



**Laboratory Report Number:** L13110465

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

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

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

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

This report was certified on November 25 2013

David Vandenberg – Managing Director

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



## Record of Sample Receipt and Inspection

### Comments/Discrepancies

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

There were no discrepancies.

Discrepancy	Resolution

### Coolers

Cooler #	Temperature Gun	Temperature	COC #	Airbill #	Temp Required?
00110985	I	2.0		1002239521060004575000804334337742	X

### Inspection Checklist

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

**Lab Report #:** L13110465

**Lab Project #:** 3005.011

**Project Name:** White Sands MR

**Lab Contact:** Stephanie Mossburg

**Samples Received**

Client ID	Laboratory ID	Date Collected	Date Received
MPL 29-1113-1	L13110465-01	11/07/2013 11:00	11/08/2013 10:36
MPL 7-1113-1	L13110465-02	11/07/2013 13:05	11/08/2013 10:36
MPL 5-1113-1	L13110465-03	11/07/2013 15:00	11/08/2013 10:36



**Login Number:** L13110465  
**Department:** Metals  
**Analyst:** Sheri Pfalzgraf

## **METHOD**

**Preparation:** SW-846 3015

**Analysis:** SW-846 6010

## **HOLDING TIMES**

**Sample Preparation:** All holding times were met.

**Sample Analysis:** All holding times were met.

## **PREPARATION**

Sample preparation proceeded normally.

## **CALIBRATION**

**Initial Calibration:** All acceptance criteria were met.

**Alternate Source Standards:** All acceptance criteria were met.

**Interference Check Standards:** All acceptance criteria were met.

**Continuing Calibration Verification:** All acceptance criteria were met.

**Continuing Calibration Blank:** All acceptance criteria were met.

## **BATCH QA/QC**

**Method Blank:** All acceptance criteria were met.

**Laboratory Control Sample:** All acceptance criteria were met.

**Serial Dilution/Post Digestion Spikes:** WG452461 - All acceptance criteria were met.

**Matrix Spikes:** All acceptance criteria were met.

**SAMPLES**

**Samples:** WG452461 - Client samples 01, 02 and 03 required dilution analyses in order to obtain results for calcium within the calibration range.

**Narrative ID:** 74437

**Approved By:** Maren Beery

*Maren Beery*



**Login Number:** L13110465  
**Department:** Metals  
**Analyst:** Ji Hu

## **METHOD**

**Preparation:** SW-846 3015

**Analysis:** SW-846 6020

## **HOLDING TIMES**

**Sample Preparation:** All holding times were met.

**Sample Analysis:** All holding times were met.

## **PREPARATION**

Sample preparation proceeded normally.

## **CALIBRATION**

**Initial Calibration:** All acceptance criteria were met.

**Alternate Source Standards:** All acceptance criteria were met.

**Interference Check Standards:** All acceptance criteria were met.

**Continuing Calibration:** All acceptance criteria were met.

**Continuing Calibration Blank:** All acceptance criteria were met.

**Low Level Check:** All acceptance criteria were met.

## **BATCH QA/QC**

**Method Blank:** All acceptance criteria were met.

**Laboratory Control Sample:** All acceptance criteria were met.

**Serial Dilution/Post Digestion Spikes:** WG452576 - All acceptance criteria were met.

**Matrix Spikes:** All acceptance criteria were met.

**SAMPLES**

**Samples:** WG452576 - Due to time constraints, client samples 01, 02, and 03 were analyzed on a later calibration.

**Narrative ID:** 74735

**Approved By:** Sheri Pfalzgraf





**Login Number:** L13110465  
**Department:** Metals - AA  
**Analyst:** Pierce Morris

## **METHOD**

**Preparation:** SW-846 7470

**Analysis:** SW-846 7470

## **HOLDING TIMES**

**Sample Preparation:** All holding times were met.

**Sample Analysis:** All holding times were met.

## **PREPARATION**

Sample preparation proceeded normally.

## **CALIBRATION**

**Initial Calibration:** All acceptance criteria were met.

**Alternate Source Standards:** All acceptance criteria were met.

**Interference Check Standards:** All acceptance criteria were met.

**Continuing Calibration Verification:** All acceptance criteria were met.

**Continuing Calibration Blank:** All acceptance criteria were met.

## **BATCH QA/QC**

**Method Blank:** All acceptance criteria were met.

**Laboratory Control Sample:** All acceptance criteria were met.

**Serial Dilution/Post Digestion Spikes:** WG452436 - All acceptance criteria were met.

**Matrix Spikes:** All acceptance criteria were met.

**SAMPLES**

**Samples:** All acceptance criteria were met.

**Narrative ID:** 74481

**Approved By:** Sheri Pfalzgraf

*Sheri L. Pfalzgraf*



**Login Number:** L13110465  
**Department:** General Chromatography  
**Analyst:** Jeremy Kinney

## METHOD

**Analysis** EPA300.0/SW846 9056

## HOLDING TIMES

**Sample Analysis:** Hold times for NO<sub>2</sub> and NO<sub>3</sub> are 48 hours and the hold times for F, Cl, Br, and SO<sub>4</sub> are 28 days. The hold time forms calculate the hold time based on 48 hours. All samples were analyzed in hold.

## CALIBRATION

**Initial Calibration:** All acceptance criteria were met.

**Alternate Source Standards:** All acceptance criteria were met.

**Continuing Calibration:** 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 fractions were analyzed at dilutions only due to one or more of the target analyte(s) being near or greater than the ICAL.

**MANUAL INTEGRATION:** No manual integration was 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:** 74802  
**Approved By:** Eric Lawson

A handwritten signature in black ink, appearing to read "Eric Lawson", is written over a light gray rectangular background.



**Login Number:** L13110465  
**Department:** Conventionals  
**Analyst:** Deanna Hesson

#### **METHOD**

**Analysis** EPA 310.2 (Alkalinity)

#### **HOLDING TIMES**

**Sample Analysis:** All holding times were met.

#### **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:** 74770  
**Approved By:** Deanna Hesson

A handwritten signature in cursive script that reads "Deanna Hesson".



**Login Number:** L13110465  
**Department:** Conventionals  
**Analyst:**

**METHOD**

**Analysis** SW846 9014/9010C/SM4500-CN-C,E-20th (Cyanide)

**HOLDING TIMES**

**Sample Analysis:** All holding times were met.

**PREPARATION**

Sample preparation proceeded normally.

**BATCH QA/QC**

**Method Blank:** All acceptance criteria were met.

**Laboratory Control Sample:** Cyanide-Ammenable is the difference between the total cyanide and the treated cyanide. The LCS is analyzed to show that all of the cyanide is ammenable (the treated portion is ND). The LCS forms cannot calculate cyanide ammenable. The LCS is acceptable.

Sample #	Analyte	Date	Result	Lower	Upper	Type
WG452812-02	Cyanide	2013-11-14 15:45:03	1.00	90	110	Recovery

**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:** 74622

Approved By: Deanna Hesson





**Login Number:** L13110465  
**Department:** Conventionals  
**Analyst:** Deanna Hesson

#### METHOD

**Analysis** EPA 120.1/SM2510 B (Conductivity)

#### HOLDING TIMES

**Sample Analysis:** All holding times were met.

#### PREPARATION

Sample preparation proceeded normally.

#### BATCH QA/QC

**Method Blank:** All acceptance criteria were met.

**Laboratory Control Sample:** All acceptance criteria were met.

**Duplicates:** All acceptance criteria were met.

**Matrix Spikes:** All acceptance criteria were met.

#### SAMPLES

**Samples:** All acceptance criteria were met.

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**Narrative ID:** 74771  
**Approved By:** Deanna Hesson

A handwritten signature in cursive script that reads "Deanna Hesson".



**Login Number:** L13110465  
**Department:** Conventionals  
**Analyst:** Brice Fenton

#### METHOD

**Analysis** EPA 350.1/SM4500-NH3 B(NH3)

#### HOLDING TIMES

**Sample Analysis:** All holding times were met.

#### PREPARATION

Sample preparation proceeded normally.

#### BATCH QA/QC

**Method Blank:** All acceptance criteria were met.

**Laboratory Control Sample:** All acceptance criteria were met.

**Duplicates:** All acceptance criteria were met.

**Matrix Spikes:** All acceptance criteria were met.

#### SAMPLES

**Samples:** All acceptance criteria were met.

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**Narrative ID:** 74773  
**Approved By:** Deanna Hesson

A handwritten signature in cursive script that reads "Deanna Hesson".



**Login Number:** L13110465  
**Department:** Conventionals  
**Analyst:** Brice Fenton

## METHOD

**Analysis** EPA 353.2/SM4500-NO3 F (Nitrate)

## HOLDING TIMES

**Sample Analysis:** The instrument used for the analysis of nitrate only analyzes for nitrate-nitrite (NO<sub>3</sub>NO<sub>2</sub>) which is the amount of total nitrate (NO<sub>3</sub>) and nitrite (NO<sub>2</sub>) combined. The NO<sub>3</sub> concentration is determined by analyzing for NO<sub>3</sub>NO<sub>2</sub> and NO<sub>2</sub> and calculating NO<sub>3</sub> by the difference. An unpreserved bottle only has a 48 hour hold time for NO<sub>3</sub> and NO<sub>2</sub> separately. However if the bottle is preserved with sulfuric acid, the hold time for NO<sub>3</sub>NO<sub>2</sub> is 28 days. The NO<sub>2</sub> was analyzed within 48 hours. The NO<sub>3</sub>NO<sub>2</sub> was analyzed from a preserved container within 28 days..

## PREPARATION

Sample preparation proceeded normally.

## BATCH QA/QC

**Method Blank:** All acceptance criteria were met.

**Laboratory Control Sample:** All acceptance criteria were met.

**Matrix Spikes:** All acceptance criteria were met.

**Duplicates:** All acceptance criteria were met.

## SAMPLES

**Samples:** All acceptance criteria were met.

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**Narrative ID:** 74774  
**Approved By:** Deanna Hesson

*Danna Hesson*



**Login Number:** L13110465  
**Department:** Conventionals  
**Analyst:** Tammy Morris

#### **METHOD**

**Analysis** EPA 365.2/SM4500-P E (Orthophosphate)

#### **HOLDING TIMES**

**Sample Analysis:** All holding times were met.

#### **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:** 74775  
**Approved By:** Deanna Hesson

A handwritten signature in cursive script that reads "Deanna Hesson".



**Login Number:** L13110465  
**Department:** Conventionals  
**Analyst:** April Greene

**METHOD**

**Analysis** EPA 160.1/SM2540 C(Total Dissolved Solids)

**HOLDING TIMES**

**Sample Analysis:** All holding times were met.

**PREPARATION**

Sample preparation proceeded normally.

**BATCH QA/QC**

**Method Blank:** Analytes were detected above the applicable reporting limit for the following analytes: Total Dissolved Solids. Please see the applicable QC report for a detailed presentation of the failures.

Sample #	Analyte	Date	Result	Lower	Upper	Type
WG452254-01	Total Dissolved Solids	2013-11-11 13:25:01	8.00		5.0	RL

**Laboratory Control Sample:** All acceptance criteria were met.

**Duplicates:** All acceptance criteria were met.

**Matrix Spikes:** All acceptance criteria were met.

**SAMPLES**

**Samples:** All acceptance criteria were met.

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**Narrative ID:** 74778  
**Approved By:** Deanna Hesson

*Danna Hesson*



**Login Number:** L13110465  
**Department:** Conventionals  
**Analyst:** Deanna Hesson

## METHOD

**Analysis Water:** EPA 415.1/SM5310C/SW846 9060 (Total Organic Carbon)  
**Soil:** Lloyd-Khan Methodology

## HOLDING TIMES

**Sample Analysis:** All holding times were met.

## PREPARATION

Sample preparation proceeded normally.

## BATCH QA/QC

**Method Blank:** All acceptance criteria were met.

**Laboratory Control Sample:** All acceptance criteria were met.

**Duplicates:** All acceptance criteria were met.

**Matrix Spikes:** All acceptance criteria were met.

## SAMPLES

**Samples:** All acceptance criteria were met.

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**Narrative ID:** 74776  
**Approved By:** Deanna Hesson

A handwritten signature in cursive script that reads "Deanna Hesson".





**Login Number:** L13110465  
**Department:** Conventionals  
**Analyst:** April Greene

**METHOD**

**Analysis** EPA 160.2/SM2540 D (Total Suspended Solids)

**HOLDING TIMES**

**Sample Analysis:** All holding times were met.

**PREPARATION**

Sample preparation proceeded normally.

**BATCH QA/QC**

**Method Blank:** All acceptance criteria were met.

**Laboratory Control Sample:** Recoveries out of range were observed for the following analytes: Total Suspended Solids. Please see the applicable QC report for a detailed presentation of the failures.

Sample #	Analyte	Date	Result	Lower	Upper	Type
WG452343-03	Total Suspended Solids	2013-11-13 11:15:03	11.5		10	RPD

**Duplicates:** All acceptance criteria were met.

**Matrix Spikes:** All acceptance criteria were met.

**SAMPLES**

**Samples:** All acceptance criteria were met.

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**Narrative ID:** 74777  
**Approved By:** Deanna Hesson

*Danna Hesson*

### Certificate of Analysis

<b>Sample #:</b> L13110465-01	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> ICP-THERMO2
<b>Client ID:</b> MPL 29-1113-1	<b>Prep Method:</b> 3015	<b>Prep Date:</b> 11/11/2013 12:53
<b>Matrix:</b> Water	<b>Analytical Method:</b> 6010B	<b>Cal Date:</b> 11/12/2013 14:44
<b>Workgroup #:</b> WG452461	<b>Analyst:</b> SLP	<b>Run Date:</b> 11/12/2013 17:57
<b>Collect Date:</b> 11/07/2013 11:00	<b>Dilution:</b> 1	<b>File ID:</b> T2.111213.175739
<b>Sample Tag:</b> 01	<b>Units:</b> mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Beryllium, Total	7440-41-7		U	0.00200	0.00100
Magnesium, Total	7439-95-4	15.0		0.500	0.250
Potassium, Total	7440-09-7	2.88		1.00	0.500
Sodium, Total	7440-23-5	36.1		0.500	0.250
Tin, Total	7440-31-5		U	0.500	0.250
Vanadium, Total	7440-62-2		U	0.0100	0.00500
Zinc, Total	7440-66-6	0.0127	J	0.0200	0.0100
J	Estimated value ; the analyte concentration was less than the LOQ.				
U	Analyte was not detected. The concentration is below the reported LOD.				

## Certificate of Analysis

<b>Sample #:</b> L13110465-01	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> ICP-THERMO2
<b>Client ID:</b> MPL 29-1113-1	<b>Prep Method:</b> 3015	<b>Prep Date:</b> 11/11/2013 12:53
<b>Matrix:</b> Water	<b>Analytical Method:</b> 6010B	<b>Cal Date:</b> 11/13/2013 09:22
<b>Workgroup #:</b> WG452461	<b>Analyst:</b> QX	<b>Run Date:</b> 11/13/2013 13:30
<b>Collect Date:</b> 11/07/2013 11:00	<b>Dilution:</b> 10	<b>File ID:</b> T2.111313.133004
<b>Sample Tag:</b> DL01	<b>Units:</b> mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Calcium, Total	7440-70-2	81.0		5.00	2.50
U	Analyte was not detected. The concentration is below the reported LOD.				

Certificate of Analysis

<b>Sample #:</b> L13110465-01	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> ICP-MS2
<b>Client ID:</b> MPL 29-1113-1	<b>Prep Method:</b> 3015	<b>Prep Date:</b> 11/12/2013 14:16
<b>Matrix:</b> Water	<b>Analytical Method:</b> 6020	<b>Cal Date:</b> 11/18/2013 09:55
<b>Workgroup #:</b> WG452576	<b>Analyst:</b> JYH	<b>Run Date:</b> 11/18/2013 17:51
<b>Collect Date:</b> 11/07/2013 11:00	<b>Dilution:</b> 1	<b>File ID:</b> NI.111813.175154
<b>Sample Tag:</b> 01	<b>Units:</b> mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Antimony, Total	7440-36-0		U	0.00100	0.000500
Arsenic, Total	7440-38-2	0.00428		0.00100	0.000500
Barium, Total	7440-39-3	0.0532		0.00300	0.00150
Cadmium, Total	7440-43-9		U	0.000600	0.000300
Chromium, Total	7440-47-3	0.00214		0.00200	0.00100
Cobalt, Total	7440-48-4	0.000608	J	0.00100	0.000500
Copper, Total	7440-50-8	0.00280		0.00200	0.00100
Lead, Total	7439-92-1	0.000791	J	0.00100	0.000500
Manganese, Total	7439-96-5	0.0184		0.00200	0.00100
Nickel, Total	7440-02-0	0.00567		0.00400	0.00200
Selenium, Total	7782-49-2	0.0162		0.00100	0.000500
Silver, Total	7440-22-4		U	0.00100	0.000500
Thallium, Total	7440-28-0		U	0.000200	0.000100
J	Estimated value ; the analyte concentration was less than the LOQ.				
U	Analyte was not detected. The concentration is below the reported LOD.				

Certificate of Analysis

<b>Sample #:</b> L13110465-01	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> CVAA1
<b>Client ID:</b> MPL 29-1113-1	<b>Prep Method:</b> 7470A	<b>Prep Date:</b> 11/11/2013 09:26
<b>Matrix:</b> Water	<b>Analytical Method:</b> 7470A	<b>Cal Date:</b> 11/12/2013 14:20
<b>Workgroup #:</b> WG452436	<b>Analyst:</b> PDM	<b>Run Date:</b> 11/12/2013 15:39
<b>Collect Date:</b> 11/07/2013 11:00	<b>Dilution:</b> 1	<b>File ID:</b> M7.111213.153959
<b>Sample Tag:</b> 01	<b>Units:</b> mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Mercury	7439-97-6		U	0.000200	0.000100
U	Analyte was not detected. The concentration is below the reported LOD.				

### Certificate of Analysis

<b>Sample #:</b> L13110465-01	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> IC2
<b>Client ID:</b> MPL 29-1113-1	<b>Prep Method:</b> 300.0	<b>Prep Date:</b> 11/19/2013 09:16
<b>Matrix:</b> Water	<b>Analytical Method:</b> 300.0	<b>Cal Date:</b> 11/05/2013 14:51
<b>Workgroup #:</b> WG453381	<b>Analyst:</b> JBK	<b>Run Date:</b> 11/19/2013 14:43
<b>Collect Date:</b> 11/07/2013 11:00	<b>Dilution:</b> 5	<b>File ID:</b> I2_111913-22
<b>Sample Tag:</b> DL01	<b>Units:</b> mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Chloride	16887-00-6	54.7		1.00	0.500
Fluoride	16984-48-8		U	1.00	0.500
Sulfate	14808-79-8	122		5.00	2.50
U	Analyte was not detected. The concentration is below the reported LOD.				

## Certificate of Analysis

<b>Sample #:</b> L13110465-01	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> ORION-4STAR
<b>Client ID:</b> MPL 29-1113-1	<b>Prep Method:</b> 9040C	<b>Prep Date:</b> N/A
<b>Matrix:</b> Water	<b>Analytical Method:</b> 9040C	<b>Cal Date:</b>
<b>Workgroup #:</b> WG452038	<b>Analyst:</b> EPT	<b>Run Date:</b> 11/08/2013 16:24
<b>Collect Date:</b> 11/07/2013 11:00	<b>Dilution:</b> 1	<b>File ID:</b> OS13111111390701
<b>Sample Tag:</b>	<b>Units:</b> UNITS	

Analyte	CAS #	Result	Qual	LOQ	LOD
Corrosivity pH	10-29-7	8.26		0.000	0.000
Temperature At Determination (C)		20.8		0.000	0.000

<b>Sample #:</b> L13110465-01	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> SMARTCHEM2
<b>Client ID:</b> MPL 29-1113-1	<b>Prep Method:</b> 310.2	<b>Prep Date:</b> 11/12/2013 16:58
<b>Matrix:</b> Water	<b>Analytical Method:</b> 310.2	<b>Cal Date:</b> 11/12/2013 16:51
<b>Workgroup #:</b> WG452340	<b>Analyst:</b> DIH	<b>Run Date:</b> 11/12/2013 16:58
<b>Collect Date:</b> 11/07/2013 11:00	<b>Dilution:</b> 1	<b>File ID:</b> S2131112003.019
<b>Sample Tag:</b> 01	<b>Units:</b> mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Alkalinity, Total (as CaCO3)	11-43-8	144		20.0	10.0

<b>Sample #:</b> L13110465-01	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> UV-120-1V
<b>Client ID:</b> MPL 29-1113-1	<b>Prep Method:</b> SM4500-CN-C,G-1999	<b>Prep Date:</b> N/A
<b>Matrix:</b> Water	<b>Analytical Method:</b> SM4500-CN-C,G-1999	<b>Cal Date:</b> 11/14/2013 11:30
<b>Workgroup #:</b> WG452812	<b>Analyst:</b> DCM	<b>Run Date:</b> 11/14/2013 15:45
<b>Collect Date:</b> 11/07/2013 11:00	<b>Dilution:</b> 1	<b>File ID:</b> 1V.1311141545-07
<b>Sample Tag:</b> DL02	<b>Units:</b> mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Cyanide, Amenable to Chlor.	57-12-5	0.306	U	0.0100	0.00500
U	Analyte was not detected. The concentration is below the reported LOD.				

## Certificate of Analysis

<b>Sample #:</b> L13110465-01	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> UV-120-1V
<b>Client ID:</b> MPL 29-1113-1	<b>Prep Method:</b> 9014-9010C	<b>Prep Date:</b> N/A
<b>Matrix:</b> Water	<b>Analytical Method:</b> 9014-9010C	<b>Cal Date:</b> 11/14/2013 11:20
<b>Workgroup #:</b> WG452580	<b>Analyst:</b> DCM	<b>Run Date:</b> 11/14/2013 15:30
<b>Collect Date:</b> 11/07/2013 11:00	<b>Dilution:</b> 1	<b>File ID:</b> 1V.1311141530-22
<b>Sample Tag:</b>	<b>Units:</b> mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Cyanide	57-12-5	0.306		0.0100	0.00500

<b>Sample #:</b> L13110465-01	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> UV-120-1V
<b>Client ID:</b> MPL 29-1113-1	<b>Prep Method:</b> SM4500-CN-I	<b>Prep Date:</b> N/A
<b>Matrix:</b> Water	<b>Analytical Method:</b> SM4500-CN-I	<b>Cal Date:</b> 11/14/2013 11:30
<b>Workgroup #:</b> WG452581	<b>Analyst:</b> DCM	<b>Run Date:</b> 11/14/2013 15:50
<b>Collect Date:</b> 11/07/2013 11:00	<b>Dilution:</b> 1	<b>File ID:</b> 1V.1311141550-07
<b>Sample Tag:</b> DL01	<b>Units:</b> mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Cyanide, Weak/Dissociable	57-12-5	0.0261		0.0100	0.00500

<b>Sample #:</b> L13110465-01	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> TIAMO1
<b>Client ID:</b> MPL 29-1113-1	<b>Prep Method:</b> 120.1	<b>Prep Date:</b> N/A
<b>Matrix:</b> Water	<b>Analytical Method:</b> 120.1	<b>Cal Date:</b>
<b>Workgroup #:</b> WG452034	<b>Analyst:</b> DIH	<b>Run Date:</b> 11/08/2013 21:36
<b>Collect Date:</b> 11/07/2013 11:00	<b>Dilution:</b> 1	<b>File ID:</b> TI.110813.2136CO
<b>Sample Tag:</b> 01	<b>Units:</b> umhos/cm	

Analyte	CAS #	Result	Qual	LOQ	LOD
Conductivity		654		50.0	10.0

<b>Sample #:</b> L13110465-01	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> SMARTCHEM
<b>Client ID:</b> MPL 29-1113-1	<b>Prep Method:</b> 350.1	<b>Prep Date:</b> N/A
<b>Matrix:</b> Water	<b>Analytical Method:</b> 350.1	<b>Cal Date:</b> 11/19/2013 09:41
<b>Workgroup #:</b> WG453359	<b>Analyst:</b> BAF	<b>Run Date:</b> 11/19/2013 09:48
<b>Collect Date:</b> 11/07/2013 11:00	<b>Dilution:</b> 1	<b>File ID:</b> SC131119001.015
<b>Sample Tag:</b> 01	<b>Units:</b> mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Nitrogen, Ammonia	7664-41-7		U	0.100	0.0500
U	Analyte was not detected. The concentration is below the reported LOD.				

## Certificate of Analysis

<b>Sample #:</b> L13110465-01	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> SMARTCHEM
<b>Client ID:</b> MPL 29-1113-1	<b>Prep Method:</b> 353.2	<b>Prep Date:</b> N/A
<b>Matrix:</b> Water	<b>Analytical Method:</b> 353.2	<b>Cal Date:</b> 11/13/2013 13:48
<b>Workgroup #:</b> WG452422	<b>Analyst:</b> BAF	<b>Run Date:</b> 11/13/2013 16:00
<b>Collect Date:</b> 11/07/2013 11:00	<b>Dilution:</b> 4	<b>File ID:</b> SC13111808414401
<b>Sample Tag:</b>	<b>Units:</b> mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Nitrate-Nitrite (as N)		7.86		0.200	0.100

<b>Sample #:</b> L13110465-01	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> UV-120-1V
<b>Client ID:</b> MPL 29-1113-1	<b>Prep Method:</b> SM4500-P-E-1999	<b>Prep Date:</b> N/A
<b>Matrix:</b> Water	<b>Analytical Method:</b> SM4500-P-E-1999	<b>Cal Date:</b> 10/30/2013 09:00
<b>Workgroup #:</b> WG452008	<b>Analyst:</b> TMM	<b>Run Date:</b> 11/08/2013 09:16
<b>Collect Date:</b> 11/07/2013 11:00	<b>Dilution:</b> 1	<b>File ID:</b> 1V.1311080916-13
<b>Sample Tag:</b>	<b>Units:</b> mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Orthophosphate	14265-44-2	0.0791		0.0500	0.0250

<b>Sample #:</b> L13110465-01	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> OVEN
<b>Client ID:</b> MPL 29-1113-1	<b>Prep Method:</b> 160.1/SM2540C	<b>Prep Date:</b> N/A
<b>Matrix:</b> Water	<b>Analytical Method:</b> SM2540-C-1997	<b>Cal Date:</b>
<b>Workgroup #:</b> WG452254	<b>Analyst:</b> ADG	<b>Run Date:</b> 11/11/2013 13:25
<b>Collect Date:</b> 11/07/2013 11:00	<b>Dilution:</b> 1	<b>File ID:</b> EN.1311111325-22
<b>Sample Tag:</b>	<b>Units:</b> mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Total Dissolved Solids		462		20.0	10.0

<b>Sample #:</b> L13110465-01	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> TOC-VWP
<b>Client ID:</b> MPL 29-1113-1	<b>Prep Method:</b> 415.1	<b>Prep Date:</b> N/A
<b>Matrix:</b> Water	<b>Analytical Method:</b> 415.1	<b>Cal Date:</b> 07/09/2013 14:51
<b>Workgroup #:</b> WG452462	<b>Analyst:</b> DIH	<b>Run Date:</b> 11/12/2013 23:05
<b>Collect Date:</b> 11/07/2013 11:00	<b>Dilution:</b> 1	<b>File ID:</b> TC11122013.021
<b>Sample Tag:</b> 01	<b>Units:</b> mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Total Organic Carbon	TOC	1.72		1.00	0.500

## Certificate of Analysis

<b>Sample #:</b> L13110465-01	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> OVEN
<b>Client ID:</b> MPL 29-1113-1	<b>Prep Method:</b> 160.2/SM2540D	<b>Prep Date:</b> N/A
<b>Matrix:</b> Water	<b>Analytical Method:</b> SM2540-D-1997	<b>Cal Date:</b>
<b>Workgroup #:</b> WG452343	<b>Analyst:</b> ADG	<b>Run Date:</b> 11/13/2013 11:15
<b>Collect Date:</b> 11/07/2013 11:00	<b>Dilution:</b> 1	<b>File ID:</b> EN.1311131115-13
<b>Sample Tag:</b>	<b>Units:</b> mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Total Suspended Solids		26.5		5.00	2.50

<b>Sample #:</b> L13110465-02	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> ICP-THERMO2
<b>Client ID:</b> MPL 7-1113-1	<b>Prep Method:</b> 3015	<b>Prep Date:</b> 11/11/2013 12:53
<b>Matrix:</b> Water	<b>Analytical Method:</b> 6010B	<b>Cal Date:</b> 11/12/2013 14:44
<b>Workgroup #:</b> WG452461	<b>Analyst:</b> SLP	<b>Run Date:</b> 11/12/2013 18:08
<b>Collect Date:</b> 11/07/2013 13:05	<b>Dilution:</b> 1	<b>File ID:</b> T2.111213.180801
<b>Sample Tag:</b> 01	<b>Units:</b> mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Beryllium, Total	7440-41-7		U	0.00200	0.00100
Magnesium, Total	7439-95-4	18.7		0.500	0.250
Potassium, Total	7440-09-7	3.06		1.00	0.500
Sodium, Total	7440-23-5	43.6		0.500	0.250
Tin, Total	7440-31-5		U	0.500	0.250
Vanadium, Total	7440-62-2		U	0.0100	0.00500
Zinc, Total	7440-66-6		U	0.0200	0.0100
U	Analyte was not detected. The concentration is below the reported LOD.				

## Certificate of Analysis

<b>Sample #:</b> L13110465-02	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> ICP-THERMO2
<b>Client ID:</b> MPL 7-1113-1	<b>Prep Method:</b> 3015	<b>Prep Date:</b> 11/11/2013 12:53
<b>Matrix:</b> Water	<b>Analytical Method:</b> 6010B	<b>Cal Date:</b> 11/13/2013 09:22
<b>Workgroup #:</b> WG452461	<b>Analyst:</b> QX	<b>Run Date:</b> 11/13/2013 13:33
<b>Collect Date:</b> 11/07/2013 13:05	<b>Dilution:</b> 10	<b>File ID:</b> T2.111313.133336
<b>Sample Tag:</b> DL01	<b>Units:</b> mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Calcium, Total	7440-70-2	101		5.00	2.50
U	Analyte was not detected. The concentration is below the reported LOD.				

### Certificate of Analysis

<b>Sample #:</b> L13110465-02	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> ICP-MS2
<b>Client ID:</b> MPL 7-1113-1	<b>Prep Method:</b> 3015	<b>Prep Date:</b> 11/12/2013 14:16
<b>Matrix:</b> Water	<b>Analytical Method:</b> 6020	<b>Cal Date:</b> 11/18/2013 09:55
<b>Workgroup #:</b> WG452576	<b>Analyst:</b> JYH	<b>Run Date:</b> 11/18/2013 17:54
<b>Collect Date:</b> 11/07/2013 13:05	<b>Dilution:</b> 1	<b>File ID:</b> NI.111813.175458
<b>Sample Tag:</b> 01	<b>Units:</b> mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Antimony, Total	7440-36-0		U	0.00100	0.000500
Arsenic, Total	7440-38-2	0.00835		0.00100	0.000500
Barium, Total	7440-39-3	0.0530		0.00300	0.00150
Cadmium, Total	7440-43-9		U	0.000600	0.000300
Chromium, Total	7440-47-3	0.00163	J	0.00200	0.00100
Cobalt, Total	7440-48-4		U	0.00100	0.000500
Copper, Total	7440-50-8	0.00118	J	0.00200	0.00100
Lead, Total	7439-92-1		U	0.00100	0.000500
Manganese, Total	7439-96-5	0.00329		0.00200	0.00100
Nickel, Total	7440-02-0	0.00476		0.00400	0.00200
Selenium, Total	7782-49-2	0.0352		0.00100	0.000500
Silver, Total	7440-22-4		U	0.00100	0.000500
Thallium, Total	7440-28-0		U	0.000200	0.000100
J	Estimated value ; the analyte concentration was less than the LOQ.				
U	Analyte was not detected. The concentration is below the reported LOD.				

## Certificate of Analysis

<b>Sample #:</b> L13110465-02	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> CVAA1
<b>Client ID:</b> MPL 7-1113-1	<b>Prep Method:</b> 7470A	<b>Prep Date:</b> 11/11/2013 09:26
<b>Matrix:</b> Water	<b>Analytical Method:</b> 7470A	<b>Cal Date:</b> 11/12/2013 14:20
<b>Workgroup #:</b> WG452436	<b>Analyst:</b> PDM	<b>Run Date:</b> 11/12/2013 15:42
<b>Collect Date:</b> 11/07/2013 13:05	<b>Dilution:</b> 1	<b>File ID:</b> M7.111213.154231
<b>Sample Tag:</b> 01	<b>Units:</b> mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Mercury	7439-97-6		U	0.000200	0.000100
U	Analyte was not detected. The concentration is below the reported LOD.				

### Certificate of Analysis

<b>Sample #:</b> L13110465-02	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> IC2
<b>Client ID:</b> MPL 7-1113-1	<b>Prep Method:</b> 300.0	<b>Prep Date:</b> 11/19/2013 09:16
<b>Matrix:</b> Water	<b>Analytical Method:</b> 300.0	<b>Cal Date:</b> 11/05/2013 14:51
<b>Workgroup #:</b> WG453381	<b>Analyst:</b> JBK	<b>Run Date:</b> 11/19/2013 15:00
<b>Collect Date:</b> 11/07/2013 13:05	<b>Dilution:</b> 5	<b>File ID:</b> I2_111913-23
<b>Sample Tag:</b> DL01	<b>Units:</b> mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Chloride	16887-00-6	111		1.00	0.500
Fluoride	16984-48-8		U	1.00	0.500
Sulfate	14808-79-8	136		5.00	2.50
U	Analyte was not detected. The concentration is below the reported LOD.				

## Certificate of Analysis

<b>Sample #:</b> L13110465-02	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> ORION-4STAR
<b>Client ID:</b> MPL 7-1113-1	<b>Prep Method:</b> 9040C	<b>Prep Date:</b> N/A
<b>Matrix:</b> Water	<b>Analytical Method:</b> 9040C	<b>Cal Date:</b>
<b>Workgroup #:</b> WG452038	<b>Analyst:</b> EPT	<b>Run Date:</b> 11/08/2013 16:25
<b>Collect Date:</b> 11/07/2013 13:05	<b>Dilution:</b> 1	<b>File ID:</b> OS13111111391701
<b>Sample Tag:</b>	<b>Units:</b> UNITS	

Analyte	CAS #	Result	Qual	LOQ	LOD
Corrosivity pH	10-29-7	7.69		0.000	0.000
Temperature At Determination (C)		20.3		0.000	0.000

<b>Sample #:</b> L13110465-02	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> SMARTCHEM2
<b>Client ID:</b> MPL 7-1113-1	<b>Prep Method:</b> 310.2	<b>Prep Date:</b> 11/12/2013 16:58
<b>Matrix:</b> Water	<b>Analytical Method:</b> 310.2	<b>Cal Date:</b> 11/12/2013 16:51
<b>Workgroup #:</b> WG452340	<b>Analyst:</b> DIH	<b>Run Date:</b> 11/12/2013 16:58
<b>Collect Date:</b> 11/07/2013 13:05	<b>Dilution:</b> 1	<b>File ID:</b> S2131112003.020
<b>Sample Tag:</b> 01	<b>Units:</b> mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Alkalinity, Total (as CaCO3)	11-43-8	120		20.0	10.0

<b>Sample #:</b> L13110465-02	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> UV-120-1V
<b>Client ID:</b> MPL 7-1113-1	<b>Prep Method:</b> SM4500-CN-I	<b>Prep Date:</b> N/A
<b>Matrix:</b> Water	<b>Analytical Method:</b> SM4500-CN-I	<b>Cal Date:</b> 11/14/2013 11:30
<b>Workgroup #:</b> WG452581	<b>Analyst:</b> DCM	<b>Run Date:</b> 11/14/2013 15:50
<b>Collect Date:</b> 11/07/2013 13:05	<b>Dilution:</b> 1	<b>File ID:</b> 1V.1311141550-08
<b>Sample Tag:</b> DL01	<b>Units:</b> mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Cyanide, Weak/Dissociable	57-12-5	0.0408		0.0100	0.00500

<b>Sample #:</b> L13110465-02	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> UV-120-1V
<b>Client ID:</b> MPL 7-1113-1	<b>Prep Method:</b> 9014-9010C	<b>Prep Date:</b> N/A
<b>Matrix:</b> Water	<b>Analytical Method:</b> 9014-9010C	<b>Cal Date:</b> 11/14/2013 11:20
<b>Workgroup #:</b> WG452580	<b>Analyst:</b> DCM	<b>Run Date:</b> 11/14/2013 15:30
<b>Collect Date:</b> 11/07/2013 13:05	<b>Dilution:</b> 1	<b>File ID:</b> 1V.1311141530-23
<b>Sample Tag:</b>	<b>Units:</b> mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Cyanide	57-12-5	0.373		0.0100	0.00500

## Certificate of Analysis

<b>Sample #:</b> L13110465-02	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> UV-120-1V
<b>Client ID:</b> MPL 7-1113-1	<b>Prep Method:</b> SM4500-CN-C,G-1999	<b>Prep Date:</b> N/A
<b>Matrix:</b> Water	<b>Analytical Method:</b> SM4500-CN-C,G-1999	<b>Cal Date:</b> 11/14/2013 11:30
<b>Workgroup #:</b> WG452812	<b>Analyst:</b> DCM	<b>Run Date:</b> 11/14/2013 15:45
<b>Collect Date:</b> 11/07/2013 13:05	<b>Dilution:</b> 1	<b>File ID:</b> 1V.1311141545-08
<b>Sample Tag:</b> DL02	<b>Units:</b> mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Cyanide, Amenable to Chlor.	57-12-5	0.372	U	0.0100	0.00500
U	Analyte was not detected. The concentration is below the reported LOD.				

## Certificate of Analysis

<b>Sample #:</b> L13110465-02	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> TIAMO1
<b>Client ID:</b> MPL 7-1113-1	<b>Prep Method:</b> 120.1	<b>Prep Date:</b> N/A
<b>Matrix:</b> Water	<b>Analytical Method:</b> 120.1	<b>Cal Date:</b>
<b>Workgroup #:</b> WG452034	<b>Analyst:</b> DIH	<b>Run Date:</b> 11/08/2013 21:38
<b>Collect Date:</b> 11/07/2013 13:05	<b>Dilution:</b> 1	<b>File ID:</b> TI.110813.2138CO
<b>Sample Tag:</b> 01	<b>Units:</b> umhos/cm	

Analyte	CAS #	Result	Qual	LOQ	LOD
Conductivity		739		50.0	10.0

<b>Sample #:</b> L13110465-02	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> SMARTCHEM
<b>Client ID:</b> MPL 7-1113-1	<b>Prep Method:</b> 350.1	<b>Prep Date:</b> N/A
<b>Matrix:</b> Water	<b>Analytical Method:</b> 350.1	<b>Cal Date:</b> 11/19/2013 09:41
<b>Workgroup #:</b> WG453359	<b>Analyst:</b> BAF	<b>Run Date:</b> 11/19/2013 09:50
<b>Collect Date:</b> 11/07/2013 13:05	<b>Dilution:</b> 1	<b>File ID:</b> SC131119001.016
<b>Sample Tag:</b> 01	<b>Units:</b> mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Nitrogen, Ammonia	7664-41-7		U	0.100	0.0500
U	Analyte was not detected. The concentration is below the reported LOD.				

## Certificate of Analysis

<b>Sample #:</b> L13110465-02	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> SMARTCHEM
<b>Client ID:</b> MPL 7-1113-1	<b>Prep Method:</b> 353.2	<b>Prep Date:</b> N/A
<b>Matrix:</b> Water	<b>Analytical Method:</b> 353.2	<b>Cal Date:</b> 11/13/2013 13:48
<b>Workgroup #:</b> WG452422	<b>Analyst:</b> BAF	<b>Run Date:</b> 11/13/2013 16:00
<b>Collect Date:</b> 11/07/2013 13:05	<b>Dilution:</b> 10	<b>File ID:</b> SC13111808415001
<b>Sample Tag:</b>	<b>Units:</b> mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Nitrate-Nitrite (as N)		13.7		0.500	0.250

<b>Sample #:</b> L13110465-02	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> UV-120-1V
<b>Client ID:</b> MPL 7-1113-1	<b>Prep Method:</b> SM4500-P-E-1999	<b>Prep Date:</b> N/A
<b>Matrix:</b> Water	<b>Analytical Method:</b> SM4500-P-E-1999	<b>Cal Date:</b> 10/30/2013 09:00
<b>Workgroup #:</b> WG452008	<b>Analyst:</b> TMM	<b>Run Date:</b> 11/08/2013 09:16
<b>Collect Date:</b> 11/07/2013 13:05	<b>Dilution:</b> 1	<b>File ID:</b> 1V.1311080916-14
<b>Sample Tag:</b>	<b>Units:</b> mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Orthophosphate	14265-44-2		U	0.0500	0.0250
U	Analyte was not detected. The concentration is below the reported LOD.				

## Certificate of Analysis

<b>Sample #:</b> L13110465-02	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> OVEN
<b>Client ID:</b> MPL 7-1113-1	<b>Prep Method:</b> 160.1/SM2540C	<b>Prep Date:</b> N/A
<b>Matrix:</b> Water	<b>Analytical Method:</b> SM2540-C-1997	<b>Cal Date:</b>
<b>Workgroup #:</b> WG452254	<b>Analyst:</b> ADG	<b>Run Date:</b> 11/11/2013 13:25
<b>Collect Date:</b> 11/07/2013 13:05	<b>Dilution:</b> 1	<b>File ID:</b> EN.1311111325-23
<b>Sample Tag:</b>	<b>Units:</b> mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Total Dissolved Solids		642		20.0	10.0

<b>Sample #:</b> L13110465-02	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> TOC-VWP
<b>Client ID:</b> MPL 7-1113-1	<b>Prep Method:</b> 415.1	<b>Prep Date:</b> N/A
<b>Matrix:</b> Water	<b>Analytical Method:</b> 415.1	<b>Cal Date:</b> 07/09/2013 14:51
<b>Workgroup #:</b> WG452462	<b>Analyst:</b> DIH	<b>Run Date:</b> 11/12/2013 23:27
<b>Collect Date:</b> 11/07/2013 13:05	<b>Dilution:</b> 1	<b>File ID:</b> TC11122013.022
<b>Sample Tag:</b> 01	<b>Units:</b> mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Total Organic Carbon	TOC	1.70		1.00	0.500

<b>Sample #:</b> L13110465-02	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> OVEN
<b>Client ID:</b> MPL 7-1113-1	<b>Prep Method:</b> 160.2/SM2540D	<b>Prep Date:</b> N/A
<b>Matrix:</b> Water	<b>Analytical Method:</b> SM2540-D-1997	<b>Cal Date:</b>
<b>Workgroup #:</b> WG452343	<b>Analyst:</b> ADG	<b>Run Date:</b> 11/13/2013 11:15
<b>Collect Date:</b> 11/07/2013 13:05	<b>Dilution:</b> 1	<b>File ID:</b> EN.1311131115-14
<b>Sample Tag:</b>	<b>Units:</b> mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Total Suspended Solids			U	5.00	2.50
U	Analyte was not detected. The concentration is below the reported LOD.				

## Certificate of Analysis

<b>Sample #:</b> L13110465-03	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> ICP-THERMO2
<b>Client ID:</b> MPL 5-1113-1	<b>Prep Method:</b> 3015	<b>Prep Date:</b> 11/11/2013 12:53
<b>Matrix:</b> Water	<b>Analytical Method:</b> 6010B	<b>Cal Date:</b> 11/12/2013 14:44
<b>Workgroup #:</b> WG452461	<b>Analyst:</b> SLP	<b>Run Date:</b> 11/12/2013 18:11
<b>Collect Date:</b> 11/07/2013 15:00	<b>Dilution:</b> 1	<b>File ID:</b> T2.111213.181131
<b>Sample Tag:</b> 01	<b>Units:</b> mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Beryllium, Total	7440-41-7		U	0.00200	0.00100
Magnesium, Total	7439-95-4	8.26		0.500	0.250
Potassium, Total	7440-09-7	2.41		1.00	0.500
Sodium, Total	7440-23-5	22.7		0.500	0.250
Tin, Total	7440-31-5		U	0.500	0.250
Vanadium, Total	7440-62-2	0.00529	J	0.0100	0.00500
Zinc, Total	7440-66-6		U	0.0200	0.0100
J	Estimated value ; the analyte concentration was less than the LOQ.				
U	Analyte was not detected. The concentration is below the reported LOD.				

## Certificate of Analysis

<b>Sample #:</b> L13110465-03	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> ICP-THERMO2
<b>Client ID:</b> MPL 5-1113-1	<b>Prep Method:</b> 3015	<b>Prep Date:</b> 11/11/2013 12:53
<b>Matrix:</b> Water	<b>Analytical Method:</b> 6010B	<b>Cal Date:</b> 11/13/2013 09:22
<b>Workgroup #:</b> WG452461	<b>Analyst:</b> QX	<b>Run Date:</b> 11/13/2013 13:37
<b>Collect Date:</b> 11/07/2013 15:00	<b>Dilution:</b> 10	<b>File ID:</b> T2.111313.133707
<b>Sample Tag:</b> DL01	<b>Units:</b> mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Calcium, Total	7440-70-2	46.3		5.00	2.50
U	Analyte was not detected. The concentration is below the reported LOD.				

### Certificate of Analysis

<b>Sample #:</b> L13110465-03	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> ICP-MS2
<b>Client ID:</b> MPL 5-1113-1	<b>Prep Method:</b> 3015	<b>Prep Date:</b> 11/12/2013 14:16
<b>Matrix:</b> Water	<b>Analytical Method:</b> 6020	<b>Cal Date:</b> 11/18/2013 09:55
<b>Workgroup #:</b> WG452576	<b>Analyst:</b> JYH	<b>Run Date:</b> 11/18/2013 17:58
<b>Collect Date:</b> 11/07/2013 15:00	<b>Dilution:</b> 1	<b>File ID:</b> NI.111813.175803
<b>Sample Tag:</b> 01	<b>Units:</b> mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Antimony, Total	7440-36-0		U	0.00100	0.000500
Arsenic, Total	7440-38-2	0.00172		0.00100	0.000500
Barium, Total	7440-39-3	0.0964		0.00300	0.00150
Cadmium, Total	7440-43-9		U	0.000600	0.000300
Chromium, Total	7440-47-3	0.00251		0.00200	0.00100
Cobalt, Total	7440-48-4		U	0.00100	0.000500
Copper, Total	7440-50-8		U	0.00200	0.00100
Lead, Total	7439-92-1		U	0.00100	0.000500
Manganese, Total	7439-96-5	0.00232		0.00200	0.00100
Nickel, Total	7440-02-0		U	0.00400	0.00200
Selenium, Total	7782-49-2	0.00513		0.00100	0.000500
Silver, Total	7440-22-4		U	0.00100	0.000500
Thallium, Total	7440-28-0		U	0.000200	0.000100
U	Analyte was not detected. The concentration is below the reported LOD.				

### Certificate of Analysis

<b>Sample #:</b> L13110465-03	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> CVAA1
<b>Client ID:</b> MPL 5-1113-1	<b>Prep Method:</b> 7470A	<b>Prep Date:</b> 11/11/2013 09:26
<b>Matrix:</b> Water	<b>Analytical Method:</b> 7470A	<b>Cal Date:</b> 11/12/2013 14:20
<b>Workgroup #:</b> WG452436	<b>Analyst:</b> PDM	<b>Run Date:</b> 11/12/2013 15:45
<b>Collect Date:</b> 11/07/2013 15:00	<b>Dilution:</b> 1	<b>File ID:</b> M7.111213.154502
<b>Sample Tag:</b> 01	<b>Units:</b> mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Mercury	7439-97-6		U	0.000200	0.000100
U	Analyte was not detected. The concentration is below the reported LOD.				

## Certificate of Analysis

<b>Sample #:</b> L13110465-03	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> IC2
<b>Client ID:</b> MPL 5-1113-1	<b>Prep Method:</b> 300.0	<b>Prep Date:</b> 11/19/2013 09:16
<b>Matrix:</b> Water	<b>Analytical Method:</b> 300.0	<b>Cal Date:</b> 11/05/2013 14:51
<b>Workgroup #:</b> WG453381	<b>Analyst:</b> JBK	<b>Run Date:</b> 11/19/2013 15:17
<b>Collect Date:</b> 11/07/2013 15:00	<b>Dilution:</b> 2	<b>File ID:</b> I2_111913-24
<b>Sample Tag:</b> DL01	<b>Units:</b> mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Chloride	16887-00-6	44.3		0.400	0.200
Fluoride	16984-48-8	0.402		0.400	0.200
Sulfate	14808-79-8	51.0		2.00	1.00

<b>Sample #:</b> L13110465-03	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> ORION-4STAR
<b>Client ID:</b> MPL 5-1113-1	<b>Prep Method:</b> 9040C	<b>Prep Date:</b> N/A
<b>Matrix:</b> Water	<b>Analytical Method:</b> 9040C	<b>Cal Date:</b>
<b>Workgroup #:</b> WG452038	<b>Analyst:</b> EPT	<b>Run Date:</b> 11/08/2013 16:26
<b>Collect Date:</b> 11/07/2013 15:00	<b>Dilution:</b> 1	<b>File ID:</b> OS13111111392501
<b>Sample Tag:</b>	<b>Units:</b> UNITS	

Analyte	CAS #	Result	Qual	LOQ	LOD
Corrosivity pH	10-29-7	8.23		0.000	0.000
Temperature At Determination (C)		20.1		0.000	0.000

<b>Sample #:</b> L13110465-03	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> SMARTCHEM2
<b>Client ID:</b> MPL 5-1113-1	<b>Prep Method:</b> 310.2	<b>Prep Date:</b> 11/12/2013 17:00
<b>Matrix:</b> Water	<b>Analytical Method:</b> 310.2	<b>Cal Date:</b> 11/12/2013 16:51
<b>Workgroup #:</b> WG452340	<b>Analyst:</b> DIH	<b>Run Date:</b> 11/12/2013 17:00
<b>Collect Date:</b> 11/07/2013 15:00	<b>Dilution:</b> 1	<b>File ID:</b> S2131112003.023
<b>Sample Tag:</b> 01	<b>Units:</b> mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Alkalinity, Total (as CaCO3)	11-43-8	89.2		20.0	10.0

<b>Sample #:</b> L13110465-03	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> UV-120-1V
<b>Client ID:</b> MPL 5-1113-1	<b>Prep Method:</b> SM4500-CN-I	<b>Prep Date:</b> N/A
<b>Matrix:</b> Water	<b>Analytical Method:</b> SM4500-CN-I	<b>Cal Date:</b> 11/14/2013 11:30
<b>Workgroup #:</b> WG452581	<b>Analyst:</b> DCM	<b>Run Date:</b> 11/14/2013 15:50
<b>Collect Date:</b> 11/07/2013 15:00	<b>Dilution:</b> 1	<b>File ID:</b> 1V.1311141550-09
<b>Sample Tag:</b> DL01	<b>Units:</b> mg/L	

## Certificate of Analysis

Analyte	CAS #	Result	Qual	LOQ	LOD
Cyanide, Weak/Dissociable	57-12-5	0.0106		0.0100	0.00500

<b>Sample #:</b> L13110465-03	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> UV-120-1V
<b>Client ID:</b> MPL 5-1113-1	<b>Prep Method:</b> 9014-9010C	<b>Prep Date:</b> N/A
<b>Matrix:</b> Water	<b>Analytical Method:</b> 9014-9010C	<b>Cal Date:</b> 11/14/2013 11:20
<b>Workgroup #:</b> WG452580	<b>Analyst:</b> DCM	<b>Run Date:</b> 11/14/2013 15:30
<b>Collect Date:</b> 11/07/2013 15:00	<b>Dilution:</b> 1	<b>File ID:</b> 1V.1311141530-24
<b>Sample Tag:</b>	<b>Units:</b> mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Cyanide	57-12-5	0.0736		0.0100	0.00500

<b>Sample #:</b> L13110465-03	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> UV-120-1V
<b>Client ID:</b> MPL 5-1113-1	<b>Prep Method:</b> SM4500-CN-C,G-1999	<b>Prep Date:</b> N/A
<b>Matrix:</b> Water	<b>Analytical Method:</b> SM4500-CN-C,G-1999	<b>Cal Date:</b> 11/14/2013 11:30
<b>Workgroup #:</b> WG452812	<b>Analyst:</b> DCM	<b>Run Date:</b> 11/14/2013 15:45
<b>Collect Date:</b> 11/07/2013 15:00	<b>Dilution:</b> 1	<b>File ID:</b> 1V.1311141545-09
<b>Sample Tag:</b> DL02	<b>Units:</b> mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Cyanide, Amenable to Chlor.	57-12-5	0.0736	U	0.0100	0.00500
U	Analyte was not detected. The concentration is below the reported LOD.				

## Certificate of Analysis

<b>Sample #:</b> L13110465-03	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> TIAMO1
<b>Client ID:</b> MPL 5-1113-1	<b>Prep Method:</b> 120.1	<b>Prep Date:</b> N/A
<b>Matrix:</b> Water	<b>Analytical Method:</b> 120.1	<b>Cal Date:</b>
<b>Workgroup #:</b> WG452034	<b>Analyst:</b> DIH	<b>Run Date:</b> 11/08/2013 21:40
<b>Collect Date:</b> 11/07/2013 15:00	<b>Dilution:</b> 1	<b>File ID:</b> TI.110813.2140CO
<b>Sample Tag:</b> 01	<b>Units:</b> umhos/cm	

Analyte	CAS #	Result	Qual	LOQ	LOD
Conductivity		440		50.0	10.0

<b>Sample #:</b> L13110465-03	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> SMARTCHEM
<b>Client ID:</b> MPL 5-1113-1	<b>Prep Method:</b> 350.1	<b>Prep Date:</b> N/A
<b>Matrix:</b> Water	<b>Analytical Method:</b> 350.1	<b>Cal Date:</b> 11/19/2013 09:41
<b>Workgroup #:</b> WG453359	<b>Analyst:</b> BAF	<b>Run Date:</b> 11/19/2013 09:50
<b>Collect Date:</b> 11/07/2013 15:00	<b>Dilution:</b> 1	<b>File ID:</b> SC131119001.017
<b>Sample Tag:</b> 01	<b>Units:</b> mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Nitrogen, Ammonia	7664-41-7		U	0.100	0.0500
U	Analyte was not detected. The concentration is below the reported LOD.				

## Certificate of Analysis

<b>Sample #:</b> L13110465-03	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> SMARTCHEM
<b>Client ID:</b> MPL 5-1113-1	<b>Prep Method:</b> 353.2	<b>Prep Date:</b> N/A
<b>Matrix:</b> Water	<b>Analytical Method:</b> 353.2	<b>Cal Date:</b> 11/13/2013 13:48
<b>Workgroup #:</b> WG452422	<b>Analyst:</b> BAF	<b>Run Date:</b> 11/13/2013 16:00
<b>Collect Date:</b> 11/07/2013 15:00	<b>Dilution:</b> 4	<b>File ID:</b> SC13111808415901
<b>Sample Tag:</b>	<b>Units:</b> mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Nitrate-Nitrite (as N)		5.28		0.200	0.100

<b>Sample #:</b> L13110465-03	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> UV-120-1V
<b>Client ID:</b> MPL 5-1113-1	<b>Prep Method:</b> SM4500-P-E-1999	<b>Prep Date:</b> N/A
<b>Matrix:</b> Water	<b>Analytical Method:</b> SM4500-P-E-1999	<b>Cal Date:</b> 10/30/2013 09:00
<b>Workgroup #:</b> WG452008	<b>Analyst:</b> TMM	<b>Run Date:</b> 11/08/2013 09:16
<b>Collect Date:</b> 11/07/2013 15:00	<b>Dilution:</b> 1	<b>File ID:</b> 1V.1311080916-15
<b>Sample Tag:</b>	<b>Units:</b> mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Orthophosphate	14265-44-2		U	0.0500	0.0250
U	Analyte was not detected. The concentration is below the reported LOD.				

## Certificate of Analysis

<b>Sample #:</b> L13110465-03	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> OVEN
<b>Client ID:</b> MPL 5-1113-1	<b>Prep Method:</b> 160.1/SM2540C	<b>Prep Date:</b> N/A
<b>Matrix:</b> Water	<b>Analytical Method:</b> SM2540-C-1997	<b>Cal Date:</b>
<b>Workgroup #:</b> WG452622	<b>Analyst:</b> ADG	<b>Run Date:</b> 11/13/2013 12:52
<b>Collect Date:</b> 11/07/2013 15:00	<b>Dilution:</b> 1	<b>File ID:</b> EN.1311131252-22
<b>Sample Tag:</b> 2	<b>Units:</b> mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Total Dissolved Solids		282		20.0	10.0

<b>Sample #:</b> L13110465-03	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> TOC-VWP
<b>Client ID:</b> MPL 5-1113-1	<b>Prep Method:</b> 415.1	<b>Prep Date:</b> N/A
<b>Matrix:</b> Water	<b>Analytical Method:</b> 415.1	<b>Cal Date:</b> 07/09/2013 14:51
<b>Workgroup #:</b> WG452462	<b>Analyst:</b> DIH	<b>Run Date:</b> 11/12/2013 23:48
<b>Collect Date:</b> 11/07/2013 15:00	<b>Dilution:</b> 1	<b>File ID:</b> TC11122013.023
<b>Sample Tag:</b> 01	<b>Units:</b> mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Total Organic Carbon	TOC	1.20		1.00	0.500

<b>Sample #:</b> L13110465-03	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> OVEN
<b>Client ID:</b> MPL 5-1113-1	<b>Prep Method:</b> 160.2/SM2540D	<b>Prep Date:</b> N/A
<b>Matrix:</b> Water	<b>Analytical Method:</b> SM2540-D-1997	<b>Cal Date:</b>
<b>Workgroup #:</b> WG452343	<b>Analyst:</b> ADG	<b>Run Date:</b> 11/13/2013 11:15
<b>Collect Date:</b> 11/07/2013 15:00	<b>Dilution:</b> 1	<b>File ID:</b> EN.1311131115-15
<b>Sample Tag:</b>	<b>Units:</b> mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Total Suspended Solids			U	5.00	2.50
U	Analyte was not detected. The concentration is below the reported LOD.				

Certificate of Analysis

Microbac Laboratories Inc.  
Ohio Valley Division Analyst List  
November 25, 2013

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001 - BIO-CHEM TESTING WVDEP 220	002 - REIC Consultants, Inc. WVDEP 060
003 - Sturm Environmental	004 - MICROBAC PITTSBURGH
ADC - ANTHONY D. CANTER	ADG - APRIL D. GREENE
AJF - AMANDA J. FICKIESEN	AML - TONY M. LONG
AZH - AFTER HOURS	BAF - BRICE A. FENTON
BJO - BRIAN J. OGDEN	BLG - BRENDA L. GREENWALT
BRG - BRENDA R. GREGORY	CAA - CASSIE A. AUGENSTEIN
CAF - CHERYL A. FLOWERS	CEB - CHAD E. BARNES
CLC - CHRYS L. CRAWFORD	CLS - CARA L. STRICKLER
CLW - CHARISSA L. WINTERS	CPD - CHAD P. DAVIS
CRW - CHRISTINA R. WILSON	CSH - CHRIS S. HILL
CTB - CHRIS T. BUCINA	DAK - DEAN A. K
DCM - DAVID C. MERCKLE	DDE - DEBRA D. ELLIOTT
DEV - DAVID E. VANDENBERG	DIH - DEANNA I. HESSON
DLB - DAVID L. BUMGARNER	DLP - DOROTHY L. PAYNE
DLR - DIANNA L. RAUCH	DSM - DAVID S. MOSSOR
ECL - ERIC C. LAWSON	EDL - ERIN D. LONG
ENY - EMILY N. YOAK	EPT - ETHAN P. TIDD
ERP - ERIN R. PORTER	FJB - FRANCES J. BOLDEN
HCB - HEIDI C. BROWN	HJR - HOLLY J. REED
JBK - JEREMY B. KINNEY	JDH - JUSTIN D. HESSON
JKS - JANE K. SCHAAD	JLL - JOHN L. LENT
JWR - JOHN W. RICHARDS	JWS - JACK W. SHEAVES
JYH - JI Y. HU	KDW - KATHRYN D. WELCH
KEB - KATIE E. BARNES	KHR - KIM H. RHODES
KRA - KATHY R. ALBERTSON	KRB - KAELY R. BECKER
KSC - KELLY S. CUNNINGHAM	LKN - LINDA K. NEDEFF
LLS - LARRY L. STEPHENS	LSB - LESLIE S. BUCINA
MBK - MORGAN B. KNOWLTON	MDA - MIKE D. ALBERTSON
MDC - MIKE D. COCHRAN	MES - MARY E. SCHILLING
MLW - MATTHEW L. WARREN	MMB - MAREN M. BEERY
MRT - MICHELLE R. TAYLOR	MSW - MATT S. WILSON
PDM - PIERCE D. MORRIS	PIT - MICROBAC WARRENDALE
PSW - PEGGY S. WEBB	QX - QIN XU
RAH - ROY A. HALSTEAD	REK - BOB E. KYER
RLB - BOB BUCHANAN	RM - RAYMOND MALEKE
RNP - RICK N. PETTY	RS - ROSEMARY SCOTT
RWC - RODNEY W. CAMPBELL	SAV - SARAH A. VANDENBERG
SEP - SUZANNE J. PAUGH	SLM - STEPHANIE L. MOSSBURG
SLP - SHERI L. PFALZGRAF	TMB - TIFFANY M. BAILEY
TMM - TAMMY M. MORRIS	TPA - TYLER P. AMRINE
VC - VICKI COLLIER	WJB - WILL J. BEASLEY
WTD - WADE T. DELONG	XXX - UNAVAILABLE OR SUBCONTRACT

November 25, 2013

Qualkey: DOD

Qualifier	Description
*	Surrogate or spike compound out of range
+	Correlation coefficient for the MSA is less than 0.995
<	Result is less than the associated numerical value.
>	Greater than
A	See the report narrative
B	The reported result is associated with a contaminated method blank.
B1	Target analyte detected in method blank at or above the method reporting limit
B3	Target analyte detected in calibration blank at or above the method reporting limit
B4	The BOD unseeded dilution water blank exceeded 0.2 mg/L
C	Confirmed by GC/MS
CG	Confluent growth
CT1	The cooler temperature at receipt exceeded regulatory guidelines for requested testing.
DL	Surrogate or spike compound was diluted out
E	Estimated concentration due to sample matrix interference
EDL	Elevated sample reporting limits, presence of non-target analytes
EMPC	Estimated Maximum Possible Concentration
F, S	Estimated result below quantitation limit; method of standard additions(MSA)
F,CT1	Estimated value; the analyte concentration was less than the RL/LOQ. The cooler temperature at receipt exceeded regula
FL	Free Liquid
H1	Sample analysis performed past holding time.
I	Semiquantitative result (out of instrument calibration range)
J	Estimated concentration; sample matrix interference.
J	Estimated value ; the analyte concentration was greater than the highest standard
J	Estimated value ; the analyte concentration was less than the LOQ.
J	The reported result is an estimated value.
J,B	Analyte detected in both the method blank and sample above the MDL.
J,CT1	Estimated value; the analyte concentration was less than the RL/LOQ.
J,CT1	Estimated value; the analyte concentration was less than the RL/LOQ. The cooler temperature at receipt exceeded regula
J,P	Estimate; columns don't agree to within 40%
J,S	Estimated concentration; analyzed by method of standard addition (MSA)
JB	The reported result is an estimated value. The reported result is also associated with a contaminated method blank.
JQ	The reported result is an estimated value and one or more quality control criteria failed. See narrative.
L	Sample reporting limits elevated due to matrix interference
L1	The associated blank spike (LCS) recovery was above the laboratory acceptance limits.
L2	The associated blank spike (LCS) recovery was below the laboratory acceptance limits.
M	Matrix effect; the concentration is an estimate due to matrix effect.
N	Nontarget analyte; the analyte is a tentatively identified compound (TIC) by GC/MS
NA	Not applicable
ND	Not detected at or above the reporting limit (RL/MDL).
ND, CT1	Analyte was not detected. The concentration is below the reported LOD. The cooler temperature at receipt exceeded reg
ND, H1	Not detected; Sample analysis performed past holding time.
ND, L	Not detected; sample reporting limit (RL) elevated due to interference
ND, S	Not detected; analyzed by method of standard addition (MSA)
NF	Not found by library search
NFL	No free liquid
NI	Non-ignitable
NR	Analyte is not required to be analyzed
NS	Not spiked
P	Concentrations >40% difference between the two GC columns
Q	One or more quality control criteria failed. See narrative.
QNS	Quantity of sample not sufficient to perform analysis
RA	Reanalysis confirms reported results
RE	Reanalysis confirms sample matrix interference
S	Analyzed by method of standard addition (MSA)
SMI	Sample matrix interference on surrogate
SP	Reported results are for spike compounds only
TIC	Library Search Compound
TNTC	Too numerous to count
U	Analyte was not detected. The concentration is below the reported LOD.
UJ	Undetected; the MDL and RL are estimated due to quality control discrepancies.
UQ	Undetected; the analyte was analyzed for, but not detected.
W	Post-digestion spike for furnace AA out of control limits
X	Exceeds regulatory limit
X, S	Exceeds regulatory limit; method of standard additions (MSA)
Z	Cannot be resolved from isomer - see below





Microbac Laboratories Inc.  
Internal Chain of Custody Report

**Login:** L13110465  
**Account:** 3005  
**Project:** 3005.011  
**Samples:** 3  
**Due Date:** 19-NOV-2013

**Samplenum**      **Container ID**    **Products**  
L13110465-01    274706

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	F1	08-NOV-2013 12:51	CLS		
2	ANALYZ	F1	SEM	19-NOV-2013 08:35	JBK	CLS	

Comments:Products cancelled.

3	STORE	SEM	A1	22-NOV-2013 11:20	CLS	JBK	
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Comments:Products cancelled.

**Samplenum**      **Container ID**    **Products**  
L13110465-01    274707

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	WET	08-NOV-2013 12:51	CLS		
2	STORE	WET	A1	18-NOV-2013 13:19	RS	BAF	

Comments:Products cancelled.

**Samplenum**      **Container ID**    **Products**  
L13110465-01    274708

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	WET	08-NOV-2013 12:51	CLS		
2	STORE	WET	A1	11-NOV-2013 08:15	CLS	DLP	

Comments:Products cancelled.Products cancelled.

**Samplenum**      **Container ID**    **Products**  
L13110465-01    274709

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	08-NOV-2013 12:51	CLS		
2	ANALYZ	W1	A1	18-NOV-2013 07:15	AZH	ADG	

Comments:Products cancelled.

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



Internal Chain of Custody Report

**Login:** L13110465

**Account:** 3005

**Project:** 3005.011

**Samples:** 3

**Due Date:** 19-NOV-2013

**Samplenum            Container ID    Products**

**L13110465-01    274710**

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	08-NOV-2013 12:51	CLS		<2
2	ANALYZ	W1	WET	12-NOV-2013 12:38	DCM	CLS	

Comments:Products cancelled.

3	STORE	WET	A1	19-NOV-2013 16:28	CLS	TMM	
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Comments:Products cancelled.

**Samplenum            Container ID    Products**

**L13110465-01    274711**

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	08-NOV-2013 12:51	CLS		
2	PREP	W1	DIG	11-NOV-2013 09:00	REK	CLS	

Comments:Products cancelled.

3	STORE	DIG	A1	12-NOV-2013 15:13	CLS	ERP	
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Comments:Products cancelled.

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	08-NOV-2013 12:51	CLS		

**Samplenum            Container ID    Products**

**L13110465-01    274712**

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	WET	08-NOV-2013 12:51	CLS		
2	STORE	WET	A1	18-NOV-2013 08:53	RS	DCM	

Comments:Products cancelled.

- 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:** L13110465  
**Account:** 3005  
**Project:** 3005.011  
**Samples:** 3  
**Due Date:** 19-NOV-2013

**Samplenum**      **Container ID**    **Products**  
**L13110465-02**    **274713**

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	F1	08-NOV-2013 12:51	CLS		
2	ANALYZ	F1	SEM	19-NOV-2013 08:35	JBK	CLS	

Comments:Products cancelled.

3	STORE	SEM	A1	22-NOV-2013 11:20	CLS	JBK	
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Comments:Products cancelled.

**Samplenum**      **Container ID**    **Products**  
**L13110465-02**    **274714**

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	08-NOV-2013 12:51	CLS		
2	ANALYZ	W1	WET	12-NOV-2013 08:35	DCM	CLS	

Comments:Products cancelled.

3	STORE	WET	A1	18-NOV-2013 13:18	RS	BAF	
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Comments:Products cancelled.

**Samplenum**      **Container ID**    **Products**  
**L13110465-02**    **274715**

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	WET	08-NOV-2013 12:51	CLS		
2	STORE	WET	A1	11-NOV-2013 08:15	CLS	DLP	

Comments:Products cancelled.

**Samplenum**      **Container ID**    **Products**  
**L13110465-02**    **274716**

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	08-NOV-2013 12:51	CLS		
2	ANALYZ	W1	A1	18-NOV-2013 07:15	AZH	ADG	

Comments:Products cancelled.

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



## Internal Chain of Custody Report

Login: L13110465

Account: 3005

Project: 3005.011

Samples: 3

Due Date: 19-NOV-2013

Samplenum      Container ID      Products

L13110465-02      274717

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	08-NOV-2013 12:51	CLS		<2
2	ANALYZ	W1	WET	12-NOV-2013 12:38	DCM	CLS	

Comments:Products cancelled.

3	STORE	WET	A1	19-NOV-2013 16:27	CLS	TMM	
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Comments:Products cancelled.

Samplenum      Container ID      Products

L13110465-02      274718

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	08-NOV-2013 12:51	CLS		
2	PREP	W1	DIG	11-NOV-2013 09:00	REK	CLS	

Comments:Products cancelled.

3	STORE	DIG	A1	12-NOV-2013 15:13	CLS	ERP	
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Comments:Products cancelled.

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	08-NOV-2013 12:51	CLS		

Samplenum      Container ID      Products

L13110465-02      274719

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	WET	08-NOV-2013 12:51	CLS		
2	STORE	WET	A1	18-NOV-2013 08:53	RS	DCM	

Comments:Products cancelled.

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:** L13110465  
**Account:** 3005  
**Project:** 3005.011  
**Samples:** 3  
**Due Date:** 19-NOV-2013

**Samplenum**            **Container ID**    **Products**  
**L13110465-03**        **274720**

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	F1	08-NOV-2013 12:51	CLS		
2	ANALYZ	F1	SEM	19-NOV-2013 08:35	JBK	CLS	

Comments:Products cancelled.

3	STORE	SEM	A1	22-NOV-2013 11:19	CLS	JBK	
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Comments:Products cancelled.

**Samplenum**            **Container ID**    **Products**  
**L13110465-03**        **274721**

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	08-NOV-2013 12:51	CLS		
2	ANALYZ	W1	WET	12-NOV-2013 08:35	DCM	CLS	

Comments:Products cancelled.

3	STORE	WET	A1	18-NOV-2013 13:19	RS	BAF	
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Comments:Products cancelled.

**Samplenum**            **Container ID**    **Products**  
**L13110465-03**        **274722**

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	WET	08-NOV-2013 12:51	CLS		
2	STORE	WET	A1	11-NOV-2013 08:15	CLS	DLP	

Comments:Products cancelled.

**Samplenum**            **Container ID**    **Products**  
**L13110465-03**        **274723**

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	08-NOV-2013 12:51	CLS		

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



Internal Chain of Custody Report

**Login:** L13110465

**Account:** 3005

**Project:** 3005.011

**Samples:** 3

**Due Date:** 19-NOV-2013

**Samplenum                  Container ID      Products**

**L13110465-03                  274724**

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	08-NOV-2013 12:51	CLS		<2
2	ANALYZ	W1	WET	12-NOV-2013 12:38	DCM	CLS	

Comments:Products cancelled.

3	STORE	WET	A1	19-NOV-2013 16:27	CLS	TMM	
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Comments:Products cancelled.

**Samplenum                  Container ID      Products**

**L13110465-03                  274725**

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	08-NOV-2013 12:51	CLS		
2	PREP	W1	DIG	11-NOV-2013 09:00	REK	CLS	

Comments:Products cancelled.

3	STORE	DIG	A1	12-NOV-2013 15:13	CLS	ERP	
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Comments:Products cancelled.

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	08-NOV-2013 12:51	CLS		

**Samplenum                  Container ID      Products**

**L13110465-03                  274726**

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	WET	08-NOV-2013 12:51	CLS		
2	STORE	WET	A1	18-NOV-2013 08:53	RS	DCM	

Comments:Products cancelled.

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

