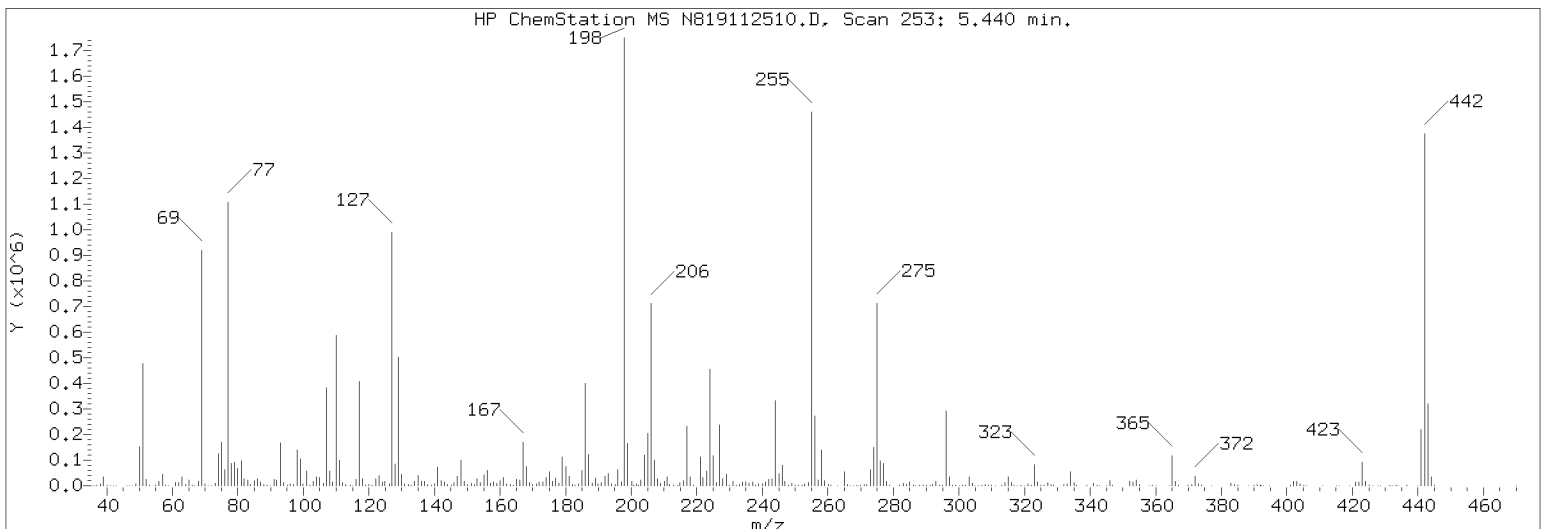
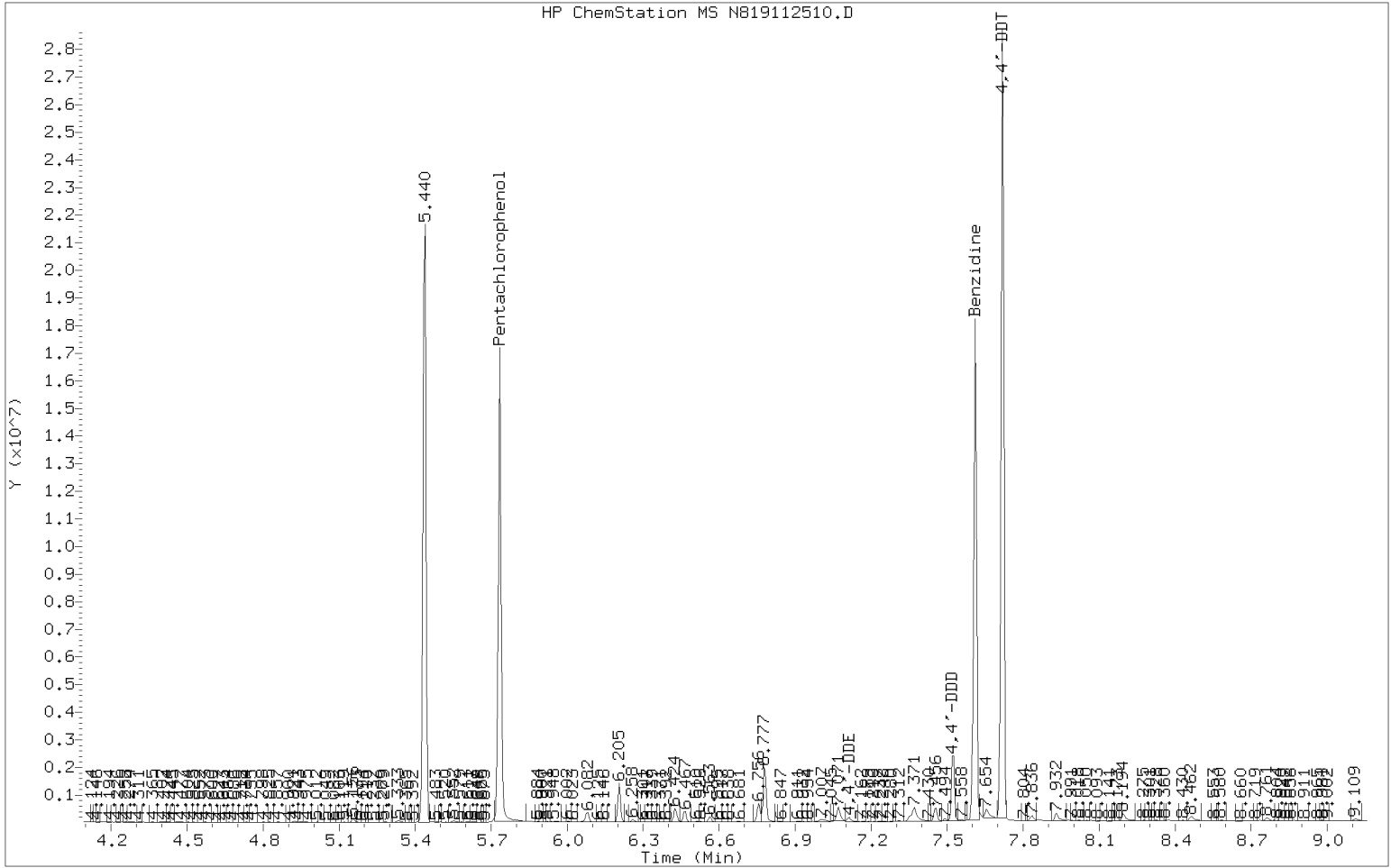
**MASS SPECTROMETER
INSTRUMENT PERFORMANCE CHECK
EPA 8270D-SIM**

Laboratory: Analytical Resources, Inc. SDG: 19K0228
 Client: Anchor QEA, LLC Project: Gasco PDI
 Lab File ID: N819112510.D Injection Date: 11/25/19
 Instrument ID: NT8 Injection Time: 16:42
 Sequence: SHK0352 Lab Sample ID: SHK0352-TUN1

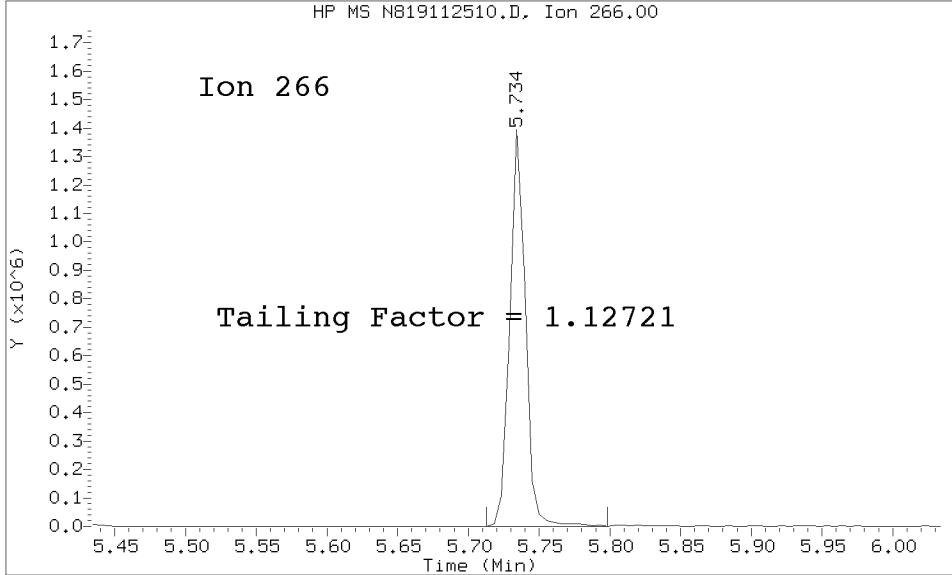
m/z	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE			
51	10 - 80% of 198	32.9			PASS
68	Less than 2% of 69	1.68			PASS
69	Less than 100% of 198	64.3			PASS
70	Less than 2% of 69	0.785			PASS
127	10 - 80% of 198	59.8			PASS
197	Less than 2% of 198	0.959			PASS
198	Base peak, 100% relative abundance	100			PASS
199	5 - 9% of 198	8.9			PASS
275	10 - 60% of 198	35.1			PASS
365	1 - 100% of 198	5.92			PASS
441	0.1 - 24% of 442	15.7			PASS
442	50 - 200% of 198	61.2			PASS
443	15 - 24% of 442	21.3			PASS
4,4'-DDD	Less than 20% of 4,4'-DDT				
4,4'-DDE	Less than 20% of 4,4'-DDT				
4,4'-DDT	Base peak, 100% relative abundance				
	<i>ZZZZZ</i>	19K0231-12	N819112536.D	11/25/2019	23:48
	<i>ZZZZZ</i>	19K0231-13	N819112537.D	11/26/2019	0:04
	<i>ZZZZZ</i>	19K0231-14	N819112538.D	11/26/2019	0:20
	<i>ZZZZZ</i>	19K0231-15	N819112539.D	11/26/2019	0:37
	<i>ZZZZZ</i>	19K0231-16	N819112540.D	11/26/2019	0:53
	<i>ZZZZZ</i>	19K0231-17	N819112541.D	11/26/2019	1:09
	<i>ZZZZZ</i>	19K0231-18	N819112542.D	11/26/2019	1:25
	<i>ZZZZZ</i>	19K0231-19	N819112543.D	11/26/2019	1:42
	<i>ZZZZZ</i>	19K0231-20	N819112544.D	11/26/2019	1:58
	Calibration Check	SHK0352-CCV1	N819112545.D	11/26/2019	2:14

DFTPP TAILING FACTOR AND BREAKDOWN GRAPHIC REPORT

Datafile Analyzed: /20191125A.b/tune.b/N819112510.D/N819112510.D
Method Used: \20191125A.b\tune.b\DFTTBT.m Inst: nt8
Injection Date: 25-NOV-2019 16:42 Operator: JZ
Sample Info: SHK0352-TUN1 DFTPP191125A
Report Date: 11/26/2019 13:46



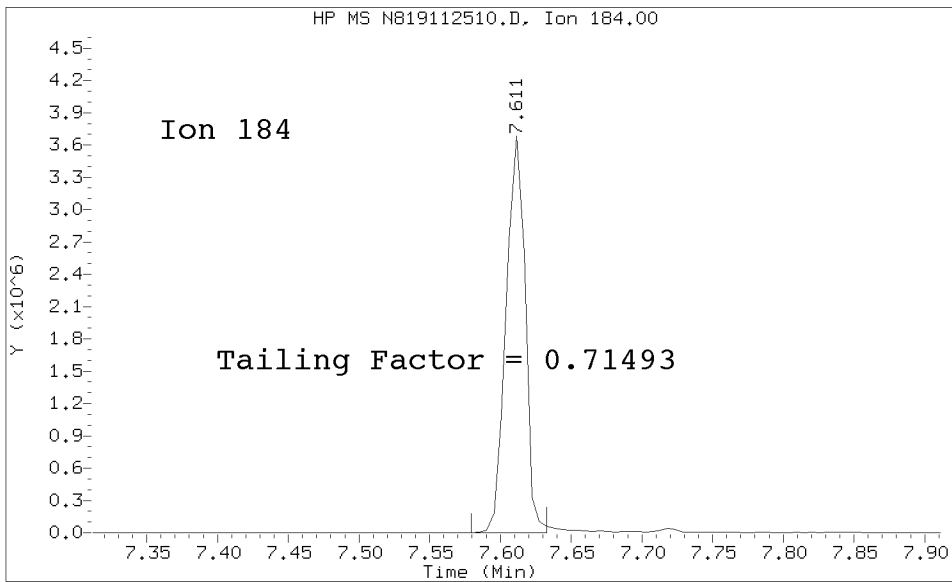
Datafile Analyzed: /20191125A.b/tune.b/N819112510.D/N819112510.D
Method Used: \20191125A.b\tune.b\DFTTBT.m\sw846ddt.m Inst: nt8
Injection Date: 25-NOV-2019 16:42 Operator: JZ
Sample Info: DFTPP191125A
Report Date: 11/26/2019 13:46



Pentachlorophenol

=====
Exp. RT = 5.740
Found RT = 5.734

Tail Factor = 1.127 Maximum Allowed = 2.0



Benzidine

=====
Exp. RT = 7.649
Found RT = 7.611

Tail Factor = 0.715 Maximum Allowed = 2.0

8270 TAILING FACTOR/BREAKDOWN SUMMARY RESULTS

TAILING ANALYSIS SUMMARY

Compound	Tail Factor	Max Allowed	Test
Pentachlorophenol	1.1272142	2.000	PASS
Benzidine	0.7149321	2.000	PASS

DDT DEGRADATION BREAKDOWN ANALYSIS SUMMARY

Compound	Response	%Breakdown	Max Allowed	Test
4,4-DDT	2467807			N/A
4,4-DDE	9620	0.4	20.0	PASS
4,4-DDD	275430	10.0	20.0	PASS
4,4-DDD + DDE	285050	10.4	20.0	PASS

Tuning Sample, /nt8.i/20191125A.b/tune.b/N819112510.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	32.95
68	Less than 2.00% of mass 69	1.08 (1.68)
69	Mass 69 relative abundance	64.28
70	Less than 2.00% of mass 69	0.50 (0.79)
127	10.00 - 80.00% of mass 198	59.81
197	Less than 2.00% of mass 198	0.96
199	5.00 - 9.00% of mass 198	8.90
275	10.00 - 60.00% of mass 198	35.11
365	Greater than 1.00% of mass 198	5.92
441	0.01 - 24.00% of mass 442	9.59 (15.68)
442	50.00 - 200.00% of mass 198	61.18
443	15.00 - 24.00% of mass 442	13.05 (21.32)

Data File: N819112510.D
 Spectrum: Average Spectrum: 5.419 to 5.451 min.
 Location of Maximum: 198.00
 Number of points: 375

m/z	Y	m/z	Y	m/z	Y	m/z	Y
35.00	83	130.00	17208	224.00	155392	319.00	205
36.00	242	131.00	3126	225.00	41032	320.00	218
37.00	1371	132.00	1645	226.00	4115	321.00	2339
38.00	3462	133.00	902	227.00	81336	322.00	1087
39.00	15086	134.00	6577	228.00	10487	323.00	24120
40.00	757	135.00	16158	229.00	15670	324.00	4027
41.00	492	136.00	7523	230.00	1660	325.00	634
42.00	120	137.00	8286	231.00	5684	326.00	656
43.00	270	138.00	1906	232.00	905	327.00	5058
44.00	57	139.00	1395	233.00	1327	328.00	1987
45.00	194	140.00	2510	234.00	5282	329.00	370
46.00	145	141.00	26936	235.00	5624	332.00	1780
47.00	637	142.00	8133	236.00	3915	333.00	2239
48.00	246	143.00	5180	237.00	5302	334.00	16600
49.00	3339	144.00	1606	238.00	811	335.00	4117
50.00	64760	145.00	1662	239.00	3372	336.00	722
51.00	212160	146.00	5371	240.00	2707	339.00	595
52.00	12261	147.00	14623	241.00	5059	340.00	168
53.00	560	148.00	38624	242.00	8147	341.00	2948
55.00	1977	149.00	7973	243.00	8939	342.00	946
56.00	7118	150.00	1358	244.00	107976	343.00	91
57.00	19776	151.00	3978	245.00	14555	344.00	66
58.00	843	152.00	2340	246.00	28688	345.00	198
59.00	140	153.00	9714	247.00	6296	346.00	5873
60.00	118	154.00	5994	248.00	1361	347.00	1132
61.00	4861	155.00	15852	249.00	3193	348.00	56
62.00	6228	156.00	21560	250.00	866	350.00	92
63.00	16984	157.00	3967	251.00	945	351.00	472
64.00	2414	158.00	4773	252.00	1401	352.00	6055
65.00	8604	159.00	4384	253.00	2815	353.00	4718
66.00	826	160.00	8435	254.00	4827	354.00	6805
67.00	1151	161.00	12571	255.00	504640	355.00	1543
68.00	6947	162.00	3795	256.00	89160	356.00	65
69.00	413952	163.00	1616	257.00	7002	358.00	174
70.00	3251	164.00	990	258.00	46064	359.00	612
71.00	896	165.00	9340	259.00	8041	360.00	140
72.00	416	166.00	8039	260.00	1547	363.00	82
73.00	4442	167.00	63080	261.00	1087	364.00	220
74.00	57880	168.00	32784	262.00	134	365.00	38136
75.00	76392	169.00	4618	263.00	317	366.00	5243
76.00	29648	170.00	1736	264.00	1079	367.00	436
77.00	487040	171.00	2886	265.00	18792	370.00	537
78.00	38744	172.00	6049	266.00	2097	371.00	1408
79.00	39560	173.00	6607	267.00	315	372.00	9702
80.00	30832	174.00	13034	268.00	340	373.00	2390
81.00	39168	175.00	22144	269.00	303	374.00	326
82.00	9120	176.00	5242	270.00	585	377.00	387
83.00	10017	177.00	10372	271.00	1463	383.00	2894
84.00	4451	178.00	3492	272.00	2152	384.00	1014

85.00	7291	179.00	40616	273.00	17904	385.00	429
86.00	14039	180.00	25992	274.00	44880	388.00	120
87.00	6386	181.00	12541	275.00	226112	390.00	1212
88.00	2651	182.00	2024	276.00	32312	391.00	1405
89.00	903	183.00	758	277.00	29000	392.00	974
90.00	225	184.00	3648	278.00	4728	393.00	43
91.00	9887	185.00	19216	279.00	835	394.00	92
92.00	10477	186.00	144000	281.00	44	395.00	56
93.00	69800	187.00	44760	282.00	693	401.00	629
94.00	4836	188.00	4048	283.00	2979	402.00	4741
95.00	1097	189.00	10729	284.00	1413	403.00	4650
96.00	2865	190.00	2411	285.00	4747	404.00	2300
97.00	2191	191.00	5231	286.00	990	405.00	338
98.00	57488	192.00	13176	287.00	41	406.00	46
99.00	40600	193.00	15297	288.00	324	409.00	160
100.00	2788	194.00	3429	289.00	767	411.00	174
101.00	22472	195.00	1516	290.00	881	415.00	249
102.00	1117	196.00	22944	291.00	752	416.00	132
103.00	6424	197.00	6179	292.00	1336	419.00	195
104.00	13721	198.00	643968	293.00	5172	421.00	3766
105.00	13571	199.00	57304	294.00	1015	422.00	4268
106.00	4438	200.00	5560	295.00	1152	423.00	25128
107.00	160576	201.00	4209	296.00	94016	424.00	5040
108.00	24384	202.00	518	297.00	12288	425.00	341
109.00	4528	203.00	8301	298.00	1111	426.00	185
110.00	229120	204.00	43840	299.00	248	427.00	208
111.00	41728	205.00	71088	300.00	116	428.00	313
112.00	5374	206.00	246080	301.00	1025	429.00	449
113.00	2309	207.00	36296	302.00	1125	430.00	158
114.00	785	208.00	10719	303.00	10123	431.00	370
115.00	724	209.00	3982	304.00	3063	432.00	146
116.00	8892	210.00	5329	305.00	473	433.00	368
117.00	168256	211.00	11466	306.00	252	434.00	196
118.00	12285	212.00	2555	307.00	357	436.00	264
119.00	1345	213.00	798	308.00	1322	439.00	171
120.00	1653	214.00	490	309.00	604	440.00	65
121.00	995	215.00	4488	310.00	864	441.00	61776
122.00	11683	216.00	6907	311.00	298	442.00	393984
123.00	16448	217.00	80200	312.00	269	443.00	84016
124.00	6364	218.00	11399	313.00	872	444.00	9580
125.00	6687	219.00	1243	314.00	4072	445.00	381
126.00	2629	220.00	849	315.00	10989	447.00	55
127.00	385216	221.00	33840	316.00	4251	451.00	54
128.00	36648	222.00	9860	317.00	649	470.00	105
129.00	192896	223.00	17344	318.00	86		



**MASS SPECTROMETER
INSTRUMENT PERFORMANCE CHECK
EPA 8270D-SIM**

Laboratory:	<u>Analytical Resources, Inc.</u>	SDG:	<u>19K0228</u>
Client:	<u>Anchor QEA, LLC</u>	Project:	<u>Gasco PDI</u>
Lab File ID:	<u>N819110230.D</u>	Injection Date:	<u>12/02/19</u>
Instrument ID:	<u>NT8</u>	Injection Time:	<u>17:36</u>
Sequence:	<u>SHL0025</u>	Lab Sample ID:	<u>SHL0025-TUN1</u>

m/z	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
51	10 - 80% of 198	31	PASS
68	Less than 2% of 69	1.89	PASS
69	Less than 100% of 198	61.9	PASS
70	Less than 2% of 69	0.601	PASS
127	10 - 80% of 198	56.5	PASS
197	Less than 2% of 198	1.07	PASS
198	Base peak, 100% relative abundance	100	PASS
199	5 - 9% of 198	8.17	PASS
275	10 - 60% of 198	33.6	PASS
365	1 - 100% of 198	6.18	PASS
441	0.1 - 24% of 442	14.9	PASS
442	50 - 200% of 198	58.3	PASS
443	15 - 24% of 442	20.9	PASS
4,4'-DDD	Less than 20% of 4,4'-DDT		
4,4'-DDE	Less than 20% of 4,4'-DDT		
4,4'-DDT	Base peak, 100% relative abundance		



**MASS SPECTROMETER
INSTRUMENT PERFORMANCE CHECK
EPA 8270D-SIM**

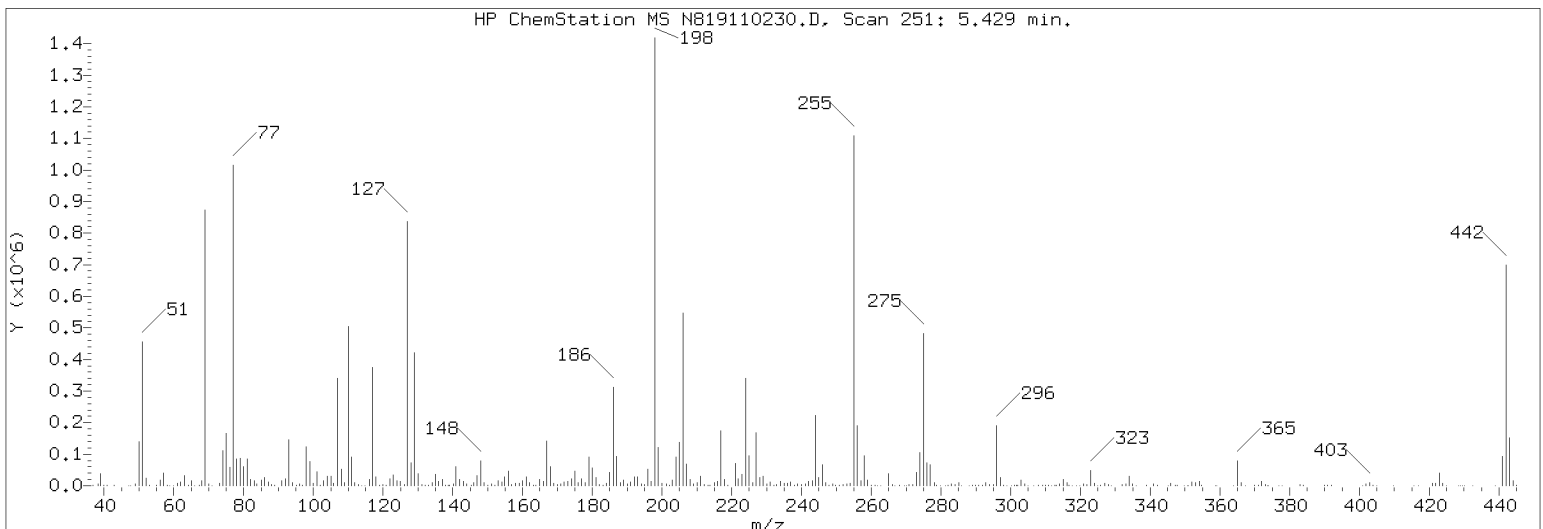
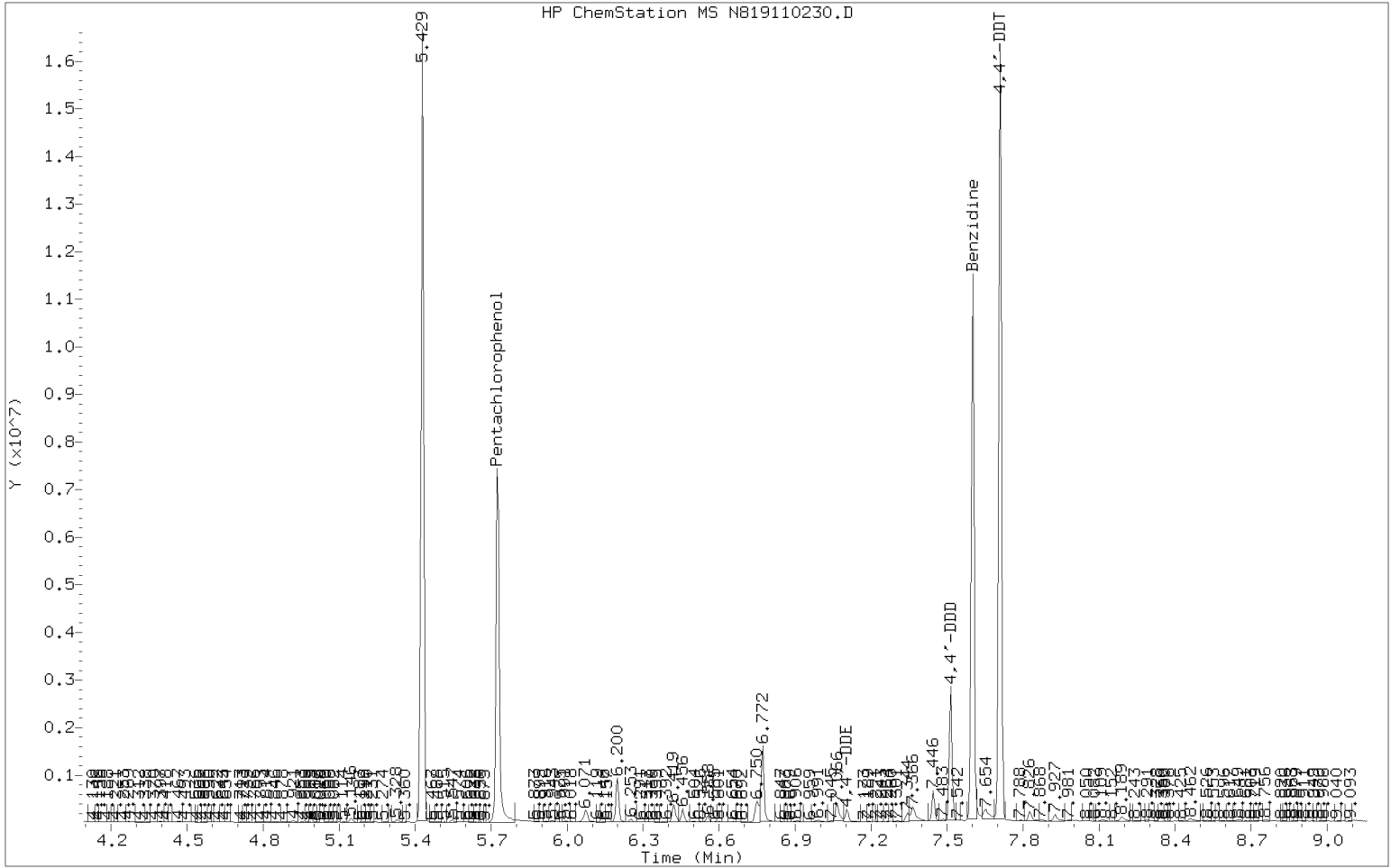
Laboratory:	<u>Analytical Resources, Inc.</u>	SDG:	<u>19K0228</u>
Client:	<u>Anchor QEA, LLC</u>	Project:	<u>Gasco PDI</u>
Lab File ID:	<u>N819110230.D</u>	Injection Date:	<u>12/02/19</u>
Instrument ID:	<u>NT8</u>	Injection Time:	<u>17:36</u>
Sequence:	<u>SHL0025</u>	Lab Sample ID:	<u>SHL0025-TUN1</u>

m/z	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
51	10 - 80% of 198	31	PASS
68	Less than 2% of 69	1.89	PASS
69	Less than 100% of 198	61.9	PASS
70	Less than 2% of 69	0.601	PASS
127	10 - 80% of 198	56.5	PASS
197	Less than 2% of 198	1.07	PASS
198	Base peak, 100% relative abundance	100	PASS
199	5 - 9% of 198	8.17	PASS
275	10 - 60% of 198	33.6	PASS
365	1 - 100% of 198	6.18	PASS
441	0.1 - 24% of 442	14.9	PASS
442	50 - 200% of 198	58.3	PASS
443	15 - 24% of 442	20.9	PASS
4,4'-DDD	Less than 20% of 4,4'-DDT		
4,4'-DDE	Less than 20% of 4,4'-DDT		
4,4'-DDT	Base peak, 100% relative abundance		

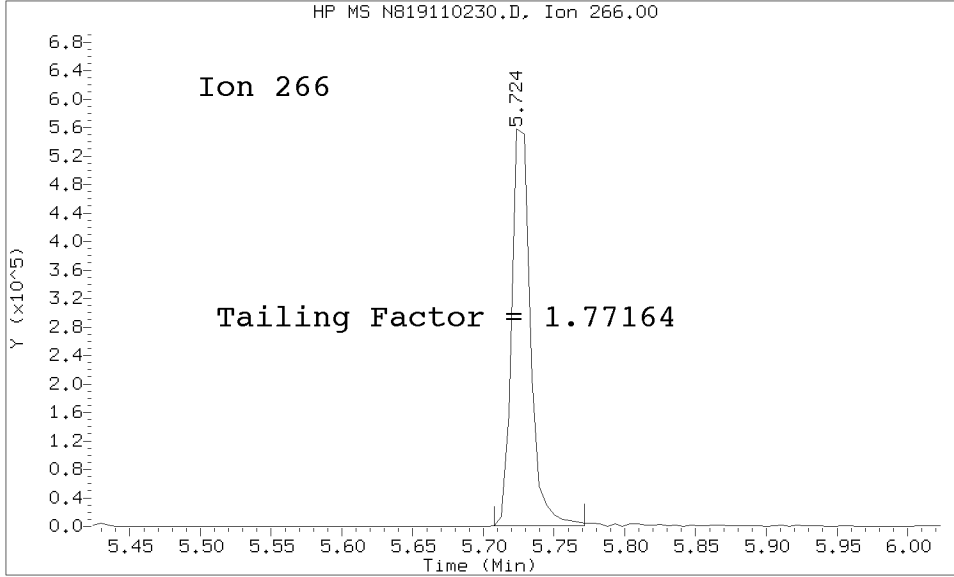
Client Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
MS Tune	SHL0025-TUN1	N819110230.D	12/02/2019	17:36
Initial Cal Check	SHL0025-ICV1	N819120231.D	12/02/2019	17:52
Blank	BHK0576-BLK1	N819120232.D	12/02/2019	18:09
LCS	BHK0576-BS1	N819120233.D	12/02/2019	18:30
DI-1142RAB-20-30.4-19111	19K0228-01	N819120234.D	12/02/2019	18:47
Matrix Spike	BHK0576-MS1	N819120235.D	12/02/2019	19:03
Matrix Spike Dup	BHK0576-MSD1	N819120236.D	12/02/2019	19:19
PDI-142RAB-10-20-191112	19K0228-03	N819120238.D	12/02/2019	19:52
DI-142RAB-20-30.4-19111	19K0228-04	N819120239.D	12/02/2019	20:08
PDI-144RAB-00-10-191113	19K0228-05	N819120240.D	12/02/2019	20:24
PDI-144RAB-10-20-191113	19K0228-06	N819120241.D	12/02/2019	20:41
PDI-144RAB-20-29-191113	19K0228-07	N819120242.D	12/02/2019	20:57
DI-140RAB-10-12.7-19110	19K0228-11	N819120244.D	12/02/2019	21:29
PDI-141RAB-00-10-191107	19K0228-12	N819120245.D	12/02/2019	21:46
DI-141RAB-10-17.7-19110	19K0228-13	N819120246.D	12/02/2019	22:02
PDI-143RAB-00-10-191111	19K0228-14	N819120247.D	12/02/2019	22:18
PDI-143RAB-10-20-191111	19K0228-15	N819120248.D	12/02/2019	22:34
DI-143RAB-20-31.1-19111	19K0228-16	N819120249.D	12/02/2019	22:51
Blank	BHK0747-BLK1	N819120250.D	12/02/2019	23:07
ZZZZZ	19K0394-01	N819120252.D	12/02/2019	23:40
ZZZZZ	19K0394-02	N819120255.D	12/03/2019	0:28
Calibration Check	SHL0025-CCV1	N819120256.D	12/03/2019	0:45

DFTPP TAILING FACTOR AND BREAKDOWN GRAPHIC REPORT

Datafile Analyzed: /20191202A.b/tune.b/N819110230.D/N819110230.D
Method Used: \20191202A.b\tune.b\DFTTBT.m Inst: nt8
Injection Date: 02-DEC-2019 17:36 Operator: JZ
Sample Info: SHL0025-TUN1 DFTPP191202A
Report Date: 12/03/2019 09:03



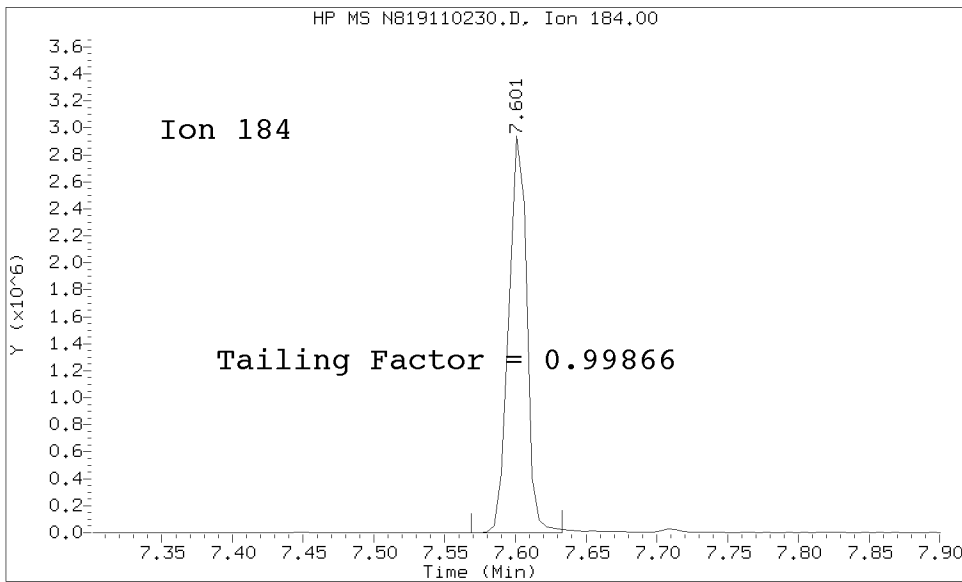
Datafile Analyzed: /20191202A.b/tune.b/N819110230.D/N819110230.D
Method Used: \20191202A.b\tune.b\DFTTBT.m\sw846ddt.m Inst: nt8
Injection Date: 02-DEC-2019 17:36 Operator: JZ
Sample Info: DFTPP191202A
Report Date: 12/03/2019 09:03



Pentachlorophenol

=====
Exp. RT = 5.729
Found RT = 5.724

Tail Factor = 1.772 Maximum Allowed = 2.0



Benzidine

=====
Exp. RT = 7.606
Found RT = 7.601

Tail Factor = 0.999 Maximum Allowed = 2.0

8270 TAILING FACTOR/BREAKDOWN SUMMARY RESULTS

TAILING ANALYSIS SUMMARY

Compound	Tail Factor	Max Allowed	Test
Pentachlorophenol	1.7716390	2.000	PASS
Benzidine	0.9986649	2.000	PASS

DDT DEGRADATION BREAKDOWN ANALYSIS SUMMARY

Compound	Response	%Breakdown	Max Allowed	Test
4,4-DDT	1631022			N/A
4,4-DDE	16906	1.0	20.0	PASS
4,4-DDD	306399	15.8	20.0	PASS
4,4-DDD + DDE	323305	16.5	20.0	PASS

Tuning Sample, /nt8.i/20191202A.b/tune.b/N819110230.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	31.05
68	Less than 2.00% of mass 69	1.17 (1.89)
69	Mass 69 relative abundance	61.86
70	Less than 2.00% of mass 69	0.37 (0.60)
127	10.00 - 80.00% of mass 198	56.50
197	Less than 2.00% of mass 198	1.07
199	5.00 - 9.00% of mass 198	8.17
275	10.00 - 60.00% of mass 198	33.59
365	Greater than 1.00% of mass 198	6.18
441	0.01 - 24.00% of mass 442	8.66 (14.86)
442	50.00 - 200.00% of mass 198	58.28
443	15.00 - 24.00% of mass 442	12.16 (20.87)

Data File: N819110230.D
 Spectrum: Avg. Scans 250-252 (5.43), Background Scan 244
 Location of Maximum: 198.00
 Number of points: 353

m/z	Y	m/z	Y	m/z	Y	m/z	Y
35.00	111	128.00	49872	217.00	126568	307.00	326
36.00	283	129.00	284672	218.00	14169	308.00	3077
37.00	2236	130.00	26744	219.00	1864	309.00	1606
38.00	4024	131.00	4238	220.00	1361	310.00	1443
39.00	23544	132.00	2307	221.00	41656	311.00	604
40.00	1402	133.00	1613	222.00	15830	312.00	721
41.00	885	134.00	8432	223.00	25920	313.00	1138
43.00	712	135.00	22792	224.00	236352	314.00	6823
44.00	259	136.00	10687	225.00	61976	315.00	16440
45.00	272	137.00	13576	226.00	5918	316.00	6886
47.00	252	138.00	2477	227.00	122064	317.00	1762
48.00	425	139.00	2026	228.00	17288	319.00	675
49.00	1895	140.00	4107	229.00	23104	321.00	4363
50.00	94400	141.00	40720	230.00	2977	322.00	2659
51.00	312832	142.00	12055	231.00	7729	323.00	30736
52.00	16760	143.00	8280	232.00	1633	324.00	5519
53.00	1174	144.00	2949	233.00	2566	325.00	481
55.00	2598	145.00	1465	234.00	8168	326.00	691
56.00	10779	146.00	7106	235.00	7294	327.00	6706
57.00	25960	147.00	21288	236.00	6002	328.00	3887
58.00	1010	148.00	55232	237.00	8199	329.00	254
59.00	303	149.00	10176	238.00	1388	332.00	1967
60.00	86	150.00	1989	239.00	5018	333.00	3814
61.00	5614	151.00	4877	240.00	3457	334.00	21328
62.00	7684	152.00	2016	241.00	5416	335.00	5426
63.00	21824	153.00	12262	242.00	11802	336.00	320
64.00	2819	154.00	9311	243.00	12807	339.00	712
65.00	11361	155.00	20208	244.00	157888	340.00	302
66.00	595	156.00	29784	245.00	18464	341.00	4371
67.00	978	157.00	4988	246.00	49640	342.00	1287
68.00	11768	158.00	6111	247.00	7409	345.00	369
69.00	623296	159.00	6413	248.00	2137	346.00	6255
70.00	3744	160.00	11427	249.00	5584	347.00	2027
71.00	251	161.00	18216	250.00	1596	348.00	684
73.00	4410	162.00	6194	251.00	2017	350.00	1003
74.00	83656	163.00	1403	252.00	2559	351.00	442
75.00	117432	164.00	1273	253.00	4388	352.00	10246
76.00	41784	165.00	17696	254.00	5820	353.00	6670
77.00	728896	166.00	9528	255.00	785408	354.00	9475
78.00	60528	167.00	96000	256.00	131648	355.00	1588
79.00	59944	168.00	43072	257.00	10612	357.00	132
80.00	40296	169.00	6002	258.00	67656	359.00	723
81.00	59704	170.00	3046	259.00	11876	364.00	248
82.00	12674	171.00	3981	260.00	2680	365.00	62304
83.00	11840	172.00	8918	261.00	1262	366.00	7822
84.00	1935	173.00	9754	262.00	218	367.00	494
85.00	11405	174.00	15564	263.00	530	370.00	1735
86.00	18272	175.00	31792	264.00	984	371.00	1443
87.00	8013	176.00	7349	265.00	26192	372.00	12996

88.00	2633	177.00	14324	266.00	3028	373.00	3420
89.00	1750	178.00	6159	267.00	263	374.00	414
90.00	144	179.00	63904	268.00	471	377.00	227
91.00	11760	180.00	39976	269.00	203	378.00	373
92.00	14242	181.00	17880	270.00	841	383.00	3483
93.00	109112	182.00	3045	271.00	2726	384.00	1402
94.00	5542	183.00	1797	272.00	3148	385.00	114
95.00	1260	184.00	5924	273.00	26400	389.00	151
96.00	2755	185.00	31096	274.00	67120	390.00	1398
97.00	1080	186.00	213632	275.00	338496	391.00	1254
98.00	82128	187.00	64936	276.00	45960	392.00	1509
99.00	52952	188.00	6912	277.00	46272	401.00	675
100.00	5160	189.00	15952	278.00	7424	402.00	4686
101.00	26872	190.00	2740	279.00	1725	403.00	7596
102.00	1747	191.00	6784	280.00	478	404.00	2401
103.00	8933	192.00	18624	281.00	527	405.00	379
104.00	19592	193.00	19848	282.00	972	410.00	240
105.00	19808	194.00	5349	283.00	4146	416.00	559
106.00	5544	195.00	2566	284.00	2750	417.00	288
107.00	235840	196.00	32432	285.00	7036	421.00	5020
108.00	33160	197.00	10760	286.00	895	422.00	5775
109.00	7149	198.00	1007616	288.00	330	423.00	35512
110.00	339968	199.00	82296	289.00	1275	424.00	7178
111.00	60040	200.00	5626	290.00	1232	425.00	489
112.00	8016	201.00	3679	291.00	1009	428.00	357
113.00	3279	202.00	1224	292.00	1833	429.00	421
114.00	683	203.00	13126	293.00	6728	430.00	467
115.00	1347	204.00	64176	294.00	2261	431.00	389
116.00	14513	205.00	96776	295.00	2012	432.00	293
117.00	263552	206.00	386368	296.00	139520	434.00	210
118.00	17536	207.00	48176	297.00	19432	439.00	230
119.00	1846	208.00	14056	298.00	994	440.00	110
120.00	2830	209.00	5027	299.00	153	441.00	87264
121.00	637	210.00	6787	300.00	145	442.00	587264
122.00	16648	211.00	18696	301.00	2506	443.00	122576
123.00	24384	212.00	2675	302.00	2189	444.00	12514
124.00	11313	213.00	1732	303.00	14697	445.00	988
125.00	7814	214.00	629	304.00	4301		
126.00	2675	215.00	5406	305.00	726		
127.00	569280	216.00	11552	306.00	246		



**MASS SPECTROMETER
INSTRUMENT PERFORMANCE CHECK
EPA 8270D-SIM**

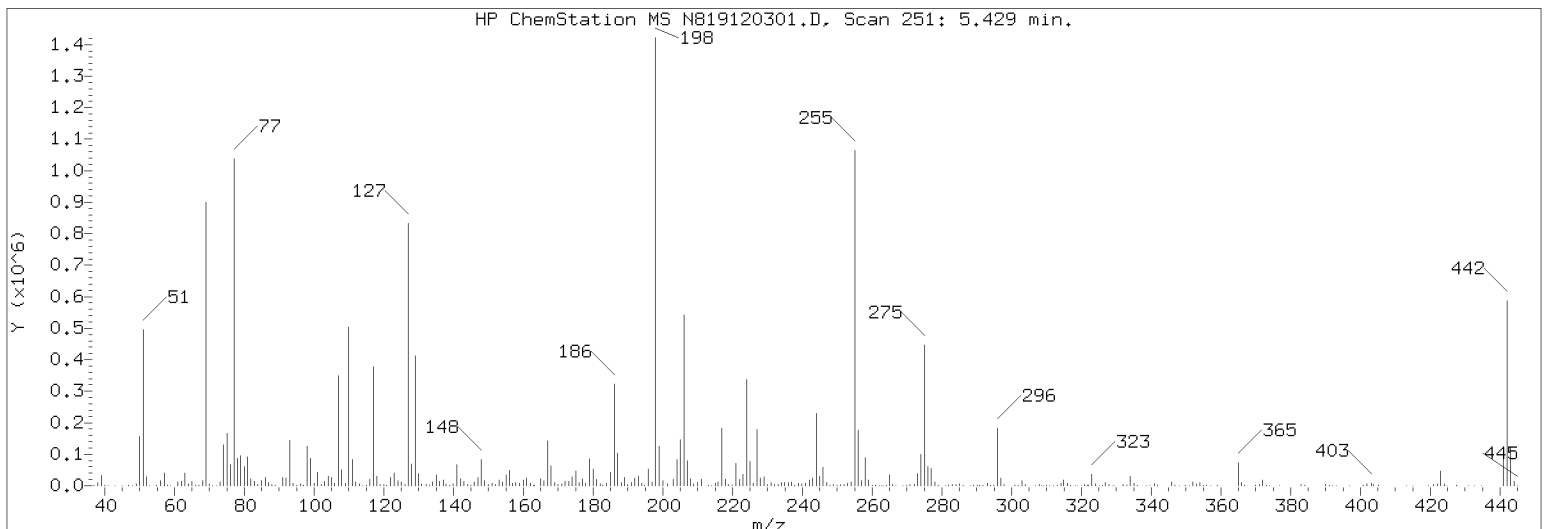
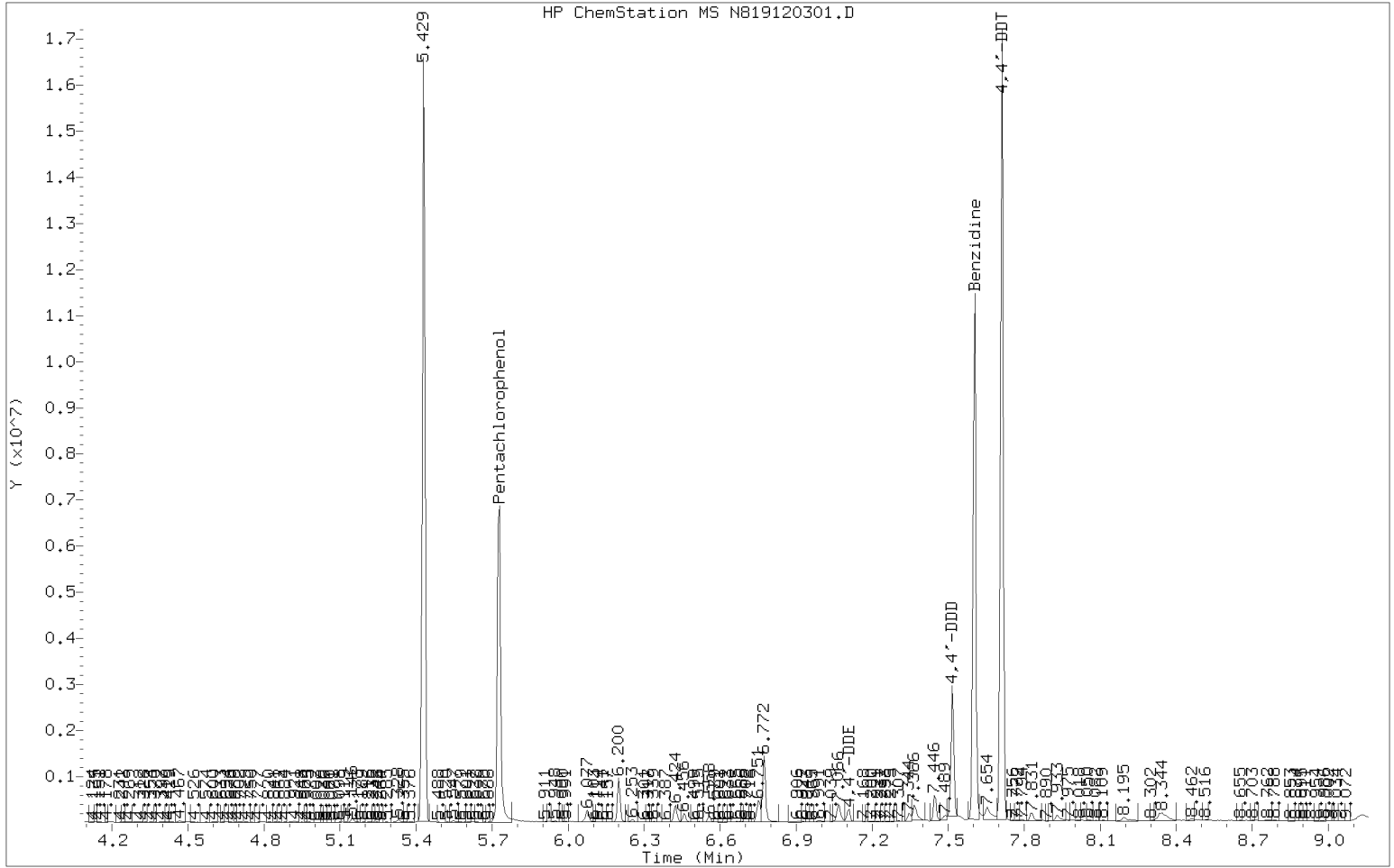
Laboratory:	<u>Analytical Resources, Inc.</u>	SDG:	<u>19K0228</u>
Client:	<u>Anchor QEA, LLC</u>	Project:	<u>Gasco PDI</u>
Lab File ID:	<u>N819120301.D</u>	Injection Date:	<u>12/03/19</u>
Instrument ID:	<u>NT8</u>	Injection Time:	<u>09:10</u>
Sequence:	<u>SHL0032</u>	Lab Sample ID:	<u>SHL0032-TUN1</u>

m/z	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
51	10 - 80% of 198	32.7	PASS
68	Less than 2% of 69	1.88	PASS
69	Less than 100% of 198	62.7	PASS
70	Less than 2% of 69	0.633	PASS
127	10 - 80% of 198	57.3	PASS
197	Less than 2% of 198	1.08	PASS
198	Base peak, 100% relative abundance	100	PASS
199	5 - 9% of 198	8.6	PASS
275	10 - 60% of 198	32.3	PASS
365	1 - 100% of 198	5.89	PASS
441	0.1 - 24% of 442	15.6	PASS
442	50 - 200% of 198	54.4	PASS
443	15 - 24% of 442	21.3	PASS
4,4'-DDD	Less than 20% of 4,4'-DDT		
4,4'-DDE	Less than 20% of 4,4'-DDT		
4,4'-DDT	Base peak, 100% relative abundance		

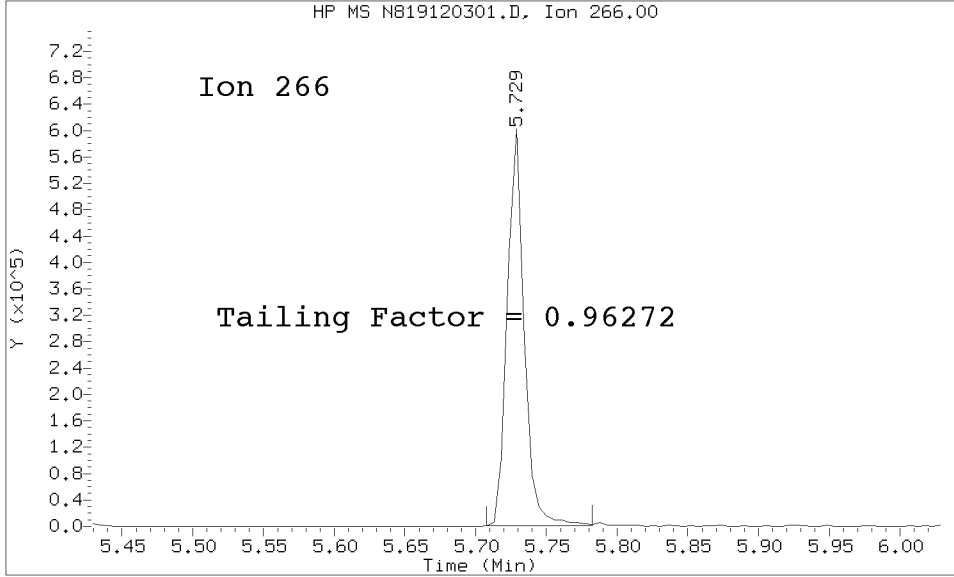
Client Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
MS Tune	SHL0032-TUN1	N819120301.D	12/03/2019	9:10
Initial Cal Check	SHL0032-ICV1	N819120302.D	12/03/2019	9:22
Instrument Blank	SHL0032-IBL1	N819120303.D	12/03/2019	10:14
PDI-142RAB-00-10-191112	19K0228-02	N819120304.D	12/03/2019	10:36
LCS	BHK0747-BS1	N819120306.D	12/03/2019	11:08
Calibration Check	SHL0032-CCV1	N819120307.D	12/03/2019	12:12

DFTPP TAILING FACTOR AND BREAKDOWN GRAPHIC REPORT

Datafile Analyzed: /20191203.b/tune.b/N819120301.D/N819120301.D
Method Used: \20191203.b\tune.b\DFTTBT.m Inst: nt8
Injection Date: 03-DEC-2019 09:10 Operator: JZ
Sample Info: SHL0032-TUN1 DFTPP191203
Report Date: 12/03/2019 13:03



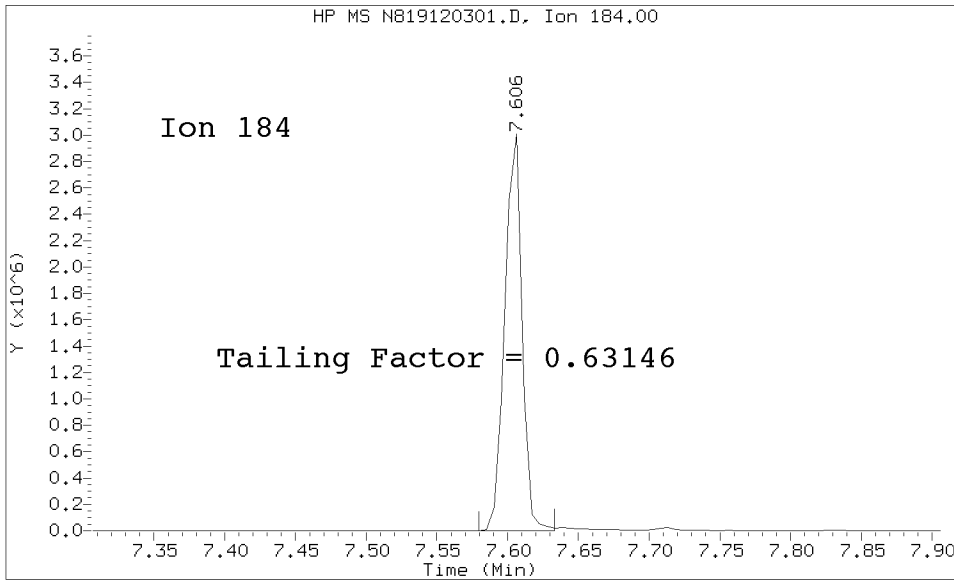
Datafile Analyzed: /20191203.b/tune.b/N819120301.D/N819120301.D
Method Used: \20191203.b\tune.b\DFTTBT.m\sw846ddt.m Inst: nt8
Injection Date: 03-DEC-2019 09:10 Operator: JZ
Sample Info: DFTPP191203
Report Date: 12/03/2019 13:03



Pentachlorophenol

=====
Exp. RT = 5.729
Found RT = 5.729

Tail Factor = 0.963 Maximum Allowed = 2.0



Benzidine

=====
Exp. RT = 7.606
Found RT = 7.606

Tail Factor = 0.631 Maximum Allowed = 2.0

8270 TAILING FACTOR/BREAKDOWN SUMMARY RESULTS

TAILING ANALYSIS SUMMARY

Compound	Tail Factor	Max Allowed	Test
Pentachlorophenol	0.9627249	2.000	PASS
Benzidine	0.6314631	2.000	PASS

DDT DEGRADATION BREAKDOWN ANALYSIS SUMMARY

Compound	Response	%Breakdown	Max Allowed	Test
4,4-DDT	1625753			N/A
4,4-DDE	20215	1.2	20.0	PASS
4,4-DDD	302882	15.7	20.0	PASS
4,4-DDD + DDE	323097	16.6	20.0	PASS

Tuning Sample, /nt8.i/20191203.b/tune.b/N819120301.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	32.73
68	Less than 2.00% of mass 69	1.18 (1.88)
69	Mass 69 relative abundance	62.72
70	Less than 2.00% of mass 69	0.40 (0.63)
127	10.00 - 80.00% of mass 198	57.35
197	Less than 2.00% of mass 198	1.08
199	5.00 - 9.00% of mass 198	8.60
275	10.00 - 60.00% of mass 198	32.29
365	Greater than 1.00% of mass 198	5.89
441	0.01 - 24.00% of mass 442	8.51 (15.64)
442	50.00 - 200.00% of mass 198	54.41
443	15.00 - 24.00% of mass 442	11.56 (21.25)

Data File: N819120301.D
 Spectrum: Avg. Scans 250-252 (5.43), Background Scan 246
 Location of Maximum: 198.00
 Number of points: 352

m/z	Y	m/z	Y	m/z	Y	m/z	Y
35.00	332	132.00	2505	221.00	46760	315.00	16448
37.00	2320	133.00	1982	222.00	14622	316.00	6817
38.00	5279	134.00	9765	223.00	25088	317.00	1792
39.00	20912	135.00	24600	224.00	236096	318.00	175
40.00	1494	136.00	11316	225.00	57968	319.00	203
43.00	688	137.00	12088	226.00	7097	320.00	350
45.00	558	138.00	3308	227.00	130360	321.00	4570
47.00	795	139.00	1579	228.00	18672	322.00	1801
49.00	2537	140.00	3967	229.00	21760	323.00	34528
50.00	106824	141.00	42856	230.00	3497	324.00	6250
51.00	335296	142.00	13783	231.00	7266	325.00	626
52.00	17088	143.00	9453	232.00	2479	326.00	814
53.00	488	144.00	2493	233.00	3198	327.00	8693
55.00	2159	145.00	2099	234.00	8748	328.00	3457
56.00	13090	146.00	9114	235.00	8823	329.00	787
57.00	28448	147.00	21464	236.00	6440	332.00	2547
58.00	1094	148.00	61520	237.00	8339	333.00	2839
59.00	460	149.00	11970	238.00	1587	334.00	23208
60.00	277	150.00	2427	239.00	5066	335.00	5560
61.00	8024	151.00	4562	240.00	3554	336.00	1197
62.00	10016	152.00	2809	241.00	6118	339.00	147
63.00	27016	153.00	13819	242.00	13228	340.00	395
64.00	4310	154.00	7509	243.00	15324	341.00	3279
65.00	11720	155.00	22296	244.00	163776	342.00	979
66.00	512	156.00	32376	245.00	21792	343.00	124
67.00	1601	157.00	5440	246.00	42336	346.00	8944
68.00	12084	158.00	7347	247.00	8744	347.00	1454
69.00	642496	159.00	5203	248.00	1377	348.00	269
70.00	4067	160.00	13064	249.00	3670	349.00	178
71.00	151	161.00	17752	250.00	1191	350.00	373
72.00	163	162.00	4667	251.00	2266	351.00	528
73.00	7632	163.00	2474	252.00	2881	352.00	8888
74.00	85976	164.00	175	253.00	5751	353.00	6678
75.00	119464	165.00	16096	254.00	7871	354.00	8681
76.00	44176	166.00	11581	255.00	798592	355.00	1632
77.00	757184	167.00	101736	256.00	130792	356.00	306
78.00	59648	168.00	50808	257.00	11025	357.00	87
79.00	61424	169.00	6991	258.00	67640	359.00	1042
80.00	44248	170.00	3015	259.00	11904	364.00	136
81.00	61104	171.00	2950	260.00	1676	365.00	60376
82.00	13523	172.00	9022	261.00	1983	366.00	7686
83.00	11899	173.00	9828	262.00	857	367.00	968
84.00	1947	174.00	18000	263.00	650	370.00	1550
85.00	11248	175.00	32776	264.00	1497	371.00	2557
86.00	18304	176.00	7489	265.00	26432	372.00	15385
87.00	6897	177.00	15585	266.00	2969	373.00	3214
88.00	1991	178.00	5755	267.00	505	374.00	518
89.00	988	179.00	61856	268.00	267	377.00	396
91.00	16050	180.00	39424	269.00	253	378.00	112

92.00	14790	181.00	14110	270.00	727	382.00	163
93.00	107200	182.00	3511	271.00	2463	383.00	3565
94.00	7180	183.00	1843	272.00	2638	384.00	1013
95.00	1207	184.00	6350	273.00	27528	385.00	115
96.00	5079	185.00	29952	274.00	73992	390.00	2299
97.00	1393	186.00	221376	275.00	330752	391.00	1843
98.00	91088	187.00	68368	276.00	46112	392.00	761
99.00	61560	188.00	6546	277.00	45488	393.00	413
100.00	5006	189.00	17000	278.00	8073	397.00	477
101.00	30144	190.00	2676	279.00	1595	401.00	602
102.00	1872	191.00	6154	281.00	336	402.00	5557
103.00	9308	192.00	16928	282.00	1739	403.00	6768
104.00	22208	193.00	21224	283.00	4429	404.00	3548
105.00	19248	194.00	5264	284.00	3214	405.00	484
106.00	5930	195.00	949	285.00	5938	410.00	184
107.00	244608	196.00	33464	286.00	1619	413.00	98
108.00	35136	197.00	11065	288.00	86	415.00	216
109.00	6241	198.00	1024384	289.00	2122	419.00	153
110.00	344192	199.00	88120	290.00	1643	420.00	241
111.00	58168	200.00	10896	291.00	1016	421.00	5620
112.00	7757	201.00	4370	292.00	1746	422.00	5004
113.00	3255	202.00	576	293.00	6640	423.00	39984
114.00	511	203.00	14729	294.00	2431	424.00	8115
115.00	1150	204.00	62256	295.00	2300	425.00	995
116.00	13539	205.00	107032	296.00	141440	426.00	325
117.00	271424	206.00	388288	297.00	20752	427.00	704
118.00	20576	207.00	52632	298.00	1510	428.00	157
119.00	2404	208.00	17984	299.00	212	431.00	489
120.00	1811	209.00	4869	301.00	1626	433.00	368
121.00	1702	210.00	8369	302.00	1824	434.00	133
122.00	17464	211.00	17640	303.00	12783	435.00	557
123.00	26224	212.00	1358	304.00	4953	441.00	87152
124.00	10762	213.00	1748	307.00	424	442.00	557376
125.00	8435	214.00	823	308.00	2451	443.00	118456
126.00	3445	215.00	6890	309.00	1154	444.00	11722
127.00	587456	216.00	10680	310.00	1267	445.00	860
128.00	47896	217.00	129536	311.00	261		
129.00	286720	218.00	15558	312.00	97		
130.00	26336	219.00	2865	313.00	1794		
131.00	4200	220.00	1784	314.00	6591		



**MASS SPECTROMETER
INSTRUMENT PERFORMANCE CHECK
EPA 8270D-SIM**

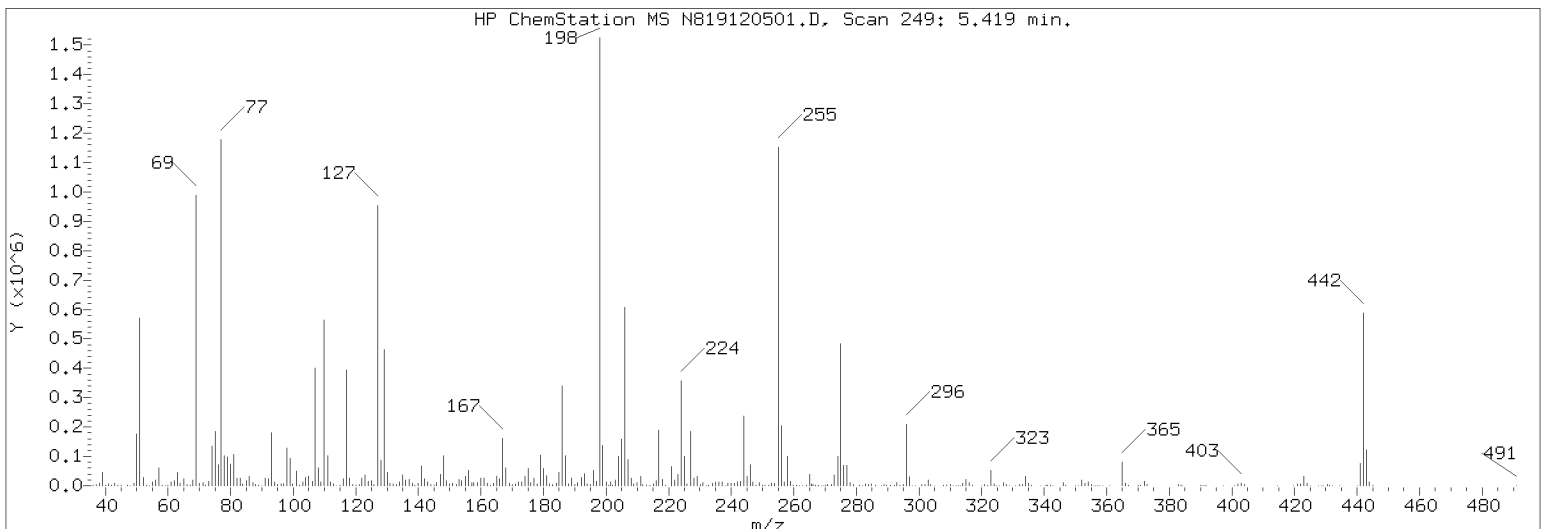
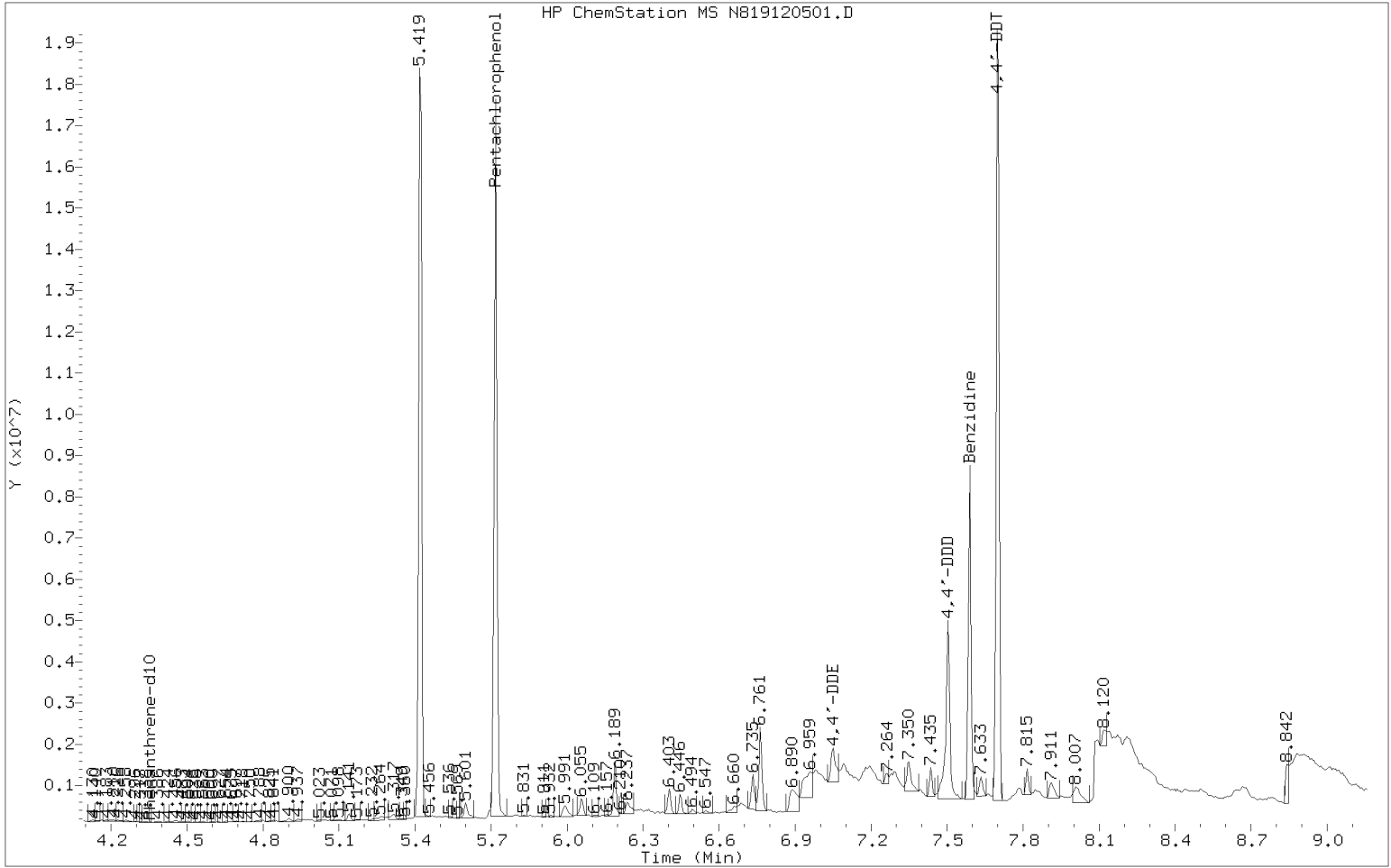
Laboratory:	<u>Analytical Resources, Inc.</u>	SDG:	<u>19K0228</u>
Client:	<u>Anchor QEA, LLC</u>	Project:	<u>Gasco PDI</u>
Lab File ID:	<u>N819120501.D</u>	Injection Date:	<u>12/05/19</u>
Instrument ID:	<u>NT8</u>	Injection Time:	<u>11:01</u>
Sequence:	<u>SHL0077</u>	Lab Sample ID:	<u>SHL0077-TUN1</u>

m/z	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
51	10 - 80% of 198	33.9	PASS
68	Less than 2% of 69	1.85	PASS
69	Less than 100% of 198	61.6	PASS
70	Less than 2% of 69	0.625	PASS
127	10 - 80% of 198	59.2	PASS
197	Less than 2% of 198	1.1	PASS
198	Base peak, 100% relative abundance	100	PASS
199	5 - 9% of 198	8.85	PASS
275	10 - 60% of 198	34	PASS
365	1 - 100% of 198	5.97	PASS
441	0.1 - 24% of 442	15.1	PASS
442	50 - 200% of 198	54.6	PASS
443	15 - 24% of 442	22.1	PASS
4,4'-DDD	Less than 20% of 4,4'-DDT		
4,4'-DDE	Less than 20% of 4,4'-DDT		
4,4'-DDT	Base peak, 100% relative abundance		

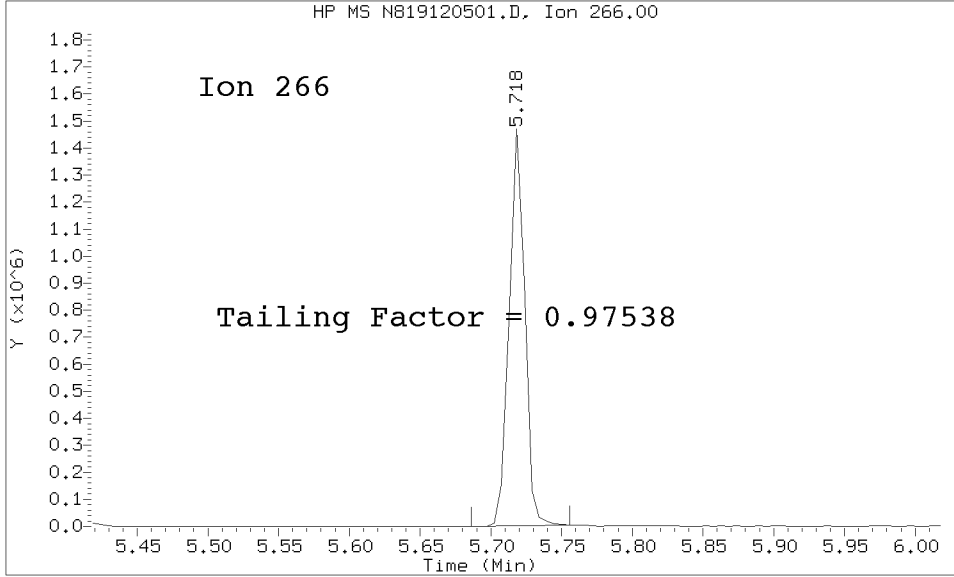
Client Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
MS Tune	SHL0077-TUN1	N819120501.D	12/05/2019	11:01
Initial Cal Check	SHL0077-ICV1	N819120502.D	12/05/2019	11:17
Blank	BHL0082-BLK1	N819120503.D	12/05/2019	11:41
LCS	BHL0082-BS1	N819120504.D	12/05/2019	11:58
LCS Dup	BHL0082-BSD1	N819120505.D	12/05/2019	12:14
PDI-140RAB-00-10-191108	19K0228-10RE1	N819120506.D	12/05/2019	12:30
Matrix Spike	BHL0082-MS1	N819120507.D	12/05/2019	12:46
Matrix Spike Dup	BHL0082-MSD1	N819120508.D	12/05/2019	13:03
ZZZZZ	19K0415-01	N819120509.D	12/05/2019	13:19
ZZZZZ	19K0416-01	N819120510.D	12/05/2019	13:35
ZZZZZ	19K0416-02	N819120511.D	12/05/2019	13:52
Calibration Check	SHL0077-CCV1	N819120512.D	12/05/2019	14:08

DFTPP TAILING FACTOR AND BREAKDOWN GRAPHIC REPORT

Datafile Analyzed: /20191205.b/tune.b/N819120501.D/N819120501.D
Method Used: \20191205.b\tune.b\DFTTBT.m Inst: nt8
Injection Date: 05-DEC-2019 11:01 Operator: JZ
Sample Info: SHL0077-TUN1 DFTPP191205
Report Date: 12/05/2019 13:46



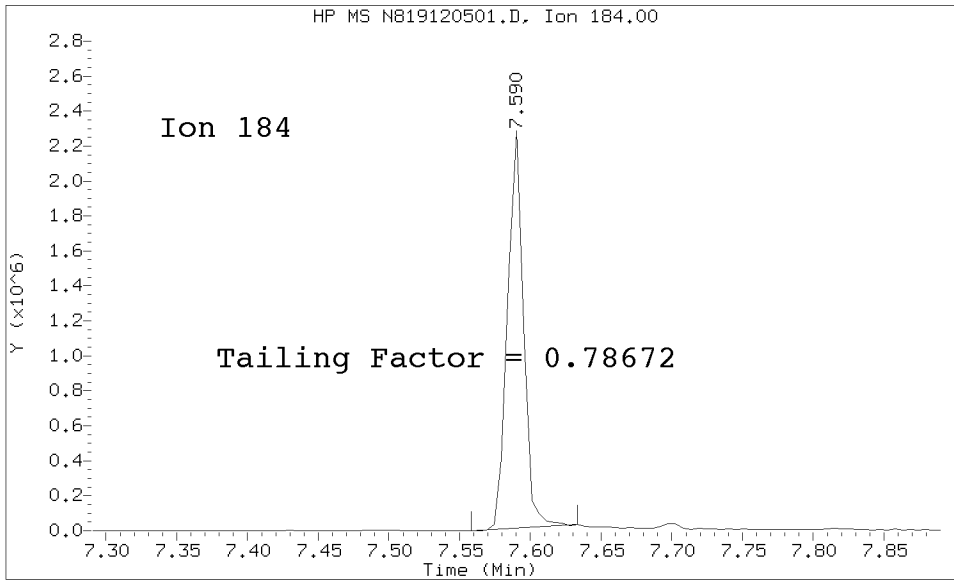
Datafile Analyzed: /20191205.b/tune.b/N819120501.D/N819120501.D
Method Used: \20191205.b\tune.b\DFTTBT.m\sw846ddt.m Inst: nt8
Injection Date: 05-DEC-2019 11:01 Operator: JZ
Sample Info: DF TPP191205
Report Date: 12/05/2019 13:46



Pentachlorophenol

=====
Exp. RT = 5.718
Found RT = 5.718

Tail Factor = 0.975 Maximum Allowed = 2.0



Benzidine

=====
Exp. RT = 7.590
Found RT = 7.590

Tail Factor = 0.787 Maximum Allowed = 2.0

8270 TAILING FACTOR/BREAKDOWN SUMMARY RESULTS

TAILING ANALYSIS SUMMARY

Compound	Tail Factor	Max Allowed	Test
Pentachlorophenol	0.9753846	2.000	PASS
Benzidine	0.7867178	2.000	PASS

DDT DEGRADATION BREAKDOWN ANALYSIS SUMMARY

Compound	Response	%Breakdown	Max Allowed	Test
4,4-DDT	1878557			N/A
4,4-DDE	12311	0.7	20.0	PASS
4,4-DDD	371402	16.5	20.0	PASS
4,4-DDD + DDE	383713	17.0	20.0	PASS

Tuning Sample, /nt8.i/20191205.b/tune.b/N819120501.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	33.91
68	Less than 2.00% of mass 69	1.14 (1.85)
69	Mass 69 relative abundance	61.58
70	Less than 2.00% of mass 69	0.38 (0.63)
127	10.00 - 80.00% of mass 198	59.21
197	Less than 2.00% of mass 198	1.10
199	5.00 - 9.00% of mass 198	8.85
275	10.00 - 60.00% of mass 198	34.00
365	Greater than 1.00% of mass 198	5.97
441	0.01 - 24.00% of mass 442	8.26 (15.13)
442	50.00 - 200.00% of mass 198	54.64
443	15.00 - 24.00% of mass 442	12.06 (22.08)

Data File: N819120501.D
 Spectrum: Avg. Scans 248-250 (5.42), Background Scan 244
 Location of Maximum: 198.00
 Number of points: 362

m/z	Y	m/z	Y	m/z	Y	m/z	Y
35.00	145	133.00	1493	224.00	279552	321.00	4020
36.00	621	134.00	10839	225.00	74832	322.00	2662
37.00	1437	135.00	28040	226.00	7437	323.00	45272
38.00	6406	136.00	12872	227.00	146432	324.00	6232
39.00	31376	137.00	15110	228.00	21192	325.00	379
40.00	738	138.00	3265	229.00	25184	326.00	810
41.00	145	139.00	1809	230.00	4171	327.00	9979
42.00	1404	140.00	4371	231.00	10402	328.00	3975
43.00	775	141.00	49760	232.00	1560	329.00	357
45.00	1075	142.00	15636	233.00	2614	331.00	554
47.00	978	143.00	8656	234.00	8968	332.00	3522
48.00	624	144.00	3206	235.00	9162	333.00	4333
49.00	4223	145.00	1355	236.00	8262	334.00	26120
50.00	123680	146.00	9117	237.00	10057	335.00	6764
51.00	401536	147.00	26624	238.00	618	336.00	853
52.00	20768	148.00	73624	239.00	6608	337.00	146
53.00	281	149.00	11566	240.00	5828	339.00	412
55.00	6969	150.00	4935	241.00	5526	340.00	417
56.00	12787	151.00	7613	242.00	14508	341.00	3067
57.00	36656	152.00	2659	243.00	14906	342.00	1790
58.00	623	153.00	16295	244.00	187264	343.00	380
60.00	32	154.00	11775	245.00	26664	344.00	191
61.00	7906	155.00	24368	246.00	56016	346.00	10802
62.00	11362	156.00	37264	247.00	10258	347.00	1073
63.00	29960	157.00	6831	248.00	2499	348.00	432
64.00	5060	158.00	8222	249.00	8220	350.00	544
65.00	14103	159.00	7025	250.00	1805	351.00	444
66.00	1279	160.00	17720	251.00	2033	352.00	12613
68.00	13469	161.00	21720	252.00	1971	353.00	7401
69.00	729216	162.00	8021	253.00	5313	354.00	10472
70.00	4559	163.00	1898	254.00	8582	355.00	2365
71.00	376	164.00	3058	255.00	917312	356.00	524
73.00	4227	165.00	22184	256.00	159488	357.00	339
74.00	97400	166.00	16077	257.00	11912	358.00	478
75.00	137600	167.00	114744	258.00	77808	359.00	784
76.00	48856	168.00	49744	259.00	13206	360.00	115
77.00	886016	169.00	6444	260.00	2094	361.00	125
78.00	64776	170.00	3055	261.00	2116	364.00	271
79.00	64536	171.00	5939	262.00	416	365.00	70656
80.00	49400	172.00	9166	263.00	868	366.00	8075
81.00	75344	173.00	10736	264.00	1201	367.00	833
82.00	17776	174.00	23656	265.00	31024	370.00	1864
83.00	17752	175.00	40448	266.00	6676	371.00	2122
85.00	9660	176.00	7462	267.00	1027	372.00	14670
86.00	19440	177.00	19152	268.00	526	373.00	5022
87.00	6921	178.00	7116	269.00	602	374.00	149
88.00	3071	179.00	74704	270.00	1964	378.00	87
89.00	2225	180.00	47064	271.00	4252	383.00	3745
90.00	258	181.00	22728	272.00	3774	384.00	1817

91.00	18136	182.00	3557	273.00	32560	388.00	269
92.00	16712	183.00	2407	274.00	79888	390.00	2517
93.00	132928	184.00	6161	275.00	402688	391.00	2008
94.00	8241	185.00	37912	276.00	55304	392.00	589
95.00	1097	186.00	256576	277.00	55952	397.00	310
96.00	3238	187.00	81208	278.00	7522	401.00	698
97.00	2239	188.00	7780	279.00	1918	402.00	6075
98.00	99824	189.00	20960	281.00	1336	403.00	9857
99.00	68032	190.00	3518	282.00	1000	404.00	3451
100.00	3989	191.00	9449	283.00	4442	405.00	326
101.00	37792	192.00	20680	284.00	2511	410.00	210
102.00	1765	193.00	29440	285.00	6884	415.00	297
103.00	8336	194.00	5417	286.00	2057	418.00	153
104.00	22824	195.00	2887	288.00	902	420.00	555
105.00	23384	196.00	40376	289.00	2553	421.00	5770
106.00	9271	197.00	13035	290.00	1688	422.00	5732
107.00	294336	198.00	1184256	291.00	1766	423.00	38848
108.00	44912	199.00	104784	292.00	1422	424.00	8440
109.00	7629	200.00	10496	293.00	8481	425.00	866
110.00	408704	201.00	6681	294.00	2893	426.00	422
111.00	72440	202.00	2842	295.00	3036	427.00	779
112.00	9176	203.00	14969	296.00	170112	429.00	924
113.00	2136	204.00	74296	297.00	22792	430.00	3664
114.00	829	205.00	122672	298.00	1060	431.00	915
115.00	177	206.00	471040	299.00	497	432.00	488
116.00	17536	207.00	65008	301.00	1859	433.00	532
117.00	305216	208.00	18976	302.00	2389	434.00	481
118.00	23360	209.00	7120	303.00	18856	435.00	267
119.00	1892	210.00	8967	304.00	4590	436.00	206
120.00	1032	211.00	22312	305.00	536	437.00	249
121.00	1934	212.00	1903	308.00	2191	440.00	301
122.00	17328	213.00	1568	309.00	2041	441.00	97872
123.00	30968	214.00	987	310.00	2782	442.00	647040
124.00	11412	215.00	5859	311.00	365	443.00	142848
125.00	12098	216.00	12873	312.00	417	444.00	13520
126.00	4276	217.00	150144	313.00	1263	445.00	834
127.00	701248	218.00	18728	314.00	7742	461.00	294
128.00	66728	219.00	2007	315.00	17048	472.00	864
129.00	334272	220.00	1072	316.00	7759	473.00	90
130.00	30904	221.00	57128	317.00	1229	491.00	93
131.00	6764	222.00	15695	318.00	181		
132.00	2826	223.00	32736	320.00	612		



INITIAL CALIBRATION DATA
EPA 8270D-SIM

Laboratory:	Analytical Resources, Inc.	SDG:	19K0228
Client:	Anchor QEA, LLC	Project:	Gasco PDI
Calibration:	CK00068	Instrument:	NT8
Calibration Date:	11/25/2019	Column (1):	RXI-17Sil ms

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
		RRF		RRF		RRF		RRF		RRF		RRF
Tributyltin Ion	0.03865	0.9397335	0.1546	0.5747287	0.3865	0.6787978	0.773	0.6153587	1.546	0.5925081	3.092	0.6047016
Tripentyltin	0.07959	8.048317E-02	0.31836	5.619179E-02	0.7959	6.324054E-02	1.5918	6.307031E-02	3.1836	5.948025E-02	6.3672	6.649284E-02
Tripropyltin	0.037216	1.301877	0.14886	0.7761632	0.37216	0.9373087	0.74432	0.8355231	1.4886	0.7807639	2.9773	0.7751666



INITIAL CALIBRATION DATA
EPA 8270D-SIM

Laboratory:	Analytical Resources, Inc.	SDG:	19K0228
Client:	Anchor QEA, LLC	Project:	Gasco PDI
Calibration:	CK00068	Instrument:	NT8
Calibration Date:	11/25/2019	Column (1):	RXI-17Sil ms

COMPOUND	Mean RRF	RRF RSD	Linear COD	Quad COD	Limit Type & Limit	Q
Tributyltin Ion	0.6676381	20.7	0.9994		LCOD (0.99)	
Tripentyltin	6.482649E-02	13.0			RSD (15)	
Tripropyltin	0.9011338	22.9	0.9985		LCOD (0.99)	



ANALYSIS SEQUENCE

SHK0340

Instrument: NT8 Element Column ID: H004092
 Calibration ID: CK00068 Tune File: 191025.U
 EM Voltage: 2082

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SHK0340-TUN1	MS Tune	QC		1	H010226		
SHK0340-CAL1	8270-SIM TBT	QC		2	H011459	H004622	
SHK0340-CAL2	8270-SIM TBT	QC		3	H011460	H004622	
SHK0340-CAL3	8270-SIM TBT	QC		4	H011461	H004622	
SHK0340-CAL4	8270-SIM TBT	QC		5	H011462	H004622	
SHK0340-CAL5	8270-SIM TBT	QC		6	H011463	H004622	
SHK0340-CAL6	8270-SIM TBT	QC		7	H011464	H004622	
SHK0340-SCV1	Secondary Cal Check	QC		8	H011495	H004622	

INTERNAL STANDARD SUMMARY FOR DATABATCH - \\target\share\chem3\nt8.i\20191125.b

Time	Filename	LabID	ClientID	DF	
1	N819112501.D	SHK0340-TUN1		1	(NO ISTDs FOUND)
2	N819112502.D	SHK0340-CAL1		1	6.07 41416 8.66 42717
3	N819112503.D	SHK0340-CAL2		1	6.07 42942 8.66 40691
4	N819112504.D	SHK0340-CAL3		1	6.07 39128 8.65 40493
5	N819112505.D	SHK0340-CAL4		1	6.07 41592 8.65 41162
6	N819112506.D	SHK0340-CAL5		1	6.07 41672 8.65 41539
7	N819112507.D	SHK0340-CAL6		1	6.07 45410 8.65 41659
8	N819112508.D	SHK0340-SCV1		1	6.06 39133 8.65 39863

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem3\nt8.i\20191125.b

ARI Job No.: SHK0 Method: TBT1125.m Instrument: nt8.i Date: 25-NOV-2019

Time	Filename	LabID	ClientID	DF	Manually Integrated Compounds
1405	N819112502.D	SHK0340-CAL1		1	NO MANUAL INTEGRATION
1424	N819112503.D	SHK0340-CAL2		1	NO MANUAL INTEGRATION
1441	N819112504.D	SHK0340-CAL3		1	NO MANUAL INTEGRATION
1457	N819112505.D	SHK0340-CAL4		1	NO MANUAL INTEGRATION
1513	N819112506.D	SHK0340-CAL5		1	NO MANUAL INTEGRATION
1529	N819112507.D	SHK0340-CAL6		1	NO MANUAL INTEGRATION
1602	N819112508.D	SHK0340-SCV1		1	NO MANUAL INTEGRATION

Security Status Report

Date: 26-Nov-2019 12:10

N819112501.D	Data Locked	jiangqing,	26-Nov-2019	12:10
N819112502.D	Data Locked	jiangqing,	26-Nov-2019	12:10
N819112503.D	Data Locked	jiangqing,	26-Nov-2019	12:10
N819112504.D	Data Locked	jiangqing,	26-Nov-2019	12:10
N819112505.D	Data Locked	jiangqing,	26-Nov-2019	12:10
N819112506.D	Data Locked	jiangqing,	26-Nov-2019	12:10
N819112507.D	Data Locked	jiangqing,	26-Nov-2019	12:10
N819112508.D	Data Locked	jiangqing,	26-Nov-2019	12:10

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 25-NOV-2019 14:05
 End Cal Date : 25-NOV-2019 15:29
 Quant Method : ISTD
 Origin : Force
 Target Version : 4.14
 Integrator : HP RTE
 Method file : \\target\share\chem3\nt8.i\20191125.b\TBT1125.m
 Last Edit : 26-Nov-2019 11:53 nt8.i

Calibration File Names:

Level 1: \\target\share\chem3\nt8.i\20191125.b\N819112502.D
 Level 2: \\target\share\chem3\nt8.i\20191125.b\N819112503.D
 Level 3: \\target\share\chem3\nt8.i\20191125.b\N819112504.D
 Level 4: \\target\share\chem3\nt8.i\20191125.b\N819112505.D
 Level 5: \\target\share\chem3\nt8.i\20191125.b\N819112506.D
 Level 6: \\target\share\chem3\nt8.i\20191125.b\N819112507.D

Compound	0.0500000 0.2000000 0.5000000 1.0000 2.0000 4.0000						Coefficients		%RSD		
	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Curve	b		m1	m2
2 Tetrabutyl Tin	1205	3036	7819	15194	28159	62595	LINR	0.000e+000	0.69042		0.99888
3 Tributyl Tin (Hexyl)	973	2468	6640	12797	24691	54919	LINR	0.000e+000	0.60395		0.99942
5 Dibutyl Tin (Hexyl)	0.05679	0.03787	0.04379	0.04242	0.03999	0.04478	AVRG		0.04427		14.98147
7 Butyl Tin (Hexyl)	0.08179	0.05892	0.06527	0.06530	0.06512	0.08348	AVRG		0.06998		14.45937
1 Tripropyl Tin (Hexyl)	1348	3333	9169	17376	32536	70403	LINR	0.000e+000	0.78166		0.99850
6 Tripropyl Tin (Hexyl)	0.08048	0.05619	0.06324	0.06307	0.05948	0.06649	AVRG		0.06483		13.02815

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 25-NOV-2019 14:05
 End Cal Date : 25-NOV-2019 15:29
 Quant Method : ISTD
 Origin : Force
 Target Version : 4.14
 Integrator : HP RTE
 Method file : \\target\share\chem3\nt8.i\20191125.b\TBT1125.m
 Last Edit : 26-Nov-2019 11:53 nt8.i

Curve	Formula	Units
Averaged	Amt = Resp/ml	Response
Linear	Amt = b + Resp/ml	Response

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem3\nt8.i\20191125.b\TBT1125.m
 Batch File: \\target\share\chem3\nt8.i\20191125.b
 Inst ID: nt8.i

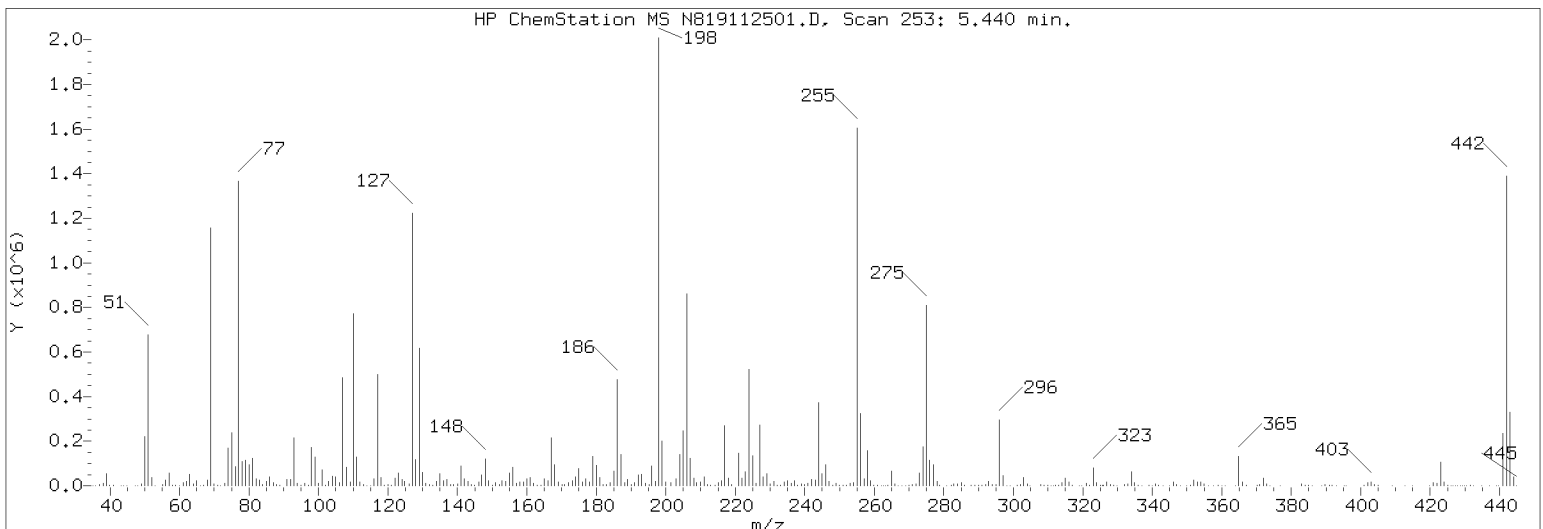
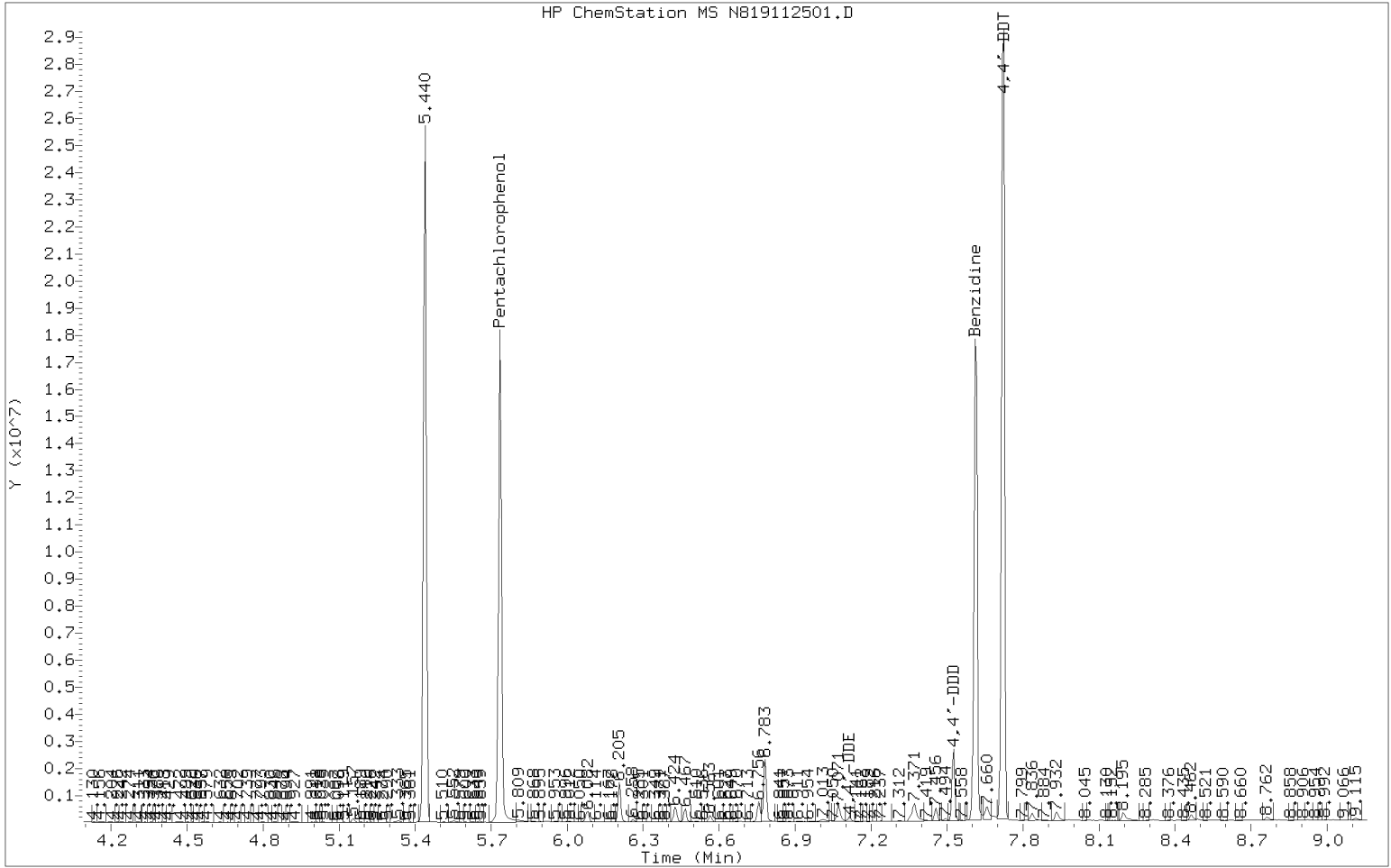
ID	RT01	RT02	RT03	RT04	RT05	RT06	RT06
FILENAME:	N819112502	N819112503	N819112504	N819112505	N819112506	N819112507	N819112507
INJ.DATE:	25-NOV-2019	25-NOV-2019	25-NOV-2019	25-NOV-2019	25-NOV-2019	25-NOV-2019	25-NOV-2019
INJ.TIME:	14:05	14:24	14:41	14:57	15:13	15:29	15:29

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
1 Tripropyl Tin (Hexyl)	4.482	4.472	4.472	4.472	4.472	4.472	4.472	4.382-4.561	4.473	0.004
2 Tetrabutyl Tin	4.659	4.649	4.649	4.649	4.649	4.649	4.649	4.556-4.742	4.650	0.004
3 Tributyl Tin (Hexyl)	5.440	5.440	5.430	5.430	5.430	5.430	5.430	5.321-5.538	5.433	0.005
* 4 Tetrapentyl Tin	6.071	6.071	6.071	6.071	6.071	6.071	6.071	5.949-6.192	6.071	0.000
5 Dibutyl Tin (Hexyl)	6.143	6.131	6.131	6.131	6.131	6.131	6.131	6.009-6.254	6.133	0.005
6 Tripentyl Tin (Hexyl)	6.421	6.409	6.409	6.409	6.409	6.409	6.409	6.281-6.537	6.411	0.005
7 Butyl Tin (Hexyl)	6.772	6.772	6.772	6.772	6.772	6.772	6.772	6.637-6.907	6.772	0.000
* 8 p-Terphenyl-d14	8.660	8.660	8.647	8.647	8.648	8.647	8.647	8.475-8.820	8.652	0.006

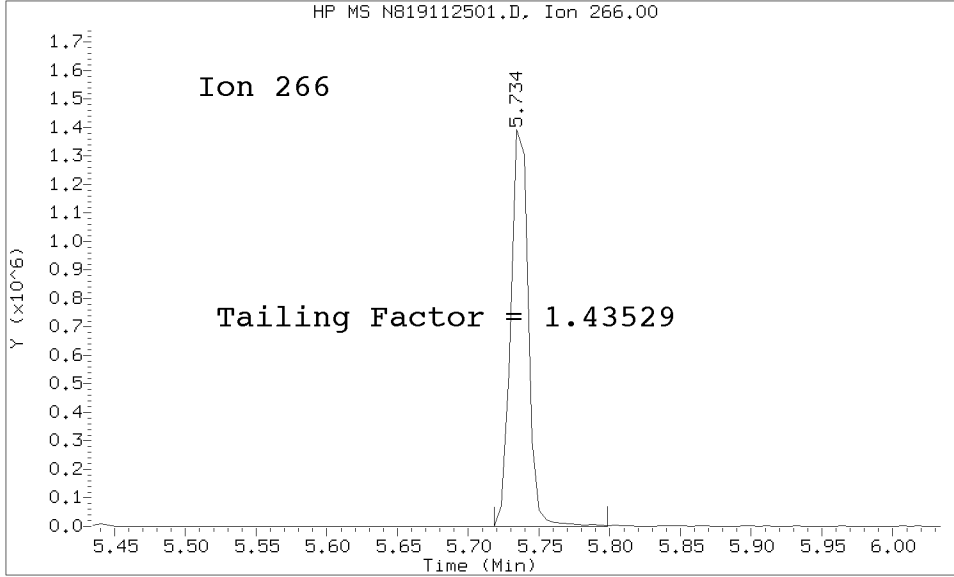
Reviewer 1 _____ Date: _____
 Reviewer 2 _____ Date: _____

DFTPP TAILING FACTOR AND BREAKDOWN GRAPHIC REPORT

Datafile Analyzed: /20191125.b/tune.b/N819112501.D/N819112501.D
Method Used: \20191125.b\tune.b\DFTTBT.m Inst: nt8
Injection Date: 25-NOV-2019 13:20 Operator: JZ
Sample Info: SHK0340-TUN1 DFTPP191125
Report Date: 11/26/2019 11:07



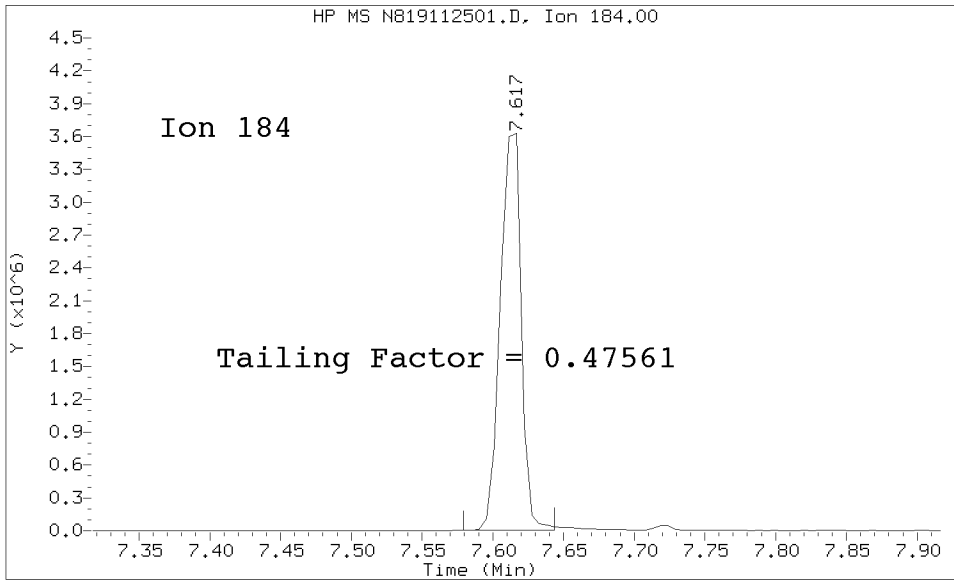
Datafile Analyzed: /20191125.b/tune.b/N819112501.D/N819112501.D
Method Used: \20191125.b\tune.b\DFTTBT.m\sw846ddt.m Inst: nt8
Injection Date: 25-NOV-2019 13:20 Operator: JZ
Sample Info: DFTPP191125
Report Date: 11/26/2019 11:07



Pentachlorophenol

=====
Exp. RT = 5.740
Found RT = 5.734

Tail Factor = 1.435 Maximum Allowed = 2.0



Benzidine

=====
Exp. RT = 7.649
Found RT = 7.617

Tail Factor = 0.476 Maximum Allowed = 2.0

8270 TAILING FACTOR/BREAKDOWN SUMMARY RESULTS

TAILING ANALYSIS SUMMARY

Compound	Tail Factor	Max Allowed	Test
Pentachlorophenol	1.4352941	2.000	PASS
Benzidine	0.4756098	2.000	PASS

DDT DEGRADATION BREAKDOWN ANALYSIS SUMMARY

Compound	Response	%Breakdown	Max Allowed	Test
4,4-DDT	2665847			N/A
4,4-DDE	11039	0.4	20.0	PASS
4,4-DDD	276865	9.4	20.0	PASS
4,4-DDD + DDE	287904	9.7	20.0	PASS

Tuning Sample, /nt8.i/20191125.b/tune.b/N819112501.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	32.32
68	Less than 2.00% of mass 69	1.13 (1.95)
69	Mass 69 relative abundance	57.92
70	Less than 2.00% of mass 69	0.40 (0.68)
127	10.00 - 80.00% of mass 198	58.73
197	Less than 2.00% of mass 198	0.93
199	5.00 - 9.00% of mass 198	8.94
275	10.00 - 60.00% of mass 198	37.03
365	Greater than 1.00% of mass 198	6.49
441	0.01 - 24.00% of mass 442	11.16 (15.96)
442	50.00 - 200.00% of mass 198	69.97
443	15.00 - 24.00% of mass 442	16.23 (23.19)

Data File: N819112501.D

Spectrum: Avg. Scans 252-254 (5.44), Background Scan 246

Location of Maximum: 198.00

Number of points: 375

m/z	Y	m/z	Y	m/z	Y	m/z	Y
35.00	626	135.00	37736	230.00	4922	327.00	12030
36.00	144	136.00	15737	231.00	13463	328.00	6275
37.00	3755	137.00	18752	232.00	2486	329.00	1169
38.00	8069	138.00	3357	233.00	2450	330.00	680
39.00	38488	139.00	2802	234.00	11367	332.00	4383
40.00	1484	140.00	6032	235.00	13102	333.00	6316
41.00	1680	141.00	60936	236.00	8647	334.00	39488
44.00	729	142.00	19568	237.00	13244	335.00	7991
45.00	897	143.00	12494	238.00	2079	336.00	1509
47.00	944	144.00	3142	239.00	6759	337.00	134
49.00	3440	145.00	1994	240.00	6045	339.00	1424
50.00	149056	146.00	11149	241.00	7937	340.00	651
51.00	470784	147.00	34896	242.00	19320	341.00	5688
52.00	27856	148.00	81744	243.00	20480	342.00	2468
53.00	632	149.00	16079	244.00	245184	343.00	294
55.00	2942	150.00	2914	245.00	35200	344.00	158
56.00	17960	151.00	10509	246.00	67528	345.00	690
57.00	41496	152.00	3106	247.00	13938	346.00	13112
58.00	1712	153.00	16194	248.00	2120	347.00	2669
59.00	1162	154.00	12242	249.00	9693	348.00	235
60.00	395	155.00	36624	250.00	2200	350.00	391
61.00	10309	156.00	51016	251.00	2784	351.00	1149
62.00	13807	157.00	7639	252.00	3442	352.00	17624
63.00	37936	158.00	10421	253.00	7032	353.00	11420
64.00	6462	159.00	8437	254.00	11213	354.00	12685
65.00	16672	160.00	21472	255.00	1161728	355.00	4026
66.00	1122	161.00	26800	256.00	211008	356.00	184
67.00	910	162.00	9367	257.00	18848	358.00	383
68.00	16432	163.00	2717	258.00	105328	359.00	1728
69.00	843712	164.00	2590	259.00	16904	360.00	847
70.00	5771	165.00	22792	260.00	2290	361.00	440
71.00	2019	166.00	16792	261.00	1854	362.00	283
72.00	771	167.00	147200	262.00	323	364.00	350
73.00	9151	168.00	66008	263.00	1063	365.00	94528
74.00	118952	169.00	10585	264.00	2608	366.00	11647
75.00	169984	170.00	4743	265.00	40992	367.00	1106
76.00	61648	171.00	4390	266.00	5410	369.00	186
77.00	1003328	172.00	10914	267.00	1005	370.00	1987
78.00	80792	173.00	14767	268.00	852	371.00	3809
79.00	86120	174.00	26472	269.00	102	372.00	24528
80.00	66544	175.00	54192	270.00	1932	373.00	6223
81.00	90792	176.00	11172	271.00	3567	374.00	805
82.00	21240	177.00	21216	272.00	5868	377.00	766
83.00	15738	178.00	10704	273.00	39968	378.00	211
84.00	1948	179.00	87072	274.00	114344	382.00	158
85.00	12601	180.00	64008	275.00	539328	383.00	5940
86.00	26568	181.00	24904	276.00	77096	384.00	2430
87.00	9024	182.00	4401	277.00	69696	385.00	1129
88.00	4523	183.00	3134	278.00	13490	386.00	120

89.00	2828	184.00	9505	279.00	3197	389.00	427
91.00	20400	185.00	43600	280.00	102	390.00	2592
92.00	19232	186.00	321280	281.00	110	391.00	2247
93.00	148160	187.00	96200	282.00	1249	392.00	1895
94.00	8559	188.00	9359	283.00	7269	393.00	805
95.00	2144	189.00	22368	284.00	4713	395.00	560
96.00	6151	190.00	4806	285.00	9367	396.00	87
97.00	2355	191.00	10540	286.00	2361	397.00	138
98.00	119720	192.00	30408	288.00	1350	400.00	514
99.00	84824	193.00	33808	289.00	2254	401.00	1201
100.00	6622	194.00	8263	290.00	1865	402.00	9237
101.00	47352	195.00	2253	291.00	1453	403.00	11777
102.00	2520	196.00	53936	292.00	2892	404.00	5313
103.00	14113	197.00	13560	293.00	13074	405.00	1337
104.00	28616	198.00	1456640	294.00	4312	409.00	117
105.00	29344	199.00	130296	295.00	4104	410.00	470
106.00	9425	200.00	11245	296.00	212672	412.00	131
107.00	345152	201.00	8148	297.00	30992	413.00	129
108.00	55792	203.00	19840	298.00	1110	415.00	781
109.00	9729	204.00	90536	299.00	538	420.00	292
110.00	522560	205.00	158720	301.00	2624	421.00	10344
111.00	91224	206.00	593728	302.00	3762	422.00	7981
112.00	12176	207.00	82288	303.00	25176	423.00	66952
113.00	4187	208.00	27504	304.00	6208	424.00	12029
114.00	1266	209.00	11073	305.00	847	425.00	2117
115.00	1326	210.00	11074	306.00	134	426.00	896
116.00	20880	211.00	28160	308.00	3218	427.00	880
117.00	363136	212.00	3946	309.00	2406	428.00	814
118.00	25088	213.00	2789	310.00	2322	429.00	788
119.00	2496	214.00	1069	311.00	1013	430.00	899
120.00	4774	215.00	10147	312.00	1001	431.00	1312
121.00	1371	216.00	16400	313.00	2569	432.00	444
122.00	25192	217.00	185856	314.00	9613	433.00	745
123.00	38528	218.00	23880	315.00	24688	434.00	509
124.00	18168	219.00	2394	316.00	11937	435.00	200
125.00	14752	220.00	2510	317.00	2184	437.00	303
126.00	4943	221.00	85632	318.00	248	439.00	363
127.00	855424	222.00	22888	319.00	317	440.00	263
128.00	79672	223.00	43032	320.00	361	441.00	162624
129.00	419968	224.00	360192	321.00	6533	442.00	1019264
130.00	37672	225.00	91800	322.00	2623	443.00	236416
131.00	7802	226.00	9821	323.00	57064	444.00	25696
132.00	3915	227.00	191872	324.00	9267	445.00	1269
133.00	1227	228.00	26944	325.00	1525	484.00	118
134.00	14724	229.00	39200	326.00	961		

Data File: \\target\share\chem3\nt8.1\20191125.6\N819112502.D

Date: 25-NOV-2019 14:05

Client ID:

Sample Info: IC005191125,

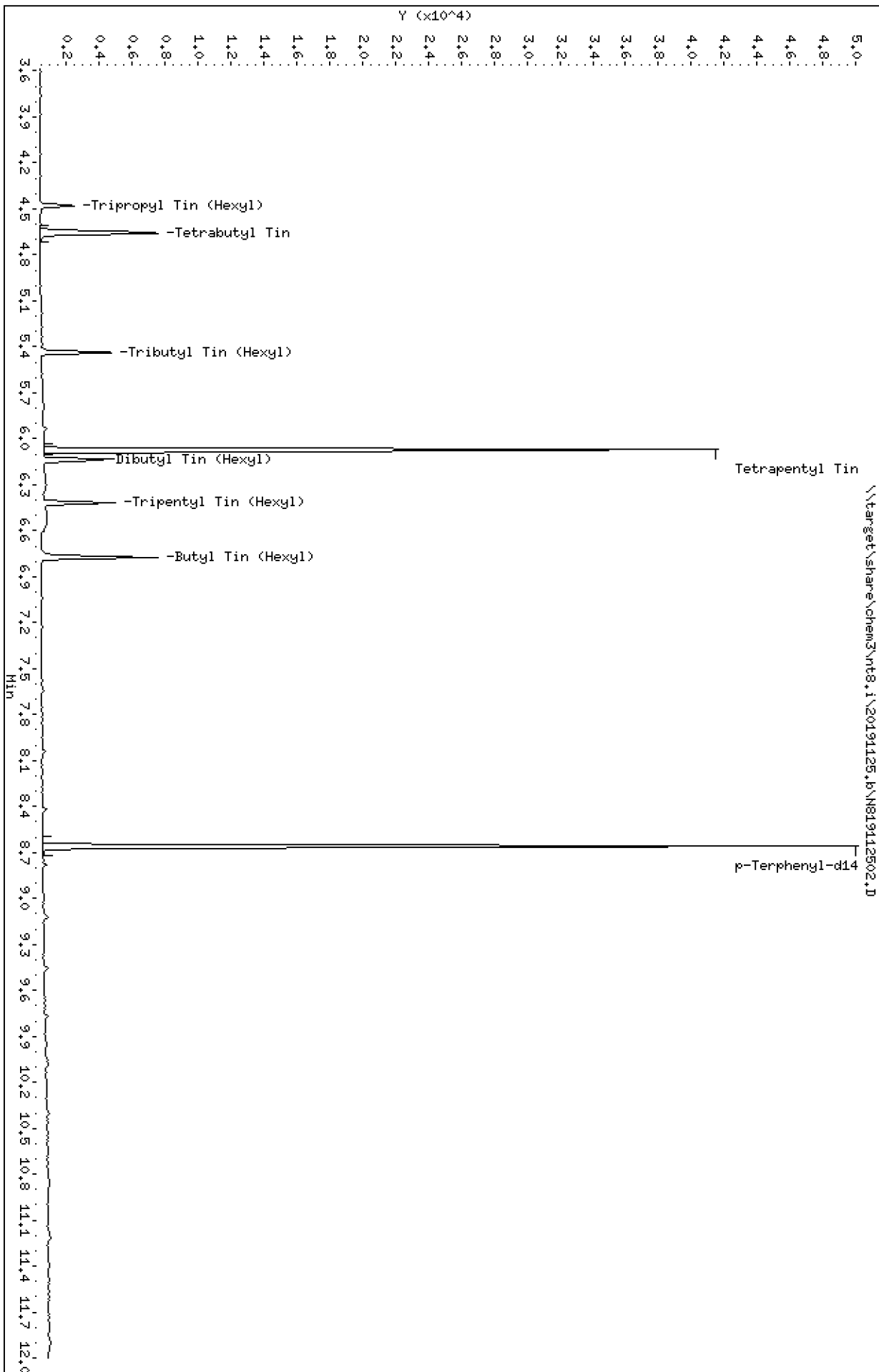
Column phase: ZB-5msi

Instrument: nt8.1

Operator: JZ

Column diameter: 0.25

Page 1



ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20191125.b\N819112502.D
 Lab Smp Id: SHK0340-CAL1
 Inj Date : 25-NOV-2019 14:05
 Operator : JZ Inst ID: nt8.i
 Smp Info : IC005191125,
 Misc Info :
 Comment : 2 ul Injection
 Method : \\target\share\chem3\nt8.i\20191125.b\TBT1125.m
 Meth Date : 26-Nov-2019 11:53 nt8.i Quant Type: ISTD
 Cal Date : 25-NOV-2019 14:57 Cal File: N819112505.D
 Als bottle: 2 Calibration Sample, Level: 1
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: ICAL.sub
 Target Version: 4.14
 Processing Host: ORGDATA22

Compounds	QUANT SIG	RT	EXP RT	REL RT	RESPONSE	AMOUNTS	
						CAL-AMT (ug/mL)	ON-COL (ug/mL)
\$ 1 Tripropyl Tin (Hexyl)	291	4.482	4.471	(0.738)	1348	0.05000	0.08328
2 Tetrabutyl Tin	289	4.659	4.648	(0.767)	1205	0.05000	0.08428
3 Tributyl Tin (Hexyl)	319	5.440	5.429	(0.896)	973	0.05000	0.07780
* 4 Tetrapentyl Tin	333	6.070	6.070	(1.000)	41416	2.00000	
5 Dibutyl Tin (Hexyl)	347	6.143	6.131	(0.709)	1213	0.10000	0.1283
\$ 6 Tripentyl Tin (Hexyl)	347	6.421	6.409	(0.742)	1719	0.10000	0.1242
7 Butyl Tin (Hexyl)	347	6.772	6.771	(0.782)	1747	0.10000	0.1169
* 8 p-Terphenyl-d14	244	8.659	8.647	(1.000)	42717	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
 AREA AND RT SUMMARY

Instrument ID: nt8.i Calibration Date: 25-NOV-2019
 Lab File ID: N819112502.D Calibration Time: 14:57
 Lab Smp Id: SHK0340-CAL1
 Analysis Type: SV Level:
 Quant Type: ISTD Sample Type:
 Operator: JZ
 Method File: \\target\share\chem3\nt8.i\20191125.b\TBT1125.m
 Misc Info:

Test Mode:
 Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	41592	20796	83184	41416	-0.42
8 p-Terphenyl-d14	41162	20581	82324	42717	3.78

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	6.07	5.57	6.57	6.07	0.00
8 p-Terphenyl-d14	8.65	8.15	9.15	8.66	0.14

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 - N819112502.D

Lab ID: SHK0340-CAL1

nt8.i, 20191125.b\TBT1125.m, 25-NOV-2019 14:05

RT CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV	RRT	DELTA	COMPOUND
-----	-----	-----	-------	----------

NONE

RRT check based on Ccal File: N819112505.D

On Column LOD for nt8.i, 20191125.b\TBT1125.m, ICAL.sub = 0.0000

* Only compounds listed in the work order have been verified by the analyst *

Data File: \\target\share\chem3\nt8.1\20191125.6\N819112503.D

Date: 25-NOV-2019 14:24

Client ID:

Sample Info: IC02191125,

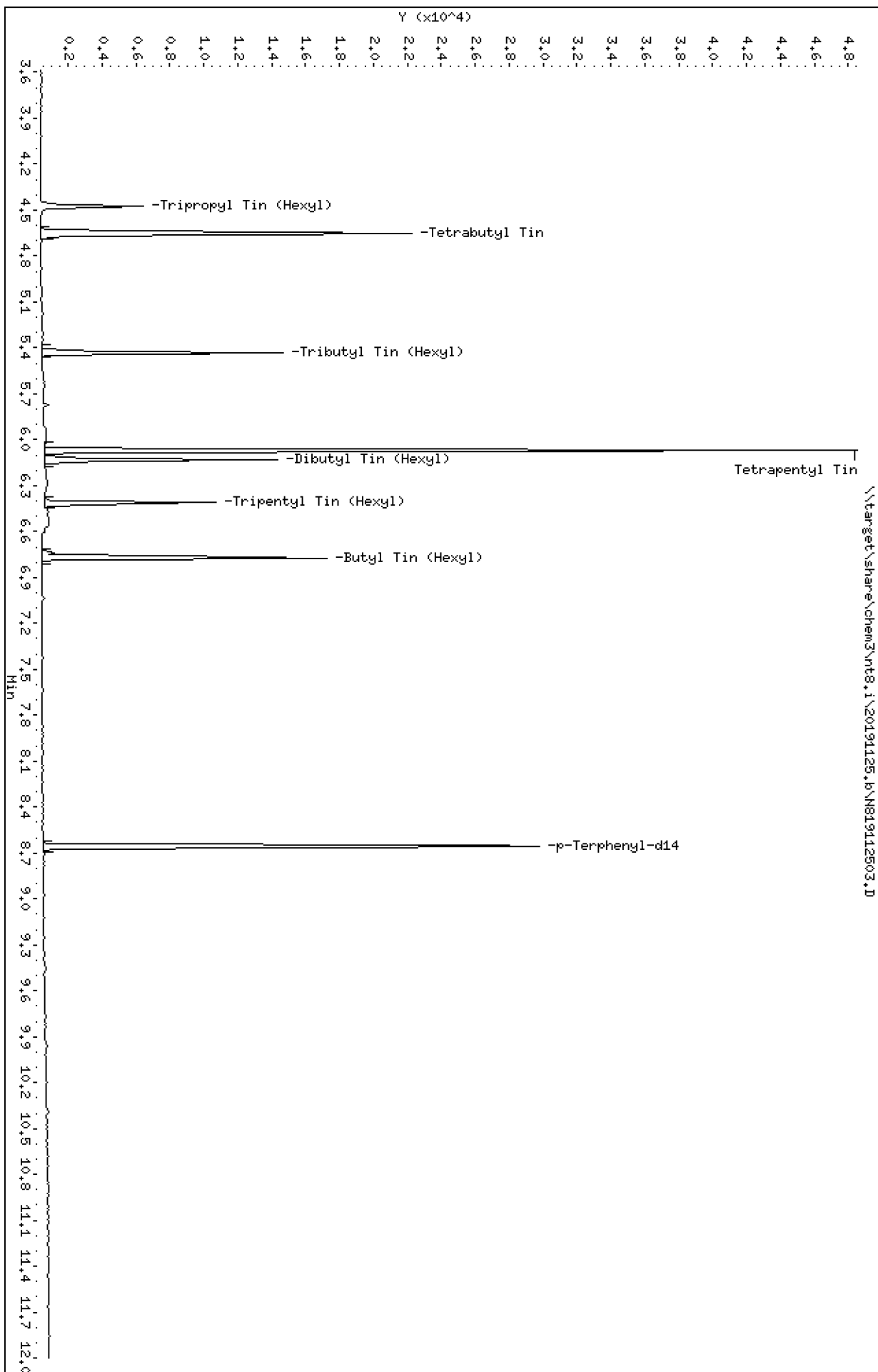
Column phase: ZB-5msi

Instrument: nt8.1

Operator: JZ

Column diameter: 0.25

Page 1



ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20191125.b\N819112503.D
 Lab Smp Id: SHK0340-CAL2
 Inj Date : 25-NOV-2019 14:24
 Operator : JZ Inst ID: nt8.i
 Smp Info : IC02191125,
 Misc Info :
 Comment : 2 ul Injection
 Method : \\target\share\chem3\nt8.i\20191125.b\TBT1125.m
 Meth Date : 26-Nov-2019 11:53 nt8.i Quant Type: ISTD
 Cal Date : 25-NOV-2019 14:05 Cal File: N819112502.D
 Als bottle: 3 Calibration Sample, Level: 2
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: ICAL.sub
 Target Version: 4.14
 Processing Host: ORGDATA22

Compounds	QUANT SIG		AMOUNTS					
	MASS		RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/mL)	ON-COL (ug/mL)
\$ 1 Tripropyl Tin (Hexyl)	291		4.471	4.471	(0.737)	3333	0.20000	0.1986
2 Tetrabutyl Tin	289		4.648	4.648	(0.766)	3036	0.20000	0.2048
3 Tributyl Tin (Hexyl)	319		5.440	5.429	(0.896)	2468	0.20000	0.1903
* 4 Tetrapentyl Tin	333		6.070	6.070	(1.000)	42942	2.00000	
5 Dibutyl Tin (Hexyl)	347		6.131	6.131	(0.708)	3082	0.40000	0.3422
\$ 6 Tripentyl Tin (Hexyl)	347		6.409	6.409	(0.740)	4573	0.40000	0.3467
7 Butyl Tin (Hexyl)	347		6.772	6.771	(0.782)	4795	0.40000	0.3368
* 8 p-Terphenyl-d14	244		8.659	8.647	(1.000)	40691	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
 AREA AND RT SUMMARY

Instrument ID: nt8.i Calibration Date: 25-NOV-2019
 Lab File ID: N819112503.D Calibration Time: 14:57
 Lab Smp Id: SHK0340-CAL2
 Analysis Type: SV Level:
 Quant Type: ISTD Sample Type:
 Operator: JZ
 Method File: \\target\share\chem3\nt8.i\20191125.b\TBT1125.m
 Misc Info:

Test Mode:
 Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	41592	20796	83184	42942	3.25
8 p-Terphenyl-d14	41162	20581	82324	40691	-1.14

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	6.07	5.57	6.57	6.07	0.00
8 p-Terphenyl-d14	8.65	8.15	9.15	8.66	0.14

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 - N819112503.D

Lab ID: SHK0340-CAL2

nt8.i, 20191125.b\TBT1125.m, 25-NOV-2019 14:24

RT CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV	RRT	DELTA	COMPOUND
-----	-----	-----	-------	----------

NONE

RRT check based on Ccal File: N819112505.D

On Column LOD for nt8.i, 20191125.b\TBT1125.m, ICAL.sub = 0.0000

* Only compounds listed in the work order have been verified by the analyst *

Data File: \\target\share\chem3\nt8.1\20191125.6\N819112504.D

Date: 25-NOV-2019 14:41

Client ID:

Sample Info: IC05191125,

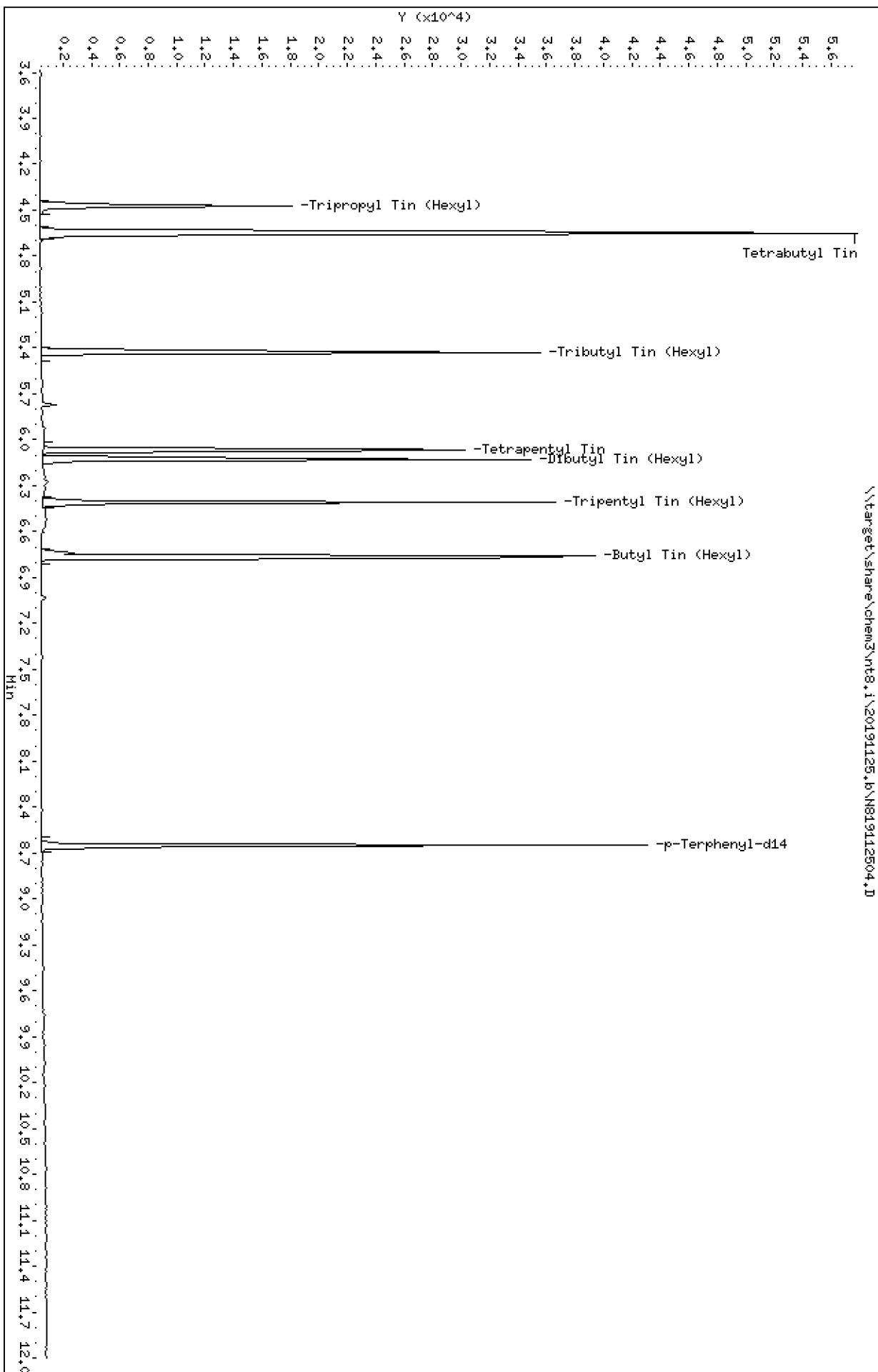
Column phase: ZB-5msi

Instrument: nt8.1

Operator: JZ

Column diameter: 0.25

\\target\share\chem3\nt8.1\20191125.6\N819112504.D



ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20191125.b\N819112504.D
 Lab Smp Id: SHK0340-CAL3
 Inj Date : 25-NOV-2019 14:41
 Operator : JZ Inst ID: nt8.i
 Smp Info : IC05191125,
 Misc Info :
 Comment : 2 ul Injection
 Method : \\target\share\chem3\nt8.i\20191125.b\TBT1125.m
 Meth Date : 26-Nov-2019 11:53 nt8.i Quant Type: ISTD
 Cal Date : 25-NOV-2019 14:24 Cal File: N819112503.D
 Als bottle: 4 Calibration Sample, Level: 3
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: ICAL.sub
 Target Version: 4.14
 Processing Host: ORGDATA22

Compounds	QUANT SIG		AMOUNTS					
	MASS		RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/mL)	ON-COL (ug/mL)
\$ 1 Tripropyl Tin (Hexyl)	291		4.471	4.471	(0.737)	9169	0.50000	0.5996
2 Tetrabutyl Tin	289		4.648	4.648	(0.766)	7819	0.50000	0.5789
3 Tributyl Tin (Hexyl)	319		5.429	5.429	(0.894)	6640	0.50000	0.5620
* 4 Tetrapentyl Tin	333		6.070	6.070	(1.000)	39128	2.00000	
5 Dibutyl Tin (Hexyl)	347		6.131	6.131	(0.709)	8865	1.00000	0.9890
\$ 6 Tripentyl Tin (Hexyl)	347		6.409	6.409	(0.741)	12804	1.00000	0.9755
7 Butyl Tin (Hexyl)	347		6.772	6.771	(0.783)	13214	1.00000	0.9326
* 8 p-Terphenyl-d14	244		8.647	8.647	(1.000)	40493	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
 AREA AND RT SUMMARY

Instrument ID: nt8.i Calibration Date: 25-NOV-2019
 Lab File ID: N819112504.D Calibration Time: 14:57
 Lab Smp Id: SHK0340-CAL3
 Analysis Type: SV Level:
 Quant Type: ISTD Sample Type:
 Operator: JZ
 Method File: \\target\share\chem3\nt8.i\20191125.b\TBT1125.m
 Misc Info:

Test Mode:
 Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	41592	20796	83184	39128	-5.92
8 p-Terphenyl-d14	41162	20581	82324	40493	-1.63

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	6.07	5.57	6.57	6.07	0.00
8 p-Terphenyl-d14	8.65	8.15	9.15	8.65	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 - N819112504.D

Lab ID: SHK0340-CAL3

nt8.i, 20191125.b\TBT1125.m, 25-NOV-2019 14:41

RT CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV	RRT	DELTA	COMPOUND
-----	-----	-----	-------	----------

NONE

RRT check based on Ccal File: N819112505.D

On Column LOD for nt8.i, 20191125.b\TBT1125.m, ICAL.sub = 0.0000

* Only compounds listed in the work order have been verified by the analyst *

Data File: \\target\share\chem3\nt8.1\20191125.6\N819112505.D

Date: 25-NOV-2019 14:57

Client ID:

Sample Info: IC1191125,

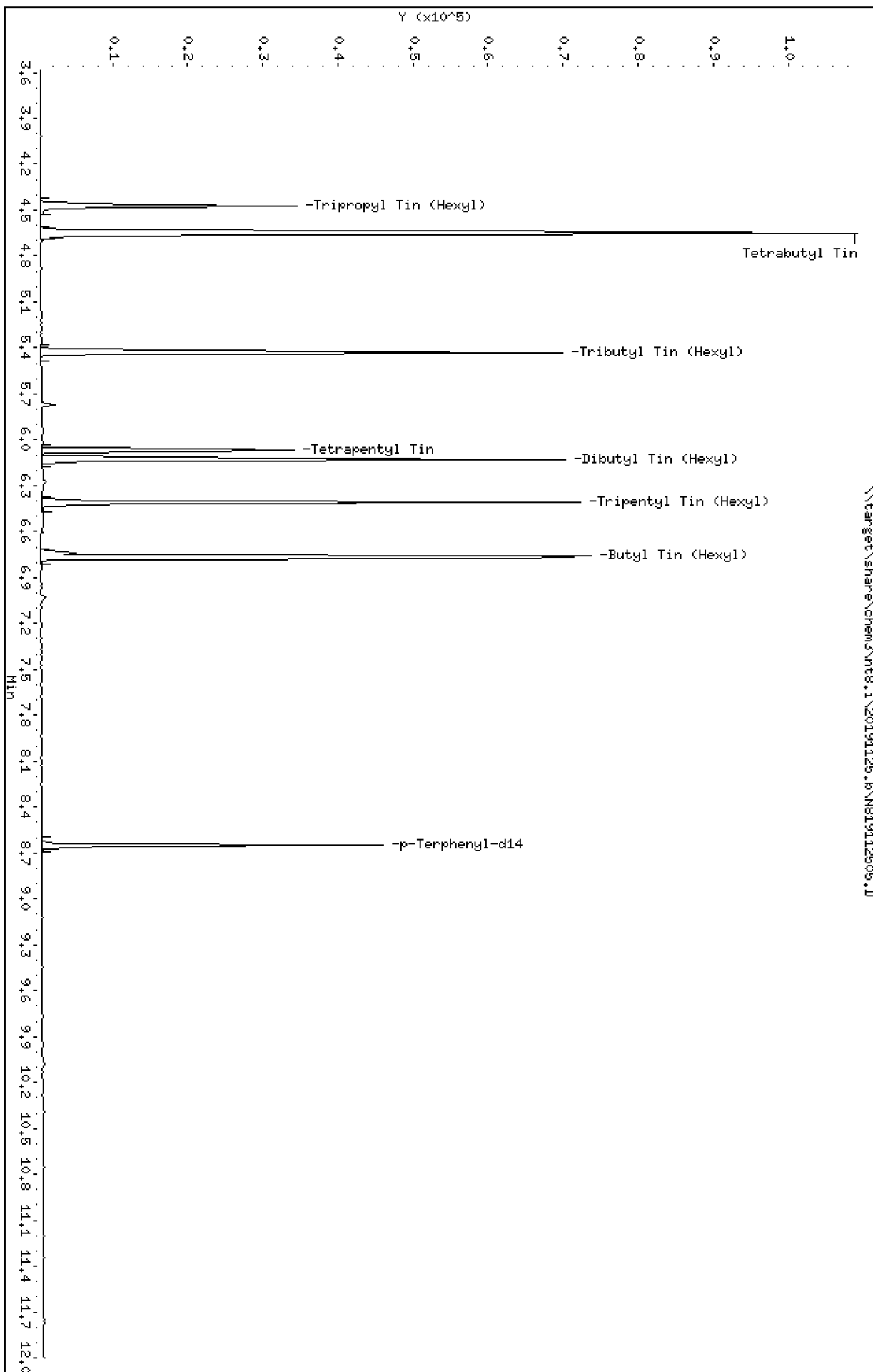
Column phase: ZB-5msi

Instrument: nt8.1

Operator: JZ

Column diameter: 0.25

Page 1



ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20191125.b\N819112505.D
 Lab Smp Id: SHK0340-CAL4
 Inj Date : 25-NOV-2019 14:57
 Operator : JZ Inst ID: nt8.i
 Smp Info : IC1191125,
 Misc Info :
 Comment : 2 ul Injection
 Method : \\target\share\chem3\nt8.i\20191125.b\TBT1125.m
 Meth Date : 26-Nov-2019 11:52 nt8.i Quant Type: ISTD
 Cal Date : 25-NOV-2019 14:57 Cal File: N819112505.D
 Als bottle: 5 Continuing Calibration Sample
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: ICAL.sub
 Target Version: 4.14
 Processing Host: ORGDATA22

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	AMOUNTS	
							CAL-AMT	ON-COL
	MASS						(ug/mL)	(ug/mL)
=====	=====		=====	=====	=====	=====	=====	=====
\$ 1 Tripropyl Tin (Hexyl)	291		4.471	4.471	(0.737)	17376	1.00000	1.069
2 Tetrabutyl Tin	289		4.648	4.648	(0.766)	15194	1.00000	1.058
3 Tributyl Tin (Hexyl)	319		5.429	5.429	(0.894)	12797	1.00000	1.019
* 4 Tetrapentyl Tin	333		6.070	6.070	(1.000)	41592	2.00000	
5 Dibutyl Tin (Hexyl)	347		6.131	6.131	(0.709)	17462	2.00000	1.916
\$ 6 Tripentyl Tin (Hexyl)	347		6.409	6.409	(0.741)	25961	2.00000	1.946
7 Butyl Tin (Hexyl)	347		6.771	6.771	(0.783)	26879	2.00000	1.866
* 8 p-Terphenyl-d14	244		8.647	8.647	(1.000)	41162	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
 AREA AND RT SUMMARY

Instrument ID: nt8.i Calibration Date: 25-NOV-2019
 Lab File ID: N819112505.D Calibration Time: 14:57
 Lab Smp Id: SHK0340-CAL4
 Analysis Type: SV Level:
 Quant Type: ISTD Sample Type:
 Operator: JZ
 Method File: \\target\share\chem3\nt8.i\20191125.b\TBT1125.m
 Misc Info:

Test Mode:
 Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	41592	20796	83184	41592	0.00
8 p-Terphenyl-d14	41162	20581	82324	41162	0.00

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	6.07	5.57	6.57	6.07	0.00
8 p-Terphenyl-d14	8.65	8.15	9.15	8.65	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 - N819112505.D

Lab ID: SHK0340-CAL4
 nt8.i, 20191125.b\TBT1125.m, 25-NOV-2019 14:57

RT CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

No RRT check. Ccal file.

On Column LOD for nt8.i, 20191125.b\TBT1125.m, ICAL.sub = 0.0000

* Only compounds listed in the work order have been verified by the analyst *

Data File: \\target\share\chem3\nt8.i\20191125.b\N819112505.D Page 1
 Report Date: 26-Nov-2019 11:53

ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20191125.b\N819112505.D
 Lab Smp Id: SHK0340-CAL4
 Inj Date : 25-NOV-2019 14:57
 Operator : JZ Inst ID: nt8.i
 Smp Info : IC1191125,
 Misc Info :
 Comment : 2 ul Injection
 Method : \\target\share\chem3\nt8.i\20191125.b\TBT1125.m
 Meth Date : 26-Nov-2019 11:53 nt8.i Quant Type: ISTD
 Cal Date : 25-NOV-2019 14:41 Cal File: N819112504.D
 Als bottle: 5 Calibration Sample, Level: 4
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: ICAL.sub
 Target Version: 4.14
 Processing Host: ORGDATA22

Compounds	QUANT	SIG	AMOUNTS					
			MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/mL)
\$ 1 Tripropyl Tin (Hexyl)	291		4.471	4.471	(0.737)	17376	1.00000	1.069
2 Tetrabutyl Tin	289		4.648	4.648	(0.766)	15194	1.00000	1.058
3 Tributyl Tin (Hexyl)	319		5.429	5.429	(0.894)	12797	1.00000	1.019
* 4 Tetrapentyl Tin	333		6.070	6.070	(1.000)	41592	2.00000	
5 Dibutyl Tin (Hexyl)	347		6.131	6.131	(0.709)	17462	2.00000	1.916
\$ 6 Tripentyl Tin (Hexyl)	347		6.409	6.409	(0.741)	25961	2.00000	1.946
7 Butyl Tin (Hexyl)	347		6.771	6.771	(0.783)	26879	2.00000	1.866
* 8 p-Terphenyl-d14	244		8.647	8.647	(1.000)	41162	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
 AREA AND RT SUMMARY

Instrument ID: nt8.i Calibration Date: 25-NOV-2019
 Lab File ID: N819112505.D Calibration Time: 14:57
 Lab Smp Id: SHK0340-CAL4
 Analysis Type: SV Level:
 Quant Type: ISTD Sample Type:
 Operator: JZ
 Method File: \\target\share\chem3\nt8.i\20191125.b\TBT1125.m
 Misc Info:

Test Mode:
 Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	41592	20796	83184	41592	0.00
8 p-Terphenyl-d14	41162	20581	82324	41162	0.00

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	6.07	5.57	6.57	6.07	0.00
8 p-Terphenyl-d14	8.65	8.15	9.15	8.65	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 - N819112505.D

Lab ID: SHK0340-CAL4

nt8.i, 20191125.b\TBT1125.m, 25-NOV-2019 14:57

RT CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV	RRT	DELTA	COMPOUND
-----	-----	-----	-------	----------

NONE

RRT check based on Ccal File: N819112505.D

On Column LOD for nt8.i, 20191125.b\TBT1125.m, ICAL.sub = 0.0000

* Only compounds listed in the work order have been verified by the analyst *

Q-FLAG SUMMARY FOR DATABATCH - \\target\share\chem3\nt8.i\20191125.b

Instrument: nt8.i Date: 25-NOV-2019 Method: 20191125.b\TBT1125.m

INITIAL CAL: 25-NOV-2019

Compound	%RSD or R ²

NO Q-FLAGS	

ICV CAL: N819112505.D 25-NOV-2019 14:57

Compound	%D

NO Q-FLAGS	

Data File: \\target\share\chem3\nt8.1\20191125.6\N819112506.D

Date: 25-NOV-2019 15:13

Client ID:

Sample Info: IC2191125,

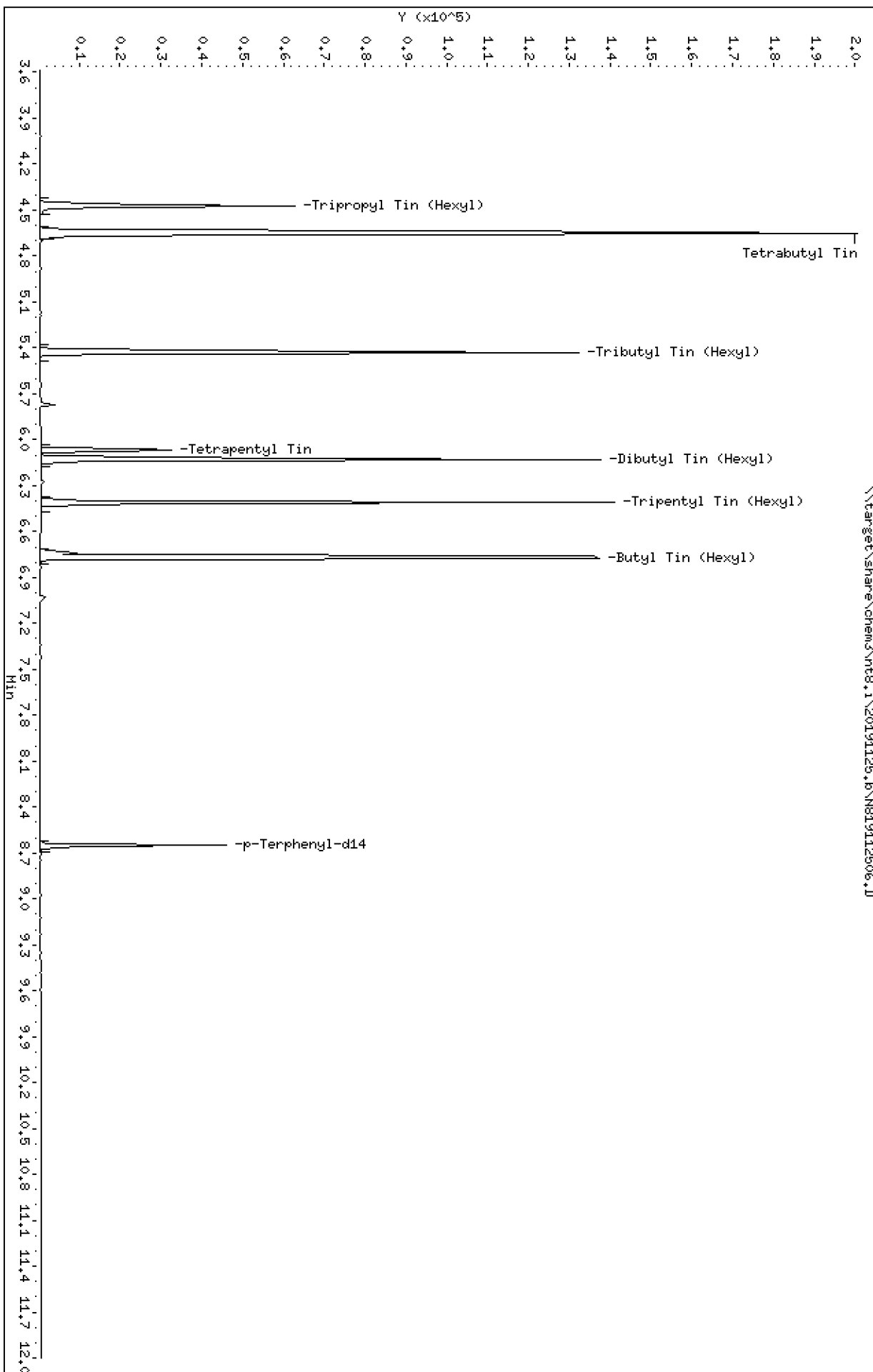
Column phase: ZB-5msi

Instrument: nt8.1

Operator: JZ

Column diameter: 0.25

Page 1



ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20191125.b\N819112506.D
 Lab Smp Id: SHK0340-CAL5
 Inj Date : 25-NOV-2019 15:13
 Operator : JZ Inst ID: nt8.i
 Smp Info : IC2191125,
 Misc Info :
 Comment : 2 ul Injection
 Method : \\target\share\chem3\nt8.i\20191125.b\TBT1125.m
 Meth Date : 26-Nov-2019 11:53 nt8.i Quant Type: ISTD
 Cal Date : 25-NOV-2019 14:57 Cal File: N819112505.D
 Als bottle: 6 Calibration Sample, Level: 5
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: ICAL.sub
 Target Version: 4.14
 Processing Host: ORGDATA22

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	AMOUNTS	
							CAL-AMT	ON-COL
	MASS						(ug/mL)	(ug/mL)
=====	=====		=====	=====	=====	=====	=====	=====
\$ 1 Tripropyl Tin (Hexyl)	291		4.471	4.471	(0.737)	32536	2.00000	1.998
2 Tetrabutyl Tin	289		4.648	4.648	(0.766)	28159	2.00000	1.957
3 Tributyl Tin (Hexyl)	319		5.429	5.429	(0.894)	24691	2.00000	1.962
* 4 Tetrapentyl Tin	333		6.070	6.070	(1.000)	41672	2.00000	
5 Dibutyl Tin (Hexyl)	347		6.131	6.131	(0.709)	33224	4.00000	3.613
\$ 6 Tripentyl Tin (Hexyl)	347		6.409	6.409	(0.741)	49415	4.00000	3.670
7 Butyl Tin (Hexyl)	347		6.772	6.771	(0.783)	54099	4.00000	3.722
* 8 p-Terphenyl-d14	244		8.647	8.647	(1.000)	41539	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
 AREA AND RT SUMMARY

Instrument ID: nt8.i Calibration Date: 25-NOV-2019
 Lab File ID: N819112506.D Calibration Time: 14:57
 Lab Smp Id: SHK0340-CAL5
 Analysis Type: SV Level:
 Quant Type: ISTD Sample Type:
 Operator: JZ
 Method File: \\target\share\chem3\nt8.i\20191125.b\TBT1125.m
 Misc Info:

Test Mode:
 Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	41592	20796	83184	41672	0.19
8 p-Terphenyl-d14	41162	20581	82324	41539	0.92

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	6.07	5.57	6.57	6.07	0.00
8 p-Terphenyl-d14	8.65	8.15	9.15	8.65	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 - N819112506.D

Lab ID: SHK0340-CAL5

nt8.i, 20191125.b\TBT1125.m, 25-NOV-2019 15:13

RT CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV	RRT	DELTA	COMPOUND
-----	-----	-----	-------	----------

NONE

RRT check based on Ccal File: N819112505.D

On Column LOD for nt8.i, 20191125.b\TBT1125.m, ICAL.sub = 0.0000

* Only compounds listed in the work order have been verified by the analyst *

Data File: \\target\share\chem3\nt8.1\20191125.6\N819112507.D

Date: 25-NOV-2019 15:29

Client ID:

Sample Info: IC4191125,

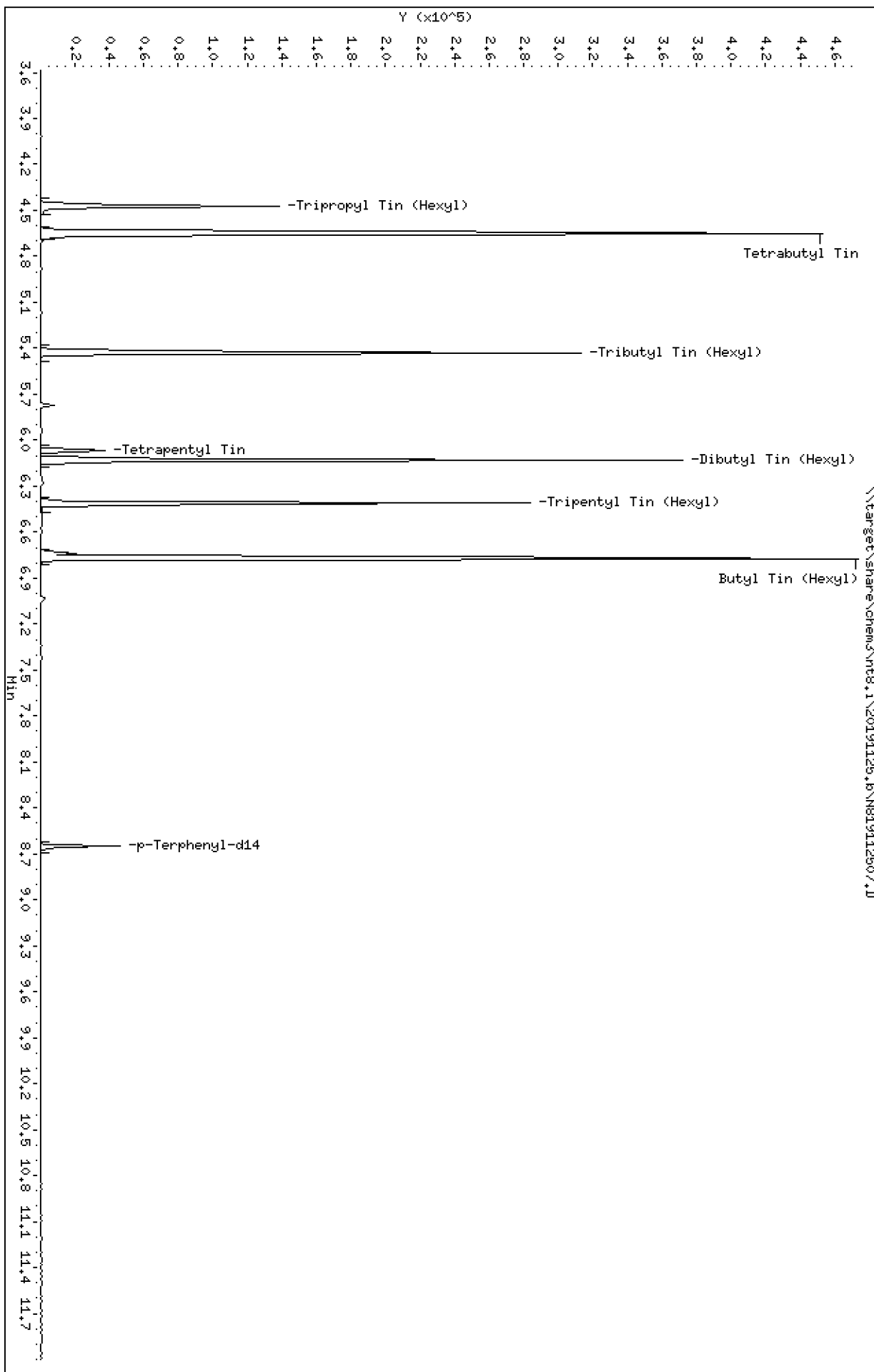
Column phase: ZB-5msi

Instrument: nt8.1

Operator: JZ

Column diameter: 0.25

Page 1



ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20191125.b\N819112507.D
 Lab Smp Id: SHK0340-CAL6
 Inj Date : 25-NOV-2019 15:29
 Operator : JZ Inst ID: nt8.i
 Smp Info : IC4191125,
 Misc Info :
 Comment : 2 ul Injection
 Method : \\target\share\chem3\nt8.i\20191125.b\TBT1125.m
 Meth Date : 26-Nov-2019 11:53 nt8.i Quant Type: ISTD
 Cal Date : 25-NOV-2019 15:13 Cal File: N819112506.D
 Als bottle: 7 Calibration Sample, Level: 6
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: ICAL.sub
 Target Version: 4.14
 Processing Host: ORGDATA22

Compounds	QUANT SIG		AMOUNTS					
	MASS		RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/mL)	ON-COL (ug/mL)
\$ 1 Tripropyl Tin (Hexyl)	291		4.471	4.471	(0.737)	70403	4.00000	3.967
2 Tetrabutyl Tin	289		4.648	4.648	(0.766)	62595	4.00000	3.993
3 Tributyl Tin (Hexyl)	319		5.429	5.429	(0.894)	54919	4.00000	4.005
* 4 Tetrapentyl Tin	333		6.070	6.070	(1.000)	45410	2.00000	
5 Dibutyl Tin (Hexyl)	347		6.131	6.131	(0.709)	74621	8.00000	8.092
\$ 6 Tripentyl Tin (Hexyl)	347		6.409	6.409	(0.741)	110801	8.00000	8.206
7 Butyl Tin (Hexyl)	347		6.771	6.771	(0.783)	139109	8.00000	9.543
* 8 p-Terphenyl-d14	244		8.647	8.647	(1.000)	41659	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
 AREA AND RT SUMMARY

Instrument ID: nt8.i Calibration Date: 25-NOV-2019
 Lab File ID: N819112507.D Calibration Time: 14:57
 Lab Smp Id: SHK0340-CAL6
 Analysis Type: SV Level:
 Quant Type: ISTD Sample Type:
 Operator: JZ
 Method File: \\target\share\chem3\nt8.i\20191125.b\TBT1125.m
 Misc Info:

Test Mode:
 Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	41592	20796	83184	45410	9.18
8 p-Terphenyl-d14	41162	20581	82324	41659	1.21

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	6.07	5.57	6.57	6.07	-0.00
8 p-Terphenyl-d14	8.65	8.15	9.15	8.65	-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 - N819112507.D

Lab ID: SHK0340-CAL6

nt8.i, 20191125.b\TBT1125.m, 25-NOV-2019 15:29

RT CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV	RRT	DELTA	COMPOUND
-----	-----	-----	-------	----------

NONE

RRT check based on Ccal File: N819112505.D

On Column LOD for nt8.i, 20191125.b\TBT1125.m, ICAL.sub = 0.0000

* Only compounds listed in the work order have been verified by the analyst *

Data File: \\target\share\chem3\nt8.1\20191125.6\N819112508.D

Date: 25-NOV-2019 16:02

Client ID:

Sample Info: SCV191125

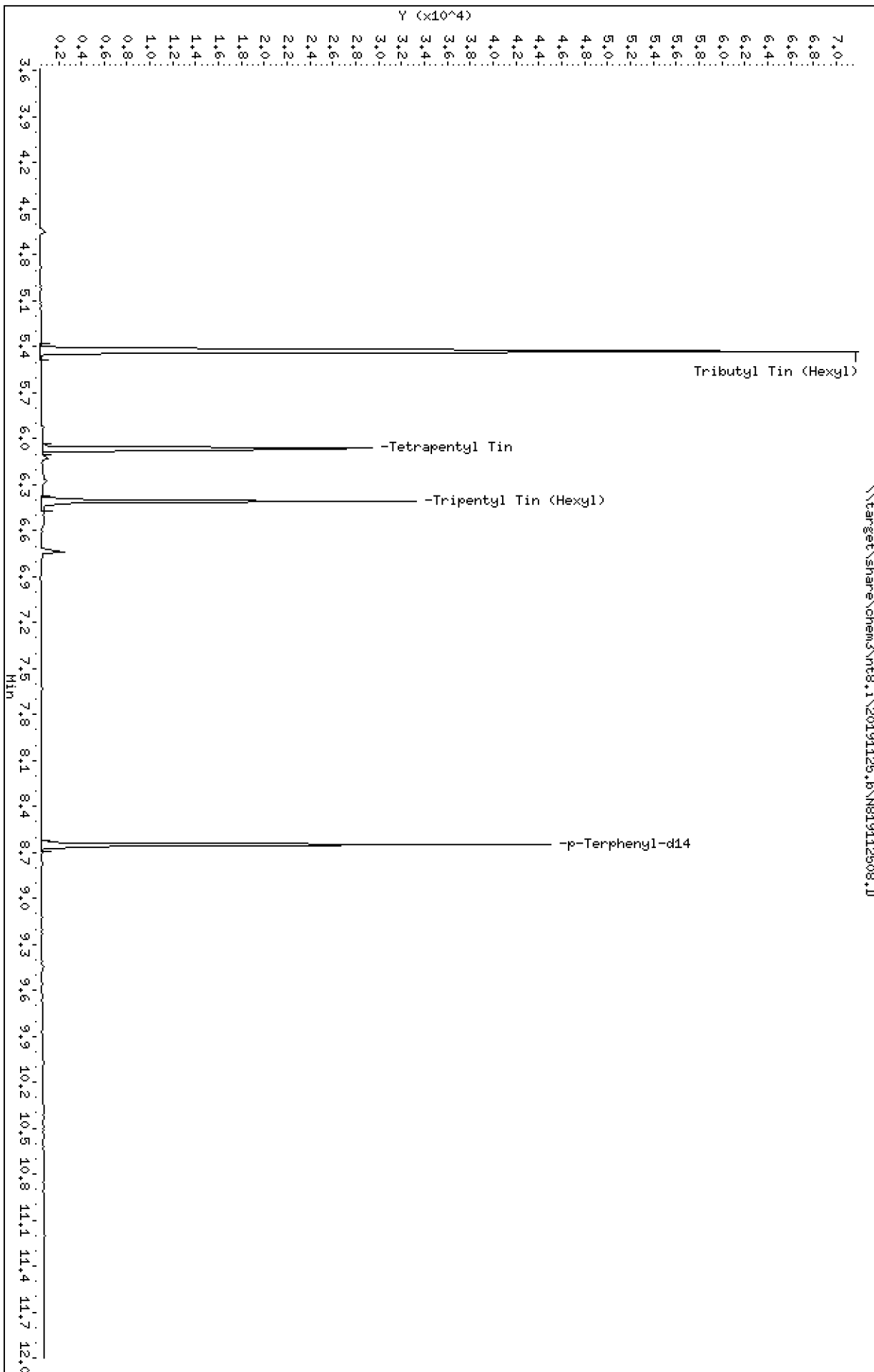
Column phase: ZB-5msi

Instrument: nt8.1

Operator: JZ

Column diameter: 0.25

Page 1



Date : 25-NOV-2019 16:02

Client ID:

Instrument: nt8.i

Sample Info: SCV191125

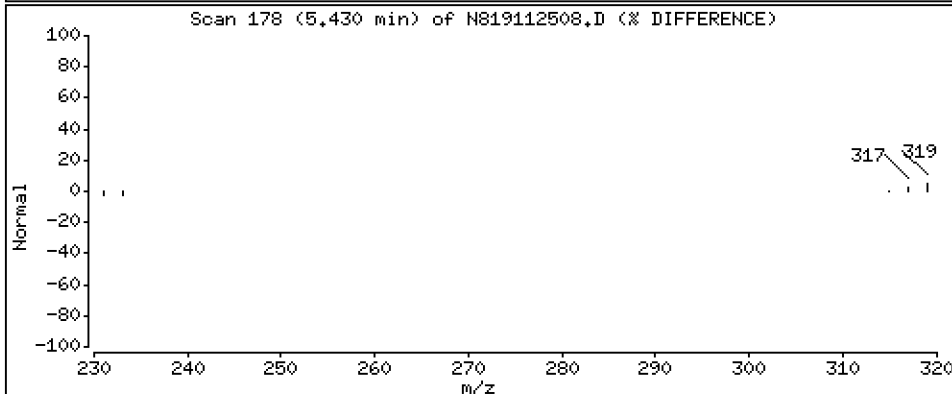
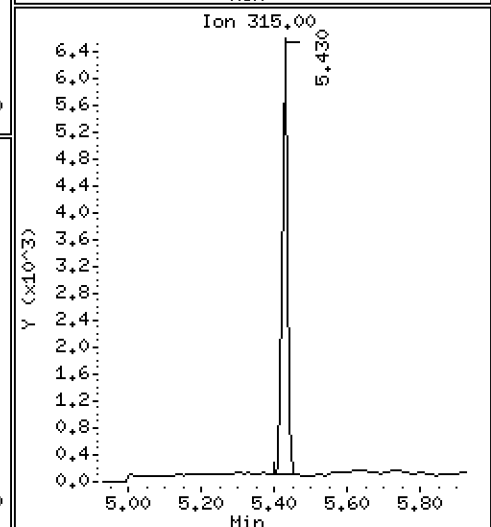
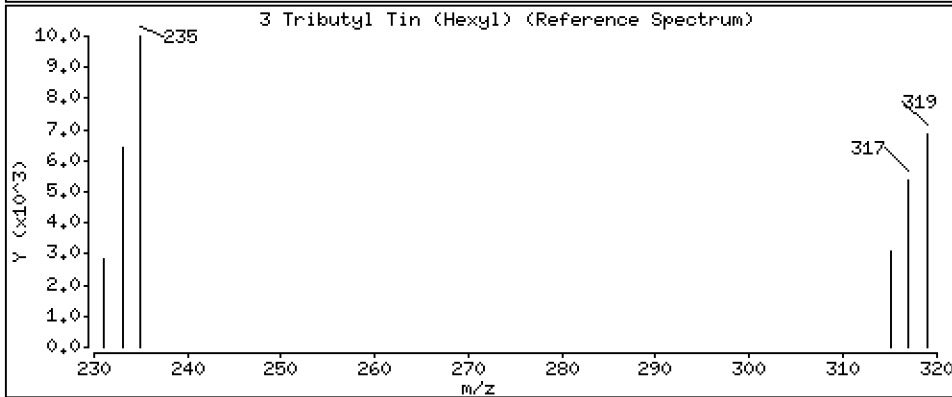
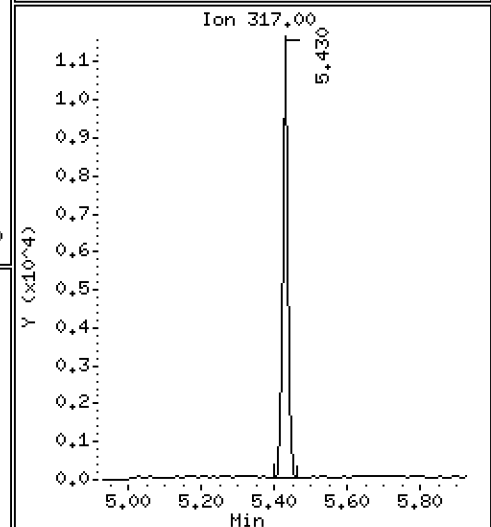
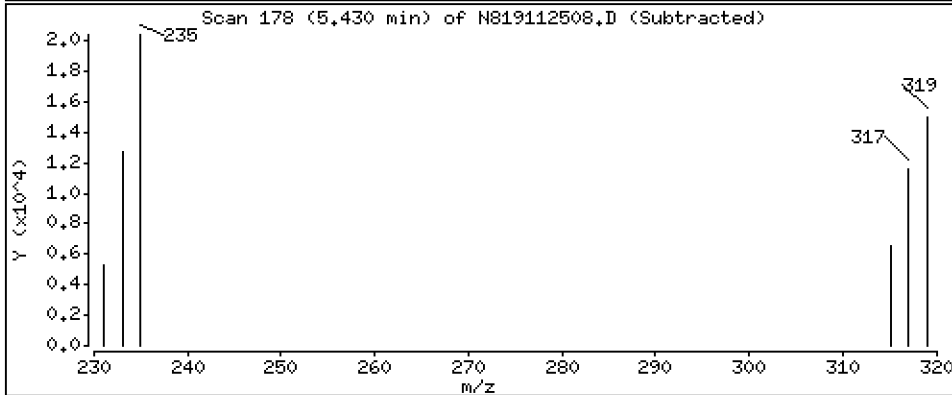
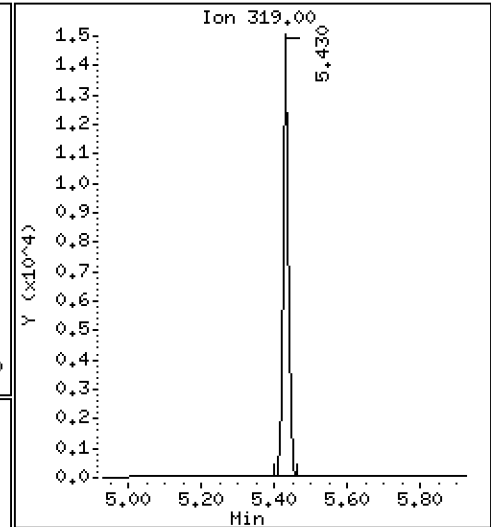
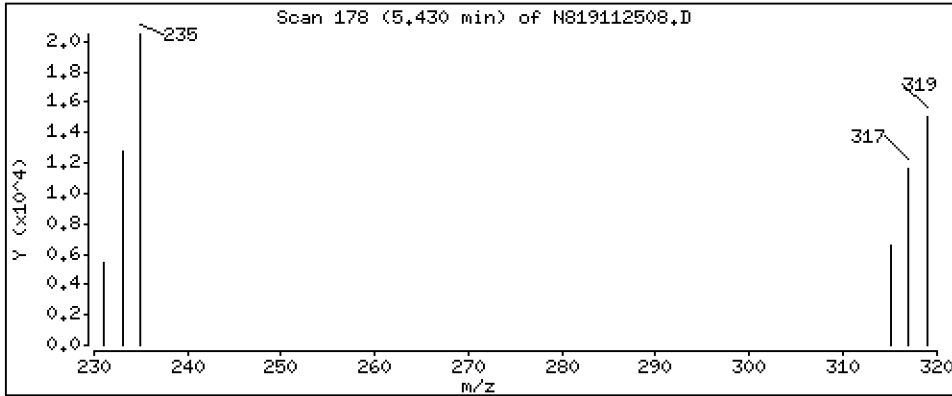
Operator: JZ

Column phase: ZB-5msi

Column diameter: 0.25

3 Tributyl Tin (Hexyl)

Concentration: 1.176 ug/mL



ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20191125.b\N819112508.D
 Lab Smp Id: SHK0340-SCV1
 Inj Date : 25-NOV-2019 16:02
 Operator : JZ Inst ID: nt8.i
 Smp Info : SCV191125
 Misc Info :
 Comment : 2 ul Injection
 Method : \\target\share\chem3\nt8.i\20191125.b\TBT1125.m
 Meth Date : 26-Nov-2019 11:53 nt8.i Quant Type: ISTD
 Cal Date : 25-NOV-2019 15:29 Cal File: N819112507.D
 Als bottle: 9
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: ICAL.sub
 Target Version: 4.14
 Processing Host: ORGDATA22

Compounds	QUANT	SIG	CONCENTRATIONS					
			RT	EXP RT	REL RT	RESPONSE	ON-COLUMN (ug/mL)	FINAL (ug/mL)
\$ 1 Tripropyl Tin (Hexyl)	291		Compound Not Detected.					
2 Tetrabutyl Tin	289		Compound Not Detected.					
3 Tributyl Tin (Hexyl)	319		5.429	5.429	(0.896)	13901	1.17634	1.176
* 4 Tetrapentyl Tin	333		6.058	6.070	(1.000)	39133	2.00000	
5 Dibutyl Tin (Hexyl)	347		Compound Not Detected.					
\$ 6 Tripentyl Tin (Hexyl)	347		6.409	6.409	(0.741)	11703	0.90574	0.9057
7 Butyl Tin (Hexyl)	347		Compound Not Detected.					
* 8 p-Terphenyl-d14	244		8.647	8.647	(1.000)	39863	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
 AREA AND RT SUMMARY

Instrument ID: nt8.i Calibration Date: 25-NOV-2019
 Lab File ID: N819112508.D Calibration Time: 14:57
 Lab Smp Id: SHK0340-SCV1
 Analysis Type: SV Level:
 Quant Type: ISTD Sample Type:
 Operator: JZ
 Method File: \\target\share\chem3\nt8.i\20191125.b\TBT1125.m
 Misc Info:

Test Mode:
 Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	41592	20796	83184	39133	-5.91
8 p-Terphenyl-d14	41162	20581	82324	39863	-3.16

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	6.07	5.57	6.57	6.06	-0.20
8 p-Terphenyl-d14	8.65	8.15	9.15	8.65	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 - N819112508.D

Lab ID: SHK0340-SCV1

nt8.i, 20191125.b\TBT1125.m, 25-NOV-2019 16:02

RT CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

** FIRST SURROGATE NOT FOUND. ICAL Check not performed **

RRT CHECK

RRT	CCV	RRT	DELTA	COMPOUND
-----	-----	-----	-------	----------

NONE

RRT check based on Ccal File: N819112507.D

On Column LOD for nt8.i, 20191125.b\TBT1125.m, ICAL.sub = 0.0000

* Only compounds listed in the work order have been verified by the analyst *



SECOND-SOURCE CALIBRATION VERIFICATION
EPA 8270D-SIM

Laboratory: Analytical Resources, Inc.

SDG: 19K0228

Client: Anchor QEA, LLC

Project: Gasco PDI

Calibration: CK00068

Laboratory ID: SHK0340-SCV1

Sequence: SHK0340

Sequence Name: Secondary Cal Check

Standard ID: H011495

ANALYTE	EXPECTED (ug/mL)	FOUND (ug/mL)	% DRIFT	QC LIMIT
Tributyltin Ion	0.77300	0.909	17.6	20.00
Triphenyltin	0.79590	0.721	-9.4	20.00

* Indicates values outside of QC limits

Data File: \\target\share\chem3\nt8.1\20191125.6\N819112508.D

Date: 25-NOV-2019 16:02

Client ID:

Sample Info: SCV191125

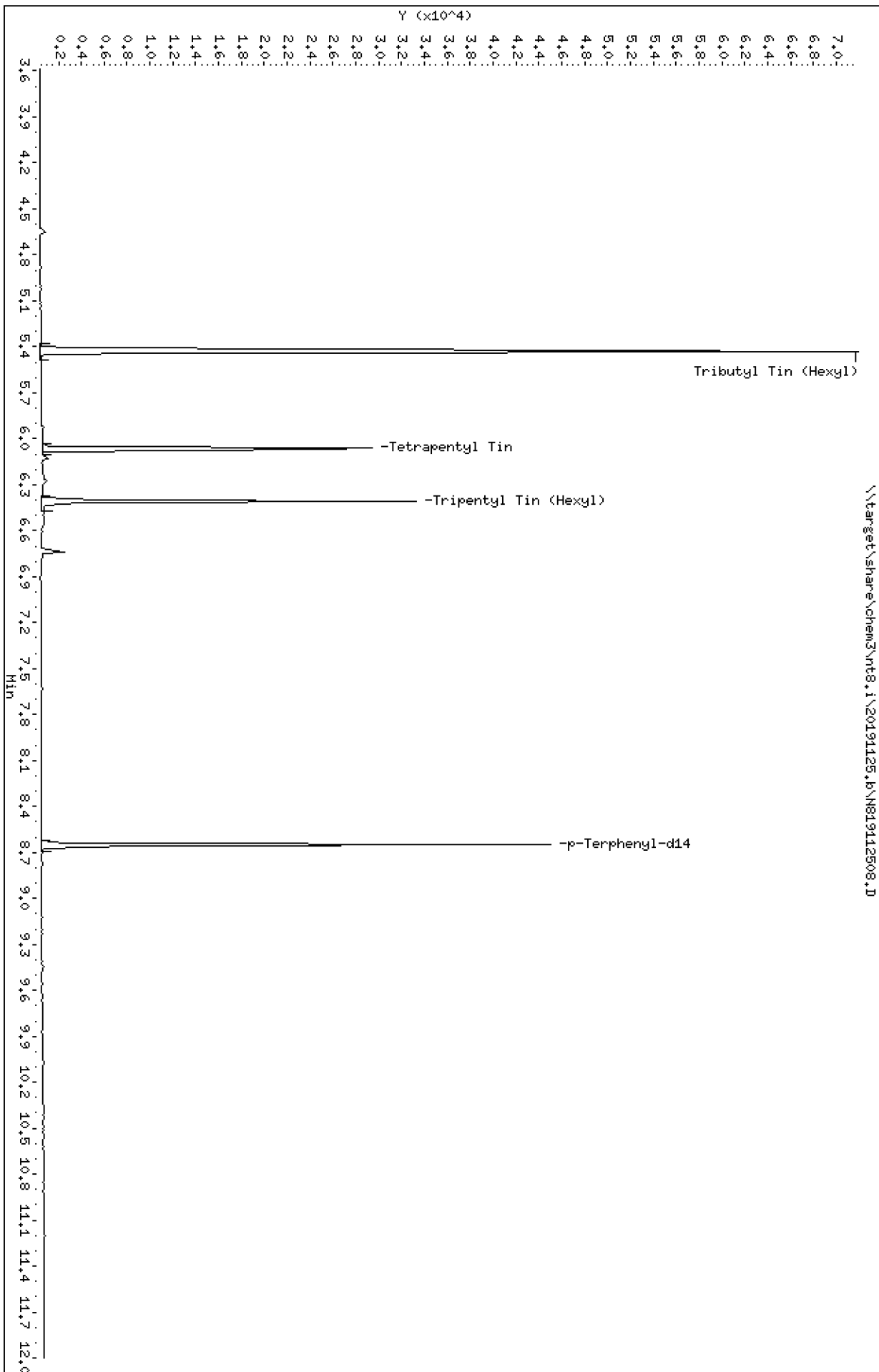
Column phase: ZB-5msi

Instrument: nt8.1

Operator: JZ

Column diameter: 0.25

Page 1



Date : 25-NOV-2019 16:02

Client ID:

Instrument: nt8.i

Sample Info: SCV191125

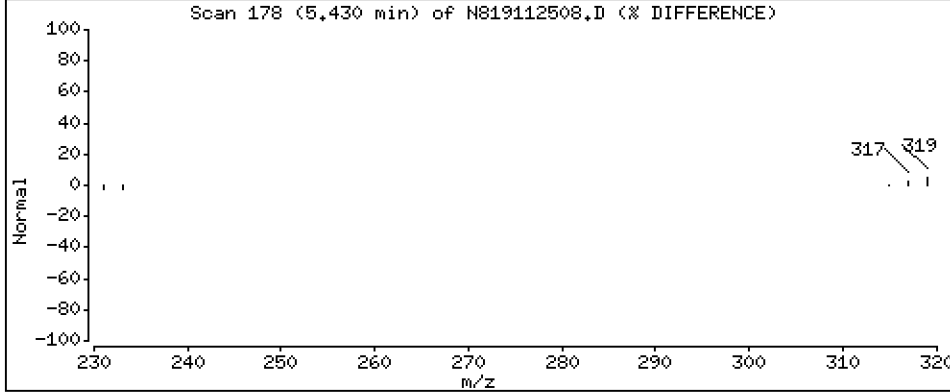
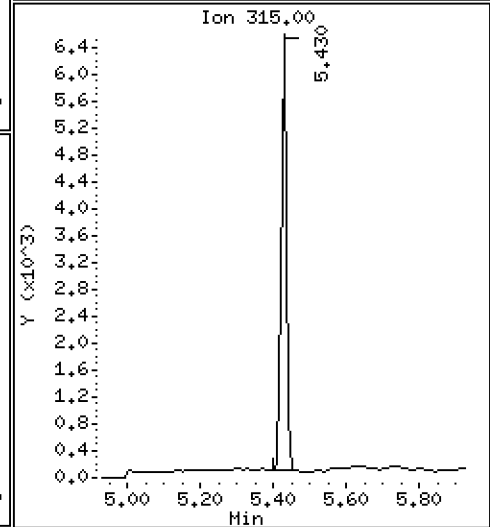
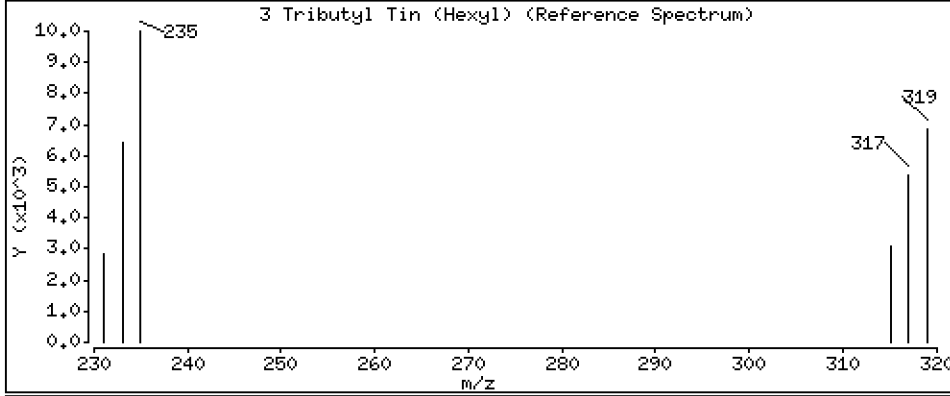
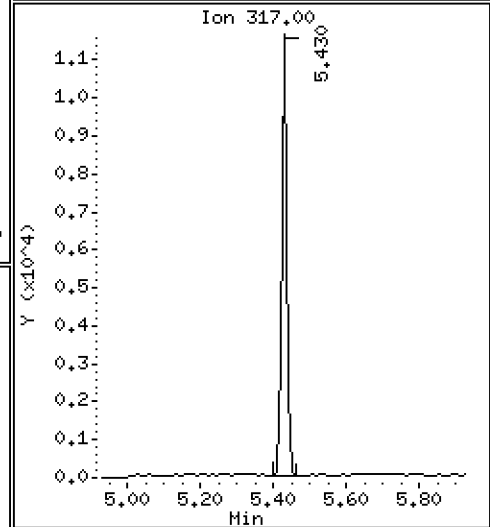
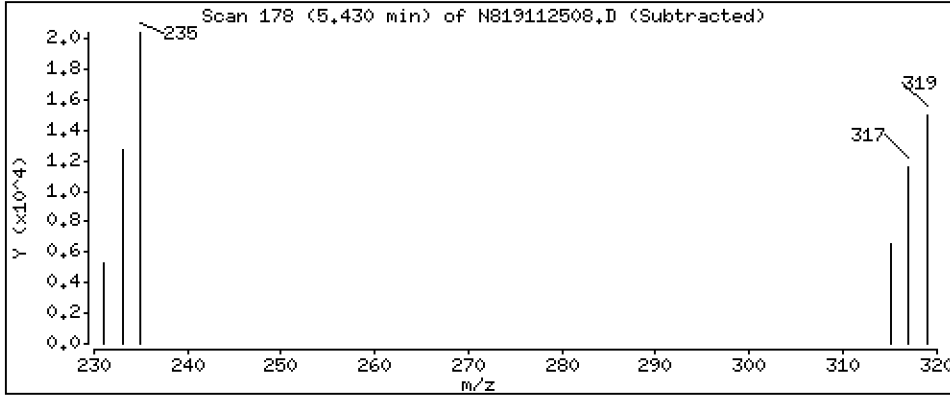
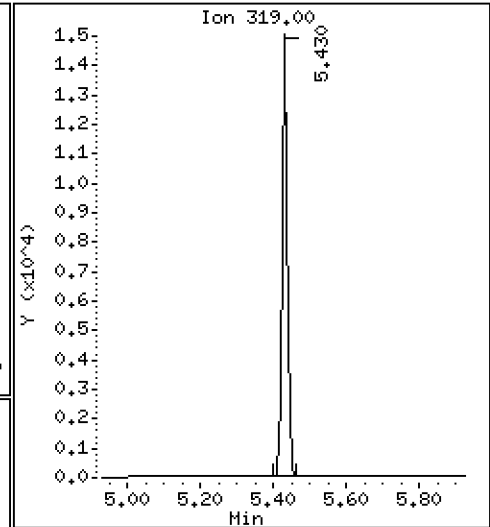
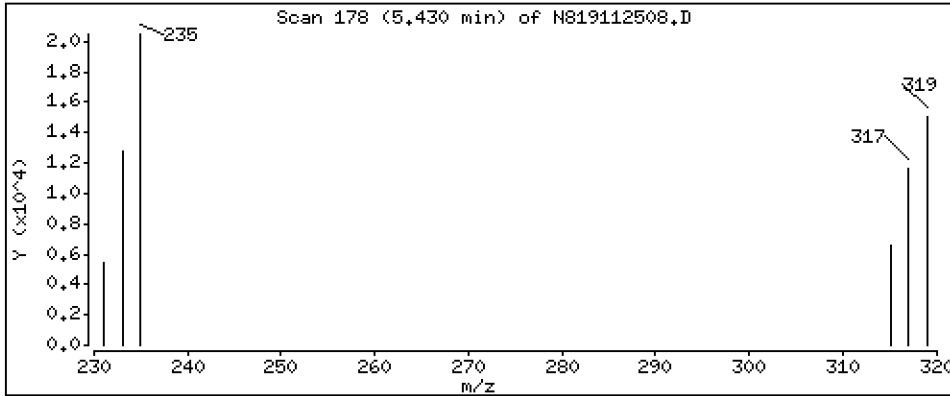
Operator: JZ

Column phase: ZB-5msi

Column diameter: 0.25

3 Tributyl Tin (Hexyl)

Concentration: 1.176 ug/mL



ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20191125.b\N819112508.D
 Lab Smp Id: SHK0340-SCV1
 Inj Date : 25-NOV-2019 16:02
 Operator : JZ Inst ID: nt8.i
 Smp Info : SCV191125
 Misc Info :
 Comment : 2 ul Injection
 Method : \\target\share\chem3\nt8.i\20191125.b\TBT1125.m
 Meth Date : 26-Nov-2019 11:53 nt8.i Quant Type: ISTD
 Cal Date : 25-NOV-2019 15:29 Cal File: N819112507.D
 Als bottle: 9
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: ICAL.sub
 Target Version: 4.14
 Processing Host: ORGDATA22

Compounds	QUANT SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN (ug/mL)	FINAL (ug/mL)
\$ 1 Tripropyl Tin (Hexyl)	291				Compound Not Detected.		
2 Tetrabutyl Tin	289				Compound Not Detected.		
3 Tributyl Tin (Hexyl)	319	5.429	5.429	(0.896)	13901	1.17634	1.176
* 4 Tetrapentyl Tin	333	6.058	6.070	(1.000)	39133	2.00000	
5 Dibutyl Tin (Hexyl)	347				Compound Not Detected.		
\$ 6 Tripentyl Tin (Hexyl)	347	6.409	6.409	(0.741)	11703	0.90574	0.9057
7 Butyl Tin (Hexyl)	347				Compound Not Detected.		
* 8 p-Terphenyl-d14	244	8.647	8.647	(1.000)	39863	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
 AREA AND RT SUMMARY

Instrument ID: nt8.i Calibration Date: 25-NOV-2019
 Lab File ID: N819112508.D Calibration Time: 14:57
 Lab Smp Id: SHK0340-SCV1
 Analysis Type: SV Level:
 Quant Type: ISTD Sample Type:
 Operator: JZ
 Method File: \\target\share\chem3\nt8.i\20191125.b\TBT1125.m
 Misc Info:

Test Mode:
 Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	41592	20796	83184	39133	-5.91
8 p-Terphenyl-d14	41162	20581	82324	39863	-3.16

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	6.07	5.57	6.57	6.06	-0.20
8 p-Terphenyl-d14	8.65	8.15	9.15	8.65	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 - N819112508.D

Lab ID: SHK0340-SCV1

nt8.i, 20191125.b\TBT1125.m, 25-NOV-2019 16:02

RT CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

** FIRST SURROGATE NOT FOUND. ICAL Check not performed **

RRT CHECK

RRT	CCV	RRT	DELTA	COMPOUND
-----	-----	-----	-------	----------

NONE

RRT check based on Ccal File: N819112507.D

On Column LOD for nt8.i, 20191125.b\TBT1125.m, ICAL.sub = 0.0000

* Only compounds listed in the work order have been verified by the analyst *



INITIAL CALIBRATION CHECK
EPA 8270D-SIM

Laboratory:	<u>Analytical Resources, Inc.</u>	SDG:	<u>19K0228</u>
Client:	<u>Anchor QEA, LLC</u>	Project:	<u>Gasco PDI</u>
Instrument ID:	<u>NT8</u>	Calibration:	<u>CK00068</u>
Lab File ID:	<u>N819112511.D</u>	Calibration Date:	<u>11/25/2019</u>
Sequence:	<u>SHK0352</u>	Injection Date:	<u>11/25/19</u>
Lab Sample ID:	<u>SHK0352-ICV1</u>	Injection Time:	<u>16:56</u>
Sequence Name:	<u>Initial Cal Check</u>		

COMPOUND	TYPE	CONC. (ug/mL)		RESPONSE FACTOR			% DRIFT/DIFF	
		STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
Tributyltin Ion	A	0.77300	0.775	0.6676381	0.6058562	0.01	0.3	+/-20
Triphenyltin	A	1.5918	1.54	0.0648265	0.0625820	0.01	-3.4	+/-20
Tripropyltin	A	0.74432	0.784	0.9011338	0.8228873	0.01	5.3	+/-20
Tetraphenyltin	A	2.0000	2.00	21013.3300	1.0000		0.0	
p-Terphenyl-d14	A	0.20000	0.200	206884.2000	1.0000		0.0	

* Values outside of QC limits

Data File: \\target\share\chem3\nt8.1\20191125A.6\N819112511.D

Date: 25-NOV-2019 16:56

Client ID:

Sample Info: ICW191125A

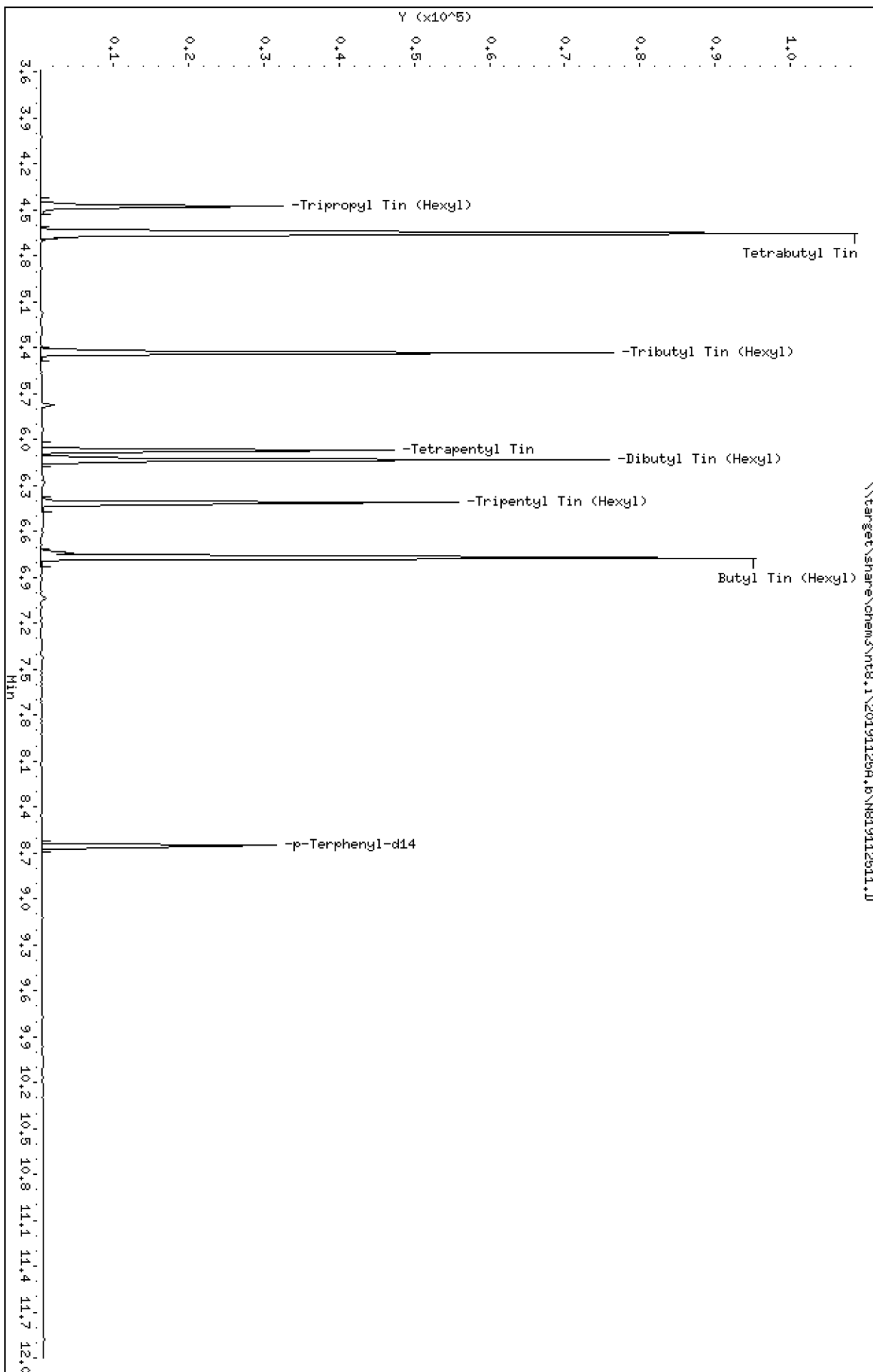
Column phase: ZB-5msi

Instrument: nt8.1

Operator: JZ

Column diameter: 0.25

Page 1



ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20191125A.b\N819112511.D
 Lab Smp Id: SHK0352-ICV1
 Inj Date : 25-NOV-2019 16:56 MS Autotune Date: 27-FEB-2008 03:32
 Operator : JZ Inst ID: nt8.i
 Smp Info : ICV191125A
 Misc Info :
 Comment : 2 ul Injection
 Method : \\target\share\chem3\nt8.i\20191125A.b\TBT1125.m
 Meth Date : 26-Nov-2019 13:45 jianqing Quant Type: ISTD
 Cal Date : 25-NOV-2019 15:29 Cal File: N819112507.D
 Als bottle: 2 Continuing Calibration Sample
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: ICAL.sub
 Target Version: 4.14
 Processing Host: ORGDATA22

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	AMOUNTS	
							CAL-AMT	ON-COL
	MASS						(ug/mL)	(ug/mL)
=====	=====		=====	=====	=====	=====	=====	=====
\$ 1 Tripropyl Tin (Hexyl)	291		4.471	4.471	(0.737)	17565	1.00000	1.053
2 Tetrabutyl Tin	289		4.648	4.648	(0.766)	14828	1.00000	1.006
3 Tributyl Tin (Hexyl)	319		5.429	5.429	(0.894)	12932	1.00000	1.003
* 4 Tetrapentyl Tin	333		6.070	6.070	(1.000)	42690	2.00000	
5 Dibutyl Tin (Hexyl)	347		6.131	6.131	(0.709)	16701	2.00000	1.911
\$ 6 Tripentyl Tin (Hexyl)	347		6.409	6.409	(0.741)	24703	2.00000	1.931
7 Butyl Tin (Hexyl)	347		6.772	6.772	(0.783)	27460	2.00000	1.988
* 8 p-Terphenyl-d14	244		8.647	8.647	(1.000)	39473	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
 AREA AND RT SUMMARY

Instrument ID: nt8.i Calibration Date: 25-NOV-2019
 Lab File ID: N819112511.D Calibration Time: 14:57
 Lab Smp Id: SHK0352-ICV1
 Analysis Type: SV Level:
 Quant Type: ISTD Sample Type:
 Operator: JZ
 Method File: \\target\share\chem3\nt8.i\20191125A.b\TBT1125.m
 Misc Info:

Test Mode:
 Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	41592	20796	83184	42690	2.64
8 p-Terphenyl-d14	41162	20581	82324	39473	-4.10

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	6.07	5.57	6.57	6.07	0.00
8 p-Terphenyl-d14	8.65	8.15	9.15	8.65	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 - N819112511.D

Lab ID: SHK0352-ICV1

nt8.i, 20191125A.b\TBT1125.m, 25-NOV-2019 16:56

RT CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

No RRT check. Ccal file.

On Column LOD for nt8.i, 20191125A.b\TBT1125.m, ICAL.sub = 0.0000

* Only compounds listed in the work order have been verified by the analyst *

Q-FLAG SUMMARY FOR DATABATCH - \\target\share\chem3\nt8.i\20191125A.b

Instrument: nt8.i Date: 25-NOV-2019 Method: 20191125A.b\TBT1125.m

INITIAL CAL: 25-NOV-2019

Compound	%RSD or R ²

NO Q-FLAGS	

ICV CAL: N819112511.D 25-NOV-2019 16:56

Compound	%D

NO Q-FLAGS	



INITIAL CALIBRATION CHECK
EPA 8270D-SIM

Laboratory:	<u>Analytical Resources, Inc.</u>	SDG:	<u>19K0228</u>
Client:	<u>Anchor QEA, LLC</u>	Project:	<u>Gasco PDI</u>
Instrument ID:	<u>NT8</u>	Calibration:	<u>CK00068</u>
Lab File ID:	<u>N819120231.D</u>	Calibration Date:	<u>11/25/2019</u>
Sequence:	<u>SHL0025</u>	Injection Date:	<u>12/02/19</u>
Lab Sample ID:	<u>SHL0025-ICV1</u>	Injection Time:	<u>17:52</u>
Sequence Name:	<u>Initial Cal Check</u>		

COMPOUND	TYPE	CONC. (ug/mL)		RESPONSE FACTOR			% DRIFT/DIFF	
		STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
Tributyltin Ion	A	0.77300	0.811	0.6676381	0.6333415	0.01	4.9	+/-20
Triphenyltin	A	1.5918	1.56	0.0648265	0.0633557	0.01	-2.2	+/-20
Tripropyltin	A	0.74432	0.802	0.9011338	0.8420457	0.01	7.7	+/-20
Tetraphenyltin	A	2.0000	2.00	21013.3300	1.0000		0.0	
p-Terphenyl-d14	A	0.20000	0.200	206884.2000	1.0000		0.0	

* Values outside of QC limits

Data File: \\target\share\chem3\nt8.1\2019120204.b\N819120231.D

Date : 02-DEC-2019 17:52

Client ID:

Sample Info: ICW19120204

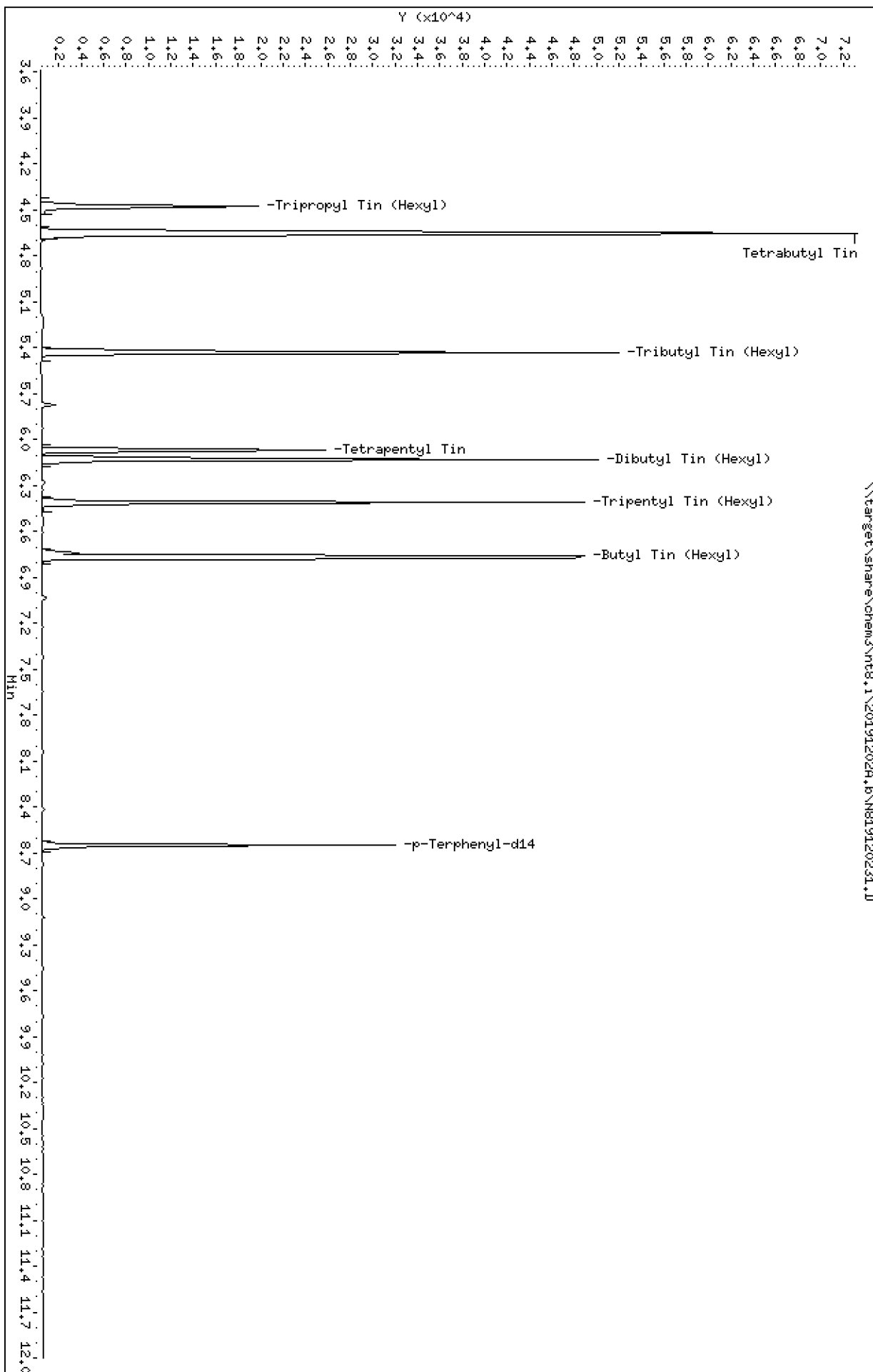
Column phase: ZB-5msi

Instrument: nt8.1

Operator: JZ

Column diameter: 0.25

Page 1



ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20191202A.b\N819120231.D
 Lab Smp Id: SHL0025-ICV1
 Inj Date : 02-DEC-2019 17:52 MS Autotune Date: 27-FEB-2008 03:32
 Operator : JZ Inst ID: nt8.i
 Smp Info : ICV191202A
 Misc Info :
 Comment : 2 ul Injection
 Method : \\target\share\chem3\nt8.i\20191202A.b\TBT1125.m
 Meth Date : 03-Dec-2019 09:05 nt8.i Quant Type: ISTD
 Cal Date : 25-NOV-2019 15:29 Cal File: N819112507.D
 Als bottle: 2 Continuing Calibration Sample
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: ICAL.sub
 Target Version: 4.14
 Processing Host: ORGDATA22

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	AMOUNTS	
							CAL-AMT	ON-COL
	MASS						(ug/mL)	(ug/mL)
=====	====		====	=====	=====	=====	=====	=====
\$ 1 Tripropyl Tin (Hexyl)	291		4.471	4.471	(0.737)	11994	1.00000	1.077
2 Tetrabutyl Tin	289		4.648	4.648	(0.766)	10434	1.00000	1.061
3 Tributyl Tin (Hexyl)	319		5.429	5.429	(0.894)	9021	1.00000	1.049
* 4 Tetrapentyl Tin	333		6.070	6.070	(1.000)	28487	2.00000	
5 Dibutyl Tin (Hexyl)	347		6.131	6.131	(0.709)	11681	2.00000	1.879
\$ 6 Tripentyl Tin (Hexyl)	347		6.409	6.409	(0.741)	17789	2.00000	1.955
7 Butyl Tin (Hexyl)	347		6.772	6.772	(0.783)	18563	2.00000	1.889
* 8 p-Terphenyl-d14	244		8.647	8.647	(1.000)	28078	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
 AREA AND RT SUMMARY

Instrument ID: nt8.i Calibration Date: 02-DEC-2019
 Lab File ID: N819120231.D Calibration Time: 09:59
 Lab Smp Id: SHL0025-ICV1
 Analysis Type: SV Level:
 Quant Type: ISTD Sample Type:
 Operator: JZ
 Method File: \\target\share\chem3\nt8.i\20191202A.b\TBT1125.m
 Misc Info:

Test Mode:
 Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	41592	20796	83184	28487	-31.51
8 p-Terphenyl-d14	41162	20581	82324	28078	-31.79

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	6.07	5.57	6.57	6.07	0.00
8 p-Terphenyl-d14	8.65	8.15	9.15	8.65	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 - N819120231.D

Lab ID: SHL0025-ICV1

nt8.i, 20191202A.b\TBT1125.m, 02-DEC-2019 17:52

RT CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

No RRT check. Ccal file.

On Column LOD for nt8.i, 20191202A.b\TBT1125.m, ICAL.sub = 0.0000

* Only compounds listed in the work order have been verified by the analyst *

Q-FLAG SUMMARY FOR DATABATCH - \\target\share\chem3\nt8.i\20191202A.b

Instrument: nt8.i Date: 02-DEC-2019 Method: 20191202A.b\TBT1125.m

INITIAL CAL: 25-NOV-2019

Compound	%RSD or R ²

NO Q-FLAGS	

ICV CAL: N819120231.D 02-DEC-2019 17:52

Compound	%D

NO Q-FLAGS	



INITIAL CALIBRATION CHECK
EPA 8270D-SIM

Laboratory:	<u>Analytical Resources, Inc.</u>	SDG:	<u>19K0228</u>
Client:	<u>Anchor QEA, LLC</u>	Project:	<u>Gasco PDI</u>
Instrument ID:	<u>NT8</u>	Calibration:	<u>CK00068</u>
Lab File ID:	<u>N819120302.D</u>	Calibration Date:	<u>11/25/2019</u>
Sequence:	<u>SHL0032</u>	Injection Date:	<u>12/03/19</u>
Lab Sample ID:	<u>SHL0032-ICV1</u>	Injection Time:	<u>09:22</u>
Sequence Name:	<u>Initial Cal Check</u>		

COMPOUND	TYPE	CONC. (ug/mL)		RESPONSE FACTOR			% DRIFT/DIFF	
		STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
Tributyltin Ion	A	0.77300	0.843	0.6676381	0.6581143	0.01	9.0	+/-20
Triphenyltin	A	1.5918	1.55	0.0648265	0.0632918	0.01	-2.3	+/-20
Tripropyltin	A	0.74432	0.822	0.9011338	0.8638805	0.01	10.5	+/-20
Tetraphenyltin	A	2.0000	2.00	21013.3300	1.0000		0.0	
p-Terphenyl-d14	A	0.20000	0.200	206884.2000	1.0000		0.0	

* Values outside of QC limits

Data File: \\target\share\chem3\nt8.1\20191203.6\N819120302.D

Date: 03-DEC-2019 09:22

Client ID:

Sample Info: ICW191203

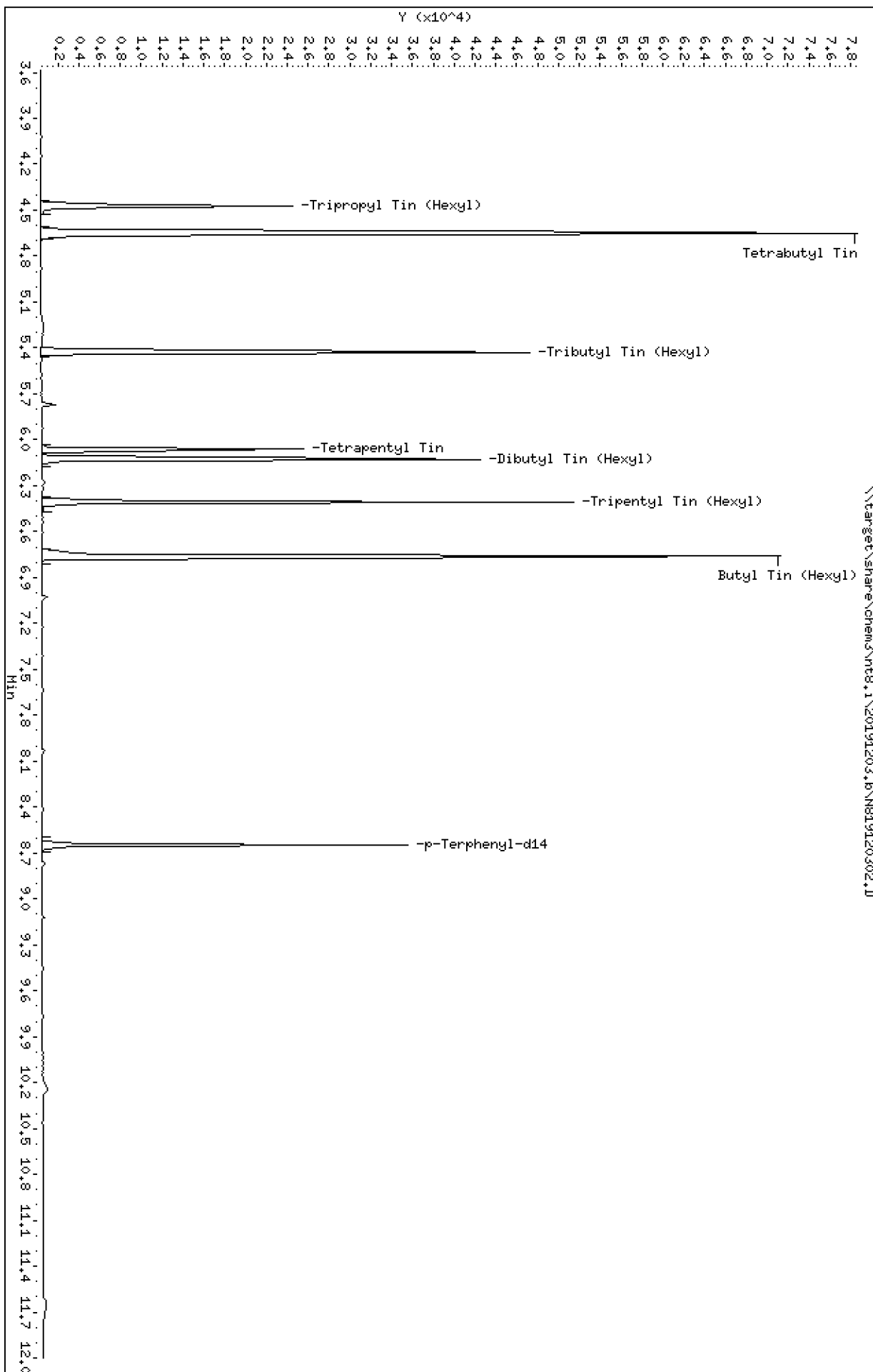
Column phase: ZB-5msi

Instrument: nt8.1

Operator: JZ

Column diameter: 0.25

Page 1



ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20191203.b\N819120302.D
 Lab Smp Id: SHL0032-ICV1
 Inj Date : 03-DEC-2019 09:22 MS Autotune Date: 27-FEB-2008 03:32
 Operator : JZ Inst ID: nt8.i
 Smp Info : ICV191203
 Misc Info :
 Comment : 2 ul Injection
 Method : \\target\share\chem3\nt8.i\20191203.b\TBT1125.m
 Meth Date : 03-Dec-2019 11:20 nt8.i Quant Type: ISTD
 Cal Date : 25-NOV-2019 15:29 Cal File: N819112507.D
 Als bottle: 2 Continuing Calibration Sample
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: ICAL.sub
 Target Version: 4.14
 Processing Host: ORGDATA22

Compounds	QUANT SIG		AMOUNTS					
	MASS		RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/mL)	ON-COL (ug/mL)
\$ 1 Tripropyl Tin (Hexyl)	291		4.471	4.471	(0.738)	12997	1.00000	1.105
2 Tetrabutyl Tin	289		4.648	4.648	(0.767)	11221	1.00000	1.080
3 Tributyl Tin (Hexyl)	319		5.429	5.429	(0.896)	9901	1.00000	1.090
* 4 Tetrapentyl Tin	333		6.058	6.058	(1.000)	30089	2.00000	
5 Dibutyl Tin (Hexyl)	347		6.131	6.131	(0.709)	12906	2.00000	1.913
\$ 6 Tripentyl Tin (Hexyl)	347		6.409	6.409	(0.741)	19285	2.00000	1.953
7 Butyl Tin (Hexyl)	347		6.771	6.771	(0.783)	18712	2.00000	1.755
* 8 p-Terphenyl-d14	244		8.647	8.647	(1.000)	30470	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
 AREA AND RT SUMMARY

Instrument ID: nt8.i Calibration Date: 02-DEC-2019
 Lab File ID: N819120302.D Calibration Time: 09:59
 Lab Smp Id: SHL0032-ICV1
 Analysis Type: SV Level:
 Quant Type: ISTD Sample Type:
 Operator: JZ
 Method File: \\target\share\chem3\nt8.i\20191203.b\TBT1125.m
 Misc Info:

Test Mode:
 Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	41592	20796	83184	30089	-27.66
8 p-Terphenyl-d14	41162	20581	82324	30470	-25.98

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	6.06	5.56	6.56	6.06	0.00
8 p-Terphenyl-d14	8.65	8.15	9.15	8.65	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 - N819120302.D

Lab ID: SHL0032-ICV1

nt8.i, 20191203.b\TBT1125.m, 03-DEC-2019 09:22

RT CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

No RRT check. Ccal file.

On Column LOD for nt8.i, 20191203.b\TBT1125.m, ICAL.sub = 0.0000

* Only compounds listed in the work order have been verified by the analyst *

Q-FLAG SUMMARY FOR DATABATCH - \\target\share\chem3\nt8.i\20191203.b

Instrument: nt8.i Date: 03-DEC-2019 Method: 20191203.b\TBT1125.m

INITIAL CAL: 25-NOV-2019

Compound	%RSD or R ²

NO Q-FLAGS	

ICV CAL: N819120302.D 03-DEC-2019 09:22

Compound	%D

NO Q-FLAGS	



INITIAL CALIBRATION CHECK
EPA 8270D-SIM

Laboratory:	<u>Analytical Resources, Inc.</u>	SDG:	<u>19K0228</u>
Client:	<u>Anchor QEA, LLC</u>	Project:	<u>Gasco PDI</u>
Instrument ID:	<u>NT8</u>	Calibration:	<u>CK00068</u>
Lab File ID:	<u>N819120502.D</u>	Calibration Date:	<u>11/25/2019</u>
Sequence:	<u>SHL0077</u>	Injection Date:	<u>12/05/19</u>
Lab Sample ID:	<u>SHL0077-ICV1</u>	Injection Time:	<u>11:17</u>
Sequence Name:	<u>Initial Cal Check</u>		

COMPOUND	TYPE	CONC. (ug/mL)		RESPONSE FACTOR			% DRIFT/DIFF	
		STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
Tributyltin Ion	A	0.77300	0.806	0.6676381	0.6297078	0.01	4.3	+/-20
Triphenyltin	A	1.5918	1.59	0.0648265	0.0649295	0.01	0.2	+/-20
Tripropyltin	A	0.74432	0.794	0.9011338	0.8342142	0.01	6.7	+/-20
Tetraphenyltin	A	2.0000	2.00	21013.3300	1.0000		0.0	
p-Terphenyl-d14	A	0.20000	0.200	206884.2000	1.0000		0.0	

* Values outside of QC limits

Data File: \\target\share\chem3\nt8.1\20191205.6\N819120502.D

Date: 05-DEC-2019 11:17

Client ID:

Sample Info: ICW191205

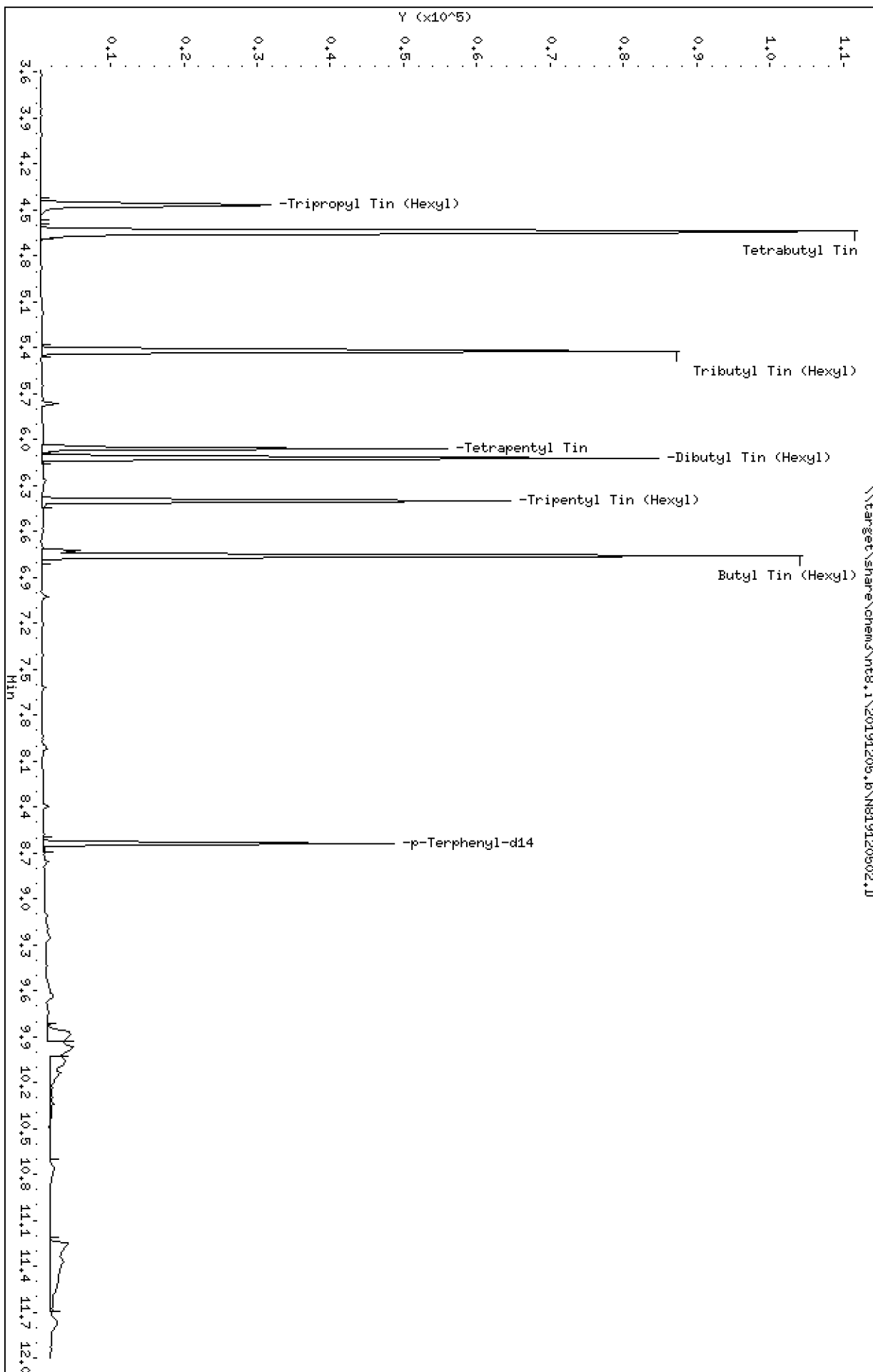
Column phase: ZB-5msi

Instrument: nt8.1

Operator: JZ

Column diameter: 0.25

Page 1



ARI Labs, Inc.

Krone1989/8270D-SIM

Data file : \\target\share\chem3\nt8.i\20191205.b\N819120502.D
 Lab Smp Id: SHL0077-ICV1
 Inj Date : 05-DEC-2019 11:17 MS Autotune Date: 27-FEB-2008 03:32
 Operator : JZ Inst ID: nt8.i
 Smp Info : ICV191205
 Misc Info :
 Comment : 2 ul Injection
 Method : \\target\share\chem3\nt8.i\20191205.b\TBT1125.m
 Meth Date : 05-Dec-2019 13:46 nt8.i Quant Type: ISTD
 Cal Date : 25-NOV-2019 15:29 Cal File: N819112507.D
 Als bottle: 2 Continuing Calibration Sample
 Dil Factor: 1.00000
 Integrator: HP RTE Compound Sublist: ICAL.sub
 Target Version: 4.14
 Processing Host: ORGDATA22

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	AMOUNTS	
							CAL-AMT	ON-COL
	MASS						(ug/mL)	(ug/mL)
=====	=====		=====	=====	=====	=====	=====	=====
\$ 1 Tripropyl Tin (Hexyl)	291		4.471	4.471	(0.738)	21165	1.00000	1.067
2 Tetrabutyl Tin	289		4.648	4.648	(0.767)	18011	1.00000	1.028
3 Tributyl Tin (Hexyl)	319		5.419	5.419	(0.894)	15976	1.00000	1.043
* 4 Tetrapentyl Tin	333		6.058	6.058	(1.000)	50741	2.00000	
5 Dibutyl Tin (Hexyl)	347		6.119	6.119	(0.709)	19544	2.00000	2.001
\$ 6 Tripentyl Tin (Hexyl)	347		6.397	6.397	(0.741)	28643	2.00000	2.003
7 Butyl Tin (Hexyl)	347		6.760	6.760	(0.783)	31168	2.00000	2.019
* 8 p-Terphenyl-d14	244		8.635	8.635	(1.000)	44114	0.20000	

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
 AREA AND RT SUMMARY

Instrument ID: nt8.i Calibration Date: 03-DEC-2019
 Lab File ID: N819120502.D Calibration Time: 09:22
 Lab Smp Id: SHL0077-ICV1
 Analysis Type: SV Level:
 Quant Type: ISTD Sample Type:
 Operator: JZ
 Method File: \\target\share\chem3\nt8.i\20191205.b\TBT1125.m
 Misc Info:

Test Mode:
 Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	41592	20796	83184	50741	22.00
8 p-Terphenyl-d14	41162	20581	82324	44114	7.17

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
4 Tetrapentyl Tin	6.06	5.56	6.56	6.06	0.00
8 p-Terphenyl-d14	8.64	8.14	9.14	8.64	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 - N819120502.D

Lab ID: SHL0077-ICV1

nt8.i, 20191205.b\TBT1125.m, 05-DEC-2019 11:17

RT CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

No RRT check. Ccal file.

On Column LOD for nt8.i, 20191205.b\TBT1125.m, ICAL.sub = 0.0000

* Only compounds listed in the work order have been verified by the analyst *

Q-FLAG SUMMARY FOR DATABATCH - \\target\share\chem3\nt8.i\20191205.b

Instrument: nt8.i Date: 05-DEC-2019 Method: 20191205.b\TBT1125.m

INITIAL CAL: 25-NOV-2019

Compound	%RSD or R ²

NO Q-FLAGS	

ICV CAL: N819120502.D 05-DEC-2019 11:17

Compound	%D

NO Q-FLAGS	



ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 8270D-SIM

Laboratory: Analytical Resources, Inc.

SDG: 19K0228

Client: Anchor QEA, LLC

Project: Gasco PDI

Sequence: SHK0340

Instrument: NT8

Calibration: CK00068

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
MS Tune	SHK0340-TUN1	N819112501.D	NA	11/25/19 13:20
8270-SIM TBT	SHK0340-CAL1	N819112502.D	NA	11/25/19 14:05
8270-SIM TBT	SHK0340-CAL2	N819112503.D	NA	11/25/19 14:24
8270-SIM TBT	SHK0340-CAL3	N819112504.D	NA	11/25/19 14:41
8270-SIM TBT	SHK0340-CAL4	N819112505.D	NA	11/25/19 14:57
8270-SIM TBT	SHK0340-CAL5	N819112506.D	NA	11/25/19 15:13
8270-SIM TBT	SHK0340-CAL6	N819112507.D	NA	11/25/19 15:29
Secondary Cal Check	SHK0340-SCV1	N819112508.D	NA	11/25/19 16:02



ANALYSIS SEQUENCE

SHK0340

Instrument: NT8 Element Column ID: H004092
 Calibration ID: CK00068 Tune File: 191025.U
 EM Voltage: 2082

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SHK0340-TUN1	MS Tune	QC		1	H010226		
SHK0340-CAL1	8270-SIM TBT	QC		2	H011459	H004622	
SHK0340-CAL2	8270-SIM TBT	QC		3	H011460	H004622	
SHK0340-CAL3	8270-SIM TBT	QC		4	H011461	H004622	
SHK0340-CAL4	8270-SIM TBT	QC		5	H011462	H004622	
SHK0340-CAL5	8270-SIM TBT	QC		6	H011463	H004622	
SHK0340-CAL6	8270-SIM TBT	QC		7	H011464	H004622	
SHK0340-SCV1	Secondary Cal Check	QC		8	H011495	H004622	

INTERNAL STANDARD SUMMARY FOR DATABATCH - \\target\share\chem3\nt8.i\20191125.b

Time	Filename	LabID	ClientID	DF	
1 1320	N819112501.D	SHK0340-TUN1		1	(NO ISTDs FOUND)
2 1405	N819112502.D	SHK0340-CAL1		1	6.07 41416 8.66 42717
3 1424	N819112503.D	SHK0340-CAL2		1	6.07 42942 8.66 40691
4 1441	N819112504.D	SHK0340-CAL3		1	6.07 39128 8.65 40493
5 1457	N819112505.D	SHK0340-CAL4		1	6.07 41592 8.65 41162
6 1513	N819112506.D	SHK0340-CAL5		1	6.07 41672 8.65 41539
7 1529	N819112507.D	SHK0340-CAL6		1	6.07 45410 8.65 41659
8 1602	N819112508.D	SHK0340-SCV1		1	6.06 39133 8.65 39863

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem3\nt8.i\20191125.b

ARI Job No.: SHK0 Method: TBT1125.m Instrument: nt8.i Date: 25-NOV-2019

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1405	N819112502.D	SHK0340-CAL1		1	NO MANUAL INTEGRATION
1424	N819112503.D	SHK0340-CAL2		1	NO MANUAL INTEGRATION
1441	N819112504.D	SHK0340-CAL3		1	NO MANUAL INTEGRATION
1457	N819112505.D	SHK0340-CAL4		1	NO MANUAL INTEGRATION
1513	N819112506.D	SHK0340-CAL5		1	NO MANUAL INTEGRATION
1529	N819112507.D	SHK0340-CAL6		1	NO MANUAL INTEGRATION
1602	N819112508.D	SHK0340-SCV1		1	NO MANUAL INTEGRATION

Security Status Report

Date: 26-Nov-2019 12:10

N819112501.D	Data Locked	jiangqing,	26-Nov-2019	12:10
N819112502.D	Data Locked	jiangqing,	26-Nov-2019	12:10
N819112503.D	Data Locked	jiangqing,	26-Nov-2019	12:10
N819112504.D	Data Locked	jiangqing,	26-Nov-2019	12:10
N819112505.D	Data Locked	jiangqing,	26-Nov-2019	12:10
N819112506.D	Data Locked	jiangqing,	26-Nov-2019	12:10
N819112507.D	Data Locked	jiangqing,	26-Nov-2019	12:10
N819112508.D	Data Locked	jiangqing,	26-Nov-2019	12:10



ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 8270D-SIM

Laboratory: Analytical Resources, Inc.

SDG: 19K0228

Client: Anchor QEA, LLC

Project: Gasco PDI

Sequence: SHK0352

Instrument: NT8

Calibration: CK00068

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
MS Tune	SHK0352-TUN1	N819112510.D	NA	11/25/19 16:42
Initial Cal Check	SHK0352-ICV1	N819112511.D	NA	11/25/19 16:56
Blank	BHK0438-BLK1	N819112512.D	Water	11/25/19 17:17
LCS	BHK0438-BS1	N819112513.D	Water	11/25/19 17:34
PDI-FB-191112146	19K0228-08	N819112514.D	Water	11/25/19 17:50
PDI-RB-1911120944	19K0228-09	N819112515.D	Water	11/25/19 18:06
PDI-FB-191112146	BHK0438-MS1	N819112516.D	Water	11/25/19 18:23
PDI-FB-191112146	BHK0438-MSD1	N819112517.D	Water	11/25/19 18:39
ZZZZZ	BHK0465-BS1	N819112519.D	Solid	11/25/19 19:11
ZZZZZ	BHK0465-BSD1	N819112520.D	Solid	11/25/19 19:28
ZZZZZ	BHK0465-SRM1	N819112521.D	Solid	11/25/19 19:44
ZZZZZ	19K0231-01	N819112522.D	Solid	11/25/19 20:00
ZZZZZ	19K0231-02	N819112525.D	Solid	11/25/19 20:49
ZZZZZ	19K0231-03	N819112527.D	Solid	11/25/19 21:22
ZZZZZ	19K0231-04	N819112528.D	Solid	11/25/19 21:38
ZZZZZ	19K0231-05	N819112529.D	Solid	11/25/19 21:54
ZZZZZ	19K0231-06	N819112530.D	Solid	11/25/19 22:10
ZZZZZ	19K0231-07	N819112531.D	Solid	11/25/19 22:27
ZZZZZ	19K0231-08	N819112532.D	Solid	11/25/19 22:43
ZZZZZ	19K0231-09	N819112533.D	Solid	11/25/19 22:59
ZZZZZ	19K0231-10	N819112534.D	Solid	11/25/19 23:15
ZZZZZ	19K0231-11	N819112535.D	Solid	11/25/19 23:32
ZZZZZ	19K0231-12	N819112536.D	Solid	11/25/19 23:48
ZZZZZ	19K0231-13	N819112537.D	Solid	11/26/19 00:04
ZZZZZ	19K0231-14	N819112538.D	Solid	11/26/19 00:20
ZZZZZ	19K0231-15	N819112539.D	Solid	11/26/19 00:37
ZZZZZ	19K0231-16	N819112540.D	Solid	11/26/19 00:53
ZZZZZ	19K0231-17	N819112541.D	Solid	11/26/19 01:09
ZZZZZ	19K0231-18	N819112542.D	Solid	11/26/19 01:25
ZZZZZ	19K0231-19	N819112543.D	Solid	11/26/19 01:42



ANALYSIS BATCH (SEQUENCE) SUMMARY
EPA 8270D-SIM

Laboratory: Analytical Resources, Inc. SDG: 19K0228
Client: Anchor QEA, LLC Project: Gasco PDI
Sequence: SHK0352 Instrument: NT8
Calibration: CK00068

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
ZZZZZ	19K0231-20	N819112544.D	Solid	11/26/19 01:58
Calibration Check	SHK0352-CCV1	N819112545.D	NA	11/26/19 02:14

Checklist for SEQUENCE SHK0352

Checklist: Analyst Checklist-SVOA(rev4)

# Checklist Item	Response	Analyst Initials	Date
1 Instrument maintenance is recorded in Element	YES	JZ	11/26/2019
2 DFTPP abundance and time criteria met (8270D only)	YES	JZ	11/26/2019
3 DDT Breakdown <20% and Peak Tailing <=2 (8270D only)	YES	JZ	11/26/2019
4 Narrate all Internal Standard areas not within 50-200% for all affected Workorders	NA	JZ	11/26/2019
5 Retention times within windows and Coelution summary checked for all Workorders	YES	JZ	11/26/2019
6 Rationale provided for all manual integrations not done for baseline correction per SOP 1021s	NA	JZ	11/26/2019
7 Narrate any Workorders where the Project specific requirements have not been met	NA	JZ	11/26/2019
8 Extraction basis, cleanups, and total solids are correctly entered	YES	JZ	11/26/2019
9 An extract dilution bench sheet is attached to the sequence PDF for all dilutions performed	NA	JZ	11/26/2019
10 AUTOCHECK: Blank checked for exceedance of criteria	YES *	JZ	11/26/2019
11 AUTOCHECK: Check blank spike recovery	YES *	JZ	11/26/2019
12 AUTOCHECK: Check blank spike/blank spike duplicate RPD. If exceeded include outliers in exception report.	NA *	JZ	11/26/2019
13 AUTOCHECK: Compounds in method designated as blank spike compounds are present	YES *	JZ	11/26/2019
14 AUTOCHECK: Check %RPD between sample and sample duplicate	NA *	JZ	11/26/2019
15 AUTOCHECK: Matrix spike recoveries within limits	YES *	JZ	11/26/2019
16 AUTOCHECK: Matrix spike/matrix spike duplicate RPD within limits	YES *	JZ	11/26/2019
17 AUTOCHECK: List of compounds listed as spiked are present	YES *	JZ	11/26/2019
18 AUTOCHECK: Check SRM limits for exceedance	NA *	JZ	11/26/2019
19 AUTOCHECK: Check Surrogate recoveries	NO *	JZ	11/26/2019

Comments:

*Surrogate Recovery for Tripropyltin (27.1%) was outside acceptance limits (30-160) in BHK0438-BS1 for 8270D-SIM Butyl Tins
- Flagged value is not within established control limits.*

*Surrogate Recovery for Tripropyltin (29.9%) was outside acceptance limits (30-160) in BHK0438-MSD1 for 8270D-SIM Butyl Tins
- Flagged value is not within established control limits.*

20 AUTOCHECK: Checks Surrogate spike list against Analysis	YES *	JZ	11/26/2019
21 Data locked, checklist completed and status is analyzed (REVIEWER)	YES	MW	11/26/2019
22 Color warnings have been addressed, narrated and (or) qualified (REVIEWER)	YES	MW	11/26/2019
23 rev_DilutionCheck.rpt and rev_DilutionCheck.exe was run to verify multiple sample results are consistent (REVIEWER)	NO	MW	11/26/2019

Comments:

EXCEPTION REPORT REQUIRED

Checklist for SEQUENCE SHK0352

Checklist: Analyst Checklist-SVOA(rev4)

<u># Checklist Item</u>	<u>Response</u>	<u>Analyst Initials</u>	<u>Date</u>
24 List samples by workorder or batch QC to be reanalyzed-verify rebatch created (ANALYST)			12/30/1899
25 List samples by workorder or batch QC reanalyzed and samples reported from two or more analyses (ANALYST)			12/30/1899
26 Additional Notes (ANALYST and REVIEWER) Comments: <i>Batch BHK0438 & BHK0465: Reported to the MDL.</i>	NO	JZ	11/26/2019



ANALYSIS SEQUENCE

SHK0352

BHK0465-BLK1 batched on SHK0379.

Instrument: NT8 Element Column ID: H004092
 Calibration ID: CK00068 Tune File: 191125.U
 EM Voltage: 2082

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SHK0352-TUN1	MS Tune	QC		1	H010226		
SHK0352-ICV1	Initial Cal Check	QC		2	H011462	H004622	
BHK0438-BLK1	Blank	QC		3		H004622	
BHK0438-BS1	LCS	QC		4		H004622	
19K0228-08	PDI-FB-191112146	8270D-SIM Butyl Tins	A 01	5		H004622	
BHK0438-MS1	Matrix Spike	QC		6		H004622	
BHK0438-MSD1	Matrix Spike Dup	QC		7		H004622	
19K0228-09	PDI-RB-1911120944	8270D-SIM Butyl Tins	A 01	8		H004622	
BHK0465-BS1	LCS	QC		9		H004622	
BHK0465-BSD1	LCS Dup	QC		10		H004622	
BHK0465-SRM1	Reference	QC		11		H004622	
19K0231-01	191111-CBY-87-A	8270D-SIM Butyl Tins	B 02	12		H004622	
BHK0465-MS1	Matrix Spike	QC		13		H004622	
BHK0465-MSD1	Matrix Spike Dup	QC		14		H004622	
19K0231-02	191111-CBY-107-B	8270D-SIM Butyl Tins	B 02	15		H004622	
BHK0465-DUP1	Duplicate	QC		16		H004622	
19K0231-03	191111-CBY-88-B	8270D-SIM Butyl Tins	B 02	17		H004622	
19K0231-04	191111-CBY-90-B	8270D-SIM Butyl Tins	B 02	18		H004622	
19K0231-05	191111-CBY-89-Z	8270D-SIM Butyl Tins	B 02	19		H004622	
19K0231-06	191111-CBY-94-B	8270D-SIM Butyl Tins	B 02	20		H004622	
19K0231-07	191111-CBY-108-B	8270D-SIM Butyl Tins	B 02	21		H004622	
19K0231-08	191111-CBY-93-Z	8270D-SIM Butyl Tins	B 02	22		H004622	



ANALYSIS SEQUENCE

SHK0352

Instrument: NT8 Element Column ID: H004092 BHK0465-BLK1 batched on SHK0379.
 Calibration ID: CK00068 Tune File: 191125.U
 EM Voltage: 2082

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
19K0231-09	191112-CBY-71-A	8270D-SIM Butyl Tins	B 02	23		H004622	
19K0231-10	191112-CBY-72-B	8270D-SIM Butyl Tins	B 02	24		H004622	
19K0231-11	191112-CBY-104-B	8270D-SIM Butyl Tins	B 02	25		H004622	
19K0231-12	191112-CBY-71-Z	8270D-SIM Butyl Tins	B 02	26		H004622	
19K0231-13	191112-CBY-77-A	8270D-SIM Butyl Tins	B 02	27		H004622	
19K0231-14	191112-CBY-78-B	8270D-SIM Butyl Tins	B 02	28		H004622	
19K0231-15	191112-CBY-105-B	8270D-SIM Butyl Tins	B 02	29		H004622	
19K0231-16	191112-CBY-77-Z	8270D-SIM Butyl Tins	B 02	30		H004622	
19K0231-17	191112-CBY-79-A	8270D-SIM Butyl Tins	B 02	31		H004622	
19K0231-18	191112-CBY-80-B	8270D-SIM Butyl Tins	B 02	32		H004622	
19K0231-19	191112-CBY-79-Z	8270D-SIM Butyl Tins	B 02	33		H004622	
19K0231-20	191112-CBY-82-B	8270D-SIM Butyl Tins	B 02	34		H004622	
SHK0352-CCV1	Calibration Check	QC		35	H011462	H004622	

INTERNAL STANDARD SUMMARY FOR DATABATCH - \\target\share\chem3\nt8.i\20191125A.b

Time	Filename	LabID	ClientID	DF				
1	1642	N819112510.D	SHK0352-TUN1	1	1	NO ISTDs FOUND		
2	1656	N819112511.D	SHK0352-ICV1	1	1	6.07	42690	8.65 39473
3	1717	N819112512.D	BHK0438-BLK1	1	1	6.07	34827	8.65 31702
4	1734	N819112513.D	BHK0438-BS1	1	1	6.06	38346	8.65 36285
5	1750	N819112514.D	19K0228-08	1	1	6.06	40789	8.65 39675
6	1806	N819112515.D	19K0228-09	1	1	6.06	41958	8.65 39055
7	1823	N819112516.D	BHK0438-MS1	1	1	6.06	41592	8.65 39799
8	1839	N819112517.D	BHK0438-MSD1	1	1	6.06	39288	8.65 37655
9	1855	N819112518.D	BHK0465-BLK1	1	1	6.07	12215	8.65 12119
10	1911	N819112519.D	BHK0465-BS1	1	1	6.07	41312	8.65 37276
11	1928	N819112520.D	BHK0465-BSD1	1	1	6.07	43633	8.65 38732
12	1944	N819112521.D	BHK0465-SRM1	1	1	6.08	52247	8.65 41360
13	2000	N819112522.D	19K0231-01	1	1	6.07	46906	8.65 43893
14	2017	N819112523.D	BHK0465-MS1	1	1	6.07	48450	8.65 43377
15	2033	N819112524.D	BHK0465-MSD1	1	1	6.08	57578	8.65 44586
16	2049	N819112525.D	19K0231-02	1	1	6.07	49500	8.65 45044
17	2106	N819112526.D	BHK0465-DUP1	1	1	6.07	49808	8.65 45350
18	1122	N819112527.D	19K0231-03	1	1	6.07	48433	8.65 43199
19	1138	N819112528.D	19K0231-04	1	1	6.07	46744	8.65 45428
20	2154	N819112529.D	19K0231-05	1	1	6.07	47614	8.65 42443

INTERNAL STANDARD SUMMARY FOR DATABATCH - \\target\share\chem3\nt8.i\20191125A.b

Time	Filename	LabID	ClientId	DF					
21	2210	N819112530.D	19K0231-06	1	6.08	52730	8.65	46365	46365
22	2227	N819112531.D	19K0231-07	1	6.07	49535	8.65	47516	47516
23	2243	N819112532.D	19K0231-08	1	6.07	49563	8.65	47200	47200
24	2259	N819112533.D	19K0231-09	1	6.07	46965	8.65	43369	43369
25	2315	N819112534.D	19K0231-10	1	6.07	51784	8.65	47523	47523
26	2332	N819112535.D	19K0231-11	1	6.08	52761	8.65	45595	45595
27	2348	N819112536.D	19K0231-12	1	6.07	50313	8.65	46933	46933
28	0004	N819112537.D	19K0231-13	1	6.07	48556	8.65	44446	44446
29	0020	N819112538.D	19K0231-14	1	6.07	39033	8.65	34711	34711
30	0037	N819112539.D	19K0231-15	1	6.07	47290	8.65	43039	43039
31	0053	N819112540.D	19K0231-16	1	6.07	45744	8.65	39765	39765
32	0109	N819112541.D	19K0231-17	1	6.07	45559	8.65	42708	42708
33	0125	N819112542.D	19K0231-18	1	6.07	43994	8.65	40726	40726
34	0142	N819112543.D	19K0231-19	1	6.07	45902	8.65	42449	42449
35	0158	N819112544.D	19K0231-20	1	6.07	47776	8.65	43261	43261
36	0214	N819112545.D	SHK0352-CCV1	1	6.06	46200	8.65	46213	46213

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem3\nt8.i\20191125A.b

ARI Job No.: SHK0 Method: TBT1125.m Instrument: nt8.i Date: 25-NOV-2019

Time Filename LabID ClientId DF Manually Integrated Compounds

1656 N819112511.D SHK0352-ICV1 1 NO MANUAL INTEGRATION

1717 N819112512.D BHK0438-BLK1 1 NO MANUAL INTEGRATION

1734 N819112513.D BHK0438-BS1 1 NO MANUAL INTEGRATION

1750 N819112514.D 19K0228-08 1 NO MANUAL INTEGRATION

1806 N819112515.D 19K0228-09 1 NO MANUAL INTEGRATION

1823 N819112516.D BHK0438-MS1 1 NO MANUAL INTEGRATION

1839 N819112517.D BHK0438-MSD1 1 NO MANUAL INTEGRATION

1911 N819112519.D BHK0465-BS1 1 Tetrabutyl Tin,

1928 N819112520.D BHK0465-BSD1 1 Tetrabutyl Tin,

1944 N819112521.D BHK0465-SRM1 1 NO MANUAL INTEGRATION

2000 N819112522.D 19K0231-01 1 NO MANUAL INTEGRATION

2017 N819112523.D BHK0465-MS1 1 NO MANUAL INTEGRATION

2033 N819112524.D BHK0465-MSD1 1 NO MANUAL INTEGRATION

2049 N819112525.D 19K0231-02 1 NO MANUAL INTEGRATION

2106 N819112526.D BHK0465-DUP1 1 NO MANUAL INTEGRATION

2122 N819112527.D 19K0231-03 1 NO MANUAL INTEGRATION

2138 N819112528.D 19K0231-04 1 NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem3\nt8.i\20191125A.b

Time Filename LabID ClientId DF Manually Integrated Compounds

 2154 N819112529.D 19K0231-05 1 NO MANUAL INTEGRATION

 2210 N819112530.D 19K0231-06 1 NO MANUAL INTEGRATION

 2227 N819112531.D 19K0231-07 1 NO MANUAL INTEGRATION

 2243 N819112532.D 19K0231-08 1 NO MANUAL INTEGRATION

 2259 N819112533.D 19K0231-09 1 NO MANUAL INTEGRATION

 2315 N819112534.D 19K0231-10 1 NO MANUAL INTEGRATION

 2332 N819112535.D 19K0231-11 1 NO MANUAL INTEGRATION

 2348 N819112536.D 19K0231-12 1 NO MANUAL INTEGRATION

 0004 N819112537.D 19K0231-13 1 NO MANUAL INTEGRATION

 0020 N819112538.D 19K0231-14 1 NO MANUAL INTEGRATION

 0037 N819112539.D 19K0231-15 1 NO MANUAL INTEGRATION

 0053 N819112540.D 19K0231-16 1 NO MANUAL INTEGRATION

 0109 N819112541.D 19K0231-17 1 NO MANUAL INTEGRATION

 0125 N819112542.D 19K0231-18 1 NO MANUAL INTEGRATION

 0142 N819112543.D 19K0231-19 1 NO MANUAL INTEGRATION

 0158 N819112544.D 19K0231-20 1 NO MANUAL INTEGRATION

 0214 N819112545.D SHK0352-CCV1 1 NO MANUAL INTEGRATION

Security Status Report

Date: 26-Nov-2019 17:25

N819112510.D	Data Locked	jianqing,	26-Nov-2019	17:25
N819112511.D	Data Locked	jianqing,	26-Nov-2019	17:25
N819112512.D	Data Locked	jianqing,	26-Nov-2019	17:25
N819112513.D	Data Locked	jianqing,	26-Nov-2019	17:25
N819112514.D	Data Locked	jianqing,	26-Nov-2019	17:25
N819112515.D	Data Locked	jianqing,	26-Nov-2019	17:25
N819112516.D	Data Locked	jianqing,	26-Nov-2019	17:25
N819112517.D	Data Locked	jianqing,	26-Nov-2019	17:25
N819112519.D	Data Locked	jianqing,	26-Nov-2019	17:25
N819112520.D	Data Locked	jianqing,	26-Nov-2019	17:25
N819112521.D	Data Locked	jianqing,	26-Nov-2019	17:25
N819112522.D	Data Locked	jianqing,	26-Nov-2019	17:25
N819112523.D	Data Locked	jianqing,	26-Nov-2019	17:25
N819112524.D	Data Locked	jianqing,	26-Nov-2019	17:25
N819112525.D	Data Locked	jianqing,	26-Nov-2019	17:25
N819112526.D	Data Locked	jianqing,	26-Nov-2019	17:25
N819112527.D	Data Locked	jianqing,	26-Nov-2019	17:25
N819112528.D	Data Locked	jianqing,	26-Nov-2019	17:25
N819112529.D	Data Locked	jianqing,	26-Nov-2019	17:25
N819112530.D	Data Locked	jianqing,	26-Nov-2019	17:25
N819112531.D	Data Locked	jianqing,	26-Nov-2019	17:25
N819112532.D	Data Locked	jianqing,	26-Nov-2019	17:25
N819112533.D	Data Locked	jianqing,	26-Nov-2019	17:25
N819112534.D	Data Locked	jianqing,	26-Nov-2019	17:25
N819112535.D	Data Locked	jianqing,	26-Nov-2019	17:25
N819112536.D	Data Locked	jianqing,	26-Nov-2019	17:25
N819112537.D	Data Locked	jianqing,	26-Nov-2019	17:25
N819112538.D	Data Locked	jianqing,	26-Nov-2019	17:25
N819112539.D	Data Locked	jianqing,	26-Nov-2019	17:25
N819112540.D	Data Locked	jianqing,	26-Nov-2019	17:25
N819112541.D	Data Locked	jianqing,	26-Nov-2019	17:25
N819112542.D	Data Locked	jianqing,	26-Nov-2019	17:25
N819112543.D	Data Locked	jianqing,	26-Nov-2019	17:25
N819112544.D	Data Locked	jianqing,	26-Nov-2019	17:25
N819112545.D	Data Locked	jianqing,	26-Nov-2019	17:25



ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 8270D-SIM

Laboratory: Analytical Resources, Inc.

SDG: 19K0228

Client: Anchor QEA, LLC

Project: Gasco PDI

Sequence: SHL0025

Instrument: NT8

Calibration: CK00068

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
MS Tune	SHL0025-TUN1	N819110230.D	NA	12/02/19 17:36
Initial Cal Check	SHL0025-ICV1	N819120231.D	NA	12/02/19 17:52
Blank	BHK0576-BLK1	N819120232.D	Solid	12/02/19 18:09
LCS	BHK0576-BS1	N819120233.D	Solid	12/02/19 18:30
PDI-1142RAB-20-30.4-191112	19K0228-01	N819120234.D	Solid	12/02/19 18:47
PDI-1142RAB-20-30.4-191112	BHK0576-MS1	N819120235.D	Solid	12/02/19 19:03
PDI-1142RAB-20-30.4-191112	BHK0576-MSD1	N819120236.D	Solid	12/02/19 19:19
PDI-142RAB-10-20-191112	19K0228-03	N819120238.D	Solid	12/02/19 19:52
PDI-142RAB-20-30.4-191112	19K0228-04	N819120239.D	Solid	12/02/19 20:08
PDI-144RAB-00-10-191113	19K0228-05	N819120240.D	Solid	12/02/19 20:24
PDI-144RAB-10-20-191113	19K0228-06	N819120241.D	Solid	12/02/19 20:41
PDI-144RAB-20-29-191113	19K0228-07	N819120242.D	Solid	12/02/19 20:57
PDI-140RAB-10-12.7-191108	19K0228-11	N819120244.D	Solid	12/02/19 21:29
PDI-141RAB-00-10-191107	19K0228-12	N819120245.D	Solid	12/02/19 21:46
PDI-141RAB-10-17.7-191107	19K0228-13	N819120246.D	Solid	12/02/19 22:02
PDI-143RAB-00-10-191111	19K0228-14	N819120247.D	Solid	12/02/19 22:18
PDI-143RAB-10-20-191111	19K0228-15	N819120248.D	Solid	12/02/19 22:34
PDI-143RAB-20-31.1-191111	19K0228-16	N819120249.D	Solid	12/02/19 22:51
ZZZZZ	BHK0747-BLK1	N819120250.D	Water	12/02/19 23:07
ZZZZZ	19K0394-01	N819120252.D	Water	12/02/19 23:40
ZZZZZ	19K0394-02	N819120255.D	Water	12/03/19 00:28
Calibration Check	SHL0025-CCV1	N819120256.D	NA	12/03/19 00:45

Checklist for SEQUENCE SHL0025

Checklist: Analyst Checklist-SVOA(rev4)

# Checklist Item	Response	Analyst Initials	Date
1 Instrument maintenance is recorded in Element	YES	JZ	12/03/2019
2 DFTPP abundance and time criteria met (8270D only)	YES	JZ	12/03/2019
3 DDT Breakdown <20% and Peak Tailing <=2 (8270D only)	YES	JZ	12/03/2019
4 Narrate all Internal Standard areas not within 50-200% for all affected Workorders	NA	JZ	12/03/2019
5 Retention times within windows and Coelution summary checked for all Workorders	YES	JZ	12/03/2019
6 Rationale provided for all manual integrations not done for baseline correction per SOP 1021s	YES	JZ	12/03/2019
7 Narrate any Workorders where the Project specific requirements have not been met	NA	JZ	12/03/2019
8 Extraction basis, cleanups, and total solids are correctly entered	YES	JZ	12/03/2019
9 An extract dilution bench sheet is attached to the sequence PDF for all dilutions performed	NA	JZ	12/03/2019
10 AUTOCHECK: Blank checked for exceedence of criteria Comments: <i>No blanks were analyzed.</i>	NR *	JZ	12/03/2019
11 AUTOCHECK: Check blank spike recovery	NA *	JZ	12/03/2019
12 AUTOCHECK: Check blank spike/blank spike duplicate RPD. If exceeded include outliers in exception report.	NA *	JZ	12/03/2019
13 AUTOCHECK: Compounds in method designated as blank spike compounds are present	NA *	JZ	12/03/2019
14 AUTOCHECK: Check %RPD between sample and sample duplicate	NA *	JZ	12/03/2019
15 AUTOCHECK: Matrix spike recoveries within limits	NA *	JZ	12/03/2019
16 AUTOCHECK: Matrix spike/matrix spike duplicate RPD within limits	NA *	JZ	12/03/2019
17 AUTOCHECK: List of compounds listed as spiked are present	NA *	JZ	12/03/2019
18 AUTOCHECK: Check SRM limits for exceedance	NA *	JZ	12/03/2019
19 AUTOCHECK: Check Surrogate recoveries	YES *	JZ	12/03/2019
20 AUTOCHECK: Checks Surrogate spike list against Analysis	YES *	JZ	12/03/2019
21 Data locked, checklist completed and status is analyzed (REVIEWER)	YES	MW	12/03/2019
22 Color warnings have been addressed, narrated and (or) qualified (REVIEWER)	YES	MW	12/03/2019
23 rev_DilutionCheck.rpt and rev_DilutionCheck.exe was run to verify multiple sample results are consistent (REVIEWER) Comments: <i>EXCEPTION REPORT REQUIRED</i>	NO	MW	12/03/2019
24 List samples by workorder or batch QC to be reanalyzed-verify rebatch created (ANALYST)			12/30/1899
25 List samples by workorder or batch QC reanalyzed and samples reported from two or more analyses (ANALYST)			12/30/1899
26 Additional Notes (ANALYST and REVIEWER) Comments: <i>Batch BHK0576 : Sample 19K0228-02 batched on "SHL0032". Sample 19K0228-10: Re-ex ordered. Reported to the</i>	NO	JZ	12/03/2019

* = Indicates Automated Response from Element DataSyst

Printed: 12/30/2019
355 of 412

Checklist for SEQUENCE SHL0025

Checklist: Analyst Checklist-SVOA(rev4)

<u>#</u>	<u>Checklist Item</u>	<u>Response</u>	<u>Analyst Initials</u>	<u>Date</u>
----------	-----------------------	-----------------	-------------------------	-------------

MDL.

Batch BHK0747: BHK0747-BS1 batched on "SHL0032". Samples 19K0394-01 & 02 received out of holding.

Tripropyl tin surrogate low in two samples. Usually due to blowdown.



ANALYSIS SEQUENCE

SHL0025

Instrument: NT8 Element Column ID: H004092
 Calibration ID: CK00068 Tune File: 191025.U
 EM Voltage: 2082
 Batch BHK0576: Sample 19K0228-02 batched on "SHL0032". Re-ex for sample 19K0228-10 ordered.
 Batch SHK0747: BHK0747-BS1 batched on "SHL0032".

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SHL0025-TUN1	MS Tune	QC		1	H010226		
SHL0025-ICV1	Initial Cal Check	QC		2	H011462	H004622	
BHK0576-BLK1	Blank	QC		3		H004622	
BHK0576-BS1	LCS	QC		4		H004622	
19K0228-01	PDI-1142RAB-20-30.4-191112	8270D-SIM Butyl Tins	A 01	5		H004622	
BHK0576-MS1	Matrix Spike	QC		6		H004622	
BHK0576-MSD1	Matrix Spike Dup	QC		7		H004622	
19K0228-03	PDI-142RAB-10-20-191112	8270D-SIM Butyl Tins	A 01	8		H004622	
19K0228-04	PDI-142RAB-20-30.4-191112	8270D-SIM Butyl Tins	A 01	9		H004622	
19K0228-05	PDI-144RAB-00-10-191113	8270D-SIM Butyl Tins	A 01	10		H004622	
19K0228-06	PDI-144RAB-10-20-191113	8270D-SIM Butyl Tins	A 01	11		H004622	
19K0228-07	PDI-144RAB-20-29-191113	8270D-SIM Butyl Tins	A 01	12		H004622	
19K0228-11	PDI-140RAB-10-12.7-191108	8270D-SIM Butyl Tins	A 01	13		H004622	
19K0228-12	PDI-141RAB-00-10-191107	8270D-SIM Butyl Tins	A 01	14		H004622	
19K0228-13	PDI-141RAB-10-17.7-191107	8270D-SIM Butyl Tins	A 01	15		H004622	
19K0228-14	PDI-143RAB-00-10-191111	8270D-SIM Butyl Tins	A 01	16		H004622	
19K0228-15	PDI-143RAB-10-20-191111	8270D-SIM Butyl Tins	A 01	17		H004622	
19K0228-16	PDI-143RAB-20-31.1-191111	8270D-SIM Butyl Tins	A 01	18		H004622	
BHK0747-BLK1	Blank	QC		19		H004622	
19K0394-01	PDI-FB-1911191346	8270D-SIM Butyl Tins	A 01	20		H004622	
BHK0747-MS1	Matrix Spike	QC		21		H004622	
BHK0747-MSD1	Matrix Spike Dup	QC		22		H004622	



ANALYSIS SEQUENCE

SHL0025

Instrument: NT8 Element Column ID: H004092 Batch BHK0576: Sample 19K0228-02 batched on "SHL0032". Re-ex for sample 19K0228-10 ordered.
 Calibration ID: CK00068 Tune File: 191025.U Batch SHK0747: BHK0747-BS1 batched on "SHL0032".
 EM Voltage: 2082

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
19K0394-02	PDI-RB-1911191254	8270D-SIM Butyl Tins	A 01	23		H004622	
SHL0025-CCV1	Calibration Check	QC		24	H011462	H004622	

INTERNAL STANDARD SUMMARY FOR DATABATCH - \\target\share\chem3\nt8.i\20191202A.b

Time	Filename	LabID	ClientID	DF				
1	1736	N819110230.D	SHL0025-TUN1	1	INO	ISTDS	FOUND	
2	1752	N819120231.D	SHL0025-ICV1	1	6.07	28487	8.65	28078
3	1809	N819120232.D	BHK0576-BJK1	1	6.06	30880	8.65	28178
4	1830	N819120233.D	BHK0576-BS1	1	6.07	31968	8.65	27581
5	1847	N819120234.D	19K0228-01	1	6.08	45346	8.65	35814
6	1903	N819120235.D	BHK0576-MS1	1	6.08	42449	8.65	34808
7	1919	N819120236.D	BHK0576-MSD1	1	6.09	53276	8.65	39446
8	1936	N819120237.D	19K0228-02	1	6.07	38266	8.65	31369
9	1952	N819120238.D	19K0228-03	1	6.08	49451	8.65	36917
10	2008	N819120239.D	19K0228-04	1	6.08	48429	8.65	38431
11	2024	N819120240.D	19K0228-05	1	6.07	43633	8.65	34015
12	2041	N819120241.D	19K0228-06	1	6.08	49861	8.65	36479
13	2057	N819120242.D	19K0228-07	1	6.07	41024	8.65	31724
14	2113	N819120243.D	19K0228-1	1	6.07	40931	8.65	34135
15	2129	N819120244.D	19K0228-11	1	6.07	43880	8.65	34942
16	2146	N819120245.D	19K0228-12	1	6.07	44202	8.65	36994
17	2202	N819120246.D	19K0228-13	1	6.09	55256	8.65	40438
18	2218	N819120247.D	19K0228-14	1	6.07	42233	8.65	32770
19	2234	N819120248.D	19K0228-15	1	6.07	42590	8.65	33930
20	2251	N819120249.D	19K0228-16	1	6.07	43882	8.65	35513

INTERNAL STANDARD SUMMARY FOR DATABATCH - \\target\share\chem3\nt8.i\20191202A.b

Time	Filename	LabID	ClientID	DF			
21	2307	N819120250.D	BHK0747-BLK1	1	6.06	37872	8.65 33262
22	2323	N819120251.D	BHK0747-BS1	1	6.06	37362	8.65 34021
23	2340	N819120252.D	19K0394-01	1	6.06	36684	8.65 32176
24	2356	N819120253.D	BHK0747-MS1	1	6.06	36048	8.65 32457
25	0012	N819120254.D	BHK0747-MSD1	1	6.06	36715	8.65 32487
26	0028	N819120255.D	19K0394-02	1	6.06	36089	8.65 32193
27	0045	N819120256.D	SHL0025-CCV1	1	6.06	32557	8.65 29683

JZ 12/03/19

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem3\nt8.i\20191202A.b

ARI Job No.: SHL0 Method: TBT1125.m Instrument: nt8.i Date: 02-DEC-2019

Time Filename LabID ClientId DF Manually Integrated Compounds

1752 N819120231.D SHL0025-ICV1 1 NO MANUAL INTEGRATION

1809 N819120232.D BHK0576-BLK1 1 NO MANUAL INTEGRATION

1830 N819120233.D BHK0576-BS1 1 Butyl Tin (Hexyl),

1847 N819120234.D 19K0228-01 1 NO MANUAL INTEGRATION

1903 N819120235.D BHK0576-MS1 1 Butyl Tin (Hexyl),

1919 N819120236.D BHK0576-MSD1 1 Butyl Tin (Hexyl),

1952 N819120238.D 19K0228-03 1 NO MANUAL INTEGRATION

2008 N819120239.D 19K0228-04 1 NO MANUAL INTEGRATION

2024 N819120240.D 19K0228-05 1 NO MANUAL INTEGRATION

2041 N819120241.D 19K0228-06 1 NO MANUAL INTEGRATION

2057 N819120242.D 19K0228-07 1 NO MANUAL INTEGRATION

2129 N819120244.D 19K0228-11 1 NO MANUAL INTEGRATION

2146 N819120245.D 19K0228-12 1 NO MANUAL INTEGRATION

2202 N819120246.D 19K0228-13 1 NO MANUAL INTEGRATION

2218 N819120247.D 19K0228-14 1 NO MANUAL INTEGRATION

2234 N819120248.D 19K0228-15 1 NO MANUAL INTEGRATION

2255 N819120249.D 19K0228-16 1 NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem3\nt8.i\20191202A.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
2307	N819120250.D	BHK0747-BLK1	1	1	NO MANUAL INTEGRATION
2340	N819120252.D	19K0394-01	1	1	NO MANUAL INTEGRATION
2356	N819120253.D	BHK0747-MS1	1	1	Butyl Tin (Hexyl),
0012	N819120254.D	BHK0747-MSD1	1	1	Butyl Tin (Hexyl),
0028	N819120255.D	19K0394-02	1	1	NO MANUAL INTEGRATION
0045	N819120256.D	SHL0025-CCV1	1	1	NO MANUAL INTEGRATION

Security Status Report

Date: 03-Dec-2019 13:43

N819110230.D	Data Locked	jiangqing,	03-Dec-2019	13:43
N819120231.D	Data Locked	jiangqing,	03-Dec-2019	13:43
N819120232.D	Data Locked	jiangqing,	03-Dec-2019	13:43
N819120233.D	Data Locked	jiangqing,	03-Dec-2019	13:43
N819120234.D	Data Locked	jiangqing,	03-Dec-2019	13:43
N819120235.D	Data Locked	jiangqing,	03-Dec-2019	13:43
N819120236.D	Data Locked	jiangqing,	03-Dec-2019	13:43
N819120238.D	Data Locked	jiangqing,	03-Dec-2019	13:43
N819120239.D	Data Locked	jiangqing,	03-Dec-2019	13:43
N819120240.D	Data Locked	jiangqing,	03-Dec-2019	13:43
N819120241.D	Data Locked	jiangqing,	03-Dec-2019	13:43
N819120242.D	Data Locked	jiangqing,	03-Dec-2019	13:43
N819120244.D	Data Locked	jiangqing,	03-Dec-2019	13:43
N819120245.D	Data Locked	jiangqing,	03-Dec-2019	13:43
N819120246.D	Data Locked	jiangqing,	03-Dec-2019	13:43
N819120247.D	Data Locked	jiangqing,	03-Dec-2019	13:43
N819120248.D	Data Locked	jiangqing,	03-Dec-2019	13:43
N819120249.D	Data Locked	jiangqing,	03-Dec-2019	13:43
N819120250.D	Data Locked	jiangqing,	03-Dec-2019	13:43
N819120252.D	Data Locked	jiangqing,	03-Dec-2019	13:43
N819120253.D	Data Locked	jiangqing,	03-Dec-2019	13:43
N819120254.D	Data Locked	jiangqing,	03-Dec-2019	13:43
N819120255.D	Data Locked	jiangqing,	03-Dec-2019	13:43
N819120256.D	Data Locked	jiangqing,	03-Dec-2019	13:43



ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 8270D-SIM

Laboratory: Analytical Resources, Inc.

SDG: 19K0228

Client: Anchor QEA, LLC

Project: Gasco PDI

Sequence: SHL0032

Instrument: NT8

Calibration: CK00068

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
MS Tune	SHL0032-TUN1	N819120301.D	NA	12/03/19 09:10
Initial Cal Check	SHL0032-ICV1	N819120302.D	NA	12/03/19 09:22
Instrument Blank	SHL0032-IBL1	N819120303.D	NA	12/03/19 10:14
PDI-142RAB-00-10-191112	19K0228-02	N819120304.D	Solid	12/03/19 10:36
ZZZZZ	BHK0747-BS1	N819120306.D	Water	12/03/19 11:08
Calibration Check	SHL0032-CCV1	N819120307.D	NA	12/03/19 12:12

Checklist for SEQUENCE SHL0032

Checklist: Analyst Checklist-SVOA(rev4)

# Checklist Item	Response	Analyst Initials	Date
1 Instrument maintenance is recorded in Element	YES	JZ	12/03/2019
2 DFTPP abundance and time criteria met (8270D only)	YES	JZ	12/03/2019
3 DDT Breakdown <20% and Peak Tailing <=2 (8270D only)	YES	JZ	12/03/2019
4 Narrate all Internal Standard areas not within 50-200% for all affected Workorders	NA	JZ	12/03/2019
5 Retention times within windows and Coelution summary checked for all Workorders	YES	JZ	12/03/2019
6 Rationale provided for all manual integrations not done for baseline correction per SOP 1021s	YES	JZ	12/03/2019
7 Narrate any Workorders where the Project specific requirements have not been met	NA	JZ	12/03/2019
8 Extraction basis, cleanups, and total solids are correctly entered	YES	JZ	12/03/2019
9 An extract dilution bench sheet is attached to the sequence PDF for all dilutions performed	NA	JZ	12/03/2019
10 AUTOCHECK: Blank checked for exceedence of criteria Comments: <i>No blanks were analyzed. Inst. blank run SHL0032-IBL1</i>	NR *	JZ	12/03/2019
11 AUTOCHECK: Check blank spike recovery Comments: <i>LCS Recovery for Butyltin Ion (26.5%) was outside acceptance limits (30-160) in BHK0747-BS1 for 8270D-SIM Butyl Tins</i> <i>- Flagged value is not within established control limits.</i>	NO *	JZ	12/03/2019
12 AUTOCHECK: Check blank spike/blank spike duplicate RPD. If exceeded include outliers in exception report.	NA *	JZ	12/03/2019
13 AUTOCHECK: Compounds in method designated as blank spike compounds are present	YES *	JZ	12/03/2019
14 AUTOCHECK: Check %RPD between sample and sample duplicate	NA *	JZ	12/03/2019
15 AUTOCHECK: Matrix spike recoveries within limits Comments: <i>Matrix Spike Recovery for Butyltin Ion (28.7%) was outside acceptance limits (30-160) in BHK0576-MS1 for 8270D-SIM Butyl Tins</i> <i>- Flagged value is not within established control limits.</i> <i>Matrix Spike Recovery for Butyltin Ion (25.4%) was outside acceptance limits (30-160) in BHK0747-MS1 for 8270D-SIM Butyl Tins</i> <i>- Flagged value is not within established control limits.</i>	NO *	JZ	12/03/2019
16 AUTOCHECK: Matrix spike/matrix spike duplicate RPD within limits	NA *	JZ	12/03/2019
17 AUTOCHECK: List of compounds listed as spiked are present	YES *	JZ	12/03/2019
18 AUTOCHECK: Check SRM limits for exceedance	NA *	JZ	12/03/2019
19 AUTOCHECK: Check Surrogate recoveries Comments: <i>Surrogate Recovery for Tripropyltin (24.9%) was outside acceptance limits (30-160) in 19K0228-02 for 8270D-SIM Butyl Tins</i> <i>- Flagged value is not within established control limits.</i>	NO *	JZ	12/03/2019
20 AUTOCHECK: Checks Surrogate spike list against Analysis	NO *	JZ	12/03/2019

* = Indicates Automated Response from Element DataSyst

Printed: 12/30/2019
365 of 412

Checklist for SEQUENCE SHL0032

Checklist: Analyst Checklist-SVOA(rev4)

# Checklist Item	Response	Analyst Initials	Date
Comments: <i>Tripenyltin is listed as a surrogate for method 8270D-SIM Butyl Tins but it was not spiked into sample SHL0032-IBL1</i>			
<i>Tripopyltin is listed as a surrogate for method 8270D-SIM Butyl Tins but it was not spiked into sample SHL0032-IBL1</i>			
21 Data locked, checklist completed and status is analyzed (REVIEWER)	YES	BB	12/03/2019
22 Color warnings have been addressed, narrated and (or) qualified (REVIEWER)	YES	BB	12/03/2019
23 rev_DilutionCheck.rpt and rev_DilutionCheck.exe was run to verify multiple sample results are consistent (REVIEWER)	NA	BB	12/03/2019
24 List samples by workorder or batch QC to be reanalyzed-verify rebatch created (ANALYST)	NA	BB	12/03/2019
25 List samples by workorder or batch QC reanalyzed and samples reported from two or more analyses (ANALYST)	NA	BB	12/03/2019
26 Additional Notes (ANALYST and REVIEWER)	NO	JZ	12/03/2019

Comments:

Batch BHK0576: Sample 19K0228-02 only. Reported to the MDL. Re-ex for sample 19K0228-10 ordered.(12/3/2019)

Batch BHK0747: BHJK0747-BS1 only.

IBL included.



ANALYSIS SEQUENCE

SHL0032

Instrument: NT8 Element Column ID: H004092 Re-ex for sample 19K0228-10 ordered.
 Calibration ID: CK00068 Tune File: 191025.U
 EM Voltage: 2082

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SHL0032-TUNI	MS Tune	QC		1	H010226		
SHL0032-ICV1	Initial Cal Check	QC		2	H011462	H004622	
SHL0032-IBL1	Instrument Blank	QC		3		H004622	
19K0228-02	PDI-142RAB-00-10-191112	8270D-SIM Butyl Tins	A 01	4		H004622	
BHK0747-BS1	LCS	QC		5		H004622	
SHL0032-CCV1	Calibration Check	QC		6	H011462	H004622	

INTERNAL STANDARD SUMMARY FOR DATABATCH - \\target\share\chem3\nt8.i\20191203.b

Time	Filename	LabID	ClientID	DF	
1 0910	N819120301.D	SHL0032-TUN1		1	(NO ISTDs FOUND)
2 0922	N819120302.D	SHL0032-ICV1		1	6.06 30089 8.65 30470
3 1014	N819120303.D	SHL0032-IBL1		1	6.07 31672 8.65 32069
4 1036	N819120304.D	19K0228-02		1	6.08 31652 8.65 25068
5 1052	N819120305.D	19K0228-10		1	6.07 34161 8.65 28553
6 1108	N819120306.D	BHK0747-BS1		1	6.06 33356 8.65 30164
7 1212	N819120307.D	SHL0032-CCV1		1	6.07 35492 8.65 30365

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem3\nt8.i\20191203.b

ARI Job No.: SHL0 Method: TBT1125.m Instrument: nt8.i Date: 03-DEC-2019

Time	Filename	LabID	ClientID	DF	Manually Integrated Compounds
0922	N819120302.D	SHL0032-ICV1		1	NO MANUAL INTEGRATION
1014	N819120303.D	SHL0032-IBL1		1	NO MANUAL INTEGRATION
1036	N819120304.D	19K0228-02		1	NO MANUAL INTEGRATION
1108	N819120306.D	BHK0747-BS1		1	Butyl Tin (Hexyl),
1212	N819120307.D	SHL0032-CCV1		1	Butyl Tin (Hexyl),

Security Status Report

Date: 03-Dec-2019 13:46

N819120301.D	Data Locked	jiangqing,	03-Dec-2019	13:46
N819120302.D	Data Locked	jiangqing,	03-Dec-2019	13:46
N819120303.D	Data Locked	jiangqing,	03-Dec-2019	13:46
N819120304.D	Data Locked	jiangqing,	03-Dec-2019	13:46
N819120306.D	Data Locked	jiangqing,	03-Dec-2019	13:46
N819120307.D	Data Locked	jiangqing,	03-Dec-2019	13:46



ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 8270D-SIM

Laboratory: Analytical Resources, Inc.

SDG: 19K0228

Client: Anchor QEA, LLC

Project: Gasco PDI

Sequence: SHL0077

Instrument: NT8

Calibration: CK00068

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
MS Tune	SHL0077-TUN1	N819120501.D	NA	12/05/19 11:01
Initial Cal Check	SHL0077-ICV1	N819120502.D	NA	12/05/19 11:17
Blank	BHL0082-BLK1	N819120503.D	Solid	12/05/19 11:41
LCS	BHL0082-BS1	N819120504.D	Solid	12/05/19 11:58
LCS Dup	BHL0082-BSD1	N819120505.D	Solid	12/05/19 12:14
PDI-140RAB-00-10-191108	19K0228-10RE1	N819120506.D	Solid	12/05/19 12:30
PDI-140RAB-00-10-191108	BHL0082-MS1	N819120507.D	Solid	12/05/19 12:46
PDI-140RAB-00-10-191108	BHL0082-MSD1	N819120508.D	Solid	12/05/19 13:03
ZZZZZ	19K0415-01	N819120509.D	Solid	12/05/19 13:19
ZZZZZ	19K0416-01	N819120510.D	Solid	12/05/19 13:35
ZZZZZ	19K0416-02	N819120511.D	Solid	12/05/19 13:52
Calibration Check	SHL0077-CCV1	N819120512.D	NA	12/05/19 14:08

Checklist for SEQUENCE SHL0077

Checklist: Analyst Checklist-SVOA(rev4)

# Checklist Item	Response	Analyst Initials	Date
1 Instrument maintenance is recorded in Element	YES	JZ	12/05/2019
2 DFTPP abundance and time criteria met (8270D only)	YES	JZ	12/05/2019
3 DDT Breakdown <20% and Peak Tailing <=2 (8270D only)	YES	JZ	12/05/2019
4 Narrate all Internal Standard areas not within 50-200% for all affected Workorders	NA	JZ	12/05/2019
5 Retention times within windows and Coelution summary checked for all Workorders	YES	JZ	12/05/2019
6 Rationale provided for all manual integrations not done for baseline correction per SOP 1021s	YES	JZ	12/05/2019
7 Narrate any Workorders where the Project specific requirements have not been met	NA	JZ	12/05/2019
8 Extraction basis, cleanups, and total solids are correctly entered	YES	JZ	12/05/2019
9 An extract dilution bench sheet is attached to the sequence PDF for all dilutions performed	NA	JZ	12/05/2019
10 AUTOCHECK: Blank checked for exceedence of criteria	YES *	JZ	12/05/2019
11 AUTOCHECK: Check blank spike recovery	YES *	JZ	12/05/2019
12 AUTOCHECK: Check blank spike/blank spike duplicate RPD. If exceeded include outliers in exception report.	YES *	JZ	12/05/2019
13 AUTOCHECK: Compounds in method designated as blank spike compounds are present	YES *	JZ	12/05/2019
14 AUTOCHECK: Check %RPD between sample and sample duplicate	NA *	JZ	12/05/2019
15 AUTOCHECK: Matrix spike recoveries within limits	NO *	JZ	12/05/2019
Comments:			
<i>Matrix Spike Recovery for Butyltin Ion (28.7%) was outside acceptance limits (30-160) in BHK0576-MS1 for 8270D-SIM Butyl Tins</i>			
<i>- Flagged value is not within established control limits.</i>			
16 AUTOCHECK: Matrix spike/matrix spike duplicate RPD within limits	NA *	JZ	12/05/2019
17 AUTOCHECK: List of compounds listed as spiked are present	YES *	JZ	12/05/2019
18 AUTOCHECK: Check SRM limits for exceedance	NA *	JZ	12/05/2019
19 AUTOCHECK: Check Surrogate recoveries	YES *	JZ	12/05/2019
20 AUTOCHECK: Checks Surrogate spike list against Analysis	YES *	JZ	12/05/2019
21 Data locked, checklist completed and status is analyzed (REVIEWER)			12/30/1899
22 Color warnings have been addressed, narrated and (or) qualified (REVIEWER)			12/30/1899
23 rev_DilutionCheck.rpt and rev_DilutionCheck.exe was run to verify multiple sample results are consistent (REVIEWER)			12/30/1899
24 List samples by workorder or batch QC to be reanalyzed-verify rebatch created (ANALYST)			12/30/1899
25 List samples by workorder or batch QC reanalyzed and samples reported from two or more analyses (ANALYST)	YES	BB	12/05/2019
Comments:			
<i>19k0228-10-RE1</i>			
26 Additional Notes (ANALYST and REVIEWER)	NO	JZ	12/05/2019

* = Indicates Automated Response from Element DataSyst

Printed: 12/30/2019
372 of 412

Checklist for SEQUENCE SHL0077

Checklist: Analyst Checklist-SVOA(rev4)

<u># Checklist Item</u>	<u>Response</u>	<u>Analyst Initials</u>	<u>Date</u>
-------------------------	-----------------	-------------------------	-------------

Comments:
Batch BHL0082: Reported to the MDL.

* = Indicates Automated Response from Element DataSyst



ANALYSIS SEQUENCE

SHL0077

Instrument: NT8 Element Column ID: H004092
 Calibration ID: CK00068 Tune File: 191025.U
 EM Voltage: 2082

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SHL0077-TUN1	MS Tune	QC		1	H010226		
SHL0077-ICV1	Initial Cal Check	QC		2	H011462	H004622	
BHL0082-BLK1	Blank	QC		3		H004622	
BHL0082-BS1	LCS	QC		4		H004622	
BHL0082-BSD1	LCS Dup	QC		5		H004622	
19K0228-10RE1	PDI-140RAB-00-10-191108	8270D-SIM Butyl Tins	A 02	6		H004622	From BHK0576 by WPW on 03-Dec-2019
BHL0082-MS1	Matrix Spike	QC		7		H004622	
BHL0082-MSD1	Matrix Spike Dup	QC		8		H004622	
19K0415-01	MH19-03	8270D-SIM Butyl Tins	A 01	9		H004622	
19K0416-01	ODMDS-SED	8270D-SIM Butyl Tins	A 01	10		H004622	
19K0416-02	RS-MOB-D	8270D-SIM Butyl Tins	A 01	11		H004622	
SHL0077-CCV1	Calibration Check	QC		12	H011462	H004622	

INTERNAL STANDARD SUMMARY FOR DATABATCH - \\target\share\chem3\nt8.i\20191205.b

Time	Filename	LabID	ClientId	DF				
1	1101	N819120501.D	SHL0077-TUN1	1	NO	ISTDS	FOUND	
2	1117	N819120502.D	SHL0077-ICV1	1	6.06	50741	8.64	44114
3	1141	N819120503.D	BHL0082-BLK1	1	6.06	47264	8.64	41877
4	1158	N819120504.D	BHL0082-BS1	1	6.06	48955	8.64	45008
5	1214	N819120505.D	BHL0082-BSD1	1	6.06	50894	8.64	45319
6	1230	N819120506.D	19K0228-10RE1	1	6.06	45368	8.64	40580
7	1246	N819120507.D	BHL0082-MS1	1	6.06	48822	8.64	42968
8	1303	N819120508.D	BHL0082-MSD1	1	6.06	46341	8.64	42720
9	1319	N819120509.D	19K0415-01	1	6.06	40344	8.64	36748
10	1335	N819120510.D	19K0416-01	1	6.06	46538	8.64	41554
11	1352	N819120511.D	19K0416-02	1	6.06	45162	8.64	41138
12	1408	N819120512.D	SHL0077-CCV1	1	6.05	38925	8.64	37177

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem3\nt8.i\20191205.b

ARI Job No.: SHL0 Method: TBT1125.m Instrument: nt8.i Date: 05-DEC-2019

Time	Filename	LabID	ClientID	DF	Manually Integrated Compounds
1117	N819120502.D	SHL0077-ICV1		1	NO MANUAL INTEGRATION
1141	N819120503.D	BHL0082-BLK1		1	NO MANUAL INTEGRATION
1158	N819120504.D	BHL0082-BS1		1	Butyl Tin (Hexyl),
1214	N819120505.D	BHL0082-BSD1		1	Butyl Tin (Hexyl),
1230	N819120506.D	19K0228-I0RE1		1	NO MANUAL INTEGRATION
1246	N819120507.D	BHL0082-MS1		1	Butyl Tin (Hexyl),
1303	N819120508.D	BHL0082-MSD1		1	Butyl Tin (Hexyl),
1319	N819120509.D	19K0415-01		1	Dibutyl Tin (Hexyl),
1335	N819120510.D	19K0416-01		1	Dibutyl Tin (Hexyl),
1352	N819120511.D	19K0416-02		1	NO MANUAL INTEGRATION
1408	N819120512.D	SHL0077-CCV1		1	NO MANUAL INTEGRATION

Security Status Report

Date: 05-Dec-2019 15:50

N819120501.D	Data Locked	jiangqing,	05-Dec-2019	15:50
N819120502.D	Data Locked	jiangqing,	05-Dec-2019	15:50
N819120503.D	Data Locked	jiangqing,	05-Dec-2019	15:50
N819120504.D	Data Locked	jiangqing,	05-Dec-2019	15:50
N819120505.D	Data Locked	jiangqing,	05-Dec-2019	15:50
N819120506.D	Data Locked	jiangqing,	05-Dec-2019	15:50
N819120507.D	Data Locked	jiangqing,	05-Dec-2019	15:50
N819120508.D	Data Locked	jiangqing,	05-Dec-2019	15:50
N819120509.D	Data Locked	jiangqing,	05-Dec-2019	15:50
N819120510.D	Data Locked	jiangqing,	05-Dec-2019	15:50
N819120511.D	Data Locked	jiangqing,	05-Dec-2019	15:50
N819120512.D	Data Locked	jiangqing,	05-Dec-2019	15:50



SURROGATE RECOVERY AND RT SUMMARY

EPA 8270D-SIM

Laboratory:	<u>Analytical Resources, Inc.</u>	SDG/WO:	<u>19K0228</u>
Client:	<u>Anchor QEA, LLC</u>	Project:	<u>Gasco PDI</u>
Sequence:	<u>SHK0340</u>	Instrument:	<u>NT8</u>
Calibration:	<u>CK00068</u>	Calibration Date:	<u>11/25/2019</u>

Surrogate Compound	Spike Level ug/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
SHK0340-SCV1 (Water)		Lab File ID: N819112508.D			Analyzed: 11/25/19 16:02			
Tripentyltin	0.79590	90.6	80 - 120	6.409	6.411	-0.0020	N/A	



SURROGATE RECOVERY AND RT SUMMARY

EPA 8270D-SIM

Laboratory: Analytical Resources, Inc.
 Client: Anchor QEA, LLC
 Sequence: SHK0352
 Calibration: CK00068

SDG/WO: 19K0228
 Project: Gasco PDI
 Instrument: NT8
 Calibration Date: 11/25/2019

Surrogate Compound	Spike Level ug/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
SHK0352-ICV1 (Water)			Lab File ID: N819112511.D			Analyzed: 11/25/19 16:56		
Tripentyltin	1.5918	96.6	80 - 120	6.409	6.411	-0.0020	N/A	
Tripropyltin	0.74432	105	80 - 120	4.471	4.472833	-0.0018	N/A	
BHK0438-BLK1 (Water)			Lab File ID: N819112512.D			Analyzed: 11/25/19 17:17		
Tripentyltin	2.2589	66.2	30 - 160	6.409	6.411	-0.0020	N/A	
Tripropyltin	2.1873	33.0	30 - 160	4.502	4.472833	0.0292	N/A	
BHK0438-BS1 (Water)			Lab File ID: N819112513.D			Analyzed: 11/25/19 17:34		
Tripentyltin	2.2589	66.2	30 - 160	6.409	6.411	-0.0020	N/A	
Tripropyltin	2.1873	27.1	30 - 160	4.513	4.472833	0.0402	N/A	*
19K0228-08 (Water)			Lab File ID: N819112514.D			Analyzed: 11/25/19 17:50		
Tripentyltin	2.2589	62.5	30 - 160	6.409	6.411	-0.0020	N/A	
Tripropyltin	2.1873	70.8	30 - 160	4.513	4.472833	0.0402	N/A	
19K0228-09 (Water)			Lab File ID: N819112515.D			Analyzed: 11/25/19 18:06		
Tripentyltin	2.2589	67.0	30 - 160	6.409	6.411	-0.0020	N/A	
Tripropyltin	2.1873	67.6	30 - 160	4.513	4.472833	0.0402	N/A	
BHK0438-MS1 (Water)			Lab File ID: N819112516.D			Analyzed: 11/25/19 18:23		
Tripentyltin	2.2589	53.1	30 - 160	6.409	6.411	-0.0020	N/A	
Tripropyltin	2.1873	32.0	30 - 160	4.513	4.472833	0.0402	N/A	
BHK0438-MSD1 (Water)			Lab File ID: N819112517.D			Analyzed: 11/25/19 18:39		
Tripentyltin	2.2589	51.7	30 - 160	6.409	6.411	-0.0020	N/A	
Tripropyltin	2.1873	29.9	30 - 160	4.513	4.472833	0.0402	N/A	*
SHK0352-CCV1 (Water)			Lab File ID: N819112545.D			Analyzed: 11/26/19 02:14		
Tripentyltin	1.5918	99.7	50 - 150	6.409	6.411	-0.0020	N/A	
Tripropyltin	0.74432	108	50 - 150	4.471	4.472833	-0.0018	N/A	



SURROGATE RECOVERY AND RT SUMMARY

EPA 8270D-SIM

Laboratory: Analytical Resources, Inc.

SDG/WO: 19K0228

Client: Anchor QEA, LLC

Project: Gasco PDI

Sequence: SHL0025

Instrument: NT8

Calibration: CK00068

Calibration Date: 11/25/2019

Surrogate Compound	Spike Level ug/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
SHL0025-ICV1 (Water)			Lab File ID: N819120231.D			Analyzed: 12/02/19 17:52		
Tripentyltin	1.5918	97.8	80 - 120	6.409	6.411	-0.0020	N/A	
Tripropyltin	0.74432	108	80 - 120	4.471	4.472833	-0.0018	N/A	
BHK0576-BLK1 (Solid)			Lab File ID: N819120232.D			Analyzed: 12/02/19 18:09		
Tripentyltin	45.178	62.3	30 - 160	6.409	6.411	-0.0020	N/A	
Tripropyltin	43.746	75.2	30 - 160	4.502	4.472833	0.0292	N/A	
BHK0576-BS1 (Solid)			Lab File ID: N819120233.D			Analyzed: 12/02/19 18:30		
Tripentyltin	45.178	68.7	30 - 160	6.409	6.411	-0.0020	N/A	
Tripropyltin	43.746	76.4	30 - 160	4.502	4.472833	0.0292	N/A	
19K0228-01 (Solid)			Lab File ID: N819120234.D			Analyzed: 12/02/19 18:47		
Tripentyltin	45.164	62.4	30 - 160	6.421	6.411	0.0100	N/A	
Tripropyltin	43.732	65.2	30 - 160	4.513	4.472833	0.0402	N/A	
BHK0576-MS1 (Solid)			Lab File ID: N819120235.D			Analyzed: 12/02/19 19:03		
Tripentyltin	45.164	49.2	30 - 160	6.421	6.411	0.0100	N/A	
Tripropyltin	43.732	48.0	30 - 160	4.502	4.472833	0.0292	N/A	
BHK0576-MSD1 (Solid)			Lab File ID: N819120236.D			Analyzed: 12/02/19 19:19		
Tripentyltin	45.164	60.7	30 - 160	6.433	6.411	0.0220	N/A	
Tripropyltin	43.732	53.4	30 - 160	4.523	4.472833	0.0502	N/A	
19K0228-03 (Solid)			Lab File ID: N819120238.D			Analyzed: 12/02/19 19:52		
Tripentyltin	44.735	49.3	30 - 160	6.421	6.411	0.0100	N/A	
Tripropyltin	43.317	43.0	30 - 160	4.523	4.472833	0.0502	N/A	
19K0228-04 (Solid)			Lab File ID: N819120239.D			Analyzed: 12/02/19 20:08		
Tripentyltin	44.645	78.2	30 - 160	6.421	6.411	0.0100	N/A	
Tripropyltin	43.230	75.5	30 - 160	4.523	4.472833	0.0502	N/A	
19K0228-05 (Solid)			Lab File ID: N819120240.D			Analyzed: 12/02/19 20:24		
Tripentyltin	45.170	34.1	30 - 160	6.409	6.411	-0.0020	N/A	
Tripropyltin	43.738	28.2	30 - 160	4.534	4.472833	0.0612	N/A	*
19K0228-06 (Solid)			Lab File ID: N819120241.D			Analyzed: 12/02/19 20:41		
Tripentyltin	44.855	38.1	30 - 160	6.421	6.411	0.0100	N/A	
Tripropyltin	43.434	32.2	30 - 160	4.513	4.472833	0.0402	N/A	



SURROGATE RECOVERY AND RT SUMMARY

EPA 8270D-SIM

Laboratory: Analytical Resources, Inc.

SDG/WO: 19K0228

Client: Anchor QEA, LLC

Project: Gasco PDI

Sequence: SHL0025

Instrument: NT8

Calibration: CK00068

Calibration Date: 11/25/2019

Surrogate Compound	Spike Level ug/kg dry	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
19K0228-07 (Solid)			Lab File ID: N819120242.D		Analyzed: 12/02/19 20:57			
Tripentyltin	45.083	56.0	30 - 160	6.421	6.411	0.0100	N/A	
Tripropyltin	43.654	46.9	30 - 160	4.513	4.472833	0.0402	N/A	
19K0228-11 (Solid)			Lab File ID: N819120244.D		Analyzed: 12/02/19 21:29			
Tripentyltin	44.920	37.1	30 - 160	6.409	6.411	-0.0020	N/A	
Tripropyltin	43.496	35.1	30 - 160	4.513	4.472833	0.0402	N/A	
19K0228-12 (Solid)			Lab File ID: N819120245.D		Analyzed: 12/02/19 21:46			
Tripentyltin	44.511	46.4	30 - 160	6.409	6.411	-0.0020	N/A	
Tripropyltin	43.100	44.7	30 - 160	4.502	4.472833	0.0292	N/A	
19K0228-13 (Solid)			Lab File ID: N819120246.D		Analyzed: 12/02/19 22:02			
Tripentyltin	44.843	62.1	30 - 160	6.433	6.411	0.0220	N/A	
Tripropyltin	43.421	65.7	30 - 160	4.523	4.472833	0.0502	N/A	
19K0228-14 (Solid)			Lab File ID: N819120247.D		Analyzed: 12/02/19 22:18			
Tripentyltin	44.842	45.2	30 - 160	6.409	6.411	-0.0020	N/A	
Tripropyltin	43.421	36.5	30 - 160	4.502	4.472833	0.0292	N/A	
19K0228-15 (Solid)			Lab File ID: N819120248.D		Analyzed: 12/02/19 22:34			
Tripentyltin	45.030	39.5	30 - 160	6.409	6.411	-0.0020	N/A	
Tripropyltin	43.602	28.7	30 - 160	4.502	4.472833	0.0292	N/A	*
19K0228-16 (Solid)			Lab File ID: N819120249.D		Analyzed: 12/02/19 22:51			
Tripentyltin	44.989	71.8	30 - 160	6.421	6.411	0.0100	N/A	
Tripropyltin	43.563	63.6	30 - 160	4.513	4.472833	0.0402	N/A	
SHL0025-CCV1 (Water)			Lab File ID: N819120256.D		Analyzed: 12/03/19 00:45			
Tripentyltin	1.5918	102	50 - 150	6.409	6.411	-0.0020	N/A	
Tripropyltin	0.74432	103	50 - 150	4.471	4.472833	-0.0018	N/A	



SURROGATE RECOVERY AND RT SUMMARY

EPA 8270D-SIM

Laboratory: <u>Analytical Resources, Inc.</u>	SDG/WO: <u>19K0228</u>
Client: <u>Anchor QEA, LLC</u>	Project: <u>Gasco PDI</u>
Sequence: <u>SHL0032</u>	Instrument: <u>NT8</u>
Calibration: <u>CK00068</u>	Calibration Date: <u>11/25/2019</u>

Surrogate Compound	Spike Level ug/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
SHL0032-ICV1 (Solid)		Lab File ID: N819120302.D			Analyzed: 12/03/19 09:22			
Tripentyltin	1.5918	97.7	80 - 120	6.409	6.411	-0.0020	N/A	
Tripropyltin	0.74432	110	80 - 120	4.471	4.472833	-0.0018	N/A	
SHL0032-IBL1 (Solid)		Lab File ID: N819120303.D			Analyzed: 12/03/19 10:14			
Tripentyltin			30 - 160		6.411	-6.4110	N/A	
Tripropyltin			30 - 160		4.472833	-4.4728	N/A	
19K0228-02 (Solid)		Lab File ID: N819120304.D			Analyzed: 12/03/19 10:36			
Tripentyltin	45.132	33.8	30 - 160	6.421	6.411	0.0100	N/A	
Tripropyltin	43.701	24.9	30 - 160	4.513	4.472833	0.0402	N/A	*
SHL0032-CCV1 (Solid)		Lab File ID: N819120307.D			Analyzed: 12/03/19 12:12			
Tripentyltin	1.5918	102	50 - 150	6.421	6.411	0.0100	N/A	
Tripropyltin	0.74432	103	50 - 150	4.482	4.472833	0.0092	N/A	



SURROGATE RECOVERY AND RT SUMMARY

EPA 8270D-SIM

Laboratory: Analytical Resources, Inc.

SDG/WO: 19K0228

Client: Anchor QEA, LLC

Project: Gasco PDI

Sequence: SHL0077

Instrument: NT8

Calibration: CK00068

Calibration Date: 11/25/2019

Surrogate Compound	Spike Level ug/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
SHL0077-ICV1 (Solid)			Lab File ID: N819120502.D			Analyzed: 12/05/19 11:17		
Tripentyltin	1.5918	100	80 - 120	6.397	6.411	-0.0140	N/A	
Tripropyltin	0.74432	107	80 - 120	4.471	4.472833	-0.0018	N/A	
BHL0082-BLK1 (Solid)			Lab File ID: N819120503.D			Analyzed: 12/05/19 11:41		
Tripentyltin	45.178	67.2	30 - 160	6.409	6.411	-0.0020	N/A	
Tripropyltin	43.746	81.7	30 - 160	4.492	4.472833	0.0192	N/A	
BHL0082-BS1 (Solid)			Lab File ID: N819120504.D			Analyzed: 12/05/19 11:58		
Tripentyltin	45.178	63.7	30 - 160	6.397	6.411	-0.0140	N/A	
Tripropyltin	43.746	74.2	30 - 160	4.492	4.472833	0.0192	N/A	
BHL0082-BSD1 (Solid)			Lab File ID: N819120505.D			Analyzed: 12/05/19 12:14		
Tripentyltin	45.178	61.6	30 - 160	6.397	6.411	-0.0140	N/A	
Tripropyltin	43.746	72.9	30 - 160	4.492	4.472833	0.0192	N/A	
19K0228-10RE1 (Solid)			Lab File ID: N819120506.D			Analyzed: 12/05/19 12:30		
Tripentyltin	44.800	39.8	30 - 160	6.396	6.411	-0.0150	N/A	
Tripropyltin	43.380	41.1	30 - 160	4.502	4.472833	0.0292	N/A	
BHL0082-MS1 (Solid)			Lab File ID: N819120507.D			Analyzed: 12/05/19 12:46		
Tripentyltin	44.010	36.8	30 - 160	6.397	6.411	-0.0140	N/A	
Tripropyltin	42.615	35.7	30 - 160	4.503	4.472833	0.0302	N/A	
BHL0082-MSD1 (Solid)			Lab File ID: N819120508.D			Analyzed: 12/05/19 13:03		
Tripentyltin	44.654	36.9	30 - 160	6.397	6.411	-0.0140	N/A	
Tripropyltin	43.239	40.2	30 - 160	4.492	4.472833	0.0192	N/A	
SHL0077-CCV1 (Solid)			Lab File ID: N819120512.D			Analyzed: 12/05/19 14:08		
Tripentyltin	1.5918	104	50 - 150	6.397	6.411	-0.0140	N/A	
Tripropyltin	0.74432	108	50 - 150	4.461	4.472833	-0.0118	N/A	



INTERNAL STANDARD AREA AND RT SUMMARY
EPA 8270D-SIM

Laboratory: Analytical Resources, Inc.

SDG: 19K0228

Client: Anchor OEA, LLC

Project: Gasco PDI

Sequence: SHK0340

Instrument: NT8

Calibration: CK00068

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Secondary Cal Check (SHK0340-SCV1)		(Water)	Lab File ID: N819112508.D			Analyzed: 11/25/19 16:02			
Tetrapentyltin	39133	6.058	41592	6.07	94	50 - 200	-0.012	+/-0.50	
p-Terphenyl-d14	39863	8.647	41162	8.647	97	50 - 200	0.000	+/-0.50	



INTERNAL STANDARD AREA AND RT SUMMARY
EPA 8270D-SIM

Laboratory: Analytical Resources, Inc.
Client: Anchor OEA, LLC
Sequence: SHK0352

SDG: 19K0228
Project: Gasco PDI
Instrument: NT8
Calibration: CK00068

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Initial Cal Check (SHK0352-ICV1)		(Water)	Lab File ID: N819112511.D		Analyzed: 11/25/19 16:56				
Tetrapentyltin	42690	6.07	42690	6.07	100	50 - 200	0.000	+/-0.50	
p-Terphenyl-d14	39473	8.647	39473	8.647	100	50 - 200	0.000	+/-0.50	
Blank (BHK0438-BLK1)		(Water)	Lab File ID: N819112512.D		Analyzed: 11/25/19 17:17				
Tetrapentyltin	34827	6.07	42690	6.07	82	50 - 200	0.000	+/-0.50	
p-Terphenyl-d14	31702	8.647	39473	8.647	80	50 - 200	0.000	+/-0.50	
LCS (BHK0438-BS1)		(Water)	Lab File ID: N819112513.D		Analyzed: 11/25/19 17:34				
Tetrapentyltin	38346	6.058	42690	6.07	90	50 - 200	-0.012	+/-0.50	
p-Terphenyl-d14	36285	8.647	39473	8.647	92	50 - 200	0.000	+/-0.50	
PDI-FB-191112146 (19K0228-08)		(Water)	Lab File ID: N819112514.D		Analyzed: 11/25/19 17:50				
Tetrapentyltin	40789	6.058	42690	6.07	96	50 - 200	-0.012	+/-0.50	
p-Terphenyl-d14	39675	8.647	39473	8.647	101	50 - 200	0.000	+/-0.50	
PDI-RB-1911120944 (19K0228-09)		(Water)	Lab File ID: N819112515.D		Analyzed: 11/25/19 18:06				
Tetrapentyltin	41958	6.058	42690	6.07	98	50 - 200	-0.012	+/-0.50	
p-Terphenyl-d14	39055	8.647	39473	8.647	99	50 - 200	0.000	+/-0.50	
Matrix Spike (BHK0438-MS1)		(Water)	Lab File ID: N819112516.D		Analyzed: 11/25/19 18:23				
Tetrapentyltin	41592	6.058	42690	6.07	97	50 - 200	-0.012	+/-0.50	
p-Terphenyl-d14	39799	8.647	39473	8.647	101	50 - 200	0.000	+/-0.50	
Matrix Spike Dup (BHK0438-MSD1)		(Water)	Lab File ID: N819112517.D		Analyzed: 11/25/19 18:39				
Tetrapentyltin	39288	6.058	42690	6.07	92	50 - 200	-0.012	+/-0.50	
p-Terphenyl-d14	37655	8.647	39473	8.647	95	50 - 200	0.000	+/-0.50	
Calibration Check (SHK0352-CCV1)		(Water)	Lab File ID: N819112545.D		Analyzed: 11/26/19 02:14				
Tetrapentyltin	46200	6.058	42690	6.07	108	50 - 200	-0.012	+/-0.50	
p-Terphenyl-d14	46213	8.647	39473	8.647	117	50 - 200	0.000	+/-0.50	



INTERNAL STANDARD AREA AND RT SUMMARY EPA 8270D-SIM

Laboratory: Analytical Resources, Inc.
Client: Anchor OEA, LLC
Sequence: SHL0025

SDG: 19K0228
Project: Gasco PDI
Instrument: NT8
Calibration: CK00068

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Initial Cal Check (SHL0025-ICV1)		(Water)	Lab File ID: N819120231.D			Analyzed: 12/02/19 17:52			
Tetrapentyltin	28487	6.07	28487	6.07	100	50 - 200	0.000	+/-0.50	
p-Terphenyl-d14	28078	8.647	28078	8.647	100	50 - 200	0.000	+/-0.50	
Blank (BHK0576-BLK1)		(Solid)	Lab File ID: N819120232.D			Analyzed: 12/02/19 18:09			
Tetrapentyltin	30880	6.058	28487	6.07	108	50 - 200	-0.012	+/-0.50	
p-Terphenyl-d14	28178	8.647	28078	8.647	100	50 - 200	0.000	+/-0.50	
LCS (BHK0576-BS1)		(Solid)	Lab File ID: N819120233.D			Analyzed: 12/02/19 18:30			
Tetrapentyltin	31968	6.07	28487	6.07	112	50 - 200	0.000	+/-0.50	
p-Terphenyl-d14	27581	8.647	28078	8.647	98	50 - 200	0.000	+/-0.50	
PDI-1142RAB-20-30.4-191112 (19K0228-01)		(Solid)	Lab File ID: N819120234.D			Analyzed: 12/02/19 18:47			
Tetrapentyltin	45346	6.082	28487	6.07	159	50 - 200	0.012	+/-0.50	
p-Terphenyl-d14	35814	8.647	28078	8.647	128	50 - 200	0.000	+/-0.50	
Matrix Spike (BHK0576-MS1)		(Solid)	Lab File ID: N819120235.D			Analyzed: 12/02/19 19:03			
Tetrapentyltin	42449	6.082	28487	6.07	149	50 - 200	0.012	+/-0.50	
p-Terphenyl-d14	34808	8.647	28078	8.647	124	50 - 200	0.000	+/-0.50	
Matrix Spike Dup (BHK0576-MSD1)		(Solid)	Lab File ID: N819120236.D			Analyzed: 12/02/19 19:19			
Tetrapentyltin	53276	6.094	28487	6.07	187	50 - 200	0.024	+/-0.50	
p-Terphenyl-d14	39446	8.647	28078	8.647	140	50 - 200	0.000	+/-0.50	
PDI-142RAB-10-20-191112 (19K0228-03)		(Solid)	Lab File ID: N819120238.D			Analyzed: 12/02/19 19:52			
Tetrapentyltin	49451	6.082	28487	6.07	174	50 - 200	0.012	+/-0.50	
p-Terphenyl-d14	36917	8.647	28078	8.647	131	50 - 200	0.000	+/-0.50	
PDI-142RAB-20-30.4-191112 (19K0228-04)		(Solid)	Lab File ID: N819120239.D			Analyzed: 12/02/19 20:08			
Tetrapentyltin	48429	6.082	28487	6.07	170	50 - 200	0.012	+/-0.50	
p-Terphenyl-d14	38431	8.647	28078	8.647	137	50 - 200	0.000	+/-0.50	
PDI-144RAB-00-10-191113 (19K0228-05)		(Solid)	Lab File ID: N819120240.D			Analyzed: 12/02/19 20:24			
Tetrapentyltin	43633	6.07	28487	6.07	153	50 - 200	0.000	+/-0.50	
p-Terphenyl-d14	34015	8.647	28078	8.647	121	50 - 200	0.000	+/-0.50	
PDI-144RAB-10-20-191113 (19K0228-06)		(Solid)	Lab File ID: N819120241.D			Analyzed: 12/02/19 20:41			
Tetrapentyltin	49861	6.082	28487	6.07	175	50 - 200	0.012	+/-0.50	
p-Terphenyl-d14	36479	8.647	28078	8.647	130	50 - 200	0.000	+/-0.50	
PDI-144RAB-20-29-191113 (19K0228-07)		(Solid)	Lab File ID: N819120242.D			Analyzed: 12/02/19 20:57			
Tetrapentyltin	41024	6.07	28487	6.07	144	50 - 200	0.000	+/-0.50	
p-Terphenyl-d14	31724	8.647	28078	8.647	113	50 - 200	0.000	+/-0.50	



INTERNAL STANDARD AREA AND RT SUMMARY
EPA 8270D-SIM

Laboratory: Analytical Resources, Inc.

SDG: 19K0228

Client: Anchor OEA, LLC

Project: Gasco PDI

Sequence: SHL0025

Instrument: NT8

Calibration: CK00068

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
PDI-140RAB-10-12.7-191108 (19K0228-11)		(Solid)	Lab File ID: N819120244.D			Analyzed: 12/02/19 21:29			
Tetrapentyltin	43880	6.07	28487	6.07	154	50 - 200	0.000	+/-0.50	
p-Terphenyl-d14	34942	8.647	28078	8.647	124	50 - 200	0.000	+/-0.50	
PDI-141RAB-00-10-191107 (19K0228-12)		(Solid)	Lab File ID: N819120245.D			Analyzed: 12/02/19 21:46			
Tetrapentyltin	44202	6.07	28487	6.07	155	50 - 200	0.000	+/-0.50	
p-Terphenyl-d14	36994	8.647	28078	8.647	132	50 - 200	0.000	+/-0.50	
PDI-141RAB-10-17.7-191107 (19K0228-13)		(Solid)	Lab File ID: N819120246.D			Analyzed: 12/02/19 22:02			
Tetrapentyltin	55256	6.094	28487	6.07	194	50 - 200	0.024	+/-0.50	
p-Terphenyl-d14	40438	8.647	28078	8.647	144	50 - 200	0.000	+/-0.50	
PDI-143RAB-00-10-191111 (19K0228-14)		(Solid)	Lab File ID: N819120247.D			Analyzed: 12/02/19 22:18			
Tetrapentyltin	42233	6.07	28487	6.07	148	50 - 200	0.000	+/-0.50	
p-Terphenyl-d14	32770	8.647	28078	8.647	117	50 - 200	0.000	+/-0.50	
PDI-143RAB-10-20-191111 (19K0228-15)		(Solid)	Lab File ID: N819120248.D			Analyzed: 12/02/19 22:34			
Tetrapentyltin	42590	6.07	28487	6.07	150	50 - 200	0.000	+/-0.50	
p-Terphenyl-d14	33930	8.647	28078	8.647	121	50 - 200	0.000	+/-0.50	
PDI-143RAB-20-31.1-191111 (19K0228-16)		(Solid)	Lab File ID: N819120249.D			Analyzed: 12/02/19 22:51			
Tetrapentyltin	43882	6.07	28487	6.07	154	50 - 200	0.000	+/-0.50	
p-Terphenyl-d14	35513	8.647	28078	8.647	126	50 - 200	0.000	+/-0.50	
Calibration Check (SHL0025-CCV1)		(Water)	Lab File ID: N819120256.D			Analyzed: 12/03/19 00:45			
Tetrapentyltin	32557	6.058	28487	6.07	114	50 - 200	-0.012	+/-0.50	
p-Terphenyl-d14	29683	8.647	28078	8.647	106	50 - 200	0.000	+/-0.50	



INTERNAL STANDARD AREA AND RT SUMMARY
EPA 8270D-SIM

Laboratory: Analytical Resources, Inc.

SDG: 19K0228

Client: Anchor OEA, LLC

Project: Gasco PDI

Sequence: SHL0032

Instrument: NT8

Calibration: CK00068

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Initial Cal Check (SHL0032-ICV1)		(Solid)	Lab File ID: N819120302.D			Analyzed: 12/03/19 09:22			
Tetrapentyltin	30089	6.058	30089	6.058	100	50 - 200	0.000	+/-0.50	
p-Terphenyl-d14	30470	8.647	30470	8.647	100	50 - 200	0.000	+/-0.50	
Instrument Blank (SHL0032-IBL1)		(Solid)	Lab File ID: N819120303.D			Analyzed: 12/03/19 10:14			
Tetrapentyltin	31672	6.07	30089	6.058	105	50 - 200	0.012	+/-0.50	
p-Terphenyl-d14	32069	8.647	30470	8.647	105	50 - 200	0.000	+/-0.50	
PDI-142RAB-00-10-191112 (19K0228-02)		(Solid)	Lab File ID: N819120304.D			Analyzed: 12/03/19 10:36			
Tetrapentyltin	31652	6.082	30089	6.058	105	50 - 200	0.024	+/-0.50	
p-Terphenyl-d14	25068	8.647	30470	8.647	82	50 - 200	0.000	+/-0.50	
Calibration Check (SHL0032-CCV1)		(Water)	Lab File ID: N819120307.D			Analyzed: 12/03/19 12:12			
Tetrapentyltin	35492	6.07	30089	6.058	118	50 - 200	0.012	+/-0.50	
p-Terphenyl-d14	30365	8.647	30470	8.647	100	50 - 200	0.000	+/-0.50	



INTERNAL STANDARD AREA AND RT SUMMARY
EPA 8270D-SIM

Laboratory: Analytical Resources, Inc.
Client: Anchor OEA, LLC
Sequence: SHL0077

SDG: 19K0228
Project: Gasco PDI
Instrument: NT8
Calibration: CK00068

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Initial Cal Check (SHL0077-ICV1)		(Solid)	Lab File ID: N819120502.D			Analyzed: 12/05/19 11:17			
Tetrapentyltin	50741	6.058	50741	6.058	100	50 - 200	0.000	+/-0.50	
p-Terphenyl-d14	44114	8.635	44114	8.635	100	50 - 200	0.000	+/-0.50	
Blank (BHL0082-BLK1)		(Solid)	Lab File ID: N819120503.D			Analyzed: 12/05/19 11:41			
Tetrapentyltin	47264	6.058	50741	6.058	93	50 - 200	0.000	+/-0.50	
p-Terphenyl-d14	41877	8.635	44114	8.635	95	50 - 200	0.000	+/-0.50	
LCS (BHL0082-BS1)		(Solid)	Lab File ID: N819120504.D			Analyzed: 12/05/19 11:58			
Tetrapentyltin	48955	6.058	50741	6.058	96	50 - 200	0.000	+/-0.50	
p-Terphenyl-d14	45008	8.635	44114	8.635	102	50 - 200	0.000	+/-0.50	
LCS Dup (BHL0082-BSD1)		(Solid)	Lab File ID: N819120505.D			Analyzed: 12/05/19 12:14			
Tetrapentyltin	50894	6.058	50741	6.058	100	50 - 200	0.000	+/-0.50	
p-Terphenyl-d14	45319	8.635	44114	8.635	103	50 - 200	0.000	+/-0.50	
PDI-140RAB-00-10-191108 (19K0228-10RE1)		(Solid)	Lab File ID: N819120506.D			Analyzed: 12/05/19 12:30			
Tetrapentyltin	45368	6.058	50741	6.058	89	50 - 200	0.000	+/-0.50	
p-Terphenyl-d14	40580	8.635	44114	8.635	92	50 - 200	0.000	+/-0.50	
Matrix Spike (BHL0082-MS1)		(Solid)	Lab File ID: N819120507.D			Analyzed: 12/05/19 12:46			
Tetrapentyltin	48822	6.058	50741	6.058	96	50 - 200	0.000	+/-0.50	
p-Terphenyl-d14	42968	8.635	44114	8.635	97	50 - 200	0.000	+/-0.50	
Matrix Spike Dup (BHL0082-MSD1)		(Solid)	Lab File ID: N819120508.D			Analyzed: 12/05/19 13:03			
Tetrapentyltin	46341	6.058	50741	6.058	91	50 - 200	0.000	+/-0.50	
p-Terphenyl-d14	42720	8.635	44114	8.635	97	50 - 200	0.000	+/-0.50	
Calibration Check (SHL0077-CCV1)		(Water)	Lab File ID: N819120512.D			Analyzed: 12/05/19 14:08			
Tetrapentyltin	38925	6.046	50741	6.058	77	50 - 200	-0.012	+/-0.50	
p-Terphenyl-d14	37177	8.635	44114	8.635	84	50 - 200	0.000	+/-0.50	



HOLDING TIME SUMMARY

Analysis: EPA 8270D-SIM

Laboratory: Analytical Resources, Inc.

SDG: 19K0228

Client: Anchor QEA, LLC

Project: Gasco PDI

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
PDI-1142RAB-20-30.4-191112 19K0228-01	11/12/19 00:00	11/15/19 10:44	11/21/19 12:50	9	14	12/02/19 18:47	11	40	
PDI-142RAB-00-10-191112 19K0228-02	11/12/19 11:20	11/15/19 10:44	11/21/19 12:50	9	14	12/03/19 10:36	12	40	
PDI-142RAB-10-20-191112 19K0228-03	11/12/19 12:00	11/15/19 10:44	11/21/19 12:50	9	14	12/02/19 19:52	11	40	
PDI-142RAB-20-30.4-191112 19K0228-04	11/12/19 14:35	11/15/19 10:44	11/21/19 12:50	8	14	12/02/19 20:08	11	40	
PDI-144RAB-00-10-191113 19K0228-05	11/13/19 09:55	11/15/19 10:44	11/21/19 12:50	8	14	12/02/19 20:24	11	40	
PDI-144RAB-10-20-191113 19K0228-06	11/13/19 11:20	11/15/19 10:44	11/21/19 12:50	8	14	12/02/19 20:41	11	40	
PDI-144RAB-20-29-191113 19K0228-07	11/13/19 12:00	11/15/19 10:44	11/21/19 12:50	8	14	12/02/19 20:57	11	40	
PDI-FB-191112146 19K0228-08	11/12/19 11:46	11/15/19 10:44	11/19/19 10:31	6	7	11/25/19 17:50	6	40	
PDI-RB-1911120944 19K0228-09	11/12/19 09:44	11/15/19 10:44	11/19/19 10:31	7	7	11/25/19 18:06	6	40	
PDI-140RAB-00-10-191108 19K0228-10RE1	11/08/19 11:40	11/15/19 10:44	12/04/19 16:05	26	365	12/05/19 12:30	1	40	
PDI-140RAB-10-12.7-191108 19K0228-11	11/08/19 12:15	11/15/19 10:44	11/21/19 12:50	13	14	12/02/19 21:29	11	40	
PDI-141RAB-00-10-191107 19K0228-12	11/07/19 15:15	11/15/19 10:44	11/21/19 12:50	13	14	12/02/19 21:46	11	40	
PDI-141RAB-10-17.7-191107 19K0228-13	11/07/19 16:45	11/15/19 10:44	11/21/19 12:50	13	14	12/02/19 22:02	11	40	
PDI-143RAB-00-10-191111 19K0228-14	11/11/19 12:30	11/15/19 10:44	11/21/19 12:50	10	14	12/02/19 22:18	11	40	
PDI-143RAB-10-20-191111 19K0228-15	11/11/19 14:05	11/15/19 10:44	11/21/19 12:50	9	14	12/02/19 22:34	11	40	
PDI-143RAB-20-31.1-191111 19K0228-16	11/11/19 15:30	11/15/19 10:44	11/21/19 12:50	9	14	12/02/19 22:51	11	40	
Matrix Spike BHK0438-MS1	11/12/19 11:46	11/15/19 10:44	11/19/19 10:31	6	7	11/25/19 18:23	6	40	
Matrix Spike Dup BHK0438-MSD1	11/12/19 11:46	11/15/19 10:44	11/19/19 10:31	6	7	11/25/19 18:39	6	40	
Matrix Spike BHK0576-MS1	11/12/19 00:00	11/15/19 10:44	11/21/19 12:50	9	14	12/02/19 19:03	11	40	
Matrix Spike Dup BHK0576-MSD1	11/12/19 00:00	11/15/19 10:44	11/21/19 12:50	9	14	12/02/19 19:19	11	40	
Matrix Spike BHL0082-MS1	11/08/19 11:40	11/15/19 10:44	12/04/19 16:05	26	365	12/05/19 12:46	1	40	
Matrix Spike Dup BHL0082-MSD1	11/08/19 11:40	11/15/19 10:44	12/04/19 16:05	26	365	12/05/19 13:03	1	40	

* Indicates hold time exceedance.



Analytical Resources, Incorporated
Analytical Chemists and Consultants

METHOD DETECTION AND REPORTING LIMITS

EPA 8270D-SIM

Laboratory: Analytical Resources, Inc.

SDG: 19K0228

Client: Anchor OEA, LLC

Project: Gasco PDI

Matrix: Solid

Instrument: NT8

Analyte	MDL	RL	Units
Tributyltin Ion	0.450	3.86	ug/kg



**METHOD DETECTION
AND REPORTING LIMITS**

EPA 8270D-SIM

Laboratory: Analytical Resources, Inc.

SDG: 19K0228

Client: Anchor OEA, LLC

Project: Gasco PDI

Matrix: Water

Instrument: NT8

Analyte	MDL	RL	Units
Tributyltin Ion	0.043	0.193	ug/L



Form I
INORGANIC ANALYSIS DATA SHEET
SM 2540 G-97

PDI-1142RAB-20-30.4-191112

Laboratory: Analytical Resources, Inc.

Client: Anchor QEA, LLC

Project: Gasco PDI

Matrix: Solid Laboratory ID: 19K0228-01 A SDG: 19K0228

Sampled: 11/12/19 00:00 Prepared: 11/19/19 18:41 File ID:

% Solids: 86.83 Preparation: No Prep Wet Chem Analyzed: 11/19/19 19:02

Batch: BHK0507 Sequence: Initial/Final: 10 g Wet / 10 g

Instrument: BAL2 Calibration:

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
	Total Solids	86.83	1	0.04	0.04	



Form I
INORGANIC ANALYSIS DATA SHEET
SM 2540 G-97

PDI-142RAB-00-10-191112

Laboratory: Analytical Resources, Inc.

Client: Anchor QEA, LLC

Project: Gasco PDI

Matrix: Solid Laboratory ID: 19K0228-02 A SDG: 19K0228

Sampled: 11/12/19 11:20 Prepared: 11/19/19 18:41 File ID:

% Solids: 91.84 Preparation: No Prep Wet Chem Analyzed: 11/19/19 19:02

Batch: BHK0507 Sequence: Initial/Final: 10 g Wet / 10 g

Instrument: BAL2 Calibration:

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
	Total Solids	91.84	1	0.04	0.04	



Form I
INORGANIC ANALYSIS DATA SHEET
SM 2540 G-97

PDI-142RAB-10-20-191112

Laboratory: Analytical Resources, Inc.

Client: Anchor QEA, LLC

Project: Gasco PDI

Matrix: Solid Laboratory ID: 19K0228-03 A SDG: 19K0228

Sampled: 11/12/19 12:00 Prepared: 11/19/19 18:41 File ID:

% Solids: 93.51 Preparation: No Prep Wet Chem Analyzed: 11/19/19 19:02

Batch: BHK0507 Sequence: Initial/Final: 10 g Wet / 10 g

Instrument: BAL2 Calibration:

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
	Total Solids	93.51	1	0.04	0.04	



Form I
INORGANIC ANALYSIS DATA SHEET
SM 2540 G-97

PDI-142RAB-20-30.4-191112

Laboratory: Analytical Resources, Inc.

Client: Anchor QEA, LLC

Project: Gasco PDI

Matrix: Solid Laboratory ID: 19K0228-04 A SDG: 19K0228

Sampled: 11/12/19 14:35 Prepared: 11/19/19 18:41 File ID:

% Solids: 87.39 Preparation: No Prep Wet Chem Analyzed: 11/19/19 19:02

Batch: BHK0507 Sequence: Initial/Final: 10 g Wet / 10 g

Instrument: BAL2 Calibration:

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
	Total Solids	87.39	1	0.04	0.04	



Form I
INORGANIC ANALYSIS DATA SHEET
SM 2540 G-97

PDI-144RAB-00-10-191113

Laboratory: Analytical Resources, Inc.

Client: Anchor QEA, LLC

Project: Gasco PDI

Matrix: Solid Laboratory ID: 19K0228-05 A SDG: 19K0228

Sampled: 11/13/19 09:55 Prepared: 11/19/19 18:41 File ID:

% Solids: 91.42 Preparation: No Prep Wet Chem Analyzed: 11/19/19 19:02

Batch: BHK0507 Sequence: Initial/Final: 10 g Wet / 10 g

Instrument: BAL2 Calibration:

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
	Total Solids	91.42	1	0.04	0.04	



Form I
INORGANIC ANALYSIS DATA SHEET
SM 2540 G-97

PDI-144RAB-10-20-191113

Laboratory: Analytical Resources, Inc.

Client: Anchor QEA, LLC

Project: Gasco PDI

Matrix: Solid Laboratory ID: 19K0228-06 A SDG: 19K0228

Sampled: 11/13/19 11:20 Prepared: 11/19/19 18:41 File ID:

% Solids: 92.23 Preparation: No Prep Wet Chem Analyzed: 11/19/19 19:02

Batch: BHK0507 Sequence: Initial/Final: 10 g Wet / 10 g

Instrument: BAL2 Calibration:

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
	Total Solids	92.23	1	0.04	0.04	



Form I
INORGANIC ANALYSIS DATA SHEET
SM 2540 G-97

PDI-144RAB-20-29-191113

Laboratory: Analytical Resources, Inc.

Client: Anchor QEA, LLC

Project: Gasco PDI

Matrix: Solid Laboratory ID: 19K0228-07 A SDG: 19K0228

Sampled: 11/13/19 12:00 Prepared: 11/19/19 18:41 File ID:

% Solids: 92.96 Preparation: No Prep Wet Chem Analyzed: 11/19/19 19:02

Batch: BHK0507 Sequence: Initial/Final: 10 g Wet / 10 g

Instrument: BAL2 Calibration:

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
	Total Solids	92.96	1	0.04	0.04	



Form I
INORGANIC ANALYSIS DATA SHEET
SM 2540 G-97

PDI-140RAB-00-10-191108

Laboratory: Analytical Resources, Inc.

Client: Anchor QEA, LLC

Project: Gasco PDI

Matrix: Solid Laboratory ID: 19K0228-10 A SDG: 19K0228

Sampled: 11/08/19 11:40 Prepared: 11/19/19 18:41 File ID:

% Solids: 82.25 Preparation: No Prep Wet Chem Analyzed: 11/19/19 19:02

Batch: BHK0507 Sequence: Initial/Final: 10 g Wet / 10 g

Instrument: BAL2 Calibration:

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
	Total Solids	82.25	1	0.04	0.04	



Form I
INORGANIC ANALYSIS DATA SHEET
SM 2540 G-97

PDI-140RAB-10-12.7-191108

Laboratory: Analytical Resources, Inc.

Client: Anchor QEA, LLC

Project: Gasco PDI

Matrix: Solid Laboratory ID: 19K0228-11 A SDG: 19K0228

Sampled: 11/08/19 12:15 Prepared: 11/19/19 18:41 File ID:

% Solids: 79.82 Preparation: No Prep Wet Chem Analyzed: 11/19/19 19:02

Batch: BHK0507 Sequence: Initial/Final: 10 g Wet / 10 g

Instrument: BAL2 Calibration:

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
	Total Solids	79.82	1	0.04	0.04	



Form I
INORGANIC ANALYSIS DATA SHEET
SM 2540 G-97

PDI-141RAB-00-10-191107

Laboratory: Analytical Resources, Inc.

Client: Anchor QEA, LLC

Project: Gasco PDI

Matrix: Solid Laboratory ID: 19K0228-12 A SDG: 19K0228

Sampled: 11/07/19 15:15 Prepared: 11/19/19 18:41 File ID:

% Solids: 86.02 Preparation: No Prep Wet Chem Analyzed: 11/19/19 19:02

Batch: BHK0507 Sequence: Initial/Final: 10 g Wet / 10 g

Instrument: BAL2 Calibration:

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
	Total Solids	86.02	1	0.04	0.04	



Form I
INORGANIC ANALYSIS DATA SHEET
SM 2540 G-97

PDI-141RAB-10-17.7-191107

Laboratory: Analytical Resources, Inc.

Client: Anchor QEA, LLC

Project: Gasco PDI

Matrix: Solid Laboratory ID: 19K0228-13 A SDG: 19K0228

Sampled: 11/07/19 16:45 Prepared: 11/19/19 18:41 File ID:

% Solids: 81.25 Preparation: No Prep Wet Chem Analyzed: 11/19/19 19:02

Batch: BHK0507 Sequence: Initial/Final: 10 g Wet / 10 g

Instrument: BAL2 Calibration:

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
	Total Solids	81.25	1	0.04	0.04	



Form I
INORGANIC ANALYSIS DATA SHEET
SM 2540 G-97

PDI-143RAB-00-10-191111

Laboratory: Analytical Resources, Inc.
Client: Anchor QEA, LLC
Project: Gasco PDI
Matrix: Solid Laboratory ID: 19K0228-14 A SDG: 19K0228
Sampled: 11/11/19 12:30 Prepared: 11/19/19 18:41 File ID:
% Solids: 92.43 Preparation: No Prep Wet Chem Analyzed: 11/19/19 19:02
Batch: BHK0507 Sequence: Initial/Final: 10 g Wet / 10 g
Instrument: BAL2 Calibration:

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
	Total Solids	92.43	1	0.04	0.04	



Form I
INORGANIC ANALYSIS DATA SHEET
SM 2540 G-97

PDI-143RAB-10-20-191111

Laboratory: Analytical Resources, Inc.

Client: Anchor QEA, LLC

Project: Gasco PDI

Matrix: Solid Laboratory ID: 19K0228-15 A SDG: 19K0228

Sampled: 11/11/19 14:05 Prepared: 11/19/19 18:41 File ID:

% Solids: 92.21 Preparation: No Prep Wet Chem Analyzed: 11/19/19 19:02

Batch: BHK0507 Sequence: Initial/Final: 10 g Wet / 10 g

Instrument: BAL2 Calibration:

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
	Total Solids	92.21	1	0.04	0.04	



Form I
INORGANIC ANALYSIS DATA SHEET
SM 2540 G-97

PDI-143RAB-20-31.1-191111

Laboratory: Analytical Resources, Inc.

Client: Anchor QEA, LLC

Project: Gasco PDI

Matrix: Solid Laboratory ID: 19K0228-16 A SDG: 19K0228

Sampled: 11/11/19 15:30 Prepared: 11/19/19 18:41 File ID:

% Solids: 90.31 Preparation: No Prep Wet Chem Analyzed: 11/19/19 19:02

Batch: BHK0507 Sequence: Initial/Final: 10 g Wet / 10 g

Instrument: BAL2 Calibration:

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
	Total Solids	90.31	1	0.04	0.04	



PREPARATION BATCH SUMMARY

SM 2540 G-97

Laboratory: Analytical Resources, Inc.

SDG: 19K0228

Client: Anchor QEA, LLC

Project: Gasco PDI

Batch: BHK0507 Batch Matrix: Solid

Preparation: No Prep Wet Chem

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
PDI-1142RAB-20-30.4-191112	19K0228-01		11/19/19 18:41	Use instead if PSEP %TS
PDI-142RAB-00-10-191112	19K0228-02		11/19/19 18:41	Use instead if PSEP %TS
PDI-142RAB-10-20-191112	19K0228-03		11/19/19 18:41	Use instead if PSEP %TS
PDI-142RAB-20-30.4-191112	19K0228-04		11/19/19 18:41	Use instead if PSEP %TS
PDI-144RAB-00-10-191113	19K0228-05		11/19/19 18:41	Use instead if PSEP %TS
PDI-144RAB-10-20-191113	19K0228-06		11/19/19 18:41	Use instead if PSEP %TS
PDI-144RAB-20-29-191113	19K0228-07		11/19/19 18:41	Use instead if PSEP %TS
PDI-140RAB-00-10-191108	19K0228-10		11/19/19 18:41	Use instead if PSEP %TS
PDI-140RAB-10-12.7-191108	19K0228-11		11/19/19 18:41	Use instead if PSEP %TS
PDI-141RAB-00-10-191107	19K0228-12		11/19/19 18:41	Use instead if PSEP %TS
PDI-141RAB-10-17.7-191107	19K0228-13		11/19/19 18:41	Use instead if PSEP %TS
PDI-143RAB-00-10-191111	19K0228-14		11/19/19 18:41	Use instead if PSEP %TS
PDI-143RAB-10-20-191111	19K0228-15		11/19/19 18:41	Use instead if PSEP %TS
PDI-143RAB-20-31.1-191111	19K0228-16		11/19/19 18:41	Use instead if PSEP %TS
Blank	BHK0507-BLK1		11/19/19 18:41	
PDI-1142RAB-20-30.4-191112	BHK0507-DUP1		11/19/19 18:41	

TOTAL SOLIDS/VOLATILE SOLIDS (TS / TVS) BENCHSHEET for Solid samples

Method: PSEP 1986, SM2540, EPA 160.1
(dry at 104 (12-24 hr) then combust at 550 (30 min))

Batch: BHK0507
Date: 11/19/2019 19:02
Analyst: KLE

Instrumentation
Drying Ovens: 12
Muffle Furnace: N/A
Analytical Balance: BAL2

Batch drying time
record times as mm/dd/yy hh:mm
date/time in oven: 11/19/2019 19:02
date/time out: 11/20/2019 10:35
elapsed hrs = 15.5 OK

TS (%) calculated as:
Final dry wt (g) = (Dry Wt - Tare Wt)
TS = (Final Dry Wt) / (grams Sample-Tare)

TVS (mg/kg dry wt) calculated as:
Final ash wt (g) = (min ash wt - tare wt)
TVS (mg/kg) = [(Dry wt-Ash wt) / (dry weight)] * 1,000,000
if ash wt > dry wt, "Chk for Err"
if dry wt-ash wt < 0.001 g, "< (1/dry wt) * 1,000,000

Balance Calibration Check
Record weights to 4 places

Cal Wt (g):	CV-02	CV-02	CV-02	CV-02
10.0000	11/19/19 18:42	11/19/19 18:46	11/20/19 10:50	CV-02
	9.9999	9.9999	10.0000	CV-02
	Cal OK!	Cal OK!	Cal OK!	CV-02

Sample ID	Dish #	Tare Wt. (g)	Dish & Sample (g)			Dry Wt 104C (grams)			dry wt (g)	TS (%)	Notes	ASH WT 500C (grams)			Ash Wt (g)	TVS		Note
			CV-02	CV-02	CV-02	CV-02	CV-02	CV-02				CV-02	CV-02	CV-02		CV-02	(mg/kg)	
BHK0507-BLK1	1	1.1099	0.0000	1.1099	0.0000	1.1099	1.1099	0.0000	0.00%		1	2	3					
19K0228-01	2	1.1022	8.5322	7.5539	8.5322	7.5539	6.4517	86.83%										
BHK0507-DUP1	3	1.1025	8.5651	7.6397	8.5651	7.6397	6.5372	87.60%	RPD=0.9									
19K0228-02	4	1.1014	7.7854	7.2398	7.7854	7.2398	6.1384	91.84%										
19K0228-03	5	1.1649	7.3984	6.9938	7.3984	6.9938	5.8289	93.51%										
19K0228-04	6	1.1647	8.3373	7.4326	8.3373	7.4326	6.2679	87.39%										
19K0228-05	7	1.1683	6.1077	5.6841	6.1077	5.6841	4.5158	91.42%										
19K0228-06	8	1.1661	7.4928	7.0016	7.4928	7.0016	5.8335	92.23%										
19K0228-07	9	1.1461	6.6126	6.2278	6.6126	6.2278	5.0817	92.96%										
19K0228-10	10	1.1339	9.0451	7.8412	9.0451	7.8412	6.5073	82.25%										
19K0228-11	11	1.1760	7.4165	6.1572	7.4165	6.1572	4.9812	79.82%										
19K0228-12	12	1.1666	9.2510	8.1205	9.2510	8.1205	6.9539	86.02%										
19K0228-13	13	1.1608	9.6810	8.0833	9.6810	8.0833	6.9225	81.25%										
19K0228-14	14	1.1703	8.7909	8.2140	8.7909	8.2140	7.0437	92.43%										
19K0228-15	16	1.1537	7.0775	6.6163	7.0775	6.6163	5.4626	92.21%										
19K0228-16	15	1.1590	7.8812	7.2295	7.8812	7.2295	6.0705	90.31%										



Form I
METHOD BLANK DATA SHEET
SM 2540 G-97
TotalAnalytes

Blank

Laboratory: Analytical Resources, Inc.

SDG: 19K0228

Client: Anchor QEA, LLC

Project: Gasco PDI

Batch: BHK0507

Laboratory ID: BHK0507-BLK1

Prepared: 11/19/19 18:41

Matrix: Solid

Preparation: No Prep Wet Chem

Analyzed: 11/19/19 19:02

Sequence:

Calibration:

Instrument: BAL2

CAS NO.	Analyte	Concentration (%)	Dilution Factor	MDL	MRL	Q
	Total Solids	ND	1	0.04	0.04	U



DUPLICATES
SM 2540 G-97

Laboratory: Analytical Resources, Inc.

SDG: 19K0228

Client: Anchor QEA, LLC

Project: Gasco PDI

Matrix: Solid

Laboratory ID: BHK0507-DUP1

Batch: BHK0507

Lab Source ID: 19K0228-01

Preparation: No Prep Wet Chem

Initial/Final: 10 g / 10 g

Source Sample Name: PDI-1142RAB-20-30.4-191112

% Solids: 86.83

ANALYTE	CONTROL LIMIT	SAMPLE CONCENTRATION (%)	C	DUPLICATE CONCENTRATION (%)	C	RPD %	Q
Total Solids	20	86.83		87.60		0.879	

*: Values outside of QC limits

L: Analyte concentration is ≤ 5 times the reporting limit and the replicate control limit defaults to Dup = +/-RL instead of 20% RPD



HOLDING TIME SUMMARY

Analysis: SM 2540 G-97

Laboratory: Analytical Resources, Inc.

SDG: 19K0228

Client: Anchor QEA, LLC

Project: Gasco PDI

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
PDI-1142RAB-20-30.4-191112 19K0228-01	11/12/19 00:00	11/15/19 10:44	11/19/19 18:41	7	28	11/19/19 19:02	8	28	
PDI-142RAB-00-10-191112 19K0228-02	11/12/19 11:20	11/15/19 10:44	11/19/19 18:41	7	28	11/19/19 19:02	7	28	
PDI-142RAB-10-20-191112 19K0228-03	11/12/19 12:00	11/15/19 10:44	11/19/19 18:41	7	28	11/19/19 19:02	7	28	
PDI-142RAB-20-30.4-191112 19K0228-04	11/12/19 14:35	11/15/19 10:44	11/19/19 18:41	7	28	11/19/19 19:02	7	28	
PDI-144RAB-00-10-191113 19K0228-05	11/13/19 09:55	11/15/19 10:44	11/19/19 18:41	6	28	11/19/19 19:02	6	28	
PDI-144RAB-10-20-191113 19K0228-06	11/13/19 11:20	11/15/19 10:44	11/19/19 18:41	6	28	11/19/19 19:02	6	28	
PDI-144RAB-20-29-191113 19K0228-07	11/13/19 12:00	11/15/19 10:44	11/19/19 18:41	6	28	11/19/19 19:02	6	28	
PDI-140RAB-00-10-191108 19K0228-10	11/08/19 11:40	11/15/19 10:44	11/19/19 18:41	11	28	11/19/19 19:02	11	28	
PDI-140RAB-10-12.7-191108 19K0228-11	11/08/19 12:15	11/15/19 10:44	11/19/19 18:41	11	28	11/19/19 19:02	11	28	
PDI-141RAB-00-10-191107 19K0228-12	11/07/19 15:15	11/15/19 10:44	11/19/19 18:41	12	28	11/19/19 19:02	12	28	
PDI-141RAB-10-17.7-191107 19K0228-13	11/07/19 16:45	11/15/19 10:44	11/19/19 18:41	12	28	11/19/19 19:02	12	28	
PDI-143RAB-00-10-191111 19K0228-14	11/11/19 12:30	11/15/19 10:44	11/19/19 18:41	8	28	11/19/19 19:02	8	28	
PDI-143RAB-10-20-191111 19K0228-15	11/11/19 14:05	11/15/19 10:44	11/19/19 18:41	8	28	11/19/19 19:02	8	28	
PDI-143RAB-20-31.1-191111 19K0228-16	11/11/19 15:30	11/15/19 10:44	11/19/19 18:41	8	28	11/19/19 19:02	8	28	
Duplicate BHK0507-DUP1	11/12/19 00:00	11/15/19 10:44	11/19/19 18:41	7	28	11/19/19 19:02	8	28	

* Indicates hold time exceedance.



Analytical Resources, Incorporated
Analytical Chemists and Consultants

METHOD DETECTION AND REPORTING LIMITS

SM 2540 G-97

Laboratory: Analytical Resources, Inc.

SDG: 19K0228

Client: Anchor OEA, LLC

Project: Gasco PDI

Matrix: Solid

Instrument:

Analyte	MDL	RL	Units
Total Solids	0.04	0.04	%