Table Of Contents

ANALYSIS: BNA METHOD NO.: 2,4-DNT 8270SP

ARDL Report(s) #: 0006562 / 0006563 MATRIX: LIMU

	PAGE
Organic Package Review Checklist	2
Case Narrative and/or Nonconformance Reports	5
Sample Receipt Information	8
Field Sample Results	12
QC Summary Forms	37
Sample Preparation Information	52
Standard Preparation Information	61
Analytical Run Data	98
Example Calculation	263
Miscellaneous Additional Data	266

	By:	Date:
Package Preparation	JAA	12/19/13
Analytical Review	JP	12/20/13
Final Review	BMD	12/23/13
QA Review	DAS	12/23/13

Rev. 1.1

Case Narrative and/or Nonconformance Reports

Rev. 1.1

ORGANIC ANALYSIS CASE NARRATIVE

Corps of Engineers – ERDC, Vicksburg **Date: 12/23/13**

ARDL Report No.: 6562, 6563 **Lab Name: ARDL, Inc.**

Project Name: MAKAU MILITARY RESERVATION OAHU (LIMU)

Samples Received at ARDL: 11/07/2013

Lab ID No.	Sample ID No.	Date Collected	Date Extracted	Analysis Requested
006562-01	MAK001L/2L/26L	09/27/2013	11/18/13	2,4-Dinitrotoluene
006562-02	MAK007L	09/16/2013	11/18/13	2,4-Dinitrotoluene
006562-03	MAK009L	09/16/2013	11/18/13	2,4-Dinitrotoluene
006562-04	MAK010L(comp)	09/16/2013	11/18/13	2,4-Dinitrotoluene
006562-05	MAK011L	09/16/2013	11/18/13	2,4-Dinitrotoluene
006562-06	MAK013L	09/18/2013	11/18/13	2,4-Dinitrotoluene
006562-07	MAK016L/21L/27L	09/27/2013	11/18/13	2,4-Dinitrotoluene
006562-08	MAK022L	09/27/2013	11/18/13	2,4-Dinitrotoluene
006562-09	MAK023L	09/27/2013	11/18/13	2,4-Dinitrotoluene
006562-10	MAK024L/25L	09/27/2013	11/18/13	2,4-Dinitrotoluene
006562-11	MAK025L	09/27/2013	11/18/13	2,4-Dinitrotoluene
006562-12	MAK047L	10/15/2013	11/18/13	2,4-Dinitrotoluene
006563-01	MAK029L	10/11/2013	11/19/13	2,4-Dinitrotoluene
006563-02	MAK030L	10/11/2013	11/19/13	2,4-Dinitrotoluene
006563-03	MAK033L	10/11/2013	11/19/13	2,4-Dinitrotoluene
006563-04	MAK034L	10/11/2013	11/19/13	2,4-Dinitrotoluene
006563-05	MAK038L	10/11/2013	11/19/13	2,4-Dinitrotoluene
006563-06	MAK041L	10/11/2013	11/19/13	2,4-Dinitrotoluene
006563-07	MAK042L	10/11/2013	11/19/13	2,4-Dinitrotoluene
006563-08	MAK043L	10/11/2013	11/19/13	2,4-Dinitrotoluene
006563-09	MAK044L	10/15/2013	11/19/13	2,4-Dinitrotoluene
006563-10	MAK045L	10/15/2013	11/19/13	2,4-Dinitrotoluene
006563-11	MAK046L	10/15/2013	11/19/13	2,4-Dinitrotoluene
006563-12	MAK049L	10/15/2013	11/19/13	2,4-Dinitrotoluene

SEMIVOLATILE FRACTION – METHOD 8270C

Twenty five (25) tissue (limu) samples were received by ARDL, Inc. on November 07, 2013, for 8270C analysis. One sample, MB-SO-LIMU000-TEST, was provided for preliminary evaluation of the methods only.

These data are submitted by special request for one analyte: 2,4-Dinitrotoluene. Due to matrix interference problems encountered with the 8330A (HPLC) analysis for this analyte, the 8270C data for these samples were reprocessed to add a result for 2,4-Dinitrotoluene. Although this analyte was part of the initial and continuing calibrations, it was not spiked in the associated LCS and matrix spike/spike duplicate 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.

ORGANIC ANALYSIS CASE NARRATIVE

Corps of Engineers – ERDC, Vicksburg **Date: 12/23/13**

ARDL Report No.: 6562, 6563 **Lab Name: ARDL, Inc.**

Project Name: MAKAU MILITARY RESERVATION OAHU (LIMU)

Samples Received at ARDL: 11/07/2013

INTERNAL STANDARD

Internal standard recoveries were acceptable for all analyses.

LCS

N/A

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

N/A

METHOD BLANKS

No target analyte was detected in the method blank above the method limit.

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

Organic Package Review Checklist

Rev. 1.1

ORGANIC PACKAGE REVIEW CHECKLIST

METHOD: 8270C (Sp)

	Initial	Date
Case Narrative and/or Nonconformance Reports		
Case Narrative / Analyst Comment Sheets	JD	12/20/13
Nonconformance / Noncompliance Reports (if applicable)	NA	
Sample Receipt Information		
Copies of Original Chain-of-Custody Forms	JD	12/20/13
Cooler Receipt Form and Airbills		
Phone Messages (If applicable)		
Field Sample Results		
QC Summary Forms		
Surrogate Summary, if applicable	JD	12/20/13
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)	NA	
Extraction Log (If applicable)	JD	12/20/13
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	JD	12/20/13
Certificates of Analysis (Vendor)		
Analytical Run Number 1		
Calibration Information		
Tune Data		
Initial Calibration		
Continuing Calibration		
Instrument Logs/Analysis Notebook Pages		
Blank/Sample/Field QC Data		
Analytical Run Number 2 (if required)		
Calibration Information		
Tune Data		
Initial Calibration		
Continuing Calibration		
Instrument Logs/Analysis Notebook Pages		
Blank/Sample/Field QC Data		

Rev. 1.1

ORGANIC PACKAGE REVIEW CHECKLIST (Continued)

METHOD: 8270C

	Initial	Date
Analytical Run Number 3 (if required)		
Calibration Information	JO	12/20/13
Tune Data		
Initial Calibration		
Continuing Calibration		
Instrument Logs/Analysis Notebook Pages		
Blank/Sample/Field QC Data		
Analytical Run Number 4 (if required)		
Calibration Information		
Tune Data		
Initial Calibration		
Continuing Calibration		
Instrument Logs/Analysis Notebook Pages		
Blank/Sample/Field QC Data		
Analytical Run Number 5 (if required)		
Calibration Information	NA	
Tune Data		
Initial Calibration		
Continuing Calibration		
Instrument Logs/Analysis Notebook Pages		
Blank/Sample/Field QC Data		
Analytical Run Number 6 (if required)		
Calibration Information		
Tune Data		
Initial Calibration		
Continuing Calibration		
Instrument Logs/Analysis Notebook Pages		
Blank/Sample/Field QC Data		
Example Calculation		
Example Calculation Sheet	JO	12/20/13
Miscellaneous Additional Data (if applicable)	NA	

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: JO 12/20/13

Rev. 1.1

Sample Receipt Information

Rev. 1.1

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
MAK001L/2L/26L	9/9-27/13	varies	x		1	x	x	x	x	Limu	x	
MAK007L	9/16/2013	1320		x	1	x	x	x	x	Limu	x	
MAK009L	9/16/2013	1433		x	1	x	x	x	x	Limu	x	
MAK010L (comp)	9/16/2013	varies	x		1	x	x	x	x	Limu	x	
MAK011L	9/16/2013	750		x	1	x	x	x	x	Limu	x	
MAK013L	9/18/2013	750		x	1	x	x	x	x	Limu	x	
MAK016L/21L/27L	9/23-27/13	varies	x		1	x	x	x	x	Limu	x	
MAK022L	9/27/2013	1255		x	1	x	x	x	x	Limu	x	
MAK023L	9/27/2013	1255		x	1	x	x	x	x	Limu	x	
MAK024L/25L	9/27/2013	1255	x		1	x	x	x	x	Limu	x	
MAK025L	9/27/2013	1255		x	1	x	x	x	x	Limu	x	
MAK029L	10/11/2013	1505		x	1	x	x	x	x	Limu	x	
MAK030L	10/11/2013	950		x	1	x	x	x	x	Limu	x	
MAK033L	10/11/2013	1050		x	1	x	x	x	x	Limu	x	
MAK034L	10/11/2013	1050		x	1	x	x	x	x	Limu	x	
MAK038L	10/11/2013	1301		x	1	x	x	x	x	Limu	x	
MAK041L	10/11/2013	1400		x	1	x	x	x	x	Limu	x	
MAK042L	10/11/2013	1400		x	1	x	x	x	x	Limu	x	
MAK043L	10/11/2013	1400		x	1	x	x	x	x	Limu	x	
MAK044L	10/15/2013	925		x	1	x	x	x	x	Limu	x	
MAK045L	10/15/2013	1025		x	1	x	x	x	x	Limu	x	
MAK046L	10/15/2013	1105		x	1	x	x	x	x	Limu	x	
MAK047L	10/15/2013	1158		x	1	x	x	x	x	Limu	x	
MAK049L	10/15/2013	1225		x	1	x	x	x	x	Limu	x	

Relinquished by: (Signature)	Date	Time	Relinquished by: (Signature)
	11/6/13	1600	
Relinquished by: (Signature)	Date	Time	Relinquished by: (Signature)
Received for Laboratory by: (Signature)	Date	Time	Shipping Ticket No.
	11/7/13	0930	

REMARKS / SPECIAL INSTRUCTIONS:

Test samples - please process this group before or with the accompanying project samples.

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.

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
~~MAK003C - test~~	~~9/9/2013~~	~~1005~~		~~x~~	~~1~~	~~x~~	~~x~~	~~x~~	~~x~~	~~Sea Cucumber~~	~~x~~	
~~MB-SO-HEE000 - Test~~	~~8/29/2013~~	~~1049~~		~~x~~	~~1~~	~~x~~	~~x~~	~~x~~	~~x~~	~~Octopus~~	~~x~~	
MB-SO-LIMU000-test	8/29/2013	1100		x	1	x	x	x	x	Limu	x	
~~Trip Blank~~	~~9/12/2013~~			~~x~~	~~1~~	~~x~~					~~x~~	

Relinquished by: (Signature)	Date	Time	Relinquished by: (Signature)
[signature]	11/6/13	1600	
Relinquished by: (Signature)	Date	Time	Relinquished by: (Signature)
Received for Laboratory by: (Signature) [signature]	Date 11/7/13	Time 0930	Shipping Ticket No.

REMARKS / SPECIAL INSTRUCTIONS:

Test samples - please process this group before or with the accompanying project samples.

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.

ARDL #: 6562 & 6563

Cooler # 1 of 1
Number of Coolers in Shipment: 1

Project: Makua Military Reservation Oahu

Date Received: 11-07-13

A. **PRELIMINARY EXAMINATION PHASE:** Date cooler was opened: 11-07-13 (Signature) LA Steury

1. Did cooler come with a shipping slip (airbill, etc.)? ..... (YES) NO
   If YES, enter carrier name and airbill number here: FEDEX TRK# 9325 1887 8336
2. Were custody seals on outside of cooler? ..... (YES) NO N/A
   How many and where? 1 front, Seal Date: 11-06-13, Seal Name: J ? H
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?~~ las 11-07-13 ..... (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. -31.4 C

B. **LOG-IN PHASE:** Date samples were logged-in: 11-07-13 (Signature) LA Steury

10. Describe type of packing in cooler: dry ice, bubble pack
11. Were all bottles sealed in separate plastic bags? ..... (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:
(By: Signature) Date:

Sample Transfer	
Fraction: ALL	Fraction:
Area #: Freezer	Area #:
By: las	By:
On: 11-07-13	On:

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

Field Sample Results

Rev. 1.1

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

Lab Report No: 006562 Report Date: 12/19/2013

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

Field ID:	MAK001L/2L/26L	ARDL Lab No.:	006562-01
Desc/Location:	MAKU MILITARY RESERVATION	Lab Filename:	E1127305
Sample Date:	09/27/2013	Received Date:	11/07/2013
Sample Time:	1200	Prep. Date:	11/18/2013
Matrix:	TISSUE	Analysis Date:	11/27/2013
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6664
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
2,4-Dinitrotoluene	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	85%
2-Fluorobiphenyl	30-130	89%
Terphenyl-d14	30-130	86%

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

Sample 006562-01, BNA'S (METHOD 8270) Page 1 of 1

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

Lab Report No: 006562 Report Date: 12/19/2013

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

Field ID:	MAK007L	ARDL Lab No.:	006562-02
Desc/Location:	MAKU MILITARY RESERVATION	Lab Filename:	E1127306
Sample Date:	09/16/2013	Received Date:	11/07/2013
Sample Time:	1320	Prep. Date:	11/18/2013
Matrix:	TISSUE	Analysis Date:	11/27/2013
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6664
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
2,4-Dinitrotoluene	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	86%
2-Fluorobiphenyl	30-130	88%
Terphenyl-d14	30-130	83%

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

Sample 006562-02, BNA'S (METHOD 8270) Page 1 of 1

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

Lab Report No: 006562 Report Date: 12/19/2013

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

Field ID:	MAK009L	ARDL Lab No.:	006562-03
Desc/Location:	MAKU MILITARY RESERVATION	Lab Filename:	E1127307
Sample Date:	09/16/2013	Received Date:	11/07/2013
Sample Time:	1433	Prep. Date:	11/18/2013
Matrix:	TISSUE	Analysis Date:	11/27/2013
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6664
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
2,4-Dinitrotoluene	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	84%
2-Fluorobiphenyl	30-130	87%
Terphenyl-d14	30-130	85%

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

Sample 006562-03, BNA'S (METHOD 8270) Page 1 of 1

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

Lab Report No: 006562 Report Date: 12/19/2013

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

Field ID:	MAK010L(COMP)	ARDL Lab No.:	006562-04
Desc/Location:	MAKU MILITARY RESERVATION	Lab Filename:	E1127308
Sample Date:	09/16/2013	Received Date:	11/07/2013
Sample Time:	---	Prep. Date:	11/18/2013
Matrix:	TISSUE	Analysis Date:	11/27/2013
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6664
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
2,4-Dinitrotoluene	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	83%
2-Fluorobiphenyl	30-130	87%
Terphenyl-d14	30-130	83%

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

Sample 006562-04, BNA'S (METHOD 8270) Page 1 of 1

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

Lab Report No: 006562 Report Date: 12/19/2013

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

Field ID:	MAK011L	ARDL Lab No.:	006562-05
Desc/Location:	MAKU MILITARY RESERVATION	Lab Filename:	E1127309
Sample Date:	09/16/2013	Received Date:	11/07/2013
Sample Time:	0750	Prep. Date:	11/18/2013
Matrix:	TISSUE	Analysis Date:	11/27/2013
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6664
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
2,4-Dinitrotoluene	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	87%
2-Fluorobiphenyl	30-130	89%
Terphenyl-d14	30-130	86%

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

Sample 006562-05, BNA'S (METHOD 8270) Page 1 of 1

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

Lab Report No: 006562 Report Date: 12/19/2013

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

Field ID:	MAK013L	ARDL Lab No.:	006562-06
Desc/Location:	MAKU MILITARY RESERVATION	Lab Filename:	E1127310
Sample Date:	09/18/2013	Received Date:	11/07/2013
Sample Time:	0750	Prep. Date:	11/18/2013
Matrix:	TISSUE	Analysis Date:	11/27/2013
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6664
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
2,4-Dinitrotoluene	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	83%
2-Fluorobiphenyl	30-130	85%
Terphenyl-d14	30-130	84%

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

Sample 006562-06, BNA'S (METHOD 8270) Page 1 of 1

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

Lab Report No: 006562 Report Date: 12/19/2013

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

Field ID:	MAK016L/21L/27L	ARDL Lab No.:	006562-07
Desc/Location:	MAKU MILITARY RESERVATION	Lab Filename:	E1127311
Sample Date:	09/27/2013	Received Date:	11/07/2013
Sample Time:	---	Prep. Date:	11/18/2013
Matrix:	TISSUE	Analysis Date:	11/27/2013
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6664
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
2,4-Dinitrotoluene	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	78%
2-Fluorobiphenyl	30-130	75%
Terphenyl-d14	30-130	81%

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

Sample 006562-07, BNA'S (METHOD 8270) Page 1 of 1

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

Lab Report No: 006562 Report Date: 12/19/2013

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

Field ID:	MAK022L	ARDL Lab No.:	006562-08
Desc/Location:	MAKU MILITARY RESERVATION	Lab Filename:	E1127312
Sample Date:	09/27/2013	Received Date:	11/07/2013
Sample Time:	1255	Prep. Date:	11/18/2013
Matrix:	TISSUE	Analysis Date:	11/27/2013
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6664
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
2,4-Dinitrotoluene	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	83%
2-Fluorobiphenyl	30-130	81%
Terphenyl-d14	30-130	89%

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

Sample 006562-08, BNA'S (METHOD 8270) Page 1 of 1

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

Lab Report No: 006562 Report Date: 12/19/2013

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

Field ID:	MAK023L	ARDL Lab No.:	006562-09
Desc/Location:	MAKU MILITARY RESERVATION	Lab Filename:	E1129305
Sample Date:	09/27/2013	Received Date:	11/07/2013
Sample Time:	1255	Prep. Date:	11/18/2013
Matrix:	TISSUE	Analysis Date:	11/29/2013
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6664
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
2,4-Dinitrotoluene	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	69%
2-Fluorobiphenyl	30-130	62%
Terphenyl-d14	30-130	81%

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

Sample 006562-09, BNA'S (METHOD 8270) Page 1 of 1

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

Lab Report No: 006562 Report Date: 12/19/2013

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

Field ID:	MAK024L/25L	ARDL Lab No.:	006562-10
Desc/Location:	MAKU MILITARY RESERVATION	Lab Filename:	E1129306
Sample Date:	09/27/2013	Received Date:	11/07/2013
Sample Time:	1255	Prep. Date:	11/18/2013
Matrix:	TISSUE	Analysis Date:	11/29/2013
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6664
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
2,4-Dinitrotoluene	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	72%
2-Fluorobiphenyl	30-130	59%
Terphenyl-d14	30-130	88%

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

Sample 006562-10, BNA'S (METHOD 8270) Page 1 of 1

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

Lab Report No: 006562 Report Date: 12/19/2013

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

Field ID:	MAK025L	ARDL Lab No.:	006562-11
Desc/Location:	MAKU MILITARY RESERVATION	Lab Filename:	E1129307
Sample Date:	09/27/2013	Received Date:	11/07/2013
Sample Time:	1255	Prep. Date:	11/18/2013
Matrix:	TISSUE	Analysis Date:	11/29/2013
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6664
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
2,4-Dinitrotoluene	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	76%
2-Fluorobiphenyl	30-130	74%
Terphenyl-d14	30-130	88%

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

Sample 006562-11, BNA'S (METHOD 8270) Page 1 of 1

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

Lab Report No: 006562 Report Date: 12/19/2013

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

Field ID:	MAK047L	ARDL Lab No.:	006562-12
Desc/Location:	MAKU MILITARY RESERVATION	Lab Filename:	E1129308
Sample Date:	10/15/2013	Received Date:	11/07/2013
Sample Time:	1158	Prep. Date:	11/18/2013
Matrix:	TISSUE	Analysis Date:	11/29/2013
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6664
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
2,4-Dinitrotoluene	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	71%
2-Fluorobiphenyl	30-130	66%
Terphenyl-d14	30-130	86%

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

Sample 006562-12, BNA'S (METHOD 8270) Page 1 of 1

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

Lab Report No: 006563 Report Date: 12/19/2013

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

Field ID:	MAK029L	ARDL Lab No.:	006563-01
Desc/Location:	MAKU MILITARY RESERVATION	Lab Filename:	E1202307
Sample Date:	10/11/2013	Received Date:	11/07/2013
Sample Time:	1505	Prep. Date:	11/19/2013
Matrix:	TISSUE	Analysis Date:	12/02/2013
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6665
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
2,4-Dinitrotoluene	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	82%
2-Fluorobiphenyl	30-130	84%
Terphenyl-d14	30-130	79%

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

Sample 006563-01, BNA'S (METHOD 8270) Page 1 of 1

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

Lab Report No: 006563 Report Date: 12/19/2013

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

Field ID:	MAK030L	ARDL Lab No.:	006563-02
Desc/Location:	MAKU MILITARY RESERVATION	Lab Filename:	E1202308
Sample Date:	10/11/2013	Received Date:	11/07/2013
Sample Time:	0950	Prep. Date:	11/19/2013
Matrix:	TISSUE	Analysis Date:	12/02/2013
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6665
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
2,4-Dinitrotoluene	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	81%
2-Fluorobiphenyl	30-130	81%
Terphenyl-d14	30-130	80%

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

Sample 006563-02, BNA'S (METHOD 8270) Page 1 of 1

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

Lab Report No: 006563 Report Date: 12/19/2013

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

Field ID:	MAK033L	ARDL Lab No.:	006563-03
Desc/Location:	MAKU MILITARY RESERVATION	Lab Filename:	E1202309
Sample Date:	10/11/2013	Received Date:	11/07/2013
Sample Time:	1050	Prep. Date:	11/19/2013
Matrix:	TISSUE	Analysis Date:	12/02/2013
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6665
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
2,4-Dinitrotoluene	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	87%
2-Fluorobiphenyl	30-130	85%
Terphenyl-d14	30-130	82%

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

Sample 006563-03, BNA'S (METHOD 8270) Page 1 of 1

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

Lab Report No: 006563 Report Date: 12/19/2013

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

Field ID:	MAK034L	ARDL Lab No.:	006563-04
Desc/Location:	MAKU MILITARY RESERVATION	Lab Filename:	E1202310
Sample Date:	10/11/2013	Received Date:	11/07/2013
Sample Time:	1050	Prep. Date:	11/19/2013
Matrix:	TISSUE	Analysis Date:	12/02/2013
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6665
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
2,4-Dinitrotoluene	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	84%
2-Fluorobiphenyl	30-130	81%
Terphenyl-d14	30-130	81%

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

Sample 006563-04, BNA'S (METHOD 8270) Page 1 of 1

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

Lab Report No: 006563 Report Date: 12/19/2013

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

Field ID:	MAK038L	ARDL Lab No.:	006563-05
Desc/Location:	MAKU MILITARY RESERVATION	Lab Filename:	E1202311
Sample Date:	10/11/2013	Received Date:	11/07/2013
Sample Time:	1301	Prep. Date:	11/19/2013
Matrix:	TISSUE	Analysis Date:	12/02/2013
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6665
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
2,4-Dinitrotoluene	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	82%
2-Fluorobiphenyl	30-130	77%
Terphenyl-d14	30-130	81%

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

Sample 006563-05, BNA'S (METHOD 8270) Page 1 of 1

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

Lab Report No: 006563 Report Date: 12/19/2013

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

Field ID:	MAK041L	ARDL Lab No.:	006563-06
Desc/Location:	MAKU MILITARY RESERVATION	Lab Filename:	E1202312
Sample Date:	10/11/2013	Received Date:	11/07/2013
Sample Time:	1400	Prep. Date:	11/19/2013
Matrix:	TISSUE	Analysis Date:	12/02/2013
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6665
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
2,4-Dinitrotoluene	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	78%
2-Fluorobiphenyl	30-130	69%
Terphenyl-d14	30-130	78%

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

Sample 006563-06, BNA'S (METHOD 8270) Page 1 of 1

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

Lab Report No: 006563 Report Date: 12/19/2013

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

Field ID:	MAK042L	ARDL Lab No.:	006563-07
Desc/Location:	MAKU MILITARY RESERVATION	Lab Filename:	E1202313
Sample Date:	10/11/2013	Received Date:	11/07/2013
Sample Time:	1400	Prep. Date:	11/19/2013
Matrix:	TISSUE	Analysis Date:	12/02/2013
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6665
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
2,4-Dinitrotoluene	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	81%
2-Fluorobiphenyl	30-130	66%
Terphenyl-d14	30-130	82%

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

Sample 006563-07, BNA'S (METHOD 8270) Page 1 of 1

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

Lab Report No: 006563 Report Date: 12/19/2013

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

Field ID:	MAK043L	ARDL Lab No.:	006563-08
Desc/Location:	MAKU MILITARY RESERVATION	Lab Filename:	E1202314
Sample Date:	10/11/2013	Received Date:	11/07/2013
Sample Time:	1400	Prep. Date:	11/19/2013
Matrix:	TISSUE	Analysis Date:	12/02/2013
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6665
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
2,4-Dinitrotoluene	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	76%
2-Fluorobiphenyl	30-130	69%
Terphenyl-d14	30-130	81%

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

Sample 006563-08, BNA'S (METHOD 8270) Page 1 of 1

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

Lab Report No: 006563 Report Date: 12/19/2013

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

Field ID:	MAK044L	ARDL Lab No.:	006563-09
Desc/Location:	MAKU MILITARY RESERVATION	Lab Filename:	E1202315
Sample Date:	10/15/2013	Received Date:	11/07/2013
Sample Time:	0925	Prep. Date:	11/19/2013
Matrix:	TISSUE	Analysis Date:	12/02/2013
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6665
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
2,4-Dinitrotoluene	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	73%
2-Fluorobiphenyl	30-130	57%
Terphenyl-d14	30-130	74%

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

Sample 006563-09, BNA'S (METHOD 8270) Page 1 of 1

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

Lab Report No: 006563 Report Date: 12/19/2013

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

Field ID:	MAK045L	ARDL Lab No.:	006563-10
Desc/Location:	MAKU MILITARY RESERVATION	Lab Filename:	E1202316
Sample Date:	10/15/2013	Received Date:	11/07/2013
Sample Time:	1025	Prep. Date:	11/19/2013
Matrix:	TISSUE	Analysis Date:	12/02/2013
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6665
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
2,4-Dinitrotoluene	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	79%
2-Fluorobiphenyl	30-130	60%
Terphenyl-d14	30-130	78%

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

Sample 006563-10, BNA'S (METHOD 8270) Page 1 of 1

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

Lab Report No: 006563 Report Date: 12/19/2013

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

Field ID:	MAK046L	ARDL Lab No.:	006563-11
Desc/Location:	MAKU MILITARY RESERVATION	Lab Filename:	E1202317
Sample Date:	10/15/2013	Received Date:	11/07/2013
Sample Time:	1105	Prep. Date:	11/19/2013
Matrix:	TISSUE	Analysis Date:	12/02/2013
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6665
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
2,4-Dinitrotoluene	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	75%
2-Fluorobiphenyl	30-130	69%
Terphenyl-d14	30-130	81%

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

Sample 006563-11, BNA'S (METHOD 8270) Page 1 of 1

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

Lab Report No: 006563 Report Date: 12/19/2013

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

Field ID:	MAK049L	ARDL Lab No.:	006563-12
Desc/Location:	MAKU MILITARY RESERVATION	Lab Filename:	E1203305
Sample Date:	10/15/2013	Received Date:	11/07/2013
Sample Time:	1225	Prep. Date:	11/19/2013
Matrix:	TISSUE	Analysis Date:	12/03/2013
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6665
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
2,4-Dinitrotoluene	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	65%
2-Fluorobiphenyl	30-130	61%
Terphenyl-d14	30-130	74%

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

Sample 006563-12, 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
LIMU SEMIVOLATILE SURROGATE RECOVERY

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

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

	EPA SAMPLE NO.	S1 (NBZ) #	S2 (FBP) #	S3 (TPH) #	S4 ( ) #	S5 ( ) #	S6 ( ) #	TOT OUT
01	BLANK B10129	87	92	88				0
02	MAK001L/2L/26L	85	89	86				0
03	MAK007L	86	88	83				0
04	MAK009L	84	87	85				0
05	MAK010L(COMP)	83	87	83				0
06	MAK011L	87	89	86				0
07	MAK013L	86	85	84				0
08	MAK016L/21L/27L	78	75	81				0
09	MAK022L	83	81	89				0
10	MAK023L	69	62	81				0
11	MAK024L/25L	72	59	88				0
12	MAK025L	76	74	88				0
13	MAK047L	71	66	86				0
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

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

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

2C

LIMU SEMIVOLATILE SURROGATE RECOVERY

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

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

	EPA SAMPLE NO.	S1 (NBZ) #	S2 (FBP) #	S3 (TPH) #	S4 ( ) #	S5 ( ) #	S6 ( ) #	TOT OUT
01	BLANK B10131	82	78	80				0
02	MAK029L	82	84	79				0
03	MAK030L	81	81	80				0
04	MAK033L	87	85	82				0
05	MAK034L	84	81	81				0
06	MAK038L	82	77	81				0
07	MAK041L	78	69	78				0
08	MAK042L	81	66	82				0
09	MAK043L	76	69	81				0
10	MAK044L	73	57	74				0
11	MAK045L	79	60	78				0
12	MAK046L	75	69	81				0
13	MAK049L	65	61	74				0
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

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

column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

4B

SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

BLANK B10129

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

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

Lab File ID: E1127303 Lab Sample ID: 006562-12B1

Instrument ID: AG5 Date Extracted: 11/18/13

Matrix: (soil/water) LIMU Date Analyzed: 11/27/13

Level: (low/med) --- Time Analyzed: 10:48

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	MAK001L/2L/26L	006562-01	E1127305	11/27/13
02	MAK007L	006562-02	E1127306	11/27/13
03	MAK009L	006562-03	E1127307	11/27/13
04	MAK010L(COMP)	006562-04	E1127307	11/27/13
05	MAK011L	006562-05	E1127308	11/27/13
06	MAK013L	006562-06	E1127309	11/27/13
07	MAK016L/21L/27L	006562-07	E1127310	11/27/13
08	MAK022L	006562-08	E1127311	11/27/13
09	MAK023L	006562-09	E1129305	11/29/13
10	MAK024L/25L	006562-10	E1129306	11/29/13
11	MAK025L	006562-11	E1129307	11/29/13
12	MAK047L	006562-12	E1129308	11/29/13
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COMMENTS:

4B

SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

BLANK B10131

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

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

Lab File ID: E1202305 Lab Sample ID: 006563-12B1

Instrument ID: AG5 Date Extracted: 11/19/13

Matrix: (soil/water) LIMU Date Analyzed: 12/02/13

Level: (low/med) --- Time Analyzed: 12:41

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	MAK029L	006563-01	E1202307	12/02/13
02	MAK030L	006563-02	E1202308	12/02/13
03	MAK033L	006563-03	E1202309	12/02/13
04	MAK034L	006563-04	E1202310	12/02/13
05	MAK038L	006563-05	E1202311	12/02/13
06	MAK041L	006563-06	E1202312	12/02/13
07	MAK042L	006563-07	E1202313	12/02/13
08	MAK043L	006563-08	E1202314	12/02/13
09	MAK044L	006563-09	E1202315	12/02/13
10	MAK045L	006563-10	E1202316	12/02/13
11	MAK046L	006563-11	E1202317	12/02/13
12	MAK049L	006563-12	E1203305	12/03/13
13				
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COMMENTS:

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

Lab Report No: 006562 Report Date: 12/19/2013

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

Field ID:	NA	ARDL Lab No.:	006562-12B1
Desc/Location:	NA	Lab Filename:	E1127303
Sample Date:	NA	Received Date:	NA
Sample Time:	NA	Prep. Date:	11/18/2013
Matrix:	QC Material	Analysis Date:	11/27/2013
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6664
% Moisture:	NA	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units
2,4-Dinitrotoluene	200	1000	ND		UG/KG

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	87%
2-Fluorobiphenyl	30-130	92%
Terphenyl-d14	30-130	88%

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

Blank for Run B6664, BNA'S (METHOD 8270) Page 1 of 1

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

Lab Report No: 006563 Report Date: 12/19/2013

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

Field ID:	NA	ARDL Lab No.:	006563-12B1
Desc/Location:	NA	Lab Filename:	E1202305
Sample Date:	NA	Received Date:	NA
Sample Time:	NA	Prep. Date:	11/19/2013
Matrix:	QC Material	Analysis Date:	12/02/2013
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6665
% Moisture:	NA	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units
2,4-Dinitrotoluene	200	1000	ND		UG/KG

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	82%
2-Fluorobiphenyl	30-130	78%
Terphenyl-d14	30-130	80%

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

Blank for Run B6665, 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.: --- SAS No.: --- SDG No.: ---

Lab File ID (Standard):E1126314 Date Analyzed: 11/26/13

Instrument ID: AG5 Time Analyzed: 18:09

		IS1(DCB) AREA #	RT #	IS2(NPT) AREA #	RT #	IS3(ANT) AREA #	RT #
	12 HOUR STANDARD	3078037	7.41	11765098	9.38	6622318	12.30
	UPPER LIMIT	6156074	7.91	23530196	9.88	13244636	12.80
	LOWER LIMIT	1539019	6.91	5882549	8.88	3311159	11.80
	EPA SAMPLE NO.						
1	BLANK B10129	3216617	7.41	12001694	9.38	6873323	12.30
2	MAK001L/2L/26L	3379621	7.41	12475939	9.38	7148683	12.30
3	MAK007L	3246076	7.42	11810992	9.38	6712072	12.30
4	MAK009L	3425236	7.41	12593415	9.38	7198387	12.30
5	MAK010L(COMP)	3312566	7.41	12261087	9.38	7012237	12.30
6	MAK011L	3217321	7.41	11813778	9.38	6734579	12.30
7	MAK013L	3447121	7.41	12451823	9.38	7148094	12.30
8	MAK016L/21L/27L	3264809	7.41	12117440	9.38	6817409	12.30
9	MAK022L	3293820	7.41	11887151	9.38	6690058	12.30
10							
11							
12							
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.: --- SAS No.: --- SDG No.: ---

Lab File ID (Standard):E1126314 Date Analyzed: 11/26/13

Instrument ID: AG5 Time Analyzed: 18:09

		IS4(PHN) AREA	#	RT	#	IS5(CRY) AREA	#	RT	#	IS6(PRY) AREA	#	RT	#
	12 HOUR STANDARD	10655429		14.87		12748304		20.51		13215987		25.44	
	UPPER LIMIT	21310858		15.37		25496608		21.01		26431974		25.94	
	LOWER LIMIT	5327715		14.37		6374152		20.01		6607994		24.94	
	EPA SAMPLE NO.												
1	BLANK B10129	11456610		14.87		13747164		20.49		11429873		25.43	
2	MAK001L/2L/26L	12152222		14.87		15194654		20.48		11353002		25.42	
3	MAK007L	11331040		14.87		14151026		20.49		10343501		25.43	
4	MAK009L	12009774		14.87		15043550		20.49		11036224		25.43	
5	MAK010L(COMP)	11766416		14.87		14709378		20.50		10487771		25.43	
6	MAK011L	11243429		14.87		14093607		20.49		8736841		25.42	
7	MAK013L	11950567		14.87		15051626		20.50		9606512		25.42	
8	MAK016L/21L/27L	11362018		14.87		14171934		20.49		8932938		25.42	
9	MAK022L	11303166		14.87		14095535		20.49		8157010		25.42	
10													
11													
12													
13													
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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

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

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

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

Lab File ID (Standard):E1126314 Date Analyzed: 11/26/13

Instrument ID: AG5 Time Analyzed: 18:09

		IS1(DCB) AREA	#	RT	#	IS2(NPT) AREA	#	RT	#	IS3(ANT) AREA	#	RT	#
	12 HOUR STANDARD	3078037		7.41		11765098		9.38		6622318		12.30	
	UPPER LIMIT	6156074		7.91		23530196		9.88		13244636		12.80	
	LOWER LIMIT	1539019		6.91		5882549		8.88		3311159		11.80	
	EPA SAMPLE NO.												
1	MAK023L	3651055		7.41		12990935		9.38		7348273		12.30	
2	MAK024L/25L	3397300		7.41		12171103		9.38		6907830		12.30	
3	MAK025L	3401306		7.41		12070063		9.38		6862936		12.30	
4	MAK047L	3564920		7.41		12944649		9.38		7450068		12.30	
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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.: --- SAS No.: --- SDG No.: ---

Lab File ID (Standard):E1126314 Date Analyzed: 11/26/13

Instrument ID: AG5 Time Analyzed: 18:09

		IS4(PHN) AREA #	RT #	IS5(CRY) AREA #	RT #	IS6(PRY) AREA #	RT #
	12 HOUR STANDARD	10655429	14.87	12748304	20.51	13215987	25.44
	UPPER LIMIT	21310858	15.37	25496608	21.01	26431974	25.94
	LOWER LIMIT	5327715	14.37	6374152	20.01	6607994	24.94
	EPA SAMPLE NO.						
1	MAK023L	12495512	14.87	15608190	20.49	11237547	25.42
2	MAK024L/25L	11613045	14.87	14407362	20.48	10565163	25.42
3	MAK025L	11572206	14.87	14320227	20.48	10191550	25.42
4	MAK047L	12474779	14.87	15187489	20.50	11685250	25.43
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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

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

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

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

Lab File ID (Standard):E1126314 Date Analyzed: 11/26/13

Instrument ID: AG5 Time Analyzed: 18:09

		IS1(DCB) AREA #	RT #	IS2(NPT) AREA #	RT #	IS3(ANT) AREA #	RT #
	12 HOUR STANDARD	3078037	7.41	11765098	9.38	6622318	12.30
	UPPER LIMIT	6156074	7.91	23530196	9.88	13244636	12.80
	LOWER LIMIT	1539019	6.91	5882549	8.88	3311159	11.80
	EPA SAMPLE NO.						
1	BLANK B10131	3538469	7.41	12764622	9.38	7495925	12.30
2	MAK029L	3698364	7.42	13091621	9.38	7660910	12.30
3	MAK030L	3442131	7.41	12547554	9.38	7208730	12.30
4	MAK033L	3515665	7.42	12668236	9.38	7351990	12.30
5	MAK034L	3407010	7.42	12305880	9.38	7158295	12.30
6	MAK038L	3500373	7.41	12751085	9.38	7405486	12.30
7	MAK041L	3543839	7.42	12881995	9.38	7538630	12.30
8	MAK042L	3454470	7.42	12515522	9.38	7258004	12.30
9	MAK043L	3805566	7.42	13815880	9.38	8032419	12.30
10	MAK044L	3629846	7.41	13303231	9.38	7867019	12.30
11	MAK045L	3613349	7.42	12996574	9.38	7533518	12.30
12	MAK046L	3592110	7.41	13080414	9.38	7692434	12.30
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.: --- SAS No.: --- SDG No.: ---

Lab File ID (Standard):E1126314 Date Analyzed: 11/26/13

Instrument ID: AG5 Time Analyzed: 18:09

		IS4(PHN) AREA #	RT #	IS5(CRY) AREA #	RT #	IS6(PRY) AREA #	RT #
	12 HOUR STANDARD	10655429	14.87	12748304	20.51	13215987	25.44
	UPPER LIMIT	21310858	15.37	25496608	21.01	26431974	25.94
	LOWER LIMIT	5327715	14.37	6374152	20.01	6607994	24.94
	EPA SAMPLE NO.						
1	BLANK B10131	12558221	14.87	15083479	20.49	13125112	25.43
2	MAK029L	12907201	14.87	16202541	20.50	11868101	25.43
3	MAK030L	11985293	14.87	14837644	20.50	9360478	25.43
4	MAK033L	12264721	14.87	15155111	20.50	8974276	25.43
5	MAK034L	11948175	14.87	14743538	20.50	8371499	25.43
6	MAK038L	12179195	14.87	14940518	20.50	8001030	25.43
7	MAK041L	12554764	14.87	15305958	20.50	8246802	25.42
8	MAK042L	12168811	14.87	14783937	20.50	7524290	25.43
9	MAK043L	13476226	14.87	16547635	20.50	9222546	25.43
10	MAK044L	12895175	14.87	15577882	20.50	9887815	25.43
11	MAK045L	12622367	14.87	15443760	20.50	8567595	25.43
12	MAK046L	12692369	14.87	15379530	20.50	9429573	25.44
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

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

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

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

Lab File ID (Standard):E1126314 Date Analyzed: 11/26/13

Instrument ID: AG5 Time Analyzed: 18:09

		IS1(DCB) AREA #	RT #	IS2(NPT) AREA #	RT #	IS3(ANT) AREA #	RT #
	12 HOUR STANDARD	3078037	7.41	11765098	9.38	6622318	12.30
	UPPER LIMIT	6156074	7.91	23530196	9.88	13244636	12.80
	LOWER LIMIT	1539019	6.91	5882549	8.88	3311159	11.80
	EPA SAMPLE NO.						
1	MAK049L	3639839	7.42	13243352	9.38	7709493	12.30
2							
3							
4							
5							
6							
7							
8							
9							
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12							
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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.: --- SAS No.: --- SDG No.: ---

Lab File ID (Standard):E1126314 Date Analyzed: 11/26/13

Instrument ID: AG5 Time Analyzed: 18:09

		IS4(PHN) AREA #	RT #	IS5(CRY) AREA #	RT #	IS6(PRY) AREA #	RT #
	12 HOUR STANDARD	10655429	14.87	12748304	20.51	13215987	25.44
	UPPER LIMIT	21310858	15.37	25496608	21.01	26431974	25.94
	LOWER LIMIT	5327715	14.37	6374152	20.01	6607994	24.94
	EPA SAMPLE NO.						
1	MAK049L	12842480	14.87	16514625	20.50	12453292	25.44
2							
3							
4							
5							
6							
7							
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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 : 11/ 18 / 2013 **BATCH # B10129**

CUST: Makau Military Reservation Oahu **ARDL # 6562**

SAMPLES: BLK; SP BLK; 6562-1 thru 12
QC SAMPLE: 6562-12ms/msd

SOLVENT USED: $MeCL_2$ # 0000060208
REAGENTS USED: Na_2SO_4 # 0000056573

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

SPIKE # 16088 CONC 250 PPM __X__ AMOUNT 100 uL __X__

EXTRACTION METHOD: SONICATION __X__ MED/LEVEL_____ DILUTION ____

FINAL VOLUME 1 mL

EXTRACTION PERSONNEL: SMN, JAD

SPIKER: SMN **WITNESS: JAD**

SAMPLE #	WEIGHT/G	pH	Vf	SAMPLE #	WEIGHT/G	pH	Vf
BLK	5.00 g	-----	1 mL	6562-12	5.02 g	-----	1 mL
SP BLK	5.00 g	"	"	6562-12ms	5.03 g	"	"
6562-1	5.02 g	"	"	6562-12msd	5.02 g	"	"
6562-2	5.05 g	"	"				
6562-3	4.98 g	"	"				
6562-4	5.01 g	"	"				
6562-5	5.03 g	"	"				
6562-6	5.04 g	"	"				
6562-7	5.03 g	"	"				
6562-8	5.05 g	"	"				
6562-9	4.99 g	"	"				
6562-10	5.01 g	"	"				
6562-11	4.99 g	"	"				

RECEIVED BY: PEK
DATE: 11/18/2013

DELIVERED BY: SMN
DATE: 11/18/13

B10129 8270-BNA-Tissues

Sample I.D.	W_I	V_f	Date:	Time:
BlK	5.00g	1mL	11/18/13	08:30
SpBlK	5.00g	1mL		
6562-1	5.02g	1mL	Water Bath Temp:	92°C
-2	5.05g	1mL		
-3	4.98g	1mL		
-4	5.01g	1mL		
-5	5.03g	1mL		
-6	5.04g	1mL		
-7	5.03g	1mL		
-8	5.05g	1mL		
-9	4.99g	1mL		
-10	5.01g	1mL		
-11	4.99g	1mL		
-12	5.02g	1mL		
-12MS	5.03g	1mL		
-12MSD	5.02g	1mL		

All samples contain 25µl of surrogate # BN 20000-050613 (1000ppm).

SpBlK, MS, MSD contain 100µl of spike # 16988 (250 ppm).

Solvent Used: $MeCl_2$ # 0000060208.

Reagent Used: Na_2SO_4 # 0000056573.

Spiker SMW Witness JAO

Continued on Page

Read and Understood By

Steve Newcomb 11/18/13 Signed Date

JO 11/18/13 Signed Date

3550
8270 BNA Tissues

DATE : 11/ 19 / 2013 **BATCH # B10131**

CUST: Makau Military Reservation Oahu **ARDL # 6563**

SAMPLES: BLK; SP BLK; 6563-1 thru 12
QC SAMPLE: 6563-12ms/msd

SOLVENT USED: $MeCL_2$ # 0000060208
REAGENTS USED: Na_2SO_4 # 0000056573

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

SPIKE # 16088 CONC 250 PPM __X__ AMOUNT 100 uL __X__

EXTRACTION METHOD: SONICATION __X__ MED/LEVEL_____ DILUTION ____

FINAL VOLUME 1 mL

EXTRACTION PERSONNEL: SMN, JAD

SPIKER: SMN **WITNESS: JAD**

SAMPLE #	WEIGHT/G	pH	Vf		SAMPLE #	WEIGHT/G	pH	Vf
BLK	5.00 g	-----	1 mL		6563-12	5.05 g	-----	1 mL
SP BLK	5.00 g	"	"		6563-12ms	5.00 g	"	"
6563-1	5.00 g	"	"		6563-12msd	5.05 g	"	"
6563-2	5.04 g	"	"					
6563-3	5.02 g	"	"					
6563-4	5.05 g	"	"					
6563-5	5.05 g	"	"					
6563-6	5.01 g	"	"					
6563-7	5.04 g	"	"					
6563-8	5.05 g	"	"					
6563-9	5.01 g	"	"					
6563-10	5.05 g	"	"					
6563-11	5.01 g	"	"					

RECEIVED BY: _____ **DELIVERED BY:** SMN

DATE: 11/19/13 DATE: 11/19/13

B10131 8270 - BNA - Tissues

Sample I.D.	W_I	V_f	Date:	Time:
BLK	5.00g	1mL	11/19/13	09:30
SpBLK	5.00g	1mL		
6563-1	5.00g	1mL	Water Bath Temp: 95°C	
-2	5.04g	1mL		
-3	5.02g	1mL		
-4	5.05g	1mL		
-5	5.05g	1mL		
-6	5.01g	1mL		
-7	5.04g	1mL		
-8	5.05g	1mL		
-9	5.01g	1mL		
-10	5.05g	1mL		
-11	5.01g	1mL		
-12	5.05g	1mL		
-12MS	5.00g	1mL		
-12MSD	5.05g	1mL		
-13			SMW 11/19/13	

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

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

Solvent Used: $MeCl_2$ # 0000060208.

Reagent Used: Na_2SO_4 # 0000056573.

Spiker SMW Witness SAO

Continued on Page

Read and Understood By

Steve Newcom 11/19/13 Signed Date

Signed 11/19/13 Date

Absolute St[illegible]ards, Inc.
800-368-1131
www.absolutestandards.com

Certified R[illegible]rence Material CRM

ISO 90[illegible]S Registered
ISO 17025-34[illegible]43 Accredited
Scopes: http://AbsoluteStandards.com

CERTIFIED WEIGHT REPORT

Part Number: 20006
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

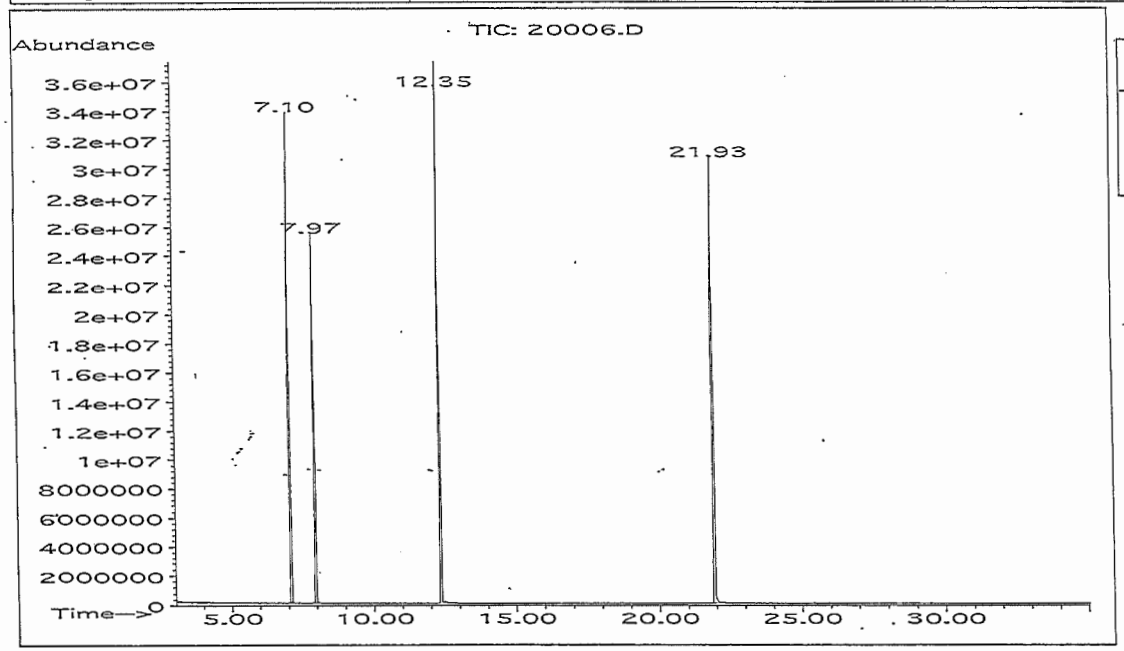
Solvent(s): Lot # 28951 Methylene chloride

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

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

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

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



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

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 MeCl2. = 25 PPM DFTPP

MeCl2	PEK	exp
00000 54901	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 MeCl2. 1.0 mL of 10 µg/mL + 5 µL of 15972-S (2000 µg/mL exp. 05/2016).

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

Continued on Page

Read and Understood By

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

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)

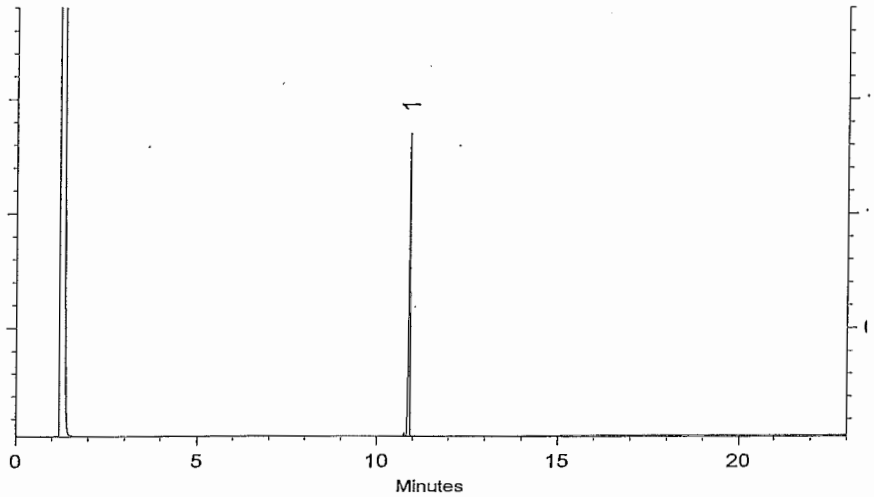
Carrier Gas:
hydrogen-constant pressure 10 psi.

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:
FID



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

www.Restek.com

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)

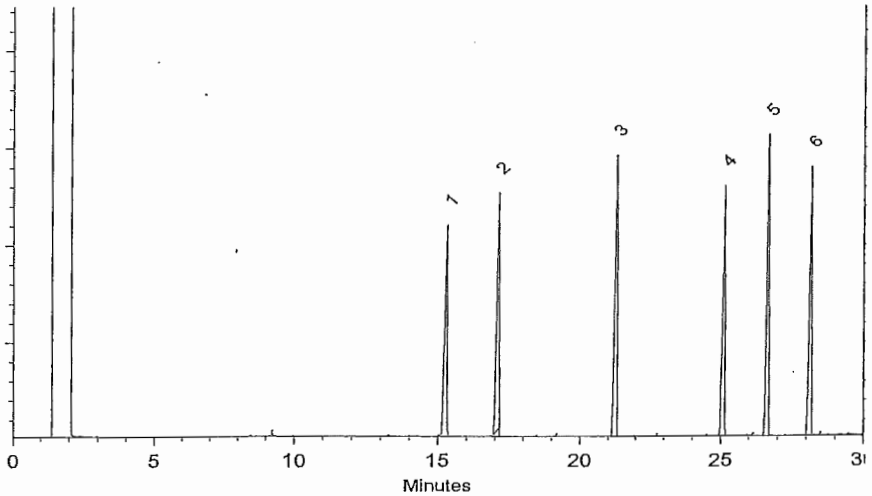
Carrier Gas:
hydrogen-constant pressure 10 psi.

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

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

AC
10/17/12

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

15653 30 ug Val Stnd (8270)

Diluted the following volumes to 1mL VF:

Vol	Mix #	Mix Name	Exp Date	Conc
15µL	15651-R	SV Mix #1	02/2015	2000ug/mL
	14667-R	#2	04/2013	
	14685-R	#3	11/2012	
	15652-R	#4	03/2014	
	15238-R	#5	03/2018	
	14688-R	Benzidines	05/2019	
	14931-R	SV Mix #7	04/2013	
	15402-S	Acid SuRR	Dec/2013	
30µL	15094-US	1,2,4,5-TCB	07/31/2013	1000ug/mL
	14756-R	Azobenzene	12/2014	
	15208-R	Aniline	03/2018	
	15209-AB	Pyridine	02/15/14	
	15400-S	BN 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 Carter 10/17/12 1/23/13
Signed Date Signed Date

11/26/12 opened:

NOTEBOOK INSERT LABEL

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

15679-S

DAC 11/26/12

15680 50 Ng DFTPP (8270 PNAs by SIM)

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

15681 5 PPM Vol Stnd (8270 PNAs by SIM)

Diluted 250uL of # 15635 (exp 1/12/13) plus 5uL of B/N SURR # 15679-S (exp Nov 2013) to 1mL VF, plus 5uL of ISTD # 15639-S (exp May 2014)

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

11/29/12 opened:

15682-R

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

15683-R

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

DAC 11/29/12

Continued on Page

Read and Understood By

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

Initial Calibration Standards (8270)

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

All standards are 1mL VF

MeCl2	DAC	EXP
207501	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

15844 Um84 (PD/O) Cal Std

10 µL each 15758-AB, 15764-AB + 15712 US
+ MeCl2
1.00 mL + 5 µL ISTD 15817-S

JD 5/15/13 exp 5/28/13

15845 Dioxane Cal Std (5 µg/mL)

2.5 µL Dioxane 14897-A (2000 ppm) exp 03/2016
5.0 µL 15739-AB (1,000 ppm) exp 06/2017
MeCl2
1.00 mL VF + 5 µL of ISTD (15817-S)
of 5.0 µg/mL

JD 5/21/13 exp 5/28/13

15846-S

NOTEBOOK INSERT LABEL
TCL Base/Neutrals Mix 2 2000 ppm 48120-U
Lot: LB95506 EXP: SEP/2015 STORAGE: REFRIGERATE 1 x 1ml
DATE RECEIVED: 11/1/12
SUPELCO Analytical
595 North Harrison Road • Bellefonte, PA 16823-0048 USA • Phone 814-359-3441
JD
Op 5/22/13

15847-S

NOTEBOOK INSERT LABEL
TCL Hazardous Substances Mix 1 2000 ppm 4-8907
Lot: LB95713 EXP: SEP/2015 STORAGE: REFRIGERATE 1 x 1ml
DATE RECEIVED: 11/1/12
SUPELCO Analytical
595 North Harrison Road • Bellefonte, PA 16823-0048 USA • Phone 814-359-3441
JD
opened 5-22-13

15848-S

NOTEBOOK INSERT LABEL
TCL Polynuclear Aromatic Hydrocarbons Mix 2000 ppm 48905-U
Lot: LB92157 EXP: APR/2015 STORAGE: REFRIGERATE 1 x 1ml
DATE RECEIVED: 11/1/12
SUPELCO Analytical
595 North Harrison Road • Bellefonte, PA 16823-0048 USA • Phone 814-359-3441

Continued on Page

Read and Understood By

JD 5/22/13 PEK 5/28/2013

PROJECT

Continued From Page

15849-5

NOTEBOOK INSERT LABEL

Semivolatile Internal Standard Mix (2000 ppm ea.) 4-8902
Lot: LB84817 EXP: MAY/2014 STORAGE: REFRIGERATE 2 x 1ml
DATE RECEIVED: Oped 5/22/13 Rec'd 4/16/12
SUPELCO Analytical 595 North Harrison Road • Bellefonte, PA 16823-0048 USA • Phone 814-359-3441

15850-5

NOTEBOOK INSERT LABEL

TCL Hazardous Substances Mix 2 2000 ppm 4-8908
Lot: LB82059 EXP: FEB/2014 STORAGE: REFRIGERATE 1 x 1ml
DATE RECEIVED: 11/1/12
SUPELCO Analytical 595 North Harrison Road • Bellefonte, PA 16823-0048 USA • Phone 814-359-3441

15851-5

NOTEBOOK INSERT LABEL

TCL Benzidines Mix 2000 ppb 4-8906
Lot: LB95197 EXP: SEP/2015 STORAGE: REFRIGERATE 1 x 1ml
DATE RECEIVED: Rec'd 11/1/12
SUPELCO Analytical 595 North Harrison Road • Bellefonte, PA 16823-0048 USA • Phone 814-359-3441

15852 8270 "A" mix intermed (250µg/mL)

250µL of	15689-5	(2,000 ppm)	B/N mix 1	exp	10/2014
"	15846-5	"	B/N Mix 2	"	09/2015
"	15685-5	"	Phenols	"	05/2015
"	15851-5	"	Benzidines	"	09/2015
"	15847-5	"	Haz Sub mix 1	"	09/2015
"	15848-5	"	PAH Mix	"	04/2015
"	15638-5	"	Pyridine		06/2014

250µL MeCl2 5T0392-36
2,000µL of 250µg/mL ea. (Note: Haz Sub #2 Separate)
5/22/13 exp 11/22/13

15853 8270 "B" Interm Mix

~~500µL~~		1,2,4,5 TCl Benz. 1,000 ppm		5/22/13
500 "	15854-5	B/N Surr	1000 ppm	exp 11/2013
250µL	15779-5	Acid Surr	(2000 ppm)	exp 11/2013

MeCl2 exp 11/2013
2,000µL of 250µg/mL

Continued on Page

Read and Understood By

Signed 5/22/13 Date PEK Signed 5/28/2013 Date

15881-R

RESTEK
110 Benner Circle
Bellefonte, PA 16823
Made in USA
Catalog # 31013
SV Calibration Mix #7
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 - (30 ppm)

15 µL - 15651-R (2,000 ppm) SVmix 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-S Acid Surr (2000 ppm) Xp 12/2013

30 µL - 15691-US 1,2-45 TCB (1000) X.p. 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

16002 8270 (ICV) Restek

15 µL	15651-R	2000 ppm	exp. 02/2015
	15682-R		03/2014
	15703-R		10/2014
	15652-R		08/2014
	15238-R		03/2018
	14688-R		09/2019
	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 Benner Circle Bellefonte, PA 16823 Made in USA
Catalog # 30409
Pyridine Standard
2000 ug/mL each in P&T Methanol
Lot# A089869 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

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

16005 30ppm 8270 (R) Cal Std

15 µL of 15651-R (2000ppm)
15682-R
15703-R
15652-R
15238-R
14688-R
~~15881-R~~ 15881-R 2000
15 µL 15779-S (2000) Acid Surr
30 µL 15704-R (1000 ppm)
15 µL 16004-R (2000 ppm) Pyridine
30 µL of 15854-S (1000ppm) B/N Surr.

790 µL MeCl2 45564
1.0 mL VF + 20 µL ISTD# 16001-S
8/28/13 exp 12/31/13

8270 ISTD5

16006-S

SUPELCO Analytical
595 North Harrison Road • Bellefonte, PA
16823-0048 USA • Phone 814-359-3441
Lot: LB84817 4-8902
EXP: MAY/2014 2 x 1ml
STORAGE: REFRIGERATE
Recd 7/12/12
Semivolatile Internal Standard Mix
2000ug/ml each in CH2Cl2
WARNING-HARMFUL IF SWALLOWED
CAUTION-IRRITANT IF INHALED
CAUTION-IRRITANT TO EYES AND SKIN
REPORTED CANCER HAZARD

Expired 8/29/13

16007-S

NOTEBOOK INSERT LABEL
TCL Base Neutrals Mix 1 2000 ppm
Lot: LB87423 EXP: OCT/2014 STORAGE: REFRIGERATE 48900-U 1 x 1ml
DATE RECEIVED: 11/1/12
SUPELCO Analytical
595 North Harrison Road • Bellefonte, PA
16823-0048 USA • Phone 814-359-3441
8/29/13

Continued on Page

Read and Understood By

Signed	Date	Signed	Date
	8/29/13	PBK	9/11/2013

PROJECT

Continued From Page

NOTEBOOK INSERT LABEL

16008-5

TCL Phenols Mix 2,000 ppm 4-8904 gO 8/29/13
Lot: LB92624 EXP: MAY/2015 STORAGE: REFRIGERATE 1 x 1ml
DATE RECEIVED: 11/1/12
SUPELCO Analytical
595 North Harrison Road • Bellefonte, PA 16823-0048 USA • Phone 814-359-3441

8270 2° STD MIX "A"

16009

250 µL of	16007-5	(2,000 ppm)	B/N #1	exp	10/2014
250	15846-5	"	B/N #2	"	09/2015
250	16008-5	"	Phenols		05/2015
250	15851-5	"	TCL Benzidine		09/2015
250	15847-5	"	Haz Mix #1		09/2015
250	~~15850-5~~ 48-5	" gO 8/29/13	RNA Mix		~~02/2014~~ 04/15
250	15638-5	2000	Pyridine		06/2014
250 µL	MeCl2 (45564)				

2.0 mL of 250 µg/mL each
gO 8/29/13 exp 12/31/13

16010 8270 Mix "B" 2° STD

500 µL of	1,000 ppm	B/N Surrogate 15854-5	xp	11/2013
250 µL of	2,000 ppm	Acid Surr. #15779-5	xp	12/2013
1250				

2,000 µL of 250 µg/mL
gO 8/29/13 exp 11/30/13

Continued on Page

Read and Understood By

gO 8/29/13 PEK 9/11/2013
Signed Date Signed Date

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 9/9/2013 9/12/2013
9/5/2013

16015-R

RESTEK 110 Benner Circle Bellefonte, PA 16823 Made in USA
Catalog # 31030
605 Benzidines Calibration Mix
Reviewed 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

16074 8270 (FCU) 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
	16015-R			08/2017
	15881-R			02/2015
15 µL	15779-S	2000 PPM (Acid Surrogate)	exp	12/2013
30 µL	15704-R	1000 PPM	exp	02/2017
30 µL	15209-AB	1000 PPM (Pyridine)		02/2014
30 µL	16023-S	1000 PPM (B/N Surrogate)		11/2013

775 µL MeCl2
1.0 mL of 30 µg/mL w/ 20 µL ISTD 16059-S (exp. 05/2014)

MeCl2
0000054901

PEK
10/21/2013

exp
2/21/2014

16075-S

NOTEBOOK INSERT LABEL

Pyridine 48305-U
Lot: LB85418 EXP: JUN/2014 STORAGE: ROOM TEMP 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 10/22/2013

PEK
10/22/2013

16076-S

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 10/22/2013

PEK
10/22/2013

Exp
05/2014

Continued on Page

Read and Understood By

PEK 10/22/2013 10/22/13
Signed Date Signed Date

8270 Cal STDs

[redacted]

STD #	Name	µL 16077	µL 16078	µL 15850-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 (2000 µg/mL exp 05/2014)

MeCl2
00000 54901

PEK
10/30/2013

exp
2/27 ~~2/30~~/2014

gp 11/8/13

16102-R

8270 Tune Mixture Stock

RESTEK
110 Banner Circle
Bellefonte, PA 16823
Made in USA
Catalog # 31615
GC/MS Tuning Mixture
1000 ug/mL each in Methylene Chloride
Lot# A092905 Exp. Date: 01/2018 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 (1000 µg/mL exp 1/2016)
950µL MeCl2 (00000 54901)
1.0 mL of 50 PPM 8270 Tune

PEK
11/4/2013

exp
2/14/2014

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Read and Understood By

PEK — Signed
11/4/2013 — Date
gp — Signed
11/8/13 — Date

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

Recieved 4/16/2012
Opened 11/22/2013

PEK
11/22/2013

16140-S

NOTEBOOK INSERT LABEL

Semi-Volatile Acids Surrogate Spike Mix 4-8939
Lot: LB80515 EXP: DEC/2013 STORAGE: REFRIGERATE 1 x 1ml
DATE RECEIVED: 10/9/2012
SUPELCO Analytical
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Opened 11/22/2013

PEK
11/22/2013

Continued on Page

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

ARDL Inc Signed Date Signed Date

16141 30 PPM 8270 STD (ICV) Restek

15µL	15651-R	2000 PPM	exp. 02/2015
	15682-R		03/2014
	15703-R		10/2014
	15652-R		03/2014
	16139-R		03/2018
	16015-R		08/2017
	15881-R		PEK 11/22/13 ~~08/2017~~ 02/2015
	16140-S		12/2013
15µL	16004-R	2000 PPM	exp 04/2016
30µL	15704-R	1000 PPM	exp 02/2017
30µL	16137-S	1000 PPM	exp 07/2016

805µL $MeCl_2$ (0000054901)
1.0 mL of 30µg/mL w/ 20µL ISTD 16138-S (2000µg/mL exp. 05/2014

PEK 11/22/2013 exp 12/31/2013

16142 8270 STD Mix "A"

250µL of	16007-S	2000 PPM	B/N #1	exp. 10/2014
	15846-S		B/N #2	09/2015
	16008-S		Phenols	08/2015
	15847-S		Haz Mix #1	09/2015
	15851-S		TCL Benzidine	09/2015
	15848-S		PNA Mix	03/2015
	16075-S	2000 PPM	Pyridine	exp. 06/2014

250µL $MeCl_2$ (0000054901)
2.0 mL of 250µg/mL

PEK 11/22/2013 exp. 3/22/2014

16143 8270 STD Mix "B"

500µL of 16137-S 1000 PPM exp 07/2016
250µL of 16140-S 2000 PPM exp. 12/2013
1250µL $MeCl_2$ (0000054901) PEK exp
2.0 mL of 250µg/mL 11/22/2013 12/31/2013

Continued on Page

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PEK 11/22/2013 11/27/13
Signed Date Signed Date

8270 Cal STDs

STD #	Name	µL "A" 16142	µL "B" 16143	µL 15850-S	Vf MeCl2
16144	Cal BLK	—	—	—	1.0 mL
16145	5 PPM	20 µL	20 µL	2.5 µL	
16146	10 PPM	40	40	5	
16147	20 PPM	80	80	10	
16148	30 PPM	120	120	15	
16149	40 PPM	160	160	20	
16150	60 PPM	240	240	30	

All with 20µL ISTD 16138-S (2000µg/mL exp 05/2014)
PEK exp 12/31/13
11/22/2013

16151 30 PPM 8270 STD (FCV) Restek

15 µL	15651-R	2000 PPM	exp.	02/2015
	15682-R			03/2014
	15703-R			10/2014
	15652-R			03/2014
	16139-R			03/2018
	16105-R			08/2017
	15881-R			02/2015
	16140-S			12/2013
15 µL	16004-R	2000 PPM	exp.	02/2016
30 µL	15704-R	1000 PPM	exp	02/2017
30 µL	16137-S	1000 PPM	exp.	07/2016
805 µL	MeCl2	(0000054901)		

1.0 mL of 30µg/mL w/ 20µL ISTD 16138-S (2000µg/mL exp 05/2014)
PEK exp
12/2/2013 12/31/2013

Continued on Page

Read and Understood By

PEK 12/2/2013 12/5/13
Signed Date Signed Date

RESTEK

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

www.restek.com

ACCREDITED
ISO Guide 34 Accredited Reference Material Producer Certificate #3222.01

ilac-MRA

ACCREDITED
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 µg/mL +/- 35.2615 µg/mL +/- 60.8566 µg/mL	Gravimetric Unstressed Stressed
2	DFTPP (Decafluorotriphenylphosphine) CAS # 5074-71-5 Purity 99%	1,000.0 µg/mL	+/- 5.8275 µg/mL +/- 35.2615 µg/mL +/- 60.8566 µg/mL	Gravimetric Unstressed Stressed
3	Benzidine CAS # 92-87-5 Purity 99%	1,000.0 µg/mL	+/- 5.8275 µg/mL +/- 35.2615 µg/mL +/- 60.8566 µg/mL	Gravimetric Unstressed Stressed
4	4,4'-DDT CAS # 50-29-3 Purity 99%	1,000.0 µg/mL	+/- 5.8275 µg/mL +/- 35.2615 µg/mL +/- 60.8566 µg/mL	Gravimetric Unstressed Stressed

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

Certificate of Analysis

DESCRIPTION: TCL Base Neutrals Mix 1

CATALOG NO.: 48900-U

MFG DATE: Oct-2011

LOT NO.: LB87423

EXPIRATION DATE: Oct-2014

SOLVENT: METHYLENE CHLORIDE

ANALYTE (1)	CAS NUMBER	PERCENT PURITY(2)	WEIGHT(3) CONCENTRATION	ANALYTICAL(4) CONCENTRATION		STD DEV	SUPELCO LOT NO
BENZYL BUTYL PHTHALATE	85-68-7	98.6	2000	2081	+/-	26.0	LB60340
BIS (2-CHLOROETHOXY) METHANE	111-91-1	98.5	2000	2061	+/-	0.1	LB71304
BIS (2-CHLOROETHYL) ETHER	111-44-4	99.9	2000	2056	+/-	6.2	LB33319
BIS (2-CHLOROISOPROPYL) ETHER	108-60-1	97.4	2001	1982	+/-	4.4	LB84548
BIS (2-ETHYLHEXYL) PHTHALATE	117-81-7	99.7	2000	2071	+/-	24.6	LB58359
DI-N-BUTYL PHTHALATE	84-74-2	99.5	2000	2073	+/-	13.6	LB64921
DI-N-OCTYL PHTHALATE	117-84-0	99.9	2000	2130	+/-	25.5	LB83131
DIETHYL PHTHALATE	84-66-2	99.2	2000	2077	+/-	17.9	LB60384
DIMETHYL PHTHALATE	131-11-3	99.9	2000	2064	+/-	3.3	LB30494
N-NITROSODI-N-PROPYLAMINE	621-64-7	99.9	2000	2040	+/-	3.1	LB79763
N-NITROSODIMETHYLAMINE	62-75-9	99.9	2000	2049	+/-	6.1	LB83854
N-NITROSODIPHENYLAMINE	86-30-6	98.6	2000	1983	+/-	60.3	LB17295
4-BROMOPHENYLPHENYL ETHER	101-55-3	98.8	2000	2073	+/-	6.1	LB63786
4-CHLOROPHENYLPHENYL ETHER	7005-72-3	99.9	2000	2060	+/-	26.9	LB72185

(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.

Elwood Doughty
Quality Control Supervisor

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.

SUPELCO Analytical
595 North Harrison Road
Bellefonte, PA 16823-0048 USA
Phone (814) 359-3441

Certificate of Analysis

DESCRIPTION: TCL Base/Neutrals Mix 2

CATALOG NO.: 48120-U MFG DATE: Sep-2012

LOT NO.: LB95606 EXPIRATION DATE: Sep-2015

SOLVENT: METHYLENE CHLORIDE

ANALYTE (1)	CAS NUMBER	PERCENT PURITY(2)	WEIGHT(3) CONCENTRATION	ANALYTICAL(4) CONCENTRATION		STD DEV	SUPELCO LOT NO
AZOBENZENE	103-33-3	99.9	2000	1934	+/-	4.1	LB83060
CARBAZOLE	86-74-8	98.2	2000	1933	+/-	18.2	LB80615
HEXACHLOROBENZENE	118-74-1	99.9	2000	1924	+/-	10.1	LB88881
HEXACHLOROBUTADIENE	87-68-3	98.5	2000	1881	+/-	7.0	LB75566
HEXACHLOROCYCLOPENTADIENE	77-47-4	98.8	2001	1926	+/-	6.7	LB95525
HEXACHLOROETHANE	67-72-1	99.9	2000	1944	+/-	11.2	LB29072
ISOPHORONE	78-59-1	99.1	2001	1882	+/-	2.2	LB45460
NITROBENZENE	98-95-3	99.9	2000	1936	+/-	2.8	LB47070
1,2-DICHLOROBENZENE	95-50-1	99.9	2000	1928	+/-	5.7	LA96474
1,2,4-TRICHLOROBENZENE	120-82-1	99.5	2001	1922	+/-	3.5	LB48083
1,3-DICHLOROBENZENE	541-73-1	99.9	2001	1936	+/-	5.9	LB68066
1,4-DICHLOROBENZENE	106-46-7	99.9	2000	1936	+/-	5.8	LB83282
2-CHLORONAPHTHALENE	91-58-7	99.9	2000	1945	+/-	2.0	LB86449
2,4-DINITROTOLUENE	121-14-2	96.0	2001	1949	+/-	3.7	LB46632
2,6-DINITROTOLUENE	606-20-2	99.9	2000	1928	+/-	3.6	LB79891

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

Duane Funk

Duane Funk
Quality Manager

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SUPELCO Analytical
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Bellefonte, PA 16823-0048 USA
Phone (814) 359-3441

Certificate of Analysis

DESCRIPTION: TCL Hazardous Substances Mix 1

CATALOG NO.: 48907 MFG DATE: Sep-2012

LOT NO.: LB95713 EXPIRATION DATE: Sep-2015

SOLVENT: METHYLENE CHLORIDE

ANALYTE (1)	CAS NUMBER	PERCENT PURITY(2)	WEIGHT(3) CONCENTRATION	ANALYTICAL(4) CONCENTRATION		STD DEV	SUPELCO LOT NO
BENZOIC ACID	65-85-0	99.9	2000	2140	+/-	25.7	LB85791
2-METHYLPHENOL	95-48-7	99.9	2000	2071	+/-	1.5	LB91878
2,4,5-TRICHLOROPHENOL	95-95-4	99.9	2001	2082	+/-	3.5	LB35288
4-METHYLPHENOL	106-44-5	99.9	2000	1981	+/-	1.6	LB32518

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

Duane Funk

Duane Funk
Quality Manager

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SUPELCO Analytical
595 North Harrison Road
Bellefonte, PA 16823-0048 USA
Phone (814) 359-3441

Certificate of Analysis

DESCRIPTION: TCL Polynuclear Aromatic Hydrocarbons Mix

CATALOG NO.: 48905-U

MFG DATE: Apr-2012

LOT NO.: LB92157

EXPIRATION DATE: Apr-2015

ANALYTE (1)	CAS NUMBER	PERCENT PURITY (2)	WEIGHT (3)	ANALYTICAL (4) CONCENTRATION		STD DEV	SUPELCO LOT NO
ACENAPHTHENE	83-32-9	99.9	2000	2017	+/-	96.5	LB82590
ACENAPHTHYLENE	208-96-8	99.9	2000	2120	+/-	5.1	LB84923
ANTHRACENE	120-12-7	99.5	2000	2163	+/-	56.3	LB77576
BENZO (A) ANTHRACENE	56-55-3	99.9 (a)	2000	2117	+/-	24.3	LB89579
BENZO (A) PYRENE	50-32-8	99.9 (a)	2000	2076	+/-	10.4	LB79478
BENZO (B) FLUORANTHENE	205-99-2	98.1	2000	2060	+/-	31.9	LB90241
BENZO (G,H,I) PERYLENE	191-24-2	99.6	2000	2121	+/-	0.8	LB62550
BENZO (K) FLUORANTHENE	207-08-9	99.9	2000	2105	+/-	22.4	LB85440
CHRYSENE	218-01-9	98.4	2000	2150	+/-	60.2	LB85109
DIBENZ (A,H) ANTHRACENE	53-70-3	99.9	2000	2142	+/-	8.8	LB87229
FLUORANTHENE	206-44-0	99.5	2000	2128	+/-	12.1	LB36331
FLUORENE	86-73-7	98.5	2000	2036	+/-	49.1	LB82164
INDENO (1,2,3-CD) PYRENE	193-39-5	99.9	2000	2066	+/-	13.4	LB90242
NAPHTHALENE	91-20-3	99.9	2000	2118	+/-	4.3	LB77841
PHENANTHRENE	85-01-8	99.1	2000	2111	+/-	20.5	LB68872
PYRENE	129-00-0	97.5	2000	2131	+/-	9.3	LB70761

(1) Listed in alphabetical order.

(2) Determined by capillary GC-FID, unless otherwise noted.
a) HPLC UV-254NM

(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.

Elwood Doughty
Quality Control Supervisor

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.

SUPELCO Analytical
595 North Harrison Road
Bellefonte, PA 16823-0048 USA
Phone (814) 359-3441

Certificate of Analysis

DESCRIPTION: TCL Phenols Mix

CATALOG NO.: 48904

MFG DATE: May-2012

LOT NO.: LB92624

EXPIRATION DATE: May-2015

SOLVENT: METHYLENE CHLORIDE

ANALYTE (1)	CAS NUMBER	PERCENT PURITY(2)	WEIGHT(3) CONCENTRATION	ANALYTICAL(4) CONCENTRATION		STD DEV	SUPELCO LOT NO
PENTACHLOROPHENOL	87-86-5	99.9	2000	1975	+/-	6.3	LB75554
PHENOL	108-95-2	99.9	2000	1963	+/-	5.4	LB57703
2-CHLOROPHENOL	95-57-8	99.6	2000	1968	+/-	3.6	LB83266
2-METHYL-4,6-DINITROPHENOL	534-52-1	99.9	2000	1971	+/-	23.2	LB31592
2-NITROPHENOL	88-75-5	99.9	2000	1965	+/-	4.4	LB44736
2,4-DICHLOROPHENOL	120-83-2	98.8	2000	1956	+/-	0.1	LB76837
2,4-DIMETHYLPHENOL	105-67-9	99.9	2000	1972	+/-	2.6	LB88935
2,4-DINITROPHENOL	51-28-5	98.6	2000	1986	+/-	28.4	LB28389
2,4,6-TRICHLOROPHENOL	88-06-2	99.9	2000	1959	+/-	0.1	LB65559
4-CHLORO-3-METHYLPHENOL	59-50-7	99.9	2000	1966	+/-	3.4	LB83265
4-NITROPHENOL	100-02-7	99.9	2000	1967	+/-	18.6	LB83255

(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.

Elwood Doughty
Quality Control Supervisor

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SUPELCO Analytical
595 North Harrison Road
Bellefonte, PA 16823-0048 USA
Phone (814) 359-3441

Certificate of Analysis

DESCRIPTION: TCL Benzidines Mix

CATALOG NO.: 48906

MFG DATE: Sep-2012

LOT NO.: LB95197

EXPIRATION DATE: Sep-2015

SOLVENT: METHANOL

ANALYTE (1)	CAS NUMBER	PERCENT PURITY(2)	WEIGHT(3) CONCENTRATION	ANALYTICAL(4) CONCENTRATION	STD DEV	SUPELCO LOT NO
BENZIDINE	92-87-5	99.9	2000	2196	+/- 33.6	LB83682
3,3-DICHLOROBENZIDINE	91-94-1	99.9	2000	2082	+/- 71.2	LB94134

(1) Listed in alphabetical order.

(2) Determined by capillary GC-FID, unless otherwise noted.

(3) NIST traceable weights are used to verify balance calibration with the preparation of each lot. Concentration of analyte in solution is ug/ml +/- 0.5%, uncertainty based upon balance and Class A volumetric glassware. Weights are corrected for analytes less than 98% pure.

(4) Determined by chromatographic analysis against an independently prepared reference lot. Mean of replicate injections.

Duane Funk

Duane Funk
Quality Manager

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DESCRIPTION: Pyridine

CATALOG NO.: 48305-U

MFG DATE: Jun-2011

LOT NO.: LB85418

EXPIRATION DATE: Jun-2014

SOLVENT: METHANOL

ANALYTE	CAS NUMBER	PERCENT PURITY(1)	WEIGHT(2)	ANALYTICAL(3) CONCENTRATION		STD DEV	SUPELCO LOT NO
PYRIDINE (LOW WATER)	110-86-1	99.9	2000	1978	+/-	4.0	LB55487

(1) Determined by capillary GC-FID, unless otherwise noted.

(2) 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.

(3) Determined by chromatographic analysis against an independently prepared reference lot. Mean of replicate injections.

Elwood Doughty

Elwood Doughty
Quality Control Supervisor

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DESCRIPTION: Semi-Volatile Base-Neutral Surrogate Spike Mix

CATALOG NO.: 48935 MFG DATE: Jul-2013

LOT NO.: LC01909 EXPIRATION DATE: Jul-2016

SOLVENT: METHYLENE CHLORIDE

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

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

Duane Funk

Duane Funk
Quality Manager

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DESCRIPTION: Semi-Volatile Acids Surrogate Spike Mix

CATALOG NO.: 48939 MFG DATE: Dec-2010

LOT NO.: LB80515 EXPIRATION DATE: Dec-2013

SOLVENT: METHANOL

ANALYTE (1)	CAS NUMBER	PERCENT PURITY(2)	WEIGHT(3) CONCENTRATION	ANALYTICAL(4) CONCENTRATION		STD DEV	SUPELCO LOT NO
PHENOL-D6	13127-88-3	99.9	2002	1887	+/-	8.3	LB77381
2-CHLOROPHENOL D4	93951-73-6	99.4	2002	1872	+/-	7.1	LB74323
2-FLUOROPHENOL	367-12-4	99.9	2001	1862	+/-	9.0	LB72440
2,4,6-TRIBROMOPHENOL	118-79-6	99.9	2001	1873	+/-	9.1	LB59603

(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.

Elwood Doughty
Quality Control Supervisor

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DESCRIPTION: TCL Hazardous Substances Mix 2

CATALOG NO.: 48908 MFG DATE: Feb-2011

LOT NO.: LB82059 EXPIRATION DATE: Feb-2014

SOLVENT: METHYLENE CHLORIDE

ANALYTE (1)	CAS NUMBER	PERCENT PURITY(2)	WEIGHT(3) CONCENTRATION	ANALYTICAL(4) CONCENTRATION		STD DEV	SUPELCO LOT NO
ANILINE	62-53-3	99.9	2001	2029	+/-	51.5	LA41596
BENZYL ALCOHOL	100-51-6	99.9	2001	2075	+/-	38.6	LB48374
DIBENZOFURAN	132-64-9	98.9	2001	2008	+/-	14.8	LB78814
2-METHYLNAPHTHALENE	91-57-6	98.3	2001	2044	+/-	11.6	LB44448
2-NITROANILINE	88-74-4	99.9	2001	2018	+/-	17.9	LB49936
3-NITROANILINE	99-09-2	99.9	2001	2015	+/-	29.3	LB65269
4-CHLOROANILINE	106-47-8	99.9	2001	2032	+/-	16.1	LB19242
4-NITROANILINE	100-01-6	99.9	2002	2100	+/-	48.2	LB42566

(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.

Elwood Doughty
Quality Control Supervisor

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DESCRIPTION: Semivolatile Internal Standard Mix

CATALOG NO.: 48902 MFG DATE: May-2011

LOT NO.: LB84817 EXPIRATION DATE: May-2014

ANALYTE (1)	CAS NUMBER	PERCENT PURITY(2)	WEIGHT(3) CONCENTRATION	ANALYTICAL(4) CONCENTRATION		STD DEV	SUPELCO LOT NO
ACENAPHTHENE-D10	15067-26-2	99.3	2000	1935	+/-	6.5	LB67842
CHRYSENE-D12	1719-03-5	99.9	2000	1859	+/-	27.8	LB78331
NAPHTHALENE-D8	1146-65-2	99.9	2000	1930	+/-	21.2	LB80207
PERYLENE-D12	1520-96-3	99.9	2000	1982	+/-	62.2	LB78404
PHENANTHRENE-D10	1517-22-2	99.4	2000	1920	+/-	12.6	LB80379
1,4-DICHLOROBENZENE-D4	3855-82-1	98.7	2000	1940	+/-	22.6	LB82415

(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.

Elwood Doughty
Quality Control Supervisor

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

Description : SV Calibration Mix #1

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

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

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

CERTIFIED VALUES

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

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

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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)

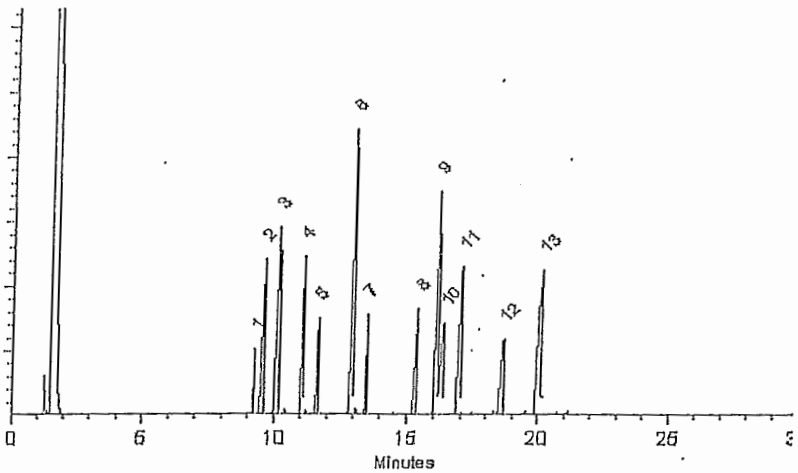
Carrier Gas:
hydrogen-constant pressure 10 psi.

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

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

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

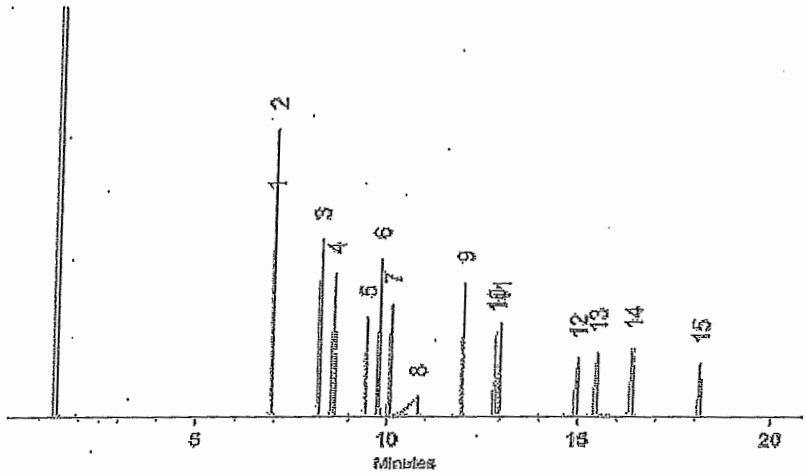
Carrier Gas:
hydrogen @ 40cm/sec.

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

Inj. Temp:
250°C

Det. Temp:
250°C

Det. Type:
FID



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

Description : SV Calibration Mix #3

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

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

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

Handling: Sonicate prior to use.

Elution Order	Compound	CAS #	Percent Purity [2]	Grav. Conc. [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. : 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	2,000.0 ug/mL	+/- 11.7371	ug/mL	Gravimetric
	CAS # 541-73-1		+/- 24.1603	ug/mL	Unstressed
	Purity 99%		+/- 27.2485	ug/mL	Stressed
2	1,4-Dichlorobenzene	2,000.0 ug/mL	+/- 11.7371	ug/mL	Gravimetric
	CAS # 106-46-7		+/- 24.1603	ug/mL	Unstressed
	Purity 99%		+/- 27.2485	ug/mL	Stressed
3	1,2-Dichlorobenzene	2,000.0 ug/mL	+/- 11.7371	ug/mL	Gravimetric
	CAS # 95-50-1		+/- 24.1603	ug/mL	Unstressed
	Purity 99%		+/- 27.2485	ug/mL	Stressed

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

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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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FOR LABORATORY USE ONLY-READ MSDS PRIOR TO USE.

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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Catalog No.: 31496 **Lot No.:** A086727

Description: Azobenzene Standard

Azobenzene Standard 1000ug/mL, Methylene Chloride, 1mL/ampul

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

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

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	Azobenzene	1,000.0 ug/mL	+/- 10.0737	ug/mL	Gravimetric
	CAS # 103-33-3		+/- 23.4034	ug/mL	Unstressed
	Purity 99%		+/- 23.4034	ug/mL	Stressed

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

RESTEK

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

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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. : 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%

Analytical Run Number _____

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.: --- SAS No.: --- SDG No.: ---

Lab File ID: E1126309 DFTPP Injection Date: 11/26/13

Instrument ID: AG5 DFTPP Injection Time: 14:57

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30 - 80% of mass 198	31.8
68	Less than 2.0% of mass 69	0.0 (1)
69	(reference only)	30.2
70	Less than 2.0% of mass 69	0.6 (1)
127	25 - 75% of mass 198	47.5
197	Less than 1% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.
199	5 - 9% of mass 198	6.9
275	10 - 30% of mass 198	24.4
365	Greater than 1% of mass 198	2.8
441	0 - 100% of mass 443	95.4
442	40 - 110% of mass 198	90.9
443	15 - 24% of mass 442	19.2 (2)

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

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

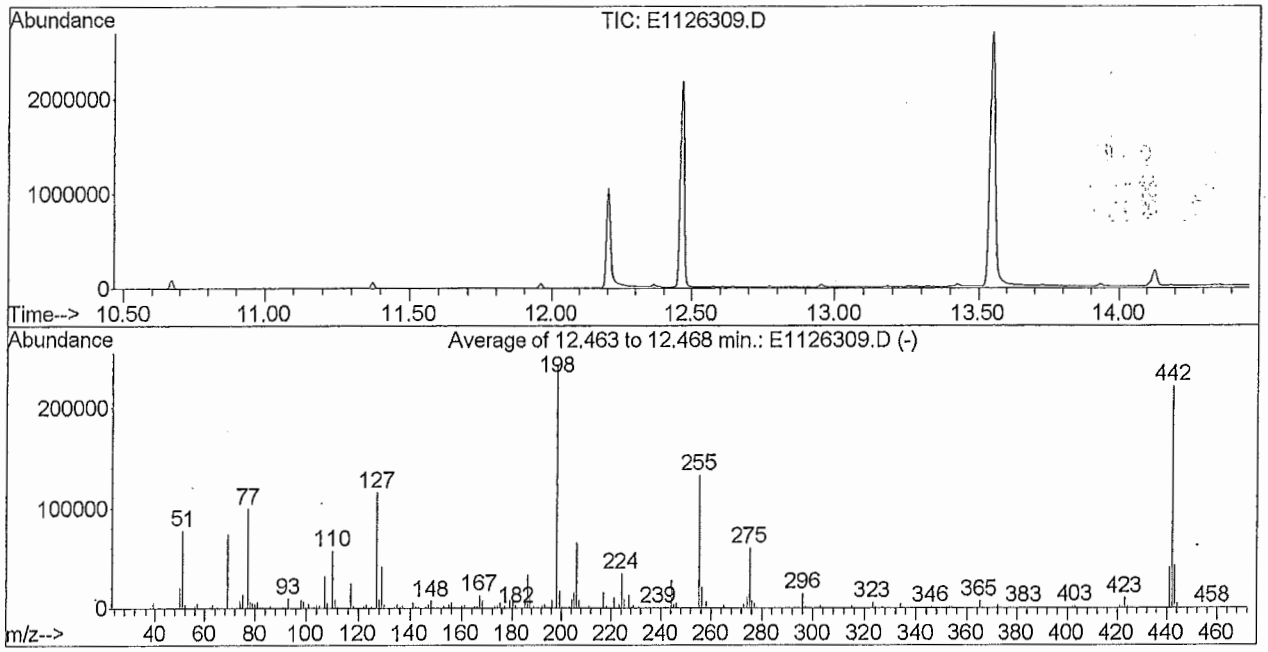
	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1	BLANK STD	000 PPM STD	E1126310	11/26/13	15:25
2	BNA STD	005 PPM STD	E1126311	11/26/13	16:07
3	BNA STD	010 PPM STD	E1126312	11/26/13	16:47
4	BNA STD	020 PPM STD	E1126313	11/26/13	17:29
5	BNA STD	030 PPM STD	E1126314	11/26/13	18:09
6	BNA STD	040 PPM STD	E1126315	11/26/13	18:50
7	BNA STD	060 PPM STD	E1126316	11/26/13	19:31
8	ICV STD	030 PPM STD	E1126317	11/26/13	20:12
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

DFTPP

Data Path : C:\MSDCHEM\1\DATA\112613\
Data File : E1126309.D
Acq On : 26 Nov 2013 14:57
Operator : DOUG
Sample : 50 NG TUNE 16103
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 1191, 1192, 1193; Background Corrected with Scan 1181

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	80	31.8	77463	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.01	100	30.2	73512	PASS
70	69	0.00	2	0.6	445	PASS
127	198	25	75	47.5	115693	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	243605	PASS
199	198	5	9	6.9	16915	PASS
275	198	10	30	24.4	59530	PASS
365	198	0.75	100	2.8	6885	PASS
441	443	0.01	100	95.4	40562	PASS
442	198	40	110	90.9	221546	PASS
443	442	15	24	19.2	42501	PASS

Average of 12.463 to 12.468 min.: E1126309.D
50 NG TUNE 16103
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
37.05	252	56.10	1936	70.10	445	82.10	1555
38.05	751	57.10	4770	72.00	88	83.10	1478
39.15	5713	58.10	95	73.10	892	84.15	12
45.00	12	59.05	1	74.10	7980	85.10	1482
47.00	42	61.05	962	75.10	13484	86.05	1803
48.30	46	62.10	1224	76.20	1829	87.05	793
50.15	20824	63.10	3231	77.10	99714	88.10	296
51.10	77463	64.15	314	78.15	6821	89.00	220
52.10	4020	65.10	1662	79.10	5296	91.10	1121
53.05	126	66.10	199	80.10	4406	92.10	1739
55.05	270	69.05	73512	81.05	5833	93.10	9558

Average of 12.463 to 12.468 min.: E1126309.D
50 NG TUNE 16103
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
94.05	774	107.10	31613	120.05	394	132.10	486
95.05	293	108.10	5334	121.00	82	134.05	1213
96.05	321	110.10	57130	122.05	1989	135.05	3452
98.10	7570	111.05	8347	123.10	3114	136.00	1332
99.10	6617	112.05	1094	124.05	1333	137.05	2065
100.05	465	113.05	403	125.00	1348	138.05	335
101.05	3948	114.00	65	127.10	115693	138.95	210
101.90	326	114.95	261	128.10	9130	139.20	70
103.05	1240	117.05	24586	129.10	40957	140.20	795
104.05	2403	118.10	1872	130.10	3491	141.05	5432
105.05	2356	119.00	78	131.10	935	142.10	2187

Average of 12.463 to 12.468 min.: E1126309.D
50 NG TUNE 16103
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
143.00	1258	154.05	1494	165.00	2016	176.05	1262
143.95	430	155.10	3483	166.10	2080	177.00	1947
145.05	396	156.10	4979	167.05	12265	178.05	962
146.10	1120	157.10	1062	168.10	6816	179.00	8086
147.10	3843	158.05	1023	169.00	817	180.10	6152
148.10	6704	159.05	873	170.05	359	181.10	2713
149.10	1295	160.10	1857	171.00	526	182.05	540
150.05	434	161.05	2990	172.00	1001	182.70	130
151.15	752	162.05	801	173.10	1676	183.00	180
152.00	146	163.15	379	174.10	2452	184.05	743
153.10	1918	164.05	460	175.10	4920	185.10	5142

Average of 12.463 to 12.468 min.: E1126309.D
50 NG TUNE 16103
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
186.10	32832	198.00	243605	210.10	467	221.10	10329
187.10	9913	199.05	16915	211.05	2167	222.00	896
188.05	1030	200.05	1449	211.80	233	223.15	3913
189.00	1743	201.60	1102	212.00	164	224.10	34381
189.95	373	203.05	2051	213.05	187	225.10	9364
191.00	1069	204.10	9163	214.05	58	226.20	354
192.05	2919	205.10	15660	215.05	666	227.10	12886
193.10	3454	206.10	65176	216.10	577	228.05	1822
194.05	832	207.05	8203	217.00	15673	229.00	3105
195.05	817	208.00	1878	218.05	2248	229.90	254
196.10	7669	209.05	724	219.15	280	231.05	1434

Average of 12.463 to 12.468 min.: E1126309.D
50 NG TUNE 16103
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
232.05	315	242.05	1894	252.90	180	263.85	219
232.70	67	243.05	1316	253.05	593	265.05	2915
233.00	178	244.10	27826	255.10	132581	265.85	163
234.05	869	245.10	3885	256.10	20464	267.00	77
235.05	1099	246.10	4607	257.05	1563	267.80	106
236.00	813	247.05	836	258.00	6367	268.70	49
237.05	1034	248.05	316	259.00	1047	269.85	129
238.05	170	249.00	1169	260.05	242	270.90	628
238.95	578	250.00	204	261.00	205	271.10	345
239.95	457	251.05	301	262.10	28	272.05	413
241.05	789	252.05	227	263.10	44	273.05	4145

Average of 12.463 to 12.468 min.: E1126309.D
50 NG TUNE 16103
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
274.10	11207	285.05	871	297.05	2194	308.85	163
275.10	59530	286.05	281	297.85	97	309.90	238
276.05	8050	288.95	251	298.10	88	310.20	73
277.05	4683	289.95	177	300.95	190	310.70	35
278.05	763	291.00	130	302.00	321	311.90	39
279.00	162	291.20	52	303.05	1991	313.00	61
281.00	101	292.10	243	304.05	468	314.05	925
281.30	57	293.00	1087	304.90	84	315.00	2098
282.05	95	293.90	59	305.20	60	316.10	1093
283.05	581	294.05	202	307.20	31	317.05	237
284.00	439	296.00	14486	307.95	276	317.60	28

Average of 12.463 to 12.468 min.: E1126309.D
50 NG TUNE 16103
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
318.70	50	328.95	82	345.95	1206	358.00	30
319.80	43	330.30	56	346.95	253	358.95	238
320.10	37	332.05	482	351.10	55	361.10	38
320.95	444	332.95	395	352.10	1675	361.40	43
322.00	306	334.05	3792	353.05	1139	365.00	6885
323.10	5292	335.00	933	354.10	1713	365.95	1140
324.05	1254	336.05	141	355.00	279	366.80	45
325.00	38	338.95	165	355.20	150	370.00	199
326.00	42	339.80	26	356.00	45	371.00	366
326.95	1147	340.95	678	356.20	32	372.05	2681
328.05	596	341.95	255	356.70	40	373.00	817

Average of 12.463 to 12.468 min.: E1126309.D
50 NG TUNE 16103
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
373.95	91	392.90	35	414.90	41	427.10	126
376.95	72	397.00	33	419.10	33	427.40	29
377.80	32	401.05	185	421.05	1760	427.90	42
383.00	789	402.05	1308	421.90	423	428.60	27
384.00	206	403.05	1802	422.10	1242	429.25	196
384.20	72	404.10	625	423.05	10230	429.70	52
385.00	27	405.10	36	424.05	2120	430.05	184
389.10	32	407.40	29	424.80	118	430.60	35
390.05	408	410.10	28	425.10	172	430.80	33
391.00	296	410.30	29	425.80	69	431.10	45
391.95	169	414.00	45	426.60	27	431.85	85

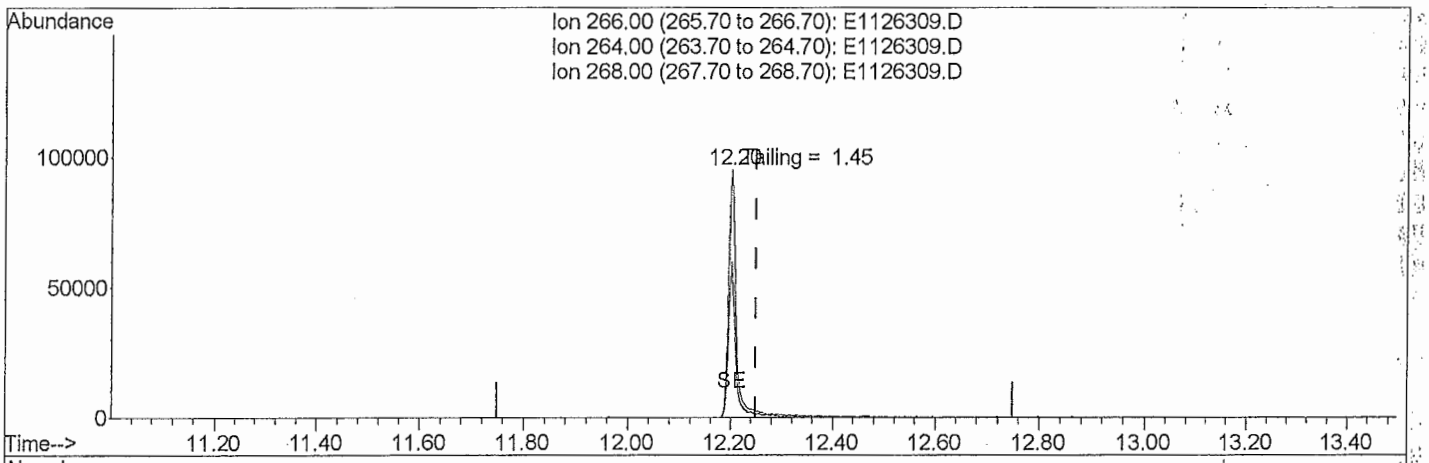
Average of 12.463 to 12.468 min.: E1126309.D
50' NG TUNE 16103
Modified:subtracted

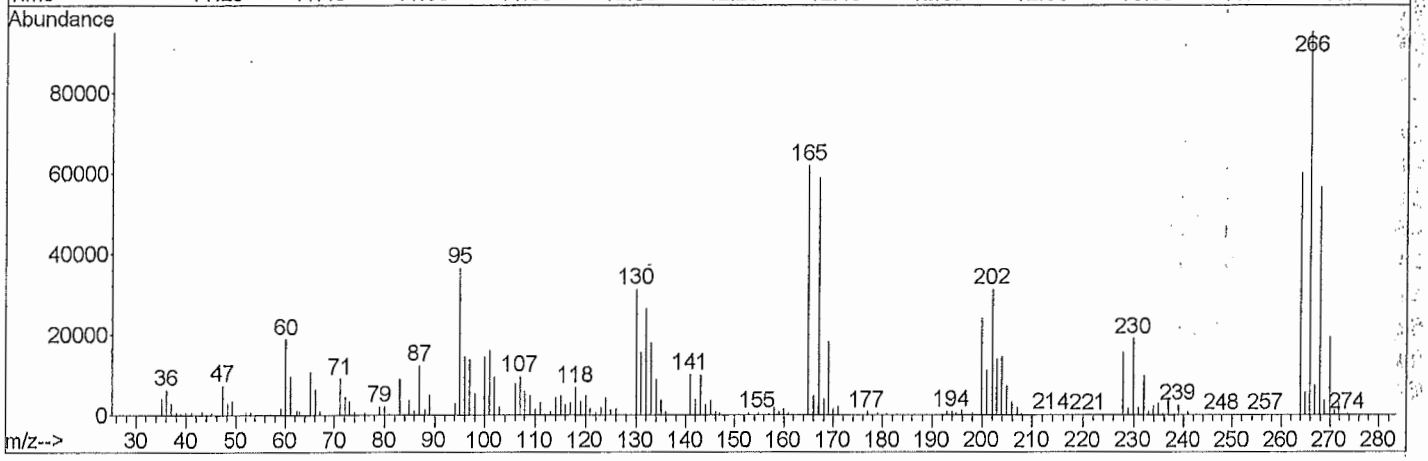
m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
432.45	114	442.10	221546				
433.60	45	443.05	42501				
433.90	114	444.05	4350				
434.90	63	445.00	90				
436.00	41	445.20	52				
437.20	36	458.10	50				
437.70	48						
437.95	141						
438.60	74						
439.00	178						
441.10	40562						

Quantitation Report (Qedit)

Data Path : C:\MSDCHEM\1\DATA\112613\
Data File : E1126309.D
Acq On : 26 Nov 2013 14:57
Operator : DOUG
Sample : 50 NG TUNE 16103
Misc : AG-5 8270
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Nov 26 15:16:14 2013
Quant Method : C:\MSDCHEM\1\METHODS\8270TUNPULSE.M
Quant Title : 8270 TUNE METHOD
QLast Update : Wed Aug 28 11:55:28 2013
Response via : Initial Calibration





TIC: E1126309.D

(1) Pentachlorophenol (TMC)

12.202min (-0.048) 9.46ug/L

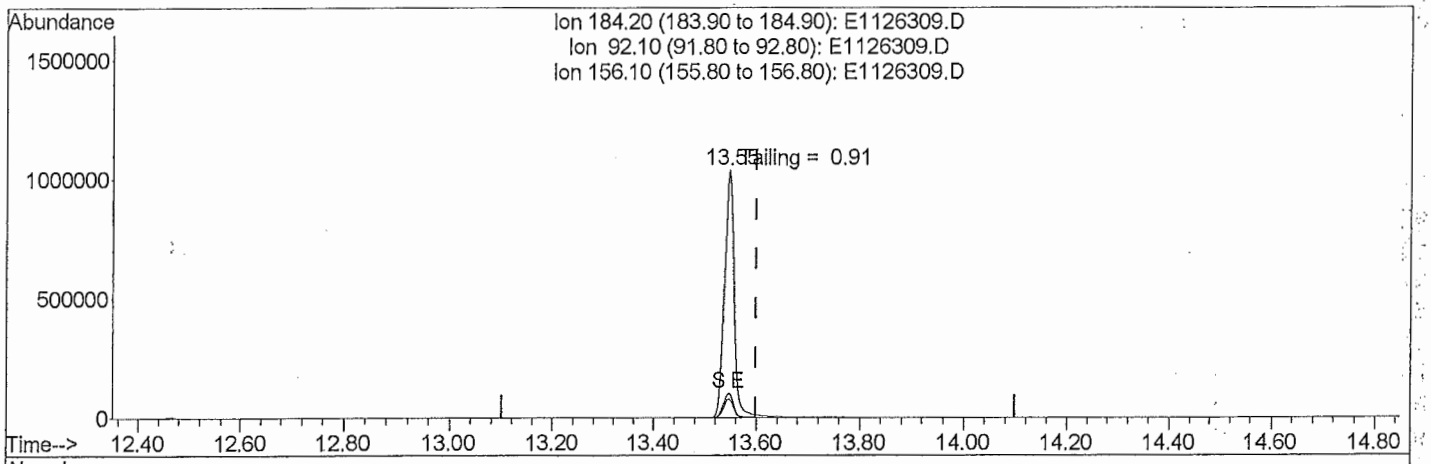
response 100857

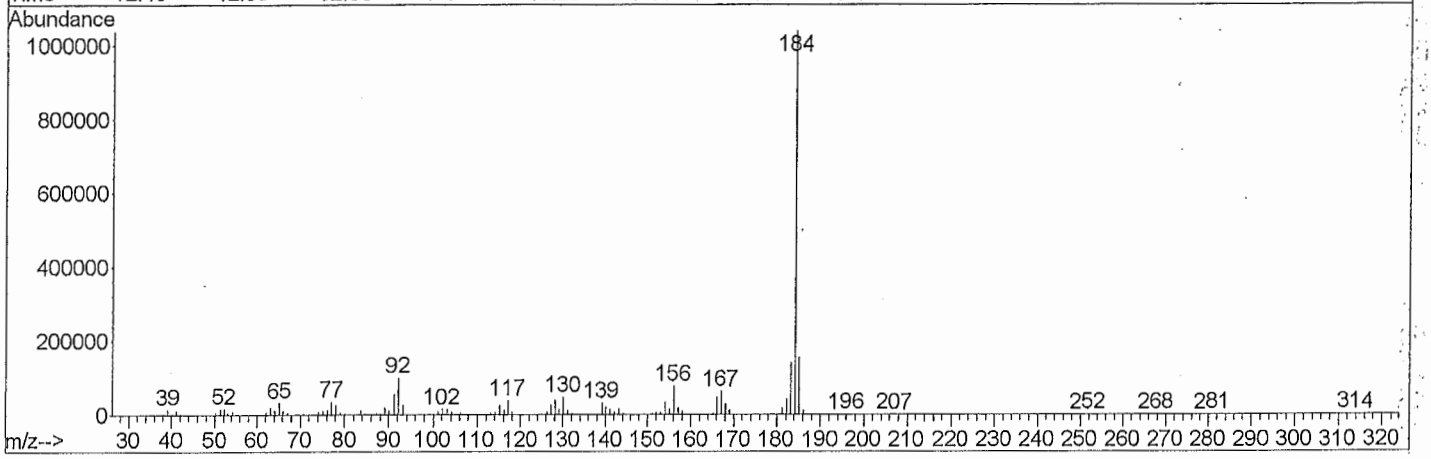
Ion	Exp%	Act%
266.00	100	100
264.00	63.80	60.41
268.00	63.80	55.78
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\MSDCHEM\1\DATA\112613\
Data File : E1126309.D
Acq On : 26 Nov 2013 14:57
Operator : DOUG
Sample : 50 NG TUNE 16103
Misc : AG-5 8270
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Nov 26 15:16:14 2013
Quant Method : C:\MSDCHEM\1\METHODS\8270TUNPULSE.M
Quant Title : 8270 TUNE METHOD
QLast Update : Wed Aug 28 11:55:28 2013
Response via : Initial Calibration





TIC: E1126309.D

(3) Benzidine (T)

13.547min (-0.053) 26.33ug/L

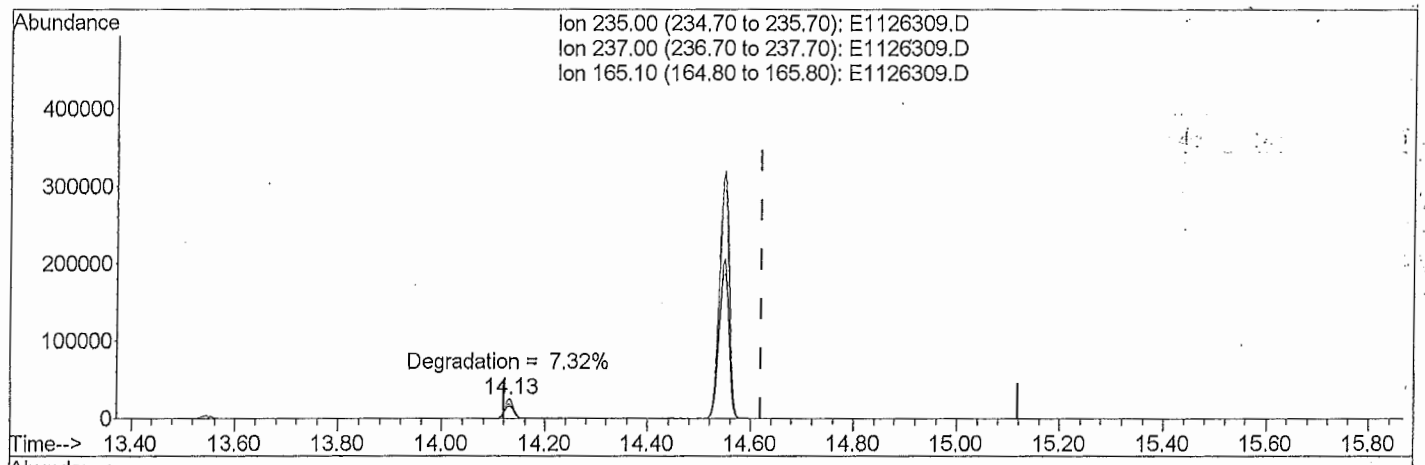
response 1357822

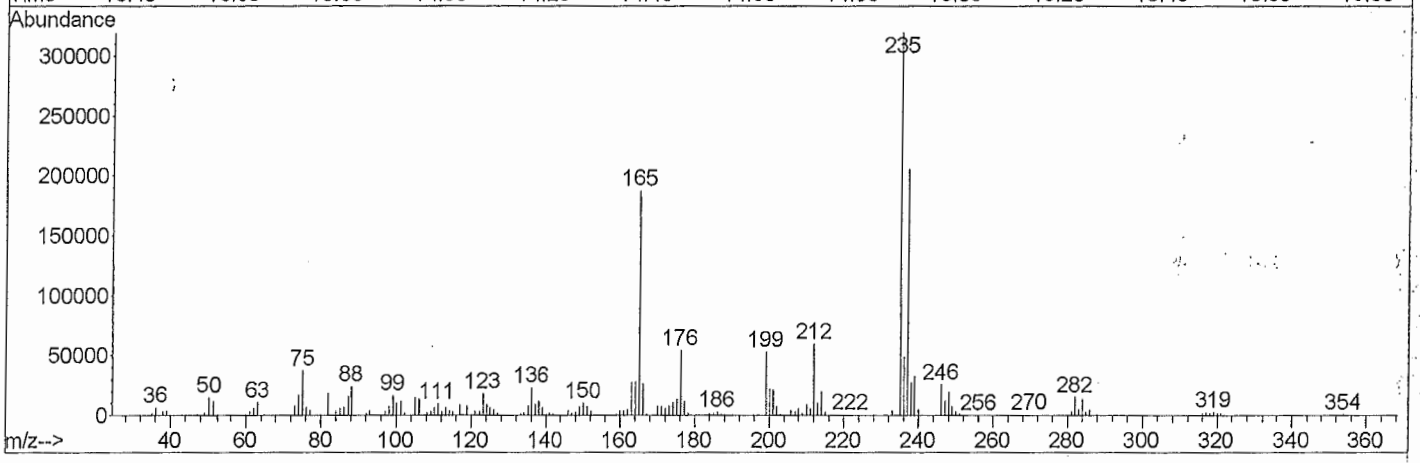
Ion	Exp%	Act%
184.20	100	100
92.10	13.70	10.34#
156.10	8.60	7.68
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\MSDCHEM\1\DATA\112613\
Data File : E1126309.D
Acq On : 26 Nov 2013 14:57
Operator : DOUG
Sample : 50 NG TUNE 16103
Misc : AG-5 8270
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Nov 26 15:16:14 2013
Quant Method : C:\MSDCHEM\1\METHODS\8270TUNPULSE.M
Quant Title : 8270 TUNE METHOD
QLast Update : Wed Aug 28 11:55:28 2013
Response via : Initial Calibration





TIC: E1126309.D

(4) DDT

14.549min (-0.071) 15.86ug/L

response 411816

Ion	Exp%	Act%
235.00	100	100
237.00	64.80	64.55
165.10	59.00	63.22
0.00	0.00	0.00

Response Factor Report AG5

Method Path : C:\MSDCHEM\1\CALFILES\8270CALS\
Method File : E8270317EW.M
Title : 8270 BNA Calibration
Last Update : Wed Dec 18 11:01:54 2013
Response Via : Initial Calibration

Calibration Files
5.0 =E1126311.D 10 =E1126312.D 20 =E1126313.D
30 =E1126314.D 40 =E1126315.D 60 =E1126316.D

		Compound	5.0	10	20	30	40	60	Avg	%RSD
1)	I	1,4-Dichlorobenzene-d	----------ISTD----------							
2)	I	Naphthalene-d8	----------ISTD----------							
3)	S	Nitrobenzene-d5	0.332	0.366	0.375	0.374	0.374	0.342	0.360	5.22
4)	I	Acenaphthene-d10	----------ISTD----------							
5)	S	2-Fluorobiphenyl	1.641	1.541	1.409	1.302	1.234	1.084	1.368	14.95
6)	TM	2,4-Dinitrotoluen	0.307	0.390	0.424	0.392	0.385	0.341	0.373	11.27
7)	I	Phenanthrene-d10	----------ISTD----------							
8)	I	Chrysene-d12	----------ISTD----------							
9)	S	Terphenyl-d14	0.876	0.842	0.795	0.744	0.734	0.671	0.777	9.71
10)	I	Perylene-d12	----------ISTD----------							

(#) = Out of Range

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\112613\
Data File : E1126310.D
Acq On : 26 Nov 2013 15:25
Operator : DOUG
Sample : CAL BLK 16144
Misc : AG-5 8270
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 18 10:56:34 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317EW.M
Quant Title : 8270 BNA Calibration
QLast Update : Mon Dec 16 13:51:08 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.41	152	3340748	40.00 ug/L	-0.03
2) Naphthalene-d8	9.38	136	12210106	40.00 ug/L	-0.03
4) Acenaphthene-d10	12.30	164	6915113	40.00 ug/L	-0.03
7) Phenanthrene-d10	14.87	188	11470046	40.00 ug/L	-0.03
8) Chrysene-d12	20.50	240	13888417	40.00 ug/L	-0.07
10) Perylene-d12	25.44	264	14055308	40.00 ug/L	-0.04
System Monitoring Compounds					
3) Nitrobenzene-d5	0.00	82	0	0.00 ug/L	
Spiked Amount 50.000			Recovery	= 0.00%	
5) 2-Fluorobiphenyl	11.24	172	14966	0.06 ug/L	0.06
Spiked Amount 50.000			Recovery	= 0.12%	
9) Terphenyl-d14	0.00	244	0	0.00 ug/L	
Spiked Amount 50.000			Recovery	= 0.00%	

Target Compounds	Qvalue

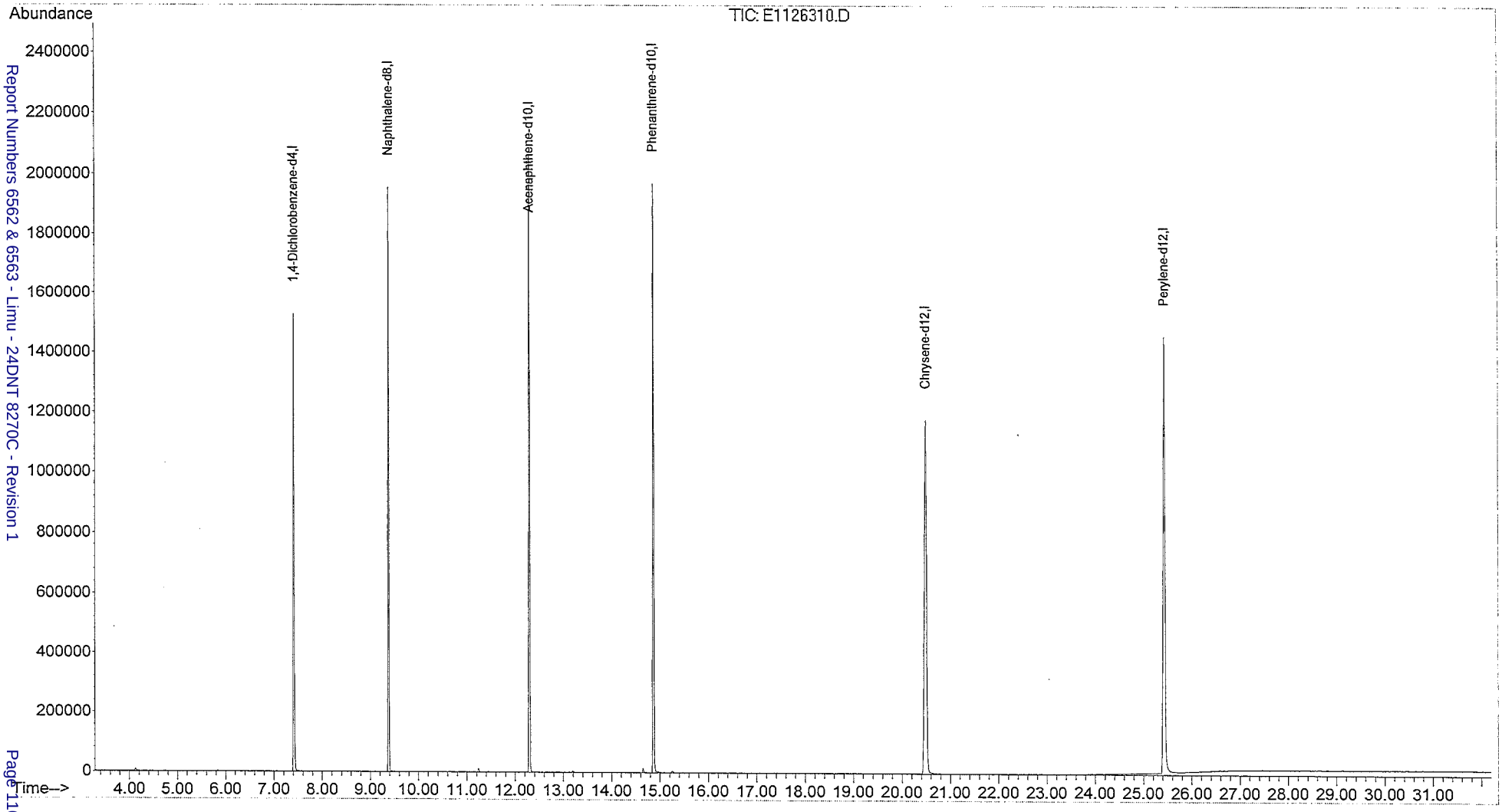
(#) = qualifier out of range (m) = manual integration (+) = signals summed

ARDL Inc Report Numbers 6562 & 6563 - Limu - 24DNT 8270C - Revision 1 Page 109 of 266

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\112613\
Data File : E1126310.D
Acq On : 26 Nov 2013 15:25
Operator : DOUG
Sample : CAL BLK 16144
Misc : AG-5 8270
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 18 10:56:34 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317EW.M
Quant Title : 8270 BNA Calibration
QLast Update : Mon Dec 16 13:51:08 2013
Response via : Initial Calibration



Report Numbers 6562 & 6563 - Limu - 24DNT 8270C - Revision 1

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\112613\
Data File : E1126311.D
Acq On : 26 Nov 2013 16:07
Operator : DOUG
Sample : 5 PPM STD 16145
Misc : AG-5 8270
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Dec 18 10:56:37 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317EW.M
Quant Title : 8270 BNA Calibration
QLast Update : Mon Dec 16 13:51:08 2013
Response via : Initial Calibration

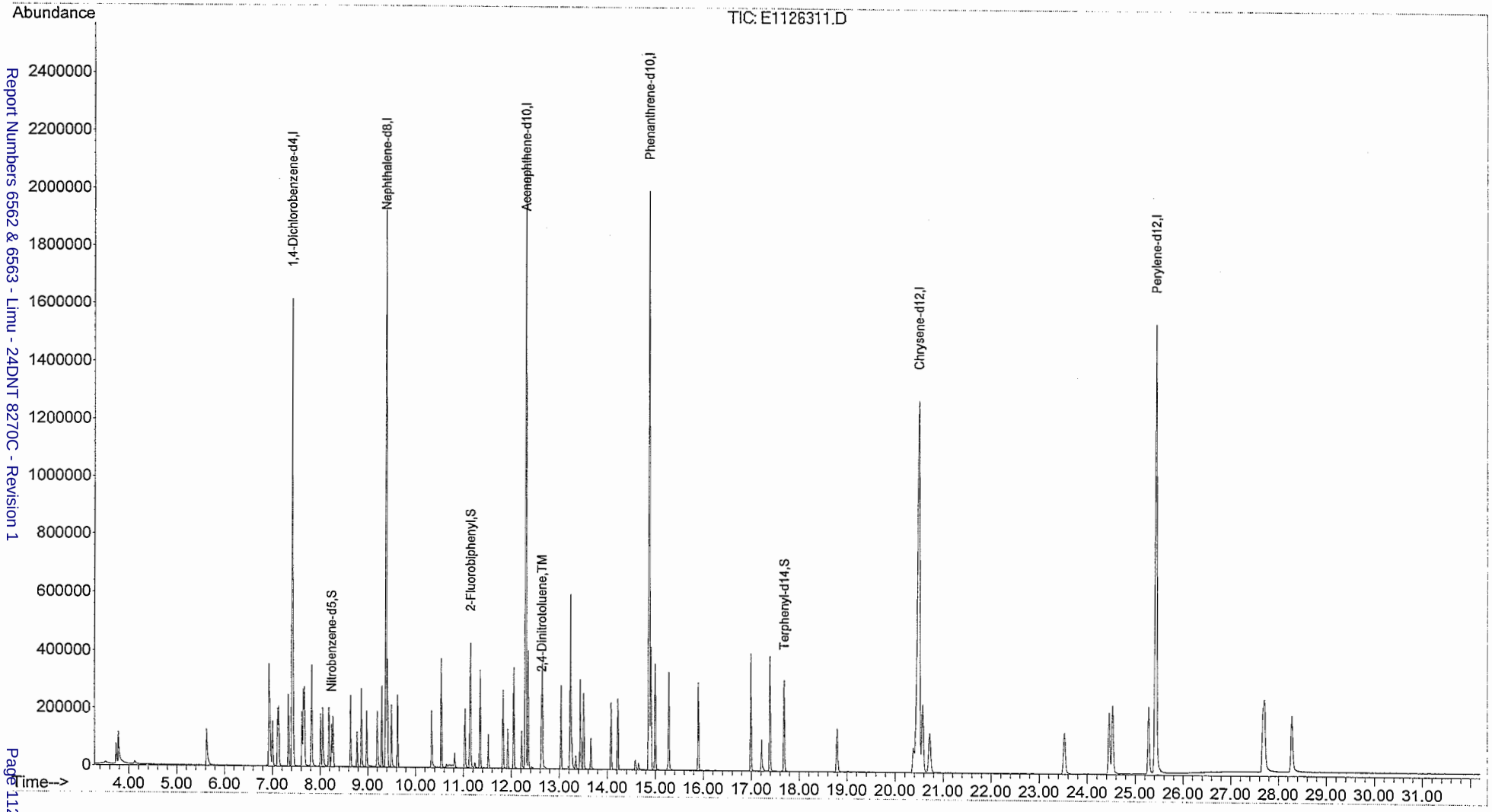
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.41	152	3508856	40.00 ug/L	-0.03
2) Naphthalene-d8	9.38	136	12851190	40.00 ug/L	-0.03
4) Acenaphthene-d10	12.30	164	7400351	40.00 ug/L	-0.04
7) Phenanthrene-d10	14.87	188	12162231	40.00 ug/L	-0.03
8) Chrysene-d12	20.50	240	14764737	40.00 ug/L	-0.07
10) Perylene-d12	25.44	264	15010579	40.00 ug/L	-0.04
System Monitoring Compounds					
3) Nitrobenzene-d5	8.24	82	532779	4.60 ug/L	-0.03
Spiked Amount 50.000			Recovery	= 9.20%	
5) 2-Fluorobiphenyl	11.15	172	1517935	6.00 ug/L	-0.04
Spiked Amount 50.000			Recovery	= 12.00%	
9) Terphenyl-d14	17.69	244	1616225	5.64 ug/L	-0.04
Spiked Amount 50.000			Recovery	= 11.28%	
Target Compounds					Qvalue
6) 2,4-Dinitrotoluene	12.63	165	283601	4.11 ug/L #	76

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

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\112613\
Data File : E1126311.D
Acq On : 26 Nov 2013 16:07
Operator : DOUG
Sample : 5 PPM STD 16145
Misc : AG-5 8270
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Dec 18 10:56:37 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317EW.M
Quant Title : 8270 BNA Calibration
QLast Update : Mon Dec 16 13:51:08 2013
Response via : Initial Calibration



ARDL Inc.
Report Numbers 6562 & 6563 - Limu - 24DNT 8270C - Revision 1
Page 112 of 266

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\112613\
Data File : E1126312.D
Acq On : 26 Nov 2013 16:47
Operator : DOUG
Sample : 10 PPM STD 16146
Misc : AG-5 8270
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Dec 18 10:56:39 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317EW.M
Quant Title : 8270 BNA Calibration
QLast Update : Mon Dec 16 13:51:08 2013
Response via : Initial Calibration

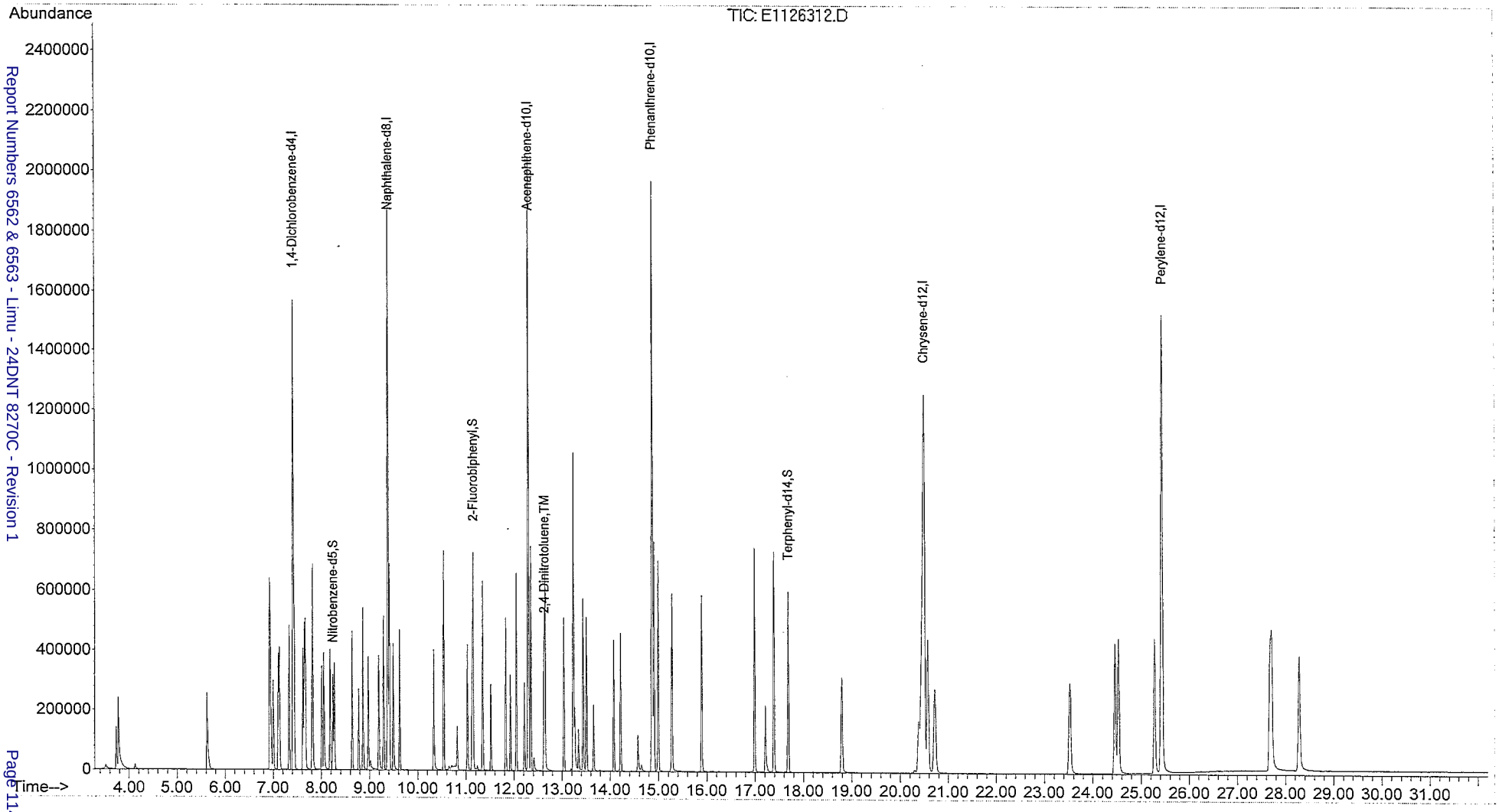
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.41	152	3384346	40.00	ug/L	-0.03
2) Naphthalene-d8	9.38	136	12574392	40.00	ug/L	-0.03
4) Acenaphthene-d10	12.30	164	7203556	40.00	ug/L	-0.04
7) Phenanthrene-d10	14.87	188	11819916	40.00	ug/L	-0.03
8) Chrysene-d12	20.50	240	14278416	40.00	ug/L	-0.07
10) Perylene-d12	25.44	264	14601470	40.00	ug/L	-0.04
System Monitoring Compounds						
3) Nitrobenzene-d5	8.24	82	1151915	10.17	ug/L	-0.03
Spiked Amount 50.000			Recovery = 20.34%			
5) 2-Fluorobiphenyl	11.15	172	2775700	11.26	ug/L	-0.04
Spiked Amount 50.000			Recovery = 22.52%			
9) Terphenyl-d14	17.69	244	3004584	10.84	ug/L	-0.04
Spiked Amount 50.000			Recovery = 21.68%			
Target Compounds						Qvalue
6) 2,4-Dinitrotoluene	12.63	165	702475	10.45	ug/L #	75

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

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\112613\
Data File : E1126312.D
Acq On : 26 Nov 2013 16:47
Operator : DOUG
Sample : 10 PPM STD 16146
Misc : AG-5 8270
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Dec 18 10:56:39 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317EW.M
Quant Title : 8270 BNA Calibration
QLast Update : Mon Dec 16 13:51:08 2013
Response via : Initial Calibration



E8270317EW.M Wed Dec 18 10:56:40 2013

Page: 2

Report Numbers 6562 & 6563 - Limu - 24DNT 8270C - Revision 1

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\112613\
Data File : E1126313.D
Acq On : 26 Nov 2013 17:29
Operator : DOUG
Sample : 20 PPM STD 16147
Misc : AG-5 8270
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Dec 18 10:56:41 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317EW.M
Quant Title : 8270 BNA Calibration
QLast Update : Mon Dec 16 13:51:08 2013
Response via : Initial Calibration

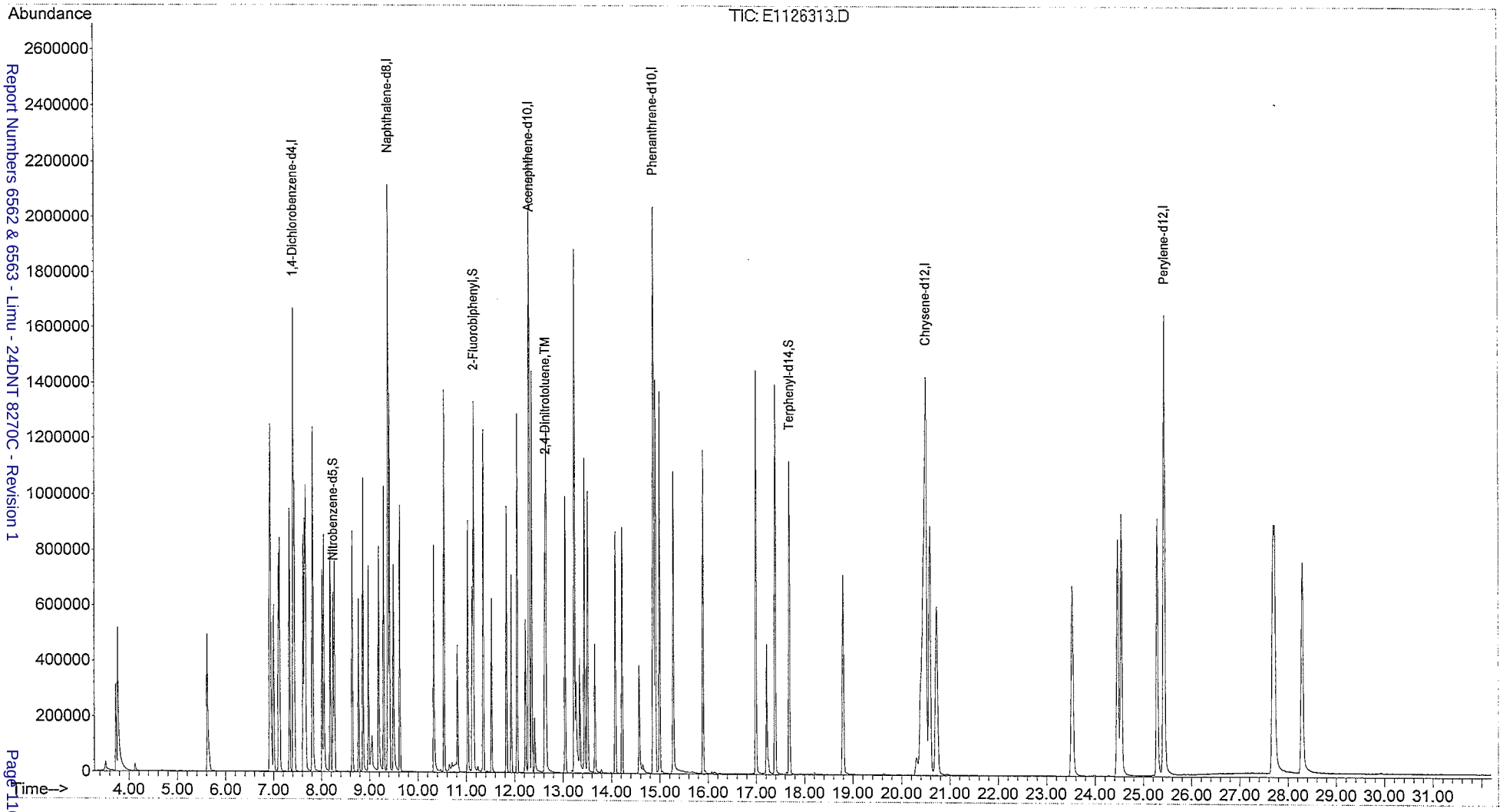
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.41	152	3617052	40.00	ug/L	-0.03
2) Naphthalene-d8	9.38	136	13532951	40.00	ug/L	-0.03
4) Acenaphthene-d10	12.30	164	7724859	40.00	ug/L	-0.03
7) Phenanthrene-d10	14.87	188	13229038	40.00	ug/L	-0.03
8) Chrysene-d12	20.50	240	15230931	40.00	ug/L	-0.06
10) Perylene-d12	25.44	264	15699805	40.00	ug/L	-0.04
System Monitoring Compounds						
3) Nitrobenzene-d5	8.25	82	2535125	20.79	ug/L	-0.03
Spiked Amount 50.000			Recovery = 41.58%			
5) 2-Fluorobiphenyl	11.15	172	5440747	20.59	ug/L	-0.03
Spiked Amount 50.000			Recovery = 41.18%			
9) Terphenyl-d14	17.69	244	6053867	20.47	ug/L	-0.04
Spiked Amount 50.000			Recovery = 40.94%			
Target Compounds						Qvalue
6) 2,4-Dinitrotoluene	12.63	165	1639237	22.75	ug/L #	76

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

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\112613\
Data File : E1126313.D
Acq On : 26 Nov 2013 17:29
Operator : DOUG
Sample : 20 PPM STD 16147
Misc : AG-5 8270
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Dec 18 10:56:41 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317EW.M
Quant Title : 8270 BNA Calibration
QLast Update : Mon Dec 16 13:51:08 2013
Response via : Initial Calibration



E8270317EW.M Wed Dec 18 10:56:42 2013

ARDL Inc
Report Numbers 6562 & 6563 - Limu - 24DNT 8270C - Revision 1
Page 116 of 266

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\112613\
Data File : E1126314.D
Acq On : 26 Nov 2013 18:09
Operator : DOUG
Sample : 30 PPM STD 16148
Misc : AG-5 8270
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Dec 18 10:56:44 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317EW.M
Quant Title : 8270 BNA Calibration
QLast Update : Mon Dec 16 13:51:08 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.41	152	3078037	40.00 ug/L	-0.03
2) Naphthalene-d8	9.38	136	11765098	40.00 ug/L	-0.03
4) Acenaphthene-d10	12.30	164	6622318	40.00 ug/L	-0.03
7) Phenanthrene-d10	14.87	188	10655429	40.00 ug/L	-0.03
8) Chrysene-d12	20.51	240	12748304	40.00 ug/L	-0.06
10) Perylene-d12	25.44	264	13215987	40.00 ug/L	-0.04
System Monitoring Compounds					
3) Nitrobenzene-d5	8.25	82	3296168	31.09 ug/L	-0.03
Spiked Amount 50.000			Recovery =	62.18%	
5) 2-Fluorobiphenyl	11.15	172	6466529	28.54 ug/L	-0.03
Spiked Amount 50.000			Recovery =	57.08%	
9) Terphenyl-d14	17.69	244	7115751	28.74 ug/L	-0.03
Spiked Amount 50.000			Recovery =	57.48%	
Target Compounds					Qvalue
6) 2,4-Dinitrotoluene	12.63	165	1945708	31.50 ug/L #	76

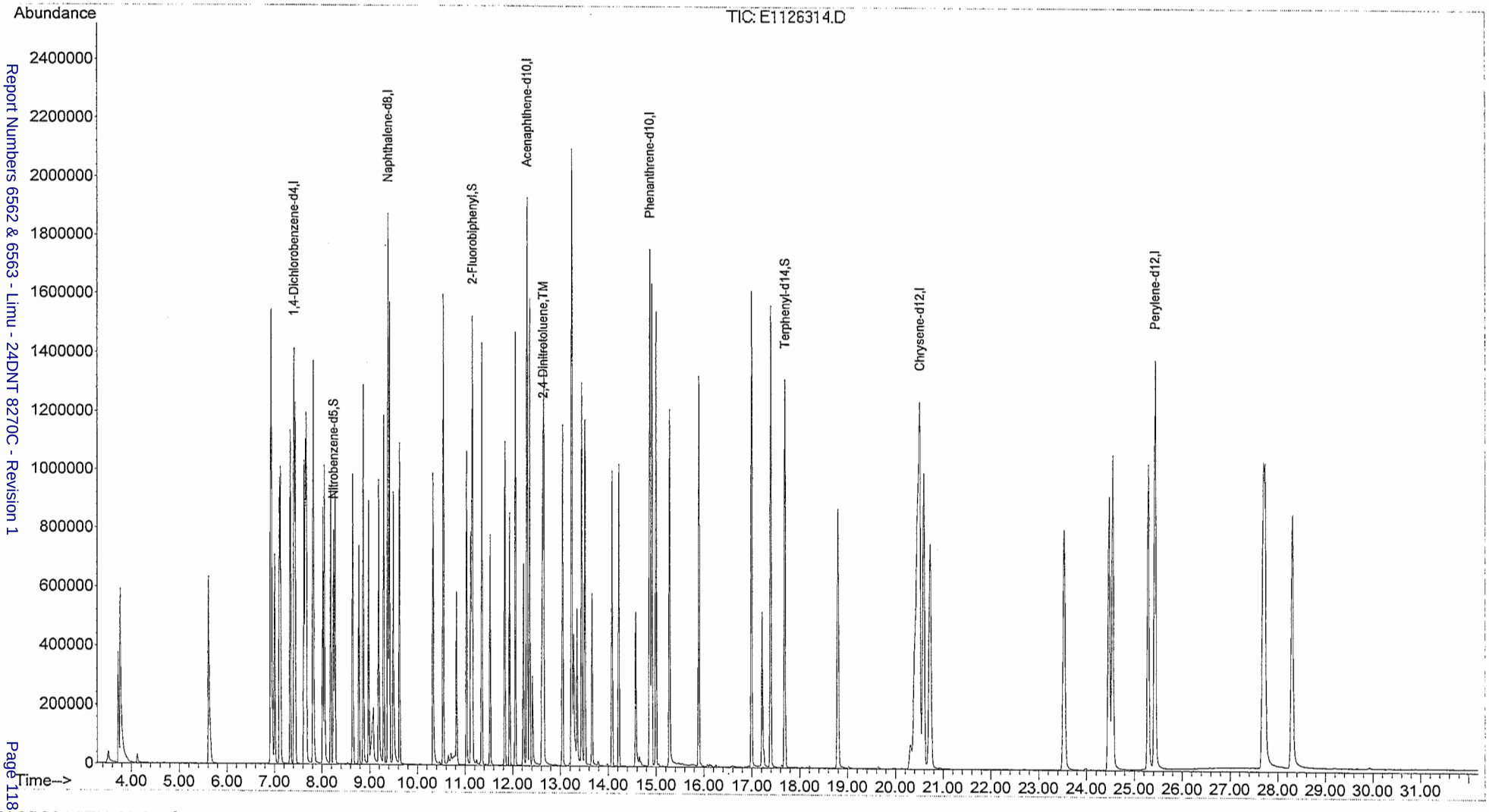
(#) = qualifier out of range (m) = manual integration (+) = signals summed

ARDL Inc. Report Numbers 6562 & 6563 - Limu - 24DNT 8270C - Revision 1 Page 117 of 266

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\112613\
Data File : E1126314.D
Acq On : 26 Nov 2013 18:09
Operator : DOUG
Sample : 30 PPM STD 16148
Misc : AG-5 8270
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Dec 18 10:56:44 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317EW.M
Quant Title : 8270 BNA Calibration
QLast Update : Mon Dec 16 13:51:08 2013
Response via : Initial Calibration



E8270317EW.M Wed Dec 18 10:56:46 2013

ARDL Inc
Report Numbers 6562 & 6563 - Limu - 24DNT 8270C - Revision 1
Page 118 of 266

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\112613\
Data File : E1126315.D
Acq On : 26 Nov 2013 18:50
Operator : DOUG
Sample : 40 PPM STD 16149
Misc : AG-5 8270
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Dec 18 10:56:47 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317EW.M
Quant Title : 8270 BNA Calibration
QLast Update : Mon Dec 16 13:51:08 2013
Response via : Initial Calibration

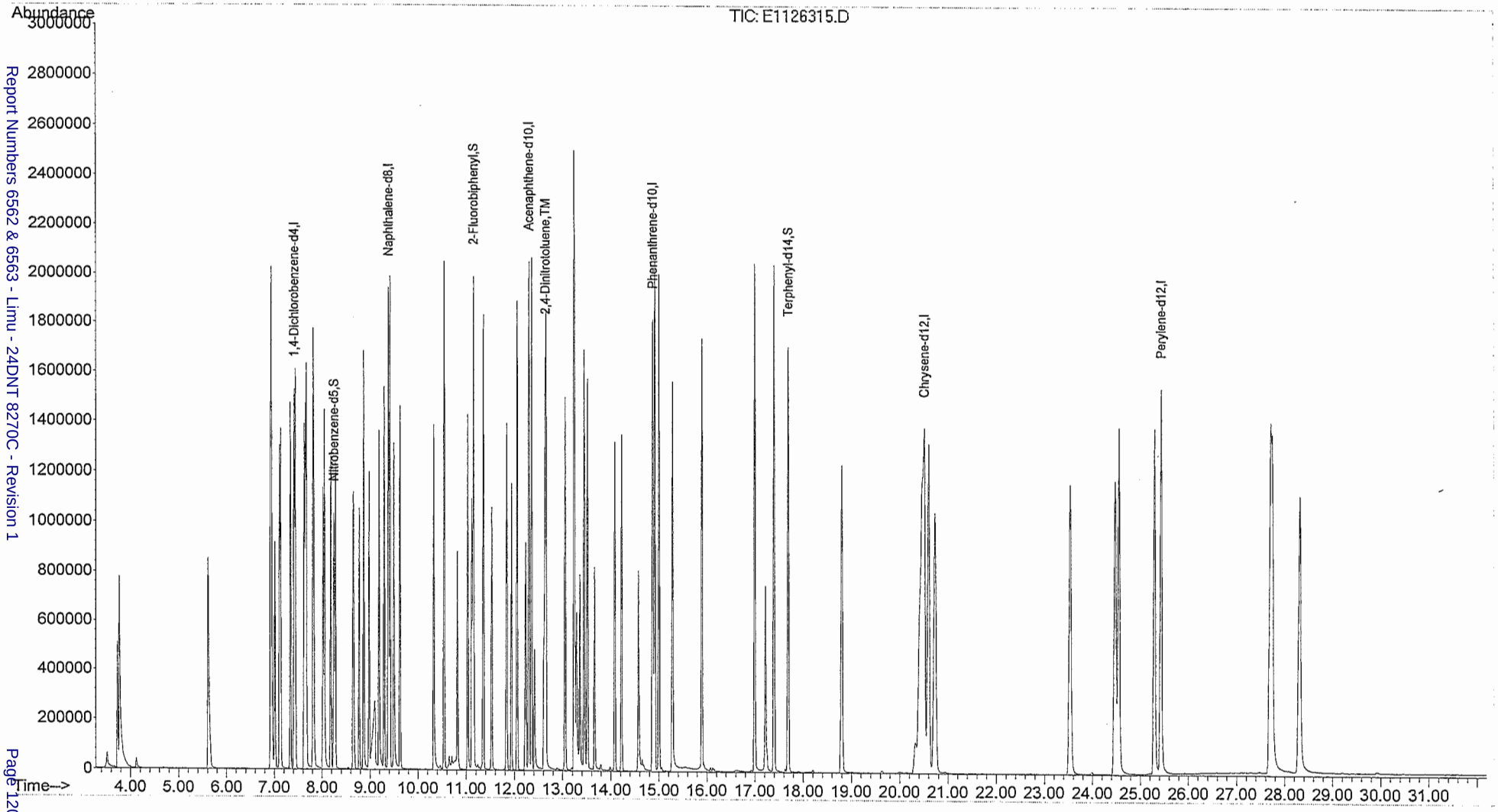
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.42	152	3369239	40.00	ug/L	-0.03
2) Naphthalene-d8	9.38	136	12528447	40.00	ug/L	-0.03
4) Acenaphthene-d10	12.30	164	7202723	40.00	ug/L	-0.03
7) Phenanthrene-d10	14.87	188	11819653	40.00	ug/L	-0.03
8) Chrysene-d12	20.51	240	13407154	40.00	ug/L	-0.05
10) Perylene-d12	25.44	264	14297014	40.00	ug/L	-0.04
System Monitoring Compounds						
3) Nitrobenzene-d5	8.25	82	4688120	41.53	ug/L	-0.03
Spiked Amount 50.000			Recovery = 83.06%			
5) 2-Fluorobiphenyl	11.15	172	8884748	36.06	ug/L	-0.03
Spiked Amount 50.000			Recovery = 72.12%			
9) Terphenyl-d14	17.70	244	9834223	37.77	ug/L	-0.03
Spiked Amount 50.000			Recovery = 75.54%			
Target Compounds						Qvalue
6) 2,4-Dinitrotoluene	12.64	165	2771882	41.25	ug/L #	74

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

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\112613\
Data File : E1126315.D
Acq On : 26 Nov 2013 18:50
Operator : DOUG
Sample : 40 PPM STD 16149
Misc : AG-5 8270
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Dec 18 10:56:47 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317EW.M
Quant Title : 8270 BNA Calibration
QLast Update : Mon Dec 16 13:51:08 2013
Response via : Initial Calibration



ARDL Inc Report Numbers 6562 & 6563 - Limu - 24DNT 8270C - Revision 1 Page 120 of 266

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\112613\
Data File : E1126316.D
Acq On : 26 Nov 2013 19:31
Operator : DOUG
Sample : 60 PPM STD 16150
Misc : AG-5 8270
ALS Vial : 8 Sample Multiplier: 1

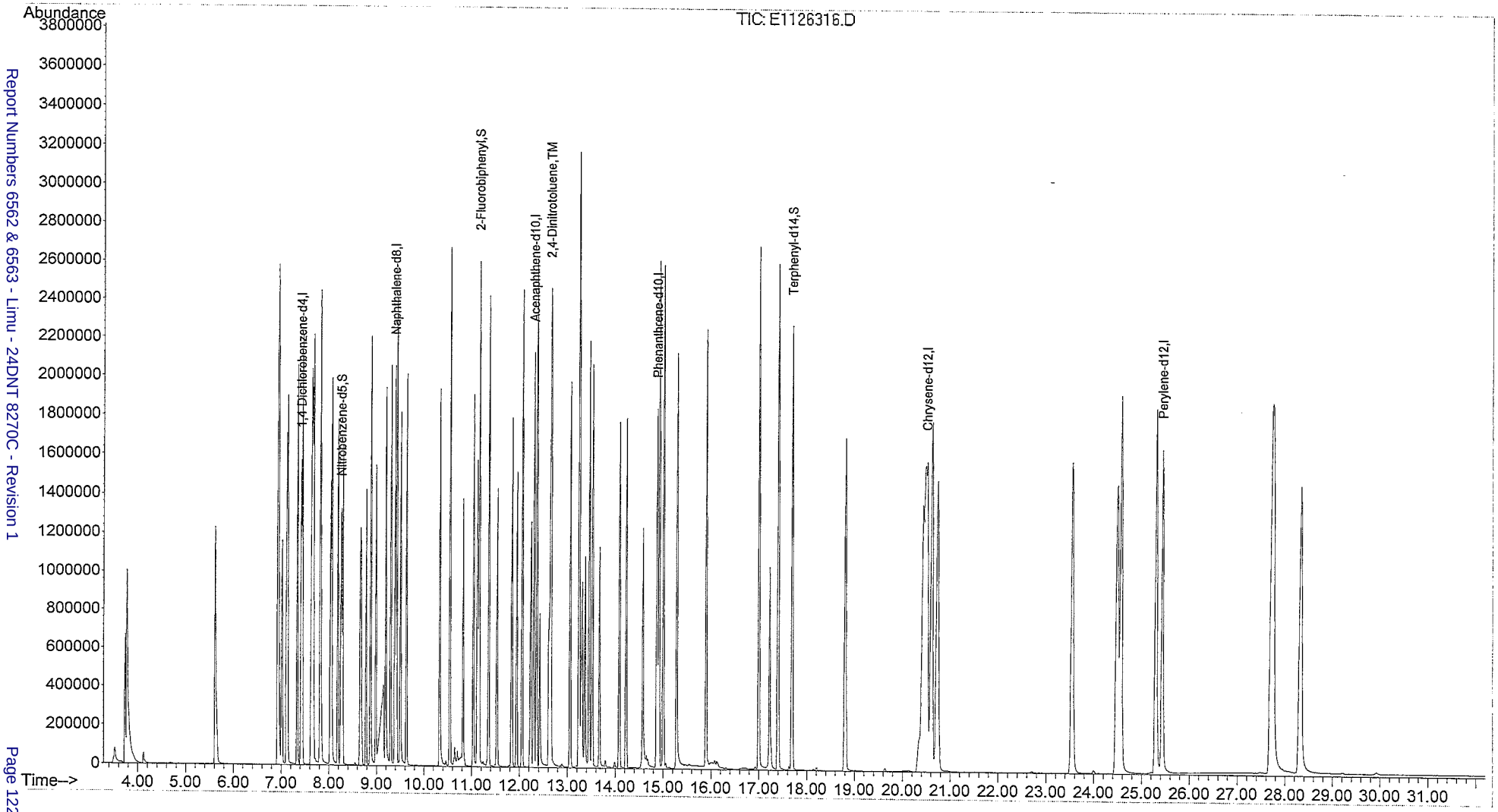
Quant Time: Dec 18 10:56:49 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317EW.M
Quant Title : 8270 BNA Calibration
QLast Update : Mon Dec 16 13:51:08 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.42	152	3496754	40.00	ug/L	-0.03
2) Naphthalene-d8	9.39	136	13405185	40.00	ug/L	-0.03
4) Acenaphthene-d10	12.30	164	7587901	40.00	ug/L	-0.03
7) Phenanthrene-d10	14.87	188	12896637	40.00	ug/L	-0.03
8) Chrysene-d12	20.53	240	14228137	40.00	ug/L	-0.04
10) Perylene-d12	25.45	264	15840551	40.00	ug/L	-0.03
System Monitoring Compounds						
3) Nitrobenzene-d5	8.26	82	6875732	56.93	ug/L	-0.02
Spiked Amount 50.000			Recovery = 113.86%			
5) 2-Fluorobiphenyl	11.16	172	12337925	47.53	ug/L	-0.03
Spiked Amount 50.000			Recovery = 95.06%			
9) Terphenyl-d14	17.70	244	14318798	51.82	ug/L	-0.03
Spiked Amount 50.000			Recovery = 103.64%			
Target Compounds						Qvalue
6) 2,4-Dinitrotoluene	12.65	165	3884102	54.87	ug/L #	73

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

Data Path : C:\MSDCHEM\1\DATA\112613\
Data File : E1126316.D
Acq On : 26 Nov 2013 19:31
Operator : DOUG
Sample : 60 PPM STD 16150
Misc : AG-5 8270
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Dec 18 10:56:49 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317EW.M
Quant Title : 8270 BNA Calibration
QLast Update : Mon Dec 16 13:51:08 2013
Response via : Initial Calibration



ARDL Inc
Report Numbers 6562 & 6563 - Limu - 24DNT 8270C - Revision 1
Page 122 of 266

Evaluate Continuing Calibration Report

Data Path : C:\MSDCHEM\1\DATA\112613\
Data File : E1126317.D
Acq On : 26 Nov 2013 20:12
Operator : DOUG
Sample : 30 PPM ICV 16141
Misc : AG-5 8270
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Dec 18 11:02:23 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317EW.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:01:54 2013
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	118	-0.03
2	I	Naphthalene-d8	1.000	1.000	0.0	115	-0.03
3	S	Nitrobenzene-d5	0.360	0.370	-2.8	114	-0.03
4	I	Acenaphthene-d10	1.000	1.000	0.0	119	-0.03
5	S	2-Fluorobiphenyl	1.368	1.308	4.4	119	-0.03
6	TM	2,4-Dinitrotoluene	0.373	0.408	-9.4	123	-0.03
7	I	Phenanthrene-d10	1.000	1.000	0.0	123	-0.03
8	I	Chrysene-d12	1.000	1.000	0.0	121	-0.06
9	S	Terphenyl-d14	0.777	0.750	3.5	122	-0.04
10	I	Perylene-d12	1.000	1.000	0.0	120	-0.04

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

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\112613\
Data File : E1126317.D
Acq On : 26 Nov 2013 20:12
Operator : DOUG
Sample : 30 PPM ICV 16141
Misc : AG-5 8270
ALS Vial : 9 Sample Multiplier: 1

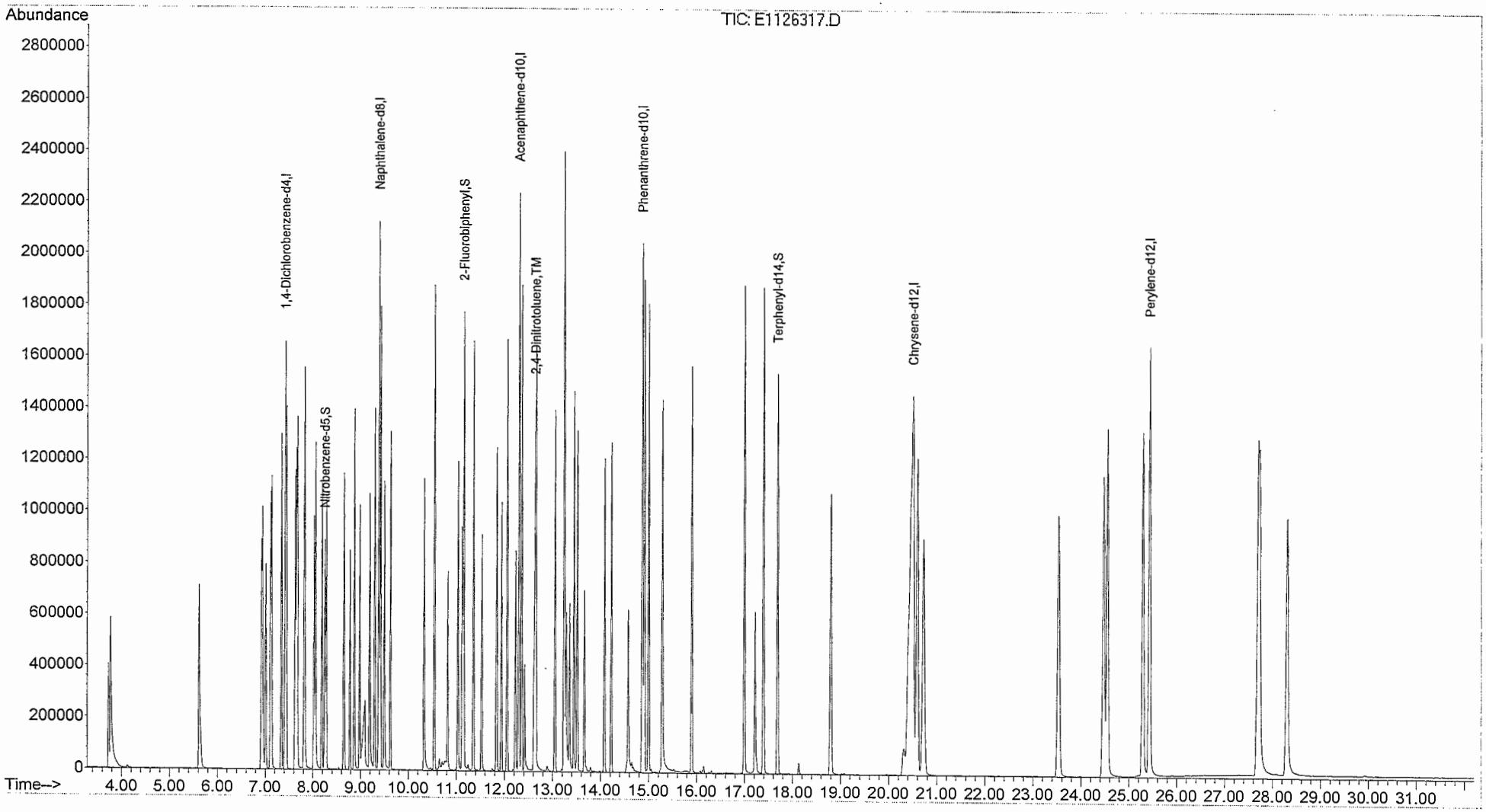
Quant Time: Dec 18 11:02:23 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317EW.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:01:54 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.41	152	3642955	40.00 ug/L	-0.03
2) Naphthalene-d8	9.39	136	13534630	40.00 ug/L	-0.03
4) Acenaphthene-d10	12.30	164	7848197	40.00 ug/L	-0.03
7) Phenanthrene-d10	14.87	188	13126522	40.00 ug/L	-0.03
8) Chrysene-d12	20.51	240	15465597	40.00 ug/L	-0.06
10) Perylene-d12	25.44	264	15909494	40.00 ug/L	-0.04
System Monitoring Compounds					
3) Nitrobenzene-d5	8.25	82	3756760	30.81 ug/L	-0.03
Spiked Amount 50.000			Recovery =	61.62%	
5) 2-Fluorobiphenyl	11.15	172	7696643	28.67 ug/L	-0.03
Spiked Amount 50.000			Recovery =	57.34%	
9) Terphenyl-d14	17.69	244	8694567	28.95 ug/L	-0.04
Spiked Amount 50.000			Recovery =	57.90%	
Target Compounds					Qvalue
6) 2,4-Dinitrotoluene	12.63	165	2398955	32.77 ug/L #	74

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

Data Path : C:\MSDCHEM\1\DATA\112613\
Data File : E1126317.D
Acq On : 26 Nov 2013 20:12
Operator : DOUG
Sample : 30 PPM ICV 16141
Misc : AG-5 8270
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Dec 18 11:02:23 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317EW.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:01:54 2013
Response via : Initial Calibration



ARDL Inc
Report Numbers 6562 & 6563 - Limu - 24DNT 8270C - Revision 1
Page 128 of 266

5B

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

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

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

Lab File ID: E1127301 DFTPP Injection Date: 11/27/13

Instrument ID: AG5 DFTPP Injection Time: 09:42

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30 - 80% of mass 198	32.5
68	Less than 2.0% of mass 69	0.0 (1)
69	(reference only)	31.0
70	Less than 2.0% of mass 69	0.4 (1)
127	25 - 75% of mass 198	47.4
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	25.3
365	Greater than 1% of mass 198	3.0
441	0 - 100% of mass 443	89.5
442	40 - 110% of mass 198	97.6
443	15 - 24% of mass 442	20.1 (2)

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

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

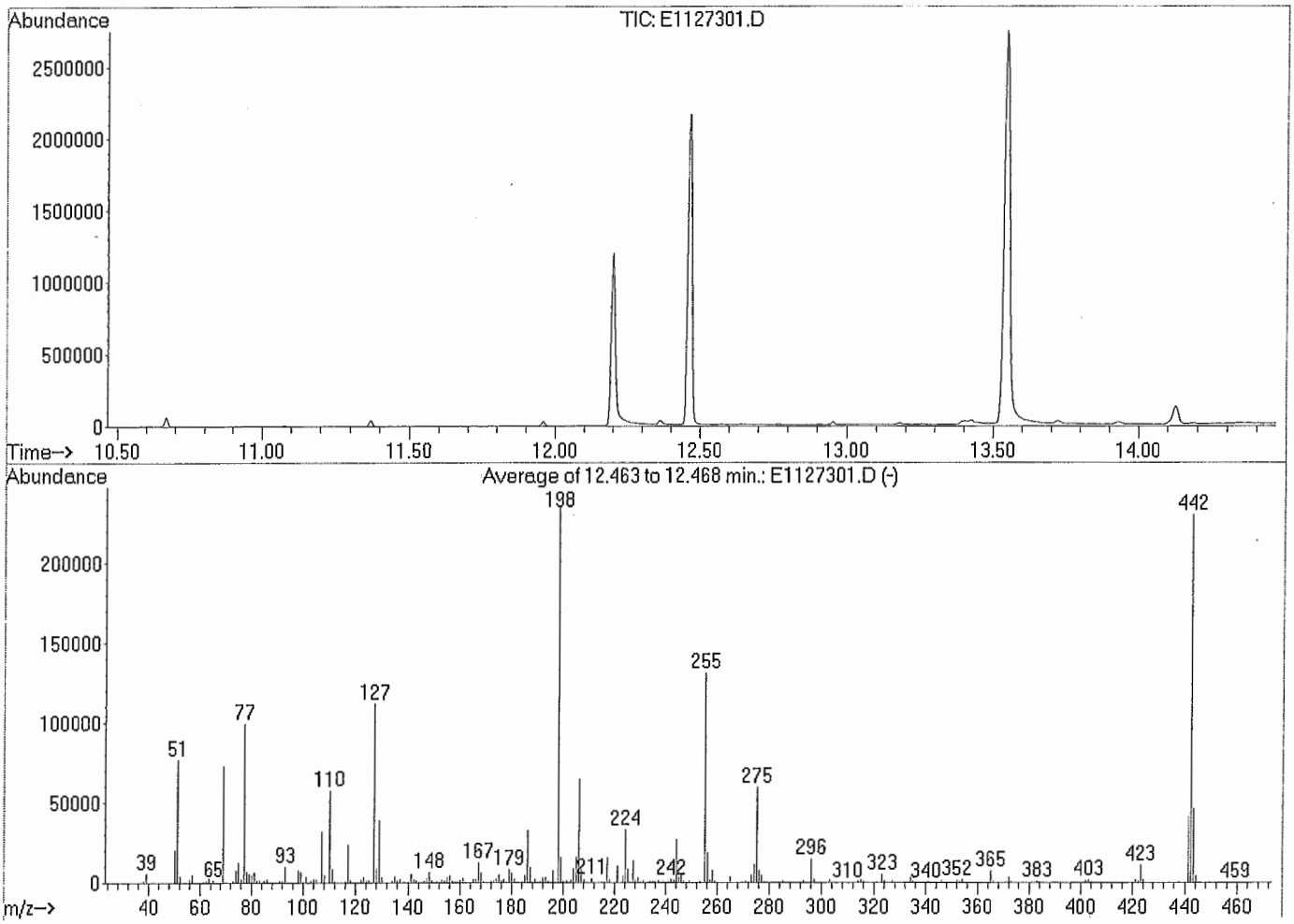
	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1	BNA STD	030 PPM STD	E1127302	11/27/13	10:07
2	BLANK B10129	006562-12B1	E1127303	11/27/13	10:48
3	MAK001L/2L/26L	006562-01	E1127305	11/27/13	12:08
4	MAK007L	006562-02	E1127306	11/27/13	12:48
5	MAK009L	006562-03	E1127307	11/27/13	13:29
6	MAK010L(COMP)	006562-04	E1127308	11/27/13	14:09
7	MAK011L	006562-05	E1127309	11/27/13	14:49
8	MAK013L	006562-06	E1127310	11/27/13	15:29
9	MAK016L/21L/27L	006562-07	E1127311	11/27/13	16:09
10	MAK022L	006562-08	E1127312	11/27/13	16:50
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

DFTPP

Data Path : C:\MSDCHEM\1\DATA\112713\
Data File : E1127301.D
Acq On : 27 Nov 2013 9:42
Operator : DOUG
Sample : 50 NG TUNE 16103
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 1191, 1192, 1193; Background Corrected with Scan 1181

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	80	32.5	76624	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.01	100	31.0	72938	PASS
70	69	0.00	2	0.4	300	PASS
127	198	25	75	47.4	111656	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	235498	PASS
199	198	5	9	6.7	15770	PASS
275	198	10	30	25.3	59480	PASS
365	198	0.75	100	3.0	7108	PASS
441	443	0.01	100	89.5	41429	PASS
442	198	40	110	97.6	229952	PASS
443	442	15	24	20.1	46280	PASS

Average of 12.463 to 12.468 min.: E1127301.D
50 NG TUNE 16103
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
37.10	373	55.00	40	69.10	72938	79.10	5733
38.05	890	56.05	1919	69.90	211	80.10	4612
39.10	5742	57.10	4945	70.10	300	81.10	6372
41.10	16	58.05	263	71.80	77	82.05	1589
42.00	37	59.00	73	72.20	42	83.10	1497
47.00	8	61.10	838	73.10	1057	84.00	89
48.20	42	62.10	1277	74.15	7809	85.05	1307
50.15	20474	63.10	2753	75.05	12644	86.05	1812
51.15	76624	64.15	481	76.20	2256	87.00	715
52.15	4033	65.10	1249	77.15	99373	88.05	323
53.00	46	66.10	116	78.15	6746	89.60	39

Average of 12.463 to 12.468 min.: E1127301.D
50 NG TUNE 16103
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
90.00	92	101.95	266	114.70	48	127.10	111656
91.05	1171	103.05	1350	116.15	1356	128.10	8956
92.15	1479	104.10	2239	117.10	23576	129.05	38850
93.10	9946	105.10	2348	118.00	1676	130.05	3301
94.05	616	107.10	31880	119.00	157	131.00	465
96.05	395	108.10	4777	120.05	391	131.95	158
97.00	103	110.10	57485	121.05	197	132.30	90
98.10	7657	111.10	8470	122.05	1896	133.05	285
99.10	6640	112.05	1083	123.10	3177	133.95	1175
100.05	779	113.05	381	124.05	1344	135.05	3699
101.05	3754	114.00	37	125.10	1484	136.10	1480

Average of 12.463 to 12.468 min.: E1127301.D
50 NG TUNE 16103
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
137.10	1851	147.10	3073	158.05	1029	169.00	891
138.05	441	148.10	6503	159.00	781	170.00	183
138.80	129	149.05	1369	160.10	1696	170.40	147
139.10	137	150.10	426	161.05	2851	171.10	539
140.05	532	151.15	750	162.00	771	172.00	1002
141.05	5316	151.75	452	162.95	234	173.15	1424
142.05	1831	153.10	1618	163.95	275	174.10	2505
143.05	1286	154.10	1391	165.05	2079	175.10	4803
144.10	366	155.10	3302	166.15	2124	176.15	1251
145.10	556	156.10	4551	167.10	12395	177.00	2123
146.10	1050	157.05	1107	168.10	6186	178.05	571

Average of 12.463 to 12.468 min.: E1127301.D
50 NG TUNE 16103
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
179.05	8222	189.80	139	201.50	1231	213.95	128
180.10	6132	190.05	250	203.10	1751	215.05	574
181.10	2507	191.05	1045	204.10	9053	216.10	542
182.05	470	192.10	3056	205.10	15823	217.05	15535
183.05	350	193.10	3196	206.10	64517	218.05	2119
184.00	809	194.10	907	207.05	8485	219.05	267
185.10	4753	195.10	223	208.05	1753	221.10	10287
186.10	32688	196.10	7496	209.05	618	223.10	3766
187.10	9397	198.00	235498	210.20	328	224.10	33008
188.10	1005	199.00	15770	211.05	2477	225.10	8637
189.00	1838	200.05	1309	213.00	250	226.10	497

Average of 12.463 to 12.468 min.: E1127301.D
50 NG TUNE 16103
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
227.10	13549	237.90	90	247.85	221	259.00	1075
228.05	1852	238.10	99	249.05	935	259.90	72
229.00	2911	238.95	666	250.05	275	260.15	182
230.00	461	239.95	421	250.90	177	260.95	183
231.10	1201	241.05	892	251.30	111	262.00	67
232.05	151	242.05	2062	251.95	366	263.20	34
233.05	329	243.15	1618	253.10	953	265.00	3498
234.00	886	244.10	26832	255.05	131016	265.85	47
235.00	1009	245.10	3612	256.05	18815	267.05	77
236.00	749	246.00	4716	257.10	1712	267.95	251
237.05	1085	247.00	1018	258.05	7472	269.05	143

Average of 12.463 to 12.468 min.: E1127301.D
50 NG TUNE 16103

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
269.95	303	280.95	191	293.95	289	306.90	36
270.95	930	282.00	251	296.05	14695	307.95	241
272.05	548	283.00	573	297.05	2144	308.95	156
273.05	4714	284.05	507	298.00	176	309.95	251
274.10	11521	285.05	883	298.90	61	310.90	32
275.10	59480	286.05	259	300.00	34	311.90	75
276.10	7761	288.95	232	300.90	164	312.80	54
277.00	4759	289.90	205	302.00	390	314.05	874
278.00	835	290.90	304	303.10	1786	315.00	1733
278.80	39	292.05	220	304.05	479	316.00	929
279.05	150	293.00	1121	305.05	67	317.00	151

Average of 12.463 to 12.468 min.: E1127301.D
50 NG TUNE 16103
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
319.00	41	330.10	30	346.00	1252	358.95	189
320.15	65	332.00	363	346.80	43	362.00	45
321.00	489	333.00	612	347.05	237	363.70	29
322.00	92	334.10	3631	348.60	28	365.00	7108
323.10	5111	335.00	951	349.80	29	365.95	1124
324.05	1103	336.00	48	351.00	66	367.00	55
325.00	122	336.90	31	352.05	1672	370.05	170
325.90	34	338.90	71	353.05	1038	371.00	437
327.00	1153	340.00	123	354.05	1914	372.05	3119
327.95	556	341.05	800	355.05	289	373.00	804
328.95	142	342.05	173	357.70	38	374.00	61

Average of 12.463 to 12.468 min.: E1127301.D
50 NG TUNE 16103
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
377.00	73	401.95	1237	421.00	1954	428.20	106
383.05	666	403.00	1680	422.10	1074	428.50	31
384.00	309	404.00	748	423.05	10852	429.00	47
384.90	29	405.05	74	424.00	2156	429.50	114
385.10	28	409.80	50	424.95	201	429.80	61
389.90	219	414.95	143	425.80	51	430.65	101
390.10	89	415.70	46	426.10	53	431.50	27
391.00	374	418.70	27	426.90	48	431.80	49
391.90	243	419.20	32	427.20	29	432.50	76
397.00	32	419.70	41	427.55	65	433.15	90
401.00	303	420.00	48	427.90	46	433.60	47

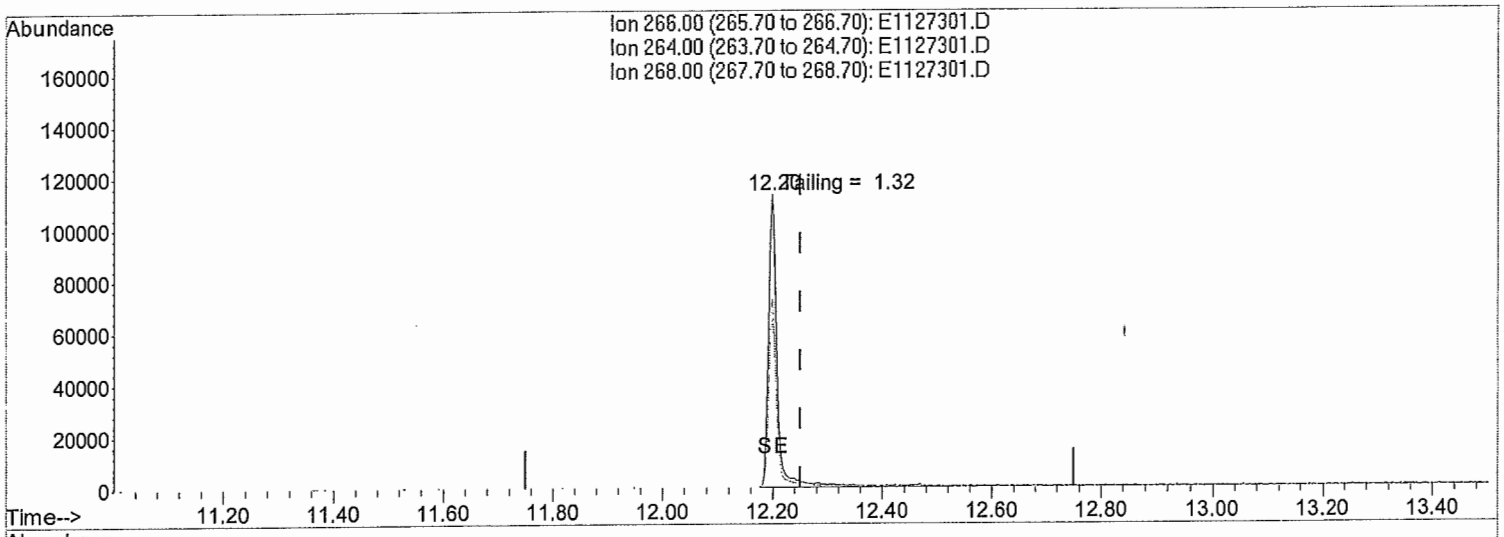
Average of 12.463 to 12.468 min.: E1127301.D
50 NG TUNE 16103
Modified:subtracted

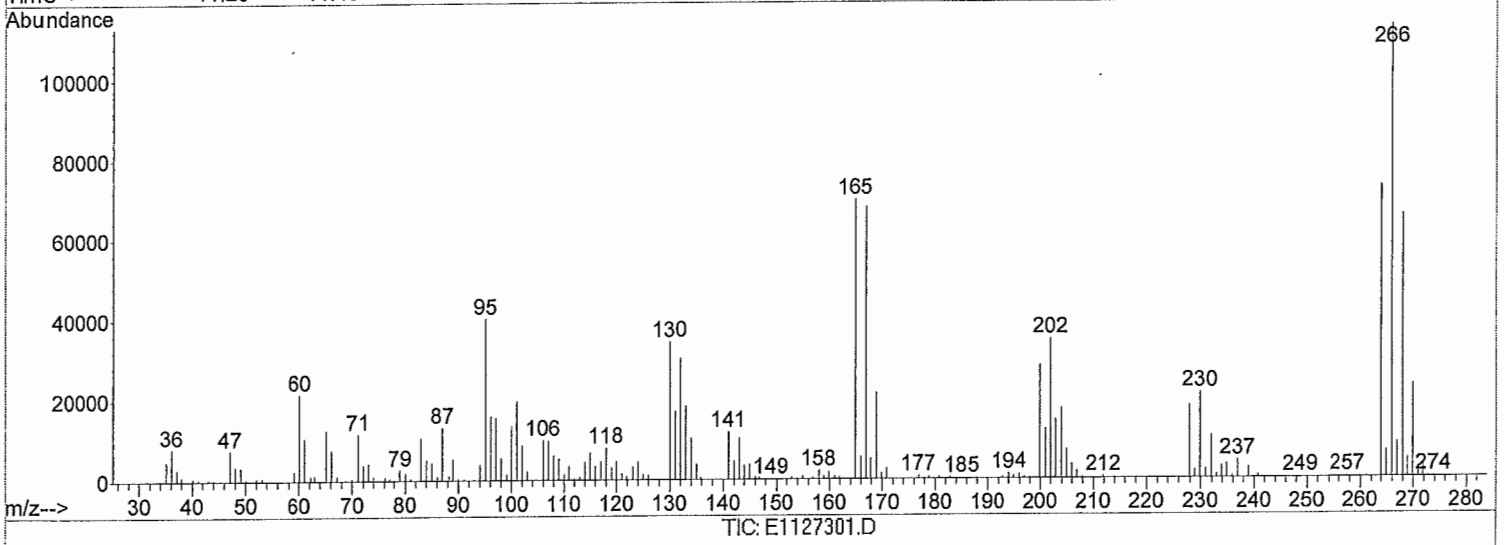
m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
434.10	113	459.20	36				
436.00	60						
436.80	33						
437.95	314						
438.75	89						
439.00	66						
441.10	41429						
442.05	229952						
443.05	46280						
444.05	4265						
445.15	326						

Quantitation Report (Qedit)

Data Path : C:\MSDCHEM\1\DATA\112713\
Data File : E1127301.D
Acq On : 27 Nov 2013 9:42
Operator : DOUG
Sample : 50 NG TUNE 16103
Misc : AG-5 8270
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Nov 27 10:01:42 2013
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)

12.199min (-0.051) 10.78ug/L

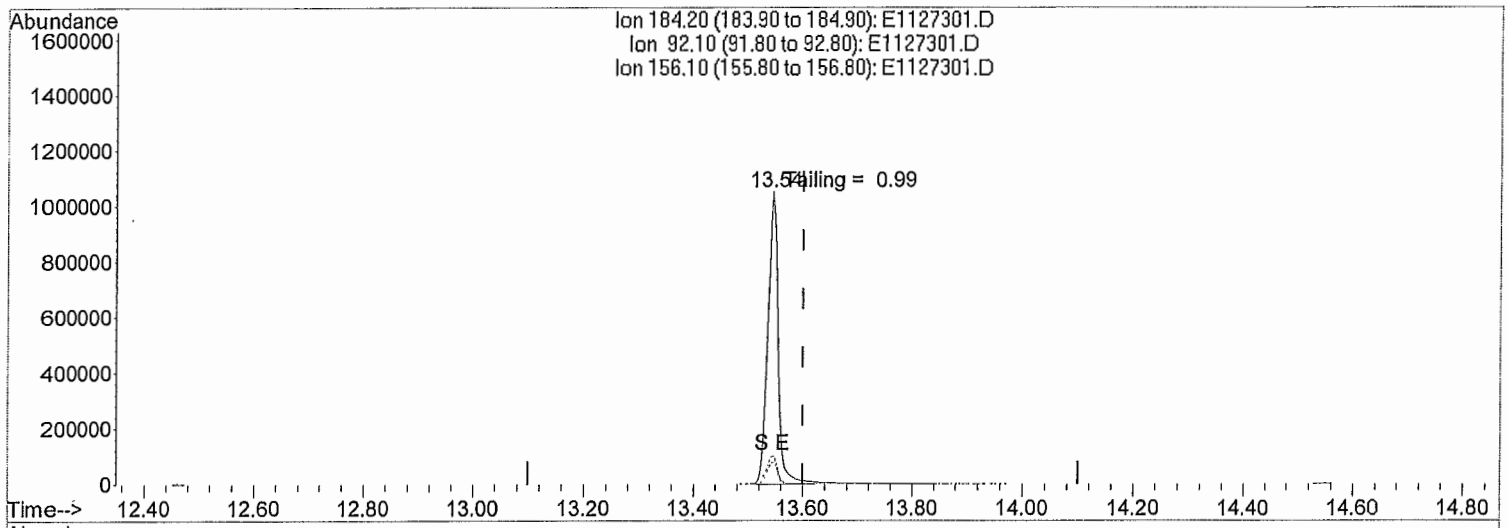
response 114925

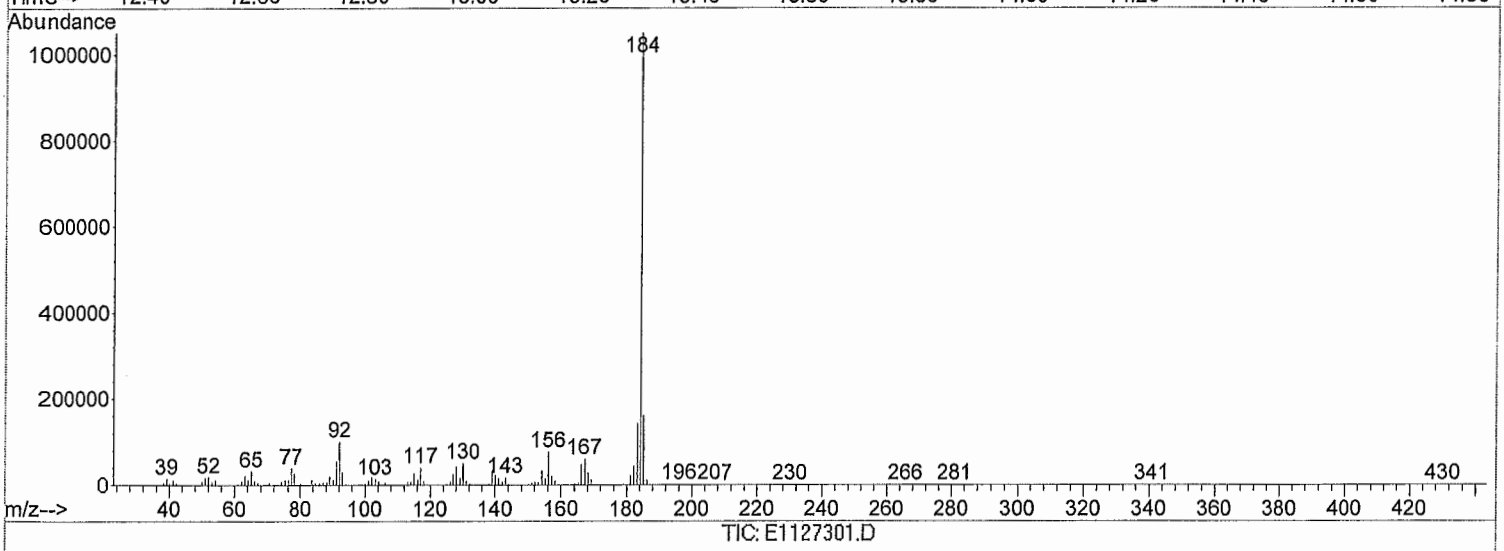
Ion	Exp%	Act%
266.00	100	100
264.00	63.80	61.95
268.00	63.80	56.76
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\MSDCHEM\1\DATA\112713\
Data File : E1127301.D
Acq On : 27 Nov 2013 9:42
Operator : DOUG
Sample : 50 NG TUNE 16103
Misc : AG-5 8270
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Nov 27 10:01:42 2013
Quant Method : C:\MSDCHEM\1\METHODS\8270TUNPULSE.M
Quant Title : 8270 TUNE METHOD
QLast Update : Wed Aug 28 11:55:28 2013
Response via : Initial Calibration





TIC: E1127301.D

(3) Benzidine (T)

13.544min (-0.056) 27.78ug/L

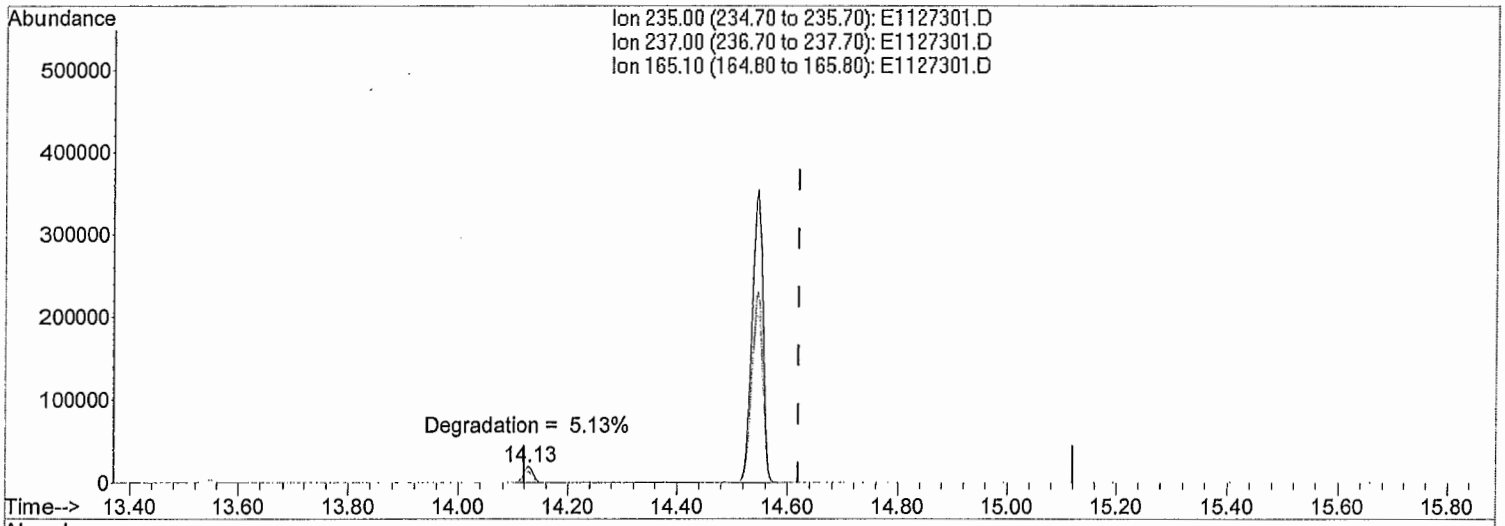
response 1432710

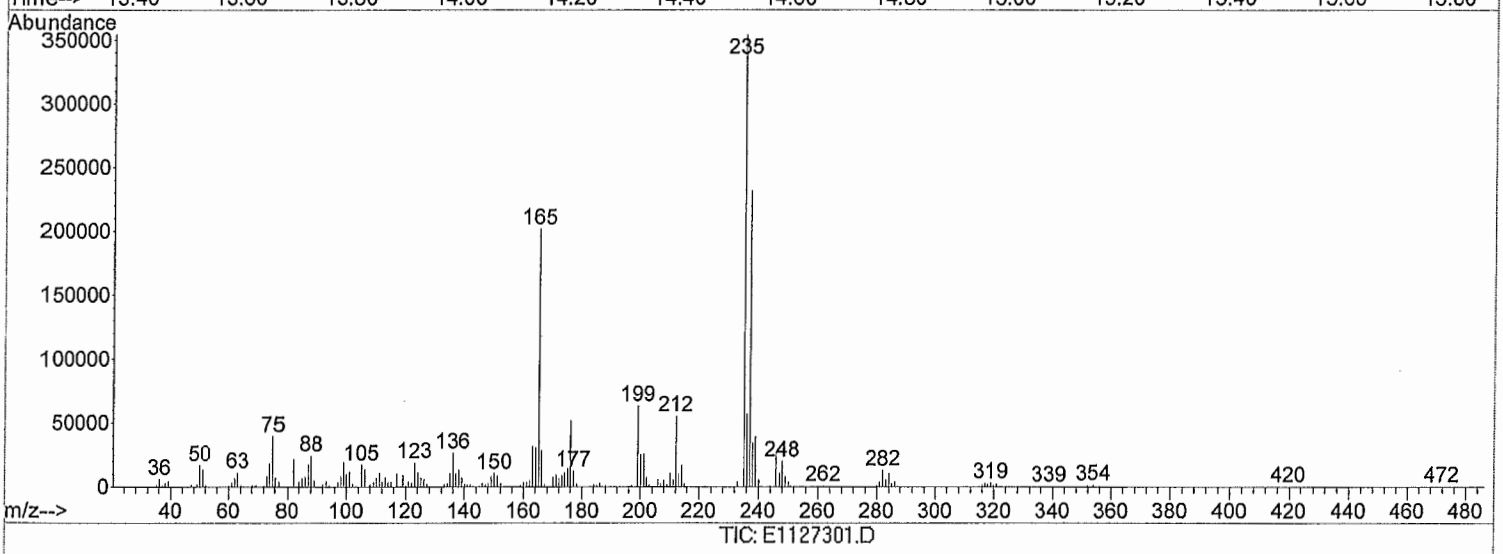
Ion	Exp%	Act%
184.20	100	100
92.10	13.70	10.31#
156.10	8.60	7.57
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\MSDCHEM\1\DATA\112713\
Data File : E1127301.D
Acq On : 27 Nov 2013 9:42
Operator : DOUG
Sample : 50 NG TUNE 16103
Misc : AG-5 8270
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Nov 27 10:01:42 2013
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

14.546min (-0.074) 18.31ug/L

response 475293

Ion	Exp%	Act%
235.00	100	100
237.00	64.80	64.58
165.10	59.00	62.26
0.00	0.00	0.00

Evaluate Continuing Calibration Report

Data Path : C:\MSDCHEM\1\DATA\112713\
Data File : E1127302.D
Acq On : 27 Nov 2013 10:07
Operator : DOUG
Sample : 30 PPM STD 16141
Misc : AG-5 8270
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 18 11:11:20 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317EW.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:11:11 2013
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	119	0.00
2	I	Naphthalene-d8	1.000	1.000	0.0	117	0.00
3	S	Nitrobenzene-d5	0.360	0.371	-3.1	117	0.00
4	I	Acenaphthene-d10	1.000	1.000	0.0	120	0.00
5	S	2-Fluorobiphenyl	1.368	1.305	4.6	120	0.00
6	TM	2,4-Dinitrotoluene	0.373	0.407	-9.1	124	0.00
7	I	Phenanthrene-d10	1.000	1.000	0.0	124	0.00
8	I	Chrysene-d12	1.000	1.000	0.0	122	0.00
9	S	Terphenyl-d14	0.777	0.745	4.1	122	0.00
10	I	Perylene-d12	1.000	1.000	0.0	120	0.00

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

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\112713\
Data File : E1127302.D
Acq On : 27 Nov 2013 10:07
Operator : DOUG
Sample : 30 PPM STD 16141
Misc : AG-5 8270
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 18 11:11:20 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317EW.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:11:11 2013
Response via : Initial Calibration

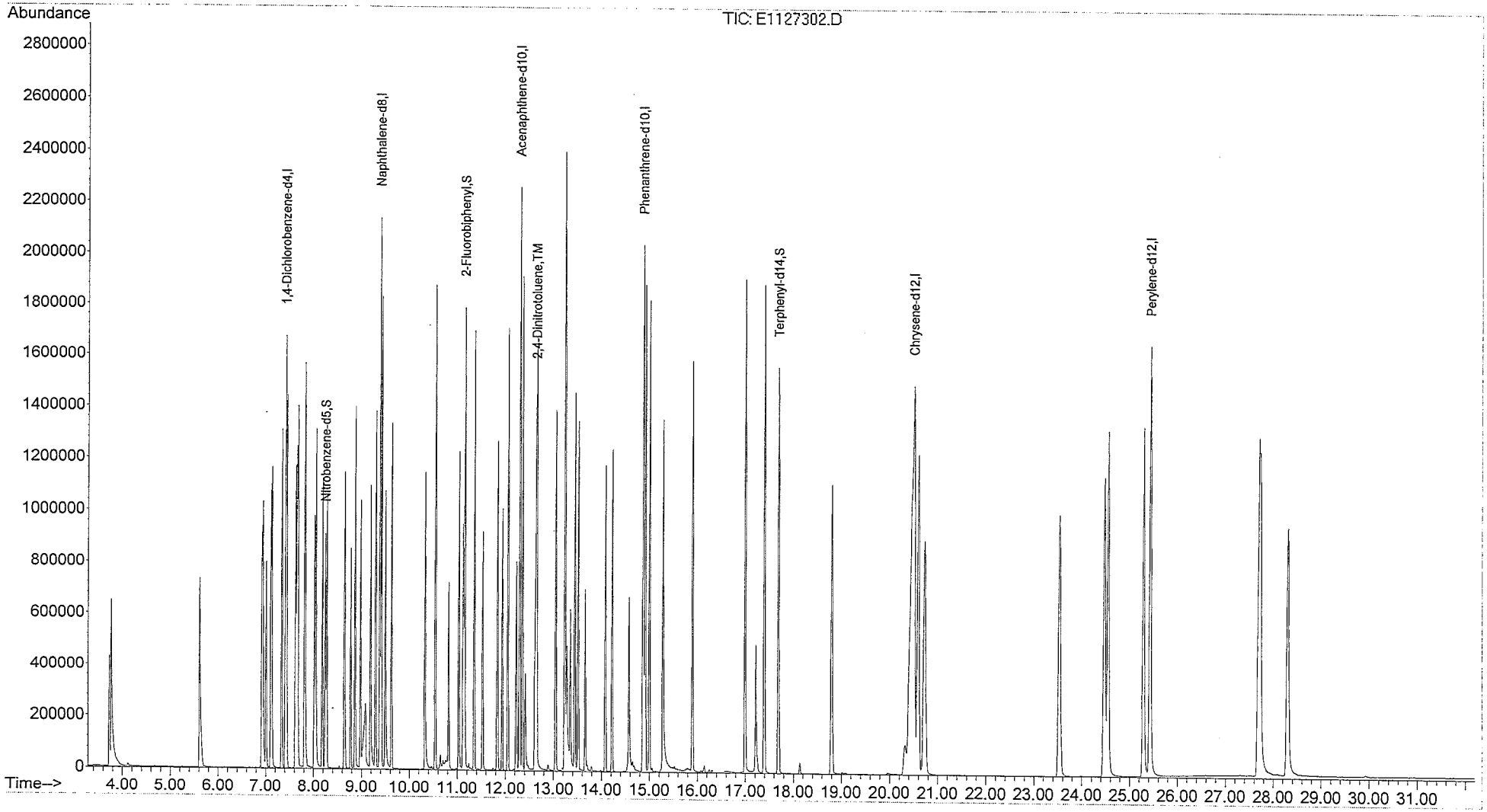
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.41	152	3663576	40.00	ug/L	0.00
2) Naphthalene-d8	9.38	136	13805339	40.00	ug/L	0.00
4) Acenaphthene-d10	12.30	164	7913973	40.00	ug/L	0.00
7) Phenanthrene-d10	14.87	188	13206041	40.00	ug/L	0.00
8) Chrysene-d12	20.51	240	15489692	40.00	ug/L	0.00
10) Perylene-d12	25.44	264	15920815	40.00	ug/L	0.00
System Monitoring Compounds						
3) Nitrobenzene-d5	8.25	82	3842964	30.89	ug/L	0.00
Spiked Amount 50.000			Recovery	=	61.78%	
5) 2-Fluorobiphenyl	11.15	172	7747644	28.62	ug/L	0.00
Spiked Amount 50.000			Recovery	=	57.24%	
9) Terphenyl-d14	17.69	244	8655084	28.77	ug/L	0.00
Spiked Amount 50.000			Recovery	=	57.54%	
Target Compounds						Qvalue
6) 2,4-Dinitrotoluene	12.64	165	2414710	32.71	ug/L #	75

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

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\112713\
Data File : E1127302.D
Acq On : 27 Nov 2013 10:07
Operator : DOUG
Sample : 30 PPM STD 16141
Misc : AG-5 8270
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 18 11:11:20 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317EW.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:11:11 2013
Response via : Initial Calibration



Instrument Logs/
Analysis Notebook Pages

Rev. 1.1

9	1	E1126309.d	1.	50 NG TUNE 16103	Pass	Hawaii Curve	AG-5 8270
10	2	E1126310.d	1.	CAL BLK 16144	Pass		AG-5 8270
11	3	E1126311.d	1.	5 PPM STD 16145			AG-5 8270
12	4	E1126312.d	1.	10 PPM STD 16146		E8270317HW	AG-5 8270
13	5	E1126313.d	1.	20 PPM STD 16147			AG-5 8270
14	6	E1126314.d	1.	30 PPM STD 16148			AG-5 8270
15	7	E1126315.d	1.	40 PPM STD 16149			AG-5 8270
16	8	E1126316.d	1.	60 PPM STD 16150			AG-5 8270
17	9	E1126317.d	1.	30 PPM ICV 16141	Pass		AG-5 8270

PEK
11/26/2013

Continued on Page

Read and Understood By

PEK — Signed — 11/26/2013 — Date — Signed — 12/4/13 — Date

PROJECT 11/27/2013 8270 Tissues

Notebook No. 3308
Continued from Page

Injection Log

Directory: C:\MSDCHEM\1\DATA\112713

Line	Vial	FileName	Multiplier	SampleName		Misc Info
1	1	E1127301.d	1.	50 NG TUNE 16103	Pass	AG-5 8270
2	2	E1127302.d	1.	30 PPM STD 16141	Pass	AG-5 8270
3	3	E1127303.d	1.	006562-12B1	Pass	B10129 AG-5 8270
4	4	E1127304.d	1.	006562-12K1		B10129 AG-5 8270
5	5	E1127305.d	1.	006562-01		B10129 AG-5 8270
6	6	E1127306.d	1.	006562-02		B10129 AG-5 8270
7	7	E1127307.d	1.	006562-03		B10129 AG-5 8270
8	8	E1127308.d	1.	006562-04		B10129 AG-5 8270
9	9	E1127309.d	1.	006562-05		B10129 AG-5 8270
10	10	E1127310.d	1.	006562-06		B10129 AG-5 8270
11	11	E1127311.d	1.	006562-07		B10129 AG-5 8270
12	12	E1127312.d	1.	006562-08	Pass	B10129 AG-5 8270

PEK
11/29/2013

Continued on Page

Read and Understood By

PEK — Signed
11/29/2013 — Date
Signed
12/4/13 — 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: 006562 Report Date: 12/19/2013

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

Field ID:	NA	ARDL Lab No.:	006562-12B1
Desc/Location:	NA	Lab Filename:	E1127303
Sample Date:	NA	Received Date:	NA
Sample Time:	NA	Prep. Date:	11/18/2013
Matrix:	QC Material	Analysis Date:	11/27/2013
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6664
% Moisture:	NA	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units
2,4-Dinitrotoluene	200	1000	ND		UG/KG

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	87%
2-Fluorobiphenyl	30-130	92%
Terphenyl-d14	30-130	88%

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

Blank for Run B6664, BNA'S (METHOD 8270) Page 1 of 1

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\112713\
Data File : E1127303.D
Acq On : 27 Nov 2013 10:48
Operator : DOUG
Sample : 006562-12B1
Misc : B10129 AG-5 8270
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Dec 18 11:14:27 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317ET.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:08:25 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.41	152	3216617	8000.00	ug/L	0.00
2) Naphthalene-d8	9.38	136	12001694	8000.00	ug/L	0.00
4) Acenaphthene-d10	12.30	164	6873323	8000.00	ug/L	0.00
7) Phenanthrene-d10	14.87	188	11456610	8000.00	ug/L	0.00
8) Chrysene-d12	20.49	240	13747164	8000.00	ug/L	-0.02
10) Perylene-d12	25.43	264	11429873	8000.00	ug/L	-0.01
System Monitoring Compounds						
3) Nitrobenzene-d5	8.24	82	2364963	4373.99	ug/L	0.00
Spiked Amount 5000.000			Recovery =	87.48%		
5) 2-Fluorobiphenyl	11.15	172	5393929	4587.94	ug/L	0.00
Spiked Amount 5000.000			Recovery =	91.76%		
9) Terphenyl-d14	17.69	244	5861808	4391.15	ug/L	0.00
Spiked Amount 5000.000			Recovery =	87.82%		

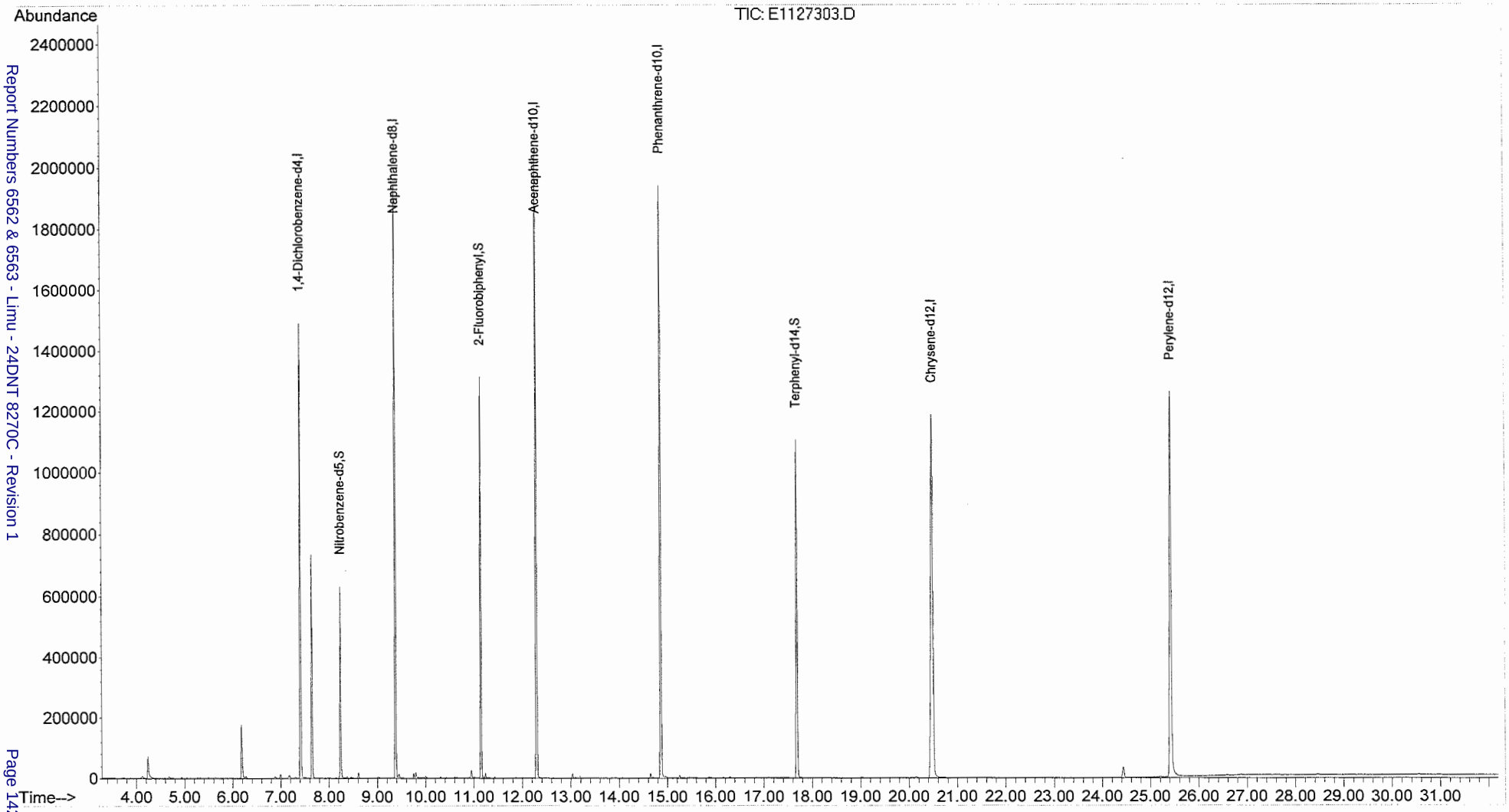
Target Compounds Qvalue

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

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\112713\
Data File : E1127303.D
Acq On : 27 Nov 2013 10:48
Operator : DOUG
Sample : 006562-12B1
Misc : B10129 AG-5 8270
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Dec 18 11:14:27 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317ET.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:08:25 2013
Response via : Initial Calibration



ARDL inc
Report Numbers 6562 & 6563 - Limu - 24DNT 8270C - Revision 1
Page 142 of 266

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

Lab Report No: 006562 Report Date: 12/19/2013

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

Field ID:	MAK001L/2L/26L	ARDL Lab No.:	006562-01
Desc/Location:	MAKU MILITARY RESERVATION	Lab Filename:	E1127305
Sample Date:	09/27/2013	Received Date:	11/07/2013
Sample Time:	1200	Prep. Date:	11/18/2013
Matrix:	TISSUE	Analysis Date:	11/27/2013
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6664
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
2,4-Dinitrotoluene	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	85%
2-Fluorobiphenyl	30-130	89%
Terphenyl-d14	30-130	86%

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

Sample 006562-01, BNA'S (METHOD 8270) Page 1 of 1

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\112713\
Data File : E1127305.D
Acq On : 27 Nov 2013 12:08
Operator : DOUG
Sample : 006562-01
Misc : B10129 AG-5 8270
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Dec 18 11:14:30 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317ET.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:08:25 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.41	152	3379621	8000.00	ug/L	0.00
2) Naphthalene-d8	9.38	136	12475939	8000.00	ug/L	0.00
4) Acenaphthene-d10	12.30	164	7148683	8000.00	ug/L	0.00
7) Phenanthrene-d10	14.87	188	12152222	8000.00	ug/L	0.00
8) Chrysene-d12	20.49	240	15194654	8000.00	ug/L	-0.02
10) Perylene-d12	25.42	264	11353002	8000.00	ug/L	-0.01
System Monitoring Compounds						
3) Nitrobenzene-d5	8.24	82	2393887	4259.18	ug/L	0.00
Spiked Amount 5000.000			Recovery =	85.18%		
5) 2-Fluorobiphenyl	11.15	172	5429029	4439.92	ug/L	0.00
Spiked Amount 5000.000			Recovery =	88.80%		
9) Terphenyl-d14	17.69	244	6312625	4278.37	ug/L	0.00
Spiked Amount 5000.000			Recovery =	85.57%		

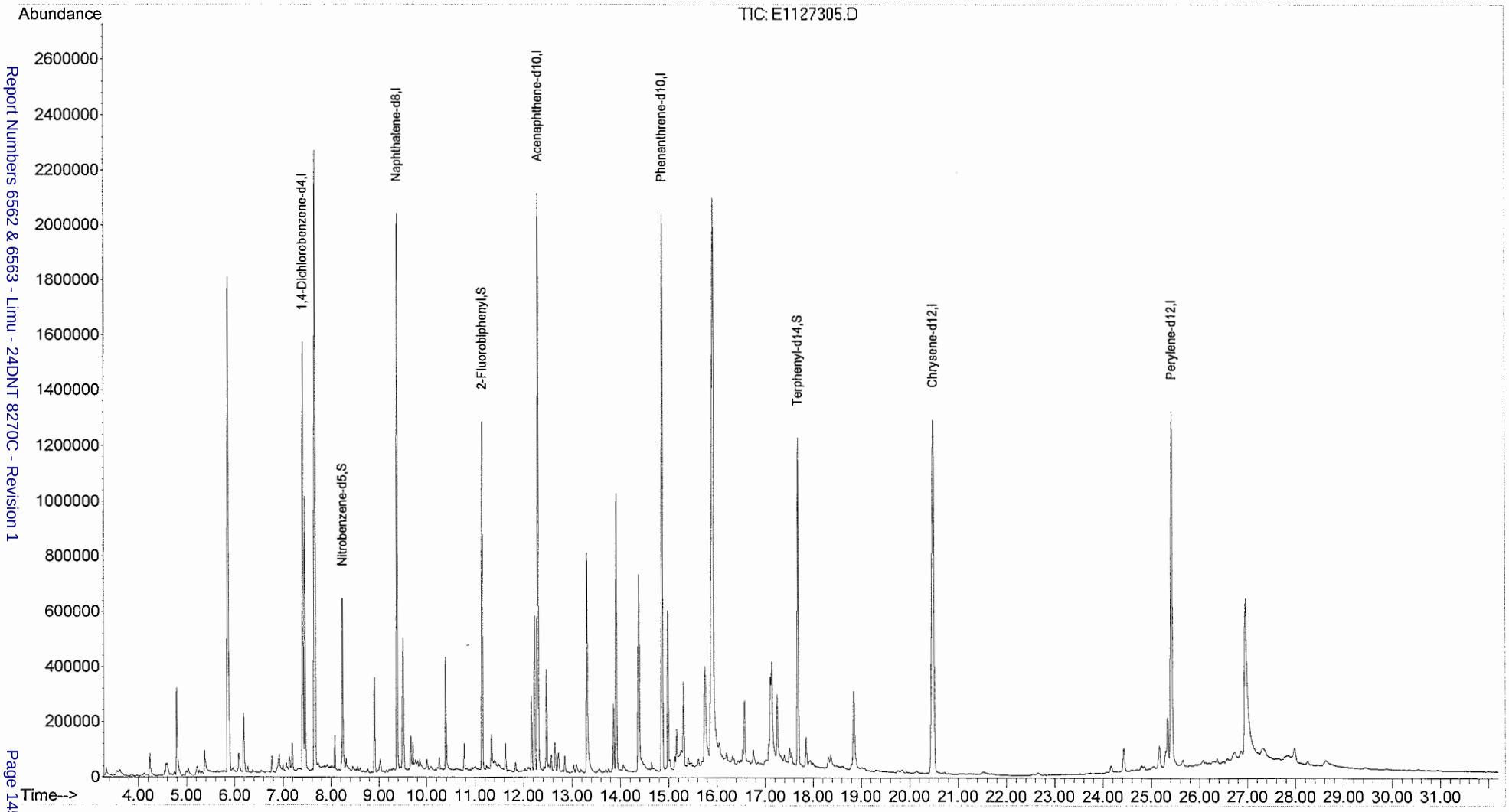
Target Compounds	Qvalue

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

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\112713\
Data File : E1127305.D
Acq On : 27 Nov 2013 12:08
Operator : DOUG
Sample : 006562-01
Misc : B10129 AG-5 8270
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Dec 18 11:14:30 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317ET.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:08:25 2013
Response via : Initial Calibration



ARDL Inc
Report Numbers 6562 & 6563 - Limu - 24DNT 8270C - Revision 1
Page 145 of 266

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

Lab Report No: 006562 Report Date: 12/19/2013

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

Field ID:	MAK007L	ARDL Lab No.:	006562-02
Desc/Location:	MAKU MILITARY RESERVATION	Lab Filename:	E1127306
Sample Date:	09/16/2013	Received Date:	11/07/2013
Sample Time:	1320	Prep. Date:	11/18/2013
Matrix:	TISSUE	Analysis Date:	11/27/2013
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6664
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
2,4-Dinitrotoluene	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	86%
2-Fluorobiphenyl	30-130	88%
Terphenyl-d14	30-130	83%

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

Sample 006562-02, BNA'S (METHOD 8270) Page 1 of 1

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\112713\
Data File : E1127306.D
Acq On : 27 Nov 2013 12:48
Operator : DOUG
Sample : 006562-02
Misc : B10129 AG-5 8270
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Dec 18 11:14:32 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317ET.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:08:25 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.42	152	3246076	8000.00	ug/L	0.00
2) Naphthalene-d8	9.38	136	11810992	8000.00	ug/L	0.00
4) Acenaphthene-d10	12.30	164	6712072	8000.00	ug/L	0.00
7) Phenanthrene-d10	14.87	188	11331040	8000.00	ug/L	0.00
8) Chrysene-d12	20.49	240	14148535	8000.00	ug/L	-0.01
10) Perylene-d12	25.43	264	10343501	8000.00	ug/L	-0.01
System Monitoring Compounds						
3) Nitrobenzene-d5	8.24	82	2287141	4298.35	ug/L	0.00
Spiked Amount 5000.000			Recovery =	85.97%		
5) 2-Fluorobiphenyl	11.15	172	5028521	4379.89	ug/L	0.00
Spiked Amount 5000.000			Recovery =	87.60%		
9) Terphenyl-d14	17.69	244	5720611	4163.80	ug/L	0.00
Spiked Amount 5000.000			Recovery =	83.28%		

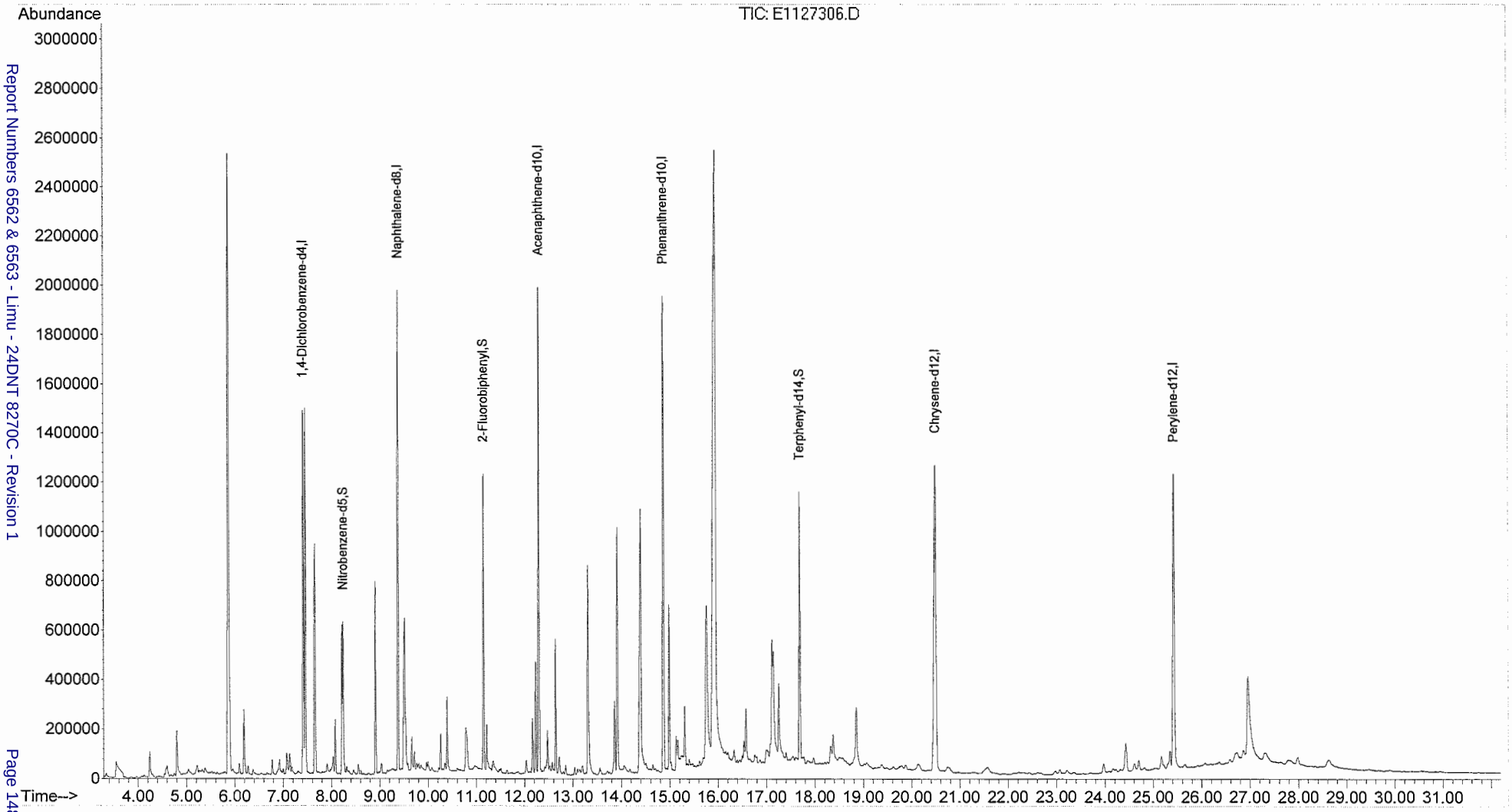
Target Compounds Qvalue

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

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\112713\
Data File : E1127306.D
Acq On : 27 Nov 2013 12:48
Operator : DOUG
Sample : 006562-02
Misc : B10129 AG-5 8270
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Dec 18 11:14:32 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317ET.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:08:25 2013
Response via : Initial Calibration



ARDL Inc
Report Numbers 6562 & 6563 - Limu - 24DNT 8270C - Revision 1
Page 148 of 266

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

Lab Report No: 006562 Report Date: 12/19/2013

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

Field ID:	MAK009L	ARDL Lab No.:	006562-03
Desc/Location:	MAKU MILITARY RESERVATION	Lab Filename:	E1127307
Sample Date:	09/16/2013	Received Date:	11/07/2013
Sample Time:	1433	Prep. Date:	11/18/2013
Matrix:	TISSUE	Analysis Date:	11/27/2013
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6664
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
2,4-Dinitrotoluene	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	84%
2-Fluorobiphenyl	30-130	87%
Terphenyl-d14	30-130	85%

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

Sample 006562-03, BNA'S (METHOD 8270) Page 1 of 1

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\112713\
Data File : E1127307.D
Acq On : 27 Nov 2013 13:29
Operator : DOUG
Sample : 006562-03
Misc : B10129 AG-5 8270
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Dec 18 11:14:34 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317ET.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:08:25 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.41	152	3425236	8000.00	ug/L	0.00
2) Naphthalene-d8	9.38	136	12593415	8000.00	ug/L	0.00
4) Acenaphthene-d10	12.30	164	7198387	8000.00	ug/L	0.00
7) Phenanthrene-d10	14.87	188	12009774	8000.00	ug/L	0.00
8) Chrysene-d12	20.50	240	15043550	8000.00	ug/L	-0.01
10) Perylene-d12	25.43	264	11036224	8000.00	ug/L	-0.01
System Monitoring Compounds						
3) Nitrobenzene-d5	8.24	82	2385687	4205.00	ug/L	0.00
Spiked Amount 5000.000			Recovery =	84.10%		
5) 2-Fluorobiphenyl	11.15	172	5336936	4334.47	ug/L	0.00
Spiked Amount 5000.000			Recovery =	86.69%		
9) Terphenyl-d14	17.69	244	6231508	4265.82	ug/L	0.00
Spiked Amount 5000.000			Recovery =	85.32%		

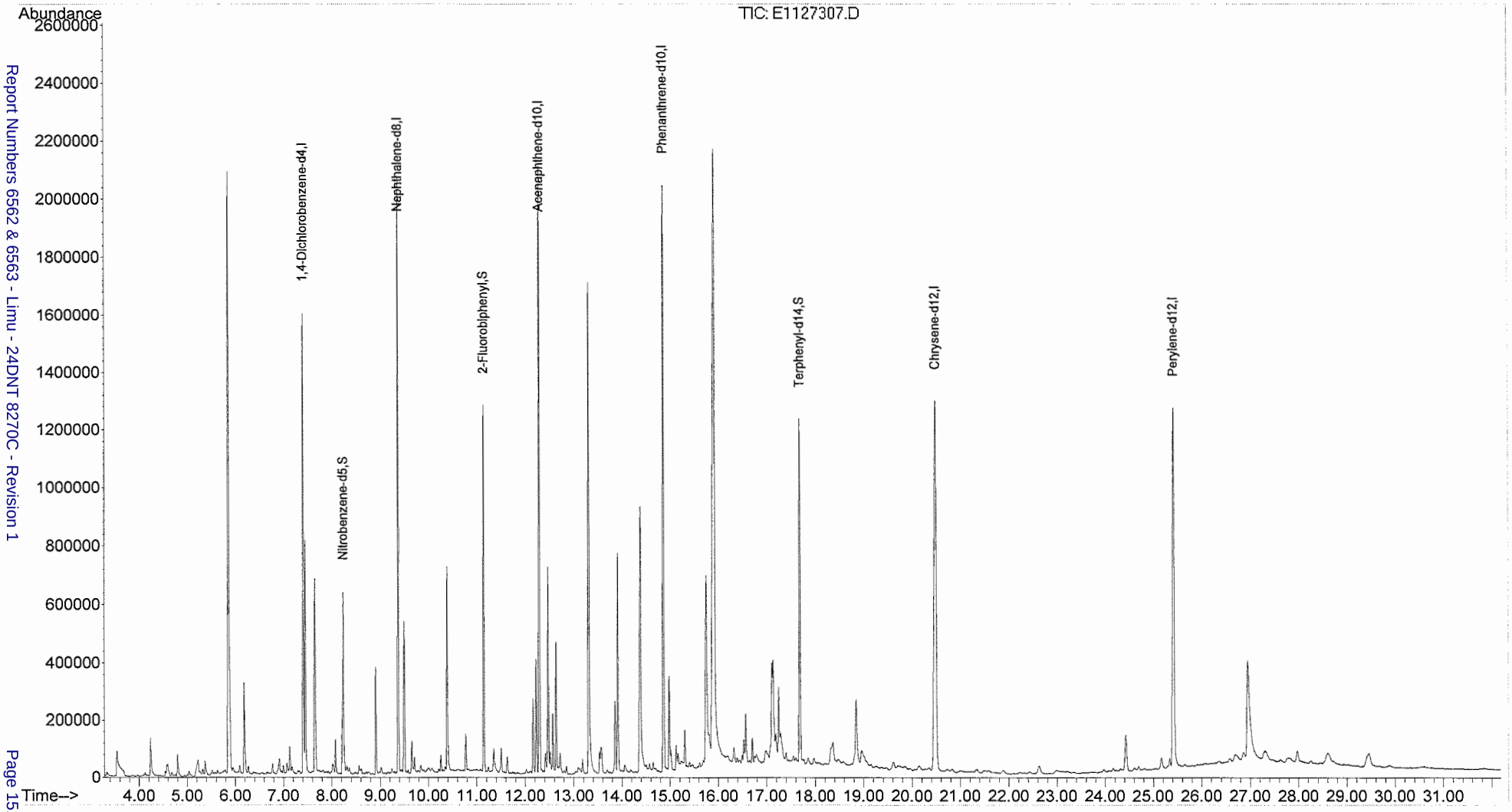
Target Compounds	Qvalue

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

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\112713\
Data File : E1127307.D
Acq On : 27 Nov 2013 13:29
Operator : DOUG
Sample : 006562-03
Misc : B10129 AG-5 8270
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Dec 18 11:14:34 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317ET.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:08:25 2013
Response via : Initial Calibration



ARDL Inc
Report Numbers 6562 & 6563 - Limu - 24DNT 8270C - Revision 1
Page 151 of 266

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

Lab Report No: 006562 Report Date: 12/19/2013

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

Field ID:	MAK010L(COMP)	ARDL Lab No.:	006562-04
Desc/Location:	MAKU MILITARY RESERVATION	Lab Filename:	E1127308
Sample Date:	09/16/2013	Received Date:	11/07/2013
Sample Time:	---	Prep. Date:	11/18/2013
Matrix:	TISSUE	Analysis Date:	11/27/2013
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6664
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
2,4-Dinitrotoluene	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	83%
2-Fluorobiphenyl	30-130	87%
Terphenyl-d14	30-130	83%

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

Sample 006562-04, BNA'S (METHOD 8270) Page 1 of 1

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\112713\
Data File : E1127308.D
Acq On : 27 Nov 2013 14:09
Operator : DOUG
Sample : 006562-04
Misc : B10129 AG-5 8270
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Dec 18 11:14:38 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317ET.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:08:25 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.41	152	3312566	8000.00	ug/L	0.00
2) Naphthalene-d8	9.38	136	12261087	8000.00	ug/L	0.00
4) Acenaphthene-d10	12.30	164	7012237	8000.00	ug/L	0.00
7) Phenanthrene-d10	14.87	188	11766416	8000.00	ug/L	0.00
8) Chrysene-d12	20.49	240	14707149	8000.00	ug/L	-0.01
10) Perylene-d12	25.43	264	10487771	8000.00	ug/L	-0.01
System Monitoring Compounds						
3) Nitrobenzene-d5	8.24	82	2292764	4150.75	ug/L	0.00
Spiked Amount 5000.000			Recovery =	83.02%		
5) 2-Fluorobiphenyl	11.15	172	5193277	4329.76	ug/L	0.00
Spiked Amount 5000.000			Recovery =	86.60%		
9) Terphenyl-d14	17.69	244	5957101	4171.25	ug/L	0.00
Spiked Amount 5000.000			Recovery =	83.43%		

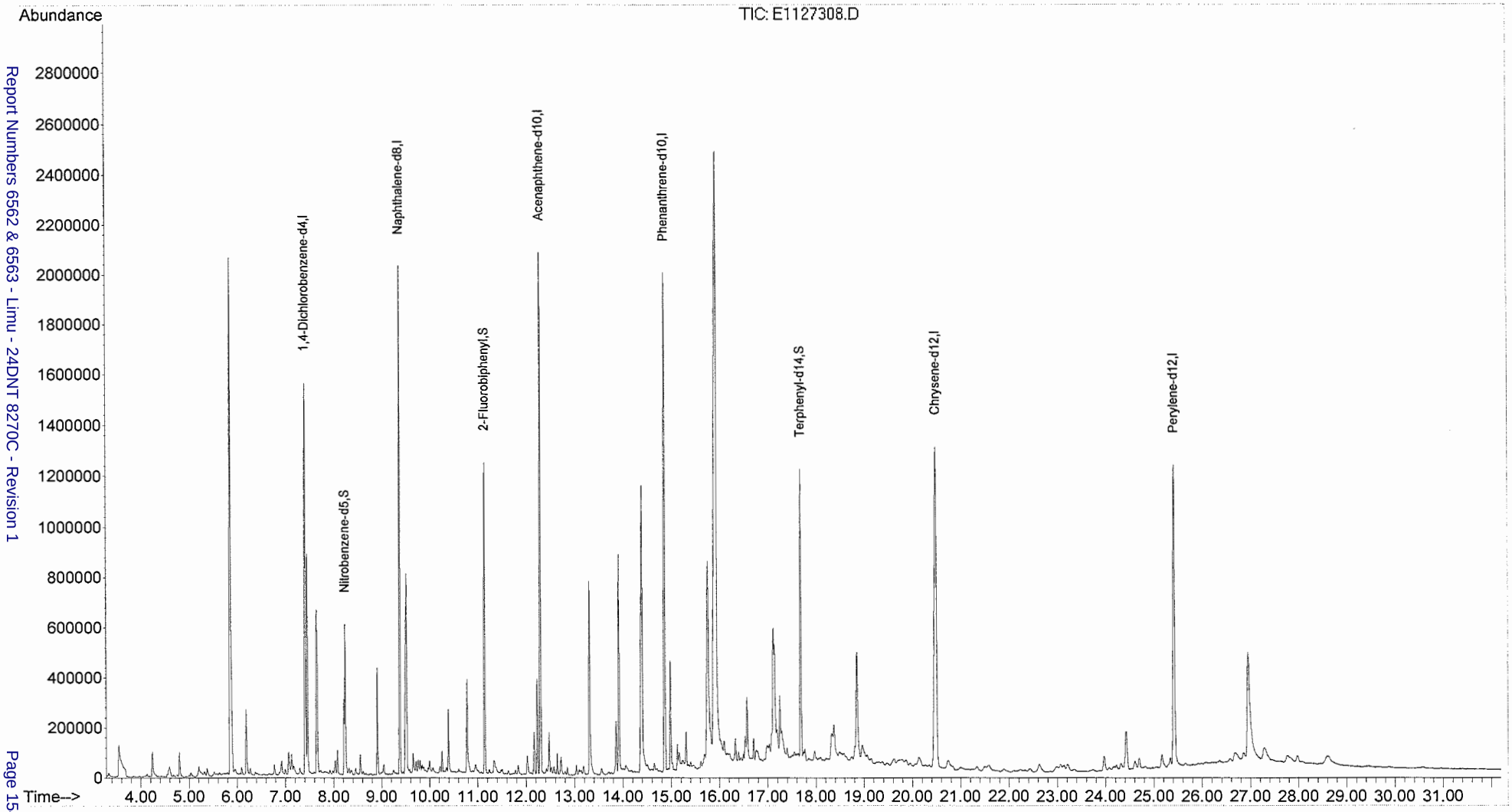
Target Compounds Qvalue

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

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\112713\
Data File : E1127308.D
Acq On : 27 Nov 2013 14:09
Operator : DOUG
Sample : 006562-04
Misc : B10129 AG-5 8270
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Dec 18 11:14:38 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317ET.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:08:25 2013
Response via : Initial Calibration



ARDL Inc
Report Numbers 6562 & 6563 - Limu - 24DNT 8270C - Revision 1
Page 154 of 266

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

Lab Report No: 006562 Report Date: 12/19/2013

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

Field ID:	MAK011L	ARDL Lab No.:	006562-05
Desc/Location:	MAKU MILITARY RESERVATION	Lab Filename:	E1127309
Sample Date:	09/16/2013	Received Date:	11/07/2013
Sample Time:	0750	Prep. Date:	11/18/2013
Matrix:	TISSUE	Analysis Date:	11/27/2013
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6664
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
2,4-Dinitrotoluene	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	87%
2-Fluorobiphenyl	30-130	89%
Terphenyl-d14	30-130	86%

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

Sample 006562-05, BNA'S (METHOD 8270) Page 1 of 1

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\112713\
Data File : E1127309.D
Acq On : 27 Nov 2013 14:49
Operator : DOUG
Sample : 006562-05
Misc : B10129 AG-5 8270
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Dec 18 11:14:40 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317ET.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:08:25 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.41	152	3217321	8000.00	ug/L	0.00
2) Naphthalene-d8	9.38	136	11813778	8000.00	ug/L	0.00
4) Acenaphthene-d10	12.30	164	6734579	8000.00	ug/L	0.00
7) Phenanthrene-d10	14.87	188	11243429	8000.00	ug/L	0.00
8) Chrysene-d12	20.50	240	14093607	8000.00	ug/L	-0.01
10) Perylene-d12	25.42	264	8736841	8000.00	ug/L	-0.01
System Monitoring Compounds						
3) Nitrobenzene-d5	8.24	82	2312649	4345.27	ug/L	0.00
Spiked Amount 5000.000			Recovery =	86.91%		
5) 2-Fluorobiphenyl	11.15	172	5132511	4455.52	ug/L	0.00
Spiked Amount 5000.000			Recovery =	89.11%		
9) Terphenyl-d14	17.69	244	5913176	4320.74	ug/L	0.00
Spiked Amount 5000.000			Recovery =	86.41%		

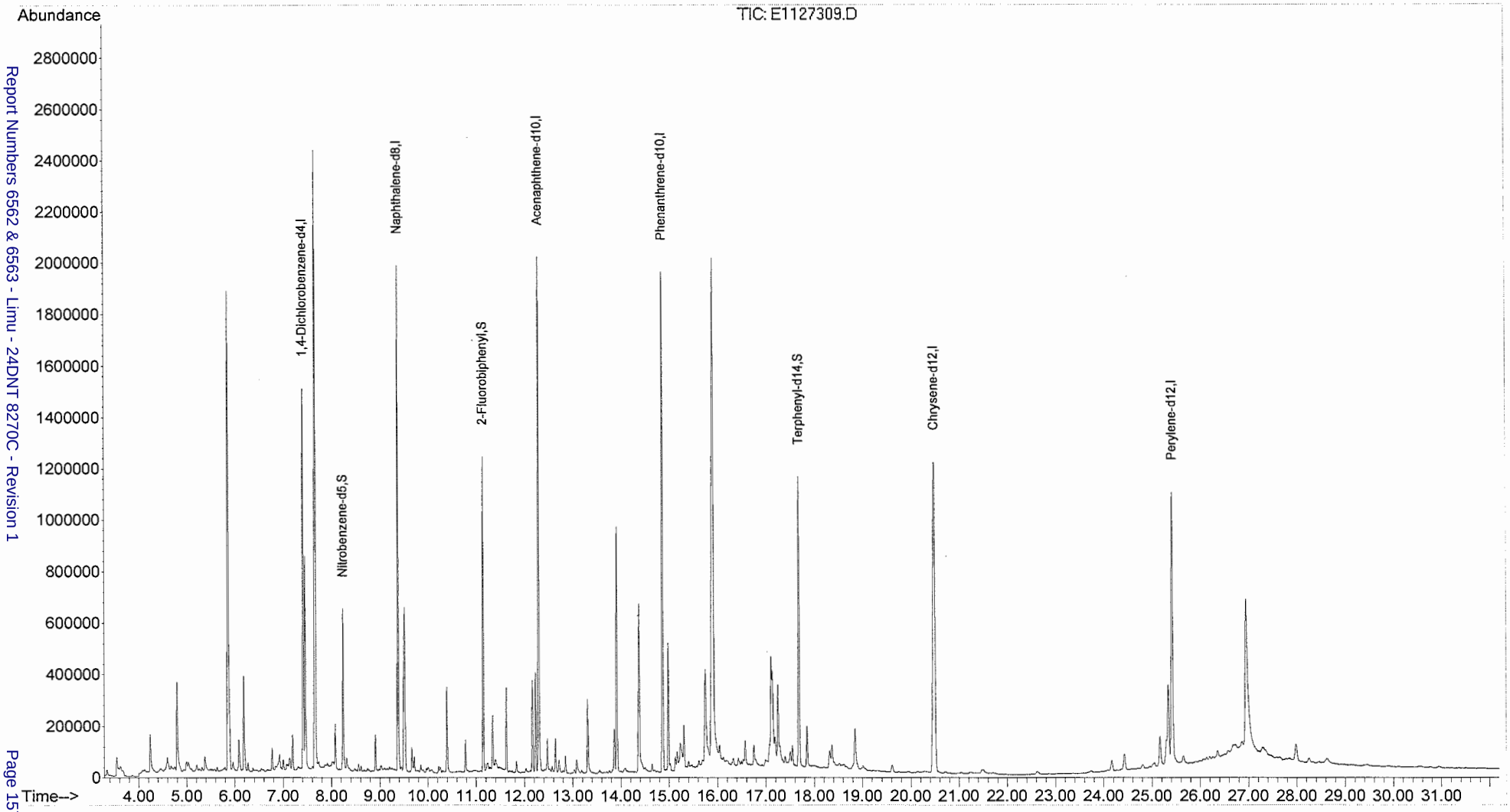
Target Compounds	Qvalue

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

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\112713\
Data File : E1127309.D
Acq On : 27 Nov 2013 14:49
Operator : DOUG
Sample : 006562-05
Misc : B10129 AG-5 8270
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Dec 18 11:14:40 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317ET.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:08:25 2013
Response via : Initial Calibration



ARDL Inc
Report Numbers 6562 & 6563 - Limu - 24DNT 8270C - Revision 1
Page 157 of 266

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

Lab Report No: 006562 Report Date: 12/19/2013

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

Field ID:	MAK013L	ARDL Lab No.:	006562-06
Desc/Location:	MAKU MILITARY RESERVATION	Lab Filename:	E1127310
Sample Date:	09/18/2013	Received Date:	11/07/2013
Sample Time:	0750	Prep. Date:	11/18/2013
Matrix:	TISSUE	Analysis Date:	11/27/2013
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6664
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
2,4-Dinitrotoluene	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	83%
2-Fluorobiphenyl	30-130	85%
Terphenyl-d14	30-130	84%

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

Sample 006562-06, BNA'S (METHOD 8270) Page 1 of 1

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\112713\
Data File : E1127310.D
Acq On : 27 Nov 2013 15:29
Operator : DOUG
Sample : 006562-06
Misc : B10129 AG-5 8270
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Dec 18 11:14:42 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317ET.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:08:25 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.41	152	3447121	8000.00	ug/L	0.00
2) Naphthalene-d8	9.38	136	12451823	8000.00	ug/L	0.00
4) Acenaphthene-d10	12.30	164	7148094	8000.00	ug/L	0.00
7) Phenanthrene-d10	14.87	188	11950567	8000.00	ug/L	0.00
8) Chrysene-d12	20.49	240	15051626	8000.00	ug/L	-0.01
10) Perylene-d12	25.42	264	9606512	8000.00	ug/L	-0.01
System Monitoring Compounds						
3) Nitrobenzene-d5	8.24	82	2322724	4140.57	ug/L	0.00
Spiked Amount 5000.000			Recovery =	82.81%		
5) 2-Fluorobiphenyl	11.15	172	5200394	4253.29	ug/L	0.00
Spiked Amount 5000.000			Recovery =	85.07%		
9) Terphenyl-d14	17.69	244	6137564	4199.25	ug/L	0.00
Spiked Amount 5000.000			Recovery =	83.98%		

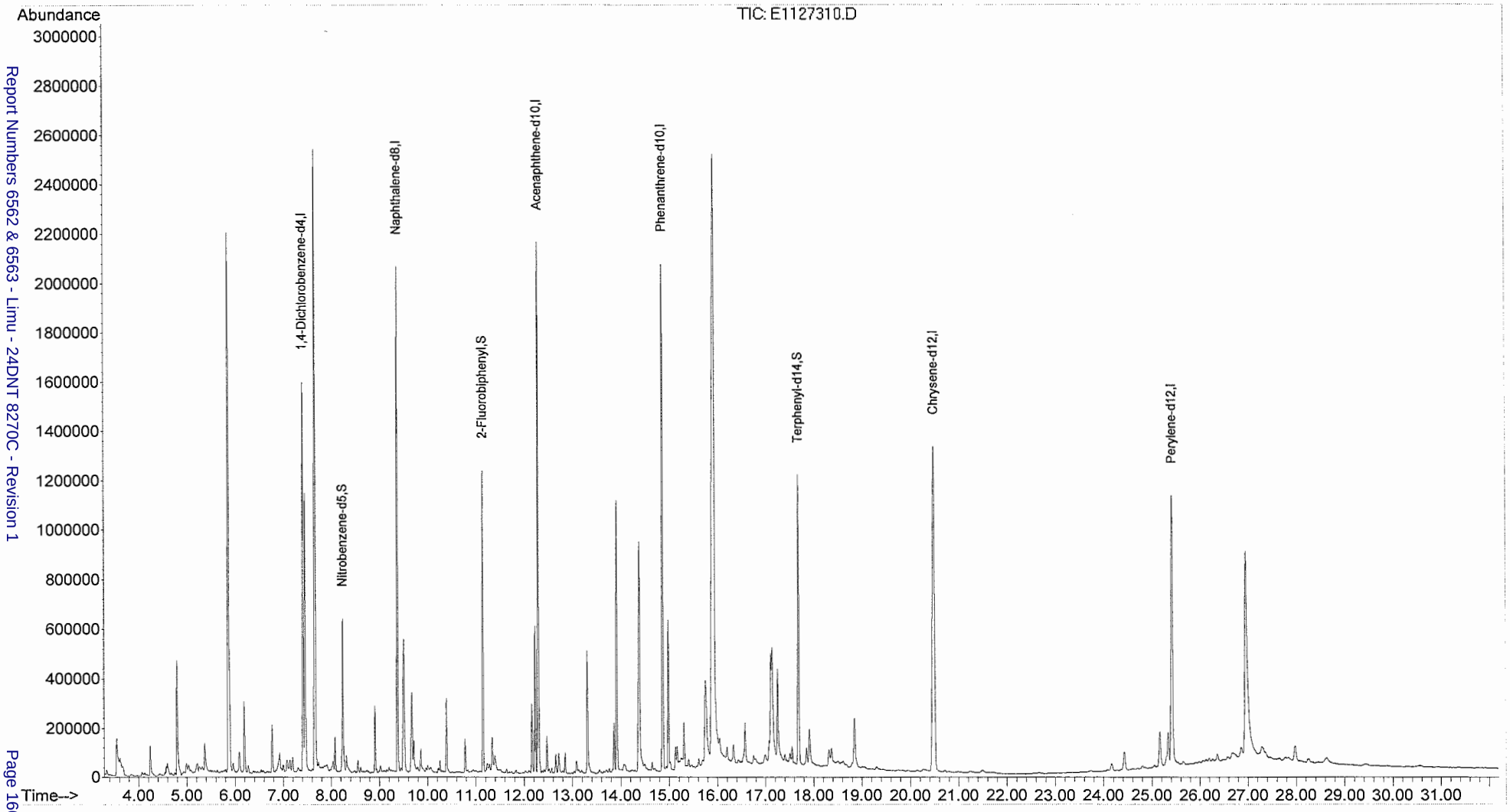
Target Compounds	Qvalue

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

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\112713\
Data File : E1127310.D
Acq On : 27 Nov 2013 15:29
Operator : DOUG
Sample : 006562-06
Misc : B10129 AG-5 8270
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Dec 18 11:14:42 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317ET.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:08:25 2013
Response via : Initial Calibration



ARDL Inc
Report Numbers 6562 & 6563 - Limu - 24DNT 8270C - Revision 1
Page 160 of 266

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

Lab Report No: 006562 Report Date: 12/19/2013

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

Field ID:	MAK016L/21L/27L	ARDL Lab No.:	006562-07
Desc/Location:	MAKU MILITARY RESERVATION	Lab Filename:	E1127311
Sample Date:	09/27/2013	Received Date:	11/07/2013
Sample Time:	---	Prep. Date:	11/18/2013
Matrix:	TISSUE	Analysis Date:	11/27/2013
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6664
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
2,4-Dinitrotoluene	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	78%
2-Fluorobiphenyl	30-130	75%
Terphenyl-d14	30-130	81%

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

Sample 006562-07, BNA'S (METHOD 8270) Page 1 of 1

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\112713\
Data File : E1127311.D
Acq On : 27 Nov 2013 16:09
Operator : DOUG
Sample : 006562-07
Misc : B10129 AG-5 8270
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Dec 18 11:14:44 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317ET.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:08:25 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.41	152	3264809	8000.00	ug/L	0.00
2) Naphthalene-d8	9.38	136	12117440	8000.00	ug/L	0.00
4) Acenaphthene-d10	12.30	164	6817409	8000.00	ug/L	0.00
7) Phenanthrene-d10	14.87	188	11362018	8000.00	ug/L	0.00
8) Chrysene-d12	20.49	240	14171934	8000.00	ug/L	-0.02
10) Perylene-d12	25.42	264	8932938	8000.00	ug/L	-0.01
System Monitoring Compounds						
3) Nitrobenzene-d5	8.24	82	2122108	3887.34	ug/L	0.00
Spiked Amount 5000.000			Recovery =	77.75%		
5) 2-Fluorobiphenyl	11.15	172	4355325	3734.91	ug/L	0.00
Spiked Amount 5000.000			Recovery =	74.70%		
9) Terphenyl-d14	17.69	244	5553542	4035.53	ug/L	0.00
Spiked Amount 5000.000			Recovery =	80.71%		

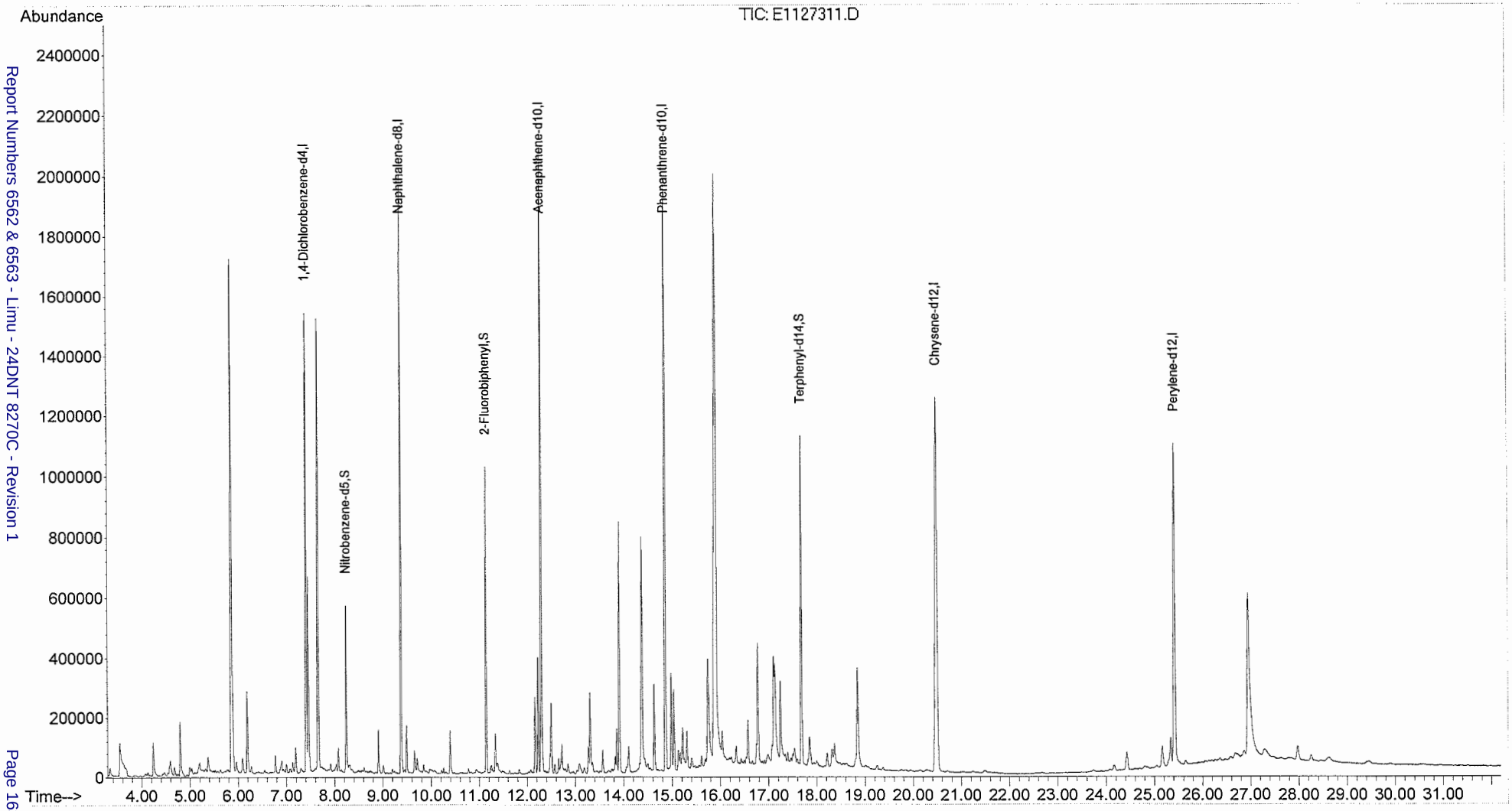
Target Compounds	Qvalue

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

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\112713\
Data File : E1127311.D
Acq On : 27 Nov 2013 16:09
Operator : DOUG
Sample : 006562-07
Misc : B10129 AG-5 8270
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Dec 18 11:14:44 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317ET.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:08:25 2013
Response via : Initial Calibration



ARDL Inc
Report Numbers 6562 & 6563 - Limu - 24DNT 8270C - Revision 1
Page 163 of 266

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

Lab Report No: 006562 Report Date: 12/19/2013

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

Field ID:	MAK022L	ARDL Lab No.:	006562-08
Desc/Location:	MAKU MILITARY RESERVATION	Lab Filename:	E1127312
Sample Date:	09/27/2013	Received Date:	11/07/2013
Sample Time:	1255	Prep. Date:	11/18/2013
Matrix:	TISSUE	Analysis Date:	11/27/2013
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6664
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
2,4-Dinitrotoluene	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	83%
2-Fluorobiphenyl	30-130	81%
Terphenyl-d14	30-130	89%

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

Sample 006562-08, BNA'S (METHOD 8270) Page 1 of 1

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\112713\
Data File : E1127312.D
Acq On : 27 Nov 2013 16:50
Operator : DOUG
Sample : 006562-08
Misc : B10129 AG-5 8270
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Dec 18 11:14:47 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317ET.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:08:25 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.41	152	3293820	8000.00	ug/L	0.00
2) Naphthalene-d8	9.38	136	11887151	8000.00	ug/L	0.00
4) Acenaphthene-d10	12.30	164	6690058	8000.00	ug/L	0.00
7) Phenanthrene-d10	14.87	188	11303166	8000.00	ug/L	0.00
8) Chrysene-d12	20.49	240	14095535	8000.00	ug/L	-0.02
10) Perylene-d12	25.42	264	8157010	8000.00	ug/L	-0.01
System Monitoring Compounds						
3) Nitrobenzene-d5	8.24	82	2215840	4137.67	ug/L	0.00
Spiked Amount 5000.000			Recovery =	82.75%		
5) 2-Fluorobiphenyl	11.15	172	4634241	4049.75	ug/L	0.00
Spiked Amount 5000.000			Recovery =	80.99%		
9) Terphenyl-d14	17.69	244	6102100	4458.18	ug/L	0.00
Spiked Amount 5000.000			Recovery =	89.16%		

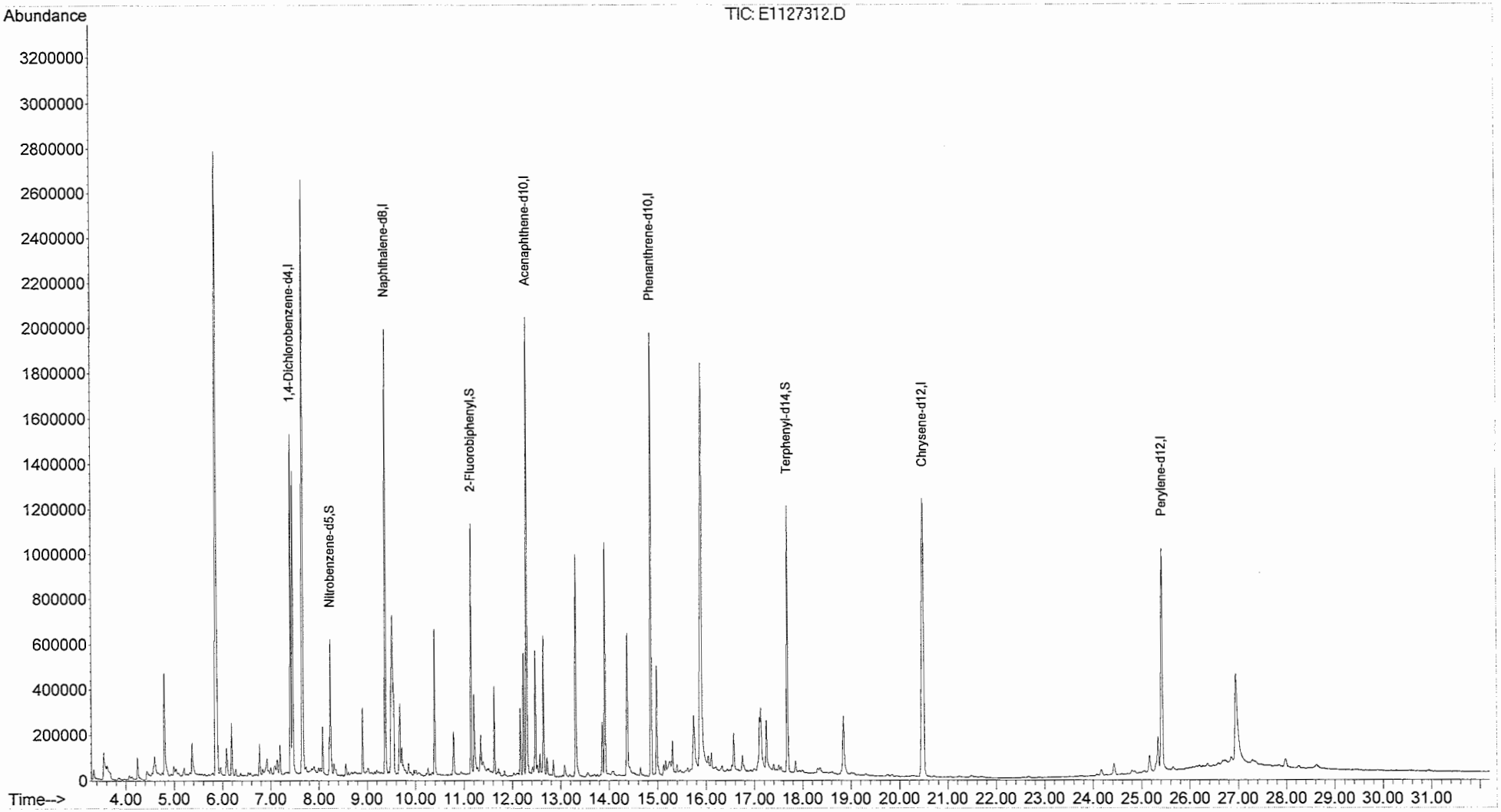
Target Compounds	Qvalue

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

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\112713\
Data File : E1127312.D
Acq On : 27 Nov 2013 16:50
Operator : DOUG
Sample : 006562-08
Misc : B10129 AG-5 8270
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Dec 18 11:14:47 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317ET.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:08:25 2013
Response via : Initial Calibration



Analytical Run Number 2

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.: --- SAS No.: --- SDG No.: ---

Lab File ID: E1129302 DFTPP Injection Date: 11/29/13

Instrument ID: AG5 DFTPP Injection Time: 11:56

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30 - 80% of mass 198	31.6
68	Less than 2.0% of mass 69	0.0 (1)
69	(reference only)	30.2
70	Less than 2.0% of mass 69	1.0 (1)
127	25 - 75% of mass 198	46.8
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	25.5
365	Greater than 1% of mass 198	2.9
441	0 - 100% of mass 443	87.2
442	40 - 110% of mass 198	103.2
443	15 - 24% of mass 442	19.9 (2)

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

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

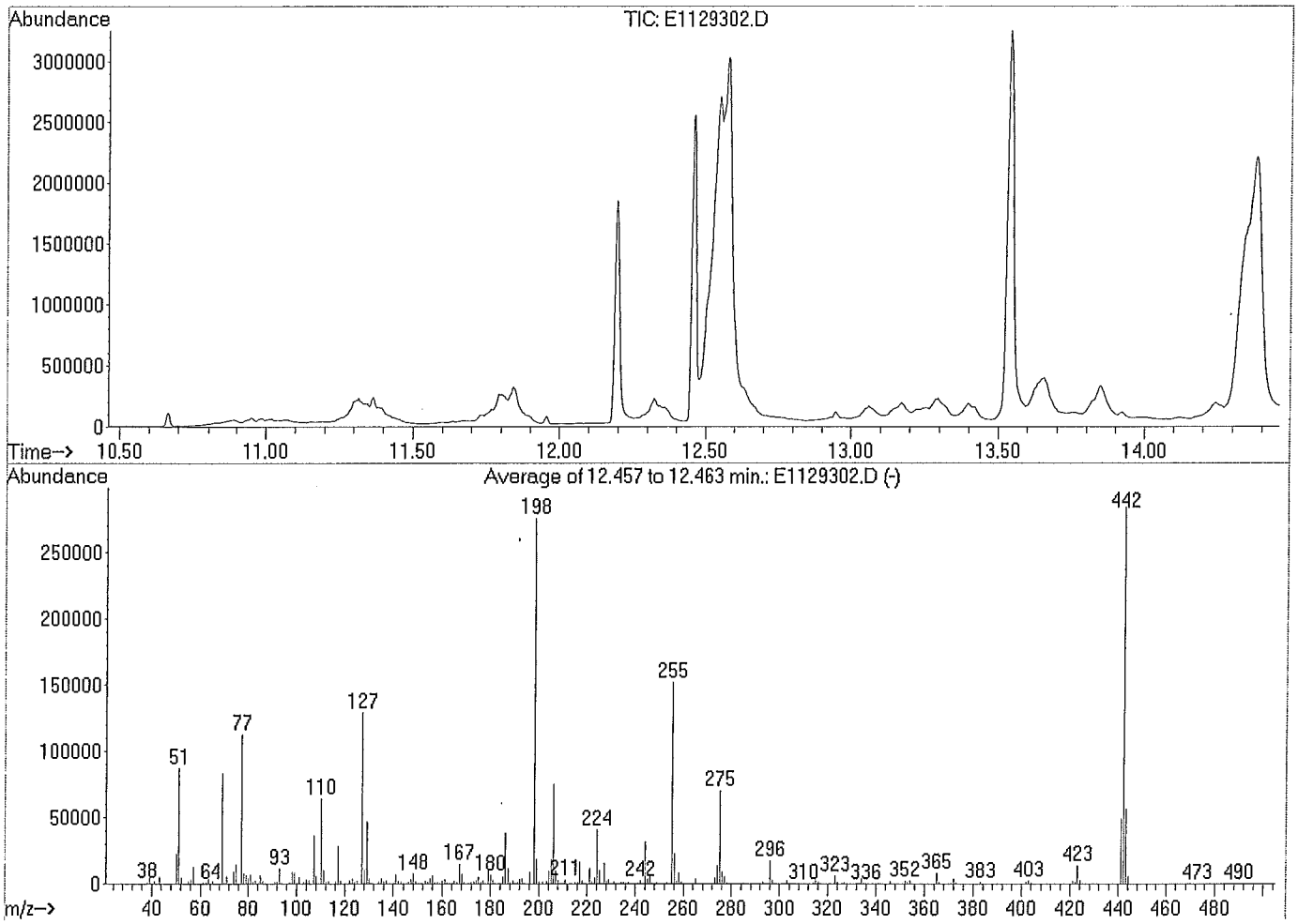
	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1	BNA STD	030 PPM STD	E1129303	11/29/13	12:22
2	MAK023L	006562-09	E1129305	11/29/13	13:46
3	MAK024L/25L	006562-10	E1129306	11/29/13	14:27
4	MAK025L	006562-11	E1129307	11/29/13	15:08
5	MAK047L	006562-12	E1129308	11/29/13	15:49
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

DFTPP

Data Path : C:\MSDCHEM\1\DATA\112913\
Data File : E1129302.D
Acq On : 29 Nov 2013 11:56
Operator : DOUG
Sample : 50 NG TUNE 16103
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 1189, 1190, 1191; Background Corrected with Scan 1179

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	80	31.6	87065	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.01	100	30.2	83111	PASS
70	69	0.00	2	1.0	853	PASS
127	198	25	75	46.8	128919	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	275626	PASS
199	198	5	9	6.8	18794	PASS
275	198	10	30	25.5	70317	PASS
365	198	0.75	100	2.9	7980	PASS
441	443	0.01	100	87.2	49330	PASS
442	198	40	110	103.2	284309	PASS
443	442	15	24	19.9	56600	PASS

Average of 12.457 to 12.463 min.: E1129302.D
50 NG TUNE 16103
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
36.00	80	48.00	32	62.10	1057	73.10	788
37.05	293	50.20	22720	63.10	3667	74.10	9247
38.15	1234	51.10	87065	64.15	543	75.10	14547
39.15	6536	52.15	4473	65.05	1546	77.10	112460
40.05	157	53.10	262	65.90	40	78.15	7790
41.10	1550	54.05	22	66.10	98	79.10	6498
42.10	235	55.10	1746	67.10	316	80.05	4450
43.20	4909	56.10	3062	69.10	83111	81.10	6831
45.00	108	57.15	12765	70.15	853	82.10	1827
47.15	124	58.10	728	71.15	5752	83.10	2374
47.80	36	61.05	923	72.10	301	84.15	383

Average of 12.457 to 12.463 min.: E1129302.D
50 NG TUNE 16103
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
85.15	6282	98.10	8861	111.10	10183	120.05	434
86.10	2024	99.10	8259	112.10	1382	121.10	149
87.05	727	100.15	863	113.10	1637	122.05	2436
87.95	291	101.05	4816	114.00	84	123.10	3642
89.40	66	102.00	292	114.20	76	124.05	1680
91.10	1466	103.10	1353	114.40	124	125.05	2191
92.05	1654	104.05	2910	114.95	60	127.10	128919
93.05	11408	105.05	2491	116.15	1513	128.05	10481
94.00	792	107.10	36229	117.05	28339	129.10	46912
96.05	510	108.05	5919	118.10	2185	130.05	3748
97.15	1002	110.05	64089	119.20	125	131.00	809

Average of 12.457 to 12.463 min.: E1129302.D
50 NG TUNE 16103
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
131.95	291	144.05	437	153.10	2136	163.10	192
134.05	1597	145.10	516	154.10	1614	164.10	394
135.05	3783	146.05	1336	155.10	4177	165.00	1977
136.05	1751	147.05	3416	156.10	5902	166.10	1387
137.10	2233	148.10	7623	157.05	1069	167.05	14862
138.05	598	149.15	1642	158.05	1183	168.05	7208
139.10	414	150.05	457	159.00	762	169.05	1344
140.15	1054	151.15	712	160.00	1954	170.10	544
141.05	6849	151.40	259	161.10	3273	171.05	717
142.00	2076	151.60	261	162.05	889	171.95	1127
143.05	1303	152.00	704	162.90	117	173.10	1636

Average of 12.457 to 12.463 min.: E1129302.D
50 NG TUNE 16103
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
174.10	2767	185.10	5401	196.10	8921	209.05	793
175.10	5214	186.10	38232	198.00	275626	210.10	607
176.15	1572	187.10	11249	199.00	18794	211.05	2981
177.05	2226	188.05	1086	200.05	1525	212.10	191
178.05	507	189.10	2219	201.55	1398	212.90	83
179.10	9446	190.10	441	203.10	2200	213.05	195
180.10	6641	191.15	1294	204.10	10025	213.85	108
181.05	3207	192.10	3408	205.10	18334	214.20	52
182.10	623	193.10	3787	206.10	74954	215.05	832
183.15	473	194.05	799	207.05	9672	216.10	1341
184.00	964	194.90	180	208.05	2401	217.00	16627

Average of 12.457 to 12.463 min.: E1129302.D
50 NG TUNE 16103
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
218.05	2423	229.00	3156	239.05	638	249.95	286
219.00	131	230.05	477	240.05	513	250.95	239
219.30	116	231.10	1462	241.05	950	252.05	521
219.50	102	232.10	300	242.10	2294	253.05	988
221.10	12078	233.00	335	243.10	1023	255.10	151957
222.00	1602	233.20	175	244.10	31648	256.10	22840
223.10	4913	234.05	1141	245.10	3981	257.10	2051
224.10	40773	235.05	1265	246.10	5350	258.05	8319
225.10	10617	236.05	1069	247.05	1195	259.05	1439
227.10	15439	237.05	1278	248.05	439	260.00	360
228.05	2247	238.10	329	249.00	1206	261.05	269

Average of 12.457 to 12.463 min.: E1129302.D
50 NG TUNE 16103

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
262.00	70	274.10	13885	283.95	507	293.95	333
262.95	94	275.10	70317	285.00	995	296.05	17288
265.05	3673	276.10	9260	286.00	174	297.05	2629
265.90	74	277.05	5369	287.10	31	298.00	191
266.95	236	278.05	841	287.70	38	298.90	32
267.60	81	278.90	103	288.95	291	300.90	314
269.10	63	279.05	179	289.95	236	302.05	443
269.90	156	279.90	31	291.05	283	303.10	2114
271.05	766	281.00	92	291.90	80	304.05	594
272.05	644	282.05	105	292.05	205	304.90	32
273.10	4856	283.00	523	293.05	1211	305.30	44

Average of 12.457 to 12.463 min.: E1129302.D
50 NG TUNE 16103
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
306.00	34	316.10	1393	327.00	1144	341.05	806
308.00	315	317.00	278	328.05	611	341.80	43
308.90	147	318.10	74	329.00	77	342.05	157
309.10	67	319.85	78	331.10	35	346.00	1523
309.65	127	321.05	559	332.00	451	346.95	291
310.10	208	322.00	316	333.05	799	349.10	27
311.05	112	323.10	6088	334.05	4007	349.90	78
312.00	100	324.10	1284	335.05	993	351.10	167
312.85	133	324.90	87	336.05	176	352.05	2063
314.10	972	325.05	94	337.00	28	353.05	1705
315.00	2313	326.00	154	339.10	94	354.05	2255

Average of 12.457 to 12.463 min.: E1129302.D
50 NG TUNE 16103
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
355.00	524	371.00	580	393.00	59	410.20	27
355.90	56	372.05	3675	394.70	30	412.40	28
356.20	32	373.05	892	395.90	31	415.10	82
358.95	173	377.10	59	400.70	46	415.70	33
360.10	37	383.00	1193	401.00	202	417.50	34
360.85	143	383.90	287	402.05	1363	419.85	68
365.00	7980	384.70	99	403.00	2178	421.05	2106
366.00	1421	388.95	60	404.05	871	422.10	1900
367.10	45	389.90	466	404.80	43	423.05	13916
369.70	46	391.05	189	406.20	37	424.10	2728
370.15	195	392.05	249	410.00	37	425.05	341

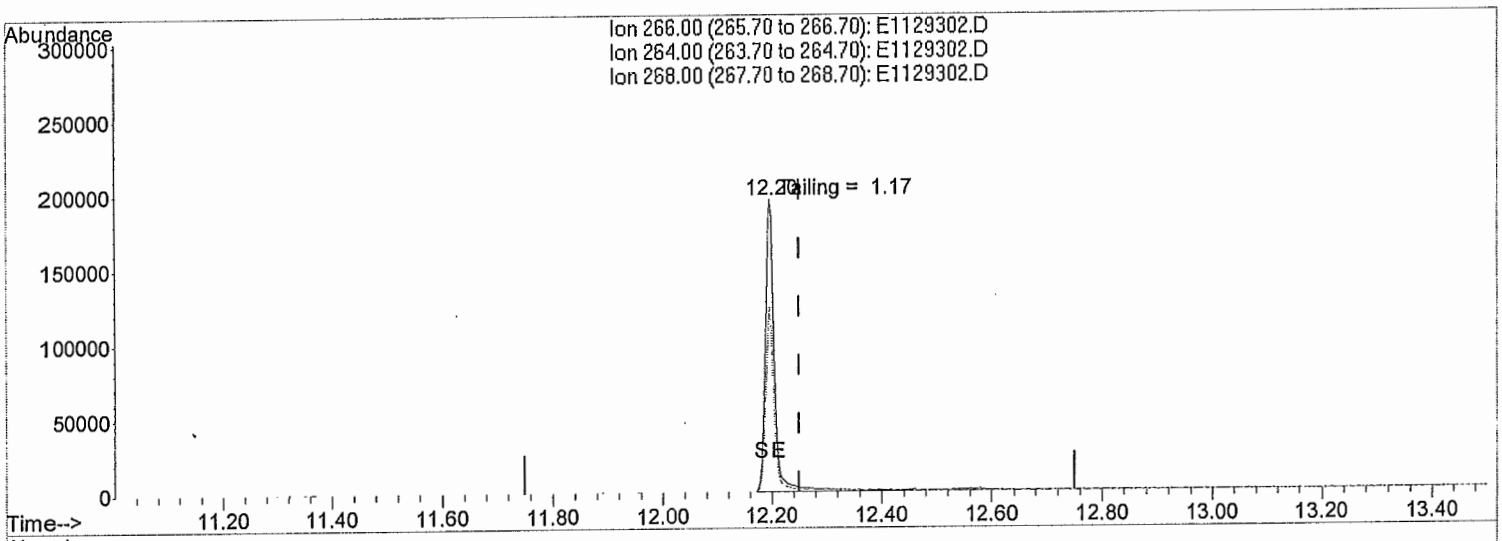
Average of 12.457 to 12.463 min.: E1129302.D
50 NG TUNE 16103
Modified:subtracted

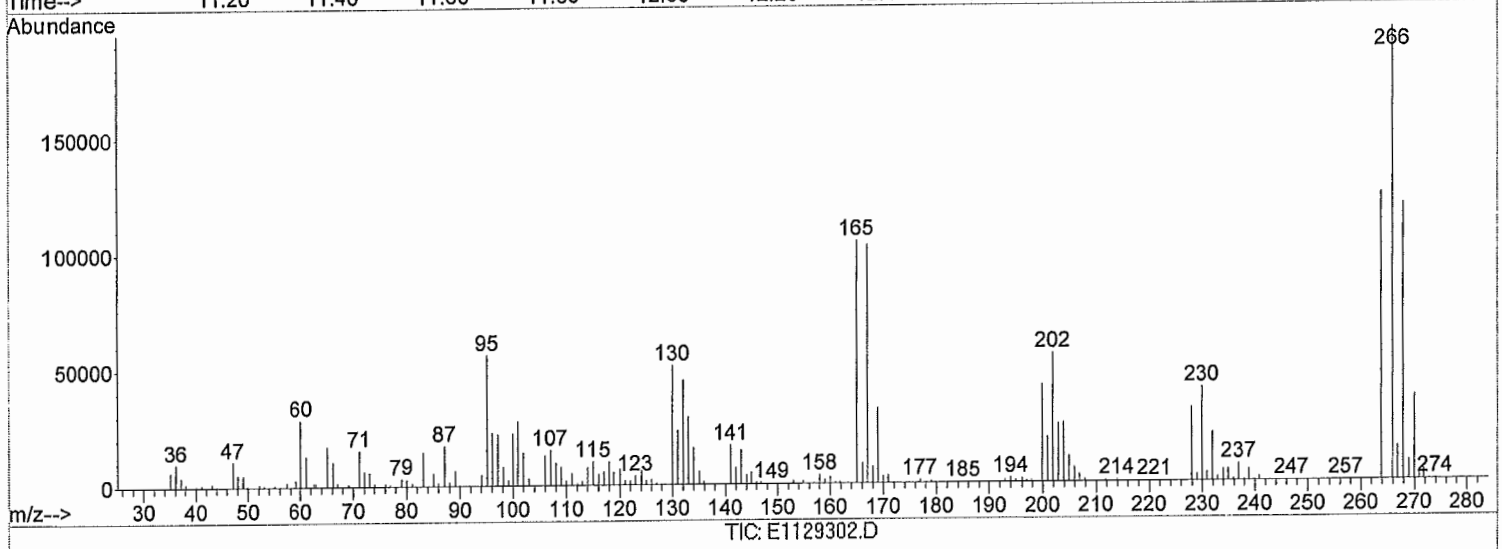
m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
425.60	46	431.30	121	438.00	261	489.90	27
426.30	29	431.90	120	439.00	195		
426.95	114	432.70	84	439.50	52		
427.50	72	433.00	128	441.10	49330		
427.90	51	433.60	108	442.10	284309		
428.15	80	434.80	126	443.10	56600		
428.80	68	435.40	29	444.10	5627		
429.05	62	435.70	63	444.90	140		
429.60	43	436.25	57	445.10	148		
430.10	28	436.85	94	472.80	33		
431.00	32	437.30	26	476.00	27		

Quantitation Report (Qedit)

Data Path : C:\MSDCHEM\1\DATA\112913\
Data File : E1129302.D
Acq On : 29 Nov 2013 11:56
Operator : DOUG
Sample : 50 NG TUNE 16103
Misc : AG-5 8270
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Nov 29 12:14:47 2013
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)

12.196min (-0.054) 20.31ug/L

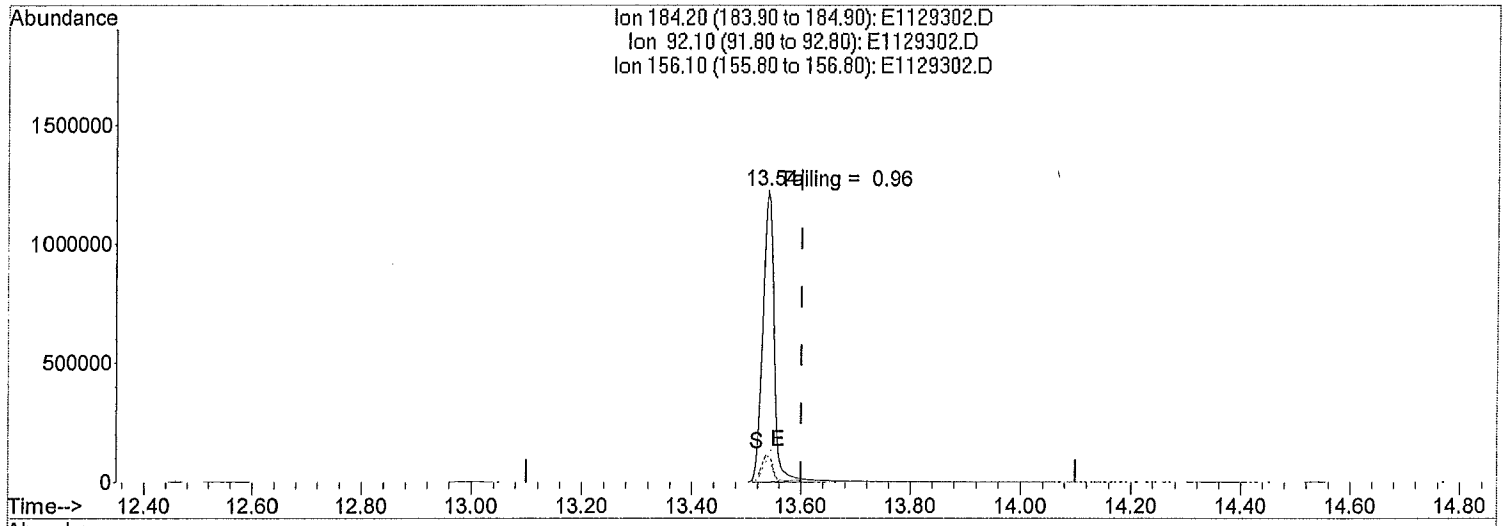
response 216498

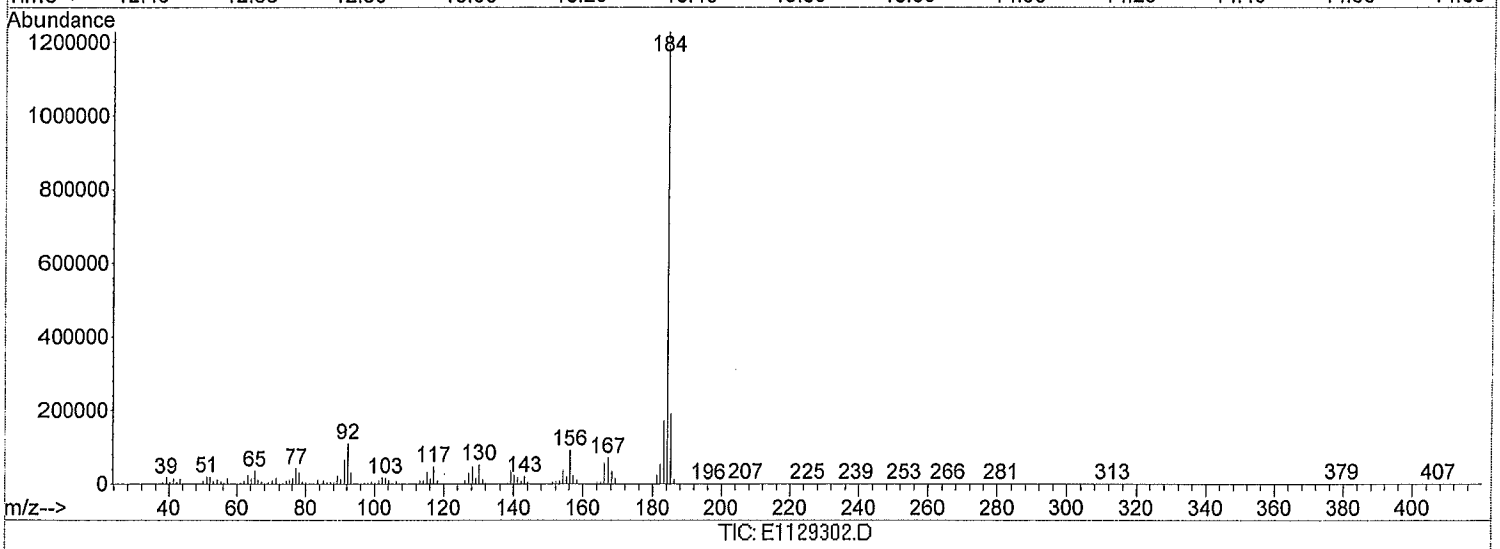
Ion	Exp%	Act%
266.00	100	100
264.00	63.80	61.28
268.00	63.80	58.07
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\MSDCHEM\1\DATA\112913\
Data File : E1129302.D
Acq On : 29 Nov 2013 11:56
Operator : DOUG
Sample : 50 NG TUNE 16103
Misc : AG-5 8270
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Nov 29 12:14:47 2013
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)

13.538min (-0.062) 34.98ug/L

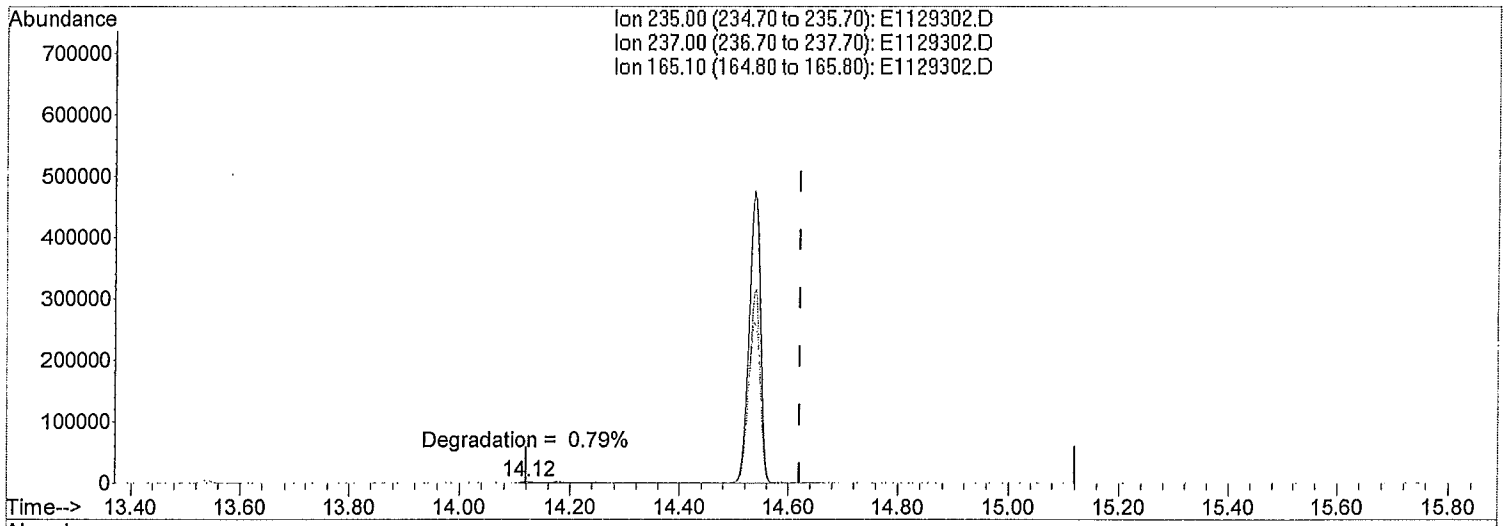
response 1804138

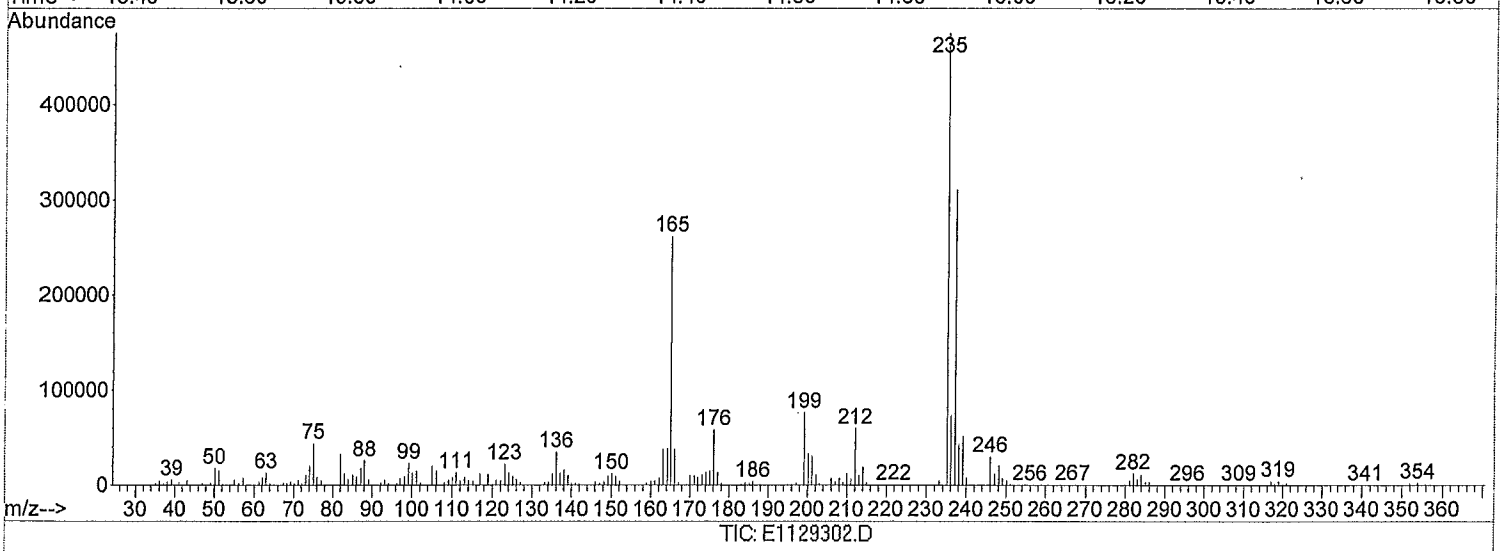
Ion	Exp%	Act%
184.20	100	100
92.10	13.70	9.83#
156.10	8.60	7.45
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\MSDCHEM\1\DATA\112913\
Data File : E1129302.D
Acq On : 29 Nov 2013 11:56
Operator : DOUG
Sample : 50 NG TUNE 16103
Misc : AG-5 8270
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Nov 29 12:14:47 2013
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

14.537min (-0.083) 26.68ug/L

response 692682

Ion	Exp%	Act%
235.00	100	100
237.00	64.80	65.02
165.10	59.00	57.98
0.00	0.00	0.00

Evaluate Continuing Calibration Report

Data Path : C:\MSDCHEM\1\DATA\112913\
Data File : E1129303.D
Acq On : 29 Nov 2013 12:22
Operator : DOUG
Sample : 30 PPM STD 16141
Misc : AG-5 8270
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 18 11:12:07 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317EW.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:11:11 2013
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	123	0.00
2	I	Naphthalene-d8	1.000	1.000	0.0	121	0.00
3	S	Nitrobenzene-d5	0.360	0.381	-5.8	123	0.00
4	I	Acenaphthene-d10	1.000	1.000	0.0	118	0.00
5	S	2-Fluorobiphenyl	1.368	1.335	2.4	122	0.00
6	TM	2,4-Dinitrotoluene	0.373	0.414	-11.0	125	0.00
7	I	Phenanthrene-d10	1.000	1.000	0.0	125	0.00
8	I	Chrysene-d12	1.000	1.000	0.0	122	0.00
9	S	Terphenyl-d14	0.777	0.760	2.2	124	0.00
10	I	Perylene-d12	1.000	1.000	0.0	121	0.00

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

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\112913\
Data File : E1129303.D
Acq On : 29 Nov 2013 12:22
Operator : DOUG
Sample : 30 PPM STD 16141
Misc : AG-5 8270
ALS Vial : 2 Sample Multiplier: 1

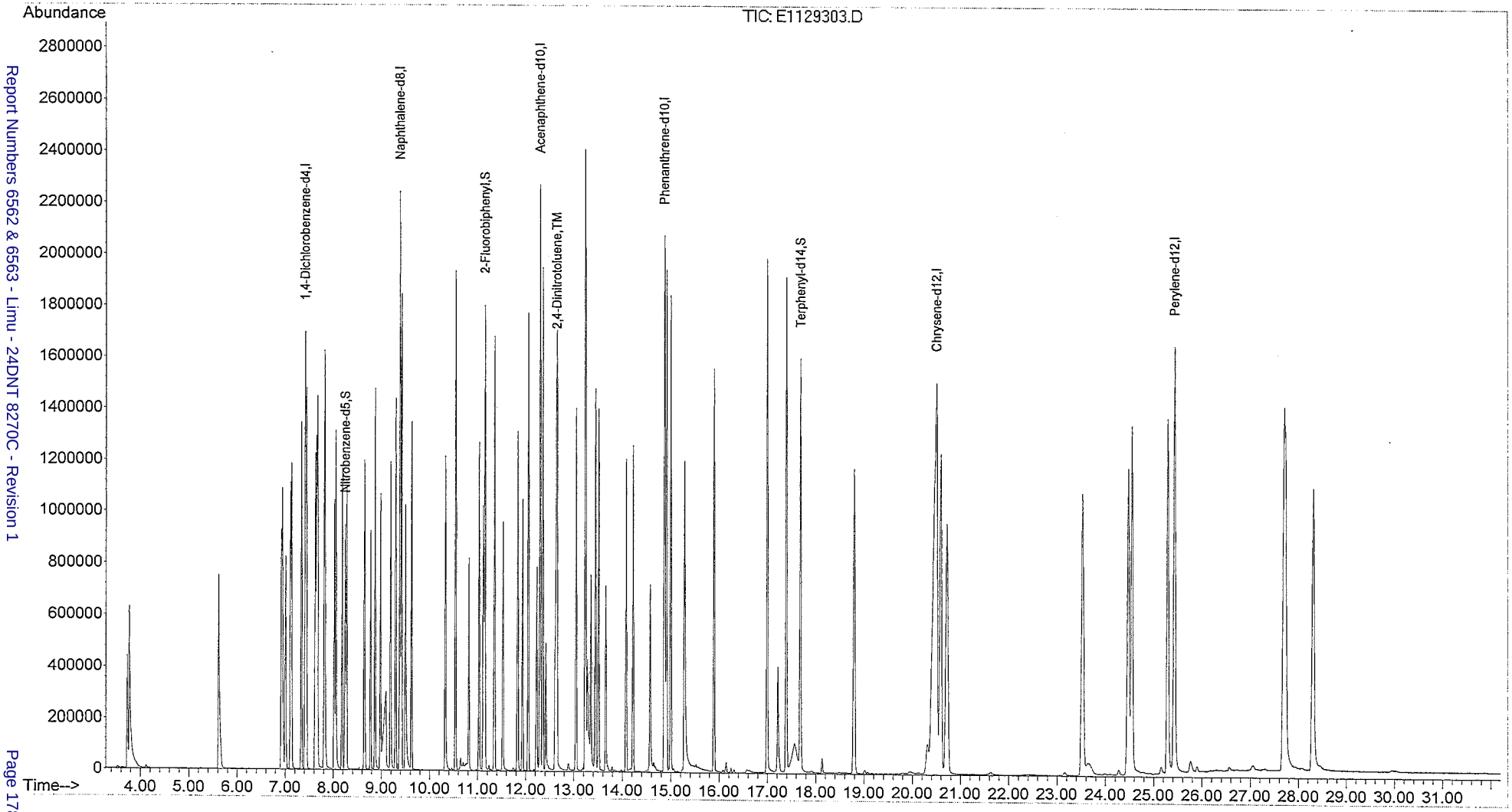
Quant Time: Dec 18 11:12:07 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317EW.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:11:11 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.41	152	3772379	40.00	ug/L	0.00
2) Naphthalene-d8	9.39	136	14226426	40.00	ug/L	0.00
4) Acenaphthene-d10	12.30	164	7845497	40.00	ug/L	0.00
7) Phenanthrene-d10	14.87	188	13314115	40.00	ug/L	0.00
8) Chrysene-d12	20.50	240	15492981	40.00	ug/L	0.00
10) Perylene-d12	25.44	264	15957187	40.00	ug/L	0.00
System Monitoring Compounds						
3) Nitrobenzene-d5	8.25	82	4065585	31.72	ug/L	0.00
Spiked Amount 50.000			Recovery	=	63.44%	
5) 2-Fluorobiphenyl	11.15	172	7857844	29.28	ug/L	0.00
Spiked Amount 50.000			Recovery	=	58.56%	
9) Terphenyl-d14	17.69	244	8834620	29.36	ug/L	0.00
Spiked Amount 50.000			Recovery	=	58.72%	
Target Compounds						Qvalue
6) 2,4-Dinitrotoluene	12.64	165	2438322	33.32	ug/L #	75

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

Data Path : C:\MSDCHEM\1\DATA\112913\
Data File : E1129303.D
Acq On : 29 Nov 2013 12:22
Operator : DOUG
Sample : 30 PPM STD 16141
Misc : AG-5 8270
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 18 11:12:07 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317EW.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:11:11 2013
Response via : Initial Calibration



ARDL Inc
Report Numbers 6562 & 6563 - Limu - 24DNT 8270C - Revision 1
Page 178 of 266

Instrument Logs/
Analysis Notebook Pages

Rev. 1.1

PROJECT 11/29/2013 8270 Tissues

Notebook No. 3308 65

Continued from Page

Injection Log

Directory: C:\MSDCHEM\1\DATA\112913

Line	Vial	FileName	Multiplier	SampleName	Misc Info
1	1	E1129301.d	1.	50 NG TUNE 16103 DDT deg. ↑ Changed Liner	AG-5 8270
2	1	E1129302.d	1.	50 NG TUNE 16103 Pass	AG-5 8270
3	2	E1129303.d	1.	30 PPM STD 16141 Pass	AG-5 8270
4	3	E1129304.d	1.	006562-12B1 Pass	B10129 AG-5 8270
5	4	E1129305.d	1.	006562-09	B10129 AG-5 8270
6	5	E1129306.d	1.	006562-10	B10129 AG-5 8270
7	6	E1129307.d	1.	006562-11	B10129 AG-5 8270
8	7	E1129308.d	1.	006562-12	B10129 AG-5 8270
9	8	E1129309.d	1.	006562-12MS	B10129 AG-5 8270
10	9	E1129310.d	1.	006562-12MSD Pass	B10129 AG-5 8270

PEK 11/29/2013

Continued on Page

Read and Understood By

PEK — Signed — 11/29/2013 — Date

Signed — 12/4/13 — 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

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

Lab Report No: 006562 Report Date: 12/19/2013

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

Field ID:	MAK023L	ARDL Lab No.:	006562-09
Desc/Location:	MAKU MILITARY RESERVATION	Lab Filename:	E1129305
Sample Date:	09/27/2013	Received Date:	11/07/2013
Sample Time:	1255	Prep. Date:	11/18/2013
Matrix:	TISSUE	Analysis Date:	11/29/2013
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6664
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
2,4-Dinitrotoluene	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	69%
2-Fluorobiphenyl	30-130	62%
Terphenyl-d14	30-130	81%

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

Sample 006562-09, BNA'S (METHOD 8270) Page 1 of 1

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\112913\
Data File : E1129305.D
Acq On : 29 Nov 2013 13:46
Operator : DOUG
Sample : 006562-09
Misc : B10129 AG-5 8270
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Dec 18 11:15:32 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317ET.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:08:25 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.41	152	3651055	8000.00	ug/L	0.00
2) Naphthalene-d8	9.38	136	12990935	8000.00	ug/L	0.00
4) Acenaphthene-d10	12.30	164	7348273	8000.00	ug/L	0.00
7) Phenanthrene-d10	14.87	188	12495512	8000.00	ug/L	0.00
8) Chrysene-d12	20.49	240	15605506	8000.00	ug/L	-0.02
10) Perylene-d12	25.42	264	11237547	8000.00	ug/L	-0.01
System Monitoring Compounds						
3) Nitrobenzene-d5	8.24	82	2033562	3474.66	ug/L	0.00
Spiked Amount 5000.000			Recovery =	69.49%		
5) 2-Fluorobiphenyl	11.15	172	3911136	3111.69	ug/L	0.00
Spiked Amount 5000.000			Recovery =	62.23%		
9) Terphenyl-d14	17.69	244	6104561	4028.43	ug/L	0.00
Spiked Amount 5000.000			Recovery =	80.57%		

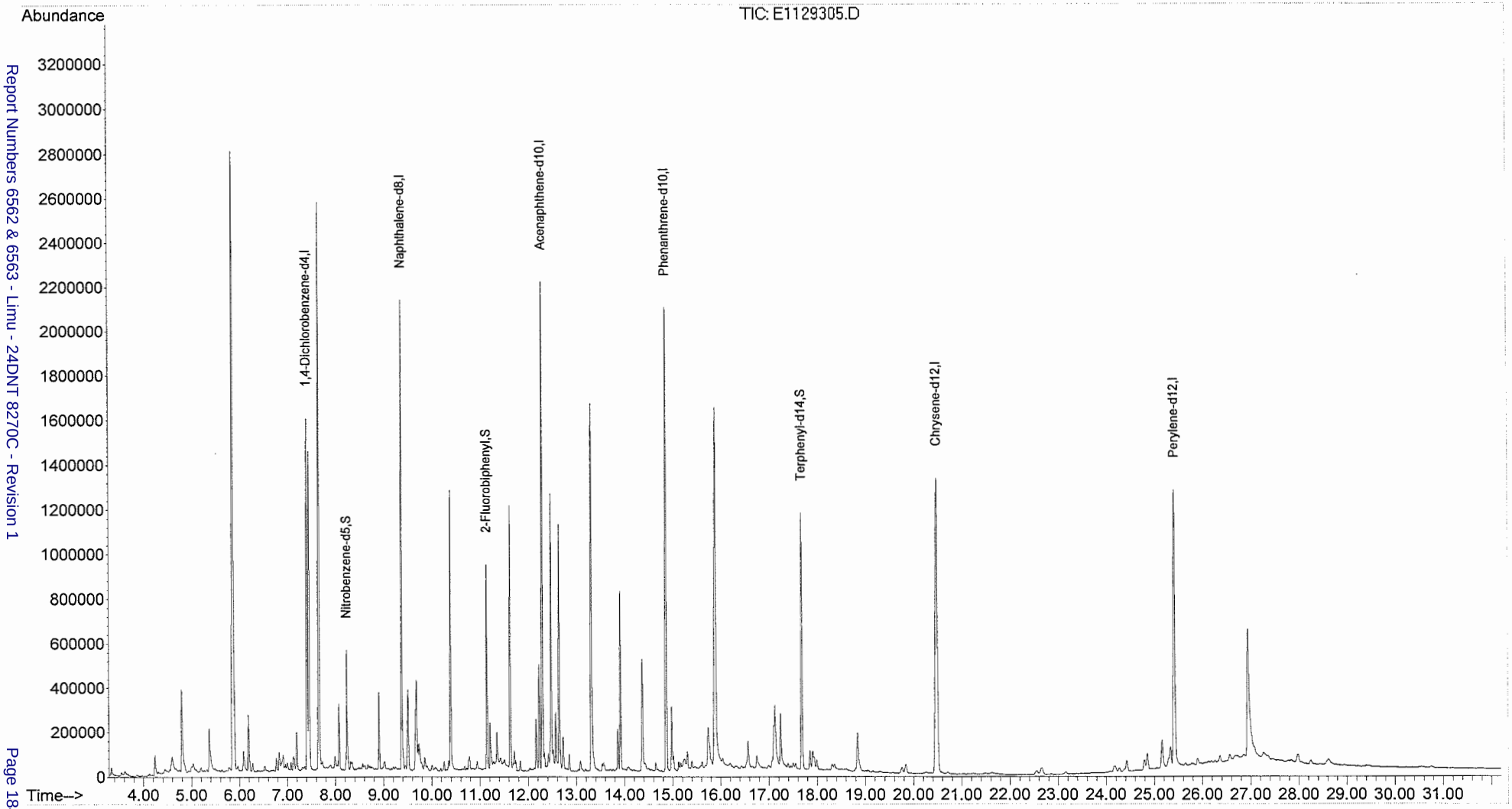
Target Compounds	Qvalue

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

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\112913\
Data File : E1129305.D
Acq On : 29 Nov 2013 13:46
Operator : DOUG
Sample : 006562-09
Misc : B10129 AG-5 8270
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Dec 18 11:15:32 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317ET.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:08:25 2013
Response via : Initial Calibration



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

Lab Report No: 006562 Report Date: 12/19/2013

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

Field ID:	MAK024L/25L	ARDL Lab No.:	006562-10
Desc/Location:	MAKU MILITARY RESERVATION	Lab Filename:	E1129306
Sample Date:	09/27/2013	Received Date:	11/07/2013
Sample Time:	1255	Prep. Date:	11/18/2013
Matrix:	TISSUE	Analysis Date:	11/29/2013
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6664
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
2,4-Dinitrotoluene	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	72%
2-Fluorobiphenyl	30-130	59%
Terphenyl-d14	30-130	88%

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

Sample 006562-10, BNA'S (METHOD 8270) Page 1 of 1

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\112913\
Data File : E1129306.D
Acq On : 29 Nov 2013 14:27
Operator : DOUG
Sample : 006562-10
Misc : B10129 AG-5 8270
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Dec 18 11:15:35 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317ET.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:08:25 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.41	152	3397300	8000.00	ug/L	0.00
2) Naphthalene-d8	9.38	136	12171103	8000.00	ug/L	0.00
4) Acenaphthene-d10	12.30	164	6907830	8000.00	ug/L	0.00
7) Phenanthrene-d10	14.87	188	11613045	8000.00	ug/L	0.00
8) Chrysene-d12	20.48	240	14407362	8000.00	ug/L	-0.02
10) Perylene-d12	25.42	264	10565163	8000.00	ug/L	-0.01
System Monitoring Compounds						
3) Nitrobenzene-d5	8.24	82	1975319	3602.49	ug/L	0.00
Spiked Amount 5000.000			Recovery =	72.05%		
5) 2-Fluorobiphenyl	11.15	172	3476347	2942.12	ug/L	0.00
Spiked Amount 5000.000			Recovery =	58.84%		
9) Terphenyl-d14	17.69	244	6121570	4375.60	ug/L	0.00
Spiked Amount 5000.000			Recovery =	87.51%		

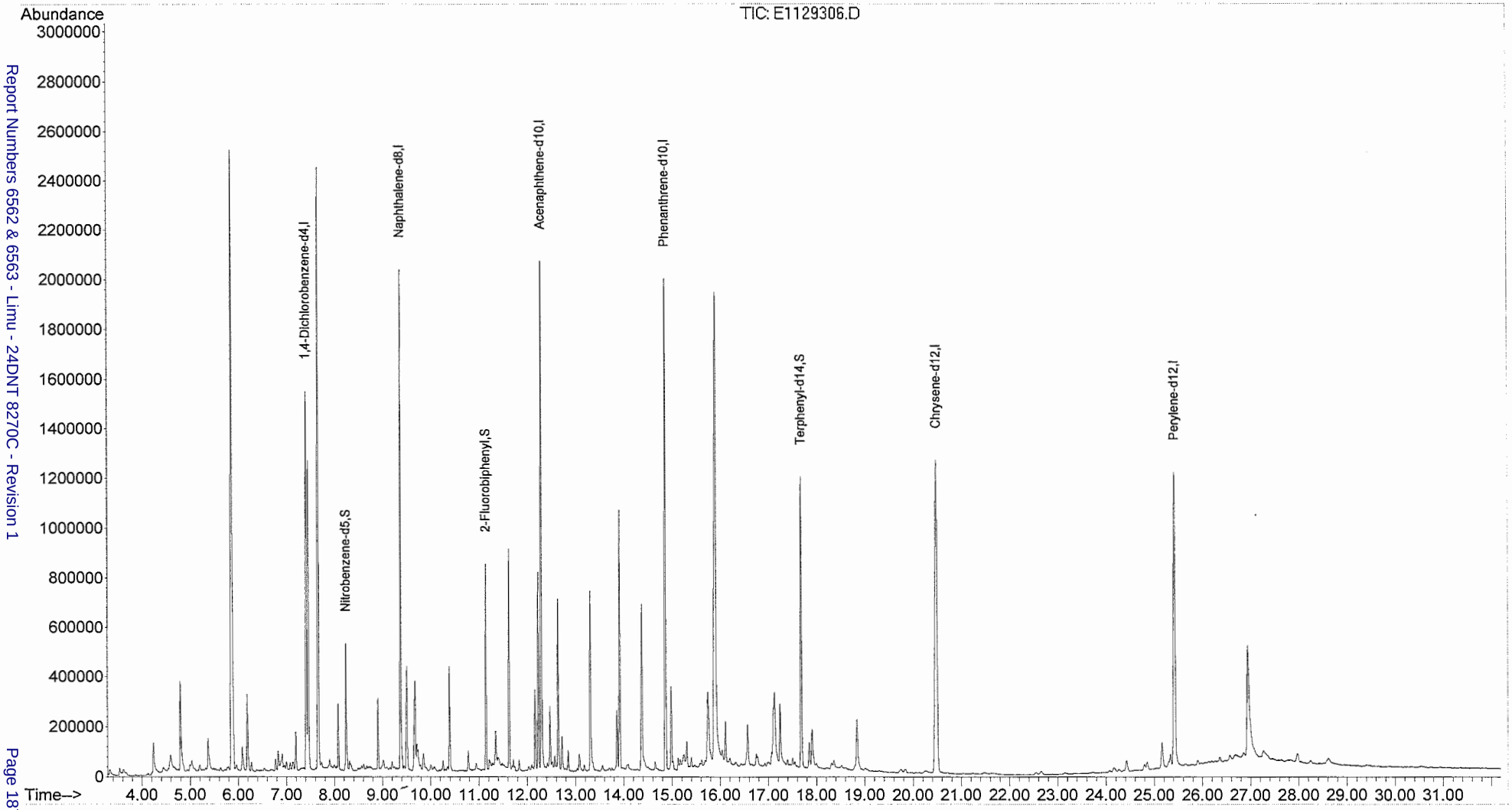
Target Compounds	Qvalue

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

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\112913\
Data File : E1129306.D
Acq On : 29 Nov 2013 14:27
Operator : DOUG
Sample : 006562-10
Misc : B10129 AG-5 8270
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Dec 18 11:15:35 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317ET.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:08:25 2013
Response via : Initial Calibration



ARDL Inc
Report Numbers 6562 & 6563 - Limu - 24DNT 8270C - Revision 1
Page 187 of 266

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

Lab Report No: 006562 Report Date: 12/19/2013

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

Field ID:	MAK025L	ARDL Lab No.:	006562-11
Desc/Location:	MAKU MILITARY RESERVATION	Lab Filename:	E1129307
Sample Date:	09/27/2013	Received Date:	11/07/2013
Sample Time:	1255	Prep. Date:	11/18/2013
Matrix:	TISSUE	Analysis Date:	11/29/2013
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6664
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
2,4-Dinitrotoluene	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	76%
2-Fluorobiphenyl	30-130	74%
Terphenyl-d14	30-130	88%

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

Sample 006562-11, BNA'S (METHOD 8270) Page 1 of 1

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\112913\
Data File : E1129307.D
Acq On : 29 Nov 2013 15:08
Operator : DOUG
Sample : 006562-11
Misc : B10129 AG-5 8270
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Dec 18 11:15:37 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317ET.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:08:25 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.41	152	3401306	8000.00	ug/L	0.00
2) Naphthalene-d8	9.38	136	12070063	8000.00	ug/L	0.00
4) Acenaphthene-d10	12.30	164	6862936	8000.00	ug/L	0.00
7) Phenanthrene-d10	14.87	188	11572206	8000.00	ug/L	0.00
8) Chrysene-d12	20.48	240	14320227	8000.00	ug/L	-0.02
10) Perylene-d12	25.42	264	10191550	8000.00	ug/L	-0.01
System Monitoring Compounds						
3) Nitrobenzene-d5	8.24	82	2061209	3790.60	ug/L	0.00
Spiked Amount 5000.000			Recovery =	75.81%		
5) 2-Fluorobiphenyl	11.15	172	4320476	3680.45	ug/L	0.00
Spiked Amount 5000.000			Recovery =	73.61%		
9) Terphenyl-d14	17.69	244	6145566	4419.48	ug/L	0.00
Spiked Amount 5000.000			Recovery =	88.39%		

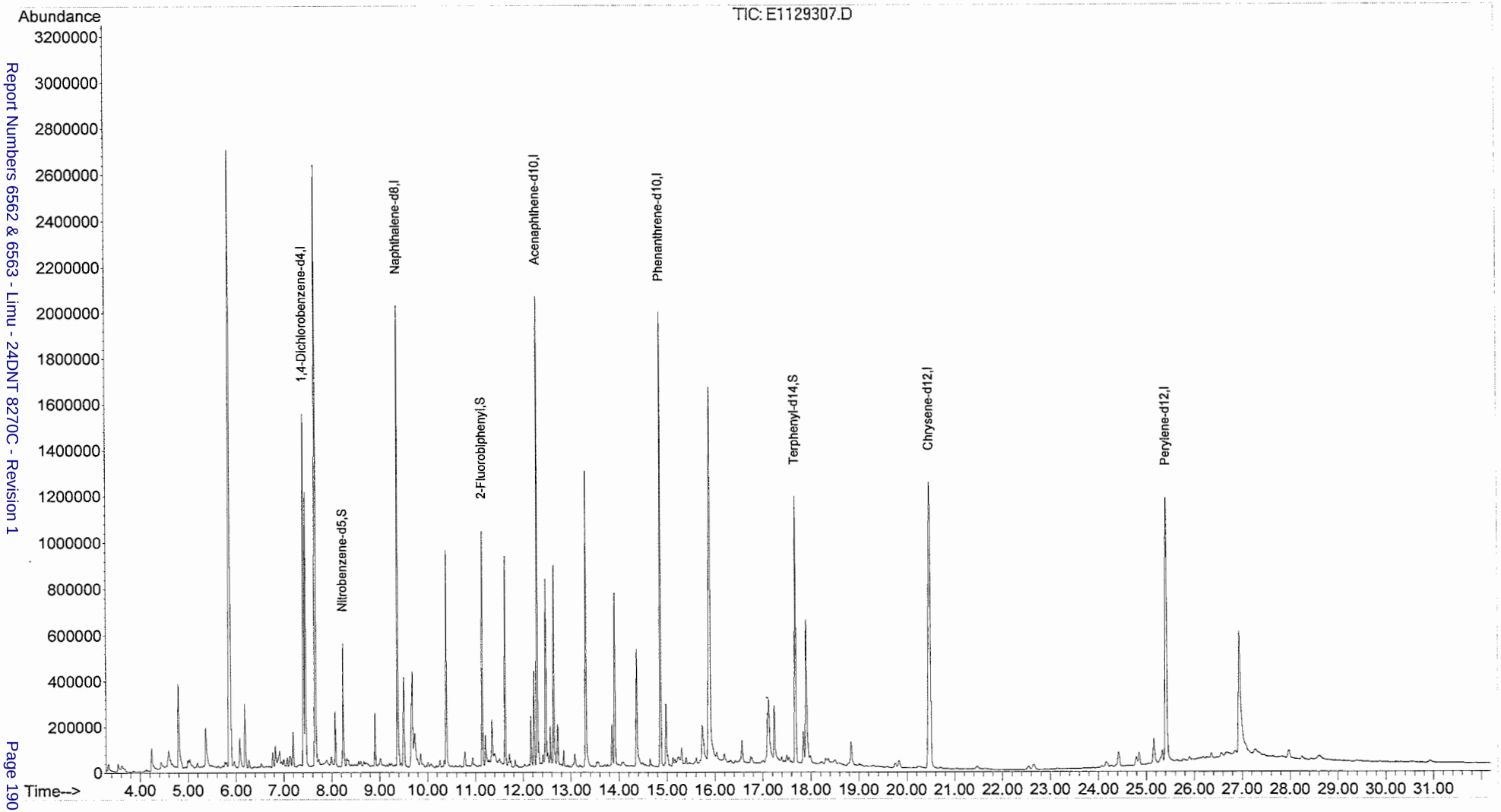
Target Compounds	Qvalue

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

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\112913\
Data File : E1129307.D
Acq On : 29 Nov 2013 15:08
Operator : DOUG
Sample : 006562-11
Misc : B10129 AG-5 8270
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Dec 18 11:15:37 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317ET.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:08:25 2013
Response via : Initial Calibration



ARDL Inc
Report Numbers 6562 & 6563 - Limu - 24DNT 8270C - Revision 1
Page 190 of 266

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

Lab Report No: 006562 Report Date: 12/19/2013

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

Field ID:	MAK047L	ARDL Lab No.:	006562-12
Desc/Location:	MAKU MILITARY RESERVATION	Lab Filename:	E1129308
Sample Date:	10/15/2013	Received Date:	11/07/2013
Sample Time:	1158	Prep. Date:	11/18/2013
Matrix:	TISSUE	Analysis Date:	11/29/2013
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6664
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
2,4-Dinitrotoluene	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	71%
2-Fluorobiphenyl	30-130	66%
Terphenyl-d14	30-130	86%

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

Sample 006562-12, BNA'S (METHOD 8270) Page 1 of 1

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\112913\
Data File : E1129308.D
Acq On : 29 Nov 2013 15:49
Operator : DOUG
Sample : 006562-12
Misc : B10129 AG-5 8270
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Dec 18 11:15:39 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317ET.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:08:25 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.41	152	3564920	8000.00	ug/L	0.00
2) Naphthalene-d8	9.38	136	12944649	8000.00	ug/L	0.00
4) Acenaphthene-d10	12.30	164	7450068	8000.00	ug/L	0.00
7) Phenanthrene-d10	14.87	188	12474779	8000.00	ug/L	0.00
8) Chrysene-d12	20.50	240	15187489	8000.00	ug/L	-0.01
10) Perylene-d12	25.43	264	11685250	8000.00	ug/L	0.00
System Monitoring Compounds						
3) Nitrobenzene-d5	8.24	82	2060276	3532.90	ug/L	0.00
Spiked Amount 5000.000			Recovery =	70.66%		
5) 2-Fluorobiphenyl	11.15	172	4216978	3309.18	ug/L	0.00
Spiked Amount 5000.000			Recovery =	66.18%		
9) Terphenyl-d14	17.69	244	6347460	4304.01	ug/L	0.00
Spiked Amount 5000.000			Recovery =	86.08%		

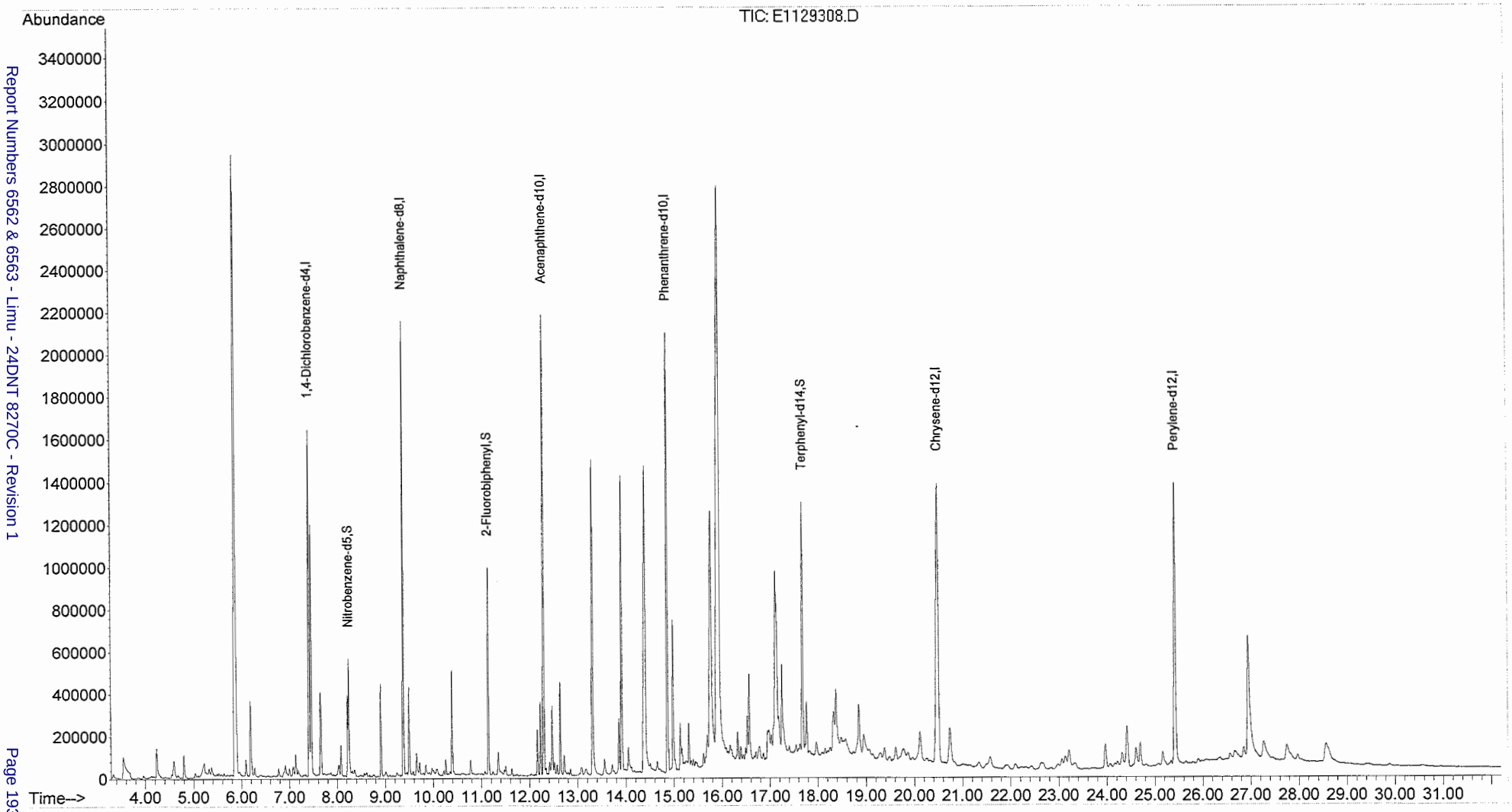
Target Compounds	Qvalue

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

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\112913\
Data File : E1129308.D
Acq On : 29 Nov 2013 15:49
Operator : DOUG
Sample : 006562-12
Misc : B10129 AG-5 8270
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Dec 18 11:15:39 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317ET.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:08:25 2013
Response via : Initial Calibration



ARDL Inc
Report Numbers 6562 & 6563 - Limu - 24DNT 8270C - Revision 1
Page 193 of 266

Analytical Run Number 3

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.: --- SAS No.: --- SDG No.: ---

Lab File ID: E1202302 DFTPP Injection Date: 12/02/13

Instrument ID: AG5 DFTPP Injection Time: 10:36

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30 - 80% of mass 198	31.5
68	Less than 2.0% of mass 69	0.0 (1)
69	(reference only)	29.5
70	Less than 2.0% of mass 69	0.5 (1)
127	25 - 75% of mass 198	45.6
197	Less than 1% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.
199	5 - 9% of mass 198	6.6
275	10 - 30% of mass 198	26.2
365	Greater than 1% of mass 198	3.1
441	0 - 100% of mass 443	92.8
442	40 - 110% of mass 198	102.4
443	15 - 24% of mass 442	19.0 (2)

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

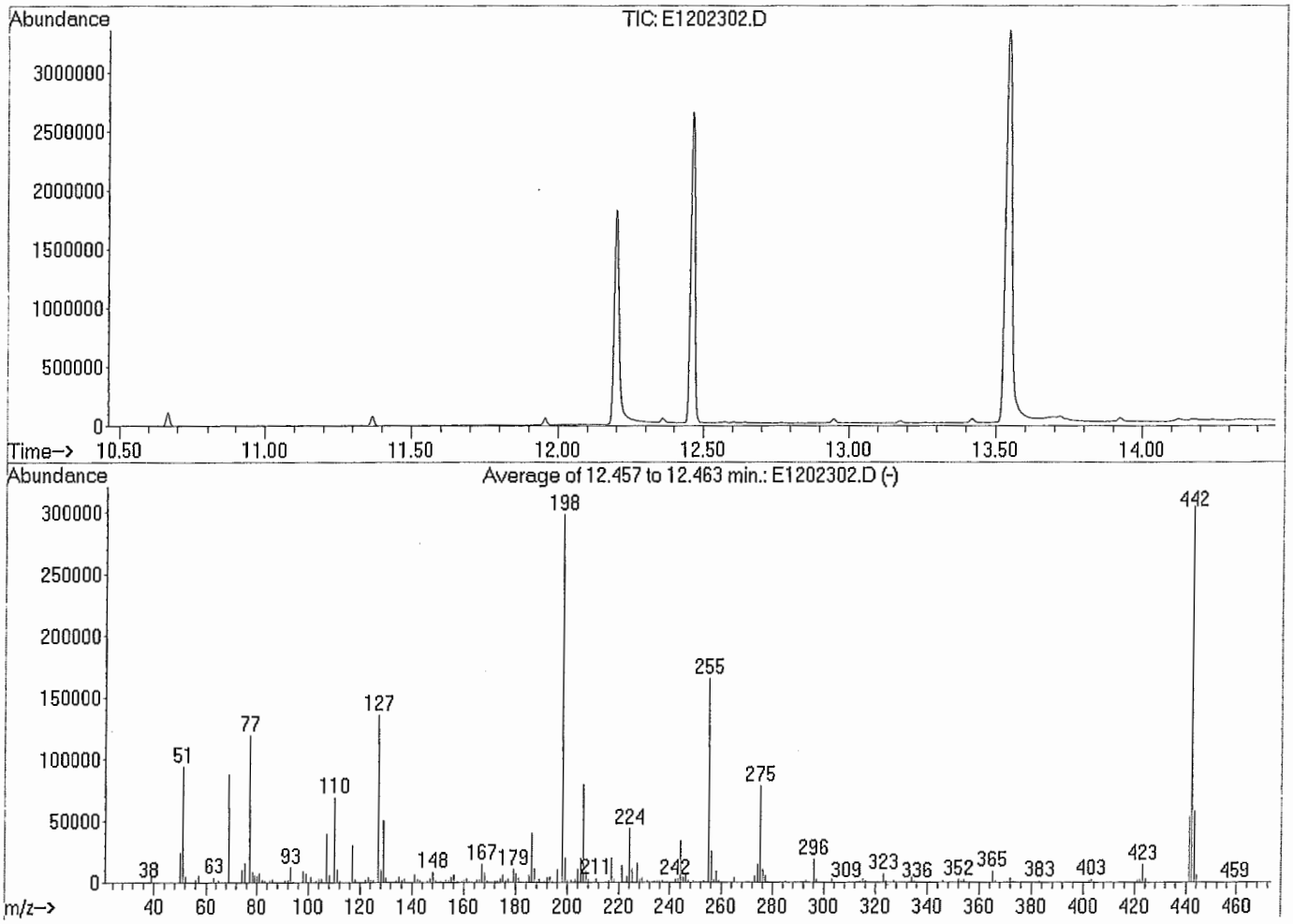
THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1	BNA STD	030 PPM STD	E1202304	12/02/13	11:58
2	BLANK B10131	006563-12B1	E1202305	12/02/13	12:41
3	MAK029L	006563-01	E1202307	12/02/13	14:07
4	MAK030L	006563-02	E1202308	12/02/13	14:50
5	MAK033L	006563-03	E1202309	12/02/13	15:33
6	MAK034L	006563-04	E1202310	12/02/13	16:17
7	MAK038L	006563-05	E1202311	12/02/13	16:59
8	MAK041L	006563-06	E1202312	12/02/13	17:42
9	MAK042L	006563-07	E1202313	12/02/13	18:24
10	MAK043L	006563-08	E1202314	12/02/13	19:06
11	MAK044L	006563-09	E1202315	12/02/13	19:47
12	MAK045L	006563-10	E1202316	12/02/13	20:29
13	MAK046L	006563-11	E1202317	12/02/13	21:10
14					
15					
16					
17					
18					
19					
20					
21					
22					

Data Path : C:\MSDCHEM\1\DATA\120213\
Data File : E1202302.D
Acq On : 2 Dec 2013 10:36
Operator : DOUG
Sample : 50 NG TUNE 16103
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 1189, 1190, 1191; Background Corrected with Scan 1179

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	80	31.5	93959	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.01	100	29.5	87884	PASS
70	69	0.00	2	0.5	426	PASS
127	198	25	75	45.6	135936	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	298069	PASS
199	198	5	9	6.6	19706	PASS
275	198	10	30	26.2	78218	PASS
365	198	0.75	100	3.1	9101	PASS
441	443	0.01	100	92.8	53842	PASS
442	198	40	110	102.4	305216	PASS
443	442	15	24	19.0	58018	PASS

verage of 12.457 to 12.463 min.: E1202302.D
0 NG TUNE 16103
lodified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
35.10	38	51.15	93959	63.10	3963	78.20	8466
36.20	130	52.20	4781	64.15	645	79.05	6191
37.05	420	53.00	163	65.05	1513	80.05	5588
38.10	847	54.00	28	66.00	54	81.05	7292
39.10	6715	56.10	2274	69.10	87884	82.10	1954
42.30	62	57.10	5642	70.00	426	83.10	1555
44.90	48	58.10	417	72.00	13	84.00	186
45.05	9	59.00	54	73.10	667	85.05	1451
47.90	80	59.50	37	74.15	10217	86.10	2189
48.10	59	61.10	1101	75.10	15748	87.05	777
50.15	24277	62.10	1311	77.15	119359	88.05	515

verage of 12.457 to 12.463 min.: E1202302.D
0 NG TUNE 16103
lodified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
89.05	128	103.10	1342	117.05	30091	129.05	50750
91.05	1418	104.10	2957	118.05	2534	130.05	3959
92.10	1934	105.05	2911	119.05	271	131.00	894
93.10	12064	107.05	39358	120.05	507	131.85	30
94.15	889	108.10	6180	121.10	45	132.10	400
96.05	441	110.05	68986	122.10	2265	133.00	112
98.05	9303	111.10	10313	123.10	4140	134.05	1431
99.05	7388	112.10	1317	124.05	2055	135.05	4323
100.00	781	113.05	399	125.10	1804	136.10	1704
101.05	4353	114.10	106	127.10	135936	137.05	2591
102.05	364	116.05	623	128.05	11070	137.80	162

verage of 12.457 to 12.463 min.: E1202302.D
0 NG TUNE 16103
lodified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
138.05	366	148.10	8378	157.70	402	168.10	7872
138.90	170	149.05	1519	158.00	881	169.05	1128
139.10	149	150.10	599	159.05	1113	170.10	489
140.10	852	151.10	994	160.00	2096	171.05	722
141.05	6322	152.00	230	161.05	3255	172.05	1204
142.10	2328	152.20	136	162.05	1094	173.05	1341
143.05	1680	153.10	1858	163.10	453	174.10	2951
144.15	452	154.05	1461	164.10	488	175.10	6030
145.05	361	155.10	4312	165.05	2166	176.10	1678
146.15	1284	156.10	6013	166.05	2491	177.10	2603
147.05	3157	157.15	1278	167.05	14874	178.05	755

verage of 12.457 to 12.463 min.: E1202302.D
0 NG TUNE 16103
lodified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
179.10	10672	189.95	454	204.05	10614	215.05	706
180.10	6981	191.05	1197	205.10	19432	216.10	1557
181.10	3650	192.05	3878	206.10	79629	217.05	19789
182.10	710	193.05	4071	207.05	9270	218.05	2725
183.05	288	194.05	950	208.05	2578	219.00	134
184.10	1084	196.10	10194	209.05	770	219.50	87
185.10	6208	198.05	298069	210.10	819	221.10	13555
186.10	39914	199.05	19706	210.30	457	223.10	4814
187.10	11549	200.00	1649	211.10	2952	224.10	43562
188.10	1277	201.55	1658	213.00	115	225.10	11184
189.05	2465	203.10	2505	214.10	54	226.20	635

verage of 12.457 to 12.463 min.: E1202302.D
0 NG TUNE 16103
lodified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
227.10	15377	237.95	263	248.20	130	260.00	303
228.10	2447	239.05	674	249.00	1340	261.05	258
229.05	3506	240.05	608	250.05	319	262.10	27
229.95	676	241.05	823	251.10	313	263.00	76
231.10	1575	242.10	2580	252.05	557	264.10	319
232.05	509	243.15	3034	253.10	1193	265.05	3952
233.10	384	244.10	33776	255.10	165333	265.90	185
234.00	1138	245.10	4857	256.10	25533	267.00	138
235.00	1110	246.05	5920	257.10	2305	270.05	279
236.05	1125	247.05	1376	258.05	8850	271.05	771
237.05	1501	248.00	148	259.05	1378	272.00	356

verage of 12.457 to 12.463 min.: E1202302.D
0 NG TUNE 16103

odified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
273.05	5239	282.95	646	293.05	1547	306.00	32
274.10	14655	284.05	499	293.95	468	307.00	32
275.10	78218	285.10	1086	296.10	18617	307.80	109
276.10	10671	285.95	243	297.05	2529	308.10	229
277.05	5559	286.90	29	297.80	68	308.85	302
277.95	923	287.10	36	298.05	120	309.90	285
279.00	295	287.80	43	300.95	206	311.05	83
280.90	74	288.95	264	302.10	484	311.90	41
281.00	73	290.05	201	303.10	2583	312.90	183
281.90	85	291.00	393	304.05	692	313.10	89
282.15	144	292.05	391	305.05	88	314.10	1025

verage of 12.457 to 12.463 min.: E1202302.D
0 NG TUNE 16103
odified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
315.05	2466	327.00	1167	338.80	38	350.10	101
316.05	1260	328.05	734	339.00	74	350.90	135
316.95	139	329.00	90	339.95	167	352.05	2100
317.20	84	330.10	34	341.05	757	353.05	1259
320.00	100	330.40	51	342.00	237	354.05	2312
321.05	701	330.80	40	343.10	33	355.00	522
322.05	265	332.05	363	345.00	36	355.90	28
323.10	6846	333.05	766	346.00	1494	357.10	27
324.05	1323	334.05	4313	346.90	46	358.95	207
325.10	134	335.05	1149	347.05	218	360.50	33
326.10	57	336.10	173	347.90	30	361.00	33

verage of 12.457 to 12.463 min.: E1202302.D
0 NG TUNE 16103
odified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
362.00	27	377.60	29	397.00	28	416.80	27
365.00	9101	383.05	1009	400.95	204	418.00	44
366.05	1267	384.05	303	402.05	1547	418.20	32
366.95	63	384.90	48	403.05	2224	419.10	31
367.20	27	385.10	43	404.00	757	421.00	2238
369.95	244	388.10	36	405.05	98	422.05	2298
370.95	608	388.80	31	405.60	29	423.10	14606
372.05	3706	389.95	434	413.90	34	424.10	2903
373.05	905	391.05	442	414.10	30	425.00	238
374.00	78	391.95	246	414.85	133	425.85	102
376.85	96	393.10	39	416.00	29	426.10	39

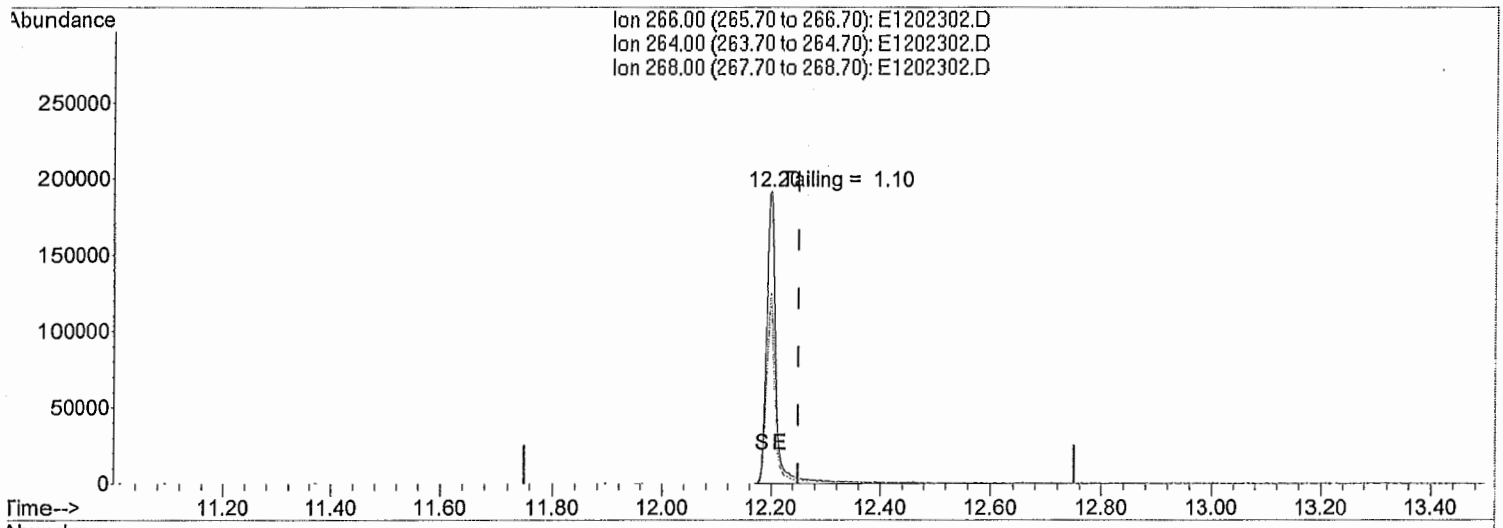
verage of 12.457 to 12.463 min.: E1202302.D
0 NG TUNE 16103
odified:subtracted

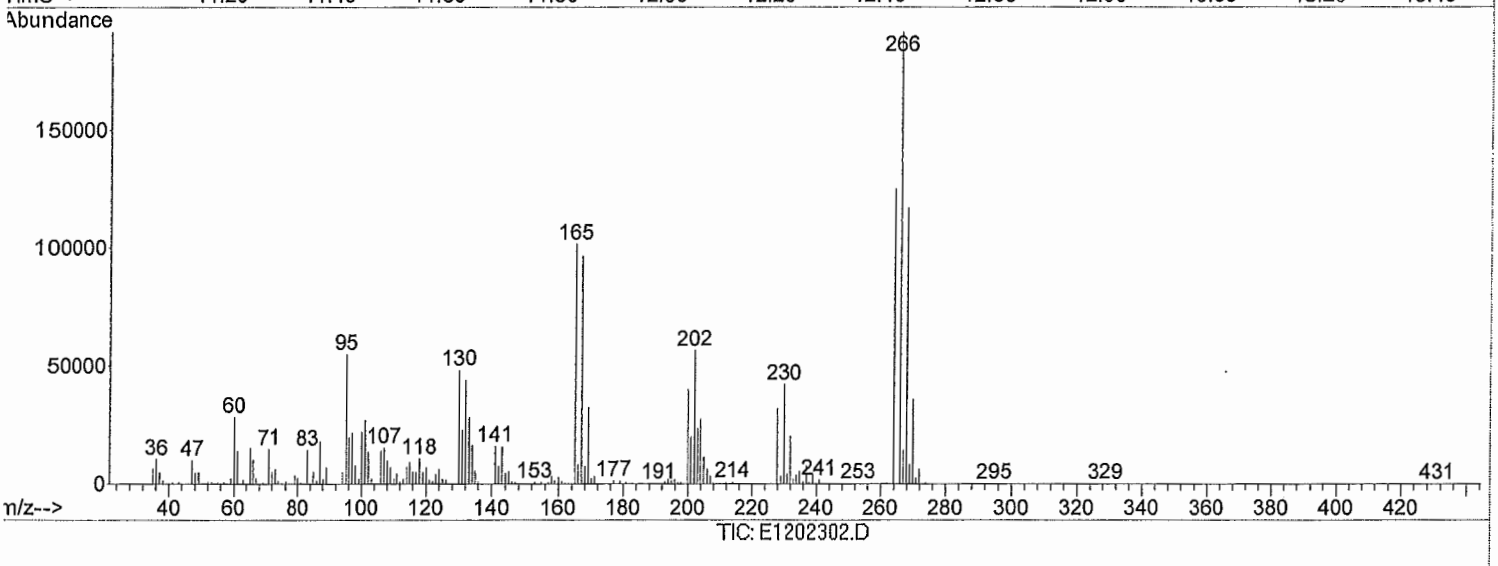
m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
426.60	27	431.75	178	441.10	53842		
427.10	171	432.60	106	442.10	305216		
427.65	111	433.35	104	443.10	58018		
428.20	175	433.95	182	444.05	6010		
428.75	211	434.50	36	445.05	271		
429.20	44	435.10	46	459.20	30		
429.50	75	435.40	50				
429.70	27	436.95	106				
430.00	55	437.85	122				
430.50	56	438.10	82				
431.25	107	439.10	249				

Quantitation Report (Qedit)

Data Path : C:\MSDCHEM\1\DATA\120213\
Data File : E1202302.D
Acq On : 2 Dec 2013 10:36
Operator : DOUG
Sample : 50 NG TUNE 16103
Misc : AG-5 8270
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Dec 02 10:55:33 2013
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)

12.199min (-0.051) 20.92ug/L

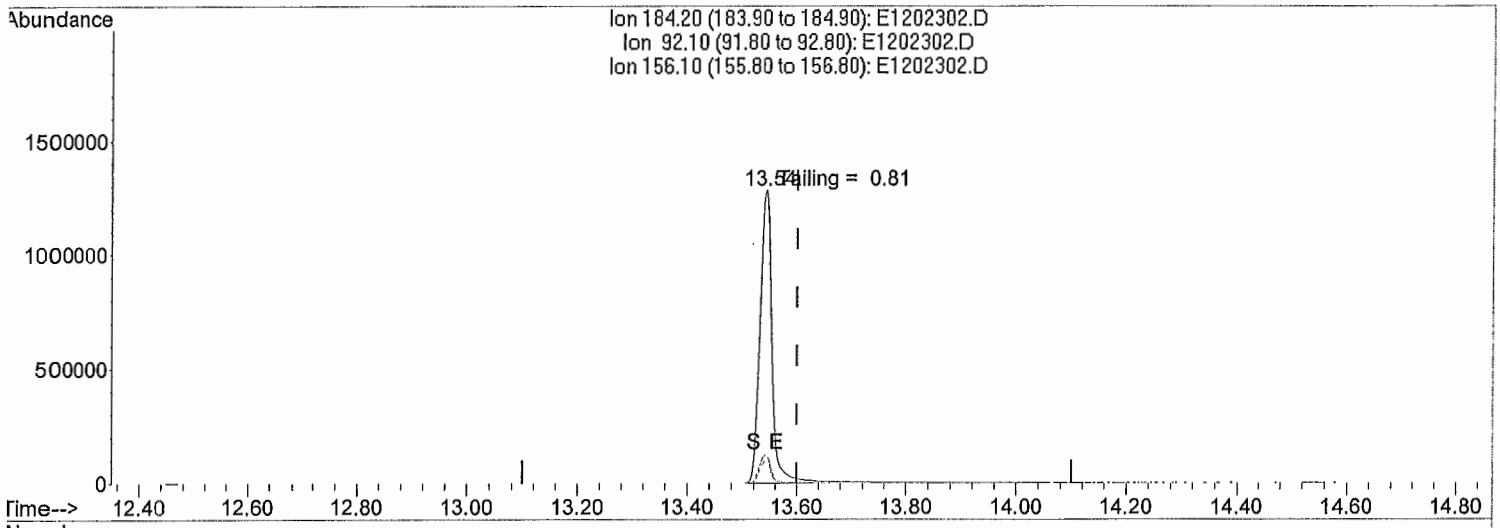
response 222997

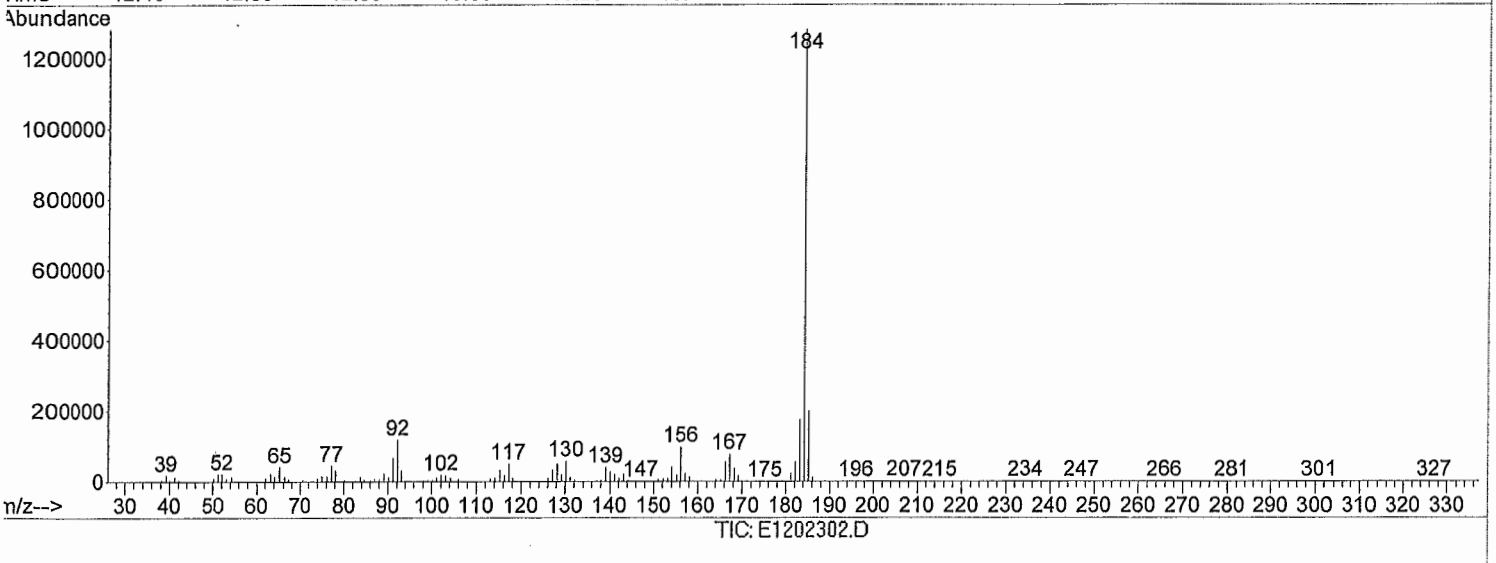
Ion	Exp%	Act%
266.00	100	100
264.00	63.80	62.09
268.00	63.80	58.09
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\MSDCHEM\1\DATA\120213\
Data File : E1202302.D
Acq On : 2 Dec 2013 10:36
Operator : DOUG
Sample : 50 NG TUNE 16103
Misc : AG-5 8270
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Dec 02 10:55:33 2013
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)

13.544min (-0.056) 38.45ug/L

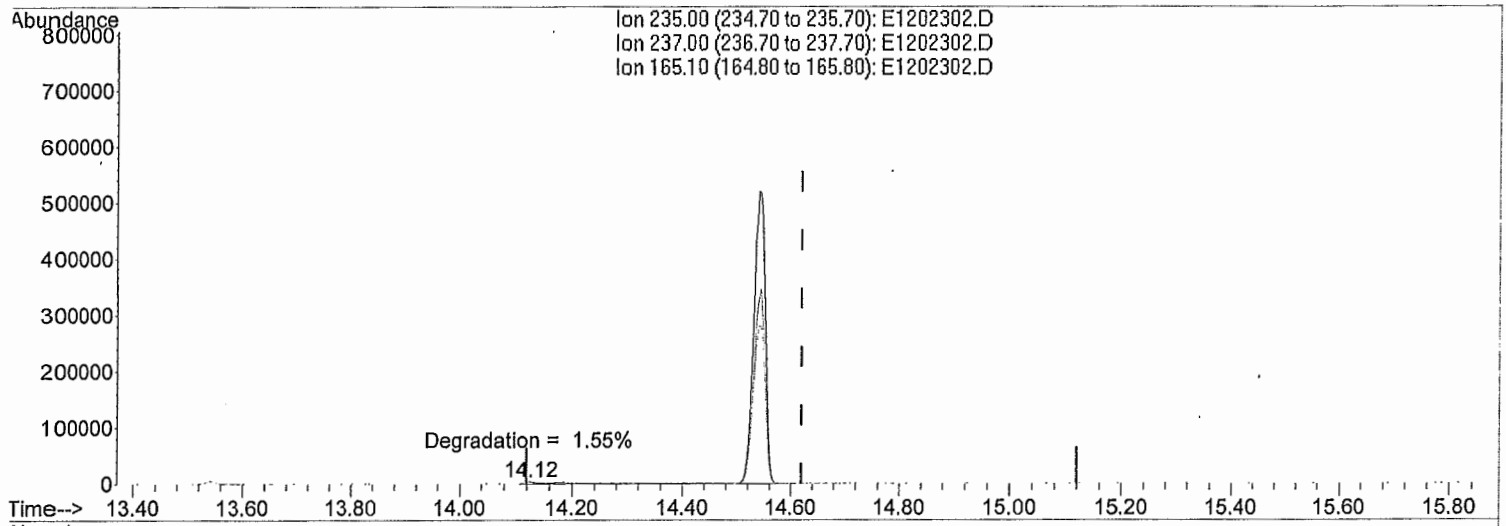
response 1982793

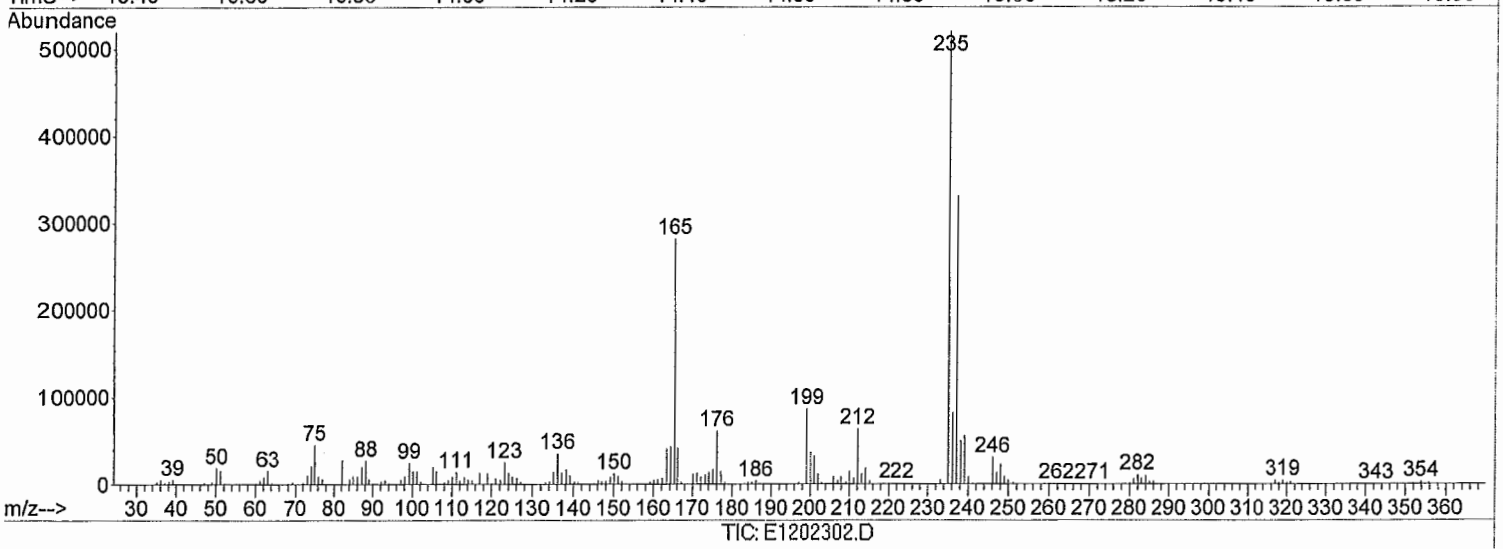
Ion	Exp%	Act%
184.20	100	100
92.10	13.70	9.71#
156.10	8.60	7.49
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\MSDCHEM\1\DATA\120213\
Data File : E1202302.D
Acq On : 2 Dec 2013 10:36
Operator : DOUG
Sample : 50 NG TUNE 16103
Misc : AG-5 8270
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Dec 02 10:55:33 2013
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

14.540min (-0.080) 29.34ug/L

response 761590

Ion	Exp%	Act%
235.00	100	100
237.00	64.80	64.58
165.10	59.00	57.35
0.00	0.00	0.00

Evaluate Continuing Calibration Report

Data Path : C:\MSDCHEM\1\DATA\120213\
Data File : E1202304.D
Acq On : 2 Dec 2013 11:58
Operator : DOUG
Sample : 30 PPM STD 16151
Misc : AG-5 8270
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 18 11:12:43 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317EW.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:11:11 2013
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	109	0.00
2	I	Naphthalene-d8	1.000	1.000	0.0	107	0.00
3	S	Nitrobenzene-d5	0.360	0.374	-3.9	107	0.00
4	I	Acenaphthene-d10	1.000	1.000	0.0	109	0.00
5	S	2-Fluorobiphenyl	1.368	1.285	6.1	108	0.00
6	TM	2,4-Dinitrotoluene	0.373	0.407	-9.1	114	0.00
7	I	Phenanthrene-d10	1.000	1.000	0.0	113	0.00
8	I	Chrysene-d12	1.000	1.000	0.0	110	0.00
9	S	Terphenyl-d14	0.777	0.742	4.5	110	0.00
10	I	Perylene-d12	1.000	1.000	0.0	103	0.00

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

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\120213\
Data File : E1202304.D
Acq On : 2 Dec 2013 11:58
Operator : DOUG
Sample : 30 PPM STD 16151
Misc : AG-5 8270
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 18 11:12:43 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317EW.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:11:11 2013
Response via : Initial Calibration

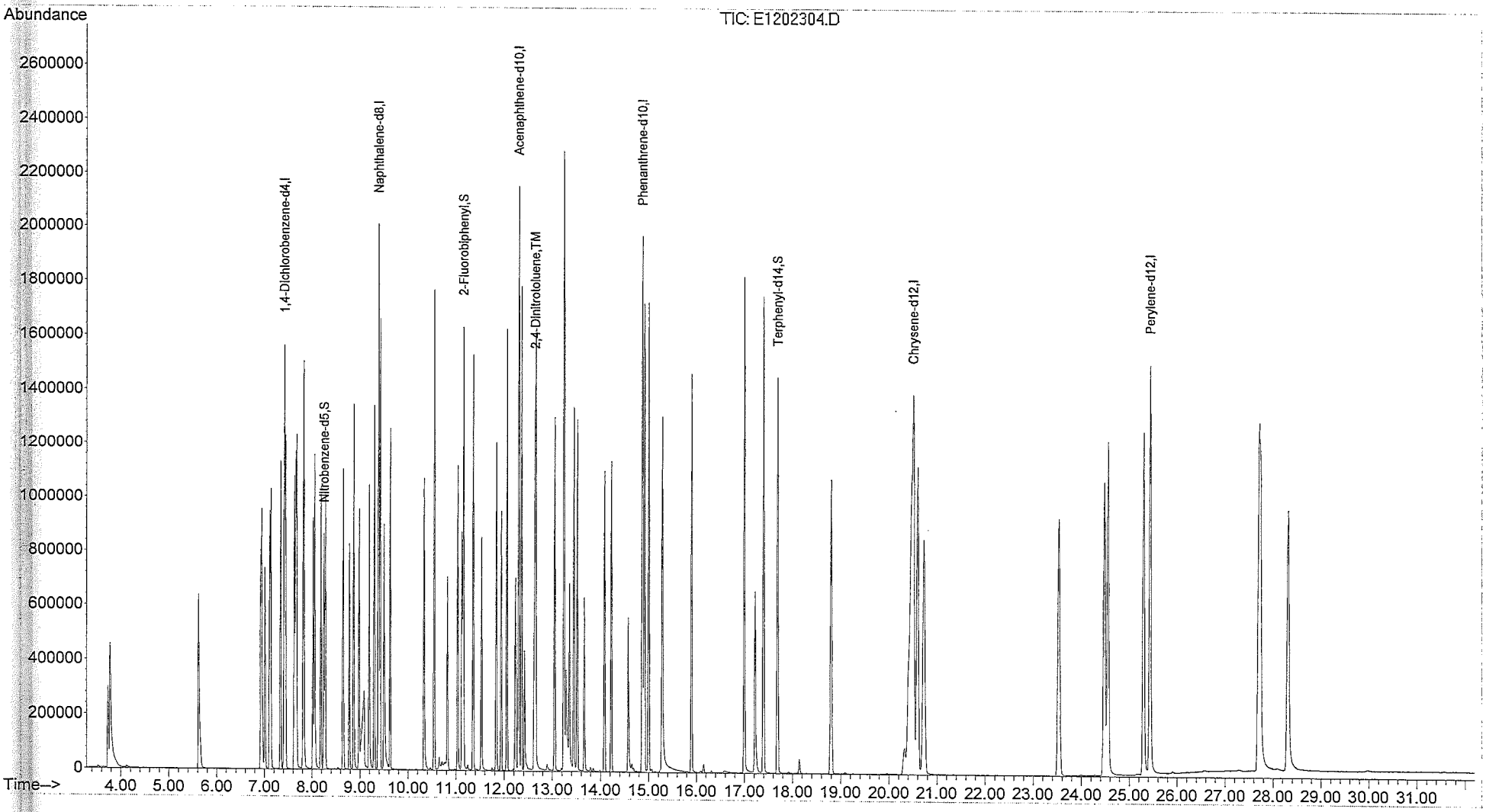
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.42	152	3365855	40.00	ug/L	0.00
2) Naphthalene-d8	9.38	136	12553952	40.00	ug/L	0.00
4) Acenaphthene-d10	12.30	164	7249817	40.00	ug/L	0.00
7) Phenanthrene-d10	14.87	188	12092764	40.00	ug/L	0.00
8) Chrysene-d12	20.51	240	14019184	40.00	ug/L	0.00
10) Perylene-d12	25.44	264	13603237	40.00	ug/L	0.00
System Monitoring Compounds						
3) Nitrobenzene-d5	8.25	82	3516821	31.09	ug/L	0.00
Spiked Amount 50.000			Recovery	=	62.18%	
5) 2-Fluorobiphenyl	11.15	172	6985371	28.17	ug/L	0.00
Spiked Amount 50.000			Recovery	=	56.34%	
9) Terphenyl-d14	17.69	244	7803961	28.66	ug/L	0.00
Spiked Amount 50.000			Recovery	=	57.32%	
Target Compounds						Qvalue
6) 2,4-Dinitrotoluene	12.64	165	2215328	32.76	ug/L #	75

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

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\120213\
Data File : E1202304.D
Acq On : 2 Dec 2013 11:58
Operator : DOUG
Sample : 30 PPM STD 16151
Misc : AG-5 8270
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 18 11:12:43 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317EW.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:11:11 2013
Response via : Initial Calibration



Instrument Logs/
Analysis Notebook Pages

Rev. 1.1

Injection Log

Directory: C:\MSDCHEM\1\DATA\120213

Line	Vial	FileName	Multiplier	SampleName	Misc Info
1	1	E1202301.d	1.	50 NG TUNE 16103 ↑ DDT Deg. Changed Liner	AG-5 8270
2	1	E1202302.d	1.	50 NG TUNE 16103 Pass	AG-5 8270
3	2	E1202303.d	1.	30 PPM STD 16141 ↑ Perylene	AG-5 8270
4	2	E1202304.d	1.	30 PPM STD 16151 New STD Pass	AG-5 8270
5	3	E1202305.d	1.	006563-12B1 Pass	B10131 AG-5 8270
6	4	E1202306.d	1.	006563-12K1	B10131 AG-5 8270
7	5	E1202307.d	1.	006563-01	B10131 AG-5 8270
8	6	E1202308.d	1.	006563-02	B10131 AG-5 8270
9	7	E1202309.d	1.	006563-03	B10131 AG-5 8270
10	8	E1202310.d	1.	006563-04	B10131 AG-5 8270
11	9	E1202311.d	1.	006563-05	B10131 AG-5 8270
12	10	E1202312.d	1.	006563-06	B10131 AG-5 8270
13	11	E1202313.d	1.	006563-07	B10131 AG-5 8270
14	12	E1202314.d	1.	006563-08	B10131 AG-5 8270
15	13	E1202315.d	1.	006563-09	B10131 AG-5 8270
16	14	E1202316.d	1.	006563-10	B10131 AG-5 8270
17	15	E1202317.d	1.	006563-11 Pass	B10131 AG-5 8270

PEK
12/3/2013

Continued on Page

Read and Understood By

PEK — Signed — 12/3/2013 — Date

Signed — 12/4/13 — 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: 006563 Report Date: 12/23/2013

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

Field ID:	NA	ARDL Lab No.:	006563-12B1
Desc/Location:	NA	Lab Filename:	E1202305
Sample Date:	NA	Received Date:	NA
Sample Time:	NA	Prep. Date:	11/19/2013
Matrix:	QC Material	Analysis Date:	12/02/2013
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6665
% Moisture:	NA	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units
2,4-Dinitrotoluene	200	1000	ND		UG/KG

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	79%
2-Fluorobiphenyl	30-130	80%
Terphenyl-d14	30-130	81%

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

Blank for Run B6665, BNA'S (METHOD 8270) Page 1 of 1

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\120213\
Data File : E1202305.D
Acq On : 2 Dec 2013 12:41
Operator : DOUG
Sample : 006563-12B1
Misc : B10131 AG-5 8270
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Dec 18 11:16:13 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317ET.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:08:25 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.41	152	3538469	8000.00	ug/L	0.00
2) Naphthalene-d8	9.38	136	12764622	8000.00	ug/L	0.00
4) Acenaphthene-d10	12.30	164	7495925	8000.00	ug/L	0.00
7) Phenanthrene-d10	14.87	188	12558221	8000.00	ug/L	0.00
8) Chrysene-d12	20.49	240	15081612	8000.00	ug/L	-0.01
10) Perylene-d12	25.43	264	13125112	8000.00	ug/L	0.00
System Monitoring Compounds						
3) Nitrobenzene-d5	8.24	82	2280046	3964.89	ug/L	0.00
Spiked Amount 5000.000			Recovery =	79.30%		
5) 2-Fluorobiphenyl	11.15	172	5099866	3977.52	ug/L	0.00
Spiked Amount 5000.000			Recovery =	79.55%		
9) Terphenyl-d14	17.69	244	5935194	4052.72	ug/L	0.00
Spiked Amount 5000.000			Recovery =	81.05%		

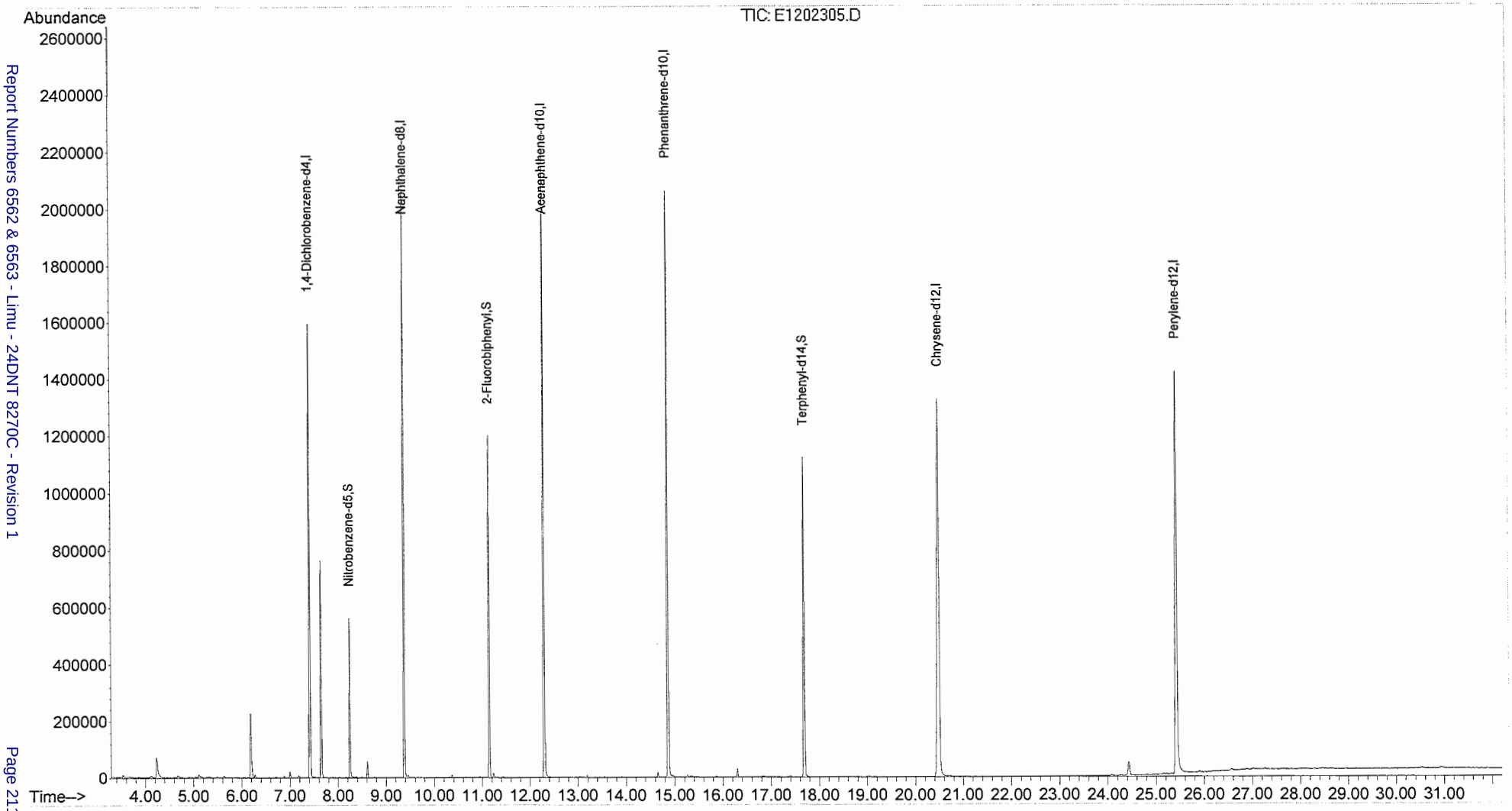
Target Compounds	Qvalue

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

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\120213\
Data File : E1202305.D
Acq On : 2 Dec 2013 12:41
Operator : DOUG
Sample : 006563-12B1
Misc : B10131 AG-5 8270
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Dec 18 11:16:13 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317ET.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:08:25 2013
Response via : Initial Calibration



ARDL Inc
Report Numbers 6562 & 6563 - Limu - 24DNT 8270C - Revision 1
Page 211 of 266

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

Lab Report No: 006563 Report Date: 12/19/2013

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

Field ID:	MAK029L	ARDL Lab No.:	006563-01
Desc/Location:	MAKU MILITARY RESERVATION	Lab Filename:	E1202307
Sample Date:	10/11/2013	Received Date:	11/07/2013
Sample Time:	1505	Prep. Date:	11/19/2013
Matrix:	TISSUE	Analysis Date:	12/02/2013
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6665
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
2,4-Dinitrotoluene	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	82%
2-Fluorobiphenyl	30-130	84%
Terphenyl-d14	30-130	79%

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

Sample 006563-01, BNA'S (METHOD 8270) Page 1 of 1

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\120213\
Data File : E1202307.D
Acq On : 2 Dec 2013 14:07
Operator : DOUG
Sample : 006563-01
Misc : B10131 AG-5 8270
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Dec 18 11:16:16 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317ET.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:08:25 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.42	152	3698364	8000.00	ug/L	0.00
2) Naphthalene-d8	9.38	136	13091621	8000.00	ug/L	0.00
4) Acenaphthene-d10	12.30	164	7660910	8000.00	ug/L	0.00
7) Phenanthrene-d10	14.87	188	12907201	8000.00	ug/L	0.00
8) Chrysene-d12	20.50	240	16202541	8000.00	ug/L	-0.01
10) Perylene-d12	25.43	264	11868101	8000.00	ug/L	0.00
System Monitoring Compounds						
3) Nitrobenzene-d5	8.24	82	2407611	4082.15	ug/L	0.00
Spiked Amount 5000.000			Recovery =	81.64%		
5) 2-Fluorobiphenyl	11.15	172	5526547	4217.48	ug/L	0.00
Spiked Amount 5000.000			Recovery =	84.35%		
9) Terphenyl-d14	17.69	244	6213508	3949.24	ug/L	0.00
Spiked Amount 5000.000			Recovery =	78.98%		

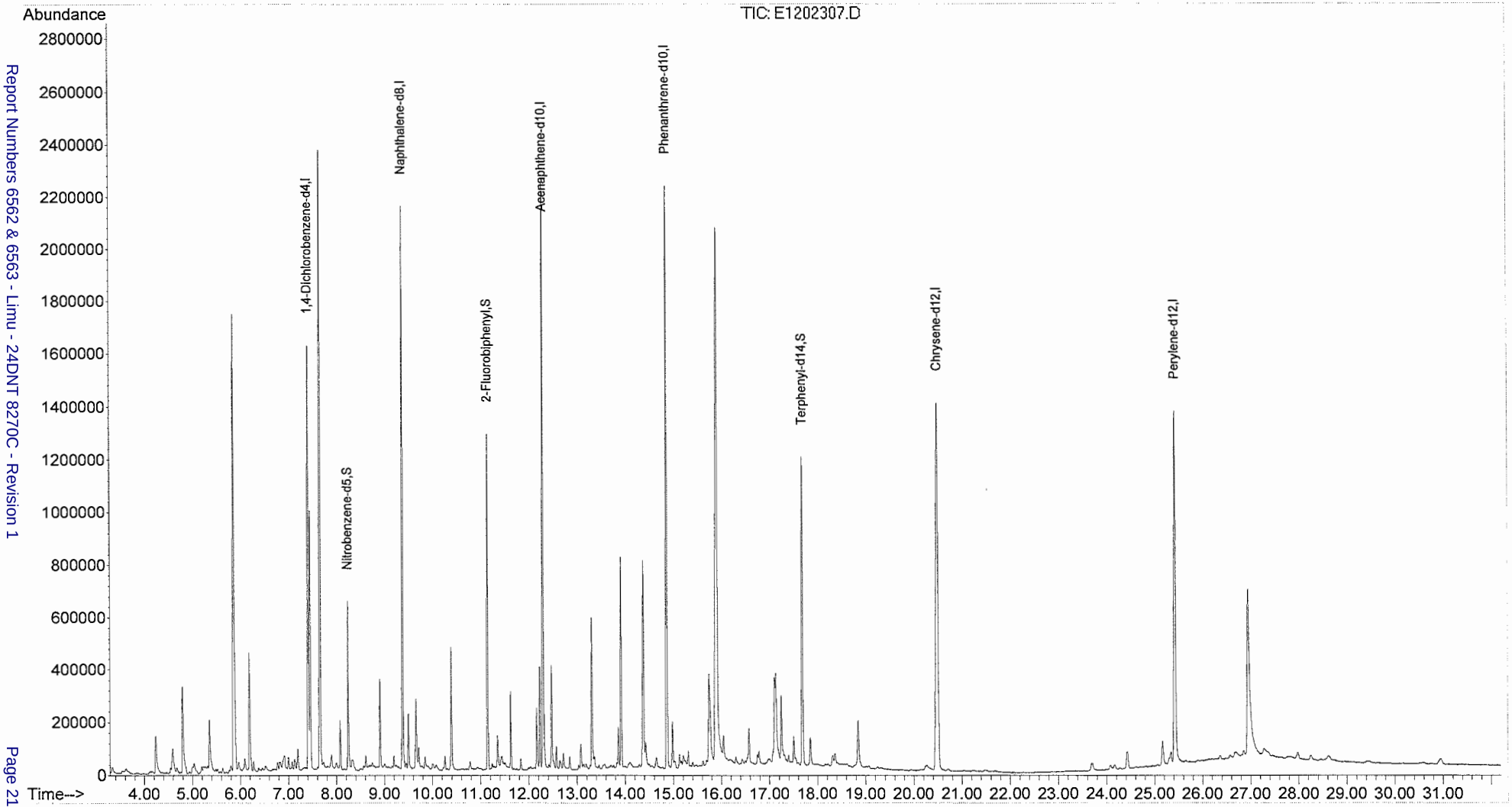
Target Compounds	Qvalue

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

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\120213\
Data File : E1202307.D
Acq On : 2 Dec 2013 14:07
Operator : DOUG
Sample : 006563-01
Misc : B10131 AG-5 8270
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Dec 18 11:16:16 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317ET.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:08:25 2013
Response via : Initial Calibration



ARDL Inc
Report Numbers 6562 & 6563 - Limu - 24DNT 8270C - Revision 1
Page 214 of 266

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

Lab Report No: 006563 Report Date: 12/19/2013

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

Field ID:	MAK030L	ARDL Lab No.:	006563-02
Desc/Location:	MAKU MILITARY RESERVATION	Lab Filename:	E1202308
Sample Date:	10/11/2013	Received Date:	11/07/2013
Sample Time:	0950	Prep. Date:	11/19/2013
Matrix:	TISSUE	Analysis Date:	12/02/2013
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6665
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
2,4-Dinitrotoluene	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	81%
2-Fluorobiphenyl	30-130	81%
Terphenyl-d14	30-130	80%

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

Sample 006563-02, BNA'S (METHOD 8270) Page 1 of 1

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\120213\
Data File : E1202308.D
Acq On : 2 Dec 2013 14:50
Operator : DOUG
Sample : 006563-02
Misc : B10131 AG-5 8270
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Dec 18 11:16:18 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317ET.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:08:25 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.41	152	3442131	8000.00	ug/L	0.00
2) Naphthalene-d8	9.38	136	12547554	8000.00	ug/L	0.00
4) Acenaphthene-d10	12.30	164	7208730	8000.00	ug/L	0.00
7) Phenanthrene-d10	14.87	188	11985293	8000.00	ug/L	0.00
8) Chrysene-d12	20.50	240	14837644	8000.00	ug/L	-0.01
10) Perylene-d12	25.43	264	9360478	8000.00	ug/L	-0.01
System Monitoring Compounds						
3) Nitrobenzene-d5	8.24	82	2277302	4028.63	ug/L	0.00
Spiked Amount 5000.000			Recovery =	80.57%		
5) 2-Fluorobiphenyl	11.15	172	5016050	4068.01	ug/L	0.00
Spiked Amount 5000.000			Recovery =	81.36%		
9) Terphenyl-d14	17.69	244	5784893	4015.04	ug/L	0.00
Spiked Amount 5000.000			Recovery =	80.30%		

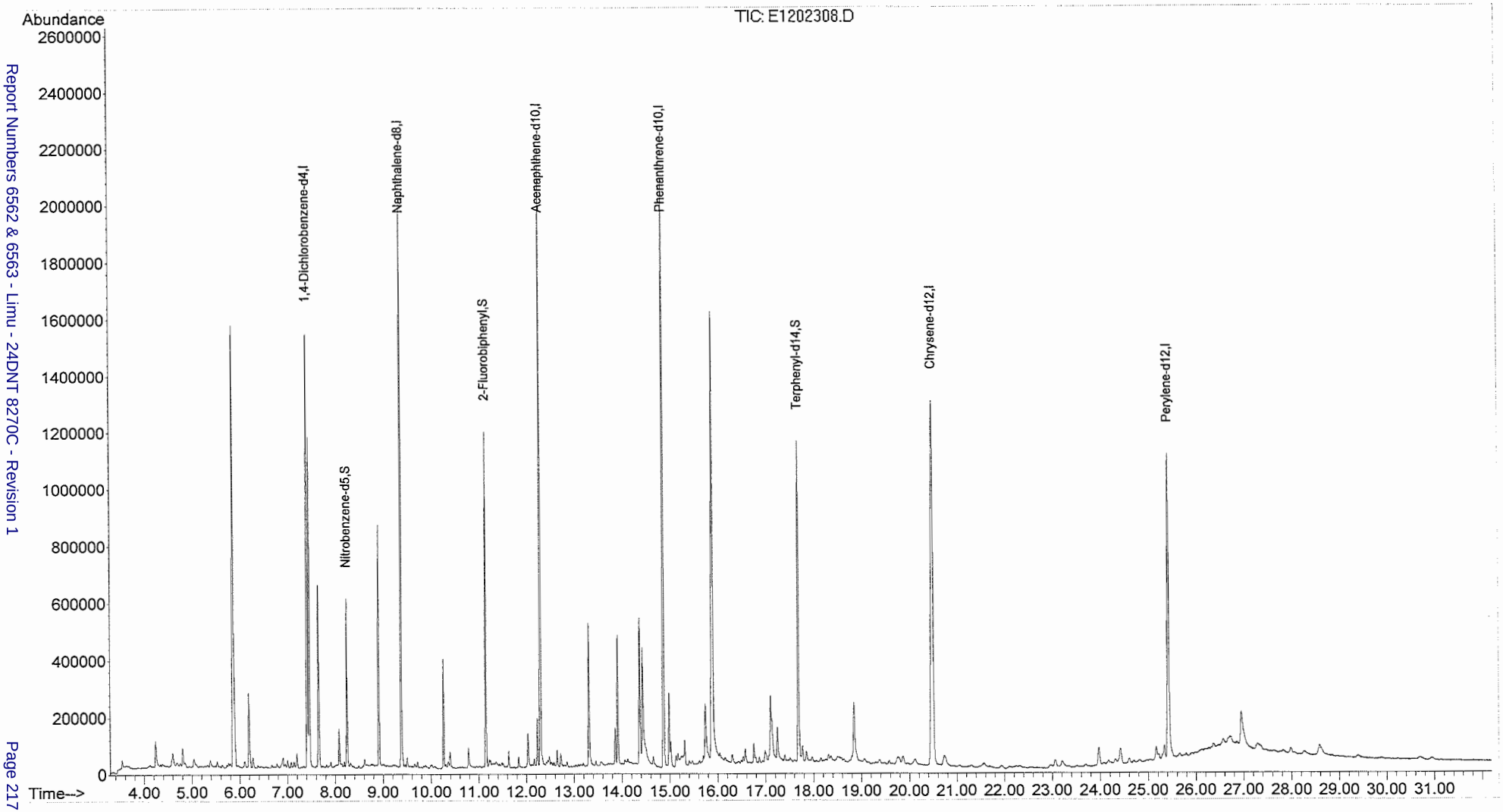
Target Compounds	Qvalue

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

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\120213\
Data File : E1202308.D
Acq On : 2 Dec 2013 14:50
Operator : DOUG
Sample : 006563-02
Misc : B10131 AG-5 8270
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Dec 18 11:16:18 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317ET.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:08:25 2013
Response via : Initial Calibration



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

Lab Report No: 006563 Report Date: 12/19/2013

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

Field ID:	MAK033L	ARDL Lab No.:	006563-03
Desc/Location:	MAKU MILITARY RESERVATION	Lab Filename:	E1202309
Sample Date:	10/11/2013	Received Date:	11/07/2013
Sample Time:	1050	Prep. Date:	11/19/2013
Matrix:	TISSUE	Analysis Date:	12/02/2013
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6665
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
2,4-Dinitrotoluene	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	87%
2-Fluorobiphenyl	30-130	85%
Terphenyl-d14	30-130	82%

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

Sample 006563-03, BNA'S (METHOD 8270) Page 1 of 1

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\120213\
Data File : E1202309.D
Acq On : 2 Dec 2013 15:33
Operator : DOUG
Sample : 006563-03
Misc : B10131 AG-5 8270
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Dec 18 11:16:20 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317ET.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:08:25 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.42	152	3515665	8000.00	ug/L	0.00
2) Naphthalene-d8	9.38	136	12668236	8000.00	ug/L	0.00
4) Acenaphthene-d10	12.30	164	7351990	8000.00	ug/L	0.00
7) Phenanthrene-d10	14.87	188	12264721	8000.00	ug/L	0.00
8) Chrysene-d12	20.50	240	15155111	8000.00	ug/L	0.00
10) Perylene-d12	25.43	264	8974276	8000.00	ug/L	-0.01
System Monitoring Compounds						
3) Nitrobenzene-d5	8.25	82	2481724	4348.44	ug/L	0.00
Spiked Amount 5000.000			Recovery =	86.97%		
5) 2-Fluorobiphenyl	11.15	172	5363036	4264.67	ug/L	0.00
Spiked Amount 5000.000			Recovery =	85.29%		
9) Terphenyl-d14	17.69	244	6069226	4124.14	ug/L	0.00
Spiked Amount 5000.000			Recovery =	82.48%		

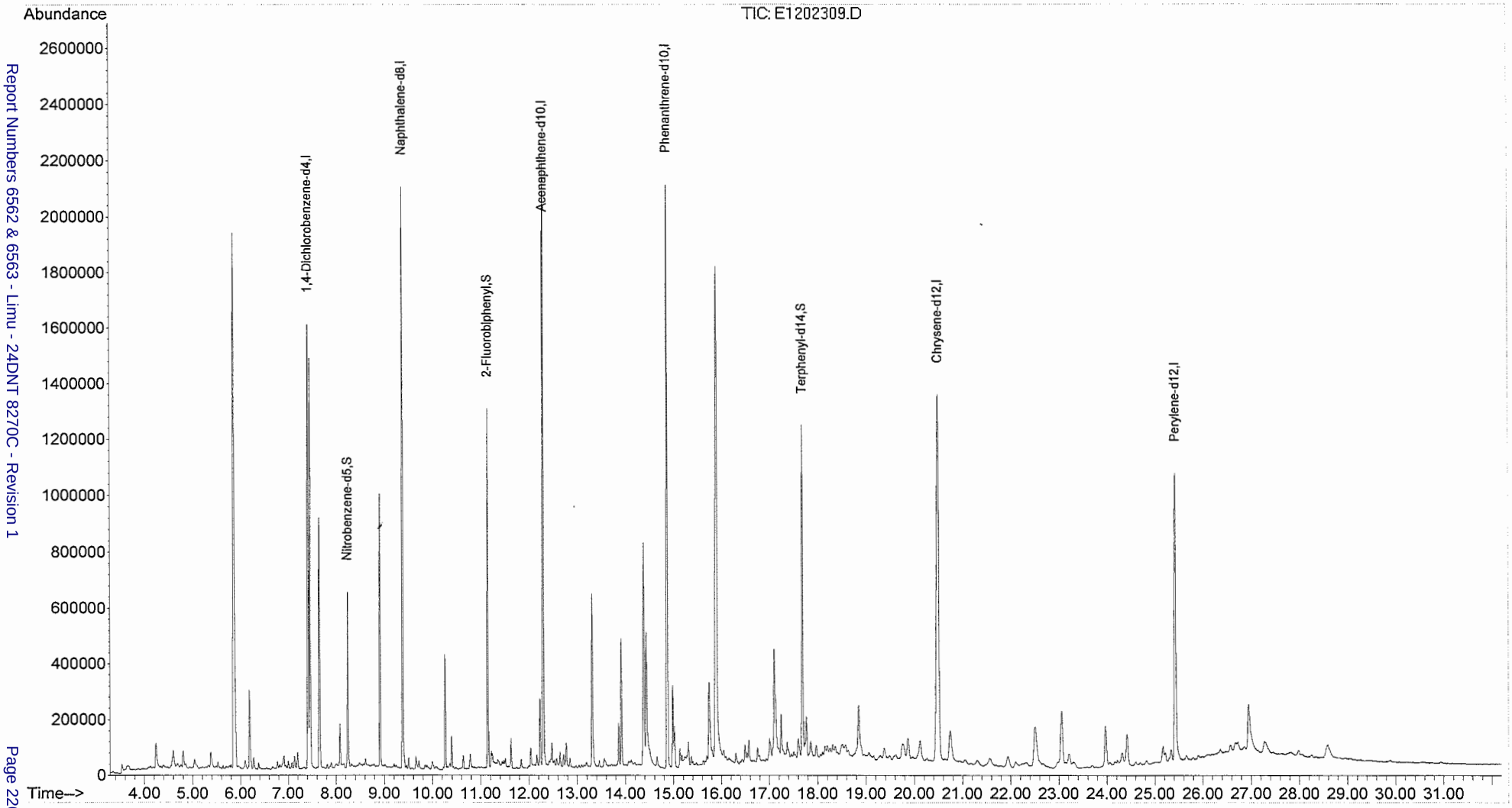
Target Compounds	Qvalue

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

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\120213\
Data File : E1202309.D
Acq On : 2 Dec 2013 15:33
Operator : DOUG
Sample : 006563-03
Misc : B10131 AG-5 8270
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Dec 18 11:16:20 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317ET.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:08:25 2013
Response via : Initial Calibration



ARDL Inc
Report Numbers 6562 & 6563 - Limu - 24DNT 8270C - Revision 1
Page 220 of 266

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

Lab Report No: 006563 Report Date: 12/19/2013

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

Field ID:	MAK034L	ARDL Lab No.:	006563-04
Desc/Location:	MAKU MILITARY RESERVATION	Lab Filename:	E1202310
Sample Date:	10/11/2013	Received Date:	11/07/2013
Sample Time:	1050	Prep. Date:	11/19/2013
Matrix:	TISSUE	Analysis Date:	12/02/2013
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6665
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
2,4-Dinitrotoluene	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	84%
2-Fluorobiphenyl	30-130	81%
Terphenyl-d14	30-130	81%

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

Sample 006563-04, BNA'S (METHOD 8270) Page 1 of 1

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\120213\
Data File : E1202310.D
Acq On : 2 Dec 2013 16:17
Operator : DOUG
Sample : 006563-04
Misc : B10131 AG-5 8270
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Dec 18 11:42:00 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317ET.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:08:25 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.42	152	3407010	8000.00	ug/L	0.00
2) Naphthalene-d8	9.38	136	12305880	8000.00	ug/L	0.00
4) Acenaphthene-d10	12.30	164	7158295	8000.00	ug/L	0.00
7) Phenanthrene-d10	14.87	188	11948175	8000.00	ug/L	0.00
8) Chrysene-d12	20.50	240	14743538	8000.00	ug/L	0.00
10) Perylene-d12	25.43	264	8371499	8000.00	ug/L	0.00
System Monitoring Compounds						
3) Nitrobenzene-d5	8.25	82	2333301	4208.76	ug/L	0.00
Spiked Amount 5000.000			Recovery =	84.18%		
5) 2-Fluorobiphenyl	11.15	172	4932521	4028.46	ug/L	0.00
Spiked Amount 5000.000			Recovery =	80.57%		
9) Terphenyl-d14	17.69	244	5763248	4025.55	ug/L	0.00
Spiked Amount 5000.000			Recovery =	80.51%		

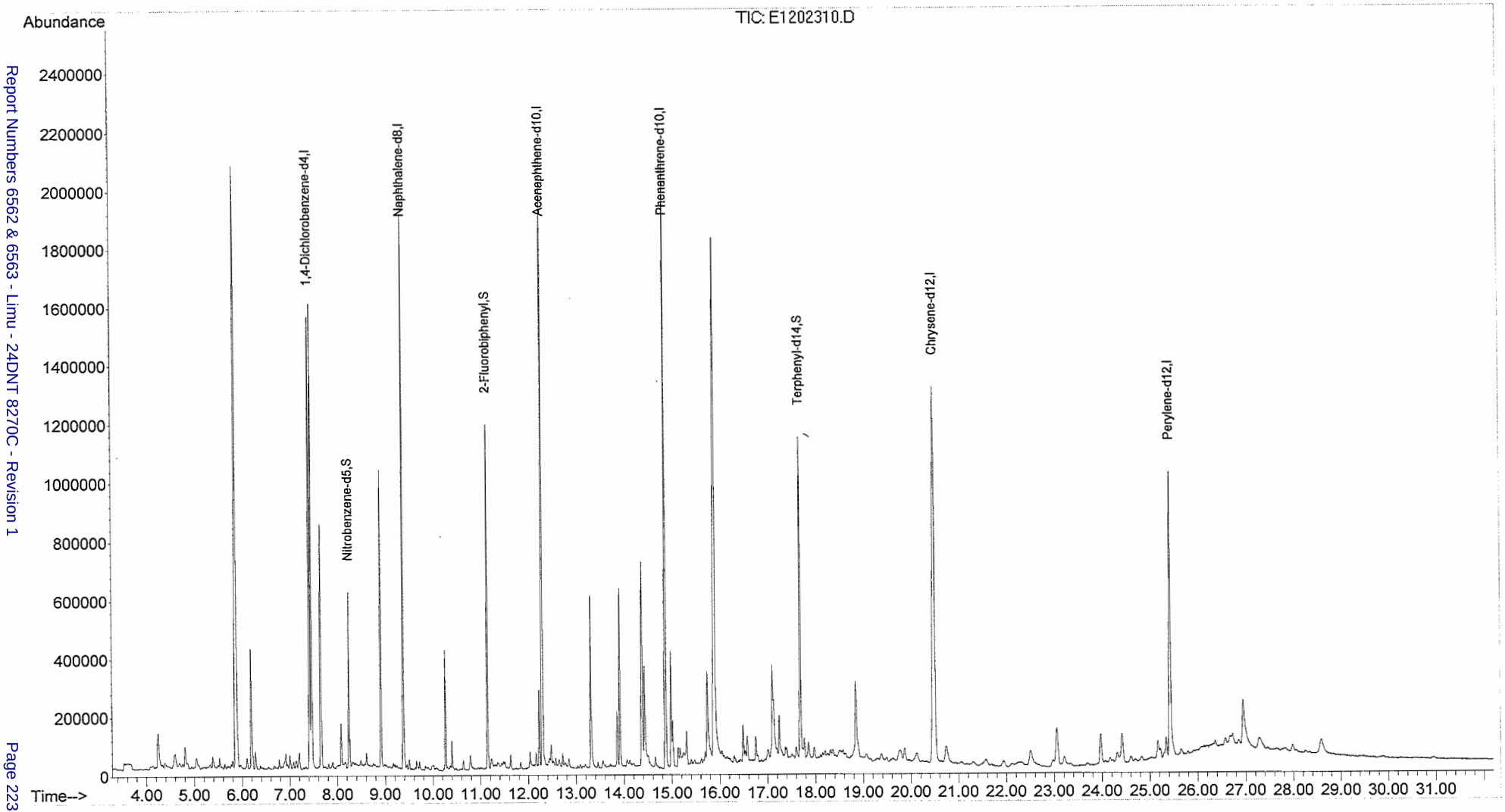
Target Compounds	Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\120213\
Data File : E1202310.D
Acq On : 2 Dec 2013 16:17
Operator : DOUG
Sample : 006563-04
Misc : B10131 AG-5 8270
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Dec 18 11:42:00 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317ET.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:08:25 2013
Response via : Initial Calibration



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

Lab Report No: 006563 Report Date: 12/19/2013

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

Field ID:	MAK038L	ARDL Lab No.:	006563-05
Desc/Location:	MAKU MILITARY RESERVATION	Lab Filename:	E1202311
Sample Date:	10/11/2013	Received Date:	11/07/2013
Sample Time:	1301	Prep. Date:	11/19/2013
Matrix:	TISSUE	Analysis Date:	12/02/2013
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6665
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
2,4-Dinitrotoluene	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	82%
2-Fluorobiphenyl	30-130	77%
Terphenyl-d14	30-130	81%

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

Sample 006563-05, BNA'S (METHOD 8270) Page 1 of 1

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\120213\
Data File : E1202311.D
Acq On : 2 Dec 2013 16:59
Operator : DOUG
Sample : 006563-05
Misc : B10131 AG-5 8270
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Dec 18 11:42:14 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317ET.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:08:25 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.41	152	3500373	8000.00	ug/L	0.00
2) Naphthalene-d8	9.38	136	12751085	8000.00	ug/L	0.00
4) Acenaphthene-d10	12.30	164	7405486	8000.00	ug/L	0.00
7) Phenanthrene-d10	14.87	188	12179195	8000.00	ug/L	0.00
8) Chrysene-d12	20.50	240	14940518	8000.00	ug/L	-0.01
10) Perylene-d12	25.43	264	8001030	8000.00	ug/L	-0.01
System Monitoring Compounds						
3) Nitrobenzene-d5	8.25	82	2364467	4116.06	ug/L	0.00
Spiked Amount 5000.000			Recovery =	82.32%		
5) 2-Fluorobiphenyl	11.15	172	4848470	3827.64	ug/L	0.00
Spiked Amount 5000.000			Recovery =	76.55%		
9) Terphenyl-d14	17.69	244	5843597	4027.86	ug/L	0.00
Spiked Amount 5000.000			Recovery =	80.56%		

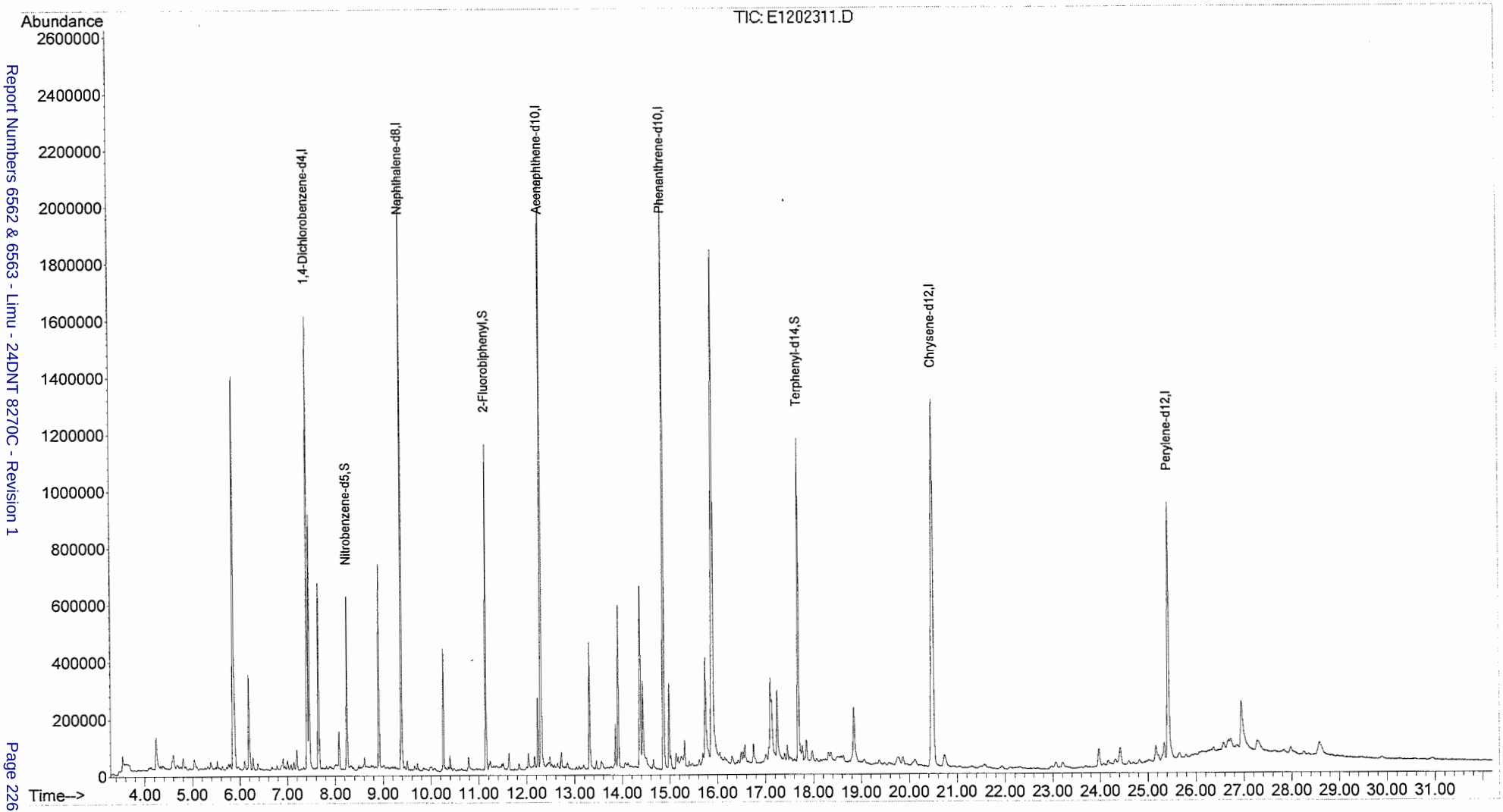
Target Compounds	Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\120213\
Data File : E1202311.D
Acq On : 2 Dec 2013 16:59
Operator : DOUG
Sample : 006563-05
Misc : B10131 AG-5 8270
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Dec 18 11:42:14 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317ET.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:08:25 2013
Response via : Initial Calibration



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

Lab Report No: 006563 Report Date: 12/19/2013

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

Field ID:	MAK041L	ARDL Lab No.:	006563-06
Desc/Location:	MAKU MILITARY RESERVATION	Lab Filename:	E1202312
Sample Date:	10/11/2013	Received Date:	11/07/2013
Sample Time:	1400	Prep. Date:	11/19/2013
Matrix:	TISSUE	Analysis Date:	12/02/2013
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6665
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
2,4-Dinitrotoluene	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	78%
2-Fluorobiphenyl	30-130	69%
Terphenyl-d14	30-130	78%

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

Sample 006563-06, BNA'S (METHOD 8270) Page 1 of 1

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\120213\
Data File : E1202312.D
Acq On : 2 Dec 2013 17:42
Operator : DOUG
Sample : 006563-06
Misc : B10131 AG-5 8270
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Dec 18 11:16:29 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317ET.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:08:25 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.42	152	3543839	8000.00	ug/L	0.00
2) Naphthalene-d8	9.38	136	12881995	8000.00	ug/L	0.00
4) Acenaphthene-d10	12.30	164	7538630	8000.00	ug/L	0.00
7) Phenanthrene-d10	14.87	188	12554764	8000.00	ug/L	0.00
8) Chrysene-d12	20.50	240	15305958	8000.00	ug/L	-0.01
10) Perylene-d12	25.42	264	8246802	8000.00	ug/L	-0.01
System Monitoring Compounds						
3) Nitrobenzene-d5	8.24	82	2253636	3883.26	ug/L	0.00
Spiked Amount 5000.000			Recovery =	77.67%		
5) 2-Fluorobiphenyl	11.15	172	4451334	3452.05	ug/L	0.00
Spiked Amount 5000.000			Recovery =	69.04%		
9) Terphenyl-d14	17.69	244	5778007	3887.56	ug/L	0.00
Spiked Amount 5000.000			Recovery =	77.75%		

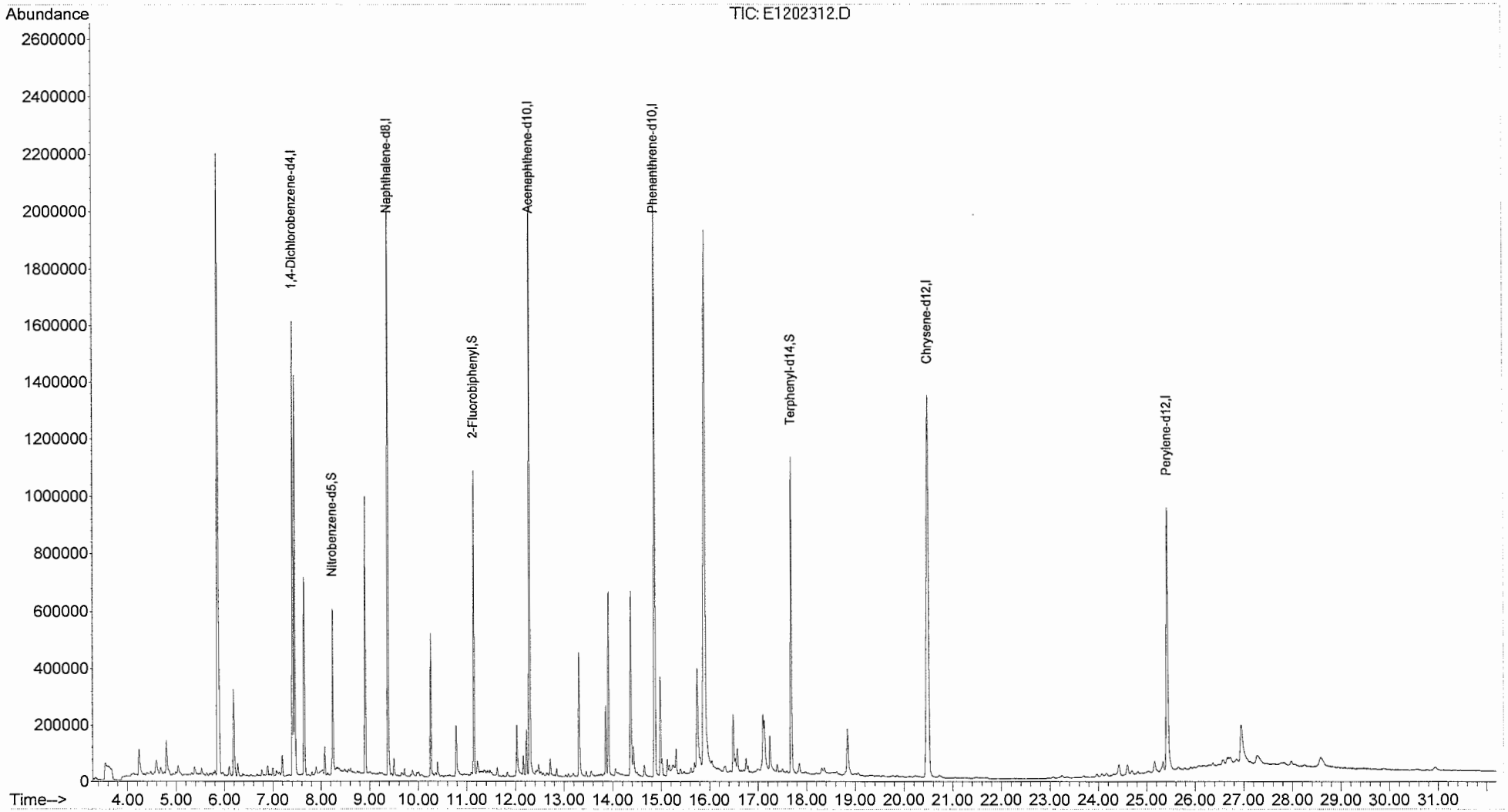
Target Compounds	Qvalue

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

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\120213\
Data File : E1202312.D
Acq On : 2 Dec 2013 17:42
Operator : DOUG
Sample : 006563-06
Misc : B10131 AG-5 8270
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Dec 18 11:16:29 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317ET.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:08:25 2013
Response via : Initial Calibration



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

Lab Report No: 006563 Report Date: 12/19/2013

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

Field ID:	MAK042L	ARDL Lab No.:	006563-07
Desc/Location:	MAKU MILITARY RESERVATION	Lab Filename:	E1202313
Sample Date:	10/11/2013	Received Date:	11/07/2013
Sample Time:	1400	Prep. Date:	11/19/2013
Matrix:	TISSUE	Analysis Date:	12/02/2013
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6665
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
2,4-Dinitrotoluene	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	81%
2-Fluorobiphenyl	30-130	66%
Terphenyl-d14	30-130	82%

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

Sample 006563-07, BNA'S (METHOD 8270) Page 1 of 1

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\120213\
Data File : E1202313.D
Acq On : 2 Dec 2013 18:24
Operator : DOUG
Sample : 006563-07
Misc : B10131 AG-5 8270
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Dec 18 11:42:24 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317ET.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:08:25 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.42	152	3454470	8000.00	ug/L	0.00
2) Naphthalene-d8	9.38	136	12515522	8000.00	ug/L	0.00
4) Acenaphthene-d10	12.30	164	7258004	8000.00	ug/L	0.00
7) Phenanthrene-d10	14.87	188	12168811	8000.00	ug/L	0.00
8) Chrysene-d12	20.50	240	14783937	8000.00	ug/L	0.00
10) Perylene-d12	25.43	264	7524290	8000.00	ug/L	-0.01
System Monitoring Compounds						
3) Nitrobenzene-d5	8.24	82	2278505	4041.07	ug/L	0.00
Spiked Amount 5000.000			Recovery =	80.82%		
5) 2-Fluorobiphenyl	11.15	172	4076911	3283.93	ug/L	0.00
Spiked Amount 5000.000			Recovery =	65.68%		
9) Terphenyl-d14	17.69	244	5877450	4094.10	ug/L	0.00
Spiked Amount 5000.000			Recovery =	81.88%		

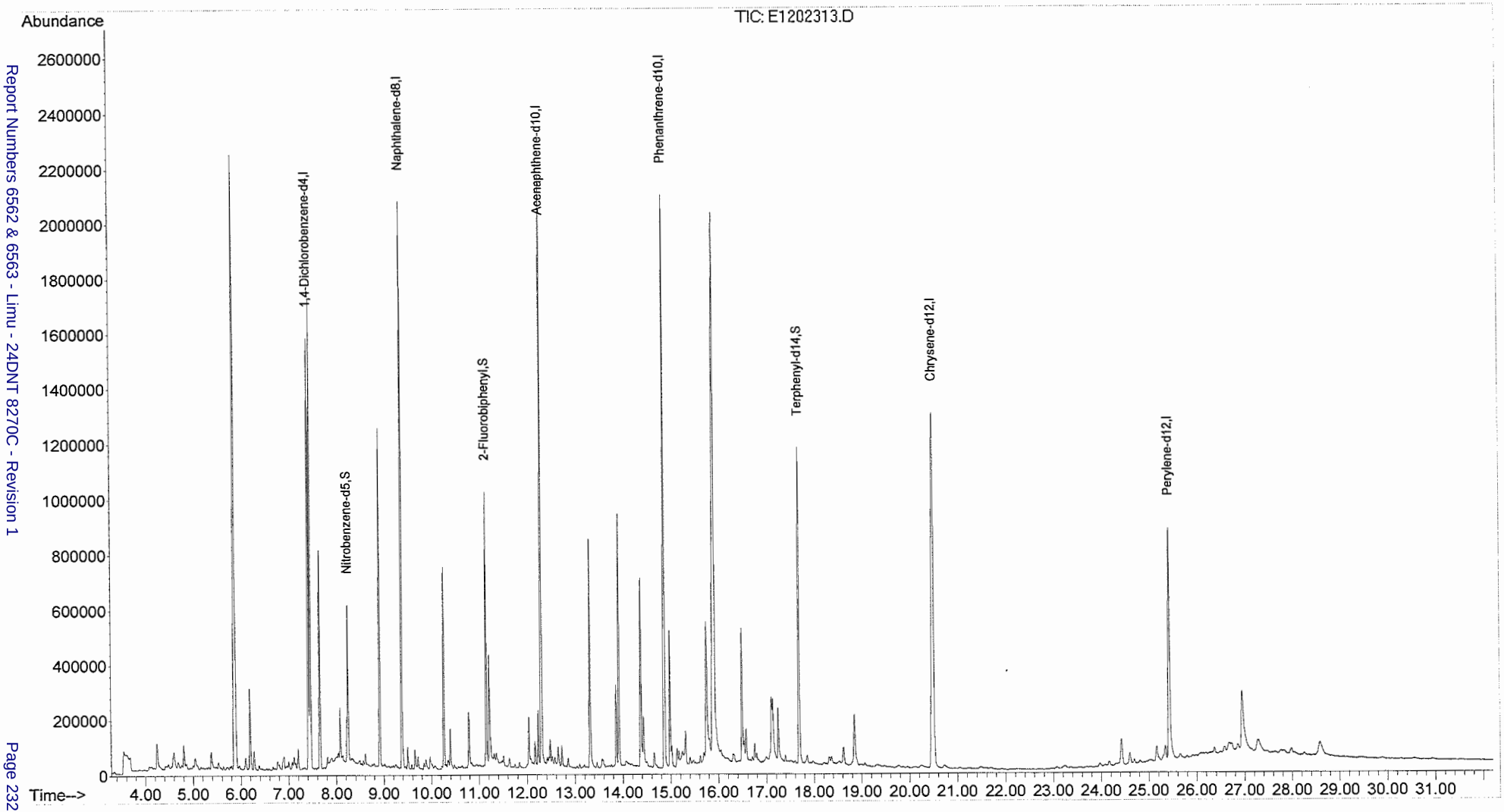
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\120213\
Data File : E1202313.D
Acq On : 2 Dec 2013 18:24
Operator : DOUG
Sample : 006563-07
Misc : B10131 AG-5 8270
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Dec 18 11:42:24 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317ET.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:08:25 2013
Response via : Initial Calibration



ARDL Inc
Report Numbers 6562 & 6563 - Limu - 24DNT 8270C - Revision 1
Page 232 of 266

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

Lab Report No: 006563 Report Date: 12/19/2013

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

Field ID:	MAK043L	ARDL Lab No.:	006563-08
Desc/Location:	MAKU MILITARY RESERVATION	Lab Filename:	E1202314
Sample Date:	10/11/2013	Received Date:	11/07/2013
Sample Time:	1400	Prep. Date:	11/19/2013
Matrix:	TISSUE	Analysis Date:	12/02/2013
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6665
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
2,4-Dinitrotoluene	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	76%
2-Fluorobiphenyl	30-130	69%
Terphenyl-d14	30-130	81%

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

Sample 006563-08, BNA'S (METHOD 8270) Page 1 of 1

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\120213\
Data File : E1202314.D
Acq On : 2 Dec 2013 19:06
Operator : DOUG
Sample : 006563-08
Misc : B10131 AG-5 8270
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Dec 18 11:16:35 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317ET.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:08:25 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.42	152	3805566	8000.00	ug/L	0.00
2) Naphthalene-d8	9.38	136	13815880	8000.00	ug/L	0.00
4) Acenaphthene-d10	12.30	164	8032419	8000.00	ug/L	0.00
7) Phenanthrene-d10	14.87	188	13476226	8000.00	ug/L	0.00
8) Chrysene-d12	20.50	240	16547635	8000.00	ug/L	0.00
10) Perylene-d12	25.43	264	9222546	8000.00	ug/L	0.00
System Monitoring Compounds						
3) Nitrobenzene-d5	8.24	82	2361604	3794.24	ug/L	0.00
Spiked Amount 5000.000			Recovery =	75.88%		
5) 2-Fluorobiphenyl	11.15	172	4706301	3425.41	ug/L	0.00
Spiked Amount 5000.000			Recovery =	68.51%		
9) Terphenyl-d14	17.69	244	6471202	4027.25	ug/L	0.00
Spiked Amount 5000.000			Recovery =	80.55%		

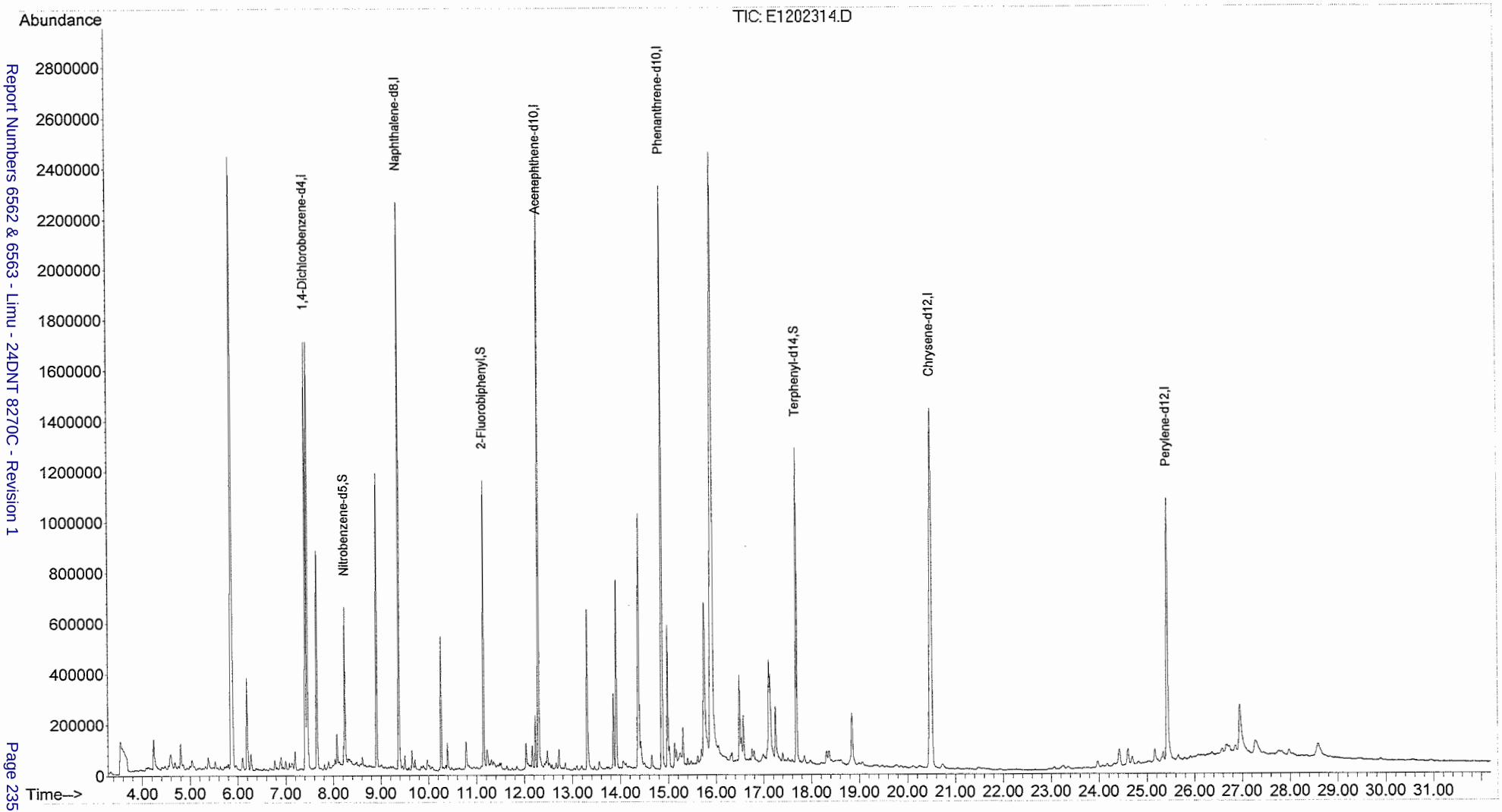
Target Compounds Qvalue

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

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\120213\
Data File : E1202314.D
Acq On : 2 Dec 2013 19:06
Operator : DOUG
Sample : 006563-08
Misc : B10131 AG-5 8270
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Dec 18 11:16:35 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317ET.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:08:25 2013
Response via : Initial Calibration



ARDL Inc
Report Numbers 6562 & 6563 - Limu - 24DNT 8270C - Revision 1
Page 235 of 266

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

Lab Report No: 006563 Report Date: 12/19/2013

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

Field ID:	MAK044L	ARDL Lab No.:	006563-09
Desc/Location:	MAKU MILITARY RESERVATION	Lab Filename:	E1202315
Sample Date:	10/15/2013	Received Date:	11/07/2013
Sample Time:	0925	Prep. Date:	11/19/2013
Matrix:	TISSUE	Analysis Date:	12/02/2013
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6665
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
2,4-Dinitrotoluene	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	73%
2-Fluorobiphenyl	30-130	57%
Terphenyl-d14	30-130	74%

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

Sample 006563-09, BNA'S (METHOD 8270) Page 1 of 1

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\120213\
Data File : E1202315.D
Acq On : 2 Dec 2013 19:47
Operator : DOUG
Sample : 006563-09
Misc : B10131 AG-5 8270
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Dec 18 11:16:37 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317ET.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:08:25 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.41	152	3629846	8000.00	ug/L	0.00
2) Naphthalene-d8	9.38	136	13303231	8000.00	ug/L	0.00
4) Acenaphthene-d10	12.30	164	7867019	8000.00	ug/L	0.00
7) Phenanthrene-d10	14.87	188	12895175	8000.00	ug/L	0.00
8) Chrysene-d12	20.50	240	15577882	8000.00	ug/L	0.00
10) Perylene-d12	25.43	264	9887815	8000.00	ug/L	0.00
System Monitoring Compounds						
3) Nitrobenzene-d5	8.24	82	2183090	3642.59	ug/L	0.00
Spiked Amount 5000.000			Recovery =	72.85%		
5) 2-Fluorobiphenyl	11.15	172	3850637	2861.55	ug/L	0.00
Spiked Amount 5000.000			Recovery =	57.23%		
9) Terphenyl-d14	17.69	244	5560337	3675.80	ug/L	0.00
Spiked Amount 5000.000			Recovery =	73.52%		

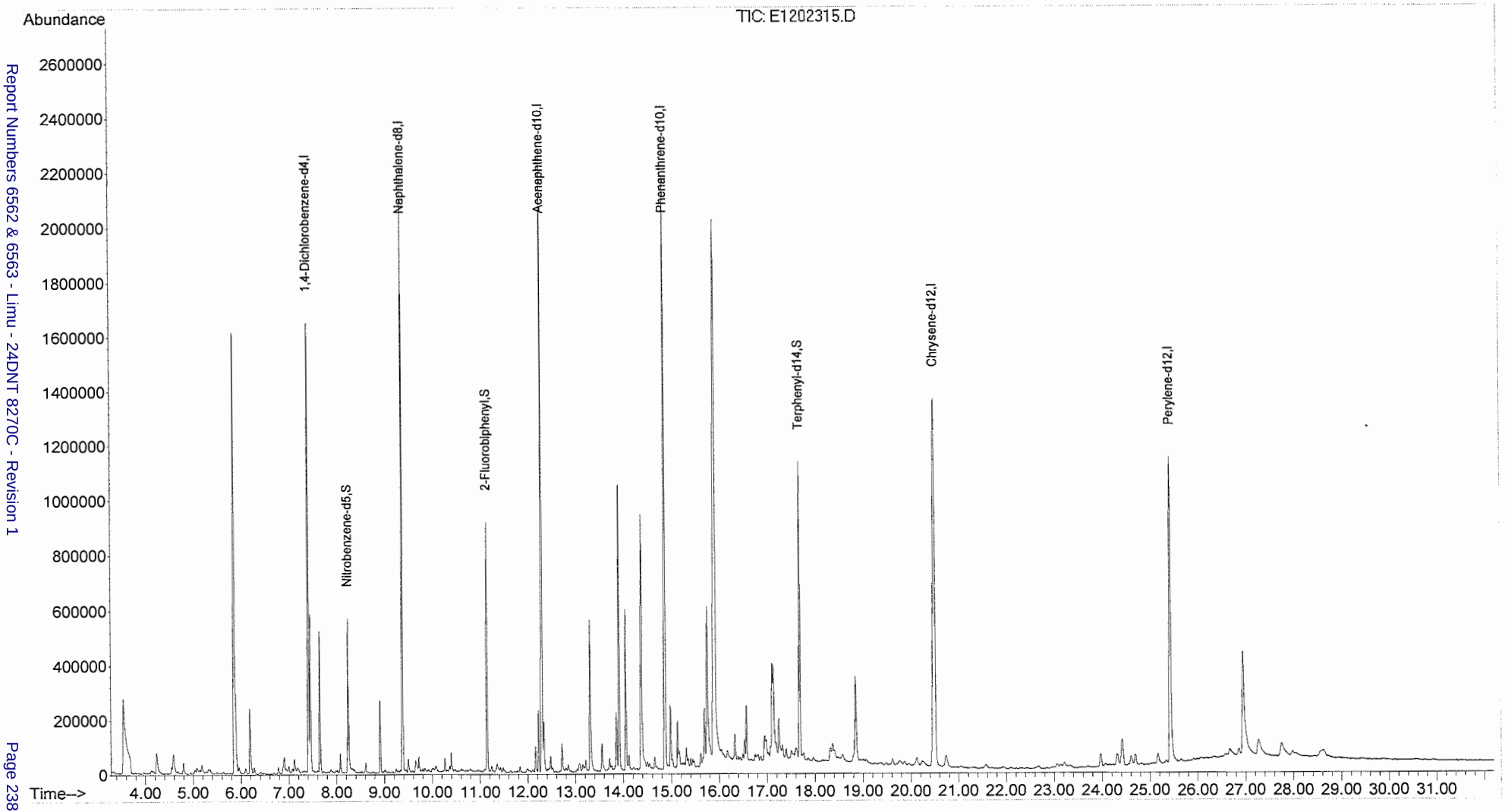
Target Compounds	Qvalue

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

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\120213\
Data File : E1202315.D
Acq On : 2 Dec 2013 19:47
Operator : DOUG
Sample : 006563-09
Misc : B10131 AG-5 8270
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Dec 18 11:16:37 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317ET.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:08:25 2013
Response via : Initial Calibration



ARDL Inc
Report Numbers 6562 & 6563 - Limu - 24DNT 8270C - Revision 1
Page 238 of 266

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

Lab Report No: 006563 Report Date: 12/19/2013

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

Field ID:	MAK045L	ARDL Lab No.:	006563-10
Desc/Location:	MAKU MILITARY RESERVATION	Lab Filename:	E1202316
Sample Date:	10/15/2013	Received Date:	11/07/2013
Sample Time:	1025	Prep. Date:	11/19/2013
Matrix:	TISSUE	Analysis Date:	12/02/2013
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6665
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
2,4-Dinitrotoluene	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	79%
2-Fluorobiphenyl	30-130	60%
Terphenyl-d14	30-130	78%

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

Sample 006563-10, BNA'S (METHOD 8270) Page 1 of 1

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\120213\
Data File : E1202316.D
Acq On : 2 Dec 2013 20:29
Operator : DOUG
Sample : 006563-10
Misc : B10131 AG-5 8270
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Dec 18 11:16:40 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317ET.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:08:25 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.42	152	3613349	8000.00	ug/L	0.00
2) Naphthalene-d8	9.38	136	12996574	8000.00	ug/L	0.00
4) Acenaphthene-d10	12.30	164	7533518	8000.00	ug/L	0.00
7) Phenanthrene-d10	14.87	188	12622367	8000.00	ug/L	0.00
8) Chrysene-d12	20.50	240	15443760	8000.00	ug/L	0.00
10) Perylene-d12	25.43	264	8567595	8000.00	ug/L	0.00
System Monitoring Compounds						
3) Nitrobenzene-d5	8.25	82	2305840	3938.18	ug/L	0.00
Spiked Amount 5000.000			Recovery =	78.76%		
5) 2-Fluorobiphenyl	11.15	172	3894397	3022.19	ug/L	0.00
Spiked Amount 5000.000			Recovery =	60.44%		
9) Terphenyl-d14	17.69	244	5860062	3907.59	ug/L	0.00
Spiked Amount 5000.000			Recovery =	78.15%		

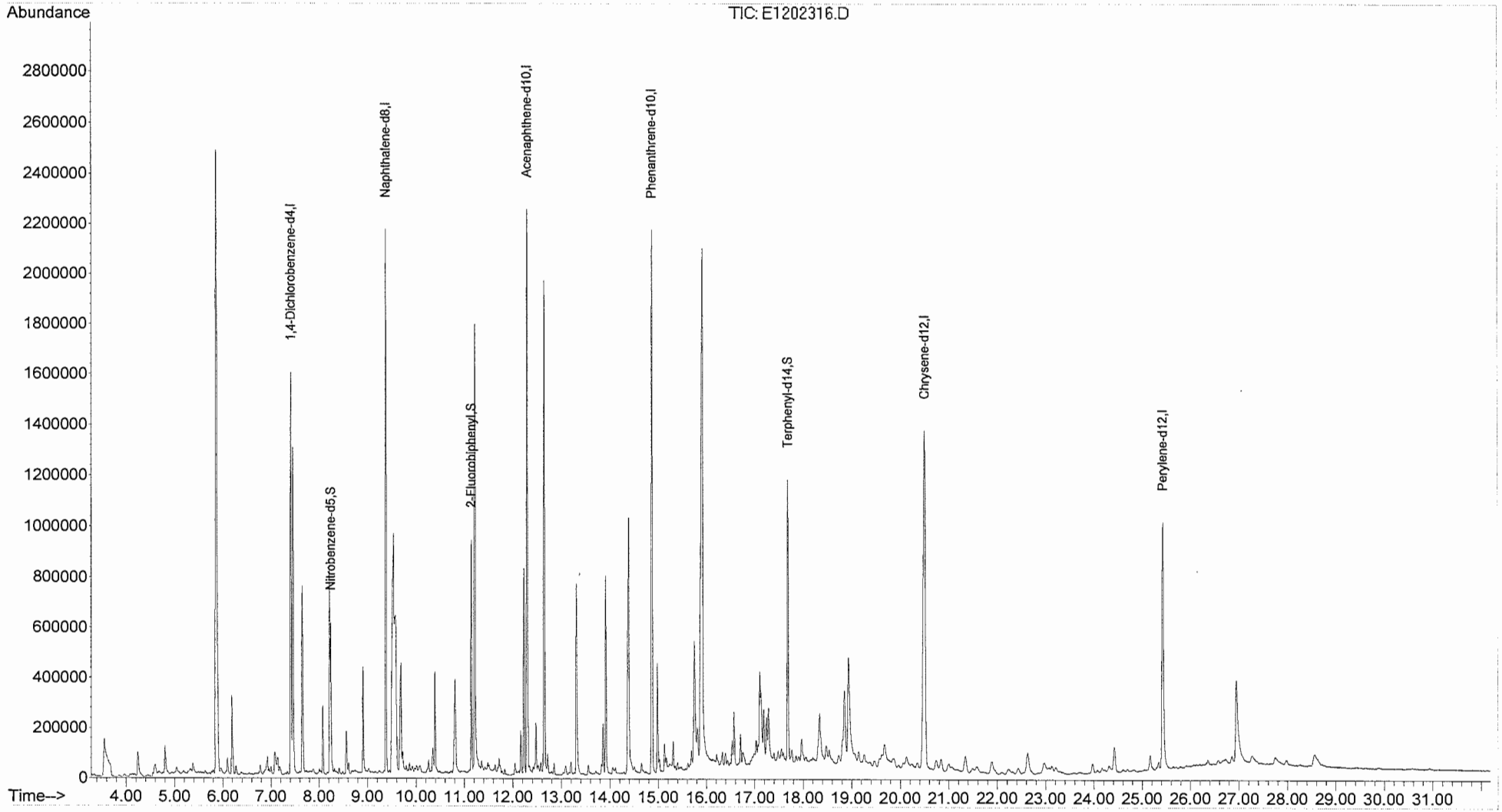
Target Compounds	Qvalue

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

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\120213\
Data File : E1202316.D
Acq On : 2 Dec 2013 20:29
Operator : DOUG
Sample : 006563-10
Misc : B10131 AG-5 8270
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Dec 18 11:16:40 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317ET.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:08:25 2013
Response via : Initial Calibration



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

Lab Report No: 006563 Report Date: 12/19/2013

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

Field ID:	MAK046L	ARDL Lab No.:	006563-11
Desc/Location:	MAKU MILITARY RESERVATION	Lab Filename:	E1202317
Sample Date:	10/15/2013	Received Date:	11/07/2013
Sample Time:	1105	Prep. Date:	11/19/2013
Matrix:	TISSUE	Analysis Date:	12/02/2013
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6665
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
2,4-Dinitrotoluene	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	75%
2-Fluorobiphenyl	30-130	69%
Terphenyl-d14	30-130	81%

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

Sample 006563-11, BNA'S (METHOD 8270) Page 1 of 1

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\120213\
Data File : E1202317.D
Acq On : 2 Dec 2013 21:10
Operator : DOUG
Sample : 006563-11
Misc : B10131 AG-5 8270
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Dec 18 11:16:42 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317ET.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:08:25 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.41	152	3592110	8000.00	ug/L	0.00
2) Naphthalene-d8	9.38	136	13080414	8000.00	ug/L	0.00
4) Acenaphthene-d10	12.30	164	7692434	8000.00	ug/L	0.00
7) Phenanthrene-d10	14.87	188	12692369	8000.00	ug/L	0.00
8) Chrysene-d12	20.50	240	15379530	8000.00	ug/L	0.00
10) Perylene-d12	25.44	264	9429573	8000.00	ug/L	0.00
System Monitoring Compounds						
3) Nitrobenzene-d5	8.24	82	2204357	3740.73	ug/L	0.00
Spiked Amount 5000.000			Recovery =	74.81%		
5) 2-Fluorobiphenyl	11.15	172	4534766	3446.44	ug/L	0.00
Spiked Amount 5000.000			Recovery =	68.93%		
9) Terphenyl-d14	17.69	244	6038271	4043.23	ug/L	0.00
Spiked Amount 5000.000			Recovery =	80.86%		

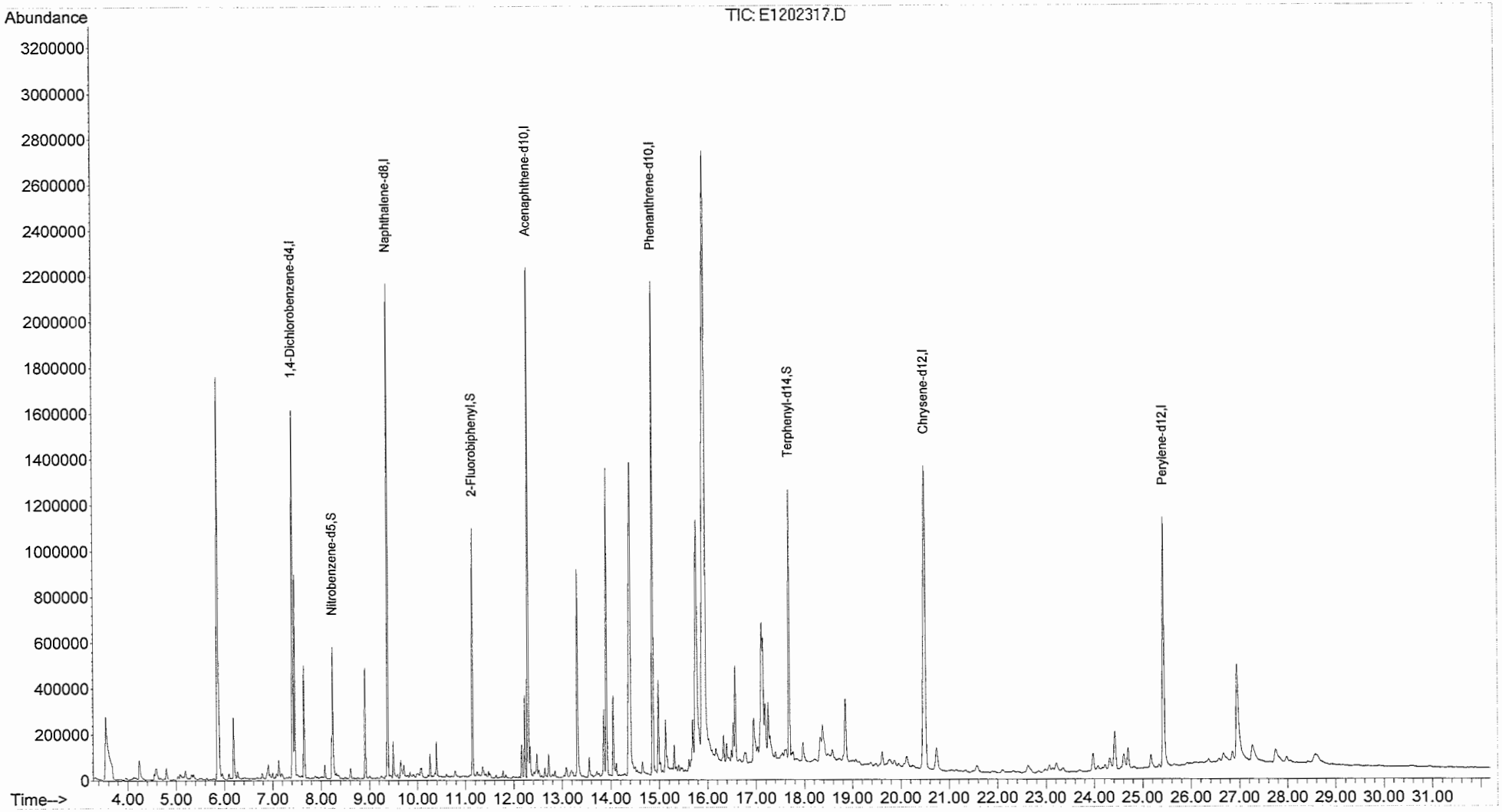
Target Compounds	Qvalue

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

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\120213\
Data File : E1202317.D
Acq On : 2 Dec 2013 21:10
Operator : DOUG
Sample : 006563-11
Misc : B10131 AG-5 8270
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Dec 18 11:16:42 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317ET.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:08:25 2013
Response via : Initial Calibration



Analytical Run Number 4

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.: --- SAS No.: --- SDG No.: ---

Lab File ID: E1203302 DFTPP Injection Date: 12/03/13

Instrument ID: AG5 DFTPP Injection Time: 10:16

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30 - 80% of mass 198	30.2
68	Less than 2.0% of mass 69	0.0 (1)
69	(reference only)	29.6
70	Less than 2.0% of mass 69	0.3 (1)
127	25 - 75% of mass 198	44.9
197	Less than 1% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.
199	5 - 9% of mass 198	7.0
275	10 - 30% of mass 198	26.2
365	Greater than 1% of mass 198	3.0
441	0 - 100% of mass 443	87.3
442	40 - 110% of mass 198	106.3
443	15 - 24% of mass 442	20.1 (2)

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

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

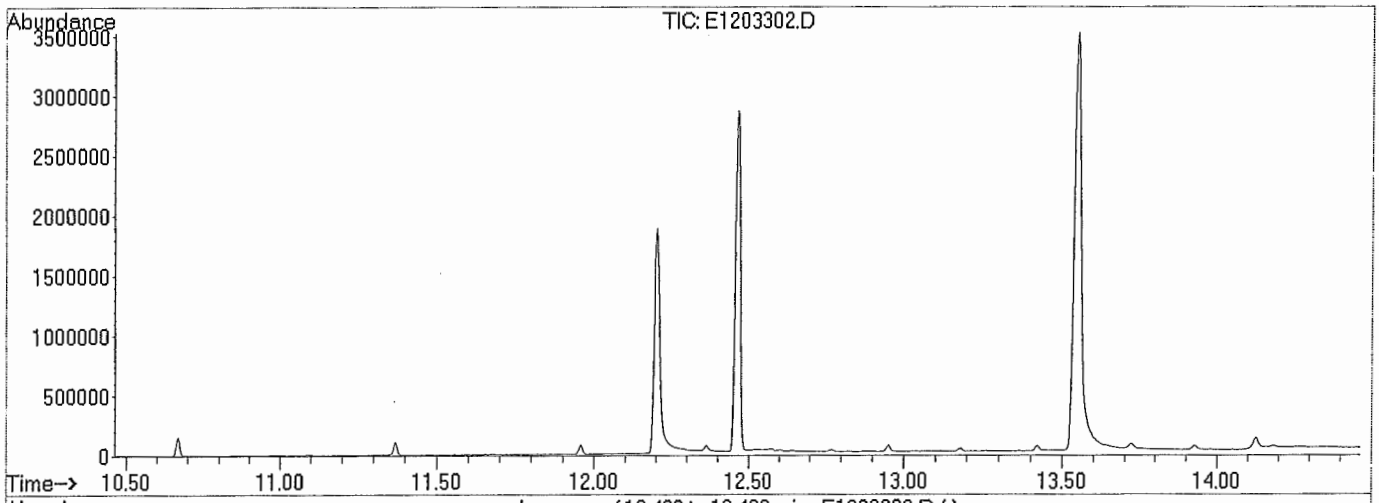
	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1	BNA STD	030 PPM STD	E1203303	12/03/13	10:43
2	MAK049L	006563-12	E1203305	12/03/13	12:08
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

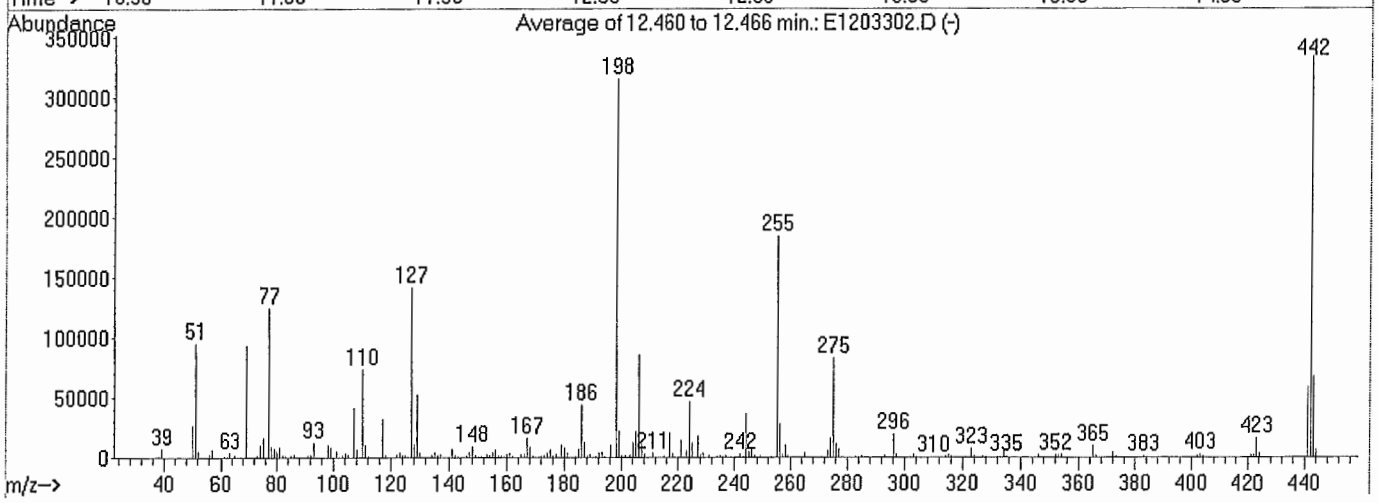
DFTPP

Data Path : C:\MSDCHEM\1\DATA\120313\
Data File : E1203302.D
Acq On : 3 Dec 2013 10:16
Operator : DOUG
Sample : 50 NG TUNE 16103
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 1190, 1191, 1192; Background Corrected with Scan 1179

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	80	30.2	95236	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.01	100	29.6	93306	PASS
70	69	0.00	2	0.3	237	PASS
127	198	25	75	44.9	141656	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	315328	PASS
199	198	5	9	7.0	22112	PASS
275	198	10	30	26.2	82714	PASS
365	198	0.75	100	3.0	9576	PASS
441	443	0.01	100	87.3	58898	PASS
442	198	40	110	106.3	335040	PASS
443	442	15	24	20.1	67496	PASS

.verage of 12.460 to 12.466 min.: E1203302.D
0 NG TUNE 16103
:odified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
36.05	88	56.10	2616	66.30	58	81.05	8141
37.15	566	57.10	6201	67.25	310	82.10	1938
38.15	1430	58.10	185	69.10	93306	83.10	1641
39.15	7119	58.95	186	70.05	237	84.05	45
45.10	229	61.05	1160	73.05	1233	85.10	1598
48.15	61	62.10	1341	74.10	10417	86.10	2339
50.20	26624	63.10	3971	75.10	16068	87.00	819
51.15	95236	64.10	365	77.15	124542	88.00	354
52.15	5041	64.30	220	78.15	9032	89.80	29
53.05	173	65.10	1835	79.10	7126	91.10	1714
54.05	115	65.90	37	80.05	5733	92.05	2106

.verage of 12.460 to 12.466 min.: E1203302.D
0 NG TUNE 16103
lodified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
93.05	12347	105.10	2556	120.10	611	132.15	516
94.00	784	107.05	41118	121.25	216	133.00	186
95.10	15	108.10	6521	122.10	2549	134.10	1864
96.05	351	110.10	73394	123.05	4089	135.10	4332
98.05	10485	111.10	10339	124.05	1886	136.05	2005
99.10	8381	112.10	1377	125.00	1830	137.05	2309
100.00	684	113.10	514	127.05	141656	138.05	613
101.10	5223	114.10	9	128.05	11107	139.05	345
102.00	220	117.05	32067	129.05	52183	140.15	688
103.10	1731	118.10	2106	130.05	3937	141.05	7186
104.10	3289	119.00	130	131.05	929	142.10	2164

verage of 12.460 to 12.466 min.: E1203302.D
0 NG TUNE 16103
lodified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
143.00	1479	154.05	1922	164.15	400	174.10	3732
144.15	459	155.10	4586	165.00	2495	175.15	6338
145.05	427	156.10	6521	166.15	2939	176.05	1741
146.15	1554	157.15	1386	167.10	16282	177.10	2796
147.05	4233	158.05	1228	168.10	8655	179.05	10611
148.10	9142	159.00	1007	169.05	1504	180.10	7908
149.10	1867	160.10	2692	170.00	234	181.10	3715
150.05	774	161.10	3660	170.25	250	182.05	883
151.20	1181	162.05	1030	171.05	739	183.00	298
151.90	359	163.00	221	172.00	1276	184.15	1118
153.10	2359	163.90	48	173.05	1647	185.15	6608

verage of 12.460 to 12.466 min.: E1203302.D
0 NG TUNE 16103
lodified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
186.10	43773	198.10	315328	210.10	934	221.10	14195
187.10	12960	199.10	22112	211.10	3397	221.90	1147
188.10	1410	200.05	2000	212.10	422	223.10	5615
189.10	2318	201.55	1702	213.10	286	224.10	46584
190.00	308	203.10	2034	213.80	50	225.10	12107
190.20	182	204.10	12524	214.00	48	227.10	17848
191.10	1094	205.10	21720	215.05	1002	228.10	2710
192.10	3794	206.10	85800	217.05	20546	229.05	3787
193.05	4318	207.05	11694	218.10	2953	230.00	601
194.05	957	208.05	2620	218.90	165	231.00	1845
196.10	10162	209.05	672	219.15	181	232.10	321

Average of 12.460 to 12.466 min.: E1203302.D
0 NG TUNE 16103
lodified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
233.05	490	244.10	36320	256.10	28136	267.00	140
234.00	1182	245.10	5115	257.10	2671	267.85	109
235.05	1498	246.10	6773	258.10	10230	268.90	38
235.95	1129	247.05	1568	259.05	1505	270.15	240
237.10	1724	248.00	299	260.00	301	271.00	443
238.15	173	249.05	1453	260.95	373	271.30	177
239.00	919	249.95	284	261.90	52	272.00	555
240.10	586	251.05	392	262.50	30	272.20	328
241.05	1110	252.05	570	262.90	40	273.10	5919
242.10	2719	253.15	1116	265.10	3863	274.10	15713
243.20	961	255.10	184448	265.85	114	275.10	82714

Average of 12.460 to 12.466 min.: E1203302.D
50 NG TUNE 16103

odified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
276.10	11258	286.50	56	296.10	19418	305.10	168
277.05	7073	287.20	28	297.05	2908	305.90	47
278.10	930	287.90	27	298.05	274	306.90	28
279.05	162	288.95	220	298.30	61	307.95	218
280.80	80	290.05	301	298.80	38	308.90	113
281.90	2	291.05	295	299.30	32	309.10	77
282.20	84	291.80	122	300.90	69	310.00	303
283.05	808	292.15	202	301.10	245	310.90	81
284.05	665	293.10	1656	302.00	479	311.90	36
285.05	1408	294.05	283	303.05	2557	312.95	287
286.05	273	294.30	124	304.05	855	314.10	1296

verage of 12.460 to 12.466 min.: E1203302.D
0 NG TUNE 16103
lodified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
315.05	2424	326.10	72	335.05	1201	346.80	87
316.00	1272	327.00	1112	335.80	50	347.00	216
317.10	179	328.05	901	336.15	199	347.90	34
317.30	59	328.95	221	337.20	53	349.85	84
318.70	33	329.70	27	338.80	56	350.35	97
320.00	66	330.00	27	339.15	98	350.85	115
321.05	909	330.80	85	339.95	93	352.05	2111
323.10	7470	332.05	510	341.05	886	353.05	1839
324.05	1693	332.90	234	342.00	283	354.10	2595
324.95	200	333.05	615	342.90	46	355.00	640
325.80	51	334.10	4979	346.05	1843	356.90	34

verage of 12.460 to 12.466 min.: E1203302.D
0 NG TUNE 16103
lodified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
359.00	37	371.15	599	390.05	535	408.90	26
359.15	117	372.05	4237	391.05	561	409.90	46
360.90	50	373.10	994	391.95	362	411.20	32
361.10	26	374.00	102	392.90	34	411.70	47
361.35	80	376.90	138	397.00	27	414.95	184
362.75	121	377.20	65	401.05	216	415.70	73
363.75	149	383.05	1321	402.05	1670	419.30	38
365.05	9576	383.95	458	403.05	2744	419.60	48
366.05	1605	384.90	140	404.05	1029	421.05	2515
366.90	79	386.30	28	405.00	194	422.10	2537
370.00	348	389.10	31	407.90	46	423.10	16135

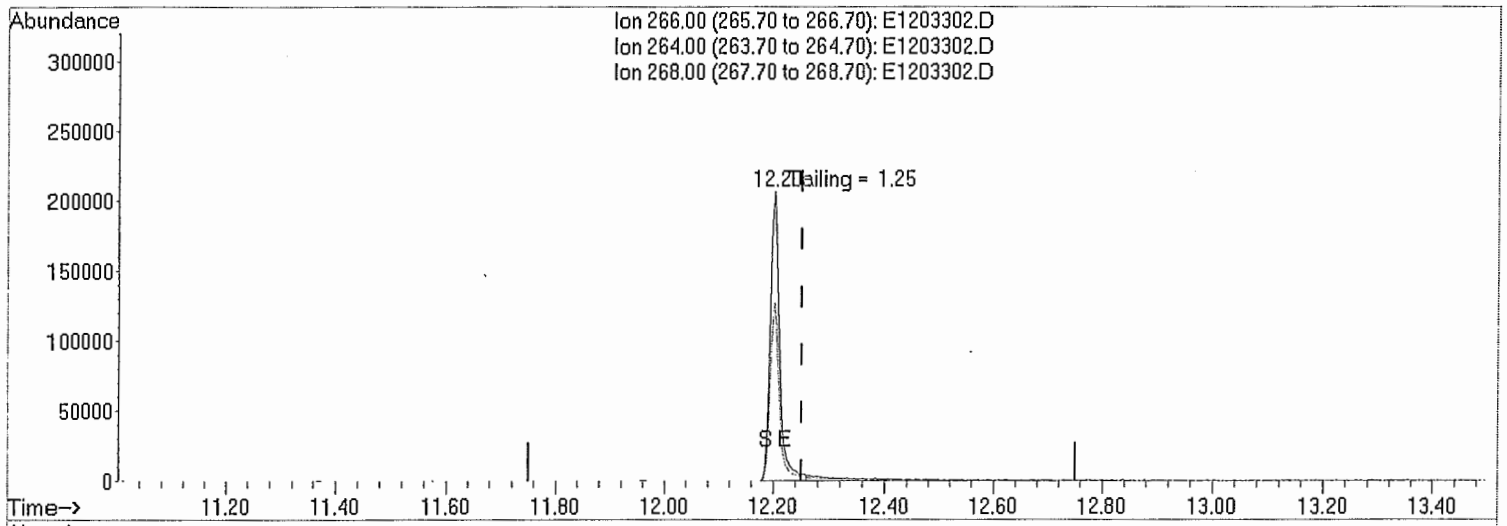
verage of 12.460 to 12.466 min.: E1203302.D
0 NG TUNE 16103
lodified:subtracted

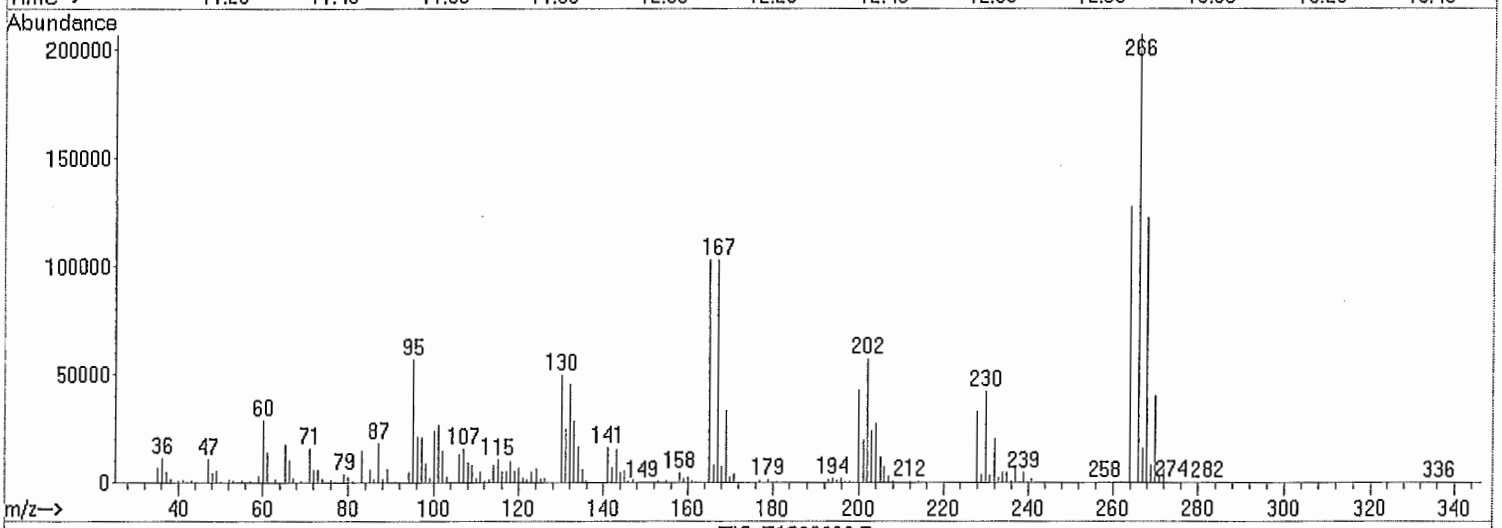
m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
424.10	3368	431.15	128	438.00	156		
425.05	393	431.60	80	438.40	85		
425.90	34	431.90	48	438.95	185		
426.50	51	432.20	94	441.10	58898		
427.10	30	433.00	216	442.10	335040		
427.40	107	433.35	183	443.10	67496		
427.80	38	434.00	108	444.05	6518		
428.15	143	434.60	110	445.15	218		
428.95	154	435.40	41				
429.45	81	436.20	93				
430.15	147	437.00	32				

Quantitation Report (Qedit)

Data Path : C:\MSDCHEM\1\DATA\120313\
Data File : E1203302.D
Acq On : 3 Dec 2013 10:16
Operator : DOUG
Sample : 50 NG TUNE 16103
Misc : AG-5 8270
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Dec 03 10:34:51 2013
Quant Method : C:\MSDCHEM\1\METHODS\8270TUNPULSE.M
Quant Title : 8270 TUNE METHOD
QLast Update : Wed Aug 28 11:55:28 2013
Response via : Initial Calibration





TIC: E1203302.D

(1) Pentachlorophenol (TMC)

12.202min (-0.048) 22.47ug/L

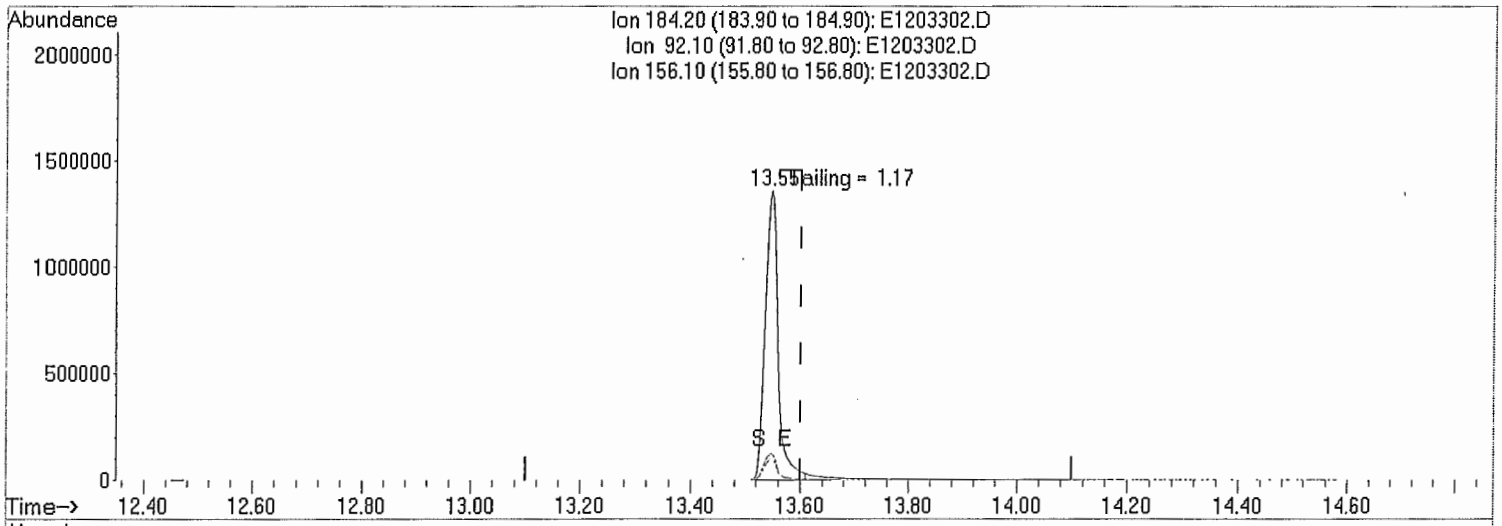
response 239526

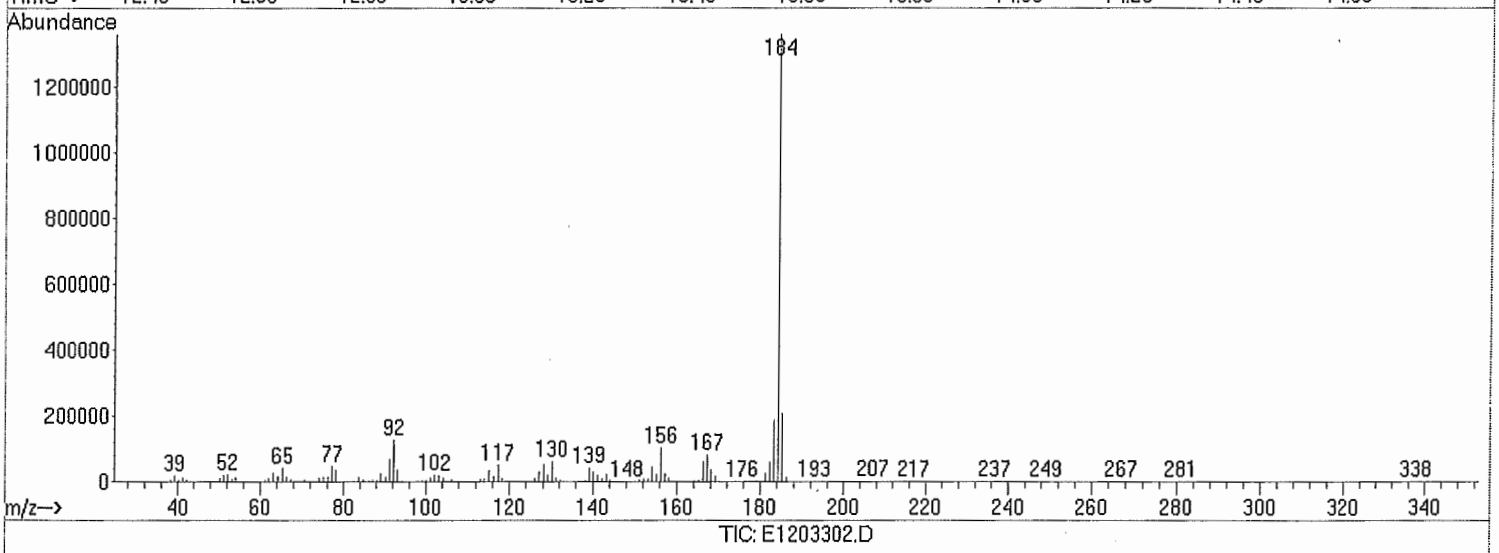
Ion	Exp%	Act%
266.00	100	100
264.00	63.80	64.66
268.00	63.80	58.99
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\MSDCHEM\1\DATA\120313\
Data File : E1203302.D
Acq On : 3 Dec 2013 10:16
Operator : DOUG
Sample : 50 NG TUNE 16103
Misc : AG-5 8270
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Dec 03 10:34:51 2013
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)

13.547min (-0.053) 43.40ug/L

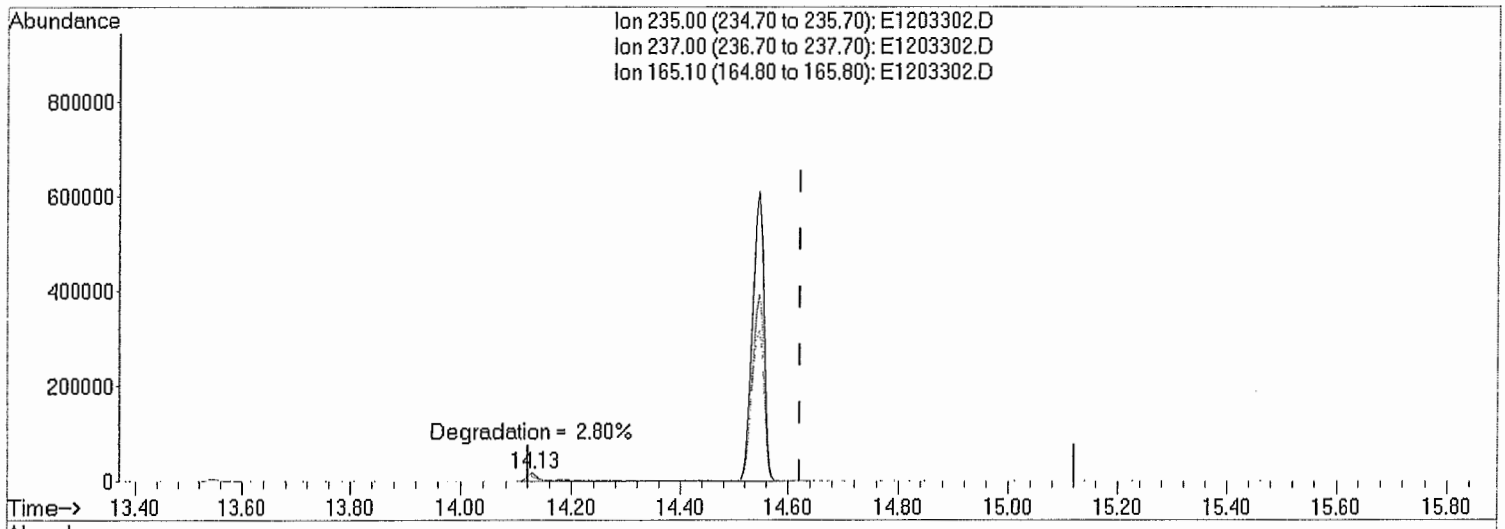
response 2237950

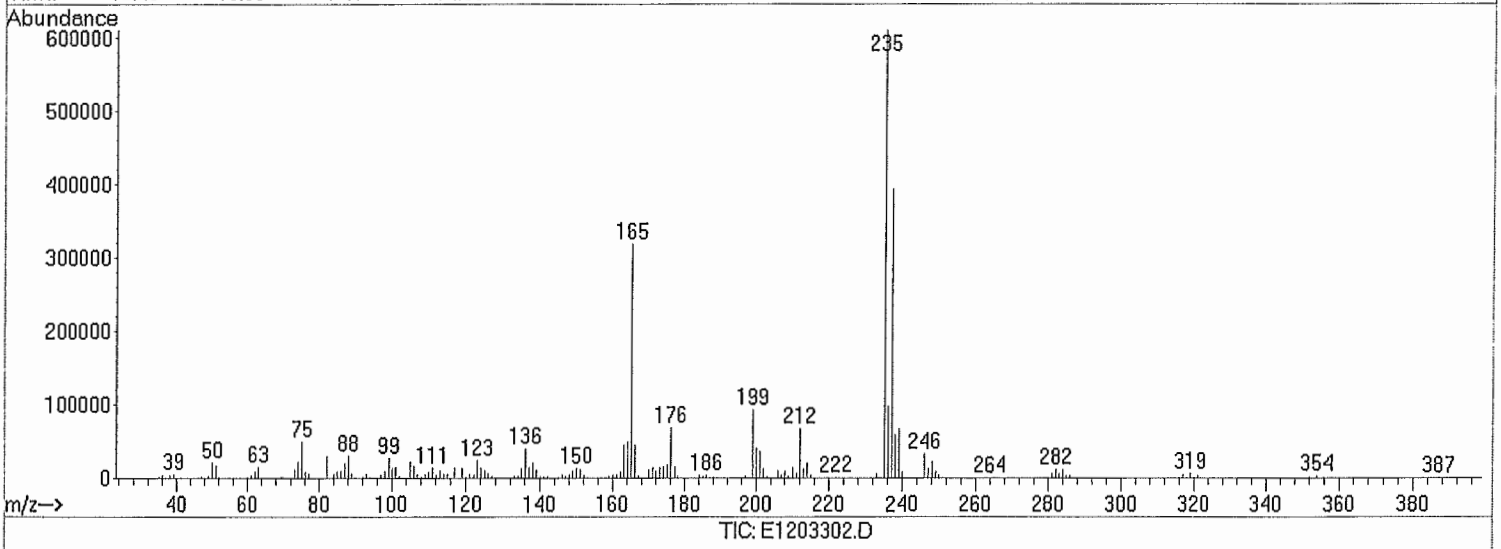
Ion	Exp%	Act%
184.20	100	100
92.10	13.70	9.60#
156.10	8.60	7.49
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\MSDCHEM\1\DATA\120313\
Data File : E1203302.D
Acq On : 3 Dec 2013 10:16
Operator : DOUG
Sample : 50 NG TUNE 16103
Misc : AG-5 8270
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Dec 03 10:34:51 2013
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

14.546min (-0.074) 34.70ug/L

response 900877

Ion	Exp%	Act%
235.00	100	100
237.00	64.80	64.49
165.10	59.00	56.03
0.00	0.00	0.00

Evaluate Continuing Calibration Report

Data Path : C:\MSDCHEM\1\DATA\120313\
Data File : E1203303.D
Acq On : 3 Dec 2013 10:43
Operator : DOUG
Sample : 30 PPM STD 16151
Misc : AG-5 8270
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 18 11:13:12 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317EW.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:11:11 2013
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	118	0.00
2	I	Naphthalene-d8	1.000	1.000	0.0	114	0.00
3	S	Nitrobenzene-d5	0.360	0.370	-2.8	113	0.00
4	I	Acenaphthene-d10	1.000	1.000	0.0	117	0.00
5	S	2-Fluorobiphenyl	1.368	1.282	6.3	115	0.00
6	TM	2,4-Dinitrotoluene	0.373	0.404	-8.3	120	0.00
7	I	Phenanthrene-d10	1.000	1.000	0.0	120	0.00
8	I	Chrysene-d12	1.000	1.000	0.0	121	0.00
9	S	Terphenyl-d14	0.777	0.736	5.3	119	0.00
10	I	Perylene-d12	1.000	1.000	0.0	113	0.00

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

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\120313\
Data File : E1203303.D
Acq On : 3 Dec 2013 10:43
Operator : DOUG
Sample : 30 PPM STD 16151
Misc : AG-5 8270
ALS Vial : 2 Sample Multiplier: 1

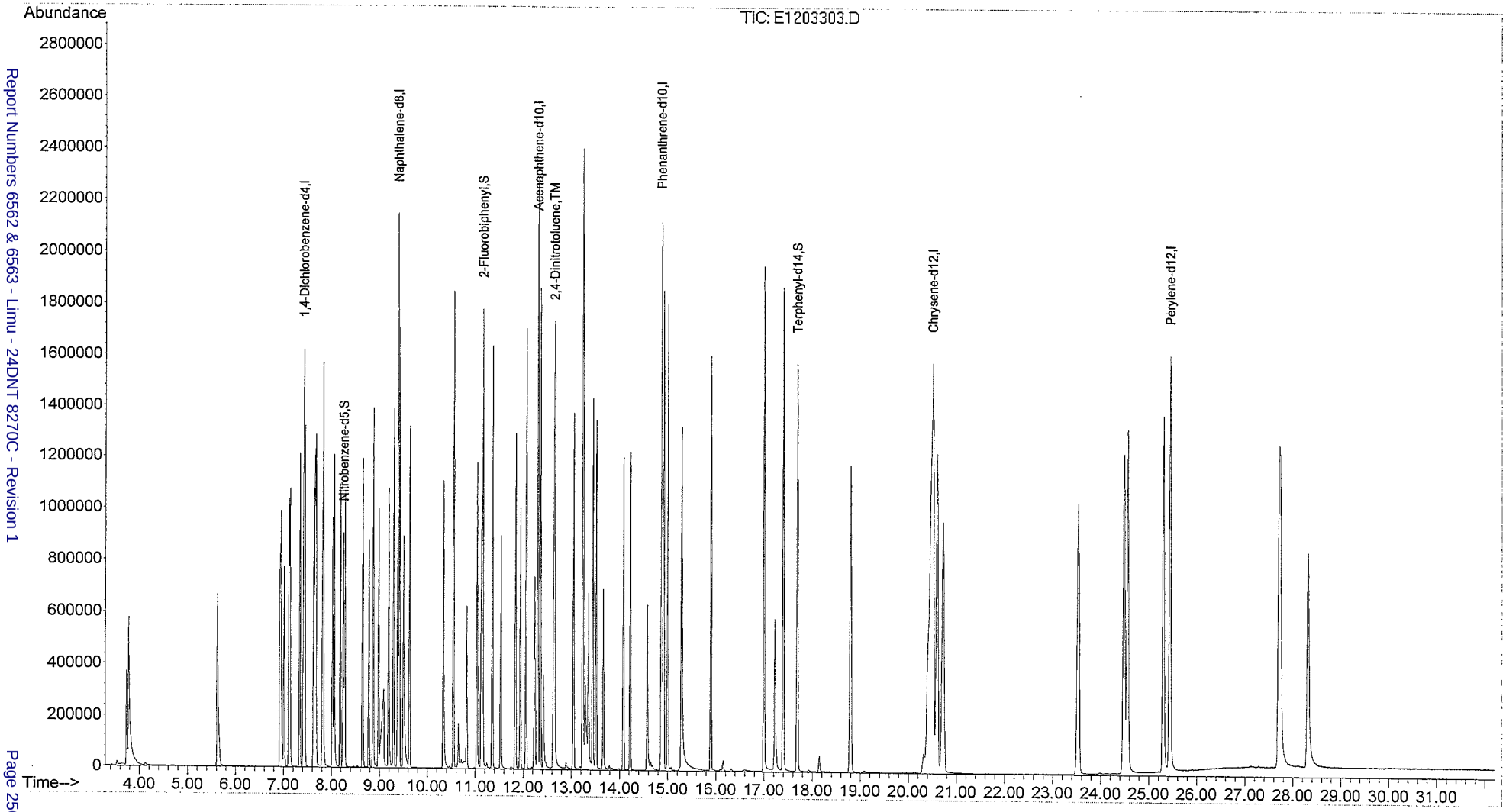
Quant Time: Dec 18 11:13:12 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317EW.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:11:11 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.41	152	3640574	40.00	ug/L	0.00
2) Naphthalene-d8	9.38	136	13434233	40.00	ug/L	0.00
4) Acenaphthene-d10	12.30	164	7723495	40.00	ug/L	0.00
7) Phenanthrene-d10	14.87	188	12751196	40.00	ug/L	0.00
8) Chrysene-d12	20.51	240	15400495	40.00	ug/L	0.00
10) Perylene-d12	25.45	264	14947502	40.00	ug/L	0.00
System Monitoring Compounds						
3) Nitrobenzene-d5	8.25	82	3725600	30.78	ug/L	0.00
Spiked Amount 50.000			Recovery = 61.56%			
5) 2-Fluorobiphenyl	11.15	172	7425478	28.10	ug/L	0.00
Spiked Amount 50.000			Recovery = 56.20%			
9) Terphenyl-d14	17.69	244	8501125	28.42	ug/L	0.00
Spiked Amount 50.000			Recovery = 56.84%			
Target Compounds						Qvalue
6) 2,4-Dinitrotoluene	12.64	165	2342472	32.51	ug/L #	75

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

Data Path : C:\MSDCHEM\1\DATA\120313\
Data File : E1203303.D
Acq On : 3 Dec 2013 10:43
Operator : DOUG
Sample : 30 PPM STD 16151
Misc : AG-5 8270
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 18 11:13:12 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317EW.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:11:11 2013
Response via : Initial Calibration



ARDL Inc
Report Numbers 6562 & 6563 - Limu - 24DNT 8270C - Revision 1
Page 256 of 266

Instrument Logs/
Analysis Notebook Pages

Rev. 1.1

Injection Log

Directory: C:\MSDCHEM\1\DATA\120313

Line	Vial	FileName	Multiplier	SampleName	Misc Info
1	1	E1203301.d	1.	50 NG TUNE 16103 DDT degr changed Liner	AG-5 8270
2	1	E1203302.d	1.	50 NG TUNE 16103 Pass	AG-5 8270
3	2	E1203303.d	1.	30 PPM STD 16151 Pass	AG-5 8270
4	3	E1203304.d	1.	006563-12B1 Pass	B10131 AG-5 8270
5	4	E1203305.d	1.	006563-12	B10131 AG-5 8270
6	5	E1203306.d	1.	006563-12MS	B10131 AG-5 8270
7	6	E1203307.d	1.	006563-12MSD Pass	B10131 AG-5 8270

PEK
12/3/2013

Continued on Page

Read and Understood By

PEK — Signed — 12/3/2013 — Date

Signed — 12/4/13 — 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

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

Lab Report No: 006563 Report Date: 12/19/2013

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

Field ID:	MAK049L	ARDL Lab No.:	006563-12
Desc/Location:	MAKU MILITARY RESERVATION	Lab Filename:	E1203305
Sample Date:	10/15/2013	Received Date:	11/07/2013
Sample Time:	1225	Prep. Date:	11/19/2013
Matrix:	TISSUE	Analysis Date:	12/03/2013
Amount Used:	5 g	Instrument ID:	AG5
Final Volume:	1 mL	QC Batch:	B6665
% Moisture:	No Moisture Present	Level:	LOW

Parameter	Method Limit	Reporting Limit	Result	Data Flag	Units	Dilution Factor
2,4-Dinitrotoluene	200	1000	ND		UG/KG	1

SURROGATE RECOVERIES:	Limits	Results
Nitrobenzene-d5	30-130	65%
2-Fluorobiphenyl	30-130	61%
Terphenyl-d14	30-130	74%

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

Sample 006563-12, BNA'S (METHOD 8270) Page 1 of 1

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\120313\
Data File : E1203305.D
Acq On : 3 Dec 2013 12:08
Operator : DOUG
Sample : 006563-12
Misc : B10131 AG-5 8270
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Dec 18 11:21:18 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317ET.M
Quant Title : 8270 BNA Calibration
QLast Update : Wed Dec 18 11:08:25 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.42	152	3639839	8000.00	ug/L	0.00
2) Naphthalene-d8	9.38	136	13243352	8000.00	ug/L	0.00
4) Acenaphthene-d10	12.30	164	7709493	8000.00	ug/L	0.00
7) Phenanthrene-d10	14.87	188	12842480	8000.00	ug/L	0.00
8) Chrysene-d12	20.50	240	16514625	8000.00	ug/L	0.00
10) Perylene-d12	25.44	264	12453292	8000.00	ug/L	0.00
System Monitoring Compounds						
3) Nitrobenzene-d5	8.24	82	1946880	3263.15	ug/L	0.00
Spiked Amount 5000.000			Recovery =	65.26%		
5) 2-Fluorobiphenyl	11.15	172	4001215	3034.21	ug/L	0.00
Spiked Amount 5000.000			Recovery =	60.68%		
9) Terphenyl-d14	17.69	244	5922334	3693.04	ug/L	0.00
Spiked Amount 5000.000			Recovery =	73.86%		

Target Compounds	Qvalue

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

Quantitation Report (Not Reviewed)

Data Path : C:\MSDCHEM\1\DATA\120313\
Data File : E1203305.D
Acq On : 3 Dec 2013 12:08
Operator : DOUG
Sample : 006563-12
Misc : B10131 AG-5 8270
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Dec 18 11:21:18 2013
Quant Method : C:\MSDCHEM\1\CALFILES\8270CALS\E8270317ET.M
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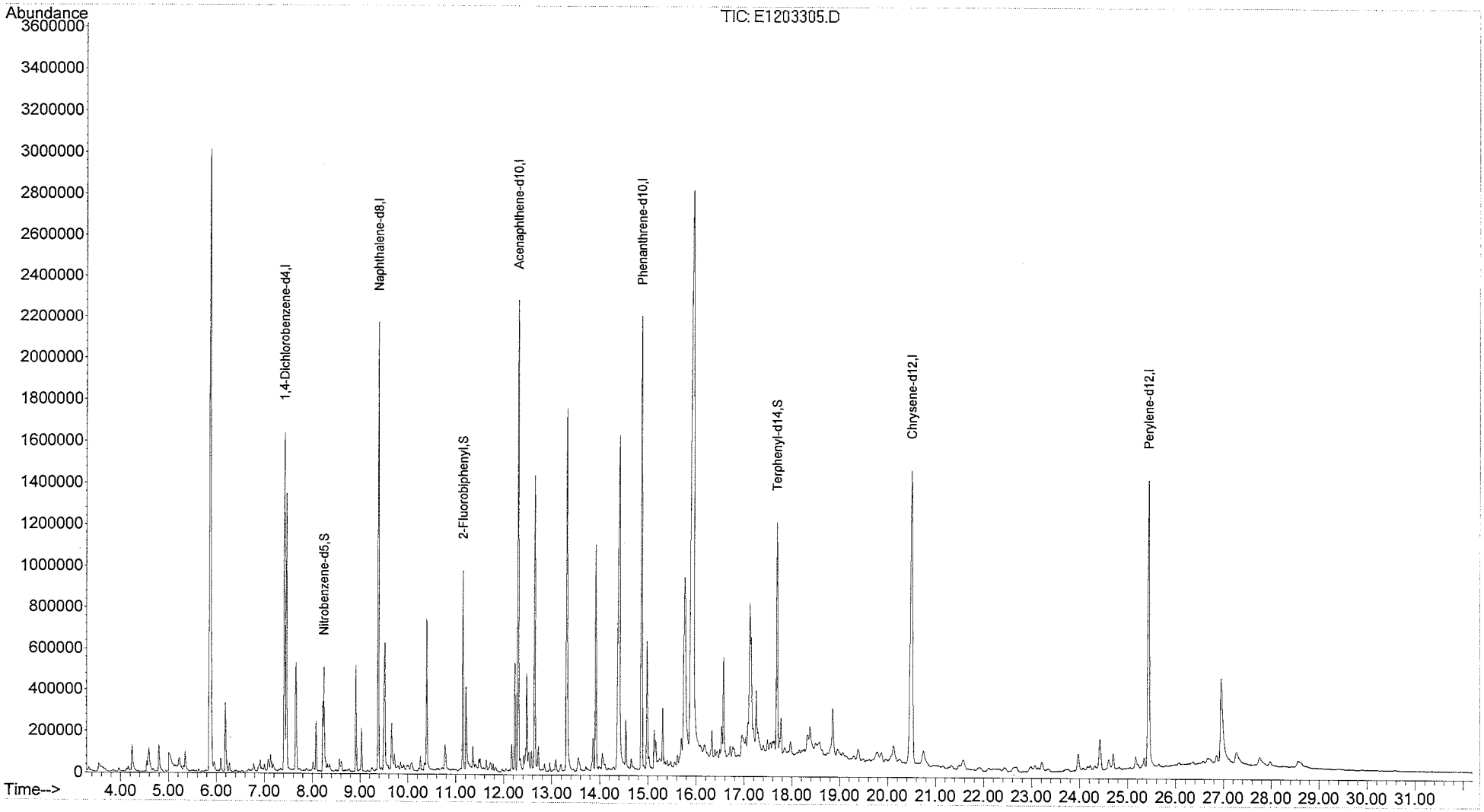

ARDL Inc
Report Numbers 6562 & 6563 - Limu - 24DNT 8270C - Revision 1
Page 262 of 266

Example Calculation

Rev. 1.1

EXAMPLE CALCULATIONS
Semi-Volatile

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:

$$\text{Response Factor} = \frac{(Ax)(Cis)}{(Ais)(Cx)}$$

Where:
- Ax = Area of the characteristic ion for the compound being measured.
- Ais = Area of the characteristic ion for the internal standard.
- Cis = Concentration of the specific internal standard.
- Cx = Concentration of the compound being measured.

Sample Calculations

Sample Calculations are made by the instrument software and are performed as follows;

Water:

$$\text{Concentration (ug/L)} = \frac{(Ax)(Is)(Vt)(1000mL)(1ug)}{(Ais)(RF)(Vi)(Vo)(1L)(1000ng)}$$

Where:
- Ax = Area of characteristic ion for the compound being measured.
- Is = Amount of internal standard injected (ng).
- Ais = Area of characteristic ion for the internal standard.
- RF = Response factor for the compound being measured.
- Vi = Volume of extract injected (uL).
- Vt = Volume of total extract (uL).
- Vo = Volume of water extracted (mL).

The dilution factor used, if necessary, will be submitted to the data management system.

EXAMPLE CALCULATIONS

Sample Calculations

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).
W_s	=	Weight of sample extracted (g).

Sample Calculations

Sample No.: 30 µg/mL STD #16151 (File E1203303.D) Compound: 2,4-Dinitrotoluene

Matrix: CCV

$$\text{Concentration (ug/mL)} = \frac{2342473(40ng)(\cancel{1000\mu L})}{(\ \ )(0.373)(1\mu L)(\ \ )} = 32.5\ ng/\mu L \equiv \mu g/mL$$

7723495

gp 12/19/13

Example Calculations Performed By: [signature] Date: 12/19/13

Miscellaneous Additional Data

(If applicable)

☑ **None** _____ 12/19/13

Rev. 1.1