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ANALYSIS: BNA METHOD NO.: 8270C

ARDL Report(s) #: 006612 MATRIX: SEA CUCUMBER

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	By:	Date:
Package Preparation	JAA	03/18/14
Analytical Review	PFK	3/18/2014
Final Review	BMD	3/28/14
QA Review	ASS	3/28/14

Rev. 1.1

Organic Package Review Checklist

Rev. 1.1

ORGANIC PACKAGE REVIEW CHECKLIST

METHOD: 8270C

	Initial	Date
Case Narrative and/or Nonconformance Reports		
Case Narrative / Analyst Comment Sheets	PEK	3/18/14
Nonconformance / Noncompliance Reports (if applicable)	↓	↓
Sample Receipt Information		
Copies of Original Chain-of-Custody Forms	PEK	3/18/14
Cooler Receipt Form and Airbills	↓	↓
Phone Messages (If applicable)	↓	↓
Field Sample Results	PEK	3/18/14
QC Summary Forms		
Surrogate Summary, if applicable	PEK	3/18/14
Spike Blank and/or MS Summary	↓	↓
Blank Results & Blank Summary, if applicable	↓	↓
ISTD Area Summary, if applicable	↓	↓
Sample Preparation Information (if applicable)		
Total Solids Determination (If applicable)	PEK	3/18/14
Extraction Log (If applicable)	↓	↓
Extraction Notebook Pages (If applicable)	↓	↓
Spiking Solutions Notebook Pages	↓	↓
MS/MSD's	↓	↓
Surrogate/ISTDs	↓	↓
Spiking Solutions Certificates Of Analyses	↓	↓
MS/MSD's	↓	↓
Surrogates/ISTDs	↓	↓
Certificates of Analysis (Vendor)	↓	↓
Standard Preparation Information		
Instrument Logs/Analysis Notebook Pages	PEK	3/18/14
Certificates of Analysis (Vendor)	↓	↓
Analytical Run Number 1		
Calibration Information	PEK	3/18/14
Tune Data	↓	↓
Initial Calibration	↓	↓
Continuing Calibration	↓	↓
Instrument Logs/Analysis Notebook Pages	↓	↓
Blank/Sample/Field QC Data	↓	↓
Analytical Run Number 2 (if required)		
Calibration Information	N/A	
Tune Data	↓	↓
Initial Calibration	↓	↓
Continuing Calibration	↓	↓
Instrument Logs/Analysis Notebook Pages	↓	↓
Blank/Sample/Field QC Data	↓	↓

Rev. 1.1

ORGANIC PACKAGE REVIEW CHECKLIST (Continued)

METHOD: 8270C

	Initial	Date
Analytical Run Number 3 (if required)		
Calibration Information	N/A	
Tune Data		
Initial Calibration		
Continuing Calibration		
Instrument Logs/Analysis Notebook Pages		
Blank/Sample/Field QC Data		
Analytical Run Number 4 (if required)		
Calibration Information	N/A	
Tune Data		
Initial Calibration		
Continuing Calibration		
Instrument Logs/Analysis Notebook Pages		
Blank/Sample/Field QC Data		
Analytical Run Number 5 (if required)		
Calibration Information	N/A	
Tune Data		
Initial Calibration		
Continuing Calibration		
Instrument Logs/Analysis Notebook Pages		
Blank/Sample/Field QC Data		
Analytical Run Number 6 (if required)		
Calibration Information	N/A	
Tune Data		
Initial Calibration		
Continuing Calibration		
Instrument Logs/Analysis Notebook Pages		
Blank/Sample/Field QC Data		
Example Calculation		
Example Calculation Sheet	PEK	3/18/14
Miscellaneous Additional Data (if applicable)	PEK	3/18/14

NA = Not Applicable

I have checked this package for completeness and verify the following:

1. Pencils, whiteout, whiteout tape, and dark highlighters were not used. ✓
2. All notebook pages are signed. ✓
3. All corrections contain the original data "struck through" with initials and date. ✓
4. All comments found throughout the data are defined as required. ✓
5. All pages are legible. ✓
6. Manual integrations, if applicable, are printed out and include an explanation with signature of the analyst and date. ✓

Package Completeness Checked By/Date: PEK 3/18/2014

Rev. 1.1

Case Narrative and/or Nonconformance Reports

Rev. 1.1

ORGANIC ANALYSIS CASE NARRATIVE

Corps of Engineers – ERDC, Vicksburg **Date: 3/28/14**

ARDL Report No.: 6612 **Lab Name: ARDL, Inc.**

Project Name: MAKAU MILITARY RESERVATION OAHU (SEA CUCUMBER)

Samples Received at ARDL: 02/20/2014

Lab ID No.	Sample ID No.	Date Collected	Date Extracted	Analysis Requested
006612-01	MAK102C	01/13/2014	03/06/14	BNA
006612-02	MAK103C	01/13/2014	03/06/14	BNA
006612-03	MAK104C	01/13/2014	03/06/14	BNA
006612-04	MAK105C	01/13/2014	03/06/14	BNA
006612-05	MAK106C	01/13/2014	03/06/14	BNA
006612-06	MAK107C	01/13/2014	03/06/14	BNA
006612-07	MAK108C	01/13/2014	03/06/14	BNA
006612-08	MAK110C	01/14/2014	03/06/14	BNA

SEMIVOLATILE FRACTION – METHOD 8270C

Eight (8) tissue (sea cucumber) samples were received by ARDL, Inc. on February 20, 2014, for 8270C analysis.

Due to specific project requirements and the unusual nature of the subject samples, some changes were made to standard method protocol. Since the requested analyte list was limited to five Phthalate Esters and Pyrene, only the three Base/Neutral surrogate compounds were used and evaluated in all calibrations, QC and sample analyses. A sample weight of 5 grams was used for extraction resulting in a 1,000 ug/Kg reporting limit. All extractions were performed with methylene chloride as the only solvent in order to avoid probable matrix interferences.

INITIAL CALIBRATION

The initial calibration was performed using six calibration points and passed method criteria.

CONTINUING CALIBRATION

All continuing calibrations met criteria.

SURROGATES

All QC and samples met surrogate recovery criteria.

INTERNAL STANDARDS

Internal standard recoveries were acceptable for all analyses.

LCS

The LCS analysis passed the supplied recovery criteria.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The MS/MSD analysis was performed on sample MAK110C and passed the supplied recovery criteria.

METHOD BLANKS

No target analytes were detected in the method blank above the reporting limit.

ORGANIC ANALYSIS CASE NARRATIVE

Corps of Engineers – ERDC, Vicksburg **Date: 3/28/14**

ARDL Report No.: 6612 **Lab Name: ARDL, Inc.**

Project Name: MAKAU MILITARY RESERVATION OAHU (SEA CUCUMBER)

Samples Received at ARDL: 02/20/2014

ORGANIC DATA REPORTING QUALIFIERS

The following organic data reporting qualifiers are used as required.

ND- Indicates compound was analyzed for but not detected. The sample quantitation limit must be corrected for dilution and for percent moisture.

J - Indicates an estimated value. This flag is used when estimating a concentration of a compound that meets identification criteria but the result is less than the quantitation or reporting limit but greater than the method detection limit.

P - This flag is used for any two column confirmation methodology when there is greater than 40% difference for detected concentrations between the two columns. The primary column value is reported on the Form 1 and flagged with a "P".

B - This flag is used when the analyte is found above the reporting limit in the blank as well as the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

Release of the data contained in this package has been authorized by the Technical Services Manager or his designee as verified by the following signature.

Dean S. Dickerson
Technical Services Manager

Sample Receipt Information

Rev. 1.1

aiegerial in 6613
dlc
2-20-14

ARDL, Inc

P.O. Box 1566, 400 Aviation Drive, Mount Vernon, Illinois 62864
Phone (618) 244-3235, Fax (618) 244-1149

CHAIN OF CUSTODY RECORD

Project
ARDL / Makau Military Reservation Oahu, Hawaii Project

SAMPLERS (Signature)

SAMPLE NUMBER	DATE	TIME	Comp	Grab	# of Containers	Purgeable Organics 8260B	Explosives 8330	OCPs 8081	SVCOs 8270C	ARDL, Inc Remarks or Sample Location	PRESERVATION ICED	PRESERVATION Specify Chemicals added and final pH if known
MAK101O	1/13/2014	10:02		X	1	X	x	x	x	Octopus	x	
MAK102O	1/13/2014	10:30		X	1	X	x	x	x	Octopus	x	
MAK103O	1/13/2014	11:02		X	1	X	x	x	x	Octopus	x	
MAK104O	1/13/2014	11:30		X	1	X	x	x	x	Octopus	x	
MAK105O	1/13/2014	11:58		X	1	X	x	x	x	Octopus	x	
MAK106O	1/13/2014	12:20		X	1	X	x	x	x	Octopus	x	
MAK107O	1/13/2014	13:05		X	1	X	x	x	x	Octopus	x	
MAK108O	1/13/2014	14:20		X	1	X	x	x	x	Octopus	x	
MAK102C	1/13/2014	10:02		X	1	X	x	x	x	Sea Cucumber	x	
MAK103C	1/13/2014	10:22		X	1	X	x	x	x	Sea Cucumber	x	
MAK104C	1/13/2014	11:00		X	1	X	x	x	x	Sea Cucumber	x	
MAK105C	1/13/2014	11:30		X	1	X	x	x	x	Sea Cucumber	x	
MAK106C	1/13/2014	12:05		X	1	X	x	x	x	Sea Cucumber	x	
MAK107C	1/13/2014	12:40		X	1	X	x	x	x	Sea Cucumber	x	
MAK108C	1/13/2014	13:50		X	1	X	x	x	x	Sea Cucumber	x	
MAK110C	1/14/2014	9:55		X	1	X	x	x	x	Sea Cucumber	x	
MAK101L	1/13/2014	9:10		X	1	X	x	x	x	Limu (seaweed)	x	
MAK102L	1/13/2014	10:02		X	1	X	x	x	x	Limu (seaweed)	x	
MAK105L	1/13/2014	15:20		X	1	X	x	x	x	Limu (seaweed)	x	
MAK106L	1/14/2014	8:45		X	1	X	x	x	x	Limu (seaweed)	x	
MAK108,109,110,113L	1/14/2014		X		1	X	x	x	x	Limu (seaweed)	x	
MAK111L	1/14/2014	12:05		X	1	X	x	x	x	Limu (seaweed)	x	
MAK112L	1/14/2014	12:50		X	1	X	x	x	x	Limu (seaweed)	x	
MAK115L	1/14/2014	14:00		X	1	X	x	x	x	Limu (seaweed)	x	

Relinquished by: (Signature)	Date	Time	Relinquished by: (Signature)
PAUG	2/19/14	1600	
Relinquished by: (Signature)	Date	Time	Relinquished by: (Signature)
Received for Laboratory by: (Signature)	Date	Time	Shipping Ticket No.
L D Cochrum	2/20/14	0920	

REMARKS / SPECIAL INSTRUCTIONS:

Please send level 4 hardcopy report and excel edd to: Dean Dickerson, c/o ARDL, Inc. 400 Aviation Drive, Mount Vernon, IL 62864. Email questons to ddickerson@ardlinc.com.

COOLER RECEIPT REPORT
ARDL, INC.

Aliquot in 6613
dlc
2-20-14

ARDL #: 6611, 6612, 6613

Cooler # HH001
Number of Coolers in Shipment: 1

Project: MAKAU Military Reservation Oahu Hawaii Project

Date Received: 2-20-14

A. **PRELIMINARY EXAMINATION PHASE:** Date cooler was opened: 2-20-14 (Signature) LL Cachrum

1. Did cooler come with a shipping slip (airbill, etc.)? ..... (YES) NO

   If YES, enter carrier name and airbill number here: fed ex 9325 1888 0829

2. Were custody seals on outside of cooler? ..... YES (NO) N/A

   How many and where? _____, Seal Date: _____, Seal Name: _____

3. Were custody seals unbroken and intact at the date and time of arrival? ..... YES NO (N/A)
4. Did you screen samples for radioactivity using a Geiger Counter? ..... (YES) NO
5. Were custody papers sealed in a plastic bag ~~and taped inside to the lid?~~ dlc 2/20/14 ..... (YES) NO
6. Were custody papers filled out properly (ink, signed, etc.)? ..... (YES) NO N/A
7. Were custody papers signed in appropriate place by ARDL personnel? ..... (YES) NO N/A
8. Was project identifiable from custody papers? If YES, enter project name at the top of this form ..... (YES) NO N/A
9. Was a separate container provided for measuring temperature? YES ____ NO ✓ Cooler Temp. -6.5 C

B. **LOG-IN PHASE:** Date samples were logged-in: 2-20-14 (Signature) LL Cachrum

10. Describe type of packing in cooler: blue ice / bubble bags
11. Were all bottles sealed in separate plastic bags? in bags / not sealed ..... YES NO N/A
12. Did all bottles arrive unbroken and were labels in good condition? ..... YES (NO)
13. Were bottle labels complete? ..... (YES) NO
14. Did all bottle labels agree with custody papers? ..... (YES) NO
15. Were correct containers used for the tests indicated? ..... (YES) NO
16. Was pH correct on preserved water samples? ..... YES NO (N/A)
17. Was a sufficient amount of sample sent for tests indicated? ..... (YES) NO
18. Were bubbles absent in VOA samples? If NO, list by sample #: _____ YES NO (N/A)
19. Was the ARDL project coordinator notified of any deficiencies? ..... YES NO (N/A)

Comments and/or Corrective Action:
13) MAK 115L Cracked lid / seal intact
(By: Signature) dlc Date: 2-20-14

Sample Transfer	
Fraction: all	Fraction:
Area #: Freezer	Area #:
By: dlc	By:
On: 2-20-14	On:

M:\ADMIN\FORMS\COOLER RECEIPT REPORT.doc Rev. 05/07/07

Originals in 6613
dlc
2-20-14

ORIGIN ID:GRBA (920) 469-2436
SHIPPING
PACE ANALYTICAL
1241 BELLEVUE

GREEN BAY, WI 54302
UNITED STATES US

SHIP DATE: 19FEB14
ACTWGT: 64.0 LB
CAD: 255289/CAFE2704

DRY ICE: 4.5 KGS
BILL THIRD PARTY

TO DEAN DICKERSON
ARDL
400 AVIATION DRIVE
P.O BOX 1566
MOUNT VERNON IL 62864
(618) 244-3236
DEPT: 1301-9501

518C1/562F/6F03

FedEx Express

J131113052301 26

THU - 20 FEB AA
STANDARD OVERNIGHT

TRK# 0201 9325 1888 0829

ICE
62864
IL-US STL

NA MVNA

Part # 156148-434 RIT2 03/12

Field Sample Results

Rev. 1.1

ARDL, INC.
400 Aviation Drive; P.O. Box 1566
Mt. Vernon, Illinois 62864

Lab Report No: 006612 Report Date: 03/12/2014

Project Name: MAKAU MILITARY RES O Analysis: BNA'S (METHOD 8270)
Project No.: Analytical Method: 8270C
NELAC Certified - IL100308 Prep Method: 3550A

Field ID:	MAK102C	ARDL Lab No.:	006612-01
Desc/Location:	MAKAU MILITARY RES OAHU	Lab Filename:	E0310415
Sample Date:	01/13/2014	Received Date:	02/20/2014
Sample Time:	1002	Prep. Date:	03/06/2014
Matrix:	TISSUE	Analysis Date:	03/10/2014
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6686
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
Dimethylphthalate	200	1000	ND		UG/KG	1
Diethylphthalate	200	1000	ND		UG/KG	1
Di-n-butylphthalate	200	1000	ND		UG/KG	1
Pyrene	200	1000	ND		UG/KG	1
bis(2-Ethylhexyl)phthalate	200	1000	ND		UG/KG	1
Di-n-octylphthalate	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	87%
2-Fluorobiphenyl	30-130	99%
Terphenyl-d14	30-130	104%

Surrogate recoveries marked with '*' indicates they are outside standard limits.

Sample 006612-01, BNA'S (METHOD 8270) Page 1 of 1

ARDL, INC.
400 Aviation Drive; P.O. Box 1566
Mt. Vernon, Illinois 62864

Lab Report No: 006612 Report Date: 03/12/2014

Project Name: MAKAU MILITARY RES O Analysis: BNA'S (METHOD 8270)
Project No.: Analytical Method: 8270C
NELAC Certified - IL100308 Prep Method: 3550A

Field ID:	MAK103C	ARDL Lab No.:	006612-02
Desc/Location:	MAKAU MILITARY RES OAHU	Lab Filename:	E0310416
Sample Date:	01/13/2014	Received Date:	02/20/2014
Sample Time:	1022	Prep. Date:	03/06/2014
Matrix:	TISSUE	Analysis Date:	03/10/2014
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6686
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
Dimethylphthalate	200	1000	ND		UG/KG	1
Diethylphthalate	200	1000	ND		UG/KG	1
Di-n-butylphthalate	200	1000	ND		UG/KG	1
Pyrene	200	1000	ND		UG/KG	1
bis(2-Ethylhexyl)phthalate	200	1000	ND		UG/KG	1
Di-n-octylphthalate	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	74%
2-Fluorobiphenyl	30-130	96%
Terphenyl-d14	30-130	100%

Surrogate recoveries marked with '*' indicates they are outside standard limits.

Sample 006612-02, BNA'S (METHOD 8270) Page 1 of 1

ARDL, INC.
400 Aviation Drive; P.O. Box 1566
Mt. Vernon, Illinois 62864

Lab Report No: 006612 Report Date: 03/12/2014

Project Name: MAKAU MILITARY RES O Analysis: BNA'S (METHOD 8270)
Project No.: Analytical Method: 8270C
NELAC Certified - IL100308 Prep Method: 3550A

Field ID:	MAK104C	ARDL Lab No.:	006612-03
Desc/Location:	MAKAU MILITARY RES OAHU	Lab Filename:	E0310417
Sample Date:	01/13/2014	Received Date:	02/20/2014
Sample Time:	1100	Prep. Date:	03/06/2014
Matrix:	TISSUE	Analysis Date:	03/10/2014
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6686
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
Dimethylphthalate	200	1000	ND		UG/KG	1
Diethylphthalate	200	1000	ND		UG/KG	1
Di-n-butylphthalate	200	1000	ND		UG/KG	1
Pyrene	200	1000	ND		UG/KG	1
bis(2-Ethylhexyl)phthalate	200	1000	ND		UG/KG	1
Di-n-octylphthalate	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	74%
2-Fluorobiphenyl	30-130	94%
Terphenyl-d14	30-130	103%

Surrogate recoveries marked with '*' indicates they are outside standard limits.

Sample 006612-03, BNA'S (METHOD 8270) Page 1 of 1

ARDL, INC.
400 Aviation Drive; P.O. Box 1566
Mt. Vernon, Illinois 62864

Lab Report No: 006612 Report Date: 03/12/2014

Project Name: MAKAU MILITARY RES O Analysis: BNA'S (METHOD 8270)
Project No.: Analytical Method: 8270C
NELAC Certified - IL100308 Prep Method: 3550A

Field ID:	MAK105C	ARDL Lab No.:	006612-04
Desc/Location:	MAKAU MILITARY RES OAHU	Lab Filename:	E0310418
Sample Date:	01/13/2014	Received Date:	02/20/2014
Sample Time:	1130	Prep. Date:	03/06/2014
Matrix:	TISSUE	Analysis Date:	03/10/2014
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6686
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
Dimethylphthalate	200	1000	ND		UG/KG	1
Diethylphthalate	200	1000	ND		UG/KG	1
Di-n-butylphthalate	200	1000	ND		UG/KG	1
Pyrene	200	1000	ND		UG/KG	1
bis(2-Ethylhexyl)phthalate	200	1000	ND		UG/KG	1
Di-n-octylphthalate	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	59%
2-Fluorobiphenyl	30-130	93%
Terphenyl-d14	30-130	102%

Surrogate recoveries marked with '*' indicates they are outside standard limits.

Sample 006612-04, BNA'S (METHOD 8270) Page 1 of 1

ARDL, INC.
400 Aviation Drive; P.O. Box 1566
Mt. Vernon, Illinois 62864

Lab Report No: 006612 Report Date: 03/12/2014

Project Name: MAKAU MILITARY RES O Analysis: BNA'S (METHOD 8270)
Project No.: Analytical Method: 8270C
NELAC Certified - IL100308 Prep Method: 3550A

Field ID:	MAK106C	ARDL Lab No.:	006612-05
Desc/Location:	MAKAU MILITARY RES OAHU	Lab Filename:	E0310419
Sample Date:	01/13/2014	Received Date:	02/20/2014
Sample Time:	1205	Prep. Date:	03/06/2014
Matrix:	TISSUE	Analysis Date:	03/10/2014
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6686
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
Dimethylphthalate	200	1000	ND		UG/KG	1
Diethylphthalate	200	1000	ND		UG/KG	1
Di-n-butylphthalate	200	1000	ND		UG/KG	1
Pyrene	200	1000	ND		UG/KG	1
bis(2-Ethylhexyl)phthalate	200	1000	ND		UG/KG	1
Di-n-octylphthalate	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	80%
2-Fluorobiphenyl	30-130	98%
Terphenyl-d14	30-130	104%

Surrogate recoveries marked with '*' indicates they are outside standard limits.

Sample 006612-05, BNA'S (METHOD 8270) Page 1 of 1

ARDL, INC.
400 Aviation Drive; P.O. Box 1566
Mt. Vernon, Illinois 62864

Lab Report No: 006612 Report Date: 03/12/2014

Project Name: MAKAU MILITARY RES O Analysis: BNA'S (METHOD 8270)
Project No.: Analytical Method: 8270C
NELAC Certified - IL100308 Prep Method: 3550A

Field ID:	MAK107C	ARDL Lab No.:	006612-06
Desc/Location:	MAKAU MILITARY RES OAHU	Lab Filename:	E0310420
Sample Date:	01/13/2014	Received Date:	02/20/2014
Sample Time:	1240	Prep. Date:	03/06/2014
Matrix:	TISSUE	Analysis Date:	03/10/2014
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6686
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
Dimethylphthalate	200	1000	ND		UG/KG	1
Diethylphthalate	200	1000	ND		UG/KG	1
Di-n-butylphthalate	200	1000	ND		UG/KG	1
Pyrene	200	1000	ND		UG/KG	1
bis(2-Ethylhexyl)phthalate	200	1000	ND		UG/KG	1
Di-n-octylphthalate	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	83%
2-Fluorobiphenyl	30-130	97%
Terphenyl-d14	30-130	100%

Surrogate recoveries marked with '*' indicates they are outside standard limits.

Sample 006612-06, BNA'S (METHOD 8270) Page 1 of 1

ARDL, INC.
400 Aviation Drive; P.O. Box 1566
Mt. Vernon, Illinois 62864

Lab Report No: 006612 Report Date: 03/12/2014

Project Name: MAKAU MILITARY RES O Analysis: BNA'S (METHOD 8270)
Project No.: Analytical Method: 8270C
NELAC Certified - IL100308 Prep Method: 3550A

Field ID:	MAK108C	ARDL Lab No.:	006612-07
Desc/Location:	MAKAU MILITARY RES OAHU	Lab Filename:	E0310421
Sample Date:	01/13/2014	Received Date:	02/20/2014
Sample Time:	1350	Prep. Date:	03/06/2014
Matrix:	TISSUE	Analysis Date:	03/10/2014
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6686
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
Dimethylphthalate	200	1000	ND		UG/KG	1
Diethylphthalate	200	1000	ND		UG/KG	1
Di-n-butylphthalate	200	1000	ND		UG/KG	1
Pyrene	200	1000	ND		UG/KG	1
bis(2-Ethylhexyl)phthalate	200	1000	ND		UG/KG	1
Di-n-octylphthalate	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	71%
2-Fluorobiphenyl	30-130	91%
Terphenyl-d14	30-130	103%

Surrogate recoveries marked with '*' indicates they are outside standard limits.

Sample 006612-07, BNA'S (METHOD 8270) Page 1 of 1

ARDL, INC.
400 Aviation Drive; P.O. Box 1566
Mt. Vernon, Illinois 62864

Lab Report No: 006612 Report Date: 03/12/2014

Project Name: MAKAU MILITARY RES O Analysis: BNA'S (METHOD 8270)
Project No.: Analytical Method: 8270C
NELAC Certified - IL100308 Prep Method: 3550A

Field ID:	MAK110C	ARDL Lab No.:	006612-08
Desc/Location:	MAKAU MILITARY RES OAHU	Lab Filename:	E0310422
Sample Date:	01/14/2014	Received Date:	02/20/2014
Sample Time:	0955	Prep. Date:	03/06/2014
Matrix:	TISSUE	Analysis Date:	03/10/2014
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6686
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
Dimethylphthalate	200	1000	ND		UG/KG	1
Diethylphthalate	200	1000	ND		UG/KG	1
Di-n-butylphthalate	200	1000	ND		UG/KG	1
Pyrene	200	1000	ND		UG/KG	1
bis(2-Ethylhexyl)phthalate	200	1000	ND		UG/KG	1
Di-n-octylphthalate	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	68%
2-Fluorobiphenyl	30-130	93%
Terphenyl-d14	30-130	102%

Surrogate recoveries marked with '*' indicates they are outside standard limits.

Sample 006612-08, BNA'S (METHOD 8270) Page 1 of 1

QC Summary Forms

Surrogate Summary, if applicable

Spike Blank and/or MS Summary

Blank Results & Blank Summary, if applicable

ISTD Area Summary, if applicable

Rev. 1.1

2C

SEA CUCUMBER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: ARDL, INC. Contract: ---

Lab Code: --- Case No.: 006612 SAS No.: --- SDG No.: ---

	EPA SAMPLE NO.	S1 (NBZ) #	S2 (FBP) #	S3 (TPH) #	S4 ( ) #	S5 ( ) #	S6 ( ) #	TOT OUT
01	BLANK B10164	97	105	104				0
02	SPBK B10164	86	105	105				0
03	MAK102C	87	99	104				0
04	MAK103C	74	96	100				0
05	MAK104C	74	94	103				0
06	MAK105C	59	93	102				0
07	MAK106C	80	98	104				0
08	MAK107C	83	97	100				0
09	MAK108C	71	91	103				0
10	MAK110C	68	93	102				0
11	MAK110CMS	82	88	102				0
12	MAK110CMSD	62	76	101				0
13								
14								
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29								
30								

		QC LIMITS
S1	Nitrobenzene-d5	(30 - 130)
S2	2-Fluorobiphenyl	(30 - 130)
S3	Terphenyl-d14	(30 - 130)
S4		(-)
S5		(-)
S6		(-)

column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogates diluted out

BLANK SPIKE/SPIKE DUPLICATE REPORT

ARDL, INC. 400 Aviation Drive; P.O. Box 1566 Mt. Vernon, IL 62864

Lab Report No: 006612 Report Date: 03/12/2014

Project Name: MAKAU MILITARY RES O Analysis: BNA'S (METHOD 8270) Analytical Method: 8270C
Project No.: Prep Method: 3550A

Matrix: QC Material QC Batch: B6686 Prep. Date: 03/06/2014
Amount Used: 5 g Level: LOW Analysis Date: 03/10/2014

Parameter	Spike Result	Spike Level	Spike % Rec	Duplicate Result	Duplicate Level	Duplicate % Rec	Recovery Limits	RPD	RPD Limit
Dimethylphthalate	3920	5000	78	--	--	--	67-104	--	--
Diethylphthalate	3850	5000	77	--	--	--	65-108	--	--
Di-n-butylphthalate	4030	5000	81	--	--	--	68-115	--	--
Pyrene	3930	5000	79	--	--	--	47-122	--	--
bis(2-Ethylhexyl)phthalate	3780	5000	76	--	--	--	52-128	--	--
Di-n-octylphthalate	3790	5000	76	--	--	--	36-150	--	--

SURROGATE RECOVERIES:	Spike %R	Duplicate %R	%R Limits
Nitrobenzene-d5	86	--	30-130
2-Fluorobiphenyl	104.7	--	30-130
Terphenyl-d14	104.8	--	30-130

'*' indicates a recovery outside of standard limits.

Spike Blanks for 006612-08, BNA'S (METHOD 8270)

MATRIX SPIKE/SPIKE DUPLICATE REPORT

ARDL, INC. 400 Aviation Drive; P.O. Box 1566 Mt. Vernon, IL 62864

Lab Report No: 006612 Report Date: 03/12/2014

Project Name: MAKAU MILITARY RES O Analysis: BNA'S (METHOD 8270) Analytical Method: 8270C
Project No.: Prep Method: 3550A

Field ID: MAK110C
Desc/Location: MAKAU MILITARY RES OAHU
Sample Date: 01/14/2014
Sample Time: 0955
Matrix: TISSUE

Prep. Date: 03/06/2014
Amount Used: 5 g
% Moisture: No Moisture Present
QC Batch: B6686
Level: LOW

ARDL Lab No.: 006612-08
Lab Filename:
Received Date: 02/20/2014
Analysis Date: 03/10/2014

Parameter	Sample Result	MS Result	MS Level	MS % Rec	MSD Result	MSD Level	MSD % Rec	% Rec Limits	RPD	RPD Limit
Dimethylphthalate	ND	3680	5000	73.6	3470	5000	69.5	57-110	5.8	30
Diethylphthalate	ND	3450	5000	69	3060	5000	61.3	57-112	11.9	30
Di-n-butylphthalate	ND	3550	5000	71	3160	5000	63.1	54-118	11.8	30
Pyrene	ND	3460	5000	69.3	3160	5000	63.3	43-119	9.1	30
bis(2-Ethylhexyl)phthalate	ND	3410	5000	68.1	3110	5000	62.1	57-116	9.2	30
Di-n-octylphthalate	ND	3460	5000	69.3	3190	5000	63.7	32-152	8.4	30

SURROGATE RECOVERIES:	MS %R	MSD %R	%R Limits
Nitrobenzene-d5	82	62	30-130
2-Fluorobiphenyl	88	76	30-130
Terphenyl-d14	102	101	30-130

'nc' indicates sample >4X spike level.
'*' indicates a recovery outside of standard limits.
Matrix Spikes for 006612-08, BNA'S (METHOD 8270)

4B

SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

BLANK B10164

Lab Name: ARDL, INC. Contract: ---

Lab Code: --- Case No.: 006612 SAS No.: --- SDG No.: ---

Lab File ID: E0310413 Lab Sample ID: 006612-08B1

Instrument ID: AG5 Date Extracted: 03/06/14

Matrix: (soil/water) SEA CUCUMBER Date Analyzed: 03/10/14

Level: (low/med) --- Time Analyzed: 15:19

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	SPBK B10164	006612-08K1	E0310414	03/10/14
02	MAK102C	006612-01	E0310415	03/10/14
03	MAK103C	006612-02	E0310416	03/10/14
04	MAK104C	006612-03	E0310417	03/10/14
05	MAK105C	006612-04	E0310418	03/10/14
06	MAK106C	006612-05	E0310419	03/10/14
07	MAK107C	006612-06	E0310420	03/10/14
08	MAK108C	006612-07	E0310421	03/10/14
09	MAK110C	006612-08	E0310422	03/10/14
10	MAK110CMS	006612-08MS	E0310423	03/10/14
11	MAK110CMSD	006612-08MD	E0310424	03/10/14
12				
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24				
25				
26				
27				
28				
29				
30				

COMMENTS:

METHOD BLANK REPORT
ARDL, Inc. 400 Aviation Drive; P.O. Box 1566
Mt. Vernon, Illinois 62864

Lab Report No: 006612 Report Date: 03/12/2014

Project Name: MAKAU MILITARY RES O Analysis: BNA'S (METHOD 8270)
Project No.: Analytical Method: 8270C
NELAC Certified - IL100308 Prep Method: 3550A

Field ID:	NA	ARDL Lab No.:	006612-08B1
Desc/Location:	NA	Lab Filename:	E0310413
Sample Date:	NA	Received Date:	NA
Sample Time:	NA	Prep. Date:	03/06/2014
Matrix:	QC Material	Analysis Date:	03/10/2014
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6686
% Moisture:	NA	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units
Dimethylphthalate	200	1000	ND		UG/KG
Diethylphthalate	200	1000	ND		UG/KG
Di-n-butylphthalate	200	1000	ND		UG/KG
Pyrene	200	1000	ND		UG/KG
bis(2-Ethylhexyl)phthalate	200	1000	ND		UG/KG
Di-n-octylphthalate	200	1000	ND		UG/KG

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	97%
2-Fluorobiphenyl	30-130	105%
Terphenyl-d14	30-130	104%

Surrogate recoveries marked with '*' indicates they are outside standard limits.

Blank for Run B6686, BNA'S (METHOD 8270) Page 1 of 1

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ARDL, Inc. Contract: ---

Lab Code: --- Case No.: 006612 SAS No.: --- SDG No.: ---

Lab File ID (Standard): E0307408 Date Analyzed: 03/07/14

Instrument ID: AG5 Time Analyzed: 18:08

		IS1(DCB) AREA #	RT #	IS2(NPT) AREA #	RT #	IS3(ANT) AREA #	RT #
	12 HOUR STANDARD	3210755	7.40	12445918	9.37	6929396	12.29
	UPPER LIMIT	6421510	7.90	24891836	9.87	13858792	12.79
	LOWER LIMIT	1605378	6.90	6222959	8.87	3464698	11.79
	EPA SAMPLE NO.						
1	BLANK B10164	3829573	7.40	14326837	9.37	8046001	12.29
2	SPBK B10164	3769414	7.40	14022573	9.37	7836512	12.29
3	MAK102C	3486363	7.40	13147709	9.37	7274858	12.29
4	MAK103C	3495600	7.40	12956745	9.37	7214518	12.29
5	MAK104C	3613376	7.40	13574089	9.37	7545072	12.29
6	MAK105C	3593474	7.40	13428979	9.37	7400279	12.29
7	MAK106C	3836327	7.40	14201735	9.37	7995918	12.29
8	MAK107C	3536727	7.40	13401887	9.37	7422446	12.29
9	MAK108C	3855265	7.40	14417041	9.37	8066599	12.29
10	MAK110C	3709482	7.40	13814566	9.37	7735074	12.29
11	MAK110CMS	3610200	7.40	13586024	9.37	7576225	12.29
12	MAK110CMSD	3900704	7.40	14572766	9.37	8133697	12.29
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

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

Column used to flag internal standard area values with an asterisk
* Values outside of QC limits

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ARDL, Inc. Contract: ---

Lab Code: --- Case No.: 006612 SAS No.: --- SDG No.: ---

Lab File ID (Standard): E0307408 Date Analyzed: 03/07/14

Instrument ID: AG5 Time Analyzed: 18:08

		IS4(PHN) AREA #	RT #	IS5(CRY) AREA #	RT #	IS6(PRY) AREA #	RT #
	12 HOUR STANDARD	11541208	14.86	13396136	20.48	13707138	25.43
	UPPER LIMIT	23082416	15.36	26792272	20.98	27414276	25.93
	LOWER LIMIT	5770604	14.36	6698068	19.98	6853569	24.93
	EPA SAMPLE NO.						
1	BLANK B10164	13402138	14.86	16806650	20.48	11595668	25.42
2	SPBK B10164	13197414	14.86	16389441	20.48	11669394	25.42
3	MAK102C	12184164	14.86	14986897	20.48	11306740	25.42
4	MAK103C	12035747	14.86	14998573	20.47	11098958	25.42
5	MAK104C	12641788	14.86	15849768	20.48	11621577	25.42
6	MAK105C	12508485	14.86	15494048	20.47	11517663	25.42
7	MAK106C	13414442	14.86	16850106	20.48	12838846	25.42
8	MAK107C	12310332	14.86	15359946	20.48	12004305	25.42
9	MAK108C	13658444	14.86	17007326	20.47	13161834	25.42
10	MAK110C	12961845	14.86	16171916	20.47	12495123	25.42
11	MAK110CMS	12638267	14.86	15686142	20.47	11963469	25.42
12	MAK110CMSD	13721893	14.86	17248788	20.47	13198117	25.42
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

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

Column used to flag internal standard area values with an asterisk
* Values outside of QC limits

Sample Preparation Information

(Not Applicable for VOA Purge and Trap Method)

Rev. 1.1

3550
8270 BNA Tissues

DATE : 03/ 06 / 2014 **BATCH # B10164**

CUST: Makau Military Reservation Oahu **ARDL # 6612**

SAMPLES: BLK; SP BLK; 6612-1 thru 8
QC SAMPLE: 6612-8ms/msd

SOLVENT USED: $MeCL_2$ # 0000062718
REAGENTS USED: Na_2SO_4 # 0000064489

SURROGATE # 20006-050613 CONC BN 1000 PPM __X__ AMOUNT 25 uL __X__

SPIKE # 16088 CONC 250 PPM __X__ AMOUNT 100 uL __X__

EXTRACTION METHOD: SONICATION __X__ MED/LEVEL_____ DILUTION ____

FINAL VOLUME 1 mL

EXTRACTION PERSONNEL: SMN, JAD

SPIKER: SMN **WITNESS: JAD**

SAMPLE #	WEIGHT/G	pH	Vf		SAMPLE #	WEIGHT/G	pH	Vf
BLK	5.00 g	-----	1 mL					
SP BLK	5.00 g	"	"					
6612-1	4.99 g	"	"					
6612-2	5.06 g	"	"					
6612-3	5.04 g	"	"					
6612-4	4.99 g	"	"					
6612-5	5.02 g	"	"					
6612-6	4.98 g	"	"					
6612-7	5.00 g	"	"					
6612-8	5.02 g	"	"					
6612-8ms	5.04 g	"	"					
6612-8msd	5.00 g	"	"					

RECEIVED BY: PEK
DATE: 3/6/2014

DELIVERED BY: SMN
DATE: 3/6/14

B10165 8270-BNA - Tissues

Sample ID	W_I	V_f	Date:	Time:
BIK	5.00 g	1mL	3/6/14	09:30
SpBIK	5.00 g	1mL		
6612-1	4.99 g	1mL	Water Bath Temp: 92°C	
-2	5.06 g	1mL		
-3	5.04 g	1mL		
-4	4.99 g	1mL		
-5	5.02 g	1mL		
-6	4.98 g	1mL		
-7	5.00 g	1mL		
-8(A)	5.02 g	1mL		
-8MS(A)	5.04 g	1mL		
-8MSD(A)	5.00 g	1mL		

All samples contain 25 µl of surrogate # 20006-050613 (1000ppm).

SpBIK, MS, MSD contain 100 µl of spike # 16088 (250 ppm).

Solvent Used: $MeCl_2$ # 0000062718.

Reagent Used: Na_2SO_4 # 0000644489

Spiker SMW Witness JAD

Continued on Page

Read and Understood By

Steve Newcomb 3/6/14 Signed Date

JAD 3/6/14 Signed Date

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Certified R[illegible]rence Material CRM

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Scopes: http://AbsoluteStandards.com

CERTIFIED WEIGHT REPORT

			Lot #	
Part Number:	20006	**Solvent(s):**	28951	Methylene chloride
Lot Number:	050613			
Description:	CLP Semi-Volatiles Base/Neutral Surrogate Standard			
	SOW July'91 GC/MS Calibration - 4 components			
Expiration Date:	050618			
Recommended Storage:	Refrigerate (4 °C)			
Nominal Concentration (µg/mL):	1000			

Gabriel Helland 050613
Formulated By: Gabriel Helland DATE

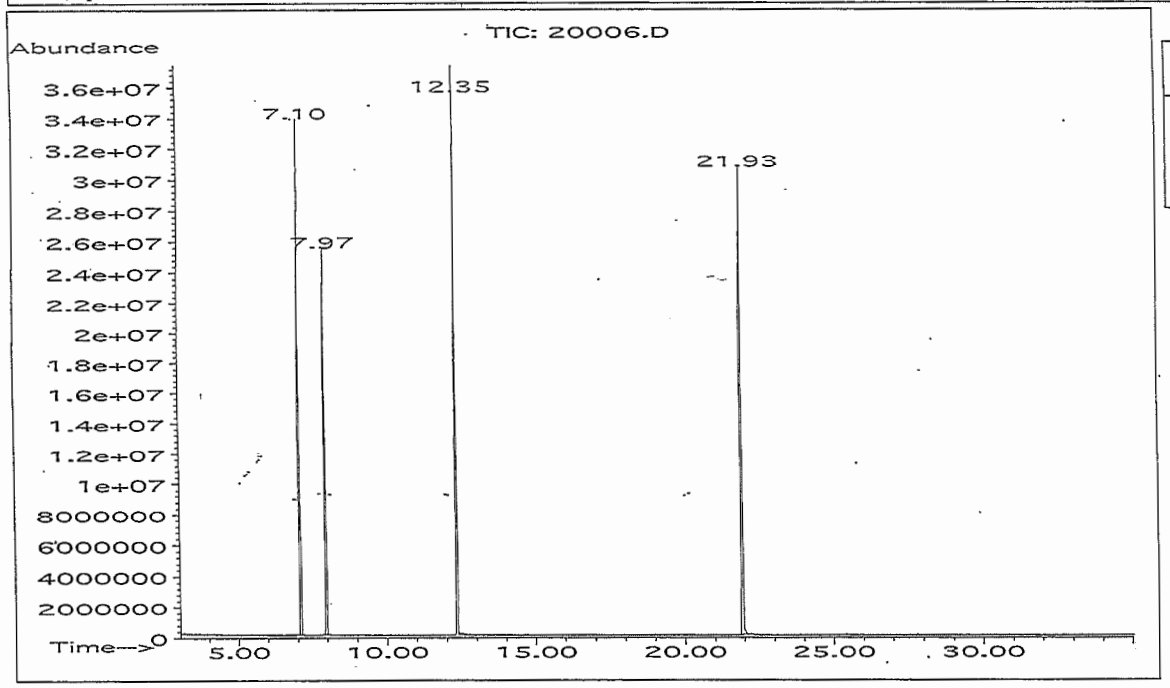
Pedro Rentas 050613
Reviewed By: Pedro L. Rentas DATE

5E-05 Balance Uncertainty

Weight(s) shown below were combined and diluted to: 200.0 0.007 Flask Uncertainty

Compound	RM#	Lot Number	Nominal Conc (µg/mL)	Purity (%)	Uncertainty Purity	Target Weight(g)	Actual Weight(g)	Actual Conc (µg/mL)	Expanded Uncertainty	CAS#	OSHA PEL (TWA)	LD50
											MSDS Information (Solvent Safety Info. On Attached pg.)	
1. 2-Fluorobiphenyl	187	MKAA3698	1000	96	0.2	0.20832	0.20852	1001.0	0.0042	00321-60-8	N/A	N/A
2. p-Terphenyl-d14	272	P-6109	1000	98	0.2	0.20407	0.20438	1001.5	0.0041	01718-51-0	1 ppm (CL)	orl-rbt 2400mg/kg
3. Nitrobenzene-d5	229	U538P20	1000	99.7	0.2	0.20059	0.20091	1001.6	0.0040	04165-60-0	1 ppm (5mg/m3/8H)(skin)	orl-rat 640mg/kg
4. 1,2-Dichlorobenzene-d4	128	PR-18653/12207DB2	1000	99	0.2	0.20201	0.20245	1002.2	0.0041	02199-69-1	50 ppm (300mg/m3) (CL)	orl-rat 500mg/kg

Method GC8MSD-3.M: Column:SPB-5 (30m X 0.25mm ID X 0.25µm film thickness) Temp 1 = 50°C (1min.), Temp 2 = 300°C (9min.), Rate = 10°C/min., Injector B= 200°C, Detector B = 275°C, Split Ratio = 100:1, Scan Rate = 2. Analysis performed by: Melissa Stonier.



Peak No.	Name	MSD RT (min.)
1	1,2-Dichlorobenzene-d4	7.10
2	Nitrobenzene-d5	7.97
3	2-Fluorobiphenyl	12.35
4	p-Terphenyl-d14	21.93

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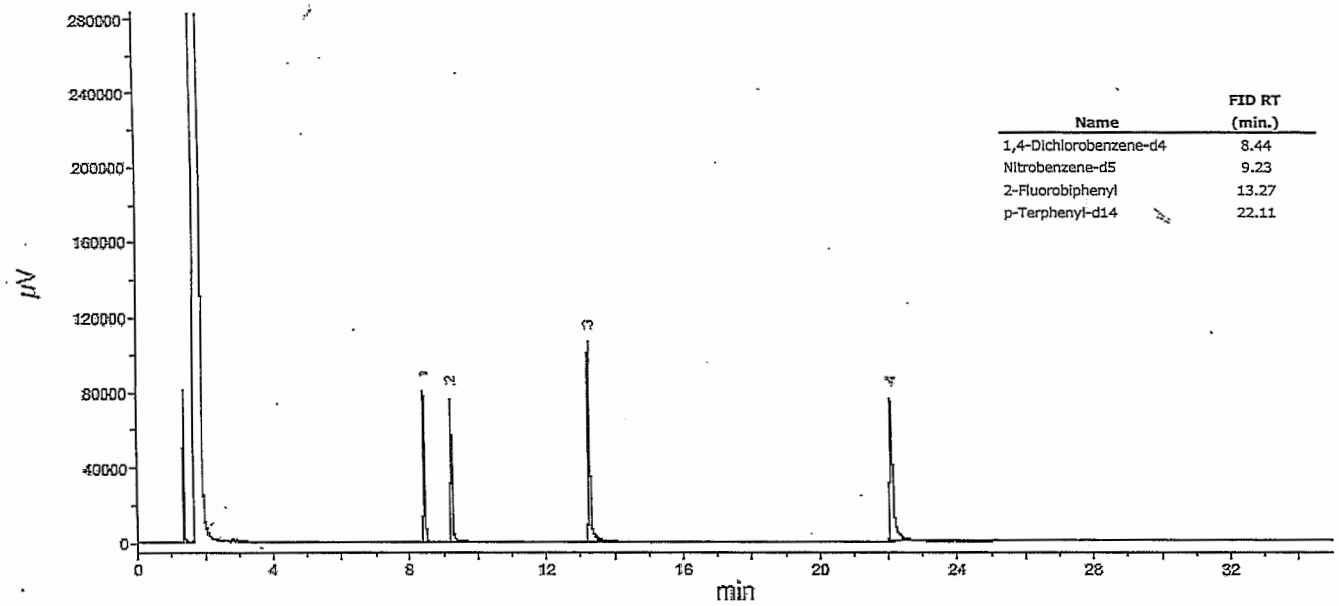
Run 59, "P20006 L050613 [1000µg/mL in MeCl2]"

Run Length: 35.00 min, 20998 points at 10 points/second.
Created: Thu, May 9, 2013 at 2:30:34 AM.
Sampled: Sequence "050713-GC9M1", Method "GC9-M1".
Analyzed using Method "GC9-M1".

Comments
GC9M1 Analysis by Candice Warren
SPB-5 30 meter x 0.53 µm x 1.5 df
Flow Rates; Total Flow = 300 mL/min, Helium (carrier)=6mL, Helium (makeup)=25mL,
Hydrogen (detector)=30, Air (detector)=360, Oven Temp 1 = 50 C (1 min)
Rate = 10 C/min, Oven Temp 2 = 300 (9 min), Total Run Time=35 min.
Injector Temp = 200 C, FID Temp = 300 C, FID Signal = Edaq Channel 1
Gas Chromatograph = HP5890, Standard Injection = 0.5 uL, Range =4



Name	FID RT (min.)
1,4-Dichlorobenzene-d4	8.44
Nitrobenzene-d5	9.23
2-Fluorobiphenyl	13.27
p-Terphenyl-d14	22.11

STOCK

16086-R

RESTEK Made in USA
Cat# 31282
Sonicate ampule 15 minutes prior to opening
Pyrene Standard
1000 ug/mL each in Methanol
Lot# A071610 Exp. Date: 01/2017 Store: Room Temperature
Restek Corporation - 110 Benner Circle - Bellefonte, PA 16823
Rec'd 10.17.13
opened 10/22/13

STOCK

16087-R

RESTEK 110 Benner Circle Bellefonte, PA 16823 Made in USA
Catalog # 31031
606 Phthalate Esters Calibration Mix
2000 ug/mL each in Methanol
Lot# A082368 Exp. Date: 10/2016 Store: 10°C or colder
Rec'd 10.17.13
opened 10/22/13

16088 HI SPIKE MIX (Tissues)

1.00 mL of # 16086-R Pyrene (1,000 µg/mL)
0.5 mL of # 16087-R 606 Phthalate Esters (2,000 µg/mL)
2.50 mL Methanol (Macron Lot 44064)
4.00 mL of 250 µg/mL each

JR 10/22/13 exp 10/22/14

16089 25 PPM DFTPP

1 µL of 14810-S (25,000 PPM exp 03/2014). Brought to 1.0 mL VF with MeCl2. = 25 PPM DFTPP

MeCl2	PEK	exp
00000 54901	10/24/2013	10/31/2013

16090 10 PPM STD D/D UMSH

10 µL each 15960-AB (1000 PPM exp. 12/2016), 15961-AB (1000 PPM exp. 05/2016), and 15962-US (1000 PPM exp 03/2016). Brought to 1.0 mL VF with MeCl2.
1.0 mL of 10 µg/mL + 5 µL of 15972-S (2000 µg/mL exp. 05/2016).

MeCl2	PEK	exp.
00000 54901	10/24/2013	10/31/2013

Continued on Page

Read and Understood By

PEK 10/24/2013 RC 10/29/13
Signed Date Signed Date

Certificate of Analysis

110 Benner Circle
Bellefonte, PA 16823-8812
Tel: (800)356-1688
Fax: (814)353-1309

FOR LABORATORY USE ONLY-READ MSDS PRIOR TO USE.

Catalog No. : 31282 **Lot No.:** A071610

Description : Pyrene Standard

Expiration Date[1]: January 2017 **Storage:** Room Temperature

Handling: Sonicate ampule 15 minutes prior to opening

Elution Order	Compound	CAS #	Percent Purity 2	Concentration 3 (weight/volume)	% Uncertainty 4 (95% C.L.; K=2)
1	Pyrene	129-00-0	98%	999.600 ug/ml	+/-0.59 %
Solvent:	Methanol	67-56-1	99%		

Column:
30m x .25mm x .25um
Rtx-5 (cat.#10223)

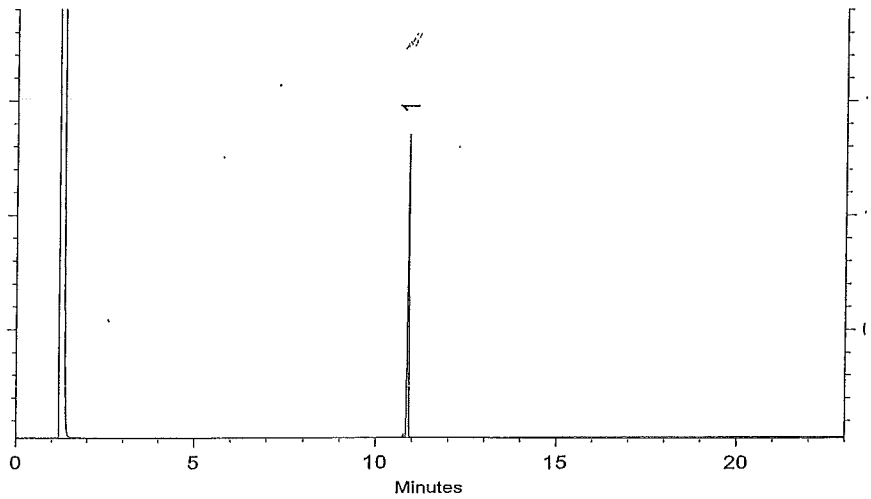
Carrier Gas:
hydrogen-constant pressure 10 psi.

Temp. Program:
75°C (hold 1 min.) to 330°C
@ 20°C/min. (hold 5 min.)

Inj. Temp:
250°C

Det. Temp:
330°C

Det. Type:



Adam Clark - QA Analyst

Date Passed: 12/02/2009 **Balance:** 1128342314

Manufactured under Restek's ISO 9001-2000
Registered Quality System
Certificate #FM80397

1 Expiration date of the unopened ampule stored at recommended temperature.

2A Purity was determined by one or more of the following techniques: GC/FID, HPLC, GC/ECD, GC/MS. Value rounded to the nearest whole number. In addition to detectors listed above, chemical identity and purity are confirmed using one or more of the following: MS, DSC, solid probe MS, GC/FPD, GC/NPD, GC/TC, FTIR, melting point, refractive index, and Karl Fisher. See data pack or contact Restek for further details.

2B Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities.

2C Compounds with a listed purity of less than 99% may be salts, derivatives, or hydrates. The listed purity is actually a correction factor that was used to calculate the amount of compound necessary to achieve the desired concentration of the parent compound.

2D Purity of isomeric compounds is reported as the sum of the isomers. Value is rounded to the nearest whole number after summation.

3 Based upon gravimetric preparation with balance calibration verified using NIST traceable weights (seven mass levels).

4 Uncertainties determined using repeatability and reproducibility data for balances and glassware from measurement systems analysis methodology, balance and glassware tolerances, raw material purity, and, where applicable, eccentricity and linearity values from an accredited calibration laboratory.

110 Benner Circle
Bellefonte, PA 16823-8812
Tel: (800)356-1688
Fax: (814)353-1309

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FOR LABORATORY USE ONLY-READ MSDS PRIOR TO USE.

Catalog No. : 31031 **Lot No.:** A082358

Description : 606 Phthalate Esters Calibration Mix

SV Mix, 600 Series Method, 606 Calibration Std, phthalate esters, 2,000µg/ml, Methanol, 1ml/ampule

Container Size : [5] 2 mL **Pkg Amt:** [5] > 1 mL

Expiration Date : [1] October 2015 **Storage:** 10°C or colder

Elution Order	Compound	CAS #	Percent Purity [2]	Grav. Conc. (weight/volume) [3]	Grav.Uncert. (95% C.L.; K=2) [4]
1	Dimethylphthalate	131-11-3	99%	2,000.0 ug/mL	+/- 11.6 ug/mL
2	Diethylphthalate	84-66-2	99%	2,000.0 ug/mL	+/- 11.6 ug/mL
3	Di-n-butylphthalate	84-74-2	99%	2,000.0 ug/mL	+/- 11.6 ug/mL
4	Benzyl butyl phthalate	85-68-7	99%	2,000.0 ug/mL	+/- 11.6 ug/mL
5	Bis(2-ethylhexyl)phthalate	117-81-7	99%	2,000.0 ug/mL	+/- 11.6 ug/mL
6	Di-n-octyl phthalate	117-84-0	99%	2,000.0 ug/mL	+/- 11.6 ug/mL
Solvent:	Methanol	67-56-1	99%		

Column:
30m x .25mm x .25um
Rtx-5 (cat.#10223)

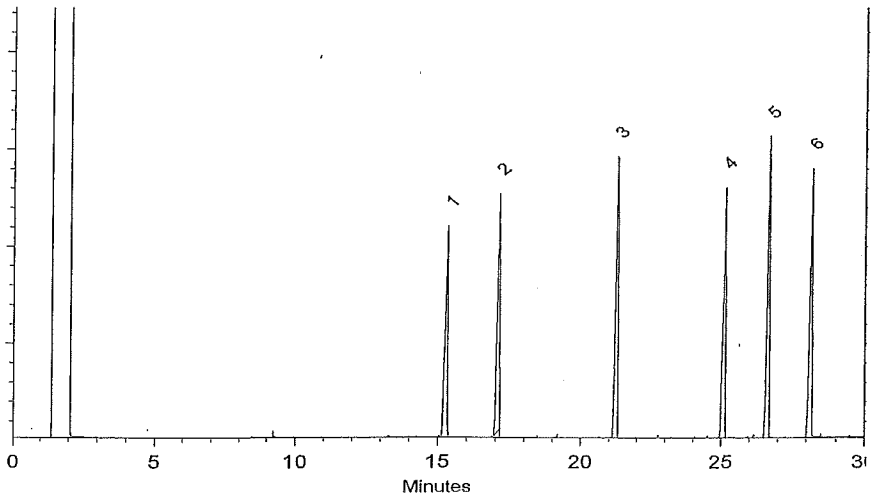
Carrier Gas:
hydrogen-constant pressure 10 psi.

Temp. Program:
40°C (hold 2 min.) to 330°C
@ 10°C/min. (hold 10 min.)

Inj. Temp:
250°C

Det. Temp:
330°C

Det. Type:
FID



Standards Preparation Information

Rev. 1.1

16288-R 2000 µg/mL Acid Surr Mix
100 µL 16288-R (10,000 µg/mL exp 03/2021)
900 µL MeCl2 (000000 63223)
1.0 mL 2000 µg/mL Acid Surr Mix
PEK exp
3/7/2014 3/7/2015

16289 8270 Tune
50 µL 16102-R (1000 µg/mL exp 01/2016)
950 µL MeCl2 (000000 63223)
1.0 mL of 50 PPM 8270 Tune
PEK exp
3/7/2014 6/7/2014

16290-R

RESTEK Made in USA
Cat# 31496
Azobenzene Standard
1000 ug/mL each in Methylene Chloride
Lot# A071936 Exp. Date: 12/2014 Store: Refrigerate
Restek Corporation - 110 Benner Circle - Bellefonte, PA 16823
Received 10/14/2011
Opened 3/7/2014

PEK
3/7/2014

PEK 3/7/14
16291-~~R~~S

NOTEBOOK INSERT LABEL

Semi-Volatile Base-Neutral Surrogate Spike Mix 4-8935
Lot: LC01909 EXP: JUL/2016 STORAGE: REFRIGERATE 1 x 1ml
DATE RECEIVED: 9/25/2013
SUPELCO Solutions within.
595 North Harrison Road • Bellefonte, PA 16823-0048 USA • Phone 814-359-3441
Opened 3/7/2014

PEK
3/7/2014

16292 60 µg/mL 8270 STD

150 µL of the following: 15651-R (2000 PPM exp. 02/2015), 15682-R (2000 PPM exp 03/2014), 15703-R (2000 PPM exp 10/2014), 15652-R (2000 PPM exp. 03/2014), 16139-R (2000 PPM exp. 03/2018), 16015-R (2000 PPM exp 08/2017), 15881-R (2000 PPM exp 02/2015), 16288-R (2000 PPM exp 3/7/2015), 16004-R (2000 PPM exp 04/2016).
300 µL of the following: 16290-R (1000 µg/mL exp 12/2014) + 16291-S (PEK 3/7/14 ~~20~~ 1000 µg/mL exp 07/2016)
5.0 mL final volume
PEK exp
3/7/2014 3/31/2014

Continued on Page

Read and Understood By
PEK 3/7/2014 3/11/14
Signed Date Signed Date

10/17/12 opened the following:

15651-R

RESTEK
110 Benner Circle
Bellefonte, PA 16823
Made in USA
Catalog # 31007
SV Calibration Mix #1
2000 ug/mL each in Methylene Chloride
Lot# A086821 Exp. Date: 02/2015 Store: 10°C or colder

15652-R

RESTEK
110 Benner Circle
Bellefonte, PA 16823
Made in USA
Catalog # 31010
Sonicate prior to use.
SV Calibration Mix #4
2000 ug/mL each in Methylene Chloride
Lot# A078618 Exp. Date: 03/2014 Store: 10°C or colder

AC 10/17/12

15653 30 Ng Val Stnd (8270)

Diluted the following volumes to 1mL DF:

Vol	Mix #	Mix Name	Exp Date	Conc
15µL	15651-R	SV Mix #1	02/2015	2000ug/mL
	14667-R	#2	04/2013	
	14685-R	#3	11/2012	
	15652-R	#4	03/2014	
	15238-R	#5	03/2018	
	14688-R	Benzidines	05/2019	
	14931-R	SV Mix #7	04/2013	
	15402-S	Acid SuRR	Dec/2013	
30µL	15094-US	1,2,4,5-TCB	07/31/2013	1000ug/mL
	14756-R	Azobenzene	12/2014	
	15208-R	Aniline	03/20[illegible]	
	15209-AB	Pyridine	02/15/14	
	15400-S	B/N SuRR	Nov/2013	

Plus 20µL of ISTD # 15639-S (exp May/2014)

MeCl2 DAC Exp
407501 10/17/12 10/24/12

Continued on Page

Read and Understood By

Doug Casale 10/17/12 JD 1/23/13

ARDL Inc Signed Date Signed Date

11/26/12 opened:

NOTEBOOK INSERT LABEL

Semi-Volatile Base-Neutral Surrogate Spike Mix 4-8935
Lot: LB80026 EXP: NOV/2013 STORAGE: REFRIGERATE 1 x 1ml
DATE RECEIVED: 1/12/12
SUPELCO Analytical
595 North Harrison Road • Bellefonte, PA 16823-0048 USA • Phone 814-359-3441

15679-S

11/26/12

15680 50 Ng DFTPP (8270 PNAs by SIM)

Diluted 2uL of # 14810-S (exp Mar 2014) to 1mL VF

15681 5 PPM Val Stnd (8270 PNAs by SIM)

Diluted 250uL of # 15635 (exp Nov 2013), plus 5uL of B/N SURR # 15679-S (exp Nov 2013) to 1mL VF, plus 5uL of ISTD # 15639-S (exp May 2014).

MeCl2 DAC Exp
207501 11/26/12 12/3/12

11/29/12 opened:

15682-R

RESTEK
Cat# 31008
SV Calibration Mix #2
2000 ug/mL each in Methylene Chloride
Lot# A066336 Exp. Date: 03/2014 Store: Refrigerate
Restek Corporation - 110 Benner Circle - Bellefonte, PA 16823

Made in USA

15683-R

RESTEK
Cat# 31009
Sonicate ampule 15 minutes prior to opening
SV Calibration Mix #3
2000 ug/mL each in Methylene Chloride
Lot# A069965 Exp. Date: 11/2012 Store: Refrigerate
Restek Corporation - 110 Benner Circle - Bellefonte, PA 16823

11/29/12

Continued on Page

Read and Understood By

Doug Cascio 11/29/12 12/13/12
Signed Date Signed Date

Initial Calibration Standards (8270)

Std #	Std Conc	Vol of "A" Mix #15692 (exp 2/30/13)	Vol of "B" Mix #15693 (exp 2/30/13)	Vol of ISTD 15639-5 (May/14)
15694	Blank	—	—	20 µL
15695	10 Ng	40 µL	40 µL	
15696	20	80	80	
15697	30	120	120	
15698	40	160	160	
15699	50	200	200	
15700	60	240	240	
15701	70	280	280	
15702	80	320	320	

All standards are 1mL VF

	DAC	Exp
MeCl2 207501	11/30/12	12/17/12

12/5/12 opened

15703-R

RESTEK
110 Benner Circle
Bellefonte, PA 16823
Made in USA
Catalog # 31009
Sonicate prior to use.
SV Calibration Mix #3
2000 ug/mL each in Methylene Chloride
Lot# A083302 Exp. Date: 10/2014 Store: 10°C or colder

15704-R

RESTEK
110 Benner Circle
Bellefonte, PA 16823
Made in USA
Catalog # 31496
Azobenzene Standard
1000 ug/mL each in Methylene Chloride
Lot# A086727 Exp. Date: 02/2017 Store: 10°C or colder

12/5/12

Continued on Page

Read and Understood By

Signed	Date	Signed	Date
Doug Carroll	12/5/12	[illegible]	12/13/12

PROJECT

Continued From Page

16014 Dioxane Standard

5 µL of 15890-AB (1000 µg/mL exp. 06/2017)
2 µL of 15940-S (2000 µg/mL exp. 06/2016)
Brought to volume (1 mL VF) with MeCl2 = 5.0 µg/mL Diox. Std.
Added 5 µL of 15972-S (2000 µg/mL exp. 05/2016).

MeCl2 PEK exp.
000004 5564 ~~9/5/2013~~ PEK 9/9/2013 9/12/2013
9/5/2013

16015-R

RESTEK 110 Banner Circle Bellefonte, PA 16823 Made in USA
Catalog # 31030
605 Benzidines Calibration Mix
Received 07/29/2013
2000 ug/mL each in Methanol
Lot# A092934 Exp. Date: 08/2017 Store: 10°C or colder
Opened 9/6/2013
PEK
9/6/2013

16016 50 ng DFTPP

2 µL of 14810-S (25,000 ppm exp 03/2014). Brought to 1.0 mL VF with MeCl2 = 50 ng DFTPP

MeCl2 PEK exp
000004 5564 9/6/2013 9/13/2013

16017 PNA Calibration Standard

250 µL #15993 (20 ppm)
750 µL MeCl2
1000 µL of 5.0 µg/mL with 5 µL 16001-S (exp 05/2014)

MeCl2 PEK exp
000004 5564 9/6/2013 10/6/2013

Continued on Page

Read and Understood By

PEK 9/11/2013 — Signed, Date
9/11/13 — Signed, Date

8270 Cal Stds

STD #	Name	µL 16292	VF MeCl2	µL 16286-S (2000 µg/mL exp 07/2016)
16293	BLK	—	1.0 mL	20 µL
16294	5 PPM	PEK ~~170~~ 85 µL		
16295	10 PPM	3/7/14 ~~330~~ 170 µL		
16296	20 PPM	330 µL		
16297	30 PPM	500 µL		
16298	40 PPM	670 µL		
16299	60 PPM	1000 µL	1.0 mL	20 µL

PEK 3/7/14 exp 3/31/14

16300 30 PPM 8270 STD (ICV)

150 µL Spike ~~#16088~~ PEK 3/13/2013 9002782 (2000 PPM exp 11/2016)
30 µL Surr # 20006-050613
820 µL MeCl2 (0000063223)
1.0 mL of 30 PPM STD w/ 20 µL 16286-S (2000 µg/mL exp 07/2016)

PEK 3/7/2014 exp 3/31/14

16301 25 PPM DFTPP

1 µL of 4810-S (25,000 PPM exp 03/2014). Brought to 1.0 mL VF w/ MeCl2 (0000063223). = 1.0 mL 25 PPM DFTPP

PEK 3/10/2014 exp 3/17/2014

16302 10 PPM UMSH STD

10 µL 16165-AB (1000 µg/mL exp 12/11/2016)
10 µL 16166-AB (1000 µg/mL exp 5/10/2016)
10 µL 16167-US (1000 µg/mL exp 3/31/2016)
970 µL MeCl2 (0000063223)
1.0 mL of 10 PPM STD w/ 5 µL ISTD 16230 (2000 µg/mL exp 08/2016).

PEK 3/10/2014 exp 3/17/2014

Continued on Page

Read and Understood By

PEK — Signed
3/10/2014 — Date
PEK — Signed
3/11/14 — Date

PROJECT

Continued From Page

9002781 8015M - Diesel Spike 9/16/13
Diluted 500ul of stnd. # 51006 (20,000 ug/mL, lot #041912, exp: 04/19/17) from Absolute Exp: 12/16/13
into 10mL of Acetone (JTBaker # 000805 1403). Final conc. = 1000 ppm SMW

9002782 BNA Matrix Spike Mix opened: 9/17/13 9/17/13
Cerilliant 8270 LCS Mix, cat. # ERS-077, lot # ER111711-01, 200 ug/mL, exp: 11/2016 SMW

9002783 Pest / PCB Surrogate 10/8/13
Diluted 125ul of stnd. # 20023 (lot # 020212, 200 ug/mL, exp: 02/02/17) from Absolute into Exp: 1/8/14
25mL of Acetone (JTBaker #51403). Final conc. = 1ppm SMW

9002784 8015M - Surrogate soln 10/9/13
Diluted 1mL of stnd. # 71225 (lot # 112912, 1000 ug/mL, exp: 11/29/17) from Absolute Exp: 1/9/14
into 5mL of Acetone (JTBaker # 51403). Final conc. = 200 ppm SMW

9002785 PNA/SIM Surrogate soln 10/11/13
Diluted 250ul of stnd. # 20006 (lot # 050613, 1000 ug/mL, exp: 05/06/18) from Absolute Exp: 1/11/14
into 5mL of MeOH (Mallinckrodt # K03E03). Final conc. = 50 ppm SMW

10/23/13 SMW

Continued on Page

Read and Understood By

Steve Munzon 10/23/13 10/23/13
Signed Date Signed Date

NDMA Cal Stds

Std #	Name	µL 16276-R	µL 16277	µL 16275	µL 16274	VF MeCl2
16278	BLK	—	—	0 ~~5µL~~ PEK 3/5/14	5µL	1.0mL
16279	1 PPB	—	10µL	5µL		
16280	5 PPB	—	50µL			
16281	10PPB	—	100µL			
16282	25 PPB	5µL	—			
16283	50 PPB	10µL	—			
16284	100 PPB	—	195µL	5µL	5µL	1.0mL
		PEK 3/5/2014	exp 3/31/2014			

16285 50 PPB NDMA ICV

~~5µL 16275-A&C~~ PEK 3/5/2014 5µL 16183 (10µg/mL exp 3/18/14), 5µL 16275 (10µg/mL exp 9/5/14) and 5µL 16274 (5µg/mL exp 9/5/14). Brought to 1.0 mL VF w/ MeCl2 (000000632223).
PEK 3/5/2014 exp 3/31/2014

16286-S

NOTEBOOK INSERT LABEL

Semivolatile Internal Std Mix
Lot: LC03378V EXP: OCT/2016
CRM48902
STORAGE: REFRIGERATE 2 x 1ml
DATE RECEIVED: 10/25/2013
SUPELCO Solutions within.
595 North Harrison Road • Bellefonte, PA 16823-0048 USA • Phone 814-359-3441
opened 3/7/2014

PEK 3/7/2014

16287-R

RESTEK
110 Banner Circle
Bellefonte, PA 16823
Made in USA
Catalog# 31063
Acid Surrogate Standard Mix (4/89)
10000 ug/mL each in Methanol
Lot# A093841 Exp. Date: 03/2021 Store: 10°C or colder
Received 11/1/2013
Opened 3/7/2014

PEK 3/7/2014

Continued on Page

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PEK 3/7/2014 ~~TRC~~ 3/11/14

16002 8270 (ICV) Restek

15 µL	15651-R	2000 ppm	exp. 02/2015
	15682-R		03/2014
	15703-R		10/2014
	15652-R		03/2014
	15238-R		03/2018
	14688-R		05/2019
	15881-R		02/2015
15 µL	15779-S	2000 ppm (Acid Surrogate)	12/2013
30 µL	15704-R	1000 ppm	02/2017
30 µL	15209-AB	1000 ppm (Pyridine)	02/2014
30 µL	15834-S	1000 ppm (B/N Surrogate)	11/2013

775 µL MeCl2 45564 PEK 8/20/2013

1.0 mL of 30 µg/mL w/ 20 µL ISTD ~~15695-S~~ 16001-S

MeCl2	PEK	exp.
0000045564	8/20/2013	12/20/2013

8270 Tune Mix

NOTEBOOK INSERT LABEL

16003-S

EPA 8270 GC/MS Tuning Solution 4-7387 opened 8/28/13
Lot: LB91084 EXP: MAR/2015 STORAGE: REFRIGERATE 1 x 1ml
DATE RECEIVED: 7/29/13
SUPELCO Solutions within.™ 595 North Harrison Road • Bellefonte, PA 16823-0048 USA • Phone 814-359-3441

Pyridine Stock

16004-R

RESTEK Catalog # 30409 110 Benner Circle Bellefonte, PA 16823 Made in USA
Pyridine Standard
2000 ug/mL each in P&T Methanol
Lot# A089859 Exp. Date: 04/2016 Store: 0°C or colder
Rcvd 7.29.13 open 8/28/13

8/28/13

Continued on Page

Read and Understood By

Signed	Date	Signed	Date
	8/28/13	PEK	9/11/2013

16137-S Semi Volatile Base Neutral Surrogate Spike Mix

NOTEBOOK INSERT LABEL

Semi-Volatile Base-Neutral Surrogate Spike Mix 4-8935
Lot: LC01909 EXP: JUL/2016 STORAGE: REFRIGERATE 1 x 1ml
DATE RECEIVED: 9/25/2013
SUPELCO Solutions within.
595 North Harrison Road • Bellefonte, PA 16823-0048 USA • Phone 814-359-3441
Opened 11/21/2013

PEK
11/21/2013

16138-S 8270 ISTD

SUPELCO Analytical
595 North Harrison Road • Bellefonte, PA 16823-0048 USA • Phone 814-359-3441
Recieved 7/12/2012
48902 LB84817
Opened 11/21/2013
Semivolatile Internal Standard Mix
2000ug/ml each in CH2Cl2

PEK
11/21/2013
exp.
05/2014

16139-R

RESTEK
110 Benner Circle
Bellefonte, PA 16823
Made in USA
Catalog # 31011
This product is photosensitive.
SV Calibration Mix #5
2000 ug/mL each in Methylene Chloride
Lot# A079674 Exp. Date: 03/2018 Store: 25°C nominal
Recieved 4/16/2012
Opened 11/22/2013

PEK
11/22/2013

16140-S

NOTEBOOK INSERT LABEL

Semi-Volatile Acids Surrogate Spike Mix 4-8939
Lot: LB80515 EXP: DEC/2013 STORAGE: REFRIGERATE 1 x 1ml
DATE RECEIVED: 10/9/2012
SUPELCO Analytical
595 North Harrison Road • Bellefonte, PA 16823-0048 USA • Phone 814-359-3441
Opened 11/22/2013

PEK
11/22/2013

Continued on Page

Read and Understood By

PEK 11/22/2013 11/27/13

15881-R

RESTEK
Catalog # 31013
SV Calibration Mix #7
110 Benner Circle
Bellefonte, PA 16823
Made in USA
2000 ug/mL each in Methylene Chloride
Lot# A086710 Exp. Date: 02/2016 Store: 10°C or colder
opened 6/6/13

15882 8270 - ICV - (30 ppm)

15 µL - 15651-R (2,000 ppm) SV mix 1 Xp 02/2015
- 15682-R 2 03/14
- 15703-R 3 10/14
- 15652-R 4 03/14
- 15738-R PNA 03/18
- 14688-R Benzidines 05/2019
- 15881-R mix #7 Xp 02/2015
15 µL - 15779-S Acid Surr (2000 ppm) Xp 12/2013

30 µL - 15691-US 1,2,4,5 TCB (1000) X.p. 07/31/13
- 15704-R Azobenz. (1000) 02/2017
- 15209-A8 Pyridine 02/2014
30 µL - 15854-S B/N Surr 11/2013
760 µL MeCl2
1,000 µL + 20 µL ISTD 15849-S

6/6/13 Xp 12/31/2013

15883 8270 - ICV STD (30 ppm)

Made same as 15882 above except made sure ISTD mix was at room temp before adding

6/7/13 6/21/13

Continued on Page

Read and Understood By

Signed 6/7/13 Date Signed 06/12/13 Date

8270 Cal STDs

[redacted]

STD #	Name	µL 16077	µL 16078	µL 15880-S	V_F MeCl2
16095	Cal BLK	—	—	—	1.0 mL
16096	5 PPM	20 µL	20 µL	2.5 µL	
16097	10 PPM	40	40	5	
16098	20 PPM	80	80	10	
16099	30 PPM	120	120	15	
16100	40 PPM	160	160	20	
16101	60 PPM	240	240	30	

All w/ 20µL ISTD 16076-S (2000µg/mL exp 05/2014)

MeCl2 00000054901 — PEK 10/30/2013 — exp 2/30/2014

16102-R 8270 Tune Mixture Stock

RESTEK 110 Benner Circle Bellefonte, PA 16823 Made in USA
Catalog # 31615
GC/MS Tuning Mixture
1000 ug/mL each in Methylene Chloride
Lot# A092905 Exp. Date: 01/2016 Store: 10°C or colder
NFPA 0 3 0
opened 11/4/2013
recieved 11/1/2013

PEK
11/4/2013

16103 50 PPM 8270 Tune Mixture
50µL of 16102-R (1000µg/mL exp 1/2016)
950µL MeCl2 (00000054901)
1.0 mL of 50 PPM 8270 Tune
PEK 11/4/2013 — exp 2/4/2014

Continued on Page

Read and Understood By

PEK — Signed — 11/4/2013 — Date — [illegible] — Signed — 11/8/13 — Date

RESTEK

110 Benner Circle
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Tel: (800)356-1688
Fax: (814)353-1309

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ISO Guide 34 Accredited
Reference Material Producer
Certificate #3222.01

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Testing Laboratory
Certificate #3222.02

Certificate of Analysis

FOR LABORATORY USE ONLY-READ MSDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 31615 **Lot No.:** A092905

Description : GC/MS Tuning Mixture

GC/MS Tuning Mixture 1000µg/mL, Methylene Chloride, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : January 2016 **Storage:** 10°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	Pentachlorophenol CAS # 87-86-5 Purity 99%	1,000.0 µg/mL	+/- 5.8275 +/- 35.2615 +/- 60.8566	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
2	DFTPP (Decafluorotriphenylphosphine) CAS # 5074-71-5 Purity 99%	1,000.0 µg/mL	+/- 5.8275 +/- 35.2615 +/- 60.8566	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
3	Benzidine CAS # 92-87-5 Purity 99%	1,000.0 µg/mL	+/- 5.8275 +/- 35.2615 +/- 60.8566	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
4	4,4'-DDT CAS # 50-29-3 Purity 99%	1,000.0 µg/mL	+/- 5.8275 +/- 35.2615 +/- 60.8566	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed

Solvent: Methylene Chloride
CAS # 75-09-2
Purity 99%

110 Benner Circle
Bellefonte, PA 16823-8812
Tel: (800)356-1688
Fax: (814)353-1309

www.Restek.com

ACCREDITED
Reference Material Producer
Certificate #3222.01

ACCREDITED
Testing Laboratory
Certificate #3222.02

Certificate of Analysis

FOR LABORATORY USE ONLY-READ MSDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 31007 **Lot No.:** A086821

Description : SV Calibration Mix #1

Calibration Std #1 2000ug/mL, Methylene Chloride, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : February 2015 **Storage:** 10°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)	
1	Benzyl alcohol CAS # 100-51-6 Purity 99%	2,000.0 ug/mL	+/- 11.7371 ug/mL +/- 43.8488 ug/mL +/- 43.8488 ug/mL	Gravimetric Unstressed Stressed
2	4-Chloroaniline CAS # 106-47-8 Purity 99%	2,000.0 ug/mL	+/- 11.7371 ug/mL +/- 43.8488 ug/mL +/- 43.8488 ug/mL	Gravimetric Unstressed Stressed
3	2-Nitroaniline CAS # 88-74-4 Purity 99%	2,000.0 ug/mL	+/- 11.7371 ug/mL +/- 43.8488 ug/mL +/- 43.8488 ug/mL	Gravimetric Unstressed Stressed
4	3-Nitroaniline CAS # 99-09-2 Purity 97%	2,000.1 ug/mL	+/- 11.7379 ug/mL +/- 43.8519 ug/mL +/- 43.8519 ug/mL	Gravimetric Unstressed Stressed
5	4-Nitroaniline CAS # 100-01-6 Purity 99%	2,000.0 ug/mL	+/- 11.7371 ug/mL +/- 43.8488 ug/mL +/- 43.8488 ug/mL	Gravimetric Unstressed Stressed

Solvent: Methylene Chloride
CAS # 75-09-2
Purity 99%

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Catalog No. : 31008 Lot No.: A066336
Description : SV Calibration Mix #2
Expiration Date[1]: March 2014 Storage: Refrigerate

Elution Order	Compound	CAS #	Percent Purity [2]	Concentration [3] (weight/volume)	% Uncertainty [4] (95% C.L.; K=2)
1	Phenol	108-95-2	99%	2,000.000 ug/ml	+/-0.63 %
2	2-Chlorophenol	95-57-8	99%	2,000.000 ug/ml	+/-0.63 %
3	2-Methylphenol (o-cresol)	95-48-7	99%	2,000.000 ug/ml	+/-0.63 %
4	4-Methylphenol (p-cresol)	106-44-5	99%	2,000.000 ug/ml	+/-0.63 %
5	2-Nitrophenol	88-75-5	99%	2,000.000 ug/ml	+/-0.63 %
6	2,4-Dimethylphenol	105-67-9	99%	2,000.000 ug/ml	+/-0.63 %
7	2,4-Dichlorophenol	120-83-2	99%	2,000.000 ug/ml	+/-0.63 %
8	Benzoic acid	65-85-0	99%	2,000.000 ug/ml	+/-0.63 %
9	4-Chloro-3-methylphenol	59-50-7	99%	2,000.000 ug/ml	+/-0.63 %
10	2,4,6-Trichlorophenol	88-06-2	99%	2,000.000 ug/ml	+/-0.63 %
11	2,4,5-Trichlorophenol	95-95-4	99%	2,000.000 ug/ml	+/-0.63 %
12	2,4-Dinitrophenol	51-28-5	97%	1,999.946 ug/ml	+/-0.63 %
13	4-Nitrophenol	100-02-7	99%	2,000.000 ug/ml	+/-0.63 %
14	4,6-Dinitro-2-methylphenol	534-52-1	99%	2,000.000 ug/ml	+/-0.63 %
15	Pentachlorophenol	87-86-5	97%	1,999.946 ug/ml	+/-0.63 %
Solvent:	Methylene Chloride	75-09-2	99%		

Column:
30m x .25mm x .5um
Rtx-5 (cat.#10238)

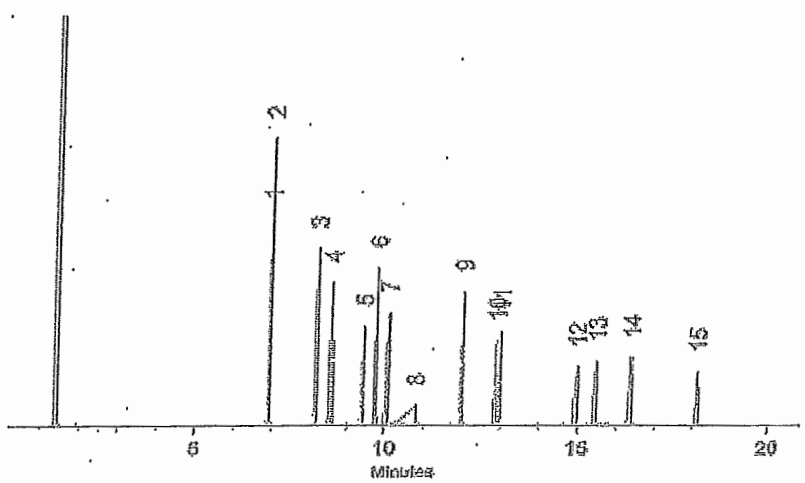
Carrier Gas:
hydrogen @ 40cm/sec.

Temp. Program:
40°C (hold 4 min.) to 200°C
@ 4°C/min. (hold 5 min.)

Inj. Temp:
250°C

Det. Temp:
250°C

Det. Type:
FID



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Catalog No. : 31009 **Lot No.:** A083302

Description : SV Calibration Mix #3

SV Mix, CLP Method, Calibration Std #3, 2,000µg/ml; CH2Cl2, 1ml/ampule

Container Size : [5] 2 mL **Pkg Amt:**[5] > 1 mL

Expiration Date : [1] October 2014 **Storage:** 10°C or colder

Handling: Sonicate prior to use.

Elution Order	Compound	CAS #	Percent Purity [2]	Grav. Conc. (weight/volume) [3]	Grav.Uncert. (95% C.L.; K=2) [4]
1	N-Nitrosodimethylamine	62-75-9	99%	2,000.0 ug/mL	+/- 11.7371 ug/mL
2	Bis(2-chloroethyl)ether	111-44-4	99%	2,000.0 ug/mL	+/- 11.7371 ug/mL
3	Bis(2-chloroisopropyl)ether	108-60-1	99%	2,000.0 ug/mL	+/- 11.7371 ug/mL
4	N-Nitroso-di-n-propylamine	621-64-7	99%	2,000.0 ug/mL	+/- 11.7371 ug/mL
5	Bis(2-chloroethoxy)methane	111-91-1	99%	2,000.0 ug/mL	+/- 11.7371 ug/mL
6	2-Chloronaphthalene	91-58-7	99%	2,000.0 ug/mL	+/- 11.7371 ug/mL
7	Dimethylphthalate	131-11-3	99%	2,000.0 ug/mL	+/- 11.7371 ug/mL
8	4-Chlorophenyl phenyl ether	7005-72-3	99%	2,000.0 ug/mL	+/- 11.7371 ug/mL
9	N-Nitrosodiphenylamine	86-30-6	97%	1,999.7 ug/mL	+/- 11.7351 ug/mL
10	4-Bromophenyl phenyl ether	101-55-3	99%	2,000.0 ug/mL	+/- 11.7371 ug/mL
11	Di-n-butylphthalate	84-74-2	99%	2,000.0 ug/mL	+/- 11.7371 ug/mL
12	Benzyl butyl phthalate	85-68-7	99%	2,000.0 ug/mL	+/- 11.7371 ug/mL
13	Bis(2-ethylhexyl)phthalate	117-81-7	99%	2,000.0 ug/mL	+/- 11.7371 ug/mL
14	Di-n-octyl phthalate	117-84-0	99%	2,001.0 ug/mL	+/- 11.743 ug/mL

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Catalog No.: 31010 Lot No.: A078618

Description: SV Calibration Mix #4

SV Mix, CLP Method, Calibration Std #4, 2,000µg/ml, CH2Cl2, 1ml/ampule

Container Size: [5] 2 mL Pkg Amt: [5] > 1 mL

Expiration Date: [1] March 2014 Storage: 10°C or colder

Handling: Sonicate prior to use.

Elution Order	Compound	CAS #	Percent Purity [2]	Grav. Conc. (weight/volume) [3]	% Grav.Uncert. (95% C.L., K=2) [4]
1	Hexachloroethane	67-72-1	99%	2,000.0 ug/ml	+/-0.59 %
2	Nitrobenzene	98-95-3	99%	2,000.0 ug/ml	+/-0.59 %
3	Isophorone	78-59-1	99%	2,000.0 ug/ml	+/-0.59 %
4	1,2,4-Trichlorobenzene	120-82-1	97%	2,000.1 ug/ml	+/-0.59 %
5	Hexachlorobutadiene	87-68-3	98%	2,000.2 ug/ml	+/-0.59 %
6	2-Methylnaphthalene	91-57-6	97%	2,000.1 ug/ml	+/-0.59 %
7	Hexachlorocyclopentadiene	77-47-4	98%	2,000.2 ug/ml	+/-0.59 %
8	2,6-Dinitrotoluene	606-20-2	99%	2,000.0 ug/ml	+/-0.59 %
9	Dibenzofuran	132-64-9	99%	2,000.0 ug/ml	+/-0.59 %
10	2,4-Dinitrotoluene	121-14-2	99%	2,000.0 ug/ml	+/-0.59 %
11	Diethylphthalate	84-66-2	99%	2,000.0 ug/ml	+/-0.59 %
12	Hexachlorobenzene	118-74-1	99%	2,000.0 ug/ml	+/-0.59 %
13	Carbazole	86-74-8	98%	2,000.2 ug/ml	+/-0.59 %
Solvent:	Methylene Chloride	75-09-2	99%		

Column:
30m x .25mm x .25um
Rtx-5 (cat.#10223)

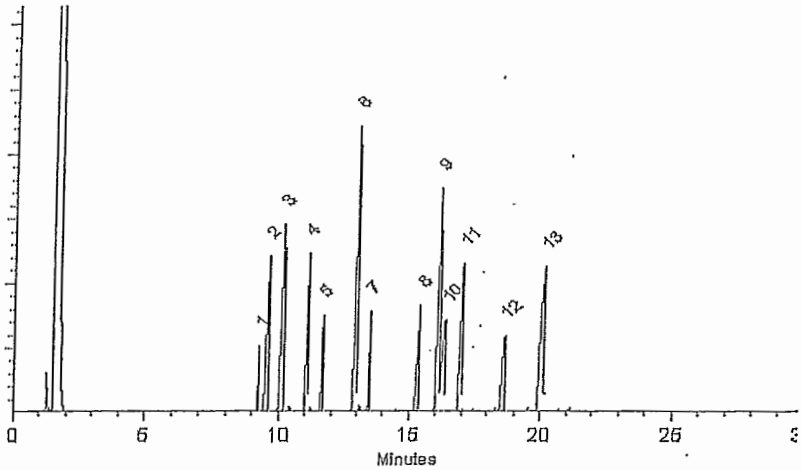
Carrier Gas:
Hydrogen-constant pressure 10 psi.

Temp. Program:
40°C (hold 2 min.) to 330°C
@ 10°C/min. (hold 10 min.)

Inj. Temp:
250°C

Det. Temp:
330°C

Det. Type:
FID



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Catalog No.: 31011 **Lot No.:** A079674

Description: SV Calibration Mix #5

SV Mix, CLP Method, Calibration Std #5, 610 PAH Mixture 2,000µg/ml, CH2Cl2, 1ml/ampule

Container Size: [5] 2 mL **Pkg Amt:** [5] > 1 mL

Expiration Date: [1] March 2018 **Storage:** 25°C nominal

Handling: This product is photosensitive.

Elution Order	Compound	CAS #	Percent Purity [2]	Grav. Conc. (weight/volume) [3]	Grav.Uncert. (95% C.L.; K=2) [4]
1	Naphthalene	91-20-3	99%	2,000.0 ug/mL	+/- 11.6276 ug/mL
2	Acenaphthylene	208-96-8	99%	2,000.0 ug/mL	+/- 11.6276 ug/mL
3	Acenaphthene	83-32-9	99%	2,000.0 ug/mL	+/- 11.6276 ug/mL
4	Fluorene	86-73-7	99%	2,000.0 ug/mL	+/- 11.6276 ug/mL
5	Phenanthrene	85-01-8	99%	2,000.0 ug/mL	+/- 11.6276 ug/mL
6	Anthracene	120-12-7	99%	2,000.0 ug/mL	+/- 11.6276 ug/mL
7	Fluoranthene	206-44-0	98%	2,000.0 ug/mL	+/- 11.6275 ug/mL
8	Pyrene	129-00-0	99%	2,000.0 ug/mL	+/- 11.6276 ug/mL
9	Benz(a)anthracene	56-55-3	99%	2,000.0 ug/mL	+/- 11.6276 ug/mL
10	Chrysene	218-01-9	99%	2,000.0 ug/mL	+/- 11.6276 ug/mL
11	Benzo(b)fluoranthene	205-99-2	99%	2,000.0 ug/mL	+/- 11.6276 ug/mL
12	Benzo(k)fluoranthene	207-08-9	99%	2,000.0 ug/mL	+/- 11.6276 ug/mL
13	Benzo(a)pyrene	50-32-8	99%	2,000.0 ug/mL	+/- 11.6276 ug/mL
14	Indeno(1,2,3-cd)pyrene	193-39-5	99%	2,000.0 ug/mL	+/- 11.6276 ug/mL
15	Dibenz(a,h)anthracene	53-70-3	99%	2,000.0 ug/mL	+/- 11.6276 ug/mL
16	Benzo(g,h,i)perylene	191-24-2	99%	2,000.0 ug/mL	+/- 11.6276 ug/mL

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This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 31030 **Lot No.:** A092934

Description : 605 Benzidines Calibration Mix

605 Benzidines Calibration Mix 2000µg/mL, Methanol, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : August 2017 **Storage:** 10°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	Benzidine	2,000.0 µg/mL	+/- 11.7371	µg/mL	Gravimetric
	CAS # 92-87-5		+/- 43.8488	µg/mL	Unstressed
	Purity 99%		+/- 43.8488	µg/mL	Stressed
2	3,3'-Dichlorobenzidine	2,000.0 µg/mL	+/- 11.7371	µg/mL	Gravimetric
	CAS # 91-94-1		+/- 43.8488	µg/mL	Unstressed
	Purity 99%		+/- 43.8488	µg/mL	Stressed

Solvent: Methanol
CAS # 67-56-1
Purity 99%

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Catalog No. : 31013 **Lot No.:** A086710

Description : SV Calibration Mix #7

Calibration Std #7 2000ug/mL, Methylene Chloride, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : February 2015 **Storage:** 10°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	1,3-Dichlorobenzene CAS # 541-73-1 Purity 99%	2,000.0 ug/mL	+/- 11.7371 +/- 24.1603 +/- 27.2485	ug/mL ug/mL ug/mL	Gravimetric Unstressed Stressed
2	1,4-Dichlorobenzene CAS # 106-46-7 Purity 99%	2,000.0 ug/mL	+/- 11.7371 +/- 24.1603 +/- 27.2485	ug/mL ug/mL ug/mL	Gravimetric Unstressed Stressed
3	1,2-Dichlorobenzene CAS # 95-50-1 Purity 99%	2,000.0 ug/mL	+/- 11.7371 +/- 24.1603 +/- 27.2485	ug/mL ug/mL ug/mL	Gravimetric Unstressed Stressed

Solvent: Methylene Chloride
CAS # 75-09-2
Purity 99%

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This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 31063 **Lot No.:** A093841

Description : Acid Surrogate Standard Mix (4/89)

Acid Surrogate 4/89(SOW) 10, 000µg/mL, Methanol, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : March 2021 **Storage:** 10°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)	
1	2-Fluorophenol CAS # 367-12-4 Purity 99%	10,000.0 µg/mL	+/- 58.5522 µg/mL +/- 265.9894 µg/mL +/- 326.8797 µg/mL	Gravimetric Unstressed Stressed
2	Phenol-d6 CAS # 13127-88-3 Purity 99%	10,000.0 µg/mL	+/- 58.5522 µg/mL +/- 265.9894 µg/mL +/- 326.8797 µg/mL	Gravimetric Unstressed Stressed
3	2,4,6-Tribromophenol CAS # 118-79-6 Purity 99%	10,000.0 µg/mL	+/- 58.5522 µg/mL +/- 265.9894 µg/mL +/- 326.8797 µg/mL	Gravimetric Unstressed Stressed

Solvent: Methanol
CAS # 67-56-1
Purity 99%

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This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 30409 **Lot No.:** A089859

Description : Pyridine Standard

Pyridine 2000µg/mL, P&T Methanol, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : April 2016 **Storage:** 0°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)	
1	Pyridine	2,000.0 µg/mL	+/- 11.7371 µg/mL	Gravimetric
	CAS # 110-86-1		+/- 87.4997 µg/mL	Unstressed
	Purity 99%		+/- 89.4134 µg/mL	Stressed

Solvent: P&T Methanol
CAS # 67-56-1
Purity 99%

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Catalog No. : 31496 **Lot No.:** A071936

Description : Azobenzene Standard

Expiration Date[1]: December 2014 **Storage:** Refrigerate

Elution Order	Compound	CAS #	Percent Purity [2]	Concentration [3] (weight/volume)	% Uncertainty [4] (95% C.L.; K=2)
1	Azobenzene	103-33-3	95%	999.400 ug/ml	+/-0.59 %
Solvent:	Methylene Chloride	75-09-2	99%		

Column:
30m x .25mm x .25um
Rtx-5 (cat.#10223)

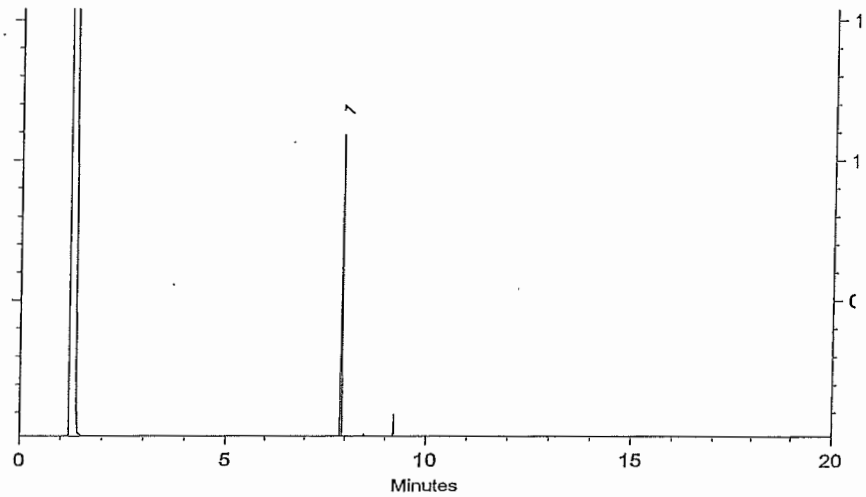
Carrier Gas:
hydrogen-constant pressure 10 psi.

Temp. Program:
75°C (hold 1 min.) to 330°C
@ 20°C/min. (hold 5 min.)

Inj. Temp:
250°C

Det. Temp:
330°C

Det. Type:
FID



Adam Clark - QA Analyst

Date Passed: 12/19/2009 **Balance:** 1128342314

Manufactured under Restek's ISO 9001-2000
Registered Quality System
Certificate #FM80397

1 Expiration date of the unopened ampule stored at recommended temperature.

2A Purity was determined by one or more of the following techniques: GC/FID, HPLC, GC/ECD, GC/MS. Value rounded to the nearest whole number. In addition to detectors listed above, chemical identity and purity are confirmed using one or more of the following: MS, DSC, solid probe MS, GC/FPD, GC/NPD, GC/TC, FTIR, melting point, refractive index, and Karl Fisher. See data pack or contact Restek for further details.

2B Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities.

2C Compounds with a listed purity of less than 99% may be salts, derivatives, or hydrates. The listed purity is actually a correction factor that was used to calculate the amount of compound necessary to achieve the desired concentration of the parent compound.

2D Purity of isomeric compounds is reported as the sum of the isomers. Value is rounded to the nearest whole number after summation.

3 Based upon gravimetric preparation with balance calibration verified using NIST traceable weights (seven mass levels).

4 Uncertainties determined using repeatability and reproducibility data for balances and glassware from measurement systems analysis methodology, balance and glassware tolerances, raw material purity, and, where applicable, eccentricity and linearity values from an accredited calibration laboratory.

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DESCRIPTION: Semi-Volatile Base-Neutral Surrogate Spike Mix

CATALOG NO.: 48935 MFG DATE: Jul-2013

LOT NO.: LC01909 EXPIRATION DATE: Jul-2016

SOLVENT: METHYLENE CHLORIDE

ANALYTE (1)	CAS NUMBER	PERCENT PURITY(2)	WEIGHT(3) CONCENTRATION	ANALYTICAL(4) CONCENTRATION		STD DEV	SUPELCO LOT NO
NITROBENZENE-D5	4165-60-0	99.9	1002	1048	+/-	11.4	LB83753
P-TERPHENYL-D14	1718-51-0	99.9	1003	1020	+/-	5.3	LC01817
1,2-DICHLOROBENZENE-D4	2199-69-1	99.9	1003	1047	+/-	15.1	LB83146
2-FLUOROBIPHENYL	321-60-8	99.9	1001	1049	+/-	5.7	LB83498

(1) Listed in alphabetical order.
(2) Determined by capillary GC-FID, unless otherwise noted.
(3) NIST traceable weights are used to verify balance calibration with the preparation of each lot. Concentration of analyte in solution is ug/ml +/- 0.5%, uncertainty based upon balance and Class A volumetric glassware. Weights are corrected for analytes less than 98% pure.
(4) Determined by chromatographic analysis against an independently prepared reference lot. Mean of replicate injections.

Duane Funk

Duane Funk
Quality Manager

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Description: Semivolatile Internal Std Mix, 2x1ml, 2000µg/ml in dichloromethane

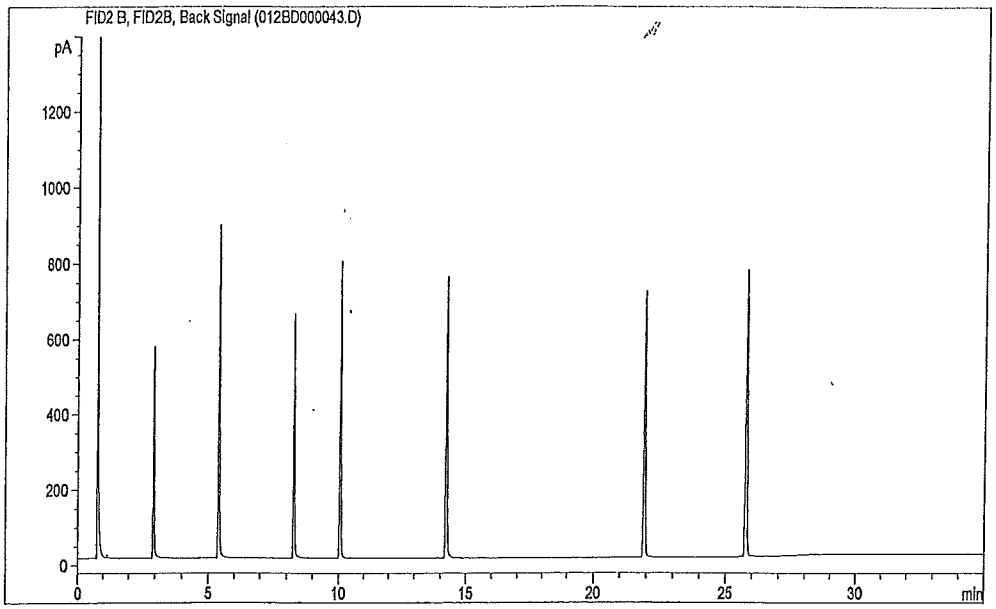
Part Number: CRM48902

Lot Number: LC03378V

Expiration Date: October 2016

Storage: Refrigerate

Analytical Method Parameters:
Column: SPB-5 30m x .53mm x 1.5um
100°C (2 min) to 310°C (8 min) @ 10°C/min
Detector: FID, 310°C
Injection Volume: 1.0ul



Elution	Analyte	Lot Number	CAS Number	Certified Purity %	Certified Gravimetric Conc. µg/ml	Expanded Uncertainty µg/ml	Analytical Conc. µg/ml
1.	1,4-Dichlorobenzene-D4, CRM	LB94999	3855-82-1	99.9	1998.5	±3.9	2009.6
2.	Naphthalene-D8, CRM	LB94261	1146-65-2	96.3	1999.6	±3.9	2090.2
	Internal Standard	N/A	N/A	N/A	N/A	N/A	N/A
4.	Acenaphthene-D10, CRM	LB93879	15067-26-2	99.9	1997.6	±1.7	2019.0
5.	Phenanthrene-D10, CRM	LB95000	1517-22-2	98.7	1974.5	±2.6	1975.5
6.	Chrysene-D12, CRM	LB93880	1719-03-5	98.8	1976.2	±8.0	1901.1
7.	Perylene-D12, CRM	LB95001	1520-96-3	99.7	1994.0	±7.9	2018.6

Notes:

ACLASS ACCREDITED TESTING Cert# AT-1607

ACLASS ACCREDITED REFERENCE MATERIAL PRODUCER Cert# AR-1606

Produced in double accredited laboratory fulfilling
ISO/IEC 17025 and
ISO Guide 34

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ERS-077
ER111711-01
Revision 2
Page 1 of 5

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ISO GUIDE 34
ISO/IEC 17025
ISO 13485
ISO 9001
GMP/GLP

8270 LCS Mix

Catalog Number:	ERS-077
Solution Lot:	ER111711-01
Expiration Date:	November 2016
Solvent:	Methanol::Methylene chloride::Benzene (70::25::5)
Volume per Ampule:	Not less than 5 mL
Storage:	Store in freezer.
Handling:	Sonicate for 5 minutes before use.
Intended Use:	For laboratory use only. Not suitable for human or animal consumption.
Safety:	Flammable, Carcinogen

- Expiration Date has been established through real time stability studies.
- Ampules are overfilled to ensure a minimum 5 mL volume. We advise laboratories to use measured volumes of this standard solution before diluting to the desired concentration.

Traceability

- Gravimetrically prepared using qualified balances calibrated semi-annually by Mettler Toledo using NIST traceable weights. Calibration verification performed weekly and prior to each use utilizing NIST traceable weights. Each balance has been assigned a minimum weighing by Mettler Toledo taking into consideration the balance and installed environmental conditions to ensure weighing complies with USP tolerances of no more than 0.1% relative error.
- Concentration is verified against an independently prepared calibration solution gravimetrically prepared using balances calibrated to NIST.

Cerilliant certifies that this standard meets the specifications stated in this certificate and warrants this product to meet the stated acceptance criteria through the expiration/retest date when stored unopened as recommended. Product should be used shortly after opening to avoid concentration changes due to evaporation. Warranty does not apply to ampoules stored after opening.

Lara Sparks, Quality Assurance Director

May 16, 2012
Date

Cerilliant Corporation 811 Paloma Drive, Suite A, Round Rock, TX 78665 800-848-7837 / 512-238-9974

Component	Lot Number	CAS Number	Chemical Formula	Molecular Weight	Chromatographic Purity	Concentration
Acenaphthene	29697-41	83-32-9	$C_{12}H_{10}$	154.21	99.89%	200 µg/mL
Acenaphthylene	ER030707-01	208-96-8	$C_{12}H_8$	152.2	99.06%	200 µg/mL
Acetophenone	EB-1807	98-86-2	C_8H_8O	120.15	99.39%	200 µg/mL
Aniline	EB-1265	62-53-3	C_6H_7N	93.13	99.99%	200 µg/mL
Anthracene	ER061407-04	120-12-7	$C_{14}H_{10}$	178.23	99.24%	200 µg/mL
Azobenzene	P004534	103-33-3	$C_{12}H_{10}N_2$	182.22	98.97%	200 µg/mL
Benz(a)anthracene	ER121707-01	56-55-3	$C_{18}H_{12}$	228.29	99.12%	200 µg/mL
Benzidine	PR081108-03	92-87-5	$C_{12}H_{12}N_2$	184.24	99.96%	200 µg/mL
Benzo(b)fluoranthene	ER022008-02	205-99-2	$C_{20}H_{12}$	252.32	99.95%	200 µg/mL
Benzo(k)fluoranthene	ER061608-02	207-08-9	$C_{20}H_{12}$	252.32	99.96%	200 µg/mL
Benzo(g,h,i)perylene	ER020708-08	191-24-2	$C_{22}H_{12}$	276.34	99.29%	200 µg/mL
Benzo(a)pyrene	ER071309-02	50-32-8	$C_{20}H_{12}$	252.32	99.55%	200 µg/mL
Benzoic acid	PR090308-01	65-85-0	$C_7H_6O_2$	122.12	99.99%	200 µg/mL
Benzyl alcohol	EB-1963	100-51-6	C_7H_8O	108.14	99.74%	200 µg/mL
Biphenyl	PER_053_97109	92-52-4	$C_{12}H_{10}$	154.21	99.70%	200 µg/mL
Bis(2-chloroethoxy)methane	P004590	111-91-1	$C_5H_{10}O_2Cl_2$	173.04	97.60%	200 µg/mL
Bis(2-chloroethyl)ether	PER_456_102708	111-44-4	$C_4H_8OCl_2$	143.01	99.79%	200 µg/mL
Bis(1-chloroisopropyl)ether	PR073110-01	108-60-1	$C_6H_{12}OCl_2$	171.07	99.37%	200 µg/mL
Bis(2-ethylhexyl) phthalate	P004582	117-81-7	$C_{24}H_{38}O_4$	390.56	99.17%	200 µg/mL
4-Bromophenyl phenyl ether	P004550	101-55-3	$C_{12}H_9OBr$	249.11	98.88%	200 µg/mL
Butyl benzyl phthalate	EB-2108	85-68-7	$C_{19}H_{20}O_4$	312.37	98.02%	200 µg/mL
Carbazole	P004638	86-74-8	$C_{12}H_9N$	167.21	95.37%	200 µg/mL
p-Chloroaniline	EB-1801	106-47-8	C_6H_6NCl	127.57	99.91%	200 µg/mL
4-Chloro-3-methylphenol	PR060807-01	59-50-7	C_7H_7OCl	142.58	99.96%	200 µg/mL
2-Chloronaphthalene	P004640	91-58-7	$C_{10}H_7Cl$	162.62	99.21%	200 µg/mL
2-Chlorophenol	PR060807-02	95-57-8	C_6H_5OCl	128.56	99.43%	200 µg/mL
4-Chlorophenyl phenyl ether	P004659	7005-72-3	$C_{12}H_9OCl$	204.66	98.13%	200 µg/mL
Chrysene	ER120810-02	218-01-9	$C_{18}H_{12}$	228.29	98.66%	200 µg/mL
Dibenz(a,h)anthracene	ER102009-03	53-70-3	$C_{22}H_{14}$	278.35	99.83%	200 µg/mL
Dibenzofuran	P004552	132-64-9	$C_{12}H_8O$	168.19	99.49%	200 µg/mL
Di-n-butyl Phthalate	P004541	84-74-2	$C_{16}H_{22}O_4$	278.35	99.72%	200 µg/mL
1,2-Dichlorobenzene	EB-2097	95-50-1	$C_6H_4Cl_2$	147	99.47%	200 µg/mL
1,3-Dichlorobenzene	EB-1908	541-73-1	$C_6H_4Cl_2$	147	99.63%	200 µg/mL
1,4-Dichlorobenzene	PER_226_104287	106-46-7	$C_6H_4Cl_2$	147	99.98%	200 µg/mL
3,3'-Dichlorobenzidine	ER083107-03	91-94-1	$C_{12}H_{10}Cl_2N_2$	253.13	99.67%	200 µg/mL
2,4-Dichlorophenol	P004712	120-83-2	$C_6H_4OCl_2$	163	99.07%	200 µg/mL
2,6-Dichlorophenol	P004533	87-65-0	$C_6H_4OCl_2$	163	99.99%	200 µg/mL
Diethyl Phthalate	PER_096_102706	84-66-2	$C_{12}H_{14}O_4$	222.24	99.96%	200 µg/mL
2,4-Dimethylphenol	P004557	105-67-9	$C_8H_{10}O$	122.17	99.62%	200 µg/mL
Dimethyl Phthalate	EB-1774	131-11-3	$C_{10}H_{10}O_4$	194.19	99.94%	200 µg/mL
2,4-Dinitrophenol	PR062607-03	51-28-5	$C_6H_4N_2O_5$	184.11	99.84%	200 µg/mL
2,4-Dinitrotoluene	EB-1379	121-14-2	$C_7H_6N_2O_4$	182.14	99.00%	200 µg/mL
2,6-Dinitrotoluene	PER_083_93401	606-20-2	$C_7H_6N_2O_4$	182.14	99.59%	200 µg/mL
Dinoseb	ER110209-01	88-85-7	$C_{10}H_{12}N_2O_5$	240.22	99.96%	200 µg/mL
Di-n-octyl Phthalate	PR092710-01	117-84-0	$C_{24}H_{38}O_4$	390.56	99.37%	200 µg/mL

Component	Lot Number	CAS Number	Chemical Formula	Molecular Weight	Chromatographic Purity	Concentration
Diphenyl ether	P004715	101-84-8	$C_{12}H_{10}O$	170.21	99.98%	200 µg/mL
1,4-Dioxane	PR052809-05	123-91-1	$C_4H_8O_2$	88.11	99.95%	200 µg/mL
2-Ethoxyethanol	PER_052_102546	110-80-5	$C_4H_{10}O_2$	90.12	99.96%	200 µg/mL
Fluoranthene	PN111910-02	206-44-0	$C_{16}H_{10}$	202.26	98.45%	200 µg/mL
Fluorene	35001-29	86-73-7	$C_{13}H_{10}$	166.22	98.95%	200 µg/mL
Hexachlorobenzene	P004546	118-74-1	C_6Cl_6	284.78	99.71%	200 µg/mL
Hexachloro-(1,3)-butadiene	P141819	87-68-3	C_4Cl_6	260.76	97.28%	200 µg/mL
Hexachlorocyclopentadiene	PR081210-01	77-47-4	C_5Cl_6	272.77	96.84%	200 µg/mL
Hexachloroethane	EB-2003	67-72-1	C_2Cl_6	236.74	99.57%	200 µg/mL
Hexachlorophene [1]	P004584	70-30-4	$C_{13}H_6O_2Cl_6$	406.91	94.70%	200 µg/mL
Hexachloropropene	EB-1977	1888-71-7	C_3Cl_6	248.75	96.66%	200 µg/mL
Indeno(1,2,3,-c,d)pyrene	ER082107-02	193-39-5	$C_{22}H_{12}$	276.34	99.42%	200 µg/mL
Isophorone	EB-1778	78-59-1	$C_9H_{14}O$	138.21	98.21%	200 µg/mL
2-Methyl-4,6-dinitrophenol	P004549	534-52-1	$C_7H_6N_2O_5$	198.14	99.77%	200 µg/mL
2-Methylnaphthalene	EB-1779	91-57-6	$C_{11}H_{10}$	142.20	97.52%	200 µg/mL
2-Methylphenol	PR061107-01	95-48-7	C_7H_8O	108.14	99.58%	200 µg/mL
4-Methylphenol	PER_016_99298	106-44-5	C_7H_8O	108.14	99.68%	200 µg/mL
Naphthalene	PR050410-01	91-20-3	$C_{10}H_8$	128.17	99.88%	200 µg/mL
2-Nitroaniline	P004682	88-74-4	$C_6H_6N_2O_2$	138.13	99.66%	200 µg/mL
3-Nitroaniline	P004543	99-09-2	$C_6H_6N_2O_2$	138.13	99.90%	200 µg/mL
4-Nitroaniline	EB-1796	100-01-6	$C_6H_6N_2O_2$	138.13	99.77%	200 µg/mL
Nitrobenzene	PR090310-01	98-95-3	$C_6H_5NO_2$	123.11	99.96%	200 µg/mL
2-Nitrophenol	PR060807-03	88-75-5	$C_6H_5NO_3$	139.11	99.84%	200 µg/mL
4-Nitrophenol	P004713	100-02-7	$C_6H_5NO_3$	139.11	99.93%	200 µg/mL
N-Nitrosodi-n-butylamine	P004561	924-16-3	$C_8H_{18}N_2O$	158.24	99.78%	200 µg/mL
N-Nitrosodiethylamine	P004558	55-18-5	$C_4H_{10}N_2O$	102.14	99.80%	200 µg/mL
N-Nitrosodimethylamine	P004569	62-75-9	$C_2H_6N_2O$	74.08	100.00%	200 µg/mL
N-Nitrosodi-n-propylamine	P004632	621-64-7	$C_6H_{14}N_2O$	130.19	99.95%	200 µg/mL
N-Nitrosodiphenylamine	PR102606-01	86-30-6	$C_{12}H_{10}N_2O$	198.22	96.79%	200 µg/mL
N-Nitrosomethylethylamine	PR073110-02	10595-95-6	$C_3H_8N_2O$	88.11	99.41%	200 µg/mL
N-Nitrosopiperidine	P004545	100-75-4	$C_5H_{10}N_2O$	114.15	99.45%	200 µg/mL
N-Nitrosopyrrolidine	P004551	930-55-2	$C_4H_8N_2O$	100.12	99.94%	200 µg/mL
Pentachlorobenzene	P004714	608-93-5	C_6HCl_5	250.34	99.56%	200 µg/mL
Pentachloroethane	EB-1954	76-01-7	C_2HCl_5	202.29	98.30%	200 µg/mL
Pentachlorophenol	P004716	87-86-5	C_6HCl_5O	266.34	98.76%	200 µg/mL
Phenanthrene	ER042805-02	85-01-8	$C_{14}H_{10}$	178.23	99.19%	200 µg/mL
Phenol	PR092309-03	108-95-2	C_6H_6O	94.11	99.97%	200 µg/mL
Pyrene	ER050305-03	129-00-0	$C_{16}H_{10}$	202.26	99.47%	200 µg/mL
Pyridine	PER_039_102530	110-86-1	C_5H_5N	79.10	99.95%	200 µg/mL
1,2,4,5-Tetrachlorobenzene	EB-1955	95-94-3	$C_6H_2Cl_4$	215.89	99.34%	200 µg/mL
2,3,4,6-Tetrachlorophenol	ER100206-01	58-90-2	$C_6H_2Cl_4O$	231.89	99.28%	200 µg/mL
1,2,4-Trichlorobenzene	EB-1677	120-82-1	$C_6H_3Cl_3$	181.45	99.73%	200 µg/mL
2,4,5-Trichlorophenol	PR040307-02	95-95-4	$C_6H_3Cl_3O$	197.45	98.20%	200 µg/mL
2,4,6-Trichlorophenol	P004555	88-06-2	$C_6H_3Cl_3O$	197.45	98.95%	200 µg/mL

[1] Due to stability problems, it is recommended not to use this analyte for quantitation.

Standard Solution Assay Parameters

Analysis Method:	GC/MS
Column:	DB-5ms, 30 m x 0.25 mm ID, 0.25 µm film thickness
Temp Program:	40°C (hold 2 mins) to 300°C at 10°C/min (hold 7 mins)
Injector Temp:	Cool on-column
Detector Temp:	280°C

Calibration Curve

Calibration Curve:	Linear Regression
Number of Points:	1

Solution Standard Verification and Homogeneity

Compound	Verified Concentration µg/mL	Acceptance Criteria	%RSD - Homogeneity %	Acceptance Criteria
Acenaphthene	190.7	± 10%	0.7	≤ 5%
Benzo(a)pyrene	190.4	± 10%	1.3	≤ 5%
Benzyl alcohol	190.0	± 10%	3.1	≤ 5%
Bis(2-ethylhexyl)phthalate	189.0	± 10%	3.6	≤ 5%
Carbazole	189.4	± 10%	3.9	≤ 5%
4-Chloroaniline	187.7	± 10%	4.1	≤ 5%
4-Chloro-3-methylphenol	189.4	± 10%	2.7	≤ 5%
Dibenzofuran	189.0	± 10%	1.1	≤ 5%
1,4-Dichlorobenzene	189.5	± 10%	1.2	≤ 5%
3,3'-Dichlorobenzidine	192.6	± 10%	2.4	≤ 5%
2,4-Dichlorophenol	189.3	± 10%	2.2	≤ 5%
2,4-Dinitrotoluene	189.4	± 10%	4.1	≤ 5%
Di-n-octyl-phthalate	191.7	± 10%	1.1	≤ 5%
Fluoranthene	190.8	± 10%	2.2	≤ 5%
Hexachloro-(1,3)-butadiene	188.7	± 10%	1.0	≤ 5%
Isophorone	191.3	± 10%	3.1	≤ 5%
2-Methylnaphthalene	189.8	± 10%	1.0	≤ 5%
3-Nitroaniline	188.1	± 10%	1.8	≤ 5%
2-Nitrophenol	186.8	± 10%	3.6	≤ 5%
Nitrobenzene	192.3	± 10%	1.6	≤ 5%
N-Nitrosodi-n-butylamine	189.8	± 10%	2.7	≤ 5%
N-Nitrosodiphenylamine	189.8	± 10%	2.4	≤ 5%
Pentachlorobenzene	188.1	± 10%	1.4	≤ 5%
Phenol	191.1	± 10%	1.4	≤ 5%
Pyridine	189.8	± 10%	2.6	≤ 5%

- Concentration is verified through multiple analyses and is calculated as the average of multiple analyses compared to an independently prepared calibration solution.
- Homogeneity is ensured through rigorous production process controls statistically analyzed to evaluate risk and verified by analysis. The %RSD of samples pulled from across the lot demonstrate homogeneity.
- This standard was prepared from six stocks that have been verified for accuracy and homogeneity. Verification of this standard was performed by monitoring 25 components listed in the table above, including Method 8270 Check Compounds (CCC) and at least one analyte from each stock.

COA Revision History

Revision No.	Date	Reason for Revision
00	12/21/2011	Initial version
01	4/11/2012	Missing footnote was added.
		Added statement that solution should be sonicated prior to use.
02	5/16/2012	Corrected "Bis(2-chloroisopropyl)ether" (CAS 108-60-1) to "Bis(1-chloroisopropyl)ether"

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CERTIFIED WEIGHT REPORT

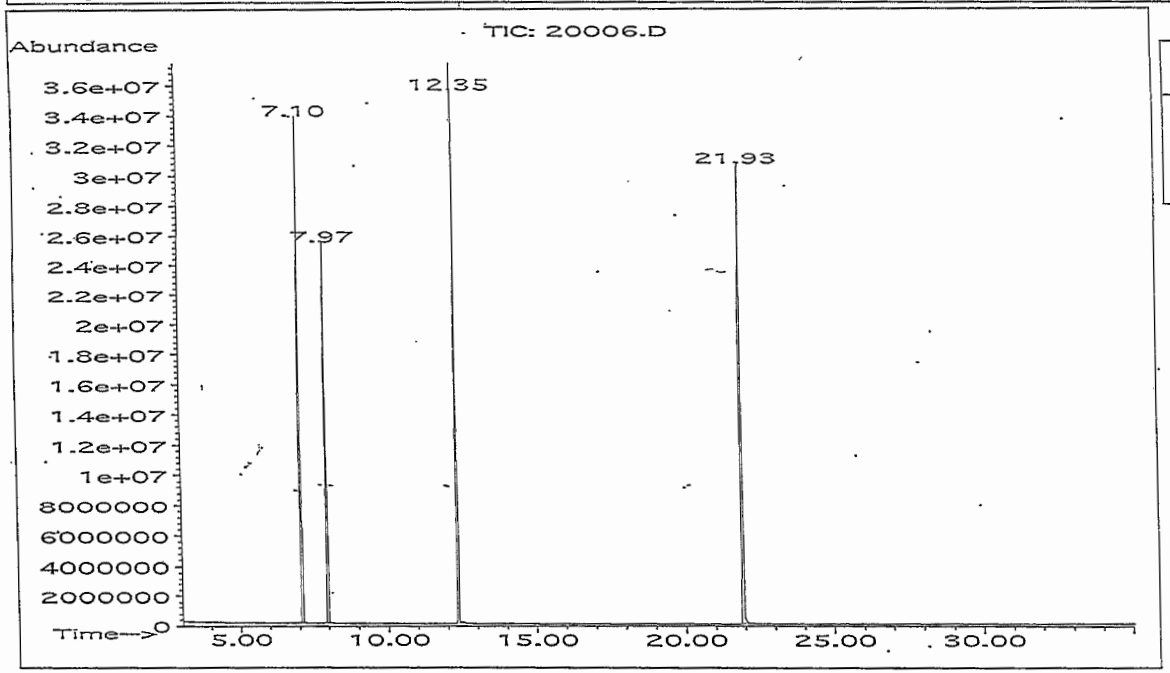
Part Number:	20006	Solvent(s):	Lot # 28951	Methylene chloride
Lot Number:	050613			
Description:	CLP Semi-Volatiles Base/Neutral Surrogate Standard			
	SOW July'91 GC/MS Calibration - 4 components			
Expiration Date:	050618			
Recommended Storage:	Refrigerate (4 °C)			
Nominal Concentration (µg/mL):	1000			

Formulated By:	Gabriel Helland	050613 DATE
Reviewed By:	Pedro L. Rentas	050613 DATE

Weight(s) shown below were combined and diluted to: 200.0 — 5E-05 Balance Uncertainty; 0.007 Flask Uncertainty

Compound	RM#	Lot Number	Nominal Conc (µg/mL)	Purity (%)	Uncertainty Purity	Target Weight(g)	Actual Weight(g)	Actual Conc (µg/mL)	Expanded Uncertainty	MSDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50
1. 2-Fluorobiphenyl	187	MKAA3698	1000	96	0.2	0.20832	0.20852	1001.0	0.0042	00321-60-8	N/A	N/A
2. p-Terphenyl-d14	272	P-6109	1000	98	0.2	0.20407	0.20438	1001.5	0.0041	01718-51-0	1 ppm (CL)	orl-rbt 2400mg/kg
3. Nitrobenzene-d5	229	U538P20	1000	99.7	0.2	0.20059	0.20091	1001.6	0.0040	04165-60-0	1 ppm (5mg/m3/8H)(skin)	orl-rat 640mg/kg
4. 1,2-Dichlorobenzene-d4	128	PR-18653/12207DB2	1000	99	0.2	0.20201	0.20245	1002.2	0.0041	02199-69-1	50 ppm (300mg/m3) (CL)	orl-rat 500mg/kg

Method GC8MSD-3.M: Column:SPB-5 (30m X 0.25mm ID X 0.25µm film thickness) Temp 1 = 50°C (1min.), Temp 2 = 300°C (9min.), Rate = 10°C/min., Injector B= 200°C, Detector B = 275°C, Split Ratio = 100:1, Scan Rate = 2. Analysis performed by: Melissa Stonier.



Peak No.	Name	MSD RT (min.)
1	1,2-Dichlorobenzene-d4	7.10
2	Nitrobenzene-d5	7.97
3	2-Fluorobiphenyl	12.35
4	p-Terphenyl-d14	21.93

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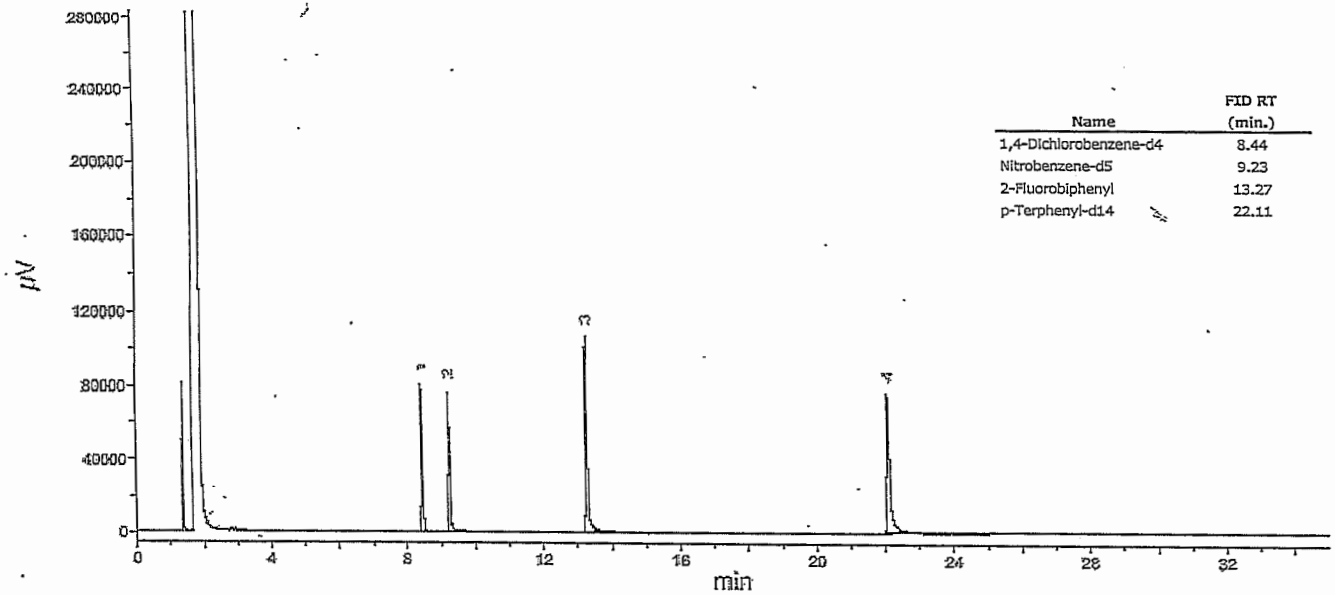
Run 59, "P20006 L050613 [1000µg/mL in MeCl2]"

Run Length: 35.00 min, 20998 points at 10 points/second.
Created: Thu, May 9, 2013 at 2:30:34 AM.
Sampled: Sequence "050713-GC9M1", Method "GC9-M1".
Analyzed using Method "GC9-M1".

Comments
GC9M1 Analysis by Candice Warren
SPB-5 30 meter x 0.53 µm x 1.5 df
Flow Rates; Total Flow = 300 mL/min, Helium (carrier)=6mL, Helium (makeup)=25mL,
Hydrogen (detector)=30, Air (detector)=360, Oven Temp 1 = 50 C (1 min)
Rate = 10 C/min, Oven Temp 2 = 300 (9 min), Total Run Time=35 min.
Injector Temp = 200 C, FID Temp = 300 C, FID Signal = Edaq Channel 1
Gas Chromatograph = HP5890, Standard Injection = 0.5 uL, Range =4



Name	FID RT (min.)
1,4-Dichlorobenzene-d4	8.44
Nitrobenzene-d5	9.23
2-Fluorobiphenyl	13.27
p-Terphenyl-d14	22.11

Analytical Run Number 1

Calibration Information

Tune Data (If applicable)

Initial Calibration (If different than Initial Calibration in Run 1)
- Calibration Factor Summary
- Chromatogram
- Quant Report (If applicable)

Continuing Calibration
- Calibration Response Check
- Chromatogram
- Quant Report (If applicable)

Instrument Logs/Analysis Notebook Pages

Blank / Field Sample / QC Data

Sample Results
Chromatogram
Quant Report (If applicable)
Confirmation Analysis Quant Report / Chromatogram (If applicable)
Tentatively Identified Compounds (If required)

Rev. 1.1

Calibration Information

Tune Data (If applicable)

Initial Calibration (If different than Initial Calibration in Run 1)
- Calibration Factor Summary
- Chromatogram
- Quant Report (If applicable)

Continuing Calibration
- Calibration Response Check
- Chromatogram
- Quant Report (If applicable)

Rev. 1.1

5B

SEMIVOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ARDL, Inc. Contract: ---

Lab Code: --- Case No.: 006611 SAS No.: --- SDG No.: ---

Lab File ID: E0307403 DFTPP Injection Date: 03/07/14

Instrument ID: AG5 DFTPP Injection Time: 14:55

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30 - 80% of mass 198	36.3
68	Less than 2.0% of mass 69	0.0 (1)
69	(reference only)	34.1
70	Less than 2.0% of mass 69	0.4 (1)
127	25 - 75% of mass 198	48.9
197	Less than 1% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.
199	5 - 9% of mass 198	6.8
275	10 - 30% of mass 198	24.1
365	Greater than 1% of mass 198	3.0
441	0 - 100% of mass 443	89.3
442	40 - 110% of mass 198	92.7
443	15 - 24% of mass 442	19.5 (2)

(1)-Value is % mass 69 (2)-Value is % mass 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

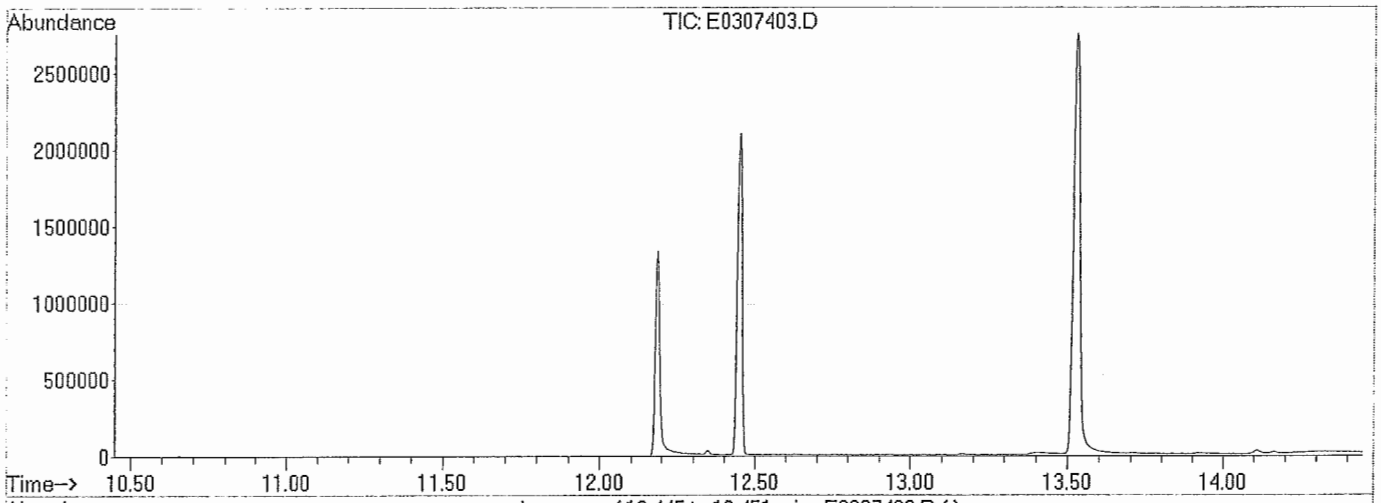
	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1	BLANK STD	000 PPM STD	E0307404	03/07/14	15:21
2	BNA STD	005 PPM STD	E0307405	03/07/14	16:03
3	BNA STD	010 PPM STD	E0307406	03/07/14	16:45
4	BNA STD	020 PPM STD	E0307407	03/07/14	17:27
5	BNA STD	030 PPM STD	E0307408	03/07/14	18:08
6	BNA STD	040 PPM STD	E0307409	03/07/14	18:49
7	BNA STD	060 PPM STD	E0307410	03/07/14	19:30
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

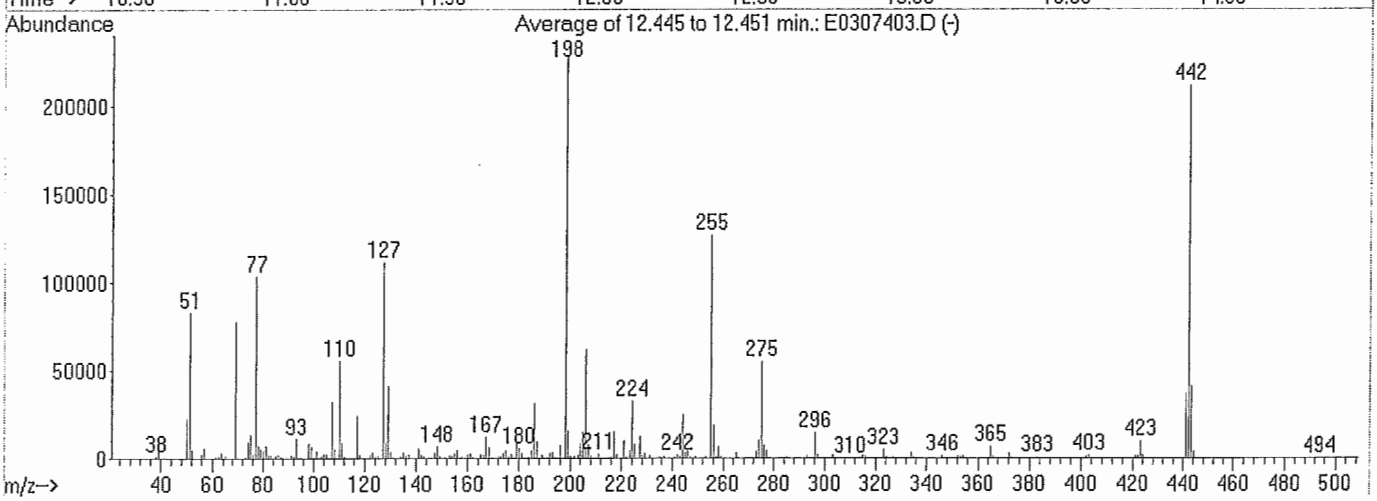
DFTPP

Data Path : C:\MSDCHEM\1\DATA\030714\
Data File : E0307403.D
Acq On : 7 Mar 2014 14:55
Operator : PEK
Sample : 50 PPM TUNE 16289
Misc : AG-5 8270
ALS Vial : 1 Sample Multiplier: 1

Integration File: FRED.P

Method : C:\MSDCHEM\1\METHODS\8270TUNPULSE.M
Title : 8270 TUNE METHOD
Last Update : Wed Aug 28 11:55:28 2013





AutoFind: Scans 1185, 1186, 1187; Background Corrected with Scan 1173

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	80	36.3	83080	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.01	100	34.1	77865	PASS
70	69	0.00	2	0.4	297	PASS
127	198	25	75	48.9	111704	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	228586	PASS
199	198	5	9	6.8	15613	PASS
275	198	10	30	24.1	55090	PASS
365	198	0.75	100	3.0	6798	PASS
441	443	0.01	100	89.3	36890	PASS
442	198	40	110	92.7	211797	PASS
443	442	15	24	19.5	41325	PASS

Average of 12.445 to 12.451 min.: E0307403.D
50 PPM TUNE 16289
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
36.05	85	50.20	22530	62.10	1229	75.10	13299
37.05	316	51.20	83080	63.15	3164	76.20	2292
38.15	1216	52.10	4971	64.05	559	77.20	103544
39.15	5920	53.05	61	65.05	1547	78.15	7156
40.10	189	54.10	48	66.05	255	79.05	5712
41.10	144	55.10	114	67.10	149	80.10	4593
42.10	52	56.10	2209	69.10	77865	81.10	6846
45.15	154	57.10	5761	70.05	297	82.10	1812
46.95	151	58.05	359	71.90	28	83.10	1744
47.90	34	58.95	14	73.10	694	84.05	138
48.20	66	61.00	847	74.15	9494	85.10	1540

Average of 12.445 to 12.451 min.: E0307403.D
50 PPM TUNE 16289
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
86.10	1956	99.10	6555	111.10	8959	123.05	3244
87.10	1035	100.10	692	112.15	1163	124.00	619
88.05	464	101.05	3860	113.00	302	124.15	960
89.15	211	101.95	198	113.85	109	125.10	1380
91.10	1586	102.40	110	115.00	100	127.10	111704
92.15	1413	103.05	1476	117.10	24469	128.15	8875
93.05	10898	104.10	2572	118.10	1987	129.10	41080
94.05	698	105.10	2492	119.05	248	130.10	3609
95.05	326	107.10	32115	120.05	503	131.05	762
96.05	237	108.10	5211	121.15	95	132.00	342
98.10	8555	110.10	55570	122.10	1989	133.10	108

Average of 12.445 to 12.451 min.: E0307403.D
50 PPM TUNE 16289
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
134.05	1369	143.90	102	154.10	1628	163.90	161
135.10	3369	144.15	241	155.10	2995	164.20	149
136.10	1530	145.05	397	156.10	4814	165.10	2387
137.10	2143	146.05	820	157.10	870	166.10	2055
137.90	199	147.10	3166	158.00	1096	167.05	12151
138.10	165	148.10	6699	159.05	815	168.10	6299
139.00	316	149.10	1512	160.10	1955	169.10	986
139.95	386	150.10	428	161.10	2756	170.00	412
141.10	5427	151.15	858	162.10	808	171.05	522
142.15	2005	151.70	473	162.85	63	172.05	1024
143.10	1196	153.10	1656	163.20	77	173.10	1273

Average of 12.445 to 12.451 min.: E0307403.D
50 PPM TUNE 16289
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
174.10	2795	184.05	902	193.10	3376	207.10	7808
175.10	4633	185.15	4584	194.05	829	208.10	1857
176.05	1207	186.10	31288	196.10	7480	208.95	701
177.05	2321	187.10	9448	198.10	228586	210.20	417
178.15	777	188.00	689	199.10	15613	211.05	2465
179.10	8166	188.20	410	200.05	1440	211.90	434
180.10	5804	189.10	1879	201.60	1183	213.00	196
181.10	2954	190.05	492	203.05	1956	215.05	754
182.05	487	191.10	773	204.10	8556	216.05	1013
182.60	112	191.30	319	205.10	15184	217.10	14976
183.15	348	192.10	3141	206.05	61883	218.05	2228

Average of 12.445 to 12.451 min.: E0307403.D
50 PPM TUNE 16289
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
218.90	65	228.05	1813	239.05	572	250.05	252
219.15	290	229.10	2874	239.95	504	250.95	349
219.60	68	230.00	540	241.05	832	252.00	416
221.10	9999	231.05	1409	242.05	1972	252.40	193
221.80	892	232.05	298	243.05	1372	253.20	924
222.10	725	233.00	227	244.10	24880	255.10	126909
223.15	4362	234.05	754	245.10	3415	256.10	18608
224.10	32552	235.05	1040	246.05	4612	257.05	1483
225.10	8362	236.00	683	247.00	988	258.00	6693
226.10	400	237.00	1068	248.10	285	259.00	1187
227.10	12650	238.10	244	249.05	1080	259.80	129

Average of 12.445 to 12.451 min.: E0307403.D
50 PPM TUNE 16289

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
260.00	161	271.95	340	281.80	33	290.80	45
260.30	102	273.10	4005	281.95	77	291.10	54
260.95	130	274.10	10314	283.05	453	291.85	196
261.20	101	275.10	55090	284.10	388	293.05	1237
262.10	38	276.05	7404	285.05	764	294.25	280
265.05	2926	277.05	4584	286.00	257	296.10	14483
266.05	469	278.05	626	286.80	33	297.05	2086
268.20	80	279.10	32	288.00	88	298.05	90
269.25	117	280.00	33	289.05	163	299.00	29
269.95	316	280.95	91	289.90	114	300.10	51
270.95	524	281.30	33	290.10	72	300.95	68

Average of 12.445 to 12.451 min.: E0307403.D
50 PPM TUNE 16289
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
301.95	246	313.05	190	324.05	910	335.05	906
303.10	1823	314.10	765	325.05	136	336.00	110
304.05	594	315.05	1697	325.95	141	339.00	38
305.00	39	316.05	1114	327.00	979	339.80	62
306.90	34	317.00	138	328.05	483	340.10	64
307.50	28	317.90	60	329.15	115	341.00	575
307.95	171	319.40	43	330.40	29	342.05	218
309.00	86	320.00	36	331.00	57	344.20	27
309.20	39	321.00	556	332.00	296	346.05	1452
310.05	168	322.05	194	333.05	513	347.00	287
311.90	60	323.10	4891	334.05	3310	347.90	47

Average of 12.445 to 12.451 min.: E0307403.D
50 PPM TUNE 16289
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
348.40	28	360.80	52	372.05	2885	395.60	40
350.10	29	363.20	50	373.05	708	397.00	59
351.05	88	365.00	6798	374.00	88	398.10	30
352.05	1233	365.95	1121	383.00	798	401.05	251
353.05	1041	366.80	27	384.00	279	402.05	1233
354.05	1546	367.05	83	384.90	78	403.05	1819
355.05	407	367.90	38	390.05	330	404.05	571
356.00	69	370.05	114	390.95	302	405.10	60
358.20	30	370.50	101	391.90	138	408.20	40
359.05	174	370.95	335	392.10	54	410.10	38
359.60	29	371.20	159	394.60	35	410.30	45

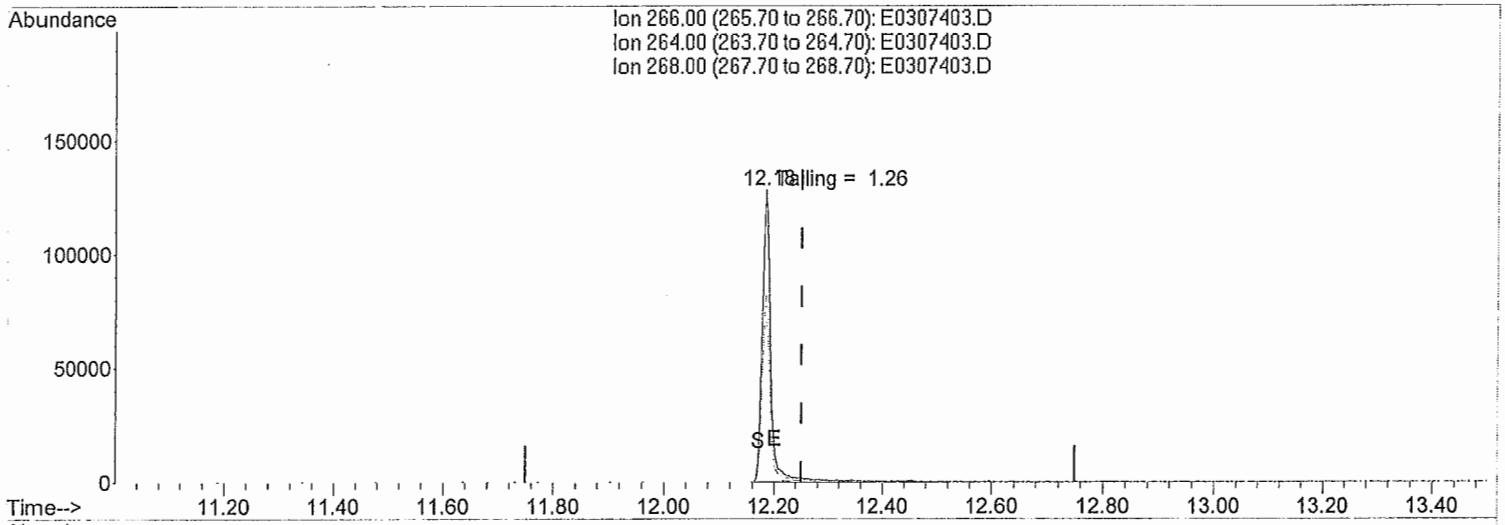
Average of 12.445 to 12.451 min.: E0307403.D
50 PPM TUNE 16289
Modified:subtracted

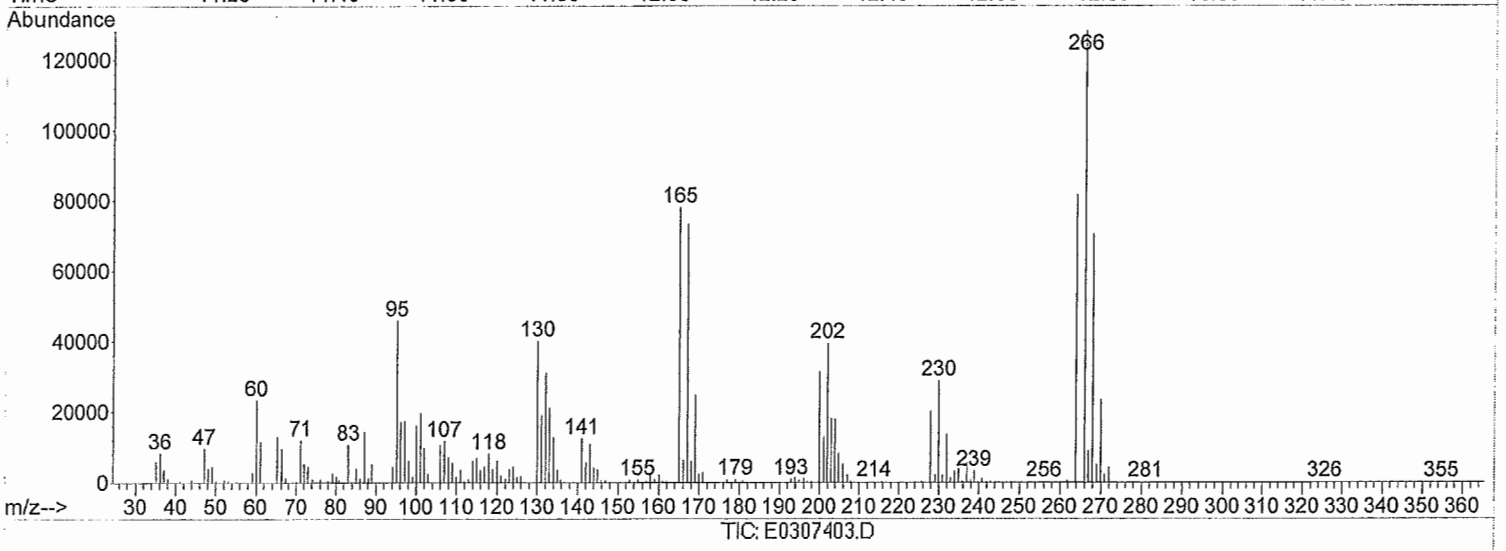
m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
414.90	170	427.55	105	432.20	67	436.85	113
416.10	30	428.10	81	432.60	85	437.40	47
417.10	33	428.50	69	433.10	81	438.15	209
418.00	28	428.70	86	433.50	45	439.05	86
421.05	1431	429.10	74	434.20	37	441.10	36890
422.05	1626	429.60	60	434.55	114	442.05	211797
423.10	9872	429.90	35	434.95	70	443.10	41325
424.05	2113	430.30	44	435.30	58	444.05	3846
425.15	242	430.90	114	435.75	98	445.10	139
425.80	52	431.50	56	436.00	45	493.80	28
426.80	174	431.95	163	436.50	64		

Quantitation Report (Qedit)

Data Path : C:\MSDCHEM\1\DATA\030714\
Data File : E0307403.D
Acq On : 7 Mar 2014 14:55
Operator : PEK
Sample : 50 PPM TUNE 16289
Misc : AG-5 8270
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Mar 07 15:13:37 2014
Quant Method : C:\MSDCHEM\1\METHODS\8270TUNPULSE.M
Quant Title : 8270 TUNE METHOD
QLast Update : Wed Aug 28 11:55:28 2013
Response via : Initial Calibration





(1) Pentachlorophenol (TMC)

12.184min (-0.066) 12.29ug/L

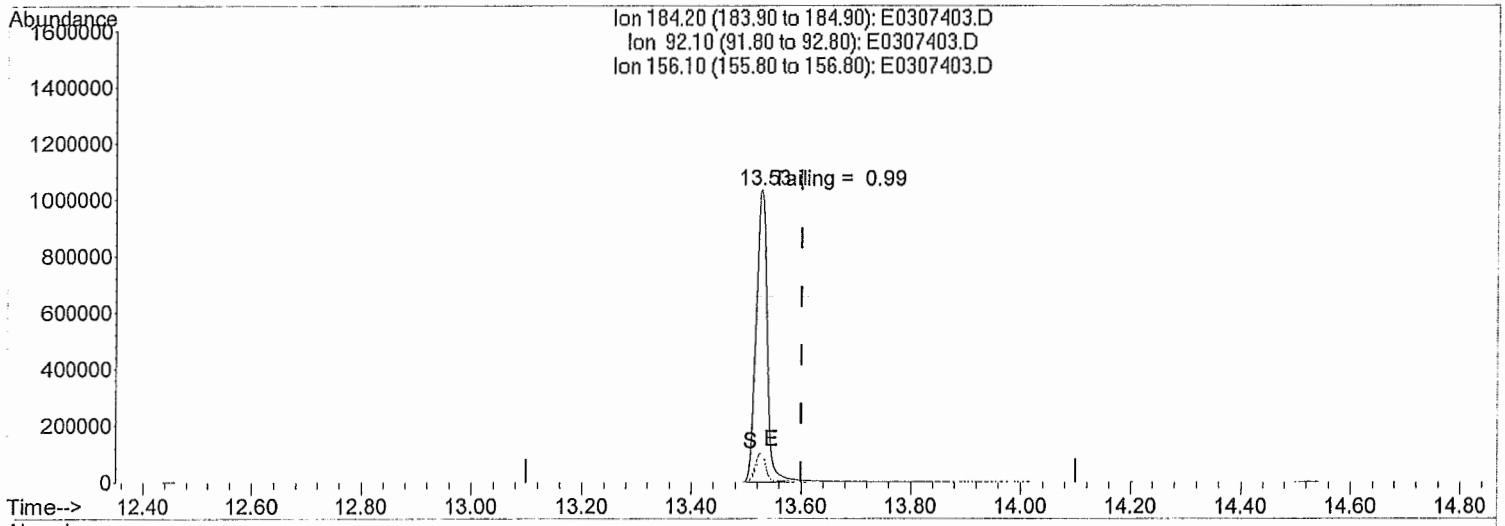
response 131019

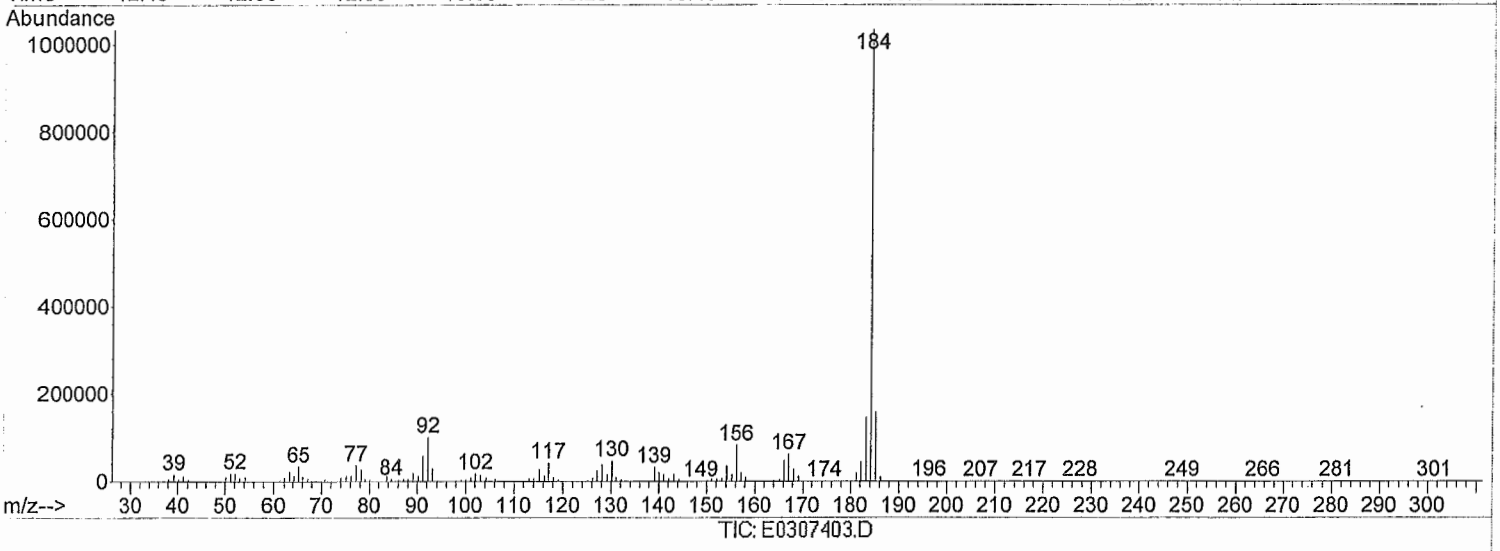
Ion	Exp%	Act%
266.00	100	100
264.00	63.80	64.53
268.00	63.80	58.87
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\MSDCHEM\1\DATA\030714\
Data File : E0307403.D
Acq On : 7 Mar 2014 14:55
Operator : PEK
Sample : 50 PPM TUNE 16289
Misc : AG-5 8270
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Mar 07 15:13:37 2014
Quant Method : C:\MSDCHEM\1\METHODS\8270TUNPULSE.M
Quant Title : 8270 TUNE METHOD
QLast Update : Wed Aug 28 11:55:28 2013
Response via : Initial Calibration





(3) Benzidine (T)

13.527min (-0.073) 28.93ug/L

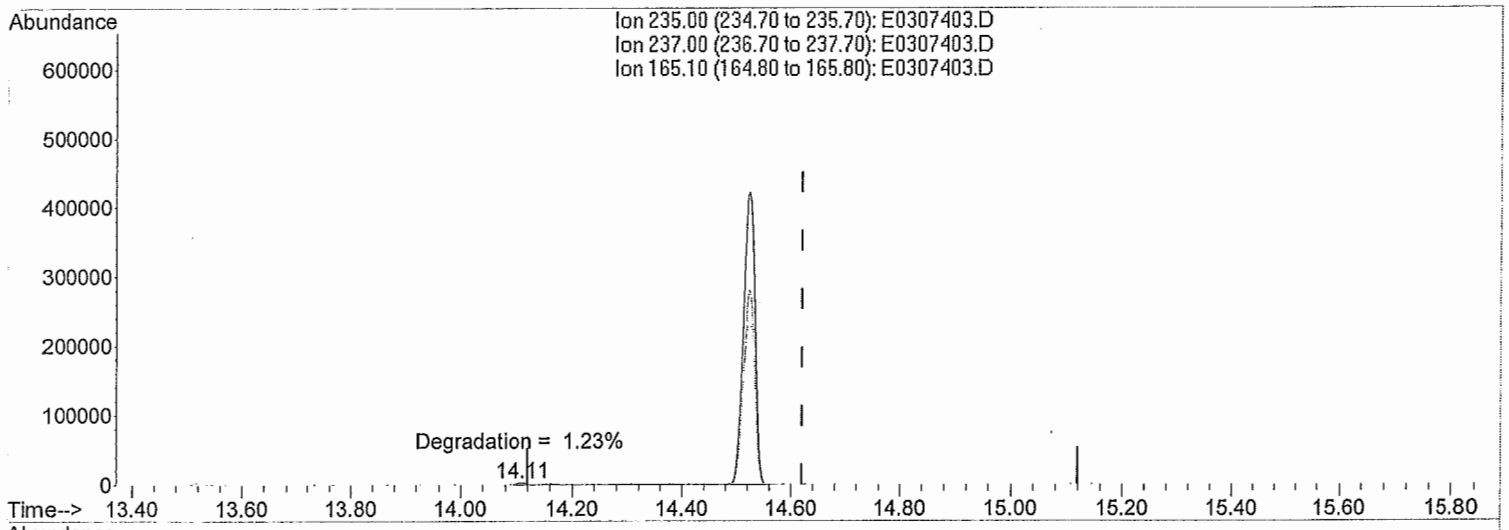
response 1491811

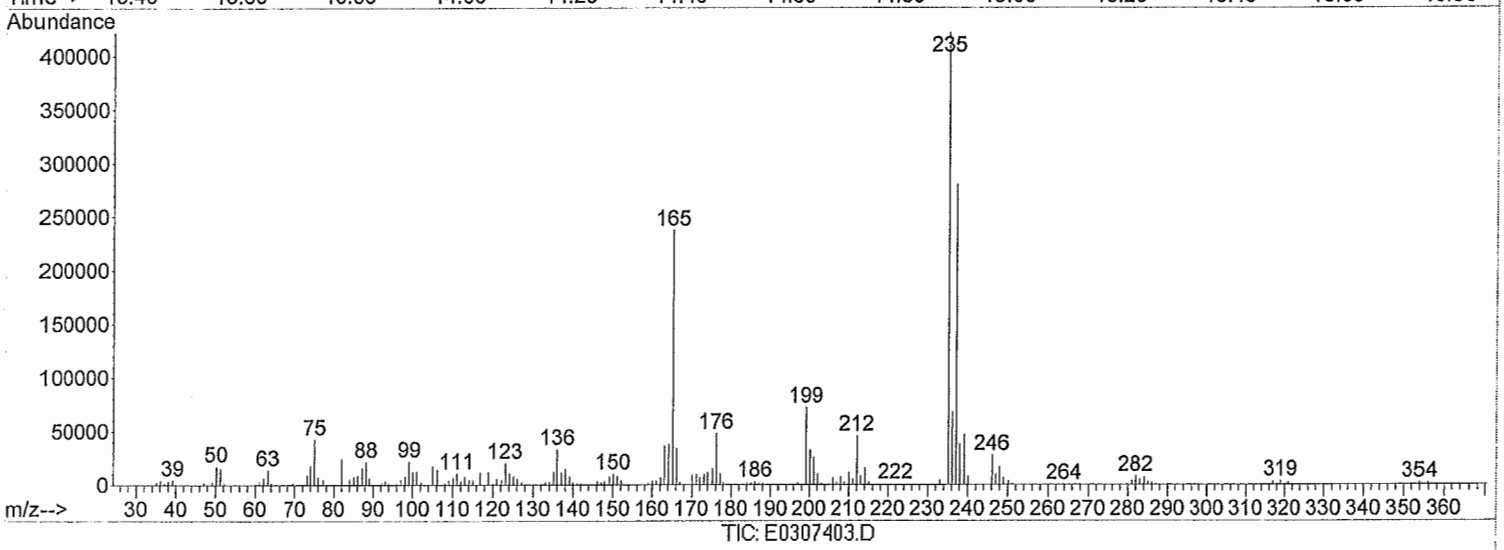
Ion	Exp%	Act%
184.20	100	100
92.10	13.70	10.04#
156.10	8.60	7.65
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\MSDCHEM\1\DATA\030714\
Data File : E0307403.D
Acq On : 7 Mar 2014 14:55
Operator : PEK
Sample : 50 PPM TUNE 16289
Misc : AG-5 8270
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Mar 07 15:13:37 2014
Quant Method : C:\MSDCHEM\1\METHODS\8270TUNPULSE.M
Quant Title : 8270 TUNE METHOD
QLast Update : Wed Aug 28 11:55:28 2013
Response via : Initial Calibration





(4) DDT

14.523min (-0.097) 23.88ug/L

response 620045

Ion	Exp%	Act%
235.00	100	100
237.00	64.80	65.28
165.10	59.00	59.69
0.00	0.00	0.00

Response Factor Report AG5

Method Path : C:\MSDCHEM\1\CALFILES\8270CALS\
Method File : E8270321HW.M
Title : 8270 BNA Calibration
Last Update : Sat Mar 08 08:58:38 2014
Response Via : Initial Calibration

Calibration Files
10 =E0307406.D 20 =E0307407.D 30 =E0307408.D
40 =E0307409.D 5 =E0307405.D 60 =E0307410.D

		Compound	10	20	30	40	5	60	Avg	%RSD
1)	I	1,4-Dichlorobenzene-d	----------ISTD----------							
2)	I	Naphthalene-d8	----------ISTD----------							
3)	S	Nitrobenzene-d5	0.359	0.345	0.331	0.327	0.353	0.306	0.337	5.81
4)	I	Acenaphthene-d10	----------ISTD----------							
5)	S	2-Fluorobiphenyl	1.414	1.281	1.185	1.106	1.466	1.008	1.243	14.28
6)	T	Dimethylphthalate	1.780	1.628	1.539	1.460	1.867	1.365	1.607	11.91
7)	T	Diethylphthalate	1.833	1.647	1.538	1.448	1.924	1.316	1.618	14.29
8)	I	Phenanthrene-d10	----------ISTD----------							
9)	T	Di-n-butylphthala	1.801	1.642	1.516	1.412	1.888	1.236	1.582	15.44
10)	I	Chrysene-d12	----------ISTD----------							
11)	TM	Pyrene	1.482	1.320	1.246	1.196	1.532	1.089	1.311	13.00
12)	S	Terphenyl-d14	0.736	0.680	0.652	0.626	0.755	0.588	0.673	9.52
13)	T	bis(2-Ethylhexyl)	1.023	1.008	0.996	0.987	1.007	0.920	0.990	3.69
14)	TC	Di-n-octylphthala	1.699	1.725	1.688	1.680	1.600	1.558	1.658	3.89#
15)	I	Perylene-d12	----------ISTD----------							

(#) = Out of Range ### Number of calibration levels exceeded format ###

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\030714\
Data File : E0307404.D
Acq On : 7 Mar 2014 15:21
Operator : PEK
Sample : BLK 16293 PEK 3/10/2014
Misc : AG-5 8270
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Mar 07 15:57:20 2014
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270321HW.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Nov 27 09:24:47 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.40	152	3016416	40.00 ug/L	-0.05
2) Naphthalene-d8	9.37	136	11577249	40.00 ug/L	-0.05
4) Acenaphthene-d10	12.29	164	6384824	40.00 ug/L	-0.05
8) Phenanthrene-d10	14.85	188	10542665	40.00 ug/L	-0.06
10) Chrysene-d12	20.47	240	12708761	40.00 ug/L	-0.12
15) Perylene-d12	25.42	264	12353785	40.00 ug/L	-0.07
System Monitoring Compounds					
3) Nitrobenzene-d5	0.00	82	0	0.00 ug/L	
Spiked Amount 50.000			Recovery	= 0.00%	
5) 2-Fluorobiphenyl	11.23	172	4857	0.02 ug/L	0.04
Spiked Amount 50.000			Recovery	= 0.04%	
12) Terphenyl-d14	0.00	244	0	0.00 ug/L	
Spiked Amount 50.000			Recovery	= 0.00%	

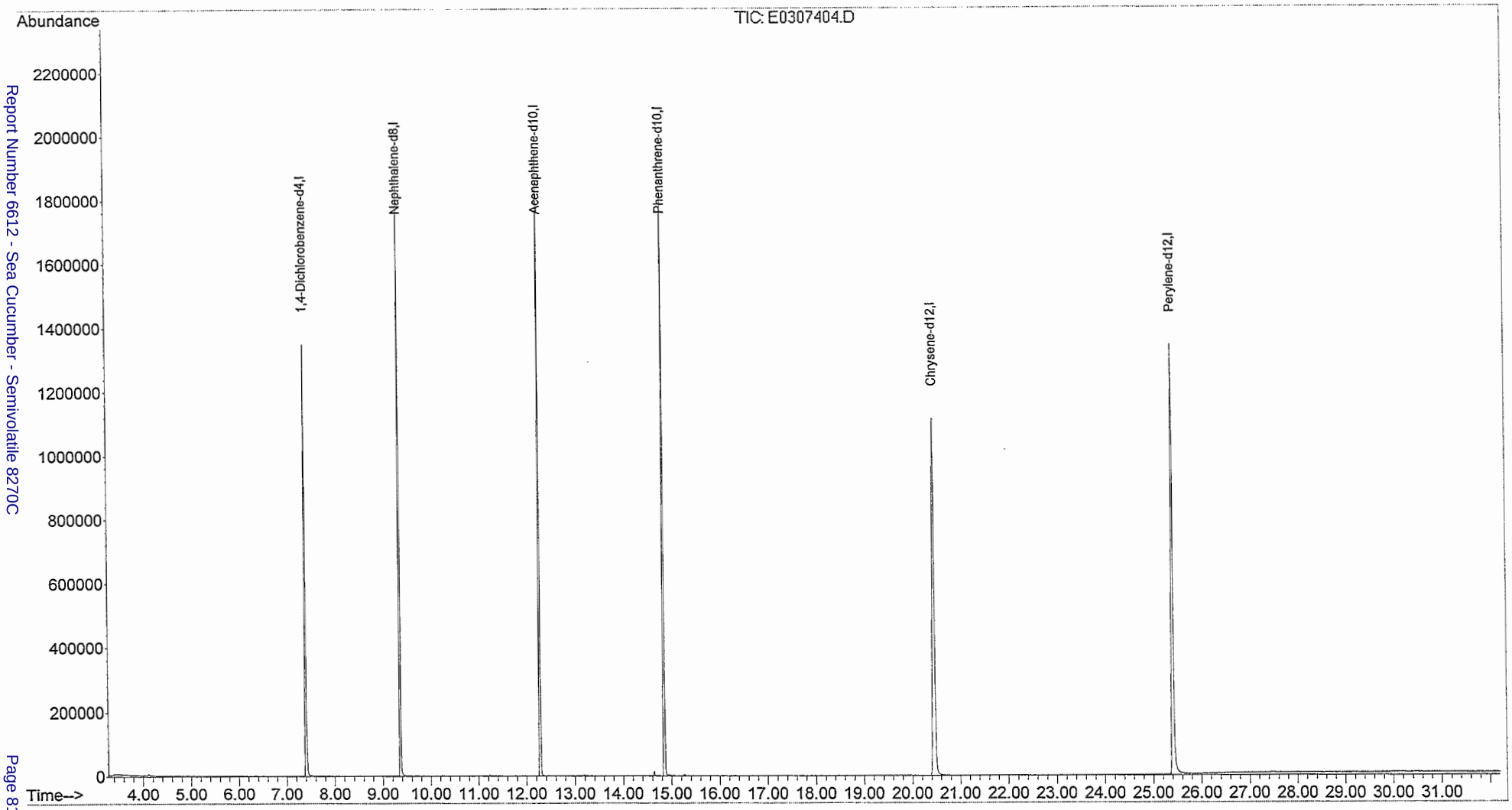
Target Compounds	Qvalue

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

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\030714\
Data File : E0307404.D
Acq On : 7 Mar 2014 15:21
Operator : PEK
Sample : BLK
Misc : AG-5 8270
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Mar 07 15:57:20 2014
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270321HW.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Nov 27 09:24:47 2013
Response via : Initial Calibration



ARDL Inc
Report Number 6612 - Sea Cucumber - Semivolatile 8270C
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Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\030714\
Data File : E0307405.D
Acq On : 7 Mar 2014 16:03
Operator : PEK
Sample : 5 PPM STD 16294 PEK 3/10/2014
Misc : AG-5 8270
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Mar 07 16:36:44 2014
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270321HW.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Nov 27 09:24:47 2013
Response via : Initial Calibration

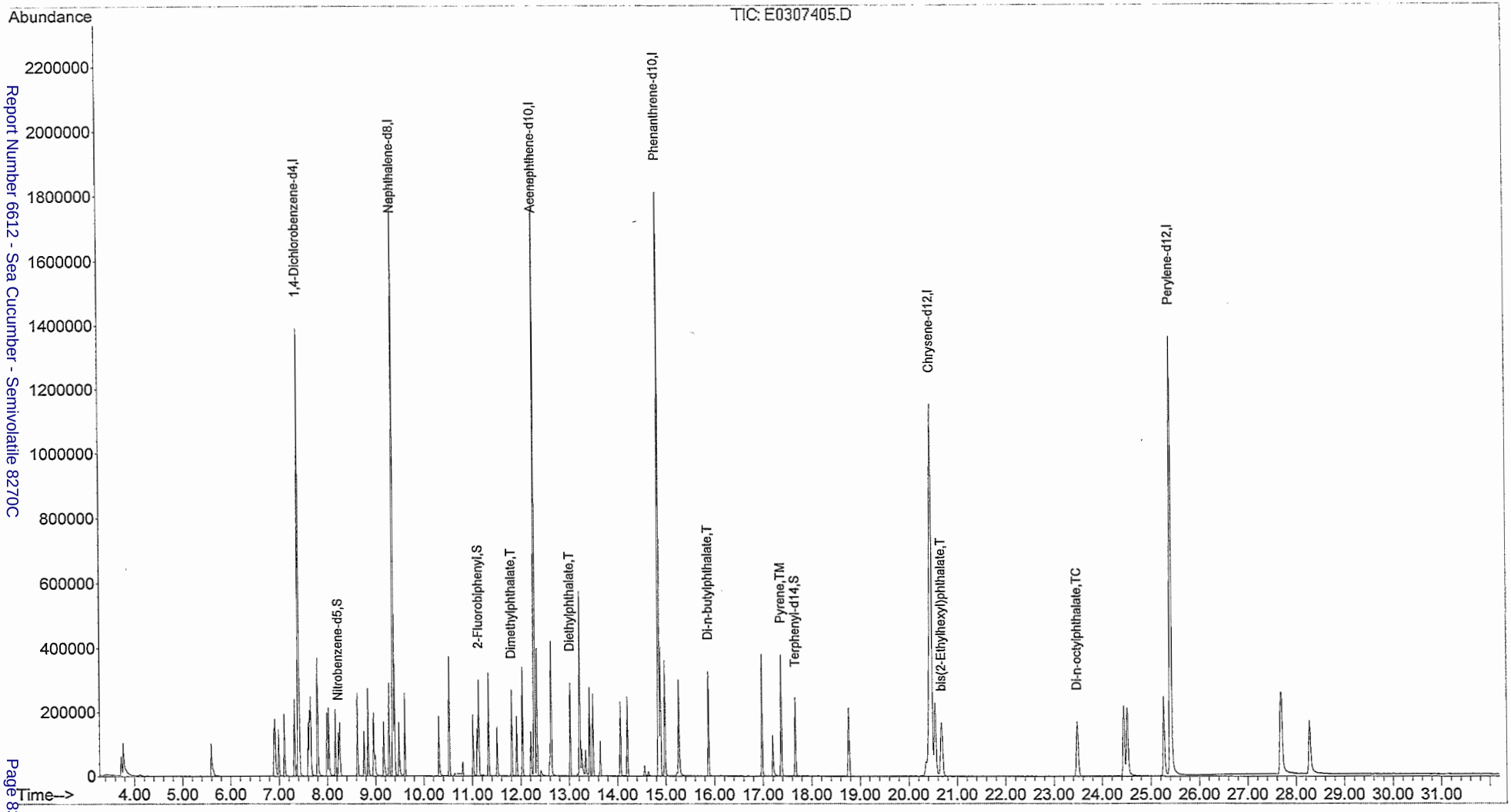
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.40	152	3005778	40.00 ug/L	-0.05
2) Naphthalene-d8	9.37	136	11504533	40.00 ug/L	-0.05
4) Acenaphthene-d10	12.29	164	6343400	40.00 ug/L	-0.05
8) Phenanthrene-d10	14.85	188	10461861	40.00 ug/L	-0.06
10) Chrysene-d12	20.47	240	12702454	40.00 ug/L	-0.12
15) Perylene-d12	25.42	264	12390870	40.00 ug/L	-0.07
System Monitoring Compounds					
3) Nitrobenzene-d5	8.23	82	507446	4.90 ug/L	-0.05
Spiked Amount 50.000			Recovery	= 9.80%	
5) 2-Fluorobiphenyl	11.13	172	1162679	5.36 ug/L	-0.06
Spiked Amount 50.000			Recovery	= 10.72%	
12) Terphenyl-d14	17.66	244	1198911	4.86 ug/L	-0.07
Spiked Amount 50.000			Recovery	= 9.72%	
Target Compounds					Qvalue
6) Dimethylphthalate	11.81	163	1480654	6.35 ug/L #	78
7) Diethylphthalate	13.02	149	1525803	6.79 ug/L	99
9) Di-n-butylphthalate	15.87	149	2468767	6.72 ug/L	94
11) Pyrene	17.37	202	2433310	6.37 ug/L	81
13) bis(2-Ethylhexyl)phthalate	20.68	149	1599370	6.62 ug/L	99
14) Di-n-octylphthalate	23.48	149	2539910	6.01 ug/L	100

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

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\030714\
Data File : E0307405.D
Acq On : 7 Mar 2014 16:03
Operator : PEK
Sample : 5 PPM STD
Misc : AG-5 8270
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Mar 07 16:36:44 2014
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270321HW.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Nov 27 09:24:47 2013
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\030714\
Data File : E0307406.D
Acq On : 7 Mar 2014 16:45
Operator : PEK
Sample : 10 PPM STD 16295 PEK
Misc : AG-5 8270 3/10/2014
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Mar 08 08:54:02 2014
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270321HW.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Nov 27 09:24:47 2013
Response via : Initial Calibration

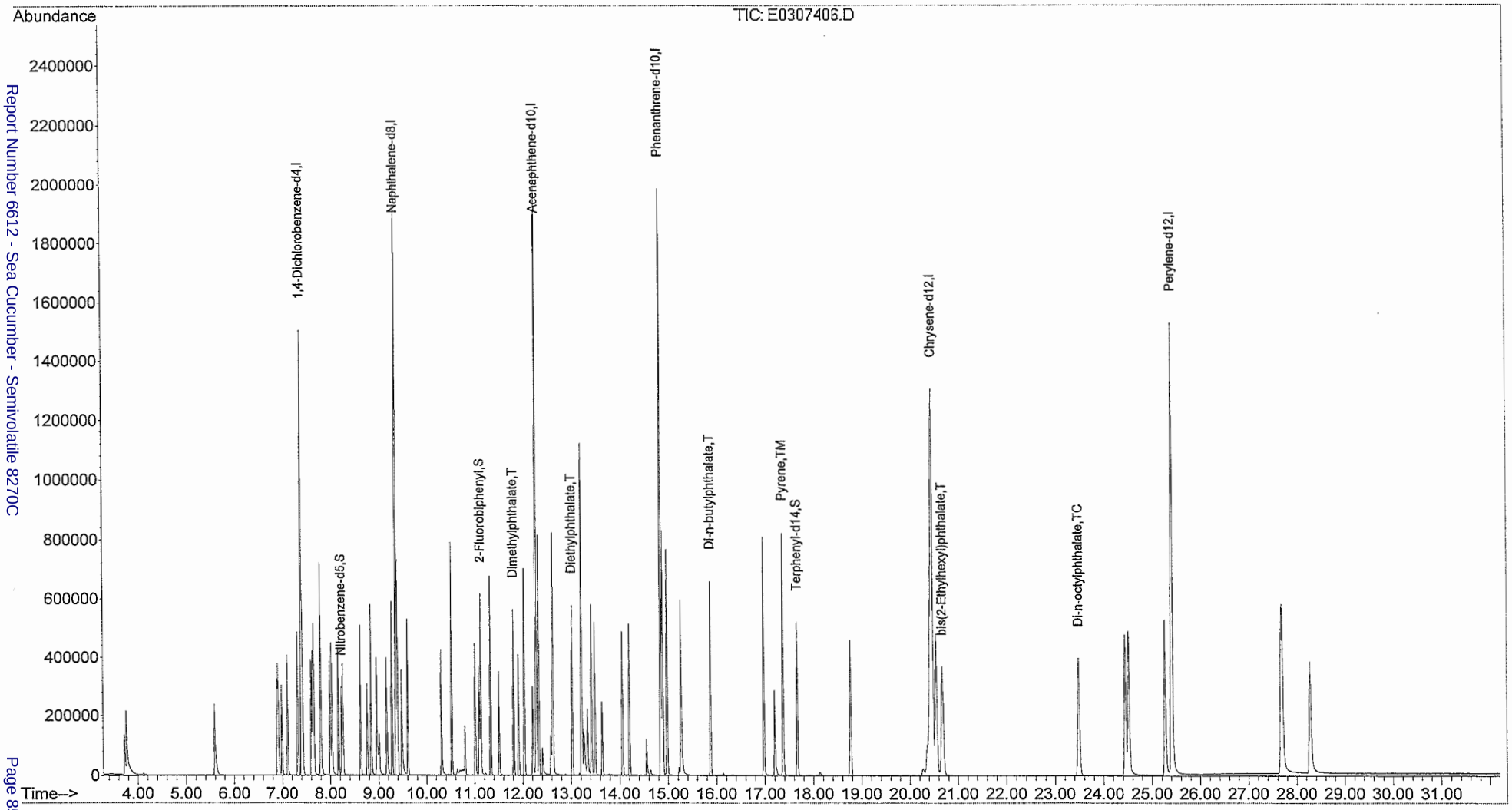
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.40	152	3289182	40.00	ug/L	-0.05
2) Naphthalene-d8	9.37	136	12500007	40.00	ug/L	-0.05
4) Acenaphthene-d10	12.29	164	7052371	40.00	ug/L	-0.05
8) Phenanthrene-d10	14.85	188	11723584	40.00	ug/L	-0.06
10) Chrysene-d12	20.47	240	14147007	40.00	ug/L	-0.12
15) Perylene-d12	25.42	264	14124326	40.00	ug/L	-0.07
System Monitoring Compounds						
3) Nitrobenzene-d5	8.23	82	1121626	9.96	ug/L	-0.05
Spiked Amount 50.000			Recovery = 19.92%			
5) 2-Fluorobiphenyl	11.13	172	2492405	10.33	ug/L	-0.06
Spiked Amount 50.000			Recovery = 20.66%			
12) Terphenyl-d14	17.67	244	2601323	9.47	ug/L	-0.07
Spiked Amount 50.000			Recovery = 18.94%			
Target Compounds						Qvalue
6) Dimethylphthalate	11.81	163	3138823	12.10	ug/L	99
7) Diethylphthalate	13.03	149	3231403	12.93	ug/L	99
9) Di-n-butylphthalate	15.87	149	5278901	12.83	ug/L	95
11) Pyrene	17.37	202	5242163	12.32	ug/L	80
13) bis(2-Ethylhexyl)phthalate	20.68	149	3617981	13.46	ug/L	99
14) Di-n-octylphthalate	23.49	149	6007286	12.76	ug/L	100

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

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\030714\
Data File : E0307406.D
Acq On : 7 Mar 2014 16:45
Operator : PEK
Sample : 10 PPM STD
Misc : AG-5 8270
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Mar 08 08:54:02 2014
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270321HW.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Nov 27 09:24:47 2013
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\030714\
Data File : E0307407.D
Acq On : 7 Mar 2014 17:27
Operator : PEK
Sample : 20 PPM STD 16296 PEK 3/10/2014
Misc : AG-5 8270
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Mar 08 08:54:19 2014
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270321HW.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Nov 27 09:24:47 2013
Response via : Initial Calibration

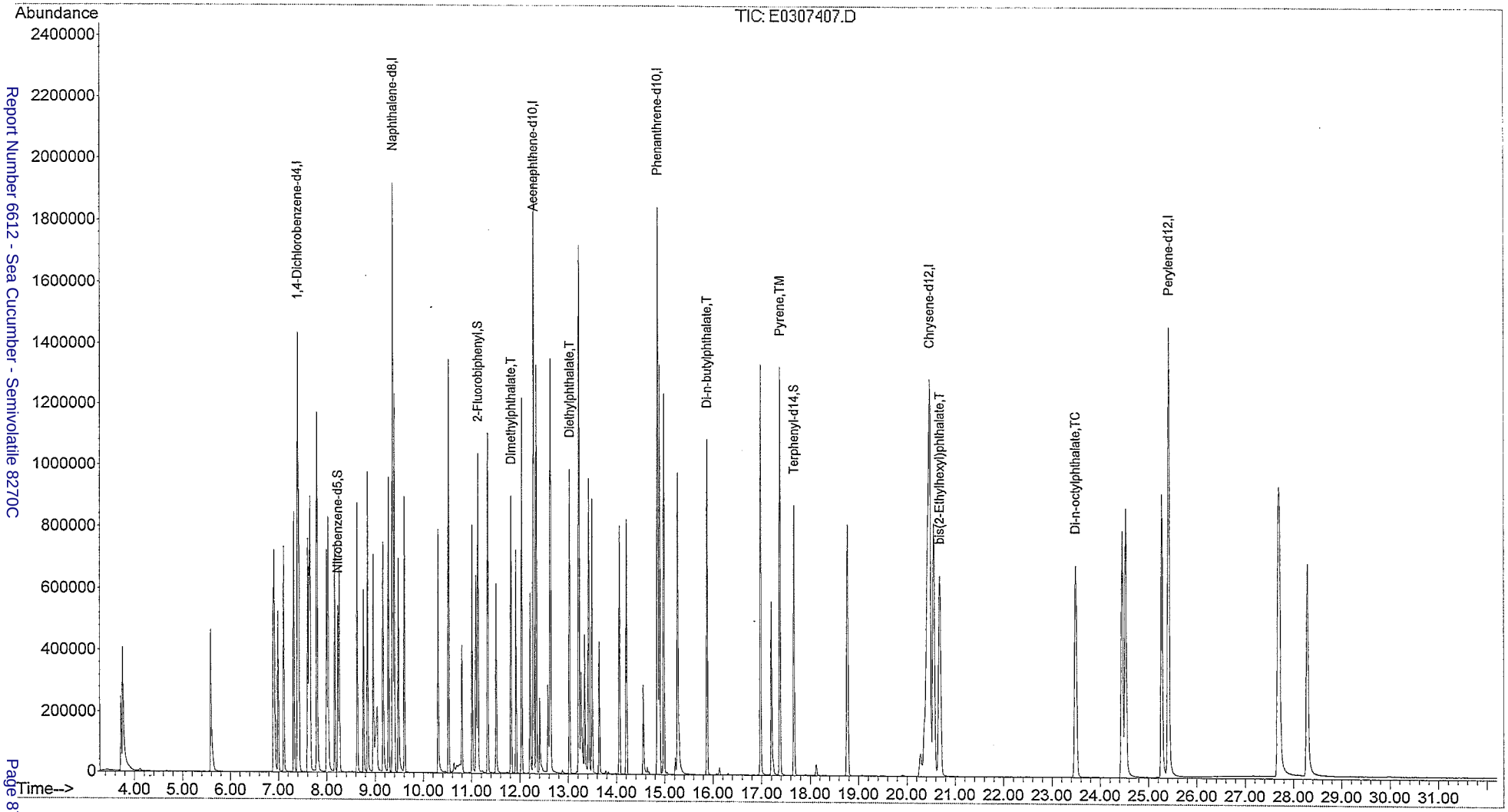
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.40	152	3100490	40.00	ug/L	-0.05
2) Naphthalene-d8	9.37	136	11986828	40.00	ug/L	-0.05
4) Acenaphthene-d10	12.29	164	6642402	40.00	ug/L	-0.05
8) Phenanthrene-d10	14.86	188	11071448	40.00	ug/L	-0.05
10) Chrysene-d12	20.48	240	13167564	40.00	ug/L	-0.10
15) Perylene-d12	25.42	264	13320043	40.00	ug/L	-0.07
System Monitoring Compounds						
3) Nitrobenzene-d5	8.23	82	2067138	19.14	ug/L	-0.05
Spiked Amount 50.000			Recovery = 38.28%			
5) 2-Fluorobiphenyl	11.13	172	4254957	18.72	ug/L	-0.06
Spiked Amount 50.000			Recovery = 37.44%			
12) Terphenyl-d14	17.67	244	4478168	17.51	ug/L	-0.06
Spiked Amount 50.000			Recovery = 35.02%			
Target Compounds						Qvalue
6) Dimethylphthalate	11.82	163	5407515	22.13	ug/L	100
7) Diethylphthalate	13.03	149	5469415	23.24	ug/L	99
9) Di-n-butylphthalate	15.88	149	9090377	23.40	ug/L	95
11) Pyrene	17.38	202	8688764	21.94	ug/L	81
13) bis(2-Ethylhexyl)phthalate	20.68	149	6636306	26.52	ug/L	98
14) Di-n-octylphthalate	23.49	149	11354226	25.92	ug/L	100

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

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\030714\
Data File : E0307407.D
Acq On : 7 Mar 2014 17:27
Operator : PEK
Sample : 20 PPM STD
Misc : AG-5 8270
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Mar 08 08:54:19 2014
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270321HW.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Nov 27 09:24:47 2013
Response via : Initial Calibration



E8270321HW.M Sat Mar 08 08:54:20 2014

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Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\030714\
Data File : E0307408.D
Acq On : 7 Mar 2014 18:08
Operator : PEK
Sample : 30 PPM STD 16297 PEK 3/10/2014
Misc : AG-5 8270
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Mar 08 08:54:34 2014
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270321HW.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Nov 27 09:24:47 2013
Response via : Initial Calibration

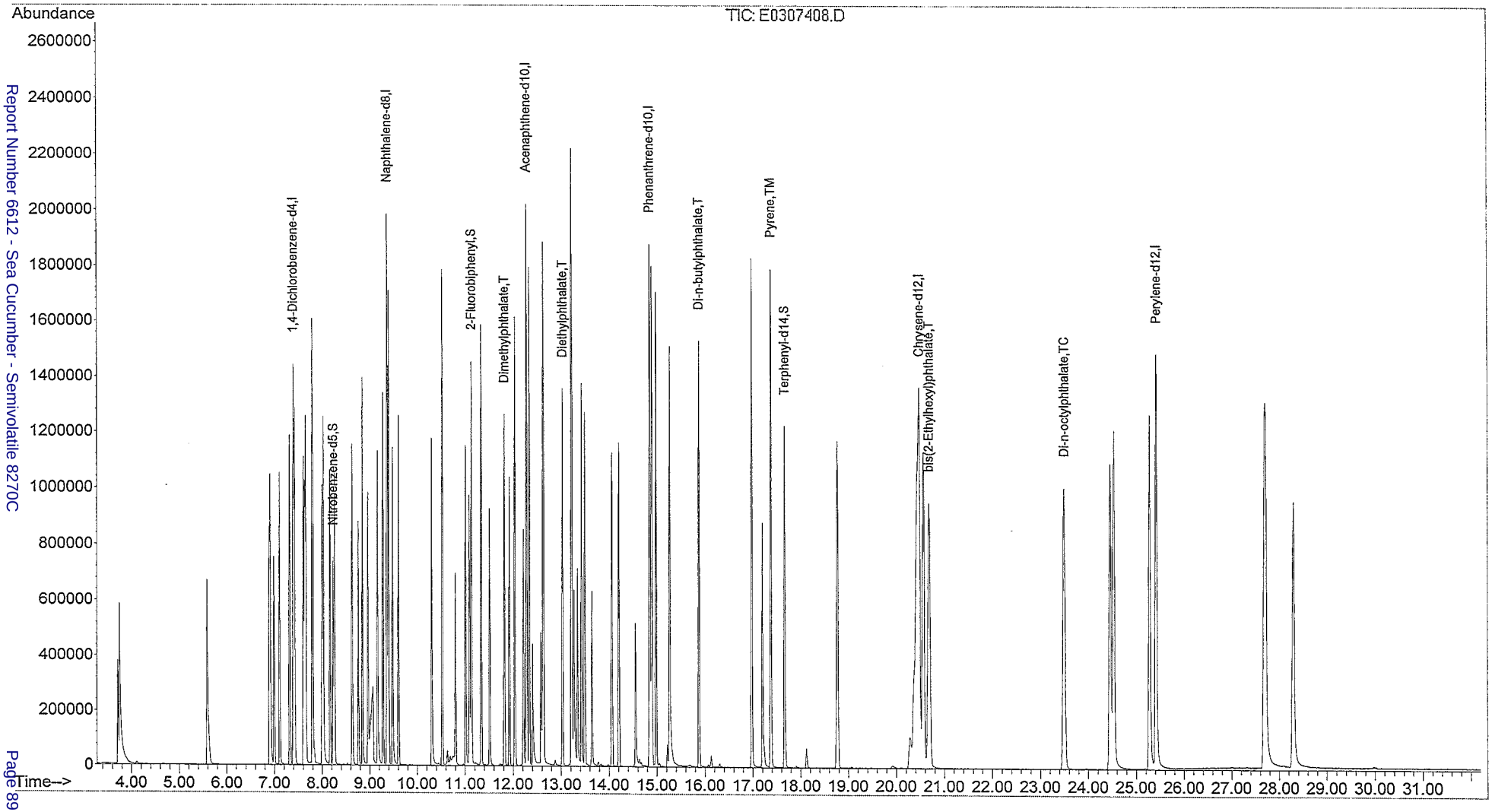
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.40	152	3210755	40.00	ug/L	-0.05
2) Naphthalene-d8	9.37	136	12445918	40.00	ug/L	-0.05
4) Acenaphthene-d10	12.29	164	6929396	40.00	ug/L	-0.05
8) Phenanthrene-d10	14.86	188	11541208	40.00	ug/L	-0.05
10) Chrysene-d12	20.48	240	13396136	40.00	ug/L	-0.10
15) Perylene-d12	25.43	264	13707138	40.00	ug/L	-0.06
System Monitoring Compounds						
3) Nitrobenzene-d5	8.24	82	3089200	27.55	ug/L	-0.05
Spiked Amount 50.000			Recovery = 55.10%			
5) 2-Fluorobiphenyl	11.14	172	6160830	25.99	ug/L	-0.05
Spiked Amount 50.000			Recovery = 51.98%			
12) Terphenyl-d14	17.67	244	6548402	25.17	ug/L	-0.06
Spiked Amount 50.000			Recovery = 50.34%			
Target Compounds						Qvalue
6) Dimethylphthalate	11.82	163	7996310	31.37	ug/L	99
7) Diethylphthalate	13.03	149	7990957	32.55	ug/L	100
9) Di-n-butylphthalate	15.88	149	13119386	32.39	ug/L	95
11) Pyrene	17.39	202	12515972	31.07	ug/L	81
13) bis(2-Ethylhexyl)phthalate	20.69	149	10008791	39.31	ug/L	99
14) Di-n-octylphthalate	23.50	149	16955270	38.04	ug/L	100

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

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\030714\
Data File : E0307408.D
Acq On : 7 Mar 2014 18:08
Operator : PEK
Sample : 30 PPM STD
Misc : AG-5 8270
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Mar 08 08:54:34 2014
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270321HW.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Nov 27 09:24:47 2013
Response via : Initial Calibration



E8270321HW.M Sat Mar 08 08:54:35 2014

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Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\030714\
Data File : E0307409.D
Acq On : 7 Mar 2014 18:49
Operator : PEK
Sample : 40 PPM STD 16298 PEK 3/10/2014
Misc : AG-5 8270
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Mar 08 08:54:44 2014
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270321HW.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Nov 27 09:24:47 2013
Response via : Initial Calibration

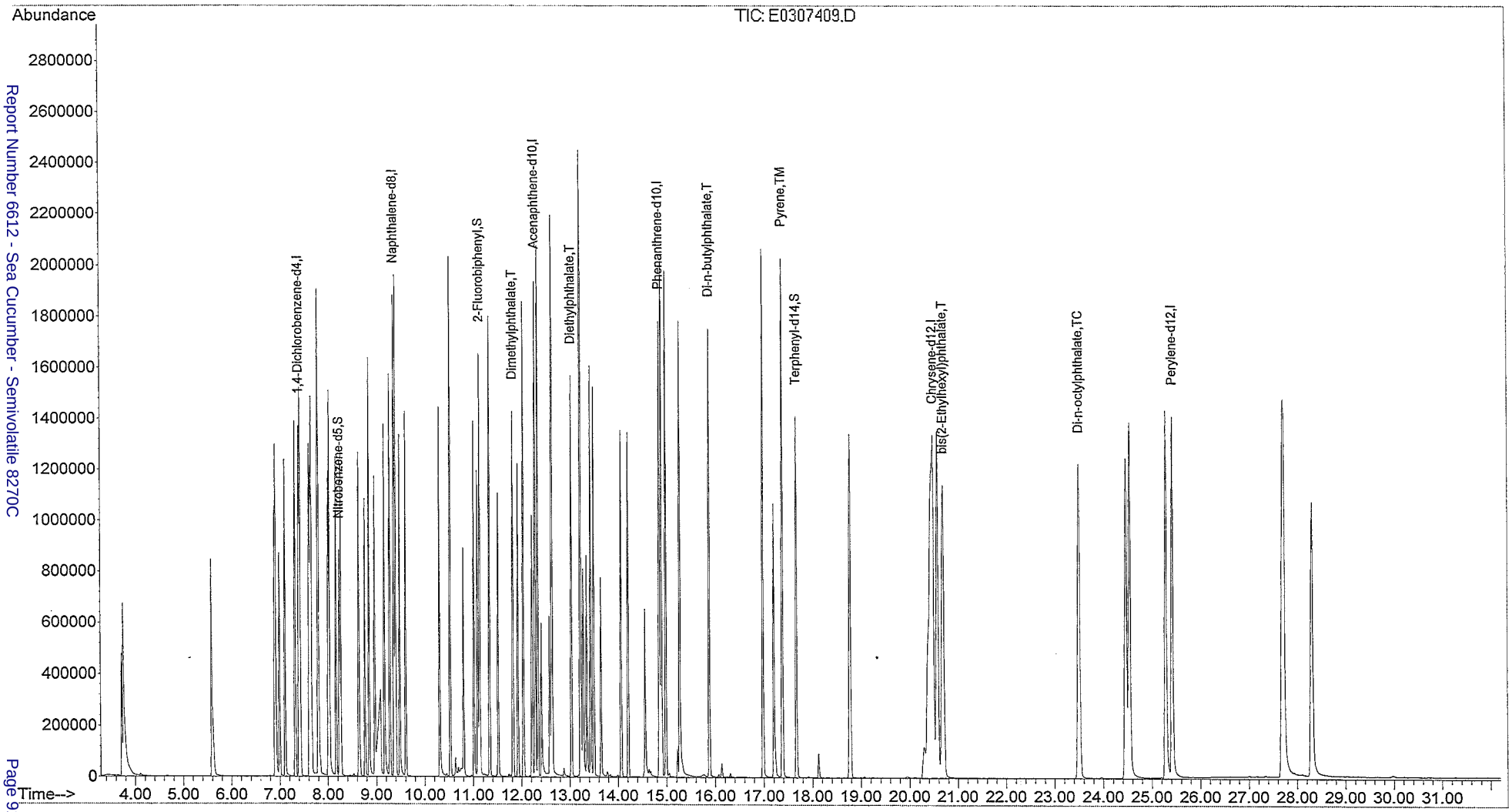
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.40	152	3040368	40.00	ug/L	-0.05
2) Naphthalene-d8	9.37	136	11851287	40.00	ug/L	-0.05
4) Acenaphthene-d10	12.29	164	6602329	40.00	ug/L	-0.05
8) Phenanthrene-d10	14.86	188	10989052	40.00	ug/L	-0.05
10) Chrysene-d12	20.49	240	12309589	40.00	ug/L	-0.10
15) Perylene-d12	25.43	264	12773069	40.00	ug/L	-0.06
System Monitoring Compounds						
3) Nitrobenzene-d5	8.24	82	3875322	36.29	ug/L	-0.05
Spiked Amount 50.000			Recovery = 72.58%			
5) 2-Fluorobiphenyl	11.14	172	7304508	32.34	ug/L	-0.05
Spiked Amount 50.000			Recovery = 64.68%			
12) Terphenyl-d14	17.67	244	7708154	32.24	ug/L	-0.06
Spiked Amount 50.000			Recovery = 64.48%			
Target Compounds						Qvalue
6) Dimethylphthalate	11.82	163	9637972	39.69	ug/L	99
7) Diethylphthalate	13.04	149	9559829	40.87	ug/L	100
9) Di-n-butylphthalate	15.88	149	15512672	40.23	ug/L	95
11) Pyrene	17.39	202	14725061	39.78	ug/L	82
13) bis(2-Ethylhexyl)phthalate	20.69	149	12145153	51.91	ug/L	99
14) Di-n-octylphthalate	23.50	149	20679050	50.49	ug/L	100

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

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\030714\
Data File : E0307409.D
Acq On : 7 Mar 2014 18:49
Operator : PEK
Sample : 40 PPM STD
Misc : AG-5 8270
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Mar 08 08:54:44 2014
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270321HW.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Nov 27 09:24:47 2013
Response via : Initial Calibration



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Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\030714\
Data File : E0307410.D
Acq On : 7 Mar 2014 19:30
Operator : PEK
Sample : 60 PPM STD 16299 PEK 3/10/2014
Misc : AG-5 8270
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Mar 08 08:54:58 2014
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270321HW.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Nov 27 09:24:47 2013
Response via : Initial Calibration

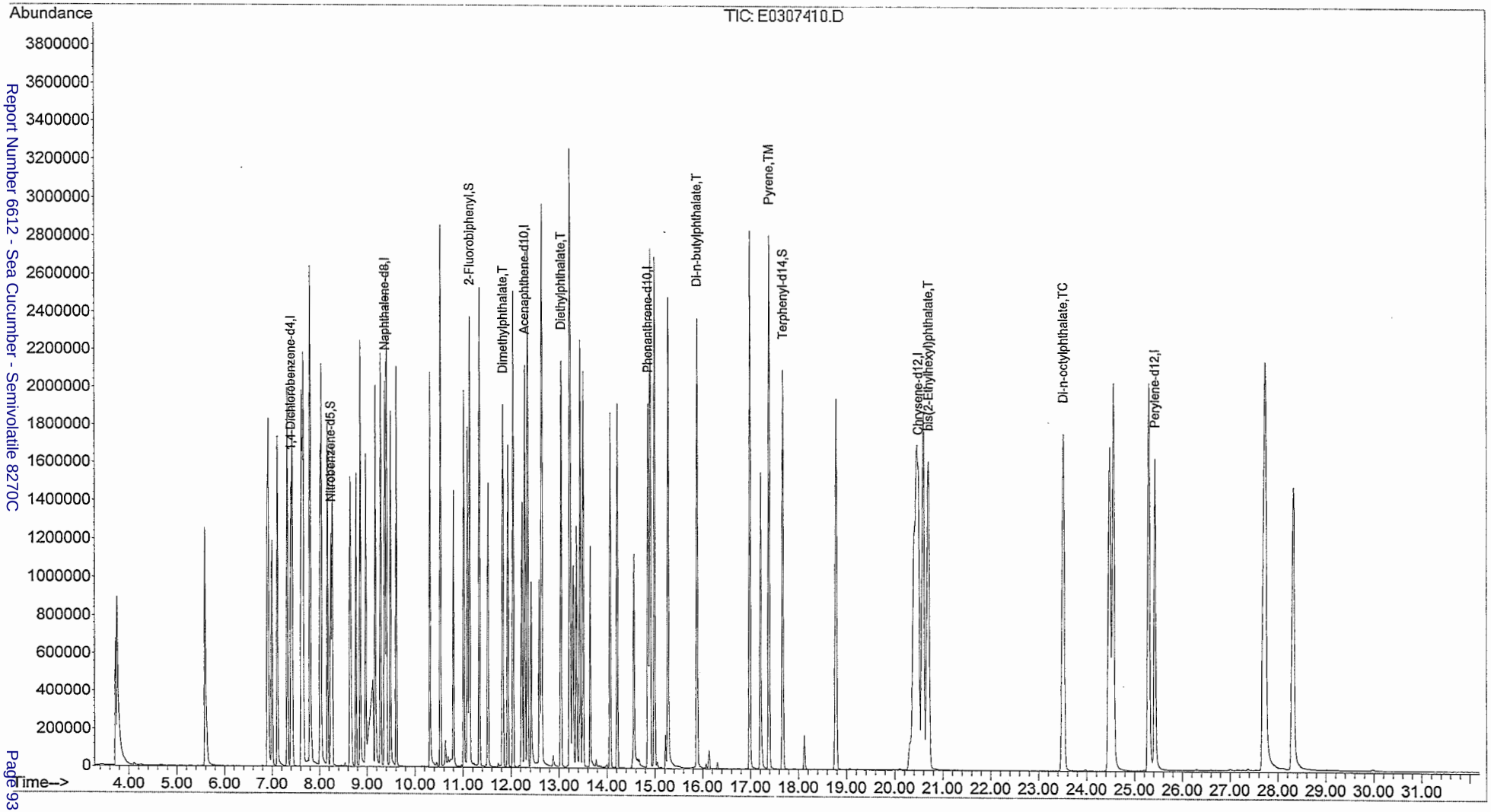
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.40	152	3360499	40.00	ug/L	-0.05
2) Naphthalene-d8	9.37	136	13202374	40.00	ug/L	-0.04
4) Acenaphthene-d10	12.29	164	7360844	40.00	ug/L	-0.05
8) Phenanthrene-d10	14.86	188	12536217	40.00	ug/L	-0.05
10) Chrysene-d12	20.50	240	13811359	40.00	ug/L	-0.09
15) Perylene-d12	25.43	264	14645192	40.00	ug/L	-0.06
System Monitoring Compounds						
3) Nitrobenzene-d5	8.24	82	6054015	50.89	ug/L	-0.04
Spiked Amount 50.000			Recovery = 101.78%			
5) 2-Fluorobiphenyl	11.14	172	11129079	44.20	ug/L	-0.05
Spiked Amount 50.000			Recovery = 88.40%			
12) Terphenyl-d14	17.68	244	12187806	45.44	ug/L	-0.06
Spiked Amount 50.000			Recovery = 90.88%			
Target Compounds						Qvalue
6) Dimethylphthalate	11.83	163	15074889	55.68	ug/L	100
7) Diethylphthalate	13.05	149	14533607	55.74	ug/L	99
9) Di-n-butylphthalate	15.89	149	23240172	52.83	ug/L	95
11) Pyrene	17.39	202	22556726	54.31	ug/L	81
13) bis(2-Ethylhexyl)phthalate	20.71	149	19054690	72.59	ug/L	98
14) Di-n-octylphthalate	23.52	149	32275683	70.24	ug/L	99

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

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\030714\
Data File : E0307410.D
Acq On : 7 Mar 2014 19:30
Operator : PEK
Sample : 60 PPM STD
Misc : AG-5 8270
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Mar 08 08:54:58 2014
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270321HW.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Nov 27 09:24:47 2013
Response via : Initial Calibration



E8270321HW.M Sat Mar 08 08:54:59 2014

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5B

SEMIVOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ARDL, Inc. Contract: ---

Lab Code: --- Case No.: 006611 SAS No.: --- SDG No.: ---

Lab File ID: E0308401 DFTPP Injection Date: 03/08/14

Instrument ID: AG5 DFTPP Injection Time: 09:25

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30 - 80% of mass 198	34.3
68	Less than 2.0% of mass 69	0.0 (1)
69	(reference only)	31.7
70	Less than 2.0% of mass 69	0.3 (1)
127	25 - 75% of mass 198	46.4
197	Less than 1% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.
199	5 - 9% of mass 198	6.7
275	10 - 30% of mass 198	24.4
365	Greater than 1% of mass 198	2.9
441	0 - 100% of mass 443	89.1
442	40 - 110% of mass 198	99.5
443	15 - 24% of mass 442	19.4 (2)

(1)-Value is % mass 69 (2)-Value is % mass 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

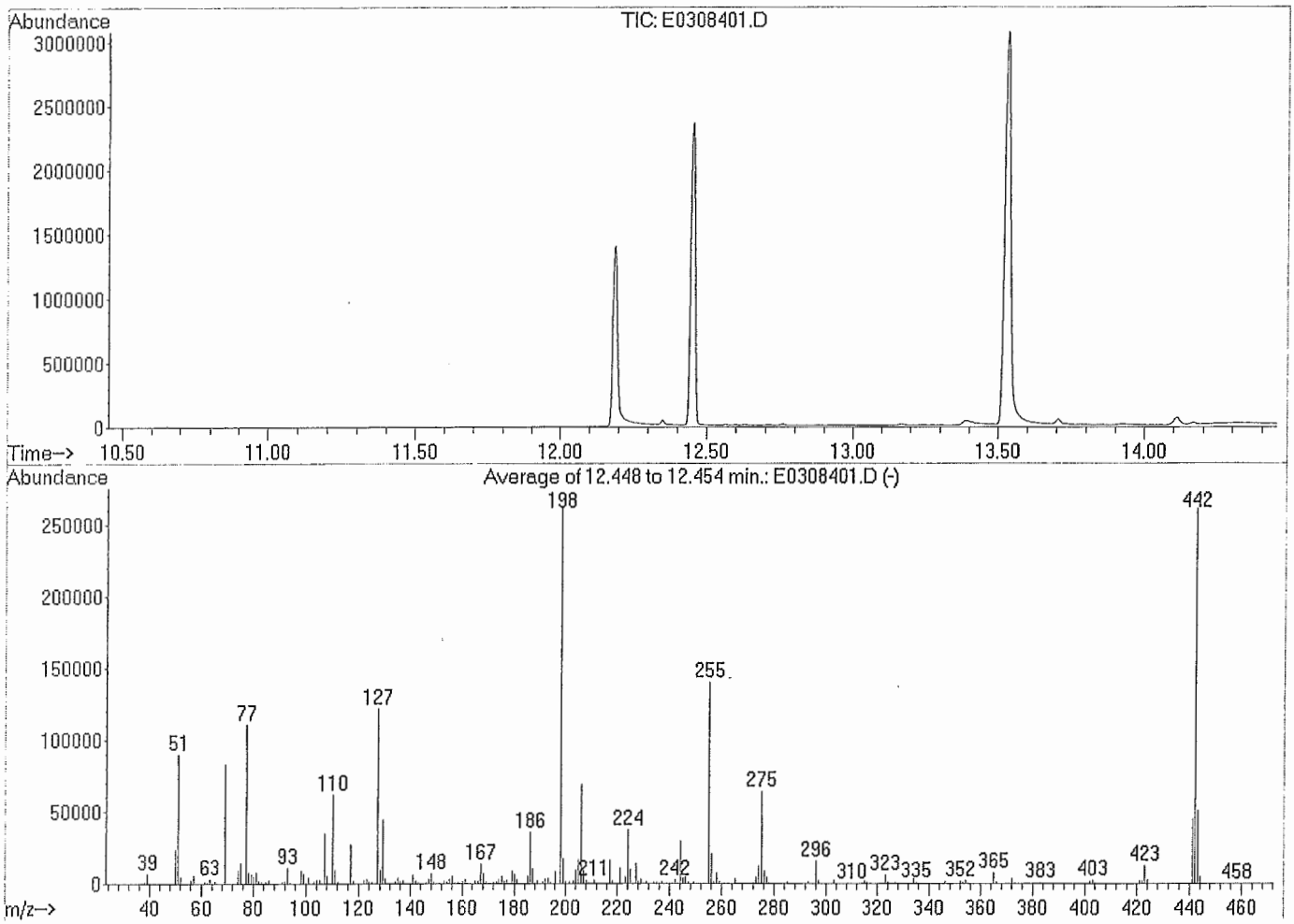
	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1	ICV	030 PPM STD	E0308402	03/08/14	09:58
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

DFTPP

Data Path : C:\MSDCHEM\1\DATA\030814\
Data File : E0308401.D
Acq On : 8 Mar 2014 9:25
Operator : PEK
Sample : 50 PPM TUNE 16289 PEK 3/10/2014
Misc : AG-5 8270
ALS Vial : 1 Sample Multiplier: 1

Integration File: FRED.P

Method : C:\MSDCHEM\1\METHODS\8270TUNPULSE.M
Title : 8270 TUNE METHOD
Last Update : Wed Aug 28 11:55:28 2013



AutoFind: Scans 1186, 1187, 1188; Background Corrected with Scan 1174

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	80	34.3	90008	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.01	100	31.7	83244	PASS
70	69	0.00	2	0.3	235	PASS
127	198	25	75	46.4	121636	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	262314	PASS
199	198	5	9	6.7	17536	PASS
275	198	10	30	24.4	64024	PASS
365	198	0.75	100	2.9	7651	PASS
441	443	0.01	100	89.1	45154	PASS
442	198	40	110	99.5	260928	PASS
443	442	15	24	19.4	50682	PASS

Average of 12.448 to 12.454 min.: E0308401.D
50 PPM TUNE
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
37.10	409	55.10	10	66.05	229	81.10	7684
38.15	1214	56.10	2557	69.05	83244	82.10	1932
39.15	6809	57.10	5557	70.05	235	83.10	1339
40.10	343	58.00	346	71.90	31	84.10	14
41.05	85	59.00	132	73.10	374	85.00	1311
42.10	72	60.10	40	74.15	9251	86.05	2231
44.95	42	61.10	1301	75.10	14400	87.05	916
50.15	24370	62.10	1312	77.15	110782	87.95	265
51.15	90008	63.10	3183	78.15	7664	89.05	307
52.15	4832	64.10	589	79.10	6522	90.00	40
53.05	76	65.10	1535	80.10	5115	91.10	1556

Average of 12.448 to 12.454 min.: E0308401.D
50 PPM TUNE
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
92.05	1799	105.10	2532	114.70	43	124.95	471
93.05	10915	107.10	34922	115.10	78	125.15	1141
94.10	764	108.10	5736	116.05	818	127.10	121636
96.05	425	110.10	61901	117.05	27647	128.15	9818
98.10	9088	111.05	9618	118.05	2097	129.10	44816
99.10	6964	112.15	1285	119.10	202	130.05	3831
100.10	751	113.05	274	120.10	502	131.05	875
101.05	4247	113.30	90	121.05	182	132.05	397
102.05	171	113.90	91	122.05	2215	132.90	6
103.05	1610	114.20	51	123.10	3112	133.30	166
104.10	2507	114.50	28	124.00	1525	134.10	1418

Average of 12.448 to 12.454 min.: E0308401.D
50 PPM TUNE
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
135.10	4253	147.10	3333	157.05	1098	168.05	7198
136.10	1653	148.10	7052	158.10	1068	169.10	1181
137.10	2113	149.05	1495	159.10	842	170.10	377
138.05	593	150.05	487	160.10	1924	170.95	450
138.95	297	151.15	569	161.10	3243	172.05	1136
141.00	6032	151.60	273	162.05	829	173.15	1500
142.05	2060	151.95	221	163.10	216	174.05	2660
143.05	1155	153.05	1885	164.05	260	175.10	5056
144.05	466	154.10	1563	165.05	1995	176.10	1805
145.10	378	155.10	3434	166.10	1909	177.05	2597
146.05	1144	156.10	5357	167.05	13670	178.00	175

Average of 12.448 to 12.454 min.: E0308401.D
50 PPM TUNE
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
179.10	8869	189.10	2021	203.15	1958	214.00	157
180.05	6625	190.00	434	204.10	9535	215.05	725
181.05	2973	191.10	1303	205.05	16750	216.10	578
182.05	529	192.10	3411	206.10	69037	217.05	16242
183.05	371	193.15	3837	207.05	9194	218.10	2276
184.00	318	194.15	1012	208.05	2074	219.10	311
184.25	666	196.10	8486	209.05	834	221.10	10948
185.15	5368	198.10	262314	210.10	696	223.10	4859
186.10	35757	199.05	17536	211.05	2406	224.10	37346
187.10	10549	200.10	1589	212.00	172	225.10	9796
188.10	1104	201.55	1371	213.05	318	227.10	14038

Average of 12.448 to 12.454 min.: E0308401.D
50 PPM TUNE
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
228.05	2150	238.10	140	249.10	1196	257.05	1507
229.10	2932	239.05	749	250.05	209	258.05	7339
229.95	531	240.05	549	250.80	128	259.05	1490
231.10	1412	241.05	865	251.00	135	260.00	333
231.90	230	242.05	2649	251.20	93	260.70	32
232.10	68	243.10	871	251.60	107	260.95	179
232.90	315	244.10	29482	252.00	116	262.90	44
234.00	1027	245.10	4372	252.25	335	263.10	46
235.05	1097	246.05	4939	253.10	334	265.05	3133
236.05	734	247.05	1264	255.10	139938	265.95	690
237.00	1267	247.95	179	256.10	20933	268.10	76

Average of 12.448 to 12.454 min.: E0308401.D
50 PPM TUNE

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
268.85	17	280.80	110	288.00	28	294.00	441
269.95	141	281.05	66	288.50	38	296.05	15617
271.15	648	281.90	106	288.90	40	297.05	2407
272.05	762	282.10	153	289.00	124	298.00	120
273.05	4604	283.10	617	289.70	65	300.90	223
274.10	12646	284.00	439	290.15	186	301.10	81
275.10	64024	285.05	983	290.50	115	302.05	365
276.10	8573	285.80	41	290.70	34	303.05	2313
277.05	4809	286.05	165	291.00	200	304.05	504
278.05	792	286.70	35	291.95	344	305.05	112
279.10	239	287.00	49	293.00	1339	307.10	30

Average of 12.448 to 12.454 min.: E0308401.D
50 PPM TUNE
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
307.95	322	319.50	49	328.05	613	343.05	73
308.90	140	320.00	133	329.05	95	344.60	40
309.30	116	320.50	108	330.00	28	346.00	1517
310.05	234	321.10	521	332.05	500	346.90	252
310.50	29	322.00	137	333.05	591	348.60	27
310.90	52	323.10	6173	334.05	3605	349.90	27
312.10	66	324.05	1040	335.05	1162	350.95	143
314.10	931	325.00	43	335.90	49	352.05	1726
315.05	1874	325.40	33	339.00	111	353.00	1254
316.05	1184	326.00	68	340.95	675	354.10	2005
317.00	111	326.95	1074	342.00	175	355.05	418

Average of 12.448 to 12.454 min.: E0308401.D
50 PPM TUNE
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
356.85	108	369.95	160	389.00	57	404.85	74
358.10	32	371.05	625	390.00	376	405.90	49
358.95	213	372.10	3488	391.05	410	409.10	37
361.05	75	373.05	768	391.90	291	411.70	38
362.40	31	373.80	45	392.80	69	412.10	37
363.10	31	374.15	109	396.60	47	415.05	94
363.65	92	376.90	29	398.00	36	416.60	28
365.00	7651	383.00	884	401.05	205	417.60	28
365.95	1326	384.05	370	402.05	1661	418.00	31
366.85	117	385.00	87	403.05	2374	418.50	63
368.60	32	388.10	28	404.00	794	421.05	2167

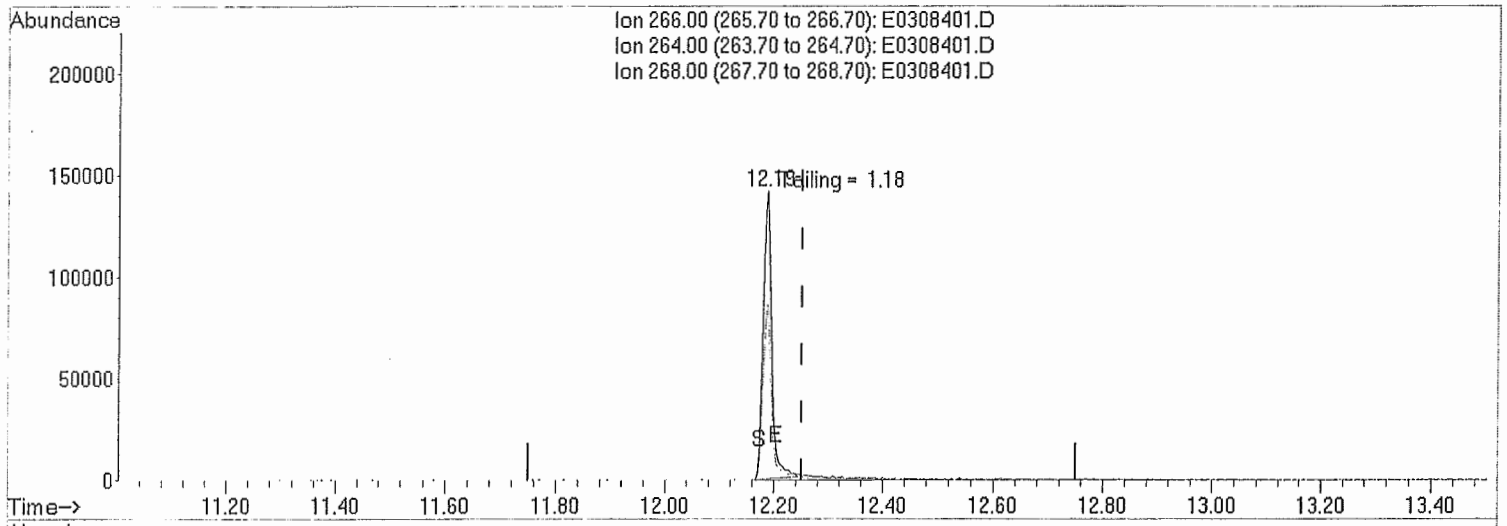
Average of 12.448 to 12.454 min.: E0308401.D
50 PPM TUNE
Modified:subtracted

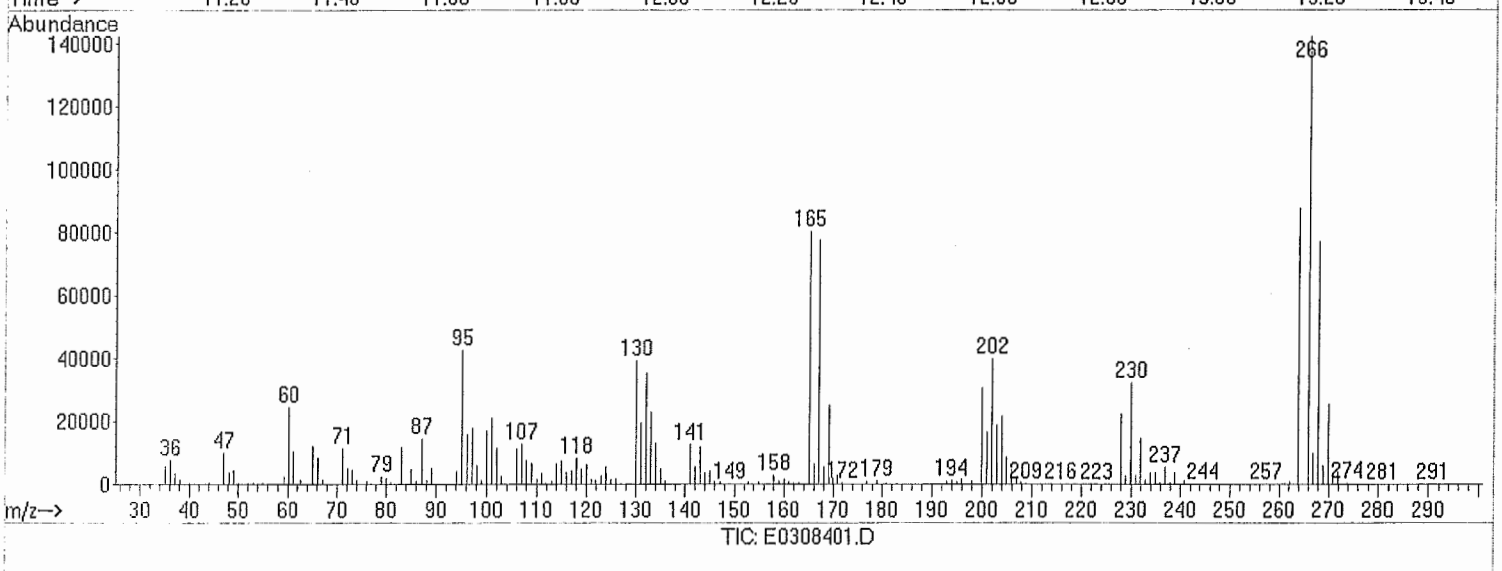
m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
422.10	1795	429.70	84	434.70	72	442.05	260928
423.05	12618	430.00	69	435.05	157	443.05	50682
424.10	2769	430.70	64	435.85	136	444.10	4863
424.95	299	430.90	58	436.40	136	445.00	85
425.65	105	431.20	56	437.05	119	458.15	60
426.40	49	431.60	46	437.30	56		
426.70	113	432.30	126	437.70	46		
426.90	80	432.50	36	438.00	96		
427.60	66	433.00	69	438.35	129		
428.30	143	433.30	161	439.00	180		
429.10	100	433.85	138	441.10	45154		

Quantitation Report (Qedit)

Data Path : C:\MSDCHEM\1\DATA\030814\
Data File : E0308401.D
Acq On : 8 Mar 2014 9:25
Operator : PEK
Sample : 50 PPM TUNE
Misc : AG-5 8270
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Mar 08 09:44:02 2014
Quant Method : C:\MSDCHEM\1\METHODS\8270TUNPULSE.M
Quant Title : 8270 TUNE METHOD
QLast Update : Wed Aug 28 11:55:28 2013
Response via : Initial Calibration





(1) Pentachlorophenol (TMC)

12.187min (-0.063) 14.93ug/L

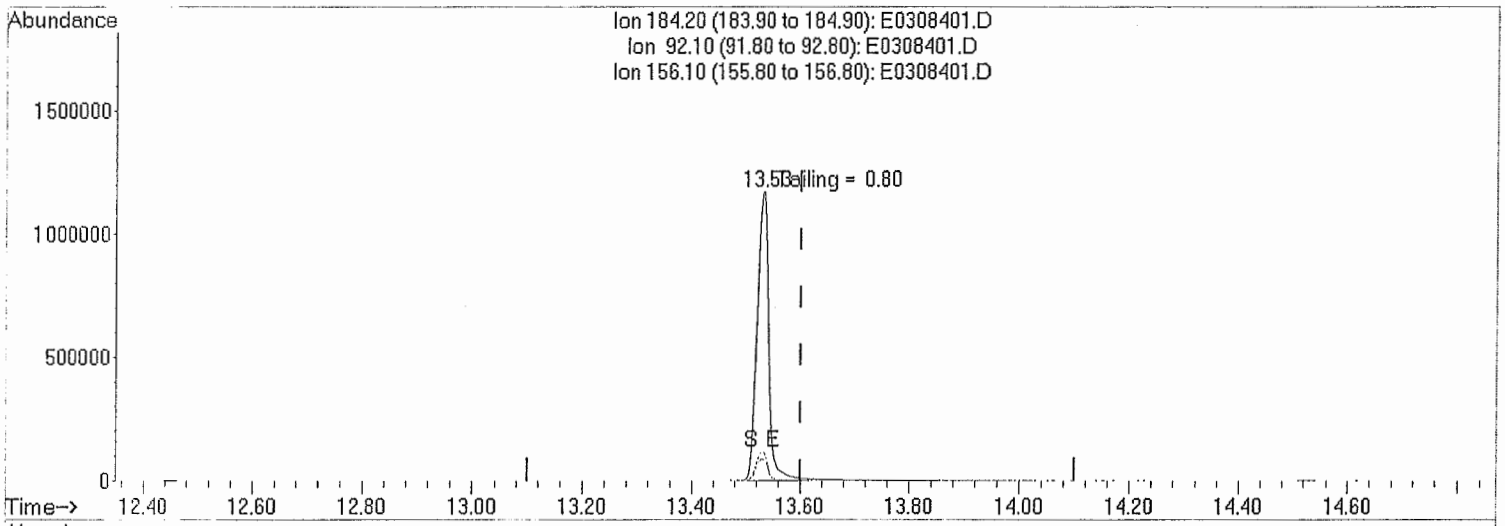
response 159162

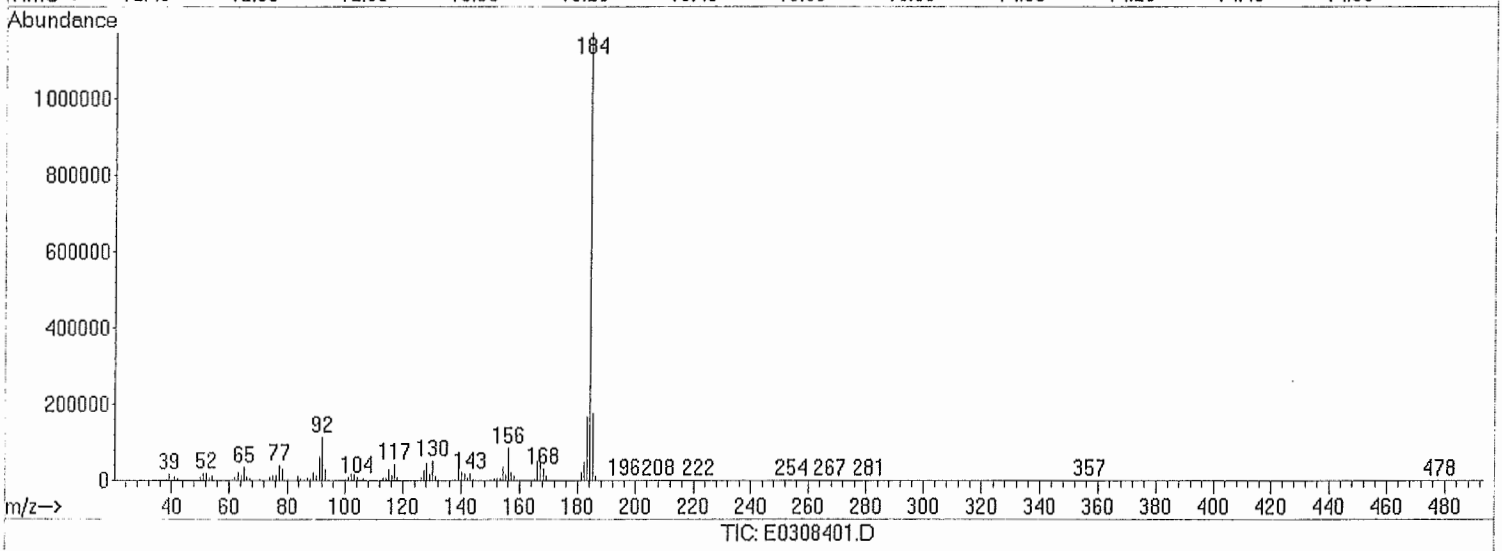
Ion	Exp%	Act%
266.00	100	100
264.00	63.80	60.30
268.00	63.80	56.71
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\MSDCHEM\1\DATA\030814\
Data File : E0308401.D
Acq On : 8 Mar 2014 9:25
Operator : PEK
Sample : 50 PPM TUNE
Misc : AG-5 8270
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Mar 08 09:44:02 2014
Quant Method : C:\MSDCHEM\1\METHODS\8270TUNPULSE.M
Quant Title : 8270 TUNE METHOD
QLast Update : Wed Aug 28 11:55:28 2013
Response via : Initial Calibration





(3) Benzidine (T)

13.533min (-0.067) 33.72ug/L

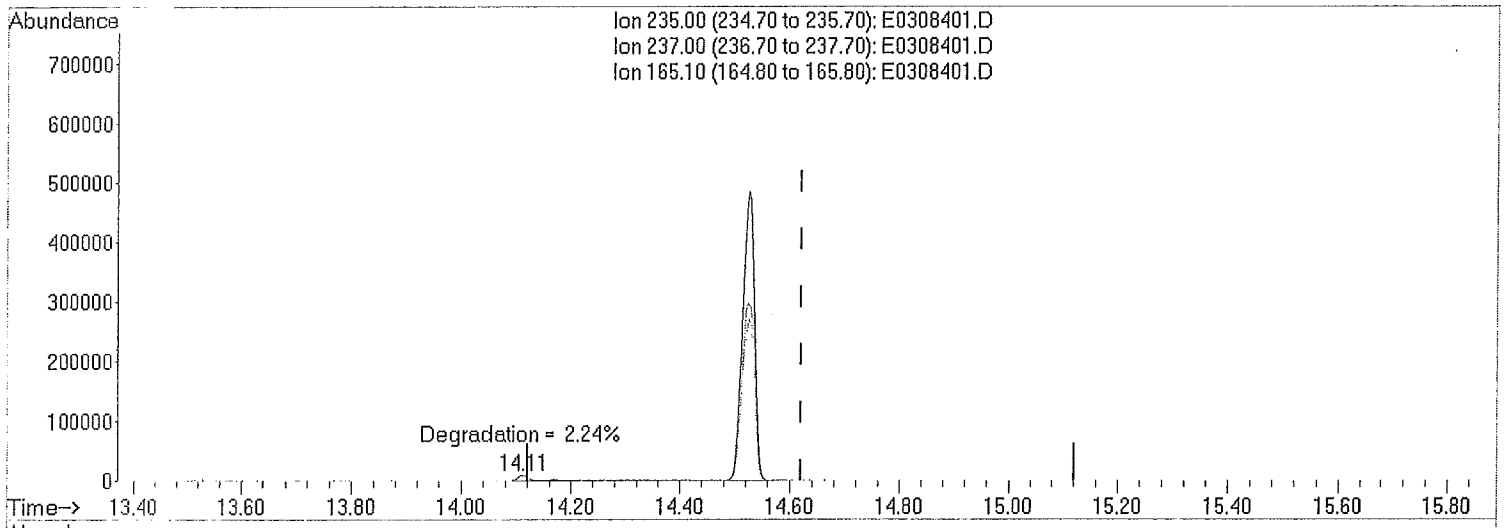
response 1738997

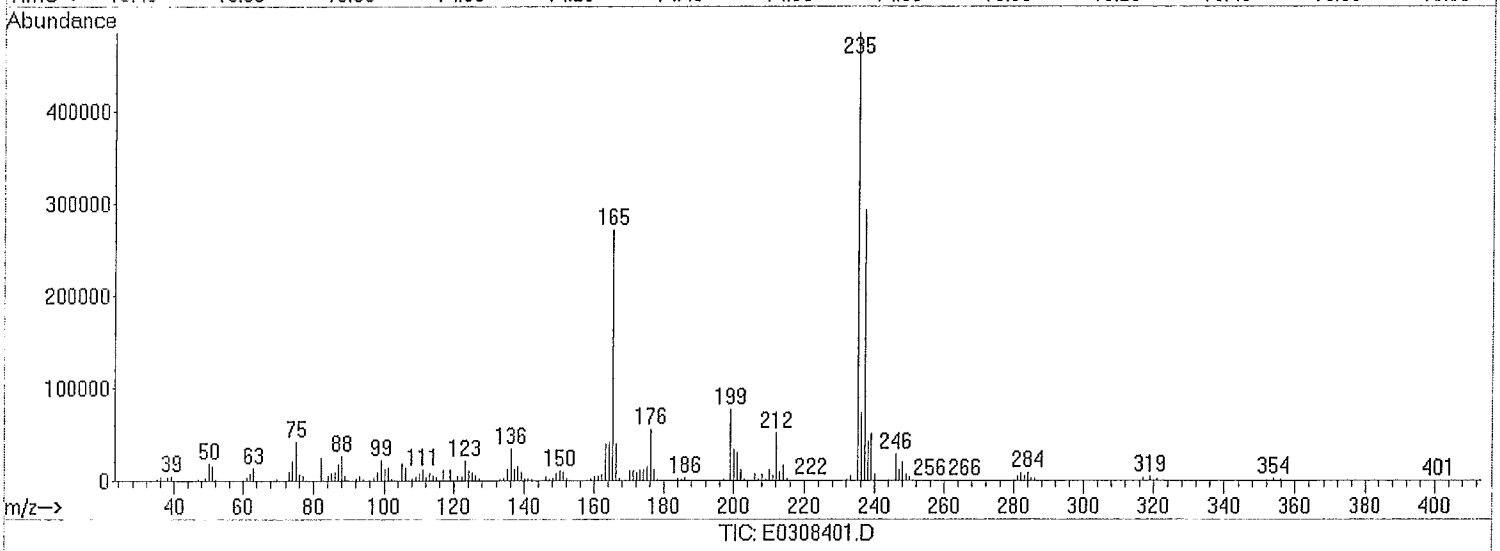
Ion	Exp%	Act%
184.20	100	100
92.10	13.70	9.99#
156.10	8.60	7.52
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\MSDCHEM\1\DATA\030814\
Data File : E0308401.D
Acq On : 8 Mar 2014 9:25
Operator : PEK
Sample : 50 PPM TUNE
Misc : AG-5 8270
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Mar 08 09:44:02 2014
Quant Method : C:\MSDCHEM\1\METHODS\8270TUNPULSE.M
Quant Title : 8270 TUNE METHOD
QLast Update : Wed Aug 28 11:55:28 2013
Response via : Initial Calibration





(4) DDT

14.526min (-0.094) 27.36ug/L

response 710184

Ion	Exp%	Act%
235.00	100	100
237.00	64.80	65.85
165.10	59.00	59.48
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\030814\
Data File : E0308402.D
Acq On : 8 Mar 2014 9:58
Operator : PEK
Sample : 30 PPM ICV 16300 PEK
Misc : AG-5 8270 3/10/2014
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Mar 08 10:32:33 2014
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270321HW.M
Quant Title : 8270 BNA Calibration
QLast Update : Sat Mar 08 08:58:38 2014
Response via : Initial Calibration

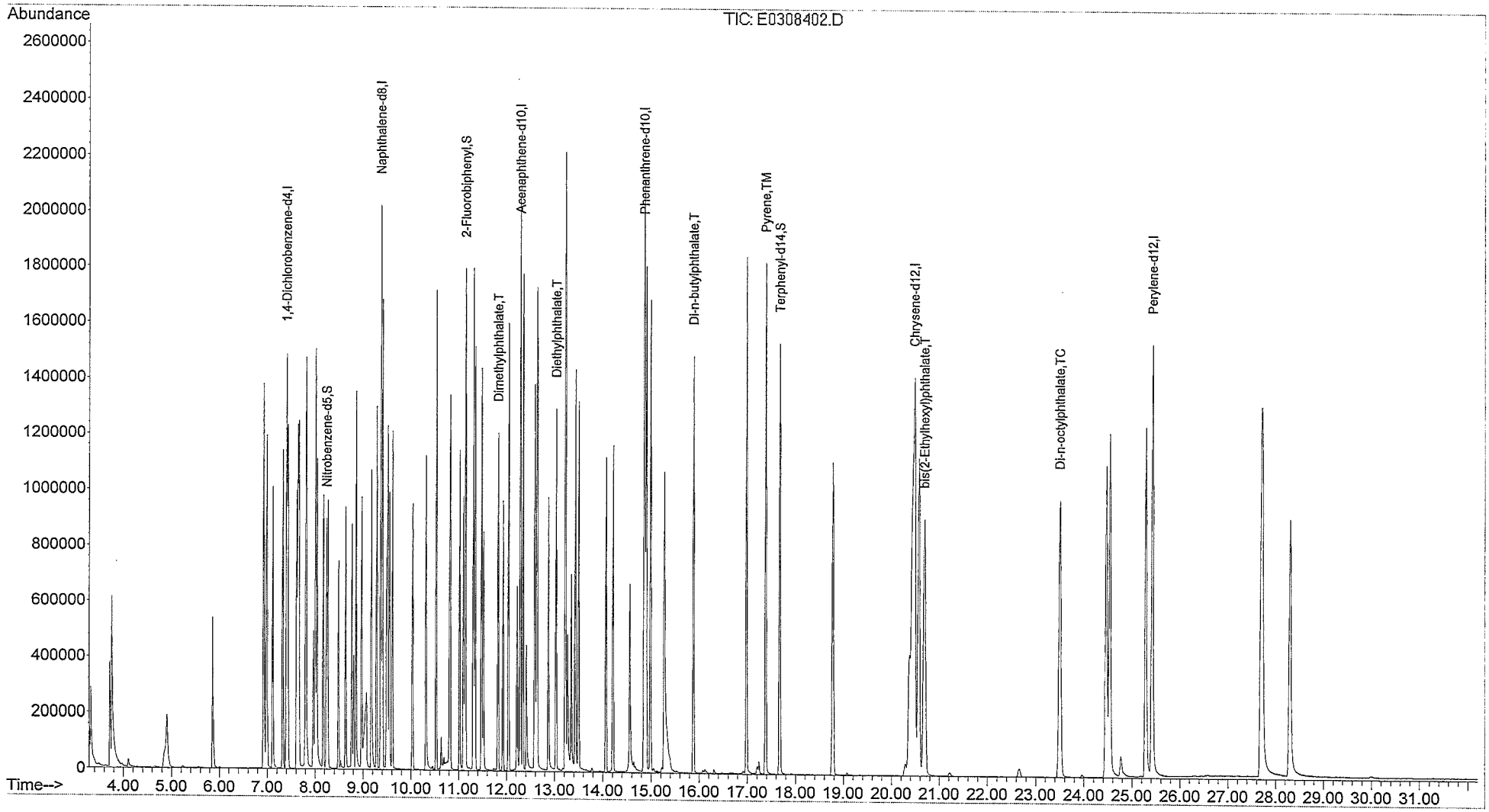
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.40	152	3330276	40.00 ug/L	-0.05
2) Naphthalene-d8	9.37	136	12817581	40.00 ug/L	-0.05
4) Acenaphthene-d10	12.29	164	7199658	40.00 ug/L	-0.05
8) Phenanthrene-d10	14.86	188	11547852	40.00 ug/L	-0.05
10) Chrysene-d12	20.49	240	14067764	40.00 ug/L	-0.09
15) Perylene-d12	25.43	264	14220031	40.00 ug/L	-0.06
System Monitoring Compounds					
3) Nitrobenzene-d5	8.24	82	3818982	35.39 ug/L	-0.04
Spiked Amount 50.000			Recovery =	70.78%	
5) 2-Fluorobiphenyl	11.14	172	7836277	35.01 ug/L	-0.05
Spiked Amount 50.000			Recovery =	70.02%	
12) Terphenyl-d14	17.67	244	8388324	35.45 ug/L	-0.06
Spiked Amount 50.000			Recovery =	70.90%	
Target Compounds					Qvalue
6) Dimethylphthalate	11.82	163	7791961	26.95 ug/L	99
7) Diethylphthalate	13.03	149	7561776	25.97 ug/L	100
9) Di-n-butylphthalate	15.88	149	12758159	27.93 ug/L	95
11) Pyrene	17.39	202	12476579	27.06 ug/L	81
13) bis(2-Ethylhexyl)phthalate	20.69	149	9579502	27.51 ug/L	99
14) Di-n-octylphthalate	23.51	149	16352337	28.04 ug/L	100

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

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\030814\
Data File : E0308402.D
Acq On : 8 Mar 2014 9:58
Operator : PEK
Sample : 30 PPM ICV
Misc : AG-5 8270
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Mar 08 10:32:33 2014
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270321HW.M
Quant Title : 8270 BNA Calibration
QLast Update : Sat Mar 08 08:58:38 2014
Response via : Initial Calibration



Continuing Calibration Report AG5

Method Path : C:\MSDCHEM\1\CALFILES\8270CALS\
Method File : E8270321HW.M
Title : 8270 BNA Calibration
Last Update : Sat Mar 08 10:32:57 2014
Response Via : Initial Calibration

CC Data File: E0308402.D

Min. RRF : 0.000 Min. Rel. Area : 50%
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	104
2	I	Naphthalene-d8	1.000	1.000	0.0	103
3	S	Nitrobenzene-d5	0.337	0.397	-18.0	124
4	I	Acenaphthene-d10	1.000	1.000	0.0	104
5	S	2-Fluorobiphenyl	1.243	1.451	-16.7	127
6	T	Dimethylphthalate	1.607	1.443	10.2	97
7	T	Diethylphthalate	1.618	1.400	13.4	95
8	I	Phenanthrene-d10	1.000	1.000	0.0	100
9	T	Di-n-butylphthalate	1.582	1.473	6.9	97
10	I	Chrysene-d12	1.000	1.000	0.0	105
11	TM	Pyrene	1.311	1.183	9.8	100
12	S	Terphenyl-d14	0.673	0.795	-18.2	128
13	T	bis(2-Ethylhexyl)phthalate	0.990	0.908	8.3	96
14	TC	Di-n-octylphthalate	1.658	1.550	6.5#	96
15	I	Perylene-d12	1.000	1.000	0.0	104

(#) = Out of Range SPCC's out = 0 CCC's out = 1

5B

SEMIVOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ARDL, Inc. Contract: ---

Lab Code: --- Case No.: 006612 SAS No.: --- SDG No.: ---

Lab File ID: E0310411 DFTPP Injection Date: 03/10/14

Instrument ID: AG5 DFTPP Injection Time: 13:57

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30 - 80% of mass 198	33.9
68	Less than 2.0% of mass 69	0.0 (1)
69	(reference only)	32.0
70	Less than 2.0% of mass 69	0.3 (1)
127	25 - 75% of mass 198	47.0
197	Less than 1% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.
199	5 - 9% of mass 198	6.7
275	10 - 30% of mass 198	24.1
365	Greater than 1% of mass 198	2.9
441	0 - 100% of mass 443	92.1
442	40 - 110% of mass 198	100.2
443	15 - 24% of mass 442	19.1 (2)

(1)-Value is % mass 69 (2)-Value is % mass 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

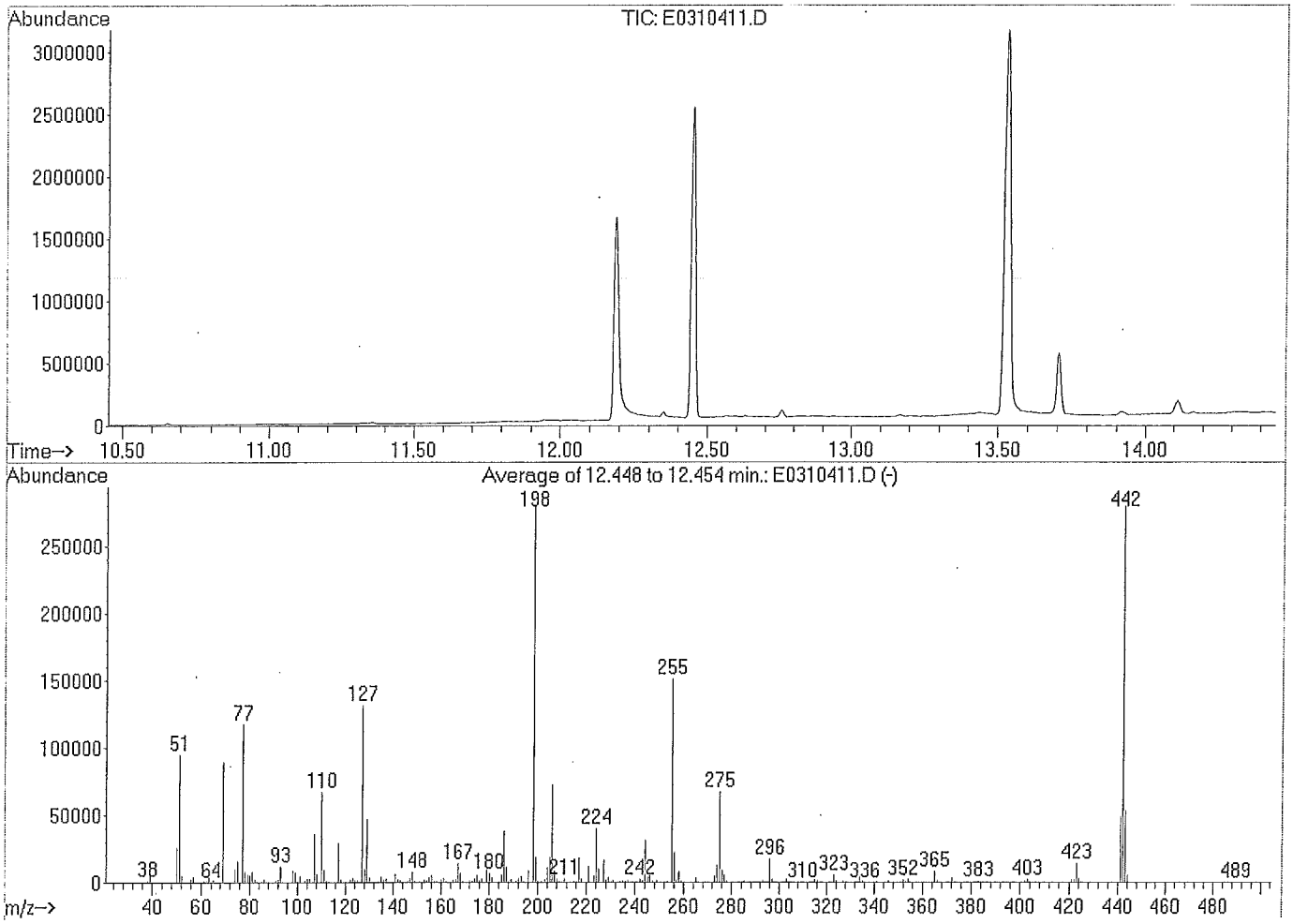
	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1	BNA STD	030 PPM STD	E0310412	03/10/14	14:24
2	BLANK B10164	006612-08B1	E0310413	03/10/14	15:19
3	SPBK B10164	006612-08K1	E0310414	03/10/14	16:02
4	MAK102C	006612-01	E0310415	03/10/14	16:46
5	MAK103C	006612-02	E0310416	03/10/14	17:30
6	MAK104C	006612-03	E0310417	03/10/14	18:14
7	MAK105C	006612-04	E0310418	03/10/14	18:57
8	MAK106C	006612-05	E0310419	03/10/14	19:40
9	MAK107C	006612-06	E0310420	03/10/14	20:22
10	MAK108C	006612-07	E0310421	03/10/14	21:04
11	MAK110C	006612-08	E0310422	03/10/14	21:46
12	MAK110CMS	006612-08MS	E0310423	03/10/14	22:27
13	MAK110CMSD	006612-08MD	E0310424	03/10/14	23:09
14					
15					
16					
17					
18					
19					
20					
21					
22					

DFTPP

Data Path : C:\MSDCHEM\1\DATA\031014\
Data File : E0310411.D
Acq On : 10 Mar 2014 13:57
Operator : PEK
Sample : 50 PPM TUNE 16289
Misc : AG-5 8270
ALS Vial : 1 Sample Multiplier: 1

Integration File: FRED.P

Method : C:\MSDCHEM\1\METHODS\8270TUNPULSE.M
Title : 8270 TUNE METHOD
Last Update : Wed Aug 28 11:55:28 2013



AutoFind: Scans 1186, 1187, 1188; Background Corrected with Scan 1176

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	80	33.9	94869	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.01	100	32.0	89630	PASS
70	69	0.00	2	0.3	236	PASS
127	198	25	75	47.0	131570	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	279658	PASS
199	198	5	9	6.7	18852	PASS
275	198	10	30	24.1	67411	PASS
365	198	0.75	100	2.9	8117	PASS
441	443	0.01	100	92.1	49296	PASS
442	198	40	110	100.2	280149	PASS
443	442	15	24	19.1	53501	PASS

Average of 12.448 to 12.454 min.: E0310411.D
50 PPM TUNE 16289
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
35.95	126	51.20	94869	65.90	94	80.05	5711
37.10	495	52.20	4946	66.15	105	81.10	7918
38.15	1340	53.10	17	69.10	89630	82.15	2300
39.15	7090	56.10	2175	70.10	236	83.10	1050
40.00	231	57.10	4292	72.10	61	85.10	849
45.10	229	58.00	226	73.10	166	86.10	2162
47.20	27	61.10	1122	74.05	9808	87.05	1024
47.50	32	62.10	1356	75.10	15681	88.05	535
47.80	32	63.10	3773	77.15	117430	89.00	123
48.20	43	64.10	507	78.15	7923	89.90	47
50.20	25994	65.10	1881	79.10	5835	91.05	1300

Average of 12.448 to 12.454 min.: E0310411.D
50 PPM TUNE 16289
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
92.15	2072	105.10	2582	121.15	195	134.10	1228
93.05	11740	107.05	35739	122.10	2186	135.05	3954
94.05	608	108.10	6232	123.05	3213	136.15	2038
96.10	317	110.10	67213	124.10	1757	137.05	2630
98.10	8733	111.05	9100	125.10	1604	138.10	633
99.10	7399	112.05	1200	127.05	131570	138.90	80
100.05	950	113.05	403	128.15	10543	139.10	99
101.10	4529	114.15	113	129.05	47001	140.15	547
101.95	27	117.10	29335	130.05	3652	141.05	6373
103.05	1250	118.05	2201	131.00	640	142.10	2253
104.05	2975	120.00	460	131.95	302	143.00	1487

Average of 12.448 to 12.454 min.: E0310411.D
50 PPM TUNE 16289
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
144.00	297	155.10	3554	166.15	2327	176.10	1849
145.05	35	156.10	5309	167.10	13989	177.00	2429
146.10	1236	157.10	1032	168.10	7257	178.10	176
147.10	3021	158.10	1037	169.00	1111	179.05	8922
148.10	7691	159.00	638	170.15	297	180.10	6755
149.05	1309	160.10	1956	170.40	138	181.10	3553
150.10	458	161.10	2970	171.05	416	182.10	647
151.00	881	162.05	970	172.05	1237	182.90	91
151.80	478	163.00	185	173.10	1452	184.10	578
153.10	2057	164.10	356	174.05	2802	185.15	5799
154.10	1839	165.05	1892	175.05	5360	186.10	38109

Average of 12.448 to 12.454 min.: E0310411.D
50 PPM TUNE 16289
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
187.05	11598	200.00	1455	212.30	291	224.10	39954
188.10	1387	201.60	956	212.80	204	225.10	10032
189.10	2014	203.05	2286	213.90	77	227.10	16671
190.00	418	204.10	10971	214.40	109	228.00	2202
191.10	1095	205.10	18837	215.05	970	229.05	3673
192.10	3218	206.05	72339	216.20	788	230.05	722
193.10	4228	207.05	8429	217.05	18026	231.00	1520
194.15	946	208.05	2264	218.10	2581	232.00	247
196.10	8850	209.05	868	219.10	298	233.00	247
198.10	279658	210.25	1089	221.05	11945	234.00	928
199.10	18852	211.10	2677	223.15	5242	235.05	1177

Average of 12.448 to 12.454 min.: E0310411.D
50 PPM TUNE 16289
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
236.05	862	247.10	1353	255.10	151123	265.05	3388
237.05	1578	247.80	102	256.10	22472	265.90	272
238.05	170	248.05	263	256.95	2021	267.10	42
239.05	814	249.05	1351	258.10	7856	269.15	140
240.00	405	250.05	190	259.05	1330	269.85	108
241.05	882	250.80	114	260.05	336	271.00	325
242.10	2319	251.00	231	260.95	271	272.20	304
243.10	1919	252.00	504	262.00	106	273.05	4884
244.10	31378	252.50	175	262.20	32	274.10	12902
245.10	4314	253.05	337	263.00	135	275.10	67411
246.10	5364	253.35	874	263.85	58	276.10	8928

Average of 12.448 to 12.454 min.: E0310411.D
50 PPM TUNE 16289

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
277.05	5724	287.90	237	299.10	41	311.10	113
278.05	1297	288.95	282	301.00	358	312.05	73
278.90	59	290.05	190	301.90	354	313.00	282
279.05	173	290.95	223	303.10	2169	314.05	865
282.00	106	292.00	304	304.00	647	315.00	2050
283.00	354	293.10	1380	305.20	62	316.05	1445
284.10	506	293.95	459	306.10	52	316.90	319
285.10	1077	296.10	17378	307.95	246	317.70	42
285.70	94	297.05	2532	308.95	110	319.70	28
286.00	193	298.05	236	309.80	50	321.05	690
287.10	50	298.80	28	310.00	178	322.05	188

Average of 12.448 to 12.454 min.: E0310411.D
50 PPM TUNE 16289
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
323.10	5579	335.05	1224	346.05	1048	357.15	65
324.05	1248	335.80	52	346.95	282	357.80	29
325.05	235	336.10	153	347.70	29	359.00	144
325.70	41	337.20	27	348.00	26	360.95	132
327.05	1059	339.40	49	350.40	33	361.60	27
328.05	707	339.85	139	350.95	153	362.00	32
328.85	176	341.05	799	352.10	1824	365.00	8117
331.00	28	341.95	146	353.05	1231	366.00	1306
332.05	498	342.20	57	354.10	2396	367.00	193
333.05	711	343.20	33	355.00	601	368.20	50
334.05	4261	343.95	55	356.00	50	370.00	273

Average of 12.448 to 12.454 min.: E0310411.D
50 PPM TUNE 16289
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
370.90	212	385.10	59	405.00	95	421.00	2094
371.10	423	390.00	337	408.10	40	422.05	2260
372.05	3414	390.20	143	409.10	31	423.05	14160
373.00	984	390.90	140	410.00	52	424.05	3007
374.15	109	392.10	358	410.40	30	424.95	395
375.30	33	393.05	73	410.80	28	425.60	44
377.00	105	396.00	28	414.55	97	426.10	117
377.30	47	400.95	207	415.60	30	426.50	27
383.05	959	402.05	1457	417.50	45	427.35	115
383.95	275	403.05	2150	418.50	63	428.55	360
384.80	40	404.00	662	419.40	46	429.50	172

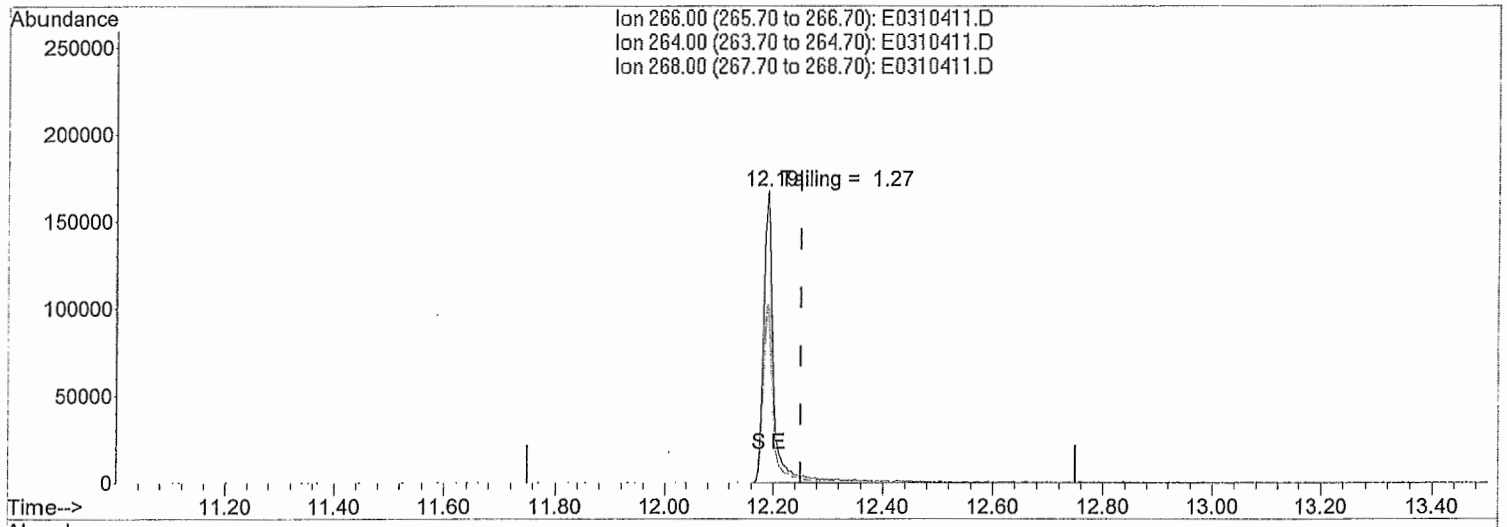
Average of 12.448 to 12.454 min.: E0310411.D
50 PPM TUNE 16289
Modified:subtracted

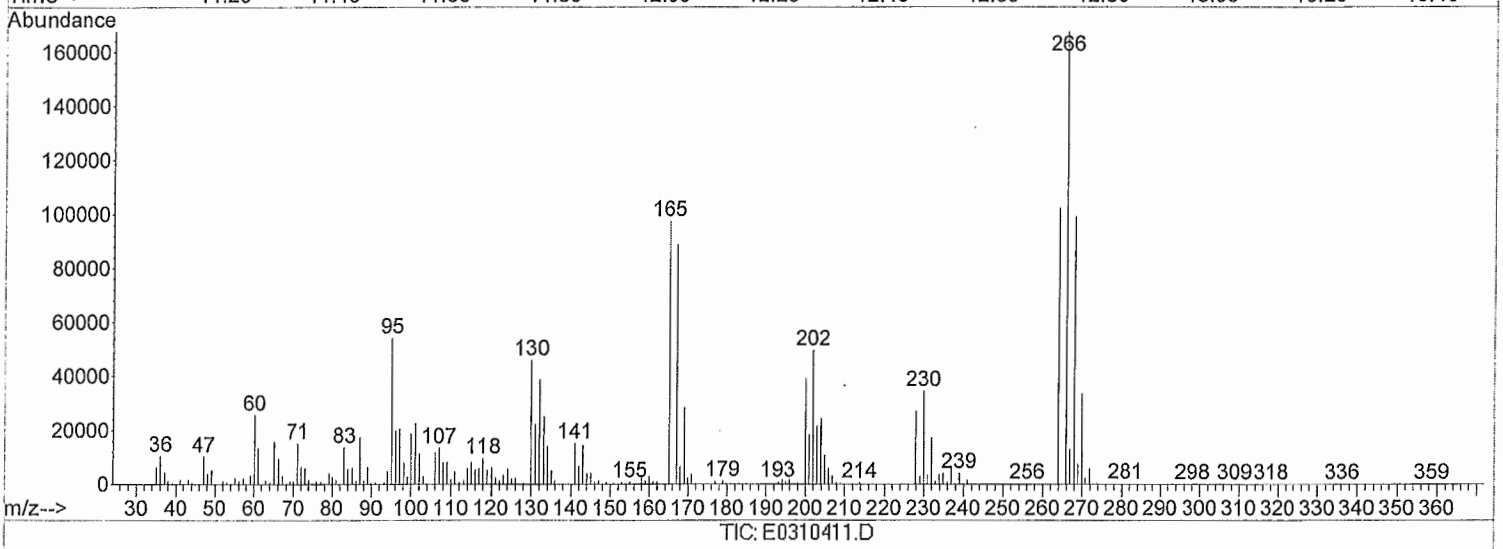
m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
429.80	109	435.10	100	443.05	53501		
430.50	116	435.40	62	444.05	5279		
431.40	88	435.70	76	445.10	253		
431.60	123	436.35	95	489.50	30		
431.90	191	436.95	123				
432.60	57	437.55	169				
433.20	80	438.10	69				
433.65	163	438.40	38				
434.15	157	438.80	32				
434.40	140	441.15	49296				
434.70	53	442.10	280149				

Quantitation Report (Qedit)

Data Path : C:\MSDCHEM\1\DATA\031014\
Data File : E0310411.D
Acq On : 10 Mar 2014 13:57
Operator : PEK
Sample : 50 PPM TUNE 16289
Misc : AG-5 8270
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Mar 10 14:16:42 2014
Quant Method : C:\MSDCHEM\1\METHODS\8270TUNPULSE.M
Quant Title : 8270 TUNE METHOD
QLast Update : Wed Aug 28 11:55:28 2013
Response via : Initial Calibration





(1) Pentachlorophenol (TMC)

12.190min (-0.060) 19.41ug/L

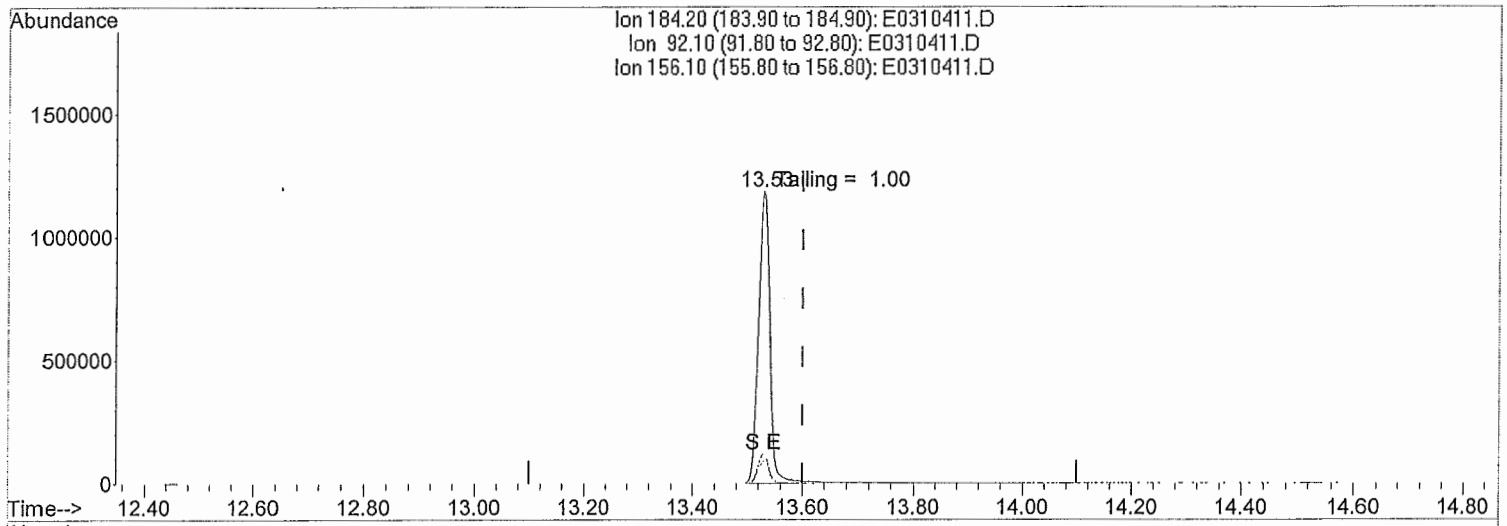
response 206850

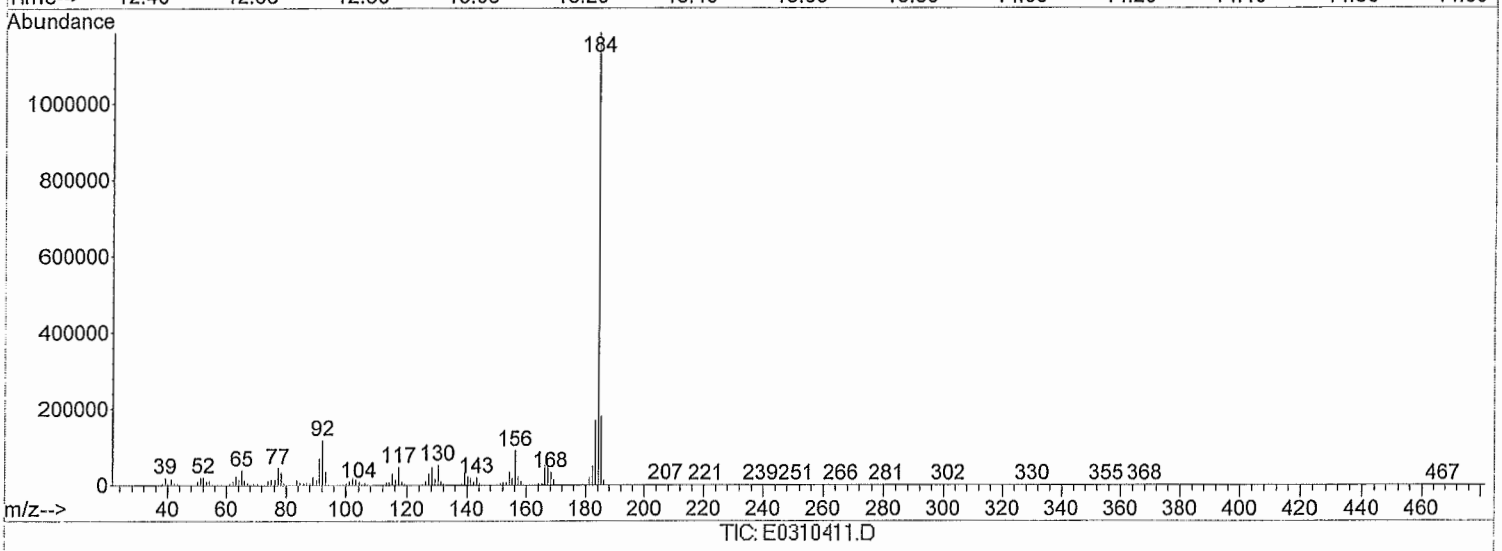
Ion	Exp%	Act%
266.00	100	100
264.00	63.80	63.76
268.00	63.80	59.20
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\MSDCHEM\1\DATA\031014\
Data File : E0310411.D
Acq On : 10 Mar 2014 13:57
Operator : PEK
Sample : 50 PPM TUNE 16289
Misc : AG-5 8270
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Mar 10 14:16:42 2014
Quant Method : C:\MSDCHEM\1\METHODS\8270TUNPULSE.M
Quant Title : 8270 TUNE METHOD
QLast Update : Wed Aug 28 11:55:28 2013
Response via : Initial Calibration





TIC: E0310411.D

(3) Benzidine (T)

13.530min (-0.070) 33.02ug/L

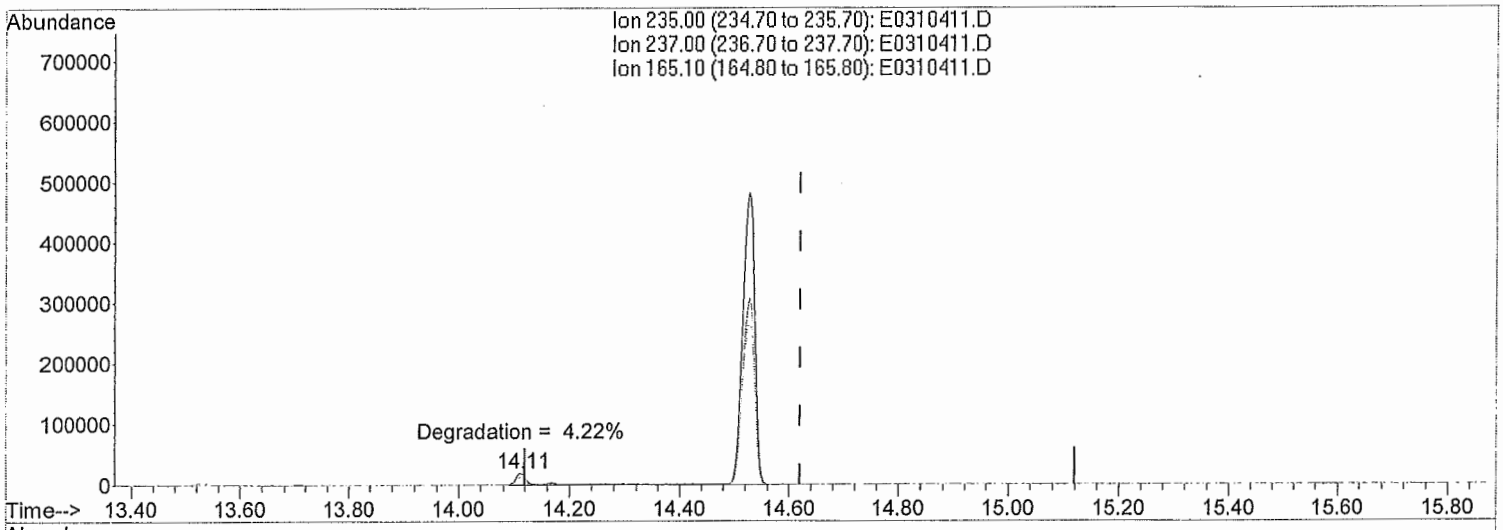
response 1702697

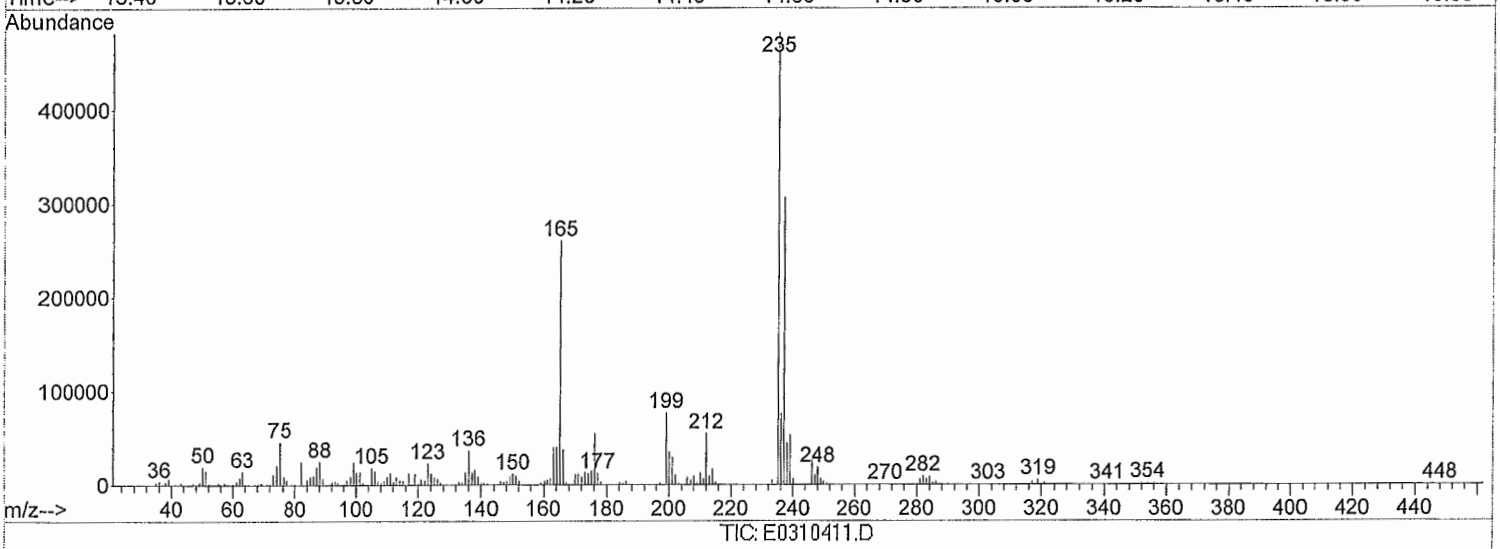
Ion	Exp%	Act%
184.20	100	100
92.10	13.70	9.84#
156.10	8.60	7.57
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\MSDCHEM\1\DATA\031014\
Data File : E0310411.D
Acq On : 10 Mar 2014 13:57
Operator : PEK
Sample : 50 PPM TUNE 16289
Misc : AG-5 8270
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Mar 10 14:16:42 2014
Quant Method : C:\MSDCHEM\1\METHODS\8270TUNPULSE.M
Quant Title : 8270 TUNE METHOD
QLast Update : Wed Aug 28 11:55:28 2013
Response via : Initial Calibration





(4) DDT

14.526min (-0.094) 27.80ug/L

response 721753

Ion	Exp%	Act%
235.00	100	100
237.00	64.80	64.01
165.10	59.00	58.59
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\031014\
Data File : E0310412.D
Acq On : 10 Mar 2014 14:24
Operator : PEK
Sample : 30 PPM STD 16300
Misc : AG-5 8270
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Mar 10 14:59:38 2014
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270321HW.M
Quant Title : 8270 BNA Calibration
QLast Update : Sat Mar 08 08:58:38 2014
Response via : Initial Calibration

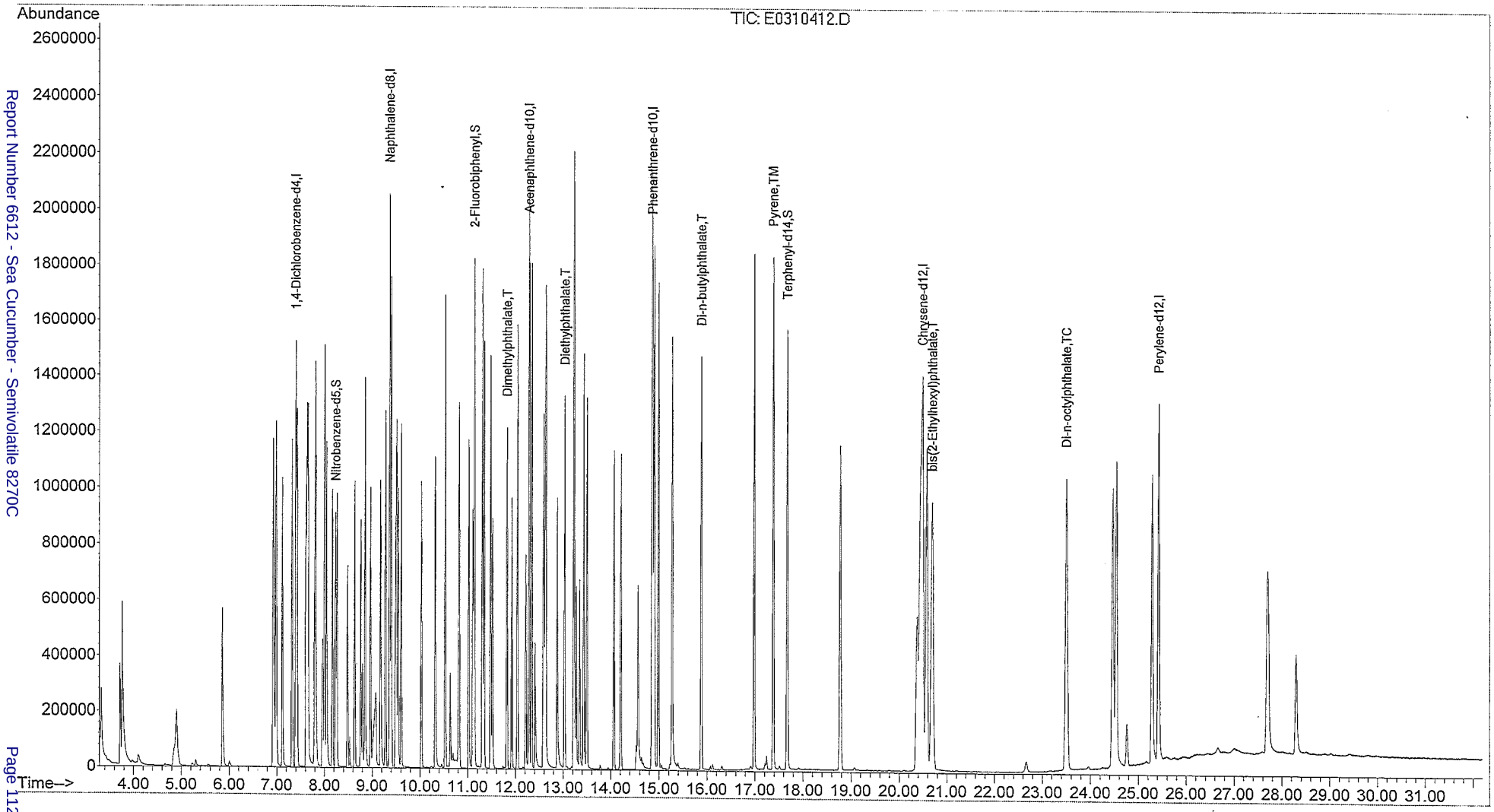
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.40	152	3366269	40.00 ug/L	-0.05
2) Naphthalene-d8	9.37	136	12911012	40.00 ug/L	-0.05
4) Acenaphthene-d10	12.29	164	7185161	40.00 ug/L	-0.05
8) Phenanthrene-d10	14.86	188	11498764	40.00 ug/L	-0.05
10) Chrysene-d12	20.50	240	14166684	40.00 ug/L	-0.09
15) Perylene-d12	25.43	264	11016901	40.00 ug/L	-0.06
System Monitoring Compounds					
3) Nitrobenzene-d5	8.24	82	3913619	36.01 ug/L	-0.05
Spiked Amount 50.000			Recovery =	72.02%	
5) 2-Fluorobiphenyl	11.14	172	7791696	34.88 ug/L	-0.05
Spiked Amount 50.000			Recovery =	69.76%	
12) Terphenyl-d14	17.68	244	8464763	35.52 ug/L	-0.06
Spiked Amount 50.000			Recovery =	71.04%	
Target Compounds					Qvalue
6) Dimethylphthalate	11.82	163	7738177	26.81 ug/L	99
7) Diethylphthalate	13.03	149	7536124	25.94 ug/L	100
9) Di-n-butylphthalate	15.89	149	13026883	28.64 ug/L	95
11) Pyrene	17.39	202	12576727	27.09 ug/L	81
13) bis(2-Ethylhexyl)phthalate	20.70	149	9978723	28.46 ug/L	99
14) Di-n-octylphthalate	23.50	149	17018080	28.98 ug/L	100

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

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\031014\
Data File : E0310412.D
Acq On : 10 Mar 2014 14:24
Operator : PEK
Sample : 30 PPM STD 16300
Misc : AG-5 8270
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Mar 10 14:59:38 2014
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270321HW.M
Quant Title : 8270 BNA Calibration
QLast Update : Sat Mar 08 08:58:38 2014
Response via : Initial Calibration



ARDL Inc
Report Number 6612 - Sea Cucumber - Semivolatile 8270C
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Continuing Calibration Report AG5

Method Path : C:\MSDCHEM\1\CALFILES\8270CALS\
Method File : E8270321HW.M
Title : 8270 BNA Calibration
Last Update : Mon Mar 10 14:59:51 2014
Response Via : Initial Calibration

CC Data File: E0310412.D

Min. RRF : 0.000 Min. Rel. Area : 50%
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	105
2	I	Naphthalene-d8	1.000	1.000	0.0	104
3	S	Nitrobenzene-d5	0.337	0.404	-20.0#	127
4	I	Acenaphthene-d10	1.000	1.000	0.0	104
5	S	2-Fluorobiphenyl	1.243	1.446	-16.3	126
6	T	Dimethylphthalate	1.607	1.436	10.6	97
7	T	Diethylphthalate	1.618	1.398	13.5	94
8	I	Phenanthrene-d10	1.000	1.000	0.0	100
9	T	Di-n-butylphthalate	1.582	1.511	4.5	99
10	I	Chrysene-d12	1.000	1.000	0.0	106
11	TM	Pyrene	1.311	1.184	9.7	100
12	S	Terphenyl-d14	0.673	0.797	-18.4	129
13	T	bis(2-Ethylhexyl)phthalate	0.990	0.939	5.1	100
14	TC	Di-n-octylphthalate	1.658	1.602	3.4#	100
15	I	Perylene-d12	1.000	1.000	0.0	80

(#) = Out of Range SPCC's out = 0 CCC's out = 1

Instrument Logs/
Analysis Notebook Pages

Rev. 1.1

PROJECT 3/7/2014 8270

Notebook No. 3323 7

Continued from Page

Injection Log

Directory: C:\MSDCHEM\1\DATA\030714

Line	Vial	FileName	Multiplier	SampleName		Misc Info
1	1	E0307401.d	1.	50 PPM TUNE 16289	Tailing + Degredation ↑.	AG-5 8270
2	1	E0307402.d	1.	50 PPM TUNE 16289	Changed Liner + Trimmed column	AG-5 8270
3	1	E0307403.d	1.	50 PPM TUNE 16289	Pass	AG-5 8270
4	2	E0307404.d	1.	BLK 16293	Pass	AG-5 8270
5	3	E0307405.d	1.	5 PPM STD 16294		AG-5 8270
6	4	E0307406.d	1.	10 PPM STD 16295		AG-5 8270
7	5	E0307407.d	1.	20 PPM STD 16296		AG-5 8270
8	6	E0307408.d	1.	30 PPM STD 16297		AG-5 8270
9	7	E0307409.d	1.	40 PPM STD 16298		AG-5 8270
10	8	E0307410.d	1.	60 PPM STD 16299	Pass	AG-5 8270

Valid Curve Saved as E8270321HW.d

E8270321HT.M
⇒ Tissue Samples

PEK 3/8/2014

Continued on Page

Read and Understood By

PEK 3/8/2014 — Signed, Date

Signed, Date 3/11/14

8
PROJECT 3/8/2014 8270

Notebook No. 3323
Continued from Page

Injection Log

Directory: C:\MSDCHEM\1\DATA\030814

Line	Vial	FileName	Multiplier	SampleName		Misc Info
1	1	E0308401.d	1.	50 PPM TUNE 16289	Pass	AG-5 8270
2	2	E0308402.d	1.	30 PPM ICV 16300	Pass	AG-5 8270
3	3	E0308403.d	1.	006611-04B1	Pass	B10161 AG-5 8270
4	4	E0308404.d	1.	006611-04K1		B10161 AG-5 8270
5	5	E0308405.d	1.	006611-01		B10161 AG-5 8270
6	6	E0308406.d	1.	006611-02		B10161 AG-5 8270
7	7	E0308407.d	1.	006611-03		B10161 AG-5 8270
8	8	E0308408.d	1.	006611-04		B10161 AG-5 8270
9	9	E0308409.d	1.	006611-04MS		B10161 AG-5 8270
10	10	E0308410.d	1.	006611-04MD		B10161 AG-5 8270
11	11	E0308411.d	1.	006611-05		B10161 AG-5 8270
12	12	E0308412.d	1.	006611-06		B10161 AG-5 8270
13	13	E0308413.d	1.	006611-07		B10161 AG-5 8270
14	14	E0308414.d	1.	006611-08	Pass	B10161 AG-5 8270

PEK 3/10/2014

Continued on Page

Read and Understood By

PEK — Signed
3/10/2014 — Date
GD — Signed
3/11/14 — Date

Injection Log

Directory: C:\MSDCHEM\1\DATA\031014

Line	Vial	FileName	Multiplier	SampleName		Misc Info
1	1	E0310401.d	1. 16301	25 PPM DFTPP	Pass	AG-5 UM84
2	2	E0310402.d	1. 16302	10 PPM STD	Pass	AG-5 UM84
3	3	E0310403.d	1.	009343-01B1	Pass	ABTX001 R6402 AG-...
4	4	E0310404.d	1. PEK	009343-01K1		ABTX002 R6402 AG-...
5	5	E0310405.d	1.	009343-01		ABTX003 PPA2EF R6...
6	6	E0310406.d	1. 3/11/14	009343-01MS		ABTX004 PPA2EFMS ...
7	7	E0310407.d	1.	009344-01		ABTX005 36563 R64...
8	8	E0310408.d	1.	009344-02		ABTX006 36565 R64...
9	9	E0310409.d	1.	009344-03		ABTX007 36575 R64...
10	2	E0310410.d	1. 16302	10 PPM STD	Pass	AG-5 UM84
11	1	E0310411.d	1.	50 PPM TUNE 16289	Pass	AG-5 8270
12	2	E0310412.d	1.	30 PPM STD 16300	Pass	AG-5 8270
13	3	E0310413.d	1.	006612-01B1		B10164 AG-5 8270
14	4	E0310414.d	1.	006612-01K1		B10164 AG-5 8270
15	5	E0310415.d	1.	006612-01		B10164 AG-5 8270
16	6	E0310416.d	1.	006612-02		B10164 AG-5 8270
17	7	E0310417.d	1.	006612-03		B10164 AG-5 8270
18	8	E0310418.d	1.	006612-04		B10164 AG-5 8270
19	9	E0310419.d	1.	006612-05		B10164 AG-5 8270
20	10	E0310420.d	1.	006612-06		B10164 AG-5 8270
21	11	E0310421.d	1.	006612-07		B10164 AG-5 8270
22	12	E0310422.d	1.	006612-08		B10164 AG-5 8270
23	13	E0310423.d	1.	006612-08MS		B10164 AG-5 8270
24	14	E0310424.d	1.	006612-08MD	Pass	B10164 AG-5 8270

UM84

8270

PEK 3/11/2014

Continued on Page

Read and Understood By

PEK — Signed; 3/11/2014 — Date; Signed; 3/11/14 — Date

Blank / Field Sample / QC Data

Sample Results

Chromatogram

Quant Report (If applicable)

Confirmation Analysis Quant Report / Chromatogram (If applicable)

Tentatively Identified Compounds (If required)

Rev. 1.1

METHOD BLANK REPORT
ARDL, Inc. 400 Aviation Drive; P.O. Box 1566
Mt. Vernon, Illinois 62864

Lab Report No: 006612 Report Date: 03/12/2014

Project Name: MAKAU MILITARY RES O Analysis: BNA'S (METHOD 8270)
Project No.: Analytical Method: 8270C
NELAC Certified - IL100308 Prep Method: 3550A

Field ID:	NA	ARDL Lab No.:	006612-08B1
Desc/Location:	NA	Lab Filename:	E0310413
Sample Date:	NA	Received Date:	NA
Sample Time:	NA	Prep. Date:	03/06/2014
Matrix:	QC Material	Analysis Date:	03/10/2014
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6686
% Moisture:	NA	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units
Dimethylphthalate	200	1000	ND		UG/KG
Diethylphthalate	200	1000	ND		UG/KG
Di-n-butylphthalate	200	1000	ND		UG/KG
Pyrene	200	1000	ND		UG/KG
bis(2-Ethylhexyl)phthalate	200	1000	ND		UG/KG
Di-n-octylphthalate	200	1000	ND		UG/KG

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	97%
2-Fluorobiphenyl	30-130	105%
Terphenyl-d14	30-130	104%

Surrogate recoveries marked with '*' indicates they are outside standard limits.

Blank for Run B6686, BNA'S (METHOD 8270) Page 1 of 1

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\031014\
Data File : E0310413.D
Acq On : 10 Mar 2014 15:19
Operator : PEK
Sample : 006612-01B1 03/12/14
Misc : B10164 AG-5 8270
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Mar 11 10:30:57 2014
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270321HT.M
Quant Title : 8270 BNA Calibration
QLast Update : Sat Mar 08 11:42:09 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.40	152	3829573	8000.00 ug/Kg	0.00
2) Naphthalene-d8	9.37	136	14326837	8000.00 ug/Kg	0.00
4) Acenaphthene-d10	12.29	164	8046001	8000.00 ug/Kg	0.00
8) Phenanthrene-d10	14.86	188	13402138	8000.00 ug/Kg	0.00
10) Chrysene-d12	20.48	240	16806650	8000.00 ug/Kg	0.00
15) Perylene-d12	25.42	264	11595668	8000.00 ug/Kg	0.00
System Monitoring Compounds					
3) Nitrobenzene-d5	8.23	82	2911319	4827.89 ug/Kg	0.00
Spiked Amount 5000.000			Recovery = 96.56%		
5) 2-Fluorobiphenyl	11.14	172	6581683	5262.70 ug/Kg	0.00
Spiked Amount 5000.000			Recovery = 105.25%		
12) Terphenyl-d14	17.67	244	7338180	5191.43 ug/Kg	0.00
Spiked Amount 5000.000			Recovery = 103.83%		

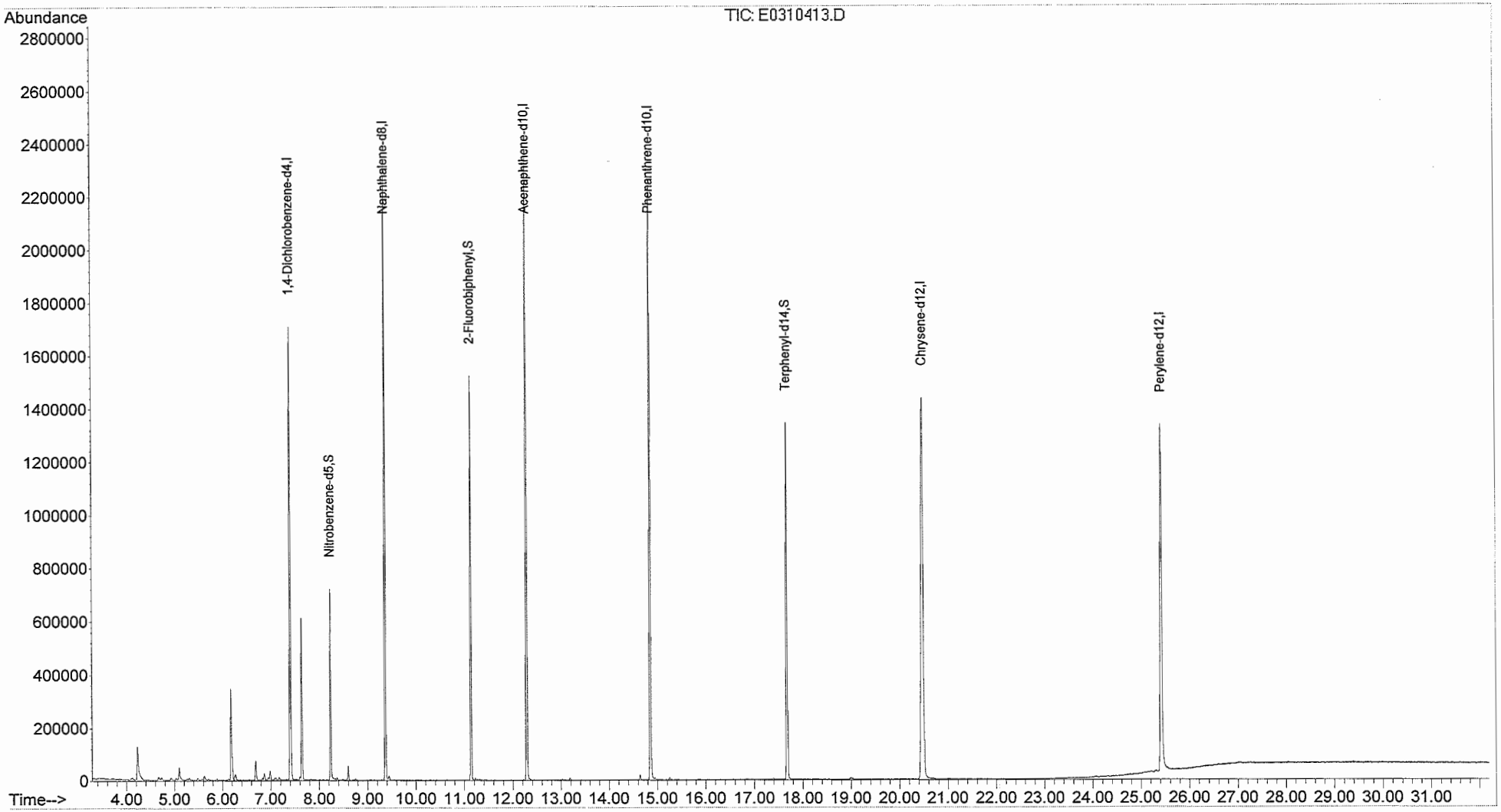
Target Compounds	Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\031014\
Data File : E0310413.D
Acq On : 10 Mar 2014 15:19
Operator : PEK
Sample : 006612-01B1 03/12/14
Misc : B10164 AG-5 8270
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Mar 11 10:30:57 2014
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270321HT.M
Quant Title : 8270 BNA Calibration
QLast Update : Sat Mar 08 11:42:09 2014
Response via : Initial Calibration



ARDL, INC.
400 Aviation Drive; P.O. Box 1566
Mt. Vernon, Illinois 62864

Lab Report No: 006612 Report Date: 03/12/2014

Project Name: MAKAU MILITARY RES O Analysis: BNA'S (METHOD 8270)
Project No.: Analytical Method: 8270C
NELAC Certified - IL100308 Prep Method: 3550A

Field ID:	NA	ARDL Lab No.:	006612-08K1
Desc/Location:	NA	Lab Filename:	E0310414
Sample Date:	NA	Received Date:	NA
Sample Time:	NA	Prep. Date:	03/06/2014
Matrix:	QC Material	Analysis Date:	03/10/2014
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6686
% Moisture:	NA	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units
Dimethylphthalate	200	1000	3920		UG/KG
Diethylphthalate	200	1000	3850		UG/KG
Di-n-butylphthalate	200	1000	4030		UG/KG
Pyrene	200	1000	3930		UG/KG
bis(2-Ethylhexyl)phthalate	200	1000	3780		UG/KG
Di-n-octylphthalate	200	1000	3790		UG/KG

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	86%
2-Fluorobiphenyl	30-130	105%
Terphenyl-d14	30-130	105%

Surrogate recoveries marked with '*' indicates they are outside standard limits.

Spike Blank for Run B6686, BNA'S (METHOD 8270) Page 1 of 1

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\031014\
Data File : E0310414.D
Acq On : 10 Mar 2014 16:02
Operator : PEK
Sample : 006612-01K1 03/12/14
Misc : B10164 AG-5 8270
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Mar 10 16:35:28 2014
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270321HT.M
Quant Title : 8270 BNA Calibration
QLast Update : Sat Mar 08 11:42:09 2014
Response via : Initial Calibration

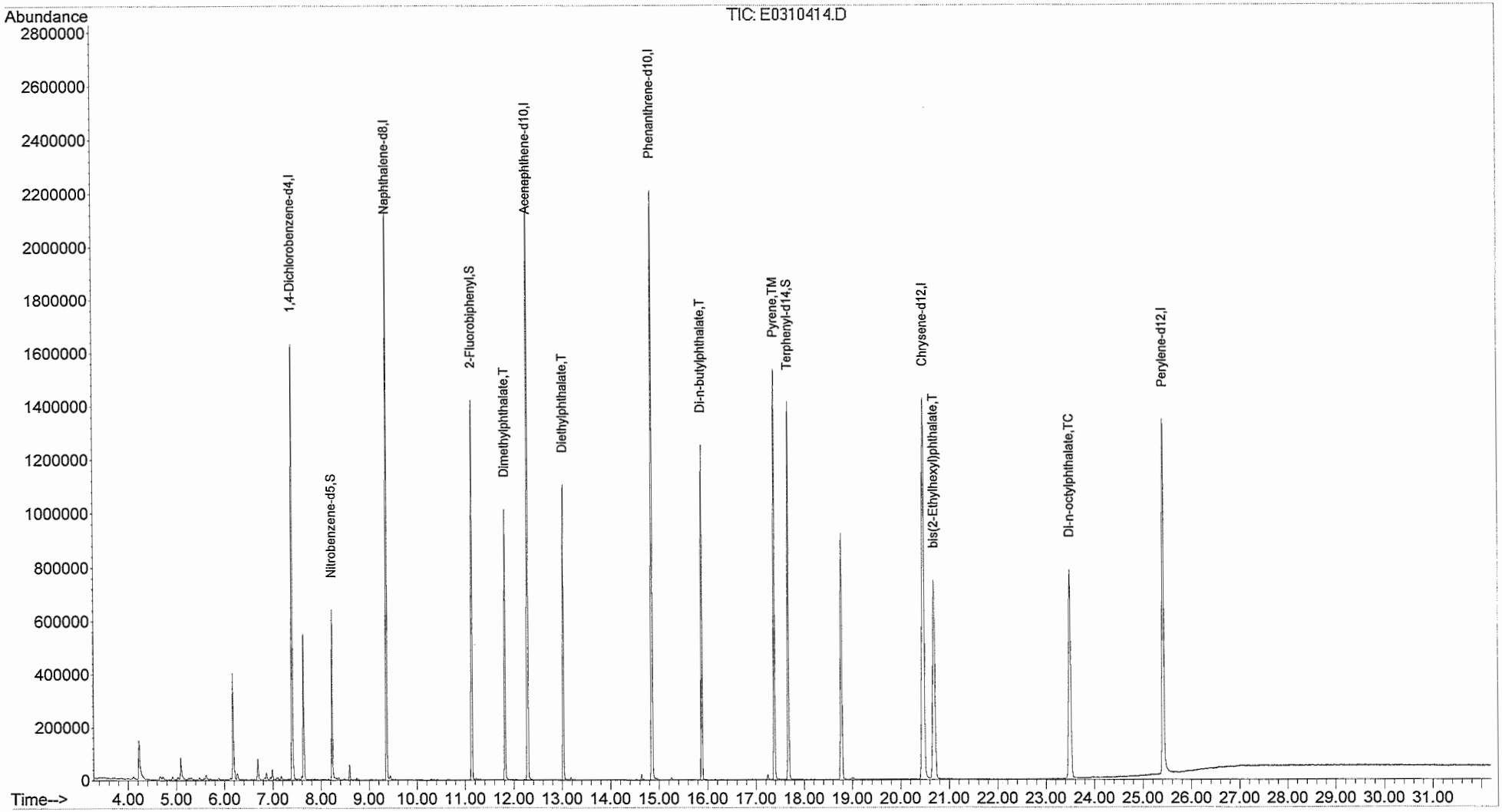
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.40	152	3769414	8000.00	ug/Kg	0.00
2) Naphthalene-d8	9.37	136	14022573	8000.00	ug/Kg	0.00
4) Acenaphthene-d10	12.29	164	7836512	8000.00	ug/Kg	0.00
8) Phenanthrene-d10	14.86	188	13197414	8000.00	ug/Kg	0.00
10) Chrysene-d12	20.48	240	16389441	8000.00	ug/Kg	-0.02
15) Perylene-d12	25.42	264	11669394	8000.00	ug/Kg	-0.01
System Monitoring Compounds						
3) Nitrobenzene-d5	8.23	82	2538819	4301.52	ug/Kg	0.00
Spiked Amount 5000.000			Recovery = 86.03%			
5) 2-Fluorobiphenyl	11.14	172	6376751	5235.14	ug/Kg	0.00
Spiked Amount 5000.000			Recovery = 104.70%			
12) Terphenyl-d14	17.67	244	7224249	5240.93	ug/Kg	0.00
Spiked Amount 5000.000			Recovery = 104.82%			
Target Compounds						Qvalue
6) Dimethylphthalate	11.82	163	6167127	3918.73	ug/Kg	99
7) Diethylphthalate	13.03	149	6105297	3852.98	ug/Kg	100
9) Di-n-butylphthalate	15.88	149	10512346	4027.08	ug/Kg	95
11) Pyrene	17.39	202	10547642	3927.57	ug/Kg	80
13) bis(2-Ethylhexyl)phthalate	20.69	149	7672013	3782.16	ug/Kg	98
14) Di-n-octylphthalate	23.50	149	12886680	3793.81	ug/Kg	100

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

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\031014\
Data File : E0310414.D
Acq On : 10 Mar 2014 16:02
Operator : PEK
Sample : 006612-01K1 JS 03/12/14
Misc : B10164 AG-5 8270
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Mar 10 16:35:28 2014
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270321HT.M
Quant Title : 8270 BNA Calibration
QLast Update : Sat Mar 08 11:42:09 2014
Response via : Initial Calibration



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Report Number 6612 - Sea Cucumber - Semivolatile 8270C
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ARDL, INC.
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Mt. Vernon, Illinois 62864

Lab Report No: 006612 Report Date: 03/12/2014

Project Name: MAKAU MILITARY RES O Analysis: BNA'S (METHOD 8270)
Project No.: Analytical Method: 8270C
NELAC Certified - IL100308 Prep Method: 3550A

Field ID:	MAK102C	ARDL Lab No.:	006612-01
Desc/Location:	MAKAU MILITARY RES OAHU	Lab Filename:	E0310415
Sample Date:	01/13/2014	Received Date:	02/20/2014
Sample Time:	1002	Prep. Date:	03/06/2014
Matrix:	TISSUE	Analysis Date:	03/10/2014
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6686
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
Dimethylphthalate	200	1000	ND		UG/KG	1
Diethylphthalate	200	1000	ND		UG/KG	1
Di-n-butylphthalate	200	1000	ND		UG/KG	1
Pyrene	200	1000	ND		UG/KG	1
bis(2-Ethylhexyl)phthalate	200	1000	ND		UG/KG	1
Di-n-octylphthalate	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	87%
2-Fluorobiphenyl	30-130	99%
Terphenyl-d14	30-130	104%

Surrogate recoveries marked with '*' indicates they are outside standard limits.

Sample 006612-01, BNA'S (METHOD 8270) Page 1 of 1

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\031014\
Data File : E0310415.D
Acq On : 10 Mar 2014 16:46
Operator : PEK
Sample : 006612-01
Misc : B10164 AG-5 8270
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Mar 11 10:31:37 2014
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270321HT.M
Quant Title : 8270 BNA Calibration
QLast Update : Sat Mar 08 11:42:09 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.40	152	3486363	8000.00	ug/Kg	0.00
2) Naphthalene-d8	9.37	136	13147709	8000.00	ug/Kg	0.00
4) Acenaphthene-d10	12.29	164	7274858	8000.00	ug/Kg	0.00
8) Phenanthrene-d10	14.86	188	12184164	8000.00	ug/Kg	0.00
10) Chrysene-d12	20.48	240	14986897	8000.00	ug/Kg	-0.02
15) Perylene-d12	25.42	264	11306740	8000.00	ug/Kg	-0.01
System Monitoring Compounds						
3) Nitrobenzene-d5	8.23	82	2411962	4358.51	ug/Kg	0.00
Spiked Amount 5000.000			Recovery = 87.17%			
5) 2-Fluorobiphenyl	11.14	172	5614492	4965.21	ug/Kg	0.00
Spiked Amount 5000.000			Recovery = 99.30%			
12) Terphenyl-d14	17.67	244	6527649	5178.75	ug/Kg	0.00
Spiked Amount 5000.000			Recovery = 103.57%			

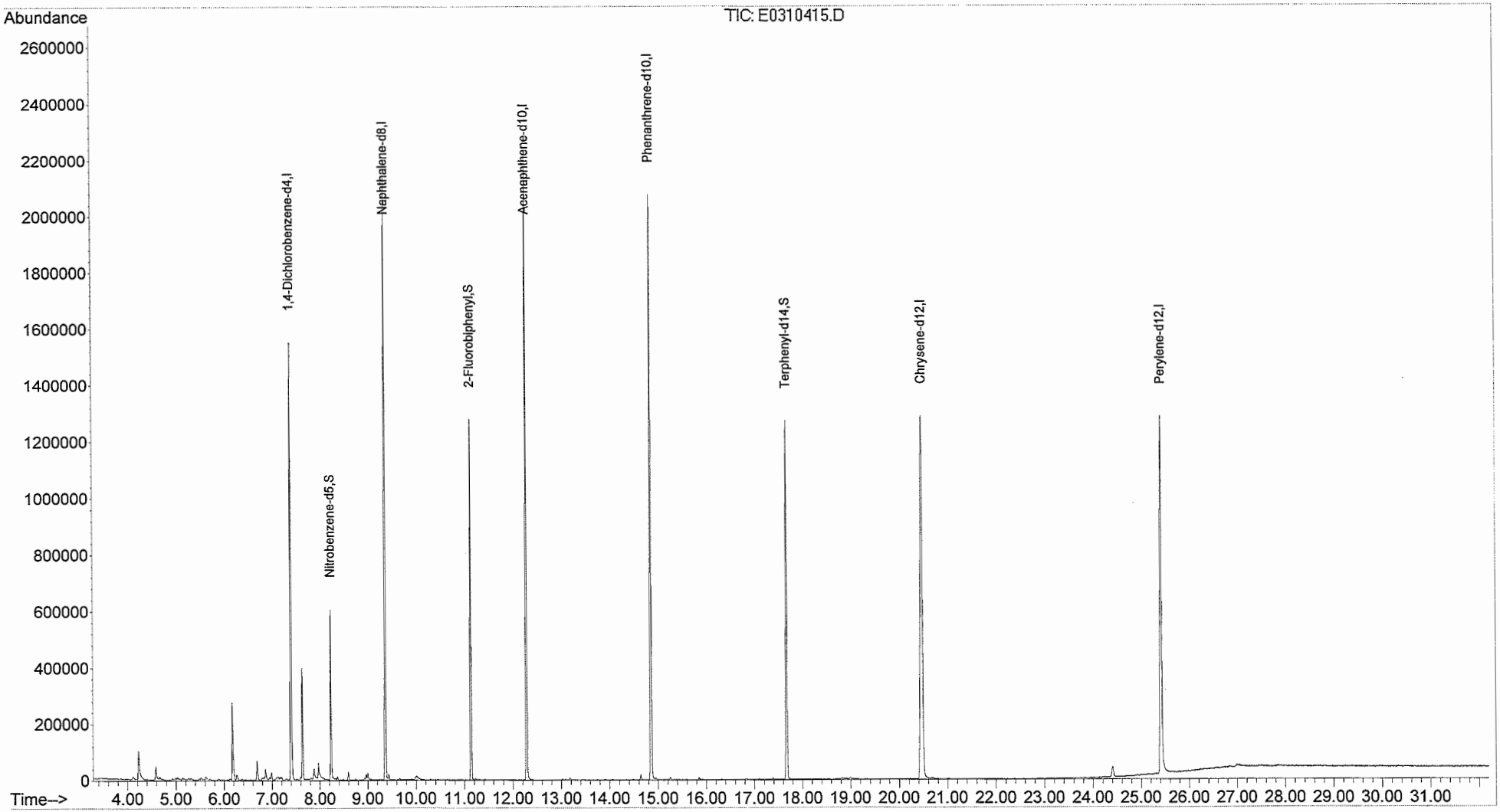
Target Compounds	Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\031014\
Data File : E0310415.D
Acq On : 10 Mar 2014 16:46
Operator : PEK
Sample : 006612-01
Misc : B10164 AG-5 8270
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Mar 11 10:31:37 2014
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270321HT.M
Quant Title : 8270 BNA Calibration
QLast Update : Sat Mar 08 11:42:09 2014
Response via : Initial Calibration



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Mt. Vernon, Illinois 62864

Lab Report No: 006612 Report Date: 03/12/2014

Project Name: MAKAU MILITARY RES O Analysis: BNA'S (METHOD 8270)
Project No.: Analytical Method: 8270C
NELAC Certified - IL100308 Prep Method: 3550A

Field ID:	MAK103C	ARDL Lab No.:	006612-02
Desc/Location:	MAKAU MILITARY RES OAHU	Lab Filename:	E0310416
Sample Date:	01/13/2014	Received Date:	02/20/2014
Sample Time:	1022	Prep. Date:	03/06/2014
Matrix:	TISSUE	Analysis Date:	03/10/2014
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6686
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
Dimethylphthalate	200	1000	ND		UG/KG	1
Diethylphthalate	200	1000	ND		UG/KG	1
Di-n-butylphthalate	200	1000	ND		UG/KG	1
Pyrene	200	1000	ND		UG/KG	1
bis(2-Ethylhexyl)phthalate	200	1000	ND		UG/KG	1
Di-n-octylphthalate	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	74%
2-Fluorobiphenyl	30-130	96%
Terphenyl-d14	30-130	100%

Surrogate recoveries marked with '*' indicates they are outside standard limits.

Sample 006612-02, BNA'S (METHOD 8270) Page 1 of 1

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\031014\
Data File : E0310416.D
Acq On : 10 Mar 2014 17:30
Operator : PEK
Sample : 006612-02
Misc : B10164 AG-5 8270
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Mar 11 10:32:22 2014
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270321HT.M
Quant Title : 8270 BNA Calibration
QLast Update : Sat Mar 08 11:42:09 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.40	152	3495600	8000.00	ug/Kg	0.00
2) Naphthalene-d8	9.37	136	12956745	8000.00	ug/Kg	0.00
4) Acenaphthene-d10	12.29	164	7214518	8000.00	ug/Kg	0.00
8) Phenanthrene-d10	14.86	188	12035747	8000.00	ug/Kg	0.00
10) Chrysene-d12	20.47	240	14998573	8000.00	ug/Kg	-0.02
15) Perylene-d12	25.42	264	11098958	8000.00	ug/Kg	0.00
System Monitoring Compounds						
3) Nitrobenzene-d5	8.23	82	2028267	3719.18	ug/Kg	0.00
Spiked Amount 5000.000			Recovery =	74.38%		
5) 2-Fluorobiphenyl	11.14	172	5354869	4775.22	ug/Kg	0.00
Spiked Amount 5000.000			Recovery =	95.50%		
12) Terphenyl-d14	17.67	244	6288496	4985.13	ug/Kg	0.00
Spiked Amount 5000.000			Recovery =	99.70%		

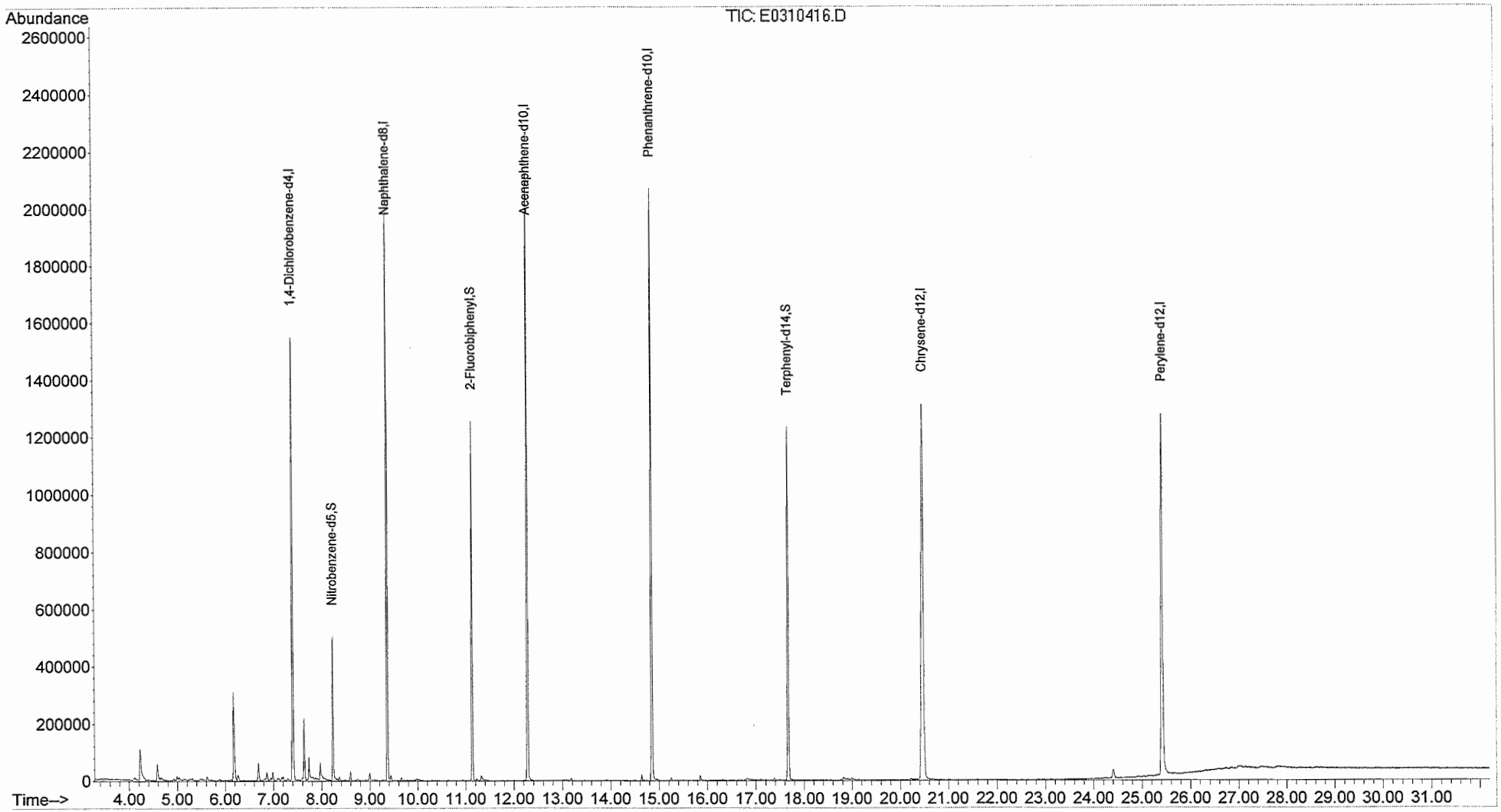
Target Compounds	Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\031014\
Data File : E0310416.D
Acq On : 10 Mar 2014 17:30
Operator : PEK
Sample : 006612-02
Misc : B10164 AG-5 8270
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Mar 11 10:32:22 2014
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270321HT.M
Quant Title : 8270 BNA Calibration
QLast Update : Sat Mar 08 11:42:09 2014
Response via : Initial Calibration



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Mt. Vernon, Illinois 62864

Lab Report No: 006612 Report Date: 03/12/2014

Project Name: MAKAU MILITARY RES O Analysis: BNA'S (METHOD 8270)
Project No.: Analytical Method: 8270C
NELAC Certified - IL100308 Prep Method: 3550A

Field ID:	MAK104C	ARDL Lab No.:	006612-03
Desc/Location:	MAKAU MILITARY RES OAHU	Lab Filename:	E0310417
Sample Date:	01/13/2014	Received Date:	02/20/2014
Sample Time:	1100	Prep. Date:	03/06/2014
Matrix:	TISSUE	Analysis Date:	03/10/2014
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6686
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
Dimethylphthalate	200	1000	ND		UG/KG	1
Diethylphthalate	200	1000	ND		UG/KG	1
Di-n-butylphthalate	200	1000	ND		UG/KG	1
Pyrene	200	1000	ND		UG/KG	1
bis(2-Ethylhexyl)phthalate	200	1000	ND		UG/KG	1
Di-n-octylphthalate	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	74%
2-Fluorobiphenyl	30-130	94%
Terphenyl-d14	30-130	103%

Surrogate recoveries marked with '*' indicates they are outside standard limits.

Sample 006612-03, BNA'S (METHOD 8270) Page 1 of 1

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\031014\
Data File : E0310417.D
Acq On : 10 Mar 2014 18:14
Operator : PEK
Sample : 006612-03
Misc : B10164 AG-5 8270
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Mar 11 10:33:14 2014
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270321HT.M
Quant Title : 8270 BNA Calibration
QLast Update : Sat Mar 08 11:42:09 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.40	152	3613376	8000.00	ug/Kg	0.00
2) Naphthalene-d8	9.37	136	13574089	8000.00	ug/Kg	0.00
4) Acenaphthene-d10	12.29	164	7545072	8000.00	ug/Kg	0.00
8) Phenanthrene-d10	14.86	188	12641788	8000.00	ug/Kg	0.00
10) Chrysene-d12	20.48	240	15849768	8000.00	ug/Kg	-0.02
15) Perylene-d12	25.42	264	11621577	8000.00	ug/Kg	0.00
System Monitoring Compounds						
3) Nitrobenzene-d5	8.23	82	2123171	3716.14	ug/Kg	0.00
Spiked Amount 5000.000			Recovery = 74.32%			
5) 2-Fluorobiphenyl	11.13	172	5521024	4707.69	ug/Kg	0.00
Spiked Amount 5000.000			Recovery = 94.15%			
12) Terphenyl-d14	17.67	244	6834966	5127.35	ug/Kg	0.00
Spiked Amount 5000.000			Recovery = 102.55%			

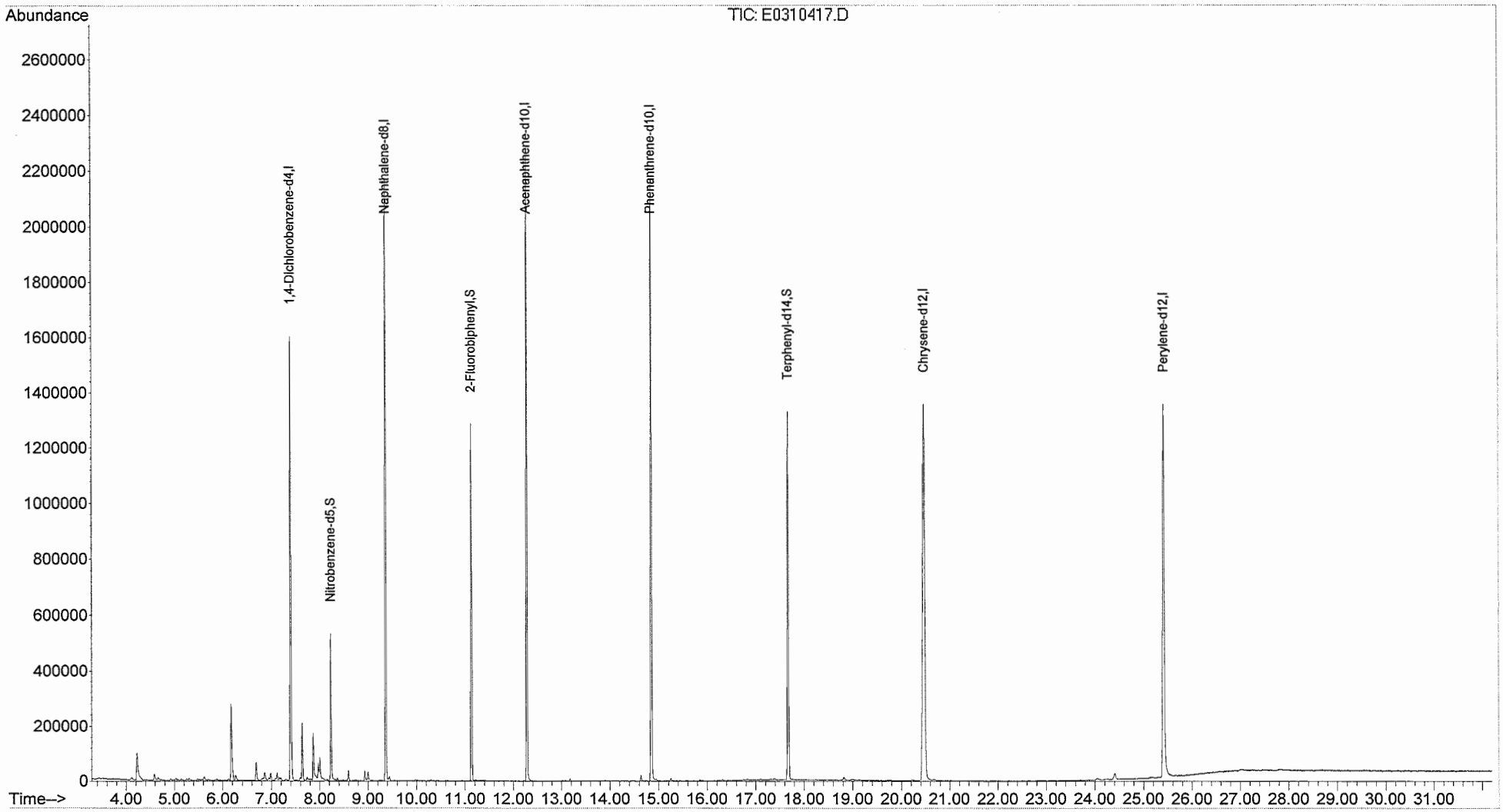
Target Compounds	Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\031014\
Data File : E0310417.D
Acq On : 10 Mar 2014 18:14
Operator : PEK
Sample : 006612-03
Misc : B10164 AG-5 8270
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Mar 11 10:33:14 2014
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270321HT.M
Quant Title : 8270 BNA Calibration
QLast Update : Sat Mar 08 11:42:09 2014
Response via : Initial Calibration



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Mt. Vernon, Illinois 62864

Lab Report No: 006612 Report Date: 03/12/2014

Project Name: MAKAU MILITARY RES O Analysis: BNA'S (METHOD 8270)
Project No.: Analytical Method: 8270C
NELAC Certified - IL100308 Prep Method: 3550A

Field ID:	MAK105C	ARDL Lab No.:	006612-04
Desc/Location:	MAKAU MILITARY RES OAHU	Lab Filename:	E0310418
Sample Date:	01/13/2014	Received Date:	02/20/2014
Sample Time:	1130	Prep. Date:	03/06/2014
Matrix:	TISSUE	Analysis Date:	03/10/2014
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6686
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
Dimethylphthalate	200	1000	ND		UG/KG	1
Diethylphthalate	200	1000	ND		UG/KG	1
Di-n-butylphthalate	200	1000	ND		UG/KG	1
Pyrene	200	1000	ND		UG/KG	1
bis(2-Ethylhexyl)phthalate	200	1000	ND		UG/KG	1
Di-n-octylphthalate	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	59%
2-Fluorobiphenyl	30-130	93%
Terphenyl-d14	30-130	102%

Surrogate recoveries marked with '*' indicates they are outside standard limits.

Sample 006612-04, BNA'S (METHOD 8270) Page 1 of 1

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\031014\
Data File : E0310418.D
Acq On : 10 Mar 2014 18:57
Operator : PEK
Sample : 006612-04
Misc : B10164 AG-5 8270
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Mar 11 10:34:04 2014
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270321HT.M
Quant Title : 8270 BNA Calibration
QLast Update : Sat Mar 08 11:42:09 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.40	152	3593474	8000.00	ug/Kg	0.00
2) Naphthalene-d8	9.37	136	13428979	8000.00	ug/Kg	0.00
4) Acenaphthene-d10	12.29	164	7400279	8000.00	ug/Kg	0.00
8) Phenanthrene-d10	14.86	188	12508485	8000.00	ug/Kg	0.00
10) Chrysene-d12	20.47	240	15494048	8000.00	ug/Kg	-0.02
15) Perylene-d12	25.42	264	11517663	8000.00	ug/Kg	-0.01
System Monitoring Compounds						
3) Nitrobenzene-d5	8.23	82	1676943	2966.83	ug/Kg	0.00
Spiked Amount 5000.000			Recovery = 59.34%			
5) 2-Fluorobiphenyl	11.14	172	5328018	4632.00	ug/Kg	0.00
Spiked Amount 5000.000			Recovery = 92.64%			
12) Terphenyl-d14	17.67	244	6664850	5114.52	ug/Kg	0.00
Spiked Amount 5000.000			Recovery = 102.29%			

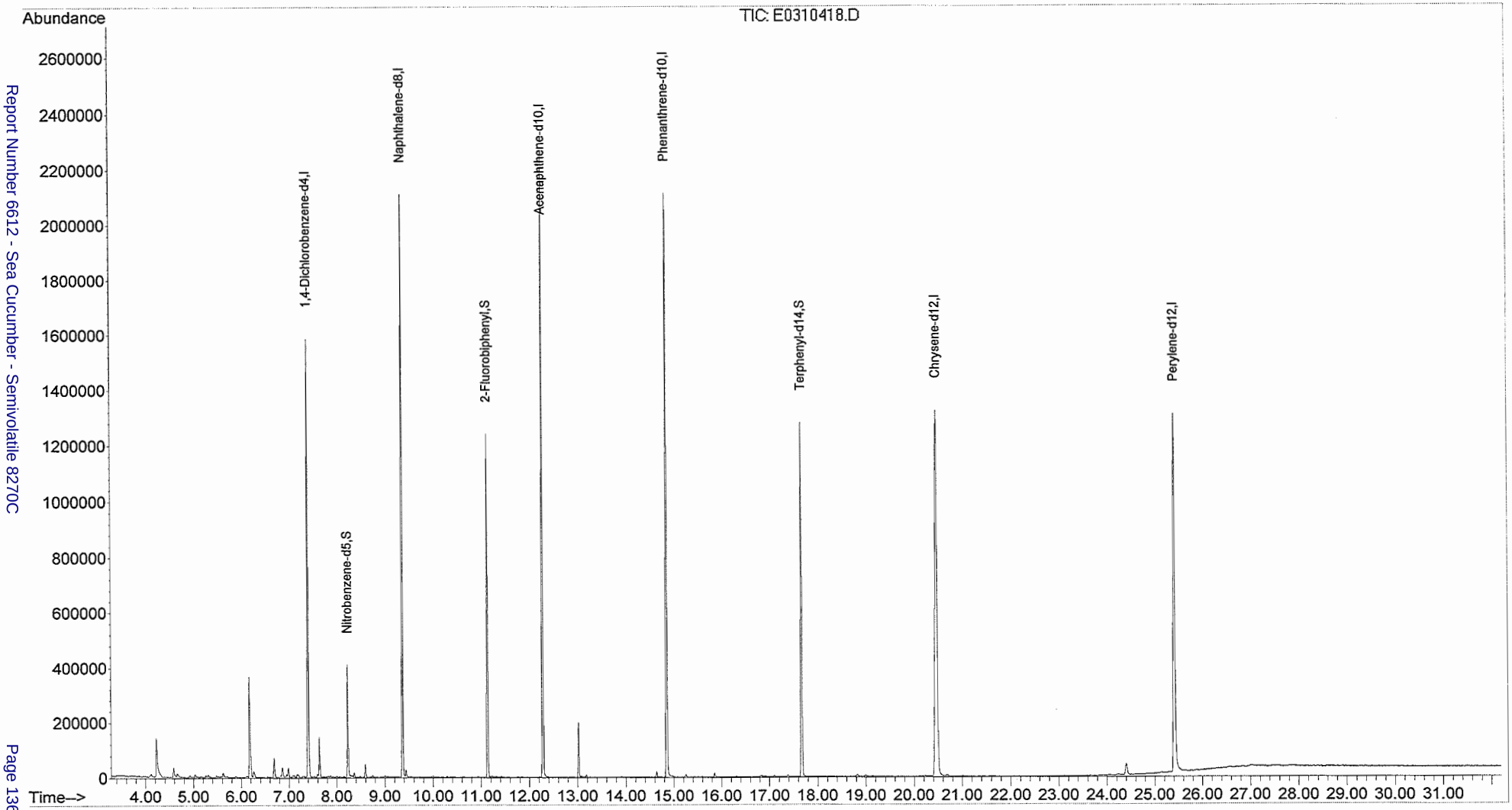
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\031014\
Data File : E0310418.D
Acq On : 10 Mar 2014 18:57
Operator : PEK
Sample : 006612-04
Misc : B10164 AG-5 8270
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Mar 11 10:34:04 2014
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270321HT.M
Quant Title : 8270 BNA Calibration
QLast Update : Sat Mar 08 11:42:09 2014
Response via : Initial Calibration



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Lab Report No: 006612 Report Date: 03/12/2014

Project Name: MAKAU MILITARY RES O Analysis: BNA'S (METHOD 8270)
Project No.: Analytical Method: 8270C
NELAC Certified - IL100308 Prep Method: 3550A

Field ID:	MAK106C	ARDL Lab No.:	006612-05
Desc/Location:	MAKAU MILITARY RES OAHU	Lab Filename:	E0310419
Sample Date:	01/13/2014	Received Date:	02/20/2014
Sample Time:	1205	Prep. Date:	03/06/2014
Matrix:	TISSUE	Analysis Date:	03/10/2014
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6686
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
Dimethylphthalate	200	1000	ND		UG/KG	1
Diethylphthalate	200	1000	ND		UG/KG	1
Di-n-butylphthalate	200	1000	ND		UG/KG	1
Pyrene	200	1000	ND		UG/KG	1
bis(2-Ethylhexyl)phthalate	200	1000	ND		UG/KG	1
Di-n-octylphthalate	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	80%
2-Fluorobiphenyl	30-130	98%
Terphenyl-d14	30-130	104%

Surrogate recoveries marked with '*' indicates they are outside standard limits.

Sample 006612-05, BNA'S (METHOD 8270) Page 1 of 1

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\031014\
Data File : E0310419.D
Acq On : 10 Mar 2014 19:40
Operator : PEK
Sample : 006612-05
Misc : B10164 AG-5 8270
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Mar 11 10:34:47 2014
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270321HT.M
Quant Title : 8270 BNA Calibration
QLast Update : Sat Mar 08 11:42:09 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.40	152	3836327	8000.00	ug/Kg	0.00
2) Naphthalene-d8	9.37	136	14201735	8000.00	ug/Kg	0.00
4) Acenaphthene-d10	12.29	164	7995918	8000.00	ug/Kg	0.00
8) Phenanthrene-d10	14.86	188	13414442	8000.00	ug/Kg	0.00
10) Chrysene-d12	20.48	240	16850106	8000.00	ug/Kg	-0.01
15) Perylene-d12	25.42	264	12838846	8000.00	ug/Kg	0.00
System Monitoring Compounds						
3) Nitrobenzene-d5	8.23	82	2390642	3999.37	ug/Kg	-0.01
Spiked Amount 5000.000			Recovery = 79.99%			
5) 2-Fluorobiphenyl	11.13	172	6100494	4908.49	ug/Kg	0.00
Spiked Amount 5000.000			Recovery = 98.17%			
12) Terphenyl-d14	17.67	244	7366705	5198.17	ug/Kg	0.00
Spiked Amount 5000.000			Recovery = 103.96%			

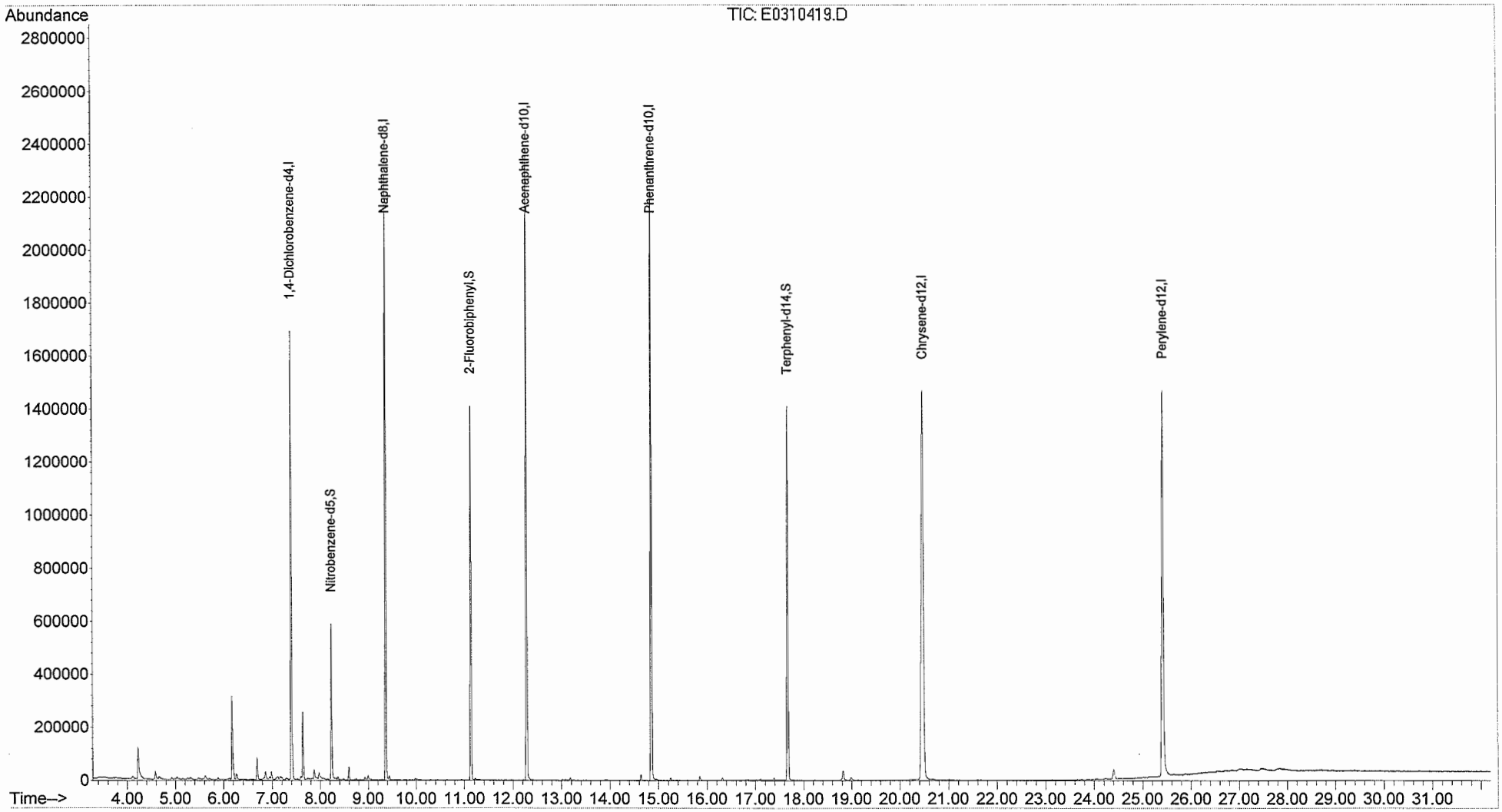
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\031014\
Data File : E0310419.D
Acq On : 10 Mar 2014 19:40
Operator : PEK
Sample : 006612-05
Misc : B10164 AG-5 8270
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Mar 11 10:34:47 2014
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270321HT.M
Quant Title : 8270 BNA Calibration
QLast Update : Sat Mar 08 11:42:09 2014
Response via : Initial Calibration



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Lab Report No: 006612 Report Date: 03/12/2014

Project Name: MAKAU MILITARY RES O Analysis: BNA'S (METHOD 8270)
Project No.: Analytical Method: 8270C
NELAC Certified - IL100308 Prep Method: 3550A

Field ID:	MAK107C	ARDL Lab No.:	006612-06
Desc/Location:	MAKAU MILITARY RES OAHU	Lab Filename:	E0310420
Sample Date:	01/13/2014	Received Date:	02/20/2014
Sample Time:	1240	Prep. Date:	03/06/2014
Matrix:	TISSUE	Analysis Date:	03/10/2014
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6686
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
Dimethylphthalate	200	1000	ND		UG/KG	1
Diethylphthalate	200	1000	ND		UG/KG	1
Di-n-butylphthalate	200	1000	ND		UG/KG	1
Pyrene	200	1000	ND		UG/KG	1
bis(2-Ethylhexyl)phthalate	200	1000	ND		UG/KG	1
Di-n-octylphthalate	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	83%
2-Fluorobiphenyl	30-130	97%
Terphenyl-d14	30-130	100%

Surrogate recoveries marked with '*' indicates they are outside standard limits.

Sample 006612-06, BNA'S (METHOD 8270) Page 1 of 1

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\031014\
Data File : E0310420.D
Acq On : 10 Mar 2014 20:22
Operator : PEK
Sample : 006612-06
Misc : B10164 AG-5 8270
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Mar 11 10:35:37 2014
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270321HT.M
Quant Title : 8270 BNA Calibration
QLast Update : Sat Mar 08 11:42:09 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.40	152	3536727	8000.00	ug/Kg	0.00
2) Naphthalene-d8	9.37	136	13401887	8000.00	ug/Kg	0.00
4) Acenaphthene-d10	12.29	164	7422446	8000.00	ug/Kg	0.00
8) Phenanthrene-d10	14.86	188	12310332	8000.00	ug/Kg	0.00
10) Chrysene-d12	20.48	240	15359946	8000.00	ug/Kg	-0.02
15) Perylene-d12	25.42	264	12004305	8000.00	ug/Kg	-0.01
System Monitoring Compounds						
3) Nitrobenzene-d5	8.23	82	2330721	4131.83	ug/Kg	0.00
Spiked Amount 5000.000			Recovery = 82.64%			
5) 2-Fluorobiphenyl	11.13	172	5592256	4847.21	ug/Kg	0.00
Spiked Amount 5000.000			Recovery = 96.94%			
12) Terphenyl-d14	17.67	244	6459936	5000.55	ug/Kg	0.00
Spiked Amount 5000.000			Recovery = 100.01%			

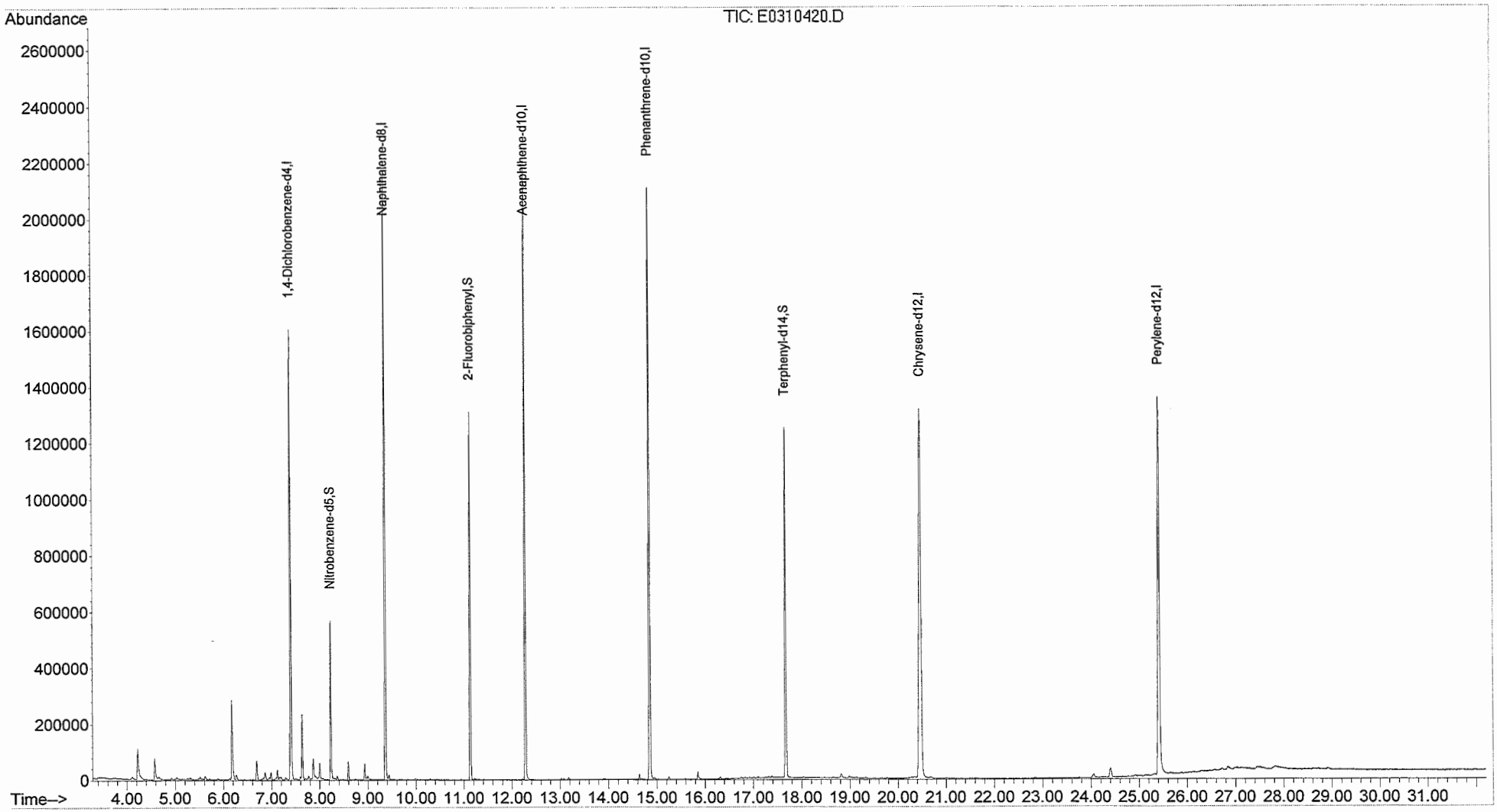
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\031014\
Data File : E0310420.D
Acq On : 10 Mar 2014 20:22
Operator : PEK
Sample : 006612-06
Misc : B10164 AG-5 8270
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Mar 11 10:35:37 2014
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270321HT.M
Quant Title : 8270 BNA Calibration
QLast Update : Sat Mar 08 11:42:09 2014
Response via : Initial Calibration



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Lab Report No: 006612 Report Date: 03/12/2014

Project Name: MAKAU MILITARY RES O Analysis: BNA'S (METHOD 8270)
Project No.: Analytical Method: 8270C
NELAC Certified - IL100308 Prep Method: 3550A

Field ID:	MAK108C	ARDL Lab No.:	006612-07
Desc/Location:	MAKAU MILITARY RES OAHU	Lab Filename:	E0310421
Sample Date:	01/13/2014	Received Date:	02/20/2014
Sample Time:	1350	Prep. Date:	03/06/2014
Matrix:	TISSUE	Analysis Date:	03/10/2014
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6686
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
Dimethylphthalate	200	1000	ND		UG/KG	1
Diethylphthalate	200	1000	ND		UG/KG	1
Di-n-butylphthalate	200	1000	ND		UG/KG	1
Pyrene	200	1000	ND		UG/KG	1
bis(2-Ethylhexyl)phthalate	200	1000	ND		UG/KG	1
Di-n-octylphthalate	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	71%
2-Fluorobiphenyl	30-130	91%
Terphenyl-d14	30-130	103%

Surrogate recoveries marked with '*' indicates they are outside standard limits.

Sample 006612-07, BNA'S (METHOD 8270) Page 1 of 1

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\031014\
Data File : E0310421.D
Acq On : 10 Mar 2014 21:04
Operator : PEK
Sample : 006612-07
Misc : B10164 AG-5 8270
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Mar 11 10:36:24 2014
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270321HT.M
Quant Title : 8270 BNA Calibration
QLast Update : Sat Mar 08 11:42:09 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.40	152	3855265	8000.00	ug/Kg	0.00
2) Naphthalene-d8	9.37	136	14417041	8000.00	ug/Kg	0.00
4) Acenaphthene-d10	12.29	164	8066599	8000.00	ug/Kg	0.00
8) Phenanthrene-d10	14.86	188	13658444	8000.00	ug/Kg	0.00
10) Chrysene-d12	20.47	240	17007326	8000.00	ug/Kg	-0.02
15) Perylene-d12	25.42	264	13161834	8000.00	ug/Kg	-0.01
System Monitoring Compounds						
3) Nitrobenzene-d5	8.23	82	2159948	3559.47	ug/Kg	0.00
Spiked Amount 5000.000			Recovery = 71.19%			
5) 2-Fluorobiphenyl	11.13	172	5680359	4530.40	ug/Kg	0.00
Spiked Amount 5000.000			Recovery = 90.61%			
12) Terphenyl-d14	17.67	244	7369310	5151.93	ug/Kg	0.00
Spiked Amount 5000.000			Recovery = 103.04%			

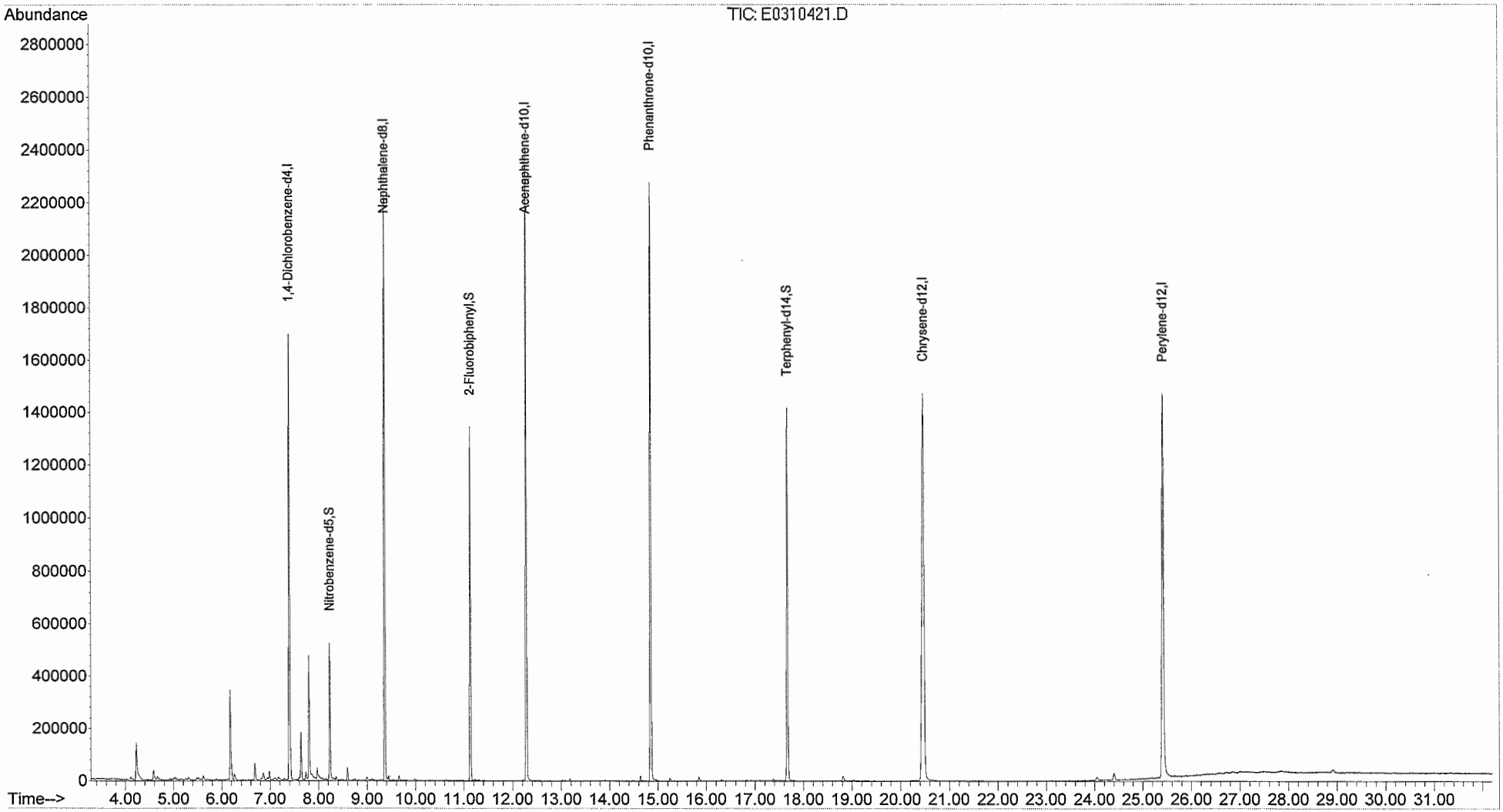
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\031014\
Data File : E0310421.D
Acq On : 10 Mar 2014 21:04
Operator : PEK
Sample : 006612-07
Misc : B10164 AG-5 8270
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Mar 11 10:36:24 2014
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270321HT.M
Quant Title : 8270 BNA Calibration
QLast Update : Sat Mar 08 11:42:09 2014
Response via : Initial Calibration



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Mt. Vernon, Illinois 62864

Lab Report No: 006612 Report Date: 03/12/2014

Project Name: MAKAU MILITARY RES O Analysis: BNA'S (METHOD 8270)
Project No.: Analytical Method: 8270C
NELAC Certified - IL100308 Prep Method: 3550A

Field ID:	MAK110C	ARDL Lab No.:	006612-08
Desc/Location:	MAKAU MILITARY RES OAHU	Lab Filename:	E0310422
Sample Date:	01/14/2014	Received Date:	02/20/2014
Sample Time:	0955	Prep. Date:	03/06/2014
Matrix:	TISSUE	Analysis Date:	03/10/2014
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6686
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
Dimethylphthalate	200	1000	ND		UG/KG	1
Diethylphthalate	200	1000	ND		UG/KG	1
Di-n-butylphthalate	200	1000	ND		UG/KG	1
Pyrene	200	1000	ND		UG/KG	1
bis(2-Ethylhexyl)phthalate	200	1000	ND		UG/KG	1
Di-n-octylphthalate	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	68%
2-Fluorobiphenyl	30-130	93%
Terphenyl-d14	30-130	102%

Surrogate recoveries marked with '*' indicates they are outside standard limits.

Sample 006612-08, BNA'S (METHOD 8270) Page 1 of 1

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\031014\
Data File : E0310422.D
Acq On : 10 Mar 2014 21:46
Operator : PEK
Sample : 006612-08
Misc : B10164 AG-5 8270
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Mar 11 10:37:09 2014
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270321HT.M
Quant Title : 8270 BNA Calibration
QLast Update : Sat Mar 08 11:42:09 2014
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.40	152	3709482	8000.00 ug/Kg	0.00
2) Naphthalene-d8	9.37	136	13814566	8000.00 ug/Kg	0.00
4) Acenaphthene-d10	12.29	164	7735074	8000.00 ug/Kg	0.00
8) Phenanthrene-d10	14.86	188	12961845	8000.00 ug/Kg	0.00
10) Chrysene-d12	20.47	240	16171916	8000.00 ug/Kg	-0.02
15) Perylene-d12	25.42	264	12495123	8000.00 ug/Kg	-0.01
System Monitoring Compounds					
3) Nitrobenzene-d5	8.23	82	1966544	3382.08 ug/Kg	-0.01
Spiked Amount 5000.000			Recovery =	67.64%	
5) 2-Fluorobiphenyl	11.13	172	5585504	4645.68 ug/Kg	0.00
Spiked Amount 5000.000			Recovery =	92.91%	
12) Terphenyl-d14	17.67	244	6964753	5120.63 ug/Kg	0.00
Spiked Amount 5000.000			Recovery =	102.41%	

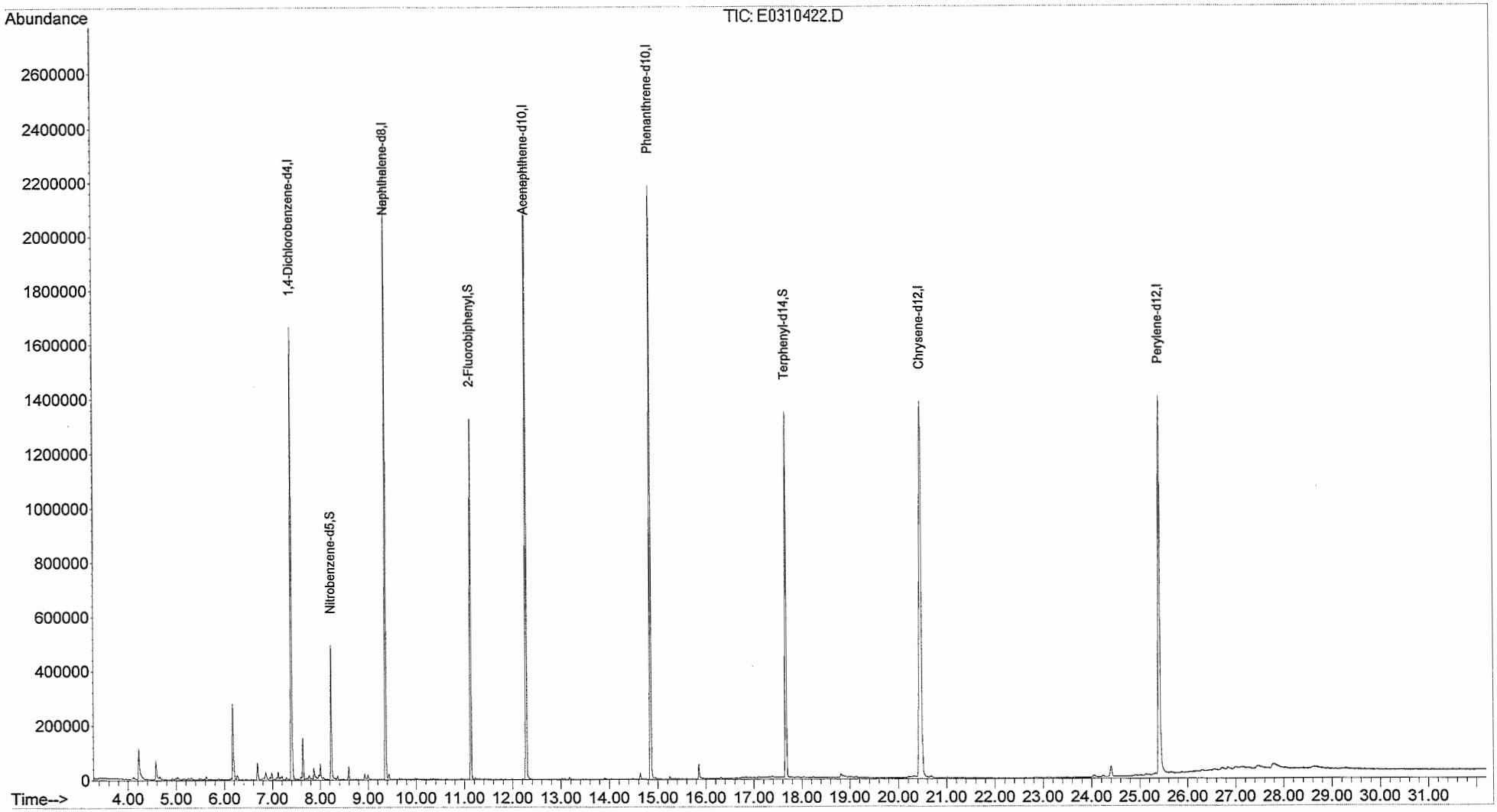
Target Compounds	Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\031014\
Data File : E0310422.D
Acq On : 10 Mar 2014 21:46
Operator : PEK
Sample : 006612-08
Misc : B10164 AG-5 8270
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Mar 11 10:37:09 2014
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270321HT.M
Quant Title : 8270 BNA Calibration
QLast Update : Sat Mar 08 11:42:09 2014
Response via : Initial Calibration



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Mt. Vernon, Illinois 62864

Lab Report No: 006612 Report Date: 03/12/2014

Project Name: MAKAU MILITARY RES O Analysis: BNA'S (METHOD 8270)
Project No.: Analytical Method: 8270C
NELAC Certified - IL100308 Prep Method: 3550A

Field ID:	MAK110C	ARDL Lab No.:	006612-08MS
Desc/Location:	MAKAU MILITARY RES OAHU	Lab Filename:	E0310423
Sample Date:	01/14/2014	Received Date:	02/20/2014
Sample Time:	0955	Prep. Date:	03/06/2014
Matrix:	TISSUE	Analysis Date:	03/10/2014
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6686
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
Dimethylphthalate	200	1000	3680		UG/KG	1
Diethylphthalate	200	1000	3450		UG/KG	1
Di-n-butylphthalate	200	1000	3550		UG/KG	1
Pyrene	200	1000	3460		UG/KG	1
bis(2-Ethylhexyl)phthalate	200	1000	3410		UG/KG	1
Di-n-octylphthalate	200	1000	3460		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	82%
2-Fluorobiphenyl	30-130	88%
Terphenyl-d14	30-130	102%

Surrogate recoveries marked with '*' indicates they are outside standard limits.

Matrix Spike for 006612-08, BNA'S (METHOD 8270) Page 1 of 1

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\031014\
Data File : E0310423.D
Acq On : 10 Mar 2014 22:27
Operator : PEK
Sample : 006612-08MS
Misc : B10164 AG-5 8270
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Mar 11 08:47:07 2014
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270321HT.M
Quant Title : 8270 BNA Calibration
QLast Update : Sat Mar 08 11:42:09 2014
Response via : Initial Calibration

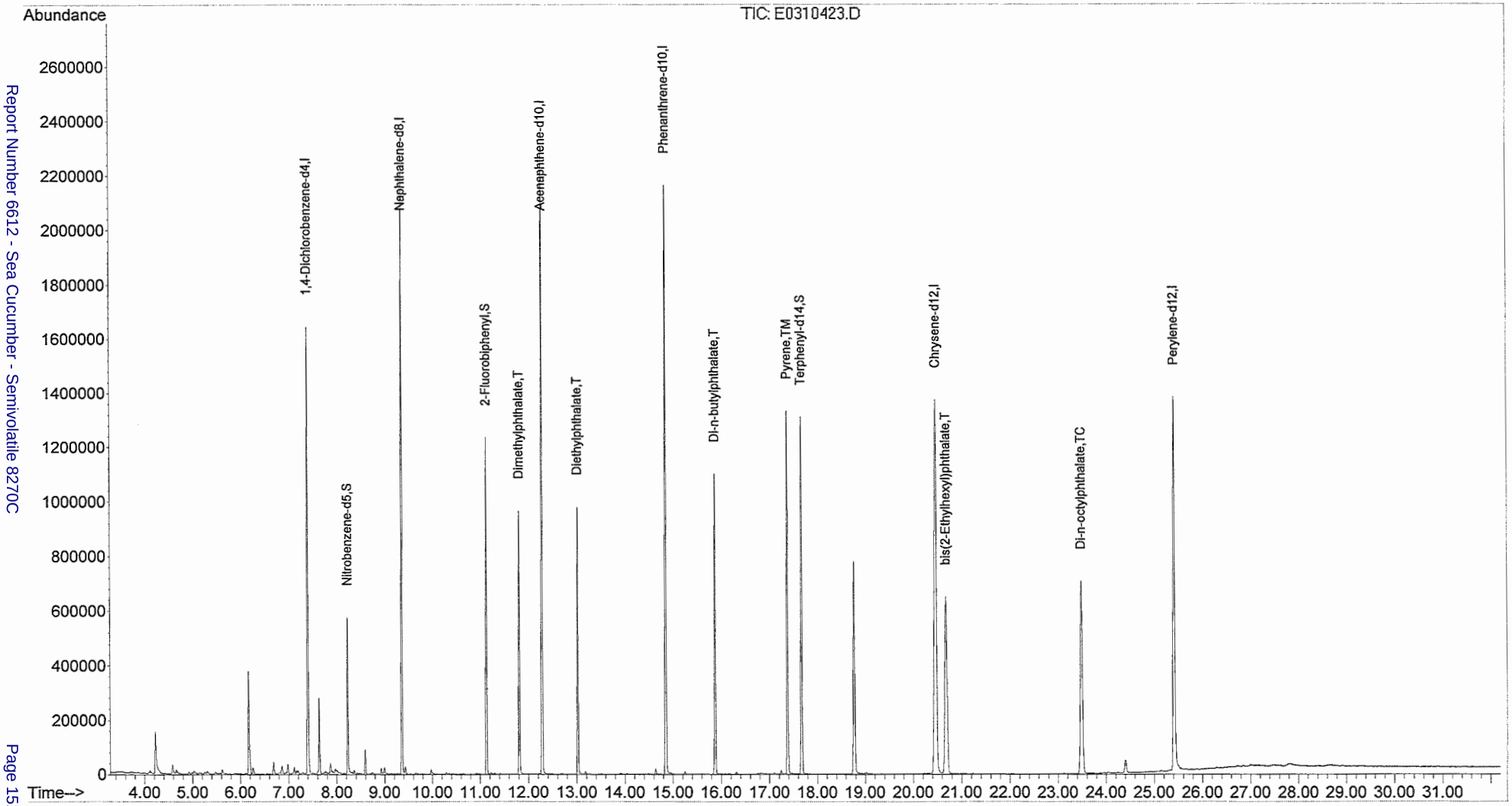
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.40	152	3610200	8000.00	ug/Kg	0.00
2) Naphthalene-d8	9.37	136	13586024	8000.00	ug/Kg	0.00
4) Acenaphthene-d10	12.29	164	7576225	8000.00	ug/Kg	0.00
8) Phenanthrene-d10	14.86	188	12638267	8000.00	ug/Kg	0.00
10) Chrysene-d12	20.47	240	15686142	8000.00	ug/Kg	-0.02
15) Perylene-d12	25.42	264	11963469	8000.00	ug/Kg	-0.01
System Monitoring Compounds						
3) Nitrobenzene-d5	8.23	82	2336818	4086.49	ug/Kg	-0.01
Spiked Amount 5000.000			Recovery =	81.73%		
5) 2-Fluorobiphenyl	11.13	172	5206612	4421.34	ug/Kg	0.00
Spiked Amount 5000.000			Recovery =	88.43%		
12) Terphenyl-d14	17.67	244	6735501	5105.44	ug/Kg	0.00
Spiked Amount 5000.000			Recovery =	102.11%		
Target Compounds						Qvalue
6) Dimethylphthalate	11.81	163	5599268	3680.13	ug/Kg	99
7) Diethylphthalate	13.02	149	5287737	3451.67	ug/Kg	100
9) Di-n-butylphthalate	15.88	149	8876641	3550.92	ug/Kg	95
11) Pyrene	17.38	202	8905915	3464.94	ug/Kg	81
13) bis(2-Ethylhexyl)phthalate	20.68	149	6612879	3406.20	ug/Kg	98
14) Di-n-octylphthalate	23.49	149	11261815	3464.10	ug/Kg	100

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

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\031014\
Data File : E0310423.D
Acq On : 10 Mar 2014 22:27
Operator : PEK
Sample : 006612-08MS
Misc : B10164 AG-5 8270
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Mar 11 08:47:07 2014
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270321HT.M
Quant Title : 8270 BNA Calibration
QLast Update : Sat Mar 08 11:42:09 2014
Response via : Initial Calibration



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Lab Report No: 006612 Report Date: 03/12/2014

Project Name: MAKAU MILITARY RES O Analysis: BNA'S (METHOD 8270)
Project No.: Analytical Method: 8270C
NELAC Certified - IL100308 Prep Method: 3550A

Field ID:	MAK110C	ARDL Lab No.:	006612-08MD
Desc/Location:	MAKAU MILITARY RES OAHU	Lab Filename:	E0310424
Sample Date:	01/14/2014	Received Date:	02/20/2014
Sample Time:	0955	Prep. Date:	03/06/2014
Matrix:	TISSUE	Analysis Date:	03/10/2014
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6686
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
Dimethylphthalate	200	1000	3470		UG/KG	1
Diethylphthalate	200	1000	3060		UG/KG	1
Di-n-butylphthalate	200	1000	3160		UG/KG	1
Pyrene	200	1000	3160		UG/KG	1
bis(2-Ethylhexyl)phthalate	200	1000	3110		UG/KG	1
Di-n-octylphthalate	200	1000	3190		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	62%
2-Fluorobiphenyl	30-130	76%
Terphenyl-d14	30-130	101%

Surrogate recoveries marked with '*' indicates they are outside standard limits.

Matrix Spike Duplicate for 006612-08, BNA'S (METHOD 8270) Page 1 of 1

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\031014\
Data File : E0310424.D
Acq On : 10 Mar 2014 23:09
Operator : PEK
Sample : 006612-08MD
Misc : B10164 AG-5 8270
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Mar 11 08:47:15 2014
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270321HT.M
Quant Title : 8270 BNA Calibration
QLast Update : Sat Mar 08 11:42:09 2014
Response via : Initial Calibration

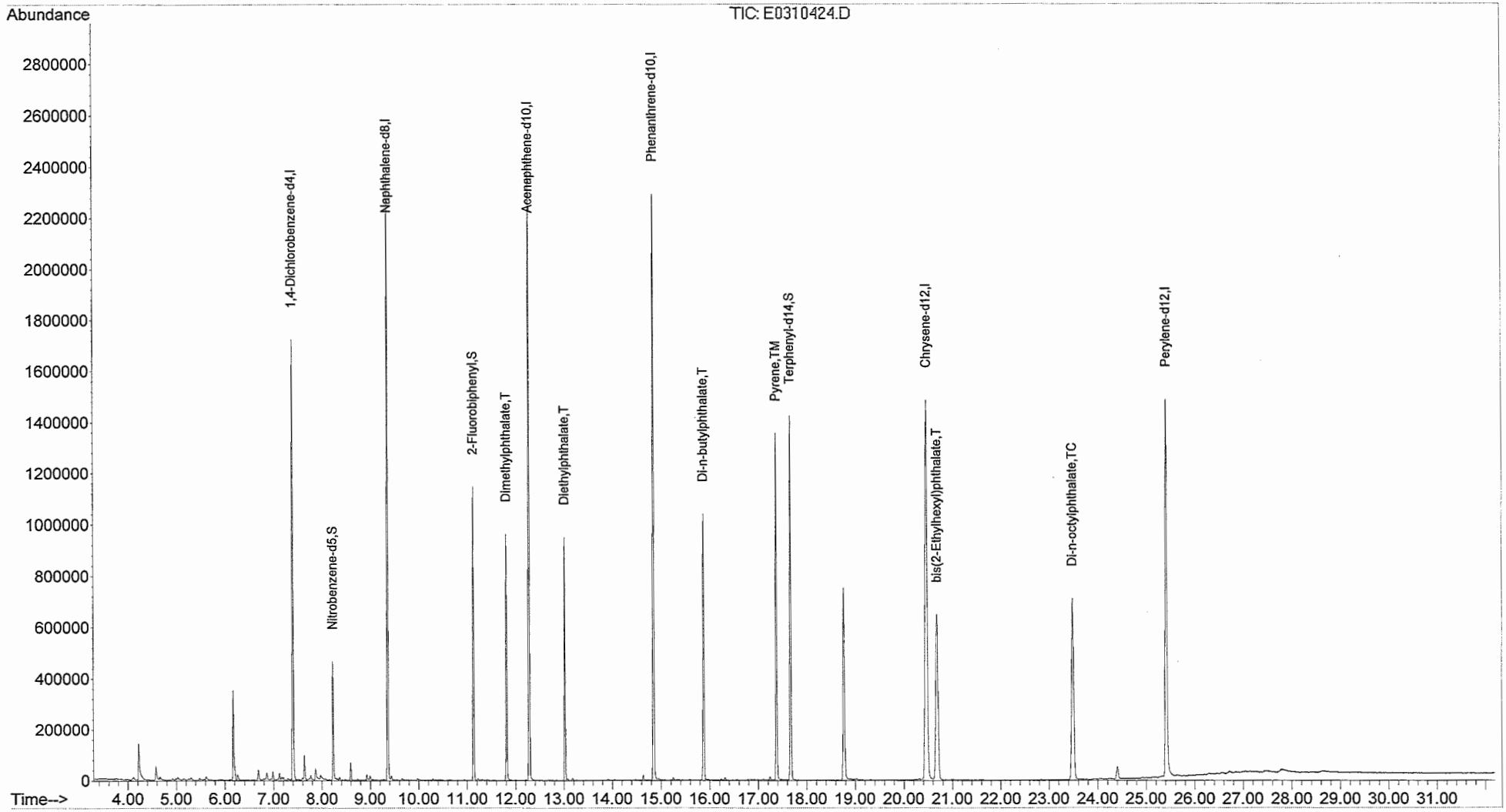
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.40	152	3900704	8000.00 ug/Kg	0.00
2) Naphthalene-d8	9.37	136	14572766	8000.00 ug/Kg	0.00
4) Acenaphthene-d10	12.29	164	8133697	8000.00 ug/Kg	0.00
8) Phenanthrene-d10	14.86	188	13721893	8000.00 ug/Kg	0.00
10) Chrysene-d12	20.47	240	17248788	8000.00 ug/Kg	-0.02
15) Perylene-d12	25.42	264	13198117	8000.00 ug/Kg	-0.01
System Monitoring Compounds					
3) Nitrobenzene-d5	8.23	82	1910202	3114.26 ug/Kg	-0.01
Spiked Amount 5000.000			Recovery =	62.29%	
5) 2-Fluorobiphenyl	11.13	172	4823320	3815.13 ug/Kg	0.00
Spiked Amount 5000.000			Recovery =	76.30%	
12) Terphenyl-d14	17.67	244	7355952	5070.61 ug/Kg	0.00
Spiked Amount 5000.000			Recovery =	101.41%	
Target Compounds					Qvalue
6) Dimethylphthalate	11.81	163	5672884	3472.97 ug/Kg	99
7) Diethylphthalate	13.02	149	5037787	3063.12 ug/Kg	100
9) Di-n-butylphthalate	15.88	149	8567286	3156.52 ug/Kg	94
11) Pyrene	17.38	202	8944804	3164.79 ug/Kg	80
13) bis(2-Ethylhexyl)phthalate	20.69	149	6633479	3107.26 ug/Kg	98
14) Di-n-octylphthalate	23.49	149	11390449	3186.26 ug/Kg	100

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

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\031014\
Data File : E0310424.D
Acq On : 10 Mar 2014 23:09
Operator : PEK
Sample : 006612-08MD
Misc : B10164 AG-5 8270
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Mar 11 08:47:15 2014
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270321HT.M
Quant Title : 8270 BNA Calibration
QLast Update : Sat Mar 08 11:42:09 2014
Response via : Initial Calibration



Example Calculation

Rev. 1.1

EXAMPLE CALCULATIONS
(BNA – General Use)

Response Factor Calculations

The data system tabulates the area response of the characteristic ions against the concentration for each compound and each internal standard. Response factors (RF) are calculated for each compound relative to the internal standard assignments. The RF is calculated as follows:

$$RF = (A_x C_{is}) / (A_{is} C_x)$$

Where:

- A_x = Area of the characteristic ion for the compound being measured
- A_{is} = Area of the characteristic ion for the specific internal standard.
- C_{is} = Concentration of the specific internal standard.
- C_x = Concentration of the compound being measured.

The RF is calculated for each standard concentration level in the initial calibration curve. The average RF is then calculated off these points.

Sample Calculations

Sample calculations are made by the instrument software and are performed as follows:

Water:

$$\text{Concentration (ug/L)} = \frac{(A_x)(Is)(V_t)}{(A_{is})(RF)(V_i)(V_o)}$$

Soil: (Low and Medium Level)

$$\text{Concentration (ug/Kg)} = \frac{(A_x)(Is)(V_t)}{(A_{is})(RF)(V_i)(W_s)}$$

Where:

- A_x = Area of characteristic ion for the compound being measured.
- Is = Amount of internal standard injected (ng).
- A_{is} = Area of characteristic ion for the internal standard.
- RF = Average response factor for the compound being measured.
- V_i = Volume of extract injected (uL).
- V_t = Volume of total extract (uL).
- V_o = Volume of water extracted (mL).
- W_s = Weight of sample extracted (g).

Example Sample Calculation

Sample No.: 006612-08MS Compound: Dimethylphthalate Matrix: Tissue

$$\text{Concentration (ug/Kg)} = \frac{(5599268)*(40ng)*(1000\mu L)}{(7576225)*(1.607)*(1\mu L)*(5g)} = 3680$$

Example Calculations Performed By: PEK Date: 3/18/2014

Miscellaneous Additional Data

(If applicable)

☑ **None** _____

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