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ANALYSIS: BNA METHOD NO.: 8270

ARDL Report(s) #: 006615 MATRIX: SEA CUCUMBER

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	By:	Date:
Package Preparation	JJA	04/04/14
Analytical Review	PEK	4/9/2014
Final Review	JO	4/10/14
QA Review	DRS	4/10/14

Rev. 1.1

Organic Package Review Checklist

Rev. 1.1

ORGANIC PACKAGE REVIEW CHECKLIST

METHOD: 8270

	Initial	Date
Case Narrative and/or Nonconformance Reports		
Case Narrative / Analyst Comment Sheets	PEK	4/9/14
Nonconformance / Noncompliance Reports (if applicable)	↓	↓
Sample Receipt Information		
Copies of Original Chain-of-Custody Forms	PEK	4/9/14
Cooler Receipt Form and Airbills	↓	↓
Phone Messages (If applicable)	↓	↓
Field Sample Results	PEK	4/9/14
QC Summary Forms		
Surrogate Summary, if applicable	PEK	4/9/14
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	4/9/14
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	4/9/14
Certificates of Analysis (Vendor)	↓	↓
Analytical Run Number 1		
Calibration Information	N/A	
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	↓	↓

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ORGANIC PACKAGE REVIEW CHECKLIST (Continued)

METHOD: 8270

	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	4/9/14
Miscellaneous Additional Data (if applicable)	N/A	

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 4/9/2014

Rev. 1.1

Case Narrative and/or Nonconformance Reports

Rev. 1.1

ORGANIC ANALYSIS CASE NARRATIVE

Corps of Engineers – ERDC, Vicksburg **Date: 4/10/14**

ARDL Report No.: 6615 **Lab Name: ARDL, Inc.**

Project Name: MAKAU MILITARY RESERVATION OAHU (SEA CUCUMBER)

Samples Received at ARDL: 03/14/2014

Lab ID No.	Sample ID No.	Date Collected	Date Extracted	Analysis Requested
006615-01	MAK111C	01/31/2014	03/25/2014	BNA
006615-02	MAK113C	01/31/2014	03/25/2014	BNA
006615-03	MAK114C	01/31/2014	03/25/2014	BNA
006615-04	MAK115C	01/31/2014	03/25/2014	BNA
006615-05	MAK116C	01/31/2014	03/25/2014	BNA
006615-06	MAK117C	01/31/2014	03/25/2014	BNA
006615-07	MAK118C	01/31/2014	03/25/2014	BNA
006615-08	MAK120C	02/11/2014	03/25/2014	BNA

SEMIVOLATILE FRACTION – METHOD 8270C

Eight (8) tissue (sea cucumber) samples were received by ARDL, Inc. on March 14, 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 met the recovery criteria.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The MS/MSD analysis was performed on sample MAK116C and met the 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: 4/10/14**

ARDL Report No.: 6615 **Lab Name: ARDL, Inc.**

Project Name: MAKAU MILITARY RESERVATION OAHU (SEA CUCUMBER)

Samples Received at ARDL: 03/14/2014

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

Original in 4411
dlc
3-14-14

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
MAK111C	1/31/2014	1000		x	1	x	x	x	x	Mokuleia Site - Sea Cucumber	x	
MAK113C	1/31/2014	1120		x	1	x	x	x	x	Mokuleia Site - Sea Cucumber	x	
MAK114C	1/31/2014	1155		x	1	x	x	x	x	Mokuleia Site - Sea Cucumber	x	
MAK115C	1/31/2014	1300		x	1	x	x	x	x	Mokuleia Site - Sea Cucumber	x	
MAK116C	1/31/2014	1330		x	1	x	x	x	x	Mokuleia Site - Sea Cucumber	x	
MAK117C	1/31/2014	1435		x	1	x	x	x	x	Mokuleia Site - Sea Cucumber	x	
MAK118C	1/31/2014	1605		x	1	x	x	x	x	Mokuleia Site - Sea Cucumber	x	
MAK120C	2/11/2014	1030		x	1	x	x	x	x	Mokuleia Site - Sea Cucumber	x	
MAK120L	1/31/2014	1040		x	1	x	x	x	x	Mokuleia Site - Limu	x	
MAK121L	1/31/2014	1130		x	1	x	x	x	x	Mokuleia Site - Limu	x	
MAK122L	1/31/2014	1405		x	1	x	x	x	x	Mokuleia Site - Limu	x	
MAK123L	1/31/2014	1455		x	1	x	x	x	x	Mokuleia Site - Limu	x	
MAK124L	1/31/2014	1540		x	1	x	x	x	x	Mokuleia Site - Limu	x	
MAK126L	1/31/2014	1615		x	1	x	x	x	x	Mokuleia Site - Limu	x	
MAK127L	2/11/2014	1304		x	1	x	x	x	x	Mokuleia Site - Limu	x	
MAK128L	2/11/2014	1415		x	1	x	x	x	x	Mokuleia Site - Limu	x	
MAK116L	1/31/2014	820		x	1	x	x	x	x	Maena Point Site - Limu	x	
MAK117L	1/31/2014	835		x	1	x	x	x	x	Maena Point Site - Limu	x	
MAK118L	1/31/2014	910		x	1	x	x	x	x	Maena Point Site - Limu	x	

Relinquished by: (Signature)	Date	Time	Relinquished by: (Signature)
	3/13/14	1600	
Relinquished by: (Signature)	Date	Time	Relinquished by: (Signature)
Received for Laboratory by: (Signature)	Date	Time	Shipping Ticket No.
	3/14/14	0915	

REMARKS / SPECIAL INSTRUCTIONS:

Project Samples. Please treat each matrix separately.

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.

Original in 6617 dlc 3-14-14

ARDL #: 6615-6617

Cooler # 660

Number of Coolers in Shipment: 1

Project: MAKAU MILITARY RESERVATION oahu

Date Received: 3-14-14

A. **PRELIMINARY EXAMINATION PHASE:** Date cooler was opened: 3-14-14 (Signature) L D Cochrum

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 1273

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

   How many and where? 1 (front), Seal Date: 3-13-14, Seal Name: ? Can't read

3. Were custody seals unbroken and intact at the date and time of arrival? ..... (YES) NO

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 3/14/14 ..... (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. 1.4 C

B. **LOG-IN PHASE:** Date samples were logged-in: 3-14-14 (Signature) L D Cochrum

10. Describe type of packing in cooler: bubble pack / bubble bags

11. Were all bottles sealed in separate plastic 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:
12) MAK 114C - lid broken / seal intact
MAK 127L - lid broken / seal not intact.
MAK 116L - lid broken / seal intact
MAK 117C - lid broken / seal intact
MAK 122L - lid broken / seal intact
(By: Signature) dlc Date: 3-14-14

Sample Transfer	
Fraction: All	Fraction:
Area #: freezer	Area #:
By: dlc	By:
On: 3-14-14	On:

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

Original in 6617
dlc
3-14-14

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

GREEN BAY, WI 54302
UNITED STATES US

SHIP DATE: 13MAR14
ACTWGT: 42.0 LB MAN
CAD: 255289/CAFE2704

DRY ICE: 2.3 KGS
BILL THIRD PARTY

TO DONNA COCKRUM
ARDL
400 AVIATION DRIVE
P.O BOX 1566
MOUNT VERNON IL 62864
(618) 244-3235 REF:
INV:
PO: DEPT:

518C1/CC4F/6F03

FedEx Express

J131113052301 26

FRI - 14 MAR AA
STANDARD OVERNIGHT

TRK# 0201 9325 1888 1273

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: 006615 Report Date: 03/28/2014

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

Field ID:	MAK 111C	ARDL Lab No.:	006615-01
Desc/Location:	MAKAU MILITARY RESERVATION	Lab Filename:	E0327406
Sample Date:	01/31/2014	Received Date:	03/14/2014
Sample Time:	1000	Prep. Date:	03/25/2014
Matrix:	TISSUE	Analysis Date:	03/27/2014
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B10174
% 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	89%
Terphenyl-d14	30-130	95%

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

Sample 006615-01, BNA'S (METHOD 8270) Page 1 of 1

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

Lab Report No: 006615 Report Date: 03/28/2014

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

Field ID:	MAK 113C	ARDL Lab No.:	006615-02
Desc/Location:	MAKAU MILITARY RESERVATION	Lab Filename:	E0327407
Sample Date:	01/31/2014	Received Date:	03/14/2014
Sample Time:	1120	Prep. Date:	03/25/2014
Matrix:	TISSUE	Analysis Date:	03/27/2014
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B10174
% 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	89%
Terphenyl-d14	30-130	91%

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

Sample 006615-02, BNA'S (METHOD 8270) Page 1 of 1

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

Lab Report No: 006615 Report Date: 03/28/2014

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

Field ID:	MAK 114C	ARDL Lab No.:	006615-03
Desc/Location:	MAKAU MILITARY RESERVATION	Lab Filename:	E0327408
Sample Date:	01/31/2014	Received Date:	03/14/2014
Sample Time:	1155	Prep. Date:	03/25/2014
Matrix:	TISSUE	Analysis Date:	03/27/2014
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B10174
% 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	75%
2-Fluorobiphenyl	30-130	86%
Terphenyl-d14	30-130	93%

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

Sample 006615-03, BNA'S (METHOD 8270) Page 1 of 1

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

Lab Report No: 006615 Report Date: 03/28/2014

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

Field ID:	MAK 115C	ARDL Lab No.:	006615-04
Desc/Location:	MAKAU MILITARY RESERVATION	Lab Filename:	E0327409
Sample Date:	01/31/2014	Received Date:	03/14/2014
Sample Time:	1300	Prep. Date:	03/25/2014
Matrix:	TISSUE	Analysis Date:	03/27/2014
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B10174
% 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	75%
2-Fluorobiphenyl	30-130	89%
Terphenyl-d14	30-130	88%

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

Sample 006615-04, BNA'S (METHOD 8270) Page 1 of 1

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

Lab Report No: 006615 Report Date: 03/28/2014

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

Field ID:	MAK 116C	ARDL Lab No.:	006615-05
Desc/Location:	MAKAU MILITARY RESERVATION	Lab Filename:	E0327410
Sample Date:	01/31/2014	Received Date:	03/14/2014
Sample Time:	1330	Prep. Date:	03/25/2014
Matrix:	TISSUE	Analysis Date:	03/27/2014
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B10174
% 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	91%
Terphenyl-d14	30-130	93%

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

Sample 006615-05, BNA'S (METHOD 8270) Page 1 of 1

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

Lab Report No: 006615 Report Date: 03/28/2014

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

Field ID:	MAK 117C	ARDL Lab No.:	006615-06
Desc/Location:	MAKAU MILITARY RESERVATION	Lab Filename:	E0327413
Sample Date:	01/31/2014	Received Date:	03/14/2014
Sample Time:	1435	Prep. Date:	03/25/2014
Matrix:	TISSUE	Analysis Date:	03/27/2014
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B10174
% 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	66%
2-Fluorobiphenyl	30-130	81%
Terphenyl-d14	30-130	89%

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

Sample 006615-06, BNA'S (METHOD 8270) Page 1 of 1

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

Lab Report No: 006615 Report Date: 03/28/2014

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

Field ID:	MAK 118C	ARDL Lab No.:	006615-07
Desc/Location:	MAKAU MILITARY RESERVATION	Lab Filename:	E0327414
Sample Date:	01/31/2014	Received Date:	03/14/2014
Sample Time:	1605	Prep. Date:	03/25/2014
Matrix:	TISSUE	Analysis Date:	03/27/2014
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B10174
% 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	92%
Terphenyl-d14	30-130	93%

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

Sample 006615-07, BNA'S (METHOD 8270) Page 1 of 1

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

Lab Report No: 006615 Report Date: 03/28/2014

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

Field ID:	MAK 120C	ARDL Lab No.:	006615-08
Desc/Location:	MAKAU MILITARY RESERVATION	Lab Filename:	E0327415
Sample Date:	02/11/2014	Received Date:	03/14/2014
Sample Time:	1030	Prep. Date:	03/25/2014
Matrix:	TISSUE	Analysis Date:	03/27/2014
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B10174
% 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	57%
2-Fluorobiphenyl	30-130	80%
Terphenyl-d14	30-130	94%

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

Sample 006615-08, 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.: 006615 SAS No.: --- SDG No.: ---

	EPA SAMPLE NO.	S1 (NBZ) #	S2 (FBP) #	S3 (TPH) #	S4 ( ) #	S5 ( ) #	S6 ( ) #	TOT OUT
01	BLANK B10174	84	96	93				0
02	SPBK B10174	79	94	96				0
03	MAK111C	74	89	95				0
04	MAK113C	80	89	91				0
05	MAK114C	75	86	93				0
06	MAK115C	75	89	88				0
07	MAK116C	74	91	93				0
08	MAK116CMS	72	84	96				0
09	MAK116CMSD	72	80	91				0
10	MAK117C	66	81	89				0
11	MAK118C	71	92	93				0
12	MAK120C	57	80	94				0
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		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: 006615 Report Date: 03/28/2014

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

Matrix: QC Material QC Batch: B10174 Prep. Date: 03/25/2014
Amount Used: 5 g Level: LOW Analysis Date: 03/27/2014

Parameter	Spike Result	Spike Level	Spike % Rec	Duplicate Result	Duplicate Level	Duplicate % Rec	Recovery Limits	RPD	RPD Limit
Dimethylphthalate	3550	5000	71	--	--	--	67-104	--	--
Diethylphthalate	3530	5000	71	--	--	--	65-108	--	--
Di-n-butylphthalate	3770	5000	75	--	--	--	68-115	--	--
Pyrene	3690	5000	74	--	--	--	47-122	--	--
bis(2-Ethylhexyl)phthalate	3550	5000	71	--	--	--	52-128	--	--
Di-n-octylphthalate	3690	5000	74	--	--	--	36-150	--	--

SURROGATE RECOVERIES:	Spike %R	Duplicate %R	%R Limits
Nitrobenzene-d5	79.3	--	30-130
2-Fluorobiphenyl	93.8	--	30-130
Terphenyl-d14	95.6	--	30-130

'*' indicates a recovery outside of standard limits.

Spike Blanks for 006615-05, 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: 006615 Report Date: 03/28/2014

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

Field ID:	MAK 116C	Prep. Date:	03/25/2014	ARDL Lab No.:	006615-05
Desc/Location:	MAKAU MILITARY RESERVATIO	Amount Used:	5 g	Lab Filename:	
Sample Date:	01/31/2014	% Moisture:	No Moisture Present	Received Date:	03/14/2014
Sample Time:	1330	QC Batch:	B10174	Analysis Date:	03/27/2014
Matrix:	TISSUE	Level:	LOW		

Parameter	Sample Result	MS Result	MS Level	MS % Rec	MSD Result	MSD Level	MSD % Rec	% Rec Limits	RPD	RPD Limit
Dimethylphthalate	ND	3460	5000	69.2	3250	5000	64.9	57-110	6.3	30
Diethylphthalate	ND	3480	5000	69.6	3170	5000	63.5	57-112	9.1	30
Di-n-butylphthalate	ND	3710	5000	74.2	3410	5000	68.3	54-118	8.3	30
Pyrene	ND	3640	5000	72.8	3380	5000	67.7	43-119	7.3	30
bis(2-Ethylhexyl)phthalate	ND	3510	5000	70.2	3150	5000	63	57-116	10.8	30
Di-n-octylphthalate	ND	3630	5000	72.7	3270	5000	65.5	32-152	10.5	30

SURROGATE RECOVERIES:	MS %R	MSD %R	%R Limits
Nitrobenzene-d5	72	72	30-130
2-Fluorobiphenyl	84	80	30-130
Terphenyl-d14	96	91	30-130

'nc' indicates sample >4X spike level.
'*' indicates a recovery outside of standard limits.
Matrix Spikes for 006615-05, BNA'S (METHOD 8270)

4B

SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

BLANK B10174

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

Lab Code: --- Case No.: 006615 SAS No.: --- SDG No.: ---

Lab File ID: E0327404 Lab Sample ID: 006615-05B1

Instrument ID: AG5 Date Extracted: 03/25/14

Matrix: (soil/water) SEA CUCUMBER Date Analyzed: 03/27/14

Level: (low/med) --- Time Analyzed: 14:05

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	SPBK B10174	006615-05K1	E0327405	03/27/14
02	MAK111C	006615-01	E0327406	03/27/14
03	MAK113C	006615-02	E0327407	03/27/14
04	MAK114C	006615-03	E0327408	03/27/14
05	MAK115C	006615-04	E0327409	03/27/14
06	MAK116C	006615-05	E0327410	03/27/14
07	MAK116CMS	006615-05MS	E0327411	03/27/14
08	MAK116CMSD	006615-05MD	E0327412	03/27/14
09	MAK117C	006615-06	E0327413	03/27/14
10	MAK118C	006615-07	E0327414	03/27/14
11	MAK120C	006615-08	E0327415	03/27/14
12				
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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: 006615 Report Date: 03/28/2014

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

Field ID:	NA	ARDL Lab No.:	006615-05B1
Desc/Location:	NA	Lab Filename:	E0327404
Sample Date:	NA	Received Date:	NA
Sample Time:	NA	Prep. Date:	03/25/2014
Matrix:	QC Material	Analysis Date:	03/27/2014
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B10174
% 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	84%
2-Fluorobiphenyl	30-130	96%
Terphenyl-d14	30-130	93%

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

Blank for Run B10174, 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.: 006615 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 B10174	3615935	7.40	13722356	9.37	7530250	12.29
2	SPBK B10174	3947752	7.40	14941021	9.37	8319121	12.28
3	MAK111C	4134171	7.40	15517058	9.37	8716326	12.28
4	MAK113C	4050977	7.40	15236302	9.37	8492374	12.28
5	MAK114C	3976048	7.40	14946897	9.37	8350814	12.29
6	MAK115C	4032745	7.40	15208035	9.37	8434107	12.28
7	MAK116C	3776629	7.40	14309965	9.37	7858379	12.28
8	MAK116CMS	3818751	7.39	14348304	9.37	8027418	12.28
9	MAK116CMSD	4010184	7.39	14943399	9.37	8366412	12.28
10	MAK117C	3793081	7.40	14343468	9.37	7993271	12.28
11	MAK118C	4067200	7.40	15191322	9.37	8504758	12.28
12	MAK120C	4229419	7.40	15828690	9.37	8876424	12.28
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.: 006615 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 B10174	12528182	14.86	14950267	20.48	14847009	25.44
2	SPBK B10174	13882138	14.86	16783031	20.48	16447025	25.43
3	MAK111C	14560091	14.86	17982959	20.48	17705794	25.43
4	MAK113C	14292533	14.86	17518322	20.48	17264184	25.43
5	MAK114C	13815454	14.86	17216084	20.48	16887051	25.43
6	MAK115C	14082143	14.85	17614358	20.47	17260999	25.43
7	MAK116C	13103298	14.86	16159115	20.48	15840762	25.43
8	MAK116CMS	13420336	14.85	16512424	20.47	16174725	25.43
9	MAK116CMSD	13800427	14.85	17131716	20.47	16832891	25.43
10	MAK117C	13306318	14.85	16398778	20.47	15850960	25.43
11	MAK118C	14241271	14.85	17781931	20.48	17214423	25.43
12	MAK120C	15000109	14.85	18905018	20.48	18149708	25.43
13							
14							
15							
16							
17							
18							
19	0						
20	0						
21	0						
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/ 25 / 2014 **BATCH # B10174**

CUST: Makau Military Reservation Oahu **ARDL # 6615**

SAMPLES: BLK; SP BLK; 6615-1 thru 8
QC SAMPLE: 6615-5ms/msd

SOLVENT USED: $MeCL_2$ # 0000068488
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, JWM

SPIKER: SMN **WITNESS: JWM**

SAMPLE #	WEIGHT/G	pH	Vf		SAMPLE #	WEIGHT/G	pH	Vf
BLK	5.00 g	-----	1 mL					
SP BLK	5.00 g	"	"					
6615-1	5.01 g	"	"					
6615-2	5.03 g	"	"					
6615-3	5.03 g	"	"					
6615-4	5.02 g	"	"					
6615-5	5.00 g	"	"					
6615-5ms	5.03 g	"	"					
6615-5msd	5.04 g	"	"					
6615-6	5.01 g	"	"					
6615-7	5.00 g	"	"					
6615-8	5.04 g	"	"					

RECEIVED BY: PEK **DELIVERED BY:** JWM

DATE: 3/25/2014 DATE: 3/25/14

B10174 8270-BNA-Tissues

Sample I.D.	W_I	V_f	Date:	Time:
BLK	5.00g	1mL	3/25/14	10:00
SpBLK	5.00g	1mL		
6615-1	5.01g	1mL	Water Bath Temp: 92°C	
-2	5.03g	1mL		
-3	5.03g	1mL		
-4	5.02g	1mL		
-5(A)	5.00g	1mL		
-5MS(A)	5.03g	1mL		
-5MSD(A)	5.04g	1mL		
-6	5.01g	1mL		
-7	5.00g	1mL		
-8	5.04g	1mL		

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

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

Solvent Used: $MeCl_2$ # 0000068488.

Reagent Used: Na_2SO_4 # 0000064489.

Spiker SMW Witness SWM

Continued on Page

Read and Understood By

Steve Newcomb 3/25/14 Signed Date

3/25/14 Signed Date

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

ISO 9001:2008 Registered
ISO 17025-34[illegible]-43 Accredited
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			

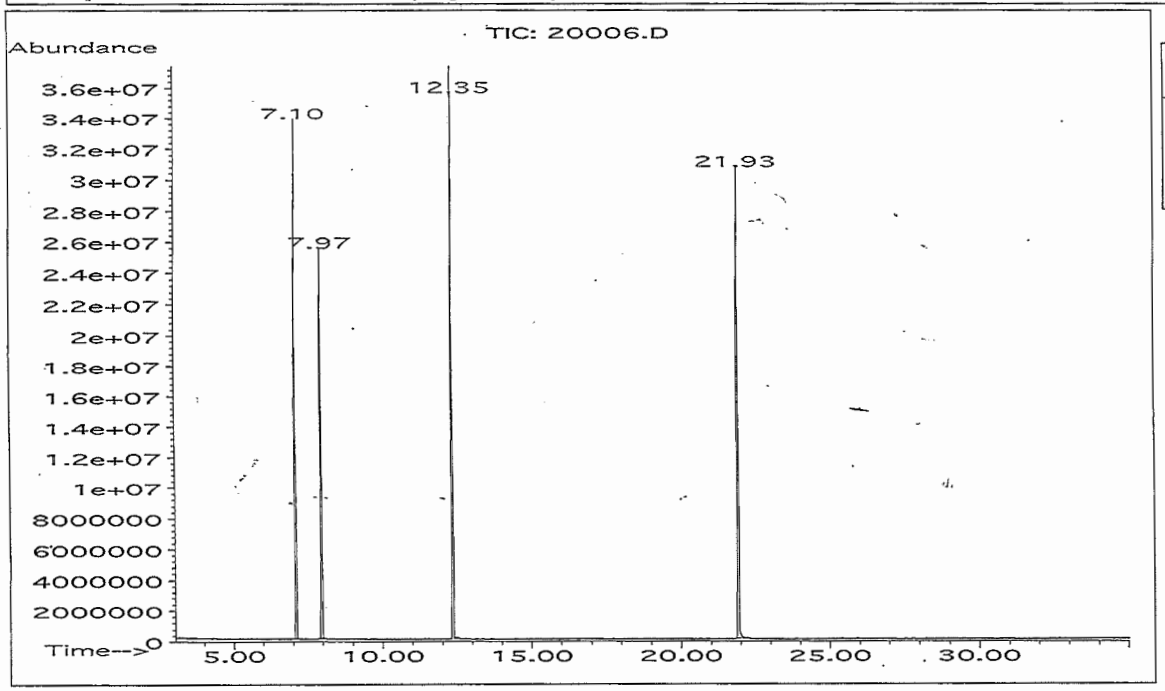
Formulated By:	Gabriel Helland	050613	DATE
Reviewed By:	Pedro L. Rentas	050613	DATE

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#	MSDS Information (Solvent Safety Info. On Attached pg.) 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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ISO 9001 QS Registered
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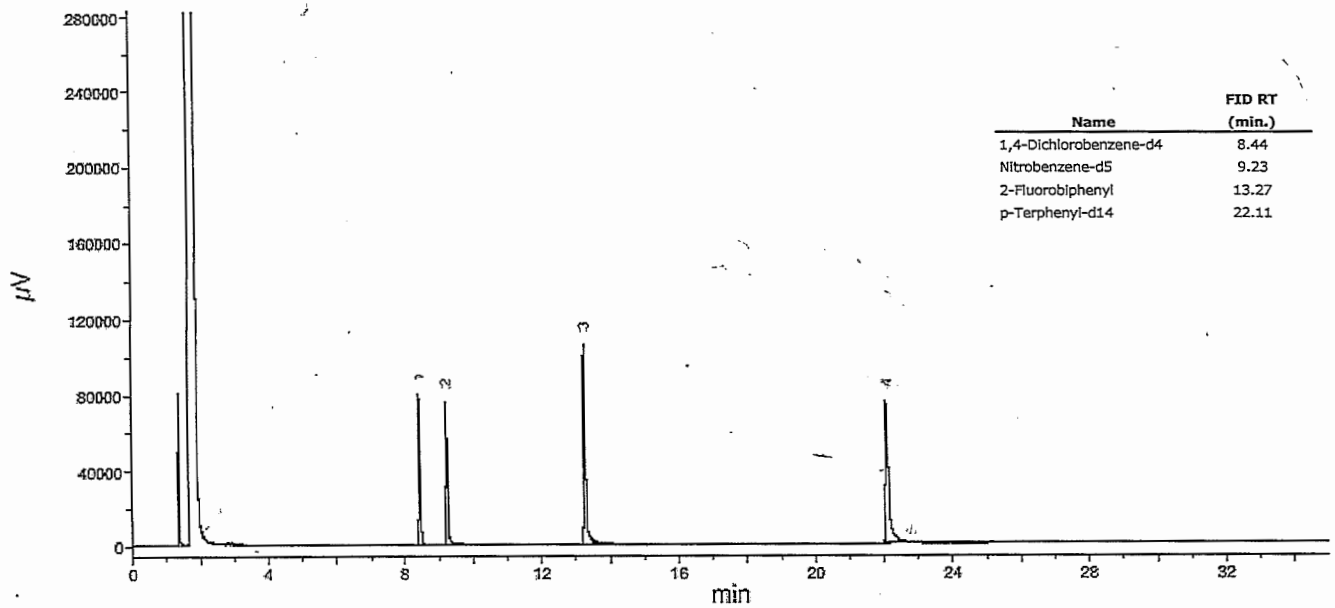
Scopes: http://AbsoluteStandards.com

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 Recd 10.17.13
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
opened 10/22/13

STOCK

16087-R

RESTEK 110 Benner Circle Bellefonte, PA 16823 Made in USA
Catalog # 31031 Recd 10.17.13
606 Phthalate Esters Calibration Mix
2000 ug/mL each in Methanol
Lot# A082358 Exp. Date: 10/2015 Store: 10°C or colder
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

JO 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 $MeCl_2$. = 25 PPM DFTPP

MeCl2	PEK	exp
0000054901	10/24/2013	10/31/2013

16090 10 PPM STD D/D UM84

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 $MeCl_2$.
1.0 mL of 10 µg/mL + 5 µL of 15972-S (2000 µg/mL exp. 05/2016).

MeCl2	PEK	exp.
0000054901	10/24/2013	10/31/2013

Continued on Page

Read and Understood By

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

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)

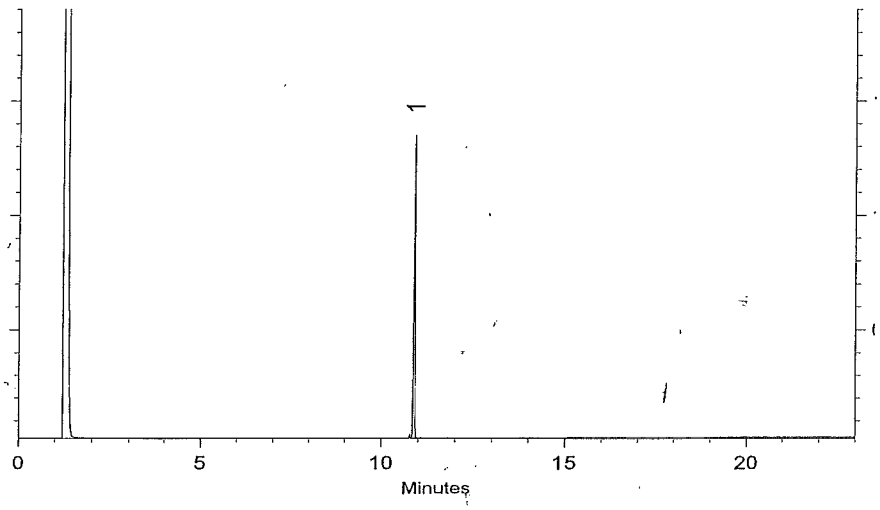
Carrier Gas:
hydrogen-constant pressure 10 psi.

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 K. Clark
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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Certificate of Analysis

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)

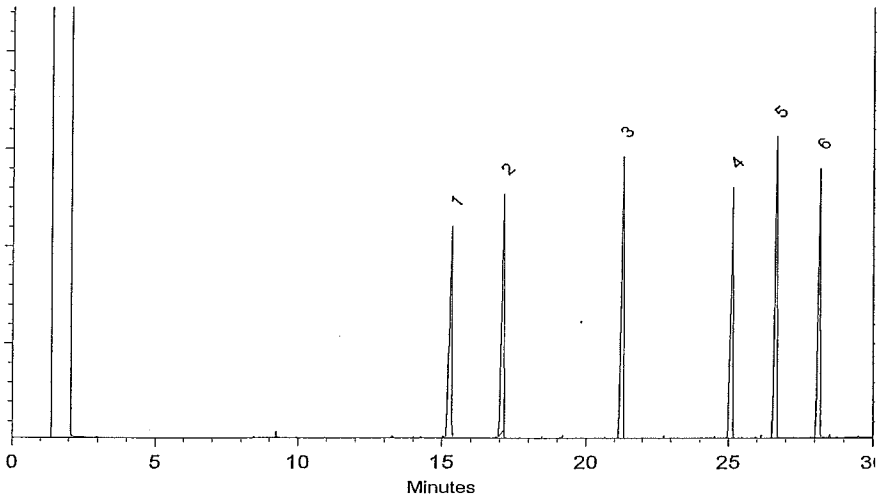
Carrier Gas:
hydrogen-constant pressure 10 psi.

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

PROJECT

Continued From Page

16288-R 2000 µg/mL Acid Surr Mix

100 µL 16287-R (10,000 µg/mL exp 03/2021)
900 µL $MeCl_2$ (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 $MeCl_2$ (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-RS

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. 03/2015), 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 (~~20~~ 1000 µg/mL exp 07/2016) PEK 3/7/14
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

DAC 10/17/12

15653 30 Ng Val Stnd (8270)

Diluted the following volumes to 1mL VF:

Vol	Mix #	Mix Name	Exp Date	Conc
15µL	15651-R	S/V 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	S/V 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	03/2018	
	15209-AB	Pyridine	02/15/14	
	15400-S	B/N SuRR	Nov/2013	

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

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

Continued on Page

Read and Understood By

Doug Cash 10/17/12 JD 1/28/13
Signed Date Signed Date

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PROJECT

Notebook No. 3242
Continued From Page

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 Bellefonte, PA
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 # 14810-5 (exp Mar 2014) to 1mL VF

15681 5 PPM Val Std (8270 PNAs by SIM)

Diluted 250uL of # 15635 (exp 1/12/13), plus 5uL of B/N SURR # 15679-5 (exp Nov 2013) to 1mL VF, plus 5uL of ISTD # 15639-5 (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# A069966 Exp. Date: 11/2012 Store: Refrigerate
Restek Corporation - 110 Benner Circle - Bellefonte, PA 16823

11/29/12

Continued on Page

Read and Understood By

Signed 11/29/12 Date Signed 12/13/12 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

MeCl2	DAC	EXP
L07501	11/30/12	12/7/12

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	GD	12/13/12

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.
0000045564 ~~9/5/2013~~ PEK 9/5/2013 9/12/2013
9/5/2013

16015-R

RESTEK 110 Benner 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
0000045564 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
0000045564 9/6/2013 10/6/2013

Continued on Page

Read and Understood By

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

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: 02/2015 Store: 10°C or colder

opened. 6/6/13

15882 8270 - ICV - (30ppm)

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
- 15238-R PNA 03/18
- 14688-R Benzidines 05/2019
- 15881-R mix #7 xp 02/2015
15 µL - 15779-5 Acid Surr (2000 ppm) xp 12/2013

30 µL - 15691-US 1,2,4,5 TCB (1000) xp. 07/31/13
- 15704-R Azobenz. (1000) 02/2017
- 15209-AB 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

STD #	Name	µL 16077	µL 16078	µL 15880-S	Vf 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 00000 54901 — 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

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 (00000 54901)
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 — Signed — 11/8/13 — 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 14810-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

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PEK — Signed
3/10/2014 — Date
[illegible] — Signed
3/11/14 — Date

PROJECT

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9002781 8015M - Diesel Spike 9/16/13
Diluted 500ul of stnd. # 51003 (20,000 ug/mL, lot #041912, exp: 04/19/17) from Absolute Exp: 12/16/13
into 10mL of Acetone (JTBaker # 000605 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

9002780 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. = 1 ppm 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 ~~5 µL~~ PEK 3/5/14	5 µL	1.0 mL
16279	1 PPB	—	10 µL	5 µL		
16280	5 PPB	—	50 µL			
16281	10 PPB	—	100 µL			
16282	25 PPB	5 µL	—			
16283	50 PPB	10 µL	—			
16284	100 PPB	—	195 µL	5 µL	5 µL	1.0 mL
		PEK 3/5/2014	exp 3/31/2014			

16285 50 PPB NDMA ICV

~~5 µL 16275-ABC~~ PEK 3/5/2014 5 µL 16183 (10 µg/mL exp 3/18/14), 5 µL 16275 (10 µg/mL exp 9/5/14) and 5 µL 16274 (5 µg/mL exp 9/5/14). Brought to 1.0 mL VF w/ MeCl2 (0000063223).

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
Catalog# 31063
110 Benner Circle Bellefonte, PA 16823
Made in USA
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

Read and Understood By

Signed	Date	Signed	Date
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 ~~15195-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
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

opened 8/28/13 JD

Pyridine Stock

16004-R

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

Rec'd 7.29.13 open JD

JD 8/28/13

Continued on Page

Read and Understood By

Signed	Date	Signed	Date
JD	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
48902 LB84817
Semivolatile Internal Standard Mix 2000ug/ml each in CH2Cl2
Recieved 7/12/2012
Opened 11/21/2013

PEK
11/21/2013
exp. 05/2014

16139-R

RESTEK 110 Bennier 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

Signed	Date	Signed	Date
PEK	11/22/2013	[illegible]	11/27/13

RESTEK

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

www.restek.com

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ISO Guide 34 Accredited
Reference Material Producer
Certificate #3222.01

ilac-MRA

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ISO/IEC 17025 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. : 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

ilac-MRA

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	2,000.0 ug/mL	+/- 11.7371	ug/mL	Gravimetric
	CAS # 100-51-6		+/- 43.8488	ug/mL	Unstressed
	Purity 99%		+/- 43.8488	ug/mL	Stressed
2	4-Chloroaniline	2,000.0 ug/mL	+/- 11.7371	ug/mL	Gravimetric
	CAS # 106-47-8		+/- 43.8488	ug/mL	Unstressed
	Purity 99%		+/- 43.8488	ug/mL	Stressed
3	2-Nitroaniline	2,000.0 ug/mL	+/- 11.7371	ug/mL	Gravimetric
	CAS # 88-74-4		+/- 43.8488	ug/mL	Unstressed
	Purity 99%		+/- 43.8488	ug/mL	Stressed
4	3-Nitroaniline	2,000.1 ug/mL	+/- 11.7379	ug/mL	Gravimetric
	CAS # 99-09-2		+/- 43.8519	ug/mL	Unstressed
	Purity 97%		+/- 43.8519	ug/mL	Stressed
5	4-Nitroaniline	2,000.0 ug/mL	+/- 11.7371	ug/mL	Gravimetric
	CAS # 100-01-6		+/- 43.8488	ug/mL	Unstressed
	Purity 99%		+/- 43.8488	ug/mL	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-Dimethylpheriol	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)

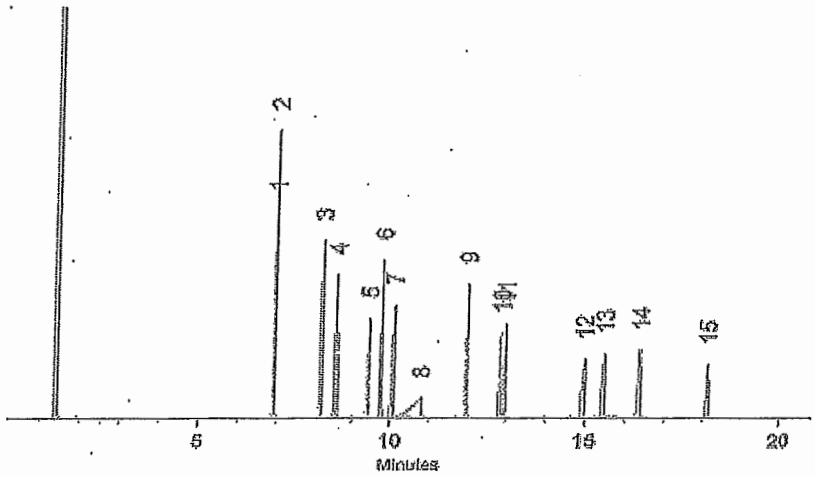
Carrier Gas:
hydrogen @ 40cm/sec.

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. [3] (weight/volume)	Grav.Uncert. [4] (95% C.L.; K=2)
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)

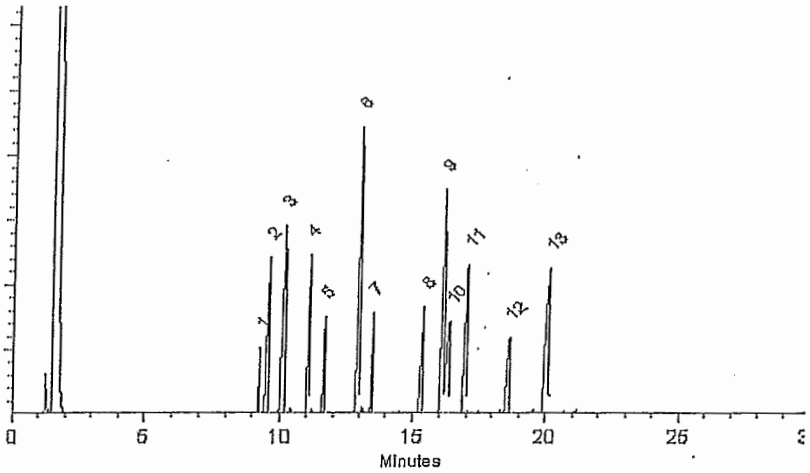
Carrier Gas:
hydrogen-constant pressure 10 psi.

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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Certificate #3222.02

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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. : 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 +/- 265.9894 +/- 326.8797	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
2	Phenol-d6 CAS # 13127-88-3 Purity 99%	10,000.0 µg/mL	+/- 58.5522 +/- 265.9894 +/- 326.8797	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
3	2,4,6-Tribromophenol CAS # 118-79-6 Purity 99%	10,000.0 µg/mL	+/- 58.5522 +/- 265.9894 +/- 326.8797	µg/mL µg/mL 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)

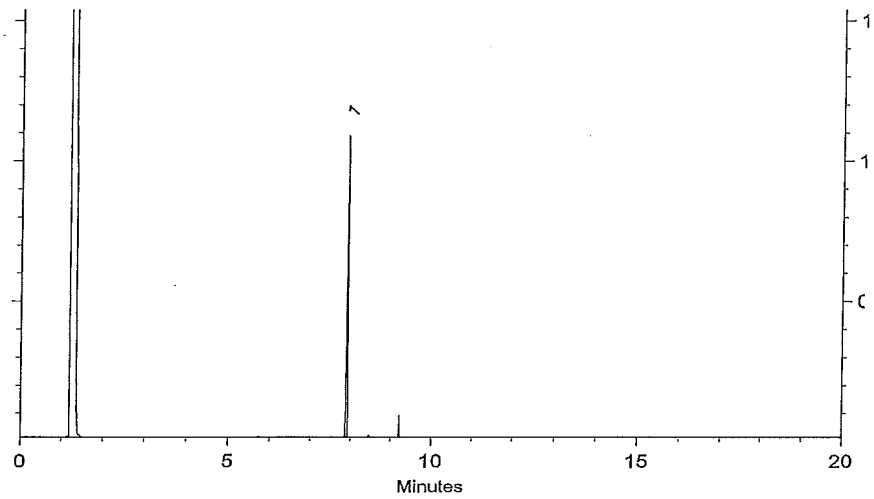
Carrier Gas:
hydrogen-constant pressure 10 psi.

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.

Certificate of Analysis

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

Supelco warrants that its products conform to the information contained in this publication. Purchaser must determine the suitability of the product for its particular use. Please see the latest catalog or order invoice and packing slip for additional terms and conditions of sale.

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Certificate of Analysis

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

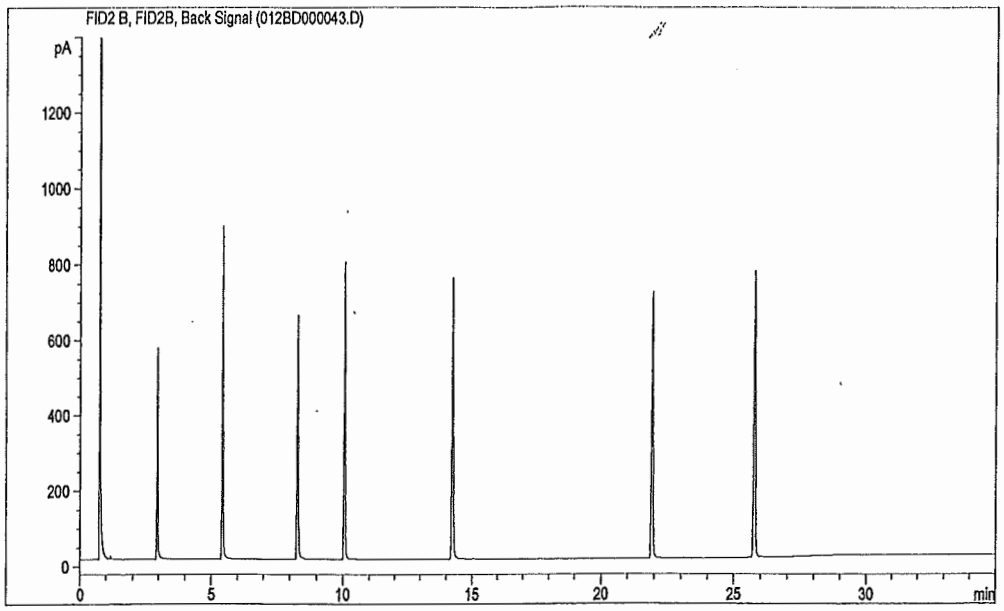
Part Number: CRM48902

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

SIGMA-ALDRICH®

Cerilliant
Analytical Reference Standards
a SIGMA-ALDRICH company

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

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

Certificate of Analysis

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	P004554	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[1]	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	99.88%	200 µg/mL
Butyl benzyl phthalate	EB-2108	85-68-7	$C_{19}H_{20}O_4$	312.37	98.03%	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	105-667-9	$C_8H_{10}O$	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	99.55%	200 µg/mL
4-Methylphenol	PER_016_99798	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	99.68%	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	191.5	± 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

			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

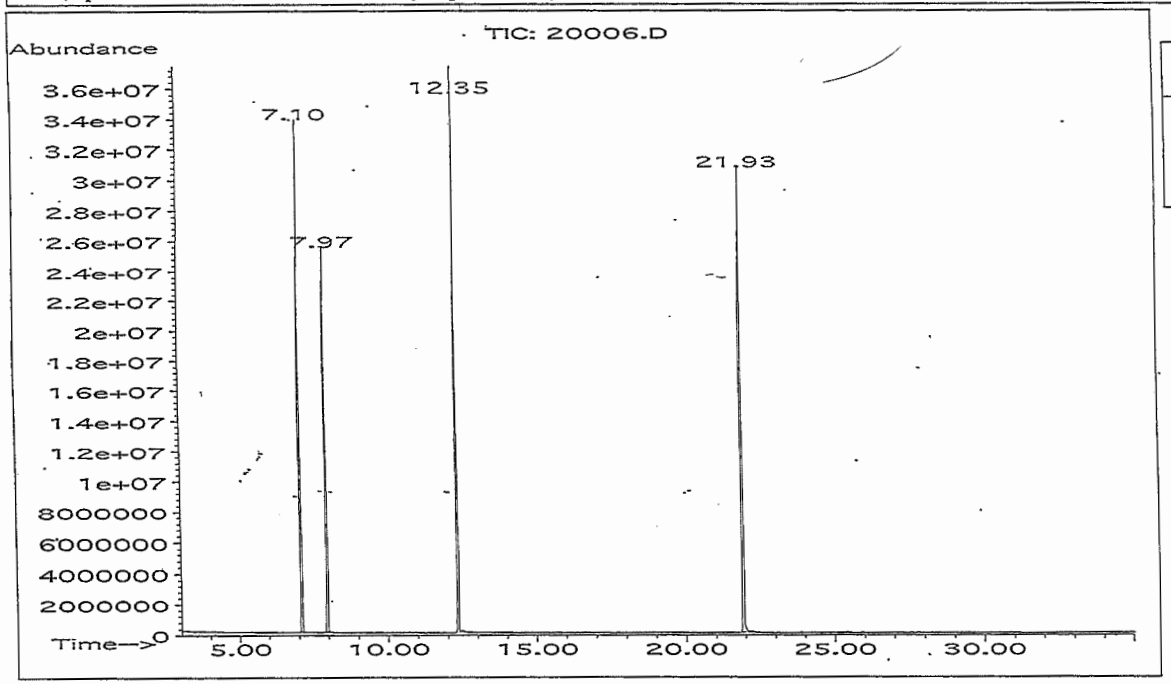
5E-05 Balance Uncertainty

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

MSDS Information
(Solvent Safety Info. On Attached pg.)

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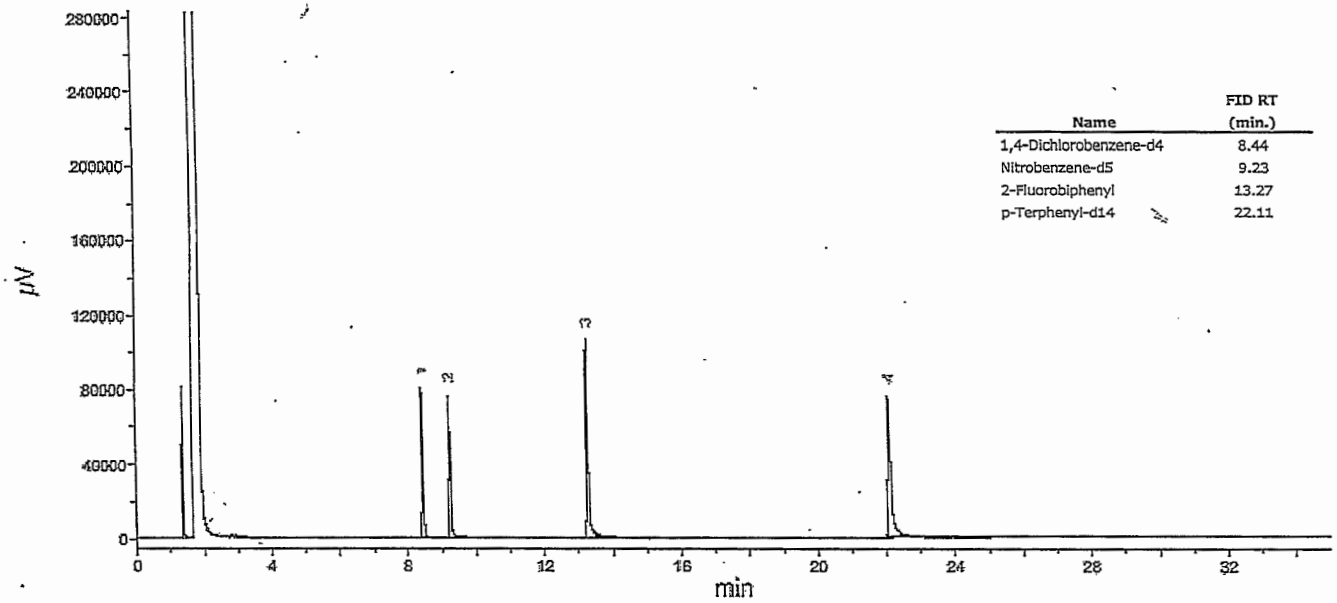
Run 59, "P20006 L050613 [1000µg/mL in MeCl2]"

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

16355: 8270 Tune
50 µL 16102-R (1000 µg/mL exp. 01/2016)
950 µL MeCl2 (0000063223)
1.0 mL 50 PPM 8270 Tune
PEK exp
3/27/2014 4/3/2014

16356: 30 PPM 8270 STD
150 µL 9002782 (200 PPM exp. 11/2016)
30 µL B/N Surr 16291-S (1000 µg/mL exp 07/2016)
820 µL MeCl2 (0000063223)
1.0 mL 30 PPM STD w/ 20 µL ISTD 16286-S (2000 µg/mL exp 07/2016)
PEK exp
3/27/2014 4/3/2014

16357-R:
RESTEK 110 Benner Circle Bellefonte, PA 16823 Made in USA
Catalog# 31001
SV Tuning Compound Standard
2500 ug/mL each in Methylene Chloride
Lot# A097996 Exp. Date: 09/2016 Store: 10°C or colder
Opened 3/31/2014
Received 1/16/2014
PEK
3/31/2014

16358: 50 PPM PNA Tune
20 µL 16357-R (2,500 µg/mL exp 09/2016)
980 µL MeCl2 (0000068488)
1.0 mL 50 PPM PNA Tune
PEK exp
3/31/2014 4/7/2014

16359 NDMA (UM81) CCV
~~5 µL~~ of 90 3/31/14
10 µL of 16276-R (5.0 µg/mL) Std exp 9/5/14
10 µL of 16355 (5.0 µg/mL) Surr exp 2/21/14
1.00 mL VF w MeCl2 (68488)
50 µg/L STD + 10 µL ISTD # 16325
90 3/31/14 exp 4/7/14

Continued on Page

Read and Understood By
Signed 3/31/14 Date PEK Signed 4/2/2015 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. = 1000ppm 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

9002780 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. = 200ppm 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. = 50ppm SMW

10/23/13 SMW

Continued on Page

Read and Understood By

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

Cerilliant
Analytical Reference Standards
a SIGMA-ALDRICH company

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

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

Certificate of Analysis

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.

REFERENCE MATERIAL PRODUCER

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	P004554	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[1]	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	98.03%	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	99.06%	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	99.55%	200 µg/mL
4-Methylphenol	PER_016_99798	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	99.68%	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	189.6	± 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	191.5	± 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"

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:

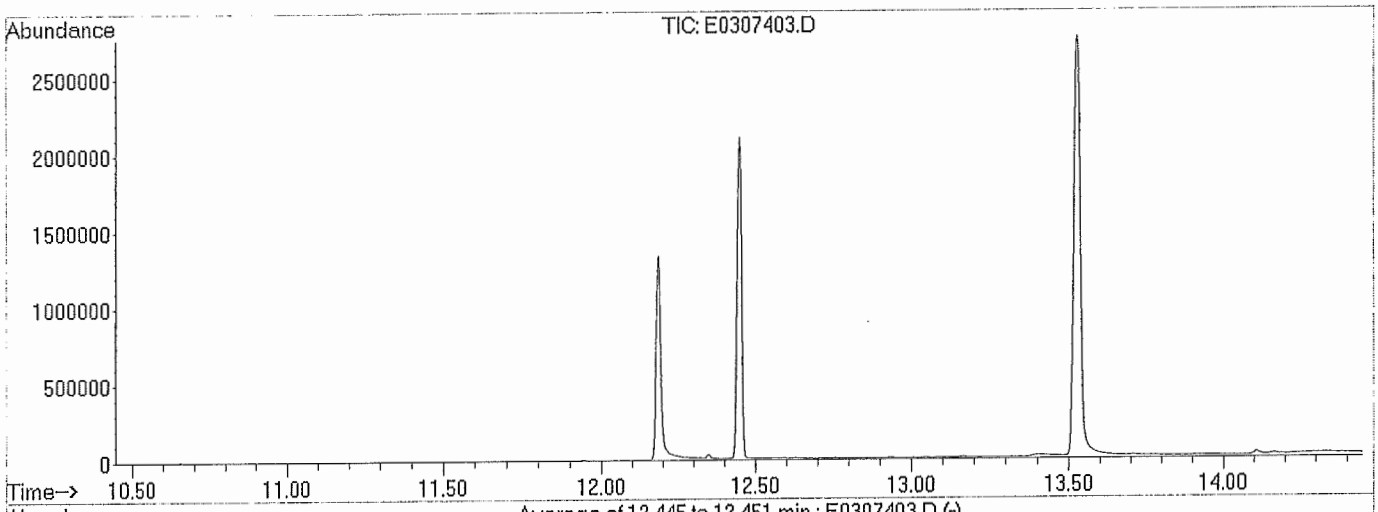
	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1	BLANK STD	000 PPM STD	E0307404	03/07/14	15:21
2	BNA STD	005 PPM STD	E0307405	03/07/14	16:03
3	BNA STD	010 PPM STD	E0307406	03/07/14	16:45
4	BNA STD	020 PPM STD	E0307407	03/07/14	17:27
5	BNA STD	030 PPM STD	E0307408	03/07/14	18:08
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					

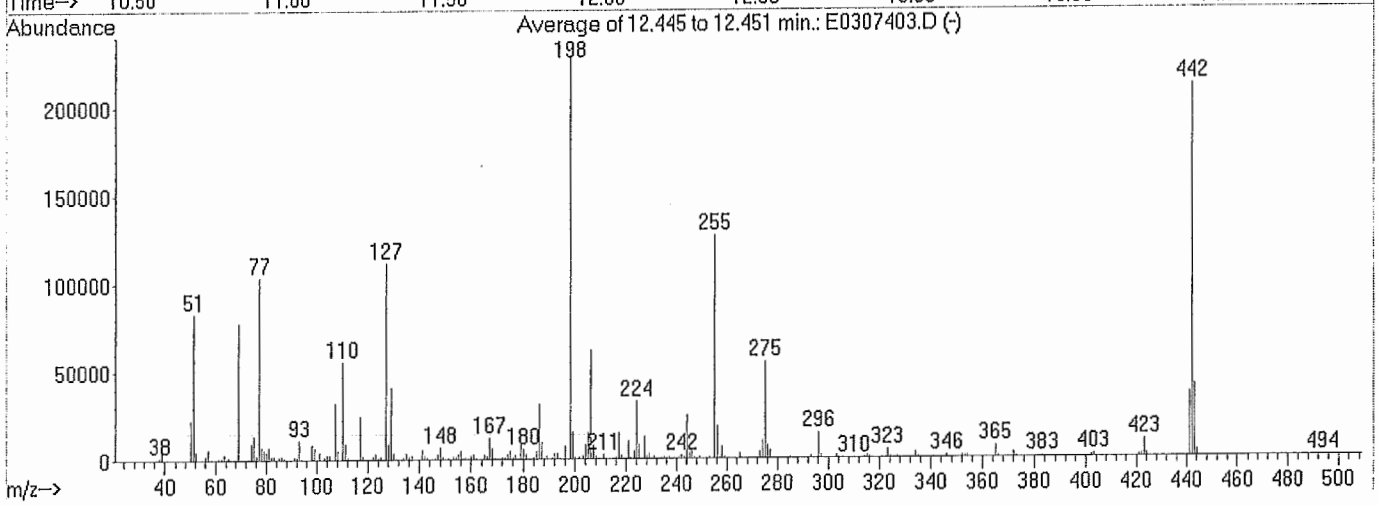
DFTPP

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

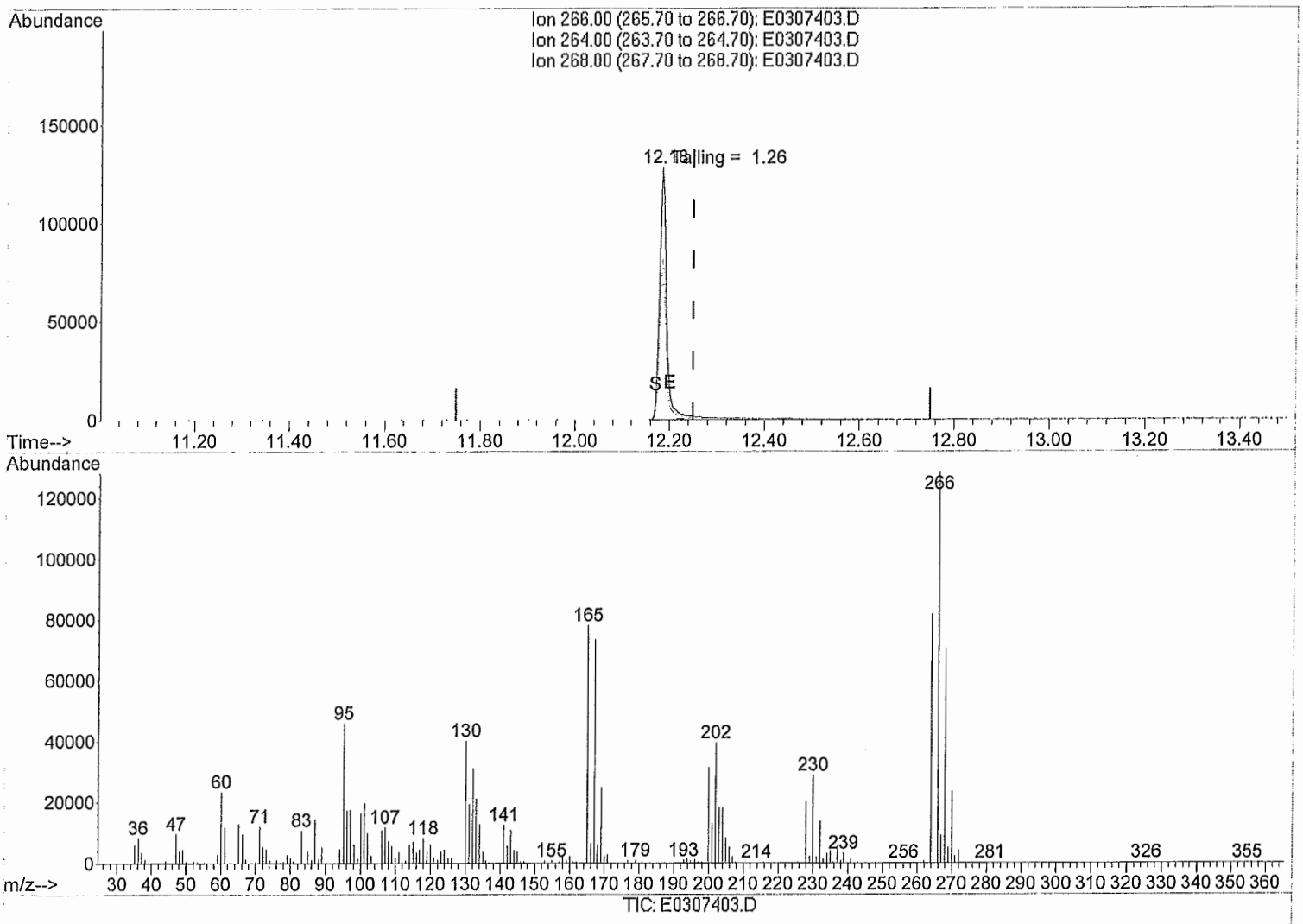
Average of 12.445 to 12.451 min.: E0307403.D
50 PPM TUNE 16289
Modified:subtracted

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

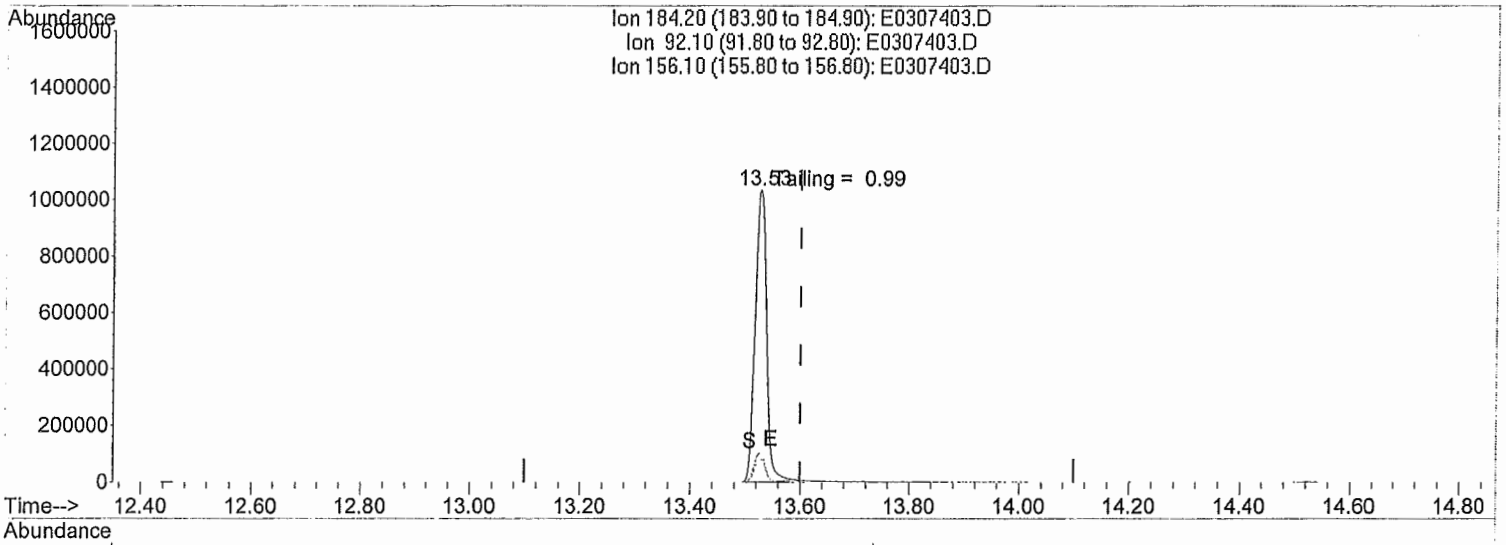
response 131019

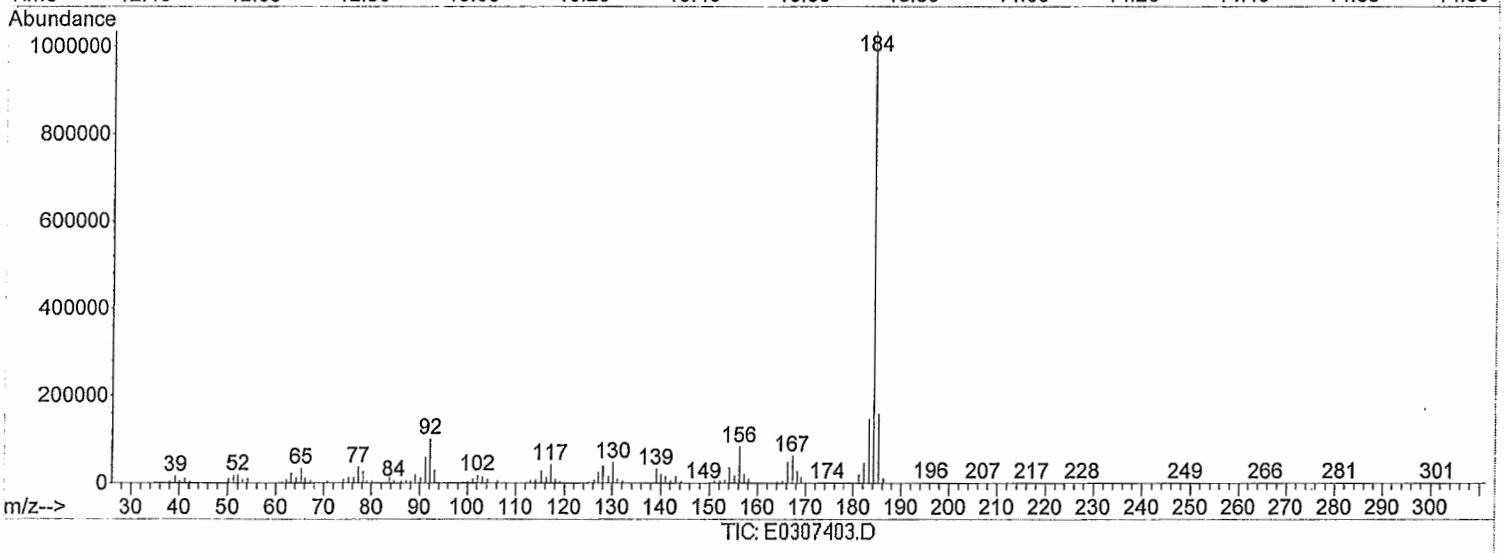
Ion	Exp%	Act%
266.00	100	100
264.00	63.80	64.53
268.00	63.80	58.87
0.00	0.00	0.00

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

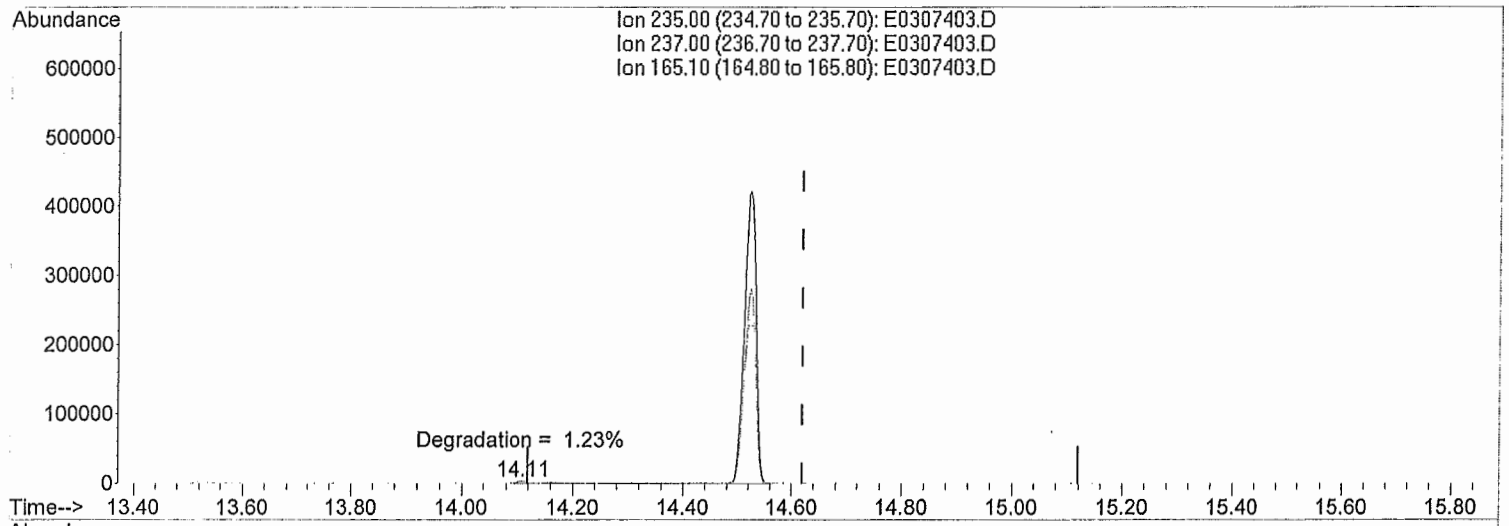
response 1491811

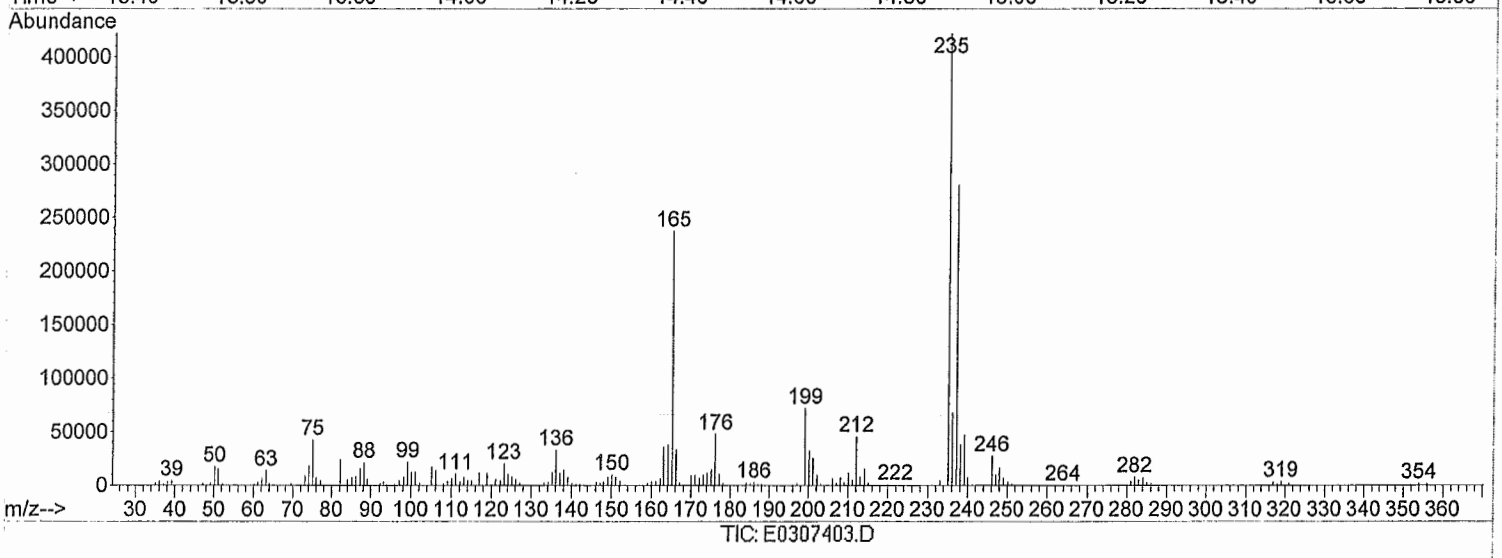
Ion	Exp%	Act%
184.20	100	100
92.10	13.70	10.04#
156.10	8.60	7.65
0.00	0.00	0.00

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
Misc : AG-5 8270 3/10/2014
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%	

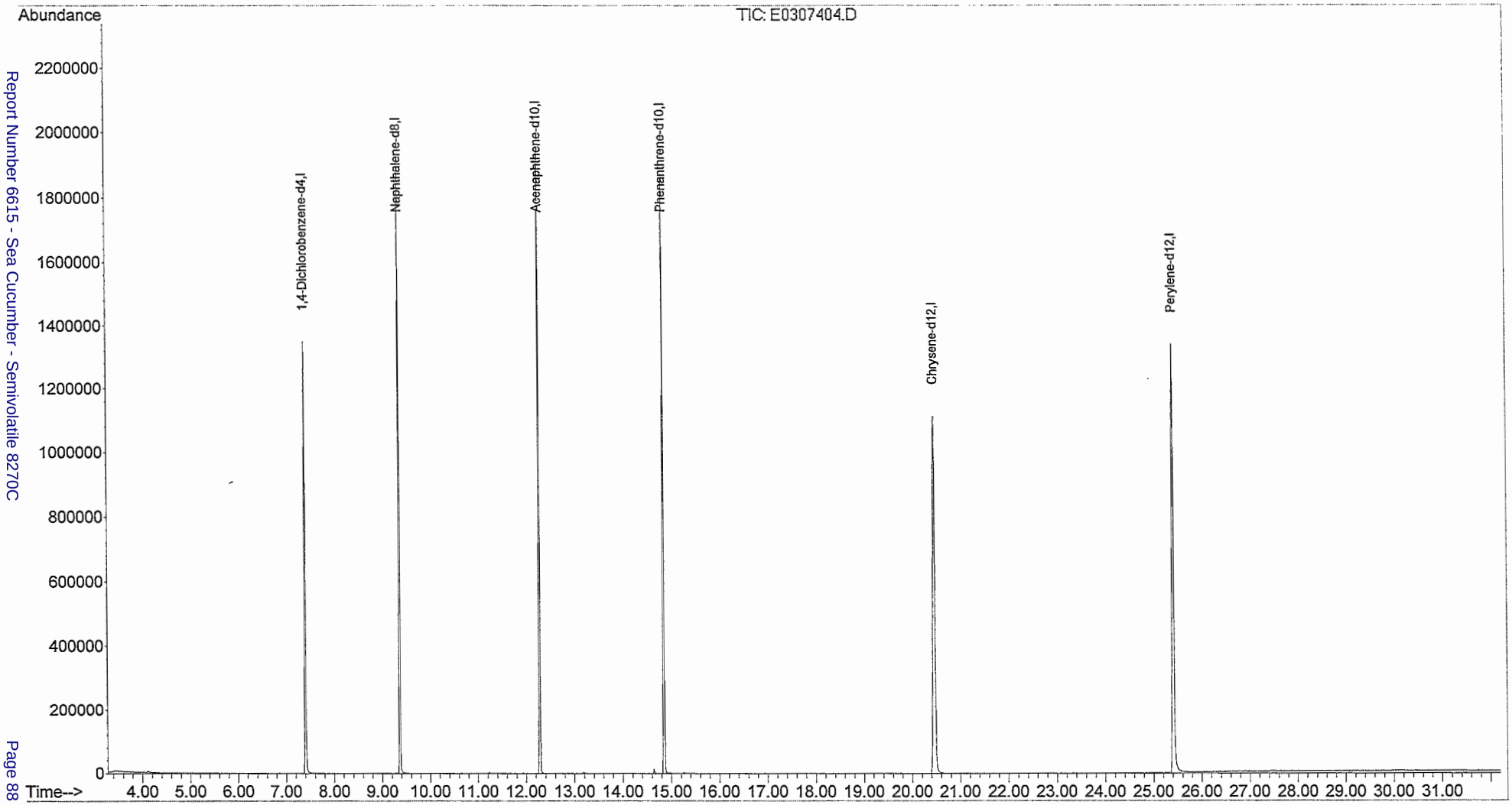
Target Compounds	Qvalue

(#) = 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 6615 - 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
Misc : AG-5 8270 3/10/2014
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

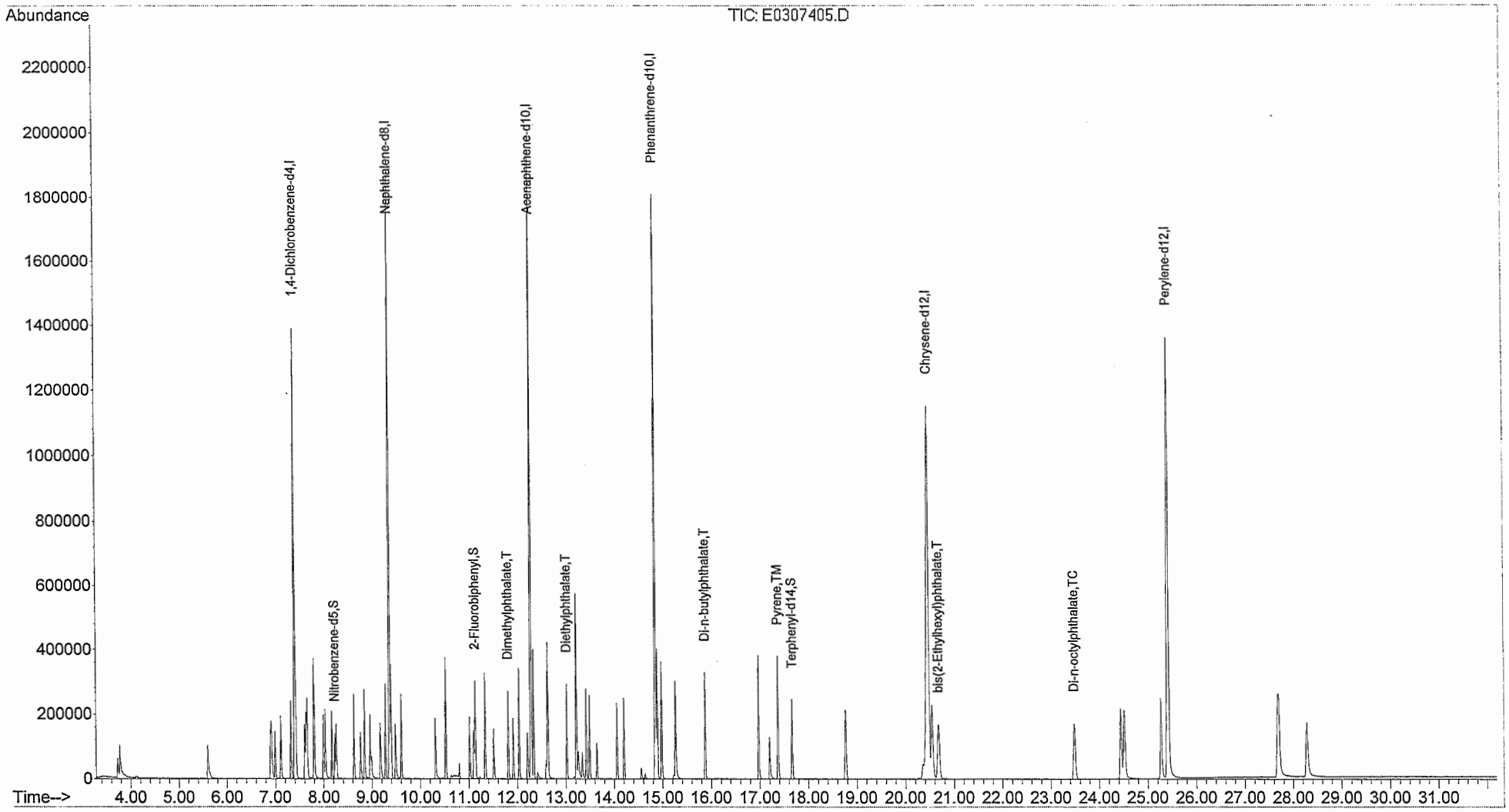
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.40	152	3005778	40.00 ug/L	-0.05
2) Naphthalene-d8	9.37	136	11504533	40.00 ug/L	-0.05
4) Acenaphthene-d10	12.29	164	6343400	40.00 ug/L	-0.05
8) Phenanthrene-d10	14.85	188	10461861	40.00 ug/L	-0.06
10) Chrysene-d12	20.47	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

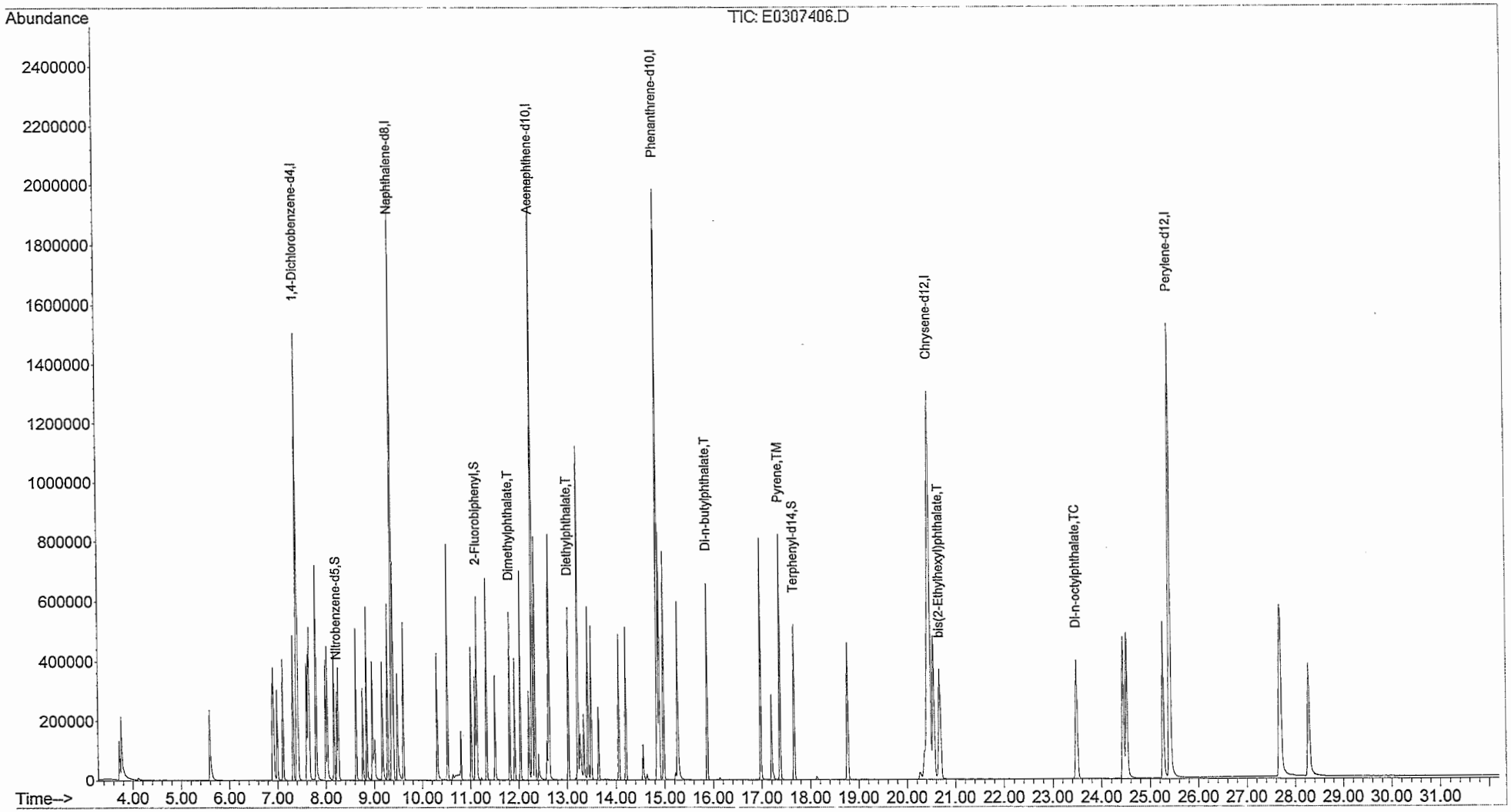
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.40	152	3289182	40.00	ug/L	-0.05
2) Naphthalene-d8	9.37	136	12500007	40.00	ug/L	-0.05
4) Acenaphthene-d10	12.29	164	7052371	40.00	ug/L	-0.05
8) Phenanthrene-d10	14.85	188	11723584	40.00	ug/L	-0.06
10) Chrysene-d12	20.47	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
Misc : AG-5 8270 3/10/2014
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

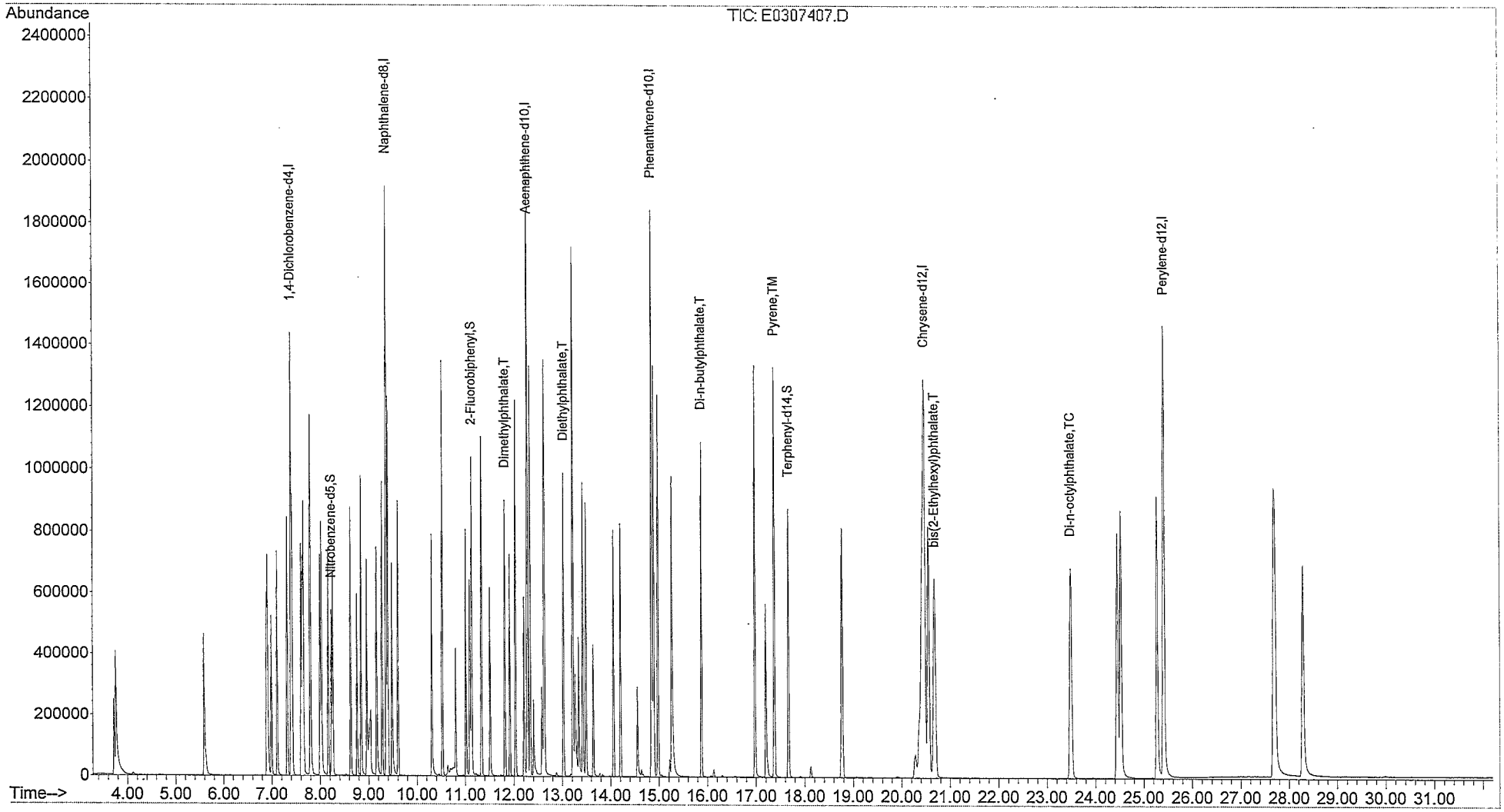
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.40	152	3100490	40.00 ug/L	-0.05
2) Naphthalene-d8	9.37	136	11986828	40.00 ug/L	-0.05
4) Acenaphthene-d10	12.29	164	6642402	40.00 ug/L	-0.05
8) Phenanthrene-d10	14.86	188	11071448	40.00 ug/L	-0.05
10) Chrysene-d12	20.48	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



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

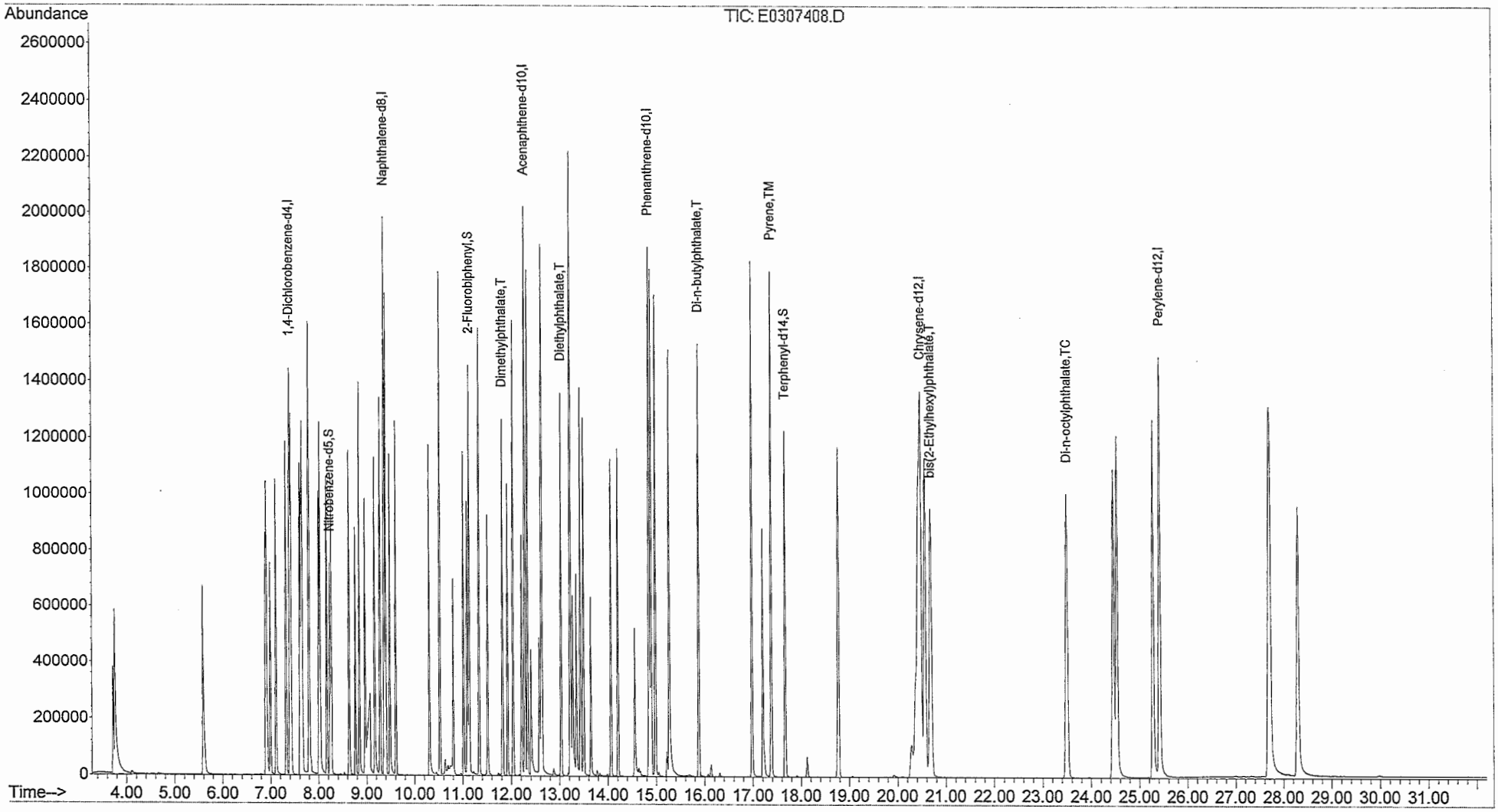
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.40	152	3210755	40.00	ug/L	-0.05
2) Naphthalene-d8	9.37	136	12445918	40.00	ug/L	-0.05
4) Acenaphthene-d10	12.29	164	6929396	40.00	ug/L	-0.05
8) Phenanthrene-d10	14.86	188	11541208	40.00	ug/L	-0.05
10) Chrysene-d12	20.48	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



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

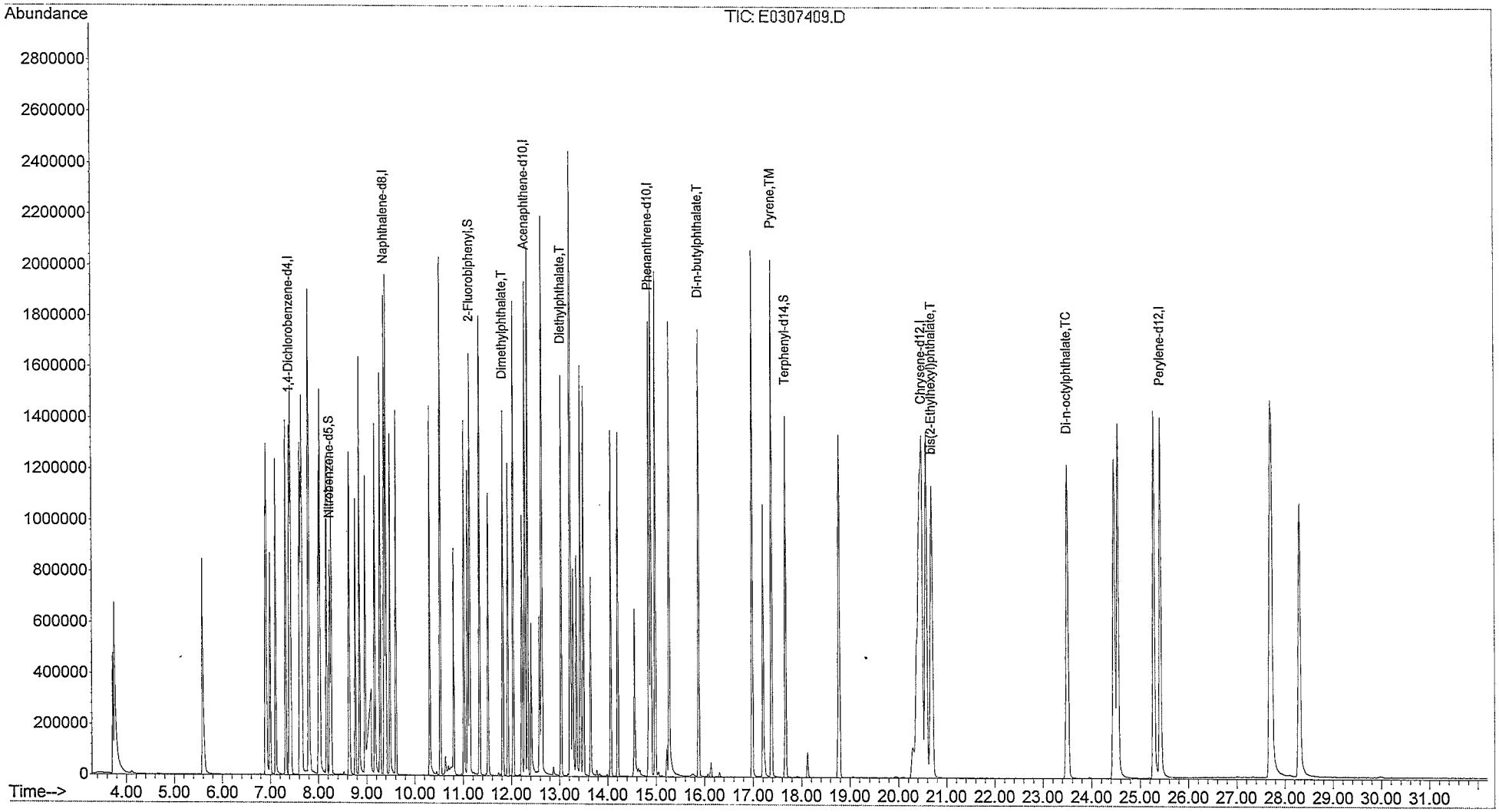
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.40	152	3040368	40.00 ug/L	-0.05
2) Naphthalene-d8	9.37	136	11851287	40.00 ug/L	-0.05
4) Acenaphthene-d10	12.29	164	6602329	40.00 ug/L	-0.05
8) Phenanthrene-d10	14.86	188	10989052	40.00 ug/L	-0.05
10) Chrysene-d12	20.49	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



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
Misc : AG-5 8270 3/10/2014
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

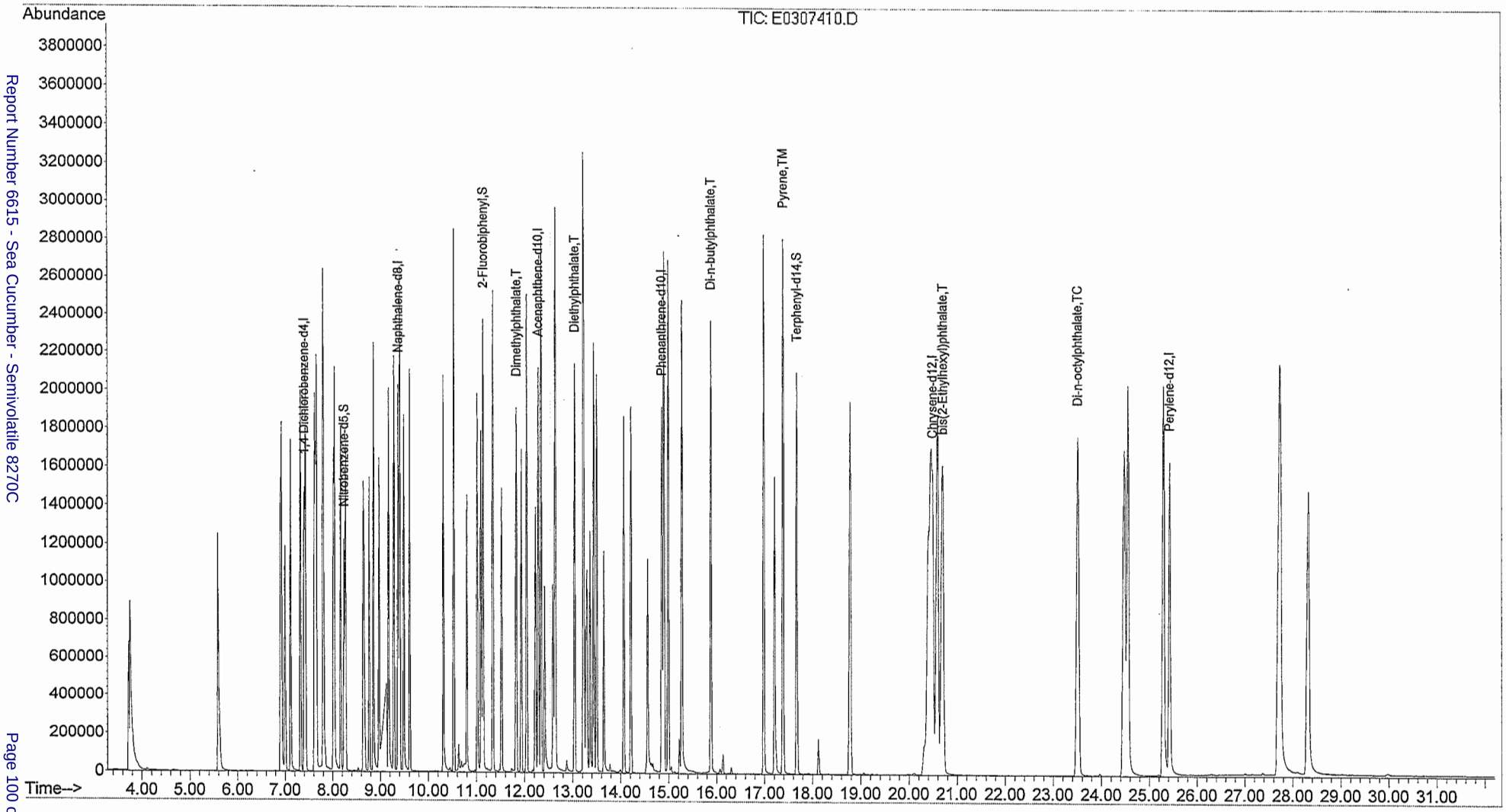
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.40	152	3360499	40.00	ug/L	-0.05
2) Naphthalene-d8	9.37	136	13202374	40.00	ug/L	-0.04
4) Acenaphthene-d10	12.29	164	7360844	40.00	ug/L	-0.05
8) Phenanthrene-d10	14.86	188	12536217	40.00	ug/L	-0.05
10) Chrysene-d12	20.50	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



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

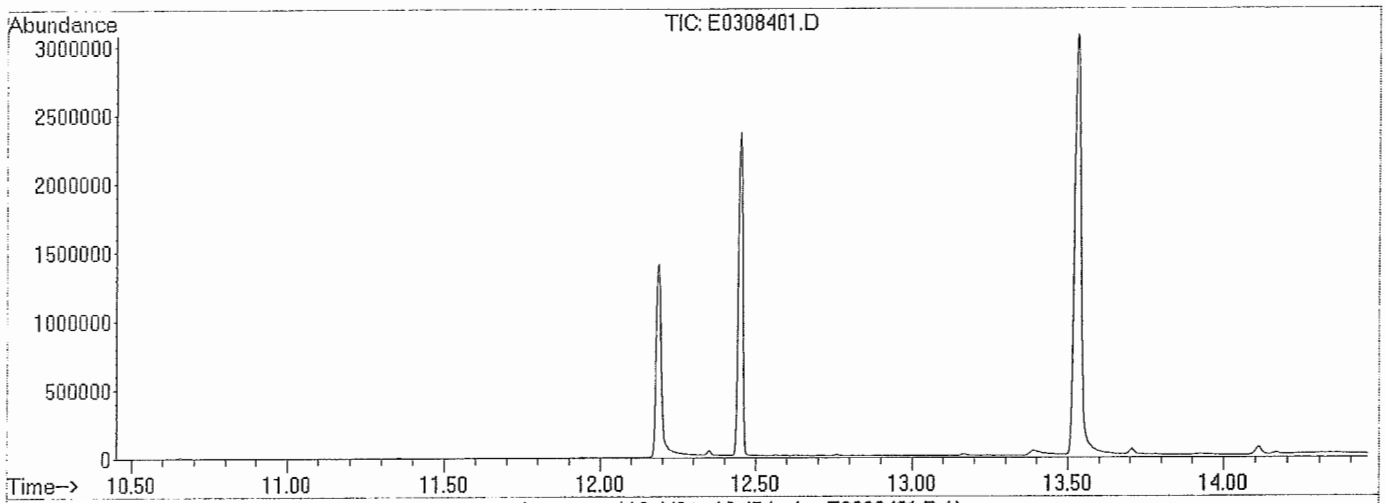
THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

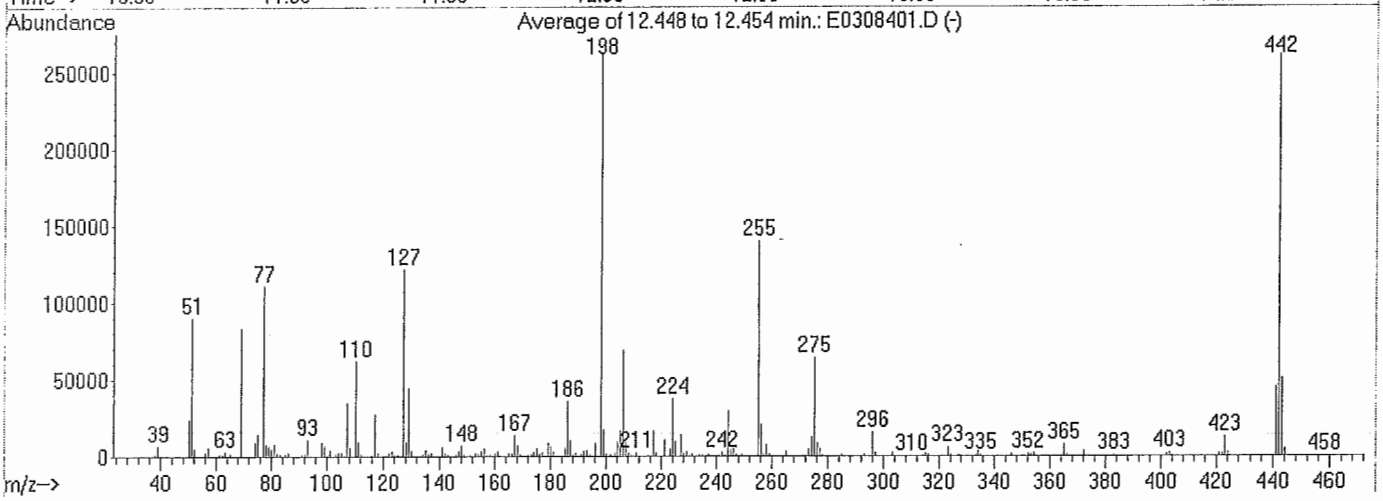
	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1	ICV	030 PPM STD	E0308402	03/08/14	09:58
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

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

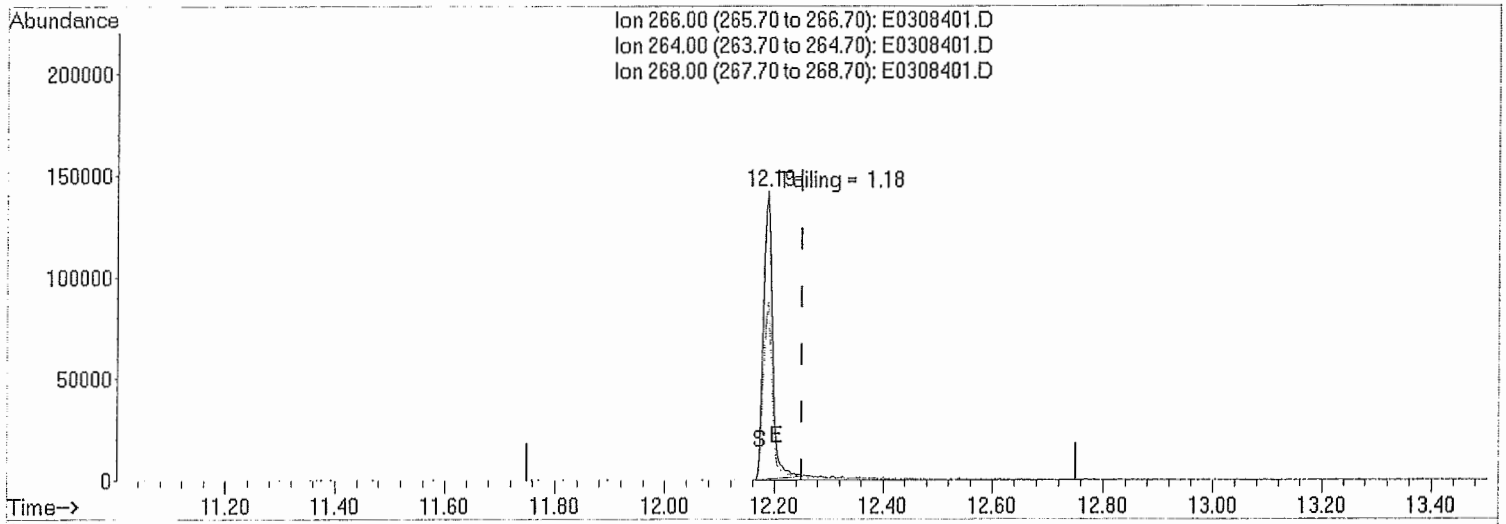
Average of 12.448 to 12.454 min.: E0308401.D
50 PPM TUNE
Modified:subtracted

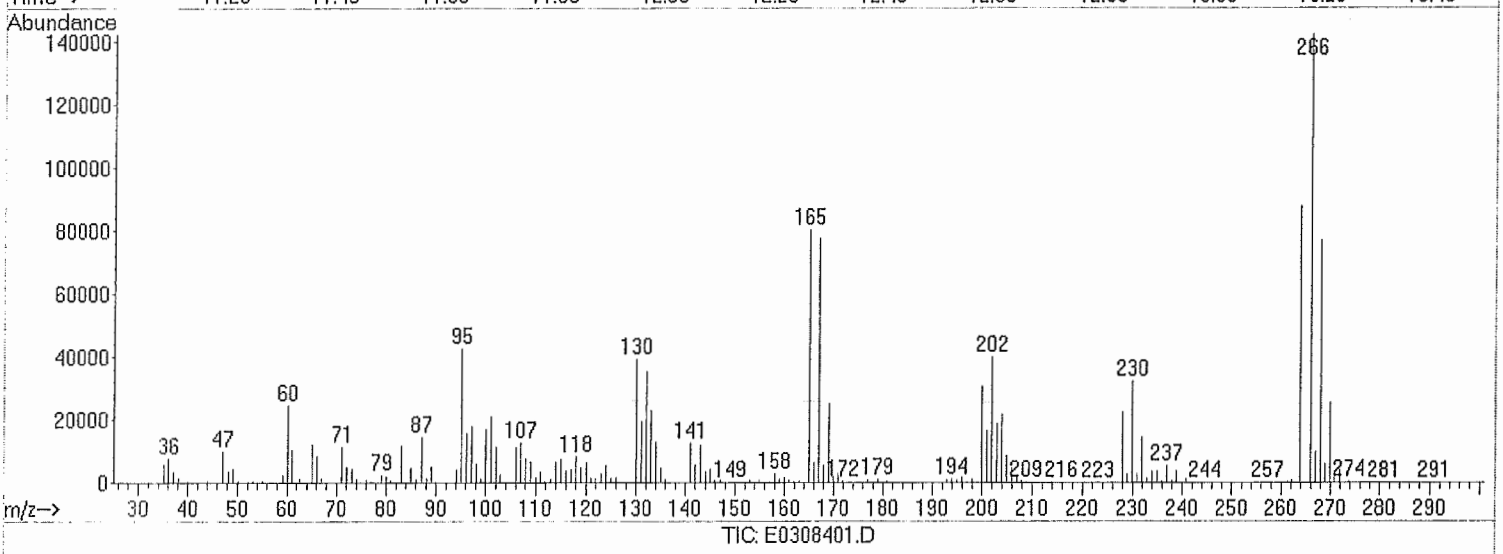
m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
422.10	1795	429.70	84	434.70	72	442.05	260928
423.05	12618	430.00	69	435.05	157	443.05	50682
424.10	2769	430.70	64	435.85	136	444.10	4863
424.95	299	430.90	58	436.40	136	445.00	85
425.65	105	431.20	56	437.05	119	458.15	60
426.40	49	431.60	46	437.30	56		
426.70	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

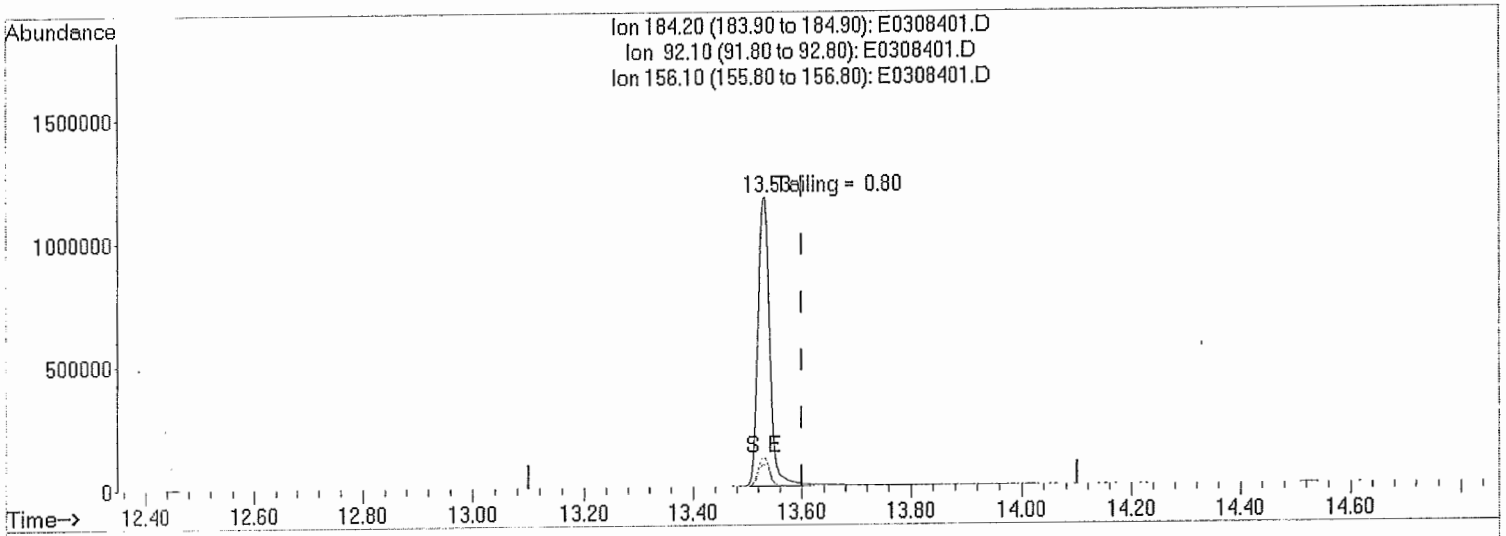
response 159162

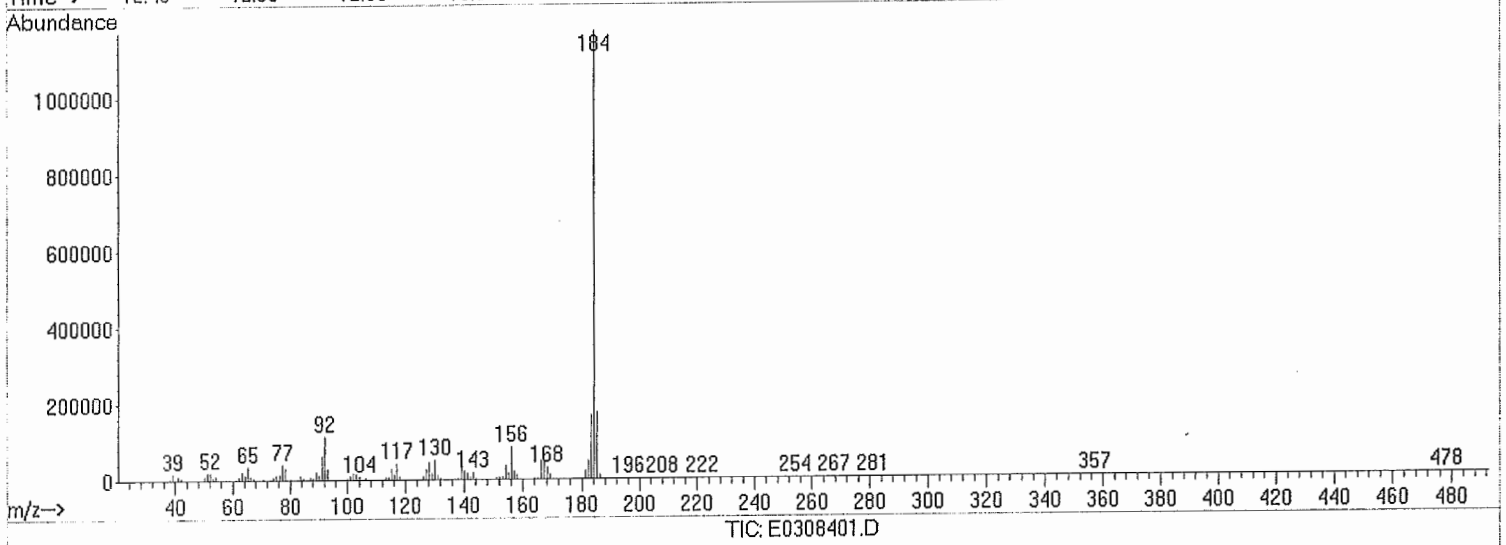
Ion	Exp%	Act%
266.00	100	100
264.00	63.80	60.30
268.00	63.80	56.71
0.00	0.00	0.00

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

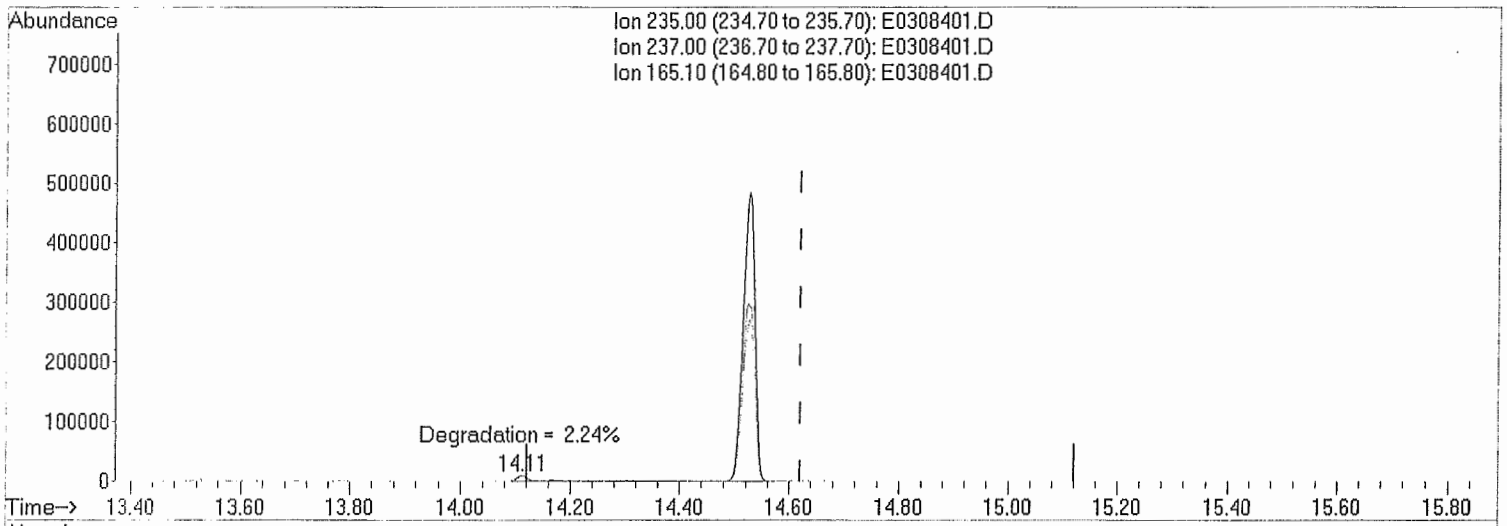
response 1738997

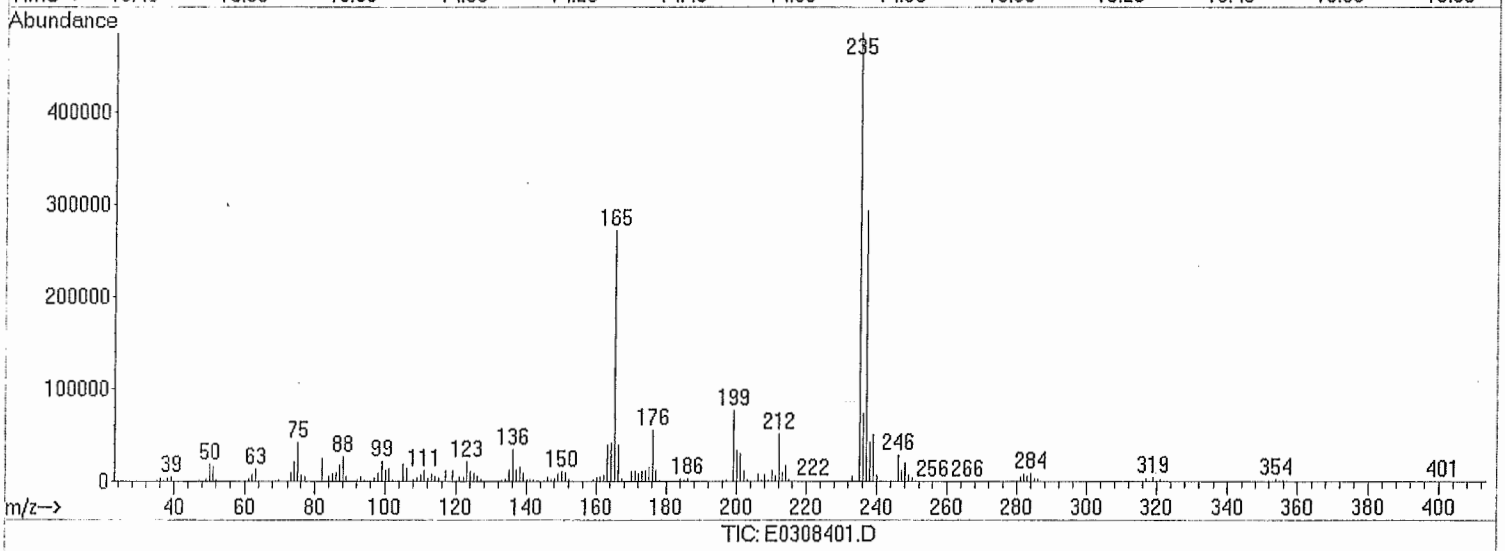
Ion	Exp%	Act%
184.20	100	100
92.10	13.70	9.99#
156.10	8.60	7.52
0.00	0.00	0.00

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

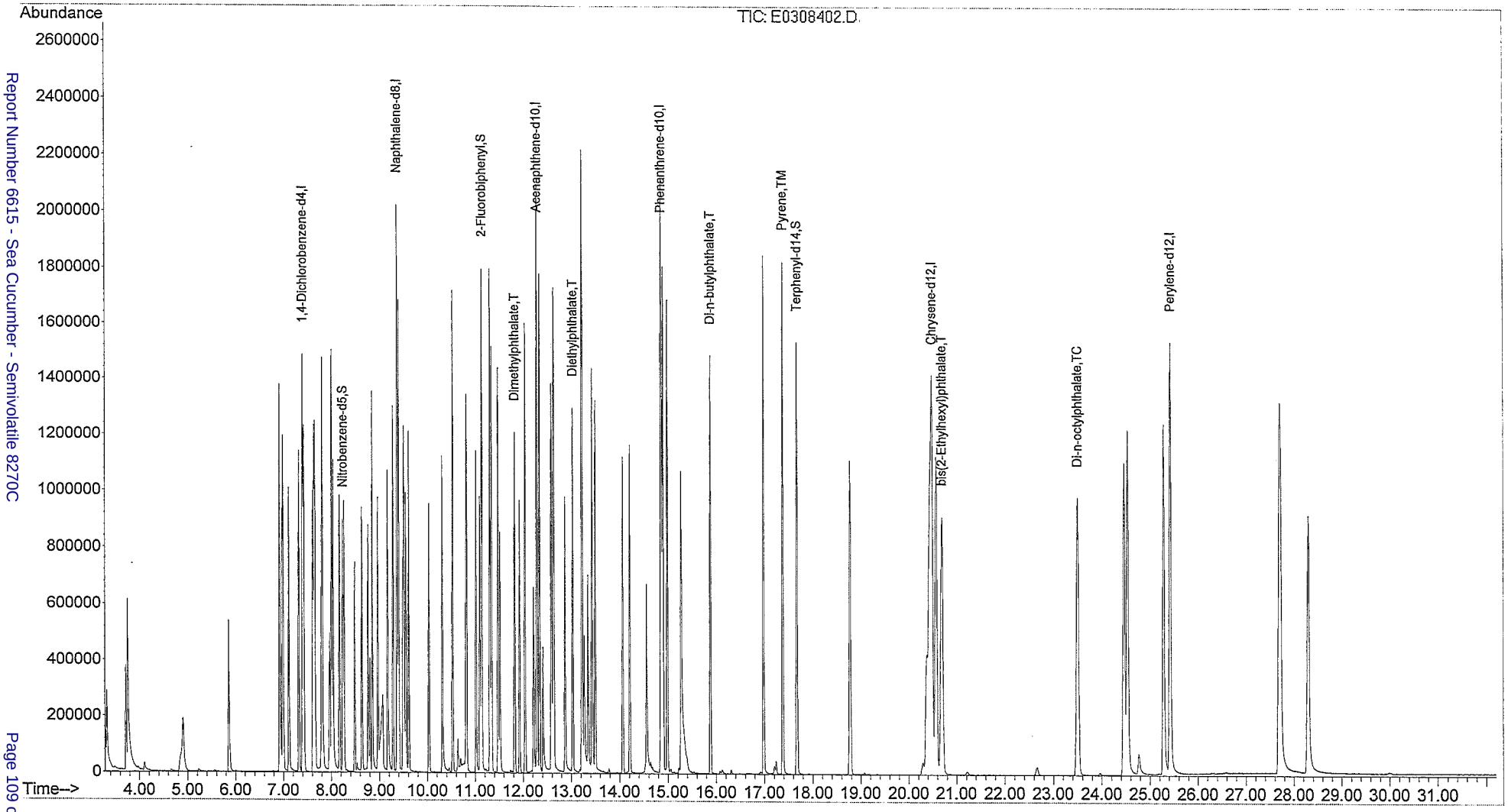
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.40	152	3330276	40.00 ug/L	-0.05
2) Naphthalene-d8	9.37	136	12817581	40.00 ug/L	-0.05
4) Acenaphthene-d10	12.29	164	7199658	40.00 ug/L	-0.05
8) Phenanthrene-d10	14.86	188	11547852	40.00 ug/L	-0.05
10) Chrysene-d12	20.49	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.: 006615 SAS No.: --- SDG No.: ---

Lab File ID: E0327402 DFTPP Injection Date: 03/27/14

Instrument ID: AG5 DFTPP Injection Time: 12:49

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30 - 80% of mass 198	38.0
68	Less than 2.0% of mass 69	0.0 (1)
69	(reference only)	35.3
70	Less than 2.0% of mass 69	0.6 (1)
127	25 - 75% of mass 198	50.4
197	Less than 1% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.
199	5 - 9% of mass 198	6.5
275	10 - 30% of mass 198	23.2
365	Greater than 1% of mass 198	2.8
441	0 - 100% of mass 443	94.1
442	40 - 110% of mass 198	74.5
443	15 - 24% of mass 442	19.7 (2)

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

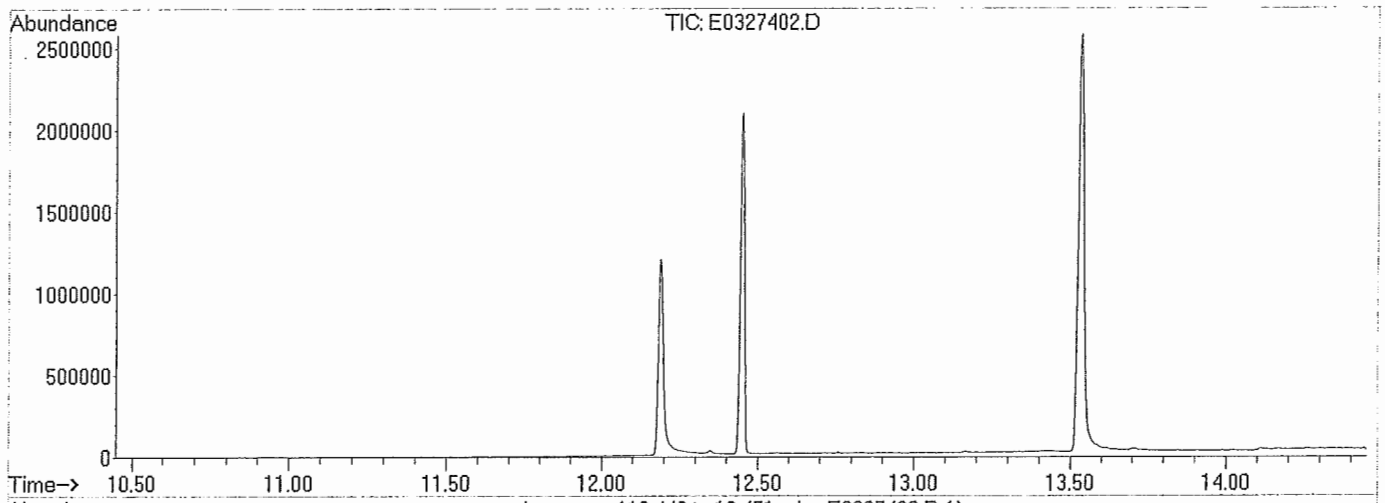
THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

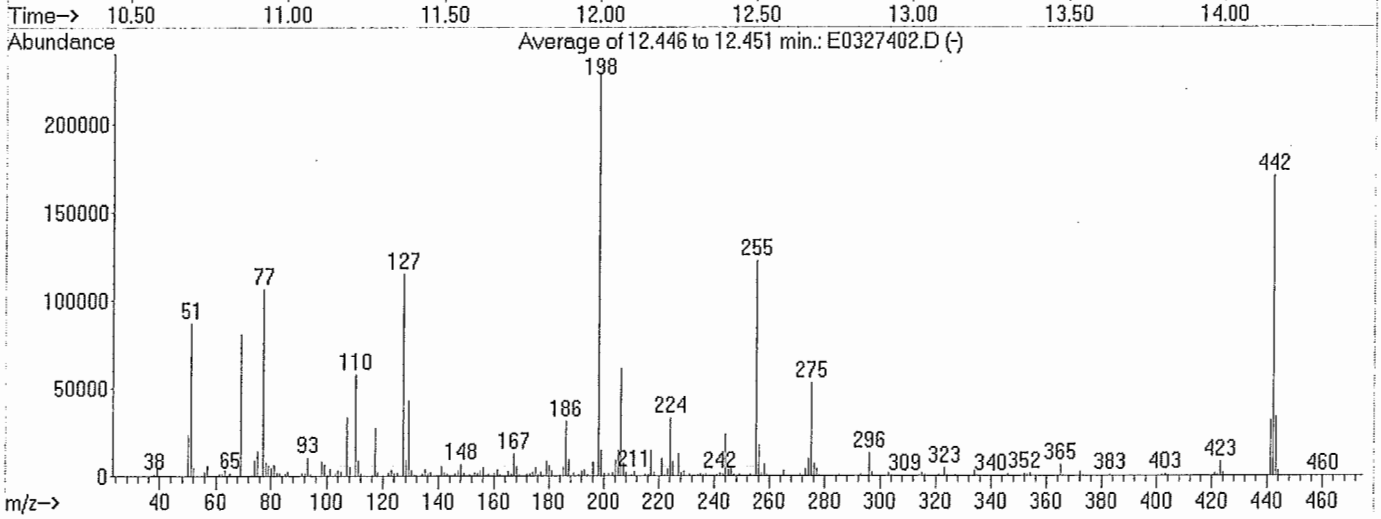
	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1	BNA STD	030 PPM STD	E0327403	03/27/14	13:15
2	BLANK B10174	006615-05B1	E0327404	03/27/14	14:05
3	SPBK B10174	006615-05K1	E0327405	03/27/14	14:47
4	MAK111C	006615-01	E0327406	03/27/14	15:30
5	MAK113C	006615-02	E0327407	03/27/14	16:12
6	MAK114C	006615-03	E0327408	03/27/14	16:57
7	MAK115C	006615-04	E0327409	03/27/14	17:40
8	MAK116C	006615-05	E0327410	03/27/14	18:24
9	MAK116CMS	006615-05MS	E0327411	03/27/14	19:08
10	MAK116CMSD	006615-05MD	E0327412	03/27/14	19:53
11	MAK117C	006615-06	E0327413	03/27/14	20:37
12	MAK118C	006615-07	E0327414	03/27/14	21:21
13	MAK120C	006615-08	E0327415	03/27/14	22:04
14					
15					
16					
17					
18					
19					
20					
21					
22					

Data Path : C:\MSDCHEM\1\DATA\032714\
Data File : E0327402.D
Acq On : 27 Mar 2014 12:49
Operator : PEK
Sample : 50 PPM TUNE 16355
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 1176

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	80	38.0	86954	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.01	100	35.3	80692	PASS
70	69	0.00	2	0.6	484	PASS
127	198	25	75	50.4	115189	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	228629	PASS
199	198	5	9	6.5	14844	PASS
275	198	10	30	23.2	53138	PASS
365	198	0.75	100	2.8	6290	PASS
441	443	0.01	100	94.1	31656	PASS
442	198	40	110	74.5	170386	PASS
443	442	15	24	19.7	33640	PASS

Average of 12.446 to 12.451 min.: E0327402.D
50 PPM TUNE 16355
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
37.05	612	50.20	23781	59.00	69	71.40	48
38.10	1133	51.20	86954	60.05	104	72.20	55
39.20	6282	52.15	4534	61.10	1070	73.05	675
40.05	284	53.00	243	62.10	1238	74.15	9124
43.30	92	54.00	30	63.10	3554	75.10	14223
44.05	335	54.20	31	64.10	524	77.15	106488
45.10	186	55.05	369	65.15	1736	78.20	7724
47.00	183	56.05	2387	65.90	60	79.05	5950
47.20	97	57.05	5877	66.10	132	80.10	4775
48.10	30	57.90	75	69.10	80692	81.10	6115
49.10	174	58.05	173	70.10	484	82.10	1868

Average of 12.446 to 12.451 min.: E0327402.D
50 PPM TUNE 16355
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
83.10	1639	94.10	1019	107.05	33280	116.20	724
84.00	98	95.10	71	108.05	5148	117.10	27424
85.10	1438	96.00	429	110.10	57808	118.05	2035
86.10	2335	98.10	8171	111.05	8676	119.00	181
87.00	652	99.10	6528	112.05	1216	120.10	419
88.00	406	100.10	706	113.00	134	121.00	28
88.80	68	101.05	3915	113.20	210	122.10	1807
90.15	107	102.00	124	114.00	50	123.05	3305
91.05	1496	103.10	1558	114.25	89	124.05	1449
92.15	1661	104.10	2931	114.85	241	125.10	1594
93.05	10403	105.05	2376	115.30	127	127.10	115189

Average of 12.446 to 12.451 min.: E0327402.D
50 PPM TUNE 16355
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
128.10	9082	138.20	117	149.10	1587	158.05	1022
129.05	42999	139.10	234	150.05	482	159.05	583
130.05	3313	140.10	763	151.15	954	160.10	1594
131.00	896	141.05	5517	151.50	241	161.10	3457
132.05	716	142.10	1772	151.70	209	162.05	892
132.95	135	143.05	1079	151.95	394	163.10	360
134.05	1277	144.00	471	153.05	2073	164.00	234
135.10	3778	145.05	372	154.05	1494	165.05	2493
136.05	1417	146.00	1219	155.10	3124	166.15	1353
137.10	2194	147.05	3105	156.10	4776	167.10	12666
138.00	186	148.10	6652	157.15	929	168.10	5605

Average of 12.446 to 12.451 min.: E0327402.D
50 PPM TUNE 16355
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
169.05	858	180.10	5810	190.05	454	202.20	220
170.05	285	181.10	3139	191.10	997	203.05	2007
171.05	514	182.10	446	192.05	3007	204.10	9177
172.00	1199	182.90	129	193.05	3361	205.10	14784
173.05	1468	183.15	212	194.10	1002	206.10	61170
174.10	2290	184.05	820	195.10	325	207.05	7306
175.10	4804	185.05	4896	196.10	7883	208.10	2033
176.00	1189	186.10	31138	198.05	228629	209.05	595
177.05	2133	187.10	9461	199.00	14844	210.00	340
178.05	661	188.05	949	200.05	1423	210.15	895
179.10	8412	189.10	1802	201.55	1264	211.10	2425

Average of 12.446 to 12.451 min.: E0327402.D
50 PPM TUNE 16355
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
211.90	249	219.20	179	231.90	241	241.05	886
212.30	44	221.10	9811	232.20	85	242.10	1591
212.70	44	222.00	823	233.00	390	243.15	1284
213.15	162	223.10	4253	234.00	832	244.05	23946
213.80	92	224.10	33064	235.00	1016	245.10	3623
214.30	41	225.10	8345	236.05	755	246.05	4089
215.05	835	227.10	12587	237.05	1065	247.05	943
216.10	1008	228.05	2063	237.95	79	248.00	239
217.05	14441	229.05	2747	239.00	147	249.00	921
218.05	2019	229.85	188	239.20	325	249.95	220
218.95	219	231.05	1163	240.00	310	250.20	68

Average of 12.446 to 12.451 min.: E0327402.D
50 PPM TUNE 16355

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
250.85	376	262.90	47	272.05	627	282.90	139
252.05	238	263.90	465	273.05	3988	283.05	323
253.10	1033	265.05	3058	274.10	9791	284.00	90
255.05	122656	265.85	524	275.10	53138	284.20	273
256.05	17557	267.80	210	276.10	7117	285.00	934
257.05	1560	268.10	111	277.05	4176	285.90	125
258.05	6609	268.80	84	277.95	761	288.00	65
259.00	1118	269.30	45	278.90	44	288.90	129
260.05	147	269.85	214	279.20	183	290.05	226
261.00	191	270.10	74	281.05	234	291.00	378
261.90	50	271.00	975	282.10	83	292.05	234

Average of 12.446 to 12.451 min.: E0327402.D
50 PPM TUNE 16355
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
293.00	1033	305.10	63	314.00	750	325.80	48
293.95	227	307.10	30	315.00	1692	326.10	87
294.90	104	308.00	288	316.05	830	327.00	712
296.05	12976	308.90	88	317.00	173	328.00	452
297.05	2022	310.05	72	318.00	76	328.90	33
297.95	152	310.40	58	319.00	48	329.35	66
299.05	113	310.90	32	320.20	38	330.20	35
300.95	148	311.10	39	321.05	650	332.05	441
302.15	370	311.70	28	322.10	245	333.00	381
303.05	1916	312.00	78	323.10	4484	333.20	226
304.10	559	312.90	139	324.00	721	334.05	3159

Average of 12.446 to 12.451 min.: E0327402.D
50 PPM TUNE 16355
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
334.95	958	346.90	189	360.10	29	372.90	108
336.10	53	348.90	29	360.40	35	373.15	636
338.60	60	350.10	35	360.80	42	374.00	119
338.95	82	351.10	127	361.50	29	377.00	103
339.30	49	352.00	1345	361.95	70	379.90	32
340.00	94	353.05	896	362.40	58	382.95	657
341.05	429	354.05	1539	365.00	6290	384.00	163
341.85	151	355.05	440	365.95	938	388.80	41
342.10	26	356.95	88	369.90	80	389.10	34
343.40	33	359.05	98	371.05	377	390.00	337
346.00	856	359.90	27	372.10	2352	390.70	54

Average of 12.446 to 12.451 min.: E0327402.D
50 PPM TUNE 16355
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
391.00	188	410.00	27	422.05	1343	429.30	87
392.00	211	410.80	27	423.05	8153	429.70	101
395.10	44	413.90	46	424.05	1754	430.45	79
400.95	156	414.40	34	425.00	152	430.70	98
402.00	938	415.05	143	425.20	124	431.90	80
403.05	1189	415.45	62	426.00	78	432.30	55
404.05	630	417.20	31	426.60	30	432.70	63
404.85	80	417.70	33	426.80	92	433.10	82
407.80	45	418.00	30	427.00	36	434.00	58
408.30	30	419.90	39	427.70	41	434.50	53
409.30	63	421.05	1550	428.65	150	434.90	31

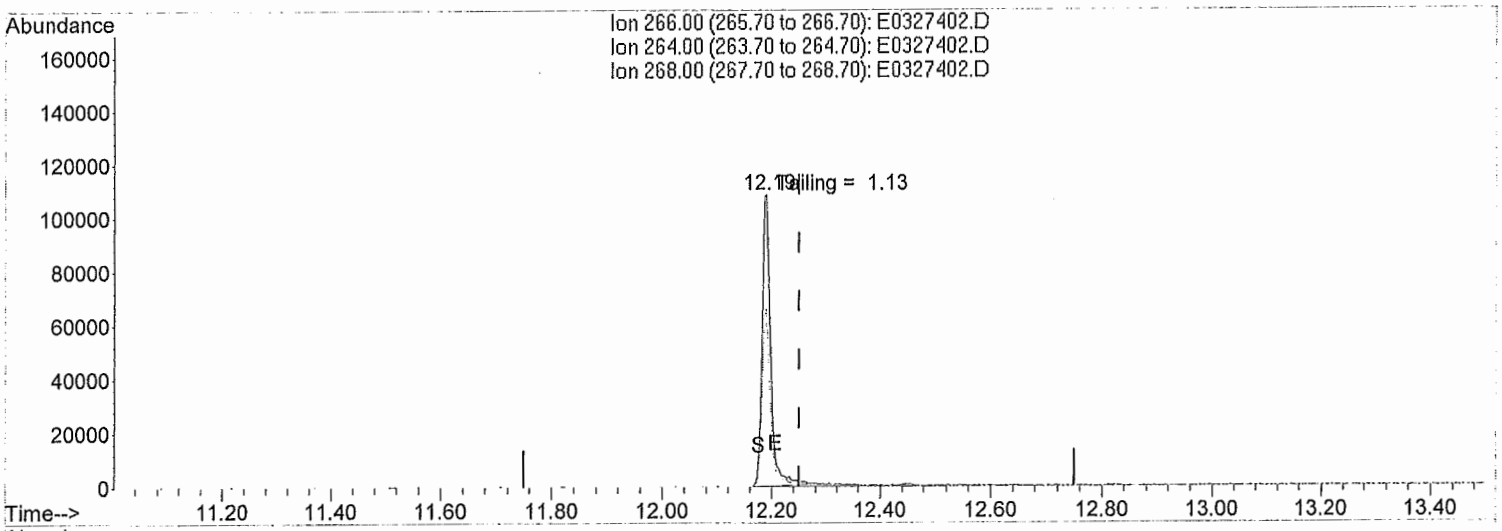
Average of 12.446 to 12.451 min.: E0327402.D
50 PPM TUNE 16355
Modified:subtracted

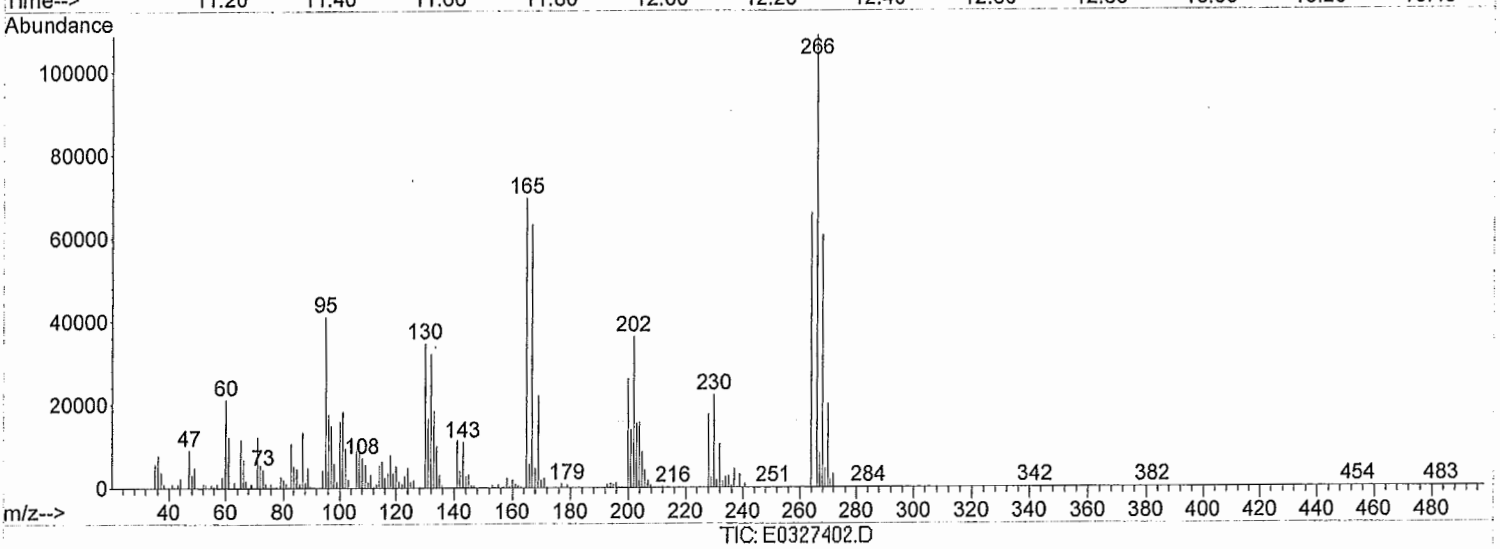
m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
435.40	35	457.90	50				
435.70	37	458.20	41				
436.35	116	460.30	53				
436.80	26						
437.85	278						
439.10	187						
441.10	31656						
442.05	170386						
443.05	33640						
444.05	3036						
445.05	212						

Quantitation Report (Qedit)

Data Path : C:\MSDCHEM\1\DATA\032714\
Data File : E0327402.D
Acq On : 27 Mar 2014 12:49
Operator : PEK
Sample : 50 PPM TUNE 16355
Misc : AG-5 8270
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Mar 27 13:07:51 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) 11.05ug/L

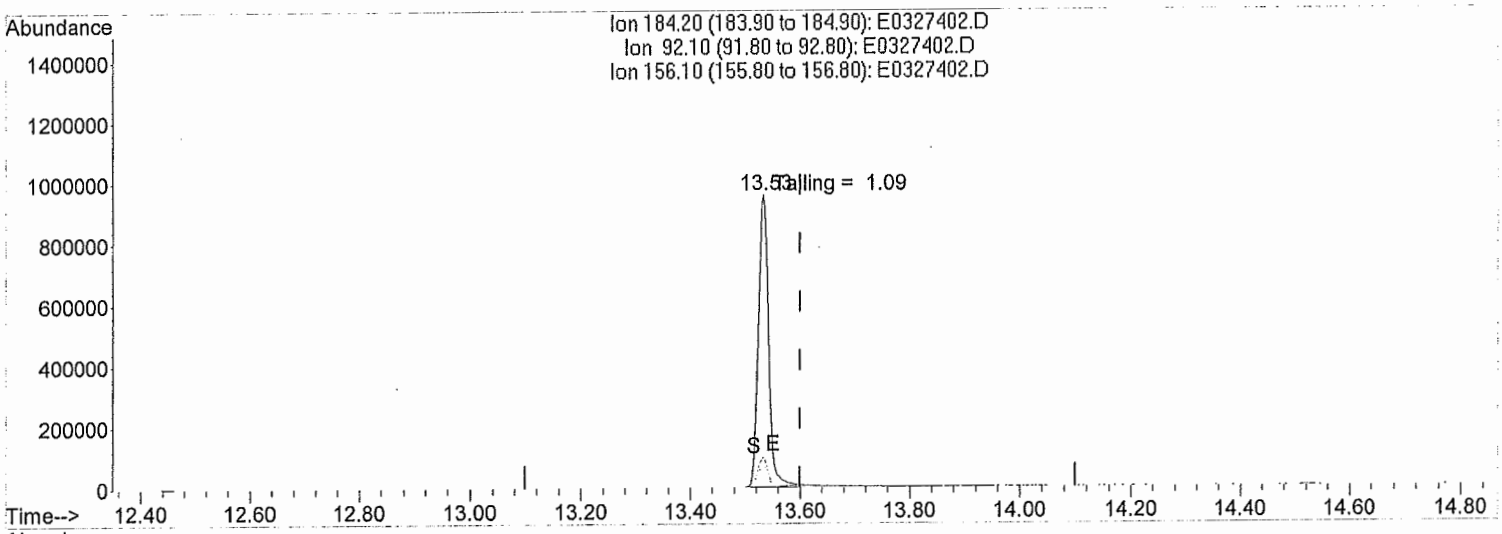
response 117752

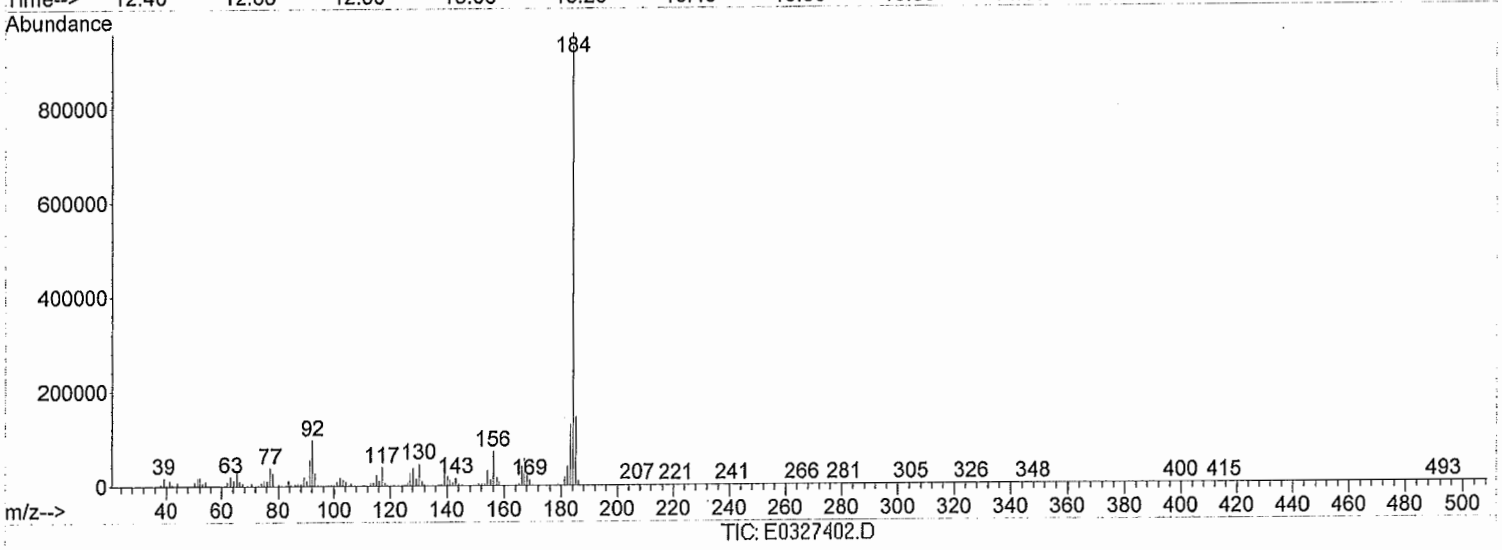
Ion	Exp%	Act%
266.00	100	100
264.00	63.80	59.63
268.00	63.80	57.90
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\MSDCHEM\1\DATA\032714\
Data File : E0327402.D
Acq On : 27 Mar 2014 12:49
Operator : PEK
Sample : 50 PPM TUNE 16355
Misc : AG-5 8270
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Mar 27 13:07:51 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) 24.25ug/L

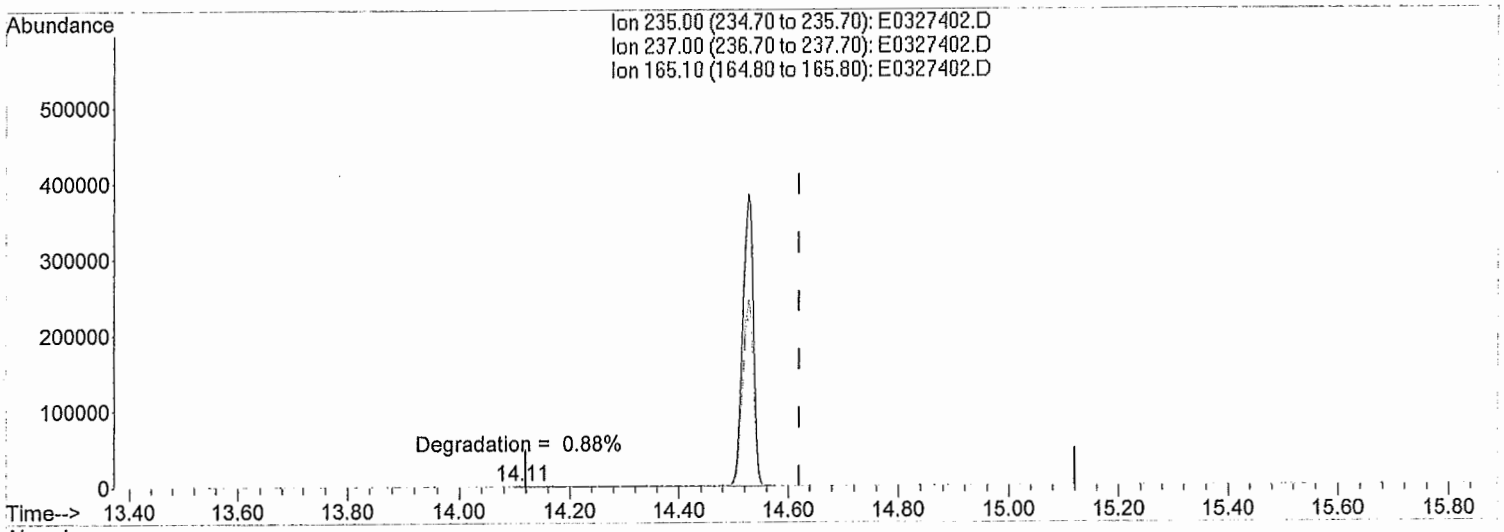
response 1250408

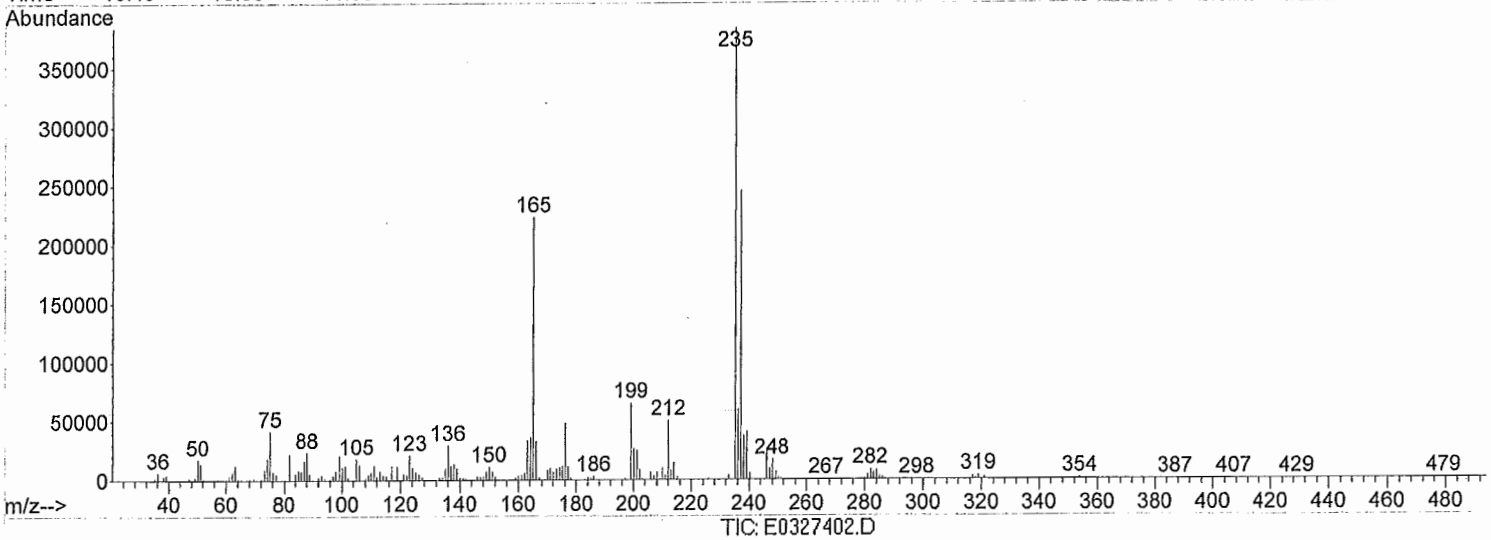
Ion	Exp%	Act%
184.20	100	100
92.10	13.70	10.18#
156.10	8.60	7.66
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\MSDCHEM\1\DATA\032714\
Data File : E0327402.D
Acq On : 27 Mar 2014 12:49
Operator : PEK
Sample : 50 PPM TUNE 16355
Misc : AG-5 8270
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Mar 27 13:07:51 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) 19.93ug/L

response 517418

Ion	Exp%	Act%
235.00	100	100
237.00	64.80	64.08
165.10	59.00	63.31
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\032714\
Data File : E0327403.D
Acq On : 27 Mar 2014 13:15
Operator : PEK
Sample : 30 PPM STD 16356
Misc : AG-5 8270
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Mar 27 13:49:27 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

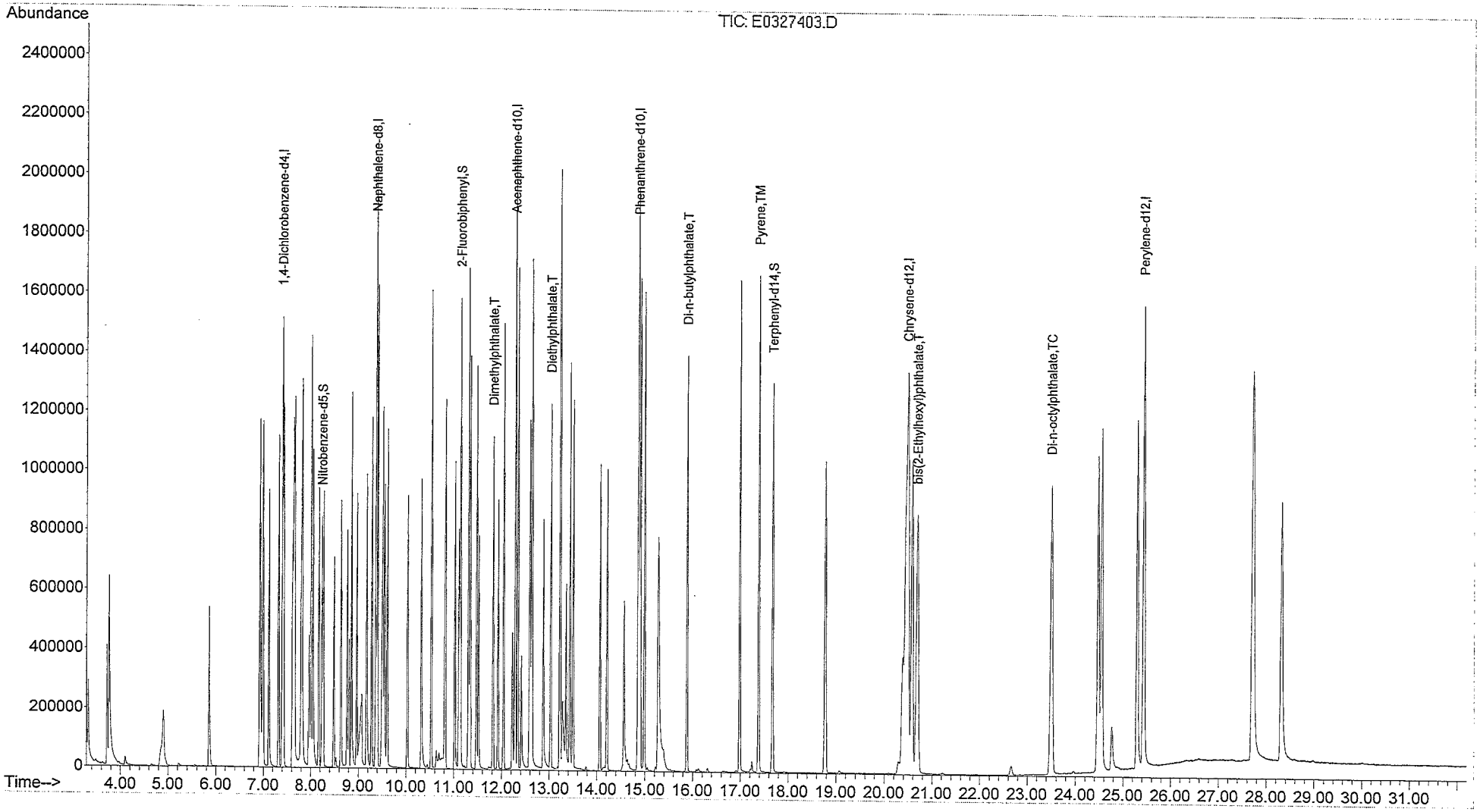
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.40	152	3239046	40.00	ug/L	-0.05
2) Naphthalene-d8	9.37	136	12589835	40.00	ug/L	-0.05
4) Acenaphthene-d10	12.29	164	6895263	40.00	ug/L	-0.05
8) Phenanthrene-d10	14.86	188	10960907	40.00	ug/L	-0.05
10) Chrysene-d12	20.50	240	13386704	40.00	ug/L	-0.09
15) Perylene-d12	25.44	264	14212784	40.00	ug/L	-0.05
System Monitoring Compounds						
3) Nitrobenzene-d5	8.24	82	3409166	32.17	ug/L	-0.05
Spiked Amount 50.000			Recovery = 64.34%			
5) 2-Fluorobiphenyl	11.14	172	6566062	30.63	ug/L	-0.05
Spiked Amount 50.000			Recovery = 61.26%			
12) Terphenyl-d14	17.67	244	6914138	30.71	ug/L	-0.06
Spiked Amount 50.000			Recovery = 61.42%			
Target Compounds						Qvalue
6) Dimethylphthalate	11.82	163	7029862	25.38	ug/L	99
7) Diethylphthalate	13.03	149	6886357	24.70	ug/L	99
9) Di-n-butylphthalate	15.88	149	11696854	26.98	ug/L	95
11) Pyrene	17.39	202	11423965	26.04	ug/L	82
13) bis(2-Ethylhexyl)phthalate	20.69	149	8962725	27.05	ug/L	99
14) Di-n-octylphthalate	23.50	149	15853231	28.57	ug/L	100

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

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\032714\
Data File : E0327403.D
Acq On : 27 Mar 2014 13:15
Operator : PEK
Sample : 30 PPM STD 16356
Misc : AG-5 8270
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Mar 27 13:49:27 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 : Thu Mar 27 13:49:53 2014
Response Via : Initial Calibration

CC Data File: E0327403.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	101
2	I	Naphthalene-d8	1.000	1.000	0.0	101
3	S	Nitrobenzene-d5	0.337	0.361	-7.2	110
4	I	Acenaphthene-d10	1.000	1.000	0.0	100
5	S	2-Fluorobiphenyl	1.243	1.270	-2.1	107
6	T	Dimethylphthalate	1.607	1.359	15.4	88
7	T	Diethylphthalate	1.618	1.332	17.7	86
8	I	Phenanthrene-d10	1.000	1.000	0.0	95
9	T	Di-n-butylphthalate	1.582	1.423	10.1	89
10	I	Chrysene-d12	1.000	1.000	0.0	100
11	TM	Pyrene	1.311	1.138	13.2	91
12	S	Terphenyl-d14	0.673	0.689	-2.4	106
13	T	bis(2-Ethylhexyl)phthalate	0.990	0.893	9.8	90
14	TC	Di-n-octylphthalate	1.658	1.579	4.8#	94
15	I	Perylene-d12	1.000	1.000	0.0	104

(#) = 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 + Degradation	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	Valid Curve Several as E8270321HW.d	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

PEK 3/8/2014

Continued on Page

Read and Understood By

PEK — Signed — 3/8/2014 — Date

Signed — 3/11/14 — Date

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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

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Read and Understood By

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

16
PROJECT 3/27/2014 8270 Tissues

Notebook No. 3323
Continued from Page

Injection Log

Directory: C:\MSDCHEM\1\DATA\032714

Line	Vial	FileName	Multiplier	SampleName	Misc Info
1	1	E0327401.d	1.	50 PPM TUNE 16355 Tailing + Resp. ↑	– Changed Liner AG-5 8270
2	1	E0327402.d	1.	50 PPM TUNE 16355 Pass	AG-5 8270
3	2	E0327403.d	1.	30 PPM STD 16356 Pass	AG-5 8270
4	3	E0327404.d	1.	006615-05B1 Pass	B10174 AG-5 8270
5	4	E0327405.d	1.	006615-05K1	B10174 AG-5 8270
6	5	E0327406.d	1.	006615-01	B10174 AG-5 8270
7	6	E0327407.d	1.	006615-02	B10174 AG-5 8270
8	7	E0327408.d	1.	006615-03	B10174 AG-5 8270
9	8	E0327409.d	1.	006615-04	B10174 AG-5 8270
10	9	E0327410.d	1.	006615-05	B10174 AG-5 8270
11	10	E0327411.d	1.	006615-05MS	B10174 AG-5 8270
12	11	E0327412.d	1.	006615-05MD	B10174 AG-5 8270
13	12	E0327413.d	1.	006615-06	B10174 AG-5 8270
14	13	E0327414.d	1.	006615-07	B10174 AG-5 8270
15	14	E0327415.d	1.	006615-08 Pass	B10174 AG-5 8270

PEK 3/28/2014

Continued on Page

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PEK — Signed
3/28/2014 — Date
Signed
3/28/14 — 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: 006615 Report Date: 03/28/2014

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

Field ID:	NA	ARDL Lab No.:	006615-05B1
Desc/Location:	NA	Lab Filename:	E0327404
Sample Date:	NA	Received Date:	NA
Sample Time:	NA	Prep. Date:	03/25/2014
Matrix:	QC Material	Analysis Date:	03/27/2014
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B10174
% 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	84%
2-Fluorobiphenyl	30-130	96%
Terphenyl-d14	30-130	93%

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

Blank for Run B10174, BNA'S (METHOD 8270) Page 1 of 1

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\032714\
Data File : E0327404.D
Acq On : 27 Mar 2014 14:05
Operator : PEK
Sample : 006615-05B1
Misc : B10174 AG-5 8270
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Mar 27 14:41:52 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	3615935	8000.00	ug/Kg	0.00
2) Naphthalene-d8	9.37	136	13722356	8000.00	ug/Kg	0.00
4) Acenaphthene-d10	12.29	164	7530250	8000.00	ug/Kg	0.00
8) Phenanthrene-d10	14.86	188	12528182	8000.00	ug/Kg	0.00
10) Chrysene-d12	20.48	240	14950267	8000.00	ug/Kg	-0.01
15) Perylene-d12	25.44	264	14847009	8000.00	ug/Kg	0.00
System Monitoring Compounds						
3) Nitrobenzene-d5	8.23	82	2437149	4219.60	ug/Kg	0.00
Spiked Amount 5000.000			Recovery =	84.39%		
5) 2-Fluorobiphenyl	11.13	172	5625490	4806.21	ug/Kg	0.00
Spiked Amount 5000.000			Recovery =	96.12%		
12) Terphenyl-d14	17.67	244	5876087	4673.25	ug/Kg	0.00
Spiked Amount 5000.000			Recovery =	93.47%		

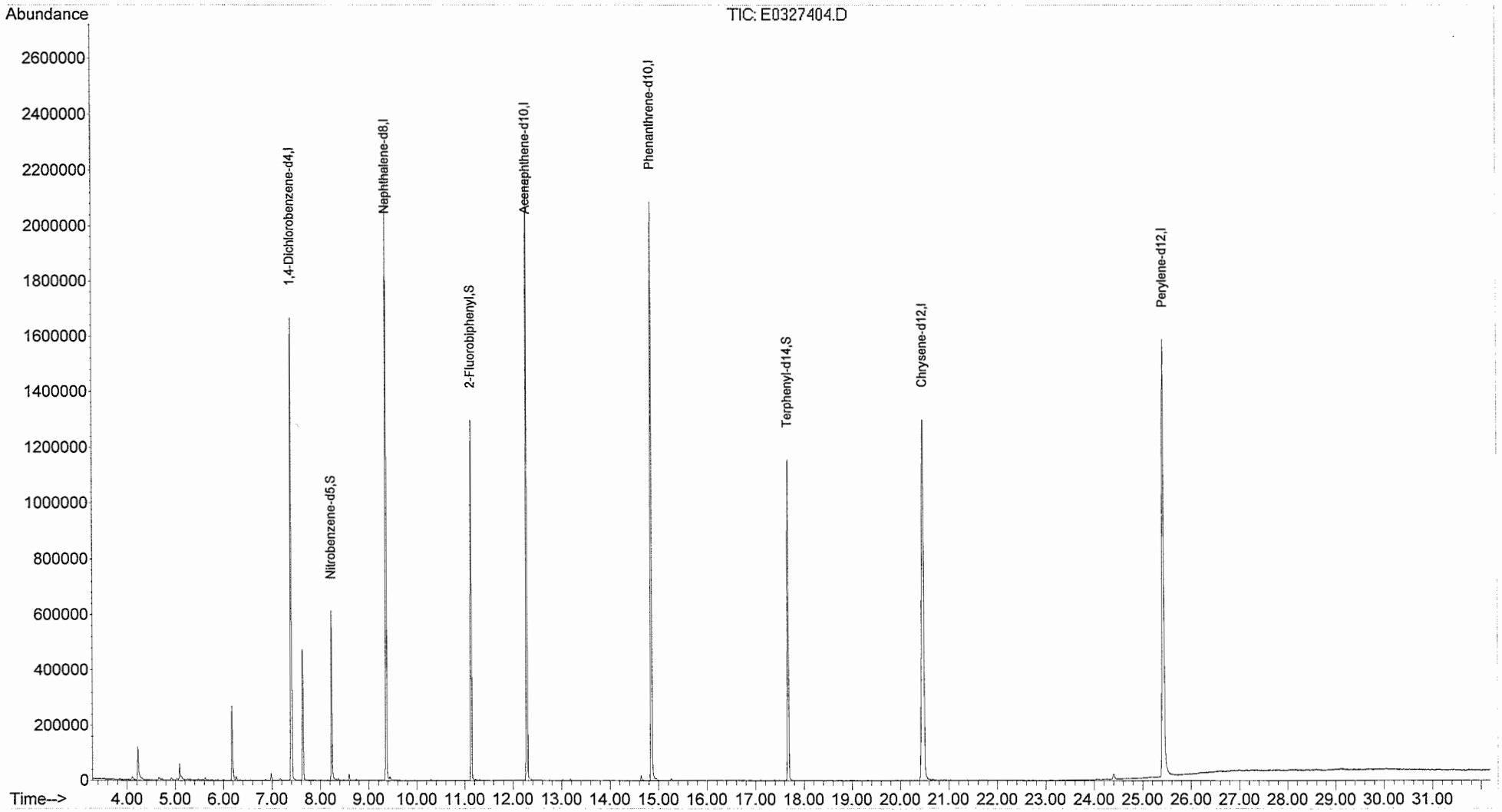
Target Compounds	Qvalue

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

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\032714\
Data File : E0327404.D
Acq On : 27 Mar 2014 14:05
Operator : PEK
Sample : 006615-05B1
Misc : B10174 AG-5 8270
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Mar 27 14:41:52 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: 006615 Report Date: 03/28/2014

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

Field ID:	NA	ARDL Lab No.:	006615-05K1
Desc/Location:	NA	Lab Filename:	E0327405
Sample Date:	NA	Received Date:	NA
Sample Time:	NA	Prep. Date:	03/25/2014
Matrix:	QC Material	Analysis Date:	03/27/2014
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B10174
% Moisture:	NA	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units
Dimethylphthalate	200	1000	3550		UG/KG
Diethylphthalate	200	1000	3530		UG/KG
Di-n-butylphthalate	200	1000	3770		UG/KG
Pyrene	200	1000	3690		UG/KG
bis(2-Ethylhexyl)phthalate	200	1000	3550		UG/KG
Di-n-octylphthalate	200	1000	3690		UG/KG

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	79%
2-Fluorobiphenyl	30-130	94%
Terphenyl-d14	30-130	96%

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

Spike Blank for Run B10174, BNA'S (METHOD 8270) Page 1 of 1

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\032714\
Data File : E0327405.D
Acq On : 27 Mar 2014 14:47
Operator : PEK
Sample : 006615-05K1
Misc : B10174 AG-5 8270
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Mar 27 15:20:19 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

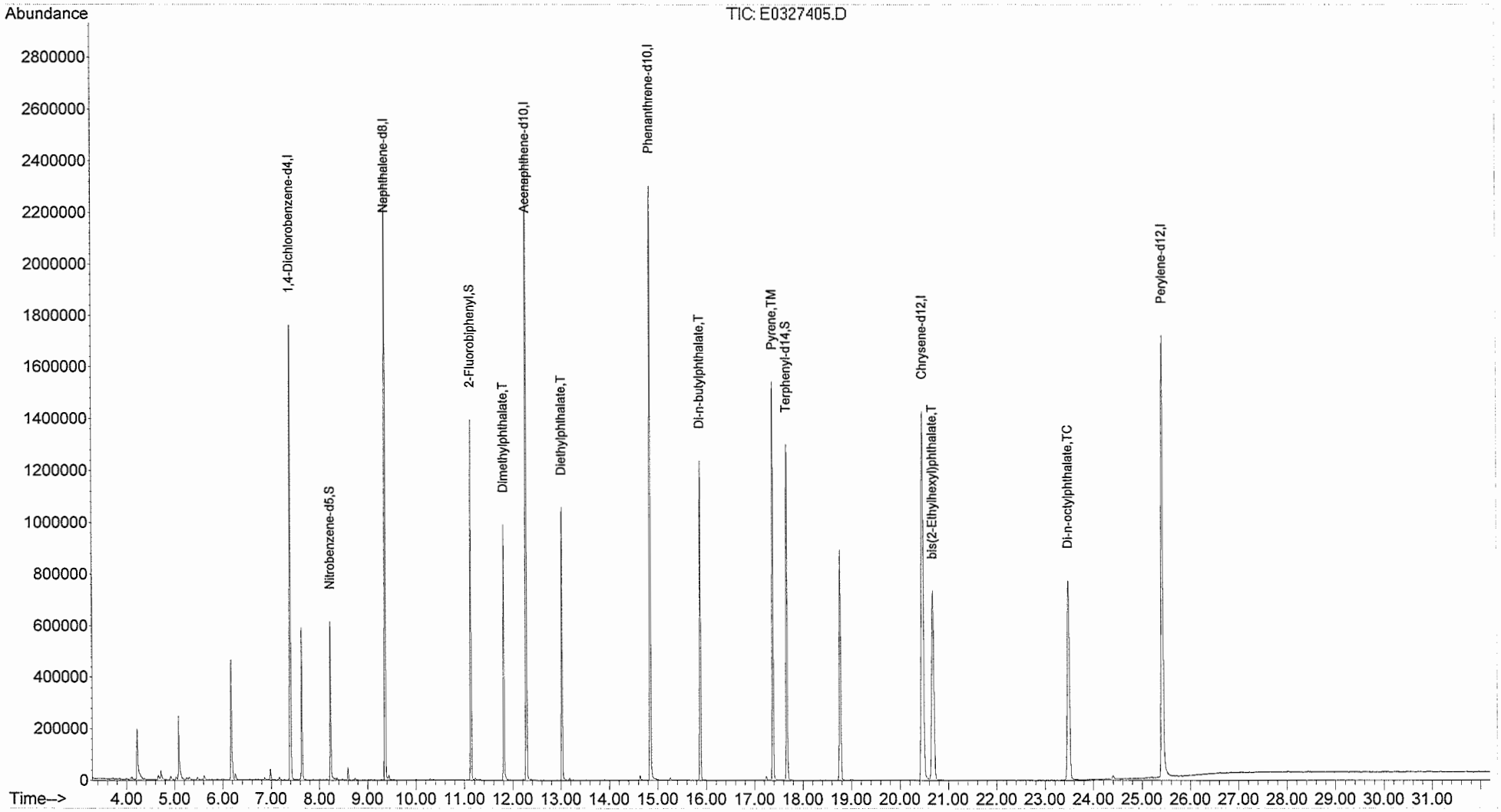
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.40	152	3947752	8000.00	ug/Kg	0.00
2) Naphthalene-d8	9.37	136	14941021	8000.00	ug/Kg	0.00
4) Acenaphthene-d10	12.28	164	8319121	8000.00	ug/Kg	0.00
8) Phenanthrene-d10	14.86	188	13882138	8000.00	ug/Kg	0.00
10) Chrysene-d12	20.48	240	16783031	8000.00	ug/Kg	-0.02
15) Perylene-d12	25.43	264	16447025	8000.00	ug/Kg	0.00
System Monitoring Compounds						
3) Nitrobenzene-d5	8.23	82	2494932	3967.31	ug/Kg	-0.01
Spiked Amount 5000.000			Recovery =	79.35%		
5) 2-Fluorobiphenyl	11.13	172	6062088	4688.09	ug/Kg	0.00
Spiked Amount 5000.000			Recovery =	93.76%		
12) Terphenyl-d14	17.67	244	6749302	4781.54	ug/Kg	0.00
Spiked Amount 5000.000			Recovery =	95.63%		
Target Compounds						Qvalue
6) Dimethylphthalate	11.81	163	5938645	3554.63	ug/Kg	99
7) Diethylphthalate	13.02	149	5931874	3526.36	ug/Kg	99
9) Di-n-butylphthalate	15.88	149	10359975	3772.96	ug/Kg	95
11) Pyrene	17.38	202	10156767	3693.33	ug/Kg	81
13) bis(2-Ethylhexyl)phthalate	20.68	149	7381815	3553.76	ug/Kg	99
14) Di-n-octylphthalate	23.49	149	12841654	3691.89	ug/Kg	100

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

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\032714\
Data File : E0327405.D
Acq On : 27 Mar 2014 14:47
Operator : PEK
Sample : 006615-05K1
Misc : B10174 AG-5 8270
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Mar 27 15:20:19 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: 006615 Report Date: 03/28/2014

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

Field ID:	MAK 111C	ARDL Lab No.:	006615-01
Desc/Location:	MAKAU MILITARY RESERVATION	Lab Filename:	E0327406
Sample Date:	01/31/2014	Received Date:	03/14/2014
Sample Time:	1000	Prep. Date:	03/25/2014
Matrix:	TISSUE	Analysis Date:	03/27/2014
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B10174
% 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	89%
Terphenyl-d14	30-130	95%

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

Sample 006615-01, BNA'S (METHOD 8270) Page 1 of 1

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\032714\
Data File : E0327406.D
Acq On : 27 Mar 2014 15:30
Operator : PEK
Sample : 006615-01
Misc : B10174 AG-5 8270
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Mar 27 16:02:53 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	4134171	8000.00	ug/Kg	0.00
2) Naphthalene-d8	9.37	136	15517058	8000.00	ug/Kg	0.00
4) Acenaphthene-d10	12.28	164	8716326	8000.00	ug/Kg	0.00
8) Phenanthrene-d10	14.86	188	14560091	8000.00	ug/Kg	0.00
10) Chrysene-d12	20.48	240	17982959	8000.00	ug/Kg	-0.02
15) Perylene-d12	25.43	264	17705794	8000.00	ug/Kg	0.00
System Monitoring Compounds						
3) Nitrobenzene-d5	8.23	82	2406332	3684.38	ug/Kg	-0.01
Spiked Amount 5000.000			Recovery =	73.69%		
5) 2-Fluorobiphenyl	11.13	172	6035725	4455.00	ug/Kg	0.00
Spiked Amount 5000.000			Recovery =	89.10%		
12) Terphenyl-d14	17.67	244	7184258	4750.07	ug/Kg	0.00
Spiked Amount 5000.000			Recovery =	95.00%		

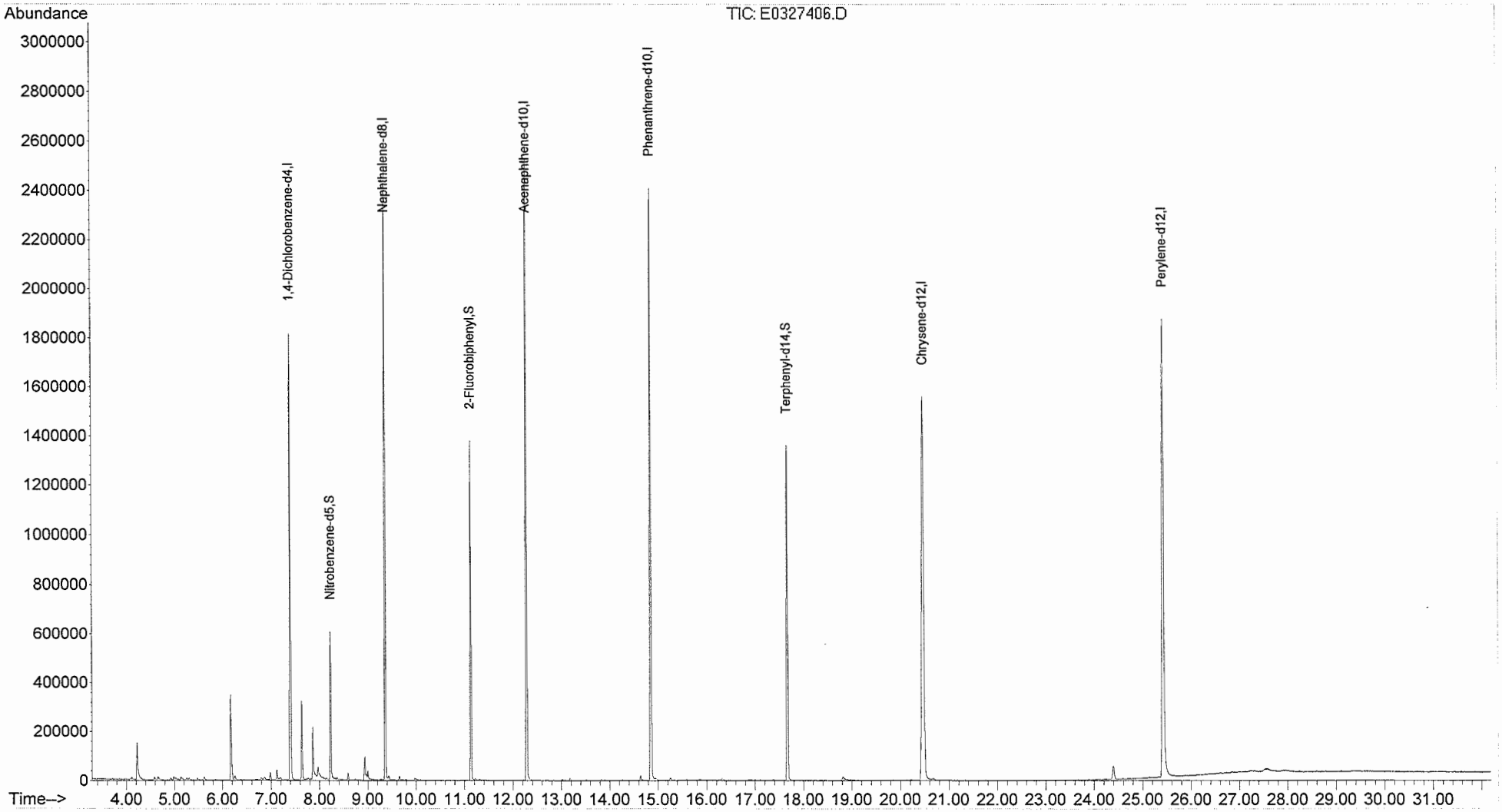
Target Compounds	Qvalue

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

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\032714\
Data File : E0327406.D
Acq On : 27 Mar 2014 15:30
Operator : PEK
Sample : 006615-01
Misc : B10174 AG-5 8270
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Mar 27 16:02:53 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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400 Aviation Drive; P.O. Box 1566
Mt. Vernon, Illinois 62864

Lab Report No: 006615 Report Date: 03/28/2014

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

Field ID:	MAK 113C	ARDL Lab No.:	006615-02
Desc/Location:	MAKAU MILITARY RESERVATION	Lab Filename:	E0327407
Sample Date:	01/31/2014	Received Date:	03/14/2014
Sample Time:	1120	Prep. Date:	03/25/2014
Matrix:	TISSUE	Analysis Date:	03/27/2014
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B10174
% 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	89%
Terphenyl-d14	30-130	91%

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

Sample 006615-02, BNA'S (METHOD 8270) Page 1 of 1

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\032714\
Data File : E0327407.D
Acq On : 27 Mar 2014 16:12
Operator : PEK
Sample : 006615-02
Misc : B10174 AG-5 8270
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Mar 27 16:45:29 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	4050977	8000.00	ug/Kg	0.00
2) Naphthalene-d8	9.37	136	15236302	8000.00	ug/Kg	0.00
4) Acenaphthene-d10	12.28	164	8492374	8000.00	ug/Kg	0.00
8) Phenanthrene-d10	14.86	188	14292533	8000.00	ug/Kg	0.00
10) Chrysene-d12	20.48	240	17518322	8000.00	ug/Kg	-0.02
15) Perylene-d12	25.43	264	17264184	8000.00	ug/Kg	0.00
System Monitoring Compounds						
3) Nitrobenzene-d5	8.23	82	2554365	3983.10	ug/Kg	-0.01
Spiked Amount 5000.000			Recovery =	79.66%		
5) 2-Fluorobiphenyl	11.13	172	5898501	4468.52	ug/Kg	0.00
Spiked Amount 5000.000			Recovery =	89.37%		
12) Terphenyl-d14	17.67	244	6716884	4558.85	ug/Kg	0.00
Spiked Amount 5000.000			Recovery =	91.18%		

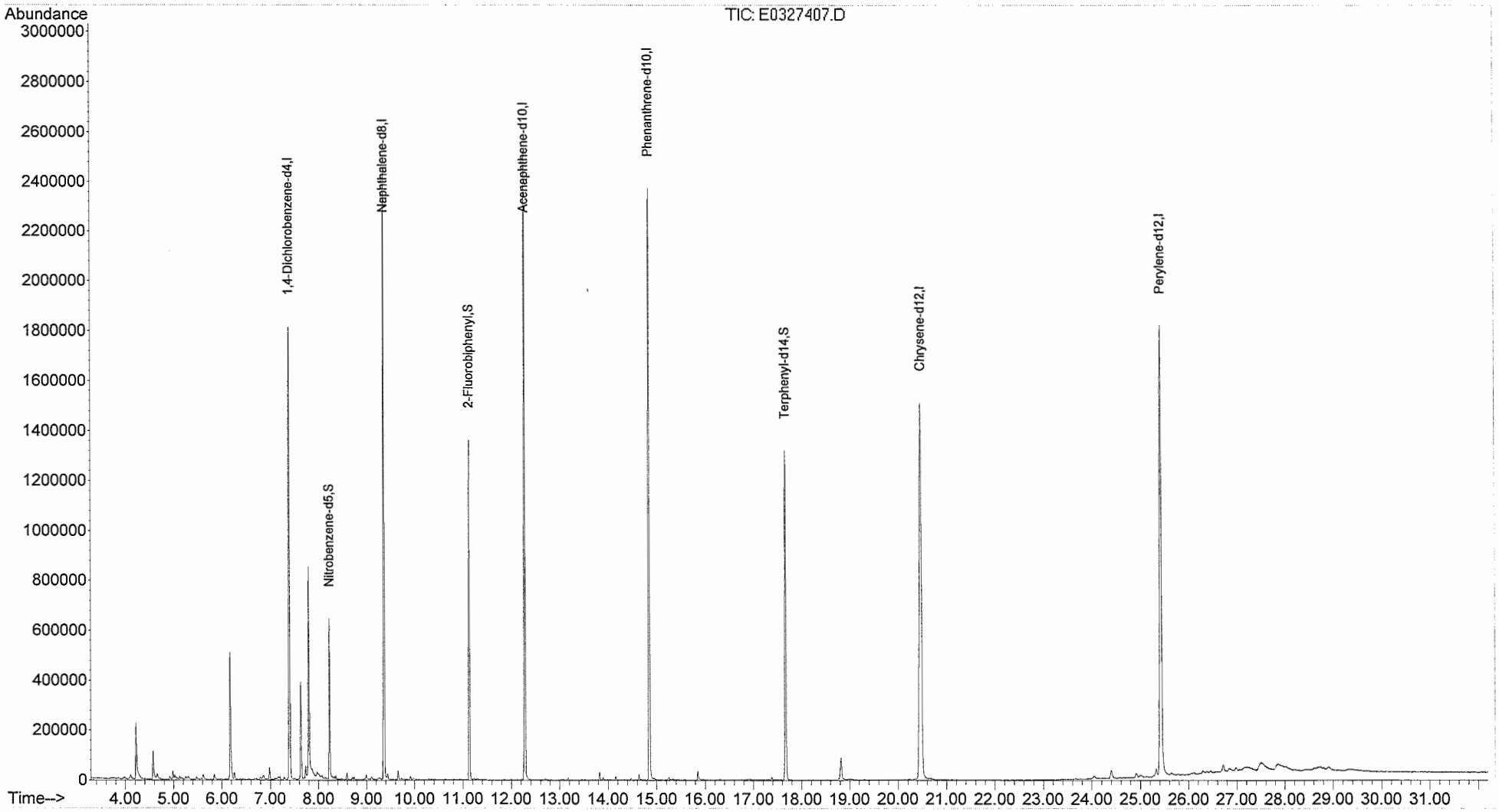
Target Compounds	Qvalue

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

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\032714\
Data File : E0327407.D
Acq On : 27 Mar 2014 16:12
Operator : PEK
Sample : 006615-02
Misc : B10174 AG-5 8270
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Mar 27 16:45:29 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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400 Aviation Drive; P.O. Box 1566
Mt. Vernon, Illinois 62864

Lab Report No: 006615 Report Date: 03/28/2014

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

Field ID:	MAK 114C	ARDL Lab No.:	006615-03
Desc/Location:	MAKAU MILITARY RESERVATION	Lab Filename:	E0327408
Sample Date:	01/31/2014	Received Date:	03/14/2014
Sample Time:	1155	Prep. Date:	03/25/2014
Matrix:	TISSUE	Analysis Date:	03/27/2014
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B10174
% 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	75%
2-Fluorobiphenyl	30-130	86%
Terphenyl-d14	30-130	93%

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

Sample 006615-03, BNA'S (METHOD 8270) Page 1 of 1

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\032714\
Data File : E0327408.D
Acq On : 27 Mar 2014 16:57
Operator : PEK
Sample : 006615-03
Misc : B10174 AG-5 8270
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Mar 28 08:26:38 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	3976048	8000.00	ug/Kg	0.00
2) Naphthalene-d8	9.37	136	14946897	8000.00	ug/Kg	0.00
4) Acenaphthene-d10	12.29	164	8350814	8000.00	ug/Kg	0.00
8) Phenanthrene-d10	14.86	188	13815454	8000.00	ug/Kg	0.00
10) Chrysene-d12	20.48	240	17216084	8000.00	ug/Kg	-0.02
15) Perylene-d12	25.43	264	16887051	8000.00	ug/Kg	0.00
System Monitoring Compounds						
3) Nitrobenzene-d5	8.23	82	2362513	3755.27	ug/Kg	-0.01
Spiked Amount 5000.000			Recovery =	75.11%		
5) 2-Fluorobiphenyl	11.13	172	5606874	4319.60	ug/Kg	0.00
Spiked Amount 5000.000			Recovery =	86.39%		
12) Terphenyl-d14	17.67	244	6701256	4628.09	ug/Kg	0.00
Spiked Amount 5000.000			Recovery =	92.56%		

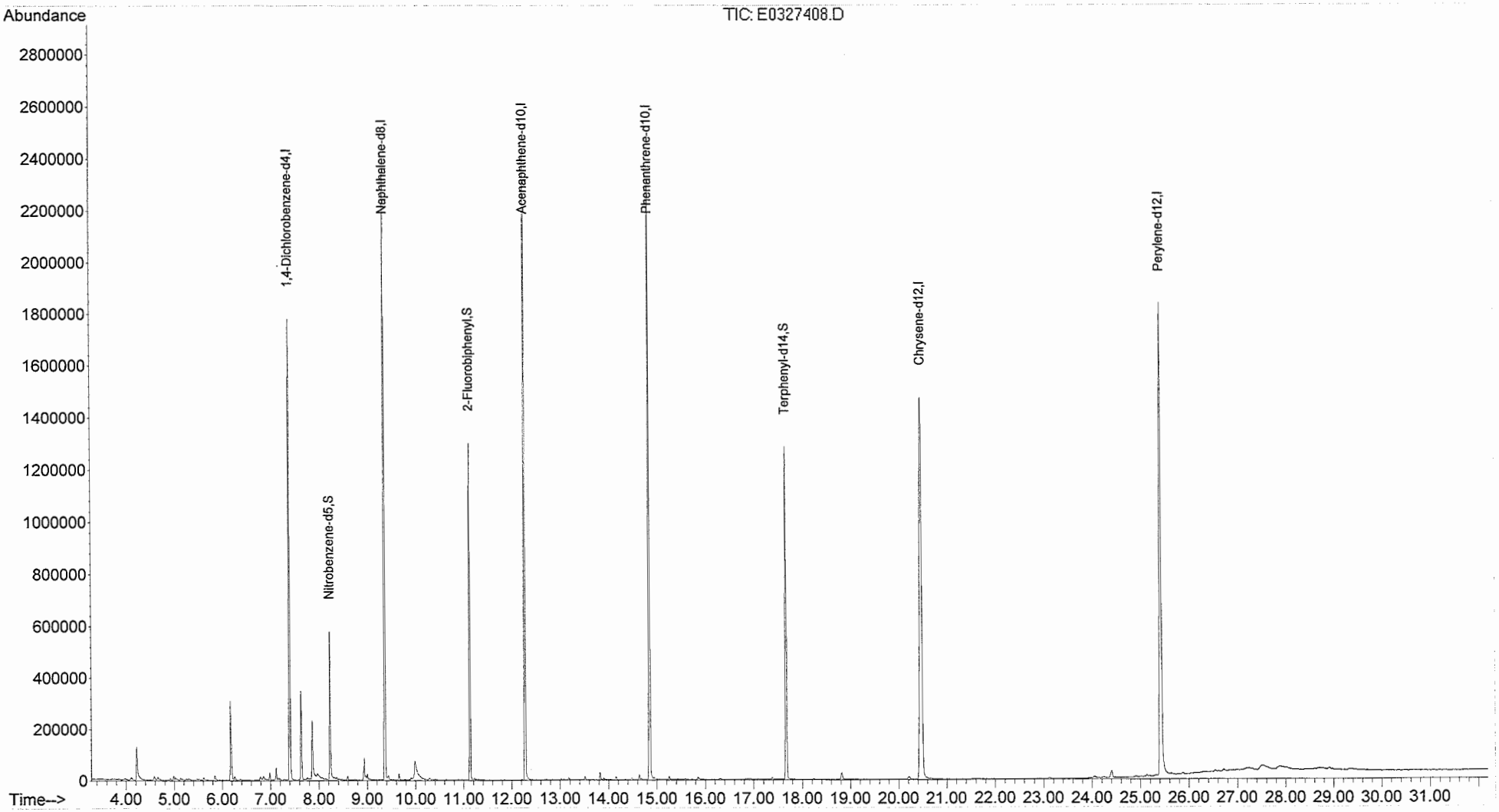
Target Compounds	Qvalue

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

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\032714\
Data File : E0327408.D
Acq On : 27 Mar 2014 16:57
Operator : PEK
Sample : 006615-03
Misc : B10174 AG-5 8270
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Mar 28 08:26:38 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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400 Aviation Drive; P.O. Box 1566
Mt. Vernon, Illinois 62864

Lab Report No: 006615 Report Date: 03/28/2014

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

Field ID:	MAK 115C	ARDL Lab No.:	006615-04
Desc/Location:	MAKAU MILITARY RESERVATION	Lab Filename:	E0327409
Sample Date:	01/31/2014	Received Date:	03/14/2014
Sample Time:	1300	Prep. Date:	03/25/2014
Matrix:	TISSUE	Analysis Date:	03/27/2014
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B10174
% 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	75%
2-Fluorobiphenyl	30-130	89%
Terphenyl-d14	30-130	88%

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

Sample 006615-04, BNA'S (METHOD 8270) Page 1 of 1

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\032714\
Data File : E0327409.D
Acq On : 27 Mar 2014 17:40
Operator : PEK
Sample : 006615-04
Misc : B10174 AG-5 8270
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Mar 28 08:26:49 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	4032745	8000.00	ug/Kg	0.00
2) Naphthalene-d8	9.37	136	15208035	8000.00	ug/Kg	0.00
4) Acenaphthene-d10	12.28	164	8434107	8000.00	ug/Kg	0.00
8) Phenanthrene-d10	14.85	188	14082143	8000.00	ug/Kg	0.00
10) Chrysene-d12	20.47	240	17614358	8000.00	ug/Kg	-0.02
15) Perylene-d12	25.43	264	17260999	8000.00	ug/Kg	0.00
System Monitoring Compounds						
3) Nitrobenzene-d5	8.23	82	2384876	3725.72	ug/Kg	-0.01
Spiked Amount 5000.000			Recovery =	74.51%		
5) 2-Fluorobiphenyl	11.13	172	5818683	4438.51	ug/Kg	0.00
Spiked Amount 5000.000			Recovery =	88.77%		
12) Terphenyl-d14	17.67	244	6544599	4417.70	ug/Kg	0.00
Spiked Amount 5000.000			Recovery =	88.35%		

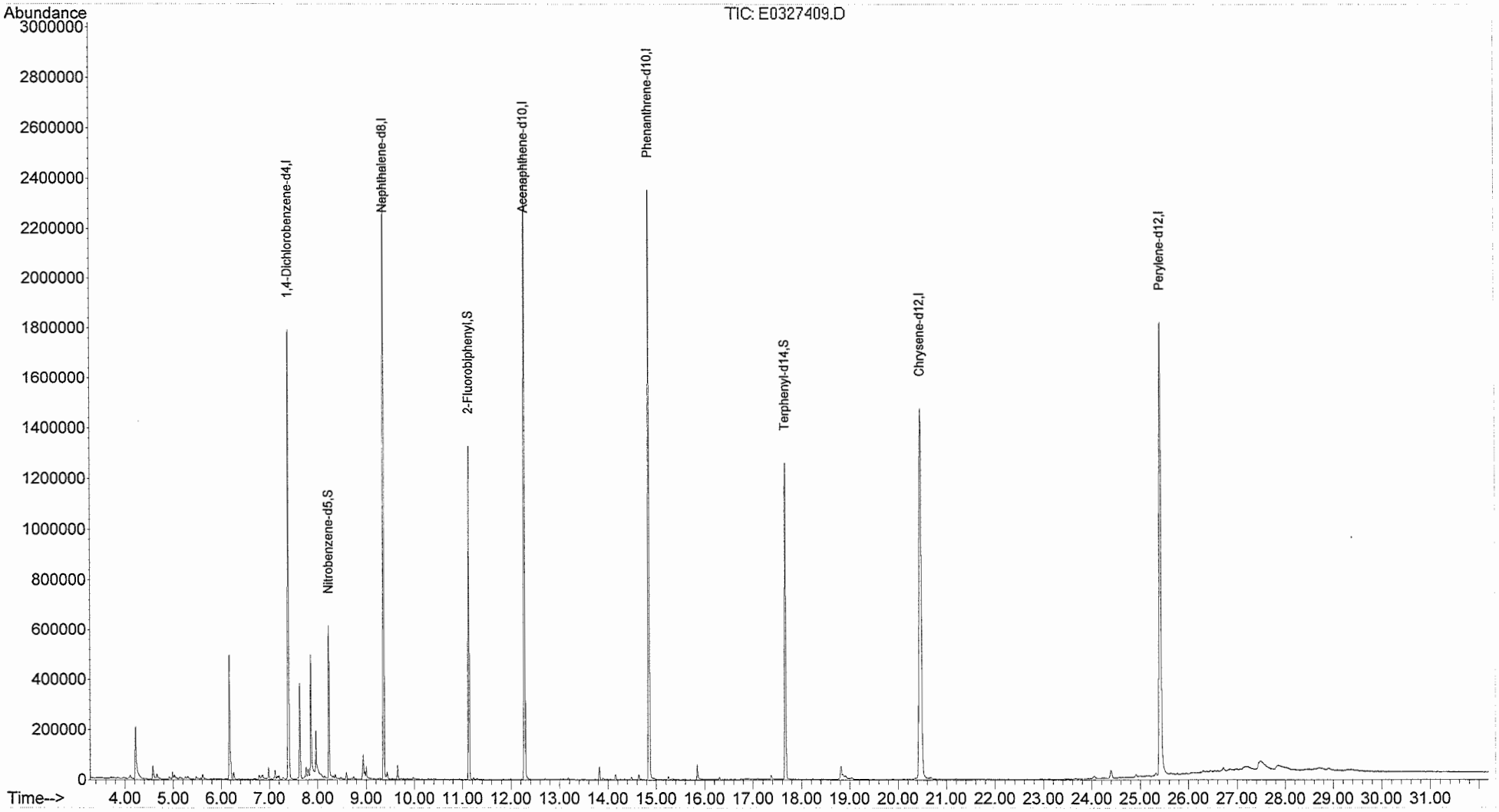
Target Compounds	Qvalue

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

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\032714\
Data File : E0327409.D
Acq On : 27 Mar 2014 17:40
Operator : PEK
Sample : 006615-04
Misc : B10174 AG-5 8270
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Mar 28 08:26:49 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: 006615 Report Date: 03/28/2014

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

Field ID:	MAK 116C	ARDL Lab No.:	006615-05
Desc/Location:	MAKAU MILITARY RESERVATION	Lab Filename:	E0327410
Sample Date:	01/31/2014	Received Date:	03/14/2014
Sample Time:	1330	Prep. Date:	03/25/2014
Matrix:	TISSUE	Analysis Date:	03/27/2014
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B10174
% 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	91%
Terphenyl-d14	30-130	93%

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

Sample 006615-05, BNA'S (METHOD 8270) Page 1 of 1

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\032714\
Data File : E0327410.D
Acq On : 27 Mar 2014 18:24
Operator : PEK
Sample : 006615-05
Misc : B10174 AG-5 8270
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Mar 28 08:26:59 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	3776629	8000.00	ug/Kg	0.00
2) Naphthalene-d8	9.37	136	14309965	8000.00	ug/Kg	0.00
4) Acenaphthene-d10	12.28	164	7858379	8000.00	ug/Kg	0.00
8) Phenanthrene-d10	14.86	188	13103298	8000.00	ug/Kg	0.00
10) Chrysene-d12	20.48	240	16159115	8000.00	ug/Kg	-0.01
15) Perylene-d12	25.43	264	15840762	8000.00	ug/Kg	0.00

System Monitoring Compounds						
3) Nitrobenzene-d5	8.23	82	2227270	3697.88	ug/Kg	-0.01
Spiked Amount 5000.000			Recovery =	73.96%		
5) 2-Fluorobiphenyl	11.13	172	5570544	4560.54	ug/Kg	0.00
Spiked Amount 5000.000			Recovery =	91.21%		
12) Terphenyl-d14	17.67	244	6342227	4666.63	ug/Kg	0.00
Spiked Amount 5000.000			Recovery =	93.33%		

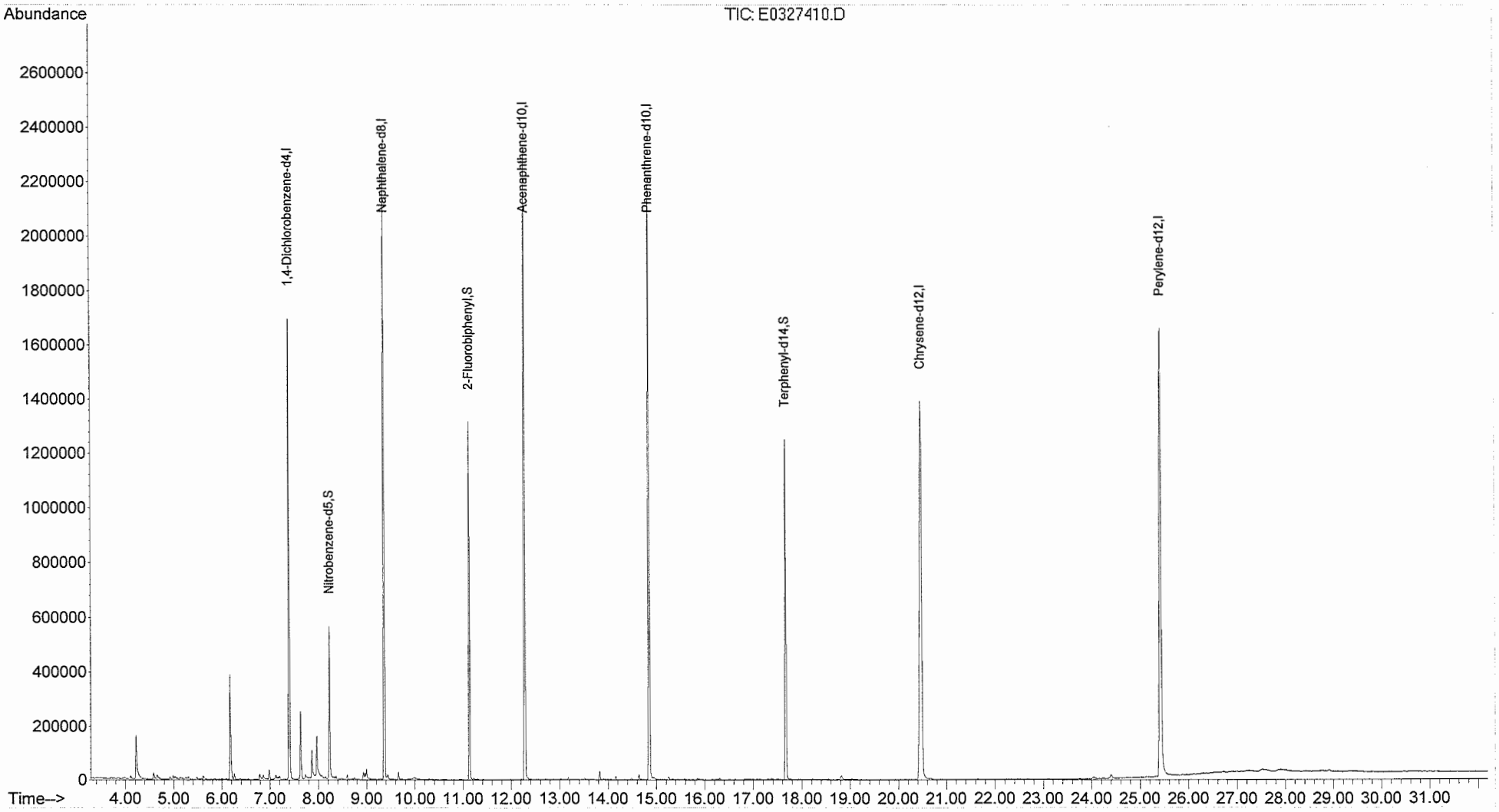
Target Compounds	Qvalue

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

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\032714\
Data File : E0327410.D
Acq On : 27 Mar 2014 18:24
Operator : PEK
Sample : 006615-05
Misc : B10174 AG-5 8270
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Mar 28 08:26:59 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: 006615 Report Date: 03/28/2014

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

Field ID:	MAK 116C	ARDL Lab No.:	006615-05MS
Desc/Location:	MAKAU MILITARY RESERVATION	Lab Filename:	E0327411
Sample Date:	01/31/2014	Received Date:	03/14/2014
Sample Time:	1330	Prep. Date:	03/25/2014
Matrix:	TISSUE	Analysis Date:	03/27/2014
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B10174
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
Dimethylphthalate	200	1000	3460		UG/KG	1
Diethylphthalate	200	1000	3480		UG/KG	1
Di-n-butylphthalate	200	1000	3710		UG/KG	1
Pyrene	200	1000	3640		UG/KG	1
bis(2-Ethylhexyl)phthalate	200	1000	3510		UG/KG	1
Di-n-octylphthalate	200	1000	3630		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	72%
2-Fluorobiphenyl	30-130	84%
Terphenyl-d14	30-130	96%

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

Matrix Spike for 006615-05, BNA'S (METHOD 8270) Page 1 of 1

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\032714\
Data File : E0327411.D
Acq On : 27 Mar 2014 19:08
Operator : PEK
Sample : 006615-05MS
Misc : B10174 AG-5 8270
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Mar 28 08:27:10 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

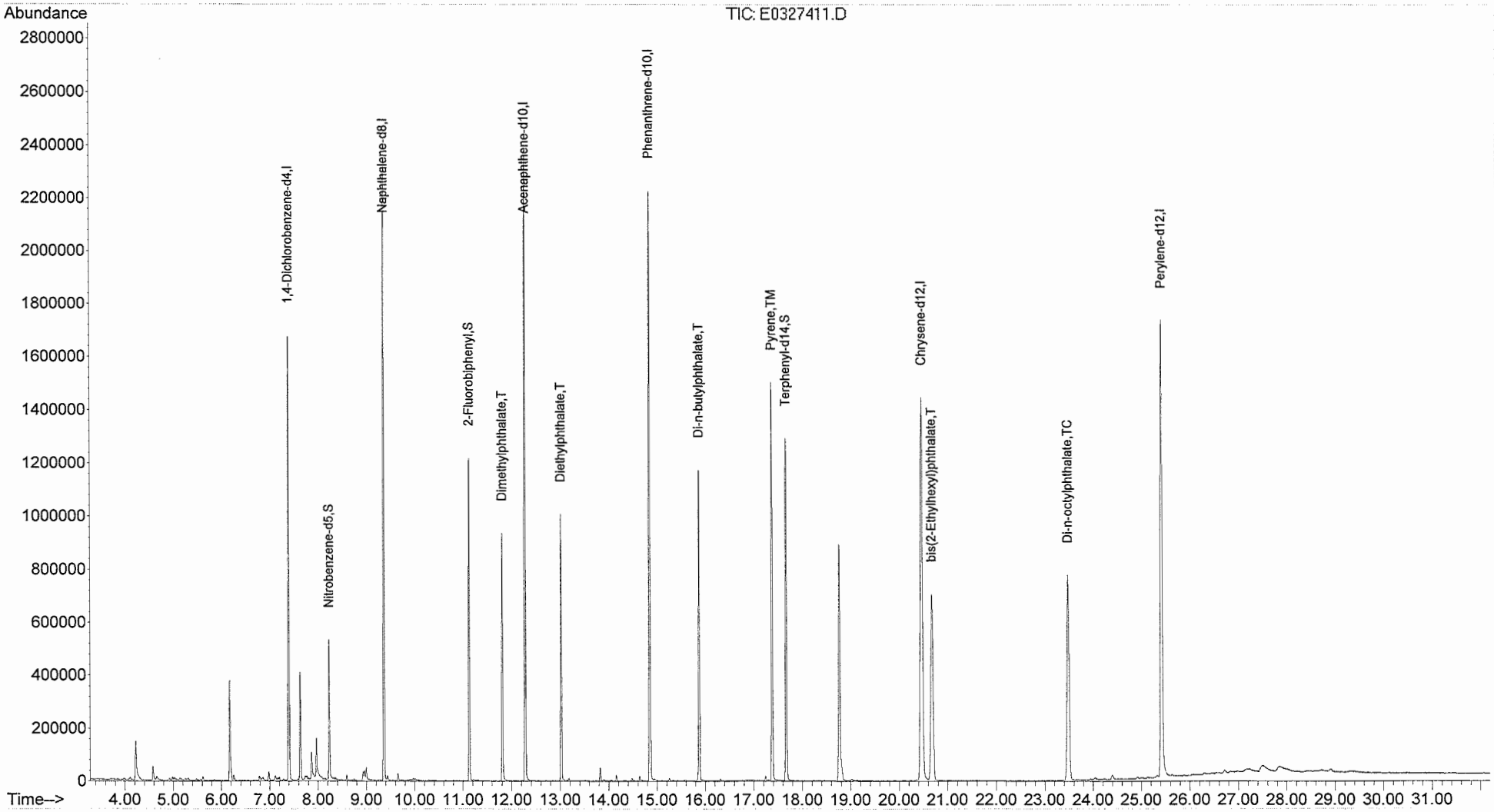
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.39	152	3818751	8000.00	ug/Kg	0.00
2) Naphthalene-d8	9.37	136	14348304	8000.00	ug/Kg	0.00
4) Acenaphthene-d10	12.28	164	8027418	8000.00	ug/Kg	0.00
8) Phenanthrene-d10	14.85	188	13420336	8000.00	ug/Kg	0.00
10) Chrysene-d12	20.47	240	16512424	8000.00	ug/Kg	-0.02
15) Perylene-d12	25.43	264	16174725	8000.00	ug/Kg	0.00
System Monitoring Compounds						
3) Nitrobenzene-d5	8.23	82	2181631	3612.42	ug/Kg	-0.01
Spiked Amount 5000.000			Recovery =	72.25%		
5) 2-Fluorobiphenyl	11.13	172	5264206	4218.99	ug/Kg	0.00
Spiked Amount 5000.000			Recovery =	84.38%		
12) Terphenyl-d14	17.67	244	6631953	4775.40	ug/Kg	0.00
Spiked Amount 5000.000			Recovery =	95.51%		
Target Compounds						Qvalue
6) Dimethylphthalate	11.81	163	5577270	3459.64	ug/Kg	99
7) Diethylphthalate	13.02	149	5646061	3478.42	ug/Kg	99
9) Di-n-butylphthalate	15.87	149	9846654	3709.41	ug/Kg	95
11) Pyrene	17.38	202	9845539	3638.83	ug/Kg	81
13) bis(2-Ethylhexyl)phthalate	20.68	149	7175168	3510.88	ug/Kg	99
14) Di-n-octylphthalate	23.49	149	12438079	3634.47	ug/Kg	100

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

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\032714\
Data File : E0327411.D
Acq On : 27 Mar 2014 19:08
Operator : PEK
Sample : 006615-05MS
Misc : B10174 AG-5 8270
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Mar 28 08:27:10 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: 006615 Report Date: 03/28/2014

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

Field ID:	MAK 116C	ARDL Lab No.:	006615-05MD
Desc/Location:	MAKAU MILITARY RESERVATION	Lab Filename:	E0327412
Sample Date:	01/31/2014	Received Date:	03/14/2014
Sample Time:	1330	Prep. Date:	03/25/2014
Matrix:	TISSUE	Analysis Date:	03/27/2014
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B10174
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
Dimethylphthalate	200	1000	3250		UG/KG	1
Diethylphthalate	200	1000	3170		UG/KG	1
Di-n-butylphthalate	200	1000	3410		UG/KG	1
Pyrene	200	1000	3380		UG/KG	1
bis(2-Ethylhexyl)phthalate	200	1000	3150		UG/KG	1
Di-n-octylphthalate	200	1000	3270		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	72%
2-Fluorobiphenyl	30-130	80%
Terphenyl-d14	30-130	91%

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

Matrix Spike Duplicate for 006615-05, BNA'S (METHOD 8270) Page 1 of 1

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\032714\
Data File : E0327412.D
Acq On : 27 Mar 2014 19:53
Operator : PEK
Sample : 006615-05MD
Misc : B10174 AG-5 8270
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Mar 28 08:27:18 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

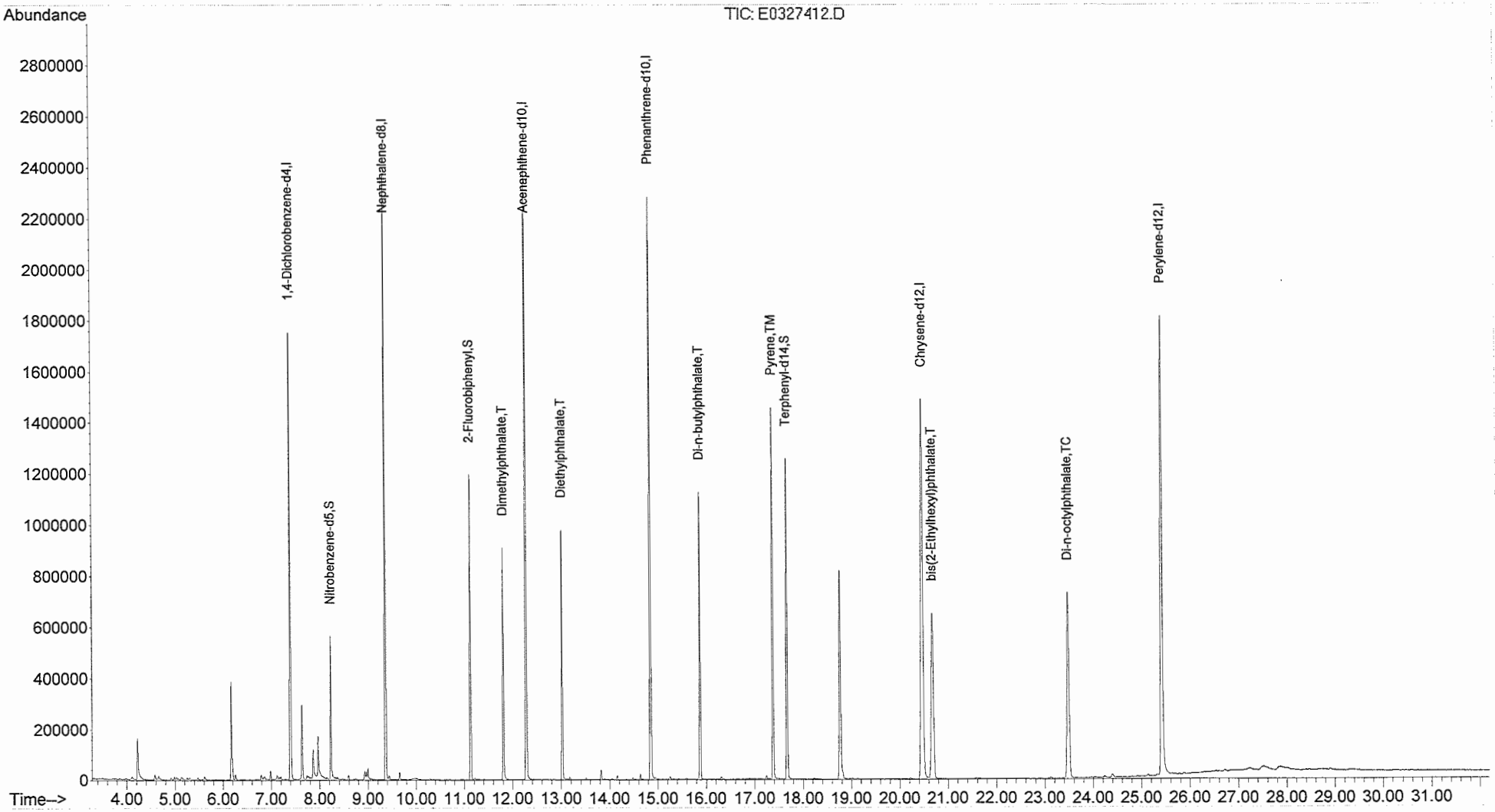
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.39	152	4010184	8000.00	ug/Kg	0.00
2) Naphthalene-d8	9.37	136	14943399	8000.00	ug/Kg	0.00
4) Acenaphthene-d10	12.28	164	8366412	8000.00	ug/Kg	0.00
8) Phenanthrene-d10	14.85	188	13800427	8000.00	ug/Kg	0.00
10) Chrysene-d12	20.47	240	17131716	8000.00	ug/Kg	-0.02
15) Perylene-d12	25.43	264	16832891	8000.00	ug/Kg	0.00
System Monitoring Compounds						
3) Nitrobenzene-d5	8.23	82	2271743	3611.83	ug/Kg	-0.01
Spiked Amount 5000.000			Recovery =	72.24%		
5) 2-Fluorobiphenyl	11.13	172	5185811	3987.76	ug/Kg	-0.01
Spiked Amount 5000.000			Recovery =	79.76%		
12) Terphenyl-d14	17.67	244	6573997	4562.56	ug/Kg	0.00
Spiked Amount 5000.000			Recovery =	91.25%		
Target Compounds						Qvalue
6) Dimethylphthalate	11.81	163	5455288	3246.86	ug/Kg	99
7) Diethylphthalate	13.02	149	5369997	3174.30	ug/Kg	100
9) Di-n-butylphthalate	15.87	149	9321553	3414.88	ug/Kg	95
11) Pyrene	17.38	202	9497282	3383.23	ug/Kg	81
13) bis(2-Ethylhexyl)phthalate	20.68	149	6678179	3149.58	ug/Kg	98
14) Di-n-octylphthalate	23.49	149	11622638	3273.42	ug/Kg	100

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

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\032714\
Data File : E0327412.D
Acq On : 27 Mar 2014 19:53
Operator : PEK
Sample : 006615-05MD
Misc : B10174 AG-5 8270
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Mar 28 08:27:18 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: 006615 Report Date: 03/28/2014

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

Field ID:	MAK 117C	ARDL Lab No.:	006615-06
Desc/Location:	MAKAU MILITARY RESERVATION	Lab Filename:	E0327413
Sample Date:	01/31/2014	Received Date:	03/14/2014
Sample Time:	1435	Prep. Date:	03/25/2014
Matrix:	TISSUE	Analysis Date:	03/27/2014
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B10174
% 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	66%
2-Fluorobiphenyl	30-130	81%
Terphenyl-d14	30-130	89%

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

Sample 006615-06, BNA'S (METHOD 8270) Page 1 of 1

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\032714\
Data File : E0327413.D
Acq On : 27 Mar 2014 20:37
Operator : PEK
Sample : 006615-06
Misc : B10174 AG-5 8270
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Mar 28 08:27:30 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	3793081	8000.00	ug/Kg	0.00
2) Naphthalene-d8	9.37	136	14343468	8000.00	ug/Kg	0.00
4) Acenaphthene-d10	12.28	164	7993271	8000.00	ug/Kg	0.00
8) Phenanthrene-d10	14.85	188	13306318	8000.00	ug/Kg	0.00
10) Chrysene-d12	20.47	240	16398778	8000.00	ug/Kg	-0.02
15) Perylene-d12	25.43	264	15850960	8000.00	ug/Kg	0.00
System Monitoring Compounds						
3) Nitrobenzene-d5	8.23	82	1981114	3281.51	ug/Kg	-0.01
Spiked Amount 5000.000			Recovery =	65.63%		
5) 2-Fluorobiphenyl	11.13	172	5039578	4056.22	ug/Kg	-0.01
Spiked Amount 5000.000			Recovery =	81.12%		
12) Terphenyl-d14	17.67	244	6166537	4471.05	ug/Kg	0.00
Spiked Amount 5000.000			Recovery =	89.42%		

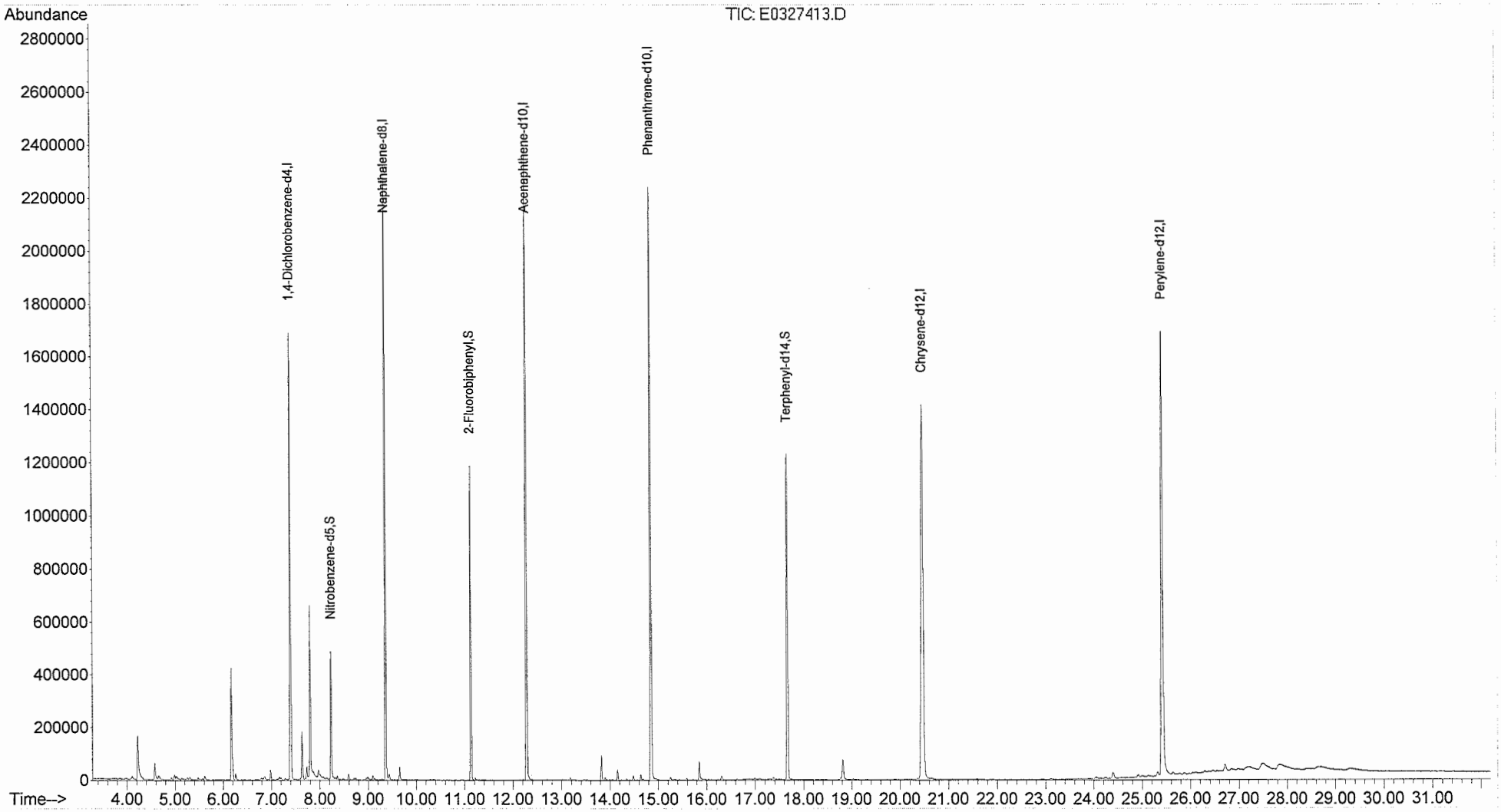
Target Compounds	Qvalue

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

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\032714\
Data File : E0327413.D
Acq On : 27 Mar 2014 20:37
Operator : PEK
Sample : 006615-06
Misc : B10174 AG-5 8270
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Mar 28 08:27:30 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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400 Aviation Drive; P.O. Box 1566
Mt. Vernon, Illinois 62864

Lab Report No: 006615 Report Date: 03/28/2014

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

Field ID:	MAK 118C	ARDL Lab No.:	006615-07
Desc/Location:	MAKAU MILITARY RESERVATION	Lab Filename:	E0327414
Sample Date:	01/31/2014	Received Date:	03/14/2014
Sample Time:	1605	Prep. Date:	03/25/2014
Matrix:	TISSUE	Analysis Date:	03/27/2014
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B10174
% 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	92%
Terphenyl-d14	30-130	93%

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

Sample 006615-07, BNA'S (METHOD 8270) Page 1 of 1

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\032714\
Data File : E0327414.D
Acq On : 27 Mar 2014 21:21
Operator : PEK
Sample : 006615-07
Misc : B10174 AG-5 8270
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Mar 28 08:27:39 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	4067200	8000.00	ug/Kg	0.00
2) Naphthalene-d8	9.37	136	15191322	8000.00	ug/Kg	0.00
4) Acenaphthene-d10	12.28	164	8504758	8000.00	ug/Kg	0.00
8) Phenanthrene-d10	14.85	188	14241271	8000.00	ug/Kg	0.00
10) Chrysene-d12	20.48	240	17781931	8000.00	ug/Kg	-0.02
15) Perylene-d12	25.43	264	17214423	8000.00	ug/Kg	0.00
System Monitoring Compounds						
3) Nitrobenzene-d5	8.23	82	2269913	3550.03	ug/Kg	-0.01
Spiked Amount 5000.000			Recovery =	71.00%		
5) 2-Fluorobiphenyl	11.13	172	6074047	4594.81	ug/Kg	0.00
Spiked Amount 5000.000			Recovery =	91.90%		
12) Terphenyl-d14	17.67	244	6942032	4641.81	ug/Kg	0.00
Spiked Amount 5000.000			Recovery =	92.84%		

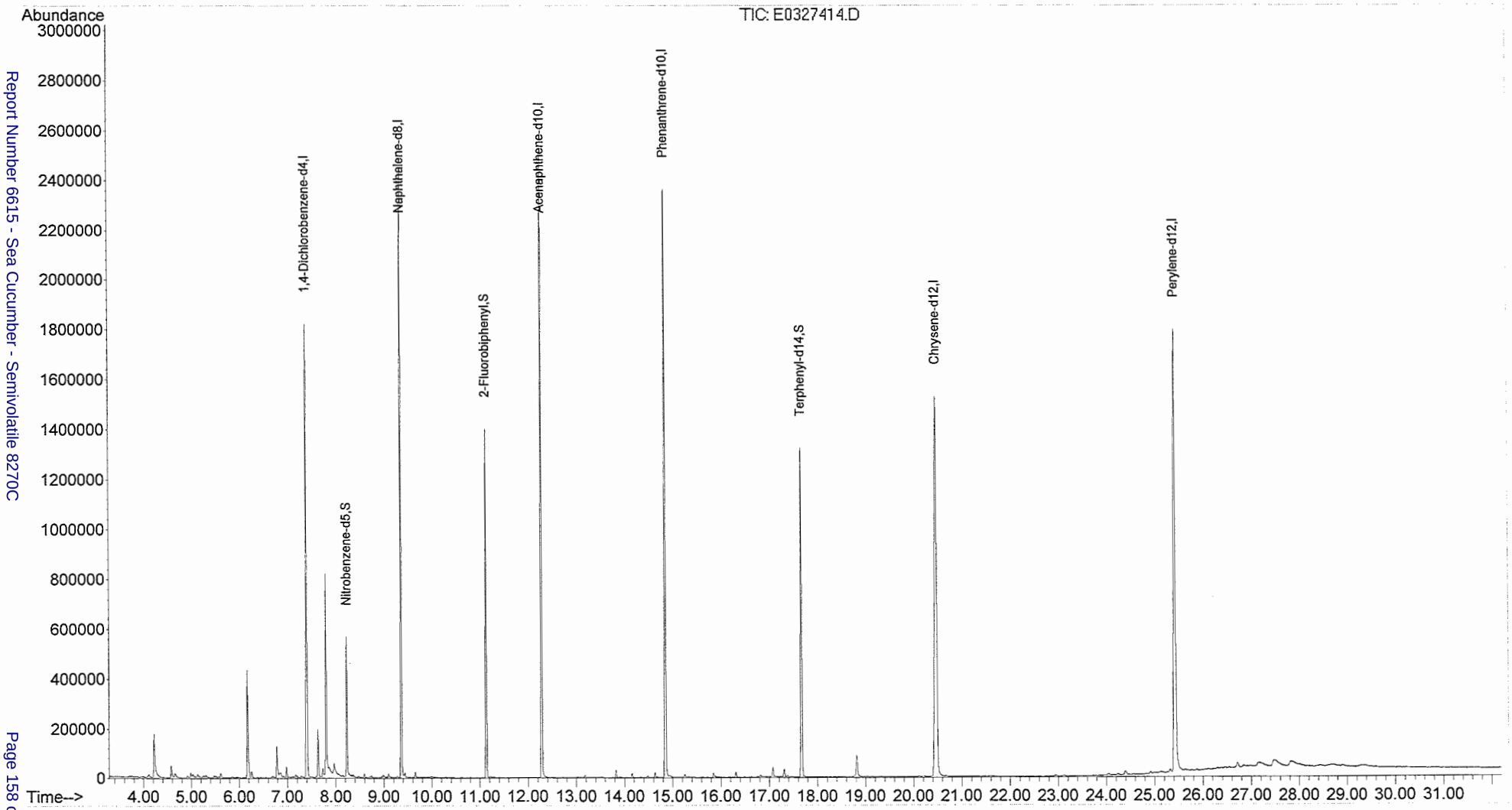
Target Compounds Qvalue

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

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\032714\
Data File : E0327414.D
Acq On : 27 Mar 2014 21:21
Operator : PEK
Sample : 006615-07
Misc : B10174 AG-5 8270
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Mar 28 08:27:39 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: 006615 Report Date: 03/28/2014

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

Field ID:	MAK 120C	ARDL Lab No.:	006615-08
Desc/Location:	MAKAU MILITARY RESERVATION	Lab Filename:	E0327415
Sample Date:	02/11/2014	Received Date:	03/14/2014
Sample Time:	1030	Prep. Date:	03/25/2014
Matrix:	TISSUE	Analysis Date:	03/27/2014
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B10174
% 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	57%
2-Fluorobiphenyl	30-130	80%
Terphenyl-d14	30-130	94%

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

Sample 006615-08, BNA'S (METHOD 8270) Page 1 of 1

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\032714\
Data File : E0327415.D
Acq On : 27 Mar 2014 22:04
Operator : PEK
Sample : 006615-08
Misc : B10174 AG-5 8270
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Mar 28 08:27:49 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	4229419	8000.00	ug/Kg	0.00
2) Naphthalene-d8	9.37	136	15828690	8000.00	ug/Kg	0.00
4) Acenaphthene-d10	12.28	164	8876424	8000.00	ug/Kg	0.00
8) Phenanthrene-d10	14.85	188	15000109	8000.00	ug/Kg	0.00
10) Chrysene-d12	20.48	240	18905018	8000.00	ug/Kg	-0.01
15) Perylene-d12	25.43	264	18149708	8000.00	ug/Kg	0.00
System Monitoring Compounds						
3) Nitrobenzene-d5	8.23	82	1905618	2860.28	ug/Kg	-0.01
Spiked Amount 5000.000			Recovery =	57.21%		
5) 2-Fluorobiphenyl	11.13	172	5535041	4011.75	ug/Kg	-0.01
Spiked Amount 5000.000			Recovery =	80.23%		
12) Terphenyl-d14	17.67	244	7481523	4705.36	ug/Kg	0.00
Spiked Amount 5000.000			Recovery =	94.11%		

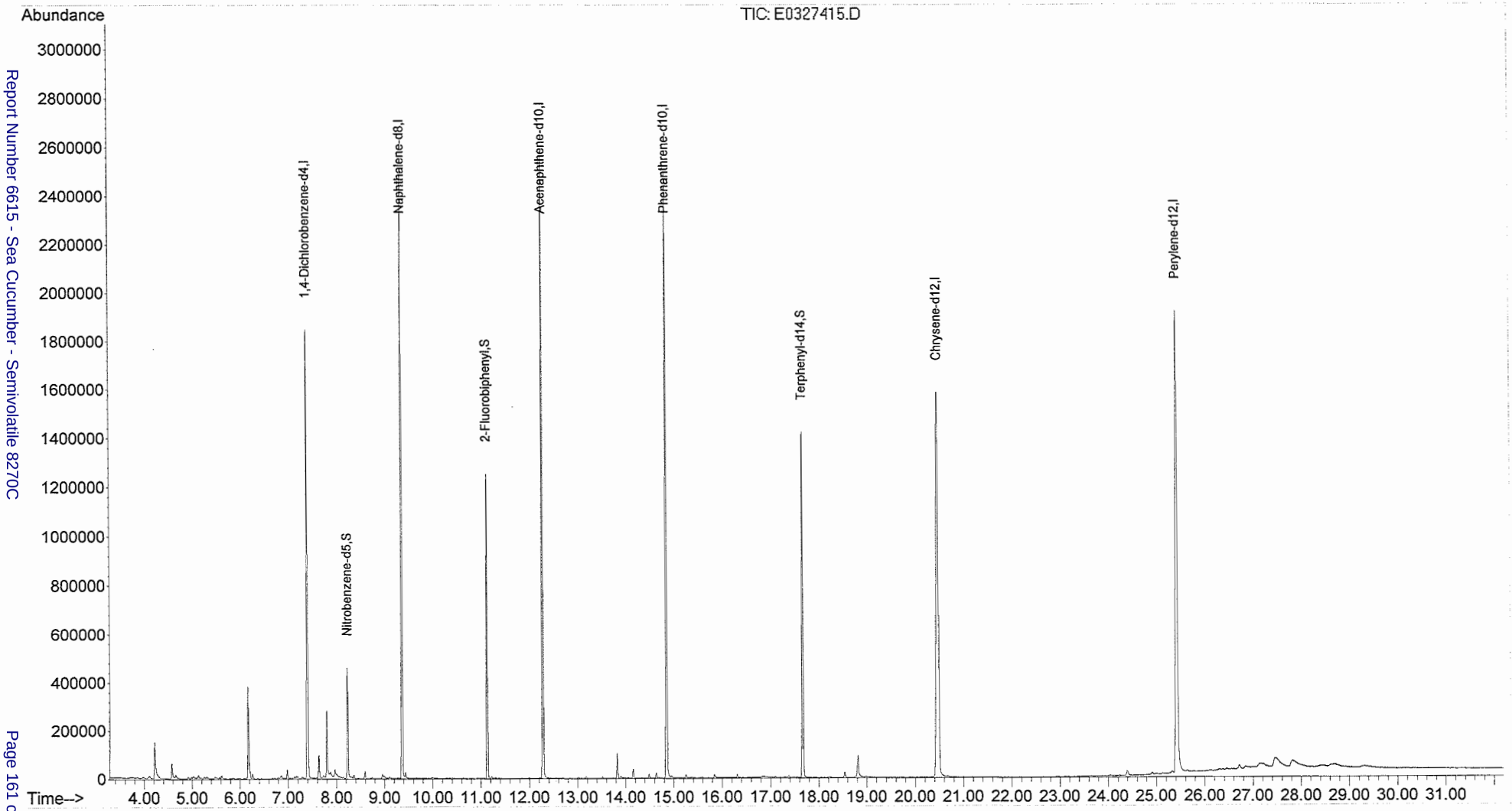
Target Compounds	Qvalue

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

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\032714\
Data File : E0327415.D
Acq On : 27 Mar 2014 22:04
Operator : PEK
Sample : 006615-08
Misc : B10174 AG-5 8270
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Mar 28 08:27:49 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.: 6615-05MS Compound: Dimethylphthalate Matrix: Tissue

$$\text{Concentration (ug/Kg)} = \frac{(5577270)*(40ng)*(1000\mu L)}{(8027418)*(1.607)*(1\mu L)*(5g)} = 3460$$

Example Calculations Performed By: PEK Date: 4/9/2014

Miscellaneous Additional Data

(If applicable)

☑ None _____

Rev. 1.1