LONGHORN ARMY AMMUNITION PLANT KARNACK, TEXAS

ADMINISTRATIVE RECORD

Volume 2 of 19

2010

Bate Stamp Numbers

00083382 – 00084358

Prepared for

Department of the Army
Longhorn Army Ammunition Plant

1976 – 2010

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS
ADMINISTRATIVE RECORD – CHRONOLOGICAL INDEX

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2010

A. Title: Report (Continued) - Final Completion Report Non-Time-Critical Removal Action at the Former Pistol Range, Longhorn Army Ammunition Plan, Karnack, Texas
Author(s): Shaw Environmental, Inc., Houston, Texas
Recipient: All Stakeholders
Date: January 12, 2010
Bate Stamp: 00083382 - 00083891

B. Title: Report - Final Proposed Plan for LHAAP-46, Plant 2 Area, Group 4, Longhorn Army Ammunition Plant, Karnack, Texas
Author(s): Shaw Environmental, Inc., Houston, Texas
Recipient: All Stakeholders
Date: January 12, 2010
Bate Stamp: 00083892 - 00083913

C. Title: Report - Final Proposed Plan for LHAAP-35A(58), Shops Area, Group 4, Longhorn Army Ammunition Plant, Karnack, Texas
Author(s): Shaw Environmental, Inc., Houston, Texas
Recipient: All Stakeholders
Date: January 19, 2010
Bate Stamp: 00083914 - 00083935

D. Title: Report - Final Proposed Plan for LHAAP-50, Former Sump Water Tank, Group 4, Longhorn Army Ammunition Plant, Karnack, Texas
Author(s): Shaw Environmental, Inc., Houston, Texas
Recipient: All Stakeholders
Date: January 19, 2010
Bate Stamp: 00083936 - 00083958

E. Title: Public Notice - Proof of Publication Shreveport Times Newspaper Notice for Proposed Plans for Sites LHAAP-46, 49, 50, 35A(58) and the Pistol Range, Longhorn Army Ammunition Plant, Karnack, Texas
Author(s): U.S. Army
Recipient: Public
Date: January 17 and 24, 2010
Bate Stamp: 00083959 - 00083964

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F. Title: Public Notice - Proof of Publication Marshall News Messenger Notice for Proposed Plans for Sites LHAAP-46, 49, 50, 35A(58) and the Pistol Range, Longhorn Army Ammunition Plant, Karnack, Texas
Author(s): U.S. Army
Recipient: Public
Date: January 17 and 24, 2010
Bate Stamp: 00083965 – 00083972

G. Title: Meeting Minutes - Longhorn AAP Monthly Manager's Meeting
Author(s): Shaw Environmental, Inc., Houston, Texas
Recipient: All Stakeholders
Date: January 26, 2010
Bate Stamp: 00083973 – 00083983

H. Title: Memorandum – Results of Additional Sampling at Site LHAAP-02 (Former Vacuum Truck Overnight Parking), Longhorn Army Ammunition Plant, Karnack, Texas
Author(s): Shaw Environmental, Inc., Houston, Texas
Recipient: All Stakeholders
Date: February 16, 2010
Bate Stamp: 00083984 - 00084236

I. Title: Public Notice - Proof of Publication Shreveport Times Newspaper Notice for Proposed Plans for Sites LHAAP-46, 49, 50, 35A(58) and the Pistol Range, Longhorn Army Ammunition Plant, Karnack, Texas
Author(s): U.S. Army
Recipient: Public
Date: February 22 and 28, 2010
Bate Stamp: 00084237 - 00084239

J. Title: Public Notice - Proof of Publication Marshall News Messenger Newspaper Notice for Proposed Plans for Sites LHAAP-46, 49, 50, 35A(58) and the Pistol Range, Longhorn Army Ammunition Plant, Karnack, Texas
Author(s): U.S. Army
Recipient: Public
Date: February 21 and 28, 2010
Bate Stamp: 00084240 – 00084242

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K. Title: Public Notice - Media Release for March 9, 2010 Public Meeting, Longhorn Army Ammunition Plant, Karnack, Texas
Author(s): U.S. Army
Recipient: Public
Date: February 22, 2010
Bate Stamp: 00084243 - 00084248

L. Title: Meeting Minutes - Longhorn AAP Monthly Manager's Meeting
Author(s): Shaw Environmental, Inc., Houston, Texas
Recipient: LHAAP Stakeholders
Date: February 25, 2010
Bate Stamp: 00084249 - 00084257

M. Title: Public Tour - Roster of Participants for Longhorn Army Ammunition Plant Tour, Karnack,Texas
Author(s): LHAAP Stakeholders
Recipient: Public
Date: March 9, 2010
Bate Stamp: 00084258

N. Title: Meeting Minutes - Longhorn AAP Monthly Manager's Meeting
Author(s): Shaw Environmental, Inc., Houston, Texas
Recipient: LHAAP Stakeholders
Date: March 9, 2010
Bate Stamp: 00084259 - 00084267

O. Title: Meeting Minutes - LHAAP Restoration Advisory Board (RAB) Meeting
Author(s): Shaw Environmental, Inc., Houston, Texas
Recipient: LHAAP Stakeholders
Date: March 9, 2010
Bate Stamp: 00084268 - 00084276

LONGHORN ARMY AMMUNITION PLANT
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P. Title: Public Meeting - Public Meeting Agenda and Roster of Attendees for March 9, 2010 Public Meeting, Longhorn Army Ammunition Plant, Karnack, Texas
Author(s): U.S. Army
Recipient: Public
Date: March 9, 2010
Bate Stamp: 00084277 - 00084278

Q. Title: Public Meeting - Transcript for March 9, 2010 Public Meeting, Longhorn Army Ammunition Plant, Karnack, Texas
Author(s): U.S. Army
Recipient: Public
Date: March 9, 2010
Bate Stamp: 00084279 - 00084358

1.0 Introduction

Laboratory Data Package Cover Page

This data Package consists of:

This signature page, the laboratory review checklists, and the following reportable data:

R1 Field chain-of-custody documentation;

R2 sample identification cross-reference;

R3 Test reports (analytical data sheets) for each enviornmental sample that includes:
- a) Items consistant with NELAC 5.13 or ISO/IEC 17025 Section 5.10
- b) dilution factors,
- c) preparation methods,
- d) Cleanup methods, and
- e) If required for the project, tentatively identified compounds (TICs)

R4 Surrogate recovery data including:
- a) Calculated recovery (%R) for each analyte, and
- b) The laboratory’s surrogate QC limits.

R5 Test reports/summary forms for blank samples;

R6 Test reports/summary forms FOR laboratory control samples (LCSs) including:
- a) LCS spiking amount,
- b) Calculated %R for each analyte, and
- c) The laboratory”s LCS QC limits.

R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
- a) Samples associated with the MS/MSD clearly identified,
- b) MS/MSD spiking amounts,
- c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
- d) Calculated %R and relative percent differences (RPDs), and
- e) The laboratory’s MS/MSD QC limits

R8 Laboratory analytical duplicate (if applicable) revocery and precision:
- a) the amount of analyte measured in the duplicate,
- b) the calculated RPD, and
- c) the laboratory’s QC limits for anlytical duplicates.

R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix;

R10 Other problems or anomalies.

The exception Report for every ”No” or ”Not Reviewed (NR)” item in laboratory review checklist.

Release statement: I am responsible for the release of this laboratory data package. This data package has been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exceptions reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratoy in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

Check, If applicable: [] This laboratory is an in-house laboratory controlled by the person repsonding to rule. The official signing the cover page of the rule-required report (for example, the APAR) in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is trus.

MAREN M. BEERY	Maren Beery	Metals Supervisor	August 18, 2009
Name (Printed)	Signature	Official Title (printed)	DATE

Microbac Laboratories Inc.
Laboratory Review Checklist

Laboratory Name: Microbac Laboratories Inc.
Laboratory Log Number: L09080179
Project Name: 798-LONGHORN
Method: 7471
Prep Batch Number(s): WG309804
Reviewer Name: MAREN M. BEERY
LRC Date: August 18, 2009

Description	Yes	No	NA(1)	NR(2)	ER(3)
Chain-Of-Custody (C-O-C)					
Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	✓				
Were all departures from standard conditions described in an exception report?	✓				
Sample and quality control (QC) identification					
Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	✓				
Are all laboratory ID numbers cross-referenced to the corresponding QC data?	✓				
Test reports					
Were all samples prepared and analyzed within holding times?	✓				
Other than those results <MQL, were all other raw values bracketed by calibration standards?	✓				
Were calculations checked by a peer or supervisor?	✓				
Were all analyte identifications checked by a peer or supervisor?	✓				
Were sample quantitation limits reported for all analytes not detected?	✓				
Were all results for soil and sediment samples reported on a dry weight basis?	✓				
Were % moisture (or solids) reported for all soil and sediment samples?	✓				
If required for the project, TICs reported?			✓		
Surrogate recovery data					
Were surrogates added prior to extraction?			✓		
Were surrogate percent recoveries in all samples within the laboratory QC limits?			✓		
Test reports/summary forms for blank samples					
Were appropriate type(s) of blanks analyzed?	✓				
Were blanks analyzed at the appropriate frequency?	✓				
Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	✓				
Were blank concentrations <RL?	✓				
Laboratory control samples (LCS):					
Were all COCs included in the LCS?	✓				
Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	✓				
Were LCSs analyzed at the required frequency?	✓				
Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	✓				
Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs?	✓				
Was the LCSD RPD within QC limits?			✓		
Matrix spike (MS) and matrix spike duplicate (MSD) data					
Were the project/method specified analytes included in the MS and MSD?			✓		
Were MS/MSD analyzed at the appropriate frequency?			✓		
Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			✓		

Description	Yes	No	NA(1)	NR(2)	ER(3)
Were MS/MSD RPDs within laboratory QC limits?			✓		
Analytical duplicate data					
Were appropriate analytical duplicates analyzed for each matrix?			✓		
Were analytical duplicates analyzed at the appropriate frequency?			✓		
Were RPDs or relative standard deviations within the laboratory QC limits?			✓		
Method quantitation limits (MQLs):					
Are the MQLs for each method analyte included in the laboratory data package?	✓				
Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	✓				
Are unadjusted MQLs included in the laboratory data package?	✓				
Other problems/anomalies					
Are all known problems/anomalies/special conditions noted in this LRC and ER?	✓				
Were all necessary corrective actions performed for the reported data?	✓				
Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	✓				
ICAL					
Were response factors and/or relative response factors for each analyte within QC limits?			✓		
Were percent RSDs or correlation coefficient criteria met?	✓				
Was the number of standards recommended in the method used for all analytes?	✓				
Were all points generated between the lowest and highest standard used to calculate the curve?	✓				
Are ICAL data available for all instruments used?	✓				
Has the initial calibration curve been verified using an appropriate second source standard?	✓				
Initial and continuing calibration verification (ICV and CCV) and continuing calibration blank (CCB):					
Was the CCV analyzed at the method-required frequency?	✓				
Were percent differences for each analyte within the method-required QC limits?	✓				
Was the ICAL curve verified for each analyte?	✓				
Was the absolute value of the analyte concentration in the inorganic CCB <RL?	✓				
Mass spectral tuning:					
Was the appropriate compound for the method used for tuning?			✓		
Were ion abundance data within the method-required QC limits?			✓		
Internal standards (IS):					
Were IS area counts and retention times within the method-required QC limits?			✓		
Raw data (NELAC section 1 appendix A glossary, and section 5.12 or ISO/IEC 17025 section 4.12.2)					
Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	✓				
Were data associated with manual integrations flagged on the raw data?			✓		
Dual column confirmation					
Did dual column confirmation results meet the method-required QC?			✓		
Tentatively identified compounds (TICs):					
If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			✓		
Interference Check Sample (ICS) results:					
Were percent recoveries within method QC limits?			✓		
Serial dilutions, post digestion spikes, and method of standard additions					
Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	✓				
Method detection limit (MDL) studies					
Was a MDL study performed for each reported analyte?	✓				
Is the MDL either adjusted or supported by the analysis of DCSs?	✓				
Proficiency test reports:					
Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	✓				

Description	Yes	No	NA(1)	NR(2)	ER(3)
Standards documentation					
Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	✓				
Compound/analyte identification procedures					
Are the procedures for compound/analyte identification documented?	✓				
Demonstration of analyst competency (DOC)					
Was DOC conducted consistent with NELAC Chapter 5C or ISO/IEC 4?	✓				
Is documentation of the analyst's competency up-to-date and on file?	✓				
Verification/validation documentation for methods (NELAC Chap 5 or ISO/IEC 17025 Section 5)					
Are all the methods used to generate the data documented, verified, and validated, where applicable?	✓				
Laboratory standard operating procedures (SOPs):					
Are laboratory SOPs current and on file for each method performed?	✓				

Microbac Laboratories Inc.
Laboratory Review Checklist

Laboratory Name: Microbac Laboratories Inc.
Laboratory Log Number: L09080179
Project Name: 798-LONGHORN
Method: 7471
Prep Batch Number(s): WG309804
Reviewer Name: MAREN M. BEERY
LRC Date: August 18, 2009

EXCEPTIONS REPORT
ER# - Description

Footnotes:
(1) NA = Not applicable to method or project
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MAREN M. BEERY	Maren Beery	Metals Supervisor	August 18, 2009
Name (Printed)	Signature	Official Title (printed)	DATE

RG-366/TRRP-13 December 2002 A1

Checklist ID: 40984

Microbac Laboratories Inc.

Laboratory Review Checklist

Laboratory Name: Microbac Laboratories Inc.
Laboratory Log Number: L09080179
Project Name: 798-LONGHORN
Method: 6010
Prep Batch Number(s): WG309777
Reviewer Name: MAREN M. BEERY
LRC Date: August 18, 2009

Description	Yes	No	NA(1)	NR(2)	ER(3)
Chain-Of-Custody (C-O-C)					
Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	✓				
Were all departures from standard conditions described in an exception report?	✓				
Sample and quality control (QC) identification					
Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	✓				
Are all laboratory ID numbers cross-referenced to the corresponding QC data?	✓				
Test reports					
Were all samples prepared and analyzed within holding times?	✓				
Other than those results <MQL, were all other raw values bracketed by calibration standards?			✓		
Were calculations checked by a peer or supervisor?	✓				
Were all analyte identifications checked by a peer or supervisor?	✓				
Were sample quantitation limits reported for all analytes not detected?	✓				
Were all results for soil and sediment samples reported on a dry weight basis?	✓				
Were % moisture (or solids) reported for all soil and sediment samples?	✓				
If required for the project, TICs reported?			✓		
Surrogate recovery data					
Were surrogates added prior to extraction?			✓		
Were surrogate percent recoveries in all samples within the laboratory QC limits?			✓		
Test reports/summary forms for blank samples					
Were appropriate type(s) of blanks analyzed?	✓				
Were blanks analyzed at the appropriate frequency?	✓				
Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	✓				
Were blank concentrations <RL?	✓				
Laboratory control samples (LCS):					
Were all COCs included in the LCS?	✓				
Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	✓				
Were LCSs analyzed at the required frequency?	✓				
Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	✓				
Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs?	✓				
Was the LCSD RPD within QC limits?			✓		
Matrix spike (MS) and matrix spike duplicate (MSD) data					
Were the project/method specified analytes included in the MS and MSD?			✓		
Were MS/MSD analyzed at the appropriate frequency?			✓		
Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			✓		

Description	Yes	No	NA(1)	NR(2)	ER(3)
Were MS/MSD RPDs within laboratory QC limits?			✓		
Analytical duplicate data					
Were appropriate analytical duplicates analyzed for each matrix?			✓		
Were analytical duplicates analyzed at the appropriate frequency?			✓		
Were RPDs or relative standard deviations within the laboratory QC limits?			✓		
Method quantitation limits (MQLs):					
Are the MQLs for each method analyte included in the laboratory data package?	✓				
Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	✓				
Are unadjusted MQLs included in the laboratory data package?	✓				
Other problems/anomalies					
Are all known problems/anomalies/special conditions noted in this LRC and ER?	✓				
Were all necessary corrective actions performed for the reported data?	✓				
Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	✓				
ICAL					
Were response factors and/or relative response factors for each analyte within QC limits?			✓		
Were percent RSDs or correlation coefficient criteria met?	✓				
Was the number of standards recommended in the method used for all analytes?	✓				
Were all points generated between the lowest and highest standard used to calculate the curve?	✓				
Are ICAL data available for all instruments used?	✓				
Has the initial calibration curve been verified using an appropriate second source standard?	✓				
Initial and continuing calibration verification (ICV and CCV) and continuing calibration blank (CCB):					
Was the CCV analyzed at the method-required frequency?	✓				
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Was the ICAL curve verified for each analyte?	✓				
Was the absolute value of the analyte concentration in the inorganic CCB <RL?	✓				
Mass spectral tuning:					
Was the appropriate compound for the method used for tuning?			✓		
Were ion abundance data within the method-required QC limits?			✓		
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Raw data (NELAC section 1 appendix A glossary, and section 5.12 or ISO/IEC 17025 section 4.12.2)					
Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	✓				
Were data associated with manual integrations flagged on the raw data?			✓		
Dual column confirmation					
Did dual column confirmation results meet the method-required QC?			✓		
Tentatively identified compounds (TICs):					
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Interference Check Sample (ICS) results:					
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Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	✓				
Method detection limit (MDL) studies					
Was a MDL study performed for each reported analyte?	✓				
Is the MDL either adjusted or supported by the analysis of DCSs?	✓				
Proficiency test reports:					
Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	✓				

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Standards documentation					
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Demonstration of analyst competency (DOC)					
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Laboratory Log Number: L09080179
Project Name: 798-LONGHORN
Method: 6010
Prep Batch Number(s): WG309777
Reviewer Name: MAREN M. BEERY
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R4 Surrogate recovery data including:
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DEANNA I. HESSON	Deanna Hesson	Conventional Lab Supervisor	August 18, 2009
Name (Printed)	Signature	Official Title (printed)	DATE

Microbac Laboratories Inc.
Laboratory Review Checklist

Laboratory Name: Microbac Laboratories Inc.
Laboratory Log Number: L09080179
Project Name: 798-LONGHORN
Method: PH
Prep Batch Number(s): WG309734
Reviewer Name: DEANNA I. HESSON
LRC Date: August 18, 2009

Description	Yes	No	NA(1)	NR(2)	ER(3)
Chain-Of-Custody (C-O-C)					
Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	✓				
Were all departures from standard conditions described in an exception report?	✓				
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Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	✓				
Are all laboratory ID numbers cross-referenced to the corresponding QC data?	✓				
Test reports					
Were all samples prepared and analyzed within holding times?	✓				
Other than those results <MQL, were all other raw values bracketed by calibration standards?	✓				
Were calculations checked by a peer or supervisor?	✓				
Were all analyte identifications checked by a peer or supervisor?			✓		
Were sample quantitation limits reported for all analytes not detected?			✓		
Were all results for soil and sediment samples reported on a dry weight basis?			✓		
Were % moisture (or solids) reported for all soil and sediment samples?			✓		
If required for the project, TICs reported?			✓		
Surrogate recovery data					
Were surrogates added prior to extraction?			✓		
Were surrogate percent recoveries in all samples within the laboratory QC limits?			✓		
Test reports/summary forms for blank samples					
Were appropriate type(s) of blanks analyzed?			✓		
Were blanks analyzed at the appropriate frequency?			✓		
Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?			✓		
Were blank concentrations <MQL?			✓		
Laboratory control samples (LCS):					
Were all COCs included in the LCS?	✓				
Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	✓				
Were LCSs analyzed at the required frequency?	✓				
Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	✓				
Does the detectability data document the laboratorys capability to detect the COCs at the MDL used to calculate the SQLs?			✓		
Was the LCSD RPD within QC limits?			✓		
Matrix spike (MS) and matrix spike duplicate (MSD) data					
Were the project/method specified analytes included in the MS and MSD?			✓		
Were MS/MSD analyzed at the appropriate frequency?			✓		
Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			✓		

Description	Yes	No	NA(1)	NR(2)	ER(3)
Were MS/MSD RPDs within laboratory QC limits?			✓		
Analytical duplicate data					
Were appropriate analytical duplicates analyzed for each matrix?	✓				
Were analytical duplicates analyzed at the appropriate frequency?	✓				
Were RPDs or relative standard deviations within the laboratory QC limits?	✓				
Method quantitation limits (MQLs):					
Are the MQLs for each method analyte included in the laboratory data package?			✓		
Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?			✓		
Are unadjusted MQLs included in the laboratory data package?			✓		
Other problems/anomalies					
Are all known problems/anomalies/special conditions noted in this LRC and ER?	✓				
Were all necessary corrective actions performed for the reported data?	✓				
Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?			✓		
Were response factors and/or relative response factors for each analyte within QC limits?			✓		
Were percent RSDs or correlation coefficient criteria met?			✓		
Was the number of standards recommended in the method used for all analytes?			✓		
Were all points generated between the lowest and highest standard used to calculate the curve?			✓		
Are ICAL data available for all instruments used?	✓				
Has the initial calibration curve been verified using an appropriate second source standard?	✓				
Initial and continuing calibration verification (ICV and CCV) and continuing calibration blank (CCB):					
Was the CCV analyzed at the method-required frequency?	✓				
Were percent differences for each analyte within the method-required QC limits?			✓		
Was the ICAL curve verified for each analyte?	✓				
Was the absolute value of the analyte concentration in the inorganic CCB <MDL?			✓		
Mass spectral tuning:					
Was the appropriate compound for the method used for tuning?			✓		
Were ion abundance data within the method-required QC limits?			✓		
Internal standards (IS):					
Were IS area counts and retention times within the method-required QC limits?			✓		
Raw data (NELAC section 1 appendix A glossary, and section 5.12 or ISO/IEC 17025 section 4.12.2)					
Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	✓				
Were data associated with manual integrations flagged on the raw data?			✓		
Dual column confirmation					
Did dual column confirmation results meet the method-required QC?			✓		
Tentatively identified compounds (TICs):					
If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			✓		
Interference Check Sample (ICS) results:					
Were percent recoveries within method QC limits?			✓		
Serial dilutions, post digestion spikes, and method of standard additions					
Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			✓		
Method detection limit (MDL) studies					
Was a MDL study performed for each reported analyte?			✓		
Is the MDL either adjusted or supported by the analysis of DCSs?			✓		
Proficiency test reports:					
Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?			✓		

Description	Yes	No	NA(1)	NR(2)	ER(3)
Standards documentation					
Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	✓				
Compound/analyte identification procedures					
Are the procedures for compound/analyte identification documented?	✓				
Demonstration of analyst competency (DOC)					
Was DOC conducted consistent with NELAC Chapter 5C or ISO/IEC 4?	✓				
Is documentation of the analyst's competency up-to-date and on file?	✓				
Verification/validation documentation for methods (NELAC Chap 5 or ISO/IEC 17025 Section 5)					
Are all the methods used to generate the data documented, verified, and validated, where applicable?	✓				
Laboratory standard operating procedures (SOPs):					
Are laboratory SOPs current and on file for each method performed?	✓				

Microbac Laboratories Inc.
Laboratory Review Checklist

Laboratory Name: Microbac Laboratories Inc.
Laboratory Log Number: L09080179
Project Name: 798-LONGHORN
Method: PH
Prep Batch Number(s): WG309734
Reviewer Name: DEANNA I. HESSON
LRC Date: August 18, 2009

EXCEPTIONS REPORT
ER# - Description
Footnotes:
(1) NA = Not applicable to method or project
(2) NR = Not reviewed
(3) ER# = Exception report number

Laboratory Data Package Cover Page

This data Package consists of:

- This signature page, the laboratory review checklists, and the following reportable data:
- R1 Field chain-of-custody documentation;
- R2 sample identification cross-reference;
- R3 Test reports (analytical data sheets) for each enviornmental sample that includes:
  - a) Items consistant with NELAC 5.13 or ISO/IEC 17025 Section 5.10
  - b) dilution factors,
  - c) preparation methods,
  - d) Cleanup methods, and
  - e) If required for the project, tentatively identified compounds (TICs)
- R4 Surrogate recovery data including:
  - a) Calculated recovery (%R) for each analyte, and
  - b) The laboratory's surrogate QC limits.
- R5 Test reports/summary forms for blank samples;
- R6 Test reports/summary forms FOR laboratory control samples (LCSs) including:
  - a) LCS spiking amount,
  - b) Calculated %R for each analyte, and
  - c) The laboratory"s LCS QC limits.
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - a) Samples associated with the MS/MSD clearly identified,
  - b) MS/MSD spiking amounts,
  - c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
  - d) Calculated %R and relative percent differences (RPDs), and
  - e) The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) revocery and precision:
  - a) the amount of analyte measured in the duplicate,
  - b) the calculated RPD, and
  - c) the laboratory's QC limits for anlytical duplicates.
- R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix;
- R10 Other problems or anomalies.
- The exception Report for every "No" or "Not Reviewed (NR)" item in laboratory review checklist.

Release statement: I am responsible for the release of this laboratory data package. This data package has been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exceptions reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratoy in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

Check, If applicable: [] This laboratory is an in-house laboratory controlled by the person repsonding to rule. The official signing the cover page of the rule-required report (for example, the APAR) in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is trus.

DEANNA I. HESSON	Deanna Hesson	Conventional Lab Supervisor	August 18, 2009
Name (Printed)	Signature	Official Title (printed)	DATE

Microbac Laboratories Inc.
Laboratory Review Checklist

Laboratory Name: Microbac Laboratories Inc.
Laboratory Log Number: L09080179
Project Name: 798-LONGHORN
Method: FLASHPOINT
Prep Batch Number(s): WG309849
Reviewer Name: DEANNA I. HESSON
LRC Date: August 18, 2009

Description	Yes	No	NA(1)	NR(2)	ER(3)
Chain-Of-Custody (C-O-C)					
Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	✓				
Were all departures from standard conditions described in an exception report?	✓				
Sample and quality control (QC) identification					
Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	✓				
Are all laboratory ID numbers cross-referenced to the corresponding QC data?	✓				
Test reports					
Were all samples prepared and analyzed within holding times?	✓				
Other than those results <MQL, were all other raw values bracketed by calibration standards?			✓		
Were calculations checked by a peer or supervisor?	✓				
Were all analyte identifications checked by a peer or supervisor?			✓		
Were sample quantitation limits reported for all analytes not detected?			✓		
Were all results for soil and sediment samples reported on a dry weight basis?			✓		
Were % moisture (or solids) reported for all soil and sediment samples?			✓		
If required for the project, TICs reported?			✓		
Surrogate recovery data					
Were surrogates added prior to extraction?			✓		
Were surrogate percent recoveries in all samples within the laboratory QC limits?			✓		
Test reports/summary forms for blank samples					
Were appropriate type(s) of blanks analyzed?	✓				
Were blanks analyzed at the appropriate frequency?	✓				
Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	✓				
Were blank concentrations <MQL?			✓		
Laboratory control samples (LCS):					
Were all COCs included in the LCS?	✓				
Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	✓				
Were LCSs analyzed at the required frequency?	✓				
Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	✓				
Does the detectability data document the laboratorys capability to detect the COCs at the MDL used to calculate the SQLs?			✓		
Was the LCSD RPD within QC limits?	✓				
Matrix spike (MS) and matrix spike duplicate (MSD) data					
Were the project/method specified analytes included in the MS and MSD?			✓		
Were MS/MSD analyzed at the appropriate frequency?			✓		
Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			✓		

Description	Yes	No	NA(1)	NR(2)	ER(3)
Were MS/MSD RPDs within laboratory QC limits?			✓		
Analytical duplicate data					
Were appropriate analytical duplicates analyzed for each matrix?	✓				
Were analytical duplicates analyzed at the appropriate frequency?	✓				
Were RPDs or relative standard deviations within the laboratory QC limits?	✓				
Method quantitation limits (MQLs):					
Are the MQLs for each method analyte included in the laboratory data package?			✓		
Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?			✓		
Are unadjusted MQLs included in the laboratory data package?			✓		
Other problems/anomalies					
Are all known problems/anomalies/special conditions noted in this LRC and ER?	✓				
Were all necessary corrective actions performed for the reported data?	✓				
Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?			✓		
Were response factors and/or relative response factors for each analyte within QC limits?			✓		
Were percent RSDs or correlation coefficient criteria met?			✓		
Was the number of standards recommended in the method used for all analytes?			✓		
Were all points generated between the lowest and highest standard used to calculate the curve?			✓		
Are ICAL data available for all instruments used?			✓		
Has the initial calibration curve been verified using an appropriate second source standard?			✓		
Initial and continuing calibration verification (ICV and CCV) and continuing calibration blank (CCB):					
Was the CCV analyzed at the method-required frequency?			✓		
Were percent differences for each analyte within the method-required QC limits?			✓		
Was the ICAL curve verified for each analyte?			✓		
Was the absolute value of the analyte concentration in the inorganic CCB <MDL?			✓		
Mass spectral tuning:					
Was the appropriate compound for the method used for tuning?			✓		
Were ion abundance data within the method-required QC limits?			✓		
Internal standards (IS):					
Were IS area counts and retention times within the method-required QC limits?			✓		
Raw data (NELAC section 1 appendix A glossary, and section 5.12 or ISO/IEC 17025 section 4.12.2)					
Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	✓				
Were data associated with manual integrations flagged on the raw data?			✓		
Dual column confirmation					
Did dual column confirmation results meet the method-required QC?			✓		
Tentatively identified compounds (TICs):					
If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			✓		
Interference Check Sample (ICS) results:					
Were percent recoveries within method QC limits?			✓		
Serial dilutions, post digestion spikes, and method of standard additions					
Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			✓		
Method detection limit (MDL) studies					
Was a MDL study performed for each reported analyte?			✓		
Is the MDL either adjusted or supported by the analysis of DCSs?			✓		
Proficiency test reports:					
Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?			✓		

Description	Yes	No	NA(1)	NR(2)	ER(3)
Standards documentation					
Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	✓				
Compound/analyte identification procedures					
Are the procedures for compound/analyte identification documented?	✓				
Demonstration of analyst competency (DOC)					
Was DOC conducted consistent with NELAC Chapter 5C or ISO/IEC 4?	✓				
Is documentation of the analyst's competency up-to-date and on file?	✓				
Verification/validation documentation for methods (NELAC Chap 5 or ISO/IEC 17025 Section 5)					
Are all the methods used to generate the data documented, verified, and validated, where applicable?	✓				
Laboratory standard operating procedures (SOPs):					
Are laboratory SOPs current and on file for each method performed?	✓				

Microbac Laboratories Inc.

Laboratory Review Checklist

Laboratory Name:	Microbac Laboratories Inc.
Laboratory Log Number:	L09080179
Project Name:	798-LONGHORN
Method:	FLASHPOINT
Prep Batch Number(s):	WG309849
Reviewer Name:	DEANNA I. HESSON
LRC Date:	August 18, 2009

EXCEPTIONS REPORT

ER# - Description

Footnotes:

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(3) ER# = Exception report number

Laboratory Data Package Cover Page

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  - b) dilution factors,
  - c) preparation methods,
  - d) Cleanup methods, and
  - e) If required for the project, tentatively identified compounds (TICs)

R4 Surrogate recovery data including:
  - a) Calculated recovery (%R) for each analyte, and
  - b) The laboratory's surrogate QC limits.

R5 Test reports/summary forms for blank samples;

R6 Test reports/summary forms FOR laboratory control samples (LCSs) including:
  - a) LCS spiking amount,
  - b) Calculated %R for each analyte, and
  - c) The laboratory"s LCS QC limits.

R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - a) Samples associated with the MS/MSD clearly identified,
  - b) MS/MSD spiking amounts,
  - c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
  - d) Calculated %R and relative percent differences (RPDs), and
  - e) The laboratory's MS/MSD QC limits

R8 Laboratory analytical duplicate (if applicable) revocery and precision:
  - a) the amount of analyte measured in the duplicate,
  - b) the calculated RPD, and
  - c) the laboratory's QC limits for anlytical duplicates.

R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix;

R10 Other problems or anomalies.

The exception Report for every "No" or "Not Reviewed (NR)" item in laboratory review checklist.

Release statement: I am responsible for the release of this laboratory data package. This data package has been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exceptions reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratoy in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

Check, If applicable: [] This laboratory is an in-house laboratory controlled by the person repsonding to rule. The official signing the cover page of the rule-required report (for example, the APAR) in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is trus.

DEANNA I. HESSON	Deanna Hesson	Conventional Lab Supervisor	August 18, 2009
Name (Printed)	Signature	Official Title (printed)	DATE

Checklist ID: 40959

Microbac Laboratories Inc.
Laboratory Review Checklist

Laboratory Name: Microbac Laboratories Inc.
Laboratory Log Number: L09080179
Project Name: 798-LONGHORN
Method: REACTIVITY
Prep Batch Number(s): WG309684, WG309685
Reviewer Name: DEANNA I. HESSON
LRC Date: August 18, 2009

Description	Yes	No	NA(1)	NR(2)	ER(3)
Chain-Of-Custody (C-O-C)					
Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	✓				
Were all departures from standard conditions described in an exception report?	✓				
Sample and quality control (QC) identification					
Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	✓				
Are all laboratory ID numbers cross-referenced to the corresponding QC data?	✓				
Test reports					
Were all samples prepared and analyzed within holding times?	✓				
Other than those results <MQL, were all other raw values bracketed by calibration standards?	✓				
Were calculations checked by a peer or supervisor?	✓				
Were all analyte identifications checked by a peer or supervisor?	✓				
Were sample quantitation limits reported for all analytes not detected?	✓				
Were all results for soil and sediment samples reported on a dry weight basis?			✓		
Were % moisture (or solids) reported for all soil and sediment samples?			✓		
If required for the project, TICs reported?			✓		
Surrogate recovery data					
Were surrogates added prior to extraction?			✓		
Were surrogate percent recoveries in all samples within the laboratory QC limits?			✓		
Test reports/summary forms for blank samples					
Were appropriate type(s) of blanks analyzed?			✓		
Were blanks analyzed at the appropriate frequency?			✓		
Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?			✓		
Were blank concentrations <MQL?			✓		
Laboratory control samples (LCS):					
Were all COCs included in the LCS?	✓				
Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	✓				
Were LCSs analyzed at the required frequency?	✓				
Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?			✓		
Does the detectability data document the laboratorys capability to detect the COCs at the MDL used to calculate the SQLs?	✓		✓		
Was the LCSD RPD within QC limits?			✓		
Matrix spike (MS) and matrix spike duplicate (MSD) data					
Were the project/method specified analytes included in the MS and MSD?			✓		
Were MS/MSD analyzed at the appropriate frequency?			✓		
Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			✓		

Description	Yes	No	NA(1)	NR(2)	ER(3)
Were MS/MSD RPDs within laboratory QC limits?			✓		
Analytical duplicate data					
Were appropriate analytical duplicates analyzed for each matrix?	✓				
Were analytical duplicates analyzed at the appropriate frequency?	✓				
Were RPDs or relative standard deviations within the laboratory QC limits?	✓				
Method quantitation limits (MQLs):					
Are the MQLs for each method analyte included in the laboratory data package?			✓		
Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?			✓		
Are unadjusted MQLs included in the laboratory data package?			✓		
Other problems/anomalies					
Are all known problems/anomalies/special conditions noted in this LRC and ER?	✓				
Were all necessary corrective actions performed for the reported data?	✓				
Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?			✓		
Were response factors and/or relative response factors for each analyte within QC limits?			✓		
Were percent RSDs or correlation coefficient criteria met?			✓		
Was the number of standards recommended in the method used for all analytes?	✓				
Were all points generated between the lowest and highest standard used to calculate the curve?	✓				
Are ICAL data available for all instruments used?	✓				
Has the initial calibration curve been verified using an appropriate second source standard?	✓				
Initial and continuing calibration verification (ICV and CCV) and continuing calibration blank (CCB):					
Was the CCV analyzed at the method-required frequency?	✓				
Were percent differences for each analyte within the method-required QC limits?			✓		
Was the ICAL curve verified for each analyte?	✓				
Was the absolute value of the analyte concentration in the inorganic CCB <MDL?			✓		
Mass spectral tuning:					
Was the appropriate compound for the method used for tuning?			✓		
Were ion abundance data within the method-required QC limits?			✓		
Internal standards (IS):					
Were IS area counts and retention times within the method-required QC limits?			✓		
Raw data (NELAC section 1 appendix A glossary, and section 5.12 or ISO/IEC 17025 section 4.12.2)					
Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	✓				
Were data associated with manual integrations flagged on the raw data?			✓		
Dual column confirmation					
Did dual column confirmation results meet the method-required QC?			✓		
Tentatively identified compounds (TICs):					
If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			✓		
Interference Check Sample (ICS) results:					
Were percent recoveries within method QC limits?			✓		
Serial dilutions, post digestion spikes, and method of standard additions					
Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			✓		
Method detection limit (MDL) studies					
Was a MDL study performed for each reported analyte?			✓		
Is the MDL either adjusted or supported by the analysis of DCSs?			✓		
Proficiency test reports:					
Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?			✓		

Description	Yes	No	NA(1)	NR(2)	ER(3)
Standards documentation					
Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	✓				
Compound/analyte identification procedures					
Are the procedures for compound/analyte identification documented?	✓				
Demonstration of analyst competency (DOC)					
Was DOC conducted consistent with NELAC Chapter 5C or ISO/IEC 4?	✓				
Is documentation of the analyst's competency up-to-date and on file?	✓				
Verification/validation documentation for methods (NELAC Chap 5 or ISO/IEC 17025 Section 5)					
Are all the methods used to generate the data documented, verified, and validated, where applicable?	✓				
Laboratory standard operating procedures (SOPs):					
Are laboratory SOPs current and on file for each method performed?	✓				

Microbac Laboratories Inc.

Laboratory Review Checklist

Laboratory Name:	Microbac Laboratories Inc.
Laboratory Log Number:	L09080179
Project Name:	798-LONGHORN
Method:	REACTIVITY
Prep Batch Number(s):	WG309684, WG309685
Reviewer Name:	DEANNA I. HESSON
LRC Date:	August 18, 2009

EXCEPTIONS REPORT

ER# - Description

Footnotes:

(1) NA = Not applicable to method or project

(2) NR = Not reviewed

(3) ER# = Exception report number

2.1 Metals Data

2.1.1 Metals I C P Data

2.1.1.1 Summary Data

LABORATORY REPORT

L09080179

08/19/09 09:24

Submitted By

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

For

Account Name: Shaw E & I, Inc.
ABB Lummus Biulding
3010 Briarpark Drive Suite 4N
Houston, TX 77042
Attention: Jennifer Hoang

Project Number: 2773.025
Project: Longhorn AAP
Site: LONGHORN AAP KARNACK TX

P.O. Number: 389869/ 390836(GWTP)

Sample Analysis Summary

Client ID	Lab ID	Method	Dilution	Date Received
PRR0628GR	L09080179-01	6010B	1	08-AUG-09
PRR0959GR	L09080179-02	6010B	1	08-AUG-09
PRR0766GR	L09080179-03	6010B	1	08-AUG-09
PRR01022GR	L09080179-04	6010B	1	08-AUG-09
PRR01111GR	L09080179-05	6010B	1	08-AUG-09
PRR01113GR	L09080179-06	6010B	1	08-AUG-09
PRR0542GR	L09080179-07	6010B	1	08-AUG-09
PRR0674GR	L09080179-08	6010B	1	08-AUG-09

L1_A_PROD - Modified 03/06/2008
PDF File ID: 1468635
Report generated: 08/19/2009 09:24

1 OF 1

Report Number: **L09080179**
Report Date : **August 19, 2009**

Sample Number: **L09080179-01**
Client ID: **PRR0628GR**
Matrix: **Leachate**
Workgroup Number: **WG309827**
Collect Date: **08/07/2009 13:15**
Sample Tag: **01**

PrePrep Method: **1311**
Prep Method: **3015**
Analytical Method: **6010B**
Analyst: **PDM**
Dilution: **1**
Units: **mg/L**

Instrument **PE-ICP2**
Prep Date: **08/17/2009 07:19**
Cal Date: **08/17/2009 10:04**
Run Date **08/17/2009 13:08**
File ID: **P2.081709.130849**

Analyte	CAS.Number	Result	Qual	PQL	SDL	EPA HW#	Reg. Limit
Arsenic, TCLP	7440-38-2		U	1	.1	D004	5
Barium, TCLP	7440-39-3	1.06		.1	.025	D005	100
Cadmium, TCLP	7440-43-9		U	.1	.025	D006	1
Chromium, TCLP	7440-47-3		U	.2	.025	D007	5
Lead, TCLP	7439-92-1	0.485	J	1	.1	D008	5
Selenium, TCLP	7782-49-2		U	.8	.4	D010	1
Silver, TCLP	7440-22-4		U	.1	.05	D011	5

U Not detected at or above adjusted sample detection limit
J The analyte was positively identified, but the quantitation was below the RL

Report Number: **L09080179**
Report Date : **August 19, 2009**

Sample Number: **L09080179-02**
Client ID: **PRR0959GR**
Matrix: **Leachate**
Workgroup Number: **WG309827**
Collect Date: **08/07/2009 13:20**
Sample Tag: **01**

PrePrep Method: **1311**
Prep Method: **3015**
Analytical Method: **6010B**
Analyst: **PDM**
Dilution: **1**
Units: **mg/L**

Instrument **PE-ICP2**
Prep Date: **08/17/2009 07:19**
Cal Date: **08/17/2009 10:04**
Run Date **08/17/2009 13:15**
File ID: **P2.081709.131527**

Analyte	CAS.Number	Result	Qual	PQL	SDL	EPA HW#	Reg. Limit
Arsenic, TCLP	7440-38-2		U	1	.1	D004	5
Barium, TCLP	7440-39-3	0.900		.1	.025	D005	100
Cadmium, TCLP	7440-43-9		U	.1	.025	D006	1
Chromium, TCLP	7440-47-3		U	.2	.025	D007	5
Lead, TCLP	7439-92-1	0.541	J	1	.1	D008	5
Selenium, TCLP	7782-49-2		U	.8	.4	D010	1
Silver, TCLP	7440-22-4		U	.1	.05	D011	5

U Not detected at or above adjusted sample detection limit
J The analyte was positively identified, but the quantitation was below the RL

Report Number: **L09080179**
Report Date : **August 19, 2009**

Sample Number: **L09080179-03**
Client ID: **PRR0766GR**
Matrix: **Leachate**
Workgroup Number: **WG309827**
Collect Date: **08/07/2009 13:25**
Sample Tag: **01**

PrePrep Method: **1311**
Prep Method: **3015**
Analytical Method: **6010B**
Analyst: **PDM**
Dilution: **1**
Units: **mg/L**

Instrument **PE-ICP2**
Prep Date: **08/17/2009 07:19**
Cal Date: **08/17/2009 10:04**
Run Date **08/17/2009 13:22**
File ID: **P2.081709.132214**

Analyte	CAS.Number	Result	Qual	PQL	SDL	EPA HW#	Reg. Limit
Arsenic, TCLP	7440-38-2		U	1	.1	D004	5
Barium, TCLP	7440-39-3	1.12		.1	.025	D005	100
Cadmium, TCLP	7440-43-9		U	.1	.025	D006	1
Chromium, TCLP	7440-47-3		U	.2	.025	D007	5
Lead, TCLP	7439-92-1	0.488	J	1	.1	D008	5
Selenium, TCLP	7782-49-2		U	.8	.4	D010	1
Silver, TCLP	7440-22-4		U	.1	.05	D011	5

U Not detected at or above adjusted sample detection limit
J The analyte was positively identified, but the quantitation was below the RL

Sample Number:**L09080179-04**	PrePrep Method:**1311**	Instrument**PE-ICP2**
Client ID:**PRR01022GR**	Prep Method:**3015**	Prep Date:**08/17/2009 07:19**
Matrix:**Leachate**	Analytical Method:**6010B**	Cal Date:**08/17/2009 10:04**
Workgroup Number:**WG309827**	Analyst:**PDM**	Run Date**08/17/2009 13:55**
Collect Date:**08/07/2009 13:30**	Dilution:**1**	File ID:**P2.081709.135530**
Sample Tag:**01**	Units:**mg/L**	

Analyte	CAS.Number	Result	Qual	PQL	SDL	EPA HW#	Reg. Limit
Arsenic, TCLP	7440-38-2		U	1	.1	D004	5
Barium, TCLP	7440-39-3	1.19		.1	.025	D005	100
Cadmium, TCLP	7440-43-9		U	.1	.025	D006	1
Chromium, TCLP	7440-47-3		U	.2	.025	D007	5
Lead, TCLP	7439-92-1	1.45		1	.1	D008	5
Selenium, TCLP	7782-49-2		U	.8	.4	D010	1
Silver, TCLP	7440-22-4		U	.1	.05	D011	5

U Not detected at or above adjusted sample detection limit

Report Number: **L09080179**
Report Date : **August 19, 2009**

Sample Number:	**L09080179-05**	PrePrep Method:	**1311**	Instrument	**PE-ICP2**
Client ID:	**PRR01111GR**	Prep Method:	**3015**	Prep Date:	**08/17/2009 07:19**
Matrix:	**Leachate**	Analytical Method:	**6010B**	Cal Date:	**08/17/2009 10:04**
Workgroup Number:	**WG309827**	Analyst:	**PDM**	Run Date	**08/17/2009 14:02**
Collect Date:	**08/07/2009 13:35**	Dilution:	**1**	File ID:	**P2.081709.140213**
Sample Tag:	**01**	Units:	**mg/L**		

Analyte	CAS.Number	Result	Qual	PQL	SDL	EPA HW#	Reg. Limit
Arsenic, TCLP	7440-38-2		U	1	.1	D004	5
Barium, TCLP	7440-39-3	1.26		.1	.025	D005	100
Cadmium, TCLP	7440-43-9		U	.1	.025	D006	1
Chromium, TCLP	7440-47-3		U	.2	.025	D007	5
Lead, TCLP	7439-92-1	17.4		1	.1	D008	5
Selenium, TCLP	7782-49-2		U	.8	.4	D010	1
Silver, TCLP	7440-22-4		U	.1	.05	D011	5

U Not detected at or above adjusted sample detection limit

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Sample Number:L09080179-06
Client ID:PRR01113GR
Matrix:Leachate
Workgroup Number:WG309827
Collect Date:08/07/2009 13:40
Sample Tag:01

PrePrep Method:1311
Prep Method:3015
Analytical Method:6010B
Analyst:PDM
Dilution:1
Units:mg/L

Instrument PE-ICP2
Prep Date:08/17/2009 07:19
Cal Date:08/17/2009 10:04
Run Date 08/17/2009 14:08
File ID:P2.081709.140855

Analyte	CAS.Number	Result	Qual	PQL	SDL	EPA HW#	Reg. Limit
Arsenic, TCLP	7440-38-2		U	1	.1	D004	5
Barium, TCLP	7440-39-3	1.25		.1	.025	D005	100
Cadmium, TCLP	7440-43-9		U	.1	.025	D006	1
Chromium, TCLP	7440-47-3		U	.2	.025	D007	5
Lead, TCLP	7439-92-1	38.0		1	.1	D008	5
Selenium, TCLP	7782-49-2		U	.8	.4	D010	1
Silver, TCLP	7440-22-4		U	.1	.05	D011	5

U Not detected at or above adjusted sample detection limit

Report Number: **L09080179**
Report Date : **August 19, 2009**

Sample Number:	**L09080179-07**	PrePrep Method:	**1311**	Instrument	**PE-ICP2**
Client ID:	**PRR0542GR**	Prep Method:	**3015**	Prep Date:	**08/17/2009 07:19**
Matrix:	**Leachate**	Analytical Method:	**6010B**	Cal Date:	**08/17/2009 10:04**
Workgroup Number:	**WG309827**	Analyst:	**PDM**	Run Date	**08/17/2009 14:15**
Collect Date:	**08/07/2009 13:50**	Dilution:	**1**	File ID:	**P2.081709.141533**
Sample Tag:	**01**	Units:	**mg/L**		

Analyte	CAS.Number	Result	Qual	PQL	SDL	EPA HW#	Reg. Limit
Arsenic, TCLP	7440-38-2		U	1	.1	D004	5
Barium, TCLP	7440-39-3	1.05		.1	.025	D005	100
Cadmium, TCLP	7440-43-9		U	.1	.025	D006	1
Chromium, TCLP	7440-47-3		U	.2	.025	D007	5
Lead, TCLP	7439-92-1	0.482	J	1	.1	D008	5
Selenium, TCLP	7782-49-2		U	.8	.4	D010	1
Silver, TCLP	7440-22-4		U	.1	.05	D011	5

U Not detected at or above adjusted sample detection limit
J The analyte was positively identified, but the quantitation was below the RL

Sample Number:L09080179-08
Client ID:PRR0674GR
Matrix:Leachate
Workgroup Number:WG309827
Collect Date:08/07/2009 13:55
Sample Tag:01

PrePrep Method:1311
Prep Method:3015
Analytical Method:6010B
Analyst:PDM
Dilution:1
Units:mg/L

Instrument PE-ICP2
Prep Date:08/17/2009 07:19
Cal Date:08/17/2009 10:04
Run Date 08/17/2009 14:22
File ID:P2.081709.142219

Analyte	CAS.Number	Result	Qual	PQL	SDL	EPA HW#	Reg. Limit
Arsenic, TCLP	7440-38-2		U	1	.1	D004	5
Barium, TCLP	7440-39-3	1.03		.1	.025	D005	100
Cadmium, TCLP	7440-43-9		U	.1	.025	D006	1
Chromium, TCLP	7440-47-3		U	.2	.025	D007	5
Lead, TCLP	7439-92-1	23.5		1	.1	D008	5
Selenium, TCLP	7782-49-2		U	.8	.4	D010	1
Silver, TCLP	7440-22-4		U	.1	.05	D011	5

U Not detected at or above adjusted sample detection limit

2.1.1.2 QC Summary Data

Example 6010 Calculations
Perkin Elmer Optima 4300 DV

1.0 Initial Calibration (ICAL) Parameters

The system performs linear regression from data consisting of a blank and three standards.

2.0 Calculating the concentration (C) of an element in water using data from prep log, run log, and quantitation report (note:the data system performs this calculation automatically when correction factors have been entered):

$$Cx = Cs \times \frac{Vf}{Vi} \times D$$

Where:	**Example:**
Cs = Concentration computed by the data system in ug/mL (ppm)	0.1
Vf = Final volume (mL)	50
Vi = Initial volume (mL)	50
D = Dilution factor as a multiplier (10X = 10)	1
Cx = Concentration of element in ug/mL (mg/L)	0.1

3.0 Calculating the concentration (C) of an element in soil using data from prep log, run log, and quantitation report (note: the data system performs this calculation automatically when correction factors have been entered):

$$Cx = Cs \times \frac{Vf}{Vi} \times D$$

Where:	**Example:**
Cs = Concentration computed by the data system (mg/L) (ppm)	0.1
Vf = Final volume (mL)	50
Vi = Initial weight (g)	1
D = Dilution factor as a multiplier (10X = 10)	1
Cx = Concentration of element in ug/g (mg/kg)	5

4.0 Adjusting the concentration to dry weight:

$$Cdry = \frac{Cx \times 100}{Px}$$

Where:	**Example:**
Cx = Concentration calculated as received (wet basis)	5
Px = Percent solids of sample (%wt)	80
$Cdry$ = Concentration calculated as dry weight (mg/kg)	6.25

Example 6010 Calculations
Thermo Scientific IRIS Advantage

1.0 Initial Calibration (ICAL) Parameters

The system performs linear regression from data consisting of a blank and three standards.

2.0 Calculating the concentration (C) of an element in water using data from prep log, run log, and quantitation report (note:the data system performs this calculation automatically when correction factors have been entered):

$$Cx = Cs \times \frac{Vf}{Vi} \times D$$

Where:	**Example:**
Cs = Concentration computed by the data system in ug/mL (ppm)	0.1
Vf = Final volume (mL)	50
Vi = Initial volume (mL)	50
D = Dilution factor as a multiplier (10X = 10)	1
Cx = Concentration of element in ug/mL (mg/L)	0.1

3.0 Calculating the concentration (C) of an element in soil using data from prep log, run log, and quantitation report (note: the data system performs this calculation automatically when correction factors have been entered):

$$Cx = Cs \times \frac{Vf}{Vi} \times D$$

Where:	**Example:**
Cs = Concentration computed by the data system (mg/L) (ppm)	0.1
Vf = Final volume (mL)	50
Vi = Initial weight (g)	1
D = Dilution factor as a multiplier (10X = 10)	1
Cx = Concentration of element in ug/g (mg/kg)	5

4.0 Adjusting the concentration to dry weight:

$$Cdry = \frac{Cx \times 100}{Px}$$

Where:	**Example:**
Cx = Concentration calculated as received (wet basis)	5
Px = Percent solids of sample (%wt)	80
$Cdry$ = Concentration calculated as dry weight (mg/kg)	6.25

Example 6010 Calculations
Thermo Scientific iCAP 6500

1.0 Initial Calibration (ICAL) Parameters

The system performs linear regression from data consisting of a blank and four standards.

2.0 Calculating the concentration (C) of an element in water using data from prep log, run log, and quantitation report (note:the data system performs this calculation automatically when correction factors have been entered):

$$Cx = Cs \times \frac{Vf}{Vi} \times D$$

Where:	**Example:**
Cs = Concentration computed by the data system in ug/mL (ppm)	0.1
Vf = Final volume (mL)	50
Vi = Initial volume (mL)	50
D = Dilution factor as a multiplier (10X = 10)	1
Cx = Concentration of element in ug/mL (mg/L)	0.1

3.0 Calculating the concentration (C) of an element in soil using data from prep log, run log, and quantitation report (note: the data system performs this calculation automatically when correction factors have been entered):

$$Cx = Cs \times \frac{Vf}{Vi} \times D$$

Where:	**Example:**
Cs = Concentration computed by the data system (mg/L) (ppm)	0.1
Vf = Final volume (mL)	50
Vi = Initial weight (g)	1
D = Dilution factor as a multiplier (10X = 10)	1
Cx = Concentration of element in ug/g (mg/kg)	5

4.0 Adjusting the concentration to dry weight:

$$Cdry = \frac{Cx \times 100}{Px}$$

Where:	**Example:**
Cx = Concentration calculated as received (wet basis)	5
Px = Percent solids of sample (%wt)	80
$Cdry$ = Concentration calculated as dry weight (mg/kg)	6.25

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TCLP Non-Volatile

nalyst(s): Rwc
ate: 8-14-09

Analyst/Date		Analyst/Date	
Rwc 8-14-09		Rwc 8-15-09	
Time On	Temp On °C	Time Off	Temp Off °C
1400	23	715	23

Jug #	Sample #	Tests	Method	Fluid #	Matrix*	%Solid	Size Reduction Yes	Size Reduction No	Int. Wt. (g)	Fluid Vol. (mL)
D	08-0145-01	ME	1311	F1-759	SS	100		✓	100.06	2000
D	02								100.01	
D	03								100.05	
D	04								100.05	
D	05								100.00	
D	06								100.04	
D	08-179-01								100.06	
D	02								100.01	
D	03	SPK							100.03	
D	04								100.03	
D	05								100.02	
D	06								100.07	
D	07								100.04	
D	08								100.00	
N/A	FBLK				N/A	N/A			2000	

RWC 8-14-09

*Matrix Code = (S-solid) (SS-sand, soil or sludge) (P-paint) (O-organic) (W-water or waste)
Agitator speed is 30 ± 2 rpm unless otherwise noted.

Comments: ______________________

Peer Review By: ______________________ Supervisor Review: ______________________

Microbac Laboratories Inc.
Microwave Digestion Log

Workgroup: WG309777

Analyst: VC

Spike Analyst: VC

Run Date: 08/17/2009 07:19

Method: 3015

SOP: ME407 Revison 10

Spike Solution: STD34340

Spike Witness: REK

HNO3 Lot #: COA13945

Digest tubes Lot #: COA14013

	SAMPLE #	Type	Matrix	Initial Amount	Final Volume	Initial Vessel Wt	Final Vessel Wt	Spike Amount	Due Date
1	WG309777-02	BLANK	17	5 mL	50 mL	203.295 g	203.279 g		
2	WG309732-01	FBLK	17	5 mL	50 mL	203.961 g	203.939 g		
3	WG309777-03	LCS	17	5 mL	50 mL	210.778 g	210.762 g	5 mL	
4	L09080145-01	SAMP	17	5 mL	50 mL	210.566 g	210.56 g		08/18/09
5	L09080145-02	SAMP	17	5 mL	50 mL	210.771 g	210.752 g		08/18/09
6	L09080145-03	SAMP	17	5 mL	50 mL	209.95 g	209.923 g		08/18/09
7	L09080145-04	SAMP	17	5 mL	50 mL	211.656 g	211.636 g		08/18/09
8	L09080145-05	SAMP	17	5 mL	50 mL	211.004 g	210.996 g		08/18/09
9	L09080145-06	SAMP	17	5 mL	50 mL	209.847 g	209.828 g		08/18/09
10	L09080179-01	SAMP	17	5 mL	50 mL	211.384 g	211.359 g		08/18/09
11	L09080179-02	SAMP	17	5 mL	50 mL	210.578 g	210.564 g		08/18/09
12	WG309777-01	REF	17	5 mL	50 mL	210.734 g	210.72 g		
13	L09080179-03	SAMP	17	5 mL	50 mL	210.734 g	210.72 g		08/18/09
14	L09080179-04	SAMP	17	5 mL	50 mL	208.236 g	208.226 g		08/18/09
15	L09080179-05	SAMP	17	5 mL	50 mL	209.114 g	209.097 g		08/18/09
16	L09080179-06	SAMP	17	5 mL	50 mL	209.537 g	209.528 g		08/18/09
17	L09080179-07	SAMP	17	5 mL	50 mL	212.193 g	212.177 g		08/18/09
18	L09080179-08	SAMP	17	5 mL	50 mL	210.148 g	210.132 g		08/18/09
19	WG309777-04	MS	17	5 mL	50 mL	211.357 g	211.335 g	5 mL	
20	WG309777-05	MSD	17	5 mL	50 mL	211.886 g	211.872 g	5 mL	

Analyst: Vicki Collins

Reviewer:

MW_DIG - Modified 07/02/2008

PDF ID: 1466334

Report generated: 08/17/2009 08:33

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Run Log ID: **29647**

Microbac Laboratories Inc.

Instrument Run Log

Instrument: PE-ICP2
Dataset: 081709HR.CSV
Analyst1: PDM
Analyst2: N/A
Method: 6010B
SOP: ME600E
Rev: 10
Maintenance Log ID: 29811

Calibration Std: STD34504
ICV/CCV Std: STD34469
Post Spike: STD34340
ICSA: STD34193
ICSAB: STD34508
Int. Std: STD34683

Workgroups: 309827,309847,309846

Comments:

Seq.	File ID	Sample	ID	Prep	Dil	Reference	Date/Time
1	P2.081709.093742	WG309865-01	Calibration Point		1		08/17/09 09:37
2	P2.081709.094421	WG309865-02	Calibration Point		1		08/17/09 09:44
3	P2.081709.095100	WG309865-03	Calibration Point		1		08/17/09 09:51
4	P2.081709.095739	WG309865-04	Calibration Point		1		08/17/09 09:57
5	P2.081709.100415	WG309865-05	Calibration Point		1		08/17/09 10:04
6	P2.081709.101007	WG309865-06	ICV 2nd Vendor		1		08/17/09 10:10
7	P2.081709.101607	WG309865-07	Initial Calibration Verification		1		08/17/09 10:16
8	P2.081709.102245	WG309865-08	Initial Calib Blank		1		08/17/09 10:22
9	P2.081709.102928	WG309865-09	Interference Check		1		08/17/09 10:29
10	P2.081709.103508	WG309865-10	Interference Check		1		08/17/09 10:35
11	P2.081709.104049	WG309865-11	CCV		1		08/17/09 10:40
12	P2.081709.104727	WG309865-12	CCB		1		08/17/09 10:47
13	P2.081709.112842	WG309865-13	CCV		1		08/17/09 11:28
14	P2.081709.113519	WG309865-14	CCB		1		08/17/09 11:35
15	P2.081709.114155	WG309777-02	Method/Prep Blank	5/50	1		08/17/09 11:41
16	P2.081709.114833	WG309777-03	Laboratory Control S	5/50	1		08/17/09 11:48
17	P2.081709.115508	WG309732-01	Fluid Blank		1		08/17/09 11:55
18	P2.081709.120151	L09080145-01	PRR0758GR	5/50	1		08/17/09 12:01
19	P2.081709.120840	WG309827-01	Post Digestion Spike		1	L09080145-01	08/17/09 12:08
20	P2.081709.121514	WG309827-02	Serial Dilution		5	L09080145-01	08/17/09 12:15
21	P2.081709.122159	L09080145-02	PRR0859GR	5/50	1		08/17/09 12:21
22	P2.081709.122836	L09080145-03	PRR0731GR	5/50	1		08/17/09 12:28
23	P2.081709.123518	L09080145-04	PRR0906GR	5/50	1		08/17/09 12:35
24	P2.081709.124203	L09080145-05	PRR01096GR	5/50	1		08/17/09 12:42
25	P2.081709.124847	WG309865-15	CCV		1		08/17/09 12:48
26	P2.081709.125526	WG309865-16	CCB		1		08/17/09 12:55
27	P2.081709.130205	L09080145-06	PRR0701GR	5/50	1		08/17/09 13:02
28	P2.081709.130849	L09080179-01	PRR0628GR	5/50	1		08/17/09 13:08
29	P2.081709.131527	L09080179-02	PRR0959GR	5/50	1		08/17/09 13:15
30	P2.081709.132214	WG309777-01	Reference Sample		1	L09080179-03	08/17/09 13:22
31	P2.081709.132856	WG309777-04	Matrix Spike	5/50	1	L09080179-03	08/17/09 13:28
32	P2.081709.133531	WG309777-05	Matrix Spike Duplica	5/50	1	L09080179-03	08/17/09 13:35
33	P2.081709.134213	WG309865-17	CCV		1		08/17/09 13:42
34	P2.081709.134851	WG309865-18	CCB		1		08/17/09 13:48
35	P2.081709.135530	L09080179-04	PRR01022GR	5/50	1		08/17/09 13:55
36	P2.081709.140213	L09080179-05	PRR01111GR	5/50	1		08/17/09 14:02
37	P2.081709.140855	L09080179-06	PRR01113GR	5/50	1		08/17/09 14:08

Page: 1

Approved: August 18, 2009

Maren Beery

Microbac®

Microbac Laboratories Inc.

Instrument Run Log

Instrument: PE-ICP2
Dataset: 081709HR.CSV
Analyst1: PDM
Analyst2: N/A
Method: 6010B
SOP: ME600E
Rev: 10
Maintenance Log ID: 29811

Calibration Std: STD34504
ICV/CCV Std: STD34469
Post Spike: STD34340
ICSA: STD34193
ICSAB: STD34508
Int. Std: STD34683

Workgroups: 309827,309847,309846

Comments:

Seq.	File ID	Sample	ID	Prep	Dil	Reference	Date/Time
38	P2.081709.141533	L09080179-07	PRR0542GR	5/50	1		08/17/09 14:15
39	P2.081709.142219	L09080179-08	PRR0674GR	5/50	1		08/17/09 14:22
40	P2.081709.142903	WG309865-19	CCV		1		08/17/09 14:29
41	P2.081709.143542	WG309865-20	CCB		1		08/17/09 14:35
42	P2.081709.144116	WG309796-02	Method/Prep Blank	50/50	1		08/17/09 14:41
43	P2.081709.144753	WG309796-03	Laboratory Control S	50/50	1		08/17/09 14:47
44	P2.081709.145437	WG309796-04	Filter Blank		1		08/17/09 14:54
45	P2.081709.150219	L09080216-02	C-004		1		08/17/09 15:02
46	P2.081709.150901	WG309847-01	Post Digestion Spike		1	L09080216-02	08/17/09 15:09
47	P2.081709.151606	WG309847-02	Serial Dilution		5	L09080216-02	08/17/09 15:16
48	P2.081709.152244	L09080145-05	PRR01096GR	5/50	2		08/17/09 15:22
49	P2.081709.152922	+.25	+.25		1		08/17/09 15:29
50	P2.081709.153603	+.375	+.375		1		08/17/09 15:36
51	P2.081709.154237	+.5	+.5		1		08/17/09 15:42
52	P2.081709.154919	WG309865-21	CCV		1		08/17/09 15:49
53	P2.081709.155505	WG309865-22	CCB		1		08/17/09 15:55
54	P2.081709.160144	L09080287-01	EFFLUENT/001/COMP	50/50	1		08/17/09 16:01
55	P2.081709.160827	L09080294-01	001/COMP.	50/50	1		08/17/09 16:08
56	P2.081709.161513	L09080297-01	OUTLET 001	50/50	1		08/17/09 16:15
57	P2.081709.162052	L09080297-02	OUTLET 002	50/50	1		08/17/09 16:20
58	P2.081709.162645	L09080297-03	OUTLET 003	50/50	1		08/17/09 16:26
59	P2.081709.163326	WG309796-01	Reference Sample		1	L09080319-01	08/17/09 16:33
60	P2.081709.164010	WG309796-05	Matrix Spike	50/50	1	L09080319-01	08/17/09 16:40
61	P2.081709.164651	WG309796-06	Matrix Spike Duplica	50/50	1	L09080319-01	08/17/09 16:46
62	P2.081709.165333	L09080330-01	OUTFALL 001/COMP	50/50	1		08/17/09 16:53
63	P2.081709.170012	WG309865-23	CCV		1		08/17/09 17:00
64	P2.081709.170702	WG309865-24	CCB		1		08/17/09 17:07
65	P2.081709.171341	WG309801-01	Method/Prep Blank	50/50	1		08/17/09 17:13
66	P2.081709.172019	WG309801-02	Laboratory Control S	50/50	1		08/17/09 17:20
67	P2.081709.172706	WG309801-03	Laboratory Control S	50/50	1		08/17/09 17:27
68	P2.081709.173349	L09080274-01	1184-W0001	50/50	1		08/17/09 17:33
69	P2.081709.174027	WG309846-01	Post Digestion Spike		1	L09080274-01	08/17/09 17:40
70	P2.081709.174712	WG309801-02	Laboratory Control S		5		08/17/09 17:47
71	P2.081709.175355	L09080274-02	1184-W0002	50/50	1		08/17/09 17:53
72	P2.081709.180032	L09080274-03	1227-W0001	50/50	1		08/17/09 18:00
73	P2.081709.180721	L09080274-04	1230-W0001	50/50	1		08/17/09 18:07
74	P2.081709.181408	L09080274-05	1264-W0001	50/50	1		08/17/09 18:14

Page: 2
Approved: August 18, 2009

Maren Beery

Microbac Laboratories Inc.

Instrument Run Log

Instrument: PE-ICP2
Dataset: 081709HR.CSV
Analyst1: PDM
Analyst2: N/A
Method: 6010B
SOP: ME600E
Rev: 10
Maintenance Log ID: 29811

Calibration Std: STD34504
ICV/CCV Std: STD34469
Post Spike: STD34340
ICSA: STD34193
ICSAB: STD34508
Int. Std: STD34683

Workgroups: 309827,309847,309846

Comments:

Seq.	File ID	Sample	ID	Prep	Dil	Reference	Date/Time
75	P2.081709.182049	WG309865-25	CCV		1		08/17/09 18:20
76	P2.081709.182746	WG309865-26	CCB		1		08/17/09 18:27
77	P2.081709.183429	L09080274-06	1320-W0001	50/50	1		08/17/09 18:34
78	P2.081709.184106	L09080274-07	1352-W0001	50/50	1		08/17/09 18:41
79	P2.081709.184747	L09080274-08	1354-W0001	50/50	1		08/17/09 18:47
80	P2.081709.185435	L09080274-09	1380-W0001	50/50	1		08/17/09 18:54
81	P2.081709.190113	L09080274-10	1400-W0001	50/50	1		08/17/09 19:01
82	P2.081709.190759	L09080274-11	1422-W0001	50/50	1		08/17/09 19:07
83	P2.081709.191546	L09080282-01	13416-W0001	50/50	1		08/17/09 19:15
84	P2.081709.192224	L09080328-13	AV-NCB-EB-1-081309	50/50	1		08/17/09 19:22
85	P2.081709.192911	WG309865-27	CCV		1		08/17/09 19:29
86	P2.081709.193552	WG309865-28	CCB		1		08/17/09 19:35

Comments

Seq.	Rerun	Dil.	Reason	Analytes
6			ICV was immediately reanalyzed due to noncompliance of multiple analytes.	

Page: 3
Approved: August 18, 2009

Maren Beery

Checklist ID: 40963

Microbac Laboratories Inc.

Data Checklist

Date: 17-AUG-2009

Analyst: PDM

Analyst: NA

Method: 6010B

Instrument: PE-ICP2

Curve Workgroup: WG309865

Runlog ID: 29647

Analytical Workgroups: WG309827,WG309847,WG309846

Calibration/Linearity	X
ICV/CCV	X
ICB/CCB	X
ICSA/ICSAB	X
CRI	
Blank/LCS	X
MS/MSD	X
Post Spike/Serial Dilution	X
Upload Results	X
Data Qualifiers	X
Generate PDF Instrument Data	X
Sign/Annotate PDF Data	X
Upload Curve Data	X
Workgroup Forms	X
Case Narrative	0145,0179,0216,0287,0319,0330,0274
	0282,0328,
Client Forms	X
Level X	
Level 3	0145,0179
Level 4	0274,0282,0328
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Primary Reviewer	PDM
Secondary Reviewer	MMB
Comments	

Primary Reviewer:
18-AUG-2009

Pierce Morris

Secondary Reviewer:
18-AUG-2009

Maren Beery

CHECKLIST1 - Modified 03/05/2008
Generated: AUG-18-2009 15:17:54

Microbac Laboratories Inc.

HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: 6010B

AAB#: WG309827

Login Number: L09080179

Client ID	ID	Date Collected	TCLP Date	Time Held	Max Hold	Q	Extract Date	Time Held	Max Hold	Q	Run Date	Time Held	Max Hold	Q
PRR0628GR	01	08/07/09	08/14/09	7			08/17/09	9.8	180		08/17/09	3	180	
PRR0959GR	02	08/07/09	08/14/09	7			08/17/09	9.7	180		08/17/09	3	180	
PRR0766GR	03	08/07/09	08/14/09	7			08/17/09	9.7	180		08/17/09	3	180	
PRR01022GR	04	08/07/09	08/14/09	7			08/17/09	9.7	180		08/17/09	3	180	
PRR01111GR	05	08/07/09	08/14/09	7			08/17/09	9.7	180		08/17/09	3	180	
PRR01113GR	06	08/07/09	08/14/09	7			08/17/09	9.7	180		08/17/09	3	180	
PRR0542GR	07	08/07/09	08/14/09	7			08/17/09	9.7	180		08/17/09	3	180	
PRR0674GR	08	08/07/09	08/14/09	7			08/17/09	9.7	180		08/17/09	3	180	

* = SEE PROJECT QAPP REQUIREMENTS

HOLD_TIMES - Modified 03/06/2008
PDF File ID: 1466908
Report generated 08/17/2009 14:55

METHOD BLANK SUMMARY

Login Number: L09080179
Work Group: WG309827
Blank File ID: P2.081709.114155
Blank Sample ID: WG309777-02
Prep Date: 08/17/09 07:19
Instrument ID: PE-ICP2
Analyzed Date: 08/17/09 11:41
Method: 6010B
Analyst: PDM

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG309777-03	P2.081709.114833	08/17/09 11:48	01
PRR0628GR	L09080179-01	P2.081709.130849	08/17/09 13:08	01
PRR0959GR	L09080179-02	P2.081709.131527	08/17/09 13:15	01
PRR0766GR	L09080179-03	P2.081709.132214	08/17/09 13:22	01
PRR01022GR	L09080179-04	P2.081709.135530	08/17/09 13:55	01
PRR01111GR	L09080179-05	P2.081709.140213	08/17/09 14:02	01
PRR01113GR	L09080179-06	P2.081709.140855	08/17/09 14:08	01
PRR0542GR	L09080179-07	P2.081709.141533	08/17/09 14:15	01
PRR0674GR	L09080179-08	P2.081709.142219	08/17/09 14:22	01

Report Name: BLANK_SUMMARY
PDF File ID: 1466909
Report generated 08/17/2009 14:55

Microbac Laboratories Inc.
METHOD BLANK REPORT

Login Number: L09080179 **Prep Date:** 08/17/09 07:19 **Sample ID:** WG309777-02
Instrument ID: PE-ICP2 **Run Date:** 08/17/09 11:41 **Prep Method:** 3015
File ID: P2.081709.114155 **Analyst:** PDM **Method:** 6010B
Workgroup (AAB#): WG309827 **Matrix:** Leachate **Units:** mg/L
Contract #: DACA56-94-D-0020 **Cal ID:** PE-ICP - 17-AUG-09

Analytes	SDL	PQL	Concentration	Dilution	Qualifier
Arsenic, TCLP	0.100	1.00	0.100	1	U
Barium, TCLP	0.0250	0.100	0.0250	1	U
Cadmium, TCLP	0.0250	0.100	0.0250	1	U
Chromium, TCLP	0.0250	0.200	0.0250	1	U
Lead, TCLP	0.100	1.00	0.100	1	U
Selenium, TCLP	0.400	0.800	0.400	1	U
Silver, TCLP	0.0500	0.100	0.0500	1	U

SDL	Method Detection Limit
PQL	Reporting/Practical Quantitation Limit
ND	Analyte Not detected at or above reporting limit
*	|Analyte concentration| > RL

Report Name:BLANK
PDF ID: 1466910
17-AUG-2009 14:55

Microbac Laboratories Inc.
LABORATORY CONTROL SAMPLE (LCS)

Login Number: L09080179
Run Date: 08/17/2009
Sample ID: WG309777-03
Instrument ID: PE-ICP2
Run Time: 11:48
Prep Method: 3015
File ID: P2.081709.114833
Analyst: PDM
Method: 6010B
Workgroup (AAB#): WG309827
Matrix: Leachate
Units: mg/L
QC Key: STD
Lot#: STD34340
Cal ID: PE-ICP - 17-AUG-09

Analytes	Expected	Found	% Rec	LCS Limits	Q
Arsenic, TCLP	2.00	1.90	95.0	85 - 115	
Barium, TCLP	5.00	5.06	101	85 - 115	
Cadmium, TCLP	0.250	0.233	93.2	85 - 115	
Chromium, TCLP	2.50	2.53	101	85 - 115	
Lead, TCLP	2.50	2.40	96.1	85 - 115	
Selenium, TCLP	2.00	1.83	91.3	85 - 115	
Silver, TCLP	2.00	1.98	99.0	85 - 115	

LCS - Modified 03/06/2008
PDF File ID: 1466911
Report generated: 08/17/2009 14:55

Microbac Laboratories Inc.

MATRIX SPIKE AND MATRIX SPIKE DUP (MS/MSD)

Loginnum: L09080179
Cal ID: PE-ICP2 -
Worknum: WG309827
Instrument ID: PE-ICP2
Contract #: DACA56-94-D-0020
Method: 6010B
Parent ID: WG309777-01
File ID: P2.081709.132214 Dil: 1
Matrix: WATER
Sample ID: WG309777-04 MS
File ID: P2.081709.132856 Dil: 1
Units: mg/L
Sample ID: WG309777-05 MSD
File ID: P2.081709.133531 Dil: 1

Analyte	Parent	MS Spiked	MS Found	MS %Rec	MSD Spiked	MSD Found	MSD %Rec	%RPD	%Rec Limits	RPD Limit	Q
Arsenic, TCLP	ND	2.00	2.00	99.8	2.00	1.99	99.4	0.387	80 - 120	20	
Barium, TCLP	1.12	5.00	6.30	104	5.00	6.13	100	2.78	80 - 120	20	
Cadmium, TCLP	ND	0.250	0.246	98.2	0.250	0.239	95.8	2.55	80 - 120	20	
Chromium, TCLP	ND	2.50	2.59	104	2.50	2.51	101	2.96	80 - 120	20	
Lead, TCLP	0.488	2.50	2.92	97.2	2.50	2.85	94.6	2.22	80 - 120	20	
Selenium, TCLP	ND	2.00	2.04	102	2.00	1.94	97.2	4.92	80 - 120	20	
Silver, TCLP	ND	2.00	2.09	104	2.00	2.03	101	3.12	80 - 120	20	

* FAILS %REC LIMIT

FAILS RPD LIMIT

NOTE: This is an internal quality control sample.

WG_MS_MSD_DRYWT - Modified 03/07/2008
PDF File ID: 1466912
Report generated 08/17/2009 14:55

Microbac Laboratories Inc.

Serial Dilution Report

Login: L09080179
Instrument: PE-ICP2
Serial Dil: WG309827-02 **File ID:** P2.081709.121514 **Dil:** 5
Sample: L09080145-01 **File ID:** P2.081709.120151 **Dil:** 1

Worknum: WG309827
Method: 6010B
Units: mg/L

Analyte	Sample	Qual	Serial Dil	Qual	% Diff	Q
Arsenic	ND	U	ND	U		
Barium	.113	X	.1095	X	3.10	
Cadmium	ND	U	ND	U		
Chromium	ND	U	ND	U		
Lead	.378	X	.393	F	3.97	
Selenium	ND	U	ND	U		
Silver	ND	U	ND	U		

U = Result is below MDL.
F = Result is greater than or equal to MDL and less than the RL.
X = Result is greater than or equal to RL and less than 50 times the MDL.
E = %D exceeds control limit of 10% and initial sample result is greater than or equal to 50 times the MDL.

SERIAL_DIL - Modified 09/22/2008
PDF File ID: 1466906
08/17/2009 14:55

Microbac Laboratories Inc.
POST SPIKE REPORT

Sample Login ID: L09080179 **Worknum:** WG309827
Instrument ID: PE-ICP2 **Method:** 6010B
Post Spike ID: WG309827-01 **File ID:** P2.081709.120840 **Dil:** 1 **Units:** mg/L
Sample ID: L09080145-01 **File ID:** P2.081709.120151 **Dil:** 1 **Matrix:** Leachate

Analyte	Post Spike Result	C	Sample Result	C	Spike Added(SA)	% R	Control Limit %R	Q
ARSENIC	0.202		0	U	.2	101.1	75 - 125	
BARIUM	0.623		0.113		.5	104.4	75 - 125	
CADMIUM	0.0246		0	U	.025	98.3	75 - 125	
CHROMIUM	0.260		0	U	.25	103.9	75 - 125	
LEAD	0.587		0.378		.25	98.9	75 - 125	
SELENIUM	0.206		0	U	.2	103.1	75 - 125	
SILVER	0.208		0	U	.2	103.9	75 - 125	

N = % Recovery exceeds control limits
F = Result is between MDL and RL
U = Sample result is below MDL. A value of zero is used in the calculation

POST_SPIKE - Modified 03/06/2008
PDF File ID: 1466907
Report generated: 08/17/2009 14:55

Microbac Laboratories Inc.
Initial Calibration Summary

Login: **L09080179**

Workgroup (AAB#): **WG309827**

Analytical Method: **6010B**

Instrument ID: **PE-ICP2**

ICAL Worknum: **WG309865**

Initial Calibration Date: **17-AUG-2009 10:04**

	WG309865-01		**WG309865-02**		**WG309865-03**		**WG309865-04**		**WG309865-05**			
	Conc	**INT**	**Conc**	**INT**	**Conc**	**INT**	**Conc**	**INT**	**Conc**	**INT**	**R**	**Q**
ARSENIC	0	1.19	NA	NA	.008	5.51	.4	279	.8	568	.999964	
BARIUM	0	-124	.01	1080	.02	2210	1	102000	2	202000	.999991	
CADMIUM	0	0.444	.0005	27.1	.001	51.2	.05	2410	.1	4880	.999976	
CHROMIUM	0	35.1	.005	287	.01	563	.5	25200	1	49800	.999983	
LEAD	0	44.7	.005	21.3	.01	44.9	.5	2220	1	4470	.999998	
SELENIUM	0	-2.07	NA	NA	.008	3.69	.4	137	.8	276	.999992	
SILVER	0	86.2	.004	646	.008	1310	.4	55900	.8	111000	.999988	

INT = Instrument intensity
R = Coefficient of correlation
Q = Data Qualifier
*** = Out of Compliance; R < 0.995**

INT_CAL_ICP - Modified 03/06/2008
PDF File ID: 1466915
Report generated: 17-AUG-2009 14:56

Microbac Laboratories Inc.
INITIAL CALIBRATION BLANK (ICB)

Login Number: L09080179
Instrument ID: PE-ICP2
File ID: P2.081709.102245
Workgroup (AAB#): WG309827
Matrix: LEACHATE

Run Date: 08/17/2009
Run Time: 10:22
Analyst: PDM
Cal ID: PE-ICP2 - 17-AUG-09

Sample ID: WG309865-08
Method: 6010B
Units: mg/L

Analytes	MDL	RDL	Concentration	Qualifier
ARSENIC	.01	.1	.01	U
BARIUM	.0025	.01	.0025	U
CADMIUM	.0025	.01	.0025	U
CHROMIUM	.0025	.02	.0025	U
LEAD	.01	.1	.01	U
SELENIUM	.04	.08	.04	U
SILVER	.005	.01	.005	U

ICB - Modified 07/14/2009
PDF File ID: 1466917
Report generated 08/17/2009 14:56

Microbac Laboratories Inc.
CONTINUING CALIBRATION BLANK (CCB)

Login Number: L09080179
Run Date: 08/17/2009
Sample ID: WG309865-12
Instrument ID: PE-ICP2
Run Time: 10:47
Method: 6010B
File ID: P2.081709.104727
Analyst: PDM
Units: mg/L
Workgroup (AAB#): WG309827
Cal ID: PE-ICP - 17-AUG-09
Matrix: LEACHATE

Analytes	MDL	RDL	Concentration	Qualifier
Arsenic	0.0100	0.100	0.0100	U
Barium	0.00250	0.0100	0.00250	U
Cadmium	0.00250	0.0100	0.00250	U
Chromium	0.00250	0.0200	0.00250	U
Lead	0.0100	0.100	0.0100	U
Selenium	0.0400	0.0800	0.0400	U
Silver	0.00500	0.0100	0.00500	U

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

CCB - Modified 03/05/2008
PDF File ID: 1466920
Report generated 08/17/2009 14:56

Microbac Laboratories Inc.
CONTINUING CALIBRATION BLANK (CCB)

Login Number: L09080179
Run Date: 08/17/2009
Sample ID: WG309865-14
Instrument ID: PE-ICP2
Run Time: 11:35
Method: 6010B
File ID: P2.081709.113519
Analyst: PDM
Units: mg/L
Workgroup (AAB#): WG309827
Cal ID: PE-ICP - 17-AUG-09
Matrix: LEACHATE

Analytes	MDL	RDL	Concentration	Qualifier
Arsenic	0.0100	0.100	0.0100	U
Barium	0.00250	0.0100	0.00250	U
Cadmium	0.00250	0.0100	0.00250	U
Chromium	0.00250	0.0200	0.00250	U
Lead	0.0100	0.100	0.0100	U
Selenium	0.0400	0.0800	0.0400	U
Silver	0.00500	0.0100	0.00500	U

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

CCB - Modified 03/05/2008
PDF File ID: 1466920
Report generated 08/17/2009 14:56

Microbac Laboratories Inc.
CONTINUING CALIBRATION BLANK (CCB)

Login Number: L09080179
Run Date: 08/17/2009
Sample ID: WG309865-16
Instrument ID: PE-ICP2
Run Time: 12:55
Method: 6010B
File ID: P2.081709.125526
Analyst: PDM
Units: mg/L
Workgroup (AAB#): WG309827
Cal ID: PE-ICP - 17-AUG-09
Matrix: LEACHATE

Analytes	MDL	RDL	Concentration	Qualifier
Arsenic	0.0100	0.100	0.0100	U
Barium	0.00250	0.0100	0.00250	U
Cadmium	0.00250	0.0100	0.00250	U
Chromium	0.00250	0.0200	0.00250	U
Lead	0.0100	0.100	0.0100	U
Selenium	0.0400	0.0800	0.0400	U
Silver	0.00500	0.0100	0.00500	U

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

CCB - Modified 03/05/2008
PDF File ID: 1466920
Report generated 08/17/2009 14:56

Microbac Laboratories Inc.
CONTINUING CALIBRATION BLANK (CCB)

Login Number: L09080179
Run Date: 08/17/2009
Sample ID: WG309865-18
Instrument ID: PE-ICP2
Run Time: 13:48
Method: 6010B
File ID: P2.081709.134851
Analyst: PDM
Units: mg/L
Workgroup (AAB#): WG309827
Cal ID: PE-ICP - 17-AUG-09
Matrix: LEACHATE

Analytes	MDL	RDL	Concentration	Qualifier
Arsenic	0.0100	0.100	0.0100	U
Barium	0.00250	0.0100	0.00250	U
Cadmium	0.00250	0.0100	0.00250	U
Chromium	0.00250	0.0200	0.00250	U
Lead	0.0100	0.100	0.0100	U
Selenium	0.0400	0.0800	0.0400	U
Silver	0.00500	0.0100	0.00500	U

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

CCB - Modified 03/05/2008
PDF File ID: 1466920
Report generated 08/17/2009 14:56

Microbac Laboratories Inc.

CONTINUING CALIBRATION BLANK (CCB)

Login Number: L09080179
Run Date: 08/17/2009
Sample ID: WG309865-20
Instrument ID: PE-ICP2
Run Time: 14:35
Method: 6010B
File ID: P2.081709.143542
Analyst: PDM
Units: mg/L
Workgroup (AAB#): WG309827
Cal ID: PE-ICP - 17-AUG-09
Matrix: LEACHATE

Analytes	MDL	RDL	Concentration	Qualifier
Arsenic	0.0100	0.100	0.0100	U
Barium	0.00250	0.0100	0.00250	U
Cadmium	0.00250	0.0100	0.00250	U
Chromium	0.00250	0.0200	0.00250	U
Lead	0.0100	0.100	0.0100	U
Selenium	0.0400	0.0800	0.0400	U
Silver	0.00500	0.0100	0.00500	U

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

CCB - Modified 03/05/2008
PDF File ID: 1466920
Report generated 08/17/2009 14:56

Microbac Laboratories Inc.

INITIAL CALIBRATION VERIFICATION (ICV)
(Alternate Source)

Login Number: L09080179
Run Date: 08/17/2009
Sample ID: WG309865-07
Instrument ID: PE-ICP2
Run Time: 10:16
Method: 6010B
File ID: P2.081709.101607
Analyst: PDM
Units: mg/L
Workgroup (AAB#): WG309827
Cal ID: PE-ICP - 17-AUG-09
QC Key: STD

Analyte		Expected	Found	%REC	LIMITS	Q
Arsenic		.4	0.387	96.8	90 - 110	
Barium		1	1.00	100	90 - 110	
Cadmium		.05	0.0482	96.4	90 - 110	
Chromium		.5	0.504	101	90 - 110	
Lead		.5	0.487	97.4	90 - 110	
Selenium		.4	0.402	100	90 - 110	
Silver		.4	0.403	101	90 - 110	

* Exceeds LIMITS Limit

ICV - Modified 03/06/2008
PDF File ID: 1466916
Report generated 08/17/2009 14:56

Microbac Laboratories Inc.

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L09080179
Run Date: 08/17/2009
Sample ID: WG309865-11
Instrument ID: PE-ICP2
Run Time: 10:40
Method: 6010B
File ID: P2.081709.104049
Analyst: PDM
QC Key: STD
Workgroup (AAB#): WG309827
Cal ID: PE-ICP - 17-AUG-09
Matrix: LEACHATE

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Arsenic		0.400	0.405	mg/L	101	90 - 110		
Barium		1.00	1.05	mg/L	105	90 - 110		
Cadmium		0.0500	0.0505	mg/L	101	90 - 110		
Chromium		0.500	0.529	mg/L	106	90 - 110		
Lead		0.500	0.507	mg/L	101	90 - 110		
Selenium		0.400	0.419	mg/L	105	90 - 110		
Silver		0.400	0.429	mg/L	107	90 - 110		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008
PDF File ID: 1466919
Report generated 08/17/2009 14:56

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Microbac Laboratories Inc.
CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L09080179
Instrument ID: PE-ICP2
File ID: P2.081709.112842
Workgroup (AAB#): WG309827
Matrix: LEACHATE

Run Date: 08/17/2009
Run Time: 11:28
Analyst: PDM
Cal ID: PE-ICP - 17-AUG-09

Sample ID: WG309865-13
Method: 6010B
QC Key: STD

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Arsenic		0.400	0.406	mg/L	102	90 - 110		
Barium		1.00	1.02	mg/L	102	90 - 110		
Cadmium		0.0500	0.0498	mg/L	99.7	90 - 110		
Chromium		0.500	0.516	mg/L	103	90 - 110		
Lead		0.500	0.500	mg/L	99.9	90 - 110		
Selenium		0.400	0.407	mg/L	102	90 - 110		
Silver		0.400	0.419	mg/L	105	90 - 110		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008
PDF File ID: 1466919
Report generated 08/17/2009 14:56

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L09080179
Run Date: 08/17/2009
Sample ID: WG309865-15
Instrument ID: PE-ICP2
Run Time: 12:48
Method: 6010B
File ID: P2.081709.124847
Analyst: PDM
QC Key: STD
Workgroup (AAB#): WG309827
Cal ID: PE-ICP - 17-AUG-09
Matrix: LEACHATE

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Arsenic		0.400	0.396	mg/L	99.0	90 - 110		
Barium		1.00	1.03	mg/L	103	90 - 110		
Cadmium		0.0500	0.0490	mg/L	98.1	90 - 110		
Chromium		0.500	0.519	mg/L	104	90 - 110		
Lead		0.500	0.499	mg/L	99.7	90 - 110		
Selenium		0.400	0.408	mg/L	102	90 - 110		
Silver		0.400	0.413	mg/L	103	90 - 110		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008
PDF File ID: 1466919
Report generated 08/17/2009 14:56

Microbac Laboratories Inc.
CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L09080179
Run Date: 08/17/2009
Sample ID: WG309865-17
Instrument ID: PE-ICP2
Run Time: 13:42
Method: 6010B
File ID: P2.081709.134213
Analyst: PDM
QC Key: STD
Workgroup (AAB#): WG309827
Cal ID: PE-ICP - 17-AUG-09
Matrix: LEACHATE

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Arsenic		0.400	0.401	mg/L	100	90 - 110		
Barium		1.00	1.01	mg/L	101	90 - 110		
Cadmium		0.0500	0.0492	mg/L	98.4	90 - 110		
Chromium		0.500	0.510	mg/L	102	90 - 110		
Lead		0.500	0.492	mg/L	98.5	90 - 110		
Selenium		0.400	0.403	mg/L	101	90 - 110		
Silver		0.400	0.413	mg/L	103	90 - 110		

* Exceeds LIMITS Criteria

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Microbac Laboratories Inc.
CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L09080179
Run Date: 08/17/2009
Sample ID: WG309865-19
Instrument ID: PE-ICP2
Run Time: 14:29
Method: 6010B
File ID: P2.081709.142903
Analyst: PDM
QC Key: STD
Workgroup (AAB#): WG309827
Cal ID: PE-ICP - 17-AUG-09
Matrix: LEACHATE

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Arsenic		0.400	0.409	mg/L	102	90 - 110		
Barium		1.00	1.05	mg/L	105	90 - 110		
Cadmium		0.0500	0.0501	mg/L	100	90 - 110		
Chromium		0.500	0.532	mg/L	106	90 - 110		
Lead		0.500	0.502	mg/L	100	90 - 110		
Selenium		0.400	0.412	mg/L	103	90 - 110		
Silver		0.400	0.429	mg/L	107	90 - 110		

* Exceeds LIMITS Criteria

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Report generated 08/17/2009 14:56

Microbac Laboratories Inc.

INTERFERENCE CHECK SAMPLES

Login number: L09080179
Instrument ID: PE-ICP2
Sol. A : WG309865-09 **File ID:** P2.081709.102928
Sol. AB : WG309865-10 **File ID:** P2.081709.103508
Workgroup (AAB#): WG309827
Method: 6010B
Units: mg/L
Matrix: Leachate

	Sol. A			**Sol. AB**			
ANALYTE	True	Found	%Recovery	True	Found	%Recovery	Q
Arsenic	NS	-0.000950	NS	NS	0.241	NS	
Barium	NS	-0.0000900	NS	0.250	0.245	98.0	
Cadmium	NS	-0.0000100	NS	0.500	0.422	84.4	
Chromium	NS	-0.00111	NS	0.250	0.242	96.8	
Lead	NS	-0.000380	NS	0.500	0.460	92.0	
Selenium	NS	-0.000500	NS	NS	0.230	NS	
Silver	NS	-0.00185	NS	0.500	0.505	101	

NS = Not spiked
*** = Recovery of spiked element is outside acceptance limit of 80% - 120% of true value.**
 # = Result for unspiked element is outside the acceptance limits of (+/-) the project reporting limit (RL).

ICS - Modified 03/06/2008
PDF File ID: 1466918
Report generated 08/17/2009 14:56

Microbac Laboratories Inc.
INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Login Number: L09080179 **Date:** 02/02/2009
Insturment ID: PE-ICP2 **Method:** 6010B

Analyte	Wave Length	AG	AL	AS	B	BA
ALUMINUM	396.15	0	0	0.206	0	0
ANTIMONY	206.84	0	0	-0.740	0	0
ARSENIC	188.98	0	-0.00216	0	0	0
BARIUM	233.53	0	0	0	0	0
BERYLLIUM	234.86	0	0	0	0	0
BORON	249.68	0	0	0	0	0
CADMIUM	228.80	0	0	0	0	0
CALCIUM	227.55	0	-0.370	0.0414	0	0
CHROMIUM	267.72	0	0	0	0	0
COBALT	228.62	0	0	0	0	-1.07
COPPER	327.39	0	0	0	0	0
IRON	239.56	0	0	0	0	0
LEAD	220.35	0	-0.107	0	0	0
LITHIUM	670.78	0	0	0	0	0
MAGNESIUM	279.08	0	0	0	0	0
MANGANESE	257.61	-0.185	0	-0.231	-0.0949	-0.230
MOLYBDENUM	202.03	0	0	0	0	0
NICKEL	231.60	0	0	0	0	0
POTASSIUM	766.49	0	0	0	0	0
SELENIUM	196.03	0	0.207	0	0	0
SILICON	251.61	0	0	0	0	0
SILVER	328.07	0	0	0	0	0
SODIUM	589.59	0	0	0	0	0
STRONTIUM	407.77	0	0	0	0	0
THALLIUM	190.80	0	0	0	0	0
TIN	189.93	0	0	0	0	0
TITANIUM	334.94	0	0	0	0	0
VANADIUM	290.88	0	0	0.200	0	0.0400
ZINC	206.20	0	0.0753	0	0	0

CORR_FACTORS - Modified 03/05/2008
PDF File ID: 1466914
Report generated: 08/17/2009 14:56

Microbac Laboratories Inc.
INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Login Number: L09080179 **Date:** 02/02/2009
Insturment ID: PE-ICP2 **Method:** 6010B

Analyte	Wave Length	BE	CA	CD	CO	CR
ALUMINUM	396.15	0	0.274	0	0	0
ANTIMONY	206.84	0	0	0	0	19.8
ARSENIC	188.98	0	-0.00673	-0.0875	0	-2.91
BARIUM	233.53	0	0	0	0	0
BERYLLIUM	234.86	0	0	0	0	-0.0105
BORON	249.68	0	0	50.1	3.51	1.50
CADMIUM	228.80	0	0	0	-5.41	0
CALCIUM	227.55	0	0	0	126	-21.8
CHROMIUM	267.72	0	0	0	0	0
COBALT	228.62	0	0	0	0	0.156
COPPER	327.39	0	0	0	0.380	-0.0467
IRON	239.56	0	0.0227	0	1.91	0.331
LEAD	220.35	0	-0.0247	0	0.666	-0.0700
LITHIUM	670.78	0	0	0	0	0
MAGNESIUM	279.08	0	0.638	0	0	0
MANGANESE	257.61	-1.04	0.0280	-0.755	-0.0418	-0.110
MOLYBDENUM	202.03	0	0	0	0	0
NICKEL	231.60	0	0	0	0.623	0
POTASSIUM	766.49	0	0	0	0	0
SELENIUM	196.03	0	0.0190	0	-0.633	0
SILICON	251.61	0	0	0	0	0
SILVER	328.07	0	0	0	0	0
SODIUM	589.59	0	0	0	0	0
STRONTIUM	407.77	0	0	0	0	0
THALLIUM	190.80	0	-0.0100	0	0.953	0
TIN	189.93	0	0	0	0	0
TITANIUM	334.94	0	-0.0233	0	0	0.297
VANADIUM	290.88	0	-0.00100	0	0	0
ZINC	206.20	0	-0.0333	15.3	0	-7.08

Microbac Laboratories Inc.
INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Login Number: L09080179 **Date:** 02/02/2009
Insturment ID: PE-ICP2 **Method:** 6010B

Analyte	Wave Length	CU	FE	K	LI	MG
ALUMINUM	396.15	0	0.108	0	0	0
ANTIMONY	206.84	0	0	0	0	0
ARSENIC	188.98	0	0.00251	0	0	0
BARIUM	233.53	0	0.0520	0	0	0
BERYLLIUM	234.86	0	0.152	0	0	0
BORON	249.68	0	-4.02	0	0	0
CADMIUM	228.80	0	-0.00274	0	0	0
CALCIUM	227.55	-2.44	-4.01	0	0	0.104
CHROMIUM	267.72	0	-0.0239	0	0	0
COBALT	228.62	0	0.00949	0	0	0
COPPER	327.39	0	-0.0851	0	0.154	0.0143
IRON	239.56	0	0	0	0	0.0276
LEAD	220.35	0.551	0.103	0	0	0
LITHIUM	670.78	0	0	0	0	0
MAGNESIUM	279.08	0	0.174	0	0	0
MANGANESE	257.61	-0.0457	-0.156	-0.0181	-0.794	0.0147
MOLYBDENUM	202.03	0	-0.0494	0	0	0
NICKEL	231.60	0	0	0	0	0
POTASSIUM	766.49	0	-0.0451	0	0	0
SELENIUM	196.03	0	-1.01	0	0	-0.0113
SILICON	251.61	0	0	0	0	0
SILVER	328.07	0.0717	-0.00209	0	0	0
SODIUM	589.59	0	0	0	0	0
STRONTIUM	407.77	0	0.138	0	0	0
THALLIUM	190.80	0	0	0	0	0
TIN	189.93	0	0	0	0	0
TITANIUM	334.94	0	0	0	0	0
VANADIUM	290.88	0	0.0715	0	0	-0.0400
ZINC	206.20	-0.200	-0.0563	0	0	0

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Microbac Laboratories Inc.
INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Login Number: L09080179 **Date:** 02/02/2009
Insturment ID: PE-ICP2 **Method:** 6010B

Analyte	Wave Length	MN	MO	NA	NI	PB
ALUMINUM	396.15	0	32.9	0	0	0
ANTIMONY	206.84	0	-17.4	0	0	0
ARSENIC	188.98	0	3.66	0	0	0
BARIUM	233.53	0	-0.548	0	0	0
BERYLLIUM	234.86	-0.131	-0.529	0	-0.00974	0
BORON	249.68	0	-2.08	0	0	0
CADMIUM	228.80	0	0.0112	0	-0.0299	0
CALCIUM	227.55	0	-18.6	0	-1090	0
CHROMIUM	267.72	0.434	-0.00100	0	0	0
COBALT	228.62	0	-0.835	0	0.129	0
COPPER	327.39	0.136	-0.0774	0	0.150	0.257
IRON	239.56	0.480	0	0	0	0.407
LEAD	220.35	0.0756	-2.50	0	-0.174	0
LITHIUM	670.78	0	0	0	0	0
MAGNESIUM	279.08	0	-5.58	0	0	0.0252
MANGANESE	257.61	0	-0.0482	-0.00916	-0.0340	-0.0413
MOLYBDENUM	202.03	-0.209	0	0	0.120	0
NICKEL	231.60	0	0	0	0	0
POTASSIUM	766.49	0	0	1.00	0	0
SELENIUM	196.03	0.451	0.199	0	0.0799	0
SILICON	251.61	0	12.9	0	0	0
SILVER	328.07	0.130	0.0781	0	0	0
SODIUM	589.59	0	0	0	0	0
STRONTIUM	407.77	0	0	0	0	0
THALLIUM	190.80	-0.00100	1.20	0	0	0
TIN	189.93	0	0	0	0	0
TITANIUM	334.94	0	0	0	0	0
VANADIUM	290.88	0	0.578	0	0	0
ZINC	206.20	0	0.180	0	-0.200	-0.100

Microbac Laboratories Inc.
INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Login Number: L09080179 **Date:** 02/02/2009
Insturment ID: PE-ICP2 **Method:** 6010B

Analyte	Wave Length	SB	SE	SI	SN	SR
ALUMINUM	396.15	0	0	0	0	0
ANTIMONY	206.84	0	0	0	-10.6	0
ARSENIC	188.98	0	0	0	0	0
BARIUM	233.53	0	0	0	0	0
BERYLLIUM	234.86	0	0	0	0	0
BORON	249.68	0	0	0	0	0
CADMIUM	228.80	0	0	0	0	0
CALCIUM	227.55	0	0	2.79	0	0
CHROMIUM	267.72	0	0	0	0	0
COBALT	228.62	0	0	0	0	0
COPPER	327.39	0	0.148	0	0	0
IRON	239.56	0	0	0	0	0
LEAD	220.35	-0.0100	0	0	0	0
LITHIUM	670.78	0	0	0	0	0
MAGNESIUM	279.08	0	-0.0924	0	0	0
MANGANESE	257.61	-0.0505	-0.0281	-0.185	-0.0445	-0.625
MOLYBDENUM	202.03	0	0	0	0	0
NICKEL	231.60	-0.0500	-0.0100	0	0	0
POTASSIUM	766.49	0	0	0	0	0
SELENIUM	196.03	0	0	0	0	0
SILICON	251.61	0	0	0	0	0
SILVER	328.07	0	0	0	0	0.200
SODIUM	589.59	0	0	0	0	0
STRONTIUM	407.77	0	0	0	0	0
THALLIUM	190.80	0	0	0	0	0
TIN	189.93	0	0	0	0	0
TITANIUM	334.94	0	0	0	0	0
VANADIUM	290.88	0	0	0	0	0
ZINC	206.20	-0.300	0	0	0	0

CORR_FACTORS - Modified 03/05/2008
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Microbac Laboratories Inc.
INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Login Number: L09080179 **Date:** 02/02/2009
Insturment ID: PE-ICP2 **Method:** 6010B

Analyte	Wave Length	TI	TL	V	ZN
ALUMINUM	396.15	0	0	0	0
ANTIMONY	206.84	0	0	-3.59	0
ARSENIC	188.98	0	0	0.0930	0
BARIUM	233.53	0	0	-1.83	0
BERYLLIUM	234.86	0	0	0	0
BORON	249.68	0	0	0	0
CADMIUM	228.80	0	0	0.0940	0
CALCIUM	227.55	0	0	19.1	0
CHROMIUM	267.72	0	0	-0.567	-0.0400
COBALT	228.62	2.21	0	0	0
COPPER	327.39	-1.05	0	-0.603	0
IRON	239.56	0	0	0	-0.0613
LEAD	220.35	-0.441	0	-0.150	0
LITHIUM	670.78	0	0	0	0
MAGNESIUM	279.08	0	0	-0.0280	0
MANGANESE	257.61	-0.00931	-0.0414	-0.0601	-0.0553
MOLYBDENUM	202.03	0	0	-0.288	0
NICKEL	231.60	0	0.617	0	0
POTASSIUM	766.49	0	0	0	0
SELENIUM	196.03	-0.220	0	0.823	0
SILICON	251.61	0	0	0	0
SILVER	328.07	0	0	-5.47	0
SODIUM	589.59	0	0	0	0
STRONTIUM	407.77	0	0	0	0
THALLIUM	190.80	-4.00	0	0	0
TIN	189.93	0	0	0	0
TITANIUM	334.94	0	0	0	0
VANADIUM	290.88	0	0	0	0
ZINC	206.20	0	0	-0.100	0

CORR_FACTORS - Modified 03/05/2008
PDF File ID: 1466914
Report generated: 08/17/2009 14:56

Microbac Laboratories Inc.
LINEAR RANGE (QUARTERLY)

Login Number: L09080179 **Date:** 06/30/2009
Insturment ID: PE-ICP2 **Method:** 6010B

Analyte	Integration Time (Sec.)	Concentration (mg/L)
Aluminum	10.00	450.0
Antimony	10.00	45.0
Arsenic	10.00	9.0
Barium	10.00	9.0
Beryllium	10.00	4.5
Boron	10.00	45.0
Cadmium	10.00	9.0
Calcium	10.00	450.0
Chromium	10.00	45.0
Cobalt	10.00	45.0
Copper	10.00	45.0
Iron	10.00	450.0
Lead	10.00	90.0
Lithium	10.00	0.8
Magnesium	10.00	450.0
Manganese	10.00	27.0
Molybdenum	10.00	45.0
Nickel	10.00	45.0
Potassium	10.00	90.0
Selenium	10.00	45.0
Silicon	10.00	36.0
Silver	10.00	4.5
Sodium	10.00	180.0
Strontium	10.00	4.5
Thallium	10.00	45.0
Tin	10.00	45.0
Titanium	10.00	45.0
Vanadium	10.00	45.0
Zinc	10.00	45.0

Comments:
All analytes passed acceptance criteria at the specified concentration.

LINEAR_RANGE - Modified 03/06/2008
PDF File ID: **1466913**
Report generated: 08/17/2009 14:55

2.1.2 Metals CVAA Data
(Mercury)

2.1.2.1 Summary Data

LABORATORY REPORT

L09080179

08/19/09 09:25

Submitted By

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

For

Account Name: Shaw E & I, Inc.
ABB Lummus Biulding
3010 Briarpark Drive Suite 4N
Houston, TX 77042
Attention: Jennifer Hoang

Project Number: 2773.025
Project: Longhorn AAP
Site: LONGHORN AAP KARNACK TX

P.O. Number: 389869/ 390836(GWTP)

Sample Analysis Summary

Client ID	Lab ID	Method	Dilution	Date Received
PRR0628GR	L09080179-01	7470A	1	08-AUG-09
PRR0959GR	L09080179-02	7470A	1	08-AUG-09
PRR0766GR	L09080179-03	7470A	1	08-AUG-09
PRR01022GR	L09080179-04	7470A	1	08-AUG-09
PRR01111GR	L09080179-05	7470A	1	08-AUG-09
PRR01113GR	L09080179-06	7470A	1	08-AUG-09
PRR0542GR	L09080179-07	7470A	1	08-AUG-09
PRR0674GR	L09080179-08	7470A	1	08-AUG-09

L1_A_PROD - Modified 03/06/2008 1 OF 1
PDF File ID: 1468636
Report generated: 08/19/2009 09:25

Report Number: **L09080179**
Report Date : **August 19, 2009**

Sample Number: **L09080179-01**
Client ID: **PRR0628GR**
Matrix: **Leachate**
Workgroup Number: **WG309836**
Collect Date: **08/07/2009 13:15**
Sample Tag: **01**

PrePrep Method: **1311**
Prep Method: **7470A**
Analytical Method: **7470A**
Analyst: **SLP**
Dilution: **1**
Units: **mg/L**

Instrument: **HYDRA**
Prep Date: **08/17/2009 09:02**
Cal Date:
Run Date **08/17/2009 13:09**
File ID: **HY.081709.130903**

Analyte	CAS.Number	Result	Qual	PQL	SDL	EPA HW#	Reg. Limit
Mercury	7439-97-6		U	.002	.001	D009	.2

U Not detected at or above adjusted sample detection limit

Sample Number:**L09080179-02**
Client ID:**PRR0959GR**
Matrix:**Leachate**
Workgroup Number:**WG309836**
Collect Date:**08/07/2009 13:20**
Sample Tag:**01**

PrePrep Method:**1311**
Prep Method:**7470A**
Analytical Method:**7470A**
Analyst:**SLP**
Dilution:**1**
Units:**mg/L**

Instrument:**HYDRA**
Prep Date:**08/17/2009 09:02**
Cal Date:**08/17/2009 12:25**
Run Date**08/17/2009 13:11**
File ID:**HY.081709.131106**

Analyte	CAS.Number	Result	Qual	PQL	SDL	EPA HW#	Reg. Limit
Mercury	7439-97-6		U	.002	.001	D009	.2

U Not detected at or above adjusted sample detection limit

Report Number:**L09080179**
Report Date :**August 19, 2009**

Sample Number:**L09080179-03**
Client ID:**PRR0766GR**
Matrix:**Leachate**
Workgroup Number:**WG309836**
Collect Date:**08/07/2009 13:25**
Sample Tag:**01**

PrePrep Method:**1311**
Prep Method:**7470A**
Analytical Method:**7470A**
Analyst:**SLP**
Dilution:**1**
Units:**mg/L**

Instrument:**HYDRA**
Prep Date:**08/17/2009 09:02**
Cal Date:**08/17/2009 12:25**
Run Date**08/17/2009 13:12**
File ID:**HY.081709.131248**

Analyte	CAS.Number	Result	Qual	PQL	SDL	EPA HW#	Reg. Limit
Mercury	7439-97-6		U	.002	.001	D009	.2

U Not detected at or above adjusted sample detection limit

Report Number: **L09080179**
Report Date : **August 19, 2009**

Sample Number: **L09080179-04**
Client ID: **PRR01022GR**
Matrix: **Leachate**
Workgroup Number: **WG309836**
Collect Date: **08/07/2009 13:30**
Sample Tag: **01**

PrePrep Method: **1311**
Prep Method: **7470A**
Analytical Method: **7470A**
Analyst: **SLP**
Dilution: **1**
Units: **mg/L**

Instrument: **HYDRA**
Prep Date: **08/17/2009 09:02**
Cal Date: **08/17/2009 12:35**
Run Date **08/17/2009 13:18**
File ID: **HY.081709.131817**

Analyte	CAS.Number	Result	Qual	PQL	SDL	EPA HW#	Reg. Limit
Mercury	7439-97-6		U	.002	.001	D009	.2

U Not detected at or above adjusted sample detection limit

Sample Number: **L09080179-05**
Client ID: **PRR01111GR**
Matrix: **Leachate**
Workgroup Number: **WG309836**
Collect Date: **08/07/2009 13:35**
Sample Tag: **01**

PrePrep Method: **1311**
Prep Method: **7470A**
Analytical Method: **7470A**
Analyst: **SLP**
Dilution: **1**
Units: **mg/L**

Instrument: **HYDRA**
Prep Date: **08/17/2009 09:02**
Cal Date: **08/17/2009 12:35**
Run Date **08/17/2009 13:20**
File ID: **HY.081709.132002**

Analyte	CAS.Number	Result	Qual	PQL	SDL	EPA HW#	Reg. Limit
Mercury	7439-97-6		U	.002	.001	D009	.2

U Not detected at or above adjusted sample detection limit

Sample Number: **L09080179-06**
Client ID: **PRR01113GR**
Matrix: **Leachate**
Workgroup Number: **WG309836**
Collect Date: **08/07/2009 13:40**
Sample Tag: **01**

PrePrep Method: **1311**
Prep Method: **7470A**
Analytical Method: **7470A**
Analyst: **SLP**
Dilution: **1**
Units: **mg/L**

Instrument: **HYDRA**
Prep Date: **08/17/2009 09:02**
Cal Date: **08/17/2009 12:35**
Run Date **08/17/2009 13:22**
File ID: **HY.081709.132200**

Analyte	CAS.Number	Result	Qual	PQL	SDL	EPA HW#	Reg. Limit
Mercury	**7439-97-6**		**U**	**.002**	**.001**	**D009**	**.2**

U Not detected at or above adjusted sample detection limit

Sample Number:**L09080179-07**
Client ID:**PRR0542GR**
Matrix:**Leachate**
Workgroup Number:**WG309836**
Collect Date:**08/07/2009 13:50**
Sample Tag:**01**

PrePrep Method:**1311**
Prep Method:**7470A**
Analytical Method:**7470A**
Analyst:**SLP**
Dilution:**1**
Units:**mg/L**

Instrument:**HYDRA**
Prep Date:**08/17/2009 09:02**
Cal Date:**08/17/2009 12:35**
Run Date**08/17/2009 13:23**
File ID:**HY.081709.132356**

Analyte	CAS.Number	Result	Qual	PQL	SDL	EPA HW#	Reg. Limit
Mercury	7439-97-6		U	.002	.001	D009	.2

U Not detected at or above adjusted sample detection limit

Sample Number:	L09080179-08	PrePrep Method:	1311	Instrument:	HYDRA
Client ID:	PRR0674GR	Prep Method:	7470A	Prep Date:	08/17/2009 09:02
Matrix:	Leachate	Analytical Method:	7470A	Cal Date:	08/17/2009 12:35
Workgroup Number:	WG309836	Analyst:	SLP	Run Date	08/17/2009 13:25
Collect Date:	08/07/2009 13:55	Dilution:	1	File ID:	HY.081709.132538
Sample Tag:	01	Units:	mg/L		

Analyte	CAS.Number	Result	Qual	PQL	SDL	EPA HW#	Reg. Limit
Mercury	7439-97-6		U	.002	.001	D009	.2

U Not detected at or above adjusted sample detection limit

2.1.2.2 QC Summary Data

Example Cold Vapor Mercury Calculations
Hydra AA Mercury Analyzer

1.0 Initial Calibration (ICAL) Parameters

The system performs linear regression from data consisting of a blank and five standards.

2.0 Calculating the concentration (C) of an element in water using data from run log and quantitation report (note:the data system performs this calculation automatically when correction factors have been entered):

$$Cx = Cs \times \frac{Vf}{Vi} \times D$$

Where:	**Example:**
Cs = Concentration computed by the data system (ug/L)	0.1
Vf = Diluted to Volume (mL)	40
Vi = Aliquot Volume (mL)	40
D = Manual dilution factor, if required (10X = 10)	1
Cx = Concentration of element in ppb (ug/L)	0.1

3.0 Calculating the concentration (C) of an element in soil using data from prep log and quantitation report (note: the data system performs this calculation automatically when correction factors have been entered):

$$Cx = Cs \times \frac{Vf}{Ws} \times D$$

Where:	**Example:**
Cs = Concentration computed by the data system (ug/L)	0.1
Vf = Diluted to volume (mL)	40
Ws = Aliquot weight (g)	0.6
D = Manual dilution factor	1
Cx = Concentration of element in ug/kg	6.67

4.0 Adjusting the concentration to dry weight:

$$Cdry = \frac{Cx \times 100}{Px}$$

1 Cx = Concentration calculated as received (wet basis)	6.67
Px = Percent solids of sample (%wt)	80
$Cdry$ = Concentration calculated as dry weight (ug/kg)	8.33

8.33 ug/kg = 0.00833 mg/kg

TCLP Non-Volatile

nalyst(s): Rwc
Date: 8-14-09

Analyst/Date		Analyst/Date	
Rwc 8-14-09		Rwc 8-15-09	
Time On	Temp On °C	Time Off	Temp Off °C
1400	23	715	23

Jug #	Sample #	Tests	Method	Fluid #	Matrix*	%Solid	Size Reduction		Int. Wt. (g)	Fluid Vol. (mL)
							Yes	No		
D	08-0145-01	ME	1311	F1-759	SS	100		✓	100.06	2000
D	02								100.01	
D	03								100.05	
D	04								100.05	
D	05								100.00	
D	06								100.04	
D	08-179-01								100.06	
D	02								100.01	
D	03	SPK							100.03	
D	04								100.03	
D	05								100.02	
D	06								100.07	
D	07								100.04	
D	08								100.00	
N/A	FBLK				N/A	N/A			2000	

Rwc 8-14-09

*Matrix Code = (S-solid) (SS-sand, soil or sludge) (P-paint) (O-organic) (W-water or waste)
Agitator speed is 30 ± 2 rpm unless otherwise noted.

Comments: ______________________________

Peer Review By: ____________________ Supervisor Review: ____________________

Microbac Laboratories Inc.
Metals Digest Log

Workgroup: WG309804
Analyst: REK
Spike Analyst: REK
Method: 7470A
Run Date: 08/17/2009 09:02
Hotblock Start Temp: 92.9 @ 07:45
Hotblock End Temp: 94.1 @ 09:45

SOP: ME404 Revison 12
Spike Solution: STD34685
Spike Witness: VC
H2SO4 Lot #: COA13254
HNO3 Lot #: COA13945
Digest tubes Lot #: COA14013
KMnO4 1:1 Lot #: RGT13913
K2S2O8 1:1 Lot #: RGT14066
Mercury Water ICV Lot #: STD34687
HG H2O STDS 10PPM Lot #: STD34693

	SAMPLE #	Type	Matrix	Initial Amount	Final Volume	Spike Amount	Due Date
1	WG309804-02	BLANK	1	40 mL	40 mL		
2	WG309732-01	FBLK	17	4 mL	40 mL		
3	WG309804-03	LCS	1	40 mL	40 mL	4 mL	
4	L09080145-01	SAMP	17	4 mL	40 mL		08/18/09
5	L09080145-02	SAMP	17	4 mL	40 mL		08/18/09
6	L09080145-03	SAMP	17	4 mL	40 mL		08/18/09
7	L09080145-04	SAMP	17	4 mL	40 mL		08/18/09
8	L09080145-05	SAMP	17	4 mL	40 mL		08/18/09
9	L09080145-06	SAMP	17	4 mL	40 mL		08/18/09
10	L09080179-01	SAMP	17	4 mL	40 mL		08/18/09
11	L09080179-02	SAMP	17	4 mL	40 mL		08/18/09
12	WG309804-01	REF	17	4 mL	40 mL		
13	L09080179-03	SAMP	17	4 mL	40 mL		08/18/09
14	L09080179-04	SAMP	17	4 mL	40 mL		08/18/09
15	L09080179-05	SAMP	17	4 mL	40 mL		08/18/09
16	L09080179-06	SAMP	17	4 mL	40 mL		08/18/09
17	L09080179-07	SAMP	17	4 mL	40 mL		08/18/09
18	L09080179-08	SAMP	17	4 mL	40 mL		08/18/09
19	L09080328-13	SAMP	1	40 mL	40 mL		08/25/09
20	WG309804-04	MS	1	4 mL	40 mL	4 mL	
21	WG309804-05	MSD	1	4 mL	40 mL	4 mL	

Analyst:

Reviewer: Erin Potter

BLOCK_DIG - Modified 07/22/2008
PDF ID: 1466532
Report generated: 08/17/2009 10:13

Microbac Laboratories Inc.

Instrument Run Log

Instrument: HYDRA
Dataset: 081709A.PRN
Analyst1: SLP
Analyst2: N/A
Method: 7470A
SOP: ME404
Rev: 11
Maintenance Log ID: 29808

Calibration Std: STD34693
ICV/CCV Std: STD34687
Post Spike: STD34693
ICSA: N/A
ICSAB: N/A
Int. Std:

Workgroups: 309836

Comments:

Seq.	File ID	Sample	ID	Prep	Dil	Reference	Date/Time
1	HY.081709.122554	WG309856-01	Calibration Point		1		08/17/09 12:25
2	HY.081709.122737	WG309856-02	Calibration Point		1		08/17/09 12:27
3	HY.081709.122925	WG309856-03	Calibration Point		1		08/17/09 12:29
4	HY.081709.123120	WG309856-04	Calibration Point		1		08/17/09 12:31
5	HY.081709.123312	WG309856-05	Calibration Point		1		08/17/09 12:33
6	HY.081709.123525	WG309856-06	Calibration Point		1		08/17/09 12:35
7	HY.081709.123909	WG309856-07	Initial Calibration Verification		1		08/17/09 12:39
8	HY.081709.124114	WG309856-08	Initial Calib Blank		1		08/17/09 12:41
9	HY.081709.124307	WG309856-09	CCV		1		08/17/09 12:43
10	HY.081709.124450	WG309856-10	CCB		1		08/17/09 12:44
11	HY.081709.124643	WG309804-02	Method/Prep Blank	40/40	1		08/17/09 12:46
12	HY.081709.124838	WG309804-03	Laboratory Control S	40/40	1		08/17/09 12:48
13	HY.081709.125029	WG309732-01	Fluid Blank		1		08/17/09 12:50
14	HY.081709.125221	L09080145-01	PRR0758GR	4/40	1		08/17/09 12:52
15	HY.081709.125416	WG309836-01	Post Digestion Spike		1	L09080145-01	08/17/09 12:54
16	HY.081709.125617	L09080145-02	PRR0859GR	4/40	1		08/17/09 12:56
17	HY.081709.125835	L09080145-03	PRR0731GR	4/40	1		08/17/09 12:58
18	HY.081709.130030	L09080145-04	PRR0906GR	4/40	1		08/17/09 13:00
19	HY.081709.130213	L09080145-05	PRR01096GR	4/40	1		08/17/09 13:02
20	HY.081709.130357	L09080145-06	PRR0701GR	4/40	1		08/17/09 13:03
21	HY.081709.130539	WG309856-11	CCV		1		08/17/09 13:05
22	HY.081709.130721	WG309856-12	CCB		1		08/17/09 13:07
23	HY.081709.130903	L09080179-01	PRR0628GR	4/40	1		08/17/09 13:09
24	HY.081709.131106	L09080179-02	PRR0959GR	4/40	1		08/17/09 13:11
25	HY.081709.131248	L09080179-03	PRR0766GR	4/40	1	WG309804-01	08/17/09 13:12
26	HY.081709.131449	WG309804-04	Matrix Spike	4/40	1	L09080179-03	08/17/09 13:14
27	HY.081709.131634	WG309804-05	Matrix Spike Duplica	4/40	1	L09080179-03	08/17/09 13:16
28	HY.081709.131817	L09080179-04	PRR01022GR	4/40	1		08/17/09 13:18
29	HY.081709.132002	L09080179-05	PRR01111GR	4/40	1		08/17/09 13:20
30	HY.081709.132200	L09080179-06	PRR01113GR	4/40	1		08/17/09 13:22
31	HY.081709.132356	L09080179-07	PRR0542GR	4/40	1		08/17/09 13:23
32	HY.081709.132538	L09080179-08	PRR0674GR	4/40	1		08/17/09 13:25
33	HY.081709.132723	WG309856-13	CCV		1		08/17/09 13:27
34	HY.081709.132911	WG309856-14	CCB		1		08/17/09 13:29
35	HY.081709.133103	L09080328-13	AV-NCB-EB-1-081309	40/40	1		08/17/09 13:31
36	HY.081709.133300	WG309836-02	Post Digestion Spike		1	L09080328-13	08/17/09 13:33
37	HY.081709.133442	WG309856-15	CCV		1		08/17/09 13:34

Page: 1
Approved: August 18, 2009

Maren Beery

Microbac®

Microbac Laboratories Inc.

Instrument Run Log

Instrument: HYDRA
Dataset: 081709A.PRN
Analyst1: SLP
Analyst2: N/A
Method: 7470A
SOP: ME404
Rev: 11
Maintenance Log ID: 29808

Calibration Std: STD34693
ICV/CCV Std: STD34687
Post Spike: STD34693
ICSA: N/A
ICSAB: N/A
Int. Std:

Workgroups: 309836

Comments:

Seq.	File ID	Sample	ID	Prep	Dil	Reference	Date/Time
38	HY.081709.133627	WG309856-16	CCB		1		08/17/09 13:36

Page: 2 Approved: August 18, 2009

Maren Beery

Microbac®

Checklist ID: 40929

Microbac Laboratories Inc.

Data Checklist

Date: 17-AUG-2009

Analyst: SLP

Analyst: NA

Method: 7470A

Instrument: HYRDA

Curve Workgroup: 309856

Runlog ID: 29644

Analytical Workgroups: 309836

Calibration/Linearity	X
ICV/CCV	X
ICB/CCB	X
ICSA/ICSAB	
CRI	
Blank/LCS	X
MS/MSD	X
Post Spike/Serial Dilution	X
Upload Results	X
Data Qualifiers	
Generate PDF Instrument Data	X
Sign/Annotate PDF Data	X
Upload Curve Data	X
Workgroup Forms	X
Case Narrative	0145, 0179, 0328
Client Forms	X
Level X	
Level 3	0145, 0179
Level 4	0328
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Primary Reviewer	SLP
Secondary Reviewer	MMB
Comments	

Primary Reviewer:
17-AUG-2009
Sheri L. Pfalzgraf

Secondary Reviewer:
18-AUG-2009
Maren Beery

CHECKLIST1 - Modified 03/05/2008

Generated: AUG-18-2009 09:19:43

Microbac Laboratories Inc.

HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: 7470A

AAB#: WG309836

Login Number: L09080179

Client ID	ID	Date Collected	TCLP Date	Time Held	Max Hold	Q	Extract Date	Time Held	Max Hold	Q	Run Date	Time Held	Max Hold	Q
PRR0628GR	01	08/07/09	08/14/09	7			08/17/09	9.8	28		08/17/09	3	28	
PRR0959GR	02	08/07/09	08/14/09	7			08/17/09	9.8	28		08/17/09	3	28	
PRR0766GR	03	08/07/09	08/14/09	7			08/17/09	9.8	28		08/17/09	3	28	
PRR01022GR	04	08/07/09	08/14/09	7			08/17/09	9.8	28		08/17/09	3	28	
PRR01111GR	05	08/07/09	08/14/09	7			08/17/09	9.8	28		08/17/09	3	28	
PRR01113GR	06	08/07/09	08/14/09	7			08/17/09	9.8	28		08/17/09	3	28	
PRR0542GR	07	08/07/09	08/14/09	7			08/17/09	9.8	28		08/17/09	3	28	
PRR0674GR	08	08/07/09	08/14/09	7			08/17/09	9.8	28		08/17/09	3	28	

* = SEE PROJECT QAPP REQUIREMENTS

HOLD_TIMES - Modified 03/06/2008
PDF File ID: 1466812
Report generated 08/17/2009 13:55

METHOD BLANK SUMMARY

Login Number: L09080179
Blank File ID: HY.081709.124643
Prep Date: 08/17/09 09:02
Analyzed Date: 08/17/09 12:46
Analyst: SLP

Work Group: WG309836
Blank Sample ID: WG309804-02
Instrument ID: HYDRA
Method: 7470A

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG309804-03	HY.081709.124838	08/17/09 12:48	01
PRR0628GR	L09080179-01	HY.081709.130903	08/17/09 13:09	01
PRR0959GR	L09080179-02	HY.081709.131106	08/17/09 13:11	01
PRR0766GR	L09080179-03	HY.081709.131248	08/17/09 13:12	01
PRR01022GR	L09080179-04	HY.081709.131817	08/17/09 13:18	01
PRR01111GR	L09080179-05	HY.081709.132002	08/17/09 13:20	01
PRR01113GR	L09080179-06	HY.081709.132200	08/17/09 13:22	01
PRR0542GR	L09080179-07	HY.081709.132356	08/17/09 13:23	01
PRR0674GR	L09080179-08	HY.081709.132538	08/17/09 13:25	01

Report Name: BLANK_SUMMARY
PDF File ID: 1466813
Report generated 08/17/2009 13:56

Microbac Laboratories Inc.

METHOD BLANK REPORT

Login Number: L09080179
Prep Date: 08/17/09 09:02
Sample ID: WG309804-02
Instrument ID: HYDRA
Run Date: 08/17/09 12:46
Prep Method: 7470A
File ID: HY.081709.124643
Analyst: SLP
Method: 7470A
Workgroup (AAB#): WG309836
Matrix: Leachate
Units: mg/L
Contract #: DACA56-94-D-0020
Cal ID: HYDRA-17-AUG-09

Analytes	SDL	PQL	Concentration	Dilution	Qualifier
Mercury	0.000100	0.000200	0.000100	1	U

SDL	Method Detection Limit
PQL	Reporting/Practical Quantitation Limit
ND	Analyte Not detected at or above reporting limit
*	|Analyte concentration| > RL

Report Name: BLANK
PDF ID: 1466814
17-AUG-2009 13:56

Microbac Laboratories Inc.
LABORATORY CONTROL SAMPLE (LCS)

Login Number: L09080179
Run Date: 08/17/2009
Sample ID: WG309804-03
Instrument ID: HYDRA
Run Time: 12:48
Prep Method: 7470A
File ID: HY.081709.124838
Analyst: SLP
Method: 7470A
Workgroup (AAB#): WG309836
Matrix: Leachate
Units: mg/L
QC Key: STD
Lot#: STD34685
Cal ID: HYDRA - 17-AUG-09

Analytes	Expected	Found	% Rec	LCS Limits	Q
Mercury	0.00400	0.00418	105	85 - 115	

LCS - Modified 03/06/2008
PDF File ID: 1466815
Report generated: 08/17/2009 13:56

MATRIX SPIKE AND MATRIX SPIKE DUP (MS/MSD)

Loginnum:L09080179 Cal ID: HYDRA - Worknum:WG309836
Instrument ID:HYDRA Contract #:DACA56-94-D-0020 Method:7470A
Parent ID:WG309804-01 File ID:HY.081709.131248 Dil:1 Matrix:WATER
Sample ID:WG309804-04 MS File ID:HY.081709.131449 Dil:1 Units:mg/L
Sample ID:WG309804-05 MSD File ID:HY.081709.131634 Dil:1

Analyte	Parent	MS Spiked	MS Found	MS %Rec	MSD Spiked	MSD Found	MSD %Rec	%RPD	%Rec Limits	RPD Limit	Q
Mercury	ND	0.0400	0.0421	105	0.0400	0.0433	108	2.81	85 - 115	20	

* FAILS %REC LIMIT

FAILS RPD LIMIT

NOTE: This is an internal quality control sample.

Microbac Laboratories Inc.
POST SPIKE REPORT

Sample Login ID: L09080179
Worknum: WG309836
Instrument ID: HYDRA
Method: 7470A
Post Spike ID: WG309836-01 **File ID:** HY.081709.125416 **Dil:** 1 **Units:** ug/L
Sample ID: L09080145-01 **File ID:** HY.081709.125221 **Dil:** 1 **Matrix:** Leachate

Analyte	Post Spike Result	C	Sample Result	C	Spike Added(SA)	% R	Control Limit %R	Q
MERCURY	1.08		0	U	1	108.0	85 - 115	

N = % Recovery exceeds control limits
F = Result is between MDL and RL
U = Sample result is below MDL. A value of zero is used in the calculation

POST_SPIKE - Modified 03/06/2008
PDF File ID: 1466811
Report generated: 08/17/2009 13:55

Microbac Laboratories Inc.
INITIAL CALIBRATION SUMMARY

Login Number: L09080179
Analytical Method: 7470A
ICAL Worknum: WG309856

Workgroup (AAB#): WG309836
Instrument ID: HYDRA
Initial Calibration Date: 08/17/2009 12:35

Analyte	WG309856-01		WG309856-02		WG309856-03		WG309856-04		WG309856-05		WG309856-06	
	STD	INT	STD	INT	STD	INT	STD	INT	STD	INT	STD	INT
Mercury	0	213	0.200	942	1.00	4411	2.00	8569	5.00	21366	10.0	43441

INT = Instrument intensity
R = Coefficient of correlation
Q = Data Qualifier
* = Out of Compliance; R < 0.995

Microbac Laboratories Inc.

INITIAL CALIBRATION SUMMARY

Login Number:L09080179

Analytical Method:7470A

ICAL Worknum:WG309856

Workgroup (AAB#):WG309836

Instrument ID:HYDRA

Initial Calibration Date:08/17/2009 12:35

Analyte	R	Q
Mercury	1.000	

INT = Instrument intensity
R = Coefficient of correlation
Q = Data Qualifier
* = Out of Compliance; R < 0.995

INT_CAL_HG_FU - Modified 03/06/2008
PDF File ID: 1466817
Report generated 08/17/2009 13:56

Microbac Laboratories Inc.
INITIAL CALIBRATION BLANK (ICB)

Login Number: L09080179
Instrument ID: HYDRA
File ID: HY.081709.124114
Workgroup (AAB#): WG309836
Matrix: LEACHATE

Run Date: 08/17/2009
Run Time: 12:41
Analyst: SLP
Cal ID: HYDRA - 17-AUG-09

Sample ID: WG309856-08
Method: 7470A
Units: ug/L

Analytes	MDL	RDL	Concentration	Qualifier
MERCURY	.1	.2	.1	U

ICB - Modified 07/14/2009
PDF File ID: 1466819
Report generated 08/17/2009 13:56

CONTINUING CALIBRATION BLANK (CCB)

Login Number:	L09080179	Run Date:	08/17/2009	Sample ID:	WG309856-10
Instrument ID:	HYDRA	Run Time:	12:44	Method:	7470A
File ID:	HY.081709.124450	Analyst:	SLP	Units:	ug/L
Workgroup (AAB#):	WG309836	Cal ID:	HYDRA - 17-AUG-09		
Matrix:	LEACHATE				

Analytes	MDL	RDL	Concentration	Qualifier
Mercury	0.100	0.200	0.100	U

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

CCB - Modified 03/05/2008
PDF File ID: 1466821
Report generated 08/17/2009 13:56

Microbac Laboratories Inc.
CONTINUING CALIBRATION BLANK (CCB)

Login Number: L09080179
Run Date: 08/17/2009
Sample ID: WG309856-12
Instrument ID: HYDRA
Run Time: 13:07
Method: 7470A
File ID: HY.081709.130721
Analyst: SLP
Units: ug/L
Workgroup (AAB#): WG309836
Cal ID: HYDRA - 17-AUG-09
Matrix: LEACHATE

Analytes	MDL	RDL	Concentration	Qualifier
Mercury	0.100	0.200	0.100	U

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

CCB - Modified 03/05/2008
PDF File ID: 1466821
Report generated 08/17/2009 13:56

Microbac Laboratories Inc.
CONTINUING CALIBRATION BLANK (CCB)

Login Number: L09080179
Instrument ID: HYDRA
File ID: HY.081709.132911
Workgroup (AAB#): WG309836
Matrix: LEACHATE

Run Date: 08/17/2009
Run Time: 13:29
Analyst: SLP
Cal ID: HYDRA - 17-AUG-09

Sample ID: WG309856-14
Method: 7470A
Units: ug/L

Analytes	MDL	RDL	Concentration	Qualifier
Mercury	0.100	0.200	0.100	U

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

CCB - Modified 03/05/2008
PDF File ID: 1466821
Report generated 08/17/2009 13:56

CONTINUING CALIBRATION BLANK (CCB)

Login Number: L09080179
Run Date: 08/17/2009
Sample ID: WG309856-16
Instrument ID: HYDRA
Run Time: 13:36
Method: 7470A
File ID: HY.081709.133627
Analyst: SLP
Units: ug/L
Workgroup (AAB#): WG309836
Cal ID: HYDRA - 17-AUG-09
Matrix: LEACHATE

Analytes	MDL	RDL	Concentration	Qualifier
Mercury	0.100	0.200	0.100	U

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

CCB - Modified 03/05/2008
PDF File ID: 1466821
Report generated 08/17/2009 13:56

Microbac Laboratories Inc.

INITIAL CALIBRATION VERIFICATION (ICV)
(Alternate Source)

Login Number: L09080179
Instrument ID: HYDRA
File ID: HY.081709.123909
Workgroup (AAB#): WG309836
QC Key: STD

Run Date: 08/17/2009
Run Time: 12:39
Analyst: SLP
Cal ID: HYDRA - 17-AUG-09

Sample ID: WG309856-07
Method: 7470A
Units: ug/L

Analyte		Expected	Found	%REC	LIMITS	Q
Mercury		2	2.11	106	90 - 110	

* Exceeds LIMITS Limit

ICV - Modified 03/06/2008
PDF File ID: 1466818
Report generated 08/17/2009 13:56

Microbac Laboratories Inc.
CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L09080179
Run Date: 08/17/2009
Sample ID: WG309856-09
Instrument ID: HYDRA
Run Time: 12:43
Method: 7470A
File ID: HY.081709.124307
Analyst: SLP
QC Key: STD
Workgroup (AAB#): WG309836
Cal ID: HYDRA - 17-AUG-09
Matrix: LEACHATE

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Mercury, Total		0.00200	0.00206	mg/L	103	80 - 120		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008
PDF File ID: 1466820
Report generated 08/17/2009 13:56

Microbac Laboratories Inc.

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L09080179
Run Date: 08/17/2009
Sample ID: WG309856-11
Instrument ID: HYDRA
Run Time: 13:05
Method: 7470A
File ID: HY.081709.130539
Analyst: SLP
QC Key: STD
Workgroup (AAB#): WG309836
Cal ID: HYDRA - 17-AUG-09
Matrix: LEACHATE

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Mercury, Total		0.00200	0.00201	mg/L	101	80 - 120		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008
PDF File ID: 1466820
Report generated 08/17/2009 13:56

Microbac Laboratories Inc.

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L09080179
Run Date: 08/17/2009
Sample ID: WG309856-13
Instrument ID: HYDRA
Run Time: 13:27
Method: 7470A
File ID: HY.081709.132723
Analyst: SLP
QC Key: STD
Workgroup (AAB#): WG309836
Cal ID: HYDRA - 17-AUG-09
Matrix: LEACHATE

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Mercury, Total		0.00200	0.00191	mg/L	95.5	80 - 120		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008
PDF File ID: 1466820
Report generated 08/17/2009 13:56

Microbac Laboratories Inc.
CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L09080179
Instrument ID: HYDRA
File ID: HY.081709.133442
Workgroup (AAB#): WG309836
Matrix: LEACHATE

Run Date: 08/17/2009
Run Time: 13:34
Analyst: SLP
Cal ID: HYDRA - 17-AUG-09

Sample ID: WG309856-15
Method: 7470A
QC Key: STD

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Mercury, Total		0.00200	0.00193	mg/L	96.5	80 - 120		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008
PDF File ID: 1466820
Report generated 08/17/2009 13:56

2.2 General Chemistry Data

2.2.1 Reactivity Data

2.2.1.1 Summary Data

LABORATORY REPORT

L09080179

08/19/09 09:25

Submitted By

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

For

Account Name: Shaw E & I, Inc.
ABB Lummus Biulding
3010 Briarpark Drive Suite 4N
Houston, TX 77042
Attention: Jennifer Hoang

Project Number: 2773.025
Project: Longhorn AAP
Site: LONGHORN AAP KARNACK TX

P.O. Number: 389869/ 390836(GWTP)

Sample Analysis Summary

Client ID	Lab ID	Method	Dilution	Date Received
PRR0628GR	L09080179-01	SW7.34	1	08-AUG-09
PRR0959GR	L09080179-02	SW7.34	1	08-AUG-09
PRR0766GR	L09080179-03	SW7.34	1	08-AUG-09
PRR01022GR	L09080179-04	SW7.34	1	08-AUG-09
PRR01111GR	L09080179-05	SW7.34	1	08-AUG-09
PRR01113GR	L09080179-06	SW7.34	1	08-AUG-09
PRR0542GR	L09080179-07	SW7.34	1	08-AUG-09
PRR0674GR	L09080179-08	SW7.34	1	08-AUG-09

Report Number: **L09080179**
Report Date : **August 19, 2009**

Sample Number: **L09080179-01**
Client ID: **PRR0628GR**
Matrix: **Soil**
Workgroup Number: **WG309685**
Collect Date: **08/07/2009 13:15**

PrePrep Method: **NONE**
Prep Method: **SW7.34**
Analytical Method: **SW7.34**
Analyst: **DLP**
Dilution: **1**
Units: **mg/kg**

Instrument: **BURET**
Prep Date: **08/14/2009 08:32**
Cal Date:
Run Date: **08/14/2009 08:32**
File ID: **ET.0908140832-10**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Reactivity, Sulfide	18496-25-8		U	100	50.0

U Not detected at or above adjusted sample detection limit

Sample Number:	**L09080179-02**	PrePrep Method:	**NONE**	Instrument:	**BURET**
Client ID:	**PRR0959GR**	Prep Method:	**SW7.34**	Prep Date:	**08/14/2009 08:32**
Matrix:	**Soil**	Analytical Method:	**SW7.34**	Cal Date:	
Workgroup Number:	**WG309685**	Analyst:	**DLP**	Run Date:	**08/14/2009 08:32**
Collect Date:	**08/07/2009 13:20**	Dilution:	**1**	File ID:	**ET.0908140832-11**
		Units:	**mg/kg**		

Analyte	CAS. Number	Result	Qual	PQL	SDL
Reactivity, Sulfide	**18496-25-8**		**U**	**100**	**50.0**

U Not detected at or above adjusted sample detection limit

2 of 8

Sample Number: **L09080179-03**
Client ID: **PRR0766GR**
Matrix: **Soil**
Workgroup Number: **WG309685**
Collect Date: **08/07/2009 13:25**

PrePrep Method: **NONE**
Prep Method: **SW7.34**
Analytical Method: **SW7.34**
Analyst: **DLP**
Dilution: **1**
Units: **mg/kg**

Instrument: **BURET**
Prep Date: **08/14/2009 08:32**
Cal Date:
Run Date: **08/14/2009 08:32**
File ID: **ET.0908140832-12**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Reactivity, Sulfide	**18496-25-8**		**U**	**100**	**50.0**

U Not detected at or above adjusted sample detection limit

Sample Number:	**L09080179-04**	PrePrep Method:	**NONE**	Instrument:	**BURET**
Client ID:	**PRR01022GR**	Prep Method:	**SW7.34**	Prep Date:	**08/14/2009 08:32**
Matrix:	**Soil**	Analytical Method:	**SW7.34**	Cal Date:	
Workgroup Number:	**WG309685**	Analyst:	**DLP**	Run Date:	**08/14/2009 08:32**
Collect Date:	**08/07/2009 13:30**	Dilution:	**1**	File ID:	**ET.0908140832-13**
		Units:	**mg/kg**		

Analyte	CAS. Number	Result	Qual	PQL	SDL
Reactivity, Sulfide	**18496-25-8**		**U**	**100**	**50.0**

U Not detected at or above adjusted sample detection limit

Sample Number:**L09080179-05**
Client ID:**PRR01111GR**
Matrix:**Soil**
Workgroup Number:**WG309685**
Collect Date:**08/07/2009 13:35**

PrePrep Method:**NONE**
Prep Method:**SW7.34**
Analytical Method:**SW7.34**
Analyst:**DLP**
Dilution:**1**
Units:**mg/kg**

Instrument:**BURET**
Prep Date:**08/14/2009 08:32**
Cal Date:
Run Date:**08/14/2009 08:32**
File ID:**ET.0908140832-14**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Reactivity, Sulfide	**18496-25-8**		**U**	**100**	**50.0**

U Not detected at or above adjusted sample detection limit

Sample Number:**L09080179-06**
Client ID:**PRR01113GR**
Matrix:**Soil**
Workgroup Number:**WG309685**
Collect Date:**08/07/2009 13:40**

PrePrep Method:**NONE**
Prep Method:**SW7.34**
Analytical Method:**SW7.34**
Analyst:**DLP**
Dilution:**1**
Units:**mg/kg**

Instrument:**BURET**
Prep Date:**08/14/2009 08:32**
Cal Date:
Run Date:**08/14/2009 08:32**
File ID:**ET.0908140832-15**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Reactivity, Sulfide	**18496-25-8**		**U**	**100**	**50.0**

U Not detected at or above adjusted sample detection limit

Sample Number:	**L09080179-07**	PrePrep Method:	**NONE**	Instrument:	**BURET**
Client ID:	**PRR0542GR**	Prep Method:	**SW7.34**	Prep Date:	**08/14/2009 08:32**
Matrix:	**Soil**	Analytical Method:	**SW7.34**	Cal Date:	
Workgroup Number:	**WG309685**	Analyst:	**DLP**	Run Date:	**08/14/2009 08:32**
Collect Date:	**08/07/2009 13:50**	Dilution:	**1**	File ID:	**ET.0908140832-16**
		Units:	**mg/kg**		

Analyte	CAS. Number	Result	Qual	PQL	SDL
Reactivity, Sulfide	**18496-25-8**		**U**	**100**	**50.0**

U Not detected at or above adjusted sample detection limit

Sample Number:L09080179-08
Client ID:PRR0674GR
Matrix:Soil
Workgroup Number:WG309685
Collect Date:08/07/2009 13:55

PrePrep Method:NONE
Prep Method:SW7.34
Analytical Method:SW7.34
Analyst:DLP
Dilution:1
Units:mg/kg

Instrument:BURET
Prep Date:08/14/2009 08:32
Cal Date:
Run Date:08/14/2009 08:32
File ID:ET.0908140832-17

Analyte	CAS. Number	Result	Qual	PQL	SDL
Reactivity, Sulfide	18496-25-8		U	100	50.0

U Not detected at or above adjusted sample detection limit

2.2.1.2 QC Summary Data

Example Calculations - Reactive Sulfide

$$A = \frac{((B*C)-(D*E)*16000}{F*G} = sulfide\,(mg\,/\,L)$$

$$\frac{A*I}{J} = reactive\ sulfide\ (mg\,/\,Kg)$$

Example Calculation:

B (mL of Iodine):	15
C (N of Iodine):	0.02514
D (mL of titrant):	9.4
E (N of titrant):	0.02489
16000 factor (1mL of 0.025N iodine reacts with 0.4mg sulfide):	16000
F (mL of scrubber solution used for titrating for sulfide):	100
G (dilution of sample (include 50/250 scrubber dilution)):	0.20
I (volume of NaOH placed in scrubber):	50
J (grams of sample used):	10
A=	114.5072
mg/Kg reactive sulfide=	572.536

Checklist ID: 40931

Microbac Laboratories Inc.

Data Checklist

Date: 14-AUG-2009
Analyst: DLP
Analyst: NA
Method: REACTS
Instrument: BURET
Curve Workgroup: NA
Runlog ID:
Analytical Workgroups: WG309685

Calibration/Linearity	08-14-09
Second Source Check	
ICV/CCV (std)	
ICB/CCB	
Blank	X
LCS/LCS Dup	X
MS/MSD	
Duplicate	X
Upload Results	X
Client Forms	
QC Violation Sheet	
Case Narratives	
Signed Raw Data	X
STD/LCS on benchsheet	X
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	
Primary Reviewer	DLP
Secondary Reviewer	DIH
Comments	

Primary Reviewer:
17-AUG-2009
Dorothy Payne

Secondary Reviewer:
18-AUG-2009
Donna Hesson

CHECKLIST1 - Modified 03/05/2008
Generated: AUG-18-2009 14:41:49

2.2.1.3 Raw Data

WORKGROUP: WG309685

REACTIVE SULFIDE

☐ EPA ch. 7 SOP K7332 Revision #: 8
☐ Other
Instrument: buret
LCS Std 34680
Daily Dilution: 5(797)/200
non-reacted LCS
Daily Dilution = 19.925

Iodine standardization (0.025 N and 0.1N)
mL 10 N titrant: 0.0257
Volume I: 10 mL
Normality I: 0.0257
mL 8 N titrant: 0.0257
Volume I: 2 mL
Normality I: 0.103

Stock standardization (in duplicate)
mL I 1) 10 2) 10
N I 1) 0.103 2) 0.103
mL 0.025 titrant 1) 20.7 2) 20.7
797 = stock conc (mg/L)

SAMPLE	Grams Reacted	Volume Titrated	mL Iodine	N Iodine	ml0.0257N 7-21-09 Sodium Thiosulfate
BLANK	X	200	15	0.0257	15.0
Non-reacted LCS (mg/L)	X	200	15		~~20.~~ 5.3
Reacted (mg/L)	10.0	100	15		DP 8-14-09 11.0
08-145-01	10.025	100	5		5.0
-02	10.022				5.0
03	10.025				5.0
04	10.045				5.0
05	10.039				5.0
-06	10.035				5.0
08-179-01	10.038				5.0
-02	10.011				5.0
03	10.055				5.0
-04	10.014				5.0
05	10.022				5.0
06	10.014				5.0
-07	10.011				5.0
-08	10.031				5.0
DUP: 08-179-07	10.007	100	5	0.0257	5.0

Analyst:
Date / Time: 08-14-09/0832

Microbac Laboratories Inc.
TITRAMETRIC REPORT

Workgroup (AAB#):WG309685
Product:SW7.34
Analyte: Reactivity, Sulfide

Analyst:DLP
Run Date:08/14/2009 08:32

SAMPLE NUMBER	Sample	Volume	Vol I	Nor I	Vol T	Nor T	Dil	NaOH	Scrub.	Anal.	Reported	Units
WG309685-01	250	200.0	15	.0257	15	.0257	1	50	250	0	0	mg/kg
WG309685-02	250	200.0	15	.0257	5.3	.0257	1	50	250	19.94	19.94	mg/kg
WG309685-03	10	100.0	15	.0257	11	.0257	1	50	250	411.2	411.2	mg/kg
L09080145-01	10.025	100.0	5	.0257	5	.0257	1	50	250	ND	ND	mg/kg
L09080145-02	10.022	100.0	5	.0257	5	.0257	1	50	250	ND	ND	mg/kg
L09080145-03	10.025	100.0	5	.0257	5	.0257	1	50	250	ND	ND	mg/kg
L09080145-04	10.045	100.0	5	.0257	5	.0257	1	50	250	ND	ND	mg/kg
L09080145-05	10.039	100.0	5	.0257	5	.0257	1	50	250	ND	ND	mg/kg
L09080145-06	10.035	100.0	5	.0257	5	.0257	1	50	250	ND	ND	mg/kg
L09080179-01	10.038	100.0	5	.0257	5	.0257	1	50	250	ND	ND	mg/kg
L09080179-02	10.011	100.0	5	.0257	5	.0257	1	50	250	ND	ND	mg/kg
L09080179-03	10.055	100.0	5	.0257	5	.0257	1	50	250	ND	ND	mg/kg
L09080179-04	10.014	100.0	5	.0257	5	.0257	1	50	250	ND	ND	mg/kg
L09080179-05	10.022	100.0	5	.0257	5	.0257	1	50	250	ND	ND	mg/kg
L09080179-06	10.014	100.0	5	.0257	5	.0257	1	50	250	ND	ND	mg/kg
L09080179-07	10.011	100.0	5	.0257	5	.0257	1	50	250	ND	ND	mg/kg
WG309685-04	10.011	100.0	5	.0257	5	.0257	1	50	250	0	0	mg/kg
L09080179-08	10.031	100.0	5	.0257	5	.0257	1	50	250	ND	ND	mg/kg
WG309685-05	10.007	100.0	5	.0257	5	.0257	1	50	250	0	0	mg/kg

REACTS_REPORT - Modified 03/06/2008

Report generated 08/17/2009 14:10

2.2.2 PH Data

2.2.2.1 Summary Data

LABORATORY REPORT

L09080179

08/19/09 09:25

Submitted By

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

For

Account Name: Shaw E & I, Inc.
ABB Lummus Biulding
3010 Briarpark Drive Suite 4N
Houston, TX 77042
Attention: Jennifer Hoang

Project Number: 2773.025
Project: Longhorn AAP
Site: LONGHORN AAP KARNACK TX

P.O. Number: 389869/ 390836(GWTP)

Sample Analysis Summary

Client ID	Lab ID	Method	Dilution	Date Received
PRR0628GR	L09080179-01	9045D	1	08-AUG-09
PRR0959GR	L09080179-02	9045D	1	08-AUG-09
PRR0766GR	L09080179-03	9045D	1	08-AUG-09
PRR01022GR	L09080179-04	9045D	1	08-AUG-09
PRR01111GR	L09080179-05	9045D	1	08-AUG-09
PRR01113GR	L09080179-06	9045D	1	08-AUG-09
PRR0542GR	L09080179-07	9045D	1	08-AUG-09
PRR0674GR	L09080179-08	9045D	1	08-AUG-09

Microbac®

Report Number: **L09080179**
Report Date : **August 19, 2009**

Sample Number: **L09080179-01**
Client ID: **PRR0628GR**
Matrix: **Soil**
Workgroup Number: **WG309734**
Collect Date: **08/07/2009 13:15**

PrePrep Method: **NONE**
Prep Method: **9045D**
Analytical Method: **9045D**
Analyst: **DIH**
Dilution: **1**
Units: **UNITS**

Instrument: **ORION-4STA**
Prep Date: **08/14/2009 13:15**
Cal Date:
Run Date: **08/14/2009 13:15**
File ID: **OS09081708542801**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Corrosivity pH	10-29-7	5.54			

Sample Number: **L09080179-02**
Client ID: **PRR0959GR**
Matrix: **Soil**
Workgroup Number: **WG309734**
Collect Date: **08/07/2009 13:20**

PrePrep Method: **NONE**
Prep Method: **9045D**
Analytical Method: **9045D**
Analyst: **DIH**
Dilution: **1**
Units: **UNITS**

Instrument: **ORION-4STA**
Prep Date: **08/14/2009 13:15**
Cal Date:
Run Date: **08/14/2009 13:15**
File ID: **OS09081708544701**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Corrosivity pH	**10-29-7**	**5.75**			

Report Number: **L09080179**

Report Date : **August 19, 2009**

Sample Number: **L09080179-03**
Client ID: **PRR0766GR**
Matrix: **Soil**
Workgroup Number: **WG309734**
Collect Date: **08/07/2009 13:25**

PrePrep Method: **NONE**
Prep Method: **9045D**
Analytical Method: **9045D**
Analyst: **DIH**
Dilution: **1**
Units: **UNITS**

Instrument: **ORION-4STA**
Prep Date: **08/14/2009 13:15**
Cal Date:
Run Date: **08/14/2009 13:15**
File ID: **OS09081708550601**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Corrosivity pH	10-29-7	5.53			

Sample Number:**L09080179-04**
Client ID:**PRR01022GR**
Matrix:**Soil**
Workgroup Number:**WG309734**
Collect Date:**08/07/2009 13:30**

PrePrep Method:**NONE**
Prep Method:**9045D**
Analytical Method:**9045D**
Analyst:**DIH**
Dilution:**1**
Units:**UNITS**

Instrument:**ORION-4STA**
Prep Date:**08/14/2009 13:15**
Cal Date:
Run Date:**08/14/2009 13:15**
File ID:**OS09081708552501**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Corrosivity pH	**10-29-7**	**5.44**			

Sample Number:	**L09080179-05**	PrePrep Method:	**NONE**	Instrument:	**ORION-4STA**
Client ID:	**PRR01111GR**	Prep Method:	**9045D**	Prep Date:	**08/14/2009 13:15**
Matrix:	**Soil**	Analytical Method:	**9045D**	Cal Date:	
Workgroup Number:	**WG309734**	Analyst:	**DIH**	Run Date:	**08/14/2009 13:15**
Collect Date:	**08/07/2009 13:35**	Dilution:	**1**	File ID:	**OS09081708554401**
		Units:	**UNITS**		

Analyte	CAS. Number	Result	Qual	PQL	SDL
Corrosivity pH	10-29-7	5.58			

Sample Number:	**L09080179-06**	PrePrep Method:	**NONE**	Instrument:	**ORION-4STA**
Client ID:	**PRR01113GR**	Prep Method:	**9045D**	Prep Date:	**08/14/2009 13:15**
Matrix:	**Soil**	Analytical Method:	**9045D**	Cal Date:	
Workgroup Number:	**WG309734**	Analyst:	**DIH**	Run Date:	**08/14/2009 13:15**
Collect Date:	**08/07/2009 13:40**	Dilution:	**1**	File ID:	**OS09081708560301**
		Units:	**UNITS**		

Analyte	CAS. Number	Result	Qual	PQL	SDL
Corrosivity pH	**10-29-7**	**5.61**			

Sample Number: **L09080179-07**
Client ID: **PRR0542GR**
Matrix: **Soil**
Workgroup Number: **WG309734**
Collect Date: **08/07/2009 13:50**

PrePrep Method: **NONE**
Prep Method: **9045D**
Analytical Method: **9045D**
Analyst: **DIH**
Dilution: **1**
Units: **UNITS**

Instrument: **ORION-4STA**
Prep Date: **08/14/2009 13:15**
Cal Date:
Run Date: **08/14/2009 13:15**
File ID: **OS09081708562401**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Corrosivity pH	10-29-7	5.55			

Sample Number:**L09080179-08**
Client ID:**PRR0674GR**
Matrix:**Soil**
Workgroup Number:**WG309734**
Collect Date:**08/07/2009 13:55**

PrePrep Method:**NONE**
Prep Method:**9045D**
Analytical Method:**9045D**
Analyst:**DIH**
Dilution:**1**
Units:**UNITS**

Instrument:**ORION-4STA**
Prep Date:**08/14/2009 13:15**
Cal Date:
Run Date:**08/14/2009 13:15**
File ID:**OS09081708564301**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Corrosivity pH	**10-29-7**	**5.67**			

2.2.2.2 QC Summary Data

Checklist ID: 40939

Microbac Laboratories Inc.

Data Checklist

Date: 14-AUG-2009
Analyst: DIH
Analyst: NA
Method: PH
Instrument: ORION 4 STAR
Curve Workgroup: NA
Runlog ID:
Analytical Workgroups: WG309734

Calibration/Linearity	8/14/2009
Second Source Check	
ICV/CCV (std)	
ICB/CCB	
Blank	
LCS/LCS Dup	X
MS/MSD	
Duplicate	X
Upload Results	X
Client Forms	
QC Violation Sheet	
Case Narratives	X
Signed Raw Data	X
STD/LCS on benchsheet	X
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Primary Reviewer	DIH
Secondary Reviewer	
Comments	

Primary Reviewer:
17-AUG-2009

Donna Hesson

Secondary Reviewer:

CHECKLIST1 - Modified 03/05/2008
Generated: AUG-17-2009 15:13:34

Microbac®

2.2.2.3 Raw Data

WORKGROUP: WG309734

pH

Sample	Calibration Buffers	Water Misc. Liquid	50% Slurry Of Solid	50% Water Org. Liq. Mix
LCS 6 std 34498	4,7,10	6.03		
08-145-01			5.54	
02			5.48	
03			5.57	
04			5.54	
05			5.80	
06			6.44	
08-179-01			5.54	
02			5.75	
03			5.53	
04			5.44	
05			5.58	
06			5.61	
07			5.55	
08			5.67	
DUP 08-145-03 ~~179-0~~ dw 8/14/09			5.62	
LCS 9 33444		9.00		

SW846 9040C/9045D

SM 4500-H(+)-B

EPA 150.1

SOP K1501 Rev 11

Circle Instrument

[✓ Orion 4-Star]

Orion 710A #1

Orion 710A #2

Sargent - Welch

Analyst:

Date: 8/14/09/1315

2.2.3 Method Flashpoint

2.2.3.1 Summary Data

LABORATORY REPORT

L09080179

08/19/09 09:25

Submitted By

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

For

Account Name: Shaw E & I, Inc.
ABB Lummus Biulding
3010 Briarpark Drive Suite 4N
Houston, TX 77042
Attention: Jennifer Hoang

Project Number: 2773.025
Project: Longhorn AAP
Site: LONGHORN AAP KARNACK TX

P.O. Number: 389869/ 390836(GWTP)

Sample Analysis Summary

Client ID	Lab ID	Method	Dilution	Date Received
PRR0628GR	L09080179-01	1010	1	08-AUG-09
PRR0959GR	L09080179-02	1010	1	08-AUG-09
PRR0766GR	L09080179-03	1010	1	08-AUG-09
PRR01022GR	L09080179-04	1010	1	08-AUG-09
PRR01111GR	L09080179-05	1010	1	08-AUG-09
PRR01113GR	L09080179-06	1010	1	08-AUG-09
PRR0542GR	L09080179-07	1010	1	08-AUG-09
PRR0674GR	L09080179-08	1010	1	08-AUG-09

Sample Number: **L09080179-01**
Client ID: **PRR0628GR**
Matrix: **Soil**
Workgroup Number: **WG309849**
Collect Date: **08/07/2009 13:15**

PrePrep Method: **NONE**
Prep Method: **1010**
Analytical Method: **1010**
Analyst: **JBK**
Dilution: **1**
Units: **Degrees C**

Instrument: **PRECISION**
Prep Date: **08/17/2009 10:30**
Cal Date:
Run Date: **08/17/2009 10:30**
File ID: **PR09081808551301**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Ignitability		68.0	>		

> Result is greater than the associated numerical value.

Report Number: **L09080179**
Report Date : **August 19, 2009**

Sample Number: **L09080179-02**
Client ID: **PRR0959GR**
Matrix: **Soil**
Workgroup Number: **WG309849**
Collect Date: **08/07/2009 13:20**

PrePrep Method: **NONE**
Prep Method: **1010**
Analytical Method: **1010**
Analyst: **JBK**
Dilution: **1**
Units: **Degrees C**

Instrument: **PRECISION**
Prep Date: **08/17/2009 10:30**
Cal Date:
Run Date: **08/17/2009 10:30**
File ID: **PR09081808554901**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Ignitability		**75.0**	**>**		

> Result is greater than the associated numerical value.

Sample Number: **L09080179-03**
Client ID: **PRR0766GR**
Matrix: **Soil**
Workgroup Number: **WG309849**
Collect Date: **08/07/2009 13:25**

PrePrep Method: **NONE**
Prep Method: **1010**
Analytical Method: **1010**
Analyst: **JBK**
Dilution: **1**
Units: **Degrees C**

Instrument: **PRECISION**
Prep Date: **08/17/2009 10:30**
Cal Date:
Run Date: **08/17/2009 10:30**
File ID: **PR09081808560901**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Ignitability		75.0	>		

> Result is greater than the associated numerical value.

Report Number:**L09080179**
Report Date :**August 19, 2009**

Sample Number:**L09080179-04**
Client ID:**PRR01022GR**
Matrix:**Soil**
Workgroup Number:**WG309849**
Collect Date:**08/07/2009 13:30**

PrePrep Method:**NONE**
Prep Method:**1010**
Analytical Method:**1010**
Analyst:**JBK**
Dilution:**1**
Units:**Degrees C**

Instrument:**PRECISION**
Prep Date:**08/17/2009 10:30**
Cal Date:
Run Date:**08/17/2009 10:30**
File ID:**PR09081808564901**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Ignitability		75.0	>		

> Result is greater than the associated numerical value.

Sample Number:**L09080179-05**
Client ID:**PRR01111GR**
Matrix:**Soil**
Workgroup Number:**WG309849**
Collect Date:**08/07/2009 13:35**

PrePrep Method:**NONE**
Prep Method:**1010**
Analytical Method:**1010**
Analyst:**JBK**
Dilution:**1**
Units:**Degrees C**

Instrument:**PRECISION**
Prep Date:**08/17/2009 10:30**
Cal Date:
Run Date:**08/17/2009 10:30**
File ID:**PR09081808570801**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Ignitability		68.0	>		

> Result is greater than the associated numerical value.

Sample Number:**L09080179-06**

Client ID:**PRR01113GR**

Matrix:**Soil**

Workgroup Number:**WG309849**

Collect Date:**08/07/2009 13:40**

PrePrep Method:**NONE**

Prep Method:**1010**

Analytical Method:**1010**

Analyst:**JBK**

Dilution:**1**

Units:**Degrees C**

Instrument:**PRECISION**

Prep Date:**08/17/2009 10:30**

Cal Date:

Run Date:**08/17/2009 10:30**

File ID:**PR09081808572401**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Ignitability		68.0	>		

> Result is greater than the associated numerical value.

Sample Number: **L09080179-07**
Client ID: **PRR0542GR**
Matrix: **Soil**
Workgroup Number: **WG309849**
Collect Date: **08/07/2009 13:50**

PrePrep Method: **NONE**
Prep Method: **1010**
Analytical Method: **1010**
Analyst: **JBK**
Dilution: **1**
Units: **Degrees C**

Instrument: **PRECISION**
Prep Date: **08/17/2009 10:30**
Cal Date:
Run Date: **08/17/2009 10:30**
File ID: **PR09081808574601**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Ignitability		72.0	>		

> Result is greater than the associated numerical value.

Sample Number:	**L09080179-08**	PrePrep Method:	**NONE**	Instrument:	**PRECISION**
Client ID:	**PRR0674GR**	Prep Method:	**1010**	Prep Date:	**08/17/2009 10:30**
Matrix:	**Soil**	Analytical Method:	**1010**	Cal Date:	
Workgroup Number:	**WG309849**	Analyst:	**JBK**	Run Date:	**08/17/2009 10:30**
Collect Date:	**08/07/2009 13:55**	Dilution:	**1**	File ID:	**PR09081808580301**
		Units:	**Degrees C**		

Analyte	CAS. Number	Result	Qual	PQL	SDL
Ignitability		72.0	>		

> Result is greater than the associated numerical value.

2.2.3.2 QC Summary Data

Example Flashpoint Calculations

1.0 Calculating the flashpoint of a sample.

$$Flashpoint = C + 0.033(760 - P)$$

Where:
C = Observed flashpoint (Celcius)
P = Ambient barometric pressure(mmHg) corrected for temperature and gravity.

Flashpoint = Flashpoint of the sample.

2.2.3.3 Raw Data

2.2.4 Reactive Cyanide Data

2.2.4.1 Summary Data

LABORATORY REPORT

L09080179

08/19/09 09:25

Submitted By

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

For

Account Name: Shaw E & I, Inc.
ABB Lummus Biulding
3010 Briarpark Drive Suite 4N
Houston, TX 77042
Attention: Jennifer Hoang

Project Number: 2773.025
Project: Longhorn AAP
Site: LONGHORN AAP KARNACK TX

P.O. Number: 389869/ 390836(GWTP)

Sample Analysis Summary

Client ID	Lab ID	Method	Dilution	Date Received
PRR0628GR	L09080179-01	SW7.33	1	08-AUG-09
PRR0959GR	L09080179-02	SW7.33	1	08-AUG-09
PRR0766GR	L09080179-03	SW7.33	1	08-AUG-09
PRR01022GR	L09080179-04	SW7.33	1	08-AUG-09
PRR01111GR	L09080179-05	SW7.33	1	08-AUG-09
PRR01113GR	L09080179-06	SW7.33	1	08-AUG-09
PRR0542GR	L09080179-07	SW7.33	1	08-AUG-09
PRR0674GR	L09080179-08	SW7.33	1	08-AUG-09

L1_A_PROD - Modified 03/06/2008
PDF File ID: 1468640
Report generated: 08/19/2009 09:25

1 OF 1

Report Number: **L09080179**
Report Date : **August 19, 2009**

Sample Number: **L09080179-01**
Client ID: **PRR0628GR**
Matrix: **Soil**
Workgroup Number: **WG309684**
Collect Date: **08/07/2009 13:15**

PrePrep Method: **NONE**
Prep Method: **SW7.33**
Analytical Method: **SW7.33**
Analyst: **DLP**
Dilution: **1**
Units: **mg/kg**

Instrument: **UV-120-1V**
Prep Date: **08/14/2009 08:30**
Cal Date:
Run Date: **08/14/2009 08:30**
File ID: **1V.0908140830-09**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Reactivity, Cyanide	57-12-5		U	49.8	24.9

U Not detected at or above adjusted sample detection limit

Sample Number: **L09080179-02**
Client ID: **PRR0959GR**
Matrix: **Soil**
Workgroup Number: **WG309684**
Collect Date: **08/07/2009 13:20**

PrePrep Method: **NONE**
Prep Method: **SW7.33**
Analytical Method: **SW7.33**
Analyst: **DLP**
Dilution: **1**
Units: **mg/kg**

Instrument: **UV-120-1V**
Prep Date: **08/14/2009 08:30**
Cal Date:
Run Date: **08/14/2009 08:30**
File ID: **1V.0908140830-10**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Reactivity, Cyanide	57-12-5		U	49.9	25.0

U Not detected at or above adjusted sample detection limit

Sample Number:	L09080179-03	PrePrep Method:	NONE	Instrument:	UV-120-1V
Client ID:	PRR0766GR	Prep Method:	SW7.33	Prep Date:	08/14/2009 08:30
Matrix:	Soil	Analytical Method:	SW7.33	Cal Date:	
Workgroup Number:	WG309684	Analyst:	DLP	Run Date:	08/14/2009 08:30
Collect Date:	08/07/2009 13:25	Dilution:	1	File ID:	1V.0908140830-11
		Units:	mg/kg		

Analyte	CAS. Number	Result	Qual	PQL	SDL
Reactivity, Cyanide	57-12-5		U	49.7	24.9

U Not detected at or above adjusted sample detection limit

Sample Number:	L09080179-04	PrePrep Method:	NONE	Instrument:	UV-120-1V
Client ID:	PRR01022GR	Prep Method:	SW7.33	Prep Date:	08/14/2009 08:30
Matrix:	Soil	Analytical Method:	SW7.33	Cal Date:	
Workgroup Number:	WG309684	Analyst:	DLP	Run Date:	08/14/2009 08:30
Collect Date:	08/07/2009 13:30	Dilution:	1	File ID:	1V.0908140830-12
		Units:	mg/kg		

Analyte	CAS. Number	Result	Qual	PQL	SDL
Reactivity, Cyanide	57-12-5		U	49.9	25.0

U Not detected at or above adjusted sample detection limit

Sample Number: **L09080179-05**
Client ID: **PRR01111GR**
Matrix: **Soil**
Workgroup Number: **WG309684**
Collect Date: **08/07/2009 13:35**

PrePrep Method: **NONE**
Prep Method: **SW7.33**
Analytical Method: **SW7.33**
Analyst: **DLP**
Dilution: **1**
Units: **mg/kg**

Instrument: **UV-120-1V**
Prep Date: **08/14/2009 08:30**
Cal Date:
Run Date: **08/14/2009 08:30**
File ID: **1V.0908140830-13**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Reactivity, Cyanide	57-12-5		U	49.9	24.9

U Not detected at or above adjusted sample detection limit

Sample Number:**L09080179-06**
Client ID:**PRR01113GR**
Matrix:**Soil**
Workgroup Number:**WG309684**
Collect Date:**08/07/2009 13:40**

PrePrep Method:**NONE**
Prep Method:**SW7.33**
Analytical Method:**SW7.33**
Analyst:**DLP**
Dilution:**1**
Units:**mg/kg**

Instrument:**UV-120-1V**
Prep Date:**08/14/2009 08:30**
Cal Date:
Run Date:**08/14/2009 08:30**
File ID:**1V.0908140830-14**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Reactivity, Cyanide	57-12-5		U	49.9	25.0

U Not detected at or above adjusted sample detection limit

Sample Number: **L09080179-07**
Client ID: **PRR0542GR**
Matrix: **Soil**
Workgroup Number: **WG309684**
Collect Date: **08/07/2009 13:50**

PrePrep Method: **NONE**
Prep Method: **SW7.33**
Analytical Method: **SW7.33**
Analyst: **DLP**
Dilution: **1**
Units: **mg/kg**

Instrument: **UV-120-1V**
Prep Date: **08/14/2009 08:30**
Cal Date:
Run Date: **08/14/2009 08:30**
File ID: **1V.0908140830-15**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Reactivity, Cyanide	**57-12-5**		**U**	**49.9**	**25.0**

U Not detected at or above adjusted sample detection limit

Sample Number:	**L09080179-08**	PrePrep Method:	**NONE**	Instrument:	**UV-120-1V**
Client ID:	**PRR0674GR**	Prep Method:	**SW7.33**	Prep Date:	**08/14/2009 08:30**
Matrix:	**Soil**	Analytical Method:	**SW7.33**	Cal Date:	
Workgroup Number:	**WG309684**	Analyst:	**DLP**	Run Date:	**08/14/2009 08:30**
Collect Date:	**08/07/2009 13:55**	Dilution:	**1**	File ID:	**1V.0908140830-16**
		Units:	**mg/kg**		

Analyte	CAS. Number	Result	Qual	PQL	SDL
Reactivity, Cyanide	57-12-5		U	49.8	24.9

U Not detected at or above adjusted sample detection limit

2.2.4.2 QC Summary Data

Checklist ID: 40932

Microbac Laboratories Inc.

Data Checklist

Date: 14-AUG-2009
Analyst: DLP
Analyst: NA
Method: REACTC
Instrument: UV-120-1V
Curve Workgroup: NA
Runlog ID:
Analytical Workgroups: WG309684

Calibration/Linearity	07-16-09
Second Source Check	
ICV/CCV (std)	X
ICB/CCB	
Blank	
LCS/LCS Dup	X
MS/MSD	
Duplicate	X
Upload Results	X
Client Forms	
QC Violation Sheet	
Case Narratives	
Signed Raw Data	X
STD/LCS on benchsheet	X
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	
Primary Reviewer	DLP
Secondary Reviewer	DIH
Comments	

Primary Reviewer:	Secondary Reviewer:
17-AUG-2009	18-AUG-2009
	Donna Hesson

CHECKLIST1 - Modified 03/05/2008
Generated: AUG-18-2009 14:42:44

Microbac®

2.2.4.3 Raw Data

WG307248

Curves

Parameter: REACT-CN

Spectrophotometer: UV-120-1V

Calibration (Curve) standard stock: Std 33348

Concentration: 968 mg/L

Recipe for preparation of curve standards found in:
SOP: K7332 Revision: 8 Page: 8

Second Source Stock: Std 33349 (concentration: 1020 mg/L

Daily Preparation: 5(1020)/250 = 20.4
10(20.4)/100 = 2.04
concentration = 5(2.04)/50 = 0.204

Calibration Standards (mg/L)	Volume	Cell Size	Wavelength	Absorbance
0.00	50	1	578	0.000
0.01936	↓	↓	↓	0.027
0.03872				0.053
0.0968				0.138
0.1936				0.284
0.2904				0.414
0.3872				0.557
2nd 0.204				0.298

Analyst:

Date/Time: 7/16/09 @ 1040

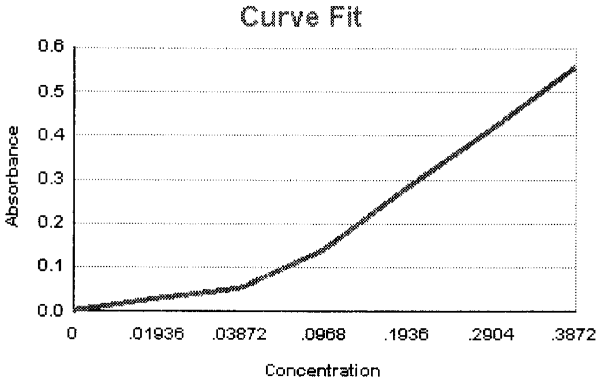
Microbac Laboratories Inc.
INITIAL CALIBRATION

Workgroup: WG307248
Analytical Method: 846
Instrument ID: UV-120-1V

Analyst: JBK
Initial Calibration Date: 07/16/2009

Analyte: CYANIDE
Number of Points: 7
Slope: 1.43990
Y-Intercept: -0.000635703
Coef. Of Correlation (R^2): 0.999810
Coef. Of Correlation (R): 0.999905

Concentration X	Absorbance Y	X^2	X * Y	Y-Fitted (mX^2+B)
0.00	0.00	0.00	0.00	-0.000635703
0.0194	0.0270	0.000375	0.000523	0.0272407
0.0387	0.0530	0.00150	0.00205	0.0551171
0.0968	0.138	0.00937	0.0134	0.138746
0.194	0.284	0.0375	0.0550	0.278128
0.290	0.414	0.0843	0.120	0.417511
0.387	0.557	0.150	0.216	0.556893



WG_ICAL_CAL_WET - Modified 03/06/2008
Report generated 07/16/2009 11:18

Microbac

Microbac Laboratories Inc.
ALTERNATE SOURCE REPORT

Workgroup #: WG307248
File ID: 1V.0907161040-08
CCV ID: WG307248-08
Units: mg/kg
Analyte: CYANIDE
Instrument ID: UV-120-1V
Run Date: 07/16/2009
Run Time: 10:40
Analyst: JBK
Cal ID: UV-120 -

Analyte	Expected	Found	RF	%D	Q
Reactivity, Cyanide	.204	0.207	1.46	1.5	

* Exceeds %D Limit

CCC Calibrtion Check Compounds
SPCC System Performance Check Compounds

WET_WG_SSCV - Modified 03/06/2008
Report generated 07/16/2009 11:19

Reactive Cyanide

LCS: Std 34091 (1020)

CCV: Std 34090 (968) SOP: K7332 Revision # 8

Daily Dilution: 5(968)/250=19.36 Curve ID: 307248 7-16-09

10(19.36)/100=1.936 Spec: UV1201V

5(1.936)/50=0.1936

Sample	Grams Reacted	Dilution	Cell Size	Aborbance @ 578nm
CCV: 0.1936	NA		1cm	0.276
LCS:	10.60			0.339
08-145-01	10.025			0.000
02	10.022			0.000
03	10.025			0.000
04	10.045			0.000
05	10.039			0.000
06	10.035			0.000
08-179-01	10.038			0.000
02	10.011			0.000
03	10.055			0.000
-04	10.~~034~~ 014 DW 8-14-09			0.000
-05	10.022			0.000
-06	10.014			0.000
-07	10.011			0.000
-08	10.031			0.000
DUP: 08-179-07	10.007		1cm	0.000

Analyst: Date/Time: 08-14-09/0830

Microbac Laboratories Inc.
SAMPLE REPORT

Workgroup: WG309684
Analyte: CYANIDE

Analyst: DLP
Date: 08/14/2009

Sample ID	I Vol	F Vol	Response	Scrubber		Slope	Y Intercept	Dil	Anal. Conc.	Rep. Conc.	Units
WG309684-01	10	50	0.339	50	250	1.440	-0.0006357	5	1.1794	29.484	mg/kg
L09080145-01	10.025	50	0	50	250	1.440	-0.0006357	1	0.011010	ND	mg/kg
L09080145-02	10.022	50	0	50	250	1.440	-0.0006357	1	0.011013	ND	mg/kg
L09080145-03	10.025	50	0	50	250	1.440	-0.0006357	1	0.011010	ND	mg/kg
L09080145-04	10.045	50	0	50	250	1.440	-0.0006357	1	0.010988	ND	mg/kg
L09080145-05	10.039	50	0	50	250	1.440	-0.0006357	1	0.010994	ND	mg/kg
L09080145-06	10.035	50	0	50	250	1.440	-0.0006357	1	0.010999	ND	mg/kg
L09080179-01	10.038	50	0	50	250	1.440	-0.0006357	1	0.010996	ND	mg/kg
L09080179-02	10.011	50	0	50	250	1.440	-0.0006357	1	0.011025	ND	mg/kg
L09080179-03	10.055	50	0	50	250	1.440	-0.0006357	1	0.010977	ND	mg/kg
L09080179-04	10.014	50	0	50	250	1.440	-0.0006357	1	0.011022	ND	mg/kg
L09080179-05	10.022	50	0	50	250	1.440	-0.0006357	1	0.011013	ND	mg/kg
L09080179-06	10.014	50	0	50	250	1.440	-0.0006357	1	0.011022	ND	mg/kg
L09080179-07	10.011	50	0	50	250	1.440	-0.0006357	1	0.011025	ND	mg/kg
WG309684-02	10.011	50	0	50	250	1.440	-0.0006357	1	0.011025	0.055065	mg/kg
L09080179-08	10.031	50	0	50	250	1.440	-0.0006357	1	0.011003	ND	mg/kg
WG309684-03	10.007	50	0	50	250	1.440	-0.0006357	1	0.011030	0.055109	mg/kg

UV_REACTC - Modified 03/06/2008
Report generated 08/17/2009 14:05

Microbac Laboratories Inc.
CONTINUING CALIBRATION REPORT

Workgroup #:	WG309857	Instrument ID:	UV-120-1V
File ID:	1V.0908140830-01	Run Date:	08/14/2009
CCV ID:	WG309857-01	Run Time:	08:30
Units:	mg/kg	Analyst:	DLP
Analyte:	CYANIDE	Cal ID:	UV-120 -

Analyte	Expected	Found	RF	%D	Q
Reactivity, Cyanide	.194	0.192	1.43	1.0	

* Exceeds %D Limit

CCC Calibrtion Check Compounds
SPCC System Performance Check Compounds

WET_WG_CCV - Modified 03/06/2008

Report generated 08/17/2009 13:58

3.0 Attachments

Microbac Laboratories Inc.
Analyst Listing
August 19, 2009

ADC - ANTHONY D. CANTER
AJF - AMANDA J. FICKIESEN
AJM - ANTHONY J. MOSSBURG
ALB - ANNIE L. BROWN
AML - ANTHONY M. LONG
BLG - BRENDA L. GREENWALT
BRG - BRENDA R. GREGORY
CAA - CASSIE A. AUGENSTEIN
CAF - CHERYL A. FLOWERS
CAH - CHARLES A. HALL
CEB - CHAD E. BARNES
CLC - CHRYS L. CRAWFORD
CLW - CHARISSA L. WINTERS
CPD - CHAD P. DAVIS
CSH - CHRIS S. HILL
DDE - DEBRA D. ELLIOTT
DEL - DON E. LIGHTFRITZ
DEV - DAVID E. VANDENBERG
DGB - DOUGLAS G. BUTCHER
DIH - DEANNA I. HESSON
DLB - DAVID L. BUMGARNER
DLP - DOROTHY L. PAYNE
DLR - DIANNA L. RAUCH
DR - DEANNA ROBERTS
ECL - ERIC C. LAWSON
EDA - ERIN D. AGEE
ERP - ERIN R. PORTER
FJB - FRANCES J. BOLDEN
HAV - HEMA VILASAGAR
HJR - HOLLY J. REED
JBK - JEREMY B. KINNEY
JDH - JUSTIN D. HESSON
JKT - JANE K. THOMPSON
JWR - JOHN W. RICHARDS
JWS - JACK W. SHEAVES
JYH - JI Y. HU
KEB - KATHRYN E. BARNES
KHR - KIM H. RHODES
KRA - KATHY R. ALBERTSON
LKN - LINDA K. NEDEFF
LSB - LESLIE S. BUCINA
MDA - MIKE D. ALBERTSON
MDC - MICHAEL D. COCHRAN
MES - MARY E. SCHILLING
MMB - MAREN M. BEERY
MRT - MICHELLE R. TAYLOR
MSW - MATT S. WILSON
NPM - NATHANIEL P. MILLER
PDM - PIERCE D. MORRIS
RAH - ROY A. HALSTEAD
RB - ROBERT BUCHANAN
REK - ROBERT E. KYER
RLK - ROBIN L. KLINGER
RWC - RODNEY W. CAMPBELL
SDH - SHANA D. HINYARD
SLM - STEPHANIE L. MOSSBURG
SLP - SHERI L. PFALZGRAF
TIP - TAE I. PARRISH
TMB - TIFFANY M. BAILEY
TMM - TAMMY M. MORRIS
VC - VICKI COLLIER
WTD - WADE T. DELONG

Microbac Laboratories Inc.
List of Valid Qualifiers
August 19, 2009

Qualkey: STD_ND=U

Qualifier	Description
U	Not detected at or above adjusted sample detection limit

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

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

COC NO. (DATE-01)

Shaw Environmental & Infrastructure, Inc.
3010 Briarpark Drive, Suite 400
Houston, TX 77042
(713) 996-4400

Laboratory Name: Microbac
Address : 158 Starlite Drive, Marietta OH 45750
Contact : Stephanie Mossburg
Phone: 1-800-373-4071

PM: Praveen Svrivastav (713.996.4588)
Project Contact: Jennifer Hoang
Project Name: Pistol Range
Project #: 117591-0009B340

TAT:
Phone No: 713-996-4408
Site: Confirmation Sampling
Location: Karnack, TX

Sampler Print: ALLEN WILLMORE
(713) 247-9292

Sampler Sign:

**RCI
Reactivity Cyanide-SW7.33
Reactivity Sulfide-SW7.34
Corrosivity pH-9045D
Ignitability-1010

Sample Number	Grab	Date	Time	Matrix	# of Containers	TCLP VOCs (8260)	TCLP [redacted] METALS	**RCI							Comments
PRDS02	X	8/7/09	14:15	Soil	3	X	X	X							24-HOUR TAT!! (Rolloffs B-542, B-959, B-1113, B-766)
PRDS03	X	8/7/09	14:30	Soil	3	X	X	X							24-HOUR TAT!! (Rolloffs B-1111, B-1022, B-628, B-674)
PRRO628GR	X	8/7/09	13:15	Soil	3	X	X	X							HOLD
PRRO959GR	X	8/7/09	13:20	Soil	3	X	X	X							HOLD
PRRO 766GR	X	8/7/09	13:25	Soil	3	X	X	X							HOLD
PRRO1022GR	X	8/7/09	13:30	Soil	3	X	X	X							HOLD
PRRO1111 GR	X	8/7/09	13:35	Soil	3	X	X	X							HOLD
PRRO 1113 GR	X	8/7/09	13:40	Soil	3	X	X	X							HOLD
~~[illegible]~~	~~X~~	~~8/7/09~~	~~[illegible]~~	~~Soil~~	~~3~~	~~X~~	~~X~~	~~X~~							~~HOLD~~
PRRO 542 GR	X	8/7/09	13:50	Soil	3	X	X	X							HOLD
PRRO 674 GR	X	8/7/09	13:55	Soil	3	X	X	X							HOLD
	X			Soil											
	X			Soil											
	X			Soil											
	X			Soil											

Relinquished By:
Date/Time 8/7/09 17:30

Received By:
Date/Time

Special Instructions 24-HOUR TAT!! for PRDS02 & PRDS03 ONLY!!
HOLD PENDING ANALYSIS

Relinquished By:
Date/Time

Received for Laboratory By:
Date/Time

Remarks:

Microbac OVD 221000001000
Received: 08/08/2009 10:36
By: DON LIGHTFRITZ

Don E Lightfritz

COOLER INSPECTION

Microbac®

Received: 08/08/2009 10:36
Delivery Method: UPS
Opened By: Don Lightfritz
Comments:

Login(s): L09080178 L09080179

Cooler(s)

Cooler #	Temp Gun	Temp	Tracking #	COC #	Comments
0013142	H	3.0	1Z66V7254491566525	date-01	

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

Microbac Laboratories Inc.

Internal Chain of Custody Report

Login: L09080179
Account: 2773
Project: 2773.025
Samples: 8
Due Date: 18-AUG-2009

Samplenum	**Container ID**	**Products**
L09080179-01	604490	

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	10-AUG-2009 10:47	RLK	
2	ANALYZ	W1	WET	14-AUG-2009 08:21	DLP	JKT

Comments:Products cancelled.

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
3	STORE	WET	A1	19-AUG-2009 08:20	JKT	JBK

Comments:Products cancelled.

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER		10-AUG-2009 10:47	RLK	

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER		10-AUG-2009 10:47	RLK	

Samplenum	**Container ID**	**Products**
L09080179-01	605965	TC-EX

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	14-AUG-2009 08:35	JKT	
2	PREP	W1	TCL	14-AUG-2009 08:49	RWC	RLK
3	ANALYZ	W1	A1	14-AUG-2009 11:55	RLK	RWC

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER		14-AUG-2009 08:35	JKT	

Samplenum	**Container ID**	**Products**
L09080179-01	605966	REACTC REACTS

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	14-AUG-2009 08:35	JKT	
2	ANALYZ	W1	WET	14-AUG-2009 09:26	DLP	RLK

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: L09080179
Account: 2773
Project: 2773.025
Samples: 8
Due Date: 18-AUG-2009

Samplenum	**Container ID**	**Products**
L09080179-02	604491	

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	10-AUG-2009 10:47	RLK	
2	ANALYZ	W1	WET	14-AUG-2009 08:21	DLP	JKT

Comments:Products cancelled.

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER		10-AUG-2009 10:47	RLK	

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER		10-AUG-2009 10:47	RLK	

Samplenum	**Container ID**	**Products**
L09080179-02	605967	TC-EX

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	14-AUG-2009 08:35	JKT	
2	PREP	W1	TCL	14-AUG-2009 08:49	RWC	RLK
3	ANALYZ	W1	A1	14-AUG-2009 11:55	RLK	RWC

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER		14-AUG-2009 08:35	JKT	

Samplenum	**Container ID**	**Products**
L09080179-02	605968	REACTC REACTS

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	14-AUG-2009 08:35	JKT	
2	ANALYZ	W1	WET	14-AUG-2009 09:26	DLP	RLK
3	STORE	WET	A1	19-AUG-2009 08:20	JKT	JBK

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

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Microbac Laboratories Inc.

Internal Chain of Custody Report

Login: L09080179
Account: 2773
Project: 2773.025
Samples: 8
Due Date: 18-AUG-2009

Samplenum	**Container ID**	**Products**
L09080179-03	604492	

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	10-AUG-2009 10:47	RLK	
2	ANALYZ	W1	WET	14-AUG-2009 08:21	DLP	JKT

Comments:Products cancelled.

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER		10-AUG-2009 10:47	RLK	

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER		10-AUG-2009 10:47	RLK	

Samplenum	**Container ID**	**Products**
L09080179-03	605969	TC-EX

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	14-AUG-2009 08:35	JKT	
2	PREP	W1	TCL	14-AUG-2009 08:49	RWC	RLK
3	ANALYZ	W1	A1	14-AUG-2009 11:55	RLK	RWC

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER		14-AUG-2009 08:35	JKT	

Samplenum	**Container ID**	**Products**
L09080179-03	605970	REACTC REACTS

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	14-AUG-2009 08:35	JKT	
2	ANALYZ	W1	WET	14-AUG-2009 09:26	DLP	RLK
3	STORE	WET	A1	19-AUG-2009 08:20	JKT	JBK

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: L09080179
Account: 2773
Project: 2773.025
Samples: 8
Due Date: 18-AUG-2009

Samplenum	**Container ID**	**Products**
L09080179-04	604493	

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	10-AUG-2009 10:47	RLK	
2	ANALYZ	W1	WET	14-AUG-2009 08:21	DLP	JKT

Comments:Products cancelled.

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER		10-AUG-2009 10:47	RLK	

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER		10-AUG-2009 10:47	RLK	

Samplenum	**Container ID**	**Products**
L09080179-04	605971	TC-EX

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	14-AUG-2009 08:35	JKT	
2	PREP	W1	TCL	14-AUG-2009 08:49	RWC	RLK
3	ANALYZ	W1	A1	14-AUG-2009 11:55	RLK	RWC

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER		14-AUG-2009 08:35	JKT	

Samplenum	**Container ID**	**Products**
L09080179-04	605972	REACTC REACTS

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	14-AUG-2009 08:35	JKT	
2	ANALYZ	W1	WET	14-AUG-2009 09:26	DLP	RLK
3	STORE	WET	A1	19-AUG-2009 08:20	JKT	JBK

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: L09080179
Account: 2773
Project: 2773.025
Samples: 8
Due Date: 18-AUG-2009

Samplenum	**Container ID**	**Products**
L09080179-05	604494	

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	10-AUG-2009 10:47	RLK	
2	ANALYZ	W1	WET	14-AUG-2009 08:21	DLP	JKT

Comments:Products cancelled.

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
3	STORE	WET	A1	19-AUG-2009 08:20	JKT	JBK

Comments:Products cancelled.

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER		10-AUG-2009 10:47	RLK	

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER		10-AUG-2009 10:47	RLK	

Samplenum	**Container ID**	**Products**
L09080179-05	605973	TC-EX

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	14-AUG-2009 08:35	JKT	
2	PREP	W1	TCL	14-AUG-2009 08:49	RWC	RLK
3	ANALYZ	W1	A1	14-AUG-2009 11:55	RLK	RWC

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER		14-AUG-2009 08:35	JKT	

Samplenum	**Container ID**	**Products**
L09080179-05	605974	REACTC REACTS

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	14-AUG-2009 08:35	JKT	
2	ANALYZ	W1	WET	14-AUG-2009 09:26	DLP	RLK

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

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Microbac Laboratories Inc.

Internal Chain of Custody Report

Login: L09080179
Account: 2773
Project: 2773.025
Samples: 8
Due Date: 18-AUG-2009

Samplenum	**Container ID**	**Products**
L09080179-06	604495	

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	10-AUG-2009 10:47	RLK	
2	ANALYZ	W1	WET	14-AUG-2009 08:21	DLP	JKT

Comments:Products cancelled.

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
3	STORE	WET	A1	19-AUG-2009 08:20	JKT	JBK

Comments:Products cancelled.

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER		10-AUG-2009 10:47	RLK	

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER		10-AUG-2009 10:47	RLK	

Samplenum	**Container ID**	**Products**
L09080179-06	605975	TC-EX

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	14-AUG-2009 08:35	JKT	
2	PREP	W1	TCL	14-AUG-2009 08:49	RWC	RLK

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER		14-AUG-2009 08:35	JKT	

Samplenum	**Container ID**	**Products**
L09080179-06	605976	REACTC REACTS

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	14-AUG-2009 08:35	JKT	
2	ANALYZ	W1	WET	14-AUG-2009 09:26	DLP	RLK

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

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Microbac Laboratories Inc.

Internal Chain of Custody Report

Login: L09080179
Account: 2773
Project: 2773.025
Samples: 8
Due Date: 18-AUG-2009

Samplenum	**Container ID**	**Products**
L09080179-07	604496	

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	10-AUG-2009 10:47	RLK	
2	ANALYZ	W1	WET	14-AUG-2009 08:21	DLP	JKT

Comments:Products cancelled.

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER		10-AUG-2009 10:47	RLK	

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER		10-AUG-2009 10:47	RLK	

Samplenum	**Container ID**	**Products**
L09080179-07	605977	TC-EX

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	14-AUG-2009 08:35	JKT	
2	PREP	W1	TCL	14-AUG-2009 08:49	RWC	RLK
3	ANALYZ	W1	A1	14-AUG-2009 11:55	RLK	RWC

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER		14-AUG-2009 08:35	JKT	

Samplenum	**Container ID**	**Products**
L09080179-07	605978	REACTC REACTS

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	14-AUG-2009 08:35	JKT	
2	ANALYZ	W1	WET	14-AUG-2009 09:26	DLP	RLK
3	STORE	WET	A1	19-AUG-2009 08:20	JKT	JBK

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

Microbac®

Microbac Laboratories Inc.

Internal Chain of Custody Report

Login: L09080179
Account: 2773
Project: 2773.025
Samples: 8
Due Date: 18-AUG-2009

Samplenum	**Container ID**	**Products**
L09080179-08	604497	

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	10-AUG-2009 10:47	RLK	
2	ANALYZ	W1	WET	14-AUG-2009 08:21	DLP	JKT

Comments:Products cancelled.

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
3	STORE	WET	A1	19-AUG-2009 08:20	JKT	JBK

Comments:Products cancelled.

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER		10-AUG-2009 10:47	RLK	

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER		10-AUG-2009 10:47	RLK	

Samplenum	**Container ID**	**Products**
L09080179-08	605979	TC-EX

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	14-AUG-2009 08:35	JKT	
2	PREP	W1	TCL	14-AUG-2009 08:49	RWC	RLK
3	ANALYZ	W1	A1	14-AUG-2009 11:55	RLK	RWC

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER		14-AUG-2009 08:35	JKT	

Samplenum	**Container ID**	**Products**
L09080179-08	605980	REACTC REACTS

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	14-AUG-2009 08:35	JKT	
2	ANALYZ	W1	WET	14-AUG-2009 09:26	DLP	RLK

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

Microbac®

Microbac

158 Starlite Drive, Marietta, OH 45750 • T:740-373-4071 • F:740-373-4835 • http://www.microbac.com

Laboratory Report Number: L09080192

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 Sales and Service Team. If you have questions, comments or require further assistance regarding this report, please contact your team member noted in the reviewed box below at 800-373-4071. Team member e-mail addresses also appear here for your convenience.

Kathy Albertson	*Team Chemist/Data Specialist*	kalbertson@microbac.com
Stephanie Mossburg	*Team Chemist/Data Specialist*	smossburg@microbac.com
Tony Long	*Team Chemist/Data Specialist*	tlong@microbac.com
Amanda Fickiesen	*Client Services Specialist*	afickiesen@microbac.com
Annie Brown	*Client Services Specialist*	abrown@microbac.com

This report was reviewed on August 13, 2009.

Stephanie Mossburg

Stephanie Mossburg - Team Chemist/Data Specialist

I certify that all test results meet all of the requirements of the accrediting authority listed below. 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.

This report was certified on August 13, 2009.

David E. Vandenberg

David Vandenberg - Managing Director

State of origin: Texas
Accrediting authority: Texas Commission on Environmental Quality ID:T104704252-07-TX
QAPP: Microbac OVD
This report contains a total of 217 pages.

Look closer. Go further. Do more.

Microbac

Microbac Laboratories, Inc.
Ohio Valley Division
158 Starlite Drive
Marietta, OH 45750

Phone: 800.373.4071
Fax: 740.373.4835

Your data is now available online via our Web Access Portal!

Access and print reports, check the status of your projects, and review electronic data forms online from anywhere with internet access!

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Click on "Online Data Access"
User ID: jdoe@abc.com
Password: demo

Contact your Microbac service representative to set up a *FREE* account today!

LOOK CLOSER, GO FURTHER, DO MORE.

Microbac REPORT L09080192
PREPARED FOR Shaw E I, Inc.
WORK ID:

1.0 Introduction

Microbac Laboratories Inc.
REPORT NARRATIVE

Microbac Login No: L09080192

CHAIN OF CUSTODY: The chain of custody number was 080909-01

SHIPMENT CONDITIONS: The chain of custody forms were received sealed in a cooler. The cooler temperature was 6 degrees C.

SAMPLE MANAGEMENT: All samples received were intact.

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 hardcopy data package has been authorized by the Laboratory Manager or designated person, as verified by the following signature.

Approved: 12-AUG-09
Stephanie Mossburg

Laboratory Data Package Cover Page

This data Package consists of:

This signature page, the laboratory review checklists, and the following reportable data:

R1 Field chain-of-custody documentation;

R2 sample identification cross-reference;

R3 Test reports (analytical data sheets) for each enviornmental sample that includes:
  - a) Items consistant with NELAC 5.13 or ISO/IEC 17025 Section 5.10
  - b) dilution factors,
  - c) preparation methods,
  - d) Cleanup methods, and
  - e) If required for the project, tentatively identified compounds (TICs)

R4 Surrogate recovery data including:
  - a) Calculated recovery (%R) for each analyte, and
  - b) The laboratory's surrogate QC limits.

R5 Test reports/summary forms for blank samples;

R6 Test reports/summary forms FOR laboratory control samples (LCSs) including:
  - a) LCS spiking amount,
  - b) Calculated %R for each analyte, and
  - c) The laboratory"s LCS QC limits.

R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - a) Samples associated with the MS/MSD clearly identified,
  - b) MS/MSD spiking amounts,
  - c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
  - d) Calculated %R and relative percent differences (RPDs), and
  - e) The laboratory's MS/MSD QC limits

R8 Laboratory analytical duplicate (if applicable) revocery and precision:
  - a) the amount of analyte measured in the duplicate,
  - b) the calculated RPD, and
  - c) the laboratory's QC limits for anlytical duplicates.

R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix;

R10 Other problems or anomalies.

The exception Report for every "No" or "Not Reviewed (NR)" item in laboratory review checklist.

Release statement: I am responsible for the release of this laboratory data package. This data package has been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exceptions reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratoy in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

Check, If applicable: [] This laboratory is an in-house laboratory controlled by the person repsonding to rule. The official signing the cover page of the rule-required report (for example, the APAR) in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is trus.

MAREN M. BEERY	Maren Beery	Metals Supervisor	August 12, 2009
Name (Printed)	Signature	Official Title (printed)	DATE

Microbac Laboratories Inc.
Laboratory Review Checklist

Laboratory Name: Microbac Laboratories Inc.
Laboratory Log Number: L09080192
Project Name: 798-LONGHORN
Method: 7471
Prep Batch Number(s): WG309445
Reviewer Name: MAREN M. BEERY
LRC Date: August 12, 2009

Description	Yes	No	NA(1)	NR(2)	ER(3)
Chain-Of-Custody (C-O-C)					
Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	✓				
Were all departures from standard conditions described in an exception report?	✓				
Sample and quality control (QC) identification					
Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	✓				
Are all laboratory ID numbers cross-referenced to the corresponding QC data?	✓				
Test reports					
Were all samples prepared and analyzed within holding times?	✓				
Other than those results <MQL, were all other raw values bracketed by calibration standards?	✓				
Were calculations checked by a peer or supervisor?	✓				
Were all analyte identifications checked by a peer or supervisor?	✓				
Were sample quantitation limits reported for all analytes not detected?	✓				
Were all results for soil and sediment samples reported on a dry weight basis?	✓				
Were % moisture (or solids) reported for all soil and sediment samples?	✓				
If required for the project, TICs reported?			✓		
Surrogate recovery data					
Were surrogates added prior to extraction?			✓		
Were surrogate percent recoveries in all samples within the laboratory QC limits?			✓		
Test reports/summary forms for blank samples					
Were appropriate type(s) of blanks analyzed?	✓				
Were blanks analyzed at the appropriate frequency?	✓				
Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	✓				
Were blank concentrations <RL?	✓				
Laboratory control samples (LCS):					
Were all COCs included in the LCS?	✓				
Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	✓				
Were LCSs analyzed at the required frequency?	✓				
Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	✓				
Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs?	✓				
Was the LCSD RPD within QC limits?			✓		
Matrix spike (MS) and matrix spike duplicate (MSD) data					
Were the project/method specified analytes included in the MS and MSD?			✓		
Were MS/MSD analyzed at the appropriate frequency?			✓		
Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			✓		

Description	Yes	No	NA(1)	NR(2)	ER(3)
Were MS/MSD RPDs within laboratory QC limits?			✓		
Analytical duplicate data					
Were appropriate analytical duplicates analyzed for each matrix?			✓		
Were analytical duplicates analyzed at the appropriate frequency?			✓		
Were RPDs or relative standard deviations within the laboratory QC limits?			✓		
Method quantitation limits (MQLs):					
Are the MQLs for each method analyte included in the laboratory data package?	✓				
Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	✓				
Are unadjusted MQLs included in the laboratory data package?	✓				
Other problems/anomalies					
Are all known problems/anomalies/special conditions noted in this LRC and ER?	✓				
Were all necessary corrective actions performed for the reported data?	✓				
Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	✓				
ICAL					
Were response factors and/or relative response factors for each analyte within QC limits?			✓		
Were percent RSDs or correlation coefficient criteria met?	✓				
Was the number of standards recommended in the method used for all analytes?	✓				
Were all points generated between the lowest and highest standard used to calculate the curve?	✓				
Are ICAL data available for all instruments used?	✓				
Has the initial calibration curve been verified using an appropriate second source standard?	✓				
Initial and continuing calibration verification (ICV and CCV) and continuing calibration blank (CCB):					
Was the CCV analyzed at the method-required frequency?	✓				
Were percent differences for each analyte within the method-required QC limits?	✓				
Was the ICAL curve verified for each analyte?	✓				
Was the absolute value of the analyte concentration in the inorganic CCB <RL?	✓				
Mass spectral tuning:					
Was the appropriate compound for the method used for tuning?			✓		
Were ion abundance data within the method-required QC limits?			✓		
Internal standards (IS):					
Were IS area counts and retention times within the method-required QC limits?			✓		
Raw data (NELAC section 1 appendix A glossary, and section 5.12 or ISO/IEC 17025 section 4.12.2)					
Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	✓				
Were data associated with manual integrations flagged on the raw data?			✓		
Dual column confirmation					
Did dual column confirmation results meet the method-required QC?			✓		
Tentatively identified compounds (TICs):					
If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			✓		
Interference Check Sample (ICS) results:					
Were percent recoveries within method QC limits?			✓		
Serial dilutions, post digestion spikes, and method of standard additions					
Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	✓				
Method detection limit (MDL) studies					
Was a MDL study performed for each reported analyte?	✓				
Is the MDL either adjusted or supported by the analysis of DCSs?	✓				
Proficiency test reports:					
Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	✓				

Description	Yes	No	NA(1)	NR(2)	ER(3)
Standards documentation					
Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	✓				
Compound/analyte identification procedures					
Are the procedures for compound/analyte identification documented?	✓				
Demonstration of analyst competency (DOC)					
Was DOC conducted consistent with NELAC Chapter 5C or ISO/IEC 4?	✓				
Is documentation of the analyst's competency up-to-date and on file?	✓				
Verification/validation documentation for methods (NELAC Chap 5 or ISO/IEC 17025 Section 5)					
Are all the methods used to generate the data documented, verified, and validated, where applicable?	✓				
Laboratory standard operating procedures (SOPs):					
Are laboratory SOPs current and on file for each method performed?	✓				

Microbac Laboratories Inc.
Laboratory Review Checklist

Laboratory Name:	Microbac Laboratories Inc.
Laboratory Log Number:	L09080192
Project Name:	798-LONGHORN
Method:	7471
Prep Batch Number(s):	WG309445
Reviewer Name:	MAREN M. BEERY
LRC Date:	August 12, 2009

EXCEPTIONS REPORT

ER# - Description

Footnotes:
(1) NA = Not applicable to method or project
(2) NR = Not reviewed
(3) ER# = Exception report number

Laboratory Data Package Cover Page

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  a) Items consistant with NELAC 5.13 or ISO/IEC 17025 Section 5.10
  b) dilution factors,
  c) preparation methods,
  d) Cleanup methods, and
  e) If required for the project, tentatively identified compounds (TICs)

R4 Surrogate recovery data including:
  a) Calculated recovery (%R) for each analyte, and
  b) The laboratory's surrogate QC limits.

R5 Test reports/summary forms for blank samples;

R6 Test reports/summary forms FOR laboratory control samples (LCSs) including:
  a) LCS spiking amount,
  b) Calculated %R for each analyte, and
  c) The laboratory"s LCS QC limits.

R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  a) Samples associated with the MS/MSD clearly identified,
  b) MS/MSD spiking amounts,
  c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
  d) Calculated %R and relative percent differences (RPDs), and
  e) The laboratory's MS/MSD QC limits

R8 Laboratory analytical duplicate (if applicable) revocery and precision:
  a) the amount of analyte measured in the duplicate,
  b) the calculated RPD, and
  c) the laboratory's QC limits for anlytical duplicates.

R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix;

R10 Other problems or anomalies.

The exception Report for every "No" or "Not Reviewed (NR)" item in laboratory review checklist.

Release statement: I am responsible for the release of this laboratory data package. This data package has been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exceptions reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratoy in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

Check, If applicable: [] This laboratory is an in-house laboratory controlled by the person repsonding to rule. The official signing the cover page of the rule-required report (for example, the APAR) in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is trus.

DEANNA I. HESSON	Deanna Hesson	Conventional Lab Supervisor	August 12, 2009
Name (Printed)	Signature	Official Title (printed)	DATE

Microbac Laboratories Inc.
Laboratory Review Checklist

Laboratory Name: Microbac Laboratories Inc.
Laboratory Log Number: L09080192
Project Name: 798-LONGHORN
Method: PCTSOLIDS
Prep Batch Number(s): WG309447
Reviewer Name: DEANNA I. HESSON
LRC Date: August 12, 2009

Description	Yes	No	NA(1)	NR(2)	ER(3)
Chain-Of-Custody (C-O-C)					
Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	✓				
Were all departures from standard conditions described in an exception report?	✓				
Sample and quality control (QC) identification					
Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	✓				
Are all laboratory ID numbers cross-referenced to the corresponding QC data?	✓				
Test reports					
Were all samples prepared and analyzed within holding times?	✓				
Other than those results <MQL, were all other raw values bracketed by calibration standards?			✓		
Were calculations checked by a peer or supervisor?	✓				
Were all analyte identifications checked by a peer or supervisor?			✓		
Were sample quantitation limits reported for all analytes not detected?			✓		
Were all results for soil and sediment samples reported on a dry weight basis?	✓				
Were % moisture (or solids) reported for all soil and sediment samples?	✓				
If required for the project, TICs reported?			✓		
Surrogate recovery data					
Were surrogates added prior to extraction?			✓		
Were surrogate percent recoveries in all samples within the laboratory QC limits?			✓		
Test reports/summary forms for blank samples					
Were appropriate type(s) of blanks analyzed?			✓		
Were blanks analyzed at the appropriate frequency?			✓		
Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?			✓		
Were blank concentrations <MQL?			✓		
Laboratory control samples (LCS):					
Were all COCs included in the LCS?			✓		
Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?			✓		
Were LCSs analyzed at the required frequency?			✓		
Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?			✓		
Does the detectability data document the laboratorys capability to detect the COCs at the MDL used to calculate the SQLs?			✓		
Was the LCSD RPD within QC limits?			✓		
Matrix spike (MS) and matrix spike duplicate (MSD) data					
Were the project/method specified analytes included in the MS and MSD?			✓		
Were MS/MSD analyzed at the appropriate frequency?			✓		
Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			✓		

Description	Yes	No	NA(1)	NR(2)	ER(3)
Were MS/MSD RPDs within laboratory QC limits?			✓		
Analytical duplicate data					
Were appropriate analytical duplicates analyzed for each matrix?	✓				
Were analytical duplicates analyzed at the appropriate frequency?	✓				
Were RPDs or relative standard deviations within the laboratory QC limits?	✓				
Method quantitation limits (MQLs):					
Are the MQLs for each method analyte included in the laboratory data package?			✓		
Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?			✓		
Are unadjusted MQLs included in the laboratory data package?			✓		
Other problems/anomalies					
Are all known problems/anomalies/special conditions noted in this LRC and ER?	✓				
Were all necessary corrective actions performed for the reported data?	✓				
Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?			✓		
Were response factors and/or relative response factors for each analyte within QC limits?			✓		
Were percent RSDs or correlation coefficient criteria met?			✓		
Was the number of standards recommended in the method used for all analytes?			✓		
Were all points generated between the lowest and highest standard used to calculate the curve?			✓		
Are ICAL data available for all instruments used?			✓		
Has the initial calibration curve been verified using an appropriate second source standard?			✓		
Initial and continuing calibration verification (ICV and CCV) and continuing calibration blank (CCB):					
Was the CCV analyzed at the method-required frequency?			✓		
Were percent differences for each analyte within the method-required QC limits?			✓		
Was the ICAL curve verified for each analyte?			✓		
Was the absolute value of the analyte concentration in the inorganic CCB <MDL?			✓		
Mass spectral tuning:					
Was the appropriate compound for the method used for tuning?			✓		
Were ion abundance data within the method-required QC limits?			✓		
Internal standards (IS):					
Were IS area counts and retention times within the method-required QC limits?			✓		
Raw data (NELAC section 1 appendix A glossary, and section 5.12 or ISO/IEC 17025 section 4.12.2)					
Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	✓				
Were data associated with manual integrations flagged on the raw data?			✓		
Dual column confirmation					
Did dual column confirmation results meet the method-required QC?			✓		
Tentatively identified compounds (TICs):					
If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			✓		
Interference Check Sample (ICS) results:					
Were percent recoveries within method QC limits?			✓		
Serial dilutions, post digestion spikes, and method of standard additions					
Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			✓		
Method detection limit (MDL) studies					
Was a MDL study performed for each reported analyte?			✓		
Is the MDL either adjusted or supported by the analysis of DCSs?			✓		
Proficiency test reports:					
Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?			✓		

Description	Yes	No	NA(1)	NR(2)	ER(3)
Standards documentation					
Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?			✓		
Compound/analyte identification procedures					
Are the procedures for compound/analyte identification documented?			✓		
Demonstration of analyst competency (DOC)					
Was DOC conducted consistent with NELAC Chapter 5C or ISO/IEC 4?	✓				
Is documentation of the analyst's competency up-to-date and on file?	✓				
Verification/validation documentation for methods (NELAC Chap 5 or ISO/IEC 17025 Section 5)					
Are all the methods used to generate the data documented, verified, and validated, where applicable?	✓				
Laboratory standard operating procedures (SOPs):					
Are laboratory SOPs current and on file for each method performed?	✓				

Microbac Laboratories Inc.
Laboratory Review Checklist

Laboratory Name:	Microbac Laboratories Inc.
Laboratory Log Number:	L09080192
Project Name:	798-LONGHORN
Method:	PCTSOLIDS
Prep Batch Number(s):	WG309447
Reviewer Name:	DEANNA I. HESSON
LRC Date:	August 12, 2009

EXCEPTIONS REPORT
ER# - Description

Footnotes:
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(3) ER# = Exception report number

Laboratory Data Package Cover Page

This data Package consists of:

This signature page, the laboratory review checklists, and the following reportable data:
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    - a) Items consistant with NELAC 5.13 or ISO/IEC 17025 Section 5.10
    - b) dilution factors,
    - c) preparation methods,
    - d) Cleanup methods, and
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- R4 Surrogate recovery data including:
    - a) Calculated recovery (%R) for each analyte, and
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    - a) LCS spiking amount,
    - b) Calculated %R for each analyte, and
    - c) The laboratory"s LCS QC limits.
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
    - a) Samples associated with the MS/MSD clearly identified,
    - b) MS/MSD spiking amounts,
    - c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
    - d) Calculated %R and relative percent differences (RPDs), and
    - e) The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) revocery and precision:
    - a) the amount of analyte measured in the duplicate,
    - b) the calculated RPD, and
    - c) the laboratory's QC limits for anlytical duplicates.
- R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix;
- R10 Other problems or anomalies.

The exception Report for every "No" or "Not Reviewed (NR)" item in laboratory review checklist.

Release statement: I am responsible for the release of this laboratory data package. This data package has been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exceptions reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratoy in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

Check, If applicable: [] This laboratory is an in-house laboratory controlled by the person repsonding to rule. The official signing the cover page of the rule-required report (for example, the APAR) in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is trus.

MICHAEL D. COCHRAN		Semivolatiles Lab Supervisor	August 13, 2009
Name (Printed)	Signature	Official Title (printed)	DATE

Microbac Laboratories Inc.
Laboratory Review Checklist

Laboratory Name:	Microbac Laboratories Inc.
Laboratory Log Number:	L09080192
Project Name:	798-LONGHORN
Method:	8270
Prep Batch Number(s):	WG309434
Reviewer Name:	MICHAEL D. COCHRAN
LRC Date:	August 13, 2009

Description	Yes	No	NA(1)	NR(2)	ER(3)
Chain-Of-Custody (C-O-C)					
Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	✓				
Were all departures from standard conditions described in an exception report?	✓				
Sample and quality control (QC) identification					
Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	✓				
Are all laboratory ID numbers cross-referenced to the corresponding QC data?	✓				
Test reports					
Were all samples prepared and analyzed within holding times?	✓				
Other than those results <MQL, were all other raw values bracketed by calibration standards?	✓				
Were calculations checked by a peer or supervisor?	✓				
Were all analyte identifications checked by a peer or supervisor?	✓				
Were sample quantitation limits reported for all analytes not detected?	✓				
Were all results for soil and sediment samples reported on a dry weight basis?	✓				
Were % moisture (or solids) reported for all soil and sediment samples?	✓				
If required for the project, TICs reported?			✓		
Surrogate recovery data					
Were surrogates added prior to extraction?	✓				
Were surrogate percent recoveries in all samples within the laboratory QC limits?	✓				
Test reports/summary forms for blank samples					
Were appropriate type(s) of blanks analyzed?	✓				
Were blanks analyzed at the appropriate frequency?	✓				
Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	✓				
Were blank concentrations <MQL?	✓				
Laboratory control samples (LCS):					
Were all COCs included in the LCS?	✓				
Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	✓				
Were LCSs analyzed at the required frequency?	✓				
Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?		✓			1
Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs?	✓				
Was the LCSD RPD within QC limits?	✓				
Matrix spike (MS) and matrix spike duplicate (MSD) data					
Were the project/method specified analytes included in the MS and MSD?			✓		
Were MS/MSD analyzed at the appropriate frequency?			✓		
Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			✓		

Description	Yes	No	NA(1)	NR(2)	ER(3)
Were MS/MSD RPDs within laboratory QC limits?			✓		

Checklist ID: **40861**

Microbac Laboratories Inc.
Laboratory Review Checklist

Laboratory Name: Microbac Laboratories Inc.
Laboratory Log Number: L09080192
Project Name: 798-LONGHORN
Method: 8270
Prep Batch Number(s): WG309434
Reviewer Name: MICHAEL D. COCHRAN
LRC Date: August 13, 2009

Description	Yes	No	NA(1)	NR(2)	ER(3)
Analytical duplicate data					
Were appropriate analytical duplicates analyzed for each matrix?			✓		
Were analytical duplicates analyzed at the appropriate frequency?			✓		
Were RPDs or relative standard deviations within the laboratory QC limits?			✓		
Method quantitation limits (MQLs):					
Are the MQLs for each method analyte included in the laboratory data package?	✓				
Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	✓				
Are unadjusted MQLs included in the laboratory data package?	✓				
Other problems/anomalies					
Are all known problems/anomalies/special conditions noted in this LRC and ER?	✓				
Were all necessary corrective actions performed for the reported data?			✓		
Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	✓				
ICAL					
Were response factors and/or relative response factors for each analyte within QC limits?	✓				
Were percent RSDs or correlation coefficient criteria met?	✓				
Was the number of standards recommended in the method used for all analytes?	✓				
Were all points generated between the lowest and highest standard used to calculate the curve?	✓				
Are ICAL data available for all instruments used?	✓				
Has the initial calibration curve been verified using an appropriate second source standard?	✓				
Initial and continuing calibration verification (ICV and CCV) and continuing calibration blank (CCB):					
Was the CCV analyzed at the method-required frequency?	✓				
Were percent differences for each analyte within the method-required QC limits?		✓			2
Was the ICAL curve verified for each analyte?	✓				3
Was the absolute value of the analyte concentration in the inorganic CCB <MDL?			✓		
Mass spectral tuning:					
Was the appropriate compound for the method used for tuning?	✓				
Were ion abundance data within the method-required QC limits?	✓				
Internal standards (IS):					
Were IS area counts and retention times within the method-required QC limits?	✓				
Raw data (NELAC section 1 appendix A glossary, and section 5.12 or ISO/IEC 17025 section 4.12.2)					
Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	✓				
Were data associated with manual integrations flagged on the raw data?	✓				

Checklist ID: **40861**

Microbac Laboratories Inc.
Laboratory Review Checklist

Laboratory Name:	Microbac Laboratories Inc.
Laboratory Log Number:	L09080192
Project Name:	798-LONGHORN
Method:	8270
Prep Batch Number(s):	WG309434
Reviewer Name:	MICHAEL D. COCHRAN
LRC Date:	August 13, 2009

Description	Yes	No	NA(1)	NR(2)	ER(3)
Dual column confirmation					
Did dual column confirmation results meet the method-required QC?			✓		
Tentatively identified compounds (TICs):					
If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			✓		
Interference Check Sample (ICS) results:					
Were percent recoveries within method QC limits?			✓		
Serial dilutions, post digestion spikes, and method of standard additions					
Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			✓		
Method detection limit (MDL) studies					
Was a MDL study performed for each reported analyte?	✓				
Is the MDL either adjusted or supported by the analysis of DCSs?	✓				
Proficiency test reports:					
Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	✓				
Standards documentation					
Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	✓				
Compound/analyte identification procedures					
Are the procedures for compound/analyte identification documented?	✓				
Demonstration of analyst competency (DOC)					
Was DOC conducted consistent with NELAC Chapter 5C or ISO/IEC 4?	✓				
Is documentation of the analyst's competency up-to-date and on file?	✓				
Verification/validation documentation for methods (NELAC Chap 5 or ISO/IEC 17025 Section 5)					
Are all the methods used to generate the data documented, verified, and validated, where applicable?	✓				
Laboratory standard operating procedures (SOPs):					
Are laboratory SOPs current and on file for each method performed?	✓				

Microbac Laboratories Inc.
Laboratory Review Checklist

Laboratory Name: Microbac Laboratories Inc.
Laboratory Log Number: L09080192
Project Name: 798-LONGHORN
Method: 8270
Prep Batch Number(s): WG309434
Reviewer Name: MICHAEL D. COCHRAN
LRC Date: August 13, 2009

EXCEPTIONS REPORT
ER# - Description

1. The LCS/LCS DUP yielded recoveries above the upper acceptance limit for benzoic acid.
2. The CCV yielded a %D beyond the acceptance limit for 2,4-dinitrophenol.
3. 2. The ICV yielded a %D beyond the acceptance limit for pentachlorophenol.

Footnotes:
(1) NA = Not applicable to method or project
(2) NR = Not reviewed
(3) ER# = Exception report number

Laboratory Data Package Cover Page

This data Package consists of:

This signature page, the laboratory review checklists, and the following reportable data:

- ✓R1 Field chain-of-custody documentation;
- ✓R2 sample identification cross-reference;
- R3 Test reports (analytical data sheets) for each enviornmental sample that includes:
  - a) Items consistant with NELAC 5.13 or ISO/IEC 17025 Section 5.10
  - b) dilution factors,
  - c) preparation methods,
  - d) Cleanup methods, and
  - e) If required for the project, tentatively identified compounds (TICs)
- ✓R4 Surrogate recovery data including:
  - a) Calculated recovery (%R) for each analyte, and
  - b) The laboratory’s surrogate QC limits.
- ✓R5 Test reports/summary forms for blank samples;
- ✓R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - a) LCS spiking amount,
  - b) Calculated %R for each analyte, and
  - c) The laboratory”s LCS QC limits.
- ✓R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - a) Samples associated with the MS/MSD clearly identified,
  - b) MS/MSD spiking amounts,
  - c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
  - d) Calculated %R and relative percent differences (RPDs), and
  - e) The laboratory’s MS/MSD QC limits
- ✓R8 Laboratory analytical duplicate (if applicable) revocery and precision:
  - a) the amount of analyte measured in the duplicate,
  - b) the calculated RPD, and
  - c) the laboratory’s QC limits for anlytical duplicates.
- ✓R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix;
- ✓R10 Other problems or anomalies.
- ✓The exception Report for every ”No” or ”Not Reviewed (NR)” item IN laboratory review checklist.

Release statement: I am responsible for the release of this laboratory data package. This data package has been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exceptions reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratoy in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

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MIKE D. ALBERTSON		Volatiles Lab Supervisor	August 12, 2009
Name (Printed)	Signature	Official Title (printed)	DATE

Microbac Laboratories Inc.
Laboratory Review Checklist

Laboratory Name: Microbac Laboratories Inc.
Laboratory Log Number: L09080192
Project Name: 798-LONGHORN
Method: 8260B
Prep Batch Number(s): 309410
Reviewer Name: MIKE D. ALBERTSON
LRC Date: August 12, 2009

Description	Yes	No	NA(1)	NR(2)	ER(3)
Chain-Of-Custody (C-O-C)					
Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	✓				
Were all departures from standard conditions described in an exception report?	✓				
Sample and quality control (QC) identification					
Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	✓				
Are all laboratory ID numbers cross-referenced to the corresponding QC data?	✓				
Test reports					
Were all samples prepared and analyzed within holding times?	✓				
Other than those results <MQL, were all other raw values bracketed by calibration standards?	✓				
Were calculations checked by a peer or supervisor?	✓				
Were all analyte identifications checked by a peer or supervisor?	✓				
Were sample quantitation limits reported for all analytes not detected?	✓				
Were all results for soil and sediment samples reported on a dry weight basis?	✓				
Were % moisture (or solids) reported for all soil and sediment samples?	✓				
If required for the project, TICs reported?			✓		
Surrogate recovery data					
Were surrogates added prior to extraction?	✓				
Were surrogate percent recoveries in all samples within the laboratory QC limits?	✓				
Test reports/summary forms for blank samples					
Were appropriate type(s) of blanks analyzed?	✓				
Were blanks analyzed at the appropriate frequency?	✓				
Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	✓				
Were blank concentrations <MQL?	✓				
Laboratory control samples (LCS):					
Were all COCs included in the LCS?	✓				
Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	✓				
Were LCSs analyzed at the required frequency?	✓				
Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?		✓			1
Does the detectability data document the laboratorys capability to detect the COCs at the MDL used to calculate the SQLs?	✓				
Was the LCSD RPD within QC limits?	✓				
Matrix spike (MS) and matrix spike duplicate (MSD) data					
Were the project/method specified analytes included in the MS and MSD?			✓		
Were MS/MSD analyzed at the appropriate frequency?			✓		
Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			✓		

Description	Yes	No	NA(1)	NR(2)	ER(3)
Were MS/MSD RPDs within laboratory QC limits?			✓		
Analytical duplicate data					
Were appropriate analytical duplicates analyzed for each matrix?			✓		
Were analytical duplicates analyzed at the appropriate frequency?			✓		
Were RPDs or relative standard deviations within the laboratory QC limits?			✓		
Method quantitation limits (MQLs):					
Are the MQLs for each method analyte included in the laboratory data package?	✓				
Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	✓				
Are unadjusted MQLs included in the laboratory data package?	✓				
Other problems/anomalies					
Are all known problems/anomalies/special conditions noted in this LRC and ER?	✓				
Were all necessary corrective actions performed for the reported data?	✓				
Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	✓				
ICAL					
Were response factors and/or relative response factors for each analyte within QC limits?	✓				
Were percent RSDs or correlation coefficient criteria met?	✓				
Was the number of standards recommended in the method used for all analytes?	✓				
Were all points generated between the lowest and highest standard used to calculate the curve?	✓				
Are ICAL data available for all instruments used?	✓				
Has the initial calibration curve been verified using an appropriate second source standard?	✓				
Initial and continuing calibration verification (ICV and CCV) and continuing calibration blank (CCB):					
Was the CCV analyzed at the method-required frequency?	✓				
Were percent differences for each analyte within the method-required QC limits?	✓				
Was the ICAL curve verified for each analyte?		✓			2
Was the absolute value of the analyte concentration in the inorganic CCB <MDL?			✓		
Mass spectral tuning:					
Was the appropriate compound for the method used for tuning?	✓				
Were ion abundance data within the method-required QC limits?	✓				
Internal standards (IS):					
Were IS area counts and retention times within the method-required QC limits?	✓				
Raw data (NELAC section 1 appendix A glossary, and section 5.12 or ISO/IEC 17025 section 4.12.2)					
Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	✓				
Were data associated with manual integrations flagged on the raw data?	✓				
Dual column confirmation					
Did dual column confirmation results meet the method-required QC?			✓		
Tentatively identified compounds (TICs):					
If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			✓		
Interference Check Sample (ICS) results:					
Were percent recoveries within method QC limits?			✓		
Serial dilutions, post digestion spikes, and method of standard additions					
Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			✓		
Method detection limit (MDL) studies					
Was a MDL study performed for each reported analyte?	✓				
Is the MDL either adjusted or supported by the analysis of DCSs?	✓				
Proficiency test reports:					
Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	✓				

Description	Yes	No	NA(1)	NR(2)	ER(3)
Standards documentation					
Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	✓				
Compound/analyte identification procedures					
Are the procedures for compound/analyte identification documented?	✓				
Demonstration of analyst competency (DOC)					
Was DOC conducted consistent with NELAC Chapter 5C or ISO/IEC 4?	✓				
Is documentation of the analyst's competency up-to-date and on file?	✓				
Verification/validation documentation for methods (NELAC Chap 5 or ISO/IEC 17025 Section 5)					
Are all the methods used to generate the data documented, verified, and validated, where applicable?	✓				
Laboratory standard operating procedures (SOPs):					
Are laboratory SOPs current and on file for each method performed?	✓				

EXCEPTIONS REPORT
ER# - Description
#1: Dichlorodifluoromethane exceeded the upper advisory limit in the LCS/LCSD analyzed 08/11/09 on HPMS-9.

#2: Dichlorodifluoromethane exceeded the upper control limit and vinyl acetate was below the lower control limit in the alternate source analyzed 07/21/09 on HPMS-9.
Footnotes:

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(2) NR = Not reviewed
(3) ER# = Exception report number

Laboratory Data Package Cover Page

This data Package consists of:

- This signature page, the laboratory review checklists, and the following reportable data:
- R1 Field chain-of-custody documentation;
- R2 sample identification cross-reference;
- R3 Test reports (analytical data sheets) for each enviornmental sample that includes:
    - a) Items consistant with NELAC 5.13 or ISO/IEC 17025 Section 5.10
    - b) dilution factors,
    - c) preparation methods,
    - d) Cleanup methods, and
    - e) If required for the project, tentatively identified compounds (TICs)
- R4 Surrogate recovery data including:
    - a) Calculated recovery (%R) for each analyte, and
    - b) The laboratory's surrogate QC limits.
- R5 Test reports/summary forms for blank samples;
- R6 Test reports/summary forms FOR laboratory control samples (LCSs) including:
    - a) LCS spiking amount,
    - b) Calculated %R for each analyte, and
    - c) The laboratory"s LCS QC limits.
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
    - a) Samples associated with the MS/MSD clearly identified,
    - b) MS/MSD spiking amounts,
    - c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
    - d) Calculated %R and relative percent differences (RPDs), and
    - e) The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) revocery and precision:
    - a) the amount of analyte measured in the duplicate,
    - b) the calculated RPD, and
    - c) the laboratory's QC limits for anlytical duplicates.
- R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix;
- R10 Other problems or anomalies.
- The exception Report for every "No" or "Not Reviewed (NR)" item in laboratory review checklist.

Release statement: I am responsible for the release of this laboratory data package. This data package has been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exceptions reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratoy in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

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MAREN M. BEERY	Maren Beery	Metals Supervisor	August 13, 2009
Name (Printed)	Signature	Official Title (printed)	DATE

Microbac Laboratories Inc.
Laboratory Review Checklist

Laboratory Name: Microbac Laboratories Inc.
Laboratory Log Number: L09080192
Project Name: 798-LONGHORN
Method: 6010
Prep Batch Number(s): WG309438
Reviewer Name: MAREN M. BEERY
LRC Date: August 13, 2009

Description	Yes	No	NA(1)	NR(2)	ER(3)
Chain-Of-Custody (C-O-C)					
Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	✓				
Were all departures from standard conditions described in an exception report?	✓				
Sample and quality control (QC) identification					
Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	✓				
Are all laboratory ID numbers cross-referenced to the corresponding QC data?	✓				
Test reports					
Were all samples prepared and analyzed within holding times?	✓				
Other than those results <MQL, were all other raw values bracketed by calibration standards?			✓		
Were calculations checked by a peer or supervisor?	✓				
Were all analyte identifications checked by a peer or supervisor?	✓				
Were sample quantitation limits reported for all analytes not detected?	✓				
Were all results for soil and sediment samples reported on a dry weight basis?	✓				
Were % moisture (or solids) reported for all soil and sediment samples?	✓				
If required for the project, TICs reported?			✓		
Surrogate recovery data					
Were surrogates added prior to extraction?			✓		
Were surrogate percent recoveries in all samples within the laboratory QC limits?			✓		
Test reports/summary forms for blank samples					
Were appropriate type(s) of blanks analyzed?	✓				
Were blanks analyzed at the appropriate frequency?	✓				
Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	✓				
Were blank concentrations <RL?		✓			ER1
Laboratory control samples (LCS):					
Were all COCs included in the LCS?	✓				
Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	✓				
Were LCSs analyzed at the required frequency?	✓				
Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	✓				
Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs?	✓				
Was the LCSD RPD within QC limits?			✓		
Matrix spike (MS) and matrix spike duplicate (MSD) data					
Were the project/method specified analytes included in the MS and MSD?			✓		
Were MS/MSD analyzed at the appropriate frequency?			✓		
Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			✓		

Description	Yes	No	NA(1)	NR(2)	ER(3)
Were MS/MSD RPDs within laboratory QC limits?			✓		
Analytical duplicate data					
Were appropriate analytical duplicates analyzed for each matrix?			✓		
Were analytical duplicates analyzed at the appropriate frequency?			✓		
Were RPDs or relative standard deviations within the laboratory QC limits?			✓		
Method quantitation limits (MQLs):					
Are the MQLs for each method analyte included in the laboratory data package?	✓				
Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	✓				
Are unadjusted MQLs included in the laboratory data package?	✓				
Other problems/anomalies					
Are all known problems/anomalies/special conditions noted in this LRC and ER?	✓				
Were all necessary corrective actions performed for the reported data?	✓				
Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	✓				ER2
ICAL					
Were response factors and/or relative response factors for each analyte within QC limits?			✓		
Were percent RSDs or correlation coefficient criteria met?	✓				
Was the number of standards recommended in the method used for all analytes?	✓				
Were all points generated between the lowest and highest standard used to calculate the curve?	✓				
Are ICAL data available for all instruments used?	✓				
Has the initial calibration curve been verified using an appropriate second source standard?	✓				
Initial and continuing calibration verification (ICV and CCV) and continuing calibration blank (CCB):					
Was the CCV analyzed at the method-required frequency?	✓				
Were percent differences for each analyte within the method-required QC limits?	✓				
Was the ICAL curve verified for each analyte?	✓				
Was the absolute value of the analyte concentration in the inorganic CCB <RL?	✓				
Mass spectral tuning:					
Was the appropriate compound for the method used for tuning?			✓		
Were ion abundance data within the method-required QC limits?			✓		
Internal standards (IS):					
Were IS area counts and retention times within the method-required QC limits?			✓		
Raw data (NELAC section 1 appendix A glossary, and section 5.12 or ISO/IEC 17025 section 4.12.2)					
Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	✓				
Were data associated with manual integrations flagged on the raw data?			✓		
Dual column confirmation					
Did dual column confirmation results meet the method-required QC?			✓		
Tentatively identified compounds (TICs):					
If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			✓		
Interference Check Sample (ICS) results:					
Were percent recoveries within method QC limits?	✓				
Serial dilutions, post digestion spikes, and method of standard additions					
Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	✓				
Method detection limit (MDL) studies					
Was a MDL study performed for each reported analyte?	✓				
Is the MDL either adjusted or supported by the analysis of DCSs?	✓				
Proficiency test reports:					
Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	✓				

Description	Yes	No	NA(1)	NR(2)	ER(3)
Standards documentation					
Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	✓				
Compound/analyte identification procedures					
Are the procedures for compound/analyte identification documented?	✓				
Demonstration of analyst competency (DOC)					
Was DOC conducted consistent with NELAC Chapter 5C or ISO/IEC 4?	✓				
Is documentation of the analyst's competency up-to-date and on file?	✓				
Verification/validation documentation for methods (NELAC Chap 5 or ISO/IEC 17025 Section 5)					
Are all the methods used to generate the data documented, verified, and validated, where applicable?	✓				
Laboratory standard operating procedures (SOPs):					
Are laboratory SOPs current and on file for each method performed?	✓				

Microbac Laboratories Inc.
Laboratory Review Checklist

Laboratory Name: Microbac Laboratories Inc.
Laboratory Log Number: L09080192
Project Name: 798-LONGHORN
Method: 6010
Prep Batch Number(s): WG309438
Reviewer Name: MAREN M. BEERY
LRC Date: August 13, 2009

EXCEPTIONS REPORT

ER#1 -The method blank associated with this analytical batch yielded a result for iron which exceeded the reporting detection limit. However, the reported sample results exceeded that of the method blank by greater than a factor of ten. The iron results were reported with a 'B' qualifier to indicate the association with a noncompliant method blank.

ER#2 - Client sample 04 yielded a result for cadmium that was noncompliant on the negative side upon initial analysis. The sample was reanalyzed at a dilution for cadmium.

Footnotes:
(1) NA = Not applicable to method or project
(2) NR = Not reviewed
(3) ER# = Exception report number

2.1 Volatiles Data

2.1.1 Volatiles GCMS Data (8260)

2.1.1.1 Summary Data

LABORATORY REPORT

L09080192

08/13/09 14:09

Submitted By

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

For

Account Name: Shaw E & I, Inc.
ABB Lummus Biulding
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Houston, TX 77042
Attention: Jennifer Hoang

Project Number: 2773.025
Project: Longhorn AAP
Site: LONGHORN AAP KARNACK TX

P.O. Number: 389869/ 390836(GWTP)

Sample Analysis Summary

Client ID	Lab ID	Method	Dilution	Date Received
SITE 1-TP-BF	L09080192-01	8260B	1	11-AUG-09
SITE 1-TP-TS	L09080192-02	8260B	1	11-AUG-09
SITE 2-BLM-TS	L09080192-03	8260B	1	11-AUG-09
SITE 2-BLM-BF	L09080192-04	8260B	1	11-AUG-09
SITE 3-ML-BF/TS	L09080192-05	8260B	1	11-AUG-09

Report Number:L09080192
Report Date :August 13, 2009

Sample Number:L09080192-01
Client ID:SITE 1-TP-BF
Matrix:Soil
Workgroup Number:WG309410
Collect Date:08/09/2009 10:45
Sample Tag:01

PrePrep Method:NONE
Prep Method:5030C/5035A
Analytical Method:8260B
Analyst:TMB
Dilution:1
Units:ug/kg

Instrument:HPMS9
Prep Date:08/11/2009 11:17
Cal Date:07/21/2009 17:04
Run Date:08/11/2009 15:07
File ID:9M71369
Percent Solid:77.4

Analyte	CAS. Number	Result	Qual	PQL	SDL
Acetone	67-64-1		U	12.8	6.42
Benzene	71-43-2		U	6.42	0.642
Bromobenzene	108-86-1		U	6.42	0.642
Bromochloromethane	74-97-5		U	6.42	0.642
Bromodichloromethane	75-27-4		U	6.42	0.642
Bromoform	75-25-2		U	6.42	0.642
Bromomethane	74-83-9		U	12.8	1.28
2-Butanone	78-93-3		U	12.8	3.21
n-Butylbenzene	104-51-8		U	6.42	0.642
sec-Butylbenzene	135-98-8		U	6.42	0.642
tert-Butylbenzene	98-06-6		U	6.42	0.642
Carbon disulfide	75-15-0		U	6.42	0.642
Carbon tetrachloride	56-23-5		U	6.42	0.642
Chlorobenzene	108-90-7		U	6.42	0.642
Chlorodibromomethane	124-48-1		U	6.42	0.642
Chloroethane	75-00-3		U	12.8	1.28
2-Chloroethyl vinyl ether	110-75-8		U	12.8	2.57
Chloroform	67-66-3		U	6.42	0.642
Chloromethane	74-87-3		U	12.8	2.57
2-Chlorotoluene	95-49-8		U	6.42	0.642
4-Chlorotoluene	106-43-4		U	6.42	0.642
1,2-Dibromo-3-chloropropane	96-12-8		U	6.42	2.57
1,2-Dibromoethane	106-93-4		U	6.42	0.642
Dibromomethane	74-95-3		U	6.42	0.642
1,2-Dichlorobenzene	95-50-1		U	6.42	0.642
1,3-Dichlorobenzene	541-73-1		U	6.42	0.642
1,4-Dichlorobenzene	106-46-7		U	6.42	0.642
Dichlorodifluoromethane	75-71-8		U	12.8	1.28
1,1-Dichloroethane	75-34-3		U	6.42	1.28
1,2-Dichloroethane	107-06-2		U	6.42	0.642
1,1-Dichloroethene	75-35-4		U	6.42	0.642
cis-1,2-Dichloroethene	156-59-2		U	6.42	0.642
trans-1,2-Dichloroethene	156-60-5		U	6.42	0.642
1,2-Dichloropropane	78-87-5		U	6.42	0.642
1,3-Dichloropropane	142-28-9		U	6.42	0.642
2,2-Dichloropropane	594-20-7		U	6.42	0.642
cis-1,3-Dichloropropene	10061-01-5		U	6.42	0.642
trans-1,3-Dichloropropene	10061-02-6		U	6.42	0.642
1,1-Dichloropropene	563-58-6		U	6.42	0.642
Ethylbenzene	100-41-4		U	6.42	0.642
2-Hexanone	591-78-6		U	12.8	3.21
Hexachlorobutadiene	87-68-3		U	6.42	0.642
Isopropylbenzene	98-82-8		U	6.42	0.642
p-Isopropyltoluene	99-87-6		U	6.42	0.642
4-Methyl-2-pentanone	108-10-1		U	12.8	3.21
Methylene chloride	75-09-2		U	6.42	1.28
Naphthalene	91-20-3		U	12.8	0.642
n-Propylbenzene	103-65-1		U	6.42	0.642
Styrene	100-42-5		U	6.42	0.642
1,1,1,2-Tetrachloroethane	630-20-6		U	6.42	0.642
1,1,2,2-Tetrachloroethane	79-34-5		U	6.42	0.642
Tetrachloroethene	127-18-4		U	6.42	0.642
Toluene	108-88-3		U	6.42	0.642
1,2,3-Trichlorobenzene	87-61-6		U	6.42	0.642
1,2,4-Trichlorobenzene	120-82-1		U	6.42	0.642
1,1,1-Trichloroethane	71-55-6		U	6.42	0.642
1,1,2-Trichloroethane	79-00-5		U	6.42	0.642
Trichloroethene	79-01-6		U	6.42	0.642
Trichlorofluoromethane	75-69-4		U	12.8	1.28

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Sample Number:**L09080192-01**
Client ID:**SITE 1-TP-BF**
Matrix:**Soil**
Workgroup Number:**WG309410**
Collect Date:**08/09/2009 10:45**
Sample Tag:**01**

PrePrep Method:**NONE**
Prep Method:**5030C/5035A**
Analytical Method:**8260B**
Analyst:**TMB**
Dilution:**1**
Units:**ug/kg**

Instrument:**HPMS9**
Prep Date:**08/11/2009 11:17**
Cal Date:**07/21/2009 17:04**
Run Date:**08/11/2009 15:07**
File ID:**9M71369**
Percent Solid:**77.4**

Analyte	CAS. Number	Result	Qual	PQL	SDL
1,2,3-Trichloropropane	96-18-4		U	6.42	1.28
1,2,4-Trimethylbenzene	95-63-6		U	6.42	0.642
1,3,5-Trimethylbenzene	108-67-8		U	6.42	0.642
Vinyl acetate	108-05-4		U	12.8	1.28
Vinyl chloride	75-01-4		U	12.8	1.28
o-Xylene	95-47-6		U	6.42	0.642
m-,p-Xylene	136777-61-2		U	6.42	0.642

Surrogate	% Recovery	Lower	Upper	Qual
Dibromofluoromethane	105	80	120	
1,2-Dichloroethane-d4	102	80	120	
Toluene-d8	103	81	117	
4-Bromofluorobenzene	100	74	121	

U Not detected at or above adjusted sample detection limit

Sample Number: **L09080192-02**
Client ID: **SITE 1-TP-TS**
Matrix: **Soil**
Workgroup Number: **WG309410**
Collect Date: **08/09/2009 10:50**
Sample Tag: **01**

PrePrep Method: **NONE**
Prep Method: **5030C/5035A**
Analytical Method: **8260B**
Analyst: **TMB**
Dilution: **1**
Units: **ug/kg**

Instrument: **HPMS9**
Prep Date: **08/11/2009 11:19**
Cal Date: **07/21/2009 17:04**
Run Date: **08/11/2009 15:37**
File ID: **9M71370**
Percent Solid: **79.5**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Acetone	67-64-1		U	12.5	6.24
Benzene	71-43-2		U	6.24	0.624
Bromobenzene	108-86-1		U	6.24	0.624
Bromochloromethane	74-97-5		U	6.24	0.624
Bromodichloromethane	75-27-4		U	6.24	0.624
Bromoform	75-25-2		U	6.24	0.624
Bromomethane	74-83-9		U	12.5	1.25
2-Butanone	78-93-3		U	12.5	3.12
n-Butylbenzene	104-51-8		U	6.24	0.624
sec-Butylbenzene	135-98-8		U	6.24	0.624
tert-Butylbenzene	98-06-6		U	6.24	0.624
Carbon disulfide	75-15-0		U	6.24	0.624
Carbon tetrachloride	56-23-5		U	6.24	0.624
Chlorobenzene	108-90-7		U	6.24	0.624
Chlorodibromomethane	124-48-1		U	6.24	0.624
Chloroethane	75-00-3		U	12.5	1.25
2-Chloroethyl vinyl ether	110-75-8		U	12.5	2.50
Chloroform	67-66-3		U	6.24	0.624
Chloromethane	74-87-3		U	12.5	2.50
2-Chlorotoluene	95-49-8		U	6.24	0.624
4-Chlorotoluene	106-43-4		U	6.24	0.624
1,2-Dibromo-3-chloropropane	96-12-8		U	6.24	2.50
1,2-Dibromoethane	106-93-4		U	6.24	0.624
Dibromomethane	74-95-3		U	6.24	0.624
1,2-Dichlorobenzene	95-50-1		U	6.24	0.624
1,3-Dichlorobenzene	541-73-1		U	6.24	0.624
1,4-Dichlorobenzene	106-46-7		U	6.24	0.624
Dichlorodifluoromethane	75-71-8		U	12.5	1.25
1,1-Dichloroethane	75-34-3		U	6.24	1.25
1,2-Dichloroethane	107-06-2		U	6.24	0.624
1,1-Dichloroethene	75-35-4		U	6.24	0.624
cis-1,2-Dichloroethene	156-59-2		U	6.24	0.624
trans-1,2-Dichloroethene	156-60-5		U	6.24	0.624
1,2-Dichloropropane	78-87-5		U	6.24	0.624
1,3-Dichloropropane	142-28-9		U	6.24	0.624
2,2-Dichloropropane	594-20-7		U	6.24	0.624
cis-1,3-Dichloropropene	10061-01-5		U	6.24	0.624
trans-1,3-Dichloropropene	10061-02-6		U	6.24	0.624
1,1-Dichloropropene	563-58-6		U	6.24	0.624
Ethylbenzene	100-41-4		U	6.24	0.624
2-Hexanone	591-78-6		U	12.5	3.12
Hexachlorobutadiene	87-68-3		U	6.24	0.624
Isopropylbenzene	98-82-8		U	6.24	0.624
p-Isopropyltoluene	99-87-6		U	6.24	0.624
4-Methyl-2-pentanone	108-10-1		U	12.5	3.12
Methylene chloride	75-09-2		U	6.24	1.25
Naphthalene	91-20-3		U	12.5	0.624
n-Propylbenzene	103-65-1		U	6.24	0.624
Styrene	100-42-5		U	6.24	0.624
1,1,1,2-Tetrachloroethane	630-20-6		U	6.24	0.624
1,1,2,2-Tetrachloroethane	79-34-5		U	6.24	0.624
Tetrachloroethene	127-18-4		U	6.24	0.624
Toluene	108-88-3		U	6.24	0.624
1,2,3-Trichlorobenzene	87-61-6		U	6.24	0.624
1,2,4-Trichlorobenzene	120-82-1		U	6.24	0.624
1,1,1-Trichloroethane	71-55-6		U	6.24	0.624
1,1,2-Trichloroethane	79-00-5		U	6.24	0.624
Trichloroethene	79-01-6		U	6.24	0.624
Trichlorofluoromethane	75-69-4		U	12.5	1.25

Sample Number:	**L09080192-02**	PrePrep Method:	**NONE**	Instrument:	**HPMS9**
Client ID:	**SITE 1-TP-TS**	Prep Method:	**5030C/5035A**	Prep Date:	**08/11/2009 11:19**
Matrix:	**Soil**	Analytical Method:	**8260B**	Cal Date:	**07/21/2009 17:04**
Workgroup Number:	**WG309410**	Analyst:	**TMB**	Run Date:	**08/11/2009 15:37**
Collect Date:	**08/09/2009 10:50**	Dilution:	**1**	File ID:	**9M71370**
Sample Tag:	**01**	Units:	**ug/kg**	Percent Solid:	**79.5**

Analyte	CAS. Number	Result	Qual	PQL	SDL
1,2,3-Trichloropropane	96-18-4		U	6.24	1.25
1,2,4-Trimethylbenzene	95-63-6		U	6.24	0.624
1,3,5-Trimethylbenzene	108-67-8		U	6.24	0.624
Vinyl acetate	108-05-4		U	12.5	1.25
Vinyl chloride	75-01-4		U	12.5	1.25
o-Xylene	95-47-6		U	6.24	0.624
m-,p-Xylene	136777-61-2		U	6.24	0.624

Surrogate	% Recovery	Lower	Upper	Qual
Dibromofluoromethane	108	80	120	
1,2-Dichloroethane-d4	107	80	120	
Toluene-d8	106	81	117	
4-Bromofluorobenzene	109	74	121	

U Not detected at or above adjusted sample detection limit

Sample Number: **L09080192-03**
Client ID: **SITE 2-BLM-TS**
Matrix: **Soil**
Workgroup Number: **WG309410**
Collect Date: **08/09/2009 11:20**
Sample Tag: **01**

PrePrep Method: **NONE**
Prep Method: **5030C/5035A**
Analytical Method: **8260B**
Analyst: **TMB**
Dilution: **1**
Units: **ug/kg**

Instrument: **HPMS9**
Prep Date: **08/11/2009 11:21**
Cal Date: **07/21/2009 17:04**
Run Date: **08/11/2009 16:07**
File ID: **9M71371**
Percent Solid: **78.2**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Acetone	67-64-1		U	12.3	6.13
Benzene	71-43-2		U	6.13	0.613
Bromobenzene	108-86-1		U	6.13	0.613
Bromochloromethane	74-97-5		U	6.13	0.613
Bromodichloromethane	75-27-4		U	6.13	0.613
Bromoform	75-25-2		U	6.13	0.613
Bromomethane	74-83-9		U	12.3	1.23
2-Butanone	78-93-3		U	12.3	3.06
n-Butylbenzene	104-51-8		U	6.13	0.613
sec-Butylbenzene	135-98-8		U	6.13	0.613
tert-Butylbenzene	98-06-6		U	6.13	0.613
Carbon disulfide	75-15-0		U	6.13	0.613
Carbon tetrachloride	56-23-5		U	6.13	0.613
Chlorobenzene	108-90-7		U	6.13	0.613
Chlorodibromomethane	124-48-1		U	6.13	0.613
Chloroethane	75-00-3		U	12.3	1.23
2-Chloroethyl vinyl ether	110-75-8		U	12.3	2.45
Chloroform	67-66-3		U	6.13	0.613
Chloromethane	74-87-3		U	12.3	2.45
2-Chlorotoluene	95-49-8		U	6.13	0.613
4-Chlorotoluene	106-43-4		U	6.13	0.613
1,2-Dibromo-3-chloropropane	96-12-8		U	6.13	2.45
1,2-Dibromoethane	106-93-4		U	6.13	0.613
Dibromomethane	74-95-3		U	6.13	0.613
1,2-Dichlorobenzene	95-50-1		U	6.13	0.613
1,3-Dichlorobenzene	541-73-1		U	6.13	0.613
1,4-Dichlorobenzene	106-46-7		U	6.13	0.613
Dichlorodifluoromethane	75-71-8		U	12.3	1.23
1,1-Dichloroethane	75-34-3		U	6.13	1.23
1,2-Dichloroethane	107-06-2		U	6.13	0.613
1,1-Dichloroethene	75-35-4		U	6.13	0.613
cis-1,2-Dichloroethene	156-59-2		U	6.13	0.613
trans-1,2-Dichloroethene	156-60-5		U	6.13	0.613
1,2-Dichloropropane	78-87-5		U	6.13	0.613
1,3-Dichloropropane	142-28-9		U	6.13	0.613
2,2-Dichloropropane	594-20-7		U	6.13	0.613
cis-1,3-Dichloropropene	10061-01-5		U	6.13	0.613
trans-1,3-Dichloropropene	10061-02-6		U	6.13	0.613
1,1-Dichloropropene	563-58-6		U	6.13	0.613
Ethylbenzene	100-41-4		U	6.13	0.613
2-Hexanone	591-78-6		U	12.3	3.06
Hexachlorobutadiene	87-68-3		U	6.13	0.613
Isopropylbenzene	98-82-8		U	6.13	0.613
p-Isopropyltoluene	99-87-6		U	6.13	0.613
4-Methyl-2-pentanone	108-10-1		U	12.3	3.06
Methylene chloride	75-09-2		U	6.13	1.23
Naphthalene	91-20-3		U	12.3	0.613
n-Propylbenzene	103-65-1		U	6.13	0.613
Styrene	100-42-5		U	6.13	0.613
1,1,1,2-Tetrachloroethane	630-20-6		U	6.13	0.613
1,1,2,2-Tetrachloroethane	79-34-5		U	6.13	0.613
Tetrachloroethene	127-18-4		U	6.13	0.613
Toluene	108-88-3		U	6.13	0.613
1,2,3-Trichlorobenzene	87-61-6		U	6.13	0.613
1,2,4-Trichlorobenzene	120-82-1		U	6.13	0.613
1,1,1-Trichloroethane	71-55-6		U	6.13	0.613
1,1,2-Trichloroethane	79-00-5		U	6.13	0.613
Trichloroethene	79-01-6		U	6.13	0.613
Trichlorofluoromethane	75-69-4		U	12.3	1.23

Sample Number:	L09080192-03	PrePrep Method:	NONE	Instrument:	HPMS9
Client ID:	SITE 2-BLM-TS	Prep Method:	5030C/5035A	Prep Date:	08/11/2009 11:21
Matrix:	Soil	Analytical Method:	8260B	Cal Date:	07/21/2009 17:04
Workgroup Number:	WG309410	Analyst:	TMB	Run Date:	08/11/2009 16:07
Collect Date:	08/09/2009 11:20	Dilution:	1	File ID:	9M71371
Sample Tag:	01	Units:	ug/kg	Percent Solid:	78.2

Analyte	CAS. Number	Result	Qual	PQL	SDL
1,2,3-Trichloropropane	96-18-4		U	6.13	1.23
1,2,4-Trimethylbenzene	95-63-6		U	6.13	0.613
1,3,5-Trimethylbenzene	108-67-8		U	6.13	0.613
Vinyl acetate	108-05-4		U	12.3	1.23
Vinyl chloride	75-01-4		U	12.3	1.23
o-Xylene	95-47-6		U	6.13	0.613
m-,p-Xylene	136777-61-2		U	6.13	0.613

Surrogate	% Recovery	Lower	Upper	Qual
Dibromofluoromethane	107	80	120	
1,2-Dichloroethane-d4	105	80	120	
Toluene-d8	107	81	117	
4-Bromofluorobenzene	112	74	121	

U Not detected at or above adjusted sample detection limit

Sample Number:**L09080192-04**
Client ID:**SITE 2-BLM-BF**
Matrix:**Soil**
Workgroup Number:**WG309410**
Collect Date:**08/09/2009 11:25**
Sample Tag:**01**

PrePrep Method:**NONE**
Prep Method:**5030C/5035A**
Analytical Method:**8260B**
Analyst:**TMB**
Dilution:**1**
Units:**ug/kg**

Instrument:**HPMS9**
Prep Date:**08/11/2009 11:24**
Cal Date:**07/21/2009 17:04**
Run Date:**08/11/2009 16:37**
File ID:**9M71372**
Percent Solid:**78.3**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Acetone	67-64-1		U	12.7	6.35
Benzene	71-43-2		U	6.35	0.635
Bromobenzene	108-86-1		U	6.35	0.635
Bromochloromethane	74-97-5		U	6.35	0.635
Bromodichloromethane	75-27-4		U	6.35	0.635
Bromoform	75-25-2		U	6.35	0.635
Bromomethane	74-83-9		U	12.7	1.27
2-Butanone	78-93-3		U	12.7	3.17
n-Butylbenzene	104-51-8		U	6.35	0.635
sec-Butylbenzene	135-98-8		U	6.35	0.635
tert-Butylbenzene	98-06-6		U	6.35	0.635
Carbon disulfide	75-15-0		U	6.35	0.635
Carbon tetrachloride	56-23-5		U	6.35	0.635
Chlorobenzene	108-90-7		U	6.35	0.635
Chlorodibromomethane	124-48-1		U	6.35	0.635
Chloroethane	75-00-3		U	12.7	1.27
2-Chloroethyl vinyl ether	110-75-8		U	12.7	2.54
Chloroform	67-66-3		U	6.35	0.635
Chloromethane	74-87-3		U	12.7	2.54
2-Chlorotoluene	95-49-8		U	6.35	0.635
4-Chlorotoluene	106-43-4		U	6.35	0.635
1,2-Dibromo-3-chloropropane	96-12-8		U	6.35	2.54
1,2-Dibromoethane	106-93-4		U	6.35	0.635
Dibromomethane	74-95-3		U	6.35	0.635
1,2-Dichlorobenzene	95-50-1		U	6.35	0.635
1,3-Dichlorobenzene	541-73-1		U	6.35	0.635
1,4-Dichlorobenzene	106-46-7		U	6.35	0.635
Dichlorodifluoromethane	75-71-8		U	12.7	1.27
1,1-Dichloroethane	75-34-3		U	6.35	1.27
1,2-Dichloroethane	107-06-2		U	6.35	0.635
1,1-Dichloroethene	75-35-4		U	6.35	0.635
cis-1,2-Dichloroethene	156-59-2		U	6.35	0.635
trans-1,2-Dichloroethene	156-60-5		U	6.35	0.635
1,2-Dichloropropane	78-87-5		U	6.35	0.635
1,3-Dichloropropane	142-28-9		U	6.35	0.635
2,2-Dichloropropane	594-20-7		U	6.35	0.635
cis-1,3-Dichloropropene	10061-01-5		U	6.35	0.635
trans-1,3-Dichloropropene	10061-02-6		U	6.35	0.635
1,1-Dichloropropene	563-58-6		U	6.35	0.635
Ethylbenzene	100-41-4		U	6.35	0.635
2-Hexanone	591-78-6		U	12.7	3.17
Hexachlorobutadiene	87-68-3		U	6.35	0.635
Isopropylbenzene	98-82-8		U	6.35	0.635
p-Isopropyltoluene	99-87-6		U	6.35	0.635
4-Methyl-2-pentanone	108-10-1		U	12.7	3.17
Methylene chloride	75-09-2		U	6.35	1.27
Naphthalene	91-20-3		U	12.7	0.635
n-Propylbenzene	103-65-1		U	6.35	0.635
Styrene	100-42-5		U	6.35	0.635
1,1,1,2-Tetrachloroethane	630-20-6		U	6.35	0.635
1,1,2,2-Tetrachloroethane	79-34-5		U	6.35	0.635
Tetrachloroethene	127-18-4		U	6.35	0.635
Toluene	108-88-3		U	6.35	0.635
1,2,3-Trichlorobenzene	87-61-6		U	6.35	0.635
1,2,4-Trichlorobenzene	120-82-1		U	6.35	0.635
1,1,1-Trichloroethane	71-55-6		U	6.35	0.635
1,1,2-Trichloroethane	79-00-5		U	6.35	0.635
Trichloroethene	79-01-6		U	6.35	0.635
Trichlorofluoromethane	75-69-4		U	12.7	1.27

Sample Number:**L09080192-04**
Client ID:**SITE 2-BLM-BF**
Matrix:**Soil**
Workgroup Number:**WG309410**
Collect Date:**08/09/2009 11:25**
Sample Tag:**01**

PrePrep Method:**NONE**
Prep Method:**5030C/5035A**
Analytical Method:**8260B**
Analyst:**TMB**
Dilution:**1**
Units:**ug/kg**

Instrument:**HPMS9**
Prep Date:**08/11/2009 11:24**
Cal Date:**07/21/2009 17:04**
Run Date:**08/11/2009 16:37**
File ID:**9M71372**
Percent Solid:**78.3**

Analyte	CAS. Number	Result	Qual	PQL	SDL
1,2,3-Trichloropropane	96-18-4		U	6.35	1.27
1,2,4-Trimethylbenzene	95-63-6		U	6.35	0.635
1,3,5-Trimethylbenzene	108-67-8		U	6.35	0.635
Vinyl acetate	108-05-4		U	12.7	1.27
Vinyl chloride	75-01-4		U	12.7	1.27
o-Xylene	95-47-6		U	6.35	0.635
m-,p-Xylene	136777-61-2		U	6.35	0.635

Surrogate	% Recovery	Lower	Upper	Qual
Dibromofluoromethane	100	80	120	
1,2-Dichloroethane-d4	101	80	120	
Toluene-d8	101	81	117	
4-Bromofluorobenzene	106	74	121	

U Not detected at or above adjusted sample detection limit

Sample Number:L09080192-05
Client ID:SITE 3-ML-BF/TS
Matrix:Soil
Workgroup Number:WG309410
Collect Date:08/09/2009 12:00
Sample Tag:01

PrePrep Method:NONE
Prep Method:5030C/5035A
Analytical Method:8260B
Analyst:TMB
Dilution:1
Units:ug/kg

Instrument:HPMS9
Prep Date:08/11/2009 11:26
Cal Date:07/21/2009 17:04
Run Date:08/11/2009 17:08
File ID:9M71373
Percent Solid:88.2

Analyte	CAS. Number	Result	Qual	PQL	SDL
Acetone	67-64-1		U	11.1	5.55
Benzene	71-43-2		U	5.55	0.555
Bromobenzene	108-86-1		U	5.55	0.555
Bromochloromethane	74-97-5		U	5.55	0.555
Bromodichloromethane	75-27-4		U	5.55	0.555
Bromoform	75-25-2		U	5.55	0.555
Bromomethane	74-83-9		U	11.1	1.11
2-Butanone	78-93-3		U	11.1	2.77
n-Butylbenzene	104-51-8		U	5.55	0.555
sec-Butylbenzene	135-98-8		U	5.55	0.555
tert-Butylbenzene	98-06-6		U	5.55	0.555
Carbon disulfide	75-15-0		U	5.55	0.555
Carbon tetrachloride	56-23-5		U	5.55	0.555
Chlorobenzene	108-90-7		U	5.55	0.555
Chlorodibromomethane	124-48-1		U	5.55	0.555
Chloroethane	75-00-3		U	11.1	1.11
2-Chloroethyl vinyl ether	110-75-8		U	11.1	2.22
Chloroform	67-66-3		U	5.55	0.555
Chloromethane	74-87-3		U	11.1	2.22
2-Chlorotoluene	95-49-8		U	5.55	0.555
4-Chlorotoluene	106-43-4		U	5.55	0.555
1,2-Dibromo-3-chloropropane	96-12-8		U	5.55	2.22
1,2-Dibromoethane	106-93-4		U	5.55	0.555
Dibromomethane	74-95-3		U	5.55	0.555
1,2-Dichlorobenzene	95-50-1		U	5.55	0.555
1,3-Dichlorobenzene	541-73-1		U	5.55	0.555
1,4-Dichlorobenzene	106-46-7		U	5.55	0.555
Dichlorodifluoromethane	75-71-8		U	11.1	1.11
1,1-Dichloroethane	75-34-3		U	5.55	1.11
1,2-Dichloroethane	107-06-2		U	5.55	0.555
1,1-Dichloroethene	75-35-4		U	5.55	0.555
cis-1,2-Dichloroethene	156-59-2		U	5.55	0.555
trans-1,2-Dichloroethene	156-60-5		U	5.55	0.555
1,2-Dichloropropane	78-87-5		U	5.55	0.555
1,3-Dichloropropane	142-28-9		U	5.55	0.555
2,2-Dichloropropane	594-20-7		U	5.55	0.555
cis-1,3-Dichloropropene	10061-01-5		U	5.55	0.555
trans-1,3-Dichloropropene	10061-02-6		U	5.55	0.555
1,1-Dichloropropene	563-58-6		U	5.55	0.555
Ethylbenzene	100-41-4		U	5.55	0.555
2-Hexanone	591-78-6		U	11.1	2.77
Hexachlorobutadiene	87-68-3		U	5.55	0.555
Isopropylbenzene	98-82-8		U	5.55	0.555
p-Isopropyltoluene	99-87-6		U	5.55	0.555
4-Methyl-2-pentanone	108-10-1		U	11.1	2.77
Methylene chloride	75-09-2		U	5.55	1.11
Naphthalene	91-20-3		U	11.1	0.555
n-Propylbenzene	103-65-1		U	5.55	0.555
Styrene	100-42-5		U	5.55	0.555
1,1,1,2-Tetrachloroethane	630-20-6		U	5.55	0.555
1,1,2,2-Tetrachloroethane	79-34-5		U	5.55	0.555
Tetrachloroethene	127-18-4		U	5.55	0.555
Toluene	108-88-3		U	5.55	0.555
1,2,3-Trichlorobenzene	87-61-6		U	5.55	0.555
1,2,4-Trichlorobenzene	120-82-1		U	5.55	0.555
1,1,1-Trichloroethane	71-55-6		U	5.55	0.555
1,1,2-Trichloroethane	79-00-5		U	5.55	0.555
Trichloroethene	79-01-6		U	5.55	0.555
Trichlorofluoromethane	75-69-4		U	11.1	1.11

Sample Number: **L09080192-05**
Client ID: **SITE 3-ML-BF/TS**
Matrix: **Soil**
Workgroup Number: **WG309410**
Collect Date: **08/09/2009 12:00**
Sample Tag: **01**

PrePrep Method: **NONE**
Prep Method: **5030C/5035A**
Analytical Method: **8260B**
Analyst: **TMB**
Dilution: **1**
Units: **ug/kg**

Instrument: **HPMS9**
Prep Date: **08/11/2009 11:26**
Cal Date: **07/21/2009 17:04**
Run Date: **08/11/2009 17:08**
File ID: **9M71373**
Percent Solid: **88.2**

Analyte	CAS. Number	Result	Qual	PQL	SDL
1,2,3-Trichloropropane	96-18-4		U	5.55	1.11
1,2,4-Trimethylbenzene	95-63-6		U	5.55	0.555
1,3,5-Trimethylbenzene	108-67-8		U	5.55	0.555
Vinyl acetate	108-05-4		U	11.1	1.11
Vinyl chloride	75-01-4		U	11.1	1.11
o-Xylene	95-47-6		U	5.55	0.555
m-,p-Xylene	136777-61-2		U	5.55	0.555

Surrogate	% Recovery	Lower	Upper	Qual
Dibromofluoromethane	108	80	120	
1,2-Dichloroethane-d4	110	80	120	
Toluene-d8	106	81	117	
4-Bromofluorobenzene	107	74	121	

U Not detected at or above adjusted sample detection limit

2.1.1.2 QC Summary Data

Example 8260 Calculations

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

$$RF = [(Ax) (Cis)] / [(Ais) (Cx)]$$

where:

	Example
Ax = Area of the characteristic ion for the compound being measured:	3399156
Cis = Concentration of the specific internal standard (ug/mL)	25
Ais = Area of the characteristic ion of the specific internal standard	846471
Cx = Concentration of the compound in the standard being measured (ug/mL)	100
RF = Calculated Response Factor	**1.0039**

2.0 Calculating the concentration (C) of a compound in water using the average RF: *

$$Cx = [(Ax) (Cis) (Vn)(D)] / [(Ais) (RF) (Vs)]$$

where:

	Example
Ax = Area of the characteristic ion for the compound being measured	**3122498**
Cis = Concentration of the specific internal standard (ug/L)	**25**
D = Dilution factor for sample as a multiplier (10x = 10)	**1**
Ais = Area of the characteristic ion of the specific internal standard	**611048**
RF = Average RF from the ICAL	**1.004**
Vs = Purge volume of sample (mL)	**10**
Vn = Nominal purge volume of sample (mL) (10.0 mL)	**10**
Cx = Concentration of the compound in the sample being measured (ug/L)	**127.2428**

3.0 Calculating the concentration (C) of a compound in soil using the average RF: *

$$Cx = [(Ax) (Cis) (Wn)(D)] / [(Ais) (RF) (Ws)]$$

where:

	Example
Ax = Area of the characteristic ion for the compound being measured	**3122498**
Cis = Concentration of the specific internal standard (ug/L)	**25**
D = Dilution factor for sample as a multiplier (10x = 10)	**1**
Ais = Area of the characteristic ion of the specific internal standard	**611048**
RF = Average RF from the ICAL	**1.004**
Ws = Weight of sample purged (g)	**5**
Wn = Nominal purge weight (g) (5.0 g)	**5**
Cx = Concentration of the compound in the sample being measured (ug/L)	**127.2428**

Dry weight correction:

Percent solids (PCT_S)	**50**
Cd = (Cx) (100)/PCT_S	**254.4856**

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

4.0 Concentration from Linear Regression

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

y = response ratio = response of analyte / response of IS = Ax/Ais

x = amount ratio = concentration analyte/concentration internal standard = Cx / Cis

m = slope from curve = 0.213

b = intercept from curve = - 0.00642

Step 2: Calculate y from Quantitation Report

y = 86550/593147 = 0.1459

Step 3: Solve for x

x = (y - b)/m = [(0.1459 -(- 0.00642)]/ 0.213 = 0.7152

Step 4: Solve for analyte concentration Cx

Cx = Cis (x) = (25.0)(0.7152) = 17.88

Example Spreadsheet Calculation:

Slope from curve, m:	**0.213**
Intercept from curve, b:	**-0.00642**
Area of analyte, Ax:	**86550**
Area of Internal Standard , Ais:	**593147**
Concentration of IS, Cis	**25.00**
Response Ratio:	**0.145917**
Amount Ratio:	**0.715195**
Concentration:	**17.87988**
Units of Internal Standard:	**ug/L**

5.0 Concentration from Quadratic Regression

Step 1 - Retrieve Curve Data from Plot, y = Ax^2 + Bx + C
Where:
Ax^2 + Bx + (C - y) = 0
A, B, C = constants from the ICAL quadratic regression
y = Response ratio = Area of analyte/Area of internal standard (IS)
x = Amount ratio = Concentration of analyte/concentration of IS

Step 2: Calculate y from Quantitation Report

y = Ax/Ais

Step 3: Solve for x using the quadratic formula
Ax^2 + Bx + C - y = 0

$$x = \frac{b \pm \sqrt{\left(b^2 - 4a\left(c - y\right)\right)}}{2a}$$

(Two possible solutions)

Step 4: Solve for analyte concentration Cx

Cx = (Cis)(Amount ratio)

Example Spreadsheet Calculation:

Value of A from plot:	**-0.00629**	
Value of B from plot:	**0.511**	
Value of C from plot:	**-0.0276**	
Area of unknown from quantitation report:	**293821**	
Area of IS from quantiation report:	**784848**	
Response ratio, y:	**0.374367**	
C - y:	**-0.40197**	
Root 1 - Computed amount ratio , X1:	**80.44567**	
Root 2 - Computed amount ratio , X2:	**0.794396**	use this solution
Concentration of IS, Cis:	**25.00**	
Concentration of analyte, Cx:	**19.86**	ug/L

Microbac Laboratories Inc.
VOA Preparation/Preservation/Extraction Log

Batch #: WG309439
Method: 5030C/5035A
Analyst: FJB
Run Date: 08/11/2009 12:06
Purge and trap methanol COA14043
Sand Lot #: COA14045

SAMPLE #	Fraction	Collected	Preserved	PCT-S	Tare Wt	Total Wt	Sample Wt	Water	MeOH	Vt	Comments
L09080132-01	A	08/05/09 15:00	08/11/09 12:06	100			1.01		10	10	
L09080192-01	A	08/09/09 10:45	08/11/09 11:17				5.03	5		5	
L09080192-02	A	08/09/09 10:50	08/11/09 11:19				5.04	5		5	
L09080192-03	A	08/09/09 11:20	08/11/09 11:21				5.22	5		5	
L09080192-04	A	08/09/09 11:25	08/11/09 11:24				5.03	5		5	
L09080192-05	A	08/09/09 12:00	08/11/09 11:26				5.11	5		5	

Comments:
1 = improperly sealed cap
2 = preserved out of hold
3 = effervesced
4 = preserved with NaHSO4
5 = preserved by freezing
6 = preserved in field

Analyst:

Microbac Laboratories Inc.

Instrument Run Log

Instrument: HPMS9
Dataset: 072109
Analyst1: TMB
Analyst2: NA
Method: 8260B
SOP: MSV01
Rev: 13
Method: 5030C/5035A
SOP: PAT01
Rev: 12

Maintenance Log ID: 29518

Internal Standard: STD34089
Surrogate Standard: STD33925
CCV: STD33088
LCS: STD33082
MS/MSD: NA

Column 1 ID: RTX502.2
Column 2 ID: NA
Workgroups: WG307576

Comments:

Seq.	File ID	Sample Information	pH	Mat	Dil	Reference	Date/Time
1	9M70932	RINSE	NA	7	1		07/21/09 08:46
2	9M70933	RINSE	NA	7	1		07/21/09 09:17
3	9M70934	WG307576-01 50ng BFB STD 8260	NA	7	1	STD33918	07/21/09 09:43
4	9M70935	WG307576-01 50ng BFB STD 8260	NA	7	1	STD33918	07/21/09 09:58
5	9M70936	WG307576-02 0.5ug/Kg STD 8260	NA	7	1	STD34088	07/21/09 10:24
6	9M70937	WG307576-03 1ug/Kg STD 8260	NA	7	1	STD34088	07/21/09 10:55
7	9M70938	WG307576-04 2ug/Kg STD 8260	NA	7	1	STD34088	07/21/09 11:25
8	9M70939	WG307576-05 5ug/Kg STD 8260	NA	7	1	STD34088	07/21/09 11:56
9	9M70940	WG307576-06 20ug/Kg STD 8260	NA	7	1	STD34088	07/21/09 12:27
10	9M70941	WG307576-07 50ug/Kg STD 8260	NA	7	1	STD34088	07/21/09 12:58
11	9M70942	WG307576-08 100ug/Kg STD 8260	NA	7	1	STD34088	07/21/09 13:29
12	9M70943	WG307576-09 200ug/Kg STD 8260	NA	7	1	STD34088	07/21/09 14:00
13	9M70944	WG307576-10 300ug/Kg STD 8260	NA	7	1	STD34088	07/21/09 14:31
14	9M70945	RINSE	NA	7	1	STD34088	07/21/09 15:01
15	9M70946	WG307576-04 2ug/Kg STD 8260	NA	7	1	STD34088	07/21/09 15:32
16	9M70947	WG307576-05 5ug/Kg STD 8260	NA	7	1	STD34088	07/21/09 16:03
17	9M70948	WG307576-04 2ug/Kg STD 8260	NA	7	1	STD34088	07/21/09 16:33
18	9M70949	WG307576-05 5ug/Kg STD 8260	NA	7	1	STD34088	07/21/09 17:04
19	9M70950	RINSE	NA	7	1		07/21/09 17:35
20	9M70951	RINSE	NA	7	1		07/21/09 18:06
21	9M70952	WG307576-11 20ug/Kg LCS STD 8260	NA	7	1	STD34082	07/21/09 18:37
22	9M70953	RINSE	NA	7	1		07/21/09 19:07

Comments

Seq.	Rerun	Dil.	Reason	Analytes
3	X			
File ID: 9M70934				
	Tune failed. DNR.			
7	X			
File ID: 9M70938				
	Replaced the trap and this point had low responces. DNR.			
8	X			
File ID: 9M70939				
	Replaced the trap and this point had low responces. DNR.			

Approved: July 22, 2009

Page: 1

Microbac Laboratories Inc.

Instrument Run Log

Instrument: HPMS9
Dataset: 072109
Analyst1: TMB
Analyst2: NA
Method: 8260B
SOP: MSV01
Rev: 13
Method: 5030C/5035A
SOP: PAT01
Rev: 12

Maintenance Log ID: 29518

Internal Standard: STD34089
Surrogate Standard: STD33925
CCV: STD33088
LCS: STD33082
MS/MSD: NA

Column 1 ID: RTX502.2
Column 2 ID: NA
Workgroups: WG307576

Comments:

Comments

Seq.	Rerun	Dil.	Reason	Analytes
15	X			
File ID: 9M70946				
	Archon added the ss. DNR.			
16	X			
File ID: 9M70947				
	Archon added the ss. DNR.			

Approved: July 22, 2009

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Instrument Run Log

Instrument: HPMS9
Dataset: 081109
Analyst1: TMB
Analyst2: NA
Method: 8260B
SOP: MSV01
Rev: 13
Method: 5030C/5035A
SOP: PAT01
Rev: 12

Maintenance Log ID: 29756

Internal Standard: STD34089
Surrogate Standard: STD34431
CCV: STD34357
LCS: STD34517
MS/MSD: NA

Column 1 ID: RTX502.2
Column 2 ID: NA
Workgroups: WG309410; WG309425

Comments:

Seq.	File ID	Sample Information	pH	Mat	Dil	Reference	Date/Time
1	9M71357	RINSE	NA	10	1		08/11/09 09:11
2	9M71358	WG309407-01 50ng BFB STD 8260	NA	7	1	STD34563	08/11/09 09:39
3	9M71359	WG309407-02 50ug/Kg CCV STD 8260	NA	7	1	STD34357	08/11/09 10:04
4	9M71360	WG309425-01 EXT BLK 100X 8260 5g/10m	NA	10	50		08/11/09 10:35
5	9M71361	WG309410-01 VBLK0810 BLANK 8260	NA	7	1		08/11/09 11:06
6	9M71362	WG309410-02 20ug/Kg LCS 8260	NA	7	1	STD34517	08/11/09 11:36
7	9M71363	WG309410-03 20ug/Kg LCSDUP 8260	NA	7	1	STD34517	08/11/09 12:06
8	9M71364	WG309425-02 EXT LCS 100X 8260 5g/10m	NA	10	50		08/11/09 12:37
9	9M71365	WG309425-03 EXT LCSDUP 100X 8260 5g/	NA	10	50		08/11/09 13:07
10	9M71366	L09080091-21 B 250X M1 8260 154g	NA	10	250		08/11/09 13:37
11	9M71367	L09080091-24 B 500X M1 8260 168.54g	NA	10	500		08/11/09 14:07
12	9M71368	L09080089-01 B 1000X M1 8260 151.45g	NA	10	1000		08/11/09 14:37
13	9M71369	L09080192-01 8260 5.03g	NA	7	1		08/11/09 15:07
14	9M71370	L09080192-02 8260 5.04g	NA	7	1		08/11/09 15:37
15	9M71371	L09080192-03 8260 5.22g	NA	7	1		08/11/09 16:07
16	9M71372	L09080192-04 8260 5.03g	NA	7	1		08/11/09 16:37
17	9M71373	L09080192-05 8260 5.11g	NA	7	1		08/11/09 17:08
18	9M71374	L09080091-48 A 50X 8260 143.01g	NA	10	50		08/11/09 17:38
19	9M71375	L09080089-09 A 50X 8260 151.33g	NA	10	50		08/11/09 18:08
20	9M71376	L09080089-10 A 50X 8260 153.87g	NA	10	50		08/11/09 18:39
21	9M71377	L09080089-11 A 50X 8260 171.52g	NA	10	50		08/11/09 19:10
22	9M71378	L09080089-12 A 50X 8260 144.99g	NA	10	50		08/11/09 19:41
23	9M71379	L09080089-13 A 50X 8260 173.05g	NA	10	50		08/11/09 20:11
24	9M71380	L09080089-14 A 50X 8260 174.61g	NA	10	50		08/11/09 20:42
25	9M71381	L09080089-15 A 50X 8260 154.82g	NA	10	50		08/11/09 21:12
26	9M71382	L09080132-01 10000X 8260 154.82g	NA	11	5000		08/11/09 21:43
27	9M71383	RINSE	NA	7	1		08/11/09 22:13
28	9M71384	RINSE	NA	7	1		08/11/09 22:43
29	9M71385	RINSE	NA	7	1		08/11/09 23:14
30	9M71386	RINSE	NA	7	1		08/11/09 23:44
31	9M71387	RINSE	NA	7	1		08/12/09 00:15
32	9M71388	RINSE	NA	7	1		08/12/09 00:46

Approved: August 12, 2009

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Microbac Laboratories Inc.

Instrument Run Log

Instrument: HPMS9 Dataset: 081109
Analyst1: TMB Analyst2: NA
Method: 8260B SOP: MSV01 Rev: 13
Method: 5030C/5035A SOP: PAT01 Rev: 12

Maintenance Log ID: 29756

Internal Standard: STD34089 Surrogate Standard: STD34431
CCV: STD34357 LCS: STD34517 MS/MSD: NA

Column 1 ID: RTX502.2 Column 2 ID: NA
Workgroups: WG309410; WG309425

Comments:

Comments

Seq.	Rerun	Dil.	Reason	Analytes
19	X	2000	Over Calibration Range	TCE
File ID:	9M71375			
20	X	500	Over Calibration Range	CIS12DCE, TCE
File ID:	9M71376			
21	X	100	Carry-over contamination	
File ID:	9M71377			
	DNR.			
22	X	1000	Over Calibration Range	CIS12DCE, TCE
File ID:	9M71378			
23	X	1000	Over Calibration Range	CIS12DCE, TCE
File ID:	9M71379			
24	X	1000	Over Calibration Range	CIS12DCE, TCE
File ID:	9M71380			
26	X	1000	Missed Tune	
File ID:	9M71382			
	DNR.			

Approved: August 12, 2009

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Microbac Laboratories Inc.

Data Checklist

Date: 21-JUL-2009
Analyst: TMB
Analyst: NA
Method: 8260
Instrument: HPMS9
Curve Workgroup: NA
Runlog ID: 29206
Analytical Workgroups: WG307576

System Performance Check	NA
BFB	X
Initial Calibration	X
Average RF	X
Linear Reg or Higher Order Curve	X
Second Source standard % Difference	X
Continuing Calibration /Check Standards	X
Project/Client Specific Requirements	X
Special Standards	X
Blanks	X
TCL's	X
Surrogates	X
LCS (Laboratory Control Sample)	X
Recoveries	X
Surrogates	X
MS/MSD/Duplicates	NA
Samples	X
TCL Hits	X
Spectra of TCL Hits	X
Surrogates	X
Internal Standards Criteria	X
Library Searches	NA
Calculations & Correct Factors	X
Dilutions Run	NA
Reruns	X
Manual Integrations	NA
Case Narrative	X
Results Reporting/Data Qualifiers	X
KOBRA Workgroup Data	X
Check for Completeness	X
Primary Reviewer	TMB
Secondary Reviewer	MDA
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Check the reasonableness of the results	X

Primary Reviewer:
22-JUL-2009
Tiffany Bailey

Secondary Reviewer:
22-JUL-2009

CHECKLIST1 - Modified 03/05/2008
Generated: JUL-22-2009 15:45:28

Microbac®

Checklist ID: 40804

Microbac Laboratories Inc.

Data Checklist

Date: 11-AUG-2009
Analyst: TMB
Analyst: NA
Method: 8260
Instrument: HPMS9
Curve Workgroup: NA
Runlog ID: 29578
Analytical Workgroups: WG309410; WG309425

System Performance Check	NA
BFB	X
Initial Calibration	X
Average RF	X
Linear Reg or Higher Order Curve	X
Second Source standard % Difference	X
Continuing Calibration /Check Standards	X
Project/Client Specific Requirements	X
Special Standards	NA
Blanks	X
TCL's	X
Surrogates	X
LCS (Laboratory Control Sample)	X
Recoveries	X
Surrogates	X
MS/MSD/Duplicates	NA
Samples	X
TCL Hits	X
Spectra of TCL Hits	X
Surrogates	X
Internal Standards Criteria	X
Library Searches	NA
Calculations & Correct Factors	X
Dilutions Run	X
Reruns	X
Manual Integrations	NA
Case Narrative	X
Results Reporting/Data Qualifiers	X
KOBRA Workgroup Data	X
Check for Completeness	X
Primary Reviewer	TMB
Secondary Reviewer	MDA
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Check the reasonableness of the results	X

Primary Reviewer:
12-AUG-2009
Tiffany Bailey

Secondary Reviewer:
12-AUG-2009

CHECKLIST1 - Modified 03/05/2008
Generated: AUG-12-2009 09:59:19

HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: 8260B

Login Number: L09080192

AAB#: WG309410

Client ID	ID	Date Collected	TCLP Date	Time Held	Max Hold	Q	Extract Date	Time Held	Max Hold	Q	Run Date	Time Held	Max Hold	Q
SITE 1-TP-BF	01	08/09/09							14		08/11/09	2.2	14	
SITE 1-TP-TS	02	08/09/09							14		08/11/09	2.2	14	
SITE 2-BLM-TS	03	08/09/09							14		08/11/09	2.2	14	
SITE 2-BLM-BF	04	08/09/09							14		08/11/09	2.2	14	
SITE 3-ML-BF/TS	05	08/09/09							14		08/11/09	2.2	14	

* = SEE PROJECT QAPP REQUIREMENTS

HOLD_TIMES - Modified 03/06/2008
PDF File ID: 1463982
Report generated 08/12/2009 11:06

Microbac Laboratories Inc.
SURROGATE STANDARDS

Login Number: L09080192
Instrument Id: HPMS9
Workgroup (AAB#): WG309410

Method: 8260
CAL ID: HPMS9 - 21-JUL-09
Matrix: Soil

Sample Number	Dilution	Tag	1	2	3	4
L09080192-01	1.00	01	102	105	100	103
L09080192-02	1.00	01	107	108	109	106
L09080192-03	1.00	01	105	107	112	107
L09080192-04	1.00	01	101	100	106	101
L09080192-05	1.00	01	110	108	107	106
WG309410-01	1.00	01	101	99.8	97.8	97.0
WG309410-02	1.00	01	110	109	104	107
WG309410-03	1.00	01	107	106	104	106

Surrogates	Surrogate Limits
1 - 1,2-Dichloroethane-d4	80 - 120
2 - Dibromofluoromethane	80 - 120
3 - 4-Bromofluorobenzene	74 - 121
4 - Toluene-d8	81 - 117

Underline = Result out of surrogate limits

DL = surrogate diluted out
ND = surrogate not detected

SURROGATES - Modified 03/06/2008
PDF File ID: 1463990
Report generated: 08/12/2009 11:07

METHOD BLANK SUMMARY

Login Number: L09080192
Work Group: WG309410
Blank File ID: 9M71361
Blank Sample ID: WG309410-01
Prep Date: 08/11/09 11:06
Instrument ID: HPMS9
Analyzed Date: 08/11/09 11:06
Method: 8260B
Analyst: TMB

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG309410-02	9M71362	08/11/09 11:36	01
LCS2	WG309410-03	9M71363	08/11/09 12:06	01
SITE 1-TP-BF	L09080192-01	9M71369	08/11/09 15:07	01
SITE 1-TP-TS	L09080192-02	9M71370	08/11/09 15:37	01
SITE 2-BLM-TS	L09080192-03	9M71371	08/11/09 16:07	01
SITE 2-BLM-BF	L09080192-04	9M71372	08/11/09 16:37	01
SITE 3-ML-BF/TS	L09080192-05	9M71373	08/11/09 17:08	01

Report Name: BLANK_SUMMARY
PDF File ID: 1463983
Report generated 08/12/2009 11:06

Microbac Laboratories Inc.
METHOD BLANK REPORT

Login Number: L09080192
Prep Date: 08/11/09 11:06
Sample ID: WG309410-01
Instrument ID: HPMS9
Run Date: 08/11/09 11:06
Prep Method: 5030C/5035A
File ID: 9M71361
Analyst: TMB
Method: 8260B
Workgroup (AAB#): WG309410
Matrix: Soil
Units: ug/kg
Contract #: DACA56-94-D-0020
Cal ID: HPMS9 - 21-JUL-09

Analytes	SDL	PQL	Concentration	Dilution	Qualifier
Acetone	5.00	10.0	5.00	1	U
Benzene	0.500	5.00	0.500	1	U
Bromobenzene	0.500	5.00	0.500	1	U
Bromochloromethane	0.500	5.00	0.500	1	U
Bromodichloromethane	0.500	5.00	0.500	1	U
Bromoform	0.500	5.00	0.500	1	U
Bromomethane	1.00	10.0	1.00	1	U
2-Butanone	2.50	10.0	2.50	1	U
n-Butylbenzene	0.500	5.00	0.500	1	U
sec-Butylbenzene	0.500	5.00	0.500	1	U
tert-Butylbenzene	0.500	5.00	0.500	1	U
Carbon disulfide	0.500	5.00	0.500	1	U
Carbon tetrachloride	0.500	5.00	0.500	1	U
Chlorobenzene	0.500	5.00	0.500	1	U
Chlorodibromomethane	0.500	5.00	0.500	1	U
Chloroethane	1.00	10.0	1.00	1	U
2-Chloroethyl vinyl ether	2.00	10.0	2.00	1	U
Chloroform	0.500	5.00	0.500	1	U
Chloromethane	2.00	10.0	2.00	1	U
2-Chlorotoluene	0.500	5.00	0.500	1	U
4-Chlorotoluene	0.500	5.00	0.500	1	U
1,2-Dibromo-3-chloropropane	2.00	5.00	2.00	1	U
1,2-Dibromoethane	0.500	5.00	0.500	1	U
Dibromomethane	0.500	5.00	0.500	1	U
1,2-Dichlorobenzene	0.500	5.00	0.500	1	U
1,3-Dichlorobenzene	0.500	5.00	0.500	1	U
1,4-Dichlorobenzene	0.500	5.00	0.500	1	U
Dichlorodifluoromethane	1.00	10.0	1.00	1	U
1,1-Dichloroethane	1.00	5.00	1.00	1	U
1,2-Dichloroethane	0.500	5.00	0.500	1	U
1,1-Dichloroethene	0.500	5.00	0.500	1	U
cis-1,2-Dichloroethene	0.500	5.00	0.500	1	U
trans-1,2-Dichloroethene	0.500	5.00	0.500	1	U
1,2-Dichloropropane	0.500	5.00	0.500	1	U
1,3-Dichloropropane	0.500	5.00	0.500	1	U
2,2-Dichloropropane	0.500	5.00	0.500	1	U
cis-1,3-Dichloropropene	0.500	5.00	0.500	1	U
trans-1,3-Dichloropropene	0.500	5.00	0.500	1	U
1,1-Dichloropropene	0.500	5.00	0.500	1	U
Ethylbenzene	0.500	5.00	0.500	1	U
2-Hexanone	2.50	10.0	2.50	1	U
Hexachlorobutadiene	0.500	5.00	0.500	1	U

Report Name:BLANK
PDF ID: 1463984
12-AUG-2009 11:06

Microbac Laboratories Inc.
METHOD BLANK REPORT

Login Number:L09080192 Prep Date:08/11/09 11:06 Sample ID:WG309410-01
Instrument ID:HPMS9 Run Date:08/11/09 11:06 Prep Method:5030C/5035A
File ID:9M71361 Analyst:TMB Method:8260B
Workgroup (AAB#):WG309410 Matrix:Soil Units:ug/kg
Contract #:DACA56-94-D-0020 Cal ID: HPMS9 - 21-JUL-09

Analytes	SDL	PQL	Concentration	Dilution	Qualifier
Isopropylbenzene	0.500	5.00	0.500	1	U
p-Isopropyltoluene	0.500	5.00	0.500	1	U
4-Methyl-2-pentanone	2.50	10.0	2.50	1	U
Methylene chloride	1.00	5.00	1.00	1	U
Naphthalene	0.500	10.0	0.500	1	U
n-Propylbenzene	0.500	5.00	0.500	1	U
Styrene	0.500	5.00	0.500	1	U
1,1,1,2-Tetrachloroethane	0.500	5.00	0.500	1	U
1,1,2,2-Tetrachloroethane	0.500	5.00	0.500	1	U
Tetrachloroethene	0.500	5.00	0.500	1	U
Toluene	0.500	5.00	0.500	1	U
1,2,3-Trichlorobenzene	0.500	5.00	0.500	1	U
1,2,4-Trichlorobenzene	0.500	5.00	0.500	1	U
1,1,1-Trichloroethane	0.500	5.00	0.500	1	U
1,1,2-Trichloroethane	0.500	5.00	0.500	1	U
Trichloroethene	0.500	5.00	0.500	1	U
Trichlorofluoromethane	1.00	10.0	1.00	1	U
1,2,3-Trichloropropane	1.00	5.00	1.00	1	U
1,2,4-Trimethylbenzene	0.500	5.00	0.500	1	U
1,3,5-Trimethylbenzene	0.500	5.00	0.500	1	U
Vinyl acetate	1.00	10.0	1.00	1	U
Vinyl chloride	1.00	10.0	1.00	1	U
o-Xylene	0.500	5.00	0.500	1	U
m-,p-Xylene	0.500	5.00	0.500	1	U

Surrogates	% Recovery	Surrogate Limits	Qualifier
Dibromofluoromethane	99.8	80 - 120	PASS
1,2-Dichloroethane-d4	101	80 - 120	PASS
Toluene-d8	97.0	81 - 117	PASS
4-Bromofluorobenzene	97.8	74 - 121	PASS

SDL	Method Detection Limit
PQL	Reporting/Practical Quantitation Limit
ND	Analyte Not detected at or above reporting limit
*	|Analyte concentration| > RL

Report Name:BLANK
PDF ID: 1463984
12-AUG-2009 11:06

LABORATORY CONTROL SAMPLE (LCS)

Login Number: L09080192
Analyst: TMB
Prep Method: 5030C/5035A
Instrument ID: HPMS9
Matrix: Soil
Method: 8260B
Workgroup (AAB#): WG309410
Units: ug/kg
QC Key: STD
Lot #:

Sample ID: WG309410-02 LCS File ID: 9M71362 Run Date: 08/11/2009 11:36
Sample ID: WG309410-03 LCS2 File ID: 9M71363 Run Date: 08/11/2009 12:06

Analytes	LCS			LCS2			%RPD	%Rec Limits	RPD Lmt	Q
	Known	Found	% REC	Known	Found	% REC				
Acetone	20.0	21.7	109	20.0	20.1	101	7.76	20 - 160	30	
Benzene	20.0	22.1	110	20.0	21.3	106	3.69	70 - 130	30	
Bromobenzene	20.0	20.8	104	20.0	20.7	103	0.711	72 - 131	30	
Bromochloromethane	20.0	20.2	101	20.0	20.5	103	1.62	70 - 130	30	
Bromodichloromethane	20.0	22.2	111	20.0	21.3	107	3.93	72 - 137	30	
Bromoform	20.0	19.8	98.9	20.0	18.8	93.9	5.17	49 - 136	30	
Bromomethane	20.0	24.1	121	20.0	22.9	114	5.31	37 - 143	30	
2-Butanone	20.0	19.2	96.0	20.0	18.6	93.2	2.96	37 - 180	30	
n-Butylbenzene	20.0	19.4	97.0	20.0	18.8	94.0	3.13	70 - 136	30	
sec-Butylbenzene	20.0	21.5	107	20.0	20.8	104	3.22	71 - 132	30	
tert-Butylbenzene	20.0	21.6	108	20.0	20.5	102	5.03	72 - 130	30	
Carbon disulfide	20.0	18.4	92.2	20.0	18.4	92.1	0.0707	39 - 139	30	
Carbon tetrachloride	20.0	24.1	121	20.0	22.7	113	6.27	59 - 136	30	
Chlorobenzene	20.0	20.1	100	20.0	19.5	97.6	2.84	70 - 130	30	
Chlorodibromomethane	20.0	21.3	106	20.0	19.9	99.7	6.54	59 - 136	30	
Chloroethane	20.0	24.0	120	20.0	23.6	118	1.65	52 - 135	30	
2-Chloroethyl vinyl ether	20.0	17.0	85.0	20.0	17.2	85.9	1.01	35 - 154	30	
Chloroform	20.0	22.1	111	20.0	21.7	109	1.93	74 - 129	30	
Chloromethane	20.0	24.3	121	20.0	23.8	119	2.17	30 - 131	30	
2-Chlorotoluene	20.0	21.5	107	20.0	20.6	103	4.16	63 - 147	30	
4-Chlorotoluene	20.0	20.3	102	20.0	20.2	101	0.531	70 - 138	30	
1,2-Dibromo-3-chloropropane	20.0	17.9	89.3	20.0	15.7	78.4	13.1	40 - 135	30	
1,2-Dibromoethane	20.0	18.4	92.2	20.0	18.2	91.0	1.28	69 - 130	30	
Dibromomethane	20.0	21.4	107	20.0	20.9	105	1.94	69 - 130	30	
1,2-Dichlorobenzene	20.0	19.4	97.0	20.0	19.2	95.9	1.15	70 - 130	30	
1,3-Dichlorobenzene	20.0	19.8	98.9	20.0	19.3	96.6	2.45	70 - 130	30	
1,4-Dichlorobenzene	20.0	19.1	95.6	20.0	18.7	93.7	2.03	70 - 130	30	
Dichlorodifluoromethane	20.0	36.4	182	20.0	34.9	175	4.24	25 - 130	30	*
1,1-Dichloroethane	20.0	21.5	108	20.0	21.1	105	2.03	75 - 125	30	
1,2-Dichloroethane	20.0	21.9	109	20.0	20.6	103	5.84	63 - 133	30	
1,1-Dichloroethene	20.0	20.9	105	20.0	20.5	103	1.98	65 - 135	30	
cis-1,2-Dichloroethene	20.0	20.9	105	20.0	20.7	104	0.956	70 - 130	30	
trans-1,2-Dichloroethene	20.0	22.2	111	20.0	21.9	110	1.35	72 - 127	30	
1,2-Dichloropropane	20.0	20.9	104	20.0	20.6	103	1.03	72 - 130	30	
1,3-Dichloropropane	20.0	19.7	98.6	20.0	19.0	94.8	3.92	65 - 128	30	
2,2-Dichloropropane	20.0	22.3	111	20.0	21.7	108	2.87	66 - 135	30	
cis-1,3-Dichloropropene	20.0	20.8	104	20.0	20.1	100	3.74	70 - 142	30	
trans-1,3-Dichloropropene	20.0	17.9	89.4	20.0	17.6	88.0	1.57	65 - 139	30	
1,1-Dichloropropene	20.0	21.4	107	20.0	20.8	104	3.09	57 - 138	30	
Ethylbenzene	20.0	20.0	100	20.0	19.3	96.5	3.75	70 - 130	30	

LCS_LCS2 - Modified 03/06/2008
PDF File ID: 1463903
Report generated: 08/12/2009 11:06

Microbac Laboratories Inc.
LABORATORY CONTROL SAMPLE (LCS)

Login Number: L09080192
Analyst: TMB
Prep Method: 5030C/5035A
Instrument ID: HPMS9
Matrix: Soil
Method: 8260B
Workgroup (AAB#): WG309410
Units: ug/kg
QC Key: STD
Lot #:

Sample ID: WG309410-02 LCS File ID: 9M71362 Run Date: 08/11/2009 11:36
Sample ID: WG309410-03 LCS2 File ID: 9M71363 Run Date: 08/11/2009 12:06

Analytes	LCS			LCS2			%RPD	%Rec Limits	RPD Lmt	Q
	Known	Found	% REC	Known	Found	% REC				
2-Hexanone	20.0	17.0	85.2	20.0	17.3	86.7	1.78	45 - 145	30	
Hexachlorobutadiene	20.0	18.2	90.9	20.0	18.8	93.9	3.22	65 - 135	30	
Isopropylbenzene	20.0	17.1	85.6	20.0	16.9	84.6	1.15	68 - 129	30	
p-Isopropyltoluene	20.0	18.5	92.3	20.0	18.2	90.9	1.43	72 - 128	30	
4-Methyl-2-pentanone	20.0	17.8	89.0	20.0	17.6	88.2	0.921	47 - 146	30	
Methylene chloride	20.0	20.4	102	20.0	20.5	103	0.809	74 - 128	30	
Naphthalene	20.0	15.0	74.9	20.0	16.4	82.1	9.15	50 - 146	30	
n-Propylbenzene	20.0	21.5	107	20.0	21.0	105	2.22	72 - 136	30	
Styrene	20.0	18.3	91.7	20.0	18.0	90.1	1.73	74 - 130	30	
1,1,1,2-Tetrachloroethane	20.0	21.1	105	20.0	20.6	103	2.30	71 - 137	30	
1,1,2,2-Tetrachloroethane	20.0	19.3	96.5	20.0	18.7	93.4	3.23	55 - 130	30	
Tetrachloroethene	20.0	20.3	102	20.0	20.1	101	0.913	72 - 130	30	
Toluene	20.0	22.0	110	20.0	21.2	106	3.69	77 - 126	30	
1,2,3-Trichlorobenzene	20.0	16.8	83.8	20.0	17.3	86.6	3.24	60 - 135	30	
1,2,4-Trichlorobenzene	20.0	15.8	79.2	20.0	16.5	82.4	3.95	65 - 130	30	
1,1,1-Trichloroethane	20.0	23.3	116	20.0	22.3	111	4.34	70 - 135	30	
1,1,2-Trichloroethane	20.0	19.8	98.9	20.0	19.7	98.4	0.533	60 - 125	30	
Trichloroethene	20.0	21.4	107	20.0	20.4	102	4.69	72 - 126	30	
Trichlorofluoromethane	20.0	23.4	117	20.0	22.2	111	5.51	48 - 154	30	
1,2,3-Trichloropropane	20.0	19.9	99.3	20.0	19.9	99.3	0.0733	65 - 130	30	
1,2,4-Trimethylbenzene	20.0	21.1	106	20.0	20.9	104	1.00	75 - 132	30	
1,3,5-Trimethylbenzene	20.0	19.7	98.4	20.0	19.4	96.8	1.64	74 - 133	30	
Vinyl acetate	20.0	13.6	68.1	20.0	13.6	68.1	0.0459	10 - 150	30	
Vinyl chloride	20.0	24.7	124	20.0	23.9	120	3.15	45 - 140	30	
o-Xylene	20.0	18.5	92.7	20.0	18.5	92.7	0.0611	70 - 130	30	
m-,p-Xylene	40.0	39.0	97.4	40.0	38.3	95.7	1.78	70 - 130	30	

Surogates	LCS	LCS2	Surrogate Limits	Qualifier
	% Recovery	% Recovery		
1,2-Dichloroethane-d4	110	107	80 - 120	PASS
Dibromofluoromethane	109	106	80 - 120	PASS
4-Bromofluorobenzene	104	104	74 - 121	PASS
Toluene-d8	107	106	81 - 117	PASS

* FAILS %REC LIMIT

\# FAILS RPD LIMIT

LCS_LCS2 - Modified 03/06/2008
PDF File ID: 1463903
Report generated: 08/12/2009 11:06

Microbac Laboratories Inc.
ORGANIC INSTRUMENT CHECK

BFB

Login Number: L09080192
Instrument: HPMS9
Analyst: TMB
Workgroup: WG307576

Tune ID: WG307576-01
Run Date: 07/21/2009
Run Time: 09:58
File ID: 9M70935
Cal ID: HPMS9 - 21-JUL-09

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50.0	95.0	15.0	40.0	20.2	2676	PASS
75.0	95.0	30.0	60.0	51.1	6786	PASS
95.0	95.0	100	100	100	13268	PASS
96.0	95.0	5.00	9.00	8.28	1099	PASS
173	174	0	2.00	0	0	PASS
174	95.0	50.0	100	78.4	10396	PASS
175	174	5.00	9.00	7.48	778	PASS
176	174	95.0	101	98.0	10193	PASS
177	176	5.00	9.00	6.00	612	PASS

This check relates to the following samples:

Lab ID	Client ID	Tag	Date Analyzed	Q
WG307576-02	STD-S	01	07/21/2009 10:24	
WG307576-03	STD-S	01	07/21/2009 10:55	
WG307576-06	STD-S	01	07/21/2009 12:27	
WG307576-07	STD-CCV-S	01	07/21/2009 12:58	
WG307576-08	STD-S	01	07/21/2009 13:29	
WG307576-09	STD-S	01	07/21/2009 14:00	
WG307576-10	STD-S	01	07/21/2009 14:31	
WG307576-04	STD-S	01	07/21/2009 16:33	
WG307576-05	STD-S	01	07/21/2009 17:04	
WG307576-11	SSCV-S	01	07/21/2009 18:37	

* Sample past 12 hour tune limit

TUNE - Modified 03/06/2008
PDF File ID: 1463987
Report generated 08/12/2009 11:07

Microbac Laboratories Inc.
ORGANIC INSTRUMENT CHECK

BFB

Login Number: L09080192
Instrument: HPMS9
Analyst: TMB
Workgroup: WG309407

Tune ID: WG309407-01
Run Date: 08/11/2009
Run Time: 09:39
File ID: 9M71358
Cal ID: HPMS9 - 21-JUL-09

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50.0	95.0	15.0	40.0	21.0	5259	PASS
75.0	95.0	30.0	60.0	49.4	12387	PASS
95.0	95.0	100	100	100	25077	PASS
96.0	95.0	5.00	9.00	7.32	1836	PASS
173	174	0	2.00	0	0	PASS
174	95.0	50.0	100	79.8	20000	PASS
175	174	5.00	9.00	8.13	1625	PASS
176	174	95.0	101	99.0	19795	PASS
177	176	5.00	9.00	6.70	1326	PASS

This check relates to the following samples:

Lab ID	Client ID	Tag	Date Analyzed	Q
WG309407-02	CCV-S	01	08/11/2009 10:04	
WG309410-01	BLANK	01	08/11/2009 11:06	
WG309410-02	LCS	01	08/11/2009 11:36	
WG309410-03	LCS2	01	08/11/2009 12:06	
L09080192-01	SITE 1-TP-BF	01	08/11/2009 15:07	
L09080192-02	SITE 1-TP-TS	01	08/11/2009 15:37	
L09080192-03	SITE 2-BLM-TS	01	08/11/2009 16:07	
L09080192-04	SITE 2-BLM-BF	01	08/11/2009 16:37	
L09080192-05	SITE 3-ML-BF/TS	01	08/11/2009 17:08	

* Sample past 12 hour tune limit

TUNE - Modified 03/06/2008
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Microbac Laboratories Inc.

INITIAL CALIBRATION SUMMARY

Login Number: L09080192
Analytical Method: 8260B
ICAL Workgroup: WG307576
Instrument ID: HPMS9
Initial Calibration Date: 21-JUL-09 17:04
Column ID: F

Analyte		AVG RF	% RSD	LINEAR (R^2	QUAD(R^2)
1,1-Dichloroethene	CCC	0.4879	6.65		
1,2-Dichloropropane	CCC	0.2381	4.54		
Chloroform	CCC	0.5271	4.64		
Ethylbenzene	CCC	0.5329	18.4	1.00000	
Toluene	CCC	1.463	12.0		
Vinyl Chloride	CCC	0.1506	12.1		
1,1,2,2-Tetrachloroethane	SPCC	0.5939	6.47		
1,1-Dichloroethane	SPCC	0.5328	3.09		
Bromoform	SPCC	0.1856	9.99		
Chlorobenzene	SPCC	1.075	3.25		
Chloromethane	SPCC	0.2650	4.29		
1,1,1,2-Tetrachloroethane		0.3640	6.04		
1,1,1-Trichloroethane		0.5090	8.15		
1,1,2-Trichloroethane		0.2546	2.66		
1,1-Dichloropropene		0.4085	11.5		
1,2,3-Trichlorobenzene		0.7563	7.06		
1,2,3-Trichloropropane		0.1992	5.99		
1,2,4-Trichlorobenzene		0.8623	10.4		
1,2,4-Trimethylbenzene		2.972	9.46		
1,2-Dibromo-3-Chloropropane		0.1028	13.4		
1,2-Dibromoethane		0.2606	5.27		
1,2-Dichlorobenzene		1.460	2.55		
1,2-Dichloroethane		0.3707	5.81		
1,3,5-Trimethylbenzene		2.860	15.2		1.00000
1,3-Dichlorobenzene		1.720	3.20		
1,3-Dichloropropane		0.4272	4.55		
1,4-Dichlorobenzene		1.741	5.31		
2,2-Dichloropropane		0.4657	9.73		
2-Butanone		0.07815	5.91		
2-Chloroethyl Vinyl Ether		0.08868	20.4		0.99900
2-Chlorotoluene		2.944	6.23		
2-Hexanone		0.1344	8.51		
4-Chlorotoluene		2.388	5.19		
4-Methyl-2-Pentanone		0.05630	12.1		
Acetone		0.06087	18.7		0.99900
Benzene		1.090	8.37		
Bromobenzene		0.9133	2.45		
Bromochloromethane		0.1336	6.20		
Bromodichloromethane		0.3449	6.62		
Bromomethane		0.1381	11.6		
Carbon Disulfide		0.9563	4.57		
Carbon Tetrachloride		0.4695	8.98		
Chloroethane		0.1404	7.06		
Dibromochloromethane		0.3199	10.3		
Dibromomethane		0.1452	4.19		

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Microbac Laboratories Inc.
INITIAL CALIBRATION SUMMARY

Login Number: L09080192
Analytical Method: 8260B
ICAL Workgroup: WG307576
Instrument ID: HPMS9
Initial Calibration Date: 21-JUL-09 17:04
Column ID: F

Analyte		AVG RF	% RSD	LINEAR (R^2	QUAD(R^2)
Dichlorodifluoromethane		0.3425	7.56		
Hexachlorobutadiene		0.5219	3.50		
Isopropylbenzene		1.708	15.7		1.00000
Methylene Chloride		0.2936	19.2		1.00000
Naphthalene		1.421	20.1	0.99900	
Styrene		1.019	16.2		1.00000
Tetrachloroethene		0.3612	5.70		
Trichloroethene		0.3216	6.93		
Trichlorofluoromethane		0.6042	6.39		
Vinyl Acetate		0.3953	13.4		
cis-1,2-Dichloroethene		0.3030	5.50		
cis-1,3-Dichloropropene		0.3547	13.3		
m-,p-Xylene		0.6476	16.7		1.00000
n-Butylbenzene		2.645	16.2	1.00000	
n-Propylbenzene		4.054	12.6		
o-Xylene		0.5456	28.0	1.00000	
p-Isopropyltoluene		3.165	16.1	0.99900	
sec-Butylbenzene		3.878	13.3		
tert-Butylbenzene		0.6553	12.0		
trans-1,2-Dichloroethene		0.2977	5.31		
trans-1,3-Dichloropropene		0.4668	11.2		

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

If the %RSD is greater than the limit specified by the method or project QAP, then linear or quadratic equations will be used.

INT_CAL - Modified 03/06/2008
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Microbac Laboratories Inc.

INITIAL CALIBRATION DATA

Login Number: L09080192
Analytical Method: 8260B
Instrument ID: HPMS9
Initial Calibration Date: 21-JUL-09 17:04
Column ID: F

Analyte	WG307576-02			WG307576-03			WG307576-04		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
1,1-Dichloroethene	NA	NA	NA	NA	NA	NA	2.00	15930.0000	0.4534
1,2-Dichloropropane	NA	NA	NA	NA	NA	NA	2.00	7835.00000	0.2230
Chloroform	NA	NA	NA	NA	NA	NA	2.00	17953.0000	0.5110
Ethylbenzene	0.500	2122.00000	0.3629	1.00	5470.00000	0.4580	2.00	13072.0000	0.5007
Toluene	0.500	7051.00000	1.206	1.00	14562.0000	1.219	2.00	36863.0000	1.412
Vinyl Chloride	NA	NA	NA	NA	NA	NA	2.00	5676.00000	0.1616
1,1,2,2-Tetrachloroethane	NA	NA	NA	NA	NA	NA	2.00	7511.00000	0.6340
1,1-Dichloroethane	NA	NA	NA	NA	NA	NA	2.00	18400.0000	0.5237
Bromoform	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	NA	NA	NA	NA	NA	NA	2.00	28857.0000	1.105
Chloromethane	NA	NA	NA	NA	NA	NA	2.00	9428.00000	0.2684
1,1,1,2-Tetrachloroethane	NA	NA	NA	NA	NA	NA	2.00	8807.00000	0.3373
1,1,1-Trichloroethane	NA	NA	NA	NA	NA	NA	2.00	16403.0000	0.4669
1,1,2-Trichloroethane	NA	NA	NA	NA	NA	NA	2.00	6622.00000	0.2536
1,1-Dichloropropene	NA	NA	NA	NA	NA	NA	2.00	11725.0000	0.3337
1,2,3-Trichlorobenzene	NA	NA	NA	NA	NA	NA	2.00	8182.00000	0.6906
1,2,3-Trichloropropane	NA	NA	NA	NA	NA	NA	2.00	2435.00000	0.2055
1,2,4-Trichlorobenzene	NA	NA	NA	NA	NA	NA	2.00	9218.00000	0.7781
1,2,4-Trimethylbenzene	NA	NA	NA	NA	NA	NA	2.00	29471.0000	2.488
1,2-Dibromo-3-Chloropropane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	NA	NA	NA	NA	NA	NA	2.00	6638.00000	0.2542
1,2-Dichlorobenzene	NA	NA	NA	NA	NA	NA	2.00	17402.0000	1.469
1,2-Dichloroethane	NA	NA	NA	NA	NA	NA	2.00	13284.0000	0.3781
1,3,5-Trimethylbenzene	NA	NA	NA	NA	NA	NA	2.00	25033.0000	2.113
1,3-Dichlorobenzene	NA	NA	NA	NA	NA	NA	2.00	20915.0000	1.765
1,3-Dichloropropane	NA	NA	NA	NA	NA	NA	2.00	10704.0000	0.4100
1,4-Dichlorobenzene	NA	NA	NA	NA	NA	NA	2.00	22284.0000	1.881
2,2-Dichloropropane	NA	NA	NA	NA	NA	NA	2.00	14646.0000	0.4169
2-Butanone	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloroethyl Vinyl Ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chlorotoluene	NA	NA	NA	NA	NA	NA	2.00	31213.0000	2.635
2-Hexanone	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorotoluene	NA	NA	NA	NA	NA	NA	2.00	26458.0000	2.233
4-Methyl-2-Pentanone	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.500	7079.00000	0.8804	1.00	17539.0000	1.073	2.00	39872.0000	1.135
Bromobenzene	NA	NA	NA	NA	NA	NA	2.00	10665.0000	0.9002
Bromochloromethane	NA	NA	NA	NA	NA	NA	2.00	4163.00000	0.1185
Bromodichloromethane	NA	NA	NA	NA	NA	NA	2.00	10963.0000	0.3120
Bromomethane	NA	NA	NA	NA	NA	NA	2.00	4106.00000	0.1169
Carbon Disulfide	NA	NA	NA	NA	NA	NA	2.00	33013.0000	0.9397
Carbon Tetrachloride	NA	NA	NA	NA	NA	NA	2.00	14481.0000	0.4122

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Microbac Laboratories Inc.

INITIAL CALIBRATION DATA

Login Number: L09080192
Analytical Method: 8260B
Instrument ID: HPMS9
Initial Calibration Date: 21-JUL-09 17:04
Column ID: F

Analyte	WG307576-05			WG307576-06			WG307576-07		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
1,1-Dichloroethene	5.00	38920.0000	0.4406	20.0	169232.000	0.5078	50.0	447858.000	0.5153
1,2-Dichloropropane	5.00	20014.0000	0.2266	20.0	80191.0000	0.2406	50.0	217010.000	0.2497
Chloroform	5.00	43670.0000	0.4944	20.0	185407.000	0.5564	50.0	479416.000	0.5516
Ethylbenzene	5.00	36464.0000	0.5567	20.0	150705.000	0.6095	50.0	408583.000	0.6281
Toluene	5.00	94304.0000	1.440	20.0	399876.000	1.617	50.0	1061783.00	1.632
Vinyl Chloride	5.00	14359.0000	0.1625	20.0	55531.0000	0.1666	50.0	133665.000	0.1538
1,1,2,2-Tetrachloroethane	5.00	18194.0000	0.6001	20.0	71161.0000	0.6172	50.0	189616.000	0.6094
1,1-Dichloroethane	5.00	45390.0000	0.5138	20.0	184821.000	0.5546	50.0	476449.000	0.5481
Bromoform	5.00	10251.0000	0.1565	20.0	46790.0000	0.1892	50.0	131538.000	0.2022
Chlorobenzene	5.00	69816.0000	1.066	20.0	273020.000	1.104	50.0	713457.000	1.097
Chloromethane	5.00	22776.0000	0.2578	20.0	93066.0000	0.2793	50.0	238382.000	0.2743
1,1,1,2-Tetrachloroethane	5.00	22133.0000	0.3379	20.0	94060.0000	0.3804	50.0	250618.000	0.3853
1,1,1-Trichloroethane	5.00	39948.0000	0.4522	20.0	185095.000	0.5554	50.0	471603.000	0.5426
1,1,2-Trichloroethane	5.00	16244.0000	0.2480	20.0	63749.0000	0.2578	50.0	170705.000	0.2624
1,1-Dichloropropene	5.00	32352.0000	0.3662	20.0	146247.000	0.4389	50.0	385229.000	0.4432
1,2,3-Trichlorobenzene	5.00	21826.0000	0.7198	20.0	82933.0000	0.7193	50.0	243089.000	0.7813
1,2,3-Trichloropropane	5.00	5929.00000	0.1955	20.0	23951.0000	0.2077	50.0	65793.0000	0.2115
1,2,4-Trichlorobenzene	5.00	23573.0000	0.7775	20.0	91641.0000	0.7948	50.0	280780.000	0.9024
1,2,4-Trimethylbenzene	5.00	84474.0000	2.786	20.0	368534.000	3.196	50.0	970527.000	3.119
1,2-Dibromo-3-Chloropropane	5.00	2427.00000	0.08000	20.0	11464.0000	0.09940	50.0	34895.0000	0.1122
1,2-Dibromoethane	5.00	15496.0000	0.2366	20.0	65176.0000	0.2636	50.0	176177.000	0.2708
1,2-Dichlorobenzene	5.00	43283.0000	1.428	20.0	172285.000	1.494	50.0	465972.000	1.498
1,2-Dichloroethane	5.00	31856.0000	0.3606	20.0	131989.000	0.3961	50.0	336384.000	0.3870
1,3,5-Trimethylbenzene	5.00	77368.0000	2.552	20.0	363140.000	3.150	50.0	967267.000	3.109
1,3-Dichlorobenzene	5.00	50630.0000	1.670	20.0	205514.000	1.783	50.0	539110.000	1.733
1,3-Dichloropropane	5.00	26119.0000	0.3987	20.0	107642.000	0.4354	50.0	290501.000	0.4466
1,4-Dichlorobenzene	5.00	53906.0000	1.778	20.0	204392.000	1.773	50.0	534139.000	1.717
2,2-Dichloropropane	5.00	35260.0000	0.3992	20.0	161920.000	0.4859	50.0	433752.000	0.4990
2-Butanone	5.00	7433.00000	0.08410	20.0	25573.0000	0.07670	50.0	69214.0000	0.07960
2-Chloroethyl Vinyl Ether	5.00	5474.00000	0.06200	20.0	23372.0000	0.07010	50.0	81830.0000	0.09410
2-Chlorotoluene	5.00	88943.0000	2.933	20.0	365071.000	3.166	50.0	950121.000	3.054
2-Hexanone	5.00	7733.00000	0.1181	20.0	31418.0000	0.1271	50.0	94012.0000	0.1445
4-Chlorotoluene	5.00	68136.0000	2.247	20.0	288492.000	2.502	50.0	769573.000	2.473
4-Methyl-2-Pentanone	5.00	4087.00000	0.04630	20.0	16914.0000	0.05080	50.0	53653.0000	0.06170
Acetone	5.00	7275.00000	0.08240	20.0	20885.0000	0.06270	50.0	51518.0000	0.05930
Benzene	5.00	97337.0000	1.102	20.0	386358.000	1.159	50.0	1012312.00	1.165
Bromobenzene	5.00	27462.0000	0.9057	20.0	108866.000	0.9442	50.0	288930.000	0.9286
Bromochloromethane	5.00	11905.0000	0.1348	20.0	45814.0000	0.1375	50.0	123404.000	0.1420
Bromodichloromethane	5.00	28387.0000	0.3213	20.0	119263.000	0.3579	50.0	319558.000	0.3676
Bromomethane	5.00	10438.0000	0.1182	20.0	49140.0000	0.1475	50.0	131250.000	0.1510
Carbon Disulfide	5.00	77880.0000	0.8816	20.0	324189.000	0.9728	50.0	873544.000	1.005
Carbon Tetrachloride	5.00	37322.0000	0.4225	20.0	171634.000	0.5150	50.0	430955.000	0.4958

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Microbac Laboratories Inc.

INITIAL CALIBRATION DATA

Login Number: L09080192
Analytical Method: 8260B
Instrument ID: HPMS9
Initial Calibration Date: 21-JUL-09 17:04
Column ID: F

Analyte	WG307576-08			WG307576-09			WG307576-10		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
1,1-Dichloroethene	100	955181.000	0.5122	200	1850439.00	0.4980	NA	NA	NA
1,2-Dichloropropane	100	459400.000	0.2463	200	899718.000	0.2421	NA	NA	NA
Chloroform	100	996532.000	0.5343	200	1912711.00	0.5147	NA	NA	NA
Ethylbenzene	100	846142.000	0.6147	NA	NA	NA	NA	NA	NA
Toluene	100	2218478.00	1.612	200	4172496.00	1.568	NA	NA	NA
Vinyl Chloride	100	261522.000	0.1402	200	441433.000	0.1188	NA	NA	NA
1,1,2,2-Tetrachloroethane	100	370514.000	0.5769	200	642306.000	0.5257	NA	NA	NA
1,1-Dichloroethane	100	1001882.00	0.5372	200	1929767.00	0.5193	NA	NA	NA
Bromoform	100	275245.000	0.1999	200	478863.000	0.1800	NA	NA	NA
Chlorobenzene	100	1465433.00	1.065	200	2699613.00	1.015	NA	NA	NA
Chloromethane	100	488375.000	0.2619	200	922112.000	0.2481	NA	NA	NA
1,1,1,2-Tetrachloroethane	100	524772.000	0.3812	200	963399.000	0.3621	NA	NA	NA
1,1,1-Trichloroethane	100	982209.000	0.5267	200	1895064.00	0.5100	NA	NA	NA
1,1,2-Trichloroethane	100	357878.000	0.2600	200	653207.000	0.2455	NA	NA	NA
1,1-Dichloropropene	100	823651.000	0.4416	200	1587542.00	0.4272	NA	NA	NA
1,2,3-Trichlorobenzene	100	526743.000	0.8202	200	985635.000	0.8067	NA	NA	NA
1,2,3-Trichloropropane	100	126026.000	0.1962	200	218181.000	0.1786	NA	NA	NA
1,2,4-Trichlorobenzene	100	622270.000	0.9689	200	1163338.00	0.9521	NA	NA	NA
1,2,4-Trimethylbenzene	100	2049348.00	3.191	200	3726555.00	3.050	NA	NA	NA
1,2-Dibromo-3-Chloropropane	100	72256.0000	0.1125	200	134153.000	0.1098	NA	NA	NA
1,2-Dibromoethane	100	378213.000	0.2747	200	701933.000	0.2638	NA	NA	NA
1,2-Dichlorobenzene	100	942598.000	1.468	200	1715654.00	1.404	NA	NA	NA
1,2-Dichloroethane	100	684462.000	0.3670	200	1246662.00	0.3355	NA	NA	NA
1,3,5-Trimethylbenzene	100	2044778.00	3.184	200	3727444.00	3.051	NA	NA	NA
1,3-Dichlorobenzene	100	1108982.00	1.727	200	2003690.00	1.640	NA	NA	NA
1,3-Dichloropropane	100	613243.000	0.4455	200	1135426.00	0.4267	NA	NA	NA
1,4-Dichlorobenzene	100	1087098.00	1.693	200	1964192.00	1.608	NA	NA	NA
2,2-Dichloropropane	100	933391.000	0.5005	200	1830694.00	0.4926	NA	NA	NA
2-Butanone	100	150156.000	0.08050	200	261410.000	0.07030	300	446185.000	0.07770
2-Chloroethyl Vinyl Ether	100	192125.000	0.1030	200	368791.000	0.09920	300	595325.000	0.1037
2-Chlorotoluene	100	1933005.00	3.010	200	3498145.00	2.863	NA	NA	NA
2-Hexanone	100	201886.000	0.1467	200	342674.000	0.1288	300	571366.000	0.1414
4-Chlorotoluene	100	1605775.00	2.500	200	2899090.00	2.373	NA	NA	NA
4-Methyl-2-Pentanone	100	118248.000	0.06340	200	204690.000	0.05510	300	347278.000	0.06050
Acetone	100	106412.000	0.05710	200	192507.000	0.05180	300	298130.000	0.05190
Benzene	100	2100507.00	1.126	200	4007096.00	1.078	NA	NA	NA
Bromobenzene	100	590759.000	0.9199	200	1076506.00	0.8811	NA	NA	NA
Bromochloromethane	100	257501.000	0.1381	200	486108.000	0.1308	NA	NA	NA
Bromodichloromethane	100	673497.000	0.3611	200	1298225.00	0.3494	NA	NA	NA
Bromomethane	100	274854.000	0.1474	200	547644.000	0.1474	NA	NA	NA
Carbon Disulfide	100	1842308.00	0.9878	200	3532407.00	0.9506	NA	NA	NA
Carbon Tetrachloride	100	919312.000	0.4929	200	1777829.00	0.4784	NA	NA	NA

INT_CAL - Modified 03/06/2008
PDF File ID: 1463985
Report generated 08/12/2009 11:07

Microbac Laboratories Inc.

INITIAL CALIBRATION DATA

Login Number: L09080192
Analytical Method: 8260B
Instrument ID: HPMS9
Initial Calibration Date: 21-JUL-09 17:04
Column ID: F

Analyte	WG307576-02			WG307576-03			WG307576-04		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
Chloroethane	NA	NA	NA	NA	NA	NA	2.00	4358.00000	0.1240
Dibromochloromethane	NA	NA	NA	NA	NA	NA	2.00	7139.00000	0.2734
Dibromomethane	NA	NA	NA	NA	NA	NA	2.00	4958.00000	0.1411
Dichlorodifluoromethane	NA	NA	NA	NA	NA	NA	2.00	10983.0000	0.3126
Hexachlorobutadiene	NA	NA	NA	NA	NA	NA	2.00	5851.00000	0.4939
Isopropylbenzene	NA	NA	NA	NA	NA	NA	2.00	33115.0000	1.268
Methylene Chloride	NA	NA	NA	NA	NA	NA	2.00	14122.0000	0.4020
Naphthalene	NA	NA	NA	NA	NA	NA	2.00	12530.0000	1.058
Styrene	NA	NA	NA	NA	NA	NA	2.00	19582.0000	0.7500
Tetrachloroethene	NA	NA	NA	NA	NA	NA	2.00	8637.00000	0.3308
Trichloroethene	NA	NA	NA	NA	NA	NA	2.00	10449.0000	0.2974
Trichlorofluoromethane	NA	NA	NA	NA	NA	NA	2.00	19507.0000	0.5552
Vinyl Acetate	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	NA	NA	NA	NA	NA	NA	2.00	9749.00000	0.2775
cis-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	2.00	10490.0000	0.2986
m-,p-Xylene	1.00	5418.00000	0.4633	2.00	12231.0000	0.5121	4.00	32716.0000	0.6265
n-Butylbenzene	NA	NA	NA	NA	NA	NA	2.00	22913.0000	1.934
n-Propylbenzene	NA	NA	NA	NA	NA	NA	2.00	38174.0000	3.222
o-Xylene	0.500	1845.00000	0.3155	1.00	4228.00000	0.3540	2.00	12450.0000	0.4769
p-Isopropyltoluene	NA	NA	NA	NA	NA	NA	2.00	26994.0000	2.279
sec-Butylbenzene	NA	NA	NA	NA	NA	NA	2.00	35430.0000	2.991
tert-Butylbenzene	NA	NA	NA	NA	NA	NA	2.00	5973.00000	0.5042
trans-1,2-Dichloroethene	NA	NA	NA	NA	NA	NA	2.00	9892.00000	0.2816
trans-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	2.00	10503.0000	0.4023

INITIAL CALIBRATION DATA

Login Number: L09080192

Analytical Method: 8260B

Instrument ID: HPMS9

Initial Calibration Date: 21-JUL-09 17:04

Column ID: F

Analyte	WG307576-05			WG307576-06			WG307576-07		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
Chloroethane	5.00	12107.0000	0.1371	20.0	50895.0000	0.1527	50.0	126863.000	0.1460
Dibromochloromethane	5.00	18665.0000	0.2849	20.0	80382.0000	0.3251	50.0	226237.000	0.3478
Dibromomethane	5.00	12116.0000	0.1372	20.0	49586.0000	0.1488	50.0	132352.000	0.1523
Dichlorodifluoromethane	5.00	29381.0000	0.3326	20.0	127729.000	0.3833	50.0	312373.000	0.3594
Hexachlorobutadiene	5.00	15388.0000	0.5075	20.0	61599.0000	0.5343	50.0	161679.000	0.5196
Isopropylbenzene	5.00	97336.0000	1.486	20.0	461108.000	1.865	50.0	1244723.00	1.914
Methylene Chloride	5.00	26968.0000	0.3053	20.0	91449.0000	0.2744	50.0	233480.000	0.2686
Naphthalene	5.00	35114.0000	1.158	20.0	151435.000	1.313	50.0	488641.000	1.571
Styrene	5.00	57954.0000	0.8847	20.0	266787.000	1.079	50.0	756692.000	1.163
Tetrachloroethene	5.00	22330.0000	0.3409	20.0	94544.0000	0.3824	50.0	243392.000	0.3742
Trichloroethene	5.00	25592.0000	0.2897	20.0	110188.000	0.3307	50.0	295172.000	0.3396
Trichlorofluoromethane	5.00	50733.0000	0.5743	20.0	218390.000	0.6553	50.0	554391.000	0.6378
Vinyl Acetate	5.00	27158.0000	0.3074	20.0	124810.000	0.3745	50.0	327706.000	0.3770
cis-1,2-Dichloroethene	5.00	25352.0000	0.2870	20.0	104249.000	0.3128	50.0	276671.000	0.3183
cis-1,3-Dichloropropene	5.00	26143.0000	0.2959	20.0	118172.000	0.3546	50.0	341774.000	0.3932
m-,p-Xylene	10.0	86981.0000	0.6639	40.0	371724.000	0.7517	100	970003.000	0.7456
n-Butylbenzene	5.00	69748.0000	2.300	20.0	332937.000	2.888	50.0	885031.000	2.845
n-Propylbenzene	5.00	110056.000	3.630	20.0	512926.000	4.449	50.0	1351830.00	4.345
o-Xylene	5.00	33969.0000	0.5186	20.0	162441.000	0.6570	50.0	448923.000	0.6902
p-Isopropyltoluene	5.00	85411.0000	2.817	20.0	398275.000	3.454	50.0	1068157.00	3.433
sec-Butylbenzene	5.00	106570.000	3.515	20.0	485067.000	4.207	50.0	1287932.00	4.140
tert-Butylbenzene	5.00	19247.0000	0.6348	20.0	81394.0000	0.7060	50.0	213475.000	0.6861
trans-1,2-Dichloroethene	5.00	24236.0000	0.2744	20.0	103983.000	0.3120	50.0	268148.000	0.3085
trans-1,3-Dichloropropene	5.00	26147.0000	0.3992	20.0	119902.000	0.4849	50.0	332547.000	0.5112

Microbac Laboratories Inc.
INITIAL CALIBRATION DATA

Login Number: L09080192
Analytical Method: 8260B
Instrument ID: HPMS9
Initial Calibration Date: 21-JUL-09 17:04
Column ID: F

Analyte	WG307576-08			WG307576-09			WG307576-10		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
Chloroethane	100	270495.000	0.1450	200	511416.000	0.1376	NA	NA	NA
Dibromochloromethane	100	484131.000	0.3517	200	895138.000	0.3364	NA	NA	NA
Dibromomethane	100	280202.000	0.1502	200	525159.000	0.1413	NA	NA	NA
Dichlorodifluoromethane	100	643368.000	0.3450	200	1197457.00	0.3222	NA	NA	NA
Hexachlorobutadiene	100	344851.000	0.5370	200	658682.000	0.5391	NA	NA	NA
Isopropylbenzene	100	2628226.00	1.909	200	4797485.00	1.803	NA	NA	NA
Methylene Chloride	100	489285.000	0.2624	200	925816.000	0.2491	NA	NA	NA
Naphthalene	100	1112667.00	1.733	200	2068953.00	1.693	NA	NA	NA
Styrene	100	1580531.00	1.148	200	2897317.00	1.089	NA	NA	NA
Tetrachloroethene	100	513859.000	0.3733	200	973182.000	0.3657	NA	NA	NA
Trichloroethene	100	636273.000	0.3412	200	1230402.00	0.3311	NA	NA	NA
Trichlorofluoromethane	100	1147459.00	0.6153	200	2181829.00	0.5871	NA	NA	NA
Vinyl Acetate	100	835870.000	0.4482	200	1601978.00	0.4311	300	2490804.00	0.4338
cis-1,2-Dichloroethene	100	585764.000	0.3141	200	1145372.00	0.3082	NA	NA	NA
cis-1,3-Dichloropropene	100	747374.000	0.4007	200	1432021.00	0.3854	NA	NA	NA
m-,p-Xylene	200	2008317.00	0.7294	400	3661090.00	0.6880	NA	NA	NA
n-Butylbenzene	100	1926311.00	2.999	200	3548169.00	2.904	NA	NA	NA
n-Propylbenzene	100	2854393.00	4.445	200	5174234.00	4.235	NA	NA	NA
o-Xylene	100	945832.000	0.6871	200	1771225.00	0.6657	NA	NA	NA
p-Isopropyltoluene	100	2296688.00	3.576	200	4190800.00	3.430	NA	NA	NA
sec-Butylbenzene	100	2757358.00	4.294	200	5038873.00	4.124	NA	NA	NA
tert-Butylbenzene	100	455203.000	0.7088	200	845184.000	0.6917	NA	NA	NA
trans-1,2-Dichloroethene	100	574009.000	0.3078	200	1122656.00	0.3021	NA	NA	NA
trans-1,3-Dichloropropene	100	706514.000	0.5132	200	1303268.00	0.4898	NA	NA	NA

Microbac Laboratories Inc.
ALTERNATE SOURCE CALIBRATION REPORT

Login Number: L09080192
Run Date: 07/21/2009
Sample ID: WG307576-11
Instrument ID: HPMS9
Run Time: 18:37
Method: 8260B
File ID: 9M70952
Analyst: TMB
QC Key: STD
ICal Workgroup: WG307576
Cal ID: HPMS9 - 21-JUL-09

Analyte		Expected	Found	Units	RF	%D	UCL	Q
Chloroform	CCC	20.0	20.8	ug/kg	0.547	3.80	30	
1,1-Dichloroethene	CCC	20.0	18.8	ug/kg	0.458	6.00	30	
1,2-Dichloropropane	CCC	20.0	20.2	ug/kg	0.241	1.20	30	
Ethylbenzene	CCC	20.0	20.8	ug/kg	0.636	4.00	30	
Toluene	CCC	20.0	22.0	ug/kg	1.61	10.1	30	
Vinyl Chloride	CCC	20.0	20.2	ug/kg	0.152	1.20	30	
Bromoform	SPCC	20.0	19.6	ug/kg	0.182	2.20	30	
Chlorobenzene	SPCC	20.0	20.5	ug/kg	1.10	2.70	30	
Chloromethane	SPCC	20.0	19.4	ug/kg	0.257	3.10	30	
1,1-Dichloroethane	SPCC	20.0	19.8	ug/kg	0.527	1.20	30	
1,1,2,2-Tetrachloroethane	SPCC	20.0	19.8	ug/kg	0.588	1.10	30	
Acetone		20.0	21.5	ug/kg	0.0689	7.70	30	
Benzene		20.0	20.7	ug/kg	1.13	3.70	30	
Bromobenzene		20.0	21.4	ug/kg	0.979	7.20	30	
Bromochloromethane		20.0	19.5	ug/kg	0.131	2.30	30	
Bromodichloromethane		20.0	21.0	ug/kg	0.362	4.80	30	
Bromomethane		20.0	20.1	ug/kg	0.138	0.300	30	
2-Butanone		20.0	20.2	ug/kg	0.0788	0.800	30	
n-Butylbenzene		20.0	20.1	ug/kg	2.88	0.600	30	
sec-Butylbenzene		20.0	22.3	ug/kg	4.32	11.4	30	
tert-Butylbenzene		20.0	22.1	ug/kg	0.725	10.7	30	
Carbon Disulfide		20.0	18.3	ug/kg	0.874	8.60	30	
Carbon Tetrachloride		20.0	20.0	ug/kg	0.470	0.100	30	
Dibromochloromethane		20.0	20.3	ug/kg	0.324	1.40	30	
Chloroethane		20.0	19.9	ug/kg	0.140	0.600	30	
2-Chloroethyl Vinyl Ether		20.0	18.4	ug/kg	0.0772	7.90	30	
2-Chlorotoluene		20.0	22.0	ug/kg	3.24	10.0	30	
4-Chlorotoluene		20.0	21.3	ug/kg	2.54	6.40	30	
1,2-Dibromo-3-Chloropropane		20.0	18.7	ug/kg	0.0963	6.30	30	
1,2-Dibromoethane		20.0	19.6	ug/kg	0.256	1.90	30	
Dibromomethane		20.0	20.8	ug/kg	0.151	4.00	30	
1,2-Dichlorobenzene		20.0	20.9	ug/kg	1.53	4.50	30	
1,3-Dichlorobenzene		20.0	20.7	ug/kg	1.78	3.50	30	
1,4-Dichlorobenzene		20.0	20.0	ug/kg	1.74	0.100	30	
Dichlorodifluoromethane		20.0	27.3	ug/kg	0.467	36.3	30	*
1,2-Dichloroethane		20.0	19.9	ug/kg	0.368	0.600	30	
cis-1,2-Dichloroethene		20.0	19.9	ug/kg	0.302	0.500	30	
trans-1,2-Dichloroethene		20.0	22.2	ug/kg	0.330	10.9	30	
1,3-Dichloropropane		20.0	20.2	ug/kg	0.432	1.10	30	
2,2-Dichloropropane		20.0	18.5	ug/kg	0.432	7.30	30	
cis-1,3-Dichloropropene		20.0	20.2	ug/kg	0.358	0.900	30	
trans-1,3-Dichloropropene		20.0	17.8	ug/kg	0.416	11.0	30	

ALT - Modified 09/06/2007
Version 1.5 PDF File ID: 1463986
Report generated 08/12/2009 11:07

Microbac Laboratories Inc.
ALTERNATE SOURCE CALIBRATION REPORT

Login Number: L09080192
Run Date: 07/21/2009
Sample ID: WG307576-11
Instrument ID: HPMS9
Run Time: 18:37
Method: 8260B
File ID: 9M70952
Analyst: TMB
QC Key: STD
ICal Workgroup: WG307576
Cal ID: HPMS9 - 21-JUL-09

Analyte	Expected	Found	Units	RF	%D	UCL	Q
1,1-Dichloropropene	20.0	19.9	ug/kg	0.406	0.500	30	
2-Hexanone	20.0	19.0	ug/kg	0.128	4.80	30	
Hexachlorobutadiene	20.0	20.2	ug/kg	0.528	1.10	30	
Isopropylbenzene	20.0	18.1	ug/kg	1.70	9.70	30	
p-Isopropyltoluene	20.0	19.7	ug/kg	3.39	1.70	30	
4-Methyl-2-Pentanone	20.0	17.9	ug/kg	0.0503	10.6	30	
Methylene Chloride	20.0	18.8	ug/kg	0.262	6.10	30	
Naphthalene	20.0	17.8	ug/kg	1.33	10.9	30	
n-Propylbenzene	20.0	22.0	ug/kg	4.47	10.2	30	
Styrene	20.0	19.6	ug/kg	1.11	2.00	30	
1,1,1,2-Tetrachloroethane	20.0	21.1	ug/kg	0.384	5.60	30	
Tetrachloroethene	20.0	20.5	ug/kg	0.369	2.30	30	
1,2,3-Trichlorobenzene	20.0	19.4	ug/kg	0.734	2.90	30	
1,2,4-Trichlorobenzene	20.0	18.3	ug/kg	0.790	8.40	30	
1,1,1-Trichloroethane	20.0	20.3	ug/kg	0.517	1.50	30	
1,1,2-Trichloroethane	20.0	20.4	ug/kg	0.260	2.00	30	
Trichloroethene	20.0	20.5	ug/kg	0.330	2.50	30	
Trichlorofluoromethane	20.0	19.5	ug/kg	0.589	2.60	30	
1,2,3-Trichloropropane	20.0	20.3	ug/kg	0.202	1.40	30	
1,2,4-Trimethylbenzene	20.0	22.0	ug/kg	3.27	10.1	30	
1,3,5-Trimethylbenzene	20.0	20.5	ug/kg	3.20	2.70	30	
Vinyl Acetate	20.0	7.20	ug/kg	0.142	64.0	40	*
o-Xylene	20.0	20.0	ug/kg	0.668	0	30	
m-,p-Xylene	40.0	40.2	ug/kg	0.754	0.400	30	

* Exceeds %D Limit

CCC Calibration Check Compounds
SPCC System Performance Check Compounds

ALT - Modified 09/06/2007
Version 1.5 PDF File ID: 1463986
Report generated 08/12/2009 11:07

Microbac Laboratories Inc.
CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L09080192
Instrument ID: HPMS9
File ID: 9M71359
Workgroup (AAB#): WG309410
Matrix: SOIL

Run Date: 08/11/2009
Run Time: 10:04
Analyst: TMB
Cal ID: HPMS9 - 21-JUL-09

Sample ID: WG309407-02
Method: 8260B
QC Key: STD

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
Chloroform	CCC	50.0	49.5	ug/kg	0.522	0.977	20	
1,1-Dichloroethene	CCC	50.0	48.6	ug/kg	0.475	2.74	20	
1,2-Dichloropropane	CCC	50.0	48.0	ug/kg	0.229	3.98	20	
Ethylbenzene	CCC	50.0	46.4	ug/kg	0.571	7.29	20	
Toluene	CCC	50.0	50.1	ug/kg	1.47	0.198	20	
Vinyl Chloride	CCC	50.0	47.9	ug/kg	0.144	4.16	20	
Bromoform	SPCC	50.0	50.8	ug/kg	0.189	1.65	40	
Chlorobenzene	SPCC	50.0	45.9	ug/kg	0.988	8.15	40	
Chloromethane	SPCC	50.0	46.5	ug/kg	0.246	7.01	40	
1,1-Dichloroethane	SPCC	50.0	48.1	ug/kg	0.513	3.78	40	
1,1,2,2-Tetrachloroethane	SPCC	50.0	47.6	ug/kg	0.565	4.85	40	
Acetone		50.0	46.7	ug/kg	0.0543	6.56	40	
Benzene		50.0	49.4	ug/kg	1.08	1.16	40	
Bromobenzene		50.0	47.7	ug/kg	0.871	4.65	40	
Bromochloromethane		50.0	48.0	ug/kg	0.128	4.02	40	
Bromodichloromethane		50.0	51.1	ug/kg	0.353	2.21	40	
Bromomethane		50.0	50.9	ug/kg	0.141	1.82	40	
2-Butanone		50.0	46.9	ug/kg	0.0733	6.28	40	
n-Butylbenzene		50.0	46.8	ug/kg	2.72	6.31	40	
sec-Butylbenzene		50.0	50.6	ug/kg	3.92	1.14	40	
tert-Butylbenzene		50.0	49.4	ug/kg	0.647	1.28	40	
Carbon Disulfide		50.0	47.8	ug/kg	0.914	4.44	40	
Carbon Tetrachloride		50.0	54.6	ug/kg	0.513	9.28	40	
Dibromochloromethane		50.0	50.0	ug/kg	0.320	0.00220	40	
Chloroethane		50.0	50.4	ug/kg	0.142	0.856	40	
2-Chloroethyl Vinyl Ether		50.0	46.4	ug/kg	0.0871	7.27	40	
2-Chlorotoluene		50.0	46.1	ug/kg	2.71	7.84	40	
4-Chlorotoluene		50.0	51.8	ug/kg	2.47	3.55	40	
1,2-Dibromo-3-Chloropropane		50.0	47.7	ug/kg	0.0980	4.65	40	
1,2-Dibromoethane		50.0	45.6	ug/kg	0.238	8.70	40	
Dibromomethane		50.0	49.4	ug/kg	0.144	1.11	40	
1,2-Dichlorobenzene		50.0	46.9	ug/kg	1.37	6.11	40	
1,3-Dichlorobenzene		50.0	46.5	ug/kg	1.60	7.04	40	
1,4-Dichlorobenzene		50.0	45.4	ug/kg	1.58	9.20	40	
Dichlorodifluoromethane		50.0	48.6	ug/kg	0.333	2.74	40	
1,2-Dichloroethane		50.0	50.2	ug/kg	0.372	0.310	40	
cis-1,2-Dichloroethene		50.0	48.4	ug/kg	0.293	3.21	40	
trans-1,2-Dichloroethene		50.0	47.6	ug/kg	0.283	4.87	40	
1,3-Dichloropropane		50.0	46.9	ug/kg	0.401	6.17	40	
2,2-Dichloropropane		50.0	53.0	ug/kg	0.494	6.00	40	
cis-1,3-Dichloropropene		50.0	51.7	ug/kg	0.367	3.31	40	
trans-1,3-Dichloropropene		50.0	51.3	ug/kg	0.479	2.58	40	

CCV - Modified 03/05/2008
PDF File ID: 1463988
Report generated 08/12/2009 11:07

Microbac Laboratories Inc.
CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L09080192
Instrument ID: HPMS9
File ID: 9M71359
Workgroup (AAB#): WG309410
Matrix: SOIL

Run Date: 08/11/2009
Run Time: 10:04
Analyst: TMB
Cal ID: HPMS9 - 21-JUL-09

Sample ID: WG309407-02
Method: 8260B
QC Key: STD

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
1,1-Dichloropropene		50.0	50.7	ug/kg	0.414	1.44	40	
2-Hexanone		50.0	49.8	ug/kg	0.134	0.457	40	
Hexachlorobutadiene		50.0	45.8	ug/kg	0.478	8.47	40	
Isopropylbenzene		50.0	45.5	ug/kg	1.76	9.06	40	
p-Isopropyltoluene		50.0	46.7	ug/kg	3.23	6.54	40	
4-Methyl-2-Pentanone		50.0	52.1	ug/kg	0.0587	4.28	40	
Methylene Chloride		50.0	44.4	ug/kg	0.240	11.2	40	
Naphthalene		50.0	41.1	ug/kg	1.34	17.8	40	
n-Propylbenzene		50.0	50.6	ug/kg	4.10	1.20	40	
Styrene		50.0	44.4	ug/kg	1.03	11.2	40	
1,1,1,2-Tetrachloroethane		50.0	49.8	ug/kg	0.363	0.364	40	
Tetrachloroethene		50.0	48.4	ug/kg	0.350	3.18	40	
1,2,3-Trichlorobenzene		50.0	43.7	ug/kg	0.661	12.6	40	
1,2,4-Trichlorobenzene		50.0	44.8	ug/kg	0.772	10.4	40	
1,1,1-Trichloroethane		50.0	52.9	ug/kg	0.538	5.74	40	
1,1,2-Trichloroethane		50.0	46.2	ug/kg	0.235	7.60	40	
Trichloroethene		50.0	49.7	ug/kg	0.320	0.595	40	
Trichlorofluoromethane		50.0	51.2	ug/kg	0.619	2.45	40	
1,2,3-Trichloropropane		50.0	48.2	ug/kg	0.192	3.64	40	
1,2,4-Trimethylbenzene		50.0	49.6	ug/kg	2.95	0.853	40	
1,3,5-Trimethylbenzene		50.0	46.4	ug/kg	2.95	7.24	40	
Vinyl Acetate		50.0	41.5	ug/kg	0.328	17.1	40	
o-Xylene		50.0	46.1	ug/kg	0.618	7.74	40	
m-,p-Xylene		100	89.9	ug/kg	0.673	10.1	40	
1,2-Dichloroethene		100	96.0	ug/kg	0.288	4.04	40	
Xylenes		150	136	ug/kg	0.645	9.30	40	

* Exceeds %D Criteria

CCC Calibration Check Compounds
SPCC System Performance Check Compounds

CCV - Modified 03/05/2008
PDF File ID: 1463988
Report generated 08/12/2009 11:07

Microbac Laboratories Inc.

INTERNAL STANDARD AREA SUMMARY
(COMPARED TO CCV)

Login Number: L09080192
Instrument ID: HPMS9
Workgroup (AAB#): WG309410

CCV Number: WG309407-02
CAL ID: HPMS9 - 21-JUL-09
Matrix: SOLID

Sample Number	Dilution	Tag	IS-1	IS-2	IS-3
WG309407-02	NA	NA	302371	652045	846379
Upper Limit	NA	NA	604742	1304090	1692758
Lower Limit	NA	NA	151186	326023	423190
L09080192-01	1.00	01	225718	514110	671931
L09080192-02	1.00	01	191793	485386	649839
L09080192-03	1.00	01	166380	460945	632507
L09080192-04	1.00	01	166780	475914	665304
L09080192-05	1.00	01	181700	449168	601349
WG309410-01	1.00	01	262572	599255	783781
WG309410-02	1.00	01	261137	574660	747452
WG309410-03	1.00	01	267718	590892	766659

IS-1 - 1,4-Dichlorobenzene-d4
IS-2 - Chlorobenzene-d5
IS-3 - Fluorobenzene

Underline = Response outside limits

INTERNAL_STD - Modified 03/06/2008
PDF File ID: 1463989
Report generated 08/12/2009 11:07

Microbac Laboratories Inc.
INTERNAL STANDARD RETENTION TIME SUMMARY
(COMPARED TO CCV)

Login Number: L09080192
Instrument ID: HPMS9
Workgroup (AAB#): WG309410

CCV Number: WG309407-02
CAL ID: HPMS9 - 21-JUL-09
Matrix: SOLID

Sample Number	Dilution	Tag	IS-1	IS-2	IS-3
WG309407-02	NA	NA	15.08	12.12	8.27
Upper Limit	NA	NA	15.58	12.62	8.77
Lower Limit	NA	NA	14.58	11.62	7.77
L09080192-01	1.00	01	15.08	12.11	8.28
L09080192-02	1.00	01	15.08	12.11	8.28
L09080192-03	1.00	01	15.08	12.12	8.27
L09080192-04	1.00	01	15.08	12.12	8.27
L09080192-05	1.00	01	15.08	12.12	8.28
WG309410-01	1.00	01	15.08	12.12	8.27
WG309410-02	1.00	01	15.08	12.12	8.27
WG309410-03	1.00	01	15.08	12.11	8.28

IS-1 - 1,4-Dichlorobenzene-d4
IS-2 - Chlorobenzene-d5
IS-3 - Fluorobenzene

Underline = Response outside limits

INTERNAL_STD_RT - Modified 03/06/2008
PDF File ID: 1463991
Report generated 08/12/2009 11:07

2.2 Semivolatiles Data

2.2.1 Semivolatiles GC/MS Data (8270)

2.2.1.1 Summary Data

LABORATORY REPORT

L09080192

08/13/09 14:09

Submitted By

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

For

Account Name: Shaw E & I, Inc.
ABB Lummus Biulding
3010 Briarpark Drive Suite 4N
Houston, TX 77042
Attention: Jennifer Hoang

Project Number: 2773.025
Project: Longhorn AAP
Site: LONGHORN AAP KARNACK TX

P.O. Number: 389869/ 390836(GWTP)

Sample Analysis Summary

Client ID	Lab ID	Method	Dilution	Date Received
SITE 1-TP-BF	L09080192-01	8270C	1	11-AUG-09
SITE 1-TP-TS	L09080192-02	8270C	1	11-AUG-09
SITE 2-BLM-TS	L09080192-03	8270C	1	11-AUG-09
SITE 2-BLM-BF	L09080192-04	8270C	1	11-AUG-09
SITE 3-ML-BF/TS	L09080192-05	8270C	1	11-AUG-09

Sample Number:L09080192-01
Client ID:SITE 1-TP-BF
Matrix:Soil
Workgroup Number:WG309468
Collect Date:08/09/2009 10:45
Sample Tag:01

PrePrep Method:NONE
Prep Method:3545
Analytical Method:8270C
Analyst:CAA
Dilution:1
Units:ug/kg

Instrument:HPMS4
Prep Date:08/11/2009 10:59
Cal Date:05/26/2009 18:05
Run Date:08/11/2009 19:13
File ID:4M47713
Percent Solid:77.4

Analyte	CAS. Number	Result	Qual	PQL	SDL
1,2,4-Trichlorobenzene	120-82-1		U	248	124
1,2-Dichlorobenzene	95-50-1		U	248	124
1,3-Dichlorobenzene	541-73-1		U	248	124
1,4-Dichlorobenzene	106-46-7		U	248	124
2,4,5-Trichlorophenol	95-95-4		U	248	124
2,4,6-Trichlorophenol	88-06-2		U	248	124
2,4-Dichlorophenol	120-83-2		U	248	124
2,4-Dimethylphenol	105-67-9		U	248	124
2,4-Dinitrophenol	51-28-5		U	1240	496
2,4-Dinitrotoluene	121-14-2		U	248	124
2,6-Dinitrotoluene	606-20-2		U	248	124
2-Chloronaphthalene	91-58-7		U	248	124
2-Chlorophenol	95-57-8		U	248	124
2-Methylnaphthalene	91-57-6		U	248	124
2-Methylphenol	95-48-7		U	248	124
2-Nitroaniline	88-74-4		U	1240	496
2-Nitrophenol	88-75-5		U	248	124
3,3'-Dichlorobenzidine	91-94-1		U	496	248
3-,4-Methylphenol	106-44-5		U	248	124
3-Nitroaniline	99-09-2		U	1240	496
4,6-Dinitro-2-methylphenol	534-52-1		U	1240	496
4-Bromophenyl-phenylether	101-55-3		U	248	124
4-Chloro-3-methylphenol	59-50-7		U	248	124
4-Chloroaniline	106-47-8		U	248	124
4-Chlorophenyl-phenyl ether	7005-72-3		U	248	124
4-Nitroaniline	100-01-6		U	1240	496
4-Nitrophenol	100-02-7		U	1240	496
Acenaphthene	83-32-9		U	248	124
Acenaphthylene	208-96-8		U	248	124
Anthracene	120-12-7		U	248	124
Benzo(a)anthracene	56-55-3		U	248	124
Benzo(a)pyrene	50-32-8		U	248	124
Benzo(b)fluoranthene	205-99-2		U	248	124
Benzo(g,h,i)Perylene	191-24-2		U	248	124
Benzo(k)fluoranthene	207-08-9		U	248	124
Benzoic acid	65-85-0		U	7520	496
Benzyl alcohol	100-51-6		U	248	124
Bis(2-Chloroethoxy)Methane	111-91-1		U	248	124
Bis(2-Chloroethyl)ether	111-44-4		U	248	124
bis(2-Chloroisopropyl)ether	108-60-1		U	248	124
bis(2-Ethylhexyl)phthalate	117-81-7		U	248	124
Butylbenzylphthalate	85-68-7		U	248	124
Chrysene	218-01-9		U	248	124
Di-N-Butylphthalate	84-74-2		U	248	124
Di-n-octylphthalate	117-84-0		U	248	124
Dibenzo(a,h)Anthracene	53-70-3		U	248	124
Dibenzofuran	132-64-9		U	248	124
Diethylphthalate	84-66-2		U	248	124
Dimethylphthalate	131-11-3		U	248	124
Fluoranthene	206-44-0		U	248	124
Fluorene	86-73-7		U	248	124
Hexachlorobenzene	118-74-1		U	248	124
Hexachlorobutadiene	87-68-3		U	248	124
Hexachlorocyclopentadiene	77-47-4		U	248	124
Hexachloroethane	67-72-1		U	248	124
Indeno(1,2,3-cd)pyrene	193-39-5		U	248	124
Isophorone	78-59-1		U	248	124
N-Nitrosodiphenylamine	86-30-6		U	248	124
N-Nitrosodipropylamine	621-64-7		U	248	124

Sample Number:**L09080192-01**
Client ID:**SITE 1-TP-BF**
Matrix:**Soil**
Workgroup Number:**WG309468**
Collect Date:**08/09/2009 10:45**
Sample Tag:**01**

PrePrep Method:**NONE**
Prep Method:**3545**
Analytical Method:**8270C**
Analyst:**CAA**
Dilution:**1**
Units:**ug/kg**

Instrument:**HPMS4**
Prep Date:**08/11/2009 10:59**
Cal Date:**05/26/2009 18:05**
Run Date:**08/11/2009 19:13**
File ID:**4M47713**
Percent Solid:**77.4**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Naphthalene	**91-20-3**		**U**	**248**	**124**
Nitrobenzene	**98-95-3**		**U**	**248**	**124**
Pentachlorophenol	**87-86-5**		**U**	**1240**	**496**
Phenanthrene	**85-01-8**		**U**	**248**	**124**
Phenol	**108-95-2**		**U**	**248**	**124**
Pyrene	**129-00-0**		**U**	**248**	**124**

Surrogate	% Recovery	Lower	Upper	Qual
2,4,6-Tribromophenol	**68.2**	**19**	**122**	
2-Fluorobiphenyl	**61.5**	**30**	**115**	
2-Fluorophenol	**57.5**	**25**	**121**	
Nitrobenzene-d5	**63.9**	**23**	**120**	
p-Terphenyl-d14	**67.7**	**18**	**137**	
Phenol-d5	**58.5**	**24**	**113**	

U Not detected at or above adjusted sample detection limit

Microbac®

Sample Number: **L09080192-02**
Client ID: **SITE 1-TP-TS**
Matrix: **Soil**
Workgroup Number: **WG309468**
Collect Date: **08/09/2009 10:50**
Sample Tag: **01**

PrePrep Method: **NONE**
Prep Method: **3545**
Analytical Method: **8270C**
Analyst: **CAA**
Dilution: **1**
Units: **ug/kg**

Instrument: **HPMS4**
Prep Date: **08/11/2009 10:59**
Cal Date: **05/26/2009 18:05**
Run Date: **08/11/2009 19:48**
File ID: **4M47714**
Percent Solid: **79.5**

Analyte	CAS. Number	Result	Qual	PQL	SDL
1,2,4-Trichlorobenzene	120-82-1		U	239	120
1,2-Dichlorobenzene	95-50-1		U	239	120
1,3-Dichlorobenzene	541-73-1		U	239	120
1,4-Dichlorobenzene	106-46-7		U	239	120
2,4,5-Trichlorophenol	95-95-4		U	239	120
2,4,6-Trichlorophenol	88-06-2		U	239	120
2,4-Dichlorophenol	120-83-2		U	239	120
2,4-Dimethylphenol	105-67-9		U	239	120
2,4-Dinitrophenol	51-28-5		U	1200	478
2,4-Dinitrotoluene	121-14-2		U	239	120
2,6-Dinitrotoluene	606-20-2		U	239	120
2-Chloronaphthalene	91-58-7		U	239	120
2-Chlorophenol	95-57-8		U	239	120
2-Methylnaphthalene	91-57-6		U	239	120
2-Methylphenol	95-48-7		U	239	120
2-Nitroaniline	88-74-4		U	1200	478
2-Nitrophenol	88-75-5		U	239	120
3,3'-Dichlorobenzidine	91-94-1		U	478	239
3-,4-Methylphenol	106-44-5		U	239	120
3-Nitroaniline	99-09-2		U	1200	478
4,6-Dinitro-2-methylphenol	534-52-1		U	1200	478
4-Bromophenyl-phenylether	101-55-3		U	239	120
4-Chloro-3-methylphenol	59-50-7		U	239	120
4-Chloroaniline	106-47-8		U	239	120
4-Chlorophenyl-phenyl ether	7005-72-3		U	239	120
4-Nitroaniline	100-01-6		U	1200	478
4-Nitrophenol	100-02-7		U	1200	478
Acenaphthene	83-32-9		U	239	120
Acenaphthylene	208-96-8		U	239	120
Anthracene	120-12-7		U	239	120
Benzo(a)anthracene	56-55-3		U	239	120
Benzo(a)pyrene	50-32-8		U	239	120
Benzo(b)fluoranthene	205-99-2		U	239	120
Benzo(g,h,i)Perylene	191-24-2		U	239	120
Benzo(k)fluoranthene	207-08-9		U	239	120
Benzoic acid	65-85-0		U	7250	478
Benzyl alcohol	100-51-6		U	239	120
Bis(2-Chloroethoxy)Methane	111-91-1		U	239	120
Bis(2-Chloroethyl)ether	111-44-4		U	239	120
bis(2-Chloroisopropyl)ether	108-60-1		U	239	120
bis(2-Ethylhexyl)phthalate	117-81-7		U	239	120
Butylbenzylphthalate	85-68-7		U	239	120
Chrysene	218-01-9		U	239	120
Di-N-Butylphthalate	84-74-2	128	J	239	120
Di-n-octylphthalate	117-84-0		U	239	120
Dibenzo(a,h)Anthracene	53-70-3		U	239	120
Dibenzofuran	132-64-9		U	239	120
Diethylphthalate	84-66-2		U	239	120
Dimethylphthalate	131-11-3		U	239	120
Fluoranthene	206-44-0		U	239	120
Fluorene	86-73-7		U	239	120
Hexachlorobenzene	118-74-1		U	239	120
Hexachlorobutadiene	87-68-3		U	239	120
Hexachlorocyclopentadiene	77-47-4		U	239	120
Hexachloroethane	67-72-1		U	239	120
Indeno(1,2,3-cd)pyrene	193-39-5		U	239	120
Isophorone	78-59-1		U	239	120
N-Nitrosodiphenylamine	86-30-6		U	239	120
N-Nitrosodipropylamine	621-64-7		U	239	120

Report Number: **L09080192**
Report Date : **August 13, 2009**

Sample Number:	**L09080192-02**	PrePrep Method:	**NONE**	Instrument:	**HPMS4**
Client ID:	**SITE 1-TP-TS**	Prep Method:	**3545**	Prep Date:	**08/11/2009 10:59**
Matrix:	**Soil**	Analytical Method:	**8270C**	Cal Date:	**05/26/2009 18:05**
Workgroup Number:	**WG309468**	Analyst:	**CAA**	Run Date:	**08/11/2009 19:48**
Collect Date:	**08/09/2009 10:50**	Dilution:	**1**	File ID:	**4M47714**
Sample Tag:	**01**	Units:	**ug/kg**	Percent Solid:	**79.5**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Naphthalene	**91-20-3**		**U**	**239**	**120**
Nitrobenzene	**98-95-3**		**U**	**239**	**120**
Pentachlorophenol	**87-86-5**		**U**	**1200**	**478**
Phenanthrene	**85-01-8**		**U**	**239**	**120**
Phenol	**108-95-2**		**U**	**239**	**120**
Pyrene	**129-00-0**		**U**	**239**	**120**

Surrogate	% Recovery	Lower	Upper	Qual
2,4,6-Tribromophenol	**102**	**19**	**122**	
2-Fluorobiphenyl	**59.6**	**30**	**115**	
2-Fluorophenol	**58.2**	**25**	**121**	
Nitrobenzene-d5	**69.8**	**23**	**120**	
p-Terphenyl-d14	**70.0**	**18**	**137**	
Phenol-d5	**59.8**	**24**	**113**	

U Not detected at or above adjusted sample detection limit
J The analyte was positively identified, but the quantitation was below the RL

Sample Number:L09080192-03
Client ID:SITE 2-BLM-TS
Matrix:Soil
Workgroup Number:WG309468
Collect Date:08/09/2009 11:20
Sample Tag:01

PrePrep Method:NONE
Prep Method:3545
Analytical Method:8270C
Analyst:CAA
Dilution:1
Units:ug/kg

Instrument:HPMS4
Prep Date:08/11/2009 10:59
Cal Date:05/26/2009 18:05
Run Date:08/11/2009 20:23
File ID:4M47715
Percent Solid:78.2

Analyte	CAS. Number	Result	Qual	PQL	SDL
1,2,4-Trichlorobenzene	120-82-1		U	223	112
1,2-Dichlorobenzene	95-50-1		U	223	112
1,3-Dichlorobenzene	541-73-1		U	223	112
1,4-Dichlorobenzene	106-46-7		U	223	112
2,4,5-Trichlorophenol	95-95-4		U	223	112
2,4,6-Trichlorophenol	88-06-2		U	223	112
2,4-Dichlorophenol	120-83-2		U	223	112
2,4-Dimethylphenol	105-67-9		U	223	112
2,4-Dinitrophenol	51-28-5		U	1120	447
2,4-Dinitrotoluene	121-14-2		U	223	112
2,6-Dinitrotoluene	606-20-2		U	223	112
2-Chloronaphthalene	91-58-7		U	223	112
2-Chlorophenol	95-57-8		U	223	112
2-Methylnaphthalene	91-57-6		U	223	112
2-Methylphenol	95-48-7		U	223	112
2-Nitroaniline	88-74-4		U	1120	447
2-Nitrophenol	88-75-5		U	223	112
3,3'-Dichlorobenzidine	91-94-1		U	447	223
3-,4-Methylphenol	106-44-5		U	223	112
3-Nitroaniline	99-09-2		U	1120	447
4,6-Dinitro-2-methylphenol	534-52-1		U	1120	447
4-Bromophenyl-phenylether	101-55-3		U	223	112
4-Chloro-3-methylphenol	59-50-7		U	223	112
4-Chloroaniline	106-47-8		U	223	112
4-Chlorophenyl-phenyl ether	7005-72-3		U	223	112
4-Nitroaniline	100-01-6		U	1120	447
4-Nitrophenol	100-02-7		U	1120	447
Acenaphthene	83-32-9		U	223	112
Acenaphthylene	208-96-8		U	223	112
Anthracene	120-12-7		U	223	112
Benzo(a)anthracene	56-55-3		U	223	112
Benzo(a)pyrene	50-32-8		U	223	112
Benzo(b)fluoranthene	205-99-2		U	223	112
Benzo(g,h,i)Perylene	191-24-2		U	223	112
Benzo(k)fluoranthene	207-08-9		U	223	112
Benzoic acid	65-85-0		U	6770	447
Benzyl alcohol	100-51-6		U	223	112
Bis(2-Chloroethoxy)Methane	111-91-1		U	223	112
Bis(2-Chloroethyl)ether	111-44-4		U	223	112
bis(2-Chloroisopropyl)ether	108-60-1		U	223	112
bis(2-Ethylhexyl)phthalate	117-81-7		U	223	112
Butylbenzylphthalate	85-68-7		U	223	112
Chrysene	218-01-9		U	223	112
Di-N-Butylphthalate	84-74-2		U	223	112
Di-n-octylphthalate	117-84-0		U	223	112
Dibenzo(a,h)Anthracene	53-70-3		U	223	112
Dibenzofuran	132-64-9		U	223	112
Diethylphthalate	84-66-2		U	223	112
Dimethylphthalate	131-11-3		U	223	112
Fluoranthene	206-44-0		U	223	112
Fluorene	86-73-7		U	223	112
Hexachlorobenzene	118-74-1		U	223	112
Hexachlorobutadiene	87-68-3		U	223	112
Hexachlorocyclopentadiene	77-47-4		U	223	112
Hexachloroethane	67-72-1		U	223	112
Indeno(1,2,3-cd)pyrene	193-39-5		U	223	112
Isophorone	78-59-1		U	223	112
N-Nitrosodiphenylamine	86-30-6		U	223	112
N-Nitrosodipropylamine	621-64-7		U	223	112

Sample Number: L09080192-03
Client ID: SITE 2-BLM-TS
Matrix: Soil
Workgroup Number: WG309468
Collect Date: 08/09/2009 11:20
Sample Tag: 01

PrePrep Method: NONE
Prep Method: 3545
Analytical Method: 8270C
Analyst: CAA
Dilution: 1
Units: ug/kg

Instrument: HPMS4
Prep Date: 08/11/2009 10:59
Cal Date: 05/26/2009 18:05
Run Date: 08/11/2009 20:23
File ID: 4M47715
Percent Solid: 78.2

Analyte	CAS. Number	Result	Qual	PQL	SDL
Naphthalene	91-20-3		U	223	112
Nitrobenzene	98-95-3		U	223	112
Pentachlorophenol	87-86-5		U	1120	447
Phenanthrene	85-01-8		U	223	112
Phenol	108-95-2		U	223	112
Pyrene	129-00-0		U	223	112

Surrogate	% Recovery	Lower	Upper	Qual
2,4,6-Tribromophenol	65.5	19	122	
2-Fluorobiphenyl	46.6	30	115	
2-Fluorophenol	48.8	25	121	
Nitrobenzene-d5	58.4	23	120	
p-Terphenyl-d14	63.6	18	137	
Phenol-d5	51.4	24	113	

U Not detected at or above adjusted sample detection limit

Sample Number: L09080192-04
Client ID: SITE 2-BLM-BF
Matrix: Soil
Workgroup Number: WG309468
Collect Date: 08/09/2009 11:25
Sample Tag: 01

PrePrep Method: NONE
Prep Method: 3545
Analytical Method: 8270C
Analyst: CAA
Dilution: 1
Units: ug/kg

Instrument: HPMS4
Prep Date: 08/11/2009 10:59
Cal Date: 05/26/2009 18:05
Run Date: 08/11/2009 20:58
File ID: 4M47716
Percent Solid: 78.3

Analyte	CAS. Number	Result	Qual	PQL	SDL
1,2,4-Trichlorobenzene	120-82-1		U	236	118
1,2-Dichlorobenzene	95-50-1		U	236	118
1,3-Dichlorobenzene	541-73-1		U	236	118
1,4-Dichlorobenzene	106-46-7		U	236	118
2,4,5-Trichlorophenol	95-95-4		U	236	118
2,4,6-Trichlorophenol	88-06-2		U	236	118
2,4-Dichlorophenol	120-83-2		U	236	118
2,4-Dimethylphenol	105-67-9		U	236	118
2,4-Dinitrophenol	51-28-5		U	1180	471
2,4-Dinitrotoluene	121-14-2		U	236	118
2,6-Dinitrotoluene	606-20-2		U	236	118
2-Chloronaphthalene	91-58-7		U	236	118
2-Chlorophenol	95-57-8		U	236	118
2-Methylnaphthalene	91-57-6		U	236	118
2-Methylphenol	95-48-7		U	236	118
2-Nitroaniline	88-74-4		U	1180	471
2-Nitrophenol	88-75-5		U	236	118
3,3'-Dichlorobenzidine	91-94-1		U	471	236
3-,4-Methylphenol	106-44-5		U	236	118
3-Nitroaniline	99-09-2		U	1180	471
4,6-Dinitro-2-methylphenol	534-52-1		U	1180	471
4-Bromophenyl-phenylether	101-55-3		U	236	118
4-Chloro-3-methylphenol	59-50-7		U	236	118
4-Chloroaniline	106-47-8		U	236	118
4-Chlorophenyl-phenyl ether	7005-72-3		U	236	118
4-Nitroaniline	100-01-6		U	1180	471
4-Nitrophenol	100-02-7		U	1180	471
Acenaphthene	83-32-9		U	236	118
Acenaphthylene	208-96-8		U	236	118
Anthracene	120-12-7		U	236	118
Benzo(a)anthracene	56-55-3		U	236	118
Benzo(a)pyrene	50-32-8		U	236	118
Benzo(b)fluoranthene	205-99-2		U	236	118
Benzo(g,h,i)Perylene	191-24-2		U	236	118
Benzo(k)fluoranthene	207-08-9		U	236	118
Benzoic acid	65-85-0	1400	J	7140	471
Benzyl alcohol	100-51-6		U	236	118
Bis(2-Chloroethoxy)Methane	111-91-1		U	236	118
Bis(2-Chloroethyl)ether	111-44-4		U	236	118
bis(2-Chloroisopropyl)ether	108-60-1		U	236	118
bis(2-Ethylhexyl)phthalate	117-81-7		U	236	118
Butylbenzylphthalate	85-68-7		U	236	118
Chrysene	218-01-9		U	236	118
Di-N-Butylphthalate	84-74-2		U	236	118
Di-n-octylphthalate	117-84-0		U	236	118
Dibenzo(a,h)Anthracene	53-70-3		U	236	118
Dibenzofuran	132-64-9		U	236	118
Diethylphthalate	84-66-2		U	236	118
Dimethylphthalate	131-11-3		U	236	118
Fluoranthene	206-44-0		U	236	118
Fluorene	86-73-7		U	236	118
Hexachlorobenzene	118-74-1		U	236	118
Hexachlorobutadiene	87-68-3		U	236	118
Hexachlorocyclopentadiene	77-47-4		U	236	118
Hexachloroethane	67-72-1		U	236	118
Indeno(1,2,3-cd)pyrene	193-39-5		U	236	118
Isophorone	78-59-1		U	236	118
N-Nitrosodiphenylamine	86-30-6		U	236	118
N-Nitrosodipropylamine	621-64-7		U	236	118

Sample Number:L09080192-04
Client ID:SITE 2-BLM-BF
Matrix:Soil
Workgroup Number:WG309468
Collect Date:08/09/2009 11:25
Sample Tag:01

PrePrep Method:NONE
Prep Method:3545
Analytical Method:8270C
Analyst:CAA
Dilution:1
Units:ug/kg

Instrument:HPMS4
Prep Date:08/11/2009 10:59
Cal Date:05/26/2009 18:05
Run Date:08/11/2009 20:58
File ID:4M47716
Percent Solid:78.3

Analyte	CAS. Number	Result	Qual	PQL	SDL
Naphthalene	91-20-3		U	236	118
Nitrobenzene	98-95-3		U	236	118
Pentachlorophenol	87-86-5		U	1180	471
Phenanthrene	85-01-8		U	236	118
Phenol	108-95-2		U	236	118
Pyrene	129-00-0		U	236	118

Surrogate	% Recovery	Lower	Upper	Qual
2,4,6-Tribromophenol	76.9	19	122	
2-Fluorobiphenyl	57.1	30	115	
2-Fluorophenol	41.3	25	121	
Nitrobenzene-d5	53.3	23	120	
p-Terphenyl-d14	66.5	18	137	
Phenol-d5	49.0	24	113	

U Not detected at or above adjusted sample detection limit
J The analyte was positively identified, but the quantitation was below the RL

Sample Number:L09080192-05
Client ID:SITE 3-ML-BF/TS
Matrix:Soil
Workgroup Number:WG309468
Collect Date:08/09/2009 12:00
Sample Tag:01

PrePrep Method:NONE
Prep Method:3545
Analytical Method:8270C
Analyst:CAA
Dilution:1
Units:ug/kg

Instrument:HPMS4
Prep Date:08/11/2009 10:59
Cal Date:05/26/2009 18:05
Run Date:08/11/2009 21:32
File ID:4M47717
Percent Solid:88.2

Analyte	CAS. Number	Result	Qual	PQL	SDL
1,2,4-Trichlorobenzene	120-82-1		U	213	107
1,2-Dichlorobenzene	95-50-1		U	213	107
1,3-Dichlorobenzene	541-73-1		U	213	107
1,4-Dichlorobenzene	106-46-7		U	213	107
2,4,5-Trichlorophenol	95-95-4		U	213	107
2,4,6-Trichlorophenol	88-06-2		U	213	107
2,4-Dichlorophenol	120-83-2		U	213	107
2,4-Dimethylphenol	105-67-9		U	213	107
2,4-Dinitrophenol	51-28-5		U	1070	427
2,4-Dinitrotoluene	121-14-2		U	213	107
2,6-Dinitrotoluene	606-20-2		U	213	107
2-Chloronaphthalene	91-58-7		U	213	107
2-Chlorophenol	95-57-8		U	213	107
2-Methylnaphthalene	91-57-6		U	213	107
2-Methylphenol	95-48-7		U	213	107
2-Nitroaniline	88-74-4		U	1070	427
2-Nitrophenol	88-75-5		U	213	107
3,3'-Dichlorobenzidine	91-94-1		U	427	213
3-,4-Methylphenol	106-44-5		U	213	107
3-Nitroaniline	99-09-2		U	1070	427
4,6-Dinitro-2-methylphenol	534-52-1		U	1070	427
4-Bromophenyl-phenylether	101-55-3		U	213	107
4-Chloro-3-methylphenol	59-50-7		U	213	107
4-Chloroaniline	106-47-8		U	213	107
4-Chlorophenyl-phenyl ether	7005-72-3		U	213	107
4-Nitroaniline	100-01-6		U	1070	427
4-Nitrophenol	100-02-7		U	1070	427
Acenaphthene	83-32-9		U	213	107
Acenaphthylene	208-96-8		U	213	107
Anthracene	120-12-7		U	213	107
Benzo(a)anthracene	56-55-3		U	213	107
Benzo(a)pyrene	50-32-8		U	213	107
Benzo(b)fluoranthene	205-99-2		U	213	107
Benzo(g,h,i)Perylene	191-24-2		U	213	107
Benzo(k)fluoranthene	207-08-9		U	213	107
Benzoic acid	65-85-0		U	6470	427
Benzyl alcohol	100-51-6		U	213	107
Bis(2-Chloroethoxy)Methane	111-91-1		U	213	107
Bis(2-Chloroethyl)ether	111-44-4		U	213	107
bis(2-Chloroisopropyl)ether	108-60-1		U	213	107
bis(2-Ethylhexyl)phthalate	117-81-7		U	213	107
Butylbenzylphthalate	85-68-7		U	213	107
Chrysene	218-01-9		U	213	107
Di-N-Butylphthalate	84-74-2		U	213	107
Di-n-octylphthalate	117-84-0		U	213	107
Dibenzo(a,h)Anthracene	53-70-3		U	213	107
Dibenzofuran	132-64-9		U	213	107
Diethylphthalate	84-66-2		U	213	107
Dimethylphthalate	131-11-3		U	213	107
Fluoranthene	206-44-0		U	213	107
Fluorene	86-73-7		U	213	107
Hexachlorobenzene	118-74-1		U	213	107
Hexachlorobutadiene	87-68-3		U	213	107
Hexachlorocyclopentadiene	77-47-4		U	213	107
Hexachloroethane	67-72-1		U	213	107
Indeno(1,2,3-cd)pyrene	193-39-5		U	213	107
Isophorone	78-59-1		U	213	107
N-Nitrosodiphenylamine	86-30-6		U	213	107
N-Nitrosodipropylamine	621-64-7		U	213	107

Sample Number:	L09080192-05	PrePrep Method:	NONE	Instrument:	HPMS4
Client ID:	SITE 3-ML-BF/TS	Prep Method:	3545	Prep Date:	08/11/2009 10:59
Matrix:	Soil	Analytical Method:	8270C	Cal Date:	05/26/2009 18:05
Workgroup Number:	WG309468	Analyst:	CAA	Run Date:	08/11/2009 21:32
Collect Date:	08/09/2009 12:00	Dilution:	1	File ID:	4M47717
Sample Tag:	01	Units:	ug/kg	Percent Solid:	88.2

Analyte	CAS. Number	Result	Qual	PQL	SDL
Naphthalene	91-20-3		U	213	107
Nitrobenzene	98-95-3		U	213	107
Pentachlorophenol	87-86-5		U	1070	427
Phenanthrene	85-01-8		U	213	107
Phenol	108-95-2		U	213	107
Pyrene	129-00-0		U	213	107

Surrogate	% Recovery	Lower	Upper	Qual
2,4,6-Tribromophenol	104	19	122	
2-Fluorobiphenyl	59.7	30	115	
2-Fluorophenol	55.6	25	121	
Nitrobenzene-d5	63.4	23	120	
p-Terphenyl-d14	89.7	18	137	
Phenol-d5	56.9	24	113	

U Not detected at or above adjusted sample detection limit

2.2.1.2 QC Summary Data

Example 8270 Calculations

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

$$RF = [(Ax) (Cis)] / [(Ais) (Cx)]$$

where:

	Example
Ax = Area of the characteristic ion for the compound being measured:	1261197
Cis = Concentration of the specific internal standard (ug/mL)	40
Ais = Area of the characteristic ion of the specific internal standard	608044
Cx = Concentration of the compound in the standard being measured (ug/mL)	50
RF = Calculated Response Factor	**1.65935**

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

$$Cx = [(Ax) (Cis) (Vf) (D)] / [(Ais) (RF) (Vi)]$$

where:

	Example
Ax = Area of the characteristic ion for the compound being measured	367250
Cis = Concentration of the specific internal standard (ug/mL)	40
Vf = Final volume of sample extract from prep log (mL)	1
D = Dilution factor for sample as a multiplier (10x = 10)	1
Ais = Area of the characteristic ion of the specific internal standard	511641
RF = Average RF from the ICAL	1.65935
Vi = Initial volume of sample extracted from prep log (mL)	1021
Cx = Concentration of the compound in the sample being measured (ug/mL)	0.016947
Cx = Concentration of the compound in the sample being measured (ug/L)	**16.947**

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

$$Cx = [(Ax) (Cis) (Vf) (D)] / [(Ais) (RF) (Wi)]$$

where:

	Example
Ax = Area of the characteristic ion for the compound being measured	367250
Cis = Concentration of the specific internal standard (ug/mL)	40
Vf = Final volume of sample extract from prep log (mL)	1
D = Dilution factor for sample as a multiplier (10x = 10)	1
Ais = Area of the characteristic ion of the specific internal standard	511641
RF = Average RF from the ICAL	1.65935
Wi = Initial weight of sample extracted (g) from prep log	30
Cx = Concentration of the compound in the sample being measured (ug/g)	0.576763
Cx = Concentration of the compound in the sample being measured (ug/kg)	**576.7627**

Dry weight correction:

Percent solids (PCT_S)	50
Cd = (Cx) (100)/PCT_S	**1153.525** ug/kg

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

4.0 Concentration from Linear Regression

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

y = response ratio = response of analyte / response of IS = Ax/Ais

x = amount ratio = concentration analyte/concentration internal standard = Cx / Cis

m = slope from curve plot

b = intercept from curve plot

Step 2: Calculate y from Quantitation Report

y = 16790/784838 = 0.02139

Step 3: Solve for x

x = (y - b)/m   = [(0.02139 -(- 0.0435)]/ 0.0783 = 0.829

Step 4: Solve for analyte concentration Cx

Cx = Cis (x) = (25.0)(0.829) =   20.72 ug/L

Example Spreadsheet Calculation:

Slope from curve, m:	0.0783	
Intercept from curve, b:	-0.0435	
Area of analyte, Ax:	16790	
Area of Internal Standard , Ais:	784484	
Concentration of IS, Cis	25.00	ug/L
Response Ratio (y) :	0.021403	
Amount Ratio:	0.828897	
Concentration (Cx):	20.72241	ug/L

5.0 Concentration from Quadratic Regression

Step 1 - Retrieve Curve Data from Plot, y = Ax^2 + Bx + C
Where:
Ax^2 + Bx + (C - y) = 0
A, B, C = constants from the ICAL quadratic regression
y = Response ratio = Area of analyte/Area of internal standard (IS)
x = Amount ratio = Concentration of analyte/concentration of IS

Step 2: Calculate y from Quantitation Report

y = Ax/Ais

Step 3: Solve for x using the quadratic formula
Ax^2 + Bx + C - y = 0

$$x = \frac{b \pm \sqrt{\left(b^2 - 4a\left(c - y\right)\right)}}{2a}$$

(Two possible solutions)

Step 4: Solve for analyte concentration Cx

Cx = (Cis)(Amount ratio)

Example Spreadsheet Calculation:

Value of A from plot:	**0.0259**	
Value of B from plot:	**0.0596**	
Value of C from plot:	**-0.0165**	
Area of analyte from quantitation report:	**203233**	
Area of IS from quantiation report:	**1425653**	
Response ratio, y:	**0.142554**	
C - y:	**-0.15905**	
Root 1 - Computed amount ratio , X1:	**-3.88278**	
Root 2 - Computed amount ratio , X2:	**1.581623**	use this solution
Concentration of IS, Cis:	**40.00**	
Concentration of analyte, Cx:	**63.26**	ug/L

Microbac Laboratories Inc.
Sample Extract Log

Workgroup: WG309434
Analyst: CAF
Spike Analyst: CAF
Method: 3545
Run Date: 08/11/2009 10:59
SOP: ASE01 Revison 7
Spike Witness: CPD
Surr Solution: STD33058

Methylene Chloride Lot #: COA14020
Purified Lab Sand Lot #: COA13873
Diatomaceous Earth Lot #: COA13977
Sodium Sulfate,Anhydrous,Granular (Lot #: COA13907
1% Acetic Acid Lot #: RGT13669

	SAMPLE #	Type	Reference	Prod	Init Amnt	Surr Amnt	Spike Amnt	Spike Sol	Final Vol	Color
1	L09080192-01	SAMP		8270	17.18 g	.5 mL			1 mL	Transparent
2	L09080192-02	SAMP		8270	17.36 g	.5 mL			1 mL	Colored
3	L09080192-03	SAMP		8270	18.9 g	.5 mL			1 mL	Colored
4	L09080192-04	SAMP		8270	17.88 g	.5 mL			1 mL	Colored
5	L09080192-05	SAMP		8270	17.54 g	.5 mL			1 mL	Colored
6	L09080205-01	SAMP		8270	18.21 g	.5 mL			1 mL	Colored
7	L09080205-04	SAMP		8270	20.64 g	.5 mL			1 mL	Colored
8	L09080205-06	SAMP		8270	17.54 g	.5 mL			1 mL	Opaque
9	L09080205-08	SAMP		8270	19.24 g	.5 mL			1 mL	Colored
10	WG309434-01	BLANK		8270	20 g	.5 mL			1 mL	Transparent
11	WG309434-02	LCS		8270	20 g	.5 mL	.5 mL	STD33345	1 mL	Colored
12	WG309434-03	LCS2		8270	20 g	.5 mL	.5 mL	STD33345	1 mL	Colored

L09080192-01	WET
L09080192-02	WET
L09080192-03	WET
L09080192-04	WET
L09080192-05	SAND

Analyst: Cheryl A. Flowers

Reviewer:

EXTRACT - Modified 10/22/2008
PDF ID: 1463690
Report generated: 08/11/2009 16:07

Microbac®

Microbac Laboratories Inc.

Instrument Run Log

Instrument: HPMS4
Dataset: 052609
Analyst1: MDC
Analyst2: NA
Method: 8270C
SOP: MSS01
Rev: 14
Method: 625
SOP: MSS02
Rev: 8

Maintenance Log ID: 28854

Workgroups:
Column 1 ID: RXI-5MS
Column 2 ID: NA

Internal STD: STD20900
Surrogate STD: NA
Calibration STD

Comments: ICAL 4M46921-4M26929 not used: instrument responses improved for a few compounds during the course of the calibration.
ICAL fails for #49, 64, 78 (Appendix IX compounds)

Seq.	File ID	Sample Information	Mat	Dil	Reference	Date/Time
1	4M46920	WG301596-01 50ppm DFTPP	1	1	STD31842	05/26/09 07:43
2	4M46921	WG301596-02 50ppm MEGAMIX STD	1	1	STD31920	05/26/09 08:02
3	4M46922	WG301596-03 3ppm MEGAMIX STD	1	1	STD31920	05/26/09 08:45
4	4M46923	WG301596-04 10ppm MEGAMIX STD	1	1	STD31920	05/26/09 09:21
5	4M46924	WG301596-05 15ppm MEGAMIX STD	1	1	STD31920	05/26/09 09:57
6	4M46925	WG301596-06 25ppm MEGAMIX STD	1	1	STD31920	05/26/09 10:32
7	4M46926	WG301596-07 80ppm MEGAMIX STD	1	1	STD31920	05/26/09 11:07
8	4M46927	WG301596-08 100ppm MEGAMIX STD	1	1	STD31920	05/26/09 11:43
9	4M46928	WG301596-09 120ppm MEGAMIX STD	1	1	STD31920	05/26/09 12:18
10	4M46929	WG301596-02 50ppm MEGAMIX STD	1	1	STD31920	05/26/09 12:54
11	4M46930	WG301596-01 50ppm DFTPP	1	1	STD31842	05/26/09 13:39
12	4M46931	WG301596-02 50ppm MEGAMIX STD	1	1	STD31920	05/26/09 13:58
13	4M46932	WG301596-03 3ppm MEGAMIX STD	1	1	STD31920	05/26/09 14:34
14	4M46933	WG301596-04 10ppm MEGAMIX STD	1	1	STD31920	05/26/09 15:09
15	4M46934	WG301596-05 15ppm MEGAMIX STD	1	1	STD31920	05/26/09 15:44
16	4M46935	WG301596-06 25ppm MEGAMIX STD	1	1	STD31920	05/26/09 16:19
17	4M46936	WG301596-07 80ppm MEGAMIX STD	1	1	STD31920	05/26/09 16:54
18	4M46937	WG301596-08 100ppm MEGAMIX STD	1	1	STD31920	05/26/09 17:30
19	4M46938	WG301596-09 120ppm MEGAMIX STD	1	1	STD31920	05/26/09 18:05
20	4M46939	WG301596-10 50ppm Alt source STD	1	1	STD31858	05/26/09 18:41
21	4M46940	WG301596-11 50ppm A9 Alt source STD	1	1	STD30677	05/26/09 19:16
22	4M46941	WG301596-12 50ppm dioxane source STD	1	1	STD30264	05/26/09 19:51
23	4M46942	WG303199-01 50ppm TCL std	1	1	STD30935	05/26/09 20:27
24	4M46943	WG303199-02 3ppm TCL std	1	1	STD30935	05/26/09 21:03
25	4M46944	WG303199-03 10ppm TCL std	1	1	STD30935	05/26/09 21:38
26	4M46945	WG303199-04 25ppm TCL std	1	1	STD30935	05/26/09 22:14
27	4M46946	WG303199-05 80ppm TCL std	1	1	STD30935	05/26/09 22:49
28	4M46947	WG303199-06 100ppm TCL std	1	1	STD30935	05/26/09 23:24
29	4M46948	WG303199-07 50ppm TCL alt source std	1	1	STD30966	05/27/09 00:00
30	4M46949	WG302712-01 BLK 5/20	10	1	SOIL	05/27/09 00:36
31	4M46950	L09050419-03 10X	10	10	SOIL	05/27/09 01:12
32	4M46951	L09050419-05 10X	10	10	SOIL	05/27/09 01:48

Comments

Seq.	Rerun	Dil.	Reason	Analytes

Page: 1

Approved: 27-MAY-09

Run Log ID: 28254

Microbac Laboratories Inc.

Instrument Run Log

Instrument: HPMS4
Dataset: 052609
Analyst1: MDC
Analyst2: NA
Method: 8270C
SOP: MSS01
Rev: 14
Method: 625
SOP: MSS02
Rev: 8

Maintenance Log ID: 28854

Column 1 ID: RXI-5MS
Column 2 ID: NA
Workgroups:

Internal STD: STD20900
Surrogate STD: NA

Comments

<table>
<tr><th>Seq.</th><th>Rerun</th><th>Dil.</th><th>Reason</th><th>Analytes</th></tr>
<tr><td>20</td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td colspan="4">Pentachlorophenol >30%D.</td></tr>
<tr><td>21</td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td colspan="4">#39, 78, 114 >30%D.</td></tr>
<tr><td>31</td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td colspan="4">Four surrogates low: SMI (matrix is gloves).</td></tr>
<tr><td>32</td><td>X</td><td></td><td>Missed Tune</td><td></td></tr>
<tr><td></td><td colspan="4"></td></tr>
</table>

Page: 2
Approved: 27-MAY-09

Run Log ID: 29577

Microbac Laboratories Inc.

Instrument Run Log

Instrument: HPMS4
Dataset: 081109
Analyst1: CAA
Analyst2: NA
Method: 8270C
SOP: MSS01
Rev: 14
Method: 625
SOP: MSS02
Rev: 8

Maintenance Log ID: 29755

Column 1 ID: RXI-5MS
Column 2 ID: NA
Workgroups: WG309094, WG309444, WG309440, WG309468
Internal STD: COA13928
Surrogate STD: NA
Calibration STD

Comments:

Seq.	File ID	Sample Information	Mat	Dil	Reference	Date/Time
1	4M47699	WG309400-01 50ppm DFTPP	1	1	STD31842	08/11/09 09:02
2	4M47700	WG309400-02 50ppm MEGAMIX STD	1	1	STD34003	08/11/09 09:20
3	4M47701	L09080061-19 200X	1	200		08/11/09 09:55
4	4M47702	WG309450-01 50ppm DFTPP	1	1	STD31842	08/11/09 13:08
5	4M47703	WG309450-02 50ppm MEGAMIX STD	1	1	STD34003	08/11/09 13:26
6	4M47704	WG309385-01 BLK 8/11	10	1	SOIL	08/11/09 14:01
7	4M47705	WG309385-02 LCS 8/11	10	1	SOIL	08/11/09 14:36
8	4M47706	WG309385-03 LCS DUP 8/11	10	1	SOIL	08/11/09 15:11
9	4M47707	WG309386-01 BLK 8/11	11	1		08/11/09 15:45
10	4M47708	WG309386-02 LCS 8/11	11	1		08/11/09 16:20
11	4M47709	WG309386-03 LCS DUP 8/11	11	1		08/11/09 16:55
12	4M47710	WG309434-01 BLK 8/11	7	1	SOIL	08/11/09 17:29
13	4M47711	WG309434-02 LCS 8/11	7	1	SOIL	08/11/09 18:04
14	4M47712	WG309434-03 LCS DUP 8/11	7	1	SOIL	08/11/09 18:39
15	4M47713	L09080192-01	7	1	SOIL	08/11/09 19:13
16	4M47714	L09080192-02	7	1	SOIL	08/11/09 19:48
17	4M47715	L09080192-03	7	1	SOIL	08/11/09 20:23
18	4M47716	L09080192-04	7	1	SOIL	08/11/09 20:58
19	4M47717	L09080192-05	7	1	SOIL	08/11/09 21:32
20	4M47718	L09080205-01	7	1	SOIL	08/11/09 22:07
21	4M47719	L09080205-04	7	1	SOIL	08/11/09 22:42
22	4M47720	L09080205-08	7	1	SOIL	08/11/09 23:16
23	4M47721	L09080205-06 20X	7	20	SOIL	08/11/09 23:51
24	4M47722	L09080149-05 20X	10	20	SOIL	08/12/09 00:25
25	4M47723	L09080149-03 20X	10	20	SOIL	08/12/09 01:00
26	4M47724	L09080132-01 20X	11	20		08/12/09 01:34

Comments

Seq.	Rerun	Dil.	Reason	Analytes
23				
	L09080205-06 20X - Analyzed at a dilution due to extract's dark apperance and viscosity.			
24				
	L09080149-05 20X - Analyzed at a dilution due to extract's viscosity and elevated final volume.			
25				
	L09080149-03 20X - Analyzed at a dilution due to extract's viscosity and elevated final volume.			

Page: 1
Approved: 12-AGU-09

Microbac Laboratories Inc.

Instrument Run Log

Instrument: HPMS4
Dataset: 081109
Analyst1: CAA
Analyst2: NA
Method: 8270C
SOP: MSS01
Rev: 14
Method: 625
SOP: MSS02
Rev: 8

Maintenance Log ID: 29755

Column 1 ID: RXI-5MS
Column 2 ID: NA
Workgroups: WG309094, WG309444, WG309440, WG309468
Internal STD: COA13928
Surrogate STD: NA

Comments

Seq.	Rerun	Dil.	Reason	Analytes
26	X	20	Missed Tune	
	L09080132-01 20X - Analyzed at a dilution due to extract's apperance and viscosity.			

Page: 2

Approved: 12-AUG-09

Checklist ID: 38678

Microbac Laboratories Inc.

Data Checklist

Date: 26-MAY-2009
Analyst: MDC
Analyst: NA
Method: 8270
Instrument: HPMS4
Curve Workgroup: NA
Runlog ID: 28254
Analytical Workgroups: ICAL, L09050419

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

Primary Reviewer:
27-MAY-2009

Secondary Reviewer:
27-MAY-2009

CHECKLIST1 - Modified 03/05/2008
Generated: MAY-27-2009 13:00:03

Microbac®

Microbac Laboratories Inc.

Data Checklist

Date: 11-AUG-2009
Analyst: CAA
Analyst: NA
Method: 8270
Instrument: HPMS4
Curve Workgroup: NA
Runlog ID: 29577
Analytical Workgroups: L09080061, L09080192, L09080205, L09080149

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

Primary Reviewer:
12-AUG-2009
Cassie A. Augenstein

Secondary Reviewer:
12-AUG-2009

CHECKLIST1 - Modified 03/05/2008
Generated: AUG-12-2009 11:12:36

Microbac Laboratories Inc.

HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: 8270C

AAB#: WG309468

Login Number: L09080192

Client ID	ID	Date Collected	TCLP Date	Time Held	Max Hold	Q	Extract Date	Time Held	Max Hold	Q	Run Date	Time Held	Max Hold	Q
SITE 1-TP-BF	01	08/09/09					08/11/09	2	14		08/11/09	.3	14	
SITE 1-TP-BF	01	08/09/09					08/11/09	2	14		08/11/09	.3	40	
SITE 1-TP-TS	02	08/09/09					08/11/09	2	14		08/11/09	.4	40	
SITE 1-TP-TS	02	08/09/09					08/11/09	2	14		08/11/09	.4	14	
SITE 2-BLM-TS	03	08/09/09					08/11/09	2	14		08/11/09	.4	40	
SITE 2-BLM-TS	03	08/09/09					08/11/09	2	14		08/11/09	.4	14	
SITE 2-BLM-BF	04	08/09/09					08/11/09	2	14		08/11/09	.4	14	
SITE 2-BLM-BF	04	08/09/09					08/11/09	2	14		08/11/09	.4	40	
SITE 3-ML-BF/TS	05	08/09/09					08/11/09	2	14		08/11/09	.4	14	
SITE 3-ML-BF/TS	05	08/09/09					08/11/09	2	14		08/11/09	.4	40	

* = SEE PROJECT QAPP REQUIREMENTS

HOLD_TIMES - Modified 03/06/2008
PDF File ID: 1464092
Report generated 08/12/2009 13:05

Microbac Laboratories Inc.
SURROGATE STANDARDS

Login Number: L09080192
Instrument Id: HPMS4
Workgroup (AAB#): WG309468

Method: 8270
CAL ID: HPMS4 - 26-MAY-09
Matrix: Soil

Sample Number	Dilution	Tag	1	2	3	4	5	6
L09080192-01	1.00	01	68.2	61.5	57.5	63.9	67.7	58.5
L09080192-02	1.00	01	102	59.6	58.2	69.8	70.0	59.8
L09080192-03	1.00	01	65.5	46.6	48.8	58.4	63.6	51.4
L09080192-04	1.00	01	76.9	57.1	41.3	53.3	66.5	49.0
L09080192-05	1.00	01	104	59.7	55.6	63.4	89.7	56.9
WG309434-01	1.00	01	72.1	59.4	55.4	65.0	86.9	56.3
WG309434-02	1.00	01	89.4	56.7	57.0	66.0	83.0	57.8
WG309434-03	1.00	01	103	68.3	65.6	74.0	92.1	68.1

Surrogates	Surrogate Limits
1 - 2,4,6-Tribromophenol	19 - 122
2 - 2-Fluorobiphenyl	30 - 115
3 - 2-Fluorophenol	25 - 121
4 - Nitrobenzene-d5	23 - 120
5 - p-Terphenyl-d14	18 - 137
6 - Phenol-d5	24 - 113

Underline = Result out of surrogate limits

DL = surrogate diluted out
ND = surrogate not detected

SURROGATES - Modified 03/06/2008
PDF File ID: 1463827
Report generated: 08/12/2009 13:07

Microbac®

METHOD BLANK SUMMARY

Login Number: L09080192
Blank File ID: 4M47710
Prep Date: 08/11/09 10:59
Analyzed Date: 08/11/09 17:29
Analyst: CAA

Work Group: WG309468
Blank Sample ID: WG309434-01
Instrument ID: HPMS4
Method: 8270C

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG309434-02	4M47711	08/11/09 18:04	01
LCS2	WG309434-03	4M47712	08/11/09 18:39	01
SITE 1-TP-BF	L09080192-01	4M47713	08/11/09 19:13	01
SITE 1-TP-TS	L09080192-02	4M47714	08/11/09 19:48	01
SITE 2-BLM-TS	L09080192-03	4M47715	08/11/09 20:23	01
SITE 2-BLM-BF	L09080192-04	4M47716	08/11/09 20:58	01
SITE 3-ML-BF/TS	L09080192-05	4M47717	08/11/09 21:32	01

Report Name: BLANK_SUMMARY
PDF File ID: 1464093
Report generated 08/12/2009 13:05

Microbac Laboratories Inc.
METHOD BLANK REPORT

Login Number: L09080192 Prep Date: 08/11/09 10:59 Sample ID: WG309434-01
Instrument ID: HPMS4 Run Date: 08/11/09 17:29 Prep Method: 3545
File ID: 4M47710 Analyst: CAA Method: 8270C
Workgroup (AAB#): WG309468 Matrix: Soil Units: ug/kg
Contract #: DACA56-94-D-0020 Cal ID: HPMS4 - 26-MAY-09

Analytes	SDL	PQL	Concentration	Dilution	Qualifier
1,2,4-Trichlorobenzene	82.5	165	82.5	1	U
1,2-Dichlorobenzene	82.5	165	82.5	1	U
1,3-Dichlorobenzene	82.5	165	82.5	1	U
1,4-Dichlorobenzene	82.5	165	82.5	1	U
2,4,5-Trichlorophenol	82.5	165	82.5	1	U
2,4,6-Trichlorophenol	82.5	165	82.5	1	U
2,4-Dichlorophenol	82.5	165	82.5	1	U
2,4-Dimethylphenol	82.5	165	82.5	1	U
2,4-Dinitrophenol	330	825	330	1	U
2,4-Dinitrotoluene	82.5	165	82.5	1	U
2,6-Dinitrotoluene	82.5	165	82.5	1	U
2-Chloronaphthalene	82.5	165	82.5	1	U
2-Chlorophenol	82.5	165	82.5	1	U
2-Methylnaphthalene	82.5	165	82.5	1	U
2-Methylphenol	82.5	165	82.5	1	U
2-Nitroaniline	330	825	330	1	U
2-Nitrophenol	82.5	165	82.5	1	U
3,3'-Dichlorobenzidine	165	330	165	1	U
3-,4-Methylphenol	82.5	165	82.5	1	U
3-Nitroaniline	330	825	330	1	U
4,6-Dinitro-2-methylphenol	330	825	330	1	U
4-Bromophenyl-phenylether	82.5	165	82.5	1	U
4-Chloro-3-methylphenol	82.5	165	82.5	1	U
4-Chloroaniline	82.5	165	82.5	1	U
4-Chlorophenyl-phenyl ether	82.5	165	82.5	1	U
4-Nitroaniline	330	825	330	1	U
4-Nitrophenol	330	825	330	1	U
Acenaphthene	82.5	165	82.5	1	U
Acenaphthylene	82.5	165	82.5	1	U
Anthracene	82.5	165	82.5	1	U
Benzo(a)anthracene	82.5	165	82.5	1	U
Benzo(a)pyrene	82.5	165	82.5	1	U
Benzo(b)fluoranthene	82.5	165	82.5	1	U
Benzo(g,h,i)Perylene	82.5	165	82.5	1	U
Benzo(k)fluoranthene	82.5	165	82.5	1	U
Benzoic acid	330	5000	330	1	U
Benzyl alcohol	82.5	165	82.5	1	U
Bis(2-Chloroethoxy)Methane	82.5	165	82.5	1	U
Bis(2-Chloroethyl)ether	82.5	165	82.5	1	U
bis(2-Chloroisopropyl)ether	82.5	165	82.5	1	U
bis(2-Ethylhexyl)phthalate	82.5	165	82.5	1	U
Butylbenzylphthalate	82.5	165	82.5	1	U

Report Name: BLANK
PDF ID: 1463825
12-AUG-2009 13:05

Microbac Laboratories Inc.
METHOD BLANK REPORT

Login Number:	L09080192	Prep Date:	08/11/09 10:59	Sample ID:	WG309434-01
Instrument ID:	HPMS4	Run Date:	08/11/09 17:29	Prep Method:	3545
File ID:	4M47710	Analyst:	CAA	Method:	8270C
Workgroup (AAB#):	WG309468	Matrix:	Soil	Units:	ug/kg
Contract #:	DACA56-94-D-0020	Cal ID:	HPMS4-26-MAY-09		

Analytes	SDL	PQL	Concentration	Dilution	Qualifier
Chrysene	82.5	165	82.5	1	U
Di-N-Butylphthalate	82.5	165	82.5	1	U
Di-n-octylphthalate	82.5	165	82.5	1	U
Dibenzo(a,h)Anthracene	82.5	165	82.5	1	U
Dibenzofuran	82.5	165	82.5	1	U
Diethylphthalate	82.5	165	82.5	1	U
Dimethylphthalate	82.5	165	82.5	1	U
Fluoranthene	82.5	165	82.5	1	U
Fluorene	82.5	165	82.5	1	U
Hexachlorobenzene	82.5	165	82.5	1	U
Hexachlorobutadiene	82.5	165	82.5	1	U
Hexachlorocyclopentadiene	82.5	165	82.5	1	U
Hexachloroethane	82.5	165	82.5	1	U
Indeno(1,2,3-cd)pyrene	82.5	165	82.5	1	U
Isophorone	82.5	165	82.5	1	U
N-Nitrosodiphenylamine	82.5	165	82.5	1	U
N-Nitrosodipropylamine	82.5	165	82.5	1	U
Naphthalene	82.5	165	82.5	1	U
Nitrobenzene	82.5	165	82.5	1	U
Pentachlorophenol	330	825	330	1	U
Phenanthrene	82.5	165	82.5	1	U
Phenol	82.5	165	82.5	1	U
Pyrene	82.5	165	82.5	1	U

Surrogates	% Recovery	Surrogate Limits	Qualifier
2,4,6-Tribromophenol	72.1	19 - 122	PASS
2-Fluorobiphenyl	59.4	30 - 115	PASS
2-Fluorophenol	55.4	25 - 121	PASS
Nitrobenzene-d5	65.0	23 - 120	PASS
p-Terphenyl-d14	86.9	18 - 137	PASS
Phenol-d5	56.3	24 - 113	PASS

SDL	Method Detection Limit
PQL	Reporting/Practical Quantitation Limit
ND	Analyte Not detected at or above reporting limit
*	|Analyte concentration| > RL

Report Name:BLANK
PDF ID: 1463825
12-AUG-2009 13:05

Microbac Laboratories Inc.
LABORATORY CONTROL SAMPLE (LCS)

Login Number: L09080192
Analyst: CAA
Prep Method: 3545
Instrument ID: HPMS4
Matrix: Soil
Method: 8270C
Workgroup (AAB#): WG309468
Units: ug/kg
QC Key: STD
Lot #: STD33345

Sample ID: WG309434-02 LCS File ID: 4M47711 Run Date: 08/11/2009 18:04
Sample ID: WG309434-03 LCS2 File ID: 4M47712 Run Date: 08/11/2009 18:39

Analytes	LCS			LCS2			%RPD	%Rec Limits	RPD Lmt	Q
	Known	Found	% REC	Known	Found	% REC				
1,2,4-Trichlorobenzene	2500	1380	55.2	2500	1580	63.4	13.8	35 - 100	40	
1,2-Dichlorobenzene	2500	1330	53.1	2500	1580	63.4	17.7	35 - 95	40	
1,3-Dichlorobenzene	2500	1310	52.5	2500	1540	61.8	16.4	35 - 100	40	
1,4-Dichlorobenzene	2500	1290	51.6	2500	1570	62.6	19.3	35 - 105	40	
2,4,5-Trichlorophenol	2500	1640	65.4	2500	1940	77.5	16.9	40 - 110	40	
2,4,6-Trichlorophenol	2500	1460	58.2	2500	1760	70.5	19.1	40 - 110	40	
2,4-Dichlorophenol	2500	1550	62.0	2500	1750	70.1	12.3	35 - 110	40	
2,4-Dimethylphenol	2500	1420	57.0	2500	1640	65.7	14.3	30 - 105	40	
2,4-Dinitrophenol	2500	2610	104	2500	2830	113	8.06	40 - 130	40	
2,4-Dinitrotoluene	2500	2110	84.5	2500	2500	99.9	16.7	50 - 130	40	
2,6-Dinitrotoluene	2500	1590	63.7	2500	2010	80.6	23.4	50 - 125	40	
2-Chloronaphthalene	2500	1220	49.0	2500	1490	59.5	19.4	40 - 105	40	
2-Chlorophenol	2500	1350	53.9	2500	1620	64.9	18.5	35 - 105	40	
2-Methylnaphthalene	2500	1560	62.3	2500	1760	70.5	12.4	35 - 115	40	
2-Methylphenol	2500	1350	54.0	2500	1610	64.3	17.3	35 - 100	40	
2-Nitroaniline	2500	1760	70.3	2500	2170	86.7	20.9	45 - 120	40	
2-Nitrophenol	2500	1540	61.5	2500	1720	68.8	11.2	35 - 100	40	
3,3'-Dichlorobenzidine	2500	2160	86.3	2500	2350	94.1	8.61	40 - 140	40	
3-,4-Methylphenol	2500	1630	65.1	2500	1890	75.6	15.0	35 - 105	40	
3-Nitroaniline	2500	1880	75.2	2500	2380	95.1	23.4	50 - 130	40	
4,6-Dinitro-2-methylphenol	2500	2710	108	2500	2920	117	7.46	45 - 130	40	
4-Bromophenyl-phenylether	2500	1740	69.6	2500	2090	83.8	18.4	40 - 115	40	
4-Chloro-3-methylphenol	2500	1680	67.4	2500	1940	77.6	14.1	40 - 100	40	
4-Chloroaniline	2500	1280	51.0	2500	1560	62.5	20.2	35 - 100	40	
4-Chlorophenyl-phenyl ether	2500	1520	60.8	2500	1890	75.7	21.8	40 - 110	40	
4-Nitroaniline	2500	2270	90.6	2500	2580	103	13.0	35 - 140	40	
4-Nitrophenol	2500	2680	107	2500	2900	116	8.03	45 - 140	40	
Acenaphthene	2500	1500	60.0	2500	1800	72.1	18.3	40 - 110	40	
Acenaphthylene	2500	1550	61.9	2500	1930	77.2	22.0	40 - 110	40	
Anthracene	2500	1990	79.4	2500	2280	91.1	13.7	55 - 130	40	
Benzo(a)anthracene	2500	2000	80.1	2500	2170	86.7	7.88	50 - 130	40	
Benzo(a)pyrene	2500	2270	90.6	2500	2480	99.1	8.91	50 - 130	40	
Benzo(b)fluoranthene	2500	2190	87.5	2500	2440	97.7	11.0	45 - 125	40	
Benzo(g,h,i)Perylene	2500	2290	91.6	2500	2450	98.1	6.78	40 - 140	40	
Benzo(k)fluoranthene	2500	2300	92.0	2500	2490	99.7	7.96	45 - 135	40	
Benzoic acid	2500	4130	165	2500	4450	178	7.45	20 - 110	40	*
Benzyl alcohol	2500	1320	52.8	2500	1540	61.7	15.6	30 - 100	40	
Bis(2-Chloroethoxy)Methane	2500	1250	50.0	2500	1470	58.7	16.0	30 - 100	40	
Bis(2-Chloroethyl)ether	2500	1380	55.2	2500	1660	66.2	18.3	30 - 100	40	
bis(2-Chloroisopropyl)ether	2500	1290	51.7	2500	1530	61.0	16.5	20 - 115	40	

LCS_LCS2 - Modified 03/06/2008
PDF File ID: 1463826
Report generated: 08/12/2009 13:05

Microbac Laboratories Inc.
LABORATORY CONTROL SAMPLE (LCS)

Login Number: L09080192
Analyst: CAA
Prep Method: 3545
Instrument ID: HPMS4
Matrix: Soil
Method: 8270C
Workgroup (AAB#): WG309468
Units: ug/kg
QC Key: STD
Lot #: STD33345

Sample ID: WG309434-02 LCS File ID: 4M47711 Run Date: 08/11/2009 18:04
Sample ID: WG309434-03 LCS2 File ID: 4M47712 Run Date: 08/11/2009 18:39

Analytes	LCS			LCS2			%RPD	%Rec Limits	RPD Lmt	Q
	Known	Found	% REC	Known	Found	% REC				
bis(2-Ethylhexyl)phthalate	2500	2460	98.2	2500	2730	109	10.5	50 - 150	40	
Butylbenzylphthalate	2500	2570	103	2500	2880	115	11.7	50 - 150	40	
Chrysene	2500	2100	84.1	2500	2320	92.8	9.80	55 - 140	40	
Di-N-Butylphthalate	2500	2570	103	2500	2770	111	7.21	55 - 140	40	
Di-n-octylphthalate	2500	2860	114	2500	3270	131	13.2	40 - 145	40	
Dibenzo(a,h)Anthracene	2500	2300	92.1	2500	2430	97.0	5.23	40 - 140	40	
Dibenzofuran	2500	1610	64.6	2500	2030	81.1	22.7	35 - 110	40	
Diethylphthalate	2500	2100	84.1	2500	2590	103	20.6	50 - 130	40	
Dimethylphthalate	2500	1710	68.4	2500	2150	86.2	23.0	45 - 115	40	
Fluoranthene	2500	2290	91.5	2500	2490	99.5	8.45	55 - 140	40	
Fluorene	2500	1510	60.3	2500	1850	74.1	20.6	45 - 115	40	
Hexachlorobenzene	2500	1870	74.7	2500	2180	87.2	15.5	45 - 120	40	
Hexachlorobutadiene	2500	1600	63.9	2500	1830	73.4	13.9	30 - 100	40	
Hexachlorocyclopentadiene	2500	851	34.1	2500	814	32.6	4.46	30 - 110	40	
Hexachloroethane	2500	1440	57.4	2500	1690	67.4	16.0	30 - 100	40	
Indeno(1,2,3-cd)pyrene	2500	2270	90.9	2500	2410	96.3	5.71	50 - 135	40	
Isophorone	2500	1470	58.8	2500	1670	66.8	12.8	35 - 100	40	
N-Nitrosodiphenylamine	2500	1690	67.6	2500	1960	78.5	15.0	50 - 130	40	
N-Nitrosodipropylamine	2500	1620	65.0	2500	1920	76.6	16.5	35 - 110	40	
Naphthalene	2500	1380	55.4	2500	1630	65.1	16.2	35 - 100	40	
Nitrobenzene	2500	1540	61.6	2500	1740	69.5	12.0	35 - 100	40	
Pentachlorophenol	2500	2830	113	2500	3030	121	6.95	50 - 150	40	
Phenanthrene	2500	1940	77.5	2500	2220	88.7	13.4	50 - 130	40	
Phenol	2500	1380	55.3	2500	1630	65.2	16.5	35 - 100	40	
Pyrene	2500	2010	80.2	2500	2280	91.0	12.6	35 - 140	40	

Surogates	LCS	LCS2	Surrogate Limits	Qualifier
	% Recovery	% Recovery		
2,4,6-Tribromophenol	89.4	103	19 - 122	PASS
2-Fluorobiphenyl	56.7	68.3	30 - 115	PASS
2-Fluorophenol	57.0	65.6	25 - 121	PASS
Nitrobenzene-d5	66.0	74.0	23 - 120	PASS
p-Terphenyl-d14	83.0	92.1	18 - 137	PASS
Phenol-d5	57.8	68.1	24 - 113	PASS

* FAILS %REC LIMIT
# FAILS RPD LIMIT

LCS_LCS2 - Modified 03/06/2008
PDF File ID: 1463826
Report generated: 08/12/2009 13:05

Microbac Laboratories Inc.
ORGANIC INSTRUMENT CHECK

DFTPP

Login Number: L09080192
Instrument: HPMS4
Analyst: MDC
Workgroup: WG301596

Tune ID: WG301596-01
Run Date: 05/26/2009
Run Time: 13:39
File ID: 4M46930
Cal ID: HPMS4 - 26-MAY-09

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51.0	198	30.0	60.0	44.8	261827	PASS
68.0	69.0	0	2.00	0	0	PASS
69.0	198	0	100	46.9	274102	PASS
70.0	69.0	0	2.00	0.440	1207	PASS
127	198	40.0	60.0	52.7	307669	PASS
197	198	0	1.00	0.205	1195	PASS
198	198	100	100	100	583936	PASS
199	198	5.00	9.00	7.49	43738	PASS
275	198	10.0	30.0	22.5	131240	PASS
365	198	1.00	100	2.72	15891	PASS
441	443	0.0100	100	83.3	73706	PASS
442	198	40.0	100	74.7	436416	PASS
443	442	17.0	23.0	20.3	88440	PASS

This check relates to the following samples:

Lab ID	Client ID	Tag	Date Analyzed	Q
WG301596-02	STD-CCV	01	05/26/2009 13:58	
WG301596-03	STD	01	05/26/2009 14:34	
WG301596-04	STD	01	05/26/2009 15:09	
WG301596-05	STD	01	05/26/2009 15:44	
WG301596-06	STD	01	05/26/2009 16:19	
WG301596-07	STD	01	05/26/2009 16:54	
WG301596-08	STD	01	05/26/2009 17:30	
WG301596-09	STD	01	05/26/2009 18:05	
WG301596-10	SSCV	01	05/26/2009 18:41	
WG301596-11	SSCV	01	05/26/2009 19:16	
WG301596-12	SSCV	01	05/26/2009 19:51	

* Sample past 12 hour tune limit

TUNE - Modified 03/06/2008
PDF File ID: 1464096
Report generated 08/12/2009 13:06

Microbac Laboratories Inc.
ORGANIC INSTRUMENT CHECK

DFTPP

Login Number: L09080192
Instrument: HPMS4
Analyst: CAA
Workgroup: WG309450

Tune ID: WG309450-01
Run Date: 08/11/2009
Run Time: 13:08
File ID: 4M47702
Cal ID: HPMS4 - 26-MAY-09

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51.0	198	30.0	60.0	54.3	101978	PASS
68.0	69.0	0	2.00	0	0	PASS
69.0	198	0	100	50.2	94242	PASS
70.0	69.0	0	2.00	0.316	298	PASS
127	198	40.0	60.0	58.3	109498	PASS
197	198	0	1.00	0.608	1142	PASS
198	198	100	100	100	187733	PASS
199	198	5.00	9.00	6.92	12989	PASS
275	198	10.0	30.0	24.0	45056	PASS
365	198	1.00	100	4.01	7520	PASS
441	443	0.0100	100	98.3	23760	PASS
442	198	40.0	100	69.0	129541	PASS
443	442	17.0	23.0	18.7	24167	PASS

This check relates to the following samples:

Lab ID	Client ID	Tag	Date Analyzed	Q
WG309450-02	CCV	01	08/11/2009 13:26	
WG309434-01	BLANK	01	08/11/2009 17:29	
WG309434-02	LCS	01	08/11/2009 18:04	
WG309434-03	LCS2	01	08/11/2009 18:39	
L09080192-01	SITE 1-TP-BF	01	08/11/2009 19:13	
L09080192-02	SITE 1-TP-TS	01	08/11/2009 19:48	
L09080192-03	SITE 2-BLM-TS	01	08/11/2009 20:23	
L09080192-04	SITE 2-BLM-BF	01	08/11/2009 20:58	
L09080192-05	SITE 3-ML-BF/TS	01	08/11/2009 21:32	

* Sample past 12 hour tune limit

TUNE - Modified 03/06/2008
PDF File ID: 1464096
Report generated 08/12/2009 13:06

Microbac Laboratories Inc.

INITIAL CALIBRATION SUMMARY

Login Number: L09080192
Analytical Method: 8270C
ICAL Workgroup: WG301596

Instrument ID: HPMS4
Initial Calibration Date: 26-MAY-09 18:05
Column ID: F

Analyte		AVG RF	% RSD	LINEAR (R²	QUAD(R²)
1,4-Dichlorobenzene	CCC	1.658	7.44		
2,4,6-Trichlorophenol	CCC	0.3977	4.51		
2,4-Dichlorophenol	CCC	0.2909	5.32		
2-Nitrophenol	CCC	0.2097	5.23		
4-Chloro-3-Methylphenol	CCC	0.3150	4.99		
Acenaphthene	CCC	1.301	13.1		
Benzo[a]pyrene	CCC	1.268	6.63		
Di-n-Octyl Phthalate	CCC	1.513	10.9		
Fluoranthene	CCC	1.311	10.2		
Hexachlorobutadiene	CCC	0.1766	6.93		
Pentachlorophenol	CCC	0.09363	24.4	0.99500	
Phenol	CCC	1.897	5.56		
2,4-Dinitrophenol	SPCC	0.1082	39.3	0.99500	
4-Nitrophenol	SPCC	0.2531	10.7		
Hexachlorocyclopentadiene	SPCC	0.1496	30.8	0.99500	
n-Nitrosodipropylamine	SPCC	0.9646	11.4		
1,2,4-Trichlorobenzene		0.3486	9.43		
1,2-Dichlorobenzene		1.484	8.26		
1,3-Dichlorobenzene		1.643	6.56		
2,4,5-Trichlorophenol		0.3870	4.84		
2,4-Dimethylphenol		0.3767	6.50		
2,4-Dinitrotoluene		0.4314	6.57		
2,6-Dinitrotoluene		0.3471	6.36		
2-Chloronaphthalene		1.419	12.7		
2-Chlorophenol		1.497	4.17		
2-Methylnaphthalene		0.7144	10.3		
2-Methylphenol		1.107	6.59		
2-Nitroaniline		0.4072	4.67		
3,3'-Dichlorobenzidine		0.4000	7.65		
3-Nitroaniline		0.3538	10.1		
4,6-Dinitro-2-Methylphenol		0.1133	15.5	0.99800	
4-Bromophenyl Phenyl Ether		0.2414	8.14		
4-Chloroaniline		0.4443	4.84		
4-Chlorophenyl Phenyl Ether		0.7223	12.2		
4-Nitroaniline		0.3642	3.27		
Acenaphthylene		2.024	15.7	0.99600	
Anthracene		1.327	13.1		
Benzo[a]anthracene		1.288	8.55		
Benzo[b]fluoranthene		1.333	4.09		
Benzo[ghi]perylene		1.109	3.58		
Benzo[k]fluoranthene		1.209	9.85		
Benzoic Acid		0.05453	68.6		0.99100
Benzyl Alcohol		1.004	3.03		
Butyl Benzyl Phthalate		0.6429	10.2		
Chrysene		1.197	9.40		

INT_CAL - Modified 03/06/2008
PDF File ID: 1464094
Report generated 08/12/2009 13:05

Microbac Laboratories Inc.
INITIAL CALIBRATION SUMMARY

Login Number: L09080192
Analytical Method: 8270C
ICAL Workgroup: WG301596
Instrument ID: HPMS4
Initial Calibration Date: 26-MAY-09 18:05
Column ID: F

Analyte		AVG RF	% RSD	LINEAR (R^2	QUAD(R^2)
Di-n-Butyl Phthalate		1.410	12.6		
Dibenz[ah]anthracene		1.100	3.66		
Dibenzofuran		1.705	16.0	0.99600	
Diethylphthalate		1.406	12.0		
Dimethylphthalate		1.396	11.2		
Fluorene		1.466	14.7		
Hexachlorobenzene		0.2425	8.14		
Hexachloroethane		0.5955	4.20		
Indeno[1,2,3-cd]pyrene		1.301	3.83		
Isophorone		0.7895	9.61		
Naphthalene		1.159	14.0		
Nitrobenzene		0.4106	7.83		
Phenanthrene		1.314	13.2		
Pyrene		1.456	11.4		
bis(2-Chloroethoxy)methane		0.5767	15.3	0.99500	
bis(2-Chloroethyl)ether		1.139	5.70		
bis(2-Chloroisopropyl)ether		2.145	8.04		
bis(2-Ethylhexyl)phthalate		0.8907	9.48		

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

If the %RSD is greater than the limit specified by the method or project QAP, then linear or quadratic equations will be used.

INT_CAL - Modified 03/06/2008
PDF File ID: 1464094
Report generated 08/12/2009 13:05

Microbac Laboratories Inc.

INITIAL CALIBRATION DATA

Login Number: L09080192
Analytical Method: 8270C
Instrument ID: HPMS4
Initial Calibration Date: 26-MAY-09 18:05
Column ID: F

Analyte	WG301596-02			WG301596-03			WG301596-04		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
1,4-Dichlorobenzene	50.0	632614.000	1.556	3.00	35548.0000	1.923	10.0	115714.000	1.659
2,4,6-Trichlorophenol	50.0	317357.000	0.3874	3.00	15358.0000	0.4349	10.0	54107.0000	0.3959
2,4-Dichlorophenol	50.0	431298.000	0.2803	3.00	22018.0000	0.3209	10.0	76179.0000	0.2911
2-Nitrophenol	50.0	312344.000	0.2030	3.00	14628.0000	0.2132	10.0	55698.0000	0.2128
4-Chloro-3-Methylphenol	50.0	478290.000	0.3108	3.00	23629.0000	0.3444	10.0	82944.0000	0.3169
Acenaphthene	50.0	996420.000	1.216	3.00	56774.0000	1.608	10.0	189612.000	1.387
Benzo[a]pyrene	50.0	1630404.00	1.230	3.00	80589.0000	1.450	10.0	277757.000	1.255
Di-n-Octyl Phthalate	50.0	1899758.00	1.433	3.00	100707.000	1.812	10.0	350205.000	1.582
Fluoranthene	50.0	1744586.00	1.218	3.00	96435.0000	1.552	10.0	328905.000	1.357
Hexachlorobutadiene	50.0	261362.000	0.1699	3.00	13745.0000	0.2003	10.0	47369.0000	0.1810
Pentachlorophenol	50.0	145192.000	0.1014	NA	NA	NA	NA	NA	NA
Phenol	50.0	735377.000	1.809	3.00	39105.0000	2.115	10.0	134721.000	1.931
2,4-Dinitrophenol	50.0	93541.0000	0.1142	NA	NA	NA	NA	NA	NA
4-Nitrophenol	50.0	210873.000	0.2574	NA	NA	NA	10.0	30924.0000	0.2263
Hexachlorocyclopentadiene	50.0	156761.000	0.1913	3.00	1977.00000	0.05600	10.0	15753.0000	0.1153
n-Nitrosodipropylamine	50.0	368528.000	0.9064	3.00	21147.0000	1.144	10.0	72700.0000	1.042
1,2,4-Trichlorobenzene	50.0	514553.000	0.3344	3.00	28276.0000	0.4122	10.0	94553.0000	0.3613
1,2-Dichlorobenzene	50.0	559610.000	1.376	3.00	31881.0000	1.725	10.0	107141.000	1.536
1,3-Dichlorobenzene	50.0	626977.000	1.542	3.00	34696.0000	1.877	10.0	116021.000	1.663
2,4,5-Trichlorophenol	50.0	305220.000	0.3726	3.00	14600.0000	0.4134	10.0	53513.0000	0.3915
2,4-Dimethylphenol	50.0	561966.000	0.3652	3.00	28776.0000	0.4194	10.0	100468.000	0.3839
2,4-Dinitrotoluene	50.0	344473.000	0.4205	3.00	16862.0000	0.4774	10.0	61050.0000	0.4467
2,6-Dinitrotoluene	50.0	273334.000	0.3336	3.00	13838.0000	0.3918	10.0	48444.0000	0.3545
2-Chloronaphthalene	50.0	1095479.00	1.337	3.00	62361.0000	1.766	10.0	205049.000	1.500
2-Chlorophenol	50.0	583660.000	1.436	3.00	29741.0000	1.609	10.0	103685.000	1.486
2-Methylnaphthalene	50.0	1045252.00	0.6793	3.00	57360.0000	0.8361	10.0	198609.000	0.7589
2-Methylphenol	50.0	425558.000	1.047	3.00	23061.0000	1.248	10.0	79222.0000	1.136
2-Nitroaniline	50.0	324297.000	0.3958	3.00	15787.0000	0.4470	10.0	54613.0000	0.3996
3,3'-Dichlorobenzidine	50.0	528925.000	0.3905	3.00	27450.0000	0.4717	10.0	89232.0000	0.3875
3-Nitroaniline	50.0	301445.000	0.3680	3.00	13873.0000	0.3928	10.0	44205.0000	0.3234
4,6-Dinitro-2-Methylphenol	50.0	163183.000	0.1140	NA	NA	NA	NA	NA	NA
4-Bromophenyl Phenyl Ether	50.0	324160.000	0.2264	3.00	17216.0000	0.2770	10.0	59220.0000	0.2444
4-Chloroaniline	50.0	697953.000	0.4536	3.00	33811.0000	0.4928	10.0	114384.000	0.4370
4-Chlorophenyl Phenyl Ether	50.0	549741.000	0.6710	3.00	30927.0000	0.8757	10.0	104712.000	0.7662
4-Nitroaniline	50.0	293782.000	0.3586	NA	NA	NA	10.0	50564.0000	0.3700
Acenaphthylene	50.0	1537324.00	1.877	3.00	90207.0000	2.554	10.0	303220.000	2.219
Anthracene	50.0	1763050.00	1.231	3.00	101208.000	1.629	10.0	343838.000	1.419
Benzo[a]anthracene	50.0	1664442.00	1.229	3.00	88186.0000	1.515	10.0	300857.000	1.307
Benzo[b]fluoranthene	50.0	1681192.00	1.268	3.00	77798.0000	1.400	10.0	294241.000	1.329
Benzo[ghi]perylene	50.0	1447020.00	1.091	3.00	66302.0000	1.193	10.0	241654.000	1.092
Benzo[k]fluoranthene	50.0	1486685.00	1.121	3.00	77798.0000	1.400	10.0	267715.000	1.209
Benzoic Acid	50.0	92682.0000	0.06020	NA	NA	NA	10.0	3630.00000	0.01390

INT_CAL - Modified 03/06/2008
PDF File ID: 1464094
Report generated 08/12/2009 13:05

INITIAL CALIBRATION DATA

Login Number: L09080192
Analytical Method: 8270C
Instrument ID: HPMS4
Initial Calibration Date: 26-MAY-09 18:05
Column ID: F

Analyte	WG301596-02			WG301596-03			WG301596-04		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
Benzyl Alcohol	50.0	400734.000	0.9857	3.00	18757.0000	1.015	10.0	67945.0000	0.9740
Butyl Benzyl Phthalate	50.0	831238.000	0.6137	3.00	43793.0000	0.7525	10.0	155272.000	0.6743
Chrysene	50.0	1544722.00	1.141	3.00	83463.0000	1.434	10.0	276993.000	1.203
Di-n-Butyl Phthalate	50.0	1892486.00	1.322	3.00	105966.000	1.705	10.0	364980.000	1.506
Dibenz[ah]anthracene	50.0	1433825.00	1.081	3.00	65390.0000	1.177	10.0	235992.000	1.066
Dibenzofuran	50.0	1289853.00	1.574	3.00	76662.0000	2.171	10.0	255969.000	1.873
Diethylphthalate	50.0	1086320.00	1.326	3.00	60278.0000	1.707	10.0	206640.000	1.512
Dimethylphthalate	50.0	1075206.00	1.312	3.00	59711.0000	1.691	10.0	201560.000	1.475
Fluorene	50.0	1104761.00	1.349	3.00	65523.0000	1.855	10.0	215943.000	1.580
Hexachlorobenzene	50.0	326614.000	0.2281	3.00	17692.0000	0.2847	10.0	59421.0000	0.2452
Hexachloroethane	50.0	233834.000	0.5751	3.00	11930.0000	0.6454	10.0	40961.0000	0.5872
Indeno[1,2,3-cd]pyrene	50.0	1688044.00	1.273	3.00	77825.0000	1.400	10.0	283981.000	1.283
Isophorone	50.0	1164295.00	0.7567	3.00	63250.0000	0.9219	10.0	214901.000	0.8211
Naphthalene	50.0	1673752.00	1.088	3.00	98939.0000	1.442	10.0	328255.000	1.254
Nitrobenzene	50.0	607149.000	0.3946	3.00	32636.0000	0.4757	10.0	108922.000	0.4162
Phenanthrene	50.0	1753306.00	1.224	3.00	101242.000	1.629	10.0	336041.000	1.387
Pyrene	50.0	1855478.00	1.370	3.00	101716.000	1.748	10.0	352726.000	1.532
bis(2-Chloroethoxy)methane	50.0	828680.000	0.5386	3.00	49425.0000	0.7204	10.0	165103.000	0.6308
bis(2-Chloroethyl)ether	50.0	443906.000	1.092	3.00	23296.0000	1.260	10.0	82099.0000	1.177
bis(2-Chloroisopropyl)ether	50.0	808870.000	1.990	3.00	46034.0000	2.490	10.0	153938.000	2.207
bis(2-Ethylhexyl)phthalate	50.0	1151114.00	0.8499	3.00	60586.0000	1.041	10.0	212394.000	0.9223

Microbac Laboratories Inc.
INITIAL CALIBRATION DATA

Login Number: L09080192
Analytical Method: 8270C
Instrument ID: HPMS4
Initial Calibration Date: 26-MAY-09 18:05
Column ID: F

Analyte	WG301596-05			WG301596-06			WG301596-07		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
1,4-Dichlorobenzene	15.0	144534.000	1.741	25.0	237644.000	1.609	80.0	711919.000	1.545
2,4,6-Trichlorophenol	15.0	66588.0000	0.4069	25.0	115596.000	0.4003	80.0	353039.000	0.3743
2,4-Dichlorophenol	15.0	94389.0000	0.3053	25.0	156211.000	0.2833	80.0	486532.000	0.2717
2-Nitrophenol	15.0	72272.0000	0.2337	25.0	114269.000	0.2073	80.0	354537.000	0.1980
4-Chloro-3-Methylphenol	15.0	101897.000	0.3295	25.0	173445.000	0.3146	80.0	530596.000	0.2963
Acenaphthene	15.0	234307.000	1.432	25.0	386056.000	1.337	80.0	1106929.00	1.174
Benzo[a]pyrene	15.0	346706.000	1.330	25.0	586561.000	1.255	80.0	1822627.00	1.193
Di-n-Octyl Phthalate	15.0	426424.000	1.635	25.0	727176.000	1.556	80.0	2146857.00	1.405
Fluoranthene	15.0	409664.000	1.437	25.0	682714.000	1.341	80.0	1979179.00	1.203
Hexachlorobutadiene	15.0	57812.0000	0.1870	25.0	96024.0000	0.1742	80.0	294696.000	0.1645
Pentachlorophenol	15.0	16339.0000	0.05730	25.0	38217.0000	0.07510	80.0	163393.000	0.09930
Phenol	15.0	162695.000	1.960	25.0	273128.000	1.849	80.0	823141.000	1.786
2,4-Dinitrophenol	15.0	6949.00000	0.04250	25.0	20746.0000	0.07180	80.0	118971.000	0.1261
4-Nitrophenol	15.0	39960.0000	0.2442	25.0	62562.0000	0.2166	80.0	239932.000	0.2544
Hexachlorocyclopentadiene	15.0	21853.0000	0.1335	25.0	47263.0000	0.1637	80.0	178067.000	0.1888
n-Nitrosodipropylamine	15.0	87721.0000	1.057	25.0	146206.000	0.9897	80.0	408000.000	0.8853
1,2,4-Trichlorobenzene	15.0	114998.000	0.3719	25.0	193410.000	0.3508	80.0	576988.000	0.3222
1,2-Dichlorobenzene	15.0	130694.000	1.574	25.0	217135.000	1.470	80.0	626862.000	1.360
1,3-Dichlorobenzene	15.0	141006.000	1.698	25.0	239379.000	1.621	80.0	715243.000	1.552
2,4,5-Trichlorophenol	15.0	67767.0000	0.4141	25.0	112311.000	0.3889	80.0	348465.000	0.3694
2,4-Dimethylphenol	15.0	122455.000	0.3960	25.0	214184.000	0.3885	80.0	627068.000	0.3501
2,4-Dinitrotoluene	15.0	74506.0000	0.4553	25.0	127252.000	0.4406	80.0	384871.000	0.4080
2,6-Dinitrotoluene	15.0	59385.0000	0.3629	25.0	99124.0000	0.3432	80.0	307769.000	0.3263
2-Chloronaphthalene	15.0	250888.000	1.533	25.0	417558.000	1.446	80.0	1204350.00	1.277
2-Chlorophenol	15.0	128883.000	1.552	25.0	215414.000	1.458	80.0	653951.000	1.419
2-Methylnaphthalene	15.0	241745.000	0.7818	25.0	400252.000	0.7260	80.0	1170990.00	0.6538
2-Methylphenol	15.0	96870.0000	1.167	25.0	159105.000	1.077	80.0	470862.000	1.022
2-Nitroaniline	15.0	69269.0000	0.4233	25.0	116349.000	0.4029	80.0	365631.000	0.3876
3,3'-Dichlorobenzidine	15.0	105754.000	0.3888	25.0	181375.000	0.3758	80.0	594993.000	0.3791
3-Nitroaniline	15.0	50536.0000	0.3088	25.0	88348.0000	0.3059	80.0	340858.000	0.3614
4,6-Dinitro-2-Methylphenol	15.0	24429.0000	0.08570	25.0	51039.0000	0.1002	80.0	197808.000	0.1202
4-Bromophenyl Phenyl Ether	15.0	74503.0000	0.2614	25.0	124659.000	0.2449	80.0	361970.000	0.2199
4-Chloroaniline	15.0	138230.000	0.4470	25.0	237603.000	0.4310	80.0	765028.000	0.4272
4-Chlorophenyl Phenyl Ether	15.0	130652.000	0.7984	25.0	213998.000	0.7410	80.0	619698.000	0.6570
4-Nitroaniline	15.0	62367.0000	0.3811	25.0	107512.000	0.3723	80.0	324667.000	0.3442
Acenaphthylene	15.0	372577.000	2.277	25.0	610595.000	2.114	80.0	1686168.00	1.788
Anthracene	15.0	418664.000	1.469	25.0	698594.000	1.372	80.0	1981646.00	1.204
Benzo[a]anthracene	15.0	370215.000	1.361	25.0	624746.000	1.295	80.0	1865789.00	1.189
Benzo[b]fluoranthene	15.0	371439.000	1.425	25.0	616382.000	1.319	80.0	2022286.00	1.324
Benzo[ghi]perylene	15.0	295446.000	1.133	25.0	510088.000	1.091	80.0	1619968.00	1.060
Benzo[k]fluoranthene	15.0	345583.000	1.325	25.0	553704.000	1.185	80.0	1680956.00	1.100
Benzoic Acid	15.0	5039.00000	0.01630	25.0	13573.0000	0.02460	80.0	117811.000	0.06580

INT_CAL - Modified 03/06/2008
PDF File ID: 1464094
Report generated 08/12/2009 13:05

Login Number: L09080192
Analytical Method: 8270C
Instrument ID: HPMS4
Initial Calibration Date: 26-MAY-09 18:05
Column ID: F

Analyte	WG301596-08			WG301596-09		
	CONC	RESP	RF	CONC	RESP	RF
1,4-Dichlorobenzene	100	1080973.00	1.619	120	1222100.00	1.611
2,4,6-Trichlorophenol	100	548565.000	0.3952	120	621778.000	0.3869
2,4-Dichlorophenol	100	756300.000	0.2876	120	865776.000	0.2867
2-Nitrophenol	100	543051.000	0.2065	120	613704.000	0.2032
4-Chloro-3-Methylphenol	100	808149.000	0.3073	120	906618.000	0.3002
Acenaphthene	100	1595648.00	1.149	120	1776666.00	1.106
Benzo[a]pyrene	100	2799052.00	1.224	120	3214081.00	1.212
Di-n-Octyl Phthalate	100	3117731.00	1.363	120	3500570.00	1.320
Fluoranthene	100	2875266.00	1.200	120	3214386.00	1.183
Hexachlorobutadiene	100	448751.000	0.1706	120	499524.000	0.1654
Pentachlorophenol	100	270852.000	0.1130	120	314422.000	0.1157
Phenol	100	1248012.00	1.869	120	1406398.00	1.853
2,4-Dinitrophenol	100	204820.000	0.1475	120	235949.000	0.1468
4-Nitrophenol	100	394064.000	0.2839	120	464310.000	0.2889
Hexachlorocyclopentadiene	100	244738.000	0.1763	120	276085.000	0.1718
n-Nitrosodipropylamine	100	572322.000	0.8573	120	634050.000	0.8356
1,2,4-Trichlorobenzene	100	846718.000	0.3219	120	947865.000	0.3139
1,2-Dichlorobenzene	100	947340.000	1.419	120	1071394.00	1.412
1,3-Dichlorobenzene	100	1070566.00	1.604	120	1207348.00	1.591
2,4,5-Trichlorophenol	100	528020.000	0.3804	120	588172.000	0.3660
2,4-Dimethylphenol	100	944747.000	0.3592	120	1059617.00	0.3509
2,4-Dinitrotoluene	100	568274.000	0.4093	120	631997.000	0.3933
2,6-Dinitrotoluene	100	467404.000	0.3367	120	526878.000	0.3279
2-Chloronaphthalene	100	1758946.00	1.267	120	1972845.00	1.228
2-Chlorophenol	100	1002747.00	1.502	120	1147344.00	1.512
2-Methylnaphthalene	100	1702031.00	0.6472	120	1908361.00	0.6319
2-Methylphenol	100	717610.000	1.075	120	825753.000	1.088
2-Nitroaniline	100	559076.000	0.4027	120	640602.000	0.3986
3,3'-Dichlorobenzidine	100	939925.000	0.4050	120	1076366.00	0.4018
3-Nitroaniline	100	537937.000	0.3875	120	615165.000	0.3828
4,6-Dinitro-2-Methylphenol	100	313637.000	0.1309	120	350573.000	0.1290
4-Bromophenyl Phenyl Ether	100	544939.000	0.2274	120	624504.000	0.2297
4-Chloroaniline	100	1142326.00	0.4343	120	1302928.00	0.4314
4-Chlorophenyl Phenyl Ether	100	897975.000	0.6468	120	1000062.00	0.6223
4-Nitroaniline	100	506955.000	0.3652	120	575714.000	0.3583
Acenaphthylene	100	2390972.00	1.722	120	2633395.00	1.639
Anthracene	100	2780400.00	1.160	120	3083025.00	1.134
Benzo[a]anthracene	100	2824273.00	1.217	120	3194654.00	1.192
Benzo[b]fluoranthene	100	3022785.00	1.322	120	3383903.00	1.276
Benzo[ghi]perylene	100	2540286.00	1.111	120	2918841.00	1.101
Benzo[k]fluoranthene	100	2406050.00	1.052	120	3384114.00	1.276
Benzoic Acid	100	256609.000	0.09760	120	312091.000	0.1033

INT_CAL - Modified 03/06/2008
PDF File ID: 1464094
Report generated 08/12/2009 13:05

INITIAL CALIBRATION DATA

Login Number: L09080192
Analytical Method: 8270C
Instrument ID: HPMS4
Initial Calibration Date: 26-MAY-09 18:05
Column ID: F

Analyte	WG301596-05			WG301596-06			WG301596-07		
	CONC	RESP	RF	CONC	RESP	RF	CONC	RESP	RF
Benzyl Alcohol	15.0	84544.0000	1.018	25.0	143076.000	0.9685	80.0	453610.000	0.9843
Butyl Benzyl Phthalate	15.0	191123.000	0.7027	25.0	319517.000	0.6621	80.0	928369.000	0.5915
Chrysene	15.0	345878.000	1.272	25.0	577202.000	1.196	80.0	1742997.00	1.111
Di-n-Butyl Phthalate	15.0	446312.000	1.566	25.0	747010.000	1.467	80.0	2093109.00	1.272
Dibenz[ah]anthracene	15.0	295505.000	1.133	25.0	509105.000	1.089	80.0	1601066.00	1.048
Dibenzofuran	15.0	311555.000	1.904	25.0	513551.000	1.778	80.0	1429816.00	1.516
Diethylphthalate	15.0	249909.000	1.527	25.0	412959.000	1.430	80.0	1209780.00	1.283
Dimethylphthalate	15.0	245373.000	1.500	25.0	410852.000	1.423	80.0	1194445.00	1.266
Fluorene	15.0	266429.000	1.628	25.0	436765.000	1.512	80.0	1222616.00	1.296
Hexachlorobenzene	15.0	72616.0000	0.2547	25.0	121940.000	0.2395	80.0	368348.000	0.2238
Hexachloroethane	15.0	50625.0000	0.6097	25.0	85134.0000	0.5763	80.0	261745.000	0.5680
Indeno[1,2,3-cd]pyrene	15.0	350452.000	1.344	25.0	601207.000	1.286	80.0	1889098.00	1.236
Isophorone	15.0	266604.000	0.8622	25.0	440532.000	0.7990	80.0	1291564.00	0.7212
Naphthalene	15.0	394945.000	1.277	25.0	659049.000	1.195	80.0	1863610.00	1.041
Nitrobenzene	15.0	134519.000	0.4350	25.0	226437.000	0.4107	80.0	682116.000	0.3809
Phenanthrene	15.0	414744.000	1.455	25.0	684799.000	1.345	80.0	1943923.00	1.181
Pyrene	15.0	433945.000	1.596	25.0	721641.000	1.495	80.0	2071272.00	1.320
bis(2-Chloroethoxy)methane	15.0	201460.000	0.6515	25.0	329414.000	0.5975	80.0	924290.000	0.5161
bis(2-Chloroethyl)ether	15.0	98800.0000	1.190	25.0	167652.000	1.135	80.0	493935.000	1.072
bis(2-Chloroisopropyl)ether	15.0	188495.000	2.270	25.0	314933.000	2.132	80.0	923402.000	2.004
bis(2-Ethylhexyl)phthalate	15.0	262965.000	0.9669	25.0	437670.000	0.9069	80.0	1290967.00	0.8225

INT_CAL - Modified 03/06/2008
PDF File ID: 1464094
Report generated 08/12/2009 13:05

Microbac Laboratories Inc.
INITIAL CALIBRATION DATA

Login Number: L09080192
Analytical Method: 8270C
Instrument ID: HPMS4
Initial Calibration Date: 26-MAY-09 18:05
Column ID: F

Analyte	WG301596-08			WG301596-09		
	CONC	RESP	RF	CONC	RESP	RF
Benzyl Alcohol	100	697693.000	1.045	120	792431.000	1.044
Butyl Benzyl Phthalate	100	1353477.00	0.5832	120	1509786.00	0.5635
Chrysene	100	2613581.00	1.126	120	2926413.00	1.092
Di-n-Butyl Phthalate	100	2968117.00	1.239	120	3274729.00	1.205
Dibenz[ah]anthracene	100	2525722.00	1.104	120	2916227.00	1.100
Dibenzofuran	100	2012770.00	1.450	120	2206282.00	1.373
Diethylphthalate	100	1742710.00	1.255	120	1942614.00	1.209
Dimethylphthalate	100	1759330.00	1.267	120	1987513.00	1.237
Fluorene	100	1779390.00	1.282	120	1973838.00	1.228
Hexachlorobenzene	100	554904.000	0.2316	120	631356.000	0.2323
Hexachloroethane	100	402762.000	0.6033	120	454576.000	0.5990
Indeno[1,2,3-cd]pyrene	100	2971637.00	1.299	120	3420588.00	1.290
Isophorone	100	1906397.00	0.7249	120	2141103.00	0.7090
Naphthalene	100	2619032.00	0.9958	120	2944002.00	0.9748
Nitrobenzene	100	1022694.00	0.3889	120	1156670.00	0.3830
Phenanthrene	100	2770515.00	1.156	120	3074214.00	1.131
Pyrene	100	3042850.00	1.311	120	3413455.00	1.274
bis(2-Chloroethoxy)methane	100	1298134.00	0.4936	120	1403261.00	0.4647
bis(2-Chloroethyl)ether	100	735828.000	1.102	120	824820.000	1.087
bis(2-Chloroisopropyl)ether	100	1367288.00	2.048	120	1532312.00	2.019
bis(2-Ethylhexyl)phthalate	100	1903060.00	0.8200	120	2133024.00	0.7962

INT_CAL - Modified 03/06/2008
PDF File ID: 1464094
Report generated 08/12/2009 13:05

Microbac Laboratories Inc.
ALTERNATE SOURCE CALIBRATION REPORT

Login Number: L09080192
Run Date: 05/26/2009
Sample ID: WG301596-10
Instrument ID: HPMS4
Run Time: 18:41
Method: 8270C
File ID: 4M46939
Analyst: MDC
QC Key: STD
ICal Workgroup: WG301596
Cal ID: HPMS4 - 26-MAY-09

Analyte		Expected	Found	Units	RF	%D	UCL	Q
1,4-Dichlorobenzene	CCC	50000	47900	ug/L	1.59	4.20	30	
2,4,6-Trichlorophenol	CCC	50000	50200	ug/L	0.399	0.400	30	
2,4-Dichlorophenol	CCC	50000	50900	ug/L	0.296	1.70	30	
2-Nitrophenol	CCC	50000	53400	ug/L	0.224	6.70	30	
4-Chloro-3-Methylphenol	CCC	50000	51500	ug/L	0.325	3.00	30	
Acenaphthene	CCC	50000	46400	ug/L	1.21	7.20	30	
Benzo[a]pyrene	CCC	50000	50000	ug/L	1.27	0.100	30	
Di-n-Octyl Phthalate	CCC	50000	46500	ug/L	1.41	7.10	30	
Fluoranthene	CCC	50000	50200	ug/L	1.32	0.300	30	
Hexachlorobutadiene	CCC	50000	53800	ug/L	0.190	7.70	30	
n-Nitrosodiphenylamine	CCC	50000	45900	ug/L	0.663	8.30	30	
Pentachlorophenol	CCC	50000	67300	ug/L	0.142	34.6	30	*
Phenol	CCC	50000	50900	ug/L	1.93	1.70	30	
2,4-Dinitrophenol	SPCC	50000	59400	ug/L	0.150	18.9	30	
4-Nitrophenol	SPCC	50000	50800	ug/L	0.257	1.50	30	
Hexachlorocyclopentadiene	SPCC	50000	64000	ug/L	0.225	28.0	30	
n-Nitrosodipropylamine	SPCC	50000	53500	ug/L	1.03	7.10	30	
1,2,4-Trichlorobenzene		50000	49700	ug/L	0.347	0.600	30	
1,2-Dichlorobenzene		50000	48600	ug/L	1.44	2.80	30	
1,3-Dichlorobenzene		50000	49400	ug/L	1.62	1.30	30	
2,4,5-Trichlorophenol		50000	55500	ug/L	0.430	11.0	30	
2,4-Dimethylphenol		50000	49300	ug/L	0.372	1.30	30	
2,4-Dinitrotoluene		50000	50300	ug/L	0.434	0.500	30	
2,6-Dinitrotoluene		50000	50400	ug/L	0.350	0.800	30	
2-Chloronaphthalene		50000	41600	ug/L	1.18	16.7	30	
2-Chlorophenol		50000	49800	ug/L	1.49	0.400	30	
2-Methylnaphthalene		50000	52000	ug/L	0.743	4.00	30	
2-Methylphenol		50000	48100	ug/L	1.07	3.80	30	
2-Nitroaniline		50000	54700	ug/L	0.445	9.30	30	
3-,4-Methylphenol		50000	49700	ug/L	1.47	0.600	30	
3-Nitroaniline		50000	48000	ug/L	0.339	4.10	30	
4,6-Dinitro-2-Methylphenol		50000	56100	ug/L	0.135	12.3	30	
4-Bromophenyl Phenyl Ether		50000	42400	ug/L	0.205	15.2	30	
4-Chloroaniline		50000	52500	ug/L	0.467	5.00	30	
4-Chlorophenyl Phenyl Ether		50000	45100	ug/L	0.651	9.80	30	
4-Nitroaniline		50000	40700	ug/L	0.297	18.6	30	
Acenaphthylene		50000	52100	ug/L	1.86	4.10	30	
Anthracene		50000	48000	ug/L	1.27	3.90	30	
Benzo[a]anthracene		50000	49500	ug/L	1.27	1.10	30	
Benzo[b]fluoranthene		50000	48600	ug/L	1.29	2.90	30	
Benzo[ghi]perylene		50000	51800	ug/L	1.15	3.60	30	
Benzo[k]fluoranthene		50000	47900	ug/L	1.16	4.20	30	

ALT - Modified 09/06/2007
Version 1.5 PDF File ID: 1464095
Report generated 08/12/2009 13:06

Microbac Laboratories Inc.
ALTERNATE SOURCE CALIBRATION REPORT

Login Number: L09080192
Run Date: 05/26/2009
Sample ID: WG301596-10
Instrument ID: HPMS4
Run Time: 18:41
Method: 8270C
File ID: 4M46939
Analyst: MDC
QC Key: STD
ICal Workgroup: WG301596
Cal ID: HPMS4 - 26-MAY-09

Analyte		Expected	Found	Units	RF	%D	UCL	Q
Benzyl Alcohol		50000	53200	ug/L	1.07	6.30	30	
bis(2-Chloroethoxy)methane		50000	43800	ug/L	0.455	12.5	30	
bis(2-Chloroethyl)ether		50000	49400	ug/L	1.13	1.10	30	
bis(2-Chloroisopropyl)ether		50000	47400	ug/L	2.04	5.10	30	
bis(2-Ethylhexyl)phthalate		50000	47000	ug/L	0.838	5.90	30	
Butyl Benzyl Phthalate		50000	50500	ug/L	0.649	1.00	30	
Chrysene		50000	49900	ug/L	1.20	0.100	30	
Di-n-Butyl Phthalate		50000	43500	ug/L	1.23	12.9	30	
Dibenz[ah]anthracene		50000	51000	ug/L	1.12	2.00	30	
Dibenzofuran		50000	52500	ug/L	1.58	5.00	30	
Diethylphthalate		50000	44100	ug/L	1.24	11.8	30	
Dimethylphthalate		50000	45400	ug/L	1.27	9.10	30	
Fluorene		50000	48400	ug/L	1.42	3.20	30	
Hexachlorobenzene		50000	51300	ug/L	0.249	2.60	30	
Hexachloroethane		50000	49400	ug/L	0.589	1.10	30	
Indeno[1,2,3-cd]pyrene		50000	49800	ug/L	1.30	0.500	30	
Isophorone		50000	48000	ug/L	0.758	4.00	30	
Naphthalene		50000	47600	ug/L	1.10	4.90	30	
Nitrobenzene		50000	50900	ug/L	0.418	1.70	30	
Phenanthrene		50000	47200	ug/L	1.24	5.60	30	
Pyrene		50000	47900	ug/L	1.40	4.10	30	

* Exceeds %D Limit

CCC Calibration Check Compounds
SPCC System Performance Check Compounds

ALT - Modified 09/06/2007
Version 1.5 PDF File ID: 1464095
Report generated 08/12/2009 13:06

Microbac Laboratories Inc.
ALTERNATE SOURCE CALIBRATION REPORT

Login Number: L09080192 Run Date: 05/26/2009 Sample ID: WG301596-11
Instrument ID: HPMS4 Run Time: 19:16 Method: 8270C
File ID: 4M46940 Analyst: MDC QC Key: STD
ICal Workgroup: WG301596 Cal ID: HPMS4 - 26-MAY-09

Analyte		Expected	Found	Units	RF	%D	UCL	Q
3,3'-Dichlorobenzidine		50000	53600	ug/L	0.429	7.20	30	
Benzoic Acid		50000	90900	ug/L	0.152	81.9	30	*

* Exceeds %D Limit

CCC Calibration Check Compounds
SPCC System Performance Check Compounds

ALT - Modified 09/06/2007
Version 1.5 PDF File ID: 1464095
Report generated 08/12/2009 13:06

Microbac Laboratories Inc.

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L09080192
Instrument ID: HPMS4
File ID: 4M47703
Workgroup (AAB#): WG309468
Matrix: SOIL

Run Date: 08/11/2009
Run Time: 13:26
Analyst: CAA
Cal ID: HPMS4 - 26-MAY-09

Sample ID: WG309450-02
Method: 8270C
QC Key: STD

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
1,4-Dichlorobenzene	CCC	50000	48900	ug/L	1.62	2.28	20	
2,4,6-Trichlorophenol	CCC	50000	49800	ug/L	0.397	0.302	20	
2,4-Dichlorophenol	CCC	50000	49800	ug/L	0.290	0.345	20	
2-Nitrophenol	CCC	50000	49300	ug/L	0.207	1.44	40	
4-Chloro-3-Methylphenol	CCC	50000	54400	ug/L	0.343	8.74	20	
Acenaphthene	CCC	50000	51600	ug/L	1.34	3.21	20	
Benzo[a]pyrene	CCC	50000	48700	ug/L	1.24	2.60	20	
Di-n-Octyl Phthalate	CCC	50000	55600	ug/L	1.68	11.1	20	
Fluoranthene	CCC	50000	47600	ug/L	1.25	4.72	20	
Hexachlorobutadiene	CCC	50000	57400	ug/L	0.203	14.8	20	
n-Nitrosodiphenylamine	CCC	50000	48600	ug/L	0.702	2.88	20	
Pentachlorophenol	CCC	50000	50400	ug/L	0.100	0.736	20	
Phenol	CCC	50000	47500	ug/L	1.80	5.05	20	
2,4-Dinitrophenol	SPCC	50000	60800	ug/L	0.155	21.6	20	*
4-Nitrophenol	SPCC	50000	61100	ug/L	0.309	22.3	40	
Hexachlorocyclopentadiene	SPCC	50000	38700	ug/L	0.134	22.6	40	
n-Nitrosodipropylamine	SPCC	50000	56300	ug/L	1.09	12.6	40	
1,2,4-Trichlorobenzene		50000	49400	ug/L	0.345	1.11	40	
1,2-Dichlorobenzene		50000	48400	ug/L	1.44	3.19	40	
1,3-Dichlorobenzene		50000	48100	ug/L	1.58	3.76	40	
2,4,5-Trichlorophenol		50000	51500	ug/L	0.398	2.93	40	
2,4-Dimethylphenol		50000	47000	ug/L	0.354	6.01	40	
2,4-Dinitrotoluene		50000	52900	ug/L	0.457	5.90	40	
2,6-Dinitrotoluene		50000	49500	ug/L	0.344	0.953	40	
2-Chloronaphthalene		50000	48300	ug/L	1.37	3.46	40	
2-Chlorophenol		50000	48700	ug/L	1.46	2.69	40	
2-Methylnaphthalene		50000	49000	ug/L	0.699	2.10	40	
2-Methylphenol		50000	49300	ug/L	1.09	1.43	40	
2-Nitroaniline		50000	55400	ug/L	0.451	10.8	40	
3,3'-Dichlorobenzidine		50000	45000	ug/L	0.360	10.1	40	
3-,4-Methylphenol		50000	46700	ug/L	1.39	6.62	40	
3-Nitroaniline		50000	52000	ug/L	0.368	4.05	40	
4,6-Dinitro-2-Methylphenol		50000	55700	ug/L	0.134	11.4	40	
4-Bromophenyl Phenyl Ether		50000	50200	ug/L	0.242	0.352	40	
4-Chloroaniline		50000	48900	ug/L	0.434	2.30	40	
4-Chlorophenyl Phenyl Ether		50000	51800	ug/L	0.749	3.62	40	
4-Nitroaniline		50000	54000	ug/L	0.394	8.10	40	
Acenaphthylene		50000	55900	ug/L	1.99	11.9	40	
Anthracene		50000	48000	ug/L	1.28	3.93	40	
Benzo[a]anthracene		50000	42500	ug/L	1.10	15.0	40	
Benzo[b]fluoranthene		50000	52200	ug/L	1.39	4.39	40	
Benzo[ghi]perylene		50000	48100	ug/L	1.07	3.86	40	

CCV - Modified 03/05/2008
PDF File ID: 1464097
Report generated 08/12/2009 13:06

Microbac Laboratories Inc.
CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L09080192
Run Date: 08/11/2009
Sample ID: WG309450-02
Instrument ID: HPMS4
Run Time: 13:26
Method: 8270C
File ID: 4M47703
Analyst: CAA
QC Key: STD
Workgroup (AAB#): WG309468
Cal ID: HPMS4 - 26-MAY-09
Matrix: SOIL

Analyte		Expected	Found	UNITS	RF	%D	UCL	Q
Benzo[k]fluoranthene		50000	47900	ug/L	1.16	4.16	40	
Benzoic Acid		50000	63800	ug/L	0.0806	27.6	40	
Benzyl Alcohol		50000	47700	ug/L	0.959	4.51	40	
bis(2-Chloroethoxy)methane		50000	59300	ug/L	0.599	18.6	40	
bis(2-Chloroethyl)ether		50000	48100	ug/L	1.10	3.83	40	
bis(2-Chloroisopropyl)ether		50000	43800	ug/L	1.88	12.4	40	
bis(2-Ethylhexyl)phthalate		50000	46800	ug/L	0.833	6.43	40	
Butyl Benzyl Phthalate		50000	48600	ug/L	0.625	2.83	40	
Chrysene		50000	43300	ug/L	1.04	13.5	40	
Di-n-Butyl Phthalate		50000	50400	ug/L	1.42	0.839	40	
Dibenz[ah]anthracene		50000	49300	ug/L	1.08	1.42	40	
Dibenzofuran		50000	57600	ug/L	1.72	15.1	40	
Diethylphthalate		50000	54600	ug/L	1.54	9.29	40	
Dimethylphthalate		50000	50000	ug/L	1.40	0.0902	40	
Fluorene		50000	51100	ug/L	1.50	2.19	40	
Hexachlorobenzene		50000	50800	ug/L	0.246	1.53	40	
Hexachloroethane		50000	54400	ug/L	0.648	8.76	40	
Indeno[1,2,3-cd]pyrene		50000	48900	ug/L	1.27	2.25	40	
Isophorone		50000	50300	ug/L	0.794	0.612	40	
Naphthalene		50000	47700	ug/L	1.10	4.69	40	
Nitrobenzene		50000	53400	ug/L	0.438	6.77	40	
Phenanthrene		50000	48700	ug/L	1.28	2.57	40	
Pyrene		50000	43300	ug/L	1.26	13.3	20	

* Exceeds %D Criteria

CCC Calibration Check Compounds
SPCC System Performance Check Compounds

CCV - Modified 03/05/2008
PDF File ID: 1464097
Report generated 08/12/2009 13:06

Microbac Laboratories Inc.

INTERNAL STANDARD AREA SUMMARY
(COMPARED TO CCV)

Login Number: L09080192
Instrument ID: HPMS4
Workgroup (AAB#): WG309468

CCV Number: WG309450-02
CAL ID: HPMS4 - 26-MAY-09
Matrix: SOLID

Sample Number	Dilution	Tag	IS-1	IS-2	IS-3	IS-4	IS-5	IS-6
WG309450-02	NA	NA	254022	519290	987709	958809	828621	955320
Upper Limit	NA	NA	508044	1038580	1975418	1917618	1657242	1910640
Lower Limit	NA	NA	127011	259645	493855	479405	414311	477660
L09080192-01	1.00	01	170321	331493	609845	645733	502674	595154
L09080192-02	1.00	01	230092	444242	836450	854935	718425	799313
L09080192-03	1.00	01	229408	441704	828416	864031	704686	793136
L09080192-04	1.00	01	231170	429357	823633	860540	706505	788713
L09080192-05	1.00	01	168962	323884	590344	630027	505568	578136
WG309434-01	1.00	01	243610	464963	863154	900752	725500	835377
WG309434-02	1.00	01	229452	474189	892869	850837	761497	828780
WG309434-03	1.00	01	164999	334062	615434	632022	516598	601537

IS-1 - 1,4-Dichlorobenzene-d4
IS-2 - Acenaphthene-d10
IS-3 - Chrysene-d12
IS-4 - Naphthalene-D8
IS-5 - Perylene-d12
IS-6 - Phenanthrene-d10

Underline = Response outside limits

INTERNAL_STD - Modified 03/06/2008
PDF File ID: 1464098
Report generated 08/12/2009 13:07

INTERNAL STANDARD RETENTION TIME SUMMARY
(COMPARED TO CCV)

Login Number: L09080192
Instrument ID: HPMS4
Workgroup (AAB#): WG309468

CCV Number: WG309450-02
CAL ID: HPMS4-26-MAY-09
Matrix: SOLID

Sample Number	Dilution	Tag	IS-1	IS-2	IS-3	IS-4	IS-5	IS-6
WG309450-02	NA	NA	7.63	10.73	16.86	8.92	19.94	12.37
Upper Limit	NA	NA	8.13	11.23	17.36	9.42	20.44	12.87
Lower Limit	NA	NA	7.13	10.23	16.36	8.42	19.44	11.87
L09080192-01	1.00	01	7.63	10.73	16.86	8.92	19.94	12.36
L09080192-02	1.00	01	7.63	10.73	16.86	8.92	19.94	12.36
L09080192-03	1.00	01	7.63	10.73	16.86	8.92	19.94	12.36
L09080192-04	1.00	01	7.63	10.73	16.86	8.92	19.94	12.36
L09080192-05	1.00	01	7.63	10.73	16.86	8.92	19.94	12.36
WG309434-01	1.00	01	7.63	10.73	16.86	8.92	19.94	12.36
WG309434-02	1.00	01	7.63	10.73	16.87	8.92	19.94	12.36
WG309434-03	1.00	01	7.63	10.73	16.86	8.92	19.94	12.36

IS-1 - 1,4-Dichlorobenzene-d4
IS-2 - Acenaphthene-d10
IS-3 - Chrysene-d12
IS-4 - Naphthalene-D8
IS-5 - Perylene-d12
IS-6 - Phenanthrene-d10

Underline = Response outside limits

INTERNAL_STD_RT - Modified 03/06/2008
PDF File ID: 1464099
Report generated 08/12/2009 13:07

2.3 Metals Data

2.3.1 Metals I C P Data

2.3.1.1 Summary Data

LABORATORY REPORT

L09080192

08/13/09 14:09

Submitted By

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

For

Account Name: Shaw E & I, Inc.
ABB Lummus Biulding
3010 Briarpark Drive Suite 4N
Houston, TX 77042
Attention: Jennifer Hoang

Project Number: 2773.025
Project: Longhorn AAP
Site: LONGHORN AAP KARNACK TX

P.O. Number: 389869/ 390836(GWTP)

Sample Analysis Summary

Client ID	Lab ID	Method	Dilution	Date Received
SITE 1-TP-BF	L09080192-01	6010B	1	11-AUG-09
SITE 1-TP-TS	L09080192-02	6010B	1	11-AUG-09
SITE 2-BLM-TS	L09080192-03	6010B	1	11-AUG-09
SITE 2-BLM-BF	L09080192-04	6010B	2	11-AUG-09
SITE 2-BLM-BF	L09080192-04	6010B	1	11-AUG-09
SITE 3-ML-BF/TS	L09080192-05	6010B	1	11-AUG-09

Sample Number:L09080192-01
Client ID:SITE 1-TP-BF
Matrix:Soil
Workgroup Number:WG309454
Collect Date:08/09/2009 10:45
Sample Tag:01

PrePrep Method:NONE
Prep Method:3051
Analytical Method:6010B
Analyst:EDA
Dilution:1
Units:mg/kg

Instrument:ICP-THERMO2
Prep Date:08/11/2009 11:17
Cal Date:08/11/2009 11:15
Run Date:08/11/2009 14:40
File ID:T2.081109.144052
Percent Solid:77.4

Analyte	CAS. Number	Result	Qual	PQL	SDL
Aluminum, Total	7429-90-5	2890		18.9	9.44
Antimony, Total	7440-36-0		U	9.44	0.472
Arsenic, Total	7440-38-2	2.08	J	4.72	0.472
Barium, Total	7440-39-3	7.15		0.472	0.0944
Beryllium, Total	7440-41-7	0.0467	J	0.472	0.0113
Cadmium, Total	7440-43-9		U	0.472	0.0472
Calcium, Total	7440-70-2	6.69	J	9.44	4.72
Chromium, Total	7440-47-3	14.5		0.944	0.113
Cobalt, Total	7440-48-4	0.311	J	0.944	0.113
Copper, Total	7440-50-8	2.56		0.944	0.472
Iron, Total	7439-89-6	10600	B	2.83	0.944
Lead, Total	7439-92-1	6.17		4.72	0.472
Magnesium, Total	7439-95-4	49.3		23.6	11.3
Manganese, Total	7439-96-5	18.3		0.472	0.0944
Nickel, Total	7440-02-0	0.933	J	1.89	0.472
Potassium, Total	7440-09-7	108		47.2	23.6
Selenium, Total	7782-49-2		U	4.72	0.472
Silver, Total	7440-22-4	0.259	J	1.89	0.236
Sodium, Total	7440-23-5		U	23.6	4.72
Thallium, Total	7440-28-0		U	23.6	0.378
Vanadium, Total	7440-62-2	19.8		0.472	0.236
Zinc, Total	7440-66-6	3.03		0.944	0.472

J The analyte was positively identified, but the quantitation was below the RL
U Not detected at or above adjusted sample detection limit
B Analyte present in method blank

Microbac

Sample Number:**L09080192-02**
Client ID:**SITE 1-TP-TS**
Matrix:**Soil**
Workgroup Number:**WG309454**
Collect Date:**08/09/2009 10:50**
Sample Tag:**01**

PrePrep Method:**NONE**
Prep Method:**3051**
Analytical Method:**6010B**
Analyst:**EDA**
Dilution:**1**
Units:**mg/kg**

Instrument:**ICP-THERMO2**
Prep Date:**08/11/2009 11:17**
Cal Date:**08/11/2009 11:15**
Run Date:**08/11/2009 15:06**
File ID:**T2.081109.150624**
Percent Solid:**79.5**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Aluminum, Total	7429-90-5	685		18.2	9.08
Antimony, Total	7440-36-0		U	9.08	0.454
Arsenic, Total	7440-38-2		U	4.54	0.454
Barium, Total	7440-39-3	14.7		0.454	0.0908
Beryllium, Total	7440-41-7	0.0558	J	0.454	0.0109
Cadmium, Total	7440-43-9		U	0.454	0.0454
Calcium, Total	7440-70-2	97.7		9.08	4.54
Chromium, Total	7440-47-3	1.57		0.908	0.109
Cobalt, Total	7440-48-4	0.592	J	0.908	0.109
Copper, Total	7440-50-8	1.33		0.908	0.454
Iron, Total	7439-89-6	1370	B	2.72	0.908
Lead, Total	7439-92-1	2.21	J	4.54	0.454
Magnesium, Total	7439-95-4	35.9		22.7	10.9
Manganese, Total	7439-96-5	128		0.454	0.0908
Nickel, Total	7440-02-0	0.827	J	1.82	0.454
Potassium, Total	7440-09-7	56.8		45.4	22.7
Selenium, Total	7782-49-2	0.582	J	4.54	0.454
Silver, Total	7440-22-4		U	1.82	0.227
Sodium, Total	7440-23-5	4.63	J	22.7	4.54
Thallium, Total	7440-28-0		U	22.7	0.363
Vanadium, Total	7440-62-2	2.49		0.454	0.227
Zinc, Total	7440-66-6	3.45		0.908	0.454

U Not detected at or above adjusted sample detection limit
J The analyte was positively identified, but the quantitation was below the RL
B Analyte present in method blank

Sample Number: **L09080192-03**
Client ID: **SITE 2-BLM-TS**
Matrix: **Soil**
Workgroup Number: **WG309454**
Collect Date: **08/09/2009 11:20**
Sample Tag: **01**

PrePrep Method: **NONE**
Prep Method: **3051**
Analytical Method: **6010B**
Analyst: **EDA**
Dilution: **1**
Units: **mg/kg**

Instrument: **ICP-THERMO2**
Prep Date: **08/11/2009 11:17**
Cal Date: **08/11/2009 11:15**
Run Date: **08/11/2009 15:12**
File ID: **T2.081109.151247**
Percent Solid: **78.2**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Aluminum, Total	7429-90-5	5880		18.3	9.14
Antimony, Total	7440-36-0		U	9.14	0.457
Arsenic, Total	7440-38-2	5.03		4.57	0.457
Barium, Total	7440-39-3	90.2		0.457	0.0914
Beryllium, Total	7440-41-7	0.595		0.457	0.0110
Cadmium, Total	7440-43-9		U	0.457	0.0457
Calcium, Total	7440-70-2	337		9.14	4.57
Chromium, Total	7440-47-3	24.8		0.914	0.110
Cobalt, Total	7440-48-4	20.8		0.914	0.110
Copper, Total	7440-50-8	4.80		0.914	0.457
Iron, Total	7439-89-6	16900	B	2.74	0.914
Lead, Total	7439-92-1	15.2		4.57	0.457
Magnesium, Total	7439-95-4	389		22.9	11.0
Manganese, Total	7439-96-5	794		0.457	0.0914
Nickel, Total	7440-02-0	6.16		1.83	0.457
Potassium, Total	7440-09-7	329		45.7	22.9
Selenium, Total	7782-49-2	0.891	J	4.57	0.457
Silver, Total	7440-22-4		U	1.83	0.229
Sodium, Total	7440-23-5	22.7	J	22.9	4.57
Thallium, Total	7440-28-0	0.628	J	22.9	0.366
Vanadium, Total	7440-62-2	31.2		0.457	0.229
Zinc, Total	7440-66-6	16.3		0.914	0.457

U Not detected at or above adjusted sample detection limit
J The analyte was positively identified, but the quantitation was below the RL
B Analyte present in method blank

Sample Number: **L09080192-04**
Client ID: **SITE 2-BLM-BF**
Matrix: **Soil**
Workgroup Number: **WG309454**
Collect Date: **08/09/2009 11:25**
Sample Tag: **DL01**

PrePrep Method: **NONE**
Prep Method: **3051**
Analytical Method: **6010B**
Analyst: **EDA**
Dilution: **2**
Units: **mg/kg**

Instrument: **ICP-THERMO2**
Prep Date: **08/11/2009 11:17**
Cal Date: **08/11/2009 11:15**
Run Date: **08/11/2009 15:57**
File ID: **T2.081109.155722**
Percent Solid: **78.3**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Cadmium, Total	**7440-43-9**		**U**	**0.859**	**0.0859**

U Not detected at or above adjusted sample detection limit

Sample Number: **L09080192-04**
Client ID: **SITE 2-BLM-BF**
Matrix: **Soil**
Workgroup Number: **WG309454**
Collect Date: **08/09/2009 11:25**
Sample Tag: **01**

PrePrep Method: **NONE**
Prep Method: **3051**
Analytical Method: **6010B**
Analyst: **EDA**
Dilution: **1**
Units: **mg/kg**

Instrument: **ICP-THERMO2**
Prep Date: **08/11/2009 11:17**
Cal Date: **08/11/2009 11:15**
Run Date: **08/11/2009 15:19**
File ID: **T2.081109.151905**
Percent Solid: **78.3**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Aluminum, Total	7429-90-5	11100		17.2	8.59
Antimony, Total	7440-36-0		U	8.59	0.429
Arsenic, Total	7440-38-2	7.33		4.29	0.429
Barium, Total	7440-39-3	68.8		0.429	0.0859
Beryllium, Total	7440-41-7	0.789		0.429	0.0103
Calcium, Total	7440-70-2	238		8.59	4.29
Chromium, Total	7440-47-3	25.4		0.859	0.103
Cobalt, Total	7440-48-4	24.4		0.859	0.103
Copper, Total	7440-50-8	6.31		0.859	0.429
Iron, Total	7439-89-6	26000	B	2.58	0.859
Lead, Total	7439-92-1	15.5		4.29	0.429
Magnesium, Total	7439-95-4	453		21.5	10.3
Manganese, Total	7439-96-5	396		0.429	0.0859
Nickel, Total	7440-02-0	8.72		1.72	0.429
Potassium, Total	7440-09-7	446		42.9	21.5
Selenium, Total	7782-49-2	1.25	J	4.29	0.429
Silver, Total	7440-22-4	0.218	J	1.72	0.215
Sodium, Total	7440-23-5	17.5	J	21.5	4.29
Thallium, Total	7440-28-0	1.09	J	21.5	0.343
Vanadium, Total	7440-62-2	47.7		0.429	0.215
Zinc, Total	7440-66-6	15.4		0.859	0.429

J The analyte was positively identified, but the quantitation was below the RL
U Not detected at or above adjusted sample detection limit
B Analyte present in method blank

Sample Number:L09080192-05
Client ID:SITE 3-ML-BF/TS
Matrix:Soil
Workgroup Number:WG309454
Collect Date:08/09/2009 12:00
Sample Tag:01

PrePrep Method:NONE
Prep Method:3051
Analytical Method:6010B
Analyst:EDA
Dilution:1
Units:mg/kg

Instrument:ICP-THERMO2
Prep Date:08/11/2009 11:17
Cal Date:08/11/2009 11:15
Run Date:08/11/2009 15:38
File ID:T2.081109.153819
Percent Solid:88.2

Analyte	CAS. Number	Result	Qual	PQL	SDL
Aluminum, Total	7429-90-5	6340		16.8	8.39
Antimony, Total	7440-36-0		U	8.39	0.419
Arsenic, Total	7440-38-2	3.52	J	4.19	0.419
Barium, Total	7440-39-3	51.7		0.419	0.0839
Beryllium, Total	7440-41-7	0.442		0.419	0.0101
Cadmium, Total	7440-43-9		U	0.419	0.0419
Calcium, Total	7440-70-2	144		8.39	4.19
Chromium, Total	7440-47-3	13.6		0.839	0.101
Cobalt, Total	7440-48-4	7.72		0.839	0.101
Copper, Total	7440-50-8	18.5		0.839	0.419
Iron, Total	7439-89-6	22800	B	2.52	0.839
Lead, Total	7439-92-1	10.7		4.19	0.419
Magnesium, Total	7439-95-4	2080		21.0	10.1
Manganese, Total	7439-96-5	138		0.419	0.0839
Nickel, Total	7440-02-0	16.2		1.68	0.419
Potassium, Total	7440-09-7	377		41.9	21.0
Selenium, Total	7782-49-2	0.910	J	4.19	0.419
Silver, Total	7440-22-4		U	1.68	0.210
Sodium, Total	7440-23-5	49.4		21.0	4.19
Thallium, Total	7440-28-0		U	21.0	0.336
Vanadium, Total	7440-62-2	24.3		0.419	0.210
Zinc, Total	7440-66-6	50.4		0.839	0.419

U Not detected at or above adjusted sample detection limit
J The analyte was positively identified, but the quantitation was below the RL
B Analyte present in method blank

2.3.1.2 QC Summary Data

Example 6010 Calculations
Perkin Elmer Optima 4300 DV

1.0 Initial Calibration (ICAL) Parameters

The system performs linear regression from data consisting of a blank and three standards.

2.0 Calculating the concentration (C) of an element in water using data from prep log, run log, and quantitation report (note:the data system performs this calculation automatically when correction factors have been entered):

$$Cx = Cs \times \frac{Vf}{Vi} \times D$$

Where:	**Example:**
Cs = Concentration computed by the data system in ug/mL (ppm)	0.1
Vf = Final volume (mL)	50
Vi = Initial volume (mL)	50
D = Dilution factor as a multiplier (10X = 10)	1
Cx = Concentration of element in ug/mL (mg/L)	0.1

3.0 Calculating the concentration (C) of an element in soil using data from prep log, run log, and quantitation report (note: the data system performs this calculation automatically when correction factors have been entered):

$$Cx = Cs \times \frac{Vf}{Vi} \times D$$

Where:	**Example:**
Cs = Concentration computed by the data system (mg/L) (ppm)	0.1
Vf = Final volume (mL)	50
Vi = Initial weight (g)	1
D = Dilution factor as a multiplier (10X = 10)	1
Cx = Concentration of element in ug/g (mg/kg)	5

4.0 Adjusting the concentration to dry weight:

$$Cdry = \frac{Cx \times 100}{Px}$$

Where:	**Example:**
Cx = Concentration calculated as received (wet basis)	5
Px = Percent solids of sample (%wt)	80
$Cdry$ = Concentration calculated as dry weight (mg/kg)	6.25

Example 6010 Calculations
Thermo Scientific IRIS Advantage

1.0 Initial Calibration (ICAL) Parameters

The system performs linear regression from data consisting of a blank and three standards.

2.0 Calculating the concentration (C) of an element in water using data from prep log, run log, and quantitation report (note:the data system performs this calculation automatically when correction factors have been entered):

$$Cx = Cs \times \frac{Vf}{Vi} \times D$$

Where:	**Example:**
Cs = Concentration computed by the data system in ug/mL (ppm)	0.1
Vf = Final volume (mL)	50
Vi = Initial volume (mL)	50
D = Dilution factor as a multiplier (10X = 10)	1
Cx = Concentration of element in ug/mL (mg/L)	0.1

3.0 Calculating the concentration (C) of an element in soil using data from prep log, run log, and quantitation report (note: the data system performs this calculation automatically when correction factors have been entered):

$$Cx = Cs \times \frac{Vf}{Vi} \times D$$

Where:	**Example:**
Cs = Concentration computed by the data system (mg/L) (ppm)	0.1
Vf = Final volume (mL)	50
Vi = Initial weight (g)	1
D = Dilution factor as a multiplier (10X = 10)	1
Cx = Concentration of element in ug/g (mg/kg)	5

4.0 Adjusting the concentration to dry weight:

$$Cdry = \frac{Cx \times 100}{Px}$$

Where:	**Example:**
Cx = Concentration calculated as received (wet basis)	5
Px = Percent solids of sample (%wt)	80
$Cdry$ = Concentration calculated as dry weight (mg/kg)	6.25

Example 6010 Calculations
Thermo Scientific iCAP 6500

1.0 Initial Calibration (ICAL) Parameters

The system performs linear regression from data consisting of a blank and four standards.

2.0 Calculating the concentration (C) of an element in water using data from prep log, run log, and quantitation report (note:the data system performs this calculation automatically when correction factors have been entered):

$$Cx = Cs \times \frac{Vf}{Vi} \times D$$

Where:	**Example:**
Cs = Concentration computed by the data system in ug/mL (ppm)	0.1
Vf = Final volume (mL)	50
Vi = Initial volume (mL)	50
D = Dilution factor as a multiplier (10X = 10)	1
Cx = Concentration of element in ug/mL (mg/L)	0.1

3.0 Calculating the concentration (C) of an element in soil using data from prep log, run log, and quantitation report (note: the data system performs this calculation automatically when correction factors have been entered):

$$Cx = Cs \times \frac{Vf}{Vi} \times D$$

Where:	**Example:**
Cs = Concentration computed by the data system (mg/L) (ppm)	0.1
Vf = Final volume (mL)	50
Vi = Initial weight (g)	1
D = Dilution factor as a multiplier (10X = 10)	1
Cx = Concentration of element in ug/g (mg/kg)	5

4.0 Adjusting the concentration to dry weight:

$$Cdry = \frac{Cx \times 100}{Px}$$

Where:	**Example:**
Cx = Concentration calculated as received (wet basis)	5
Px = Percent solids of sample (%wt)	80
$Cdry$ = Concentration calculated as dry weight (mg/kg)	6.25

Microbac Laboratories Inc.
Microwave Digestion Log

Workgroup: WG309438
Analyst: ERP
Spike Analyst: ERP
Run Date: 08/11/2009 11:17
Method: 3051

SOP: ME406 Revison 11
Spike Solution: STD34341
Spike Witness: VC
HNO3 Lot #: COA13945
HCL Lot #: COA14028
Digest tubes Lot #: COA14013

	SAMPLE #	Type	Matrix	Initial Amount	Final Volume	Initial Vessel Wt	Final Vessel Wt	Spike Amount	Due Date
1	WG309438-02	BLANK	7	1 g	50 mL	181.067 g	180.986 g		
2	WG309438-03	LCS	7	1 g	50 mL	183.169 g	183.129 g	5 mL	
3	L09080192-01	SAMP	7	1.368 g	50 mL	176.396 g	176.268 g		08/12/09
4	L09080192-02	SAMP	7	1.386 g	50 mL	176.318 g	175.869 g		08/12/09
5	L09080192-03	SAMP	7	1.399 g	50 mL	180.173 g	178.924 g		08/12/09
6	L09080192-04	SAMP	7	1.487 g	50 mL	179.876 g	179.546 g		08/12/09
7	WG309438-01	REF	7	1.352 g	50 mL	175.126 g	175.046 g		
8	L09080192-05	SAMP	7	1.352 g	50 mL	175.126 g	175.046 g		08/12/09
9	WG309438-04	MS	7	1.351 g	50 mL	183.682 g	183.641 g	5 mL	
10	WG309438-05	MSD	7	1.351 g	50 mL	172.531 g	172.52 g	5 mL	

Analyst: Erin Potter

Reviewer: Brenda Gregory

MW_DIG - Modified 07/02/2008
PDF ID: 1463120
Report generated: 08/11/2009 12:46

Run Log ID: **29568**

Microbac Laboratories Inc.

Instrument Run Log

Instrument: ICP-THERMO2
Dataset: 081109T2.1
Analyst1: EDA
Analyst2: N/A
Method: 6010B
SOP: ME600G
Rev: 0
Maintenance Log ID: 29749

Calibration Std: STD34537
ICV/CCV Std: STD34590
Post Spike: STD27612
ICSA: STD34482
ICSAB: STD34386
Int. Std: STD34589

Workgroups: 309437, 309454, 309458, 309459

Comments:

Seq.	File ID	Sample	ID	Prep	Dil	Reference	Date/Time
1	T2.081109.104955	WG309455-01	Calibration Point		1		08/11/09 10:49
2	T2.081109.105620	WG309455-02	Calibration Point		1		08/11/09 10:56
3	T2.081109.110249	WG309455-03	Calibration Point		1		08/11/09 11:02
4	T2.081109.110917	WG309455-04	Calibration Point		1		08/11/09 11:09
5	T2.081109.111532	WG309455-05	Calibration Point		1		08/11/09 11:15
6	T2.081109.112145	WG309455-06	Initial Calibration Verification		1		08/11/09 11:21
7	T2.081109.112803	WG309455-07	Initial Calib Blank		1		08/11/09 11:28
8	T2.081109.113431	WG309455-08	Interference Check		1		08/11/09 11:34
9	T2.081109.114104	WG309455-09	Interference Check		1		08/11/09 11:41
10	T2.081109.114733	WG309455-10	CCV		1		08/11/09 11:47
11	T2.081109.115349	WG309455-11	CCB		1		08/11/09 11:53
12	T2.081109.120017	WG309401-02	Method/Prep Blank	1/50	1		08/11/09 12:00
13	T2.081109.120644	WG309401-03	Laboratory Control S	1/50	1		08/11/09 12:06
14	T2.081109.121312	L09080186-01	12603-C0003	1.352/50	5		08/11/09 12:13
15	T2.081109.121931	WG309437-01	Post Digestion Spike		5	L09080186-01	08/11/09 12:19
16	T2.081109.122544	WG309437-02	Serial Dilution		25	L09080186-01	08/11/09 12:25
17	T2.081109.123208	WG309437-02	Serial Dilution		125	L09080186-01	08/11/09 12:32
18	T2.081109.123834	L09080186-02	12603-C0004	1.371/50	5		08/11/09 12:38
19	T2.081109.124455	L09080186-03	12603-C0005	1.339/50	5		08/11/09 12:44
20	T2.081109.125116	L09080186-04	12603-C0006	1.316/50	5		08/11/09 12:51
21	T2.081109.125737	L09080186-05	12603-C0007	1.345/50	5		08/11/09 12:57
22	T2.081109.130358	WG309455-12	CCV		1		08/11/09 13:03
23	T2.081109.131015	WG309455-13	CCB		1		08/11/09 13:10
24	T2.081109.131643	L09080186-06	12603-C0008	1.327/50	5		08/11/09 13:16
25	T2.081109.132300	L09080186-07	12627-C0005	1.325/50	5		08/11/09 13:23
26	T2.081109.132918	L09080186-08	13333-C0013	1.454/50	5		08/11/09 13:29
27	T2.081109.133536	WG309401-01	Reference Sample		5	L09080186-09	08/11/09 13:35
28	T2.081109.134155	WG309401-04	Matrix Spike	1.311/50	5	L09080186-09	08/11/09 13:41
29	T2.081109.134817	WG309401-05	Matrix Spike Duplica	1.311/50	5	L09080186-09	08/11/09 13:48
30	T2.081109.135436	WG309455-14	CCV		1		08/11/09 13:54
31	T2.081109.140052	WG309455-15	CCB		1		08/11/09 14:00
32	T2.081109.141523	WG309455-16	CCV		1		08/11/09 14:15
33	T2.081109.142136	WG309455-17	CCB		1		08/11/09 14:21
34	T2.081109.142806	WG309438-02	Method/Prep Blank	1/50	1		08/11/09 14:28
35	T2.081109.143433	WG309438-03	Laboratory Control S	1/50	1		08/11/09 14:34
36	T2.081109.144052	L09080192-01	SITE 1-TP-BF	1.368/50	1		08/11/09 14:40
37	T2.081109.144715	WG309454-01	Post Digestion Spike		1	L09080192-01	08/11/09 14:47

Page: 1

Approved: August 12, 2009

Kym H. Rhodes

Microbac Laboratories Inc.

Instrument Run Log

Instrument: ICP-THERMO2 Dataset: 081109T2.1
Analyst1: EDA Analyst2: N/A
Method: 6010B SOP: ME600G Rev: 0
Maintenance Log ID: 29749

Calibration Std: STD34537 ICV/CCV Std: STD34590 Post Spike: STD27612
ICSA: STD34482 ICSAB: STD34386 Int. Std: STD34589

Workgroups: 309437, 309454, 309458, 309459

Comments:

Seq.	File ID	Sample	ID	Prep	Dil	Reference	Date/Time
38	T2.081109.145331	WG309454-02	Serial Dilution		5	L09080192-01	08/11/09 14:53
39	T2.081109.145957	WG309454-02	Serial Dilution		25	L09080192-01	08/11/09 14:59
40	T2.081109.150624	L09080192-02	SITE 1-TP-TS	1.386/50	1		08/11/09 15:06
41	T2.081109.151247	L09080192-03	SITE 2-BLM-TS	1.399/50	1		08/11/09 15:12
42	T2.081109.151905	L09080192-04	SITE 2-BLM-BF	1.487/50	1		08/11/09 15:19
43	T2.081109.152533	WG309455-18	CCV		1		08/11/09 15:25
44	T2.081109.153150	WG309455-19	CCB		1		08/11/09 15:31
45	T2.081109.153819	WG309438-01	Reference Sample		1	L09080192-05	08/11/09 15:38
46	T2.081109.154437	WG309438-04	Matrix Spike	1.351/50	1	L09080192-05	08/11/09 15:44
47	T2.081109.155100	WG309438-05	Matrix Spike Duplica	1.351/50	1	L09080192-05	08/11/09 15:51
48	T2.081109.155722	L09080192-04	SITE 2-BLM-BF	1.487/50	2		08/11/09 15:57
49	T2.081109.160345	WG309455-20	CCV		1		08/11/09 16:03
50	T2.081109.161001	WG309455-21	CCB		1		08/11/09 16:10
51	T2.081109.161630	WG309446-02	Method/Prep Blank	1/50	1		08/11/09 16:16
52	T2.081109.162258	WG309446-03	Laboratory Control S	1/50	1		08/11/09 16:22
53	T2.081109.162926	L09080196-01	70060-C0001	1.339/50	2		08/11/09 16:29
54	T2.081109.163555	WG309458-01	Post Digestion Spike		2	L09080196-01	08/11/09 16:35
55	T2.081109.164216	WG309458-02	Serial Dilution		10	L09080196-01	08/11/09 16:42
56	T2.081109.164840	WG309458-02	Serial Dilution		50	L09080196-01	08/11/09 16:48
57	T2.081109.165503	L09080196-02	70060-C0002	1.366/50	2		08/11/09 16:55
58	T2.081109.170126	L09080196-03	70060-C0003	1.493/50	2		08/11/09 17:01
59	T2.081109.170755	L09080196-04	70060-C0004	1.36/50	2		08/11/09 17:07
60	T2.081109.171413	L09080196-05	70060-C0005	1.448/50	2		08/11/09 17:14
61	T2.081109.172054	WG309455-22	CCV		1		08/11/09 17:20
62	T2.081109.172710	WG309455-23	CCB		1		08/11/09 17:27
63	T2.081109.173340	L09080196-06	70060-C0006	1.394/50	2		08/11/09 17:33
64	T2.081109.174008	L09080196-07	70060-C0007	1.355/50	2		08/11/09 17:40
65	T2.081109.174628	L09080196-08	70060-C0008	1.361/50	2		08/11/09 17:46
66	T2.081109.175248	WG309446-01	Reference Sample		2	L09080196-09	08/11/09 17:52
67	T2.081109.175907	WG309446-04	Matrix Spike	1.326/50	2	L09080196-09	08/11/09 17:59
68	T2.081109.180524	WG309446-05	Matrix Spike Duplica	1.326/50	2	L09080196-09	08/11/09 18:05
69	T2.081109.181141	L09080196-12	70060-C0010	1.366/50	2		08/11/09 18:11
70	T2.081109.181800	L09080196-13	70060-C0011	1.333/50	2		08/11/09 18:18
71	T2.081109.182418	L09080196-14	70060-C0012	1.371/50	2		08/11/09 18:24
72	T2.081109.183037	L09080197-01	16225-C0001	1.401/50	2		08/11/09 18:30
73	T2.081109.183700	WG309455-24	CCV		1		08/11/09 18:37
74	T2.081109.184316	WG309455-25	CCB		1		08/11/09 18:43

Approved: August 12, 2009

Kym H. Rhodes

Microbac Laboratories Inc.

Instrument Run Log

Instrument: ICP-THERMO2
Dataset: 081109T2.1
Analyst1: EDA
Analyst2: N/A
Method: 6010B
SOP: ME600G
Rev: 0
Maintenance Log ID: 29749

Calibration Std: STD34537
ICV/CCV Std: STD34590
Post Spike: STD27612
ICSA: STD34482
ICSAB: STD34386
Int. Std: STD34589

Workgroups: 309437, 309454, 309458, 309459

Comments:

Seq.	File ID	Sample	ID	Prep	Dil	Reference	Date/Time
75	T2.081109.184945	L09080197-02	16225-C0002	1.431/50	2		08/11/09 18:49
76	T2.081109.185605	L09080197-03	16225-C0003	1.35/50	2		08/11/09 18:56
77	T2.081109.190227	L09080197-04	16225-C0004	1.364/50	2		08/11/09 19:02
78	T2.081109.190848	L09080197-05	16225-C0005	1.345/50	2		08/11/09 19:08
79	T2.081109.191510	L09080197-06	16225-C0006	1.33/50	2		08/11/09 19:15
80	T2.081109.192129	L09080197-07	16225-C0007	1.367/50	2		08/11/09 19:21
81	T2.081109.192751	L09080197-08	16225-C0008	1.339/50	2		08/11/09 19:27
82	T2.081109.193412	WG309455-26	CCV		1		08/11/09 19:34
83	T2.081109.194028	WG309455-27	CCB		1		08/11/09 19:40
84	T2.081109.194657	WG309449-02	Method/Prep Blank	1/50	1		08/11/09 19:46
85	T2.081109.195326	WG309449-03	Laboratory Control S	1/50	1		08/11/09 19:53
86	T2.081109.195954	L09080197-09	16225-C0009	1.374/50	2		08/11/09 19:59
87	T2.081109.200614	L09080197-10	16225-C0010	1.378/50	2		08/11/09 20:06
88	T2.081109.201234	L09080197-11	16225-C0011	1.395/50	2		08/11/09 20:12
89	T2.081109.201856	L09080197-12	16225-C0012	1.396/50	2		08/11/09 20:18
90	T2.081109.202517	L09080197-13	16225-C0013	1.355/50	2		08/11/09 20:25
91	T2.081109.203138	L09080197-14	16225-C0014	1.418/50	2		08/11/09 20:31
92	T2.081109.203817	L09080197-15	16225-C0015	1.461/50	2		08/11/09 20:38
93	T2.081109.204439	WG309455-28	CCV		1		08/11/09 20:44
94	T2.081109.205057	WG309455-29	CCB		1		08/11/09 20:50
95	T2.081109.205727	L09080199-01	14511-C0001	1.302/50	2		08/11/09 20:57
96	T2.081109.210351	WG309459-01	Post Digestion Spike		2	L09080199-01	08/11/09 21:03
97	T2.081109.211004	WG309459-02	Serial Dilution		10	L09080199-01	08/11/09 21:10
98	T2.081109.211633	WG309459-02	Serial Dilution		50	L09080199-01	08/11/09 21:16
99	T2.081109.212258	L09080199-02	14511-C0002	1.362/50	2		08/11/09 21:22
100	T2.081109.212917	L09080199-03	14511-C0003	1.322/50	2		08/11/09 21:29
101	T2.081109.213536	L09080199-04	14511-C0004	1.458/50	2		08/11/09 21:35
102	T2.081109.214157	L09080199-05	14511-C0005	1.346/50	2		08/11/09 21:41
103	T2.081109.214816	L09080199-06	14511-C0006	1.341/50	2		08/11/09 21:48
104	T2.081109.215439	L09080199-07	14511-C0007	1.352/50	2		08/11/09 21:54
105	T2.081109.220100	WG309455-30	CCV		1		08/11/09 22:01
106	T2.081109.220717	WG309455-31	CCB		1		08/11/09 22:07
107	T2.081109.221348	L09080199-08	14512-C0001	1.486/50	2		08/11/09 22:13
108	T2.081109.222009	L09080199-09	14512-C0002	1.445/50	2		08/11/09 22:20
109	T2.081109.222630	WG309449-01	Reference Sample		2	L09080199-10	08/11/09 22:26
110	T2.081109.223250	WG309449-04	Matrix Spike	1.332/50	2	L09080199-10	08/11/09 22:32
111	T2.081109.223910	WG309449-05	Matrix Spike Duplica	1.332/50	2	L09080199-10	08/11/09 22:39

Page: 3

Approved: August 12, 2009

Kym H. Rhodes

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Microbac Laboratories Inc.

Instrument Run Log

Instrument: ICP-THERMO2
Dataset: 081109T2.1
Analyst1: EDA
Analyst2: N/A
Method: 6010B
SOP: ME600G
Rev: 0
Maintenance Log ID: 29749

Calibration Std: STD34537
ICV/CCV Std: STD34590
Post Spike: STD27612
ICSA: STD34482
ICSAB: STD34386
Int. Std: STD34589

Workgroups: 309437, 309454, 309458, 309459

Comments:

Seq.	File ID	Sample	ID	Prep	Dil	Reference	Date/Time
112	T2.081109.224528	L09080199-13	14512-C0004	1.328/50	2		08/11/09 22:45
113	T2.081109.225149	L09080199-14	14512-C0005	1.318/50	2		08/11/09 22:51
114	T2.081109.225808	L09080199-15	14512-C0006	1.308/50	2		08/11/09 22:58
115	T2.081109.230428	WG309455-32	CCV		1		08/11/09 23:04
116	T2.081109.231048	WG309455-33	CCB		1		08/11/09 23:10

Approved: August 12, 2009

Kym H. Rhodes

Checklist ID: 40803

Microbac Laboratories Inc.

Data Checklist

Date: 11-AUG-2009
Analyst: EDA
Analyst: NA
Method: 6010B
Instrument: ICP-THERMO2
Curve Workgroup: 309455
Runlog ID: 29568
Analytical Workgroups: 309437, 309454, 309458, 309459

Calibration/Linearity	X
ICV/CCV	X
ICB/CCB	X
ICSA/ICSAB	X
CRI	X
Blank/LCS	X
MS/MSD	X
Post Spike/Serial Dilution	X
Upload Results	X
Data Qualifiers	
Generate PDF Instrument Data	X
Sign/Annotate PDF Data	X
Upload Curve Data	X
Workgroup Forms	
Case Narrative	186, 192, 196, 197, 199
Client Forms	X
Level X	
Level 3	
Level 4	186, 196, 197, 199
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Primary Reviewer	EDA
Secondary Reviewer	KHR
Comments	

Primary Reviewer:

Secondary Reviewer:
12-AUG-2009

Kim H. Rhodes

CHECKLIST1 - Modified 03/05/2008
Generated: AUG-12-2009 11:03:18

Microbac Laboratories Inc.

HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: 6010B

Login Number: L09080192

AAB#: WG309454

Client ID	ID	Date Collected	TCLP Date	Time Held	Max Hold	Q	Extract Date	Time Held	Max Hold	Q	Run Date	Time Held	Max Hold	Q
SITE 1-TP-BF	01	08/09/09					08/11/09	2	180		08/11/09	2.2	180	
SITE 1-TP-TS	02	08/09/09					08/11/09	2	180		08/11/09	2.2	180	
SITE 2-BLM-TS	03	08/09/09					08/11/09	2	180		08/11/09	2.2	180	
SITE 2-BLM-BF	04	08/09/09					08/11/09	2	180		08/11/09	2.2	180	
SITE 2-BLM-BF	04	08/09/09					08/11/09	2	180		08/11/09	2.2	180	
SITE 3-ML-BF/TS	05	08/09/09					08/11/09	2	180		08/11/09	2.2	180	

* = SEE PROJECT QAPP REQUIREMENTS

HOLD_TIMES - Modified 03/06/2008
PDF File ID: 1463766
Report generated 08/13/2009 13:22

METHOD BLANK SUMMARY

Login Number: L09080192
Blank File ID: T2.081109.142806
Prep Date: 08/11/09 11:17
Analyzed Date: 08/11/09 14:28
Analyst: EDA

Work Group: WG309454
Blank Sample ID: WG309438-02
Instrument ID: ICP-THERMO2
Method: 6010B

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG309438-03	T2.081109.143433	08/11/09 14:34	01
SITE 1-TP-BF	L09080192-01	T2.081109.144052	08/11/09 14:40	01
SITE 1-TP-TS	L09080192-02	T2.081109.150624	08/11/09 15:06	01
SITE 2-BLM-TS	L09080192-03	T2.081109.151247	08/11/09 15:12	01
SITE 2-BLM-BF	L09080192-04	T2.081109.151905	08/11/09 15:19	01
SITE 3-ML-BF/TS	L09080192-05	T2.081109.153819	08/11/09 15:38	01
SITE 2-BLM-BF	L09080192-04	T2.081109.155722	08/11/09 15:57	DL01

Report Name: BLANK_SUMMARY
PDF File ID: 1463767
Report generated 08/13/2009 13:22

Microbac Laboratories Inc.
METHOD BLANK REPORT

Login Number: L09080192 Prep Date: 08/11/09 11:17 Sample ID: WG309438-02
Instrument ID: ICP-THERMO2 Run Date: 08/11/09 14:28 Prep Method: 3051
File ID: T2.081109.142806 Analyst: EDA Method: 6010B
Workgroup (AAB#): WG309454 Matrix: Soil Units: mg/kg
Contract #: DACA56-94-D-0020 Cal ID: ICP-TH-11-AUG-09

Analytes	SDL	PQL	Concentration	Dilution	Qualifier
Aluminum, Total	10.0	20.0	10.0	1	U
Antimony, Total	0.500	10.0	0.500	1	U
Arsenic, Total	0.500	5.00	-0.583	1	U
Barium, Total	0.100	0.500	0.100	1	U
Beryllium, Total	0.0120	0.500	0.0120	1	U
Cadmium, Total	0.0500	0.500	0.0500	1	U
Calcium, Total	5.00	10.0	5.00	1	U
Chromium, Total	0.120	1.00	0.120	1	U
Cobalt, Total	0.120	1.00	0.120	1	U
Copper, Total	0.500	1.00	0.500	1	U
Iron, Total	1.00	3.00	6.02	1	*
Lead, Total	0.500	5.00	0.500	1	U
Magnesium, Total	12.0	25.0	12.0	1	U
Manganese, Total	0.100	0.500	0.100	1	U
Nickel, Total	0.500	2.00	0.500	1	U
Potassium, Total	25.0	50.0	25.0	1	U
Selenium, Total	0.500	5.00	0.524	1	J
Silver, Total	0.250	2.00	0.250	1	U
Sodium, Total	5.00	25.0	5.00	1	U
Thallium, Total	0.400	25.0	0.400	1	U
Vanadium, Total	0.250	0.500	0.250	1	U
Zinc, Total	0.500	1.00	0.500	1	U

SDL	Method Detection Limit
PQL	Reporting/Practical Quantitation Limit
ND	Analyte Not detected at or above reporting limit
*	|Analyte concentration| > RL

Report Name: BLANK
PDF ID: 1463768
13-AUG-2009 13:22

Microbac Laboratories Inc.
LABORATORY CONTROL SAMPLE (LCS)

Login Number: L09080192
Run Date: 08/11/2009
Sample ID: WG309438-03
Instrument ID: ICP-THERMO2
Run Time: 14:34
Prep Method: 3051
File ID: T2.081109.143433
Analyst: EDA
Method: 6010B
Workgroup (AAB#): WG309454
Matrix: Soil
Units: mg/kg
QC Key: STD
Lot#: STD34341
Cal ID: ICP-TH - 11-AUG-09

Analytes	Expected	Found	% Rec	LCS Limits	Q
Aluminum, Total	250	234	93.7	80 - 120	
Antimony, Total	30.0	28.7	95.8	80 - 120	
Arsenic, Total	10.0	9.03	90.3	80 - 120	
Barium, Total	25.0	25.7	103	80 - 120	
Beryllium, Total	1.25	1.14	91.2	80 - 120	
Cadmium, Total	1.25	1.20	95.8	80 - 120	
Calcium, Total	250	254	102	80 - 120	
Chromium, Total	12.5	12.7	102	80 - 120	
Cobalt, Total	5.00	4.99	99.9	80 - 120	
Copper, Total	12.5	12.5	99.6	80 - 120	
Iron, Total	100	103	103	80 - 120	
Lead, Total	12.5	11.8	94.7	80 - 120	
Magnesium, Total	250	235	94.1	80 - 120	
Manganese, Total	12.5	12.2	97.5	80 - 120	
Nickel, Total	12.5	12.3	98.8	80 - 120	
Potassium, Total	1250	1240	99.3	80 - 120	
Selenium, Total	10.0	9.57	95.7	80 - 120	
Silver, Total	10.0	9.58	95.8	80 - 120	
Sodium, Total	1250	1250	100	80 - 120	
Thallium, Total	12.5	12.1	97.0	80 - 120	
Vanadium, Total	25.0	25.5	102	80 - 120	
Zinc, Total	25.0	22.4	89.7	80 - 120	

LCS - Modified 03/06/2008
PDF File ID: 1463769
Report generated: 08/13/2009 13:22

Microbac Laboratories Inc.

MATRIX SPIKE AND MATRIX SPIKE DUP (MS/MSD)

Loginnum:L09080192
Cal ID: ICP-THERMO -
Worknum:WG309454
Instrument ID:ICP-THERMO
Contract #:DACA56-94-D-0020
Method:6010B
Parent ID:WG309438-01
File ID:T2.081109.153819 Dil:1
Matrix:SOLID
Sample ID:WG309438-04 MS
File ID:T2.081109.154437 Dil:1
Units:mg/kg
Sample ID:WG309438-05 MSD
File ID:T2.081109.155100 Dil:1
Percent Solid:88.2

Analyte	Parent	MS Spiked	MS Found	MS %Rec	MSD Spiked	MSD Found	MSD %Rec	%RPD	%Rec Limits	RPD Limit	Q
Aluminum, Total	6340	210	10700	2070	210	14300	3800	29.1	80 - 120	20	*#
Antimony, Total	ND	25.2	22.4	89.1	25.2	22.3	88.4	0.787	80 - 120	20	
Arsenic, Total	3.52	8.40	12.1	103	8.40	13.1	114	7.71	80 - 120	20	
Barium, Total	51.7	21.0	87.2	169	21.0	86.1	164	1.33	80 - 120	20	*
Beryllium, Total	0.442	1.05	1.44	95.0	1.05	1.36	87.1	5.98	80 - 120	20	
Cadmium, Total	ND	1.05	0.571	54.4	1.05	0.590	56.2	3.25	80 - 120	20	*
Calcium, Total	144	210	366	106	210	365	105	0.226	80 - 120	20	
Chromium, Total	13.6	10.5	28.1	138	10.5	30.7	163	8.74	80 - 120	20	*
Cobalt, Total	7.72	4.20	12.2	107	4.20	11.9	99.1	2.91	80 - 120	20	
Copper, Total	18.5	10.5	31.9	128	10.5	32.1	130	0.567	80 - 120	20	*
Iron, Total	22800	84.0	26500	4450	84.0	26000	3890	1.77	80 - 120	20	*
Lead, Total	10.7	10.5	21.4	101	10.5	21.7	105	1.83	80 - 120	20	
Magnesium, Total	2080	210	2550	225	210	2840	362	10.7	80 - 120	20	*
Manganese, Total	138	10.5	155	163	10.5	137	-12.6	12.6	80 - 120	20	*
Nickel, Total	16.2	10.5	27.7	109	10.5	28.7	119	3.72	80 - 120	20	
Potassium, Total	377	1050	1570	114	1050	1670	123	5.71	80 - 120	20	*
Selenium, Total	0.910	8.40	8.33	88.4	8.40	8.33	88.4	0.0403	80 - 120	20	
Silver, Total	ND	8.40	7.84	93.4	8.40	9.19	109	15.8	80 - 120	20	
Sodium, Total	49.4	1050	1080	98.0	1050	1070	97.5	0.461	80 - 120	20	
Thallium, Total	ND	10.5	9.72	92.6	10.5	10.7	102	9.21	80 - 120	20	
Vanadium, Total	24.3	21.0	49.2	119	21.0	55.3	148	11.7	80 - 120	20	*
Zinc, Total	50.4	21.0	75.7	121	21.0	81.6	148	7.41	80 - 120	20	*

* FAILS %REC LIMIT

FAILS RPD LIMIT

NOTE: This is an internal quality control sample.

WG_MS_MSD_DRYWT - Modified 03/07/2008
PDF File ID: 1463770
Report generated 08/13/2009 13:22

Microbac Laboratories Inc.

Serial Dilution Report

Login: L09080192 **Worknum:** WG309454
Instrument: ICP-THERMO2 **Method:** 6010B
Serial Dil: WG309454-02 **File ID:** T2.081109.145331 **Dil:** 5 **Units:** mg/L
Sample: L09080192-01 **File ID:** T2.081109.144052 **Dil:** 1

Analyte	Sample	Qual	Serial Dil	Qual	% Diff	Q
Aluminum	61.3		66		7.67	
Antimony	ND	U	ND	U		
Arsenic	.044	F	.0575	F	30.70	
Barium	.152		.157		3.29	
Beryllium	.00099	F	ND	U		
Cadmium	ND	U	ND	U		
Calcium	.142	F	ND	U		
Chromium	.306		.3205		4.74	
Cobalt	.00659	F	ND	U		
Copper	.0542	X	.055	F	1.48	
Iron	225		237.5		5.56	
Lead	.131	X	.1505	F	14.90	
Magnesium	1.04	X	ND	U		
Manganese	.388		.4095		5.54	
Nickel	.0198	F	ND	U		
Potassium	2.28	X	ND	U		
Selenium	ND	U	ND	U		
Silver	.00549	F	ND	U		
Sodium	ND	U	ND	U		
Thallium	ND	U	ND	U		
Vanadium	.419		.434		3.58	
Zinc	.0642	X	.0745	F	16.00	

U = Result is below MDL.
F = Result is greater than or equal to MDL and less than the RL.
X = Result is greater than or equal to RL and less than 50 times the MDL.
E = %D exceeds control limit of 10% and initial sample result is greater than or equal to 50 times the MDL.

SERIAL_DIL - Modified 09/22/2008
PDF File ID: 1463764
08/13/2009 13:22

Microbac Laboratories Inc.
POST SPIKE REPORT

Sample Login ID: L09080192
Worknum: WG309454
Instrument ID: ICP-THERMO2
Method: 6010B
Post Spike ID: WG309454-01 **File ID:** T2.081109.144715 **Dil:** 1 **Units:** mg/L
Sample ID: L09080192-01 **File ID:** T2.081109.144052 **Dil:** 1 **Matrix:** Soil

Analyte	Post Spike Result	C	Sample Result	C	Spike Added(SA)	% R	Control Limit %R	Q
ALUMINUM	61.2		61.3		5	120.2	75 - 125	
ANTIMONY	0.578		0	U	.6	96.3	75 - 125	
ARSENIC	0.235		0.0440	F	.2	97.6	75 - 125	
BARIUM	0.624		0.152		.5	97.5	75 - 125	
BERYLLIUM	0.0228		0.000990	F	.025	87.6	75 - 125	
CADMIUM	0.0201		0	U	.025	80.4	75 - 125	
CALCIUM	4.87		0.142	F	5	94.9	75 - 125	
CHROMIUM	0.517		0.306		.25	96.5	75 - 125	
COBALT	0.106		0.00659	F	.1	100.5	75 - 125	
COPPER	0.294		0.0542		.25	98.3	75 - 125	
IRON	208		225		2	271.1	75 - 125	N
LEAD	0.348		0.131		.25	92.0	75 - 125	
MAGNESIUM	5.48		1.04		5	90.8	75 - 125	
MANGANESE	0.584		0.388		.25	93.7	75 - 125	
NICKEL	0.262		0.0198	F	.25	97.5	75 - 125	
POTASSIUM	25.5		2.28		25	93.9	75 - 125	
SELENIUM	0.200		0	U	.2	100.2	75 - 125	
SILVER	0.187		0.00549	F	.2	91.2	75 - 125	
SODIUM	23.7		0	U	25	94.8	75 - 125	
THALLIUM	0.245	F	0	U	.25	98.0	75 - 125	
VANADIUM	0.857		0.419		.5	95.9	75 - 125	
ZINC	0.508		0.0642		.5	90.0	75 - 125	

N = % Recovery exceeds control limits
F = Result is between MDL and RL
U = Sample result is below MDL. A value of zero is used in the calculation

POST_SPIKE - Modified 03/06/2008
PDF File ID: 1463765
Report generated: 08/13/2009 13:22

Microbac Laboratories Inc.

Initial Calibration Summary

Login: **L09080192**

Workgroup (AAB#): **WG309454**

Analytical Method: **6010B**

Instrument ID: **ICP-THERMO2**

ICAL Worknum: **WG309455**

Initial Calibration Date: **11-AUG-2009 11:15**

	WG309455-01		**WG309455-02**		**WG309455-03**		**WG309455-04**		**WG309455-05**			
	Conc	**INT**	**Conc**	**INT**	**Conc**	**INT**	**Conc**	**INT**	**Conc**	**INT**	**R**	**Q**
ALUMINUM	0	0.0101	.1	0.0132	.2	0.0163	5	0.322	10	0.641	.999981	
ANTIMONY	0	0.0000400	.012	0.000220	.024	0.000400	.6	0.0183	1.2	0.0366	.999998	
ARSENIC	0	-0.0000400	NA	NA	.008	0.0000400	.2	0.00313	.4	0.00630	.999892	
BARIUM	0	0.00194	.01	0.00926	.02	0.0167	.5	0.703	1	1.40	.999987	
BERYLLIUM	0	-0.000620	.0005	0.000170	.001	0.000990	.025	0.0798	.05	0.160	.999999	
CADMIUM	0	0.0000100	.0005	0.000120	.001	0.000230	.025	0.0120	.05	0.0240	.999961	
CALCIUM	0	-0.000420	.1	0.000620	.2	0.00157	5	0.0973	10	0.194	.999992	
CHROMIUM	0	0.0000400	.005	0.000480	.01	0.000850	.25	0.0408	.5	0.0808	.99998	
COBALT	0	-0.0000500	.002	0.000280	.004	0.000650	.1	0.0330	.2	0.0655	.999974	
COPPER	0	0.000170	-1	0.000420	.01	0.000700	.25	0.0273	.5	0.0530	.999923	
IRON	0	0	.04	0.000220	.08	0.000480	2	0.0231	4	0.0458	.999982	
LEAD	0	-0.0000600	.005	0.0000600	.01	0.000100	.25	0.00751	.5	0.0149	.999563	
MAGNESIUM	0	0.0000400	.1	0.000160	.2	0.000270	5	0.0125	10	0.0251	.999979	
MANGANESE	0	0.000130	.005	0.000460	.01	0.000930	.25	0.0402	.5	0.0800	.999947	
NICKEL	0	-0.000150	.005	0.0000600	.01	0.000280	.25	0.0191	.5	0.0376	.999884	
POTASSIUM	0	0.000610	.5	0.00391	1	0.00773	25	0.355	50	0.716	.999983	
SELENIUM	0	-0.0000100	NA	NA	.008	0.0000700	.2	0.00251	.4	0.00504	.999151	
SILVER	0	-0.000140	20	0.000580	.008	0.00134	.2	0.0743	.4	0.148	.999991	
SODIUM	0	-0.00128	.5	0.0160	1	0.0336	25	1.69	50	3.41	.999994	
THALLIUM	0	-0.0000600	NA	NA	.01	0.0000500	.25	0.00493	.5	0.00963	.999862	
VANADIUM	0	0.000140	.01	0.00203	.02	0.00410	.5	0.191	1	0.378	.999985	
ZINC	0	0.000450	.01	0.00154	.02	0.00253	.5	0.0988	1	0.197	.999971	

INT = Instrument intensity
R = Coefficient of correlation
Q = Data Qualifier
*** = Out of Compliance; R < 0.995**

INT_CAL_ICP - Modified 03/06/2008
PDF File ID: 1463773
Report generated: 13-AUG-2009 13:23

Microbac Laboratories Inc.
INITIAL CALIBRATION BLANK (ICB)

Login Number: L09080192
Instrument ID: ICP-THERMO2
File ID: T2.081109.112803
Workgroup (AAB#): WG309454
Matrix: SOIL

Run Date: 08/11/2009
Run Time: 11:28
Analyst: EDA
Cal ID: ICP-THER - 11-AUG-09

Sample ID: WG309455-07
Method: 6010B
Units: mg/L

Analytes	MDL	RDL	Concentration	Qualifier
ALUMINUM	.2	.4	.2	U
ANTIMONY	.01	.2	.01	U
ARSENIC	.01	.1	.01	U
BARIUM	.002	.01	.002	U
BERYLLIUM	.00024	.01	.00024	U
CADMIUM	.001	.01	.001	U
CALCIUM	.1	.2	.1	U
CHROMIUM	.0024	.02	.0024	U
COBALT	.0024	.02	.0024	U
COPPER	.01	.02	.01	U
IRON	.02	.06	.02	U
LEAD	.01	.1	.01	U
MAGNESIUM	.24	.5	.24	U
MANGANESE	.002	.01	.002	U
NICKEL	.01	.04	.01	U
POTASSIUM	.5	1	.5	U
SELENIUM	.01	.1	.01	U
SILVER	.005	.04	.005	U
SODIUM	.1	.5	.1	U
THALLIUM	.008	.5	.008	U
VANADIUM	.005	.01	.005	U
ZINC	.01	.02	.01	U

ICB - Modified 07/14/2009
PDF File ID: 1463775
Report generated 08/13/2009 13:23

Microbac Laboratories Inc.
CONTINUING CALIBRATION BLANK (CCB)

Login Number: L09080192
Run Date: 08/11/2009
Sample ID: WG309455-11
Instrument ID: ICP-THERMO2
Run Time: 11:53
Method: 6010B
File ID: T2.081109.115349
Analyst: EDA
Units: mg/L
Workgroup (AAB#): WG309454
Cal ID: ICP-TH - 11-AUG-09
Matrix: SOIL

Analytes	MDL	RDL	Concentration	Qualifier
Aluminum	0.200	0.400	0.200	U
Antimony	0.0100	0.200	0.0100	U
Arsenic	0.0100	0.100	0.0100	U
Barium	0.00200	0.0100	0.00200	U
Beryllium	0.000240	0.0100	0.000240	U
Cadmium	0.00100	0.0100	0.00100	U
Calcium	0.100	0.200	0.100	U
Chromium	0.00240	0.0200	0.00240	U
Cobalt	0.00240	0.0200	0.00240	U
Copper	0.0100	0.0200	0.0100	U
Iron	0.0200	0.0600	0.0200	U
Lead	0.0100	0.100	0.0100	U
Magnesium	0.240	0.500	0.240	U
Manganese	0.00200	0.0100	0.00200	U
Nickel	0.0100	0.0400	0.0100	U
Potassium	0.500	1.00	0.500	U
Selenium	0.0100	0.100	0.0100	U
Silver	0.00500	0.0400	0.00500	U
Sodium	0.100	0.500	0.100	U
Thallium	0.00800	0.500	0.00800	U
Vanadium	0.00500	0.0100	0.00500	U
Zinc	0.0100	0.0200	0.0100	U

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

CCB - Modified 03/05/2008
PDF File ID: 1463778
Report generated 08/13/2009 13:23

Microbac Laboratories Inc.
CONTINUING CALIBRATION BLANK (CCB)

Login Number: L09080192
Run Date: 08/11/2009
Sample ID: WG309455-15
Instrument ID: ICP-THERMO2
Run Time: 14:00
Method: 6010B
File ID: T2.081109.140052
Analyst: EDA
Units: mg/L
Workgroup (AAB#): WG309454
Cal ID: ICP-TH - 11-AUG-09
Matrix: SOIL

Analytes	MDL	RDL	Concentration	Qualifier
Aluminum	0.200	0.400	0.200	U
Antimony	0.0100	0.200	0.0100	U
Arsenic	0.0100	0.100	0.0100	U
Barium	0.00200	0.0100	0.00200	U
Beryllium	0.000240	0.0100	0.000240	U
Cadmium	0.00100	0.0100	0.00100	U
Calcium	0.100	0.200	0.100	U
Chromium	0.00240	0.0200	0.00240	U
Cobalt	0.00240	0.0200	0.00240	U
Copper	0.0100	0.0200	0.0100	U
Iron	0.0200	0.0600	0.0200	U
Lead	0.0100	0.100	0.0100	U
Magnesium	0.240	0.500	0.240	U
Manganese	0.00200	0.0100	0.00200	U
Nickel	0.0100	0.0400	0.0100	U
Potassium	0.500	1.00	0.500	U
Selenium	0.0100	0.100	0.0100	U
Silver	0.00500	0.0400	0.00500	U
Sodium	0.100	0.500	0.100	U
Thallium	0.00800	0.500	0.00800	U
Vanadium	0.00500	0.0100	0.00500	U
Zinc	0.0100	0.0200	0.0100	U

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

CCB - Modified 03/05/2008
PDF File ID: 1463778
Report generated 08/13/2009 13:23

Microbac Laboratories Inc.
CONTINUING CALIBRATION BLANK (CCB)

Login Number: L09080192
Instrument ID: ICP-THERMO2
File ID: T2.081109.153150
Workgroup (AAB#): WG309454
Matrix: SOIL

Run Date: 08/11/2009
Run Time: 15:31
Analyst: EDA
Cal ID: ICP-TH - 11-AUG-09

Sample ID: WG309455-35
Method: 6010B
Units: mg/L

Analytes	MDL	RDL	Concentration	Qualifier
Aluminum	0.200	0.400	0.200	U
Antimony	0.0100	0.200	0.0100	U
Arsenic	0.0100	0.100	0.0100	U
Barium	0.00200	0.0100	0.00200	U
Beryllium	0.000240	0.0100	0.000240	U
Cadmium	0.00100	0.0100	0.00100	U
Calcium	0.100	0.200	0.100	U
Chromium	0.00240	0.0200	0.00240	U
Cobalt	0.00240	0.0200	0.00240	U
Copper	0.0100	0.0200	0.0100	U
Iron	0.0200	0.0600	0.0200	U
Lead	0.0100	0.100	0.0100	U
Magnesium	0.240	0.500	0.240	U
Manganese	0.00200	0.0100	0.00200	U
Nickel	0.0100	0.0400	0.0100	U
Potassium	0.500	1.00	0.500	U
Selenium	0.0100	0.100	0.0100	U
Silver	0.00500	0.0400	0.00500	U
Sodium	0.100	0.500	0.100	U
Thallium	0.00800	0.500	0.00800	U
Vanadium	0.00500	0.0100	0.00500	U
Zinc	0.0100	0.0200	0.0100	U

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

CCB - Modified 03/05/2008
PDF File ID: 1463778
Report generated 08/13/2009 13:23

Microbac Laboratories Inc.

CONTINUING CALIBRATION BLANK (CCB)

Login Number: L09080192
Run Date: 08/11/2009
Sample ID: WG309455-37
Instrument ID: ICP-THERMO2
Run Time: 16:10
Method: 6010B
File ID: T2.081109.161001
Analyst: EDA
Units: mg/L
Workgroup (AAB#): WG309454
Cal ID: ICP-TH - 11-AUG-09
Matrix: SOIL

Analytes	MDL	RDL	Concentration	Qualifier
Aluminum	0.200	0.400	0.200	U
Antimony	0.0100	0.200	0.0100	U
Arsenic	0.0100	0.100	0.0100	U
Barium	0.00200	0.0100	0.00200	U
Beryllium	0.000240	0.0100	0.000240	U
Cadmium	0.00100	0.0100	0.00100	U
Calcium	0.100	0.200	0.100	U
Chromium	0.00240	0.0200	0.00240	U
Cobalt	0.00240	0.0200	0.00240	U
Copper	0.0100	0.0200	0.0100	U
Iron	0.0200	0.0600	0.0200	U
Lead	0.0100	0.100	0.0100	U
Magnesium	0.240	0.500	0.240	U
Manganese	0.00200	0.0100	0.00200	U
Nickel	0.0100	0.0400	0.0100	U
Potassium	0.500	1.00	0.500	U
Selenium	0.0100	0.100	0.0100	U
Silver	0.00500	0.0400	0.00500	U
Sodium	0.100	0.500	0.100	U
Thallium	0.00800	0.500	0.00800	U
Vanadium	0.00500	0.0100	0.00500	U
Zinc	0.0100	0.0200	0.0100	U

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

CCB - Modified 03/05/2008
PDF File ID: 1463778
Report generated 08/13/2009 13:23

Microbac Laboratories Inc.

INITIAL CALIBRATION VERIFICATION (ICV)
(Alternate Source)

Login Number: L09080192
Run Date: 08/11/2009
Sample ID: WG309455-06
Instrument ID: ICP-THERMO2
Run Time: 11:21
Method: 6010B
File ID: T2.081109.112145
Analyst: EDA
Units: mg/L
Workgroup (AAB#): WG309454
Cal ID: ICP-TH - 11-AUG-09
QC Key: STD

Analyte		Expected	Found	%REC	LIMITS	Q
Aluminum		10	10.1	101	90 - 110	
Antimony		1.2	1.21	100	90 - 110	
Arsenic		.4	0.397	99.2	90 - 110	
Barium		1	1.00	100	90 - 110	
Beryllium		.05	0.0512	102	90 - 110	
Cadmium		.05	0.0502	100	90 - 110	
Calcium		10	10.2	102	90 - 110	
Chromium		.5	0.507	101	90 - 110	
Cobalt		.2	0.202	101	90 - 110	
Copper		.5	0.506	101	90 - 110	
Iron		4	4.01	100	90 - 110	
Lead		.5	0.525	105	90 - 110	
Magnesium		10	9.97	99.7	90 - 110	
Manganese		.5	0.520	104	90 - 110	
Nickel		.5	0.523	105	90 - 110	
Potassium		50	50.4	101	90 - 110	
Selenium		.4	0.399	99.7	90 - 110	
Silver		.4	0.404	101	90 - 110	
Sodium		50	49.9	99.8	90 - 110	
Thallium		.5	0.513	103	90 - 110	
Vanadium		1	1.03	103	90 - 110	
Zinc		1	1.02	102	90 - 110	

* Exceeds LIMITS Limit

Microbac Laboratories Inc.

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L09080192
Run Date: 08/11/2009
Sample ID: WG309455-10
Instrument ID: ICP-THERMO2
Run Time: 11:47
Method: 6010B
File ID: T2.081109.114733
Analyst: EDA
QC Key: STD
Workgroup (AAB#): WG309454
Cal ID: ICP-TH - 11-AUG-09
Matrix: SOIL

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Aluminum		10.0	10.1	mg/L	101	90 - 110		
Antimony		1.20	1.21	mg/L	101	90 - 110		
Arsenic		0.400	0.402	mg/L	101	90 - 110		
Barium		1.00	1.01	mg/L	101	90 - 110		
Beryllium		0.0500	0.0502	mg/L	100	90 - 110		
Cadmium		0.0500	0.0503	mg/L	101	90 - 110		
Calcium		10.0	10.3	mg/L	103	90 - 110		
Chromium		0.500	0.504	mg/L	101	90 - 110		
Cobalt		0.200	0.201	mg/L	101	90 - 110		
Copper		0.500	0.510	mg/L	102	90 - 110		
Iron		4.00	4.05	mg/L	101	90 - 110		
Lead		0.500	0.521	mg/L	104	90 - 110		
Magnesium		10.0	9.98	mg/L	99.8	90 - 110		
Manganese		0.500	0.514	mg/L	103	90 - 110		
Nickel		0.500	0.520	mg/L	104	90 - 110		
Potassium		50.0	50.9	mg/L	102	90 - 110		
Selenium		0.400	0.406	mg/L	101	90 - 110		
Silver		0.400	0.406	mg/L	102	90 - 110		
Sodium		50.0	50.5	mg/L	101	90 - 110		
Thallium		0.500	0.516	mg/L	103	90 - 110		
Vanadium		1.00	1.01	mg/L	101	90 - 110		
Zinc		1.00	1.01	mg/L	101	90 - 110		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008
PDF File ID: 1463777
Report generated 08/13/2009 13:23

Microbac Laboratories Inc.
CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L09080192
Run Date: 08/11/2009
Sample ID: WG309455-14
Instrument ID: ICP-THERMO2
Run Time: 13:54
Method: 6010B
File ID: T2.081109.135436
Analyst: EDA
QC Key: STD
Workgroup (AAB#): WG309454
Cal ID: ICP-TH - 11-AUG-09
Matrix: SOIL

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Aluminum		10.0	9.96	mg/L	99.6	90 - 110		
Antimony		1.20	1.21	mg/L	101	90 - 110		
Arsenic		0.400	0.402	mg/L	101	90 - 110		
Barium		1.00	1.02	mg/L	102	90 - 110		
Beryllium		0.0500	0.0487	mg/L	97.3	90 - 110		
Cadmium		0.0500	0.0496	mg/L	99.2	90 - 110		
Calcium		10.0	10.5	mg/L	105	90 - 110		
Chromium		0.500	0.498	mg/L	99.6	90 - 110		
Cobalt		0.200	0.201	mg/L	101	90 - 110		
Copper		0.500	0.523	mg/L	105	90 - 110		
Iron		4.00	4.05	mg/L	101	90 - 110		
Lead		0.500	0.513	mg/L	103	90 - 110		
Magnesium		10.0	9.88	mg/L	98.8	90 - 110		
Manganese		0.500	0.506	mg/L	101	90 - 110		
Nickel		0.500	0.513	mg/L	103	90 - 110		
Potassium		50.0	51.6	mg/L	103	90 - 110		
Selenium		0.400	0.409	mg/L	102	90 - 110		
Silver		0.400	0.405	mg/L	101	90 - 110		
Sodium		50.0	51.2	mg/L	102	90 - 110		
Thallium		0.500	0.513	mg/L	103	90 - 110		
Vanadium		1.00	0.983	mg/L	98.3	90 - 110		
Zinc		1.00	0.977	mg/L	97.7	90 - 110		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008
PDF File ID: 1463777
Report generated 08/13/2009 13:23

Microbac Laboratories Inc.
CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L09080192
Instrument ID: ICP-THERMO2
File ID: T2.081109.152533
Workgroup (AAB#): WG309454
Matrix: SOIL

Run Date: 08/11/2009
Run Time: 15:25
Analyst: EDA
Cal ID: ICP-TH - 11-AUG-09

Sample ID: WG309455-34
Method: 6010B
QC Key: STD

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Aluminum		10.0	9.92	mg/L	99.2	90 - 110		
Antimony		1.20	1.21	mg/L	100	90 - 110		
Arsenic		0.400	0.407	mg/L	102	90 - 110		
Barium		1.00	1.02	mg/L	102	90 - 110		
Beryllium		0.0500	0.0483	mg/L	96.7	90 - 110		
Cadmium		0.0500	0.0499	mg/L	99.8	90 - 110		
Calcium		10.0	10.4	mg/L	104	90 - 110		
Chromium		0.500	0.502	mg/L	100	90 - 110		
Cobalt		0.200	0.202	mg/L	101	90 - 110		
Copper		0.500	0.524	mg/L	105	90 - 110		
Iron		4.00	4.13	mg/L	103	90 - 110		
Lead		0.500	0.508	mg/L	102	90 - 110		
Magnesium		10.0	9.96	mg/L	99.6	90 - 110		
Manganese		0.500	0.508	mg/L	102	90 - 110		
Nickel		0.500	0.512	mg/L	102	90 - 110		
Potassium		50.0	51.8	mg/L	104	90 - 110		
Selenium		0.400	0.409	mg/L	102	90 - 110		
Silver		0.400	0.407	mg/L	102	90 - 110		
Sodium		50.0	51.4	mg/L	103	90 - 110		
Thallium		0.500	0.511	mg/L	102	90 - 110		
Vanadium		1.00	0.977	mg/L	97.7	90 - 110		
Zinc		1.00	0.971	mg/L	97.1	90 - 110		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008
PDF File ID: 1463777
Report generated 08/13/2009 13:23

Microbac Laboratories Inc.
CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L09080192
Instrument ID: ICP-THERMO2
File ID: T2.081109.160345
Workgroup (AAB#): WG309454
Matrix: SOIL

Run Date: 08/11/2009
Run Time: 16:03
Analyst: EDA
Cal ID: ICP-TH - 11-AUG-09

Sample ID: WG309455-36
Method: 6010B
QC Key: STD

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Aluminum		10.0	9.82	mg/L	98.2	90 - 110		
Antimony		1.20	1.20	mg/L	99.8	90 - 110		
Arsenic		0.400	0.399	mg/L	99.7	90 - 110		
Barium		1.00	1.02	mg/L	102	90 - 110		
Beryllium		0.0500	0.0477	mg/L	95.4	90 - 110		
Cadmium		0.0500	0.0489	mg/L	97.8	90 - 110		
Calcium		10.0	10.5	mg/L	105	90 - 110		
Chromium		0.500	0.495	mg/L	99.0	90 - 110		
Cobalt		0.200	0.201	mg/L	100	90 - 110		
Copper		0.500	0.520	mg/L	104	90 - 110		
Iron		4.00	4.08	mg/L	102	90 - 110		
Lead		0.500	0.503	mg/L	101	90 - 110		
Magnesium		10.0	9.89	mg/L	98.9	90 - 110		
Manganese		0.500	0.501	mg/L	100	90 - 110		
Nickel		0.500	0.509	mg/L	102	90 - 110		
Potassium		50.0	51.9	mg/L	104	90 - 110		
Selenium		0.400	0.412	mg/L	103	90 - 110		
Silver		0.400	0.402	mg/L	100	90 - 110		
Sodium		50.0	51.4	mg/L	103	90 - 110		
Thallium		0.500	0.506	mg/L	101	90 - 110		
Vanadium		1.00	0.964	mg/L	96.4	90 - 110		
Zinc		1.00	0.960	mg/L	96.0	90 - 110		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008
PDF File ID: 1463777
Report generated 08/13/2009 13:23

Microbac Laboratories Inc.
INTERFERENCE CHECK SAMPLES

Login number: L09080192
Instrument ID: ICP-THERMO2
Sol. A : WG309455-08 **File ID:** T2.081109.113431
Sol. AB : WG309455-09 **File ID:** T2.081109.114104

Workgroup (AAB#): WG309454
Method: 6010B
Units: mg/L
Matrix: Soil

	Sol. A			**Sol. AB**			
ANALYTE	True	Found	%Recovery	True	Found	%Recovery	Q
Aluminum	250	256	102	250	257	103	
Antimony	NS	-0.00466	NS	NS	0.507	NS	
Arsenic	NS	-0.000130	NS	NS	0.254	NS	
Barium	NS	0.000340	NS	0.250	0.254	102	
Beryllium	NS	0.0000200	NS	0.250	0.240	96.0	
Cadmium	NS	-0.000150	NS	0.500	0.499	99.8	
Calcium	250	259	104	250	260	104	
Chromium	NS	0.00232	NS	0.250	0.238	95.2	
Cobalt	NS	0.00104	NS	0.250	0.240	96.0	
Copper	NS	0.00250	NS	0.250	0.252	101	
Iron	100	99.4	99.4	100	98.9	98.9	
Lead	NS	0.0106	NS	0.500	0.497	99.4	
Magnesium	250	261	104	250	259	104	
Manganese	NS	-0.000830	NS	0.250	0.243	97.2	
Nickel	NS	-0.000360	NS	0.500	0.475	95.0	
Potassium	NS	-0.0365	NS	NS	5.19	NS	
Selenium	NS	-0.00232	NS	NS	0.249	NS	
Silver	NS	-0.000330	NS	0.500	0.487	97.4	
Sodium	NS	-0.00234	NS	NS	5.13	NS	
Thallium	NS	-0.00428	NS	NS	0.454	NS	
Vanadium	NS	0.00577	NS	0.250	0.245	98.0	
Zinc	NS	-0.00743	NS	0.500	0.456	91.2	

NS = Not spiked
*** = Recovery of spiked element is outside acceptance limit of 80% - 120% of true value.**
 # = Result for unspiked element is outside the acceptance limits of (+/-) the project reporting limit (RL).

ICS - Modified 03/06/2008
PDF File ID: **1463776**
Report generated 08/13/2009 13:23

Microbac Laboratories Inc.
INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Login Number: L09080192 **Date:** 02/02/2009
Insturment ID: ICP-THERMO2 **Method:** 6010B

Analyte	Wave Length	AL	AS	B	BA	BE
ALUMINUM	308.20	0	0	0	0	0
ANTIMONY	206.80	0.0000210	0	0	0	0
ARSENIC	189.00	0	0	0	0	0
BARIUM	455.40	0	0	0	0	0
BERYLLIUM	313.00	0	0	0	0	0
BORON	249.70	0	0	0	0	0
CADMIUM	228.80	0	0.00250	0	0	0
CALCIUM	422.70	0	0	0	0	0
CHROMIUM	267.70	0	0	0	0	0
COBALT	228.60	0	0	0	0	0
COPPER	224.70	0	0	0	0	0
IRON	261.20	0	0	0	0	0
LEAD	220.30	0.000249	0	0	0	0
LITHIUM	670.80	0	0	0	0	0
MAGNESIUM	279.10	0	0	0	0	0
MANGANESE	257.60	0	0	0	0	0
MOLYBDENUM	202.03	0	0	0	0	0
NICKEL	231.60	0	0	0	0	0
POTASSIUM	766.40	0	0	0	0	0
SELENIUM	196.00	-0.0000300	0	0	0	0
SILICON	212.40	0	0	0	0	0
SILVER	328.00	0	0	0	0	0
SODIUM	589.50	0	0	0	0	0
STRONTIUM	407.80	0	0	0	0	0
THALLIUM	190.80	-0.0000120	0	0	0	0
TIN	189.90	0	0	0	0	0
TITANIUM	337.30	0	0	0	0	0
VANADIUM	292.40	0	0	0	0	0
ZINC	206.20	0.0000420	0	0	0	0

CORR_FACTORS - Modified 03/05/2008
PDF File ID: 1463772
Report generated: 08/13/2009 13:23

Microbac Laboratories Inc.
INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Login Number: L09080192 **Date:** 02/02/2009
Insturment ID: ICP-THERMO2 **Method:** 6010B

Analyte	Wave Length	CA	CO	CR	CU	FE
ALUMINUM	308.20	0	-0.000820	0	0	0
ANTIMONY	206.80	0	0	0.00950	0	0.0000560
ARSENIC	189.00	0	0	0.000490	0	-0.0000120
BARIUM	455.40	0	0	0	0	0
BERYLLIUM	313.00	0	0	0	0	0
BORON	249.70	0	0.00343	0	0	-0.000619
CADMIUM	228.80	0	0	0	0	0.0000220
CALCIUM	422.70	0	0	0	0	0
CHROMIUM	267.70	0	0	0	0	0.0000220
COBALT	228.60	0	0	0.000108	0	0
COPPER	224.70	0	0.0000770	0	0	0.000480
IRON	261.20	0	0	0	0	0
LEAD	220.30	0	-0.0000930	-0.000172	0.000809	0
LITHIUM	670.80	0	0	0	0	0
MAGNESIUM	279.10	0	0	0	0	0
MANGANESE	257.60	0	0	-0.0000920	0	0
MOLYBDENUM	202.03	0	0	0	0	0
NICKEL	231.60	0	0.000100	0	0	0.0000320
POTASSIUM	766.40	0	0	0	0	0
SELENIUM	196.00	0	0	0	0	0
SILICON	212.40	0	0	0	0	0
SILVER	328.00	0	0	0	0	0
SODIUM	589.50	0	0	0	0	0
STRONTIUM	407.80	0.0000140	0	0	0	0
THALLIUM	190.80	0	0.00397	0.000276	0	0
TIN	189.90	0	0	0	0	0
TITANIUM	337.30	0	0	0	0	0
VANADIUM	292.40	0	0	0	0	-0.0000300
ZINC	206.20	0	0	0	0	0

CORR_FACTORS - Modified 03/05/2008
PDF File ID: 1463772
Report generated: 08/13/2009 13:23

Microbac Laboratories Inc.
INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Login Number: L09080192 **Date:** 02/02/2009
Insturment ID: ICP-THERMO2 **Method:** 6010B

Analyte	Wave Length	LI	MG	MN	MO	NA
ALUMINUM	308.20	0	0	0	0.0153	0
ANTIMONY	206.80	0	0	0	0.000670	0
ARSENIC	189.00	0	0	0	0.00109	0
BARIUM	455.40	0	0	0	0	0
BERYLLIUM	313.00	0	0	0	0	0
BORON	249.70	0	0	0	-0.00169	0
CADMIUM	228.80	0	0	0	0.0000220	0
CALCIUM	422.70	0	0	0	0	0
CHROMIUM	267.70	0	0	0.000160	0	0
COBALT	228.60	0	0	0	-0.000983	0
COPPER	224.70	0	0	0	0.00274	0
IRON	261.20	0	0	0	0	0
LEAD	220.30	0	0	0	-0.00183	0
LITHIUM	670.80	0	0	0	0	0
MAGNESIUM	279.10	0	0	-0.00190	-0.0110	0
MANGANESE	257.60	0	0.0000190	0	0	0
MOLYBDENUM	202.03	0	0	0	0	0
NICKEL	231.60	0	0	0	0	0
POTASSIUM	766.40	0	0	0	0	0
SELENIUM	196.00	0	0	0	0.000156	0
SILICON	212.40	0	0	0	0.0187	0
SILVER	328.00	0	0	0	-0.0000440	0
SODIUM	589.50	0	0	0	0	0
STRONTIUM	407.80	0	0	0	0	0
THALLIUM	190.80	0	0	0	0	0
TIN	189.90	0	0	0	0	0
TITANIUM	337.30	0	0	0	-0.000153	0
VANADIUM	292.40	0	0	0	-0.00778	0
ZINC	206.20	0	0	0	0	0

CORR_FACTORS - Modified 03/05/2008
PDF File ID: 1463772
Report generated: 08/13/2009 13:23

Microbac®

Microbac Laboratories Inc.
INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Login Number: L09080192 **Date:** 02/02/2009
Insturment ID: ICP-THERMO2 **Method:** 6010B

Analyte	Wave Length	NI	SB	SN	SR	TI
ALUMINUM	308.20	0	0	0	0	0
ANTIMONY	206.80	0	0	-0.00840	0	-0.000990
ARSENIC	189.00	0	0	0	0	0
BARIUM	455.40	0	0	0	0	0
BERYLLIUM	313.00	0	0	0	0	0
BORON	249.70	0	0	0	0	0
CADMIUM	228.80	-0.000128	0	0	0	0
CALCIUM	422.70	0	0	0	0	0
CHROMIUM	267.70	0	0	0	0	0.0000550
COBALT	228.60	0.000175	0	0	0	0.00188
COPPER	224.70	-0.0120	0	0	0	0.000269
IRON	261.20	0	0	0	0	0
LEAD	220.30	0.000110	0	0	0	0
LITHIUM	670.80	0	0	0	0	0
MAGNESIUM	279.10	0	0	0	0	-0.00290
MANGANESE	257.60	0	0	0	0	0
MOLYBDENUM	202.03	0	0	0	0	0
NICKEL	231.60	0	0	0	0	0
POTASSIUM	766.40	0	0	0	0	0
SELENIUM	196.00	0	0	0	0	0
SILICON	212.40	0	0	0	0	0
SILVER	328.00	0	0	0	0	-0.00620
SODIUM	589.50	0	0	0	0	0
STRONTIUM	407.80	0	0	0	0	0
THALLIUM	190.80	0	0	0	0	-0.00170
TIN	189.90	0	0	0	0	-0.00220
TITANIUM	337.30	0	0	0	0	0
VANADIUM	292.40	0	0	0	0	0.000824
ZINC	206.20	0	0	0	0	0

CORR_FACTORS - Modified 03/05/2008
PDF File ID: 1463772
Report generated: 08/13/2009 13:23

Microbac Laboratories Inc.
INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Login Number: L09080192 **Date:** 02/02/2009
Insturment ID: ICP-THERMO2 **Method:** 6010B

Analyte	Wave Length	V	ZN
ALUMINUM	308.20	0.00300	0
ANTIMONY	206.80	-0.00438	0
ARSENIC	189.00	0.000107	0
BARIUM	455.40	0	0
BERYLLIUM	313.00	0	0
BORON	249.70	0	0
CADMIUM	228.80	0.000102	0
CALCIUM	422.70	0	0
CHROMIUM	267.70	0	0
COBALT	228.60	0.0000200	0
COPPER	224.70	0	0
IRON	261.20	0	0
LEAD	220.30	-0.000126	0
LITHIUM	670.80	0	0
MAGNESIUM	279.10	0	0
MANGANESE	257.60	0	0
MOLYBDENUM	202.03	-0.000110	0
NICKEL	231.60	0	0
POTASSIUM	766.40	0	0
SELENIUM	196.00	0	0
SILICON	212.40	0	0
SILVER	328.00	-0.00617	0
SODIUM	589.50	0	0
STRONTIUM	407.80	0	0
THALLIUM	190.80	-0.0282	0
TIN	189.90	0	0
TITANIUM	337.30	0	0
VANADIUM	292.40	0	0
ZINC	206.20	0	0

CORR_FACTORS - Modified 03/05/2008
PDF File ID: 1463772
Report generated: 08/13/2009 13:23

Microbac Laboratories Inc.
LINEAR RANGE (QUARTERLY)

Login Number: L09080192 **Date:** 06/11/2009
Insturment ID: ICP-THERMO2 **Method:** 6010B

Analyte	Integration Time (Sec.)	Concentration (mg/L)
Aluminum	10.00	900.0
Antimony	10.00	90.0
Arsenic	10.00	90.0
Barium	10.00	90.0
Beryllium	15.00	9.0
Boron	10.00	90.0
Cadmium	10.00	18.0
Calcium	10.00	900.0
Chromium	10.00	90.0
Cobalt	10.00	90.0
Copper	10.00	180.0
Iron	5.00	900.0
Lead	10.00	180.0
Lithium	10.00	90.0
Magnesium	15.00	900.0
Manganese	15.00	180.0
Molybdenum	10.00	18.0
Nickel	10.00	90.0
Potassium	10.00	315.0
Selenium	10.00	81.0
Silicon	10.00	90.0
Silver	5.00	9.0
Sodium	10.00	315.0
Strontium	10.00	4.5
Thallium	10.00	9.0
Tin	10.00	90.0
Titanium	15.00	90.0
Vanadium	10.00	90.0
Zinc	10.00	45.0

Comments:
All analytes passed acceptance criteria at the specified concentration.

LINEAR_RANGE - Modified 03/06/2008
PDF File ID: 1463771
Report generated: 08/13/2009 13:23

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2.3.2 Metals CVAA Data (Mercury)

2.3.2.1 Summary Data

LABORATORY REPORT

L09080192

08/13/09 14:10

Submitted By

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

For

Account Name: Shaw E & I, Inc.
ABB Lummus Biulding
3010 Briarpark Drive Suite 4N
Houston, TX 77042
Attention: Jennifer Hoang

Project Number: 2773.025
Project: Longhorn AAP
Site: LONGHORN AAP KARNACK TX

P.O. Number: 389869/ 390836(GWTP)

Sample Analysis Summary

Client ID	Lab ID	Method	Dilution	Date Received
SITE 1-TP-BF	L09080192-01	7471A	1	11-AUG-09
SITE 1-TP-TS	L09080192-02	7471A	1	11-AUG-09
SITE 2-BLM-TS	L09080192-03	7471A	1	11-AUG-09
SITE 2-BLM-BF	L09080192-04	7471A	1	11-AUG-09
SITE 3-ML-BF/TS	L09080192-05	7471A	1	11-AUG-09

L1_A_PROD - Modified 03/06/2008
PDF File ID: 1465218
Report generated: 08/13/2009 14:10

1 OF 1

Report Number:**L09080192**
Report Date :**August 13, 2009**

Sample Number:**L09080192-01**
Client ID:**SITE 1-TP-BF**
Matrix:**Soil**
Workgroup Number:**WG309524**
Collect Date:**08/09/2009 10:45**
Sample Tag:**01**

PrePrep Method:**NONE**
Prep Method:**7471A**
Analytical Method:**7471A**
Analyst:**PDM**
Dilution:**1**
Units:**mg/kg**

Instrument:**HYDRA**
Prep Date:**08/11/2009 12:18**
Cal Date:
Run Date:**08/12/2009 11:43**
File ID:**HY.081209.114351**
Percent Solid:**77.4**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Mercury, Total	**7439-97-6**		**U**	**0.318**	**0.0127**

U Not detected at or above adjusted sample detection limit

1 of 5

Report Number: **L09080192**
Report Date : **August 13, 2009**

Sample Number: **L09080192-02**
Client ID: **SITE 1-TP-TS**
Matrix: **Soil**
Workgroup Number: **WG309524**
Collect Date: **08/09/2009 10:50**
Sample Tag: **01**

PrePrep Method: **NONE**
Prep Method: **7471A**
Analytical Method: **7471A**
Analyst: **PDM**
Dilution: **1**
Units: **mg/kg**

Instrument: **HYDRA**
Prep Date: **08/11/2009 12:19**
Cal Date:
Run Date: **08/12/2009 11:45**
File ID: **HY.081209.114556**
Percent Solid: **79.5**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Mercury, Total	7439-97-6		U	0.304	0.0122

U Not detected at or above adjusted sample detection limit

Report Number:**L09080192**
Report Date :**August 13, 2009**

Sample Number:	**L09080192-03**	PrePrep Method:	**NONE**	Instrument:	**HYDRA**
Client ID:	**SITE 2-BLM-TS**	Prep Method:	**7471A**	Prep Date:	**08/11/2009 12:21**
Matrix:	**Soil**	Analytical Method:	**7471A**	Cal Date:	**08/12/2009 11:26**
Workgroup Number:	**WG309524**	Analyst:	**PDM**	Run Date:	**08/12/2009 11:49**
Collect Date:	**08/09/2009 11:20**	Dilution:	**1**	File ID:	**HY.081209.114932**
Sample Tag:	**01**	Units:	**mg/kg**	Percent Solid:	**78.2**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Mercury, Total	**7439-97-6**		**U**	**0.317**	**0.0127**

U Not detected at or above adjusted sample detection limit

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Report Number: **L09080192**
Report Date : **August 13, 2009**

Sample Number: **L09080192-04**
Client ID: **SITE 2-BLM-BF**
Matrix: **Soil**
Workgroup Number: **WG309524**
Collect Date: **08/09/2009 11:25**
Sample Tag: **01**

PrePrep Method: **NONE**
Prep Method: **7471A**
Analytical Method: **7471A**
Analyst: **PDM**
Dilution: **1**
Units: **mg/kg**

Instrument: **HYDRA**
Prep Date: **08/11/2009 12:22**
Cal Date: **08/12/2009 11:27**
Run Date: **08/12/2009 11:51**
File ID: **HY.081209.115116**
Percent Solid: **78.3**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Mercury, Total	**7439-97-6**		**U**	**0.312**	**0.0125**

U Not detected at or above adjusted sample detection limit

Report Number:**L09080192**

Report Date :**August 13, 2009**

Sample Number:**L09080192-05**
Client ID:**SITE 3-ML-BF/TS**
Matrix:**Soil**
Workgroup Number:**WG309524**
Collect Date:**08/09/2009 12:00**
Sample Tag:**01**

PrePrep Method:**NONE**
Prep Method:**7471A**
Analytical Method:**7471A**
Analyst:**PDM**
Dilution:**1**
Units:**mg/kg**

Instrument:**HYDRA**
Prep Date:**08/11/2009 12:23**
Cal Date:**08/12/2009 11:29**
Run Date:**08/12/2009 11:53**
File ID:**HY.081209.115319**
Percent Solid:**88.2**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Mercury, Total	7439-97-6	0.0394	J	0.278	0.0111

J The analyte was positively identified, but the quantitation was below the RL

2.3.2.2 QC Summary Data

Example Cold Vapor Mercury Calculations
Hydra AA Mercury Analyzer

1.0 Initial Calibration (ICAL) Parameters

The system performs linear regression from data consisting of a blank and five standards.

2.0 Calculating the concentration (C) of an element in water using data from run log and quantitation report (note:the data system performs this calculation automatically when correction factors have been entered):

$$Cx = Cs \times \frac{Vf}{Vi} \times D$$

Where:	**Example:**
Cs = Concentration computed by the data system (ug/L)	0.1
Vf = Diluted to Volume (mL)	40
Vi = Aliquot Volume (mL)	40
D = Manual dilution factor, if required (10X = 10)	1
Cx = Concentration of element in ppb (ug/L)	0.1

3.0 Calculating the concentration (C) of an element in soil using data from prep log and quantitation report (note: the data system performs this calculation automatically when correction factors have been entered):

$$Cx = Cs \times \frac{Vf}{Ws} \times D$$

Where:	**Example:**
Cs = Concentration computed by the data system (ug/L)	0.1
Vf = Diluted to volume (mL)	40
Ws = Aliquot weight (g)	0.6
D = Manual dilution factor	1
Cx = Concentration of element in ug/kg	6.67

4.0 Adjusting the concentration to dry weight:

$$Cdry = \frac{Cx \times 100}{Px}$$

1 Cx = Concentration calculated as received (wet basis)	6.67
Px = Percent solids of sample (%wt)	80
$Cdry$ = Concentration calculated as dry weight (ug/kg)	8.33

8.33 ug/kg = 0.00833 mg/kg

Microbac Laboratories Inc.
Metals Digest Log

Workgroup: WG309445
Analyst: BRG
Spike Analyst: BRG
Method: 7471A
Run Date: 08/11/2009 12:23
Hotblock Start Temp: 95.2 @ 12:50
Hotblock End Temp: 92.7 @ 13:20

SOP: ME405 Revison 9
Spike Solution: STD34566
Spike Witness: VC
KMnO4 1:1 Lot #: RGT13913
HNO3 Lot #: COA13945
HCL Lot #: COA14028
Digest tubes Lot #: COA14013
HG SOIL STD 10PPM Lot #: STD34573
HG SOILS ICV Lot #: STD34574

	SAMPLE #	Type	Matrix	Initial Amount	Final Volume	Spike Amount	Due Date
1	WG309445-02	BLANK	7	.6 g	40 mL		
2	WG309445-03	LCS	7	.6 g	40 mL	4 mL	
3	L09080192-01	SAMP	7	.609 g	40 mL		08/12/09
4	L09080192-02	SAMP	7	.62 g	40 mL		08/12/09
5	L09080192-03	SAMP	7	.605 g	40 mL		08/12/09
6	L09080192-04	SAMP	7	.614 g	40 mL		08/12/09
7	WG309445-01	REF	7	.613 g	40 mL		
8	L09080192-05	SAMP	7	.613 g	40 mL		08/12/09
9	WG309445-04	MS	7	.613 g	40 mL	4 mL	
10	WG309445-05	MSD	7	.613 g	40 mL	4 mL	

Analyst: Brenda Gregory

Reviewer: Erin Potter

BLOCK_DIG - Modified 07/22/2008
PDF ID: 1463208
Report generated: 08/11/2009 13:25

Run Log ID: 29587

Microbac Laboratories Inc.

Instrument Run Log

Instrument: HYDRA
Dataset: 081209A.PRN
Analyst1: PDM
Analyst2: N/A
Method: 7471A
SOP: ME405
Rev: 9
Maintenance Log ID: 29766

Calibration Std: STD34573
ICV/CCV Std: STD34574
Post Spike: STD34573
ICSA: N/A
ICSAB: N/A
Int. Std:

Workgroups: 309526,309524

Comments:

Seq.	File ID	Sample	ID	Prep	Dil	Reference	Date/Time
1	HY.081209.112214	WG309542-01	Calibration Point		1		08/12/09 11:22
2	HY.081209.112408	WG309542-02	Calibration Point		1		08/12/09 11:24
3	HY.081209.112602	WG309542-03	Calibration Point		1		08/12/09 11:26
4	HY.081209.112749	WG309542-04	Calibration Point		1		08/12/09 11:27
5	HY.081209.112938	WG309542-05	Calibration Point		1		08/12/09 11:29
6	HY.081209.113130	WG309542-06	Calibration Point		1		08/12/09 11:31
7	HY.081209.113315	WG309542-07	Initial Calibration Verification		1		08/12/09 11:33
8	HY.081209.113456	WG309542-08	Initial Calib Blank		1		08/12/09 11:34
9	HY.081209.113659	WG309542-09	CCV		1		08/12/09 11:36
10	HY.081209.113844	WG309542-10	CCB		1		08/12/09 11:38
11	HY.081209.114026	WG309445-02	Method/Prep Blank	.6/40	1		08/12/09 11:40
12	HY.081209.114207	WG309445-03	Laboratory Control S	.6/40	1		08/12/09 11:42
13	HY.081209.114351	L09080192-01	SITE 1-TP-BF	.609/40	1		08/12/09 11:43
14	HY.081209.114556	L09080192-02	SITE 1-TP-TS	.62/40	1		08/12/09 11:45
15	HY.081209.114741	WG309524-01	Post Digestion Spike		1	L09080192-02	08/12/09 11:47
16	HY.081209.114932	L09080192-03	SITE 2-BLM-TS	.605/40	1		08/12/09 11:49
17	HY.081209.115116	L09080192-04	SITE 2-BLM-BF	.614/40	1		08/12/09 11:51
18	HY.081209.115319	L09080192-05	SITE 3-ML-BF/TS	.613/40	1	WG309445-01	08/12/09 11:53
19	HY.081209.115513	WG309445-04	Matrix Spike	.613/40	1	L09080192-05	08/12/09 11:55
20	HY.081209.115727	WG309445-05	Matrix Spike Duplica	.613/40	1	L09080192-05	08/12/09 11:57
21	HY.081209.115910	WG309542-11	CCV		1		08/12/09 11:59
22	HY.081209.120055	WG309542-12	CCB		1		08/12/09 12:00
23	HY.081209.120258	WG309424-01	Method/Prep Blank	.25/40	1		08/12/09 12:02
24	HY.081209.120440	WG309424-02	Laboratory Control S	.25/40	1		08/12/09 12:04
25	HY.081209.120703	WG309424-03	Laboratory Control S	.25/40	1		08/12/09 12:07
26	HY.081209.120858	L09080065-01	POLYOL T/T T12 24375	.255/40	1		08/12/09 12:08
27	HY.081209.121051	WG309526-01	Post Digestion Spike		1	L09080065-01	08/12/09 12:10
28	HY.081209.121233	L09080132-01	FRAC TANK 01	.259/40	1		08/12/09 12:12
29	HY.081209.121416	WG309526-02	Post Digestion Spike		1	L09080132-01	08/12/09 12:14
30	HY.081209.121558	WG309542-13	CCV		1		08/12/09 12:15
31	HY.081209.121751	WG309542-14	CCB		1		08/12/09 12:17

Page: 1
Approved: August 12, 2009

Maren Beery

Checklist ID: 40827

Microbac Laboratories Inc.

Data Checklist

Date: 12-AUG-2009
Analyst: PDM
Analyst: NA
Method: 7471A
Instrument: HYDRA
Curve Workgroup: 309542
Runlog ID: 29587
Analytical Workgroups: 309524,309526

Calibration/Linearity	X
ICV/CCV	X
ICB/CCB	X
ICSA/ICSAB	
CRI	
Blank/LCS	X
MS/MSD	X
Post Spike/Serial Dilution	X
Upload Results	X
Data Qualifiers	
Generate PDF Instrument Data	X
Sign/Annotate PDF Data	X
Upload Curve Data	X
Workgroup Forms	X
Case Narrative	0192,0065,0132
Client Forms	X
Level X	
Level 3	0192
Level 4	
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Primary Reviewer	PDM
Secondary Reviewer	MMB
Comments	

Primary Reviewer:
12-AUG-2009
Pierce Morris

Secondary Reviewer:
12-AUG-2009
Maren Berry

CHECKLIST1 - Modified 03/05/2008
Generated: AUG-12-2009 15:38:49

Microbac Laboratories Inc.

HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: 7471A

AAB#: WG309524

Login Number: L09080192

Client ID	ID	Date Collected	TCLP Date	Time Held	Max Hold	Q	Extract Date	Time Held	Max Hold	Q	Run Date	Time Held	Max Hold	Q
SITE 1-TP-BF	01	08/09/09					08/11/09	2.1	28		08/12/09	3	28	
SITE 1-TP-TS	02	08/09/09					08/11/09	2.1	28		08/12/09	3	28	
SITE 2-BLM-TS	03	08/09/09					08/11/09	2	28		08/12/09	3	28	
SITE 2-BLM-BF	04	08/09/09					08/11/09	2	28		08/12/09	3	28	
SITE 3-ML-BF/TS	05	08/09/09					08/11/09	2	28		08/12/09	3	28	

* = SEE PROJECT QAPP REQUIREMENTS

HOLD_TIMES - Modified 03/06/2008
PDF File ID: 1464166
Report generated 08/12/2009 13:48

METHOD BLANK SUMMARY

Login Number: L09080192
Blank File ID: HY.081209.114026
Prep Date: 08/11/09 12:23
Analyzed Date: 08/12/09 11:40
Analyst: PDM

Work Group: WG309524
Blank Sample ID: WG309445-02
Instrument ID: HYDRA
Method: 7471A

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG309445-03	HY.081209.114207	08/12/09 11:42	01
SITE 1-TP-BF	L09080192-01	HY.081209.114351	08/12/09 11:43	01
SITE 1-TP-TS	L09080192-02	HY.081209.114556	08/12/09 11:45	01
SITE 2-BLM-TS	L09080192-03	HY.081209.114932	08/12/09 11:49	01
SITE 2-BLM-BF	L09080192-04	HY.081209.115116	08/12/09 11:51	01
SITE 3-ML-BF/TS	L09080192-05	HY.081209.115319	08/12/09 11:53	01

Report Name: BLANK_SUMMARY
PDF File ID: 1464167
Report generated 08/12/2009 13:48

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Microbac Laboratories Inc.

METHOD BLANK REPORT

Login Number: L09080192
Prep Date: 08/11/09 12:23
Sample ID: WG309445-02
Instrument ID: HYDRA
Run Date: 08/12/09 11:40
Prep Method: 7471A
File ID: HY.081209.114026
Analyst: PDM
Method: 7471A
Workgroup (AAB#): WG309524
Matrix: Soil
Units: mg/kg
Contract #: DACA56-94-D-0020
Cal ID: HYDRA - 12-AUG-09

Analytes	SDL	PQL	Concentration	Dilution	Qualifier
Mercury, Total	0.0100	0.250	0.0100	1	U

SDL	Method Detection Limit
PQL	Reporting/Practical Quantitation Limit
ND	Analyte Not detected at or above reporting limit
*	|Analyte concentration| > RL

Report Name: BLANK
PDF ID: 1464168
12-AUG-2009 13:48

Microbac Laboratories Inc.
LABORATORY CONTROL SAMPLE (LCS)

Login Number: L09080192
Run Date: 08/12/2009
Sample ID: WG309445-03
Instrument ID: HYDRA
Run Time: 11:42
Prep Method: 7471A
File ID: HY.081209.114207
Analyst: PDM
Method: 7471A
Workgroup (AAB#): WG309524
Matrix: Soil
Units: mg/kg
QC Key: STD
Lot#: STD34566
Cal ID: HYDRA-12-AUG-09

Analytes	Expected	Found	% Rec	LCS Limits	Q
Mercury, Total	0.267	0.283	106	80 - 120	

LCS - Modified 03/06/2008
PDF File ID: 1464169
Report generated: 08/12/2009 13:48

MATRIX SPIKE AND MATRIX SPIKE DUP (MS/MSD)

Loginnum:L09080192 Cal ID: HYDRA - Worknum:WG309524
Instrument ID:HYDRA Contract #:DACA56-94-D-0020 Method:7471A
Parent ID:WG309445-01 File ID:HY.081209.115319 Dil:1 Matrix:SOLID
Sample ID:WG309445-04 MS File ID:HY.081209.115513 Dil:1 Units:mg/kg
Sample ID:WG309445-05 MSD File ID:HY.081209.115727 Dil:1 Percent Solid:88.2

Analyte	Parent	MS Spiked	MS Found	MS %Rec	MSD Spiked	MSD Found	MSD %Rec	%RPD	%Rec Limits	RPD Limit	Q
Mercury, Total	0.0394	0.296	0.298	87.4	0.296	0.303	89.2	1.72	75 - 125	25	

* FAILS %REC LIMIT

FAILS RPD LIMIT

NOTE: This is an internal quality control sample.

WG_MS_MSD_DRYWT - Modified 03/07/2008
PDF File ID: 1464170
Report generated 08/12/2009 13:48

Microbac Laboratories Inc.
POST SPIKE REPORT

Sample Login ID: L09080192
Worknum: WG309524
Instrument ID: HYDRA
Method: 7471A
Post Spike ID: WG309524-01 **File ID:** HY.081209.114741 **Dil:** 1 **Units:** ug/L
Sample ID: L09080192-02 **File ID:** HY.081209.114556 **Dil:** 1 **Matrix:** Soil

Analyte	Post Spike Result	C	Sample Result	C	Spike Added(SA)	% R	Control Limit %R	Q
MERCURY	1.06	F	0	U	1	106.0	85 - 115	

N = % Recovery exceeds control limits
F = Result is between MDL and RL
U = Sample result is below MDL. A value of zero is used in the calculation

POST_SPIKE - Modified 03/06/2008
PDF File ID: 1464165
Report generated: 08/12/2009 13:48

Microbac Laboratories Inc.
INITIAL CALIBRATION SUMMARY

Login Number: L09080192
Analytical Method: 7471A
ICAL Worknum: WG309542

Workgroup (AAB#): WG309524
Instrument ID: HYDRA
Initial Calibration Date: 08/12/2009 11:31

Analyte	WG309542-01		WG309542-02		WG309542-03		WG309542-04		WG309542-05		WG309542-06	
	STD	INT	STD	INT	STD	INT	STD	INT	STD	INT	STD	INT
Mercury	0	646	0.200	1405	1.00	5722	2.00	10805	5.00	26293	10.0	52810

INT = Instrument intensity
R = Coefficient of correlation
Q = Data Qualifier
* = Out of Compliance; R < 0.995

INT_CAL_HG_FU - Modified 03/06/2008
PDF File ID: 1464171
Report generated 08/12/2009 13:48

Microbac Laboratories Inc.
INITIAL CALIBRATION SUMMARY

Login Number: L09080192
Analytical Method: 7471A
ICAL Worknum: WG309542

Workgroup (AAB#): WG309524
Instrument ID: HYDRA
Initial Calibration Date: 08/12/2009 11:31

Analyte	R	Q
Mercury	1.000	

INT = Instrument intensity
R = Coefficient of correlation
Q = Data Qualifier
* = Out of Compliance; R < 0.995

INT_CAL_HG_FU - Modified 03/06/2008
PDF File ID: 1464171
Report generated 08/12/2009 13:48

Microbac Laboratories Inc.
INITIAL CALIBRATION BLANK (ICB)

Login Number: L09080192
Instrument ID: HYDRA
File ID: HY.081209.113456
Workgroup (AAB#): WG309524
Matrix: SOIL

Run Date: 08/12/2009
Run Time: 11:34
Analyst: PDM
Cal ID: HYDRA - 12-AUG-09

Sample ID: WG309542-08
Method: 7471A
Units: ug/L

Analytes	MDL	RDL	Concentration	Qualifier
MERCURY	.15	3.75	.15	U

ICB - Modified 07/14/2009
PDF File ID: 1464173
Report generated 08/12/2009 13:48

Microbac Laboratories Inc.

CONTINUING CALIBRATION BLANK (CCB)

Login Number: L09080192
Run Date: 08/12/2009
Sample ID: WG309542-10
Instrument ID: HYDRA
Run Time: 11:38
Method: 7471A
File ID: HY.081209.113844
Analyst: PDM
Units: ug/L
Workgroup (AAB#): WG309524
Cal ID: HYDRA - 12-AUG-09
Matrix: SOIL

Analytes	MDL	RDL	Concentration	Qualifier
Mercury	0.150	3.75	0.150	U

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

CCB - Modified 03/05/2008
PDF File ID: 1464175
Report generated 08/12/2009 13:48

Microbac Laboratories Inc.
CONTINUING CALIBRATION BLANK (CCB)

Login Number: L09080192
Instrument ID: HYDRA
File ID: HY.081209.120055
Workgroup (AAB#): WG309524
Matrix: SOIL

Run Date: 08/12/2009
Run Time: 12:00
Analyst: PDM
Cal ID: HYDRA - 12-AUG-09

Sample ID: WG309542-12
Method: 7471A
Units: ug/L

Analytes	MDL	RDL	Concentration	Qualifier
Mercury	0.150	3.75	0.150	U

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

CCB - Modified 03/05/2008
PDF File ID: 1464175
Report generated 08/12/2009 13:48

Microbac Laboratories Inc.

INITIAL CALIBRATION VERIFICATION (ICV)

(Alternate Source)

Login Number: L09080192
Instrument ID: HYDRA
File ID: HY.081209.113315
Workgroup (AAB#): WG309524
QC Key: STD

Run Date: 08/12/2009
Run Time: 11:33
Analyst: PDM
Cal ID: HYDRA - 12-AUG-09

Sample ID: WG309542-07
Method: 7471A
Units: ug/L

Analyte		Expected	Found	%REC	LIMITS	Q
Mercury		2	2.02	101	90 - 110	

* Exceeds LIMITS Limit

ICV - Modified 03/06/2008
PDF File ID: 1464172
Report generated 08/12/2009 13:48

Microbac Laboratories Inc.
CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L09080192
Run Date: 08/12/2009
Sample ID: WG309542-09
Instrument ID: HYDRA
Run Time: 11:36
Method: 7471A
File ID: HY.081209.113659
Analyst: PDM
QC Key: STD
Workgroup (AAB#): WG309524
Cal ID: HYDRA - 12-AUG-09
Matrix: SOIL

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Mercury, Total		0.00200	0.00197	mg/L	98.5	80 - 120		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008
PDF File ID: 1464174
Report generated 08/12/2009 13:48

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Microbac Laboratories Inc.
CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L09080192
Run Date: 08/12/2009
Sample ID: WG309542-11
Instrument ID: HYDRA
Run Time: 11:59
Method: 7471A
File ID: HY.081209.115910
Analyst: PDM
QC Key: STD
Workgroup (AAB#): WG309524
Cal ID: HYDRA - 12-AUG-09
Matrix: SOIL

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Mercury, Total		0.00200	0.00187	mg/L	93.5	80 - 120		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008
PDF File ID: 1464174
Report generated 08/12/2009 13:48

2.4 General Chemistry Data

2.4.1 Percent Solids Data

2.4.1.1 Raw Data

LABORATORY REPORT

L09080192

08/13/09 14:09

Submitted By

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

For

Account Name: Shaw E & I, Inc.
ABB Lummus Biulding
3010 Briarpark Drive Suite 4N
Houston, TX 77042
Attention: Jennifer Hoang

Project Number: 2773.025
Project: Longhorn AAP
Site: LONGHORN AAP KARNACK TX

P.O. Number: 389869/ 390836(GWTP)

Sample Analysis Summary

Client ID	Lab ID	Method	Dilution	Date Received
SITE 1-TP-BF	L09080192-01	D2216-90	1	11-AUG-09
SITE 1-TP-TS	L09080192-02	D2216-90	1	11-AUG-09
SITE 2-BLM-TS	L09080192-03	D2216-90	1	11-AUG-09
SITE 2-BLM-BF	L09080192-04	D2216-90	1	11-AUG-09
SITE 3-ML-BF/TS	L09080192-05	D2216-90	1	11-AUG-09

Sample Number: **L09080192-01**
Client ID: **SITE 1-TP-BF**
Matrix: **Soil**
Workgroup Number: **WG309447**
Collect Date: **08/09/2009 10:45**
Sample Tag: **01**

PrePrep Method: **NONE**
Prep Method: **D2216-90**
Analytical Method: **D2216-90**
Analyst: **CPD**
Dilution: **1**
Units: **weight %**

Instrument: **BAL001**
Prep Date: **08/12/2009 08:52**
Cal Date:
Run Date: **08/12/2009 08:52**
File ID: **B1.309447-0101**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Percent Solids	10-02-6	77.4		1.00	1.00

Report Number: **L09080192**
Report Date : **August 13, 2009**

Sample Number: **L09080192-02**
Client ID: **SITE 1-TP-TS**
Matrix: **Soil**
Workgroup Number: **WG309447**
Collect Date: **08/09/2009 10:50**
Sample Tag: **01**

PrePrep Method: **NONE**
Prep Method: **D2216-90**
Analytical Method: **D2216-90**
Analyst: **CPD**
Dilution: **1**
Units: **weight %**

Instrument: **BAL001**
Prep Date: **08/12/2009 08:52**
Cal Date:
Run Date: **08/12/2009 08:52**
File ID: **B1.309447-0102**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Percent Solids	**10-02-6**	**79.5**		**1.00**	**1.00**

Report Number: **L09080192**
Report Date : **August 13, 2009**

Sample Number:	**L09080192-03**	PrePrep Method:	**NONE**	Instrument:	**BAL001**
Client ID:	**SITE 2-BLM-TS**	Prep Method:	**D2216-90**	Prep Date:	**08/12/2009 08:52**
Matrix:	**Soil**	Analytical Method:	**D2216-90**	Cal Date:	
Workgroup Number:	**WG309447**	Analyst:	**CPD**	Run Date:	**08/12/2009 08:52**
Collect Date:	**08/09/2009 11:20**	Dilution:	**1**	File ID:	**B1.309447-0103**
Sample Tag:	**01**	Units:	**weight %**		

Analyte	CAS. Number	Result	Qual	PQL	SDL
Percent Solids	10-02-6	78.2		1.00	1.00

Sample Number:	**L09080192-04**	PrePrep Method:	**NONE**	Instrument:	**BAL001**
Client ID:	**SITE 2-BLM-BF**	Prep Method:	**D2216-90**	Prep Date:	**08/12/2009 08:52**
Matrix:	**Soil**	Analytical Method:	**D2216-90**	Cal Date:	
Workgroup Number:	**WG309447**	Analyst:	**CPD**	Run Date:	**08/12/2009 08:52**
Collect Date:	**08/09/2009 11:25**	Dilution:	**1**	File ID:	**B1.309447-0104**
Sample Tag:	**01**	Units:	**weight %**		

Analyte	CAS. Number	Result	Qual	PQL	SDL
Percent Solids	**10-02-6**	**78.3**		**1.00**	**1.00**

Sample Number:**L09080192-05**
Client ID:**SITE 3-ML-BF/TS**
Matrix:**Soil**
Workgroup Number:**WG309447**
Collect Date:**08/09/2009 12:00**
Sample Tag:**01**

PrePrep Method:**NONE**
Prep Method:**D2216-90**
Analytical Method:**D2216-90**
Analyst:**CPD**
Dilution:**1**
Units:**weight %**

Instrument:**BAL001**
Prep Date:**08/12/2009 08:52**
Cal Date:
Run Date:**08/12/2009 08:52**
File ID:**B1.309447-0105**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Percent Solids	**10-02-6**	**88.2**		**1.00**	**1.00**

Example Percent Solids Calculations

1.0 Calculating the percent solids of a sample.

$$\%Solids = \frac{WT3 - WT1}{WT2 - WT1} \times F$$

Where:

WT1 = Weight, in grams, of the empty container	1.30 g
WT2 = Weight, in grams, of the container and wet sample	21.274 g
WT3 = Weight, in grams, of the container and dried sample	5.21 g
F = Factor to get units as percent weight	100
%Solids = Percent solids present in sample.	19.58%

2.0 Calculating the percent moisture of a sample.

% Moisture = 100 - % Solids from 1.0 calculation

Microbac Laboratories Inc.

PERCENT SOLIDS

Workgroup (AAB#): WG309447 Analyst: CPD ADT(on): 08/11/2009 12:36
Method: D2216-90 Instrument: BAL001 ADT(off): 08/12/2009 08:52
SOP: K0003 Rev: 9

SAMPLE NUMBER	EMPTY PAN WT 1	WET WT 2	DRY WT 3A	DRY WT 3B	DRY WT 3C	PERCENT SOLID	PERCENT MOISTURE
L09080192-01	1.29	42.09	32.88			77.43	
L09080192-02	1.27	34.52	27.69			79.46	
L09080192-03	1.29	30.11	23.82			78.17	
L09080192-04	1.28	20.98	16.71			78.32	
L09080192-05	1.29	22.76	20.22			88.17	
L09080205-01	1.28	24.2	23.63			97.51	
L09080205-04	1.27	33.65	32.75			97.22	
L09080205-06	1.28	25.06	24.79			98.86	
L09080205-08	1.3	34.46	33.86			98.19	
WG309447-01	1.29	22.76	20.22			88.17	11.83
WG309447-02	1.29	24.4	21.88			89.10	10.90

Analyst:

PERCENT_SOLIDS - Modified 04/24/2008
PDF ID: 1463139
Report generated: 08/12/2009 08:53

3.0 Attachments

Microbac Laboratories Inc.
Analyst Listing
August 13, 2009

ADC - ANTHONY D. CANTER
AJF - AMANDA J. FICKIESEN
AJM - ANTHONY J. MOSSBURG
ALB - ANNIE L. BROWN
AML - ANTHONY M. LONG
BLG - BRENDA L. GREENWALT
BRG - BRENDA R. GREGORY
CAA - CASSIE A. AUGENSTEIN
CAF - CHERYL A. FLOWERS
CAH - CHARLES A. HALL
CEB - CHAD E. BARNES
CLC - CHRYS L. CRAWFORD
CLW - CHARISSA L. WINTERS
CPD - CHAD P. DAVIS
CSH - CHRIS S. HILL
DDE - DEBRA D. ELLIOTT
DEL - DON E. LIGHTFRITZ
DEV - DAVID E. VANDENBERG
DGB - DOUGLAS G. BUTCHER
DIH - DEANNA I. HESSON
DLB - DAVID L. BUMGARNER
DLP - DOROTHY L. PAYNE
DLR - DIANNA L. RAUCH
DR - DEANNA ROBERTS
ECL - ERIC C. LAWSON
EDA - ERIN D. AGEE
ERP - ERIN R. PORTER
FJB - FRANCES J. BOLDEN
HAV - HEMA VILASAGAR
HJR - HOLLY J. REED
JBK - JEREMY B. KINNEY
JDH - JUSTIN D. HESSON
JKT - JANE K. THOMPSON
JWR - JOHN W. RICHARDS
JWS - JACK W. SHEAVES
JYH - JI Y. HU
KEB - KATHRYN E. BARNES
KHR - KIM H. RHODES
KRA - KATHY R. ALBERTSON
LKN - LINDA K. NEDEFF
LSB - LESLIE S. BUCINA
MDA - MIKE D. ALBERTSON
MDC - MICHAEL D. COCHRAN
MES - MARY E. SCHILLING
MMB - MAREN M. BEERY
MRT - MICHELLE R. TAYLOR
MSW - MATT S. WILSON
NPM - NATHANIEL P. MILLER
PDM - PIERCE D. MORRIS
RAH - ROY A. HALSTEAD
RB - ROBERT BUCHANAN
REK - ROBERT E. KYER
RLK - ROBIN L. KLINGER
RWC - RODNEY W. CAMPBELL
SDH - SHANA D. HINYARD
SLM - STEPHANIE L. MOSSBURG
SLP - SHERI L. PFALZGRAF
TIP - TAE I. PARRISH
TMB - TIFFANY M. BAILEY
TMM - TAMMY M. MORRIS
VC - VICKI COLLIER
WTD - WADE T. DELONG

Microbac Laboratories Inc.
List of Valid Qualifiers
August 13, 2009

Qualkey: STD_ND=U

Qualifier	Description
U	Not detected at or above adjusted sample detection limit

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

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

COC NO. (DATE-01)

Shaw Environmental & Infrastructure, Inc.
3010 Briarpark Drive, Suite 400
Houston, TX 77042
(713) 996-4400

Laboratory Name: Microbac
Address : 158 Starlite Drive, Marietta OH 45750
Contact : Stephanie Mossburg
Phone: 1-800-373-4071

PM: Praveen Svrivastav (713.996.4588)
Project Contact: Jennifer Hoang
Project Name: Pistol Range/LHAAP-04
Project #: 117591-0009B340/117591-0009B300

TAT: 24 Hr
Phone No: 713-996-4408
Site: Confirmation Sampling
Location: Karnack, TX

Sampler Print:
ALLEN WILLMORE
(713) 247-9292

Sampler Sign:

TP = Tony Pezaikowski
BLM = Bobby Lee Martin
ML = Mr. Lee
BF = Backfill
TS = Topsoil
BE = Bucky Evans

Sample Number	Grab	Date	Time	Matrix	# of Containers	TAL METALS [redacted]	VOCs 8260	SVOCs 8270							Comments
SITE 1 -TP-BF	X	8/9/09	10:45	Soil	3	X	X	X							24-hr TAT!!
SITE 1 -TP-TS	X	8/9/09	10:50	Soil	3	X	X	X							24-hr TAT!!
SITE 2 -BLM-TS	X	8/9/09	11:20	Soil	3	X	X	X							24-hr TAT!!
SITE 2 -BLM-BF	X	8/9/09	11:25	Soil	3	X	X	X							24-hr TAT!!
SITE 3 -ML-BF/TS	X	8/9/09	12:00	Soil	3	X	X	X							24-hr TAT!!
SITE 4 -BE-BF/TS	X	8/9/09	12:30	Soil	3	X	X	X							HOLD ~~Pendi~~
	X			Soil											
	X			Soil											
	X			Soil											
	X			Soil											
	X			Soil											
	X			Soil											
	X			Soil											
	X			Soil											
	X			Soil											

Relinquished By:
Date/Time 8/9/09 17:30

Received By:
Date/Time

Special Instructions Please see comments

Relinquished By:
Date/Time

Rec
Dat

Microbac OVD
Received: 08/11/2009 09:45
By: ROBIN KLINGER
Robin L. Klinger

221000001007

COOLER INSPECTION

Microbac®

Received: 08/11/2009 09:45
Delivery Method: UPS
Opened By: Robin Klinger
Comments:

Login(s): L09080192 L09080193

Cooler(s)

Cooler #	Temp Gun	Temp	Tracking #	COC #	Comments
0013996	H	6.0	1Z66V7250192015547	date-01	

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

Microbac Laboratories Inc.

Internal Chain of Custody Report

Login: L09080192
Account: 2773
Project: 2773.025
Samples: 5
Due Date: 12-AUG-2009

Samplenum	**Container ID**	**Products**
L09080192-01	604546	G-60-W

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	V1	11-AUG-2009 10:43	JKT	
2	ANALYZ	V1	ORG4	11-AUG-2009 11:09	FJB	JKT

Samplenum	**Container ID**	**Products**
L09080192-01	604547	8270

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	11-AUG-2009 10:43	JKT	
2	PREP	W1	EXT	11-AUG-2009 10:54	CEB	JKT
3	STORE	EXT	A1	11-AUG-2009 12:45	JKT	CEB

Samplenum	**Container ID**	**Products**
L09080192-01	604548	AG AL BA BE CA CD CO CR CU DIG-ICP FE HG K MG

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	11-AUG-2009 10:43	JKT	
2	PREP	W1	DIG	11-AUG-2009 10:50	BRG	JKT
3	ANALYZ*	DIG	METALS	11-AUG-2009 14:02	EDA	BRG
4	STORE	WET	A1	12-AUG-2009 08:16	JKT	CPD

Sample extract/digestate

Samplenum	**Container ID**	**Products**
L09080192-02	604549	G-60-W

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	V1	11-AUG-2009 10:43	JKT	
2	ANALYZ	V1	ORG4	11-AUG-2009 11:09	FJB	JKT

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: L09080192
Account: 2773
Project: 2773.025
Samples: 5
Due Date: 12-AUG-2009

Samplenum	**Container ID**	**Products**
L09080192-02	604550	8270

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	11-AUG-2009 10:43	JKT	
2	PREP	W1	EXT	11-AUG-2009 10:54	CEB	JKT
3	STORE	EXT	A1	11-AUG-2009 12:45	JKT	CEB

Samplenum	**Container ID**	**Products**
L09080192-02	604551	AG AL BA BE CA CD CO CR CU DIG-ICP FE HG K MG

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	WET	11-AUG-2009 10:43	JKT	
2	STORE	WET	A1	12-AUG-2009 08:16	JKT	CPD

Samplenum	**Container ID**	**Products**
L09080192-03	604552	G-60-W

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	V1	11-AUG-2009 10:43	JKT	
2	ANALYZ	V1	ORG4	11-AUG-2009 11:09	FJB	JKT

Samplenum	**Container ID**	**Products**
L09080192-03	604553	8270

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	11-AUG-2009 10:43	JKT	
2	PREP	W1	EXT	11-AUG-2009 10:54	CEB	JKT
3	STORE	EXT	A1	11-AUG-2009 12:45	JKT	CEB

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: L09080192
Account: 2773
Project: 2773.025
Samples: 5
Due Date: 12-AUG-2009

Samplenum	**Container ID**	**Products**
L09080192-03	604554	AG AL BA BE CA CD CO CR CU DIG-ICP FE HG K MG

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	11-AUG-2009 10:43	JKT	
2	PREP	W1	DIG	11-AUG-2009 10:50	BRG	JKT
3	ANALYZ*	DIG	METALS	11-AUG-2009 14:02	EDA	BRG
4	STORE	WET	A1	12-AUG-2009 08:16	JKT	CPD

Sample extract/digestate

Samplenum	**Container ID**	**Products**
L09080192-04	604555	G-60-W

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	V1	11-AUG-2009 10:43	JKT	
2	ANALYZ	V1	ORG4	11-AUG-2009 11:09	FJB	JKT

Samplenum	**Container ID**	**Products**
L09080192-04	604556	8270

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	11-AUG-2009 10:43	JKT	
2	PREP	W1	EXT	11-AUG-2009 10:54	CEB	JKT
3	STORE	EXT	A1	11-AUG-2009 12:45	JKT	CEB

Samplenum	**Container ID**	**Products**
L09080192-04	604557	AG AL BA BE CA CD CO CR CU DIG-ICP FE HG K MG

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	11-AUG-2009 10:43	JKT	
2	PREP	W1	DIG	11-AUG-2009 10:50	BRG	JKT
3	ANALYZ*	DIG	METALS	11-AUG-2009 14:02	EDA	BRG
4	STORE	WET	A1	12-AUG-2009 08:16	JKT	CPD

Sample extract/digestate

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: L09080192
Account: 2773
Project: 2773.025
Samples: 5
Due Date: 12-AUG-2009

Samplenum	**Container ID**	**Products**
L09080192-05	604558	G-60-W

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	V1	11-AUG-2009 10:43	JKT	
2	ANALYZ	V1	ORG4	11-AUG-2009 11:09	FJB	JKT

Samplenum	**Container ID**	**Products**
L09080192-05	604559	8270

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	11-AUG-2009 10:43	JKT	
2	PREP	W1	EXT	11-AUG-2009 10:54	CEB	JKT
3	STORE	EXT	A1	11-AUG-2009 12:45	JKT	CEB

Samplenum	**Container ID**	**Products**
L09080192-05	604560	AG AL BA BE CA CD CO CR CU DIG-ICP FE HG K MG

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	11-AUG-2009 10:43	JKT	
2	PREP	W1	DIG	11-AUG-2009 10:50	BRG	JKT
3	ANALYZ*	DIG	METALS	11-AUG-2009 14:02	EDA	BRG
4	STORE	WET	A1	12-AUG-2009 08:16	JKT	CPD

Sample extract/digestate

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

Appendix C

Waste Documentation

Appendix C
Disposal Tracking Log

Roll-Off Number	Dates			Lead TCLP Result (mg/L)			Quantity (tons)	Disposal		
	Filled	Sampled	Shipped	Composite	Grab	Haz ?		Manifest	Truck	Destination
542	8/7/09	8/7/09	9/2/09	0.737 J	0.482 J	no	15.48	20000011	1028	Woolworth Road
859	8/6/09	8/6/09	9/3/09	2.26	3.09	no	18.55	20000012	1033	Woolworth Road
906	8/6/09	8/6/09	9/3/09	2.26	0.985 J	no	19.93	20000013	2738	Woolworth Road
701	8/6/09	8/6/09	9/10/09	2.26	2.64	no	19.26	20000016	1033	Woolworth Road
758	8/6/09	8/6/09	9/10/09	2.26	3.78	no	16.84	20000015	1040	Woolworth Road
1022	8/7/09	8/7/09	9/10/09	0.574 J	1.45	no	15.06	20000014	1033	Woolworth Road
628	8/5/09	8/7/09	9/11/09	0.574 J	0.485 J	no	18.76	20000019	2735	Woolworth Road
731	8/5/09	8/6/09	9/11/09	2.26	0.253 J	no	20.48	20000018	2735	Woolworth Road
766	8/7/09	8/7/09	9/14/09	0.737 J	0.488 J	no	19.17	20000021	1045	Woolworth Road
959	8/6/09	8/7/09	9/14/09	0.737 J	0.541 J	no	18.94	20000020	1045	Woolworth Road
1113	8/7/09	8/7/09	9/25/09	0.737 J	*38*	YES	19.19	005974010	1048	U.S. Ecology
674	8/7/09	8/7/09	10/6/09	0.574 J	*23.5*	YES	15.11	005974014	2735	U.S. Ecology
1096	8/6/09	8/7/09	10/6/09	2.26	*5.15*	YES	19.22	005974011	1033	U.S. Ecology
1111	8/7/09	8/7/09	10/6/09	0.574 J	*17.4*	YES	19.80	005974013	2740	U.S. Ecology

Notes and Abbreviations:

Rows are sorted first by Shipped Date, then by Roll-Off Number.
Non-Hazardous soil was shipped to Woolworth Road Landfill, 10580 Woolworth Road, Keithville, Louisiana 71047, 318-925-3500, Permit # – P1020
Hazardous soil was shipped to U.S. Ecology Texas, Inc., Petromila Road, 3.5 miles south of Robstown, Robstown, Texas 78380, 361-387-3518, EPA ID # – TXD069452340

J	estimated result (below reporting limit)
mg/L	milligrams per liter
TCLP	toxicity characteristic leaching procedure

TRK# 1028/ Box # 542

11:18 1213650 VP

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number

2. Page 1 of

3. Emergency Response Phone

4. Waste Tracking Number 2066001

5. Generator's Name and Mailing Address
Longhorn Army Ammunition Plant
PO Box 220 Attn: Rose Zeller
Ratliff, AR 72951

Generator's Site Address (if different than mailing address)
Longhorn Army Ammunition Plant
15600 FM 134
Karnack, TX 75661 Fire Pistol Range
Robert Ave South of Ave Q

Generator's Phone: 479 635-0110

6. Transporter 1 Company Name Tri-ad

U.S. EPA ID Number OKD981588791

7. Transporter 2 Company Name

U.S. EPA ID Number

8. Designated Facility Name and Site Address
Woolworth Road Landfill
10560 Woolworth Rd
Keithville, LA 71047

U.S. EPA ID Number P-0120

Facility's Phone: 318 925-2282

GENERATOR

9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.
1. NON-HAZADOUS Lead Contaminated Soil	1	CM DT	16	Y
2.				
3.				
4.				

13. Special Handling Instructions and Additional Information

9b) #L94Y311124, 12/31/09

14. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Generator's/Offeror's Printed/Typed Name Rose M. Zeller

Signature

Month Day Year 9 3 09

INT'L

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:

Date leaving U.S.:

Transporter Signature (for exports only):

TRANSPORTER

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name

Signature Paul Clevenger

Month Day Year 9 3 09

Transporter 2 Printed/Typed Name

Signature

Month Day Year

DESIGNATED FACILITY

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator)

U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator)

Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name

Signature David D Oates

Month Day Year 09 03 0

TRANSPORTER

169-BLC-O 5 11977 (Rev. 8/06)

1213650

/09/09

WOOLWORTH ROAD LANDFILL
10580 WOOLWORTH ROAD
KEITHVILLE, LA 71047

000731 ENVIRONMENTAL WASTE SOLUTIONS
1348 B REDTAIL HAWK DR.
BOARDMAN OH 44512

SITE	TICKET	GRID	WEIGHMASTER
03	087219		TERESA

DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
09/03/09	09/03/09	11:09	12:07		

REFERENCE	ORIGIN
L94Y911124	

Scale 1 Gross Wt. 73660 LB
Scale 2 Tare Wt. 42700 LB
Net Weight 30960 LB 15.48 TONS

Inbound - Charge ticket

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
16.00	CU YD	SPECIAL WASTE	[redacted]	[redacted]	[redacted]	[redacted]

ALL QUESTIONS MAY BE DIRECTED TO THE LANDFILL OFFICE
(318)925-3500 08:00AM-05:00PM MON-FRI.

NET AMOUNT [redacted]
TENDERED
CHANGE
CHECK NO.

Manifest # 20000011
Generator LONGHORN AMMO PLANT
Address TRK 1028

WW6T1 TO REORDER CONTACT CAROLINA SOFTWARE (910) 799-6767 SIGNATURE ____________

/05/09

2738/B-906

11:24 1213652 VP

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number

2. Page 1 of

3. Emergency Response Phone

4. Waste Tracking Number 20000012

5. Generator's Name and Mailing Address
Longhorn Army Ammunition Plant
PO Box 220 Attn: Rose Zeller
Ratliff, AR 72951
Generator's Phone: 479 635-0110

Generator's Site Address (if different than mailing address)
Longhorn Army Ammunition plant
15600 FM 134 Robert Ave South of Ave Q
Karnack, TX 75661
Former Pistol Range

6. Transporter 1 Company Name
Tri-ad
U.S. EPA ID Number
OK0981588791

7. Transporter 2 Company Name
U.S. EPA ID Number

8. Designated Facility Name and Site Address
Woolworth Road Landfill
10530 Woolworth Rd
Kiethville, LA 71047
Facility's Phone: 318 925-2262
U.S. EPA ID Number
P-0120

9. Waste Shipping Name and Description	10. Containers		11. Total Quantity	12. Unit Wt./Vol.	
	No.	Type			
1. NON-HAZADOUS Lead Contaminated Soil	1	CM DT	16	Y	
2.					
3.					
4.					

13. Special Handling Instructions and Additional Information
9b) #L94Y011124, 12/31/09

14. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.
Generator's/Offeror's Printed/Typed Name Rose M Zeler
Signature Rose M. Zeler
Month 9 Day 3 Year 09

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter Signature (for exports only): Date leaving U.S.:

16. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name Henry Howell
Signature Henry Howell
Month 9 Day 3 Year 09
Transporter 2 Printed/Typed Name
Signature
Month Day Year

17. Discrepancy
17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:
17b. Alternate Facility (or Generator) U.S. EPA ID Number
Facility's Phone:
17c. Signature of Alternate Facility (or Generator) Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a
Printed/Typed Name CDO
Signature Carol D. Oates
Month 09 Day 03 Year 09

GENERATOR
INT'L
TRANSPORTER
DESIGNATED FACILITY

169-BLC-O 5 11977 (Rev. 8/06)

TRANSPORTER #1

1213652

/09/09

WOOLWORTH ROAD LANDFILL
10580 WOOLWORTH ROAD
KEITHVILLE, LA 71047

000731 ENVIRONMENTAL WASTE SOLUTIONS
1348 B REDTAIL HAWK DR.
BOARDMAN OH 44512

SITE	TICKET	GRID	WEIGHMASTER
03	087221		DE JUANA

DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
09/03/09	09/03/09	11:14	13:17		

REFERENCE	ORIGIN
L94Y911124	

Scale 1 Gross Wt.	81120	LB	Inbound - Charge ticket
Scale 2 Tare Wt.	44020	LB	
Net Weight	37100	LB	16.55

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
16.00	CU YD	SPECIAL WASTE	[redacted]	[redacted]	[redacted]	[redacted]

ALL QUESTIONS MAY BE DIRECTED TO THE LANDFILL OFFICE
(318)925-3500 08:00AM-05:00PM MON-FRI.

NET AMOUNT
[redacted]
TENDERED
CHANGE
CHECK NO.

Manifest #	20000012
Generator	LONGHORN AMMO PLANT
Address	TRK 2738

WWWTI TO REORDER CONTACT CAROLINA SOFTWARE (910) 799-6767 SIGNATURE ______

11:35 121365l VP

1033 7B-839

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number

2. Page 1 of

3. Emergency Response Phone

4. Waste Tracking Number 5COCCC13

5. Generator's Name and Mailing Address
Longhorn Army Ammunition Plant
PO Box 220 Attn: Rose Zeiler
Ratliff, AR 72961

Generator's Phone: 479 635-0110

Generator's Site Address (if different than mailing address)
15600 FM 134
Karnack, TX 75661
Longhorn Army Ammunition Plant
Former Pistol Range
Robert Ave South of Ave Q

6. Transporter 1 Company Name: Tri-ad

U.S. EPA ID Number: OK0981588791

7. Transporter 2 Company Name

U.S. EPA ID Number

8. Designated Facility Name and Site Address
Woolworth Road Landfill
10580 Woolworth Rd
Keithville, LA 71047

U.S. EPA ID Number: P-0120

Facility's Phone: 318 925-2282

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.
1.	NON-HAZADOUS Lead Contaminated Soil	1	CM DT	16	Y
2.					
3.					
4.					

13. Special Handling Instructions and Additional Information
9b) #L94Y911124, 12/31/09

14. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Generator's/Offeror's Printed/Typed Name: Rose M. Zeiler
Signature: Rose M. Zeiler
Month 9 Day 3 Year 09

15. International Shipments ☐ Import to U.S. ☐ Export from U.S.
Port of entry/exit:
Date leaving U.S.:
Transporter Signature (for exports only):

16. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Vernon G. Loften Jr.
Signature: Vernon G. Loften Jr.
Month 9 Day 3 Year 09

Transporter 2 Printed/Typed Name
Signature
Month Day Year

17. Discrepancy
17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone:

17c. Signature of Alternate Facility (or Generator)
Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a
Printed/Typed Name: C D C
Signature: Carol D Cater
Month 09 Day 3 Year 9

TRANSPORTER #1

GENERATOR
INT'L
TRANSPORTER
DESIGNATED FACILITY

169-BLC-G 5 11977 (Rev. 8/06)

1213651

WOOLWORTH ROAD LANDFILL
10580A WOOLWORTH ROAD
KEITHVILLE, LA 71047

000731 ENVIRONMENTAL WASTE SOLUTIONS
1348 B REDTAIL HAWK DR.
BOARDMAN OH 44512

SITE	TICKET	GRID	WEIGHMASTER
03	087220		DE JUANA

DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
09/03/09	09/03/09	11:12	13:14		

REFERENCE	ORIGIN
L94Y911124	

Scale 1 Gross Wt.	83200	LB
Scale 2 Tare Wt.	43340	LB
Net Weight	39860	LB

Inbound - Charge ticket

19.93 tons

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
16.00	CU YD	SPECIAL WASTE	[redacted]	[redacted]	[redacted]	[redacted]

ALL QUESTIONS MAY BE DIRECTED TO THE LANDFILL OFFICE
(318)925-3500 08:00AM-05:00PM MON-FRI.

Manifest #	20000013
Generator	LONGHORN AMMO PLANT
Address	TRK 1033

TK#1033

NET AMOUNT	[redacted]
TENDERED	
CHANGE	
CHECK NO.	

WW6TI TO REORDER CONTACT CAROLINA SOFTWARE (910) 799-6767 SIGNATURE 2233

1033/738

1213910

4:24

VP

NON-HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Waste Tracking Number B0000016

5. Generator's Name and Mailing Address
Longhorn Army Ammunition Plant
PO Box 220 Attn: Rose Zeler
Ratliff, AR 72951
Generator's Phone: 479 635-0110

Generator's Site Address (if different than mailing address)
15600 FM 134
Karnack, TX 75661
Longhorn Army Ammo Plant
Former Pistol Range
Robert Ware 50th & E Ave

6. Transporter 1 Company Name
Tri-ad
U.S. EPA ID Number
OK0981588791

7. Transporter 2 Company Name
U.S. EPA ID Number

8. Designated Facility Name and Site Address
Woolworth Road Landfill
10580 Woolworth Rd
Keithville, LA 71047
Facility's Phone: 318 925-2282
U.S. EPA ID Number
P-0120

GENERATOR

9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.
1. NON-HAZADOUS Lead Contaminated Soil	1	CM DT	16	Y
2.				
3.				
4.				

13. Special Handling Instructions and Additional Information
9b) #L94Y911124, 12/31/09

14. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.
Generator's/Offeror's Printed/Typed Name: Rose M. Zeler
Signature: Rose M. Zeler
Month 9 Day 10 Year 09

INT'L

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter Signature (for exports only): Date leaving U.S.:

TRANSPORTER

16. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: V. Lofton Jr.
Signature: V. Lofton Jr.
Month 9 Day 10 Year 09
Transporter 2 Printed/Typed Name
Signature
Month Day Year

DESIGNATED FACILITY

17. Discrepancy
17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:
17b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone:
17c. Signature of Alternate Facility (or Generator)
Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a
Printed/Typed Name: CBO
Signature: Carol B. Oates
Month 09 Day 16 Year 09

169-BLC-O 5 11977 (Rev. 8/06)

TRANSPORTER #1

1213910

15/09

WOOLWORTH ROAD LANDFILL
10580 WOOLWORTH ROAD
KEITHVILLE, LA 71047

SITE	TICKET	GRID	WEIGHMASTER
03	088439		VALARIE

DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
09/10/09	09/10/09	16:21	17:06		

REFERENCE	ORIGIN
L94Y911124	

000731 ENVIRONMENTAL WASTE SOLUTIONS
1348 B REDTAIL HAWK DR.
BOARDMAN OH 44512

Scale 1 Gross Wt.	87840	LB
Scale 2 Tare Wt.	49320	LB
Net Weight	38520	LB

19.26

Inbound - Charge ticket

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
16.00	CU YD	SPECIAL WASTE	22.00	352.00	0.60	352.60

ALL QUESTIONS MAY BE DIRECTED TO THE LANDFILL OFFICE
(318)925-3500 08:00AM-05:00PM MON-FRI.

NET AMOUNT
352.60
TENDERED
CHANGE
CHECK NO.

Manifest # 20000016
Generator LONGHORN AMMO PLANT

SIGNATURE____________________

1040/701

12:34 1213910

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number

2. Page 1 of

3. Emergency Response Phone

4. Waste Tracking Number B000015 TC

5. Generator's Name and Mailing Address
Longhorn Army Ammunition Plant
PO Box 220 Attn: Rose Zeller
Ratliff, AR 72951

Generator's Phone: 479 635-0110

Generator's Site Address (if different than mailing address)
15600 FM 134
Karnack, TX 75661
Longhorn Army Ammunition Plant
Pistol Range Former
Robert Ave South of Ave Q

6. Transporter 1 Company Name
Tri-ad

U.S. EPA ID Number OK0981588791

7. Transporter 2 Company Name

U.S. EPA ID Number

8. Designated Facility Name and Site Address
Woolworth Road Landfill
10580 Woolworth Rd
Keithville, LA 71047

Facility's Phone: 318 925-2252

U.S. EPA ID Number P-9120

9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
1. NON-HAZADOUS Lead Contaminated Soil	1	CM DT	16	Y	—
2.					
3.					
4.					

13. Special Handling Instructions and Additional Information
9b) #L94Y911124, 12/31/09

14. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Generator's/Offeror's Printed/Typed Name Rose M Zeiler

Signature Rose M Zeiler

Month Day Year 9 10 09

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:

Transporter Signature (for exports only): Date leaving U.S.:

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name Mike Sweeten

Signature

Month Day Year 9 10 09

Transporter 2 Printed/Typed Name

Signature

Month Day Year

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator)

U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator)

Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name CDO

Signature Carol D Oates

Month Day Year 09 10 09

169-BLC-O 6 11977 (Rev. 8/06)

TRANSPORTER #1

1213910

/15/09

WOOLWORTH ROAD LANDFILL
10580 WOOLWORTH ROAD
KEITHVILLE, LA 71047

000731 - ENVIRONMENTAL WASTE SOLUTIONS
1348 B REDTAIL HAWK DR.
BOARDMAN OH 44512

SITE	TICKET	GRID	WEIGHMASTER
03	088349		TERESA

DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
09/10/09	09/10/09	12:33	13:15		

REFERENCE	ORIGIN
L94Y911124	

Scale 1 Gross Wt.	76540	LB
Scale 2 Tare Wt.	42860	LB
Net Weight	33680	LB

16.84

Inbound - Charge ticket

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
16.00	CU YD	SPECIAL WASTE	[redacted]	[redacted]	[redacted]	[redacted]

ALL QUESTIONS MAY BE DIRECTED TO THE LANDFILL OFFICE
(318)925-3500 08:00AM-05:00PM MON-FRI.

NET AMOUNT [redacted]

TENDERED

CHANGE

CHECK NO.

Manifest #	20000015
Generator	LONGHORN ARMY AMMUNITION PLANT
Address	TRK #1040

WW6FE TO REORDER CONTACT CAROLINA SOFTWARE (910) 799-6767 SIGNATURE

12:11 NH 121390/

1033/R-1022

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number

2. Page 1 of

3. Emergency Response Phone

4. Waste Tracking Number 90000014

5. Generator's Name and Mailing Address
Longhorn Army Ammunition Plant
PO Box 220 Attn: Rose Zeller
Ratliff, AR 72951

Generator's Phone: 479 635-0110

Generator's Site Address (if different than mailing address)
15600 FM 134
Karnack, TX 75661
Longhorn Army Ammunition Plant
Former Pistol Range
Robert Ave South of Ave Q

6. Transporter 1 Company Name: Tri-ad
U.S. EPA ID Number: OK0981588791

7. Transporter 2 Company Name
U.S. EPA ID Number

8. Designated Facility Name and Site Address
Woolworth Road Landfill
10580 Woolworth Rd
Keithville, LA 71047

Facility's Phone: 318 925-2252

U.S. EPA ID Number: P-0120

9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.
1. NON-HAZADOUS Lead Contaminated Soil	1	CM DT	16	Y
2.				
3.				
4.				

13. Special Handling Instructions and Additional Information
9b) #L94Y911124, 12/31/09

14. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Generator's/Offeror's Printed/Typed Name: Rose M. Zeller
Signature: Rose M. Zeller
Month 9 Day 10 Year 09

15. International Shipments ☐ Import to U.S. ☐ Export from U.S.
Port of entry/exit:
Date leaving U.S.:
Transporter Signature (for exports only):

16. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Vernon G. Lofton Jr.
Signature: V. Lofton
Month 9 Day 10 Year 09

Transporter 2 Printed/Typed Name
Signature
Month Day Year

17. Discrepancy
17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

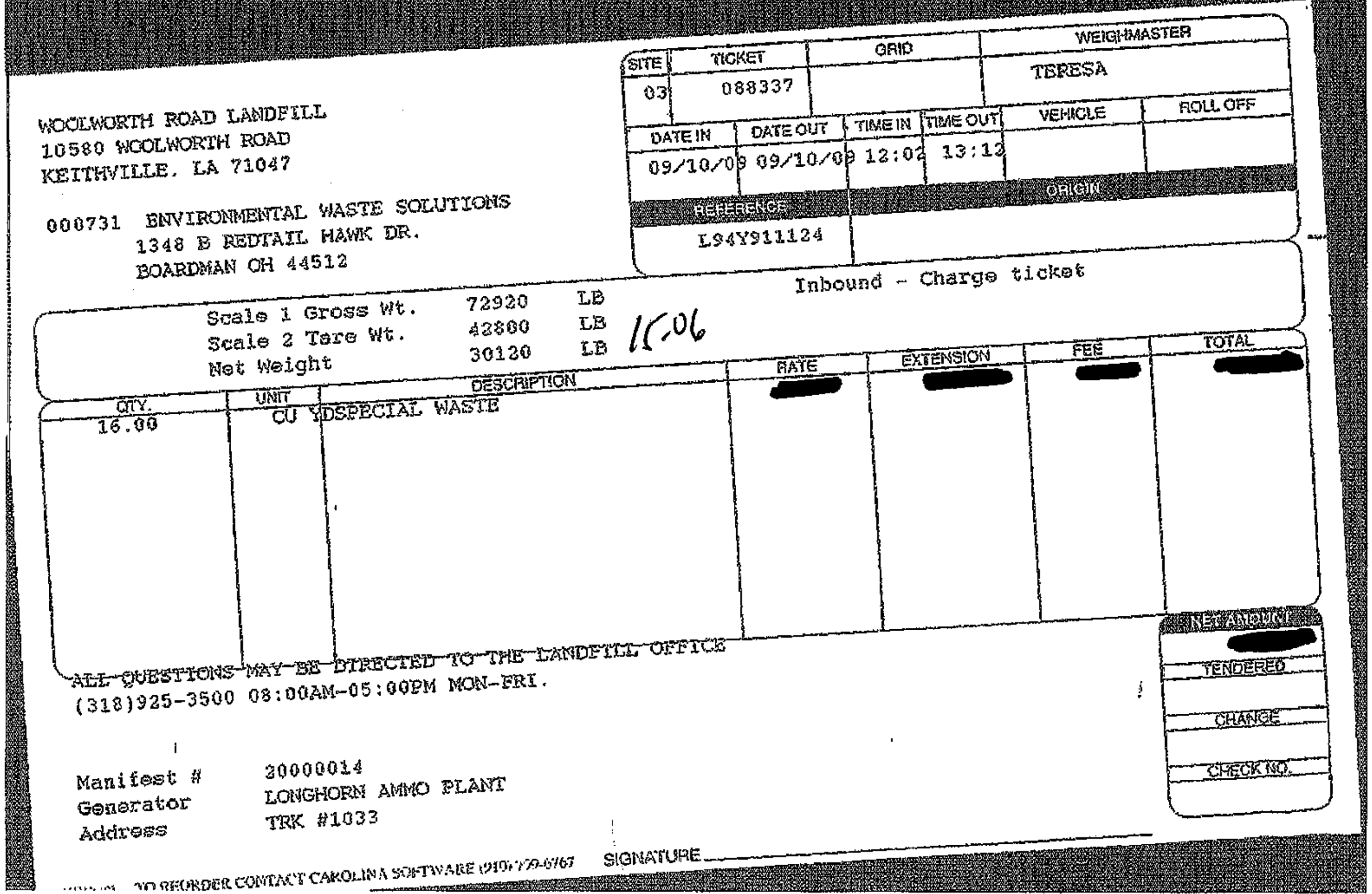
17b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone:

17c. Signature of Alternate Facility (or Generator)
Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a
Printed/Typed Name: C BO
Signature: Carol B. Oats
Month 09 Day 10 Year 09

TRANSPORTER #1

169-BLC-O 5 11977 (Rev. 8/06)



WOOLWORTH ROAD LANDFILL
10580 WOOLWORTH ROAD
KEITHVILLE, LA 71047

000731 ENVIRONMENTAL WASTE SOLUTIONS
1348 B REDTAIL HAWK DR.
BOARDMAN OH 44512

SITE	TICKET	GRID	WEIGHMASTER
03	088337		TERESA

DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
09/10/09	09/10/09	12:02	13:13		

REFERENCE	ORIGIN
L94Y911124	

Inbound - Charge ticket

Scale 1 Gross Wt.	72920	LB
Scale 2 Tare Wt.	42800	LB
Net Weight	30120	LB

1C.06

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
16.00	CU YD	SPECIAL WASTE	[redacted]	[redacted]	[redacted]	[redacted]

~~ALL QUESTIONS MAY BE DIRECTED TO THE LANDFILL OFFICE~~
(318)925-3500 08:00AM-05:00PM MON-FRI.

NET AMOUNT	[redacted]
TENDERED	
CHANGE	
CHECK NO.	

Manifest # 20000014
Generator LONGHORN AMMO PLANT
Address TRK #1033

SIGNATURE

TO REORDER CONTACT CAROLINA SOFTWARE (910) 79-6767

1213901

4:00 1214021 VP

2735/B-628

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number

2. Page 1 of

3. Emergency Response Phone

4. Waste Tracking Number [illegible]

5. Generator's Name and Mailing Address
Longhorn Army Ammunition Plant
PO Box 220 Attn: Rose Zeller
Ratliff, AR 72951

Generator's Phone: 479 635-0110

Generator's Site Address (if different than mailing address)
Longhorn AAP
15800 FM 134
Karnack, TX 75661
Former Pistol Range
Robert Ave at Ave Q

6. Transporter 1 Company Name
Tri-ad

U.S. EPA ID Number OK0981588791

7. Transporter 2 Company Name

U.S. EPA ID Number

8. Designated Facility Name and Site Address
Woolworth Road Landfill
10680 Woolworth Rd
Keithville, LA 71047

Facility's Phone: 318 925-2262

U.S. EPA ID Number P-0120

9. Waste Shipping Name and Description	10. Containers		11. Total Quantity	12. Unit Wt./Vol.
	No.	Type		
1. NON-HAZADOUS Lead Contaminated Soil	1	CM DT	16	Y
2.				
3.				
4.				

13. Special Handling Instructions and Additional Information

9b) #L04Y011124, 12/31/09

14. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Generator's/Offeror's Printed/Typed Name: Rose M Zeller

Signature: Rose M. Zeller

Month Day Year: 9 11 09

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:

Transporter Signature (for exports only): Date leaving U.S.:

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: [illegible]

Signature: [illegible]

Month Day Year: 9 11 09

Transporter 2 Printed/Typed Name

Signature

Month Day Year

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator)

U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator)

Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name: CJC

Signature: Carol J. [illegible]

Month Day Year: 9 11 09

169-BLC-O 5 11977 (Rev. 8/06)

TRANSPORTER #1

1214021

WOOLWORTH ROAD LANDFILL
10580 WOOLWORTH ROAD
KEITHVILLE, LA 71047

000731 ENVIRONMENTAL WASTE SOLUTIONS
1348 B REDTAIL HAWK DR.
BOARDMAN OH 44512

SITE	TICKET	GRID	WEIGHMASTER
03	088679		VALARIE

DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
09/11/09	09/11/09	15:58	16:49		

REFERENCE	ORIGIN
L94Y911124	

Inbound - Charge ticket

Scale 1 Gross Wt.	89920	LB
Scale 2 Tare Wt.	52400	LB
Net Weight	37520	LB

18.76 tons

QTY	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
16.00	CU YD	SPECIAL WASTE	[redacted]	[redacted]	[redacted]	[redacted]

NET AMOUNT [redacted]

TENDERED

CHANGE

CHECK NO.

~~ALL QUESTIONS MAY BE DIRECTED TO THE LANDFILL OFFICE~~
(318)925-3500 08:00AM-05:00PM MON-FRI.

Manifest # 20000019
Generator LONGHORN AMMO PLANT

SIGNATURE ______

9/22/09

11 16

1214021 VP

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number

2. Page 1 of

3. Emergency Response Phone

4. Waste Tracking Number [illegible]18

5. Generator's Name and Mailing Address
Longhorn Army Ammunition Plant
PO Box 220 Attn: Rose Zeller
Ratliff AR 72951

Generator's Phone: 479-635-0110

Generator's Site Address (if different than mailing address)
Longhorn AAP
15600 FM 134
Karnack, TX 75661
Former Pistol Range
Robert Ave at Ave W

6. Transporter 1 Company Name
Tri-ad

U.S. EPA ID Number OK0981588791

7. Transporter 2 Company Name

U.S. EPA ID Number

8. Designated Facility Name and Site Address
Woolworth Road Landfill
10580 Woolworth Rd
Keithville, LA 71047

Facility's Phone: 318-925-2292

U.S. EPA ID Number P-0120

GENERATOR

9. Waste Shipping Name and Description	10. Containers		11. Total Quantity	12. Unit Wt./Vol.
	No.	Type		
1. NON-HAZADOUS Lead Contaminated Soil	1	CM OT	16	Y
2.				
3.				
4.				

13. Special Handling Instructions and Additional Information

9b) SL94Y911124, 12/31/09

14. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Generator's/Offeror's Printed/Typed Name Rose M. Zeller

Signature

Month 9 Day 11 Year 09

INT'L

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:

Transporter Signature (for exports only): Date leaving U.S.:

TRANSPORTER

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name

Signature

Month 09 Day 11 Year 09

Transporter 2 Printed/Typed Name

Signature

Month Day Year

DESIGNATED FACILITY

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator)

U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator)

Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name CDC

Signature Carol [illegible]

Month 09 Day 11 Year 09

169-BLC-O 5 11977 (Rev. 9/06)

TRANSPORTER #1

1214021

WOOLWORTH ROAD LANDFILL
10580 WOOLWORTH ROAD
KEITHVILLE, LA 71047

000731 ENVIRONMENTAL WASTE SOLUTIONS
1348 B REDTAIL HAWK DR.
BOARDMAN OH 44512

SITE	TICKET	GRID	WEIGHMASTER
03	088572		VALARIE

DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
09/11/09	09/11/09	11:13	12:16		

REFERENCE	ORIGIN
L94Y911124	

Scale 1 Gross Wt.	83740	LB
Scale 2 Tare Wt.	42780	LB
Net Weight	40960	LB

2048 tons

Inbound - Charge ticket

QTY	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
16.00	CU YD	SPECIAL WASTE	[redacted]	[redacted]	[redacted]	[redacted]

NET AMOUNT
[redacted]
TENDERED
CHANGE
CHECK NO.

ALL QUESTIONS MAY BE DIRECTED TO THE LANDFILL OFFICE
(318)925-3500 08:00AM-05:00PM MON-FRI.

U

Manifest # 20000018
Generator LONGHORN AMMO PLANT

/22/09

SIGNATURE

/10/09

1045/B-766 1:58 1214117

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number:
2. Page 1 of
3. Emergency Response Phone:
4. Waste Tracking Number: 9000091

5. Generator's Name and Mailing Address
Longhorn Army Ammunition Plant
PO Box 220 Attn: Rose Zeller
Ratliff, AR 72951
Generator's Phone: 479 635-0110

Generator's Site Address (if different than mailing address)
15600 FM 134
Karnack, TX 75661 - Longhorn AAP Former Pistol Range Robert Avenue South of Avenue G

6. Transporter 1 Company Name: Tri-ad
U.S. EPA ID Number: OK0981588791

7. Transporter 2 Company Name:
U.S. EPA ID Number:

8. Designated Facility Name and Site Address
Woolworth Road Landfill
10580 Woolworth Rd
Keithville, LA 71047
Facility's Phone: 318 925-2262
U.S. EPA ID Number: P-0120

9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.
1. NON-HAZADOUS Lead Contaminated Soil	1	CM DT	16	Y
2.				
3.				
4.				

13. Special Handling Instructions and Additional Information
9b) #L94Y811124, 12/31/09

14. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.
Generator's/Offeror's Printed/Typed Name: Rose M Zeller
Signature: Rose M Zeller
Month 9 Day 14 Year 09

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter Signature (for exports only): Date leaving U.S.:

16. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Richard Goetz
Signature: R Goetz
Month 9 Day 14 Year 09
Transporter 2 Printed/Typed Name:
Signature: Month Day Year

17. Discrepancy
17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☑ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:
17b. Alternate Facility (or Generator) U.S. EPA ID Number
Facility's Phone:
17c. Signature of Alternate Facility (or Generator) Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a
Printed/Typed Name: CBO
Signature: Carol B Oates
Month 09 Day 14 Year 09

169-BLC-O 5 11977 (Rev. 8/06)

TRANSPORTER #1

1214117

/16/09

WOOLWORTH ROAD LANDFILL
10580 WOOLWORTH ROAD
KEITHVILLE, LA 71047

000731 ENVIRONMENTAL WASTE SOLUTIONS
1348 E REDTAIL HAWK DR.
BOARDMAN OH 44512

SITE	TICKET	GRID	WEIGHMASTER
03	088923		DE JUANA

DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
09/14/09	09/14/09	13:47	13:47		

REFERENCE	ORIGIN
L94Y911124	

Scale 1 Gross Wt.	81980	LB
Manual Tare Wt.	43640	LB
Net Weight	38340	LB

19.17

Inbound - Charge ticket

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
16.00	CU YD	SPECIAL WASTE	[redacted]	[redacted]	[redacted]	[redacted]

ALL QUESTIONS MAY BE DIRECTED TO THE LANDFILL OFFICE
(318)925-3500 08:00AM-05:00PM MON-FRI.

NET AMOUNT	[redacted]
TENDERED	
CHANGE	
CHECK NO.	

Manifest # 20000021
Generator LONGHORN AMMO PLANT
Address TRK #1045

WW6T1 TO REORDER CONTACT CAROLINA SOFTWARE (910) 799-6767 SIGNATURE

9:31

1214117

1045/B-959

NON-HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone
4. Waste Tracking Number	30000030		

5. Generator's Name and Mailing Address
Longhorn Army Ammunition Plant
PO Box 220 Attn: Rose Zeller
Ratliff, AR 72951
Generator's Phone: 479 635 0110

Generator's Site Address (if different than mailing address)
15600 FM 134
Karnack, TX 75661
Longhorn AAP
Former Pistol Range
Robert Ave South of Ave. Q

6. Transporter 1 Company Name: Tri-ad
U.S. EPA ID Number: OK0281588791

7. Transporter 2 Company Name:
U.S. EPA ID Number:

8. Designated Facility Name and Site Address
Woolworth Road Landfill
10580 Woolworth Rd
Keithville, LA 71047
Facility's Phone: 318 925 3282
U.S. EPA ID Number: P-0120

GENERATOR

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.
1.	NON-HAZADOUS Lead Contaminated Soil	1	CM DT	16	Y
2.					
3.					
4.					

13. Special Handling Instructions and Additional Information
9b) #L94Y911124, 12/31/09

14. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.
Generator's/Offeror's Printed/Typed Name: Rose M. Zeller
Signature:
Month 9 Day 14 Year 09

INT'L

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter Signature (for exports only): Date leaving U.S.:

TRANSPORTER

16. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: RICARD GOETZ
Signature: R Goetz
Month 9 Day 14 Year 09
Transporter 2 Printed/Typed Name:
Signature:
Month Day Year

DESIGNATED FACILITY

17. Discrepancy
17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:
17b. Alternate Facility (or Generator) U.S. EPA ID Number
Facility's Phone:
17c. Signature of Alternate Facility (or Generator) Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a
Printed/Typed Name: CBO
Signature: Carol B. Oate
Month 09 Day 14 Year 09

169-BLC-O 6 11977 (Rev. 8/06)

TRANSPORTER #1

1214117

WOOLWORTH ROAD LANDFILL
10580 WOOLWORTH ROAD
KEITHVILLE, LA 71047

000731 ENVIRONMENTAL WASTE SOLUTIONS
1348 B REDTAIL HAWK DR.
BOARDMAN OH 44512

SITE	TICKET	GRID	WEIGHMASTER
03	088837		TERESA

DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
09/14/09	09/14/09	09:16	10:33		

REFERENCE	ORIGIN
L94Y911124	

Scale 1 Gross Wt. 81520 LB
Scale 2 Tare Wt. 43640 LB
Net Weight 37880 LB

18.94

Inbound - Charge ticket

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
16.00	CU YD	SPECIAL WASTE	[redacted]	[redacted]	[redacted]	[redacted]

ALL QUESTIONS MAY BE DIRECTED TO THE LANDFILL OFFICE
(318)925-3500 08:00AM-05:00PM MON-FRI.

NET AMOUNT	[redacted]
TENDERED	
CHANGE	
CHECK NO.	

Manifest # 20000020
Generator LONGHORN AMMO PLANT
Address TRK #1045

/16/09

WWGTI TO REORDER CONTACT CAROLINA SOFTWARE (910) 799-6767

SIGNATURE ____________________

00083813

1048/B-1113 wo# 7182 TC- 38,380

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: TX6213820129
2. Page 1 of: 1
3. Emergency Response Phone: 479-635-0110
4. Manifest Tracking Number: 005974010 JJK

5. Generator's Name and Mailing Address

LONGHORN ARMY AMMUNITION PLANT
PO BOX 220 RATCLIFF, ARKANSAS 72951

Generator's Site Address (if different than mailing address)

ROBERT AVE SOUTH OF AVE Q
KARNACK, TEXAS 75561

Generator's Phone: ~~(479) 635-0110 Att: ROSE ZEILER~~

6. Transporter 1 Company Name: TRIAD TRANSPORT
U.S. EPA ID Number: OKD9681588791

7. Transporter 2 Company Name:
U.S. EPA ID Number:

8. Designated Facility Name and Site Address

US ECOLOGY TEXAS, LP
3.5 MILES S. PETRONILA RD., ROBSTOWN, TX 78380

Facility's Phone: (361) 387-3518

U.S. EPA ID Number: TXD069452340 / 50052

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes		
	1. RQ WASTE HAZARDOUS, SOLID, N.O.S., 9,NA3077, III (LEAD CONTAMINATED SOIL)	1	CM	~~40000~~ 16.18 WRS	~~P~~ yds.	~~0137319H~~		~~D008~~
	2.							
	3.							
	4.							

14. Special Handling Instructions and Additional Information

a) 09-006-6424 c)
b) d)

15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Rose M. Zeiler
Signature: Rose M. Zeiler
Month 9 Day 25 Year 09

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Donald R Brown
Signature: Donald R Brown
Month 9 Day 25 Year 09
Transporter 2 Printed/Typed Name: Signature: Month Day Year

18. Discrepancy
18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:
18b. Alternate Facility (or Generator) U.S. EPA ID Number
Facility's Phone:
18c. Signature of Alternate Facility (or Generator) Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)
1. H132
2.
3.
4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name: Javi Andrade
Signature:
Month 9 Day 28 Year 09

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

Scale Ticket

Phone: 800 242 3209

US ECOLOGY TEXAS, INC.
ROBSTOWN, TX

Scale Ticket #: 94770

Work Order #: 09092807182

Checkin Date: 09/28/2009 **Time:** 08:57

Checkout Date: 09/28/2009 **Time:** 11:46

005974010JJK

Transporter:
TRIAD TRANSPORT, INC.

, OK

Customer
ENVIRONMENTAL WASTE MGT. LLC
1348 B REDTAIL HAWK DR.
BOARDMAN, OH

EPA ID: OKD981588791

Truck #: 1048

Tractor #:

Trailer #:

Driver: DONAOLD BROWN

GROSS WEIGHT :	**80,560.00**	**LBs**
TARE WEIGHT :	**42,180.00**	**LBs**
NET WEIGHT :	**38,380.00**	**LBs**

19.19 TONS

2735/B-674 W07416

TW. 30220

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number TX6213820129
2. Page 1 of 1
3. Emergency Response Phone 479-635-0110
4. Manifest Tracking Number 005974014 JJK

5. Generator's Name and Mailing Address
LONGHORN ARMY AMMUNITION PLANT
PO BOX 220 RATCLIFF, ARKANSAS 72951

Generator's Phone: (479) 635-0110 Att: ROSE ZEILER

Generator's Site Address (if different than mailing address)
ROBERT AVE SOUTH OF AVE Q
KARNACK, TEXAS 75561

6. Transporter 1 Company Name TRIAD TRANSPORT
U.S. EPA ID Number OKD981588791

7. Transporter 2 Company Name
U.S. EPA ID Number

8. Designated Facility Name and Site Address
US ECOLOGY TEXAS, LP
3.5 MILES S. PETRONILA RD., ROBSTOWN, TX 78380
Facility's Phone: (361) 387-3518
U.S. EPA ID Number TXD069452340 / 50052

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers		11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes			
		No.	Type						
	1. RQ WASTE HAZARDOUS, SOLID, N.O.S., 9,NA3077, III (LEAD CONTAMINATED SOIL)	1	CM	~~40000~~ 16	~~P~~ Yds	0137319H		D008	
	2.								
	3.								
	4.								

14. Special Handling Instructions and Additional Information
a) 09-006-6424 c)
b) d)

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name Rose M. Zeiler
Signature Rose M. Zeiler
Month 10 Day 6 Year 09

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name ROGER WILLIAMS
Signature Roger D Williams
Month 10 Day 6 Year 09
Transporter 2 Printed/Typed Name
Signature
Month Day Year

18. Discrepancy
18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:
18b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone:
18c. Signature of Alternate Facility (or Generator)
Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)
1. H132
2.
3.
4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name Mark Reyes
Signature Mark Reyes
Month 10 Day 07 Year 09

GENERATOR — INTL — TRANSPORTER — DESIGNATED FACILITY

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

Scale Ticket

Phone: 800 242 3209

US ECOLOGY TEXAS, INC.
ROBSTOWN, TX

Scale Ticket #: 94703

Work Order #: 09100707416

Checkin Date: 10/07/2009 **Time:** 09:40

Checkout Date: 10/07/2009 **Time:** 11:56

005974014JJK

Transporter:
TRIAD TRANSPORT, INC
1630 DIESEL
MCALESTER, OK

EPA ID: OKD981588791

Customer
ENVIRONMENTAL WASTE MGT. LLC
1348 B REDTAIL HAWK DR.
BOARDMAN, OH

Truck #: 2735

Tractor #:

Trailer #:

Driver: ROGER WILLIAMS

GROSS WEIGHT :	**73,580.00**	**LBs**	
TARE WEIGHT :	**43,360.00**	**LBs**	
NET WEIGHT :	**30,220.00**	**LBs**	15.11 TONS

0# 7410
1033/B-1096

TW- 38,440

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: TX6213820129
2. Page 1 of 1
3. Emergency Response Phone: 479-635-0110
4. Manifest Tracking Number: 005974011 JJK

GENERATOR

5. Generator's Name and Mailing Address
LONGHORN ARMY AMMUNITION PLANT
PO BOX 220 RATCLIFF, ARKANSAS 72951
Generator's Phone: (479) 635-0110 Att: ROSE ZEILER

Generator's Site Address (if different than mailing address)
ROBERT AVE SOUTH OF AVE Q
KARNACK, TEXAS 75561

6. Transporter 1 Company Name: TRIAD TRANSPORT
U.S. EPA ID Number: OKD9681588791

7. Transporter 2 Company Name:
U.S. EPA ID Number:

8. Designated Facility Name and Site Address
US ECOLOGY TEXAS, LP
3.5 MILES S. PETRONILA RD., ROBSTOWN, TX 78380
Facility's Phone: (361) 387-3518
U.S. EPA ID Number: TXD069452340 / 50052

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers		11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes	
		No.	Type				
	1. RQ WASTE HAZARDOUS, SOLID, N.O.S., 9,NA3077, III (LEAD CONTAMINATED SOIL)	1	CM	~~40000~~ 16	~~P~~ Yds	0137319H	D008
	2.						
	3.						
	4.						

14. Special Handling Instructions and Additional Information
a) 09-006-6424 c)
b) d)

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Rose M. Zeiler
Signature: Rose M. Zeiler
Month 10 Day 6 Year 09

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S.
Port of entry/exit:
Transporter signature (for exports only):
Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Vern Loften Jr.
Signature:
Month 10 Day 6 Year 09
Transporter 2 Printed/Typed Name:
Signature:
Month Day Year

DESIGNATED FACILITY

18. Discrepancy
18a. Discrepancy Indication Space ☑ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

We received 38,440 LBS. ok Per Kieth G. @ Environmental waste solutions.

Manifest Reference Number:

18b. Alternate Facility (or Generator)
U.S. EPA ID Number:
Facility's Phone:

18c. Signature of Alternate Facility (or Generator)
Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1. H132	2.	3.	4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name: Mark Reyes
Signature: Mark Reyes
Month 10 Day 07 Year 09

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

Scale Ticket

Phone: 800 242 3209

US ECOLOGY TEXAS, INC.
ROBSTOWN, TX

Scale Ticket #: 96208

Work Order #: 09100707410

Checkin Date: 10/07/2009 **Time:** 08:29

Checkout Date: 10/07/2009 **Time:** 10:17

005974011JJK

Transporter:
TRIAD TRANSPORT, INC
1630 DIESEL
MCALESTER, OK

EPA ID: OKD981588791

Customer
ENVIRONMENTAL WASTE MGT. LLC
1348 B REDTAIL HAWK DR.
BOARDMAN, OH

Truck #: 1033

Tractor #:

Trailer #:

Driver: VERN LOFTEN JR.

GROSS WEIGHT :	**80,360.00**	**LBs**
TARE WEIGHT :	**41,920.00**	**LBs**
NET WEIGHT :	**38,440.00**	**LBs**

19.22 TONS

2740/B-1111

WO#7408

TW. 39,600

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: X6213820129
2. Page 1 of 1
3. Emergency Response Phone: 479-635-0110
4. Manifest Tracking Number: 005974013 JJK

5. Generator's Name and Mailing Address:
LONGHORN ARMY AMMUNITION PLANT
PO BOX 220 RATCLIFF, ARKANSAS 72951

Generator's Site Address (if different than mailing address):
ROBERT AVE SOUTH OF AVE Q
KARNACK, TEXAS 75561

Generator's Phone: (479) 635-0110 Att: ROSE ZEILER

6. Transporter 1 Company Name: TRIAD TRANSPORT
U.S. EPA ID Number: OKD9681538791

7. Transporter 2 Company Name:
U.S. EPA ID Number:

8. Designated Facility Name and Site Address:
US ECOLOGY TEXAS, LP
3.6 MILES S. PETRONILA RD., ROBSTOWN, TX 78380
Facility's Phone: (361) 387-3518
U.S. EPA ID Number: TXD069452340 / 50062

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes		
	1. RQ WASTE HAZARDOUS, SOLID, N.O.S., 9,NA3077, III (LEAD CONTAMINATED SOIL)	1	CM	~~40000~~ 16	~~P~~ Yds	0137819H		D008
	2.							
	3.							
	4.							

14. Special Handling Instructions and Additional Information
a) 09-006-6424 c)
b) d)

B-1111

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Rose M. Zeiler
Signature: Rose M Zeiler
Month 10 Day 6 Year 09

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Rodolfo VAldez
Signature: Rodolfo Valdez
Month 10 Day 6 Year 09
Transporter 2 Printed/Typed Name:
Signature:
Month Day Year

18. Discrepancy
18a. Discrepancy Indication Space ☑ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
We received 39,600 LBS ~~Message left with~~, OK Per ~~Keith~~ MR Keith Genovese @ Environmental waste Soldn.
Manifest Reference Number:
18b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone:
18c. Signature of Alternate Facility (or Generator)
Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)
1. H132
2.
3.
4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name: Mark Reyes
Signature: Mark Reyes
Month 10 Day 07 Year 09

GENERATOR
INT'L
TRANSPORTER
DESIGNATED FACILITY

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

Scale Ticket

Phone: 800 242 3209

US ECOLOGY TEXAS, INC.
ROBSTOWN, TX

Scale Ticket #: 96165
Checkin Date: 10/07/2009 **Time:** 07:44

Work Order #: 09100707408
Checkout Date: 10/07/2009 **Time:** 09:52

005974013JJK

Transporter:
TRIAD TRANSPORT, INC
1630 DIESEL
MCALESTER, OK

Customer
ENVIRONMENTAL WASTE MGT. LLC
1348 B REDTAIL HAWK DR.
BOARDMAN, OH

EPA ID: OKD981588791

Truck #: 2740 **Tractor #:** **Trailer #:**

Driver: RODOLFO VALDEZ

GROSS WEIGHT :	**81,720.00**	**LBs**	
TARE WEIGHT :	**42,120.00**	**LBs**	
NET WEIGHT :	**39,600.00**	**LBs**	19.80 TONS

Jones, Greg N

From: Shannon.Wilkin@epamail.epa.gov
Sent: Wednesday, January 06, 2010 5:02 PM
To: Jones, Greg N
Subject: RE: Compliance with Off-Site Rule

Hello Greg, thanks for the site information. Both facilities you mentioned below are acceptable for CERCLA waste. U.S. Ecology, Robstown, TX (EPA ID #TXD069452340) last inspected 01/28/09; Republic Waste Services, Keithville, LA (LDEQ ID #9077) last inspected 06/09).

Wilkin Ronald Shannon
Hazardous Waste Enforcement Branch
Compliance Assurance & Enforcement Division
U.S. EPA Region 6
(214) 665-2282 - voice
(214) 665-7264 - fax
shannon.wilkin@epa.gov

From: "Jones, Greg N" <Greg.N.Jones@shawgrp.com>
To: Wilkin Shannon/R6/USEPA/US@EPA
Date: 01/06/2010 12:16 PM
Subject: RE: Compliance with Off-Site Rule

Mr. Shannon,

The two facilities and wastes streams are as follows:

- U.S. Ecology's Robstown, TX facility: approximately 75 tons of lead-contaminated soil (code D008)
- Republic Waste Services' Woolworth Road facility in Keithsville, LA: approximately 180 tons of lead-contaminated soil (non-hazardous)

These waste streams originated at a small site that was used intermittently for small arms practice (referred to as the former Pistol Range) at Longhorn Army Ammunition Plant in Karnack, Texas,.

Thanks,
Gregary N. Jones, PhD, PE
Senior Environmental Engineer
Applied Science & Engineering
Shaw Environmental & Infrastructure Group
1401 Enclave Parkway, Suite 250
Houston, TX 77077
281/531-3172 direct
281/796-1212 cell

Shaw™ a world of Solutions™
www.shawgrp.com

Added Note: The Woolworth Road landfill is also known as an Allied Waste facility because Allied Waste Industries merged with Republic Services in December 2008.

Appendix D

Field Reports

- **PRWW01 Plugging Report**
- **Surveyor Report**
- **Daily Quality Control Reports**

STATE OF TEXAS PLUGGING REPORT for Tracking #56365

Owner:	**USACE**	Owner Well #:	**PRWW01**
Address:	**Spur 449 and Highway 134** **Karnack , TX 75661**	Grid #:	**35-24-7**
Well Location:	**Longhorn Ammunition Plant** **Karnack , TX 75661**	Latitude:	**32° 39' 43" N**
Well County:	**Harrison**	Longitude:	**094° 07' 19" W**
		GPS Brand Used:	**N/A**

Well Type: **Monitor**

HISTORICAL DATA ON WELL TO BE PLUGGED

Original Well Driller:	**Jedi Drilling**
Driller's License Number of Original Well Driller:	**N/A**
Date Well Drilled:	**9/5/2007**
Well Report Tracking Number:	**No Data**
Diameter of Well:	**4 inches**
Total Depth of Well:	**34' feet**

Date Well Plugged:	**6/4/2009**
Person Actually Performing Plugging Operation:	**Walker-Hill Environmental, Inc**
License Number of Plugging Operator:	**58141**
Plugging Method:	**Tremmie pipe cement from bottom to top.**
Plugging Variance #:	**No Data**
Casing Left Data:	1st Interval: **0 inches diameter, From 0 ft to (No Data) ft** 2nd Interval: **No Data** 3rd Interval: **No Data**
Cement/Bentonite Plugs Placed in Well:	1st Interval: **From 0 ft to 34 ft; Sack(s)/type of cement used: 6** 2nd Interval: **No Data** 3rd Interval: **No Data** 4th Interval: **No Data** 5th Interval: **No Data**

Certification Data:	The plug installer certified that the plug installer plugged this well (or the well was plugged under the plug installer's direct supervision) and that each and all of the statements herein are true and correct. The plug installer understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.
Company Information:	**Walker-Hill Environmental, Inc.** **PO Box 1147** **Foxworth , MS 39483**
Plug Installer License Number:	**58141**

Licensed Plug Installer Signature:	**Gary P. Hill**
Registered Plug Installer Apprentice Signature:	**No Data**
Apprentice Registration Number:	**No Data**
Plugging Method Comments:	**Well could not be pulled so it was over drilled and tremie grouted with cement to surface grade.**

Please include the plugging report's tracking number (Tracking #**56365**) on your written request.

Texas Department of Licensing & Regulation
P.O. Box 12157
Austin, TX 78711
(512) 463-7880

LANDMARK CONSULTANTS, Inc.

Tom A. Fidler, R. P. L. S.

September 22, 2009

Shaw Environmental
3010 Brairpark
Houston, Tx 77042

ATTN: Kay Everett

Dear Ms. Everett:

Here is a list of the coordinates that Praveen gave to our survey crew on the ground at the pistol range at Longhorn..Our crew was instructed to put a wood lath at each of the points, which we did.

If you have any questions, please call..

#	North	East	Description
781	6951929.70	3314847.90	EXCAVATION PERIMETER POINT "A"
782	6951929.70	3314857.50	EXCAVATION PERIMETER POINT "B"
783	6951904.30	3314871.20	EXCAVATION PERIMETER POINT "C"
784	6951893.80	3314890.40	EXCAVATION PERIMETER POINT "D"
785	6951880.50	3314890.40	EXCAVATION PERIMETER POINT "E"
786	6951866.30	3314870.80	EXCAVATION PERIMETER POINT "F"
787	6951866.30	3314848.70	EXCAVATION PERIMETER POINT "G"
788	6951882.60	3314832.90	EXCAVATION PERIMETER POINT "H"
789	6951899.70	3314832.90	EXCAVATION PERIMETER POINT "I"
790	6951904.70	3314837.50	EXCAVATION PERIMETER POINT "J"

Tom A Fidler, RPLS

1015 W. Loop 281, Suite 8, P.O. Box 606 Longview, Texas 75606 (903) 236-3377
FAX (903) 236-3530

PROFESSIONAL LAND SURVEYORS
TEXAS * CALIFORNIA * INDIANA * ARKANSAS * ARIZONA

DAILY CONTRACTOR QUALITY CONTROL REPORT

Shaw Environmental, Inc.
3010 Briarpark Drive
Houston, Texas 77042

Project Name: Longhorn AAP
Project Location: Pistol Range & LHAAP-04
Shaw Report No.: 1 (Aug 4, 2009)

WEATHER: (x) Clear ( ) P. Cloudy ( ) Cloudy
Wind________________________
Temperature: High___95____ Low__70_____
Precipitation: Today: None Prev. Period (i.e., weekend): 8 inches rain during week prior to start of field work
Site Conditions: ground is soft from previous rainfall
Lost Time Due to Inclement Weather: 0%

PRIME CONTRACTOR/SUBCONTRACTORS AND AREAS OF RESPONSIBILITY/LABOR COUNT:
(Include number, trade, hours, employer, location, and description of work.)

a. Shaw – Praveen Srivastav (Project Manager), Steve Moreau (Construction Manager), Bill Squire (SSO/QC), Allen Willmore (Geologist), Rich Rennhack (Equipment Operator), Clyde Woods (Equipment Operator)

b.

c.

d.

e.

f.

WORK PERFORMED: (Include location and description of work performed including equipment used. Refer to work performed by prime and/or subcontractors as previously designated by letter above. Attached subcontractor daily activity reports when applicable):

Receive equipment and supplies; perform site walk and conduct preparatory inspections of Pistol Range and LHAAP-04; begin construction of access road into Pistol Range

---

MATERIALS AND/OR EQUIPMENT DELIVERED: (Include a description of materials and/or equipment, quantity, date/hours used, date of safety check, and supplier)

(1) Hitachi 225 Excavator, (1) Case 621D Loader, (1) 150' roll geotextile fabric, miscellaneous Health & Safety supplies, (1) PDR 1000 aerosol monitor

Page 1 of 3

RESULTS OF SURVEILLANCE: (Include satisfactory work completed or deficiencies with action to be taken.)

a. Preparatory Inspection: (Attach Minutes)

Satisfactory

b. Initial Inspection: (Attach Minutes)

NA

c. Follow-up Inspection: (List results of inspection compared to specification requirements.)

NA

d. Safety Inspection: (Include safety violations and corrective actions taken.)

No deficiencies

OFF-SITE SURVEILLANCE ACTIVITIES: (Include action taken.)

NA

QC TESTS PERFORMED AND RESULTS: (As required by plans and/or specifications.)

NA

VERBAL INSTRUCTIONS RECEIVED OR GIVEN: (List any instructions received from government personnel or given by Shaw on construction deficiencies identified, required retesting, etc., and the corresponding action to be taken.)

None

CHANGED CONDITIONS/DELAYS/CONFLICTS ENCOUNTERED: (List any conflicts with the delivery order [i.e., Scope of Work and/or drawings], delays to the project attributable to site, and weather conditions, etc.)

None

Page 2 of 3

SUBMITTALS REVIEWED: (Include submittal number, specification reference, and name of submitter.)

Shaw – Final Removal Action Work Plan, Former Pistol Range and LHAAP-04
Shaw – Final Installation-wide Work Plan Appendix A, Health & Safety Plan

MEETINGS: (List the meetings, i.e., Health and Safety, Site Operations, Cost/Schedule, etc.)
Site orientation and Health & Safety

VISITORS:
None

REMARKS: (Any additional information pertinent to the project not defined by the previous entries.)

CONTRACTOR'S VERIFICATION: The above report is complete and correct. All material and equipment used and work performed during this reporting period are in compliance with the contract plans and specifications except as noted above.

Bill Squire

08/04/09

Shaw CQCSM (or designee) Date

Page 3 of 3

DAILY CONTRACTOR QUALITY CONTROL REPORT

Shaw Environmental, Inc.
3010 Briarpark Drive
Houston, Texas 77042

Project Name: Longhorn AAP
Project Location: Pistol Range & LHAAP-04
Shaw Report No.: 2 (Aug 5, 2009)

WEATHER: ( ) Clear (x) P. Cloudy ( ) Cloudy
Wind________________________
Temperature: High___95____ Low__70_____
Precipitation: Today: None Prev. Period (i.e., weekend): 8 inches rain during week prior to start of field work
Site Conditions: ground is soft from previous rainfall
Lost Time Due to Inclement Weather: 0%

PRIME CONTRACTOR/SUBCONTRACTORS AND AREAS OF RESPONSIBILITY/LABOR COUNT:
(Include number, trade, hours, employer, location, and description of work.)

a. Shaw – Praveen Srivastav (Project Manager), Greg Jones (Remediation Manager), Susan Watson (Project Engineer), Steve Moreau (Construction Manager), Bill Squire (SSO/QC), Allen Willmore (Geologist), Rich Rennhack (Equipment Operator), Clyde Woods (Equipment Operator)

b.

c.

d.

e.

f.

WORK PERFORMED: (Include location and description of work performed including equipment used. Refer to work performed by prime and/or subcontractors as previously designated by letter above. Attached subcontractor daily activity reports when applicable):

Receive roll off boxes and construction supplies; conduct initial inspections of Pistol Range and LHAAP-04; complete construction of access road into Pistol Range; begin excavation of the Pistol Range target embankment; collect soil and concrete samples for disposal characterization

MATERIALS AND/OR EQUIPMENT DELIVERED: (Include a description of materials and/or equipment, quantity, date/hours used, date of safety check, and supplier)

(6) 20 yd roll off containers, lined, (5 truckloads) dirt for Pistol Range access road

Page 1 of 3

RESULTS OF SURVEILLANCE: (Include satisfactory work completed or deficiencies with action to be taken.)

a. Preparatory Inspection: (Attach Minutes)

NA

b. Initial Inspection: (Attach Minutes)

Pistol Range - Satisfactory

c. Follow-up Inspection: (List results of inspection compared to specification requirements.)

NA

d. Safety Inspection: (Include safety violations and corrective actions taken.)

No deficiencies

OFF-SITE SURVEILLANCE ACTIVITIES: (Include action taken.)

NA

QC TESTS PERFORMED AND RESULTS: (As required by plans and/or specifications.)

Aerosol monitoring at Pistol Range – no exceedances

VERBAL INSTRUCTIONS RECEIVED OR GIVEN: (List any instructions received from government personnel or given by Shaw on construction deficiencies identified, required retesting, etc., and the corresponding action to be taken.)

None

CHANGED CONDITIONS/DELAYS/CONFLICTS ENCOUNTERED: (List any conflicts with the delivery order [i.e., Scope of Work and/or drawings], delays to the project attributable to site, and weather conditions, etc.)

Site conditions (ie soft ground) at the Pistol Range prevented the loader from scooping up excavated soil at the excavation area, therefore an intermediate stockpile of excavated soil was placed on plastic sheeting and was subsequently transferred to the roll off containers

SUBMITTALS REVIEWED: (Include submittal number, specification reference, and name of submitter.)

NA

MEETINGS: (List the meetings, i.e., Health and Safety, Site Operations, Cost/Schedule, etc.)

Tailgate Safety Meeting to discuss Daily Operations and Health & Safety

VISITORS:
None

REMARKS: (Any additional information pertinent to the project not defined by the previous entries.)

LHAAP-04 disposal characterization samples collected:
04SD01 (0-2) for perchlorate, TCLP RCRA metals, RCI analyses
04SD02 (0-2) for perchlorate, TCLP RCRA metals, RCI analyses
04SD03 (0-3) for perchlorate, TCLP RCRA metals, RCI analyses
04SD04 (0-2) for perchlorate, TCLP RCRA metals, RCI analyses
04SD05 (0-4) for perchlorate, TCLP RCRA metals, RCI analyses
04CONC01 for perchlorate analysis
04CONC02 for perchlorate analysis

Pistol Range confirmation samples collected:
PRCSFL04 for lead analysis
PRCSWDF (plus MS/MSD) for lead analysis
PRCL01 for VOC, SVOC, TAL metals analysis

CONTRACTOR'S VERIFICATION: The above report is complete and correct. All material and equipment used and work performed during this reporting period are in compliance with the contract plans and specifications except as noted above.

Bill Squire

08/05/09

Shaw CQCSM (or designee) Date

Page 3 of 3

DAILY CONTRACTOR QUALITY CONTROL REPORT

Shaw Environmental, Inc.
3010 Briarpark Drive
Houston, Texas 77042

Project Name: Longhorn AAP
Project Location: Pistol Range & LHAAP-04
Shaw Report No.: 3 (Aug 6, 2009)

WEATHER: (x) Clear ( ) P. Cloudy ( ) Cloudy
Wind________________________
Temperature: High___95____ Low__70_____
Precipitation: Today: None Prev. Period (i.e., weekend): 8 inches rain during week prior to start of field work
Site Conditions: ground is soft from previous rainfall
Lost Time Due to Inclement Weather: 0%

PRIME CONTRACTOR/SUBCONTRACTORS AND AREAS OF RESPONSIBILITY/LABOR COUNT:
(Include number, trade, hours, employer, location, and description of work.)

a. Shaw – Praveen Srivastav (Project Manager), Steve Moreau (Construction Manager), Bill Squire (SSO/QC), Allen Willmore (Geologist), Rich Rennhack (Equipment Operator), Clyde Woods (Equipment Operator)

b.

c.

d.

e.

f.

WORK PERFORMED: (Include location and description of work performed including equipment used. Refer to work performed by prime and/or subcontractors as previously designated by letter above. Attached subcontractor daily activity reports when applicable):

General: Receive roll off boxes, water truck, pick up truck, 250 gal fuel tank

Pistol Range: conduct follow up inspections of Pistol Range; complete excavation of the Pistol Range; collect confirmation soil samples from excavation walls and floor; collect disposal characterization samples from roll off boxes (see remarks section below); filled roll off box nos. 701, 758, 766, 859, 906, 959, 1096, 1111, 1113; cover all roll off boxes at end of day

LHAAP-04: No activity today

MATERIALS AND/OR EQUIPMENT DELIVERED: (Include a description of materials and/or equipment, quantity, date/hours used, date of safety check, and supplier)

(6) 20 yd roll off containers, lined, (1) water truck, (1) pick up truck, (1) 250 gallon diesel fuel tank

Page 1 of 3

RESULTS OF SURVEILLANCE: (Include satisfactory work completed or deficiencies with action to be taken.)

a. Preparatory Inspection: (Attach Minutes)

NA

b. Initial Inspection: (Attach Minutes)

NA

c. Follow-up Inspection: (List results of inspection compared to specification requirements.)

All work completed in accordance with Work Plan

d. Safety Inspection: (Include safety violations and corrective actions taken.)

No deficiencies

OFF-SITE SURVEILLANCE ACTIVITIES: (Include action taken.)

NA

QC TESTS PERFORMED AND RESULTS: (As required by plans and/or specifications.)

Aerosol monitoring at Pistol Range – no exceedances

Maximum TWA – 0.012 mg/m^3

Min - max Direct Reading – 0.000 mg/m^3 and 0.020 mg/m^3

VERBAL INSTRUCTIONS RECEIVED OR GIVEN: (List any instructions received from government personnel or given by Shaw on construction deficiencies identified, required retesting, etc., and the corresponding action to be taken.)

None

CHANGED CONDITIONS/DELAYS/CONFLICTS ENCOUNTERED: (List any conflicts with the delivery order [i.e., Scope of Work and/or drawings], delays to the project attributable to site, and weather conditions, etc.)

Site conditions (ie soft ground) at the Pistol Range continued to prevent the loader from scooping up excavated soil at the excavation area, therefore an intermediate stockpile of excavated soil was placed on plastic sheeting and was subsequently transferred to the roll off containers

Page 2 of 3

SUBMITTALS REVIEWED: (Include submittal number, specification reference, and name of submitter.)

NA

MEETINGS: (List the meetings, i.e., Health and Safety, Site Operations, Cost/Schedule, etc.)

Tailgate Safety Meeting to discuss Daily Operations and Health & Safety

VISITORS:

None

REMARKS: (Any additional information pertinent to the project not defined by the previous entries.)

Roll off container disposal characterization samples collected:
PRRO 701 GR for TCLP VOCs, TCLP RCRA metals, RCI analyses
PRRO 731 GR for TCLP VOCs, TCLP RCRA metals, RCI analyses
PRRO 758 GR for TCLP VOCs, TCLP RCRA metals, RCI analyses
PRRO 859 GR for TCLP VOCs, TCLP RCRA metals, RCI analyses
PRRO 906 GR for TCLP VOCs, TCLP RCRA metals, RCI analyses
PRRO 1096 GR for TCLP VOCs, TCLP RCRA metals, RCI analyses
PRSD01 for TCLP VOCs, TCLP RCRA metals, RCI analyses

Note: PRSD01 is a composite of 6 samples above

Pistol Range confirmation samples collected:
PRCSFL01 for lead analysis
PRCSFL02 for lead analysis
PRCSFL03 for lead analysis
PRCSFL03-QC for lead analysis
PRCSFL05 for lead analysis
PRCSWBD for lead analysis
PRCSWHB for lead analysis
PRCSWFH for lead analysis

CONTRACTOR'S VERIFICATION: The above report is complete and correct. All material and equipment used and work performed during this reporting period are in compliance with the contract plans and specifications except as noted above.

Bill Squire

08/06/09

Shaw CQCSM (or designee)

Date

Page 3 of 3

DAILY CONTRACTOR QUALITY CONTROL REPORT

Shaw Environmental, Inc.
3010 Briarpark Drive
Houston, Texas 77042

Project Name: Longhorn AAP
Project Location: Pistol Range & LHAAP-04
Shaw Report No.: 4 (Aug 7, 2009)

WEATHER: (x) Clear ( ) P. Cloudy ( ) Cloudy
Wind________________________
Temperature: High___95____ Low__70_____
Precipitation: Today: None Prev. Period (i.e., weekend): 8 inches rain during week prior to start of field work
Site Conditions: ground is soft from previous rainfall
Lost Time Due to Inclement Weather: 0%

PRIME CONTRACTOR/SUBCONTRACTORS AND AREAS OF RESPONSIBILITY/LABOR COUNT:
(Include number, trade, hours, employer, location, and description of work.)

a. Shaw – Steve Moreau (Construction Manager), Bill Squire (SSO/QC), Allen Willmore (Geologist), Rich Rennhack (Equipment Operator), Clyde Woods (Equipment Operator)

b.

c.

d.

e.

WORK PERFORMED: (Include location and description of work performed including equipment used. Refer to work performed by prime and/or subcontractors as previously designated by letter above. Attached subcontractor daily activity reports when applicable):

General: Receive roll off boxes (nos 674, 542, 1082)

Pistol Range: conduct follow up inspection of Pistol Range; complete transfer of stockpiled material to roll off boxes; measure depth of excavation at perimeter stake locations (see remarks section below) & document with photographs; collect disposal characterization samples from roll off boxes (see remarks section below); filled roll off box nos. 542, 674, 1022; cover all roll off boxes at end of day

LHAAP-04: No activity today

MATERIALS AND/OR EQUIPMENT DELIVERED: (Include a description of materials and/or equipment, quantity, date/hours used, date of safety check, and supplier)

(3) 20 yd roll off containers, lined

Page 1 of 3

RESULTS OF SURVEILLANCE: (Include satisfactory work completed or deficiencies with action to be taken.)
a. Preparatory Inspection: (Attach Minutes)

NA

b. Initial Inspection: (Attach Minutes)

NA

c. Follow-up Inspection: (List results of inspection compared to specification requirements.)

All work completed in accordance with Work Plan

d. Safety Inspection: (Include safety violations and corrective actions taken.)

No deficiencies

OFF-SITE SURVEILLANCE ACTIVITIES: (Include action taken.)

NA

QC TESTS PERFORMED AND RESULTS: (As required by plans and/or specifications.)

Aerosol monitoring at Pistol Range – no exceedances

Maximum TWA – 0.032 mg/m^3
Min - max Direct Reading – 0.015 mg/m^3 and 0.026 mg/m^3

VERBAL INSTRUCTIONS RECEIVED OR GIVEN: (List any instructions received from government personnel or given by Shaw on construction deficiencies identified, required retesting, etc., and the corresponding action to be taken.)

None

CHANGED CONDITIONS/DELAYS/CONFLICTS ENCOUNTERED: (List any conflicts with the delivery order [i.e., Scope of Work and/or drawings], delays to the project attributable to site, and weather conditions, etc.)

Site conditions (ie soft ground) at the Pistol Range continued to prevent the loader from scooping up excavated soil at the excavation area, therefore an intermediate stockpile of excavated soil was placed on plastic sheeting and was subsequently transferred to the roll off containers

Page 2 of 3

SUBMITTALS REVIEWED: (Include submittal number, specification reference, and name of submitter.)

NA

MEETINGS: (List the meetings, i.e., Health and Safety, Site Operations, Cost/Schedule, etc.)

Tailgate Safety Meeting to discuss Daily Operations and Health & Safety

VISITORS:
None

REMARKS: (Any additional information pertinent to the project not defined by the previous entries.)

Roll off container disposal characterization samples collected:
PRRO 542 GR for TCLP VOCs, TCLP RCRA metals, RCI analyses
PRRO 766 GR for TCLP VOCs, TCLP RCRA metals, RCI analyses
PRRO 959 GR for TCLP VOCs, TCLP RCRA metals, RCI analyses
PRRO 1113 GR for TCLP VOCs, TCLP RCRA metals, RCI analyses
PRSD02 for TCLP VOCs, TCLP RCRA metals, RCI analyses

Note: PRSD02 is a composite of 4 samples above

PRRO 628 GR for TCLP VOCs, TCLP RCRA metals, RCI analyses
PRRO 674 GR for TCLP VOCs, TCLP RCRA metals, RCI analyses
PRRO 1022 GR for TCLP VOCs, TCLP RCRA metals, RCI analyses
PRRO 1111 GR for TCLP VOCs, TCLP RCRA metals, RCI analyses
PRSD03 for TCLP VOCs, TCLP RCRA metals, RCI analyses

Note: PRSD03 is a composite of 4 samples above

Excavation depths (ft):

Perimeter stake	A = 1.0	E = 1.33	I = 1.33
	B = 1.33	F = 1.25	J = 2.0
	C = 1.33	G = 1.33	
	D = 1.5	H = 1.33	

Preliminary results received for confirmation samples: PRCSFL04 (9.98 mg/kg), PRCSWDF (20.1 mg/kg). Samples are below target clean up level of 1000 mg/kg

CONTRACTOR'S VERIFICATION: The above report is complete and correct. All material and equipment used and work performed during this reporting period are in compliance with the contract plans and specifications except as noted above.

Bill Squire

08/07/09

Shaw CQCSM (or designee) Date

Page 3 of 3

DAILY CONTRACTOR QUALITY CONTROL REPORT

Shaw Environmental, Inc.
3010 Briarpark Drive
Houston, Texas 77042

Project Name: Longhorn AAP
Project Location: Pistol Range & LHAAP-04
Shaw Report No.: 5 (Aug 8, 2009)

WEATHER: (x) Clear ( ) P. Cloudy ( ) Cloudy
Wind________________________
Temperature: High___95____ Low__70_____
Precipitation: Today: None Prev. Period (i.e., weekend): 8 inches rain during week prior to start of field work
Site Conditions: ground is soft from previous rainfall
Lost Time Due to Inclement Weather: 0%

PRIME CONTRACTOR/SUBCONTRACTORS AND AREAS OF RESPONSIBILITY/LABOR COUNT:
(Include number, trade, hours, employer, location, and description of work.)

a. Shaw – Steve Moreau (Construction Manager), Bill Squire (SSO/QC), Allen Willmore (Geologist), Rich Rennhack (Equipment Operator), Clyde Woods (Equipment Operator)

b.

c.

d.

e.

WORK PERFORMED: (Include location and description of work performed including equipment used. Refer to work performed by prime and/or subcontractors as previously designated by letter above. Attached subcontractor daily activity reports when applicable):

General: NA

Pistol Range: conduct follow up inspection of Pistol Range; place grass seed and erosion control straw matting on the slope of the berm where confirmation samples were below cleanup goals & document with photographs; roll off boxes covered. Mobilize loader to LHAAP-04

LHAAP-04: Loader mobilized from Pistol Range

MATERIALS AND/OR EQUIPMENT DELIVERED: (Include a description of materials and/or equipment, quantity, date/hours used, date of safety check, and supplier)

None

Page 1 of 3

RESULTS OF SURVEILLANCE: (Include satisfactory work completed or deficiencies with action to be taken.)
a. Preparatory Inspection: (Attach Minutes)

NA

b. Initial Inspection: (Attach Minutes)

NA

c. Follow-up Inspection: (List results of inspection compared to specification requirements.)

All work completed in accordance with Work Plan

d. Safety Inspection: (Include safety violations and corrective actions taken.)

No deficiencies

OFF-SITE SURVEILLANCE ACTIVITIES: (Include action taken.)

NA

QC TESTS PERFORMED AND RESULTS: (As required by plans and/or specifications.)

No aerosol monitoring at Pistol Range because no dust generating activities conducted

VERBAL INSTRUCTIONS RECEIVED OR GIVEN: (List any instructions received from government personnel or given by Shaw on construction deficiencies identified, required retesting, etc., and the corresponding action to be taken.)

None

CHANGED CONDITIONS/DELAYS/CONFLICTS ENCOUNTERED: (List any conflicts with the delivery order [i.e., Scope of Work and/or drawings], delays to the project attributable to site, and weather conditions, etc.)

None

Page 2 of 3

SUBMITTALS REVIEWED: (Include submittal number, specification reference, and name of submitter.)

NA

MEETINGS: (List the meetings, i.e., Health and Safety, Site Operations, Cost/Schedule, etc.)

Tailgate Safety Meeting to discuss Daily Operations and Health & Safety

VISITORS:

None

REMARKS: (Any additional information pertinent to the project not defined by the previous entries.)

Preliminary results received for confirmation samples: PRCSFL04 (9.98 mg/kg), PRCSWDF (20.1 mg/kg). Samples are below target clean up level of 1000 mg/kg

CONTRACTOR'S VERIFICATION: The above report is complete and correct. All material and equipment used and work performed during this reporting period are in compliance with the contract plans and specifications except as noted above.

Bill Squire

08/08/09

Shaw CQCSM (or designee) Date

Page 3 of 3

DAILY CONTRACTOR QUALITY CONTROL REPORT

Shaw Environmental, Inc.
3010 Briarpark Drive
Houston, Texas 77042

Project Name: Longhorn AAP
Project Location: Pistol Range & LHAAP-04
Shaw Report No.: 8 (Aug 12, 2009)

WEATHER: (x) Clear ( ) P. Cloudy ( ) Cloudy
Wind________________________
Temperature: High___95____ Low__70_____
Precipitation: Today: None Prev. Period (i.e., weekend): 8 inches rain during week prior to start of field work
Site Conditions: dry
Lost Time Due to Inclement Weather: 0%

PRIME CONTRACTOR/SUBCONTRACTORS AND AREAS OF RESPONSIBILITY/LABOR COUNT:
(Include number, trade, hours, employer, location, and description of work.)

a. Shaw – Steve Moreau (Construction Manager), Bill Squire (SSO/QC), Allen Willmore (Geologist), Rich Rennhack (Equipment Operator), Clyde Woods (Equipment Operator)

b.

c.

d.

e.

WORK PERFORMED: (Include location and description of work performed including equipment used. Refer to work performed by prime and/or subcontractors as previously designated by letter above. Attached subcontractor daily activity reports when applicable):

General: NA

Pistol Range: Received remainder of analytical results for confirmation samples; all results below cleanup level of 1000 mg/kg.

LHAAP-04: Conduct follow up inspection of LHAAP-04; collected confirmation samples from excavation (see remarks section below); begin breaking up concrete pad with hydraulic hammer

MATERIALS AND/OR EQUIPMENT DELIVERED: (Include a description of materials and/or equipment, quantity, date/hours used, date of safety check, and supplier)

Deere 310G loader/backhoe with hydraulic hammer attachment

Page 1 of 3

RESULTS OF SURVEILLANCE: (Include satisfactory work completed or deficiencies with action to be taken.)
a. Preparatory Inspection: (Attach Minutes)

LHAAP-04 concrete pad - satisfactory

b. Initial Inspection: (Attach Minutes)

LHAAP-04 concrete pad - satisfactory

c. Follow-up Inspection: (List results of inspection compared to specification requirements.)

All work completed in accordance with Work Plan

d. Safety Inspection: (Include safety violations and corrective actions taken.)

No deficiencies

OFF-SITE SURVEILLANCE ACTIVITIES: (Include action taken.)

NA

QC TESTS PERFORMED AND RESULTS: (As required by plans and/or specifications.)

Aerosol monitoring at LHAAP-04 – no exceedances

Maximum TWA – 0.161 mg/m^3 ; Min - max Direct Reading – 0.000 mg/m^3 and 0.861 mg/m^3

VERBAL INSTRUCTIONS RECEIVED OR GIVEN: (List any instructions received from government personnel or given by Shaw on construction deficiencies identified, required retesting, etc., and the corresponding action to be taken.)

None

CHANGED CONDITIONS/DELAYS/CONFLICTS ENCOUNTERED: (List any conflicts with the delivery order [i.e., Scope of Work and/or drawings], delays to the project attributable to site, and weather conditions, etc.)

None

Page 2 of 3

SUBMITTALS REVIEWED: (Include submittal number, specification reference, and name of submitter.)

NA

MEETINGS: (List the meetings, i.e., Health and Safety, Site Operations, Cost/Schedule, etc.)

Tailgate Safety Meeting to discuss Daily Operations and Health & Safety

VISITORS:

None

REMARKS: (Any additional information pertinent to the project not defined by the previous entries.)

LHAAP-04 confirmation samples collected:
04CSFL04 with ms/msd for perchlorate analysis
04CSWAB for perchlorate analysis

Excavator down for repairs; Hertz Equipment on site at 1400 to replace starter

CONTRACTOR'S VERIFICATION: The above report is complete and correct. All material and equipment used and work performed during this reporting period are in compliance with the contract plans and specifications except as noted above.

Bill Squire

08/12/09

Shaw CQCSM (or designee)

Date

Page 3 of 3

DAILY CONTRACTOR QUALITY CONTROL REPORT

Shaw Environmental, Inc.
3010 Briarpark Drive
Houston, Texas 77042

Project Name: Longhorn AAP
Project Location: Pistol Range & LHAAP-04
Shaw Report No.: 13 (Aug 19, 2009)

WEATHER: ( ) Clear (x) P. Cloudy ( ) Cloudy
Wind________________________
Temperature: High___95____ Low__70_____
Precipitation: Today: None Prev. Period (i.e., weekend): 8 inches rain during week prior to start of field work
Site Conditions: dry
Lost Time Due to Inclement Weather: 0%

PRIME CONTRACTOR/SUBCONTRACTORS AND AREAS OF RESPONSIBILITY/LABOR COUNT:
(Include number, trade, hours, employer, location, and description of work.)

a. Shaw – Steve Moreau (Construction Manager), Bill Squire (SSO/QC), Allen Willmore (Geologist), Rich Rennhack (Equipment Operator), Clyde Woods (Equipment Operator)

b.

c.

d.

e.

WORK PERFORMED: (Include location and description of work performed including equipment used. Refer to work performed by prime and/or subcontractors as previously designated by letter above. Attached subcontractor daily activity reports when applicable):

General: NA

Pistol Range:

- Conduct follow up inspection of Pistol Range
- Backfill bottom portion of site with clean fill dirt (embankment previously graded, seeded, and covered with straw matting on 8/8); 14 truckloads of dirt (approximately 12 yds ea, approximately 168 yds total) received
- Grade fill with bulldozer to local ground surface contours

LHAAP-04:

- No activity today

MATERIALS AND/OR EQUIPMENT DELIVERED: (Include a description of materials and/or equipment, quantity, date/hours used, date of safety check, and supplier)

Deere 450 bulldozer from Hertz Equipment Rental

Page 1 of 3

RESULTS OF SURVEILLANCE: (Include satisfactory work completed or deficiencies with action to be taken.)
a. Preparatory Inspection: (Attach Minutes)

NA

b. Initial Inspection: (Attach Minutes)

NA

c. Follow-up Inspection: (List results of inspection compared to specification requirements.)

All work completed in accordance with Work Plan

d. Safety Inspection: (Include safety violations and corrective actions taken.)

No deficiencies

OFF-SITE SURVEILLANCE ACTIVITIES: (Include action taken.)

NA

QC TESTS PERFORMED AND RESULTS: (As required by plans and/or specifications.)

Aerosol monitoring at Pistol Range – no exceedances

Maximum TWA – 0.002 mg/m^3 ; Min - max Direct Reading – 0.000 mg/m^3 and 0.060 mg/m^3

VERBAL INSTRUCTIONS RECEIVED OR GIVEN: (List any instructions received from government personnel or given by Shaw on construction deficiencies identified, required retesting, etc., and the corresponding action to be taken.)

None

CHANGED CONDITIONS/DELAYS/CONFLICTS ENCOUNTERED: (List any conflicts with the delivery order [i.e., Scope of Work and/or drawings], delays to the project attributable to site, and weather conditions, etc.)

None

Page 2 of 3

SUBMITTALS REVIEWED: (Include submittal number, specification reference, and name of submitter.)

NA

MEETINGS: (List the meetings, i.e., Health and Safety, Site Operations, Cost/Schedule, etc.)

Tailgate Safety Meeting to discuss Daily Operations and Health & Safety

VISITORS:

None

REMARKS: (Any additional information pertinent to the project not defined by the previous entries.)

LHAAP-04 samples collected: None
Pistol Range samples collected: None

CONTRACTOR'S VERIFICATION: The above report is complete and correct. All material and equipment used and work performed during this reporting period are in compliance with the contract plans and specifications except as noted above.

Bill Squire

08/19/09

Shaw CQCSM (or designee) Date

DAILY CONTRACTOR QUALITY CONTROL REPORT

Shaw Environmental, Inc.
3010 Briarpark Drive
Houston, Texas 77042

Project Name: Longhorn AAP
Project Location: Pistol Range & LHAAP-04
Shaw Report No.: 14 (Aug 20, 2009)

WEATHER: ( ) Clear (x) P. Cloudy ( ) Cloudy
Wind________________________
Temperature: High___95____ Low__70_____
Precipitation: Today: None Prev. Period (i.e., weekend): 8 inches rain during week prior to start of field work
Site Conditions: dry
Lost Time Due to Inclement Weather: 0%

PRIME CONTRACTOR/SUBCONTRACTORS AND AREAS OF RESPONSIBILITY/LABOR COUNT:
(Include number, trade, hours, employer, location, and description of work.)

a. Shaw – Praveen Srivastav (Project Manager), Steve Moreau (Construction Manager), Bill Squire (SSO/QC), Allen Willmore (Geologist), Rich Rennhack (Equipment Operator), Clyde Woods (Equipment Operator)

b.

c.

d.

e.

WORK PERFORMED: (Include location and description of work performed including equipment used. Refer to work performed by prime and/or subcontractors as previously designated by letter above. Attached subcontractor daily activity reports when applicable):

General: NA

Pistol Range:
- Site walk with USEPA representative

LHAAP-04:
- Site walk with USEPA representative

MATERIALS AND/OR EQUIPMENT DELIVERED: (Include a description of materials and/or equipment, quantity, date/hours used, date of safety check, and supplier)

None

Page 1 of 3

RESULTS OF SURVEILLANCE: (Include satisfactory work completed or deficiencies with action to be taken.)

a. Preparatory Inspection: (Attach Minutes)

NA

b. Initial Inspection: (Attach Minutes)

NA

c. Follow-up Inspection: (List results of inspection compared to specification requirements.)

All work completed in accordance with Work Plan

d. Safety Inspection: (Include safety violations and corrective actions taken.)

No deficiencies

OFF-SITE SURVEILLANCE ACTIVITIES: (Include action taken.)

NA

QC TESTS PERFORMED AND RESULTS: (As required by plans and/or specifications.)

Aerosol monitoring at Pistol Range – no dust generating activities conducted

VERBAL INSTRUCTIONS RECEIVED OR GIVEN: (List any instructions received from government personnel or given by Shaw on construction deficiencies identified, required retesting, etc., and the corresponding action to be taken.)

None

CHANGED CONDITIONS/DELAYS/CONFLICTS ENCOUNTERED: (List any conflicts with the delivery order [i.e., Scope of Work and/or drawings], delays to the project attributable to site, and weather conditions, etc.)

None

Page 2 of 3

SUBMITTALS REVIEWED: (Include submittal number, specification reference, and name of submitter.)

NA

MEETINGS: (List the meetings, i.e., Health and Safety, Site Operations, Cost/Schedule, etc.)

Tailgate Safety Meeting to discuss Daily Operations and Health & Safety

VISITORS:

USEPA representative

REMARKS: (Any additional information pertinent to the project not defined by the previous entries.)

LHAAP-04 samples collected: 04CLAYPIPE-082009 for perchlorate analysis

Pistol Range samples collected: None

CONTRACTOR'S VERIFICATION: The above report is complete and correct. All material and equipment used and work performed during this reporting period are in compliance with the contract plans and specifications except as noted above.

Bill Squire

08/20/09

Shaw CQCSM (or designee)

Date

Page 3 of 3

DAILY CONTRACTOR QUALITY CONTROL REPORT

Shaw Environmental, Inc.
3010 Briarpark Drive
Houston, Texas 77042

Project Name: Longhorn AAP
Project Location: Pistol Range & LHAAP-04
Shaw Report No.: 25 (Sep 3, 2009)

WEATHER: ( ) Clear ( ) P. Cloudy (x) Cloudy
Wind________________________
Temperature: High___85____ Low__65_____
Precipitation: Today: Scattered Showers Prev. Period (i.e., weekend): 8 inches rain during week prior to start of field work
Site Conditions: wet
Lost Time Due to Inclement Weather: 40%

PRIME CONTRACTOR/SUBCONTRACTORS AND AREAS OF RESPONSIBILITY/LABOR COUNT:
(Include number, trade, hours, employer, location, and description of work.)

a. Shaw – Steve Moreau (Construction Manager), Allen Willmore (Geologist), Clyde Woods (Equipment Operator)

b. JW Rentals, Inc. - Trucking

c. Triad-Roll-Off Box Transport

d.

e.

WORK PERFORMED: (Include location and description of work performed including equipment used. Refer to work performed by prime and/or subcontractors as previously designated by letter above. Attached subcontractor daily activity reports when applicable):

General: NA

Pistol Range:

- Continued load out of roll-off boxes at Pistol Range.

LHAAP-04:

- Continue load out of stockpiled soil – 6 trucks loaded and sent to Woolworth Rd LF (see remarks section)
- Soil stockpile covered with plastic sheeting at end of day
- Collected additional samples at the valve outfall located on the western portion of LHAAP-04, 04CSFL05(7)RE(9), and 3 pilot samples 04BH01(6-8), 04BH02(6-8), and 04BH03(6-8)

MATERIALS AND/OR EQUIPMENT DELIVERED: (Include a description of materials and/or equipment, quantity, date/hours used, date of safety check, and supplier)

None

Page 1 of 3

RESULTS OF SURVEILLANCE: (Include satisfactory work completed or deficiencies with action to be taken.)

a. Preparatory Inspection: (Attach Minutes)

NA

b. Initial Inspection: (Attach Minutes)

NA

c. Follow-up Inspection: (List results of inspection compared to specification requirements.)

All work completed in accordance with Work Plan

d. Safety Inspection: (Include safety violations and corrective actions taken.)

No deficiencies

OFF-SITE SURVEILLANCE ACTIVITIES: (Include action taken.)

NA

QC TESTS PERFORMED AND RESULTS: (As required by plans and/or specifications.)

Aerosol monitoring at LHAAP-04 – no exceedances

Maximum TWA – 0.000 mg/m^3 ; Min - max Direct Reading – 0.000 mg/m^3 and 0.000 mg/m^3

VERBAL INSTRUCTIONS RECEIVED OR GIVEN: (List any instructions received from government personnel or given by Shaw on construction deficiencies identified, required retesting, etc., and the corresponding action to be taken.)

Instructed to take a break from work through Labor Day weekend by Praveen Srivastav.

CHANGED CONDITIONS/DELAYS/CONFLICTS ENCOUNTERED: (List any conflicts with the delivery order [i.e., Scope of Work and/or drawings], delays to the project attributable to site, and weather conditions, etc.)

Excavation is wider and deeper than originally plan due to unexpected perchlorate exceedences.

Page 2 of 3

SUBMITTALS REVIEWED: (Include submittal number, specification reference, and name of submitter.)

NA

MEETINGS: (List the meetings, i.e., Health and Safety, Site Operations, Cost/Schedule, etc.)

Tailgate Safety Meeting to discuss Daily Operations and Health & Safety

VISITORS:

None

REMARKS: (Any additional information pertinent to the project not defined by the previous entries.)

LHAAP-04 samples collected: 04VAVLVE-OUTFALL, 04CSFL05(7)RE(9), 04BH01(6-8), 04BH02(6-8), 04BH03(6-8),

Pistol Range samples collected: None

Loadout of stockpiled soil:

- Manifested as Class II Non-Hazardous, Mercury and Perchlorate contaminated soil
- 6 trucks loaded @ 18 yds/truck (estimated)
- Manifest nos. 20000033 through 20000046
- Sent to Allied Waste - Woolworth Rd Landfill, 10580 Woolworth Rd, Keithville, LA 71047

Loadout of Roll-Off Boxes

- Manifested as Class II Non-Hazardous, Lead contaminated soil
- 3 roll-off boxes loaded @ 16 yds/box (estimated)
- Manifest nos. 20000011 through 20000013

CONTRACTOR'S VERIFICATION: The above report is complete and correct. All material and equipment used and work performed during this reporting period are in compliance with the contract plans and specifications except as noted above.

Allen Willmore

09/3/09

Shaw CQCSM (or designee)

Date

Page 3 of 3

DAILY CONTRACTOR QUALITY CONTROL REPORT

Shaw Environmental, Inc.
3010 Briarpark Drive
Houston, Texas 77042

Project Name: Longhorn AAP
Project Location: Pistol Range & LHAAP-04
Shaw Report No.: 27 (Sep 10, 2009)

WEATHER: ( ) Clear (x) P. Cloudy (x) Cloudy
Wind________________________
Temperature: High___96____ Low__74_____
Precipitation: Today: Clear to Ptly Cloudy Prev. Period (i.e., weekend): Dry weekend
Site Conditions: dry
Lost Time Due to Inclement Weather: 0%

PRIME CONTRACTOR/SUBCONTRACTORS AND AREAS OF RESPONSIBILITY/LABOR COUNT:
(Include number, trade, hours, employer, location, and description of work.)

a. Shaw – Steve Moreau (Construction Manager), Allen Willmore (Geologist), Clyde Woods (Equipment Operator)

b. JW Rentals, Inc. - Trucking

c. Triad-Roll Off Boxes

d.

e.

WORK PERFORMED: (Include location and description of work performed including equipment used. Refer to work performed by prime and/or subcontractors as previously designated by letter above. Attached subcontractor daily activity reports when applicable):

General: NA

Pistol Range:

- Continue load out of Roll-off Boxes

LHAAP-04:

- Continue load out of stockpiled soil – 15 trucks loaded and sent to Woolworth Rd LF (see remarks section)
- Soil stockpile covered with plastic sheeting at end of day
- Verified measurements of excavation
- Re-visited sampling plan

MATERIALS AND/OR EQUIPMENT DELIVERED: (Include a description of materials and/or equipment, quantity, date/hours used, date of safety check, and supplier)

None

Page 1 of 3

RESULTS OF SURVEILLANCE: (Include satisfactory work completed or deficiencies with action to be taken.)

a. Preparatory Inspection: (Attach Minutes)

NA

b. Initial Inspection: (Attach Minutes)

NA

c. Follow-up Inspection: (List results of inspection compared to specification requirements.)

All work completed in accordance with Work Plan

d. Safety Inspection: (Include safety violations and corrective actions taken.)

No deficiencies

OFF-SITE SURVEILLANCE ACTIVITIES: (Include action taken.)

NA

QC TESTS PERFORMED AND RESULTS: (As required by plans and/or specifications.)

Aerosol monitoring at LHAAP-04 – no exceedances

Maximum TWA – 0.000 mg/m^3 ; Min - max Direct Reading – 0.000 mg/m^3 and 0.000 mg/m^3

VERBAL INSTRUCTIONS RECEIVED OR GIVEN: (List any instructions received from government personnel or given by Shaw on construction deficiencies identified, required retesting, etc., and the corresponding action to be taken.)

Place Hazardous Waste Stickers on roll-off boxes B-674, B-1096, B-1113, and B-1111 at the Former Pistol Range.
Sample new walls and floors at LHAAP-04. Collect sample 04CSFL10(13) at base of wall due to groundwater.

CHANGED CONDITIONS/DELAYS/CONFLICTS ENCOUNTERED: (List any conflicts with the delivery order [i.e., Scope of Work and/or drawings], delays to the project attributable to site, and weather conditions, etc.)

Excavation is wider and deeper than originally plan due to unexpected perchlorate exceedences.

Page 2 of 3

SUBMITTALS REVIEWED: (Include submittal number, specification reference, and name of submitter.)

NA

MEETINGS: (List the meetings, i.e., Health and Safety, Site Operations, Cost/Schedule, etc.)

Tailgate Safety Meeting to discuss Daily Operations and Health & Safety

VISITORS:

Praveen Srivastav, Susan Watson.

REMARKS: (Any additional information pertinent to the project not defined by the previous entries.)

LHAAP-04 samples collected: 04CSFL14(8), 04CSWC1C, 04CSFL11RE(13), and 04CSFL10(13)

Pistol Range samples collected: None

Loadout of stockpiled soil:

- Manifested as Class II Non-Hazardous, Mercury and Perchlorate contaminated soil
- 15 trucks loaded @ 18 yds/truck (estimated)
- Manifest nos. 10001 through 10015
- Sent to Allied Waste - Woolworth Rd Landfill, 10580 Woolworth Rd, Keithville, LA 71047

Loadout of roll-off boxes:

- Manifested as Class II Non-Hazardous, lead contaminated soil
- 3 boxes hauled away @ 16 yds/box (estimated)
- Manifest nos. 20000014 through 20000016

Sent to Allied Waste - Woolworth Rd Landfill, 10580 Woolworth Rd, Keithville, LA 71047

CONTRACTOR'S VERIFICATION: The above report is complete and correct. All material and equipment used and work performed during this reporting period are in compliance with the contract plans and specifications except as noted above.

Allen Willmore

09/10/09

Shaw CQCSM (or designee) Date

Page 3 of 3

DAILY CONTRACTOR QUALITY CONTROL REPORT

Shaw Environmental, Inc.
3010 Briarpark Drive
Houston, Texas 77042

Project Name: Longhorn AAP
Project Location: Pistol Range & LHAAP-04
Shaw Report No.: 28 (Sep 11, 2009)

WEATHER: ( ) Clear (x) P. Cloudy (x) Cloudy
Wind________________________
Temperature: High___97____ Low__74_____
Precipitation: Today: Clear to Ptly Cloudy Prev. Period (i.e., weekend): Dry weekend
Site Conditions: dry
Lost Time Due to Inclement Weather: 0%

PRIME CONTRACTOR/SUBCONTRACTORS AND AREAS OF RESPONSIBILITY/LABOR COUNT:
(Include number, trade, hours, employer, location, and description of work.)
a. Shaw – Steve Moreau (Construction Manager), Allen Willmore (Geologist), Clyde Woods (Equipment Operator)

b. JW Rentals, Inc. - Trucking

c. Triad-Roll Off Boxes

d.

e.

WORK PERFORMED: (Include location and description of work performed including equipment used. Refer to work performed by prime and/or subcontractors as previously designated by letter above. Attached subcontractor daily activity reports when applicable):

General: NA

Pistol Range:

- Continue load out of Roll-off Boxes

LHAAP-04:

- Continue load out of stockpiled soil – 13 trucks loaded and sent to Woolworth Rd LF (see remarks section)
- Soil stockpile covered with plastic sheeting at end of day

MATERIALS AND/OR EQUIPMENT DELIVERED: (Include a description of materials and/or equipment, quantity, date/hours used, date of safety check, and supplier)

None

Page 1 of 3

RESULTS OF SURVEILLANCE: (Include satisfactory work completed or deficiencies with action to be taken.)

a. Preparatory Inspection: (Attach Minutes)

NA

b. Initial Inspection: (Attach Minutes)

NA

c. Follow-up Inspection: (List results of inspection compared to specification requirements.)

All work completed in accordance with Work Plan

d. Safety Inspection: (Include safety violations and corrective actions taken.)

No deficiencies

OFF-SITE SURVEILLANCE ACTIVITIES: (Include action taken.)

NA

QC TESTS PERFORMED AND RESULTS: (As required by plans and/or specifications.)

Aerosol monitoring at LHAAP-04 – no exceedances

Maximum TWA – 0.000 mg/m^3 ; Min - max Direct Reading – 0.000 mg/m^3 and 0.000 mg/m^3

VERBAL INSTRUCTIONS RECEIVED OR GIVEN: (List any instructions received from government personnel or given by Shaw on construction deficiencies identified, required retesting, etc., and the corresponding action to be taken.)

None

CHANGED CONDITIONS/DELAYS/CONFLICTS ENCOUNTERED: (List any conflicts with the delivery order [i.e., Scope of Work and/or drawings], delays to the project attributable to site, and weather conditions, etc.)

Excavation is wider and deeper than originally planned due to unexpected perchlorate exceedences.

SUBMITTALS REVIEWED: (Include submittal number, specification reference, and name of submitter.)

NA

MEETINGS: (List the meetings, i.e., Health and Safety, Site Operations, Cost/Schedule, etc.)

Tailgate Safety Meeting to discuss Daily Operations and Health & Safety

VISITORS:
Praveen Srivastav, Susan Watson.

REMARKS: (Any additional information pertinent to the project not defined by the previous entries.)

LHAAP-04 samples collected: 04CSFL05RE(13), 04CSFL02RE(7), 04CSFL09RE(13), 04CSWCDRE(4)L, 04CSFL13(8), 04CSWCDRE(19)U, 04CSFL07RE(11), 04CSWD1E, 04CSWD1EQC, 04CSWEF3, 04CSFL12RE(13), 04CSWR1H, 04CSWFR1

Pistol Range samples collected: None

Loadout of stockpiled soil:

- Manifested as Class II Non-Hazardous, Mercury and Perchlorate contaminated soil
- 13 trucks loaded @ 18 yds/truck (estimated)
- Manifest nos. 10016 through 10028
- Sent to Allied Waste - Woolworth Rd Landfill, 10580 Woolworth Rd, Keithville, LA 71047

Loadout of roll-off boxes:

- Manifested as Class II Non-Hazardous, lead contaminated soil
- 3 boxes hauled away @ 16 yds/box (estimated)
- Manifest nos. 20000018 and 20000019

Sent to Allied Waste - Woolworth Rd Landfill, 10580 Woolworth Rd, Keithville, LA 71047

CONTRACTOR'S VERIFICATION: The above report is complete and correct. All material and equipment used and work performed during this reporting period are in compliance with the contract plans and specifications except as noted above.

Allen Willmore

09/11/09

Shaw CQCSM (or designee)
Date

DAILY CONTRACTOR QUALITY CONTROL REPORT

Shaw Environmental, Inc.
3010 Briarpark Drive
Houston, Texas 77042

Project Name: Longhorn AAP
Project Location: Pistol Range & LHAAP-04
Shaw Report No.: 29 (Sep 14, 2009)

WEATHER: ( ) Clear ( ) P. Cloudy (x) Cloudy
Wind________________________
Temperature: High___87____ Low__71_____
Precipitation: Today: light to heavy rain throughout day Prev. Period (i.e., weekend): Wet weekend
Site Conditions: wet
Lost Time Due to Inclement Weather: 0%, Trucks could not run, however still waiting on results

---

PRIME CONTRACTOR/SUBCONTRACTORS AND AREAS OF RESPONSIBILITY/LABOR COUNT:
(Include number, trade, hours, employer, location, and description of work.)

a. Shaw – Steve Moreau (Construction Manager), Allen Willmore (Geologist), Clyde Woods (Equipment Operator)

b. Triad

c.

d.

e.

WORK PERFORMED: (Include location and description of work performed including equipment used. Refer to work performed by prime and/or subcontractors as previously designated by letter above. Attached subcontractor daily activity reports when applicable):

General: Wet weather prevents truck from loading.

Pistol Range:

- Hauled 2 non-hazardous roll-off boxes from the Former Pistol Range

LHAAP-04:

- Proceeded to pump water from excavation into 550-gallon and 325 gallon water tanks.

MATERIALS AND/OR EQUIPMENT DELIVERED: (Include a description of materials and/or equipment, quantity, date/hours used, date of safety check, and supplier)

None

Page 1 of 3

RESULTS OF SURVEILLANCE: (Include satisfactory work completed or deficiencies with action to be taken.)

a. Preparatory Inspection: (Attach Minutes)

NA

b. Initial Inspection: (Attach Minutes)

NA

c. Follow-up Inspection: (List results of inspection compared to specification requirements.)

All work completed in accordance with Work Plan

d. Safety Inspection: (Include safety violations and corrective actions taken.)

No deficiencies

OFF-SITE SURVEILLANCE ACTIVITIES: (Include action taken.)

NA

QC TESTS PERFORMED AND RESULTS: (As required by plans and/or specifications.)

Aerosol monitoring at LHAAP-04 – no exceedances

Maximum TWA – 0.000 mg/m^3 ; Min - max Direct Reading – 0.000 mg/m^3 and 0.000 mg/m^3

VERBAL INSTRUCTIONS RECEIVED OR GIVEN: (List any instructions received from government personnel or given by Shaw on construction deficiencies identified, required retesting, etc., and the corresponding action to be taken.)

None

CHANGED CONDITIONS/DELAYS/CONFLICTS ENCOUNTERED: (List any conflicts with the delivery order [i.e., Scope of Work and/or drawings], delays to the project attributable to site, and weather conditions, etc.)

Excavation is wider and deeper than originally planned due to unexpected perchlorate exceedences.

Page 2 of 3

SUBMITTALS REVIEWED: (Include submittal number, specification reference, and name of submitter.)

NA

MEETINGS: (List the meetings, i.e., Health and Safety, Site Operations, Cost/Schedule, etc.)

Tailgate Safety Meeting to discuss Daily Operations and Health & Safety

VISITORS:
None.

REMARKS: (Any additional information pertinent to the project not defined by the previous entries.)

LHAAP-04 samples collected: None

Pistol Range samples collected: None

Loadout of roll-off boxes at the Former Pistol Range:

- Manifested as Class II Non-Hazardous, Mercury and Perchlorate contaminated soil
- 2 roll-offs loaded @ 16 yds/box (estimated)
- Manifest nos. 20000020 and 20000021
- Sent to Allied Waste - Woolworth Rd Landfill, 10580 Woolworth Rd, Keithville, LA 71047

CONTRACTOR'S VERIFICATION: The above report is complete and correct. All material and equipment used and work performed during this reporting period are in compliance with the contract plans and specifications except as noted above.

Allen Willmore

09/14/09

Shaw CQCSM (or designee)

Date

Page 3 of 3

DAILY CONTRACTOR QUALITY CONTROL REPORT

Shaw Environmental, Inc.
3010 Briarpark Drive
Houston, Texas 77042

Project Name: Longhorn AAP
Project Location: Pistol Range & LHAAP-04
Shaw Report No.: 37 (Sep 25, 2009)

WEATHER: (x) Clear ( ) P. Cloudy ( ) Cloudy
Wind___From northwest____________________
Temperature: High___93____ Low__68_____
Precipitation: Today: None Prev. Period (i.e., weekend): Dry
Site Conditions: dry
Lost Time Due to Inclement Weather: 0%

PRIME CONTRACTOR/SUBCONTRACTORS AND AREAS OF RESPONSIBILITY/LABOR COUNT:
(Include number, trade, hours, employer, location, and description of work.)

a. Shaw – Steve Moreau (Construction Manager), Allen Willmore (Geologist), Ray Wagner (Equipment Operator)

b. Stranco Trucking

c. Triad

d.

e.

WORK PERFORMED: (Include location and description of work performed including equipment used. Refer to work performed by prime and/or subcontractors as previously designated by letter above. Attached subcontractor daily activity reports when applicable):

General: NA

Pistol Range:

- Continue load out of 1 hazardous waste roll-off box (see remarks section)

LHAAP-04:

- Continue load out of stockpiled soil – 9 trucks loaded and sent to Woolworth Rd LF (see remarks section)
- Soil stockpile covered with plastic sheeting at end of day
- Collected soil samples for perchlorate analysis at LHAAP-04 (see remarks section)

MATERIALS AND/OR EQUIPMENT DELIVERED: (Include a description of materials and/or equipment, quantity, date/hours used, date of safety check, and supplier)

None

Page 1 of 3

RESULTS OF SURVEILLANCE: (Include satisfactory work completed or deficiencies with action to be taken.)
a. Preparatory Inspection: (Attach Minutes)

NA

b. Initial Inspection: (Attach Minutes)

NA

c. Follow-up Inspection: (List results of inspection compared to specification requirements.)

All work completed in accordance with Work Plan

d. Safety Inspection: (Include safety violations and corrective actions taken.)

No deficiencies

OFF-SITE SURVEILLANCE ACTIVITIES: (Include action taken.)

NA

QC TESTS PERFORMED AND RESULTS: (As required by plans and/or specifications.)

Aerosol monitoring at LHAAP-04 – no exceedances

Maximum TWA – 0.000 mg/m^3 ; Min - max Direct Reading – 0.000 mg/m^3 and 0.000 mg/m^3

VERBAL INSTRUCTIONS RECEIVED OR GIVEN: (List any instructions received from government personnel or given by Shaw on construction deficiencies identified, required retesting, etc., and the corresponding action to be taken.)

None.

CHANGED CONDITIONS/DELAYS/CONFLICTS ENCOUNTERED: (List any conflicts with the delivery order [i.e., Scope of Work and/or drawings], delays to the project attributable to site, and weather conditions, etc.)

Excavation is wider and deeper than originally plan due to unexpected perchlorate exceedences.

Page 2 of 3

SUBMITTALS REVIEWED: (Include submittal number, specification reference, and name of submitter.)

NA

MEETINGS: (List the meetings, i.e., Health and Safety, Site Operations, Cost/Schedule, etc.)

Tailgate Safety Meeting to discuss Daily Operations and Health & Safety

VISITORS:

None

REMARKS: (Any additional information pertinent to the project not defined by the previous entries.)

LHAAP-04 samples collected: 04CSFL07RE(12), 04CSWR2H, 04WCDRE(19)L, 04CSFL13RE(13), 04CSFL14RE(13), 04CSFL14RE(13)QC

Pistol Range samples collected: None

Loadout of stockpiled soil:

- Manifested as Class II Non-Hazardous, Mercury and Perchlorate contaminated soil
- 9 trucks loaded @ 18 yds/truck (estimated)
- Manifest nos. 10049 through 10055, and 10057
- Sent to Allied Waste - Woolworth Rd Landfill, 10580 Woolworth Rd, Keithville, LA 71047

Loadout of hazardous waste roll-off boxes:

- Manifested as Hazardous Waste, Lead contaminated soil
- 1 truck loaded @ 16 yds/box (estimated)
- Manifest nos. 005974010

Sent to US Ecology Texas, LP - Woolworth 3.8 miles S. Petronila Rd., Robstown, Tx 78380

CONTRACTOR'S VERIFICATION: The above report is complete and correct. All material and equipment used and work performed during this reporting period are in compliance with the contract plans and specifications except as noted above.

Allen Willmore

09/25/09

Shaw CQCSM (or designee) Date

Page 3 of 3

2.3.4.3 Raw Data

WORKGROUP: WG309412

FLASHPOINT

LCS: STD 32163

TEMPERATURE: 21C **PRESSURE:** 744.7

SOP K1010 Revision #: 12 **Method SW846 1010**

Instrument: Pensky Marten Closed Cup Tester

SAMPLE	DESCRIPTION	INITIAL TEMP(C)	COMMENTS or FLASHPOINT	FINAL RESULT (C)
LCS	p-Xylene	14	flash@27	27
LCS DUP	"	15	flash@28	28
Blank	DI H_2O	18	no flash@68	>68
08-188-01	water sol. liq./no odor	2	flame ext@71	>71
08-144-01	Soil/unable to stir	18	flame ext@72	>72
08-178-01	soil/unable to stir	18	flame ext@72	>72
-02	↓	20	flame ext@70	>70
08-149-04	soapy water	16	flame ext@69	>69
DUP: 188-01	(ditto)	14	flame ext@70	>70

ANALYST:

DATE: 08/11/09 @ 0930

Microbac Laboratories Inc.
FLASH CALCULATIONS

Workgroup: WG309412
Date: 11-AUG-09
Analyst: JBK

Observed Barometric Pressure: 744.7

Lowest Pressure in Bracket: 740
Temperature Correction #1: 2.6
Temperature Correction #2: 2.53

Lowest Pressure in Bracket: 700
Grav Correction #1: .48
Grav Correction #2: .42

Temperature Correction: 2.54645

Grav Correction: .44682

Corrected Barometric Pressure: 758.14673

Correction for Flash: .06115791

2.3.5 Reactive Cyanide Data

2.3.5.1 Summary Data

LABORATORY REPORT

L09080178

08/12/09 14:33

Submitted By

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

For

Account Name: Shaw E & I, Inc.
ABB Lummus Biulding
3010 Briarpark Drive Suite 4N
Houston, TX 77042
Attention: Jennifer Hoang

Project Number: 2773.025
Project: Longhorn AAP
Site: LONGHORN AAP KARNACK TX

P.O. Number: 389869/ 390836(GWTP)

Sample Analysis Summary

Client ID	Lab ID	Method	Dilution	Date Received
PRDS02	L09080178-01	SW7.33	1	08-AUG-09
PRDS03	L09080178-02	SW7.33	1	08-AUG-09

Report Number: **L09080178**
Report Date : **August 12, 2009**

Sample Number: **L09080178-01**
Client ID: **PRDS02**
Matrix: **Soil**
Workgroup Number: **WG309302**
Collect Date: **08/07/2009 14:15**

PrePrep Method: **NONE**
Prep Method: **SW7.33**
Analytical Method: **SW7.33**
Analyst: **DLP**
Dilution: **1**
Units: **mg/kg**

Instrument: **UV-120-1V**
Prep Date: **08/10/2009 07:30**
Cal Date:
Run Date: **08/10/2009 07:30**
File ID: **1V.0908100730-10**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Reactivity, Cyanide	57-12-5		U	9.94	4.97

U Not detected at or above adjusted sample detection limit

Report Number: **L09080178**
Report Date : **August 12, 2009**

Sample Number: **L09080178-02**
Client ID: **PRDS03**
Matrix: **Soil**
Workgroup Number: **WG309302**
Collect Date: **08/07/2009 14:30**

PrePrep Method: **NONE**
Prep Method: **SW7.33**
Analytical Method: **SW7.33**
Analyst: **DLP**
Dilution: **1**
Units: **mg/kg**

Instrument: **UV-120-1V**
Prep Date: **08/10/2009 07:30**
Cal Date:
Run Date: **08/10/2009 07:30**
File ID: **1V.0908100730-11**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Reactivity, Cyanide	57-12-5		U	9.95	4.98

U Not detected at or above adjusted sample detection limit

2.3.5.2 QC Summary Data

Checklist ID: 40775

Microbac Laboratories Inc.

Data Checklist

Date: 10-AUG-2009
Analyst: DLP
Analyst: NA
Method: REACTCN
Instrument: UV-120-1V
Curve Workgroup: NA
Runlog ID:
Analytical Workgroups: WG309302

Calibration/Linearity	07-16-09
Second Source Check	
ICV/CCV (std)	X
ICB/CCB	
Blank	
LCS/LCS Dup	X
MS/MSD	
Duplicate	X
Upload Results	X
Client Forms	
QC Violation Sheet	
Case Narratives	
Signed Raw Data	X
STD/LCS on benchsheet	X
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	
Primary Reviewer	DLP
Secondary Reviewer	DIH
Comments	

Primary Reviewer:
11-AUG-2009
Dusty Payne

Secondary Reviewer:
11-AUG-2009
Donna Hesson

CHECKLIST1 - Modified 03/05/2008
Generated: AUG-11-2009 16:00:40

Microbac®

2.3.5.3 Raw Data

WG307248

Curves

Parameter: REACT-CN

Spectrophotometer: UV-120-1U

Calibration (Curve) standard stock: Std 33348

Concentration: 968 mg/L

Recipe for preparation of curve standards found in:
SOP: K7332 Revision: 8 Page: 8

Second Source Stock: Std 33349 (concentration: 1020 mg/L

Daily Preparation: 5(1020)/250 = 20.4
10(20.4)/100 = 2.04
concentration = 5(2.04)/50 = 0.204

Calibration Standards (mg/L)	Volume	Cell Size	Wavelength	Absorbance
0.00	50	1	578	0.000
0.01936	↓	↓	↓	0.027
0.03872	↓	↓	↓	0.053
0.0968	↓	↓	↓	0.138
0.1936	↓	↓	↓	0.284
0.2904	↓	↓	↓	0.414
0.3872	↓	↓	↓	0.557
2nd 0.204	↓	↓	↓	0.298

Analyst:

Date/Time: 7/16/09 @1040

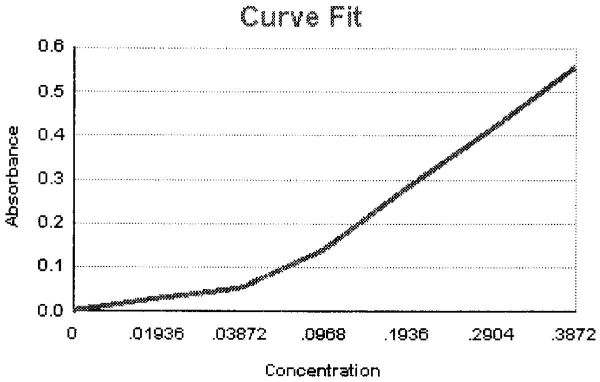
Microbac Laboratories Inc.
INITIAL CALIBRATION

Workgroup: WG307248
Analytical Method: 846
Instrument ID: UV-120-1V

Analyst: JBK
Initial Calibration Date: 07/16/2009

Analyte: CYANIDE
Number of Points: 7
Slope: 1.43990
Y-Intercept: -0.000635703
Coef. Of Correlation (R^2): 0.999810
Coef. Of Correlation (R): 0.999905

Concentration X	Absorbance Y	X^2	X * Y	Y-Fitted (mX^2+B)
0.00	0.00	0.00	0.00	-0.000635703
0.0194	0.0270	0.000375	0.000523	0.0272407
0.0387	0.0530	0.00150	0.00205	0.0551171
0.0968	0.138	0.00937	0.0134	0.138746
0.194	0.284	0.0375	0.0550	0.278128
0.290	0.414	0.0843	0.120	0.417511
0.387	0.557	0.150	0.216	0.556893



WG_ICAL_CAL_WET - Modified 03/06/2008
Report generated 07/16/2009 11:18

Microbac

Microbac Laboratories Inc.
ALTERNATE SOURCE REPORT

Workgroup #: WG307248

File ID: 1V.0907161040-08

CCV ID: WG307248-08

Units: mg/kg

Analyte: CYANIDE

Instrument ID: UV-120-1V

Run Date: 07/16/2009

Run Time: 10:40

Analyst: JBK

Cal ID: UV-120 -

Analyte	Expected	Found	RF	%D	Q
Reactivity, Cyanide	.204	0.207	1.46	1.5	

* Exceeds %D Limit

CCC Calibrtion Check Compounds
SPCC System Performance Check Compounds

WET_WG_SSCV - Modified 03/06/2008
Report generated 07/16/2009 11:19

Microbac

WORKGROUP: WG309302

Reactive Cyanide

LCS: ~~Std~~ 34091 (1020)
CCV: Std 34090 (968)   SOP: K7332 Revision # 8

Daily Dilution: 5(968)/~~100~~ 250 = 19.36 OW 8-10-09   Curve ID: 307248 7-16-09
10(19.36) = 1.936   Spec: UV 120-IV
700 - 5(1.936)/50 = 0.1936

Sample	Grams Reacted	Dilution	Cell Size	Aborbance @ 578nm
CCV: 0.1936	NA		1cm	0.304
LCS:	DW 8-10-09 ~~50~~ 10.00	Y5		0.370
08-107-01	10.013			0.001
02	10.062			0.000
03	10.038			0.000
04	10.073			0.000
05	10.051			0.000
08-144-01	10.0150			0.000
08-178-01	10.059		1Cm	0.000
02	10.049			0.001
DUP: 08-107-02	10.044		1Cm	0.000

Analyst: Dorothy Payne   Date/Time: 08-10-09/0730

DCN#80376

Microbac Laboratories Inc.

SAMPLE REPORT

Workgroup: WG309302
Analyte: CYANIDE

Analyst: DLP
Date: 08/10/2009

Sample ID	I Vol	F Vol	Response	Scrubber		Slope	Y Intercept	Dil	Anal. Conc.	Rep. Conc.	Units
WG309302-01	10	10	0.370	50	250	1.440	-0.0006357	5	1.2870	6.4351	mg/kg
L09080107-01	10.013	10	0.00100	50	250	1.440	-0.0006357	1	0.028363	ND	mg/kg
WG309302-02	10.062	10	0	50	250	1.440	-0.0006357	1	0.010969	0.010902	mg/kg
L09080107-02	10.062	10	0	50	250	1.440	-0.0006357	1	0.010969	ND	mg/kg
L09080107-03	10.038	10	0	50	250	1.440	-0.0006357	1	0.010996	ND	mg/kg
L09080107-04	10.013	10	0	50	250	1.440	-0.0006357	1	0.011023	ND	mg/kg
L09080107-05	10.051	10	0	50	250	1.440	-0.0006357	1	0.010981	ND	mg/kg
L09080144-01	10.015	10	0	50	250	1.440	-0.0006357	1	0.011021	ND	mg/kg
WG309302-03	10.044	10	0	50	250	1.440	-0.0006357	1	0.010989	0.010941	mg/kg
L09080178-01	10.059	10	0	50	250	1.440	-0.0006357	1	0.010973	ND	mg/kg
L09080178-02	10.049	10	0.00100	50	250	1.440	-0.0006357	1	0.028261	ND	mg/kg

UV_REACTC - Modified 03/06/2008
Report generated 08/11/2009 09:36

Microbac

Microbac Laboratories Inc.
CONTINUING CALIBRATION REPORT

Workgroup #: WG309346
File ID: 1V.0908100730-01
CCV ID: WG309346-01
Units: mg/kg
Analyte: CYANIDE

Instrument ID: UV-120-1V
Run Date: 08/10/2009
Run Time: 07:30
Analyst: DLP
Cal ID: UV-120 -

Analyte	Expected	Found	RF	%D	Q
Reactivity, Cyanide	.194	0.212	1.57	9.3	

* Exceeds %D Limit

CCC Calibrtion Check Compounds
SPCC System Performance Check Compounds

WET_WG_CCV - Modified 03/06/2008

Report generated 08/10/2009 11:14

3.0 Attachments

Microbac Laboratories Inc.
Analyst Listing
August 12, 2009

ADC - ANTHONY D. CANTER
AJF - AMANDA J. FICKIESEN
AJM - ANTHONY J. MOSSBURG
ALB - ANNIE L. BROWN
AML - ANTHONY M. LONG
BLG - BRENDA L. GREENWALT
BRG - BRENDA R. GREGORY
CAA - CASSIE A. AUGENSTEIN
CAF - CHERYL A. FLOWERS
CAH - CHARLES A. HALL
CEB - CHAD E. BARNES
CLC - CHRYS L. CRAWFORD
CLW - CHARISSA L. WINTERS
CPD - CHAD P. DAVIS
CSH - CHRIS S. HILL
DDE - DEBRA D. ELLIOTT
DEL - DON E. LIGHTFRITZ
DEV - DAVID E. VANDENBERG
DGB - DOUGLAS G. BUTCHER
DIH - DEANNA I. HESSON
DLB - DAVID L. BUMGARNER
DLP - DOROTHY L. PAYNE
DLR - DIANNA L. RAUCH
DR - DEANNA ROBERTS
ECL - ERIC C. LAWSON
EDA - ERIN D. AGEE
ERP - ERIN R. PORTER
FJB - FRANCES J. BOLDEN
HAV - HEMA VILASAGAR
HJR - HOLLY J. REED
JBK - JEREMY B. KINNEY
JDH - JUSTIN D. HESSON
JKT - JANE K. THOMPSON
JWR - JOHN W. RICHARDS
JWS - JACK W. SHEAVES
JYH - JI Y. HU
KEB - KATHRYN E. BARNES
KHR - KIM H. RHODES
KRA - KATHY R. ALBERTSON
LKN - LINDA K. NEDEFF
LSB - LESLIE S. BUCINA
MDA - MIKE D. ALBERTSON
MDC - MICHAEL D. COCHRAN
MES - MARY E. SCHILLING
MMB - MAREN M. BEERY
MRT - MICHELLE R. TAYLOR
MSW - MATT S. WILSON
NPM - NATHANIEL P. MILLER
PDM - PIERCE D. MORRIS
RAH - ROY A. HALSTEAD
RB - ROBERT BUCHANAN
REK - ROBERT E. KYER
RLK - ROBIN L. KLINGER
RWC - RODNEY W. CAMPBELL
SDH - SHANA D. HINYARD
SLM - STEPHANIE L. MOSSBURG
SLP - SHERI L. PFALZGRAF
TIP - TAE I. PARRISH
TMB - TIFFANY M. BAILEY
TMM - TAMMY M. MORRIS
VC - VICKI COLLIER
WTD - WADE T. DELONG

Microbac Laboratories Inc.
List of Valid Qualifiers
August 12, 2009

Qualkey: STD_ND=U

Qualifier	Description
U	Not detected at or above adjusted sample detection limit

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

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

COC NO. (DATE-01)

Shaw Environmental & Infrastructure, Inc.
3010 Briarpark Drive, Suite 400
Houston, TX 77042
(713) 996-4400

Laboratory Name: Microbac
Address : 158 Starlite Drive, Marietta OH 45750
Contact : Stephanie Mossburg
Phone: 1-800-373-4071

PM: Praveen Svrivastav (713.996.4588)
Project Contact: Jennifer Hoang
Project Name: Pistol Range
Project #: 117591-0009B340

TAT:
Phone No: 713-996-4408
Site: Confirmation Sampling
Location: Karnack, TX

Sampler Print: ALLEN WILLMORE (713) 247-9292

Sampler Sign:

**RCI
Reactivity Cyanide-SW7.33
Reactivity Sulfide-SW7.34
Corrosivity pH-9045D
Ignitability-1010

Sample Number	Grab	Date	Time	Matrix	# of Containers	TCLP VOCs (8260)	TCLP [redacted] METALS	**RCI							Comments
PRDS02	X	8/7/09	14:15	Soil	3	X	X	X							24-HOUR TAT!! (Rolloffs B-542, B-959, B-1113, B-766)
PRDS03	X	8/7/09	14:30	Soil	3	X	X	X							24-HOUR TAT!! (Rolloffs B-1111, B-1022, B-628, B-674)
PRRO628GR	X	8/7/09	13:15	Soil	3	X	X	X							HOLD
PRRO959GR	X	8/7/09	13:20	Soil	3	X	X	X							HOLD
PRRO 766GR	X	8/7/09	13:25	Soil	3	X	X	X							HOLD
PRRO1022GR	X	8/7/09	13:30	Soil	3	X	X	X							HOLD
PRRO1111 GR	X	8/7/09	13:35	Soil	3	X	X	X							HOLD
PRRO 1113 GR	X	8/7/09	13:40	Soil	3	X	X	X							HOLD
~~[illegible]~~	~~X~~	~~[illegible]~~	~~[illegible]~~	~~Soil~~	~~3~~	~~X~~	~~X~~	~~X~~							~~HOLD~~
PRRO 542 GR	X	8/7/09	13:50	Soil	3	X	X	X							HOLD
PRRO 674 GR	X	8/7/09	13:55	Soil	3	X	X	X							HOLD
	X			Soil											
	X			Soil											
	X			Soil											
	X			Soil											

Relinquished By:
Date/Time 8/7/09 17:30

Received By:
Date/Time

Special Instructions 24-HOUR TAT!! for PRDS02 & PRDS03 ONLY!!
HOLD PENDING ANALYSIS

Relinquished By:
Date/Time

Received for Laboratory By:
Date/Time

Remarks:

Microbac OVD 221000001000
Received: 08/08/2009 10:36
By: DON LIGHTFRITZ

Don E Lightfritz

COOLER INSPECTION

Received: 08/08/2009 10:36
Delivery Method: UPS
Opened By: Don Lightfritz
Comments:

Login(s): L09080178 L09080179

Cooler(s)

Cooler #	Temp Gun	Temp	Tracking #	COC #	Comments
0013142	H	3.0	1Z66V7254491566525	date-01	

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

Microbac Laboratories Inc.

Internal Chain of Custody Report

Login: L09080178
Account: 2773
Project: 2773.025
Samples: 2
Due Date: 11-AUG-2009

Samplenum	**Container ID**	**Products**
L09080178-01	604484	TC-EX

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	10-AUG-2009 10:43	RLK	
2	PREP	W1	TCL	10-AUG-2009 11:14	RWC	RLK
3	STORE	TCL	A1	10-AUG-2009 11:59	RLK	RWC

Samplenum	**Container ID**	**Products**
L09080178-01	604485	TC-ZHE

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	10-AUG-2009 10:43	RLK	
2	PREP	W1	TCL	10-AUG-2009 11:14	RWC	RLK
3	STORE	TCL	A1	10-AUG-2009 11:59	RLK	RWC

Samplenum	**Container ID**	**Products**
L09080178-01	604486	REACTC REACTS

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	10-AUG-2009 10:43	RLK	
2	ANALYZ	W1	WET	10-AUG-2009 12:07	DLP	JKT
3	STORE	WET	A1	12-AUG-2009 08:02	RLK	JBK

Samplenum	**Container ID**	**Products**
L09080178-02	604487	TC-EX

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	10-AUG-2009 10:43	RLK	
2	PREP	W1	TCL	10-AUG-2009 11:14	RWC	RLK
3	STORE	TCL	A1	10-AUG-2009 11:59	RLK	RWC

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: L09080178
Account: 2773
Project: 2773.025
Samples: 2
Due Date: 11-AUG-2009

Samplenum	**Container ID**	**Products**
L09080178-02	604488	TC-ZHE

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	10-AUG-2009 10:43	RLK	
2	PREP	W1	TCL	10-AUG-2009 11:14	RWC	RLK
3	STORE	TCL	A1	10-AUG-2009 11:59	RLK	RWC

Samplenum	**Container ID**	**Products**
L09080178-02	604489	REACTC REACTS

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	10-AUG-2009 10:43	RLK	
2	ANALYZ	W1	WET	10-AUG-2009 12:07	DLP	JKT
3	STORE	WET	A1	12-AUG-2009 08:02	RLK	JBK

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

Microbac®

158 Starlite Drive, Marietta, OH 45750 • T:740-373-4071 • F:740-373-4835 • http://www.microbac.com

Laboratory Report Number: L09080179

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 Sales and Service Team. If you have questions, comments or require further assistance regarding this report, please contact your team member noted in the reviewed box below at 800-373-4071. Team member e-mail addresses also appear here for your convenience.

Kathy Albertson	*Team Chemist/Data Specialist*	kalbertson@microbac.com
Stephanie Mossburg	*Team Chemist/Data Specialist*	smossburg@microbac.com
Tony Long	*Team Chemist/Data Specialist*	tlong@microbac.com
Amanda Fickiesen	*Client Services Specialist*	afickiesen@microbac.com
Annie Brown	*Client Services Specialist*	abrown@microbac.com

This report was reviewed on August 19, 2009.

Stephanie Mossburg

Stephanie Mossburg - Team Chemist/Data Specialist

I certify that all test results meet all of the requirements of the accrediting authority listed below. 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.

This report was certified on August 19, 2009.

David E. Vandenberg

David Vandenberg - Managing Director

State of origin: Texas
Accrediting authority: Texas Commission on Environmental Quality ID:T104704252-07-TX
QAPP: Microbac OVD
This report contains a total of 195 pages.

Look closer. Go further. Do more.

Microbac

Microbac Laboratories, Inc.
Ohio Valley Division
158 Starlite Drive
Marietta, OH 45750

Phone: 800.373.4071
Fax: 740.373.4835

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LOOK CLOSER, GO FURTHER, DO MORE.

Microbac REPORT L09080179
PREPARED FOR Shaw E I, Inc.
WORK ID:

Shaw® Shaw Environmental, Inc.

Date: ***January 12, 2010***

Project No.: ***117591***

TRANSMITTAL LETTER:

To: Mr. Aaron Williams

Address: US Army Corps of Engineers - Tulsa
CESWT-PP-M
1645 South 101st East Ave
Tulsa, Oklahoma 74128

Re: **Final Proposed Plan for LHAAP-46, Plant 2 Area, Group 4**
Longhorn Army Ammunition Plant, Karnack, Texas

Contract No. W912QR-04-D-0027/DS02

For: Review ____ As Requested ____ Approval ____ Corrections ____ Submittal x Other ____

Item No:	*No. of Copies*	*Date:*	*Document Title*
1	2	January 2010	**Final Proposed Plan for LHAAP-46, Plant 2 Area, Group 4** Longhorn Army Ammunition Plant, Karnack, Texas

Aaron – Enclosed please find the final version of the above-named report for your records.

The document has been distributed according to the list below. Please call if any questions or comments.

Sincerely:

Praveen Srivastav
Project Manager

Distribution List:
Ms. Rose Zeiler – BRAC-LHAAP
Mr. Matthew Mechenes – AEC
Ms. Fay Duke – TCEQ (2)
Mr. Steve Tzhone – EPA (2)
Mr. Dale Vodak - TCEQ
Mr. Paul Bruckwicki –USFWS
Mr. John Lambert/Scottie Fiehler (distributed by A. Williams) - USACE

1401 Enclave Parkway, Houston, Texas 77077 ***Phone: (281) 531-3100/Fax: (281) 531-3143***

DEPARTMENT OF DEFENSE
UNITED STATES OF AMERICA

DEPARTMENT OF THE ARMY
LONGHORN ARMY AMMUNITION PLANT
POST OFFICE BOX 220
RATCLIFF, AR 72951

January 12, 2010

DAIM-ODB-LO

Mr. Stephen Tzhone
US Environmental Protection Agency
Superfund Division (6SF-AT)
1445 Ross Avenue
Dallas, TX 75202-2733

Re: Final Proposed Plan for LHAAP-46, Plant 2 Area, Group 4
Longhorn Army Ammunition Plant, Karnack, Texas, January 2010

Dear Mr. Tzhone,

The above-referenced document is being transmitted to you for your files. The document has been prepared by Shaw Environmental, Inc. (Shaw) on behalf of the Army as part of Shaw's performance based contract for the facility.

The point of contact for this action is the undersigned. I ask that Praveen Srivastav, Shaw's Project Manager, be copied on any communications related to the project. I may be contacted at 479-635-0110, or by email at rose.zeiler@us.army.mil.

Sincerely,

Rose M. Zeiler

Rose M. Zeiler, Ph.D.
Longhorn AAP Site Manager

Copies furnished:
F. Duke, TCEQ, Austin, TX
D. Vodak, TCEQ, Tyler, TX
P. Bruckwicki, Caddo Lake NWR, TX
J. Lambert/S. Fiehler, USACE, OK
A. Williams, USACE, OK
M. Mechenes, USAEC, MD
P. Srivastav, Shaw – Houston, TX (for project files)

DEPARTMENT OF DEFENSE
UNITED STATES OF AMERICA

DEPARTMENT OF THE ARMY
LONGHORN ARMY AMMUNITION PLANT
POST OFFICE BOX 220
RATCLIFF, AR 72951

January 12, 2010

DAIM-ODB-LO

Ms. Fay Duke (MC-136)
SSDAT/Superfund Section
Remediation Division
Texas Commission on Environmental Quality
12100 Park 35 Circle, Bldg D
Austin, TX 78753

Re: Final Proposed Plan for LHAAP-46, Plant 2 Area, Group 4
Longhorn Army Ammunition Plant, Karnack, Texas, January 2010
SUP 126

Dear Ms. Duke,

The above-referenced document is being transmitted to you for your files. The document has been prepared by Shaw Environmental, Inc. (Shaw) on behalf of the Army as part of Shaw's performance based contract for the facility.

The point of contact for this action is the undersigned. I ask that Praveen Srivastav, Shaw's Project Manager be copied on any communications related to the project. I may be contacted at 479-635-0110, or by email at rose.zeiler@us.army.mil.

Sincerely,

Rose M. Zeiler

Rose M. Zeiler, Ph.D.
Longhorn AAP Site Manager

Copies furnished:
S. Tzhone, USEPA Region 6, Dallas, TX
D. Vodak, TCEQ, Tyler, TX
P. Bruckwicki, Caddo Lake NWR, TX
A. Williams, USACE, OK
J. Lambert/S. Fiehler, USACE, OK
M. Mechenes, USAEC, MD
P. Srivastav, Shaw – Houston, TX (for project files)

FINAL
PROPOSED PLAN
FOR
LHAAP-46, PLANT 2 AREA, GROUP 4

ISSUED BY: U.S. ARMY

Longhorn Army Ammunition Plant
Karnack, Texas

January 2010

INTRODUCTION

The purpose of this Proposed Plan is to present for public review the remedial alternatives for LHAAP-46. This Proposed Plan identifies the Preferred Remedial Alternative for LHAAP-46, site of the former Plant 2 Area, approximately 190 acres in size and located in the north-central part of the Longhorn Army Ammunition Plant (LHAAP) in central-east Texas. This plan includes summaries of other potential remedial alternatives evaluated for implementation at the site. The primary purpose of the Proposed Plan is to facilitate public involvement in the remedy selection process. The Proposed Plan will provide the public with basic background information about LHAAP-46, identify the preferred final remedies for potential threats posed by the chemical contamination at the site, explain the rationale for the preference, and describe other remedial options considered.

The U.S. Army is issuing this Proposed Plan for public review, comment, and participation to fulfill part of its public participation responsibilities under Section 117(a) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 as amended by the Superfund Amendments and Reauthorization Act of 1986 and to present the public the best alternative under Section 300.430(f)(2) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). The CERCLA prescribes a step-wise progression of increasingly complex activities to respond to risk posed by contaminated sites **(Figure 1)**.

Dates to remember: January 25, 2010, to February 23, 2010
MARK YOUR CALENDER

PUBLIC COMMENT PERIOD:
January 25, 2010 to February 23, 2010
The U.S. Army will accept written comments on the Proposed Plan during the public comment period.

PUBLIC MEETING: The U.S. Army will hold a public meeting to explain the Proposed Plan for LHAAP-46. Oral and written comments will be accepted at the meeting. The meeting will be held on January 26, 2010 from 6:00 p.m. to 8:00 p.m. at Karnack Community Center.

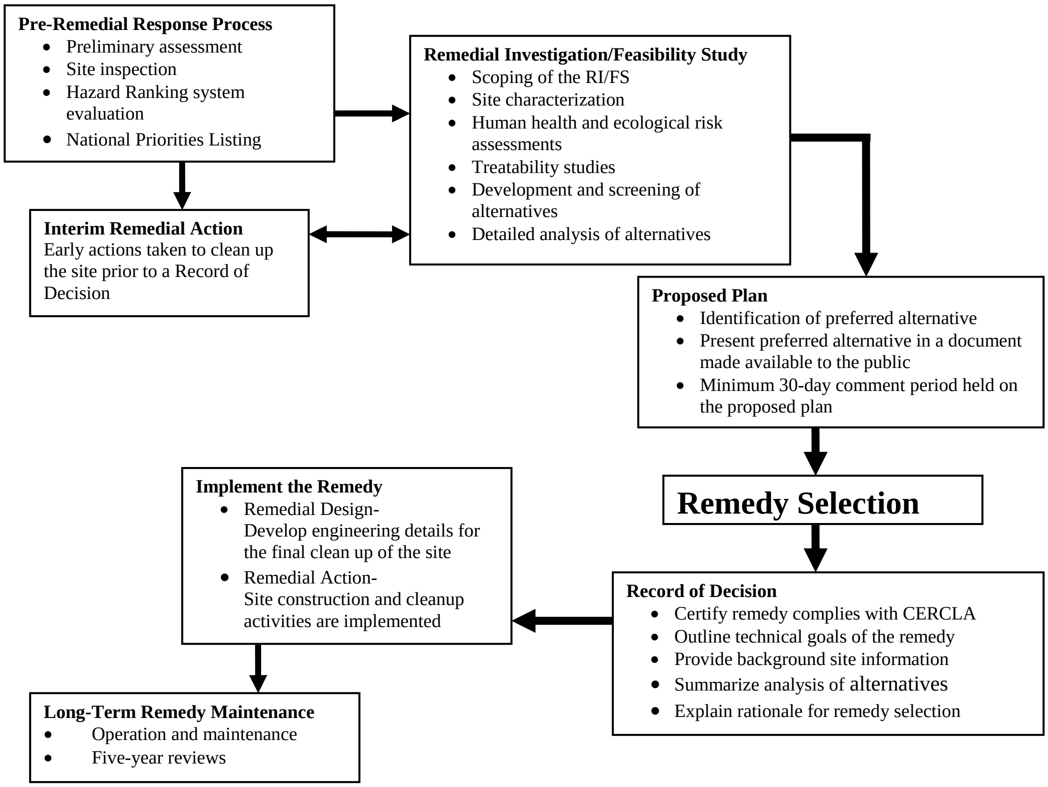
For more information, see the Administrative Record at the following location:

Marshall Public Library
300 S. Alamo
Marshall, Texas 75670
Business Hours:
Monday – Thursday (10:00 a.m. – 8:00 p.m.)
Friday – Saturday (10:00 a.m. – 5:00 p.m.)

For further information on LHAAP-46, please contact:
Dr. Rose M. Zeiler
Site Manager
Longhorn Army Ammunition Plant
P.O. Box 220
Ratcliff, Arkansas 72951
Phone No.: 903.679.3192
Direct No.: 479.635.0110
E-mail address: rose.zeiler@us.army.mil

The preparation and review of a Proposed Plan is a distinct step required by CERCLA. This Proposed Plan summarizes information that can be found in greater detail in the Remedial Investigation (RI) Report, the Data Gaps Investigation Report, the Feasibility Study (FS) Report, which includes the Natural Attenuation Evaluation Report, the Installation-Wide Baseline Ecological Risk Assessment (BERA), and other supporting documents that are contained in the Administrative Record for LHAAP-46. The project management team, including the U.S. Army, U.S. Environmental Protection Agency (USEPA), and the Texas Commission on Environmental Quality (TCEQ), encourages the public to review these documents to gain a more comprehensive understanding of the environmental conditions at LHAAP-46, and also to review and comment on the

Figure 1. CERCLA Remedial Response Process for Site Cleanup



alternatives presented in this Proposed Plan.

The U.S. Army, the lead agency for environmental response actions at LHAAP, is acting in partnership with USEPA Region 6 and TCEQ. As the lead agency, the U.S. Army is charged with planning and implementing remedial actions at LHAAP. The regulatory agencies assist the U.S. Army by providing technical support, project review, project comment, and oversight in accordance with CERCLA and the NCP as well as the Federal Facility Agreement (FFA).

The proposed plan summarizes the site characteristics, scope and role of response action, and summary of site risks. This is followed by a presentation of the remedial action objectives (RAO) and summary of remedial alternatives for LHAAP-46. Finally, an evaluation of alternatives and a summary of the preferred alternative are presented.

SITE BACKGROUND

LHAAP is located in central-east Texas in the northeastern corner of Harrison County **(Figure 2)**. The installation occupies approximately 1400 of its former 8,416 acres between State Highway 43 at Karnack, Texas, and the western shore of Caddo Lake. The nearest cities are Marshall, Texas, approximately 14 miles to the southwest, and Shreveport, Louisiana, approximately 40 miles to the southeast. Caddo Lake, a large freshwater lake situated on the Texas-Louisiana border, bounds LHAAP to the north and east.

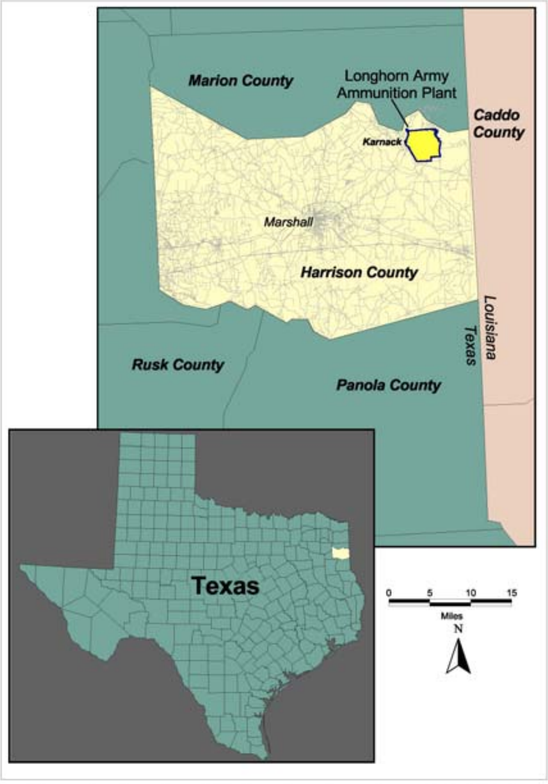


Figure 2 Location of the Longhorn Army Ammunition Plant, Harrison County, Texas

The U.S Army has transferred nearly 7,000 acres to the U.S. Fish and Wildlife Service (USFWS) for management as the Caddo Lake National Wildlife Refuge. The property transfer process is continuing as response is completed at individual sites. The local restoration advisory board has been kept informed of previous investigations at this site through regularly held quarterly meetings. Additionally, the administrative record is updated at least twice per year and is available at the local public library.

Due to releases of chemicals from facility operations, LHAAP was placed on the Superfund National Priorities List (NPL) on August 9, 1990. Activities to remediate contamination associated with the listing of LHAAP as a Superfund site began in 1990. After being listed on the NPL, the U.S. Army, the USEPA, and the Texas Water Commission (currently known as the TCEQ) entered into a CERCLA Section 120 FFA for remedial activities at LHAAP. The FFA became effective December 30, 1991. LHAAP operated until 1997 when it was placed on inactive status and classified by the U.S. Army Armament, Munitions, and Chemical Command as excess property.

LHAAP-46 was not one of the originally listed NPL sites in the FFA but will be managed in the same manner because of the presence of contaminated groundwater under the site.

LHAAP-46, known as the Plant 2 Area, is located in the north-central portion of LHAAP **(Figure 3)** and covers approximately 190 acres. Facilities for producing JB-2 propellant fuel at LHAAP-46 began in 1944, but construction was halted in 1945 with the end of World War II. Plant 2 was used to produce pyrotechnic devices from February 1952 to 1956 and was reactivated to produce pyrotechnic and illumination devices in 1964 until approximately 1997.

Between 1992 and 2003 numerous investigations were conducted in a phased approach to determine the nature and extent of contamination at LHAAP-46.

These investigations included a Pre-Phase I investigation in 1992 and 1993; Phase I through III RIs conducted in 1993, 1994, 1996, and1998 (Jacobs, 2002); perchlorate investigation of five wells in 2002 (STEP, 2005); and groundwater and soil sampling as part of the Phase II Environmental Site Assessment performed in 2003 (Plexus, 2005). Media investigated included soil and groundwater.

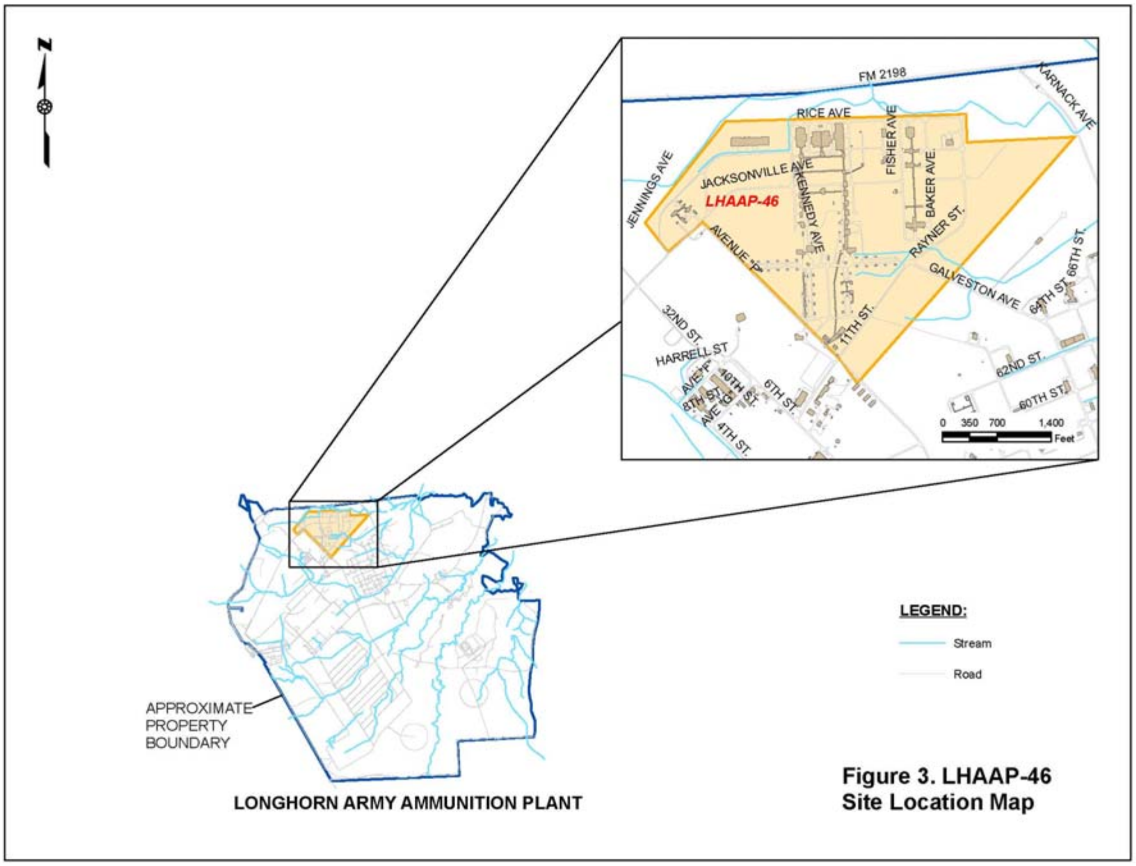


Figure 3. LHAAP-46 Site Location Map

The Final Baseline Human Health Risk Assessment (BHHRA) (Jacobs, 2003) used data from the investigations conducted through 2001 including the plant-wide perchlorate investigation. Additional investigations were conducted by Shaw in 2004, 2006, 2007, and 2008 after the BHHRA was finalized to further delineate the extent of groundwater contamination identified during previous sampling events. The results of the 2004 investigation were presented in the Data Gaps Report (Shaw, 2007a). Sampling results from Building 407 sampling in 2006, natural attenuation and geochemical evaluation in 2007, monitoring wells (volatile organic compounds [VOCs]) sampling in 2008, and details of new intermediate zone well installations are included in the Final Feasibility Study (Shaw, 2009).

SITE CHARACTISTICS

The surface features at LHAAP-46 are a mixture of asphalt-paved roads, parking areas, building foundation remnants, old buildings, and overgrown wooded and grassy vegetation-covered areas. The topography in this area is relatively flat with the surface drainage flowing east into tributaries of Goose Prairie Creek, which eventually flows into Caddo Lake. The lake is a source of drinking water for several neighboring communities in Louisiana.

Groundwater at the site was encountered approximately 11 to 23 feet below ground surface (bgs) in the shallow groundwater zone, to approximately 23 to 30 feet bgs in the intermediate zone, and to approximately 33 feet bgs in the deep zone. The predominant groundwater flow in the shallow zone at the site is generally to the east and in the intermediate zone is generally to the northeast. When there is no apparent separation between the zones or sand layers, the layers are considered interconnected. This occurs at LHAAP-46 near wells LHSMW23 and LHSMW26 and the groundwater bearing zone has been designated as a composite shallow/intermediate zone.

The post-2002 sump soil sampling results were evaluated in the Final Data Evaluation Report for LHAAP-35/36 and it was concluded that the cancer risk and noncancer hazard values were still within the acceptable range, and no further action was required for the soils around the 46 sumps and 14 waste rack sumps located at LHAAP-46 (Shaw, 2008).

The additional data collected since the risk assessment was evaluated in the FS to refine the list of chemicals of concern (COCs) in groundwater. It should be noted that the additional data collected did not change the overall outcome of the risk assessment as discussed in the "SUMMARY OF SITE RISKS" section. The COCs for LHAAP-46 identified in the FS are trichloroethene (TCE) in the shallow and intermediate groundwater zones as shown on **Figure 4**. The shallow zone has approximately 1.41 million gallons of contaminated groundwater in the shallow zone and approximately 7.85 million gallons in the intermediate zone. No principal threat source material was identified at LHAAP-46.

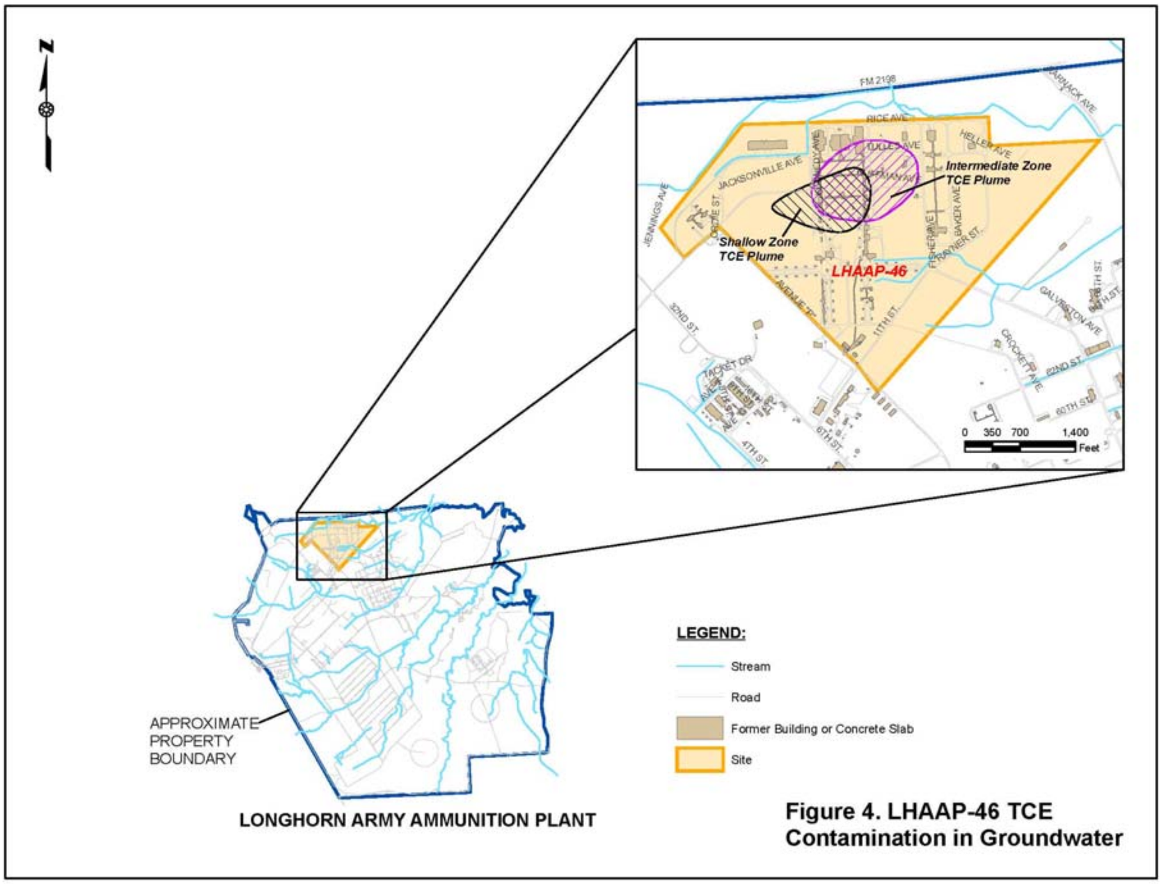


Figure 4. LHAAP-46 TCE Contamination in Groundwater

SCOPE AND ROLE OF THE ACTION

The scope and role of the action discussed in this proposed plan includes all remedial actions planned for this site. The recommended remedial action at LHAAP-46 will prevent potential risks associated with exposure to contaminated groundwater in both the shallow and intermediate groundwater zones. Although the groundwater at LHAAP is not currently being used as drinking water, nor may be used in the future based on its reasonably anticipated use as a national wildlife refuge, when establishing the RAOs for this response action, the U.S. Army has considered the NCP's expectation to return useable groundwater to its beneficial use wherever practicable. The U. S. Army has also considered the State of Texas designation of all groundwater as potential drinking water, unless otherwise classified, and consistent with, Texas Administrative Code (TAC), Title 30, §335.563 (h)(1). The Army intends to return the contaminated shallow and intermediate groundwater zones at LHAAP-46 to their potential beneficial uses, which is considered to be the attainment of Safe Drinking Water Act maximum contaminant levels (MCLs) to the extent practicable, and consistent with the Code of Federal Regulations, Title 40, §300.430(e)(2)(i)(B&C). If a return to beneficial uses is not practicable, the NCP expectation is to prevent further migration of the plume, prevent exposure to contaminated groundwater, and evaluate further risk reduction.

The preferred remedial action will ensure protection of human health and the environment. The preferred remedial action will include groundwater monitoring to demonstrate that the plumes are not migrating and to verify that contaminant levels are being reduced. Land use controls (LUCs) may be terminated when contaminant levels are reduced to MCLs.

SUMMARY OF SITE RISKS

The reasonably anticipated future use of this site is nonresidential as part of the Caddo Lake National Wildlife Refuge. This anticipated future use is based on a Memorandum of Agreement (U.S. Army, 2004) between the USFWS and the Army which documents the transfer process of the LHAAP acreage to USFWS to become the Caddo Lake National Wildlife Refuge. Presently the Caddo Lake National Wildlife Refuge occupies nearly 7,000 acres of the former installation. The property must be kept as a National Wildlife Refuge unless there is an act of Congress which removes the parcel or the land is exchanged in accordance with the National Wildlife Refuge System Administration Act of 1966 and the National Wildlife Refuge System Act Amendments of 1974.

As part of the RI/FS, a baseline human health risk assessment and screening ecological risk assessment were conducted for LHAAP-46 to determine current and future effects of contaminants on human health and the environment to support technical review and risk management decisions.

Human Health Risks

The baseline risk assessment estimates what risk the site poses if no action were taken. It provides the basis for taking action and identifies the contaminants and exposure pathways that need to be addressed by the remedial action. The applicable receptor scenario for future use as a wildlife refuge is a hypothetical future maintenance worker. For carcinogens, risks are generally expressed as the incremental probability of an individual developing cancer over a lifetime as a result of exposure to the carcinogen and are expressed in scientific notation (e.g., 1 × 10^{-6}). USEPA's acceptable risk range for site-related exposures is 1 × 10^{-4} to 1 × 10^{-6}, i.e., one-in-ten thousand to one-in-one million. The potential for non-cancer effects is expressed by a ratio of the exposure to the toxicity. An individual chemical ratio less than 1 indicates that toxic non-cancer effects from that chemical are unlikely. A non-cancer hazard index (HI) is calculated when all the ratios for the individual chemicals are summed. An HI greater than 1 indicates that site-related exposures may present a risk to human health. Thus, an HI of less than 1 is acceptable since toxic non-cancer effects are unlikely.

Using data presented in the RI, cancer risk and the non-cancer HI were calculated based on future maintenance worker exposure to the site environmental media (e.g., soil and groundwater) under an industrial scenario. Based on the BHHRA, the soil does not pose a carcinogenic risk or a noncarcinogenic hazard to the hypothetical future maintenance worker. However, the groundwater at LHAAP-46 poses an unacceptable non-carcinogenic human health hazard to a hypothetical future maintenance worker at LHAAP-46 under an industrial scenario with the exposure route of drinking the water or using the water for hand washing and showering. Contaminant concentrations in the groundwater were also compared to the MCLs.

The primary COC in groundwater is TCE. The maximum detected concentration of TCE was observed at 85.5 parts per billion (ppb) which exceeds the MCL of 5 ppb, a federal and state drinking water standard. All daughter products of TCE are also considered COCs, which include dichloroethenes and vinyl chloride.

Because the risk evaluation was based on the reasonably anticipated future use as a wildlife refuge, Texas Administrative Code requires that a recordation notification be filed with Harrison County per TAC §335.566 disclosing that the site is suitable for nonresidential use. Additionally, limited monitoring in the form of Five-Year Reviews will serve to document that the use of the site remains consistent with the industrial/recreational exposure scenario evaluated in the risk assessment.

Ecological Risks

The ecological risk for site LHAAP-46 was addressed in the installation-wide BERA (Shaw, 2007c). For the BERA, the entire installation was divided into three large sub-areas (i.e., the Industrial Sub-Area, Waste Sub-Area, and Low Impact Sub-Area) for the terrestrial evaluation. The individual sites at LHAAP were grouped into one of these sub-areas, which were delineated based on commonalities of historic use, habitat type, and spatial proximity to each other. The conclusions regarding the potential for chemicals detected at individual sites to adversely affect the environment must be made in the context of the overall conclusions of the sub-area in which the site falls. Site LHAAP-46 lies within the Industrial Sub-Area.

The BERA evaluated potential ecological risk to a number of endpoint receptors, as well as terrestrial plant and invertebrate communities. Endpoint receptors were evaluated using a food chain model that estimated a daily dose intake, which was subsequently compared with toxicity reference values to generate a hazard quotient. Terrestrial communities were evaluated through comparisons of detected concentrations to conservative benchmarks. Multiple lines of evidence (e.g., spatial distribution of concentrations, etc.) were also considered. After evaluating all lines of evidence, the BERA concluded that the potential for ecological risk was sufficiently low at the Industrial Sub-Area, and that no further evaluation for ecological receptors was required (Shaw, 2007c). Therefore, no action is needed at LHAAP-46 for the protection of ecological receptors.

Preferred Alternative

It is the current judgment of the U.S. Army that the preferred alternative identified in this Proposed Plan, or one of the other active measures considered in the Proposed Plan, is necessary to protect the public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment.

REMEDIAL ACTION OBJECTIVES

The Army recognizes USEPA's policy to return all groundwater to beneficial uses, based on the non-binding programmatic expectation in the NCP. The RAOs for LHAAP-46, which address contamination associated with the media at the site and take into account the future uses of LHAAP streams, land, and groundwater, are:

- Protect human health for the hypothetical future maintenance worker by preventing exposure to groundwater contaminated by VOCs.
- Return groundwater to its potential beneficial use as a drinking water, wherever practicable, within a reasonable time period given the particular site circumstances.

SUMMARY OF REMEDIAL ALTERNATIVES

The feasibility studies identified and screened remedial technologies and associated process options that may be appropriate for satisfying the RAOs for LHAAP-46 with respect to effectiveness, implementability, and cost. The following remedial alternatives were developed from the retained remedial technologies carried forward after the initial screening:

- Alternative 1 – No Action Alternative
- Alternative 2 – Monitored Natural Attenuation (MNA) and LUCs
- Alternative 3 – In Situ Bioremediation, MNA, and LUCs

Common Elements. There are common elements in the alternatives.

Land Use Controls

Because contamination would be left in place at LHAAP-46 for Alternative 2, and because contamination would be present for the duration of remedial activities in Alternatives 3, LUCs would be common to these alternatives. The LUCs will prevent human exposure to residual groundwater contamination presenting an unacceptable risk to human health, and ensure no withdrawal or use of groundwater beneath the sites for anything other than environmental monitoring and testing. LUCs will support the RAOs.

The U.S. Army would be responsible for implementation, maintenance, inspection, reporting, and enforcement of the LUCs. The Army intends to provide details of the LUCs implementation and maintenance actions in the Remedial Design (RD) for LHAAP-46. The groundwater restriction LUCs shall be maintained until the concentrations of contaminants and by-product (daughter) contaminants in groundwater have been reduced to levels below their respective MCLs under the Safe Drinking Water Act to allow unrestricted use and unlimited exposure at LHAAP-46. In addition, the Texas Department of Licensing and Regulation responsible for notifying well drillers of groundwater restrictions would be notified and a notification of LUCs with the Harrison County Courthouse would include a map showing the areas of groundwater restriction at the site.

In order to transfer LHAAP-46 to another federal entity, an Environmental Condition of Property (ECOP) document will be prepared and attached to the letter of transfer. The ECOP will include LUCs for groundwater as part of the Environmental Protection Provisions. The property will be transferred subject to the land use controls that are identified in the ECOP. These restrictions would prohibit or restrict property uses that may result in exposure to the contaminated groundwater (e.g., drilling restrictions, drinking water well restrictions).

Inspection and Long-Term Monitoring

Alternatives 2 and 3 include inspection and long-term groundwater monitoring activities. Monitoring would be continued as required to demonstrate effectiveness of the remedy, compliance with applicable or relevant and appropriate requirements (ARARs), to-be-considered requirements, RAOs, and to support CERCLA Five-Year Reviews.

Although the U.S. Army may later pass these procedural responsibilities to the transferee by property transfer agreement, the U.S. Army shall retain ultimate responsibility for remedy integrity.

Alternative 1 – No Action. As required by the NCP, the no action alternative provides a comparative baseline against which the action alternatives can be evaluated. Under this alternative, the groundwater would be left “as is” without implementing any additional containment, removal, treatment, or other mitigating actions. No other actions would be implemented to prevent potential human exposure to contaminated groundwater.

Estimated Capital Cost: $0

Estimated Operations and Maintenance (O&M) Cost: $0

Estimated Duration: --

Estimated Present Worth Cost: $0

Alternative 2 – Monitored Natural Attenuation and Land Use Controls

This alternative will provide actions to limit exposure to the contaminated groundwater in both the shallow and intermediate zones and demonstrate reduction of contamination via natural processes to MCLs.

MNA is a passive remedial action that relies on natural biological, chemical, and physical processes to reduce the mass and concentration of groundwater COCs under favorable conditions. MNA would assure the protection of human health and the environment by documenting that the contaminated groundwater remains localized with minimal migration and that contaminant concentrations are being reduced to MCLs. The LUCs would remain in effect until MCLs are met.

Estimated Capital Cost: $60,500

Estimated O&M Cost: $460,700

Estimated Duration: 30 years

Estimated Present Worth Cost: $521,200

Alternative 3 – In Situ Bioremediation, Short-Term LUCs, and LTM. This alternative will reduce groundwater contaminant concentrations to MCLs and prevent exposure to the contaminated groundwater until MCLs are met. To achieve these goals, this alternative utilizes in situ bioremediation to enhance attenuation and reduce groundwater contaminant concentrations to the MCLs, and maintains LUCs only until such time that the MCLs are met for groundwater contaminants through remediation.

Estimated Capital Cost: $379,000

Estimated O&M Cost: $365,000

Estimated Duration: 15 years

Estimated Present Worth Cost: $744,000

EVALUATION OF ALTERNATIVES

Nine criteria identified in the NCP, §300.430(e)(9)(iii), are used to evaluate the different remediation alternatives individually and against each other in order to select a remedy. This section profiles the relative performance of each alternative against the nine criteria, noting how it compares to the other options under consideration. The nine evaluation criteria are discussed below. The "Detailed Analysis of Alternatives" can be found in the FS for the site (Shaw, 2009).

1. Overall Protection of Human Health and the Environment

The three alternatives provide varying levels of human health protection. Alternative 1, no action, does not achieve the RAOs and provides the least protection of all the alternatives; it provides no reduction in risks to human health or the environment because no measures would be implemented to eliminate the pathway for human exposure to the groundwater contamination.

Alternatives 2 and 3 satisfy the RAOs for LHAAP-46. Alternatives 2 and 3 provide confirmation that human health and the environment are protected because monitoring would be conducted to document that the plumes are not migrating. Furthermore, LUCs would protect human health by preventing access to the contaminated groundwater until contaminants in groundwater are reduced to the MCLs.

2. Compliance with ARARs

Alternative 1 does not comply with chemical-specific ARARs because no remedial action or measures would be implemented. Alternatives 2 and 3 comply with groundwater and surface water chemical specific ARARs because they will return contaminated groundwater to its potential beneficial use as a drinking water, wherever practicable, in compliance with the Safe Drinking Water Act MCLs as relevant and appropriate.

Location-specific and action-specific ARARs would not apply to Alternative 1 since no remedial activities would be conducted. Alternatives 2 and 3 comply with all location-specific and action-specific ARARs.

3. Long-Term Effectiveness and Permanence

Alternative 1 would be the least effective and least permanent in the long term because no contaminant removal or treatment would take place and no measures would be implemented to control exposure risks posed by the contaminated groundwater. Also, the potential exists for contaminated groundwater to migrate toward and discharge into Goose Prairie Creek and then subsequently into Caddo Lake, a source of drinking water. However, the results of plume migration modeling indicate that contaminants present in the shallow groundwater at LHAAP-46 will not adversely impact the surface water of Goose Prairie Creek (Shaw, 2007b).

Alternatives 2 and 3 are remedial actions that would permanently reduce contaminant levels in the groundwater over time and return the groundwater to its potential beneficial use as drinking water wherever practicable, with Alternative 3 taking the least amount of time.

Natural attenuation processes are effectively controlling plume migration at LHAAP-46 and have stabilized the size of the plume. Based on predictive analysis, natural attenuation is expected to continue to be successful at the site. However, when performance is based on predictive analysis, contingency measures should be included in the decision document (USEPA, 1999). Therefore, Alternative 2 will include a contingent remedy if selected as the preferred remedy.

Alternative 3 would also work to control plume migration through contaminant reduction by in situ bioremediation. However, some uncertainty exists regarding the ability of in situ bioremediation to effectively reduce concentrations further and enhance natural attenuation, and therefore, further evaluation would be required. Should in situ bioremediation be considered ineffective after implementation, the remedy may need to be reevaluated. Alternatives 2 and 3 rely on LUCs for the protection of human health until the MCLs are achieved.

4. Reduction of Toxicity, Mobility, or Volume through Treatment

Alternative 1 does not employ treatment and would not result in a reduction of toxicity, mobility, or volume of contaminants.

MNA and in situ bioremediation would permanently reduce the mass and concentration of contaminants and, therefore, the volume, toxicity and mobility of the contaminants. MNA is a passive remedial action and bioremediation is an active treatment process.

Alternatives 2 and 3, however, include the generation of daughter products that may temporarily increase toxicity or mobility of the contaminant plume, with in situ bioremediation working in a shorter time frame. Both alternatives include monitoring so that daughter products would be quantified, documented, and evaluated. Daughter product concentrations will be reduced under both alternatives to levels below their associated MCLs to return groundwater to its potential beneficial use as drinking water, wherever practicable.

Since there is no known residual source of groundwater contamination in the soils at LHAAP-46, achievement of cleanup levels in groundwater would be expedited under Alternative 3 by implementing in situ bioremediation in areas of highest contaminant concentrations in the groundwater. It is noted, however, that monitoring for contaminants would be performed to assess the effectiveness of the treatment. It is also anticipated that COCs will remain above MCLs in the plume outside the treated areas and will continue to attenuate to levels below MCLs over time.

5. Short-Term Effectiveness

Because Alternative 1 does not involve any remedial measures, no short-term risk to workers, the community or the environment would exist. The activities associated with Alternative 2 and Alternative 3 are protective to the surrounding community from short-term risks. Alternatives 2 and 3 involve potential short-term risks to workers associated with exposure to contaminated groundwater and operation of drilling/construction equipment.

Alternatives 2 and 3 both contain LUCs as elements of their remedies and would provide almost immediate protection by prohibiting installation of potable wells through relatively quick LUC implementation. The time period to achieve groundwater cleanup levels is the most significant difference between Alternative 1 versus Alternatives 2 and 3. Alternative 3 is expected to take less time to achieve RAOs, provided treatability testing for in situ bioremediation is favorable. The implementation of Alternative 2 would require more time than Alternative 3.

6. Implementability

Under the no action alternative, no remedial action would be taken. Therefore, no difficulties or uncertainties would be associated with its implementation. Alternative 2 is easily implemented from a technical standpoint because no construction activities would be performed, although routine long-term maintenance and enforcement of the LUCs, long-term evaluation of MNA, and long-term sampling would be required.

Alternative 3 is also technically implementable, although less so than Alternative 2 because of the uncertainties associated with the ability of in situ bioremediation to effectively lower contaminant levels and to enhance natural attenuation. Alternative 3 would be somewhat more difficult to implement than Alternative 2 from a technical standpoint due to the specialized expertise required to design and construct the in situ bioremediation treatment elements.

Administratively, all of the alternatives are implementable.

7. Cost

Cost estimates are used in the CERCLA FS process to eliminate those remedial alternatives that are significantly more expensive than competing alternatives without offering commensurate increases in performance or overall protection of human health or the environment. The cost estimates developed are preliminary estimates with an intended accuracy range of +50 to –30 percent. Final costs will depend on actual labor and material costs, actual site conditions, productivity, competitive market conditions, final scope, final schedule, final engineering design, and other variables.

Costs developed are capital costs (including fixed-price remedial construction) and long-term O&M costs (post-remediation). Overall 30-year present worth costs are developed for each alternative assuming a discount rate of 2.8 percent.

The progression of present worth costs from the least expensive alternative to the most expensive alternative is as follows: Alternative 1, Alternative 2, and Alternative 3. No costs are associated with Alternative 1 because no remedial activities would be conducted.

Alternative 2 has the lowest present worth and capital costs of the remedial action alternatives. The highest capital cost is associated with Alternative 3 primarily due to the activities associated with the injection phase of in situ bioremediation.

8. State/Support Agency Acceptance

The USEPA and TCEQ have reviewed the Proposed Plan. Comments received from the USEPA and TCEQ during the Proposed Plan development have been incorporated. Both agencies concur with the preferred alternative.

9. Community Acceptance

Community acceptance of the preferred alternative will be evaluated after the public comment period ends and will be described in the Record of Decision (ROD) for the site.

SUMMARY OF THE PREFERRED ALTERNATIVE

Alternative 2, MNA and LUCs, is the preferred alternative for LHAAP-46 and is consistent with the intended future use of the site as a wildlife refuge. This alternative is recommended because it will satisfy the RAOs for the site through groundwater use restriction LUCs, which will ensure protection of human health by preventing human exposure to contaminated groundwater and MNA, which will return the contaminated water to its potential beneficial use as a drinking water, wherever practicable. The LUCs will remain in place until MCLs are met. Furthermore, MNA will assure protection of human health and the environment by preventing contaminated groundwater from migrating into nearby surface water bodies at levels that exceed MCLs. The long-term monitoring and reporting associated with the MNA remedy will continue until primary COC and daughter product MCLs are achieved. Based on a preliminary natural attenuation evaluation and groundwater modeling, MCLs are expected to be met through natural attenuation in approximately 23 years for TCE (Shaw, 2009). Considering the lithologic variability, particularly the lateral and vertical change from sand to clay, the times to MCL may vary by an order of magnitude. The groundwater flow rates are within the normal range for the formation material at these sites. Thus, no adverse impact is expected to the surface water during the time it would take natural attenuation to reduce contaminant concentrations to MCLs. The selected alternative offers a high degree of long-term effectiveness, can be easily and immediately implemented, and costs less than the Alternative 3.

The performance of MNA will be evaluated after two years of performance monitoring using data from the eight quarters and from the historical sampling events of the prior ten years. The performance objectives will be included in the RD. If it is found that the performance objectives are not met, a contingent remedy such as in situ bioremediation (see Alternative 3 description for basic elements) will be implemented. The decision regarding use of the contingent remedy to address the groundwater contamination will be considered after two years of MNA and would be implemented, if required, after approval of the remedial design. The contingent remedy will be designed to address the contamination after two years of MNA.

Based on the information currently available, the U.S. Army believes that the preferred alternative meets the threshold criteria and provides the best balance of tradeoffs among the other alternatives with respect to the CERCLA §121(b) criteria used to evaluate remedial alternatives. The preferred alternative will 1) be protective of human health and the environment; 2) comply with ARARs; 3) be cost-effective; 4) utilize permanent solution; and 5) does not utilize an active treatment as a principal element.

Although the selected remedy is not intended to address the statutory preference for treatment to the maximum extent possible, the final selected remedy offers, within a reasonable time frame and at a lower cost, a similar level of protection to human health and the environment than the remedy alternative which satisfies the preference for treatment. In addition, no source materials constituting principal threats will be addressed within the scope of this action.

The Army intends to present details of the LUCs implementation plan, the groundwater monitoring plan, and the MNA remedy implementation in a RD for LHAAP-46.

The remedy selected in the ROD may change from the preferred alternative presented here, based on public comment.

Notification of nonresidential use will accompany all transfer documents and will be recorded in the County Courthouse. Five-Year Reviews will be performed to document the remedy remains protective of human health and the environment.

COMMUNITY PARTICIPATION

The U.S. Army, USEPA, and TCEQ provide information regarding LHAAP-46 through public meetings, the Administrative Record file for the facility, and announcements published in the Shreveport Times and Marshall News Messenger newspapers.

The dates for the public comment period, the date, location, and time of the public meeting, and the locations of the Administrative Record files are provided on the front page of this Proposed Plan.

Any significant changes to the Proposed Plan, as presented in this document, will be identified and explained in the ROD.

Primary Reference Documents for LHAAP-46

Jacobs Engineering Group Inc. (Jacobs), 2002, *Final Remedial Investigation Report for the Group 4 Sites 35A, 35B, 35C, 46, 47, 48, 50, 60, and Goose Prairie Creek, at the Longhorn Army Ammunition Plant, Karnack, Texas*, January.

Jacobs, 2003, *Final Baseline Human Health and Screening Ecological Risk Assessment for the Group 4 Sites (Sites 04, 08, 35A, 35B, 35C, 46, 47, 48, 50, 60, 67, Goose Prairie Creek, Saunder's Branch, Central Creek, and Caddo Lake), Longhorn Army Ammunition Plant, Karnack, Texas,* June.

Plexus, 2005, *Environmental Site Assessment, Phase I and II Report, Final, Production Areas, Longhorn Army Ammunition Plant, Karnack, Texas*, June.

Shaw Environmental, Inc. (Shaw), 2007a, *Final Modeling Report, Derivation of Soil and Groundwater Concentrations Protective of Surface Water and Sediment, Longhorn Army Ammunition Plant, Karnack, Texas*, February.

Shaw, 2007b, *Final Data Gaps Investigation Report, Longhorn Army Ammunition Plant, Karnack, Texas,* April.

Shaw, 2007c, *Installation-Wide Baseline Ecological Risk Assessment, Longhorn Army Ammunition Plant, Karnack, Texas, Volume I: Step 3 Report*, November.

Shaw, 2008, *Final Data Evaluation Report, Chemical Concentrations in Soil Samples Associated with LHAAP-35/36 Sumps, Longhorn Army Ammunition Plant*, June.

Shaw, 2009, *Final Feasibility Study, LHAAP-46, Longhorn Army Ammunition Plant, Karnack, Texas,* October.

Solutions to Environmental Problems, In, (STEP), 2005, *Final Project Report, Plant-Wide Perchlorate Investigation*, April.

United States Army, 2004, *Memorandum of Agreement Between the Department of the Army and the Department of the Interior for the Interagency Transfer of Lands at the Longhorn Army Ammunition Plant for the Caddo Lake National Wildlife Refuge, Harrison County, Texas*, Signed by the Department of the Interior on April 27, 2004 and the Army on April 29, 2004.

U.S. Environmental Protection Agency (USEPA), 1999, *Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action, and Underground Storage Tank Sites,* April.

GLOSSARY OF TERMS

Administrative Record — The body of reports, official correspondence, and other documents that establish the official record of the analysis, cleanup, and final closure of a CERCLA site.

ARARs — Applicable or relevant and appropriate requirements. Refers to the federal and state requirements that a selected remedy will attain.

Attenuation — The process by which a compound is reduced in concentration over time, through absorption, adsorption, degradation, dilution, and/or transformation.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) — This law authorizes the Federal Government to respond directly to releases (or threatened releases) of hazardous substances that may be a danger to public health, welfare, or the environment. The U.S. Army currently has the lead responsibility for these activities.

Environmental Media — Major environmental categories that surrounds or contact humans, animals, plants, and other organisms (e.g., surface water, ground water, soil or air) and through which chemicals or pollutants move.

Exposure — Contact of an organism with a chemical or physical agent. Exposure is quantified as the amount of the agent available at the exchange boundaries of the organism (e.g., skin, lung, digestive tract, etc.) and available for absorption.

Groundwater — Underground water that fills pores in soil or openings in rocks to the point of saturation.

Hazard Index — The hazard index is the sum of the hazard quotients for all chemicals to which an individual is exposed. A hazard index value of 1.0 or less indicates that no adverse non-cancer human health effects are expected to occur. Each hazard quotient is a comparison of an estimated chemical intake (dose) with a reference dose level below which adverse health effects are unlikely. Each hazard quotient is expressed as the ratio of the estimated intake (numerator) to the reference dose (denominator). The value is used to evaluate the potential for non-cancer health effects, such as organ damage, from chemical exposures.

Maximum Contaminant Level (MCL) — The maximum contaminant level is the maximum permissible level of a contaminant in a public system. MCLs are defined in the Code of Federal Regulation (40 CFR 141, National Primary Drinking Water Regulations which implement portions of the Safe Drinking Water Act). The TCEQ has adopted MCLs at the regulatory cleanup level for both industrial and residential uses. Any detected compound in the groundwater samples with a MCL were evaluated by comparing them to their associated MCL. MCL comparisons are performed using an average or other site-representative concentration.

Proposed Plan — A report for public comment highlighting the key factors that form the basis for the selection of the preferred remediation alternative.

Remedial Action — The actual construction or implementation phase of a Superfund site cleanup that follows remedial design.

Risk Assessment — An analysis of the potential adverse health effects (current and future) caused by hazardous substances at a site in the absence of any actions to control or mitigate these releases (i.e., under an assumption of no action). The assessment contributes to decisions regarding appropriate response alternatives.

Superfund — The common name used for CERCLA; also referred to as the Trust Fund. The Superfund Program was established to help fund cleanup of hazardous waste sites. It also allows legal action to force those responsible for sites to clean them up.

ACRONYMS

ARARs	applicable or relevant and appropriate requirements
BERA	Baseline Ecological Risk Assessment
bgs	below ground surface
BHHRA	baseline human health risk assessment
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COC	chemical of concern
ECOP	environmental condition of property
FFA	Federal Facility Agreement
FS	feasibility study
HI	hazard index
LHAAP	Longhorn Army Ammunition Plant
LUC	land use control
MCL	maximum contaminant level
MNA	monitored natural attenuation
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List
O&M	operation and maintenance
ppb	parts per billion
RAO	remedial action objective
RD	remedial design
RI	remedial investigation
ROD	record of decision
TAC	Texas Administrative Code
TCE	trichloroethene
TCEQ	Texas Commission on Environmental Quality
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
VOC	volatile organic compound

USE THIS SPACE TO WRITE YOUR COMMENTS

Your input on the Proposed Plan for LHAAP-46 is important to the U.S. Army. Comments provided by the public are valuable in helping the U.S. Army select a final remedy for these sites.

You may use the space below to write your comments, then fold and mail to Dr. Rose M. Zeiler, P.O. Box 220, Ratcliff, Arkansas 72951. Comments must be postmarked by February 23, 2010. If you have questions about the comment period, please contact Dr. Rose M. Zeiler at 479-635-0110. Those with electronic communications capabilities may submit their comments to the U.S. Army via Internet at the following e-mail address: rose.zeiler@us.army.mil

Shaw® Shaw Environmental, Inc.

Date: ***January 19, 2010***

Project No.:117591

TRANSMITTAL LETTER:

To: Mr. Aaron Williams

Address: US Army Corps of Engineers - Tulsa
CESWT-PP-M
1645 South 101st East Ave
Tulsa, Oklahoma 74128

Re: Final Proposed Plan for LHAAP-35A(58), Shops Area, Group 4
Contract No. W912QR-04-D-0027/DS02

For: Review____ As Requested ____ Approval____ Corrections____ Submittal____ Other X____

Item No:	*No. of Copies*	*Date:*	*Document Title*
1	2	January 2010	**Final Proposed Plan for LHAAP-35A(58), Shops Area, Group 4 Longhorn Army Ammunition Plant, Karnack, Texas**

Aaron– Enclosed are two copies of Shaw's draft final version of the above-named document. Copies have been distributed as indicated below.

Please call with any questions or comments.

Sincerely:

Praveen Srivastav
Project Manager

CC: **Distribution List:**
Mr. J. Lambert– USACE, Tulsa (sent to A. Williams for distribution)
Mr. M. Mechenes – USAEC
Ms. Rose Zeiler – BRAC-LHAAP
Mr. S. Tzhone – EPA Region 6 (2)
Ms. F. Duke– TCEQ, Austin (2)
Mr. D. Vodak– TCEQ, Tyler
Mr. P. Bruckwicki– U.S. Fish and Wildlife Service

DEPARTMENT OF DEFENSE
UNITED STATES OF AMERICA

DEPARTMENT OF THE ARMY
LONGHORN ARMY AMMUNITION PLANT
POST OFFICE BOX 220
RATCLIFF, AR 72951

January 19, 2010

DAIM-ODB-LO

Mr. Stephen Tzhone
US Environmental Protection Agency
Superfund Division (6SF-AT)
1445 Ross Avenue
Dallas, TX 75202-2733

Re: Final Proposed Plan for LHAAP-35A(58), Shops Area, Group 4
Longhorn Army Ammunition Plant, Karnack, Texas, January 2010

Dear Mr. Tzhone,

The above-referenced document is being transmitted to you for your files. The document has been prepared by Shaw Environmental, Inc. (Shaw) on behalf of the Army as part of Shaw's performance based contract for the facility.

The point of contact for this action is the undersigned. I ask that Praveen Srivastav, Shaw's Project Manager, be copied on any communications related to the project. I may be contacted at 479-635-0110, or by email at rose.zeiler@us.army.mil.

Sincerely,

Rose M. Zeiler

Rose M. Zeiler, Ph.D.
Longhorn AAP Site Manager

Copies furnished:
F. Duke, TCEQ, Austin, TX
D. Vodak, TCEQ, Tyler, TX
P. Bruckwicki, Caddo Lake NWR, TX
J. Lambert, USACE, Tulsa District, OK
A. Williams, USACE, Tulsa District, OK
M. Mechenes, USAEC, MD
P. Srivastav, Shaw – Houston, TX (for project files)

DEPARTMENT OF DEFENSE
UNITED STATES OF AMERICA

DEPARTMENT OF THE ARMY
LONGHORN ARMY AMMUNITION PLANT
POST OFFICE BOX 220
RATCLIFF, AR 72951

January 19, 2010

DAIM-ODB-LO

Ms. Fay Duke (MC-136)
SSDAT/Superfund Section
Remediation Division
Texas Commission on Environmental Quality
12100 Park 35 Circle, Bldg D
Austin, TX 78753

Re: Final Proposed Plan for LHAAP-35A(58), Shops Area, Group 4,
Longhorn Army Ammunition Plant, Karnack, Texas, January 2010
SUP 126

Dear Ms. Duke,

The above-referenced document is being transmitted to you for your files. The document has been prepared by Shaw Environmental, Inc. (Shaw) on behalf of the Army as part of Shaw's performance based contract for the facility.

The point of contact for this action is the undersigned. I ask that Praveen Srivastav, Shaw's Project Manager be copied on any communications related to the project. I may be contacted at 479-635-0110, or by email at rose.zeiler@us.army.mil.

Sincerely,

Rose M. Zeiler

Rose M. Zeiler, Ph.D.
Longhorn AAP Site Manager

Copies furnished:
S. Tzhone, USEPA Region 6, Dallas, TX
D. Vodak, TCEQ, Tyler, TX
P. Bruckwicki, Caddo Lake NWR, TX
J. Lambert, USACE, Tulsa District, OK
A. Williams, USACE, Tulsa District, OK
M. Mechenes, USAEC, MD
P. Srivastav, Shaw, Houston, TX (for project files)

00083917

FINAL
PROPOSED PLAN
FOR
LHAAP-35A(58), SHOPS AREA, GROUP 4

ISSUED BY: U.S. ARMY

Longhorn Army Ammunition Plant
Karnack, Texas

January 2010

INTRODUCTION

The purpose of this Proposed Plan is to present for public review the remedial alternatives for LHAAP-35A(58), the former Shops Area. LHAAP-35A(58) is approximately 11 acres in size and is located in the north-central part of the Longhorn Army Ammunition Plant (LHAAP) in central-east Texas. This plan includes summaries of other potential remedial alternatives evaluated for implementation at the site. The primary purpose of the Proposed Plan is to facilitate public involvement in the remedy selection process. The Proposed Plan provides the public with basic background information about LHAAP-35A(58), identifies the preferred final remedies for potential threats posed by the chemical contamination at the site, explains the rationale for the preference, and describes other remedial options that were considered.

The U.S. Army is issuing this Proposed Plan for public review, comment, and participation to fulfill part of its public participation responsibilities under Sections 117(a) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 as amended by the Superfund Amendments and Reauthorization Act of 1986, and under Section 300.430(f)(2) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). The CERCLA prescribes a step-wise progression of increasingly complex activities to respond to risk posed by contaminated sites **(Figure 1)**.

The preparation and review of a Proposed Plan is a distinct step required by CERCLA. This Proposed Plan summarizes information that can be found in greater detail in the Remedial Investigation (RI) Report, the Data Gaps Investigation Report, the Feasibility Study (FS) Report (which includes the Natural Attenuation Evaluation Report), the Installation-Wide Baseline Ecological Risk Assessment (BERA), and other supporting documents that are contained in the Administrative Record for LHAAP-35A(58). The project management team, including the U.S. Army, U.S. Environmental Protection Agency (USEPA), and the Texas Commission on Environmental Quality (TCEQ), encourages the public to review

Dates to remember: January 25, 2010, to February 23, 2010
MARK YOUR CALENDER

PUBLIC COMMENT PERIOD:
January 25, 2010, to February 23, 2010
The U.S. Army will accept written comments on the Proposed Plan during the public comment period.

PUBLIC MEETING: The U.S. Army will hold a public meeting to explain the Proposed Plan for LHAAP-35A(58). Oral and written comments will be accepted at the meeting. The meeting will be held on January 26, 2010 from 6:00 p.m. to 8:00 p.m. at Karnack Community Center.

For more information, see the Administrative Record at the following location:

Marshall Public Library
300 S. Alamo
Marshall, Texas 75670
Business Hours:
Monday – Thursday (10:00 a.m. – 8:00 p.m.)
Friday – Saturday (10:00 a.m. – 5:00 p.m.)

For further information on LHAAP-35A(58), please contact:
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Site Manager
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P.O. Box 220
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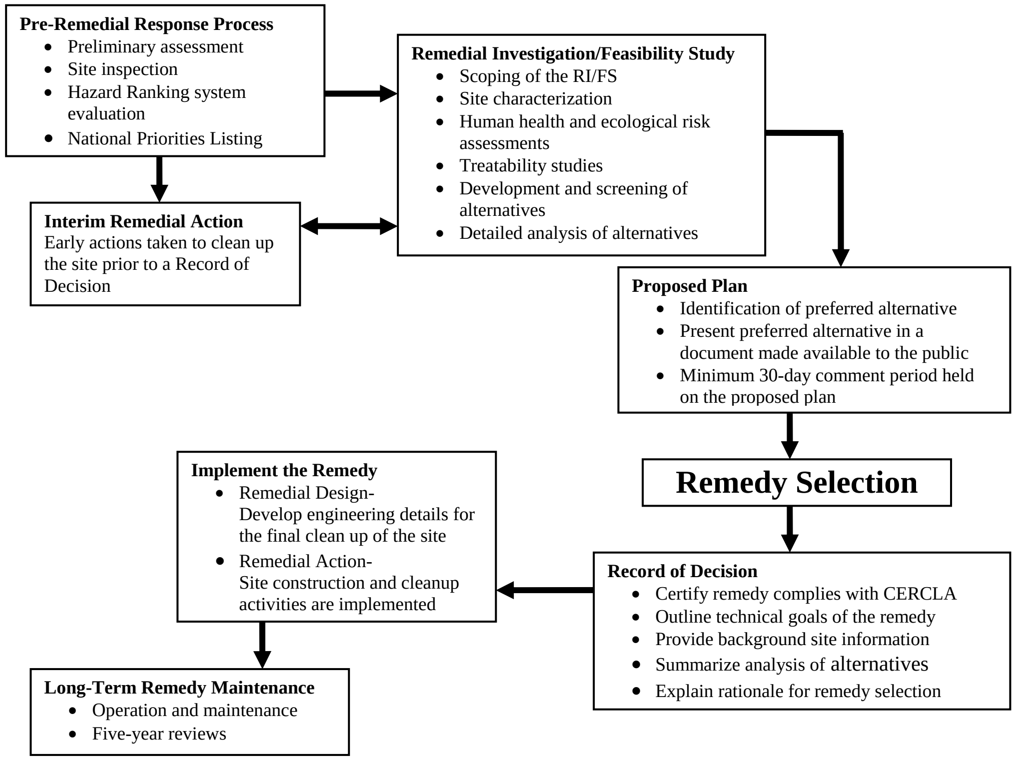
Figure 1. CERCLA Remedial Response Process for Site Cleanup



these documents to gain a more comprehensive understanding of the environmental conditions at LHAAP-35A(58), and also to review and comment on the alternatives presented in this Proposed Plan.

The U.S. Army, the lead agency for environmental response actions at LHAAP, is acting in partnership with USEPA Region 6 and TCEQ. As the lead agency, the U.S. Army is charged with planning and implementing remedial actions at LHAAP. The regulatory agencies assist the U.S. Army by providing technical support, project review, project comment, and oversight in accordance with CERCLA and the NCP as well as the Federal Facility Agreement (FFA).The proposed plan summarizes the site characteristics, scope and role of response action, and summary of site risks. This is followed by a presentation of the remedial action objectives (RAOs) and summary of remedial alternatives for LHAAP-35A(58). Finally, an evaluation of alternatives and a summary of the preferred alternative are presented.

SITE BACKGROUND

LHAAP is located in central-east Texas in the northeastern corner of Harrison County **(Figure 2)**. The installation occupies approximately 1,400 of its former 8,416 acres between State Highway 43 at Karnack, Texas, and the western shore of Caddo Lake. The nearest cities are Marshall, Texas, approximately 14 miles to the southwest, and Shreveport, Louisiana, approximately 40 miles to the southeast. Caddo Lake, a large freshwater lake situated on the Texas-Louisiana border, bounds LHAAP to the north and east.

The U.S Army has transferred nearly 7,000 acres to the U.S. Fish and Wildlife Service (USFWS) for management as the Caddo

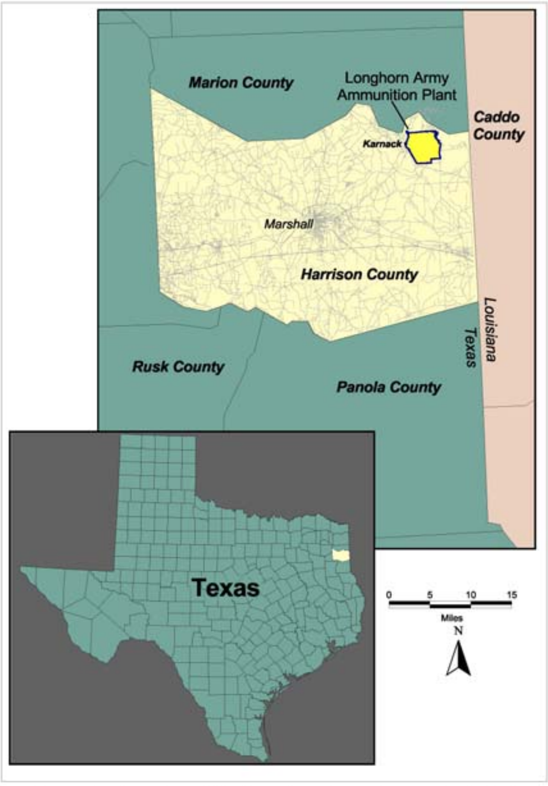


Figure 2 Location of the Longhorn Army Ammunition Plant, Harrison County, Texas

Lake National Wildlife Refuge. The property transfer process is continuing as response is completed at individual sites. The local restoration advisory board has been kept informed of previous investigations at this site through regularly held quarterly meetings. Additionally, the administrative record is updated at least twice per year and is available at the local public library.

Due to releases of chemicals from operations at the facility, LHAAP was placed on the Superfund National Priorities List (NPL) on August 9, 1990. Activities to remediate contamination associated with the NPL listing of LHAAP began in 1990. After being listed on the NPL, the U.S. Army, the USEPA, and the Texas Water Commission (currently known as the TCEQ) entered into a CERCLA Section 120 FFA for remedial activities at LHAAP. The FFA became effective December 30, 1991. LHAAP operated until 1997 when it was placed on inactive status and classified by the U.S. Army Armament, Munitions, and Chemical Command as excess property.

LHAAP-35A(58) was not one of the originally listed NPL sites in the FFA but will be managed in the same manner because of the presence of contaminated groundwater at the site.

LHAAP-35A(58), known as the Shops Area, is located in the north-central portion of LHAAP **(Figure 3)** and covers approximately 11 acres. Within the LHAAP-35A(58) boundary are other sites: LHAAP-02, vacuum truck overnight parking; LHAAP-03, Paint Shop Building 722 (waste collection); LHAAP-60, pesticide storage building; LHAAP-68, mobile storage tank parking; and LHAAP-69, service station underground storage tanks. Environmental decisions for these sites are being addressed separately.

The Shops Area was established in 1942 as part of the installation's initial construction. Plant-operated laundry, automotive, woodworking, metalworking, painting, refrigeration, and electrical shops served the needs of the overall facility. The site was active throughout LHAAP's mission and became inactive in 1996-1997, along with the entire installation.

Between 1992 and 2008, numerous investigations were conducted in a phased approach to determine the nature and extent of contamination at LHAAP-35A(58).

These investigations included a Pre-Phase I investigation in 1992 and 1993; Phase I through III RIs conducted in 1993-1994, 1996, and1998 (Jacobs, 2002); and groundwater and soil sampling as part of the Phase II Environmental Site

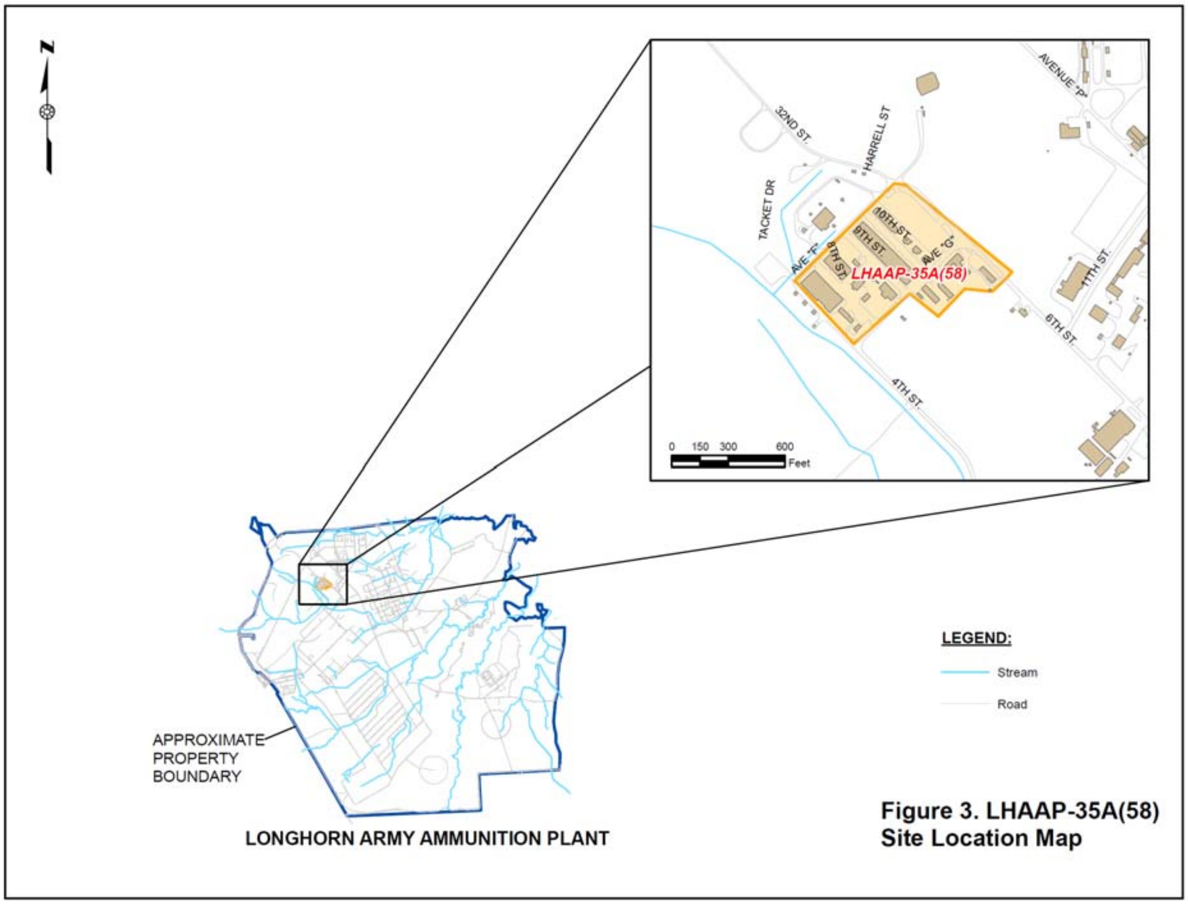


Figure 3. LHAAP-35A(58) Site Location Map

Assessment performed in 2003 (Plexus, 2005). Media investigated included soil and groundwater.

The Final Baseline Human Health Risk Assessment (BHHRA) (Jacobs, 2003) used data from the investigations conducted through 2001. Additional investigations were conducted by Shaw in 2004, 2006, 2007, and 2008 after the BHHRA was finalized to further delineate the extent of groundwater contamination identified during previous sampling events. The results of the 2004 investigation were presented in the Data Gaps Report (Shaw, 2007a). Sampling results from sump sampling in 2006 (Shaw, 2008), natural attenuation and geochemical evaluation in 2007, pesticide sampling (related to LHAAP-60) in 2007, direct push technology groundwater sampling and monitoring well (volatile organic compounds [VOCs]) sampling in 2008, and shallow groundwater sampling for plume delineations are included in the Final Feasibility Study (Shaw, 2009).

SITE CHARACTISTICS

The surface features at LHAAP-35A(58) are a mixture of asphalt-paved roads, parking areas, building foundation remnants, and areas heavily vegetated with grasses, shrubs, and trees. The topography in this area is relatively flat with the surface drainage flowing into tributaries of Goose Prairie Creek, which eventually flows into Caddo Lake. The lake is a source of drinking water for several neighboring communities in Louisiana.

Groundwater zones at the site include a shallow zone at approximately 10 to 25 feet below ground surface (bgs), an intermediate zone at approximately 60 to 71 feet bgs, and the deep zone at approximately 126 to 140 feet bgs. The predominant groundwater flow in the shallow zone at the site is generally to the east on the eastern side of the site and to the southwest on the western side of the site.

The sump soil sampling results were evaluated in the Final Data Evaluation Report for LHAAP-35/36 (Shaw, 2008), and it was concluded that the cancer risk and noncancer hazard values were still within the acceptable range, and no further action was required for the soils around the four sumps located at LHAAP-35A(58).

The additional data collected since the risk assessment was evaluated in the FS to refine the list of chemicals of concern (COCs) in the shallow groundwater. It should be noted that the additional sample results did not change the overall outcome of the risk assessment as discussed in the “SUMMARY OF SITE RISKS” section. The COCs for LHAAP-35A(58) identified in the FS are VOCs, including tetrachloroethene (PCE) and trichloroethene (TCE), 1,1-dichloroethene (1,1-DCE), and vinyl chloride in the shallow groundwater zone. The shallow zone has approximately 2.4 million gallons of contaminated groundwater in the eastern plume and 1.4 million gallons of contaminated groundwater in the western plume. The shallow groundwater plumes are shown on **Figure 4**. Data collected from the intermediate and deep groundwater zones confirms that PCE and TCE have not migrated down to these lower zones. No principal threat source material was identified at LHAAP-35A(58).

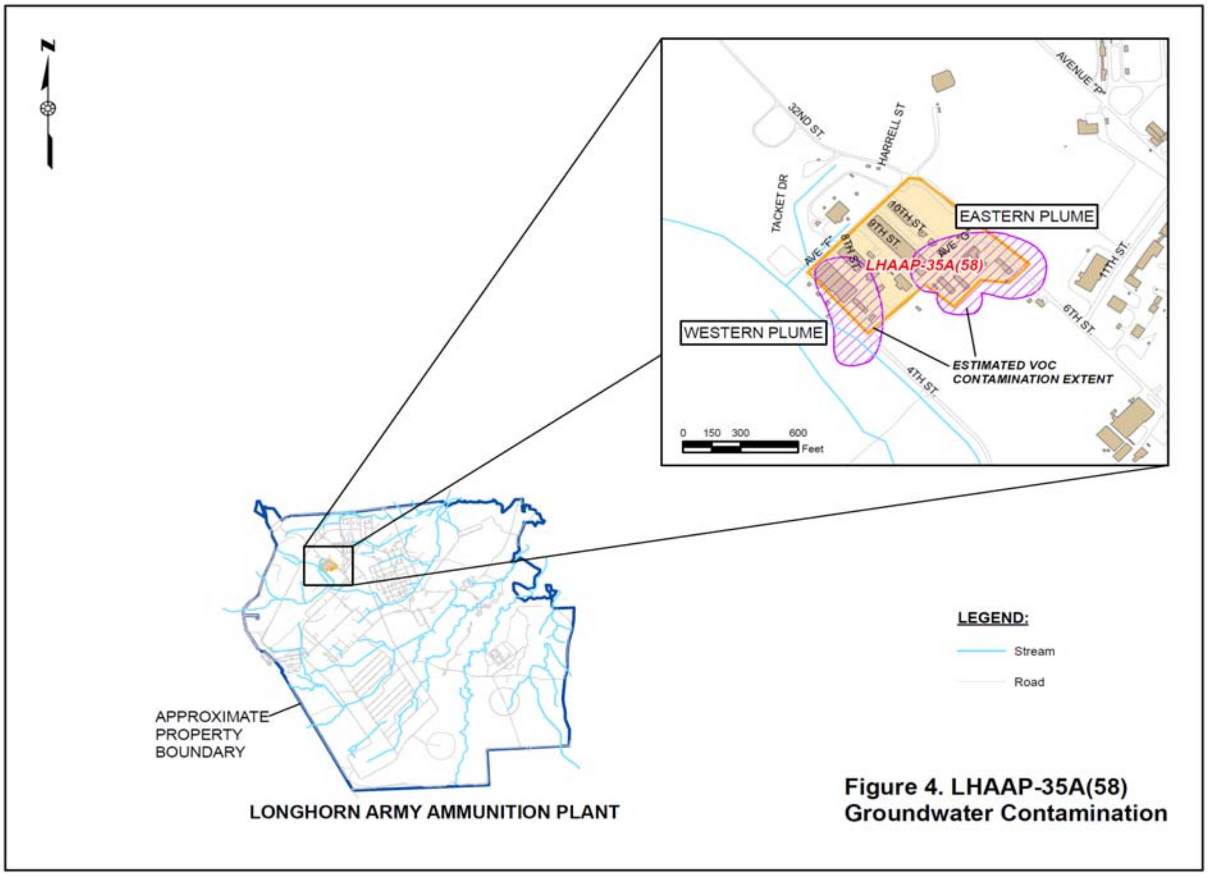


Figure 4. LHAAP-35A(58) Groundwater Contamination

SCOPE AND ROLE OF THE PROPOSED ACTION

The scope and role of the action discussed in this proposed plan includes all remedial actions planned for this site. The recommended remedial action at LHAAP-35A(58) will prevent potential risks associated with exposure to contaminated groundwater in both plume areas in the shallow groundwater zone. The groundwater at LHAAP is not currently being used as drinking water and may not be used in the future based on its reasonably anticipated use as a national wildlife refuge. When establishing the RAOs for this response action, the U.S. Army has considered the NCP's expectation to return useable groundwater to its potential beneficial use wherever practicable. The U.S. Army has also considered the State of Texas designation of all groundwater as potential drinking water, unless otherwise classified, and consistent with, Texas Administrative Code (TAC), Title 30, §335.563 (h)(1). The Army intends to return the contaminated shallow groundwater zone at LHAAP-35A(58) to its potential beneficial uses, which is considered to be the attainment of Safe Drinking Water Act maximum contaminant levels (MCLs) to the extent practicable, and consistent with Code of Federal Regulations, Title 40, §300.430(e)(2)(i)(B&C). If a return to potential beneficial uses is not practicable, the NCP expectation is to prevent further migration of the plume, prevent exposure to contaminated groundwater, and evaluate further risk reduction.

The preferred remedial action will ensure protection of human health and the environment. The preferred remedial action will include groundwater monitoring to demonstrate that the plumes are not migrating and to verify that contaminant levels are being reduced. Land use controls (LUCs) may be terminated when contaminant levels are reduced to MCLs.

SUMMARY OF SITE RISKS

The reasonably anticipated future use of this site is nonresidential as part of the Caddo Lake National Wildlife Refuge. This anticipated future use is based on a Memorandum of Agreement (U.S. Army, 2004) between the USFWS and the Army which documents the transfer process of the LHAAP acreage to USFWS to become the Caddo Lake National Wildlife Refuge. Presently the Caddo Lake National Wildlife Refuge occupies nearly 7,000 acres of the former installation. The property must be kept as a National Wildlife Refuge unless there is an act of Congress which removes the parcel or the land is exchanged in accordance with the National Wildlife Refuge System Administration Act of 1966 and the National Wildlife Refuge System Act Amendments of 1974.

As part of the RI/FS, a baseline human health risk assessment and screening ecological risk assessment were conducted for LHAAP-35A(58) to determine current and future effects of contaminants on human health and the environment to support technical review and risk management decisions.

Human Health Risks

The baseline risk assessment estimates the risk that the site poses if no action is taken. It provides the basis for taking action and identifies the contaminants and exposure pathways that need to be addressed by the remedial action. The applicable receptor scenario for future use as a wildlife refuge is a hypothetical future maintenance worker. For carcinogens, risks are generally expressed as the incremental probability of an individual developing cancer over a lifetime as a result of exposure to the carcinogen and are expressed in scientific notation (e.g., 1×10^{-6}). USEPA's acceptable risk range for site-related exposures is 1×10^{-4} to 1×10^{-6}, i.e., one-in-ten thousand to one-in-one million. The potential for non-cancer effects is expressed by a ratio of the exposure to the toxicity. An individual chemical ratio less than 1 indicates that toxic non-cancer effects from that chemical are unlikely. A non-cancer hazard index (HI) is calculated when the ratios for the individual chemicals are summed. An HI greater than 1 indicates that site-related exposures may present a risk to human health. Thus, an HI of less than 1 is acceptable since toxic non-cancer effects are unlikely.

Using data presented in the RI, the cancer risk and the non-cancer HI were calculated based on future maintenance worker exposure to the site environmental media (e.g., soil and groundwater) under an industrial scenario. Based on the human health risk assessment, the soil does not pose a cancer risk or a non-cancer hazard to the hypothetical future maintenance worker. However, the groundwater at LHAAP-35A(58) poses unacceptable cancer risk (1.6×10^{-2}) and non-cancer hazard (HI of 38) to a hypothetical future maintenance worker. The risk and HI values are based on an industrial exposure scenario that includes drinking the water or using the water for hand washing and showering.

The primary COCs in groundwater contributing to cancer risk and non-cancer hazard are 1,1-DCE and PCE. The maximum detected concentration of PCE was observed at 5,400 parts per billion (ppb) which exceeds the MCL of 5 ppb, a federal and state drinking water standard. The maximum concentration of 1,1-DCE was observed at 1,341 ppb, which exceeds the MCL of 7 ppb. All contaminant by-products (daughter products) of PCE are also considered COCs, these include TCE, 1,2-DCE, and vinyl chloride.

Because the risk evaluation was based on the reasonably anticipated future use as a wildlife refuge, a recordation notification will be filed with Harrison County per TAC §335.566 disclosing that the site is suitable for nonresidential use. Additionally, limited monitoring in the form of Five-Year Reviews will serve to document that the use of the site remains consistent with the industrial/recreational exposure scenario evaluated in the risk assessment.

Ecological Risks

The ecological risk for site LHAAP-35A(58) was addressed in the installation-wide BERA (Shaw, 2007b). For the BERA, the entire installation was divided into three large sub-areas (i.e., the Industrial Sub-Area, Waste Sub-Area, and Low Impact Sub-Area) for the terrestrial evaluation. The individual sites at LHAAP were grouped into one of these sub-areas, which were delineated based on commonalities of historic use, habitat type, and spatial proximity to each other. The conclusions regarding the potential for chemicals detected at individual sites to adversely affect the environment must be made in the context of the overall conclusions of the sub-area in which the site falls. Site LHAAP-35A(58) lies within the Industrial Sub-Area.

The BERA evaluated potential ecological risk to a number of endpoint receptors, as well as terrestrial plant and invertebrate communities. Endpoint receptors were evaluated using a food chain model that estimated a daily dose intake, which was subsequently compared with toxicity reference values to generate a hazard quotient. Terrestrial communities were evaluated through comparisons of detected concentrations to conservative benchmarks. Multiple lines of evidence (e.g., spatial distribution of concentrations, etc.) were also considered. After evaluating all lines of evidence, the BERA concluded that the potential for ecological risk was sufficiently low at the Industrial Sub-Area, and that no further evaluation for ecological receptors was required (Shaw, 2007b). Therefore, no action is needed at LHAAP-35A(58) for the protection of ecological receptors.

Preferred Alternative

It is the current judgment of the U.S. Army that the preferred alternative identified in this Proposed Plan, or one of the other active measures considered in the Proposed Plan, is necessary to protect the public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment.

REMEDIAL ACTION OBJECTIVES

The Army recognizes USEPA's policy to return all groundwater to potential beneficial uses, based on the non-binding programmatic expectation in the NCP. The RAOs for LHAAP-35A(58), which address contamination associated with the media at the site and take into account the future uses of LHAAP streams, land, and groundwater are:

- Protect human health for the hypothetical future maintenance worker by preventing exposure to groundwater contaminated with VOCs.
- Protect human health and the environment by preventing VOC contaminated groundwater from migrating into the nearby surface water.
- Return groundwater to its potential beneficial use as drinking water, wherever practicable, within a reasonable time period given the particular site circumstances.

SUMMARY OF REMEDIAL ALTERNATIVES

The feasibility studies identified and screened remedial technologies and associated process options that may be appropriate for satisfying the RAOs for LHAAP-35A(58) with respect to effectiveness, implementability, and cost. The following remedial alternatives were developed from the retained remedial technologies carried forward after the initial screening:

- Alternative 1 – No Action Alternative
- Alternative 2 – Monitored Natural Attenuation (MNA) and LUCs
- Alternative 3 – In Situ Bioremediation with short-term LUCs and LTM
- Alternative 4 – In Situ Bioremediation for Eastern Plume followed by MNA and LUCs; MNA and LUCs for Western Plume

Common Elements. Two elements, LUCs and Inspection/LTM, are common to Alternatives 2, 3, and 4. These elements are described below.

Land Use Controls

Contamination would be left in place at LHAAP-35A(58) for Alternatives 2 and 4, and contamination would be present for the duration of remedial activities in Alternatives 3. Therefore, LUCs are a common component of all three alternatives. The LUCs would prevent human exposure to residual groundwater contamination that presents an unacceptable risk to human health, and would ensure that there is no withdrawal or use of groundwater beneath the sites for anything other than environmental monitoring and testing. LUCs would support the RAOs.

The U.S. Army would be responsible for implementation, maintenance, inspection, reporting, and enforcement of the LUCs. The Army intends to provide details of the LUCs implementation and maintenance actions in the Remedial Design (RD) for LHAAP-35A(58). The groundwater restriction LUCs would be maintained until the concentrations of contaminants and by-product (daughter) contaminants in groundwater have been reduced to levels below their respective MCLs under the Safe Drinking Water Act to allow unrestricted use and unlimited exposure at LHAAP-58. In addition, the Texas Department of Licensing and Regulation responsible for notifying well drillers of groundwater restrictions would be notified and a notification of LUCs with the Harrison County Courthouse would include a map showing the areas of groundwater restriction at the site.

In order to transfer LHAAP-35A(58), an Environmental Condition of Property (ECOP) document would be prepared and attached to the letter of transfer. The ECOP will include LUCs for groundwater as part of the Environmental Protection Provisions. The property would be transferred subject to the land use controls that are identified in the ECOP. These restrictions would prohibit or restrict property uses that may result in exposure to the contaminated groundwater (e.g., drilling restrictions, drinking water well restrictions).

Inspection and Long-Term Monitoring

Alternatives 2, 3 and 4 include inspection and long-term groundwater monitoring activities. Monitoring would be continued as required to demonstrate effectiveness of the remedy, compliance with applicable or relevant and appropriate requirements (ARARs), to-be-considered requirements, and RAOs, and to support CERCLA Five-Year Reviews.

Although the U.S. Army may later pass these procedural responsibilities to the transferee by property transfer agreement, the U.S. Army shall retain ultimate responsibility for remedy integrity.

Alternative 1 – No Action. As required by the NCP, the no action alternative provides a comparative baseline against which the action alternatives can be evaluated. Under this alternative, the groundwater would be left “as is” without implementing any additional containment, removal, treatment, or other mitigating actions. No other actions would be implemented to prevent potential human exposure to contaminated groundwater.

Estimated Capital Cost: $0

Estimated O&M Present Worth Cost: $0

Estimated Duration: --

Estimated Total Present Worth Cost: $0

Alternative 2 – Monitored Natural Attenuation and Land Use Controls.

This alternative will provide actions to limit exposure to the contaminated groundwater in both shallow zone plume areas and demonstrate reduction of contamination via natural processes.

MNA is a passive remedial action that relies on natural biological, chemical, and physical processes to reduce the mass and concentration of groundwater COCs under favorable conditions. MNA would assure the protection of human health and the environment by documenting that the contaminated groundwater remains localized with minimal migration and that contaminant concentrations are being reduced to MCLs. The LUCs would remain in effect until MCLs are met.

Estimated Capital Cost: $60,500

Estimated O&M Present Worth Cost: $432,300

Estimated Duration: 30 years

Estimated Total Present Worth Cost: $492,800

Alternative 3 – In Situ Bioremediation, Short-Term LUCs, and LTM. This alternative will reduce groundwater contaminant concentrations to MCLs and prevent exposure to the contaminated groundwater until MCLs are met. To achieve these goals, this alternative utilizes in situ bioremediation to enhance attenuation and reduce groundwater contaminant concentrations to the MCLs, and maintains LUCs only until such time that the MCLs are met for groundwater contaminants through remediation.

Estimated Capital Cost: $860,000

Estimated O&M Present Worth Cost: $483,000

Estimated Duration: 10 years

Estimated Total Present Worth Cost: $1,343,000

Alternative 4 – In Situ Bioremediation for Eastern Plume followed by MNA and LUCs; MNA and LUCs for Western Plume. The goals of this alternative are to reduce groundwater contaminant concentrations to MCLs and prevent exposure to the contaminated groundwater until MCLs are met. To achieve these goals, this alternative utilizes both in situ bioremediation to enhance attenuation and MNA to reduce groundwater contaminant concentrations to the MCLs. The LUCs would remain in effect until such time that the MCLs are met for groundwater contaminants through both in situ bioremediation and MNA.

Estimated Capital Cost: $191,000

Estimated O&M Present Worth Cost: $594,000

Estimated Duration: 30 years

Estimated Total Present Worth Cost: $785,000

EVALUATION OF ALTERNATIVES

Nine criteria identified in the NCP, §300.430(e)(9)(iii), are used to evaluate the different remediation alternatives individually and against each other in order to select a remedy. This section profiles the relative performance of each alternative against the nine criteria, noting how it compares to the other options under consideration. The nine evaluation criteria are discussed below. The “Detailed Analysis of Alternatives” can be found in the FS for the site (Shaw, 2009).

1. Overall Protection of Human Health and the Environment

The four alternatives provide varying levels of human health protection. Alternative 1, no action, does not achieve the RAOs and provides the least protection of all the alternatives; it provides no reduction in risks to human health or the environment because no measures would be implemented to eliminate the pathway for human exposure to the groundwater contamination.

Alternatives 2, 3, and 4 satisfy the RAOs for LHAAP-35A(58). Alternatives 2, 3 and 4 provide confirmation that human health and the environment are protected because monitoring would be conducted to document that the plumes are not migrating. Furthermore, LUCs would protect human health by preventing access to the contaminated groundwater until contaminants in groundwater are reduced to the MCLs.

2. Compliance with ARARs

Alternative 1 does not comply with chemical-specific ARARs because no remedial action or measures would be implemented. Alternatives 2, 3 and 4 comply with groundwater and surface water chemical specific ARARs because they will return the contaminated shallow groundwater zone at LHAAP-35A(58) to its potential beneficial use as drinking water, wherever practicable, in compliance with Safe Drinking Water Act MCLs as relevant and appropriate.

Location-specific and action-specific ARARs would not apply to Alternative 1 since no remedial activities would be conducted. Alternatives 2, 3 and 4 comply with all location-specific and action-specific ARARs.

3. Long-Term Effectiveness and Permanence

Alternative 1 would be the least effective and least permanent in the long term because no contaminant removal or treatment would take place and no measures would be implemented to control exposure risks posed by the contaminated groundwater. However, the results of plume migration modeling indicate that the contamination present in the shallow groundwater at LHAAP-35A(58) will not adversely impact the surface water of Goose Prairie Creek (Shaw, 2007c). Alternative 2 offers a moderate degree of long-term effectiveness through the implementation of MNA with land use controls, which would minimize the potential risk posed by the contaminated groundwater. , Alternative 2 may pose the same risk as Alternative 1 if MNA is not effective, the plume is not stable and migrates. Alternatives 3 and 4 use active in situ bioremediation which will reduce groundwater contaminant concentrations. The long-term effectiveness of the in situ bioremediation may be limited by: 1) the nature of the permeable water-bearing zones and 2) the distribution and presence of COCs remaining in the groundwater in untreated areas. Alternatives 2, 3 and 4 are remedial actions that would permanently reduce contaminant levels in the groundwater over time and return the groundwater to its potential beneficial use as drinking water wherever practicable, with Alternative 3 requiring the least amount of time.

4. Reduction of Toxicity, Mobility, or Volume through Treatment

Alternative 1 does not employ treatment and would not result in a reduction of toxicity, mobility, or volume of contaminants.

Natural attenuation and in situ bioremediation would permanently reduce the mass and concentration of contaminants and, therefore, the volume, toxicity and mobility of the contaminants. MNA is a passive remedial action and bioremediation is an active treatment process.

Alternatives 2, 3, and 4 generate daughter products that may temporarily increase toxicity or mobility of the contaminant plume, with in situ bioremediation (Alternatives 3 and 4) working in a shorter time frame. The alternatives include monitoring so daughter products would be quantified, documented, and evaluated. Daughter product concentrations will be reduced under these alternatives to levels below their associated MCLs to return groundwater to its potential beneficial use as drinking water, wherever practicable.

Since there is no known residual source of groundwater contamination in the soils at LHAAP-35A(58), achievement of cleanup levels in groundwater would be expedited under Alternatives 3 or 4 by implementing in situ bioremediation in areas of highest contaminant concentrations in the groundwater. Monitoring for contaminants would be performed to assess the effectiveness of the treatment. It is also anticipated that COCs will remain above MCLs in the plume outside the treated areas and will continue to attenuate to levels below MCLs over time.

5. Short-Term Effectiveness

Alternative 1 does not involve any remedial measures; therefore, no short-term risk to workers, the community, or the environment would exist. The activities associated with Alternative 2 and Alternative 3 are protective to the surrounding community from short-term risks.

Alternatives 2, 3, and 4 involve potential short-term risks to workers associated with exposure to contaminated groundwater and operation of drilling/construction equipment. Alternatives 3 and 4 require more drilling/construction activities than Alternative 2.

Since Alternatives 2, 3, and 4 contain LUCs as elements of their remedies, they would provide almost immediate protection by prohibiting installation of potable wells through LUC implementation.

6. Implementability

Under the no action alternative, no remedial action would be taken. Therefore, no difficulties or uncertainties would be associated with its implementation. Alternative 2 is easily implemented from a technical standpoint because no construction activities would be performed, although routine long-term maintenance and enforcement of the LUCs, long-term evaluation of MNA, and long-term sampling would be required.

Alternatives 3 and 4 are also technically implementable, although less so than Alternative 2 because of the uncertainties associated with the effective field implementation of in situ bioremediation to lower contaminant levels and to enhance natural attenuation. These alternatives would be somewhat more difficult to implement due to the specialized expertise required for design and construction.

Administratively, all of the alternatives are implementable.

7. Cost

Cost estimates are used in the CERCLA FS process to eliminate those remedial alternatives that are significantly more expensive than competing alternatives without offering commensurate increases in performance or overall protection of human health or the environment. The cost estimates developed are preliminary estimates with an intended accuracy range of +50 to –30 percent. Final costs will depend on actual labor and material costs, actual site conditions, productivity, competitive market conditions, final scope, final schedule, final engineering design, and other variables.

The cost estimates include capital costs (including fixed-price remedial construction) and long-term O&M costs (post-remediation). Present worth costs were developed for each alternative assuming a discount rate of 2.8 percent. The estimates for Alternatives 2 and 4 utilize a 30-year project life for costing purposes, although the timeframe to achieve RAOs is expected to be longer. Alternative 3 would be expected to be complete approximately 10 years after injection.

The progression of present worth costs from the least expensive alternative to the most expensive alternative is as follows: Alternative 1, Alternative 2, Alternative 4, and Alternative 3. No costs are associated with Alternative 1 because no remedial activities would be conducted. Alternative 2 has the lowest present worth and capital costs of the remedial action alternatives. The highest capital cost is associated with Alternative 3 primarily due to the activities associated with the injection phase of in situ bioremediation.

8. State/Support Agency Acceptance

The USEPA and TCEQ have reviewed the Proposed Plan. Comments received from the USEPA and TCEQ have been incorporated. Both agencies concur with the preferred alternative.

9. Community Acceptance

Community acceptance of the preferred alternative will be evaluated after the public comment period ends and will be described in the Record of Decision (ROD) for the site.

SUMMARY OF THE PREFERRED ALTERNATIVE

Alternative 4, in situ bioremediation followed by MNA and LUCs for the eastern plume and MNA and LUCs for the western plume, is the preferred alternative for LHAAP-35A(58) and is consistent with the intended future use of the site as a wildlife refuge. This alternative is recommended because it will satisfy the RAOs for the site through groundwater use restriction LUCs, which will ensure protection of human health by 1) preventing human exposure to contaminated groundwater and 2) returning the contaminated water to its potential beneficial use as a drinking water, wherever practicable through MNA and in situ bioremediation. The LUCs will remain in place until MCLs are met. Furthermore, long-term monitoring will assure that human health and the environment are being protected by verifying that contaminated groundwater does not migrate into nearby surface water bodies at levels that exceed MCLs. The long-term monitoring and reporting associated with this remedy will continue until primary COC and daughter product MCLs are achieved. Based on a preliminary natural attenuation evaluation and groundwater modeling, groundwater ARARs are expected to be met through natural attenuation in approximately 200 years in the western plume (Shaw, 2009) and within the same timeframe for the eastern plume. Considering the lithologic variability, particularly the lateral and vertical change from sand to clay, the times to MCL may vary by an order of magnitude. The groundwater flow rates are within the normal range for the formation material at these sites. Thus, no adverse impact is expected to the surface water during the time it would take natural attenuation to reduce contaminant concentrations to MCLs. The selected alternative offers a high degree of long-term effectiveness, can be implemented, and costs less than the Alternative 3.

The performance of MNA in the western plume will be evaluated after two years of performance monitoring using data from the eight quarters and from the historical sampling events of the prior ten years. The performance objectives for groundwater remediation will be included in the RD. If it is found that the performance objectives are not met, a contingent remedy such as in situ bioremediation (see Alternative 3 description for basic elements) will be implemented. The decision regarding use of the contingent remedy to address the groundwater contamination will be considered after two years of MNA and would be implemented, if required, after approval of the RD.

Based on the information currently available, the U.S. Army believes that the preferred alternative meets the threshold criteria and provides the best balance of tradeoffs among the other alternatives with respect to the CERCLA §121(b) criteria used to evaluate remedial alternatives. The preferred alternative will 1) be protective of human health and the environment; 2) comply with ARARs; 3) be cost-effective; 4) utilize permanent solution; and 5) utilizes treatment as a principal element. In addition, no source materials constituting a principle threat will be addressed within the scope of this action.

The Army intends to present details of the LUCs implementation plan, the groundwater monitoring plan, and the MNA remedy implementation in a RD for LHAAP-35A(58).

The remedy selected in the ROD may change from the preferred alternative presented here, based on public comment.

Notification of nonresidential use will accompany all transfer documents and will be recorded in the County Courthouse. Five-Year Reviews will be performed to document that the remedy remains protective of human health and the environment.

COMMUNITY PARTICIPATION

The U.S. Army, USEPA, and TCEQ provide information regarding LHAAP-35A(58) through public meetings, the Administrative Record file for the facility, and announcements published in the Shreveport Times and Marshall News Messenger newspapers.

The dates for the public comment period, the date, location, and time of the public meeting, and the locations of the Administrative Record files are provided on the front page of this Proposed Plan.

Any significant changes to the Proposed Plan, as presented in this document, will be identified and explained in the ROD.

Primary Reference Documents for LHAAP-35A(58)

Jacobs Engineering Group Inc. (Jacobs), 2002, *Final Remedial Investigation Report for the Group 4 Sites 35A, 35B, 35C, 46, 47, 48, 50, 60, and Goose Prairie Creek, at the Longhorn Army Ammunition Plant, Karnack, Texas*, January.

Jacobs, 2003, *Final Baseline Human Health and Screening Ecological Risk Assessment for the Group 4 Sites (Sites 04, 08, 35A, 35B, 35C, 46, 47, 48, 50, 60, 67, Goose Prairie Creek, Saunder's Branch, Central Creek, and Caddo Lake), Longhorn Army Ammunition Plant, Karnack, Texas,* June.

Plexus , 2005, *Environmental Site Assessment, Phase I and II Report, Final, Production Areas, Longhorn Army Ammunition Plant, Karnack, Texas,* June.

Shaw Environmental, Inc. (Shaw), 2007a, *Final Data Gaps Investigation Report, Longhorn Army Ammunition Plant, Karnack, Texas,* April.

Shaw, 2007b, *Installation-Wide Baseline Ecological Risk Assessment, Longhorn Army Ammunition Plant, Karnack, Texas, Volume I: Step 3 Report*, November.

Shaw, 2007c, *Final Modeling Report, Derivation of Soil and Groundwater Concentrations Protective of Surface Water and Sediment, Longhorn Army Ammunition Plant, Revision 1, Karnack, Texas*, February.

Shaw, 2008, *Final Data Evaluation Report, Chemical Concentrations in Soil Samples Associated with LHAAP-35/36 Sumps, Longhorn Army Ammunition Plant*, June.

Shaw, 2009, *Final Feasibility Study, LHAAP-35A(58), Longhorn Army Ammunition Plant, Karnack, Texas*, December.

United States Army, 2004, *Memorandum of Agreement Between the Department of the Army and the Department of the Interior for the Interagency Transfer of Lands at the Longhorn Army Ammunition Plant for the Caddo Lake National Wildlife Refuge, Harrison County, Texas,* Signed by the Department of the Interior on April 27, 2004 and the Army on April 29, 2004.

GLOSSARY OF TERMS

Administrative Record — The body of reports, official correspondence, and other documents that establish the official record of the analysis, cleanup, and final closure of a CERCLA site.

ARARs — Applicable or relevant and appropriate requirements. Refers to the federal and state requirements that a selected remedy will attain.

Attenuation — The process by which a compound is reduced in concentration over time, through absorption, adsorption, degradation, dilution, and/or transformation.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) — This law authorizes the Federal Government to respond directly to releases (or threatened releases) of hazardous substances that may be a danger to public health, welfare, or the environment. The U.S. Army currently has the lead responsibility for these activities at LHAAP.

Environmental Media — Major environmental categories of substances that surround or contact humans, animals, plants, and other organisms (e.g. surface water, ground water, soil or air) and through which chemicals or pollutants move.

Exposure — Contact of an organism with a chemical or physical agent. Exposure is quantified as the amount of the agent available at the exchange boundaries of the organism (e.g., skin, lung, digestive tract, etc.) and available for absorption.

Groundwater — Underground water that fills pores in soil or openings in rocks to the point of saturation.

Hazard Index — The hazard index is the sum of the hazard quotients for all chemicals to which an individual is exposed. A hazard index value of 1.0 or less indicates that no adverse non-cancer human health effects are expected to occur. Each hazard quotient is a comparison of an estimated chemical intake (dose) with a reference dose level below which adverse health effects are unlikely. Each hazard quotient is expressed as the ratio of the estimated intake (numerator) to the reference dose (denominator). The value is used to evaluate the potential for non-cancer health effects, such as organ damage, from chemical exposures.

Maximum Contaminant Level (MCL) — The maximum contaminant level is the maximum permissible level of a contaminant in a public water system. MCLs are defined in the Code of Federal Regulation (40 CFR 141, National Primary Drinking Water Regulations, which implement portions of the Safe Drinking Water Act). The TCEQ has adopted MCLs as the regulatory cleanup levels for both industrial and residential uses. Any detected compound in the groundwater samples with a MCL was evaluated by comparing it to its associated MCL.

Proposed Plan — A report for public comment highlighting the key factors that form the basis for the selection of the preferred remediation alternative.

Remedial Action — The actual construction or implementation phase of a Superfund site cleanup that follows remedial design.

Risk Assessment — An analysis of the potential adverse health effects (current and future) caused by hazardous substances at a site in the absence of any actions to control or mitigate these releases (i.e., under an assumption of no action). The assessment contributes to decisions regarding appropriate response alternatives.

Superfund — The common name used for CERCLA; also referred to as the Trust Fund. The Superfund Program was established to help fund cleanup of hazardous waste sites. It also allows legal action to force those responsible for sites to clean them up.

ACRONYMS

ARARs	applicable or relevant and appropriate requirements
BERA	Baseline Ecological Risk Assessment
bgs	below ground surface
BHHRA	baseline human health risk assessment
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COC	chemical of concern
DCE	dichloroethene
ECOP	environmental condition of property
FFA	Federal Facility Agreement
FS	feasibility study
HI	hazard index
LHAAP	Longhorn Army Ammunition Plant
LUC	land use control
MCL	maximum contaminant level
MNA	monitored natural attenuation
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List
O&M	operation and maintenance
PCE	tetrachloroethene
ppb	parts per billion
RAO	remedial action objective
RD	remedial design
RI	remedial investigation
ROD	record of decision
TAC	Texas Administrative Code
TCE	trichloroethene
TCEQ	Texas Commission on Environmental Quality
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
VOC	volatile organic compound

USE THIS SPACE TO WRITE YOUR COMMENTS

Your input on the Proposed Plan for LHAAP-35A(58) is important to the U.S. Army. Comments provided by the public are valuable in helping the U.S. Army select a final remedy for these sites.

You may use the space below to write your comments, then fold and mail to Dr. Rose M. Zeiler, P.O. Box 220, Ratcliff, Arkansas 72951. Comments must be postmarked by February 23, 2010. If you have questions about the comment period, please contact Dr. Rose M. Zeiler at 479.635.0110. Those with electronic communications capabilities may submit their comments to the U.S. Army via Internet at the following e-mail address: rose.zeiler@us.army.mil

Shaw® Shaw Environmental, Inc.

Date:* *January 19, 2010

Project No.:* *117591

TRANSMITTAL LETTER:

To: Mr. Aaron Williams

***Address*:** US Army Corps of Engineers - Tulsa
CESWT-PP-M
1645 South 101st East Ave
Tulsa, Oklahoma 74128

Re: Final Proposed Plan for LHAAP-50, Former Sump Water Tank, Group 4
Contract No. W912QR-04-D-0027/DS02

For: Review_____ As Requested _____ Approval_____ Corrections_____ Submittal_____ Other X_____

Item No:	*No. of Copies*	*Date:*	*Document Title*
1	2	January 2010	**Final Proposed Plan for LHAAP-50, Former Sump Water Tank, Group 4** **Longhorn Army Ammunition Plant, Karnack, Texas**

Aaron– Enclosed are two copies of Shaw's final version of the above-named document. Copies have been distributed as indicated below.

Please call with any questions or comments.

Sincerely:

Praveen Srivastav
Project Manager

***CC:* Distribution List:**
Mr. J. Lambert– USACE, Tulsa (sent to A. Williams for distribution)
Mr. M. Mechenes – USAEC
Ms. Rose Zeiler – BRAC-LHAAP
Mr. S. Tzhone – EPA Region 6 (2)
Ms. F. Duke– TCEQ, Austin (2)
Mr. D. Vodak– TCEQ, Tyler
Mr. P. Bruckwicki– U.S. Fish and Wildlife Service

DEPARTMENT OF DEFENSE
UNITED STATES OF AMERICA

DEPARTMENT OF THE ARMY
LONGHORN ARMY AMMUNITION PLANT
POST OFFICE BOX 220
RATCLIFF, AR 72951

January 19, 2010

DAIM-ODB-LO

Mr. Stephen Tzhone
US Environmental Protection Agency
Superfund Division (6SF-AT)
1445 Ross Avenue
Dallas, TX 75202-2733

Re: Final Proposed Plan for LHAAP-50, Former Sump Water Tank, Group 4
Longhorn Army Ammunition Plant, Karnack, Texas, January 2010

Dear Mr. Tzhone,

The above-referenced document is being transmitted to you for your files. The document has been prepared by Shaw Environmental, Inc. (Shaw) on behalf of the Army as part of Shaw's performance based contract for the facility.

The point of contact for this action is the undersigned. I ask that Praveen Srivastav, Shaw's Project Manager, be copied on any communications related to the project. I may be contacted at 479-635-0110, or by email at rose.zeiler@us.army.mil.

Sincerely,

Rose M. Zeiler

Rose M. Zeiler, Ph.D.
Longhorn AAP Site Manager

Copies furnished:
F. Duke, TCEQ, Austin, TX
D. Vodak, TCEQ, Tyler, TX
P. Bruckwicki, Caddo Lake NWR, TX
J. Lambert, USACE, Tulsa District, OK
A. Williams, USACE, Tulsa District, OK
M. Mechenes, USAEC, MD
P. Srivastav, Shaw – Houston, TX (for project files)

DEPARTMENT OF DEFENSE
UNITED STATES OF AMERICA

DEPARTMENT OF THE ARMY
LONGHORN ARMY AMMUNITION PLANT
POST OFFICE BOX 220
RATCLIFF, AR 72951

January 19, 2010

DAIM-ODB-LO

Ms. Fay Duke (MC-136)
SSDAT/Superfund Section
Remediation Division
Texas Commission on Environmental Quality
12100 Park 35 Circle, Bldg D
Austin, TX 78753

Re: Final Proposed Plan for LHAAP-50, Former Sump Water Tank, Group 4,
Longhorn Army Ammunition Plant, Karnack, Texas, January 2010
SUP 126

Dear Ms. Duke,

The above-referenced document is being transmitted to you for your files. The document has been prepared by Shaw Environmental, Inc. (Shaw) on behalf of the Army as part of Shaw's performance based contract for the facility.

The point of contact for this action is the undersigned. I ask that Praveen Srivastav, Shaw's Project Manager be copied on any communications related to the project. I may be contacted at 479-635-0110, or by email at rose.zeiler@us.army.mil.

Sincerely,

Rose M. Zeiler

Rose M. Zeiler, Ph.D.
Longhorn AAP Site Manager

Copies furnished:
S. Tzhone, USEPA Region 6, Dallas, TX
D. Vodak, TCEQ, Tyler, TX
P. Bruckwicki, Caddo Lake NWR, TX
J. Lambert, USACE, Tulsa District, OK
A. Williams, USACE, Tulsa District, OK
M. Mechenes, USAEC, MD
P. Srivastav, Shaw, Houston, TX (for project files)

FINAL
PROPOSED PLAN
FOR
LHAAP-50, FORMER SUMP WATER TANK,
GROUP 4

ISSUED BY: U.S. ARMY

Longhorn Army Ammunition Plant
Karnack, Texas

January 2010

INTRODUCTION

The purpose of this Proposed Plan for LHAAP-50, site of the Former Sump Water Tank, is to present for public review the remedial alternatives that were evaluated and to identify the Preferred Remedial Alternative. LHAAP-50, approximately 1 acre in size, is an industrial area located in the north-central part of the Longhorn Army Ammunition Plant (LHAAP) in central-east Texas. The primary purpose of the Proposed Plan is to facilitate public involvement in the remedy selection process. The Proposed Plan provides the public with basic background information about LHAAP-50, identifies the preferred final remedy for potential threats posed by the chemical contamination at the site, explains the rationale for the preference, and describes other remedial options that were considered.

The U.S. Army is issuing this Proposed Plan for public review and comment to fulfill part of its public participation responsibilities under Section 117(a) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 as amended by the Superfund Amendments and Reauthorization Act of 1986 and to present the public the preferred alternative under Section 300.430(f)(2) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). The CERCLA prescribes a step-wise progression of increasingly complex activities to respond to risk posed by contaminated sites **(Figure 1)**.

The preparation and review of a Proposed Plan is a distinct step required by CERCLA. This Proposed Plan summarizes information that can be found in greater detail in the Remedial Investigation (RI Report, the Feasibility Study (FS) Report (including the Natural Attenuation Evaluation Report), the plant-wide perchlorate investigation, the Data Gaps Investigation, and the Installation-Wide Baseline Ecological Risk Assessment (BERA), and other supporting documents that are contained in the Administrative Record for LHAAP-50. The project management team, including the U.S. Army, U.S. Environmental Protection Agency (USEPA), and the Texas Commission on Environmental Quality (TCEQ), encourages the public to review these documents to gain a more comprehensive understanding of the environmental conditions at LHAAP-50, and also to review and comment on the Plan.

Dates to remember: January 25, 2010 to February 23, 2010
MARK YOUR CALENDER

PUBLIC COMMENT PERIOD:
January 25, 2010 to February 23, 2010
The U.S. Army will accept written comments on the Proposed Plan during the public comment period.

PUBLIC MEETING: The U.S. Army will hold a public meeting to explain the Proposed Plan for LHAAP-50. Oral and written comments will be accepted at the meeting. The meeting will be held on January 26, 2010 from 6:00 p.m. to 8:00 p.m. at Karnack Community Center.

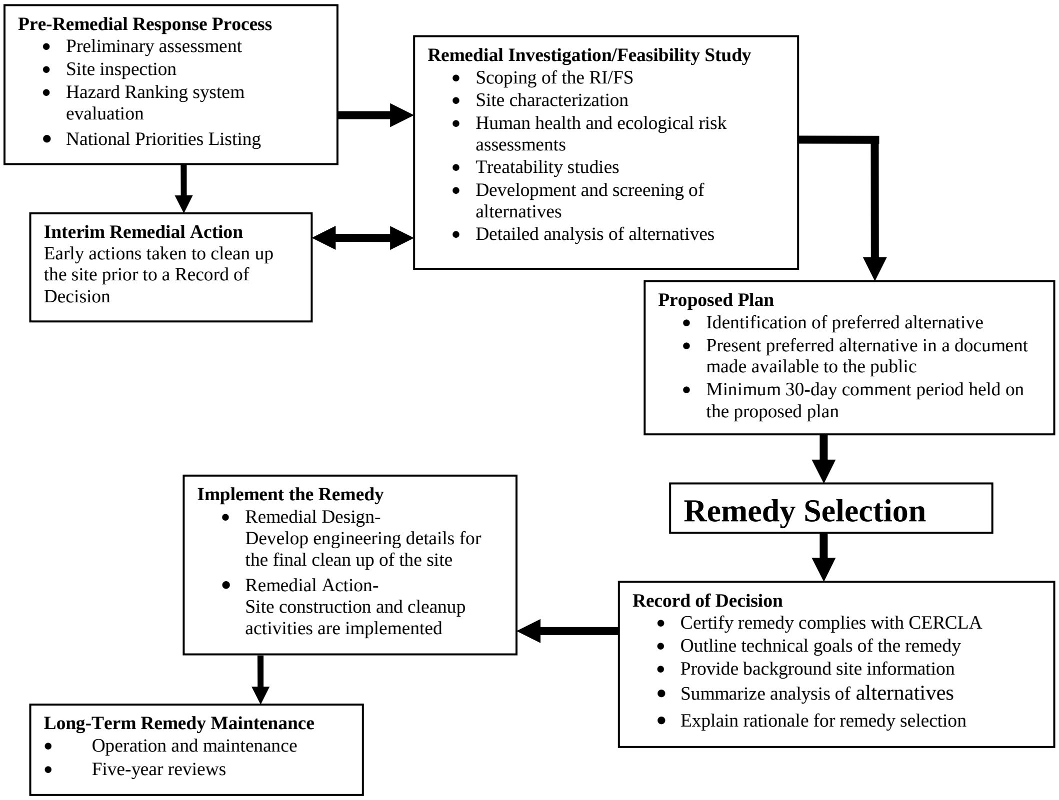
For more information, see the Administrative Record at the following location:

Marshall Public Library
300 S. Alamo
Marshall, Texas 75670

Business Hours:
Monday – Thursday (10:00 a.m. – 8:00 p.m.)
Friday – Saturday (10:00 a.m. – 5:00 p.m.)

For further information on LHAAP-50, please contact:
Dr. Rose M. Zeiler
Site Manager
Longhorn Army Ammunition Plant
P.O. Box 220
Ratcliff, Arkansas 72951
Phone No.: 903-679-3192
Direct No.: 479-635-0110
E-mail address: rose.zeiler@us.army.mil

Figure 1. CERCLA Remedial Response Process for Site Cleanup



The U.S. Army is the lead agency for environmental response actions at LHAAP and is acting in partnership with USEPA Region 6 and TCEQ. As the lead agency, the U.S. Army is charged with planning and implementing remedial actions at LHAAP. The regulatory agencies assist the U.S. Army by providing technical support, project review, project comment, and oversight in accordance with CERCLA and the NCP as well as the Federal Facility Agreement (FFA).

The proposed plan summarizes the characteristics, scope and role of the response action, and summary of site risks. This is followed by a presentation of the remedial action objectives (RAOs) and summary of remedial alternatives for LHAAP-50. Finally, an evaluation of alternatives and a summary of the preferred alternative are presented.

SITE BACKGROUND

LHAAP is located in central-east Texas in the northeastern corner of Harrison County **(Figure 2)**. The installation occupies approximately 1,400 acres of its former 8,416 acres between State Highway 43 at Karnack, Texas, and the western shore of Caddo Lake. The nearest cities are Marshall, Texas, approximately 14 miles to the southwest, and Shreveport, Louisiana, approximately 40 miles to the southeast. Caddo Lake, a large freshwater lake situated on the Texas-Louisiana border bounds LHAAP to the north and east.

The U.S. Army has transferred nearly 7,000 acres to the U.S. Fish and Wildlife Service (USFWS) as the Caddo Lake National Wildlife Refuge. The property transfer process is continuing as response is completed at individual sites. The local restoration advisory board has been kept

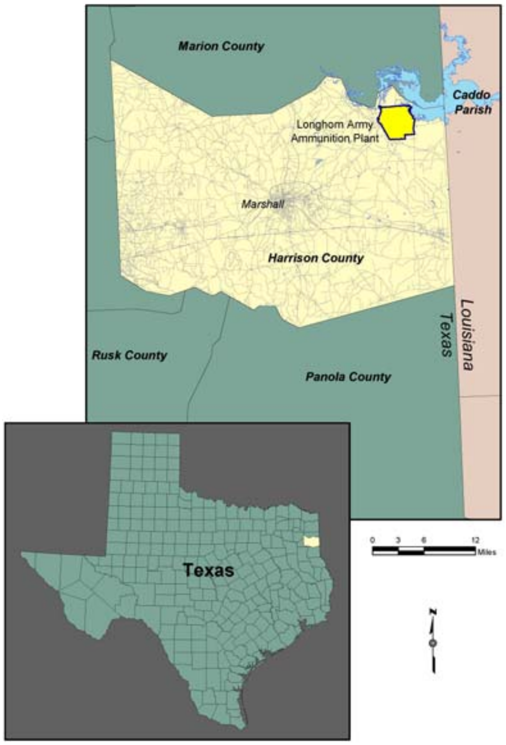


Figure 2 Location of the Longhorn Army Ammunition Plant, Harrison County, Texas

informed of previous investigations at this site through regularly held quarterly meetings. Additionally, the administrative record is updated at least twice per year and is available at the local public library.

Due to releases of chemicals from facility operations, LHAAP was placed on the Superfund National Priorities List (NPL) on August 9, 1990. Activities to remediate contamination associated with the NPL listing of LHAAP began in 1990. After being listed on the NPL, the U.S. Army, the USEPA, and the Texas Water Commission (currently known as the TCEQ) entered into a CERCLA Section 120 FFA for remedial activities at LHAAP. The FFA became effective December 30, 1991. LHAAP operated until 1997 when it was placed on inactive status and classified by the U.S. Army Armament, Munitions, and Chemical Command as excess property.

LHAAP-50 was not one of the originally listed NPL sites in the FFA but will be managed in the same manner because of the presence of contaminated groundwater at the site.

LHAAP-50, known as the former Sump Water Tank, is located in the north-central portion of LHAAP **(Figure 3)** and covers approximately 1 acre. Historically, LHAAP-50 contained a 47,000-gallon capacity aboveground storage tank (AST) which received industrial wastewater from various industrial waste production sumps throughout LHAAP from 1955 to 1988 (Plexus, 2005). The wastewater was transported to the AST at LHAAP-50. After the solids were filtered, discharges from the storage tank were made upstream of the bridge on Crockett Avenue, south of 51st Street into Goose Prairie Creek. The flow in the creek was sufficient to dilute the water to safe levels (Jacobs, 2002). If natural flow in the creek was considered insufficient, clean water was apparently pumped into the creek to dilute the contents. Because the storage tank was described as holding industrial wastewater, it is possible hazardous wastes may have been released by these activities. The AST has been removed.

Between 1992 and 2008, numerous investigations were conducted in a phased approach to determine the nature and extent of contamination at LHAAP-50.

Beginning in 1995, an initial site investigation was conducted at LHAAP-50 where sediments and soils were sampled to assess whether industrial wastewater that had been stored in the AST had impacted the site. Phase II and III investigations were conducted that included the collection of soil, sediment, surface water, and groundwater samples (Jacobs, 2002). Additional investigations

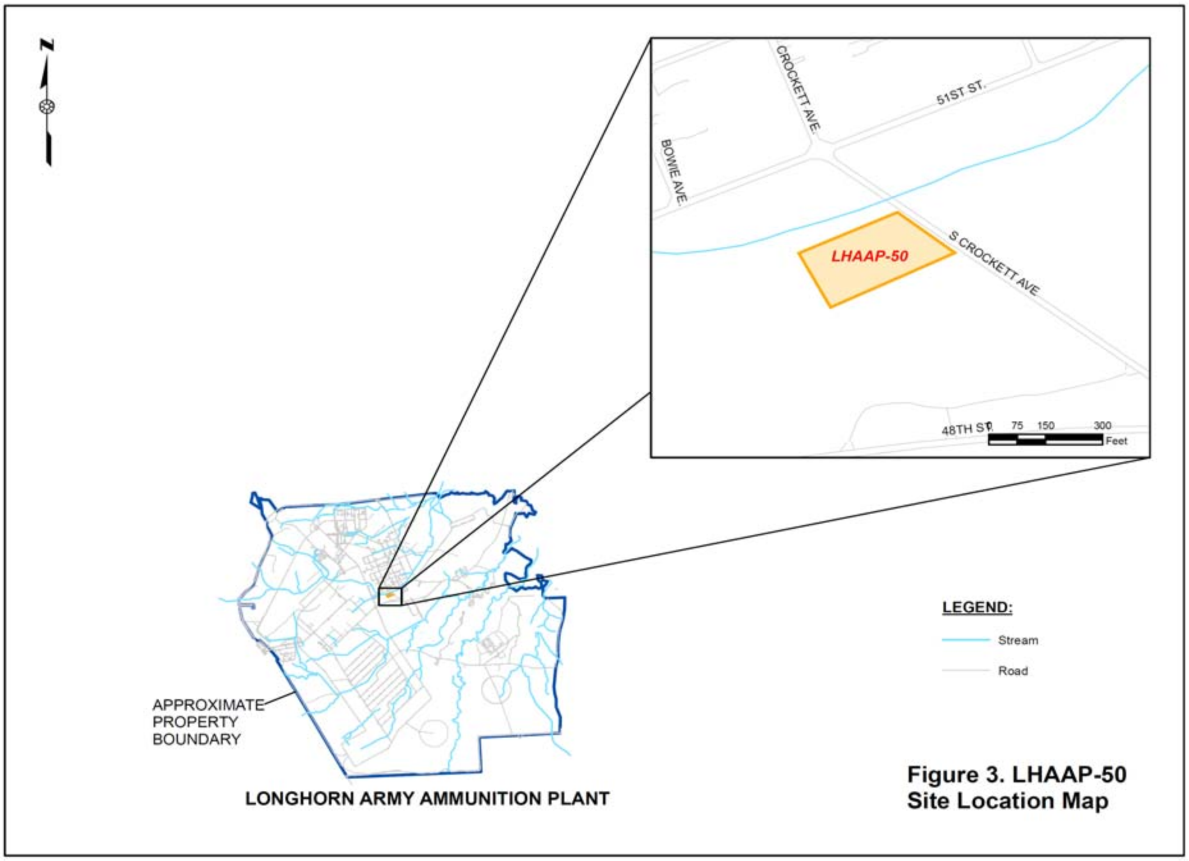


Figure 3. LHAAP-50 Site Location Map

were conducted, including the installation of several wells and soil borings from 2000 through 2002 (STEP, 2005) and from 2004 through 2008 (Shaw, 2007a; Shaw, 2009), to determine the nature and extent of contamination at LHAAP-50. Media investigated included soil, sediment, surface water, and groundwater.

The Final Baseline Human Health Risk Assessment (BHHRA) (Jacobs, 2003) used data from the investigations conducted through 2001. The additional data collected since the BHHRA was evaluated in the FS to determine if the outcome of the risk assessment would change. The additional data collected did not change the outcome of the risk assessment as discussed in the “SUMMARY OF SITE RISKS” section. Additional investigations were performed in 2002 (STEP, 2005) and by Shaw in 2004 (Shaw, 2007a), 2005, 2007, and 2008 (Shaw, 2009) to further delineate the extent of groundwater contamination identified during previous sampling events.

SITE CHARACTERISTICS

The northeastern half of LHAAP-50 is an open area of grass and brush that is bounded by South Crocket Avenue to the northeast. The southwestern half of the site is an area of heavy timber bounded by a drainage ditch to the west, a railroad spur to the south, and Goose Prairie Creek to the north. Runoff from the northeastern half of the site is generally toward the northeast. Runoff is collected by a drainage ditch to the northeast that runs parallel to South Crockett Avenue and eventually joins Goose Prairie Creek. Runoff from the southwestern portion of the site is collected to the west by a drainage ditch that carries the runoff north into Goose Prairie Creek. Goose Prairie

Creek eventually empties into Caddo Lake, a source of drinking water for several neighboring communities in Louisiana.

Groundwater at the site was encountered approximately 20 feet below ground surface (bgs) in the shallow groundwater zone and approximately 55 feet bgs in the intermediate zone. The predominant groundwater flow in the shallow zone at the site is generally to the east.

Contamination was found in the soil and groundwater. However, no principal threat source material was identified at LHAAP-50.

The COCs for LHAAP-50 identified in the FS for the various media are summarized below:

- Shallow zone groundwater COCs include perchlorate and volatile organic compounds (VOCs) including tetrachloroethene (PCE), trichloroethene (TCE), 1,1-dichloroethene (1,1-DCE), 1,2-dichloroethane (1,2-DCA), cis-1,2-DCE, and vinyl chloride. The shallow groundwater plume is shown on **Figure 4** and is approximately 5.5 million gallons.
- The potential exists for contaminated groundwater to migrate toward and discharge into Goose Prairie Creek and then subsequently into Caddo Lake, a drinking water supply. Although the results of plume migration modeling indicate that contaminants present in the shallow groundwater will not adversely impact Goose Prairie Creek surface water (Shaw 2007b), there are

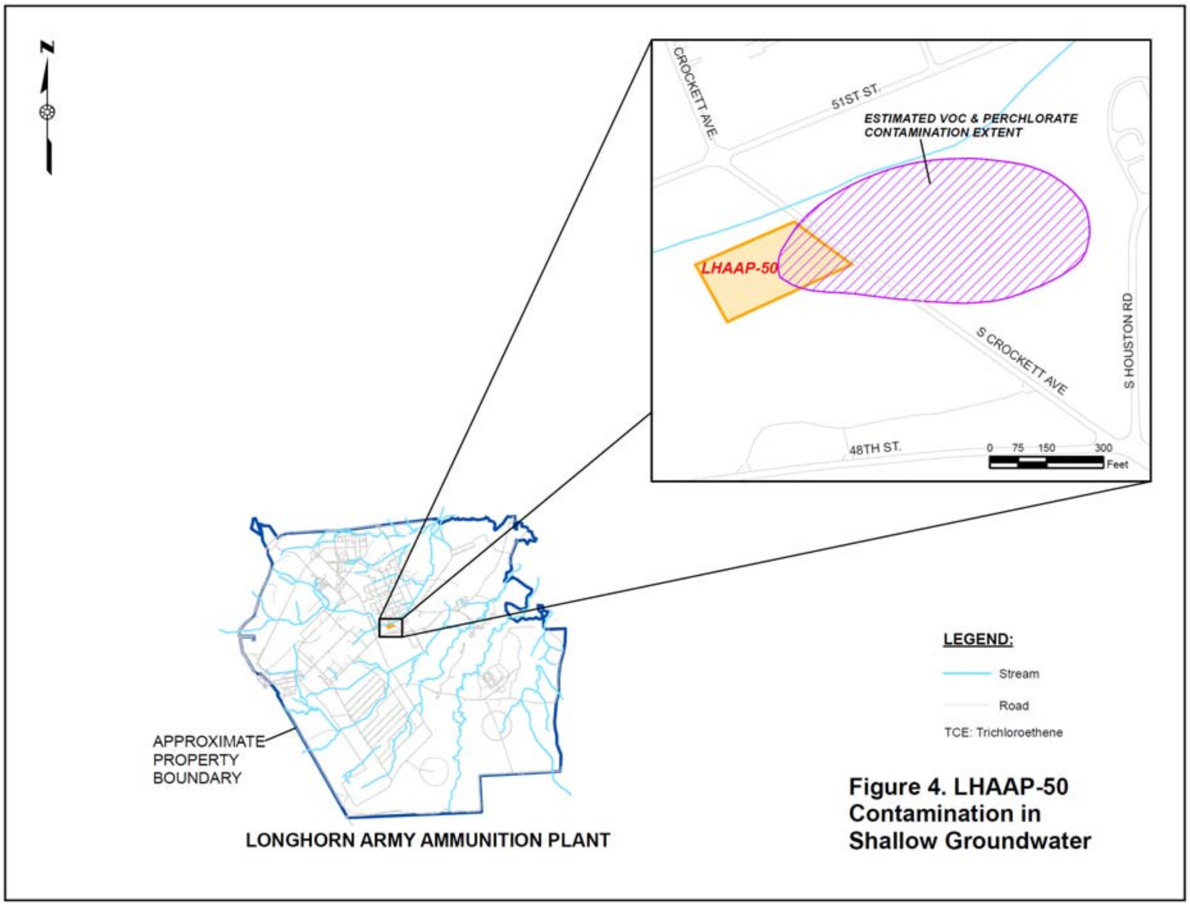


Figure 4. LHAAP-50 Contamination in Shallow Groundwater

uncertainties associated with calibration and literature based degradation rates used in the migration modeling. However, the groundwater elevation is currently below the creek bed elevation (Shaw, 2009); therefore, no impact to surface water from the contaminated groundwater is expected.

- Perchlorate is an emerging contaminant that is soluble and has the potential to migrate to groundwater. An area of perchlorate-contaminated soil was identified within the perchlorate groundwater plume footprint. The contaminated soil area is approximately 4,000 square feet and 1 foot in depth.
- The soil-to-surface water pathway may exist since surface water samples collected from Goose Prairie Creek have detected perchlorate. The perchlorate concentrations in the creek are currently below the medium-specific concentration for groundwater that could be used for residential purposes. The residential level was used for comparison because Goose Prairie Creek discharges into Caddo Lake.

SCOPE AND ROLE OF THE PROPOSED ACTION

The scope and role of the action discussed in this proposed plan includes all remedial actions planned for this site. The preferred remedial action will ensure protection of human health and the environment. The action at LHAAP-50 will prevent potential risks associated with exposure to contaminated groundwater and will remove soil that may act as a residual source to groundwater and surface water.

Groundwater at Longhorn is not currently being used as drinking water, nor may it be used in the future based on its reasonably anticipated use as a national wildlife refuge. However, when establishing the RAOs for this response action, the U.S. Army has considered the NCP's expectation to return useable groundwater to its potential beneficial use wherever practicable. The U.S. Army has also considered the State of Texas designation of all groundwater as potential drinking water, unless otherwise classified, consistent with Texas Administrative Code (TAC), Title 30, §335.563 (h)(1). The Army intends to return the contaminated shallow groundwater zone at LHAAP-50 to its potential beneficial uses, which is considered to be the attainment of Safe Drinking Water Act maximum contaminant levels (MCLs) to the extent practicable, and consistent with Code of Federal Regulations, Title 40, §300.430(e)(2)(i)(B&C). If an MCL is not available for a chemical, the promulgated TCEQ medium-specific concentration for groundwater that could be used for industrial purposes will be used. If return to potential beneficial uses is not practicable, the NCP expectation is to prevent further migration of the plume, prevent exposure to contaminated groundwater, and evaluate further risk reduction.

The preferred remedial action will include groundwater monitoring to demonstrate that the plume is not migrating and to verify that contaminant levels are being reduced. Land use controls (LUCs) may be terminated when contaminant levels are reduced to MCLs.

SUMMARY OF SITE RISKS

The reasonably anticipated future use of this site is nonresidential as part of the Caddo Lake National Wildlife Refuge. This anticipated future use is based on a

Memorandum of Agreement (U.S. Army, 2004) between the USFWS and the U.S. Army which documents the transfer process of the LHAAP acreage to USFWS to become the Caddo Lake National Wildlife Refuge. Presently the Caddo Lake National Wildlife Refuge occupies nearly 7,000 acres of the former installation. The property must be kept as a National Wildlife Refuge unless there is an act of Congress which removes the parcel or the land is exchanged in accordance with the National Wildlife Refuge System Administration Act of 1966 and the National Wildlife Refuge System Act Amendments of 1974.

As part of the RI/FS, a BHHRA and screening ecological risk assessment were conducted for LHAAP-50 to determine current and future effects of contaminants on human health and the environment to support technical review and risk management decisions.

Human Health Risks

Using the data presented in the RI, the baseline risk assessment estimates the risk that the site poses if no action is taken. It provides the basis for taking action and identifies the contaminants and exposure pathways that need to be addressed by the remedial action. The applicable receptor scenario for future use as a wildlife refuge is a hypothetical future maintenance worker. For carcinogens, risks are generally expressed as the incremental probability of an individual developing cancer over a lifetime as a result of exposure to the carcinogen and are expressed in scientific notation (e.g., 1×10^{-6}). USEPA's acceptable risk range for site-related exposures is 1×10^{-4} to 1×10^{-6}, i.e., one-in-ten thousand to one-in-one million. The potential for non-cancer effects is expressed by a ratio of the exposure to the toxicity. An individual chemical ratio less than 1 indicates that toxic non-cancer effects from that chemical are unlikely. A non-cancer hazard index (HI) is calculated when the ratios for the individual chemicals are summed. An HI greater than 1 indicates that site-related exposures may present a risk to human health. Thus, an HI of less than 1 is acceptable since toxic non-cancer effects are unlikely.

The cancer risk and the non-cancer hazard index were calculated based on future maintenance worker exposure to the site environmental media (e.g., soil and groundwater) under an industrial scenario. The human health risk assessment concluded that chemicals in the soil do not pose an unacceptable risk or hazard to the hypothetical future maintenance worker. However, groundwater at LHAAP-50 poses unacceptable cancer risk (5.5×10^{-3}) and non-cancer hazard (HI of 305) to a hypothetical future maintenance worker. The risk and HI values are based on an industrial exposure scenario that includes drinking the water or using the water for hand washing and showering. The impacts of the post-2002 soil sampling results were evaluated to determine their effect on risk, and it was concluded that the cancer risk and non-cancer hazard values posed by soil fall within the acceptable range (Shaw, 2009). Groundwater sampling results obtained from post risk assessment groundwater samples do not alter the conclusions of the risk assessment that groundwater poses risk (Shaw, 2009).

The chemicals of concern (COC) in groundwater contributing to both cancer risk and non-cancer hazard are PCE, TCE, 1,1-DCE, 1,2-DCA, and vinyl chloride. These COCs also exceed their associated MCLs. The primary contributor to the cancer risk is TCE. The primary contributor to the non-cancer hazard for the hypothetical future maintenance worker is perchlorate. Perchlorate does not have an MCL, but perchlorate concentrations in groundwater at LHAAP-50 exceed the TCEQ promulgated perchlorate groundwater medium-specific concentration for industrial use. Cis-1,2-DCE also contributes to the non-cancer hazard for the hypothetical future maintenance worker and is an additional groundwater COC. Cis-1,2-DCE also exceeds its associated MCL. The contaminant by-products (daughter products) of PCE and TCE are also considered COCs, these include 1,2-DCE as well as 1,1-DCE and vinyl chloride. Buildup of toxic by-products of perchlorate does not occur during biological degradation (ITRC, 2002).

Even though the risk assessment did not conclude that exposure to soil would cause risk, additional evaluation was conducted of the soil as potential soil-to-surface water and soil-to-groundwater pathways for the emerging contaminant, perchlorate. The maximum concentration of perchlorate in the surface soil between 0 to 0.5 feet bgs was detected at 45,600 micrograms per kilogram (µg/kg) which exceeds the TCEQ soil medium-specific concentration for industrial use based on groundwater protection (GWP-Ind) for perchlorate of 7,200 µg/kg. Thus, perchlorate in soil is a COC.

Because the risk assessment was based on the reasonably anticipated future use as a wildlife refuge, Texas Administrative Code requires that a recordation notification be filed with Harrison County per TAC §335.566 disclosing that the site is suitable for nonresidential use. Additionally, limited monitoring in the form of Five-Year Reviews will serve to document that the use of the site remains consistent with the industrial/recreational exposure scenario evaluated in the risk assessment.

Ecological Risks

The ecological risk for site LHAAP-50 was addressed in the installation-wide BERA (Shaw, 2007c). For the BERA, the entire installation was divided into three large sub-areas (i.e., the Industrial Sub-Area, Waste Sub-Area, and Low Impact Sub-Area) for the terrestrial evaluation. The individual sites at LHAAP were grouped into one of these sub-areas, which were delineated based on commonalities of historic use, habitat type, and spatial proximity to each other. The conclusions regarding the potential for chemicals detected at individual sites to adversely affect the environment must be made in the context of the overall conclusions of the sub-area in which the site falls. Site LHAAP-50 lies within the Industrial Sub-Area.

The BERA evaluated potential ecological risk to a number of endpoint receptors, as well as terrestrial plant and invertebrate communities. Endpoint receptors were evaluated using a food chain model that estimated a daily dose intake, which was subsequently compared with toxicity reference values to generate a hazard quotient. Terrestrial communities were evaluated through comparisons of detected concentrations to conservative benchmarks. Multiple lines of evidence (e.g., spatial distribution of concentrations, etc.) were also considered. After evaluating all lines of evidence, the BERA concluded that the potential for ecological risk was sufficiently low at the Industrial Sub-Area, and that no further evaluation for ecological receptors was required (Shaw, 2007c). Therefore, no action is needed at LHAAP-50 for the protection of ecological receptors.

Preferred Alternative

It is the current judgment of the U.S. Army that the preferred alternative identified in this Proposed Plan, or one of the other active measures considered in the Proposed Plan, is necessary to protect the public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment.

REMEDIAL ACTION OBJECTIVES

The Army recognizes USEPA's policy to return all groundwater to potential beneficial uses, based upon the non-binding programmatic expectation in the NCP. The RAOs for LHAAP-50 which address contamination associated with the media at the site and take into account the future uses of LHAAP streams, land, and groundwater are:

- Protect human health for the hypothetical future maintenance worker by preventing exposure to groundwater contaminated with VOCs and perchlorate.
- Protect human health by preventing further potential degradation of groundwater and surface water from soil contaminated with perchlorate.
- Return groundwater to its potential beneficial use as drinking water, where practicable, within a reasonable time period given the particular site circumstances.

SUMMARY OF REMEDIAL ALTERNATIVES

The feasibility studies identified and screened remedial technologies and associated process options that may be appropriate for satisfying the RAOs for LHAAP-50 with respect to effectiveness, implementability, and cost. The following remedial alternatives were developed from the remedial technologies that were retained after the initial screening:

- Alternative 1 – No Action Alternative
- Alternative 2 – Excavation, Monitored Natural Attenuation (MNA), LUCs
- Alternative 3 – Excavation, In Situ Bioremediation, MNA, LUCs

Common Elements. Four elements (soil excavation, MNA, LUCs, and inspection/LTM) are common to Alternatives 2 and 3. These elements are described below.

Soil Excavation

Soil contamination would be excavated at LHAAP-50 under both Alternatives 2 and 3 and will eliminate the soil to groundwater pathway and soil-to-surface water pathway for perchlorate-contaminated soil.

MNA

MNA is a passive remedial action that relies on natural biological, chemical, and physical processes to reduce the mass and concentrations of groundwater COCs under favorable conditions. The natural attenuation evaluation indicates that MNA is a feasible technology for the groundwater at LHAAP-50 (Shaw, 2009). MNA would reduce contaminant concentrations to the cleanup levels.

LUCs

The LUCs would be implemented to support the RAOs. The U.S. Army would be responsible for long-term implementation, maintenance, inspection, reporting, and enforcement of the LUCs. The Army intends to provide details of the LUC long-term implementation and long-term maintenance actions in a remedial design (RD) document for the site. The LUCs would prevent human exposure to residual groundwater contamination presenting an unacceptable risk to human health and ensure that there is no withdrawal or use of groundwater beneath the sites for anything other than environmental monitoring and testing. The groundwater restriction LUCs would be maintained until the concentrations of contaminants and by-product (daughter) contaminants in groundwater had been reduced to levels below their respective cleanup levels. In addition, the Texas Department of Licensing and Regulation responsible for notifying well drillers of groundwater restrictions would be notified and a notification of LUCs with the Harrison County Courthouse would include a map showing the areas of groundwater restriction at the site.

In order to transfer this property (LHAAP-50), an Environmental Condition of Property (ECOP) document would be prepared and attached to the letter of transfer. The ECOP would include LUCs for groundwater as part of the Environmental Protection Provisions. The property would be transferred subject to the land use controls identified in the ECOP. These restrictions would prohibit or restrict property uses that might result in exposure to the contaminated groundwater (e.g., drilling restrictions, drinking water well restrictions).

Inspection/Long-Term Groundwater Monitoring

Alternatives 2 and 3 include inspection and long-term groundwater monitoring activities. Monitoring would be continued as required to demonstrate effectiveness of the remedy, to demonstrate compliance with applicable or relevant and appropriate requirements (ARARs), and to-be-considered requirements, RAOs, and to support CERCLA Five-Year Reviews.

Although the U.S. Army may later pass these procedural responsibilities to the transferee by property transfer agreement, the U.S. Army shall retain ultimate responsibility for remedy integrity.

Alternative 1 – No Action. As required by the NCP, the no action alternative provides a comparative baseline against which the action alternatives can be evaluated. Under this alternative, the groundwater would be left “as is” without implementing any additional containment, removal, treatment, or other mitigating actions. No other actions would be implemented to prevent potential human exposure to contaminated groundwater or to demonstrate that nearby surface water bodies are protected from groundwater impacts.

Estimated Capital Cost: $0

Estimated O&M Present Worth Cost: $0

Estimated Duration: --

Estimated Present Worth Cost: $0

Alternative 2 – Excavation, Monitored Natural Attenuation, LUCs

Alternative 2 provides the excavation and off-site disposal of perchlorate-contaminated soil from LHAAP-50, thereby eliminating the soil-to-groundwater and soil-to-surface water pathways; MNA of groundwater to reduce groundwater contaminants to their cleanup levels; and protection of the industrial worker by preventing exposure to contaminated groundwater through LUCs.

MNA is a passive remedial action that relies on natural biological, chemical, and physical processes to reduce the mass and concentration of groundwater COCs under favorable conditions. MNA would assure the protection of human health and the environment by verifying that migration of contaminants does not occur and that MNA is effective in attaining the RAOs. The LUCs, inspection and long-term monitoring would remain in effect until cleanup levels are met.

Estimated Capital Cost: $215,000

Estimated O&M Present Worth Cost: $424,000

Estimated Duration: 30 years

Estimated Total Present Worth Cost: $639,000

Alternative 3 – Excavation, In Situ Bioremediation, MNA, LUCs. This alternative includes excavation and off-site disposal of the perchlorate-contaminated soil, thereby eliminating soil-to-groundwater and soil-to-surface water pathways; in situ bioremediation and MNA to reduce groundwater contamination to cleanup levels; and protection of the industrial worker by preventing exposure to contaminated groundwater through LUCs. To achieve these goals, this alternative utilizes in situ bioremediation to reduce groundwater contaminant concentrations in a target area. The target area has the highest contaminant concentrations. The in situ bioremediation will rapidly reduce these highest concentrations. MNA will be used in the areas outside the treated area to reduce the COC concentrations to cleanup levels. LUCs and inspections/LTM will be conducted only until such time that the cleanup levels are met for groundwater contaminants.

Estimated Capital Cost: $402,000

Estimated O&M Present Worth Cost: $512,000

Estimated Duration: 30 years

Estimated Total Present Worth Cost: $914,000

EVALUATION OF ALTERNATIVES

Nine criteria identified in the NCP, §300.430(e)(9)(iii), are used to evaluate the different remediation alternatives individually and against each other in order to select a remedy. This section profiles the relative performance of each alternative against the nine criteria, noting how it compares to the other options under consideration. The nine evaluation criteria are discussed below. The "Detailed Analysis of Alternatives" can be found in the FS for the site (Shaw, 2009).

1. Overall Protection of Human Health and the Environment

The three alternatives provide varying levels of human health protection. Alternative 1, no action, does not achieve the RAOs and provides the least protection of all the alternatives; it provides no reduction in risks to human health or the environment because no measures would be implemented to eliminate the pathway for human exposure to the groundwater contamination.

Alternatives 2 and 3 satisfy the RAOs for LHAAP-50. Alternatives 2 and 3 provide confirmation that human health and the environment are protected because contaminated soil would be removed and disposed off-site and monitoring would be conducted to document that the plumes are not migrating. Furthermore, LUCs would protect human health by preventing access to the contaminated groundwater until contaminants in groundwater are reduced to the cleanup levels.

2. Compliance with ARARs

Alternative 1 does not comply with chemical-specific ARARs because no remedial action or measures would be implemented. Alternatives 2 and 3 comply with groundwater and surface water chemical specific ARARs because they will return the contaminated shallow groundwater zone at LHAAP-50 to its potential beneficial use as drinking water, wherever practicable, in compliance with Safe Drinking Water Act MCLs as relevant and appropriate.

Location-specific and action-specific ARARs would not apply to Alternative 1 since no remedial activities would be conducted. Alternatives 2 and 3 comply with all location-specific and action-specific ARARs.

3. Long-Term Effectiveness and Permanence

Alternative 1 would be the least effective and permanent in the long term because no contaminant removal or treatment would take place and no measures would be implemented to control exposure risks posed by contaminated site groundwater.

Alternative 1 would also be the least effective and permanent for the risk posed to human health from the soil-to-groundwater and soil-to-surface water pathways since no removal would be conducted. The potential long-term risk from soil would be permanently removed for Alternatives 2 and 3 since the soil will be excavated and placed in a permitted landfill with the necessary facilities and long-term maintenance to control risks from the perchlorate contaminated soil.

MNA processes at LHAAP-50 are controlling plume migration and have stabilized the size of the areas exhibiting COC concentrations exceeding cleanup levels. Alternative 3 would reduce contaminant levels quicker than Alternative 2 through in situ bioremediation.

4. Reduction of Toxicity, Mobility, or Volume through Treatment

Alternative 1 does not employ treatment and would not result in a reduction of toxicity, mobility, or volume of contaminants.

Natural attenuation and in situ bioremediation coupled with excavation would permanently reduce the mass and concentration of contaminants and, therefore, the volume, toxicity and mobility of the contaminants. MNA is a passive remedial action and in situ bioremediation is an active treatment process.

Alternatives 2 and 3 generate daughter products that may temporarily increase toxicity or mobility of the contaminant plume, with in situ bioremediation working in a shorter time frame. Both alternatives include monitoring so daughter products would be quantified, documented and evaluated. Daughter product concentrations will be reduced under these alternatives to levels below their cleanup levels to return groundwater to its potential beneficial use as drinking water wherever practicable.

Achievement of cleanup levels in groundwater would be expedited by implementing in situ bioremediation in areas of highest contaminant concentrations for Alternative 3. Monitoring for contaminants would be performed to assess the effectiveness of the treatment. It is also anticipated that COCs will remain in the plume outside the treated areas and will continue to attenuate to cleanup levels over time.

The soil excavation in Alternatives 2 and 3 provides a reduction of mobility because perchlorate is removed from the site and placed in a permitted disposal facility. Toxicity and volume are not reduced by the excavation portion of the alternative as the form and quantity of the perchlorate is not altered.

5. Short-Term Effectiveness

Alternative 1 does not involve any remedial measures; therefore, no short-term risk to workers, the community or the environment would exist. The activities associated with Alternatives 2 and 3 are protective to the surrounding community from short-term risks except for minimal potential short-term risks during transport (possible accident when soil is transported off site) of perchlorate-contaminated soil.

Alternatives 2 and 3 involve potential short-term risks to workers associated with exposure to contaminated groundwater and soil during operation of drilling/construction equipment. Alternatives 2 and 3 contain LUCs as elements of their remedies and would provide almost immediate protection from the contaminated groundwater by prohibiting installation of potable water wells through relatively quick LUC implementation. The time period to achieve groundwater cleanup levels is the most significant difference between Alternative 1 versus Alternatives 2 and 3. Alternative 3 is expected to take less time to achieve RAOs, provided treatability testing for in situ bioremediation is favorable. The implementation of Alternative 2 would require more time than Alternative 3.

6. Implementability

Under the no action alternative, no remedial action would be taken. Therefore, no difficulties or uncertainties would be associated with its implementation. Alternatives 2 and 3 are easily implemented from a technical standpoint as all required equipment, materials, and services are readily available.

Alternative 3 would be somewhat more difficult to implement than Alternative 2 from a technical standpoint due to the specialized expertise required for design and construction of the in situ bioremediation treatment.

Administratively, all of the alternatives are implementable.

7. Cost

Cost estimates are used in the CERCLA FS process to eliminate those remedial alternatives that are significantly more expensive than competing alternatives without offering commensurate increases in performance or overall protection of human health or the environment. The cost estimates are preliminary estimates with an intended accuracy range of +50 to –30 percent. Final costs will depend on actual labor and material costs, actual site conditions, productivity, competitive market conditions, final scope, final schedule, final engineering design, and other variables.

The costs estimates include capital costs (including fixed-price remedial construction) and long-term O&M costs (post-remediation). Overall present worth costs are developed for each alternative assuming a discount rate of 2.8 percent. The duration used for the estimates is a 30-year period.

The progression of present worth costs from the least expensive alternative to the most expensive alternative is as follows: Alternative 1, Alternative 2, and Alternative 3. No costs are associated with Alternative 1 because no remedial activities would be conducted.

Alternative 2 has the lower present worth and capital costs of the active remedial alternatives. The higher capital cost is associated with Alternative 3 primarily due to the activities associated with the injection phase of in situ bioremediation.

8. State/Support Agency Acceptance

The USEPA and TCEQ have reviewed the Proposed Plan. Comments received from the USEPA and TCEQ have been incorporated. Both agencies concur with the preferred alternative.

9. Community Acceptance

Community acceptance of the preferred alternative will be evaluated after the public comment period and will be described in the Record of Decision (ROD) for the site.

SUMMARY OF THE PREFERRED ALTERNATIVE

Alternative 2 is the preferred alternative for LHAAP-50 and is consistent with the intended future use of the site as a wildlife refuge. This alternative is recommended because it will satisfy the RAOs for the site through contaminated soil removal with off-site disposal by eliminating the soil-to-groundwater and soil-to-surface water pathways, and through groundwater use restriction LUCs that will ensure protection of human health by preventing human exposure to contaminated groundwater until cleanup levels are met. The monitoring and reporting associated with the MNA remedy will continue until cleanup levels are achieved. Based on groundwater modeling, groundwater cleanup levels are expected to be met through natural attenuation in approximately 50 years for trichloroethene. Considering the lithologic variability, particularly the lateral and vertical change from sand to clay, the calculated times to reach cleanup levels may range up to an order of magnitude greater. Based on the groundwater flow rates and predictive modeling, no adverse impact to the surface water is expected during the time it would take natural attenuation to reduce contaminant concentrations to cleanup levels. The selected alternative offers a high degree of long-term effectiveness, can be easily and immediately implemented, and costs less than Alternative 3.

The performance of natural attenuation will be evaluated after two years of performance monitoring using data from the eight quarters and from the historical sampling events of the prior ten years. The performance objectives for groundwater remediation will be included in the RD. If it is found that the performance objectives are not met, a contingency remedy such as in situ bioremediation (see Alternative 3 description for basic elements) will be implemented. The decision regarding use of the contingency remedy to address the groundwater contamination will be considered after two years of MNA and would be implemented, if required, after approval of the RD. The contingency remedy will be designed to address the contamination after two years of MNA.

Based on information currently available, the U.S. Army believes the preferred alternative meets the threshold criteria and provides the best balance of tradeoffs with respect to the CERCLA §121(b) criteria used to evaluate remedial alternatives. The preferred alternative will 1) be protective of human health and the environment; 2) comply with ARARs; 3) be cost-effective; 4) utilize a permanent solution; and 5) does not utilize an active treatment as a principal element. Although the selected remedy is not intended to address the statutory preference for treatment to the maximum extent possible, the final selected remedy offers, within a reasonable time frame and at a lower cost, a similar level of protection to human health and the environment than the remedy alternative which satisfies the preference for treatment. In addition, no source materials constituting principle threats will be addressed within the scope of this action.

The Army intends to present details of the LUCs implementation plan, groundwater monitoring plan, and MNA remedy implementation in a RD for LHAAP-50.

The remedy selected in the ROD may change from the preferred alternative presented here, based on public comment.

Five-Year Reviews will be performed to document that the remedy remains protective of human health and the environment.

COMMUNITY PARTICIPATION

The U.S. Army, USEPA, and TCEQ provide information regarding LHAAP-50 through public meetings, the Administrative Record file for the facility, and announcements published in the Shreveport Times and Marshall News Messenger newspapers.

The dates for the public comment period, the date, location, and time of the public meeting and the locations of the Administrative Record files are provided on the front page of this Proposed Plan.

Any significant changes to the Proposed Plan, as presented in this document, will be identified and explained in the ROD.

Primary Reference Documents for LHAAP-50

Interstate Technology and Regulatory Council (ITRC), 2002, *A Systematic Approach to In Situ Bioremediation in Groundwater,* August.

Jacobs Engineering Group Inc. (Jacobs), 2002, *Final Remedial Investigation Report for the Group 4 Sites 35A, 35B, 35C, 46, 47, 48, 50, 60, and Goose Prairie Creek, at the Longhorn Army Ammunition Plant, Karnack, Texas,* January.

Jacobs, 2003, *Final Baseline Human Health and Screening Ecological Risk Assessment for the Group 4 Sites (Sites 04, 08, 35A, 35B, 35C, 46, 47, 48, 50, 60, 67, Goose Prairie Creek, Saunder's Branch, Central Creek, and Caddo Lake), Longhorn Army Ammunition Plant, Karnack, Texas,* June.

Plexus, 2005, *Environmental Site Assessment, Phase I and II Report, Final, Production Areas, Longhorn Army Ammunition Plant, Karnack, Texas*, February.

Shaw Environmental, Inc. (Shaw), 2007a, *Final Data Gaps Investigation Report, Longhorn Army Ammunition Plant, Karnack, Texas,* April.

Shaw, 2007b, *Final Modeling Report, Derivation of Soil and Groundwater Concentrations Protective of Surface Water and Sediment, Longhorn Army Ammunition Plant, Karnack, Texas,* February.

Shaw, 2007c, *Installation-Wide Baseline Ecological Risk Assessment, Longhorn Army Ammunition Plant, Karnack, Texas, Volume I: Step 3 Report,* November.

Shaw, 2009, *Final Feasibility Study, LHAAP-50, Longhorn Army Ammunition Plant, Karnack, Texas,* November.

Solutions to Environmental Problems (STEP), 2005, *Plant-Wide Perchlorate Investigation, Longhorn Army Ammunition Plant, Karnack, Texas*, Final, Oak Ridge, Tennessee, April.

United States Army, 2004, *Memorandum of Agreement Between the Department of the Army and the Department of the Interior for the Interagency Transfer of Lands at the Longhorn Army Ammunition Plant for the Caddo Lake National Wildlife Refuge, Harrison County, Texas,* Signed by the Department of the Interior on April 27, 2004 and the Army on April 29, 2004.

GLOSSARY OF TERMS

Administrative Record — The body of reports, official correspondence, and other documents that establish the official record of the analysis, cleanup, and final closure of a CERCLA site.

ARARs — Applicable or relevant and appropriate requirements. Refers to the federal and state requirements that a selected remedy will attain.

Attenuation — The process by which a compound is reduced in concentration over time, through absorption, adsorption, degradation, dilution, and/or transformation.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) — This law authorizes the Federal Government to respond directly to releases (or threatened releases) of hazardous substances that may be a danger to public health, welfare, or the environment. The U.S. Army currently has the lead responsibility for these activities at LHAAP.

Environmental Media — Major environmental categories of substances that surround or contact humans, animals, plants, and other organisms (e.g. surface water, ground water, soil or air) and through which chemicals or pollutants move.

Exposure — Contact of an organism with a chemical or physical agent. Exposure is quantified as the amount of the agent available at the exchange boundaries of the organism (e.g., skin, lung, digestive tract, etc.) and available for absorption.

Groundwater — Underground water that fills pores in soil or openings in rocks to the point of saturation.

Groundwater cleanup levels — Groundwater promulgated federal standards (MCLs) for drinking water will be used. If no federal standard exists, the TCEQ promulgated groundwater medium-specific concentrations for industrial use will be used.

Hazard Index — The hazard index is the sum of the hazard quotients for all chemicals to which an individual is exposed. A hazard index value of 1.0 or less indicates that no adverse non-cancer human health effects are expected to occur. Each hazard quotient is a comparison of an estimated chemical intake (dose) with a reference dose level below which adverse health effects are unlikely. Each hazard quotient is expressed as the ratio of the estimated intake (numerator) to the reference dose (denominator). The value is used to evaluate the potential for non-cancer health effects, such as organ damage, from chemical exposures.

Maximum Contaminant Level (MCL) — The maximum contaminant level is the maximum permissible level of a contaminant in a public water system. MCLs are defined in the Code of Federal Regulation (40 CFR 141, National Primary Drinking Water Regulations, which implement portions of the Safe Drinking Water Act). The TCEQ has adopted MCLs as the regulatory cleanup levels for both industrial and residential uses. Any detected compound in the groundwater samples with a MCL was evaluated by comparing it to its associated MCL.

Proposed Plan — A report for public comment highlighting the key factors that form the basis for the selection of the preferred remediation alternative.

Remedial Action — The actual construction or implementation phase of a Superfund site cleanup that follows remedial design.

Risk Assessment — An analysis of the potential adverse health effects (current and future) caused by hazardous substances at a site in the absence of any actions to control or mitigate these releases (i.e., under an assumption of no action). The assessment contributes to decisions regarding appropriate response alternatives.

Surface water — If the surface discharges to Caddo Lake, a public drinking water supply, then the MCL or TCEQ promulgated groundwater medium-specific concentration for residential use will be used. If the surface water is only for contact recreations, the TCEQ surface water contact recreational level will be used.

Superfund — The common name used for CERCLA; also referred to as the Trust Fund. The Superfund Program was established to help fund cleanup of hazardous waste sites. It also allows legal action to force those responsible for hazardous waste sites to pay for environmental actions.

ACRONYMS

ARARs	applicable or relevant and appropriate requirements
AST	aboveground storage tank
BERA	Baseline Ecological Risk Assessment
bgs	below ground surface
BHHRA	baseline human health risk assessment
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COC	chemical of concern
DCA	dichloroethane
DCE	dichloroethene
ECOP	environmental condition of property
FFA	Federal Facility Agreement
FS	feasibility study
GWP-Ind	soil medium-specific concentration for industrial use based on groundwater protection
HI	hazard index
LHAAP	Longhorn Army Ammunition Plant
LUC	land use control
MCL	maximum contaminant level
µg/kg	micrograms per kilogram
MNA	monitored natural attenuation
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List
O&M	operation and maintenance
PCE	tetrachloroethene
RAO	remedial action objective
RD	remedial design
RI	remedial investigation
RI/FS	remedial investigation/feasibility study
ROD	record of decision
TAC	Texas Administrative Code
TCE	trichloroethene
TCEQ	Texas Commission on Environmental Quality
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
VOC	volatile organic compound

USE THIS SPACE TO WRITE YOUR COMMENTS

Your input on the Proposed Plan for LHAAP-50 is important to the U.S. Army. Comments provided by the public are valuable in helping the U.S. Army select a final remedy for these sites.

You may use the space below to write your comments, then fold and mail to Dr. Rose M. Zeiler, P.O. Box 220, Ratcliff, Arkansas 72951. Comments must be postmarked by February 23, 2010. If you have questions about the comment period, please contact Dr. Rose M. Zeiler at 479-635-0110. Those with electronic communications capabilities may submit their comments to the U.S. Army via Internet at the following e-mail address: rose.zeiler@us.army.mil

The Times

PROOF OF PUBLICATION

STATE OF LOUISIANA

PARISH OF CADDO

Before me, the undersigned authority, personally came and appeared

Altheas Critton personally known to me,

Who being duly sworn, deposes and says that she is the Assistant to the Classified Advertising Manager of The Times, and that the attached Advertisement entitled:

PUBLIC NOTICE The UNITED STATES ARMY INVITES PUBLIC COMMENT ON THE PROPOSED PLANS

As per copy of advertisement hereto annexed, was published in

The Times on the following dates to wit:

January 17 & 24, 2010

(Signed) Altheas Critton

Sworn to and subscribed before me this 25th day of January, 2010

Diana W. Barber

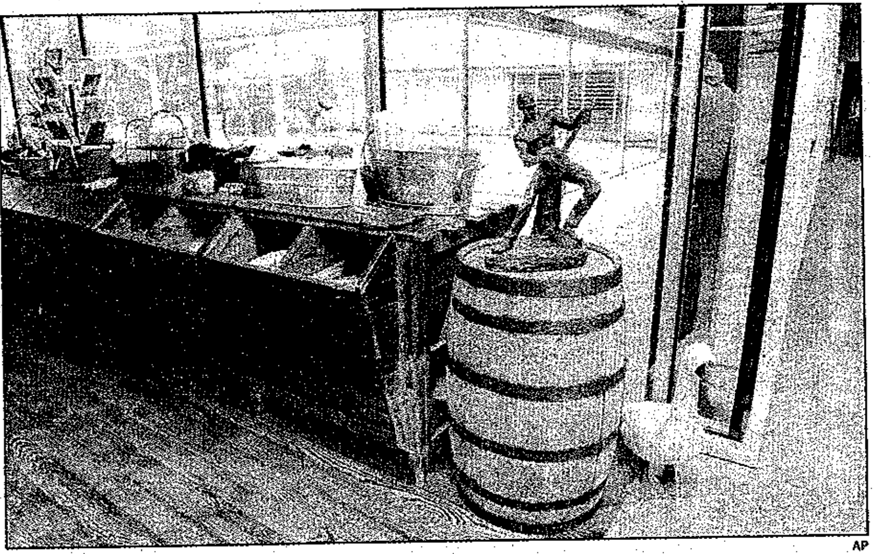
(Notary)

DIANA W. BARBER, NOTARY PUBLIC # 60491
CADDO PARISH, LOUISIANA
MY COMMISSION IS FOR LIFE

GANNETT

LSU's Rural Life Museum dedicates visitor center

By Carol Anne Blitzer
The Associated Press



AP

A long old-fashioned storage cabinet abuts the wall of windows that surrounds the courtyard of the new addition to the Rural Life Museum in Baton Rouge on Jan. 5. The cabinet is part of the museum's gift shop.

AP

Marketing director Bitsy McInnis (from left), director David Floyd and conservator David Nicolosi pose for a photo in part of the new addition to the Rural Life Museum in Baton Rouge on Dec. 30.

BATON ROUGE — LSU's Rural Life Museum has entered the 21st century with a new $4.7 million Visitor/Exhibit Center — 20,000 square feet of modern conveniences built around touches of the past.

The blending of old and new is reminiscent of the style of the late Steele Burden, who in 1970 started the museum with his sister, the late Ione Burden. Throughout the lush museum landscape, Steele Burden carefully placed artifacts in a juxtaposition of man and nature.

Although the museum is one of the area's most important tourist attractions, until now there were few amenities for the more than 60,000 people who visit annually.

"The facility was not big enough to supply services like restrooms, water and a place for visitors to gather," said longtime museum director David Floyd. "On rainy days, visitors had to wait outside to enter the museum."

Although the building's dedication was Friday, it will be months before exhibits and landscaping are complete.

The Visitor/Exhibit Center provides an introduction to the buildings and artifacts on the museum grounds. It will also provide storage and state-of-the-art security.

"We needed to do a better job of preserving the collection," Floyd said. "We didn't have an adequate facility. We had no temperature control, no fire suppression and no security beyond a guard."

The modern conveniences have traditional context. "We learned from 39 years of operating in an old building that people loved the back porch of the old barn. They loved to sit there," Floyd said. "So we incorporated porches wherever we could in the new building."

A new entrance route uses an oak allee designed and planted decades ago by Steele Burden. The old Poplar Grove Plantation steam engine will be on display at the entrance.

The route takes visitors through heritage plantings of corn and cotton. Huge granite Ionic columns from the original *Hill Memorial Library* on the old LSU campus will also be on display along with several grindstones. "All of this is to give visitors little hints of what they will see in the museum," Floyd said.

The new one-story metal building is designed after the original mule barn designed by Steele Burden. "We did not want to forget about the old building," Floyd said. "We tried to use the same concept Steele had used."

The parking lot will be out of main sight. "The whole area will have a rural look, even though I-10 is just beyond the woods," he said.

The building uses modern materials while incorporating vintage lumber and other materials reminiscent of Steele Burden's original concept.

"Although it's a modern building, we brought in vignettes of vernacular architecture," Floyd said.

That includes vintage lumber from old barns destroyed by Hurricane Gustav and donated by the owners.

At the entrance, busts of Steele and Ione Burden flank a vintage wood wall that will bear Steele Burden's description of his mission: "to increase the appreciation of our heritage and the way of life of our ancestors, their hardships, toils, vision, inspiration and determination by preserving something of the architecture and artifacts from our rural past."

The new gift shop's roof includes cypress beams from an old plantation. Old store cabinets hold items for sale.

"The beams give the feeling of *looking under* an old house, and the cypress floors create the feel of an old plantation commissary," Floyd said.

The new building is centered on a courtyard where large artifacts will be shown.

A multiuse theater's large wooden barn-style doors can open to incorporate the lobby. "We want the museum areas to be versatile so that we can do all activities here," Floyd said. "We didn't want spaces in the building to have just one function."

A new catering kitchen's modern appliances were donated by chef John Folse.

A large exhibit room connects the new building and the old mule barn. Its exhibits interpret the two main areas of the Rural Life Museum: Steele Burden's original Plantation Section and the Folk Life Section, which contains examples of vernacular architecture from the Anglo-Saxon Upland South as well as examples of architecture from the Gulf Coast South.

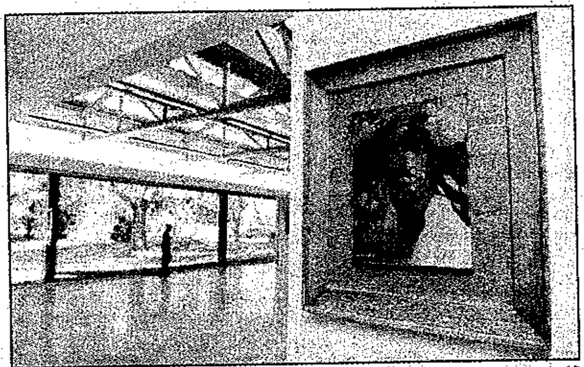
"The Upland South area contains examples of North Louisiana architecture like the dogtrot house and log barns," Floyd said.

The Gulf Coast South area spotlights the cultures of south Louisiana: the French, German, Spanish, African, Acadian, Canary Islanders and others, he said.

"This will be the front page of what you are going to see outside," Floyd said. "We want to create a permanent exhibit that changes constantly. All of the information is the same, but the artifacts change."

In today's tough economic times, Floyd is proud that donations paid the entire cost.

"There is no state or federal money involved," he said. "We had tremendous community support."



AP

A painting hangs beside an entrance to the theater in the new addition of LSU's Rural Life Museum in Baton Rouge. One wall of the theater is made of glass, with a view of the trees that separate it from the nearby gardens.

PUBLIC NOTICE
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LHAAP-46, the former Plant 2 production area, is located in the north-central portion of LHAAP and covers an area of approximately 190 acres. Plant 2 was used to produce pyrotechnic devices from February 1952 to 1956 and was reactivated to produce pyrotechnic and illumination devices from 1964 until approximately 1997. Three alternatives were evaluated for addressing the contaminated groundwater at the site: 1) no action; 2) monitored natural attenuation (MNA) and land use controls (LUCs); and 3) in situ bioremediation, short-term LUCs, and long-term monitoring (LTM). Based on available information, the preferred remedy is MNA and LUCs. The preferred remedy would utilize groundwater use restriction LUCs to protect human health by preventing human exposure to contaminated groundwater and MNA to return the contaminated water to its potential beneficial use as drinking water, wherever practicable.

LHAAP-49, a former Acid Storage Area, is located in the west-central portion of LHAAP and covers an area of approximately 30 acres. The site was used from 1942 to 1945 for formulation and storage of acids and acid mixtures in support of trinitrotoluene production. Based on available information, the preferred remedy at this time is no action. The recommendation is based on the existing data and determination of no unacceptable risk to human health or to ecological receptors at LHAAP-49.

LHAAP-50, a former sump water tank, is located in the north-central portion of LHAAP and covers an area of approximately 1 acre. Historically, LHAAP-50 contained a 47,000-gallon capacity aboveground storage tank which received wastewater from various industrial waste sumps from 1955 to 1988. Three alternatives were evaluated for addressing the contaminated groundwater and soil at the site: 1) no action; 2) soil - excavation, groundwater - MNA and LUCs; and 3) soil - excavation, groundwater - in situ bioremediation, MNA, and LUCs. Based on available information, the preferred remedy at this time is the second alternative: excavation and off-site disposal of perchlorate-contaminated soils, and MNA and LUCs for groundwater. The preferred remedy would ensure protection of human health by eliminating the soil-to-groundwater and soil-to-surface water pathways, implementing groundwater use restriction LUCs to prevent exposure to contaminated groundwater, and implementing MNA until groundwater cleanup levels are achieved.

LHAAP-35A(58), known as the Shops Area, is located in the north-central portion of LHAAP and covers approximately 11 acres. The Shops Area was established in 1942 as part of the installation's initial construction. Plant-operated laundry, automotive, woodworking, metalworking, painting, refrigeration, and electrical shops served the needs of the overall facility and became inactive in 1996 and 1997. Four alternatives were evaluated for addressing the contaminated groundwater at the site: 1) no action; 2) MNA with LUCs; 3) in situ bioremediation with short-term LUCs and LTM; and 4) in situ bioremediation followed by MNA and LUCs for the eastern plume, and MNA and LUCs for the western plume. Based on available information, the preferred remedy at this time is the fourth alternative: in situ bioremediation followed by MNA and LUCs for the eastern plume, and MNA and LUCs for the western plume. The preferred remedy would ensure protection of human health by 1) implementing groundwater use restriction LUCs which prevent human exposure to contaminated groundwater and 2) returning the contaminated water to its potential beneficial use as a drinking water, wherever practicable, through MNA and in situ bioremediation.

The former **Pistol Range** is located in the southeastern portion of LHAAP and covers an area of approximately 0.4 acres. The area was used by base security personnel as early as the 1950s and intermittently through 2004 as a small arms firing range. The target area was a natural, wooded slope at the eastern side of the site. Soil with contamination above industrial cleanup levels was excavated and disposed off site during a 2009 removal action. Based on available information, the preferred remedy at this time is no action. The recommendation is based on existing data and determination of no unacceptable risk to human health or to ecological receptors.

For further information or to submit written comments, contact: Dr. Rose M. Zeiler, Longhorn Army Ammunition Plant, P.O. Box 220, Ratcliff, Arkansas, 72951; phone number 479-635-0110 or e-mail rose.zeiler@us.army.mil.

The real miracle was four years ago

FROMA HARROP
OPINION

The miracle in Massachusetts was made possible through a bigger miracle four years ago. That's when the commonwealth became the first and so far only state to guarantee near-universal coverage. The Republican winner of the Senate seat long held by Ted Kennedy, Scott Brown, voted for the legislation as a state senator. In vowing to be the key 41st vote against the Democrats' health care reforms, Brown carefully added that Massachusetts voters should not worry about their own health care security: They already have it through the state program.

Thus, Massachusetts was the worst state in which to test the wider public's feelings about national health care reform. Polls showed people in Massachusetts, as elsewhere, unhappy with the legislation in Washington. But those numbers include many who thought the reforms too weak or were simply disgusted by the legislative sausage-making. And whether these proposals were better than nothing is a meaningless question to people who already have something.

The foes of health reform have long used a divide-and-conquer strategy in crafting an anti-reform coalition. They pit those who have government-guaranteed health care, such as the elderly, against those who don't. Rest assured that if there were no Medicare, the older folk with tea bags stapled to their hats would be on the other side of the barricades. Medicare is the most socialized element of the American health care system.

Similarly, the damp enthusiasm in Massachusetts for the reforms coming out of Washington belies the popularity of the state reforms enacted in 2006. "It's not perfect," a Brown supporter told a reporter, "but why should we have to pay again when we have health care?"

Pat Bagley/caglecartoons.com

Not perfect is an understatement. Unlike the legislation in Congress, the Massachusetts plan made virtually no effort to contain spiraling health care costs. That makes the Massachusetts health care plan, which Brown still supports, far less conservative than the national version he opposes.

But despite the program's unexpected costs — despite its individual mandate to obtain coverage or face a fine — the Massachusetts program retains solid backing at home. Once people realize that whatever happens to their job, whatever dire disease befalls a *family member, they can get med*ical care without having to sell their house, they won't let anyone take it away.

So there's no talk of repealing the Massachusetts program, but of bringing it back to the lab for repair. The state has already cut benefits and raised taxes. A special commission is now urging a move away from expensive fee-for-service health care and to a model that would pay groups of doctors and hospitals fixed sums to cover the patient for a year.

Politically, the Massachusetts program could serve as a national model. Pass universal coverage now, fix it later.

Even though their reforms are superior, Democrats in Washington could have done better still by not trying to please everyone (including Republicans who were just playing with them). But despite their control of the White House and majorities in Congress, Democrats seemed capable only of reacting to critics, of cringing with fear under even the most ludicrous attacks.

If you don't have the courage of your convictions, it doesn't matter whether your party has 59 or 60 or 65 seats in the Senate. Under President Bush, Republicans got whatever they wanted with 50 senators.

The Democrats remind me of King Lear. Having given away his land, the source of kingly power, Lear turns to his fool for amusement and threatens to whip him. "I am better than thou art now," responds the cheeky fool, who like all Shakespeare fools, has everything figured out. "I am a fool; thou art nothing."

■

Write to Froma Harrop at Creators Syndicate 5777 W. Century Blvd., Suite 700 Los Angeles, CA 90045. She can be contacted via e-mail at fharrop@projo.com.

We the people still means something

CAL THOMAS
OPINION

In his first comment following Scott Brown's stunning victory in the Massachusetts special election to fill the seat of the late Sen. Edward Kennedy, President Obama told the losing candidate, Martha Coakley, "you can't win them all." No, but President Obama hasn't won any since his own election more than 15 months ago (not counting the Nobel Peace Prize, which was an unearned gift). Three candidates he campaigned for in New Jersey, Virginia and Massachusetts lost, and his personal appeal for Chicago to host the Olympics in 2016 was rejected. That's 0-4. If he were a quarterback, the coach would be eyeing the backup right about now.

Many lessons were taught, but how many will be learned from Brown's victory? Chief among them is that the public doesn't like arrogance, whether it comes with a "D" or an "R" after the name. Democrats were taught that lesson in 1994 when voters gave Republicans a majority in the House of Representatives for the first time in more than 40 years. Republicans ran against arrogance and the tyranny of the majority. But they quickly became what they replaced, believing that voters had given them a license to do whatever they wished.

It seems President Obama and the congressional leadership both need to be taught the same lesson. Speaker Nancy Pelosi isn't getting the message. She is promising to push through health care "reform" no matter what. Her San Francisco seat is safe, but the seats of many other Democrats — especially those Blue Dogs and Democrats who won in traditionally Republican districts — are not. Will those Democrats be willing to play "Thelma and Louise" and drive off a cliff just so the Obama-Pelosi-Reid wing of their party can claim victory?

President Obama's poll numbers, which have been sinking almost since his inauguration, will not be helped if he refuses to change course. Washington Post political reporter Chris Cillizza quoted a Democratic operative in the Post on Tuesday, "My message to my clients?" he said. "Jump ship now. ... Obama can't help you." Rep. Anthony Weiner, D-N.Y., advises his colleagues to "take a step back" from health care reform and focus on creating jobs. Sen. Evan Bayh, D-Ind., up for re-election in November, reacted to the Brown victory: "There's going to be a tendency on the part of our people to be in denial about all this ... if you lose Massachusetts and that's not a wake-up call, there's no hope of waking up." Bayh added: "It's why moderates and independents even in a state as Democratic as Massachusetts just aren't buying our message. ... They just don't believe the answers we are currently proposing are solving their problems."

In 1966, Arkansas Democratic Senator J. William Fulbright wrote about the arrogance of power: "The attitude above all others, which I feel sure is no longer valid, is the arrogance of power, the tendency of great nations to equate power with virtue and major responsibilities with a universal mission." It is as true of individuals as it can be of nations. Some politicians arrive in office seeking to serve themselves and not the people and quickly forget why they were sent to Washington in the first place. They build empires to their egos and too quickly sell their souls to lobbyists and other bidders in the belief that re-election is the ultimate goal and highest good.

Anger isn't policy and Republicans must prove not only that Democrats are misusing their power, but also that if Republicans are given another chance at power, they won't again squander it on themselves. Humility is a light grace. The path to getting things done serves the people, not politicians.

The Massachusetts election showed that even in the bluest of blue states, "we the people" still means something. Voters in Massachusetts have jerked the chain of Washington politicians and reminded them who is in charge. This is what "the tea party" movement is about. Liberal Democrats *dismiss it at their peril. Just ask* Martha Coakley.

■

Write Cal Thomas at tmseditors@tribune.com.

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Proof of Publication

from

MARSHALL NEWS MESSENGER

P.O. BOX 730 MARSHALL, TX 75670 (903) 935-7914

#2175129 #812.50

STATE OF TEXAS
COUNTY OF HARRISON

On this 25th day of January, 2010 personally appeared before me the undersigned, a Notary Public in and for said county and state.

DIANNE GRAY

of the MARSHALL NEWS MESSENGER, a daily newspaper published at MARSHALL, County of HARRISON, State of TEXAS, who, being by me duly sworn, states that the attached advertisement, a true copy of which is hereto annexed, was published in said newspaper in its issues thereof on the following dates:

17th day of January 2010
24th day of January 2010
____ day of ____ 20 ____
____ day of ____ 20 ____
____ day of ____ 20 ____
____ day of ____ 20 ____

SIGNATURE Dianne Gray

Subscribed and sworn to before me this 25th day of January 2010.

Jacqueline English
Notary Public, Harrison County, Texas

My Commission expires 11-8-2012

JACQUELINE ENGLISH
NOTARY PUBLIC
STATE OF TEXAS
My Commission Expires 11-08-2012

Welcome to "Marshall's Marketplace"

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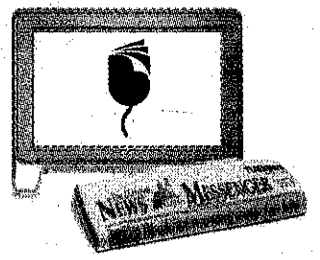

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2030 LEGAL NOTICES

NOTICE OF SALE

THE STATE OF TEXAS

BY VIRTUE OF AN ORDER OF SALE

COUNTY OF HARRISON

DATED 6 Jan. 2010, and issued pursuant to a judgment decree of the District Court of Harrison County, Texas, by the Clerk of said Court on said date in the hereinafter styled and numbered causes, and to me directed and delivered as Sheriff of said Court, I have on 6 Jan. 2010, seized, levied upon, and will on the first Tuesday in February, 2010, the same being the 2nd day of said month at the Courthouse door of said County, in the City of Marshall, between the hours of 10:00 o'clock A.M. and 4:00 o'clock P.M. on said day, proceed to sell for cash to the highest bidder all of the right, title, and interest of the defendants in such suit in and to the following described real estate levied upon as the property of said defendants, the same lying and being situated in the County of Harrison and the State of Texas to-wit:

CAUSE NO. STYLING, DEFENDANTS AND PROPERTY DESCRIPTION

02-0045-T Harrison Central Appraisal District v. Daisy Peppers Spencer, Purvis Peppers, Unknown Heirs of Mildred Peppers, Unknown Heirs of Robert Peppers, and Unknown Heirs of Rosco Peppers
Lot 5, Block E, Jester Addition to the City of Marshall, Harrison County, Texas (04230-00290-00000-000000)

05-0110-T Harrison Central Appraisal District v. Bernard Joe Carrier, Judy Pauline Carrier and Alecia Carrier
TRACT 1: Lot 22, Block 10, Sexton 1st Addition to the City of Marshall, Harrison County, Texas (04865-01190-00000-000000)
TRACT 2: Lot 11, Block 6, Allen Heights Addition to the City of Marshall, Harrison County, Texas (03100-00590-00000-000000)

05-0143-T Harrison Central Appraisal District v. Rickey Edwin Starr Individually and DBA Albert Starr Welding Service
1.007 Acres out of Abstract 431 of the H Martin Survey, Harrison County, Texas being that property more particularly described in Volume 560, Page 329 of the Deed of Trust Records, Harrison County, Texas (00431-00190-00010-000000)

06-0135-T Harrison Central Appraisal District v. Nicole Denise Jones
1 Acre, more or less, out of Abstract 29 of the B Anderson Survey, Harrison County, Texas being that property more particularly described in Volume 2512, Page 136 of the Deed Records, Harrison County, Texas (00029-00100-00000-000000)

06-0166-T Harrison Central Appraisal District v. Unknown Heirs of Girtha Lee Kennedy and Denise Kennedy Henderson
Lot 20, South 1/2 of Lot 19, Block 1, Sexton 2nd Addition to the City of Marshall, Harrison County, Texas (04870-00130-00000-000000)

06-0180-T Harrison Central Appraisal District v. Lila Mae Moore Simmons, Audrey Simmons Cato, Robert Lee Simmons, James Richard Simmons, Charline Bolden Simmons, Joseph Simmons, Jr., and Charles Edward Simmons
Lot 2, Block 1, W. Ward Addition to the City of Marshall, Harrison County, Texas (05270-00100-00000-000000)

06-0199-T Harrison Central Appraisal District v. Unknown Heirs of Henry Taylor, Unknown Heirs of Almeta Taylor aka Allmeta Taylor, Robert Phelps aka Robbie B. Phelps and Alicia Deann Phelps
Lot 1, Block 1, Scheuber 1st Addition to the City of Marshall, Harrison County, Texas (04820-00010-00000-000000)

07-0006-T Harrison Central Appraisal District v. Unknown Heirs of Ann M. Brazzel and Paul Brazzel
1.750 Acre, more or less, out of Abstract 227 of the WM Elliott Survey, Harrison County, Texas being that property more particularly described in Volume 1085, Page 689 and Volume 1220, Page 625 of the Deed Records, Harrison County, Texas (00227-00350-00000-000000)

07-0025-T Harrison Central Appraisal District v. Chris Holt, Peggy L. Holt and Bombardier Capital,
TRACT 1: Manufactured home being a 1998, 32 x 48 ft, Aspen model, Label # RAD1041467/8, located on Abstract 709 of the P Taylor Survey, Harrison County, Texas being that property more particularly described and assessed on the tax rolls of this jurisdiction (00709-00100-0005-001999)
TRACT 2: 1.00 Acre, more or less, out of Abstract 709 of the P Taylor Survey, Harrison County, Texas being that property more particularly described in Volume 2189, Page 78 of the Deed Records, Harrison County, Texas (00709-00100-00010-000020)

07-0031-T Harrison Central Appraisal District v. Paul A. Berry & Unknown Heirs of Mollie S. Berry
H 0.536 Acre being Lot 98, Block 3, Unit 2, Lake Deerwood, Harrison County, Texas being that property more particularly described in Volume 1308 Page 384 of the Deed Records, Harrison County, Texas (01855-03269-00001-000000)

07-0035-T Harrison Central Appraisal District v. Thelma Estelle Evers
0.412 Acre, more or less, being Lot 143 and 144 N, Block 2, Unit 2, Lake Deerwood, Harrison County, Texas being that property more particularly described in Volume 1141, Page 215 of the Deed Records, Harrison County, Texas (01855-01710-00000-000000)

07-0044-T Harrison Central Appraisal District v. Unknown Heirs of Edward C. Smith and Unknown Heirs of Katherine M. Smith
Tract 1: 0.160 Acre, more or less, being Lot 12, Block A, Unit B, Lake Deerwood, Harrison County, Texas being that property more particularly described in Volume 1502, Page 113 of the Deed Records, Harrison County, Texas (01825-00040-00010-000000)
Tract 2: House located on Lot 12, Block A, Unit B, Lake Deerwood, Harrison County, Texas being that property more particularly described and assessed on the tax rolls of this jurisdiction (01825-00040-01998-000000)

07-0067-T Harrison Central Appraisal District v. Sarah Ann Jones aka Sarah Harper Jones, Lynn Rogers Hall, Robin Bush Colteaux, Paul Scott Bush, William Henry Harper, Linda Harper Fiegener
Lots 63 and 64, Block 2, Lake Deerwood Subdivision and a 1970 Fleetwood Festival model manufactured home, 12 x 42 ft., Label # DLS0064498, Harrison County, Texas (01855-01100-00000-000000)

07-0088-T Harrison Central Appraisal District v. Unknown Heirs of Homer Lee Sands, Unknown Heirs of Margaret Pippins Sands and Samuel Pippins
H 0.152 Acre, more or less, being Lot 1, Block 6, Wileyview 2nd Addition to the City of Marshall, Harrison County, Texas being that property more particularly described in Volume 705, Page 371 of the Deed Records, Harrison County, Texas (05300-00460-00000-000000)

07-0106-T Harrison Central Appraisal District v. Unknown Heirs of Pearl Wesley, Mae Dell Wesley, Angela Pearl Wesley, Unknown Heirs of Wendell Wesley, Addie Crumby, and Andre Campbell
H 0.101 Acre, more or less, being Lot 1, Block 3, Sexton 2nd Addition to the City of Marshall, Harrison County, Texas being that property more particularly described in Volume 323, Page 250 of the Deed Records, Harrison County, Texas (04870-00230-00000-000000)

07-0133-T Harrison Central Appraisal District v. Alice Mitchell Butler, a feme sole and JP Morgan Chase Bank, NA
TRACT 1: Lot 6, South part of Lot 5, Block 2, Sexton 2nd Addition to the City of Marshall, Harrison County, Texas (04870-00170-00000-000000)
TRACT 2: H East part of Lot 4, Block 25, Longinotti Addition to the City of Marshall, Harrison County, Texas (04360-01270-00000-000000)
TRACT 3: Lot 18, South 1/2 of Lot 16, Block 10, Sexton Addition to the City of Marshall, Harrison County, Texas (04865-01145-00000-000000)

07-0163-T Harrison Central Appraisal District v. L C Chatham aka Laskey Chatham, Berenda F. Chatham, and Jim Walter Homes, Inc.
Lots 5 and 6, Block 5, Chatham Addition to the City of Marshall, Harrison County, Texas (06010-00320-00000-000000)

07-0220-T Harrison Central Appraisal District v. David W. Jackson and Teresa G. Jackson
0.165 Acre, more or less, being Part of Outlot 293 A, Northwest, City of Marshall, Harrison County, Texas being that property more particularly described in Volume 1284, Page 659 of the Deed Records, Harrison County, Texas (03040-04910-00000-000000)

08-0066-T Harrison Central Appraisal District v. Mendy Ford aka Mendy K. Roach
West part of Lot 1, Block 2, Sunnyside Addition to the City of Marshall, Harrison County, Texas (05000-00090-00000-000000)

08-0067-T Harrison Central Appraisal District v. Larry Garcia
TRACT 1: Lots 7, 8, Block 2, College Heights 1st Addition to the City of Marshall, Harrison County, Texas (03470-00240-00000-000000)
TRACT 2: Lots 9, 10, Block 2, College Heights 1st Addition to the City of Marshall, Harrison County, Texas (03470-00250-00000-000000)

08-0068-T Harrison Central Appraisal District v. Donnetter Gipson aka Donnetter Gibson aka Donnetter Reeves aka Donnetter Williams
1 Acre, more or less, out of Abstract 632 of the S Shoto Survey, Harrison County, Texas being that property more particularly described in Volume 1134, Page 826 of the Deed Records, Harrison County, Texas (00632-00320-00000-000000)

08-0070-T Harrison Central Appraisal District v. Joyclyn Yvette Green
Lot 4, Block 6, College Heights 1st Addition to the City of Marshall, Harrison County, Texas (03470-00840-00000-000000)

08-0078-T Harrison Central Appraisal District v. Steven Earl Sheneman and Un Cha Sheneman
1.990 Acres, more or less out of Abstract 815 of the S Yates Survey, Harrison County, Texas being that property more particularly described in Volume 1061, Page 199 SAVE AND EXCEPT that property more particularly described in Volume 1314, Page 508 of the Deed Records, Harrison County, Texas (00815-00090-00040-000000)

08-0085-T Harrison Central Appraisal District v. Lewis E. Williams
Part of Outlot 282, Northwest, City of Marshall, Harrison County, Texas (03040-04550-00000-000000)

08-0086-T Harrison Central Appraisal District v. Stephanie Branch aka Stephanie Tamiko Williams
South part of Outlot 206, Southwest, City of Marshall, Harrison County, Texas (03020-03865-00000-000000)

08-0097-T Harrison Central Appraisal District v. Anthony Jones, Trustee for the Tree Farm Perpetual Educational Trust Fund
82.254 Acres, more or less, out of Abstract 393 of the M Lindsey Survey, Harrison County, Texas being that property more particularly described in Volume 1395, Page 295 of the Deed Records, Harrison County, Texas (00393-00011-00000-000000)

08-0108-T Harrison Central Appraisal District v. Bobbie Jean Tatum aka Bobbie Phillips
Lot 1, Part of Lot 2, Block 8, Lothrop 2nd Addition to the City of Marshall, Harrison County, Texas (04375-00510-00000-000000)

08-0114-T Harrison Central Appraisal District v. Jean Odell Burt
Outlots 155 - 155 D, Outlot 156, Southwest, City of Marshall, Harrison County, Texas (03020-02910-00000-00000)

08-0116-T Harrison Central Appraisal District v. Ramona Eshee aka Ramona Gubitz aka Ramona Dennis aka Ramona Wiggins aka Ramona Lingold
East 60 ft. of Lot 2, North 30 ft. of Lot 3, Block 2, Scogin Addition to the City of Marshall, Harrison County, Texas (04850-00335-00000-000000)

08-0117-T Harrison Central Appraisal District v. Lorraine Johnson Evans
Lot 3, Block 2, Sunset Acres, City of Marshall, Harrison County, Texas (05020-00110-00000-000000)

08-0118-T Harrison Central Appraisal District v. John L. Hayes, Jr. and Freida Hayes
25 Acres, more or less, out of Abstract 71 of the L B Blankenship Survey, being Block No. 4 in Partition Deed allotted to Sim Warren in Volume 78, Page 630, Harrison County, Texas being that property more particularly described in Volume 3562, Page 98 of the Deed Records, Harrison County, Texas (00071-01835-00000-000000)

08-0122-T Harrison Central Appraisal District v. Terri Lynn Opperman
Lot 5, Block 24, Parkview Addition to the City of Marshall, Harrison County, Texas (04700-02000-00000-000000)

08-0169-T Harrison Central Appraisal District v. Stanley O. Mann
TRACT 1: East part of Lot 2, Block 30, Scogin Addition to the City of Marshall, Harrison County, Texas (04850-02130-00000-000000)
TRACT 2: West part of Lot 2, Block 30, Scogin Addition to the City of Marshall, Harrison County, Texas (04850-02140-00000-000000)
TRACT 3: West part of Lot 1, Block 28, Scogin Addition to the City of Marshall, Harrison County, Texas (04850-01975-00000-000000)
TRACT 4: Acre, more or less, out of Abstract 747 of the A Whetstone Survey, Tract 1, Harrison County, Texas being that property more particularly described in Volume 2821, page 72 of the Deed Records, Harrison County, Texas (00747-00430-00000-000000)
TRACT 5: 0.500 Acre, more or less, out of Abstract 747 of the A Whetstone Survey, Tract 2, Harrison County, Texas being that property more particularly described in Volume 2821, Page 72 of the Deed Records, Harrison County, Texas (00747-00430-00010-000000)

The following property held in trust by **Harrison County Appraisal District, Trustee, & Harrison County as Co-Trustee** will be offered for resale pursuant to Section 34.05 of the Texas Property Tax Code:

Tract 1: Lot 3, Block 4, Wileyview 2nd Addition to the City of Marshall, Harrison County, Texas which was bid in trust on July 7, 2009 at a tax foreclosure sale pursuant to a judgment in Cause #03-0135-T styled Harrison Central Appraisal District v. Richard Miles, et al (05300-00210-00000-000000)
Tract 2: So. 64 ft, Lots 22 - 24 and 15, Part of Outlot 97 Northeast, Lot 6, Walter Brown Estate Resubdivision, Harrison County, Texas which was bid in trust on July 7, 2009 at a tax foreclosure sale pursuant to a judgment in Cause #04-0127-T styled Harrison Central Appraisal District v. Jimmy Brown aka Jimmy L. Brown et al (03030-01916-00000-000000)
Tract 3: Outlot 94 A, Northeast, City of Marshall, Harrison County, Texas which was bid in trust on July 7, 2009 at a tax foreclosure sale pursuant to a judgment in Cause #04-0127-T styled Harrison Central Appraisal District v. Jimmy Brown aka Jimmy L. Brown et al

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PUBLIC NOTICE

THE UNITED STATES ARMY INVITES PUBLIC COMMENT ON THE PROPOSED PLANS FOR ENVIRONMENTAL SITES LHAAP-46, -49, -50, -35A(58), AND THE PISTOL RANGE, LONGHORN ARMY AMMUNITION PLANT, TEXAS

The U.S. Army is the lead agency for environmental response actions at Longhorn Army Ammunition Plant (LHAAP). In partnership with Texas Commission on Environmental Quality and the U.S. Environmental Protection Agency Region 6, the U.S. Army has developed Proposed Plans for the following NPL sites: LHAAP-46, LHAAP-49, LHAAP-50, LHAAP-35A(58), and the Pistol Range. Although the Proposed Plans identify preferred remedies for each of the sites, the U.S. Army welcomes the public's review and comments. The public comment period begins January 25, 2010, and concludes February 23, 2010. **On Tuesday, January 26, 2010, from 6:00 to 8:00 p.m., the U.S. Army is inviting all interested parties to attend an open house forum to view the Proposed Plans and ask questions. The open house forum will be held at the Karnack Community Center, Highway 134 and Spur 449, Karnack, Texas.** Copies of the Proposed Plans and supporting documentation are available for public review at the Marshall Public Library, 300 S. Alamo, Marshall, Texas, 75670. Summaries of each of the sites, including discussion of various alternatives that were evaluated, are provided below.

LHAAP-46, the former Plant 2 production area, is located in the north-central portion of LHAAP and covers an area of approximately 190 acres. Plant 2 was used to produce pyrotechnic devices from February 1952 to 1956 and was reactivated to produce pyrotechnic and illumination devices from 1964 until approximately 1997. Three alternatives were evaluated for addressing the contaminated groundwater at the site: 1) no action; 2) monitored natural attenuation (MNA) and land use controls (LUCs); and 3) in-situ bioremediation, short-term LUCs, and long-term monitoring (LTM). Based on available information, the preferred remedy is MNA and LUCs. The preferred remedy would utilize groundwater use restriction LUCs to protect human health by preventing human exposure to contaminated groundwater and MNA to return the contaminated water to its potential beneficial use as drinking water, wherever practicable.

LHAAP-49, a former Acid Storage Area, is located in the west-central portion of LHAAP and covers an area of approximately 30 acres. The site was used from 1942 to 1945 for formulation and storage of acids and acid mixtures in support of trinitrotoluene production. Based on available information, the preferred remedy at this time is no action. The recommendation is based on the existing data and determination of no unacceptable risk to human health or to ecological receptors at LHAAP-49.

LHAAP-50, a former sump water tank, is located in the north-central portion of LHAAP and covers an area of approximately 1 acre. Historically, LHAAP-50 contained a 47,000-gallon capacity aboveground storage tank which received wastewater from various industrial waste sumps from 1955 to 1988. Three alternatives were evaluated for addressing the contaminated groundwater and soil at the site: 1) no action; 2) soil - excavation, groundwater - MNA and LUCs; and 3) soil - excavation, groundwater - in situ bioremediation, MNA, and LUCs. Based on available information, the preferred remedy at this time is the second alternative: excavation and off-site disposal of perchlorate-contaminated soils, and MNA and LUCs for groundwater. The preferred remedy would ensure protection of human health by eliminating the soil-to-groundwater and soil-to-surface water pathways, implementing groundwater use restriction LUCs to prevent exposure to contaminated groundwater, and implementing MNA until groundwater cleanup levels are achieved.

LHAAP-35A(58), known as the Shops Area, is located in the north-central portion of LHAAP and covers approximately 11 acres. The Shops Area was established in 1942 as part of the installation's initial construction. Plant-operated laundry, automotive, woodworking, metalworking, painting, refrigeration, and electrical shops served the needs of the overall facility and became inactive in 1996 and 1997. Four alternatives were evaluated for addressing the contaminated groundwater at the site: 1) no action; 2) MNA with LUCs; 3) in situ bioremediation with short-term LUCs and LTM; and 4) in situ bioremediation followed by MNA and LUCs for the eastern plume, and MNA and LUCs for the western plume. Based on available information, the preferred remedy at this time is the fourth alternative: in situ bioremediation followed by MNA and LUCs for the eastern plume, and MNA and LUCs for the western plume. The preferred remedy would ensure protection of human health by 1) implementing groundwater use restriction LUCs which prevent human exposure to contaminated groundwater and 2) returning the contaminated water to its potential beneficial use as a drinking water, wherever practicable, through MNA and in situ bioremediation.

The former **Pistol Range** is located in the southeastern portion of LHAAP and covers an area of approximately 0.4 acres. The area was used by base security personnel as early as the 1950s and intermittently through 2004 as a small arms firing range. The target area was a natural, wooded slope at the eastern side of the site. Soil with contamination above industrial cleanup levels was excavated and disposed off site during a 2009 removal action. Based on available information, the preferred remedy at this time is no action. The recommendation is based on existing data and determination of no unacceptable risk to human health or to ecological receptors.

For further information or to submit written comments, contact: Dr. Rose M. Zeiler, Longhorn Army Ammunition Plant, P.O. Box 220, Ratcliff, Arkansas, 72951; phone number 479-635-0110 or e-mail HYPERLINK "mailto:rose.zeiler@us.army.mil" rose.zeiler@us.army.mil.

INVITATION FOR BIDS

The Housing Authority of the City of Marshall, Texas (hereinafter called the "Local Housing Authority") will receive sealed bids for the modernization of 74 dwelling units; mechanical modifications, alterations, and electrical, including demolition and all work specified and/or shown on the drawings until:

THURSDAY, FEBRUARY 18, 2010 AT 2:00 PM
THE HOUSING AUTHORITY OF
THE CITY OF MARSHALL
1401 POPLAR STREET
MARSHALL, TEXAS 75670

Immediately thereafter all bids will be publicly opened and read aloud.

Proposed forms of contract documents; including plans and specifications are on file and available for inspection at the office of the Housing Authority of the City of Marshall and at the office of Cameron Alread, Architect Inc., 209 W. 8th St., Fort Worth, Texas 76102, (817) 332-6231 and at plan rooms in various cities of the state. Copies of the documents may be obtained by depositing $100.00 with the Architect for one set of documents per General Contractor. Such deposits will be refunded on return of the plans, specifications and other documents in good condition within 30 days after bid opening. Plans and specifications that have been taken apart are not considered in good condition.

PRE BID CONFERENCE will be held THURSDAY, FEBRUARY 4, 2010 at 2:00 P.M. at the Marshall Housing Authority.

HOUSING AUTHORITY OF THE
CITY OF MARSHALL, TEXAS
Milton H. Williams, III, Executive Director
903/938-0717

CLASSIFIEDS 935-SELL (7355)

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TRANSPORTATION 1000

1030 AUTO PARTS AND SERVICE

GENERAL TIRES P265/70R17. New pulloffs. $75!! P265/70R18 for $85 P275/60R20 for $95. 903-240-8001

LWB ARE Camper Shell w/big back glass, fits Dodge pickup, $500. 903-578-1999

REMANUFACTURED! 6.9, 7.3, 6.6 diesel eng. Warranty/Delivered. Call 713-918-5811.

1050 BOATS/ SUPPLIES

1998 Champion 203 Elite/DC, exc. condition! 225 EFI Merc. $12,500. Call 903-576-2554

2006 Glastron 195SX, w/5.0 L Mercruiser, garage kept, exc cond, $19,500 903-748-7291

1080 COMMERCIAL/ HEAVY EQUIPMENT

Caterpillar T40C Forklift, runs & operates good, $1500. 903-917-1097

1100 SPORT UTILITY

2005 CADILLAC SRX Sport Utility, blue w/gray int. Luxury Pkg. 71K mi. $17,500, 903-291-0051

1110 TRUCKS

1983 GMC Sierra SWB 305.30 over RV Cam, Edelbrock Performer intake, 600 carb, lots of new parts, needs transmission, $3200obo. 903-407-8888

1140 BMW

2002 BMW 325Ci convertible, white w/black rag top, exc cond, $14,950. 903-926-7883

1160 CADILLAC

2006 CTS-V standard trans w/Corvette motor. **Rare Car!** 405hp. 65Kmi Nav. sys, loaded, clean. $22,500. Serious inquiries only. 903-452-2678

1200 FORD

ONE OWNER! 2006 Mustang GT, silver w/blk leather int, auto, new tires, excellent condition, 51K miles, $16,000 firm. 903-235-8038

1240 KIA

2008 Amante, only 22K miles, leather, loaded, good car! $14,000 or best offer.903-297-3902

1325 SATURN

2003 Saturn Vue extra clean, like new, sunroof, new tires, loaded, red & ready, $6,250. 903-742-1318

ANNOUNCEMENTS 2000

2005 ADOPTIONS

Adopt

At-home mom, beach house filled with LOVE,

2030 LEGAL NOTICES

NOTICE OF SALE

THE STATE OF TEXAS

BY VIRTUE OF AN ORDER OF SALE

COUNTY OF HARRISON

DATED 6 Jan. 2010, and issued pursuant to a judgment decree of the District Court of Harrison County, Texas, by the Clerk of said Court on said date in the hereinafter styled and numbered causes, and to me directed and delivered as Sheriff of said Court, I have on 6 Jan. 2010, seized, levied upon, and will on the first Tuesday in February, 2010, the same being the 2nd day of said month at the Courthouse door of said County, in the City of Marshall, between the hours of 10:00 o'clock A.M. and 4:00 o'clock P.M. on said day, proceed to sell for cash to the highest bidder all of the right, title, and interest of the defendants in such suit in and to the following described real estate levied upon as the property of said defendants, the same lying and being situated in the County of Harrison and the State of Texas to-wit:

CAUSE NO. STYLING, DEFENDANTS AND PROPERTY DESCRIPTION

02-0045-T Harrison Central Appraisal District v. Daisy Peppers Spencer, Purvis Peppers, Unknown Heirs of Mildred Peppers, Unknown Heirs of Robert Peppers, and Unknown Heirs of Rosco Peppers
Lot 5, Block E, Jester Addition to the City of Marshall, Harrison County, Texas (04230-00290-00000-000000)

05-0110-T Harrison Central Appraisal District v. Bernard Joe Carrier, Judy Pauline Carrier and Alecia Carrier
TRACT 1: Lot 22, Block 10, Sexton 1st Addition to the City of Marshall, Harrison County, Texas (04865-01190-00000-000000)
TRACT 2: Lot 11, Block 6, Allen Heights Addition to the City of Marshall, Harrison County, Texas (03100-00590-00000-000000)

05-0143-T Harrison Central Appraisal District v. Rickey Edwin Starr Individually and DBA Albert Starr Welding Service
1.007 Acres out of Abstract 431 of the H Martin Survey, Harrison County, Texas being that property more particularly described in Volume 560, Page 329 of the Deed of Trust Records, Harrison County, Texas (00431-00190-00010-000000)

06-0135-T Harrison Central Appraisal District v. Nicole Denise Jones
1 Acre, more or less, out of Abstract 29 of the B Anderson Survey, Harrison County, Texas being that property more particularly described in Volume 2512, Page 136 of the Deed Records, Harrison County, Texas (00029-00100-00000-000000)

06-0166-T Harrison Central Appraisal District v. Unknown Heirs of Girtha Lee Kennedy and Denise Kennedy Henderson
Lot 20, South 1/2 of Lot 19, Block 1, Sexton 2nd Addition to the City of Marshall, Harrison County, Texas (04870-00130-00000-000000)

06-0180-T Harrison Central Appraisal District v. Lila Mae Moore Simmons, Audrey Simmons Cato, Robert Lee Simmons, James Richard Simmons, Charline Bolden Simmons, Joseph Simmons, Jr., and Charles Edward Simmons
Lot 2, Block 1, W. Ward Addition to the City of Marshall, Harrison County, Texas (05270-00100-00000-000000)

06-0199-T Harrison Central Appraisal District v. Unknown Heirs of Henry Taylor, Unknown Heirs of Almeta Taylor aka Alimeta Taylor, Robert Phelps aka Robbie B. Phelps and Alicia Deann Phelps
Lot 1, Block 1, Scheuber 1st Addition to the City of Marshall, Harrison County, Texas (04820-00010-00000-000000)

07-0006-T Harrison Central Appraisal District v. Unknown Heirs of Ann M. Brazzel and Paul Brazzel
1.750 Acre, more or less, out of Abstract 227 of the WM Elliott Survey, Harrison County, Texas being that property more particularly described in Volume 1085, Page 689 and Volume 1220, Page 625 of the Deed Records, Harrison County, Texas (00227-00350-00000-000000)

07-0025-T Harrison Central Appraisal District v. Chris Holt, Peggy L. Holt and Bombardier Capital,
TRACT 1: Manufactured home being a 1998, 32 x 48 ft, Aspen model, Label # RAD1041467/8, located on Abstract 709 of the P Taylor Survey, Harrison County, Texas being that property more particularly described and assessed on the tax rolls of this jurisdiction (00709-00100-0005-001999)
TRACT 2: 1.00 Acre, more or less, out of Abstract 709 of the P Taylor Survey, Harrison County, Texas being that property more particularly described in Volume 2189, Page 78 of the Deed Records, Harrison County, Texas (00709-00100-00010-000020)

07-0031-T Harrison Central Appraisal District v. Paul A. Berry & Unknown Heirs of Mollie S. Berry
H 0.536 Acre being Lot 98, Block 3, Unit 2, Lake Deerwood, Harrison County, Texas being that property more particularly described in Volume 1308 Page 384 of the Deed Records, Harrison County, Texas (01855-03269-00001-000000)

07-0035-T Harrison Central Appraisal District v. Thelma Estelle Evers
0.412 Acre, more or less, being Lot 143 and 144 N, Block 2, Unit 2, Lake Deerwood, Harrison County, Texas being that property more particularly described in Volume 1141, Page 215 of the Deed Records, Harrison County, Texas (01855-01710-00000-000000)

07-0044-T Harrison Central Appraisal District v. Unknown Heirs of Edward C. Smith and Unknown Heirs of Katherine M. Smith
Tract 1: 0.160 Acre, more or less, being Lot 12, Block A, Unit B, Lake Deerwood, Harrison County, Texas being that property more particularly described in Volume 1502, Page 113 of the Deed Records, Harrison County, Texas (01825-00040-00010-000000)
Tract 2: House located on Lot 12, Block A, Unit B, Lake Deerwood, Harrison County, Texas being that property more particularly described and assessed on the tax rolls of this jurisdiction (01825-00040-01998-000000)

07-0067-T Harrison Central Appraisal District v. Sarah Ann Jones aka Sarah Harper Jones, Lynn Rogers Hall, Robin Bush Colteaux, Paul Scott Bush, William Henry Harper, Linda Harper Flegener
Lots 63 and 64, Block 2, Lake Deerwood Subdivision and a 1970 Fleetwood Festival model manufactured home, 12 x 42 ft., Label # DLS0064498, Harrison County, Texas (01855-01100-00000-000000)

07-0088-T Harrison Central Appraisal District v. Unknown Heirs of Homer Lee Sands, Unknown Heirs of Margaret Pippins Sands and Samuel Pippins
H 0.152 Acre, more or less, being Lot 1, Block 6, Wileyview 2nd Addition to the City of Marshall, Harrison County, Texas being that property more particularly described in Volume 705, Page 371 of the Deed Records, Harrison County, Texas (05300-00460-00000-000000)

07-0106-T Harrison Central Appraisal District v. Unknown Heirs of Pearl Wesley, Mae Dell Wesley, Angela Pearl Wesley, Unknown Heirs of Wendell Wesley, Addie Crumby, and Andre Campbell
H 0.101 Acre, more or less, being Lot 1, Block 3, Sexton 2nd Addition to the City of Marshall, Harrison County, Texas being that property more particularly described in Volume 323, Page 250 of the Deed Records, Harrison County, Texas (04870-00230-00000-000000)

07-0133-T Harrison Central Appraisal District v. Alice Mitchell Butler, a feme sole and JP Morgan Chase Bank, NA
TRACT 1: Lot 6, South part of Lot 5, Block 2, Sexton 2nd Addition to the City of Marshall, Harrison County, Texas (04870-00170-00000-000000)
TRACT 2: H East part of Lot 4, Block 25, Longinotti Addition to the City of Marshall, Harrison County, Texas (04360-01270-00000-000000)
TRACT 3: Lot 18, South 1/2 of Lot 16, Block 10, Sexton Addition to the City of Marshall, Harrison County, Texas (04865-01145-00000-000000)

07-0163-T Harrison Central Appraisal District v. L C Chatham aka Laskey Chatham, Berenda F. Chatham, and Jim Walter Homes, Inc.
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07-0220-T Harrison Central Appraisal District v. David W. Jackson and Teresa G. Jackson
0.165 Acre, more or less, being Part of Outlot 293 A, Northwest, City of Marshall, Harrison County, Texas being that property more particularly described in Volume 1284, Page 659 of the Deed Records, Harrison County, Texas (03040-04910-00000-000000)

08-0066-T Harrison Central Appraisal District v. Mendy Ford aka Mendy K. Roach
West part of Lot 1, Block 2, Sunnyside Addition to the City of Marshall, Harrison County, Texas (05000-00090-00000-000000)

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Part of Outlot 282, Northwest, City of Marshall, Harrison County, Texas (03040-04550-00000-000000)

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South part of Outlot 206, Southwest, City of Marshall, Harrison County, Texas (03020-03865-00000-000000)

08-0097-T Harrison Central Appraisal District v. Anthony Jones, Trustee for the Tree Farm Perpetual Educational Trust Fund
82.254 Acres, more or less, out of Abstract 393 of the M Lindsey Survey, Harrison County, Texas being that property more particularly described in Volume 1395, Page 295 of the Deed Records, Harrison County, Texas (00393-00011-00000-000000)

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Outlots 155 - 155 D, Outlot 156, Southwest, City of Marshall, Harrison County, Texas (03020-02910-00000-00000)

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East 60 ft. of Lot 2, North 30 ft. of Lot 3, Block 2, Scogin Addition to the City of Marshall, Harrison County, Texas (04850-00335-00000-000000)

08-0117-T Harrison Central Appraisal District v. Lorraine Johnson Evans
Lot 3, Block 2, Sunset Acres, City of Marshall, Harrison County, Texas (05020-00110-00000-000000)

08-0118-T Harrison Central Appraisal District v. John L. Hayes, Jr. and Freida Hayes
25 Acres, more or less, out of Abstract 71 of the L B Blankenship Survey, being Block No. 4 in Partition Deed allotted to Sim Warren in Volume 78, Page 630, Harrison County, Texas being that property more particularly described in Volume 3562, Page 98 of the Deed Records, Harrison County, Texas (00071-01835-00000-000000)

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Tract 2: So. 64 ft, Lots 22 - 24 and 15, Part of Outlot 97 Northeast, Lot 6, Walter Brown Estate Resubdivision, Harrison County, Texas which was bid in trust on July 7, 2009 at a tax foreclosure sale pursuant to a judgment in Cause #04-0127-T styled Harrison Central Appraisal District v. Jimmy Brown aka Jimmy L. Brown et al (03030-01916-00000-000000)
Tract 3: Outlot 94 A, Northeast, City of Marshall, Harrison County, Texas which was bid in trust on July 7, 2009 at a tax foreclosure sale pursuant to a judgment in Cause #04-0127-T styled Harrison Central Appraisal District v. Jimmy Brown aka Jimmy L. Brown et al (03030-01720-00000-000000)
Tract 4: Lot 3, Block 1, Hubbard Addition to the City of Marshall, Harrison County, Texaswhich was bid in trust on July 7, 2009 at a tax foreclosure sale pursuant to a judgment in Cause #04-0142-T styled Harrison Central Appraisal District v. Cerra S. Slade aka C S Slade, Jr. (04140-00030-00000-000000)
Tract 5: Part of Outlot 221 A, Southeast, City of Marshall, Harrison County, Texas which was bid in trust on July 7, 2009 at a tax foreclosure sale pursuant to a judgment in Cause #04-0148-T styled Harrison Central Appraisal District v. Unknown Heirs of Carolyn Anderson Van, et al (03010-04550-00000-000000)
Tract 6: Outlot 291, Northwest, 0.434 Acre, more or less, City of Marshall, Harrison County, Texas which was bid in trust on July 7, 2009 at a tax foreclosure sale pursuant to a judgment in Cause #05-0103-T styled Harrison Central Appraisal District v. M. T. Waxler et al (03040-04790-00000-000000)
Tract 7: Lots 3, 4, Block 5, J I Carter Addition to the City of Marshall, Harrison County, Texas which was bid in trust on July 7, 2009 at a tax foreclosure sale pursuant to a judgment in Cause #06-0070-T styled Harrison Central Appraisal District v. Unknown Heirs of Beulah Reyna, et al (03390-00300-00000-000000)
Tract 8: 0.234 Acre, more or less, being Lot 13, Block 6, Hubbard West Addition to the City of Marshall, Harrison County, Texas being that property more particularly described in Volume 469, Page 91, Release Deed of Trust, Harrison County, Texas which was bid in trust on July 7, 2009 at a tax foreclosure sale pursuant to a judgment in Cause #06-0234-T styled Harrison Central Appraisal District v. Arthur D. Hollie aka Arthur D. Hollie, Jr. et al (04150-00240-00000-000000)
Tract 9: Lot 2, Block 19, Lothrop 2nd Addition to the City of Marshall, Harrison County, Texas which was bid in trust on July 7, 2009 at a tax foreclosure sale pursuant to a judgment in Cause #08-0017-T styled Harrison Central Appraisal District v. Gerald Wayne Calloway (04375-01240-00000-000000)
Tract 10 : E ast 60 ft of Lots 8 and 9, 12, Block 45, Hendricks 2nd Addition to the City of Marshall, Harrison County, Texas which was bid in trust on July 7, 2009 at a tax foreclosure sale pursuant to a judgment in Cause #03-0202-T styled Harrison Central Appraisal District v. Lynn Johnson, et al (03090-00315-00000-000000)

PUBLIC NOTICE

THE UNITED STATES ARMY INVITES PUBLIC COMMENT ON THE PROPOSED PLANS FOR ENVIRONMENTAL SITES LHAAP-46, -49, -50, -35A(58), AND THE PISTOL RANGE, LONGHORN ARMY AMMUNITION PLANT, TEXAS

The U.S. Army is the lead agency for environmental response actions at Longhorn Army Ammunition Plant (LHAAP). In partnership with Texas Commission on Environmental Quality and the U.S. Environmental Protection Agency Region 6, the U.S. Army has developed Proposed Plans for the following NPL sites: LHAAP-46, LHAAP-49, LHAAP-50, LHAAP-35A(58), and the Pistol Range. Although the Proposed Plans identify preferred remedies for each of the sites, the U.S. Army welcomes the public's review and comments. The public comment period begins January 25, 2010, and concludes February 23, 2010. **On Tuesday, January 26, 2010, from 6:00 to 8:00 p.m., the U.S. Army is inviting all interested parties to attend an open house forum to view the Proposed Plans and ask questions. The open house forum will be held at the Karnack Community Center, Highway 134 and Spur 449, Karnack, Texas.** Copies of the Proposed Plans and supporting documentation are available for public review at the Marshall Public Library, 300 S. Alamo, Marshall, Texas, 75670. Summaries of each of the sites, including discussion of various alternatives that were evaluated, are provided below.

LHAAP-46, the former Plant 2 production area, is located in the north-central portion of LHAAP and covers an area of approximately 190 acres. Plant 2 was used to produce pyrotechnic devices from February 1952 to 1956 and was reactivated to produce pyrotechnic and illumination devices from 1964 until approximately 1997. Three alternatives were evaluated for addressing the contaminated groundwater at the site: 1) no action; 2) monitored natural attenuation (MNA) and land use controls (LUCs); and 3) in situ bioremediation, short-term LUCs, and long-term monitoring (LTM). Based on available information, the preferred remedy is MNA and LUCs. The preferred remedy would utilize groundwater use restriction LUCs to protect human health by preventing human exposure to contaminated groundwater and MNA to return the contaminated water to its potential beneficial use as drinking water, wherever practicable.

LHAAP-49, a former Acid Storage Area, is located in the west-central portion of LHAAP and covers an area of approximately 30 acres. The site was used from 1942 to 1945 for formulation and storage of acids and acid mixtures in support of trinitrotoluene production. Based on available information, the preferred remedy at this time is no action. The recommendation is based on the existing data and determination of no unacceptable risk to human health or to ecological receptors at LHAAP-49.

LHAAP-50, a former sump water tank, is located in the north-central portion of LHAAP and covers an area of approximately 1 acre. Historically, LHAAP-50 contained a 47,000-gallon capacity aboveground storage tank which received wastewater from various industrial waste sumps from 1955 to 1988. Three alternatives were evaluated for addressing the contaminated groundwater and soil at the site: 1) no action; 2) soil - excavation, groundwater - MNA and LUCs; and 3) soil - excavation, groundwater - in situ bioremediation, MNA, and LUCs. Based on available information, the preferred remedy at this time is the second alternative: excavation and off-site disposal of perchlorate-contaminated soils, and MNA and LUCs for groundwater. The preferred remedy would ensure protection of human health by eliminating the soil-to-groundwater and soil-to-surface water pathways, implementing groundwater use restriction LUCs to prevent exposure to contaminated groundwater, and implementing MNA until groundwater cleanup levels are achieved.

LHAAP-35A(58), known as the Shops Area, is located in the north-central portion of LHAAP and covers approximately 11 acres. The Shops Area was established in 1942 as part of the installation's initial construction. Plant-operated laundry, automotive, woodworking, metalworking, painting, refrigeration, and electrical shops served the needs of the overall facility and became inactive in 1996 and 1997. Four alternatives were evaluated for addressing the contaminated groundwater at the site: 1) no action; 2) MNA with LUCs; 3) in situ bioremediation with short-term LUCs and LTM; and 4) in situ bioremediation followed by MNA and LUCs for the eastern plume, and MNA and LUCs for the western plume. Based on available information, the preferred remedy at this time is the fourth alternative: in situ bioremediation followed by MNA and LUCs for the eastern plume, and MNA and LUCs for the western plume. The preferred remedy would ensure protection of human health by 1) implementing groundwater use restriction LUCs which prevent human exposure to contaminated groundwater and 2) returning the contaminated water to its potential beneficial use as a drinking water, wherever practicable, through MNA and in situ bioremediation.

The former **Pistol Range** is located in the southeastern portion of LHAAP and covers an area of approximately 0.4 acres. The area was used by base security personnel as early as the 1950s and intermittently through 2004 as a small arms firing range. The target area was a natural, wooded slope at the eastern side of the site. Soil with contamination above industrial cleanup levels was excavated and disposed off site during a 2009 removal action. Based on available information, the preferred remedy at this time is no action. The recommendation is based on existing data and determination of no unacceptable risk to human health or to ecological receptors.

For further information or to submit written comments, contact: Dr. Rose M. Zeller, Longhorn Army Ammunition Plant, P.O. Box 220, Ratcliff, Arkansas, 72951; phone number 479-635-0110 or e-mail HYPERLINK "mailto:rose.zeller@us.army.mil" rose.zeller@us.army.mil.

INVITATION FOR BIDS

The Housing Authority of the City of Marshall, Texas (hereinafter called the "Local Housing Authority") will receive sealed bids for the modernization of 74 dwelling units; mechanical modifications, alterations, and electrical, including demolition and all work specified and/or shown on the drawings until:

THURSDAY, FEBRUARY 18, 2010 AT 2:00 PM
THE HOUSING AUTHORITY OF
THE CITY OF MARSHALL
1401 POPLAR STREET
MARSHALL, TEXAS 75670

Immediately thereafter all bids will be publicly opened and read aloud.

Proposed forms of contract documents; including plans and specifications are on file and available for inspection at the office of the Housing Authority of the City of Marshall and at the office of Cameron Alread, Architect Inc., 209 W. 8th St., Fort Worth, Texas 76102, (817) 332-6231 and at plan rooms in various cities of the state. Copies of the documents may be obtained by depositing $100.00 with the Architect for one set of documents per General Contractor. Such deposits will be refunded on return of the plans, specifications and other documents in good condition within 30 days after bid opening. Plans and specifications that have been taken apart are not considered in good condition.

PRE BID CONFERENCE will be held THURSDAY, FEBRUARY 4, 2010 at 2:00 P.M. at the Marshall Housing Authority.

HOUSING AUTHORITY OF THE
CITY OF MARSHALL, TEXAS
Milton H. Williams, III, Executive Director
903/938-0717

EQUAL HOUSING OPPORTUNITY

Marshall Self Storage
2600 Victory Dr.
Marshall, TX 75672
Auction to be held Sat., Feb. 6, at 10 a.m.
B-30, C-18 Kathy Cox - Aluminum step ladder, table & chairs, horse saddles, bedroom furniture, shop vac, baby swing & walker, sporting equipment, luggage, awning, Christmas decorations, file cabinets, wall art, personal items.
A-38 April George - 3 window AC units, small

2040 LOST

$500 REWARD!! For the arrest, conviction or return of equipment stolen Dec. 28, 2009 off Shamrock Rd, south of Ore City. TW5 Ford Cab Tractor with Bush Hog brand frontend loader, bucket & forks; Ford 5900 tractor with hay forks; 35' Tandem axle gooseneck trailer; 1 Bush Hog brand bush hog. Call 903-424-3980 or 903-968-6517

Black Lab, "Haley" 12 yrs old, approx 85 lbs, lost Rollingwood/Forest Trail area, REWARD! 903-407-0501

Short-Hair Retriever strawberry/blond colored, w/collar, no tags, lost Fern Lake area. $200 Reward! 210-274-7823

MEDIA RELEASE

The United States Army has prepared Proposed Plans for five environmental sites at the Longhorn Army Ammunition Plant: LHAAP-46, -49, -50, -35A(58) and the former Pistol Range. The Proposed Plans are documents that describe the sites and their proposed remedies. The Proposed Plans were developed to facilitate public involvement in the remedy selection process.

Copies of the Proposed Plans and supporting documentation will be available for public review at the Marshall Public Library, 300 S. Alamo, Marshall, Texas, 75670 on January 25, 2010 through February 23, 2010.

The public information forum will be held on January 26, 2010, from 6:00 to 8:00 p.m. at the Karnack Community Center, Highway 134 and Spur 449, Karnack, Texas 75661.

All public comments on the Proposed Plans must be submitted by February 23, 2010. Written comments may be provided to Dr. Rose M. Zeiler, Longhorn Army Ammunition Plant, P.O. Box 220, Ratcliff, Arkansas, 72951 or e-mailed to rose.zeiler@us.army.mil.

Norris, Mary

From: faxadmin [faxadmin@shawgrp.com]
Sent: Monday, January 18, 2010 1:17 PM
To: Norris, Mary
Subject: Fax: Tx 'ok' Report

①

This message was sent via FAXCOM, a product from Biscom Inc. http://www.biscom.com/

-------Fax Transmission Report-------

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To:             KTBS3 at 9033340288
Subject:        Media Release
Result:         The transmission was successful.
Explanation:    All Pages Ok
Pages Sent:     3
Connect Time:   0 minutes, 54 seconds
Transmit Time:  01/18/2010 13:15
Transfer Rate:  14400
Status Code:    0000
Retry Count:    1
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Unique Id:      ENTBTRFAX01_SMTPFaxQ_1001181905290102
Fax Line:       7
Fax Server:     127.0.0.1
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*** FAX TX REPORT ***
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TRANSMISSION OK

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PSWD/SUBADDRESS
DESTINATION ID
ST. TIME                   01/18 13:45
USAGE T                    00'36
PGS.                       1
RESULT                     OK
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2

MEDIA RELEASE

The United States Army has prepared Proposed Plans for five environmental sites at the Longhorn Army Ammunition Plant: LHAAP-46, -49, -50, -35A(58) and the former Pistol Range. The Proposed Plans are documents that describe the sites and their proposed remedies. The Proposed Plans were developed to facilitate public involvement in the remedy selection process.

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Norris, Mary

From: faxadmin [faxadmin@shawgrp.com]
Sent: Monday, January 18, 2010 1:08 PM
To: Norris, Mary
Subject: Fax: Tx 'ok' Report

③

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-------Fax Transmission Report-------

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Unique Id:	ENTBTRFAX01_SMTPFaxQ_1001181907030105
Fax Line:	1
Fax Server:	127.0.0.1

Norris, Mary

From: faxadmin [faxadmin@shawgrp.com]
Sent: Monday, January 18, 2010 1:09 PM
To: Norris, Mary
Subject: Fax: Tx 'ok' Report

④

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                 -------Fax Transmission Report-------

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Pages Sent:      3
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Transfer Rate:   14400
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Retry Count:     0
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Fax Line:        7
Fax Server:      127.0.0.1
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Norris, Mary

From: faxadmin [faxadmin@shawgrp.com]
Sent: Monday, January 18, 2010 1:11 PM
To: Norris, Mary
Subject: Fax: Tx 'ok' Report

⑤

This message was sent via FAXCOM, a product from Biscom Inc. http://www.biscom.com/

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                 -------Fax Transmission Report-------

To:              KETK at 9035612459
Subject:         Media Release
Result:          The transmission was successful.
Explanation:     All Pages Ok
Pages Sent:      3
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Transmit Time:   01/18/2010 13:09
Transfer Rate:   12000
Status Code:     0000
Retry Count:     0
Job Id:          8841
Unique Id:       ENTBTRFAX01_SMTPFaxQ_1001181908450107
Fax Line:        1
Fax Server:      127.0.0.1
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PUBLIC NOTICE THE UNITED STATES ARMY INVITES PUBLIC COMMENT ON THE PROPOSED PLANS FOR ENVIRONMENTAL SITES LHAAP-46, -49, -50, -35A(58), AND THE PISTOL RANGE, **LONGHORN** ARMY AMMUNITION PLANT, TEXAS The U.S. Army is the lead agency for environmental response actions at **Longhorn** Army Ammunition Plant (LHAAP). In partnership with Texas Commission on Environmental Quality and the U.S. Environmental Protection Agency Region 6, the U.S. Army has developed Proposed Plans for the following NPL sites: LHAAP-46, LHAAP-49, LHAAP-50, LHAAP-35A(58), and the Pistol Range. Although the Proposed Plans identify preferred remedies for each of the sites, the U.S. Army welcomes the public s review and comments. The public comment period begins January 25, 2010, and concludes February 23, 2010. On Tuesday, January 26, 2010, from 6:00 to 8:00 p.m., the U.S. Army is inviting all interested parties to attend an open house forum to view the Proposed Plans and ask questions. The open house forum will be held at the Karnack Community Center, Highway 134 and Spur 449, Karnack, Texas. Copies of the Proposed Plans and supporting documentation are available for public review at the Marshall Public Library, 300 S. Alamo, Marshall, Texas, 75670. Summaries of each of the sites, including discussion of various alternatives that were evaluated, are provided below. LHAAP-46, the former Plant 2 production area, is located in the north-central portion of LHAAP and covers an area of approximately 190 acres. Plant 2 was used to produce pyrotechnic devices from February 1952 to 1956 and was reactivated to produce pyrotechnic and illumination devices from 1964 until approximately 1997. Three alternatives were evaluated for addressing the contaminated groundwater at the site: 1) no action; 2) monitored natural attenuation (MNA) and land use controls (LUCs); and 3) in situ bioremediation, short-term LUCs, and long-term monitoring (LTM). Based on available information, the preferred remedy is MNA and LUCs. The preferred remedy would utilize groundwater use restriction LUCs to protect human health by preventing human exposure to contaminated groundwater and MNA to return the contaminated water to its potential beneficial use as drinking water, wherever practicable. LHAAP-49, a former Acid Storage Area, is located in the west-central portion of LHAAP and covers an area of approximately 30 acres. The site was used from 1942 to 1945 for formulation and storage of acids and acid mixtures in support of trinitrotoluene production. Based on available information, the preferred remedy at this time is no action. The recommendation is based on the existing data and determination of no unacceptable risk to human health or to ecological receptors at LHAAP-49. LHAAP-50, a former sump water tank, is located in the north-central portion of LHAAP and covers an area of approximately 1 acre. Historically, LHAAP-50 contained a 47,000-gallon capacity aboveground storage tank which receivedwastewater from various industrial waste sumps from 1955 to 1988. Three alternatives were evaluated for addressing the contaminated groundwater and soil at the site: 1) no action; 2) soil - excavation, groundwater - MNA and LUCs; and 3) soil - excavation, groundwater - in situ bioremediation, MNA, and LUCs. Based on available information, the preferred remedy at this time is the second alternative: excavation and off-site disposal of perchlorate-contaminated soils, and MNA and LUCs for groundwater. The preferred remedy would ensure protection of human health by eliminating the soil-to-groundwater and soil-to-surface water pathways, implementing groundwater use restriction LUCs to prevent exposure to contaminated groundwater, and implementing MNA until groundwater cleanup levels are achieved. LHAAP-35A(58), known as the Shops Area, is located in the north-central portion of LHAAP and covers approximately 11 acres. The Shops Area was established in 1942 as part of the installations initial construction. Plant-operated laundry, automotive, woodworking, metalworking, painting, refrigeration, and electrical shops served the needs of the overall facility and became inactive in 1996 and 1997. Four alternatives were evaluated for addressing the contaminated groundwater at the site: 1) no action; 2) MNA with LUCs; 3) in situ bioremediation with short-term LUCs and LTM; and 4) in situ bioremediation followed by MNA and LUCs for the eastern plume, and MNA and LUCs for the western plume. Based on available information, the preferred remedy at this time is the fourth alternative: in situ

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bioremediation followed by MNA and LUCs for the eastern plume, and MNA and LUCs for the western plume. The preferred remedy would ensure protection of human health by 1) implementing groundwater use restriction LUCs which prevent human exposure to contaminated groundwater and 2) returning the contaminated water to its potential beneficial use as a drinking water, wherever practicable, through MNA and in situ bioremediation. The former Pistol Range is located in the southeastern portion of LHAAP and covers an area of approximately 0.4 acres. The area was used by base security personnel as early as the 1950s and intermittently through 2004 as a small arms firing range. The target area was a natural, wooded slope at the eastern side of the site. Soil with contamination above industrial cleanup levels was excavated and disposed off site during a 2009 removal action. Based on available information, the preferred remedy at this time is no action. The recommendation is based on existing data and determination of no unacceptable risk to human health or to ecological receptors. For further information or to submit written comments, contact: Dr. Rose M. Zeiler, **Longhorn** Army Ammunition Plant, P.O. Box 220, Ratcliff, Arkansas, 72951; phone number 479-635-0110 or e-mail HYPERLINK "mailto:rose.zeiler@us.army.mil" rose.zeiler@us.army.mil.

First published in Sunday, January 17, 2010 edition of The Marshall News Messenger

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LONGHORN ARMY AMMUNITION PLANT,

Karnack, Texas

MONTHLY MANAGERS' MEETING

AGENDA

DATE: Tuesday, 26 January 2010
TIME: 1:00 p.m.
PLACE: Longhorn AAP@ Army Corps Trailer

Welcome **RMZ**

Action Items:

Army

- Provide 2009 IAP hardcopy to the library.

Defense Environmental Restoration Program (DERP) PBC Update **PS/GJ**

- Document Status/Environmental Sites (Table)
- Groundwater Treatment Plant

DERP Total Environmental Restoration Contract Update

- LHAAP-37/67 – Draft Final ROD Status **RMZ**

BRAC-Funded Environmental Restoration

- LHAAP-19 – Demolition Landfill Progress **JRL/AW**

MMRP **JRL/AW**

Update

Other Issues **RMZ**

- LHAAP-18/24 ESD

Adjourn

Shaw® Shaw Environmental, Inc.

Subject: **Draft Final Minutes, Monthly Managers Meeting, Longhorn Army Ammunition Plant (LHAAP)**

Location of Meeting: **US Fish and Wildlife Administrative Building, Karnack, TX**

Date of Meeting: **January 26, 2010; 2:00 PM – 4:15 PM**

Meeting Participants:

BRAC:	Rose M. Zeiler
USAEC:	Matthew Mechenes
USACE-Tulsa:	Aaron Williams, John Lambert (telephone)
Shaw:	Praveen Srivastav, Greg Jones, Kay Everett, Susan Watson
USEPA Region 6:	Steve Tzhone, Terry Burton
TCEQ:	Fay Duke
USFWS:	Paul Bruckwicki

Previous Action Items

Army

- Provide 2009 IAP hardcopy to the library. *(completed)*

EPA Groundwater Sampling

LHAAP-18/24

Steve Tzhone indicated that EPA collected samples at LHAAP-18/24, including wells that are not sampled on a regular basis. The samples were analyzed for perchlorate and metals. Steve reported that there was a laboratory problem regarding the analysis of perchlorate samples. These samples could not be reanalyzed since the lab did not retain the samples. However, the other samples and results were unaffected, and USGS is currently evaluating that data.

MMRP Sites

Steve said that EPA is awaiting data from the Army regarding the MMRP sites. Rose Zeiler said she wanted to look at the geology and review analytical results before she submitted the next document. Rose indicated that the perchlorate results in groundwater from the MMRP sites were consistent with site operations at the Ground Signal and South Bomb Test Areas indicative of testing and detonation area rather than a production area.

EPA and Army had collected a split sample that showed perchlorate results of 76 and 50 µg/L, respectively. The 76 result is just over the 72 µg/L TCEQ Medium Specific Concentration. Rose said that the Army considered this result in the South Test/South Bomb area to be a residue from detonation and that Army did not see need for further monitoring. Steve said that the EPA is sensitive to both perchlorate and groundwater restoration issues. Also, EPA interprets their groundwater sampling data as showing that perchlorate concentrations are increasing, and EPA is concerned that the qualified 76 result is near/above the TCEQ standard. He said that he discussed the issue with Carlos Sanchez and others in EPA. He is not saying that there is a source, but feels that additional monitoring is a reasonable step going forward. He indicated that EPA was okay with further monitoring as a remedy. Rose said that Army acknowledges perchlorate in the groundwater but noted that several wells have had detections in the past and were later non detect and that this detection is consistent with past history. She also stated that monitoring is not a remedy and that it is inappropriate for EPA to apply a remedy when there had not been an exceedance of a standard. Rose clarified that the 76 result was one of two hits (the other at 3.4 ppb) from the several wells sampled by the EPA in the area and that the value was a “qualified” value. Army did not agree with EPA that the 76 value was indicative of increasing concentrations. Rose asked Steve what his opinion would be if the next sample event resulted in a much lower value, would EPA then consider that it would be indicative of decreasing concentrations? She reiterated that the Army split sample result (50 µg/L), the unqualified result, was below the standard of 72.

Steve contacted George Malone at EPA. George indicated that a remedy could not be selected without going through the RI/FS process and associated evaluation per nine criteria. He noted that sampling was not a remedial action.

Army offered to collect another sample for confirmation of previous results. Steve said that the EPA is okay with no active remedy, but would like to see limited monitoring. The specific EPA suggestion was quarterly monitoring of six wells for two years, followed by semi-annual monitoring for three years. Rose protested that the amount of monitoring was excessive and resembled a monitoring that would be conducted for MNA. Fay Duke suggested annual sampling.

Fay suggested that Army put the issues in writing for review by the parties (as she had requested in the past). Steve added that EPA could not base any decisions on 7 or 8 year old data; they needed more recent data and thus initiated this special sampling event to obtain more recent data. Rose indicated that she was working on the memo to TCEQ and will continue to evaluate local hydrogeology and provide a memo on the results. Further discussion was tabled.

Defense Environmental Restoration Program (DERP) PBC Update **Praveen Srivastav**

Document Status/Environmental Sites (Table)

Praveen went over the document status/environmental sites table.

- LHAAP-02: The Draft Final Decision Document for LHAAP-02 is in comment resolution with the Army.
- The draft work plan for soil removal at LHAAP-03 is in preparation.
- LHAAP-04: The Draft Completion Report for LHAAP-04 is in Army review.
- LHAAP-06, -07, -51, -55, -64, -66, and -68: The survey data with accompanying affidavits for LHAAP-06, LHAAP-07, LHAAP-51, LHAAP-55, LHAAP-64, LHAAP-66, and LHAAP-68 were provided to the Army. The survey data and affidavits will be used to file county notifications after proper signatures are obtained.
- LHAAP-16: The response to comments (RTCs) for the Draft Final Feasibility Study Addendum, Rev 01 for LHAAP-16 is in regulatory review. Shaw provided a track-changed document showing the revisions.
- LHAAP-17: The RTCs for the Draft Final Feasibility Study for LHAAP-17 is also in regulatory review. Shaw is resolving a regulatory comment on the trigger for shutting down groundwater extraction in one of the alternatives.
- LHAAP-18/24: Army comments have been received for the Draft Feasibility Study for LHAAP-18/24 and resolution is in progress. Revised RTCs in Army's review as of 7/26/09.
- LHAAP-29: Revised RTCs for the Draft Final Feasibility Study for LHAAP-29 have been reviewed by Army and are being prepared for submittal to regulators.
- LHAAP-46: The Final Focused Feasibility Study for LHAAP-46 was submitted November 30, 2009. The Final Proposed Plan for LHAAP-46 was submitted January 12, 2010.
- LHAAP-47: Responses on the Draft Feasibility Study for LHAAP-47 are being resolved with Army.
- LHAAP-49: The Final Proposed Plan for LHAAP-49 was submitted January 8, 2010. The Draft ROD for LHAAP-49 is in Army review.
- LHAAP-50: The Final Feasibility Study for LHAAP-50 was submitted December16, 2009. The Final Proposed Plan for LHAAP-50 was submitted January 19, 2010.
- LHAAP-58: The Final Feasibility Study for LHAAP-58 was submitted December 16, 2009. The Final Proposed Plan for LHAAP-5 was submitted January 19, 2010.
- LHAAP-60: The survey data along with the affidavit for LHAAP-60 was provided to the Army to be used to file the county notification. The document is awaiting signature and subsequent filing with the county office.
- LHAAP-35/36: The RTCs for the Draft Final Decision Document for LHAAP-35/36 are in progress.
- Pistol Range: The Final Completion Report for the Pistol Range was submitted January 12, 2010. The Final Proposed Plan for the Pistol Range was submitted January 12, 2010.

Praveen asked if the group had any opinion about combining designs for various sites during the Remedial Design phase. There was a general discussion, and it was determined that separate designs would be preferred due to difficulties with tracking, reviewing, and filing documents that address multiple sites.

Fay and Steve indicated that they would like to get copies of the public notices for the Proposed Plan meeting.

Groundwater Treatment Plant Update

Praveen noted that the treatment plant operated normally during the past month with the exception of some freezing issues one week.

DERP Total Environmental Restoration Contract (TERC) Update — Rose Zeiler

LHAAP-37/67 – Draft Final ROD Status

The LHAAP-37/67 ROD is with the regulators.

Sampling at LHAAP-65 has been requested, but Matt Mechenes indicated there was no funding for this activity. John Lambert said that a manual request is being conducted so that they can sample the sumps at this location.

BRAC-Funded Environmental Restoration — Aaron Williams

LHAAP-19—Demolition Landfill Progress

Rose noted that Army is having the cap seeded with native grasses and asked Paul Bruckwicki for his opinion on the maintenance of such a cap. Paul Bruckwicki indicated that every 3 years a burn of the cap grasses should be conducted as part of the planned maintenance for the landfill. It was discussed how this activity should be combined with the remedial design for the landfill. No final decisions were made.

MMRP — John Lambert

Update

See earlier discussion under EPA Groundwater Sampling. John Lambert and Stephen Tzhone discussed who had the next action for responding to correspondence on the MMRP Sites. John indicated that Army provided responses to EPA comments on the Draft-Final MC Data Summary for the MMRP Sites in August 2009 and no response had been received by EPA. Stephen and John checked email correspondence and Stephen agreed that a response from EPA was due to Army.

Other Issues

LHAAP-18/24 ESD
This is ready for submittal to the regulators.

Sitewide Schedule Review
This review will be conducted in May.

RAB Tour Rescheduled
The tour has been rescheduled to March as requested by the RAB and community.

IAP Schedule
March 15 through the 29th is the data collection period and at the end of the 29th, the schedule is sent to the AEC facilitator where all the comments are incorporated or “refreshed”. After this process, the schedule goes to the regulators for their official look. They will have two weeks for review.

Next Meeting
The next monthly manager’s meeting will be held February 23, 2010 at 1:30 PM by teleconference.

Meeting Adjourned

Action Items
EPA – Provide analytical results on IDW from recent groundwater sampling.

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Status of Sites and Technical Documents
Longhorn Army Ammunition Plant – PBC Contract
January 26, 2010

No.	Document in Progress	Submittal Date	Army	Regulator	Next Submittal	Expected Date	Army	Regulator	Comment Resolution	Status	Remarks
1	Draft Rev 01Decision Document, LHAAP-02	10/01/09	x		Draft Final	02/15/10	x	x		In comment resolution after Army's review	DD calls for limited groundwater monitoring
2	Draft Soil Removal Work Plan, LHAAP-03	02/15/10	x							In preparation	
3	Draft Completion Report, LHAAP-04	01/21/10	x							In Army review	
4	County Notification LHAAP-06, 07, 51, 55, 64, 66, 68	01/30/10	x							In Army signatures	
5	Draft Final Feasibility Study Addendum, Rev 01, LHAAP-16	7/3/08		x	Final	02/28/10	x	x	In progress	RTCs reviewed by regulators. Track-change document in Army review	
6	Draft Final Feasibility Study, LHAAP-17	4/14/09	x	x	Final	02/15/09	x	x	In progress	RTCs in regulatory review. Shaw resolving one comment.	
7	Draft Feasibility Study, LHAAP-18/24	3/3/09	x		Draft Final	02/28/10	x	x	In progress	Army comments received. Resolution in progress. Revised RTCs in Army's review as of 7/26/09	
8	Draft Final Feasibility Study, LHAAP-29	03/11/09	x	x		02/28/10	x	x	In progress	Revised RTCs reviewed by Army. Preparing RTCs for submittal to regulators	

Status of Sites and Technical Documents
Longhorn Army Ammunition Plant – PBC Contract
January 26, 2010

No.	Document in Progress	Submittal Date	Army	Regulator	Next Submittal	Expected Date	Army	Regulator	Comment Resolution	Status	Remarks
9	Final Focused Feasibility Study, LHAAP-46	10/30/09	x	x					Resolution complete	Final FS submitted	
10	Final Proposed Plan, LHAAP-46	01/12/10	x	x						Final PP submitted	
11	Draft Focused Feasibility Study, LHAAP-47	12/23/08	x		Draft Final	01/30/10	x	x	In progress		
12	Final Proposed Plan, LHAAP-49	01/08/10	x	x						Final PP submitted	
13	Draft ROD, LHAAP-49	10/20/09	x		Draft Final	12/22/09	x	x		In Army review	
14	Final Feasibility Study, LHAAP-50	12/16/09	x	x						Final FS submitted	
15	Final Proposed Plan, LHAAP-50	01/19/10	x	x						Final PP submitted	
16	Final Feasibility Study, LHAAP-58	12/16/09	x	x						Final FS submitted	
17	Final Proposed Plan, LHAAP-58	01/19/10	x	x						Final PP submitted	
18	County Notification, LHAAP-60	1/30/10							In Army signatures		

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Status of Sites and Technical Documents
Longhorn Army Ammunition Plant – PBC Contract
January 26, 2010

No.	Document in Progress	Submittal Date	Army	Regulator	Next Submittal	Expected Date	Army	Regulator	Comment Resolution	Status	Remarks
19	Draft Final Decision Document, LHAAP-35/36	7/15/09	x	x	Final	2/15/10	x	x	Resolved	TCEQ comment received on DF DD. Resolution in progress.	
20	Final Completion Report, Pistol Range	01/12/10	x	x						Final report submitted	
21	Final Proposed Plan, Pistol Range	01/12/10	x	x						Final report submitted	

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LONGHORN ARMY AMMUNITION PLANT
MONTHLY MANAGERS' MEETING

Location Longhorn Army Ammunition Plant - Army Trailer, Karnack, TX

Date 26-Jan-2010 **Time** 2:00 PM

ATTENDEES

Name (printed)	Signature	Organization	Phone	E-mail
Longhorn Team Members				
Rose M. Zeiler	RMZeiler	BRAC	(479) 635-0110	rose.zeiler@us.army.mil
Matthew Mechenes	Matt	USAEC	(410) 436-1505	matthew.mechenes@us.army.mil
Aaron Williams	Aaron Williams	USACE, Tulsa	(918) 669-4915	aaron.k.williams@usace.army.mil
John Lambert		USACE, Tulsa	(918) 669-4992	john.r.lambert@SWT03.usace.army.mil
Stephen Tzhone		USEPA, Dallas	(214) 665-8409	tzhone.stephen@epa.gov
Raji Josiam		USEPA, Dallas	(214) 665-8529	josiam.raji@epa.gov
Fay Duke		TCEQ, Austin	(512) 239-2443	fduke@tceq.state.tx.us
Dale Vodak		TCEQ, Tyler	(903) 535-5142	dvodak@tceq.state.tx.us
Barry Forsythe		USFSW, Dallas	(214) 665-8467	forsythe.barry@epa.gov
Paul Bruckwicki		USFSW, Karnack	(903) 679-4536	paul_bruckwicki@fws.gov
Mark Williams		USFSW, Karnack	(903) 679-9144	mark_williams@fws.gov
Praveen Srivastav		SHAW, Houston	(281) 531-3188	praveen.srivastav@shawgrp.com
Kay Everett		SHAW, Houston	(281) 531-3121	kay.everett@shawgrp.com
Greg Jones		SHAW, Houston	(281) 531-5172	greg.n.jones@shawgrp.com
Susan Watson		SHAW, Houston	(281) 531-3107	susan.watson@shawgrp.com
Terry Burton				
John Lambert				

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Shaw Environmental & Infrastructure, Inc.

3010 Briarpark Drive
Houston, Texas 77042
713-996-4400
Fax: 281-368-4401

Memorandum

Date: **February 16, 2010**

To: **Aaron Williams, USACE, Tulsa**

CC: **Praveen Srivastav**
Greg Jones

From: **Kay Everett**

RE: **Results of Additional Sampling at Site LHAAP-02 (Former Vacuum Truck Overnight Parking), Longhorn Army Ammunition Plant, Karnack, Texas**

Introduction and Objective

This memorandum transmits the results of the 2009 soil sampling activities conducted at site LHAAP-02 (Former Vacuum Truck Overnight Parking) of the Longhorn Army Ammunition Plant. The objective of this sampling event was to collect soil samples with elevated metals concentrations, and subject them to the Synthetic Precipitation Leaching Procedure (SPLP) Method 1312 analysis.

Sampling Location

The 2009 sampling locations were based on an earlier sampling event (USCHPPM, 2000) that identified several soil sample locations with elevated metals concentrations. On July 9, 2009, five soil samples were collected as close as possible to earlier soil sampling locations where results previously exceeded the medium-specific concentrations (MSCs) developed for this site (Shaw, 2009). Samples were identified as:

Original Sample Location (USCHPPM, 2000)	July 9, 2009 Sample Location ID
LAP-026A	02SB026A(0-6)
LAP-027A	02SB027A(0-6)
LAP-028B	02SB028B(12-18)
LAP-0210	02SB210(0-6)
LAP-0211	02SB211(-6)

See **Figure 1**. The “A” and “B” suffixes in the original sample labels correspond to the sampling intervals 0 to 6 inches below ground surface (bgs) and 12 to 18 inch bgs, respectively.

After a review of the analytical results for total metals from the five locations, the samples from 02SB027A(0-6) and 02SB028B(12-18) were selected for the SPLP analysis for arsenic, cadmium, copper, lead, and mercury because of their higher concentrations of one or more parameters and the sampling interval.

Analytical Results

The results of laboratory analyses are presented in Table 1 attached. The detailed laboratory results are provided in the attached compact disk.

Individual analyses are associated with the laboratory reports as follows:

Laboratory Reports	Sample ID	Analysis
L09070188	02SB026A(0-6)	Metals
L09070188	02SB027A(0-6)	Metals
L09070188	02SB028B(12-18)	Metals
L09070188	02SB0210(0-6)	Metals
L09070188	02SB0211(0-6)	Metals

L09070202	02SB027A(0-6)	SPLP for Metals
L09070202	02SB028B(12-18)	SPLP for Metals

References

Shaw Environmental and Infrastructure, Inc. (Shaw), 2009, *Final Site Investigation Report LHAAP-02, Vacuum Truck Overnight Parking Lot, Longhorn Army Ammunition Plant, Karnack, Texas*, January.

U.S. Army Center for Health Promotion and Preventive Medicine (USCHPPM), *2000, Hazardous and Medical Waste Study No. : 37-EF-5506-00, Response Complete Verification and Relative Risk Site Evaluation for Longhorn Army Ammunition Plant*, Karnack, Texas, July.

Table 1
2009 Soil Sampling Results
LHAAP-02

LOCATION_CODE				02SB026								02SB027								02SB028							
SAMPLE_NO				02SB026A (0-6)								02SB027A (0-6)								02SB028B (12-18)							
SAMPLE_DATE			MSC	9-Jul-09								9-Jul-09								9-Jul-09							
SAMPLE_PURPOSE			GWP	REG								REG								REG							
Test Group	Parameter	Units	IND	Result	Qual	ValQual	RC	DL	MDL	DF		Result	Qual	ValQual	RC	DL	MDL	DF		Result	Qual	ValQual	RC	DL	MDL	DF	
GEN CHEMISTRY	Percent Solids	Percent		86.2				0	0			87.4				0	0			89.3				0	0		
METALS	Arsenic	mg/kg	1	**8.05**				0.342	0.0856	1		**12.7**				0.335	0.0838	1		**13.3**				0.334	0.0835	1	
METALS	Cadmium	mg/kg	0.5	0.458				0.114	0.0285	1		**2.89**				0.112	0.0279	1		**1.44**				0.111	0.0278	1	
METALS	Copper	mg/kg	130	7.68				0.685	0.171	1		32.5				0.67	0.168	1		19.7				0.668	0.167	1	
METALS	Lead	mg/kg	1.5	**70**				4.57	2.28	20		**607**				4.47	2.23	20		**460**				4.45	2.23	20	
METALS	Mercury	mg/kg	0.2	0.0383	J	J	15	0.116	0.0116	1		**0.201**				0.113	0.0113	1		0.104	J	J	15	0.111	0.0111	1	
			MCL																								
SPLP-METALS	Arsenic	mg/L	0.01									**0.037**				0.001	0.0003			**0.0611**				0.0010	0.0003		
SPLP-METALS	Cadmium	mg/L	0.0005									0.00055				5E-04	0.0001			0.0011				0.0005	0.0001		
SPLP-METALS	Copper	mg/L	1.3									0.00886				0.002	0.0005			0.0191				0.0020	0.0005		
SPLP-METALS	Lead	mg/L	0.015									**0.0623**				5E-04	0.0003			**0.224**				0.0005	0.0003		
SPLP-METALS	Mercury	mg/L	0.002									0.0001	U	U		2E-04	0.0001			0.0001	U	U		0.0002	0.0001		

Table 1
2009 Soil Sampling Results
LHAAP-02

LOCATION_CODE				02SB021							02SB021							02SB021						
SAMPLE_NO				02SB0210 (0-6)							02SB0211 (0-6)							02SB0211 (0-6)DUP						
SAMPLE_DATE			MSC	9-Jul-09							9-Jul-09							9-Jul-09						
SAMPLE_PURPOSE			GWP	REG							REG							FD						
Test Group	Parameter	Units	IND	Result	Qual	ValQual	RC	DL	MDL	DF	Result	Qual	ValQual	RC	DL	MDL	DF	Result	Qual	ValQual	RC	DL	MDL	DF
GEN CHEMISTRY	Percent Solids	Percent		84.8				0	0		89.9				0	0		91				0	0	
METALS	Arsenic	mg/kg	1	**8.66**				0.347	0.0868	1	**8.1**		J-FD	17	0.32	0.0801	1	**15**		J-FD	17	0.323	0.0808	1
METALS	Cadmium	mg/kg	0.5	**1.42**				0.116	0.0289	1	**0.629**				0.107	0.0267	1	**0.593**				0.108	0.0269	1
METALS	Copper	mg/kg	130	13.3				0.695	0.174	1	10				0.64	0.16	1	10.7				0.646	0.162	1
METALS	Lead	mg/kg	1.5	**237**				4.63	2.32	20	**348**		J-FD	17	4.27	2.13	20	**152**		J-FD	17	4.31	2.15	20
METALS	Mercury	mg/kg	0.2	0.0954	J	J	15	0.117	0.0117	1	0.125		J-FD	17	0.111	0.0111	1	0.0505	J	J-FD	15,1	0.109	0.0109	1
			MCL																					
SPLP-METALS	Arsenic	mg/L	0.01																					
SPLP-METALS	Cadmium	mg/L	0.0005																					
SPLP-METALS	Copper	mg/L	1.3																					
SPLP-METALS	Lead	mg/L	0.015																					
SPLP-METALS	Mercury	mg/L	0.002																					

Notes and Abbreviations:

Sampling intervals in inches (0 to 6 inches below ground surface or 12 to 18 inches below ground surface)

Bolld type indicates that value exceeds regulatory limit.

DL - dilution factor

FD - field duplicate

GWP-Ind - Soil MSC for Indsutrial Use Based on Groundwater Protection

J - estimated concentration

MSC - Medium-Specific-Concentration

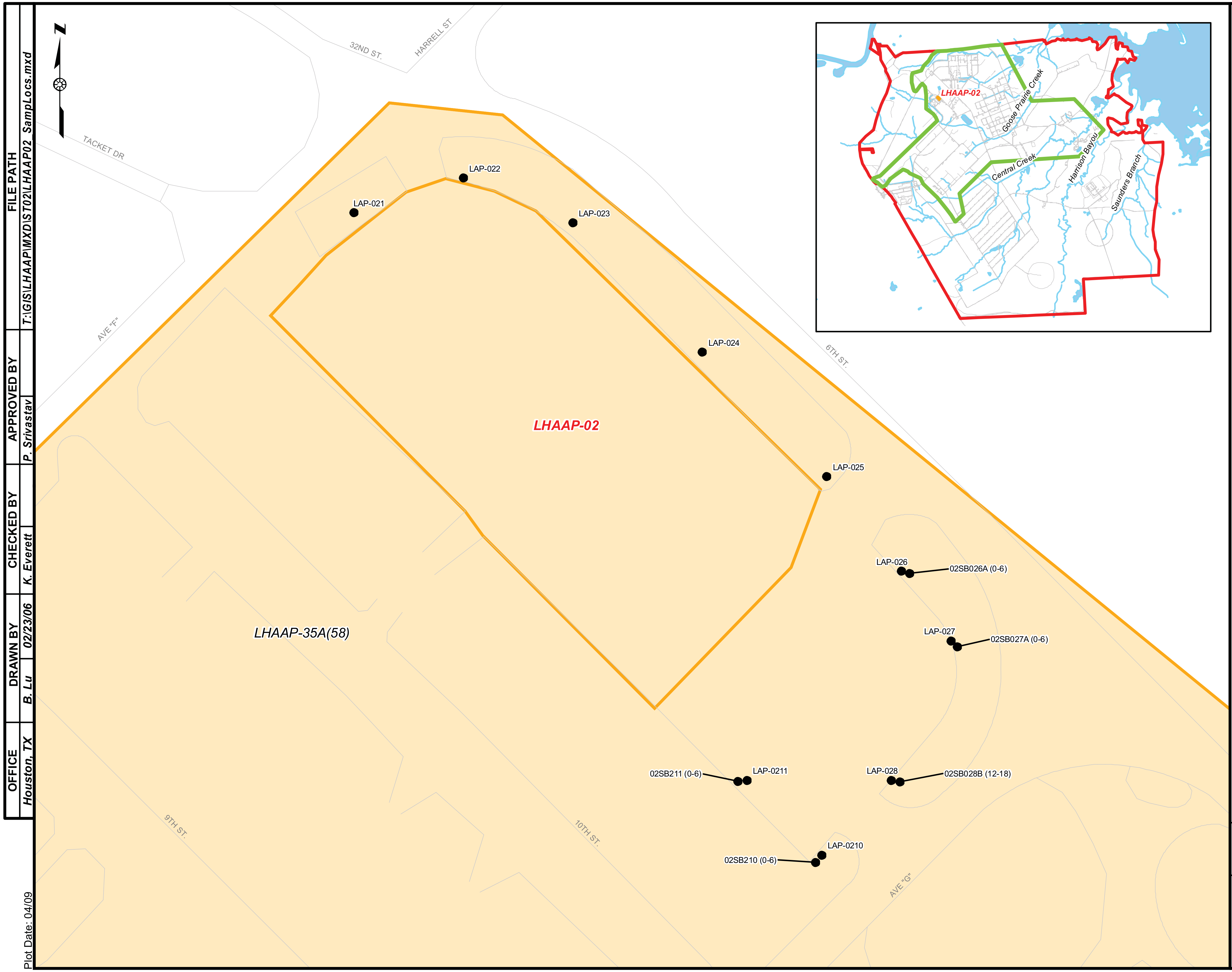
MCL - Maximum Contaminant Level

MDL - method detection limit

RC - reason code (reason codes on attached CD)

U - below laboratory detection limits

ValQual - validation qualifier



FILE PATH	T:\GIS\LHAAP\MXD\ST02\LHAAP02 SampLocs.mxd
APPROVED BY	P. Srivastav
CHECKED BY	K. Everett
DRAWN BY	B. Lu 02/23/06
OFFICE	Houston, TX

Plot Date: 04/09

LEGEND

●	Soil Sample Location
—	Road
🟩	Industrial Sub-area
▨	Site
🟥	Approximate LHAAP Boundary

NOTE:

Surface samples (0-6 inches below ground surface) were collected at all ten locations. Subsurface samples (12-18 inches below ground surface) were collected at locations LAP-021 through LAP028.

0 25 50 100 Feet

Shaw

U.S. ARMY CORPS OF ENGINEERS
TULSA DISTRICT
TULSA, OKLAHOMA

FIGURE 1

SOIL SAMPLE LOCATION MAP
LHAAP-02

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Microbac®

158 Starlite Drive, Marietta, OH 45750 • T:740-373-4071 • F:740-373-4835 • http://www.microbac.com

Laboratory Report Number: L09070188

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 Sales and Service Team. If you have questions, comments or require further assistance regarding this report, please contact your team member noted in the reviewed box below at 800-373-4071. Team member e-mail addresses also appear here for your convenience.

Kathy Albertson	*Team Chemist/Data Specialist*	kalbertson@microbac.com
Stephanie Mossburg	*Team Chemist/Data Specialist*	smossburg@microbac.com
Tony Long	*Team Chemist/Data Specialist*	tlong@microbac.com
Amanda Fickiesen	*Client Services Specialist*	afickiesen@microbac.com
Annie Brown	*Client Services Specialist*	abrown@microbac.com

This report was reviewed on July 23, 2009.

Stephanie Mossburg

Stephanie Mossburg - Team Chemist/Data Specialist

I certify that all test results meet all of the requirements of the accrediting authority listed below. 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.

This report was certified on July 23, 2009.

David E. Vandenberg

David Vandenberg - Managing Director

State of origin: Texas
Accrediting authority: Texas Commission on Environmental Quality ID:T104704252-07-TX
QAPP: Microbac OVD
This report contains a total of 142 pages.

Look closer. Go further. Do more.

Microbac REPORT L09070188
PREPARED FOR Shaw E I, Inc.
WORK ID:

1.0 Introduction

Microbac Laboratories Inc.
REPORT NARRATIVE

Microbac Login No: L09070188

CHAIN OF CUSTODY: The chain of custody number was 117591

SHIPMENT CONDITIONS: The chain of custody forms were received sealed in a cooler. The cooler temperature was 3 degrees C.

SAMPLE MANAGEMENT: All samples received were intact.

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 hardcopy data package has been authorized by the Laboratory Manager or designated person, as verified by the following signature.

Approved: 13-JUL-09

Stephanie Mossburg

Laboratory Data Package Cover Page

This data Package consists of:
This signature page, the laboratory review checklists, and the following reportable data:
R1 Field chain-of-custody documentation;
R2 sample identification cross-reference;
R3 Test reports (analytical data sheets) for each enviornmental sample that includes:
a) Items consistant with NELAC 5.13 or ISO/IEC 17025 Section 5.10
b) dilution factors,
c) preparation methods,
d) Cleanup methods, and
e) If required for the project, tentatively identified compounds (TICs)
R4 Surrogate recovery data including:
a) Calculated recovery (%R) for each analyte, and
b) The laboratory's surrogate QC limits.
R5 Test reports/summary forms for blank samples;
R6 Test reports/summary forms FOR laboratory control samples (LCSs) including:
a) LCS spiking amount,
b) Calculated %R for each analyte, and
c) The laboratory"s LCS QC limits.
R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
a) Samples associated with the MS/MSD clearly identified,
b) MS/MSD spiking amounts,
c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
d) Calculated %R and relative percent differences (RPDs), and
e) The laboratory's MS/MSD QC limits
R8 Laboratory analytical duplicate (if applicable) revocery and precision:
a) the amount of analyte measured in the duplicate,
b) the calculated RPD, and
c) the laboratory's QC limits for anlytical duplicates.
R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix;
R10 Other problems or anomalies.
The exception Report for every "No" or "Not Reviewed (NR)" item in laboratory review checklist.

Release statement: I am responsible for the release of this laboratory data package. This data package has been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exceptions reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratoy in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

Check, If applicable: [] This laboratory is an in-house laboratory controlled by the person repsonding to rule. The official signing the cover page of the rule-required report (for example, the APAR) in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is trus.

MAREN M. BEERY	Maren Beery	Metals Supervisor	July 21, 2009
Name (Printed)	Signature	Official Title (printed)	DATE

Microbac Laboratories Inc.
Laboratory Review Checklist

Laboratory Name: Microbac Laboratories Inc.
Laboratory Log Number: L09070188
Project Name: 798-LONGHORN
Method: 6020
Prep Batch Number(s): WG307406
Reviewer Name: MAREN M. BEERY
LRC Date: July 21, 2009

Description	Yes	No	NA(1)	NR(2)	ER(3)
Chain-Of-Custody (C-O-C)					
Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	✓				
Were all departures from standard conditions described in an exception report?	✓				
Sample and quality control (QC) identification					
Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	✓				
Are all laboratory ID numbers cross-referenced to the corresponding QC data?	✓				
Test reports					
Were all samples prepared and analyzed within holding times?	✓				
Other than those results <MQL, were all other raw values bracketed by calibration standards?	✓				ER1
Were calculations checked by a peer or supervisor?	✓				
Were all analyte identifications checked by a peer or supervisor?	✓				
Were sample quantitation limits reported for all analytes not detected?	✓				
Were all results for soil and sediment samples reported on a dry weight basis?	✓				
Were % moisture (or solids) reported for all soil and sediment samples?	✓				
If required for the project, TICs reported?			✓		
Surrogate recovery data					
Were surrogates added prior to extraction?			✓		
Were surrogate percent recoveries in all samples within the laboratory QC limits?			✓		
Test reports/summary forms for blank samples					
Were appropriate type(s) of blanks analyzed?	✓				
Were blanks analyzed at the appropriate frequency?	✓				
Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	✓				
Were blank concentrations <RL?	✓				
Laboratory control samples (LCS):					
Were all COCs included in the LCS?	✓				
Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	✓				
Were LCSs analyzed at the required frequency?	✓				
Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	✓				
Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs?	✓				
Was the LCSD RPD within QC limits?			✓		
Matrix spike (MS) and matrix spike duplicate (MSD) data					
Were the project/method specified analytes included in the MS and MSD?			✓		
Were MS/MSD analyzed at the appropriate frequency?			✓		
Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			✓		

Description	Yes	No	NA(1)	NR(2)	ER(3)
Were MS/MSD RPDs within laboratory QC limits?			✓		
Analytical duplicate data					
Were appropriate analytical duplicates analyzed for each matrix?			✓		
Were analytical duplicates analyzed at the appropriate frequency?			✓		
Were RPDs or relative standard deviations within the laboratory QC limits?			✓		
Method quantitation limits (MQLs):					
Are the MQLs for each method analyte included in the laboratory data package?	✓				
Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	✓				
Are unadjusted MQLs included in the laboratory data package?	✓				
Other problems/anomalies					
Are all known problems/anomalies/special conditions noted in this LRC and ER?	✓				
Were all necessary corrective actions performed for the reported data?	✓				
Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	✓				
ICAL					
Were response factors and/or relative response factors for each analyte within QC limits?			✓		
Were percent RSDs or correlation coefficient criteria met?	✓				
Was the number of standards recommended in the method used for all analytes?	✓				
Were all points generated between the lowest and highest standard used to calculate the curve?	✓				
Are ICAL data available for all instruments used?	✓				
Has the initial calibration curve been verified using an appropriate second source standard?	✓				
Initial and continuing calibration verification (ICV and CCV) and continuing calibration blank (CCB):					
Was the CCV analyzed at the method-required frequency?	✓				
Were percent differences for each analyte within the method-required QC limits?	✓				
Was the ICAL curve verified for each analyte?	✓				
Was the absolute value of the analyte concentration in the inorganic CCB <RL?	✓				
Mass spectral tuning:					
Was the appropriate compound for the method used for tuning?			✓		
Were ion abundance data within the method-required QC limits?			✓		
Internal standards (IS):					
Were IS area counts and retention times within the method-required QC limits?			✓		
Raw data (NELAC section 1 appendix A glossary, and section 5.12 or ISO/IEC 17025 section 4.12.2)					
Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	✓				
Were data associated with manual integrations flagged on the raw data?			✓		
Dual column confirmation					
Did dual column confirmation results meet the method-required QC?			✓		
Tentatively identified compounds (TICs):					
If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			✓		
Interference Check Sample (ICS) results:					
Were percent recoveries within method QC limits?	✓				
Serial dilutions, post digestion spikes, and method of standard additions					
Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	✓				
Method detection limit (MDL) studies					
Was a MDL study performed for each reported analyte?	✓				
Is the MDL either adjusted or supported by the analysis of DCSs?	✓				
Proficiency test reports:					
Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	✓				

Description	Yes	No	NA(1)	NR(2)	ER(3)
Standards documentation					
Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	✓				
Compound/analyte identification procedures					
Are the procedures for compound/analyte identification documented?	✓				
Demonstration of analyst competency (DOC)					
Was DOC conducted consistent with NELAC Chapter 5C or ISO/IEC 4?	✓				
Is documentation of the analyst's competency up-to-date and on file?	✓				
Verification/validation documentation for methods (NELAC Chap 5 or ISO/IEC 17025 Section 5)					
Are all the methods used to generate the data documented, verified, and validated, where applicable?	✓				
Laboratory standard operating procedures (SOPs):					
Are laboratory SOPs current and on file for each method performed?	✓				

Microbac Laboratories Inc.
Laboratory Review Checklist

Laboratory Name:	Microbac Laboratories Inc.
Laboratory Log Number:	L09070188
Project Name:	798-LONGHORN
Method:	6020
Prep Batch Number(s):	WG307406
Reviewer Name:	MAREN M. BEERY
LRC Date:	July 21, 2009

EXCEPTIONS REPORT
ER# 1- Client samples 01 through 06 required dilution analyses in order to obtain results for lead within the linear range.
Footnotes:
(1) NA = Not applicable to method or project
(2) NR = Not reviewed
(3) ER# = Exception report number

Laboratory Data Package Cover Page

This data Package consists of:

This signature page, the laboratory review checklists, and the following reportable data:

R1 Field chain-of-custody documentation;

R2 sample identification cross-reference;

R3 Test reports (analytical data sheets) for each enviornmental sample that includes:

- a) Items consistant with NELAC 5.13 or ISO/IEC 17025 Section 5.10
- b) dilution factors,
- c) preparation methods,
- d) Cleanup methods, and
- e) If required for the project, tentatively identified compounds (TICs)

R4 Surrogate recovery data including:

- a) Calculated recovery (%R) for each analyte, and
- b) The laboratory's surrogate QC limits.

R5 Test reports/summary forms for blank samples;

R6 Test reports/summary forms FOR laboratory control samples (LCSs) including:

- a) LCS spiking amount,
- b) Calculated %R for each analyte, and
- c) The laboratory"s LCS QC limits.

R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:

- a) Samples associated with the MS/MSD clearly identified,
- b) MS/MSD spiking amounts,
- c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
- d) Calculated %R and relative percent differences (RPDs), and
- e) The laboratory's MS/MSD QC limits

R8 Laboratory analytical duplicate (if applicable) revocery and precision:

- a) the amount of analyte measured in the duplicate,
- b) the calculated RPD, and
- c) the laboratory's QC limits for anlytical duplicates.

R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix;

R10 Other problems or anomalies.

The exception Report for every "No" or "Not Reviewed (NR)" item in laboratory review checklist.

Release statement: I am responsible for the release of this laboratory data package. This data package has been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exceptions reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratoy in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

Check, If applicable: [] This laboratory is an in-house laboratory controlled by the person repsonding to rule. The official signing the cover page of the rule-required report (for example, the APAR) in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is trus.

MAREN M. BEERY	Maren Beery	Metals Supervisor	July 15, 2009
Name (Printed)	Signature	Official Title (printed)	DATE

Microbac Laboratories Inc.
Laboratory Review Checklist

Laboratory Name: Microbac Laboratories Inc.
Laboratory Log Number: L09070188
Project Name: 798-LONGHORN
Method: 7471
Prep Batch Number(s): WG306971
Reviewer Name: MAREN M. BEERY
LRC Date: July 15, 2009

Description	Yes	No	NA(1)	NR(2)	ER(3)
Chain-Of-Custody (C-O-C)					
Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	✓				
Were all departures from standard conditions described in an exception report?	✓				
Sample and quality control (QC) identification					
Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	✓				
Are all laboratory ID numbers cross-referenced to the corresponding QC data?	✓				
Test reports					
Were all samples prepared and analyzed within holding times?	✓				
Other than those results <MQL, were all other raw values bracketed by calibration standards?	✓				
Were calculations checked by a peer or supervisor?	✓				
Were all analyte identifications checked by a peer or supervisor?	✓				
Were sample quantitation limits reported for all analytes not detected?	✓				
Were all results for soil and sediment samples reported on a dry weight basis?	✓				
Were % moisture (or solids) reported for all soil and sediment samples?	✓				
If required for the project, TICs reported?			✓		
Surrogate recovery data					
Were surrogates added prior to extraction?			✓		
Were surrogate percent recoveries in all samples within the laboratory QC limits?			✓		
Test reports/summary forms for blank samples					
Were appropriate type(s) of blanks analyzed?	✓				
Were blanks analyzed at the appropriate frequency?	✓				
Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	✓				
Were blank concentrations <RL?	✓				
Laboratory control samples (LCS):					
Were all COCs included in the LCS?	✓				
Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	✓				
Were LCSs analyzed at the required frequency?	✓				
Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	✓				
Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs?	✓				
Was the LCSD RPD within QC limits?			✓		
Matrix spike (MS) and matrix spike duplicate (MSD) data					
Were the project/method specified analytes included in the MS and MSD?			✓		
Were MS/MSD analyzed at the appropriate frequency?			✓		
Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			✓		

Description	Yes	No	NA(1)	NR(2)	ER(3)
Were MS/MSD RPDs within laboratory QC limits?			✓		
Analytical duplicate data					
Were appropriate analytical duplicates analyzed for each matrix?			✓		
Were analytical duplicates analyzed at the appropriate frequency?			✓		
Were RPDs or relative standard deviations within the laboratory QC limits?			✓		
Method quantitation limits (MQLs):					
Are the MQLs for each method analyte included in the laboratory data package?	✓				
Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	✓				
Are unadjusted MQLs included in the laboratory data package?	✓				
Other problems/anomalies					
Are all known problems/anomalies/special conditions noted in this LRC and ER?	✓				
Were all necessary corrective actions performed for the reported data?	✓				
Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	✓				
ICAL					
Were response factors and/or relative response factors for each analyte within QC limits?			✓		
Were percent RSDs or correlation coefficient criteria met?	✓				
Was the number of standards recommended in the method used for all analytes?	✓				
Were all points generated between the lowest and highest standard used to calculate the curve?	✓				
Are ICAL data available for all instruments used?	✓				
Has the initial calibration curve been verified using an appropriate second source standard?	✓				
Initial and continuing calibration verification (ICV and CCV) and continuing calibration blank (CCB):					
Was the CCV analyzed at the method-required frequency?	✓				
Were percent differences for each analyte within the method-required QC limits?	✓				
Was the ICAL curve verified for each analyte?	✓				
Was the absolute value of the analyte concentration in the inorganic CCB <RL?	✓				
Mass spectral tuning:					
Was the appropriate compound for the method used for tuning?			✓		
Were ion abundance data within the method-required QC limits?			✓		
Internal standards (IS):					
Were IS area counts and retention times within the method-required QC limits?			✓		
Raw data (NELAC section 1 appendix A glossary, and section 5.12 or ISO/IEC 17025 section 4.12.2)					
Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	✓				
Were data associated with manual integrations flagged on the raw data?			✓		
Dual column confirmation					
Did dual column confirmation results meet the method-required QC?			✓		
Tentatively identified compounds (TICs):					
If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			✓		
Interference Check Sample (ICS) results:					
Were percent recoveries within method QC limits?			✓		
Serial dilutions, post digestion spikes, and method of standard additions					
Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	✓				
Method detection limit (MDL) studies					
Was a MDL study performed for each reported analyte?	✓				
Is the MDL either adjusted or supported by the analysis of DCSs?	✓				
Proficiency test reports:					
Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	✓				

Description	Yes	No	NA(1)	NR(2)	ER(3)
Standards documentation					
Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	✓				
Compound/analyte identification procedures					
Are the procedures for compound/analyte identification documented?	✓				
Demonstration of analyst competency (DOC)					
Was DOC conducted consistent with NELAC Chapter 5C or ISO/IEC 4?	✓				
Is documentation of the analyst's competency up-to-date and on file?	✓				
Verification/validation documentation for methods (NELAC Chap 5 or ISO/IEC 17025 Section 5)					
Are all the methods used to generate the data documented, verified, and validated, where applicable?	✓				
Laboratory standard operating procedures (SOPs):					
Are laboratory SOPs current and on file for each method performed?	✓				

Microbac Laboratories Inc.
Laboratory Review Checklist

Laboratory Name:	Microbac Laboratories Inc.
Laboratory Log Number:	L09070188
Project Name:	798-LONGHORN
Method:	7471
Prep Batch Number(s):	WG306971
Reviewer Name:	MAREN M. BEERY
LRC Date:	July 15, 2009

EXCEPTIONS REPORT
ER# - Description

Footnotes:
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(2) NR = Not reviewed
(3) ER# = Exception report number

Laboratory Data Package Cover Page

This data Package consists of:
This signature page, the laboratory review checklists, and the following reportable data:
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a) Items consistant with NELAC 5.13 or ISO/IEC 17025 Section 5.10
b) dilution factors,
c) preparation methods,
d) Cleanup methods, and
e) If required for the project, tentatively identified compounds (TICs)
R4 Surrogate recovery data including:
a) Calculated recovery (%R) for each analyte, and
b) The laboratory's surrogate QC limits.
R5 Test reports/summary forms for blank samples;
R6 Test reports/summary forms FOR laboratory control samples (LCSs) including:
a) LCS spiking amount,
b) Calculated %R for each analyte, and
c) The laboratory"s LCS QC limits.
R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
a) Samples associated with the MS/MSD clearly identified,
b) MS/MSD spiking amounts,
c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
d) Calculated %R and relative percent differences (RPDs), and
e) The laboratory's MS/MSD QC limits
R8 Laboratory analytical duplicate (if applicable) revocery and precision:
a) the amount of analyte measured in the duplicate,
b) the calculated RPD, and
c) the laboratory's QC limits for anlytical duplicates.
R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix;
R10 Other problems or anomalies.
The exception Report for every "No" or "Not Reviewed (NR)" item in laboratory review checklist.

Release statement: I am responsible for the release of this laboratory data package. This data package has been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exceptions reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratoy in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

Check, If applicable: [] This laboratory is an in-house laboratory controlled by the person repsonding to rule. The official signing the cover page of the rule-required report (for example, the APAR) in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is trus.

DEANNA I. HESSON	Deanna Hesson	Conventional Lab Supervisor	July 20, 2009
Name (Printed)	Signature	Official Title (printed)	DATE

Checklist ID: 40125

Microbac Laboratories Inc.
Laboratory Review Checklist

Laboratory Name: Microbac Laboratories Inc.
Laboratory Log Number: L09070188
Project Name: 798-LONGHORN
Method: PCTSOLIDS
Prep Batch Number(s): WG306819
Reviewer Name: DEANNA I. HESSON
LRC Date: July 20, 2009

Description	Yes	No	NA(1)	NR(2)	ER(3)
Chain-Of-Custody (C-O-C)					
Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	✓				
Were all departures from standard conditions described in an exception report?	✓				
Sample and quality control (QC) identification					
Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	✓				
Are all laboratory ID numbers cross-referenced to the corresponding QC data?	✓				
Test reports					
Were all samples prepared and analyzed within holding times?	✓				
Other than those results <MQL, were all other raw values bracketed by calibration standards?			✓		
Were calculations checked by a peer or supervisor?	✓				
Were all analyte identifications checked by a peer or supervisor?			✓		
Were sample quantitation limits reported for all analytes not detected?			✓		
Were all results for soil and sediment samples reported on a dry weight basis?	✓				
Were % moisture (or solids) reported for all soil and sediment samples?	✓				
If required for the project, TICs reported?			✓		
Surrogate recovery data					
Were surrogates added prior to extraction?			✓		
Were surrogate percent recoveries in all samples within the laboratory QC limits?			✓		
Test reports/summary forms for blank samples					
Were appropriate type(s) of blanks analyzed?			✓		
Were blanks analyzed at the appropriate frequency?			✓		
Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?			✓		
Were blank concentrations <MQL?			✓		
Laboratory control samples (LCS):					
Were all COCs included in the LCS?			✓		
Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?			✓		
Were LCSs analyzed at the required frequency?			✓		
Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?			✓		
Does the detectability data document the laboratorys capability to detect the COCs at the MDL used to calculate the SQLs?			✓		
Was the LCSD RPD within QC limits?			✓		
Matrix spike (MS) and matrix spike duplicate (MSD) data					
Were the project/method specified analytes included in the MS and MSD?			✓		
Were MS/MSD analyzed at the appropriate frequency?			✓		
Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			✓		

Description	Yes	No	NA(1)	NR(2)	ER(3)
Were MS/MSD RPDs within laboratory QC limits?			✓		
Analytical duplicate data					
Were appropriate analytical duplicates analyzed for each matrix?	✓				
Were analytical duplicates analyzed at the appropriate frequency?	✓				
Were RPDs or relative standard deviations within the laboratory QC limits?	✓				
Method quantitation limits (MQLs):					
Are the MQLs for each method analyte included in the laboratory data package?			✓		
Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?			✓		
Are unadjusted MQLs included in the laboratory data package?			✓		
Other problems/anomalies					
Are all known problems/anomalies/special conditions noted in this LRC and ER?	✓				
Were all necessary corrective actions performed for the reported data?	✓				
Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?			✓		
Were response factors and/or relative response factors for each analyte within QC limits?			✓		
Were percent RSDs or correlation coefficient criteria met?			✓		
Was the number of standards recommended in the method used for all analytes?			✓		
Were all points generated between the lowest and highest standard used to calculate the curve?			✓		
Are ICAL data available for all instruments used?			✓		
Has the initial calibration curve been verified using an appropriate second source standard?			✓		
Initial and continuing calibration verification (ICV and CCV) and continuing calibration blank (CCB):					
Was the CCV analyzed at the method-required frequency?			✓		
Were percent differences for each analyte within the method-required QC limits?			✓		
Was the ICAL curve verified for each analyte?			✓		
Was the absolute value of the analyte concentration in the inorganic CCB <MDL?			✓		
Mass spectral tuning:					
Was the appropriate compound for the method used for tuning?			✓		
Were ion abundance data within the method-required QC limits?			✓		
Internal standards (IS):					
Were IS area counts and retention times within the method-required QC limits?			✓		
Raw data (NELAC section 1 appendix A glossary, and section 5.12 or ISO/IEC 17025 section 4.12.2)					
Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	✓				
Were data associated with manual integrations flagged on the raw data?			✓		
Dual column confirmation					
Did dual column confirmation results meet the method-required QC?			✓		
Tentatively identified compounds (TICs):					
If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			✓		
Interference Check Sample (ICS) results:					
Were percent recoveries within method QC limits?			✓		
Serial dilutions, post digestion spikes, and method of standard additions					
Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			✓		
Method detection limit (MDL) studies					
Was a MDL study performed for each reported analyte?			✓		
Is the MDL either adjusted or supported by the analysis of DCSs?			✓		
Proficiency test reports:					
Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?			✓		

Description	Yes	No	NA(1)	NR(2)	ER(3)
Standards documentation					
Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?			✓		
Compound/analyte identification procedures					
Are the procedures for compound/analyte identification documented?			✓		
Demonstration of analyst competency (DOC)					
Was DOC conducted consistent with NELAC Chapter 5C or ISO/IEC 4?	✓				
Is documentation of the analyst's competency up-to-date and on file?	✓				
Verification/validation documentation for methods (NELAC Chap 5 or ISO/IEC 17025 Section 5)					
Are all the methods used to generate the data documented, verified, and validated, where applicable?	✓				
Laboratory standard operating procedures (SOPs):					
Are laboratory SOPs current and on file for each method performed?	✓				

Microbac Laboratories Inc.
Laboratory Review Checklist

Laboratory Name:	Microbac Laboratories Inc.
Laboratory Log Number:	L09070188
Project Name:	798-LONGHORN
Method:	PCTSOLIDS
Prep Batch Number(s):	WG306819
Reviewer Name:	DEANNA I. HESSON
LRC Date:	July 20, 2009

EXCEPTIONS REPORT
ER# - Description

Footnotes:
(1) NA = Not applicable to method or project
(2) NR = Not reviewed
(3) ER# = Exception report number

2.1 Metals Data

2.1.1 Metals ICP-MS Data

2.1.1.1 Summary Data

LABORATORY REPORT

L09070188

07/23/09 15:09

Submitted By

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

For

Account Name: Shaw E & I, Inc.
ABB Lummus Biulding
3010 Briarpark Drive Suite 4N
Houston, TX 77042
Attention: Jennifer Hoang

Project Number: 2773.025
Project: Longhorn AAP
Site: LONGHORN AAP KARNACK TX

P.O. Number: 389869/ 390836(GWTP)

Sample Analysis Summary

Client ID	Lab ID	Method	Dilution	Date Received
02SB026A (0-6)	L09070188-01	6020	20	10-JUL-09
02SB026A (0-6)	L09070188-01	6020	1	10-JUL-09
02SB027A (0-6)	L09070188-02	6020	1	10-JUL-09
02SB027A (0-6)	L09070188-02	6020	20	10-JUL-09
02SB028B (12-18)	L09070188-03	6020	20	10-JUL-09
02SB028B (12-18)	L09070188-03	6020	1	10-JUL-09
02SB0210 (0-6)	L09070188-04	6020	1	10-JUL-09
02SB0210 (0-6)	L09070188-04	6020	20	10-JUL-09
02SB0211 (0-6)	L09070188-05	6020	1	10-JUL-09
02SB0211 (0-6)	L09070188-05	6020	20	10-JUL-09
02SB0211 (0-6)DUP	L09070188-06	6020	1	10-JUL-09
02SB0211 (0-6)DUP	L09070188-06	6020	20	10-JUL-09

L1_A_PROD - Modified 03/06/2008
PDF File ID: 1445274
Report generated: 07/23/2009 15:09

1 OF 1

Microbac®

Report Number: **L09070188**
Report Date : **July 23, 2009**

Sample Number: **L09070188-01**
Client ID: **02SB026A (0-6)**
Matrix: **Soil**
Workgroup Number: **WG307406**
Collect Date: **07/09/2009 10:10**
Sample Tag: **DL01**

PrePrep Method: **NONE**
Prep Method: **3051**
Analytical Method: **6020**
Analyst: **JYH**
Dilution: **20**
Units: **mg/kg**

Instrument: **ELAN-ICP**
Prep Date: **07/15/2009 06:50**
Cal Date: **07/20/2009 11:04**
Run Date: **07/20/2009 21:34**
File ID: **EL.072009.213459**
Percent Solid: **86.2**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Lead, Total	7439-92-1	70.0		4.57	2.28

Sample Number:**L09070188-01**
Client ID:**02SB026A (0-6)**
Matrix:**Soil**
Workgroup Number:**WG307406**
Collect Date:**07/09/2009 10:10**
Sample Tag:**01**

PrePrep Method:**NONE**
Prep Method:**3051**
Analytical Method:**6020**
Analyst:**JYH**
Dilution:**1**
Units:**mg/kg**

Instrument:**ELAN-ICP**
Prep Date:**07/15/2009 06:50**
Cal Date:**07/17/2009 11:24**
Run Date:**07/18/2009 05:18**
File ID:**EL.071809.051823**
Percent Solid:**86.2**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Arsenic, Total	**7440-38-2**	**8.05**		**0.342**	**0.0856**
Cadmium, Total	**7440-43-9**	**0.458**		**0.114**	**0.0285**
Copper, Total	**7440-50-8**	**7.68**		**0.685**	**0.171**

Sample Number: **L09070188-02**
Client ID: **02SB027A (0-6)**
Matrix: **Soil**
Workgroup Number: **WG307406**
Collect Date: **07/09/2009 10:15**
Sample Tag: **01**

PrePrep Method: **NONE**
Prep Method: **3051**
Analytical Method: **6020**
Analyst: **JYH**
Dilution: **1**
Units: **mg/kg**

Instrument: **ELAN-ICP**
Prep Date: **07/15/2009 06:51**
Cal Date: **07/17/2009 11:24**
Run Date: **07/18/2009 05:24**
File ID: **EL.071809.052442**
Percent Solid: **87.4**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Arsenic, Total	**7440-38-2**	**12.7**		**0.335**	**0.0838**
Cadmium, Total	**7440-43-9**	**2.89**		**0.112**	**0.0279**
Copper, Total	**7440-50-8**	**32.5**		**0.670**	**0.168**

Sample Number:	**L09070188-02**	PrePrep Method:	**NONE**	Instrument:	**ELAN-ICP**
Client ID:	**02SB027A (0-6)**	Prep Method:	**3051**	Prep Date:	**07/15/2009 06:51**
Matrix:	**Soil**	Analytical Method:	**6020**	Cal Date:	**07/20/2009 11:04**
Workgroup Number:	**WG307406**	Analyst:	**JYH**	Run Date:	**07/20/2009 21:41**
Collect Date:	**07/09/2009 10:15**	Dilution:	**20**	File ID:	**EL.072009.214117**
Sample Tag:	**DL01**	Units:	**mg/kg**	Percent Solid:	**87.4**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Lead, Total	**7439-92-1**	**607**		**4.47**	**2.23**

Sample Number:**L09070188-03**
Client ID:**02SB028B (12-18)**
Matrix:**Soil**
Workgroup Number:**WG307406**
Collect Date:**07/09/2009 10:20**
Sample Tag:**DL01**

PrePrep Method:**NONE**
Prep Method:**3051**
Analytical Method:**6020**
Analyst:**JYH**
Dilution:**20**
Units:**mg/kg**

Instrument:**ELAN-ICP**
Prep Date:**07/15/2009 06:51**
Cal Date:**07/20/2009 11:04**
Run Date:**07/20/2009 21:47**
File ID:**EL.072009.214735**
Percent Solid:**89.3**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Lead, Total	**7439-92-1**	**460**		**4.45**	**2.23**

Sample Number:**L09070188-03**
Client ID:**02SB028B (12-18)**
Matrix:**Soil**
Workgroup Number:**WG307406**
Collect Date:**07/09/2009 10:20**
Sample Tag:**01**

PrePrep Method:**NONE**
Prep Method:**3051**
Analytical Method:**6020**
Analyst:**JYH**
Dilution:**1**
Units:**mg/kg**

Instrument:**ELAN-ICP**
Prep Date:**07/15/2009 06:51**
Cal Date:**07/17/2009 11:24**
Run Date:**07/18/2009 05:31**
File ID:**EL.071809.053102**
Percent Solid:**89.3**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Arsenic, Total	**7440-38-2**	**13.3**		**0.334**	**0.0835**
Cadmium, Total	**7440-43-9**	**1.44**		**0.111**	**0.0278**
Copper, Total	**7440-50-8**	**19.7**		**0.668**	**0.167**

Sample Number:	**L09070188-04**	PrePrep Method:	**NONE**	Instrument:	**ELAN-ICP**
Client ID:	**02SB0210 (0-6)**	Prep Method:	**3051**	Prep Date:	**07/15/2009 06:52**
Matrix:	**Soil**	Analytical Method:	**6020**	Cal Date:	**07/17/2009 11:24**
Workgroup Number:	**WG307406**	Analyst:	**JYH**	Run Date:	**07/18/2009 05:37**
Collect Date:	**07/09/2009 10:25**	Dilution:	**1**	File ID:	**EL.071809.053721**
Sample Tag:	**01**	Units:	**mg/kg**	Percent Solid:	**84.8**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Arsenic, Total	**7440-38-2**	**8.66**		**0.347**	**0.0868**
Cadmium, Total	**7440-43-9**	**1.42**		**0.116**	**0.0289**
Copper, Total	**7440-50-8**	**13.3**		**0.695**	**0.174**

Sample Number:	**L09070188-04**	PrePrep Method:	**NONE**	Instrument:	**ELAN-ICP**
Client ID:	**02SB0210 (0-6)**	Prep Method:	**3051**	Prep Date:	**07/15/2009 06:52**
Matrix:	**Soil**	Analytical Method:	**6020**	Cal Date:	**07/20/2009 11:04**
Workgroup Number:	**WG307406**	Analyst:	**JYH**	Run Date:	**07/20/2009 21:53**
Collect Date:	**07/09/2009 10:25**	Dilution:	**20**	File ID:	**EL.072009.215352**
Sample Tag:	**DL01**	Units:	**mg/kg**	Percent Solid:	**84.8**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Lead, Total	7439-92-1	237		4.63	2.32

Sample Number:**L09070188-05**
Client ID:**02SB0211 (0-6)**
Matrix:**Soil**
Workgroup Number:**WG307406**
Collect Date:**07/09/2009 10:30**
Sample Tag:**01**

PrePrep Method:**NONE**
Prep Method:**3051**
Analytical Method:**6020**
Analyst:**JYH**
Dilution:**1**
Units:**mg/kg**

Instrument:**ELAN-ICP**
Prep Date:**07/15/2009 06:53**
Cal Date:**07/17/2009 11:24**
Run Date:**07/18/2009 05:43**
File ID:**EL.071809.054337**
Percent Solid:**89.9**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Arsenic, Total	**7440-38-2**	**8.10**		**0.320**	**0.0801**
Cadmium, Total	**7440-43-9**	**0.629**		**0.107**	**0.0267**
Copper, Total	**7440-50-8**	**10.0**		**0.640**	**0.160**

Report Number:**L09070188**
Report Date :**July 23, 2009**

Sample Number:**L09070188-05**
Client ID:**02SB0211 (0-6)**
Matrix:**Soil**
Workgroup Number:**WG307406**
Collect Date:**07/09/2009 10:30**
Sample Tag:**DL01**

PrePrep Method:**NONE**
Prep Method:**3051**
Analytical Method:**6020**
Analyst:**JYH**
Dilution:**20**
Units:**mg/kg**

Instrument:**ELAN-ICP**
Prep Date:**07/15/2009 06:53**
Cal Date:**07/20/2009 11:04**
Run Date:**07/20/2009 22:13**
File ID:**EL.072009.221356**
Percent Solid:**89.9**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Lead, Total	7439-92-1	348		4.27	2.13

Sample Number:	**L09070188-06**	PrePrep Method:	**NONE**	Instrument:	**ELAN-ICP**
Client ID:	**02SB0211 (0-6)DUP**	Prep Method:	**3051**	Prep Date:	**07/15/2009 06:53**
Matrix:	**Soil**	Analytical Method:	**6020**	Cal Date:	**07/17/2009 11:24**
Workgroup Number:	**WG307406**	Analyst:	**JYH**	Run Date:	**07/18/2009 05:49**
Collect Date:	**07/09/2009 10:30**	Dilution:	**1**	File ID:	**EL.071809.054955**
Sample Tag:	**01**	Units:	**mg/kg**	Percent Solid:	**91.0**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Arsenic, Total	7440-38-2	15.0		0.323	0.0808
Cadmium, Total	7440-43-9	0.593		0.108	0.0269
Copper, Total	7440-50-8	10.7		0.646	0.162

Report Number: **L09070188**
Report Date : **July 23, 2009**

Sample Number: **L09070188-06**
Client ID: **02SB0211 (0-6)DUP**
Matrix: **Soil**
Workgroup Number: **WG307406**
Collect Date: **07/09/2009 10:30**
Sample Tag: **DL01**

PrePrep Method: **NONE**
Prep Method: **3051**
Analytical Method: **6020**
Analyst: **JYH**
Dilution: **20**
Units: **mg/kg**

Instrument: **ELAN-ICP**
Prep Date: **07/15/2009 06:53**
Cal Date: **07/20/2009 11:04**
Run Date: **07/20/2009 22:20**
File ID: **EL.072009.222011**
Percent Solid: **91.0**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Lead, Total	**7439-92-1**	**152**		**4.31**	**2.15**

2.1.1.2 QC Summary Data

Example 6020 Calculations
Perkin Elmer ELAN 6100

1.0 Initial Calibration (ICAL) Parameters

The system performs linear regression from data consisting of a blank and three standards.

2.0 Calculating the concentration (C) of an element in water using data from prep log, run log, and quantitation report (note:the data system performs this calculation automatically when correction factors have been entered):

$$Cx = Cs \times \frac{Vf}{Vi} \times D$$

Where:	**Example:**
Cs = Concentration computed by the data system (ug/L)	0.1
Vf = Final volume	100
Vi = Initial volume	40
D = Dilution factor as a multiplier (10X = 10)	1
Cx = Concentration of element in (ug/L)	0.25

3.0 Calculating the concentration (C) of an element in soil using data from prep log, run log, and quantitation report (note: the data system performs this calculation automatically when correction factors have been entered):

$$Cx = Cs \times \frac{Vf}{Vi} \times D$$

Where:	**Example:**
Cs = Concentration computed by the data system (ug/L)	0.1
Vf = Final volume	200
Vi = Initial volume	0.5
D = Dilution factor as a multiplier (10X = 10)	1
Cx = Concentration of element in (ug/kg)	40

4.0 Adjusting the concentration to dry weight:

$$Cdry = \frac{Cx \times 100}{Px}$$

Where:	**Example:**
Cx = Concentration calculated as received (wet basis)	40
Px = Percent solids of sample (%wt)	80
$Cdry$ = Concentration calculated as dry weight (ug/kg)	50

50 ug/kg = 0.050 mg/kg

Perkin Elmer ELAN ICP/MS

STANDARDS KEY

QC Std 1 - ICV
QC Std 2 - ICB
QC Std 3 - CRI - Soil
QC Std 4 - CRI - Water
QC Std 5 - ICSA
QC Std 6 - ICSAB
QC Std 7 - CCV
QC Std 8 - CCB

Calibration Solutions

Analyte	Stock Conc. (mg/L)	S1 (mg/L)	S2 (mg/L)	S3 (mg/L)	S4 (mg/L)
Al	10	0	0.0004	0.05	0.1
Sb	10	0	0.0004	0.05	0.1
As	10	0	0.0004	0.05	0.1
Ba	10	0	0.0004	0.05	0.1
Be	10	0	0.0004	0.05	0.1
Ca	1000	0	0.04	5	10
Cd	10	0	0.0004	0.05	0.1
Cr	10	0	0.0004	0.05	0.1
Co	10	0	0.0004	0.05	0.1
Cu	10	0	0.0004	0.05	0.1
Fe	1000	0	0.04	5	10
Pb	10	0	0.0004	0.05	0.1
Mg	1000	0	0.04	5	10
Mn	10	0	0.0004	0.05	0.1
Ni	10	0	0.0004	0.05	0.1
K	1000	0	0.04	5	10
Se	10	0	0.0004	0.05	0.1
Ag	10	0	0.0004	0.05	0.1
Na	1000	0	0.04	5	10
Tl	10	0	0.0004	0.05	0.1
V	10	0	0.0004	0.05	0.1
U	1000	0	0.0004	0.05	0.1
Zn	10	0	0.0004	0.05	0.1

Microbac Laboratories Inc.
Microwave Digestion Log

Workgroup: WG307047
Analyst: CTB
Spike Analyst: VC
Run Date: 07/15/2009 06:57
Method: 3051

SOP: ME406 Revison 11
Spike Solution: STD33694
Spike Witness: REK
HNO3 Lot #: COA13945
Digest tubes Lot #: COA13926

	SAMPLE #	Type	Matrix	Initial Amount	Final Volume	Initial Vessel Wt	Final Vessel Wt	Spike Amount	Due Date
1	WG307047-02	BLANK	7	.5 g	200 mL	174.163 g	174.159 g		
2	WG307047-03	LCS	7	.5 g	200 mL	175.279 g	175.267 g	.5 mL	
3	L09070188-01	SAMP	7	.508 g	200 mL	176.124 g	176.111 g		07/21/09
4	L09070188-02	SAMP	7	.512 g	200 mL	177.347 g	177.337 g		07/21/09
5	L09070188-03	SAMP	7	.503 g	200 mL	174.101 g	174.082 g		07/21/09
6	L09070188-04	SAMP	7	.509 g	200 mL	174.515 g	174.489 g		07/21/09
7	L09070188-05	SAMP	7	.521 g	200 mL	172.876 g	172.868 g		07/21/09
8	L09070188-06	SAMP	7	.51 g	200 mL	174.031 g	174.017 g		07/21/09
9	WG307047-01	REF	7	.529 g	200 mL	176.599 g	176.581 g		
10	L09070206-01	RS01	7	.529 g	200 mL	176.599 g	176.581 g		07/21/09
11	L09070206-03	SAMP	7	.507 g	200 mL	176.435 g	176.422 g		07/21/09
12	L09070206-04	SAMP	7	.516 g	200 mL	173.764 g	173.752 g		07/21/09
13	L09070206-08	SAMP	7	.513 g	200 mL	173.757 g	173.738 g		07/21/09
14	L09070206-09	SAMP	7	.52 g	200 mL	173.993 g	173.97 g		07/21/09
15	L09070206-10	SAMP	7	.536 g	200 mL	175.822 g	175.793 g		07/21/09
16	WG307047-04	MS	7	.529 g	200 mL	175.785 g	175.766 g	.5 mL	
17	L09070206-12	MS01	7	.529 g	200 mL	175.785 g	175.766 g	.5 mL	07/21/09
18	WG307047-05	MSD	7	.529 g	200 mL	174.674 g	174.66 g	.5 mL	
19	L09070206-13	SD01	7	.529 g	200 mL	174.674 g	174.66 g	.5 mL	07/21/09

Analyst:

Reviewer:

MW_DIG - Modified 07/02/2008
PDF ID: 1440864
Report generated: 07/15/2009 07:39

Microbac Laboratories Inc.

Instrument Run Log

Instrument: ELAN-ICP Dataset: 071709A.REP
Analyst1: JYH Analyst2: N/A
Method: SOP: Rev:
Maintenance Log ID: 29481

Calibration Std: STD33660 ICV/CCV Std: STD33775 Post Spike: STD33697
ICSA: STD33928 ICSAB: STD33616 Int. Std: 33807

Workgroups: 307404,307367,307407,307405,307406,307033,307156

Comments:

Seq.	File ID	Sample	ID	Prep	Dil	Reference	Date/Time
1	EL.071709.110108	Blank	Blank		1		07/17/09 11:01
2	EL.071709.110651	WG307450-01	Calibration Point		1		07/17/09 11:06
3	EL.071709.111234	WG307450-02	Calibration Point		1		07/17/09 11:12
4	EL.071709.111818	WG307450-03	Calibration Point		1		07/17/09 11:18
5	EL.071709.112403	WG307450-04	Calibration Point		1		07/17/09 11:24
6	EL.071709.112948	WG307450-05	Initial Calibration Verification		1		07/17/09 11:29
7	EL.071709.113643	WG307450-06	Initial Calib Blank		1		07/17/09 11:36
8	EL.071709.114338	WG307450-07	CRQL Check Solid		1		07/17/09 11:43
9	EL.071709.115037	WG307450-08	CRQL Check Water		1		07/17/09 11:50
10	EL.071709.115735	WG307450-09	Interference Check		1		07/17/09 11:57
11	EL.071709.120432	WG307450-10	Interference Check		1		07/17/09 12:04
12	EL.071709.121128	WG307450-11	CCV		1		07/17/09 12:11
13	EL.071709.121823	WG307450-12	CCB		1		07/17/09 12:18
14	EL.071709.122444	WG307330-03	Method/Prep Blank	40/100	1		07/17/09 12:24
15	EL.071709.123057	WG307330-04	Laboratory Control S	40/100	1		07/17/09 12:30
16	EL.071709.123711	L09070345-01	OUTFALL 002/COMP	40/100	2	WG307330-02	07/17/09 12:37
17	EL.071709.124324	WG307330-07	Duplicate	40/100	2	L09070345-01	07/17/09 12:43
18	EL.071709.124939	WG307330-01	Reference Sample		1	L09070299-06	07/17/09 12:49
19	EL.071709.125553	WG307330-05	Matrix Spike	40/100	1	L09070299-06	07/17/09 12:55
20	EL.071709.130208	WG307330-06	Matrix Spike Duplica	40/100	1	L09070299-06	07/17/09 13:02
21	EL.071709.130823	L09070322-01	IDW-071509	40/100	1		07/17/09 13:08
22	EL.071709.131439	WG307367-01	Post Digestion Spike		1	L09070322-01	07/17/09 13:14
23	EL.071709.132054	WG307367-02	Serial Dilution		5	L09070322-01	07/17/09 13:20
24	EL.071709.132730	WG307450-13	CCV		1		07/17/09 13:27
25	EL.071709.133425	WG307450-14	CCB		1		07/17/09 13:34
26	EL.071709.134059	L09070315-02	07-026-09	40/100	1		07/17/09 13:40
27	EL.071709.134716	L09070315-04	07-027-09	40/100	1		07/17/09 13:47
28	EL.071709.135331	L09070315-05	07-028-09	40/100	1		07/17/09 13:53
29	EL.071709.135944	L09070315-07	07-029-09	40/100	1		07/17/09 13:59
30	EL.071709.140558	L09070315-08	07-030-09	40/100	1		07/17/09 14:05
31	EL.071709.141213	L09070315-10	07-031-09	40/100	1		07/17/09 14:12
32	EL.071709.141827	L09070315-11	07-032-09	40/100	1		07/17/09 14:18
33	EL.071709.142442	L09070315-13	07-033-09	40/100	1		07/17/09 14:24
34	EL.071709.143058	L09070315-15	07-034-09	40/100	1		07/17/09 14:30
35	EL.071709.143714	L09070315-17	07-035-09	40/100	1		07/17/09 14:37
36	EL.071709.144349	WG307450-15	CCV		1		07/17/09 14:43
37	EL.071709.145044	WG307450-16	CCB		1		07/17/09 14:50

Page: 1 Approved: July 20, 2009

Maren Berry

Microbac®

Run Log ID: **29151**

Microbac Laboratories Inc.

Instrument Run Log

Instrument: ELAN-ICP

Dataset: 071709A.REP

Analyst1: JYH

Analyst2: N/A

Method:

SOP:

Rev:

Maintenance Log ID: 29481

Calibration Std: STD33660

ICV/CCV Std: STD33775

Post Spike: STD33697

ICSA: STD33928

ICSAB: STD33616

Int. Std: 33807

Workgroups: 307404,307367,307407,307405,307406,307033,307156

Comments:

Seq.	File ID	Sample	ID	Prep	Dil	Reference	Date/Time
38	EL.071709.145718	L09070315-19	07-036-09	40/100	1		07/17/09 14:57
39	EL.071709.150335	L09070315-20	07-037-09	40/100	1		07/17/09 15:03
40	EL.071709.150952	L09070299-02	DRL-G-MW-6A-DIS	40/100	1		07/17/09 15:09
41	EL.071709.151609	L09070299-04	DRL-G-MW-14-DIS	40/100	1		07/17/09 15:16
42	EL.071709.152225	L09070299-08	DRL-K-EQBLK-1-DIS	40/100	1		07/17/09 15:22
43	EL.071709.152838	WG307194-02	Method/Prep Blank	.5/200	1		07/17/09 15:28
44	EL.071709.153452	WG307194-03	Laboratory Control S	.5/200	1		07/17/09 15:34
45	EL.071709.154109	L09070323-02	465-SB4-SS1-140709-01	.51/200	1		07/17/09 15:41
46	EL.071709.154723	WG307404-01	Post Digestion Spike		1	L09070323-02	07/17/09 15:47
47	EL.071709.155446	WG307404-02	Serial Dilution		5	L09070323-02	07/17/09 15:54
48	EL.071709.160122	WG307450-17	CCV		1		07/17/09 16:01
49	EL.071709.160816	WG307450-18	CCB		1		07/17/09 16:08
50	EL.071709.161449	WG307194-01	Reference Sample		10	L09070314-03	07/17/09 16:14
51	EL.071709.162247	WG307194-04	Matrix Spike	.513/200	10	L09070314-03	07/17/09 16:22
52	EL.071709.162903	WG307194-05	Matrix Spike Duplica	.515/200	10	L09070314-03	07/17/09 16:29
53	EL.071709.163518	L09070323-03	465-SB5-SS1-140709-01	.522/200	1		07/17/09 16:35
54	EL.071709.164134	L09070323-04	465-BG1-SS1-140709-02	.503/200	5		07/17/09 16:41
55	EL.071709.164818	L09070323-05	465-BG3-SS1-140709-02	.531/200	1		07/17/09 16:48
56	EL.071709.165435	L09070323-06	465-BG2-SS1-140709-02	.53/200	1		07/17/09 16:54
57	EL.071709.170050	L09070323-07	465-BG4-SS1-140709-01	.514/200	1		07/17/09 17:00
58	EL.071709.170704	L09070323-09	465-SB4-SS1-140709-01	.525/200	1		07/17/09 17:07
59	EL.071709.171318	L09070316-01	ANC-SD-6	.54/200	1		07/17/09 17:13
60	EL.071709.171953	WG307450-19	CCV		1		07/17/09 17:19
61	EL.071709.172647	WG307450-20	CCB		1		07/17/09 17:26
62	EL.071709.173342	WG307450-21	Interference Check		1		07/17/09 17:33
63	EL.071709.174038	WG307450-22	Interference Check		1		07/17/09 17:40
64	EL.071709.174734	WG307450-23	CCV		1		07/17/09 17:47
65	EL.071709.175429	WG307450-24	CCB		1		07/17/09 17:54
66	EL.071709.180103	WG307107-02	Method/Prep Blank	.5/200	1		07/17/09 18:01
67	EL.071709.180718	WG307107-03	Laboratory Control S	.5/200	1		07/17/09 18:07
68	EL.071709.181334	WG307107-01	Reference Sample		1	L09060679-01	07/17/09 18:13
69	EL.071709.181950	WG307107-04	Matrix Spike	.5/200	1	L09060679-01	07/17/09 18:19
70	EL.071709.182606	WG307107-05	Matrix Spike Duplica	.5/200	1	L09060679-01	07/17/09 18:26
71	EL.071709.183223	L09060679-04	0906-MWD093-03-SS	.515/200	5		07/17/09 18:32
72	EL.071709.183840	L09060679-05	0906-MWD083-02-SS	.507/200	1		07/17/09 18:38
73	EL.071709.184456	WG307407-01	Post Digestion Spike		1	L09060679-05	07/17/09 18:44
74	EL.071709.185110	WG307407-02	Serial Dilution		5	L09060679-05	07/17/09 18:51

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Approved: July 20, 2009

Maren Beery

Microbac Laboratories Inc.

Instrument Run Log

Instrument: ELAN-ICP
Dataset: 071709A.REP
Analyst1: JYH
Analyst2: N/A
Method:
SOP:
Rev:
Maintenance Log ID: 29481

Calibration Std: STD33660
ICV/CCV Std: STD33775
Post Spike: STD33697
ICSA: STD33928
ICSAB: STD33616
Int. Std: 33807

Workgroups: 307404,307367,307407,307405,307406,307033,307156

Comments:

Seq.	File ID	Sample	ID	Prep	Dil	Reference	Date/Time
75	EL.071709.185746	WG307450-25	CCV		1		07/17/09 18:57
76	EL.071709.190440	WG307450-26	CCB		1		07/17/09 19:04
77	EL.071709.191114	L09060679-06	0906-MWD093-01-SS	.511/200	5		07/17/09 19:11
78	EL.071709.191729	L09060679-07	0906-MWD083-04-SS	.513/200	1		07/17/09 19:17
79	EL.071709.192344	L09060679-08	0906-MWD093-04-SS	.515/200	5		07/17/09 19:23
80	EL.071709.193000	L09060679-09	0906-MWD083-01-SS	.507/200	1		07/17/09 19:30
81	EL.071709.193616	L09060679-10	0906-MWD083-05-SS	.513/200	1		07/17/09 19:36
82	EL.071709.194232	L09060679-11	0906-MWD093-02-SS	.509/200	5		07/17/09 19:42
83	EL.071709.194849	L09060677-25	0906-MBE001-01-SS	.5/200	1		07/17/09 19:48
84	EL.071709.195506	L09060677-26	0906-MWD091N-07-SS-1	.504/200	5		07/17/09 19:55
85	EL.071709.200123	L09060677-27	0906-MWD091N-07-SS-2	.5/200	5		07/17/09 20:01
86	EL.071709.200741	L09060677-28	0906-MWD091N-07-SS-3	.5/200	5		07/17/09 20:07
87	EL.071709.201418	WG307450-27	CCV		1		07/17/09 20:14
88	EL.071709.202112	WG307450-28	CCB		1		07/17/09 20:21
89	EL.071709.202746	L09060677-30	0906-MWD092-05-SS	.5/200	5		07/17/09 20:27
90	EL.071709.203401	L09060677-31	0906-MWD092-04-SS	.503/200	5		07/17/09 20:34
91	EL.071709.204016	L09060677-32	0906-MWD092-02-SS	.504/200	5		07/17/09 20:40
92	EL.071709.204631	L09060677-33	0906-MBE001-07-SS-1	.507/200	1		07/17/09 20:46
93	EL.071709.205247	L09060677-34	0906-MBE001-07-SS-2	.503/200	1		07/17/09 20:52
94	EL.071709.205903	L09060677-35	0906-MBE001-07-SS-3	.509/200	5		07/17/09 20:59
95	EL.071709.210519	L09060677-36	0906-MBE001-09-SS	.503/200	1		07/17/09 21:05
96	EL.071709.211136	L09060677-25	0906-MBE001-01-SS		50		07/17/09 21:11
97	EL.071709.211753	L09060677-26	0906-MWD091N-07-SS-1	.504/200	50		07/17/09 21:17
98	EL.071709.212410	L09060677-27	0906-MWD091N-07-SS-2	.5/200	50		07/17/09 21:24
99	EL.071709.213047	WG307450-29	CCV		1		07/17/09 21:30
100	EL.071709.213742	WG307450-30	CCB		1		07/17/09 21:37
101	EL.071709.214417	L09060677-28	0906-MWD091N-07-SS-3	.5/200	50		07/17/09 21:44
102	EL.071709.215035	L09060677-30	0906-MWD092-05-SS	.5/200	50		07/17/09 21:50
103	EL.071709.215652	L09060677-31	0906-MWD092-04-SS	.503/200	50		07/17/09 21:56
104	EL.071709.220307	L09060677-32	0906-MWD092-02-SS	.504/200	50		07/17/09 22:03
105	EL.071709.220922	L09060677-33	0906-MBE001-07-SS-1	.507/200	50		07/17/09 22:09
106	EL.071709.221538	L09060677-34	0906-MBE001-07-SS-2	.503/200	50		07/17/09 22:15
107	EL.071709.222154	L09060677-35	0906-MBE001-07-SS-3		50		07/17/09 22:21
108	EL.071709.222810	L09060677-36	0906-MBE001-09-SS		50		07/17/09 22:28
109	EL.071709.223427	WG307107-01	Reference Sample		50	L09060679-01	07/17/09 22:34
110	EL.071709.224044	WG307107-04	Matrix Spike	.5/200	50	L09060679-01	07/17/09 22:40
111	EL.071709.224721	WG307450-31	CCV		1		07/17/09 22:47

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Maren Beery

Microbac Laboratories Inc.

Instrument Run Log

Instrument: ELAN-ICP
Dataset: 071709A.REP
Analyst1: JYH
Analyst2: N/A
Method:
SOP:
Rev:
Maintenance Log ID: 29481

Calibration Std: STD33660
ICV/CCV Std: STD33775
Post Spike: STD33697
ICSA: STD33928
ICSAB: STD33616
Int. Std: 33807

Workgroups: 307404,307367,307407,307405,307406,307033,307156

Comments:

Seq.	File ID	Sample	ID	Prep	Dil	Reference	Date/Time
112	EL.071709.225415	WG307450-32	CCB		1		07/17/09 22:54
113	EL.071709.230051	WG307107-05	Matrix Spike Duplica	.5/200	50	L09060679-01	07/17/09 23:00
114	EL.071709.230708	L09060679-04	0906-MWD093-03-SS	.515/200	50		07/17/09 23:07
115	EL.071709.231326	L09060679-05	0906-MWD083-02-SS	.507/200	50		07/17/09 23:13
116	EL.071709.231945	WG307407-01	Post Digestion Spike		50	L09060679-05	07/17/09 23:19
117	EL.071709.232602	WG307407-02	Serial Dilution		250	L09060679-05	07/17/09 23:26
118	EL.071709.233217	L09060679-06	0906-MWD093-01-SS	.511/200	50		07/17/09 23:32
119	EL.071709.233833	L09060679-07	0906-MWD083-04-SS	.513/200	50		07/17/09 23:38
120	EL.071709.234450	L09060679-08	0906-MWD093-04-SS	.515/200	50		07/17/09 23:44
121	EL.071709.235106	L09060679-09	0906-MWD083-01-SS	.507/200	50		07/17/09 23:51
122	EL.071709.235723	L09060679-10	0906-MWD083-05-SS	.513/200	50		07/17/09 23:57
123	EL.071809.000400	WG307450-33	CCV		1		07/18/09 00:04
124	EL.071809.001054	WG307450-34	CCB		1		07/18/09 00:10
125	EL.071809.001730	L09060679-11	0906-MWD093-02-SS	.509/200	50		07/18/09 00:17
126	EL.071809.002347	WG307052-03	Method/Prep Blank	.5/200	1		07/18/09 00:23
127	EL.071809.003005	WG307052-04	Laboratory Control S	.5/200	1		07/18/09 00:30
128	EL.071809.003623	L09060637-08	0906-MWD092-CS-ALLIUM(I	.513/200	1		07/18/09 00:36
129	EL.071809.004242	WG307052-01	Reference Sample		1	L09060638-01	07/18/09 00:42
130	EL.071809.004901	WG307052-05	Matrix Spike	.518/200	1	L09060638-01	07/18/09 00:49
131	EL.071809.005519	WG307052-05	Matrix Spike	.518/200	1	L09060638-01	07/18/09 00:55
132	EL.071809.010134	L09060638-15	0906-MWD091S-02-GF	.524/200	1		07/18/09 01:01
133	EL.071809.010751	WG307405-01	Post Digestion Spike		1	L09060638-15	07/18/09 01:07
134	EL.071809.011407	WG307405-02	Serial Dilution		5	L09060638-15	07/18/09 01:14
135	EL.071809.012044	WG307450-35	CCV		1		07/18/09 01:20
136	EL.071809.012738	WG307450-36	CCB		1		07/18/09 01:27
137	EL.071809.013413	L09060638-16	0906-MWD092-01-GF	.531/200	1		07/18/09 01:34
138	EL.071809.014031	L09060638-17	0906-MWD091-10-GF	.523/200	1		07/18/09 01:40
139	EL.071809.014648	L09060638-19	SPINACH SRM 1570A	.501/200	1		07/18/09 01:46
140	EL.071809.015306	L09060686-01	0906-MWD084-AL02-GF	.521/200	1		07/18/09 01:53
141	EL.071809.015924	L09060686-02	0906-MWD084-07-GF-1	.523/200	1		07/18/09 01:59
142	EL.071809.020543	WG307052-02	Reference Sample		1	L09060686-03	07/18/09 02:05
143	EL.071809.021202	WG307052-07	Matrix Spike	.525/200	1	L09060686-03	07/18/09 02:12
144	EL.071809.021821	WG307052-08	Matrix Spike Duplica	.525/200	1	L09060686-03	07/18/09 02:18
145	EL.071809.022439	L09060686-06	0906-MWD084-01-GF	.521/200	1		07/18/09 02:24
146	EL.071809.023055	L09060686-07	0906-MWD084-04-GF	.532/200	1		07/18/09 02:30
147	EL.071809.023732	WG307450-37	CCV		1		07/18/09 02:37
148	EL.071809.024426	WG307450-38	CCB		1		07/18/09 02:44

Approved: July 20, 2009

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Instrument Run Log

Instrument: ELAN-ICP
Dataset: 071709A.REP
Analyst1: JYH
Analyst2: N/A
Method:
SOP:
Rev:
Maintenance Log ID: 29481

Calibration Std: STD33660
ICV/CCV Std: STD33775
Post Spike: STD33697
ICSA: STD33928
ICSAB: STD33616
Int. Std: 33807

Workgroups: 307404,307367,307407,307405,307406,307033,307156

Comments:

Seq.	File ID	Sample	ID	Prep	Dil	Reference	Date/Time
149	EL.071809.025101	L09060686-08	0906-MWD084-02-GF	.517/200	1		07/18/09 02:51
150	EL.071809.025718	L09060686-09	0906-MWD084-10-GF	.509/200	1		07/18/09 02:57
151	EL.071809.030335	L09060686-10	0906-MWD084-07-GF-3	.516/200	1		07/18/09 03:03
152	EL.071809.030953	L09060686-11	0906-MWD084-07-GF-2	.506/200	1		07/18/09 03:09
153	EL.071809.031611	L09060686-12	0906-MWD084-07-SM-3-SYA	.511/200	1		07/18/09 03:16
154	EL.071809.032229	L09060686-13	0906-MWD084-07-SL-3-SYA	.52/200	1		07/18/09 03:22
155	EL.071809.032847	L09060686-14	0906-MWD084-07-SM-2-ART	.524/200	1		07/18/09 03:28
156	EL.071809.033525	WG307450-39	CCV		1		07/18/09 03:35
157	EL.071809.034220	WG307450-40	CCB		1		07/18/09 03:42
158	EL.071809.034856	WG307047-02	Method/Prep Blank	.5/200	1		07/18/09 03:48
159	EL.071809.035515	WG307047-03	Laboratory Control S	.5/200	1		07/18/09 03:55
160	EL.071809.040135	WG307047-01	Reference Sample		5	L09070206-01	07/18/09 04:01
161	EL.071809.040753	WG307047-04	Matrix Spike	.529/200	5	L09070206-01	07/18/09 04:07
162	EL.071809.041409	WG307047-05	Matrix Spike Duplica	.529/200	5	L09070206-01	07/18/09 04:14
163	EL.071809.042026	L09070206-03	NR-004-711	.507/200	5		07/18/09 04:20
164	EL.071809.042643	L09070206-04	NR-004-711-FD	.516/200	5		07/18/09 04:26
165	EL.071809.043301	WG307406-01	Post Digestion Spike		5	L09070206-04	07/18/09 04:33
166	EL.071809.043919	WG307406-02	Serial Dilution		25	L09070206-04	07/18/09 04:39
167	EL.071809.044556	WG307450-41	CCV		1		07/18/09 04:45
168	EL.071809.045250	WG307450-42	CCB		1		07/18/09 04:52
169	EL.071809.045926	L09070206-08	NR-004-707	.513/200	5		07/18/09 04:59
170	EL.071809.050544	L09070206-09	NR-004-708	.52/200	5		07/18/09 05:05
171	EL.071809.051203	L09070206-10	NR-004-709	.536/200	5		07/18/09 05:12
172	EL.071809.051823	L09070188-01	02SB026A (0-6)	.508/200	1		07/18/09 05:18
173	EL.071809.052442	L09070188-02	02SB027A (0-6)	.512/200	1		07/18/09 05:24
174	EL.071809.053102	L09070188-03	02SB028B (12-18)	.503/200	1		07/18/09 05:31
175	EL.071809.053721	L09070188-04	02SB0210 (0-6)	.509/200	1		07/18/09 05:37
176	EL.071809.054337	L09070188-05	02SB0211 (0-6)	.521/200	1		07/18/09 05:43
177	EL.071809.054955	L09070188-06	02SB0211 (0-6)DUP	.51/200	1		07/18/09 05:49
178	EL.071809.055612	WG306970-01	Reference Sample		20	L09060636-01	07/18/09 05:56
179	EL.071809.060249	WG307450-43	CCV		1		07/18/09 06:02
180	EL.071809.060944	WG307450-44	CCB		1		07/18/09 06:09
181	EL.071809.061619	WG306970-04	Matrix Spike	.51/200	20	L09060636-01	07/18/09 06:16
182	EL.071809.062237	WG306970-05	Matrix Spike Duplica	.51/200	20	L09060636-01	07/18/09 06:22
183	EL.071809.062856	WG306940-01	Reference Sample		20	L09060594-27	07/18/09 06:28
184	EL.071809.063240	WG306940-04	Matrix Spike	.541/200	20	L09060594-27	07/18/09 06:32
185	EL.071809.063624	WG306940-05	Matrix Spike Duplica	.541/200	20	L09060594-27	07/18/09 06:36

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Approved: July 20, 2009

Maren Beery

Microbac Laboratories Inc.

Instrument Run Log

Instrument: ELAN-ICP
Dataset: 071709A.REP
Analyst1: JYH
Analyst2: N/A
Method:
SOP:
Rev:
Maintenance Log ID: 29481

Calibration Std: STD33660
ICV/CCV Std: STD33775
Post Spike: STD33697
ICSA: STD33928
ICSAB: STD33616
Int. Std: 33807

Workgroups: 307404,307367,307407,307405,307406,307033,307156

Comments:

Seq.	File ID	Sample	ID	Prep	Dil	Reference	Date/Time
186	EL.071809.064009	L09060636-09	0906-MWD092-07-GF-3	.525/200	20		07/18/09 06:40
187	EL.071809.064353	L09060636-10	0906-MWD092-08-GF	.505/200	20		07/18/09 06:43
188	EL.071809.064736	L09070314-01	B-1, 1-3'	.536/200	10		07/18/09 06:47
189	EL.071809.065116	L09070314-02	B-1, 6-8'	.519/200	10		07/18/09 06:51
190	EL.071809.065516	WG307450-45	CCV		1		07/18/09 06:55
191	EL.071809.070211	WG307450-46	CCB		1		07/18/09 07:02

Approved: July 20, 2009

Maren Beery

Run Log ID: 29169

Microbac Laboratories Inc.

Instrument Run Log

Instrument: ELAN-ICP
Dataset: 072009A.REP
Analyst1: JYH
Analyst2: N/A
Method:
SOP:
Rev:
Maintenance Log ID: 29493

Calibration Std: STD33660
ICV/CCV Std: STD33775
Post Spike: STD33697
ICSA: STD33928
ICSAB: STD33616
Int. Std: 33807

Workgroups: 307476,307528,307406,307405,307529,306872

Comments:

Seq.	File ID	Sample	ID	Prep	Dil	Reference	Date/Time
1	EL.072009.104126	Blank	Blank		1		07/20/09 10:41
2	EL.072009.104709	WG307570-01	Calibration Point		1		07/20/09 10:47
3	EL.072009.105252	WG307570-02	Calibration Point		1		07/20/09 10:52
4	EL.072009.105836	WG307570-03	Calibration Point		1		07/20/09 10:58
5	EL.072009.110421	WG307570-04	Calibration Point		1		07/20/09 11:04
6	EL.072009.111007	WG307570-05	Initial Calibration Verification		1		07/20/09 11:10
7	EL.072009.111701	WG307570-06	Initial Calib Blank		1		07/20/09 11:17
8	EL.072009.112357	WG307570-07	CRQL Check Solid		1		07/20/09 11:23
9	EL.072009.113056	WG307570-08	CRQL Check Water		1		07/20/09 11:30
10	EL.072009.113754	WG307570-09	Interference Check		1		07/20/09 11:37
11	EL.072009.114450	WG307570-10	Interference Check		1		07/20/09 11:44
12	EL.072009.115147	WG307570-11	CCV		1		07/20/09 11:51
13	EL.072009.115841	WG307570-12	CCB		1		07/20/09 11:58
14	EL.072009.120514	WG307062-03	Method/Prep Blank	.5/200	1		07/20/09 12:05
15	EL.072009.121127	WG307062-04	Laboratory Control S	.5/200	1		07/20/09 12:11
16	EL.072009.121740	L09060677-01	0906-MMP036-03-SS	.5/200	5		07/20/09 12:17
17	EL.072009.122354	WG307062-01	Reference Sample		5	L09060677-02	07/20/09 12:23
18	EL.072009.123008	WG307062-05	Matrix Spike	.504/200	5	L09060677-02	07/20/09 12:30
19	EL.072009.123623	WG307062-06	Matrix Spike Duplica	.504/200	5	L09060677-02	07/20/09 12:36
20	EL.072009.124238	L09060677-05	0906-MMP036-05-SS	.503/200	5		07/20/09 12:42
21	EL.072009.124853	WG307476-01	Post Digestion Spike		5	L09060677-05	07/20/09 12:48
22	EL.072009.125508	WG307476-02	Serial Dilution		25	L09060677-05	07/20/09 12:55
23	EL.072009.130144	WG307570-13	CCV		1		07/20/09 13:01
24	EL.072009.130838	WG307570-14	CCB		1		07/20/09 13:08
25	EL.072009.131513	L09060677-06	0906-MMP036-06-SS	.509/200	5		07/20/09 13:15
26	EL.072009.132129	L09060677-07	0906-MMP036-07-SS-1	.505/200	5		07/20/09 13:21
27	EL.072009.132746	L09060677-08	0906-MMP036-07-SS-2	.51/200	1		07/20/09 13:27
28	EL.072009.133401	L09060677-09	0906-MMP036-07-SS-3	.518/200	1		07/20/09 13:34
29	EL.072009.134015	L09060677-10	0906-MMP036-08-SS	.511/200	5		07/20/09 13:40
30	EL.072009.134629	L09060677-11	0906-MMP036-09-SS	.514/200	1		07/20/09 13:46
31	EL.072009.135244	L09060677-12	0906-MMP036-10-SS	.511/200	1		07/20/09 13:52
32	EL.072009.135859	L09060677-14	0906-MWD082-09-SS	.513/200	5		07/20/09 13:58
33	EL.072009.140514	L09060677-15	0906-MWD082-10-SS	.514/200	1		07/20/09 14:05
34	EL.072009.141130	L09060677-16	0906-MWD091N-08-SS	.515/200	5		07/20/09 14:11
35	EL.072009.141806	WG307570-15	CCV		1		07/20/09 14:18
36	EL.072009.142500	WG307570-16	CCB		1		07/20/09 14:25
37	EL.072009.143134	L09060677-17	0906-MWD082-06-SS	.52/200	5		07/20/09 14:31

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Approved: July 22, 2009

Maren Beery

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Microbac Laboratories Inc.

Instrument Run Log

Instrument: ELAN-ICP Dataset: 072009A.REP

Analyst1: JYH Analyst2: N/A

Method: SOP: Rev:

Maintenance Log ID: 29493

Calibration Std: STD33660 ICV/CCV Std: STD33775 Post Spike: STD33697

ICSA: STD33928 ICSAB: STD33616 Int. Std: 33807

Workgroups: 307476,307528,307406,307405,307529,306872

Comments:

Seq.	File ID	Sample	ID	Prep	Dil	Reference	Date/Time
38	EL.072009.143750	L09060677-18	0906-MWD091N-04-SS	.513/200	1		07/20/09 14:37
39	EL.072009.144407	L09060677-19	0906-MWD091N-01-SS	.504/200	1		07/20/09 14:44
40	EL.072009.145023	L09060677-20	0906-MWD091N-02-SS	.503/200	1		07/20/09 14:50
41	EL.072009.145640	WG307062-02	Reference Sample		1	L09060677-22	07/20/09 14:56
42	EL.072009.150256	WG307062-07	Matrix Spike	.511/200	1	L09060677-22	07/20/09 15:02
43	EL.072009.150910	WG307062-08	Matrix Spike Duplica	.511/200	1	L09060677-22	07/20/09 15:09
44	EL.072009.151541	L09060677-01	0906-MMP036-03-SS	.5/200	50		07/20/09 15:15
45	EL.072009.152201	WG307062-01	Reference Sample		50	L09060677-02	07/20/09 15:22
46	EL.072009.153059	WG307062-05	Matrix Spike	.504/200	50	L09060677-02	07/20/09 15:30
47	EL.072009.153734	WG307570-17	CCV		1		07/20/09 15:37
48	EL.072009.154428	WG307570-18	CCB		1		07/20/09 15:44
49	EL.072009.155211	WG307062-06	Matrix Spike Duplica	.504/200	50	L09060677-02	07/20/09 15:52
50	EL.072009.155826	WG307476-01	Post Digestion Spike		50		07/20/09 15:58
51	EL.072009.160441	WG307476-01	Post Digestion Spike		50	L09060677-05	07/20/09 16:04
52	EL.072009.161057	WG307476-02	Serial Dilution		250	L09060677-05	07/20/09 16:10
53	EL.072009.161713	L09060677-06	0906-MMP036-06-SS	.509/200	50		07/20/09 16:17
54	EL.072009.162329	L09060677-08	0906-MMP036-07-SS-2	.51/200	10		07/20/09 16:23
55	EL.072009.162944	L09060677-09	0906-MMP036-07-SS-3	.518/200	10		07/20/09 16:29
56	EL.072009.164611	L09060677-10	0906-MMP036-08-SS	.511/200	50		07/20/09 16:46
57	EL.072009.165234	L09060677-11	0906-MMP036-09-SS	.514/200	20		07/20/09 16:52
58	EL.072009.170044	L09060677-12	0906-MMP036-10-SS	.511/200	10		07/20/09 17:00
59	EL.072009.170719	WG307570-19	CCV		1		07/20/09 17:07
60	EL.072009.171414	WG307570-20	CCB		1		07/20/09 17:14
61	EL.072009.172047	L09060677-15	0906-MWD082-10-SS	.514/200	10		07/20/09 17:20
62	EL.072009.172703	L09060677-16	0906-MWD091N-08-SS	.515/200	50		07/20/09 17:27
63	EL.072009.173318	L09060677-17	0906-MWD082-06-SS	.52/200	50		07/20/09 17:33
64	EL.072009.173934	L09060677-18	0906-MWD091N-04-SS		10		07/20/09 17:39
65	EL.072009.174551	L09060677-20	0906-MWD091N-02-SS		10		07/20/09 17:45
66	EL.072009.175208	WG307062-02	Reference Sample		10	L09060677-22	07/20/09 17:52
67	EL.072009.175823	WG307062-07	Matrix Spike		10	L09060677-22	07/20/09 17:58
68	EL.072009.180437	WG307062-08	Matrix Spike Duplica		10	L09060677-22	07/20/09 18:04
69	EL.072009.181112	WG307570-21	CCV		1		07/20/09 18:11
70	EL.072009.181807	WG307570-22	CCB		1		07/20/09 18:18
71	EL.072009.182440	WG307207-02	Method/Prep Blank	.5/200	1		07/20/09 18:24
72	EL.072009.183054	WG307207-03	Laboratory Control S	.5/200	1		07/20/09 18:30
73	EL.072009.183709	L09060692-01	0906-MWD092-05-GF	.554/200	1		07/20/09 18:37
74	EL.072009.184325	WG307207-01	Reference Sample		1	L09060692-02	07/20/09 18:43

Page: 2 Approved: July 22, 2009

Maren Beery

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Run Log ID: **29169**

Microbac Laboratories Inc.

Instrument Run Log

Instrument: ELAN-ICP
Dataset: 072009A.REP
Analyst1: JYH
Analyst2: N/A
Method:
SOP:
Rev:
Maintenance Log ID: 29493

Calibration Std: STD33660
ICV/CCV Std: STD33775
Post Spike: STD33697
ICSA: STD33928
ICSAB: STD33616
Int. Std: 33807

Workgroups: 307476,307528,307406,307405,307529,306872

Comments:

Seq.	File ID	Sample	ID	Prep	Dil	Reference	Date/Time
75	EL.072009.184940	WG307207-04	Matrix Spike	.509/200	1	L09060692-02	07/20/09 18:49
76	EL.072009.185556	WG307207-05	Matrix Spike Duplica	.509/200	1	L09060692-02	07/20/09 18:55
77	EL.072009.190213	L09060692-05	0906-MWD092-04-FB	.51/200	1		07/20/09 19:02
78	EL.072009.190829	L09060692-06	0906-MWD092-02-GF	.502/200	1		07/20/09 19:08
79	EL.072009.191446	WG307528-01	Post Digestion Spike		1	L09060692-06	07/20/09 19:14
80	EL.072009.192104	WG307528-02	Serial Dilution		5	L09060692-06	07/20/09 19:21
81	EL.072009.192740	WG307570-23	CCV		1		07/20/09 19:27
82	EL.072009.193434	WG307570-24	CCB		1		07/20/09 19:34
83	EL.072009.194108	L09060692-07	0906-MBE001-07-GS-1	.516/200	1		07/20/09 19:41
84	EL.072009.194722	L09060692-08	0906-MBE001-07-GS-2	.519/200	1		07/20/09 19:47
85	EL.072009.195337	L09060692-09	0906-MBE001-07-GS-3	.536/200	1		07/20/09 19:53
86	EL.072009.195952	L09060692-10	0906-MBE001-07-FB-1	.509/200	1		07/20/09 19:59
87	EL.072009.200607	L09060692-11	0906-MBE001-07-FB-2	.501/200	1		07/20/09 20:06
88	EL.072009.201223	L09060692-12	0906-MBE001-07-FB-3	.514/200	1		07/20/09 20:12
89	EL.072009.201839	L09060692-13	0906-MBE001-07-SL-ARTR-	.513/200	1		07/20/09 20:18
90	EL.072009.202456	L09060692-14	0906-MBE001-07-SM-ARTR	.556/200	1		07/20/09 20:24
91	EL.072009.203113	L09060692-15	0906-MBE001-07-SL-ARTR-	.521/200	1		07/20/09 20:31
92	EL.072009.203728	L09060686-36	0906-MBE001-04-CS-WILD	.132/200	1		07/20/09 20:37
93	EL.072009.204403	WG307570-25	CCV		1		07/20/09 20:44
94	EL.072009.205057	WG307570-26	CCB		1		07/20/09 20:50
95	EL.072009.205730	L09060686-37	0906-MBE001-10-SL-SYAL	.558/200	1		07/20/09 20:57
96	EL.072009.210344	L09060686-38	0906-MBE001-10-SM-SYAL	.528/200	1		07/20/09 21:03
97	EL.072009.210958	L09060686-39	0906-MWD091S-03-FB	.503/200	1		07/20/09 21:09
98	EL.072009.211613	L09060686-40	0906-MBE001-10-GF	.525/200	1		07/20/09 21:16
99	EL.072009.212228	L09060686-41	0906-MBE001-08-SM-SYAL	.577/200	1		07/20/09 21:22
100	EL.072009.212843	L09060686-46	SPINACH SRM 1570A-2	.584/200	1		07/20/09 21:28
101	EL.072009.213459	L09070188-01	02SB026A (0-6)	.508/200	20		07/20/09 21:34
102	EL.072009.214117	L09070188-02	02SB027A (0-6)	.512/200	20		07/20/09 21:41
103	EL.072009.214735	L09070188-03	02SB028B (12-18)	.503/200	20		07/20/09 21:47
104	EL.072009.215352	L09070188-04	02SB0210 (0-6)	.509/200	20		07/20/09 21:53
105	EL.072009.220027	WG307570-27	CCV		1		07/20/09 22:00
106	EL.072009.220722	WG307570-28	CCB		1		07/20/09 22:07
107	EL.072009.221356	L09070188-05	02SB0211 (0-6)	.521/200	20		07/20/09 22:13
108	EL.072009.222011	L09070188-06	02SB0211 (0-6)DUP	.51/200	20		07/20/09 22:20
109	EL.072009.222627	L09060638-15	0906-MWD091S-02-GF	.524/200	5		07/20/09 22:26
110	EL.072009.223243	WG307405-01	Post Digestion Spike		5	L09060638-15	07/20/09 22:32
111	EL.072009.223859	WG307405-02	Serial Dilution		25	L09060638-15	07/20/09 22:38

Page: 3 Approved: July 22, 2009

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Run Log ID: 29169

Microbac Laboratories Inc.

Instrument Run Log

Instrument: ELAN-ICP
Dataset: 072009A.REP
Analyst1: JYH
Analyst2: N/A
Method:
SOP:
Rev:
Maintenance Log ID: 29493

Calibration Std: STD33660
ICV/CCV Std: STD33775
Post Spike: STD33697
ICSA: STD33928
ICSAB: STD33616
Int. Std: 33807

Workgroups: 307476,307528,307406,307405,307529,306872

Comments:

Seq.	File ID	Sample	ID	Prep	Dil	Reference	Date/Time
112	EL.072009.224516	WG307052-02	Reference Sample		20	L09060686-03	07/20/09 22:45
113	EL.072009.225133	WG307052-07	Matrix Spike	.525/200	20	L09060686-03	07/20/09 22:51
114	EL.072009.225750	WG307052-08	Matrix Spike Duplica	.525/200	20	L09060686-03	07/20/09 22:57
115	EL.072009.230408	L09060686-07	0906-MWD084-04-GF	.532/200	20		07/20/09 23:04
116	EL.072009.231026	L09060686-09	0906-MWD084-10-GF	.509/200	20		07/20/09 23:10
117	EL.072009.231703	WG307570-29	CCV		1		07/20/09 23:17
118	EL.072009.232358	WG307570-30	CCB		1		07/20/09 23:23
119	EL.072009.233034	WG307205-03	Method/Prep Blank	40/100	1		07/20/09 23:30
120	EL.072009.233651	WG307205-04	Laboratory Control S	40/100	1		07/20/09 23:36
121	EL.072009.234306	L09070256-18	0906-ER-VE-12	40/100	1		07/20/09 23:43
122	EL.072009.234922	L09070262-30	0906-ER-VE-52	40/100	1		07/20/09 23:49
123	EL.072009.235538	WG307205-01	Reference Sample		1	L09070280-02	07/20/09 23:55
124	EL.072109.000155	WG307205-05	Matrix Spike	40/100	1	L09070280-02	07/21/09 00:01
125	EL.072109.000812	WG307205-06	Matrix Spike Duplica	40/100	1	L09070280-02	07/21/09 00:08
126	EL.072109.001429	L09070280-08	DRL-G-MW-12A-DIS	40/100	1		07/21/09 00:14
127	EL.072109.002047	WG307529-01	Post Digestion Spike		1	L09070280-08	07/21/09 00:20
128	EL.072109.002705	WG307529-02	Serial Dilution		5	L09070280-08	07/21/09 00:27
129	EL.072109.003342	WG307570-31	CCV		1		07/21/09 00:33
130	EL.072109.004037	WG307570-32	CCB		1		07/21/09 00:40
131	EL.072109.004712	L09070265-08	0906-ER-SS-12	40/100	1		07/21/09 00:47
132	EL.072109.005331	L09070277-06	0906-ER-SS-52	40/100	1		07/21/09 00:53
133	EL.072109.005950	L09070280-10	DRL-G-MW-12B-DIS	40/100	1		07/21/09 00:59
134	EL.072109.010607	L09070280-12	DRL-G-MW-13-DIS	40/100	1		07/21/09 01:06
135	EL.072109.011223	L09070280-14	DRL-G-MW-13A-DIS	40/100	1		07/21/09 01:12
136	EL.072109.011840	L09070280-16	DRL-G-MW-21A-DIS	40/100	1		07/21/09 01:18
137	EL.072109.012456	WG307205-07	Duplicate	40/100	1	L09070280-16	07/21/09 01:24
138	EL.072109.013113	L09070280-18	DRL-G-MW-21A-DUP-DIS	40/100	1		07/21/09 01:31
139	EL.072109.013730	L09070316-02	ANC-SW-6	40/100	1		07/21/09 01:37
140	EL.072109.014407	WG307570-33	CCV		1		07/21/09 01:44
141	EL.072109.015102	WG307570-34	CCB		1		07/21/09 01:51
142	EL.072109.015737	WG306805-03	Method/Prep Blank	40/100	1		07/21/09 01:57
143	EL.072109.020355	WG306805-04	Laboratory Control S	40/100	1		07/21/09 02:03
144	EL.072109.021013	WG306805-01	Reference Sample		10	L09070206-02	07/21/09 02:10
145	EL.072109.021632	WG306805-05	Matrix Spike	40/100	10	L09070206-02	07/21/09 02:16
146	EL.072109.022251	WG306805-06	Matrix Spike Duplica	40/100	10	L09070206-02	07/21/09 02:22
147	EL.072109.022910	L09070206-05	NR-004-602	40/100	10		07/21/09 02:29
148	EL.072109.023528	WG306872-01	Post Digestion Spike		10	L09070206-05	07/21/09 02:35

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Microbac Laboratories Inc.

Instrument Run Log

Instrument: ELAN-ICP
Dataset: 072009A.REP
Analyst1: JYH
Analyst2: N/A
Method:
SOP:
Rev:
Maintenance Log ID: 29493

Calibration Std: STD33660
ICV/CCV Std: STD33775
Post Spike: STD33697
ICSA: STD33928
ICSAB: STD33616
Int. Std: 33807

Workgroups: 307476,307528,307406,307405,307529,306872

Comments:

Seq.	File ID	Sample	ID	Prep	Dil	Reference	Date/Time
149	EL.072109.024144	WG306872-02	Serial Dilution		50	L09070206-05	07/21/09 02:41
150	EL.072109.024820	WG307570-35	CCV		1		07/21/09 02:48
151	EL.072109.025515	WG307570-36	CCB		1		07/21/09 02:55
152	EL.072109.030150	L09070206-06	NR-004-602-FD	40/100	10		07/21/09 03:01
153	EL.072109.030807	L09070206-07	EB-070909	40/100	1		07/21/09 03:08
154	EL.072109.031424	L09070209-18	0906-ER-SS-10	40/100	1		07/21/09 03:14
155	EL.072109.032042	L09070209-29	0906-ER-SS-50	40/100	1		07/21/09 03:20
156	EL.072109.032659	L09070210-24	0906-ER-VE-50	40/100	1		07/21/09 03:26
157	EL.072109.033318	L09070210-44	0906-ER-VE-10	40/100	1		07/21/09 03:33
158	EL.072109.033955	WG307570-37	CCV		1		07/21/09 03:39
159	EL.072109.034650	WG307570-38	CCB		1		07/21/09 03:46
160	EL.072109.035325	WG307435-02	Method/Prep Blank		1		07/21/09 03:53
161	EL.072109.035944	WG307435-03	Laboratory Control S		1		07/21/09 03:59
162	EL.072109.040604	WG307435-01	Reference Sample		1	L09070374-11	07/21/09 04:06
163	EL.072109.041223	WG307435-04	Matrix Spike		1	L09070374-11	07/21/09 04:12
164	EL.072109.041841	WG307435-05	Matrix Spike Duplica		1	L09070374-11	07/21/09 04:18
165	EL.072109.042458	L09070379-01	G-31-GSS005C(0.0-0.5)		1		07/21/09 04:24
166	EL.072109.043115	L09070379-03	G-31-DSS001C(0.0-0.5)		1		07/21/09 04:31
167	EL.072109.043732	WG307541-01	Post Digestion Spike		1	L09070379-03	07/21/09 04:37
168	EL.072109.083429	WG307570-39	QC Std 6		1		07/21/09 08:34

Approved: July 22, 2009

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Checklist ID: 40156

Microbac Laboratories Inc.

Data Checklist

Date: 17-JUL-2009
Analyst: JYH
Analyst: NA
Method: 6020
Instrument: ELAN
Curve Workgroup: 307450
Runlog ID: 29151
Analytical Workgroups: 307404,307367,307407,307405,307406,307033,307156

Calibration/Linearity	X
ICV/CCV	X
ICB/CCB	X
ICSA/ICSAB	X
CRI	X
Blank/LCS	X
MS/MSD	X
Post Spike/Serial Dilution	X
Upload Results	X
Data Qualifiers	
Generate PDF Instrument Data	X
Sign/Annotate PDF Data	X
Upload Curve Data	X
Workgroup Forms	X
Case Narrative	299,315,322,345,314,316,323,677
	679,637,638,686,188,206,594,636
Client Forms	X
Level X	
Level 3	188
Level 4	315,322,316,323,677,679,637,638
	686,206,594,636
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Primary Reviewer	JYH
Secondary Reviewer	MMB
Comments	

Primary Reviewer:

Secondary Reviewer:
20-JUL-2009

Maren Beery

Checklist ID: 40182

Microbac Laboratories Inc.

Data Checklist

Date: 20-JUL-2009
Analyst: JYH
Analyst: NA
Method: 6020
Instrument: ELAN
Curve Workgroup: 307570
Runlog ID: 29169
Analytical Workgroups: 307476,307528,307406,307405,307529,306872

Calibration/Linearity	X
ICV/CCV	X
ICB/CCB	X
ICSA/ICSAB	X
CRI	X
Blank/LCS	X
MS/MSD	X
Post Spike/Serial Dilution	X
Upload Results	X
Data Qualifiers	
Generate PDF Instrument Data	X
Sign/Annotate PDF Data	X
Upload Curve Data	X
Workgroup Forms	X
Case Narrative	677,686,692,188,638,686,256,262
	265,277,280,316,206,209,210
Client Forms	X
Level X	
Level 3	188
Level 4	677,686,692,638,686,262,265,277
	316,206,209,210
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Primary Reviewer	JYH
Secondary Reviewer	MMB
Comments	

Primary Reviewer:

Secondary Reviewer:
22-JUL-2009

Maren Beery

CHECKLIST1 - Modified 03/05/2008
Generated: JUL-22-2009 19:23:38

Microbac Laboratories Inc.

HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: 6020

Login Number: L09070188

AAB#: WG307406

Client ID	ID	Date Collected	TCLP Date	Time Held	Max Hold	Q	Extract Date	Time Held	Max Hold	Q	Run Date	Time Held	Max Hold	Q
02SB026A (0-6)	01	07/09/09					07/15/09	5.9	180		07/20/09	11.5	180	
02SB026A (0-6)	01	07/09/09					07/15/09	5.9	180		07/18/09	8.8	180	
02SB027A (0-6)	02	07/09/09					07/15/09	5.9	180		07/18/09	8.8	180	
02SB027A (0-6)	02	07/09/09					07/15/09	5.9	180		07/20/09	11.5	180	
02SB028B (12-18)	03	07/09/09					07/15/09	5.9	180		07/18/09	8.8	180	
02SB028B (12-18)	03	07/09/09					07/15/09	5.9	180		07/20/09	11.5	180	
02SB0210 (0-6)	04	07/09/09					07/15/09	5.9	180		07/20/09	11.5	180	
02SB0210 (0-6)	04	07/09/09					07/15/09	5.9	180		07/18/09	8.8	180	
02SB0211 (0-6)	05	07/09/09					07/15/09	5.8	180		07/18/09	8.8	180	
02SB0211 (0-6)	05	07/09/09					07/15/09	5.8	180		07/20/09	11.5	180	
02SB0211 (0-6)DUP	06	07/09/09					07/15/09	5.8	180		07/20/09	11.5	180	
02SB0211 (0-6)DUP	06	07/09/09					07/15/09	5.8	180		07/18/09	8.8	180	

* = SEE PROJECT QAPP REQUIREMENTS

HOLD_TIMES - Modified 03/06/2008
PDF File ID: 1444992
Report generated 07/21/2009 12:45

METHOD BLANK SUMMARY

Login Number: L09070188
Work Group: WG307406
Blank File ID: EL.071809.034856
Blank Sample ID: WG307047-02
Prep Date: 07/15/09 06:57
Instrument ID: ELAN-ICP
Analyzed Date: 07/18/09 03:48
Method: 6020
Analyst: JYH

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG307047-03	EL.071809.035515	07/18/09 03:55	01
02SB026A (0-6)	L09070188-01	EL.071809.051823	07/18/09 05:18	01
02SB027A (0-6)	L09070188-02	EL.071809.052442	07/18/09 05:24	01
02SB028B (12-18)	L09070188-03	EL.071809.053102	07/18/09 05:31	01
02SB0210 (0-6)	L09070188-04	EL.071809.053721	07/18/09 05:37	01
02SB0211 (0-6)	L09070188-05	EL.071809.054337	07/18/09 05:43	01
02SB0211 (0-6)DUP	L09070188-06	EL.071809.054955	07/18/09 05:49	01
02SB026A (0-6)	L09070188-01	EL.072009.213459	07/20/09 21:34	DL01
02SB027A (0-6)	L09070188-02	EL.072009.214117	07/20/09 21:41	DL01
02SB028B (12-18)	L09070188-03	EL.072009.214735	07/20/09 21:47	DL01
02SB0210 (0-6)	L09070188-04	EL.072009.215352	07/20/09 21:53	DL01
02SB0211 (0-6)	L09070188-05	EL.072009.221356	07/20/09 22:13	DL01
02SB0211 (0-6)DUP	L09070188-06	EL.072009.222011	07/20/09 22:20	DL01

Report Name: BLANK_SUMMARY
PDF File ID: 1444993
Report generated 07/21/2009 12:45

Microbac Laboratories Inc.

METHOD BLANK REPORT

Login Number: L09070188
Prep Date: 07/15/09 06:57
Sample ID: WG307047-02
Instrument ID: ELAN-ICP
Run Date: 07/18/09 03:48
Prep Method: 3051
File ID: EL.071809.034856
Analyst: JYH
Method: 6020
Workgroup (AAB#): WG307406
Matrix: Soil
Units: mg/kg
Contract #: DACA56-94-D-0020
Cal ID: ELAN-I - 17-JUL-09

Analytes	SDL	PQL	Concentration	Dilution	Qualifier
Arsenic, Total	0.0750	0.300	0.0750	1	U
Cadmium, Total	0.0250	0.100	0.0250	1	U
Copper, Total	0.150	0.600	0.150	1	U
Lead, Total	0.100	0.200	0.100	1	U

SDL	Method Detection Limit
PQL	Reporting/Practical Quantitation Limit
ND	Analyte Not detected at or above reporting limit
*	|Analyte concentration| > RL

Report Name: BLANK
PDF ID: 1444994
21-JUL-2009 12:45

Microbac Laboratories Inc.
LABORATORY CONTROL SAMPLE (LCS)

Login Number: L09070188
Run Date: 07/18/2009
Sample ID: WG307047-03
Instrument ID: ELAN-ICP
Run Time: 03:55
Prep Method: 3051
File ID: EL.071809.035515
Analyst: JYH
Method: 6020
Workgroup (AAB#): WG307406
Matrix: Soil
Units: mg/kg
QC Key: STD
Lot#: STD33694
Cal ID: ELAN-I - 17-JUL-09

Analytes	Expected	Found	% Rec	LCS Limits	Q
Arsenic, Total	10.0	9.51	95.1	80 - 120	
Cadmium, Total	10.0	9.53	95.3	80 - 120	
Copper, Total	10.0	9.41	94.1	80 - 120	
Lead, Total	10.0	9.29	92.9	80 - 120	

LCS - Modified 03/06/2008
PDF File ID: 1444995
Report generated: 07/21/2009 12:45

MATRIX SPIKE AND MATRIX SPIKE DUP (MS/MSD)

Loginnum:L09070188 Cal ID: ELAN-ICP - Worknum:WG307406
Instrument ID:ELAN-ICP Contract #:DACA56-94-D-0020 Method:6020
Parent ID:WG307047-01 File ID:EL.071809.040135 Dil:5 Matrix:SOLID
Sample ID:WG307047-04 MS File ID:EL.071809.040753 Dil:5 Units:mg/kg
Sample ID:WG307047-05 MSD File ID:EL.071809.041409 Dil:5 Percent Solid:82.7

Analyte	Parent	MS Spiked	MS Found	MS %Rec	MSD Spiked	MSD Found	MSD %Rec	%RPD	%Rec Limits	RPD Limit	Q
Arsenic, Total	6.94	11.4	18.0	97.0	11.4	19.3	108	6.58	75 - 125	20	
Cadmium, Total	0.0983	11.4	10.5	91.1	11.4	11.2	96.8	5.97	75 - 125	20	
Copper, Total, Total	2.87	11.4	13.1	89.2	11.4	13.6	94.3	4.35	75 - 125	20	
Lead, Total, Total	3.30	11.4	13.5	88.9	11.4	14.4	96.7	6.41	75 - 125	20	

* FAILS %REC LIMIT

FAILS RPD LIMIT

NOTE: This is an internal quality control sample.

WG_MS_MSD_DRYWT - Modified 03/07/2008
PDF File ID: 1444996
Report generated 07/21/2009 12:45

Microbac Laboratories Inc.
Serial Dilution Report

Login: L09070188 **Worknum:** WG307406
Instrument: ELAN-ICP **Method:** 6020
Serial Dil: WG307406-02 **File ID:** EL.071809.043919 **Dil:** 25 **Units:** ug/L
Sample: L09070206-04 **File ID:** EL.071809.042643 **Dil:** 5

Analyte	Sample	Qual	Serial Dil	Qual	% Diff	Q
Arsenic	329.5		365		10.80	E
Cadmium	6.75	X	7.9	X	17.00	
Copper	189.5		187	X	1.32	
Lead	175		174.5		0.29	

U = Result is below MDL.
F = Result is greater than or equal to MDL and less than the RL.
X = Result is greater than or equal to RL and less than 100 times the MDL.
E = %D exceeds control limit of 10% and initial sample result is greater than or equal to 100 times the MDL.

SERIAL_DIL - Modified 09/22/2008
PDF File ID: 1444990
07/21/2009 12:45

Microbac Laboratories Inc.
POST SPIKE REPORT

Sample Login ID: L09070188
Worknum: WG307406
Instrument ID: ELAN-ICP
Method: 6020
Post Spike ID: WG307406-01 **File ID:** EL.071809.043301 **Dil:** 5
Units: ug/L
Sample ID: L09070206-04 **File ID:** EL.071809.042643 **Dil:** 5
Matrix: Soil

Analyte	Post Spike Result	C	Sample Result	C	Spike Added(SA)	% R	Control Limit %R	Q
ARSENIC	118		65.9		50	104.4	75 - 125	
CADMIUM	46.8		1.35		50	90.9	75 - 125	
COPPER	81.7		37.9		50	87.5	75 - 125	
LEAD	89.9		35.0		50	109.8	75 - 125	

N = % Recovery exceeds control limits
F = Result is between MDL and RL
U = Sample result is below MDL. A value of zero is used in the calculation

POST_SPIKE - Modified 03/06/2008
PDF File ID: 1444991
Report generated: 07/21/2009 12:45

Microbac Laboratories Inc.
Initial Calibration Summary

Login: **L09070188**
Analytical Method: **6020**
ICAL Worknum: **WG307450**
Workgroup (AAB#): **WG307406**
Instrument ID: **ELAN-ICP**
Initial Calibration Date: **17-JUL-2009 11:24**

	WG307450-01		WG307450-02		WG307450-03		WG307450-04			
	Conc	INT	Conc	INT	Conc	INT	Conc	INT	R	Q
ARSENIC	0	-293	.4	489	50	92600	100	183000	.999997	
CADMIUM	0	7.34	.4	720	50	85700	100	172000	.999989	
COPPER	0	98.0	.4	1310	50	143000	100	275000	.999904	
LEAD	0	179	.4	10500	50	1270000	100	2510000	1	

INT = Instrument intensity
R = Coefficient of correlation
Q = Data Qualifier
*** = Out of Compliance; R < 0.995**

INT_CAL_ICP - Modified 03/06/2008
PDF File ID: 1445000
Report generated: 21-JUL-2009 12:45

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Microbac Laboratories Inc.
Initial Calibration Summary

Login: **L09070188** Workgroup (AAB#): **WG307406**
Analytical Method: **6020** Instrument ID: **ELAN-ICP**
ICAL Worknum: **WG307570** Initial Calibration Date: **20-JUL-2009 11:04**

	WG307570-01		**WG307570-02**		**WG307570-03**		**WG307570-04**			
	Conc	**INT**	**Conc**	**INT**	**Conc**	**INT**	**Conc**	**INT**	**R**	**Q**
ARSENIC	0	-194	.4	441	50	72100	100	141000	1	
CADMIUM	0	3.23	.4	563	50	61900	100	124000	.999833	
COPPER	0	118	.4	1020	50	107000	100	206000	.999993	
LEAD	0	243	.4	9320	50	1050000	100	2070000	.999955	

INT = Instrument intensity
R = Coefficient of correlation
Q = Data Qualifier
*** = Out of Compliance; R < 0.995**

INT_CAL_ICP - Modified 03/06/2008
PDF File ID: 1445000
Report generated: 21-JUL-2009 12:45

Microbac Laboratories Inc.
INITIAL CALIBRATION BLANK (ICB)

Login Number: L09070188
Instrument ID: ELAN-ICP
File ID: EL.071709.113643
Workgroup (AAB#): WG307406
Matrix: SOIL

Run Date: 07/17/2009
Run Time: 11:36
Analyst: JYH
Cal ID: ELAN-ICP - 17-JUL-09

Sample ID: WG307450-06
Method: 6020
Units: ug/L

Analytes	MDL	RDL	Concentration	Qualifier
ARSENIC	.1875	.75	.1875	U
CADMIUM	.0625	.25	.0625	U
COPPER	.375	1.5	.375	U
LEAD	.25	.5	.25	U

ICB - Modified 07/14/2009
PDF File ID: 1445002
Report generated 07/21/2009 12:45

Microbac Laboratories Inc.
INITIAL CALIBRATION BLANK (ICB)

Login Number: L09070188
Instrument ID: ELAN-ICP
File ID: EL.072009.111701
Workgroup (AAB#): WG307406
Matrix: SOIL

Run Date: 07/20/2009
Run Time: 11:17
Analyst: JYH
Cal ID: ELAN-ICP - 20-JUL-09

Sample ID: WG307570-06
Method: 6020
Units: ug/L

Analytes	MDL	RDL	Concentration	Qualifier
ARSENIC	.1875	.75	.1875	U
CADMIUM	.0625	.25	.0625	U
COPPER	.375	1.5	.375	U
LEAD	.25	.5	.25	U

ICB - Modified 07/14/2009
PDF File ID: 1445002
Report generated 07/21/2009 12:45

Microbac Laboratories Inc.
CONTINUING CALIBRATION BLANK (CCB)

Login Number: L09070188
Run Date: 07/17/2009
Sample ID: WG307450-12
Instrument ID: ELAN-ICP
Run Time: 12:18
Method: 6020
File ID: EL.071709.121823
Analyst: JYH
Units: ug/L
Workgroup (AAB#): WG307406
Cal ID: ELAN-I - 17-JUL-09
Matrix: SOIL

Analytes	MDL	RDL	Concentration	Qualifier
Arsenic	0.188	0.750	0.188	U
Cadmium	0.0625	0.250	0.0625	U
Copper	0.375	1.50	0.375	U
Lead	0.250	0.500	0.250	U

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

CCB - Modified 03/05/2008
PDF File ID: 1445005
Report generated 07/21/2009 12:45

Microbac Laboratories Inc.
CONTINUING CALIBRATION BLANK (CCB)

Login Number: L09070188
Run Date: 07/17/2009
Sample ID: WG307450-20
Instrument ID: ELAN-ICP
Run Time: 17:26
Method: 6020
File ID: EL.071709.172647
Analyst: JYH
Units: ug/L
Workgroup (AAB#): WG307406
Cal ID: ELAN-I - 17-JUL-09
Matrix: SOIL

Analytes	MDL	RDL	Concentration	Qualifier
Arsenic	0.188	0.750	0.188	U
Cadmium	0.0625	0.250	0.0625	U
Copper	0.375	1.50	0.375	U
Lead	0.250	0.500	0.250	U

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

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Report generated 07/21/2009 12:45

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CONTINUING CALIBRATION BLANK (CCB)

Login Number: L09070188
Run Date: 07/17/2009
Sample ID: WG307450-24
Instrument ID: ELAN-ICP
Run Time: 17:54
Method: 6020
File ID: EL.071709.175429
Analyst: JYH
Units: ug/L
Workgroup (AAB#): WG307406
Cal ID: ELAN-I - 17-JUL-09
Matrix: SOIL

Analytes	MDL	RDL	Concentration	Qualifier
Arsenic	0.188	0.750	0.188	U
Cadmium	0.0625	0.250	0.0625	U
Copper	0.375	1.50	0.375	U
Lead	0.250	0.500	0.250	U

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

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CONTINUING CALIBRATION BLANK (CCB)

Login Number: L09070188
Run Date: 07/18/2009
Sample ID: WG307450-40
Instrument ID: ELAN-ICP
Run Time: 03:42
Method: 6020
File ID: EL.071809.034220
Analyst: JYH
Units: ug/L
Workgroup (AAB#): WG307406
Cal ID: ELAN-I - 17-JUL-09
Matrix: SOIL

Analytes	MDL	RDL	Concentration	Qualifier
Arsenic	0.188	0.750	0.188	U
Cadmium	0.0625	0.250	0.0625	U
Copper	0.375	1.50	0.375	U
Lead	0.250	0.500	0.250	U

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

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CONTINUING CALIBRATION BLANK (CCB)

Login Number: L09070188
Run Date: 07/18/2009
Sample ID: WG307450-42
Instrument ID: ELAN-ICP
Run Time: 04:52
Method: 6020
File ID: EL.071809.045250
Analyst: JYH
Units: ug/L
Workgroup (AAB#): WG307406
Cal ID: ELAN-I - 17-JUL-09
Matrix: SOIL

Analytes	MDL	RDL	Concentration	Qualifier
Arsenic	0.188	0.750	0.188	U
Cadmium	0.0625	0.250	0.0625	U
Copper	0.375	1.50	0.375	U
Lead	0.250	0.500	0.250	U

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

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CONTINUING CALIBRATION BLANK (CCB)

Login Number: L09070188
Run Date: 07/18/2009
Sample ID: WG307450-44
Instrument ID: ELAN-ICP
Run Time: 06:09
Method: 6020
File ID: EL.071809.060944
Analyst: JYH
Units: ug/L
Workgroup (AAB#): WG307406
Cal ID: ELAN-I - 17-JUL-09
Matrix: SOIL

Analytes	MDL	RDL	Concentration	Qualifier
Arsenic	0.188	0.750	0.188	U
Cadmium	0.0625	0.250	0.0625	U
Copper	0.375	1.50	0.375	U
Lead	0.250	0.500	0.250	U

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

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Report generated 07/21/2009 12:45

CONTINUING CALIBRATION BLANK (CCB)

Login Number: L09070188
Run Date: 07/20/2009
Sample ID: WG307570-12
Instrument ID: ELAN-ICP
Run Time: 11:58
Method: 6020
File ID: EL.072009.115841
Analyst: JYH
Units: ug/L
Workgroup (AAB#): WG307406
Cal ID: ELAN-I - 20-JUL-09
Matrix: SOIL

Analytes	MDL	RDL	Concentration	Qualifier
Arsenic	0.188	0.750	0.188	U
Cadmium	0.0625	0.250	0.0625	U
Copper	0.375	1.50	0.375	U
Lead	0.250	0.500	0.250	U

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

CCB - Modified 03/05/2008
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Report generated 07/21/2009 12:45

CONTINUING CALIBRATION BLANK (CCB)

Login Number: L09070188
Run Date: 07/20/2009
Sample ID: WG307570-26
Instrument ID: ELAN-ICP
Run Time: 20:50
Method: 6020
File ID: EL.072009.205057
Analyst: JYH
Units: ug/L
Workgroup (AAB#): WG307406
Cal ID: ELAN-I - 20-JUL-09
Matrix: SOIL

Analytes	MDL	RDL	Concentration	Qualifier
Arsenic	0.188	0.750	0.188	U
Cadmium	0.0625	0.250	0.0625	U
Copper	0.375	1.50	0.375	U
Lead	0.250	0.500	0.250	U

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

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CONTINUING CALIBRATION BLANK (CCB)

Login Number: L09070188
Run Date: 07/20/2009
Sample ID: WG307570-28
Instrument ID: ELAN-ICP
Run Time: 22:07
Method: 6020
File ID: EL.072009.220722
Analyst: JYH
Units: ug/L
Workgroup (AAB#): WG307406
Cal ID: ELAN-I - 20-JUL-09
Matrix: SOIL

Analytes	MDL	RDL	Concentration	Qualifier
Arsenic	0.188	0.750	0.188	U
Cadmium	0.0625	0.250	0.0625	U
Copper	0.375	1.50	0.375	U
Lead	0.250	0.500	0.250	U

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

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CONTINUING CALIBRATION BLANK (CCB)

Login Number: L09070188
Run Date: 07/20/2009
Sample ID: WG307570-30
Instrument ID: ELAN-ICP
Run Time: 23:23
Method: 6020
File ID: EL.072009.232358
Analyst: JYH
Units: ug/L
Workgroup (AAB#): WG307406
Cal ID: ELAN-I - 20-JUL-09
Matrix: SOIL

Analytes	MDL	RDL	Concentration	Qualifier
Arsenic	0.188	0.750	0.188	U
Cadmium	0.0625	0.250	0.0625	U
Copper	0.375	1.50	0.375	U
Lead	0.250	0.500	0.250	U

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

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Report generated 07/21/2009 12:45

Microbac Laboratories Inc.

INITIAL CALIBRATION VERIFICATION (ICV)
(Alternate Source)

Login Number: L09070188
Run Date: 07/17/2009
Sample ID: WG307450-05
Instrument ID: ELAN-ICP
Run Time: 11:29
Method: 6020
File ID: EL.071709.112948
Analyst: JYH
Units: ug/L
Workgroup (AAB#): WG307406
Cal ID: ELAN-I - 17-JUL-09
QC Key: STD

Analyte		Expected	Found	%REC	LIMITS	Q
Arsenic		50	48.5	97.0	90 - 110	
Cadmium		50	47.1	94.1	90 - 110	
Copper		50	48.5	96.9	90 - 110	
Lead		50	48.0	96.0	90 - 110	

* Exceeds LIMITS Limit

ICV - Modified 03/06/2008
PDF File ID: 1445001
Report generated 07/21/2009 12:45

Microbac Laboratories Inc.

INITIAL CALIBRATION VERIFICATION (ICV)
(Alternate Source)

Login Number: L09070188
Run Date: 07/20/2009
Sample ID: WG307570-05
Instrument ID: ELAN-ICP
Run Time: 11:10
Method: 6020
File ID: EL.072009.111007
Analyst: JYH
Units: ug/L
Workgroup (AAB#): WG307406
Cal ID: ELAN-I - 20-JUL-09
QC Key: STD

Analyte		Expected	Found	%REC	LIMITS	Q
Arsenic		50	48.2	96.4	90 - 110	
Cadmium		50	49.4	98.9	90 - 110	
Copper		50	47.8	95.7	90 - 110	
Lead		50	48.1	96.1	90 - 110	

* Exceeds LIMITS Limit

ICV - Modified 03/06/2008
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CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L09070188
Run Date: 07/17/2009
Sample ID: WG307450-11
Instrument ID: ELAN-ICP
Run Time: 12:11
Method: 6020
File ID: EL.071709.121128
Analyst: JYH
QC Key: STD
Workgroup (AAB#): WG307406
Cal ID: ELAN-I - 17-JUL-09
Matrix: SOIL

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Arsenic		50.0	49.9	ug/L	99.8	90 - 110		
Cadmium		50.0	47.9	ug/L	95.8	90 - 110		
Copper		50.0	49.2	ug/L	98.5	90 - 110		
Lead		50.0	49.6	ug/L	99.1	90 - 110		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008
PDF File ID: 1445004
Report generated 07/21/2009 12:45

Microbac Laboratories Inc.
CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L09070188
Run Date: 07/17/2009
Sample ID: WG307450-19
Instrument ID: ELAN-ICP
Run Time: 17:19
Method: 6020
File ID: EL.071709.171953
Analyst: JYH
QC Key: STD
Workgroup (AAB#): WG307406
Cal ID: ELAN-I - 17-JUL-09
Matrix: SOIL

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Arsenic		50.0	49.8	ug/L	99.5	90 - 110		
Cadmium		50.0	47.5	ug/L	95.1	90 - 110		
Copper		50.0	48.4	ug/L	96.7	90 - 110		
Lead		50.0	48.0	ug/L	95.9	90 - 110		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008
PDF File ID: 1445004
Report generated 07/21/2009 12:45

Microbac Laboratories Inc.

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L09070188
Run Date: 07/17/2009
Sample ID: WG307450-23
Instrument ID: ELAN-ICP
Run Time: 17:47
Method: 6020
File ID: EL.071709.174734
Analyst: JYH
QC Key: STD
Workgroup (AAB#): WG307406
Cal ID: ELAN-I - 17-JUL-09
Matrix: SOIL

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Arsenic		50.0	49.4	ug/L	98.9	90 - 110		
Cadmium		50.0	47.5	ug/L	95.0	90 - 110		
Copper		50.0	48.7	ug/L	97.4	90 - 110		
Lead		50.0	49.2	ug/L	98.5	90 - 110		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008
PDF File ID: 1445004
Report generated 07/21/2009 12:45

Microbac Laboratories Inc.

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L09070188
Run Date: 07/18/2009
Sample ID: WG307450-39
Instrument ID: ELAN-ICP
Run Time: 03:35
Method: 6020
File ID: EL.071809.033525
Analyst: JYH
QC Key: STD
Workgroup (AAB#): WG307406
Cal ID: ELAN-I - 17-JUL-09
Matrix: SOIL

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Arsenic		50.0	48.5	ug/L	96.9	90 - 110		
Cadmium		50.0	47.4	ug/L	94.8	90 - 110		
Copper		50.0	47.3	ug/L	94.6	90 - 110		
Lead		50.0	47.6	ug/L	95.2	90 - 110		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008
PDF File ID: 1445004
Report generated 07/21/2009 12:45

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CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L09070188
Run Date: 07/18/2009
Sample ID: WG307450-41
Instrument ID: ELAN-ICP
Run Time: 04:45
Method: 6020
File ID: EL.071809.044556
Analyst: JYH
QC Key: STD
Workgroup (AAB#): WG307406
Cal ID: ELAN-I - 17-JUL-09
Matrix: SOIL

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Arsenic		50.0	49.5	ug/L	98.9	90 - 110		
Cadmium		50.0	46.7	ug/L	93.3	90 - 110		
Copper		50.0	46.1	ug/L	92.2	90 - 110		
Lead		50.0	47.5	ug/L	95.1	90 - 110		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008
PDF File ID: 1445004
Report generated 07/21/2009 12:45

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CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L09070188
Run Date: 07/18/2009
Sample ID: WG307450-43
Instrument ID: ELAN-ICP
Run Time: 06:02
Method: 6020
File ID: EL.071809.060249
Analyst: JYH
QC Key: STD
Workgroup (AAB#): WG307406
Cal ID: ELAN-I - 17-JUL-09
Matrix: SOIL

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Arsenic		50.0	48.7	ug/L	97.4	90 - 110		
Cadmium		50.0	47.3	ug/L	94.6	90 - 110		
Copper		50.0	46.0	ug/L	92.0	90 - 110		
Lead		50.0	46.6	ug/L	93.3	90 - 110		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008
PDF File ID: 1445004
Report generated 07/21/2009 12:45

Microbac Laboratories Inc.
CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L09070188
Run Date: 07/20/2009
Sample ID: WG307570-11
Instrument ID: ELAN-ICP
Run Time: 11:51
Method: 6020
File ID: EL.072009.115147
Analyst: JYH
QC Key: STD
Workgroup (AAB#): WG307406
Cal ID: ELAN-I - 20-JUL-09
Matrix: SOIL

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Arsenic		50.0	48.2	ug/L	96.3	90 - 110		
Cadmium		50.0	48.5	ug/L	97.1	90 - 110		
Copper		50.0	48.3	ug/L	96.6	90 - 110		
Lead		50.0	48.6	ug/L	97.3	90 - 110		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008
PDF File ID: 1445004
Report generated 07/21/2009 12:45

Microbac Laboratories Inc.
CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L09070188
Instrument ID: ELAN-ICP
File ID: EL.072009.204403
Workgroup (AAB#): WG307406
Matrix: SOIL

Run Date: 07/20/2009
Run Time: 20:44
Analyst: JYH
Cal ID: ELAN-I - 20-JUL-09

Sample ID: WG307570-25
Method: 6020
QC Key: STD

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Arsenic		50.0	47.2	ug/L	94.4	90 - 110		
Cadmium		50.0	47.1	ug/L	94.3	90 - 110		
Copper		50.0	48.5	ug/L	96.9	90 - 110		
Lead		50.0	49.1	ug/L	98.2	90 - 110		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008
PDF File ID: 1445004
Report generated 07/21/2009 12:45

Microbac®

Microbac Laboratories Inc.
CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L09070188
Run Date: 07/20/2009
Sample ID: WG307570-27
Instrument ID: ELAN-ICP
Run Time: 22:00
Method: 6020
File ID: EL.072009.220027
Analyst: JYH
QC Key: STD
Workgroup (AAB#): WG307406
Cal ID: ELAN-I - 20-JUL-09
Matrix: SOIL

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Arsenic		50.0	48.1	ug/L	96.2	90 - 110		
Cadmium		50.0	48.8	ug/L	97.6	90 - 110		
Copper		50.0	48.6	ug/L	97.1	90 - 110		
Lead		50.0	48.1	ug/L	96.2	90 - 110		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008
PDF File ID: 1445004
Report generated 07/21/2009 12:45

Microbac Laboratories Inc.
CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L09070188
Instrument ID: ELAN-ICP
File ID: EL.072009.231703
Workgroup (AAB#): WG307406
Matrix: SOIL

Run Date: 07/20/2009
Run Time: 23:17
Analyst: JYH
Cal ID: ELAN-I - 20-JUL-09

Sample ID: WG307570-29
Method: 6020
QC Key: STD

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Arsenic		50.0	48.4	ug/L	96.8	90 - 110		
Cadmium		50.0	48.3	ug/L	96.6	90 - 110		
Copper		50.0	48.1	ug/L	96.3	90 - 110		
Lead		50.0	47.7	ug/L	95.3	90 - 110		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008
PDF File ID: 1445004
Report generated 07/21/2009 12:45

Microbac Laboratories Inc.
INTERFERENCE CHECK SAMPLES

Login number: L09070188
Instrument ID: ELAN-ICP
Sol. A : WG307450-21
Sol. AB : WG307450-22

File ID: EL.071709.173342
File ID: EL.071709.174038

Workgroup (AAB#): WG307406
Method: 6020
Units: ug/L
Matrix: Soil

	Sol. A			**Sol. AB**			
ANALYTE	True	Found	%Recovery	True	Found	%Recovery	Q
Arsenic	NS	-0.0530	NS	100	104	104	
Cadmium	NS	0.0835	NS	100	95.7	95.7	
Copper	NS	0.285	NS	100	96.7	96.7	
Lead	NS	0.0160	NS	100	99.5	99.5	

NS = Not spiked

*** = Recovery of spiked element is outside acceptance limit of 80% - 120% of true value.**
 # = Result for unspiked element is outside the acceptance limits of (+/-) the project reporting limit (RL).

ICS - Modified 03/06/2008
PDF File ID: 1445003
Report generated 07/21/2009 12:45

Microbac Laboratories Inc.
INTERFERENCE CHECK SAMPLES

Login number: L09070188
Instrument ID: ELAN-ICP
Sol. A : WG307570-09 **File ID:** EL.072009.113754
Sol. AB : WG307570-10 **File ID:** EL.072009.114450

Workgroup (AAB#): WG307406
Method: 6020
Units: ug/L
Matrix: Soil

	Sol. A			Sol. AB			
ANALYTE	True	Found	%Recovery	True	Found	%Recovery	Q
Arsenic	NS	-0.0362	NS	100	101	101	
Cadmium	NS	0.0196	NS	100	101	101	
Copper	NS	0.324	NS	100	97.1	97.1	
Lead	NS	0.00230	NS	100	101	101	

NS = Not spiked
*** = Recovery of spiked element is outside acceptance limit of 80% - 120% of true value.**
 # = Result for unspiked element is outside the acceptance limits of (+/-) the project reporting limit (RL).

Microbac Laboratories Inc.
CRI SAMPLE

Login Number: L09070188
Instrument ID: ELAN-ICP
File ID: EL.071709.114338
Workgroup (AAB#): WG307450
Contract #: DACA56-94-D-0020
Run Date: 07/17/2009
Run Time: 11:43
Analyst: JYH
Matrix: Soil
Cal ID: ELAN-ICP - 17-JUL-2009 11:24
Sample ID: WG307450-07
Prep Method: 3051
Method: 6020
Units: ug/L

Analytes	Expected	Found	% Rec	Limits	Q
Cadmium, Total	0.250	0.205	82.0	50 - 150	

CRI - Modified 03/06/2008
PDF File ID: 1444998
Report generated 07/21/2009 12:45

CRI SAMPLE

Login Number: L09070188
Run Date: 07/20/2009
Sample ID: WG307570-07
Instrument ID: ELAN-ICP
Run Time: 11:23
Prep Method: 3051
File ID: EL.072009.112357
Analyst: JYH
Method: 6020
Workgroup (AAB#): WG307570
Matrix: Soil
Units: ug/L
Contract #: DACA56-94-D-0020
Cal ID: ELAN-ICP - 20-JUL-2009 11:04

Analytes	Expected	Found	% Rec	Limits	Q
Arsenic, Total	0.750	0.762	102	50 - 150	
Cadmium, Total	0.250	0.231	92.4	50 - 150	
Copper, Total	1.50	1.52	101	50 - 150	

CRI - Modified 03/06/2008
PDF File ID: 1444998
Report generated 07/21/2009 12:45

Microbac Laboratories Inc.

INTERNAL STANDARD REPORT

Login: L09070188 **Analytical Method:** 6020
Analytical Workgroup: WG307406 **Matrix:** 7
Instrument: ELAN-ICP **Analyst:** JYH
ICAL Date: 17-JUL-2009 11:06

			BISMUTH	GERMANIUM	INDIUM	TERBIUM
Sample	**Type**	**Run Date**	**% Rec**	**% Rec**	**% Rec**	**% Rec**
L09070188-01	SAMP	18-JUL-2009 05:18	78.866	63.307	71.117	77.449
L09070188-02	SAMP	18-JUL-2009 05:24	78.084	66.472	71.386	76.483
L09070188-03	SAMP	18-JUL-2009 05:31	76.936	68.458	72.647	77.018
L09070188-04	SAMP	18-JUL-2009 05:37	78.361	70.298	75.088	79.609
L09070188-05	SAMP	18-JUL-2009 05:43	77.716	70.769	73.568	79.509
L09070188-06	SAMP	18-JUL-2009 05:49	76.954	69.527	73.777	78.722
L09070206-04	SAMP	18-JUL-2009 04:26	51.324	58.61	62.535	65.579
WG307047-01	REF	18-JUL-2009 04:01	77.92	82.908	83.086	84.632
WG307047-02	BLANK	18-JUL-2009 03:48	81.926	85.325	85.899	87.182
WG307047-03	LCS	18-JUL-2009 03:55	86.173	85.383	85.038	86.245
WG307047-04	MS	18-JUL-2009 04:07	78.985	84.428	83.102	83.806
WG307047-05	MSD	18-JUL-2009 04:14	78.861	84.088	83.878	85.294
WG307406-01	PSPK	18-JUL-2009 04:33	49.73	55.516	54.483	67.317
WG307406-02	SERIAL	18-JUL-2009 04:39	66.436	58.926	65.909	71.233
WG307450-05	ICV	17-JUL-2009 11:29	97.751	97.727	98.727	98.758
WG307450-06	ICB	17-JUL-2009 11:36	97.306	97.817	98.662	98.56
WG307450-11	CCV	17-JUL-2009 12:11	94.728	97.941	97.085	97.542
WG307450-12	CCB	17-JUL-2009 12:18	97.686	99.42	99.184	99.77
WG307450-19	CCV	17-JUL-2009 17:19	88.376	87.423	91.056	91.965
WG307450-20	CCB	17-JUL-2009 17:26	86.976	85.939	89.806	90.777
WG307450-23	CCV	17-JUL-2009 17:47	87.298	89.006	90.467	90.15
WG307450-24	CCB	17-JUL-2009 17:54	89.397	89.696	93.127	91.567
WG307450-39	CCV	18-JUL-2009 03:35	85.518	85.341	84.47	86.4
WG307450-40	CCB	18-JUL-2009 03:42	84.558	84.513	84.811	86.403
WG307450-41	CCV	18-JUL-2009 04:45	76.456	62.577	71.855	78.061
WG307450-42	CCB	18-JUL-2009 04:52	76.959	61.043	71.464	77.668
WG307450-43	CCV	18-JUL-2009 06:02	80.534	73.53	78.709	82.541
WG307450-44	CCB	18-JUL-2009 06:09	80.092	72.974	78.917	82.006

Acceptance criteria: 30% - 120%
Underlined recoveries are out of range

INT_STD_ICPMS - Modified 03/05/2008
PDF File ID: 1445006
Report generated: 07/21/2009 12:45

Microbac Laboratories Inc.

INTERNAL STANDARD REPORT

Login: L09070188 **Analytical Method:** 6020
Analytical Workgroup: WG307406 **Matrix:** 7
Instrument: ELAN-ICP **Analyst:** JYH
ICAL Date: 20-JUL-2009 10:47

			BISMUTH	GERMANIUM	INDIUM	TERBIUM
Sample	**Type**	**Run Date**	**% Rec**	**% Rec**	**% Rec**	**% Rec**
L09070188-01	SAMP	20-JUL-2009 21:34	91.152	97.368	90.49	92.388
L09070188-02	SAMP	20-JUL-2009 21:41	93.27	98.809	92.326	93.135
L09070188-03	SAMP	20-JUL-2009 21:47	92.516	95.487	90.777	91.604
L09070188-04	SAMP	20-JUL-2009 21:53	90.564	95.472	89.464	90.634
L09070188-05	SAMP	20-JUL-2009 22:13	91.869	96.094	92.66	93.605
L09070188-06	SAMP	20-JUL-2009 22:20	92.829	97.882	92.325	93.087
WG307570-05	ICV	20-JUL-2009 11:10	99.133	100.103	96.426	97.545
WG307570-06	ICB	20-JUL-2009 11:17	98.542	97.917	96.675	97.681
WG307570-11	CCV	20-JUL-2009 11:51	96.858	103.79	95.605	96.464
WG307570-12	CCB	20-JUL-2009 11:58	98.371	103.979	96.068	96.926
WG307570-25	CCV	20-JUL-2009 20:44	91.439	97.801	89.779	90.826
WG307570-26	CCB	20-JUL-2009 20:50	92.293	98.168	89.772	90.828
WG307570-27	CCV	20-JUL-2009 22:00	93.004	95.861	89.975	92.186
WG307570-28	CCB	20-JUL-2009 22:07	93.365	94.487	89.719	91.892
WG307570-29	CCV	20-JUL-2009 23:17	92.994	95.104	90.142	91.861
WG307570-30	CCB	20-JUL-2009 23:23	94.181	97.677	91.921	93.97

Acceptance criteria: 30% - 120%
Underlined recoveries are out of range

INT_STD_ICPMS - Modified 03/05/2008
PDF File ID: 1445006
Report generated: 07/21/2009 12:45

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Microbac Laboratories Inc.
LINEAR RANGE (QUARTERLY)

Login Number: L09070188 **Date:** 06/08/2009
Insturment ID: ELAN-ICP **Method:** 6020

Analyte	Integration Time (Sec.)	Concentration (ug/L)
Antimony	1.00	100.0
Arsenic	1.00	100.0
Barium	1.00	100.0
Cadmium	1.00	100.0
Chromium	1.00	100.0
Cobalt	1.00	100.0
Copper	1.00	100.0
Lead	1.00	100.0
Manganese	1.00	100.0
Nickel	1.00	100.0
Selenium	1.00	100.0
Silver	1.00	100.0
Thallium	1.00	100.0
Vanadium	1.00	100.0
Zinc	1.00	100.0

Microbac Laboratories Inc.
LINEAR RANGE (QUARTERLY)

Login Number: L09070188 **Date:** 06/17/2009

Insturment ID: ELAN-ICP **Method:** 6020

Analyte	Integration Time (Sec.)	Concentration (ug/L)
Uranium	1.00	100.0

Comments:
All analytes passed acceptance criteria at the specified concentration.

LINEAR_RANGE - Modified 03/06/2008
PDF File ID: 1444997
Report generated: 07/21/2009 12:45

2.1.2 Metals CVAA Data
(Mercury)

2.1.2.1 Summary Data

LABORATORY REPORT

L09070188

07/23/09 15:09

Submitted By

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

For

Account Name: Shaw E & I, Inc.
ABB Lummus Biulding
3010 Briarpark Drive Suite 4N
Houston, TX 77042
Attention: Jennifer Hoang

Project Number: 2773.025
Project: Longhorn AAP
Site: LONGHORN AAP KARNACK TX

P.O. Number: 389869/ 390836(GWTP)

Sample Analysis Summary

Client ID	Lab ID	Method	Dilution	Date Received
02SB026A (0-6)	L09070188-01	7471A	1	10-JUL-09
02SB027A (0-6)	L09070188-02	7471A	1	10-JUL-09
02SB028B (12-18)	L09070188-03	7471A	1	10-JUL-09
02SB0210 (0-6)	L09070188-04	7471A	1	10-JUL-09
02SB0211 (0-6)	L09070188-05	7471A	1	10-JUL-09
02SB0211 (0-6)DUP	L09070188-06	7471A	1	10-JUL-09

Sample Number:	**L09070188-01**	PrePrep Method:	**NONE**	Instrument:	**HYDRA**
Client ID:	**02SB026A (0-6)**	Prep Method:	**7471A**	Prep Date:	**07/14/2009 10:04**
Matrix:	**Soil**	Analytical Method:	**7471A**	Cal Date:	**07/14/2009 16:24**
Workgroup Number:	**WG307040**	Analyst:	**SLP**	Run Date:	**07/14/2009 16:52**
Collect Date:	**07/09/2009 10:10**	Dilution:	**1**	File ID:	**HY.071409.165207**
Sample Tag:	**01**	Units:	**mg/kg**	Percent Solid:	**86.2**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Mercury, Total	**7439-97-6**	**0.0383**	**J**	**0.116**	**0.0116**

J The analyte was positively identified, but the quantitation was below the RL

Sample Number:	**L09070188-02**	PrePrep Method:	**NONE**	Instrument:	**HYDRA**
Client ID:	**02SB027A (0-6)**	Prep Method:	**7471A**	Prep Date:	**07/14/2009 10:05**
Matrix:	**Soil**	Analytical Method:	**7471A**	Cal Date:	**07/14/2009 16:24**
Workgroup Number:	**WG307040**	Analyst:	**SLP**	Run Date:	**07/14/2009 16:55**
Collect Date:	**07/09/2009 10:15**	Dilution:	**1**	File ID:	**HY.071409.165535**
Sample Tag:	**01**	Units:	**mg/kg**	Percent Solid:	**87.4**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Mercury, Total	**7439-97-6**	**0.201**		**0.113**	**0.0113**

Sample Number:**L09070188-03**
Client ID:**02SB028B (12-18)**
Matrix:**Soil**
Workgroup Number:**WG307040**
Collect Date:**07/09/2009 10:20**
Sample Tag:**01**

PrePrep Method:**NONE**
Prep Method:**7471A**
Analytical Method:**7471A**
Analyst:**SLP**
Dilution:**1**
Units:**mg/kg**

Instrument:**HYDRA**
Prep Date:**07/14/2009 10:06**
Cal Date:**07/14/2009 16:24**
Run Date:**07/14/2009 16:57**
File ID:**HY.071409.165719**
Percent Solid:**89.3**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Mercury, Total	7439-97-6	0.104	J	0.111	0.0111

J The analyte was positively identified, but the quantitation was below the RL

Sample Number: **L09070188-04**
Client ID: **02SB0210 (0-6)**
Matrix: **Soil**
Workgroup Number: **WG307040**
Collect Date: **07/09/2009 10:25**
Sample Tag: **01**

PrePrep Method: **NONE**
Prep Method: **7471A**
Analytical Method: **7471A**
Analyst: **SLP**
Dilution: **1**
Units: **mg/kg**

Instrument: **HYDRA**
Prep Date: **07/14/2009 10:07**
Cal Date: **07/14/2009 16:24**
Run Date: **07/14/2009 17:02**
File ID: **HY.071409.170250**
Percent Solid: **84.8**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Mercury, Total	**7439-97-6**	**0.0954**	**J**	**0.117**	**0.0117**

J The analyte was positively identified, but the quantitation was below the RL

Sample Number:**L09070188-05**
Client ID:**02SB0211 (0-6)**
Matrix:**Soil**
Workgroup Number:**WG307040**
Collect Date:**07/09/2009 10:30**
Sample Tag:**01**

PrePrep Method:**NONE**
Prep Method:**7471A**
Analytical Method:**7471A**
Analyst:**SLP**
Dilution:**1**
Units:**mg/kg**

Instrument:**HYDRA**
Prep Date:**07/14/2009 10:08**
Cal Date:**07/14/2009 16:24**
Run Date:**07/14/2009 17:04**
File ID:**HY.071409.170437**
Percent Solid:**89.9**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Mercury, Total	**7439-97-6**	**0.125**		**0.111**	**0.0111**

Sample Number: **L09070188-06**
Client ID: **02SB0211 (0-6)DUP**
Matrix: **Soil**
Workgroup Number: **WG307040**
Collect Date: **07/09/2009 10:30**
Sample Tag: **01**

PrePrep Method: **NONE**
Prep Method: **7471A**
Analytical Method: **7471A**
Analyst: **SLP**
Dilution: **1**
Units: **mg/kg**

Instrument: **HYDRA**
Prep Date: **07/14/2009 10:09**
Cal Date: **07/14/2009 16:24**
Run Date: **07/14/2009 17:06**
File ID: **HY.071409.170618**
Percent Solid: **91.0**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Mercury, Total	7439-97-6	0.0505	J	0.109	0.0109

J The analyte was positively identified, but the quantitation was below the RL

2.1.2.2 QC Summary Data

Example Cold Vapor Mercury Calculations
Hydra AA Mercury Analyzer

1.0 Initial Calibration (ICAL) Parameters

The system performs linear regression from data consisting of a blank and five standards.

2.0 Calculating the concentration (C) of an element in water using data from run log and quantitation report (note:the data system performs this calculation automatically when correction factors have been entered):

$$Cx = Cs \times \frac{Vf}{Vi} \times D$$

Where:	**Example:**
Cs = Concentration computed by the data system (ug/L)	0.1
Vf = Diluted to Volume (mL)	40
Vi = Aliquot Volume (mL)	40
D = Manual dilution factor, if required (10X = 10)	1
Cx = Concentration of element in ppb (ug/L)	0.1

3.0 Calculating the concentration (C) of an element in soil using data from prep log and quantitation report (note: the data system performs this calculation automatically when correction factors have been entered):

$$Cx = Cs \times \frac{Vf}{Ws} \times D$$

Where:	**Example:**
Cs = Concentration computed by the data system (ug/L)	0.1
Vf = Diluted to volume (mL)	40
Ws = Aliquot weight (g)	0.6
D = Manual dilution factor	1
Cx = Concentration of element in ug/kg	6.67

4.0 Adjusting the concentration to dry weight:

$$Cdry = \frac{Cx \times 100}{Px}$$

1 Cx = Concentration calculated as received (wet basis)	6.67
Px = Percent solids of sample (%wt)	80
$Cdry$ = Concentration calculated as dry weight (ug/kg)	8.33

8.33 ug/kg = 0.00833 mg/kg

Microbac Laboratories Inc.
Metals Digest Log

Workgroup: WG306971
Analyst: PDM
Spike Analyst: REK
Method: 7471A
Run Date: 07/14/2009 10:11
Hotblock Start Temp: 94.9 @ 10:40
Hotblock End Temp: 95.2 @ 11:10

SOP: ME405 Revison 8
Spike Solution: STD33964
Spike Witness: VC
HCL Lot #: COA13815
Digest tubes Lot #: COA13926
HNO3 Lot #: COA13945
KMnO4 1:1 Lot #: RGT13913
HG SOIL STD 10PPM Lot #: STD33971
HG SOILS ICV Lot #: STD33972

	SAMPLE #	Type	Matrix	Initial Amount	Final Volume	Spike Amount	Due Date
1	WG306971-02	BLANK	7	.6 g	40 mL		
2	WG306971-03	LCS	7	.6 g	40 mL	4 mL	
3	L09070156-02	SAMP	7	.6 g	40 mL		07/20/09
4	L09070162-03	SAMP	7	.602 g	40 mL		07/20/09
5	L09070188-01	SAMP	7	.6 g	40 mL		07/21/09
6	L09070188-02	SAMP	7	.605 g	40 mL		07/21/09
7	L09070188-03	SAMP	7	.605 g	40 mL		07/21/09
8	L09070188-04	SAMP	7	.603 g	40 mL		07/21/09
9	L09070188-05	SAMP	7	.6 g	40 mL		07/21/09
10	WG306971-01	REF	7	.604 g	40 mL		
11	L09070188-06	SAMP	7	.604 g	40 mL		07/21/09
12	L09070253-01	SAMP	7	.6 g	40 mL		07/16/09
13	WG306971-04	MS	7	.604 g	40 mL	4 mL	
14	WG306971-05	MSD	7	.604 g	40 mL	4 mL	

Analyst: Pierce Morris

Reviewer: Brenda Gregory

BLOCK_DIG - Modified 07/22/2008
PDF ID: 1440488
Report generated: 07/14/2009 11:56

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Run Log ID: **29091**

Microbac Laboratories Inc.

Instrument Run Log

Instrument: HYDRA
Dataset: 071409G.PRN
Analyst1: SLP
Analyst2: N/A
Method: 7471A
SOP: ME405
Rev: 8
Maintenance Log ID: 29428

Calibration Std: STD33971
ICV/CCV Std: STD33972
Post Spike: STD33971
ICSA: N/A
ICSAB: N/A
Int. Std:

Workgroups: 307040

Comments:

Seq.	File ID	Sample	ID	Prep	Dil	Reference	Date/Time
1	HY.071409.161426	WG307099-01	Calibration Point		1		07/14/09 16:14
2	HY.071409.161611	WG307099-02	Calibration Point		1		07/14/09 16:16
3	HY.071409.161756	WG307099-03	Calibration Point		1		07/14/09 16:17
4	HY.071409.161938	WG307099-04	Calibration Point		1		07/14/09 16:19
5	HY.071409.162121	WG307099-05	Calibration Point		1		07/14/09 16:21
6	HY.071409.162436	WG307099-06	Calibration Point		1		07/14/09 16:24
7	HY.071409.162911	WG307099-07	Initial Calibration Verification		1		07/14/09 16:29
8	HY.071409.163135	WG307099-08	Initial Calib Blank		1		07/14/09 16:31
9	HY.071409.163319	WG307099-09	CCV		1		07/14/09 16:33
10	HY.071409.163513	WG307099-10	CCB		1		07/14/09 16:35
11	HY.071409.164037	WG306971-02	Method/Prep Blank	.6/40	1		07/14/09 16:40
12	HY.071409.164221	WG306971-03	Laboratory Control S	.6/40	1		07/14/09 16:42
13	HY.071409.164434	L09070156-02	OUTLET S01 SLUDGE	.6/40	1		07/14/09 16:44
14	HY.071409.164651	WG307040-01	Post Digestion Spike		1	L09070156-02	07/14/09 16:46
15	HY.071409.164832	L09070162-03	11IDW02	.602/40	1		07/14/09 16:48
16	HY.071409.165019	WG307040-02	Post Digestion Spike		1	L09070162-03	07/14/09 16:50
17	HY.071409.165207	L09070188-01	02SB026A (0-6)	.6/40	1		07/14/09 16:52
18	HY.071409.165351	WG307040-03	Post Digestion Spike		1	L09070188-01	07/14/09 16:53
19	HY.071409.165535	L09070188-02	02SB027A (0-6)	.605/40	1		07/14/09 16:55
20	HY.071409.165719	L09070188-03	02SB028B (12-18)	.605/40	1		07/14/09 16:57
21	HY.071409.165912	WG307099-11	CCV		1		07/14/09 16:59
22	HY.071409.170055	WG307099-12	CCB		1		07/14/09 17:00
23	HY.071409.170250	L09070188-04	02SB0210 (0-6)	.603/40	1		07/14/09 17:02
24	HY.071409.170437	L09070188-05	02SB0211 (0-6)	.6/40	1		07/14/09 17:04
25	HY.071409.170618	L09070188-06	02SB0211 (0-6)DUP	.604/40	1	WG306971-01	07/14/09 17:06
26	HY.071409.170830	WG306971-04	Matrix Spike	.604/40	1	L09070188-06	07/14/09 17:08
27	HY.071409.171034	WG306971-05	Matrix Spike Duplica	.604/40	1	L09070188-06	07/14/09 17:10
28	HY.071409.171219	L09070253-01	G-31-MSB002A(4.0)		1		07/14/09 17:12
29	HY.071409.172121	L09070253-01	G-31-MSB002A(4.0)	.6/40	2		07/14/09 17:21
30	HY.071409.172315	WG307040-05	Serial Dilution		10	L09070253-01	07/14/09 17:23
31	HY.071409.172510	WG307040-04	Post Digestion Spike		2	L09070253-01	07/14/09 17:25
32	HY.071409.172652	WG307099-13	CCV		1		07/14/09 17:26
33	HY.071409.172835	WG307099-14	CCB		1		07/14/09 17:28

Page: 1 Approved: July 15, 2009

Maren Beery

Checklist ID: 40024

Microbac Laboratories Inc.

Data Checklist

Date: 14-JUL-2009

Analyst: SLP

Analyst: NA

Method: 7471A

Instrument: HYDRA

Curve Workgroup: 307099

Runlog ID: 29091

Analytical Workgroups: 307040

Calibration/Linearity	X
ICV/CCV	X
ICB/CCB	X
ICSA/ICSAB	
CRI	
Blank/LCS	X
MS/MSD	X
Post Spike/Serial Dilution	X
Upload Results	X
Data Qualifiers	
Generate PDF Instrument Data	X
Sign/Annotate PDF Data	X
Upload Curve Data	X
Workgroup Forms	X
Case Narrative	0156, 0162, 0188, 0253
Client Forms	X
Level X	
Level 3	0188
Level 4	0162, 0253
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Primary Reviewer	SLP
Secondary Reviewer	MMB
Comments	

Primary Reviewer:
15-JUL-2009
Sheri L. Pfalzgraf

Secondary Reviewer:
15-JUL-2009
Maren Beery

CHECKLIST1 - Modified 03/05/2008
Generated: JUL-15-2009 19:07:33

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Microbac Laboratories Inc.

HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: 7471A

AAB#: WG307040

Login Number: L09070188

Client ID	Date Collected	Date Received	Date Extracted	Max Hold Time Ext.	Time Held Ext.	Date Analyzed	Max Hold Time Anal	Time Held Anal.	Q
02SB0210 (0-6)	07/09/09	07/10/09	07/14/09	28	4.99	07/14/09	28	0.288	
02SB027A (0-6)	07/09/09	07/10/09	07/14/09	28	4.99	07/14/09	28	0.285	
02SB0211 (0-6)DUP	07/09/09	07/10/09	07/14/09	28	4.99	07/14/09	28	0.290	
02SB0211 (0-6)	07/09/09	07/10/09	07/14/09	28	4.99	07/14/09	28	0.289	
02SB026A (0-6)	07/09/09	07/10/09	07/14/09	28	5.00	07/14/09	28	0.283	
02SB028B (12-18)	07/09/09	07/10/09	07/14/09	28	4.99	07/14/09	28	0.285	

* EXT = SEE PROJECT QAPP REQUIREMENTS
*ANAL = SEE PROJECT QAPP REQUIREMENTS

HOLD_TIMES - Modified 03/06/2008
PDF File ID: 1441330
Report generated 07/15/2009 10:13

METHOD BLANK SUMMARY

Login Number: L09070188
Work Group: WG307040
Blank File ID: HY.071409.164037
Blank Sample ID: WG306971-02
Prep Date: 07/14/09 10:11
Instrument ID: HYDRA
Analyzed Date: 07/14/09 16:40
Method: 7471A
Analyst: SLP

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG306971-03	HY.071409.164221	07/14/09 16:42	01
02SB026A (0-6)	L09070188-01	HY.071409.165207	07/14/09 16:52	01
02SB027A (0-6)	L09070188-02	HY.071409.165535	07/14/09 16:55	01
02SB028B (12-18)	L09070188-03	HY.071409.165719	07/14/09 16:57	01
02SB0210 (0-6)	L09070188-04	HY.071409.170250	07/14/09 17:02	01
02SB0211 (0-6)	L09070188-05	HY.071409.170437	07/14/09 17:04	01
02SB0211 (0-6)DUP	L09070188-06	HY.071409.170618	07/14/09 17:06	01

Report Name: BLANK_SUMMARY
PDF File ID: 1441331
Report generated 07/15/2009 10:13

Microbac Laboratories Inc.

METHOD BLANK REPORT

Login Number:L09070188
Prep Date:07/14/09 10:11
Sample ID:WG306971-02
Instrument ID:HYDRA
Run Date:07/14/09 16:40
Prep Method:7471A
File ID:HY.071409.164037
Analyst:SLP
Method:7471A
Workgroup (AAB#):WG307040
Matrix:Soil
Units:mg/kg
Contract #:DACA56-94-D-0020
Cal ID: HYDRA-14-JUL-09

Analytes	SDL	PQL	Concentration	Dilution	Qualifier
Mercury, Total	0.0100	0.100	0.0100	1	U

SDL	Method Detection Limit
PQL	Reporting/Practical Quantitation Limit
ND	Analyte Not detected at or above reporting limit
*	|Analyte concentration| > RL

Report Name:BLANK
PDF ID: 1441332
15-JUL-2009 10:13

Microbac Laboratories Inc.
LABORATORY CONTROL SAMPLE (LCS)

Login Number: L09070188
Run Date: 07/14/2009
Sample ID: WG306971-03
Instrument ID: HYDRA
Run Time: 16:42
Prep Method: 7471A
File ID: HY.071409.164221
Analyst: SLP
Method: 7471A
Workgroup (AAB#): WG307040
Matrix: Soil
Units: mg/kg
QC Key: STD
Lot#: STD33964
Cal ID: HYDRA - 14-JUL-09

Analytes	Expected	Found	% Rec	LCS Limits	Q
Mercury, Total	0.267	0.289	108	80 - 120	

LCS - Modified 03/06/2008
PDF File ID: 1441333
Report generated: 07/15/2009 10:13

MATRIX SPIKE AND MATRIX SPIKE DUP (MS/MSD)

Loginnum:L09070188 Cal ID: HYDRA - Worknum:WG307040

Instrument ID:HYDRA Contract #:DACA56-94-D-0020 Method:7471A

Parent ID:WG306971-01 File ID:HY.071409.170618 Dil:1 Matrix:SOLID

Sample ID:WG306971-04 MS File ID:HY.071409.170830 Dil:1 Units:mg/kg

Sample ID:WG306971-05 MSD File ID:HY.071409.171034 Dil:1 Percent Solid:91.0

Analyte	Parent	MS Spiked	MS Found	MS %Rec	MSD Spiked	MSD Found	MSD %Rec	%RPD	%Rec Limits	RPD Limit	Q
Mercury, Total	0.0505	0.291	0.362	107	0.291	0.359	106	0.808	75 - 125	25	

* FAILS %REC LIMIT

FAILS RPD LIMIT

NOTE: This is an internal quality control sample.

WG_MS_MSD_DRYWT - Modified 03/07/2008
PDF File ID: 1441334
Report generated 07/15/2009 10:13

Microbac Laboratories Inc.
POST SPIKE REPORT

Sample Login ID: L09070188
Worknum: WG307040
Instrument ID: HYDRA
Method: 7471A
Post Spike ID: WG307040-03 **File ID:** HY.071409.165351 **Dil:** 1 **Units:** ug/L
Sample ID: L09070188-01 **File ID:** HY.071409.165207 **Dil:** 1 **Matrix:** Soil

Analyte	Post Spike Result	C	Sample Result	C	Spike Added(SA)	% R	Control Limit %R	Q
MERCURY	1.42	F	0.495	F	1	97.5	85 - 115	

N = % Recovery exceeds control limits
F = Result is between MDL and RL
U = Sample result is below MDL. A value of zero is used in the calculation

Microbac Laboratories Inc.

INITIAL CALIBRATION SUMMARY

Login Number: L09070188
Analytical Method: 7471A
ICAL Worknum: WG307099

Workgroup (AAB#): WG307040
Instrument ID: HYDRA
Initial Calibration Date: 07/14/2009 16:24

Analyte	WG307099-01		WG307099-02		WG307099-03		WG307099-04		WG307099-05		WG307099-06	
	STD	INT	STD	INT	STD	INT	STD	INT	STD	INT	STD	INT
Mercury	0	30	0.200	808	1.00	3900	2.00	7420	5.00	18868	10.0	37642

INT = Instrument intensity
R = Coefficient of correlation
Q = Data Qualifier
* = Out of Compliance; R < 0.995

Microbac Laboratories Inc.

INITIAL CALIBRATION SUMMARY

Login Number: L09070188
Analytical Method: 7471A
ICAL Worknum: WG307099

Workgroup (AAB#): WG307040
Instrument ID: HYDRA
Initial Calibration Date: 07/14/2009 16:24

Analyte	R	Q
Mercury	1.000	

INT = Instrument intensity
R = Coefficient of correlation
Q = Data Qualifier
* = Out of Compliance; R < 0.995

Microbac Laboratories Inc.
INITIAL CALIBRATION BLANK (ICB)

Login Number: L09070188
Run Date: 07/14/2009
Sample ID: WG307099-08
Instrument ID: HYDRA
Run Time: 16:31
Method: 7471A
File ID: HY.071409.163135
Analyst: SLP
Units: ug/L
Workgroup (AAB#): WG307040
Cal ID: HYDRA - 14-JUL-09
Matrix: SOIL

Analytes	MDL	RDL	Concentration	Qualifier
MERCURY	.15	1.5	.15	U

ICB - Modified 07/14/2009
PDF File ID: 1441337
Report generated 07/15/2009 10:13

Microbac Laboratories Inc.
CONTINUING CALIBRATION BLANK (CCB)

Login Number: L09070188
Run Date: 07/14/2009
Sample ID: WG307099-10
Instrument ID: HYDRA
Run Time: 16:35
Method: 7471A
File ID: HY.071409.163513
Analyst: SLP
Units: ug/L
Workgroup (AAB#): WG307040
Cal ID: HYDRA - 14-JUL-09
Matrix: SOIL

Analytes	MDL	RDL	Concentration	Qualifier
Mercury	0.150	1.50	0.150	U

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

CCB - Modified 03/05/2008
PDF File ID: 1441339
Report generated 07/15/2009 10:13

Microbac Laboratories Inc.

CONTINUING CALIBRATION BLANK (CCB)

Login Number: L09070188
Run Date: 07/14/2009
Sample ID: WG307099-12
Instrument ID: HYDRA
Run Time: 17:00
Method: 7471A
File ID: HY.071409.170055
Analyst: SLP
Units: ug/L
Workgroup (AAB#): WG307040
Cal ID: HYDRA - 14-JUL-09
Matrix: SOIL

Analytes	MDL	RDL	Concentration	Qualifier
Mercury	0.150	1.50	0.150	U

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

Microbac Laboratories Inc.
CONTINUING CALIBRATION BLANK (CCB)

Login Number: L09070188
Run Date: 07/14/2009
Sample ID: WG307099-14
Instrument ID: HYDRA
Run Time: 17:28
Method: 7471A
File ID: HY.071409.172835
Analyst: SLP
Units: ug/L
Workgroup (AAB#): WG307040
Cal ID: HYDRA - 14-JUL-09
Matrix: SOIL

Analytes	MDL	RDL	Concentration	Qualifier
Mercury	0.150	1.50	0.150	U

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

CCB - Modified 03/05/2008
PDF File ID: 1441339
Report generated 07/15/2009 10:13

Microbac Laboratories Inc.
INITIAL CALIBRATION VERIFICATION (ICV)
(Alternate Source)

Login Number: L09070188
Run Date: 07/14/2009
Sample ID: WG307099-07
Instrument ID: HYDRA
Run Time: 16:29
Method: 7471A
File ID: HY.071409.162911
Analyst: SLP
Units: ug/L
Workgroup (AAB#): WG307040
Cal ID: HYDRA - 14-JUL-09
QC Key: STD

Analyte		Expected	Found	%REC	LIMITS	Q
Mercury		2	2.16	108	90 - 110	

* Exceeds LIMITS Limit

ICV - Modified 03/06/2008
PDF File ID: 1441336
Report generated 07/15/2009 10:13

Microbac Laboratories Inc.

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L09070188

Run Date: 07/14/2009

Sample ID: WG307099-09

Instrument ID: HYDRA

Run Time: 16:33

Method: 7471A

File ID: HY.071409.163319

Analyst: SLP

QC Key: STD

Workgroup (AAB#): WG307040

Cal ID: HYDRA - 14-JUL-09

Matrix: SOIL

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Mercury, Total		0.00200	0.00206	mg/L	103	80 - 120		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008
PDF File ID: 1441338
Report generated 07/15/2009 10:13

Microbac Laboratories Inc.

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L09070188
Run Date: 07/14/2009
Sample ID: WG307099-11
Instrument ID: HYDRA
Run Time: 16:59
Method: 7471A
File ID: HY.071409.165912
Analyst: SLP
QC Key: STD
Workgroup (AAB#): WG307040
Cal ID: HYDRA - 14-JUL-09
Matrix: SOIL

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Mercury, Total		0.00200	0.00206	mg/L	103	80 - 120		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008
PDF File ID: 1441338
Report generated 07/15/2009 10:13

Microbac Laboratories Inc.

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number:	L09070188	Run Date:	07/14/2009	Sample ID:	WG307099-13
Instrument ID:	HYDRA	Run Time:	17:26	Method:	7471A
File ID:	HY.071409.172652	Analyst:	SLP	QC Key:	STD
Workgroup (AAB#):	WG307040	Cal ID:	HYDRA - 14-JUL-09		
Matrix:	SOIL				

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Mercury, Total		0.00200	0.00198	mg/L	99.0	80 - 120		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008
PDF File ID: 1441338
Report generated 07/15/2009 10:13

2.2 General Chemistry Data

2.2.1 Percent Solids Data

2.2.1.1 Raw Data

LABORATORY REPORT

L09070188

07/23/09 15:09

Submitted By

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

For

Account Name: Shaw E & I, Inc.
ABB Lummus Biulding
3010 Briarpark Drive Suite 4N
Houston, TX 77042
Attention: Jennifer Hoang

Project Number: 2773.025
Project: Longhorn AAP
Site: LONGHORN AAP KARNACK TX

P.O. Number: 389869/ 390836(GWTP)

Sample Analysis Summary

Client ID	Lab ID	Method	Dilution	Date Received
02SB026A (0-6)	L09070188-01	D2216-90	1	10-JUL-09
02SB027A (0-6)	L09070188-02	D2216-90	1	10-JUL-09
02SB028B (12-18)	L09070188-03	D2216-90	1	10-JUL-09
02SB0210 (0-6)	L09070188-04	D2216-90	1	10-JUL-09
02SB0211 (0-6)	L09070188-05	D2216-90	1	10-JUL-09
02SB0211 (0-6)DUP	L09070188-06	D2216-90	1	10-JUL-09

L1_A_PROD - Modified 03/06/2008 1 OF 1
PDF File ID: 1445273
Report generated: 07/23/2009 15:09

Sample Number:**L09070188-01**
Client ID:**02SB026A (0-6)**
Matrix:**Soil**
Workgroup Number:**WG306819**
Collect Date:**07/09/2009 10:10**
Sample Tag:**01**

PrePrep Method:**NONE**
Prep Method:**D2216-90**
Analytical Method:**D2216-90**
Analyst:**JDH**
Dilution:**1**
Units:**weight %**

Instrument:**BAL001**
Prep Date:**07/14/2009 09:59**
Cal Date:
Run Date:**07/14/2009 09:59**
File ID:**B1.306819-0101**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Percent Solids	**10-02-6**	**86.2**		**1.00**	**1.00**

Report Number:**L09070188**
Report Date :**July 23, 2009**

Sample Number:**L09070188-02**
Client ID:**02SB027A (0-6)**
Matrix:**Soil**
Workgroup Number:**WG306819**
Collect Date:**07/09/2009 10:15**
Sample Tag:**01**

PrePrep Method:**NONE**
Prep Method:**D2216-90**
Analytical Method:**D2216-90**
Analyst:**JDH**
Dilution:**1**
Units:**weight %**

Instrument:**BAL001**
Prep Date:**07/14/2009 09:59**
Cal Date:
Run Date:**07/14/2009 09:59**
File ID:**B1.306819-0102**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Percent Solids	10-02-6	87.4		1.00	1.00

Report Number: **L09070188**
Report Date : **July 23, 2009**

Sample Number:	**L09070188-03**	PrePrep Method:	**NONE**	Instrument:	**BAL001**
Client ID:	**02SB028B (12-18)**	Prep Method:	**D2216-90**	Prep Date:	**07/14/2009 09:59**
Matrix:	**Soil**	Analytical Method:	**D2216-90**	Cal Date:	
Workgroup Number:	**WG306819**	Analyst:	**JDH**	Run Date:	**07/14/2009 09:59**
Collect Date:	**07/09/2009 10:20**	Dilution:	**1**	File ID:	**B1.306819-0103**
Sample Tag:	**01**	Units:	**weight %**		

Analyte	CAS. Number	Result	Qual	PQL	SDL
Percent Solids	**10-02-6**	**89.3**		**1.00**	**1.00**

Sample Number:	**L09070188-04**	PrePrep Method:	**NONE**	Instrument:	**BAL001**
Client ID:	**02SB0210 (0-6)**	Prep Method:	**D2216-90**	Prep Date:	**07/14/2009 09:59**
Matrix:	**Soil**	Analytical Method:	**D2216-90**	Cal Date:	
Workgroup Number:	**WG306819**	Analyst:	**JDH**	Run Date:	**07/14/2009 09:59**
Collect Date:	**07/09/2009 10:25**	Dilution:	**1**	File ID:	**B1.306819-0104**
Sample Tag:	**01**	Units:	**weight %**		

Analyte	CAS. Number	Result	Qual	PQL	SDL
Percent Solids	**10-02-6**	**84.8**		**1.00**	**1.00**

Sample Number:**L09070188-05**
Client ID:**02SB0211 (0-6)**
Matrix:**Soil**
Workgroup Number:**WG306819**
Collect Date:**07/09/2009 10:30**
Sample Tag:**01**

PrePrep Method:**NONE**
Prep Method:**D2216-90**
Analytical Method:**D2216-90**
Analyst:**JDH**
Dilution:**1**
Units:**weight %**

Instrument:**BAL001**
Prep Date:**07/14/2009 09:59**
Cal Date:
Run Date:**07/14/2009 09:59**
File ID:**B1.306819-0105**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Percent Solids	10-02-6	89.9		1.00	1.00

Sample Number: **L09070188-06**
Client ID: **02SB0211 (0-6)DUP**
Matrix: **Soil**
Workgroup Number: **WG306819**
Collect Date: **07/09/2009 10:30**
Sample Tag: **01**

PrePrep Method: **NONE**
Prep Method: **D2216-90**
Analytical Method: **D2216-90**
Analyst: **JDH**
Dilution: **1**
Units: **weight %**

Instrument: **BAL001**
Prep Date: **07/14/2009 09:59**
Cal Date:
Run Date: **07/14/2009 09:59**
File ID: **B1.306819-0106**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Percent Solids	10-02-6	91.0		1.00	1.00

Example Percent Solids Calculations

1.0 Calculating the percent solids of a sample.

$$\%Solids = \frac{WT3 - WT1}{WT2 - WT1} \times F$$

Where:	
WT1 = Weight, in grams, of the empty container	1.30 g
WT2 = Weight, in grams, of the container and wet sample	21.274 g
WT3 = Weight, in grams, of the container and dried sample	5.21 g
F = Factor to get units as percent weight	100
%Solids = Percent solids present in sample.	19.58%

2.0 Calculating the percent moisture of a sample.

% Moisture = 100 - % Solids from 1.0 calculation

Microbac Laboratories Inc.

PERCENT SOLIDS

Workgroup (AAB#): WG306819
Method: D2216-90
SOP: K0003 Rev: 9

Analyst: JDH
Instrument: BAL001

ADT(on): 07/13/2009 09:07
ADT(off): 07/14/2009 09:59

SAMPLE NUMBER	EMPTY PAN WT 1	WET WT 2	DRY WT 3A	DRY WT 3B	DRY WT 3C	PERCENT SOLID	PERCENT MOISTURE
L09070188-01	1.33	32.89	28.54			86.22	
L09070188-02	1.32	22.24	19.61			87.43	
L09070188-03	1.32	25.14	22.58			89.25	
L09070188-04	1.33	28.38	24.28			84.84	
L09070188-05	1.33	35.24	31.82			89.91	
L09070188-06	1.33	28	25.61			91.04	
L09070203-01	1.33	24.11	19.94			81.69	
L09070203-02	1.31	30.83	26.74			86.14	
L09070203-03	1.32	41.93	37.64			89.44	
L09070203-04	1.32	24.03	23.92			99.52	
L09070203-05	1.33	33.85	31.06			91.42	
L09070203-06	1.32	26.66	21.83			80.94	
L09070203-07	1.33	26.18	21.82			82.45	
L09070203-08	1.32	27.88	27.61			98.98	
L09070203-09	1.32	33.38	30.15			89.93	
L09070203-10	1.33	31.46	25.7			80.88	
L09070203-11	1.33	30.85	19.92			62.97	
L09070203-12	1.31	28.66	18.95			64.50	
WG306819-01	1.31	28.66	18.95			64.50	35.50
WG306819-02	1.31	23.74	15.94			65.23	34.77

Analyst: Justin Hessen

PERCENT_SOLIDS - Modified 04/24/2008
PDF ID: 1440269
Report generated: 07/14/2009 09:58

3.0 Attachments

Microbac Laboratories Inc.
Analyst Listing
July 23, 2009

ADC - ANTHONY D. CANTER
AJF - AMANDA J. FICKIESEN
AJM - ANTHONY J. MOSSBURG
ALB - ANNIE L. BROWN
AML - ANTHONY M. LONG
BLG - BRENDA L. GREENWALT
BRG - BRENDA R. GREGORY
CAA - CASSIE A. AUGENSTEIN
CAF - CHERYL A. FLOWERS
CAH - CHARLES A. HALL
CEB - CHAD E. BARNES
CLC - CHRYS L. CRAWFORD
CLW - CHARISSA L. WINTERS
CPD - CHAD P. DAVIS
CSH - CHRIS S. HILL
DDE - DEBRA D. ELLIOTT
DEL - DON E. LIGHTFRITZ
DEV - DAVID E. VANDENBERG
DGB - DOUGLAS G. BUTCHER
DIH - DEANNA I. HESSON
DLB - DAVID L. BUMGARNER
DLP - DOROTHY L. PAYNE
DLR - DIANNA L. RAUCH
DR - DEANNA ROBERTS
ECL - ERIC C. LAWSON
EDA - ERIN D. AGEE
ERP - ERIN R. PORTER
FJB - FRANCES J. BOLDEN
HAV - HEMA VILASAGAR
HJR - HOLLY J. REED
JBK - JEREMY B. KINNEY
JDH - JUSTIN D. HESSON
JKT - JANE K. THOMPSON
JWR - JOHN W. RICHARDS
JWS - JACK W. SHEAVES
JYH - JI Y. HU
KEB - KATHRYN E. BARNES
KHR - KIM H. RHODES
KRA - KATHY R. ALBERTSON
LKN - LINDA K. NEDEFF
LSB - LESLIE S. BUCINA
MDA - MIKE D. ALBERTSON
MDC - MICHAEL D. COCHRAN
MES - MARY E. SCHILLING
MMB - MAREN M. BEERY
MRT - MICHELLE R. TAYLOR
MSW - MATT S. WILSON
NPM - NATHANIEL P. MILLER
PDM - PIERCE D. MORRIS
RAH - ROY A. HALSTEAD
RB - ROBERT BUCHANAN
REK - ROBERT E. KYER
RLK - ROBIN L. KLINGER
RWC - RODNEY W. CAMPBELL
SDH - SHANA D. HINYARD
SLM - STEPHANIE L. MOSSBURG
SLP - SHERI L. PFALZGRAF
TIP - TAE I. PARRISH
TMB - TIFFANY M. BAILEY
TMM - TAMMY M. MORRIS
VC - VICKI COLLIER
WTD - WADE T. DELONG

Microbac Laboratories Inc.
List of Valid Qualifiers
July 23, 2009

Qualkey: STD_ND=U

Qualifier	Description
U	Not detected at or above adjusted sample detection limit

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

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

COC NO.

Shaw Environmental & Infrastructure, Inc.
3010 Briarpark Drive, Suite 400
Houston, TX 77042
(713) 996-4400

Laboratory Name: Microbac
Address : 158 Starlite Drive, Marietta OH 45750
Contact : Stephanie Mossburg
Phone: 1-800-373-4071

PM: Praveen Svrivastav (713.996.4588)
Project Contact: Jennifer Hoang
Project Name: LHAAP-02
Project #: 117591-

TAT: STANDARD
Phone No: 713-996-4408
Site: 02 (Soils)
Location: Karnack, TX

Sampler Print: Allen Willmore (713.247.9292)

Sampler Sign:

Sample Number	Grab	Date	Time	Matrix	# of Containers	**Metals (6010/6020)	Mercury (7471)								Comments
															**As,Cd,Cu,Pb
02SB026A(0-6)	X	7/9/2009	10:10	Soil	2	X	X								
02SB027A(0-6)	X	7/9/2009	10:15	Soil	2	X	X								
02SB028B(12-18)	X	7/9/2009	10:20	Soil	2	X	X								
02SB0210(0-6)	X	7/9/2009	10:25	Soil	2	X	X								
02SB0211(0-6)	X	7/9/2009	10:30	Soil	2	X	X								
02SB0211(0-6)-DUP	X	7/9/2009	10:30	Soil	2	X	X								

Relinquished By:

Date/Time 7/9/09 17:00

Received By:

Date/Time

Special Instructions *Hold 2nd jars for possible SPLP analysis!

Relinquished B

Date/Time

ks:

Microbac OVD 221000000370
Received: 07/10/2009 11:29
By: ROBIN KLINGER
Robin L. Klinger

COOLER INSPECTION

Microbac®

Received: 07/10/2009 10:07
Delivery Method: UPS
Opened By: Robin Klinger
Comments:

Login(s): L09070188

Cooler(s)

Cooler #	Temp Gun	Temp	Tracking #	COC #	Comments
	H	3.0	420457505279		

1	Yes	Were shipping coolers sealed?
2	Yes	Were custody seals intact?
3	Yes	Were cooler temperatures in range of 0-6?
4	Yes	Was ice present?
5	Yes	Were COC's received/information complete/signed and dated?
6	No	Were sample containers and labels intact and match COC?
7	Yes	Were the correct containers and volumes received?
8	NA	Were correct perservatives used? (water only)
9	NA	Were pH ranges acceptable? (voa's excluded)
10	NA	Were VOA samples free of headspace (<6mm)?
11	Yes	Were samples received within EPA hold times?

Discrepancies:

6	The ID for last sample on the COC 02SB0211(0-6)dup@1015 has on lid 028B but the time and date on the sample label match the last sample on the COC.	

Microbac Laboratories Inc.

Internal Chain of Custody Report

Login: L09070188
Account: 2773
Project: 2773.025
Samples: 6
Due Date: 21-JUL-2009

Samplenum	**Container ID**	**Products**
L09070188-01	597214	AS-MS CD-MS CU-MS HGSL PB-MS

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	10-JUL-2009 14:08	RLK	
2	PREP	W1	DIG	10-JUL-2009 15:03	BRG	RLK
3	STORE	WET	A1	14-JUL-2009 08:48	ERE	JDH
4	PREP	A1	DIG	14-JUL-2009 09:44	REK	ERE
5	STORE	DIG	A1	15-JUL-2009 13:44	ERE	REK

Samplenum	**Container ID**	**Products**
L09070188-02	597215	AS-MS CD-MS CU-MS HGSL PB-MS

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	10-JUL-2009 14:08	RLK	
2	PREP	W1	DIG	10-JUL-2009 15:03	BRG	RLK
3	STORE	WET	A1	14-JUL-2009 08:48	ERE	JDH
4	PREP	A1	DIG	14-JUL-2009 09:44	REK	ERE
5	STORE	DIG	A1	15-JUL-2009 13:44	ERE	REK

Samplenum	**Container ID**	**Products**
L09070188-03	597216	AS-MS CD-MS CU-MS HGSL PB-MS

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	10-JUL-2009 14:08	RLK	
2	PREP	W1	DIG	10-JUL-2009 15:03	BRG	RLK
3	STORE	WET	A1	14-JUL-2009 08:48	ERE	JDH
4	PREP	A1	DIG	14-JUL-2009 09:45	REK	ERE
5	STORE	DIG	A1	15-JUL-2009 13:44	ERE	REK

Samplenum	**Container ID**	**Products**
L09070188-04	597217	AS-MS CD-MS CU-MS HGSL PB-MS

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	10-JUL-2009 14:08	RLK	
2	PREP	W1	DIG	10-JUL-2009 15:03	BRG	RLK
3	STORE	WET	A1	14-JUL-2009 08:48	ERE	JDH
4	PREP	A1	DIG	14-JUL-2009 09:44	REK	ERE
5	STORE	DIG	A1	15-JUL-2009 13:44	ERE	REK

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: L09070188
Account: 2773
Project: 2773.025
Samples: 6
Due Date: 21-JUL-2009

Samplenum	**Container ID**	**Products**
L09070188-05	597218	AS-MS CD-MS CU-MS HGSL PB-MS

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	10-JUL-2009 14:08	RLK	
2	PREP	W1	DIG	10-JUL-2009 15:03	BRG	RLK
3	STORE	WET	A1	14-JUL-2009 08:48	ERE	JDH
4	PREP	A1	DIG	14-JUL-2009 09:44	REK	ERE
5	STORE	DIG	A1	15-JUL-2009 13:44	ERE	REK

Samplenum	**Container ID**	**Products**
L09070188-06	597219	AS-MS CD-MS CU-MS HGSL PB-MS

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	W1	10-JUL-2009 14:08	RLK	
2	PREP	W1	DIG	10-JUL-2009 15:03	BRG	RLK
3	STORE	WET	A1	14-JUL-2009 08:48	ERE	JDH
4	PREP	A1	DIG	14-JUL-2009 09:45	REK	ERE
5	STORE	DIG	A1	15-JUL-2009 13:44	ERE	REK

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

Microbac®
158 Starlite Drive, Marietta, OH 45750 • T:740-373-4071 • F:740-373-4835 • http://www.microbac.com

Laboratory Report Number: L09070202

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 Sales and Service Team. If you have questions, comments or require further assistance regarding this report, please contact your team member noted in the reviewed box below at 800-373-4071. Team member e-mail addresses also appear here for your convenience.

Kathy Albertson	*Team Chemist/Data Specialist*	kalbertson@microbac.com
Stephanie Mossburg	*Team Chemist/Data Specialist*	smossburg@microbac.com
Tony Long	*Team Chemist/Data Specialist*	tlong@microbac.com
Amanda Fickiesen	*Client Services Specialist*	afickiesen@microbac.com
Annie Brown	*Client Services Specialist*	abrown@microbac.com

This report was reviewed on August 11, 2009.

Stephanie Mossburg

Stephanie Mossburg - Team Chemist/Data Specialist

I certify that all test results meet all of the requirements of the accrediting authority listed below. 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.

This report was certified on August 11, 2009.

David E. Vandenberg

David Vandenberg - Managing Director

State of origin: Texas
Accrediting authority: Texas Commission on Environmental Quality ID:T104704252-07-TX
QAPP: Microbac OVD
This report contains a total of 105 pages.

Look closer. Go further. Do more.

Microbac

Microbac Laboratories, Inc.
Ohio Valley Division
158 Starlite Drive
Marietta, OH 45750

Phone: 800.373.4071
Fax: 740.373.4835

Your data is now available online via our Web Access Portal!

Access and print reports, check the status of your projects, and review electronic data forms online from anywhere with internet access!

View a demo by visiting www.microbac.com and entering the Ohio Valley location
Click on "Online Data Access"
User ID: jdoe@abc.com
Password: demo

Contact your Microbac service representative to set up a *FREE* account today!

LOOK CLOSER, GO FURTHER, DO MORE.

Microbac REPORT L09070202
PREPARED FOR Shaw E I, Inc.
WORK ID:

1.0 Introduction

Laboratory Data Package Cover Page

This data Package consists of:

This signature page, the laboratory review checklists, and the following reportable data:

R1 Field chain-of-custody documentation;

R2 sample identification cross-reference;

R3 Test reports (analytical data sheets) for each enviornmental sample that includes:
  - a) Items consistant with NELAC 5.13 or ISO/IEC 17025 Section 5.10
  - b) dilution factors,
  - c) preparation methods,
  - d) Cleanup methods, and
  - e) If required for the project, tentatively identified compounds (TICs)

R4 Surrogate recovery data including:
  - a) Calculated recovery (%R) for each analyte, and
  - b) The laboratory’s surrogate QC limits.

R5 Test reports/summary forms for blank samples;

R6 Test reports/summary forms FOR laboratory control samples (LCSs) including:
  - a) LCS spiking amount,
  - b) Calculated %R for each analyte, and
  - c) The laboratory”s LCS QC limits.

R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - a) Samples associated with the MS/MSD clearly identified,
  - b) MS/MSD spiking amounts,
  - c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
  - d) Calculated %R and relative percent differences (RPDs), and
  - e) The laboratory’s MS/MSD QC limits

R8 Laboratory analytical duplicate (if applicable) revocery and precision:
  - a) the amount of analyte measured in the duplicate,
  - b) the calculated RPD, and
  - c) the laboratory’s QC limits for anlytical duplicates.

R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix;

R10 Other problems or anomalies.

The exception Report for every ”No” or ”Not Reviewed (NR)” item in laboratory review checklist.

Release statement: I am responsible for the release of this laboratory data package. This data package has been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exceptions reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratoy in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

Check, If applicable: [] This laboratory is an in-house laboratory controlled by the person repsonding to rule. The official signing the cover page of the rule-required report (for example, the APAR) in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is trus.

SHERI L. PFALZGRAF	Sheri L. Pfalzgraf	Chemist II	August 11, 2009
Name (Printed)	Signature	Official Title (printed)	DATE

RG-366/TRRP-13 December 2002 A1

Microbac Laboratories Inc.
Laboratory Review Checklist

Laboratory Name: Microbac Laboratories Inc.
Laboratory Log Number: L09070202
Project Name: 798-LONGHORN
Method: 6020
Prep Batch Number(s): WG308973
Reviewer Name: SHERI L. PFALZGRAF
LRC Date: August 11, 2009

Description	Yes	No	NA(1)	NR(2)	ER(3)
Chain-Of-Custody (C-O-C)					
Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	✓				
Were all departures from standard conditions described in an exception report?	✓				
Sample and quality control (QC) identification					
Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	✓				
Are all laboratory ID numbers cross-referenced to the corresponding QC data?	✓				
Test reports					
Were all samples prepared and analyzed within holding times?	✓				
Other than those results <MQL, were all other raw values bracketed by calibration standards?	✓				
Were calculations checked by a peer or supervisor?	✓				
Were all analyte identifications checked by a peer or supervisor?	✓				
Were sample quantitation limits reported for all analytes not detected?	✓				
Were all results for soil and sediment samples reported on a dry weight basis?	✓				
Were % moisture (or solids) reported for all soil and sediment samples?	✓				
If required for the project, TICs reported?			✓		
Surrogate recovery data					
Were surrogates added prior to extraction?			✓		
Were surrogate percent recoveries in all samples within the laboratory QC limits?			✓		
Test reports/summary forms for blank samples					
Were appropriate type(s) of blanks analyzed?	✓				
Were blanks analyzed at the appropriate frequency?	✓				
Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	✓				
Were blank concentrations <RL?	✓				
Laboratory control samples (LCS):					
Were all COCs included in the LCS?	✓				
Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	✓				
Were LCSs analyzed at the required frequency?	✓				
Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	✓				
Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs?	✓				
Was the LCSD RPD within QC limits?			✓		
Matrix spike (MS) and matrix spike duplicate (MSD) data					
Were the project/method specified analytes included in the MS and MSD?			✓		
Were MS/MSD analyzed at the appropriate frequency?			✓		
Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			✓		

Description	Yes	No	NA(1)	NR(2)	ER(3)
Were MS/MSD RPDs within laboratory QC limits?			✓		
Analytical duplicate data					
Were appropriate analytical duplicates analyzed for each matrix?			✓		
Were analytical duplicates analyzed at the appropriate frequency?			✓		
Were RPDs or relative standard deviations within the laboratory QC limits?			✓		
Method quantitation limits (MQLs):					
Are the MQLs for each method analyte included in the laboratory data package?	✓				
Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	✓				
Are unadjusted MQLs included in the laboratory data package?	✓				
Other problems/anomalies					
Are all known problems/anomalies/special conditions noted in this LRC and ER?		✓			1
Were all necessary corrective actions performed for the reported data?	✓				
Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	✓				
ICAL					
Were response factors and/or relative response factors for each analyte within QC limits?			✓		
Were percent RSDs or correlation coefficient criteria met?	✓				
Was the number of standards recommended in the method used for all analytes?	✓				
Were all points generated between the lowest and highest standard used to calculate the curve?	✓				
Are ICAL data available for all instruments used?	✓				
Has the initial calibration curve been verified using an appropriate second source standard?	✓				
Initial and continuing calibration verification (ICV and CCV) and continuing calibration blank (CCB):					
Was the CCV analyzed at the method-required frequency?	✓				
Were percent differences for each analyte within the method-required QC limits?	✓				
Was the ICAL curve verified for each analyte?	✓				
Was the absolute value of the analyte concentration in the inorganic CCB <RL?	✓				
Mass spectral tuning:					
Was the appropriate compound for the method used for tuning?			✓		
Were ion abundance data within the method-required QC limits?			✓		
Internal standards (IS):					
Were IS area counts and retention times within the method-required QC limits?			✓		
Raw data (NELAC section 1 appendix A glossary, and section 5.12 or ISO/IEC 17025 section 4.12.2)					
Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	✓				
Were data associated with manual integrations flagged on the raw data?			✓		
Dual column confirmation					
Did dual column confirmation results meet the method-required QC?			✓		
Tentatively identified compounds (TICs):					
If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			✓		
Interference Check Sample (ICS) results:					
Were percent recoveries within method QC limits?	✓				
Serial dilutions, post digestion spikes, and method of standard additions					
Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	✓				
Method detection limit (MDL) studies					
Was a MDL study performed for each reported analyte?	✓				
Is the MDL either adjusted or supported by the analysis of DCSs?	✓				
Proficiency test reports:					
Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	✓				

Description	Yes	No	NA(1)	NR(2)	ER(3)
Standards documentation					
Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	✓				
Compound/analyte identification procedures					
Are the procedures for compound/analyte identification documented?	✓				
Demonstration of analyst competency (DOC)					
Was DOC conducted consistent with NELAC Chapter 5C or ISO/IEC 4?	✓				
Is documentation of the analyst's competency up-to-date and on file?	✓				
Verification/validation documentation for methods (NELAC Chap 5 or ISO/IEC 17025 Section 5)					
Are all the methods used to generate the data documented, verified, and validated, where applicable?	✓				
Laboratory standard operating procedures (SOPs):					
Are laboratory SOPs current and on file for each method performed?	✓				

Microbac Laboratories Inc.
Laboratory Review Checklist

Laboratory Name: Microbac Laboratories Inc.
Laboratory Log Number: L09070202
Project Name: 798-LONGHORN
Method: 6020
Prep Batch Number(s): WG308973
Reviewer Name: SHERI L. PFALZGRAF
LRC Date: August 11, 2009

EXCEPTIONS REPORT
ER#1 - Due to analyst error, client samples 02 and 03 were analyzed at dilutions for all analytes. The samples were later reanalyzed undiluted for all analytes.
Footnotes:
(1) NA = Not applicable to method or project
(2) NR = Not reviewed
(3) ER# = Exception report number

Laboratory Data Package Cover Page

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  c) preparation methods,
  d) Cleanup methods, and
  e) If required for the project, tentatively identified compounds (TICs)
R4 Surrogate recovery data including:
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  b) MS/MSD spiking amounts,
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  a) the amount of analyte measured in the duplicate,
  b) the calculated RPD, and
  c) the laboratory's QC limits for anlytical duplicates.
R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix;
R10 Other problems or anomalies.
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Release statement: I am responsible for the release of this laboratory data package. This data package has been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exceptions reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratoy in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

Check, If applicable: [] This laboratory is an in-house laboratory controlled by the person repsonding to rule. The official signing the cover page of the rule-required report (for example, the APAR) in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is trus.

SHERI L. PFALZGRAF	Sheri L. Pfalzgraf	Chemist II	August 11, 2009
Name (Printed)	Signature	Official Title (printed)	DATE

Checklist ID: 40767

Microbac Laboratories Inc.
Laboratory Review Checklist

Laboratory Name: Microbac Laboratories Inc.
Laboratory Log Number: L09070202
Project Name: 798-LONGHORN
Method: 7471
Prep Batch Number(s): WG308974
Reviewer Name: SHERI L. PFALZGRAF
LRC Date: August 11, 2009

Description	Yes	No	NA(1)	NR(2)	ER(3)
Chain-Of-Custody (C-O-C)					
Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	✓				
Were all departures from standard conditions described in an exception report?	✓				
Sample and quality control (QC) identification					
Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	✓				
Are all laboratory ID numbers cross-referenced to the corresponding QC data?	✓				
Test reports					
Were all samples prepared and analyzed within holding times?	✓				
Other than those results <MQL, were all other raw values bracketed by calibration standards?	✓				
Were calculations checked by a peer or supervisor?	✓				
Were all analyte identifications checked by a peer or supervisor?	✓				
Were sample quantitation limits reported for all analytes not detected?	✓				
Were all results for soil and sediment samples reported on a dry weight basis?	✓				
Were % moisture (or solids) reported for all soil and sediment samples?	✓				
If required for the project, TICs reported?			✓		
Surrogate recovery data					
Were surrogates added prior to extraction?			✓		
Were surrogate percent recoveries in all samples within the laboratory QC limits?			✓		
Test reports/summary forms for blank samples					
Were appropriate type(s) of blanks analyzed?	✓				
Were blanks analyzed at the appropriate frequency?	✓				
Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	✓				
Were blank concentrations <RL?	✓				
Laboratory control samples (LCS):					
Were all COCs included in the LCS?	✓				
Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	✓				
Were LCSs analyzed at the required frequency?	✓				
Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	✓				
Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs?	✓				
Was the LCSD RPD within QC limits?			✓		
Matrix spike (MS) and matrix spike duplicate (MSD) data					
Were the project/method specified analytes included in the MS and MSD?			✓		
Were MS/MSD analyzed at the appropriate frequency?			✓		
Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?			✓		

Description	Yes	No	NA(1)	NR(2)	ER(3)
Were MS/MSD RPDs within laboratory QC limits?			✓		
Analytical duplicate data					
Were appropriate analytical duplicates analyzed for each matrix?			✓		
Were analytical duplicates analyzed at the appropriate frequency?			✓		
Were RPDs or relative standard deviations within the laboratory QC limits?			✓		
Method quantitation limits (MQLs):					
Are the MQLs for each method analyte included in the laboratory data package?	✓				
Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	✓				
Are unadjusted MQLs included in the laboratory data package?	✓				
Other problems/anomalies					
Are all known problems/anomalies/special conditions noted in this LRC and ER?		✓			1
Were all necessary corrective actions performed for the reported data?	✓				
Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	✓				
ICAL					
Were response factors and/or relative response factors for each analyte within QC limits?			✓		
Were percent RSDs or correlation coefficient criteria met?	✓				
Was the number of standards recommended in the method used for all analytes?	✓				
Were all points generated between the lowest and highest standard used to calculate the curve?	✓				
Are ICAL data available for all instruments used?	✓				
Has the initial calibration curve been verified using an appropriate second source standard?	✓				
Initial and continuing calibration verification (ICV and CCV) and continuing calibration blank (CCB):					
Was the CCV analyzed at the method-required frequency?	✓				
Were percent differences for each analyte within the method-required QC limits?	✓				
Was the ICAL curve verified for each analyte?	✓				
Was the absolute value of the analyte concentration in the inorganic CCB <RL?	✓				
Mass spectral tuning:					
Was the appropriate compound for the method used for tuning?			✓		
Were ion abundance data within the method-required QC limits?			✓		
Internal standards (IS):					
Were IS area counts and retention times within the method-required QC limits?			✓		
Raw data (NELAC section 1 appendix A glossary, and section 5.12 or ISO/IEC 17025 section 4.12.2)					
Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	✓				
Were data associated with manual integrations flagged on the raw data?			✓		
Dual column confirmation					
Did dual column confirmation results meet the method-required QC?			✓		
Tentatively identified compounds (TICs):					
If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			✓		
Interference Check Sample (ICS) results:					
Were percent recoveries within method QC limits?			✓		
Serial dilutions, post digestion spikes, and method of standard additions					
Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	✓				
Method detection limit (MDL) studies					
Was a MDL study performed for each reported analyte?	✓				
Is the MDL either adjusted or supported by the analysis of DCSs?	✓				
Proficiency test reports:					
Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	✓				

Description	Yes	No	NA(1)	NR(2)	ER(3)
Standards documentation					
Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	✓				
Compound/analyte identification procedures					
Are the procedures for compound/analyte identification documented?	✓				
Demonstration of analyst competency (DOC)					
Was DOC conducted consistent with NELAC Chapter 5C or ISO/IEC 4?	✓				
Is documentation of the analyst's competency up-to-date and on file?	✓				
Verification/validation documentation for methods (NELAC Chap 5 or ISO/IEC 17025 Section 5)					
Are all the methods used to generate the data documented, verified, and validated, where applicable?	✓				
Laboratory standard operating procedures (SOPs):					
Are laboratory SOPs current and on file for each method performed?	✓				

Microbac Laboratories Inc.
Laboratory Review Checklist

Laboratory Name:	Microbac Laboratories Inc.
Laboratory Log Number:	L09070202
Project Name:	798-LONGHORN
Method:	7471
Prep Batch Number(s):	WG308974
Reviewer Name:	SHERI L. PFALZGRAF
LRC Date:	August 11, 2009

EXCEPTIONS REPORT

ER#1 - Due to failure to meet NPDES acceptance criteria for this batch upon initial analysis, the ICV was reanalyzed wtih compliant results.

Footnotes:

(1) NA = Not applicable to method or project
(2) NR = Not reviewed
(3) ER# = Exception report number

2.1 Metals Data

2.1.1 Metals ICP-MS Data

2.1.1.1 Summary Data

LABORATORY REPORT

L09070202

08/11/09 13:38

Submitted By

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

For

Account Name: Shaw E & I, Inc.
ABB Lummus Biulding
3010 Briarpark Drive Suite 4N
Houston, TX 77042
Attention: Jennifer Hoang

Project Number: 2773.025
Project: Longhorn AAP
Site: LONGHORN AAP KARNACK TX

P.O. Number: 389869/ 390836(GWTP)

Sample Analysis Summary

Client ID	Lab ID	Method	Dilution	Date Received
02SB027A (0-6)	L09070202-02	6020	1	10-JUL-09
02SB028B (12-18)	L09070202-03	6020	1	10-JUL-09

L1_A_PROD - Modified 03/06/2008 1 OF 1
PDF File ID: 1463336
Report generated: 08/11/2009 13:38

Report Number: **L09070202**
Report Date : **August 11, 2009**

Sample Number: **L09070202-02**
Client ID: **02SB027A (0-6)**
Matrix: **Leachate**
Workgroup Number: **WG309040**
Collect Date: **07/09/2009 10:15**
Sample Tag: **01**

PrePrep Method: **1312**
Prep Method: **3015**
Analytical Method: **6020**
Analyst: **JYH**
Dilution: **1**
Units: **mg/L**

Instrument: **ELAN-ICP**
Prep Date: **08/05/2009 09:17**
Cal Date: **08/07/2009 10:16**
Run Date: **08/07/2009 19:37**
File ID: **EL.080709.193726**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Arsenic, Leachable	7440-38-2	0.0370		0.00100	0.000250
Cadmium, Leachable	7440-43-9	0.000548		0.000500	0.000125
Copper, Leachable	7440-50-8	0.00886		0.00200	0.000500
Lead, Leachable	7439-92-1	0.0623		0.000500	0.000250

Sample Number: **L09070202-03**
Client ID: **02SB028B (12-18)**
Matrix: **Leachate**
Workgroup Number: **WG309040**
Collect Date: **07/09/2009 10:20**
Sample Tag: **01**

PrePrep Method: **1312**
Prep Method: **3015**
Analytical Method: **6020**
Analyst: **JYH**
Dilution: **1**
Units: **mg/L**

Instrument: **ELAN-ICP**
Prep Date: **08/05/2009 09:17**
Cal Date: **08/07/2009 10:16**
Run Date: **08/07/2009 19:43**
File ID: **EL.080709.194342**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Arsenic, Leachable	**7440-38-2**	**0.0611**		**0.00100**	**0.000250**
Cadmium, Leachable	**7440-43-9**	**0.00111**		**0.000500**	**0.000125**
Copper, Leachable	**7440-50-8**	**0.0191**		**0.00200**	**0.000500**
Lead, Leachable	**7439-92-1**	**0.224**		**0.000500**	**0.000250**

2.1.1.2 QC Summary Data

Example 6020 Calculations
Perkin Elmer ELAN 6100

1.0 Initial Calibration (ICAL) Parameters

The system performs linear regression from data consisting of a blank and three standards.

2.0 Calculating the concentration (C) of an element in water using data from prep log, run log, and quantitation report (note:the data system performs this calculation automatically when correction factors have been entered):

$$Cx = Cs \times \frac{Vf}{Vi} \times D$$

Where:	**Example:**
Cs = Concentration computed by the data system (ug/L)	0.1
Vf = Final volume	100
Vi = Initial volume	40
D = Dilution factor as a multiplier (10X = 10)	1
Cx = Concentration of element in (ug/L)	0.25

3.0 Calculating the concentration (C) of an element in soil using data from prep log, run log, and quantitation report (note: the data system performs this calculation automatically when correction factors have been entered):

$$Cx = Cs \times \frac{Vf}{Vi} \times D$$

Where:	**Example:**
Cs = Concentration computed by the data system (ug/L)	0.1
Vf = Final volume	200
Vi = Initial volume	0.5
D = Dilution factor as a multiplier (10X = 10)	1
Cx = Concentration of element in (ug/kg)	40

4.0 Adjusting the concentration to dry weight:

$$Cdry = \frac{Cx \times 100}{Px}$$

Where:	**Example:**
Cx = Concentration calculated as received (wet basis)	40
Px = Percent solids of sample (%wt)	80
$Cdry$ = Concentration calculated as dry weight (ug/kg)	50

50 ug/kg = 0.050 mg/kg

Perkin Elmer ELAN ICP/MS

STANDARDS KEY

QC Std 1 - ICV
QC Std 2 - ICB
QC Std 3 - CRI - Soil
QC Std 4 - CRI - Water
QC Std 5 - ICSA
QC Std 6 - ICSAB
QC Std 7 - CCV
QC Std 8 - CCB

Calibration Solutions

Analyte	Stock Conc. (mg/L)	S1 (mg/L)	S2 (mg/L)	S3 (mg/L)	S4 (mg/L)
Al	10	0	0.0004	0.05	0.1
Sb	10	0	0.0004	0.05	0.1
As	10	0	0.0004	0.05	0.1
Ba	10	0	0.0004	0.05	0.1
Be	10	0	0.0004	0.05	0.1
Ca	1000	0	0.04	5	10
Cd	10	0	0.0004	0.05	0.1
Cr	10	0	0.0004	0.05	0.1
Co	10	0	0.0004	0.05	0.1
Cu	10	0	0.0004	0.05	0.1
Fe	1000	0	0.04	5	10
Pb	10	0	0.0004	0.05	0.1
Mg	1000	0	0.04	5	10
Mn	10	0	0.0004	0.05	0.1
Ni	10	0	0.0004	0.05	0.1
K	1000	0	0.04	5	10
Se	10	0	0.0004	0.05	0.1
Ag	10	0	0.0004	0.05	0.1
Na	1000	0	0.04	5	10
Tl	10	0	0.0004	0.05	0.1
V	10	0	0.0004	0.05	0.1
U	1000	0	0.0004	0.05	0.1
Zn	10	0	0.0004	0.05	0.1

TCLP Non-Volatile

nalyst(s): Rac
Date: 08-04-09

Analyst/Date		Analyst/Date	
Rac 08-04-09		Rac 8-05-09	
Time On	Temp On °C	Time Off	Temp Off °C
1430	24	0730	23

Jug #	Sample #	Tests	Method	Fluid #	Matrix*	%Solid	Size Reduction Yes	Size Reduction No	Int. Wt. (g)	Fluid Vol. (mL)
D	07-654-14	ME	1311	F1-757	S/S	100		✓	100.02	2000
D	07-699-01	⊥	⊥	⊥	S	⊥	✓		100.02	⊥
G-6	08-0046-01	S√	⊥	⊥	S/S	⊥		✓	100.04	⊥
N/A	FBLK	ME ⊥	⊥	⊥	N/A	N/A		✓	2000	⊥
D	07-202-02	ME	1312	SF2-182	S/S	100		✓	100.04	⊥
D	03	⊥	⊥	⊥	⊥	⊥		✓	100.06	⊥
N/A	FBLK	⊥	⊥	⊥	N/A	N/A		✓	2000	⊥

Rac 8-04-09

*Matrix Code = (S-solid) (SS-sand, soil or sludge) (P-paint) (O-organic) (W-water or waste)
Agitator speed is 30 ± 2 rpm unless otherwise noted.

Comments: ______________________

Peer Review By: ______________________ Supervisor Review: ______________________

Microbac Laboratories Inc.
Microwave Digestion Log

Workgroup: WG308973
Analyst: VC
Spike Analyst: VC
Run Date: 08/05/2009 09:17
Method: 3015

SOP: ME407 Revison 10
Spike Solution: STD33694
Spike Witness: REK
HNO3 Lot #: COA13945
Digest tubes Lot #: COA14013

	SAMPLE #	Type	Matrix	Initial Amount	Final Volume	Initial Vessel Wt	Final Vessel Wt	Spike Amount	Due Date
1	WG308973-03	BLANK	1	40 mL	100 mL	207.176 g	207.163 g		
2	WG308947-01	FBLK	18	40 mL	100 mL	207.658 g	207.649 g		
3	WG308973-04	LCS	1	40 mL	100 mL	206.305 g	206.281 g	.25 mL	
4	L09070202-02	SAMP	18	40 mL	100 mL	206.885 g	206.873 g		08/12/09
5	L09070202-03	SAMP	18	40 mL	100 mL	208.392 g	208.38 g		08/12/09
6	WG308973-01	REF	1	40 mL	100 mL	208.396 g	208.378 g		
7	L09080039-01	SAMP	1	40 mL	100 mL	208.396 g	208.378 g		08/06/09
8	L09080049-01	SAMP	1	40 mL	100 mL	206.134 g	206.104 g		08/18/09
9	L09080049-02	SAMP	1	40 mL	100 mL	206.771 g	206.732 g		08/18/09
10	WG308973-02	REF	2	40 mL	100 mL	208.586 g	208.566 g		
11	L09080054-01	SAMP	2	40 mL	100 mL	208.586 g	208.566 g		08/11/09
12	WG308973-05	MS	1	40 mL	100 mL	206.694 g	206.664 g	.25 mL	
13	WG308973-06	MSD	1	40 mL	100 mL	207.057 g	207.05 g	.25 mL	
14	WG308973-07	DUP	1	40 mL	100 mL	206.281 g	206.259 g		

Analyst: Vicki Collins

Reviewer:

MW_DIG - Modified 07/02/2008
PDF ID: 1458152
Report generated: 08/05/2009 10:31

Run Log ID: **29473**

Microbac Laboratories Inc.

Instrument Run Log

Instrument: ELAN-ICP

Dataset: 080509B.REP

Analyst1: JYH

Analyst2: N/A

Method: 6020

SOP: ME700

Rev: 6

Maintenance Log ID: 29664

Calibration Std: STD34439

ICV/CCV Std: STD34194

Post Spike: STD33697

ICSA: STD34135

ICSAB: STD34134

Int. Std: STD34348

Workgroups: 308920,309040,309036

Comments:

Seq.	File ID	Sample	ID	Prep	Dil	Reference	Date/Time
1	EL.080509.112425	Blank	Blank		1		08/05/09 11:24
2	EL.080509.113008	WG309059-01	Calibration Point		1		08/05/09 11:30
3	EL.080509.113551	WG309059-02	Calibration Point		1		08/05/09 11:35
4	EL.080509.114135	WG309059-03	Calibration Point		1		08/05/09 11:41
5	EL.080509.114720	WG309059-04	Calibration Point		1		08/05/09 11:47
6	EL.080509.115305	WG309059-05	Initial Calibration Verification		1		08/05/09 11:53
7	EL.080509.115959	WG309059-06	Initial Calib Blank		1		08/05/09 11:59
8	EL.080509.120655	WG309059-07	CRQL Check Solid		1		08/05/09 12:06
9	EL.080509.121354	WG309059-08	CRQL Check Water		1		08/05/09 12:13
10	EL.080509.122052	WG309059-09	Interference Check		1		08/05/09 12:20
11	EL.080509.122749	WG309059-10	Interference Check		1		08/05/09 12:27
12	EL.080509.123445	WG309059-11	CCV		1		08/05/09 12:34
13	EL.080509.124139	WG309059-12	CCB		1		08/05/09 12:41
14	EL.080509.124812	WG308903-01	Reference Sample		500	L09080038-13	08/05/09 12:48
15	EL.080509.125425	WG308903-04	Matrix Spike	.504/200	500	L09080038-13	08/05/09 12:54
16	EL.080509.130039	WG308903-05	Matrix Spike Duplica	.504/200	500	L09080038-13	08/05/09 13:00
17	EL.080509.130652	L09080038-01	CZLW-1	.511/200	500		08/05/09 13:06
18	EL.080509.131307	L09080038-02	CZLW-1-02	.515/200	500		08/05/09 13:13
19	EL.080509.131921	WG308920-01	Post Digestion Spike		500	L09080038-02	08/05/09 13:19
20	EL.080509.132536	WG308920-02	Serial Dilution		2500	L09080038-02	08/05/09 13:25
21	EL.080509.133151	L09080038-03	CZLW-2	.525/200	500		08/05/09 13:31
22	EL.080509.133807	L09080038-04	CZLW-3	.506/200	500		08/05/09 13:38
23	EL.080509.134422	L09080038-05	CZLW-4	.521/200	500		08/05/09 13:44
24	EL.080509.135058	WG309059-13	CCV		1		08/05/09 13:50
25	EL.080509.135753	WG309059-14	CCB		1		08/05/09 13:57
26	EL.080509.140428	L09080038-06	CZLW-5	.504/200	500		08/05/09 14:04
27	EL.080509.141045	L09080038-07	CZLW-6	.508/200	500		08/05/09 14:10
28	EL.080509.141700	L09080038-08	CZLE-1	.502/200	500		08/05/09 14:17
29	EL.080509.142314	L09080038-09	CZLE-2	.511/200	500		08/05/09 14:23
30	EL.080509.142928	L09080038-12	CZLE-5	.527/200	500		08/05/09 14:29
31	EL.080509.143603	WG309059-15	CCV		1		08/05/09 14:36
32	EL.080509.144257	WG309059-16	CCB		1		08/05/09 14:42
33	EL.080509.145056	WG308951-02	Method/Prep Blank	.5/200	1		08/05/09 14:50
34	EL.080509.145709	WG308951-03	Laboratory Control S	.5/200	1		08/05/09 14:57
35	EL.080509.150323	WG308951-01	Reference Sample		10	L09080052-09	08/05/09 15:03
36	EL.080509.150937	WG308951-04	Matrix Spike	.51/200	10	L09080052-09	08/05/09 15:09
37	EL.080509.151551	WG308951-05	Matrix Spike Duplica	.51/200	10	L09080052-09	08/05/09 15:15

Page: 1

Approved: August 10, 2009

Sheri L. Pfalzgraf

Run Log ID: 29473

Microbac Laboratories Inc.

Instrument Run Log

Instrument: ELAN-ICP
Dataset: 080509B.REP
Analyst1: JYH
Analyst2: N/A
Method: 6020
SOP: ME700
Rev: 6
Maintenance Log ID: 29664

Calibration Std: STD34439
ICV/CCV Std: STD34194
Post Spike: STD33697
ICSA: STD34135
ICSAB: STD34134
Int. Std: STD34348

Workgroups: 308920,309040,309036

Comments:

Seq.	File ID	Sample	ID	Prep	Dil	Reference	Date/Time
38	EL.080509.152205	L09080052-05	G-31-HSS004B (0.5)	.503/200	10		08/05/09 15:22
39	EL.080509.152820	WG309036-01	Post Digestion Spike		10	L09080052-05	08/05/09 15:28
40	EL.080509.153435	WG309036-02	Serial Dilution		50	L09080052-05	08/05/09 15:34
41	EL.080509.154111	WG309059-17	CCV		1		08/05/09 15:41
42	EL.080509.154806	WG309059-18	CCB		1		08/05/09 15:48
43	EL.080509.155505	L09080049-03	G-31-MSS013 (6.0)	.509/200	5		08/05/09 15:55
44	EL.080509.160429	L09080049-04	G-31-MSS014 (6.0)	.514/200	5		08/05/09 16:04
45	EL.080509.161045	L09080049-05	G-31-MSB07B (6.0)		5		08/05/09 16:10
46	EL.080509.161702	L09080049-06	G-31-MSB04B (2.5)	.501/200	5		08/05/09 16:17
47	EL.080509.162317	L09080049-07	G-31-MSS017 (2.5)	.502/200	5		08/05/09 16:23
48	EL.080509.162930	L09080049-08	G-31-MDUP002 (2.5)	.501/200	10		08/05/09 16:29
49	EL.080509.164058	L09080049-08	G-31-MDUP002 (2.5)	.501/200	50		08/05/09 16:40
50	EL.080509.164714	L09080049-03	G-31-MSS013 (6.0)	.509/200	50		08/05/09 16:47
51	EL.080509.165330	L09080049-04	G-31-MSS014 (6.0)	.514/200	50		08/05/09 16:53
52	EL.080509.170006	WG309059-19	CCV		1		08/05/09 17:00
53	EL.080509.170700	WG309059-20	CCB		1		08/05/09 17:07
54	EL.080509.171334	L09080049-05	G-31-MSB07B (6.0)	.503/200	1		08/05/09 17:13
55	EL.080509.171951	L09080049-06	G-31-MSB04B (2.5)	.501/200	50		08/05/09 17:19
56	EL.080509.172606	L09080049-07	G-31-MSS017 (2.5)	.502/200	500		08/05/09 17:26
57	EL.080509.173219	L09080049-08	G-31-MDUP002 (2.5)	.501/200	1000		08/05/09 17:32
58	EL.080509.173854	WG309059-21	CCV		1		08/05/09 17:38
59	EL.080509.174549	WG309059-22	CCB		1		08/05/09 17:45
60	EL.080509.175222	WG308973-03	Method/Prep Blank	40/100	1		08/05/09 17:52
61	EL.080509.175836	WG308947-01	Fluid Blank		1		08/05/09 17:58
62	EL.080509.180451	WG308973-04	Laboratory Control S	40/100	1		08/05/09 18:04
63	EL.080509.181106	WG308973-01	Reference Sample		1	L09080039-01	08/05/09 18:11
64	EL.080509.181721	WG308973-05	Matrix Spike	40/100	1	L09080039-01	08/05/09 18:17
65	EL.080509.182337	WG308973-06	Matrix Spike Duplica	40/100	1	L09080039-01	08/05/09 18:23
66	EL.080509.182953	L09080054-01	DRL-Z-OUTLET 006	40/100	1		08/05/09 18:29
67	EL.080509.183609	WG308973-07	Duplicate	40/100	1	L09080054-01	08/05/09 18:36
68	EL.080509.184226	WG309040-01	Post Digestion Spike		1	L09080054-01	08/05/09 18:42
69	EL.080509.184843	WG309040-02	Serial Dilution		5	L09080054-01	08/05/09 18:48
70	EL.080509.185520	WG309059-23	CCV		1		08/05/09 18:55
71	EL.080509.190214	WG309059-24	CCB		1		08/05/09 19:02
72	EL.080509.190847	L09070202-02	02SB027A (0-6)		5		08/05/09 19:08
73	EL.080509.191501	L09070202-03	02SB028B (12-18)		5		08/05/09 19:15
74	EL.080509.192115	L09080049-01	FB014 (080109)	40/100	1		08/05/09 19:21

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Sheri L. Pfalzgraf

Run Log ID: **29473**

Microbac Laboratories Inc.

Instrument Run Log

Instrument: ELAN-ICP
Dataset: 080509B.REP
Analyst1: JYH
Analyst2: N/A
Method: 6020
SOP: ME700
Rev: 6
Maintenance Log ID: 29664

Calibration Std: STD34439
ICV/CCV Std: STD34194
Post Spike: STD33697
ICSA: STD34135
ICSAB: STD34134
Int. Std: STD34348

Workgroups: 308920,309040,309036

Comments:

Seq.	File ID	Sample	ID	Prep	Dil	Reference	Date/Time
75	EL.080509.192730	L09080049-02	FB015 (080309)	40/100	1		08/05/09 19:27
76	EL.080509.193405	WG309059-25	CCV		1		08/05/09 19:34
77	EL.080509.194059	WG309059-26	CCB		1		08/05/09 19:40
78	EL.080509.194733	WG308031-02	Method/Prep Blank		1		08/05/09 19:47
79	EL.080509.195348	WG308031-03	Laboratory Control S		1		08/05/09 19:53
80	EL.080509.200004	WG308031-01	Reference Sample		1	L09070470-20	08/05/09 20:00
81	EL.080509.200620	WG308031-04	Matrix Spike		1	L09070470-20	08/05/09 20:06
82	EL.080509.201236	WG308031-05	Matrix Spike Duplica		1	L09070470-20	08/05/09 20:12
83	EL.080509.201853	L09070470-01	H-14		1		08/05/09 20:18
84	EL.080509.202510	L09070470-02	I-13/J-13		1		08/05/09 20:25
85	EL.080509.203127	WG308879-01	Post Digestion Spike		1	L09070470-02	08/05/09 20:31
86	EL.080509.203743	WG308879-02	Serial Dilution		5	L09070470-02	08/05/09 20:37
87	EL.080509.204418	WG309059-27	CCV		1		08/05/09 20:44
88	EL.080509.205112	WG309059-28	CCB		1		08/05/09 20:51
89	EL.080509.205746	L09070470-03	I-14		1		08/05/09 20:57
90	EL.080509.210401	L09070470-04	I-15		1		08/05/09 21:04
91	EL.080509.211016	L09070470-05	I-16		1		08/05/09 21:10
92	EL.080509.211631	L09070470-06	J-14		1		08/05/09 21:16
93	EL.080509.212247	L09070470-07	N-13		1		08/05/09 21:22
94	EL.080509.212903	L09070470-08	N-14		1		08/05/09 21:29
95	EL.080509.213519	L09070470-09	O-7		1		08/05/09 21:35
96	EL.080509.214136	L09070470-10	O-8		1		08/05/09 21:41
97	EL.080509.214753	L09070470-11	O-13		1		08/05/09 21:47
98	EL.080509.215410	L09070470-12	O-14		1		08/05/09 21:54
99	EL.080509.220047	WG309059-29	CCV		1		08/05/09 22:00
100	EL.080509.220741	WG309059-30	CCB		1		08/05/09 22:07
101	EL.080509.221416	L09070470-13	O-15		1		08/05/09 22:14
102	EL.080509.222032	L09070470-14	P-13		1		08/05/09 22:20
103	EL.080509.222647	L09070470-15	P-14		1		08/05/09 22:26
104	EL.080509.223303	L09070470-16	P-15		1		08/05/09 22:33
105	EL.080509.223918	L09070470-17	P-16		1		08/05/09 22:39
106	EL.080509.224534	L09070470-18	Q-13		1		08/05/09 22:45
107	EL.080509.225151	L09070470-19	Q-14		1		08/05/09 22:51
108	EL.080509.225827	WG309059-31	CCV		1		08/05/09 22:58
109	EL.080509.230522	WG309059-32	CCB		1		08/05/09 23:05

Approved: August 10, 2009

Sheri L. Pfalzgraf

Microbac®

Run Log ID: 29521

Microbac Laboratories Inc.

Instrument Run Log

Instrument: ELAN-ICP
Dataset: 080709A.REP
Analyst1: JYH
Analyst2: N/A
Method: 6020
SOP: ME700
Rev: 6
Maintenance Log ID:

Calibration Std: STD34439
ICV/CCV Std: STD34194
Post Spike: STD33697
ICSA: STD34135
ICSAB: STD34134
Int. Std: STD34348

Workgroups: 309144,309201,309217,309263,309040,308782,309275,309276,3091

Comments: 309201

Seq.	File ID	Sample	ID	Prep	Dil	Reference	Date/Time
1	EL.080709.095330	Blank	Blank		1		08/07/09 09:53
2	EL.080709.095913	WG309258-01	Calibration Point		1		08/07/09 09:59
3	EL.080709.100456	WG309258-02	Calibration Point		1		08/07/09 10:04
4	EL.080709.101040	WG309258-03	Calibration Point		1		08/07/09 10:10
5	EL.080709.101625	WG309258-04	Calibration Point		1		08/07/09 10:16
6	EL.080709.102210	WG309258-05	Initial Calibration Verification		1		08/07/09 10:22
7	EL.080709.102904	WG309258-06	Initial Calib Blank		1		08/07/09 10:29
8	EL.080709.103600	WG309258-07	CRQL Check Solid		1		08/07/09 10:36
9	EL.080709.104259	WG309258-08	CRQL Check Water		1		08/07/09 10:42
10	EL.080709.104957	WG309258-09	Interference Check		1		08/07/09 10:49
11	EL.080709.105654	WG309258-10	Interference Check		1		08/07/09 10:56
12	EL.080709.110350	WG309258-11	CCV		1		08/07/09 11:03
13	EL.080709.111044	WG309258-12	CCB		1		08/07/09 11:10
14	EL.080709.111717	L09080005-01	LOQ-1	40/100	1		08/07/09 11:17
15	EL.080709.112330	WG309183-02	Method/Prep Blank	.5/200	1		08/07/09 11:23
16	EL.080709.113005	WG309258-13	CCV		1		08/07/09 11:30
17	EL.080709.113659	WG309258-14	CCB		1		08/07/09 11:36
18	EL.080709.114332	WG309183-03	Laboratory Control S	.5/200	1		08/07/09 11:43
19	EL.080709.115022	L09080106-01	PRCSFL04	.513/200	1		08/07/09 11:50
20	EL.080709.115636	WG309183-01	Reference Sample		1	L09080106-02	08/07/09 11:56
21	EL.080709.120250	WG309183-04	Matrix Spike	.513/200	1	L09080106-02	08/07/09 12:02
22	EL.080709.120905	WG309183-05	Matrix Spike Duplica	.513/200	1	L09080106-02	08/07/09 12:09
23	EL.080709.121520	L09080106-03	PRCL01	.522/200	1		08/07/09 12:15
24	EL.080709.122136	WG309201-01	Post Digestion Spike		1	L09080106-03	08/07/09 12:21
25	EL.080709.122752	WG309201-02	Serial Dilution		5	L09080106-03	08/07/09 12:27
26	EL.080709.123408	L09080127-01	G-31-HSS003B (0.5)	.544/200	10		08/07/09 12:34
27	EL.080709.124044	WG309258-15	CCV		1		08/07/09 12:40
28	EL.080709.124738	WG309258-16	CCB		1		08/07/09 12:47
29	EL.080709.125601	WG309183-01	Reference Sample		10	L09080106-02	08/07/09 12:56
30	EL.080709.130216	WG309183-04	Matrix Spike	.513/200	10	L09080106-02	08/07/09 13:02
31	EL.080709.130830	WG309183-05	Matrix Spike Duplica	.513/200	10	L09080106-02	08/07/09 13:08
32	EL.080709.131506	WG309258-17	CCV		1		08/07/09 13:15
33	EL.080709.132200	WG309258-18	CCB		1		08/07/09 13:22
34	EL.080709.132835	WG309190-03	Method/Prep Blank	40/100	1		08/07/09 13:28
35	EL.080709.133450	WG309190-04	Laboratory Control S	40/100	1		08/07/09 13:34
36	EL.080709.134103	L09080081-03	POLISHED WATER -FRIDAY	40/100	1		08/07/09 13:41
37	EL.080709.134717	L09080081-04	DI WATER -FRIDAY	40/100	1		08/07/09 13:47

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Approved: August 10, 2009

Run Log ID: **29521**

Microbac Laboratories Inc.

Instrument Run Log

Instrument: ELAN-ICP
Dataset: 080709A.REP
Analyst1: JYH
Analyst2: N/A
Method: 6020
SOP: ME700
Rev: 6
Maintenance Log ID:

Calibration Std: STD34439
ICV/CCV Std: STD34194
Post Spike: STD33697
ICSA: STD34135
ICSAB: STD34134
Int. Std: STD34348

Workgroups: 309144,309201,309217,309263,309040,308782,309275,309276,3091

Comments: 309201

Seq.	File ID	Sample	ID	Prep	Dil	Reference	Date/Time
38	EL.080709.135332	L09080100-01	OUTFALL 002/COMP	40/100	1	WG309190-01	08/07/09 13:53
39	EL.080709.140007	WG309258-19	CCV		1		08/07/09 14:00
40	EL.080709.140701	WG309258-20	CCB		1		08/07/09 14:07
41	EL.080709.141335	WG309190-05	Duplicate	40/100	1	L09080100-01	08/07/09 14:13
42	EL.080709.141950	WG309190-02	Reference Sample		1	L09080100-01	08/07/09 14:19
43	EL.080709.142605	WG309190-06	Matrix Spike	40/100	1		08/07/09 14:26
44	EL.080709.143221	WG309190-07	Matrix Spike Duplica	40/100	1	L09080100-01	08/07/09 14:32
45	EL.080709.143837	L09080124-02	LTL-K-EQBLK-2	40/100	1		08/07/09 14:38
46	EL.080709.144454	WG309217-01	Post Digestion Spike		1	L09080124-01	08/07/09 14:44
47	EL.080709.145110	WG309217-02	Serial Dilution		5	L09080124-01	08/07/09 14:51
48	EL.080709.145747	WG309258-21	CCV		1		08/07/09 14:57
49	EL.080709.150441	WG309258-22	CCB		1		08/07/09 15:04
50	EL.080709.151456	WG309251-02	Method/Prep Blank	.5/200	1		08/07/09 15:14
51	EL.080709.152112	WG309251-03	Laboratory Control S	.5/200	1		08/07/09 15:21
52	EL.080709.152725	WG309251-01	Reference Sample		1	L09080143-08	08/07/09 15:27
53	EL.080709.153340	WG309251-04	Matrix Spike		1	L09080143-08	08/07/09 15:33
54	EL.080709.153954	WG309251-05	Matrix Spike Duplica		1	L09080143-08	08/07/09 15:39
55	EL.080709.154609	L09080143-01	PRCSFL03	.521/200	1		08/07/09 15:46
56	EL.080709.155224	L09080143-02	PRCSFL03-QC	.536/200	1		08/07/09 15:52
57	EL.080709.155840	WG309263-01	Post Digestion Spike		1	L09080143-02	08/07/09 15:58
58	EL.080709.160456	WG309263-02	Serial Dilution		5	L09080143-02	08/07/09 16:04
59	EL.080709.161132	WG309258-23	CCV		1		08/07/09 16:11
60	EL.080709.161826	WG309258-24	CCB		1		08/07/09 16:18
61	EL.080709.162501	L09080143-03	PRCSWBD	.549/200	1		08/07/09 16:25
62	EL.080709.163117	L09080143-04	PRCSFL01		1		08/07/09 16:31
63	EL.080709.163734	L09080143-05	PRCSWHB	.525/200	1		08/07/09 16:37
64	EL.080709.164351	L09080143-06	PRCSFL02	.514/200	1		08/07/09 16:43
65	EL.080709.165007	L09080143-07	PRCSWFH		1		08/07/09 16:50
66	EL.080709.165657	WG309251-01	Reference Sample		10	L09080143-08	08/07/09 16:56
67	EL.080709.170311	WG309251-04	Matrix Spike	.511/200	10	L09080143-08	08/07/09 17:03
68	EL.080709.170926	WG309251-05	Matrix Spike Duplica	.51/200	10	L09080143-08	08/07/09 17:09
69	EL.080709.171542	L09080143-04	PRCSFL01	.522/200	10		08/07/09 17:15
70	EL.080709.172157	L09080143-07	PRCSWFH	.501/200	50		08/07/09 17:21
71	EL.080709.172832	WG309258-25	CCV		1		08/07/09 17:28
72	EL.080709.173526	WG309258-26	CCB		1		08/07/09 17:35
73	EL.080709.174200	WG309240-01	Method/Prep Blank		1		08/07/09 17:42
74	EL.080709.174815	WG309240-02	Laboratory Control S		1		08/07/09 17:48

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Sheri L. Pfalzgraf

Microbac®

Microbac Laboratories Inc.

Instrument Run Log

Instrument: ELAN-ICP
Dataset: 080709A.REP
Analyst1: JYH
Analyst2: N/A
Method: 6020
SOP: ME700
Rev: 6
Maintenance Log ID:

Calibration Std: STD34439
ICV/CCV Std: STD34194
Post Spike: STD33697
ICSA: STD34135
ICSAB: STD34134
Int. Std: STD34348

Workgroups: 309144,309201,309217,309263,309040,308782,309275,309276,3091

Comments: 309201

Seq.	File ID	Sample	ID	Prep	Dil	Reference	Date/Time
75	EL.080709.175430	WG309240-03	Laboratory Control S		1		08/07/09 17:54
76	EL.080709.180046	L09080139-03	L09070470-01		1		08/07/09 18:00
77	EL.080709.180702	L09080139-04	L09070470-08		1		08/07/09 18:07
78	EL.080709.181318	WG309264-01	Post Digestion Spike		1	L09080139-04	08/07/09 18:13
79	EL.080709.181935	WG309264-02	Serial Dilution		5	L09080139-04	08/07/09 18:19
80	EL.080709.182611	WG309258-27	CCV		1		08/07/09 18:26
81	EL.080709.183306	WG309258-28	CCB		1		08/07/09 18:33
82	EL.080709.183941	WG309241-01	Method/Prep Blank		1		08/07/09 18:39
83	EL.080709.184559	WG309241-02	Laboratory Control S		1		08/07/09 18:45
84	EL.080709.185216	WG309241-03	Laboratory Control S		1		08/07/09 18:52
85	EL.080709.185834	L09080139-01	L09070470-01		1		08/07/09 18:58
86	EL.080709.190451	L09080139-02	L09070470-08		1		08/07/09 19:04
87	EL.080709.191106	WG309241-01	Method/Prep Blank		1		08/07/09 19:11
88	EL.080709.191721	WG309266-02	Serial Dilution		5	L09080139-02	08/07/09 19:17
89	EL.080709.192357	WG309258-29	CCV		1		08/07/09 19:23
90	EL.080709.193052	WG309258-30	CCB		1		08/07/09 19:30
91	EL.080709.193726	L09070202-02	02SB027A (0-6)	40/100	1		08/07/09 19:37
92	EL.080709.194342	L09070202-03	02SB028B (12-18)	40/100	1		08/07/09 19:43
93	EL.080709.194958	L09080049-01	FB014 (080109)	40/100	1		08/07/09 19:49
94	EL.080709.195615	WG308719-01	Reference Sample		100	L09070704-01	08/07/09 19:56
95	EL.080709.200232	WG308719-04	Matrix Spike	.512/200	100	L09070704-01	08/07/09 20:02
96	EL.080709.200849	WG308719-05	Matrix Spike Duplica	.513/200	100	L09070704-01	08/07/09 20:08
97	EL.080709.201507	WG308782-01	Post Digestion Spike		100	L09070704-01	08/07/09 20:15
98	EL.080709.202125	WG308782-02	Serial Dilution		500	L09070704-01	08/07/09 20:21
99	EL.080709.202802	WG309258-31	CCV		1		08/07/09 20:28
100	EL.080709.203457	WG309258-32	CCB		1		08/07/09 20:34
101	EL.080709.204133	WG308175-03	Method/Prep Blank	40/100	1		08/07/09 20:41
102	EL.080709.204750	WG308175-04	Laboratory Control S	40/100	1		08/07/09 20:47
103	EL.080709.205405	WG308175-02	Reference Sample		1	L09070545-06	08/07/09 20:54
104	EL.080709.210021	WG308175-06	Matrix Spike	40/100	1	L09070545-06	08/07/09 21:00
105	EL.080709.210637	WG308175-07	Matrix Spike Duplica	40/100	1	L09070545-06	08/07/09 21:06
106	EL.080709.211254	L09070545-01	1:1.5 BCR:MIW	40/100	1		08/07/09 21:12
107	EL.080709.211911	L09070545-02	1:3 BCR:MIW	40/100	1		08/07/09 21:19
108	EL.080709.212528	L09070545-03	PH 3	40/100	1		08/07/09 21:25
109	EL.080709.213146	WG309275-01	Post Digestion Spike		1	L09070545-03	08/07/09 21:31
110	EL.080709.213804	WG309275-02	Serial Dilution		5	L09070545-03	08/07/09 21:38
111	EL.080709.214441	WG309258-33	CCV		1		08/07/09 21:44

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Sheri L. Pfalzgraf

Run Log ID: **29521**

Microbac Laboratories Inc.

Instrument Run Log

Instrument: ELAN-ICP
Dataset: 080709A.REP
Analyst1: JYH
Analyst2: N/A
Method: 6020
SOP: ME700
Rev: 6
Maintenance Log ID:

Calibration Std: STD34439
ICV/CCV Std: STD34194
Post Spike: STD33697
ICSA: STD34135
ICSAB: STD34134
Int. Std: STD34348

Workgroups: 309144,309201,309217,309263,309040,308782,309275,309276,3091

Comments: 309201

Seq.	File ID	Sample	ID	Prep	Dil	Reference	Date/Time
112	EL.080709.215136	WG309258-34	CCB		1		08/07/09 21:51
113	EL.080709.215811	L09070545-04	PH 3.7	40/100	1		08/07/09 21:58
114	EL.080709.220430	L09070545-05	1:15 BCR:MIW	40/100	1		08/07/09 22:04
115	EL.080709.221049	WG308175-05	Duplicate	40/100	1	L09070545-05	08/07/09 22:10
116	EL.080709.221727	WG309258-35	CCV		1		08/07/09 22:17
117	EL.080709.222421	WG309258-36	CCB		1		08/07/09 22:24
118	EL.080709.223056	WG308694-02	Method/Prep Blank	40/100	1		08/07/09 22:30
119	EL.080709.223711	WG308694-03	Laboratory Control S	40/100	1		08/07/09 22:37
120	EL.080709.224328	WG308694-01	Reference Sample		1	L09070681-25	08/07/09 22:43
121	EL.080709.224944	WG308694-04	Matrix Spike	40/100	1	L09070681-25	08/07/09 22:49
122	EL.080709.225601	WG308694-05	Matrix Spike Duplica	40/100	1	L09070681-25	08/07/09 22:56
123	EL.080709.230218	L09070681-04	MW2A-239-20	40/100	1		08/07/09 23:02
124	EL.080709.230836	L09070681-09	MW4A-239-20	40/100	1		08/07/09 23:08
125	EL.080709.231454	WG309276-01	Post Digestion Spike		1	L09070681-09	08/07/09 23:14
126	EL.080709.232112	WG309276-02	Serial Dilution		5	L09070681-09	08/07/09 23:21
127	EL.080709.232750	WG309258-37	CCV		1		08/07/09 23:27
128	EL.080709.233444	WG309258-38	CCB		1		08/07/09 23:34
129	EL.080709.234120	L09070681-14	MW5A-239-20	40/100	1		08/07/09 23:41
130	EL.080709.234739	L09070681-19	OW1A-239-20	40/100	1		08/07/09 23:47
131	EL.080709.235358	L09070681-22	MW2B-239-14	40/100	1		08/07/09 23:53
132	EL.080809.000016	L09070681-34	MW3A-239-14	40/100	1		08/08/09 00:00
133	EL.080809.000632	L09070681-37	MW3B-239-14	40/100	1		08/08/09 00:06
134	EL.080809.001249	L09070681-40	MW3C-239-14	40/100	1		08/08/09 00:12
135	EL.080809.001906	L09070681-43	MW3C2-389-14	40/100	1		08/08/09 00:19
136	EL.080809.002523	L09070681-46	MW4B-239-14	40/100	1		08/08/09 00:25
137	EL.080809.003141	L09070681-49	MW4C-239-14	40/100	1		08/08/09 00:31
138	EL.080809.003759	L09070681-52	OW1B-239-14	40/100	1		08/08/09 00:37
139	EL.080809.004436	WG309258-39	CCV		1		08/08/09 00:44
140	EL.080809.005130	WG309258-40	CCB		1		08/08/09 00:51
141	EL.080809.005806	L09070681-59	OW2A-239-20	40/100	1		08/08/09 00:58
142	EL.080809.010425	L09070681-64	OW3A-239-20	40/100	1		08/08/09 01:04
143	EL.080809.011044	L09070709-36	ORG-S01-239-14	40/100	1		08/08/09 01:10
144	EL.080809.011703	L09070709-38	ORG-S02-239-14	40/100	1		08/08/09 01:17
145	EL.080809.012341	WG309258-41	CCV		1		08/08/09 01:23
146	EL.080809.013035	WG309258-42	CCB		1		08/08/09 01:30

Page: 4 Approved: August 10, 2009

Sheri L. Pfalzgraf

Checklist ID: 40645

Microbac Laboratories Inc.

Data Checklist

Date: 05-AUG-2009
Analyst: JYH
Analyst: NA
Method: 6020
Instrument: ELAN
Curve Workgroup: 309059
Runlog ID: 29473
Analytical Workgroups: 308920,309040,309036

Calibration/Linearity	X
ICV/CCV	X
ICB/CCB	X
ICSA/ICSAB	X
CRI	X
Blank/LCS	X
MS/MSD	X
Post Spike/Serial Dilution	X
Upload Results	X
Data Qualifiers	
Generate PDF Instrument Data	X
Sign/Annotate PDF Data	X
Upload Curve Data	X
Workgroup Forms	X
Case Narrative	038,049,052,202,039,054
Client Forms	X
Level X	
Level 3	202
Level 4	038,049,052,039
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Primary Reviewer	JYH
Secondary Reviewer	SLP
Comments	

Primary Reviewer:
06-AUG-2009

Secondary Reviewer:
10-AUG-2009

Sheri L. Pfalzgraf

CHECKLIST1 - Modified 03/05/2008
Generated: AUG-10-2009 10:37:51

Checklist ID: 40711

Microbac Laboratories Inc.

Data Checklist

Date: 07-AUG-2009
Analyst: JYH
Analyst: NA
Method: 6020
Instrument: ELAN
Curve Workgroup: 309258
Runlog ID: 29521
Analytical Workgroups: 309144,309201,309217,309263,309040,308782,309275,309276

Calibration/Linearity	X
ICV/CCV	X
ICB/CCB	X
ICSA/ICSAB	X
CRI	X
Blank/LCS	X
MS/MSD	X
Post Spike/Serial Dilution	X
Upload Results	X
Data Qualifiers	
Generate PDF Instrument Data	X
Sign/Annotate PDF Data	X
Upload Curve Data	X
Workgroup Forms	X
Case Narrative	005,106,127,081,124,143,202,049
	545,681,709,652
Client Forms	X
Level X	
Level 3	106,143,202
Level 4	127,081,049,652,
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Primary Reviewer	JYH
Secondary Reviewer	SLP
Comments	

Primary Reviewer:

Secondary Reviewer:
10-AUG-2009

Sheri L. Pfalzgraf

CHECKLIST1 - Modified 03/05/2008
Generated: AUG-10-2009 13:03:44

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Microbac Laboratories Inc.

HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: 6020

AAB#: WG309040

Login Number: L09070202

Client ID	ID	Date Collected	TCLP Date	Time Held	Max Hold	Q	Extract Date	Time Held	Max Hold	Q	Run Date	Time Held	Max Hold	Q
02SB027A (0-6)	02	07/09/09					08/05/09	27	180		08/07/09	29.4	180	
02SB028B (12-18)	03	07/09/09					08/05/09	27	180		08/07/09	29.4	180	

* = SEE PROJECT QAPP REQUIREMENTS

HOLD_TIMES - Modified 03/06/2008
PDF File ID: 1459364
Report generated 08/10/2009 13:37

Microbac Laboratories Inc.

METHOD BLANK SUMMARY

Login Number: L09070202
Blank File ID: EL.080509.175222
Prep Date: 08/05/09 09:17
Analyzed Date: 08/05/09 17:52
Analyst: JYH

Work Group: WG309040
Blank Sample ID: WG308973-03
Instrument ID: ELAN-ICP
Method: 6020

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG308973-04	EL.080509.180451	08/05/09 18:04	01
DUP	WG308973-07	EL.080509.183609	08/05/09 18:36	01
02SB027A (0-6)	L09070202-02	EL.080709.193726	08/07/09 19:37	01
02SB028B (12-18)	L09070202-03	EL.080709.194342	08/07/09 19:43	01

Report Name: BLANK_SUMMARY
PDF File ID: 1459365
Report generated 08/10/2009 13:37

Microbac Laboratories Inc.

METHOD BLANK REPORT

Login Number:L09070202
Prep Date:08/05/09 09:17
Sample ID:WG308973-03
Instrument ID:ELAN-ICP
Run Date:08/05/09 17:52
Prep Method:3015
File ID:EL.080509.175222
Analyst:JYH
Method:6020
Workgroup (AAB#):WG309040
Matrix:Leachate
Units:mg/L
Contract #:DACA56-94-D-0020
Cal ID:ELAN-I-05-AUG-09

Analytes	SDL	PQL	Concentration	Dilution	Qualifier
Arsenic, Leachable	0.000250	0.00100	0.000250	1	U
Cadmium, Leachable	0.000125	0.000500	0.000125	1	U
Copper, Leachable	0.000500	0.00200	0.000500	1	U
Lead, Leachable	0.000250	0.000500	0.000250	1	U

SDL	Method Detection Limit
PQL	Reporting/Practical Quantitation Limit
ND	Analyte Not detected at or above reporting limit
*	|Analyte concentration| > RL

Report Name:BLANK
PDF ID: 1459366
10-AUG-2009 13:37

Microbac Laboratories Inc.
LABORATORY CONTROL SAMPLE (LCS)

Login Number: L09070202
Run Date: 08/05/2009
Sample ID: WG308973-04
Instrument ID: ELAN-ICP
Run Time: 18:04
Prep Method: 3015
File ID: EL.080509.180451
Analyst: JYH
Method: 6020
Workgroup (AAB#): WG309040
Matrix: Leachate
Units: mg/L
QC Key: STD
Lot#: STD33694
Cal ID: ELAN-I - 05-AUG-09

Analytes	Expected	Found	% Rec	LCS Limits	Q
Arsenic, Leachable	0.0625	0.0598	95.7	80 - 120	
Cadmium, Leachable	0.0625	0.0616	98.5	80 - 120	
Copper, Leachable	0.0625	0.0597	95.5	80 - 120	
Lead, Leachable	0.0625	0.0640	102	80 - 120	

LCS - Modified 03/06/2008
PDF File ID: 1459367
Report generated: 08/10/2009 13:37

Microbac Laboratories Inc.
MATRIX SPIKE AND MATRIX SPIKE DUP (MS/MSD)

Loginnum: L09070202 **Cal ID:** ELAN-ICP - **Worknum:** WG309040
Instrument ID: ELAN-ICP **Contract #:** DACA56-94-D-0020 **Method:** 6020
Parent ID: WG308973-01 **File ID:** EL.080509.181106 **Dil:** 1 **Matrix:** WATER
Sample ID: WG308973-05 MS **File ID:** EL.080509.181721 **Dil:** 1 **Units:** mg/L
Sample ID: WG308973-06 MSD **File ID:** EL.080509.182337 **Dil:** 1

Analyte	Parent	MS Spiked	MS Found	MS %Rec	MSD Spiked	MSD Found	MSD %Rec	%RPD	%Rec Limits	RPD Limit	Q
Arsenic	0.000337	0.0625	0.0576	91.7	0.0625	0.0562	89.4	2.49	75 - 125	20	
Cadmium	ND	0.0625	0.0582	93.1	0.0625	0.0572	91.5	1.79	75 - 125	20	
Copper	0.00138	0.0625	0.0678	106	0.0625	0.0667	104	1.67	75 - 125	20	
Lead	0.0234	0.0625	0.0851	98.7	0.0625	0.0833	95.8	2.11	75 - 125	20	

* FAILS %REC LIMIT

\# FAILS RPD LIMIT

NOTE: This is an internal quality control sample.

WG_MS_MSD_DRYWT - Modified 03/07/2008
PDF File ID: 1459368
Report generated 08/10/2009 13:37

Microbac Laboratories Inc.

Serial Dilution Report

Login: L09070202 **Worknum:** WG309040
Instrument: ELAN-ICP **Method:** 6020
Serial Dil: WG309040-02 **File ID:** EL.080509.184843 **Dil:** 5 **Units:** ug/L
Sample: L09080054-01 **File ID:** EL.080509.182953 **Dil:** 1

Analyte	Sample	Qual	Serial Dil	Qual	% Diff	Q
Arsenic	2.26	X	2.535	X	12.20	
Cadmium	ND	U	ND	U		
Copper	ND	U	ND	U		
Lead	ND	U	ND	U		

U = Result is below MDL.
F = Result is greater than or equal to MDL and less than the RL.
X = Result is greater than or equal to RL and less than 100 times the MDL.
E = %D exceeds control limit of 10% and initial sample result is greater than or equal to 100 times the MDL.

SERIAL_DIL - Modified 09/22/2008
PDF File ID: 1459362
08/10/2009 13:37

Microbac Laboratories Inc.
POST SPIKE REPORT

Sample Login ID: L09070202
Instrument ID: ELAN-ICP
Post Spike ID: WG309040-01 **File ID:** EL.080509.184226 **Dil:** 1
Sample ID: L09080054-01 **File ID:** EL.080509.182953 **Dil:** 1
Worknum: WG309040
Method: 6020
Units: ug/L
Matrix: Leachate

Analyte	Post Spike Result	C	Sample Result	C	Spike Added(SA)	% R	Control Limit %R	Q
ARSENIC	46.7		2.26		50	88.9	75 - 125	
CADMIUM	45.7		0	U	50	91.3	75 - 125	
COPPER	50.7		0	U	50	101.5	75 - 125	
LEAD	47.8		0	U	50	95.6	75 - 125	

N = % Recovery exceeds control limits
F = Result is between MDL and RL
U = Sample result is below MDL. A value of zero is used in the calculation

POST_SPIKE - Modified 03/06/2008
PDF File ID: 1459363
Report generated: 08/10/2009 13:37

Microbac Laboratories Inc.

Initial Calibration Summary

Login: **L09070202**

Workgroup (AAB#): **WG309040**

Analytical Method: **6020**

Instrument ID: **ELAN-ICP**

ICAL Worknum: **WG309059**

Initial Calibration Date: **05-AUG-2009 11:47**

	WG309059-01		WG309059-02		WG309059-03		WG309059-04			
	Conc	**INT**	**Conc**	**INT**	**Conc**	**INT**	**Conc**	**INT**	**R**	**Q**
ARSENIC	0	-253	.4	334	50	74500	100	145000	.99999	
CADMIUM	0	10.8	.4	496	50	58700	100	116000	.999959	
COPPER	0	128	.4	1160	50	119000	100	225000	.999984	
LEAD	0	369	.4	11000	50	1260000	100	2500000	.999994	

INT = Instrument intensity
R = Coefficient of correlation
Q = Data Qualifier
*** = Out of Compliance; R < 0.995**

Microbac Laboratories Inc.
Initial Calibration Summary

Login: **L09070202**
Workgroup (AAB#): **WG309040**
Analytical Method: **6020**
Instrument ID: **ELAN-ICP**
ICAL Worknum: **WG309258**
Initial Calibration Date: **07-AUG-2009 10:16**

	WG309258-01		WG309258-02		WG309258-03		WG309258-04			
	Conc	INT	Conc	INT	Conc	INT	Conc	INT	R	Q
ARSENIC	0	-193	.4	422	50	78500	100	157000	.999938	
CADMIUM	0	7.04	.4	580	50	74400	100	145000	.999991	
COPPER	0	105	.4	1050	50	116000	100	223000	.999973	
LEAD	0	395	.4	13100	50	1610000	100	3180000	1	

INT = Instrument intensity
R = Coefficient of correlation
Q = Data Qualifier
*** = Out of Compliance; R < 0.995**

INT_CAL_ICP - Modified 03/06/2008
PDF File ID: 1459372
Report generated: 10-AUG-2009 13:37

Microbac Laboratories Inc.
INITIAL CALIBRATION BLANK (ICB)

Login Number: L09070202
Run Date: 08/05/2009
Sample ID: WG309059-06
Instrument ID: ELAN-ICP
Run Time: 11:59
Method: 6020
File ID: EL.080509.115959
Analyst: JYH
Units: ug/L
Workgroup (AAB#): WG309040
Cal ID: ELAN-ICP - 05-AUG-09
Matrix: LEACHATE

Analytes	MDL	RDL	Concentration	Qualifier
ARSENIC	.1	.4	.1	U
CADMIUM	.05	.2	.05	U
COPPER	.2	.8	.2	U
LEAD	.1	.2	.1	U

ICB - Modified 07/14/2009
PDF File ID: 1459374
Report generated 08/10/2009 13:38

Microbac Laboratories Inc.
INITIAL CALIBRATION BLANK (ICB)

Login Number: L09070202
Instrument ID: ELAN-ICP
File ID: EL.080709.102904
Workgroup (AAB#): WG309040
Matrix: LEACHATE

Run Date: 08/07/2009
Run Time: 10:29
Analyst: JYH
Cal ID: ELAN-ICP - 07-AUG-09

Sample ID: WG309258-06
Method: 6020
Units: ug/L

Analytes	MDL	RDL	Concentration	Qualifier
ARSENIC	.1	.4	.1	U
CADMIUM	.05	.2	.05	U
COPPER	.2	.8	.2	U
LEAD	.1	.2	.1	U

ICB - Modified 07/14/2009
PDF File ID: 1459374
Report generated 08/10/2009 13:38

Microbac Laboratories Inc.
CONTINUING CALIBRATION BLANK (CCB)

Login Number: L09070202
Run Date: 08/05/2009
Sample ID: WG309059-12
Instrument ID: ELAN-ICP
Run Time: 12:41
Method: 6020
File ID: EL.080509.124139
Analyst: JYH
Units: ug/L
Workgroup (AAB#): WG309040
Cal ID: ELAN-I - 05-AUG-09
Matrix: LEACHATE

Analytes	MDL	RDL	Concentration	Qualifier
Arsenic	0.100	0.400	0.100	U
Cadmium	0.0500	0.200	0.0500	U
Copper	0.200	0.800	0.200	U
Lead	0.100	0.200	0.100	U

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

CCB - Modified 03/05/2008
PDF File ID: 1459377
Report generated 08/10/2009 13:38

Microbac Laboratories Inc.
CONTINUING CALIBRATION BLANK (CCB)

Login Number: L09070202
Run Date: 08/05/2009
Sample ID: WG309059-22
Instrument ID: ELAN-ICP
Run Time: 17:45
Method: 6020
File ID: EL.080509.174549
Analyst: JYH
Units: ug/L
Workgroup (AAB#): WG309040
Cal ID: ELAN-I - 05-AUG-09
Matrix: LEACHATE

Analytes	MDL	RDL	Concentration	Qualifier
Arsenic	0.100	0.400	0.100	U
Cadmium	0.0500	0.200	0.0500	U
Copper	0.200	0.800	0.200	U
Lead	0.100	0.200	0.100	U

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

CCB - Modified 03/05/2008
PDF File ID: 1459377
Report generated 08/10/2009 13:38

Microbac Laboratories Inc.

CONTINUING CALIBRATION BLANK (CCB)

Login Number: L09070202
Run Date: 08/05/2009
Sample ID: WG309059-24
Instrument ID: ELAN-ICP
Run Time: 19:02
Method: 6020
File ID: EL.080509.190214
Analyst: JYH
Units: ug/L
Workgroup (AAB#): WG309040
Cal ID: ELAN-I - 05-AUG-09
Matrix: LEACHATE

Analytes	MDL	RDL	Concentration	Qualifier
Arsenic	0.100	0.400	0.100	U
Cadmium	0.0500	0.200	0.0500	U
Copper	0.200	0.800	0.200	U
Lead	0.100	0.200	0.100	U

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

CCB - Modified 03/05/2008
PDF File ID: 1459377
Report generated 08/10/2009 13:38

Microbac Laboratories Inc.
CONTINUING CALIBRATION BLANK (CCB)

Login Number: L09070202
Run Date: 08/07/2009
Sample ID: WG309258-12
Instrument ID: ELAN-ICP
Run Time: 11:10
Method: 6020
File ID: EL.080709.111044
Analyst: JYH
Units: ug/L
Workgroup (AAB#): WG309040
Cal ID: ELAN-I - 07-AUG-09
Matrix: LEACHATE

Analytes	MDL	RDL	Concentration	Qualifier
Arsenic	0.100	0.400	0.100	U
Cadmium	0.0500	0.200	0.0500	U
Copper	0.200	0.800	0.200	U
Lead	0.100	0.200	0.100	U

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

CCB - Modified 03/05/2008
PDF File ID: 1459377
Report generated 08/10/2009 13:38

Microbac Laboratories Inc.

CONTINUING CALIBRATION BLANK (CCB)

Login Number: L09070202
Run Date: 08/07/2009
Sample ID: WG309258-30
Instrument ID: ELAN-ICP
Run Time: 19:30
Method: 6020
File ID: EL.080709.193052
Analyst: JYH
Units: ug/L
Workgroup (AAB#): WG309040
Cal ID: ELAN-I - 07-AUG-09
Matrix: LEACHATE

Analytes	MDL	RDL	Concentration	Qualifier
Arsenic	0.100	0.400	0.100	U
Cadmium	0.0500	0.200	0.0500	U
Copper	0.200	0.800	0.200	U
Lead	0.100	0.200	0.100	U

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

CCB - Modified 03/05/2008
PDF File ID: 1459377
Report generated 08/10/2009 13:38

Microbac Laboratories Inc.

CONTINUING CALIBRATION BLANK (CCB)

Login Number: L09070202
Run Date: 08/07/2009
Sample ID: WG309258-32
Instrument ID: ELAN-ICP
Run Time: 20:34
Method: 6020
File ID: EL.080709.203457
Analyst: JYH
Units: ug/L
Workgroup (AAB#): WG309040
Cal ID: ELAN-I - 07-AUG-09
Matrix: LEACHATE

Analytes	MDL	RDL	Concentration	Qualifier
Arsenic	0.100	0.400	0.100	U
Cadmium	0.0500	0.200	0.0500	U
Copper	0.200	0.800	0.200	U
Lead	0.100	0.200	0.100	U

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

CCB - Modified 03/05/2008
PDF File ID: 1459377
Report generated 08/10/2009 13:38

Microbac Laboratories Inc.

INITIAL CALIBRATION VERIFICATION (ICV)
(Alternate Source)

Login Number: L09070202
Run Date: 08/05/2009
Sample ID: WG309059-05
Instrument ID: ELAN-ICP
Run Time: 11:53
Method: 6020
File ID: EL.080509.115305
Analyst: JYH
Units: ug/L
Workgroup (AAB#): WG309040
Cal ID: ELAN-I - 05-AUG-09
QC Key: STD

Analyte		Expected	Found	%REC	LIMITS	Q
Arsenic		50	49.5	99.0	90 - 110	
Cadmium		50	48.4	96.7	90 - 110	
Copper		50	50.1	100	90 - 110	
Lead		50	48.4	96.9	90 - 110	

* Exceeds LIMITS Limit

ICV - Modified 03/06/2008
PDF File ID: 1459373
Report generated 08/10/2009 13:38

Microbac Laboratories Inc.

INITIAL CALIBRATION VERIFICATION (ICV)
(Alternate Source)

Login Number: L09070202
Run Date: 08/07/2009
Sample ID: WG309258-05
Instrument ID: ELAN-ICP
Run Time: 10:22
Method: 6020
File ID: EL.080709.102210
Analyst: JYH
Units: ug/L
Workgroup (AAB#): WG309040
Cal ID: ELAN-I - 07-AUG-09
QC Key: STD

Analyte		Expected	Found	%REC	LIMITS	Q
Arsenic		50	48.4	96.8	90 - 110	
Cadmium		50	49.9	99.7	90 - 110	
Copper		50	49.0	97.9	90 - 110	
Lead		50	47.9	95.8	90 - 110	

* Exceeds LIMITS Limit

ICV - Modified 03/06/2008
PDF File ID: 1459373
Report generated 08/10/2009 13:38

Microbac Laboratories Inc.
CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L09070202
Instrument ID: ELAN-ICP
File ID: EL.080509.123445
Workgroup (AAB#): WG309040
Matrix: LEACHATE

Run Date: 08/05/2009
Run Time: 12:34
Analyst: JYH
Cal ID: ELAN-I - 05-AUG-09

Sample ID: WG309059-11
Method: 6020
QC Key: STD

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Arsenic		50.0	48.3	ug/L	96.6	90 - 110		
Cadmium		50.0	49.1	ug/L	98.2	90 - 110		
Copper		50.0	51.7	ug/L	103	90 - 110		
Lead		50.0	50.6	ug/L	101	90 - 110		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008
PDF File ID: 1459376
Report generated 08/10/2009 13:38

Microbac Laboratories Inc.

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L09070202
Run Date: 08/05/2009
Sample ID: WG309059-21
Instrument ID: ELAN-ICP
Run Time: 17:38
Method: 6020
File ID: EL.080509.173854
Analyst: JYH
QC Key: STD
Workgroup (AAB#): WG309040
Cal ID: ELAN-I - 05-AUG-09
Matrix: LEACHATE

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Arsenic		50.0	47.6	ug/L	95.3	90 - 110		
Cadmium		50.0	48.1	ug/L	96.2	90 - 110		
Copper		50.0	49.5	ug/L	99.0	90 - 110		
Lead		50.0	47.4	ug/L	94.8	90 - 110		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008
PDF File ID: 1459376
Report generated 08/10/2009 13:38

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Microbac Laboratories Inc.
CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L09070202
Instrument ID: ELAN-ICP
File ID: EL.080509.185520
Workgroup (AAB#): WG309040
Matrix: LEACHATE

Run Date: 08/05/2009
Run Time: 18:55
Analyst: JYH
Cal ID: ELAN-I - 05-AUG-09

Sample ID: WG309059-23
Method: 6020
QC Key: STD

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Arsenic		50.0	46.7	ug/L	93.4	90 - 110		
Cadmium		50.0	47.0	ug/L	94.1	90 - 110		
Copper		50.0	49.5	ug/L	98.9	90 - 110		
Lead		50.0	47.8	ug/L	95.7	90 - 110		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008
PDF File ID: 1459376
Report generated 08/10/2009 13:38

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CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number:	L09070202	Run Date:	08/07/2009	Sample ID:	WG309258-11
Instrument ID:	ELAN-ICP	Run Time:	11:03	Method:	6020
File ID:	EL.080709.110350	Analyst:	JYH	QC Key:	STD
Workgroup (AAB#):	WG309040	Cal ID:	ELAN-I - 07-AUG-09		
Matrix:	LEACHATE				

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Arsenic		50.0	48.5	ug/L	96.9	90 - 110		
Cadmium		50.0	48.4	ug/L	96.8	90 - 110		
Copper		50.0	49.9	ug/L	99.8	90 - 110		
Lead		50.0	48.8	ug/L	97.6	90 - 110		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008
PDF File ID: 1459376
Report generated 08/10/2009 13:38

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CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L09070202
Instrument ID: ELAN-ICP
File ID: EL.080709.192357
Workgroup (AAB#): WG309040
Matrix: LEACHATE

Run Date: 08/07/2009
Run Time: 19:23
Analyst: JYH
Cal ID: ELAN-I - 07-AUG-09

Sample ID: WG309258-29
Method: 6020
QC Key: STD

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Arsenic		50.0	49.1	ug/L	98.1	90 - 110		
Cadmium		50.0	49.0	ug/L	98.0	90 - 110		
Copper		50.0	50.2	ug/L	100	90 - 110		
Lead		50.0	49.8	ug/L	99.7	90 - 110		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008
PDF File ID: 1459376
Report generated 08/10/2009 13:38

Microbac Laboratories Inc.

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L09070202
Run Date: 08/07/2009
Sample ID: WG309258-31
Instrument ID: ELAN-ICP
Run Time: 20:28
Method: 6020
File ID: EL.080709.202802
Analyst: JYH
QC Key: STD
Workgroup (AAB#): WG309040
Cal ID: ELAN-I - 07-AUG-09
Matrix: LEACHATE

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Arsenic		50.0	49.3	ug/L	98.7	90 - 110		
Cadmium		50.0	49.2	ug/L	98.4	90 - 110		
Copper		50.0	51.2	ug/L	102	90 - 110		
Lead		50.0	50.4	ug/L	101	90 - 110		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008
PDF File ID: 1459376
Report generated 08/10/2009 13:38

Microbac Laboratories Inc.
INTERFERENCE CHECK SAMPLES

Login number: L09070202
Instrument ID: ELAN-ICP
Sol. A : WG309059-09
Sol. AB : WG309059-10

File ID: EL.080509.122052
File ID: EL.080509.122749

Workgroup (AAB#): WG309040
Method: 6020
Units: ug/L
Matrix: Leachate

	Sol. A			**Sol. AB**			
ANALYTE	True	Found	%Recovery	True	Found	%Recovery	Q
Arsenic	NS	0.0439	NS	100	95.9	95.9	
Cadmium	NS	0.0519	NS	100	96.1	96.1	
Copper	NS	0.278	NS	100	99.7	99.7	
Lead	NS	0.0114	NS	100	96.6	96.6	

NS = Not spiked
*** = Recovery of spiked element is outside acceptance limit of 80% - 120% of true value.**
 # = Result for unspiked element is outside the acceptance limits of (+/-) the project reporting limit (RL).

ICS - Modified 03/06/2008
PDF File ID: 1459375
Report generated 08/10/2009 13:38

Microbac Laboratories Inc.
INTERFERENCE CHECK SAMPLES

Login number: L09070202
Instrument ID: ELAN-ICP
Sol. A : WG309258-09
Sol. AB : WG309258-10

File ID: EL.080709.104957
File ID: EL.080709.105654

Workgroup (AAB#): WG309040
Method: 6020
Units: ug/L
Matrix: Leachate

	Sol. A			Sol. AB			
ANALYTE	True	Found	%Recovery	True	Found	%Recovery	Q
Arsenic	NS	0.0337	NS	100	96.8	96.8	
Cadmium	NS	0.0870	NS	100	95.7	95.7	
Copper	NS	0.270	NS	100	95.0	95.0	
Lead	NS	0.0214	NS	100	97.7	97.7	

NS = Not spiked

*** = Recovery of spiked element is outside acceptance limit of 80% - 120% of true value.**

 # = Result for unspiked element is outside the acceptance limits of (+/-) the project reporting limit (RL).

ICS - Modified 03/06/2008
PDF File ID: 1459375
Report generated 08/10/2009 13:38

Microbac Laboratories Inc.
CRI SAMPLE

Login Number: L09070202
Run Date: 08/05/2009
Sample ID: WG309059-08
Instrument ID: ELAN-ICP
Run Time: 12:13
Prep Method: 3015
File ID: EL.080509.121354
Analyst: JYH
Method: 6020
Workgroup (AAB#): WG309059
Matrix: Leachate
Units: ug/L
Contract #: DACA56-94-D-0020
Cal ID: ELAN-ICP - 05-AUG-2009 11:47

Analytes	Expected	Found	% Rec	Limits	Q
Cadmium, Leachable	0.200	0.204	102	50 - 150	

CRI - Modified 03/06/2008
PDF File ID: 1459370
Report generated 08/10/2009 13:37

CRI SAMPLE

Login Number: L09070202
Run Date: 08/07/2009
Sample ID: WG309258-08
Instrument ID: ELAN-ICP
Run Time: 10:42
Prep Method: 3015
File ID: EL.080709.104259
Analyst: JYH
Method: 6020
Workgroup (AAB#): WG309258
Matrix: Leachate
Units: ug/L
Contract #: DACA56-94-D-0020
Cal ID: ELAN-ICP - 07-AUG-2009 10:16

Analytes	Expected	Found	% Rec	Limits	Q
Cadmium, Leachable	0.200	0.209	105	50 - 150	

CRI - Modified 03/06/2008
PDF File ID: 1459370
Report generated 08/10/2009 13:37

Microbac Laboratories Inc.

INTERNAL STANDARD REPORT

Login: L09070202 **Analytical Method:** 6020
Analytical Workgroup: WG309040 **Matrix:** 18
Instrument: ELAN-ICP **Analyst:** JYH
ICAL Date: 05-AUG-2009 11:30

			BISMUTH	GERMANIUM	INDIUM	TERBIUM
Sample	**Type**	**Run Date**	**% Rec**	**% Rec**	**% Rec**	**% Rec**
WG308947-01	FBLK	05-AUG-2009 17:58	88.839	103.887	98.015	96.517
WG308973-01	REF	05-AUG-2009 18:11	116.051	102.994	100.558	104.845
WG308973-02	REF	05-AUG-2009 18:29	110.735	101.841	99.576	106.061
WG308973-03	BLANK	05-AUG-2009 17:52	89.021	101.469	98.291	97.242
WG308973-04	LCS	05-AUG-2009 18:04	92.46	103.341	98.987	98.893
WG308973-05	MS	05-AUG-2009 18:17	113.498	104.018	101.826	105.397
WG308973-06	MSD	05-AUG-2009 18:23	114.142	104.678	102.414	106.991
WG308973-07	DUP	05-AUG-2009 18:36	111.065	100.219	99.402	107.085
WG309040-01	PSPK	05-AUG-2009 18:42	111.226	100.518	99.368	106
WG309040-02	SERIAL	05-AUG-2009 18:48	99.372	98.504	97.224	100.35
WG309059-05	ICV	05-AUG-2009 11:53	104.217	95.933	98.43	102.097
WG309059-06	ICB	05-AUG-2009 11:59	102.347	99.298	100.738	102.514
WG309059-11	CCV	05-AUG-2009 12:34	103.775	100.034	99.93	102.888
WG309059-12	CCB	05-AUG-2009 12:41	105.601	101.213	100.04	102.411
WG309059-21	CCV	05-AUG-2009 17:38	105.328	101.157	99.157	100.631
WG309059-22	CCB	05-AUG-2009 17:45	104.393	103.319	99.37	103.441
WG309059-23	CCV	05-AUG-2009 18:55	106.43	98.052	97.423	102.219
WG309059-24	CCB	05-AUG-2009 19:02	105.066	99.361	98.326	102.088

Acceptance criteria: 30% - 120%
Underlined recoveries are out of range

INT_STD_ICPMS - Modified 03/05/2008
PDF File ID: 1459371
Report generated: 08/10/2009 13:37

Microbac

Microbac Laboratories Inc.

INTERNAL STANDARD REPORT

Login: L09070202 **Analytical Method:** 6020
Analytical Workgroup: WG309040 **Matrix:** 18
Instrument: ELAN-ICP **Analyst:** JYH
ICAL Date: 07-AUG-2009 09:59

			BISMUTH	GERMANIUM	INDIUM	TERBIUM
Sample	**Type**	**Run Date**	**% Rec**	**% Rec**	**% Rec**	**% Rec**
L09070202-02	SAMP	07-AUG-2009 19:37	111.316	109.527	103.746	100.729
L09070202-03	SAMP	07-AUG-2009 19:43	109.754	108.79	102.349	99.249
WG309258-05	ICV	07-AUG-2009 10:22	104.802	101.158	98.796	99.594
WG309258-06	ICB	07-AUG-2009 10:29	102.892	102.581	100.157	96.579
WG309258-11	CCV	07-AUG-2009 11:03	101.579	97.834	95.599	95.853
WG309258-12	CCB	07-AUG-2009 11:10	99.561	97.94	97.884	96.474
WG309258-29	CCV	07-AUG-2009 19:23	105.26	106.218	99.284	97.309
WG309258-30	CCB	07-AUG-2009 19:30	102.676	107.462	101.298	97.644
WG309258-31	CCV	07-AUG-2009 20:28	104.064	107.142	102	96.929
WG309258-32	CCB	07-AUG-2009 20:34	101.979	107.399	100.9	97.39

Acceptance criteria: 30% - 120%
Underlined recoveries are out of range

INT_STD_ICPMS - Modified 03/05/2008
PDF File ID: **1459371**
Report generated: 08/10/2009 13:37

Microbac Laboratories Inc.

INTERNAL STANDARD REPORT

Login: L09070202 **Analytical Method:** 6020
Analytical Workgroup: WG309040 **Matrix:** 2
Instrument: ELAN-ICP **Analyst:** JYH
ICAL Date: 05-AUG-2009 11:30

			BISMUTH	GERMANIUM	INDIUM	TERBIUM
Sample	**Type**	**Run Date**	**% Rec**	**% Rec**	**% Rec**	**% Rec**
L09080054-01	SAMP	05-AUG-2009 18:29	110.735	101.841	99.576	106.061

Acceptance criteria: 30% - 120%
Underlined recoveries are out of range

INT_STD_ICPMS - Modified 03/05/2008
PDF File ID: 1459371
Report generated: 08/10/2009 13:37

Microbac Laboratories Inc.
LINEAR RANGE (QUARTERLY)

Login Number: L09070202

Date: 06/08/2009

Insturment ID: ELAN-ICP

Method: 6020

Analyte	Integration Time (Sec.)	Concentration (ug/L)
Antimony	1.00	100.0
Arsenic	1.00	100.0
Barium	1.00	100.0
Cadmium	1.00	100.0
Chromium	1.00	100.0
Cobalt	1.00	100.0
Copper	1.00	100.0
Lead	1.00	100.0
Manganese	1.00	100.0
Nickel	1.00	100.0
Selenium	1.00	100.0
Silver	1.00	100.0
Thallium	1.00	100.0
Vanadium	1.00	100.0
Zinc	1.00	100.0

Microbac Laboratories Inc.
LINEAR RANGE (QUARTERLY)

Login Number: L09070202
Date: 06/17/2009
Insturment ID: ELAN-ICP
Method: 6020

Analyte	Integration Time (Sec.)	Concentration (ug/L)
Uranium	1.00	100.0

Comments:
All analytes passed acceptance criteria at the specified concentration.

LINEAR_RANGE - Modified 03/06/2008
PDF File ID: **1459369**
Report generated: 08/10/2009 13:37

2.1.2 Metals CVAA Data
(Mercury)

2.1.2.1 Summary Data

LABORATORY REPORT

L09070202

08/11/09 13:38

Submitted By

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

For

Account Name: Shaw E & I, Inc.
ABB Lummus Biulding
3010 Briarpark Drive Suite 4N
Houston, TX 77042
Attention: Jennifer Hoang

Project Number: 2773.025
Project: Longhorn AAP
Site: LONGHORN AAP KARNACK TX

P.O. Number: 389869/ 390836(GWTP)

Sample Analysis Summary

Client ID	Lab ID	Method	Dilution	Date Received
02SB027A (0-6)	L09070202-02	7470A	1	10-JUL-09
02SB028B (12-18)	L09070202-03	7470A	1	10-JUL-09

L1_A_PROD - Modified 03/06/2008 1 OF 1
PDF File ID: 1463337
Report generated: 08/11/2009 13:38

Sample Number:**L09070202-02**
Client ID:**02SB027A (0-6)**
Matrix:**Leachate**
Workgroup Number:**WG309027**
Collect Date:**07/09/2009 10:15**
Sample Tag:**01**

PrePrep Method:**1312**
Prep Method:**7470A**
Analytical Method:**7470A**
Analyst:**PDM**
Dilution:**1**
Units:**mg/L**

Instrument:**HYDRA**
Prep Date:**08/05/2009 09:14**
Cal Date:**08/05/2009 15:15**
Run Date:**08/05/2009 15:37**
File ID:**HY.080509.153737**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Mercury	7439-97-6		U	0.000200	0.000100

U Not detected at or above adjusted sample detection limit

Sample Number: **L09070202-03**
Client ID: **02SB028B (12-18)**
Matrix: **Leachate**
Workgroup Number: **WG309027**
Collect Date: **07/09/2009 10:20**
Sample Tag: **01**

PrePrep Method: **1312**
Prep Method: **7470A**
Analytical Method: **7470A**
Analyst: **PDM**
Dilution: **1**
Units: **mg/L**

Instrument: **HYDRA**
Prep Date: **08/05/2009 09:14**
Cal Date: **08/05/2009 15:15**
Run Date: **08/05/2009 15:41**
File ID: **HY.080509.154132**

Analyte	CAS. Number	Result	Qual	PQL	SDL
Mercury	7439-97-6		U	0.000200	0.000100

U Not detected at or above adjusted sample detection limit

2.1.2.2 QC Summary Data

Example Cold Vapor Mercury Calculations
Hydra AA Mercury Analyzer

1.0 Initial Calibration (ICAL) Parameters

The system performs linear regression from data consisting of a blank and five standards.

2.0 Calculating the concentration (C) of an element in water using data from run log and quantitation report (note:the data system performs this calculation automatically when correction factors have been entered):

$$Cx = Cs \times \frac{Vf}{Vi} \times D$$

Where:	**Example:**
Cs = Concentration computed by the data system (ug/L)	0.1
Vf = Diluted to Volume (mL)	40
Vi = Aliquot Volume (mL)	40
D = Manual dilution factor, if required (10X = 10)	1
Cx = Concentration of element in ppb (ug/L)	0.1

3.0 Calculating the concentration (C) of an element in soil using data from prep log and quantitation report (note: the data system performs this calculation automatically when correction factors have been entered):

$$Cx = Cs \times \frac{Vf}{Ws} \times D$$

Where:	**Example:**
Cs = Concentration computed by the data system (ug/L)	0.1
Vf = Diluted to volume (mL)	40
Ws = Aliquot weight (g)	0.6
D = Manual dilution factor	1
Cx = Concentration of element in ug/kg	6.67

4.0 Adjusting the concentration to dry weight:

$$Cdry = \frac{Cx \times 100}{Px}$$

1 Cx = Concentration calculated as received (wet basis)	6.67
Px = Percent solids of sample (%wt)	80
$Cdry$ = Concentration calculated as dry weight (ug/kg)	8.33

8.33 ug/kg = 0.00833 mg/kg

TCLP Non-Volatile

nalyst(s): Rac

Date: 08-04-09

Analyst/Date		Analyst/Date	
Rac 08-04-09		Rac 8-05-09	
Time On	Temp On °C	Time Off	Temp Off °C
1430	24	0730	23

Jug #	Sample #	Tests	Method	Fluid #	Matrix*	%Solid	Size Reduction		Int. Wt. (g)	Fluid Vol. (mL)
							Yes	No		
D	07-654-14	ME	1311	F1-757	S/S	100		✓	100.02	2000
D	07-699-01	⊥	⊥	⊥	S	⊥	✓		100.02	⊥
G-6	08-0046-01	S✓	⊥	⊥	S/S	⊥		✓	100.04	⊥
N/A	FBLK	ME ⊥	⊥	⊥	N/A	N/A		✓	2000	⊥
D	07-202-02	ME	1312	SF2-182	S/S	100		✓	100.04	⊥
D	03	⊥	⊥	⊥	⊥	⊥		✓	100.06	⊥
N/A	FBLK	⊥	⊥	⊥	N/A	N/A		✓	2000	⊥

Rac 8-04-09

*Matrix Code = (S-solid) (SS-sand, soil or sludge) (P-paint) (O-organic) (W-water or waste)
Agitator speed is 30 ± 2 rpm unless otherwise noted.

Comments: ______

Peer Review By: ______ Supervisor Review: ______

Microbac Laboratories Inc.
Metals Digest Log

Workgroup: WG308974
Analyst: REK
Spike Analyst: REK
Method: 7470A
Run Date: 08/05/2009 09:14
Hotblock Start Temp: 92.4 @ 09:10
Hotblock End Temp: 92.6 @ 11:10

SOP: ME404 Revison 12
Spike Solution: STD34449
Spike Witness: VC
H2SO4 Lot #: COA13254
HNO3 Lot #: COA13945
Digest tubes Lot #: COA14013
KMnO4 1:1 Lot #: RGT13913
K2S2O8 1:1 Lot #: RGT14066
Mercury Water ICV Lot #: STD34451
HG H2O STDS 10PPM Lot #: STD34457

	SAMPLE #	Type	Matrix	Initial Amount	Final Volume	Spike Amount	Due Date
1	WG308974-02	BLANK	1	40 mL	40 mL		
2	WG308947-01	FBLK	18	40 mL	40 mL		
3	WG308950-01	FBLK	17	4 mL	40 mL		
4	WG308974-03	LCS	1	40 mL	40 mL	4 mL	
5	L09070202-02	SAMP	18	40 mL	40 mL		08/12/09
6	L09070202-03	SAMP	18	40 mL	40 mL		08/12/09
7	L09070652-14	SAMP	17	4 mL	40 mL		08/20/09
8	WG308974-01	REF	17	4 mL	40 mL		
9	L09070699-01	SAMP	17	4 mL	40 mL		08/11/09
10	L09080041-02	SAMP	2	40 mL	40 mL		08/14/09
11	L09080041-04	SAMP	2	40 mL	40 mL		08/14/09
12	L09080049-01	SAMP	1	40 mL	40 mL		08/18/09
13	L09080049-02	SAMP	1	40 mL	40 mL		08/18/09
14	WG308974-04	MS	1	4 mL	40 mL	4 mL	
15	WG308974-05	MSD	1	4 mL	40 mL	4 mL	

Analyst:

Reviewer: Erin Potter

BLOCK_DIG - Modified 07/22/2008
PDF ID: 1458630
Report generated: 08/05/2009 12:34

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Run Log ID: **29494**

Microbac Laboratories Inc.

Instrument Run Log

Instrument: HYDRA
Dataset: 080509B.PRN
Analyst1: ADC
Analyst2: N/A
Method: 7470A
SOP: ME404
Rev: 11
Maintenance Log ID: 29694

Calibration Std: STD34457
ICV/CCV Std: STD34451
Post Spike: STD34457
ICSA: N/A
ICSAB: N/A
Int. Std:

Workgroups: WG309027

Comments: Due to failure upon intial analysis for NPDES criteria, the ICV was reanalyzed immediately with compliant results.

Seq.	File ID	Sample	ID	Prep	Dil	Reference	Date/Time
1	HY.080509.150606	WG309150-01	Calibration Point		1		08/05/09 15:06
2	HY.080509.150759	WG309150-02	Calibration Point		1		08/05/09 15:07
3	HY.080509.150947	WG309150-03	Calibration Point		1		08/05/09 15:09
4	HY.080509.151132	WG309150-04	Calibration Point		1		08/05/09 15:11
5	HY.080509.151319	WG309150-05	Calibration Point		1		08/05/09 15:13
6	HY.080509.151536	WG309150-06	Calibration Point		1		08/05/09 15:15
7	HY.080509.151722	WG309150-07	Ck2ICV		1		08/05/09 15:17
8	HY.080509.151955	WG309150-08	Ck3ICB		1		08/05/09 15:19
9	HY.080509.152150	WG309150-09	Initial Calibration Verification		1		08/05/09 15:21
10	HY.080509.152347	WG309150-10	Initial Calib Blank		1		08/05/09 15:23
11	HY.080509.152610	WG309150-11	CCV		1		08/05/09 15:26
12	HY.080509.152803	WG309150-12	CCB		1		08/05/09 15:28
13	HY.080509.153012	WG308974-02	Method/Prep Blank	40/40	1		08/05/09 15:30
14	HY.080509.153153	WG308974-03	Laboratory Control S	40/40	1		08/05/09 15:31
15	HY.080509.153339	WG308947-01	Fluid Blank		1		08/05/09 15:33
16	HY.080509.153524	WG308950-01	Fluid Blank		1		08/05/09 15:35
17	HY.080509.153737	L09070202-02	02SB027A (0-6)	40/40	1		08/05/09 15:37
18	HY.080509.153939	WG309027-01	Post Digestion Spike		1	L09070202-02	08/05/09 15:39
19	HY.080509.154132	L09070202-03	02SB028B (12-18)	40/40	1		08/05/09 15:41
20	HY.080509.154319	L09070652-14	629-TCLP METALS		1		08/05/09 15:43
21	HY.080509.154554	WG309027-02	Serial Dilution		5	L09070652-14	08/05/09 15:45
22	HY.080509.154751	L09070652-14	629-TCLP METALS	4/40	25		08/05/09 15:47
23	HY.080509.154933	WG309150-13	CCV		1		08/05/09 15:49
24	HY.080509.155125	WG309150-14	CCB		1		08/05/09 15:51
25	HY.080509.155310	L09070699-01	VEHICLE REPAIR WIPES AI	4/40	1	WG308974-01	08/05/09 15:53
26	HY.080509.155517	WG309027-04	Post Digestion Spike		1	L09070699-01	08/05/09 15:55
27	HY.080509.155658	WG308974-04	Matrix Spike	4/40	1	L09070699-01	08/05/09 15:56
28	HY.080509.155843	WG308974-05	Matrix Spike Duplica	4/40	1	L09070699-01	08/05/09 15:58
29	HY.080509.160027	L09080041-02	CATEGORICAL/COMP	40/40	1		08/05/09 16:00
30	HY.080509.160228	L09080041-04	MANHOLE/COMP	40/40	1		08/05/09 16:02
31	HY.080509.160454	L09080049-01	FB014 (080109)	40/40	1		08/05/09 16:04
32	HY.080509.160641	WG309027-03	Post Digestion Spike		1	L09080049-01	08/05/09 16:06
33	HY.080509.160826	L09080049-02	FB015 (080309)	40/40	1		08/05/09 16:08
34	HY.080509.161036	WG309150-15	CCV		1		08/05/09 16:10
35	HY.080509.161240	WG309150-16	CCB		1		08/05/09 16:12
36	HY.080509.161454	WG309027-02	Serial Dilution		125	L09070652-14	08/05/09 16:14
37	HY.080509.161639	WG309027-02	Serial Dilution		625	L09070652-14	08/05/09 16:16

Page: 1

Approved: August 11, 2009

Sheri L. Pfalzgraf

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Microbac Laboratories Inc.

Instrument Run Log

Instrument: HYDRA
Dataset: 080509B.PRN
Analyst1: ADC
Analyst2: N/A
Method: 7470A
SOP: ME404
Rev: 11
Maintenance Log ID: 29694

Calibration Std: STD34457
ICV/CCV Std: STD34451
Post Spike: STD34457
ICSA: N/A
ICSAB: N/A
Int. Std:

Workgroups: WG309027

Comments: Due to failure upon intial analysis for NPDES criteria, the ICV was reanalyzed immediately with compliant results.

Seq.	File ID	Sample	ID	Prep	Dil	Reference	Date/Time
38	HY.080509.161822	WG309150-17	CCV		1		08/05/09 16:18
39	HY.080509.162005	WG309150-18	CCB		1		08/05/09 16:20

Comments

Seq.	Rerun	Dil.	Reason	Analytes
20	X	25	Over Calibration Range	Hg

Approved: August 11, 2009

Sheri L. Pfalzgraf

Checklist ID: 40639

Microbac Laboratories Inc.

Data Checklist

Date: 05-AUG-2009
Analyst: ADC
Analyst: NA
Method: 7470A
Instrument: HYDRA
Curve Workgroup: 308150
Runlog ID: 29494
Analytical Workgroups: WG309027

Calibration/Linearity	X
ICV/CCV	X
ICB/CCB	X
ICSA/ICSAB	
CRI	
Blank/LCS	X
MS/MSD	X
Post Spike/Serial Dilution	X
Upload Results	X
Data Qualifiers	
Generate PDF Instrument Data	X
Sign/Annotate PDF Data	X
Upload Curve Data	X
Workgroup Forms	X
Case Narrative	049, 041, 0202, 0699, 0652
Client Forms	X
Level X	
Level 3	0202
Level 4	049, 0652
Check for compliance with method and project specific requirements	X
Check the completeness of reported information	X
Check the information for the report narrative	X
Primary Reviewer	ADC
Secondary Reviewer	SLP
Comments	

Primary Reviewer:
06-AUG-2009

Secondary Reviewer:
11-AUG-2009
Sheri L. Pfalzgraf

CHECKLIST1 - Modified 03/05/2008
Generated: AUG-11-2009 10:34:50

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Microbac Laboratories Inc.

HOLDING TIMES
EQUIVALENT TO AFCEE FORM 9

Analytical Method: 7470A

AAB#: WG309027

Login Number: L09070202

Client ID	ID	Date Collected	TCLP Date	Time Held	Max Hold	Q	Extract Date	Time Held	Max Hold	Q	Run Date	Time Held	Max Hold	Q
02SB027A (0-6)	02	07/09/09					08/05/09	27	28		08/05/09	27.2	28	
02SB028B (12-18)	03	07/09/09					08/05/09	27	28		08/05/09	27.2	28	

* = SEE PROJECT QAPP REQUIREMENTS

HOLD_TIMES - Modified 03/06/2008
PDF File ID: 1459562
Report generated 08/06/2009 12:28

Microbac®

METHOD BLANK SUMMARY

Login Number: L09070202
Blank File ID: HY.080509.153012
Prep Date: 08/05/09 09:14
Analyzed Date: 08/05/09 15:30
Analyst: PDM

Work Group: WG309027
Blank Sample ID: WG308974-02
Instrument ID: HYDRA
Method: 7470A

This Method Blank Applies To The Following Samples:

Client ID	Lab Sample ID	Lab File ID	Time Analyzed	TAG
LCS	WG308974-03	HY.080509.153153	08/05/09 15:31	01
02SB027A (0-6)	L09070202-02	HY.080509.153737	08/05/09 15:37	01
02SB028B (12-18)	L09070202-03	HY.080509.154132	08/05/09 15:41	01

Report Name: BLANK_SUMMARY
PDF File ID: 1459563
Report generated 08/06/2009 12:28

Microbac Laboratories Inc.

METHOD BLANK REPORT

Login Number:L09070202 Prep Date:08/05/09 09:14 Sample ID:WG308974-02
Instrument ID:HYDRA Run Date:08/05/09 15:30 Prep Method:7470A
File ID:HY.080509.153012 Analyst:PDM Method:7470A
Workgroup (AAB#):WG309027 Matrix:Leachate Units:mg/L
Contract #:DACA56-94-D-0020 Cal ID: HYDRA - 05-AUG-09

Analytes	SDL	PQL	Concentration	Dilution	Qualifier
Mercury	0.000100	0.000200	0.000100	1	U

SDL	Method Detection Limit
PQL	Reporting/Practical Quantitation Limit
ND	Analyte Not detected at or above reporting limit
*	|Analyte concentration| > RL

Report Name:BLANK
PDF ID: 1459564
06-AUG-2009 12:28

Microbac Laboratories Inc.
LABORATORY CONTROL SAMPLE (LCS)

Login Number: L09070202
Run Date: 08/05/2009
Sample ID: WG308974-03
Instrument ID: HYDRA
Run Time: 15:31
Prep Method: 7470A
File ID: HY.080509.153153
Analyst: PDM
Method: 7470A
Workgroup (AAB#): WG309027
Matrix: Leachate
Units: mg/L
QC Key: STD
Lot#: STD34449
Cal ID: HYDRA - 05-AUG-09

Analytes	Expected	Found	% Rec	LCS Limits	Q
Mercury	0.00400	0.00405	101	85 - 115	

LCS - Modified 03/06/2008
PDF File ID: 1459565
Report generated: 08/06/2009 12:28

MATRIX SPIKE AND MATRIX SPIKE DUP (MS/MSD)

Loginnum:L09070202 Cal ID: HYDRA - Worknum:WG309027
Instrument ID:HYDRA Contract #:DACA56-94-D-0020 Method:7470A
Parent ID:WG308974-01 File ID:HY.080509.155310 Dil:1 Matrix:WATER
Sample ID:WG308974-04 MS File ID:HY.080509.155658 Dil:1 Units:mg/L
Sample ID:WG308974-05 MSD File ID:HY.080509.155843 Dil:1

Analyte	Parent	MS Spiked	MS Found	MS %Rec	MSD Spiked	MSD Found	MSD %Rec	%RPD	%Rec Limits	RPD Limit	Q
Mercury	ND	0.0400	0.0318	79.5	0.0400	0.0307	76.8	3.52	85 - 115	20	*

* FAILS %REC LIMIT

FAILS RPD LIMIT

NOTE: This is an internal quality control sample.

WG_MS_MSD_DRYWT - Modified 03/07/2008
PDF File ID: 1459566
Report generated 08/06/2009 12:28

Microbac Laboratories Inc.

POST SPIKE REPORT

Sample Login ID: L09070202
Worknum: WG309027
Instrument ID: HYDRA
Method: 7470A
Post Spike ID: WG309027-01 **File ID:**HY.080509.153939 **Dil:**1
Units: ug/L
Sample ID: L09070202-02 **File ID:**HY.080509.153737 **Dil:**1
Matrix: Leachate

Analyte	Post Spike Result	C	Sample Result	C	Spike Added(SA)	% R	Control Limit %R	Q
MERCURY	0.897		0	U	1	89.7	85 - 115	

N = % Recovery exceeds control limits
F = Result is between MDL and RL
U = Sample result is below MDL. A value of zero is used in the calculation

POST_SPIKE - Modified 03/06/2008
PDF File ID: **1459561**
Report generated: 08/06/2009 12:28

INITIAL CALIBRATION SUMMARY

Login Number: L09070202
Analytical Method: 7470A
ICAL Worknum: WG309150

Workgroup (AAB#): WG309027
Instrument ID: HYDRA
Initial Calibration Date: 08/05/2009 15:15

Analyte	WG309150-01		WG309150-02		WG309150-03		WG309150-04		WG309150-05		WG309150-06	
	STD	INT	STD	INT	STD	INT	STD	INT	STD	INT	STD	INT
Mercury	0	288	0.200	819	1.00	3347	2.00	6146	5.00	15366	10.0	30870

INT = Instrument intensity
R = Coefficient of correlation
Q = Data Qualifier
* = Out of Compliance; R < 0.995

Microbac Laboratories Inc.
INITIAL CALIBRATION SUMMARY

Login Number: L09070202
Analytical Method: 7470A
ICAL Worknum: WG309150

Workgroup (AAB#): WG309027
Instrument ID: HYDRA
Initial Calibration Date: 08/05/2009 15:15

Analyte	R	Q
Mercury	1.000	

INT = Instrument intensity
R = Coefficient of correlation
Q = Data Qualifier
* = Out of Compliance; R < 0.995

INT_CAL_HG_FU - Modified 03/06/2008
PDF File ID: 1459567
Report generated 08/06/2009 12:28

Microbac Laboratories Inc.
INITIAL CALIBRATION BLANK (ICB)

Login Number: L09070202
Instrument ID: HYDRA
File ID: HY.080509.152347
Workgroup (AAB#): WG309027
Matrix: LEACHATE

Run Date: 08/05/2009
Run Time: 15:23
Analyst: PDM
Cal ID: HYDRA - 05-AUG-09

Sample ID: WG309150-10
Method: 7470A
Units: ug/L

Analytes	MDL	RDL	Concentration	Qualifier
MERCURY	.1	.2	.1	U

ICB - Modified 07/14/2009
PDF File ID: 1459569
Report generated 08/06/2009 12:28

Microbac Laboratories Inc.

CONTINUING CALIBRATION BLANK (CCB)

Login Number: L09070202
Run Date: 08/05/2009
Sample ID: WG309150-12
Instrument ID: HYDRA
Run Time: 15:28
Method: 7470A
File ID: HY.080509.152803
Analyst: PDM
Units: ug/L
Workgroup (AAB#): WG309027
Cal ID: HYDRA - 05-AUG-09
Matrix: LEACHATE

Analytes	MDL	RDL	Concentration	Qualifier
Mercury	0.100	0.200	0.100	U

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

CCB - Modified 03/05/2008
PDF File ID: 1459571
Report generated 08/06/2009 12:28

Microbac Laboratories Inc.
CONTINUING CALIBRATION BLANK (CCB)

Login Number: L09070202
Run Date: 08/05/2009
Sample ID: WG309150-14
Instrument ID: HYDRA
Run Time: 15:51
Method: 7470A
File ID: HY.080509.155125
Analyst: PDM
Units: ug/L
Workgroup (AAB#): WG309027
Cal ID: HYDRA - 05-AUG-09
Matrix: LEACHATE

Analytes	MDL	RDL	Concentration	Qualifier
Mercury	0.100	0.200	0.100	U

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

CCB - Modified 03/05/2008
PDF File ID: 1459571
Report generated 08/06/2009 12:28

Microbac Laboratories Inc.

CONTINUING CALIBRATION BLANK (CCB)

Login Number: L09070202
Run Date: 08/05/2009
Sample ID: WG309150-16
Instrument ID: HYDRA
Run Time: 16:12
Method: 7470A
File ID: HY.080509.161240
Analyst: PDM
Units: ug/L
Workgroup (AAB#): WG309027
Cal ID: HYDRA - 05-AUG-09
Matrix: LEACHATE

Analytes	MDL	RDL	Concentration	Qualifier
Mercury	0.100	0.200	-0.114	U

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

CCB - Modified 03/05/2008
PDF File ID: 1459571
Report generated 08/06/2009 12:28

Microbac Laboratories Inc.

CONTINUING CALIBRATION BLANK (CCB)

Login Number: L09070202
Run Date: 08/05/2009
Sample ID: WG309150-18
Instrument ID: HYDRA
Run Time: 16:20
Method: 7470A
File ID: HY.080509.162005
Analyst: PDM
Units: ug/L
Workgroup (AAB#): WG309027
Cal ID: HYDRA - 05-AUG-09
Matrix: LEACHATE

Analytes	MDL	RDL	Concentration	Qualifier
Mercury	0.100	0.200	-0.102	U

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

CCB - Modified 03/05/2008
PDF File ID: 1459571
Report generated 08/06/2009 12:28

Microbac Laboratories Inc.

INITIAL CALIBRATION VERIFICATION (ICV)
(Alternate Source)

Login Number: L09070202
Run Date: 08/05/2009
Sample ID: WG309150-09
Instrument ID: HYDRA
Run Time: 15:21
Method: 7470A
File ID: HY.080509.152150
Analyst: PDM
Units: ug/L
Workgroup (AAB#): WG309027
Cal ID: HYDRA - 05-AUG-09
QC Key: STD

Analyte		Expected	Found	%REC	LIMITS	Q
Mercury		2	1.93	96.5	90 - 110	

* Exceeds LIMITS Limit

ICV - Modified 03/06/2008
PDF File ID: 1459568
Report generated 08/06/2009 12:28

Microbac Laboratories Inc.

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L09070202
Instrument ID: HYDRA
File ID: HY.080509.152610
Workgroup (AAB#): WG309027
Matrix: LEACHATE

Run Date: 08/05/2009
Run Time: 15:26
Analyst: PDM
Cal ID: HYDRA - 05-AUG-09

Sample ID: WG309150-11
Method: 7470A
QC Key: STD

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Mercury, Total		0.00200	0.00190	mg/L	95.0	80 - 120		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008
PDF File ID: 1459570
Report generated 08/06/2009 12:28

Microbac Laboratories Inc.

CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L09070202
Run Date: 08/05/2009
Sample ID: WG309150-13
Instrument ID: HYDRA
Run Time: 15:49
Method: 7470A
File ID: HY.080509.154933
Analyst: PDM
QC Key: STD
Workgroup (AAB#): WG309027
Cal ID: HYDRA - 05-AUG-09
Matrix: LEACHATE

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Mercury, Total		0.00200	0.00181	mg/L	90.5	80 - 120		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008
PDF File ID: 1459570
Report generated 08/06/2009 12:28

Microbac Laboratories Inc.
CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L09070202
Run Date: 08/05/2009
Sample ID: WG309150-15
Instrument ID: HYDRA
Run Time: 16:10
Method: 7470A
File ID: HY.080509.161036
Analyst: PDM
QC Key: STD
Workgroup (AAB#): WG309027
Cal ID: HYDRA - 05-AUG-09
Matrix: LEACHATE

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Mercury, Total		0.00200	0.00211	mg/L	106	80 - 120		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008
PDF File ID: 1459570
Report generated 08/06/2009 12:28

Microbac Laboratories Inc.
CONTINUING CALIBRATION VERIFICATION (CCV)

Login Number: L09070202
Run Date: 08/05/2009
Sample ID: WG309150-17
Instrument ID: HYDRA
Run Time: 16:18
Method: 7470A
File ID: HY.080509.161822
Analyst: PDM
QC Key: STD
Workgroup (AAB#): WG309027
Cal ID: HYDRA - 05-AUG-09
Matrix: LEACHATE

Analyte		Expected	Found	UNITS	%REC	LIMITS		Q
Mercury, Total		0.00200	0.00182	mg/L	91.0	80 - 120		

* Exceeds LIMITS Criteria

CCV - Modified 03/05/2008
PDF File ID: 1459570
Report generated 08/06/2009 12:28

3.0 Attachments

Microbac Laboratories Inc.
Analyst Listing
August 11, 2009

ADC - ANTHONY D. CANTER
AJF - AMANDA J. FICKIESEN
AJM - ANTHONY J. MOSSBURG
ALB - ANNIE L. BROWN
AML - ANTHONY M. LONG
BLG - BRENDA L. GREENWALT
BRG - BRENDA R. GREGORY
CAA - CASSIE A. AUGENSTEIN
CAF - CHERYL A. FLOWERS
CAH - CHARLES A. HALL
CEB - CHAD E. BARNES
CLC - CHRYS L. CRAWFORD
CLW - CHARISSA L. WINTERS
CPD - CHAD P. DAVIS
CSH - CHRIS S. HILL
DDE - DEBRA D. ELLIOTT
DEL - DON E. LIGHTFRITZ
DEV - DAVID E. VANDENBERG
DGB - DOUGLAS G. BUTCHER
DIH - DEANNA I. HESSON
DLB - DAVID L. BUMGARNER
DLP - DOROTHY L. PAYNE
DLR - DIANNA L. RAUCH
DR - DEANNA ROBERTS
ECL - ERIC C. LAWSON
EDA - ERIN D. AGEE
ERP - ERIN R. PORTER
FJB - FRANCES J. BOLDEN
HAV - HEMA VILASAGAR
HJR - HOLLY J. REED
JBK - JEREMY B. KINNEY
JDH - JUSTIN D. HESSON
JKT - JANE K. THOMPSON
JWR - JOHN W. RICHARDS
JWS - JACK W. SHEAVES
JYH - JI Y. HU
KEB - KATHRYN E. BARNES
KHR - KIM H. RHODES
KRA - KATHY R. ALBERTSON
LKN - LINDA K. NEDEFF
LSB - LESLIE S. BUCINA
MDA - MIKE D. ALBERTSON
MDC - MICHAEL D. COCHRAN
MES - MARY E. SCHILLING
MMB - MAREN M. BEERY
MRT - MICHELLE R. TAYLOR
MSW - MATT S. WILSON
NPM - NATHANIEL P. MILLER
PDM - PIERCE D. MORRIS
RAH - ROY A. HALSTEAD
RB - ROBERT BUCHANAN
REK - ROBERT E. KYER
RLK - ROBIN L. KLINGER
RWC - RODNEY W. CAMPBELL
SDH - SHANA D. HINYARD
SLM - STEPHANIE L. MOSSBURG
SLP - SHERI L. PFALZGRAF
TIP - TAE I. PARRISH
TMB - TIFFANY M. BAILEY
TMM - TAMMY M. MORRIS
VC - VICKI COLLIER
WTD - WADE T. DELONG

Microbac Laboratories Inc.
List of Valid Qualifiers
August 11, 2009

Qualkey: STD_ND=U

Qualifier	Description
U	Not detected at or above adjusted sample detection limit

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

COC NO.

Shaw Environmental & Infrastructure, Inc.
3010 Briarpark Drive, Suite 400
Houston, TX 77042
(713) 996-4400

Laboratory Name: Microbac
Address : 158 Starlite Drive, Marietta OH 45750
Contact : Stephanie Mossburg
Phone: 1-800-373-4071

PM: Praveen Svrivastav (713.996.4588)
Project Contact: Jennifer Hoang
Project Name: LHAAP-02
Project #: 117591-

TAT: STANDARD
Phone No: 713-996-4408
Site: 02 (Soils)
Location: Karnack, TX

Sampler Print: Allen Willmore (713.247.9292)

Sampler Sign:

Sample Number	Grab	Date	Time	Matrix	# of Containers	**Metals (6010/6020)	Mercury (7471)								Comments
															**As,Cd,Cu,Pb
02SB026A(0-6)	X	7/9/2009	10:10	Soil	2	X	X								
02SB027A(0-6)	X	7/9/2009	10:15	Soil	2	X	X								
02SB028B(12-18)	X	7/9/2009	10:20	Soil	2	X	X								
02SB0210(0-6)	X	7/9/2009	10:25	Soil	2	X	X								
02SB0211(0-6)	X	7/9/2009	10:30	Soil	2	X	X								
02SB0211(0-6)-DUP	X	7/9/2009	10:30	Soil	2	X	X								

Relinquished By:
Date/Time 7/9/09 17:00

Received By:
Date/Time

Special Instructions *Hold 2nd jars for possible SPLP analysis!

Relinquished By:
Date/Time

Remarks:
221000000371

Microbac OVD
Received: 07/10/2009 11:28
By: ROBIN KLINGER
Robin L. Klinger

COOLER INSPECTION

Microbac®

Received: 07/10/2009 10:07
Delivery Method: UPS
Opened By: Robin Klinger
Comments:

Login(s): L09070202

Cooler(s)

Cooler #	Temp Gun	Temp	Tracking #	COC #	Comments
	H	3.0	420457505279		

1	Yes	Were shipping coolers sealed?
2	Yes	Were custody seals intact?
3	Yes	Were cooler temperatures in range of 0-6?
4	Yes	Was ice present?
5	Yes	Were COC's received/information complete/signed and dated?
6	No	Were sample containers and labels intact and match COC?
7	Yes	Were the correct containers and volumes received?
8	NA	Were correct perservatives used? (water only)
9	NA	Were pH ranges acceptable? (voa's excluded)
10	NA	Were VOA samples free of headspace (<6mm)?
11	Yes	Were samples received within EPA hold times?

Discrepancies:

6	The last sample on the COC does not match the lid on the bottle but the times and dates match.	

Microbac Laboratories Inc.

Internal Chain of Custody Report

Login: L09070202
Account: 2773
Project: 2773.025
Samples: 6
Due Date: 12-AUG-2009

Samplenum	**Container ID**	**Products**
L09070202-01	597388	

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	w1	10-JUL-2009 14:58	RLK	

Samplenum	**Container ID**	**Products**
L09070202-02	597389	

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	w1	10-JUL-2009 14:58	RLK	

Samplenum	**Container ID**	**Products**
L09070202-02	603135	SPLP-EX

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	L1	04-AUG-2009 09:00	JKT	
2	PREP	L1	TCL	04-AUG-2009 11:08	RWC	JKT
3	STORE	TCL	A1	05-AUG-2009 09:31	JKT	RWC

Samplenum	**Container ID**	**Products**
L09070202-03	597390	

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	w1	10-JUL-2009 14:58	RLK	

Samplenum	**Container ID**	**Products**
L09070202-03	603136	SPLP-EX

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	L1	04-AUG-2009 09:00	JKT	
2	PREP	L1	TCL	04-AUG-2009 11:08	RWC	JKT
3	STORE	TCL	A1	05-AUG-2009 09:31	JKT	RWC

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: L09070202
Account: 2773
Project: 2773.025
Samples: 6
Due Date: 12-AUG-2009

Samplenum	**Container ID**	**Products**
L09070202-04	597391	

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	w1	10-JUL-2009 14:58	RLK	

Samplenum	**Container ID**	**Products**
L09070202-05	597392	

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	w1	10-JUL-2009 14:58	RLK	

Samplenum	**Container ID**	**Products**
L09070202-06	597393	

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish
1	LOGIN	COOLER	w1	10-JUL-2009 14:58	RLK	

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

The Times

PROOF OF PUBLICATION

STATE OF LOUISIANA

PARISH OF CADDO

Before me, the undersigned authority, personally came and appeared

Altheas Critton personally known to me,

Who being duly sworn, deposes and says that she is the Assistant to the Classified Advertising Manager of The Times, and that the attached Advertisement entitled:

PUBLIC NOTICE THE UNITED STATES ARMY INVITES PUBLIC COMMENT ON THE PROPOSED PLANS FOR ENVIRONMENTAL SITES LHAAP-46, -49m -50m -35A(58), AND THE PISTOL RANGE, LONGHORN ARMY AMMUNITION PLANT, TEXAS PUBLIC MEETING AT KARNACK COMMUNITY CENTER MARCH 9, 2010

As per copy of advertisement hereto annexed, was published in

The Times on the following dates to wit:

February 22 & 28, 2010

(Signed) Altheas Critton

Sworn to and subscribed before me this 1st day of March, 2010

Diana W. Barber

DIANA W. BARBER, NOTARY PUBLIC # 60491
CADDO PARISH, LOUISIANA
MY COMMISSION IS FOR LIFE

(Notary)

The Times
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4A

BUSINESS
MONDAY, FEBRUARY 22, 2010

CONTACT
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459-3534 or
veldahunter@gannett.com

New credit card law will keep a check on banks

By Candice Choi
and Eileen A.J. Connelly
The Associated Press

NEW YORK — The new credit card law is finally here. Starting today, banks will need to abide by new regulations on terms and disclosures. The idea behind the landmark law was to prevent banks from using practices that often dug borrowers deeper into debt.

A look at how the credit card law affects key aspects of your account.

Interest rates

Then: Banks could raise the interest rate on an account at any time, including the rate on an existing balances, even if you weren't late on payments.

Now: The rate cannot be raised in the first year after an account is opened unless an introductory rate has come to an end. After that, cardholders must be notified 45 days in advance of any rate change.

For existing balances, rates can't be raised unless the account is at least 60 days past due. If payments are made on time for six consecutive months, the original rate must be restored.

There's still no cap on rates.

Disclosures

Then: The fine print on cardholder agreements was often difficult to understand. Rates, fees and penalties for other services such as cash advances, for example, could be hard to find. The impact of the interest rate on paying down a balance was hard to compute.

Now: Cardholders will see how many months it will take to pay off a balance if only minimum payments are made. Statements will also indicate how much needs to be paid each month to pay off a balance within three years.

Service fees

Then: Banks could charge as much as they wanted. They could assess annual fees, activation fees and other fees. This was mostly a problem for subprime cards marketed to those with poor credit scores. One popular card, for example, the Premier Bankcard, charged $256 in first-year fees for a $250 credit line.

Now: Service fees, such as activation and annual fees, will be capped at 25 percent of the credit limit during the first year of use. After that, there is no cap.

Grace periods

Then: Some card companies sent out statements not long before payments were due, and sometimes shifted payment due dates from month to month, meaning that payments would not always have enough time to arrive and get processed before being deemed late. As a result, some cardholders ended up getting charged interest or late fees even when they thought they were sending in payments on time.

Now: The law requires that due dates remain consistent. Statements must be sent out 21 days before the payment due date, and finance charges and fees cannot be applied before that period is up. In practice, about half of card issuers have extended grace periods to as long as 25 days.

Over-the-limit fees

Then: Banks set credit limits, then routinely allowed charges to exceed those limits. When that happened, though, the customer was charged an over-the-limit fee as high as $39. These fees were often triggered by interest charges or late-payment fees that pushed a balance over the credit limit. What's more, multiple over-the-limit fees could get charged in a single billing cycle if the balance was paid down and another charge pushed the balance back over the limit.

Now: The cardholder must specifically agree to permit transactions that exceed the credit limit. Only then can over-the-limit fees be charged. But the fees can't be triggered by other fees or interest charges. Only one over-the-limit fee may be imposed during a billing cycle. No over-the-limit fees may be charged unless the cardholder has specifically agreed to permit transactions exceeding their authorized credit limit. These fees can no longer be triggered by other fees or interest charges imposed by the card issuer, and only one such fee may be imposed during a billing cycle.

In practice, several of the largest card companies have dropped these fees. Some banks are using pop-up boxes on their Web sites or other methods to obtain consumer authorization.

Universal default

Then: If you made a late payment on one credit card or loan, or even late payments for obligations like utility bills, that could trigger interest rate hikes on other credit card accounts.

Now: Card companies cannot raise interest rates on existing credit card balances. Interest rates can't rise during the first year an account is open, unless the original agreement spelled out a promotional rate for a limited time.

Consumers with older accounts must be informed of any interest rate increase on new charges at least 45 days in advance. They must also be given a chance to opt out of the hike by canceling the account and paying down the balance at the old interest rate. If an interest rate is increased, the card company must review the account once every six months to assess whether the rate should be dropped.

Students

Then: Students arriving on college campuses often confronted a gantlet of credit card marketers handing out T-shirts, pizza and other gifts in exchange for filling out card applications. Credit cards were frequently handed out without checking the applicant's income sources. In 2008, 84 percent of undergraduates had at least one credit card. Average balances topped $3,100.

Now: Credit cards may no longer be issued to anyone under age 21, unless the applicant has a co-signer, or can show independent means to repay the debt. Colleges must disclose any marketing deals they make with credit card companies. Banks are not allowed to hand out gifts on or near campuses or at college-related events.


AP

A shopper pulls a credit card from her wallet to make a purchase at the checkout at the Best Buy in Mechanicsburg, Pa., in November. The Federal Reserve has issued sweeping new rules to better protect Americans from sudden hikes in interest rates on credit cards.

AP

A Visa sticker is shown at a business in Detroit in July. Starting today banks will need to abide by a spate of new rules on terms and disclosures.

Thrift, spending less key to helping lessen money woes

BYRON MOORE
FINANCIAL FUNDAMENTALS

Question: I turned 50 this year. I've still got kids at home and one in college. The market kicked me pretty hard, and I don't see how I'll ever save enough money to retire. I don't know where my money goes, but I don't feel like we live some extravagant lifestyle. I don't have any debt, but I don't save any money either. What do I do?

Answer: Sometimes truth is better than sympathy.

The truth is that you are, in fact, overspending. If you do not stop, you will bear the consequences — those consequences may come sooner, or they may come later. But the later they come, the uglier they will be. Your capacity to produce income is not perpetual, but depleting. Once your "well" stops producing "oil," you're going to really wonder where your money went.

You, and most of America, have been telling yourself a lie — that you are not overspending. You are one of the eminently reasonable folks who are not "extravagant." The issue for you is not extravagance, but thrift. Thrift is not about finding out exactly where you are "overspending." Try that and you'll be lucky to come up with more than a few bucks. Thrift is spending less than you make, and saving or investing that difference.

If you were laid off from your job tomorrow, and the only other work you could find paid you 20 percent less, I'd give you pretty good odds on surviving. You would undoubtedly make some radical lifestyle changes, but you would survive (what other choice would you have?). That is the kind of dramatic approach that is called for — not later, but immediately.

Here are some things to consider:

■ **Insure yourself now.** Due to your spending habits, your most valuable asset is still you. Prudent people don't allow their most valued assets to remain uninsured or under insured.

■ **Pay yourself first.** Take a "pay cut" to your household lifestyle and start saving 10 percent or more of your gross income. Remember, don't wait to "find" this money — pay yourself first. This will be the decisive decision that will mean either success or failure for you.

■ **Plan yourself out.** Good actions, like insuring yourself now or paying yourself first, can become great results when taken in the context of a comprehensive financial plan. A plan acts like a coach for a team, coordinating efforts and bringing out the best in everyone. Work with a certified financial planner practitioner to design your plan.

I'm sorry you've had your share of hard knocks. Lots of folks have. But none of that changes the hard reality that time is passing no matter what your circumstances have been.

Choose thrift now, or get pain later.

■

Byron R. Moore, CFP is a member of the Ark-La-Tex Chapter, Financial Planning Association, whose members contribute to this column weekly. If you have questions or topics you would like to see addressed in this space, send inquiries to Financial Fundamentals c/o The Times, Money/Business, P.O. Box 30222, Shreveport LA 71130-0222 or e-mail shreveportmoney@gannett.com.

How to seek referrals from business clients

MICHAEL CROM
ON THE JOB

Question: As a salesman, I have recently been looking for new ways to recruit business. Some of my coworkers have been getting new business through referrals. I have always been hesitant to ask for referrals because I do not want to push any of my clients away. Is there any advice you could give me on how to ask my clients for referrals?

Answer: Asking for referrals can be an uncomfortable step for many people. The feeling of being pushy or aggressive causes many of us to hold back. You want to make sure that you maintain a good relationship with your customers and create a desirable relationship for all the parties involved. Here are some tips that will help you build your relationship with your client while you ask for referrals.

■ **Remind the customers of their specific benefit.** Make a point to remember or write down when a client tells you how your company has benefited them. You can use this information during a future call.

■ **Describe your customer profile.** Briefly describe the range of challenges faced and benefits received by your customers. This may remind your existing customer of opportunities they are missing. It also will help them to think of other people who could use your service.

■ **Identify a benefit for giving a referral.** Explain to your current customer how she or he would benefit from referring this person to you. Try to see things from your current customer's point of view and identify the value it would create for this person, not their company, the prospect or you.

■ **Suggest they already know someone.** Provide examples of people or job positions who could benefit from your offerings. Try to make it easy for your client. If you have a specific person or people in mind mention them by name.

■ **Ask for an introduction.** Ask your contact if he or she is willing to give you and introduction before you contact the new person. This will help make the process more friendly and open the door wider.

■

Michael Crom is executive vice president of Dale Carnegie Training. For advice on work issues, visit www.dalecarnegie.com or e-mail carnegiecoach@dalecarnegie.com.

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The U.S. Army is the lead agency for environmental response actions at Longhorn Army Ammunition Plant (LHAAP). In partnership with Texas Commission on Environmental Quality and the U.S. Environmental Protection Agency Region 6, the U.S. Army has developed Proposed Plans for the following NPL sites: LHAAP-46, LHAAP-49, LHAAP-50, LHAAP-35A(58), and the Pistol Range. Although the Proposed Plans identify preferred remedies for each of the sites, the U.S. Army welcomes the public's review and comments. The public comment period began January 25, 2010, and has been extended to March 25, 2010. **On Tuesday, March 9, 2010, from 7:00 to 9:00 p.m., the U.S. Army is inviting all interested parties to attend a public presentation of the proposed remedies for these sites and to ask questions and provide comments on the Proposed Plans. Questions, comments, and responses on the Proposed Plans will be recorded by a court reporter. This public meeting will be held at the Karnack Community Center, Highway 134 and Spur 449, Karnack, Texas.** Copies of the Proposed Plans and supporting documentation are available for public review at the Marshall Public Library, 300 S. Alamo, Marshall, Texas, 75670. Summaries of each of the sites, including discussion of various alternatives that were evaluated, are provided below.

LHAAP-46, the former Plant 2 production area, is located in the north-central portion of LHAAP and covers an area of approximately 190 acres. Plant 2 was used to produce pyrotechnic devices from February 1952 to 1956 and was reactivated to produce pyrotechnic and illumination devices from 1964 until approximately 1997. Three alternatives were evaluated for addressing the contaminated groundwater at the site: 1) no action; 2) monitored natural attenuation (MNA) and land use controls (LUCs); and 3) in situ bioremediation, short-term LUCs, and long-term monitoring (LTM). Based on available information, the preferred remedy is MNA and LUCs. The preferred remedy would utilize groundwater use restriction LUCs to protect human health by preventing human exposure to contaminated groundwater and MNA to return the contaminated water to its potential beneficial use as drinking water, wherever practicable.

LHAAP-49, a former Acid Storage Area, is located in the west-central portion of LHAAP and covers an area of approximately 30 acres. The site was used from 1942 to 1945 for formulation and storage of acids and acid mixtures in support of trinitrotoluene production. Based on available information, the preferred remedy at this time is no action. The recommendation is based on the existing data and determination of no unacceptable risk to human health or to ecological receptors at LHAAP-49.

LHAAP-50, a former sump water tank, is located in the north-central portion of LHAAP and covers an area of approximately 1 acre. Historically, LHAAP-50 contained a 47,000-gallon capacity aboveground storage tank which received wastewater from various industrial waste sumps from 1955 to 1988. Three alternatives were evaluated for addressing the contaminated groundwater and soil at the site: 1) no action; 2) soil - excavation, groundwater - MNA and LUCs; and 3) soil - excavation, groundwater - in situ bioremediation, MNA, and LUCs. Based on available information, the preferred remedy at this time is the second alternative: excavation and off-site disposal of perchlorate-contaminated soils, and MNA and LUCs for groundwater. The preferred remedy would ensure protection of human health by eliminating the soil-to-groundwater and soil-to-surface water pathways, implementing groundwater use restriction LUCs to prevent exposure to contaminated groundwater, and implementing MNA until groundwater cleanup levels are achieved.

LHAAP-35A(58), known as the Shops Area, is located in the north-central portion of LHAAP and covers approximately 11 acres. The Shops Area was established in 1942 as part of the installation's initial construction. Plant-operated laundry, automotive, woodworking, metalworking, painting, refrigeration, and electrical shops served the needs of the overall facility and became inactive in 1996 and 1997. Four alternatives were evaluated for addressing the contaminated groundwater at the site: 1) no action; 2) MNA with LUCs; 3) in situ bioremediation with short-term LUCs and LTM; and 4) in situ bioremediation followed by MNA and LUCs for the eastern plume, and MNA and LUCs for the western plume. Based on available information, the preferred remedy at this time is the fourth alternative: in situ bioremediation followed by MNA and LUCs for the eastern plume, and MNA and LUCs for the western plume. The preferred remedy would ensure protection of human health by 1) implementing groundwater use restriction LUCs which prevent human exposure to contaminated groundwater and 2) returning the contaminated water to its potential beneficial use as a drinking water, wherever practicable, through MNA and in situ bioremediation.

The former **Pistol Range** is located in the southeastern portion of LHAAP and covers an area of approximately 0.4 acres. The area was used by base security personnel as early as the 1950s and intermittently through 2004 as a small arms firing range. The target area was a natural, wooded slope at the eastern side of the site. Soil with contamination above industrial cleanup levels was excavated and disposed off site during a 2009 removal action. Based on available information, the preferred remedy at this time is no action. The recommendation is based on existing data and determination of no unacceptable risk to human health or to ecological receptors.

For further information or to submit written comments, contact: Dr. Rose M. Zeiler, Longhorn Army Ammunition Plant, P.O. Box 220, Ratcliff, Arkansas, 72951; phone number 479-635-0110 or e-mail rose.zeiler@us.army.mil.

'Unconventional' teacher making connection

By Heather Miller
The Daily Iberian

BALDWIN — Stepping into the classroom of B. Edward Boudreaux Middle School teacher Stephen Schmidt, one might find wild stories of Jean Lafitte or Marie Laveau, or witness students playing games and role-playing as a way of taking in Louisiana history.

One thing you won't find upon entering Schmidt's classroom — a textbook.

In Schmidt's class, textbooks exist purely for reference and the key to his students' learning is with "the hook."

"I'm definitely unconventional," said Schmidt, an eighth-grade social studies teacher from Kansas City, Kan. "The classes are very activity-based. I trick them into learning ... I'm a master of manipulation."

The white board in Schmidt's classroom is not filled with history notes, but instead holds index cards with significant dates tacked onto it.

The students in Schmidt's class race to the white board — "Survivor" style — to see who can first remember the significance of dates like 1492 and 1776.

Schmidt has been teaching at B. Edward Boudreaux for three years, but his work with children dates back many years, starting as a white water rafting and backpacking guide for the Boy Scouts in Colorado.

He spent his summers taking Boy Scouts on white water rafting, backpacking and rock climbing trips, then spent his winters as a snowboarding instructor.

"I think I learned a lot about teaching from that experience because I would have to train them, and my life kind of depended on them learning those skills very quickly," he said.

After an accident left Schmidt with a shattered elbow and unable to continue his outdoor activities, he decided to attend college at Kansas State University.

While in college, the university asked Schmidt to join a group of students in traveling to the Middle East for international community service work. Schmidt spent four months teaching English as a second language and doing agricultural work for social service centers set up throughout Jordan and the West Bank.

"I think I was chosen because they knew I was the type of person who could sleep in a ditch in my sleeping bag and I wouldn't complain," he said.

Kansas State University is where he met his wife, who he accompanied to Louisiana when she got a teaching job in St. Mary Parish in 2000. But the couple detoured a bit during their journey from Kansas to Louisiana, hitchhiking through Mexico before deciding on a home here.

Schmidt finished his bachelor's degree in history at the University of Louisiana at Lafayette in 2005, working on sugar cane farms in St. Mary Parish while completing his studies.

"When we were on the farm, everyone out there said I needed to be teaching — because I bored them so much," he said. "I love teaching. I get paid to have a lot of fun."

Ask students about his class, and "fun" is a word that echoes often when referencing their experience in Schmidt's classroom.

"He's different than other teachers," said eighth-grade student Kevin Smith, 15. "He makes it easy. He's cool in all kinds of ways."

Darien Dwier, a 14-year-old eighth-grader, said Schmidt teaches the students about a variety of topics, not just social studies.

"The other teachers don't act like Mr. Schmidt," said Jalicia Broussard, 16. "He tells it like it is, doesn't beat around the bush. But he likes helping people, too."

When Schmidt is not busy "corrupting the youth" through eighth-grade social studies, he spends much of his time coaching the B. Edward Boudreaux Middle School Chess Team.

The team has grown exponentially since its inception three years ago, Schmidt said, with 30 to 40 students on the team who placed third in the state last year.

"He inspires the students, really motivates them," said B. Edward Boudreaux Principal Naomi Harding. "He goes out of his way to work with the students, so much so that seventh-grade students are excited about going to his class in eighth grade."

Schmidt, an Eagle Scout, also serves as scoutmaster for the Boy Scouts Evangeline Area Council Troop No. 1, the troop that holds the original charter for the Evangeline Council.

The group is highly active, and Schmidt spends many weekends on scout outings around the state.

"I don't think there's any organization that better prepares young men for being good civic participants," Schmidt said.

"To advance in the ranks, you have to participate in community service. I think people look at (Boy Scouts) as being sort of antiquated now, but I think it's a really good thing for young boys to chant once a week about being trustworthy and loyal. I think a lot of the old-time stuff is what kids crave."

New Orleans native designing line of urban playclothes

By Susan Langenhennig
The (New Orleans) Times-Picayune

NEW ORLEANS — The day before her fall 2010 collection was to debut at New York Fashion Week, designer Madeleine von Froomer was flying back from New Orleans, where she had watched the Saints win the Super Bowl at a friend's house in the French Quarter.

She landed at LaGuardia just in time for a blizzard to hit.

"In retrospect, I probably should have missed the Super Bowl," she said by phone Wednesday from her Lower East Side office. "I had to pack all of our fall collection in the middle of this horrible snowstorm, and we weren't sure anyone was going to come out in that weather. But no matter how big this (show) was, I couldn't miss being in New Orleans when the Saints won. I lost my voice screaming that night."

Von Froomer, a New Orleans native who spent a chunk of her childhood on an organic blueberry farm in Picayune, Miss., is the co-designer behind Sophomore, the cult brand founded by Chrissie Miller. It's a line of urban playclothes: high-waisted short shorts; U-neck T-shirts; bustier-topped sundresses; slouchy, short-sleeved henleys all with a 1970s vibe.

Asymmetrical hem tank dresses with low-sloping necklines are hot. They're the sort of clothes a socialite might wear when slumming with friends not approved by her parents. Think "Boogie Nights" gone a little upscale. For the Gen Art "New Garde" fashion show in New York, Sophomore designers Madeleine von Froomer and Chrissie Miller staged 40 outfits in a live photo shoot, with models shimmying in and out of clothes, photographers snapping photos and designers choreographing on the sides. "We thought it would be more interesting than models standing around," von Froomer said.

Miller founded the company in 2003 as a line of graphic T-shirts. Von Froomer, who honed her skills working as a design assistant at Proenza Schouler, joined Sophomore about three years ago to expand the collections beyond pullovers.

The clothes are easy basics with sophisticated price tags: T-shirts start at $50, and cotton dresses range from $100 to $300. Von Froomer likes to say they're the cheapest things on the racks at high-end stores such as Selfridges in London and Opening Ceremony in Manhattan. About 50 shops around the world carry the line, though none is in New Orleans.

A graduate of Ben Franklin High School and the New Orleans Center for Creative Arts, von Froomer studied painting and art history at the Maryland Institute College of Art. After graduation, and seriously tired of waiting tables, she headed to New York in hope of landing a job in an art gallery.

But her timing was terrible. She arrived one week before the Sept. 11, 2001, terrorist attacks.

The city suddenly was reeling, and her job prospects plummeted. With plenty of time and not much else to do, von Froomer started sewing on an old machine she had found at a thrift store in Baltimore.

"I was never interested in fashion, but I started selling clothes to a friend who owned a boutique," she said. "I thought, 'Well, this will work.'"

From there, she parlayed a couple of fashion internships into design assistant positions. Von Froomer plans to take the growth at Sophomore in measured steps, trying to stay true to the brand's 1970s Lower East Side ethos.

"What attracts me to that era is a certain sexiness. The clothes from the 1970s were really laid back; they had an ease to them. In the '80s, there were big shoulder pads and big silhouettes. In the 1960s, everyone dressed more stiffly. The '70s, the clothes moved with you. They were sexy, and that's what we're capturing."

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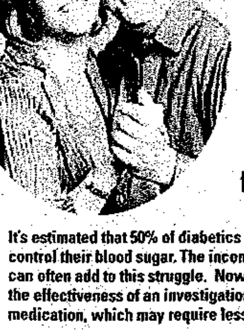

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STATE OF TEXAS
COUNTY OF HARRISON

On this 3rd day of March ,20 10 personally appeared before me the undersigned, a Notary Public in and for said county and state.

DIANNE GRAY

of the MARSHALL NEWS MESSENGER, a daily newspaper published at MARSHALL, County of HARRISON, State of TEXAS, who, being by me duly sworn, states that the attached advertisement, a true copy of which is hereto annexed, was published in said newspaper in its issues thereof on the following dates:

21st day of February 20 10
28th day of February 20 10
______ day of ______ 20 ____
______ day of ______ 20 ____
______ day of ______ 20 ____
______ day of ______ 20 ____

Dianne Gray
SIGNATURE

Subscribed and sworn to before me this 3rd day of March 20 10.

Jacqueline English
Notary Public, Harrison County, Texas

My Commision expires 11-8-2012

JACQUELINE ENGLISH
NOTARY PUBLIC
STATE OF TEXAS
My Commission Expires 11-08-2012

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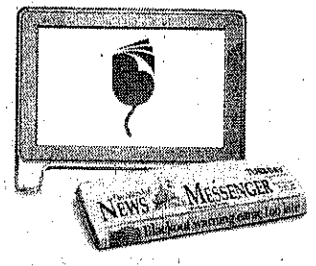

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ANNOUNCEMENTS

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2030 LEGAL NOTICES

LEGAL NOTICE:

This Texas Lottery Commission Scratch-Off game will close on March 19, 2010. You have until September 15, 2010, to redeem any tickets for this game: **#1005 Bonus Break the Bank** ($5) overall odds are 1 in 3.81. This Texas Lottery Commission Scratch-Off game will close on March 22, 2010. You have until September 18, 2010, to redeem any tickets for this game: **#1262 Houston Texans** ($5) overall odds are 1 in 3.84. These Texas Lottery Commission Scratch-Off games will close on April 28, 2010. You have until October 25, 2010, to redeem any tickets for these games: **#1186 Happy Holidays!** ($1) overall odds are 1 in 4.62, **#1187 Snow Dough** ($2) overall odds are 1 in 3.93, **#1205 Cash Bounty** ($1) overall odds are 1 in 4.93. The odds listed here are the overall odds of winning any prize in a game, including break-even prizes. Lottery retailers are authorized to redeem prizes of up to and including $599. Prizes of $600 or more must be claimed in person at a Lottery Claim Center or by mail with a completed Texas Lottery claim form; however, annuity prizes or prizes over $999,999 must be claimed in person at the Commission Headquarters in Austin. Call Customer Service at **1-800-37LOTTO** or visit the Lottery Web site at **www.txlottery.org** for more information and location of nearest Claim Center. The Texas Lottery is not responsible for lost or stolen tickets, or for tickets lost in the mail. Tickets, transactions, players, and winners are subject to, and players and winners agree to abide by, all applicable laws, Commission rules, regulations, policies, directives, instructions, conditions, procedures, and final decisions of the Executive Director. A Scratch-Off game may continue to be sold even when all the top prizes have been claimed. Must be 18 years of age or older to purchase a Texas Lottery ticket. PLAY RESPONSIBLY. The Texas Lottery Supports Texas Education.

2030 LEGAL NOTICES

PUBLIC NOTICE
THE UNITED STATES ARMY INVITES PUBLIC COMMENT ON THE PROPOSED PLANS FOR ENVIRONMENTAL SITES LHAAP-46, -49, -50, -35A(58), AND THE PISTOL RANGE, LONGHORN ARMY AMMUNITION PLANT, TEXAS
PUBLIC MEETING AT KARNACK COMMUNITY CENTER MARCH 9, 2010

The U.S. Army is the lead agency for environmental response actions at Longhorn Army Ammunition Plant (LHAAP). In partnership with Texas Commission on Environmental Quality and the U.S. Environmental Protection Agency Region 6, the U.S. Army has developed Proposed Plans for the following NPL sites: LHAAP-46, LHAAP-49, LHAAP-50, LHAAP-35A(58), and the Pistol Range. Although the Proposed Plans identify preferred remedies for each of the sites, the U.S. Army welcomes the public's review and comments. The public comment period began January 25, 2010, and has been extended to March 25, 2010. **On Tuesday, March 9, 2010, from 7:00 to 9:00 p.m., the U.S. Army is inviting all interested parties to attend a public presentation of the proposed remedies for these sites and to ask questions and provide comments on the Proposed Plans. Questions, comments, and responses on the Proposed Plans will be recorded by a court reporter. This public meeting will be held at the Karnack Community Center, Highway 134 and Spur 449, Karnack, Texas.** Copies of the Proposed Plans and supporting documentation are available for public review at the Marshall Public Library, 300 S. Alamo, Marshall, Texas, 75670. Summaries of each of the sites, including discussion of various alternatives that were evaluated, are provided below.

LHAAP-46, the former Plant 2 production area, is located in the north-central portion of LHAAP and covers an area of approximately 190 acres. Plant 2 was used to produce pyrotechnic devices from February 1952 to 1956 and was reactivated to produce pyrotechnic and illumination devices from 1964 until approximately 1997. Three alternatives were evaluated for addressing the contaminated groundwater at the site: 1) no action; 2) monitored natural attenuation (MNA) and land use controls (LUCs); and 3) in situ bioremediation, short-term LUCs, and long-term monitoring (LTM). Based on available information, the preferred remedy is MNA and LUCs. The preferred remedy would utilize groundwater use restriction LUCs to protect human health by preventing human exposure to contaminated groundwater and MNA to return the contaminated water to its potential beneficial use as drinking water, wherever practicable.

LHAAP-49, a former Acid Storage Area, is located in the west-central portion of LHAAP and covers an area of approximately 30 acres. The site was used from 1942 to 1945 for formulation and storage of acids and acid mixtures in support of trinitrotoluene production. Based on available information, the preferred remedy at this time is no action. The recommendation is based on the existing data and determination of no unacceptable risk to human health or to ecological receptors at LHAAP-49.

LHAAP-50, a former sump water tank, is located in the north-central portion of LHAAP and covers an area of approximately 1 acre. Historically, LHAAP-50 contained a 47,000-gallon capacity aboveground storage tank which received wastewater from various industrial waste sumps from 1955 to 1988. Three alternatives were evaluated for addressing the contaminated groundwater and soil at the site: 1) no action; 2) soil - excavation, groundwater - MNA and LUCs; and 3) soil - excavation, groundwater - in situ bioremediation, MNA, and LUCs. Based on available information, the preferred remedy at this time is the second alternative: excavation and off-site disposal of perchlorate-contaminated soils, and MNA and LUCs for groundwater. The preferred remedy would ensure protection of human health by eliminating the soil-to-groundwater and soil-to-surface water pathways, implementing groundwater use restriction LUCs to prevent exposure to contaminated groundwater, and implementing MNA until groundwater cleanup levels are achieved.

LHAAP-35A(58), known as the Shops Area, is located in the north-central portion of LHAAP and covers approximately 11 acres. The Shops Area was established in 1942 as part of the installation's initial construction. Plant-operated laundry, automotive, woodworking, metalworking, painting, refrigeration, and electrical shops served the needs of the overall facility and became inactive in 1996 and 1997. Four alternatives were evaluated for addressing the contaminated groundwater at the site: 1) no action; 2) MNA with LUCs; 3) in situ bioremediation with short-term LUCs and LTM; and 4) in situ bioremediation followed by MNA and LUCs for the eastern plume, and MNA and LUCs for the western plume. Based on available information, the preferred remedy at this time is the fourth alternative: in situ bioremediation followed by MNA and LUCs for the eastern plume, and MNA and LUCs for the western plume. The preferred remedy would ensure protection of human health by 1) implementing groundwater use restriction LUCs which prevent human exposure to contaminated groundwater and 2) returning the contaminated water to its potential beneficial use as a drinking water, wherever practicable, through MNA and in situ bioremediation.

The former **Pistol Range** is located in the southeastern portion of LHAAP and covers an area of approximately 0.4 acres. The area was used by base security personnel as early as the 1950s and intermittently through 2004 as a small arms firing range. The target area was a natural, wooded slope at the eastern side of the site. Soil with contamination above industrial cleanup levels was excavated and disposed off site during a 2009 removal action. Based on available information, the preferred remedy at this time is no action. The recommendation is based on existing data and determination of no unacceptable risk to human health or to ecological receptors.

For further information or to submit written comments, contact: Dr. Rose M. Zeiler, Longhorn Army Ammunition Plant, P.O. Box 220, Ratcliff, Arkansas, 72951; phone number 479-635-0110 or e-mail rose.zeiler@us.army.mil.

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PUBLIC NOTICE
THE UNITED STATES ARMY INVITES PUBLIC COMMENT ON THE PROPOSED PLAN FOR ENVIRONMENTAL SITES LHAAP-35B (37) and -67, LONGHORN ARMY AMMUNITON PLANT, TEXAS
PUBLIC MEETING AT KARNACK COMMUNITY CENTER MARCH 9, 2010

The U.S. Army, as lead agency for environmental response actions at Longhorn Army Ammunition Plant (LHAAP), in partnership with Texas Commission on Environmental Quality and the U.S. Environmental Protection Agency Region 6, has reopened a proposed plan comment period for the following sites: LHAAP-35B (37) and LHAAP-67. Although the Proposed Plan identifies the preferred remedy for each of the sites, the U.S. Army welcomes the public's review and comments. The public comment period begins March 8, 2010 and concludes April 8, 2010. On Tuesday, March 9, 2010, from 7:00 to 9:00 p.m., the U.S. Army is inviting all interested parties to attend a public presentation of the proposed remedy for these sites and to ask questions and provide comments on the Proposed Plan. Questions, comments, and responses on the Proposed Plan will be recorded by a court reporter. This public meeting will be held at the Karnack Community Center, Highway 134 and Spur 449, Karnack, Texas. Copies of the Proposed Plan and supporting documentation are available for public review at the Marshall Public Library, 300 S. Alamo, Marshall, Texas, 75670. Summaries of each of the sites, including discussion of various alternatives that were evaluated, are provided below.

LHAAP-35B (37), the Chemical Laboratory, is located in the north-central portion of LHAAP and covers an area of 12.2 acres. LHAAP-35B (37) was built during the construction of Plant 2

2030 LEGAL NOTICES

Materials
Advertisement and Invitation for Bids

Harrison County will receive bids for materials for water line improvements near Karnack, Texas until 10:00 am on Thursday, March 11, 2010 at Karnack Water Supply, 943 T J Taylor Ave., Karnack, Texas. The bids will be publicly opened and read aloud at 10:00 am on Thursday, March 11, 2010 at Karnack Water Supply.

Bids are invited for the several items and quantities as detailed in the Bid Form which include but are not limited to the following: approximately 18,000 LF of 6" PVC Water Main, 211 - 3/4" Meter Assemblies, and necessary appurtenances.

Bid/Contract Documents, including Technical Specifications are on file at Karnack Water Supply, 943 T J Taylor Ave., Karnack, Texas. 903-679-3264.

A Bid Bond in the amount of 5% of the bid issued by an acceptable surety will be required with each bid. A certified check or bank draft payable to Harrison County or negotiable U.S. Government Bonds (as per value) may be submitted in lieu of the Bid Bond.

Harrison County reserves the right to reject any or all bids or to waive any informalities in the bidding. Bids may be held by Harrison County for a period not to exceed 60 days from the date of the bid opening for the purpose of reviewing the bids and investigating the bidders' qualifications prior to the contract award.

Harrison County - Richard Anderson, County Judge
February 15, 2010

All contractors and/or subcontractors who are debarred, suspended or otherwise excluded from or ineligible for participation on federal assistance programs may not undertake any activity in part or in full under this project.

NOTICE OF PUBLIC HEARING

Planning and Zoning Meeting: Monday, March 8, 2010 at 6:00 p.m.
City Commission Meeting: Thursday, March 11, 2010 at 6:30 p.m.
Location for Meeting: Commission Chambers, Marshall City Hall, 401 South Alamo, Marshall, Texas.

The following request will be considered at this meeting.

Z-10-03: A request to rezone the residual portion of OL 54 NW and 56 NW of the Peter Whetstone Addition, from R-2 Single Family Detached to PD-Planned Development.
Location: 1006 W. Grand & W. Burleson
Applicant: Southern Mississippi Development

All interested persons are invited to attend these meetings and will be given an opportunity to be heard in connection with these matters if they so desire. Inquiries may be referred to the Director of Planning at (903) 935-4457 or P. O. Box 698, Marshall, Texas 75671.

BY ORDER OF THE PLANNING AND ZONING COMMISSION AND THE CITY COMMISSION OF THE CITY OF MARSHALL, TEXAS.
Winston Robinson, Director of Planning

2040 LOST

LOST: Black Dachshund wearing red sweater **& a Chocolate Lab,** extremely huge, very friendly, missing from FM 1793. REWARD! for return Call 713-291-2244 or 713-922-1752

REWARD, LOST DOG JAKE, Last seen Wed. 2/10/10, 2700 Block of Lake Street. BROWN/BLACK DACHSHUND MIX 903 571-3815, LEAVE MSG

Need to Place an Ad? Just Call 903-935-7355

NOTICE TO CONTRACTORS
OFFICIAL PUBLIC NOTICE
HARRISON COUNTY, TEXAS
RFP NUMBER: 2010-01
PROPOSAL MUST BE CLEARLY MARKED: RFP #2010-01

Notice is hereby given that competitive sealed Proposals for the construction of a New Harrison County Jail Annex to be located in Marshall, Texas will be received by Amy Holdeman, CPPB, Harrison County Purchasing Agent, at the Harrison County Purchasing Department, 200 West Houston Street, 1st Floor, Room 107, Marshall, TX 75670 until **2:00 P.M. CST, MARCH 9TH 2010,** then publicly opened in the Harrison County Purchasing Department, 200 West Houston Street, 1st Floor, Room 107, Marshall, Texas, 75670. **Note: The Time-Date Stamp Clock located in the Purchasing Department will serve as the OFFICIAL CLOCK for the purpose of verifying the date and time of receipt of Proposals.**

Copies of plans and specifications may be obtained from the **HARRISON COUNTY PURCHASING DEPARTMENT at 200 West Houston St. 1st Floor, Room 107,** Marshall, Texas 75670. A refundable deposit of $125.00 in the form of a cashier's check, money order, or company check payable to "Harrison County" will be required for each set of Bidding Documents that is issued. **The**

2060 PERSONALS/ SPECIAL NOTICES

REWARD $1000
For information leading up to the arrest and conviction of person(s) responsible for the theft of 2 well service doghouses from pioneer well services. 903-553-9875

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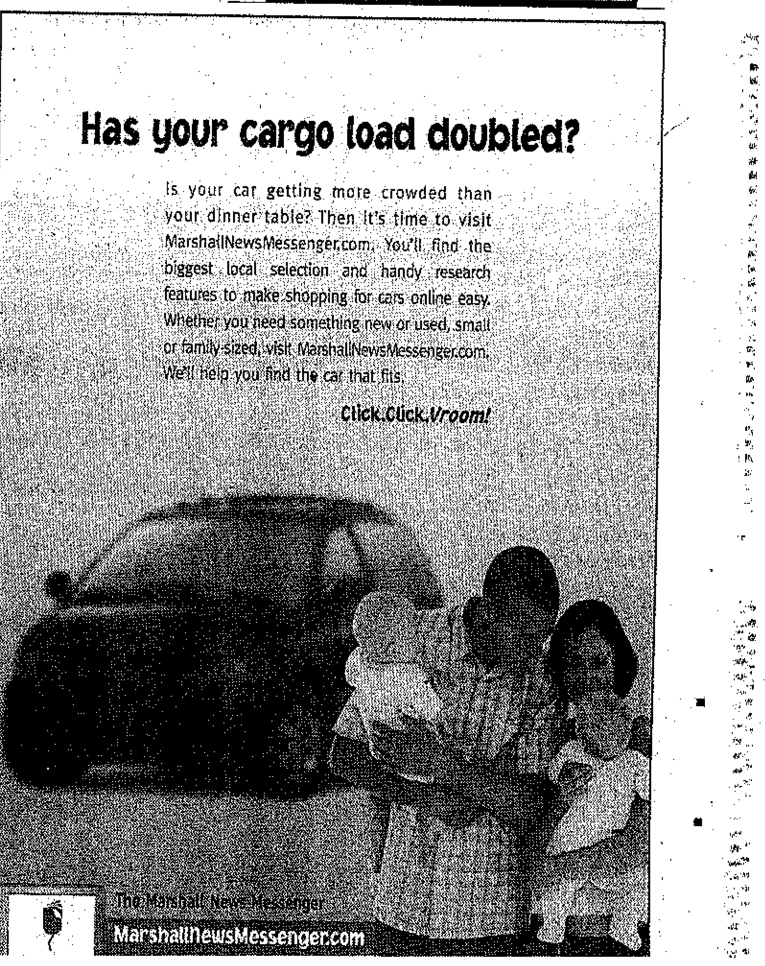

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ruiser, fuel injected,
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1100 PORT UTILITY

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PUBLIC NOTICE
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For further information or to submit written comments, contact: Dr. Rose M. Zeiler, Longhorn Army Ammunition Plant, P.O. Box 220, Ratcliff, Arkansas, 72951; phone number 479-635-0110 or e-mail rose.zeiler@us.army.mil.

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Harrison County - Richard Anderson, County Judge
February 15, 2010

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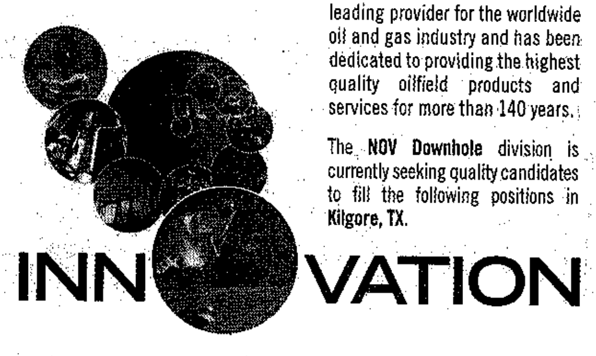

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MEDIA RELEASE

The United States Army has prepared Proposed Plans for five environmental sites at the Longhorn Army Ammunition Plant: LHAAP-46, -49, -50, -35A(58) and the former Pistol Range. The Proposed Plans are documents that describe the sites and their proposed remedies. The Proposed Plans were developed to facilitate public involvement in the remedy selection process.

Copies of the Proposed Plans and supporting documentation are available for public review at the Marshall Public Library, 300 S. Alamo, Marshall, Texas, 75670 beginning January 25, 2010. The public comment period has been extended to March 25, 2010.

An informal open forum was held on January 26, 2010. A second public meeting, with a formal question and answer session, will be held on March 9, 2010, from 7:00 to 9:00 p.m. at the Karnack Community Center, Highway 134 and Spur 449, Karnack, Texas 75661.

All written public comments on the Proposed Plans must be postmarked on or before March 25, 2010. Written comments may be provided to Dr. Rose M. Zeiler, Longhorn Army Ammunition Plant, P.O. Box 220, Ratcliff, Arkansas, 72951 or e-mailed to rose.zeiler@us.army.mil. E-mailed comments must be submitted by close of business on March 25, 2010.

①

Norris, Mary

From: faxadmin [faxadmin@shawgrp.com]
Sent: Monday, February 22, 2010 8:59 AM
To: Norris, Mary
Subject: Fax: Tx 'ok' Report

```
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                  -------Fax Transmission Report-------

To:               KTBS3 at 9033340288
Subject:          Media Release
Result:           The transmission was successful.
Explanation:      All Pages Ok
Pages Sent:       3
Connect Time:     0 minutes, 54 seconds
Transmit Time:    02/22/2010 08:57
Transfer Rate:    14400
Status Code:      0000
Retry Count:      0
Job Id:           8413
Unique Id:        ENTBTRFAX01_SMTPFaxQ_1002221456580388
Fax Line:         1
Fax Server:       127.0.0.1
```

Norris, Mary

From: faxadmin [faxadmin@shawgrp.com]
Sent: Monday, February 22, 2010 9:00 AM
To: Norris, Mary
Subject: Fax: Tx 'ok' Report

②

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To:               KMSS at 3186314194
Subject:          Media Release
Result:           The transmission was successful.
Explanation:      All Pages Ok
Pages Sent:       3
Connect Time:     1 minutes, 0 seconds
Transmit Time:    02/22/2010 08:58
Transfer Rate:    14400
Status Code:      0000
Retry Count:      0
Job Id:           8414
Unique Id:        ENTBTRFAX01_SMTPFaxQ_1002221458220389
Fax Line:         4
Fax Server:       127.0.0.1
```

Norris, Mary

From:	faxadmin [faxadmin@shawgrp.com]
Sent:	Monday, February 22, 2010 9:01 AM
To:	Norris, Mary
Subject:	Fax: Tx 'ok' Report

③

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To:	KSLA at 3186776705
Subject:	Media Release
Result:	The transmission was successful.
Explanation:	All Pages Ok
Pages Sent:	3
Connect Time:	0 minutes, 54 seconds
Transmit Time:	02/22/2010 08:59
Transfer Rate:	14400
Status Code:	0000
Retry Count:	0
Job Id:	8415
Unique Id:	ENTBTRFAX01_SMTPFaxQ_10022214593S0390
Fax Line:	5
Fax Server:	127.0.0.1

Norris, Mary

(4)

From: faxadmin [faxadmin@shawgrp.com]
Sent: Monday, February 22, 2010 9:02 AM
To: Norris, Mary
Subject: Fax: Tx 'ok' Report

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To:	KTBS3 at 3182194680
Subject:	Media Release
Result:	The transmission was successful.
Explanation:	All Pages Ok
Pages Sent:	3
Connect Time:	0 minutes, 54 seconds
Transmit Time:	02/22/2010 09:00
Transfer Rate:	14400
Status Code:	0000
Retry Count:	0
Job Id:	8416
Unique Id:	ENTBTRFAX01_SMTPFaxQ_1002221500170391
Fax Line:	7
Fax Server:	127.0.0.1

Norris, Mary

(5)

From: faxadmin [faxadmin@shawgrp.com]
Sent: Monday, February 22, 2010 9:03 AM
To: Norris, Mary
Subject: Fax: Tx 'ok' Report

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To:                 KETK at 9035612459
Subject:            Media Release
Result:             The transmission was successful.
Explanation:        All Pages Ok
Pages Sent:         3
Connect Time:       1 minutes, 18 seconds
Transmit Time:      02/22/2010 09:01
Transfer Rate:      14400
Status Code:        0000
Retry Count:        0
Job Id:             8417
Unique Id:          ENTBTRFAX01_SMTPFaxQ_1002221500590392
Fax Line:           4
Fax Server:         127.0.0.1
```

LONGHORN ARMY AMMUNITION PLANT,

Karnack, Texas

MONTHLY MANAGERS' MEETING

AGENDA

DATE:	Thursday, 25 February 2010
TIME:	3:00 p.m.
PLACE:	Teleconference, Call-in-Number Courtesy of Shaw: 866-797-9304, Passcode 4155734

Welcome **RMZ**

Action Items:

Army

- Provide 2009 IAP hardcopy to the library.

EPA

- **EPA –** Provide analytical results on IDW from recent groundwater sampling

Programmatic Issues - Comment Response vs. Comment Resolution of Public Comment **RMZ**

Defense Environmental Restoration Program (DERP) PBC Update **PS/GJ**

- Status of Select Documents
  - LHAAP-17, LHAAP-29, and LHAAP-16 DF Feasibility Studies
  - LHAAP-47 and LHAAP-18/24 Draft Feasibility Studies
- Groundwater Treatment Plant

DERP Total Environmental Restoration Contract Update

- Re-opened Public Comment Period for LHAAP-37/67 **RMZ**

MMRP **JRL/AW**

Army Position Memo to TCEQ

Other Issues **RMZ**

- Sitewide Schedule Review
- RAB Tour Rescheduled
- IAP Schedule

Adjourn

Shaw Environmental, Inc.

Subject: **Draft Final Minutes, Monthly Managers Meeting, Longhorn Army Ammunition Plant (LHAAP)**

Location of Meeting: **Teleconference**

Date of Meeting: **February 25, 2010; 3:00 PM – 4:00 PM**

Meeting Participants:

BRAC:	Rose M. Zeiler
USAEC:	Matthew Mechenes
USACE-Tulsa:	Aaron Williams, John Lambert
Shaw:	Praveen Srivastav, Greg Jones, Kay Everett, Susan Watson
USEPA Region 6:	Steve Tzhone
TCEQ:	Fay Duke, Dale Vodak
USFWS:	Paul Bruckwicki, Barry Forsythe
USGS:	Kent Becher

Previous Action Items

Army

- Provide 2009 IAP hardcopy to the library. *(completed)*

EPA

- Provide analytical results on IDW from recent groundwater sampling at MMRP sites. *(in progress)*

Steve Tzhone indicated that EPA was about to sign the ESD for LHAAP-18/24, but found an editorial change. Rose Zeiler said that BRAC had already signed it as is and that the document should not be changed at this stage for a page number change and an acronym. Fay Duke said she also had concern about changing it at this point. Steve said that he would get the document back to the Army tomorrow or Monday.

Programmatic Issue

Comment Response vs. Comment Resolution of Public Comment Rose M. Zeiler

The handling of the comment responsiveness stage was discussed regarding when comments or questions received from the public during the current and future public comment period should be answered. The discussion centered on whether current email questions should be answered now or after the comment period is over and all comments have been received. Steve said that there is not a requirement to answer them immediately. The requirement is that verbatim information be available for people to refer to, and that a responsiveness summary provides answers in a condensed manner. However, Steve said that questions could be answered as they are given. By providing a transcript to the public, he indicated that this may mitigate receiving questions later that are similar in nature. John Lambert suggested that these questions be answered at the next meeting if possible.

Abbreviated Defense Environmental Restoration Program (DERP) PBC Update

Status of Select Documents Praveen Srivastav

Praveen Srivastav went over select documents from the document status/environmental sites table.

- LHAAP-16: The responses to comments (RTCs) for the Draft Final Feasibility Study Addendum, Rev 01 for LHAAP-16 is in regulatory review. Shaw provided a tracked-changes document showing the revisions.
- LHAAP-17: The RTCs for the Draft Final Feasibility Study for LHAAP-17 is also in regulatory review. Shaw is resolving a regulatory comment on the trigger for shutting down groundwater extraction in one of the alternatives.
- LHAAP-18/24: Army comments have been received for the Draft Feasibility Study for LHAAP-18/24 and resolution is in progress.
- LHAAP-29: Revised RTCs for the Draft Final Feasibility Study for LHAAP-29 have been reviewed by Army and were under regulatory review as of 02/11/10.
- LHAAP-47: The Draft Final Feasibility Study for LHAAP-47 is in progress.

Rose Zeiler indicated concern over meeting the enforceable schedule stating that Shaw would not be able to meet the schedules agreed upon by all parties for LHAAP-17 and LHAAP-29. She said that a request for a schedule extension will need to be made and asked if we are scheduling enough time for regulatory reviews. The schedule for LHAAP-16 has already slipped. She said that resolution of key issues on these sites is complicated. The time it takes to resolve these issues may make the schedules for these sites slip further. Steve indicated that more time can be buffered into the extension. If it doesn't get pushed out of this fiscal year, he did not see a problem with some slippage and suggested in the extension letter to add all known sites that may be affected by the resolution issues. Rose Zeiler stated that schedule slippage is a problem for Army in that with passing time, the options become less and less feasible within the current contract constraints. She emphasized that the whole team must work together to keep the schedule from slipping anymore. John Lambert reiterated that it doesn't appear that any FY10 sites will cross from FY10 to FY11 at this time. It was discussed that if a site crosses this line (whereby the ROD will require an extension), then HQ would be involved.

Rose asked where LHAAP-17 was at this time. Praveen indicated that a response to the Army will be sent tomorrow (on Friday) and if Army had a chance to look at it and it was okay, it could go to the regulators as early as next week. Steve said that he would check with Terry (Burton) regarding EPA comments on LHAAP-29 and confirm if next week is reasonable to get back. Fay Duke said that she was finishing up the document for LHAAP-16 and has not looked at the LHAAP-29 responses yet. She said she would need to organize her comments by putting them in a table and would send out today. Rose stated that Shaw does not have a record of EPA providing concurrence or non-concurrence on Site 16 RTCs from last fall. Steve stated that he would check his file and provide either documentation of his response or would make a response.

Rose suggested that if there are any lingering issues regarding these FSs that the stakeholders could meet before or after March’s monthly manager’s meeting and work those issues at that time.

Looking at the schedule, John said that the FS completion for LHAAP-18/24 is scheduled for May 2010. That is only 3 months away and there needs to be time to resolve comments. John sees slippage for sites LHAAP-16, -17, and -29. He indicated that extension had already been requested for LHAAP-16, and it looks like LHAAP-17 and LHAAP-29 will not meet February FS deadline. Steve said that one extension letter can be issued electronically for all impacted sites and that he can send back an approved response electronically for the extensions.

Fay asked when the 5-year review would start. Steve said the trigger is the actual completion date of the Remedial Action or RA or for the on-site construction completion date of “RIP” (remedy in place), the terminology the Army uses. Fay asked if the next 5-yr review is 2014. Steve said the first 5-year was actually September 23, 2002 and the second 5-review was 2007 and that would make the next one 2012. He indicated, however, that groundwater issues regarding the 2007 review were resolved in 2008. There was concern that the definition refers to the start of RA; John said that this might be interpreted as the initiation of the RA operations. Fay noted that FSs typically say that monitoring will be performed until the first 5-year review. Since, there is already a review schedule for LHAAP-16 and 18/24 and Army wants to consolidate 5-year reviews, the timing of the first 5-year review for a site could shorten monitoring time. Fay said that the FSs should tie monitoring to the first five years, rather than to 5-year reviews. Rose agreed. And noted that this would not be an issue because the next review date has been set from the last and will continue every 5 years to include all sites with RODs even those less than 5 years old.

Groundwater Treatment Plant Update **Greg Jones**

Greg Jones noted that the treatment plant operated normally at 180 to 200 gallons per minute in the metals and volatiles treatment units, and 15 to 18 gpm in the FBR. Greg noted that one week, cold weather hampered operations somewhat, in particular the sodium hydroxide line. He also noted that some extraction pumps at LHAAP-16 and LHAAP-18/24 have been changed out, resulting in improved production rates.

DERP Total Environmental Restoration Contract (TERC) Update **Rose Zeiler**

LHAAP-37/67 – Draft Final ROD Status

Rose indicated that an explanatory email had been sent out regarding the reopening of a comment period for these two sites. The Army will hold the public meeting for the Proposed Plan for LHAAP-37/67 on March 9. Army said that they will be using six posters for the two sites during the public meeting presentation. Steve asked for a copy of the posters used and copies of the public notice which was published in the Marshall paper on February 21 and February 22 in the Shreveport paper.

MMRP **John Lambert**

Army Position Memo to TCEQ

Fay said that she and Steve needed to discuss this memo.

Other Issues

Sitewide Schedule Review

The amended schedule will be provided by Shaw. This review will be conducted in May.

RAB Tour Rescheduled

Rose indicated she had heard from two RAB members regarding the tour schedule on Monday, March 8th or Tuesday, March 9th. One member favored Monday evening at 4 to 6 pm, while the other preferred Tuesday afternoon at 3 to 5 pm. Rose wanted to offer a third alternative, possibly 9 to 11 am Tuesday morning. She noted that in case of a conflict, the tour would be held at a time that Paul Fortune could attend because he is the one who requested it. She will send a follow up email to the RAB.

IAP Schedule

March 15th through the 29th is the data collection period. After this, the schedule goes to the regulators for their review. They will have two weeks for review and to get any comments back to the Army.

Paul Bruckwicki confirmed with Rose that Jim Stockey had contacted the Army about fire management at the Refuge. Paul indicated that Jim Stockey with the Fire Management Office burns brush and vegetation at the magazines and other isolated areas approximately once every 3 years.

Paul asked Rose about the UXO safety video that was made and when USFWS would get a copy for use at the Refuge for visitor education. The video was finalized with the MMRP report. Rose said she would check into it, and asked if USFWS had a preference for delivery. Paul said they had means to retrieve it from an FTP site if a link could be provided. Paul also asked about the associated brochures that were developed for this purpose as USFWS would like to get those too. John said he would take of it.

Meeting Adjourned

Action Items
EPA

- Provide analytical results on IDW from recent groundwater sampling.

Shaw

- Provide regulators with a copy of the media release and public notice published in the local newspapers.

Army

- Provide UXO video and brochures to USFWS for the Caddo Lake Natural Wildlife Refuge.
- Provide regulators with a copy of the media release and public notice that is published in the local newspapers.

Shaw® Shaw Environmental, Inc.

Status of Sites and Technical Documents
Longhorn Army Ammunition Plant – PBC Contract
February 25, 2010

No.	Document in Progress	Submittal Date	Army	Regulator	Next Submittal	Expected Date	Army	Regulator	Comment Resolution	Status	Remarks
1	Draft Rev 01Decision Document, LHAAP-02	10/01/09	x		Draft Final	03/11/10	x	x	In progress	Army is reviewing a track-changes version prior to submittal to TCEQ.	DD identifies limited groundwater monitoring
2	Draft Soil Removal Work Plan, LHAAP-03	03/18/10	x							In preparation	
3	Draft Completion Report, LHAAP-04	01/21/10	x							In Army review	
4	County Notification LHAAP-06, 07, 51, 55, 64, 66, 68	01/30/10	x							With Army for signatures	
5	Draft Final Feasibility Study Addendum, Rev 01, LHAAP-16	7/3/08	x	x	Final	03/12/10	x	x	In progress	RTCs reviewed by regulators. Track-change document under review by EPA and TCEQ	
6	Draft Final Feasibility Study, LHAAP-17	4/14/09	x	x	Final	03/11/10	x	x	In progress	RTCs are in regulatory review. Shaw is resolving one comment.	
7	Draft Feasibility Study, LHAAP-18/24	3/3/09	x		Draft Final	03/25/10	x	x	In progress	Army comments received. Resolution in progress.	
8	Draft Final Feasibility Study, LHAAP-29	03/11/09	x	x	Final	03/30/10	x	x	In progress	RTCs in regulatory review as of 02/11/10.	

Status of Sites and Technical Documents
Longhorn Army Ammunition Plant – PBC Contract
February 25, 2010

No.	Document in Progress	Submittal Date	Army	Regulator	Next Submittal	Expected Date	Army	Regulator	Comment Resolution	Status	Remarks
9	Final Focused Feasibility Study, LHAAP-46	10/28/09	x	x					Resolution complete	Final FS submitted	
10	Final Proposed Plan, LHAAP-46	01/12/10	x	x					Resolution complete	Final PP submitted	
11	Draft Record of Decision, LHAAP-46	03/05/10	x							In preparation	
12	Draft Focused Feasibility Study, LHAAP-47	12/23/08	x		Draft Final	03/18/10	x	x	In progress		
13	Final Proposed Plan, LHAAP-49	01/07/10	x	x					Resolution complete	Final PP submitted	
14	Draft ROD, LHAAP-49	10/20/09	x		Draft Final	03/25/10	x	x	In progress	Initial comments received from Army. Proposed revisions to be submitted after formal public meeting.	
15	Final Feasibility Study, LHAAP-50	12/17/09	x	x					Resolution complete	Final FS submitted	
16	Final Proposed Plan, LHAAP-50	01/19/10	x	x					Resolution complete	Final PP submitted	
17	Draft Record of Decision, LHAAP-50	03/12/10	x							In preparation	

Status of Sites and Technical Documents
Longhorn Army Ammunition Plant – PBC Contract
February 25, 2010

No.	Document in Progress	Submittal Date	Army	Regulator	Next Submittal	Expected Date	Army	Regulator	Comment Resolution	Status	Remarks
18	Final Feasibility Study, LHAAP-58	12/21/09	x	x					Resolution complete	Final FS submitted	
19	Final Proposed Plan, LHAAP-58	01/19/10	x	x					Resolution complete	Final PP submitted	
20	Draft Record of Decision, LHAAP-58	03/19/10	x							In preparation	
21	County Notification, LHAAP-60	01/30/10	x							With Army for signatures	
22	Draft Final Decision Document, LHAAP-35/36	07/15/09	x	x	Final	3/18/10	x	x	In progress	TCEQ comment received on DF DD. Army has reviewed responses; Shaw is addressing their input.	
23	Final Completion Report, Pistol Range	01/12/10	x	x					Resolution complete	Final FS submitted	
24	Final Proposed Plan, Pistol Range	01/12/10	x	x					Resolution complete	Final PP submitted	
25	Draft Record of Decision, Pistol Range	02/08/10	x		Draft Final	03/25/10	x	x		Army is currently reviewing the draft ROD.	

Longhorn AAP Site Tour March 9, 2010
10:00 am.

	Name	Organization	Phone	E-mail
1.	Praveen Srivastav	Shaw	281-531-3188	praveen.Srivastav ~~psrivastav~~@shawgrp.com
2	Fay Duke	TCEQ	512-239-2443	fduke@tceq.state.tx.us
2.	Greg Jones	Shaw	281-531-3172	greg.j.jones@shawgrp.com
3	Paul Fortune	RAB	903.679.3949	plfortune@hotmail.com
4	RON HURDEN	ETT	903-240-8558	Van@easttexastowns.com
5	Doug Parker	GCLA	903-679-3650	parkerde@windstream.net
6	JIM LAMBRIGHT		903-789-2121	lakepAIR@yahoo
7	Charles Gillis	FRIENDS	903-938-7311	cgillis@prysm.net
8	Nigel Shivers	RAB	903-679-4128	nigelshivers@yahoo.com
9	Gary Eudsley	Friends		
10	John Lambert	USACE	918-669-4992	john.r.lambert@usace.army.mil
11	Tom Walker	GCLA	903-665-8279	twalkercaddolake@gmail.com
12	Dale Vodak	TCEQ	903 555-5147	dvodak@tceq.state.tx.us
13	Paul Bruckwicki	USFWS	903 679 9144	
14	Aaron Williams	USACE	918-669-4915	aaron.k.williams@usace.army.mil
15	Rose M. Zeiler	LHAAP BRAC	479-635-0110	rose.zeiler@us.army.mil
16				
17				
18				
19				
20				
21				
22				
23				

LONGHORN ARMY AMMUNITION PLANT,

Karnack, Texas

MONTHLY MANAGERS' MEETING

AGENDA

DATE: Tuessday, 9 March 2010
TIME: 2:00 p.m.
PLACE: Caddo Lake National Wildlife Refuge Office Conference Room
Teleconference, Call-in-Number Courtesy of Shaw: 866-797-9304, Passcode 4155734

Welcome **RMZ**

Action Items:

EPA

- Provide analytical results on IDW from recent groundwater sampling.
- **18/24 ESD -** Status

Shaw

- Provide regulators with a copy of the media release and public notice published in the local newspapers.

Army

- Provide UXO video and brochures to USFWS for the Caddo Lake Natural Wildlife Refuge.
- Provide regulators with a copy of the media release and public notice that is published in the local newspapers.

Defense Environmental Restoration Program (DERP) PBC Update **PS/GJ**

- Document Status/Environmental Sites (Table)
- Groundwater Treatment Plant
- Recordations

DERP Total Environmental Restoration Contract Update

- Re-opened Public Comment Period for LHAAP-37/67
- Recordations **RMZ**

MMRP **JRL/AW**

Army Position Memo to TCEQ – Status
Removal Action Report - Status

Other Issues **RMZ**

- Sitewide Schedule Review
- RAB Tour Recap
- IAP Schedule
  March 22 – End Data Gathering
  April 5 - Refresh IAP & send to regulators for review
  April 26 – Validation Call – end of IAP update

Adjourn

Shaw® Shaw Environmental, Inc.

Subject: **Draft Final Minutes, Monthly Managers Meeting, Longhorn Army Ammunition Plant (LHAAP)**

Location of Meeting: **Caddo Lake National Wildlife Refuge Office Conference Room**

Date of Meeting: **March 9, 2010; 2:00 PM – 4:30 PM**

Meeting Participants:

BRAC: Rose M. Zeiler
USAEC: Matthew Mechenes (teleconference)
USACE-Tulsa: Aaron Williams, John Lambert
Shaw: Praveen Srivastav, Greg Jones
USEPA Region 6: Steve Tzhone, Rich Mayer
TCEQ: Fay Duke, Dale Vodak
USFWS: Paul Bruckwicki
USGS: Kent Becher

Action Items:

EPA

- Provide analytical results on IDW from recent groundwater sampling. *Completed.* Rich Mayer said that Shaw staff had accepted the purge water results, and the water had been disposed at the GWTP in December. He noted that Shaw and ECC had helped with access during the sampling event.
- **LHAAP-18/24 ESD –** Status
  Steve Tzhone noted EPA had some minor changes on the ESD, including an item on the acronym list, a duplicate page number, etc. The Army indicated that they would look over these suggested changes.
- **LHAAP-18/24 Sampling –** Status
  Kent Becher said that 89 results exceeded standards. USGS is working on the report. A hydrologist in Austin is preparing contours. Kent thanked Shaw for related water level data. Kent also passed along some data questions to Shaw regarding results from 2006 that needed clarification. Shaw said they would get back to Kent with a reply.

- **5-Yr Review Start Date**
  Steve clarified a discussion in the previous meeting regarding the start of the 5-year review period. He said that it is tied to start of on-site construction. However, in CERCLIS, it is recorded as completion. Steve sent an email on 25 February 2010 with text that he asked be included in the minutes:
  "Five-year Review Completes is a program measure. Five-year review completes must be planned and reported site-specifically in CERCLIS. ***The trigger for a statutory five-year review is the actual completion date of the RA on-site construction."*** [RA is "Remedial Action."]

  Steve also mentioned the Targets Harmonization Working Group. He said this group within EPA was established to negotiate schedule dates on Federal sites. They will be meeting with 12 or 13 different Federal agencies. In the future, the group may ultimately be responsible for setting schedule dates. The group would be able to adjust dates per funding priorities.

Shaw

- Provide regulators with a copy of the media release and public notice published in the local newspapers. *Completed.*

Army

- Provide UXO video and brochures to USFWS for the Caddo Lake Natural Wildlife Refuge. *Completed.*

- Provide regulators with a copy of the media release and public notice that is published in the local newspapers. *Completed.*

Defense Environmental Restoration Program (DERP) PBC Update

- Document Status/Environmental Sites (Table)
  Rose Zeiler noted the importance of bringing up any schedule issues as the group goes over the individual sites and documents. Army's enforceable schedule must be met and any difficulty in meeting the schedule must be brought to Army's attention as soon as possible, including any regulator review times. There are a number of sites that are particularly tight, and those include Sites 17 and 29.
  Praveen went over the document status/environmental sites table.
  - LHAAP-02: The Draft Final Decision Document for LHAAP-02 is in comment resolution with the Army.
  - LHAAP-03: The draft work plan for soil removal is in preparation.
  - LHAAP-04: The Draft Completion Report for LHAAP-04 is in Army review.
  - LHAAP-06, -07, -51, -55, -64, -66, and -68: The survey data with accompanying affidavits for LHAAP-06, LHAAP-07, LHAAP-51, LHAAP-55, LHAAP-64, LHAAP-66, and LHAAP-68 were provided to the Army for signatures. Army anticipates signatures on March 10th. Then Shaw will file county notifications.
  - LHAAP-16: The response to comments (RTCs) for the Draft Final Feasibility Study Addendum, Rev 01 for LHAAP-16 is in regulatory review. Shaw provided a track-

changed document showing the revisions. Steve said that EPA is monitoring responses to TCEQ comments. EPA will concur if these are acceptable to Terry Burton. Terry's remaining concern was sample frequency. John indicated that something in writing would still be good. Regarding the outstanding TCEQ issues:

  - Miscellaneous COCs that occasionally exceed comparison levels will be monitored for a few years, and then removed from further monitoring if results are acceptable (i.e., no active remedy is currently indicated).
  - It was agreed to simply drop the Compliance Values.
  - The erratic nature of some of the results at LHAAP-16 will need to be examined further during remedial design.

- LHAAP-17: Shaw and Army are resolving a regulatory comment on the trigger for shutting down groundwater extraction in one of the alternatives. There was a lengthy discussion of this issue and its possible impact on schedule. Specifically, Rose indicated Army's concern that pumping followed by 2 years of MNA evaluation would not leave time to implement a contingency within Shaw's contract period. Fay noted that it was not necessary to evaluate the full 2 years if results were poor. Steve stated that the 2 years was an "at least" time frame for demonstrating if MNA was successful. The regulators indicated agreement with the 20,000 ug/L perchlorate trigger. This was based on Shaw agreeing to proceed with bioremediation if the trigger was not met. Also, if the trigger is met and Shaw proceeds with MNA, then the MNA needs a contingency. This appeared to be generally agreed by the meeting participants as a whole. Army said they would provide Shaw with an immediate response to Shaw's latest email on this topic.
- LHAAP-18/24: Responses on the Draft Feasibility Study are being resolved with the Army.
- LHAAP-29: Revised RTCs for the Draft Final Feasibility Study for LHAAP-29 were submitted to the regulators. Fay said that TCEQ had several comments:
  - TCEQ feels that SAM modeling cannot be used on waste material, but only on contaminated media. Since the contents of the process piping is a waste rather than a contaminated medium (e.g., contaminated soil), SAM modeling does not apply to the contents. Steve commented that Terry Burton also did not care for the modeling. Praveen said that Shaw would eliminate the SAM modeling. Steve also noted that Appendix E (modeling text) will need to be dropped per this discussion.
  - The transite pipe itself is a waste because it contains asbestos. As waste left in place, the pipe location would need to be deed recorded.
  - Reference to the Remedial Facility Assessment is moot. The RFA is a visual check, so it has no basis at this point. The RFA quote (within Army Comment #1) should not be used.
  - In general, Fay felt that we were much closer to completing this document prior to the latest responses. She advised that Shaw flush the line until getting a clean sample. Then we just need to be able to handle the water.
  - Regarding EPA comment #2, Fay said that the COCs cannot be eliminated. Steve said that the COCs screening should be patterned after the earlier discussion on LHAAP-16.

    - TCEQ disagreed with the approach to ARARs as described in the LHAAP-29 responses. In particular, Fay was concerned about ARARs for off-site activities. Army said that the interpretation stemmed from recent Army training regarding ARARs. Army explained that although not all requirements are considered ARARs, those requirements would still be met. The difference is that the alternatives are evaluated through compliance with ARARs and other requirements should not be part of that evaluation. Steve said that this seemed like a programmatic issue. Matt Mechenes forwarded the training information to Steve. Steve said he would discuss with ARARs experts at EPA and respond.
  - LHAAP-46: The Final Proposed Plan for LHAAP-46 was submitted January 12, 2010. This site is one of the subjects of the public meeting tonight. Several comments have already been received, including some from Caddo Lake Institute (CLI). Praveen asked about the proper procedure of the response. Steve said that responses could be provided separately, but that they must ultimately be summarized in the Responsiveness Summary. Praveen said that the CLI comments were very detailed and that written responses would be provided. However, these would not be available by the meeting tonight. He also noted that the proposed remedy was developed to handle the uncertainties that were being mentioned.
  - LHAAP-47: Responses on the Draft Feasibility Study for LHAAP-47 are being resolved with Army.
  - LHAAP-49: The Final Proposed Plan for LHAAP-49 was submitted January 8, 2010. This site is a subject of the public review meeting tonight.
  - LHAAP-50: The Final Proposed Plan for LHAAP-50 was submitted January 19, 2010. This site is a subject of the public review meeting tonight.
  - LHAAP-58: The Final Feasibility Study for LHAAP-58 was submitted December 16, 2009. The Final Proposed Plan for LHAAP-5 was submitted January 19, 2010. This site is a subject of the public review meeting tonight.
  - LHAAP-60: Same status as -06, -07, etc.
  - LHAAP-35/36: The RTCs for the Draft Final Decision Document for LHAAP-35/36 are in progress. Praveen noted that the Final Data Evaluation Report needs correction for a discrepancy between sites 37 and 47. Fay suggested that this be handled as a letter to the regulators describing the correction
  - Pistol Range: The Final Proposed Plan for the Pistol Range was submitted January 12, 2010. This site is a subject of the public review meeting tonight.

- Groundwater Treatment Plant
  Greg Jones noted that the treatment plant operated normally since the last monthly managers meeting - 180 to 200 gallons per minute in the metals/volatiles treatment units and 15 to 18 gpm in the FBR.

- Recordations
  Rose said that she would be providing the signed and notarized papers to Shaw the next morning.

DERP Total Environmental Restoration Contract Update

- Re-opened Public Comment Period for LHAAP-37/67
  Army noted that April 8 is the end of the public comment period.
- Recordations
  This topic was not discussed.

MMRP

Steve indicated that TCEQ and EPA need to finish discussing this.
John Lambert noted that the Removal Action Report was issued to the regulators as final. Currently, Army is awaiting regulatory responses from EPA and TCEQ on the Draft MC Data Summary Report and a Historical Perchlorate Summary Memorandum. He said that the MEC area will have institutional controls, and that the recordation was on hold until completion of the ROD.

Other Issues

- Site-wide Schedule Review
  Army noted that the schedule was sent to everyone.
- RAB Tour Recap
  John described the tour (at 10am) as a “cordial event.” Eight members of the public attended.
  A question was brought up regarding two congressional inquiries that are in progress. Rose said that the Army has not received any inquiries.
- IAP Schedule
  As noted on the agenda, the schedule is:
    - March 22 – End Data Gathering
    - April 5 - Refresh IAP & send to regulators for review
    - April 26 – Validation Call – end of IAP update

  Army noted that the IAP will need to be updated per the latest schedule information, and that LHAAP is a priority site because it is a transfer site.

Meeting Adjourned

Action Items

- EPA
  EPA will examine Army training materials on ARAR and provide an opinion on whether there are problems related to application to off-site responses.

Shaw Environmental, Inc.

Status of Sites and Technical Documents
Longhorn Army Ammunition Plant – PBC Contract
March 09, 2010

No.	Document in Progress	Submittal Date	Army	Regulator	Next Submittal	Expected Date	Army	Regulator	Comment Resolution	Status	Remarks
1	Draft Rev 01Decision Document, LHAAP-02	10/01/09	x		Draft Final	03/11/10	x	x	In progress	Army is reviewing a track-changes version prior to submittal to TCEQ.	DD identifies limited groundwater monitoring
2	Draft Soil Removal Work Plan, LHAAP-03	03/18/10	x		Draft	03/30/10	x			Removal action work plan in preparation	
3	Draft Completion Report, LHAAP-04	01/21/10	x							In Army review	
4	County Notification LHAAP-06, 07, 51, 55, 64, 66, 68	01/30/10	x							With Army for signatures	
5	Draft Final Feasibility Study Addendum, Rev 01, LHAAP-16	7/3/08	x	x	Final	03/30/10	x	x	In progress	RTCs reviewed by regulators. Track-change document under review by EPA and TCEQ. TCEQ comments received 2/25/10. EPA comments pending.	
6	Draft Final Feasibility Study, LHAAP-17	4/14/09	x	x	Final	03/30/10	x	x	In progress	RTCs are in Army review	
7	Draft Feasibility Study, LHAAP-18/24	3/3/09	x		Draft Final	03/30/10	x	x	In progress	Army comments received. Resolution in progress.	
8	Draft Final Feasibility Study, LHAAP-29	03/11/09	x	x	Final	03/30/10	x	x	In progress	RTCs in regulatory review as of 02/11/10.	

Status of Sites and Technical Documents
Longhorn Army Ammunition Plant – PBC Contract
March 09, 2010

No.	Document in Progress	Submittal Date	Army	Regulator	Next Submittal	Expected Date	Army	Regulator	Comment Resolution	Status	Remarks
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10	Draft Focused Feasibility Study, LHAAP-47	12/23/08	x		Draft Final	03/30/10	x	x	In progress		
11	Draft ROD, LHAAP-49	10/20/09	x		Draft Final	04/15/10	x	x	In progress	Initial comments received from Army. Proposed revisions to be submitted after formal public meeting.	
12	Draft Record of Decision, LHAAP-50	03/30/10	x							In preparation	
13	Draft Record of Decision, LHAAP-58	03/30/10	x							In preparation	
14	County Notification, LHAAP-60	01/30/10	x							With Army for signatures	
15	Draft Final Decision Document, LHAAP-35/36	07/15/09	x	x	Final	4/15/10	x	x	In progress	TCEQ comment received on DF DD. Army has reviewed responses; Shaw is addressing their input.	
16	Draft Record of Decision, Pistol Range	02/08/10	x		Draft Final	04/15/10	x	x		Army is currently reviewing the draft ROD.	

Shaw™

LONGHORN ARMY AMMUNITION PLANT
MONTHLY MANAGERS' MEETING

Location	Longhorn Army Ammunition Plant, Karnack, Texas
Date	9-Mar-2010 **Time** ~~1:30 AM~~ 2:00 P.M.

ATTENDEES

Name (printed)	Signature	Organization	Phone	E-mail
Longhorn Team Members				
Rose M. Zeiler		BRAC	(479) 635-0110	rose.zeiler@us.army.mil
Matthew Mechenes	on Phone	USAEC	(410) 436-1505	matthew.mechenes@us.army.mil
Aaron Williams	Aaron Williams	USACE, Tulsa	(918) 669-4915	aaron.k.williams@usace.army.mil
John Lambert	John Lambert	USACE, Tulsa	(918) 669-4992	john.r.lambert@SWT03.usace.army.mil
Stephen Tzhone		USEPA, Dallas	(214) 665-8409	tzhone.stephen@epa.gov
Raji Josiam		USEPA, Dallas	(214) 665-8529	josiam.raji@epa.gov
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Kay Everett		SHAW, Houston	(281) 531-3121	kay.everett@shawgrp.com
Greg Jones		SHAW, Houston	(281) 531-5172	greg.n.jones@shawgrp.com
Kent Becher	Kent Becher	USGS, Dallas/FW	(817) 253-0356	Kdbecher ~~@sbcglobal.net~~ @usgs.gov
Rich Meyer	EPA Dallas	USEPA	on Phone	—
Dale Vodak	TCEQ Tyler	TCEQ Tyler	903 535 5147	dvodak@tceq.state.tx.us

LONGHORN ARMY AMMUNITION PLANT
RESTORATION ADVISORY BOARD
Karnack, Texas
(479) 635-0110

February 22, 2010

Distribution (one copy each)

Paul Fortune
Post Office Box 16
Karnack, Texas 75661

Judith Johnson
1635 Dorough Road
Karnack, Texas 75661

Tom Walker
500 Private Rd 7222
Jefferson, Texas 75657

Nigel R. Shivers
Post Office Box 558
Karnack, Texas 75661

Dear LHAAP RAB Member,

The next Restoration Advisory Board (RAB) meeting will be held on Tuesday, March 9, 2010, from 5:45 to 6:45 p.m. at the Karnack Community Center, Highway 134 and Spur 449, Karnack, Texas 75661. Following this meeting, a second Public Meeting on seven environmental sites will begin. We hope that you can attend both meetings. If you have any questions, please do not hesitate to contact me.

Shaw Environmental, Inc. (Shaw) is the contractor supporting the U.S. Army environmental restoration activities at the Longhorn Army Ammunition Plant (LHAAP), and will be coordinating the RAB meeting. A tentative agenda for both meetings are attached.

Regards,

Rose M. Zeiler

Dr. Rose Zeiler
Department of the Army
Longhorn Army Ammunition Plant
Box 220
Ratcliff, Arkansas 72951

LONGHORN ARMY AMMUNITION PLANT
RESTORATION ADVISORY BOARD
Karnack, Texas
(479) 635-0110

AGENDA

DATE: Tuesday, March 9, 2010
TIME: 5:45 – 6:45 PM
PLACE: Karnack Community Center, Karnack, Texas

05:45 Welcome {RMZ & PF}

05:50 Open items {RMZ}

05:55 Programmatic Issues
    Site Status Summary

06:05 Defense Environmental Restoration Program (DERP) Performance Based Contract (PBC) Update {Shaw}
    Groundwater Treatment Plant (GWTP) Update
    Documents Status/ Environmental Sites
    Decision Document for LHAAP-02

06:15 DERP Total Environmental Restoration Contract Update {RMZ}
    LHAAP-35B(37) and LHAAP-67

06:20 Military Munitions Response Program (MMRP) Update {USACE}

06:30 Other Environmental Restoration Issues/Concerns {RMZ)
    Construction Debris Landfill

06:35 Transfer Update
    Transfer status of Site 12
    ECOP VI

06:45 Adjourn {RMZ}

(Note: **The Public Meeting will begin at 7:00**. Please hold all questions pertaining to the Proposed Plans for LHAAP-46, LHAAP-49, LHAAP-35A(58), LHAAP-50, the Pistol Range, LHAAP-35B(37), and LHAAP-67 until after the RAB meeting. A court reporter will be present to record your questions and comments at that time.)

Shaw® Shaw Environmental, Inc.

Subject:	**Draft Final Minutes, Quarterly Restoration Advisory Board (RAB) Meeting, Longhorn Army Ammunition Plant (LHAAP)**
Location of Meeting:	**Karnack Community Center, Karnack, Texas**
Date of Meeting:	**March 9, 2010, 5:45 – 06:45 PM**

Meeting Participants:

LHAAP/BRAC	Rose M. Zeiler
USACE-Tulsa:	John Lambert, Aaron Williams, Matt Mechenes
Shaw Environmental:	Praveen Srivastav, Greg Jones, Kay Everett, Van Vangala, Susan Watson
TCEQ:	Fay Duke
USEPA Region 6:	Steve Tzhone, Carlos Sanchez
USGS:	Kent Becher
RAB:	Paul Fortune, Nigel Shivers, Tom Walker, Judith Johnson

An agenda for the RAB meeting was distributed prior to the meeting.

Rose Zeiler indicated that the public tour of the Longhorn plant was conducted that morning with about 8 members of the community participating. She said that there were many good questions.

Welcome – Rose Zeiler and Paul Fortune
Paul Fortune called the meeting to order and introduced the RAB members. New meeting participants were also introduced. A recruitment effort for the RAB is ongoing.

Open Items – Rose Zeiler
There were no open items.

Programmatic Issues

Site Status Summary

The site schedule has been updated, and it has been noted that the schedule has slipped by one month for two sites, LHAAP-17 and LHAAP-29. Rose Zeiler stated that some comments still need to be resolved for the Feasibility Study (FS) stage, but the slippage is not expected to impact the RODs schedule regarding these sites coming out later this fiscal year.

A site status schedule is planned to be handed out at every RAB meeting. Steve Tzhone stated that the public can search on CERCLIS website and also find this schedule. Fact sheets for these sites are being prepared and will be presented to the RAB soon.

Defense Environmental Restoration Program (DERP) Performance Based Contract (PBC) Update–Shaw

Document Status/Environmental Sites

Praveen Srivastav distributed copies of the document status table and discussed each site.

- Praveen indicated that the LHAAP-02 decision document is in comment resolution, and Army is reviewing tracked changes. The decision document identifies limited groundwater monitoring in order to address the soil-to-groundwater COCs within LHAAP-02. The decision document will be submitted to the TCEQ soon. Praveen explained that the site is a former parking lot within the LHAAP-58, and soil samples were collected in the ditches surrounding the parking lot for metals. Sampling results did not yield any significant concern; however, groundwater sampling is being proposed to monitor for metals in groundwater to confirm the absence of specific metals contaminants leaching into groundwater.
- A soil removal work plan for LHAAP-03 is being developed. Praveen indicated that LHAAP-03 was a former waste storage pad for a drum of waste paint. It is also located within LHAAP-58.

Tom Walker asked that when the soil at LHAAP-03 is removed, where would it be disposed of. Praveen indicated that the soil would be tested to determine how it is handled, i.e. hazardous waste soil would be disposed at a hazardous waste disposal facility and non-hazardous waste would be disposed at a non-hazardous waste disposal facility. Likely locations would be Robstown, Texas (hazardous) and Republic Waste in Louisiana (non-hazardous).

- The Draft Completion Report for LHAAP-04 is in Army review. Praveen said that this site is located across from the Fire Station and that it was pointed out during the tour that was conducted earlier in the day. He indicated that it was an old water treatment plant and had soil contaminated with perchlorate. The contaminated soil was removed from the site last year.
- Affidavits and surveys for LHAAP-06, -07, -51, -55, -64, -66, and -68 for the county notification have been reviewed by Army and approved by TCEQ and will be signed and notarized this week.

- Comment resolution is in progress for the LHAAP-16 Draft Final Feasibility (FS) Study. A track-changes document and response to comments are currently being reviewed by regulators.
- Comment resolution is in progress for the LHAAP-17 Draft Final FS.
- Army comments were received and resolution is in progress for the Draft FS for LHAAP-18/24.
- Revised responses to comments have been reviewed by Army and responses are being reviewed by regulators for the Draft Final FS for LHAAP-29.
- The Final FS for LHAAP-46 was submitted in October 2009. Responses to Army's comments on the Draft ROD for LHAAP-46 are in preparation and a public meeting for this site is being held after the RAB meeting.
- Comment resolution is in progress on the Draft FS for LHAAP-47.
- The Draft Record of Decision (ROD) for LHAAP-49 is in Army review and proposed revisions will be submitted after the formal public meeting for the site. The public meeting for LHAAP-49 will be held after the RAB meeting.
- The Draft ROD for LHAAP-50 is in progress. The public meeting for the Proposed Plan for LHAAP-50 will be held after the RAB meeting.
- The Draft ROD for LHAAP-58 is in progress. The public meeting for the Proposed Plan for LHAAP-58 will be held after the RAB meeting.
- The affidavit and survey for the LHAAP-60 county notification are being reviewed by Army and approved by TCEQ before a notarized signature is obtained.
- Resolution of comments on the Draft Final Decision Document for LHAAP-35/36 is in progress.
- The Army is currently reviewing the draft ROD for the Pistol Range. The public meeting for the Pistol Range will be held after the RAB meeting.

Paul Fortune said he was not familiar with the LHAAP-35/36 site. Praveen said that it encompasses the process sumps and waste rack sumps located throughout the installation. Most of these sumps, about 145, are found within LHAAP-46 and 47 and each sump is tracked by its own unique number.

Groundwater Treatment Plant (GWTP) Update

Greg Jones indicated that the plant has been operating normally since the last RAB and runs approximately 180 to 200 gallons/minute. He indicated that the front end system runs 3 days with VOC and metals treatment and a further treatment for perchlorate every day. The weather has affected some lines so plant personnel have had some extra maintenance days.

Quarterly creek sampling or surface water sample was conducted since the last RAB meeting and the results were provided. Gary Endsley asked about the single average sampling value that exceeded historical results. Praveen and Greg explained that was the time when the GWTP was down for several weeks. Extra samples were collected from a surface water location in Harrison Bayou downstream of the plant and at four monitoring well locations to see what impacts there might be on the plume when the plant was down. It was determined that while there were increases in concentrations in some of the wells, the creek was not impacted.

DERP Total Environmental Restoration Contract (TERC) Update – Rose Zeiler

ROD for Sites LHAAP-37 and -67

A second public meeting for LHAAP-37 and -67 will be held after the RAB meeting in order to provide the community a second chance to ask questions or make comments on these two sites. The ROD for these sites is expected to be submitted this calendar year (2010).

Military Munitions Response Program (MMRP) Update – USACE

John Lambert indicated that the MEC report has been finalized and submitted. He informed the RAB that there is a safety video and brochures that have been provided to the FWS for their use. Mr. Lambert stated the brochures are site specific for Longhorn. The safety video was shown in its entirety to the RAB.

Other Environmental Restoration Issues/Concerns – USACE

Construction Debris Landfill

The Construction Debris Landfill has been completed; however, the cover is being checked to make sure adequate vegetation is growing. There is a rye type grass growing on the landfill cover at the present time, but EEC is supposed to come back to the site and overseed with native grasses, if required.

Transfer Update

Transfer Status of Site 12

There has been no change.

ECOP VI

MMRP sites won't be up for transfer until next year and they will be in ECOP VII along with the demolition landfill and the pistol range. ECOP VI includes the Y-Area (LHAAP-48), the Static Test Area (LHAAP-53), the Former TNT Waste Disposal Plant (LHAAP-32) tract and the Sewage Treatment Plant (LHAAP-08). It will be ready for review when the Site 49 ROD has been signed.

The next RAB meeting is June 10, 2010, at 6:30 PM.

Adjourn

January Meeting Attachments and Handouts:

- *Status of Technical Documents PBC*
- *Meeting Agenda*
- *Quarterly Creek Sampling Results Table*

Shaw® Shaw Environmental, Inc.

Status of Sites and Technical Documents
Longhorn Army Ammunition Plant – PBC Contract
March 09, 2010

No.	Document in Progress	Submittal Date	Army	Regulator	Next Submittal	Expected Date	Army	Regulator	Comment Resolution	Status	Remarks
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2	Draft Soil Removal Work Plan, LHAAP-03	03/18/10	x		Draft	03/30/10	x			Removal action work plan in preparation	
3	Draft Completion Report, LHAAP-04	01/21/10	x							In Army review	
4	County Notification LHAAP-06, 07, 51, 55, 64, 66, 68	01/30/10	x							With Army for signatures	
5	Draft Final Feasibility Study Addendum, Rev 01, LHAAP-16	7/3/08	x	x	Final	03/30/10	x	x	In progress	RTCs reviewed by regulators. Track-change document under review by EPA and TCEQ. TCEQ comments received 2/25/10. EPA comments pending.	
6	Draft Final Feasibility Study, LHAAP-17	4/14/09	x	x	Final	03/30/10	x	x	In progress	RTCs are in Army review	
7	Draft Feasibility Study, LHAAP-18/24	3/3/09	x		Draft Final	03/30/10	x	x	In progress	Army comments received. Resolution in progress.	
8	Draft Final Feasibility Study, LHAAP-29	03/11/09	x	x	Final	03/30/10	x	x	In progress	RTCs in regulatory review as of 02/11/10.	

Status of Sites and Technical Documents
Longhorn Army Ammunition Plant – PBC Contract
March 09, 2010

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10	Draft Focused Feasibility Study, LHAAP-47	12/23/08	x		Draft Final	03/30/10	x	x	In progress		
11	Draft ROD, LHAAP-49	10/20/09	x		Draft Final	04/15/10	x	x	In progress	Initial comments received from Army. Proposed revisions to be submitted after formal public meeting.	
12	Draft Record of Decision, LHAAP-50	03/30/10	x							In preparation	
13	Draft Record of Decision, LHAAP-58	03/30/10	x							In preparation	
14	County Notification, LHAAP-60	01/30/10	x							With Army for signatures	
15	Draft Final Decision Document, LHAAP-35/36	07/15/09	x	x	Final	4/15/10	x	x	In progress	TCEQ comment received on DF DD. Army has reviewed responses; Shaw is addressing their input.	
16	Draft Record of Decision, Pistol Range	02/08/10	x		Draft Final	04/15/10	x	x		Army is currently reviewing the draft ROD.	

Shaw
Shaw Environmental, Inc.

Longhorn Army Ammunition Plant
Restoration Advisory Board Meeting

Location	Karnack Community Center, Karnack, Texas
Date	9-Mar-2010 5:45 AM **page 1 of _**

Please sign in the space provided or add your name and address on next page if your name does not appear below.

ATTENDEES

Name (printed)	Signature	Organization	Phone	E-mail
RAB Members				
Paul Fortune	Paul Fortune	RAB Co-Chair		plfortune@hotmail.com
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AGENDA

PUBLIC MEETING

PROPOSED PLANS FOR LHAAP-46, LHAAP-49, LHAAP-35A(58), LHAAP-50, PISTOL RANGE, LHAAP-35B(37) AND LHAAP-67

DATE:	Tuesday, March 9, 2010
TIME:	7:00 – 9:00 PM
PLACE:	Karnack Community Center, Karnack, Texas

07:00 – 7:30 Review of posters

7:30 – 8:30 Presentation of Proposed Plans and Questions/Answers
- LHAAP-46
- LHAAP-50
- LHAAP-35A(58)
- LHAAP-49
- Pistol Range
- LHAAP-35B(37)
- LHAAP-67

08:30 – 9:00 Additional Question and Answer Period

Note: Public comment period for LHAAP-46, -49, -50, -35A(58), and Pistol Range is January 25 through March 25, 2010. Public comment period for LHAAP-35B(37) and LHAAP-67 is March 8, 2010 through April 8, 2010. Written questions or comments on the Proposed Plans can be submitted in writing to Dr. Rose M. Zeiler, Longhorn Army Ammunition Plant, P.O. Box 220, Ratcliff, Arkansas, 72951 close of business of the posted ending date of the comment period or emailed to rose.zeiler@us.army.mil. E-mailed comments must be submitted by close of business on the last posted ending date of the comment period. A court reporter will be present during the public meeting on March 9, 2010 to transcribe public comments.

LONGHORN ARMY AMMUNITION PLANT
PUBLIC MEETING

Location	KARNACK COMMUNITY CENTER
Date	9-Mar-2010 **Time** 7:00 P.M.

page 1 of 1

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PUBLIC MEETING

MARCH 9, 2010

PROPOSED PLANS FOR LHAAP-46, LHAAP-49 LHAAP-35 (58), LHAAP-50, PISTOL RANGE, LHAAP-35B(37) AND LHAAP-67

Reported By:
Donna Blissett Crenshaw
Certified Court Reporter

ORIGINAL

MS. ROSE ZEILER: Welcome to the Longhorn Army Ammunition Plant public meeting for seven proposed plans, seven sites. Those are LHAAP 46, LHAAP 50, LHAAP 35A, 58, LHAAP 49, the Pistol Range, LHAAP 35B, also known as 37, and LHAAP 67.

As I briefly described before, we're going to put speakers up here, Shaw and also the Corps. They're going to go through one proposed plan at a time. We're going to begin with 46. They're going to give you a brief overview of it. You're free to ask questions at any time. If you can hold those until after their presentation is complete, then go ahead. But you are free to ask at any time in between. When you do ask your question or make a comment, please state your name clearly so that our transcriber here can get that in her notes. So with that, I'm going to begin with LHAAP 46.

Is that you, Susan?

MS. SUSAN WATSON: Actually we've switched the order.

MS. ROSE ZEILER: We've switched the order. Okay. Which one do you want to begin with?

MR. GREG JONES: Pistol Range. I've got a couple of introductory things.

MS. SUSAN WATSON: Yes, introductory

things.

MS. ROSE ZEILER: Greg, do you want to present yourself?

MR. GREG JONES: Yes, I'm Greg Jones. I'm with Shaw Environmental, and what we're starting out with here is a presentation on some five sites that Shaw has been dealing with in most detail, and I'll talk about the first couple and then hand off to Susan Watson, who will talk about the three other of those sites that are on this first list. Let me flip over to this here.

MR. DOUG PARKER: Can I ask a question, kind of an overall question here? We're looking at, going to be looking at five sites --

MS. ROSE: Seven.

MR. DOUG PARKER: I'm kind of new to the whole game. But why in March of 2010 are we all of a sudden looking at these five, not necessarily these five sites, but five more sites? And I'm not being critical. I'm trying to understand how this fits into the total plan. Why weren't these looked at ten years ago?

MS. ROSE ZEILER: Because we weren't to the point for proposed plan at that time. We had not been through the whole process of the remedial investigation feasibility study. We had to make it through those documents and discovery and characterization of the site and analysis of alternatives to get to the proposing a plan for remediation of those sites. So what we have behind us is an investigative characterization study phase and we're now at the point of proposing a way to remediate those sites. And we're presenting the possible alternatives to remediation in the proposed plan to the public. We've made a recommendation on which the Army and the regulators agree is a good way to approach those sites and the remedy that we are recommending. But we are providing the opportunity for public input on that, and that's what this is today for you to ask questions and make comments.

But why seven all at a time, it just kind of happened that way. There was no intention. They weren't lumped together for any particular reason. But as these sites go, they're less complex than the ones to come.

MR. DOUG PARKER: There's more to come.

MR. GREG JONES: All right. Good. Rewind the slide to start with, I guess. Of course this is the public meeting and it mentions the first five sites we'll cover, the Pistol Range, 49, 58, 46, and

50 and remind you about with questions, please mention your name and affiliation if you will.

Now, the first slide to start off with just -- well, a couple of introductory slides here. This first one besides as I was realizing ahead of time may be a good acronym list for a lot of the stuff we do, it also presents just a general overview of the process. And things start out with preliminary assessments and site investigations. They typically progress to remedial investigation, more intense investigation to support a feasibility study. And the feasibility study being where we'll typically evaluate several different remedial options to use at a site. Some sites skip from these earlier stages and go directly to the proposed plan which, you know, of course is leading to the ROD. We put the proposed plan off to the side because that's the stage we're at now. That's what we're doing currently. We're having the public meeting trying to relay the proposed plan. And obviously the first couple of steps cover a large number of sites here and also cover a large number of years. Now some of these sites should pretty much end at the kind of the record of decision stage, then it will be considered closed. Others will have to go through remedial design after we're all comfortable with the proposed alternative to move forward with. Go through remedial design, remedial action, then operations showing that things are operating properly and successfully, the OPS state, and then end with a site closure on down the line. This is all part of the, what's usually called the superfund process or also known as CERCLA. And the acronym is covered here as well.

The other thing noted up here of course is that Longhorn is an NPL site, national priority list site. Basically the designation I guess that you can say that we all as U.S. citizens have given, you know, the bad hazardous waste sites that are out there and Longhorn with a lot of kind of sites inside it, no surprise it should be on the NPL list.

Another kind of general overview site they want to bring up is about risk assessments or risk evaluations because most of the sites talked about tonight have been dealt with under, I guess they share mathematical risk assessment calculations. You know, basically taking the concentration data and running calculations to show whether or not the risk from those contaminants are acceptable and whether remediation needs to be moved forward with. But naturally, there are exceptions and the first site that I'll talk about in a minute, the Pistol Range, is kind of an exception to that. So it's kind of based on risks, but they're not the straight-up calculations that's typically used for other sites. The risk range that's typically called as acceptable is the, for cancer, is a one in 10,000 to one in a million risk of getting a cancer, not necessarily dying from it, but getting a cancer. That's cancerous risk. You also have non cancer risk, you know, problems with thyroids or your urinary tract or something like that, the liver building up contaminants, those sorts of things. Those non cancer risks are referred to as hazard, expressed as a hazard index. No one in a million, or one in 10,000 here. It's basically whether you're taking in more than you should, so it's just a straight ratio comparison of kind of intake doses to reference doses. So if what you're taking in is acceptable, that ratio will come out less than one and should be fine. If risks are acceptable, you shouldn't need any further action at the site. If they're not, we look at things a little harder and decide where to go from there. The other piece of the risk equation, it's one thing to have some numbers you're looking for, but who do those numbers apply to. In the case of Longhorn Army Ammunition Plant, the future land use is as a national wildlife refuge and really the scenario or the receptor that we are concerned about here is this hypothetical future maintenance worker that's out there digging around the site and mowing the grass, doing whatever needs to be done because that sort of person, rather than a visitor or a number of other types of people, is the person that will be here over the most number of years and basically be exposed to any contamination the most. I've been talking about human risks. In those first couple of bullets, it's also worth mentioning that of course we did look at ecological risks. Actually quite a bit of time and effort was devoted to looking at a number of different species and chemicals potentially for ecological concern. But for the, you know, to keep things short for the sake of this site and these sites that we're discussing tonight, they weren't sites with ecological risks. Ecological risks goes down at a much more complicated pathway than certainly I can get into tonight. But, you know, that's something we can address questions for as well if people have them.

All right. Digging into the first of the five sites in the presentation. The first one is the Pistol Range down in the southeastern portion of the site. It comes from -- actually I can move to the next one here, it covers about four-tenths of an acre. It was used, best we can tell, it's not really great records on the Pistol Range, but for approximately 50 years anyway, for a small arms practice and qualifying tests. Probably not much surprise to anybody that the contaminant of concern at a small arms pistol range is lead. And right off the bat here I'm getting to kind of that exception that I noted for risks. For this, rather than go through the risk calculations, what we went and did to avoid kind of the time consuming effort of the risk assessment, was to compare directly to some existing state standards. And this is the soil medium specific concentration for industrial use, SAI-IND. It's used a few times in these slides. IND of course is for industrial. SAI you can think of as soil and with air inhalation and "I" for ingestion and it covers direct contact as well. But that's a number that the state has and they allow to be used in lieu of doing detail site specific calculations basically if you can compare that, you can decide whether you're below it or whether you want to clean up to those levels rather than going through the intense risk calculation. Well, we exceeded that. We actually at the Pistol Range had concentrations as high as fifty-two hundred and forty milligrams per kilogram. In this little figure here you can see a blue line, everything inside that blue contour was higher was -- well, was estimated as being higher than 1,000 based on, based on samples we collected inside the soil. We did under the worst area contamination put in a well, checked the water there, it was below MCL level of 15 micrograms per liter for lead. The investigation concluded that the soil would not adversely affect the groundwater over time as well. But since we had the high soil values there, we went in and completed a non time critical removal action in August of this past year and the objective of that was to remove the lead that was above that 1,000 milligram per kilogram level. We excavated that. We talked a little bit about it in the previous meeting. And we sent I think it was about 75 tons off as hazardous waste and about 160 tons I think it was off as non hazardous waste and then we backfilled that area with clean material brought in from off site. Confirmation sample results were taken beneath where the excavation was there and all those confirmation results were less than the 1,000 milligram per kilogram level. I think they varied from about a high of around 10 or 11 to about 600 or so. So as I mentioned the contamination was compared to industrial levels and was appropriate because it was a future use as a national wildlife refuge. The SAI-IND level, we're talking about based on inhalation, ingestion and contact. The soil contamination before the removal action exceeded that level, groundwater was acceptable. After removal action, of course groundwater is still acceptable. And we removed the soil contamination that was above the level, so it's fine now. So by doing that removal action, we essentially eliminated the need for any further action at the site which is why the proposed remedy for the Pistol Range is no further action. The land use, of course, that would have to be noted that would count as non residential because it was evaluated on this use with a maintenance worker as a national wildlife refuge and not as a residential area. This is the last slide on the Pistol Range, so this is probably an appropriate sort of breaking point to ask if people have official questions they'd like to throw out about the site? Any details here I might know, might not, but certainly glad to try to answer if anybody has any questions or just general comments about the site.

MR. PAUL FORTUNE: I've got a comment. My name is Paul Fortune. I'm a local resident here. And the Pistol Range is what threw up a big red flag for me on some things that other things that are going on down here. I'll have to go back to a point in time where at a RAB meeting the Pistol Range was discussed and I asked about the cost of what it was going to take to do the excavation of the Pistol Range and the follow-up monitoring and everything, the whole ball of wax. And I was told at this meeting that those records weren't available. So I just asked for a general, just what you think it's going to cost. And I was told about $100,000. And I thought that that was an awful lot of money to be spent on just a small project. And so I asked to see the documents that would show the breakdown of the cost on the Pistol Range and I was sent that information. And to my surprise, I found out that it was not $100,000, it was more in line with $600,000. And so then I came back at another meeting and I asked why is it going to cost $600,000. And I was told, well, it really isn't going to cost $600,000, it's going to be more like $300,000.

The cost of it may not alarm me as much as just simply the fact that I don't feel like I was told the truth the first time. And that's a comment.

MR. GREG JONES: And I will, I guess, attempt to address in a small way, in a partial way.

And I was probably at at least one or both, maybe both of the meetings, where you were bringing up things. And I think like the first time I was just trying to come up with an off-the-cuff number based on my memory, in my memory of the estimate we had in the engineering evaluation cost analysis we did for the Pistol Range. But those numbers which in looking back over in time, I think probably for the field work, they're probably decent ball park numbers. But it is worth reiterating kind of how they break down a bit. Because when you mention the kind of the 600,000 number, you're including, or really it's sort of a global cash flow over 30 years which, in other words, how much you spent in capital last year to do this plus, you know, every five year review and frankly those five year reviews are costed out as if one was only doing one site at Longhorn. And so they don't take into account any economies --

(Interruption by train)

COURT REPORTER: I'm sorry, I can't hear you because of the train.

MR. GREG JONES: Into account any economies scale for the fact at multiple sites is probably what it was. And that's kind of we're stuck with that a bit based on the formula for how you put those documents together. But really kind of the upfront cost for the excavation and designs and those sort of things are estimated around $285,000, just that portion of it. And the field work was about $185,000. And so certainly I apologize for any miscommunication that might be going on, but that $185,000 was an estimate, probably a pretty reasonable estimate of what went on in the field because the overall tonages were about right, you know.

MR. PRAVEEN SRIVASTAV: These are from the EE/CA?

MR. GREG JONES: Yes.

MR. PRAVEEN SRIVASTAV: These are from the engineering evaluation and cost analysis.

COURT REPORTER: I need his name.

MS. ROSE ZEILER: Praveen Srivastav. I'd like to jump in just a minute. I think, you know, Paul, I understand that it's been very confusing for you on how these costs go. I think we've really tried to give you information and to help you understand. In fact, we devoted a large part of one RAB meeting with regulators trying to help you understand what this process is and why it's so costly. And I think part of the issue stems from we're really talking about three types of costs here, three different ones.

And the first one would be what their negotiated contract cost is. For instance, the Pistol Range has already been negotiated. The cost for them to conduct their activity at the Pistol Range was negotiated in September of 2005.

MR. PAUL FORTUNE: I understand that.

MS. ROSE ZEILER: The second set of costs are those that we presented to EE/CA. Those are not hard and fast. They're like engineering evaluations and they're presented with the same basis of estimates for each one so you compare alternatives, one cost to the next. They're considered order magnitude estimates, therefore, they can't be dependable. They're only used to estimate the potential cost of each one relative to the other. And then the third type of cost we're talking about is the actual cost that Shaw incurred during their field activities. Some of those we can't give you. We can't give you the actual cost that Shaw incurred because that's theirs. They know whether it cost them more than what they were paid or less. But the amount that they were paid is part of that negotiated contract. And the EE/CA value, I think we've tried to explain that, those are, those are estimate values. And as Greg said, they're lifetime costs. So life cycle costs.

So, you know, I'm not sure what we could give you more there.

MR. PAUL FORTUNE: I think you've given me all of the information. I was just sharing my thoughts from the past. I will say this, Rose, though that you mentioned that you tried to explain this to me at a RAB meeting and I was not -- you told me that we could not talk about this at a RAB meeting. And so it was after the, when we talked, when I --

MS. ROSE ZEILER: Oh, because we already -- right. This was a comment out of comment period, and I asked for everybody to stay because it was going to be very long and everybody did stay. We talked about it after the RAB meeting.

MR. PAUL FORTUNE: It was my impression that this couldn't be discussed on the record and that's why --

MS. ROSE ZEILER: Oh, no, no, no.

MR. PAUL FORTUNE: Well, that's certainly the impression that I got. But anyhow, we'll move on.

MR. GREG JONES: All right.

MS. ROSE ZEILER: Any other comments on that? Is that it?

MR. GREG JONES: Yes, this is the last of the Pistol Range.

MS. ROSE ZEILER: Any other comments on Pistol Range?

MR. DOUG PARKER: So there's no ongoing activity at the Pistol Range?

MR. PAUL FORTUNE: Oh, there is. It's future monitoring going on at Pistol Range every five years.

MS. ROSE ZEILER: Every five years, that's right.

MR. DOUG PARKER: That was my question.

MR. PAUL FORTUNE: At the tune of about $45,000 for every five years for that monitoring.

MS. ROSE ZEILER: For the sake of estimates, that's right. In reality, no.

MR. PAUL FORTUNE: That's really fuzzy for me.

MS. ROSE ZEILER: The Army requires that we evaluate on its own merit as a stand-alone project. But we would never come out and just look at one site. We'd look at all of the sites that we're looking at so there's an economy there. But to evaluate that particular remedy, we have to follow certain guidelines or we'd be looking at different numbers for each one. So we follow these guidelines strictly and we're told about how much you can count on for a five year review. So in order to -- suppose we decided to do just a land use control at one site, so we would only have to come out here every five years. Well, maybe there's a remedy that we could remove the soil. Now, in this case, you know, we still have the five year review, but you compare those costs one against the other to see which is more effective over the 30 year time frame. That's what the Army requires. And 30 year cost to complete basically is what we use.

MR. PAUL FORTUNE: I wanted to go on, but I will look at the cost analysis on this Pistol Range, the breakdown of it, and I cannot understand for the life of me why it costs over $100,000 to design a plan to haul off 10 loads of dirt. Maybe it does. I don't understand it. In my line of work, it doesn't cost that much, anything like that, and I understand we're dealing with some contaminated soil here, but --

MR. PRAVEEN SRIVASTAV: Praveen Srivastav here. The break up of the cost is in the EE/CA numbers, engineering evaluation and cost analysis. That's where you see the details. That's what it adds up to. That's all we can tell you. All the break up is there. Now, you know, it may be hard to understand, but that's where it is and that was, I mean, it's a public document.

MR. PAUL FORTUNE: Sure, I understand.

MR. GREG JONES: Well, and the $100,000 you mentioned, it encompasses the work plan to go out and do it, but also encompasses the completion report and the proposed plan, that kind of stage you're going through too with some of these costs that are associated with.

MR. PRAVEEN SRIVASTAV: It's not just the cost of digging it up and hauling it. There are testing requirements. We take, we test before and after. So we took the samples from the ground after the excavation. We took samples from the haul off itself. The samples go to the land fill. They go to the process. They approve whether or not we can. It's a highly prescriptive process. It's not as simple as digging it up and hauling it off. It's not.

MR. GREG JONES: If that's everything on the Pistol Range.

MS. ROSE ZEILER: I think you can move on.

MR. GREG JONES: We'll move on to the next exciting site. 49, former acid storage area. This is of course a large, rectangular site up in the northwestern corner of the facility used for obviously nitric and sulfuric acid storage. I also just want to, while this is here, bring everybody's attention to this notch parcel sticking out here to the north because it seems to be the most interesting part of the site. All right. It's approximately 30 acres, used in World War II for long duration storage of acids. Right now the surface features you'll find there are mainly grass and woods. And if you're looking among the trees, a lot of concrete saddles and stuff that once supported some large acid storage tanks. And the parcel that I noted at two and a half acre parcel to the north of Fourth Street there was included in the site boundaries. Kind of originally the site boundaries were a little different, but in the end over the course of investigations, there was discovered that, well, there's kind of elevated lead and mercury, but particularly on the other side of Fourth Street there were some elevated mercury concentrations. As noted here, the early investigations was showing levels, elevated levels in the soils especially lead and mercury. And, again, mentioning those north of Fourth Street. Groundwater investigations were conducted at several different years over time. You know, they kind of after the first couple where you're kind of looking at a lot of different things, the later investigations, the groundwater concentrated on a few chemicals that appear to be elevated based on the earlier sampling. As we focused in on those particular chemicals, it was determined that they were either associated with the high background levels selenium is an example of that, or they were associated with well construction or sampling artifacts, I guess you can say, rather than really being truly representative of the groundwater itself. And so they were really determined that these sporadic elevated concentrations were determined not to be of concern to the site. This was addressed. I mean unlike the Pistol Range where I was just talking about the kind of standard that the state issued for soil that we utilized, this one did undergo a human health risk assessment. That risk assessment was done several years ago and it was based on the first couple of years of investigation. Some additional sampling was done over time that focused in more on some of those metals that were high and so what Shaw did -- I should mention that that original risk assessment was done by others. What we did with the additional data that came in from those follow-up investigations was take it and see if it changed the exposure point concentrations that were used in the earlier risk assessment. We found that it didn't cause those to increase; therefore, the risk was not increased and we could live with the outcome of the previous risk assessment. Under that risk assessment it was that future maintenance worker as mentioned earlier was what was evaluated under said to be industrial but which is kind of our term for, general term for national wildlife refuge what a maintenance worker does, industrial scenario. Important findings of that assessment, the soil and groundwater cancer risk, soil and groundwater cancer risk was found to be in the acceptable range. The soil hazard index was found to be in the acceptable range. And I mentioned that was determined despite, like I mentioned, some high concentrations of mercury and lead that were around the site. The groundwater had a hazard index of two which just exceeds the acceptable range of one. And, you know, there are a lot of sites around the country that, even Longhorn, that have much, much higher values of hazard index, those non cancer risks that are out there. So this one was just over. When you have something that's borderline like that, well, you go in and you start looking at individual contaminants and seeing what's causing things. And what we found was the thing I mentioned earlier, selenium being an example of something that was high but then we realized when we compared that to the perimeter for selenium they were high too, essentially background issue. Other things like chromium was high, but we found that by putting in a well not made out of stainless steel that the chromium was really a result of the corrosion of the well itself, that kind of thing. So kind of one by one through a few problem chemicals we looked at them to determine whether they were real concerns, and as I mentioned earlier, the more or less artifacts the way the wells were installed, the ways the samplings of the wells themselves. The end result being that really at this site no action was needed to protect potential receptor for the future maintenance worker.

This next bullet is something that's been a little controversial at times, I think. There were to the north side of Fourth Street, you know, there were elevated mercury concentrations. There were a couple of samples that were particularly elevated with TCEQ, the hot spot concerns. You know, when we were first looking at the risk is acceptable there already according to the risk assessment using the latest numbers, but, you know, these were high values. You know, the easiest thing to do to eliminate the issue was to just go in there and take them out. So we went in and we went to where those samples were and the area is about 10 feet by 40 feet. And we removed it a foot deep and back filled it with clean soil and it was imported from off site.

MR. NIGEL SHIVERS: I have a question. I'm Nigel Shivers. I'm with RAB. After taking the foot of soil and back filling it, was it ever retested again to make sure it all, the contaminants of mercury was removed?

MR. GREG JONES: Well, we didn't take samples -- we took out the foot of material and we didn't take samples at the bottom. We basically just brought in the clean material and put on top of that. And kind of the logic being that because our risk evaluation had already shown that the site was acceptable for, you know, given kind of the typical concentration that this receptor would be exposed to over time, that by going in there and simply removing that hot spot area and back filling with clean material, it went from already acceptable to, you know, what should be more acceptable. And so we didn't bother to take additional samples below there.

MR. NIGEL SHIVERS: So we really don't know what is below the one foot level?

MR. GREG JONES: Right. We don't know exactly what is at that interface between the clean material and the existing material.

MR. NIGEL SHIVERS: Okay.

MR. GARY ENDSLEY: I have a question. Gary Endsley, Friends Group. Did you take samples beyond those two, beyond the hot spot?

MR. GREG JONES: Yes.

MR. GARY ENDSLEY: And how many samples did you take and what area did it cover?

MR. GREG JONES: Well, the first one itself was two and a half acres or so, and we probably took a half dozen or so samples in there. Then of course across the rest of the site there is a huge number of, well, I say a huge number of samples, but I guess a few dozen samples across the other part of the 30 acres that make up site 49.

MR. PAUL FORTUNE: You have these hot spots. Define hot spot. Is that --

MR. GREG JONES: I mean I'm smiling because that's sort of an interesting sort of question. It's one of those things that in the business can get defined in a number of different ways. But in this case, you know, we had a few elevated concentrations anyway.

MR. PAUL FORTUNE: Okay.

MR. GREG JONES: But those were much

higher.

MR. PAUL FORTUNE: The one that we looked at today, what is acceptable and what was this area that y'all took the foot of dirt off of?

MR. GREG JONES: The acceptable level, I'm not sure I know off the top of my head. But the two that were in there, that were in that, were probably two orders of magnitude and one order of magnitude higher. And by that I mean powers of 10. Like 100 and 10 times as high as the other ones around them. I mean they were high. And there's no doubt about it.

MR. PAUL FORTUNE: So you removed that dirt from this one spot?

MR. GREG JONES: Yes, this 10 by 40 foot strip.

MR. PAUL FORTUNE: Well, you know, I'm just trying to apply some logic here. It would seem to me that if you removed a foot of dirt, you would need to check the soil again at that foot down.

MR. GREG JONES: Well, I guess using the notion that this is top down contamination here. The contamination that we found at the site was, I mean, basically surface and it got lower, it got -- in other areas of the site get lower as you went down further. And so if you give a top down contamination and you strip off that top, then anything below there should be even a lower amount of contamination. And then when you bring in clean fill material and, you know, we tested that fill material and placed in there, then anything someone is going to be walking across in that area is, you know, far lower than what was there already, what was there previously.

MR. PAUL FORTUNE: Well, and you're right, it should be, but we don't know for sure. And I do know because I've asked this question several times in the past in regards to Site 49, I know there's been some sort of discussions with the Fish and Wildlife Service. They're not really, they have some concerns about that particular spot. And it would look to me like that the most logical solution to this problem with getting this piece of property transferred and everybody happy would be just to go down there and dig down a foot and sample the soil right there and see what is. And if it's acceptable, you know, if TCEQ -- Mark, am I, am I correct that the Fish and Wildlife Service have some issues?

MR. MARK WILLIAMS: I'm Mark Williams. I'm the Refuge Manager at Caddo Lake Fish and Wildlife Refuge and that's correct, Paul, we do. As it stands right now, if it's offered up for transfer, the Fish and Wildlife Service won't accept it.

MR. PAUL FORTUNE: And it's my understanding that the only thing y'all would have to do is go down there and sample this soil and this issue would be resolved.

MS. ROSE ZEILER: Let me answer that question. They're not -- that's a transfer question, not an environmental restoration question. And so from Shaw's standpoint and Army's, they've fulfilled their obligation as far as satisfying regulator comments on this site. There's no regulatory driver. By that we mean there's no, there's nothing driving any further action to this site. So as far as the regulators are concerned, there is no further action necessary.

Now, your comment, you know, that's true. All it would take is one sample. But it's not an environmental restoration question. That's a transfer question.

Does that -- do you see?

MR. PAUL FORTUNE: Uh-huh (responded affirmatively). Well, if y'all want the property transferred, why don't you just do it?

MS. ROSE ZEILER: Well, you know, it may happen that way. But we can't really interfere with a contract with the environmental restoration work. That's a transfer issue that is beyond what they can be required to do. I might add there's absolutely no unacceptable risk because the soil they did bring into the site to fill in was tested. Am I right?

MR. GREG JONES: Uh-huh (responded affirmatively).

MR. PRAVEEN SRIVASTAV: Praveen Srivastav. We had several samples like Greg pointed out, along those two samples. You were asking what was the level above which the samples were. In a typical risk assessment process, if there was a site that had unacceptable risks, then you would go ahead and calculate clean-up goals if the risk wasn't acceptable. At this site the risk was acceptable. So there wasn't a clean-up goal that you can say, okay, everything that's above this level is unacceptable. So what we're saying is even though the risk was acceptable, we still went ahead and to alleviate any concerns that were there from the regulator perspective, we said, okay, there's this one spot that had high concentration. You're talking about 700 PPB, PPM? PPB?

MR. GREG JONES: PPM.

MR. PRAVEEN SRIVASTAV: PPM, yes. PPM of

mercury. That's pretty high compared to the --

MR. PAUL FORTUNE: Okay. I missed that. What was the level of the mercury in that spot?

MR. GREG JONES: In that spot what was mentioned was like 100 -- there were two samples there. One of them was probably 100 times as high as stuff around it and the other about 10 times. So yes, the higher one was several hundred parts per million and the one next to it was between, well, in the tens or 70 or 80. I'm not sure of the exact number.

MR. PRAVEEN SRIVASTAV: Again, these are the numbers. The background here is much lower. We have done a background study to find out what the levels are. So these levels seem to be quite a bit higher than that number and that's why just to address that concern, that concern was there, that's why we took out the soil. So at this point there's no risk at the site. And it's ready to be closed.

MR. PAUL FORTUNE: Well, I still don't -- it doesn't make sense to me why you don't test the soil a foot down and make -- but that's my comment.

MR. PRAVEEN SRIVASTAV: Any other comments?

MR. GREG JONES: This is the last slide on 49.

MS. ROSE ZEILER: Any other comments on this? Thank you, Greg.

MS. SUSAN WATSON: My name is Susan Watson, and I am kind of the lead on the next three sites. These three sites are 35A, we also call it 58, 46 and 50. These were all originally in a group called Group Four Sites. And so first I'm just going to talk about some general things because it covers kind of all the sites instead of talking about them again and again and again.

There were a lot of investigation and studies done on these sites. The first published investigation was in 2002 and it covered data collected from 1992 to 2000. And since then you can see all of the different studies, most of which have been done on these sites. One thing we did in 2007 is we collected over all of the area of the Group Four Sites a round of water elevations, and that was to help us assess which way the groundwater flowed. So this is the Group Four area. I'm not sure you can see the contours really well. But how we did this is we went around and we measured the water level in each well and they were all just over a few day period. And then what you do is you plot that elevation and that gives you the contours. And then from those contours, you can figure out where your flow is going. So in these areas we generally have a shallow zone, an intermediate zone, and a deep zone. And what we've also found on some of these sites, you'll hear me talk about shallow and intermediate because there's thin sand lenses and they kind of layer and they'll meet sometimes and then they come apart again. So we try to group all of the wells in the shallow and intermediate and some of them actually cross over. So this is a shallow zone. And this is Site 46 up here. You can see our flow is kind of east, and it kind of turns northeast, and it's east again here. And this is 58. It's pretty much east. And down here is 50 and it's also east. So generally in the shallow zone, the water is flowing east.

This is the intermediate zone. Up here is 46. You can see it's going northeast. Here is 58. It's kind of going more east, but it's not really well defined because we didn't have as many wells down here. And down here at 50 again, it's still kind of going maybe a little more northeast than east. So typically in the intermediate zone, the water is all flowing northeast. So it's just kind of a frame of reference just to kind of keep in your mind how the water flows.

The reason why you would need to know this is because once we find contamination in the water, it helps us determine where the plume is, where the plume may go so we can assess the best technologies to look at to try to deal with the contamination of the water.

MR. DOUG PARKER: Do you expect those flows that you showed in the northeast and so forth to remain more or less the same over 30 years as is generally expected?

MS. SUSAN WATSON: There will be some, you know, maybe see-saw variability slight or you may see some, you know, just localized variations on a site. But typically overall for that zone, yes.

MR. GARY ENDSLEY: What you're -- I wish you would have had notes on your well locations on the previous slide. Do you have another way that might do that?

MS. SUSAN WATSON: These are all the intermediate wells.

MR. GARY ENDSLEY: Where are they?

MS. SUSAN WATSON: See these circles?

MR. GARY ENDSLEY: Okay.

MS. SUSAN WATSON: So all of these wells, not just on this site, but all of these wells collectively we gathered the data. And so we did a large area. Because I think the last time was back in the '90s where they did this. And since then --

MR. GARY ENDSLEY: Most of this data is from '99 and 2000?

MS. SUSAN WATSON: No, this is from 2007.

MR. GARY ENDSLEY: Okay.

MS. SUSAN WATSON: End of November, first of December we came and did all of the measurements. And so what we did is we took all of these as a group so we'd have a better picture of what was going on across the site. Because if you imagine if you only took this little group of wells, you couldn't really figure out maybe what was going on right here. So that's why we collectively looked at a larger area so we could assess better where the groundwater was going.

So this is the intermediate, and there are fewer wells in the intermediate zones. Let me go back to the shallow. Do you see all of these little dots? All of, these are all of the shallow well zones, the shallow zone wells. Sorry.

MR. GARY ENDSLEY: These are not the same as the other, the deeper wells?

MS. SUSAN WATSON: That's correct.

MR. GARY ENDSLEY: Different wells.

MS. SUSAN WATSON: They're different wells. And sometimes we do groups of wells together in a location where they're shallow, intermediate, and deep. So we'll have like a grouping that's in a similar location.

MR. GARY ENDSLEY: Are there any wells to the north or northeast of those things?

MS. SUSAN WATSON: There are some that are, you know, they're way up here somewhere off the edge of the property. Actually they're right somewhere over here. There's some perimeter wells. But they were in here. They were not included in this study. Right over here, do you see the little map over here? There's some perimeter wells. There's not to the north -- there's not any perimeter wells to the northeast. So these are the only wells here because we're really close to edge of the site. Right here is the edge of the site.

MR. GARY ENDSLEY: That's my concern that right across there is the public drinking water supply.

MS. SUSAN WATSON: I've got some slides that you can look at that. They're on the, they're located on the other slide.

Okay. So this is the shops area. And

originally it was much larger. If you look at historical documents, you might see some different acreage. It's now this little area right here. And you can see all of these other identifiers. There's a lot of other little sites that are, you know, within this area. So the shops area was a maintenance complex. It was established in 1942 and closed in 1997. So it operated for about 55 years. It supported services throughout LHAAP including laundry automotive, woodworking, metalworking, painting, refrigeration, electrical and there were solvents and degreasers, those kind of things that were used here because of the auto maintenance. It's about 11 acres right now at its current size. You can see there's several other sites within its boundaries. Right now the surface features are just paved roads, old parking lots. There's some grass covered areas. It's relatively flat. Surface drainage goes to tributaries and eventually flows to Goose Prairie which eventually goes to Caddo Lake. I talked a little bit earlier about the sand lenses. They're about three to five feet thick here. The depth varied across the site. The three zones, the shallow zone here is about 10 to 25 feet below the ground surface and on this site on the eastern side, it flows east and there's a little bitty area on the west side of the site that flows back southwest. But it will come back around and then it kind of goes east again. The intermediate zone is about 60 to 71 feet below the ground surface. And the deep zone is 126 to 140.

The base line human health risk was done for the industrial worker. For the soil, the cancer risk and the hazard index are acceptable. And the shallow groundwater, the cancer risk and the HI are not acceptable. The cancer risk was 1.6 times 10 to the minus two. Remember it's supposed to be minus four to minus six. And the HI is 38 versus one, which is unacceptable. The intermediate and deep zones do not have any contamination. The chemicals of concern --

MR. GARY ENDSLEY: How many tests did you do to determine that the deep, intermediate and deep weren't contaminated?

MS. SUSAN WATSON: Off the top of my head I don't know.

MR. GARY ENDSLEY: Were there six or 50? Closer to six?

MS. SUSAN WATSON: Maybe -- I can't tell you how many wells -- you saw the intermediate wells that were at the site. You know, there was, you know, samples collected from all those more than once.

MR. PRAVEEN SRIVASTAV: Is the question how many wells were sampled?

MR. GARY ENDSLEY: Yes, how much data do we have?

MR. PRAVEEN SRIVASTAV: I would say closer to six. There are some samples from 1990s and we started collecting and we collected three or four rounds.

MR. JOHN LAMBERT: Yes, it goes back. There's 15 years' worth of data. That's not to say -- John Lambert -- that's not to say every year was sampled, but the data goes back 15 years. So at multiple times as he's indicated.

MR. CARLOS SANCHEZ: My name is Carlos Sanchez with EPA. At this meeting, sometimes we may not have the complete answer for your comment or question. Once we get back to the office, we'll give you a detailed response to your comment and that will be included as part of the record, in the record of decision. It's called responsive summary. And in there we will give you the full information. We'll try to answer your questions as best we can, but in some cases we will have the full details or information that will be presented in the responsiveness summary for the roster. Your comments or questions will be fully answered in writing.

MS. ROSE ZEILER: Thank you, Carlos.

MS. SUSAN WATSON: So the chemicals of concern in the shallow groundwater zone are tetrachloroethene, trichloroethane, 1,2 dichloroethane, 1,1 dichloroethene and vinyl chloride. I'm trying not to talk in acronyms, but I may slip up. PCE is the tetrachloroethene. It's like a parent product. We think about it as the parent. And then as it degrades, it becomes TCE or trichloroethene. Then on to DCE, vinyl chloride, and finally to the harmless ethene. So that's the pathway. You know, these were in a lot of the chlorinated solvents, and they were used, you know, in the area. So there's not really any surprise here of any of this contamination based on the operations that were at the site.

Okay. Here are the two shallow groundwater plumes. We're calling this just the eastern flow. Up here you can see the highest. This is just the maximum. This is not from any particular well. The highest trichloroethene is almost 10,000 micrograms per liter. If you hear us talking PPBs or PPMs, a microgram per liter is the same as a PPB. Milligram per liter is the same as a PPM. So sometimes you may hear things both ways. So that's what that means.

The PCE is at 605 in the eastern plume. Then in the western plume, the PCE is about seven and TCE is at 25. The MCL, maximum contaminant limit, the drinking water limit is five for both PCE and TCE. So you can see that these are above the MCLs.

So what we do is we go through and you determine as part of the feasibility study process, the remedial action objectives. So for this site it is to prevent exposure to the VOCs, that's all of the PCE, TCE, that collective group, contaminated groundwater, prevent the groundwater from impacting the nearby surface water, and then return groundwater to its potential beneficial use.

So as part of the FS, you look at technologies first. So what kind of technologies are out there to help remediate this problem. One of the technologies is monitored natural attenuation. What that is is a passive treatment. So natural processes actually reduce the contaminant mass in the groundwater. And to do this, you have to have favorable conditions. So you look at things like your dissolved oxygen and your Ph and the groundwater composition. And you evaluate all of this as well as contaminant concentrations to determine if you think that the monitored natural attenuation will work. At this site we have not conducted any kind of study, you know, formal study where we take so many like quarters of data to actually evaluate the effectiveness of natural attenuation.

Same for in situ bioremediation. We haven't done any studies yet to see if this would really work at this site.

Then there's an active treatment. What it is is you actually inject nutrients and microbes and it jump starts and helps expedite the degradation of the groundwater contaminants. So basically what we're doing is we are manipulating the subsurface conditions to make it favorable basically for biodegradation or attenuation. But in that case it's not natural anymore where we go in and we inject things. It follows the same chemical process though once it starts degrading.

So basically then once you look at your technologies, you put all of those together, and you come up with various alternatives that you evaluate. The first alternative is always no action. That means doing absolutely nothing. You walk away. It cost you zero dollars. Any risk that is there is still there. You don't monitor, you don't do anything, you don't have any idea what's happening.

Our second alternative we looked at for both plumes was monitored natural attenuation with land use controls. The third alternative for both plumes was in situ bioremediation with land use control and then long-term monitoring. And the fourth alternative was in the eastern plume was to do the in situ bioremediation and then monitored natural attenuation in the area where you didn't actually inject and the land use controls. And in the western plume is just monitored natural attenuation with land use controls. And alternative four is the proposed remedy.

So once we developed these alternatives, then we have to evaluate them, which I kind of guess I jumped ahead by putting the proposed remedy. So there's actually nine criteria that we have to look at when we evaluate alternatives. The overall protection of human health, the compliance with applicable and relevant and appropriate requirements, which are chemical specific like MCLs, location specific, like is it in a flood plain; and action specific, which, you know, also can get into -- help me out -- action specific --

MR. GREG JONES: Disposal risk.

MS. SUSAN WATSON: Yes, disposal. Just like you're digging up soil. I couldn't think of one right offhand. The long-term effectiveness and permanence, reduction of toxicity, mobility, or volume through treatment, short-term effectiveness, which is essentially protection of workers and the community during the action; implementability which is availability and reliability of resources, the cost which we look at capital cost to put a system in, the operation and maintenance cost, then we bring all of that back to present worth so it can be evaluated and the alternatives can be compared; the agency acceptance of the proposed remedy and the community acceptance of the proposed remedy.

So as we look at that, alternative four is the proposed alternative. It is implementable, it utilizes statutory preference for treatment, which is on the eastern plume. It's expected to attain remedial action objectives, and it will have long-term effectiveness, permanence with minimal short-term impact and the cost.

So here are the key elements of the proposed remedy. In the western plume it's the monitored natural attenuation. And what will happen with that is for two years, eight quarters of data will be collected, and it will be evaluated. And it will, we'll look at it to figure out is it effective, is attenuation occurring or is it not. If it's not effective, then after two years the contingency remedy would be implemented such as in situ bioremediation. If it's found that it's effective, new curves will be made so it will project when it would be cleaned up and the monitoring frequency would be changed to semi annual for three years and then annual until the next five year review. Then it will start falling into the five year review cycle. And, you know, every five year review, they again evaluate the remedy and its effectiveness.

In the eastern plume we have the active treatment which is the in situ bioremediation. This target area is expected to require about five injection points and that's still subject to design. This is sort of what the cost estimate is based on. So we can compare it. And outside of that area of injection, there would still be MNA, and then the attenuation of the area where we inject is also re-evaluated to make sure that it is continuing to attenuate. The estimated time to achieve the clean-up levels in both plumes is about 200 years. That's actually kind of based on the western plume. The eastern plume may go a little faster once we do the bioremediation. Land use controls, we will treat the groundwater use until the clean up levels are achieved. Then based on the groundwater flow rates, there's not expected to be any adverse affect on any of the surface water during this treatment time. And the groundwater monitoring will continue every five years until MCLs are met.

So that's the end of Site 35A (58). Do you have any questions on it?

MR. PAUL FORTUNE: It's expected for this clean-up to take 200 years?

MS. SUSAN WATSON: Correct.

MR. PAUL FORTUNE: Okay. We have a plan to monitor this every five years for the next 200 years?

MS. SUSAN WATSON: Yes. Once the MNAs are evaluated, the new curves, a new time frame, you know, depending on how the attenuation, once we get better data, you know, the duration will be reassessed. But right now based on the data we have, we're predicting approximately 200 years.

MR. PAUL FORTUNE: I guess y'all know that I'm happy to say just -- excuse me. Paul Fortune is my name. The Caddo Lake Institute did hire a biologist to do a, to look at this, these alternatives and remedies, and prepared some comments on them. And on this particular site here, 35 (58), one of his comments in regard to the MNA is, and I'm going to read this, and if y'all would like to comment you can. The proposed plan states that contaminant levels will be reduced to MCLs in approximately 200 years. The uncertainty associated with this estimate is an order of magnitude. That is the time to achieve MCLs could range from 20 to 2000 years. It is not reasonable to propose a plan that would require the maintenance of land use controls for many decades or centuries.

Can y'all comment on that? I don't know. I mean, this is another opinion here. I'm just --

MS. SUSAN WATSON: Our best estimate right now is 200 years. This will be evaluated, and based on those rates, you know, another duration will probably come out once we look at the performance of the MNA. And until that's done, I can't, you know -- this is based on the data we have right now, we're saying about, you know, 200 years.

MR. PAUL FORTUNE: If you did this with the, what is that other, in situ bioremediation?

MS. SUSAN WATSON: Uh-huh (responded affirmatively).

MR. PAUL FORTUNE: About how long would you expect it to take?

MS. SUSAN WATSON: If it's effective, less. But I can't tell you. I mean, I can't tell you how much less. So off the top of my head, I can't tell you.

MR. PRAVEEN SRIVASTAV: It depends on the subsurface response once we treat it and then you start seeing the effects. So it depends site to site. But yes, you can probably treat it the next few years. It's hard to say how long.

MS. SUSAN WATSON: I will say now the eastern plume, we looked at that data. We said attenuation is not really happening here. We evaluated the data. We did, you know, attenuation evaluations just like we've done on the other ones and we said, you know, has not attenuated here. So that is why the bio is proposed for that.

MR. PRAVEEN SRIVASTAN: One thing I would like to mention, this has gone through very rigorous review and all these remedies have come out of the, as part of the resolving comments of PCQ and EPA where they were, you know, really, they were commenting on the eastern plume, you know, what the data we are presenting is not indicating will actually remediate this part of the plume. So I think that's the whole process where we work with them and came up with a plan that okay, on the eastern plume, we're going to treat the plume right up front to expedite the process. But on the western site, it seems like that there are daughter products and attenuating might work. Again, it's in the evaluation phase. If you don't see MNA working after two years, then we'll evaluate the need for contingency. That's where we are.

MR. CARLOS SANCHEZ: This is Carlos Sanchez with EPA. Basically what we're doing in the five year review is we have to show that it's decreasing. If it does not do anything, we're not just going to continue to monitor it forever. We expect some kind of active remedy to actually, you know, get to the MCL levels. So just, you know, these years are an estimate, but, again, every five years or sooner with groundwater samples and data are analyzed, we have to show, you know, the levels have to show a trend that they're actually decreasing and going down to continue that process. If it's not doing anything, we're not just going to keep monitoring. We're going to require some active treatment.

MR. PAUL FORTUNE: Is there a rate of decrease that you looked at?

MR. CARLOS SANCHEZ: It varies by site,

but there is some criteria after, you know, as to X number of years where, you know, you would expect it to show a decrease, that monitored natural attenuation is actually taking place. And if that is not happening, you know, you have to take some active or implements, some active remedy because that's what the five year reviews are for to determine the effectiveness of the remedy. And if it's not being effective, it's not going to just continue.

MR. PAUL FORTUNE: All right. I know that y'all look at cost and I appreciate that, but if cost wasn't a factor, would this be the way that you would go?

MR. CARLOS SANCHEZ: Based on the information we have right now, we would go with that. But, again, and that's why we do the evaluations, not just for groundwater, but for all of the remedies. We evaluate and continue to look at the remedies to make sure that they're still effective and they're still serving the function that they were designed for.

UNIDENTIFIED SPEAKER: So 200 years for remedy is acceptable?

MR. CARLOS SANCHEZ: Well, that's what I'm saying. If after X number of years we don't show that it's decreasing, we're not going to continue the monitoring. We're going to require some active treatment.

MR. JOHN LAMBERT: This is John Lambert. It should be added that part of the challenge here is this trichloroethene, it's a chlorinated solvent that's very heavy, it's a chain molecule. When it gets in the subsurface, it's very hard to remove. Example, 18/24 where they've been pumping for over 12 years, you know, it's not as though you get rid of it right away. It takes a long time, even if you're doing an active treatment. So it's a cost balance thing. You can spend a lot of money and do a very active treatment for some number of years and still be a long way from reaching the target. I've heard it stated that very few sites with TCE contamination of groundwater have ever been cleaned up fully. So part of the challenge is the contaminant here in the subsurface. So either you go throw a lot of money at it and still be doing it 50 years later. That's how challenging that contaminant is in the subsurface.

MR. CARLOS SANCHEZ: This is Carlos Sanchez again. We look at various situations, we look not just at, you know, where you are at the time frame that we're looking at for the remedy to reach the MCL. We also look to see if the plume is basically, you know, not moving to, you know, the creek or the lake or to, you know, public drinking source. So we look at various factors to say that 200 may be unacceptable. If you have drinking water, you know, public drinking water float by five years would not be acceptable. So it depends on the site and then the area where the groundwater may be moving to. That takes into account how many years would be acceptable for remedy to reach the MCL levels.

MR. DOUG PARKER: Can you go back to the listing of the four alternatives? Yes, and alternative four was the one that was chosen. And alternative three shows in situ bioremediation for both plumes. And my question here, I guess, is about your process or your analysis, not specifically about this site. But it would seem to me that it's difficult to evaluate an alternative when you don't know the long-term effect. In other words, alternative four, you've made an estimate of 200 years. For alternative three in which you were doing bioremediation, you've not made a similar evaluation. That's not what I'm hearing anyway. I'm wondering how can you make a fair analysis of the alternatives if you don't know that estimate for each of those alternatives?

MS. SUSAN WATSON: Okay.

MR. DOUG PARKER: Is that clear?

MS. SUSAN WATSON: Yes. Basically a standard 30-year period is used to evaluate any alternative. And all the estimates are done in today's dollars and brought back to present worth. And at that point in the future it's not capital cost which are most of your upfront expenditures, but it becomes more of an annual type cost. So it actually doesn't influence like, for example, the cost numbers as much as you think. And we may not know the exact duration of all of these, but I think they were all probably evaluated for the 30-year period. So that's -- to help evaluate, there are set guidelines. There are set discount rates that are published. So a lot of what we do is by some guidance, it's regulatory driven, it's not just oh, this time we'll do this and this time we'll do that. So there's a set of rules on how to do the estimates. And so those are followed, you know, for compatibility. As far as technologies, there's also a lot of guidance on what technologies to use based on contaminants. So all of those things get used to develop, you know, as you go through your technology, screening technologies do you think it will work here, it might work on this contaminant but maybe there's something about the site that this technology is just not going to work. So you have to look at all of that. So first you look at technologies, what is going to work here based on the contaminant and the site. Then once you get all of those technologies, you start grouping them differently, the different alternatives that make sense. And then you do the cost estimates to fully evaluate.

MS. ROSE ZEILER: If I might add, I'm not sure if I understand this part of the question, but we do evaluate each alternative on how well to address the remedial action objective and the time question really relates to the restoration objective which is restoration of groundwater to MCL. I think that was one of three remediation action objectives. So when these alternatives are evaluated, that's one of the criteria is timeliness, short-term and long-term effectiveness. And that will go to how well it addresses that particular remedial action objective, restoration of groundwater. You said we haven't evaluated time, we're not saying much about the time in alternative three which is the in situ. Is that what you were talking about?

MR. DOUG PARKER: Yes. And how do you

compare, you know, one alternative that you have an estimate and another in which you don't have an estimate.

MS. ROSE ZEILER: Right.

MR. PRAVEEN SRIVASTAV: And I think it comes back to time for what. That's what John was referring to. That like in alternative three, you could treat something right up front, but it probably wouldn't get you to MCL much sooner than alternative four. You can knock out a lot of the mass, but to say that it's clean, you have to get to five PPBs for TCE. It takes a long, long time for it to get there, even if you treat something. So that's -- so, I mean, the other part of your question is time for what. That is the hard question to answer.

MS. ROSE ZEILER: And he meant restoration.

MR. DOUG PARKER: So obviously when you came up with approximately 200 years, you somewhere say 200 years to mean what. My question is okay, apply the same thing to the other alternatives.

MR. JOHN LAMBERT: I think he hit on it earlier. That is, it's generally known with that technology in situ bio, that it decreases mass more quickly up front. But as he indicated, you still have that long process where you've got to get to that very low number with the residual contaminated and the subsurface. It's known that it would decrease the time, but just as he said, you don't know exactly how the formation is going to respond to what you do when you inject into the formation to stimulate the biologic process. You don't know exactly how it's going to happen in terms of decrease in time. But you will get that data in your monitoring program. So it will become more apparent. But it's generally established or agreed that it would decrease the amount of treatment time if you did the active in situ bio, but not greatly if you look at the long-term getting to that low level of five. So until you actually do it and get some evaluation data, you can't, it would be pretty much a guess.

MS. ROSE ZEILER: I would say certainly with in situ the 30 year, what's beyond that. But I think his question was the time. I think you answered it. Unless you wanted more in depth.

MR. DOUG PARKER: No. Thank you.

MS. SUSAN WATSON: The time is based on you look at the data and you develop degradation rates and then based on those rates for each individual site, it's is not like a textbook number, you have the data from that site and then that's how the times are developed. Any other questions?

MR. PAUL FORTUNE: I have just an in-general question, not specifically about this. But I guess when you're talking 200 years, this seems irrelevant, but why are we just now at this point on starting to monitor this water over there?

MS. ROSE ZEILER: Well, that's a good question. We're not -- monitoring implies that we're looking at it for some purpose. And I know that sounds insane. We've been in the investigative characterization phase for a long time. And as we move into the MNA or the remedial phase, we'll be doing this at a regular forecast schedule by which we know we can evaluate the data from quarter to quarter. It would have been desirable now that we look back to have some historic data. It certainly would have us at this point. And we have historic data. We just don't have a regular scheduled quarterly data.

MR. JOHN LAMBERT: For certain things when you do MNA.

MS. ROSE ZEILER: You do, but I think he's just talking about -- were you talking about just monitoring for concentrations?

MR. PAUL FORTUNE: I don't know why we

didn't start this monitoring natural attenuation years ago.

MS. ROSE ZEILER: Because it's a remedy. We have to all agree on it.

MR. PAUL FORTUNE: But it seems like the whole -- okay. I don't even know when y'all decided that -- when did you first test this water over there?

MS. ROSE ZEILER: For contaminants?

MR. PAUL FORTUNE: Uh-huh (Responded affirmatively).

MS. ROSE ZEILER: I would say early '90s. Maybe there was an '88 sampling event.

MR. PAUL FORTUNE: So it's early '90s, '88, so it's taken 10 or 12 years just to get to this point?

MS. ROSE ZEILER: Yes, it has. It's taken a long time.

MS. SUSAN WATSON: To go back to the first line, Greg, too far to go back to, but if you remember one of the very first ones, the RI/FS stage was --

MR. PRAVEEN SRIVASTAV: 2002.

MS. SUSAN WATSON: 1992, and the FS, these FSs are 2009. So over that period, there's been a lot of investigations done. And you had to get all of the risk assessments done and the ecological risk assessments done because all of the actions are risk driven, either ecological or human. So it just all took time.

MS. ROSE ZEILER: And I know that it's been frustrating here. I know that. Part of the complication is too or part of the delay is that there are complications in these sites. Perchlorate has been a big one for us. I can't speak to years in the '90s, I can't speak to all of that, I don't know a lot about that history of what actually went on here, but the perchlorate because it was really an emerging contaminant it had a huge bearing on how we went forward on our rating because for a long time we had no clean-up criteria for perchlorate. So if you think about someone saying, Army in this case, okay, we can go clean up perchlorate, what do you clean it up to. What do you clean it up to. Suppose you went out and cleaned it up and then maybe the levels are announced at some point later and you didn't clean up enough. You would have to go back. Army's policy is, you know, unless there's a standard, promulgated standard, that we can work towards, we have nothing to constrain what our level of activity would be. Perchlorate was a problem because it was always identified as a emerging contaminant in '96, '97, somewhere around there pretty late into the '90s, and we went into here, dispute resolution on how to address perchlorate as an emerging contaminant, that took a lot of time. And then later as we went into ecological risk assessment. We had to have our ecological risk assessment done before we could even start finalizing feasibility studies. Ecological risk assessment, perchlorate cost, another problem for us, among other things, because we didn't have standards for perchlorate for human health, much less ecologic risk at that time. That was a delay. And then, you know, finally we got through that ecological risk assessment and really we've been kind of busting loose since then. So we're done...

MS. SUSAN WATSON: Any questions? Okay, 46. 46 is the site we were talking about that's up here that's close to the north boundary. Site 46 is also known as the plant two area. You might hear it referred to as that. It was industrial area. Pyrotechnic and elimination devices were produced. And it was from the '40s to 1997, so for almost 60 years operations were occurring there. Currently the buildings have been demolished. There's some concrete slabs there and overgrown with vegetation. It's pretty flat and there's just some tributaries around the site that eventually run off and head toward Goose Prairie Creek which as y'all know drains into Caddo Lake. The site is much larger than the other sites. It's about 190 acres. The risk assessment indicated that the soil was acceptable both cancer and the hazard index. The cancer risk, it was acceptable in the groundwater, but it had an HI of 31 which is not acceptable. The chemicals of concern were TCE again and their daughter product, cis 1,2- DCE and the vinyl chloride. And the clean up goals here are the MCLs. This is the shallow groundwater contamination. This plume is defined as not migrating into off site. It's --

MR. GARY ENDSLEY: How do you know that?

MS. SUSAN WATSON: Because these wells right here and here and here and here, they don't have contamination in them.

MR. GARY ENDSLEY: That can get off site by going another direction.

MS. SUSAN WATSON: Remember which way your groundwater flows. In the shallow zone, it's going this way.

MR. GARY ENDSLEY: Yes, I know.

MS. SUSAN WATSON: It's got to go -- look how far it has to go and then, you know, it's a long ways. Let's say there was a, you know, even if there was a little --

MR. GARY ENDSLEY: And what is the migration rate in the shallow zone?

MS. SUSAN WATSON: I can't tell you based on groundwater velocity.

MR. GARY ENDSLEY: I read in one of the publications 1.74 feet per day times 365 --

MR. PRAVEEN SRIVASTAN: Let me take that question, Susan. I think this is something we talked about before. Groundwater velocity versus the rate at which the contaminant is going to travel, two completely different things because the contaminant is being affected by, as you know, natural contamination processes. It's getting absorbed, it's getting degraded. So that's why this plume is where it is. Even though the spill is probably 1940s. If it was moving at that speed, it would be somewhere else. And we have several rounds of data in those wells that are around the plume. So we have defined the plume close to and below the MCL and we have several rounds of data that shows that concentration. So that's the indication that the plume is not going anywhere. It's pretty stable at this point. That's both the shallow zone and the intermediate zone.

MR. NIGEL SHIVERS: I have a question. Nigel Shivers. Is it possible for the contaminants in the intermediate zone to leach into the deep?

MS. SUSAN WATSON: The deep zone samples are clean. There is contamination in the intermediate zone. So I'll go to the next slide here. This is the intermediate zone. Part of the reason why this plume may appear bigger is these wells you can see are spaced much further apart. The shallow zone, there are more wells. And there is a deep, actually there's a cluster of wells that's in this area, shallow, intermediate, and deep, they're all together. And the deep wells are clean.

MR. NIGEL SHIVERS: The greatest contamination is in the intermediate; right?

MS. SUSAN WATSON: No.

MR. NIGEL SHIVERS: For this site?

MS. SUSAN WATSON: No. The shallow zone concentration is at 85.5 micrograms per liter for TCE. And the intermediate zone is at about 31 micrograms per liter.

MR. PRAVEEN SRIVASTAV: And the other thing to know is the way contamination moves -- sorry. Is it showing the different data?

MR. NIGEL SHIVERS: I may be reading it

wrong, but it says the shallow zone is approximately 1.4 million gallons of contaminated groundwater in the shallow zone and approximately 7.85 million gallons in the intermediate zone.

MS. SUSAN WATSON: Volume water, correct. And that is this volume. Okay, you see this circle is bigger. It's also based on the thickness. I can't remember the actual thickness of the zone. And then you can see how this is much smaller. So the volume affected, look at the well spacing, you can see the wells are closer together so you can define the plume as smaller. So here the well spacing is larger so you draw your -- you don't say it's real small. You're conservative in how you draw the plume. So since we know this one is clean, you can see, you know, it's not drawn around here, it's actually drawn out closer to here because we know this one is clean. So if we had the entire well spacing, the volume of the intermediate zone, you know, could be less. It's hard to say, you know, based on -- this is conservative.

MR. PRAVEEN SRIVASTAV: Let me take another shot at this. What you're looking at is the volume. But overall concentration in the intermediate zone is lower than what's in the shallow. That's one. Number two, when you worry about vertical migration, you worry about that when you have really, really high concentrations, so let's suppose we have much, much higher concentrations in the intermediate zone, then you start thinking, okay, maybe it's moving down. But these concentrations are not nearly as high. So that's one. And number two, we do have a deeper well that shows no contamination. So we have tested in the area that is highest concentration at the site and it's not showing that.

MS. SUSAN WATSON: So the groundwater contamination is approximately down to 30 feet below the ground surface and that's in the intermediate zone. The drinking water well -- we had questions on this. The drinking water wells are in the Wilcox group and it's approximately 200 feet below the ground surface. The drinking water wells are upgradient of contamination and this is from the remedial investigation. This is where this information has come from. They did this -- well, I don't know what year they actually looked at the data. But this is from approved RI that was back in 2002.

MR. DOUG PARKER: Can you go back, please. The last item, I'm sorry, I read English, but I don't know what that means, upgradient of the contamination, what does that mean?

MS. SUSAN WATSON: It means that the water flows from the direction of the drinking wells down towards lake and Longhorn.

MS. ROSE ZEILER: It's not flowing towards the drinking water.

MS. SUSAN WATSON: (Pointing toward slide) yes, Longhorn down. It's flowing up. From the public, the area of the public water wells, the groundwater flow would flow towards Longhorn.

UNIDENTIFIED SPEAKER: It's downwind is what you're saying?

MS. SUSAN WATSON: Right. Here's what we did --

MR. CARLOS SANCHEZ: Uphill of the drinking water.

MS. SUSAN WATSON: Thank you. These are the one, two, and three wells that are in the Caddo Lake water supply. And these coordinates came from the state data base. I know this one is slightly off. I know it's not in the middle of the road. But this is the shallow zone. And this is the same groundwater flow that we saw earlier that was bigger, so it's just for this site. And so this is the flow direction here in the shallow zone. Here's your contamination. This little area in the middle is where it is now.

Historically you can see it's been larger. So right down here is your contamination right here. And then here is your flow. And then here are your wells here and here and here. Then here is the intermediate. Groundwater flow is towards the northeast. So it's coming across this way. Here's the plume. Your wells are here, here, and here.

So before we move on, any questions about any of that before we move on to the alternatives?

Okay. Alternatives evaluated, there were three of them. First one was no action. Second one is monitored natural attenuation with land use controls. Third one was the in situ bioremediation with short-term land use controls and long-term monitoring. And alternative two is the proposed remedy. This is for both the shallow and intermediate zone here. So why was it recommended; it was easily implementable, it's expected to attain remedial objectives, it will have long-term effectiveness and permanence with minimal short-term impact, and the cost.

So the monitored natural attenuation means, again, for two years we'll collect a course of data and evaluate it. If it's effective, monitoring will continue. If it's not, a contingency remedy would be implemented. The long-term monitoring would continue every five years until the MCLs are met and the LUCs would restrict groundwater use until the clean-up levels are met. And the estimated time to achieve the clean-up levels is about 30 years.

That's the last site. Any questions?

MR. PAUL FORTUNE: Yes. What is thallium?

MS. SUSAN WATSON: It's a metal.

MR. PAUL FORTUNE: Okay. I've never heard of it before. Why would it be a chemical of concern?

MS. SUSAN WATSON: If there is risk from thallium, it would be a chemical of concern.

MR. PAUL FORTUNE: But is there a risk from thallium? I don't know. I'm asking.

MS. SUSAN WATSON: From the risk assessments and the feasibility study, the COCs here were TCE and the daughter products.

MR. PAUL FORTUNE: Well, since I don't know what thallium is, it says here, and this is in George Rice's comments, all analysis of thallium infiltered groundwater samples at Site 46 exceeded the MCL. The Army has stated that the thallium is probably naturally occurring. Thus, it is not considered to be a chemical of concern. However, this conclusion does not appear to be supported by the data. And it goes on. And I mean --

MR. PRAVEEN SRIVASTAV: Let me take that. What we are trying to do, we just got them yesterday or day before from Mr. Lowery, so we are planning on responding to them in writing. Since we just received them, we don't have all of the information to answer that question.

MR. PAUL FORTUNE: All right. I didn't know whether y'all were going to respond to them. You haven't responded to any of my questions.

MR. PRAVEEN SRIVASTAV: We're happy to respond to them.

MS. ROSE ZEILER: Yes, right. We have to respond.

MR. PRAVEEN SRIVASTAV: We have to go back and look at the data and see what Mr. Gary Rice is referring to. Is it Gary Rice?

MR. PAUL FORTUNE: George.

MR. PRAVEEN SRIVASTAV: George.

MS. ROSE ZEILER: And all of your comments will be responded to, every one of them. And they're going to be included --

MR. PAUL FORTUNE: Well, nobody said they were going to be, so I just --

MS. ROSE ZEILER: I'm sorry, I thought we did. Maybe we didn't. I apologize if we didn't. It will be in responsiveness summary of the ROD, but you're free to ask those now. We'll try to answer them briefly.

MR. PAUL FORTUNE: Okay.

MR. NIGEL SHIVERS: I have another question. Going back to the alternative, take for instance alternative three, you chose not to do that one.

MS. SUSAN WATSON: Do you want me to go back?

MR. NIGEL SHIVERS: Alternative three, right, you chose not to do that one. Why?

MS. SUSAN WATSON: Because --

MR. NIGEL SHIVERS: What about the length of duration? How long did --

MR. GARY ENDSLEY: 30 years.

MR. NIGEL SHIVERS: 30 years on three?

MR. GARY ENDSLEY: I've believe on two.

MS. SUSAN WATSON: 30 years on two.

MR. NIGEL SHIVERS: Two?

MS. SUSAN WATSON: Yes. So it could be less. How much, I can't tell you.

MR. GARY ENDSLEY: Would you use the same logic you were applying to an earlier site, we could expect of immediate bump, knock down the concentration, long string out of getting the MCL.

MS. SUSAN WATSON: Especially when they're low concentrations --

MR. GARY ENDSLEY: And what we're worried about here is the close proximity to the public drinking water source. And the numbers of samples, the kind of bottle you put the thing into, all that plays into the quality of what rolls out at the end of the pipe. You know, this to me is the top line concern. We need more sampling of wells, shallow, intermediate that's in line with the drinking water sources. I think you should put them out there. And you should monitor those things. I think you ought to be putting the bugs to it and augmenting the bugs and see if they can't hurry up and get rid of this potential nightmare situation.

MS. ROSE ZEILER: Thanks for your comments.

MR. GARY ENDSLEY: That's my comment.

MS. SUSAN WATSON: Just in general with, again, TCE, you may think oh, it's a low concentration, but sometimes, I mean, it still takes a long time for it to get all the way through even though it's --

MR. GARY ENDSLEY: It's been out there a long time already.

MR. NIGEL SHIVERS: I was just wondering if you could reach the same conclusion in a shorter period of time by doing alternative three; same result, shorter period of time?

MS. SUSAN WATSON: Basically alternative two and alternative three both should ultimately restore groundwater to beneficial use, yes.

Site 50. Okay. Site 50 is a little bitty site right here. And we talked about the sampling at Goose Prairie Creek earlier at the RAB meeting when they were saying this is one of the areas where they sampled Goose Prairie Creek was right around here. Okay. Site 50 was the former sump water tank. And I think the name tells you what the operations were. Basically they took water from all of the sumps around Longhorn and took it to this large 47,000 gallon above ground storage tank at the site. Then what they did is they filtered out the solids and then the liquid was actually discharged to Goose Prairie Creek when the flow was sufficient to dilute the water to safe levels. The tank has been removed. It's just basically grass out there. And the site is about one acre. It's actually a little bitty site. Basically the runoff does flow to Goose Prairie Creek. And the shallow zone is about 20 feet below the ground surface and it flows, I have here east northeast, just on the overall how it flows. And the shallow zone groundwater, the creek is adjacent to the site, but the level of the shallow groundwater is actually below the bottom of the creek there. So the groundwater, you know, doesn't flow into the creek. So the risk assessment was done. And the soil, there was no cancer risk. No non cancer hazard index. Everything was acceptable. And the groundwater, there was a cancer risk and the HI was not acceptable. It was 300. Most of this is due to perchlorate. Another thing we did here with the perchlorate is we looked at the soil to groundwater pathway and what we found is actually there was an area of soil that had high perchlorate levels. So you'll see for soil, the chemical of concern is perchlorate and that's because it can leach into the groundwater. And there's a level they looked at the levels in the soil leaching into the groundwater for industrial use and that's the value that was used, TCEQ value. The chemicals of concern in the shallow groundwater are perchlorate, tetrachloroethene, trichloroethene, 1,1 dichloroethene, cis 1,2- dichloroethane, 1,2 dichloroethane, and vinyl chloride.

Here are the plumes. Again, remember it's just the shallow groundwater. These are the volatile COC plumes that would be tetrachloroethene, trichloroethene, dichloroethene. And then on this one we also showed perchlorate. You'll see it on the next one. But here's the little area that perchlorate was identified. You'll see excavation on the alternatives. That's where it will be. This is the perchlorate. This little circle right here is where we believe the tank was located based on the past reports.

MR. GARY ENDSLEY: That plume is 30 feet below the surface, 20 feet?

MS. SUSAN WATSON: 20 feet.

MR. GARY ENDSLEY: 20 feet.

MS. SUSAN WATSON: Remedial action objectives for site 50 are to prevent exposure to the volatiles, perchlorate contaminated groundwater, to protect the human health by preventing further degradation of groundwater and surface water from the soil contaminated with perchlorate and to return the groundwater to its potential beneficial use as a drinking water. So the alternatives were developed. Alternative one is no action. Alternative two is excavation of the perchlorate contaminated soil, monitored natural attenuation. That would be for both the VOC and perchlorate plumes and then land use controls. Then alternative three, again, excavation of perchlorate contaminated soil, in situ bioremediation, which is effective on both VOC and perchlorate, MNA, the monitored natural attenuation, and land use controls. And alternative two is the proposed remedy.

Again, implementable, it's expected to attain remedial action objectives. It will have long-term effectiveness and permanence with minimal short-term impact and the cost. So the remedy is to first go out there and remove the perchlorate contaminated soil that is above the groundwater protection level. So anything that can leach from the soil into the groundwater would be stopped for perchlorate. Then the monitored natural attenuation performance will be evaluated. This is for both perchlorate and tri -- trichloroethene. They all look alike after a while. Then if it's effective, monitoring would continue. If it's not effective, a contingency remedy such as the in situ bioremediation. Subsequent monitoring would occur every five years until MCLs are met. In the case of perchlorate, it's actually a state level that is used. It's a promulgated state level, which is industrial level. The land use controls will restrict groundwater use until clean-up levels are achieved, and the estimated time to achieve clean-up here is about 50 years.

Any questions? This is the last of 50.

MR. PAUL FORTUNE: We don't know whether this well has contaminated the groundwater?

MS. SUSAN WATSON: Pardon me?

MR. PAUL FORTUNE: We don't know whether this spill here has contaminated the groundwater?

MS. SUSAN WATSON: It is the water, the groundwater --

MR. PAUL FORTUNE: But the deeper.

MS. SUSAN WATSON: There are deeper wells that were installed. There was no contamination in the other levels. Only the shallow zone.

MR. PRAVEEN SRIVASTAV: Any other questions?

MS. SUSAN WATSON: No more? Okay. So now Aaron, I think Aaron Williams will be talking about Site 35B, which is also called 37 and LHAAP 67.

MR. AARON WILLIAMS: Hello, I'm Aaron Williams. I'm with Tulsa Corps of Engineers. I'm going to be discussing the proposed plans for Site

35B, also known as 37 and Site 67. If you can't see these posters, I've got facts sheets. So Site 37 was the chemical laboratory and it was constructed in the 1953, 1955 time frame. It was constructed to support production activities at Longhorn. And it was also supporting activities for research and testing of materials that would go into the production activities at Longhorn. Site 67 was a former aboveground storage tank farm. There were seven storage tanks at this site of unknown sizes. And personnel indicate that the tanks were used to store solvents.

37 is located in the north central portion of Longhorn. It's approximately 12 acres. It's asphalt-paved roads, several administrative buildings. The flow at this site is east northeast direction. And for Site 67, it's about two acres and the groundwater flow at that site is an east southeast direction. There was a base line human health risk assessment performed for these two sites. The soil at the sites did not have a cancer risk or a non cancer hazard. The groundwater, however, for both sites did have a cancer risk and a non cancer hazard associated with them. And, again, that is for that potential maintenance worker. The chemicals of concern for this Site 37 had DCE, PCE, and TCE in the shallow

groundwater zone. And 67 had DCE, DCA, TCA, and TCE in the shallow groundwaters.

So the remediation action objectives for these sites is the protection of human health by preventing human exposure to the contaminated groundwater, protection of human health and environment by preventing contaminated groundwater from migrating into nearby surface water and then return the groundwater to its potential beneficial uses as drinking water wherever practical. There were four alternatives that were evaluated during this feasibility study. The first was the no action. The second alternative is land use control and monitored natural attenuation. You can see the cost on there for each of these alternatives as well. Alternative three, in situ bioremediation with land use controls. And then the fourth alternative, groundwater extraction, on-site treatment, and then the land use controls. Each of these alternatives were then evaluated with the nine criteria that have been discussed earlier on in detail. And the selection that we have for this proposed plan is alternative two which is the monitored natural attenuation with land use controls. It is consistent with intended future use of this site as wildlife refuge. It will satisfy the RAO for the sites through groundwater restriction LUCs which will ensure protection of human health by preventing human exposure to contaminated groundwater. The monitored natural attenuation will assure protection of human health and environment by monitoring the contaminated groundwater to ensure the MNA returns the groundwater to its potential beneficial use as drinking water. Also it documents that the plume is not migrating into the nearby surface water bodies. And I think that covers the high points. The clean-up levels that are expected to be met is 43 years for 37 and approximately 66 years for Site 67.

Any comments? All right. Thanks.

MS. ROSE ZEILER: Thank you, Aaron. To kind of wrap this up, any remaining questions or comments on anything? Okay. I just wanted to ask if the EPA had any comments on these proposed plans?

MR. CARLOS SANCHEZ: First of all, I want to thank all of you for participating in this public meeting. It is very beneficial to the process of getting comments and questions from the public. So we appreciate your coming here and giving your time and helping us, you know, try to make sure that you understand what is being proposed and what the remedies will be for the sites. EPA has worked closely with the Army for many years on the whole site and all of these different sites are being proposed to clean up together with the Texas Commission on Environmental Health Quality. And EPA is in agreement with the proposed remedies for all these different sites.

MS. ROSE ZEILER: Thank you, Carlos.

MS. FAY DUKE: TCEQ as well is in support of Army's selective remedy proposed.

MS. ROSE ZEILER: All right. Well, that concludes the meeting this evening. From the Army, thank you very much for attending. Your comments and questions, if they weren't answered in detail tonight, they will be responded to in the transcript. Thank you.

MR. CARLOS SANCHEZ: Now, your comments are officially of record and we will respond to them.

CERTIFICATE

STATE OF LOUISIANA:
PARISH OF CADDO :

I, Donna B. Crenshaw, Certified Court Reporter, do hereby certify that the foregoing proceedings were had before me, and that they were reported by me and this is a true and correct record of the proceedings had in the public meeting held on March 9, 2010.

I further certify that I am related to or employed by any of the parties to this cause or in any wise interested in the event thereof.

SUBSCRIBED AND SWORN TO on this the 25th day of March, 2010.

DONNA BLISSETT CRENSHAW
Certificate Number 93014
Certificate expires 12-31-10

Donna Crenshaw

Donna Blissett Crenshaw, CCR