Microbac

Laboratory Report Number: L13101691

Mark Lyon
Environmental Waste Solutions
2440 Louisiana Blvd
Albuquerque, NM 87110

Please find enclosed the analytical results for the samples you submitted to Microbac Laboratories. Review and compilation of your report was completed by Microbac's Ohio Valley Division (OVD). If you have any questions, comments, or require further assistance regarding this report, please contact your service representative listed below.

Laboratory Contact:
Stephanie Mossburg – Team Chemist/Data Specialist
(740) 373-4071
Stephanie.Mossburg@microbac.com

I certify that all test results meet all of the requirements of the DoD QSM and other applicable contract terms and conditions. Any exceptions are attached to this cover page or addressed in the method narratives presented in the report. All results for soil samples are reported on a 'dry-weight' basis unless specified otherwise. Analytical results for water and wastes are reported on a 'as received' basis unless specified otherwise. A statement of uncertainty for each analysis is available upon request. This laboratory report shall not be reproduced, except in full, without the written approval of Microbac Laboratories, DoD ELAP certification number 2936.01. The reported results are related only to the samples analyzed as received.

This report was certified on November 08 2013

David Vandenberg – Managing Director

State of Origin: NM
Accrediting Authority: N/A ID:N/A
QAPP: DOD Ver 4.1 without flagging

Microbac

Lab Report #: L13101691
Lab Project #: 3005.011
Project Name: White Sands MR
Lab Contact: Stephanie Mossburg

Record of Sample Receipt and Inspection

Comments/Discrepancies

This is the record of the shipment conditions and the inspection records for the samples received and reported as a sample delivery group (SDG). All of the samples were inspected and observed to conform to our receipt policies, except as noted below.

There were no discrepancies.

Discrepancy	Resolution

Coolers

Cooler #	Temperature Gun	Temperature	COC #	Airbill #	Temp Required?
0018240	I	0.0		1002241113760004575000804334337640	X

Inspection Checklist

#	Question	Result
1	Were shipping coolers sealed?	Yes
2	Were custody seals intact?	Yes
3	Were cooler temperatures in range of 0-6?	Yes
4	Was ice present?	Yes
5	Were COC's received/information complete/signed and dated?	Yes
6	Were sample containers intact and match COC?	Yes
7	Were sample labels intact and match COC?	Yes
8	Were the correct containers and volumes received?	Yes
9	Were samples received within EPA hold times?	Yes
10	Were correct preservatives used? (water only)	Yes
11	Were pH ranges acceptable? (voa's excluded)	Yes
12	Were VOA samples free of headspace (less than 6mm)?	NA

Microbac

Lab Report #: L13101691
Lab Project #: 3005.011
Project Name: White Sands MR
Lab Contact: Stephanie Mossburg

Samples Received

Client ID	Laboratory ID	Date Collected	Date Received
HTA 51-1013-1	L13101691-01	10/25/2013 09:55	10/26/2013 09:31
HTA 43-1013-1	L13101691-02	10/25/2013 11:45	10/26/2013 09:31

Microbac Laboratories ● Ohio Valley Division
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Microbac REPORT L13101691
PREPARED FOR Environmental Waste Solutions
WORK ID:

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1.0 Summary Data

1.1 Narratives

Login Number: L13101691
Department: General Chromatography
Analyst: John W. Richards Jr.

METHOD

Analysis SW-846 6850

HOLDING TIMES

Sample Preparation: All holding times were met.

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

CALIBRATION

Initial Calibration: For all compounds that yielded a %RSD greater than 15%, linear or higher order equations were applied. All acceptance criteria were met.

Alternate Source Standards: All acceptance criteria were met.

Continuing Calibration and Tune: All acceptance criteria were met.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Matrix Spikes: The MS/MSD results were not associated with this sample delivery group.

SAMPLES

Samples: Samples 01 and 02 were analyzed at dilutions based on screening results.

Internal Standards: All acceptance criteria were met.

Manual Integration Reason Codes

Reason #1: Data System Fails to Select Correct Peak In some cases the chromatography system selects and integrates the 'wrong peak'. In this case the analyst must correct the selection and force the system to integrate the proper peak. Other times the system may miss the peak completely.

Reason #2: Data System Splits the Peak Incorrectly or Integrates a False Peak as a Rider Peak This phenomena is common at low concentrations where the signal:noise ratio is low. A single compound (peak) is incorrectly split into multiple peaks or integrated as a main peak with one or more rider peaks resulting in low area counts for the target compound.

Reason #3: Improperly Integrated Isomers and/or coeluting compounds. This system often fails to distinguish coeluting compounds and or isomers. The integration areas and concentrations are wrong, and they must be corrected by manual integration. Prime examples are benzo(k)fluoranthene and benzo(b)fluoranthene which are often unresolved and integrated improperly when both are present at low concentrations in standards or samples.

Reason #4: System Establishes Incorrect Baseline There are numerous situations in chromatography where the system establishes the baseline incorrectly. Some baseline errors will be obvious to the analyst and should be corrected via manual procedures.

Reason #5: Miscellaneous Other situations involving integration errors may require in-depth review and technical judgment. These cases should be brought to the attention of the laboratory management. If the form of manual integration is not clearly covered by these four cases, then review and approval by the Laboratory Director or the QA/QC Supervisor will be required.

I certify that this data package is in compliance with the terms and conditions agreed to by the client and Microbac Laboratories Inc., both technically and for completeness, except for the conditions noted above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or designated person, as verified by the following signature.

Narrative ID: 74087
Approved By: Mike Cochran

Login Number: L13101691
Department: General Chromatography
Analyst: Eric Lawson

METHOD

Analysis SW-846 8330

HOLDING TIMES

Sample Preparation: All holding times were met.

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

CALIBRATION

Initial Calibration: For all compounds that yielded a %RSD greater than 15%, linear or higher order equations were applied. All acceptance criteria were met.

Alternate Source Standards: All acceptance criteria were met.

Continuing Calibration and Tune: All acceptance criteria were met.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Matrix Spikes: The MS/MSD results were not associated with this sample delivery group.

SAMPLES

Samples: All acceptance criteria were met.

Surrogates: All acceptance criteria were met.

Manual Integration Reason Codes

Reason #1: Data System Fails to Select Correct Peak In some cases the chromatography system selects and integrates the 'wrong peak'. In this case the analyst must correct the selection and force the system to integrate the proper peak. Other times the system may miss the peakcompletely.

Reason #2: Data System Splits the Peak Incorrectly or Integrates a False Peak as a Rider Peak This phenomena is common at low concentrations where the signal:noise ratio is low. A single compound (peak) is incorrectly split into multiple peaks or integrated as a main peak with one or more rider peaks resulting in low areacounts for the target compound.

Reason #3: Improperly Integrated Isomers and/or coeluting compounds. This system often fails to distinguish coeluting compounds and or isomers. The integration areas and concentrations are wrong, and they must be corrected by manual integration. Prime examples are benzo(k)fluoranthene andbenzo(b)fluoranthene which are often unresolved and integrated improperly when both are present at low concentrations in standards or samples.

Reason #4: System Establishes Incorrect Baseline There are numerous situations in chromatography where the system establishes the baseline incorrectly. Some baseline errors will be obvious to the analyst and should be corrected via manual procedures.

Reason #5: Miscellaneous Other situations involving integration errors may require in-depth review and technical judgment. These cases should be brought to the attention of the laboratory management. If the form of manual integration is not clearly covered by these four cases, then review and approval by the Laboratory Director or the QA/QC Supervisor will be required.

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Narrative ID: 74179
Approved By: Mike Cochran

Login Number: L13101691
Department: Conventionals
Analyst: Brice Fenton

METHOD

Analysis EPA 353.2/SM4500-NO3 F (Nitrate)

HOLDING TIMES

Sample Analysis: The instrument used for the analysis of nitrate only analyzes for nitrate-nitrite (NO3NO2) which is the amount of total nitrate (NO3) and nitrite (NO2) combined. The NO3 concentration is determined by analyzing for NO3NO2 and NO2 and calculating NO3 by the difference. An unpreserved bottle only has a 48 hour hold time for NO3 and NO2 separately. However if the bottle is preserved with sulfuric acid, the hold time for NO3NO2 is 28 days. The NO2 was analyzed within 48 hours. The NO3NO2 was analyzed from a preserved container within 28 days..

PREPARATION

Sample preparation proceeded normally.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met.

Duplicates: All acceptance criteria were met.

SAMPLES

Samples: All acceptance criteria were met.

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Narrative ID: 73797
Approved By: Deanna Hesson

Dannadsson

1.2 Certificate of Analysis

Microbac

Lab Report #: L13101691
Lab Project #: 3005.011
Project Name: White Sands MR
Lab Contact: Stephanie Mossburg

Certificate of Analysis

Sample #:	L13101691-01	**PrePrep Method:**	N/A	**Instrument:**	LCMS1
Client ID:	HTA 51-1013-1	**Prep Method:**	6850	**Prep Date:**	11/05/2013 20:30
Matrix:	Water	**Analytical Method:**	6850	**Cal Date:**	11/06/2013 00:54
Workgroup #:	WG451629	**Analyst:**	JWR	**Run Date:**	11/06/2013 09:07
Collect Date:	10/25/2013 09:55	**Dilution:**	100	**File ID:**	1LM.LM22541
Sample Tag:	DL01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD
Perchlorate	14797-73-0	30.5		20.0	10.0

Sample #:	L13101691-01	**PrePrep Method:**	N/A	**Instrument:**	HPLC4
Client ID:	HTA 51-1013-1	**Prep Method:**	METHOD	**Prep Date:**	10/30/2013 09:01
Matrix:	Water	**Analytical Method:**	8330B	**Cal Date:**	11/15/2012 15:04
Workgroup #:	WG450871	**Analyst:**	ECL	**Run Date:**	10/30/2013 22:28
Collect Date:	10/25/2013 09:55	**Dilution:**	1	**File ID:**	4L025799.F
Sample Tag:	02	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD
PETN	78-11-5		U	1.20	0.301
U	Analyte was not detected. The concentration is below the reported LOD.				

Certificate of Analysis

Sample #:	L13101691-01	**PrePrep Method:**	N/A	**Instrument:**	HPLC5
Client ID:	HTA 51-1013-1	**Prep Method:**	METHOD	**Prep Date:**	10/30/2013 09:01
Matrix:	Water	**Analytical Method:**	8330B	**Cal Date:**	08/31/2013 03:44
Workgroup #:	WG450871	**Analyst:**	JWR	**Run Date:**	11/06/2013 20:43
Collect Date:	10/25/2013 09:55	**Dilution:**	1	**File ID:**	5L011579.F
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD
1,3,5-Trinitrobenzene	99-35-4		U	1.20	0.301
1,3-Dinitrobenzene	99-65-0		U	1.20	0.301
2,4,6-Trinitrotoluene	118-96-7		U	1.20	0.301
2,4-Dinitrotoluene	121-14-2		U	1.20	0.301
2,6-Dinitrotoluene	606-20-2		U	1.20	0.301
2-Amino-4,6-dinitrotoluene	35572-78-2		U	1.20	0.301
2-Nitrotoluene	88-72-2		U	1.20	0.301
3-Nitrotoluene	99-08-1		U	1.20	0.301
4-Nitrotoluene	99-99-0		U	1.20	0.301
4-Amino-2,6-dinitrotoluene	19406-51-0		U	1.20	0.301
HMX	2691-41-0		U	1.20	0.301
Nitrobenzene	98-95-3		U	1.20	0.301
RDX	121-82-4		U	1.20	0.301
Tetryl	479-45-8		U	1.20	0.301
Nitroglycerin	55-63-0		U	1.20	0.301

Surrogate	Recovery	Lower Limit	Upper Limit	Q
1,2-Dinitrobenzene	96.0	50	150	

U	Analyte was not detected. The concentration is below the reported LOD.

Certificate of Analysis

Sample #:	L13101691-01	**PrePrep Method:**	N/A	**Instrument:**	SMARTCHEM
Client ID:	HTA 51-1013-1	**Prep Method:**	353.2	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	353.2	**Cal Date:**	10/29/2013 14:17
Workgroup #:	WG450787	**Analyst:**	BAF	**Run Date:**	10/30/2013 14:30
Collect Date:	10/25/2013 09:55	**Dilution:**	4	**File ID:**	SC13103112244401
Sample Tag:		**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD
Nitrate-Nitrite (as N)		4.09		0.200	0.100

Sample #:	L13101691-02	**PrePrep Method:**	N/A	**Instrument:**	LCMS1
Client ID:	HTA 43-1013-1	**Prep Method:**	6850	**Prep Date:**	11/05/2013 20:30
Matrix:	Water	**Analytical Method:**	6850	**Cal Date:**	11/06/2013 00:54
Workgroup #:	WG451629	**Analyst:**	JWR	**Run Date:**	11/06/2013 09:26
Collect Date:	10/25/2013 11:45	**Dilution:**	100	**File ID:**	1LM.LM22542
Sample Tag:	DL01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD
Perchlorate	14797-73-0	40.3		20.0	10.0

Sample #:	L13101691-02	**PrePrep Method:**	N/A	**Instrument:**	HPLC4
Client ID:	HTA 43-1013-1	**Prep Method:**	METHOD	**Prep Date:**	10/30/2013 09:01
Matrix:	Water	**Analytical Method:**	8330B	**Cal Date:**	11/15/2012 15:04
Workgroup #:	WG450871	**Analyst:**	ECL	**Run Date:**	10/30/2013 22:47
Collect Date:	10/25/2013 11:45	**Dilution:**	1	**File ID:**	4L025800.F
Sample Tag:	02	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD
PETN	78-11-5		U	1.23	0.309
U	Analyte was not detected. The concentration is below the reported LOD.				

Certificate of Analysis

Sample #:	L13101691-02	**PrePrep Method:**	N/A	**Instrument:**	HPLC5
Client ID:	HTA 43-1013-1	**Prep Method:**	METHOD	**Prep Date:**	10/30/2013 09:01
Matrix:	Water	**Analytical Method:**	8330B	**Cal Date:**	08/31/2013 03:44
Workgroup #:	WG450871	**Analyst:**	JWR	**Run Date:**	11/06/2013 21:22
Collect Date:	10/25/2013 11:45	**Dilution:**	1	**File ID:**	5L011580.F
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD
1,3,5-Trinitrobenzene	99-35-4		U	1.23	0.309
1,3-Dinitrobenzene	99-65-0		U	1.23	0.309
2,4,6-Trinitrotoluene	118-96-7		U	1.23	0.309
2,4-Dinitrotoluene	121-14-2		U	1.23	0.309
2,6-Dinitrotoluene	606-20-2		U	1.23	0.309
2-Amino-4,6-dinitrotoluene	35572-78-2		U	1.23	0.309
2-Nitrotoluene	88-72-2		U	1.23	0.309
3-Nitrotoluene	99-08-1		U	1.23	0.309
4-Nitrotoluene	99-99-0		U	1.23	0.309
4-Amino-2,6-dinitrotoluene	19406-51-0		U	1.23	0.309
HMX	2691-41-0		U	1.23	0.309
Nitrobenzene	98-95-3		U	1.23	0.309
RDX	121-82-4		U	1.23	0.309
Tetryl	479-45-8		U	1.23	0.309
Nitroglycerin	55-63-0		U	1.23	0.309

Surrogate	Recovery	Lower Limit	Upper Limit	Q
1,2-Dinitrobenzene	80.7	50	150	

U	Analyte was not detected. The concentration is below the reported LOD.

Microbac

Lab Report #: L13101691
Lab Project #: 3005.011
Project Name: White Sands MR
Lab Contact: Stephanie Mossburg

Certificate of Analysis

Sample #:	L13101691-02	**PrePrep Method:**	N/A	**Instrument:**	SMARTCHEM
Client ID:	HTA 43-1013-1	**Prep Method:**	353.2	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	353.2	**Cal Date:**	10/29/2013 14:17
Workgroup #:	WG450787	**Analyst:**	BAF	**Run Date:**	10/30/2013 14:30
Collect Date:	10/25/2013 11:45	**Dilution:**	4	**File ID:**	SC13103112245001
Sample Tag:		**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD
Nitrate-Nitrite (as N)		4.14		0.200	0.100

2.0 Full Sample Data Package

2.1 General Chromatography Data

2.1.1 6850 LC/MS Data

2.1.1.1 Summary Data

Login Number: L13101691
Department: General Chromatography
Analyst: John W. Richards Jr.

METHOD

Analysis SW-846 6850

HOLDING TIMES

Sample Preparation: All holding times were met.

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

CALIBRATION

Initial Calibration: For all compounds that yielded a %RSD greater than 15%, linear or higher order equations were applied. All acceptance criteria were met.

Alternate Source Standards: All acceptance criteria were met.

Continuing Calibration and Tune: All acceptance criteria were met.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Matrix Spikes: The MS/MSD results were not associated with this sample delivery group.

SAMPLES

Samples: Samples 01 and 02 were analyzed at dilutions based on screening results.

Internal Standards: All acceptance criteria were met.

Manual Integration Reason Codes

Reason #1: Data System Fails to Select Correct Peak In some cases the chromatography system selects and integrates the 'wrong peak'. In this case the analyst must correct the selection and force the system to integrate the proper peak. Other times the system may miss the peak completely.

Reason #2: Data System Splits the Peak Incorrectly or Integrates a False Peak as a Rider Peak This phenomena is common at low concentrations where the signal:noise ratio is low. A single compound (peak) is incorrectly split into multiple peaks or integrated as a main peak with one or more rider peaks resulting in low area counts for the target compound.

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Reason #4: System Establishes Incorrect Baseline There are numerous situations in chromatography where the system establishes the baseline incorrectly. Some baseline errors will be obvious to the analyst and should be corrected via manual procedures.

Reason #5: Miscellaneous Other situations involving integration errors may require in-depth review and technical judgment. These cases should be brought to the attention of the laboratory management. If the form of manual integration is not clearly covered by these four cases, then review and approval by the Laboratory Director or the QA/QC Supervisor will be required.

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Narrative ID: 74087
Approved By: Mike Cochran

Microbac

Lab Report #: L13101691
Lab Project #: 3005.011
Project Name: White Sands MR
Lab Contact: Stephanie Mossburg

Certificate of Analysis

Sample #:	L13101691-01	**PrePrep Method:**	N/A	**Instrument:**	LCMS1
Client ID:	HTA 51-1013-1	**Prep Method:**	6850	**Prep Date:**	11/05/2013 20:30
Matrix:	Water	**Analytical Method:**	6850	**Cal Date:**	11/06/2013 00:54
Workgroup #:	WG451629	**Analyst:**	JWR	**Run Date:**	11/06/2013 09:07
Collect Date:	10/25/2013 09:55	**Dilution:**	100	**File ID:**	1LM.LM22541
Sample Tag:	DL01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD
Perchlorate	14797-73-0	30.5		20.0	10.0

Sample #:	L13101691-02	**PrePrep Method:**	N/A	**Instrument:**	LCMS1
Client ID:	HTA 43-1013-1	**Prep Method:**	6850	**Prep Date:**	11/05/2013 20:30
Matrix:	Water	**Analytical Method:**	6850	**Cal Date:**	11/06/2013 00:54
Workgroup #:	WG451629	**Analyst:**	JWR	**Run Date:**	11/06/2013 09:26
Collect Date:	10/25/2013 11:45	**Dilution:**	100	**File ID:**	1LM.LM22542
Sample Tag:	DL01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD
Perchlorate	14797-73-0	40.3		20.0	10.0

2.1.1.2 QC Summary Data

Example Calculation 6850 - Perchlorate

Concentration from Linear Regression

Step 1: Retrieve Curve Data From Plot, y = mx + b

y = response ratio = response of analyte / response of internal standard (IS) = Rx/Ristd

x = amount ratio = concentration analyte/concentration internal standard (IS) = Cx / Cistd

m = slope from curve (1.45)

b = intercept from curve (-0.00242)

y = 1.45x + -0.00242

Step 2: Substitute the value for y

where y = 12600/226000 = 0.055752

Step 3: Solve for x

x = (y - b)/m = 0.0040119

Step 4: Solve for analyte concentration Cx

Cx = (Cis)(x) = (5 ug/L)(0.040119) = 0.200594 ug/L

Example Calculation - Water:

Slope from curve, m:	1.45
Intercept from curve, b:	-0.00242
Response of analyte, Rx:	12600
Response of Internal Standard , Ristd:	226000
Concentration of IS, Cistd (ug/L):	5.00
Response Ratio:	0.05575
Amount Ratio:	0.04012
Analyte Concentration, Cx (ug/L) :	0.200594

Example Calculation - Soil:

Analyte Concentration, Cx (ug/L):	0.20059
Amount of soil extracted (g):	5.00
Final volume of extract (mL):	50.00
Percent solids (Pct wt.)	100
Concentration in soil (ug/kg):	2.005938

Perchlorate Conductivity Check
(perchlorate1)

Conductivity Probe
Calibration Check: 1421 /1410 µs/cm

Working MCT Level: 10,000 µs/cm

Sample	Conductivity (µs/cm)	Pretreatment or Dilution Needed
WG451629-01 MCT	9,920	
-02 Blank	0.0	
-03 LCS	0.0	
L13101567-01	984	
-02	975	
-03	976	
-04	975	
L13101578-01	764	
-03	3,010	
-05	4,490	
-07	5,190	
L13101612-01	980	
-02 RS	818	
-03 MS	821	
-04 MSD	822	
L13101613-01	874	
L13101691-01	972	
-02	895	
L13101756-01	3,010	
-02	3,050	

Analyst: John Richards

Date/Time: 11/06/13 / 1405

DCN#98662

Microbac Laboratories Inc.

Instrument Run Log

Instrument: LCMS1 Dataset: 110513_JWR.TXT
Analyst1: JWR Analyst2: NA
Method: 6850 SOP: HPLC06 Rev: 5

Maintenance Log ID: Syringe Filter Lot#: 130108254
Eluent ID#:

Column 1 ID: KP-RPPX250 Column 2 ID: NA

Workgroups: Analytical WG451629 (waters)

Internal STD: COA16478 Surrogate STD: NA Calibration STD STD60059 (11/05/2013)

CCV STD: STD60059 LCS STD: STD60059 MS/MSD STD: STD60059

Comments: ICAL WG451626
Alternate Source STD61185
Samples L13101567(-01,-02,-03,-04), L13101756(-01,-02) and L13101612-01 were analyzed at dilutions based on their historical results.
Samples L13101578(-01,-03,-05,-07), L13101613-01 and L13101691(-01,-02) had no historical results. Samples with no historical results are initially analyzed/screened at a 100x dilution in order to prevent overloading the analytical column and/or MS-detector.

Seq.	File ID	Sample Information	Mat	Dil	Reference	Date/Time
1	1LM.LM22508	WG451626-01 CCB	1	1		11/05/13 22:42
2	1LM.LM22509	WG451626-02 STD (0.1 ug/L)	1	1	STD60059	11/05/13 23:01
3	1LM.LM22510	WG451626-03 STD (0.2 ug/L)	1	1	STD60059	11/05/13 23:20
4	1LM.LM22511	WG451626-04 STD (0.5 ug/L)	1	1	STD60059	11/05/13 23:39
5	1LM.LM22512	WG451626-05 STD (1.0 ug/L)	1	1	STD60059	11/05/13 23:58
6	1LM.LM22513	WG451626-06 STD (2.0 ug/L)	1	1	STD60059	11/06/13 00:16
7	1LM.LM22514	WG451626-07 STD (5.0 ug/L)	1	1	STD60059	11/06/13 00:35
8	1LM.LM22515	WG451626-08 STD (10 ug/L)	1	1	STD60059	11/06/13 00:54
9	1LM.LM22516	WG451626-09 SSCV (1.0 ug/L)	1	1	STD61185	11/06/13 01:13
10	1LM.LM22517	WG451630-01 CCB	1	1		11/06/13 01:32
11	1LM.LM22518	WG451630-02 CCV (1.0ug/L)	1	1	STD60059	11/06/13 01:51
12	1LM.LM22519	WG451629-07 QCMRL (0.2ug/L)	1	1	STD60059	11/06/13 02:10
13	1LM.LM22520	WG451629-01 MCT (0.2ug/L)	1	1	STD60059	11/06/13 02:29
14	1LM.LM22521	WG451629-02 BLANK	1	1		11/06/13 02:48
15	1LM.LM22522	WG451629-03 LCS (0.2ug/L)	1	1	STD60059	11/06/13 03:07
16	1LM.LM22523	L13101567-01 (10,000x)	1	10000		11/06/13 03:26
17	1LM.LM22524	L13101567-02 (10,000x)	1	10000		11/06/13 03:45
18	1LM.LM22525	L13101567-03 (10,000x)	1	10000		11/06/13 04:04
19	1LM.LM22526	L13101567-04 (10,000x)	1	10000		11/06/13 04:23
20	1LM.LM22527	L13101756-01 (5,000x)	1	5000		11/06/13 04:42
21	1LM.LM22528	L13101756-02 (5,000x)	1	5000		11/06/13 05:01
22	1LM.LM22529	L13101612-01 (10,000x)	1	10000		11/06/13 05:20
23	1LM.LM22530	WG451630-03 CCV (1.0ug/L)	1	1	STD60059	11/06/13 05:38
24	1LM.LM22531	WG451629-08 QCMRL (0.2ug/L)	1	1	STD60059	11/06/13 05:57
25	1LM.LM22532	WG451630-04 CCB	1	1		11/06/13 06:16
26	1LM.LM22533	L13101612-02 RS	1	1		11/06/13 06:35
27	1LM.LM22534	L13101612-03 MS	1	1	STD60059	11/06/13 06:54
28	1LM.LM22535	L13101612-04 MSD	1	1	STD60059	11/06/13 07:13
29	1LM.LM22536	L13101578-01 (100x) (NR)	1	100		11/06/13 07:32
30	1LM.LM22537	L13101578-03 (100x) (NR)	1	100		11/06/13 07:51

Page: 1 Approved: 07-NOV-13

Microbac Laboratories Inc.

Instrument Run Log

Instrument: LCMS1 Dataset: 110513_JWR.TXT
Analyst1: JWR Analyst2: NA
Method: 6850 SOP: HPLC06 Rev: 5

Maintenance Log ID: Syringe Filter Lot#: 130108254
Eluent ID#:

Column 1 ID: KP-RPPX250 Column 2 ID: NA

Workgroups: Analytical WG451629 (waters)

Internal STD: COA16478 Surrogate STD: NA STD60059 (11/05/2013)
CCV STD: STD60059 LCS STD: STD60059 STD60059

Seq.	File ID	Sample Information	Mat	Dil	Reference	Date/Time
31	1LM.LM22538	L13101578-05 (100x) (NR)	1	100		11/06/13 08:10
32	1LM.LM22539	L13101578-07 (100x) (NR)	1	100		11/06/13 08:29
33	1LM.LM22540	L13101613-01 (100x)	1	100		11/06/13 08:48
34	1LM.LM22541	L13101691-01 (100x)	1	100		11/06/13 09:07
35	1LM.LM22542	L13101691-02 (100x)	1	100		11/06/13 09:26
36	1LM.LM22543	Blank Rinse	1	1		11/06/13 09:45
37	1LM.LM22544	WG451630-05 CCV (1.0ug/L)	1	1	STD60059	11/06/13 10:04
38	1LM.LM22545	WG451629-09 QCMRL (0.2ug/L)	1	1	STD60059	11/06/13 10:23
39	1LM.LM22546	WG451630-06 CCB	1	1		11/06/13 10:41
40	1LM.LM22547	L13101612-02 RS (NR)	1	1		11/06/13 12:50
41	1LM.LM22548	L13101612-03 MS (NR)	1	1	STD60059	11/06/13 13:09
42	1LM.LM22549	L13101612-04 MSD (NR)	1	1	STD60059	11/06/13 13:28
43	1LM.LM22550	L13101578-01 (Rerun Neat)	1	1		11/06/13 13:47
44	1LM.LM22551	L13101578-03 (Rerun Neat)	1	1		11/06/13 14:06
45	1LM.LM22552	L13101578-05 (Rerun 10,000x)	1	10000		11/06/13 14:25
46	1LM.LM22553	L13101578-07 (Rerun Neat)	1	1		11/06/13 14:44
47	1LM.LM22554	WG451630-07 CCV (1.0ug/L)	1	1	STD60059	11/06/13 15:03
48	1LM.LM22555	WG451629-10 QCMRL (0.2ug/L)	1	1	STD60059	11/06/13 15:22
49	1LM.LM22556	WG451630-08 CCB	1	1		11/06/13 15:41

Comments

Seq.	Rerun	Dil.	Reason	Analytes
27				
	L13101612-03 MS : The MS %Rec is below the advisory limit. The parent sample to the MS had a perchlorate result 11 times greater than that of the MS-spike amount.			
28				
	L13101612-04 MSD : The MSD %Rec is below the advisory limit. The parent sample to the MSD had a perchlorate result 11 times greater than that of the MSD-spike amount.			
29	X	1	Analyzed too dilute	
	L13101578-01 (100x) (NR) : This sample was reanalyzed neat at the end of this sequence.			
30	X	1	Analyzed too dilute	
	L13101578-03 (100x) (NR) : This sample was reanalyzed neat at the end of this sequence.			
31	X	10000	Over Calibration Range	
	L13101578-05 (100x) (NR) : This sample was reanalyzed at a 10,000x dilution at the end of this sequence.			
32	X	1	Analyzed too dilute	
	L13101578-07 (100x) (NR) : This sample was reanalyzed neat at the end of this sequence.			
40				

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Microbac Laboratories Inc.

Instrument Run Log

Instrument: LCMS1 Dataset: 110513_JWR.TXT
Analyst1: JWR Analyst2: NA
Method: 6850 SOP: HPLC06 Rev: 5

Maintenance Log ID: Syringe Filter Lot#: 130108254
Eluent ID#:

Column 1 ID: KP-RPPX250 Column 2 ID: NA

Workgroups: Analytical WG451629 (waters)

Internal STD: COA16478 Surrogate STD: NA STD60059 (11/05/2013)
CCV STD: STD60059 LCS STD: STD60059 STD60059

Comments

Seq.	Rerun	Dil.	Reason	Analytes
	L13101612-02 RS (NR) : This parent sample was refiltered and reanalyzed with no change in its results. The results from the first analysis of this sample will be reported.			
41				
	L13101612-03 MS (NR) : This sample was refiltered, respiked, and reanalyzed with no change in its results. The results from the first analysis of this sample will be reported.			
42				
	L13101612-04 MSD (NR) : This sample was refiltered, respiked, and reanalyzed with no change in its results. The results from the first analysis of this sample will be reported.			

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Microbac Laboratories Inc.

Data Checklist

Date: 05-NOV-2013
Analyst: JWR
Analyst: NA
Method: 6850
Instrument: LCMS1
Curve Workgroup: WG451626
Runlog ID: 56931
Analytical Workgroups: L13101567, 1578, 1612, 1613, 1691, 1756 (WATERS)

ANALYTICAL	
System Performance Check	NA
DFTPP (GCMS)	NA
Endrin/DDT breakdown (8081/GCMS)	NA
Pentachlorophenol/benzidine tailing (GCMS)	NA
Eluent check (IC)/system pressure (HPLC)	NA
Window standard (FID)	NA
Initial Calibration	X
Average RF	NA
Linear regression or higher order curve	X
Alternate source standard (ICV) % Difference	X
Continuing Calibration (CCV)	X
% D/% Drift	X
Minimum response factors (GCMS)	X
Continuing calibration blank (CCB) (IC/LCMS)	X
Limit of quantitation verification (LOQV) (LCMS)	X
Special standards	NA
Blanks	X
TCL hits	ND
Surrogate recoveries	NA
LCS/LCSD (Laboratory Control Sample)	X
Recoveries	X
Surrogate recoveries	NA
MS/MSD/Sample duplicates	X
Recoveries	LOW
%RPD	X
Interference check sample (ICS) (LCMS)	MCT
Samples	X
TCL hits	X
Mass spectra (MS/HPLC)/2nd column confirmations (ECD/FID/HPLC)	NA
Surrogate recoveries	NA
Internal standard areas (MS)	X
Library searches (GCMS)	NA
Calculations & correct factors	X
Compounds above calibration range	X
Reruns	X
Manual integrations	X
Project/client specific requirements	X
REPORTING	
Upload batch form	X
KOBRA workgroup data/forms/bench sheets	X
Case narratives	
Check for completeness	X
Primary Reviewer	JWR
SUPERVISORY/SECONDARY REVIEW	
Check for compliance with method and project specific requirements	X
Check the completeness/accuracy of reported information	X
Data qualifiers	X
Secondary Reviewer	MDC

Primary Reviewer:
06-NOV-2013
John Richards

Secondary Reviewer:
07-NOV-2013
Michael Cadwell

CHECKLIST1 - Modified 03/05/2008
Generated: NOV-07-2013 10:13:30

Microbac Laboratories Inc.

HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: 6850 AAB#: WG451629

Login Number: L13101691

Client ID	ID	Date Collected	TCLP Date	Time Held	Max Hold	Q	Extract Date	Time Held	Max Hold	Q	Run Date	Time Held	Max Hold	Q
HTA 51-1013-1	01	10/25/13					11/05/2013	11.4	28		11/06/13	.5	28	
HTA 43-1013-1	02	10/25/13					11/05/2013	11.4	28		11/06/13	.5	28	

* = SEE PROJECT QAPP REQUIREMENTS

HOLD_TIMES - Modified 03/06/2008
PDF File ID: 3187964
Report generated 11/07/2013 11:38

Microbac Laboratories Inc.

METHOD BLANK SUMMARY

Login Number: L13101691
Blank File ID: 1LM.LM22521
Prep Date: 11/05/13 20:30
Analyzed Date: 11/06/13 02:48
Analyst: JWR

Work Group: WG451629
Blank Sample ID: WG451629-02
Instrument ID: LCMS1
Method: 6850

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
QCMRL	WG451629-07	1LM.LM22519	11/06/13 02:10	01
MCT	WG451629-01	1LM.LM22520	11/06/13 02:29	01
LCS	WG451629-03	1LM.LM22522	11/06/13 03:07	01
QCMRL	WG451629-08	1LM.LM22531	11/06/13 05:57	01
HTA 51-1013-1	L13101691-01	1LM.LM22541	11/06/13 09:07	DL01
HTA 43-1013-1	L13101691-02	1LM.LM22542	11/06/13 09:26	DL01
QCMRL	WG451629-09	1LM.LM22545	11/06/13 10:23	01
QCMRL	WG451629-10	1LM.LM22555	11/06/13 15:22	01

Report Name: BLANK_SUMMARY
PDF File ID: 3187965
Report generated 11/07/2013 11:38

Microbac Laboratories Inc.

METHOD BLANK REPORT

Login Number: L13101691 Prep Date: 11/05/13 20:30 Sample ID: WG451629-02
Instrument ID: LCMS1 Run Date: 11/06/13 02:48 Prep Method: 6850
File ID: 1LM.LM22521 Analyst: JWR Method: 6850
Workgroup (AAB#): WG451629 Matrix: Water Units: ug/L
Contract #: Cal ID: LCMS1-06-NOV-13

Analytes	LOD	LOQ	Concentration	Dilution	Qualifier
Perchlorate	0.100	0.200	0.100	1	U

LOD Method Detection Limit
LOQ Reporting/Practical Quantitation Limit
ND Analyte Not detected at or above reporting limit
* |Analyte concentration| > 1/2 RL

Report Name: BLANK
PDF ID: 3187966
07-NOV-2013 11:38

Microbac Laboratories Inc.
LABORATORY CONTROL SAMPLE (LCS)

Login Number: L13101691 Run Date: 11/06/2013 Sample ID: WG451629-03
Instrument ID: LCMS1 Run Time: 03:07 Prep Method: 6850
File ID: 1LM.LM22522 Analyst: JWR Method: 6850
Workgroup (AAB#): WG451629 Matrix: Water Units: ug/L
QC Key: DOD4 Lot#: STD60059 Cal ID: LCMS1-06-NOV-13

Analytes	Expected	Found	% Rec	LCS Limits	Q
Perchlorate	0.200	0.197	98.5	80 - 120	

LCS - Modified 03/06/2008
PDF File ID: 3187967
Report generated: 11/07/2013 11:38

Microbac Laboratories Inc.

INITIAL CALIBRATION SUMMARY

Login Number: L13101691
Analytical Method: 6850
ICAL Workgroup: WG451626

Instrument ID: LCMS1
Initial Calibration Date: 06-NOV-13 00:54
Column ID: F

Analyte		AVG RF	% RSD	LINEAR (R)	QUAD (R^2)
Perchlorate		1.229	5.35	1.00000	

R = Correlation coefficient; 0.995 minimum
R^2 = Coefficient of determination; 0.99 minimum

INT_CAL - Modified 03/06/2008
PDF File ID: 3188982
Report generated 11/07/2013 11:38

Microbac Laboratories Inc.

INITIAL CALIBRATION DATA

Login Number: L13101691

Analytical Method: 6850

Instrument ID: LCMS1

Initial Calibration Date: 06-NOV-13 00:54

Column ID: F

Analyte	WG451626-02			WG451626-03			WG451626-04		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
Perchlorate	0.100	7270.00000	1.314	0.200	14900.0000	1.323	0.500	34600.0000	1.220

INT_CAL - Modified 03/06/2008
PDF File ID: 3188982
Report generated 11/07/2013 11:38

Microbac Laboratories Inc.

INITIAL CALIBRATION DATA

Login Number: L13101691

Analytical Method: 6850

Instrument ID: LCMS1

Initial Calibration Date: 06-NOV-13 00:54

Column ID: F

Analyte	WG451626-05			WG451626-06			WG451626-07		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
Perchlorate	1.00	65700.0000	1.151	2.00	136000.000	1.202	5.00	327000.000	1.181

INT_CAL - Modified 03/06/2008
PDF File ID: 3188982
Report generated 11/07/2013 11:38

Microbac Laboratories Inc.

INITIAL CALIBRATION DATA

Login Number: L13101691

Analytical Method: 6850

Instrument ID: LCMS1

Initial Calibration Date: 06-NOV-13 00:54

Column ID: F

Analyte	WG451626-08		
	CONC	RESP	RF
Perchlorate	10.0	654000.000	1.212

INT_CAL - Modified 03/06/2008
PDF File ID: 3188982
Report generated 11/07/2013 11:38

Microbac Laboratories Inc.
ALTERNATE SOURCE CALIBRATION REPORT

Login Number: L13101691 Run Date: 11/06/2013 Sample ID: WG451626-09
Instrument ID: LCMS1 Run Time: 01:13 Method: 6850
File ID: 1LM.LM22516 Analyst: JWR QC Key: DOD4
ICal Workgroup: WG451626 Cal ID: LCMS1 - 06-NOV-13

Analyte		Expected	Found	Units	RF	%D	UCL	Q
Perchlorate		1.00	1.02	ug/L	1.23	2.00	15	

* Exceeds %D Limit

ALT - Modified 09/06/2007
Version 1.5 PDF File ID: 3188983
Report generated 11/07/2013 11:38

Microbac Laboratories Inc.

CONTINUING CALIBRATION BLANK (CCB)

Login Number: L13101691 Run Date: 11/06/2013 Sample ID: WG451630-01
Instrument ID: LCMS1 Run Time: 01:32 Method: 6850
File ID: 1LM.LM22517 Analyst: JWR Units: ug/L
Workgroup (AAB#): WG451629 Cal ID: LCMS1 - 06-NOV-13
Matrix: WATER QAPP: DOD4_NOFLAG

Analytes	MDL	RDL	Concentration	Qualifier
Perchlorate	0.100	0.200	0.100	U

U = Result is less than MDL.
F = Result is between MDL and RL.
* = Result is above RL.

CCB - Modified 03/05/2008
PDF File ID: 3187970
Report generated 11/07/2013 11:38

Microbac Laboratories Inc.

CONTINUING CALIBRATION BLANK (CCB)

Login Number: L13101691 Run Date: 11/06/2013 Sample ID: WG451630-04
Instrument ID: LCMS1 Run Time: 06:16 Method: 6850
File ID: 1LM.LM22532 Analyst: JWR Units: ug/L
Workgroup (AAB#): WG451629 Cal ID: LCMS1 - 06-NOV-13
Matrix: WATER QAPP: DOD4_NOFLAG

Analytes	MDL	RDL	Concentration	Qualifier
Perchlorate	0.100	0.200	0.100	U

U = Result is less than MDL.
F = Result is between MDL and RL.
* = Result is above RL.

CCB - Modified 03/05/2008
PDF File ID: 3187970
Report generated 11/07/2013 11:38

Microbac Laboratories Inc.
CONTINUING CALIBRATION BLANK (CCB)

Login Number: L13101691 Run Date: 11/06/2013 Sample ID: WG451630-06
Instrument ID: LCMS1 Run Time: 10:41 Method: 6850
File ID: 1LM.LM22546 Analyst: JWR Units: ug/L
Workgroup (AAB#): WG451629 Cal ID: LCMS1 - 06-NOV-13
Matrix: WATER QAPP: DOD4_NOFLAG

Analytes	MDL	RDL	Concentration	Qualifier
Perchlorate	0.100	0.200	0.100	U

U = Result is less than MDL.
F = Result is between MDL and RL.
* = Result is above RL.

CCB - Modified 03/05/2008
PDF File ID: 3187970
Report generated 11/07/2013 11:38

Microbac Laboratories Inc.

CONTINUING CALIBRATION BLANK (CCB)

Login Number: L13101691 Run Date: 11/06/2013 Sample ID: WG451630-08
Instrument ID: LCMS1 Run Time: 15:41 Method: 6850
File ID: 1LM.LM22556 Analyst: JWR Units: ug/L
Workgroup (AAB#): WG451629 Cal ID: LCMS1 - 06-NOV-13
Matrix: WATER QAPP: DOD4_NOFLAG

Analytes	MDL	RDL	Concentration	Qualifier
Perchlorate	0.100	0.200	0.100	U

U = Result is less than MDL.
F = Result is between MDL and RL.
* = Result is above RL.

CCB - Modified 03/05/2008
PDF File ID: 3187970
Report generated 11/07/2013 11:38

Microbac Laboratories Inc.
CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L13101691
Run Date: 11/06/2013
Sample ID: WG451630-02
Instrument ID: LCMS1
Run Time: 01:51
Method: 6850
File ID: 1LM.LM22518
Analyst: JWR
QC Key: DOD4
Workgroup (AAB#): WG451629
Cal ID: LCMS1 - 06-NOV-13
Matrix: WATER

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
Perchlorate		1.00	0.981	ug/L	1.19	1.90	15	

* Exceeds %D Criteria

CCV - Modified 03/05/2008
PDF File ID: 3187969
Report generated 11/07/2013 11:38

Microbac Laboratories Inc.

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L13101691 Run Date: 11/06/2013 Sample ID: WG451630-03

Instrument ID: LCMS1 Run Time: 05:38 Method: 6850

File ID: 1LM.LM22530 Analyst: JWR QC Key: DOD4

Workgroup (AAB#): WG451629 Cal ID: LCMS1 - 06-NOV-13

Matrix: WATER

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
Perchlorate		1.00	0.965	ug/L	1.17	3.50	15	

* Exceeds %D Criteria

CCV - Modified 03/05/2008

PDF File ID: 3187969

Report generated 11/07/2013 11:38

Microbac Laboratories Inc.
CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L13101691
Run Date: 11/06/2013
Sample ID: WG451630-05
Instrument ID: LCMS1
Run Time: 10:04
Method: 6850
File ID: 1LM.LM22544
Analyst: JWR
QC Key: DOD4
Workgroup (AAB#): WG451629
Cal ID: LCMS1 - 06-NOV-13
Matrix: WATER

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
Perchlorate		1.00	0.980	ug/L	1.19	2.00	15	

* Exceeds %D Criteria

CCV - Modified 03/05/2008
PDF File ID: 3187969
Report generated 11/07/2013 11:38

Microbac Laboratories Inc.
CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L13101691
Run Date: 11/06/2013
Sample ID: WG451630-07
Instrument ID: LCMS1
Run Time: 15:03
Method: 6850
File ID: 1LM.LM22554
Analyst: JWR
QC Key: DOD4
Workgroup (AAB#): WG451629
Cal ID: LCMS1 - 06-NOV-13
Matrix: WATER

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
Perchlorate		1.00	0.997	ug/L	1.21	0.300	15	

* Exceeds %D Criteria

CCV - Modified 03/05/2008
PDF File ID: 3187969
Report generated 11/07/2013 11:38

Microbac Laboratories Inc.

QCMRL SAMPLE

Login Number: L13101691 Run Date: 11/06/2013 Sample ID: WG451629-07

Instrument ID: LCMS1 Run Time: 02:10 Prep Method: 6850

File ID: 1LM.LM22519 Analyst: JWR Method: 6850

Workgroup (AAB#): WG451629 Matrix: Water Units: ug/L

Contract #: Cal ID: LCMS1-06-NOV-13

Analytes	Expected	Found	% Rec	Limits	Q
Perchlorate	0.200	0.208	104	70 - 130	

QCMRL - Modified 03/06/2007
PDF File ID: 3187968
Report generated 11/07/2013 11:38

Microbac Laboratories Inc.

QCMRL SAMPLE

Login Number: L13101691 Run Date: 11/06/2013 Sample ID: WG451629-08

Instrument ID: LCMS1 Run Time: 05:57 Prep Method: 6850

File ID: 1LM.LM22531 Analyst: JWR Method: 6850

Workgroup (AAB#): WG451629 Matrix: Water Units: ug/L

Contract #: Cal ID: LCMS1-06-NOV-13

Analytes	Expected	Found	% Rec	Limits	Q
Perchlorate	0.200	0.210	105	70 - 130	

QCMRL - Modified 03/06/2007

PDF File ID: 3187968

Report generated 11/07/2013 11:38

Microbac Laboratories Inc.

QCMRL SAMPLE

Login Number: L13101691 Run Date: 11/06/2013 Sample ID: WG451629-09

Instrument ID: LCMS1 Run Time: 10:23 Prep Method: 6850

File ID: 1LM.LM22545 Analyst: JWR Method: 6850

Workgroup (AAB#): WG451629 Matrix: Water Units: ug/L

Contract #: Cal ID: LCMS1-06-NOV-13

Analytes	Expected	Found	% Rec	Limits	Q
Perchlorate	0.200	0.218	109	70 - 130	

QCMRL - Modified 03/06/2007
PDF File ID: 3187968
Report generated 11/07/2013 11:38

Microbac Laboratories Inc.

QCMRL SAMPLE

Login Number: L13101691 Run Date: 11/06/2013 Sample ID: WG451629-10

Instrument ID: LCMS1 Run Time: 15:22 Prep Method: 6850

File ID: 1LM.LM22555 Analyst: JWR Method: 6850

Workgroup (AAB#): WG451629 Matrix: Water Units: ug/L

Contract #: Cal ID: LCMS1-06-NOV-13

Analytes	Expected	Found	% Rec	Limits	Q
Perchlorate	0.200	0.208	104	70 - 130	

QCMRL - Modified 03/06/2007
PDF File ID: 3187968
Report generated 11/07/2013 11:38

Microbac Laboratories Inc.

INTERNAL STANDARD AREA SUMMARY
(COMPARED TO AVERAGE OF ICAL)

Login Number: L13101691
Instrument ID: LCMS1
Workgroup (AAB#): WG451629

ICAL CCV Number: WG451626-05
CAL ID: LCMS1-06-NOV-13
Matrix: WATER

Sample Number	Dilution	Tag	IS-1
WG451626	NA	NA	280000
Upper Limit	NA	NA	420000
Lower Limit	NA	NA	140000
L13101691-01	100	DL01	276000
L13101691-02	100	DL01	271000
WG451629-02	1.00	01	289000
WG451629-03	1.00	01	291000

IS-1 - O18LP

Underline = Response outside limits

INTERNAL_STD_AVG_ICAL - Modified 03/10/2010
PDF File ID: 3187971
Report generated 11/07/2013 11:38

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L13101691	**Prep Method:**	6850	**Samplenum:**	L13101691-01
Instrument:	LCMS1	**Prep Date:**	11/05/2013 20:30	**File ID:**	1LM.LM22541
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG451629	**Analysis Date:**	11/06/2013 09:07	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	20800	7040	2.95	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L13101691	**Prep Method:**	6850	**Samplenum:**	L13101691-02
Instrument:	LCMS1	**Prep Date:**	11/05/2013 20:30	**File ID:**	1LM.LM22542
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG451629	**Analysis Date:**	11/06/2013 09:26	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	26800	9470	2.83	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L13101691	**Prep Method:**		**Samplenum:**	WG451626-02
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM22509
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG451629	**Analysis Date:**	11/05/2013 23:01	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	7270	2450	2.97	2.3	3.8	

Perchlorate Ion Ratios
Microbac Laboratories Inc.

Login #:	L13101691	**Prep Method:**		**Samplenum:**	WG451626-03
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM22510
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG451629	**Analysis Date:**	11/05/2013 23:20	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	14900	4620	3.23	2.3	3.8	

Perchlorate Ion Ratios
Microbac Laboratories Inc.

Login #:	L13101691	**Prep Method:**		**Samplenum:**	WG451626-04
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM22511
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG451629	**Analysis Date:**	11/05/2013 23:39	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	34600	11500	3.01	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L13101691	**Prep Method:**		**Samplenum:**	WG451626-05
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM22512
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG451629	**Analysis Date:**	11/05/2013 23:58	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	65700	23400	2.81	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L13101691	**Prep Method:**		**Samplenum:**	WG451626-06
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM22513
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG451629	**Analysis Date:**	11/06/2013 00:16	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	136000	46500	2.92	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L13101691	**Prep Method:**		**Samplenum:**	WG451626-07
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM22514
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG451629	**Analysis Date:**	11/06/2013 00:35	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	327000	113000	2.89	2.3	3.8	

Perchlorate Ion Ratios
Microbac Laboratories Inc.

Login #:	L13101691	**Prep Method:**		**Samplenum:**	WG451626-08
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM22515
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG451629	**Analysis Date:**	11/06/2013 00:54	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	654000	216000	3.03	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L13101691	**Prep Method:**		**Samplenum:**	WG451626-09
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM22516
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG451629	**Analysis Date:**	11/06/2013 01:13	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	67300	23200	2.90	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L13101691	**Prep Method:**	6850	**Samplenum:**	WG451629-01
Instrument:	LCMS1	**Prep Date:**	11/05/2013 20:30	**File ID:**	1LM.LM22520
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG451629	**Analysis Date:**	11/06/2013 02:29	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	14500	4870	2.98	2.3	3.8	

Perchlorate Ion Ratios
Microbac Laboratories Inc.

Login #:	L13101691	**Prep Method:**	6850	**Samplenum:**	WG451629-02
Instrument:	LCMS1	**Prep Date:**	11/05/2013 20:30	**File ID:**	1LM.LM22521
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG451629	**Analysis Date:**	11/06/2013 02:48	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	980	81.4	12.0	2.3	3.8	*

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L13101691	**Prep Method:**	6850	**Samplenum:**	WG451629-03
Instrument:	LCMS1	**Prep Date:**	11/05/2013 20:30	**File ID:**	1LM.LM22522
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG451629	**Analysis Date:**	11/06/2013 03:07	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	14400	5230	2.75	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L13101691	**Prep Method:**	6850	**Samplenum:**	WG451629-04
Instrument:	LCMS1	**Prep Date:**	11/05/2013 20:30	**File ID:**	1LM.LM22533
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG451629	**Analysis Date:**	11/06/2013 06:35	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	164000	52300	3.14	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L13101691	**Prep Method:**	6850	**Samplenum:**	WG451629-05
Instrument:	LCMS1	**Prep Date:**	11/05/2013 20:30	**File ID:**	1LM.LM22534
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG451629	**Analysis Date:**	11/06/2013 06:54	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	156000	53800	2.90	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L13101691	**Prep Method:**	6850	**Samplenum:**	WG451629-06
Instrument:	LCMS1	**Prep Date:**	11/05/2013 20:30	**File ID:**	1LM.LM22535
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG451629	**Analysis Date:**	11/06/2013 07:13	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	145000	48000	3.02	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L13101691	**Prep Method:**	6850	**Samplenum:**	WG451629-07
Instrument:	LCMS1	**Prep Date:**	11/05/2013 20:30	**File ID:**	1LM.LM22519
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG451629	**Analysis Date:**	11/06/2013 02:10	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	15100	4520	3.34	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L13101691	**Prep Method:**	6850	**Samplenum:**	WG451629-08
Instrument:	LCMS1	**Prep Date:**	11/05/2013 20:30	**File ID:**	1LM.LM22531
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG451629	**Analysis Date:**	11/06/2013 05:57	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	15300	5170	2.96	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L13101691	**Prep Method:**	6850	**Samplenum:**	WG451629-09
Instrument:	LCMS1	**Prep Date:**	11/05/2013 20:30	**File ID:**	1LM.LM22545
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG451629	**Analysis Date:**	11/06/2013 10:23	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	15200	4720	3.22	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L13101691	**Prep Method:**	6850	**Samplenum:**	WG451629-10
Instrument:	LCMS1	**Prep Date:**	11/05/2013 20:30	**File ID:**	1LM.LM22555
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG451629	**Analysis Date:**	11/06/2013 15:22	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	12700	4320	2.94	2.3	3.8	

Perchlorate Ion Ratios
Microbac Laboratories Inc.

Login #:	L13101691	**Prep Method:**		**Samplenum:**	WG451630-01
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM22517
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG451629	**Analysis Date:**	11/06/2013 01:32	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	0.000	531	0.000	2.3	3.8	*

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L13101691	**Prep Method:**		**Samplenum:**	WG451630-02
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM22518
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG451629	**Analysis Date:**	11/06/2013 01:51	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	67100	24700	2.72	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L13101691	**Prep Method:**		**Samplenum:**	WG451630-03
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM22530
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG451629	**Analysis Date:**	11/06/2013 05:38	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	69400	24200	2.87	2.3	3.8	

Perchlorate Ion Ratios
Microbac Laboratories Inc.

Login #:	L13101691	**Prep Method:**		**Samplenum:**	WG451630-04
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM22532
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG451629	**Analysis Date:**	11/06/2013 06:16	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	0.000	76.6	0.000	2.3	3.8	*

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L13101691	**Prep Method:**		**Samplenum:**	WG451630-05
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM22544
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG451629	**Analysis Date:**	11/06/2013 10:04	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	66000	21100	3.13	2.3	3.8	

Perchlorate Ion Ratios
Microbac Laboratories Inc.

Login #:	L13101691	**Prep Method:**		**Samplenum:**	WG451630-06
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM22546
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG451629	**Analysis Date:**	11/06/2013 10:41	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	500	210	2.38	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L13101691	**Prep Method:**		**Samplenum:**	WG451630-07
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM22554
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG451629	**Analysis Date:**	11/06/2013 15:03	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	56200	19400	2.90	2.3	3.8	

Perchlorate Ion Ratios
Microbac Laboratories Inc.

Login #:	L13101691	**Prep Method:**		**Samplenum:**	WG451630-08
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM22556
Analyst:	JWR	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG451629	**Analysis Date:**	11/06/2013 15:41	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	0.000	251	0.000	2.3	3.8	*

2.1.1.3 Sample Data

Data File	LM22541.wiff	**Result Table**	110513_JWR.rdb
Acquisition Date	11/6/2013 9:07:14 AM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

Sample Name	L13101691-01 (100x)	**Injection Vial**	28.00
Data File	LM22541.wiff	**Injection Volume**	10.00
Acquisition Date	11/6/2013 9:07:14 AM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	110513_JWR.rdb
Sample ID	L13101691-01	**Dilution Factor**	1.00
Sample Comment	1,100 (No Hist)	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	2.760e+05	13.40	5.00	-

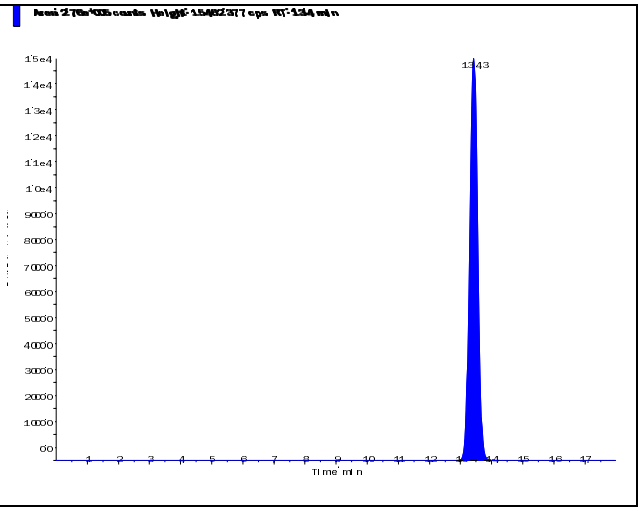
Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	2.080e+04	13.40	N/A	0.305
Perchlorate conf	7.040e+03	13.40	N/A	0.308

O18LP (Internal Standard)

RT (Exp. RT): 13.40(13.40) min

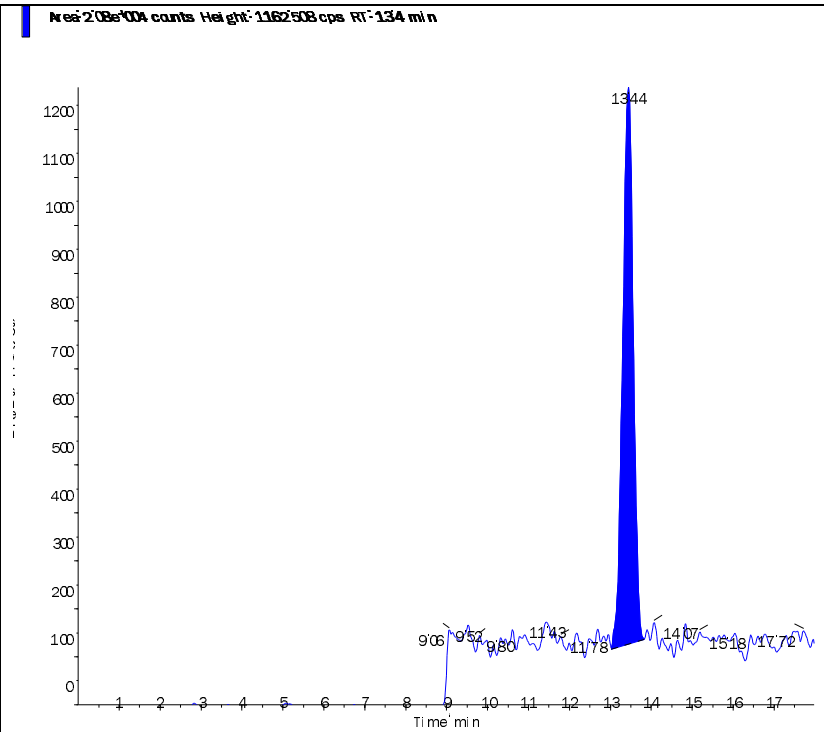
Concentration: 5.00 ug/L

Sample Type: (Unknown)



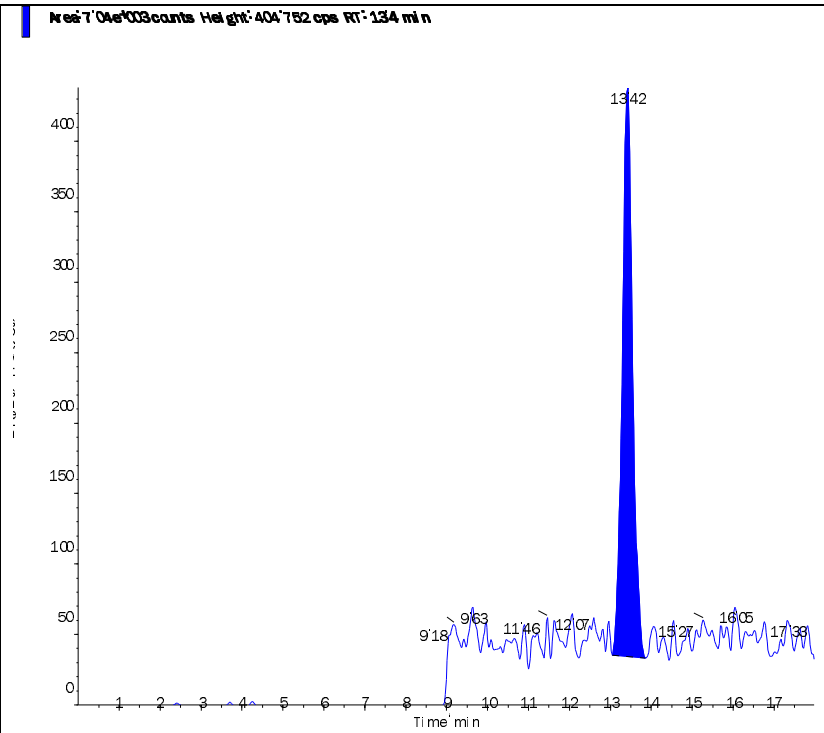
Perchlorate (98.8/83.3 amu)

RT (Exp. RT):	13.40 (13.50) min
Calculated conc:	0.305 ng/ml
Area Ratio:	0.075
Sample Type:	(Unknown)



Perchlorate conf (100.8/85.2 amu)

RT (Exp. RT):	13.40 (13.40) min
Calculated conc:	0.308 ng/ml
Area Ratio:	0.026
Sample Type:	(Unknown)



s.dataFile Page 2 of 2

Data File	LM22542.wiff	**Result Table**	110513_JWR.rdb
Acquisition Date	11/6/2013 9:26:10 AM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

Sample Name	L13101691-02 (100x)	**Injection Vial**	29.00
Data File	LM22542.wiff	**Injection Volume**	10.00
Acquisition Date	11/6/2013 9:26:10 AM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	110513_JWR.rdb
Sample ID	L13101691-02	**Dilution Factor**	1.00
Sample Comment	1,100 (No Hist)	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	2.710e+05	13.40	5.00	-

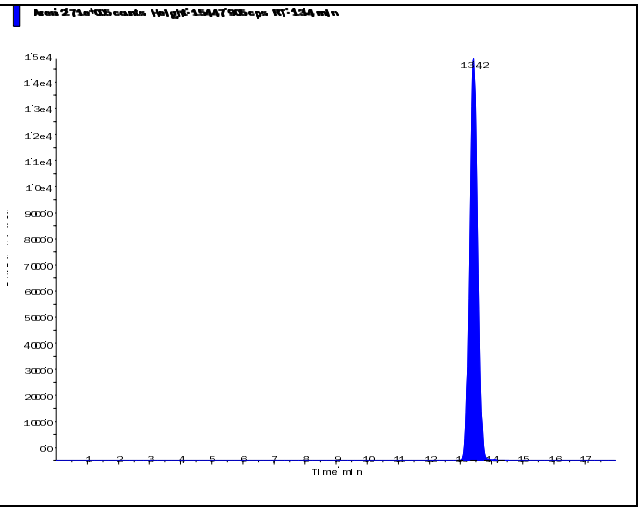
Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	2.680e+04	13.40	N/A	0.403
Perchlorate conf	9.470e+03	13.40	N/A	0.424

O18LP (Internal Standard)

RT (Exp. RT): 13.40(13.40) min

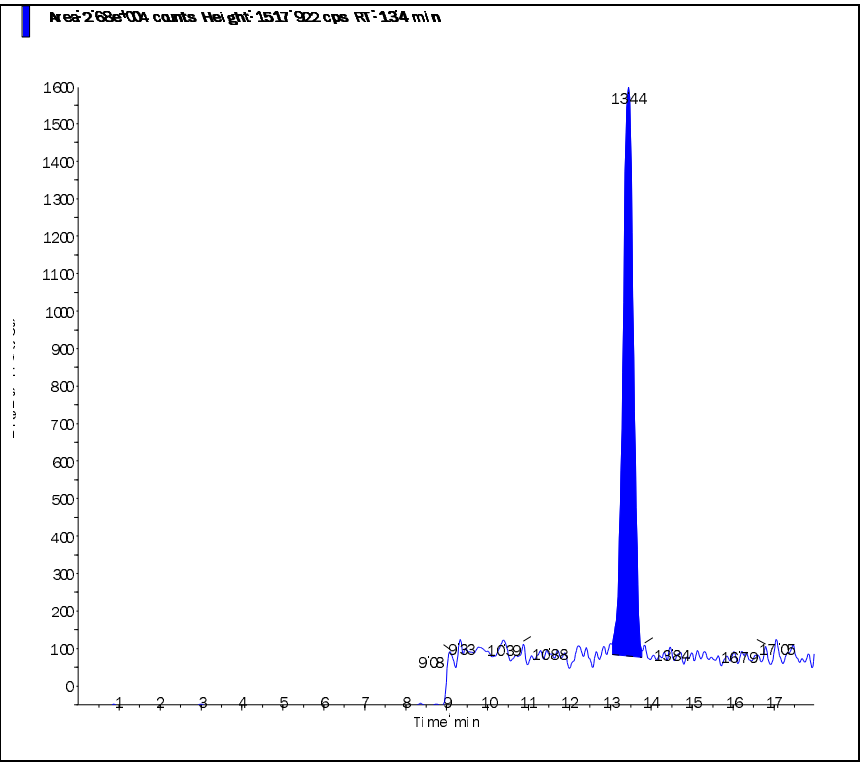
Concentration: 5.00 ug/L

Sample Type: (Unknown)



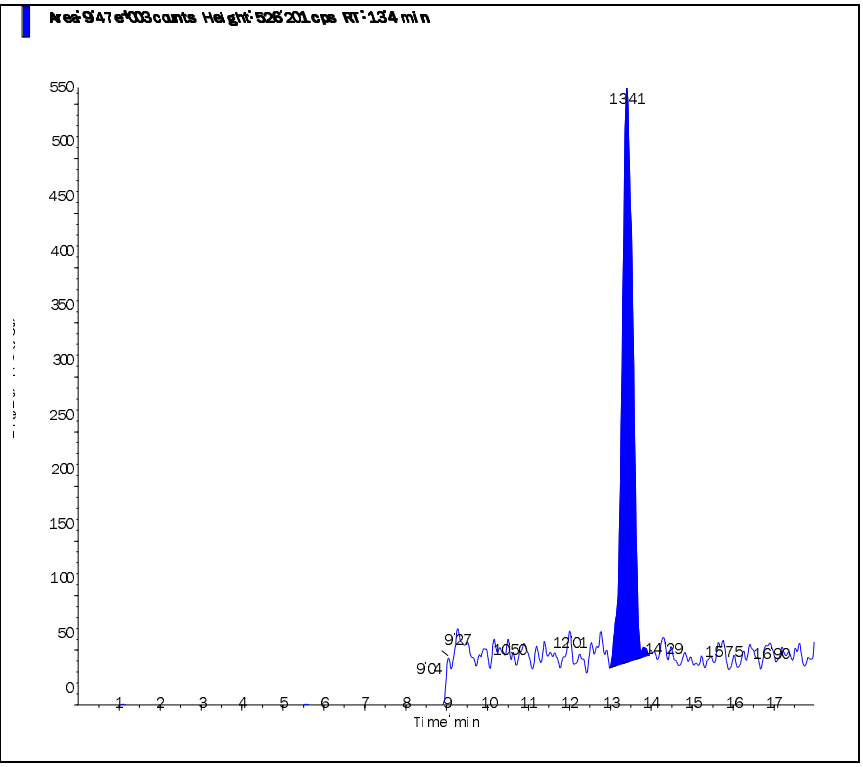
Perchlorate (98.8/83.3 amu)

RT (Exp. RT):	13.40 (13.50) min
Calculated conc:	0.403 ng/ml
Area Ratio:	0.099
Sample Type:	(Unknown)



Perchlorate conf (100.8/85.2 amu)

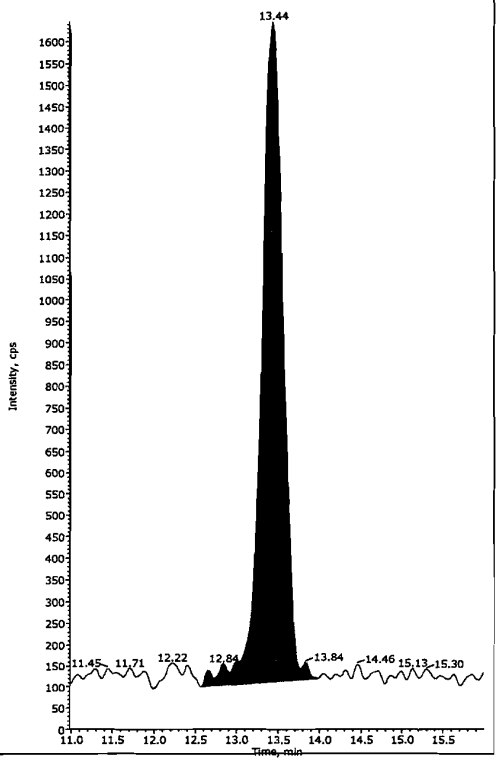
RT (Exp. RT):	13.40 (13.40) min
Calculated conc:	0.424 ng/ml
Area Ratio:	0.035
Sample Type:	(Unknown)



s.dataFile Page 2 of 2

Sample Name: "L13101691-02 (100x)" Sample ID: "L13101691-02" File: "LM22542.wiff"
Peak Name: "Perchlorate" Mass(es): "98.8/83.3 amu"
Comment: "1,100 (No Hist)" Annotation: ""

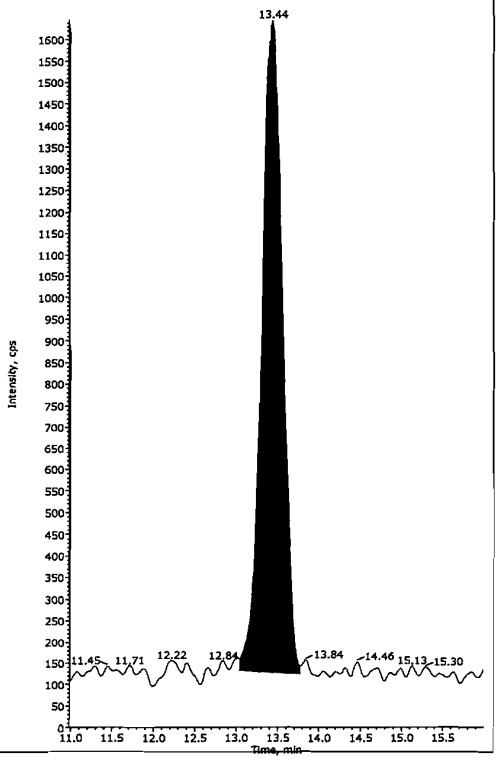
Sample Index:	1
Sample Type:	Unknown
Concentration:	N/A
Calculated Conc:	0.434 ug/L
Acq. Date:	11/6/2013
Acq. Time:	9:26:10 AM
Modified:	No
Proc. Algorithm:	Analyst Classic
Bunching Factor:	4
Noise Threshold:	4.76 cps
Area Threshold:	23.82 cps
Num. Smooths:	5
Sep. Width:	0.20
Sep. Height:	0.01
Exp. Peak Ratio:	5.00
Exp. Adj. Ratio:	4.00
Exp. Val. Ratio:	3.00
RT Window:	30.000 sec
Expected RT:	13.5 min
Use Relative RT:	Yes
Int. Type:	Base To Base
Retention Time:	13.4 min
Area:	2.88e+004 counts
Height:	1534.664 cps
Start Time:	12.576 min
End Time:	13.973 min



Collected by: N/A
Electronic Signature: no
Operator: lcms1

Sample Name: "L13101691-02 (100x)" Sample ID: "L13101691-02" File: "LM22542.wiff"
Peak Name: "Perchlorate" Mass(es): "98.8/83.3 amu"
Comment: "1,100 (No Hist)" Annotation: ""

Sample Index:	1
Sample Type:	Unknown
Concentration:	N/A
Calculated Conc:	0.403 ug/L
Acq. Date:	11/6/2013
Acq. Time:	9:26:10 AM
Modified:	Yes
Proc. Algorithm:	Analyst Classic
Bunching Factor:	4
Noise Threshold:	4.76 cps
Area Threshold:	23.82 cps
Num. Smooths:	5
Sep. Width:	0.20
Sep. Height:	0.01
Exp. Peak Ratio:	5.00
Exp. Adj. Ratio:	4.00
Exp. Val. Ratio:	3.00
RT Window:	30.000 sec
Expected RT:	13.5 min
Use Relative RT:	Yes
Int. Type:	Manual
Retention Time:	13.4 min
Area:	2.68e+004 counts
Height:	1517.922 cps
Start Time:	13.042 min
End Time:	13.771 min



#4
JWR/11/06/13

mlL 11/7/13

Collected by: N/A
Electronic Signature: no
Operator: lcms1

2.1.1.4 Standards Data

Data File	LM22508.wiff	**Result Table**	110513_JWR.rdb
Acquisition Date	11/5/2013 10:42:19 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

Sample Name	WG451626-01 CCB	**Injection Vial**	1.00
Data File	LM22508.wiff	**Injection Volume**	10.00
Acquisition Date	11/5/2013 10:42:19 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	110513_JWR.rdb
Sample ID	WG451626-01	**Dilution Factor**	1.00
Sample Comment	11.00	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	2.770e+05	13.40	5.00	-

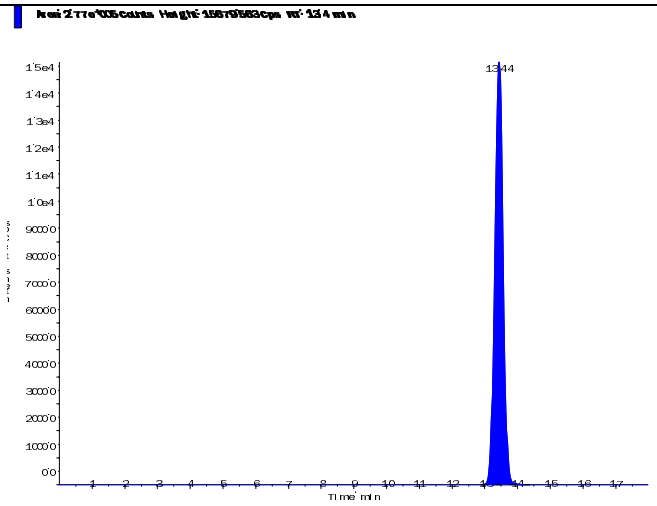
Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	0.000e+00	0.00	N/A	No Peak
Perchlorate conf	1.530e+02	13.30	N/A	< 0

O18LP (Internal Standard)

RT (Exp. RT): 13.40(13.40) min

Concentration: 5.00 ug/L

Sample Type: (Unknown)



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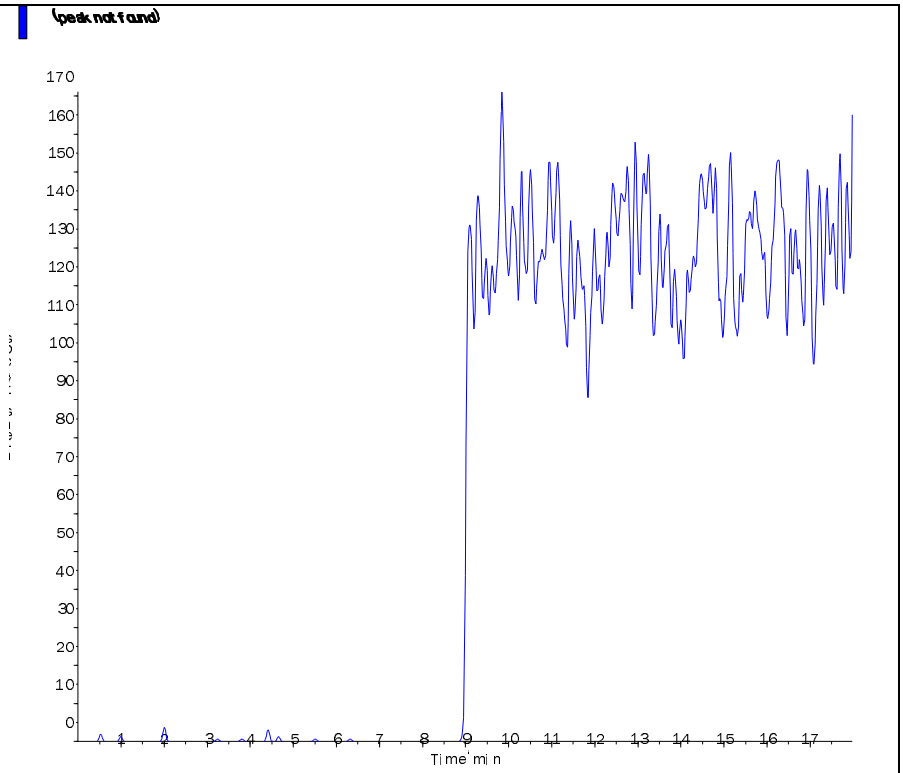
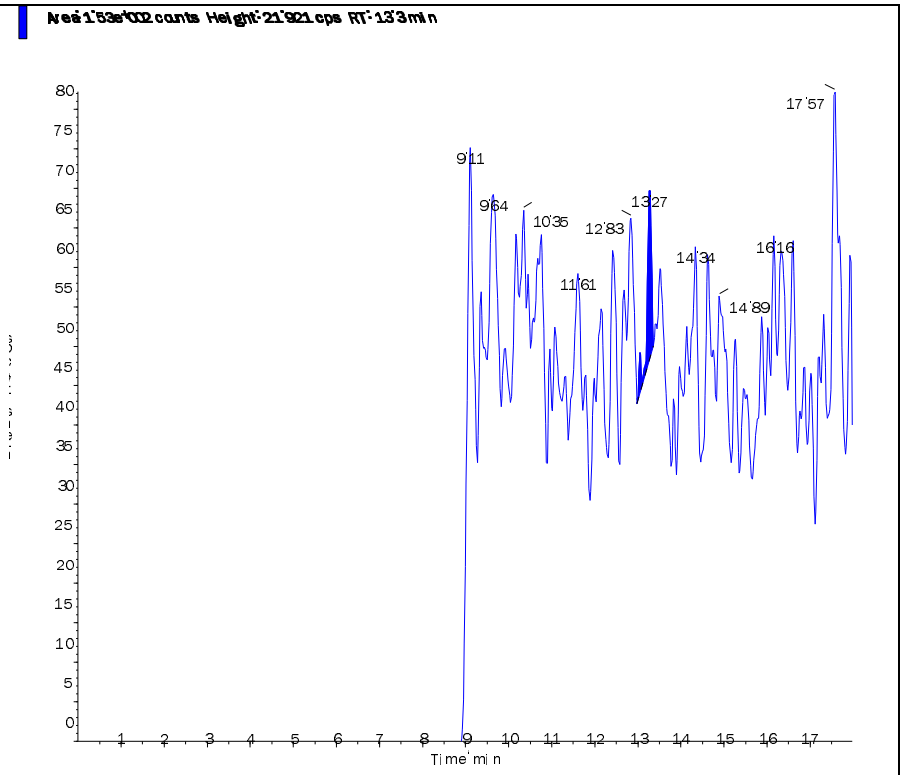
Perchlorate (98.8/83.3 amu)

RT (Exp. RT):	0.00 (13.50) min
Calculated conc:	No Peak ng/ml
Area Ratio:	0.00
Sample Type:	(Unknown)



Perchlorate conf (100.8/85.2 amu)

RT (Exp. RT):	13.30 (13.40) min
Calculated conc:	< 0 ng/ml
Area Ratio:	0.001
Sample Type:	(Unknown)



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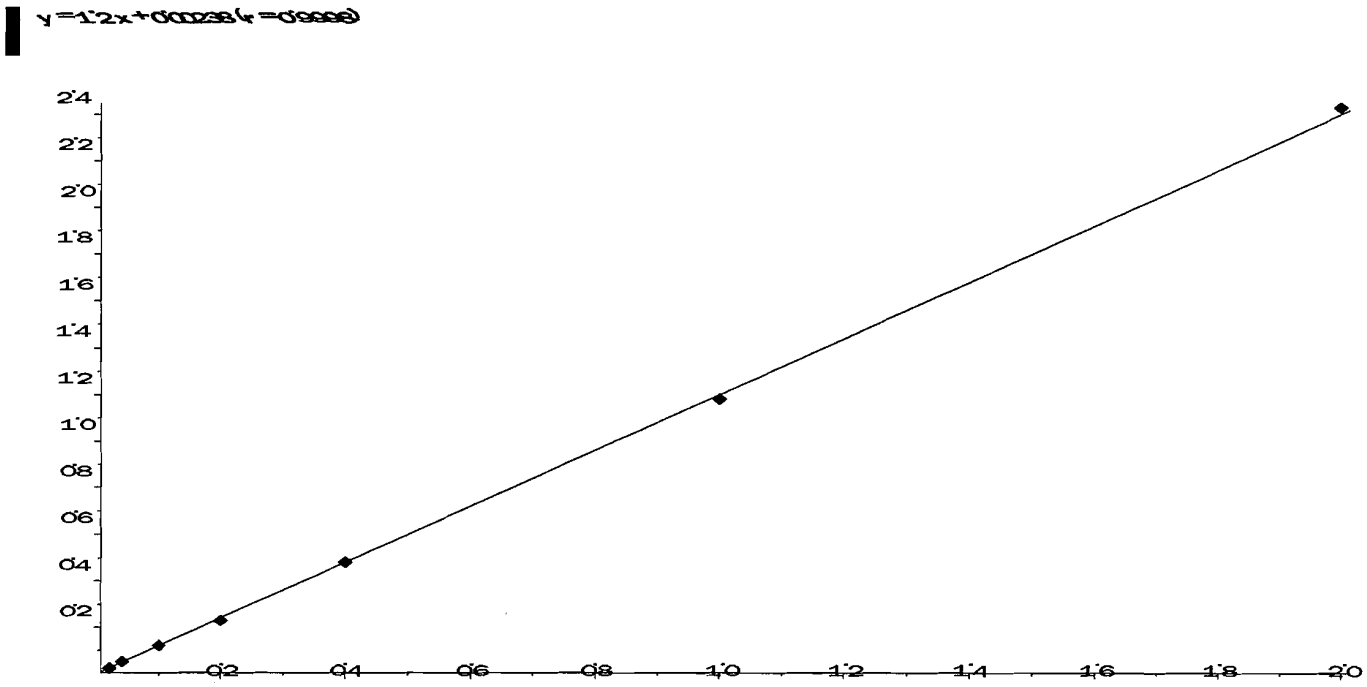
Analyte Name: **Perchlorate**
Internal Standard: O18LP

Data File	LM22508.wiff	**Result Table**	110513_JWR.rdb
Acquisition Date	11/5/2013 10:42:19 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

Regression Equation: y = 1.2 x + 0.00238 (r = 0.9998)

Expected Concentration	Number of Values	Mean Calculated Concentration	% Accuracy	Std. Deviation	%CV
0.10	1	0.10	99.8	N/A	N/A
0.20	1	0.21	105.6	N/A	N/A
0.50	1	0.50	99.9	N/A	N/A
1.00	1	0.95	95.2	N/A	N/A
2.00	1	2.00	99.9	N/A	N/A
5.00	1	4.92	98.5	N/A	N/A
10.00	1	10.12	101.2	N/A	N/A

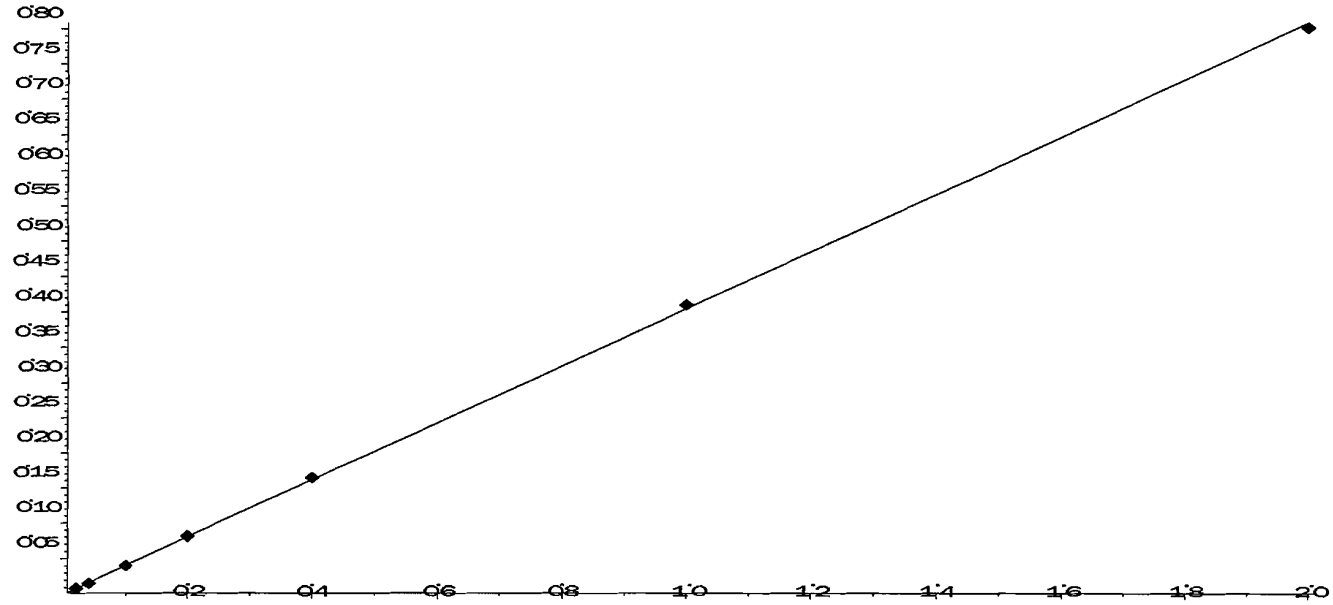


Analyte Name: **Perchlorate conf**
Internal Standard: O18LP

Data File	LM22508.wiff	**Result Table**	110513_JWR.rdb
Acquisition Date	11/5/2013 10:42:19 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

Regression Equation: y = 0.404 x + 0.000676 (r = 0.9999)

Expected Concentration	Number of Values	Mean Calculated Concentration	% Accuracy	Std. Deviation	%CV
0.10	1	0.10	101.4	N/A	N/A
0.20	1	0.19	97.2	N/A	N/A
0.50	1	0.50	99.0	N/A	N/A
1.00	1	1.01	100.6	N/A	N/A
2.00	1	2.03	101.5	N/A	N/A
5.00	1	5.06	101.2	N/A	N/A
10.00	1	9.91	99.1	N/A	N/A



Data File	LM22509.wiff	**Result Table**	110513_JWR.rdb
Acquisition Date	11/5/2013 11:01:15 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

Sample Name	WG451626-02 STD (0.1 ug/L)	**Injection Vial**	2.00
Data File	LM22509.wiff	**Injection Volume**	10.00
Acquisition Date	11/5/2013 11:01:15 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Standard
Instrument Name	API 4000	**Result Table**	110513_JWR.rdb
Sample ID	WG451626-02	**Dilution Factor**	1.00
Sample Comment	1,1 STD60059	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	2.770e+05	13.40	5.00	-

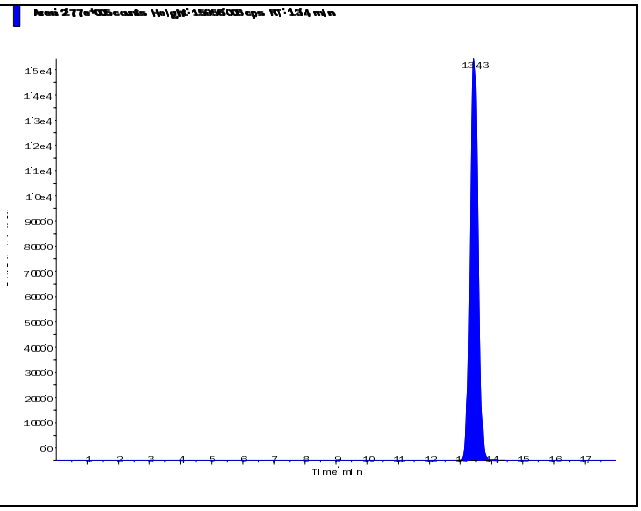
Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	7.270e+03	13.40	0.10	0.0998
Perchlorate conf	2.450e+03	13.40	0.10	0.101

O18LP (Internal Standard)

RT (Exp. RT): 13.40(13.40) min

Concentration: 5.00 ug/L

Sample Type: (Standard)



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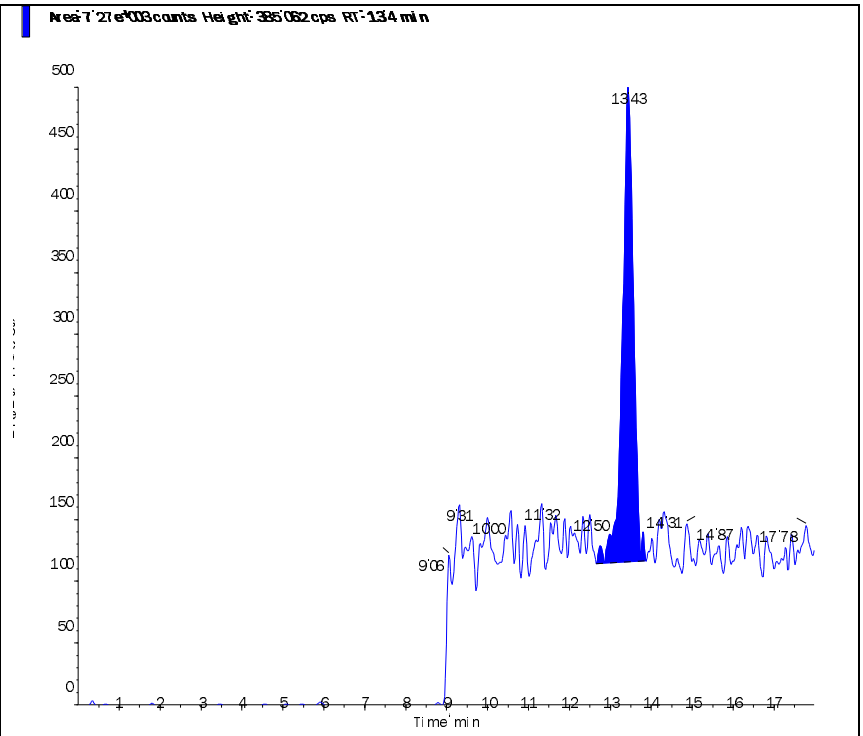
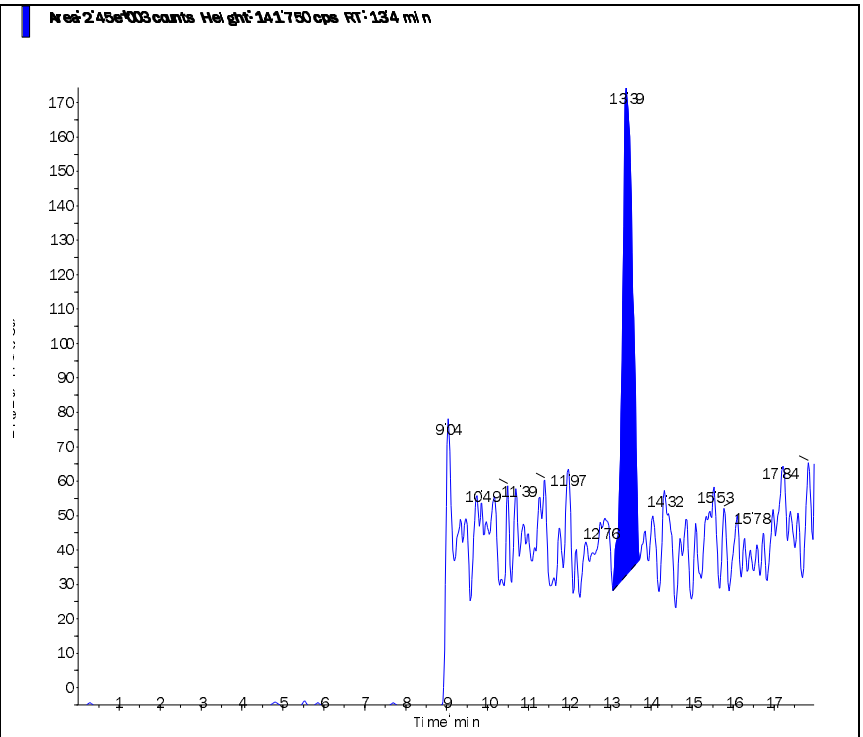
Perchlorate (98.8/83.3 amu)

RT (Exp. RT):	13.40 (13.50) min
Calculated conc:	0.0998 ng/ml
Area Ratio:	0.026
Sample Type:	(Standard)



Perchlorate conf (100.8/85.2 amu)

RT (Exp. RT):	13.40 (13.40) min
Calculated conc:	0.101 ng/ml
Area Ratio:	0.009
Sample Type:	(Standard)



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Data File	LM22510.wiff	**Result Table**	110513_JWR.rdb
Acquisition Date	11/5/2013 11:20:12 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

Sample Name	WG451626-03 STD (0.2 ug/L)	**Injection Vial**	3.00
Data File	LM22510.wiff	**Injection Volume**	10.00
Acquisition Date	11/5/2013 11:20:12 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Standard
Instrument Name	API 4000	**Result Table**	110513_JWR.rdb
Sample ID	WG451626-03	**Dilution Factor**	1.00
Sample Comment	1,1 STD60059	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	2.820e+05	13.40	5.00	-

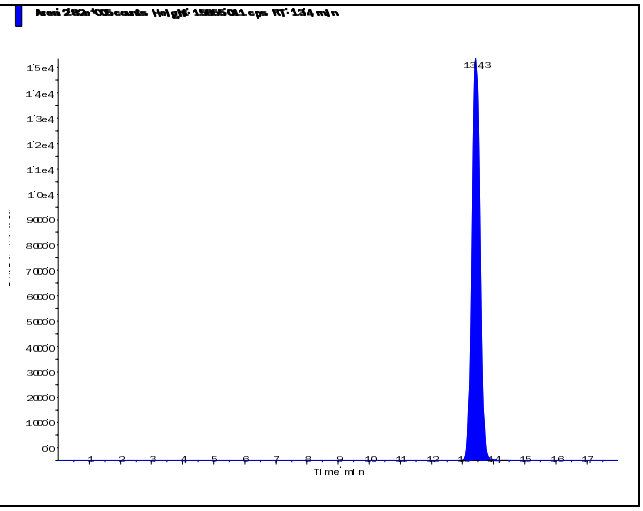
Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	1.490e+04	13.50	0.20	0.211
Perchlorate conf	4.620e+03	13.40	0.20	0.194

O18LP (Internal Standard)

RT (Exp. RT): 13.40(13.40) min

Concentration: 5.00 ug/L

Sample Type: (Standard)



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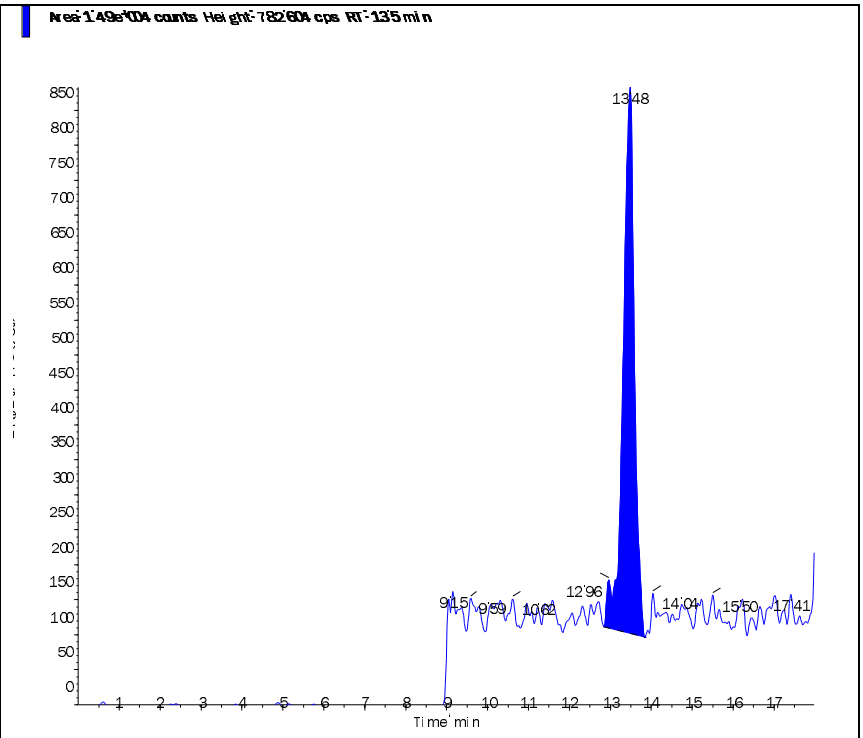
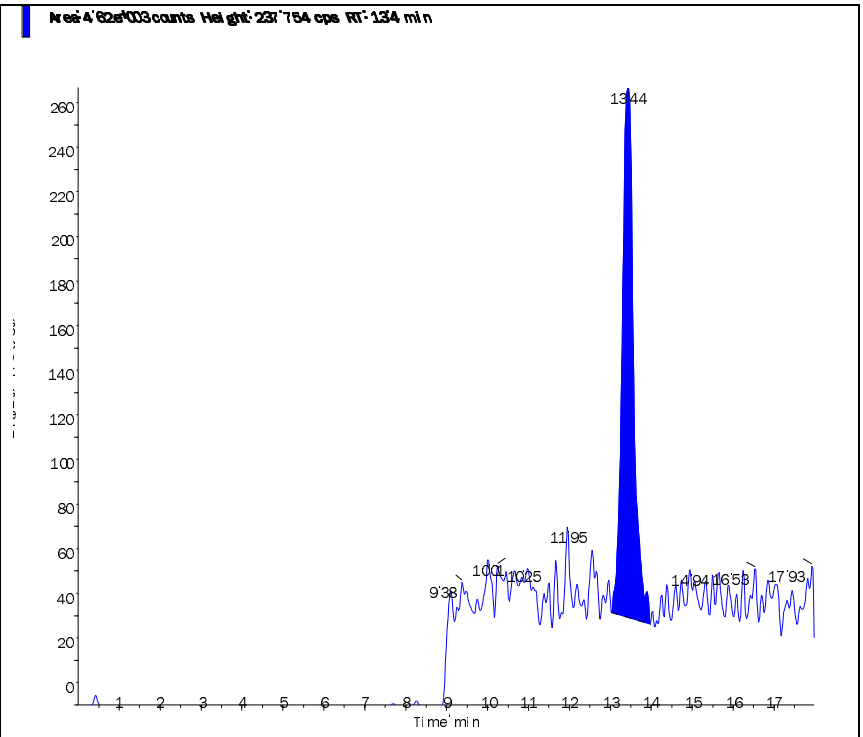
Perchlorate (98.8/83.3 amu)

RT (Exp. RT):	13.50 (13.50) min
Calculated conc:	0.211 ng/ml
Area Ratio:	0.053
Sample Type:	(Standard)



Perchlorate conf (100.8/85.2 amu)

RT (Exp. RT):	13.40 (13.40) min
Calculated conc:	0.194 ng/ml
Area Ratio:	0.016
Sample Type:	(Standard)



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Data File	LM22511.wiff	**Result Table**	110513_JWR.rdb
Acquisition Date	11/5/2013 11:39:08 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

Sample Name	WG451626-04 STD (0.5 ug/L)	**Injection Vial**	4.00
Data File	LM22511.wiff	**Injection Volume**	10.00
Acquisition Date	11/5/2013 11:39:08 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Standard
Instrument Name	API 4000	**Result Table**	110513_JWR.rdb
Sample ID	WG451626-04	**Dilution Factor**	1.00
Sample Comment	1,1 STD60059	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	2.830e+05	13.40	5.00	-

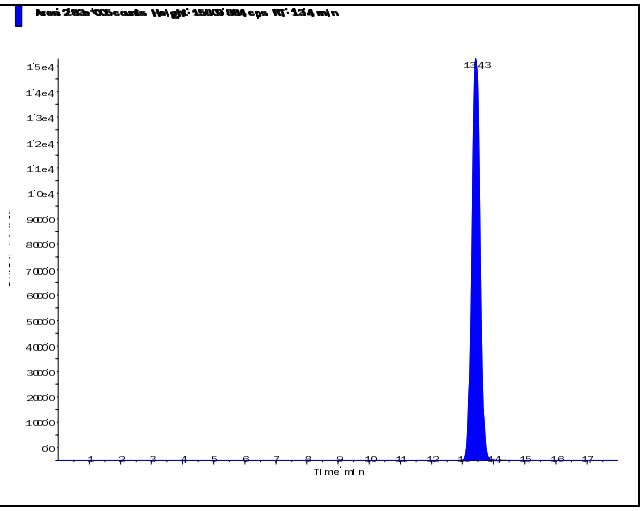
Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	3.460e+04	13.40	0.50	0.50
Perchlorate conf	1.150e+04	13.40	0.50	0.495

O18LP (Internal Standard)

RT (Exp. RT): 13.40(13.40) min

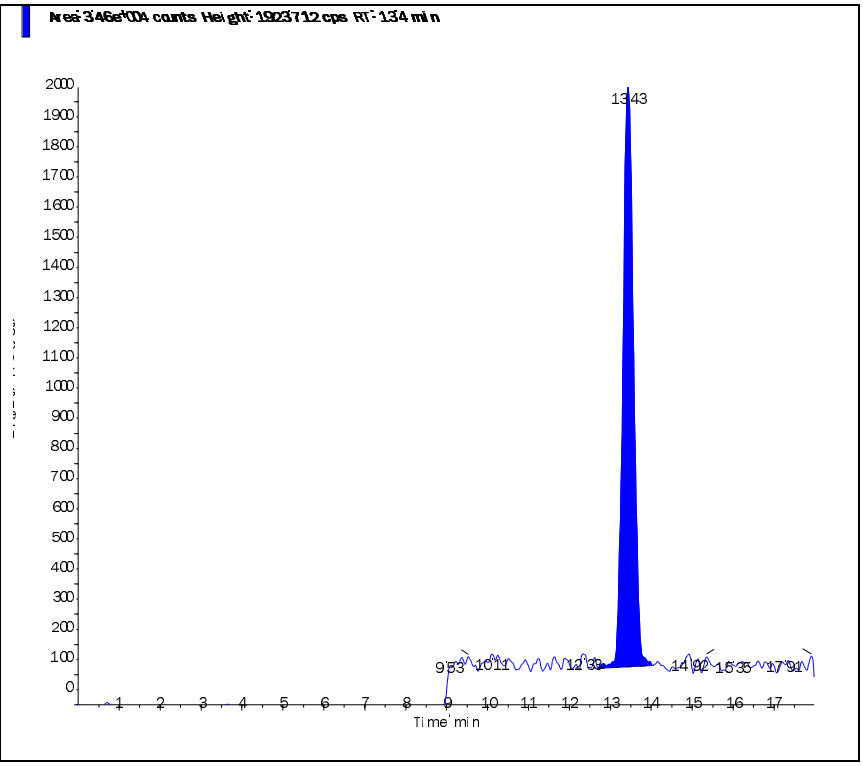
Concentration: 5.00 ug/L

Sample Type: (Standard)



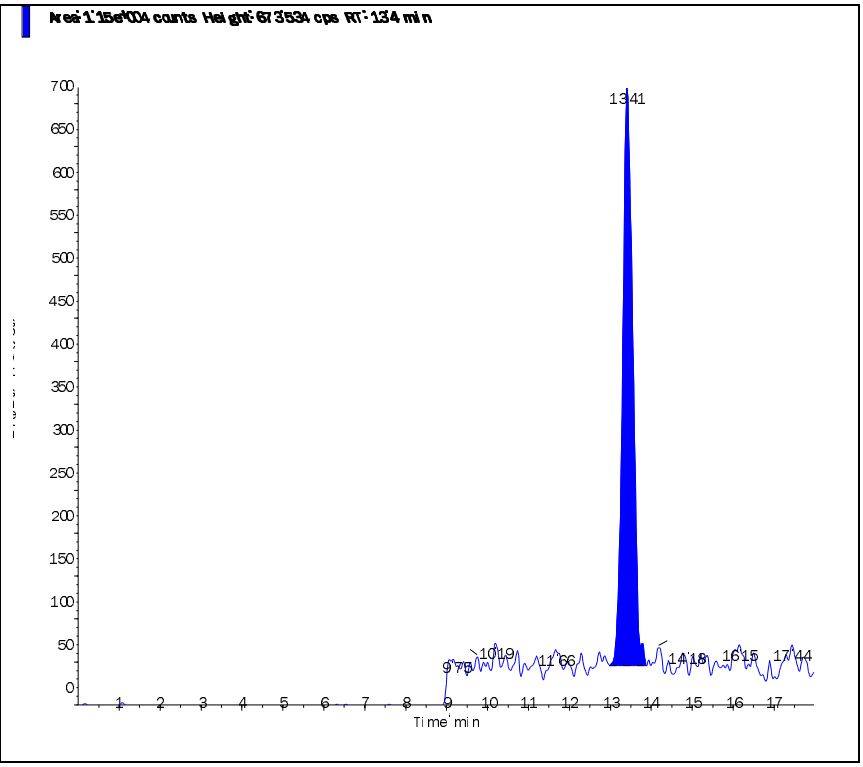
Perchlorate (98.8/83.3 amu)

RT (Exp. RT):	13.40 (13.50) min
Calculated conc:	0.50 ng/ml
Area Ratio:	0.122
Sample Type:	(Standard)



Perchlorate conf (100.8/85.2 amu)

RT (Exp. RT):	13.40 (13.40) min
Calculated conc:	0.495 ng/ml
Area Ratio:	0.041
Sample Type:	(Standard)



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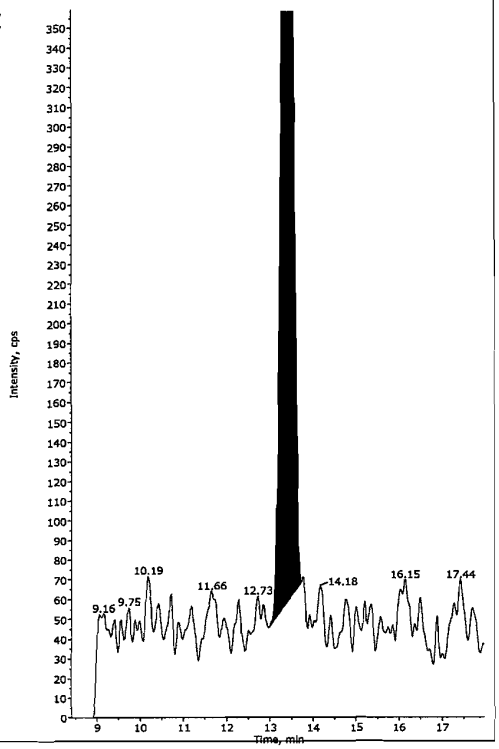
Sample Name: "WG451626-04 STD (0.5 ug/L)" Sample ID: "WG451626-04" File: "LM22511.wiff"
Peak Name: "Perchlorate conf" Mass(es): "100.8/85.2 amu"
Comment: "1,1 STD60059" Annotation: ""

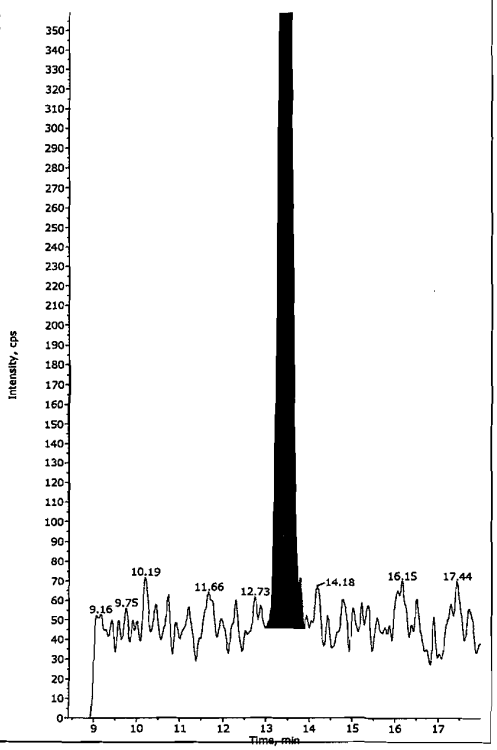
Sample Index:	1
Sample Type:	Standard
Concentration:	0.500 ug/L
Calculated Conc:	0.469 ug/L
Acq. Date:	11/5/2013
Acq. Time:	11:39:08 PM
Modified:	No
Proc. Algorithm:	Analyst Classic
Bunching Factor:	2
Noise Threshold:	2.40 cps
Area Threshold:	12.01 cps
Num. Smooths:	5
Sep. Width:	0.20
Sep. Height:	0.01
Exp. Peak Ratio:	5.00
Exp. Adj. Ratio:	4.00
Exp. Val. Ratio:	3.00
RT Window:	30.000 sec
Expected RT:	13.4 min
Use Relative RT:	Yes
Int. Type:	Base To Base
Retention Time:	13.4 min
Area:	1.09e+004 counts
Height:	660.555 cps
Start Time:	13.001 min
End Time:	13.730 min



Collected by: N/A
Electronic Signature: no
Operator: lcms1

Sample Name: "WG451626-04 STD (0.5 ug/L)" Sample ID: "WG451626-04" File: "LM22511.wiff"
Peak Name: "Perchlorate conf" Mass(es): "100.8/85.2 amu"
Comment: "1,1 STD60059" Annotation: ""

Sample Index:	1	
Sample Type:	Standard	
Concentration:	0.500	ug/L
Calculated Conc:	0.495	ug/L
Acq. Date:	11/5/2013	
Acq. Time:	11:39:08 PM	
Modified:	Yes	
Proc. Algorithm:	Analyst Classic	
Bunching Factor:	1	
Noise Threshold:	2.40	cps
Area Threshold:	12.01	cps
Num. Smooths:	5	
Sep. Width:	0.20	
Sep. Height:	0.01	
Exp. Peak Ratio:	5.00	
Exp. Adj. Ratio:	4.00	
Exp. Val. Ratio:	3.00	
RT Window:	30.000	sec
Expected RT:	13.4	min
Use Relative RT:	Yes	
Int. Type:	Base To Base	
Retention Time:	13.4	min
Area:	1.15e+004	counts
Height:	673.534	cps
Start Time:	12.981	min
End Time:	13.872	min



#4
JWR/11/06/13

11/7/13

Collected by: N/A
Electronic Signature: no
Operator: lcms1

Data File	LM22512.wiff	**Result Table**	110513_JWR.rdb
Acquisition Date	11/5/2013 11:58:03 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

Sample Name	WG451626-05 STD (1.0 ug/L)	**Injection Vial**	5.00
Data File	LM22512.wiff	**Injection Volume**	10.00
Acquisition Date	11/5/2013 11:58:03 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Standard
Instrument Name	API 4000	**Result Table**	110513_JWR.rdb
Sample ID	WG451626-05	**Dilution Factor**	1.00
Sample Comment	1,1 STD60059	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	2.860e+05	13.40	5.00	-

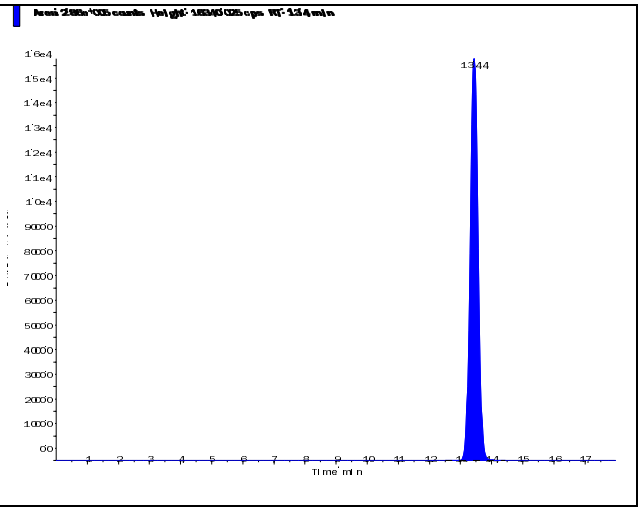
Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	6.570e+04	13.40	1.00	0.952
Perchlorate conf	2.340e+04	13.40	1.00	1.01

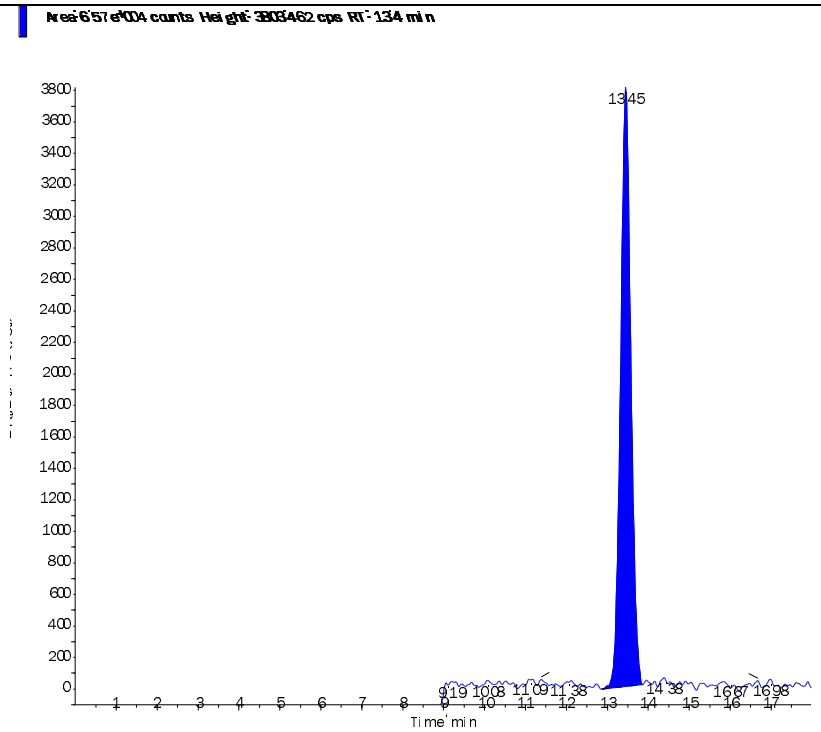
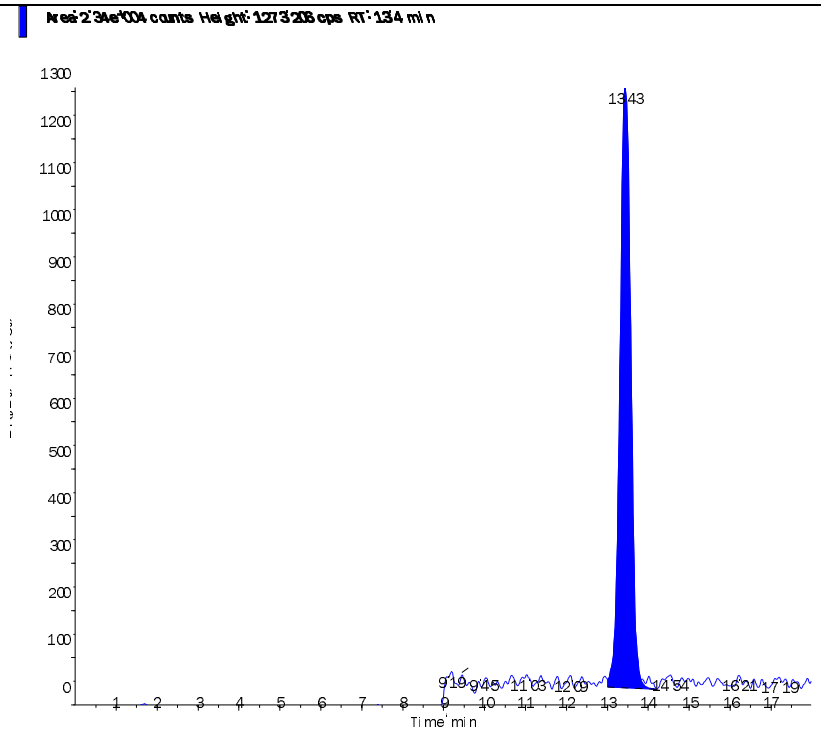
O18LP (Internal Standard)

RT (Exp. RT): 13.40(13.40) min

Concentration: 5.00 ug/L

Sample Type: (Standard)



Perchlorate (98.8/83.3 amu) RT (Exp. RT): 13.40 (13.50) min Calculated conc: 0.952 ng/ml Area Ratio: 0.23 Sample Type: (Standard)	
Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): 13.40 (13.40) min Calculated conc: 1.01 ng/ml Area Ratio: 0.082 Sample Type: (Standard)	

Data File	LM22513.wiff	**Result Table**	110513_JWR.rdb
Acquisition Date	11/6/2013 12:16:59 AM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

Sample Name	WG451626-06 STD (2.0 ug/L)	**Injection Vial**	6.00
Data File	LM22513.wiff	**Injection Volume**	10.00
Acquisition Date	11/6/2013 12:16:59 AM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Standard
Instrument Name	API 4000	**Result Table**	110513_JWR.rdb
Sample ID	WG451626-06	**Dilution Factor**	1.00
Sample Comment	1,1 STD60059	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	2.820e+05	13.40	5.00	-

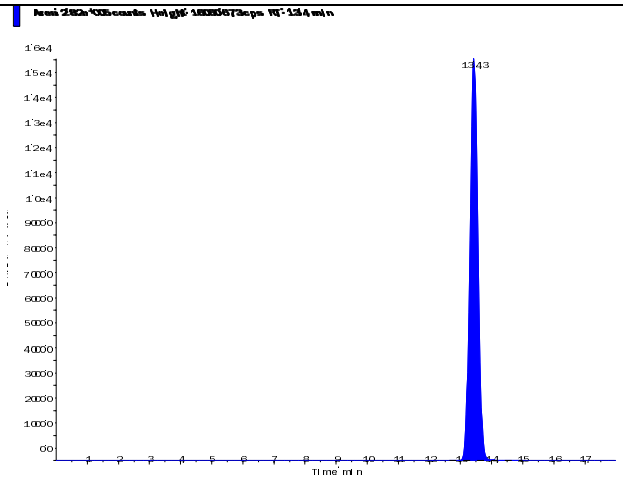
Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	1.360e+05	13.40	2.00	2.00
Perchlorate conf	4.650e+04	13.40	2.00	2.03

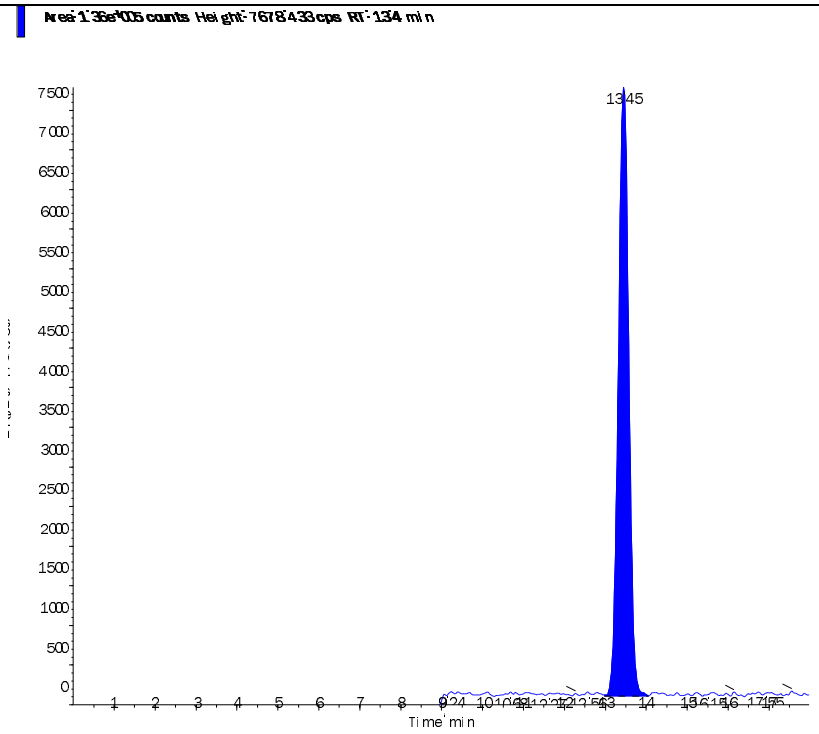
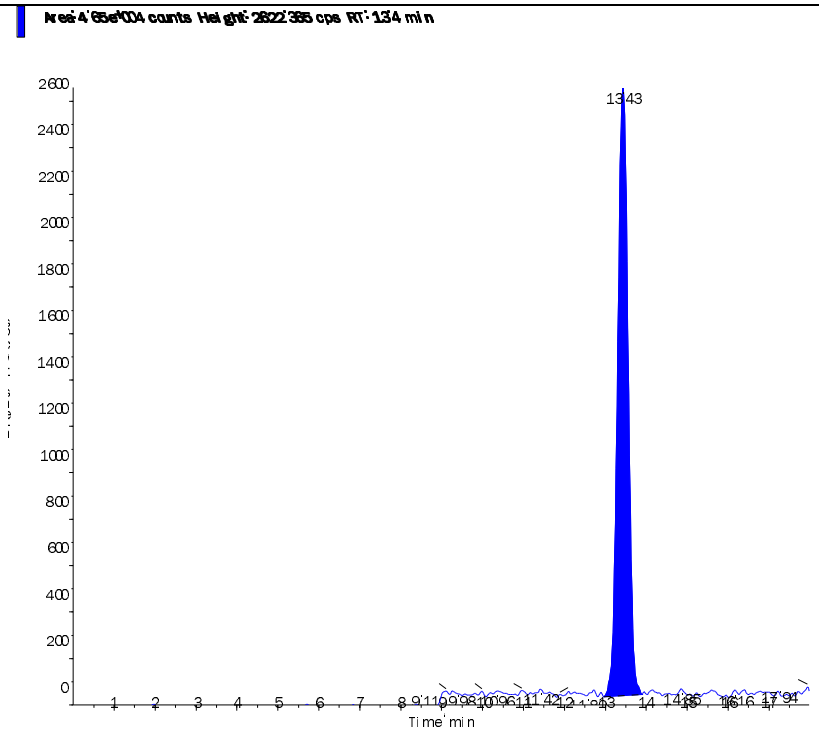
O18LP (Internal Standard)

RT (Exp. RT): 13.40(13.40) min

Concentration: 5.00 ug/L

Sample Type: (Standard)



Perchlorate (98.8/83.3 amu) RT (Exp. RT): 13.40 (13.50) min Calculated conc: 2.00 ng/ml Area Ratio: 0.481 Sample Type: (Standard)	
Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): 13.40 (13.40) min Calculated conc: 2.03 ng/ml Area Ratio: 0.165 Sample Type: (Standard)	

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Data File	LM22514.wiff	**Result Table**	110513_JWR.rdb
Acquisition Date	11/6/2013 12:35:58 AM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

Sample Name	WG451626-07 STD (5.0 ug/L)	**Injection Vial**	7.00
Data File	LM22514.wiff	**Injection Volume**	10.00
Acquisition Date	11/6/2013 12:35:58 AM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Standard
Instrument Name	API 4000	**Result Table**	110513_JWR.rdb
Sample ID	WG451626-07	**Dilution Factor**	1.00
Sample Comment	1,1 STD60059	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	2.770e+05	13.40	5.00	-

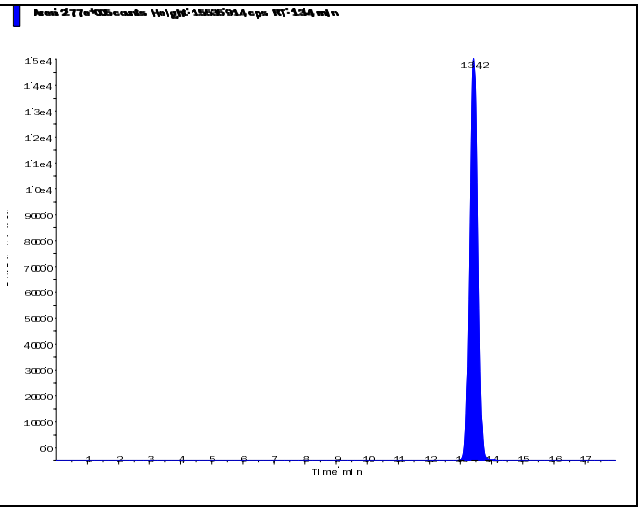
Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	3.270e+05	13.40	5.00	4.92
Perchlorate conf	1.130e+05	13.40	5.00	5.06

O18LP (Internal Standard)

RT (Exp. RT): 13.40(13.40) min

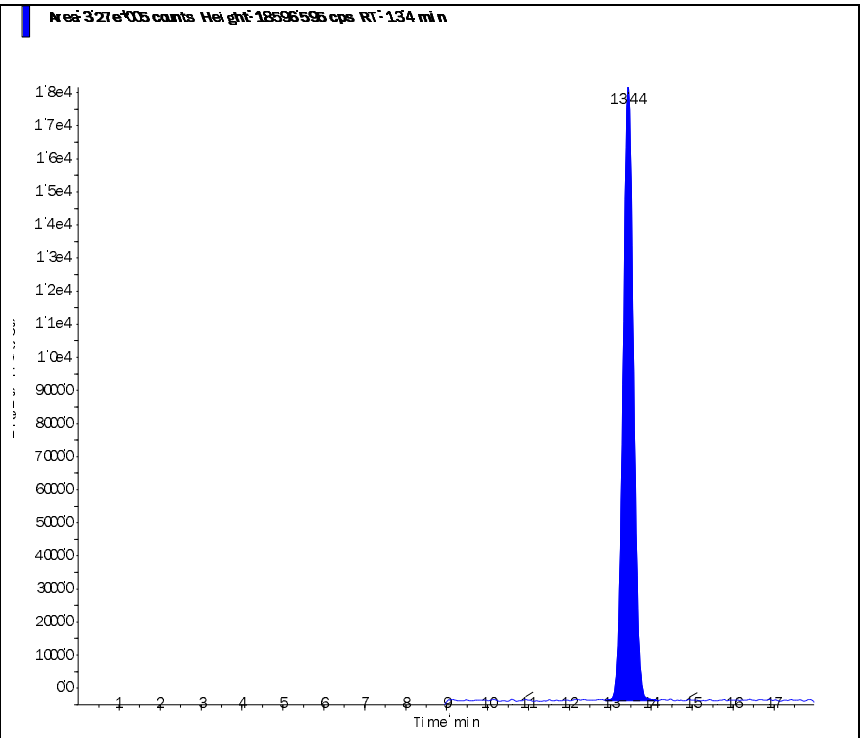
Concentration: 5.00 ug/L

Sample Type: (Standard)



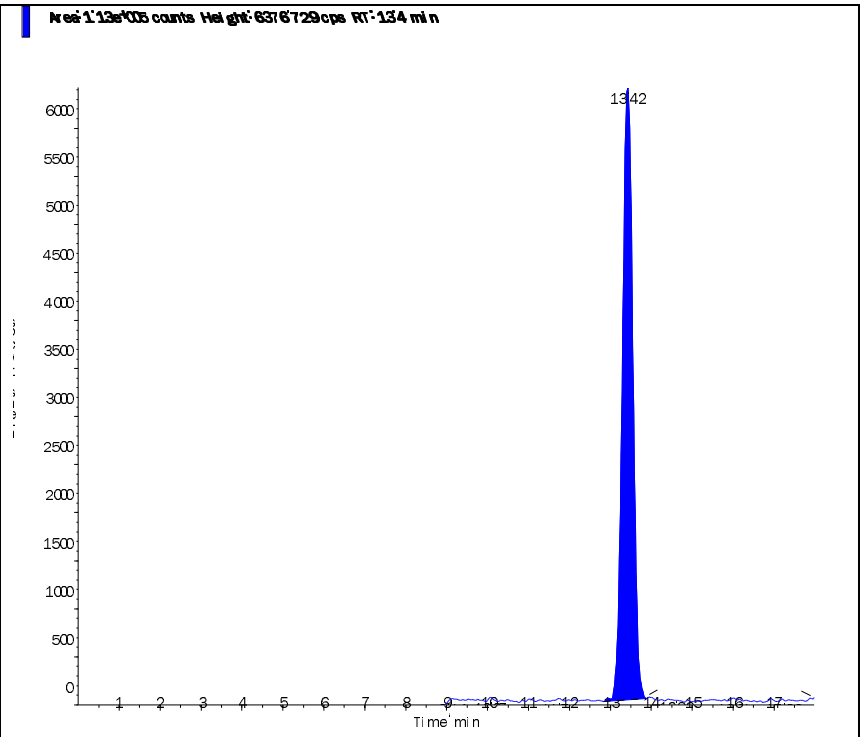
Perchlorate (98.8/83.3 amu)

RT (Exp. RT):	13.40 (13.50) min
Calculated conc:	4.92 ng/ml
Area Ratio:	1.181
Sample Type:	(Standard)



Perchlorate conf (100.8/85.2 amu)

RT (Exp. RT):	13.40 (13.40) min
Calculated conc:	5.06 ng/ml
Area Ratio:	0.41
Sample Type:	(Standard)



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Data File	LM22515.wiff	**Result Table**	110513_JWR.rdb
Acquisition Date	11/6/2013 12:54:54 AM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

Sample Name	WG451626-08 STD (10 ug/L)	**Injection Vial**	8.00
Data File	LM22515.wiff	**Injection Volume**	10.00
Acquisition Date	11/6/2013 12:54:54 AM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Standard
Instrument Name	API 4000	**Result Table**	110513_JWR.rdb
Sample ID	WG451626-08	**Dilution Factor**	1.00
Sample Comment	1,1 STD60059	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	2.700e+05	13.40	5.00	-

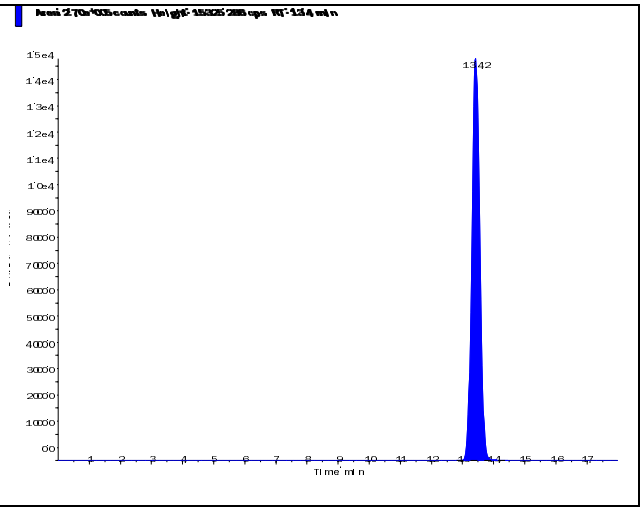
Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	6.540e+05	13.40	10.00	10.10
Perchlorate conf	2.160e+05	13.40	10.00	9.91

O18LP (Internal Standard)

RT (Exp. RT): 13.40(13.40) min

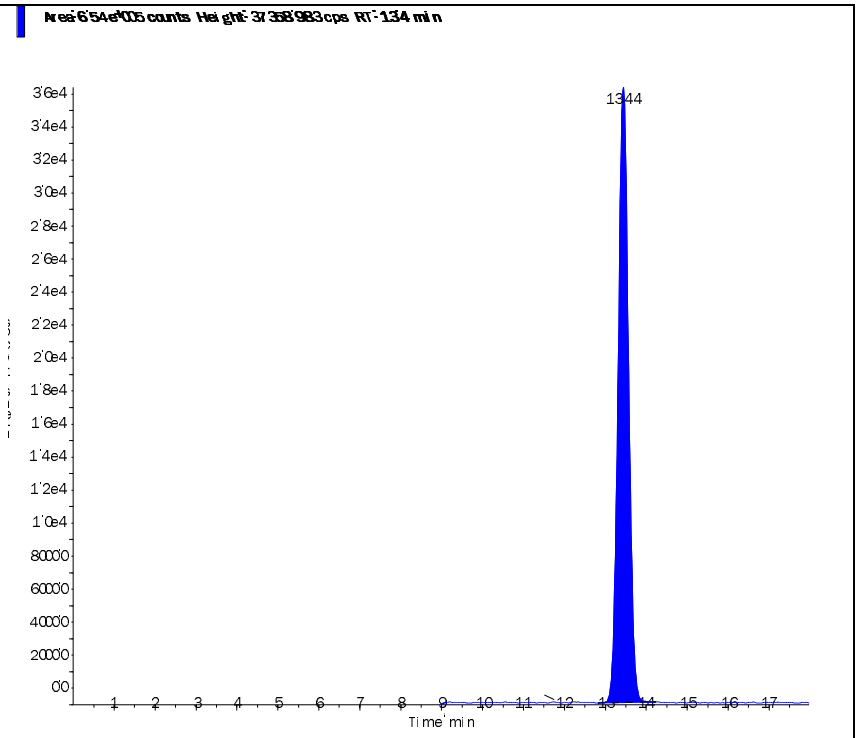
Concentration: 5.00 ug/L

Sample Type: (Standard)



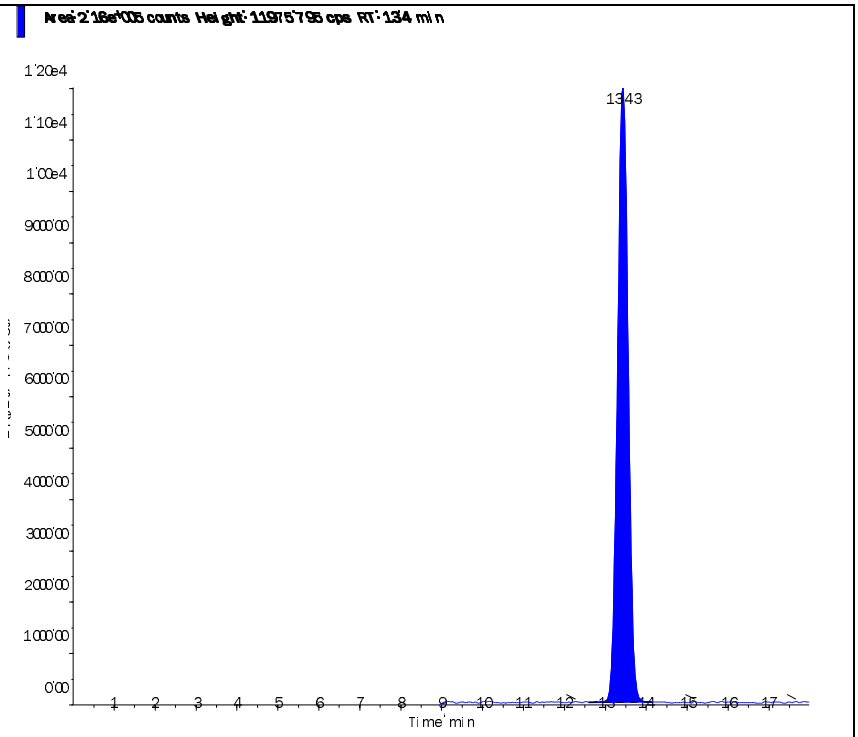
Perchlorate (98.8/83.3 amu)

RT (Exp. RT):	13.40 (13.50) min
Calculated conc:	10.10 ng/ml
Area Ratio:	2.425
Sample Type:	(Standard)



Perchlorate conf (100.8/85.2 amu)

RT (Exp. RT):	13.40 (13.40) min
Calculated conc:	9.91 ng/ml
Area Ratio:	0.802
Sample Type:	(Standard)



Data File	LM22516.wiff	**Result Table**	110513_JWR.rdb
Acquisition Date	11/6/2013 1:13:50 AM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

Sample Name	WG451626-09 SSCV (1.0 ug/L)	**Injection Vial**	9.00
Data File	LM22516.wiff	**Injection Volume**	10.00
Acquisition Date	11/6/2013 1:13:50 AM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Quality Control
Instrument Name	API 4000	**Result Table**	110513_JWR.rdb
Sample ID	WG451626-09	**Dilution Factor**	1.00
Sample Comment	1,1 STD61185	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	2.740e+05	13.40	5.00	-

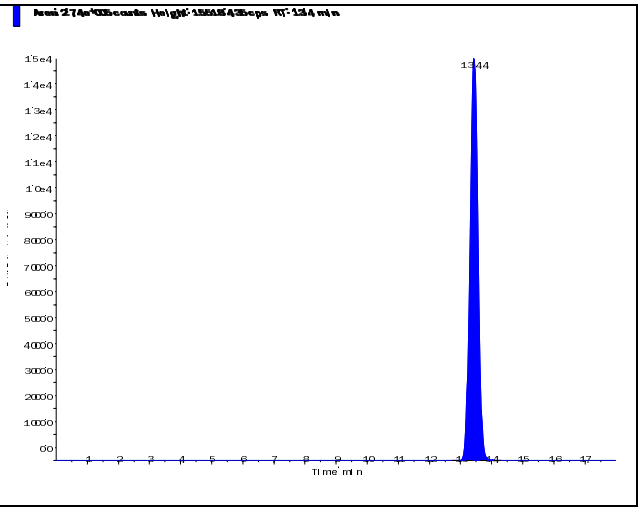
Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	6.730e+04	13.40	1.00	1.02
Perchlorate conf	2.320e+04	13.40	1.00	1.04

O18LP (Internal Standard)

RT (Exp. RT): 13.40(13.40) min

Concentration: 5.00 ug/L

Sample Type: (Quality Control)



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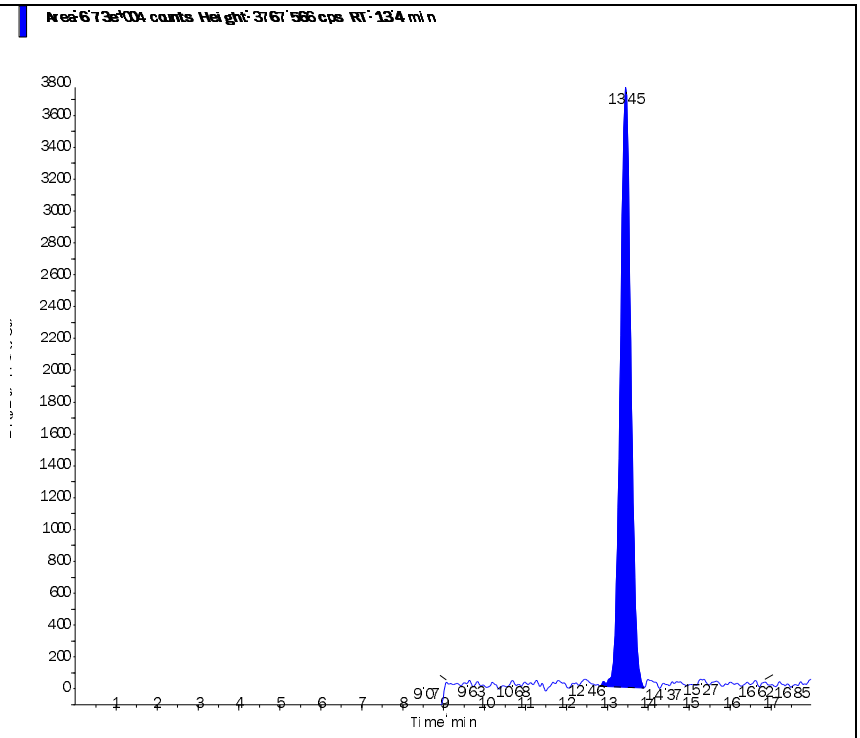
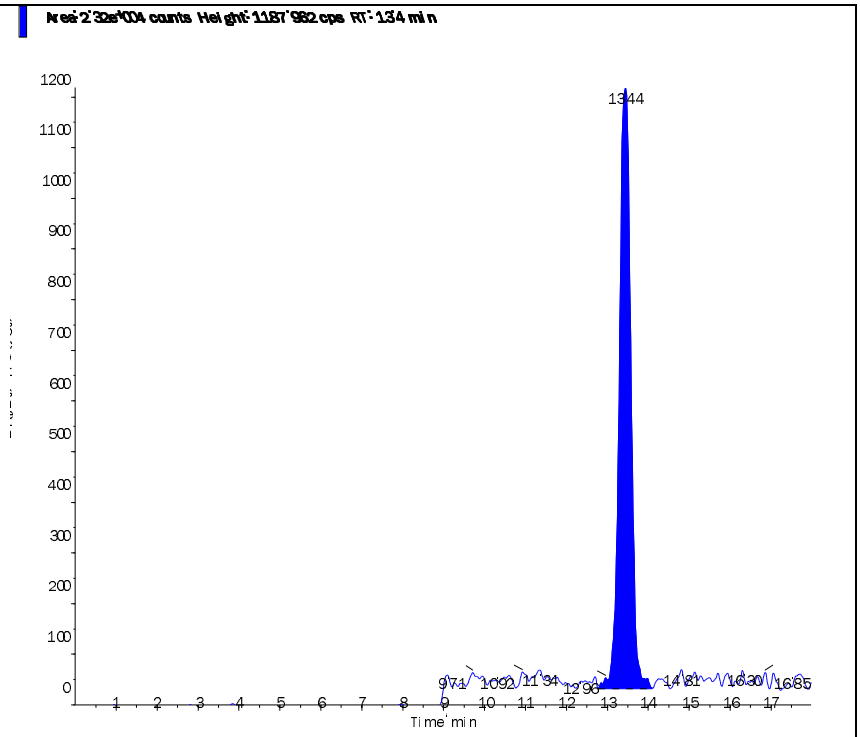
Perchlorate (98.8/83.3 amu) RT (Exp. RT): 13.40 (13.50) min Calculated conc: 1.02 ng/ml Area Ratio: 0.246 Sample Type: (Quality Control)	
Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): 13.40 (13.40) min Calculated conc: 1.04 ng/ml Area Ratio: 0.085 Sample Type: (Quality Control)	

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Data File	LM22518.wiff	**Result Table**	110513_JWR.rdb
Acquisition Date	11/6/2013 1:51:44 AM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

Sample Name	WG451630-02 CCV (1.0ug/L)	**Injection Vial**	5.00
Data File	LM22518.wiff	**Injection Volume**	10.00
Acquisition Date	11/6/2013 1:51:44 AM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Quality Control
Instrument Name	API 4000	**Result Table**	110513_JWR.rdb
Sample ID	WG451630-02	**Dilution Factor**	1.00
Sample Comment	1,1 STD60059	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	2.830e+05	13.40	5.00	-

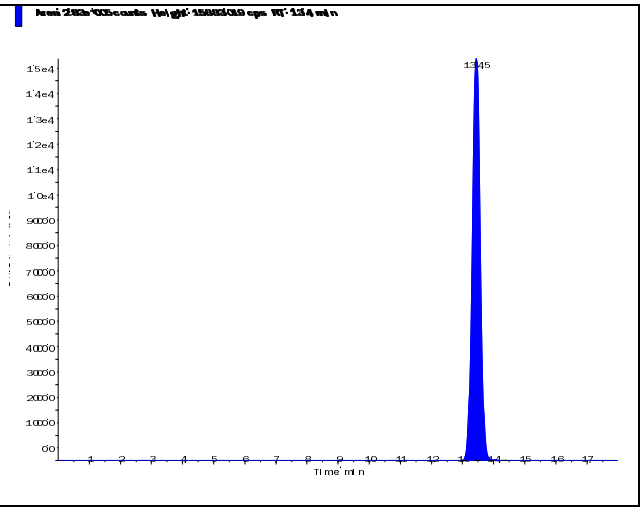
Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	6.710e+04	13.40	1.00	0.981
Perchlorate conf	2.470e+04	13.40	1.00	1.07

O18LP (Internal Standard)

RT (Exp. RT): 13.40(13.40) min

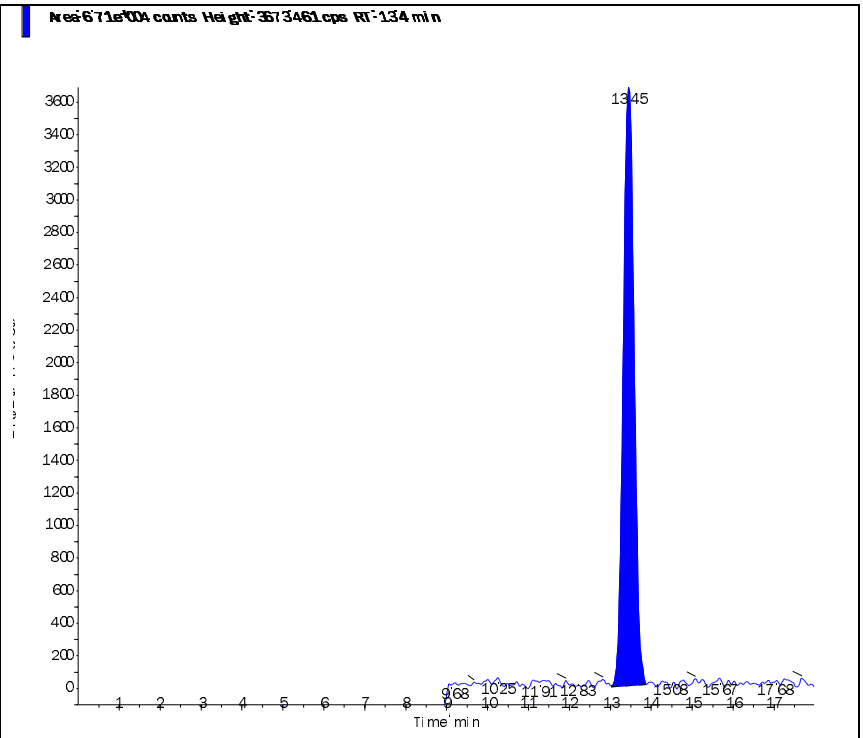
Concentration: 5.00 ug/L

Sample Type: (Quality Control)



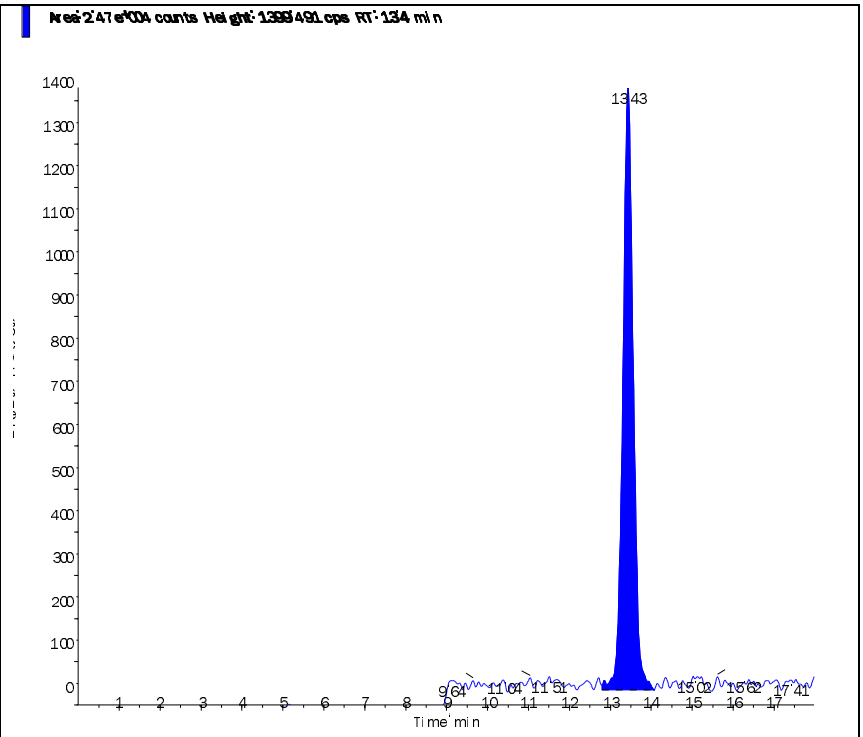
Perchlorate (98.8/83.3 amu)

RT (Exp. RT):	13.40 (13.50) min
Calculated conc:	0.981 ng/ml
Area Ratio:	0.237
Sample Type:	(Quality Control)



Perchlorate conf (100.8/85.2 amu)

RT (Exp. RT):	13.40 (13.40) min
Calculated conc:	1.07 ng/ml
Area Ratio:	0.087
Sample Type:	(Quality Control)



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Data File	LM22530.wiff	**Result Table**	110513_JWR.rdb
Acquisition Date	11/6/2013 5:38:59 AM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

Sample Name	WG451630-03 CCV (1.0ug/L)	**Injection Vial**	5.00
Data File	LM22530.wiff	**Injection Volume**	10.00
Acquisition Date	11/6/2013 5:38:59 AM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Quality Control
Instrument Name	API 4000	**Result Table**	110513_JWR.rdb
Sample ID	WG451630-03	**Dilution Factor**	1.00
Sample Comment	1,1 STD60059	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	2.970e+05	13.40	5.00	-

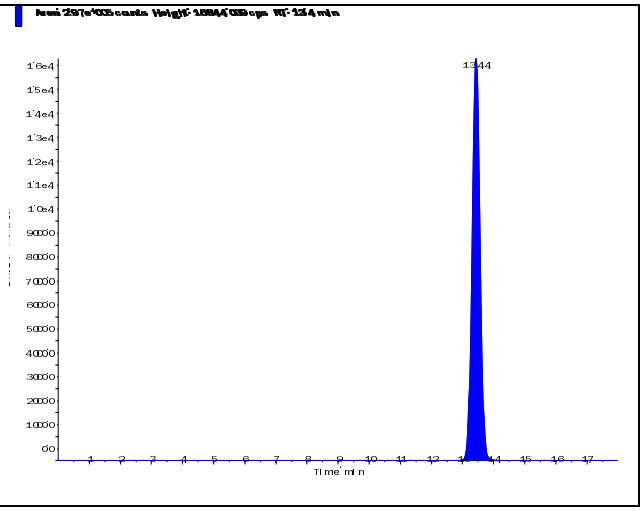
Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	6.940e+04	13.50	1.00	0.965
Perchlorate conf	2.420e+04	13.40	1.00	0.998

O18LP (Internal Standard)

RT (Exp. RT): 13.40(13.40) min

Concentration: 5.00 ug/L

Sample Type: (Quality Control)



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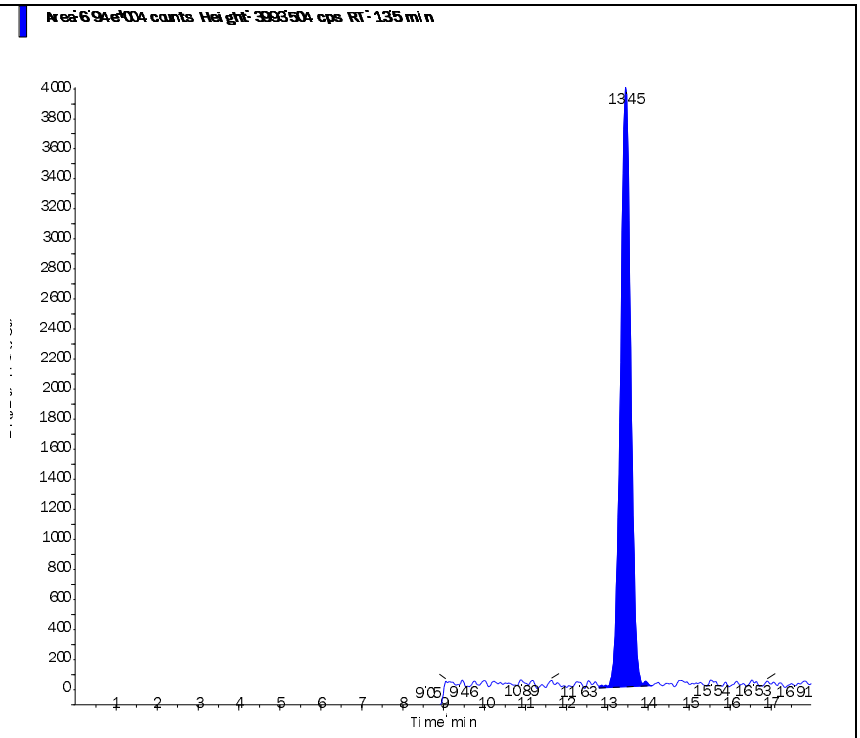
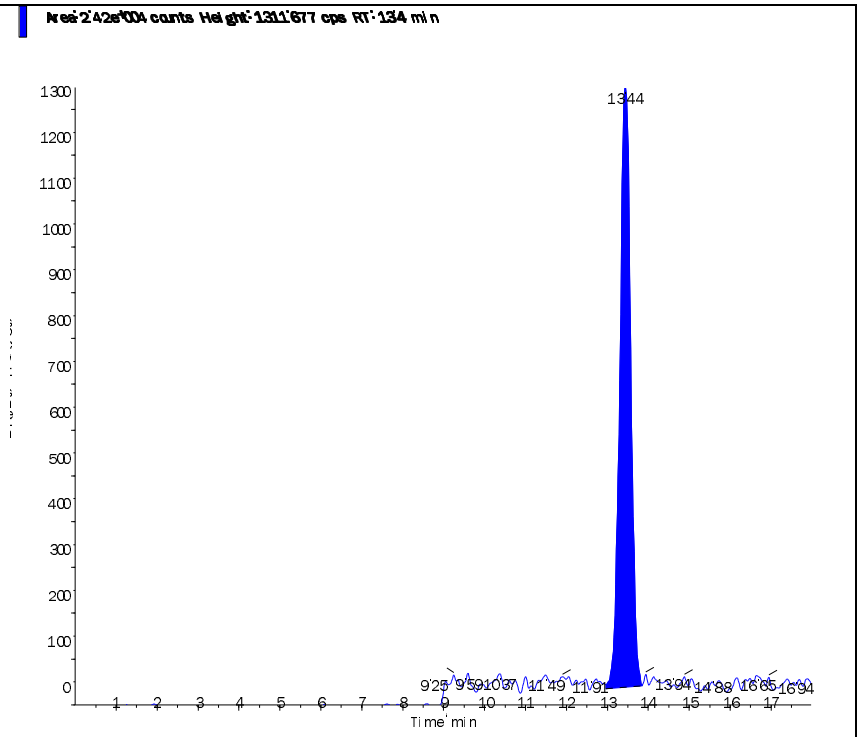
Perchlorate (98.8/83.3 amu) RT (Exp. RT): 13.50 (13.50) min Calculated conc: 0.965 ng/ml Area Ratio: 0.233 Sample Type: (Quality Control)	
Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): 13.40 (13.40) min Calculated conc: 0.998 ng/ml Area Ratio: 0.081 Sample Type: (Quality Control)	

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Data File	LM22544.wiff	**Result Table**	110513_JWR.rdb
Acquisition Date	11/6/2013 10:04:04 AM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

Sample Name	WG451630-05 CCV (1.0ug/L)	**Injection Vial**	5.00
Data File	LM22544.wiff	**Injection Volume**	10.00
Acquisition Date	11/6/2013 10:04:04 AM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Quality Control
Instrument Name	API 4000	**Result Table**	110513_JWR.rdb
Sample ID	WG451630-05	**Dilution Factor**	1.00
Sample Comment	1,1 STD60059	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	2.780e+05	13.40	5.00	-

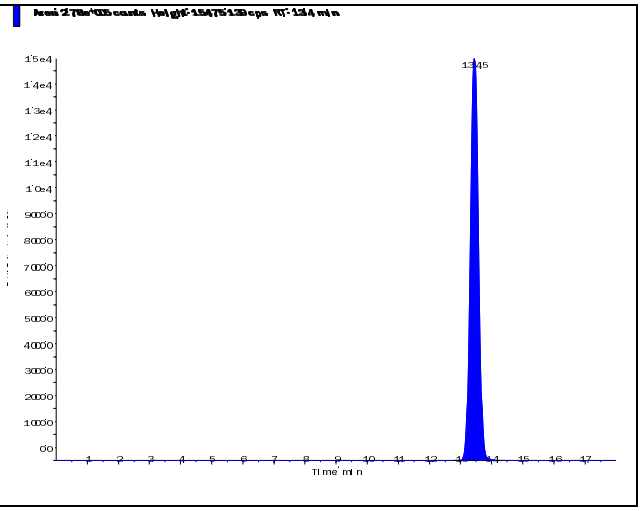
Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	6.600e+04	13.50	1.00	0.98
Perchlorate conf	2.110e+04	13.40	1.00	0.931

O18LP (Internal Standard)

RT (Exp. RT): 13.40(13.40) min

Concentration: 5.00 ug/L

Sample Type: (Quality Control)



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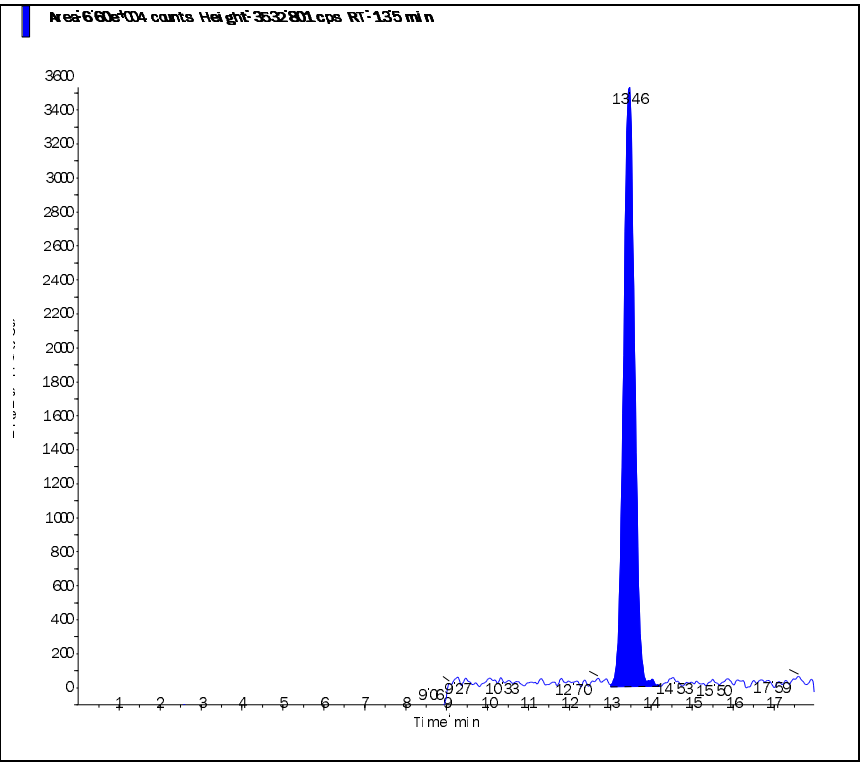
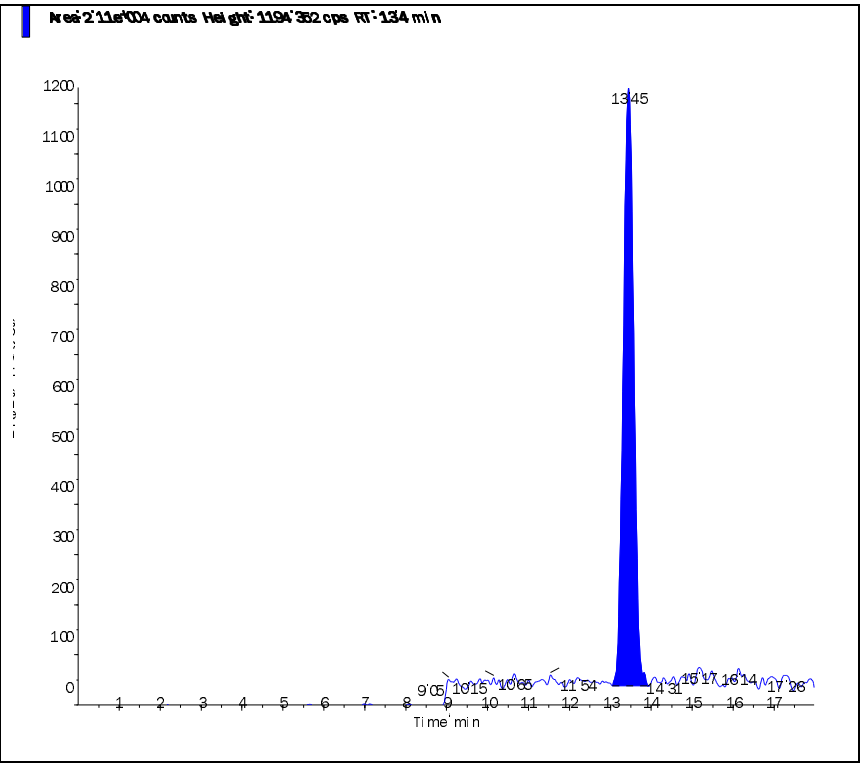
Perchlorate (98.8/83.3 amu)

RT (Exp. RT):	13.50 (13.50) min
Calculated conc:	0.98 ng/ml
Area Ratio:	0.237
Sample Type:	(Quality Control)



Perchlorate conf (100.8/85.2 amu)

RT (Exp. RT):	13.40 (13.40) min
Calculated conc:	0.931 ng/ml
Area Ratio:	0.076
Sample Type:	(Quality Control)



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Data File	LM22554.wiff	**Result Table**	110513_JWR.rdb
Acquisition Date	11/6/2013 3:03:22 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

Sample Name	WG451630-07 CCV (1.0ug/L)	**Injection Vial**	5.00
Data File	LM22554.wiff	**Injection Volume**	10.00
Acquisition Date	11/6/2013 3:03:22 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Quality Control
Instrument Name	API 4000	**Result Table**	110513_JWR.rdb
Sample ID	WG451630-07	**Dilution Factor**	1.00
Sample Comment	1,1 STD60059	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	2.330e+05	13.30	5.00	-

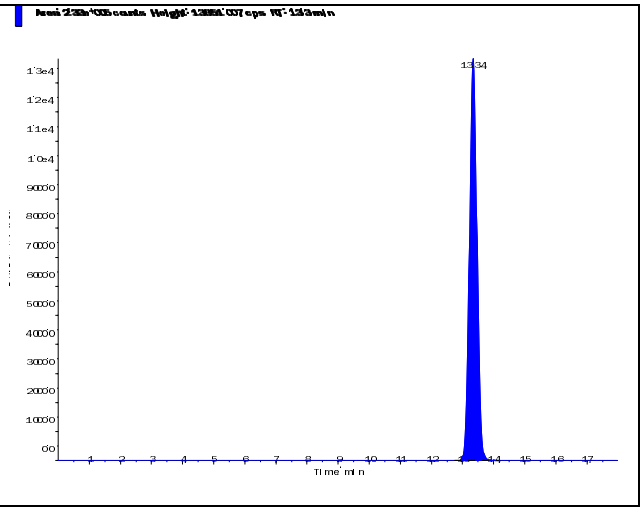
Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	5.620e+04	13.40	1.00	0.997
Perchlorate conf	1.940e+04	13.30	1.00	1.02

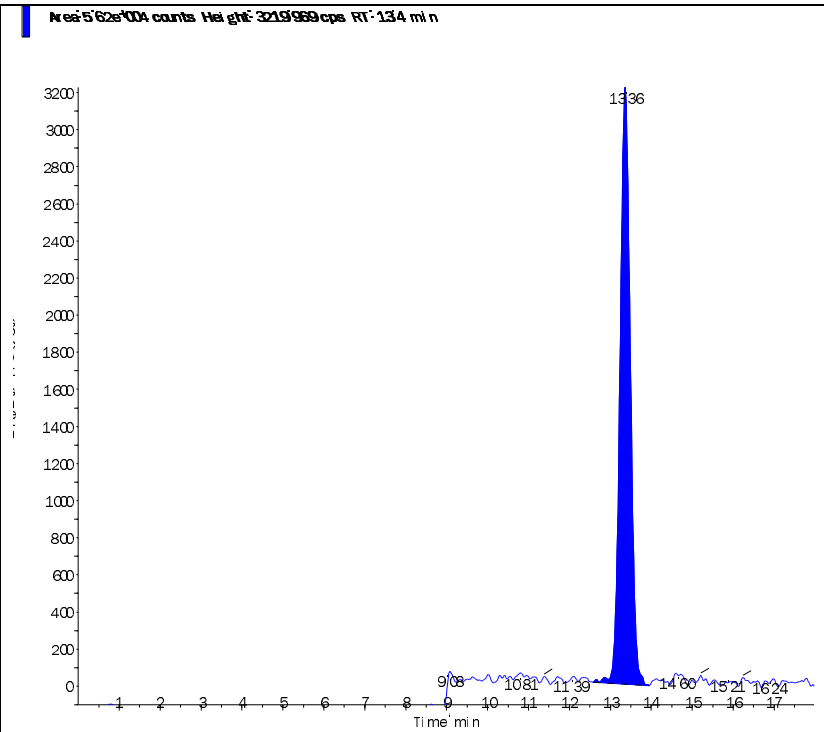
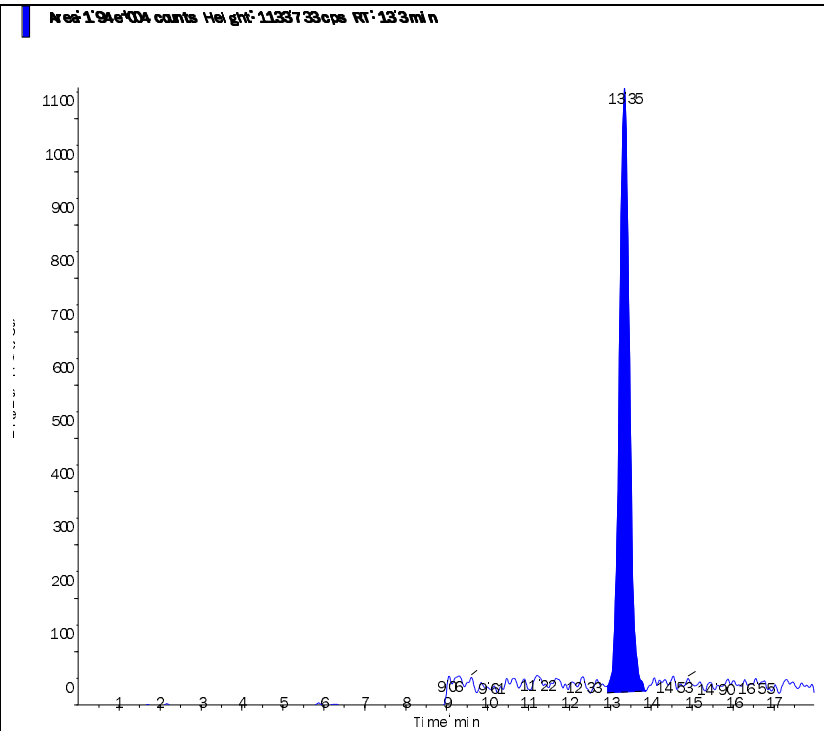
O18LP (Internal Standard)

RT (Exp. RT): 13.30(13.40) min

Concentration: 5.00 ug/L

Sample Type: (Quality Control)



Perchlorate (98.8/83.3 amu) RT (Exp. RT): 13.40 (13.50) min Calculated conc: 0.997 ng/ml Area Ratio: 0.241 Sample Type: (Quality Control)	
Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): 13.30 (13.40) min Calculated conc: 1.02 ng/ml Area Ratio: 0.083 Sample Type: (Quality Control)	

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Data File	LM22519.wiff	**Result Table**	110513_JWR.rdb
Acquisition Date	11/6/2013 2:10:40 AM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

Sample Name	WG451629-07 QCMRL (0.2ug/L)	**Injection Vial**	3.00
Data File	LM22519.wiff	**Injection Volume**	10.00
Acquisition Date	11/6/2013 2:10:40 AM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	110513_JWR.rdb
Sample ID	WG451629-07	**Dilution Factor**	1.00
Sample Comment	1,1 STD60059	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	2.880e+05	13.40	5.00	-

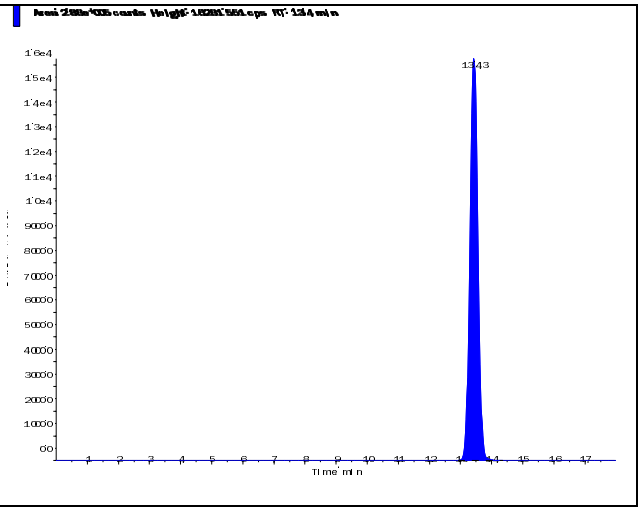
Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	1.510e+04	13.40	N/A	0.208
Perchlorate conf	4.520e+03	13.40	N/A	0.186

O18LP (Internal Standard)

RT (Exp. RT): 13.40(13.40) min

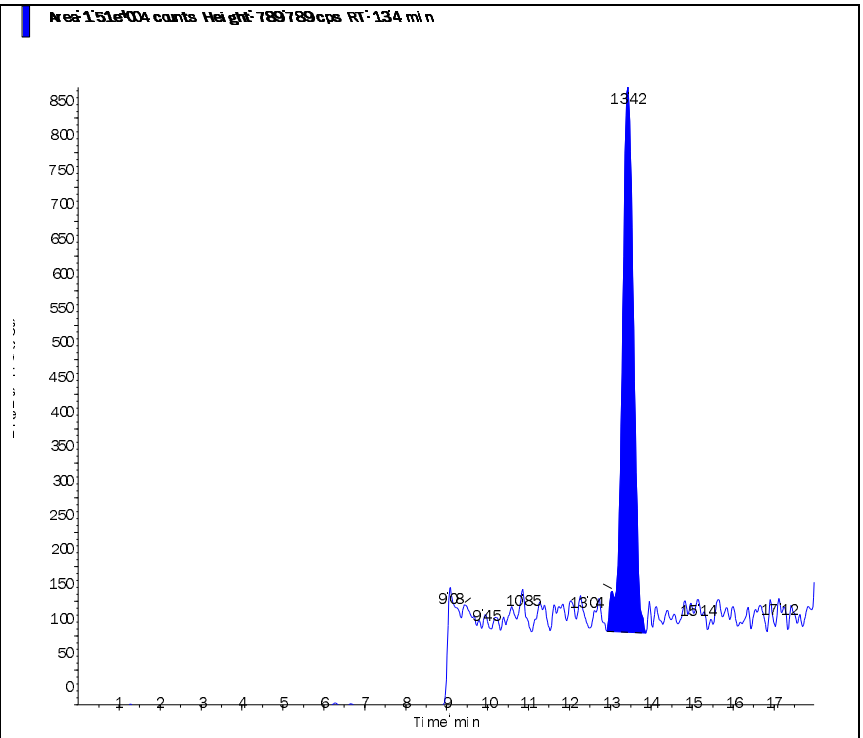
Concentration: 5.00 ug/L

Sample Type: (Unknown)



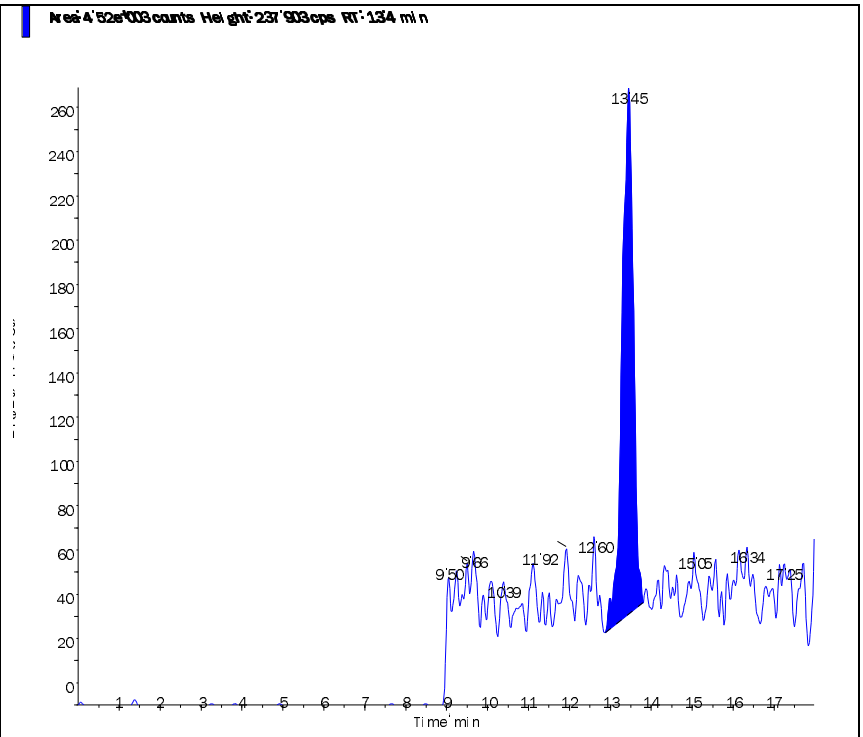
Perchlorate (98.8/83.3 amu)

RT (Exp. RT):	13.40 (13.50) min
Calculated conc:	0.208 ng/ml
Area Ratio:	0.052
Sample Type:	(Unknown)



Perchlorate conf (100.8/85.2 amu)

RT (Exp. RT):	13.40 (13.40) min
Calculated conc:	0.186 ng/ml
Area Ratio:	0.016
Sample Type:	(Unknown)



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Data File	LM22531.wiff	**Result Table**	110513_JWR.rdb
Acquisition Date	11/6/2013 5:57:55 AM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

Sample Name	WG451629-08 QCMRL (0.2ug/L)	**Injection Vial**	3.00
Data File	LM22531.wiff	**Injection Volume**	10.00
Acquisition Date	11/6/2013 5:57:55 AM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	110513_JWR.rdb
Sample ID	WG451629-08	**Dilution Factor**	1.00
Sample Comment	1,1 STD60059	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	2.910e+05	13.40	5.00	-

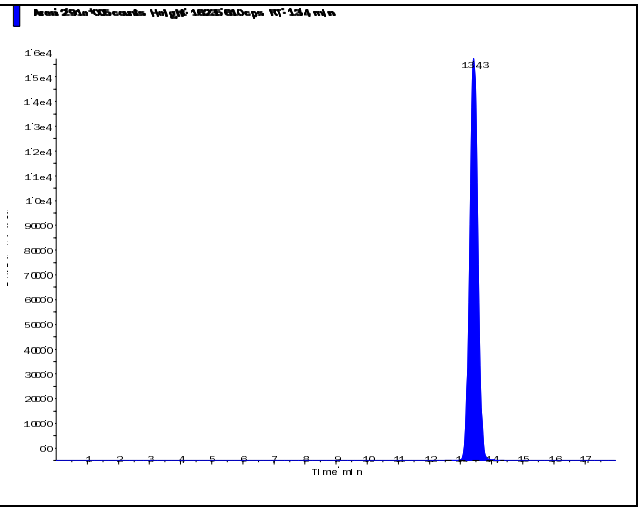
Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	1.530e+04	13.40	N/A	0.21
Perchlorate conf	5.170e+03	13.40	N/A	0.211

O18LP (Internal Standard)

RT (Exp. RT): 13.40(13.40) min

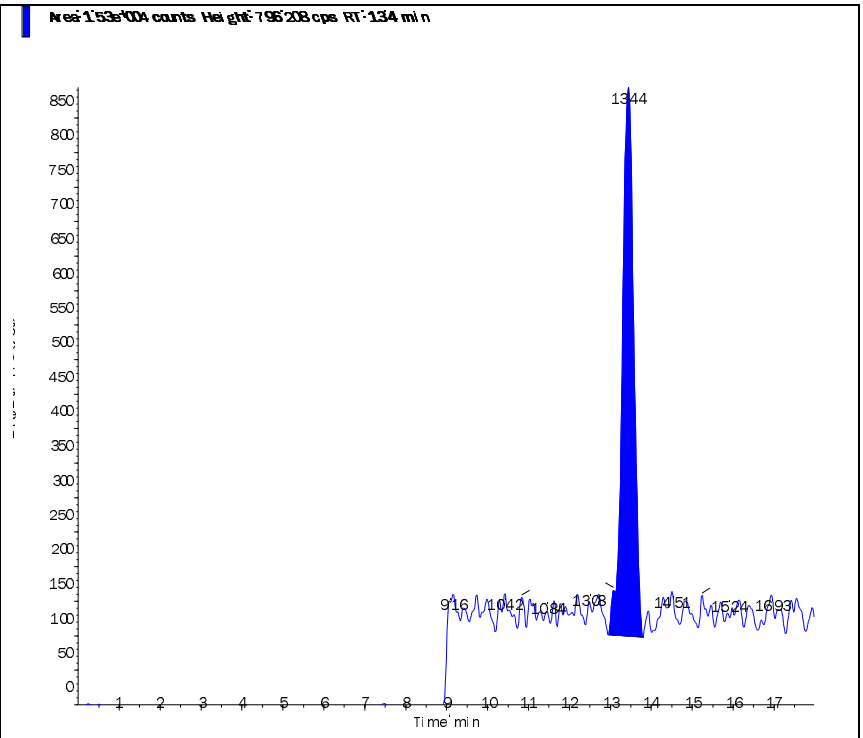
Concentration: 5.00 ug/L

Sample Type: (Unknown)



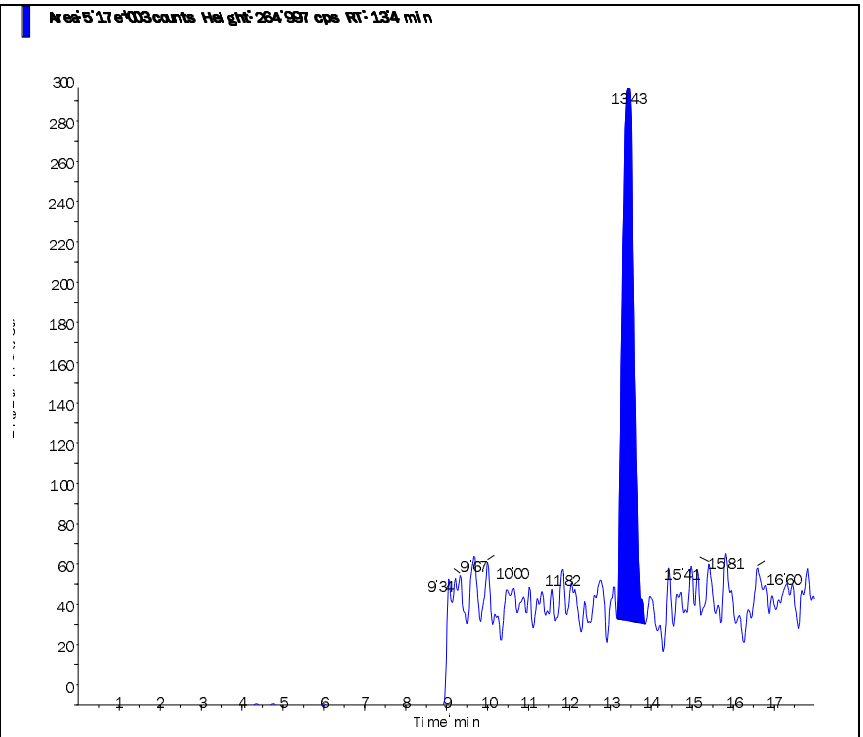
Perchlorate (98.8/83.3 amu)

RT (Exp. RT):	13.40 (13.50) min
Calculated conc:	0.21 ng/ml
Area Ratio:	0.053
Sample Type:	(Unknown)



Perchlorate conf (100.8/85.2 amu)

RT (Exp. RT):	13.40 (13.40) min
Calculated conc:	0.211 ng/ml
Area Ratio:	0.018
Sample Type:	(Unknown)



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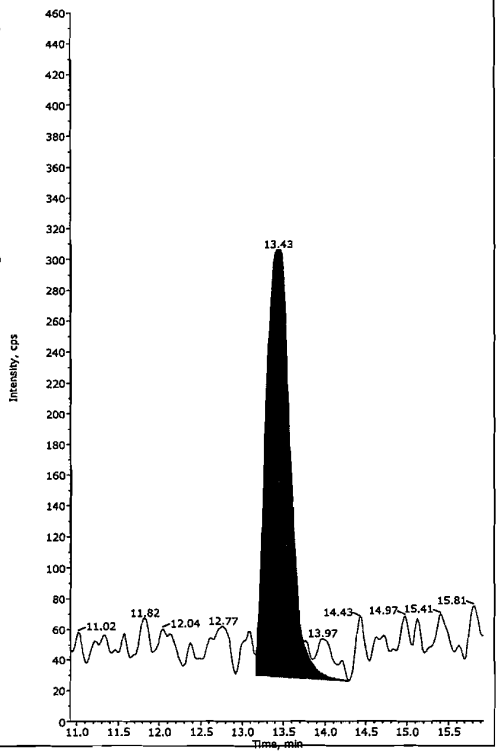
Sample Name: "WG451629-08 QCMRL (0.2ug/L)" Sample ID: "WG451629-08" File: "LM22531.wiff"
Peak Name: "Perchlorate conf" Mass(es): "100.8/85.2 amu"
Comment: "1,1 STD60059" Annotation: ""

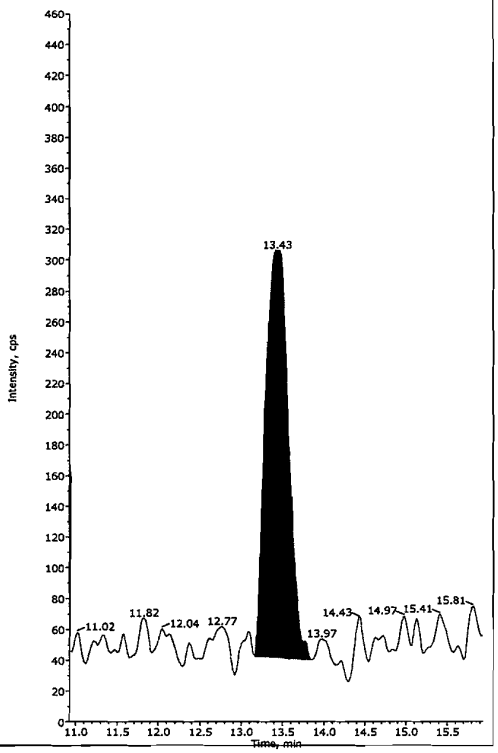
Sample Index:	1
Sample Type:	Unknown
Concentration:	N/A
Calculated Conc:	0.235 ug/L
Acq. Date:	11/6/2013
Acq. Time:	5:57:55 AM
Modified:	No
Proc. Algorithm:	Analyst Classic
Bunching Factor:	2
Noise Threshold:	2.40 cps
Area Threshold:	12.01 cps
Num. Smooths:	5
Sep. Width:	0.20
Sep. Height:	0.01
Exp. Peak Ratio:	5.00
Exp. Adj. Ratio:	4.00
Exp. Val. Ratio:	3.00
RT Window:	30.000 sec
Expected RT:	13.4 min
Use Relative RT:	Yes
Int. Type:	Exponential Skim
Retention Time:	13.4 min
Area:	5.72e+003 counts
Height:	277.548 cps
Start Time:	13.163 min
End Time:	13.730 min



Collected by: N/A
Electronic Signature: no
Operator: lcms1

Sample Name: "WG451629-08 QCMRL (0.2ug/L)" Sample ID: "WG451629-08" File: "LM22531.wiff"
Peak Name: "Perchlorate conf" Mass(es): "100.8/85.2 amu"
Comment: "1,1 STD60059" Annotation: ""

Sample Index:	1
Sample Type:	Unknown
Concentration:	N/A
Calculated Conc:	0.211 ug/L
Acq. Date:	11/6/2013
Acq. Time:	5:57:55 AM
Modified:	Yes
Proc. Algorithm:	Analyst Classic
Bunching Factor:	2
Noise Threshold:	2.40 cps
Area Threshold:	12.01 cps
Num. Smooths:	5
Sep. Width:	0.30
Sep. Height:	0.01
Exp. Peak Ratio:	5.00
Exp. Adj. Ratio:	4.00
Exp. Val. Ratio:	3.00
RT Window:	30.000 sec
Expected RT:	13.4 min
Use Relative RT:	Yes
Int. Type:	Manual
Retention Time:	13.4 min
Area:	5.17e+003 counts
Height:	264.997 cps
Start Time:	13.163 min
End Time:	13.852 min



#4
JWR 11/08/13

mde 11/7/13

Collected by: N/A
Electronic Signature: no
Operator: lcms1

Data File	LM22545.wiff	**Result Table**	110513_JWR.rdb
Acquisition Date	11/6/2013 10:23:00 AM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

Sample Name	WG451629-09 QCMRL (0.2ug/L)	**Injection Vial**	3.00
Data File	LM22545.wiff	**Injection Volume**	10.00
Acquisition Date	11/6/2013 10:23:00 AM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	110513_JWR.rdb
Sample ID	WG451629-09	**Dilution Factor**	1.00
Sample Comment	1,1 STD60059	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	2.780e+05	13.40	5.00	-

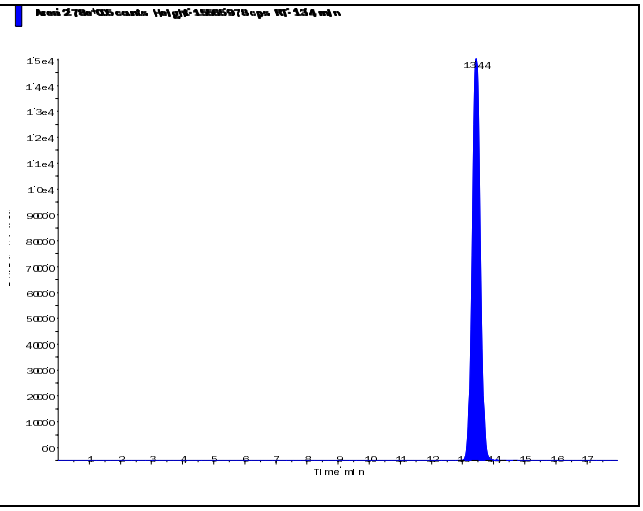
Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	1.520e+04	13.40	N/A	0.218
Perchlorate conf	4.720e+03	13.40	N/A	0.201

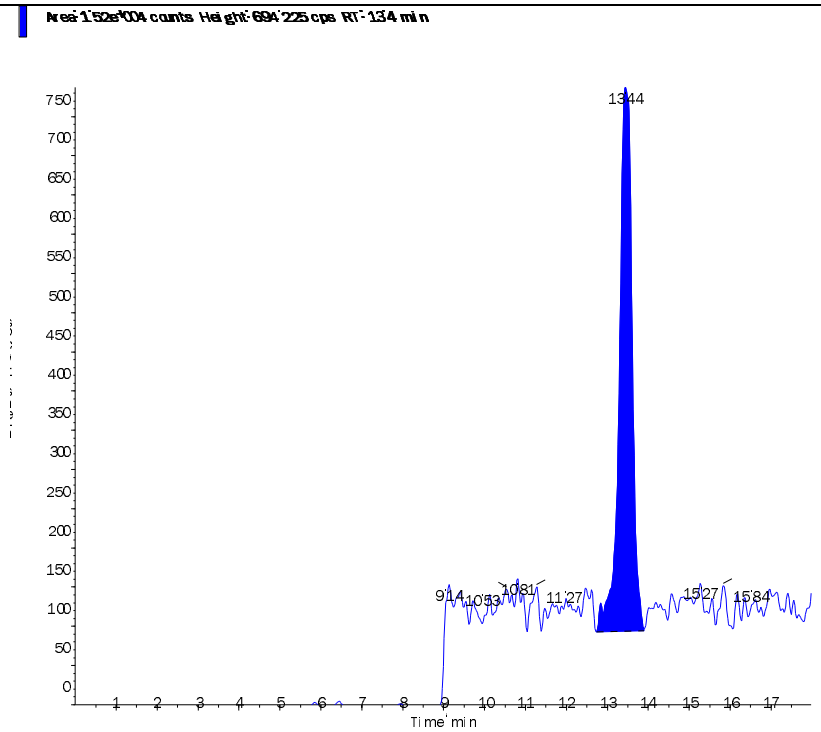
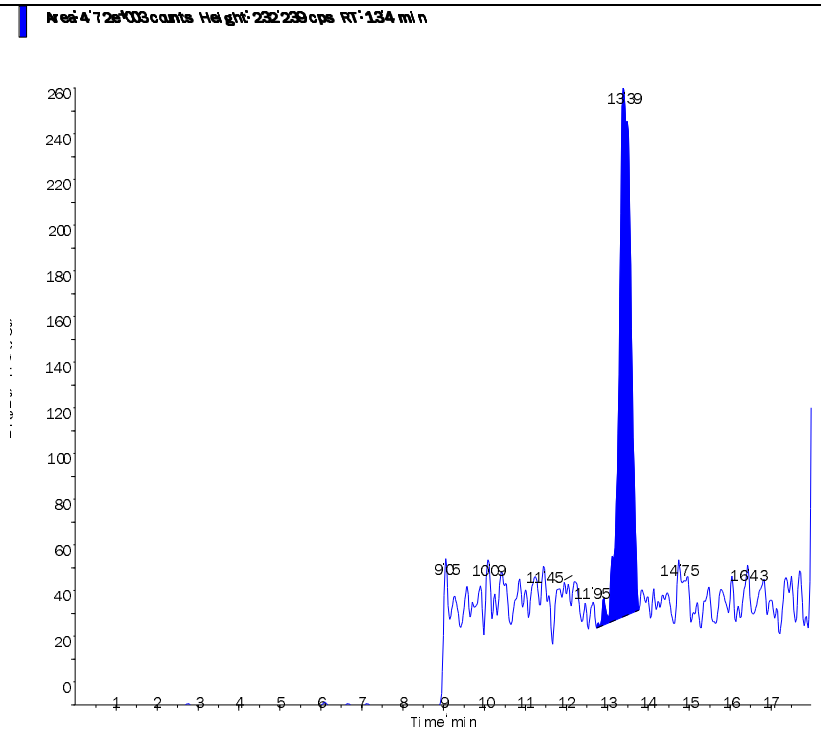
O18LP (Internal Standard)

RT (Exp. RT): 13.40(13.40) min

Concentration: 5.00 ug/L

Sample Type: (Unknown)



Perchlorate (98.8/83.3 amu) RT (Exp. RT): 13.40 (13.50) min Calculated conc: 0.218 ng/ml Area Ratio: 0.055 Sample Type: (Unknown)	
Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): 13.40 (13.40) min Calculated conc: 0.201 ng/ml Area Ratio: 0.017 Sample Type: (Unknown)	

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Data File	LM22555.wiff	**Result Table**	110513_JWR.rdb
Acquisition Date	11/6/2013 3:22:19 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

Sample Name	WG451629-10 QCMRL (0.2ug/L)	**Injection Vial**	3.00
Data File	LM22555.wiff	**Injection Volume**	10.00
Acquisition Date	11/6/2013 3:22:19 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	110513_JWR.rdb
Sample ID	WG451629-10	**Dilution Factor**	1.00
Sample Comment	1,1 STD60059	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	2.440e+05	13.40	5.00	-

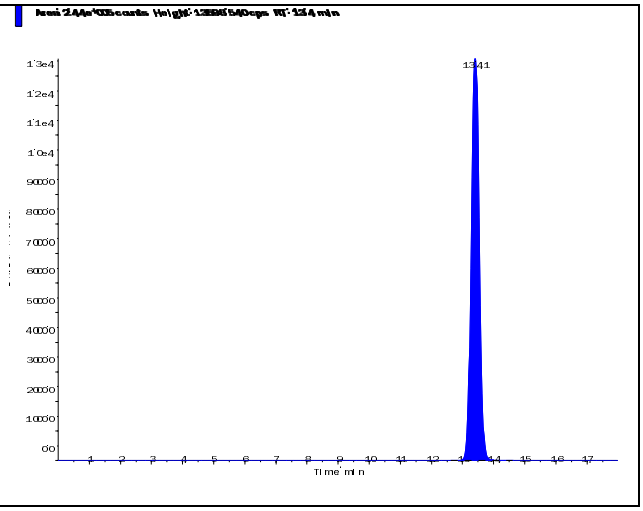
Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	1.270e+04	13.40	N/A	0.208
Perchlorate conf	4.320e+03	13.40	N/A	0.211

O18LP (Internal Standard)

RT (Exp. RT): 13.40(13.40) min

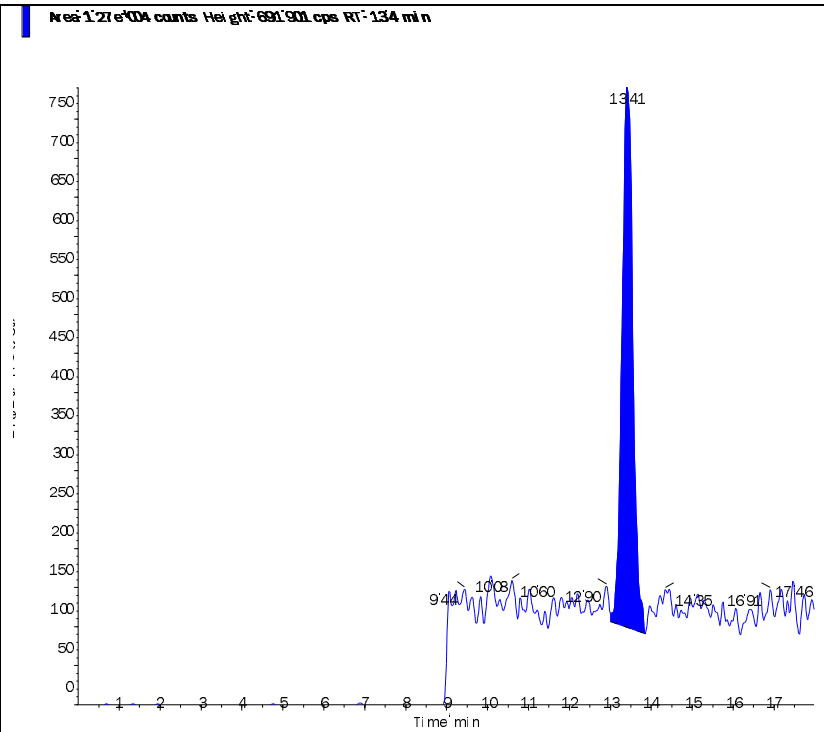
Concentration: 5.00 ug/L

Sample Type: (Unknown)



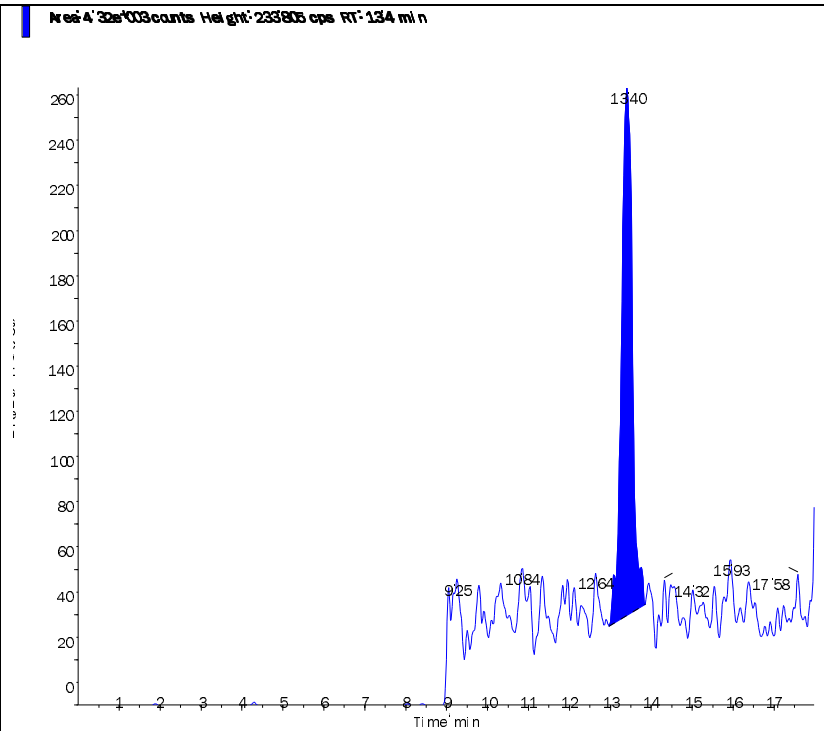
Perchlorate (98.8/83.3 amu)

RT (Exp. RT):	13.40 (13.50) min
Calculated conc:	0.208 ng/ml
Area Ratio:	0.052
Sample Type:	(Unknown)



Perchlorate conf (100.8/85.2 amu)

RT (Exp. RT):	13.40 (13.40) min
Calculated conc:	0.211 ng/ml
Area Ratio:	0.018
Sample Type:	(Unknown)



Data File	LM22517.wiff	**Result Table**	110513_JWR.rdb
Acquisition Date	11/6/2013 1:32:49 AM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

Sample Name	WG451630-01 CCB	**Injection Vial**	1.00
Data File	LM22517.wiff	**Injection Volume**	10.00
Acquisition Date	11/6/2013 1:32:49 AM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	110513_JWR.rdb
Sample ID	WG451630-01	**Dilution Factor**	1.00
Sample Comment	11.00	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	2.810e+05	13.40	5.00	-

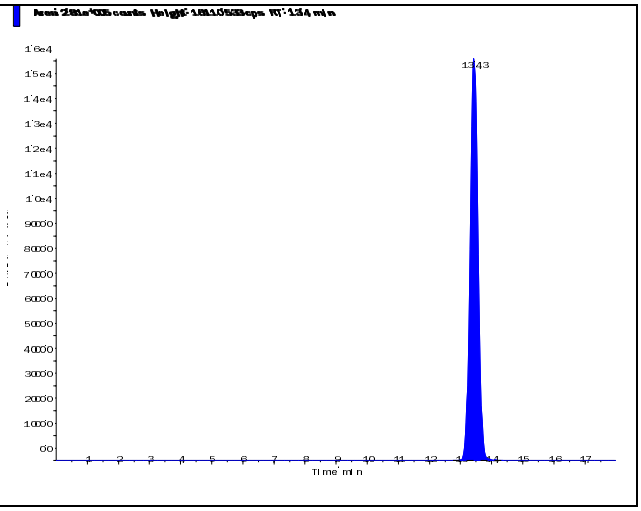
Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	0.000e+00	0.00	N/A	No Peak
Perchlorate conf	5.310e+02	13.40	N/A	0.015

O18LP (Internal Standard)

RT (Exp. RT): 13.40(13.40) min

Concentration: 5.00 ug/L

Sample Type: (Unknown)



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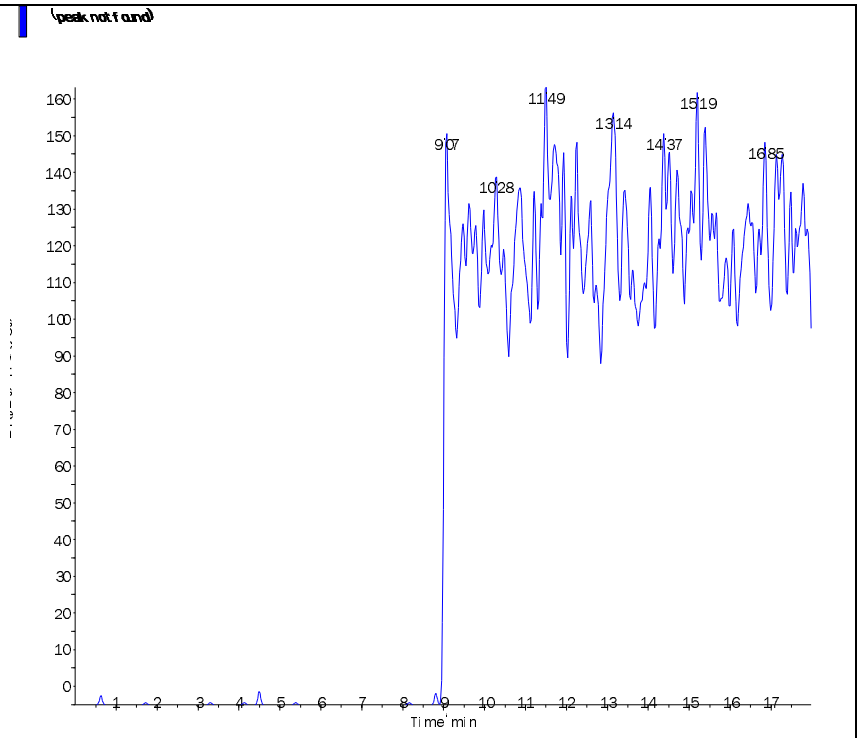
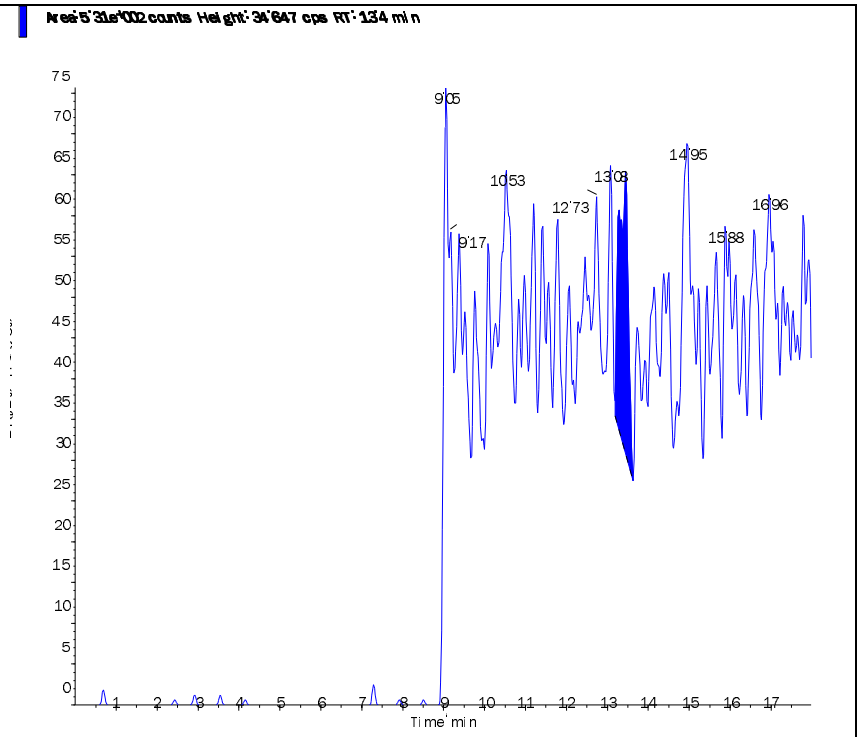
Perchlorate (98.8/83.3 amu) RT (Exp. RT): 0.00 (13.50) min Calculated conc: No Peak ng/ml Area Ratio: 0.00 Sample Type: (Unknown)	
Perchlorate conf (100.8/85.2 amu) RT (Exp. RT): 13.40 (13.40) min Calculated conc: 0.015 ng/ml Area Ratio: 0.002 Sample Type: (Unknown)	

Data File	LM22532.wiff	**Result Table**	110513_JWR.rdb
Acquisition Date	11/6/2013 6:16:52 AM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

Sample Name	WG451630-04 CCB	**Injection Vial**	1.00
Data File	LM22532.wiff	**Injection Volume**	10.00
Acquisition Date	11/6/2013 6:16:52 AM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	110513_JWR.rdb
Sample ID	WG451630-04	**Dilution Factor**	1.00
Sample Comment	11.00	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	2.910e+05	13.40	5.00	-

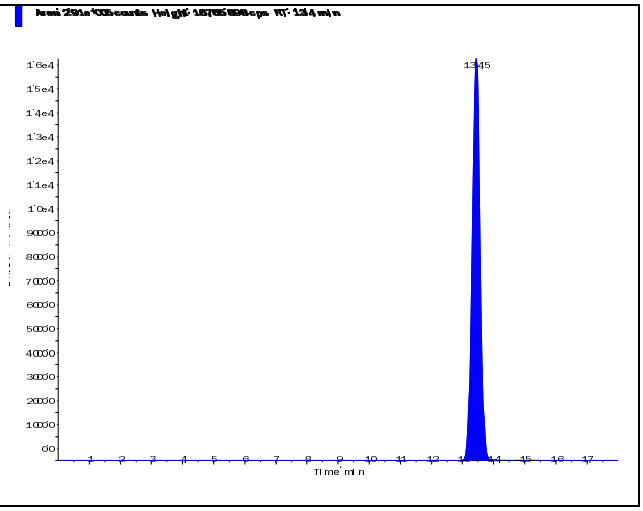
Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	0.000e+00	0.00	N/A	No Peak
Perchlorate conf	7.660e+01	13.40	N/A	< 0

O18LP (Internal Standard)

RT (Exp. RT): 13.40(13.40) min

Concentration: 5.00 ug/L

Sample Type: (Unknown)



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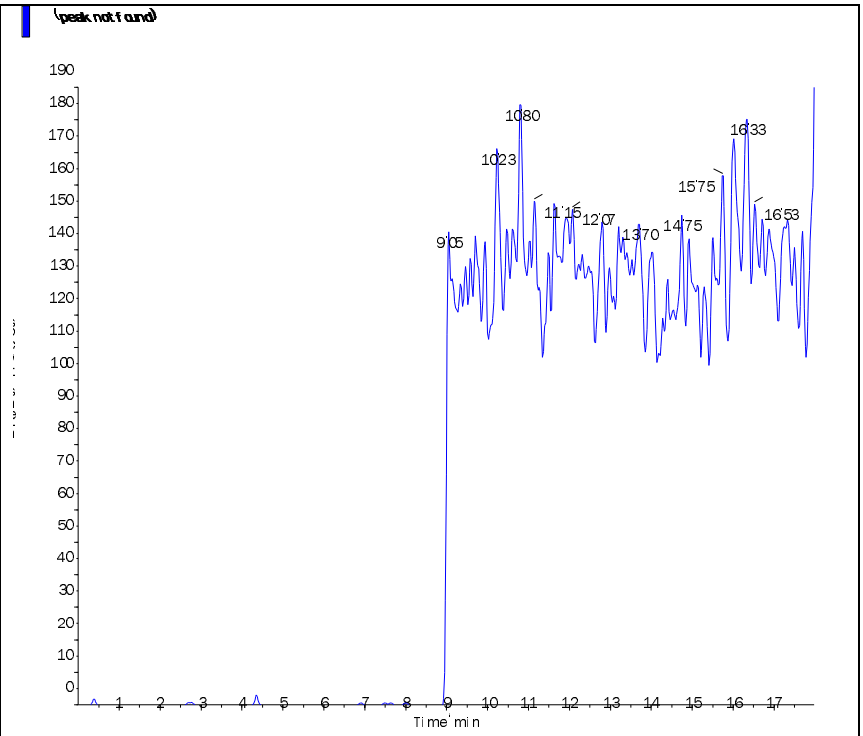
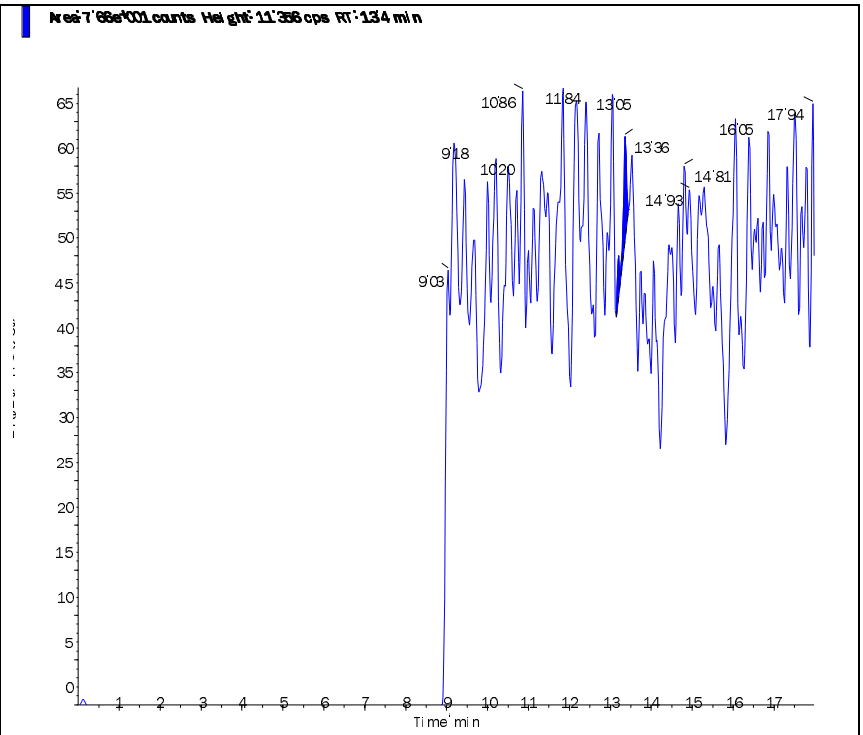
Perchlorate (98.8/83.3 amu)

RT (Exp. RT):	0.00 (13.50) min
Calculated conc:	No Peak ng/ml
Area Ratio:	0.00
Sample Type:	(Unknown)



Perchlorate conf (100.8/85.2 amu)

RT (Exp. RT):	13.40 (13.40) min
Calculated conc:	< 0 ng/ml
Area Ratio:	0.00
Sample Type:	(Unknown)



Data File	LM22546.wiff	**Result Table**	110513_JWR.rdb
Acquisition Date	11/6/2013 10:41:55 AM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

Sample Name	WG451630-06 CCB	**Injection Vial**	1.00
Data File	LM22546.wiff	**Injection Volume**	10.00
Acquisition Date	11/6/2013 10:41:55 AM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	110513_JWR.rdb
Sample ID	WG451630-06	**Dilution Factor**	1.00
Sample Comment	11.00	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	2.790e+05	13.40	5.00	-

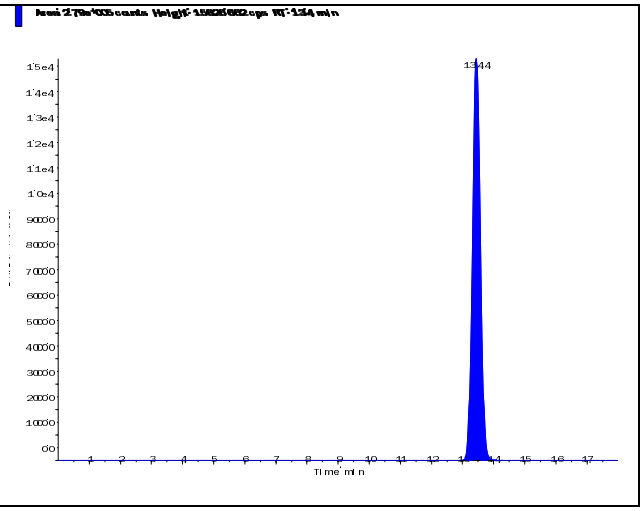
Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	5.000e+02	13.60	N/A	< 0
Perchlorate conf	2.100e+02	13.60	N/A	0.0009

O18LP (Internal Standard)

RT (Exp. RT): 13.40(13.40) min

Concentration: 5.00 ug/L

Sample Type: (Unknown)



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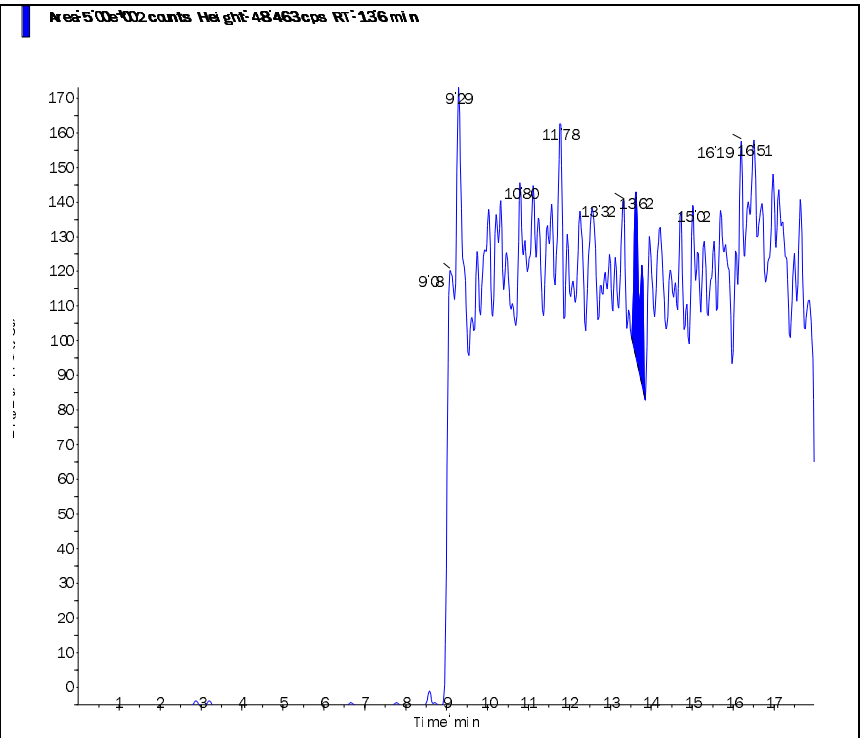
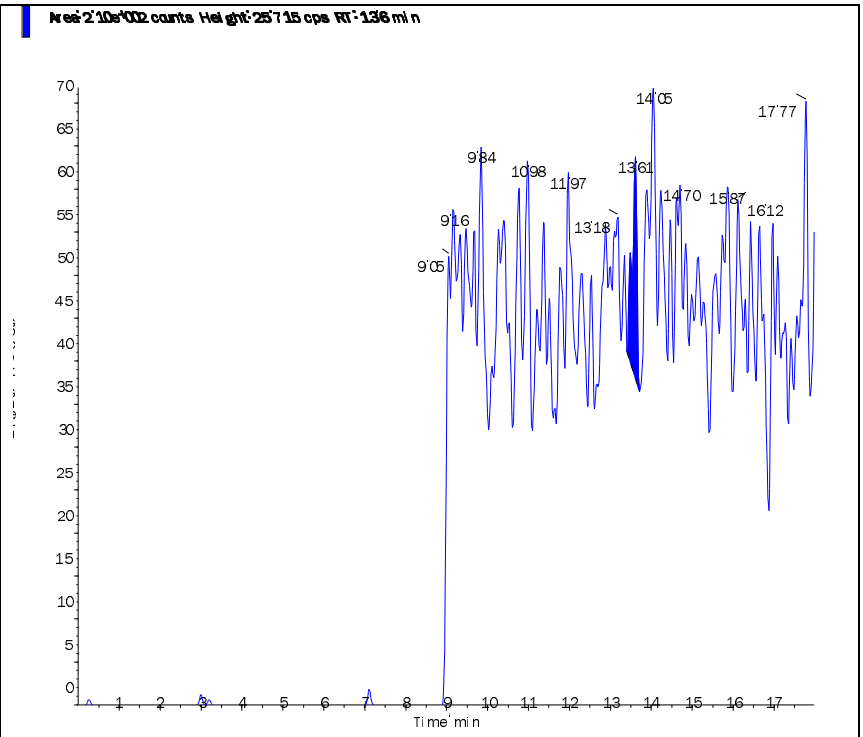
Perchlorate (98.8/83.3 amu)

RT (Exp. RT):	13.60 (13.50) min
Calculated conc:	< 0 ng/ml
Area Ratio:	0.002
Sample Type:	(Unknown)



Perchlorate conf (100.8/85.2 amu)

RT (Exp. RT):	13.60 (13.40) min
Calculated conc:	0.0009 ng/ml
Area Ratio:	0.001
Sample Type:	(Unknown)



Data File	LM22556.wiff	**Result Table**	110513_JWR.rdb
Acquisition Date	11/6/2013 3:41:15 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

Sample Name	WG451630-08 CCB	**Injection Vial**	1.00
Data File	LM22556.wiff	**Injection Volume**	10.00
Acquisition Date	11/6/2013 3:41:15 PM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	110513_JWR.rdb
Sample ID	WG451630-08	**Dilution Factor**	1.00
Sample Comment	11.00	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	2.520e+05	13.40	5.00	-

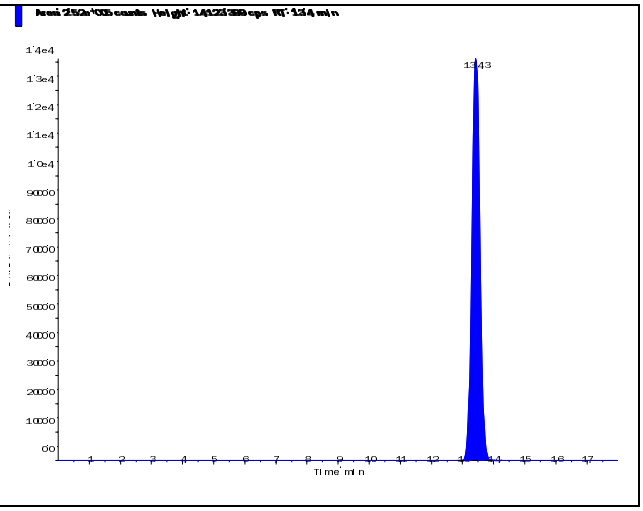
Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	0.000e+00	0.00	N/A	No Peak
Perchlorate conf	2.510e+02	13.40	N/A	0.004

O18LP (Internal Standard)

RT (Exp. RT): 13.40(13.40) min

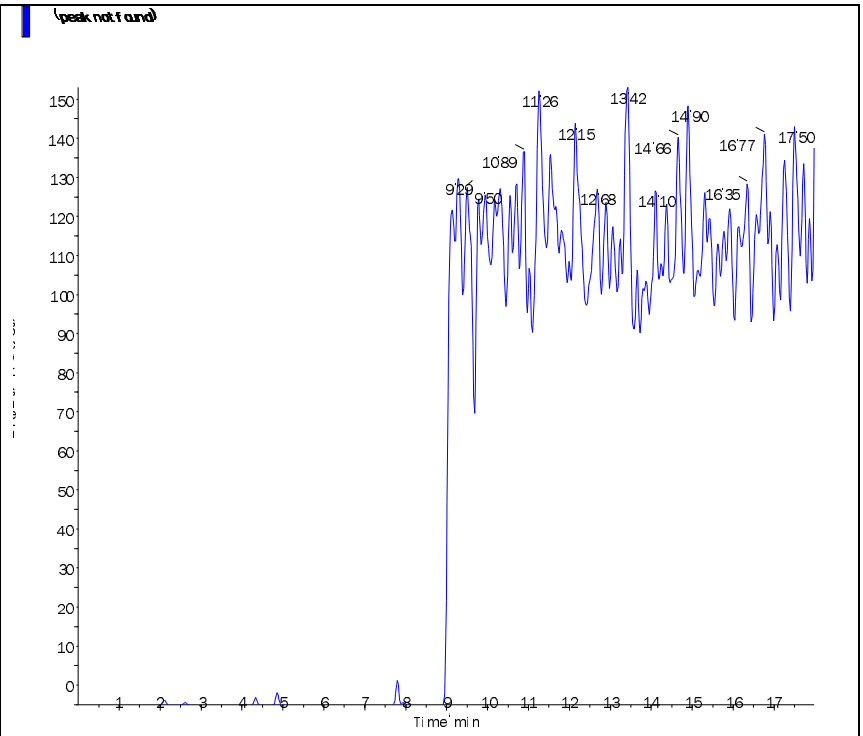
Concentration: 5.00 ug/L

Sample Type: (Unknown)



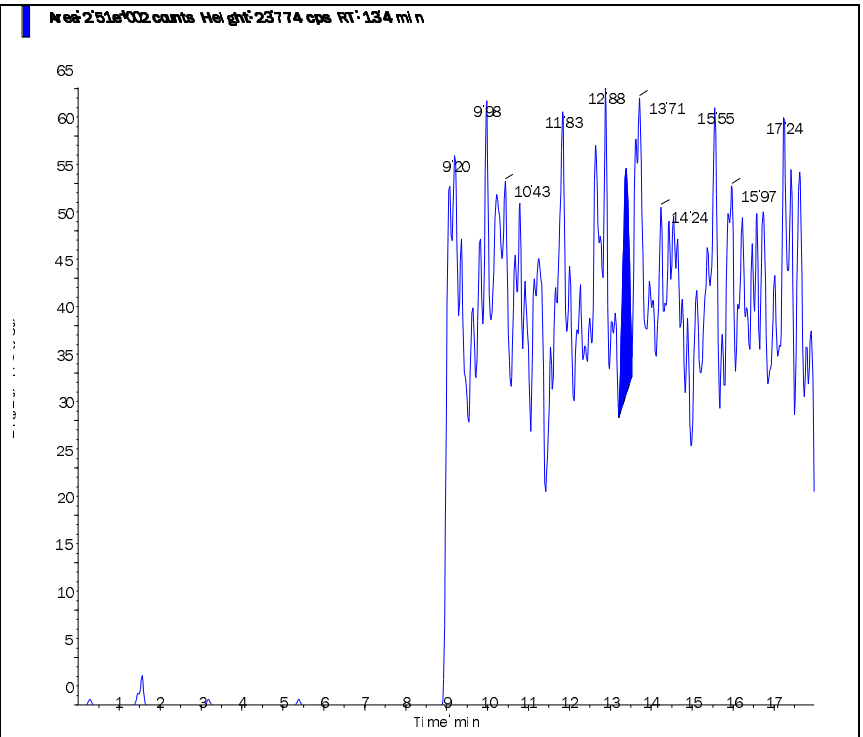
Perchlorate (98.8/83.3 amu)

RT (Exp. RT):	0.00 (13.50) min
Calculated conc:	No Peak ng/ml
Area Ratio:	0.00
Sample Type:	(Unknown)



Perchlorate conf (100.8/85.2 amu)

RT (Exp. RT):	13.40 (13.40) min
Calculated conc:	0.004 ng/ml
Area Ratio:	0.001
Sample Type:	(Unknown)



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Data File	LM22520.wiff	**Result Table**	110513_JWR.rdb
Acquisition Date	11/6/2013 2:29:37 AM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

Sample Name	WG451629-01 MCT (0.2ug/L)	**Injection Vial**	10.00
Data File	LM22520.wiff	**Injection Volume**	10.00
Acquisition Date	11/6/2013 2:29:37 AM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	110513_JWR.rdb
Sample ID	WG451629-01	**Dilution Factor**	1.00
Sample Comment	1,1 STD60059	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	2.780e+05	10.20	5.00	-

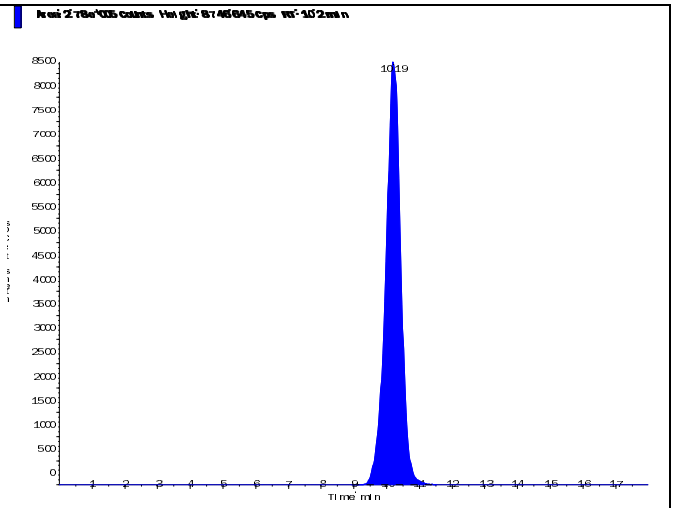
Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	1.450e+04	10.20	N/A	0.208
Perchlorate conf	4.870e+03	10.20	N/A	0.209

O18LP (Internal Standard)

RT (Exp. RT): 10.20(13.40) min

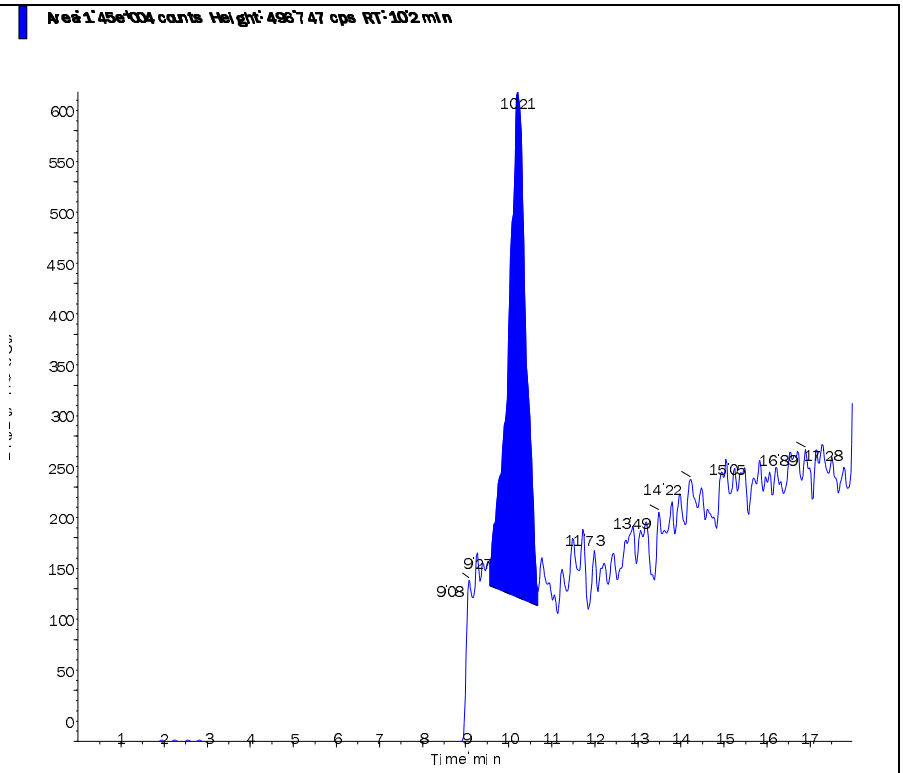
Concentration: 5.00 ug/L

Sample Type: (Unknown)



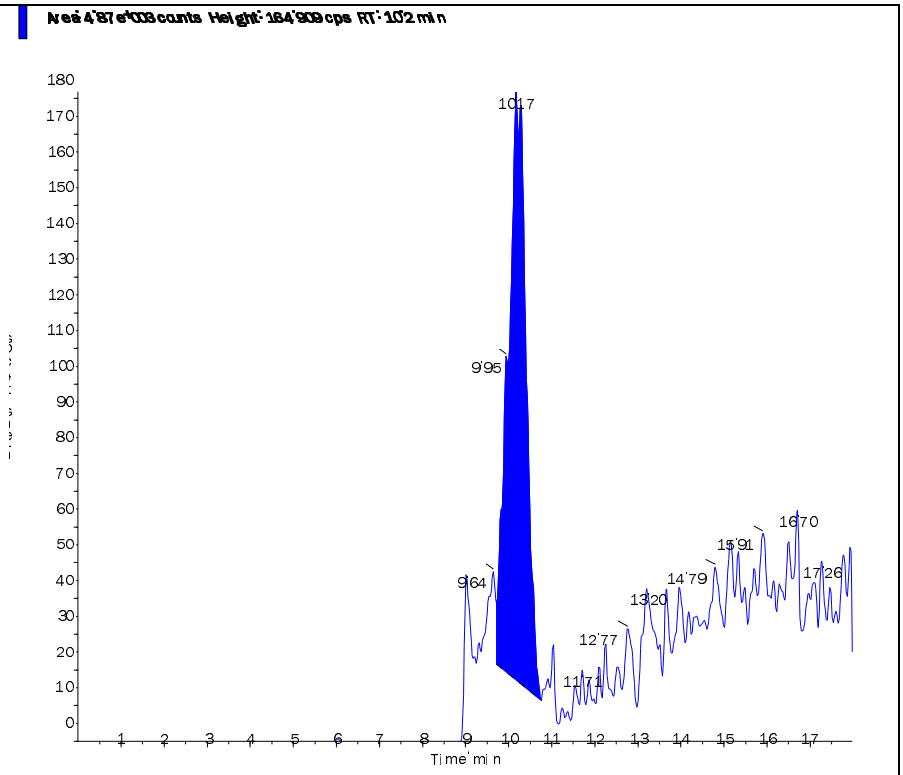
Perchlorate (98.8/83.3 amu)

RT (Exp. RT):	10.20 (13.50) min
Calculated conc:	0.208 ng/ml
Area Ratio:	0.052
Sample Type:	(Unknown)



Perchlorate conf (100.8/85.2 amu)

RT (Exp. RT):	10.20 (13.40) min
Calculated conc:	0.209 ng/ml
Area Ratio:	0.018
Sample Type:	(Unknown)



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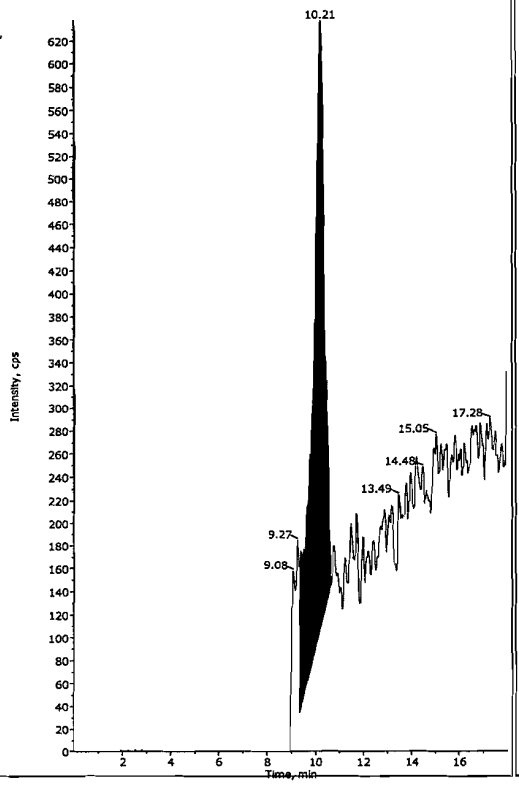
Printing Time: 4:23:22 PM
Printing Date: Wednesday, November 06, 2013

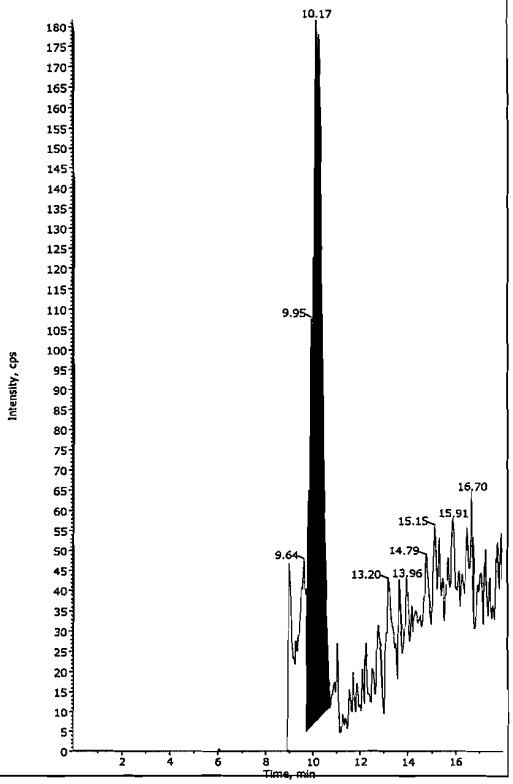
Sample Name: "WG451629-01 MCT (0.2ug/L)" Sample ID: "WG451629-01" File: "LM22520.wiff"
Peak Name: "Perchlorate" Mass(es): "98.8/83.3 amu"
Comment: "1,1 STD60059" Annotation: ""

Sample Index:	1
Sample Type:	Unknown
Concentration:	N/A
Calculated Conc:	0.277 ug/L
Acq. Date:	11/6/2013
Acq. Time:	2:29:37 AM
Modified:	No
Proc. Algorithm:	Analyst Classic
Bunching Factor:	4
Noise Threshold:	4.76 cps
Area Threshold:	23.82 cps
Num. Smooths:	5
Sep. Width:	0.20
Sep. Height:	0.01
Exp. Peak Ratio:	5.00
Exp. Adj. Ratio:	4.00
Exp. Val. Ratio:	3.00
RT Window:	30.000 sec
Expected RT:	13.5 min
Use Relative RT:	Yes
Int. Type:	Valley
Retention Time:	10.2 min
Area:	1.91e+004 counts
Height:	530.630 cps
Start Time:	9.336 min
End Time:	10.672 min



Sample Name: "WG451629-01 MCT (0.2ug/L)" Sample ID: "WG451629-01" File: "LM22520.wiff"
Peak Name: "Perchlorate conf" Mass(es): "100.8/85.2 amu"
Comment: "1,1 STD60059" Annotation: ""

Sample Index:	1
Sample Type:	Unknown
Concentration:	N/A
Calculated Conc:	0.231 ug/L
Acq. Date:	11/6/2013
Acq. Time:	2:29:37 AM
Modified:	No
Proc. Algorithm:	Analyst Classic
Bunching Factor:	2
Noise Threshold:	2.40 cps
Area Threshold:	12.01 cps
Num. Smooths:	5
Sep. Width:	0.20
Sep. Height:	0.01
Exp. Peak Ratio:	5.00
Exp. Adj. Ratio:	4.00
Exp. Val. Ratio:	3.00
RT Window:	30.000 sec
Expected RT:	13.4 min
Use Relative RT:	Yes
Int. Type:	Valley
Retention Time:	10.2 min
Area:	5.38e+003 counts
Height:	174.159 cps
Start Time:	9.721 min
End Time:	10.753 min

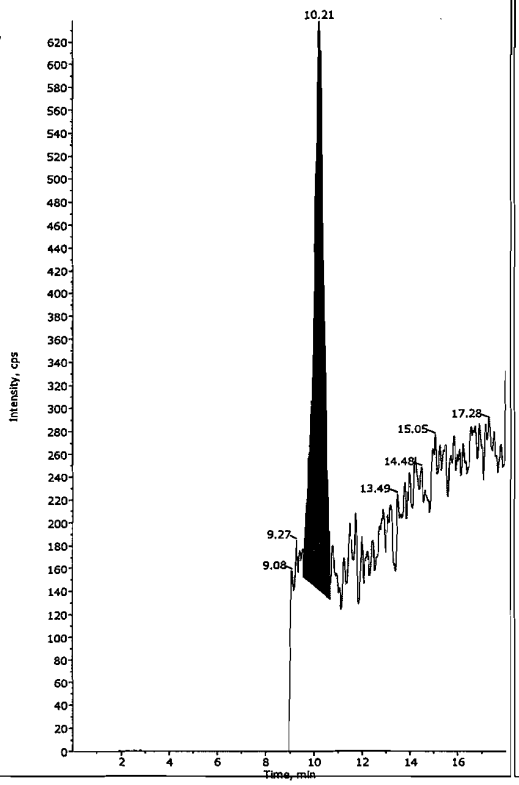


Collected by: N/A
Electronic Signature: no
Operator: lcms1

Printing Time: 4:37:27 PM
Printing Date: Wednesday, November 06, 2013

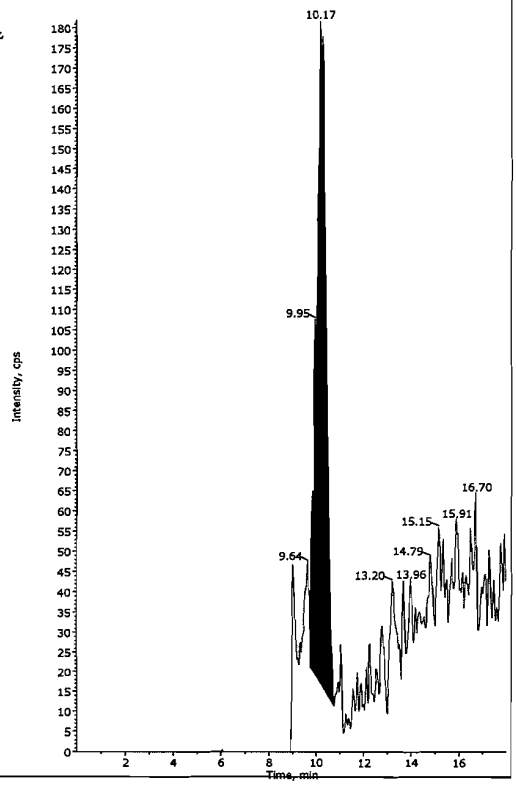
Sample Name: "WG451629-01 MCT (0.2ug/L)" Sample ID: "WG451629-01" File: "LM22520.wiff"
Peak Name: "Perchlorate" Mass(es): "98.8/83.3 amu"
Comment: "1,1 STD60059" Annotation: ""

Sample Index:	1
Sample Type:	Unknown
Concentration:	N/A
Calculated Conc:	0.208 ug/L
Acq. Date:	11/6/2013
Acq. Time:	2:29:37 AM
Modified:	Yes
Proc. Algorithm:	Analyst Classic
Bunching Factor:	4
Noise Threshold:	4.76 cps
Area Threshold:	23.82 cps
Num. Smooths:	5
Sep. Width:	0.20
Sep. Height:	0.01
Exp. Peak Ratio:	5.00
Exp. Adj. Ratio:	4.00
Exp. Val. Ratio:	3.00
RT Window:	30.000 sec
Expected RT:	13.5 min
Use Relative RT:	Yes
Int. Type:	Manual
Retention Time:	10.2 min
Area:	1.45e+004 counts
Height:	496.747 cps
Start Time:	9.559 min
End Time:	10.672 min



Sample Name: "WG451629-01 MCT (0.2ug/L)" Sample ID: "WG451629-01" File: "LM22520.wiff"
Peak Name: "Perchlorate conf" Mass(es): "100.8/85.2 amu"
Comment: "1,1 STD60059" Annotation: ""

Sample Index:	1
Sample Type:	Unknown
Concentration:	N/A
Calculated Conc:	0.209 ug/L
Acq. Date:	11/6/2013
Acq. Time:	2:29:37 AM
Modified:	Yes
Proc. Algorithm:	Analyst Classic
Bunching Factor:	2
Noise Threshold:	2.40 cps
Area Threshold:	12.01 cps
Num. Smooths:	5
Sep. Width:	0.20
Sep. Height:	0.01
Exp. Peak Ratio:	5.00
Exp. Adj. Ratio:	4.00
Exp. Val. Ratio:	3.00
RT Window:	30.000 sec
Expected RT:	13.4 min
Use Relative RT:	Yes
Int. Type:	Manual
Retention Time:	10.2 min
Area:	4.87e+003 counts
Height:	164.909 cps
Start Time:	9.721 min
End Time:	10.753 min



#4
JWR/11/06/13
MW 11/7/13

Collected by: N/A
Electronic Signature: no
Operator: lcms1

2.1.1.5 Raw QC Data

Data File	LM22521.wiff	**Result Table**	110513_JWR.rdb
Acquisition Date	11/6/2013 2:48:36 AM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

Sample Name	WG451629-02 BLANK	**Injection Vial**	11.00
Data File	LM22521.wiff	**Injection Volume**	10.00
Acquisition Date	11/6/2013 2:48:36 AM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	110513_JWR.rdb
Sample ID	WG451629-02	**Dilution Factor**	1.00
Sample Comment	11.00	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	2.890e+05	13.40	5.00	-

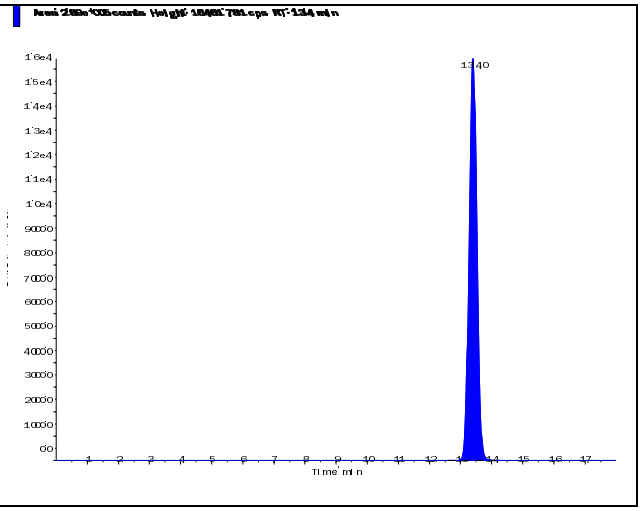
Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	9.800e+02	13.70	N/A	0.0042
Perchlorate conf	8.140e+01	13.50	N/A	< 0

O18LP (Internal Standard)

RT (Exp. RT): 13.40(13.40) min

Concentration: 5.00 ug/L

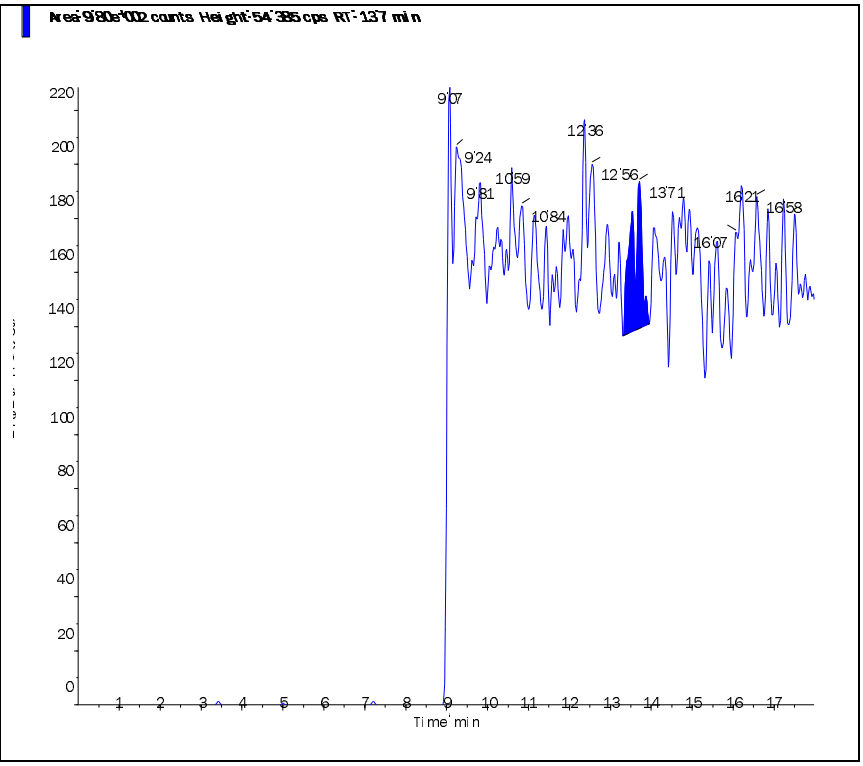
Sample Type: (Unknown)



s.dataFile Page 1 of 2

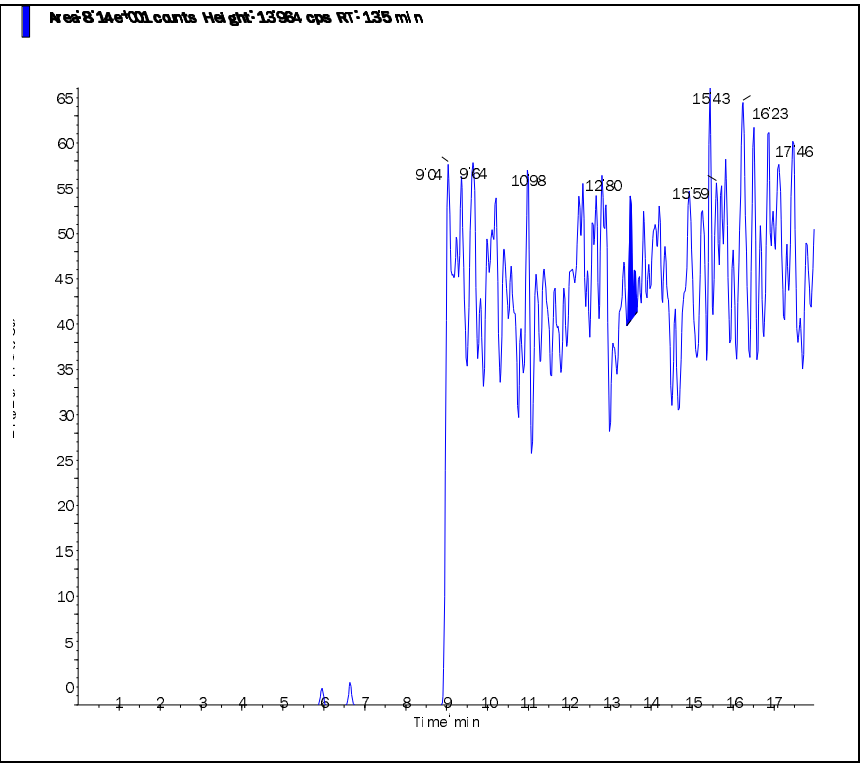
Perchlorate (98.8/83.3 amu)

RT (Exp. RT):	13.70 (13.50) min
Calculated conc:	0.0042 ng/ml
Area Ratio:	0.003
Sample Type:	(Unknown)



Perchlorate conf (100.8/85.2 amu)

RT (Exp. RT):	13.50 (13.40) min
Calculated conc:	< 0 ng/ml
Area Ratio:	0.00
Sample Type:	(Unknown)



s.dataFile Page 2 of 2

Data File	LM22522.wiff	**Result Table**	110513_JWR.rdb
Acquisition Date	11/6/2013 3:07:31 AM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Instrument Name**	API 4000
Project	Perchlorate\2009_07_22		

Sample Name	WG451629-03 LCS (0.2ug/L)	**Injection Vial**	12.00
Data File	LM22522.wiff	**Injection Volume**	10.00
Acquisition Date	11/6/2013 3:07:31 AM	**Algorithm Used**	Analyst Classic
Acquisition Method	062911.dam	**Sample Type**	Unknown
Instrument Name	API 4000	**Result Table**	110513_JWR.rdb
Sample ID	WG451629-03	**Dilution Factor**	1.00
Sample Comment	1,1 STD60059	**Weight to Volume**	0.00

Internal Standard	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
O18LP	2.910e+05	13.40	5.00	-

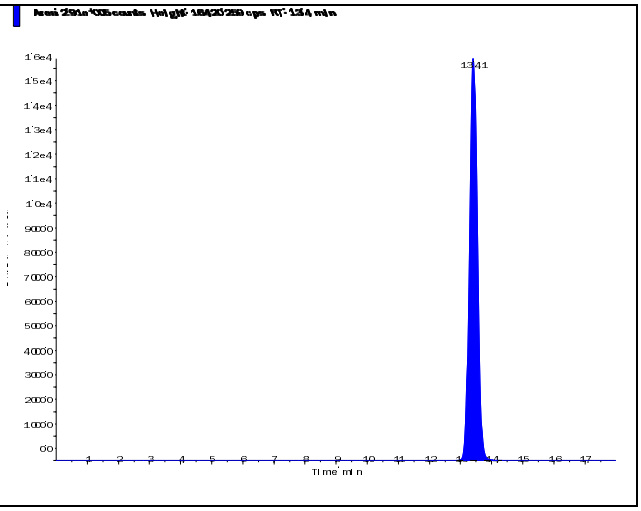
Target Analyte	Area (cps)	RT (min)	Target conc. (ug/L)	Calc. Conc. (ug/L)
Perchlorate	1.440e+04	13.40	N/A	0.197
Perchlorate conf	5.230e+03	13.50	N/A	0.214

O18LP (Internal Standard)

RT (Exp. RT): 13.40(13.40) min

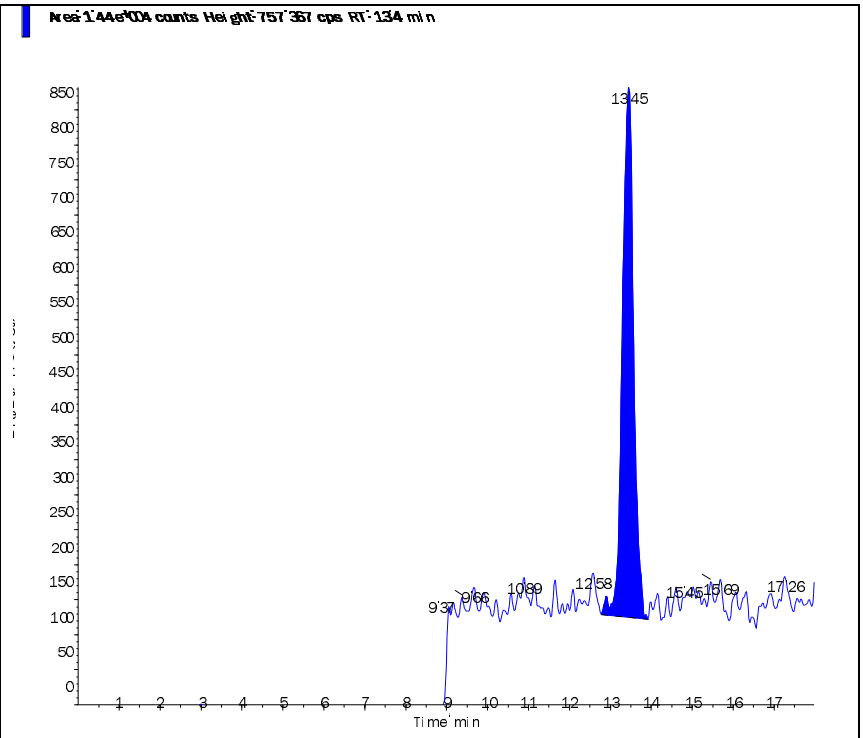
Concentration: 5.00 ug/L

Sample Type: (Unknown)



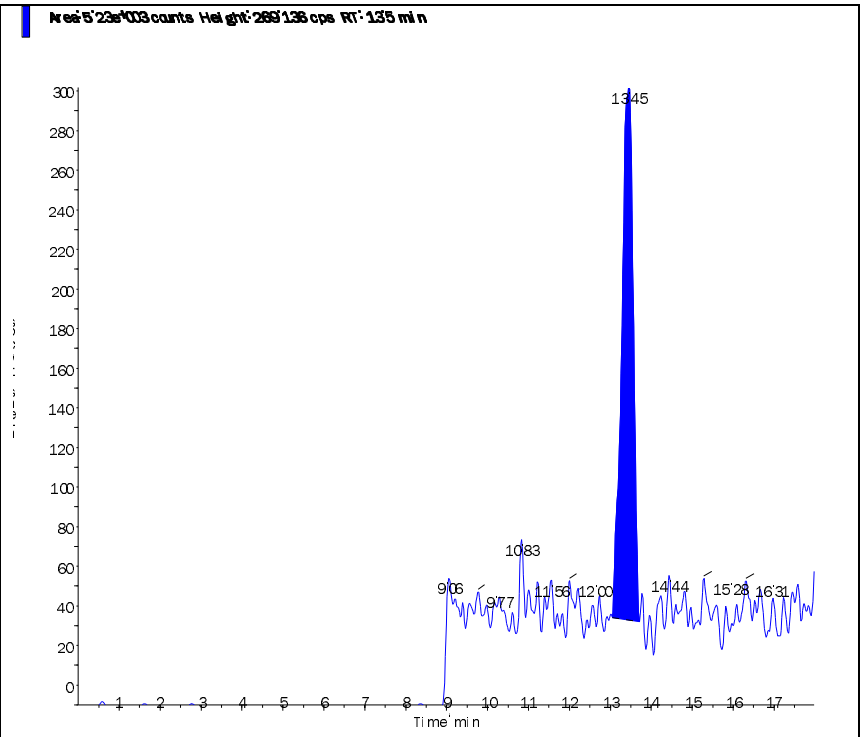
Perchlorate (98.8/83.3 amu)

RT (Exp. RT):	13.40 (13.50) min
Calculated conc:	0.197 ng/ml
Area Ratio:	0.05
Sample Type:	(Unknown)



Perchlorate conf (100.8/85.2 amu)

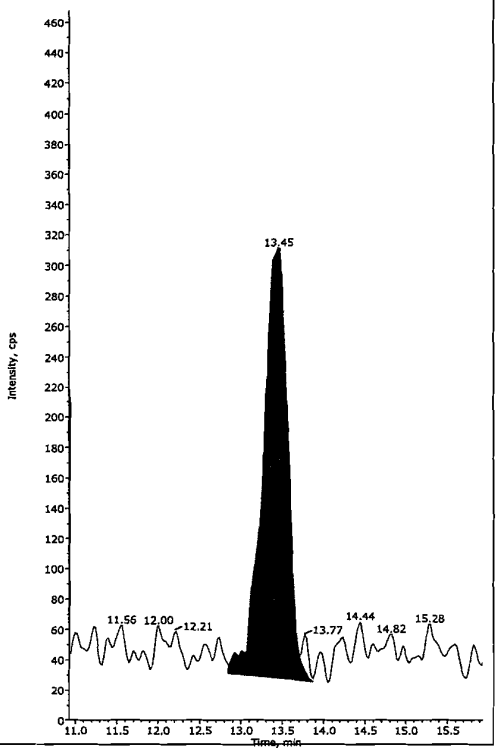
RT (Exp. RT):	13.50 (13.40) min
Calculated conc:	0.214 ng/ml
Area Ratio:	0.018
Sample Type:	(Unknown)



s.dataFile Page 2 of 2

Sample Name: "WG451629-03 LCS (0.2ug/L)" Sample ID: "WG451629-03" File: "LM22522.wiff"
Peak Name: "Perchlorate conf" Mass(es): "100.8/85.2 amu"
Comment: "1,1 STD60059" Annotation: ""

Sample Index:	1
Sample Type:	Unknown
Concentration:	N/A
Calculated Conc:	0.248 ug/L
Acq. Date:	11/6/2013
Acq. Time:	3:07:31 AM
Modified:	No
Proc. Algorithm:	Analyst classic
Bunching Factor:	2
Noise Threshold:	2.40 cps
Area Threshold:	12.01 cps
Num. Smooths:	5
Sep. Width:	0.20
Sep. Height:	0.01
Exp. Peak Ratio:	5.00
Exp. Adj. Ratio:	4.00
Exp. Val. Ratio:	3.00
RT Window:	30.000 sec
Expected RT:	13.4 min
Use Relative RT:	Yes
Int. Type:	Exponential Skim
Retention Time:	13.5 min
Area:	6.02e+003 counts
Height:	283.923 cps
Start Time:	12.839 min
End Time:	13.710 min

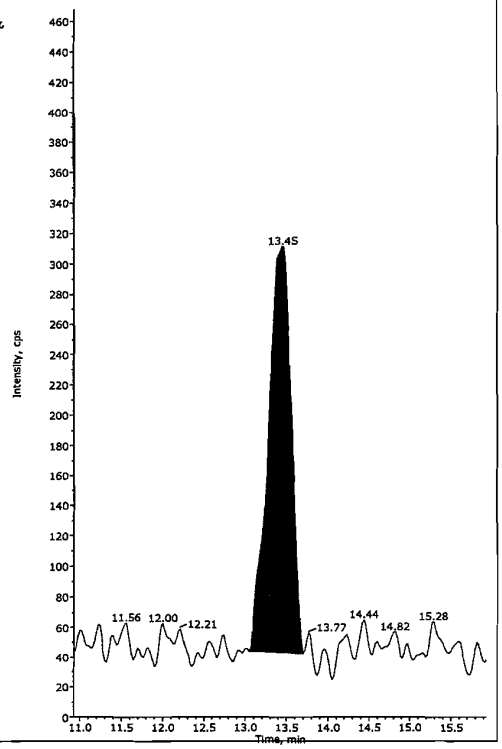


Collected by: N/A
Electronic Signature: no
Operator: lcms1

Printing Time: 4:38:38 PM
Printing Date: Wednesday, November 06, 2013

Sample Name: "WG451629-03 LCS (0.2ug/L)" Sample ID: "WG451629-03" File: "LM22522.wiff"
Peak Name: "Perchlorate conf" Mass(es): "100.8/85.2 amu"
Comment: "1,1 STD60059" Annotation: ""

Sample Index:	1	
Sample Type:	Unknown	
Concentration:	N/A	
Calculated Conc:	0.214	ug/L
Acq. Date:	11/6/2013	
Acq. Time:	3:07:31 AM	
Modified:	Yes	
Proc. Algorithm:	Analyst classic	
Bunching Factor:	2	
Noise Threshold:	2.40	cps
Area Threshold:	12.01	cps
Num. Smooths:	5	
Sep. Width:	0.20	
Sep. Height:	0.01	
Exp. Peak Ratio:	5.00	
Exp. Adj. Ratio:	4.00	
Exp. Val. Ratio:	3.00	
RT Window:	30.000	sec
Expected RT:	13.4	min
Use Relative RT:	Yes	
Int. Type:	Manual	
Retention Time:	13.5	min
Area:	5.23e+003	counts
Height:	269.136	cps
Start Time:	13.042	min
End Time:	13.710	min



#4
JWR/11/06/13

[illegible] 11/7/13

Collected by: N/A
Electronic Signature: no
Operator: lcms1

2.1 Semivolatiles Data

2.1.2 Explosives (8330B)

2.1.2.1 Summary Data

Login Number: L13101691
Department: General Chromatography
Analyst: Eric Lawson

METHOD

Analysis SW-846 8330

HOLDING TIMES

Sample Preparation: All holding times were met.

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

CALIBRATION

Initial Calibration: For all compounds that yielded a %RSD greater than 15%, linear or higher order equations were applied. All acceptance criteria were met.

Alternate Source Standards: All acceptance criteria were met.

Continuing Calibration and Tune: All acceptance criteria were met.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Matrix Spikes: The MS/MSD results were not associated with this sample delivery group.

SAMPLES

Samples: All acceptance criteria were met.

Surrogates: All acceptance criteria were met.

Manual Integration Reason Codes

Reason #1: Data System Fails to Select Correct Peak In some cases the chromatography system selects and integrates the 'wrong peak'. In this case the analyst must correct the selection and force the system to integrate the proper peak. Other times the system may miss the peakcompletely.

Reason #2: Data System Splits the Peak Incorrectly or Integrates a False Peak as a Rider Peak This phenomena is common at low concentrations where the signal:noise ratio is low. A single compound (peak) is incorrectly split into multiple peaks or integrated as a main peak with one or more rider peaks resulting in low areacounts for the target compound.

Reason #3: Improperly Integrated Isomers and/or coeluting compounds. This system often fails to distinguish coeluting compounds and or isomers. The integration areas and concentrations are wrong, and they must be corrected by manual integration. Prime examples are benzo(k)fluoranthene andbenzo(b)fluoranthene which are often unresolved and integrated improperly when both are present at low concentrations in standards or samples.

Reason #4: System Establishes Incorrect Baseline There are numerous situations in chromatography where the system establishes the baseline incorrectly. Some baseline errors will be obvious to the analyst and should be corrected via manual procedures.

Reason #5: Miscellaneous Other situations involving integration errors may require in-depth review and technical judgment. These cases should be brought to the attention of the laboratory management. If the form of manual integration is not clearly covered by these four cases, then review and approval by the Laboratory Director or the QA/QC Supervisor will be required.

I certify that this data package is in compliance with the terms and conditions agreed to by the client and Microbac Laboratories Inc., both technically and for completeness, except for the conditions noted above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or designated person, as verified by the following signature.

Narrative ID: 74179
Approved By: Mike Cochran

Microbac

Lab Report #: L13101691
Lab Project #: 3005.011
Project Name: White Sands MR
Lab Contact: Stephanie Mossburg

Certificate of Analysis

Sample #:	L13101691-01	**PrePrep Method:**	N/A	**Instrument:**	HPLC4
Client ID:	HTA 51-1013-1	**Prep Method:**	METHOD	**Prep Date:**	10/30/2013 09:01
Matrix:	Water	**Analytical Method:**	8330B	**Cal Date:**	11/15/2012 15:04
Workgroup #:	WG450871	**Analyst:**	ECL	**Run Date:**	10/30/2013 22:28
Collect Date:	10/25/2013 09:55	**Dilution:**	1	**File ID:**	4L025799.F
Sample Tag:	02	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD
PETN	78-11-5		U	1.20	0.301

U	Analyte was not detected. The concentration is below the reported LOD.

Certificate of Analysis

Sample #:	L13101691-01	**PrePrep Method:**	N/A	**Instrument:**	HPLC5
Client ID:	HTA 51-1013-1	**Prep Method:**	METHOD	**Prep Date:**	10/30/2013 09:01
Matrix:	Water	**Analytical Method:**	8330B	**Cal Date:**	08/31/2013 03:44
Workgroup #:	WG450871	**Analyst:**	JWR	**Run Date:**	11/06/2013 20:43
Collect Date:	10/25/2013 09:55	**Dilution:**	1	**File ID:**	5L011579.F
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD
1,3,5-Trinitrobenzene	99-35-4		U	1.20	0.301
1,3-Dinitrobenzene	99-65-0		U	1.20	0.301
2,4,6-Trinitrotoluene	118-96-7		U	1.20	0.301
2,4-Dinitrotoluene	121-14-2		U	1.20	0.301
2,6-Dinitrotoluene	606-20-2		U	1.20	0.301
2-Amino-4,6-dinitrotoluene	35572-78-2		U	1.20	0.301
2-Nitrotoluene	88-72-2		U	1.20	0.301
3-Nitrotoluene	99-08-1		U	1.20	0.301
4-Nitrotoluene	99-99-0		U	1.20	0.301
4-Amino-2,6-dinitrotoluene	19406-51-0		U	1.20	0.301
HMX	2691-41-0		U	1.20	0.301
Nitrobenzene	98-95-3		U	1.20	0.301
RDX	121-82-4		U	1.20	0.301
Tetryl	479-45-8		U	1.20	0.301
Nitroglycerin	55-63-0		U	1.20	0.301

Surrogate	Recovery	Lower Limit	Upper Limit	Q
1,2-Dinitrobenzene	96.0	50	150	

U	Analyte was not detected. The concentration is below the reported LOD.

Certificate of Analysis

Sample #:	L13101691-02	**PrePrep Method:**	N/A	**Instrument:**	HPLC5
Client ID:	HTA 43-1013-1	**Prep Method:**	METHOD	**Prep Date:**	10/30/2013 09:01
Matrix:	Water	**Analytical Method:**	8330B	**Cal Date:**	08/31/2013 03:44
Workgroup #:	WG450871	**Analyst:**	JWR	**Run Date:**	11/06/2013 21:22
Collect Date:	10/25/2013 11:45	**Dilution:**	1	**File ID:**	5L011580.F
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD
1,3,5-Trinitrobenzene	99-35-4		U	1.23	0.309
1,3-Dinitrobenzene	99-65-0		U	1.23	0.309
2,4,6-Trinitrotoluene	118-96-7		U	1.23	0.309
2,4-Dinitrotoluene	121-14-2		U	1.23	0.309
2,6-Dinitrotoluene	606-20-2		U	1.23	0.309
2-Amino-4,6-dinitrotoluene	35572-78-2		U	1.23	0.309
2-Nitrotoluene	88-72-2		U	1.23	0.309
3-Nitrotoluene	99-08-1		U	1.23	0.309
4-Nitrotoluene	99-99-0		U	1.23	0.309
4-Amino-2,6-dinitrotoluene	19406-51-0		U	1.23	0.309
HMX	2691-41-0		U	1.23	0.309
Nitrobenzene	98-95-3		U	1.23	0.309
RDX	121-82-4		U	1.23	0.309
Tetryl	479-45-8		U	1.23	0.309
Nitroglycerin	55-63-0		U	1.23	0.309

Surrogate	Recovery	Lower Limit	Upper Limit	Q
1,2-Dinitrobenzene	80.7	50	150	

U	Analyte was not detected. The concentration is below the reported LOD.

Certificate of Analysis

Sample #:	L13101691-02	**PrePrep Method:**	N/A	**Instrument:**	HPLC4
Client ID:	HTA 43-1013-1	**Prep Method:**	METHOD	**Prep Date:**	10/30/2013 09:01
Matrix:	Water	**Analytical Method:**	8330B	**Cal Date:**	11/15/2012 15:04
Workgroup #:	WG450871	**Analyst:**	ECL	**Run Date:**	10/30/2013 22:47
Collect Date:	10/25/2013 11:45	**Dilution:**	1	**File ID:**	4L025800.F
Sample Tag:	02	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	LOQ	LOD
PETN	78-11-5		U	1.23	0.309

U	Analyte was not detected. The concentration is below the reported LOD.

Certificate of Analysis

2.1.2.2 QC Summary Data

Example 8330 Calculations

Sample Concentration from Linear Regression

Step 1: Retrieve Curve Data From Plot (y = mx + b)

y = response of analyte as area (from quantitation report)
x = concentration analyte
m = slope from curve
b = intercept from curve

Step 2: Retrieve y from quantitation report

Step 3: Retreive extraction data from logsheet

Vf = Final extract volume (mL)
Vi = Initial vome of sample (mL) or initial weight (g)

Step 4: Solve for concentration in extract (x):

x = (y - b)/m = [(7.774 -(- 0.04773)]/ 0.1711 = 45.2

Step 5: Solve for analyte concentration in sample (Cx):

Cx = (x) (Vf /Vi)

Example CCV Calculation: **(Vf/Vi) = 1**
HMX

Slope from curve, m:	0.171145
Intercept from curve, b:	0.0436711
Area of analyte, y:	7.774
Concentration (ug/L):	45.16830115

Example Water Calculation:

Slope from curve, m:	0.171145
Intercept from curve, b:	0.0436711
Area of analyte, y:	7.774
Volume of extract (mL):	10.00
Volume of sample extracted (mL):	1000.00
Concentration (ug/L):	0.451683011

Example Soil Calculation:
1,3,5-Trinitrobenzene

Slope from curve, m:	0.411263
Intercept from curve, b:	-0.0850241
Area of analyte, y:	20.26089
Volume of extract (mL):	20.00
Weight of sample extracted (g):	2.00
Concentration (ug/kg):	494.7178351
Concentration (mg/kg):	0.494717835

Microbac Laboratories Inc.
Sample Extract Log

Workgroup: WG450709
Analyst: CSH
Spike Analyst: CSH
Method: METHOD
Run Date: 10/30/2013 09:01
SOP: EXTNT01 Revision 1
Spike Witness: RAH
Surr Solution: STD61037

Acetonitrile Lot #: COA17000
WATER Lot #: COA16744
Methanol Lot #: COA17106
SDB-RPS (SPE DISK) Lot #: COA17091

	SAMPLE #	Type	Reference	pH	Prod	Init Amnt	Surr Amnt	Spike Amnt	Spike Sol	Final Vol	Color
1	L13101656-14	SAMP			8330	410 mL	.5 mL			10 mL	Transparent
2	L13101656-15	SAMP			8330	380 mL	.5 mL			10 mL	Transparent
3	L13101656-16	RS02			8330	300 mL	.5 mL			10 mL	Transparent
4	L13101656-17	SAMP			8330	350 mL	.5 mL			10 mL	Transparent
5	L13101656-18	MS02	L13101656-16		8330	370 mL	.5 mL	.5 mL	STD61030	10 mL	Transparent
6	L13101656-19	SD02	L13101656-16		8330	320 mL	.5 mL	.5 mL	STD61030	10 mL	Transparent
7	L13101691-01	SAMP			8330-SPE	830 mL	.5 mL			10 mL	Transparent
8	L13101691-02	SAMP			8330-SPE	810 mL	.5 mL			10 mL	Transparent
9	L13101699-46	SAMP			8330	1000 mL	.5 mL			10 mL	Transparent
10	WG450709-01	BLANK			8330	1000 mL	.5 mL			10 mL	Transparent
11	WG450709-02	LCS			8330	1000 mL	.5 mL	.5 mL	STD61030	10 mL	Transparent
12	WG450709-03	LCS			8330	1000 mL	.5 mL	.5 mL	STD59729	10 mL	Transparent
13	WG450709-04	REF	L13101656-16		8330	300 mL	.5 mL			10 mL	Transparent
14	WG450709-05	MS	L13101656-16		8330	370 mL	.5 mL	.5 mL	STD61030	10 mL	Transparent
15	WG450709-06	MSD	L13101656-16		8330	320 mL	.5 mL	.5 mL	STD61030	10 mL	Transparent

Analyst: Chris Hill

Reviewer: [illegible]

EXTRACT - Modified 10/22/2008
PDF ID: 3175276
Report generated: 11/01/2013 12:54

Microbac Laboratories Inc.

Instrument Run Log

Instrument: HPLC4 Dataset: 111512
Analyst1: ECL Analyst2: NA
Method: 8330-PETN SOP: HPLC02 Rev: 15

Maintenance Log ID: Syringe Filter Lot#: N0306110325

Column 1 ID: PINNACLE DB Column 2 ID: NA
Workgroups:

Internal STD: NA Surrogate STD: NA Calibration STD
CCV STD: STD54936 LCS STD: STD52693 MS/MSD STD:

Comments: Pressure = 250 bar

Seq.	File ID	Sample Information	Mat	Dil	Reference	Date/Time
1	4L024437.F	WG414394-01 ICAL	1	1	STD54936	11/15/12 13:29
2	4L024438.F	WG414394-02 ICAL	1	1	STD54936	11/15/12 13:48
3	4L024439.F	WG414394-03 ICAL	1	1	STD54936	11/15/12 14:07
4	4L024440.F	WG414394-04 ICAL	1	1	STD54936	11/15/12 14:26
5	4L024441.F	WG414394-05 ICAL	1	1	STD54936	11/15/12 14:45
6	4L024442.F	WG414394-06 ICAL	1	1	STD54936	11/15/12 15:04
7	4L024443.F	WG414394-07 ICV	1	1	STD54937	11/15/12 15:23
8	4L024444.F	WG413743-01 BLK	7	1		11/15/12 15:42
9	4L024445.F	WG413743-03 LCS	7	1		11/15/12 16:02
10	4L024446.F	L12110098-01	7	1		11/15/12 16:21
11	4L024447.F	L12110098-02	7	1		11/15/12 16:40
12	4L024448.F	L12110098-03	7	1		11/15/12 16:59
13	4L024450.F	Solvent Rinse	1	1		11/15/12 17:26
14	4L024451.F	Solvent Rinse	1	1		11/15/12 17:45
15	4L024452.F	WG414396-01 CCV	1	1	STD54936	11/15/12 18:05

Comments

Seq.	Rerun	Dil.	Reason	Analytes

Page: 1 Approved: 19-NOV-12

Microbac Laboratories Inc.

Instrument Run Log

Instrument: HPLC5 Dataset: 083013
Analyst1: JWR Analyst2: NA
Method: 8330-PLUS SOP: HPLC02 Rev: 16

Maintenance Log ID: 47283 Syringe Filter Lot#: 130306244
Eluent ID#:

Column 1 ID: ULTRACARB5 ODS Column 2 ID: NA

Workgroups: Anal.WG442769 (soils) Anal.WG442889 (soils) Anal.WG442887 (waters)

Internal STD: NA Surrogate STD: STD59522 Calibration STD STD59878

CCV STD: STD59878 LCS STD: STD59728 MS/MSD STD: STD59728

Comments: ICAL WG442890 :Alternate Source STD59879

Seq.	File ID	Sample Information	Mat	Dil	Reference	Date/Time
1	5L011055.F	WG442890-01 STD	1	1	STD59878	08/31/13 00:29
2	5L011056.F	WG442890-02 STD	1	1	STD59878	08/31/13 01:08
3	5L011057.F	WG442890-03 STD-CCV	1	1	STD59878	08/31/13 01:47
4	5L011058.F	WG442890-04 STD	1	1	STD59878	08/31/13 02:26
5	5L011059.F	WG442890-05 STD	1	1	STD59878	08/31/13 03:05
6	5L011060.F	WG442890-06 STD	1	1	STD59878	08/31/13 03:44
7	5L011061.F	WG442890-07 SSCV	1	1	STD59879	08/31/13 04:23
8	5L011062.F	WG442627-01 BLANK	7	1	STD59522	08/31/13 05:02
9	5L011063.F	WG442627-02 LCS	7	1	STD59728	08/31/13 05:41
10	5L011064.F	L13080987-04	7	1		08/31/13 06:20
11	5L011065.F	L13081132-01	7	1		08/31/13 06:59
12	5L011066.F	L13081265-01 REF	7	1		08/31/13 07:39
13	5L011067.F	WG442627-05 MS	7	1	STD59728	08/31/13 08:18
14	5L011068.F	WG442627-06 MSD	7	1	STD59728	08/31/13 08:57
15	5L011069.F	L13081265-02	7	1		08/31/13 09:36
16	5L011070.F	L13081265-03	7	1		08/31/13 10:15
17	5L011071.F	MeOH Rinse	1	1		08/31/13 10:54
18	5L011072.F	Solvent Rinse	1	1		08/31/13 11:12
19	5L011073.F	Solvent Rinse	1	1		08/31/13 11:51
20	5L011074.F	Solvent Rinse	1	1		08/31/13 12:30
21	5L011075.F	WG442943-01 CCV	1	1	STD59878	08/31/13 13:09
22	5L011076.F	WG442763-01 BLANK	7	1	STD59522	08/31/13 13:48
23	5L011077.F	WG442763-02 LCS	7	1	STD59728	08/31/13 14:27
24	5L011078.F	WG442763-03 LCS2	7	1	STD59728	08/31/13 15:07
25	5L011079.F	L13080987-03	7	1		08/31/13 15:46
26	5L011080.F	WG442723-01 BLANK	1	1	STD59522	08/31/13 16:25
27	5L011081.F	WG442723-02 LCS	1	1	STD59728	08/31/13 17:04
28	5L011082.F	WG442723-03 LCS2	1	1	STD59728	08/31/13 17:43
29	5L011083.F	L13081200-01	1	1		08/31/13 18:22
30	5L011084.F	MeOH Rinse	1	1		08/31/13 19:01
31	5L011085.F	Solvent Rinse	1	1		08/31/13 19:19
32	5L011086.F	Solvent Rinse	1	1		08/31/13 19:58
33	5L011087.F	Solvent Rinse	1	1		08/31/13 20:37

Page: 1 Approved: 05-SEP-13

Microbac Laboratories Inc.

Instrument Run Log

Instrument: HPLC5 Dataset: 083013
Analyst1: JWR Analyst2: NA
Method: 8330-PLUS SOP: HPLC02 Rev: 16

Maintenance Log ID: 47283 Syringe Filter Lot#: 130306244
Eluent ID#:

Column 1 ID: ULTRACARB5 ODS Column 2 ID: NA

Workgroups: Anal.WG442769 (soils) Anal.WG442889 (soils) Anal.WG442887 (waters)

Internal STD: NA Surrogate STD: STD59522 STD59878
CCV STD: STD59878 LCS STD: STD59728 STD59728

Seq.	File ID	Sample Information	Mat	Dil	Reference	Date/Time
34	5L011088.F	WG442943-02 CCV	1	1	STD59878	08/31/13 21:17
35	5L011089.F	AcCN Rinse	1	1		08/31/13 21:56

Comments

Seq.	Rerun	Dil.	Reason	Analytes

Page: 2 Approved: 05-SEP-13

Microbac Laboratories Inc.

Instrument Run Log

Instrument: HPLC4 Dataset: 103013
Analyst1: JWR Analyst2: NA
Method: 8330-PETN SOP: HPLC02 Rev: 17

Maintenance Log ID: Syringe Filter Lot#: 00166429
Eluent ID#:

Column 1 ID: PINNACLE DB Column 2 ID: NA

Workgroups: Analytical WG450871 (waters)

Internal STD: NA Surrogate STD: NA Calibration STD NA

CCV STD: STD61067 LCS STD: STD59729 MS/MSD STD: NA

Comments: System backpressure = 185 bar.

Seq.	File ID	Sample Information	Mat	Dil	Reference	Date/Time
1	4L025795.F	Solvent Rinse	1	1		10/30/13 21:12
2	4L025796.F	WG450877-01 CCV	1	1	STD61067	10/30/13 21:31
3	4L025797.F	WG450709-01 BLK	1	1		10/30/13 21:50
4	4L025798.F	WG450709-03 LCS	1	1	STD59729	10/30/13 22:09
5	4L025799.F	L13101691-01	1	1		10/30/13 22:28
6	4L025800.F	L13101691-02	1	1		10/30/13 22:47
7	4L025801.F	Solvent Rinse	1	1		10/30/13 23:06
8	4L025802.F	WG450877-02 CCV	1	1	STD61067	10/30/13 23:26

Comments

Seq.	Rerun	Dil.	Reason	Analytes

Page: 1 Approved: 05-NOV-13

Microbac Laboratories Inc.

Instrument Run Log

Instrument: HPLC5 Dataset: 110613
Analyst1: ECL Analyst2: NA
Method: 8330-PLUS SOP: HPLC02 Rev: 17

Maintenance Log ID: Syringe Filter Lot#: 00166429
Eluent ID#:

Column 1 ID: ULTRACARB5 ODS Column 2 ID: NA

Workgroups:

Internal STD: NA Surrogate STD: STD61037 Calibration STD NA
CCV STD: STD59878 LCS STD: STD61030 MS/MSD STD: STD61030

Comments: Pressure = 235 bar
Samples L13101656-16 and 17 are duplicates. No re-extract for low surrogate recovery.

Seq.	File ID	Sample Information	Mat	Dil	Reference	Date/Time
1	5L011570.F	WG451731-01 8330 CCV 500 PPB	1	1	STD59878	11/06/13 14:43
2	5L011571.F	WG450709-01 BLANK	1	1		11/06/13 15:30
3	5L011572.F	WG450709-02 LCS	1	1		11/06/13 16:09
4	5L011573.F	L13101656-14	1	1		11/06/13 16:48
5	5L011574.F	L13101656-15	1	1		11/06/13 17:27
6	5L011575.F	L13101656-17	1	1		11/06/13 18:06
7	5L011576.F	L13101656-16 REF	1	1		11/06/13 18:45
8	5L011577.F	L13101656-18 MS	1	1		11/06/13 19:24
9	5L011578.F	L13101656-19 MSD	1	1		11/06/13 20:04
10	5L011579.F	L13101691-01	1	1		11/06/13 20:43
11	5L011580.F	L13101691-02	1	1		11/06/13 21:22
12	5L011581.F	Solvent Rinse	1	1		11/06/13 22:01
13	5L011582.F	WG451731-02 8330 CCV 500 PPB	1	1	STD59878	11/06/13 22:40
14	5L011583.F	L13101699-46	1	1		11/06/13 23:19
15	5L011584.F	WG450997-01 BLANK	7	1		11/06/13 23:58
16	5L011585.F	WG450997-02 LCS	7	1		11/07/13 00:37
17	5L011586.F	L13101699-01	7	1		11/07/13 01:16
18	5L011587.F	L13101699-02	7	1		11/07/13 01:55
19	5L011588.F	L13101699-03	7	1		11/07/13 02:34
20	5L011589.F	L13101699-04	7	1		11/07/13 03:13
21	5L011590.F	L13101699-05	7	1		11/07/13 03:52
22	5L011591.F	L13101699-06	7	1		11/07/13 04:31
23	5L011592.F	L13101699-07	7	1		11/07/13 05:10
24	5L011593.F	Solvent Rinse	1	1		11/07/13 05:49
25	5L011594.F	WG451731-03 8330 CCV 500 PPB	1	1	STD59878	11/07/13 06:28
26	5L011595.F	L13101699-08	7	1		11/07/13 07:07
27	5L011596.F	L13101699-09	7	1		11/07/13 07:46
28	5L011597.F	L13101699-10	7	1		11/07/13 08:25
29	5L011598.F	L13101699-11	7	1		11/07/13 09:04
30	5L011599.F	L13101699-12	7	1		11/07/13 09:43
31	5L011600.F	L13101699-13	7	1		11/07/13 10:22
32	5L011601.F	L13101699-14	7	1		11/07/13 11:02
33	5L011602.F	L13101699-15	7	1		11/07/13 11:41

Page: 1 Approved: 08-NOV-13

Microbac Laboratories Inc.

Instrument Run Log

Instrument: HPLC5 Dataset: 110613
Analyst1: ECL Analyst2: NA
Method: 8330-PLUS SOP: HPLC02 Rev: 17

Maintenance Log ID: Syringe Filter Lot#: 00166429
Eluent ID#:
Column 1 ID: ULTRACARB5 ODS Column 2 ID: NA
Workgroups:
Internal STD: NA Surrogate STD: STD61037 NA
CCV STD: STD59878 LCS STD: STD61030 STD61030

Seq.	File ID	Sample Information	Mat	Dil	Reference	Date/Time
34	5L011603.F	L13101699-19	7	1		11/07/13 12:20
35	5L011604.F	L13101699-20	7	1		11/07/13 12:59
36	5L011605.F	Solvent Rinse	1	1		11/07/13 13:38
37	5L011606.F	WG451731-04 8330 CCV 500 PPB	1	1	STD59878	11/07/13 14:17

Comments

Seq.	Rerun	Dil.	Reason	Analytes
6	X		Required second column confirmation	4-nitrotoluene
	L13101656-17: 1,2-DNB surrogate failed low. Sample is a duplicate of -16, which has similar recovery.			
7	X		Required second column confirmation	4-nitrotoluene
	L13101656-16 REF: 1,2-DNB surrogate failed low.			
8				
	L13101656-18 MS: 1,2-DNB surrogate and 8 other analytes failed low.			
9				
	L13101656-19 MSD: 1,2-DNB surrogate and 7 other analytes failed low.			
14	X		Required second column confirmation	HMX
	L13101699-46			
18	X		Required second column confirmation	4-nitrotoluene
	L13101699-02			

Page: 2 Approved: 08-NOV-13

Microbac Laboratories Inc.

Data Checklist

Date: 15-NOV-2012
Analyst: ECL
Analyst: NA
Method: 8330-PETN
Instrument: HPLC4
Curve Workgroup: NA
Runlog ID: 50063
Analytical Workgroups: L12110098

ANALYTICAL	
System Performance Check	NA
DFTPP (MS)	NA
Endrin/DDT breakdown (8081/MS)	NA
Pentachlorophenol/benzidine tailing (MS)	NA
Eluent check (IC)/system pressure (HPLC)	X
Window standard (FID)	NA
Initial Calibration	X
Average RF	NA
Linear regression or higher order curve	X
Alternate source standard (ICV) % Difference	X
Continuing Calibration (CCV)	X
% D/% Drift	X
Minimum response factors (MS)	NA
Continuing calibration blank (CCB) (IC)	NA
Special standards	NA
Blanks	X
TCL hits	X
Surrogate recoveries	NA
LCS/LCSD (Laboratory Control Sample)	X
Recoveries	X
Surrogate recoveries	NA
MS/MSD/Sample duplicates	NA
Recoveries	NA
%RPD	NA
Samples	X
TCL hits	X
Mass spectra (MS/HPLC)/2nd column confirmations (ECD/FID/HPLC)	NA
Surrogate recoveries	NA
Internal standard areas (MS)	NA
Library searches (MS)	NA
Calculations & correct factors	X
Compounds above calibration range	NA
Reruns	NA
Manual integrations	NA
Project/client specific requirements	X
REPORTING	
Upload batch form	X
KOBRA workgroup data/forms/bench sheets	X
Case narratives	NA
Check for completeness	X
Primary Reviewer	ECL
SUPERVISORY/SECONDARY REVIEW	
Check for compliance with method and project specific requirements	X
Check the completeness/accuracy of reported information	X
Data qualifiers	X
Secondary Reviewer	MDC

Primary Reviewer:
16-NOV-2012

Secondary Reviewer:
19-NOV-2012

CHECKLIST1 - Modified 03/05/2008
Generated: NOV-19-2012 11:53:08

Microbac Laboratories Inc.

Data Checklist

Date: 30-AUG-2013
Analyst: JWR
Analyst: NA
Method: 8330-PLUS
Instrument: HPLC5
Curve Workgroup: WG442890
Runlog ID: 55483
Analytical Workgroups: L13080987(-03,-04), 1132-01, 1200-01, 1265(01-03)

ANALYTICAL	
System Performance Check	X
DFTPP (MS)	NA
Endrin/DDT breakdown (8081/MS)	NA
Pentachlorophenol/benzidine tailing (MS)	NA
Eluent check (IC)/system pressure (HPLC)	206 BAR
Window standard (FID)	NA
Initial Calibration	X
Average RF	NA
Linear regression or higher order curve	X
Alternate source standard (ICV) % Difference	X
Continuing Calibration (CCV)	X
% D/% Drift	X
Minimum response factors (MS)	NA
Continuing calibration blank (CCB) (IC)	NA
Special standards	NA
Blanks	X
TCL hits	ND
Surrogate recoveries	X
LCS/LCSD (Laboratory Control Sample)	X
Recoveries	X
Surrogate recoveries	X
MS/MSD/Sample duplicates	X
Recoveries	X
%RPD	X
Samples	X
TCL hits	X
Mass spectra (MS/HPLC)/2nd column confirmations (ECD/FID/HPLC)	NEEDED FOR 1132-01 AND 1265'S
Surrogate recoveries	X
Internal standard areas (MS)	NA
Library searches (MS)	DIODE ARRAY : 0987'S AND 1200-01
Calculations & correct factors	X
Compounds above calibration range	NA
Reruns	NA
Manual integrations	NA
Project/client specific requirements	X
REPORTING	
Upload batch form	X
KOBRA workgroup data/forms/bench sheets	X
Case narratives	
Check for completeness	X
Primary Reviewer	JWR
SUPERVISORY/SECONDARY REVIEW	
Check for compliance with method and project specific requirements	X
Check the completeness/accuracy of reported information	X
Data qualifiers	X
Secondary Reviewer	JBK

Primary Reviewer:
05-SEP-2013

Secondary Reviewer:
05-SEP-2013

CHECKLIST1 - Modified 03/05/2008
Generated: SEP-05-2013 16:12:34

Microbac Laboratories Inc.

Data Checklist

Date: 30-OCT-2013
Analyst: JWR
Analyst: NA
Method: 8330-PETN
Instrument: HPLC4
Curve Workgroup: NA
Runlog ID: 56792
Analytical Workgroups: L13101691

ANALYTICAL	
System Performance Check	X
DFTPP (MS)	NA
Endrin/DDT breakdown (8081/MS)	NA
Pentachlorophenol/benzidine tailing (MS)	NA
Eluent check (IC)/system pressure (HPLC)	185 BAR
Window standard (FID)	NA
Initial Calibration	NA
Average RF	NA
Linear regression or higher order curve	NA
Alternate source standard (ICV) % Difference	NA
Continuing Calibration (CCV)	X
% D/% Drift	X
Minimum response factors (MS)	NA
Continuing calibration blank (CCB) (IC)	NA
Special standards	NA
Blanks	X
TCL hits	X
Surrogate recoveries	NA
LCS/LCSD (Laboratory Control Sample)	X
Recoveries	X
Surrogate recoveries	NA
MS/MSD/Sample duplicates	NA
Recoveries	NA
%RPD	NA
Samples	X
TCL hits	ND
Mass spectra (MS/HPLC)/2nd column confirmations (ECD/FID/HPLC)	NA
Surrogate recoveries	NA
Internal standard areas (MS)	NA
Library searches (MS)	NA
Calculations & correct factors	X
Compounds above calibration range	NA
Reruns	NA
Manual integrations	NA
Project/client specific requirements	X
REPORTING	
Upload batch form	X
KOBRA workgroup data/forms/bench sheets	X
Case narratives	
Check for completeness	X
Primary Reviewer	JWR
SUPERVISORY/SECONDARY REVIEW	
Check for compliance with method and project specific requirements	X
Check the completeness/accuracy of reported information	X
Data qualifiers	X
Secondary Reviewer	MDC

Primary Reviewer:
31-OCT-2013
John Richards

Secondary Reviewer:
05-NOV-2013
Michael Cochran

CHECKLIST1 - Modified 03/05/2008
Generated: NOV-05-2013 11:38:57

Microbac Laboratories Inc.

Data Checklist

Date: 06-NOV-2013
Analyst: ECL
Analyst: NA
Method: 8330
Instrument: HPLC5
Curve Workgroup: NA
Runlog ID: 56952
Analytical Workgroups: L13101656, L13101691, L13101699

ANALYTICAL	
System Performance Check	NA
DFTPP (MS)	NA
Endrin/DDT breakdown (8081/MS)	NA
Pentachlorophenol/benzidine tailing (MS)	NA
Eluent check (IC)/system pressure (HPLC)	X
Window standard (FID)	NA
Initial Calibration	NA
Average RF	NA
Linear regression or higher order curve	NA
Alternate source standard (ICV) % Difference	NA
Continuing Calibration (CCV)	X
% D/% Drift	NA
Minimum response factors (MS)	NA
Continuing calibration blank (CCB) (IC)	NA
Special standards	NA
Blanks	X
TCL hits	X
Surrogate recoveries	X
LCS/LCSD (Laboratory Control Sample)	X
Recoveries	X
Surrogate recoveries	X
MS/MSD/Sample duplicates	X
Recoveries	X
%RPD	X
Samples	X
TCL hits	X
Mass spectra (MS/HPLC)/2nd column confirmations (ECD/FID/HPLC)	NA
Surrogate recoveries	X
Internal standard areas (MS)	NA
Library searches (MS)	NA
Calculations & correct factors	X
Compounds above calibration range	NA
Reruns	X
Manual integrations	NA
Project/client specific requirements	X
REPORTING	
Upload batch form	X
KOBRA workgroup data/forms/bench sheets	X
Case narratives	NA
Check for completeness	X
Primary Reviewer	ECL
SUPERVISORY/SECONDARY REVIEW	
Check for compliance with method and project specific requirements	X
Check the completeness/accuracy of reported information	X
Data qualifiers	X
Secondary Reviewer	MDC

Primary Reviewer:
07-NOV-2013

Secondary Reviewer:
08-NOV-2013

CHECKLIST1 - Modified 03/05/2008
Generated: NOV-08-2013 10:01:50

Microbac Laboratories Inc.

HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: 8330B

AAB#: WG450871

Login Number: L13101691

Client ID	ID	Date Collected	TCLP Date	Time Held	Max Hold	Q	Extract Date	Time Held	Max Hold	Q	Run Date	Time Held	Max Hold	Q
HTA 51-1013-1	01	10/25/13					10/30/2013	5	7		11/06/13	7.5	40	
HTA 51-1013-1	01	10/25/13					10/30/2013	5	7		10/30/13	.6	40	
HTA 43-1013-1	02	10/25/13					10/30/2013	4.9	7		10/30/13	.6	40	
HTA 43-1013-1	02	10/25/13					10/30/2013	4.9	7		11/06/13	7.5	40	

* = SEE PROJECT QAPP REQUIREMENTS

HOLD_TIMES - Modified 03/06/2008
PDF File ID: 3177838
Report generated 11/08/2013 14:07

Microbac Laboratories Inc.
SURROGATE STANDARDS

Login Number: L13101691
Instrument Id: HPLC5
Workgroup (AAB#): WG450871

Method: 8330
CAL ID: HPLC5 - 31-AUG-13
Matrix: Water

Sample Number	Dilution	Tag	1
L13101691-01	1.00	01	96.0
L13101691-02	1.00	01	80.7
WG450709-01	1.00	01	88.7
WG450709-02	1.00	01	104

Surrogates	Surrogate Limits		
1 - 1,2-Dinitrobenzene	50	-	150

Underline = Result out of surrogate limits

DL = surrogate diluted out
ND = surrogate not detected

SURROGATES - Modified 03/06/2008
PDF File ID: 3189932
Report generated: 11/08/2013 14:07

Microbac Laboratories Inc.

METHOD BLANK SUMMARY

Login Number: L13101691
Blank File ID: 4L025797.F
Prep Date: 10/30/13 09:01
Analyzed Date: 10/30/13 21:50
Analyst: ECL

Work Group: WG450871
Blank Sample ID: WG450709-01
Instrument ID: HPLC4
Method: 8330B

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG450709-03	4L025798.F	10/30/13 22:09	02
HTA 51-1013-1	L13101691-01	4L025799.F	10/30/13 22:28	02
HTA 43-1013-1	L13101691-02	4L025800.F	10/30/13 22:47	02

Report Name: BLANK_SUMMARY
PDF File ID: 3177839
Report generated 11/08/2013 14:07

Microbac Laboratories Inc.

METHOD BLANK SUMMARY

Login Number: L13101691
Blank File ID: 5L011571.F
Prep Date: 10/30/13 09:01
Analyzed Date: 11/06/13 15:30
Analyst: JWR

Work Group: WG450871
Blank Sample ID: WG450709-01
Instrument ID: HPLC5
Method: 8330B

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG450709-02	5L011572.F	11/06/13 16:09	01
HTA 51-1013-1	L13101691-01	5L011579.F	11/06/13 20:43	01
HTA 43-1013-1	L13101691-02	5L011580.F	11/06/13 21:22	01

Report Name: BLANK_SUMMARY
PDF File ID: 3177839
Report generated 11/08/2013 14:07

Microbac Laboratories Inc.

METHOD BLANK REPORT

Login Number: L13101691 Prep Date: 10/30/13 09:01 Sample ID: WG450709-01
Instrument ID: HPLC4 Run Date: 10/30/13 21:50 Prep Method: METHOD
File ID: 4L025797.F Analyst: ECL Method: 8330B
Workgroup (AAB#): WG450871 Matrix: Water Units: ug/L
Contract #: Cal ID: HPLC4-15-NOV-12

Analytes	LOD	LOQ	Concentration	Dilution	Qualifier
PETN	0.250	1.00	0.250	1	U

LOD Method Detection Limit
LOQ Reporting/Practical Quantitation Limit
ND Analyte Not detected at or above reporting limit
* |Analyte concentration| > 1/2 RL

Report Name: BLANK
PDF ID: 3177840
08-NOV-2013 14:07

Microbac Laboratories Inc.

METHOD BLANK REPORT

Login Number: L13101691 Prep Date: 10/30/13 09:01 Sample ID: WG450709-01
Instrument ID: HPLC5 Run Date: 11/06/13 15:30 Prep Method: METHOD
File ID: 5L011571.F Analyst: JWR Method: 8330B
Workgroup (AAB#): WG450871 Matrix: Water Units: ug/L
Contract #: Cal ID: HPLC5-31-AUG-13

Analytes	LOD	LOQ	Concentration	Dilution	Qualifier
1,3,5-Trinitrobenzene	0.250	1.00	0.250	1	U
1,3-Dinitrobenzene	0.250	1.00	0.250	1	U
2,4,6-Trinitrotoluene	0.250	1.00	0.250	1	U
2,4-Dinitrotoluene	0.250	1.00	0.250	1	U
2,6-Dinitrotoluene	0.250	1.00	0.250	1	U
2-Amino-4,6-dinitrotoluene	0.250	1.00	0.250	1	U
2-Nitrotoluene	0.250	1.00	0.250	1	U
3-Nitrotoluene	0.250	1.00	0.250	1	U
4-Nitrotoluene	0.250	1.00	0.250	1	U
4-Amino-2,6-dinitrotoluene	0.250	1.00	0.250	1	U
HMX	0.250	1.00	0.250	1	U
Nitrobenzene	0.250	1.00	0.250	1	U
RDX	0.250	1.00	0.250	1	U
Tetryl	0.250	1.00	0.250	1	U
Nitroglycerin	0.250	1.00	0.250	1	U

Surrogates	% Recovery	Surrogate Limits	Qualifier
1,2-Dinitrobenzene	88.7	50 - 150	PASS

LOD Method Detection Limit
LOQ Reporting/Practical Quantitation Limit
ND Analyte Not detected at or above reporting limit
* |Analyte concentration| > 1/2 RL

Report Name: BLANK
PDF ID: 3177840
08-NOV-2013 14:07

Microbac Laboratories Inc.
LABORATORY CONTROL SAMPLE (LCS)

Login Number: L13101691 Run Date: 10/30/2013 Sample ID: WG450709-03
Instrument ID: HPLC4 Run Time: 22:09 Prep Method: METHOD
File ID: 4L025798.F Analyst: ECL Method: 8330B
Workgroup (AAB#): WG450871 Matrix: Water Units: ug/L
QC Key: DOD4 Lot#: STD61030 Cal ID: HPLC4-15-NOV-12

Analytes	Expected	Found	% Rec	LCS Limits	Q
PETN	5.00	5.05	101	40 - 130	

LCS - Modified 03/06/2008
PDF File ID: 3177841
Report generated: 11/08/2013 14:07

Microbac Laboratories Inc.
LABORATORY CONTROL SAMPLE (LCS)

Login Number: L13101691 Run Date: 11/06/2013 Sample ID: WG450709-02
Instrument ID: HPLC5 Run Time: 16:09 Prep Method: METHOD
File ID: 5L011572.F Analyst: JWR Method: 8330B
Workgroup (AAB#): WG450871 Matrix: Water Units: ug/L
QC Key: DOD4 Lot#: STD61030 Cal ID: HPLC5-31-AUG-13

Analytes	Expected	Found	% Rec	LCS Limits	Q
1,3,5-Trinitrobenzene	5.00	4.88	97.5	65 - 140	
1,3-Dinitrobenzene	5.00	5.00	99.9	45 - 160	
2,4,6-Trinitrotoluene	5.00	4.90	98.1	50 - 145	
2,4-Dinitrotoluene	5.00	4.91	98.2	60 - 135	
2,6-Dinitrotoluene	5.00	4.76	95.3	60 - 135	
2-Amino-4,6-dinitrotoluene	5.00	4.80	95.9	50 - 155	
2-Nitrotoluene	5.00	4.65	93.0	45 - 135	
3-Nitrotoluene	5.00	4.66	93.2	50 - 130	
4-Nitrotoluene	5.00	4.70	94.0	50 - 130	
4-Amino-2,6-dinitrotoluene	5.00	4.63	92.7	55 - 155	
HMX	5.00	4.85	97.1	80 - 115	
Nitrobenzene	5.00	4.97	99.3	50 - 140	
RDX	5.00	4.51	90.3	50 - 160	
Tetryl	5.00	5.14	103	20 - 175	
Nitroglycerin	5.00	5.26	105	50 - 150	

Surrogates	% Recovery	Surrogate Limits	Qualifier
1,2-Dinitrobenzene	104	50 - 150	PASS

* EXCEEDS %REC LIMIT

LCS - Modified 03/06/2008
PDF File ID: 3177841
Report generated: 11/08/2013 14:07

Microbac Laboratories Inc.

INITIAL CALIBRATION SUMMARY

Login Number: L13101691
Analytical Method: 8330B
ICAL Workgroup: WG414394

Instrument ID: HPLC4
Initial Calibration Date: 15-NOV-12 15:04
Column ID: F

Analyte		AVG RF	% RSD	LINEAR (R)	QUAD (R^2)
PETN		5.856	5.94	1.00000	

R = Correlation coefficient; 0.995 minimum
R^2 = Coefficient of determination; 0.99 minimum

This method always uses linear calibration model (R)

INT_CAL - Modified 03/06/2008
PDF File ID: 3189930
Report generated 11/08/2013 14:07

Microbac Laboratories Inc.

INITIAL CALIBRATION SUMMARY

Login Number: L13101691
Analytical Method: 8330B
ICAL Workgroup: WG442890

Instrument ID: HPLC5
Initial Calibration Date: 31-AUG-13 03:44
Column ID: F

Analyte		AVG RF	% RSD	LINEAR (R)	QUAD (R^2)
1,3,5-Trinitrobenzene		2.385	0.581	1.00000	
1,3-Dinitrobenzene		1.766	1.01	1.00000	
2,4,6-Trinitrotoluene		2.591	0.602	1.00000	
2,4-Dinitrotoluene		1.918	0.686	1.00000	
2,6-Dinitrotoluene		3.762	1.74	1.00000	
2-Amino-4,6-Dinitrotoluene		2.721	0.970	1.00000	
2-Nitrotoluene		4.635	0.898	1.00000	
3-Nitrotoluene		4.125	1.74	1.00000	
4-Amino-2,6-Dinitrotoluene		4.152	0.980	1.00000	
4-Nitrotoluene		5.655	0.287	1.00000	
HMX		5.961	6.21	1.00000	
Nitrobenzene		2.707	1.09	1.00000	
Nitroglycerin		5.028	11.7	1.00000	
RDX		5.246	4.19	1.00000	
Tetryl		3.459	0.569	1.00000	

R = Correlation coefficient; 0.995 minimum
R^2 = Coefficient of determination; 0.99 minimum

This method always uses linear calibration model (R)

INT_CAL - Modified 03/06/2008
PDF File ID: 3189930
Report generated 11/08/2013 14:07

Microbac Laboratories Inc.

INITIAL CALIBRATION DATA

Login Number: L13101691

Analytical Method: 8330B

Instrument ID: HPLC4

Initial Calibration Date: 15-NOV-12 15:04

Column ID: F

Analyte	WG414394-01			WG414394-02			WG414394-03		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
PETN	2500	455.391724	5.490	1000	174.990829	5.715	500	86.0850143	5.808

INT_CAL - Modified 03/06/2008
PDF File ID: 3189930
Report generated 11/08/2013 14:07

Microbac Laboratories Inc.

INITIAL CALIBRATION DATA

Login Number: L13101691

Analytical Method: 8330B

Instrument ID: HPLC4

Initial Calibration Date: 15-NOV-12 15:04

Column ID: F

Analyte	WG414394-04			WG414394-05			WG414394-06		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
PETN	250	41.9132233	5.965	100	15.3116226	6.531	50.0	8.88391781	5.628

INT_CAL - Modified 03/06/2008
PDF File ID: 3189930
Report generated 11/08/2013 14:07

Microbac Laboratories Inc.

INITIAL CALIBRATION DATA

Login Number: L13101691

Analytical Method: 8330B

Instrument ID: HPLC5

Initial Calibration Date: 31-AUG-13 03:44

Column ID: F

Analyte	WG442890-01			WG442890-02			WG442890-03		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
1,3,5-Trinitrobenzene	2500	1041.37512	2.401	1000	417.666809	2.394	500	208.764511	2.395
1,3-Dinitrobenzene	2500	1398.77466	1.787	1000	565.594727	1.768	500	281.278229	1.778
2,4,6-Trinitrotoluene	2500	955.568848	2.616	1000	387.074554	2.583	500	192.053482	2.603
2,4-Dinitrotoluene	2500	1292.23706	1.935	1000	518.614624	1.928	500	259.948669	1.923
2,6-Dinitrotoluene	2500	654.690308	3.819	1000	261.964600	3.817	500	131.795761	3.794
2-Amino-4,6-Dinitrotoluene	2500	908.204590	2.753	1000	367.201294	2.723	500	182.730942	2.736
2-Nitrotoluene	2500	538.021301	4.647	1000	216.434143	4.620	500	108.128784	4.624
3-Nitrotoluene	2500	607.256409	4.117	1000	241.733353	4.137	500	121.773659	4.106
4-Amino-2,6-Dinitrotoluene	2500	594.837158	4.203	1000	240.417938	4.159	500	120.226791	4.159
4-Nitrotoluene	2500	440.795959	5.672	1000	176.814087	5.656	500	88.4528046	5.653
HMX	2500	403.866211	6.190	1000	161.835892	6.179	500	81.2749557	6.152
Nitrobenzene	2500	914.579407	2.733	1000	370.179688	2.701	500	183.538025	2.724
Nitroglycerin	2500	535.551086	4.668	1000	213.205780	4.690	500	101.483292	4.927
RDX	2500	489.190796	5.110	1000	199.586609	5.010	500	98.4254379	5.080
Tetryl	2500	727.625183	3.436	1000	290.621277	3.441	500	144.421555	3.462

INT_CAL - Modified 03/06/2008
PDF File ID: 3189930
Report generated 11/08/2013 14:07

Microbac Laboratories Inc.

INITIAL CALIBRATION DATA

Login Number: L13101691

Analytical Method: 8330B

Instrument ID: HPLC5

Initial Calibration Date: 31-AUG-13 03:44

Column ID: F

Analyte	WG442890-04			WG442890-05			WG442890-06		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
1,3,5-Trinitrobenzene	100	42.2803001	2.365	50.0	21.0622559	2.374	25.0	10.4944019	2.382
1,3-Dinitrobenzene	100	56.4071388	1.773	50.0	28.6869602	1.743	25.0	14.3224850	1.746
2,4,6-Trinitrotoluene	100	38.6841850	2.585	50.0	19.3903446	2.579	25.0	9.70016193	2.577
2,4-Dinitrotoluene	100	52.2575302	1.914	50.0	26.2266960	1.906	25.0	13.1537495	1.901
2,6-Dinitrotoluene	100	26.4976921	3.774	50.0	13.4742517	3.711	25.0	6.83488417	3.658
2-Amino-4,6-Dinitrotoluene	100	36.5884819	2.733	50.0	18.6557674	2.680	25.0	9.25520611	2.701
2-Nitrotoluene	100	21.6909714	4.610	50.0	10.8785114	4.596	25.0	5.30322552	4.714
3-Nitrotoluene	100	24.4887314	4.084	50.0	12.3592615	4.046	25.0	5.86918497	4.260
4-Amino-2,6-Dinitrotoluene	100	24.1811447	4.135	50.0	12.2459965	4.083	25.0	5.99024868	4.173
4-Nitrotoluene	100	17.6436195	5.668	50.0	8.88772774	5.626	25.0	4.41831303	5.658
HMX	100	16.8249416	5.944	50.0	8.32087517	6.009	25.0	4.72127485	5.295
Nitrobenzene	100	36.9058685	2.710	50.0	18.3658066	2.722	25.0	9.42447567	2.653
Nitroglycerin	100	21.3835011	4.677	50.0	10.5982065	4.718	25.0	3.85419559	6.486
RDX	100	18.8580742	5.303	50.0	8.90731812	5.613	25.0	4.66570854	5.358
Tetryl	100	28.9134960	3.459	50.0	14.3238869	3.491	25.0	7.21012211	3.467

INT_CAL - Modified 03/06/2008
PDF File ID: 3189930
Report generated 11/08/2013 14:07

Microbac Laboratories Inc.
ALTERNATE SOURCE CALIBRATION REPORT

Login Number: L13101691 Run Date: 11/15/2012 Sample ID: WG414394-07
Instrument ID: HPLC4 Run Time: 15:23 Method: 8330B
File ID: 4L024443.F Analyst: ECL QC Key: DOD4
ICal Workgroup: WG414394 Cal ID: HPLC4 - 15-NOV-12

Analyte		Expected	Found	Units	RF	%D	UCL	Q
PETN		500	594	ug/L	4.74	18.8	30	

* Exceeds %D Limit

ALT - Modified 09/06/2007
Version 1.5 PDF File ID: 3189931
Report generated 11/08/2013 14:07

Microbac Laboratories Inc.
ALTERNATE SOURCE CALIBRATION REPORT

Login Number: L13101691 Run Date: 08/31/2013 Sample ID: WG442890-07
Instrument ID: HPLC5 Run Time: 04:23 Method: 8330B
File ID: 5L011061.F Analyst: JWR QC Key: DOD4
ICal Workgroup: WG442890 Cal ID: HPLC5 - 31-AUG-13

Analyte		Expected	Found	Units	RF	%D	UCL	Q
Sym-Trinitrobenzene		500	487	ug/L	2.46	2.50	20	
1,3-Dinitrobenzene		500	488	ug/L	1.82	2.40	20	
2,4,6-Trinitrotoluene		500	495	ug/L	2.63	1.10	20	
2,4-Dinitrotoluene		500	494	ug/L	1.95	1.20	20	
2,6-Dinitrotoluene		500	483	ug/L	3.94	3.50	20	
2-Amino-4,6-Dinitrotoluene		500	464	ug/L	2.95	7.30	20	
2-Nitrotoluene		500	487	ug/L	4.76	2.60	20	
3-Nitrotoluene		500	489	ug/L	4.21	2.20	20	
4-Nitrotoluene		500	475	ug/L	5.96	5.00	20	
4-Amino-2,6-Dinitrotoluene		500	496	ug/L	4.21	0.800	20	
HMX		500	497	ug/L	6.19	0.600	20	
Nitrobenzene		500	489	ug/L	2.78	2.30	20	
RDX		500	492	ug/L	5.18	1.70	20	
Tetryl		500	476	ug/L	3.61	4.70	20	
Nitroglycerin		500	483	ug/L	4.90	3.40	30	

* Exceeds %D Limit

ALT - Modified 09/06/2007
Version 1.5 PDF File ID: 3189931
Report generated 11/08/2013 14:07

Microbac Laboratories Inc.
CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L13101691
Run Date: 10/30/2013
Sample ID: WG450877-01
Instrument ID: HPLC4
Run Time: 21:31
Method: 8330B
File ID: 4L025796.F
Analyst: ECL
QC Key: DOD4
Workgroup (AAB#): WG450871
Cal ID: HPLC4 - 15-NOV-12
Matrix: WATER

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
PETN		500	531	ug/L	5.32	6.22	20	

* Exceeds %D Criteria

CCV - Modified 03/05/2008
PDF File ID: 3177842
Report generated 11/08/2013 14:07

Microbac Laboratories Inc.
CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L13101691
Run Date: 10/30/2013
Sample ID: WG450877-02
Instrument ID: HPLC4
Run Time: 23:26
Method: 8330B
File ID: 4L025802.F
Analyst: ECL
QC Key: DOD4
Workgroup (AAB#): WG450871
Cal ID: HPLC4 - 15-NOV-12
Matrix: WATER

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
PETN		500	489	ug/L	5.79	2.14	20	

* Exceeds %D Criteria

CCV - Modified 03/05/2008
PDF File ID: 3177842
Report generated 11/08/2013 14:07

Microbac Laboratories Inc.
CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L13101691 Run Date: 11/06/2013 Sample ID: WG451731-01
Instrument ID: HPLC5 Run Time: 14:43 Method: 8330B
File ID: 5L011570.F Analyst: JWR QC Key: DOD4
Workgroup (AAB#): WG450871 Cal ID: HPLC5 - 31-AUG-13
Matrix: WATER

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
Sym-Trinitrobenzene		500	506	ug/L	2.37	1.26	20	
1,3-Dinitrobenzene		500	508	ug/L	1.75	1.63	20	
2,4,6-Trinitrotoluene		500	477	ug/L	2.72	4.53	20	
2,4-Dinitrotoluene		500	505	ug/L	1.91	1.05	20	
2,6-Dinitrotoluene		500	502	ug/L	3.79	0.402	20	
2-Amino-4,6-Dinitrotoluene		500	505	ug/L	2.71	1.09	20	
2-Nitrotoluene		500	503	ug/L	4.60	0.613	20	
3-Nitrotoluene		500	506	ug/L	4.07	1.23	20	
4-Nitrotoluene		500	511	ug/L	5.55	2.11	20	
4-Amino-2,6-Dinitrotoluene		500	505	ug/L	4.13	1.08	20	
HMX		500	555	ug/L	5.55	11.0	20	
Nitrobenzene		500	515	ug/L	2.64	2.97	20	
RDX		500	503	ug/L	5.06	0.583	20	
Tetryl		500	482	ug/L	3.57	3.56	20	
Nitroglycerin		500	538	ug/L	4.39	7.63	20	

* Exceeds %D Criteria

CCV - Modified 03/05/2008
PDF File ID: 3177842
Report generated 11/08/2013 14:07

Microbac Laboratories Inc.
CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L13101691 Run Date: 11/06/2013 Sample ID: WG451731-02
Instrument ID: HPLC5 Run Time: 22:40 Method: 8330B
File ID: 5L011582.F Analyst: JWR QC Key: DOD4
Workgroup (AAB#): WG450871 Cal ID: HPLC5 - 31-AUG-13
Matrix: WATER

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
Sym-Trinitrobenzene		500	510	ug/L	2.35	2.06	20	
1,3-Dinitrobenzene		500	512	ug/L	1.74	2.40	20	
2,4,6-Trinitrotoluene		500	478	ug/L	2.72	4.42	20	
2,4-Dinitrotoluene		500	506	ug/L	1.91	1.25	20	
2,6-Dinitrotoluene		500	506	ug/L	3.77	1.11	20	
2-Amino-4,6-Dinitrotoluene		500	507	ug/L	2.70	1.33	20	
2-Nitrotoluene		500	504	ug/L	4.59	0.853	20	
3-Nitrotoluene		500	508	ug/L	4.06	1.55	20	
4-Nitrotoluene		500	513	ug/L	5.52	2.64	20	
4-Amino-2,6-Dinitrotoluene		500	507	ug/L	4.12	1.49	20	
HMX		500	555	ug/L	5.55	11.0	20	
Nitrobenzene		500	514	ug/L	2.64	2.89	20	
RDX		500	511	ug/L	4.98	2.26	20	
Tetryl		500	479	ug/L	3.60	4.24	20	
Nitroglycerin		500	534	ug/L	4.43	6.75	20	

* Exceeds %D Criteria

CCV - Modified 03/05/2008
PDF File ID: 3177842
Report generated 11/08/2013 14:07

2.1.2.3 Sample Data

1,1

```
==================================================================
Injection Date  : 10/30/2013 10:28:45 PM        Seq. Line :   5
Sample Name     : L13101691-01                   Location : Vial 5
Acq. Operator   : JWR                                 Inj :   1
Acq. Instrument : HPLC4                        Inj Volume : 100 µl
Acq. Method     : C:\HPCHEM\1\METHODS\PETN.M
Last changed    : 11/15/2012 11:33:06 AM by ECL
Analysis Method : C:\HPCHEM\1\METHODS\PETNDA.M
Last changed    : 10/30/2013 10:55:06 PM by ECL
CALIBRATION November 15, 2012
==================================================================
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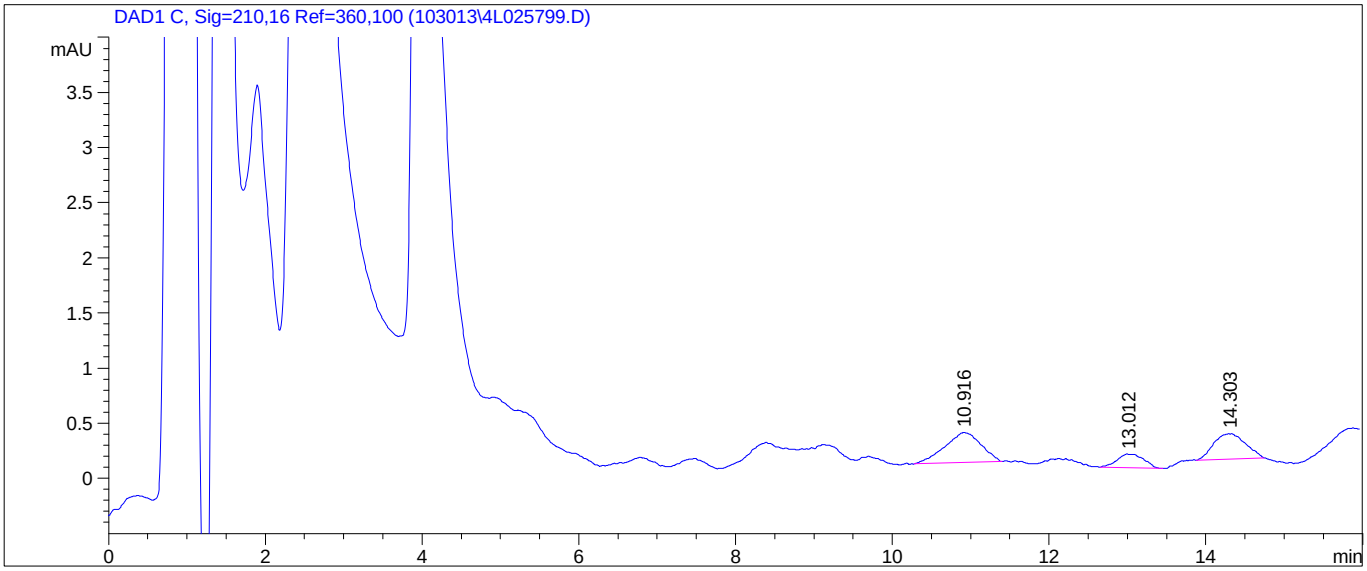


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==================================================================
                      External Standard Report
==================================================================

Sorted By             :      Signal
Calib. Data Modified  :      10/30/2013 3:55:09 PM
Multiplier            :      1.0000
Dilution              :      1.0000
Do not use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 C, Sig=210,16 Ref=360,100

RetTime  Type     Area     Amt/Area    Amount   Grp   Name
 [min]          [mAU*s]                [wt%]
-------|------|----------|----------|----------|--|------------------
 12.603            -          -          -         PETN

Totals :                                 0.00000

 Results obtained with enhanced integrator!
1 Warnings or Errors :

Warning : Calibrated compound(s) not found

==================================================================
```

1,1

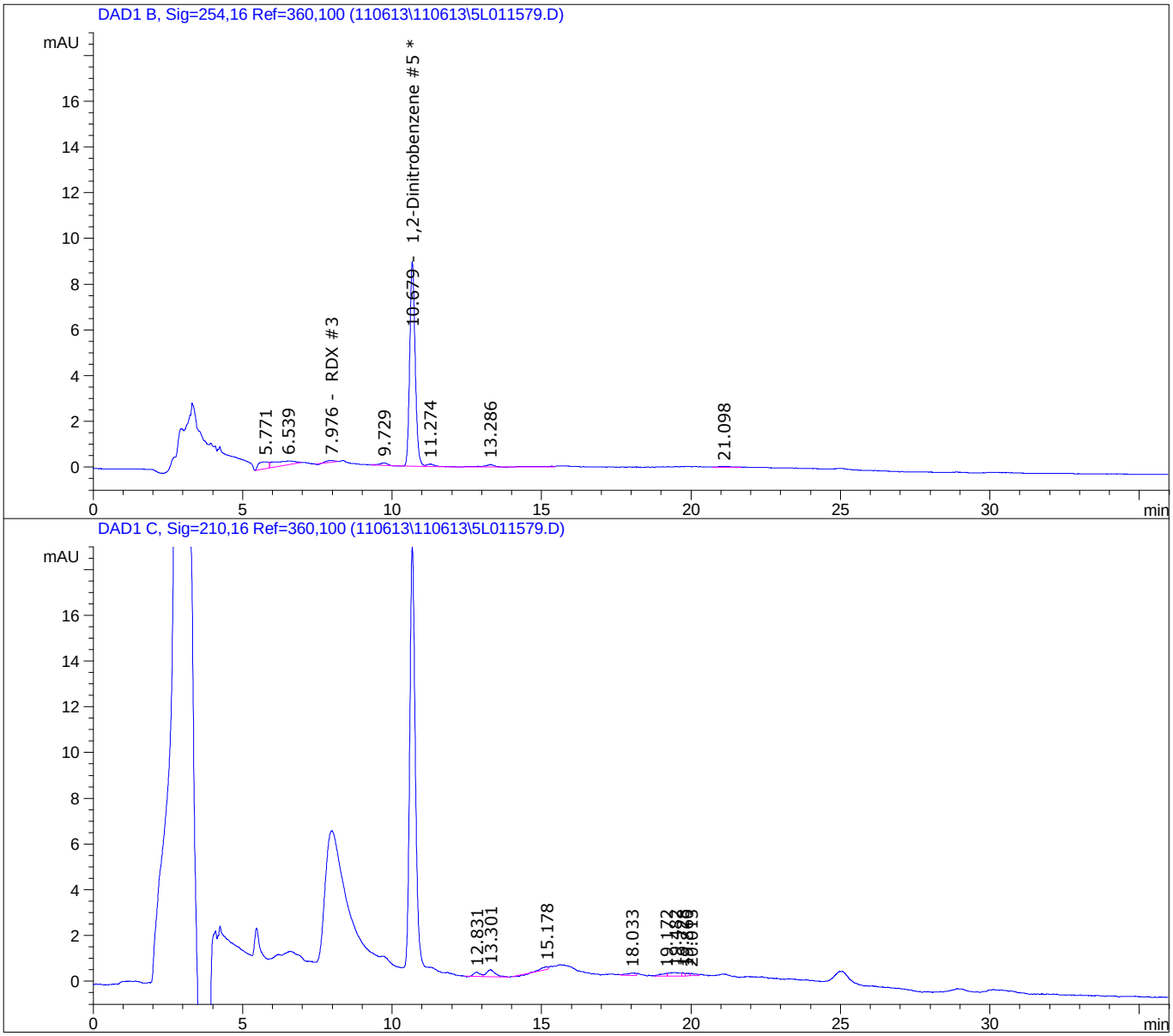
```
==================================================================
Injection Date  : 10/30/2013 10:28:45 PM         Seq. Line :   5
Sample Name     : L13101691-01                    Location : Vial 5
Acq. Operator   : JWR                                  Inj :   1
Acq. Instrument : HPLC4                         Inj Volume : 100 µl
Acq. Method     : C:\HPCHEM\1\METHODS\PETN.M
Last changed    : 11/15/2012 11:33:06 AM by ECL
Analysis Method : C:\HPCHEM\1\METHODS\PETNDA.M
Last changed    : 10/30/2013 10:55:06 PM by ECL
CALIBRATION November 15, 2012
==================================================================

==================================================================
                         Area Percent Report
==================================================================

Sorted By             :      Signal
Calib. Data Modified  :      10/30/2013 3:55:09 PM
Multiplier            :      1.0000
Dilution              :      1.0000
Do not use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,16 Ref=360,100

Peak RetTime  Type   Width     Area      Area    Name
  #   [min]          [min]   [mAU*s]       %
----|-------|------|-------|----------|--------|---------------------
   1  12.603         0.0000    0.00000   0.0000 PETN

Totals :                       0.00000   0.0000

 Results obtained with enhanced integrator!
1 Warnings or Errors :

Warning : Calibrated compound(s) not found

==================================================================
                           *** End of Report ***
```

Data File C:\CHEM32\1\DATA\110613\110613\5L011579.D
Sample Name: L13101691-01

==========

Acq. Operator	: ECL	Seq. Line :	10
Acq. Instrument	: HPLC5	Location :	Vial 11
Injection Date	: 11/6/2013 8:43:07 PM	Inj :	1
		Inj Volume :	100 µl
Acq. Method	: C:\Chem32\1\DATA\110613\110613\8330PLUS.M		
Last changed	: 9/20/2013 3:11:11 PM by JWR		
Analysis Method	: C:\CHEM32\1\METHODS\8330PLDA.M		
Last changed	: 11/7/2013 11:55:02 AM by JWR		
Method Info	: OVD-SOP#HPLC02: 8330 CALIBRATION August 30, 2013		
Sample Info	: 1,1 WATER		

==========



Data File C:\CHEM32\1\DATA\110613\110613\5L011579.D
Sample Name: L13101691-01

==========

Acq. Operator : ECL Seq. Line : 10
Acq. Instrument : HPLC5 Location : Vial 11
Injection Date : 11/6/2013 8:43:07 PM Inj : 1
Inj Volume : 100 µl
Acq. Method : C:\Chem32\1\DATA\110613\110613\8330PLUS.M
Last changed : 9/20/2013 3:11:11 PM by JWR
Analysis Method : C:\CHEM32\1\METHODS\8330PLDA.M
Last changed : 11/7/2013 11:55:02 AM by JWR
Method Info : OVD-SOP#HPLC02: 8330 CALIBRATION August 30, 2013

Sample Info : 1,1 WATER

==========

==========

External Standard Report

==========

Sorted By : Signal
Calib. Data Modified : 11/7/2013 11:46:20 AM
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 B, Sig=254,16 Ref=360,100

RetTime [min]	Type	Area [mAU*s]	Amt/Area	Amount [ug/L]	Grp	Name
5.079		-	-	-		HMX #2
7.976	BBA	1.21248	4.62249	5.60467		RDX #3
10.417		-	-	-		1,3,5-Trinitrobenzene #4
10.679	VV	113.22001	4.23795	479.82059		1,2-Dinitrobenzene #5 *
12.743		-	-	-		1,3-Dinitrobenzene #6
14.026		-	-	-		Tetryl #7
14.438		-	-	-		Nitrobenzene #8
16.612		-	-	-		2,4,6-Trinitrotoluene #10
17.581		-	-	-		4-Amino-2,6-Dinitrotoluene #11
18.494		-	-	-		2-Amino-4,6-Dinitrotoluene #12
19.437		-	-	-		2,6-Dinitrotoluene #13
20.059		-	-	-		2,4-Dinitrotoluene #14
23.507		-	-	-		2-Nitrotoluene #15
25.170		-	-	-		4-Nitrotoluene #16
27.053		-	-	-		3-Nitrotoluene #17

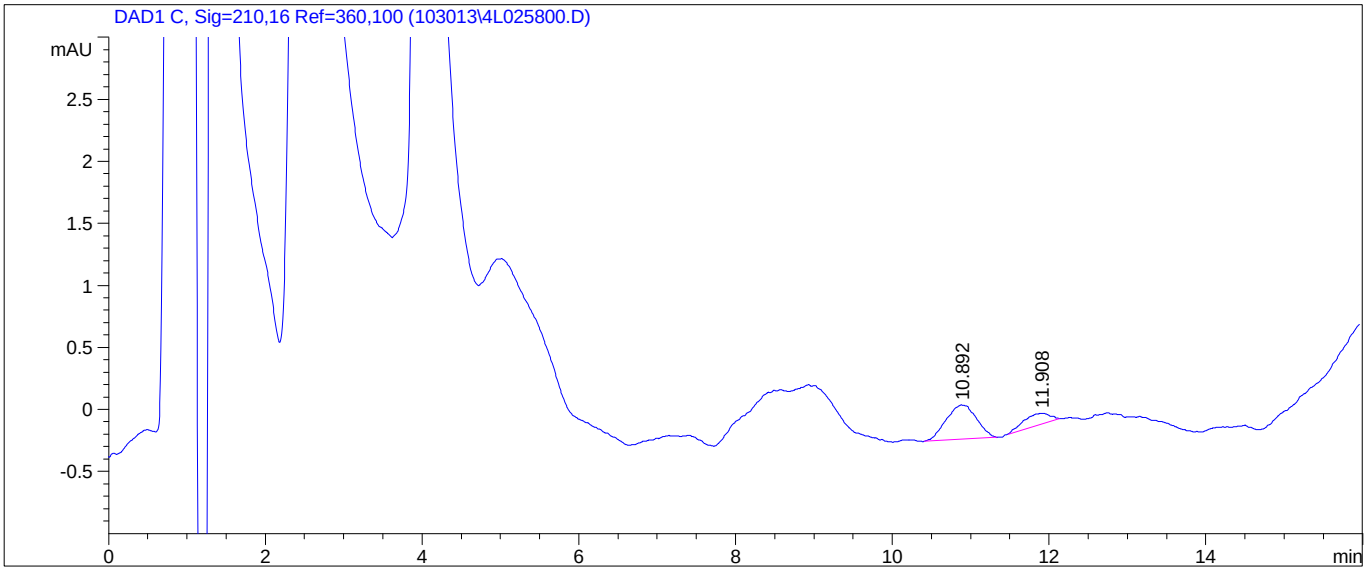
Totals : 485.42526

Data File C:\CHEM32\1\DATA\110613\110613\5L011579.D
Sample Name: L13101691-01

```
==================================================================
Acq. Operator   : ECL                           Seq. Line :  10
Acq. Instrument : HPLC5                          Location : Vial 11
Injection Date  : 11/6/2013 8:43:07 PM                Inj :   1
                                               Inj Volume : 100 µl
Acq. Method     : C:\Chem32\1\DATA\110613\110613\8330PLUS.M
Last changed    : 9/20/2013 3:11:11 PM by JWR
Analysis Method : C:\CHEM32\1\METHODS\8330PLDA.M
Last changed    : 11/7/2013 11:55:02 AM by JWR
Method Info     : OVD-SOP#HPLC02: 8330 CALIBRATION August 30, 2013

Sample Info     : 1,1 WATER


==================================================================


Signal 2: DAD1 C, Sig=210,16 Ref=360,100

RetTime  Type     Area     Amt/Area    Amount   Grp   Name
 [min]          [mAU*s]                [ug/L]
-------|------|----------|----------|----------|--|------------------
 15.535            -          -          -         Nitroglycerin #9

Totals :                                 0.00000


2 Warnings or Errors :

Warning : Calibration warnings (see calibration table listing)
Warning : Calibrated compound(s) not found

==================================================================
                           *** End of Report ***
```

1,1

```
==================================================================
Injection Date  : 10/30/2013 10:47:52 PM        Seq. Line :   6
Sample Name     : L13101691-02                   Location : Vial 6
Acq. Operator   : JWR                                 Inj :   1
Acq. Instrument : HPLC4                        Inj Volume : 100 µl
Acq. Method     : C:\HPCHEM\1\METHODS\PETN.M
Last changed    : 11/15/2012 11:33:06 AM by ECL
Analysis Method : C:\HPCHEM\1\METHODS\PETNDA.M
Last changed    : 10/30/2013 11:45:45 PM by ECL
CALIBRATION November 15, 2012
==================================================================
```




```
==================================================================
                      External Standard Report
==================================================================

Sorted By             :      Signal
Calib. Data Modified  :      10/30/2013 3:55:09 PM
Multiplier            :      1.0000
Dilution              :      1.0000
Do not use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 C, Sig=210,16 Ref=360,100

RetTime  Type     Area     Amt/Area    Amount   Grp   Name
 [min]          [mAU*s]                [wt%]
-------|------|----------|----------|----------|--|------------------
 12.603            -          -          -         PETN

Totals :                                 0.00000

 Results obtained with enhanced integrator!
1 Warnings or Errors :

Warning : Calibrated compound(s) not found

==================================================================
```

1,1

```
==================================================================
Injection Date  : 10/30/2013 10:47:52 PM         Seq. Line :   6
Sample Name     : L13101691-02                    Location : Vial 6
Acq. Operator   : JWR                                  Inj :   1
Acq. Instrument : HPLC4                         Inj Volume : 100 µl
Acq. Method     : C:\HPCHEM\1\METHODS\PETN.M
Last changed    : 11/15/2012 11:33:06 AM by ECL
Analysis Method : C:\HPCHEM\1\METHODS\PETNDA.M
Last changed    : 10/30/2013 11:45:45 PM by ECL
CALIBRATION November 15, 2012
==================================================================

==================================================================
                         Area Percent Report
==================================================================

Sorted By             :      Signal
Calib. Data Modified  :      10/30/2013 3:55:09 PM
Multiplier            :      1.0000
Dilution              :      1.0000
Do not use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,16 Ref=360,100

Peak RetTime  Type   Width     Area      Area    Name
  #   [min]          [min]   [mAU*s]       %
----|-------|------|-------|----------|--------|---------------------
   1  12.603         0.0000    0.00000   0.0000 PETN

Totals :                       0.00000   0.0000

 Results obtained with enhanced integrator!
1 Warnings or Errors :

Warning : Calibrated compound(s) not found

==================================================================
                           *** End of Report ***
```

Data File C:\CHEM32\1\DATA\110613\110613\5L011580.D
Sample Name: L13101691-02

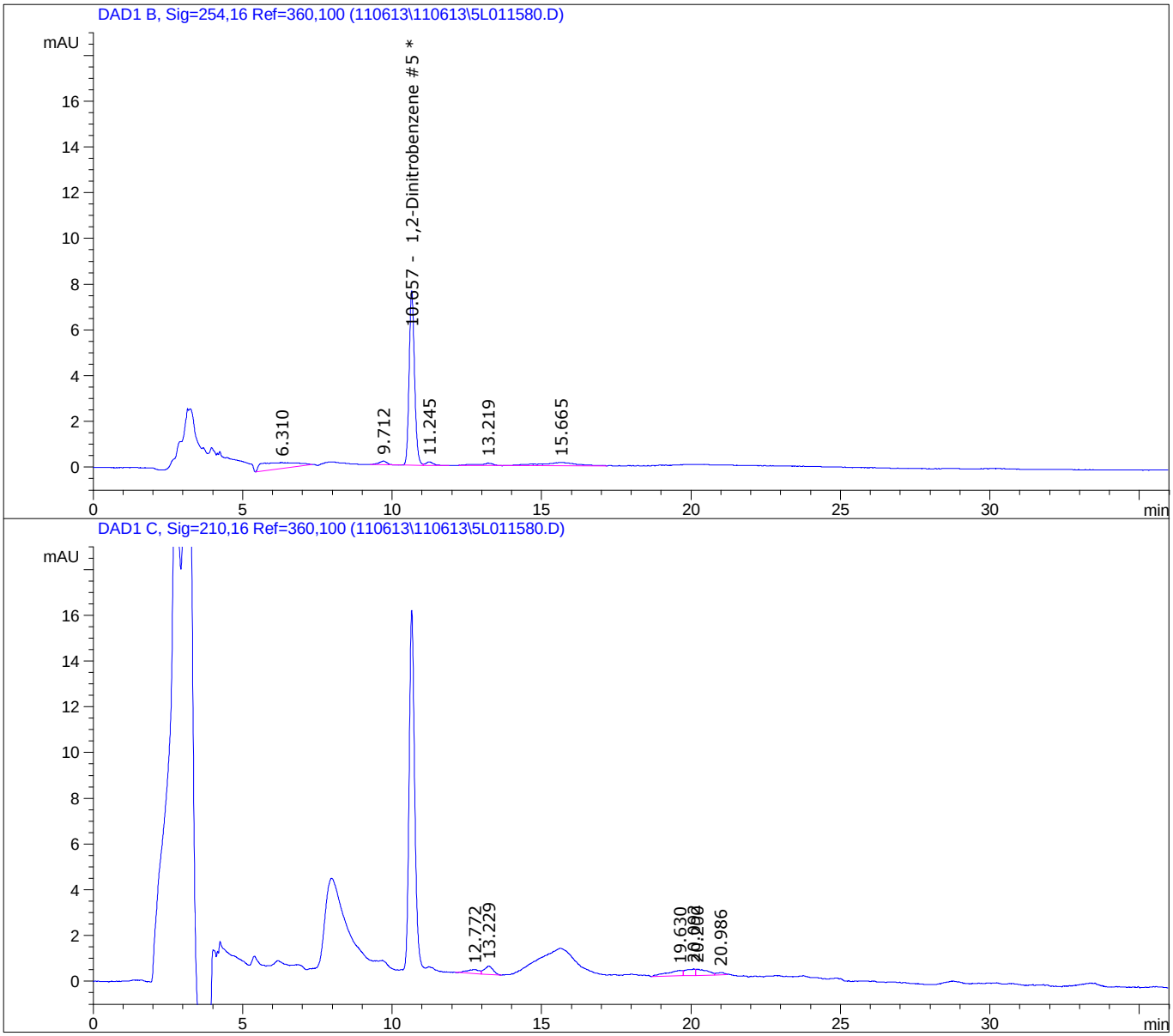
==========

Acq. Operator	: ECL	Seq. Line :	11
Acq. Instrument	: HPLC5	Location :	Vial 12
Injection Date	: 11/6/2013 9:22:08 PM	Inj :	1
		Inj Volume :	100 µl

Acq. Method : C:\Chem32\1\DATA\110613\110613\8330PLUS.M
Last changed : 9/20/2013 3:11:11 PM by JWR
Analysis Method : C:\CHEM32\1\METHODS\8330PLDA.M
Last changed : 11/7/2013 11:56:04 AM by JWR
Method Info : OVD-SOP#HPLC02: 8330 CALIBRATION August 30, 2013

Sample Info : 1,1 WATER

==========



Data File C:\CHEM32\1\DATA\110613\110613\5L011580.D
Sample Name: L13101691-02

==========

Acq. Operator : ECL Seq. Line : 11
Acq. Instrument : HPLC5 Location : Vial 12
Injection Date : 11/6/2013 9:22:08 PM Inj : 1
Inj Volume : 100 µl
Acq. Method : C:\Chem32\1\DATA\110613\110613\8330PLUS.M
Last changed : 9/20/2013 3:11:11 PM by JWR
Analysis Method : C:\CHEM32\1\METHODS\8330PLDA.M
Last changed : 11/7/2013 11:56:04 AM by JWR
Method Info : OVD-SOP#HPLC02: 8330 CALIBRATION August 30, 2013

Sample Info : 1,1 WATER

==========

==========

External Standard Report

==========

Sorted By : Signal
Calib. Data Modified : 11/7/2013 11:46:20 AM
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 B, Sig=254,16 Ref=360,100

RetTime [min]	Type	Area [mAU*s]	Amt/Area	Amount [ug/L]	Grp	Name
5.079		-	-	-		HMX #2
7.751		-	-	-		RDX #3
10.417		-	-	-		1,3,5-Trinitrobenzene #4
10.657	BV	95.43328	4.22732	403.42732		1,2-Dinitrobenzene #5 *
12.743		-	-	-		1,3-Dinitrobenzene #6
14.026		-	-	-		Tetryl #7
14.438		-	-	-		Nitrobenzene #8
16.612		-	-	-		2,4,6-Trinitrotoluene #10
17.581		-	-	-		4-Amino-2,6-Dinitrotoluene #11
18.494		-	-	-		2-Amino-4,6-Dinitrotoluene #12
19.437		-	-	-		2,6-Dinitrotoluene #13
20.059		-	-	-		2,4-Dinitrotoluene #14
23.507		-	-	-		2-Nitrotoluene #15
25.170		-	-	-		4-Nitrotoluene #16
27.053		-	-	-		3-Nitrotoluene #17

Totals : 403.42732

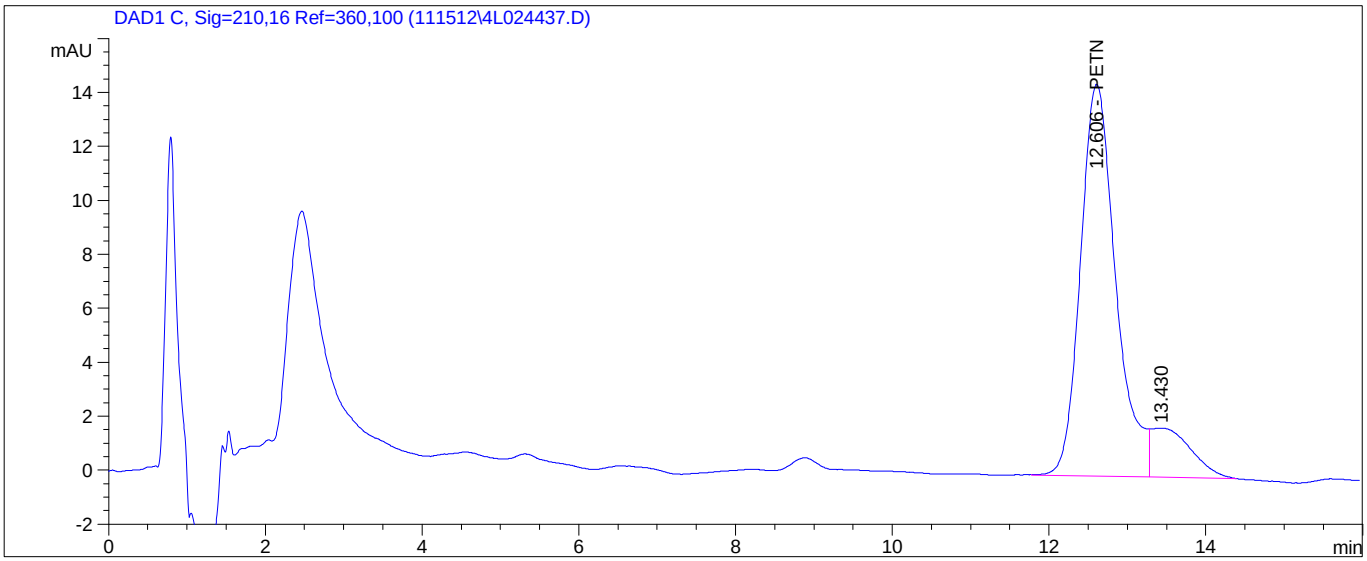
Data File C:\CHEM32\1\DATA\110613\110613\5L011580.D
Sample Name: L13101691-02

```
==================================================================
Acq. Operator   : ECL                           Seq. Line :  11
Acq. Instrument : HPLC5                          Location : Vial 12
Injection Date  : 11/6/2013 9:22:08 PM                Inj :   1
                                               Inj Volume : 100 µl
Acq. Method     : C:\Chem32\1\DATA\110613\110613\8330PLUS.M
Last changed    : 9/20/2013 3:11:11 PM by JWR
Analysis Method : C:\CHEM32\1\METHODS\8330PLDA.M
Last changed    : 11/7/2013 11:56:04 AM by JWR
Method Info     : OVD-SOP#HPLC02: 8330 CALIBRATION August 30, 2013

Sample Info     : 1,1 WATER


==================================================================


Signal 2: DAD1 C, Sig=210,16 Ref=360,100

RetTime  Type     Area     Amt/Area    Amount   Grp   Name
 [min]          [mAU*s]                [ug/L]
-------|------|----------|----------|----------|--|------------------
 15.535            -          -          -         Nitroglycerin #9

Totals :                                 0.00000


2 Warnings or Errors :

Warning : Calibration warnings (see calibration table listing)
Warning : Calibrated compound(s) not found

==================================================================
                           *** End of Report ***
```

2.1.2.4 Standards Data

1,1 STD54936 PETN @ 2500 PPB

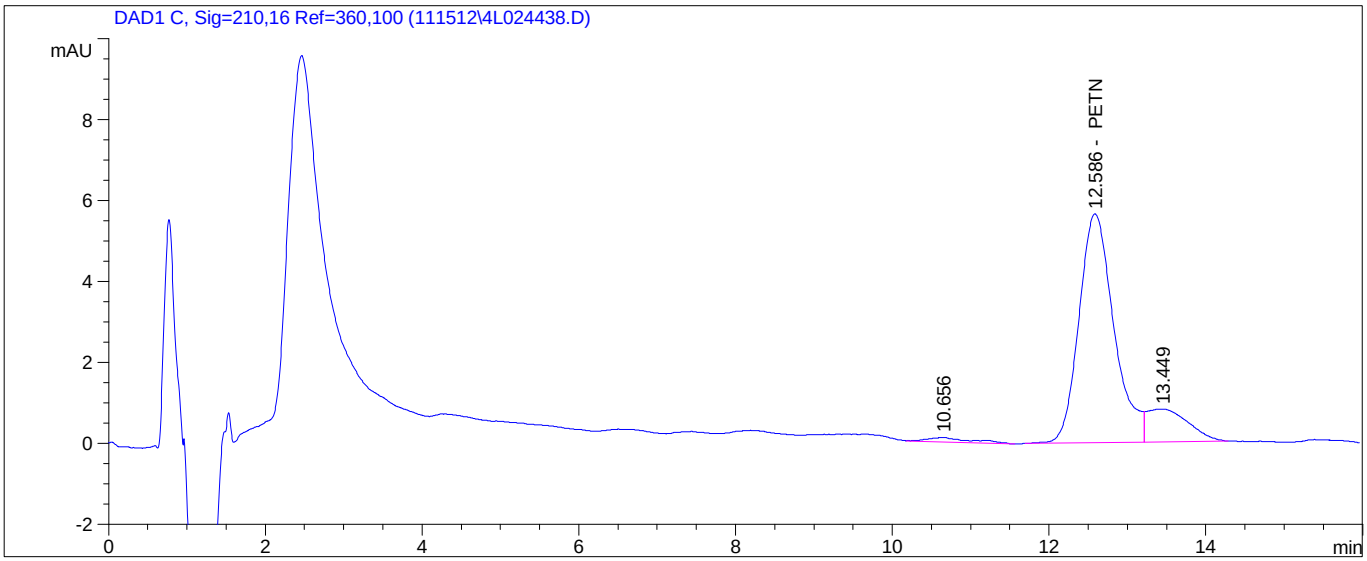
```
==================================================================
Injection Date  : 11/15/2012 1:29:05 PM          Seq. Line :   1
Sample Name     : WG414394-01 ICAL                Location : Vial 2
Acq. Operator   : ECL                                  Inj :   1
Acq. Instrument : HPLC4                          Inj Volume : 100 µl
Acq. Method     : C:\HPCHEM\1\METHODS\PETN.M
Last changed    : 11/15/2012 11:33:06 AM by ECL
Analysis Method : C:\HPCHEM\1\METHODS\PETNDA.M
Last changed    : 11/16/2012 8:18:23 AM by ECL
                  (modified after loading)
CALIBRATION November 15, 2012
==================================================================
```




```
==================================================================
                      External Standard Report
==================================================================

Sorted By             :      Signal
Calib. Data Modified  :      Friday, November 16, 2012 8:18:23 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Do not use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 C, Sig=210,16 Ref=360,100

RetTime  Type     Area     Amt/Area    Amount   Grp   Name
 [min]          [mAU*s]                [wt%]
-------|------|----------|----------|----------|--|------------------
 12.606 BV      455.39172    5.39068 2454.87319    PETN

Totals :                              2454.87319

 Results obtained with enhanced integrator!
==================================================================
                          *** End of Report ***
```

1,1 STD54936 PETN @ 1000 PPB

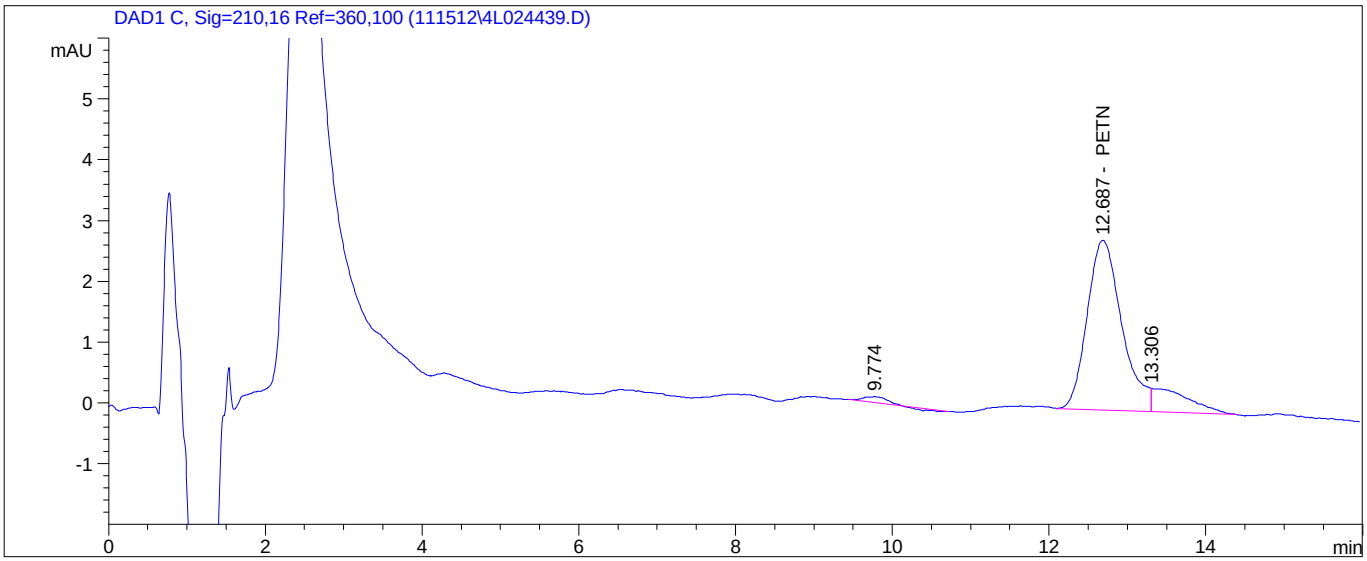
```
==================================================================
Injection Date  : 11/15/2012 1:48:14 PM          Seq. Line :   2
Sample Name     : WG414394-02 ICAL                Location : Vial 3
Acq. Operator   : ECL                                  Inj :   1
Acq. Instrument : HPLC4                          Inj Volume : 100 µl
Acq. Method     : C:\HPCHEM\1\METHODS\PETN.M
Last changed    : 11/15/2012 11:33:06 AM by ECL
Analysis Method : C:\HPCHEM\1\METHODS\PETNDA.M
Last changed    : 11/16/2012 8:19:09 AM by ECL
                  (modified after loading)
CALIBRATION November 15, 2012
==================================================================
```




```
==================================================================
                      External Standard Report
==================================================================

Sorted By             :      Signal
Calib. Data Modified  :      Friday, November 16, 2012 8:19:09 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Do not use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 C, Sig=210,16 Ref=360,100

RetTime  Type     Area     Amt/Area    Amount   Grp   Name
 [min]          [mAU*s]                [wt%]
-------|------|----------|----------|----------|--|------------------
 12.586 BV      174.99083    5.44961  953.63110    PETN

Totals :                               953.63110

 Results obtained with enhanced integrator!
==================================================================
                          *** End of Report ***
```

1,1 STD54936 PETN @ 500 PPB

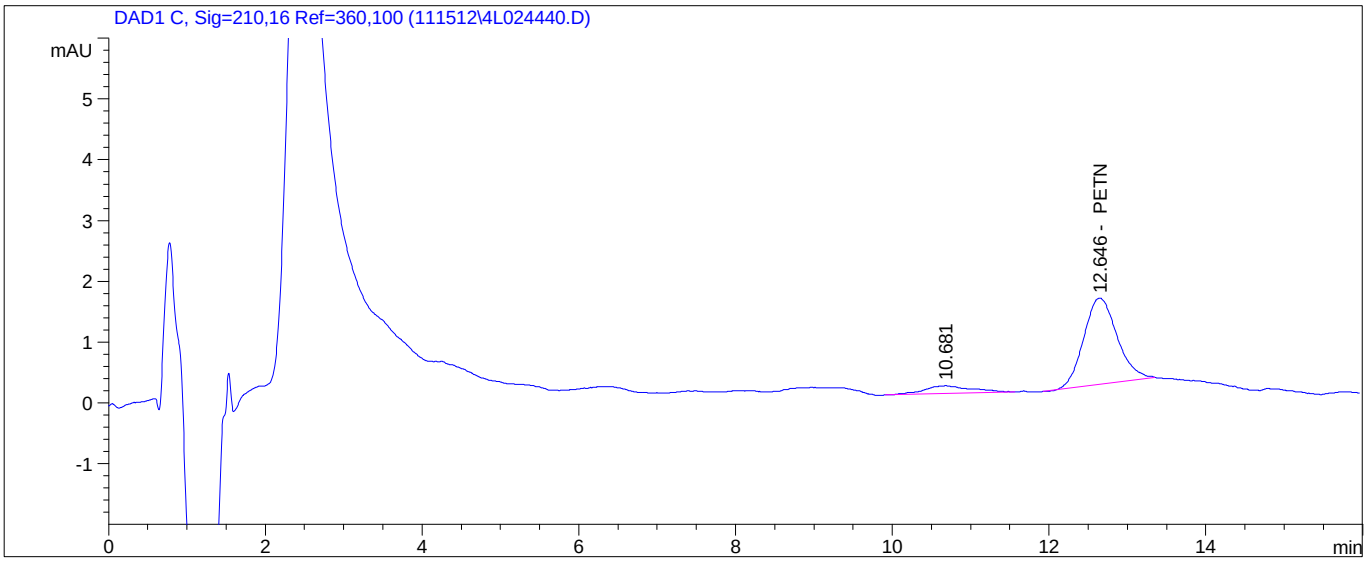
```
==================================================================
Injection Date  : 11/15/2012 2:07:21 PM          Seq. Line :   3
Sample Name     : WG414394-03 ICAL                Location : Vial 4
Acq. Operator   : ECL                                  Inj :   1
Acq. Instrument : HPLC4                          Inj Volume : 100 µl
Acq. Method     : C:\HPCHEM\1\METHODS\PETN.M
Last changed    : 11/15/2012 11:33:06 AM by ECL
Analysis Method : C:\HPCHEM\1\METHODS\PETNDA.M
Last changed    : 11/16/2012 8:19:51 AM by ECL
                  (modified after loading)
CALIBRATION November 15, 2012
==================================================================
```




```
==================================================================
                      External Standard Report
==================================================================

Sorted By             :      Signal
Calib. Data Modified  :      Friday, November 16, 2012 8:19:51 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Do not use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 C, Sig=210,16 Ref=360,100

RetTime  Type     Area     Amt/Area    Amount   Grp   Name
 [min]          [mAU*s]                [wt%]
-------|------|----------|----------|----------|--|------------------
 12.687 VF       86.08501    5.50240  473.67415    PETN

Totals :                              473.67415

 Results obtained with enhanced integrator!
==================================================================
                          *** End of Report ***
```

1,1 STD54936 PETN @ 250 PPB

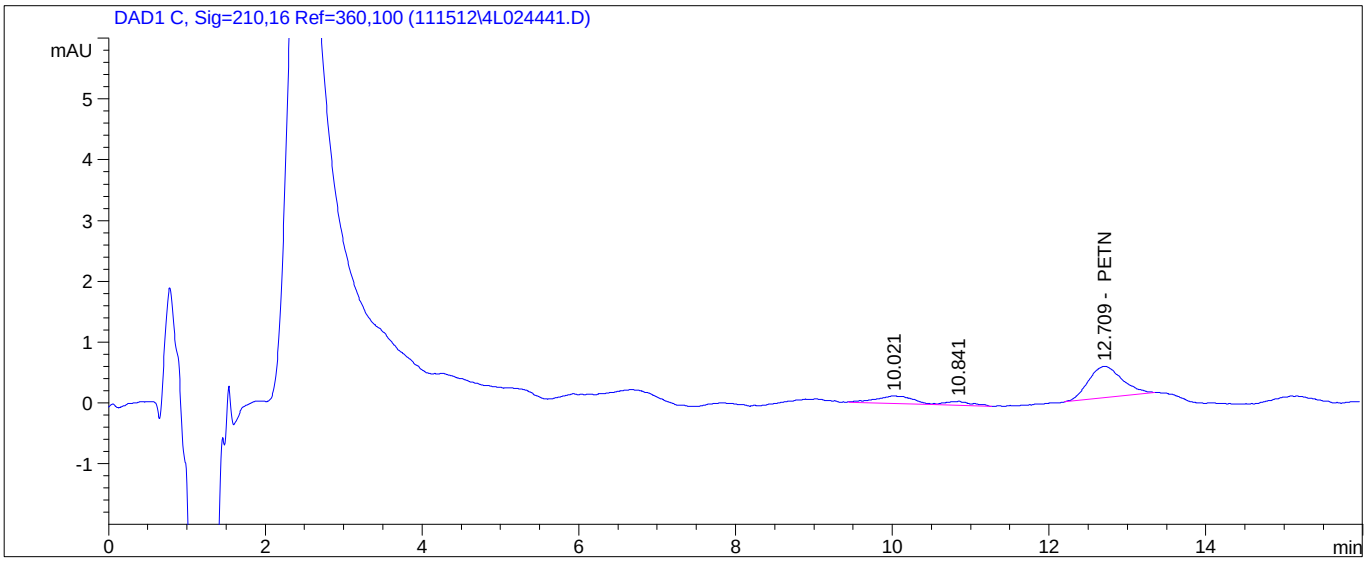
```
==================================================================
Injection Date  : 11/15/2012 2:26:30 PM          Seq. Line :   4
Sample Name     : WG414394-04 ICAL                Location : Vial 5
Acq. Operator   : ECL                                  Inj :   1
Acq. Instrument : HPLC4                         Inj Volume : 100 µl
Acq. Method     : C:\HPCHEM\1\METHODS\PETN.M
Last changed    : 11/15/2012 11:33:06 AM by ECL
Analysis Method : C:\HPCHEM\1\METHODS\PETNDA.M
Last changed    : 11/16/2012 8:20:46 AM by ECL
                  (modified after loading)
CALIBRATION November 15, 2012
==================================================================
```




```
==================================================================
                      External Standard Report
==================================================================

Sorted By             :      Signal
Calib. Data Modified  :      Friday, November 16, 2012 8:20:45 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Do not use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 C, Sig=210,16 Ref=360,100

RetTime  Type     Area     Amt/Area    Amount   Grp   Name
 [min]          [mAU*s]                [wt%]
-------|------|----------|----------|----------|--|------------------
 12.646 PBA      41.91322    5.62385  235.71377    PETN

Totals :                              235.71377

 Results obtained with enhanced integrator!
==================================================================
                          *** End of Report ***
```

1,1 STD54936 PETN @ 100 PPB

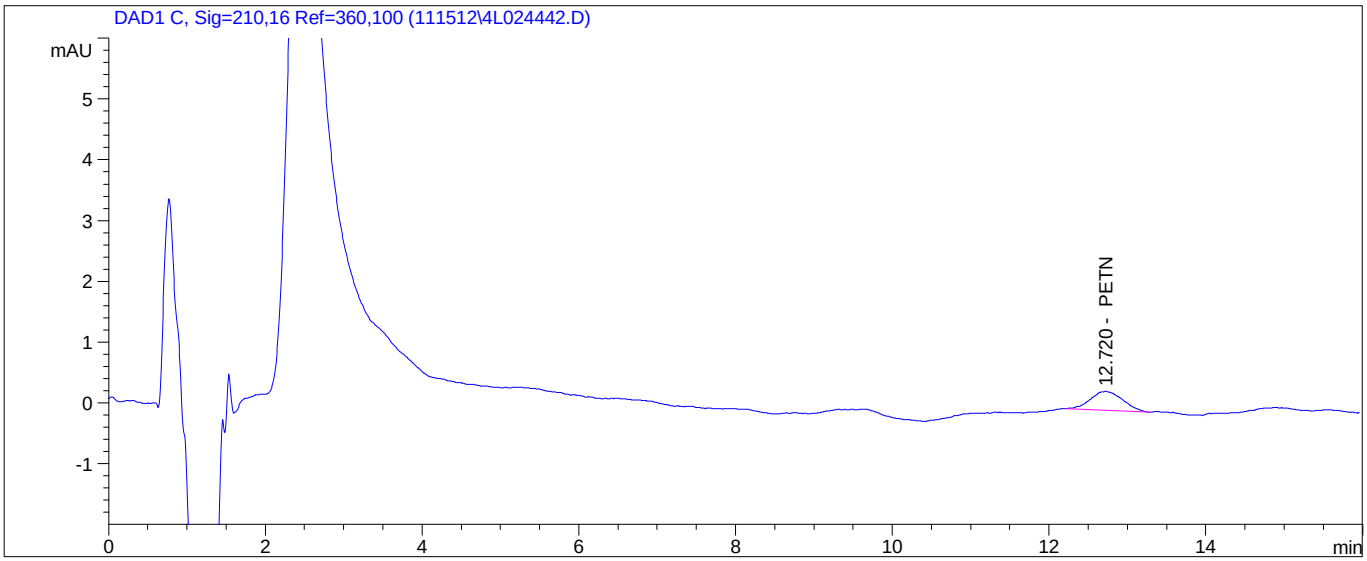
```
==================================================================
Injection Date  : 11/15/2012 2:45:35 PM          Seq. Line :   5
Sample Name     : WG414394-05 ICAL                Location : Vial 6
Acq. Operator   : ECL                                  Inj :   1
Acq. Instrument : HPLC4                          Inj Volume : 100 µl
Acq. Method     : C:\HPCHEM\1\METHODS\PETN.M
Last changed    : 11/15/2012 11:33:06 AM by ECL
Analysis Method : C:\HPCHEM\1\METHODS\PETNDA.M
Last changed    : 11/16/2012 8:21:41 AM by ECL
                  (modified after loading)
CALIBRATION November 15, 2012
==================================================================
```




```
==================================================================
                      External Standard Report
==================================================================

Sorted By             :      Signal
Calib. Data Modified  :      Friday, November 16, 2012 8:21:40 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Do not use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 C, Sig=210,16 Ref=360,100

RetTime  Type     Area     Amt/Area    Amount   Grp   Name
 [min]          [mAU*s]                [wt%]
-------|------|----------|----------|----------|--|------------------
 12.709 BBA      15.31162    6.20993   95.08406    PETN

Totals :                               95.08406

 Results obtained with enhanced integrator!
==================================================================
                          *** End of Report ***
```

1,1 STD54936 PETN @ 50 PPB

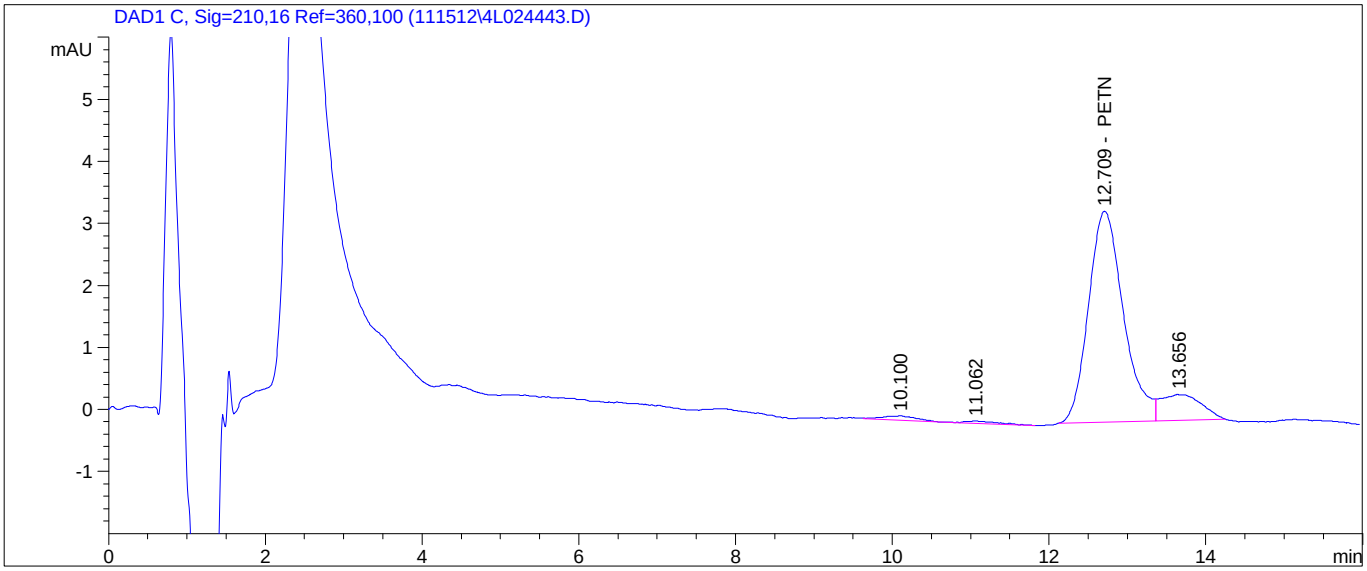
```
==================================================================
Injection Date  : 11/15/2012 3:04:41 PM          Seq. Line :   6
Sample Name     : WG414394-06 ICAL                Location : Vial 7
Acq. Operator   : ECL                                  Inj :   1
Acq. Instrument : HPLC4                         Inj Volume : 100 µl
Acq. Method     : C:\HPCHEM\1\METHODS\PETN.M
Last changed    : 11/15/2012 11:33:06 AM by ECL
Analysis Method : C:\HPCHEM\1\METHODS\PETNDA.M
Last changed    : 11/16/2012 8:22:08 AM by ECL
                  (modified after loading)
CALIBRATION November 15, 2012
==================================================================
```




```
==================================================================
                      External Standard Report
==================================================================

Sorted By             :      Signal
Calib. Data Modified  :      Friday, November 16, 2012 8:22:07 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Do not use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 C, Sig=210,16 Ref=360,100

RetTime  Type     Area     Amt/Area    Amount   Grp   Name
 [min]          [mAU*s]                [wt%]
-------|------|----------|----------|----------|--|------------------
 12.720 BBA       8.88392    7.23318   64.25894    PETN

Totals :                               64.25894

 Results obtained with enhanced integrator!
==================================================================
                          *** End of Report ***
```

1,1 STD54937 PETN @ 500 PPB

```
==================================================================
Injection Date  : 11/15/2012 3:23:52 PM          Seq. Line :   7
Sample Name     : WG414394-07 ICV                 Location : Vial 8
Acq. Operator   : ECL                                  Inj :   1
Acq. Instrument : HPLC4                         Inj Volume : 100 µl
Acq. Method     : C:\HPCHEM\1\METHODS\PETN.M
Last changed    : 11/15/2012 11:33:06 AM by ECL
Analysis Method : C:\HPCHEM\1\METHODS\PETNDA.M
Last changed    : 11/16/2012 8:24:54 AM by ECL
CALIBRATION November 15, 2012
==================================================================
```




```
==================================================================
                      External Standard Report
==================================================================

Sorted By             :      Signal
Calib. Data Modified  :      Friday, November 16, 2012 8:22:07 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Do not use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 C, Sig=210,16 Ref=360,100

RetTime  Type     Area     Amt/Area    Amount   Grp   Name
 [min]          [mAU*s]                [wt%]
-------|------|----------|----------|----------|--|------------------
 12.709 BV      105.53283    5.63071  594.22451    PETN

Totals :                               594.22451

 Results obtained with enhanced integrator!
==================================================================
                          *** End of Report ***
```

Data File C:\CHEM32\1\DATA\083013\083013\5L011055.D
Sample Name: WG442890-01 STD

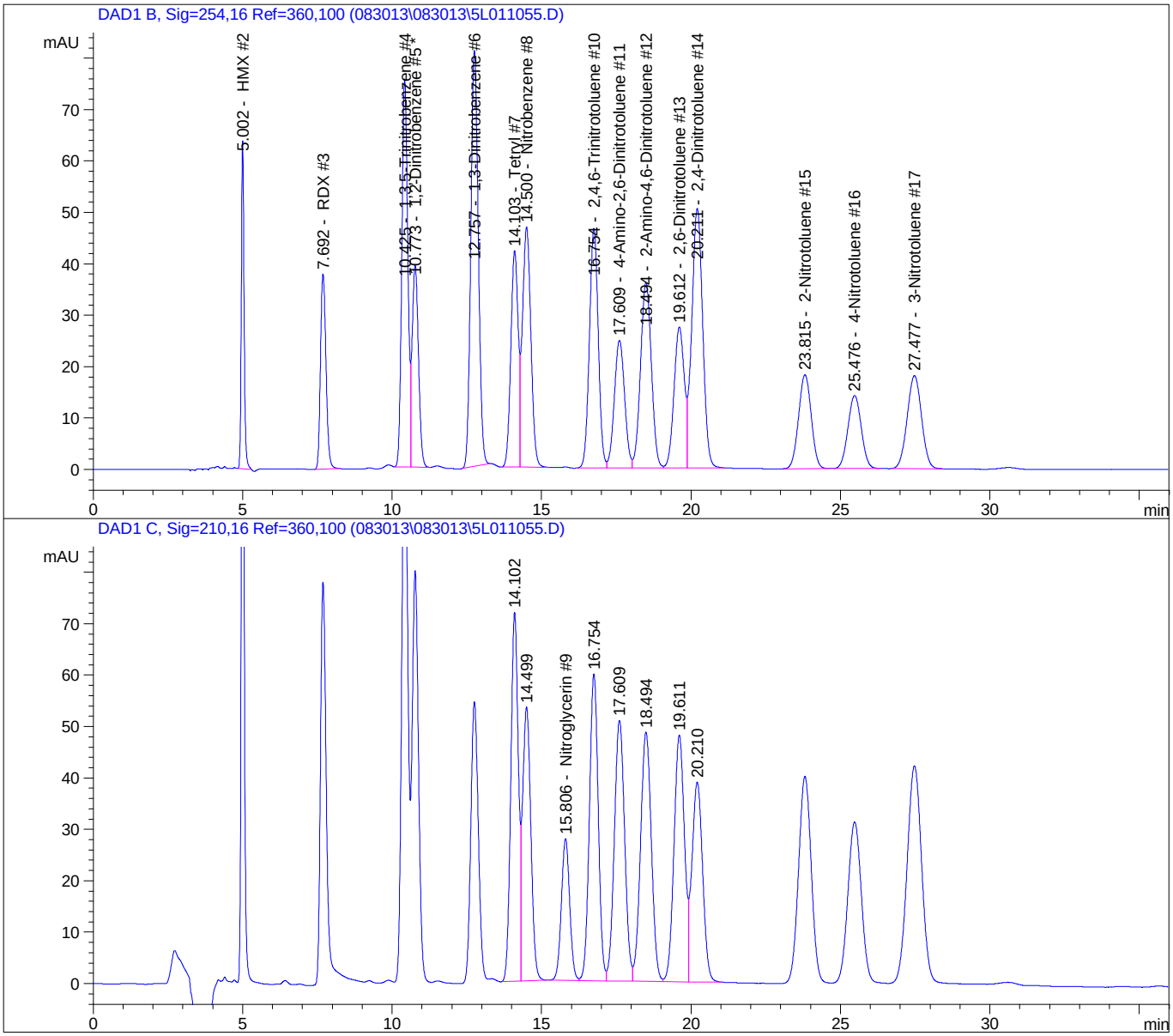
==========

Acq. Operator	: JWR	Seq. Line :	1
Acq. Instrument	: HPLC5	Location :	Vial 2
Injection Date	: 8/31/2013 12:29:14 AM	Inj :	1
		Inj Volume :	100 µl

Acq. Method : C:\Chem32\1\DATA\083013\083013\8330PLUS.M
Last changed : 8/30/2013 4:19:20 PM by JWR
Analysis Method : C:\CHEM32\1\METHODS\8330PLDA.M
Last changed : 9/3/2013 1:00:20 PM by JWR
Method Info : OVD-SOP#HPLC02: 8330 CALIBRATION August 30, 2013

Sample Info : 1,1 STD59878 (2500ppb)

==========



```
==================================================================
Acq. Operator   : JWR                           Seq. Line :   1
Acq. Instrument : HPLC5                          Location : Vial 2
Injection Date  : 8/31/2013 12:29:14 AM               Inj :   1
                                               Inj Volume : 100 µl
Acq. Method     : C:\Chem32\1\DATA\083013\083013\8330PLUS.M
Last changed    : 8/30/2013 4:19:20 PM by JWR
Analysis Method : C:\CHEM32\1\METHODS\8330PLDA.M
Last changed    : 9/3/2013 1:00:20 PM by JWR
Method Info     : OVD-SOP#HPLC02: 8330 CALIBRATION August 30, 2013

Sample Info     : 1,1 STD59878 (2500ppb)


==================================================================

==================================================================
                      External Standard Report
==================================================================

Sorted By             :      Signal
Calib. Data Modified  :      Tuesday, September 03, 2013 1:00:12 PM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 B, Sig=254,16 Ref=360,100

RetTime  Type     Area     Amt/Area    Amount   Grp   Name
 [min]          [mAU*s]                [ug/L]
-------|------|----------|----------|----------|--|------------------
  5.002 BBA     403.86621    6.08236 2456.46127    HMX #2
  7.692 BBA     489.19080    5.02001 2455.74487    RDX #3
 10.425 BV     1041.37512    2.35445 2451.86046    1,3,5-Trinitrobenzene #4
 10.773 VV      583.14233    4.17385 2433.95022    1,2-Dinitrobenzene #5 *
 12.757 BBA    1398.77466    1.75063 2448.73302    1,3-Dinitrobenzene #6
 14.103 BV      727.62518    3.31226 2410.08672    Tetryl #7
 14.500 VBA     914.57941    2.67469 2446.22054    Nitrobenzene #8
 16.754 BV      955.56885    2.57361 2459.26422    2,4,6-Trinitrotoluene #10
 17.609 VV      594.83716    4.04560 2406.47330    4-Amino-2,6-Dinitrotoluene #11
 18.494 VV      908.20459    2.65697 2413.07619    2-Amino-4,6-Dinitrotoluene #12
 19.612 VV      654.69031    3.68521 2412.67351    2,6-Dinitrotoluene #13
 20.211 VBA    1292.23706    1.89883 2453.73852    2,4-Dinitrotoluene #14
 23.815 BBA     538.02130    4.49476 2418.27491    2-Nitrotoluene #15
 25.476 BBA     440.79596    5.46646 2409.59300    4-Nitrotoluene #16
 27.477 BBA     607.25641    3.98134 2417.69173    3-Nitrotoluene #17

Totals :                               3.64938e4
```

Data File C:\CHEM32\1\DATA\083013\083013\5L011055.D
Sample Name: WG442890-01 STD

```
==================================================================
Acq. Operator   : JWR                           Seq. Line :   1
Acq. Instrument : HPLC5                          Location : Vial 2
Injection Date  : 8/31/2013 12:29:14 AM               Inj :   1
                                               Inj Volume : 100 µl
Acq. Method     : C:\Chem32\1\DATA\083013\083013\8330PLUS.M
Last changed    : 8/30/2013 4:19:20 PM by JWR
Analysis Method : C:\CHEM32\1\METHODS\8330PLDA.M
Last changed    : 9/3/2013 1:00:20 PM by JWR
Method Info     : OVD-SOP#HPLC02: 8330 CALIBRATION August 30, 2013

Sample Info     : 1,1 STD59878 (2500ppb)


==================================================================


Signal 2: DAD1 C, Sig=210,16 Ref=360,100

RetTime  Type     Area     Amt/Area    Amount   Grp   Name
 [min]          [mAU*s]                [ug/L]
-------|------|----------|----------|----------|--|------------------
 15.806 BV      535.55109    4.59850 2462.73021    Nitroglycerin #9

Totals :                              2462.73021


1 Warnings or Errors :

Warning : Calibration warnings (see calibration table listing)

==================================================================
                           *** End of Report ***
```

Data File C:\CHEM32\1\DATA\083013\083013\5L011056.D
Sample Name: WG442890-02 STD

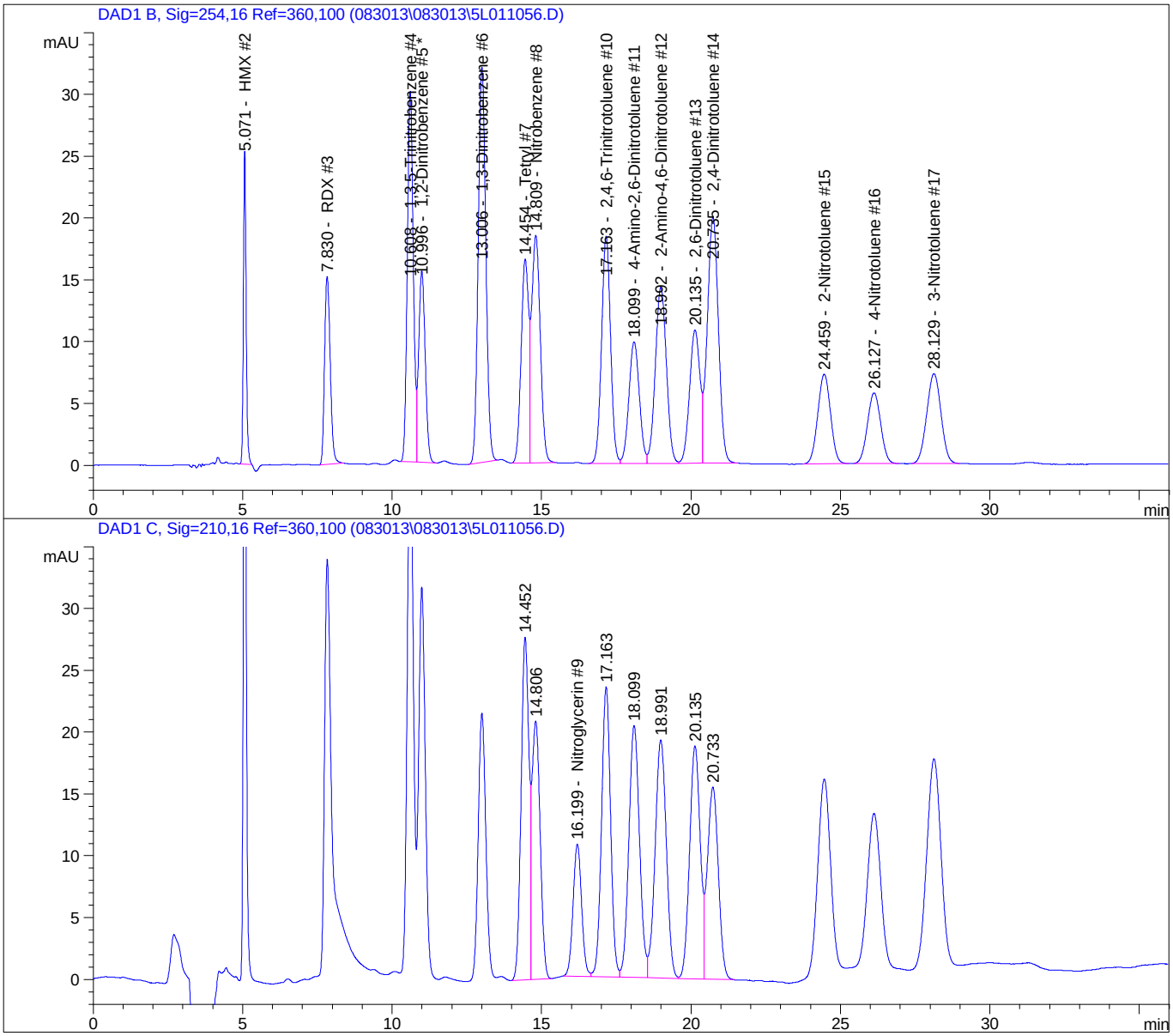
==========

Acq. Operator	: JWR	Seq. Line :	2
Acq. Instrument	: HPLC5	Location :	Vial 3
Injection Date	: 8/31/2013 1:08:15 AM	Inj :	1
		Inj Volume :	100 µl

Acq. Method : C:\Chem32\1\DATA\083013\083013\8330PLUS.M
Last changed : 8/30/2013 4:19:20 PM by JWR
Analysis Method : C:\CHEM32\1\METHODS\8330PLDA.M
Last changed : 9/3/2013 2:11:12 PM by JWR
Method Info : OVD-SOP#HPLC02: 8330 CALIBRATION August 30, 2013

Sample Info : 1,1 STD59878 (1000ppb)

==========



```
==================================================================
Acq. Operator   : JWR                           Seq. Line :   2
Acq. Instrument : HPLC5                          Location : Vial 3
Injection Date  : 8/31/2013 1:08:15 AM                Inj :   1
                                               Inj Volume : 100 µl
Acq. Method     : C:\Chem32\1\DATA\083013\083013\8330PLUS.M
Last changed    : 8/30/2013 4:19:20 PM by JWR
Analysis Method : C:\CHEM32\1\METHODS\8330PLDA.M
Last changed    : 9/3/2013 2:11:12 PM by JWR
Method Info     : OVD-SOP#HPLC02: 8330 CALIBRATION August 30, 2013

Sample Info     : 1,1 STD59878 (1000ppb)


==================================================================

==================================================================
                      External Standard Report
==================================================================

Sorted By             :      Signal
Calib. Data Modified  :      Tuesday, September 03, 2013 2:10:10 PM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 B, Sig=254,16 Ref=360,100

RetTime  Type     Area     Amt/Area    Amount   Grp   Name
 [min]          [mAU*s]                [ug/L]
-------|------|----------|----------|----------|--|------------------
  5.071 BBA     161.83589    6.09183  985.87724    HMX #2
  7.830 BBA     199.58661    5.01975 1001.87425    RDX #3
 10.608 BV      417.66681    2.36323  987.04365    1,3,5-Trinitrobenzene #4
 10.996 VBA     235.22795    4.19176  986.01806    1,2-Dinitrobenzene #5 *
 13.006 BV      565.59473    1.75377  991.92549    1,3-Dinitrobenzene #6
 14.454 BV      290.62128    3.34020  970.73439    Tetryl #7
 14.809 VBA     370.17969    2.68174  992.72732    Nitrobenzene #8
 17.163 BV      387.07455    2.57882  998.19377    2,4,6-Trinitrotoluene #10
 18.099 VV      240.41794    4.07365  979.37800    4-Amino-2,6-Dinitrotoluene #11
 18.992 VV      367.20129    2.67211  981.20391    2-Amino-4,6-Dinitrotoluene #12
 20.135 VV      261.96460    3.71196  972.40085    2,6-Dinitrotoluene #13
 20.735 VBA     518.61462    1.90522  988.07361    2,4-Dinitrotoluene #14
 24.459 BBA     216.43414    4.52403  979.15525    2-Nitrotoluene #15
 26.127 BBA     176.81409    5.51117  974.45187    4-Nitrotoluene #16
 28.129 BBA     241.73335    4.01206  969.84869    3-Nitrotoluene #17

Totals :                              1.47589e4
```

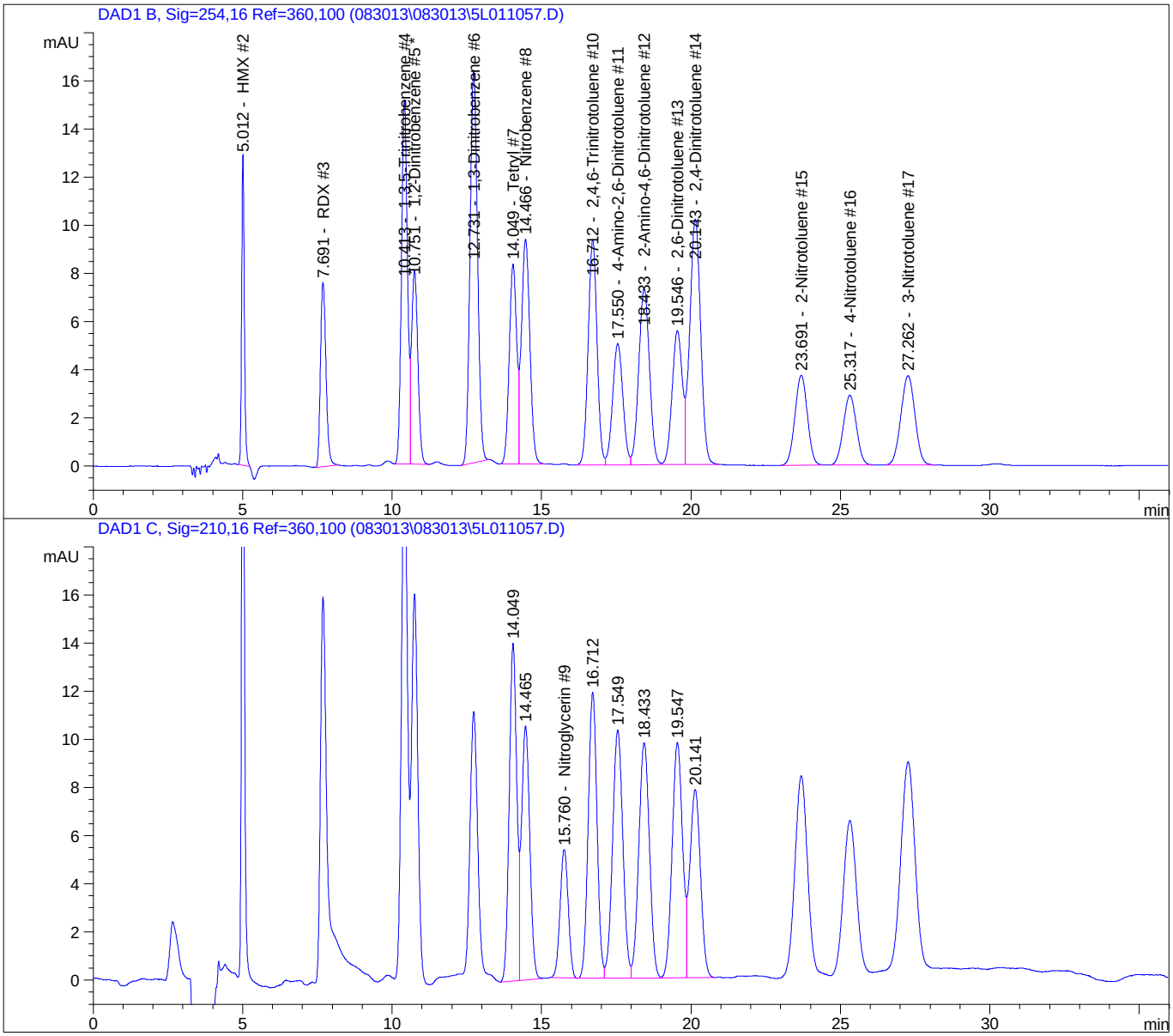
```
    ==================================================================
    Acq. Operator   : JWR                           Seq. Line :   2
    Acq. Instrument : HPLC5                          Location : Vial 3
    Injection Date  : 8/31/2013 1:08:15 AM                Inj :   1
                                                   Inj Volume : 100 µl
    Acq. Method     : C:\Chem32\1\DATA\083013\083013\8330PLUS.M
    Last changed    : 8/30/2013 4:19:20 PM by JWR
    Analysis Method : C:\CHEM32\1\METHODS\8330PLDA.M
    Last changed    : 9/3/2013 2:11:12 PM by JWR
    Method Info     : OVD-SOP#HPLC02: 8330 CALIBRATION August 30, 2013

    Sample Info     : 1,1 STD59878 (1000ppb)


    ==================================================================


    Signal 2: DAD1 C, Sig=210,16 Ref=360,100

    RetTime  Type     Area     Amt/Area    Amount   Grp   Name
     [min]          [mAU*s]                [ug/L]
    -------|------|----------|----------|----------|--|------------------
     16.199 BV      213.20578    4.63040  987.22744    Nitroglycerin #9

    Totals :                               987.22744


    1 Warnings or Errors :

    Warning : Calibration warnings (see calibration table listing)

    ==================================================================
                              *** End of Report ***
```

Data File C:\CHEM32\1\DATA\083013\083013\5L011057.D
Sample Name: WG442890-03 STD-CCV

==========

Acq. Operator	: JWR	Seq. Line :	3
Acq. Instrument	: HPLC5	Location :	Vial 4
Injection Date	: 8/31/2013 1:47:23 AM	Inj :	1
		Inj Volume :	100 µl
Acq. Method	: C:\Chem32\1\DATA\083013\083013\8330PLUS.M		
Last changed	: 8/30/2013 4:19:20 PM by JWR		
Analysis Method	: C:\CHEM32\1\METHODS\8330PLDA.M		
Last changed	: 9/3/2013 2:30:32 PM by JWR		
Method Info	: OVD-SOP#HPLC02: 8330 CALIBRATION August 30, 2013		
Sample Info	: 1,1 STD59878 (500ppb)		

==========



HPLC5 9/3/2013 2:31:37 PM JWR

```
==================================================================
Acq. Operator   : JWR                           Seq. Line :   3
Acq. Instrument : HPLC5                          Location : Vial 4
Injection Date  : 8/31/2013 1:47:23 AM                Inj :   1
                                               Inj Volume : 100 µl
Acq. Method     : C:\Chem32\1\DATA\083013\083013\8330PLUS.M
Last changed    : 8/30/2013 4:19:20 PM by JWR
Analysis Method : C:\CHEM32\1\METHODS\8330PLDA.M
Last changed    : 9/3/2013 2:30:32 PM by JWR
Method Info     : OVD-SOP#HPLC02: 8330 CALIBRATION August 30, 2013

Sample Info     : 1,1 STD59878 (500ppb)


==================================================================

==================================================================
                      External Standard Report
==================================================================

Sorted By             :      Signal
Calib. Data Modified  :      Tuesday, September 03, 2013 2:30:20 PM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 B, Sig=254,16 Ref=360,100

RetTime  Type     Area     Amt/Area    Amount   Grp   Name
 [min]          [mAU*s]                [ug/L]
-------|------|----------|----------|----------|--|------------------
  5.012 BBA      81.27496    6.10240  495.97209    HMX #2
  7.691 BBA      98.42544    5.03559  495.63060    RDX #3
 10.413 BV      208.76451    2.37777  496.39437    1,3,5-Trinitrobenzene #4
 10.751 VV      118.50986    4.21668  499.71819    1,2-Dinitrobenzene #5 *
 12.731 BBA     281.27823    1.76063  495.22800    1,3-Dinitrobenzene #6
 14.049 BV      144.42155    3.37956  488.08119    Tetryl #7
 14.466 VBA     183.53802    2.69384  494.42176    Nitrobenzene #8
 16.712 BV      192.05348    2.58486  496.43137    2,4,6-Trinitrotoluene #10
 17.550 VV      120.22679    4.09639  492.49592    4-Amino-2,6-Dinitrotoluene #11
 18.433 VV      182.73094    2.68929  491.41728    2-Amino-4,6-Dinitrotoluene #12
 19.546 VV      131.79576    3.74396  493.43825    2,6-Dinitrotoluene #13
 20.143 VBA     259.94867    1.91276  497.22007    2,4-Dinitrotoluene #14
 23.691 BBA     108.12878    4.55652  492.69082    2-Nitrotoluene #15
 25.317 BBA      88.45280    5.55319  491.19503    4-Nitrotoluene #16
 27.262 BBA     121.77366    4.04530  492.61128    3-Nitrotoluene #17

Totals :                               7412.94621
```

Data File C:\CHEM32\1\DATA\083013\083013\5L011057.D
Sample Name: WG442890-03 STD-CCV

```
==================================================================
Acq. Operator   : JWR                           Seq. Line :   3
Acq. Instrument : HPLC5                          Location : Vial 4
Injection Date  : 8/31/2013 1:47:23 AM                Inj :   1
                                               Inj Volume : 100 µl
Acq. Method     : C:\Chem32\1\DATA\083013\083013\8330PLUS.M
Last changed    : 8/30/2013 4:19:20 PM by JWR
Analysis Method : C:\CHEM32\1\METHODS\8330PLDA.M
Last changed    : 9/3/2013 2:30:32 PM by JWR
Method Info     : OVD-SOP#HPLC02: 8330 CALIBRATION August 30, 2013

Sample Info     : 1,1 STD59878 (500ppb)


==================================================================


Signal 2: DAD1 C, Sig=210,16 Ref=360,100

RetTime  Type     Area     Amt/Area    Amount   Grp   Name
 [min]          [mAU*s]                [ug/L]
-------|------|----------|----------|----------|--|------------------
 15.760 BV      101.48329    4.72197  479.20099    Nitroglycerin #9

Totals :                               479.20099


1 Warnings or Errors :

Warning : Calibration warnings (see calibration table listing)

==================================================================
                          *** End of Report ***
```

Data File C:\CHEM32\1\DATA\083013\083013\5L011058.D
Sample Name: WG442890-04 STD

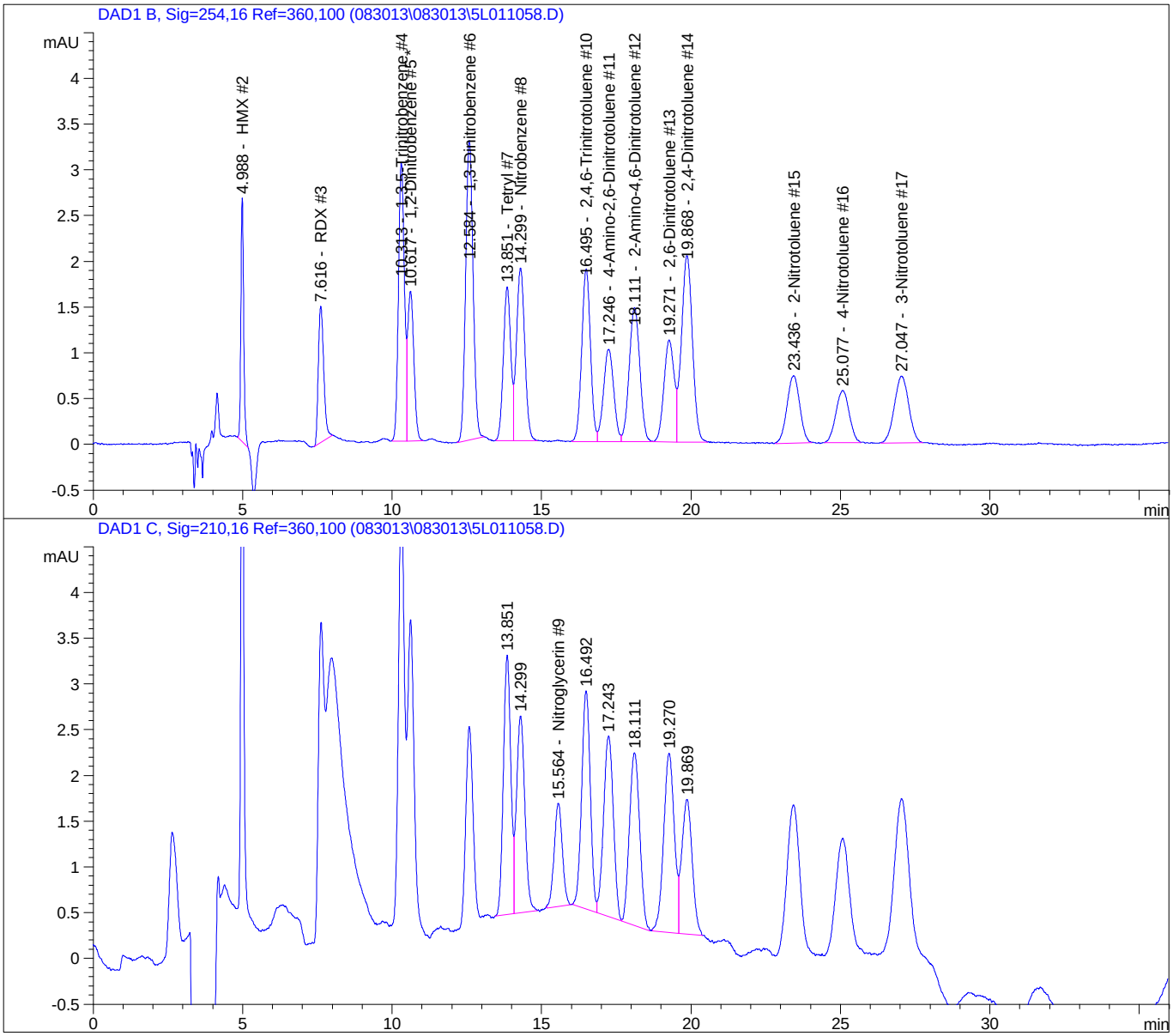
==========

Acq. Operator	: JWR	Seq. Line :	4
Acq. Instrument	: HPLC5	Location :	Vial 5
Injection Date	: 8/31/2013 2:26:25 AM	Inj :	1
		Inj Volume :	100 µl

Acq. Method : C:\Chem32\1\DATA\083013\083013\8330PLUS.M
Last changed : 8/30/2013 4:19:20 PM by JWR
Analysis Method : C:\CHEM32\1\METHODS\8330PLDA.M
Last changed : 9/3/2013 3:01:56 PM by JWR
Method Info : OVD-SOP#HPLC02: 8330 CALIBRATION August 30, 2013

Sample Info : 1,1 STD59878 (100ppb)

==========



```
==================================================================
Acq. Operator   : JWR                          Seq. Line :   4
Acq. Instrument : HPLC5                         Location : Vial 5
Injection Date  : 8/31/2013 2:26:25 AM               Inj :   1
                                              Inj Volume : 100 µl
Acq. Method     : C:\Chem32\1\DATA\083013\083013\8330PLUS.M
Last changed    : 8/30/2013 4:19:20 PM by JWR
Analysis Method : C:\CHEM32\1\METHODS\8330PLDA.M
Last changed    : 9/3/2013 3:01:56 PM by JWR
Method Info     : OVD-SOP#HPLC02: 8330 CALIBRATION August 30, 2013

Sample Info     : 1,1 STD59878 (100ppb)


==================================================================

==================================================================
                      External Standard Report
==================================================================

Sorted By             :      Signal
Calib. Data Modified  :      Tuesday, September 03, 2013 2:59:45 PM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 B, Sig=254,16 Ref=360,100

RetTime  Type     Area     Amt/Area    Amount   Grp   Name
 [min]          [mAU*s]                [ug/L]
-------|------|----------|----------|----------|--|------------------
  4.988 BBA      16.82494    5.82300   97.97158    HMX #2
  7.616 BBA      18.85807    4.89434   92.29777    RDX #3
 10.313 BV       42.28030    2.32116   98.13934    1,3,5-Trinitrobenzene #4
 10.617 VBA      23.26162    4.03253   93.80312    1,2-Dinitrobenzene #5 *
 12.584 BBA      56.40714    1.68964   95.30784    1,3-Dinitrobenzene #6
 13.851 BV       28.91350    3.28916   95.10111    Tetryl #7
 14.299 VBA      36.90587    2.59656   95.82816    Nitrobenzene #8
 16.495 BV       38.68419    2.49524   96.52636    2,4,6-Trinitrotoluene #10
 17.246 VV       24.18114    3.83285   92.68260    4-Amino-2,6-Dinitrotoluene #11
 18.111 VV       36.58848    2.54308   93.04742    2-Amino-4,6-Dinitrotoluene #12
 19.271 VV       26.49769    3.57428   94.71004    2,6-Dinitrotoluene #13
 19.868 VBA      52.25753    1.85935   97.16524    2,4-Dinitrotoluene #14
 23.436 BBA      21.69097    4.34282   94.19996    2-Nitrotoluene #15
 25.077 BBA      17.64362    5.25732   92.75815    4-Nitrotoluene #16
 27.047 BBA      24.48873    3.87663   94.93372    3-Nitrotoluene #17

Totals :                              1424.47242
```

Data File C:\CHEM32\1\DATA\083013\083013\5L011058.D
Sample Name: WG442890-04 STD

```
==================================================================
Acq. Operator   : JWR                           Seq. Line :   4
Acq. Instrument : HPLC5                          Location : Vial 5
Injection Date  : 8/31/2013 2:26:25 AM                Inj :   1
                                               Inj Volume : 100 µl
Acq. Method     : C:\Chem32\1\DATA\083013\083013\8330PLUS.M
Last changed    : 8/30/2013 4:19:20 PM by JWR
Analysis Method : C:\CHEM32\1\METHODS\8330PLDA.M
Last changed    : 9/3/2013 3:01:56 PM by JWR
Method Info     : OVD-SOP#HPLC02: 8330 CALIBRATION August 30, 2013

Sample Info     : 1,1 STD59878 (100ppb)


==================================================================


Signal 2: DAD1 C, Sig=210,16 Ref=360,100

RetTime  Type     Area     Amt/Area    Amount   Grp   Name
 [min]          [mAU*s]                [ug/L]
-------|------|----------|----------|----------|--|------------------
 15.564 BBA      21.38350    4.94405  105.72109    Nitroglycerin #9

Totals :                               105.72109


1 Warnings or Errors :

Warning : Calibration warnings (see calibration table listing)

==================================================================
                           *** End of Report ***
```

Data File C:\CHEM32\1\DATA\083013\083013\5L011059.D
Sample Name: WG442890-05 STD

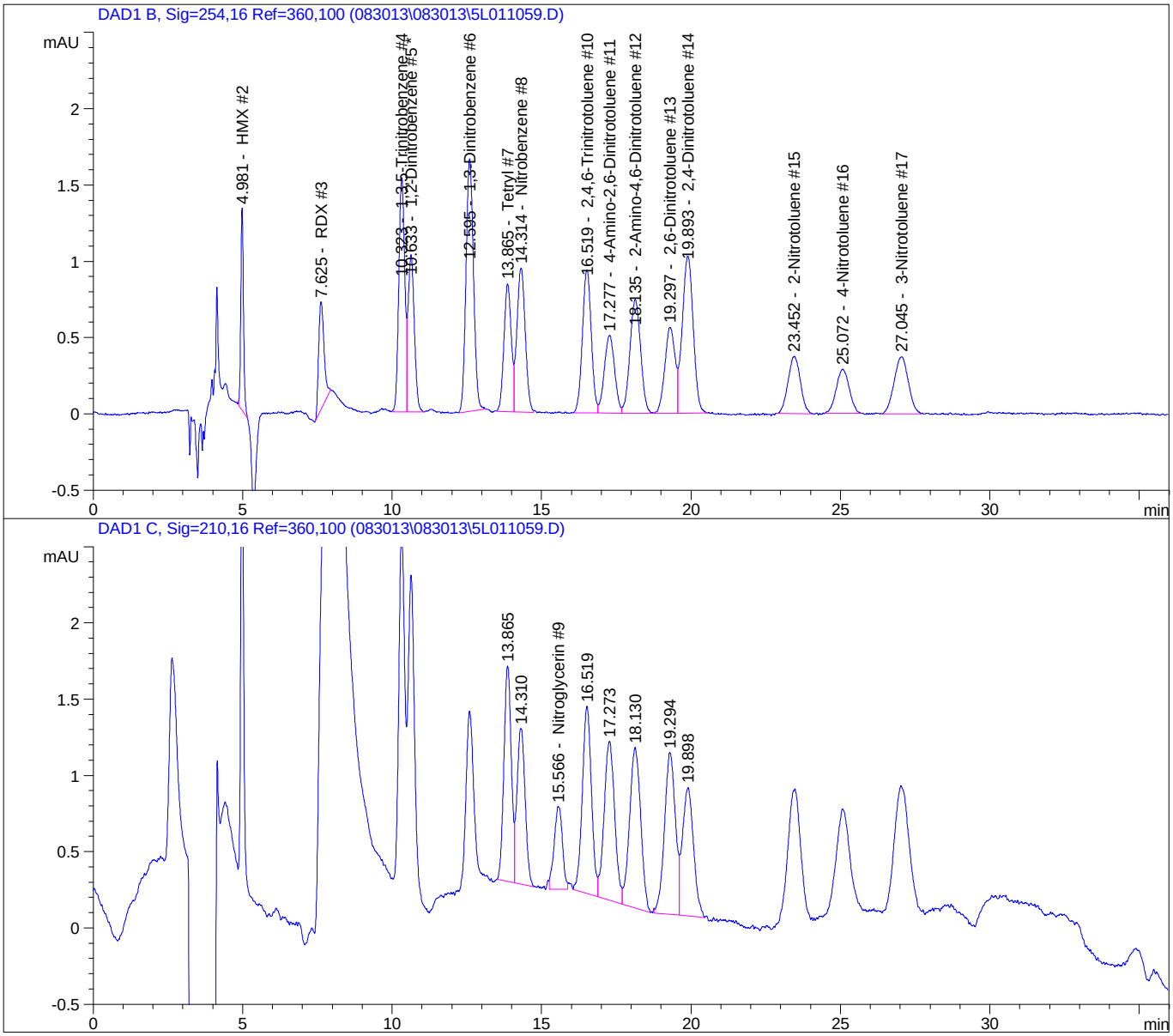
==========

Acq. Operator	: JWR	Seq. Line :	5
Acq. Instrument	: HPLC5	Location :	Vial 6
Injection Date	: 8/31/2013 3:05:32 AM	Inj :	1
		Inj Volume :	100 µl

Acq. Method : C:\Chem32\1\DATA\083013\083013\8330PLUS.M
Last changed : 8/30/2013 4:19:20 PM by JWR
Analysis Method : C:\CHEM32\1\METHODS\8330PLDA.M
Last changed : 9/3/2013 3:55:18 PM by JWR
Method Info : OVD-SOP#HPLC02: 8330 CALIBRATION August 30, 2013

Sample Info : 1,1 STD59878 (50ppb)

==========



```
==========================================================================
Acq. Operator   : JWR                           Seq. Line :   5
Acq. Instrument : HPLC5                          Location : Vial 6
Injection Date  : 8/31/2013 3:05:32 AM                Inj :   1
                                               Inj Volume : 100 µl
Acq. Method     : C:\Chem32\1\DATA\083013\083013\8330PLUS.M
Last changed    : 8/30/2013 4:19:20 PM by JWR
Analysis Method : C:\CHEM32\1\METHODS\8330PLDA.M
Last changed    : 9/3/2013 3:55:18 PM by JWR
Method Info     : OVD-SOP#HPLC02: 8330 CALIBRATION August 30, 2013

Sample Info     : 1,1 STD59878 (50ppb)


==========================================================================

==========================================================================
                       External Standard Report
==========================================================================

Sorted By             :      Signal
Calib. Data Modified  :      Tuesday, September 03, 2013 3:54:33 PM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 B, Sig=254,16 Ref=360,100

RetTime  Type     Area     Amt/Area    Amount   Grp   Name
 [min]          [mAU*s]                [ug/L]
-------|------|----------|----------|----------|--|------------------
  4.981 BBA       8.32088    5.70897   47.50360    HMX #2
  7.625 BBA       8.90732    4.86502   43.33430    RDX #3
 10.323 BV       21.06226    2.31958   48.85558    1,3,5-Trinitrobenzene #4
 10.633 VBA      15.00127    3.80844   57.13138    1,2-Dinitrobenzene #5 *
 12.595 BBA      28.68696    1.66428   47.74317    1,3-Dinitrobenzene #6
 13.865 BV       14.32389    3.39972   48.69726    Tetryl #7
 14.314 VF       18.36581    2.57762   47.33999    Nitrobenzene #8
 16.519 BV       19.39034    2.44289   47.36845    2,4,6-Trinitrotoluene #10
 17.277 VV       12.24600    3.73008   45.67857    4-Amino-2,6-Dinitrotoluene #11
 18.135 VV       18.65577    2.51466   46.91285    2-Amino-4,6-Dinitrotoluene #12
 19.297 VV       13.47425    3.59323   48.41605    2,6-Dinitrotoluene #13
 19.893 VBA      26.22670    1.84752   48.45447    2,4-Dinitrotoluene #14
 23.452 BBA      10.87851    4.36692   47.50562    2-Nitrotoluene #15
 25.072 BBA       8.88773    5.31453   47.23414    4-Nitrotoluene #16
 27.045 BBA      12.35926    3.97437   49.12026    3-Nitrotoluene #17

Totals :                               721.29569
```

Data File C:\CHEM32\1\DATA\083013\083013\5L011059.D
Sample Name: WG442890-05 STD

==========

Acq. Operator : JWR Seq. Line : 5
Acq. Instrument : HPLC5 Location : Vial 6
Injection Date : 8/31/2013 3:05:32 AM Inj : 1
Inj Volume : 100 µl
Acq. Method : C:\Chem32\1\DATA\083013\083013\8330PLUS.M
Last changed : 8/30/2013 4:19:20 PM by JWR
Analysis Method : C:\CHEM32\1\METHODS\8330PLDA.M
Last changed : 9/3/2013 3:55:18 PM by JWR
Method Info : OVD-SOP#HPLC02: 8330 CALIBRATION August 30, 2013

Sample Info : 1,1 STD59878 (50ppb)

==========

Signal 2: DAD1 C, Sig=210,16 Ref=360,100

RetTime [min]	Type	Area [mAU*s]	Amt/Area	Amount [ug/L]	Grp	Name
15.566	VF	10.59821	5.18635	54.96602		Nitroglycerin #9

Totals : 54.96602

1 Warnings or Errors :

Warning : Calibration warnings (see calibration table listing)

==========

*** End of Report ***

Data File C:\CHEM32\1\DATA\083013\083013\5L011060.D
Sample Name: WG442890-06 STD

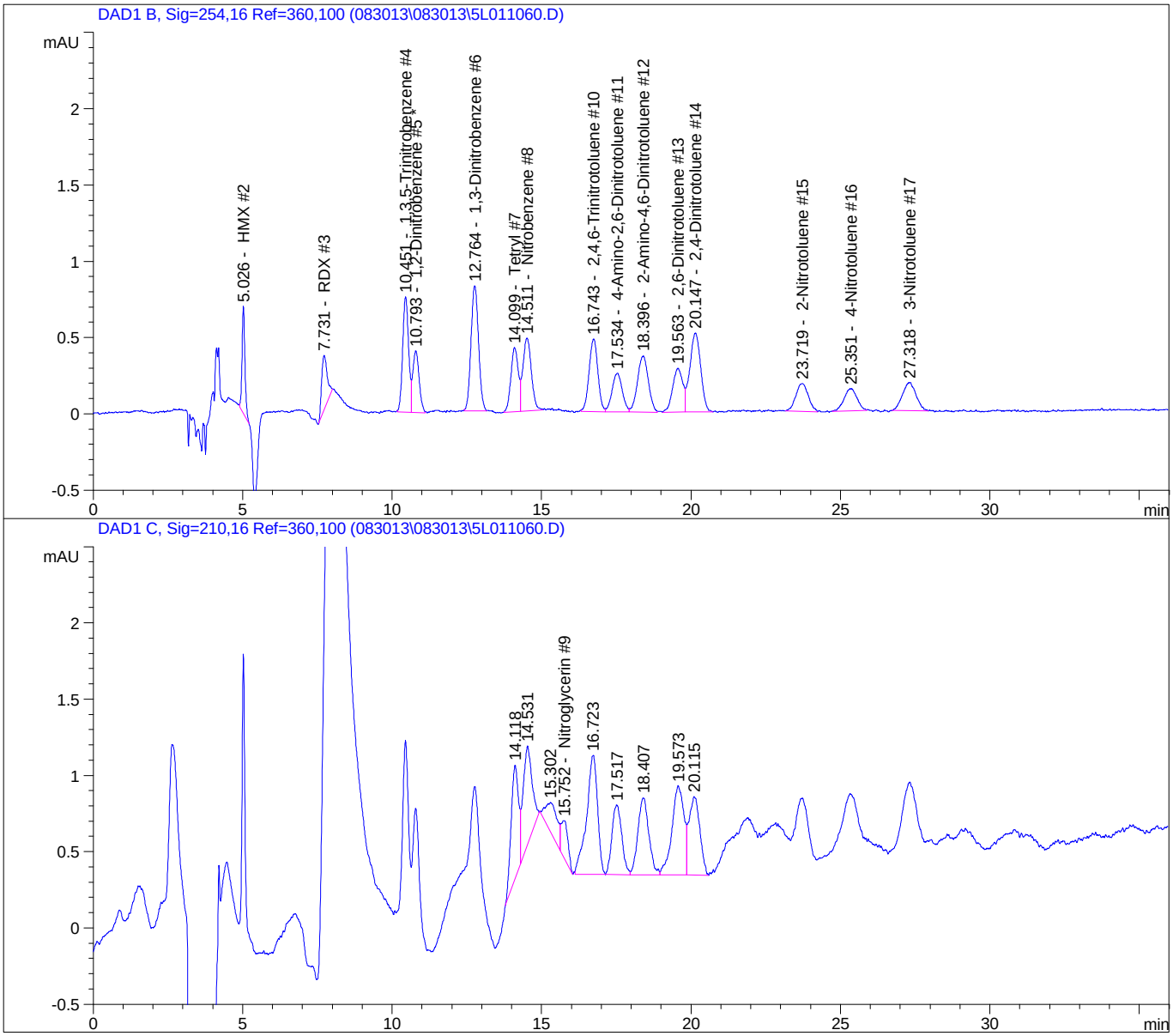
==========

Acq. Operator	: JWR	Seq. Line :	6
Acq. Instrument	: HPLC5	Location :	Vial 7
Injection Date	: 8/31/2013 3:44:32 AM	Inj :	1
		Inj Volume :	100 µl

Acq. Method : C:\Chem32\1\DATA\083013\083013\8330PLUS.M
Last changed : 8/30/2013 4:19:20 PM by JWR
Analysis Method : C:\CHEM32\1\METHODS\8330PLDA.M
Last changed : 9/3/2013 4:18:27 PM by JWR
Method Info : OVD-SOP#HPLC02: 8330 CALIBRATION August 30, 2013

Sample Info : 1,1 STD59878 (25ppb)

==========



HPLC5 9/3/2013 4:19:45 PM JWR Page 1 of 3

Data File C:\CHEM32\1\DATA\083013\083013\5L011060.D
Sample Name: WG442890-06 STD

==========

Acq. Operator : JWR Seq. Line : 6
Acq. Instrument : HPLC5 Location : Vial 7
Injection Date : 8/31/2013 3:44:32 AM Inj : 1
Inj Volume : 100 µl
Acq. Method : C:\Chem32\1\DATA\083013\083013\8330PLUS.M
Last changed : 8/30/2013 4:19:20 PM by JWR
Analysis Method : C:\CHEM32\1\METHODS\8330PLDA.M
Last changed : 9/3/2013 4:18:27 PM by JWR
Method Info : OVD-SOP#HPLC02: 8330 CALIBRATION August 30, 2013

Sample Info : 1,1 STD59878 (25ppb)

==========

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External Standard Report

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Sorted By : Signal
Calib. Data Modified : Tuesday, September 03, 2013 4:18:19 PM
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 B, Sig=254,16 Ref=360,100

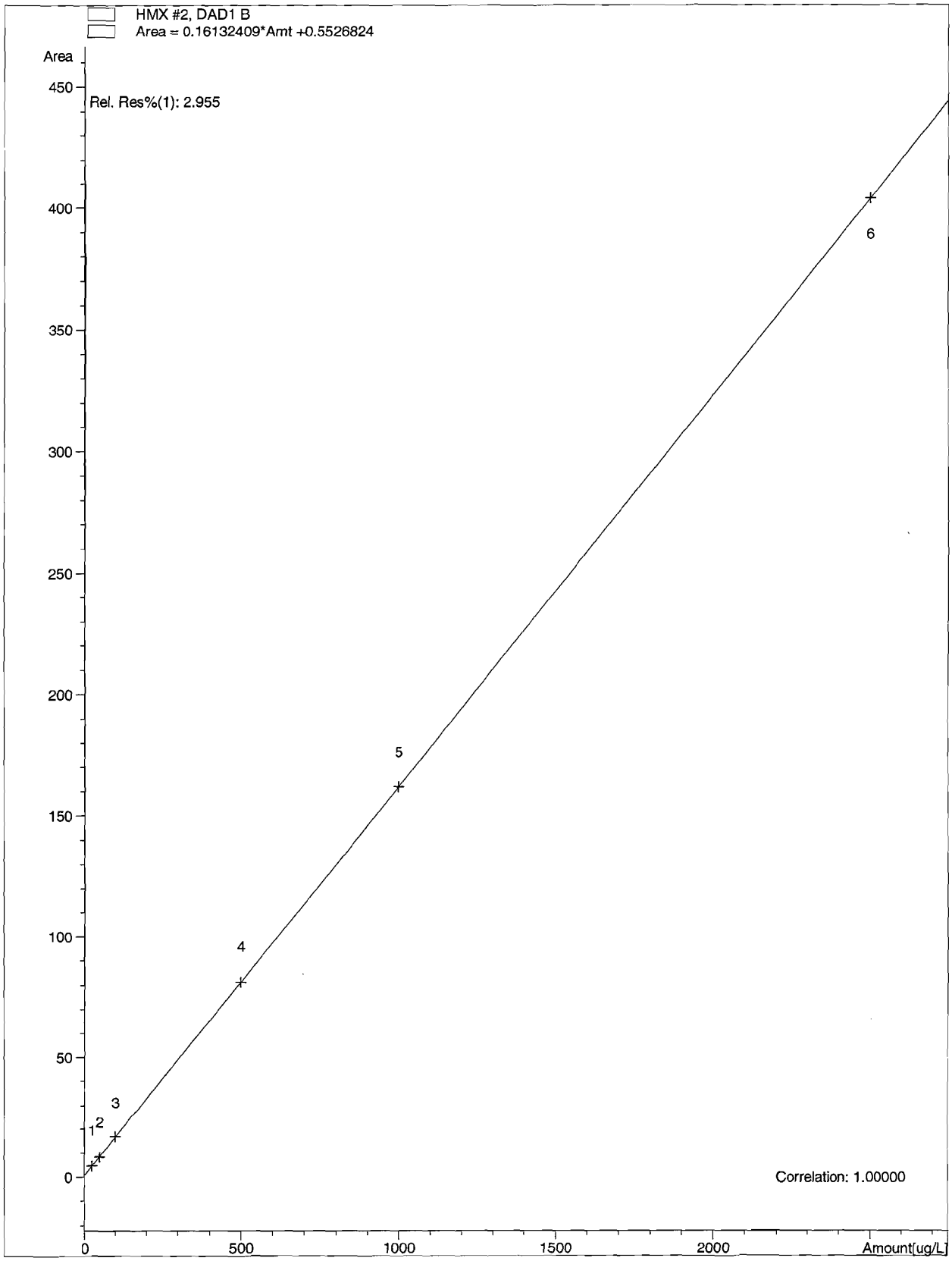
RetTime [min]	Type	Area [mAU*s]	Amt/Area	Amount [ug/L]	Grp	Name
5.026	BBA	4.72127	5.47307	25.83986		HMX #2
7.731	BBA	4.66571	4.97440	23.20909		RDX #3
10.451	BV	10.49440	2.29241	24.05750		1,3,5-Trinitrobenzene #4
10.793	VF	5.94392	3.20903	19.07420		1,2-Dinitrobenzene #5 *
12.764	BBA	14.32248	1.60867	23.04013		1,3-Dinitrobenzene #6
14.099	BV	7.21012	3.62328	26.12432		Tetryl #7
14.511	VBA	9.42448	2.49332	23.49821		Nitrobenzene #8
16.743	BV	9.70016	2.34543	22.75101		2,4,6-Trinitrotoluene #10
17.534	VV	5.99025	3.67660	22.02377		4-Amino-2,6-Dinitrotoluene #11
18.396	VF	9.25521	2.47544	22.91070		2-Amino-4,6-Dinitrotoluene #12
19.563	VV	6.83488	3.57713	24.44930		2,6-Dinitrotoluene #13
20.147	VBA	13.15375	1.81575	23.88389		2,4-Dinitrotoluene #14
23.719	BBA	5.30323	4.37866	23.22103		2-Nitrotoluene #15
25.351	BF	4.41831	5.48875	24.25104		4-Nitrotoluene #16
27.318	BBA	5.86918	4.13633	24.27688		3-Nitrotoluene #17

Totals : 352.61095

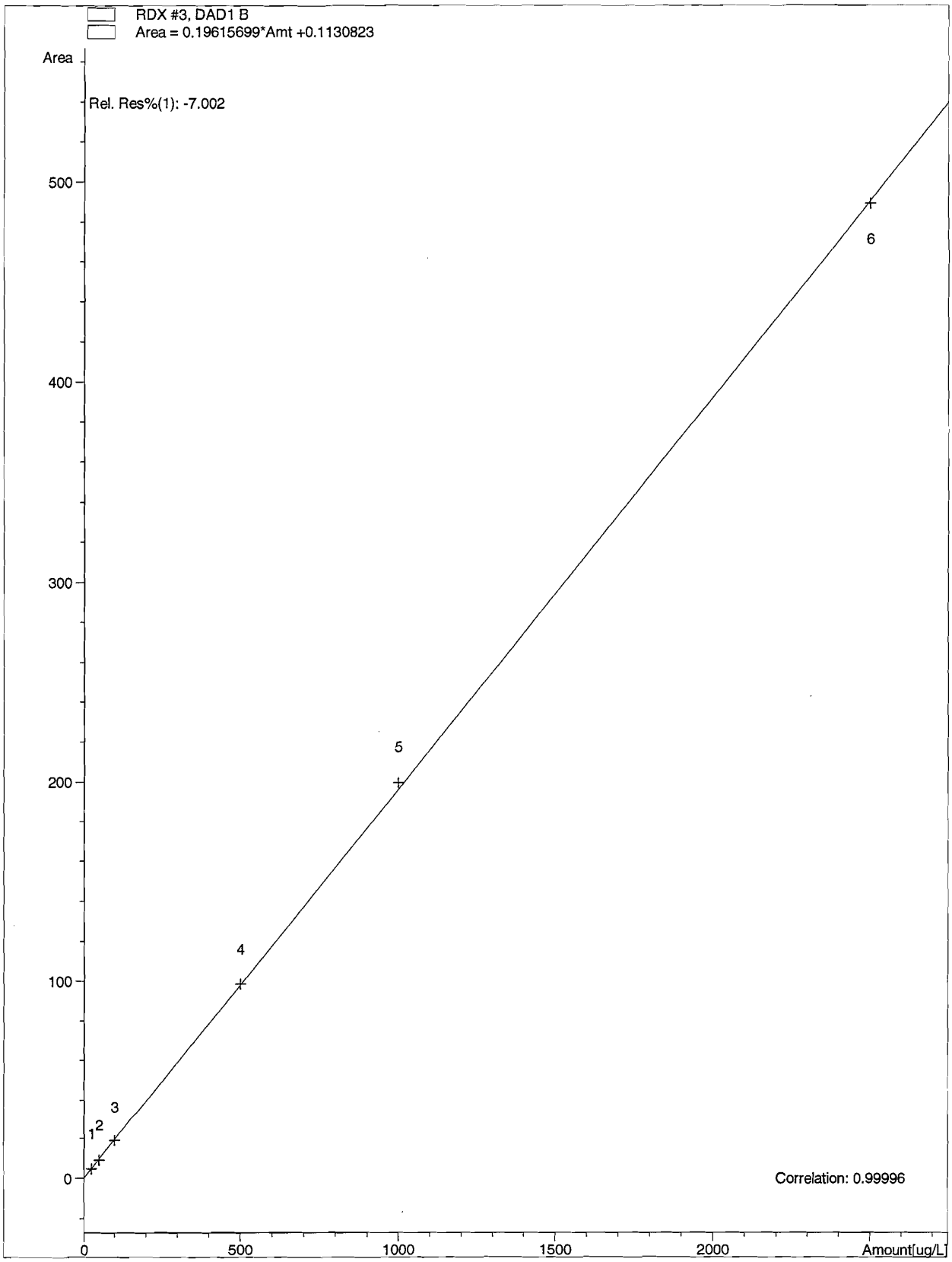
Data File C:\CHEM32\1\DATA\083013\083013\5L011060.D
Sample Name: WG442890-06 STD

```
==================================================================
Acq. Operator   : JWR                           Seq. Line :   6
Acq. Instrument : HPLC5                          Location : Vial 7
Injection Date  : 8/31/2013 3:44:32 AM                Inj :   1
                                               Inj Volume : 100 µl
Acq. Method     : C:\Chem32\1\DATA\083013\083013\8330PLUS.M
Last changed    : 8/30/2013 4:19:20 PM by JWR
Analysis Method : C:\CHEM32\1\METHODS\8330PLDA.M
Last changed    : 9/3/2013 4:18:27 PM by JWR
Method Info     : OVD-SOP#HPLC02: 8330 CALIBRATION August 30, 2013

Sample Info     : 1,1 STD59878 (25ppb)


==================================================================


Signal 2: DAD1 C, Sig=210,16 Ref=360,100

RetTime  Type     Area     Amt/Area    Amount   Grp   Name
 [min]          [mAU*s]                [ug/L]
-------|------|----------|----------|----------|--|------------------
 15.752 VBA       3.85420    6.67637   25.73204    Nitroglycerin #9

Totals :                                25.73204


1 Warnings or Errors :

Warning : Calibration warnings (see calibration table listing)

==================================================================
                           *** End of Report ***
```

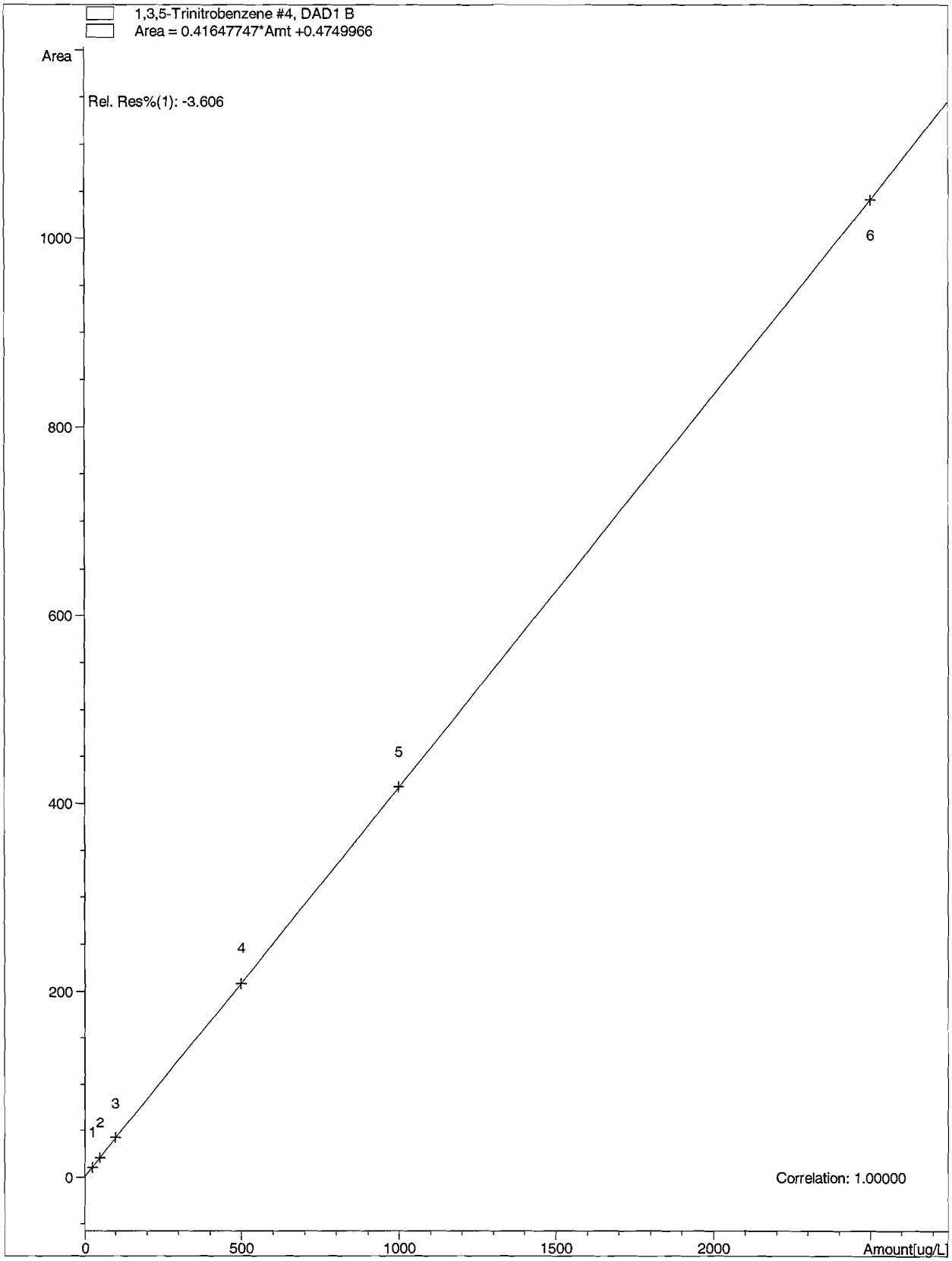
Calibration Curve



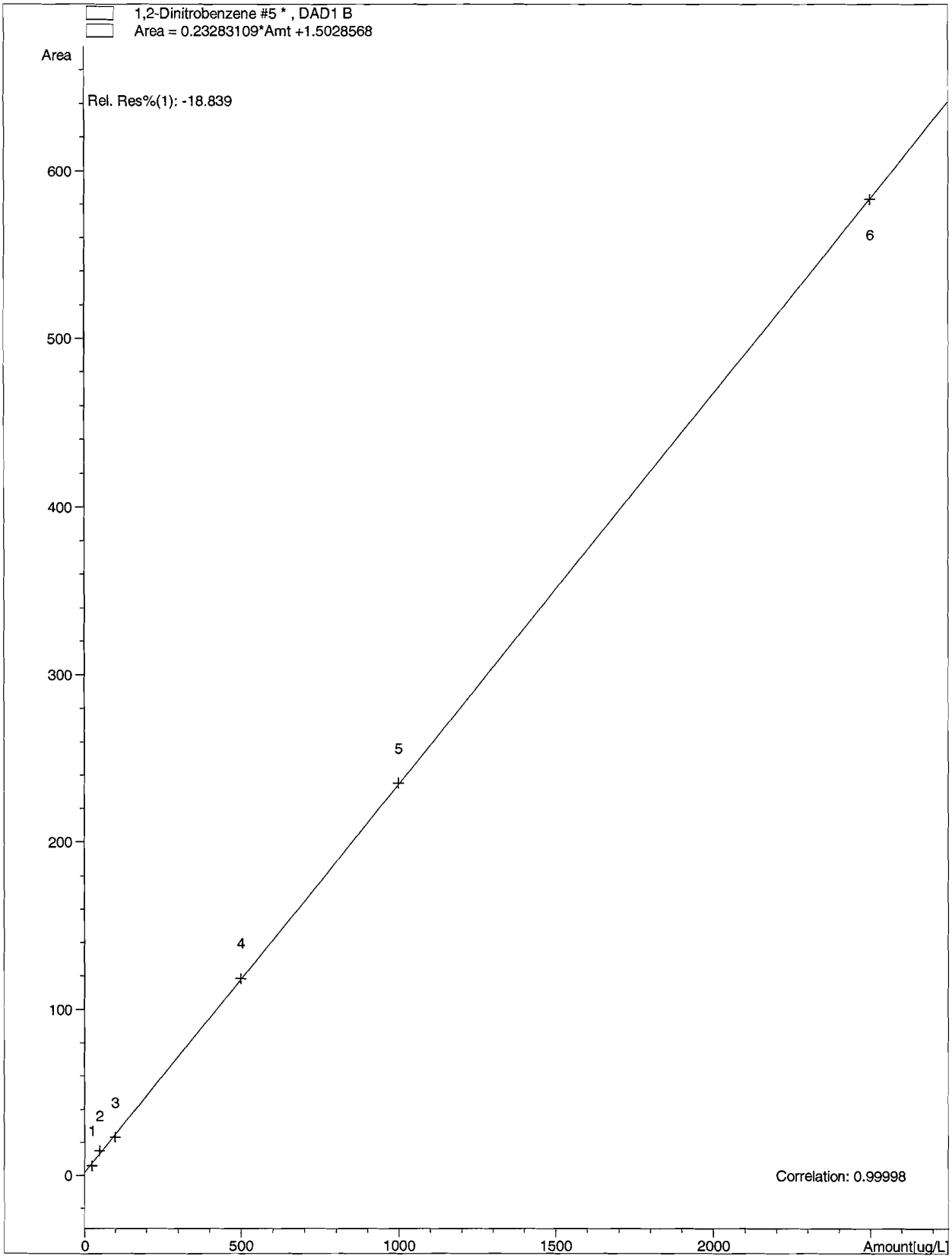
Calibration Curve



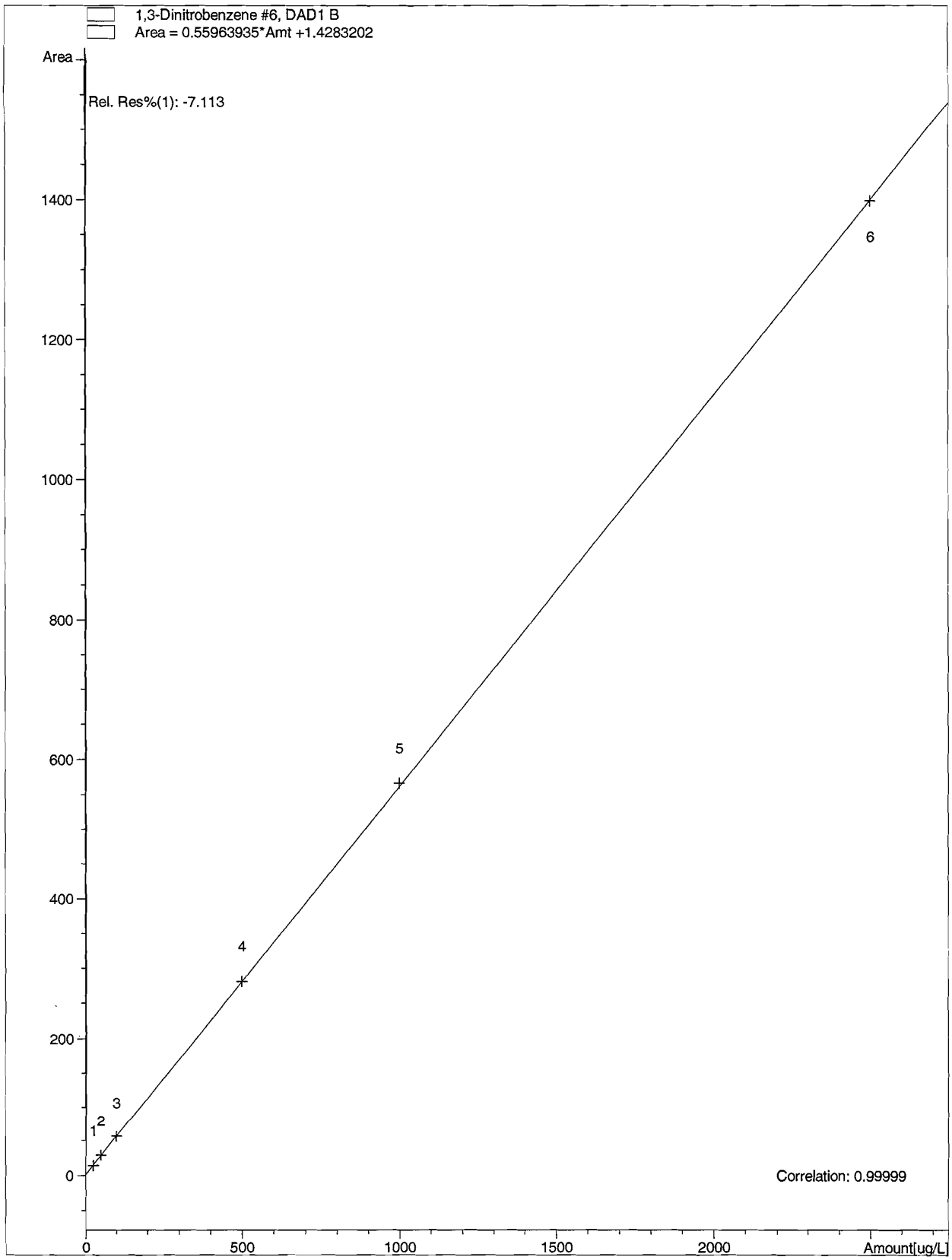
Calibration Curve



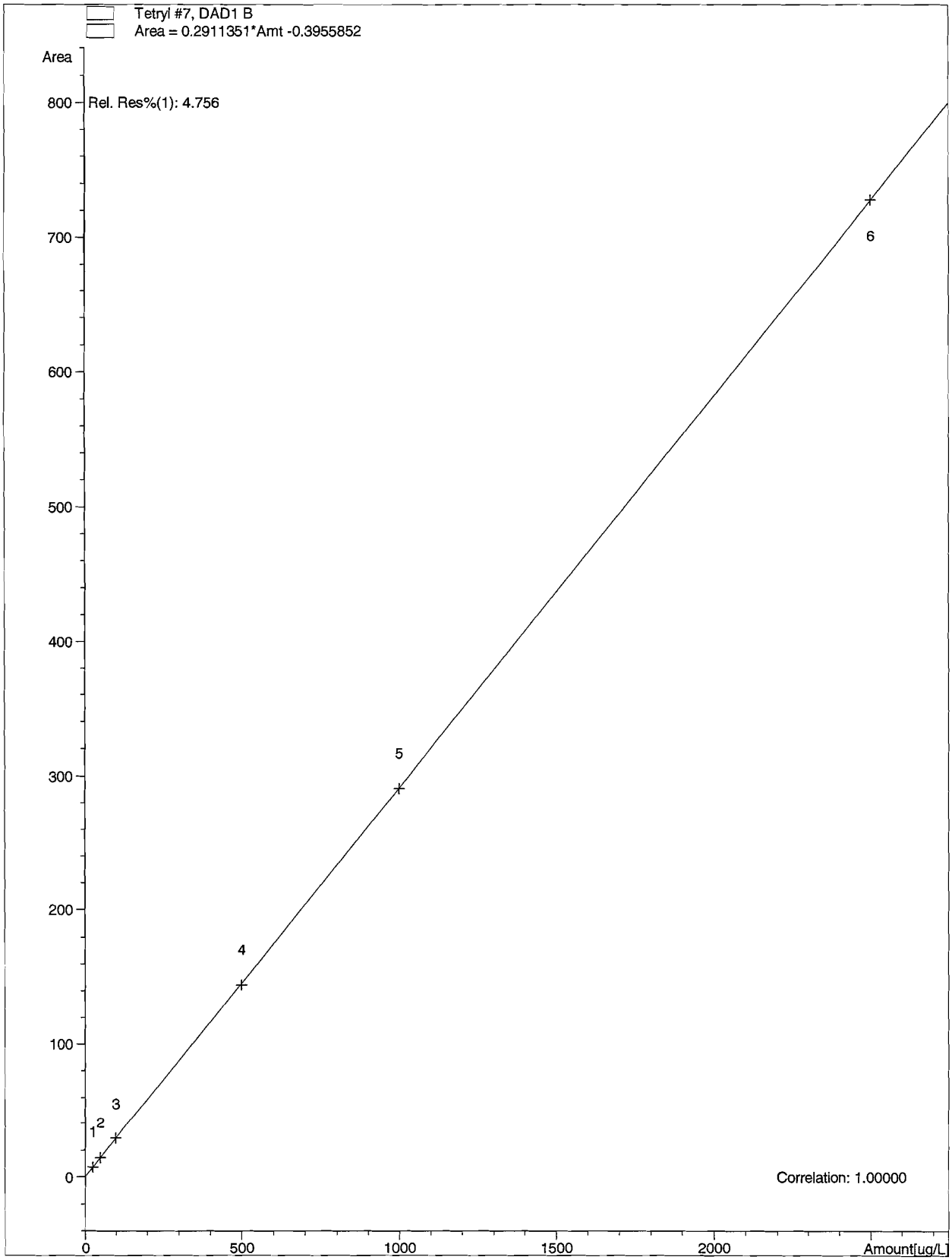
Calibration Curve



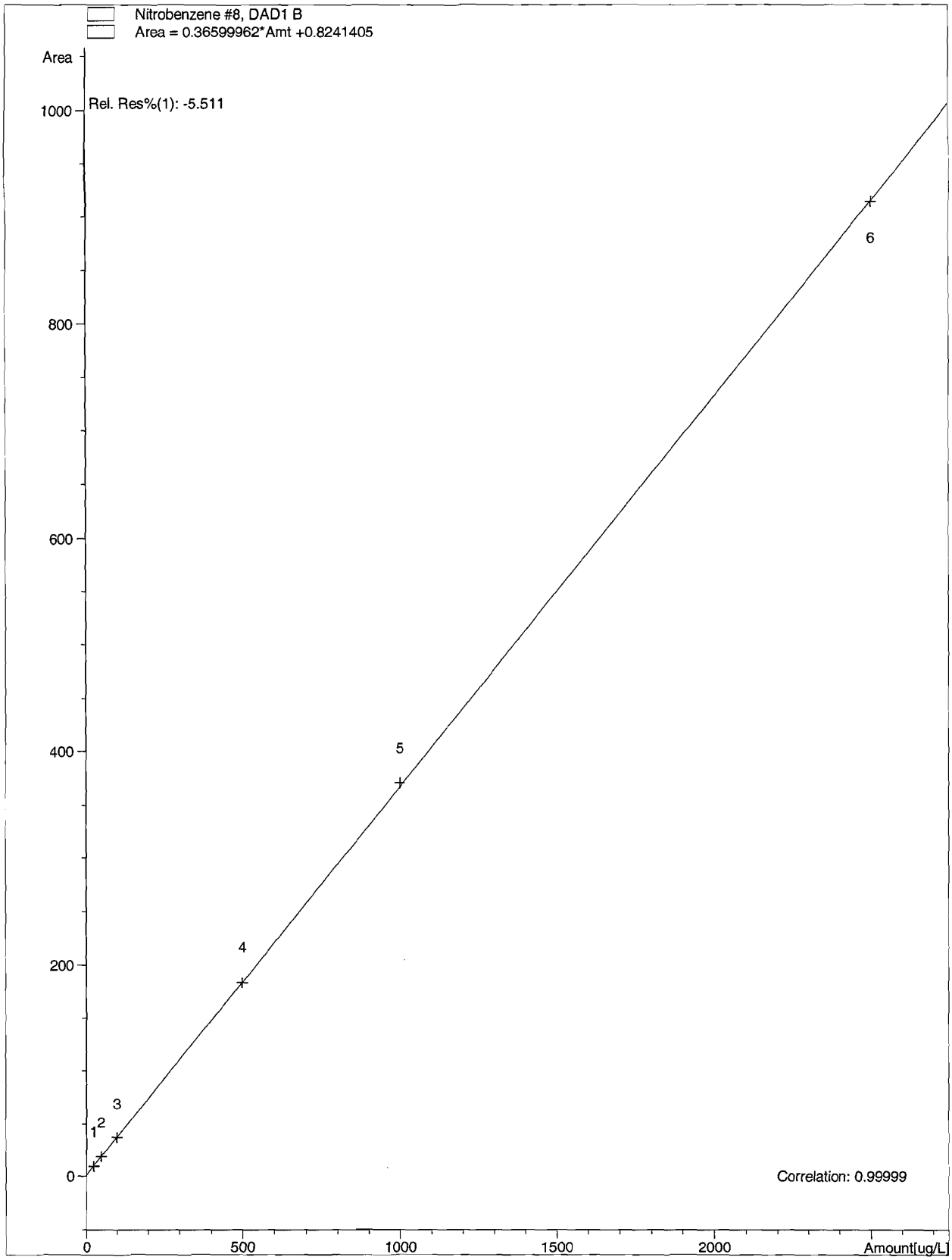
Calibration Curve



Calibration Curve



Calibration Curve



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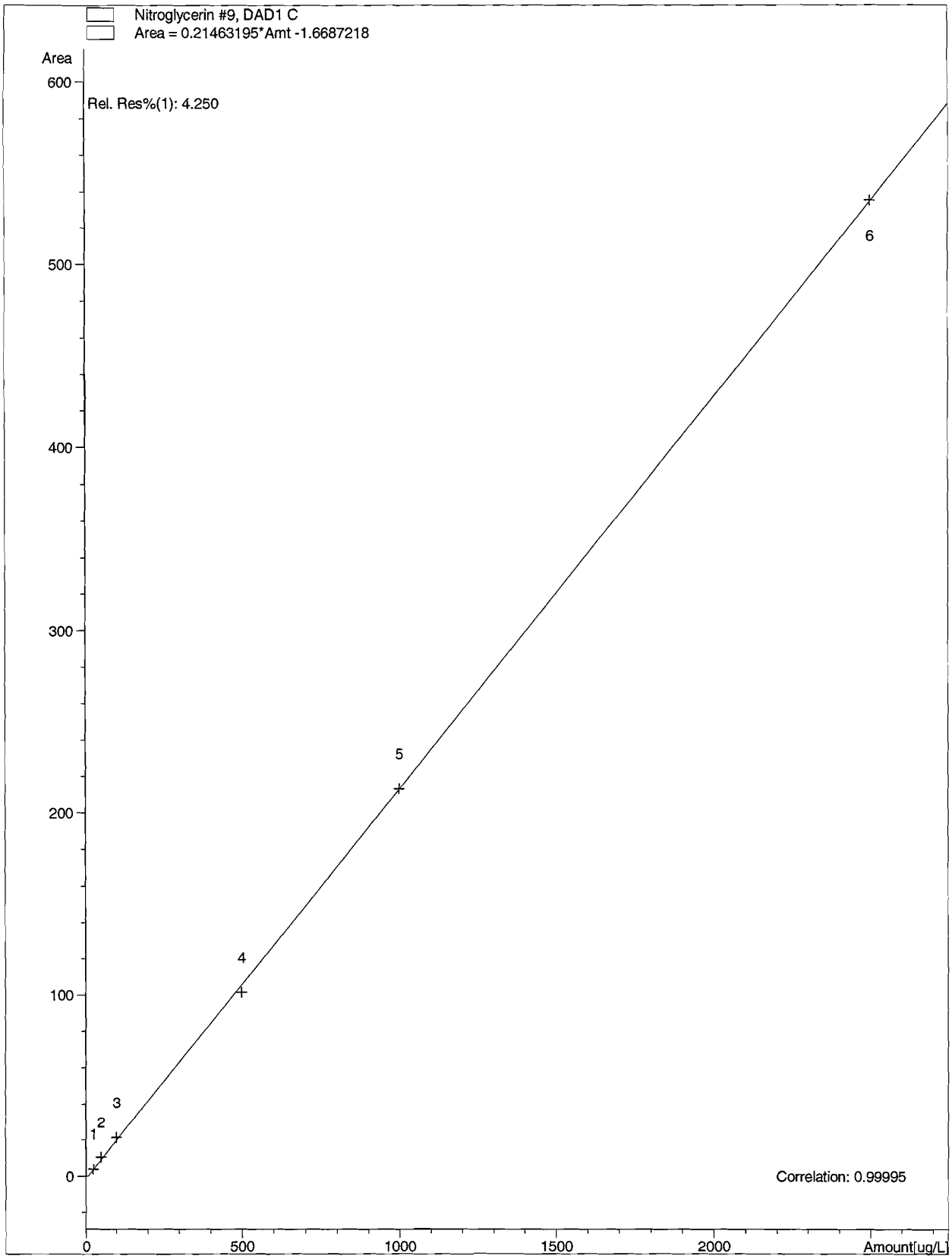
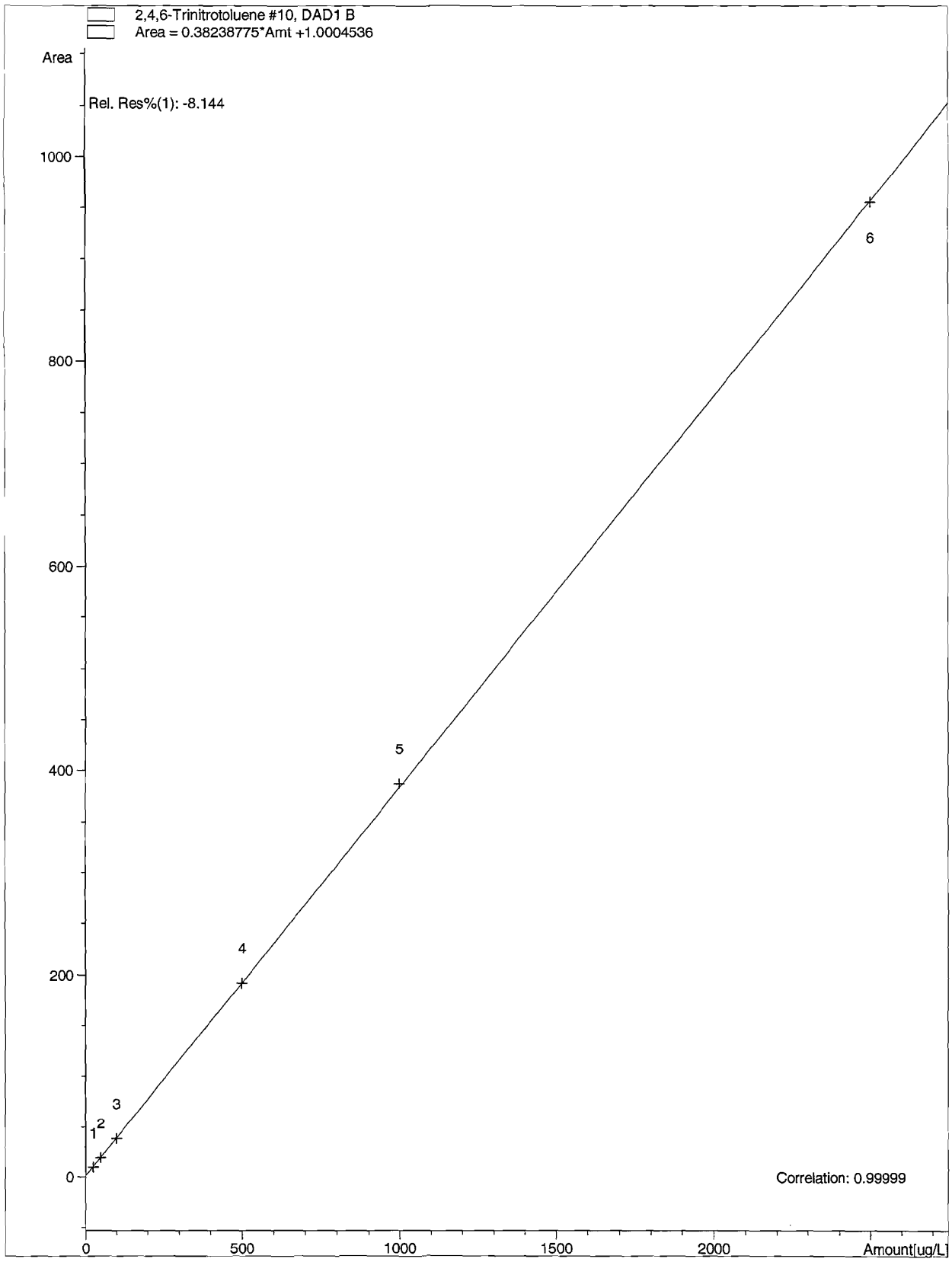


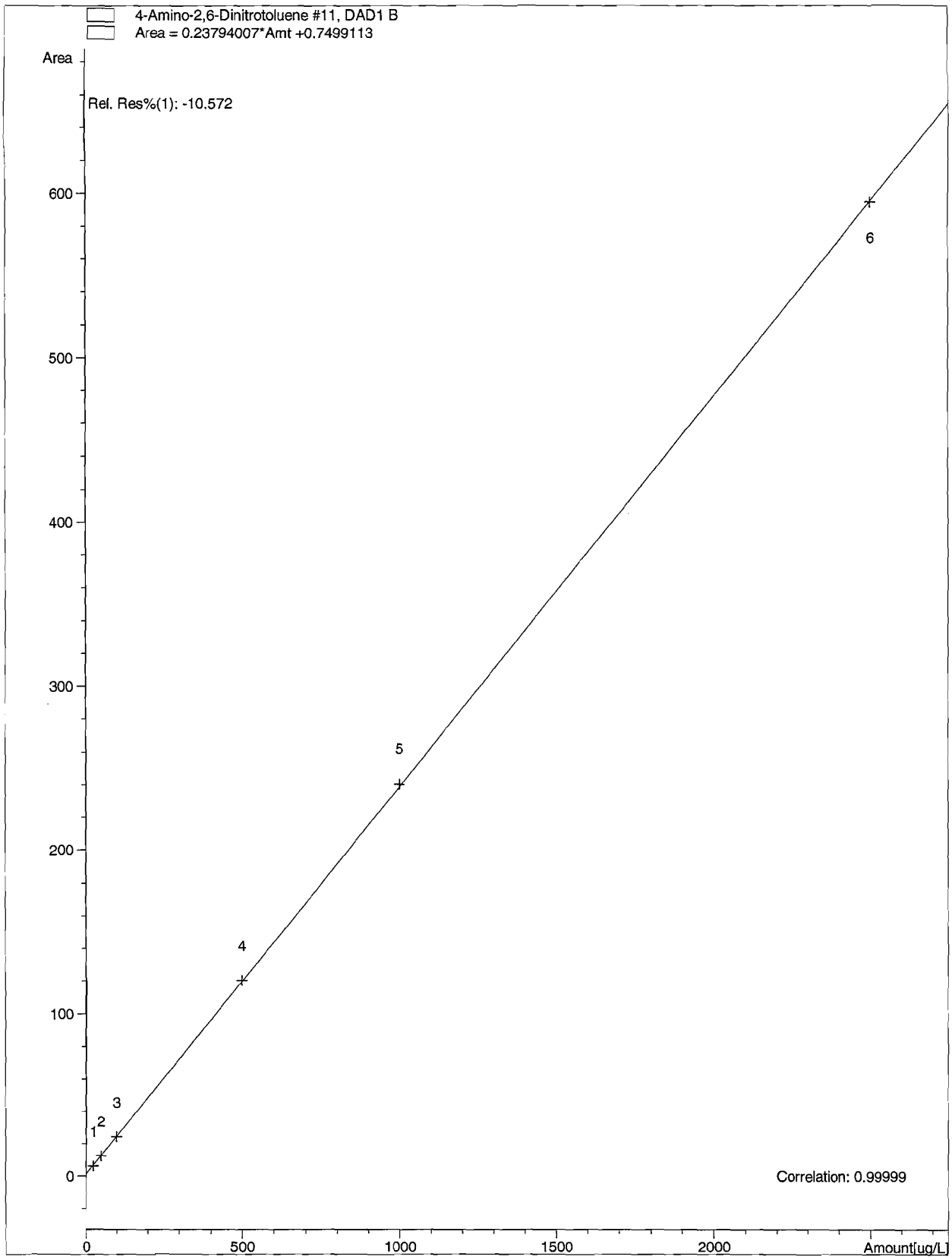
HPLC5 9/3/2013 4:43:39 PM JWR

Page 1 of 1

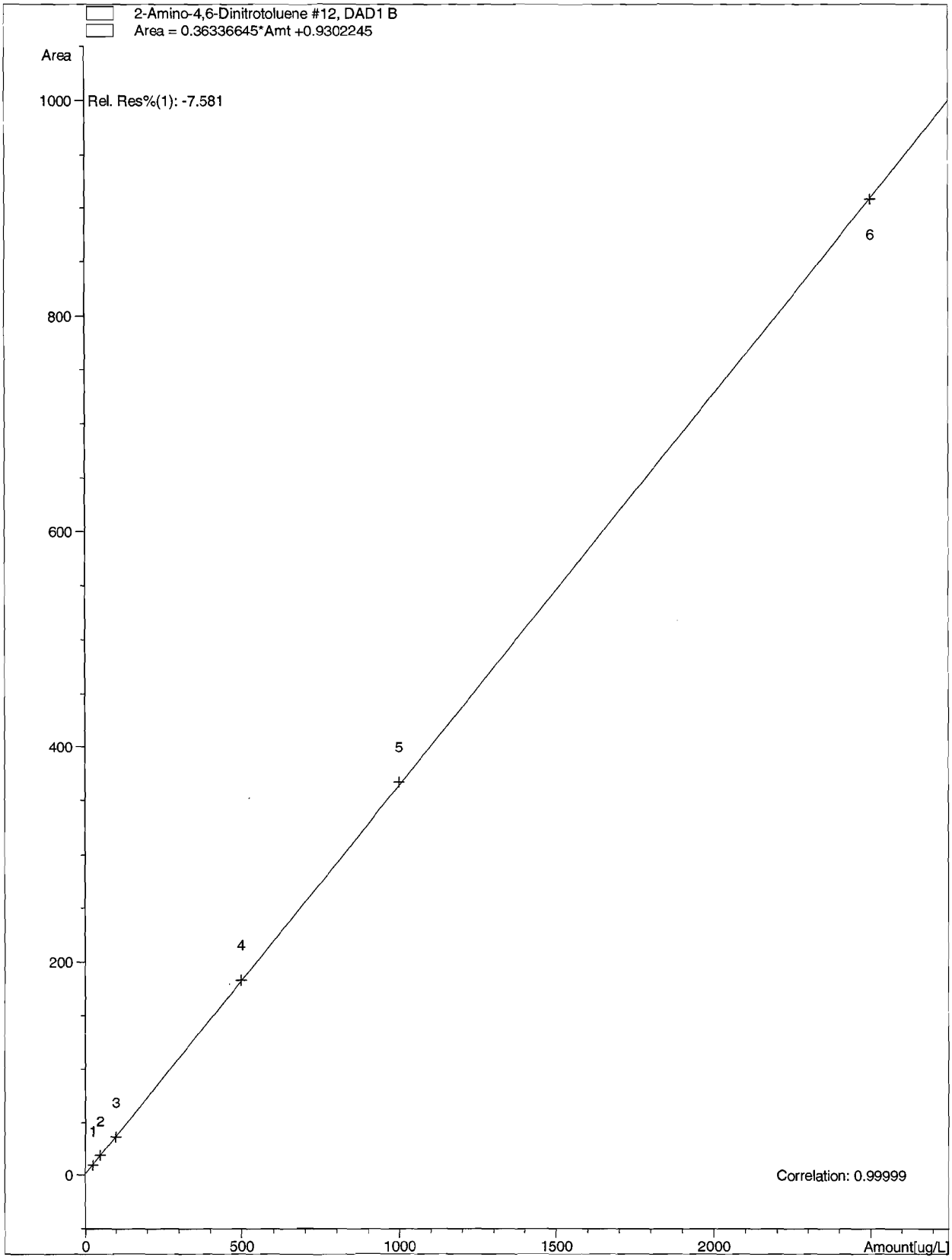
Calibration Curve



Calibration Curve



Calibration Curve



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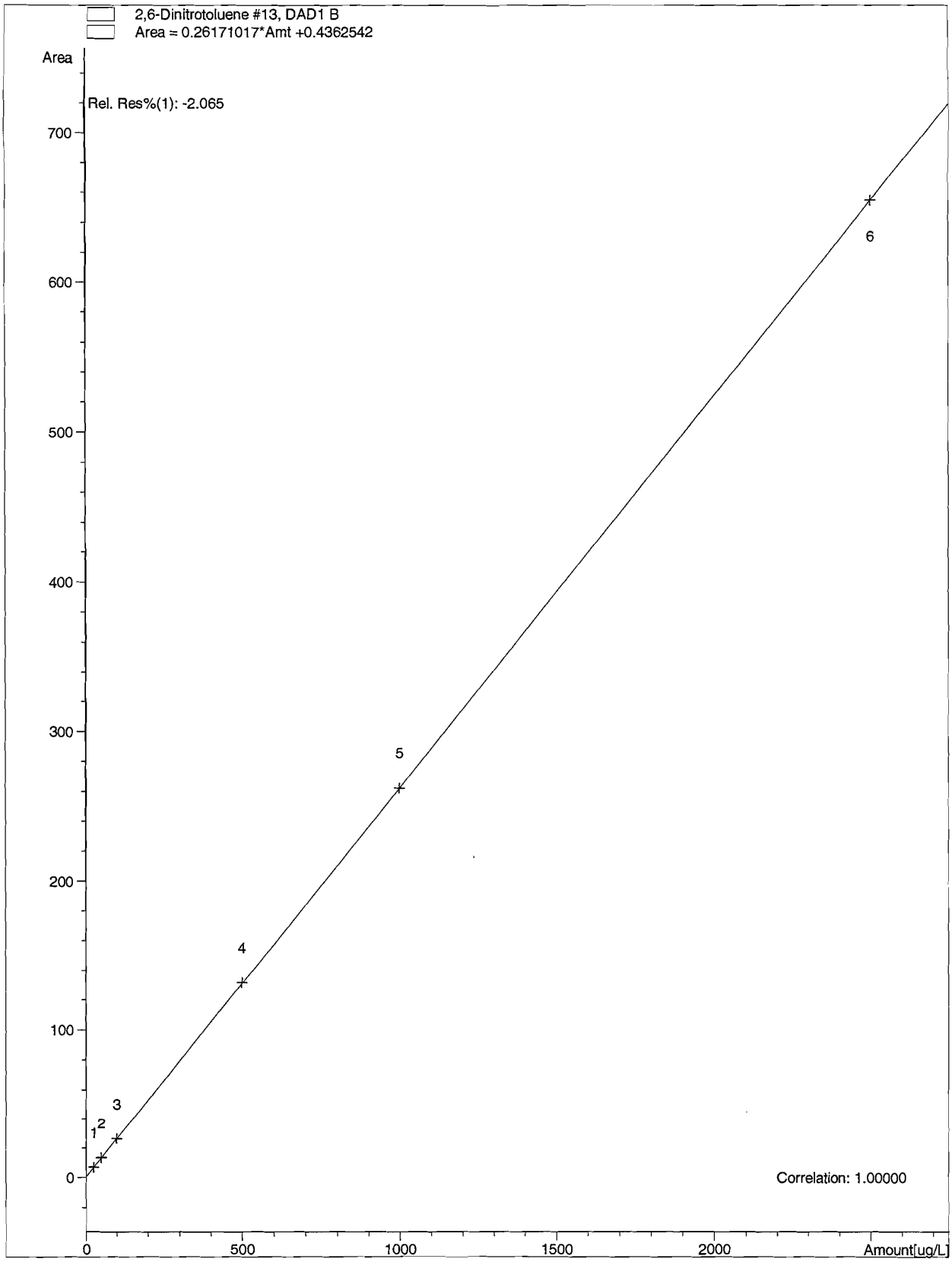
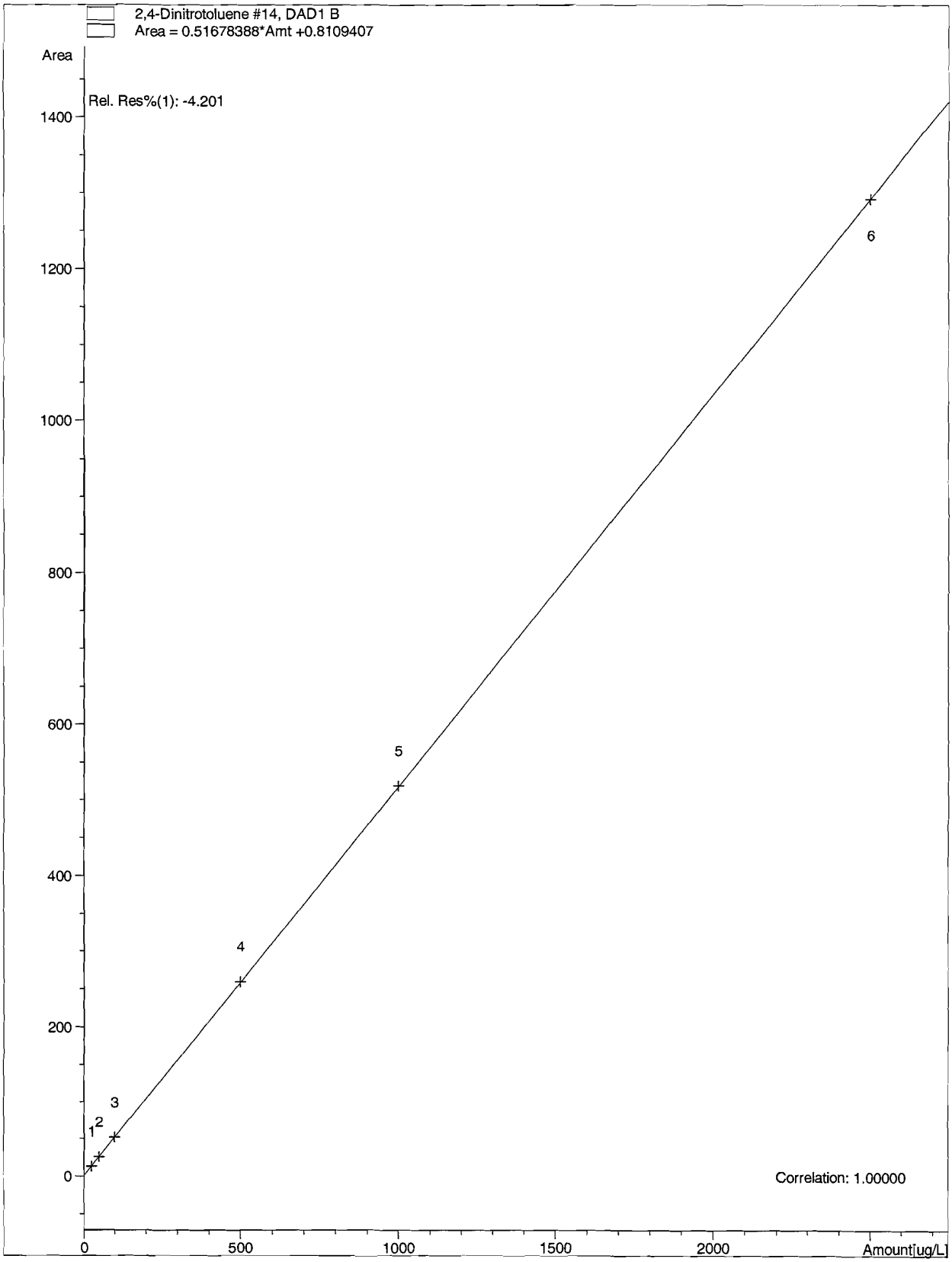
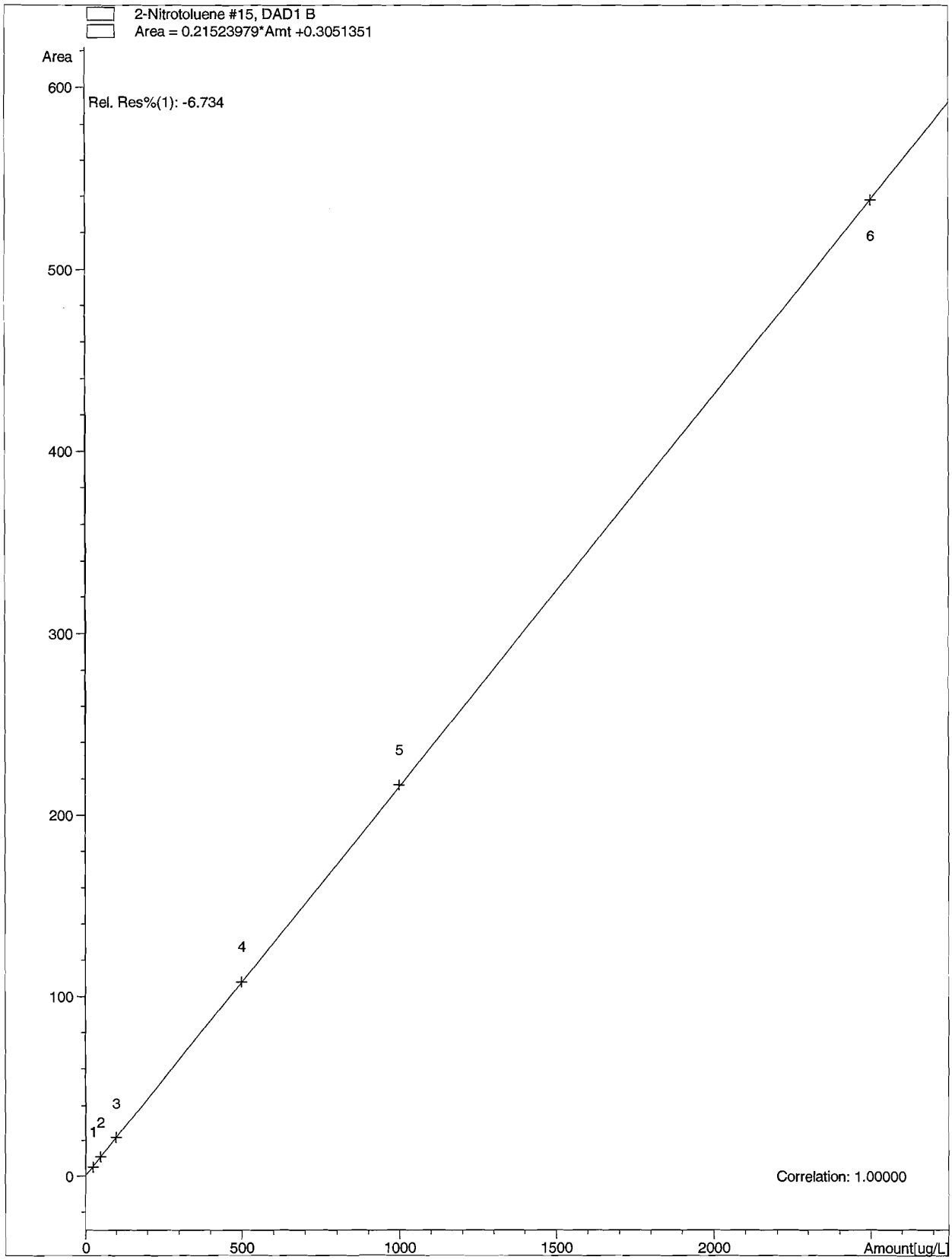


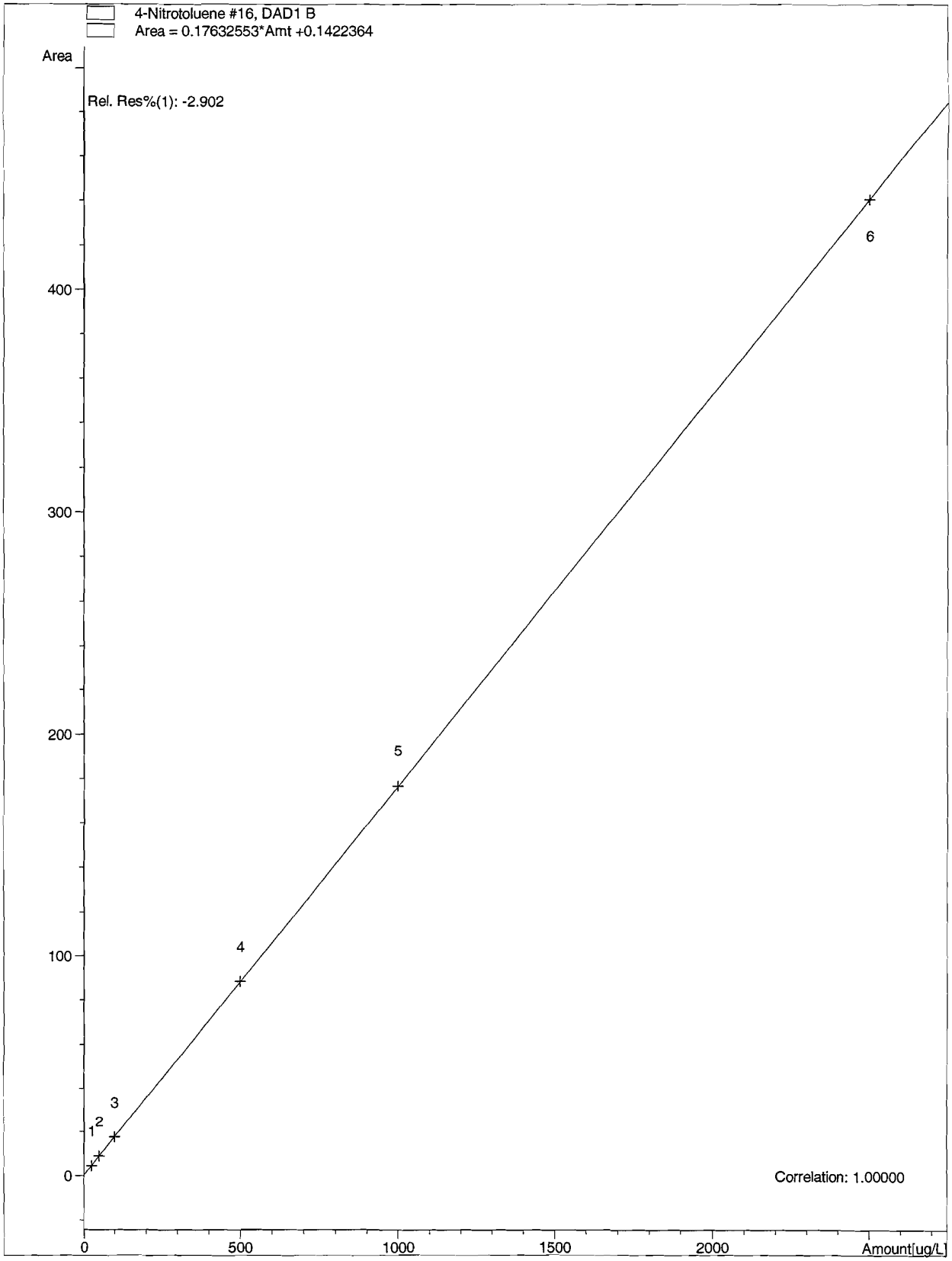
Calibration Curve



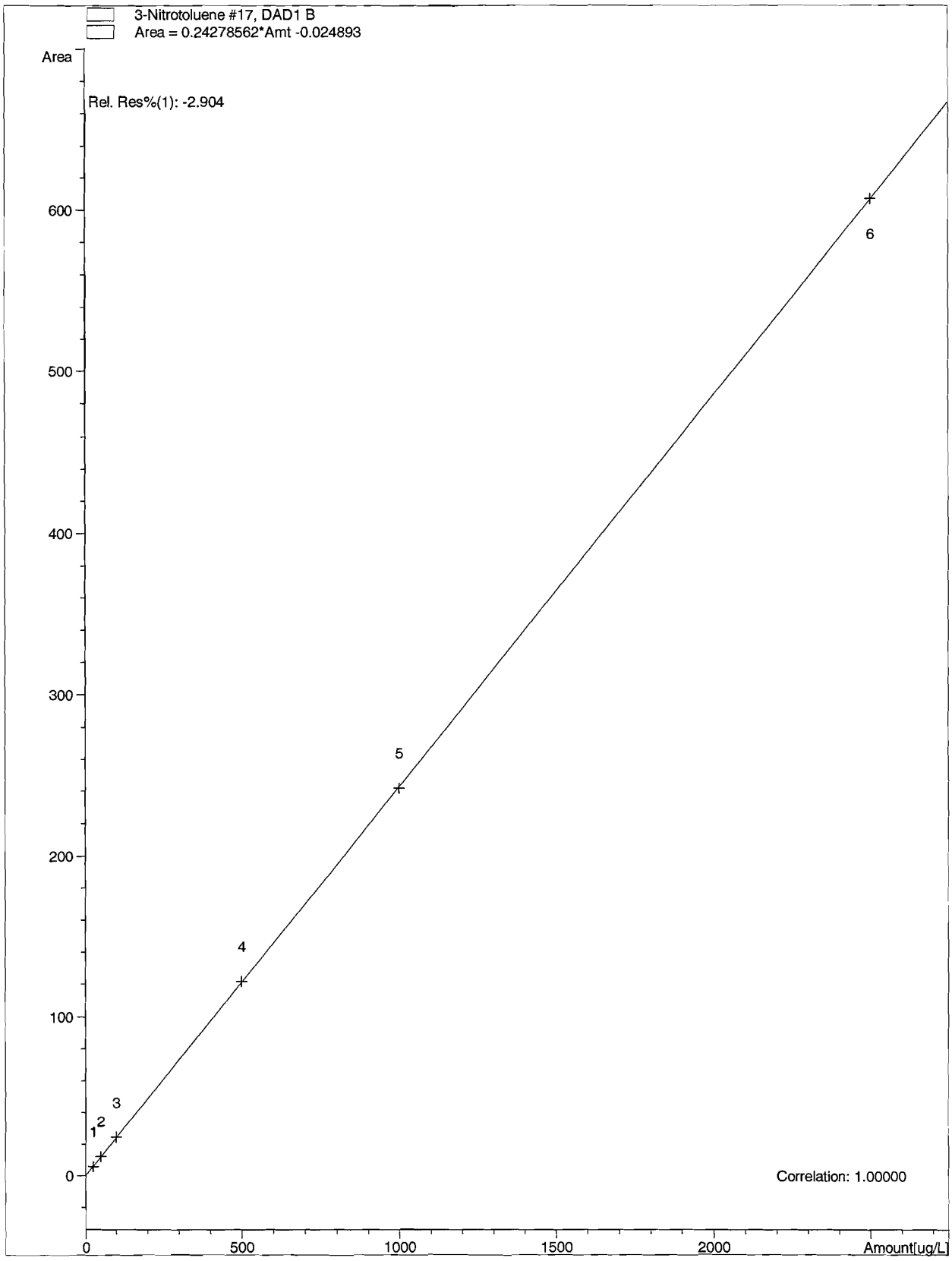
Calibration Curve



Calibration Curve



Calibration Curve



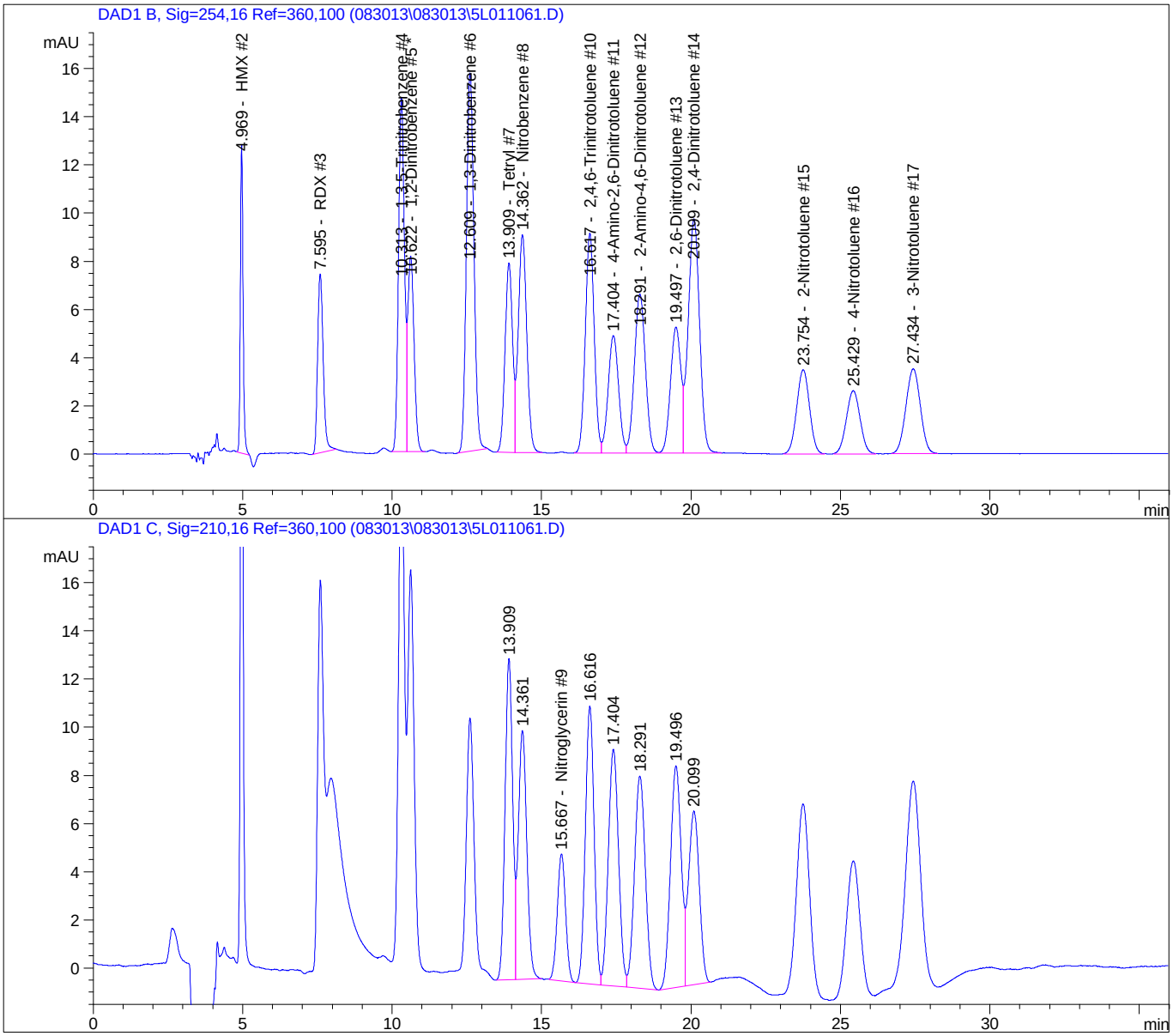
Data File C:\CHEM32\1\DATA\083013\083013\5L011061.D
Sample Name: WG442890-07 SSCV

==========

Acq. Operator	: JWR	Seq. Line :	7
Acq. Instrument	: HPLC5	Location :	Vial 8
Injection Date	: 8/31/2013 4:23:36 AM	Inj :	1
		Inj Volume :	100 µl
Acq. Method	: C:\Chem32\1\DATA\083013\083013\8330PLUS.M		
Last changed	: 8/30/2013 4:19:20 PM by JWR		
Analysis Method	: C:\CHEM32\1\METHODS\8330PLDA.M		
Last changed	: 9/3/2013 4:37:50 PM by JWR		
Method Info	: OVD-SOP#HPLC02: 8330 CALIBRATION August 30, 2013		

Sample Info : 1,1 STD59879 (500ppb)

==========



Data File C:\CHEM32\1\DATA\083013\083013\5L011061.D
Sample Name: WG442890-07 SSCV

==========

Acq. Operator : JWR Seq. Line : 7
Acq. Instrument : HPLC5 Location : Vial 8
Injection Date : 8/31/2013 4:23:36 AM Inj : 1
Inj Volume : 100 µl
Acq. Method : C:\Chem32\1\DATA\083013\083013\8330PLUS.M
Last changed : 8/30/2013 4:19:20 PM by JWR
Analysis Method : C:\CHEM32\1\METHODS\8330PLDA.M
Last changed : 9/3/2013 4:37:50 PM by JWR
Method Info : OVD-SOP#HPLC02: 8330 CALIBRATION August 30, 2013

Sample Info : 1,1 STD59879 (500ppb)

==========

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External Standard Report

==========

Sorted By : Signal
Calib. Data Modified : 9/3/2013 4:37:11 PM
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 B, Sig=254,16 Ref=360,100

RetTime [min]	Type	Area [mAU*s]	Amt/Area	Amount [ug/L]	Grp	Name
4.969	BBA	80.71567	6.15626	496.90649		HMX #2
7.595	BBA	96.57294	5.09199	491.74823		RDX #3
10.313	BV	203.44133	2.39548	487.34049		1,3,5-Trinitrobenzene #4
10.622	VV	116.79540	4.23969	495.17676		1,2-Dinitrobenzene #5 *
12.609	BBA	274.44748	1.77757	487.84840		1,3-Dinitrobenzene #6
13.909	BV	138.32025	3.44465	476.46552		Tetryl #7
14.362	VBA	179.65553	2.71971	488.61086		Nitrobenzene #8
16.617	BV	190.09273	2.60138	494.50401		2,4,6-Trinitrotoluene #10
17.404	VV	118.81432	4.17621	496.19386		4-Amino-2,6-Dinitrotoluene #11
18.291	VV	169.38776	2.73693	463.60233		2-Amino-4,6-Dinitrotoluene #12
19.497	VV	126.77136	3.80787	482.72907		2,6-Dinitrotoluene #13
20.099	VBA	256.15204	1.92892	494.09649		2,4-Dinitrotoluene #14
23.754	BF	105.07975	4.63249	486.78088		2-Nitrotoluene #15
25.429	BF	83.93918	5.66172	475.23998		4-Nitrotoluene #16
27.434	BBA	118.68364	4.11972	488.94384		3-Nitrotoluene #17

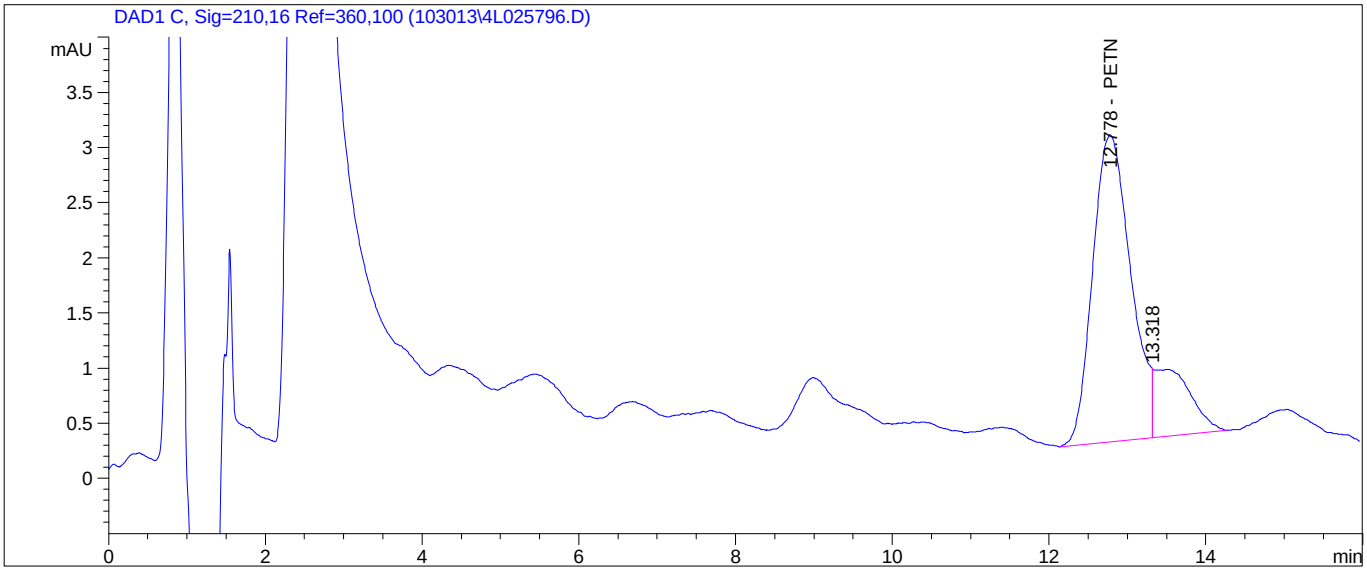
Totals : 7306.18721

Data File C:\CHEM32\1\DATA\083013\083013\5L011061.D
Sample Name: WG442890-07 SSCV

```
==================================================================
Acq. Operator   : JWR                           Seq. Line :   7
Acq. Instrument : HPLC5                          Location : Vial 8
Injection Date  : 8/31/2013 4:23:36 AM                Inj :   1
                                               Inj Volume : 100 µl
Acq. Method     : C:\Chem32\1\DATA\083013\083013\8330PLUS.M
Last changed    : 8/30/2013 4:19:20 PM by JWR
Analysis Method : C:\CHEM32\1\METHODS\8330PLDA.M
Last changed    : 9/3/2013 4:37:50 PM by JWR
Method Info     : OVD-SOP#HPLC02: 8330 CALIBRATION August 30, 2013

Sample Info     : 1,1 STD59879 (500ppb)


==================================================================


Signal 2: DAD1 C, Sig=210,16 Ref=360,100

RetTime  Type     Area     Amt/Area    Amount   Grp   Name
 [min]          [mAU*s]                [ug/L]
-------|------|----------|----------|----------|--|------------------
 15.667 BV      101.99509    4.73537  482.98409    Nitroglycerin #9

Totals :                               482.98409


1 Warnings or Errors :

Warning : Calibration warnings (see calibration table listing)

==================================================================
                          *** End of Report ***
```

1,1 STD61067 (500ppb)

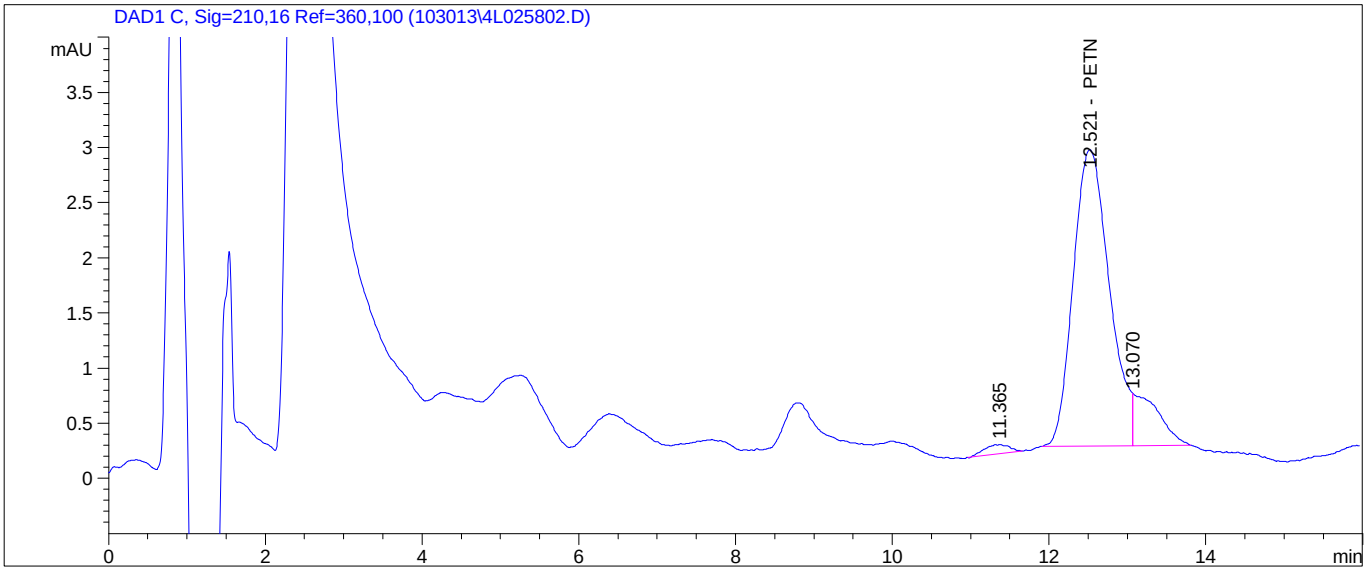
```
==================================================================
Injection Date  : 10/30/2013 9:31:31 PM          Seq. Line :   2
Sample Name     : WG450877-01 CCV                 Location : Vial 2
Acq. Operator   : JWR                                  Inj :   1
Acq. Instrument : HPLC4                         Inj Volume : 100 µl
Acq. Method     : C:\HPCHEM\1\METHODS\PETN.M
Last changed    : 11/15/2012 11:33:06 AM by ECL
Analysis Method : C:\HPCHEM\1\METHODS\PETNDA.M
Last changed    : 10/30/2013 10:13:25 PM by ECL
CALIBRATION November 15, 2012
==================================================================
```




```
==================================================================
                      External Standard Report
==================================================================

Sorted By             :      Signal
Calib. Data Modified  :      10/30/2013 3:55:09 PM
Multiplier            :      1.0000
Dilution              :      1.0000
Do not use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 C, Sig=210,16 Ref=360,100

RetTime  Type     Area     Amt/Area    Amount   Grp   Name
 [min]          [mAU*s]                [wt%]
-------|------|----------|----------|----------|--|------------------
 12.778 BF       94.02479    5.64874  531.12120    PETN

Totals :                              531.12120

 Results obtained with enhanced integrator!
==================================================================
                          *** End of Report ***
```

1,1 STD61067 (500ppb)

```
==================================================================
Injection Date  : 10/30/2013 11:26:01 PM        Seq. Line :   8
Sample Name     : WG450877-02 CCV                Location : Vial 2
Acq. Operator   : JWR                                 Inj :   1
Acq. Instrument : HPLC4                        Inj Volume : 100 µl
Acq. Method     : C:\HPCHEM\1\METHODS\PETN.M
Last changed    : 11/15/2012 11:33:06 AM by ECL
Analysis Method : C:\HPCHEM\1\METHODS\PETNDA.M
Last changed    : 10/30/2013 11:49:05 PM by ECL
CALIBRATION November 15, 2012
==================================================================
```




```
==================================================================
                      External Standard Report
==================================================================

Sorted By             :      Signal
Calib. Data Modified  :      10/30/2013 3:55:09 PM
Multiplier            :      1.0000
Dilution              :      1.0000
Do not use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 C, Sig=210,16 Ref=360,100

RetTime  Type     Area     Amt/Area    Amount   Grp   Name
 [min]          [mAU*s]                [wt%]
-------|------|----------|----------|----------|--|------------------
 12.521 BF       86.40081    5.66332  489.31581    PETN

Totals :                              489.31581

 Results obtained with enhanced integrator!
==================================================================
                          *** End of Report ***
```

Data File C:\CHEM32\1\DATA\110613\110613\5L011570.D
Sample Name: WG451731-01 8330 CCV 500 PPB

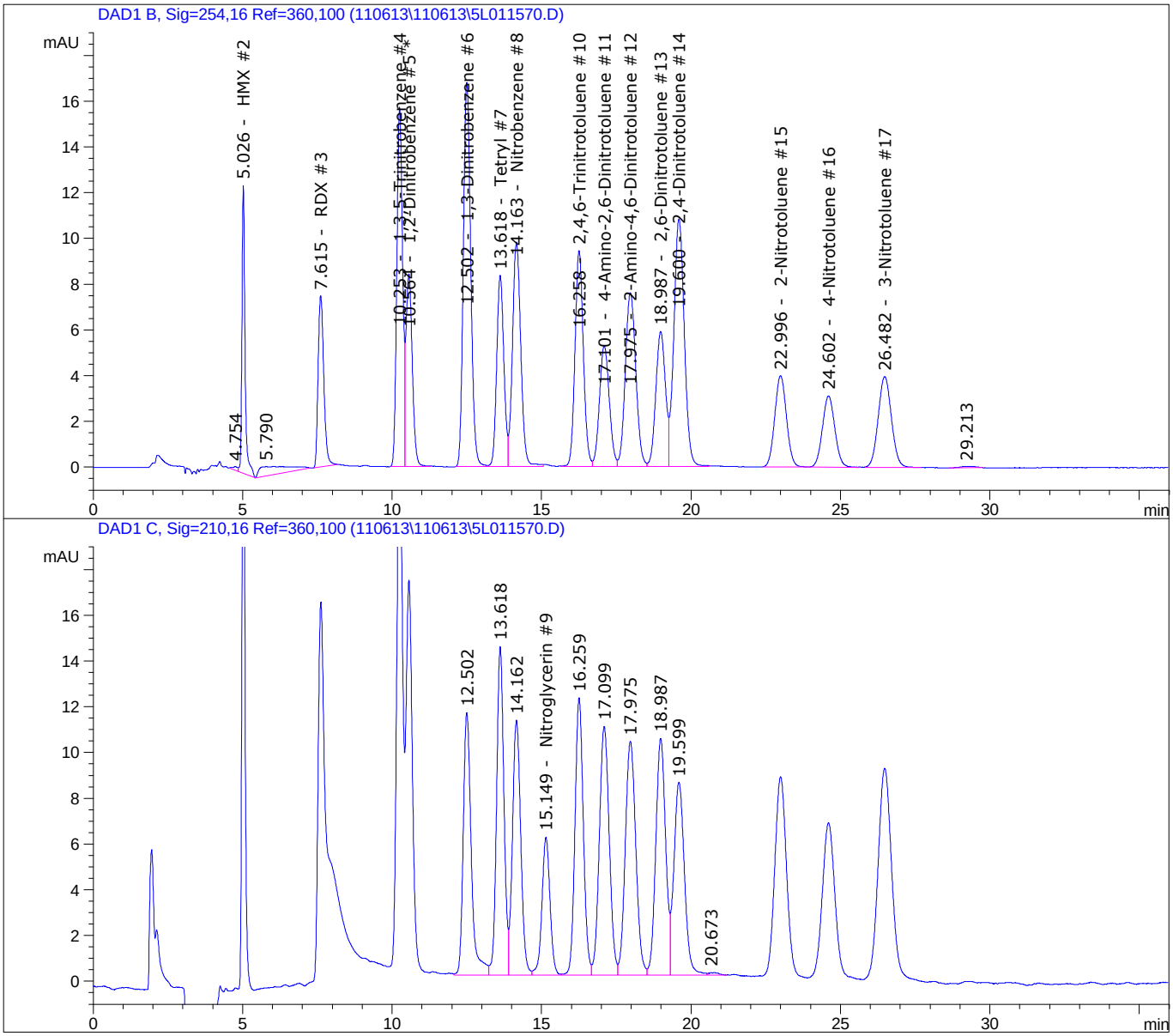
==========

Acq. Operator	: ECL	Seq. Line :	1
Acq. Instrument	: HPLC5	Location :	Vial 2
Injection Date	: 11/6/2013 2:43:49 PM	Inj :	1
		Inj Volume :	100 µl

Acq. Method : C:\Chem32\1\DATA\110613\110613\8330PLUS.M
Last changed : 9/20/2013 3:11:11 PM by JWR
Analysis Method : C:\CHEM32\1\METHODS\8330PLDA.M
Last changed : 11/6/2013 3:27:27 PM by JWR
Method Info : OVD-SOP#HPLC02: 8330 CALIBRATION August 30, 2013

Sample Info : 1,1 STD59878

==========



Data File C:\CHEM32\1\DATA\110613\110613\5L011570.D
Sample Name: WG451731-01 8330 CCV 500 PPB

==========

Acq. Operator : ECL Seq. Line : 1
Acq. Instrument : HPLC5 Location : Vial 2
Injection Date : 11/6/2013 2:43:49 PM Inj : 1
Inj Volume : 100 µl
Acq. Method : C:\Chem32\1\DATA\110613\110613\8330PLUS.M
Last changed : 9/20/2013 3:11:11 PM by JWR
Analysis Method : C:\CHEM32\1\METHODS\8330PLDA.M
Last changed : 11/6/2013 3:27:27 PM by JWR
Method Info : OVD-SOP#HPLC02: 8330 CALIBRATION August 30, 2013

Sample Info : 1,1 STD59878

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External Standard Report

==========

Sorted By : Signal
Calib. Data Modified : 11/6/2013 3:27:12 PM
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 B, Sig=254,16 Ref=360,100

RetTime [min]	Type	Area [mAU*s]	Amt/Area	Amount [ug/L]	Grp	Name
5.026	VV	90.05906	6.16066	554.82340		HMX #2
7.615	BBA	98.76337	5.09212	502.91495		RDX #3
10.253	BV	211.33960	2.39569	506.30495		1,3,5-Trinitrobenzene #4
10.564	VB	122.50743	4.24227	519.70968		1,2-Dinitrobenzene #5 *
12.502	BV	285.80093	1.77794	508.13549		1,3-Dinitrobenzene #6
13.618	VV	139.98737	3.44454	482.19178		Tetryl #7
14.163	VB	189.26390	2.72035	514.86326		Nitrobenzene #8
16.258	BV	183.52788	2.60089	477.33596		2,4,6-Trinitrotoluene #10
17.101	VV	120.99976	4.17669	505.37873		4-Amino-2,6-Dinitrotoluene #11
17.975	VV	184.59035	2.73817	505.44051		2-Amino-4,6-Dinitrotoluene #12
18.987	VV	131.81682	3.80837	502.00786		2,6-Dinitrotoluene #13
19.600	VB	261.90781	1.92905	505.23416		2,4-Dinitrotoluene #14
22.996	BV	108.58443	4.63293	503.06354		2-Nitrotoluene #15
24.602	VB	90.16747	5.66238	510.56268		4-Nitrotoluene #16
26.482	BB	122.86600	4.11969	506.17042		3-Nitrotoluene #17

Totals : 7604.13737

Data File C:\CHEM32\1\DATA\110613\110613\5L011570.D
Sample Name: WG451731-01 8330 CCV 500 PPB

```
==================================================================
Acq. Operator   : ECL                           Seq. Line :   1
Acq. Instrument : HPLC5                          Location : Vial 2
Injection Date  : 11/6/2013 2:43:49 PM                Inj :   1
                                               Inj Volume : 100 µl
Acq. Method     : C:\Chem32\1\DATA\110613\110613\8330PLUS.M
Last changed    : 9/20/2013 3:11:11 PM by JWR
Analysis Method : C:\CHEM32\1\METHODS\8330PLDA.M
Last changed    : 11/6/2013 3:27:27 PM by JWR
Method Info     : OVD-SOP#HPLC02: 8330 CALIBRATION August 30, 2013

Sample Info     : 1,1 STD59878


==================================================================


Signal 2: DAD1 C, Sig=210,16 Ref=360,100

RetTime  Type     Area     Amt/Area    Amount   Grp   Name
 [min]          [mAU*s]                [ug/L]
-------|------|----------|----------|----------|--|------------------
 15.149 VV      113.84039    4.72743  538.17297    Nitroglycerin #9

Totals :                               538.17297


1 Warnings or Errors :

Warning : Calibration warnings (see calibration table listing)

==================================================================
                          *** End of Report ***
```

Data File C:\CHEM32\1\DATA\110613\110613\5L011582.D
Sample Name: WG451731-02 8330 CCV 500 PPB

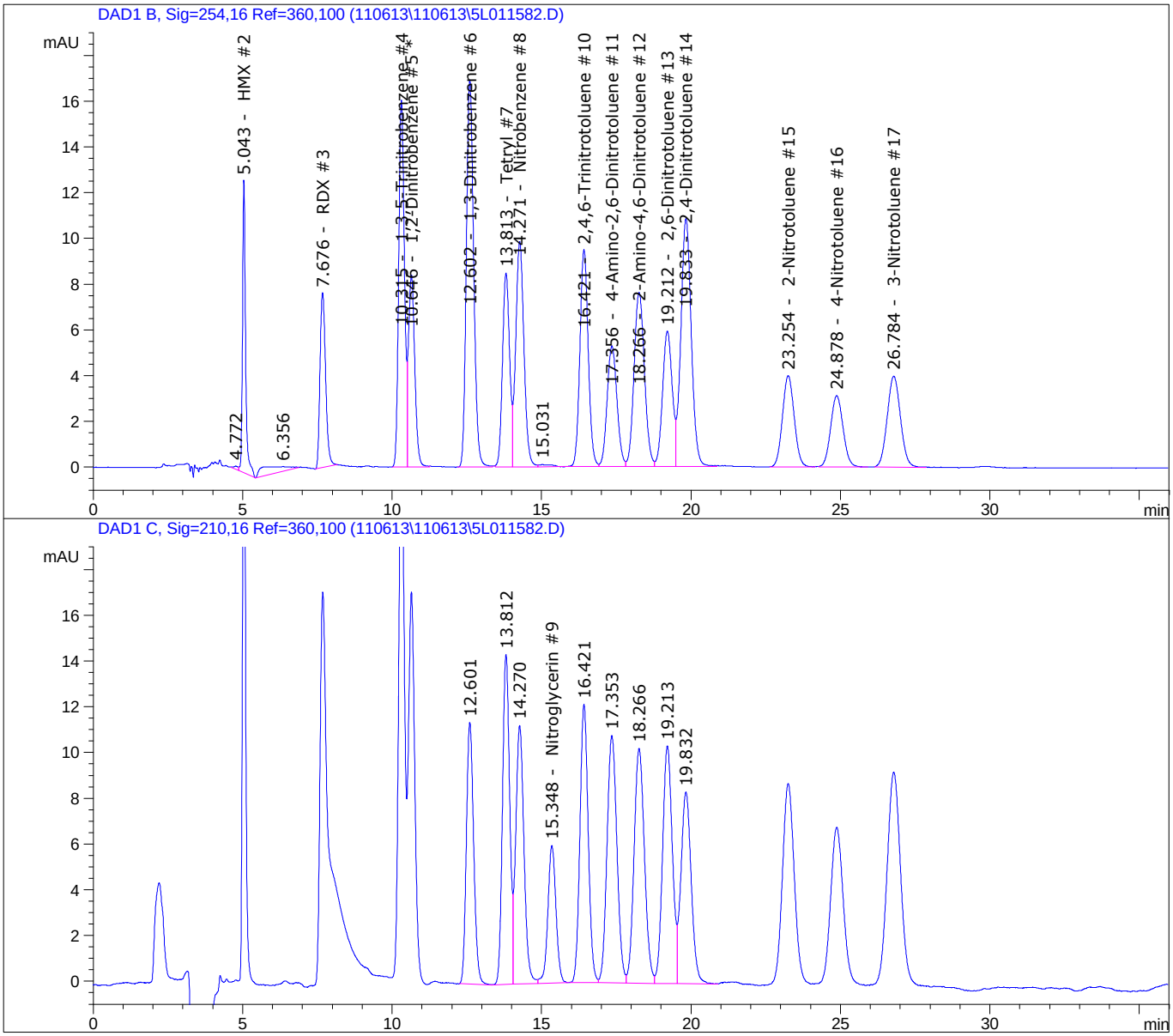
==========

Acq. Operator	: ECL	Seq. Line	: 13
Acq. Instrument	: HPLC5	Location	: Vial 2
Injection Date	: 11/6/2013 10:40:10 PM	Inj	: 1
		Inj Volume	: 100 µl

Acq. Method : C:\Chem32\1\DATA\110613\110613\8330PLUS.M
Last changed : 9/20/2013 3:11:11 PM by JWR
Analysis Method : C:\CHEM32\1\METHODS\8330PLDA.M
Last changed : 11/7/2013 11:58:11 AM by JWR
Method Info : OVD-SOP#HPLC02: 8330 CALIBRATION August 30, 2013

Sample Info : 1,1 STD59878

==========



HPLC5 11/7/2013 11:58:14 AM JWR Page 1 of 3

```
==================================================================
Acq. Operator   : ECL                           Seq. Line :  13
Acq. Instrument : HPLC5                          Location : Vial 2
Injection Date  : 11/6/2013 10:40:10 PM               Inj :   1
                                               Inj Volume : 100 µl
Acq. Method     : C:\Chem32\1\DATA\110613\110613\8330PLUS.M
Last changed    : 9/20/2013 3:11:11 PM by JWR
Analysis Method : C:\CHEM32\1\METHODS\8330PLDA.M
Last changed    : 11/7/2013 11:58:11 AM by JWR
Method Info     : OVD-SOP#HPLC02: 8330 CALIBRATION August 30, 2013

Sample Info     : 1,1 STD59878


==================================================================

==================================================================
                      External Standard Report
==================================================================

Sorted By             :      Signal
Calib. Data Modified  :      11/7/2013 11:57:52 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 B, Sig=254,16 Ref=360,100

RetTime  Type     Area     Amt/Area    Amount   Grp   Name
 [min]          [mAU*s]                [ug/L]
-------|------|----------|----------|----------|--|------------------
  5.043 VV       90.09740    6.16068  555.06109    HMX #2
  7.676 BBA     100.41163    5.09222  511.31772    RDX #3
 10.315 BV      213.00929    2.39574  510.31403    1,3,5-Trinitrobenzene #4
 10.646 VB      122.89753    4.24244  521.38514    1,2-Dinitrobenzene #5 *
 12.602 BB      287.95105    1.77800  511.97746    1,3-Dinitrobenzene #6
 13.813 BV      139.00528    3.44461  478.81848    Tetryl #7
 14.271 VV      189.10564    2.72034  514.43085    Nitrobenzene #8
 16.421 VV      183.73584    2.60091  477.87981    2,4,6-Trinitrotoluene #10
 17.356 VV      121.49664    4.17680  507.46698    4-Amino-2,6-Dinitrotoluene #11
 18.266 VV      185.03014    2.73821  506.65082    2-Amino-4,6-Dinitrotoluene #12
 19.212 VV      132.74797    3.80846  505.56581    2,6-Dinitrotoluene #13
 19.833 VB      262.44437    1.92907  506.27242    2,4-Dinitrotoluene #14
 23.254 BB      108.84309    4.63296  504.26531    2-Nitrotoluene #15
 24.878 BB       90.63663    5.66243  513.22346    4-Nitrotoluene #16
 26.784 BB      123.25223    4.11969  507.76122    3-Nitrotoluene #17

Totals :                               7632.39060
```

Data File C:\CHEM32\1\DATA\110613\110613\5L011582.D
Sample Name: WG451731-02 8330 CCV 500 PPB

```
    ==================================================================
    Acq. Operator   : ECL                           Seq. Line :  13
    Acq. Instrument : HPLC5                          Location : Vial 2
    Injection Date  : 11/6/2013 10:40:10 PM               Inj :   1
                                                   Inj Volume : 100 µl
    Acq. Method     : C:\Chem32\1\DATA\110613\110613\8330PLUS.M
    Last changed    : 9/20/2013 3:11:11 PM by JWR
    Analysis Method : C:\CHEM32\1\METHODS\8330PLDA.M
    Last changed    : 11/7/2013 11:58:11 AM by JWR
    Method Info     : OVD-SOP#HPLC02: 8330 CALIBRATION August 30, 2013

    Sample Info     : 1,1 STD59878


    ==================================================================


    Signal 2: DAD1 C, Sig=210,16 Ref=360,100

    RetTime  Type     Area     Amt/Area    Amount   Grp   Name
     [min]          [mAU*s]                [ug/L]
    -------|------|----------|----------|----------|--|------------------
     15.348 VBA     112.89442    4.72801  533.76557    Nitroglycerin #9

    Totals :                               533.76557


    1 Warnings or Errors :

    Warning : Calibration warnings (see calibration table listing)

    ==================================================================
                              *** End of Report ***
```

RETENTION TIME WINDOWS

Lab Name: Microbac Laboratories

Instrument ID: HPLC4 Method 8330B PETN

Column: PINNACLE DB

	STANDARD #1	STANDARD #2	STANDARD #3
Date Run	11/2/09	11/5/09	11/7/09
File #	4L015503	4L015619	4L015709

COMPOUND	STD #1 RT	STD #2 RT	STD #3 RT	RT WIN
PETN	10.668	9.977	10.226	1.050

RETENTION TIME WINDOWS

Lab Name: Microbac Laboratories, Inc.

Instrument ID: HPLC5

Column: Ultracarb 5 ODS

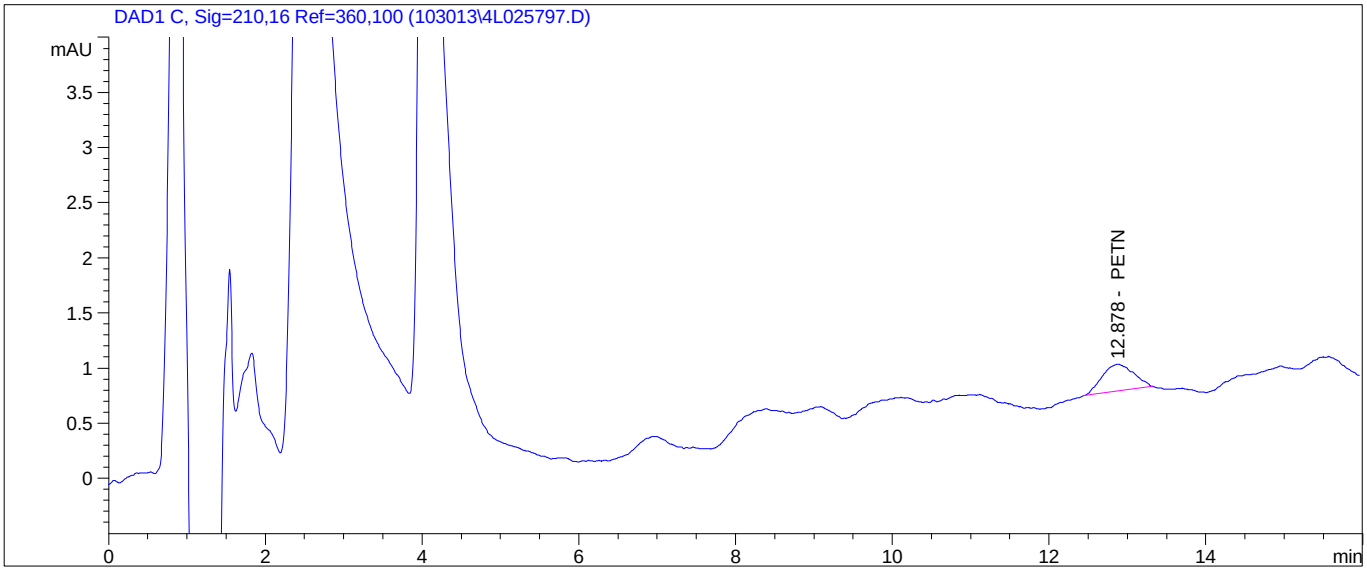
	STANDARD #1	STANDARD #2	STANDARD #3
Date Run	12/13/11	12/14/11	12/15/11
File #	5L005951	5L005994	5L006024

COMPOUND	STD #1 RT	STD #2 RT	STD #3 RT	RT WIN
HMX	5.719	5.716	5.719	0.005
RDX	8.757	8.748	8.752	0.014
1,3,5-Trinitrobenzene	11.812	11.800	11.809	0.019
1,2-Dinitrobenzene (Surr.)	12.113	12.093	12.099	0.031
1,3-Dinitrobenzene	14.419	14.394	14.412	0.039
Tetryl	15.864	15.829	15.856	0.055
Nitrobenzene	16.264	16.233	16.258	0.049
Nitroglycerin	17.745	17.709	17.731	0.054
2,4,6-Trinitrotoluene	18.831	18.795	18.827	0.059
4-Amino-2,6-Dinitrotoluene	19.804	19.762	19.798	0.068
2-Amino-4,6-Dinitrotoluene	20.906	20.858	20.893	0.074
2,6-Dinitrotoluene	21.945	21.898	21.940	0.077
2,4-Dinitrotoluene	22.706	22.651	22.693	0.086
2-Nitrotoluene	26.468	26.403	26.465	0.110
4-Nitrotoluene	28.336	28.254	28.330	0.137
3-Nitrotoluene	30.532	30.451	30.533	0.141

2.1.2.5 Raw QC Data

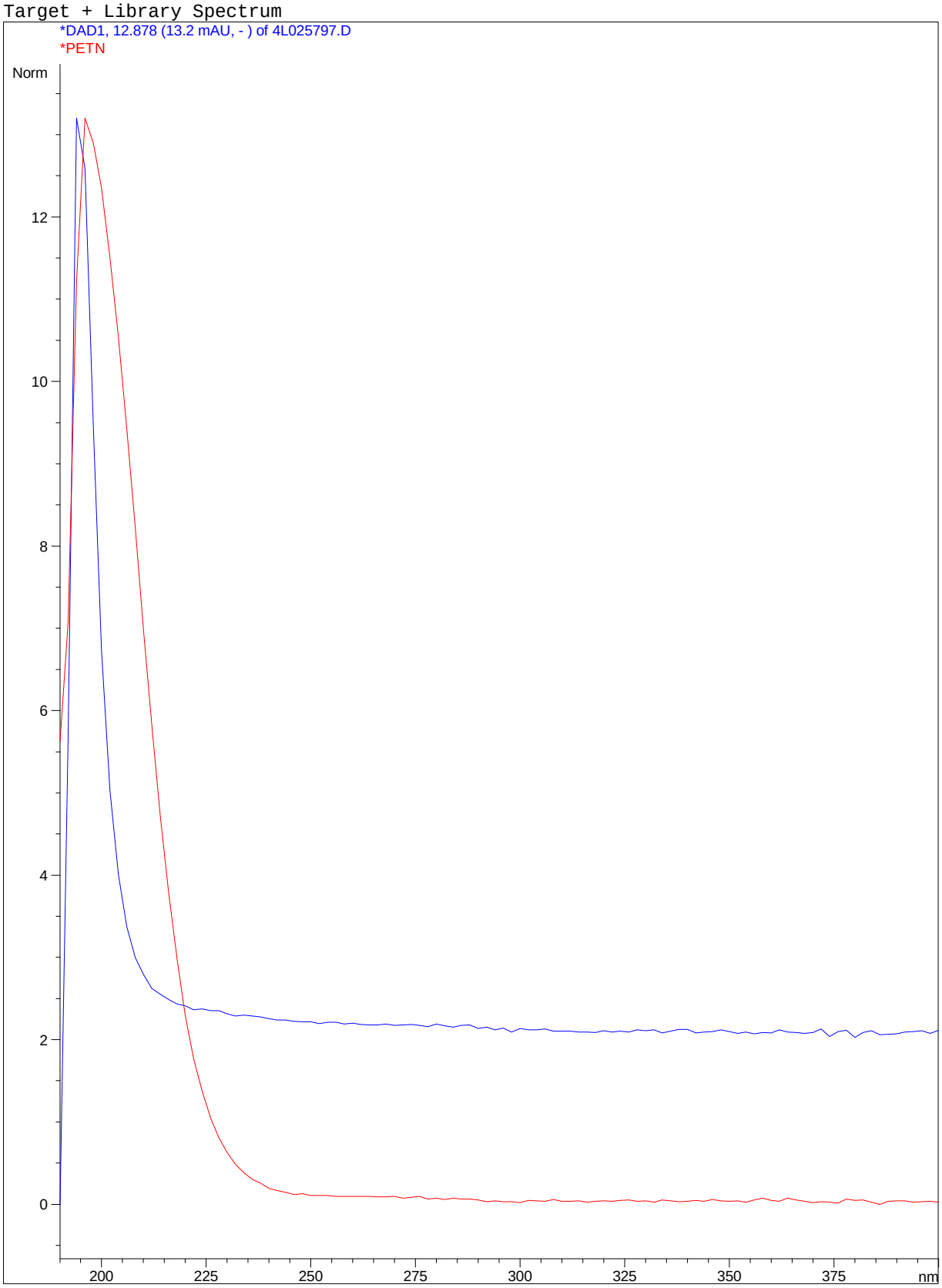
1,1

```
==================================================================
Injection Date  : 10/30/2013 9:50:34 PM          Seq. Line :   3
Sample Name     : WG450709-01 BLK                 Location : Vial 3
Acq. Operator   : JWR                                  Inj :   1
Acq. Instrument : HPLC4                         Inj Volume : 100 µl
Acq. Method     : C:\HPCHEM\1\METHODS\PETN.M
Last changed    : 11/15/2012 11:33:06 AM by ECL
Analysis Method : C:\HPCHEM\1\METHODS\PETNDA.M
Last changed    : 10/30/2013 10:16:01 PM by ECL
CALIBRATION November 15, 2012
==================================================================
```




```
==================================================================
                      External Standard Report
==================================================================

Sorted By             :      Signal
Calib. Data Modified  :      10/30/2013 3:55:09 PM
Multiplier            :      1.0000
Dilution              :      1.0000
Do not use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 C, Sig=210,16 Ref=360,100

RetTime  Type     Area     Amt/Area    Amount   Grp   Name
 [min]          [mAU*s]                [wt%]
-------|------|----------|----------|----------|--|------------------
 12.878 BBA       6.78587    7.77417   52.75448    PETN

Totals :                               52.75448

 Results obtained with enhanced integrator!
==================================================================
                          *** End of Report ***
```

Target + Library Spectrum



Search result of : DAD1, 12.878 (13.2 mAU, -)
Library used : C:\HPCHEM\SPECLIBS\PETNMAX.UVL
Library Name : PETNMAX
Parameters : None

Library search results

#	Match	Entry	Time [min]	Name
1	603.9614	1	12.603	PETN

*** End of Report ***

Data File C:\CHEM32\1\DATA\110613\110613\5L011571.D
Sample Name: WG450709-01 BLANK

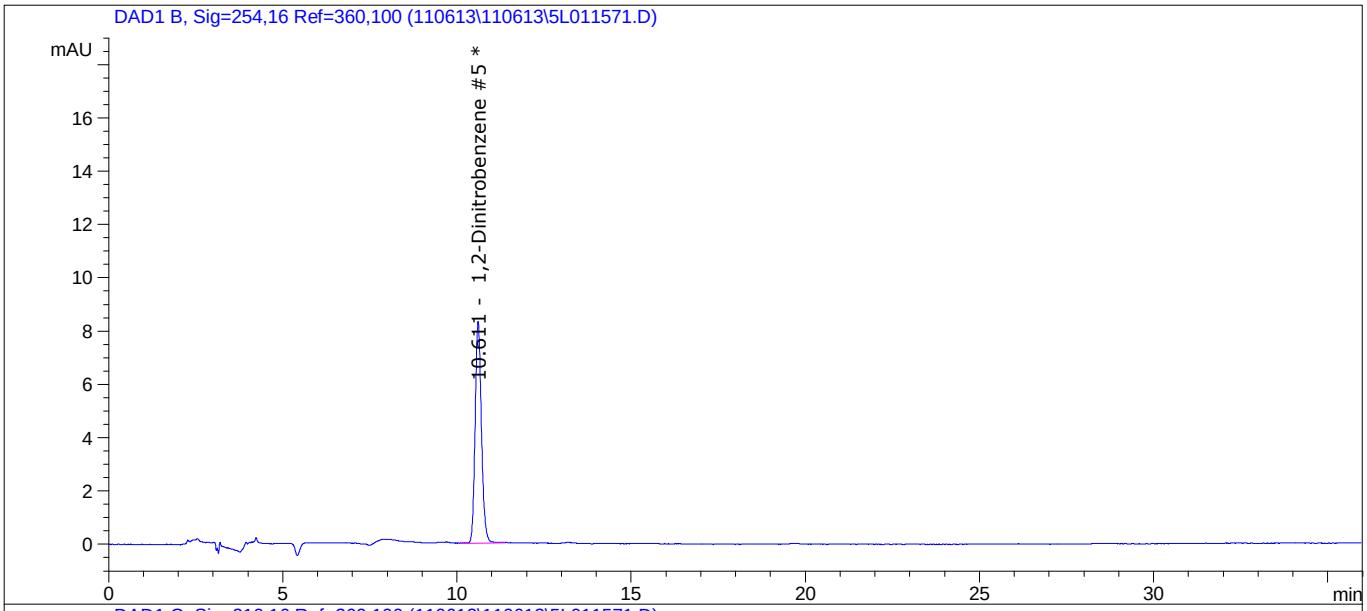
==========

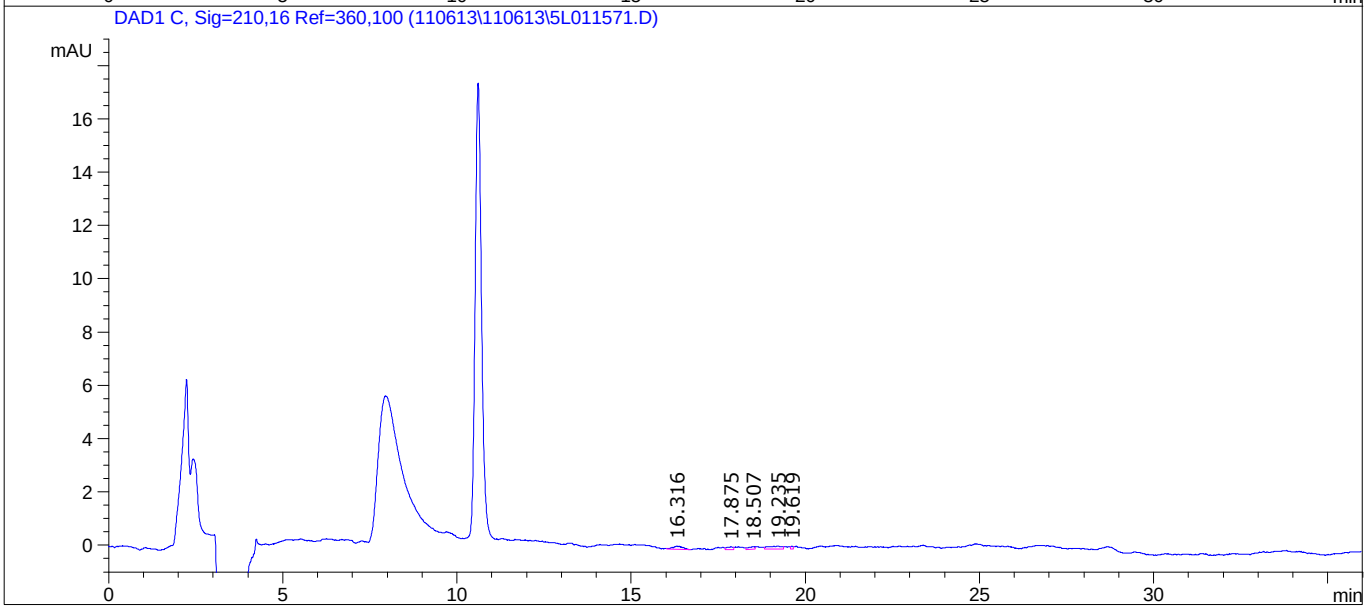
Acq. Operator	: ECL	Seq. Line :	2
Acq. Instrument	: HPLC5	Location :	Vial 3
Injection Date	: 11/6/2013 3:30:43 PM	Inj :	1
		Inj Volume :	100 µl

Acq. Method : C:\Chem32\1\DATA\110613\110613\8330PLUS.M
Last changed : 9/20/2013 3:11:11 PM by JWR
Analysis Method : C:\CHEM32\1\METHODS\8330PLDA.M
Last changed : 11/7/2013 11:39:31 AM by JWR
Method Info : OVD-SOP#HPLC02: 8330 CALIBRATION August 30, 2013

Sample Info : 1,1 WATER

==========





HPLC5 11/7/2013 11:39:35 AM JWR Page 1 of 3

Data File C:\CHEM32\1\DATA\110613\110613\5L011571.D
Sample Name: WG450709-01 BLANK

==========

Acq. Operator : ECL Seq. Line : 2
Acq. Instrument : HPLC5 Location : Vial 3
Injection Date : 11/6/2013 3:30:43 PM Inj : 1
Inj Volume : 100 µl
Acq. Method : C:\Chem32\1\DATA\110613\110613\8330PLUS.M
Last changed : 9/20/2013 3:11:11 PM by JWR
Analysis Method : C:\CHEM32\1\METHODS\8330PLDA.M
Last changed : 11/7/2013 11:39:31 AM by JWR
Method Info : OVD-SOP#HPLC02: 8330 CALIBRATION August 30, 2013

Sample Info : 1,1 WATER

==========

==========

External Standard Report

==========

Sorted By : Signal
Calib. Data Modified : 11/6/2013 3:27:12 PM
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 B, Sig=254,16 Ref=360,100

RetTime [min]	Type	Area [mAU*s]	Amt/Area	Amount [ug/L]	Grp	Name
5.026		-	-	-		HMX #2
7.615		-	-	-		RDX #3
10.253		-	-	-		1,3,5-Trinitrobenzene #4
10.611	VB	104.80663	4.23337	443.68548		1,2-Dinitrobenzene #5 *
12.502		-	-	-		1,3-Dinitrobenzene #6
13.618		-	-	-		Tetryl #7
14.164		-	-	-		Nitrobenzene #8
16.258		-	-	-		2,4,6-Trinitrotoluene #10
17.101		-	-	-		4-Amino-2,6-Dinitrotoluene #11
17.975		-	-	-		2-Amino-4,6-Dinitrotoluene #12
18.987		-	-	-		2,6-Dinitrotoluene #13
19.600		-	-	-		2,4-Dinitrotoluene #14
22.996		-	-	-		2-Nitrotoluene #15
24.602		-	-	-		4-Nitrotoluene #16
26.482		-	-	-		3-Nitrotoluene #17

Totals : 443.68548

Data File C:\CHEM32\1\DATA\110613\110613\5L011571.D
Sample Name: WG450709-01 BLANK

==========

Acq. Operator : ECL Seq. Line : 2
Acq. Instrument : HPLC5 Location : Vial 3
Injection Date : 11/6/2013 3:30:43 PM Inj : 1
Inj Volume : 100 µl
Acq. Method : C:\Chem32\1\DATA\110613\110613\8330PLUS.M
Last changed : 9/20/2013 3:11:11 PM by JWR
Analysis Method : C:\CHEM32\1\METHODS\8330PLDA.M
Last changed : 11/7/2013 11:39:31 AM by JWR
Method Info : OVD-SOP#HPLC02: 8330 CALIBRATION August 30, 2013

Sample Info : 1,1 WATER

==========

Signal 2: DAD1 C, Sig=210,16 Ref=360,100

RetTime [min]	Type	Area [mAU*s]	Amt/Area	Amount [ug/L]	Grp	Name
15.149	-	-	-			Nitroglycerin #9

Totals : 0.00000

2 Warnings or Errors :

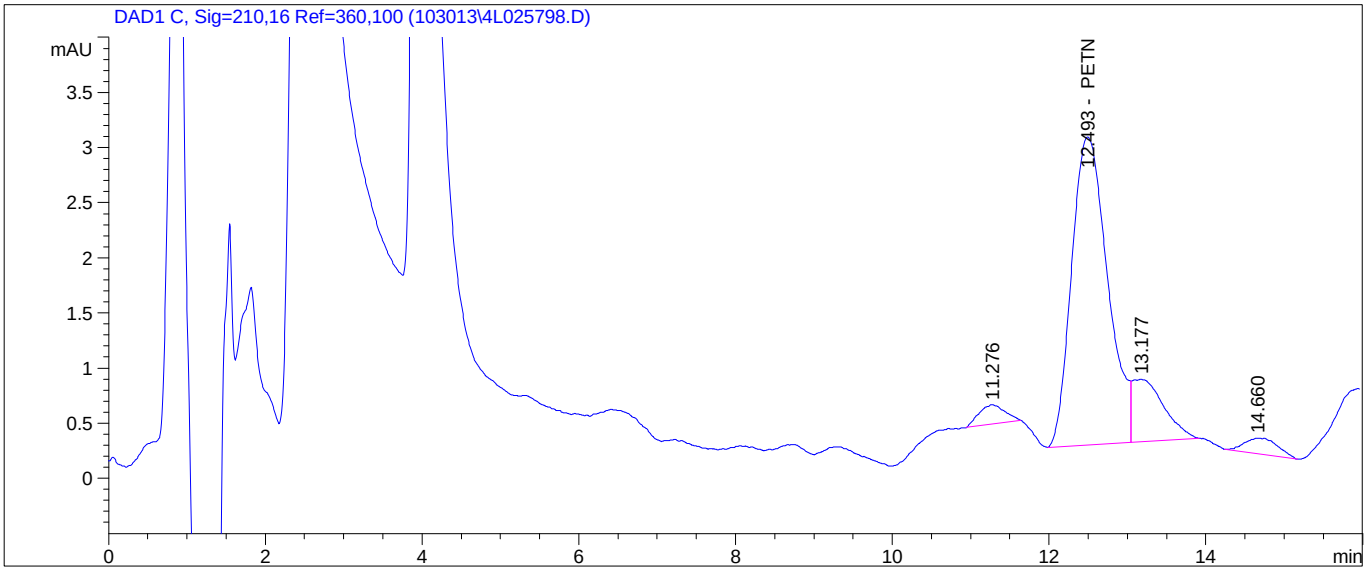
Warning : Calibration warnings (see calibration table listing)
Warning : Calibrated compound(s) not found

==========

*** End of Report ***

1,1 STD59729 (500ppb)

```
==================================================================
Injection Date  : 10/30/2013 10:09:39 PM        Seq. Line :   4
Sample Name     : WG450709-03 LCS                Location : Vial 4
Acq. Operator   : JWR                                 Inj :   1
Acq. Instrument : HPLC4                        Inj Volume : 100 µl
Acq. Method     : C:\HPCHEM\1\METHODS\PETN.M
Last changed    : 11/15/2012 11:33:06 AM by ECL
Analysis Method : C:\HPCHEM\1\METHODS\PETNDA.M
Last changed    : 10/30/2013 10:52:51 PM by ECL
CALIBRATION November 15, 2012
==================================================================
```




```
==================================================================
                      External Standard Report
==================================================================

Sorted By             :      Signal
Calib. Data Modified  :      10/30/2013 3:55:09 PM
Multiplier            :      1.0000
Dilution              :      1.0000
Do not use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 C, Sig=210,16 Ref=360,100

RetTime  Type     Area     Amt/Area    Amount   Grp   Name
 [min]          [mAU*s]                [wt%]
-------|------|----------|----------|----------|--|------------------
 12.493 BV       89.23476    5.65761  504.85550    PETN

Totals :                              504.85550

 Results obtained with enhanced integrator!
==================================================================
                          *** End of Report ***
```

Data File C:\CHEM32\1\DATA\110613\110613\5L011572.D
Sample Name: WG450709-02 LCS

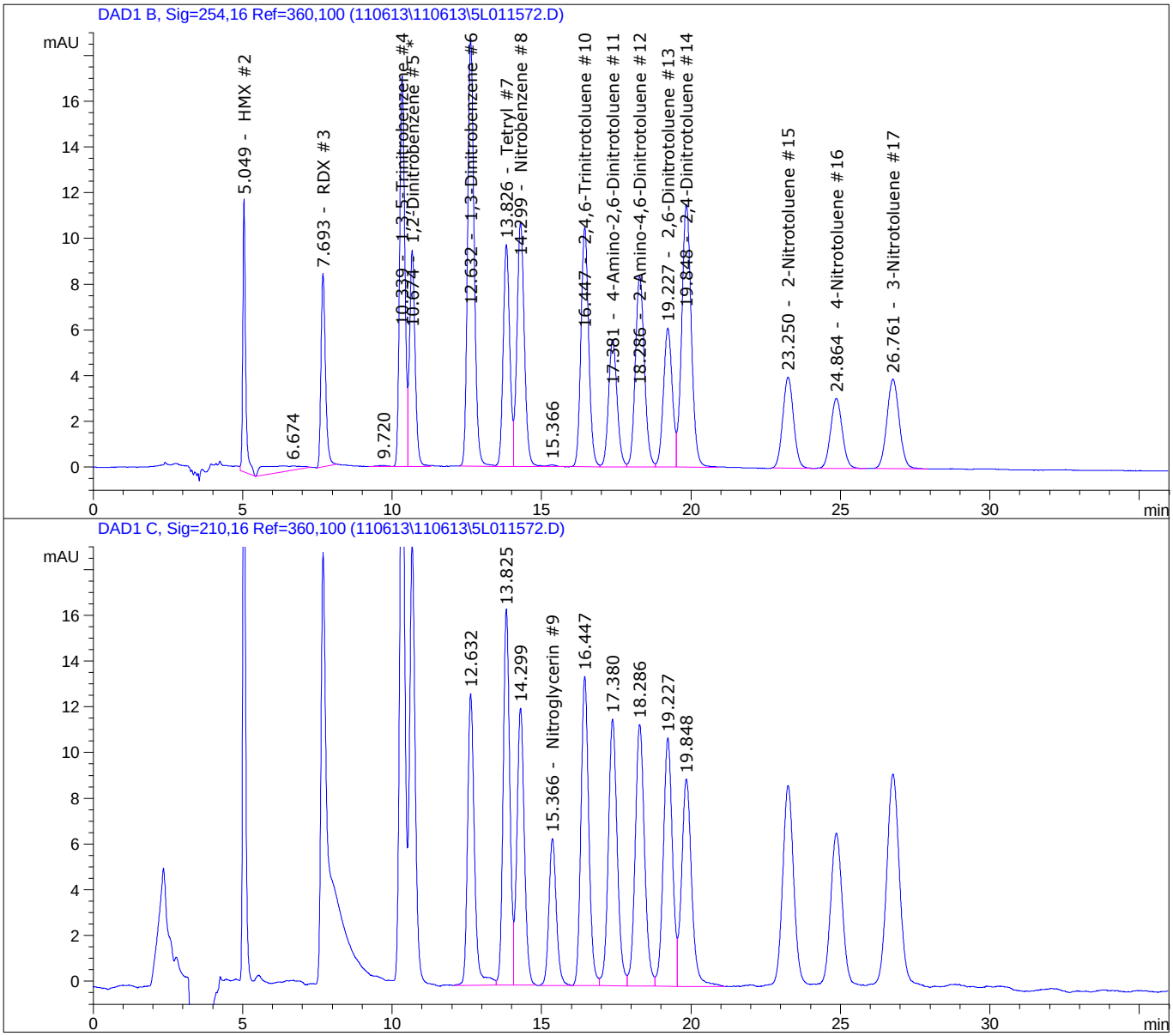
==========

Acq. Operator	: ECL	Seq. Line :	3
Acq. Instrument	: HPLC5	Location :	Vial 4
Injection Date	: 11/6/2013 4:09:44 PM	Inj :	1
		Inj Volume :	100 µl

Acq. Method : C:\Chem32\1\DATA\110613\110613\8330PLUS.M
Last changed : 9/20/2013 3:11:11 PM by JWR
Analysis Method : C:\CHEM32\1\METHODS\8330PLDA.M
Last changed : 11/7/2013 11:41:40 AM by JWR
Method Info : OVD-SOP#HPLC02: 8330 CALIBRATION August 30, 2013

Sample Info : 1,1 WATER

==========



HPLC5 11/7/2013 11:41:42 AM JWR Page 1 of 3

Data File C:\CHEM32\1\DATA\110613\110613\5L011572.D
Sample Name: WG450709-02 LCS

==========

Acq. Operator : ECL Seq. Line : 3
Acq. Instrument : HPLC5 Location : Vial 4
Injection Date : 11/6/2013 4:09:44 PM Inj : 1
Inj Volume : 100 µl
Acq. Method : C:\Chem32\1\DATA\110613\110613\8330PLUS.M
Last changed : 9/20/2013 3:11:11 PM by JWR
Analysis Method : C:\CHEM32\1\METHODS\8330PLDA.M
Last changed : 11/7/2013 11:41:40 AM by JWR
Method Info : OVD-SOP#HPLC02: 8330 CALIBRATION August 30, 2013

Sample Info : 1,1 WATER

==========

==========

External Standard Report

==========

Sorted By : Signal
Calib. Data Modified : 11/7/2013 11:41:26 AM
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 B, Sig=254,16 Ref=360,100

RetTime [min]	Type	Area [mAU*s]	Amt/Area	Amount [ug/L]	Grp	Name
5.049	BV	78.84089	6.15525	485.28530		HMX #2
7.693	BBA	88.65994	5.09146	451.40812		RDX #3
10.339	VV	203.55464	2.39549	487.61256		1,3,5-Trinitrobenzene #4
10.674	VB	122.46014	4.24225	519.50656		1,2-Dinitrobenzene #5 *
12.632	BV	281.06769	1.77778	499.67782		1,3-Dinitrobenzene #6
13.826	VV	149.10954	3.44394	513.52492		Tetryl #7
14.299	VB	182.55974	2.71991	496.54586		Nitrobenzene #8
16.447	BV	188.50867	2.60127	490.36146		2,4,6-Trinitrotoluene #10
17.381	VV	111.01714	4.17435	463.42435		4-Amino-2,6-Dinitrotoluene #11
18.286	VV	175.18224	2.73743	479.54898		2-Amino-4,6-Dinitrotoluene #12
19.227	VV	125.10881	3.80770	476.37642		2,6-Dinitrotoluene #13
19.848	VB	254.43660	1.92888	490.77704		2,4-Dinitrotoluene #14
23.250	BB	100.43774	4.63187	465.21417		2-Nitrotoluene #15
24.864	BB	83.05041	5.66162	470.19947		4-Nitrotoluene #16
26.761	BB	113.12472	4.11977	466.04742		3-Nitrotoluene #17

Totals : 7255.51045

Data File C:\CHEM32\1\DATA\110613\110613\5L011572.D
Sample Name: WG450709-02 LCS

```
==================================================================
Acq. Operator   : ECL                           Seq. Line :   3
Acq. Instrument : HPLC5                          Location : Vial 4
Injection Date  : 11/6/2013 4:09:44 PM                Inj :   1
                                               Inj Volume : 100 µl
Acq. Method     : C:\Chem32\1\DATA\110613\110613\8330PLUS.M
Last changed    : 9/20/2013 3:11:11 PM by JWR
Analysis Method : C:\CHEM32\1\METHODS\8330PLDA.M
Last changed    : 11/7/2013 11:41:40 AM by JWR
Method Info     : OVD-SOP#HPLC02: 8330 CALIBRATION August 30, 2013

Sample Info     : 1,1 WATER


==================================================================


Signal 2: DAD1 C, Sig=210,16 Ref=360,100

RetTime  Type     Area     Amt/Area    Amount   Grp   Name
 [min]          [mAU*s]                [ug/L]
-------|------|----------|----------|----------|--|------------------
 15.366 BV      111.13785    4.72910  525.58144    Nitroglycerin #9

Totals :                               525.58144


1 Warnings or Errors :

Warning : Calibration warnings (see calibration table listing)

==================================================================
                          *** End of Report ***
```

2.2 General Chemistry Data

2.2.1 Nitrate Data

2.2.1.1 Summary Data

Login Number: L13101691
Department: Conventionals
Analyst: Brice Fenton

METHOD

Analysis EPA 353.2/SM4500-NO3 F (Nitrate)

HOLDING TIMES

Sample Analysis: The instrument used for the analysis of nitrate only analyzes for nitrate-nitrite (NO3NO2) which is the amount of total nitrate (NO3) and nitrite (NO2) combined. The NO3 concentration is determined by analyzing for NO3NO2 and NO2 and calculating NO3 by the difference. An unpreserved bottle only has a 48 hour hold time for NO3 and NO2 separately. However if the bottle is preserved with sulfuric acid, the hold time for NO3NO2 is 28 days. The NO2 was analyzed within 48 hours. The NO3NO2 was analyzed from a preserved container within 28 days..

PREPARATION

Sample preparation proceeded normally.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met.

Duplicates: All acceptance criteria were met.

SAMPLES

Samples: All acceptance criteria were met.

I certify that this data package is in compliance with the terms and conditions agreed to by the client and Microbac Laboratories Inc., both technically and for completeness, except for the conditions noted above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or designated person, as verified by the following signature.

Narrative ID: 73797
Approved By: Deanna Hesson

Dianna Hesson

Microbac

Lab Report #: L13101691
Lab Project #: 3005.011
Project Name: White Sands MR
Lab Contact: Stephanie Mossburg

Certificate of Analysis

Sample #:	L13101691-01	**PrePrep Method:**	N/A	**Instrument:**	SMARTCHEM
Client ID:	HTA 51-1013-1	**Prep Method:**	353.2	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	353.2	**Cal Date:**	10/29/2013 14:17
Workgroup #:	WG450787	**Analyst:**	BAF	**Run Date:**	10/30/2013 14:30
Collect Date:	10/25/2013 09:55	**Dilution:**	4	**File ID:**	SC13103112244401
Sample Tag:		**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD
Nitrate-Nitrite (as N)		4.09		0.200	0.100

Sample #:	L13101691-02	**PrePrep Method:**	N/A	**Instrument:**	SMARTCHEM
Client ID:	HTA 43-1013-1	**Prep Method:**	353.2	**Prep Date:**	N/A
Matrix:	Water	**Analytical Method:**	353.2	**Cal Date:**	10/29/2013 14:17
Workgroup #:	WG450787	**Analyst:**	BAF	**Run Date:**	10/30/2013 14:30
Collect Date:	10/25/2013 11:45	**Dilution:**	4	**File ID:**	SC13103112245001
Sample Tag:		**Units:**	mg/L		

Analyte	CAS #	Result	Qual	LOQ	LOD
Nitrate-Nitrite (as N)		4.14		0.200	0.100

2.2.1.2 QC Summary Data

Example Calculations for Visible Spectrophotometric Methods

Linear Calibration Model

Step 1 - Retrieve Curve Data from ICAL

m = slope of the linear equation
b = intercept from the linear equation
y = instrument response as absorbance or OD
x = concentration of analyte (mg/L)
y = mx + b

Step 2: Calculate the instrument concentration, x

Where:

x = (y - b)/m

Step 3: Solve for analyte concentration in sample, Cx

Cx = (x) (D)

Example Calculation (LCS):

Value of m from plot:	7.809	
Value of b from plot:	0.0004135	
Absorbance of unknown from quantitation report (y):	0.31	
Calculated concentration (x):	0.03964483	
Dilution factor (D):	1.00	
Concentration of analyte in sample, Cy:	0.0396	mg/L

SmartChem Autoanalyzer - Quadratic Calibration for Chloride and Sulfate

Step 1 - Retrieve Curve Data from Smartchem ICAL

A, B, C = constants from the ICAL quadratic regression

x = instrument response as absorbance or OD

y = concentration of analyte (mg/L)

Step 2: Calculate the instrument concentration, y

Where:

y = Ax^2 + Bx + C

Step 3: Solve for analyte concentration in sample, Cy

Cy = (y) (D)

Example Calculation (LCS):

Value of A from plot:	101.2796	
Value of B from plot:	318.9056	
Value of C from plot:	-2.2712	
Absorbance of unknown from quantitation report (x):	0.1583	
Calculated concentration (y):	50.7495108	
Dilution factor (D):	1.00	
Concentration of analyte in sample, Cy:	50.75	mg/L

Microbac Laboratories Inc.

HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: 353.2 AAB#: WG450787

Login Number: L13101691

Client ID	ID	Date Collected	TCLP Date	Time Held	Max Hold	Q	Extract Date	Time Held	Max Hold	Q	Run Date	Time Held	Max Hold	Q
HTA 51-1013-1	01	10/25/13					10/30/2013	5.2	28		10/30/13	5.2	28	
HTA 43-1013-1	02	10/25/13					10/30/2013	5.1	28		10/30/13	5.1	28	

* = SEE PROJECT QAPP REQUIREMENTS

HOLD_TIMES - Modified 03/06/2008
PDF File ID: 3177111
Report generated 10/31/2013 12:48

Microbac Laboratories Inc.

METHOD BLANK SUMMARY

Login Number: L13101691
Blank File ID: SC13103112235401
Prep Date: 10/30/13 14:30
Analyzed Date: 10/30/13 14:30
Analyst: BAF

Work Group: WG450787
Blank Sample ID: WG450787-01
Instrument ID: SMARTCHEM
Method: 353.2

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS2	WG450787-03	SC13103112240201	10/30/13 14:30	
LCS	WG450787-02	SC13103112235901	10/30/13 14:30	
HTA 51-1013-1	L13101691-01	SC13103112244401	10/30/13 14:30	
HTA 43-1013-1	L13101691-02	SC13103112245001	10/30/13 14:30	
DUP	WG450787-05	SC13103112241401	10/30/13 14:30	

Report Name: BLANK_SUMMARY
PDF File ID: 3177112
Report generated 10/31/2013 12:48

Microbac Laboratories Inc.

METHOD BLANK REPORT

Login Number: L13101691 Prep Date: 10/30/13 14:30 Sample ID: WG450787-01
Instrument ID: SMARTCHEM Run Date: 10/30/13 14:30 Prep Method: 353.2
File ID: SC13103112235401 Analyst: BAF Method: 353.2
Workgroup (AAB#): WG450787 Matrix: Water Units: mg/L
Contract #: Cal ID: SMARTC-29-OCT-13

Analytes	LOD	LOQ	Concentration	Dilution	Qualifier
Nitrate-Nitrite (as N)	0.0250	0.0500	0.0250	1	U

LOD Method Detection Limit
LOQ Reporting/Practical Quantitation Limit
ND Analyte Not detected at or above reporting limit
* |Analyte concentration| > 1/2 RL

Report Name: BLANK
PDF ID: 3177113
31-OCT-2013 12:48

Microbac Laboratories Inc.
LABORATORY CONTROL SAMPLE (LCS)

Login Number: L13101691 Analyst: BAF Prep Method: 353.2
Instrument ID: SMARTCHEM Matrix: Water Method: 353.2
Workgroup (AAB#): WG450787 Units: mg/L
QC Key: DOD4 Lot #: STD61085

Sample ID: WG450787-02 LCS File ID: SC13103112235901 Run Date: 10/30/2013 14:30
Sample ID: WG450787-03 LCS2 File ID: SC13103112240201 Run Date: 10/30/2013 14:30

Analytes	LCS			LCS2			%RPD	%Rec Limits	RPD Lmt	Q
	Known	Found	% REC	Known	Found	% REC				
Nitrate-Nitrite (as N)	1.00	0.944	94.4	1.00	0.957	95.7	1.37	90 - 110	15	

LCS_LCS2 - Modified 03/06/2008
PDF File ID: 3177114
Report generated: 10/31/2013 12:48

2.2.1.3 Raw Data

SMARTCHEM RUN LOG

(smartchem2, smartchem3)

WORKGROUP: WG450475

449859
450787

Daily Check

- [x] Lamp On
- [x] Probe Rinse Full
- [x] DI Water > ½ Full
- [x] Wash Solution > ½ Full
- [x] NO3 Reagent bottle connected / purged
- [x] NO3 pH adj to pH 5-9

Syringe filter lot # 169000

- [x] WBL Run
- [x] Reagents Full
- [x] Dilution H_2O Full
- [x] Waste Container Check

1) **Workgroup** _____ **Plan #** 20131030002
2) **Workgroup** _____ **Plan #** _____
3) **Workgroup** _____ **Plan #** _____

Instrument: SC1 [x] SC2 [ ]

	Analyte	1	2	3
	NO3	Dilution		
SC Prepared Curve				
Position				
1-1	ICV 1.5			
1-2	Blk			
1-3	LCS 1			
1-4	LCSDUP			
1-5	NO2 1			
1-6	10-1499-01	1/2		
1-7	02	1/2		
1-8	03	1/4		
1-9	04	1/4		
1-10	10-1541-02			
1-11	10-1544-01			
1-12	02			
1-13	10-1546-01			
1-14	10-1558-01	1/25		color
1-15	10-1566-01	1/2		
1-16	10-1583-02			
1-17	04			
1-18	06			
1-19	08			
1-20	10			
1-21	12			
1-22	14			
2-1	10-1616-02			
2-2	10-1654-01			
2-3	02			

	Analyte	1	2	3
Position				
2-4	DUP 1654-01			
2-5	MS ↓			
2-6	MS 1654-02			
2-7	Blk			
2-8	LCS			
2-9	LCSDUP			
2-10	10-1168-01			
2-11	03			
2-12	05			
2-13	RS 07			
2-14	09			
2-15	DUP ~~09~~ 07			(07)
2-16	MS 11			
2-17	MSD 13			
2-18	10-1274-01			
2-19	03			
2-20	05			
2-21	10-1318-01			
2-22	10-1396-01			
2-23	10-1549-01		1/5	color
2-24	10-1555-01		1/5	color
2-25	02		1/5	↓
2-26	03		1/5	↓
3-1	10-1567-01	Auto	1/2	
3-2	02	"	1/2	

NOTES:
* Run NO2 std on NO3 runs
* LCSD must be run if no MS or Duplicate
*MS(10% sample): NO3, TKN, NH3, PHOS

DCN#98496

SMARTCHEM RUN LOG

(smartchem2, smartchem3)

WORKGROUP: WG450475

Position	Analyte	1	2	3
3-3	10-1567-03	Auto 1/2		
3-4	04	" 1/2		
3-5	10-1612-01	" 1/2		
3-6	02			
3-7	MS 03			
3-8	MSD 04			
3-9	BLK			
3-10	LCS			
3-11	LCSDUP			
3-12	10-1724-02			
3-13	04			
3-14	10-1771-02			
3-15	04			

Position	Analyte	1	2	3
3-16	10-1771-06			
3-17	08			
3-18	10-1613-01	Auto 1/2		
3-19	10-1691-01			
3-20	02			
3-21	DUP ↓			
3-22	MS ↓			
3-23				
3-24				
3-25				
3-26				
3-27				
3-28				

	Chloride	EPA 325.2/SM 4500-Cl E-2000
✓	Nitrate-Nitrite	EPA 353.2/SM 4500-NO3 F-2000
	Alkalinity	EPA 310.2
	Sulfate	EPA 375.4/SM 426C (15th)/ SM4500-504 E-1997

	Ammonia	EPA 350.1/SM 4500-NH3 B-1997
	TKN	EPA 351.2
	Phos	EPA 365.4

Analyte	NO3		Reagents
SOP & Revision	K3532 Rev 19		RGT28286
Curve Stock (SC made)	Std 60617		RGT28425
NO2 STD	Std 61035		
ICV	Std 61036		
CCV	Std 60957		
LCS	Std 61085		
MS	Std 58660 Dilution 0.1(25)/5 = 0.5		

Comments: _____

Analyst: Brie Fenton Date: 10/30/13

DCN#98496

MICROBAC (OVD)
SMARTCHEM200 INST1 (VER3.1.14)
NH3, TKN, NO3NO2 (MG/L N)
ALK (MG/L CaCO3) CL, SO4 (MG/L)

Method : WNO3 -Unit [mg/L] - EPA 353.2 Nitrate-Nitrite

Smp#/[Dil Fact]	Sample ID	Conc	OD	%Recovery/RPD	Flag	Analysis Time
DIL-1	RBL	0.000	0.0304	0.00		12:53:22 PM
DIL-1	RBL	0.000	0.0255	0.00		12:54:34 PM
DIL-1	RBL	0.000	0.0271	0.00		12:55:46 PM
DIL-1	RBL	0.000	0.0298	0.00		12:56:58 PM
DIL-1	Std-1	0.000	0.0015	0.00		12:58:10 PM
SR5-1	Std-2	0.040	0.0135	0.00		12:59:22 PM
SR5-2	Std-3	0.100	0.0318	0.00		1:00:34 PM
SR5-3	Std-4	0.500	0.1708	0.00		1:01:47 PM
SR5-4	Std-5	1.000	0.3452	0.00		1:02:58 PM
ST-1	Std-6	2.000	0.6989	0.00		1:04:11 PM
ST-3	1CCV (1 mg/L)	0.993	0.3453	99.31		1:05:22 PM
ST-2	2CCB (0 mg/L)	0.008	0.0012	0.00	X	1:06:35 PM
1	ICV	1.404	0.4888	0.00		1:07:47 PM
2	WG450475-01 BLK	0.017	0.0042	0.00		1:08:59 PM
3	WG450475-02 LCS	0.957	0.3328	0.00		1:10:11 PM
4	WG450475-03 LCSDUP	0.970	0.3372	0.00		1:11:23 PM
5	NO2	0.895	0.3109	0.00 NO2		1:12:35 PM
6	L13101499-01 (2)	0.937	0.3256	0.00		1:13:47 PM
7	L13101499-02 (2)	1.258	0.4380	0.00		1:14:59 PM
8	L13101499-03 (4)	1.402	0.4880	0.00		1:16:11 PM
9	L13101499-04 (4)	1.682	0.5861	0.00		1:17:23 PM
10	L13101541-02	0.209	0.0712	0.00 0		1:18:35 PM
ST-3	1CCV (1 mg/L)	1.005	0.3496	100.54		1:19:47 PM
ST-2	2CCB (0 mg/L)	0.011	0.0022	0.00		1:20:59 PM
11	L13101544-01	0.594	0.2058	0.00 0		1:22:11 PM
12	L13101544-02	0.245	0.0838	0.00 0		1:23:23 PM
13	L13101546-01	1.474	0.5133	0.00 0.006		1:24:35 PM
14	L13101558-01 (25)	1.112	0.3867	0.00 0.184		1:25:47 PM
15	L13101566-01 (2)	1.529	0.5324	0.00 0.027		1:26:59 PM
16	L13101583-02	0.801	0.2783	0.00 ~~0.036~~ 0.01		1:28:11 PM
17	L13101583-04	0.309	0.1063	0.00 0		1:29:23 PM
18	L13101583-06	0.043	0.0132	0.00 0		1:30:35 PM

Report Date :10/30/2013 **Run Date :10/30/2013** **Operator : WESTCO** **Plan # :20131030002**

Plan Description : NO3-B-BAF/10/30/2013

MICROBAC (OVD)
SMARTCHEM200 INST1 (VER3.1.14)
NH3, TKN, NO3NO2 (MG/L N)
ALK (MG/L CaCO3) CL, SO4 (MG/L)

Method : WNO3 -Unit [mg/L] - EPA 353.2 Nitrate-Nitrite

Smp#/[Dil Fact]	Sample ID	Conc	OD	%Recovery/RPD	Flag	Analysis Time
19	L13101583-08	0.585	0.2027	0.00 0		1:31:47 PM
20	L13101583-10	0.348	0.1200	0.00 0		1:32:59 PM
ST-3	1CCV (1 mg/L)	0.980	0.3406	97.97		1:34:11 PM
ST-2	2CCB (0 mg/L)	0.008	0.0010	0.00	><	1:35:23 PM
21	L13101583-12	0.540	0.1868	0.00 0		1:36:35 PM
22	L13101583-14	0.254	0.0869	0.00 0		1:37:47 PM
23	L13101616-02	0.199	0.0677	0.00 0		1:38:59 PM
24	L13101654-01	0.837	0.2907	0.00		1:40:11 PM
25	L13101654-02	0.264	0.0906	0.00		1:41:23 PM
26	WG450475-05 DUP	0.872	0.3029	0.00		1:42:35 PM
27	WG450475-06 MS	1.416	0.4929	0.00		1:43:47 PM
28	WG450475-08 MS	0.724	0.2512	0.00		1:44:59 PM
29	WG449859-01 BLK	0.013	0.0027	0.00		1:46:11 PM
30	WG449859-02 LCS	0.966	0.3357	0.00		1:47:24 PM
ST-3	1CCV (1 mg/L)	0.984	0.3421	98.40		1:48:36 PM
ST-2	2CCB (0 mg/L)	0.003	-0.0006	0.00	INV,><	1:49:48 PM
31	WG449859-03 LCSDUP	0.960	0.3338	0.00		1:51:00 PM
32	L13101168-01	0.211	0.0719	0.00		1:52:12 PM
33	L13101168-03	0.424	0.1465	0.00		1:53:24 PM
34	L13101168-05	0.254	0.0870	0.00		1:54:36 PM
35	L13101168-07	0.209	0.0712	0.00		1:55:48 PM
36	L13101168-09	0.414	0.1428	0.00		1:57:00 PM
37	WG449859-07 DUP	0.021	0.0056	0.00		1:58:12 PM
38	L13101168-11 MS	0.626	0.2169	0.00		1:59:24 PM
39	L13101168-13 MSD	0.506	0.1751	0.00		2:00:36 PM
40	L13101274-01	0.428	0.1478	0.00		2:01:48 PM
ST-3	1CCV (1 mg/L)	0.971	0.3375	97.08		2:03:00 PM
ST-2	2CCB (0 mg/L)	0.021	0.0057	0.00		2:04:12 PM
41	L13101274-03	0.188	0.0641	0.00		2:05:24 PM
42	L13101274-05	0.096	0.0318	0.00		2:06:36 PM
43	L13101318-01	0.216	0.0737	0.00		2:07:48 PM
44	L13101396-01	0.901	0.3131	0.00		2:09:00 PM

Report Date :10/30/2013 **Run Date :10/30/2013** **Operator : WESTCO** **Plan # :20131030002**

Plan Description : NO3-B-BAF/10/30/2013

MICROBAC (OVD)

SMARTCHEM200 INST1 (VER3.1.14)

NH3, TKN, NO3NO2 (MG/L N)

ALK (MG/L CaCO3) CL, SO4 (MG/L)

Method : WNO3 -Unit [mg/L] - EPA 353.2 Nitrate-Nitrite

Smp#/[Dil Fact]	Sample ID	Conc	OD	%Recovery/RPD	Flag	Analysis Time
45	L13101549-01 (5)	0.050	0.0158	0.00 O		2:10:12 PM
46	L13101555-01 (5)	0.070	0.0226	0.00		2:11:24 PM
47	L13101555-02 (5)	0.206	0.0704	0.00		2:12:36 PM
48	L13101555-03 (5)	0.254	0.0869	0.00		2:13:48 PM
49	L13101567-01	X 9.475	3.3087	0.00	EPL,><,LH	2:15:00 PM
50	L13101567-02	X 9.330	3.2581	0.00	EPL,><,LH	2:16:12 PM
ST-3	1CCV (1 mg/L)	0.997	0.3467	99.71		2:17:24 PM
ST-2	2CCB (0 mg/L)	0.005	0.0001	0.00	><	2:18:36 PM
51	L13101567-03	X 8.804	3.0741	0.00	EPL,><,LH	2:19:48 PM
52	L13101567-04	X 8.962	3.1295	0.00	EPL,><,LH	2:21:00 PM
53	L13101612-01	X 10.936	3.8190	0.00	><,LH	2:22:12 PM
54	L13101612-02	X 2.491	0.8687	0.00	><,LH	2:23:24 PM
55	L13101612-03 MS	X 2.883	1.0057	0.00	><,LH	2:24:36 PM
56	L13101612-04 MSD	X 3.035	1.0585	0.00	><,LH	2:25:48 PM
57	WG450787-01 BLK	0.009	0.0014	0.00	><	2:27:00 PM
58	WG450787-02 LCS	0.944	0.3282	0.00		2:28:12 PM
59	WG450787-03 LCSDUP	0.957	0.3326	0.00		2:29:24 PM
60	L13101724-02	0.252	0.0864	0.00 O		2:30:36 PM
ST-3	1CCV (1 mg/L)	0.977	0.3395	97.65		2:31:48 PM
ST-2	2CCB (0 mg/L)	0.008	0.0012	0.00	><	2:33:00 PM
61	L13101724-04	0.211	0.0719	0.00 O		2:34:12 PM
62	L13101771-02	0.305	0.1049	0.00 O		2:35:24 PM
63	L13101771-04	0.238	0.0813	0.00 O		2:36:36 PM
64	L13101771-06	0.166	0.0563	0.00 O		2:37:48 PM
65	L13101771-08	0.151	0.0510	0.00 O		2:39:00 PM
66	L13101613-01	X 10.576	3.6932	0.00	EPL,><,LH	2:40:12 PM
67	L13101691-01	X 4.036	1.4085	0.00	><,LH	2:41:24 PM
68	L13101691-02	X 4.151	1.4485	0.00	><,LH	2:42:36 PM
69	WG450787-05 DUP	X 4.220	1.4728	0.00	><,LH	2:43:48 PM
70	WG450787-06 MS	X 4.482	1.5641	0.00	><,LH	2:45:00 PM
ST-3	1CCV (1 mg/L)	0.972	0.3379	97.19		2:46:13 PM
ST-2	2CCB (0 mg/L)	0.009	0.0015	0.00		2:47:25 PM

Report Date :10/30/2013 **Run Date :10/30/2013** **Operator : WESTCO** **Plan # :20131030002**

Plan Description : NO3-B-BAF/10/30/2013

MICROBAC (OVD)

SMARTCHEM200 INST1 (VER3.1.14)

NH3, TKN, NO3NO2 (MG/L N)

ALK (MG/L CaCO3) CL, SO4 (MG/L)

Method : WNO3 -Unit [mg/L] - EPA 353.2 Nitrate-Nitrite

Smp#/[Dil Fact]	Sample ID	Conc	OD	%Recovery/RPD	Flag	Analysis Time
71	ID 71	-0.003	-0.0026	0.00	INV,><,LL	2:48:37 PM
72	ID 72	0.004	-0.0004	0.00	INV,><	2:49:49 PM
73	ID 73	0.941	0.3272	0.00		2:51:01 PM
74	ID 74	0.930	0.3232	0.00		2:52:13 PM
75	ID 75	0.960	0.3337	0.00		2:53:25 PM
76	ID 76	0.934	0.3245	0.00		2:54:37 PM
ST-3	1CCV (1 mg/L)	0.988	0.3435	98.80		2:55:49 PM
49-[1/4]	L13101567-01 (2)	4.726	0.4111	0.00	LH	3:04:59 PM
50-[1/4]	L13101567-02 (2)	4.594	0.3996	0.00	LH	3:07:05 PM
51-[1/4]	L13101567-03 (2)	4.580	0.3984	0.00	LH	3:09:11 PM
52-[1/4]	L13101567-04 (2)	4.226	0.3674	0.00	LH	3:11:17 PM
ST-3	1CCV (1 mg/L)	0.992	0.3449	99.20		3:12:11 PM
53-[1/4]	L13101612-01 (2)	5.507	0.4793	0.00	LH	3:14:36 PM
54-[1/4]	L13101612-02	2.407	0.2086	0.00	LH	3:16:42 PM
55-[1/4]	L13101612-03 MS	2.814	0.2441	0.00	LH	3:18:47 PM
56-[1/4]	L13101612-04 MSD	3.061	0.2657	0.00	LH	3:20:53 PM
66-[1/4]	L13101613-01 (2)	4.888	0.4253	0.00	LH	3:22:59 PM
67-[1/4]	L13101691-01	4.089	0.3555	0.00	LH	3:25:05 PM
ST-2	2CCB (0 mg/L)	0.016	0.0040	0.00		3:25:59 PM
68-[1/4]	L13101691-02	4.140	0.3599	0.00	LH	3:28:23 PM
69-[1/4]	WG450787-05 DUP	4.256	0.3701	0.00	LH	3:30:29 PM
70-[1/4]	WG450787-06 MS	4.592	0.3994	0.00	LH	3:32:35 PM
ST-3	1CCV (1 mg/L)	0.986	0.3428	98.60		3:33:29 PM
ST-2	2CCB (0 mg/L)	0.021	0.0055	0.00		3:34:41 PM

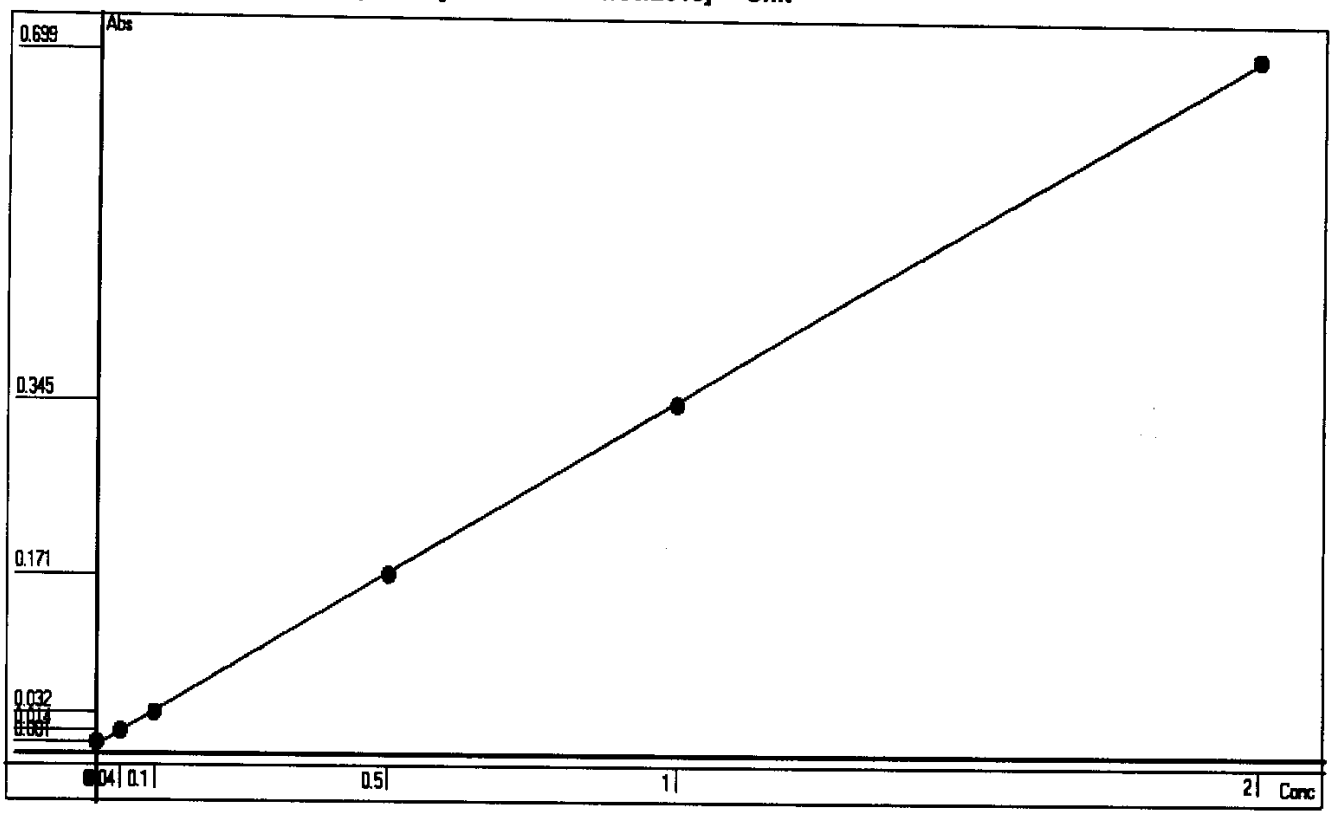
Report Date :10/30/2013 **Run Date :10/30/2013** **Operator : WESTCO** **Plan # :20131030002**

Plan Description : NO3-B-BAF/10/30/2013

Calibrant Report - WNO3 -

Calib Lot #:010104 Exp Date:6/17/2020 User:MICROBAC

Plan # : 20131030002 Description : [NO3-B-BAF/10/30/2013] Unit



Point	OD	Conc	Recalc Conc	% Error
1	0.0014	0	0.0089	0.89
2	0.0135	0.04	0.0435	8.75
3	0.0318	0.1	0.0959	-4.10
4	0.1708	0.5	0.4938	-1.24
5	0.3451	1	0.9926	-0.74
6	0.6988	2	2.0050	0.25

Conc= +2.8622*Abso +0.0049 R^2=0.9999

RBL
0.0284
0

Report Date 10/30/2013 Run Date 10/30/2013

3.0 Attachments

Microbac Laboratories Inc.
Ohio Valley Division Analyst List
November 8, 2013

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001 - BIO-CHEM TESTING WVDEP 220
002 - REIC Consultants, Inc. WVDEP 060
003 - Sturm Environmental
004 - MICROBAC PITTSBURGH
ADC - ANTHONY D. CANTER
ADG - APRIL D. GREENE
AJF - AMANDA J. FICKIESEN
AML - TONY M. LONG
AZH - AFTER HOURS
BAF - BRICE A. FENTON
BLG - BRENDA L. GREENWALT
BRG - BRENDA R. GREGORY
CAA - CASSIE A. AUGENSTEIN
CAF - CHERYL A. FLOWERS
CEB - CHAD E. BARNES
CLC - CHRYS L. CRAWFORD
CLS - CARA L. STRICKLER
CLW - CHARISSA L. WINTERS
CPD - CHAD P. DAVIS
CRW - CHRISTINA R. WILSON
CSH - CHRIS S. HILL
CTB - CHRIS T. BUCINA
DAK - DEAN A. K
DCM - DAVID C. MERCKLE
DDE - DEBRA D. ELLIOTT
DEV - DAVID E. VANDENBERG
DIH - DEANNA I. HESSON
DLB - DAVID L. BUMGARNER
DLP - DOROTHY L. PAYNE
DLR - DIANNA L. RAUCH
DSM - DAVID S. MOSSOR
ECL - ERIC C. LAWSON
EDL - ERIN D. LONG
ENY - EMILY N. YOAK
EPT - ETHAN P. TIDD
ERP - ERIN R. PORTER
FJB - FRANCES J. BOLDEN
HJR - HOLLY J. REED
JBK - JEREMY B. KINNEY
JDH - JUSTIN D. HESSON
JKS - JANE K. SCHAAD
JLL - JOHN L. LENT
JWR - JOHN W. RICHARDS
JWS - JACK W. SHEAVES
JYH - JI Y. HU
KDW - KATHRYN D. WELCH
KEB - KATIE E. BARNES
KHR - KIM H. RHODES
KRA - KATHY R. ALBERTSON
KRB - KAELY R. BECKER
KSC - KELLY S. CUNNINGHAM
LKN - LINDA K. NEDEFF
LLS - LARRY L. STEPHENS
LSB - LESLIE S. BUCINA
MBK - MORGAN B. KNOWLTON
MDA - MIKE D. ALBERTSON
MDC - MIKE D. COCHRAN
MES - MARY E. SCHILLING
MLW - MATTHEW L. WARREN
MMB - MAREN M. BEERY
MRT - MICHELLE R. TAYLOR
MSW - MATT S. WILSON
PDM - PIERCE D. MORRIS
PIT - MICROBAC WARRENDALE
PSW - PEGGY S. WEBB
QX - QIN XU
RAH - ROY A. HALSTEAD
REK - BOB E. KYER
RLB - BOB BUCHANAN
RM - RAYMOND MALEKE
RNP - RICK N. PETTY
RS - ROSEMARY SCOTT
RWC - RODNEY W. CAMPBELL
SAV - SARAH A. VANDENBERG
SEP - SUZANNE J. PAUGH
SLM - STEPHANIE L. MOSSBURG
SLP - SHERI L. PFALZGRAF
TMB - TIFFANY M. BAILEY
TMM - TAMMY M. MORRIS
TPA - TYLER P. AMRINE
VC - VICKI COLLIER
WJB - WILL J. BEASLEY
WTD - WADE T. DELONG
XXX - UNAVAILABLE OR SUBCONTRACT

Microbac Laboratories Inc.
List of Valid Qualifiers
November 08, 2013

Qualkey: DOD

Qualifier	Description
*	Surrogate or spike compound out of range
+	Correlation coefficient for the MSA is less than 0.995
<	Result is less than the associated numerical value.
>	Greater than
A	See the report narrative
B	The reported result is associated with a contaminated method blank.
B1	Target analyte detected in method blank at or above the method reporting limit
B3	Target analyte detected in calibration blank at or above the method reporting limit
B4	The BOD unseeded dilution water blank exceeded 0.2 mg/L
C	Confirmed by GC/MS
CG	Confluent growth
CT1	The cooler temperature at receipt exceeded regulatory guidelines for requested testing.
DL	Surrogate or spike compound was diluted out
E	Estimated concentration due to sample matrix interference
EDL	Elevated sample reporting limits, presence of non-target analytes
EMPC	Estimated Maximum Possible Concentration
F, S	Estimated result below quantitation limit; method of standard additions(MSA)
FL	Free Liquid
H1	Sample analysis performed past holding time.
I	Semiquantitative result (out of instrument calibration range)
J	Estimated concentration; sample matrix interference.
J	Estimated value ; the analyte concentration was greater than the highest standard
J	Estimated value ; the analyte concentration was less than the LOQ.
J	The reported result is an estimated value.
J,B	Analyte detected in both the method blank and sample above the MDL.
J,P	Estimate; columns don't agree to within 40%
J,S	Estimated concentration; analyzed by method of standard addition (MSA)
JB	The reported result is an estimated value. The reported result is also associated with a contaminated method blank.
JQ	The reported result is an estimated value and one or more quality control criteria failed. See narrative.
L	Sample reporting limits elevated due to matrix interference
L1	The associated blank spike (LCS) recovery was above the laboratory acceptance limits.
L2	The associated blank spike (LCS) recovery was below the laboratory acceptance limits.
M	Matrix effect; the concentration is an estimate due to matrix effect.
N	Nontarget analyte; the analyte is a tentativlely identified compound (TIC) by GC/MS
NA	Not applicable
ND	Not detected at or above the reporting limit (RL/MDL).
ND, CT1	Analyte was not detected. The concentration is below the reported LOD. The cooler temperature at receipt exceeded reg
ND, H1	Not detected; Sample analysis performed past holding time.
ND, L	Not detected; sample reporting limit (RL) elevated due to interference
ND, S	Not detected; analyzed by method of standard addition (MSA)
NF	Not found by library search
NFL	No free liquid
NI	Non-ignitable
NR	Analyte is not required to be analyzed
NS	Not spiked
P	Concentrations >40% difference between the two GC columns
Q	One or more quality control criteria failed. See narrative.
QNS	Quantity of sample not sufficient to perform analysis
RA	Reanalysis confirms reported results
RE	Reanalysis confirms sample matrix interference
S	Analyzed by method of standard addition (MSA)
SMI	Sample matrix interference on surrogate
SP	Reported results are for spike compounds only
TIC	Library Search Compound
TNTC	Too numerous to count
U	Analyte was not detected. The concentration is below the reported LOD.
UJ	Undetected; the MDL and RL are estimated due to quality control discrepancies.
UQ	Undetected; the analyte was analyzed for, but not detected.
W	Post-digestion spike for furnace AA out of control limits
X	Exceeds regulatory limit
X, S	Exceeds regulatory limit; method of standard additions (MSA)
Z	Cannot be resolved from isomer - see below

COC No. A 35227

158 Starlite Drive
Marietta, OH 45750

Microbac

CHAIN-OF-CUSTODY RECORD

Phone: 740-373-4071
Fax: 740-373-4835

Company Name: C B & I

Project Contact: Mark Lyon

Contact Phone #: 505-262-8920

Turn Around Requirements: Normal

Location: WSMR

Project ID: HTA 08/0D Additional Wells

Sampler (print): Bradley T. Davis

Signature: Brad T. Davis

Program: ☐ CWA ☐ RCRA ☐ DOD ☐ AFCEE ☐ Other _____

Sample I.D. No.	Comp	Grab	Date	Time	Matrix*	NUMBER OF CONTAINERS	Hold	Explosives	Perchlorate	Nitrate + Nitrite	TOTAL # (LAB USE)	ADDITIONAL REQUIREMENTS
HTA 51-1013-1		X	10-25-13	0955	W	4		X	X	X		
HTA 43-1013-1		X	10-25-13	1145	W	4		X	X	X		

Relinquished by: (Signature)	Date	Time	Received by: (Signature)
Brad T. Davis	10-25-13	1500	
Relinquished by: (Signature)	Date	Time	Received by: (Signature)

Microbac OVD
Received: 10/26/2013 09:31
By: JACK SHEAVES
221000044331
Jack Sheaves

Date | Time | Received by: (Signature)

Remarks:

*Water (W), Soil (S), Solid Waste (SD), Unknown (X)

Page 1 of 1

Internal Chain of Custody Report

Login: L13101691
Account: 3005
Project: 3005.011
Samples: 2
Due Date: 08-NOV-2013

Samplenum	Container ID	Products
L13101691-01	268929	8330-SPE

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	28-OCT-2013 13:07	CLS		
2	PREP	W1	EXT	29-OCT-2013 09:28	CSH	RS	
3	PREP	W1	EXT	30-OCT-2013 08:25	CSH	RS	
4	DISP	EXT	DISP	31-OCT-2013 07:09	RLB	RLB	
5	ANALYZ*	EXT	SEMI	31-OCT-2013 16:14	JWR	CSH	

Sample extract/digestate/leachate

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	28-OCT-2013 13:07	CLS		
2	STORE	W1	A1	31-OCT-2013 16:53	RS	RS	

Sample extract/digestate/leachate

Samplenum	Container ID	Products
L13101691-01	268930	6850

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	28-OCT-2013 13:07	CLS		
2	ANALYZ	W1	SEM	05-NOV-2013 15:46	JWR	RS	
3	STORE	SEM	A1	07-NOV-2013 10:24	CLS	JWR	

Samplenum	Container ID	Products
L13101691-01	268931	NO3NO2

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	28-OCT-2013 13:07	CLS		
2	ANALYZ	W1	WET	30-OCT-2013 11:51	BAF	RS	
3	STORE	WET	A1	30-OCT-2013 16:22	RS	DCM	

A1 - Sample Archive (COLD)
A2 - Sample Archive (AMBIENT)
F1 - Volatiles Freezer in Login
V1 - Volatiles Refrigerator in Login
W1 - Walkin Cooler in Login

Internal Chain of Custody Report

Login: L13101691
Account: 3005
Project: 3005.011
Samples: 2
Due Date: 08-NOV-2013

Samplenum	Container ID	Products
L13101691-02	268932	8330-SPE

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	28-OCT-2013 13:07	CLS		
2	PREP	W1	EXT	29-OCT-2013 09:28	CSH	RS	
3	PREP	W1	EXT	30-OCT-2013 08:25	CSH	RS	
4	DISP	EXT	DISP	31-OCT-2013 07:09	RLB	RLB	
5	ANALYZ*	EXT	SEMI	31-OCT-2013 16:14	JWR	CSH	

Sample extract/digestate/leachate

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	28-OCT-2013 13:07	CLS		
2	STORE	W1	A1	31-OCT-2013 16:53	RS	RS	

Sample extract/digestate/leachate

Samplenum	Container ID	Products
L13101691-02	268933	6850

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	28-OCT-2013 13:07	CLS		
2	ANALYZ	W1	SEM	05-NOV-2013 15:46	JWR	RS	
3	STORE	SEM	A1	07-NOV-2013 10:24	CLS	JWR	

Samplenum	Container ID	Products
L13101691-02	268934	NO3NO2

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	28-OCT-2013 13:07	CLS		
2	ANALYZ	W1	WET	30-OCT-2013 11:51	BAF	RS	
3	STORE	WET	A1	30-OCT-2013 16:22	RS	DCM	

A1 - Sample Archive (COLD)
A2 - Sample Archive (AMBIENT)
F1 - Volatiles Freezer in Login
V1 - Volatiles Refrigerator in Login
W1 - Walkin Cooler in Login