Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

May 23, 2016

Meagan E. Ormand
Golder Associates Inc.
2108 W. Laburnum Ave.
Suite 200
Richmond, VA 23227

RE: Project: BREMO MONTHLY PROCESS
Pace Project No.: 92298342

Dear Meagan Ormand:
Enclosed are the analytical results for sample(s) received by the laboratory on May 19, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Analyses were performed at the Pace Analytical Services location indicated on the sample analyte page for analysis unless otherwise footnoted.

Some analyses have been subcontracted outside of the Pace Network. The subcontracted laboratory report has been attached.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Nicole Gasiorowski

Nicole Gasiorowski
nicole.gasiorowski@pacelabs.com
Project Manager

Enclosures

REPORT OF LABORATORY ANALYSIS

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cc: Ron DiFrancesco, Golder Associates Inc.
Martha Smith, Golder Associates Inc.
Mike Williams, Golder Associates Inc

Pace Analytical Services, Inc.
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CERTIFICATIONS

Project: BREMO MONTHLY PROCESS
Pace Project No.: 92298342

Ormond Beach Certification IDs
8 East Tower Circle, Ormond Beach, FL 32174
Alabama Certification #: 41320
Connecticut Certification #: PH-0216
Delaware Certification: FL NELAC Reciprocity
Florida Certification #: E83079
Georgia Certification #: 955
Guam Certification: FL NELAC Reciprocity
Hawaii Certification: FL NELAC Reciprocity
Illinois Certification #: 200068
Indiana Certification: FL NELAC Reciprocity
Kansas Certification #: E-10383
Louisiana Certification #: FL NELAC Reciprocity
Louisiana Environmental Certificate #: 05007
Maryland Certification: #346
Michigan Certification #: 9911
Mississippi Certification: FL NELAC Reciprocity
Missouri Certification #: 236
Montana Certification #: Cert 0074
Nebraska Certification: NE-OS-28-14
Nevada Certification: FL NELAC Reciprocity
New York Certification #: 11608
North Carolina Environmental Certificate #: 667
North Carolina Certification #: 12710
North Dakota Certification #: R-216
Oklahoma Certification #: D9947
Pennsylvania Certification #: 68-00547
Puerto Rico Certification #: FL01264
South Carolina Certification: #96042001
Tennessee Certification #: TN02974
Texas Certification: FL NELAC Reciprocity
US Virgin Islands Certification: FL NELAC Reciprocity
Virginia Environmental Certification #: 460165
Wyoming Certification: FL NELAC Reciprocity
West Virginia Certification #: 9962C
Wisconsin Certification #: 399079670
Wyoming (EPA Region 8): FL NELAC Reciprocity

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SAMPLE ANALYTE COUNT

Project: BREMO MONTHLY PROCESS
Pace Project No.: 92298342

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92298342001	**T4-160519-1400-S3**	EPA 200.7	CKJ	8	PASI-O

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PROJECT NARRATIVE

Project: BREMO MONTHLY PROCESS
Pace Project No.: 92298342

Method: **EPA 200.7**
Description: 200.7 MET ICP
Client: Golder_Dominion_Bremo
Date: May 23, 2016

General Information:
1 sample was analyzed for EPA 200.7. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 200.7 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: BREMO MONTHLY PROCESS
Pace Project No.: 92298342

Sample: T4-160519-1400-S3 **Lab ID: 92298342001** Collected: 05/19/16 14:00 Received: 05/19/16 14:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Aluminum	**2860**	ug/L	100	1	05/20/16 12:24	05/20/16 16:13	7429-90-5	
Barium	**232**	ug/L	10.0	1	05/20/16 12:24	05/20/16 16:13	7440-39-3	
Beryllium	ND	ug/L	1.0	1	05/20/16 12:24	05/20/16 16:13	7440-41-7	
Boron	**491**	ug/L	50.0	1	05/20/16 12:24	05/20/16 16:13	7440-42-8	
Cobalt	ND	ug/L	10.0	1	05/20/16 12:24	05/20/16 16:13	7440-48-4	
Iron	ND	ug/L	250	1	05/20/16 12:24	05/20/16 16:13	7439-89-6	
Molybdenum	**150**	ug/L	10.0	1	05/20/16 12:24	05/20/16 16:13	7439-98-7	
Vanadium	**43.1**	ug/L	10.0	1	05/20/16 12:24	05/20/16 16:13	7440-62-2	

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QUALITY CONTROL DATA

Project: BREMO MONTHLY PROCESS
Pace Project No.: 92298342

QC Batch: MPRP/30540
QC Batch Method: EPA 200.7
Analysis Method: EPA 200.7
Analysis Description: 200.7 MET
Associated Lab Samples: 92298342001

METHOD BLANK: 1580952
Matrix: Water
Associated Lab Samples: 92298342001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aluminum	ug/L	ND	100	05/20/16 15:49	
Barium	ug/L	ND	10.0	05/20/16 15:49	
Beryllium	ug/L	ND	1.0	05/20/16 15:49	
Boron	ug/L	ND	50.0	05/20/16 15:49	
Cobalt	ug/L	ND	10.0	05/20/16 15:49	
Iron	ug/L	ND	250	05/20/16 15:49	
Molybdenum	ug/L	ND	10.0	05/20/16 15:49	
Vanadium	ug/L	ND	10.0	05/20/16 15:49	

LABORATORY CONTROL SAMPLE: 1580953

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aluminum	ug/L	2500	2290	92	85-115	
Barium	ug/L	250	234	94	85-115	
Beryllium	ug/L	25	23.2	93	85-115	
Boron	ug/L	2500	2260	90	85-115	
Cobalt	ug/L	250	234	94	85-115	
Iron	ug/L	2500	2340	94	85-115	
Molybdenum	ug/L	250	229	92	85-115	
Vanadium	ug/L	250	226	90	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1580954 1580955

Parameter	Units	92298233001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Aluminum	ug/L	ND	2500	2500	2440	2500	94	97	70-130	2	
Barium	ug/L	72.7	250	250	314	317	97	98	70-130	1	
Beryllium	ug/L	ND	25	25	24.1	25.3	96	101	70-130	5	
Boron	ug/L	562	2500	2500	2930	3050	95	100	70-130	4	
Cobalt	ug/L	ND	250	250	244	243	97	97	70-130	0	
Iron	ug/L	ND	2500	2500	2360	2440	93	96	70-130	3	
Molybdenum	ug/L	57.5	250	250	298	293	96	94	70-130	2	
Vanadium	ug/L	ND	250	250	244	244	97	97	70-130	0	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALIFIERS

Project: BREMO MONTHLY PROCESS
Pace Project No.: 92298342

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether, Styrene, and Vinyl chloride.

A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-O Pace Analytical Services - Ormond Beach

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BREMO MONTHLY PROCESS
Pace Project No.: 92298342

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92298342001	**T4-160519-1400-S3**	EPA 200.7	MPRP/30540	EPA 200.7	ICP/18252

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Pace Analytical®	Document Name: Sample Condition Upon Receipt(SCUR)	Document Revised: 26FEB2016 Page 1 of 2
	Document No.: F-MEC-CS-009-rev.02	Issuing Authority: Pace Mechanicsville Quality Office

Page 2 of 2 for Internal Use ONLY

Sample Condition Upon Receipt

Client Name: Golder / Bremo

Project #:

WO# : 92298342

92298342

Courier: ☐ Commercial ☐ Fed Ex ☑ Pace ☐ UPS ☐ USPS ☐ Other:____ ☐ Client

Custody Seal Present? ☑ Yes ☐ No **Seals Intact?** ☑ Yes ☐ No

Date/Initials Person Examining Contents 5-19-16 RSB

Packing Material: ☐ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other:____

Thermometer: ☑ RMD001 ☐ **Type of Ice:** ☑ Wet ☐ Blue ☐ None ☑ Samples on ice, cooling process has begun

Correction Factor: 0.0°C **Cooler Temp Corrected (°C):** 5.4 **Biological Tissue Frozen?** ☐ Yes ☐ No ☐ N/A

Temp should be above freezing to 6°C

USDA Regulated Soil (☐ N/A, water sample)

Did samples originate in a quarantine zone within the United States: CA, NY, or SC (check maps)? ☐ Yes ☐ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☐ No

				COMMENTS:
Chain of Custody Present?	☑ Yes	☐ No	☐ N/A	1.
Chain of Custody Filled Out?	☑ Yes	☐ No	☐ N/A	2.
Chain of Custody Relinquished?	☑ Yes	☐ No	☐ N/A	3.
Sampler Name and/or Signature on COC?	☑ Yes	☐ No	☐ N/A	4.
Samples Arrived within Hold Time?	☑ Yes	☐ No	☐ N/A	5.
Short Hold Time Analysis (<72 hr)?	☐ Yes	☑ No	☐ N/A	6.
Rush Turn Around Time Requested?	☑ Yes	☐ No	☐ N/A	7.
Sufficient Volume?	☑ Yes	☐ No	☐ N/A	8.
Correct Containers Used?	☑ Yes	☐ No	☐ N/A	9.
-Pace Containers Used?	☑ Yes	☐ No	☐ N/A	
Containers Intact?	☑ Yes	☐ No	☐ N/A	10.
Filtered Volume Received for Dissolved Tests?	☐ Yes	☐ No	☑ N/A	11. Note if sediment is visible in the dissolved container
Sample Labels Match COC? -Includes Date/Time/ID/Analysis Matrix: WW	☑ Yes	☐ No	☐ N/A	12.
All containers needing acid/base preservation have been checked?	☑ Yes	☐ No	☐ N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, HCl<2; NaOH >9 Sulfide, NaOH>12 Cyanide)	☑ Yes	☐ No	☐ N/A	
Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC,LLHg	☐ Yes	☐ No	☐ N/A	
Samples checked for dechlorination	☐ Yes	☐ No	☑ N/A	14.
Headspace in VOA Vials (>5-6mm)?	☐ Yes	☐ No	☑ N/A	15.
Trip Blank Present?	☐ Yes	☐ No	☑ N/A	16.
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☑ N/A	
Pace Trip Blank Lot # (if purchased):				

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? ☐ Yes ☐ No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

Project Manager SCURF Review: NMG **Date:** 5/19/16

Project Manager SRF Review: NMG **Date:** 5/20/16

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. Out of hold, incorrect preservative, out of temp, incorrect containers)

00016570

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

Section A
Required Client Information:

Company:	Golder Associates
Address:	2108 W Laburnum Ave, Ste 200
	Richmond,VA 23227
Email To:	Mormand@golder.com
Phone: 804-551-0129	Fax: 804-358-2900
Requested Due Date/TAT:	24 HOUR

Section B
Required Project Information:

Report To:	Mormand@golder.com
Copy To:	Martha_Smith@golder.com
	Ron_Difrancesco@golder.com
Purchase Order No.:	
Project Name:	Bremo Monthly Process
Project Number:	1520-347.200

Section C
Invoice Information:

Attention:	Meagan Ormand
Company Name:	Golder Associates
Address:	gaiapdataentry_invoices@golder.com
Pace Quote Reference:	
Pace Project Manager:	
Pace Profile #:	

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHE _____

Site Location STATE: VA

Section D
Required Client Information

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED Composite Start DATE	COLLECTED Composite Start TIME	COLLECTED Composite End/Grab DATE	COLLECTED Composite End/Grab TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N): 200.7 - Al, Ba, Be, B, Co	200.7 - Fe, Mo, V	ASTM4282 - Free Cyanide	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	T4-160519-1400-S3	WW	G			5/19/16	14:00		3			X		X				X	X	X	N	92298342 601
2																						
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						
11																						
12																						

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
All analyses to be performed under Golder-Pace MSA dated 12/19/2008	(golder)	5/19/16	14:00		5-19	1400	5.4	Y	Y	Y
							Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: M. Ormand
SIGNATURE of SAMPLER:
DATE Signed (MM/DD/YY): 5/19/16

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

Pace Analytical Services
Suite 100
9800 Kincey Ave
Huntersville NC 28078

Report Date: May 23, 2016

Project: 92298342

Submittal Date: 05/20/2016
Group Number: 1663842
PO Number: NMG 15469
State of Sample Origin: VA

Client Sample Description	Lancaster Labs (LL) #
T4-160519-1400-S3 Water Sample	8391045

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ .

Electronic Copy To Pace Analytical Services Attn: Nicole Gasiorowski

Respectfully Submitted,

Bonnie Stadelmann

Bonnie Stadelmann
Senior Project Manager

(312) 590-3133

eurofins
Lancaster Laboratories Environmental

Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Sample Description: T4-160519-1400-S3 Water Sample
92298342001
92298342

LL Sample # WW 8391045
LL Group # 1663842
Account # 10945

Project Name: 92298342

Collected: 05/19/2016 14:00

Submitted: 05/20/2016 09:15
Reported: 05/23/2016 11:19

Pace Analytical Services
Suite 100
9800 Kincey Ave
Huntersville NC 28078

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Wet Chemistry	**OIA-1677-09**		mg/l	mg/l	
12941	Free Cyanide	n.a.	< 10.0	10.0	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
12941	Free Cyanide	OIA-1677-09	1	16143941101A	05/22/2016 19:33	Joseph E McKenzie	1

Quality Control Summary

Client Name: Pace Analytical Services
Reported: 05/23/2016 11:19

Group Number: 1663842

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result mg/l	LOQ mg/l
Batch number: 16143941101A	Sample number(s): 8391045	
Free Cyanide	< 10.0	10.0

LCS/LCSD

Analysis Name	LCS Spike Added mg/l	LCS Conc mg/l	LCSD Spike Added mg/l	LCSD Conc mg/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 16143941101A	Sample number(s): 8391045								
Free Cyanide	0.0400	0.0376			94		86-132		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l	MS Spike Added mg/l	MS Conc mg/l	MSD Spike Added mg/l	MSD Conc mg/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 16143941101A	Sample number(s): 8391045 UNSPK: 8391045									
Free Cyanide	< 10.0	0.0200	0.0200	0.0200	0.0205	100	103	86-132	2	3

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

10945 | 1663842 | 8391045

Chain of Custody

Pace Analytical®
www.pacelabs.com

Workorder: 92298342 **Workorder Name:** BREMO MONTHLY PROCESS **Results Requested By:** 5/23/2016

Report / Invoice To

Nicole Gasiorowski
Pace Analytical Charlotte
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
Phone (704)875-9092
Email: nicole.gasiorowski@pacelabs.com

Subcontract To

Sample Administration P.O. NMG 15469
Eurofins Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17601

State of Sample Origin: ~~AK~~ VA

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Preserved Containers: HCl NaOH						Requested Analysis: Free Cyanide 01A-1677												LAB USE ONLY
1	T4-160519-1400-S3	5/19/2016 14:00	92298342001	Water	2						X												
2																							
3																							
4																							
5																							

Transfers	Released By	Date/Time	Received By	Date/Time
1	Rachel Burness	5-19-16 1650		
2				
3				5-20-16/915

Comments

Cooler Temperature on Receipt 1.7 °C **Custody Seal** Y or (N) **Received on Ice** (Y) or N **Samples Intact** (Y) or N

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 147353

Group Number(s): 1663842

Client: Pace Analytical

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	05/20/2016 9:15
Number of Packages:	1	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	No	Sample Date/Times match COC:	Yes
Samples Chilled:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Paperwork Enclosed:	Yes	Total Trip Blank Qty:	0
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Timothy Cubberley (6520) at 10:00 on 05/20/2016

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	32170023	1.7	IR	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425

T 717-656-2300
F 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Laboratory Data Qualifiers:

B - Analyte detected in the blank
C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U - Analyte was not detected at the value indicated
V - Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference…

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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