



**Laboratory Report Number:** L12010767

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 February 13 2012

David Vandenberg – Managing Director

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



## 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 #
0016953	H	4.0		1002241144060004575000874824307407

### 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

**Samples Received**

Client ID	Laboratory ID	Date Collected	Date Received
MPL-21-0112-1	L12010767-01	01/27/2012 14:45	01/28/2012 08:46
MPL-21-0112-MS	L12010767-02	01/27/2012 14:45	01/28/2012 08:46
MPL-21-0112-MSD	L12010767-03	01/27/2012 14:45	01/28/2012 08:46



**Login Number:** L12010767  
**Department:** Conventionals  
**Analyst:** Deanna Hesson

**METHOD**

**Analysis** SW846 9040C,9045D/EPA 150.1/SM4500-H B (pH)

**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.

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:** 42084

**Approved By:** Deanna Hesson

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



**Login Number:** L12010767  
**Department:** Metals  
**Analyst:** Erin Long

**METHOD**

**Preparation:** SW-846 3005

**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:** WG388487 - All acceptance criteria were met.

**Matrix Spikes:** WG388487 - Sample 01 was chosen by the client for MS/MSD analysis. Samples 02(MS) and 03(MSD) yielded noncompliant recoveries for calcium.

**SAMPLES**

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

**Narrative ID:** 41834

**Approved By:** Maren Beery

*Maren Beery*



**Login Number:** L12010767  
**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:** WG388420 - All acceptance criteria were met.

**Matrix Spikes:** WG388420 - Sample 01 was chosen by the client for MS/MSD analysis. Samples 02(MS) and 03(MSD) yielded a noncompliant recovery and a noncompliant RPD for copper.

**SAMPLES**

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

**Narrative ID:** 41610

**Approved By:** Maren Beery

*Maren Beery*



**Login Number:** L12010767  
**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:** WG388471 - All acceptance criteria were met.

**Matrix Spikes:** WG388471 - Sample 01 was chosen by the client for MS/MSD analysis. Samples 02(MS) and 03(MSD) met all acceptance criteria.

**SAMPLES**

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

**Narrative ID:** 41638

**Approved By:** Maren Beery

*Maren Beery*



**Login Number:** L12010767  
**Department:** General Chromatography  
**Analyst:** Jeremy Kinney

## METHOD

**Analysis** SW-846 9056/300.0

## 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.

**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:** Recoveries out of range were observed for the following analytes: Chloride. Please see the applicable QC report for a detailed presentation of the failures.

## SAMPLES

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

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

## Manual Integration Reason Codes

**Reason #1: Data System Fails to Select Correct Peak** In some cases the chromatography system selects and integrates the 'wrong peak'. In this case the analyst must correct the selection and force the system to integrate the proper peak. Other times the system may miss the 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:** 41599

**Approved By:** Jeremy Kinney





**Login Number:** L12010767  
**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:** The blank result was greater than the absolute value of the LOD.

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

**Matrix Spikes:** Recoveries out of range were observed for the following analytes: Alkalinity, Carbonate (as CaCO<sub>3</sub>). Please see the applicable QC report for a detailed presentation of the failures.

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

**SAMPLES**

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

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**Narrative ID:** 41629

**Approved By:** Deanna Hesson

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



**Login Number:** L12010767  
**Department:** Conventionals  
**Analyst:** Dorothy Payne

**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-Amenable is the difference between the total cyanide and the treated cyanide. The LCS is analyzed to show that all of the cyanide is amenable (the treated portion is ND). The LCS forms cannot calculate cyanide amenable. The LCS is acceptable.

**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:** 41782

**Approved By:** Deanna Hesson

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



**Login Number:** L12010767  
**Department:** Conventionals  
**Analyst:** Dorothy Payne

**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:** Recoveries out of range were observed for the following analytes: Conductivity. Please see the applicable QC report for a detailed presentation of the failures.

**SAMPLES**

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

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**Narrative ID:** 42083

**Approved By:** Deanna Hesson

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



**Login Number:** L12010767  
**Department:** Conventionals  
**Analyst:** Deanna Hesson

**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:** Recoveries out of range were observed for the following analytes: Nitrogen, Ammonia. Please see the applicable QC report for a detailed presentation of the failures.

**SAMPLES**

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

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**Narrative ID:** 42085

**Approved By:** Deanna Hesson

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



**Login Number:** L12010767  
**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:** 42086

**Approved By:** Deanna Hesson

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



**Login Number:** L12010767  
**Department:** Conventionals  
**Analyst:** Deanna Hesson

**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:** 42087

**Approved By:** Deanna Hesson

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**Login Number:** L12010767  
**Department:** Conventionals  
**Analyst:** Holly Reed

**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:** 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:** 42090

**Approved By:** Deanna Hesson

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



**Login Number:** L12010767  
**Department:** Conventionals  
**Analyst:** Jeremy Kinney

**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 QAI/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:** 42088

**Approved By:** Deanna Hesson

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



**Login Number:** L12010767  
**Department:** Conventionals  
**Analyst:** Holly Reed

**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:** 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:** 42089

**Approved By:** Deanna Hesson

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