

## Laramie Energy - Grand Junction, CO

Sample Delivery Group: L1145182  
Samples Received: 10/02/2019  
Project Number:  
Description: Kobe Flange - Drainage H2O

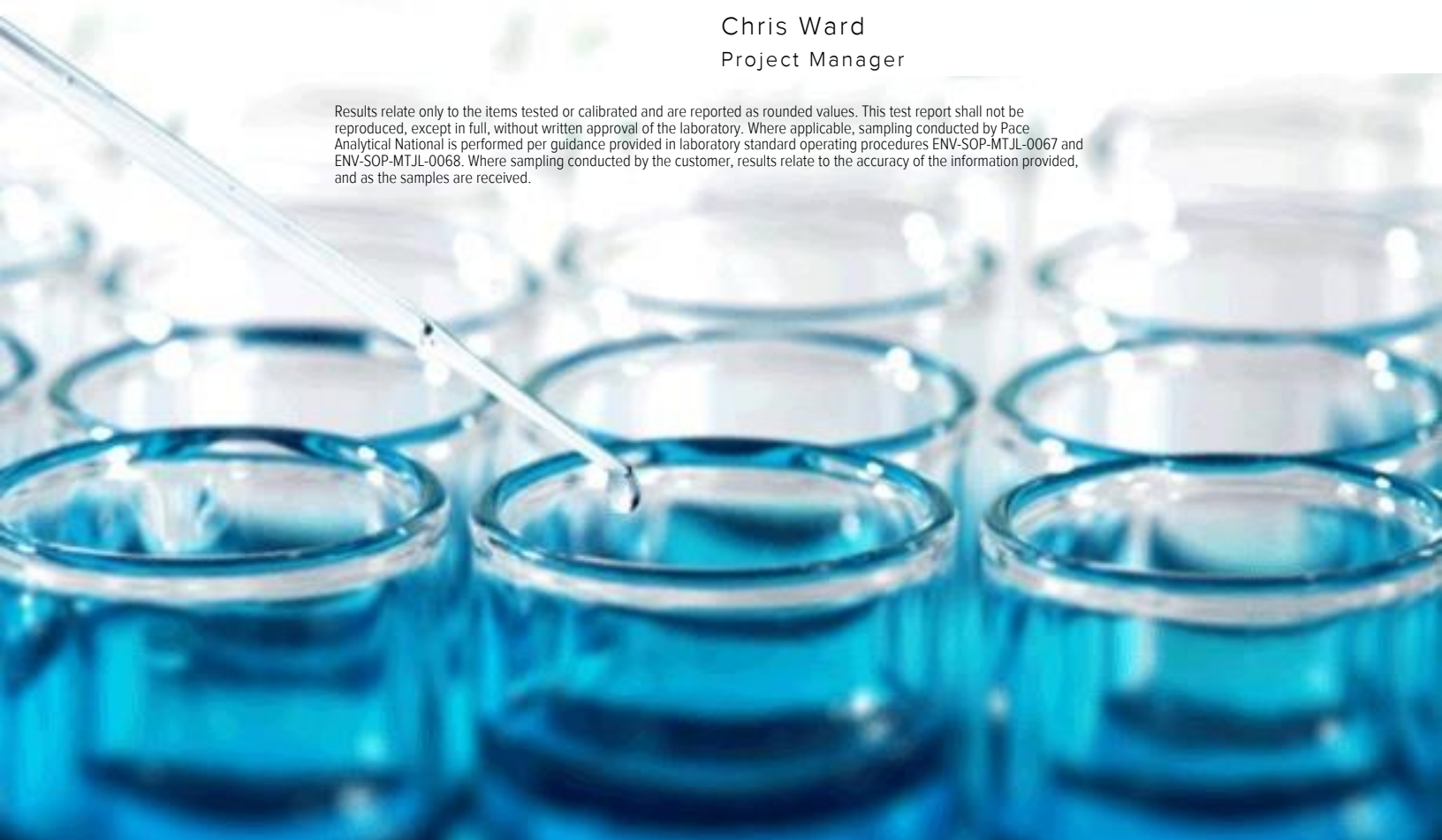
Report To: Matt Kasten  
760 Horizon Dr., Ste. 101  
Grand Junction, CO 81506

Entire Report Reviewed By:

*Chris Ward*

Chris Ward  
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.





Cp: Cover Page	1	<sup>1</sup> Cp
Tc: Table of Contents	2	
Ss: Sample Summary	3	<sup>2</sup> Tc
Cn: Case Narrative	4	
Sr: Sample Results	5	<sup>3</sup> Ss
KOBE FLANGE - DRAIN 1N   L1145182-01	5	
KOBE FLANGE - DRAIN 2N   L1145182-02	6	<sup>4</sup> Cn
KOBE FLANGE - DRAIN 3N   L1145182-03	7	<sup>5</sup> Sr
KOBE FLANGE - DRAIN 1S   L1145182-04	8	
Qc: Quality Control Summary	9	<sup>6</sup> Qc
Volatile Organic Compounds (GC/MS) by Method 8260B	9	
Gl: Glossary of Terms	11	<sup>7</sup> Gl
Al: Accreditations & Locations	12	<sup>8</sup> Al
Sc: Sample Chain of Custody	13	<sup>9</sup> Sc



## KOBE FLANGE - DRAIN 1N L1145182-01 GW

Collected by  
Matt KastenCollected date/time  
10/01/19 11:10Received date/time  
10/02/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1358163	1	10/06/19 17:46	10/06/19 17:46	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1359206	1	10/08/19 17:17	10/08/19 17:17	ACG	Mt. Juliet, TN

<sup>1</sup> Cp<sup>2</sup> Tc<sup>3</sup> Ss<sup>4</sup> Cn<sup>5</sup> Sr<sup>6</sup> Qc<sup>7</sup> Gl<sup>8</sup> Al<sup>9</sup> Sc

## KOBE FLANGE - DRAIN 2N L1145182-02 GW

Collected by  
Matt KastenCollected date/time  
10/01/19 11:15Received date/time  
10/02/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1358163	1	10/06/19 18:10	10/06/19 18:10	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1359206	1	10/08/19 17:38	10/08/19 17:38	ACG	Mt. Juliet, TN

## KOBE FLANGE - DRAIN 3N L1145182-03 GW

Collected by  
Matt KastenCollected date/time  
10/01/19 11:20Received date/time  
10/02/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1358163	1	10/06/19 18:34	10/06/19 18:34	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1359206	1	10/08/19 17:58	10/08/19 17:58	ACG	Mt. Juliet, TN

## KOBE FLANGE - DRAIN 1S L1145182-04 GW

Collected by  
Matt KastenCollected date/time  
10/01/19 11:30Received date/time  
10/02/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1358163	1	10/06/19 18:59	10/06/19 18:59	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1359206	1	10/08/19 18:19	10/08/19 18:19	ACG	Mt. Juliet, TN



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital 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 laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Chris Ward  
Project Manager

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc



## Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	10/06/2019 17:46	<a href="#">WG1358163</a>
Toluene	0.00603		0.00100	1	10/08/2019 17:17	<a href="#">WG1359206</a>
Ethylbenzene	0.00343		0.00100	1	10/08/2019 17:17	<a href="#">WG1359206</a>
Total Xylenes	0.101		0.00300	1	10/06/2019 17:46	<a href="#">WG1358163</a>
(S) Toluene-d8	78.1	<a href="#">J2</a>	80.0-120		10/06/2019 17:46	<a href="#">WG1358163</a>
(S) Toluene-d8	94.9		80.0-120		10/08/2019 17:17	<a href="#">WG1359206</a>
(S) 4-Bromofluorobenzene	103		77.0-126		10/06/2019 17:46	<a href="#">WG1358163</a>
(S) 4-Bromofluorobenzene	98.6		77.0-126		10/08/2019 17:17	<a href="#">WG1359206</a>
(S) 1,2-Dichloroethane-d4	109		70.0-130		10/06/2019 17:46	<a href="#">WG1358163</a>
(S) 1,2-Dichloroethane-d4	106		70.0-130		10/08/2019 17:17	<a href="#">WG1359206</a>

<sup>1</sup> Cp<sup>2</sup> Tc<sup>3</sup> Ss<sup>4</sup> Cn<sup>5</sup> Sr<sup>6</sup> Qc<sup>7</sup> Gl<sup>8</sup> Al<sup>9</sup> Sc



## Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	10/06/2019 18:10	<a href="#">WG1358163</a>
Toluene	0.00612		0.00100	1	10/08/2019 17:38	<a href="#">WG1359206</a>
Ethylbenzene	0.00339		0.00100	1	10/08/2019 17:38	<a href="#">WG1359206</a>
Total Xylenes	0.105		0.00300	1	10/06/2019 18:10	<a href="#">WG1358163</a>
(S) Toluene-d8	110		80.0-120		10/06/2019 18:10	<a href="#">WG1358163</a>
(S) Toluene-d8	94.4		80.0-120		10/08/2019 17:38	<a href="#">WG1359206</a>
(S) 4-Bromofluorobenzene	110		77.0-126		10/06/2019 18:10	<a href="#">WG1358163</a>
(S) 4-Bromofluorobenzene	94.4		77.0-126		10/08/2019 17:38	<a href="#">WG1359206</a>
(S) 1,2-Dichloroethane-d4	96.9		70.0-130		10/06/2019 18:10	<a href="#">WG1358163</a>
(S) 1,2-Dichloroethane-d4	106		70.0-130		10/08/2019 17:38	<a href="#">WG1359206</a>

<sup>1</sup> Cp<sup>2</sup> Tc<sup>3</sup> Ss<sup>4</sup> Cn<sup>5</sup> Sr<sup>6</sup> Qc<sup>7</sup> Gl<sup>8</sup> Al<sup>9</sup> Sc



## Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	10/06/2019 18:34	<a href="#">WG1358163</a>
Toluene	0.0162		0.00100	1	10/08/2019 17:58	<a href="#">WG1359206</a>
Ethylbenzene	0.00887		0.00100	1	10/06/2019 18:34	<a href="#">WG1358163</a>
Total Xylenes	0.286		0.00300	1	10/06/2019 18:34	<a href="#">WG1358163</a>
(S) Toluene-d8	111		80.0-120		10/06/2019 18:34	<a href="#">WG1358163</a>
(S) Toluene-d8	97.2		80.0-120		10/08/2019 17:58	<a href="#">WG1359206</a>
(S) 4-Bromofluorobenzene	113		77.0-126		10/06/2019 18:34	<a href="#">WG1358163</a>
(S) 4-Bromofluorobenzene	95.9		77.0-126		10/08/2019 17:58	<a href="#">WG1359206</a>
(S) 1,2-Dichloroethane-d4	92.9		70.0-130		10/06/2019 18:34	<a href="#">WG1358163</a>
(S) 1,2-Dichloroethane-d4	113		70.0-130		10/08/2019 17:58	<a href="#">WG1359206</a>

<sup>1</sup> Cp<sup>2</sup> Tc<sup>3</sup> Ss<sup>4</sup> Cn<sup>5</sup> Sr<sup>6</sup> Qc<sup>7</sup> Gl<sup>8</sup> Al<sup>9</sup> Sc



## Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	10/06/2019 18:59	<a href="#">WG1358163</a>
Toluene	0.0127		0.00100	1	10/08/2019 18:19	<a href="#">WG1359206</a>
Ethylbenzene	0.00619		0.00100	1	10/08/2019 18:19	<a href="#">WG1359206</a>
Total Xylenes	0.190		0.00300	1	10/06/2019 18:59	<a href="#">WG1358163</a>
(S) Toluene-d8	91.1		80.0-120		10/06/2019 18:59	<a href="#">WG1358163</a>
(S) Toluene-d8	97.8		80.0-120		10/08/2019 18:19	<a href="#">WG1359206</a>
(S) 4-Bromofluorobenzene	116		77.0-126		10/06/2019 18:59	<a href="#">WG1358163</a>
(S) 4-Bromofluorobenzene	94.9		77.0-126		10/08/2019 18:19	<a href="#">WG1359206</a>
(S) 1,2-Dichloroethane-d4	107		70.0-130		10/06/2019 18:59	<a href="#">WG1358163</a>
(S) 1,2-Dichloroethane-d4	103		70.0-130		10/08/2019 18:19	<a href="#">WG1359206</a>

<sup>1</sup> Cp<sup>2</sup> Tc<sup>3</sup> Ss<sup>4</sup> Cn<sup>5</sup> Sr<sup>6</sup> Qc<sup>7</sup> Gl<sup>8</sup> Al<sup>9</sup> Sc





Method Blank (MB)

(MB) R3458773-2 10/06/19 12:07

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Benzene	0.000385	⌋	0.000331	0.00100
Ethylbenzene	0.000698	⌋	0.000384	0.00100
Xylenes, Total	0.00267	⌋	0.00106	0.00300
(S) Toluene-d8	111			80.0-120
(S) 4-Bromofluorobenzene	112			77.0-126
(S) 1,2-Dichloroethane-d4	101			70.0-130

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

Laboratory Control Sample (LCS)

(LCS) R3458773-1 10/06/19 14:19

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.0250	0.0242	96.8	70.0-123	
Ethylbenzene	0.0250	0.0247	98.8	79.0-123	
Xylenes, Total	0.0750	0.0770	103	79.0-123	
(S) Toluene-d8			108	80.0-120	
(S) 4-Bromofluorobenzene			111	77.0-126	
(S) 1,2-Dichloroethane-d4			99.6	70.0-130	

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc



Method Blank (MB)

(MB) R3459219-2 10/08/19 13:03

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Ethylbenzene	U		0.000384	0.00100
Toluene	U		0.000412	0.00100
(S) Toluene-d8	88.4			80.0-120
(S) 4-Bromofluorobenzene	93.7			77.0-126
(S) 1,2-Dichloroethane-d4	102			70.0-130

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

Laboratory Control Sample (LCS)

(LCS) R3459219-1 10/08/19 12:22

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Ethylbenzene	0.0250	0.0254	102	79.0-123	
Toluene	0.0250	0.0240	96.0	79.0-120	
(S) Toluene-d8			97.7	80.0-120	
(S) 4-Bromofluorobenzene			92.9	77.0-126	
(S) 1,2-Dichloroethane-d4			105	70.0-130	



## Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

### Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

### Qualifier Description

J	The identification of the analyte is acceptable; the reported value is an estimate.
J2	Surrogate recovery limits have been exceeded; values are outside lower control limits.

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.

\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

\* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

## State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico <sup>1</sup>	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1 6</sup>	90010	South Carolina	84004
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1 4</sup>	2006
Louisiana <sup>1</sup>	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

## Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP, LLC EMLAP	100789
A2LA – ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> Wastewater n/a Accreditation not applicable

## Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



Company Name/Address:

**Entrada Consulting Group**330 Grand Avenue, Suite C  
Grand Junction, CO 81501

Billing Information:

\* LARAMIE OIL &amp; GAS

Analysis / Container / Preservative

Chain of Custody Page 1 of 1



YOUR LAB OF CHOICE

12065 Lebanon Rd  
Mount Juliet, TN 37122  
Phone: 615-758-5858  
Phone: 800-767-5859  
Fax: 615-758-5859

Report to:

**Matt Kasten**

Email To: \_\_\_\_\_

mkasten@entradainc.com

Project

Description: **KOBE FLANGE - DRAINAGE H2O**

City/State

Collected:

Phone: (970) 901-9007

Client Project #

Lab Project #

Fax:

Collected by (print):

**Matt Kasten**

Site/Facility ID #

P.O. #

Collected by (signature):

**Rush?** (Lab MUST Be Notified)

Same Day .....200%

\* Next Day .....100%

Two Day .....50%

Three Day .....25%

Date Results Needed

Email? ☐ No ☒ YesFAX? ☒ No ☐ YesNo.  
of  
CntrsImmediately  
Packed on Ice N ☐ Y ☒

Sample ID

Comp/Grab

Matrix \*

Depth

Date

Time

No.  
of  
Cntrs

BTEX / GRO

DRO

PAH

SAR, Specific Conductivity, pH

RCRA8 Metals + Cu, Ni,

Cr3, Cr6

Arsenic

BTEX

Shipped Via:

Rem./Contaminant

Sample # (lab only)

KOBE FLANGE - DRAIN IN

Grab

GW

-

10/1/19

1110

4

X

-01

KOBE FLANGE - DRAIN 2N

↓

↓

↓

↓

1115

4

X

-02

KOBE FLANGE - DRAIN 3N

↓

↓

↓

↓

1120

4

X

-03

KOBE FLANGE - DRAIN 1S

↓

↓

↓

↓

1130

4

X

-04

\* Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other \_\_\_\_\_

Remarks:

RAD SCIENT: &lt;0.5

pH \_\_\_\_\_ Temp \_\_\_\_\_

Flow \_\_\_\_\_ Other \_\_\_\_\_

Hold #

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Samples returned via: ☐ UPS

Condition: (lab use only)

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

☐ FedEx ☐ Courier ☐ \_\_\_\_\_

Temp: °C Bottles Received:

COC Seal Intact: ☐ Y ☐ N ☒ NA

Relinquished by: (Signature)

Date:

Time:

Received for lab by: (Signature)

Date: Time:

pH Checked:

NCF:

10/2/19 8:45

11510 4 13 4370

**Pace Analytical National Center for Testing & Innovation**  
Cooler Receipt Form

Client:	L1149182	
Cooler Received/Opened On: 10/02/19	Temperature:	4.3
Received By: Paul Minnich		
Signature: <i>Paul Minnich</i>		

Receipt Check List			
	NP	Yes	No
COC Seal Present / Intact?	✓		
COC Signed / Accurate?		✓	
Bottles arrive intact?		✓	
Correct bottles used?		✓	
Sufficient volume sent?		✓	
If Applicable		✓	
VOA Zero headspace?		✓	
Preservation Correct / Checked?			