



Laboratory Report Number: L12010651

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 08 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 #
0014666	H	3.0		1ZE4F1930349725964

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-16-0112-1	L12010651-01	01/24/2012 14:20	01/25/2012 10:34
MPL-16-0112-MS	L12010651-02	01/24/2012 14:20	01/25/2012 10:34
MPL-16-0112-MSD	L12010651-03	01/24/2012 14:20	01/25/2012 10:34



Login Number: L12010651
Department: Conventionals
Analyst: Dorothy Payne

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.

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Narrative ID: 41703

Approved By: Deanna Hesson

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



Login Number: L12010651
Department: Metals
Analyst: Sheri Pfalzgraf

METHOD

Preparation: SW-846 3005
Preparation: SW-846 3005A
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: WG388026 - The closing continuing calibration blank that bracketed the batch post-digestion spike yielded a calcium result of -0.115 mg/L which exceeds the absolute value of the limit of detection. However, since the CCB did not bracket any client samples, no further action was taken.
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: WG388026 - All acceptance criteria were met.
Serial Dilution/Post Digestion Spikes: All acceptance criteria were met.
Matrix Spikes: WG388026 - Sample 01 was chosen by the client for MS/MSD analysis. Samples 02(MS) and 03(MSD) yielded noncompliant recoveries for calcium.
Matrix Spikes: All acceptance criteria were met.

SAMPLES

Samples: All acceptance criteria were met.

Narrative ID: 41502
Approved By: Maren Beery
Maren Beery



Login Number: L12010651
Department: Metals
Analyst: Erin Long

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: WG388019 - All acceptance criteria were met.

Matrix Spikes: WG388019 - 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: 41438

Approved By: Maren Beery

Maren Beery



Login Number: L12010651
Department: Metals - AA
Analyst: Sheri Pfalzgraf

METHOD

Preparation: SW-846 7470
Preparation: SW-846 7471(solid)/SW-846 7470(water)
Analysis: SW-846 7470
Analysis: SW-846 7471(solid)/SW-846 7470(water)

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: WG388140 - All acceptance criteria were met.
Serial Dilution/Post Digestion Spikes: All acceptance criteria were met.
Matrix Spikes: WG388140 - Sample 01 was chosen by the client for MS/MSD analysis. Samples 02(MS) and 03(MSD) yielded noncompliant recoveries and a noncompliant RPD for mercury.
Matrix Spikes: All acceptance criteria were met.

SAMPLES

Samples: All acceptance criteria were met.

Narrative ID: 41413
Approved By: Maren Beery

Maren Beery



Login Number: L12010651
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: Fractions -01, -02, and -03 were analyzed at dilutions due to Cl concentrations greater than the ICAL. Fractions -01, -02, and -03 were analyzed for fluoride via method SM4500-F C (Potentiometric Determination) due to greatly reduced fluoride recoveries via IC analysis. Fluoride recoveries fail due to high concentrations of metal cations found in sample matrices. Efforts are made to prevent the precipitation of these cations in the guard and analytical columns and suppressor but are not completely effective. Even with the preventative efforts to eliminate these interferences the instrument was unable to analyze F at greater than 90% recovery.

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: 41524

Approved By: Jeremy Kinney





Login Number: L12010651
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, Bicarbonate (as CaCO₃), Alkalinity, Carbonate (as CaCO₃), Alkalinity, Total (as CaCO₃). 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: 41625

Approved By: Deanna Hesson

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



Login Number: L12010651
Department: Conventionals
Analyst: Jeremy Kinney

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-Ammanable is the difference between the total cyanide and the treated cyanide. The LCS is analyzed to show that all of the cyanide is ammanable (the treated portion is ND). The LCS forms cannot calculate cyanide ammanable. 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: 41407

Approved By: Deanna Hesson

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



Login Number: L12010651
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: 41702

Approved By: Deanna Hesson

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



Login Number: L12010651
Department: Conventionals
Analyst: Deanna Hesson

METHOD

Analysis SM4500-F-C (Fluoride)

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: The samples were analyzed by SM4500-F C due to instrument failure for Method 300.

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Narrative ID: 41709

Approved By: Deanna Hesson

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



Login Number: L12010651
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: 41704

Approved By: Deanna Hesson

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



Login Number: L12010651
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: 41705

Approved By: Deanna Hesson

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



Login Number: L12010651
Department: Conventionals
Analyst: Holly Reed

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: 41706

Approved By: Deanna Hesson

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



Login Number: L12010651
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: 41710

Approved By: Deanna Hesson

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



Login Number: L12010651
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 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: Recoveries out of range were observed for the following analytes: Total Organic Carbon. 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: 41707

Approved By: Deanna Hesson

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



Login Number: L12010651
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: 41708

Approved By: Deanna Hesson

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

