

**Laboratory Report Number:** L16090239

Derrick Lamp  
Ohio Oil Gathering Corp.  
157 Lower Eureka Lane  
St. Mary's, WV 26170

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

Laboratory Contact:  
Michelle Taylor – Client Services Specialist  
(740) 373-4071  
Michelle.Taylor@microbac.com

*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. The reported results are related only to the samples analyzed as received.*

This report was certified on September 15 2016



Leslie Bucina – Managing Director

State of Origin: WV  
Accrediting Authority: Department of Environmental Protection ID:361  
QAPP: Microbac OVD



## Record of Sample Receipt and Inspection

### Comments/Discrepancies

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

There were no discrepancies.

Discrepancy	Resolution
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### Coolers

Cooler #	Temperature Gun	Temperature	COC #	Airbill #	Temp Required?
00114292	H	2.0			X

### Inspection Checklist

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

**Lab Report #:** L16090239

**Lab Project #:** 2167.005

**Project Name:** WV Oil

**Lab Contact:** Michelle Taylor

**Samples Received**

Client ID	Laboratory ID	Date Collected	Date Received
WV06	L16090239-01	09/07/2016 11:00	09/07/2016 13:30



**Login Number:** L16090239  
**Department:** Metals  
**Analyst:** Kerri Buck

## **METHOD**

**Preparation:** SW-846 3015

**Analysis:** SW-846 6010

## **HOLDING TIMES**

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

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

## **PREPARATION**

Sample preparation proceeded normally.

## **CALIBRATION**

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

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

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

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

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

## **BATCH QA/QC**

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

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

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

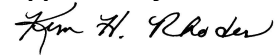
**Matrix Spikes:** All acceptance criteria were met.

## **SAMPLES**

**Samples:** WG583168 - Client sample 01 yielded results that were instrument flagged for uncorrected interference upon initial analysis. The sample was reanalyzed at a dilution for all analytes on a later calibration.

**Narrative ID:** 117054

**Approved By:** Kim Rhodes



## Certificate of Analysis

<b>Sample #:</b> L16090239-01	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> ICP-THERMO4
<b>Client ID:</b> WV06	<b>Prep Method:</b> 3015	<b>Prep Date:</b> 09/08/2016 12:45
<b>Matrix:</b> Water	<b>Analytical Method:</b> 6010B	<b>Cal Date:</b> 09/12/2016 11:31
<b>Workgroup #:</b> WG583168	<b>Analyst:</b> KKB	<b>Run Date:</b> 09/12/2016 12:27
<b>Collect Date:</b> 09/07/2016 11:00	<b>Dilution:</b> 100	<b>File ID:</b> T4.091216.122757
<b>Sample Tag:</b> DL01	<b>Units:</b> mg/L	

Analyte	CAS #	Result	Qual	RL	MDL
Barium, Total	7440-39-3	1220		1.00	0.500
Iron, Total	7439-89-6	211		10.0	5.00
Manganese, Total	7439-96-5	9.85		1.00	0.500

<b>Sample #:</b> L16090239-01	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> ICP-THERMO4
<b>Client ID:</b> WV06	<b>Prep Method:</b> 3015	<b>Prep Date:</b> 09/08/2016 12:45
<b>Matrix:</b> Water	<b>Analytical Method:</b> 6010B	<b>Cal Date:</b> 09/12/2016 11:31
<b>Workgroup #:</b> WG583168	<b>Analyst:</b> KKB	<b>Run Date:</b> 09/12/2016 14:50
<b>Collect Date:</b> 09/07/2016 11:00	<b>Dilution:</b> 200	<b>File ID:</b> T4.091216.145028
<b>Sample Tag:</b> DL02	<b>Units:</b> mg/L	

Analyte	CAS #	Result	Qual	RL	MDL
Sodium, Total	7440-23-5	43300		100	50.0

<b>Sample #:</b> L16090239-01	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> TIAMO1
<b>Client ID:</b> WV06	<b>Prep Method:</b> 9040C	<b>Prep Date:</b> N/A
<b>Matrix:</b> Water	<b>Analytical Method:</b> 9040C	<b>Cal Date:</b>
<b>Workgroup #:</b> WG582907	<b>Analyst:</b> AWE	<b>Run Date:</b> 09/07/2016 21:12
<b>Collect Date:</b> 09/07/2016 11:00	<b>Dilution:</b> 1	<b>File ID:</b> T1.090716.2112PH
<b>Sample Tag:</b> 01	<b>Units:</b> Degrees C	

Analyte	CAS #	Result	Qual	RL	MDL
pH	10-29-7	5.95	H1	0.000	0.000
Temperature At Determination (C)				0.000	0.000
H1	Sample analysis performed past holding time.				

<b>Sample #:</b> L16090239-01	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> SMARTCHEM2
<b>Client ID:</b> WV06	<b>Prep Method:</b> SM4500-Cl(-)-E-1997	<b>Prep Date:</b> N/A
<b>Matrix:</b> Water	<b>Analytical Method:</b> SM4500-Cl(-)-E-1997	<b>Cal Date:</b> 09/09/2016 10:15
<b>Workgroup #:</b> WG583215	<b>Analyst:</b> TMM	<b>Run Date:</b> 09/09/2016 10:22
<b>Collect Date:</b> 09/07/2016 11:00	<b>Dilution:</b> 2000	<b>File ID:</b> S2160909001.017
<b>Sample Tag:</b> DL01	<b>Units:</b> mg/L	

## Certificate of Analysis

Analyte	CAS #	Result	Qual	RL	MDL
Chloride	16887-00-6	90500		4000	2000

<b>Sample #:</b> L16090239-01	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> OVEN
<b>Client ID:</b> WV06	<b>Prep Method:</b> 160.1/SM2540C	<b>Prep Date:</b> N/A
<b>Matrix:</b> Water	<b>Analytical Method:</b> SM2540-C-1997	<b>Cal Date:</b>
<b>Workgroup #:</b> WG583091	<b>Analyst:</b> AWE	<b>Run Date:</b> 09/08/2016 11:55
<b>Collect Date:</b> 09/07/2016 11:00	<b>Dilution:</b> 1	<b>File ID:</b> EN.1609081155-04
<b>Sample Tag:</b>	<b>Units:</b> mg/L	

Analyte	CAS #	Result	Qual	RL	MDL
Total Dissolved Solids		117000		1000	500

<b>Sample #:</b> L16090239-01	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> TOC-VWP
<b>Client ID:</b> WV06	<b>Prep Method:</b> 415.1	<b>Prep Date:</b> N/A
<b>Matrix:</b> Water	<b>Analytical Method:</b> 415.1	<b>Cal Date:</b> 10/30/2015 17:00
<b>Workgroup #:</b> WG583016	<b>Analyst:</b> DCM	<b>Run Date:</b> 09/08/2016 11:38
<b>Collect Date:</b> 09/07/2016 11:00	<b>Dilution:</b> 25	<b>File ID:</b> TC09082016.010
<b>Sample Tag:</b> DL01	<b>Units:</b> mg/L	

Analyte	CAS #	Result	Qual	RL	MDL
Total Organic Carbon	TOC	392		25.0	12.5

<b>Sample #:</b> L16090239-01	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> OVEN
<b>Client ID:</b> WV06	<b>Prep Method:</b> SM2540-D-1997	<b>Prep Date:</b> N/A
<b>Matrix:</b> Water	<b>Analytical Method:</b> SM2540-D-1997	<b>Cal Date:</b>
<b>Workgroup #:</b> WG583158	<b>Analyst:</b> MAP	<b>Run Date:</b> 09/08/2016 15:30
<b>Collect Date:</b> 09/07/2016 11:00	<b>Dilution:</b> 1	<b>File ID:</b> EN.1609081530-05
<b>Sample Tag:</b>	<b>Units:</b> mg/L	

Analyte	CAS #	Result	Qual	RL	MDL
Total Suspended Solids		387		5.00	2.50

Certificate of Analysis



Microbac Laboratories Inc.  
Ohio Valley Division Analyst List  
September 15, 2016

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001 - BIO-CHEM TESTING WVDEP 220	002 - REIC Consultants, Inc. WVDEP 060
003 - Sturm Environmental	004 - MICROBAC PITTSBURGH
005 - ES LABORATORIES	006 - ALCOSAN LABORATORIES
007 - ALS LABORATORIES	008 - BENCHMARK LABORATORIES
010 - MICROBAC CHICAGOLAND	AC - AMBER R. CARMICHAEL
ADC - ANTHONY D. CANTER	ADG - APRIL D. GREENE
AED - ALLEN E. DAVIS	ALS - ADRIANE L. STEED
AMA - ALEXANDRA M. ALFRED	AWE - ANDREW W. ESSIG
AZH - AFTER HOURS	BJO - BRIAN J. OGDEN
BKT - BRENDAN TORRENCE	BLG - BRENDA L. GREENWALT
BNB - Brandi N. Bentley	BRG - BRENDA R. GREGORY
CAA - CASSIE A. AUGENSTEIN	CAF - CHERYL A. FLOWERS
CAS - Craig A. Smith	CEB - CHAD E. BARNES
CJQ - Cameron J. Quick	CLC - CHRYS L. CRAWFORD
CLS - CARA L. STRICKLER	CLW - CHARISSA L. WINTERS
CPD - CHAD P. DAVIS	CSH - CHRIS S. HILL
CV - Carl Volkman	DAK - DEAN A. KETELSEN
DCM - DAVID C. MERCKLE	DEV - DAVID E. VANDENBERG
DIH - DEANNA I. HESSON	DLB - DAVID L. BUMGARNER
DLP - DOROTHY L. PAYNE	DSM - DAVID S. MOSSOR
ECL - ERIC C. LAWSON	EMW - ERIC M. WILKEN
ENY - EMILY N. YOAK	ERP - ERIN R. PORTER
FJB - FRANCES J. BOLDEN	HDC - HANAH D. COE
HDD - HANAH D. DAWKINS	JBK - JEREMY B. KINNEY
JDH - JUSTIN D. HESSON	JDS - JARED D. SMITH
JKP - JACQUELINE K. PARSONS	JLD - JESSICA L. DELONG
JLL - JOHN L. LENT	JMW - JEANA M. WHITE
JTP - JOSHUA T. PEMBERTON	JWR - JOHN W. RICHARDS
JWS - JACK W. SHEAVES	JYH - JI Y. HU
KAT - KATHY A. TUCKER	KDD - Katelyn D. Daley
KDW - KATHRYN D. WELCH	KEB - KATIE E. BARNES
KHR - KIM H. RHODES	KKB - KERRI K. BUCK
KRA - KATHY R. ALBERTSON	KRB - KAEELY R. BECKER
KRP - KATHY R. PARSONS	LJH - Lacey J. Hendershot
LKN - LINDA K. NEDEFF	LLS - LARRY L. STEPHENS
LSB - LESLIE S. BUCINA	MAP - MARLA A. PORTER
MBK - MORGAN B. KNOWLTON	MDA - MIKE D. ALBERTSON
MDC - MIKE D. COCHRAN	MES - MARY E. SCHILLING
MMB - MAREN M. BEERY	MRT - MICHELLE R. TAYLOR
MSW - MATT S. WILSON	NPH - Natalie P. Hart
PDM - PIERCE D. MORRIS	PIT - MICROBAC WARRENDAL
QX - QIN XU	RAH - ROY A. HALSTEAD
REK - BOB E. KYER	RLB - BOB BUCHANAN
RNP - RICK N. PETTY	SAV - SARAH A. VANDENBERG
SCB - SARAH C. BOGOLIN	SDC - SHALYN D. CONLEY
SLM - STEPHANIE L. MOSSBURG	SLP - SHERI L. PFALZGRAF
TB - TODD BOYLE	TGF - TIM G. FELTON
TMB - TIFFANY M. BAILEY	TMM - TAMMY M. MORRIS
VC - VICKI COLLIER	WJB - WILL J. BEASLEY
WTD - WADE T. DELONG	XXX - UNAVAILABLE OR SUBCONTRACT

September 15, 2016

Qualkey: STD

Qualifier	Description
*	Surrogate or spike compound out of range
+	Correlation coefficient for the MSA is less than 0.995
<	Result is less than the associated numerical value.
>	Result is greater than the associated numerical value.
A	See the report narrative
B	Analyte present in method blank
B,H1	Analyte present in method blank. Sample analysis performed past holding time.
B1	Target analyte detected in method blank at or above the method reporting limit
B3	Target analyte detected in calibration blank at or above the method reporting limit
B4	The BOD unseeded dilution water blank exceeded 0.2 mg/L
C	Confirmed by GC/MS
CG	Confluent growth
CT1	The cooler temperature at receipt exceeded regulatory guidelines for requested testing.
DL	Surrogate or spike compound was diluted out
E	Estimated concentration due to sample matrix interference
E,CT1	Estimated results. The cooler temperature at receipt exceeded regulatory guidelines for requested testing.
EDL	Elevated sample reporting limits, presence of non-target analytes
EMPC	Estimated Maximum Possible Concentration
F, S	Estimated result below quantitation limit; method of standard additions(MSA)
F,CT1	Estimated value; the analyte concentration was less than the RL/LOQ. The cooler temperature at receipt exceeded regula
FL	Free Liquid
FP1	Did not ignite.
H1	Sample analysis performed past holding time.
H1,CT1	Sample analysis performed past holding time. The cooler temperature at receipt exceeded regulatory guidelines for requ
I	Semiquantitative result (out of instrument calibration range)
J	Estimated value; the analyte concentration was less than the RL/LOQ.
J,B	Analyte detected in both the method blank and sample above the MDL.
J,CT1	Estimated value; the analyte concentration was less than the RL/LOQ.
J,CT1	Estimated value; the analyte concentration was less than the RL/LOQ. The cooler temperature at receipt exceeded regula
J,P	Estimate; columns don't agree to within 40%
J,S	Estimated concentration; analyzed by method of standard addition (MSA)
L	Sample reporting limits elevated due to matrix interference
L1	The associated blank spike (LCS) recovery was above the laboratory acceptance limits.
L2	The associated blank spike (LCS) recovery was below the laboratory acceptance limits.
M	Matrix effect; the concentration is an estimate due to matrix effect.
N	Tentatively identified compound(TIC)
NA	Not applicable
ND	Not detected at or above the reporting limit (RL)
ND, B	Not detected at or above the reporting limit (RL). Analyte present in method blank.
ND, CT1	Analyte was not detected. The concentration is below the reported LOD. The cooler temperature at receipt exceeded reg
ND, L	Not detected; sample reporting limit (RL) elevated due to interference
ND, S	Not detected; analyzed by method of standard addition (MSA)
ND,H1	Not detected; Sample analysis performed past holding time.
ND,H1,CT1	Not detected; Sample analysis performed past holding time. The cooler temperature at receipt exceeded regulatory guide
NF	Not found by library search
NFL	No free liquid
NI	Non-ignitable
NR	Analyte is not required to be analyzed
NS	Not spiked
P	Concentrations >40% difference between the two GC columns
Q	One or more quality control criteria failed. See narrative.
QNS	Quantity of sample not sufficient to perform analysis
RA	Reanalysis confirms reported results
RE	Reanalysis confirms sample matrix interference
S	Analyzed by method of standard addition (MSA)
SMI	Sample matrix interference on surrogate
SP	Reported results are for spike compounds only
TIC	Library Search Compound
TNTC	Too numerous to count
TNTC, B	Too numerous to count. Analyte present in method blank.
TNTC,CT1	Too numerous to count. The cooler temperature at receipt exceeded regulatory guidelines for requested testing.
TNTC,H1	Too numerous to count. Sample analysis performed past holding time.
U	Analyte was not detected. The concentration is below the reported MDL.
UJ	Undetected; the MDL and RL are estimated due to quality control discrepancies.
UQ	Undetected; the analyte was analyzed for, but not detected.
W	Post-digestion spike for furnace AA out of control limits
X	Exceeds regulatory limit



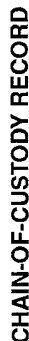
Microbac Laboratories Inc.  
List of Valid Qualifiers  
September 15, 2016

Qualkey: STD

X, S	Exceeds regulatory limit; method of standard additions (MSA)
Z	Cannot be resolved from isomer - see below



Phone: 740-373-4071  
Toll Free: 800-373-4071



## CHAIN-OF-CUSTODY RECORD

[illegible]

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