Microbac

Laboratory Report Number: L11080106

Larry Duty
Shaw E & I, Inc.
1401 Enclave Parkway
Houston, TX 77077

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.

This report was reviewed on August 16 2011

Stephanie Mossburg

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 August 16 2011

David E. Vandenberg

David Vandenberg – Managing Director

State of Origin: NM
Accrediting Authority: N/A ID:N/A
QAPP: DOD Ver 4.1

Microbac

Lab Report #: L11080106
Lab Project #: 2773.044
Project Name: White Sands Missile Range
Lab Contact: Stephanie Mossburg

Record of Sample Receipt and Inspection

Comments/Discrepancies

This is 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.

Coolers

Cooler #	Temperature Gun	Temperature	COC #	Airbill #
0015765	H	4		3457501711000003874824307050215 7

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 perservatives 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 #: L11080106
Lab Project #: 2773.044
Project Name: White Sands Missile Range
Lab Contact: Stephanie Mossburg

Samples Received

Client ID	Laboratory ID	Date Collected	Date Received
HTA-19	L11080106-01	08/02/2011 11:11	08/03/2011 10:32
HTA-19-QC	L11080106-02	08/02/2011 11:11	08/03/2011 10:32
HTA-16	L11080106-03	08/02/2011 13:13	08/03/2011 10:32
HTA-16-D	L11080106-04	08/02/2011 14:07	08/03/2011 10:32

Login Number: L11080106

Department: General Chromatography

Analyst: Wade DeLong

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 01-04 were analyzed at a dilution based on historical data.

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: 33383
Approved By: Mike Cochran

Login Number: L11080106

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: The percent difference was out of range for the following analytes: Tetryl, 2,4,6-Trinitrotoluene. Please see the applicable QC report for a detailed presentation of the failures.

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.

All positive hits were confirmed by second column analysis.

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 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.

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Narrative ID: 33665
Approved By: Mike Cochran

Login Number: L11080106

Department: Conventionals

Analyst: Deanna Hesson

METHOD

Analysis EPA 353.2/SM4500-NO3 F (Nitrate)

HOLDING TIMES

Sample Analysis: Nitrate is reported as the difference of nitrate-nitrite (28 day hold) and nitrite (48 hour hold). Both analysis were analyzed within the appropriate hold time. The nitrate hold time is within compliance.

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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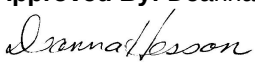
Narrative ID: 33457
Approved By: Deanna Hesson



Manual Integrations
Microbac Laboratories Inc.

The following report lists the analytes that were manual integrated.
Method: 6850

Method: 8330

Reason Code Descriptions

Code	Description
1	Data system fails to select the correct peak
2	Data system splits the peak incorrectly or integrates a false peak as a rider peak
3	Improperly integrated isomers and/or coeluting compounds
4	System established incorrect baseline
5	Miscellaneous

2.1 General Chromatography Data

2.1.1 LC/MS Data (6850)

2.1.1.1 Summary Data

Login Number: L11080106

Department: General Chromatography

Analyst: Wade DeLong

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 01-04 were analyzed at a dilution based on historical data.

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.

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Narrative ID: 33383
Approved By: Mike Cochran

LABORATORY REPORT

L11080106

08/16/11 14:36

Submitted By

Microbac Laboratories Inc.
158 Starlite Drive
Marietta , OH 45750
(740) 373 - 4071

For

Account Name: Shaw E & I, Inc.
1401 Enclave Parkway
Suite 250
Houston, TX 77077
Attention: Larry Duty

Project Number: 2773.044
Project: White Sands Missile Range
Site: WHITE SANDS MISSILE RANGE

P.O. Number: 620349

Sample Analysis Summary

Client ID	Lab ID	Method	Dilution	Date Received
HTA-19	L11080106-01	6850	10000	03-AUG-11
HTA-19-QC	L11080106-02	6850	10000	03-AUG-11
HTA-16	L11080106-03	6850	10000	03-AUG-11
HTA-16-D	L11080106-04	6850	10000	03-AUG-11

Microbac Laboratories Inc.

Report Number: **L11080106**

Report Date : **August 16, 2011**

Sample Number: **L11080106-01**
Client ID: **HTA-19**
Matrix: **Water**
Workgroup Number: **WG372540**
Collect Date: **08/02/2011 11:11**
Sample Tag: **DL01**

PrePrep Method: **NONE**
Prep Method: **6850**
Analytical Method: **6850**
Analyst: **WTD**
Dilution: **10000**
Units: **ug/L**

Instrument: **LCMS1**
Prep Date: **08/08/2011 16:04**
Cal Date: **08/08/2011 17:39**
Run Date: **08/09/2011 00:16**
File ID: **1LM.LM13249**

Analyte	CAS. Number	Result	Qual	LOQ	LOD
Perchlorate	**14797-73-0**	**8970**		**2000**	**1000**

Report Number: **L11080106**
Report Date : **August 16, 2011**

Sample Number: **L11080106-02**
Client ID: **HTA-19-QC**
Matrix: **Water**
Workgroup Number: **WG372540**
Collect Date: **08/02/2011 11:11**
Sample Tag: **DL01**

PrePrep Method: **NONE**
Prep Method: **6850**
Analytical Method: **6850**
Analyst: **WTD**
Dilution: **10000**
Units: **ug/L**

Instrument: **LCMS1**
Prep Date: **08/08/2011 16:04**
Cal Date: **08/08/2011 17:20**
Run Date: **08/09/2011 00:35**
File ID: **1LM.LM13250**

Analyte	CAS. Number	Result	Qual	LOQ	LOD
Perchlorate	**14797-73-0**	**8870**		**2000**	**1000**

Report Number: **L11080106**
Report Date : **August 16, 2011**

Sample Number: **L11080106-03**
Client ID: **HTA-16**
Matrix: **Water**
Workgroup Number: **WG372540**
Collect Date: **08/02/2011 13:13**
Sample Tag: **DL01**

PrePrep Method: **NONE**
Prep Method: **6850**
Analytical Method: **6850**
Analyst: **WTD**
Dilution: **10000**
Units: **ug/L**

Instrument: **LCMS1**
Prep Date: **08/08/2011 16:04**
Cal Date: **08/08/2011 17:39**
Run Date: **08/09/2011 00:54**
File ID: **1LM.LM13251**

Analyte	CAS. Number	Result	Qual	LOQ	LOD
Perchlorate	**14797-73-0**	**14700**		**2000**	**1000**

Report Number: **L11080106**
Report Date : **August 16, 2011**

Sample Number: **L11080106-04**
Client ID: **HTA-16-D**
Matrix: **Water**
Workgroup Number: **WG372540**
Collect Date: **08/02/2011 14:07**
Sample Tag: **DL01**

PrePrep Method: **NONE**
Prep Method: **6850**
Analytical Method: **6850**
Analyst: **WTD**
Dilution: **10000**
Units: **ug/L**

Instrument: **LCMS1**
Prep Date: **08/08/2011 16:04**
Cal Date: **08/08/2011 17:39**
Run Date: **08/09/2011 01:13**
File ID: **1LM.LM13252**

Analyte	CAS. Number	Result	Qual	LOQ	LOD
Perchlorate	**14797-73-0**	**16800**		**2000**	**1000**

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

Microbac Laboratories Inc.

Instrument Run Log

Instrument: LCMS1 Dataset: 080811_WTD.TXT
Analyst1: WTD Analyst2: NA
Method: 6850 SOP: HPLC06 Rev: 2

Maintenance Log ID: Syringe Filter Lot#: T0401111409

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

Workgroups: 372540, 372544

Internal STD: COA15352 Surrogate STD: NA Calibration STD STD46499

Comments:

Seq.	File ID	Sample Information	Mat	Dil	Reference	Date/Time
1	1LM.LM13223	WG372538-01 CCB	1	1		08/08/11 16:04
2	1LM.LM13224	WG372538-02 0.1 ug/L STD	1	1	STD46499	08/08/11 16:23
3	1LM.LM13225	WG372538-03 0.2 ug/L STD	1	1	STD46499	08/08/11 16:42
4	1LM.LM13226	WG372538-04 0.5 ug/L STD	1	1	STD46499	08/08/11 17:01
5	1LM.LM13227	WG372538-05 1.0 ug.L STD	1	1	STD46499	08/08/11 17:20
6	1LM.LM13228	WG372538-06 2.0 ug/L STD	1	1	STD46499	08/08/11 17:39
7	1LM.LM13229	WG372538-07 5.0 ug/L STD	1	1	STD46499	08/08/11 17:58
8	1LM.LM13230	WG372538-08 10.0 ug/L STD	1	1	STD46499	08/08/11 18:17
9	1LM.LM13231	WG372538-09 1.0 ug/L ALT SRC	1	1	STD46058	08/08/11 18:36
10	1LM.LM13232	WG372539-01 CCB	1	1		08/08/11 18:54
11	1LM.LM13233	WG372539-02 1.0ug/L CCV	1	1	STD46499	08/08/11 19:13
12	1LM.LM13234	WG372540-10 0.2ug/L QCMRL	1	1	STD46499	08/08/11 19:32
13	1LM.LM13235	WG372540-01 0.2ug/L MCT	1	1	STD46499	08/08/11 19:51
14	1LM.LM13236	WG372540-02 BLK	1	1		08/08/11 20:10
15	1LM.LM13237	WG372540-03 0.2ug/L LCS	1	1	STD46499	08/08/11 20:29
16	1LM.LM13238	L11070805-01	1	1		08/08/11 20:48
17	1LM.LM13239	L11070805-02	1	1		08/08/11 21:07
18	1LM.LM13240	L11070910-01	1	1		08/08/11 21:26
19	1LM.LM13241	L11070910-01	1	1		08/08/11 21:45
70	1LM.LM13242	L11080093-01	1	1		08/08/11 22:04
71	1LM.LM13243	L11080093-02 MS	1	1	STD46499	08/08/11 22:23
72	1LM.LM13244	L11080093-03 MSD	1	1	STD46499	08/08/11 22:42
23	1LM.LM13245	WG372539-03 1.0ug/L CCV	1	1	STD46499	08/08/11 23:01
24	1LM.LM13246	WG372540-11 0.2ug/L QCMRL	1	1	STD46499	08/08/11 23:20
25	1LM.LM13247	WG372539-04 CCB	1	1		08/08/11 23:38
26	1LM.LM13248	L11080093-04	1	1		08/08/11 23:57
27	1LM.LM13249	L11080106-01 10,000X	1	10000		08/09/11 00:16
28	1LM.LM13250	L11080106-02 10,000X	1	10000		08/09/11 00:35
29	1LM.LM13251	L11080106-03 10,000X	1	10000		08/09/11 00:54
30	1LM.LM13252	L11080106-04 10,000X	1	10000		08/09/11 01:13
31	1LM.LM13253	L11080119-01 10,000X	1	10000		08/09/11 01:32
32	1LM.LM13254	L11080160-01 10X	1	10		08/09/11 01:51
33	1LM.LM13255	L11080160-02 1000X	1	1000		08/09/11 02:10
34	1LM.LM13256	L11080160-03 1000X	1	1000		08/09/11 02:29
35	1LM.LM13257	L11080184-01 1000X	1	1000		08/09/11 02:48

Page: 1 Approved: 09-AUG-11

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Instrument Run Log

Instrument: LCMS1 Dataset: 080811_WTD.TXT
Analyst1: WTD Analyst2: NA
Method: 6850 SOP: HPLC06 Rev: 2

Maintenance Log ID: Syringe Filter Lot#: T0401111409

Column 1 ID: KP-RPPX250 Column 2 ID: NA
Workgroups: 372540, 372544
Internal STD: COA15352 Surrogate STD: NA STD46499

Seq.	File ID	Sample Information	Mat	Dil	Reference	Date/Time
36	1LM.LM13258	WG372539-05 1.0ug/L CCV	1	1	STD46499	08/09/11 03:07
37	1LM.LM13259	WG372540-12 0.2ug/L QCMRL	1	1	STD46499	08/09/11 03:26
38	1LM.LM13260	WG372539-06 CCB	1	1		08/09/11 03:45
39	1LM.LM13261	L11080184-02 10,000X	1	10000		08/09/11 04:03
40	1LM.LM13262	L11080184-03 10,000X	1	10000		08/09/11 04:22
41	1LM.LM13263	L11080223-01 10,000X	1	10000		08/09/11 04:41
73	1LM.LM13264	L11080223-02	1	1		08/09/11 05:00
74	1LM.LM13265	L11080223-03 MS	1	1	STD46499	08/09/11 05:19
75	1LM.LM13266	L11080223-04 MSD	1	1	STD46499	08/09/11 05:38
45	1LM.LM13267	WG372539-07 1.0ug/L CCV	1	1	STD46499	08/09/11 05:57
76	1LM.LM13268	WG372544-07 0.2ug/L QCMRL	1	1	STD46499	08/09/11 06:16
47	1LM.LM13269	WG372539-08 CCB	1	1		08/09/11 06:35
48	1LM.LM13270	WG372544-01 0.2ug/L MCT	1	1	STD46499	08/09/11 06:54
49	1LM.LM13271	WG372544-02 BLK	1	1		08/09/11 07:13
50	1LM.LM13272	WG372544-03 0.2ug/L LCS	1	1	STD46499	08/09/11 07:32
77	1LM.LM13273	L11080040-01	1	1		08/09/11 07:51
78	1LM.LM13274	L11080040-03 MS	1	1	STD46499	08/09/11 08:10
79	1LM.LM13275	L11080040-05 MSD	1	1	STD46499	08/09/11 08:29
54	1LM.LM13276	L11080040-07	1	1	STD46499	08/09/11 08:48
55	1LM.LM13277	L11080040-09	1	1		08/09/11 09:06
56	1LM.LM13278	L11080040-11	1	1		08/09/11 09:25
57	1LM.LM13279	L11080040-13	1	1		08/09/11 09:44
58	1LM.LM13280	WG372539-09 1.0ug/L CCV	1	1	STD46499	08/09/11 10:03
80	1LM.LM13281	WG372544-08 0.2ug/L QCMRL	1	1	STD46499	08/09/11 10:22
60	1LM.LM13282	WG372539-10 CCB	1	1		08/09/11 10:41
61	1LM.LM13283	L11080040-15	1	1		08/09/11 11:00
62	1LM.LM13284	L11080040-17	1	1		08/09/11 11:19
63	1LM.LM13285	L11080040-19	1	1		08/09/11 11:38
64	1LM.LM13286	L11080040-21	1	1		08/09/11 11:57
65	1LM.LM13287	L11080040-23	1	1		08/09/11 12:16
66	1LM.LM13288	L11080184-01 100X	1	100		08/09/11 12:35
67	1LM.LM13289	WG372539-11 1.0ug/L CCV	1	1	STD46499	08/09/11 12:54
81	1LM.LM13290	WG372544-09 0.2ug/L QCMRL	1	1	STD46499	08/09/11 13:12
69	1LM.LM13291	WG372539-12 CCB	1	1		08/09/11 13:31

Comments

Seq.	Rerun	Dil.	Reason	Analytes

Page: 2 Approved: 09-AUG-11

Microbac Laboratories Inc.

Instrument Run Log

Instrument: LCMS1 Dataset: 080811_WTD.TXT
Analyst1: WTD Analyst2: NA
Method: 6850 SOP: HPLC06 Rev: 2

Maintenance Log ID: Syringe Filter Lot#: T0401111409

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

Workgroups: 372540, 372544

Internal STD: COA15352 Surrogate STD: NA STD46499

Comments

Seq.	Rerun	Dil.	Reason	Analytes
27				
	L11080106-01 Sample was analyzed initially at a dilution based on historical data.			
28				
	L11080106-02 Sample was analyzed initially at a dilution based on historical data.			
29				
	L11080106-03 Sample was analyzed initially at a dilution based on historical data.			
30				
	L11080106-04 Sample was analyzed initially at a dilution based on historical data.			
31				
	L11080119-01 Sample was analyzed initially at a dilution based on historical data.			
32				
	L11080160-01 Sample was analyzed initially at a dilution based on historical data.			
33				
	L11080160-02 Sample was analyzed initially at a dilution based on historical data.			
34				
	L11080160-03 Sample was analyzed initially at a dilution based on historical data.			
35	X	100	Analyzed too dilute	
	L11080184-01 Sample was analyzed initially at a dilution based on historical data.			
39				
	L11080184-02 Sample was analyzed initially at a dilution based on historical data.			
40				
	L11080184-03 Sample was analyzed initially at a dilution based on historical data.			
41				
	L11080223-01 Sample was analyzed initially at a dilution based on historical data.			
74				
	L11080223-03 MS recovery was less than 80%.			
75				
	L11080223-04 MSD recovery was less than 80%.			
79				
	L11080040-05 MS/MSD RPD was greater than 15%.			

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Microbac Laboratories Inc.

Data Checklist

Date: 08-AUG-2011
Analyst: WTD
Analyst: NA
Method: 6850
Instrument: LCMS1
Curve Workgroup: NA
Runlog ID: 42043
Analytical Workgroups: 372540, 372544

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	X
Surrogate recoveries	NA
LCS/LCSD (Laboratory Control Sample)	X
Recoveries	X
Surrogate recoveries	NA
MS/MSD/Sample duplicates	X
Recoveries	X
%RPD	X
Interference check sample (ICS) (LCMS)	X
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	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	WTD
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	ECL

Primary Reviewer:
09-AUG-2011

Secondary Reviewer:
09-AUG-2011

CHECKLIST1 - Modified 03/05/2008
Generated: AUG-09-2011 16:07:40

Microbac Laboratories Inc.

HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: 6850 AAB#: WG372540

Login Number: L11080106

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-19	01	08/02/11					08/08/11	6.2	28		08/09/11	.3	28	
HTA-19-QC	02	08/02/11					08/08/11	6.2	28		08/09/11	.4	28	
HTA-16	03	08/02/11					08/08/11	6.1	28		08/09/11	.4	28	
HTA-16-D	04	08/02/11					08/08/11	6.1	28		08/09/11	.4	28	

* = SEE PROJECT QAPP REQUIREMENTS

HOLD_TIMES - Modified 03/06/2008
PDF File ID: 2111824
Report generated 08/10/2011 15:51

Microbac Laboratories Inc.

METHOD BLANK SUMMARY

Login Number: L11080106
Blank File ID: 1LM.LM13236
Prep Date: 08/08/11 16:04
Analyzed Date: 08/08/11 20:10
Analyst: WTD

Work Group: WG372540
Blank Sample ID: WG372540-02
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	WG372540-10	1LM.LM13234	08/08/11 19:32	01
MCT	WG372540-01	1LM.LM13235	08/08/11 19:51	01
LCS	WG372540-03	1LM.LM13237	08/08/11 20:29	01
QCMRL	WG372540-11	1LM.LM13246	08/08/11 23:20	01
HTA-19	L11080106-01	1LM.LM13249	08/09/11 00:16	DL01
HTA-19-QC	L11080106-02	1LM.LM13250	08/09/11 00:35	DL01
HTA-16	L11080106-03	1LM.LM13251	08/09/11 00:54	DL01
HTA-16-D	L11080106-04	1LM.LM13252	08/09/11 01:13	DL01
QCMRL	WG372540-12	1LM.LM13259	08/09/11 03:26	01
QCMRL	WG372540-13	1LM.LM13268	08/09/11 06:16	01
QCMRL	WG372540-14	1LM.LM13281	08/09/11 10:22	01
QCMRL	WG372540-15	1LM.LM13290	08/09/11 13:12	01

Report Name: BLANK_SUMMARY
PDF File ID: 2109961
Report generated 08/10/2011 15:51

Microbac Laboratories Inc.

METHOD BLANK REPORT

Login Number: L11080106 Prep Date: 08/08/11 16:04 Sample ID: WG372540-02
Instrument ID: LCMS1 Run Date: 08/08/11 20:10 Prep Method: 6850
File ID: 1LM.LM13236 Analyst: WTD Method: 6850
Workgroup (AAB#): WG372540 Matrix: Water Units: ug/L
Contract #: Cal ID: LCMS1-08-AUG-11

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: 2109962
10-AUG-2011 15:51

Microbac Laboratories Inc.
LABORATORY CONTROL SAMPLE (LCS)

Login Number: L11080106 Run Date: 08/08/2011 Sample ID: WG372540-03
Instrument ID: LCMS1 Run Time: 20:29 Prep Method: 6850
File ID: 1LM.LM13237 Analyst: WTD Method: 6850
Workgroup (AAB#): WG372540 Matrix: Water Units: ug/L
QC Key: DOD4 Lot#: STD46499 Cal ID: LCMS1-08-AUG-11

Analytes	Expected	Found	% Rec	LCS Limits	Q
Perchlorate	0.200	0.196	98.0	80 - 120	

LCS - Modified 03/06/2008
PDF File ID: 2109963
Report generated: 08/10/2011 15:52

Conductivity Probe Calibration Check: 1408 /1410 µs/cm

Perchlorate Conductivity Check

Working MCT Level: 10,000 µs/cm

Sample	Conductivity (µs/cm)	Pretreatment or Dilution Needed
WG372542-01 MCT	10,770	
-02 Blk	0.0	
-03 LCS	0.0	
L11070805-01	2430	
-02	2430	
L11070910-01	2520	
-02	2520	
L11080093-01	2640	
-02	2640	
-03	2670	
-04	2640	
L11080106-01	1004	
-02	991	
-03	1052	
-04	990	
L11080119-01	2040	
L11080160-01	987	
-02	908	
-03	889	
L11080184-01	901	
-02	987	
-03	1013	
L11080223 -01	978	
-02	817	
-03	821	
-04	825	

Wade T. Doty
Analyst

8-8-11 / 1520
Date/Time

DCN#87948

Microbac Laboratories Inc.

INITIAL CALIBRATION SUMMARY

Login Number: L11080106
Analytical Method: 6850
ICAL Workgroup: WG372538

Instrument ID: LCMS1
Initial Calibration Date: 08-AUG-11 18:17
Column ID: F

Analyte		AVG RF	% RSD	LINEAR (R)	QUAD (R^2)
Perchlorate		1.822	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: 2109965
Report generated 08/10/2011 15:52

Microbac Laboratories Inc.

INITIAL CALIBRATION DATA

Login Number: L11080106

Analytical Method: 6850

Instrument ID: LCMS1

Initial Calibration Date: 08-AUG-11 18:17

Column ID: F

Analyte	WG372538-02			WG372538-03			WG372538-04		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
Perchlorate	0.100	7160.00000	1.953	0.200	14200.0000	1.843	0.500	37700.0000	1.817

INT_CAL - Modified 03/06/2008
PDF File ID: 2109965
Report generated 08/10/2011 15:52

Microbac Laboratories Inc.

INITIAL CALIBRATION DATA

Login Number: L11080106

Analytical Method: 6850

Instrument ID: LCMS1

Initial Calibration Date: 08-AUG-11 18:17

Column ID: F

Analyte	WG372538-05			WG372538-06			WG372538-07		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
Perchlorate	1.00	74200.0000	1.759	2.00	132000.000	1.841	5.00	380000.000	1.763

INT_CAL - Modified 03/06/2008
PDF File ID: 2109965
Report generated 08/10/2011 15:52

Microbac Laboratories Inc.

INITIAL CALIBRATION DATA

Login Number: L11080106

Analytical Method: 6850

Instrument ID: LCMS1

Initial Calibration Date: 08-AUG-11 18:17

Column ID: F

Analyte	WG372538-08		
	CONC	RESP	RF
Perchlorate	10.0	676000.000	1.776

INT_CAL - Modified 03/06/2008

PDF File ID: 2109965

Report generated 08/10/2011 15:52

Microbac Laboratories Inc.
ALTERNATE SOURCE CALIBRATION REPORT

Login Number: L11080106 Run Date: 08/08/2011 Sample ID: WG372538-09
Instrument ID: LCMS1 Run Time: 18:36 Method: 6850
File ID: 1LM.LM13231 Analyst: WTD QC Key: DOD4
ICal Workgroup: WG372538 Cal ID: LCMS1 - 08-AUG-11

Analyte		Expected	Found	Units	RF	%D	UCL	Q
Perchlorate		1.00	0.974	ug/L	1.75	2.60	15	

* Exceeds %D Limit

ALT - Modified 09/06/2007
Version 1.5 PDF File ID: 2109966
Report generated 08/10/2011 15:52

Microbac Laboratories Inc.

CONTINUING CALIBRATION BLANK (CCB)

Login Number: L11080106 Run Date: 08/08/2011 Sample ID: WG372539-01

Instrument ID: LCMS1 Run Time: 18:54 Method: 6850

File ID: 1LM.LM13232 Analyst: WTD Units: ug/L

Workgroup (AAB#): WG372540 Cal ID: LCMS1 - 08-AUG-11

Matrix: WATER QAPP: DOD4

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: 2109968
Report generated 08/10/2011 15:52

Microbac Laboratories Inc.
CONTINUING CALIBRATION BLANK (CCB)

Login Number: L11080106
Run Date: 08/08/2011
Sample ID: WG372539-04
Instrument ID: LCMS1
Run Time: 23:38
Method: 6850
File ID: 1LM.LM13247
Analyst: WTD
Units: ug/L
Workgroup (AAB#): WG372540
Cal ID: LCMS1 - 08-AUG-11
Matrix: WATER
QAPP: DOD4

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: 2109968
Report generated 08/10/2011 15:52

Microbac Laboratories Inc.

CONTINUING CALIBRATION BLANK (CCB)

Login Number: L11080106 Run Date: 08/09/2011 Sample ID: WG372539-06

Instrument ID: LCMS1 Run Time: 03:45 Method: 6850

File ID: 1LM.LM13260 Analyst: WTD Units: ug/L

Workgroup (AAB#): WG372540 Cal ID: LCMS1 - 08-AUG-11

Matrix: WATER QAPP: DOD4

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: 2109968
Report generated 08/10/2011 15:52

Microbac Laboratories Inc.
CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L11080106
Run Date: 08/08/2011
Sample ID: WG372539-02
Instrument ID: LCMS1
Run Time: 19:13
Method: 6850
File ID: 1LM.LM13233
Analyst: WTD
QC Key: DOD4
Workgroup (AAB#): WG372540
Cal ID: LCMS1 - 08-AUG-11
Matrix: WATER

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
Perchlorate		1.00	0.980	ug/L	1.76	2.00	15	

* Exceeds %D Criteria

CCV - Modified 03/05/2008
PDF File ID: 2109967
Report generated 08/10/2011 15:52

Microbac Laboratories Inc.
CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L11080106
Run Date: 08/08/2011
Sample ID: WG372539-03
Instrument ID: LCMS1
Run Time: 23:01
Method: 6850
File ID: 1LM.LM13245
Analyst: WTD
QC Key: DOD4
Workgroup (AAB#): WG372540
Cal ID: LCMS1 - 08-AUG-11
Matrix: WATER

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
Perchlorate		1.00	0.990	ug/L	1.77	1.00	15	

* Exceeds %D Criteria

CCV - Modified 03/05/2008
PDF File ID: 2109967
Report generated 08/10/2011 15:52

Microbac Laboratories Inc.
CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L11080106
Run Date: 08/09/2011
Sample ID: WG372539-05
Instrument ID: LCMS1
Run Time: 03:07
Method: 6850
File ID: 1LM.LM13258
Analyst: WTD
QC Key: DOD4
Workgroup (AAB#): WG372540
Cal ID: LCMS1 - 08-AUG-11
Matrix: WATER

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
Perchlorate		1.00	0.969	ug/L	1.74	3.10	15	

* Exceeds %D Criteria

CCV - Modified 03/05/2008
PDF File ID: 2109967
Report generated 08/10/2011 15:52

Microbac Laboratories Inc.

QCMRL SAMPLE

Login Number: L11080106 Run Date: 08/08/2011 Sample ID: WG372540-10

Instrument ID: LCMS1 Run Time: 19:32 Prep Method: 6850

File ID: 1LM.LM13234 Analyst: WTD Method: 6850

Workgroup (AAB#): WG372540 Matrix: Water Units: ug/L

Contract #: Cal ID: LCMS1-08-AUG-11

Analytes	Expected	Found	% Rec	Limits	Q
Perchlorate	0.200	0.214	107	70 - 130	

QCMRL - Modified 03/06/2007
PDF File ID: 2109964
Report generated 08/10/2011 15:52

Microbac Laboratories Inc.

QCMRL SAMPLE

Login Number: L11080106 Run Date: 08/08/2011 Sample ID: WG372540-11

Instrument ID: LCMS1 Run Time: 23:20 Prep Method: 6850

File ID: 1LM.LM13246 Analyst: WTD Method: 6850

Workgroup (AAB#): WG372540 Matrix: Water Units: ug/L

Contract #: Cal ID: LCMS1-08-AUG-11

Analytes	Expected	Found	% Rec	Limits	Q
Perchlorate	0.200	0.199	99.5	70 - 130	

QCMRL - Modified 03/06/2007
PDF File ID: 2109964
Report generated 08/10/2011 15:52

Microbac Laboratories Inc.

QCMRL SAMPLE

Login Number: L11080106 Run Date: 08/09/2011 Sample ID: WG372540-12

Instrument ID: LCMS1 Run Time: 03:26 Prep Method: 6850

File ID: 1LM.LM13259 Analyst: WTD Method: 6850

Workgroup (AAB#): WG372540 Matrix: Water Units: ug/L

Contract #: Cal ID: LCMS1-08-AUG-11

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

QCMRL - Modified 03/06/2007
PDF File ID: 2109964
Report generated 08/10/2011 15:52

Microbac Laboratories Inc.

INTERNAL STANDARD AREA SUMMARY
(COMPARED TO AVERAGE OF ICAL)

Login Number: L11080106
Instrument ID: LCMS1
Workgroup (AAB#): WG372540

ICAL CCV Number: WG372538-05
CAL ID: LCMS1-08-AUG-11
Matrix: WATER

Sample Number	Dilution	Tag	IS-1
WG372538	NA	NA	197000
Upper Limit	NA	NA	295500
Lower Limit	NA	NA	98500
WG372540-02	1.00	01	198000
WG372540-03	1.00	01	182000

IS-1 - O18LP

Underline = Response outside limits

INTERNAL_STD_AVG_ICAL - Modified 03/10/2010
PDF File ID: 2109970
Report generated 08/10/2011 15:52

Microbac Laboratories Inc.

INTERNAL STANDARD AREA SUMMARY
(COMPARED TO AVERAGE OF ICAL)

Login Number: L11080106
Instrument ID: LCMS1
Workgroup (AAB#): WG372540

ICAL CCV Number: WG372538-05
CAL ID: LCMS1-08-AUG-11
Matrix: WATER

Sample Number	Dilution	Tag	IS-1
WG372538	NA	NA	197000
Upper Limit	NA	NA	295500
Lower Limit	NA	NA	98500
L11080106-02	10000	DL01	205000

IS-1 - O18LP

Underline = Response outside limits

INTERNAL_STD_AVG_ICAL - Modified 03/10/2010
PDF File ID: 2109970
Report generated 08/10/2011 15:52

Microbac Laboratories Inc.

INTERNAL STANDARD AREA SUMMARY
(COMPARED TO AVERAGE OF ICAL)

Login Number: L11080106
Instrument ID: LCMS1
Workgroup (AAB#): WG372540

ICAL CCV Number: WG372538-05
CAL ID: LCMS1-08-AUG-11
Matrix: WATER

Sample Number	Dilution	Tag	IS-1
WG372538	NA	NA	197000
Upper Limit	NA	NA	295500
Lower Limit	NA	NA	98500
L11080106-01	10000	DL01	213000
L11080106-03	10000	DL01	195000
L11080106-04	10000	DL01	209000

IS-1 - O18LP

Underline = Response outside limits

INTERNAL_STD_AVG_ICAL - Modified 03/10/2010
PDF File ID: 2109970
Report generated 08/10/2011 15:52

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L11080106	**Prep Method:**	6850	**Samplenum:**	L11080106-01
Instrument:	LCMS1	**Prep Date:**	08/08/2011 16:04	**File ID:**	1LM.LM13249
Analyst:	WTD	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG372540	**Analysis Date:**	08/09/2011 00:16	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	68600	23100	2.97	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L11080106	**Prep Method:**	6850	**Samplenum:**	L11080106-02
Instrument:	LCMS1	**Prep Date:**	08/08/2011 16:04	**File ID:**	1LM.LM13250
Analyst:	WTD	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG372540	**Analysis Date:**	08/09/2011 00:35	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	65200	22100	2.95	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L11080106	**Prep Method:**	6850	**Samplenum:**	L11080106-03
Instrument:	LCMS1	**Prep Date:**	08/08/2011 16:04	**File ID:**	1LM.LM13251
Analyst:	WTD	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG372540	**Analysis Date:**	08/09/2011 00:54	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	102000	32500	3.14	2.3	3.8	

Perchlorate Ion Ratios
Microbac Laboratories Inc.

Login #:	L11080106	**Prep Method:**	6850	**Samplenum:**	L11080106-04
Instrument:	LCMS1	**Prep Date:**	08/08/2011 16:04	**File ID:**	1LM.LM13252
Analyst:	WTD	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG372540	**Analysis Date:**	08/09/2011 01:13	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	125000	41000	3.05	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L11080106	**Prep Method:**		**Samplenum:**	WG372538-02
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM13224
Analyst:	WTD	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG372540	**Analysis Date:**	08/08/2011 16:23	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	7160	2620	2.73	2.3	3.8	

Perchlorate Ion Ratios
Microbac Laboratories Inc.

Login #:	L11080106	**Prep Method:**		**Samplenum:**	WG372538-03
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM13225
Analyst:	WTD	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG372540	**Analysis Date:**	08/08/2011 16:42	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	14200	4650	3.05	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L11080106	**Prep Method:**		**Samplenum:**	WG372538-04
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM13226
Analyst:	WTD	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG372540	**Analysis Date:**	08/08/2011 17:01	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	37700	12400	3.04	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L11080106	**Prep Method:**		**Samplenum:**	WG372538-05
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM13227
Analyst:	WTD	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG372540	**Analysis Date:**	08/08/2011 17:20	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	74200	24400	3.04	2.3	3.8	

Perchlorate Ion Ratios
Microbac Laboratories Inc.

Login #:	L11080106	**Prep Method:**		**Samplenum:**	WG372538-06
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM13228
Analyst:	WTD	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG372540	**Analysis Date:**	08/08/2011 17:39	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	132000	42600	3.10	2.3	3.8	

Perchlorate Ion Ratios
Microbac Laboratories Inc.

Login #:	L11080106	**Prep Method:**		**Samplenum:**	WG372538-07
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM13229
Analyst:	WTD	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG372540	**Analysis Date:**	08/08/2011 17:58	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	380000	122000	3.11	2.3	3.8	

Perchlorate Ion Ratios
Microbac Laboratories Inc.

Login #:	L11080106	**Prep Method:**		**Samplenum:**	WG372538-08
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM13230
Analyst:	WTD	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG372540	**Analysis Date:**	08/08/2011 18:17	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	676000	221000	3.06	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L11080106	**Prep Method:**		**Samplenum:**	WG372538-09
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM13231
Analyst:	WTD	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG372540	**Analysis Date:**	08/08/2011 18:36	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	72000	24900	2.89	2.3	3.8	

Perchlorate Ion Ratios
Microbac Laboratories Inc.

Login #:	L11080106	**Prep Method:**		**Samplenum:**	WG372539-01
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM13232
Analyst:	WTD	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG372540	**Analysis Date:**	08/08/2011 18:54	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	496	0.000	0.000	2.3	3.8	*

Perchlorate Ion Ratios
Microbac Laboratories Inc.

Login #:	L11080106	**Prep Method:**		**Samplenum:**	WG372539-02
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM13233
Analyst:	WTD	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG372540	**Analysis Date:**	08/08/2011 19:13	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	65300	21800	3.00	2.3	3.8	

Perchlorate Ion Ratios
Microbac Laboratories Inc.

Login #:	L11080106	**Prep Method:**		**Samplenum:**	WG372539-03
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM13245
Analyst:	WTD	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG372540	**Analysis Date:**	08/08/2011 23:01	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	73600	23700	3.11	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L11080106	**Prep Method:**		**Samplenum:**	WG372539-04
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM13247
Analyst:	WTD	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG372540	**Analysis Date:**	08/08/2011 23:38	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	0.000	277	0.000	2.3	3.8	*

Perchlorate Ion Ratios
Microbac Laboratories Inc.

Login #:	L11080106	**Prep Method:**		**Samplenum:**	WG372539-05
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM13258
Analyst:	WTD	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG372540	**Analysis Date:**	08/09/2011 03:07	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	74100	23500	3.15	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L11080106	**Prep Method:**		**Samplenum:**	WG372539-06
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM13260
Analyst:	WTD	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG372540	**Analysis Date:**	08/09/2011 03:45	**Units:**	ug/L

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

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L11080106	**Prep Method:**		**Samplenum:**	WG372539-07
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM13267
Analyst:	WTD	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG372540	**Analysis Date:**	08/09/2011 05:57	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	68200	23300	2.93	2.3	3.8	

Perchlorate Ion Ratios
Microbac Laboratories Inc.

Login #:	L11080106	**Prep Method:**		**Samplenum:**	WG372539-08
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM13269
Analyst:	WTD	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG372540	**Analysis Date:**	08/09/2011 06:35	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	294	407	0.722	2.3	3.8	*

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L11080106	**Prep Method:**		**Samplenum:**	WG372539-09
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM13280
Analyst:	WTD	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG372540	**Analysis Date:**	08/09/2011 10:03	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	66700	21000	3.18	2.3	3.8	

Perchlorate Ion Ratios
Microbac Laboratories Inc.

Login #:	L11080106	**Prep Method:**		**Samplenum:**	WG372539-10
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM13282
Analyst:	WTD	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG372540	**Analysis Date:**	08/09/2011 10:41	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	453	0.000	0.000	2.3	3.8	*

Perchlorate Ion Ratios
Microbac Laboratories Inc.

Login #:	L11080106	**Prep Method:**		**Samplenum:**	WG372539-11
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM13289
Analyst:	WTD	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG372540	**Analysis Date:**	08/09/2011 12:54	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	73600	24300	3.03	2.3	3.8	

Perchlorate Ion Ratios
Microbac Laboratories Inc.

Login #:	L11080106	**Prep Method:**		**Samplenum:**	WG372539-12
Instrument:	LCMS1	**Prep Date:**		**File ID:**	1LM.LM13291
Analyst:	WTD	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG372540	**Analysis Date:**	08/09/2011 13:31	**Units:**	ug/L

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

Perchlorate Ion Ratios
Microbac Laboratories Inc.

Login #:	L11080106	**Prep Method:**	6850	**Samplenum:**	WG372540-01
Instrument:	LCMS1	**Prep Date:**	08/08/2011 16:04	**File ID:**	1LM.LM13235
Analyst:	WTD	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG372540	**Analysis Date:**	08/08/2011 19:51	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	15600	5560	2.81	2.3	3.8	

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L11080106	**Prep Method:**	6850	**Samplenum:**	WG372540-02
Instrument:	LCMS1	**Prep Date:**	08/08/2011 16:04	**File ID:**	1LM.LM13236
Analyst:	WTD	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG372540	**Analysis Date:**	08/08/2011 20:10	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	1060	0.000	0.000	2.3	3.8	*

Perchlorate Ion Ratios

Microbac Laboratories Inc.

Login #:	L11080106	**Prep Method:**	6850	**Samplenum:**	WG372540-03
Instrument:	LCMS1	**Prep Date:**	08/08/2011 16:04	**File ID:**	1LM.LM13237
Analyst:	WTD	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG372540	**Analysis Date:**	08/08/2011 20:29	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	13300	4330	3.07	2.3	3.8	

Perchlorate Ion Ratios
Microbac Laboratories Inc.

Login #:	L11080106	**Prep Method:**	6850	**Samplenum:**	WG372540-10
Instrument:	LCMS1	**Prep Date:**	08/08/2011 16:04	**File ID:**	1LM.LM13234
Analyst:	WTD	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG372540	**Analysis Date:**	08/08/2011 19:32	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	16400	5490	2.99	2.3	3.8	

Perchlorate Ion Ratios
Microbac Laboratories Inc.

Login #:	L11080106	**Prep Method:**	6850	**Samplenum:**	WG372540-11
Instrument:	LCMS1	**Prep Date:**	08/08/2011 16:04	**File ID:**	1LM.LM13246
Analyst:	WTD	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG372540	**Analysis Date:**	08/08/2011 23:20	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	15000	5170	2.90	2.3	3.8	

Perchlorate Ion Ratios
Microbac Laboratories Inc.

Login #:	L11080106	**Prep Method:**	6850	**Samplenum:**	WG372540-12
Instrument:	LCMS1	**Prep Date:**	08/08/2011 16:04	**File ID:**	1LM.LM13259
Analyst:	WTD	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG372540	**Analysis Date:**	08/09/2011 03:26	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	15900	5870	2.71	2.3	3.8	

Perchlorate Ion Ratios
Microbac Laboratories Inc.

Login #:	L11080106	**Prep Method:**	6850	**Samplenum:**	WG372540-13
Instrument:	LCMS1	**Prep Date:**	08/08/2011 16:04	**File ID:**	1LM.LM13268
Analyst:	WTD	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG372540	**Analysis Date:**	08/09/2011 06:16	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	16800	5880	2.86	2.3	3.8	

Perchlorate Ion Ratios
Microbac Laboratories Inc.

Login #:	L11080106	**Prep Method:**	6850	**Samplenum:**	WG372540-14
Instrument:	LCMS1	**Prep Date:**	08/08/2011 16:04	**File ID:**	1LM.LM13281
Analyst:	WTD	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG372540	**Analysis Date:**	08/09/2011 10:22	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	15200	4740	3.21	2.3	3.8	

Perchlorate Ion Ratios
Microbac Laboratories Inc.

Login #:	L11080106	**Prep Method:**	6850	**Samplenum:**	WG372540-15
Instrument:	LCMS1	**Prep Date:**	08/08/2011 16:04	**File ID:**	1LM.LM13290
Analyst:	WTD	**Anal Method:**	6850	**Matrix:**	Water
Worknum:	WG372540	**Analysis Date:**	08/09/2011 13:12	**Units:**	ug/L

Analyte	Res #1	Res #2	Ratio	Lower	Upper	Q
PERCHLORATE	13600	4530	3.00	2.3	3.8	

2.1 Semivolatiles Data

2.1.2 Explosives (8330B)

2.1.2.1 Summary Data

LABORATORY REPORT

L11080106

08/16/11 14:37

Submitted By

Microbac Laboratories Inc.
158 Starlite Drive
Marietta , OH 45750
(740) 373 - 4071

For

Account Name: Shaw E & I, Inc.
1401 Enclave Parkway
Suite 250
Houston, TX 77077
Attention: Larry Duty

Project Number: 2773.044
Project: White Sands Missile Range
Site: WHITE SANDS MISSILE RANGE

P.O. Number: 620349

Sample Analysis Summary

Client ID	Lab ID	Method	Dilution	Date Received
HTA-19	L11080106-01	8330B	1	03-AUG-11
HTA-19-QC	L11080106-02	8330B	1	03-AUG-11
HTA-16	L11080106-03	8330B	1	03-AUG-11
HTA-16	L11080106-03	8330B	1	03-AUG-11
HTA-16-D	L11080106-04	8330B	1	03-AUG-11
HTA-16-D	L11080106-04	8330B	1	03-AUG-11

Report Number: **L11080106**
Report Date : **August 16, 2011**

Sample Number: **L11080106-01**
Client ID: **HTA-19**
Matrix: **Water**
Workgroup Number: **WG372734**
Collect Date: **08/02/2011 11:11**
Sample Tag: **01**

PrePrep Method: **NONE**
Prep Method: **METHOD**
Analytical Method: **8330B**
Analyst: **ECL**
Dilution: **1**
Units: **ug/L**

Instrument: **HPLC5**
Prep Date: **08/09/2011 07:00**
Cal Date: **02/10/2011 16:32**
Run Date: **08/10/2011 16:51**
File ID: **5L005124.F**

Analyte	CAS. Number	Result	Qual	LOQ	LOD
1,3,5-Trinitrobenzene	99-35-4		U	1.18	0.294
1,3-Dinitrobenzene	99-65-0		U	1.18	0.294
2,4,6-Trinitrotoluene	118-96-7		U	1.18	0.294
2,4-Dinitrotoluene	121-14-2		U	1.18	0.294
2,6-Dinitrotoluene	606-20-2		U	1.18	0.294
2-Amino-4,6-dinitrotoluene	35572-78-2		U	1.18	0.294
2-Nitrotoluene	88-72-2		U	1.18	0.294
3-Nitrotoluene	99-08-1		U	1.18	0.294
4-Nitrotoluene	99-99-0		U	1.18	0.294
4-Amino-2,6-dinitrotoluene	19406-51-0		U	1.18	0.294
HMX	2691-41-0		U	1.18	0.294
Nitrobenzene	98-95-3		U	1.18	0.294
RDX	121-82-4		U	1.18	0.294
Tetryl	479-45-8		U	1.18	0.294

Surrogate	% Recovery	Lower	Upper	Qual
1,2-Dinitrobenzene	95.3	50	150	

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

Report Number: **L11080106**
Report Date : **August 16, 2011**

Sample Number: **L11080106-02**
Client ID: **HTA-19-QC**
Matrix: **Water**
Workgroup Number: **WG372734**
Collect Date: **08/02/2011 11:11**
Sample Tag: **01**

PrePrep Method: **NONE**
Prep Method: **METHOD**
Analytical Method: **8330B**
Analyst: **ECL**
Dilution: **1**
Units: **ug/L**

Instrument: **HPLC5**
Prep Date: **08/09/2011 07:00**
Cal Date: **02/10/2011 16:32**
Run Date: **08/10/2011 17:30**
File ID: **5L005125.F**

Analyte	CAS. Number	Result	Qual	LOQ	LOD
1,3,5-Trinitrobenzene	99-35-4		U	1.11	0.278
1,3-Dinitrobenzene	99-65-0		U	1.11	0.278
2,4,6-Trinitrotoluene	118-96-7		U	1.11	0.278
2,4-Dinitrotoluene	121-14-2		U	1.11	0.278
2,6-Dinitrotoluene	606-20-2		U	1.11	0.278
2-Amino-4,6-dinitrotoluene	35572-78-2		U	1.11	0.278
2-Nitrotoluene	88-72-2		U	1.11	0.278
3-Nitrotoluene	99-08-1		U	1.11	0.278
4-Nitrotoluene	99-99-0		U	1.11	0.278
4-Amino-2,6-dinitrotoluene	19406-51-0		U	1.11	0.278
HMX	2691-41-0		U	1.11	0.278
Nitrobenzene	98-95-3		U	1.11	0.278
RDX	121-82-4		U	1.11	0.278
Tetryl	479-45-8		U	1.11	0.278

Surrogate	% Recovery	Lower	Upper	Qual
1,2-Dinitrobenzene	117	50	150	

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

Report Number: **L11080106**
Report Date : **August 16, 2011**

Sample Number: **L11080106-03**
Client ID: **HTA-16**
Matrix: **Water**
Workgroup Number: **WG372734**
Collect Date: **08/02/2011 13:13**
Sample Tag: **01**

PrePrep Method: **NONE**
Prep Method: **METHOD**
Analytical Method: **8330B**
Analyst: **ECL**
Dilution: **1**
Units: **ug/L**

Instrument: **HPLC5**
Prep Date: **08/09/2011 07:00**
Cal Date: **02/10/2011 16:32**
Run Date: **08/10/2011 18:09**
File ID: **5L005126.F**

Analyte	CAS. Number	Result	Qual	LOQ	LOD
1,3,5-Trinitrobenzene	99-35-4		U	1.14	0.284
1,3-Dinitrobenzene	99-65-0		U	1.14	0.284
2,4,6-Trinitrotoluene	118-96-7		U	1.14	0.284
2,4-Dinitrotoluene	121-14-2		U	1.14	0.284
2,6-Dinitrotoluene	606-20-2		U	1.14	0.284
2-Amino-4,6-dinitrotoluene	35572-78-2		U	1.14	0.284
2-Nitrotoluene	88-72-2		U	1.14	0.284
3-Nitrotoluene	99-08-1		U	1.14	0.284
4-Nitrotoluene	99-99-0		U	1.14	0.284
4-Amino-2,6-dinitrotoluene	19406-51-0		U	1.14	0.284
HMX	2691-41-0		U	1.14	0.284
Nitrobenzene	98-95-3		U	1.14	0.284
RDX	121-82-4	23.4		1.14	0.284
Tetryl	479-45-8		U	1.14	0.284

Surrogate	% Recovery	Lower	Upper	Qual
1,2-Dinitrobenzene	105	50	150	

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

Report Number: **L11080106**
Report Date : **August 16, 2011**

Sample Number: **L11080106-03**
Client ID: **HTA-16**
Matrix: **Water**
Workgroup Number: **WG372734**
Collect Date: **08/02/2011 13:13**
Sample Tag: **CF01**

PrePrep Method: **NONE**
Prep Method: **METHOD**
Analytical Method: **8330B**
Analyst: **ECL**
Dilution: **1**
Units: **ug/L**

Instrument: **HPLC4**
Prep Date: **08/09/2011 07:00**
Cal Date: **07/28/2011 15:52**
Run Date: **08/11/2011 21:39**
File ID: **4L022609.F**

Analyte	CAS. Number	Result	Qual	LOQ	LOD
RDX	121-82-4	24.4		1.14	0.284

Surrogate	% Recovery	Lower	Upper	Qual
1,2-Dinitrobenzene	106	50	150	

Report Number: **L11080106**
Report Date : **August 16, 2011**

Sample Number: **L11080106-04**
Client ID: **HTA-16-D**
Matrix: **Water**
Workgroup Number: **WG372734**
Collect Date: **08/02/2011 14:07**
Sample Tag: **01**

PrePrep Method: **NONE**
Prep Method: **METHOD**
Analytical Method: **8330B**
Analyst: **ECL**
Dilution: **1**
Units: **ug/L**

Instrument: **HPLC5**
Prep Date: **08/09/2011 07:00**
Cal Date: **02/10/2011 16:32**
Run Date: **08/10/2011 21:04**
File ID: **5L005131.F**

Analyte	CAS. Number	Result	Qual	LOQ	LOD
1,3,5-Trinitrobenzene	99-35-4		U	1.15	0.287
1,3-Dinitrobenzene	99-65-0		U	1.15	0.287
2,4,6-Trinitrotoluene	118-96-7		U	1.15	0.287
2,4-Dinitrotoluene	121-14-2		U	1.15	0.287
2,6-Dinitrotoluene	606-20-2		U	1.15	0.287
2-Amino-4,6-dinitrotoluene	35572-78-2		U	1.15	0.287
2-Nitrotoluene	88-72-2		U	1.15	0.287
3-Nitrotoluene	99-08-1		U	1.15	0.287
4-Nitrotoluene	99-99-0		U	1.15	0.287
4-Amino-2,6-dinitrotoluene	19406-51-0		U	1.15	0.287
HMX	2691-41-0		U	1.15	0.287
Nitrobenzene	98-95-3		U	1.15	0.287
RDX	121-82-4	22.8		1.15	0.287
Tetryl	479-45-8		U	1.15	0.287

Surrogate	% Recovery	Lower	Upper	Qual
1,2-Dinitrobenzene	109	50	150	

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

Report Number: **L11080106**
Report Date : **August 16, 2011**

Sample Number: **L11080106-04**
Client ID: **HTA-16-D**
Matrix: **Water**
Workgroup Number: **WG372734**
Collect Date: **08/02/2011 14:07**
Sample Tag: **CF01**

PrePrep Method: **NONE**
Prep Method: **METHOD**
Analytical Method: **8330B**
Analyst: **ECL**
Dilution: **1**
Units: **ug/L**

Instrument: **HPLC4**
Prep Date: **08/09/2011 07:00**
Cal Date: **07/28/2011 15:52**
Run Date: **08/11/2011 22:32**
File ID: **4L022610.F**

Analyte	CAS. Number	Result	Qual	LOQ	LOD
RDX	121-82-4	23.7		1.15	0.287

Surrogate	% Recovery	Lower	Upper	Qual
1,2-Dinitrobenzene	105	50	150	

2.1.2.2 QC Summary Data

Login Number: L11080106

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: The percent difference was out of range for the following analytes: Tetryl, 2,4,6-Trinitrotoluene. Please see the applicable QC report for a detailed presentation of the failures.

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.

All positive hits were confirmed by second column analysis.

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 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: 33665
Approved By: Mike Cochran

Microbac Laboratories Inc.

Data Checklist

Date: 10-FEB-2011
Analyst: ECL
Analyst: NA
Method: 8330
Instrument: HPLC5
Curve Workgroup: NA
Runlog ID: 38983
Analytical Workgroups: L11020001 MDL'S

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	X
LCS/LCSD (Laboratory Control Sample)	NA
Recoveries	NA
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	X
Internal standard areas (MS)	NA
Library searches (MS)	NA
Calculations & correct factors	X
Compounds above calibration range	NA
Reruns	NA
Manual integrations	X
Project/client specific requirements	NA
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:
14-FEB-2011

Secondary Reviewer:
14-FEB-2011

CHECKLIST1 - Modified 03/05/2008
Generated: FEB-14-2011 11:41:01

Microbac Laboratories Inc.

Data Checklist

Date: 28-JUL-2011
Analyst: ECL
Analyst: NA
Method: 8330
Instrument: HPLC4
Curve Workgroup: NA
Runlog ID: 41850
Analytical Workgroups: L11070261, L11070313

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	X
LCS/LCSD (Laboratory Control Sample)	X
Recoveries	X
Surrogate recoveries	X
MS/MSD/Sample duplicates	NA
Recoveries	NA
%RPD	NA
Samples	X
TCL hits	X
Mass spectra (MS/HPLC)/2nd column confirmations (ECD/FID/HPLC)	X
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:
29-JUL-2011

Secondary Reviewer:
29-JUL-2011

CHECKLIST1 - Modified 03/05/2008
Generated: JUL-29-2011 11:54:52

Microbac Laboratories Inc.

Data Checklist

Date: 10-AUG-2011
Analyst: ECL
Analyst: NA
Method: 8330
Instrument: HPLC5
Curve Workgroup: NA
Runlog ID: 42091
Analytical Workgroups: L11070964, L11080106, 08-106, 08-163, 08-184, 08-223, 08-270

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	X
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)	X
Surrogate recoveries	X
Internal standard areas (MS)	NA
Library searches (MS)	NA
Calculations & correct factors	X
Compounds above calibration range	X
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	
Check the completeness/accuracy of reported information	X
Data qualifiers	X
Secondary Reviewer	HAV

Primary Reviewer:
11-AUG-2011

Secondary Reviewer:
12-AUG-2011

CHECKLIST1 - Modified 03/05/2008
Generated: AUG-12-2011 08:51:46

Microbac Laboratories Inc.

Data Checklist

Date: 11-AUG-2011
Analyst: ECL
Analyst: NA
Method: 8330-CONF
Instrument: HPLC4
Curve Workgroup: NA
Runlog ID: 42118
Analytical Workgroups: L11070964, L11080106, 08-160, 08-184, 08-223, 08-270

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	X
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	NA
Recoveries	NA
%RPD	NA
Samples	X
TCL hits	X
Mass spectra (MS/HPLC)/2nd column confirmations (ECD/FID/HPLC)	X
Surrogate recoveries	X
Internal standard areas (MS)	NA
Library searches (MS)	NA
Calculations & correct factors	X
Compounds above calibration range	X
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:
12-AUG-2011

Secondary Reviewer:
15-AUG-2011

CHECKLIST1 - Modified 03/05/2008
Generated: AUG-15-2011 11:18:59

Example 8330 Calculations

1.0 Calculating the Calibration Factor (RF) from the initial calibration (ICAL) data:

$$CF = \frac{C_s}{A_s}$$

where:	Example:
A_s = Area of the compound being measured in the standard	10000
C_s = Concentration of the compound being measured (nug/mL)	100
	CF = 0.01

2.0 Calculating the concentration (C) of a compuond in water using data from prep log and quantitation report:*

$$C = \frac{(A_x)(CF)(V_f)(D)}{V_i}$$

where:	Example:
A_x = Area of the compound being measured	10000
V_f = Final volume of sample extract (mL) (prep log)	1
D = Dilution factor for sample as a multiplier (10X = 10)	1
CF = Calibration factor from ICAL calculated above	0.01
V_i = Initial volume of sample (ml) (prep log)	1000
	C ($\mu g/l$) = 0.1

3.0 Calculating the concentration (C) of a compound in soil using data from prep log and quantitation report:*

$$C = \frac{(A_x)(CF)(V_f)(D)}{W_i}$$

where:	Example:
A_x = Area of the compound being measured	10000
V_f = Final volume of sample extract (mL) (prep log)	1
D = Dilution factor for sample as a multiplier (10X = 10)	1
CF = Calibration factor from ICAL calculated above	0.01
W_i = Initial weight of sample (g) (prep log)	30
	C ($\mu g/kg$) = 3.333333

* Concentrations appearing on instrument quantitation reports are on-column results and do not take into account initial volume, final volume and dilution factor.

Microbac

Sample Extraction Log: Method 8330 (Explosives)

R2513765

Analyst/Date/Time: RAH/08-09-11/0700
SOP # /Rev # EXTNT01 REV11
Spike Analyst: RAH
Ext Solvent: CH_3CN
Ext Solvent: MeOH
Other: HPLC H_2O
Ext Disk: SDB-RPS
LCS #: STD46722
SRM #: —
PETN #: —
Surrogate #: STD45635

Witness: CSH
COA#: COA15505
COA#: COA15340
COA#: COA15404
Lot #: 760160

Extract Relinquished By: RAH
Extract Received By: EC 8-9-11

Extraction Work Group: 25372587
Analytical Work Group:

Sonic Bath On Date:
Time:
Temp: Ctrl
Bath
Sonic Bath Off Date:
Time:
Temp: Ctrl
Bath

	Sample ID	Entire Sx Wt	Constant Wt 1% Wt 1	Constant Wt 1% Wt 2	Sx Wt Unable to pass 2mm	Sub Sx Wt/Vol	Surrogate Amount	Spike Amount	Final Volume
1	Blank	NA	NA	NA	NA	1000mL	1mL		10mL
2	LCS							1mL	
3	08-0106-01					850 mL			
4	-02					900 mL			
5	-03					880 mL			
6	-04					870 mL			
7	08-0160-01					980 mL			
8	-02					920 mL			
9	-03					900 mL			
10	08-0163-01					700 mL*			
11	08-0184-01					700 mL*			
12	-02					930 mL			
13	-03					940 mL			
14	08-0223-01					900 mL			
15	-02 REF					900 mL			
16	-03 MS					910 mL		1mL	
17	-04 MSD					900 mL			
18	08-0270-01					960 mL			
19									
20									
21									
22									
23									
24				08/09/11					
25									
26			RAH						
27									
28									
29									
30									

Comments: * Only recorded volume passed through SPE DISK

Reviewed by:

Microbac Laboratories Inc.

Instrument Run Log

Instrument: HPLC5 Dataset: 021011
Analyst1: ECL Analyst2: NA
Method: 8330 SOP: HPLC02 Rev: 15

Maintenance Log ID: Syringe Filter Lot#: 00103489

Column 1 ID: ULTRACARB5 ODS Column 2 ID: NA

Workgroups:

CCV Std: STD43851 LCS STD: NA
Internal STD: NA Surrogate STD: STD43227 Calibration STD:

Comments: Pressure = 199 bar

Seq.	File ID	Sample Information	Mat	Dil	Reference	Date/Time
1	5L004235.F	WG356179-01 8330 ICAL 2500 PPB	1	1		02/10/11 13:13
2	5L004236.F	WG356179-02 8330 ICAL 1000 PPB	1	1		02/10/11 13:56
3	5L004237.F	WG356179-03 8330 ICAL 500 PPB	1	1		02/10/11 14:35
4	5L004238.F	WG356179-04 8330 ICAL 100 PPB	1	1		02/10/11 15:14
5	5L004239.F	WG356179-05 8330 ICAL 50 PPB	1	1		02/10/11 15:53
6	5L004240.F	WG356179-06 8330 ICAL 25 PPB	1	1		02/10/11 16:32
7	5L004241.F	WG356179-07 8330 ALT 500 PPB	1	1		02/10/11 17:12
8	5L004242.F	WG355849-01 BLANK	7	1		02/10/11 17:51
9	5L004243.F	L11020001-01	7	1		02/10/11 18:30
10	5L004244.F	L11020001-02	7	1		02/10/11 19:09
11	5L004245.F	L11020001-03	7	1		02/10/11 19:48
12	5L004246.F	L11020001-04	7	1		02/10/11 20:27
13	5L004247.F	L11020001-05	7	1		02/10/11 21:06
14	5L004248.F	L11020001-06	7	1		02/10/11 21:45
15	5L004249.F	L11020001-07	7	1		02/10/11 22:24
16	5L004250.F	Solvent Rinse	1	1		02/10/11 23:03
17	5L004251.F	Solvent Rinse	1	1		02/10/11 23:21
18	5L004252.F	Solvent Rinse	1	1		02/11/11 00:00
19	5L004253.F	WG356182-01 8330 CCV 500 PPB	1	1		02/11/11 00:39
20	5L004254.F	WG355788-01 BLANK	1	1		02/11/11 01:18
21	5L004255.F	L11020001-08	1	1		02/11/11 01:57
22	5L004256.F	L11020001-09	1	1		02/11/11 02:36
23	5L004257.F	L11020001-10	1	1		02/11/11 03:15
24	5L004258.F	L11020001-11	1	1		02/11/11 03:54
25	5L004259.F	L11020001-12	1	1		02/11/11 04:33
26	5L004260.F	L11020001-13	1	1		02/11/11 05:13
27	5L004261.F	L11020001-14	1	1		02/11/11 05:52
28	5L004262.F	Solvent Rinse	1	1		02/11/11 06:31
29	5L004263.F	Solvent Rinse	1	1		02/11/11 06:49
30	5L004264.F	Solvent Rinse	1	1		02/11/11 07:28
31	5L004265.F	WG356182-02 8330 CCV 500 PPB	1	1		02/11/11 08:07
32	5L004266.F	Solvent Rinse	1	1		02/11/11 08:46

Comments

Page: 1 Approved: 14-FEB-11

Microbac Laboratories Inc.

Instrument Run Log

Instrument: HPLC5 Dataset: 021011
Analyst1: ECL Analyst2: NA
Method: 8330 SOP: HPLC02 Rev: 15

Maintenance Log ID: Syringe Filter Lot#: 00103489

Column 1 ID: ULTRACARB5 ODS Column 2 ID: NA

Workgroups:

CCV Std: STD43851 LCS STD: NA
Internal STD: NA Surrogate STD: STD43227

Comments

Seq.	Rerun	Dil.	Reason	Analytes
7				
	WG356179-07 8330 ALT 500 PPB: Tetryl failed low.			
31				
	WG356182-02 8330 CCV 500 PPB: Tetryl failed low.			

Page: 2 Approved: 14-FEB-11

Microbac Laboratories Inc.

Instrument Run Log

Instrument: HPLC4 Dataset: 072811
Analyst1: ECL Analyst2: NA
Method: 8330-CONF SOP: HPLC02 Rev: 15

Maintenance Log ID: Syringe Filter Lot#: N0312102120

Column 1 ID: ACCLAIM-E2 Column 2 ID: NA

Workgroups:

Internal STD: NA Surrogate STD: STD45635 Calibration STD

Comments: Pressure = 240 bar
Confirmations only

Seq.	File ID	Sample Information	Mat	Dil	Reference	Date/Time
1	4L022561.F	WG371610-01 ICAL	1	1	STD46726	07/28/11 11:26
2	4L022562.F	WG371610-02 ICAL	1	1	STD46726	07/28/11 12:20
3	4L022563.F	WG371610-03 ICAL	1	1	STD46726	07/28/11 13:13
4	4L022564.F	WG371610-04 ICAL	1	1	STD46726	07/28/11 14:06
5	4L022565.F	WG371610-05 ICAL	1	1	STD46726	07/28/11 14:59
6	4L022566.F	WG371610-06 ICAL	1	1	STD46726	07/28/11 15:52
7	4L022567.F	WG371610-07 ICV	1	1	STD46755	07/28/11 16:45
8	4L022568.F	WG371424-01 BLK	1	1		07/28/11 17:38
9	4L022569.F	WG371424-02 LCS	1	1		07/28/11 18:31
10	4L022570.F	WG371424-03 LCS2	1	1		07/28/11 19:25
11	4L022571.F	L11070261-03 RE	1	1		07/28/11 20:18
12	4L022572.F	L11070313-09 RE	1	1		07/28/11 21:11
13	4L022573.F	Solvent Rinse	1	1		07/28/11 22:04
14	4L022574.F	Solvent Rinse	1	1		07/28/11 22:17
15	4L022575.F	Solvent Rinse	1	1		07/28/11 23:10
16	4L022576.F	WG371620-01 CCV	1	1	STD46726	07/29/11 00:03
17	4L022577.F	Solvent Rinse	1	1		07/29/11 00:57

Comments

Seq.	Rerun	Dil.	Reason	Analytes
7				
	WG371610-07 ICV: 2,4,6-TNT failed high. 1,2-DNB surrogate failed low due to coelution.			
12				
	L11070313-09 RE: 1,2-DNB surrogate failed low.			

Page: 1 Approved: 29-JUL-11

Microbac Laboratories Inc.

Instrument Run Log

Instrument: HPLC5 Dataset: 081011
Analyst1: ECL Analyst2: NA
Method: 8330-PLUS SOP: HPLC02 Rev: 15

Maintenance Log ID: Syringe Filter Lot#: N0312102120

Column 1 ID: ULTRACARB5 ODS Column 2 ID: NA
Workgroups: WG372733, WG372734,
Internal STD: NA Surrogate STD: STD45635 Calibration STD NA

Comments: Pressure = 211 bar

Seq.	File ID	Sample Information	Mat	Dil	Reference	Date/Time
1	5L005116.F	WG372736-01 8330 CCV 500 PPB	1	1	STD46991	08/10/11 11:17
2	5L005117.F	WG372574-01 BLANK	7	1		08/10/11 12:18
3	5L005118.F	WG372574-02 LCS	7	1		08/10/11 12:57
4	5L005119.F	L11070964-01	7	1		08/10/11 13:36
5	5L005120.F	WG372574-04 L11070964-01 MS	7	1		08/10/11 14:15
6	5L005121.F	WG372574-05 L11070964-01 MSD	7	1		08/10/11 14:54
7	5L005122.F	WG372587-01 BLANK	1	1		08/10/11 15:33
8	5L005123.F	WG372587-02 LCS	1	1		08/10/11 16:12
9	5L005124.F	L11080106-01	1	1		08/10/11 16:51
10	5L005125.F	L11080106-02	1	1		08/10/11 17:30
11	5L005126.F	L11080106-03	1	1		08/10/11 18:09
12	5L005127.F	Solvent Rinse	1	1		08/10/11 18:48
13	5L005128.F	Solvent Rinse	1	1		08/10/11 19:07
14	5L005129.F	Solvent Rinse	1	1		08/10/11 19:46
15	5L005130.F	WG372736-02 8330 CCV 500 PPB	1	1	STD46991	08/10/11 20:25
16	5L005131.F	L11080106-04	1	1		08/10/11 21:04
17	5L005132.F	L11080160-01	1	1		08/10/11 21:43
18	5L005133.F	L11080160-02	1	1		08/10/11 22:22
19	5L005134.F	L11080160-03	1	1		08/10/11 23:01
20	5L005135.F	L11080163-01	1	1		08/10/11 23:40
21	5L005136.F	L11080184-01	1	1		08/11/11 00:19
22	5L005137.F	L11080184-02	1	1		08/11/11 00:58
23	5L005138.F	L11080184-03	1	1		08/11/11 01:37
24	5L005139.F	L11080270-01	1	1		08/11/11 02:16
25	5L005140.F	L11080223-01	1	1		08/11/11 02:55
26	5L005141.F	Solvent Rinse	1	1		08/11/11 03:34
27	5L005142.F	Solvent Rinse	1	1		08/11/11 03:53
28	5L005143.F	Solvent Rinse	1	1		08/11/11 04:32
29	5L005144.F	WG372736-03 8330 CCV 500 PPB	1	1	STD46991	08/11/11 05:11
30	5L005145.F	L11080223-02 REF	1	1		08/11/11 05:50
31	5L005146.F	L11080223-03 MS	1	1		08/11/11 06:29
32	5L005147.F	L11080223-04 MSD	1	1		08/11/11 07:08
33	5L005148.F	Solvent Rinse	1	1		08/11/11 07:47
34	5L005149.F	Solvent Rinse	1	1		08/11/11 08:05
35	5L005150.F	Solvent Rinse	1	1		08/11/11 08:44

Page: 1 Approved: 12-AUG-11

Hema Vikasagar

Microbac Laboratories Inc.

Instrument Run Log

Instrument: HPLC5 Dataset: 081011
Analyst1: ECL Analyst2: NA
Method: 8330-PLUS SOP: HPLC02 Rev: 15

Maintenance Log ID: Syringe Filter Lot#: N0312102120

Column 1 ID: ULTRACARB5 ODS Column 2 ID: NA
Workgroups: WG372733, WG372734,
Internal STD: NA Surrogate STD: STD45635 NA

Seq.	File ID	Sample Information	Mat	Dil	Reference	Date/Time
36	5L005151.F	WG372736-04 8330 CCV 500 PPB	1	1	STD46991	08/11/11 09:23
37	5L005152.F	Solvent Rinse	1	1		08/11/11 10:03

Comments

Seq.	Rerun	Dil.	Reason	Analytes
4	X		Required second column confirmation	2,4-DNT
	L11070964-01			
5				
	L11070964-01 MS: 2,4,6-TNT failed low.			
6				
	L11070964-01 MSD: 2,4,6-TNT failed low.			
9	X		Required second column confirmation	1,3,5-TNb
	L11080106-01			
11	X		Required second column confirmation	HMX, RDX
	L11080106-03			
16	X		Required second column confirmation	HMX, RDX
	L11080106-04			
18	X	10	Over Calibration Range	RDX
	L11080160-02: Needs 2nd column confirmation.			
19	X	10	Over Calibration Range	RDX
	L11080160-03: Needs 2nd column confirmation.			
21	X		Required second column confirmation	RDX
	L11080184-01			
22	X	5	Over Calibration Range	RDX
	L11080184-02: Needs 2nd column confirmation.			
23	X	10	Over Calibration Range	2-amino-4,6-DNT
	L11080184-03: Needs 2nd column confirmation.			
24	X		Required second column confirmation	RDX, 1,3-DNB
	L11080270-01			
25	X	10	Over Calibration Range	RDX
	L11080223-01: Needs 2nd column confirmation.			
31				
	L11080223-03 MS: HMX failed marginally low.			

Page: 2 Approved: 12-AUG-11

Hema Vilasagar

Microbac Laboratories Inc.

Instrument Run Log

Instrument: HPLC4 Dataset: 081111
Analyst1: ECL Analyst2: NA
Method: 8330-CONF SOP: HPLC02 Rev: 15

Maintenance Log ID: Syringe Filter Lot#: N0312102120

Column 1 ID: ACCLAIM E-2 Column 2 ID: NA

Workgroups:

Internal STD: NA Surrogate STD: STD45635 Calibration STD

Comments: Pressure = 210 bar
Confirmations only

Seq.	File ID	Sample Information	Mat	Dil	Reference	Date/Time
1	4L022602.F	WG372952-01 CCV	1	1	STD46991	08/11/11 15:27
2	4L022603.F	WG372574-01 BLK	7	1		08/11/11 16:20
3	4L022604.F	WG372574-02 LCS	7	1		08/11/11 17:14
31	4L022605.F	L11070964-01 CF	7	1		08/11/11 18:07
5	4L022606.F	WG372587-01 BLK	1	1		08/11/11 19:00
6	4L022607.F	WG372587-02 LCS	1	1		08/11/11 19:53
7	4L022608.F	L11080106-01 CF	1	1		08/11/11 20:46
8	4L022609.F	L11080106-03 CF	1	1		08/11/11 21:39
9	4L022610.F	L11080106-04 CF	1	1		08/11/11 22:32
10	4L022611.F	L11080160-02 CF	1	1		08/11/11 23:26
11	4L022612.F	L11080160-02 10x	1	10		08/12/11 00:19
12	4L022613.F	Solvent Rinse	1	1		08/12/11 01:12
13	4L022614.F	Solvent Rinse	1	1		08/12/11 01:30
14	4L022615.F	Solvent Rinse	1	1		08/12/11 02:23
15	4L022616.F	WG372952-02 CCV	1	1	STD46991	08/12/11 03:16
16	4L022617.F	L11080160-03 CF	1	1		08/12/11 04:09
17	4L022618.F	L11080160-03 10x	1	10		08/12/11 05:02
18	4L022619.F	L11080184-01 CF	1	1		08/12/11 05:56
19	4L022620.F	L11080184-02 CF	1	1		08/12/11 06:49
20	4L022621.F	L11080184-02 5x	1	5		08/12/11 07:42
21	4L022622.F	L11080184-03 CF	1	1		08/12/11 08:35
22	4L022623.F	L11080184-03 10x	1	10		08/12/11 09:28
23	4L022624.F	L11080270-01 CF	1	1		08/12/11 10:21
24	4L022625.F	L11080223-01 CF	1	1		08/12/11 11:14
25	4L022626.F	L11080223-01 10x	1	10		08/12/11 12:07
26	4L022627.F	Solvent Rinse	1	1		08/12/11 13:01
27	4L022628.F	Solvent Rinse	1	1		08/12/11 13:19
28	4L022629.F	Solvent Rinse	1	1		08/12/11 14:12
29	4L022630.F	WG372952-03 CCV	1	1	STD46991	08/12/11 15:05
30	4L022631.F	Solvent Rinse	1	1		08/12/11 15:59

Comments

Seq.	Rerun	Dil.	Reason	Analytes
7				
	L11080106-01 CF: Did not confirm. Not reported.			

Page: 1 Approved: 15-AUG-11

Microbac Laboratories Inc.

Instrument Run Log

Instrument: HPLC4 Dataset: 081111
Analyst1: ECL Analyst2: NA
Method: 8330-CONF SOP: HPLC02 Rev: 15

Maintenance Log ID: Syringe Filter Lot#: N0312102120

Column 1 ID: ACCLAIM E-2 Column 2 ID: NA

Workgroups:

Internal STD: NA Surrogate STD: STD45635

Comments

Seq.	Rerun	Dil.	Reason	Analytes
10	X	10	Over Calibration Range	RDX
	L11080160-02 CF			
16	X	10	Over Calibration Range	RDX
	L11080160-03 CF			
19	X	5	Over Calibration Range	RDX
	L11080184-02 CF			
22				
	L11080184-03 10x CF: Did not confirm. Not reported.			
24	X	10	Over Calibration Range	RDX
	L11080223-01 CF			
29				
	WG372952-03 CCV: Tetryl failed low.			

Page: 2 Approved: 15-AUG-11

Microbac Laboratories Inc.

HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: 8330B

AAB#: WG372734

Login Number: L11080106

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-19	01	08/02/11					08/09/11	6.8	7		08/10/11	1.4	40	
HTA-19-QC	02	08/02/11					08/09/11	6.8	7		08/10/11	1.4	40	
HTA-16	03	08/02/11					08/09/11	6.7	7		08/11/11	2.6	40	
HTA-16	03	08/02/11					08/09/11	6.7	7		08/10/11	1.5	40	
HTA-16-D	04	08/02/11					08/09/11	6.7	7		08/11/11	2.6	40	
HTA-16-D	04	08/02/11					08/09/11	6.7	7		08/10/11	1.6	40	

* = SEE PROJECT QAPP REQUIREMENTS

HOLD_TIMES - Modified 03/06/2008
PDF File ID: 2113282
Report generated 08/15/2011 11:52

Microbac Laboratories Inc.
SURROGATE STANDARDS

Login Number: L11080106
Instrument Id: HPLC5
Workgroup (AAB#): WG372734

Method: 8330
CAL ID: HPLC5-10-FEB-11
Matrix: Water

Sample Number	Dilution	Tag	1
L11080106-01	1.00	01	95.3
L11080106-02	1.00	01	117
L11080106-03	1.00	01	105
L11080106-04	1.00	01	109
WG372587-01	1.00	01	104
WG372587-02	1.00	01	98.9

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: 2113289
Report generated: 08/15/2011 11:53

Microbac Laboratories Inc.
SURROGATE STANDARDS

Login Number: L11080106
Instrument Id: HPLC4
Workgroup (AAB#): WG372734

Method: 8330
CAL ID: HPLC4-28-JUL-11
Matrix: Water

Sample Number	Dilution	Tag	1
L11080106-03	1.00	CF01	106
L11080106-04	1.00	CF01	105
WG372587-01	1.00	02	108
WG372587-02	1.00	02	97.4

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: 2113289
Report generated: 08/15/2011 11:53

Microbac Laboratories Inc.

METHOD BLANK SUMMARY

Login Number: L11080106
Blank File ID: 5L005122.F
Prep Date: 08/09/11 07:00
Analyzed Date: 08/10/11 15:33
Analyst: ECL

Work Group: WG372734
Blank Sample ID: WG372587-01
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	WG372587-02	5L005123.F	08/10/11 16:12	01
HTA-19	L11080106-01	5L005124.F	08/10/11 16:51	01
HTA-19-QC	L11080106-02	5L005125.F	08/10/11 17:30	01
HTA-16	L11080106-03	5L005126.F	08/10/11 18:09	01
HTA-16-D	L11080106-04	5L005131.F	08/10/11 21:04	01

Report Name: BLANK_SUMMARY
PDF File ID: 2113283
Report generated 08/15/2011 11:52

Microbac Laboratories Inc.

METHOD BLANK SUMMARY

Login Number: L11080106
Blank File ID: 4L022606.F
Prep Date: 08/09/11 07:00
Analyzed Date: 08/11/11 19:00
Analyst: ECL

Work Group: WG372734
Blank Sample ID: WG372587-01
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	WG372587-02	4L022607.F	08/11/11 19:53	02
HTA-16	L11080106-03	4L022609.F	08/11/11 21:39	CF01
HTA-16-D	L11080106-04	4L022610.F	08/11/11 22:32	CF01

Report Name: BLANK_SUMMARY
PDF File ID: 2113283
Report generated 08/15/2011 11:52

Microbac Laboratories Inc.

METHOD BLANK REPORT

Login Number: L11080106 Prep Date: 08/09/11 07:00 Sample ID: WG372587-01
Instrument ID: HPLC5 Run Date: 08/10/11 15:33 Prep Method: METHOD
File ID: 5L005122.F Analyst: ECL Method: 8330B
Workgroup (AAB#): WG372734 Matrix: Water Units: ug/L
Contract #: Cal ID: HPLC5-10-FEB-11

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

Surrogates	% Recovery	Surrogate Limits	Qualifier
1,2-Dinitrobenzene	104	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: 2113284
15-AUG-2011 11:52

Microbac Laboratories Inc.

METHOD BLANK REPORT

Login Number: L11080106 Prep Date: 08/09/11 07:00 Sample ID: WG372587-01
Instrument ID: HPLC4 Run Date: 08/11/11 19:00 Prep Method: METHOD
File ID: 4L022606.F Analyst: ECL Method: 8330B
Workgroup (AAB#): WG372734 Matrix: Water Units: ug/L
Contract #: Cal ID: HPLC4-28-JUL-11

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

Surrogates	% Recovery	Surrogate Limits	Qualifier
1,2-Dinitrobenzene	108	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: 2113284
15-AUG-2011 11:52

Microbac Laboratories Inc.
LABORATORY CONTROL SAMPLE (LCS)

Login Number: L11080106 Run Date: 08/10/2011 Sample ID: WG372587-02
Instrument ID: HPLC5 Run Time: 16:12 Prep Method: METHOD
File ID: 5L005123.F Analyst: ECL Method: 8330B
Workgroup (AAB#): WG372734 Matrix: Water Units: ug/L
QC Key: DOD4 Lot#: STD46722 Cal ID: HPLC5-10-FEB-11

Analytes	Expected	Found	% Rec	LCS Limits	Q
1,3,5-Trinitrobenzene	5.00	5.03	101	65 - 140	
1,3-Dinitrobenzene	5.00	4.89	97.9	45 - 160	
2,4,6-Trinitrotoluene	5.00	4.51	90.2	50 - 145	
2,4-Dinitrotoluene	5.00	4.88	97.7	60 - 135	
2,6-Dinitrotoluene	5.00	4.65	93.0	60 - 135	
2-Amino-4,6-dinitrotoluene	5.00	4.84	96.9	50 - 155	
2-Nitrotoluene	5.00	4.63	92.6	45 - 135	
3-Nitrotoluene	5.00	5.14	103	50 - 130	
4-Nitrotoluene	5.00	4.64	92.8	50 - 130	
4-Amino-2,6-dinitrotoluene	5.00	5.18	104	55 - 155	
HMX	5.00	4.30	86.0	80 - 115	
Nitrobenzene	5.00	4.78	95.6	50 - 140	
RDX	5.00	4.43	88.7	50 - 160	
Tetryl	5.00	4.76	95.2	20 - 175	

Surrogates	% Recovery	Surrogate Limits	Qualifier
1,2-Dinitrobenzene	98.9	50 - 150	PASS

* EXCEEDS %REC LIMIT

LCS - Modified 03/06/2008
PDF File ID: 2113285
Report generated: 08/15/2011 11:52

Microbac Laboratories Inc.
LABORATORY CONTROL SAMPLE (LCS)

Login Number: L11080106 Run Date: 08/11/2011 Sample ID: WG372587-02
Instrument ID: HPLC4 Run Time: 19:53 Prep Method: METHOD
File ID: 4L022607.F Analyst: ECL Method: 8330B
Workgroup (AAB#): WG372734 Matrix: Water Units: ug/L
QC Key: DOD4 Lot#: STD46722 Cal ID: HPLC4-28-JUL-11

Analytes	Expected	Found	% Rec	LCS Limits	Q
1,3,5-Trinitrobenzene	5.00	5.11	102	65 - 140	
1,3-Dinitrobenzene	5.00	5.10	102	45 - 160	
2,4,6-Trinitrotoluene	5.00	4.47	89.4	50 - 145	
2,4-Dinitrotoluene	5.00	4.87	97.4	60 - 135	
2,6-Dinitrotoluene	5.00	4.72	94.4	60 - 135	
2-Amino-4,6-dinitrotoluene	5.00	4.68	93.6	50 - 155	
2-Nitrotoluene	5.00	4.77	95.4	45 - 135	
3-Nitrotoluene	5.00	4.85	96.9	50 - 130	
4-Nitrotoluene	5.00	4.47	89.5	50 - 130	
4-Amino-2,6-dinitrotoluene	5.00	5.24	105	55 - 155	
HMX	5.00	4.18	83.6	80 - 115	
Nitrobenzene	5.00	4.72	94.4	50 - 140	
RDX	5.00	4.65	93.1	50 - 160	
Tetryl	5.00	4.31	86.3	20 - 175	

Surrogates	% Recovery	Surrogate Limits	Qualifier
1,2-Dinitrobenzene	97.4	50 - 150	PASS

* EXCEEDS %REC LIMIT

LCS - Modified 03/06/2008
PDF File ID: 2113285
Report generated: 08/15/2011 11:52

Microbac Laboratories Inc.

INITIAL CALIBRATION SUMMARY

Login Number: L11080106
Analytical Method: 8330B
ICAL Workgroup: WG356179

Instrument ID: HPLC5
Initial Calibration Date: 10-FEB-11 16:32
Column ID: F

Analyte		AVG RF	% RSD	LINEAR (R)	QUAD (R^2)
1,3,5-Trinitrobenzene		2.173	2.76	1.00000	
1,3-Dinitrobenzene		1.583	2.65	1.00000	
2,4,6-Trinitrotoluene		2.376	2.34	1.00000	
2,4-Dinitrotoluene		1.735	3.16	1.00000	
2,6-Dinitrotoluene		3.431	3.64	1.00000	
2-Amino-4,6-Dinitrotoluene		2.646	3.38	1.00000	
2-Nitrotoluene		4.162	4.85	1.00000	
3-Nitrotoluene		3.771	4.44	1.00000	
4-Amino-2,6-Dinitrotoluene		3.896	3.69	1.00000	
4-Nitrotoluene		5.179	7.32	1.00000	
HMX		5.527	1.34	1.00000	
Nitrobenzene		2.238	5.70	1.00000	
RDX		4.365	10.4	1.00000	
Tetryl		3.786	13.4	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: 2113290
Report generated 08/15/2011 11:52

Microbac Laboratories Inc.

INITIAL CALIBRATION SUMMARY

Login Number: L11080106
Analytical Method: 8330B
ICAL Workgroup: WG371610

Instrument ID: HPLC4
Initial Calibration Date: 28-JUL-11 15:52
Column ID: F

Analyte		AVG RF	% RSD	LINEAR (R)	QUAD (R^2)
1,3,5-Trinitrobenzene		2.505	3.18	1.00000	
1,3-Dinitrobenzene		1.845	5.60	1.00000	
2,4,6-Trinitrotoluene		2.304	47.8	1.00000	
2,4-Dinitrotoluene		2.115	4.23	1.00000	
2,6-Dinitrotoluene		3.811	7.99	1.00000	
2-Amino-4,6-Dinitrotoluene		3.132	6.12	1.00000	
2-Nitrotoluene		4.996	8.49	1.00000	
3-Nitrotoluene		4.547	8.25	1.00000	
4-Amino-2,6-Dinitrotoluene		4.482	6.32	1.00000	
4-Nitrotoluene		6.256	8.10	1.00000	
HMX		6.028	9.14	1.00000	
Nitrobenzene		2.872	3.64	1.00000	
RDX		5.493	2.58	1.00000	
Tetryl		3.098	52.5	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: 2113290
Report generated 08/15/2011 11:52

Microbac Laboratories Inc.

INITIAL CALIBRATION DATA

Login Number: L11080106

Analytical Method: 8330B

Instrument ID: HPLC5

Initial Calibration Date: 10-FEB-11 16:32

Column ID: F

Analyte	WG356179-01			WG356179-02			WG356179-03		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
1,3,5-Trinitrobenzene	2500	1175.90466	2.126	1000	456.357574	2.191	500	236.422165	2.115
1,3-Dinitrobenzene	2500	1607.27856	1.555	1000	618.885620	1.616	500	320.153503	1.562
2,4,6-Trinitrotoluene	2500	1073.92737	2.328	1000	418.122894	2.392	500	216.089981	2.314
2,4-Dinitrotoluene	2500	1453.88184	1.720	1000	564.529175	1.771	500	292.599091	1.709
2,6-Dinitrotoluene	2500	730.843872	3.421	1000	285.797852	3.499	500	147.993393	3.379
2-Amino-4,6-Dinitrotoluene	2500	951.753601	2.627	1000	370.586182	2.698	500	192.320999	2.600
2-Nitrotoluene	2500	601.055664	4.159	1000	237.210632	4.216	500	118.934555	4.204
3-Nitrotoluene	2500	676.702148	3.694	1000	268.933685	3.718	500	137.064972	3.648
4-Amino-2,6-Dinitrotoluene	2500	657.260498	3.804	1000	255.765701	3.910	500	132.780045	3.766
4-Nitrotoluene	2500	494.320435	5.057	1000	200.477173	4.988	500	98.1292343	5.095
HMX	2500	457.151733	5.469	1000	176.867767	5.654	500	91.2209320	5.481
Nitrobenzene	2500	1089.90417	2.294	1000	422.797607	2.365	500	222.156250	2.251
RDX	2500	545.373535	4.584	1000	208.118988	4.805	500	107.989883	4.630
Tetryl	2500	760.812317	3.286	1000	287.019348	3.484	500	144.088013	3.470

INT_CAL - Modified 03/06/2008
PDF File ID: 2113290
Report generated 08/15/2011 11:52

Microbac Laboratories Inc.

INITIAL CALIBRATION DATA

Login Number: L11080106

Analytical Method: 8330B

Instrument ID: HPLC5

Initial Calibration Date: 10-FEB-11 16:32

Column ID: F

Analyte	WG356179-04			WG356179-05			WG356179-06		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
1,3,5-Trinitrobenzene	100	45.4812508	2.199	50.0	23.4605350	2.131	25.0	10.9928017	2.274
1,3-Dinitrobenzene	100	61.7129707	1.620	50.0	32.8388481	1.523	25.0	15.4360256	1.620
2,4,6-Trinitrotoluene	100	40.4723969	2.471	50.0	20.8989983	2.392	25.0	10.5893478	2.361
2,4-Dinitrotoluene	100	55.3611374	1.806	50.0	30.2940521	1.650	25.0	14.2647915	1.753
2,6-Dinitrotoluene	100	28.1146202	3.557	50.0	15.5251093	3.221	25.0	7.12298250	3.510
2-Amino-4,6-Dinitrotoluene	100	36.9616966	2.706	50.0	19.9774170	2.503	25.0	9.11930275	2.741
2-Nitrotoluene	100	23.0422935	4.340	50.0	11.7416296	4.258	25.0	6.58750391	3.795
3-Nitrotoluene	100	26.9993706	3.704	50.0	13.4049387	3.730	25.0	6.04749298	4.134
4-Amino-2,6-Dinitrotoluene	100	25.0968609	3.985	50.0	13.2483816	3.774	25.0	6.03791904	4.140
4-Nitrotoluene	100	19.4289455	5.147	50.0	10.4317236	4.793	25.0	4.17310286	5.991
HMX	100	18.0742798	5.533	50.0	9.16233063	5.457	25.0	4.49165726	5.566
Nitrobenzene	100	43.2292137	2.313	50.0	24.6911926	2.025	25.0	11.4751234	2.179
RDX	100	24.0671997	4.155	50.0	13.6992216	3.650	25.0	5.72487068	4.367
Tetryl	100	26.8577023	3.723	50.0	13.1700363	3.796	25.0	5.04139519	4.959

INT_CAL - Modified 03/06/2008
PDF File ID: 2113290
Report generated 08/15/2011 11:52

Microbac Laboratories Inc.

INITIAL CALIBRATION DATA

Login Number: L11080106

Analytical Method: 8330B

Instrument ID: HPLC4

Initial Calibration Date: 28-JUL-11 15:52

Column ID: F

Analyte	WG371610-01			WG371610-02			WG371610-03		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
1,3,5-Trinitrobenzene	2500	1023.20551	2.443	1000	397.687439	2.515	500	209.120087	2.391
1,3-Dinitrobenzene	2500	1358.67065	1.840	1000	529.519287	1.889	500	277.281128	1.803
2,4,6-Trinitrotoluene	2500	906.415649	2.758	1000	353.465088	2.829	500	185.953674	2.689
2,4-Dinitrotoluene	2500	1215.09448	2.057	1000	470.108429	2.127	500	250.342422	1.997
2,6-Dinitrotoluene	2500	653.243408	3.827	1000	253.054169	3.952	500	135.630661	3.686
2-Amino-4,6-Dinitrotoluene	2500	804.306702	3.108	1000	311.903412	3.206	500	168.351822	2.970
2-Nitrotoluene	2500	518.669373	4.820	1000	199.872253	5.003	500	109.136604	4.581
3-Nitrotoluene	2500	561.282288	4.454	1000	218.848373	4.569	500	119.980690	4.167
4-Amino-2,6-Dinitrotoluene	2500	543.547424	4.599	1000	210.661285	4.747	500	113.099678	4.421
4-Nitrotoluene	2500	396.197540	6.310	1000	155.046844	6.450	500	88.5422211	5.647
HMX	2500	379.932617	6.580	1000	156.501083	6.390	500	78.4451141	6.374
Nitrobenzene	2500	851.866089	2.935	1000	342.577728	2.919	500	181.238831	2.759
RDX	2500	450.361206	5.551	1000	174.138580	5.743	500	92.2436447	5.420
Tetryl	2500	705.181396	3.545	1000	278.695068	3.588	500	148.200851	3.374

INT_CAL - Modified 03/06/2008
PDF File ID: 2113290
Report generated 08/15/2011 11:52

Microbac Laboratories Inc.

INITIAL CALIBRATION DATA

Login Number: L11080106

Analytical Method: 8330B

Instrument ID: HPLC4

Initial Calibration Date: 28-JUL-11 15:52

Column ID: F

Analyte	WG371610-04			WG371610-05			WG371610-06		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
1,3,5-Trinitrobenzene	100	38.1808205	2.619	50.0	19.8493176	2.519	25.0	9.83001995	2.543
1,3-Dinitrobenzene	100	49.6873131	2.013	50.0	29.4843750	1.696	25.0	13.6528006	1.831
2,4,6-Trinitrotoluene	100	34.3585434	2.910	50.0	32.0073433	1.562	25.0	23.2721577	1.074
2,4-Dinitrotoluene	100	44.2970009	2.257	50.0	23.9732590	2.086	25.0	11.5523987	2.164
2,6-Dinitrotoluene	100	23.9041500	4.183	50.0	12.8315029	3.897	25.0	7.52392006	3.323
2-Amino-4,6-Dinitrotoluene	100	30.7795677	3.249	50.0	17.4160480	2.871	25.0	7.37562990	3.390
2-Nitrotoluene	100	19.3523941	5.167	50.0	10.8471975	4.609	25.0	4.31308699	5.796
3-Nitrotoluene	100	21.2135391	4.714	50.0	12.0085058	4.164	25.0	4.79798031	5.211
4-Amino-2,6-Dinitrotoluene	100	20.8297176	4.801	50.0	12.0012655	4.166	25.0	6.01302767	4.158
4-Nitrotoluene	100	14.0430593	7.121	50.0	8.60614777	5.810	25.0	4.03382778	6.198
HMX	100	17.2203770	5.807	50.0	8.56002617	5.841	25.0	4.82744408	5.179
Nitrobenzene	100	36.1481171	2.766	50.0	17.6904736	2.826	25.0	8.26797867	3.024
RDX	100	18.7126179	5.344	50.0	9.06813431	5.514	25.0	4.63900566	5.389
Tetryl	100	27.5752869	3.626	50.0	15.9001055	3.145	25.0	19.0862598	1.310

INT_CAL - Modified 03/06/2008
PDF File ID: 2113290
Report generated 08/15/2011 11:52

Microbac Laboratories Inc.
ALTERNATE SOURCE CALIBRATION REPORT

Login Number: L11080106 Run Date: 02/10/2011 Sample ID: WG356179-07
Instrument ID: HPLC5 Run Time: 17:12 Method: 8330B
File ID: 5L004241.F Analyst: ECL QC Key: DOD4
ICal Workgroup: WG356179 Cal ID: HPLC5 - 10-FEB-11

Analyte		Expected	Found	Units	RF	%D	UCL	Q
Sym-Trinitrobenzene		500	452	ug/L	2.38	9.70	20	
1,3-Dinitrobenzene		500	472	ug/L	1.67	5.60	20	
2,4,6-Trinitrotoluene		500	479	ug/L	2.46	4.20	20	
2,4-Dinitrotoluene		500	481	ug/L	1.81	3.90	20	
2,6-Dinitrotoluene		500	470	ug/L	3.66	5.90	20	
2-Amino-4,6-Dinitrotoluene		500	480	ug/L	2.76	4.00	20	
2-Nitrotoluene		500	471	ug/L	4.45	5.80	20	
3-Nitrotoluene		500	466	ug/L	3.97	6.90	20	
4-Nitrotoluene		500	461	ug/L	5.48	7.80	20	
4-Amino-2,6-Dinitrotoluene		500	490	ug/L	3.92	2.00	20	
HMX		500	483	ug/L	5.72	3.30	20	
Nitrobenzene		500	515	ug/L	2.24	2.90	20	
RDX		500	472	ug/L	4.88	5.50	20	
Tetryl		500	351	ug/L	4.95	29.9	20	*

* Exceeds %D Limit

ALT - Modified 09/06/2007
Version 1.5 PDF File ID: 2113287
Report generated 08/15/2011 11:53

Microbac Laboratories Inc.
ALTERNATE SOURCE CALIBRATION REPORT

Login Number: L11080106 Run Date: 07/28/2011 Sample ID: WG371610-07
Instrument ID: HPLC4 Run Time: 16:45 Method: 8330B
File ID: 4L022567.F Analyst: ECL QC Key: DOD4
ICal Workgroup: WG371610 Cal ID: HPLC4 - 28-JUL-11

Analyte		Expected	Found	Units	RF	%D	UCL	Q
Sym-Trinitrobenzene		500	546	ug/L	2.25	9.30	20	
1,3-Dinitrobenzene		500	582	ug/L	1.59	16.4	20	
2,4,6-Trinitrotoluene		500	608	ug/L	2.24	21.5	20	*
2,4-Dinitrotoluene		500	581	ug/L	1.78	16.1	20	
2,6-Dinitrotoluene		500	465	ug/L	4.14	7.10	20	
2-Amino-4,6-Dinitrotoluene		500	562	ug/L	2.77	12.5	20	
2-Nitrotoluene		500	461	ug/L	5.25	7.70	20	
3-Nitrotoluene		500	472	ug/L	4.71	5.60	20	
4-Nitrotoluene		500	449	ug/L	6.96	10.3	20	
4-Amino-2,6-Dinitrotoluene		500	506	ug/L	4.55	1.20	20	
HMX		500	577	ug/L	5.60	15.5	20	
Nitrobenzene		500	549	ug/L	2.64	9.80	20	
RDX		500	570	ug/L	4.89	14.0	20	
Tetryl		500	497	ug/L	3.50	0.600	20	

* Exceeds %D Limit

ALT - Modified 09/06/2007
Version 1.5 PDF File ID: 2113287
Report generated 08/15/2011 11:53

Microbac Laboratories Inc.
CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L11080106 Run Date: 08/10/2011 Sample ID: WG372736-01
Instrument ID: HPLC5 Run Time: 11:17 Method: 8330B
File ID: 5L005116.F Analyst: ECL QC Key: DOD4
Workgroup (AAB#): WG372734 Cal ID: HPLC5 - 10-FEB-11
Matrix: WATER

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
Sym-Trinitrobenzene		500	466	ug/L	2.31	6.82	20	
1,3-Dinitrobenzene		500	478	ug/L	1.65	4.44	20	
2,4,6-Trinitrotoluene		500	482	ug/L	2.44	3.55	20	
2,4-Dinitrotoluene		500	483	ug/L	1.80	3.33	20	
2,6-Dinitrotoluene		500	485	ug/L	3.54	2.97	20	
2-Amino-4,6-Dinitrotoluene		500	497	ug/L	2.66	0.516	20	
2-Nitrotoluene		500	494	ug/L	4.24	1.24	20	
3-Nitrotoluene		500	489	ug/L	3.78	2.21	20	
4-Nitrotoluene		500	495	ug/L	5.10	1.07	20	
4-Amino-2,6-Dinitrotoluene		500	503	ug/L	3.82	0.507	20	
HMX		500	473	ug/L	5.85	5.47	20	
Nitrobenzene		500	465	ug/L	2.47	6.94	20	
RDX		500	495	ug/L	4.66	0.988	20	
Tetryl		500	528	ug/L	3.23	5.59	20	

* Exceeds %D Criteria

CCV - Modified 03/05/2008
PDF File ID: 2113288
Report generated 08/15/2011 11:53

Microbac Laboratories Inc.
CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L11080106 Run Date: 08/10/2011 Sample ID: WG372736-02
Instrument ID: HPLC5 Run Time: 20:25 Method: 8330B
File ID: 5L005130.F Analyst: ECL QC Key: DOD4
Workgroup (AAB#): WG372734 Cal ID: HPLC5 - 10-FEB-11
Matrix: WATER

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
Sym-Trinitrobenzene		500	471	ug/L	2.28	5.85	20	
1,3-Dinitrobenzene		500	479	ug/L	1.65	4.29	20	
2,4,6-Trinitrotoluene		500	480	ug/L	2.45	3.93	20	
2,4-Dinitrotoluene		500	488	ug/L	1.78	2.38	20	
2,6-Dinitrotoluene		500	486	ug/L	3.54	2.78	20	
2-Amino-4,6-Dinitrotoluene		500	504	ug/L	2.62	0.887	20	
2-Nitrotoluene		500	495	ug/L	4.23	1.00	20	
3-Nitrotoluene		500	496	ug/L	3.73	0.894	20	
4-Nitrotoluene		500	492	ug/L	5.13	1.63	20	
4-Amino-2,6-Dinitrotoluene		500	510	ug/L	3.76	1.95	20	
HMX		500	478	ug/L	5.79	4.46	20	
Nitrobenzene		500	464	ug/L	2.48	7.21	20	
RDX		500	496	ug/L	4.65	0.797	20	
Tetryl		500	521	ug/L	3.27	4.24	20	

* Exceeds %D Criteria

CCV - Modified 03/05/2008
PDF File ID: 2113288
Report generated 08/15/2011 11:53

Microbac Laboratories Inc.
CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L11080106 Run Date: 08/11/2011 Sample ID: WG372736-03
Instrument ID: HPLC5 Run Time: 05:11 Method: 8330B
File ID: 5L005144.F Analyst: ECL QC Key: DOD4
Workgroup (AAB#): WG372734 Cal ID: HPLC5 - 10-FEB-11
Matrix: WATER

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
Sym-Trinitrobenzene		500	472	ug/L	2.28	5.68	20	
1,3-Dinitrobenzene		500	477	ug/L	1.65	4.60	20	
2,4,6-Trinitrotoluene		500	481	ug/L	2.44	3.79	20	
2,4-Dinitrotoluene		500	485	ug/L	1.79	3.01	20	
2,6-Dinitrotoluene		500	484	ug/L	3.55	3.19	20	
2-Amino-4,6-Dinitrotoluene		500	495	ug/L	2.67	1.07	20	
2-Nitrotoluene		500	496	ug/L	4.22	0.713	20	
3-Nitrotoluene		500	495	ug/L	3.73	0.937	20	
4-Nitrotoluene		500	493	ug/L	5.12	1.37	20	
4-Amino-2,6-Dinitrotoluene		500	507	ug/L	3.79	1.36	20	
HMX		500	474	ug/L	5.83	5.15	20	
Nitrobenzene		500	456	ug/L	2.52	8.79	20	
RDX		500	489	ug/L	4.72	2.24	20	
Tetryl		500	510	ug/L	3.34	1.98	20	

* Exceeds %D Criteria

CCV - Modified 03/05/2008
PDF File ID: 2113288
Report generated 08/15/2011 11:53

Microbac Laboratories Inc.
CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L11080106 Run Date: 08/11/2011 Sample ID: WG372952-01
Instrument ID: HPLC4 Run Time: 15:27 Method: 8330B
File ID: 4L022602.F Analyst: ECL QC Key: DOD4
Workgroup (AAB#): WG372734 Cal ID: HPLC4 - 28-JUL-11
Matrix: WATER

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
Sym-Trinitrobenzene		500	487	ug/L	2.53	2.51	20	
1,3-Dinitrobenzene		500	491	ug/L	1.88	1.74	20	
2,4,6-Trinitrotoluene		500	478	ug/L	2.83	4.45	20	
2,4-Dinitrotoluene		500	483	ug/L	2.15	3.34	20	
2,6-Dinitrotoluene		500	498	ug/L	3.86	0.367	20	
2-Amino-4,6-Dinitrotoluene		500	487	ug/L	3.20	2.50	20	
2-Nitrotoluene		500	486	ug/L	4.98	2.72	20	
3-Nitrotoluene		500	480	ug/L	4.63	3.96	20	
4-Nitrotoluene		500	474	ug/L	6.59	5.13	20	
4-Amino-2,6-Dinitrotoluene		500	495	ug/L	4.65	0.936	20	
HMX		500	497	ug/L	6.49	0.633	20	
Nitrobenzene		500	478	ug/L	3.03	4.41	20	
RDX		500	482	ug/L	5.78	3.63	20	
Tetryl		500	462	ug/L	3.76	7.65	20	

* Exceeds %D Criteria

CCV - Modified 03/05/2008
PDF File ID: 2113288
Report generated 08/15/2011 11:53

Microbac Laboratories Inc.
CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L11080106 Run Date: 08/12/2011 Sample ID: WG372952-02
Instrument ID: HPLC4 Run Time: 03:16 Method: 8330B
File ID: 4L022616.F Analyst: ECL QC Key: DOD4
Workgroup (AAB#): WG372734 Cal ID: HPLC4 - 28-JUL-11
Matrix: WATER

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
Sym-Trinitrobenzene		500	496	ug/L	2.48	0.878	20	
1,3-Dinitrobenzene		500	493	ug/L	1.88	1.35	20	
2,4,6-Trinitrotoluene		500	477	ug/L	2.83	4.50	20	
2,4-Dinitrotoluene		500	489	ug/L	2.12	2.30	20	
2,6-Dinitrotoluene		500	500	ug/L	3.84	0.00762	20	
2-Amino-4,6-Dinitrotoluene		500	497	ug/L	3.14	0.640	20	
2-Nitrotoluene		500	495	ug/L	4.89	1.01	20	
3-Nitrotoluene		500	500	ug/L	4.45	0.00185	20	
4-Nitrotoluene		500	499	ug/L	6.27	0.202	20	
4-Amino-2,6-Dinitrotoluene		500	504	ug/L	4.57	0.745	20	
HMX		500	494	ug/L	6.52	1.14	20	
Nitrobenzene		500	477	ug/L	3.03	4.56	20	
RDX		500	501	ug/L	5.57	0.107	20	
Tetryl		500	410	ug/L	4.22	18.0	20	

* Exceeds %D Criteria

CCV - Modified 03/05/2008
PDF File ID: 2113288
Report generated 08/15/2011 11:53

2.2 General Chemistry Data

2.2.1 Nitrate Data

2.2.1.1 Summary Data

Login Number: L11080106

Department: Conventionals

Analyst: Deanna Hesson

METHOD

Analysis EPA 353.2/SM4500-NO3 F (Nitrate)

HOLDING TIMES

Sample Analysis: Nitrate is reported as the difference of nitrate-nitrite (28 day hold) and nitrite (48 hour hold). Both analysis were analyzed within the appropriate hold time. The nitrate hold time is within compliance.

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.

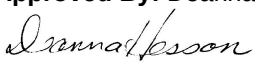
Duplicates: All acceptance criteria were met.

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: 33457
Approved By: Deanna Hesson



LABORATORY REPORT

L11080106

08/16/11 14:37

Submitted By

Microbac Laboratories Inc.
158 Starlite Drive
Marietta , OH 45750
(740) 373 - 4071

For

Account Name: Shaw E & I, Inc.
1401 Enclave Parkway
Suite 250
Houston, TX 77077
Attention: Larry Duty

Project Number: 2773.044
Project: White Sands Missile Range
Site: WHITE SANDS MISSILE RANGE

P.O. Number: 620349

Sample Analysis Summary

Client ID	Lab ID	Method	Dilution	Date Received
HTA-19	L11080106-01	353.2	16	03-AUG-11
HTA-19-QC	L11080106-02	353.2	16	03-AUG-11
HTA-16	L11080106-03	353.2	8	03-AUG-11
HTA-16-D	L11080106-04	353.2	8	03-AUG-11

Report Number: **L11080106**
Report Date : **August 16, 2011**

Sample Number: **L11080106-01**
Client ID: **HTA-19**
Matrix: **Water**
Workgroup Number: **WG372204**
Collect Date: **08/02/2011 11:11**

PrePrep Method: **NONE**
Prep Method: **353.2**
Analytical Method: **353.2**
Analyst: **DIH**
Dilution: **16**
Units: **mg/L**

Instrument: **SMARTCHEM**
Prep Date: **08/03/2011 13:40**
Cal Date: **08/03/2011 08:38**
Run Date: **08/03/2011 13:40**
File ID: **SC11080514383201**

Analyte	CAS. Number	Result	Qual	LOQ	LOD
Nitrate-Nitrite (as N)		23.8		0.800	0.400

Report Number: **L11080106**
Report Date : **August 16, 2011**

Sample Number: **L11080106-02**
Client ID: **HTA-19-QC**
Matrix: **Water**
Workgroup Number: **WG372204**
Collect Date: **08/02/2011 11:11**

PrePrep Method: **NONE**
Prep Method: **353.2**
Analytical Method: **353.2**
Analyst: **DIH**
Dilution: **16**
Units: **mg/L**

Instrument: **SMARTCHEM**
Prep Date: **08/03/2011 13:40**
Cal Date: **08/03/2011 08:38**
Run Date: **08/03/2011 13:40**
File ID: **SC11080514390701**

Analyte	CAS. Number	Result	Qual	LOQ	LOD
Nitrate-Nitrite (as N)		23.1		0.800	0.400

Report Number: **L11080106**
Report Date : **August 16, 2011**

Sample Number: **L11080106-03**
Client ID: **HTA-16**
Matrix: **Water**
Workgroup Number: **WG372204**
Collect Date: **08/02/2011 13:13**

PrePrep Method: **NONE**
Prep Method: **353.2**
Analytical Method: **353.2**
Analyst: **DIH**
Dilution: **8**
Units: **mg/L**

Instrument: **SMARTCHEM**
Prep Date: **08/03/2011 13:40**
Cal Date: **08/03/2011 08:38**
Run Date: **08/03/2011 13:40**
File ID: **SC11080514391801**

Analyte	CAS. Number	Result	Qual	LOQ	LOD
Nitrate-Nitrite (as N)		10.4		0.400	0.200

Report Number: **L11080106**
Report Date : **August 16, 2011**

Sample Number: **L11080106-04**
Client ID: **HTA-16-D**
Matrix: **Water**
Workgroup Number: **WG372204**
Collect Date: **08/02/2011 14:07**

PrePrep Method: **NONE**
Prep Method: **353.2**
Analytical Method: **353.2**
Analyst: **DIH**
Dilution: **8**
Units: **mg/L**

Instrument: **SMARTCHEM**
Prep Date: **08/03/2011 13:40**
Cal Date: **08/03/2011 08:38**
Run Date: **08/03/2011 13:40**
File ID: **SC11080514392701**

Analyte	CAS. Number	Result	Qual	LOQ	LOD
Nitrate-Nitrite (as N)		9.91		0.400	0.200

2.2.1.2 QC Summary Data

Example Nitrate Calculations

(absorbance - intercept)/(slope * dilution) = mg/L

where:

absorbance = reading from the spectrophotometer
intercept = calculated from calibration standard absorbencies
slope = calculated from calibration standard absorbencies
dilution = dilution of the distillate in decimal form (ex. 1/5 dilution = 0.2)

Microbac Laboratories Inc.

Data Checklist

Date: 03-AUG-2011
Analyst: DIH
Analyst: NA
Method: NO3
Instrument: SC
Curve Workgroup: NA
Runlog ID:
Analytical Workgroups: WG372186 WG372204 WG372178

Calibration/Linearity	8/3/2011
Second Source Check	X
ICV/CCV (std)	X
ICB/CCB	X
Blank	X
LCS/LCS Dup	X
MS/MSD	X
Duplicate	X
Upload Results	X
Client Forms	X
QC Violation Sheet	X
Case Narratives	X
Signed Raw Data	X
STD/LCS on benchsheet	X
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Primary Reviewer	DIH
Secondary Reviewer	DIH
Comments	

Primary Reviewer:
08-AUG-2011

Secondary Reviewer:
08-AUG-2011

CHECKLIST1 - Modified 03/05/2008
Generated: AUG-08-2011 14:08:19

Microbac Laboratories Inc.

HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: 353.2 AAB#: WG372204

Login Number: L11080106

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-19	01	08/02/11							28		08/03/11	1.1	28	
HTA-19-QC	02	08/02/11							28		08/03/11	1.1	28	
HTA-16	03	08/02/11							28		08/03/11	1	28	
HTA-16-D	04	08/02/11							28		08/03/11	1	28	

* = SEE PROJECT QAPP REQUIREMENTS

HOLD_TIMES - Modified 03/06/2008
PDF File ID: 2106406
Report generated 08/05/2011 15:28

Microbac Laboratories Inc.

METHOD BLANK SUMMARY

Login Number: L11080106
Blank File ID: SC11080514370301
Prep Date: 08/03/11 13:40
Analyzed Date: 08/03/11 13:40
Analyst: DIH

Work Group: WG372204
Blank Sample ID: WG372204-01
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
DUP	WG372204-05	SC11080514372301	08/03/11 13:40	
HTA-16	L11080106-03	SC11080514391801	08/03/11 13:40	
HTA-16-D	L11080106-04	SC11080514392701	08/03/11 13:40	
HTA-19	L11080106-01	SC11080514383201	08/03/11 13:40	
LCS	WG372204-02	SC11080514371001	08/03/11 13:40	
LCS2	WG372204-03	SC11080514371301	08/03/11 13:40	
HTA-19-QC	L11080106-02	SC11080514390701	08/03/11 13:40	

Report Name: BLANK_SUMMARY
PDF File ID: 2106407
Report generated 08/05/2011 15:28

Microbac Laboratories Inc.

METHOD BLANK REPORT

Login Number: L11080106 Prep Date: 08/03/11 13:40 Sample ID: WG372204-01
Instrument ID: SMARTCHEM Run Date: 08/03/11 13:40 Prep Method: 353.2
File ID: SC11080514370301 Analyst: DIH Method: 353.2
Workgroup (AAB#): WG372204 Matrix: Water Units: mg/L
Contract #: Cal ID: SMARTC - 03-AUG-11

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: 2106408
05-AUG-2011 15:28

Microbac Laboratories Inc.
LABORATORY CONTROL SAMPLE (LCS)

Login Number: L11080106 Analyst: DIH Prep Method: 353.2
Instrument ID: SMARTCHEM Matrix: Water Method: 353.2
Workgroup (AAB#): WG372204 Units: mg/L
QC Key: DOD4 Lot #: STD46874

Sample ID: WG372204-02 LCS File ID: SC11080514371001 Run Date: 08/03/2011 13:40
Sample ID: WG372204-03 LCS2 File ID: SC11080514371301 Run Date: 08/03/2011 13:40

Analytes	LCS			LCS2			%RPD	%Rec Limits	RPD Lmt	Q
	Known	Found	% REC	Known	Found	% REC				
Nitrate-Nitrite (as N)	1.00	1.02	102	1.00	0.990	99.0	3.38	90 - 110	15	

LCS_LCS2 - Modified 03/06/2008
PDF File ID: 2106409
Report generated: 08/05/2011 15:28

2.2.1.3 Raw Data

WORKGROUP: WG372178

372186
372204

SMARTCHEM RUN LOG

Daily Check

- [x] Lamp On
- [x] Probe Rinse Full
- [x] DI Water > ½ Full
- [x] Wash Solution > ½ Full
- [x] WBL Run
- [x] Reagents Full
- [x] Dilution H_2O Full
- [x] Waste Container Check
- [x] NO3 Reagent bottle connected / purged
- [x] NO3 pH adj to pH 5-9

Syringe filter lot # 126569

1) **Workgroup** _____
Plan # 20110803002
2) **Workgroup** _____
Plan # _____
3) **Workgroup** _____
Plan # _____

Analyte		1	2	3
		NO3		
		Dilution		
SC Prepared Curve				
Position				
1-1	ICV 1.5			
1-2	BIK			
1-3	LCS 1			
1-4	LCSDUP			
1-5	NO2 1			
1-6	08-082-01	1/50		
1-7	08-084-08	1/5		color
1-8	09	1/50		↓
1-9	08-005-04			
1-10	05			
1-11	09			
1-12	10			
1-13	11			
1-14	12			
1-15	13			
1-16	14			✓
1-17	15			
1-18	16			✓
1-19	08-015-01	1/4		
1-20	02	1/4		
1-21	03	1/4		
1-22	08-081-01			✓
2-1	03			
2-2	04			
2-3	08-076-01			

Position	Analyte	1	2	3
2-4	DUP 07601			
2-5	MS 07602			
2-6	msd07603			
2-7	BIK			
2-8	LCS			
2-9	LCSDUP			
2-10	08-07501			
2-11	DUP ↓			
2-12	MS ↓			
2-13	08-088-01			
2-14	MS 005-04			
2-15	LCS			
2-16	LCSDUP			
2-17	LCS			
2-18	LCSDUP			
2-19				
2-20	Run 2			
2-21 1	ICV			
2-22 2	BIK			
2-23 3	LCS			
2-24 4	LCSDUP			
2-25 5	NO2			
2-26 6	08-100-04	1/20		
3-1 7	05	-		
3-2 8	06	1/25	color	
9	07			
10	08-114-02	~~1/20~~ 1/25	~~1/5~~ 1/15	
11	DUP 100-07			
12	MS ↓			
13				

NOTES:
- * Run NO2 std on NO3 runs
- * LCS/LCS Dup all parameters
- *MS(10% sample): NO3, TKN, NH3

DCN#87889

Approved: August 08, 2011

WORKGROUP: WG372178

SMARTCHEM RUN LOG

Position	Analyte	1	2	3
3-3 2-1	08-106-01	Autod.1	1/4	
3-4 2	02	"	1/4	
3-5 3	03	"	1/2	
3-6 4	04	"	1/2	
3-7 5	RR NO2			
3-8				
3-9				
3-10				
3-11				
3-12				
3-13				
3-14				
3-15				

Position	Analyte	1	2	3
3-16				
3-17				
3-18				
3-19				
3-20				
3-21				
3-22				
3-23				
3-24				
3-25				
3-26				
3-27				
3-28				

- [ ] Chloride — EPA 325.2/SM 4500-Cl⁻ E
- [ ] Sulfate — EPA 375.4/SM 426C(15th)
- [ ] Alkalinity — EPA 310.2
- [x] Nitrate-Nitrite — EPA 353.2/SM 4500-NO3 F
- [ ] Ammonia — EPA 350.1/SM 4500-NH3 B
- [ ] TKN — EPA 351.2
- [ ] Phos — EPA 365.4

Analyte	NO3		Reagents
SOP & Revision	K 3532 R17		ROT 16072
Curve Stock (SC made)	std 46421		ROT 16370
Curve ID (user made) NO2	std 46727		
ICV	std 46418		
CCV	std 46422		
LCS	std 46874		
MS	std 45142 Dilution 0.1/5(25)=0.5		

Comments: made new LCS and ran @ end

Analyst: Deanna Hesson Date: 8/3/11

DCN#87889

Deanna Hesson

Approved: August 08, 2011

MICROBAC (OVD)
SMARTCHEM REPORT (VER3.0.53)
NH3, TKN, NO3NO2 (MG/L N)
ALK (MG/L CaCO3) CL, SO4 (MG/L)

Method : WNO3 - EPA 353.2 Nitrate-Nitrite

Smp#/[Dil Fact]	Sample ID	Conc	OD	%Recovery/RPD	Flag		Analysis Time
DIL-1	RBL	0.000	0.0387	0.00			11:11:41 AM
DIL-1	RBL	0.000	0.0208	0.00			11:12:53 AM
DIL-1	RBL	0.000	0.0185	0.00			11:14:05 AM
DIL-1	RBL	0.000	0.0175	0.00			11:15:17 AM
DIL-1	Std-1	0.000	0.0002	0.00			11:16:29 AM
SR5-1	Std-2	0.040	0.0116	0.00			11:17:41 AM
SR5-2	Std-3	0.100	0.0274	0.00			11:18:53 AM
SR5-3	Std-4	0.500	0.1430	0.00			11:20:05 AM
SR5-4	Std-5	1.000	0.2910	0.00			11:21:17 AM
ST-1	Std-6	2.000	0.5787	0.00			11:22:30 AM
1	ICV 1.5	1.483	0.4293	0.00			11:23:41 AM
2	WG372178-01 BLK	-0.012	-0.0041	0.00	INV,><,LL		11:24:53 AM
3	WG372178-02 LCS	0.860	0.2486	0.00			11:26:06 AM
4	WG372178-03 LCSDUP	0.863	0.2496	0.00			11:27:18 AM
5	NO2 1	0.858	0.2481	0.00		NO2	11:28:30 AM
6	L11080082-01 (50)	0.984	0.2848	0.00		0.013	11:29:42 AM
7	L11080084-08 (5)	0.568	0.1640	0.00		0.972	11:30:54 AM
8	L11080084-09 (50)	1.691	0.4896	0.00		0	11:32:06 AM
9	L11080005-04	0.256	0.0738	0.00			11:33:18 AM
10	L11080005-05	0.538	0.1554	0.00			11:34:30 AM
ST-2	CCV (1 mg/L)	0.953	0.2757	95.30			11:35:42 AM
ST-3	CCB (0 mg/L)	-0.001	-0.0007	0.00	INV,><,LL		11:36:54 AM
11	L11080005-09	0.110	0.0313	0.00			11:38:06 AM
12	L11080005-10	1.135	0.3283	0.00			11:39:18 AM
13	L11080005-11	0.199	0.0572	0.00			11:40:30 AM
14	L11080005-12	0.177	0.0509	0.00			11:41:42 AM
15	L11080005-13	1.465	0.4240	0.00			11:42:54 AM
16	L11080005-14	12.335	3.5747	0.00	><,LH		11:44:06 AM
17	L11080005-15	12.471	3.6140	0.00	><,LH		11:45:18 AM
18	L11080005-16	2.886	0.8358	0.00	><,LH		11:46:30 AM
19	L11080015-01 (4)	0.590	0.1705	0.00			11:47:42 AM
20	L11080015-02 (4)	1.929	0.5587	0.00			11:48:54 AM

Report Date :08/03/2011 **Run Date :8/3/2011** **Operator : WESTCO** **Plan # :20110803002**

Plan Description : NO3-A-DIH/8/3/2011

Approved: August 08, 2011

MICROBAC (OVD)
SMARTCHEM REPORT (VER3.0.53)
NH3, TKN, NO3NO2 (MG/L N)
ALK (MG/L CaCO3) CL, SO4 (MG/L)

Method : WNO3 - EPA 353.2 Nitrate-Nitrite

Smp#/[Dil Fact]	Sample ID	Conc	OD	%Recovery/RPD	Flag		Analysis Time
ST-2	CCV (1 mg/L)	0.938	0.2713	93.78			11:50:06 AM
ST-3	CCB (0 mg/L)	-0.014	-0.0047	0.00	INV,><,LL		11:51:18 AM
21	L11080015-03 (4)	1.848	0.5352	0.00			11:52:30 AM
22	L11080081-01	5.632 X	1.6319	0.00	><,LH		11:53:42 AM
23	L11080081-03	1.241	0.3593	0.00			11:54:54 AM
24	L11080081-04	1.051	0.3040	0.00			11:56:06 AM
25	L11080076-01	1.562	0.4522	0.00			11:57:18 AM
26	DUP 076-01	1.555	0.4502	0.00			11:58:30 AM
27	L11080076-02 MS	1.914	0.5542	0.00			11:59:42 AM
28	L11080076-03 MSD	1.964	0.5686	0.00			12:00:54 PM
29	WG372186-01 BLK	-0.010	-0.0033	0.00	INV,><,LL		12:02:06 PM
30	WG372186-02 LCS	0.859 X	0.2485	0.00			12:03:18 PM
ST-2	CCV (1 mg/L)	0.969	0.2804	96.92			12:04:30 PM
ST-3	CCB (0 mg/L)	-0.015	-0.0048	0.00	INV,><,LL		12:05:42 PM
31	WG372186-03 LCSDUP	0.877 X	0.2536	0.00			12:06:54 PM
32	L11080075-01	1.067	0.3087	0.00			12:08:06 PM
33	DUP 075-01	1.034	0.2992	0.00			12:09:18 PM
34	MS 075-01	1.497	0.4333	0.00			12:10:30 PM
35	L11080088-01	0.334	0.0964	0.00		0	12:11:42 PM
36	MS 005-04	0.743	0.2147	0.00			12:12:54 PM
37	ID 37 wg 372178-02 LCS	1.000	0.2892	0.00			12:14:07 PM
38	ID 38 03 LCSD	0.992	0.2871	0.00			12:15:19 PM
39	ID 39 wg372186-02 LCS	1.027	0.2971	0.00			12:16:31 PM
40	ID 40 -03 LCSD	1.028	0.2973	0.00			12:17:43 PM
ST-2	CCV (1 mg/L)	0.952	0.2755	95.23			12:18:55 PM
ST-3	CCB (0 mg/L)	-0.008	-0.0030	0.00	INV,><,LL		12:20:07 PM
16-[1/4]	L11080005-14	15.102 X	1.0938	0.00	><,LH		12:29:17 PM
17-[1/4]	L11080005-15	15.918 X	1.1529	0.00	><,LH		12:31:23 PM
18-[1/4]	L11080005-16	2.956	0.2137	0.00	LH		12:33:29 PM
22-[1/4]	L11080081-01	5.842	0.4228	0.00	LH		12:35:35 PM
ST-2	CCV (1 mg/L)	0.924	0.2674	92.44			12:36:29 PM
ST-3	CCB (0 mg/L)	-0.011	-0.0036	0.00	INV,><,LL		12:37:41 PM

Report Date :08/03/2011 **Run Date :8/3/2011** **Operator : WESTCO** **Plan # :20110803002**

Plan Description : NO3-A-DIH/8/3/2011

Donna Hesson

Approved: August 08, 2011

MICROBAC (OVD)
SMARTCHEM REPORT (VER3.0.53)
NH3, TKN, NO3NO2 (MG/L N)
ALK (MG/L CaCO3) CL, SO4 (MG/L)

Method : WNO3 - EPA 353.2 Nitrate-Nitrite

Smp#/[Dil Fact]	Sample ID	Conc	OD	%Recovery/RPD	Flag	Analysis Time
16-[1/8]	L11080005-14	14.792	0.5354	0.00	LH	12:46:51 PM
17-[1/8]	L11080005-15	16.112	0.5832	0.00	><,LH	12:48:57 PM
ST-2	CCV (1 mg/L)	0.960	0.2776	95.96		12:49:51 PM
ST-3	CCB (0 mg/L)	-0.011	-0.0037	0.00	INV,><,LL	12:51:03 PM
17-[1/13]	L11080005-15	15.977	0.3557	0.00	LH	1:00:13 PM
ST-2	CCV (1 mg/L)	0.936	0.2707	93.58		1:01:07 PM
ST-3	CCB (0 mg/L)	0.000	-0.0006	0.00	INV,><	1:02:19 PM

Report Date :08/03/2011 **Run Date :8/3/2011** **Operator : WESTCO** **Plan # :20110803002**

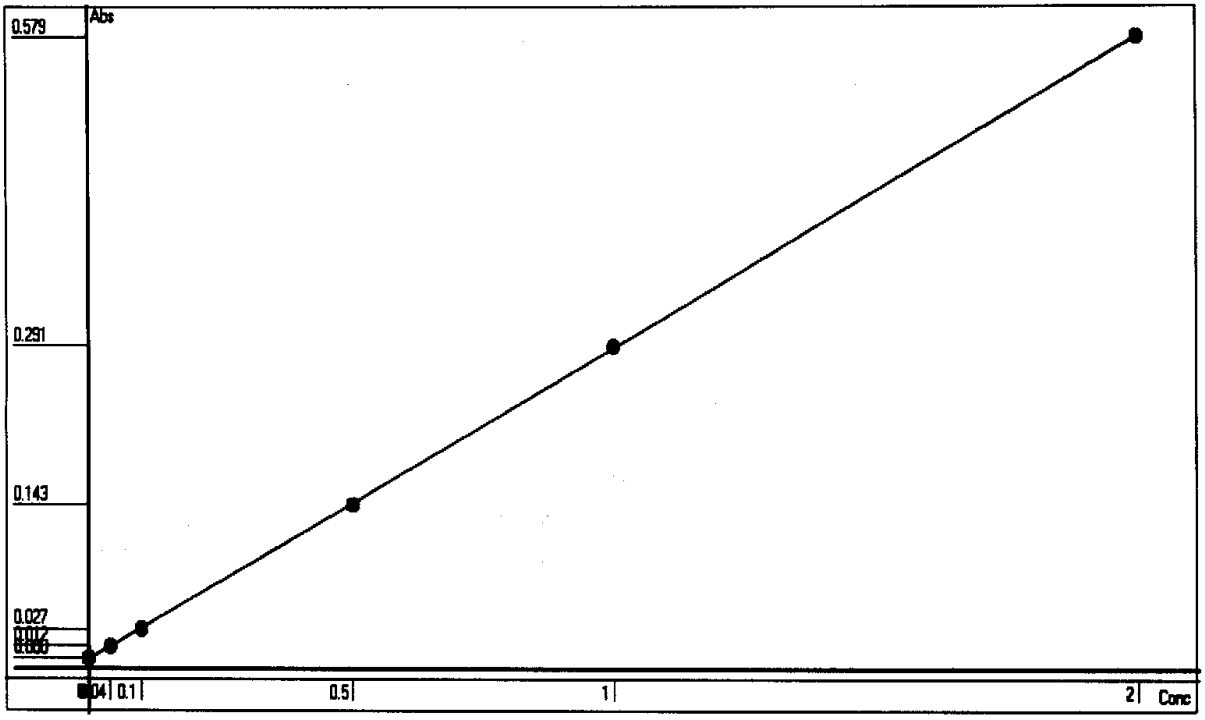
Plan Description : NO3-A-DIH/8/3/2011

Approved: August 08, 2011

Calibrant Report - WNO3 -

Calib Lot #:010104 Exp Date:6/17/2020 User:MICROBAC

Plan # : 20110803002 Description : [NO3-A-DIH/8/3/2011]



Point	OD	Conc	Recalc Conc	% Error
1	0.0002	0	0.0027	0.27
2	0.0116	0.04	0.0420	5.00
3	0.0274	0.1	0.0965	-3.50
4	0.1430	0.5	0.4954	-0.92
5	0.2910	1	1.0060	0.60
6	0.5787	2	1.9986	-0.07

Conc= +3.4502*Abso +0.002 R^2=1.0000

RBL
0.0197
0

Report Date 8/3/2011 Run Date 8/3/2011

Approved: August 08, 2011

MICROBAC (OVD)
SMARTCHEM REPORT (VER3.0.53)
NH3, TKN, NO3NO2 (MG/L N)
ALK (MG/L CaCO3) CL, SO4 (MG/L)

Method : WNO3 - EPA 353.2 Nitrate-Nitrite

Smp#/[Dil Fact]	Sample ID	Conc	OD	%Recovery/RPD	Flag	Analysis Time
DIL-1	RBL	0.000	0.0112	0.00		1:28:58 PM
DIL-1	RBL	0.000	0.0116	0.00		1:30:10 PM
DIL-1	RBL	0.000	0.0109	0.00		1:31:22 PM
DIL-1	RBL	0.000	0.0093	0.00		1:32:34 PM
DIL-1	Std-1	0.000	0.0021	0.00		1:33:46 PM
SR5-1	Std-2	0.040	0.0134	0.00		1:34:58 PM
SR5-2	Std-3	0.100	0.0278	0.00		1:36:10 PM
SR5-3	Std-4	0.500	0.1445	0.00		1:37:22 PM
SR5-4	Std-5	1.000	0.2882	0.00		1:38:34 PM
ST-1	Std-6	2.000	0.5912	0.00		1:39:46 PM
1	ICV 1.5	1.441	0.4235	0.00		1:40:58 PM
2	WG372204-01 BLK	0.006	0.0011	0.00	><	1:42:10 PM
3	WG372204-02 LCS	1.024	0.3006	0.00		1:43:22 PM
4	WG372204-03 LCSDUP	0.990	0.2906	0.00		1:44:34 PM
5	NO2 1	1.165 X	0.3423	0.00		1:45:46 PM
6	L11080100-04 (20)	1.248	0.3667	0.00	0.003	1:46:58 PM
7	L11080100-05	1.028	0.3018	0.00	0.003	1:48:10 PM
8	L11080100-06 (25)	0.545	0.1596	0.00	0.004	1:49:22 PM
9	L11080100-07	0.227	0.0662	0.00	0.077	1:50:34 PM
10	ID 10 08-114-02 (15)	0.410	0.1200	0.00	0.036	1:51:46 PM
ST-2	CCV (1 mg/L)	0.952	0.2794	95.15		1:52:58 PM
ST-3	CCB (0 mg/L)	0.014	0.0033	0.00		1:54:10 PM
11	DUP 100-07	0.225	0.0655	0.00		1:55:23 PM
12	MS 100-07	0.672	0.1972	0.00		1:56:34 PM
13	ID 13	0.795 X	0.2334	0.00		1:57:46 PM
ST-2	CCV (1 mg/L)	0.992	0.2914	99.23		1:58:59 PM
ST-3	CCB (0 mg/L)	0.005	0.0006	0.00	><	2:00:11 PM
23	Add-ID 23 08-106-01	12.927 X	3.8050	0.00	><,LH	2:01:23 PM
24	Add-ID 24 02	13.503 X	3.9746	0.00	EPL,><,LH	2:02:35 PM
25	Add-ID 25 03	9.608 X	2.8279	0.00	EPL,><,LH	2:03:47 PM
26	Add-ID 26 04	9.291 X	2.7347	0.00	EPL,><,LH	2:04:59 PM
27	Add-ID 27 NO2	1.022	0.3002	0.00		2:06:11 PM

Report Date :08/03/2011 **Run Date :8/3/2011** **Operator : WESTCO** **Plan # :20110803003**

Plan Description : NO3-B-DIH/8/3/2011

Approved: August 08, 2011

MICROBAC (OVD)
SMARTCHEM REPORT (VER3.0.53)
NH3, TKN, NO3NO2 (MG/L N)
ALK (MG/L CaCO3) CL, SO4 (MG/L)

Method : WNO3 - EPA 353.2 Nitrate-Nitrite

Smp#/[Dil Fact]	Sample ID	Conc	OD	%Recovery/RPD	Flag	Analysis Time
ST-2	**Add-CCV (1 mg/L)**	**0.972**	**0.2854**	**97.19**		**2:07:23 PM**
ST-3	**Add-CCB (0 mg/L)**	**0.005**	**0.0006**	**0.00**	**><**	**2:08:35 PM**
23-[1/4]	**Add-ID 23** 08-~~06~~-01 (4)	**5.945**	**0.4368**	**0.00**	**LH**	**2:17:45 PM**
24-[1/4]	**Add-ID 24** -02 (4)	**5.784**	**0.4250**	**0.00**	**LH**	**2:19:51 PM**
25-[1/4]	**Add-ID 25** -03 (2)	**5.193**	**0.3815**	**0.00**	**LH**	**2:21:57 PM**
26-[1/4]	**Add-ID 26** -04 (2)	**4.956**	**0.3640**	**0.00**	**LH**	**2:24:03 PM**
ST-2	**CCV (1 mg/L)**	**0.937**	**0.2751**	**93.69**		**2:24:57 PM**
ST-3	**CCB (0 mg/L)**	**0.003**	**0.0001**	**0.00**	**><**	**2:26:09 PM**

Report Date :08/03/2011 **Run Date :8/3/2011** **Operator : WESTCO** **Plan # :20110803003**

Plan Description : NO3-B-DIH/8/3/2011

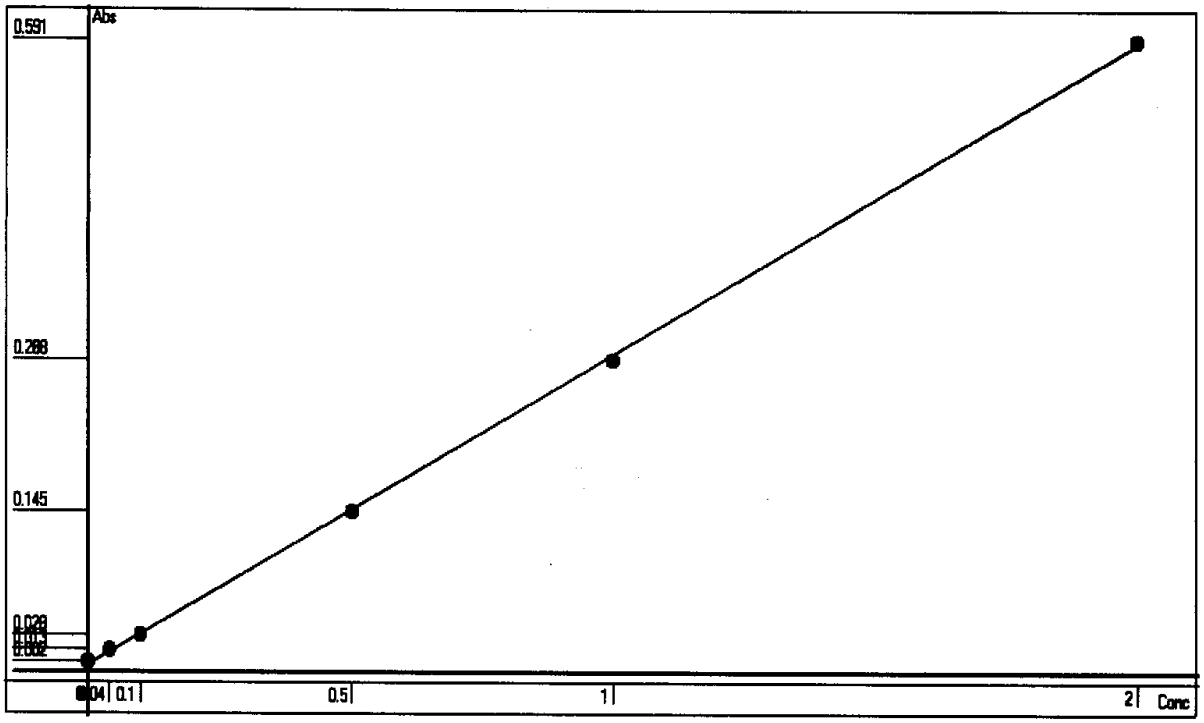
Dianna Hesson

Approved: August 08, 2011

Calibrant Report - WNO3 -

Calib Lot #:010104 Exp Date:6/17/2020 User:MICROBAC

Plan # : 20110803003 Description : [NO3-B-DIH/8/3/2011]



Point	OD	Conc	Recalc Conc	% Error
1	0.0021	0	0.0098	0.98
2	0.0134	0.04	0.0482	20.50
3	0.0278	0.1	0.0971	-2.90
4	0.1445	0.5	0.4935	-1.30
5	0.2882	1	0.9816	-1.84
6	0.5912	2	2.0108	0.54

Conc= +3.3966*Abso +0.0027 R^2=0.9998

RBL
0.0111
0

Report Date 8/3/2011 Run Date 8/3/2011

Approved: August 08, 2011

3.0 Attachments

Microbac Laboratories Inc.
Analyst Listing
August 16, 2011

ADC - ANTHONY D. CANTER	AJF - AMANDA J. FICKIESEN	ALB - ANNIE L. BROWN
ALV - AMY L. VALENTINE	AML - TONY M. LONG	AZH - AFTER HOURS
BLG - BRENDA L. GREENWALT	BRG - BRENDA R. GREGORY	CAA - CASSIE A. AUGENSTEIN
CAF - CHERYL A. FLOWERS	CEB - CHAD E. BARNES	CLC - CHRYS L. CRAWFORD
CLW - CHARISSA L. WINTERS	CPD - CHAD P. DAVIS	CS - CODY M. STRAHLER
CSH - CHRIS S. HILL	DDE - DEBRA D. ELLIOTT	DEV - DAVID E. VANDENBERG
DGB - DOUGLAS G. BUTCHER	DHG - DEBORAH H. GRIFFITHS	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
ERP - ERIN R. PORTER	FJB - FRANCES J. BOLDEN	HAV - HEMA VILASAGAR
HJR - HOLLY J. REED	JAL - JOHN A. LENT	JBK - JEREMY B. KINNEY
JDH - JUSTIN D. HESSON	JKT - JANE K. THOMPSON	JLL - JOHN L. LENT
JWR - JOHN W. RICHARDS	JWS - JACK W. SHEAVES	JYH - JI Y. HU
KEB - KATIE E. BARNES	KHR - KIM H. RHODES	KRA - KATHY R. ALBERTSON
LKN - LINDA K. NEDEFF	LSB - LESLIE S. BUCINA	MDA - MIKE D. ALBERTSON
MDC - MIKE D. COCHRAN	MES - MARY E. SCHILLING	MMB - MAREN M. BEERY
MRT - MICHELLE R. TAYLOR	MSW - MATT S. WILSON	PDM - PIERCE D. MORRIS
PWD - PAUL W. DENT	RAH - ROY A. HALSTEAD	REK - BOB E. KYER
RLB - BOB BUCHANAN	RLK - ROBIN L. KLINGER	RWC - RODNEY W. CAMPBELL
SJP - SUZANNE J. PAUGH	SLM - STEPHANIE L. MOSSBURG	SLP - SHERI L. PFALZGRAF
TIP - TAE I. PARRISH	TMB - TIFFANY M. BAILEY	TMM - TAMMY M. MORRIS
VC - VICKI COLLIER	WJB - WILL J. BEASLEY	WTD - WADE T. DELONG

Microbac Laboratories Inc.
List of Valid Qualifiers
August 16, 2011

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.
>	Result is greater than the associated numerical value.
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
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 low standard (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)
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).
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 analyte was analyzed for, but not detected.
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

*****Special Notes for Organic Analytes**

Qualkey: DOD

1. Acrolein and acrylonitrile by method 624 are semi-quantitative screens only.
2. 1,2-Diphenylhydrazine is unstable and is reported as azobenzene.
3. N-nitrosodiphenylamine cannot be separated from diphenylamine.
4. 3-Methylphenol and 4-Methylphenol are unresolvable compounds.
5. m-Xylene and p-Xylene are unresolvable compounds.
6. The reporting limits for Appendix II/IX compounds by method 8270 are based on EPA estimated PQLs referenced in 40 CFR Part 264, Appendix IX. They are not always achievable for every compound and are matrix dependent.

COC No. A 25077

158 Starlite Drive
Marietta, OH 45750

Microbac

CHAIN-OF-CUSTODY RECORD

Phone: 740-373-4071
Fax: 740-373-4835

Company Name: SHAW Env. / Zia Engineering

Project Contact: Larry Duty

Contact Phone #: (281) 531-3147

Turn Around Requirements:

Location: HTA 0B/0D

Project ID:

Sampler (print): Bradley T. Davis

Signature: Bradley T. Davis

Program: ☐ CWA ☐ RCRA ☐ DOD ☐ AFCEE ☐ Other _____

Sample I.D. No.	Comp	Grab	Date	Time	Matrix*	NUMBER OF CONTAINERS	Hold	EXPLO 8330	NO3/NO2	Perchlorate	TOTAL # (LAB USE)	ADDITIONAL REQUIREMENTS
HTA-19		X	8-2-11	1111	Water	4		X	X	X		
HTA-19 QC		X	8-2-11	1111	Water	4		X	X	X		
HTA-16		X	8-2-11	1313	WATER	4		X	X	X		
HTA-16D		X	8-2-11	1407	WATER	4		X	X	X		

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
[signature]	8-2-11	1500			
Relinquished by: (Signature)	Date	Time			

Microbac OVD 221000017189
Received: 08/03/2011 10:32
By: BRENDA GREENWALT
Brenda Greenwalt

Remarks:

*Water (W), Soil (S), Solid Waste (SD), Unknown (X)

Page 1 of 1

Microbac Laboratories Inc.

Internal Chain of Custody Report

Login: L11080106
Account: 2773
Project: 2773.044
Samples: 4
Due Date: 12-AUG-2011

Samplenum	Container ID	Products
L11080106-01	864364	8330

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	03-AUG-2011 12:56	JKT	
2	PREP	W1	EXT	09-AUG-2011 06:52	CSH	AZH
3	DISP	EXT	DISP	10-AUG-2011 07:45	RB	RB
4	ANALYZ*	EXT	SEMI	11-AUG-2011 15:48	ECL	CSH

Sample extract/digestate/leachate

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	03-AUG-2011 12:56	JKT	
2	STORE	W1	A1	11-AUG-2011 08:28	BLG	BLG

Sample extract/digestate/leachate

Samplenum	Container ID	Products
L11080106-01	864365	6850

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	03-AUG-2011 12:56	JKT	
2	ANALYZ	W1	SEM	08-AUG-2011 10:33	WTD	JKT
3	STORE	SEM	A1	10-AUG-2011 08:53	JKT	WTD

Samplenum	Container ID	Products
L11080106-01	864366	NO3NO2

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	03-AUG-2011 12:56	JKT	
2	ANALYZ	W1	WET	03-AUG-2011 13:44	DIH	RLK
3	STORE	WET	A1	04-AUG-2011 07:32	RLK	DIH

A1 - Sample Archive (COLD)
A2 - Sample Archive (AMBIENT)
F1 - Volatiles Freezer in Login
V1 - Volatiles Refrigerator in Login
W1 - Walkin Cooler in Login

Microbac Laboratories Inc.

Internal Chain of Custody Report

Login: L11080106
Account: 2773
Project: 2773.044
Samples: 4
Due Date: 12-AUG-2011

Samplenum	Container ID	Products
L11080106-02	864367	8330

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	03-AUG-2011 12:56	JKT	
2	PREP	W1	EXT	09-AUG-2011 06:52	CSH	AZH
3	DISP	EXT	DISP	10-AUG-2011 07:45	RB	RB
4	ANALYZ*	EXT	SEMI	11-AUG-2011 15:48	ECL	CSH

Sample extract/digestate/leachate

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	03-AUG-2011 12:56	JKT	
2	STORE	W1	A1	11-AUG-2011 08:29	BLG	BLG

Sample extract/digestate/leachate

Samplenum	Container ID	Products
L11080106-02	864368	6850

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	03-AUG-2011 12:56	JKT	
2	ANALYZ	W1	SEM	08-AUG-2011 10:33	WTD	JKT
3	STORE	SEM	A1	10-AUG-2011 08:53	JKT	WTD

Samplenum	Container ID	Products
L11080106-02	864369	NO3NO2

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	03-AUG-2011 12:56	JKT	
2	ANALYZ	W1	WET	03-AUG-2011 13:44	DIH	RLK
3	STORE	WET	A1	04-AUG-2011 07:32	RLK	DIH

A1 - Sample Archive (COLD)
A2 - Sample Archive (AMBIENT)
F1 - Volatiles Freezer in Login
V1 - Volatiles Refrigerator in Login
W1 - Walkin Cooler in Login

Microbac Laboratories Inc.

Internal Chain of Custody Report

Login: L11080106
Account: 2773
Project: 2773.044
Samples: 4
Due Date: 12-AUG-2011

Samplenum	Container ID	Products
L11080106-03	864370	8330

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	03-AUG-2011 12:56	JKT	
2	PREP	W1	EXT	09-AUG-2011 06:52	CSH	AZH
3	DISP	EXT	DISP	10-AUG-2011 07:47	RB	RB
4	ANALYZ*	EXT	SEMI	11-AUG-2011 15:48	ECL	CSH

Sample extract/digestate/leachate

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	03-AUG-2011 12:56	JKT	
2	STORE	W1	A1	11-AUG-2011 08:29	BLG	BLG

Sample extract/digestate/leachate

Samplenum	Container ID	Products
L11080106-03	864371	6850

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	03-AUG-2011 12:56	JKT	
2	ANALYZ	W1	SEM	08-AUG-2011 10:33	WTD	JKT
3	STORE	SEM	A1	10-AUG-2011 08:53	JKT	WTD

Samplenum	Container ID	Products
L11080106-03	864372	NO3NO2

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	03-AUG-2011 12:56	JKT	
2	ANALYZ	W1	WET	03-AUG-2011 13:44	DIH	RLK
3	STORE	WET	A1	04-AUG-2011 07:32	RLK	DIH

A1 - Sample Archive (COLD)
A2 - Sample Archive (AMBIENT)
F1 - Volatiles Freezer in Login
V1 - Volatiles Refrigerator in Login
W1 - Walkin Cooler in Login

Microbac Laboratories Inc.

Internal Chain of Custody Report

Login: L11080106
Account: 2773
Project: 2773.044
Samples: 4
Due Date: 12-AUG-2011

Samplenum	Container ID	Products
L11080106-04	864373	8330

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	03-AUG-2011 12:56	JKT	
2	PREP	W1	EXT	09-AUG-2011 06:52	CSH	AZH
3	DISP	EXT	DISP	10-AUG-2011 07:48	RB	RB
4	ANALYZ*	EXT	SEMI	11-AUG-2011 15:48	ECL	CSH

Sample extract/digestate/leachate

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	03-AUG-2011 12:56	JKT	
2	STORE	W1	A1	11-AUG-2011 08:29	BLG	BLG

Sample extract/digestate/leachate

Samplenum	Container ID	Products
L11080106-04	864374	6850

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	03-AUG-2011 12:56	JKT	
2	ANALYZ	W1	SEM	08-AUG-2011 10:33	WTD	JKT
3	STORE	SEM	A1	10-AUG-2011 08:52	JKT	WTD

Samplenum	Container ID	Products
L11080106-04	864375	NO3NO2

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	03-AUG-2011 12:56	JKT	
2	ANALYZ	W1	WET	03-AUG-2011 13:44	DIH	RLK
3	STORE	WET	A1	04-AUG-2011 07:32	RLK	DIH

A1 - Sample Archive (COLD)
A2 - Sample Archive (AMBIENT)
F1 - Volatiles Freezer in Login
V1 - Volatiles Refrigerator in Login
W1 - Walkin Cooler in Login