Examination of Leachate, Drill Cuttings and Related Environmental, Economic and Technical Aspects Associated with Solid Waste Facilities in West Virginia

Appendix E: Analytical Results of Drill Cuttings

-Reports as received from the laboratory

Evaluation						393865
CHAIN OF CUS	TODY RECOR			rsity CEGAS ariso Fax: Drive city t	Phone 304/6 Email: Carico Luntington	96-5456 Compress 11. edu State W Zip 2575 258
Research Environmental & Inc	dustrial Consultants, Inc.	Billing Address (and the same of th		2012 912 2	-
MAIN LABORATORY & CORP P.O. Box 286 • 225 Industrial 800-999-0105 • 304-255-25	Park Rd, Beaver, WV 25813	Site ID & State 2	Sheep Rugity	Project ID DO'll Cutting	ny Anal. sampler G. Ca	reof J. Wolfe
Service Center Service 101 17th Street 1557 Comr Ashland, KY 41101 Veror 606-393-5027 540	NANDOAH rice Center Service Content of Service Cont	renter Service Co Creek Rd 16 Commerce 24019 Westover, W 276 304-241-	ce Drive V 26501			
TURNAROUND TIME NORMAL *Rush work needs pr	RUSH TURI 5 DAY 3 DAY ior laboratory approval and will inc	2 DAY 1 DAY	ANALYSIS & M			
SAMPLEID	No. & Type of Samplin	g Date/Time Matrix	Sample Comp/Grab		ENTER PRESERVATIVE C	ODE: 5 Sodium Hydroxide
Sheep Run Unit? Wertical-wair	, ,	17/15 EGHIL	gs Grab		Hydrochloric Acid Nitric Acid Sulfuric Acid Sodium Thiosulfate	6 Zinc Acetate 7 EDTA 8 Ascorbic Acid
					Sheep Run	

API 47-017-06658 3c ICED? Y All analytical requests are subject to REIC's Standard Terms and Conditions. Temperature at arrival:

Leagh Carrie	Dyte/Tipe 10:03 Relinquished by (signature)	Dete/Time	FAX RESULTS	EMAIL RESULTS
Sulper	HIZING DURENTINE 10:03 PROJECTION MENTER MENTER	1450	SHIPMENT Hand DeliveredDourier	UPXFEDEXUSPSOTHER



Improving the environment, one client at a time...

REI Consultants, Inc. PO Box 286 Beaver, WV 25813 TEL: (304) 255-2500

Website: www.reiclabs.com

3029-C Peters Creek Road Roanoke, VA 24019 TEL: 540.777.1276

101 17th Street Ashland, KY 41101 TEL: 606.393.5027

1557 Commerce Road, Suite 201 Verona, VA 24482 TEL: 540.248.0183

16 Commerce Drive Westover, WV 26501 TEL: 304.241.5861

Friday, May 01, 2015

GEORGE CARICO MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE 1 JOHN MARSHALL DRIVE **HUNTINGTON, WV 25755-2585**

TEL: (304) 696-6042

FAX:

RE: DRILL CUTTING ANAL Work Order #: 1504Q01 Dear GEORGE CARICO:

Kathy Berry

REI Consultants, Inc. received 1 sample(s) on 4/22/2015 for the analyses presented in the following report.

Sincerely,

Kathy Berry



REI Consultants, Inc. - Case Narrative

WO#: 1504Q01

Date Reported: 5/1/2015

Client: MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE

Project: DRILL CUTTING ANAL

The analytical results presented in this report were produced using documented laboratory SOPs that incorporate appropriate quality control procedures as described in the applicable methods. Verification of required sample preservation (as required) is recorded on associated laboratory logs. Any deviation from compliance or method modification is identified within the body of this report by a qualifier footnote which is defined at the bottom of this page.

All sample results for solid samples are reported on an "as-received" wet weight basis unless otherwise noted.

Results reported for sums of individual parameters, such as TTHM and HAA5, may vary slightly from the sum of the individual parameter results, due to rounding of individual results, as required by EPA.

The test results in this report meet all NELAP (and/or VELAP) requirements for parameters except as noted in this report.

Please note if the sample collection time is not provided on the Chain of Custody, the default recording will be 0:00:00. This may cause some tests to be apparently analyzed out of hold.

All tests performed by REIC Service Centers are designated by an annotation on the test code. All other tests were performed by REIC's Main Laboratory in Beaver, WV.

This report may not be reproduced, except in full, without the written approval of REIC.

DEFINITIONS:

MCL: Maximum Contaminant Level

MDL: Method Detection Limit; The lowest concentration of analyte that can be detected by the method in the applicable matrix. Mg/Kg or mg/L: Units of part per million (PPM) - milligram per Kilogram (weight/weight) or milligram per Liter (weight/volume).

NA: Not Applicable

ND: Not Detected at the PQL or MDL

PQL: Practical Quantitation Limit; The lowest verified limit to which data is quantified without qualifications. Analyte concentrations below PQL are reported either as ND or as a number with a "J" qualifier.

Qual: Qualifier that applies to the analyte reported.

TIC: Tentatively Identified Compound, Estimated Concentration denoted by "J" qualifier.

Ug/Kg or ug/L: Units of part per billion (PPB) - microgram per kilogram (weight/weight) or microgram per liter (weight/volume).

QUALIFIERS:

- X: Reported value exceeds required MCL
- B: Analyte detected in the associated Method Blank at a concentration > 1/2 the PQL
- E: Analyte concentration reported that exceeds the upper calibration standard. Greater uncertainty is associated with this result and data should be consider estimated.
- H: Holding time for preparation or analysis has been exceeded.
- J: Analyte concentration is reported, and is less than the PQL and greater than or equal to the MDL. The result reported is an estimate.
- S: % REC (% recovery) exceeds control limits

CERTIFICATIONS:

Beaver, WV: WVDHHR 00412CM, WVDEP 060, VADCLS 00281, KYDEP 90039, TNDEQ TN02926, NCDWQ 466, PADEP 68-00839, VADCLS (VELAP) 460148

Bioassay (Beaver, WV): WVDEP 060, VADCLS(VELAP) 460148, PADEP 68-00839

Roanoke, VA: VADCLS(VELAP) 460150 Verona, VA: VADCLS(VELAP) 460151 Ashland, KY: KYDEP 00094, WVDEP 389

Morgantown, WV: WVDHHR 003112M, WVDEP 387

WO#: 1504Q01

Date Reported: 5/1/2015

MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE

Collection Date:

4/17/2015 12:00:00 AM

Project: DRILL CUTTING ANAL

Client:

Date Received: 4/22/2015 Lab ID: 1504Q01-01A Matrix: Solid

SHEEP RUN UNIT 2H (VERTICAL-AIR) Client Sample ID: Site ID: SHEEP RUN UNIT 2H

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	IELAP
METALS by ICP			Method:	SW6010	C (200	7)	Analyst: JD	
Aluminum	9,950	3.00	25.0	NA		mg/Kg	4/23/2015 5:07 PM	PA/VA
Antimony	ND	2.00	5.00	NA		mg/Kg	4/23/2015 5:03 PM	PA/VA
Arsenic	4.10	1.00	5.00	NA	J	mg/Kg	4/23/2015 5:03 PM	PA/VA
Barium	378	0.200	2.50	NA		mg/Kg	4/23/2015 5:03 PM	PA/VA
Beryllium	0.755	0.0500	0.250	NA		mg/Kg	4/23/2015 5:03 PM	PA/VA
Boron	6.30	1.00	2.50	NA		mg/Kg	4/27/2015 10:38 AM	PA/VA
Cadmium	0.399	0.100	0.500	NA	J	mg/Kg	4/23/2015 5:03 PM	PA/VA
Chromium	16.9	0.200	2.50	NA		mg/Kg	4/23/2015 5:03 PM	PA/VA
Copper	23.4	0.200	2.50	NA		mg/Kg	4/23/2015 5:03 PM	PA/VA
Iron	20,000	50.0	250	NA		mg/Kg	4/23/2015 5:10 PM	PA/VA
Lead	12.0	1.00	5.00	NA		mg/Kg	4/23/2015 5:03 PM	PA/VA
Lithium	18.9	0.100	5.00	NA		mg/Kg	4/24/2015 2:40 PM	
Manganese	419	0.200	2.50	NA		mg/Kg	4/23/2015 5:03 PM	PA/VA
Nickel	20.2	0.200	2.50	NA		mg/Kg	4/23/2015 5:03 PM	PA/VA
Selenium	ND	1.00	5.00	NA		mg/Kg	4/23/2015 5:03 PM	PA/VA
Silver	ND	0.100	1.25	NA		mg/Kg	4/23/2015 5:03 PM	PA/VA
Strontium	120	0.100	2.50	NA		mg/Kg	4/24/2015 2:40 PM	PA/VA
Vanadium	15.9	0.200	2.50	NA		mg/Kg	4/23/2015 5:03 PM	PA/VA
Zinc	44.0	0.500	2.50	NA		mg/Kg	4/23/2015 5:03 PM	PA/VA
MERCURY, Total SW7417B			Method:	SW747	IB (2/07	')	Analyst: CR	
Mercury	0.021	0.020	0.100	NA	J	mg/Kg	4/27/2015 12:04 PM	PA/VA
HEXAVALENT CHROMIUM, WA	ATER SOLUE	BLE	Method:	SW7196	6A (199	2)	Analyst: JB	
Chromium, Hexavalent	0.120	0.100	0.200	NA	J	mg/kg	4/24/2015 12:00 PM	PA/VA
PERCENT MOISTURE			Method:	SM2540	B-1997	7	Analyst: TS	
Percent Moisture	17	0.010	0.50	NA		wt%	4/28/2015 10:33 AM	
Oil and Grease			Method:	SW9071	IB (4/98	3)	Analyst: NC	
Oil & Grease, Total Recoverable	0.100	0.030	0.060	NA		wt%-dry	4/25/2015 1:42 PM	
SEMIVOLATILE ORGANIC COI	MPOUNDS		Method:	SW8270	DD (200	7)	Analyst: JC	
1,4-Dinitrobenzene	ND	0.167	0.333	NA		mg/Kg	4/29/2015 3:04 PM	
1,4-Napthoquinone	ND	NA	0.333	NA		mg/Kg	4/29/2015 3:04 PM	
4-Nitroquinoline-1-oxide	ND	NA	0.333	NA		mg/Kg	4/30/2015 7:06 PM	

WO#: 1504Q01

Date Reported: 5/1/2015

Client: MARSHALL UNIVERSITY CENTER. FOR ENV. Collection Date: 4/17/2015 12:00:00 AM

SCIENCE

Project:DRILL CUTTING ANALDate Received:4/22/2015Lab ID:1504Q01-01AMatrix:Solid

Client Sample ID: SHEEP RUN UNIT 2H (VERTICAL-AIR) Site ID: SHEEP RUN UNIT 2H

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	IELAP
Pentachloronitrobenzene	ND	NA	0.333	NA		mg/Kg	4/29/2015 3:04 PM	
Bis(2-ethylhexyl)phthalate	ND	0.167	0.333	NA		mg/Kg	4/29/2015 3:04 PM	PA/VA
Butyl benzyl phthalate	ND	0.167	0.333	NA		mg/Kg	4/29/2015 3:04 PM	
Di-n-butyl phthalate	ND	0.167	0.333	NA		mg/Kg	4/29/2015 3:04 PM	PA/VA
Diethyl phthalate	ND	0.067	0.333	NA		mg/Kg	4/29/2015 3:04 PM	PA/VA
Dimethyl phthalate	ND	0.067	0.333	NA		mg/Kg	4/29/2015 3:04 PM	PA/VA
2,4-Dinitrotoluene	ND	0.067	0.333	NA		mg/Kg	4/29/2015 3:04 PM	PA/VA
2,6-Dinitrotoluene	ND	0.067	0.333	NA		mg/Kg	4/29/2015 3:04 PM	PA/VA
Di-n-octyl phthalate	ND	0.167	0.333	NA		mg/Kg	4/29/2015 3:04 PM	PA/VA
Fluoranthene	ND	0.067	0.333	NA		mg/Kg	4/29/2015 3:04 PM	PA/VA
Nitrobenzene	ND	0.067	0.333	NA		mg/Kg	4/29/2015 3:04 PM	PA/VA
Surr: 2-Fluorophenol	13.2	NA	54.1-110	NA	S	%REC	4/29/2015 3:04 PM	
Surr: Phenol-d5	66.2	NA	60.1-110	NA		%REC	4/29/2015 3:04 PM	
Surr: 2,4,6-Tribromophenol	0	NA	58.8-128	NA	S	%REC	4/29/2015 3:04 PM	
Surr: Nitrobenzene-d5	108	NA	68.2-123	NA		%REC	4/29/2015 3:04 PM	
Surr: 2-Fluorobiphenyl	98.4	NA	68.4-116	NA		%REC	4/29/2015 3:04 PM	
Surr: 4-Terphenyl-d14	96.8	NA	52.2-121	NA		%REC	4/29/2015 3:04 PM	
VOLATILE ORGANIC COMPO	UNDS-8260		Method: \$	SW8260	B (199	6)	Analyst: JM	
Benzene	19.5	1.64	3.28	NA		μg/Kg	4/27/2015 3:28 PM	PA/VA
Bromodichloromethane	ND	1.64	3.28	NA		μg/Kg	4/27/2015 3:28 PM	PA/VA
Chlorobenzene	ND	1.64	3.28	NA		μg/Kg	4/27/2015 3:28 PM	PA/VA
1,2-Dichlorobenzene	ND	1.64	3.28	NA		μg/Kg	4/27/2015 3:28 PM	PA/VA
1,3-Dichlorobenzene	ND	1.64	3.28	NA		μg/Kg	4/27/2015 3:28 PM	PA/VA
1,4-Dichlorobenzene	ND	1.64	3.28	NA		μg/Kg	4/27/2015 3:28 PM	PA/VA
Surr: 1,2-Dichloroethane-d4	109	NA	70-130	NA		%REC	4/27/2015 3:28 PM	
Surr: 4-Bromofluorobenzene	106	NA	70-130	NA		%REC	4/27/2015 3:28 PM	
Surr: Dibromofluoromethane	99.9	NA	70-130	NA		%REC	4/27/2015 3:28 PM	
Surr: Toluene-d8	97.0	NA	70-130	NA		%REC	4/27/2015 3:28 PM	

Notes:

Sample was received at the laboratory in a container that is not in accordance with method 5035 field sampling techniques.

ANIONS by IC, WATER SOLUBLE			Method: S	SW9056	A (2000))	Analyst: CF
Chloride	347	4.00	20.0	NA		mg/Kg	4/24/2015 4:38 PM
Fluoride	11.0	0.800	4.00	NA		mg/Kg	4/24/2015 4:38 PM
Nitrogen, Nitrate	0.600	0.400	2.00	NA	J	mg/Kg	4/24/2015 4:38 PM
Nitrogen, Nitrite	1.00	1.00	10.0	NA	J	ma/Ka	4/24/2015 4:38 PM

WO#: 1504Q01
Date Reported: 5/1/2015

Client: MARSHALL UNIVERSITY CENTER. FOR ENV. Collection Date: 4/17/2015 12:00:00 AM

SCIENCE

Project:DRILL CUTTING ANALDate Received:4/22/2015Lab ID:1504Q01-01AMatrix:Solid

Client Sample ID: SHEEP RUN UNIT 2H (VERTICAL-AIR) Site ID: SHEEP RUN UNIT 2H

Analysis	Result	MDL	PQL	MCL	Qual Units	Date Analyzed NELAP
Sulfate	253	20.0	100	NA	mg/Kg	4/24/2015 4:38 PM

Notes:

Matrix spike recoveries were not within method criteria due to matrix interference. LCS recoveries indicate method was in control.

AMMONIA NITROGEN Method: SM4500-NH3 B-C- Analyst: CC

1997

Nitrogen, Ammonia ND 8.00 10.0 NA mg/Kg 4/28/2015 5:08 PM

TOTAL KJELDAHL NITROGEN (TKN) Method: EPA 351.2, Rev. Analyst: JH

2.0 (1993)

Nitrogen, Kjeldahl, Total 234 25.2 126 NA mg/Kg 4/24/2015 10:43 AM PA/VA

CYANIDE, FREE Method: SM4500-CN I-1997 Analyst: JH

Cyanide, Free ND 0.250 1.00 NA mg/Kg 4/24/2015 1:56 PM

CONDUCTIVITY Method: SM2510 B-1997 Analyst: KY

Specific Conductivity 14,000 NA NA NA NA µmhos/cm 4/27/2015 10:30 AM

Notes:

Conductivity result was estimated based on measuring a 1:10 dilution.

ALKALINITY Method: SM2320 B-1997 Analyst: DSD

Alkalinity, Total (As CaCO3) 16,400 100 2,000 NA mg/Kg 4/23/2015 11:25 AM

pH Method: SW9045D (2002) Analyst: DSD

pH 12.1 NA NA NA SU 4/27/2015 11:30 AM PA/VA



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REI Consultants, Inc. PO Box 286 Beaver, WV 25813

TEL: (304)255-2500 Website: www.reiclabs.com

Sample Receipt Checklist

RCPNo:	1	Date	e and Time Received:	4/22				
Completed				4/22	/2015 4:13:	35 PM R	eceived by:	Anthony Sisk
	d By: Ant	thony Sisk		Reviev	ved By:	Kathy Be	erry	
Completed	d Date: 4/22	2/2015 4:16:25	РМ	Revie	ved Date:	4/23/201	5 10:48 AM	
Carrie	r Name:	REIC						
1.	Chain of cu	stody present?				Yes x	No 🔲	
2.	Chain of cu	stody signed wh	nen relinquished and rece	eived?		Yes 🗌	No x	
3.	Are matrice	s correctly ident	tified on Chain of custody	<i>i</i> ?		Yesx	No 🗌	
4.	Is it clear w	hat analyses we	ere requested?			Yes x	No 🔲	_
5.	Custody se	als intact?				Yes 🔲	No 🔲	Not Present x
6.	Samples in	proper containe	er type and preservative?			Yes x	No 🗌	
7.	Were corre	ct preservatives	noted on COC?			Yes x	No 🗌	NA 🗌
8.	Sample cor	ntainers intact?				Yes x	No 🗌	
9.	Sufficient sa	ample volume fo	or indicated test?			Yes x	No 🗌	
10.	Were conta	iner lables com	plete?			Yes	No x	
11.	All samples	received within	holding time?			Yes x	No 🔲	
12.	Was an atte	empt made to co	ool the samples?			Yes x	No 🗌	NA 🗌
13.	Sample Ter	mp. taken and re	ecorded upon receipt?			Yes x	No 🗌	To 3 °C
14.	Water - We	re bubbles abse	ent in VOC vials?			Yes 🗌	No 🗌	No Vials X
15.	Are Sample	es considered a	cceptable?			Yes x	No 🗌	_
Clies	nt Notifi	ication/R	esponse					
			езропзе					
Clien		MAR071				VVo	ork Order Numb	er: 1504Q01
Comr	ment: N	lo preservative	codes					
Clien	t Contacted:	Yes x] No □ NA	П	erson Co	ntacted:	George Cario	20
	act Mode:	Phone	Fax: Email	`	Person:		George Cario	,0
Rega	Contacted: rding: t Instructions:		015 10:18:00 AM ative codes listed	Contacted I	Зу:	Kathy Berr	у	



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3029-C Peters Creek Road Roanoke, VA 24019 TEL: 540.777.1276 101 17th Street Ashland, KY 41101 TEL: 606.393.5027 1557 Commerce Road, Suite 201 Verona, VA 24482 TEL: 540.248.0183 16 Commerce Drive Westover, WV 26501 TEL: 304.241.5861

Monday, June 01, 2015

GEORGE CARICO MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE 1 JOHN MARSHALL DRIVE HUNTINGTON, WV 25755-2585

TEL: (304) 696-6042

FAX:

RE: DRILL CUTTING ANAL Work Order #: 1504Q04 Dear GEORGE CARICO:

Kathy Berry

REI Consultants, Inc. received 1 sample(s) on 4/22/2015 for the analyses presented in the following report.

Sincerely,

Kathy Berry



REI Consultants, Inc. - Case Narrative

WO#: 1504Q04

Date Reported: 6/1/2015

Client: MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE

Project: DRILL CUTTING ANAL

The analytical results presented in this report were produced using documented laboratory SOPs that incorporate appropriate quality control procedures as described in the applicable methods. Verification of required sample preservation (as required) is recorded on associated laboratory logs. Any deviation from compliance or method modification is identified within the body of this report by a qualifier footnote which is defined at the bottom of this page.

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- B: Analyte detected in the associated Method Blank at a concentration > 1/2 the PQL
- E: Analyte concentration reported that exceeds the upper calibration standard. Greater uncertainty is associated with this result and data should be consider estimated.
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CERTIFICATIONS:

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Bioassay (Beaver, WV): WVDEP 060, VADCLS(VELAP) 460148, PADEP 68-00839

Roanoke, VA: VADCLS(VELAP) 460150 Verona, VA: VADCLS(VELAP) 460151 Ashland, KY: KYDEP 00094, WVDEP 389

Morgantown, WV: WVDHHR 003112M, WVDEP 387

WO#: 1504Q04

Date Reported: 6/1/2015

Client: MARSHALL UNIVERSITY CENTER. FOR ENV. Collection Date: 4/17/2015 12:00:00 AM

SCIENCE

Project:DRILL CUTTING ANALDate Received:4/22/2015Lab ID:1504Q04-01AMatrix:Solid

Client Sample ID: SHEEP RUN UNIT 2H (VERTICAL-AIR) Site ID: SHEEP RUN UNIT 2H

Analysis	Result	MDL	PQL	MCL Qu	al Units	Date Analyzed NELAP
GROSS ALPHA			Method:	EPA 900.0		Analyst: Sub
Gross Alpha	see attached	NA	NA	NA		
GROSS BETA			Method:	EPA 900.0		Analyst: Sub
Gross Beta	see attached	NA	NA	NA		
RADIUM-226			Method:	EPA 903.1		Analyst: Sub
Radium-226	see attached	NA	NA	NA		
RADIUM-228			Method:	EPA 904.0		Analyst: Sub
Radium-228	see attached	NA	NA	NA		
STRONTIUM-90			Method:	EPA 905.0		Analyst: Sub
Strontium-90	see attached	NA	NA	NA		

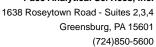


REI Consultants, Inc. PO Box 286 Beaver, WV 25813 TEL: (304)255-2500

Website: www.reiclabs.com

Sample Receipt Checklist

Client Nam	ne: MAF	- R071				Worl	k Order Number: 1	504Q04
RCPNo:	1		e and Time Receive	ed:	4/22/2015 4:20		Received by:	Anthony Sisk
Completed	Ву: А	nthony Sisk			Reviewed By:	Kathy E	Berry	
Completed	Date: 4/	22/2015 4:22:19	РМ		Reviewed Date:	4/23/20	15 10:55 AM	
Carrie	r Name:	REIC						
1.	Chain of	custody present?				Yes x	No 🔲	
2.	Chain of	custody signed w	hen relinquished ar	nd received?		Yes x	No 🗌	
3.	Are matri	ces correctly ider	ntified on Chain of c	ustody?		Yes	No x	
4.	Is it clear	what analyses w	ere requested?			Yes x	No 🔲	
5.	Custody	seals intact?				Yes 🗌	No 🔲	Not Present x
6.	Samples	in proper contain	er type and preserv	ative?		Yes x	No 🔲	
7.	Were cor	rect preservatives	s noted on COC?			Yes x	No 🗌	NA 🗌
8.	Sample c	ontainers intact?				Yes x	No 🗌	
9.	Sufficient	sample volume f	or indicated test?			Yes x	No 🗌	
10.	Were con	tainer labels com	plete?			Yes 🗌	No x	
11.	All sample	es received within	n holding time?			Yes x	No 🗌	
12.	Was an a	ttempt made to c	ool the samples?			Yes x	No 🗌	NA 🗌
13.	Sample T	emp. taken and i	recorded upon rece	ipt?		Yes x	No 🗆	To 3 °C
14.	Water - W	/ere bubbles abs	ent in VOC vials?			Yes 🗌	No 🗌	No Vials x
15.	Are Samp	oles considered a	cceptable?			Yes X	No 🗌	_
16.	COC fille	d out properly?				YesX	No 🗌	
Clier	nt Noti	fication/F	Response					
<u> </u>								
Client	t Name:	MAR071				V	Vork Order Number	r: 1504Q04
Comm	nent:	No preservative	codes listed					
Client	t Contacted	: Yes 🗔	No 🗆	NA 🔲	Doroon C	anta eta du	Coorgo Corios	
	ct Mode:	Phone	Fax:	Email: x	In Person:		George Carico	J
Date 0	Contacted:	4/23/2	2015 10:55:00 AM	Coi	ntacted By:	Kathy Ber	rry	
Regar Client	rding: Instruction	•	ative codes listed		•	-		
Correc	ctive Action	:						





May 28, 2015

Ms. Kathy Berry REI Consultants, Inc. 225 Industrial Park Drive PO Box 286 Beaver, WV 25813

RE: Project: 1504P81

Pace Project No.: 30146856

Dear Ms. Berry:

Enclosed are the analytical results for sample(s) received by the laboratory on April 29, 2015. 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.

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

Sincerely,

Carin a. Ferris

Carin Ferris carin.ferris@pacelabs.com Project Manager

Enclosures



Greensburg, PA 15601 (724)850-5600



CERTIFICATIONS

Project: 1504P81 Pace Project No.: 30146856

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ACLASS DOD-ELAP Accreditation #: ADE-1544

Alabama Certification #: 41590 Arizona Certification #: AZ0734

Arkansas Certification
California/TNI Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683

Guam/PADEP Certification Hawaii/PADEP Certification

Idaho Certification

Illinois/PADEP Certification Indiana/PADEP Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358 Kentucky Certification #: 90133

Louisiana DHH/TNI Certification #: LA140008

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: PA00091 Maryland Certification #: 308

Massachusetts Certification #: M-PA1457 Michigan/PADEP Certification

Missouri Certification #: 235

Montana Certification #: Cert 0082 Nebraska Certification #: NE-05-29-14

Nevada Certification

New Hampshire/TNI Certification #: 2976

New Jersey/TNI Certification #: PA 051

New Mexico Certification

New York/TNI Certification #: 10888 North Carolina Certification #: 42706 North Dakota Certification #: R-190

Oregon/TNI Certification #: PA200002 Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

South Dakota Certification

Tennessee Certification #: TN2867 Texas/TNI Certification #: T104704188 Utah/TNI Certification #: PA014572014-4

Vermont Dept. of Health: ID# VT-0282 Virgin Island/PADEP Certification Virginia/VELAP Certification #: 460198 Washington Certification #: C868 West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C

Wisconsin/PADEP Certification Wyoming Certification #: 8TMS-Q

Pace Analytical Services, Inc.

1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600



SAMPLE SUMMARY

Project: 1504P81
Pace Project No.: 30146856

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30146856001	1504P81-01A	Solid	04/20/15 00:01	04/29/15 15:10

Pace Analytical Services, Inc.

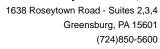
1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600



SAMPLE ANALYTE COUNT

Project: 1504P81 Pace Project No.: 30146856

Lab ID	Sample ID	Method	Analysts	Analytes Reported
30146856001	1504P81-01A	EPA 901.1	MAH	2
		ASTM D5811-95	LAL	1
		EPA 9310	FCC	2





PROJECT NARRATIVE

Project: 1504P81
Pace Project No.: 30146856

Method: EPA 901.1

Description: 901.1 Gamma Spec INGROWTH

Client: REI Consultants, Inc.

Date: May 28, 2015

General Information:

1 sample was analyzed for EPA 901.1. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times 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.

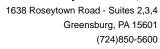
Laboratory Control Spike:

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:





PROJECT NARRATIVE

Project: 1504P81
Pace Project No.: 30146856

Method: ASTM D5811-95

Description: ASTM D5811 Sr 89/90 Eichrom

Client: REI Consultants, Inc.

Date: May 28, 2015

General Information:

1 sample was analyzed for ASTM D5811-95. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times 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.

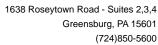
Additional Comments:

Analyte Comments:

QC Batch: RADC/24356

N2: The lab does not hold TNI accreditation for this parameter.

- 1504P81-01A (Lab ID: 30146856001)
 - Strontium-90
- BLANK (Lab ID: 889793)
 - Strontium-90





PROJECT NARRATIVE

Project: 1504P81
Pace Project No.: 30146856

Method: EPA 9310

Description: 9310 Gross Alpha/Beta
Client: REI Consultants, Inc.
Date: May 28, 2015

General Information:

1 sample was analyzed for EPA 9310. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times 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:

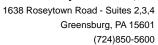
All laboratory control spike compounds were within QC limits with any exceptions noted below.

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.





ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 1504P81 Pace Project No.: 30146856

Sample: 1504P81-01A Lab ID: 30146856001 Collected: 04/20/15 00:01 Received: 04/29/15 15:10 Matrix: Solid

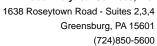
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Comments:

• Sample collection times were not present on the sample containers or COC.
• Sample Acceptance Policy Waiver on file from the client.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 901.1	1.996 ± 0.427 (0.217) C:NA T:NA	pCi/g	05/27/15 09:13	13982-63-3	
Radium-228	EPA 901.1	2.112 ± 0.472 (0.234) C:NA T:NA	pCi/g	05/27/15 09:13	15262-20-1	
Strontium-90	ASTM D5811-95	0.0130 ± 0.0794 (0.195) C:112% T:NA	pCi/g	05/09/15 13:14	10098-97-2	N2
Gross Alpha	EPA 9310	17.8 ± 8.09 (11.0) C:NA T:NA	pCi/g	05/13/15 19:44	12587-46-1	
Gross Beta	EPA 9310	18.5 ± 4.92 (4.70) C:NA T:NA	pCi/g	05/13/15 19:44	12587-47-2	





QUALITY CONTROL - RADIOCHEMISTRY

Project: 1504P81
Pace Project No.: 30146856

QC Batch: RADC/24366 Analysis Method: EPA 901.1

QC Batch Method: EPA 901.1 Analysis Description: 901.1 Gamma Spec Ingrowth

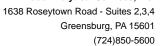
Associated Lab Samples: 30146856001

METHOD BLANK: 890150 Matrix: Solid

Associated Lab Samples: 30146856001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.112 ± 0.120 (0.250) C:NA T:NA	pCi/g	05/26/15 08:51	
Radium-228	0.069 ± 0.075 (0.434) C:NA T:NA	pCi/g	05/26/15 08:51	

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.





QUALITY CONTROL - RADIOCHEMISTRY

ASTM D5811-95

ASTM D5811 Sr 89/90 Eichrom

Project: 1504P81 Pace Project No.: 30146856

QC Batch: RADC/24356

QC Batch Method: ASTM D5811-95

Associated Lab Samples: 30146856001

Matrix: Solid

Analysis Method:

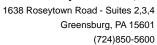
Analysis Description:

METHOD BLANK: 889793 Associated Lab Samples:

30146856001

Act ± Unc (MDC) Carr Trac Parameter Units Analyzed Qualifiers Strontium-90 -0.0168 ± 0.0968 (0.250) C:96% T:NA pCi/g 05/09/15 13:14 N2

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.





QUALITY CONTROL - RADIOCHEMISTRY

Project: 1504P81
Pace Project No.: 30146856

QC Batch: RADC/24426 Analysis Method: EPA 9310

QC Batch Method: EPA 9310 Analysis Description: 9310 Gross Alpha/Beta

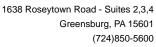
Associated Lab Samples: 30146856001

METHOD BLANK: 892476 Matrix: Solid

Associated Lab Samples: 30146856001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Gross Alpha	-0.024 ± 0.0812 (0.219) C:NA T:NA	pCi/g	05/13/15 19:44	
Gross Beta	-0.012 ± 0.108 (0.255) C:NA T:NA	pCi/g	05/13/15 19:44	

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.





QUALIFIERS

Project: 1504P81 Pace Project No.: 30146856

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.

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

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval). Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

Date: 05/28/2015 02:02 PM

N2 The lab does not hold TNI accreditation for this parameter.



Improving the environment, one client at a time...

CHAIN OF CUSTODY RECORD

COC ID: 3929

OF: 1 PAGE:

PO Box 286 Beaver, WV 25813 TEL: (304) 255-2500 FAX: (304) 255-2572 Website: www.reiclabs.com REI Consultants, Inc.

30146856

Please Include Email Address of Report Recipient Whenever Possible!!!

SUB CC	SUB CONTRATOR:DACTE DA	, DA	COMPANY:	DAG	DACE ANAL	VTICAL SERVIC	_	SPECIAL INSTRUCTIONS / COMMENTS:	INS / COMMENTS:	
	LACE	LA		01		I IICUT OFILI	-	State Code: WV	State Code: WV Please use SampleID as purchase order number.	rchase order number.
ADDRESS		1638 ROSEYTOWN ROAD	OAD				7	After analysis, the practices. Results	After analysis, the samples do not need to be returned and practices. Results to Kathy Berry at kberry@reiclabs.com	After analysis, the samples do not need to be returned and can be disposed per your standard laboratory practices. Results to Kathy Berry at kberry@reiclabs.com
CITY, S	STATE, ZIP: GREE	CITY, STATE, ZIP. GREENSBURG, PA 15601	5601							
PHONE	(724)	(724) 850-5600	FAX					ANALYTICA	ANALYTICAL PARAMETERS	* Preservation Codes: 0 None
							OR.	RA RA GR		1 Hydrochloric Acid
ACCOUNT #:		050719EVF1	EMAIL:				.033_A	DIUM_ DIUM_ OSS_B		2 Intro Add 3 Sulfare 4 Sodium Thiosulfare
ITEM	SAMPLE 1D	Client Sample ID	⊠ €:	Bottle Type	MATRIX	DATE COLLECTED	NUMBER OF CONTAINERS	UM_90_SUB (EPA 905.0) 228_SUB (EPA 904.0) 226_SUB (EPA 903.1) ETA_SUB (EPA 900.0) LPHA SUB (EPA 900.0)		5 Sodium Hydroxide/ Sodium Hydroxide/ Sodium Hydroxide 7 Ascothic Acid 8 Sodium Sulfite/HGL 9 Potassium Dihydrogen Citrate 10 Brombum Chloride 11 CR6 Buffer Solution COMMENTS.
							*	00000		
П	1504P81-01A	1504P81-01A BIERSTADT 2H		Š	Solid	4/20/2015	-	7777		100
		(VERTICAL MUD)								

Sample Condition Upon Receipt Pace Analytical RFIC Client Name: Project # Courler: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other Tracking #: Biological Tissue is Frozen: Yes No ☐ yes ☐ no Seals intact: Custody Seal on Cooler/Box Present: ☐ ves Packing Material: Bubble Wrap ____ Bubble Bags ___ None ___ Other Type of ice: Wel Blue None Samples on ice, cooling process has begun Thermometer Used Date and initials of person 4. C Correction Factor: 0.3 °C Final Temp: 38 Cooler Temp.: Observed Temp.:_ ANN examining content Comments: Temp should be above freezing to 6°C □xés □No □N/A 1. Chain of Custody Present: DYes No NA 2. Chain of Custody Filled Out: Mes □No □N/A 3. Chain of Custody Relinquished: ☐Yes No □N/A 4 Sampler Name & Signature on COC: ZYes □No □N/A Samples Arrived within Hold Time: □Yes □NO □N/A Short Hold Time Analysis (<72hr): □Yes ☑No □N/A Rush Turn Around Time Requested: □Xes □No □N/A Sufficient Volume: ☐ fea ☐ No □n/a Correct Containers Used: □Yes □N/0 □N/A -Pace Containers Used: □y69 □No □N/A Containers Intact: □Yes □No □N/A 11. Filtered volume received for Dissolved tests OYES ENO ONA 12NO TIPLE ON SOM PLL BOHLES O COC Sample Labels match COC: 51 Matrix: -Includes date/time/ID/Analysis All containers needing preservation have been checked. ☐Yes ☐No All containers needing preservation are found to be in **EN/A** ☐Yes ☐No compliance with EPA recommendation. Lot # of added Initial when TYes PNo completed preservative exceptions: VOA, coilform, TOC, O&G, Phenois □Yes □No PN/A Samples checked for dechlorination: ☐Yes ☐No **□N/A** 15. Headspace in VOA Vials (>6mm): □Yes □No DN/A 16. Trip Blank Present: DNA ☐Yes ☐No Trip Blank Custody Seals Present Pace Trip Blank Lot # (if purchased): Field Data Required? Client Notification/ Resolution:

Project Manager Review:

no Serro

Date:

4130115

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)

Project Number

page 2

Ofher								
төл∮С								
oold!2								
Cubitainer (500 ml / 4L)								
Radchem Nalgene (1/2 gal. \ 1 gal.L)						18.		
Radchem Nelgene (125 / 250 / 500 / 1L)								
Tefil filter sayive \ aeqiVV								
Bacteria (120 ml)								
(lm 003) əbiling								
(Im 05S) əbinsyO								
(Im 0E Im 0+) AOV								
(лг) нат								
O & G (1L)								
V Dissolved Metals preserved Y N								
sisiəM istoT								
(lm 05S) XOT	1,1							
(40 m 052 \ lm 04)								
(Im 03S) soiloned		<u> </u>						
(003 \ 032) tneirtuN								
(Jt) azinagıO								
Chemistry (250 / 500 / 1L)								
Soil kit (2 SB, 1M, soil jar)								
Glass Jar (20) 250 / 500 / 1L)	N							
eboO xiriaM	3							
.oV metl	8							

SCURF Back (C016-4 15May2012).xls

Service Center Service 101 17th Street 1557 Comme	estrial Consultants, I RATE HEADQUART rk Rd, Beaver, WV 2581 0 • www.reiclabs.com	ROANOKE Service Center 9-C Peters Creek Rd	DONTACT PERSON_ UOTE # ddress Illing Address (if	John Mail different) cit ierstat Un	shall D	ectio Deill Cutt	Phone 304	state WV zip 25753 Zip Zip Zip Zip Zip Zip Zip Zi
606-393-5027 540-2	48-0183	540-777-1276	Westover, WV 304-241-58	26501 361 W				
TURNAROUND TIME NORMAL *Rush work needs prior	RU S DAY	SIS REQUES SH TURNAROUND 3 DAY 2 DAY and will incur additiona	1 DAY	ANALYSIS & METHOD				
SAMPLE ID	No. & Type of Containers	Sampling Date/Time	Matrix	Sample Comp/Grab			■ ENTER PRESERVATIV	
Bierstadt 2 H (Vertical-Mud)	3-1602.	4/20/15	Cuttings	1			1 Hydrochloric Acid 2 Nitric Acid 3 Sulfuric Acid 4 Sodium Thiosulfa	7 EDTA 8 Ascorbic Acid
							COMMENTS: Bierstadt 2 Primm Pa	
ll analytical requests are subject to Ri	EIC's Standard Terms a	and Conditions.	Temperatu	re at arrival: 2,)°C ICED	0? Y_ N_	7112 412	06367
Henry Carris Removement Signatures	4/21/15 000/10:03 4/21/15 Date/198:03	2 Resirquisted by is grant Blanck, Lill	ure:	Oate/Ti # 22 Date/Ti	15	FAX RESULTS Hand Deli	10.000	IL RESULTSOTHER



Improving the environment, one client at a time...

Beaver, WV 25813 TEL: (304) 255-2500

Website: www.reiclabs.com

REI Consultants, Inc. PO Box 286

3029-C Peters Creek Road Roanoke, VA 24019 TEL: 540.777.1276

101 17th Street Ashland, KY 41101 TEL: 606.393.5027

1557 Commerce Road, Suite 201 Verona, VA 24482 TEL: 540.248.0183

16 Commerce Drive Westover, WV 26501 TEL: 304.241.5861

Tuesday, May 05, 2015

GEORGE CARICO MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE 1 JOHN MARSHALL DRIVE **HUNTINGTON, WV 25755-2585**

TEL: (304) 696-6042

FAX:

RE: DRILL CUTTING ANAL Work Order #: 1504P75 Dear GEORGE CARICO:

Kathy Berry

REI Consultants, Inc. received 1 sample(s) on 4/22/2015 for the analyses presented in the following report.

Sincerely,

Kathy Berry



REI Consultants, Inc. - Case Narrative

WO#: 1504P75

Date Reported: 5/5/2015

Client: MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE

Project: DRILL CUTTING ANAL

The analytical results presented in this report were produced using documented laboratory SOPs that incorporate appropriate quality control procedures as described in the applicable methods. Verification of required sample preservation (as required) is recorded on associated laboratory logs. Any deviation from compliance or method modification is identified within the body of this report by a qualifier footnote which is defined at the bottom of this page.

All sample results for solid samples are reported on an "as-received" wet weight basis unless otherwise noted.

Results reported for sums of individual parameters, such as TTHM and HAA5, may vary slightly from the sum of the individual parameter results, due to rounding of individual results, as required by EPA.

The test results in this report meet all NELAP (and/or VELAP) requirements for parameters except as noted in this report.

Please note if the sample collection time is not provided on the Chain of Custody, the default recording will be 0:00:00. This may cause some tests to be apparently analyzed out of hold.

All tests performed by REIC Service Centers are designated by an annotation on the test code. All other tests were performed by REIC's Main Laboratory in Beaver, WV.

This report may not be reproduced, except in full, without the written approval of REIC.

DEFINITIONS:

MCL: Maximum Contaminant Level

MDL: Method Detection Limit; The lowest concentration of analyte that can be detected by the method in the applicable matrix. Mg/Kg or mg/L: Units of part per million (PPM) - milligram per Kilogram (weight/weight) or milligram per Liter (weight/volume).

NA: Not Applicable

ND: Not Detected at the PQL or MDL

PQL: Practical Quantitation Limit; The lowest verified limit to which data is quantified without qualifications. Analyte concentrations below PQL are reported either as ND or as a number with a "J" qualifier.

Qual: Qualifier that applies to the analyte reported.

TIC: Tentatively Identified Compound, Estimated Concentration denoted by "J" qualifier.

Ug/Kg or ug/L: Units of part per billion (PPB) - microgram per kilogram (weight/weight) or microgram per liter (weight/volume).

QUALIFIERS:

- X: Reported value exceeds required MCL
- B: Analyte detected in the associated Method Blank at a concentration > 1/2 the PQL
- E: Analyte concentration reported that exceeds the upper calibration standard. Greater uncertainty is associated with this result and data should be consider estimated.
- H: Holding time for preparation or analysis has been exceeded.
- J: Analyte concentration is reported, and is less than the PQL and greater than or equal to the MDL. The result reported is an estimate.
- S: % REC (% recovery) exceeds control limits

CERTIFICATIONS:

Beaver, WV: WVDHHR 00412CM, WVDEP 060, VADCLS 00281, KYDEP 90039, TNDEQ TN02926, NCDWQ 466, PADEP 68-00839, VADCLS (VELAP) 460148

Bioassay (Beaver, WV): WVDEP 060, VADCLS(VELAP) 460148, PADEP 68-00839

Roanoke, VA: VADCLS(VELAP) 460150 Verona, VA: VADCLS(VELAP) 460151 Ashland, KY: KYDEP 00094, WVDEP 389

Morgantown, WV: WVDHHR 003112M, WVDEP 387

WO#: 1504P75

Date Reported: 5/5/2015

Client: MARSHALL UNIVERSITY CENTER. FOR ENV. Collection Date: 4/20/2015 12:00:00 AM

SCIENCE

Project:DRILL CUTTING ANALDate Received:4/22/2015Lab ID:1504P75-01AMatrix:Solid

Client Sample ID: BIERSTADT 2H (VERTICAL-MUD) Site ID: BIERSTADT UNIT 2H

	•							
Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
METALS by ICP			Method:	SW6010	C (200	07)	Analyst: JD	
Aluminum	11,000	3.00	25.0	NA		mg/Kg	4/23/2015 4:43 PM	PA/VA
Antimony	ND	2.00	5.00	NA		mg/Kg	4/23/2015 4:40 PM	PA/VA
Arsenic	10.4	1.00	5.00	NA		mg/Kg	4/23/2015 4:40 PM	PA/VA
Barium	754	0.200	2.50	NA		mg/Kg	4/23/2015 4:40 PM	PA/VA
Beryllium	0.605	0.0500	0.250	NA		mg/Kg	4/23/2015 4:40 PM	PA/VA
Boron	8.22	1.00	2.50	NA		mg/Kg	4/27/2015 10:41 AM	PA/VA
Cadmium	0.524	0.100	0.500	NA		mg/Kg	4/23/2015 4:40 PM	PA/VA
Chromium	20.3	0.200	2.50	NA		mg/Kg	4/23/2015 4:40 PM	PA/VA
Copper	19.8	0.200	2.50	NA		mg/Kg	4/23/2015 4:40 PM	PA/VA
Iron	23,000	50.0	250	NA		mg/Kg	4/23/2015 4:47 PM	PA/VA
Lead	15.8	1.00	5.00	NA		mg/Kg	4/23/2015 4:40 PM	PA/VA
Lithium	25.2	0.100	5.00	NA		mg/Kg	4/24/2015 2:33 PM	
Manganese	221	0.200	2.50	NA		mg/Kg	4/23/2015 4:40 PM	PA/VA
Nickel	22.4	0.200	2.50	NA		mg/Kg	4/23/2015 4:40 PM	PA/VA
Selenium	ND	1.00	5.00	NA		mg/Kg	4/23/2015 4:40 PM	PA/VA
Silver	0.180	0.100	1.25	NA	J	mg/Kg	4/23/2015 4:40 PM	PA/VA
Strontium	2,270	1.00	25.0	NA		mg/Kg	4/24/2015 2:36 PM	PA/VA
Vanadium	21.1	0.200	2.50	NA		mg/Kg	4/23/2015 4:40 PM	PA/VA
Zinc	66.2	0.500	2.50	NA		mg/Kg	4/23/2015 4:40 PM	PA/VA
MERCURY, Total SW7417B			Method: SW7471B (2/07)				Analyst: CR	
Mercury	0.028	0.020	0.100	NA	J	mg/Kg	5/1/2015 11:55 AM	PA/VA
HEXAVALENT CHROMIUM, WAT	ER SOLUE	BLE	Method: SW7196A (1992)			Analyst: JB		
Chromium, Hexavalent	0.280	0.100	0.200	NA		mg/kg	4/24/2015 12:00 PM	PA/VA
PERCENT MOISTURE			Method:	SM2540	B-199	7	Analyst: TS	
Percent Moisture	25	0.010	0.50	NA		wt%	4/28/2015 10:33 AM	
Oil and Grease			Method:	SW9071	B (4/9	8)	Analyst: NC	
Oil & Grease, Total Recoverable	0.143	0.033	0.067	NA	•	wt%-dry	4/25/2015 1:42 PM	
on a Groupe, retain topovorusie	0.143	0.000	0.001			wt%-ary	4/23/2013 1.42 1 101	
SEMIVOLATILE ORGANIC COMP	POUNDS		Method:	SW8270	D (200	7)	Analyst: JC	
1,4-Dinitrobenzene	ND	0.167	0.333	NA		mg/Kg	4/29/2015 3:33 PM	
1,4-Napthoquinone	ND	NA	0.333	NA		mg/Kg	4/29/2015 3:33 PM	
4-Nitroquinoline-1-oxide	ND	NA	0.333	NA		mg/Kg	4/30/2015 7:32 PM	

WO#: 1504P75

Date Reported: 5/5/2015

Client: MARSHALL UNIVERSITY CENTER. FOR ENV. Collection Date: 4/20/2015 12:00:00 AM

SCIENCE

Project:DRILL CUTTING ANALDate Received:4/22/2015Lab ID:1504P75-01AMatrix:Solid

Client Sample ID: BIERSTADT 2H (VERTICAL-MUD) Site ID: BIERSTADT UNIT 2H

Analysis	Result	MDL	PQL	MCL	Qual Units	Date Analyzed N	IELAP
Pentachloronitrobenzene	ND	NA	0.333	NA	mg/Kg	4/29/2015 3:33 PM	
Bis(2-ethylhexyl)phthalate	ND	0.167	0.333	NA	mg/Kg	4/29/2015 3:33 PM	PA/VA
Butyl benzyl phthalate	ND	0.167	0.333	NA	mg/Kg	4/29/2015 3:33 PM	
Di-n-butyl phthalate	ND	0.167	0.333	NA	mg/Kg	4/29/2015 3:33 PM	PA/VA
Diethyl phthalate	ND	0.067	0.333	NA	mg/Kg	4/29/2015 3:33 PM	PA/VA
Dimethyl phthalate	ND	0.067	0.333	NA	mg/Kg	4/29/2015 3:33 PM	PA/VA
2,4-Dinitrotoluene	ND	0.067	0.333	NA	mg/Kg	4/29/2015 3:33 PM	PA/VA
2,6-Dinitrotoluene	ND	0.067	0.333	NA	mg/Kg	4/29/2015 3:33 PM	PA/VA
Di-n-octyl phthalate	ND	0.167	0.333	NA	mg/Kg	4/29/2015 3:33 PM	PA/VA
Fluoranthene	ND	0.067	0.333	NA	mg/Kg	4/29/2015 3:33 PM	PA/VA
Nitrobenzene	ND	0.067	0.333	NA	mg/Kg	4/29/2015 3:33 PM	PA/VA
Surr: 2-Fluorophenol	66.5	NA	54.1-110	NA	%REC	4/29/2015 3:33 PM	
Surr: Phenol-d5	74.6	NA	60.1-110	NA	%REC	4/29/2015 3:33 PM	
Surr: 2,4,6-Tribromophenol	73.3	NA	58.8-128	NA	%REC	4/29/2015 3:33 PM	
Surr: Nitrobenzene-d5	95.0	NA	68.2-123	NA	%REC	4/29/2015 3:33 PM	
Surr: 2-Fluorobiphenyl	85.0	NA	68.4-116	NA	%REC	4/29/2015 3:33 PM	
Surr: 4-Terphenyl-d14	83.6	NA	52.2-121	NA	%REC	4/29/2015 3:33 PM	
VOLATILE ORGANIC COMPO	UNDS-8260		Method: \$	SW8260)B (1996)	Analyst: JM	
Benzene	115	25.0	50.0	NA	μg/Kg	4/29/2015 5:00 PM	PA/VA
Bromodichloromethane	7.36	1.86	3.72	NA	μg/Kg	4/27/2015 4:03 PM	PA/VA
Chlorobenzene	ND	1.86	3.72	NA	μg/Kg	4/27/2015 4:03 PM	PA/VA
1,2-Dichlorobenzene	ND	1.86	3.72	NA	μg/Kg	4/27/2015 4:03 PM	PA/VA
1,3-Dichlorobenzene	ND	1.86	3.72	NA	μg/Kg	4/27/2015 4:03 PM	PA/VA
1,4-Dichlorobenzene	ND	1.86	3.72	NA	μg/Kg	4/27/2015 4:03 PM	PA/VA
Surr: 1,2-Dichloroethane-d4	78.0	NA	70-130	NA	%REC	4/29/2015 5:00 PM	
Surr: 4-Bromofluorobenzene	122	NA	70-130	NA	%REC	4/29/2015 5:00 PM	
Surr: Dibromofluoromethane	92.4	NA	70-130	NA	%REC	4/29/2015 5:00 PM	
Surr: Toluene-d8	103	NA	70-130	NA	%REC	4/29/2015 5:00 PM	

Notes:

Sample was received at the laboratory in a container that is not in accordance with method 5035 field sampling techniques.

ANIONS by IC, WATER SOLUBLE			Method: S	SW9056	A (2000)	Analyst: CF
Chloride	43,800	400	2,000	NA	mg/Kg	4/24/2015 4:38 PM
Fluoride	72.2	1.00	8.00	NA	mg/Kg	4/24/2015 4:38 PM
Nitrogen, Nitrate	0.400	0.400	2.00	NA	J mg/Kg	4/24/2015 4:38 PM
Nitrogen, Nitrite	ND	5.00	50.0	NA	ma/Ka	4/24/2015 4:38 PM

Date Reported: 5/5/2015

WO#: 1504P75

Client: MARSHALL UNIVERSITY CENTER. FOR ENV. Collection Date: 4/20/2015 12:00:00 AM

SCIENCE

Project:DRILL CUTTING ANALDate Received:4/22/2015Lab ID:1504P75-01AMatrix:Solid

Client Sample ID: BIERSTADT 2H (VERTICAL-MUD) Site ID: BIERSTADT UNIT 2H

Analysis	Result	MDL	PQL	MCL	Qual Units	Date Analyzed N	IELAP
Sulfate	758	20.0	100	NA	mg/Kg	4/24/2015 4:38 PM	
Notes:							
Elevated PQLs are due to matrix inter	rference.						
AMMONIA NITROGEN			Method: 1997	SM4500	-NH3 B-C-	Analyst: CC	
Nitrogen, Ammonia	10.9	8.00	10.0	NA	mg/Kg	4/28/2015 5:08 PM	
TOTAL KJELDAHL NITROGE	N (TKN)		Method: 2.0 (1993		1.2, Rev.	Analyst: JH	
Nitrogen, Kjeldahl, Total	539	25.2	126	NA	mg/Kg	4/24/2015 10:42 AM	PA/VA
CYANIDE, FREE			Method:	SM4500	-CN I-1997	Analyst: JH	
Cyanide, Free	ND	0.250	1.00	NA	mg/Kg	4/24/2015 1:56 PM	
CONDUCTIVITY			Method:	SM2510	B-1997	Analyst: KY	
Specific Conductivity	134,000	NA	NA	NA	µmhos/ci	m 4/27/2015 10:30 AM	
Notes:							
Conductivity result was estimated bas	sed on measuring a	a 1:10 dil	ution.				
ALKALINITY			Method:	SM2320	B-1997	Analyst: DSD	
Alkalinity, Total (As CaCO3)	7 500	100	2 000	NA	ma/Ka	Λ/23/2015 11·25 ΔM	

Alkalinity, Total (As CaCO3) 7,590 100 2,000 4/23/2015 11:25 AM mg/Kg pН Method: SW9045D (2002) **Analyst: DSD** рΗ NA NA NA 5/4/2015 11:25 AM PA/VA 8.94 SU



REI Consultants, Inc. PO Box 286 Beaver, WV 25813 TEL: (304)255-2500

Website: www.reiclabs.com

Sample Receipt Checklist

Client Na	me: MA	AR071					Wo	rk Order Number:	1504P75
RCPNo:	1		Date and Time	Received:		4/22/2015 3:29:	:03 PM	Received by:	Jeff Ginger
Complete	ed By:	Anthony Sis	k		Re	eviewed By:			
Complete	ed Date:	4/22/2015 3:3	6:19 PM		Re	eviewed Date:			
Carri	er Name	: REIC	;						
1.	Chain o	f custody pres	sent?				Yes x] No \square	
2.	Chain o	f custody sign	ed when relinqu	ished and recei	ved?		Yes x	No 🗌	
3.	Are mat	rices correctly	identified on Cl	hain of custody?	•		Yes	No 🗌	
4.	Is it clea	ar what analys	ses were reques	ted?			Yes x	No 🗆	
5.	Custody	/ seals intact?	•				Yes \square	No 🗆	Not Present x
6.	Sample	s in proper co	ntainer type and	I preservative?			Yes X	No 🔲	
7.	Were co	orrect preserva	atives noted on (COC?			Yes x	No 🗌	NA 🗌
8.	Sample	containers in	tact?				Yes x	No 🗌	
9.	Sufficier	nt sample volu	ume for indicated	d test?			Yes x	No 🗌	
10.	Were co	ontainer lables	s complete?				Yes x	No 🗌	
11.	All samp	oles received	within holding tir	me?			Yes x	No 🗌	
12.	Was an	attempt made	e to cool the sam	nples?			Yes x	No 🗌	NA 🗌
13.	Sample	Temp. taken	and recorded up	oon receipt?			Yes x	No 🗌	To 2 °C
14.	Water -	Were bubbles	absent in VOC	vials?			Yes	No 🗌	No Vials x
15.			red acceptable?				Yes x		Ц
			·					. —	
O!!-	(N I - (: :: :::-	/D						
Cile	ent No	iiicatio	n/Respo	nse					
Clie	nt Name:	MAR071						Work Order Numb	per: 1504P75
Com	nment:	No preserv	ative codes liste	d on COC					
				_	_				
Clie	nt Contacte	ed: Yes	x No	∐ NA			ontacted	l: George Cari	ico
Con	tact Mode:	Phone	Fax:	Email:	х	In Person:			
Date	e Contacted	l: 4	1/23/2015 10:34	:00 AM	Contac	ted By:	Kathy Be	erry	
Reg	arding:	No pre	eservative codes	slisted					
Clier	nt Instructio	ns:							



Improving the environment, one client at a time...

REI Consultants, Inc. PO Box 286 Beaver, WV 25813 TEL: (304) 255-2500

Website: www.reiclabs.com

3029-C Peters Creek Road Roanoke, VA 24019 TEL: 540.777.1276

101 17th Street Ashland, KY 41101 TEL: 606.393.5027

1557 Commerce Road, Suite 201 Verona, VA 24482 TEL: 540.248.0183

16 Commerce Drive Westover, WV 26501 TEL: 304.241.5861

Monday, June 01, 2015

GEORGE CARICO MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE 1 JOHN MARSHALL DRIVE **HUNTINGTON, WV 25755-2585**

TEL: (304) 696-6042

FAX:

RE: DRILL CUTTING ANAL Work Order #: 1504P81 Dear GEORGE CARICO:

Kathy Berry

REI Consultants, Inc. received 1 sample(s) on 4/22/2015 for the analyses presented in the following report.

Sincerely,

Kathy Berry



REI Consultants, Inc. - Case Narrative

WO#: 1504P81

Date Reported: 6/1/2015

Client: MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE

Project: DRILL CUTTING ANAL

The analytical results presented in this report were produced using documented laboratory SOPs that incorporate appropriate quality control procedures as described in the applicable methods. Verification of required sample preservation (as required) is recorded on associated laboratory logs. Any deviation from compliance or method modification is identified within the body of this report by a qualifier footnote which is defined at the bottom of this page.

All sample results for solid samples are reported on an "as-received" wet weight basis unless otherwise noted.

Results reported for sums of individual parameters, such as TTHM and HAA5, may vary slightly from the sum of the individual parameter results, due to rounding of individual results, as required by EPA.

The test results in this report meet all NELAP (and/or VELAP) requirements for parameters except as noted in this report.

Please note if the sample collection time is not provided on the Chain of Custody, the default recording will be 0:00:00. This may cause some tests to be apparently analyzed out of hold.

All tests performed by REIC Service Centers are designated by an annotation on the test code. All other tests were performed by REIC's Main Laboratory in Beaver, WV.

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DEFINITIONS:

MCL: Maximum Contaminant Level

MDL: Method Detection Limit; The lowest concentration of analyte that can be detected by the method in the applicable matrix.

Mg/Kg or mg/L: Units of part per million (PPM) - milligram per Kilogram (weight/weight) or milligram per Liter (weight/volume).

NA: Not Applicable

ND: Not Detected at the PQL or MDL

PQL: Practical Quantitation Limit; The lowest verified limit to which data is quantified without qualifications. Analyte concentrations below PQL are reported either as ND or as a number with a "J" qualifier.

Qual: Qualifier that applies to the analyte reported.

TIC: Tentatively Identified Compound, Estimated Concentration denoted by "J" qualifier.

Ug/Kg or ug/L: Units of part per billion (PPB) - microgram per kilogram (weight/weight) or microgram per liter (weight/volume).

QUALIFIERS:

- X: Reported value exceeds required MCL
- B: Analyte detected in the associated Method Blank at a concentration > 1/2 the PQL
- E: Analyte concentration reported that exceeds the upper calibration standard. Greater uncertainty is associated with this result and data should be consider estimated.
- H: Holding time for preparation or analysis has been exceeded.
- J: Analyte concentration is reported, and is less than the PQL and greater than or equal to the MDL. The result reported is an estimate.
- S: % REC (% recovery) exceeds control limits

CERTIFICATIONS:

Beaver, WV: WVDHHR 00412CM, WVDEP 060, VADCLS 00281, KYDEP 90039, TNDEQ TN02926, NCDWQ 466, PADEP 68-00839, VADCLS (VELAP) 460148

Bioassay (Beaver, WV): WVDEP 060, VADCLS(VELAP) 460148, PADEP 68-00839

Roanoke, VA: VADCLS(VELAP) 460150 Verona, VA: VADCLS(VELAP) 460151 Ashland, KY: KYDEP 00094, WVDEP 389

Morgantown, WV: WVDHHR 003112M, WVDEP 387

WO#: 1504P81

Date Reported: 6/1/2015

Client: MARSHALL UNIVERSITY CENTER. FOR ENV. Collection Date: 4/20/2015 12:00:00 AM

SCIENCE

Project:DRILL CUTTING ANALDate Received:4/22/2015Lab ID:1504P81-01AMatrix:Solid

Client Sample ID: BIERSTADT 2H (VERTICAL MUD) Site ID: BIERSTADT UNIT 2H

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed NELAP
GROSS ALPHA			Method:	EPA 900).0		Analyst: Sub
Gross Alpha	see attached	NA	NA	NA		pci/L	
GROSS BETA			Method:	EPA 900	0.0		Analyst: Sub
Gross Beta	see attached	NA	NA	NA		pci/L	
RADIUM-226			Method:	EPA 903	3.1		Analyst: Sub
Radium-226	see attached	NA	NA	NA		pci/L	
RADIUM-228			Method:	EPA 904	1.0		Analyst: Sub
Radium-228	see attached	NA	NA	NA		pci/L	
STRONTIUM-90			Method:	EPA 905	5.0		Analyst: Sub
Strontium-90	see attached	NA	NA	NA			



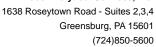
Improving the environment, one client at a time...

REI Consultants, Inc. PO Box 286 Beaver, WV 25813 TEL: (304)255-2500

Website: www.reiclabs.com

Sample Receipt Checklist

Client Name	e: MAR ()71					Wo	rk Order Number:	1504P81
RCPNo:	1		Date and Time	Received:		4/22/2015 3:4	10:04 PM	Received by:	Jeff Ginger
Completed	Ву:				F	Reviewed By:	Kathy	Berry	
Completed	Date:				F	Reviewed Date	: 4/23/20	015 10:37 AM	
Carrier	· Name:	REIC							
1.	Chain of cu	ıstody pres	ent?				Yes x	No 🗆	
2.	Chain of cu	ıstody sign	ed when relinqu	ished and red	eived?		Yes x	No 🗌	
3.	Are matrice	es correctly	identified on Ch	nain of custod	ly?		Yesx	No 🗌	
4.	Is it clear v	hat analys	es were reques	ted?			Yes x	No 🗆	
5.	Custody se	eals intact?					Yes	No 🗆	Not Present x
6.	Samples in	proper co	ntainer type and	preservative	?		Yes X	No 🗌	
7.	Were corre	ct preserva	tives noted on	COC?			Yes x	No 🗌	NA 🗌
8.	Sample co	ntainers int	act?				Yes x	No 🗌	
9.	Sufficient s	ample volu	me for indicated	d test?			Yes x	No 🗌	
10.	Were conta	ainer labels	complete?				Yes	No x	
11.	All samples	s received	vithin holding tir	me?			Yes x	No 🗌	
12.	Was an att	empt made	to cool the sam	nples?			Yes x	No 🗌	NA 🗌
13.	Sample Te	mp. taken	and recorded up	on receipt?			Yes x	No 🗆	To 2 °C
14.	Water - We	ere bubbles	absent in VOC	vials?			Yes	No 🗌	No Vials x
15.	Are Sample	es conside	ed acceptable?				Yes x	No 🗌	_
16.	COC filled	out proper	y?				Yes X	No 🗌	
Clien	t Notif	icatio	n/Respo	nse					
Client	Name:	MAR071					,	Work Order Numbe	er: 1504P81
Comm	nent:								
Client	Contacted:	Yes	x No	□ NA	Α 🔲	Person (Contacted	l: George Cario	:0
Contac	ct Mode:	Phone	Fax:	Ema	ail: X	In Person:		-	
Regar	Contacted: ding: Instructions:	No prs	/23/2015 10:45 ervative codes		Conta	cted By:	Kathy Be	erry	
Correc	ctive Action:								





May 28, 2015

Ms. Kathy Berry REI Consultants, Inc. 225 Industrial Park Drive PO Box 286 Beaver, WV 25813

RE: Project: 1504P81

Pace Project No.: 30146856

Dear Ms. Berry:

Enclosed are the analytical results for sample(s) received by the laboratory on April 29, 2015. 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.

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

Sincerely,

Carin a. Ferris

Carin Ferris carin.ferris@pacelabs.com Project Manager

Enclosures



Greensburg, PA 15601 (724)850-5600



CERTIFICATIONS

Project: 1504P81 Pace Project No.: 30146856

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ACLASS DOD-ELAP Accreditation #: ADE-1544

Alabama Certification #: 41590 Arizona Certification #: AZ0734

Arkansas Certification
California/TNI Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683

Guam/PADEP Certification Hawaii/PADEP Certification

Idaho Certification

Illinois/PADEP Certification Indiana/PADEP Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358 Kentucky Certification #: 90133

Louisiana DHH/TNI Certification #: LA140008

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: PA00091 Maryland Certification #: 308

Massachusetts Certification #: M-PA1457 Michigan/PADEP Certification

Missouri Certification #: 235

Montana Certification #: Cert 0082 Nebraska Certification #: NE-05-29-14

Nevada Certification

New Hampshire/TNI Certification #: 2976

New Jersey/TNI Certification #: PA 051

New Mexico Certification

New York/TNI Certification #: 10888 North Carolina Certification #: 42706 North Dakota Certification #: R-190

Oregon/TNI Certification #: PA200002 Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

South Dakota Certification

Tennessee Certification #: TN2867 Texas/TNI Certification #: T104704188 Utah/TNI Certification #: PA014572014-4

Vermont Dept. of Health: ID# VT-0282 Virgin Island/PADEP Certification Virginia/VELAP Certification #: 460198 Washington Certification #: C868 West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C

Wisconsin/PADEP Certification Wyoming Certification #: 8TMS-Q

1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600



SAMPLE SUMMARY

Project: 1504P81
Pace Project No.: 30146856

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30146856001	1504P81-01A	Solid	04/20/15 00:01	04/29/15 15:10

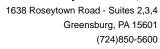
1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600



SAMPLE ANALYTE COUNT

Project: 1504P81 Pace Project No.: 30146856

Lab ID	Sample ID	Method	Analysts	Analytes Reported
30146856001	1504P81-01A	EPA 901.1	MAH	2
		ASTM D5811-95	LAL	1
		EPA 9310	FCC	2





Project: 1504P81
Pace Project No.: 30146856

Method: EPA 901.1

Description: 901.1 Gamma Spec INGROWTH

Client: REI Consultants, Inc.

Date: May 28, 2015

General Information:

1 sample was analyzed for EPA 901.1. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times 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.

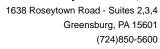
Laboratory Control Spike:

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:





Project: 1504P81
Pace Project No.: 30146856

Method: ASTM D5811-95

Description: ASTM D5811 Sr 89/90 Eichrom

Client: REI Consultants, Inc.

Date: May 28, 2015

General Information:

1 sample was analyzed for ASTM D5811-95. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times 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.

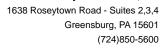
Additional Comments:

Analyte Comments:

QC Batch: RADC/24356

N2: The lab does not hold TNI accreditation for this parameter.

- 1504P81-01A (Lab ID: 30146856001)
 - Strontium-90
- BLANK (Lab ID: 889793)
 - Strontium-90





Project: 1504P81
Pace Project No.: 30146856

Method: EPA 9310

Description: 9310 Gross Alpha/Beta
Client: REI Consultants, Inc.
Date: May 28, 2015

General Information:

1 sample was analyzed for EPA 9310. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times 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:

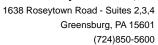
All laboratory control spike compounds were within QC limits with any exceptions noted below.

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.





ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 1504P81 Pace Project No.: 30146856

Sample: 1504P81-01A Lab ID: 30146856001 Collected: 04/20/15 00:01 Received: 04/29/15 15:10 Matrix: Solid

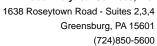
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Comments:

• Sample collection times were not present on the sample containers or COC.
• Sample Acceptance Policy Waiver on file from the client.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 901.1	1.996 ± 0.427 (0.217) C:NA T:NA	pCi/g	05/27/15 09:13	13982-63-3	
Radium-228	EPA 901.1	2.112 ± 0.472 (0.234) C:NA T:NA	pCi/g	05/27/15 09:13	15262-20-1	
Strontium-90	ASTM D5811-95	0.0130 ± 0.0794 (0.195) C:112% T:NA	pCi/g	05/09/15 13:14	10098-97-2	N2
Gross Alpha	EPA 9310	17.8 ± 8.09 (11.0) C:NA T:NA	pCi/g	05/13/15 19:44	12587-46-1	
Gross Beta	EPA 9310	18.5 ± 4.92 (4.70) C:NA T:NA	pCi/g	05/13/15 19:44	12587-47-2	





Project: 1504P81
Pace Project No.: 30146856

QC Batch: RADC/24366 Analysis Method: EPA 901.1

QC Batch Method: EPA 901.1 Analysis Description: 901.1 Gamma Spec Ingrowth

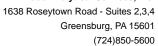
Associated Lab Samples: 30146856001

METHOD BLANK: 890150 Matrix: Solid

Associated Lab Samples: 30146856001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.112 ± 0.120 (0.250) C:NA T:NA	pCi/g	05/26/15 08:51	
Radium-228	0.069 ± 0.075 (0.434) C:NA T:NA	pCi/g	05/26/15 08:51	

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.





Project: 1504P81 Pace Project No.: 30146856

QC Batch: RADC/24356 Analysis Method: ASTM D5811-95

QC Batch Method: ASTM D5811-95 Analysis Description: ASTM D5811 Sr 89/90 Eichrom

Associated Lab Samples: 30146856001

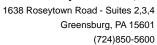
METHOD BLANK: 889793 Matrix: Solid

Associated Lab Samples: 30146856001

 Parameter
 Act ± Unc (MDC) Carr Trac
 Units
 Analyzed
 Qualifiers

 Strontium-90
 -0.0168 ± 0.0968 (0.250) C:96% T:NA
 pCi/g
 05/09/15 13:14
 N2

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.





Project: 1504P81
Pace Project No.: 30146856

QC Batch: RADC/24426 Analysis Method: EPA 9310

QC Batch Method: EPA 9310 Analysis Description: 9310 Gross Alpha/Beta

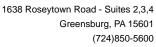
Associated Lab Samples: 30146856001

METHOD BLANK: 892476 Matrix: Solid

Associated Lab Samples: 30146856001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Gross Alpha	-0.024 ± 0.0812 (0.219) C:NA T:NA	pCi/g	05/13/15 19:44	
Gross Beta	-0.012 ± 0.108 (0.255) C:NA T:NA	pCi/g	05/13/15 19:44	

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.





QUALIFIERS

Project: 1504P81 Pace Project No.: 30146856

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.

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

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval). Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

Date: 05/28/2015 02:02 PM

N2 The lab does not hold TNI accreditation for this parameter.



Improving the environment, one client at a time...

CHAIN OF CUSTODY RECORD

COC ID: 3929

OF: 1 PAGE:

PO Box 286 Beaver, WV 25813 TEL: (304) 255-2500 FAX: (304) 255-2572 Website: www.reiclabs.com REI Consultants, Inc.

30146856

Please Include Email Address of Report Recipient Whenever Possible!!!

SUB CC	SUB CONTRATOR:DACTE DA	DA	COMPANY:	DA	DACE ANAL	VTICAL SERVIC	_	SPECIAL INSTRUCTIONS / COMMENTS:	ONS / COMMENTS:	
	LACI	LA		CI		I IICUT OEWA	-	State Code: WV	State Code: WV Please use SampleID as purchase order number.	rchase order number.
ADDRESS		1638 ROSEYTOWN ROAD	OAD				7	After analysis, the practices. Results	After analysis, the samples do not need to be returned and practices. Results to Kathy Berry at kberry@reiclabs.com	After analysis, the samples do not need to be returned and can be disposed per your standard laboratory practices. Results to Kathy Berry at kberry@reiclabs.com
CITY, S	STATE, ZIP: GREI	CITY, STATE, ZIP. GREENSBURG, PA 15601	1099							
PHONE	(724)	(724) 850-5600	FAX					ANALYTIC?	ANALYTICAL PARAMETERS	* Preservation Codes: 0 None
							J.K	RA RA GR		1 Hydrochloric Acid
ACCOUNT #:		050719EVF1	EMAIL:				.555_A	DIUM_ DIUM_ OSS_B		2 Intre Add 3 Sulfrie Acid 4 Sodium Thiosuffate
ITEM	SAMPLE 1D	Client Sample ID	⊠ €:	Bottle Type	MATRIX	DATE COLLECTED	NUMBER OF CONTAINERS	UM_90_SUB (EPA 905.0) 228_SUB (EPA 904.0) 226_SUB (EPA 903.1) ETA_SUB (EPA 900.0) LPHA_SUB (EPA 900.0)		5 Sodium Hydroxide/ Sodium Hydroxide 6 Sodium Hydroxide 7 Ascorbic Acid 8 Sodium Sulfite/HCL 9 Potassium Dilydrogen Citrate 10 Bromium Chloride 11 CR6 Buffer Solution COMMENTS:
							*	00000		
П	1504P81-01A	1504P81-01A BIERSTADT 2H		Š	Solid	4/20/2015	н	7777		100
		(VERTICAL MUD)								

Sample Condition Upon Receipt Pace Analytical RFIC Client Name: Project # Courler: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other Tracking #: Biological Tissue is Frozen: Yes No ☐ yes ☐ no Seals intact: Custody Seal on Cooler/Box Present: ☐ ves Packing Material: Bubble Wrap ____ Bubble Bags ___ None ___ Other Type of ice: Wel Blue None Samples on ice, cooling process has begun Thermometer Used Date and initials of person 4. C Correction Factor: 0.3 °C Final Temp: 38 Cooler Temp.: Observed Temp.:_ ANN examining content Comments: Temp should be above freezing to 6°C □xés □No □N/A 1. Chain of Custody Present: DYes No NA 2. Chain of Custody Filled Out: Mes □No □N/A 3. Chain of Custody Relinquished: ☐Yes No □N/A 4 Sampler Name & Signature on COC: ZYes □No □N/A Samples Arrived within Hold Time: □Yes □NO □N/A Short Hold Time Analysis (<72hr): □Yes ☑No □N/A Rush Turn Around Time Requested: □Xes □No □N/A Sufficient Volume: ☐ fea ☐ No □n/a Correct Containers Used: □Yes □N/0 □N/A -Pace Containers Used: □y69 □No □N/A Containers Intact: □Yes □No □N/A 11. Filtered volume received for Dissolved tests OYES ENO ONA 12NO TIPLE ON SOM PLL BOHLES O COC Sample Labels match COC: 51 Matrix: -Includes date/time/ID/Analysis All containers needing preservation have been checked. ☐Yes ☐No All containers needing preservation are found to be in **EN/A** ☐Yes ☐No compliance with EPA recommendation. Lot # of added Initial when TYes No completed preservative exceptions: VOA, coilform, TOC, O&G, Phenois □Yes □No PN/A Samples checked for dechlorination: ☐Yes ☐No **□N/A** 15. Headspace in VOA Vials (>6mm): □Yes □No DN/A 16. Trip Blank Present: DNA ☐Yes ☐No Trip Blank Custody Seals Present Pace Trip Blank Lot # (if purchased): Field Data Required? Client Notification/ Resolution:

Project Manager Review:

no Serro

Date:

4130115

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)

Project Number

page 2

Ofher								
төл∮С								
poldiS								
Cubitainer (500 ml / 4L)								1
Radchem Nalgene (1/2 gal. / 1 gal.L)						18.		1
Radchem Nelgene (125 / 250 / 500 / 1L)								
Teliî (seqiwe) seqiW								
(Im 0St) ainetosi								1
(fin 060 ml)								
(Im 03S) əbinsyO								1
(Im 06 Im 04) AOV								1
(лі) нат								
O & G (1L)				1				
Dissolved Metals preserved Y N								1
sisteM latoT								
(lm 05S) XOT								
(Im 052 \ Im 04))								1
Phenolics (250 ml)								
Nutrient (250 \ 500)								
(Jt) sainagıO								
Chemistry (250 / 500 / 1L)								
Soil kit (2 SB, 1M, soil jar)								
Glass Jar (20) 250 / 500 / 1L)	N							
eboO xii)x	35							1
.oV mełl	8							

SCURF Back (C016-4 15May2012).xls

CHAIN OF CUSTODY RECORD Marshall University CEGAS Contact Person George Carico Email: Carico@marshall. edu QUOTE # city Huntington Billing Address (if different) Research Environmental & Industrial Consultants, Inc. MAIN LABORATORY & CORPORATE HEADQUARTERS: Site ID & State ME Gee Unit 2H Project ID Drill Cutting Analsampler G. Grico P.O. Box 286 • 225 Industrial Park Rd, Beaver, WV 25813 800-999-0105 · 304-255-2500 · www.reiclabs.com A See attachment (per Jason Club, RSIC MID-OHIO VALLEY SHENANDOAH ROANOKE MORGANTOWN Service Center Service Center Service Center Service Center 101 17th Street 1557 Commerce Rd., Ste 201 3029-C Peters Creek Rd 16 Commerce Drive Ashland, KY 41101 Verona, VA 24482 Roanoke, VA 24019 Westover, WV 26501 606-393-5027 540-248-0183 540-777-1276 304-241-5861 **ANALYSIS & METHOD SAMPLE LOG & ANALYSIS REQUEST** TURNAROUND TIME RUSH TURNAROUND NORMAL 2 DAY 5 DAY 3 DAY *Rush work needs prior laboratory approval and will incur additional charges No. & Type of Sample **ENTER PRESERVATIVE CODE:** SAMPLEID Sampling Date/Time Matrix Containers Comp/Grab 5 Sodium Hydroxide 0 None Mª Ger Unit 2 H 1 Hydrochloric Acid 6 Zinc Acetate Grab 2 Nitric Acid 7 EDTA 1:30pm 3 Sulfuric Acid 8 Ascorbic Acid 4 Sodium Thiosulfate COMMENTS: MiGee Unit 2H Robert Williams Rd API 47-01706622 Temperature at arrival: 2°C ICED? All analytical requests are subject to REIC's Standard Terms and Conditions. FAX RESULTS EMAIL RESULTS Relinguished by (signature) Oate/Time ___Hand Delivered ___Courler ___UPS ___FEDEXwww.ammara.com

Date/Time

eceived by (signature)



Improving the environment, one client at a time...

101 17th Street Ashland, KY 41101 TEL: 606.393.5027

1557 Commerce Road, Suite 201 Verona, VA 24482 TEL: 540.248.0183 PO Box 286 Beaver, WV 25813 TEL: (304) 255-2500 Website: www.reiclabs.com

16 Commerce Drive

Westover, WV 26501

TEL: 304.241.5861

REI Consultants, Inc.

Thursday, February 12, 2015

3029-C Peters Creek Road

Roanoke, VA 24019

TEL: 540.777.1276

GEORGE CARICO
MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,
1 JOHN MARSHALL DRIVE
HUNTINGTON, WV 25755-2585

TEL: (304) 696-6042

FAX:

RE: DRILL CUTTING ANAL. Work Order #: 1501U77

Dear GEORGE CARICO:

Kathy Berry

Kathy Berry



REI Consultants, Inc. - Case Narrative

WO#: 1501U77

Date Reported: 2/12/2015

Client: MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,

Project: DRILL CUTTING ANAL.

The analytical results presented in this report were produced using documented laboratory SOPs that incorporate appropriate quality control procedures as described in the applicable methods. Verification of required sample preservation (as required) is recorded on associated laboratory logs. Any deviation from compliance or method modification is identified within the body of this report by a qualifier footnote which is defined at the bottom of this page.

All sample results for solid samples are reported on an "as-received" wet weight basis unless otherwise noted.

Results reported for sums of individual parameters, such as TTHM and HAA5, may vary slightly from the sum of the individual parameter results, due to rounding of individual results, as required by EPA.

The test results in this report meet all NELAP (and/or VELAP) requirements for parameters except as noted in this report.

Please note if the sample collection time is not provided on the Chain of Custody, the default recording will be 0:00:00. This may cause some tests to be apparently analyzed out of hold.

All tests performed by REIC Service Centers are designated by an annotation on the test code. All other tests were performed by REIC's Main Laboratory in Beaver, WV.

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DEFINITIONS:

MCL: Maximum Contaminant Level

MDL: Method Detection Limit; The lowest concentration of analyte that can be detected by the method in the applicable matrix. Mg/Kg or mg/L: Units of part per million (PPM) - milligram per Kilogram (weight/weight) or milligram per Liter (weight/volume).

NA: Not Applicable

ND: Not Detected at the PQL or MDL

PQL: Practical Quantitation Limit; The lowest verified limit to which data is quantified without qualifications. Analyte concentrations below PQL are reported either as ND or as a number with a "J" qualifier.

Qual: Qualifier that applies to the analyte reported.

TIC: Tentatively Identified Compound, Estimated Concentration denoted by "J" qualifier.

Ug/Kg or ug/L: Units of part per billion (PPB) - microgram per kilogram (weight/weight) or microgram per liter (weight/volume).

QUALIFIERS:

- X: Reported value exceeds required MCL
- B: Analyte detected in the associated Method Blank at a concentration > 1/2 the PQL
- E: Analyte concentration reported that exceeds the upper calibration standard. Greater uncertainty is associated with this result and data should be consider estimated.
- H: Holding time for preparation or analysis has been exceeded.
- J: Analyte concentration is reported, and is less than the PQL and greater than or equal to the MDL. The result reported is an estimate.
- S: % REC (% recovery) exceeds control limits

CERTIFICATIONS:

Beaver, WV: WVDHHR 00412CM, WVDEP 060, VADCLS 00281, KYDEP 90039, TNDEQ TN02926, NCDWQ 466, PADEP 68-00839, VADCLS (VELAP) 460148

Bioassay (Beaver, WV): WVDEP 060, VADCLS(VELAP) 460148, PADEP 68-00839

Roanoke, VA: VADCLS(VELAP) 460150 Verona, VA: VADCLS(VELAP) 460151 Ashland, KY: KYDEP 00094, WVDEP 389

Morgantown, WV: WVDHHR 003112M, WVDEP 387

Client:

Project:

Lab ID:

WO#: 1501U77

Date Reported: 2/12/2015

1/28/2015 1:30:00 PM

Collection Date:

MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,

DRILL CUTTING ANAL.

Date Received: 1/30/2015
1501U77-01A

Matrix: Solid

Client Sample ID: MCGEE UNIT 2H Site ID: MCGEE UNIT 2H

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	IELAP
METALS by ICP	Result	DL	Method:				Analyst: JD	
Aluminum	2,710	3.00	25.0	NA	•	, mg/Kg	2/2/2015 7:21 PM	PA/VA
Antimony	3.99	2.00	5.00	NA	J	mg/Kg	2/2/2015 7:18 PM	PA/VA
Arsenic	26.1	1.00	5.00	NA		mg/Kg	2/2/2015 7:18 PM	PA/VA
Barium	147	0.200	2.50	NA		mg/Kg	2/2/2015 7:18 PM	PA/VA
Beryllium	0.463	0.0500	0.250	NA		mg/Kg	2/2/2015 7:18 PM	PA/VA
Boron	20.4	1.00	2.50	NA		mg/Kg	2/3/2015 11:36 AM	PA/VA
Cadmium	4.43	0.100	0.500	NA		mg/Kg	2/2/2015 7:18 PM	PA/VA
Chromium	17.0	0.200	2.50	NA		mg/Kg	2/2/2015 7:18 PM	PA/VA
Copper	95.6	0.200	2.50	NA		mg/Kg	2/2/2015 7:18 PM	PA/VA
Iron	17,900	5.00	25.0	NA		mg/Kg	2/2/2015 7:21 PM	PA/VA
Lead	29.8	1.00	5.00	NA		mg/Kg	2/2/2015 7:18 PM	PA/VA
Lithium	3.85	0.100	5.00	NA	J	mg/Kg	2/4/2015 1:46 PM	
Manganese	155	0.200	2.50	NA		mg/Kg	2/2/2015 7:18 PM	PA/VA
Nickel	79.9	0.200	2.50	NA		mg/Kg	2/2/2015 7:18 PM	PA/VA
Selenium	9.21	1.00	5.00	NA		mg/Kg	2/2/2015 7:18 PM	PA/VA
Silver	0.658	0.100	1.25	NA	J	mg/Kg	2/2/2015 7:18 PM	PA/VA
Strontium	6,320	10.0	250	NA		mg/Kg	2/4/2015 3:49 PM	PA/VA
Vanadium	68.7	0.200	2.50	NA		mg/Kg	2/2/2015 7:18 PM	PA/VA
Zinc	233	0.500	2.50	NA		mg/Kg	2/2/2015 7:18 PM	PA/VA
MERCURY, Total SW7417B			Method:	SW7471	IB (2/07	')	Analyst: CR	
Mercury	0.106	0.020	0.100	NA		mg/Kg	2/5/2015 12:10 PM	PA/VA
HEXAVALENT CHROMIUM, WAT	ER SOLUE	BLE	Method:	SW7196	SA (199	2)	Analyst: JB	
Chromium, Hexavalent	1.04	0.100	0.200	NA		mg/kg	2/4/2015 7:45 AM	PA/VA
PERCENT MOISTURE			Method:	SM2540	B-199	7	Analyst: TS	
Percent Moisture	29	0.010	0.50	NA		wt%	2/2/2015 2:08 PM	
Oil and Grease			Method:	SW9071	IB (4/98	3)	Analyst: NC	
Oil & Grease, Total Recoverable	0.017	0.001	0.070	NA	J	wt%-dry	2/3/2015 11:00 AM	
SEMIVOLATILE ORGANIC COMF	POUNDS		Method:	SW8270	D (200	7)	Analyst: JD	
1,4-Dinitrobenzene	ND	0.168	0.334	NA		mg/Kg	2/3/2015 7:54 PM	
1,4-Napthoquinone	ND	NA	0.334	NA		mg/Kg	2/3/2015 7:54 PM	
4-Nitroquinoline-1-oxide	ND	NA	0.334	NA		mg/Kg	2/3/2015 7:54 PM	

WO#: 1501U77

Date Reported: 2/12/2015

Client: MARSHALL UNIVERSITY CENTER FOR Collection Date: 1/28/2015 1:30:00 PM

ENVIRONMENTAL,

Project:DRILL CUTTING ANAL.Date Received:1/30/2015Lab ID:1501U77-01AMatrix:Solid

Client Sample ID: MCGEE UNIT 2H Site ID: MCGEE UNIT 2H

Analysis Pentachloronitrobenzene Bis(2-ethylhexyl)phthalate	Result	MDL	PQL	MCL	0		Data Analysis A	
			1 & L	MICL	Quai	Units	Date Analyzed N	IELAP
Bis(2-ethylhexyl)phthalate	ND	NA	0.334	NA		mg/Kg	2/3/2015 7:54 PM	
	ND	0.168	0.334	NA		mg/Kg	2/3/2015 7:54 PM	PA/VA
Butyl benzyl phthalate	ND	0.168	0.334	NA		mg/Kg	2/3/2015 7:54 PM	
Di-n-butyl phthalate	ND	0.168	0.334	NA		mg/Kg	2/3/2015 7:54 PM	PA/VA
Diethyl phthalate	ND	0.067	0.334	NA		mg/Kg	2/3/2015 7:54 PM	PA/VA
Dimethyl phthalate	ND	0.067	0.334	NA		mg/Kg	2/3/2015 7:54 PM	PA/VA
2,4-Dinitrotoluene	ND	0.067	0.334	NA		mg/Kg	2/3/2015 7:54 PM	PA/VA
2,6-Dinitrotoluene	ND	0.067	0.334	NA		mg/Kg	2/3/2015 7:54 PM	PA/VA
Di-n-octyl phthalate	ND	0.168	0.334	NA		mg/Kg	2/3/2015 7:54 PM	PA/VA
Fluoranthene	ND	0.067	0.334	NA		mg/Kg	2/3/2015 7:54 PM	PA/VA
Nitrobenzene	ND	0.067	0.334	NA		mg/Kg	2/3/2015 7:54 PM	PA/VA
Surr: 2-Fluorophenol	66.9	NA	54.1-110	NA		%REC	2/3/2015 7:54 PM	
Surr: Phenol-d5	74.3	NA	60.1-110	NA		%REC	2/3/2015 7:54 PM	
Surr: 2,4,6-Tribromophenol	55.8	NA	58.8-128	NA	S	%REC	2/3/2015 7:54 PM	
Surr: Nitrobenzene-d5	84.7	NA	68.2-123	NA		%REC	2/3/2015 7:54 PM	
Surr: 2-Fluorobiphenyl	76.0	NA	68.4-116	NA		%REC	2/3/2015 7:54 PM	
Surr: 4-Terphenyl-d14	83.4	NA	52.2-121	NA		%REC	2/3/2015 7:54 PM	
VOLATILE ORGANIC COMPOUN	DS-8260		Method: S	SW8260	B (199	6)	Analyst: JM	
Benzene	1,660	50.0	100	NA		μg/Kg	2/9/2015 3:16 PM	PA/VA
Bromodichloromethane	ND	1.90	3.80	NA		μg/Kg	2/5/2015 3:13 PM	PA/VA
Chlorobenzene	ND	1.90	3.80	NA		μg/Kg	2/5/2015 3:13 PM	PA/VA
1,2-Dichlorobenzene	ND	1.90	3.80	NA		μg/Kg	2/5/2015 3:13 PM	PA/VA
1,3-Dichlorobenzene	ND	1.90	3.80	NA		μg/Kg	2/5/2015 3:13 PM	PA/VA
1,4-Dichlorobenzene	ND	1.90	3.80	NA		μg/Kg	2/5/2015 3:13 PM	PA/VA
Surr: 1,2-Dichloroethane-d4	85.1	NA	70-130	NA		%REC	2/9/2015 3:16 PM	
Surr: 4-Bromofluorobenzene	109	NA	70-130	NA		%REC	2/9/2015 3:16 PM	
Surr: Dibromofluoromethane	87.1	NA	70-130	NA		%REC	2/9/2015 3:16 PM	
Surr: Toluene-d8	112	NA	70-130	NA		%REC	2/9/2015 3:16 PM	
ANIONS by IC, WATER SOLUBLI	E		Method: S	SW9056	A (200	0)	Analyst: CF	
Chloride	57,000	200	2,000	NA		mg/Kg	2/2/2015 4:22 PM	PA/VA
Fluoride	2.20	1.00	4.00	NA	J	mg/Kg	2/2/2015 4:22 PM	
Nitrogen, Nitrate	0.800	0.400	2.00	NA	J	mg/Kg	2/2/2015 4:22 PM	PA/VA
Nitrogen, Nitrite	2.00	1.00	10.0	NA	J	mg/Kg	2/2/2015 4:22 PM	
	514	20.0	100	NA		mg/Kg	2/2/2015 4:22 PM	

WO#: 1501U77

Date Reported: 2/12/2015

1/28/2015 1:30:00 PM

Collection Date:

Client: MARSHALL UNIVERSITY CENTER FOR

ENVIRONMENTAL,

Project:DRILL CUTTING ANAL.Date Received:1/30/2015Lab ID:1501U77-01AMatrix:Solid

Client Sample ID: MCGEE UNIT 2H Site ID: MCGEE UNIT 2H

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	IELAP
AMMONIA NITROGEN			Method: SM4500-NH3 B-C- 1997			Analyst: CC		
Nitrogen, Ammonia	11.2	8.00	10.0	NA		mg/Kg	2/5/2015 2:11 PM	
TOTAL KJELDAHL NITROGE	N (TKN)		Method: 2.0 (1993		1.2, Rev	/ .	Analyst: JH	
Nitrogen, Kjeldahl, Total	1,170	25.1	126	NA		mg/Kg	2/2/2015 8:08 PM	PA/VA
CYANIDE, FREE			Method: SM4500-CN I-1997		Analyst: JH			
Cyanide, Free	0.720	0.250	1.00	NA	J	mg/Kg	2/2/2015 1:10 PM	
CONDUCTIVITY			Method:	SM2510	B-1997	7	Analyst: KY	
Specific Conductivity	173,000	NA	NA	NA		µmhos/cm	2/6/2015 2:43 PM	
ALKALINITY			Method: SM2320 B-1997		Analyst: DSD			
Alkalinity, Total (As CaCO3)	8,440	20.0	200	NA		mg/Kg	2/2/2015 4:49 PM	
рН			Method:	SW9045	5D (200	2)	Analyst: DSD	
рН	9.02	NA	NA	NA		SU	2/4/2015 3:20 PM	PA/VA



Improving the environment, one client at a time...

REI Consultants, Inc. PO Box 286 Beaver, WV 25813 TEL: (304) 255-2500

Website: www.reiclabs.com

3029-C Peters Creek Road Roanoke, VA 24019 TEL: 540.777.1276

101 17th Street Ashland, KY 41101 TEL: 606.393.5027

1557 Commerce Road, Suite 201 Verona, VA 24482 TEL: 540.248.0183

16 Commerce Drive Westover, WV 26501 TEL: 304.241.5861

Monday, March 02, 2015

GEORGE CARICO MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE 1 JOHN MARSHALL DRIVE **HUNTINGTON, WV 25755-2585**

TEL: (304) 696-6042

FAX:

RE: MCGEE UNIT 2H Work Order #: 1501U76 Dear GEORGE CARICO:

Kathy Berry

REI Consultants, Inc. received 1 sample(s) on 1/30/2015 for the analyses presented in the following report.

Sincerely,

Kathy Berry



REI Consultants, Inc. - Case Narrative

WO#: 1501U76

Date Reported: 3/2/2015

Client: MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE

Project: MCGEE UNIT 2H

The analytical results presented in this report were produced using documented laboratory SOPs that incorporate appropriate quality control procedures as described in the applicable methods. Verification of required sample preservation (as required) is recorded on associated laboratory logs. Any deviation from compliance or method modification is identified within the body of this report by a qualifier footnote which is defined at the bottom of this page.

All sample results for solid samples are reported on an "as-received" wet weight basis unless otherwise noted.

Results reported for sums of individual parameters, such as TTHM and HAA5, may vary slightly from the sum of the individual parameter results, due to rounding of individual results, as required by EPA.

The test results in this report meet all NELAP (and/or VELAP) requirements for parameters except as noted in this report.

Please note if the sample collection time is not provided on the Chain of Custody, the default recording will be 0:00:00. This may cause some tests to be apparently analyzed out of hold.

All tests performed by REIC Service Centers are designated by an annotation on the test code. All other tests were performed by REIC's Main Laboratory in Beaver, WV.

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DEFINITIONS:

MCL: Maximum Contaminant Level

MDL: Method Detection Limit; The lowest concentration of analyte that can be detected by the method in the applicable matrix. Mg/Kg or mg/L: Units of part per million (PPM) - milligram per Kilogram (weight/weight) or milligram per Liter (weight/volume).

NA: Not Applicable

ND: Not Detected at the PQL or MDL

PQL: Practical Quantitation Limit; The lowest verified limit to which data is quantified without qualifications. Analyte concentrations below PQL are reported either as ND or as a number with a "J" qualifier.

Qual: Qualifier that applies to the analyte reported.

TIC: Tentatively Identified Compound, Estimated Concentration denoted by "J" qualifier.

Ug/Kg or ug/L: Units of part per billion (PPB) - microgram per kilogram (weight/weight) or microgram per liter (weight/volume).

QUALIFIERS:

- X: Reported value exceeds required MCL
- B: Analyte detected in the associated Method Blank at a concentration > 1/2 the PQL
- E: Analyte concentration reported that exceeds the upper calibration standard. Greater uncertainty is associated with this result and data should be consider estimated.
- H: Holding time for preparation or analysis has been exceeded.
- J: Analyte concentration is reported, and is less than the PQL and greater than or equal to the MDL. The result reported is an estimate.
- S: % REC (% recovery) exceeds control limits

CERTIFICATIONS:

Beaver, WV: WVDHHR 00412CM, WVDEP 060, VADCLS 00281, KYDEP 90039, TNDEQ TN02926, NCDWQ 466, PADEP 68-00839, VADCLS (VELAP) 460148

Bioassay (Beaver, WV): WVDEP 060, VADCLS(VELAP) 460148, PADEP 68-00839

Roanoke, VA: VADCLS(VELAP) 460150 Verona, VA: VADCLS(VELAP) 460151 Ashland, KY: KYDEP 00094, WVDEP 389

Morgantown, WV: WVDHHR 003112M, WVDEP 387

Date Reported: 3/2/2015

WO#: 1501U76

Client: MARSHALL UNIVERSITY CENTER. FOR ENV. Collection Date: 1/28/2015 1:30:00 PM

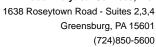
SCIENCE

 Project:
 MCGEE UNIT 2H
 Date Received:
 1/30/2015

 Lab ID:
 1501U76-01A
 Matrix:
 Solid

Client Sample ID: MCGEE UNIT 2H Site ID: DRILL CUTTING ANAL

Analysis	Result	MDL	PQL	MCL Qual	Units	Date Analyzed NELAP
GROSS ALPHA			Method:	EPA 900.0		Analyst: Sub
Gross Alpha	see attached	NA	NA	NA		
GROSS BETA			Method:	EPA 900.0		Analyst: Sub
Gross Beta	see attached	NA	NA	NA		
RADIUM-226		Method: EPA 903.1		Analyst: Sub		
Radium-226	see attached	NA	NA	NA		
RADIUM-228			Method:	EPA 904.0		Analyst: Sub
Radium-228	see attached	NA	NA	NA		
STRONTIUM-90			Method:	EPA 905.0		Analyst: Sub
Strontium-90	see attached	NA	NA	NA		





February 27, 2015

Ms. Kathy Berry REI Consultants, Inc. 225 Industrial Park Drive PO Box 286 Beaver, WV 25813

RE: Project: 1501U76

Pace Project No.: 30139977

Dear Ms. Berry:

Enclosed are the analytical results for sample(s) received by the laboratory on February 03, 2015. 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.

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

Sincerely,

Carin a. Ferris

Carin Ferris carin.ferris@pacelabs.com Project Manager

Enclosures



Greensburg, PA 15601 (724)850-5600



CERTIFICATIONS

Project: 1501U76 Pace Project No.: 30139977

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ACLASS DOD-ELAP Accreditation #: ADE-1544

Alabama Certification #: 41590 Arizona Certification #: AZ0734

Arkansas Certification
California/TNI Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683

Guam/PADEP Certification Hawaii/PADEP Certification

Idaho Certification

Illinois/PADEP Certification Indiana/PADEP Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: 90133

Louisiana DHH/TNI Certification #: LA140008 Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: PA00091 Maryland Certification #: 308

Massachusetts Certification #: M-PA1457 Michigan/PADEP Certification

Missouri Certification #: 235

Montana Certification #: Cert 0082 Nebraska Certification #: NE-05-29-14

Nevada Certification

New Hampshire/TNI Certification #: 2976

New Jersey/TNI Certification #: PA 051

New Mexico Certification

New York/TNI Certification #: 10888 North Carolina Certification #: 42706 North Dakota Certification #: R-190 Oregon/TNI Certification #: PA200002 Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

South Dakota Certification

Tennessee Certification #: TN2867 Texas/TNI Certification #: T104704188 Utah/TNI Certification #: PA014572014-4

Vermont Dept. of Health: ID# VT-0282 Virgin Island/PADEP Certification Virginia/VELAP Certification #: 460198 Washington Certification #: C868

West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C

Wisconsin/PADEP Certification Wyoming Certification #: 8TMS-Q

1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600



SAMPLE SUMMARY

Project: 1501U76
Pace Project No.: 30139977

Lab ID	Sample ID	Matrix	Date Collected	Date Received	
30139977001	1501U76-01A	Solid	01/28/15 13:30	02/03/15 14:30	

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SAMPLE ANALYTE COUNT

Project: 1501U76
Pace Project No.: 30139977

Lab ID	Sample ID	Method	Analysts	Analytes Reported
30139977001	1501U76-01A	EPA 900.0	FCC	2
		EPA 901.1	MAH	2
		ASTM D5811-95	LAL	1

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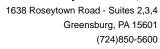
PROJECT NARRATIVE

Project: 1501U76
Pace Project No.: 30139977

Date: February 27, 2015

1501U76-01A (Lab ID: 30139977001)

• The matrix on the COC indicates the sample is a liquid, however it is a solid.





Project: 1501U76
Pace Project No.: 30139977

Method: EPA 900.0

Description: 900.0 Gross Alpha/Beta
Client: REI Consultants, Inc.
Date: February 27, 2015

General Information:

1 sample was analyzed for EPA 900.0. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times 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.

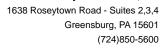
Additional Comments:

Analyte Comments:

QC Batch: RADC/23298

N2: The lab does not hold TNI accreditation for this parameter.

- 1501U76-01A (Lab ID: 30139977001)
 - Gross Alpha
 - Gross Beta
- BLANK (Lab ID: 851090)
 - Gross Alpha
 - Gross Beta





Project: 1501U76
Pace Project No.: 30139977

Method: EPA 901.1

Description: 901.1 Gamma Spec INGROWTH

Client: REI Consultants, Inc.

Date: February 27, 2015

General Information:

1 sample was analyzed for EPA 901.1. All samples were received in acceptable condition with any exceptions noted below.

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 901.1 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.

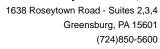
Laboratory Control Spike:

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:





Project: 1501U76
Pace Project No.: 30139977

Method: ASTM D5811-95

Description: ASTM D5811 Sr 89/90 Eichrom

Client: REI Consultants, Inc.

Date: February 27, 2015

General Information:

1 sample was analyzed for ASTM D5811-95. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times 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:

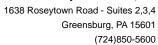
Analyte Comments:

QC Batch: RADC/23349

N2: The lab does not hold TNI accreditation for this parameter.

- BLANK (Lab ID: 853405)
 - Strontium-90

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





ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 1501U76
Pace Project No.: 30139977

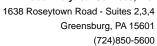
Sample: 1501U76-01A Lab ID: 30139977001 Collected: 01/28/15 13:30 Received: 02/03/15 14:30 Matrix: Solid

PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Comments: • The matrix on the COC indicates the sample is a liquid, however it is a solid.

		• •				
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0	40.8 ± 11.7 (9.16) C:NA T:NA	pCi/g	02/07/15 20:49	12587-46-1	N2
Gross Beta	EPA 900.0	23.2 ± 6.17 (5.63) C:NA T:NA	pCi/g	02/07/15 20:49	12587-47-2	N2
Radium-226	EPA 901.1	6.397 ± 0.815 (0.298) C:NA T:NA	pCi/g	02/26/15 09:48	13982-63-3	
Radium-228	EPA 901.1	0.458 ± 0.254 (0.739) C:NA T:NA	pCi/g	02/26/15 09:48	15262-20-1	
Strontium-90	ASTM D5811-95	0.0610 ± 0.541 (1.25) C:117% T:NA	pCi/g	02/14/15 10:58	10098-97-2	





Project: 1501U76
Pace Project No.: 30139977

QC Batch: RADC/23298 Analysis Method: EPA 900.0

QC Batch Method: EPA 900.0 Analysis Description: 900.0 Gross Alpha/Beta

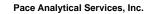
Associated Lab Samples: 30139977001

METHOD BLANK: 851090 Matrix: Solid

Associated Lab Samples: 30139977001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed Qualifie	ers
Gross Alpha	-0.004 ± 0.0857 (0.218) C:NA T:NA	pCi/g	02/07/15 20:49 N2	
Gross Beta	-0.031 ± 0.0984 (0.237) C:NA T:NA	pCi/q	02/07/15 20:49 N2	

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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QUALITY CONTROL - RADIOCHEMISTRY

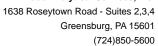
Project: 1501U76
Pace Project No.: 30139977

QC Batch: RADC/23384 Analysis Method: EPA 901.1

QC Batch Method: EPA 901.1 Analysis Description: 901.1 Gamma Spec Ingrowth

Associated Lab Samples: 30139977001

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.





QUALITY CONTROL - RADIOCHEMISTRY

Project: 1501U76 Pace Project No.: 30139977

QC Batch: RADC/23349

QC Batch Method: ASTM D5811-95

Associated Lab Samples: 30139977001 Analysis Method: ASTM D5811-95

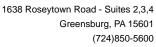
Analysis Description: ASTM D5811 Sr 89/90 Eichrom

METHOD BLANK: 853405 Matrix: Solid

Associated Lab Samples: 30139977001

Act ± Unc (MDC) Carr Trac Parameter Units Analyzed Qualifiers Strontium-90 0.240 ± 0.561 (1.22) C:100% T:NA pCi/g 02/16/15 08:12 N2

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.





QUALIFIERS

Project: 1501U76 Pace Project No.: 30139977

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

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 (8270 listed analyte) decomposes to Azobenzene.

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.

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

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval). Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

Date: 02/27/2015 11:58 AM

N2 The lab does not hold TNI accreditation for this parameter.



Improving the environment, one client at a time...

CHAIN OF CUSTODY RECORD

COC ID: 3278

0F: 1 PAGE: 1

REI Consultants, Inc.

Beaver, WV 25813 TEL: (304) 255-2500 PO Box 286

FAX: (304) 255-2572 Website: www.reiclabs.com

Jo13997

Please Include Email Address of Report Recipient Whenever Possible!!!

	State Code: WY Prease use SampleID as purchase order number. After analysis, the samples do not need to be returned and can be disposed per your standard laboratory and the control of	k you	* Preservation Codes: 0 None	1 Hydrochloric Acid 2 Nitrio Acid 3 Sulfunic Acid 4 Codisson This parties	4 Sodium Hydroxide/ Sodium Hydroxide/ Sodium Hydroxide 6 Sodium Hydroxide 7 Ascorbic Acid 8 Sodium Sulfine/HCL 9 Potassium Ditydrogen Citrate 10 Bromium Chloride COMMENTS:		100
SPECIAL INSTRUCTIONS / COMMENTS:	Atter analysis, the samples do not need to be returned and can be defined and the samples.	practices. Results to ROEIT/@Felciabs.com 1 nank you		STRONTI RADIUM RADIUM GROSS_F GROSS_/	IUM_90_SUB (EPA 905.0) _228_SUB (EPA 904.0) _226_SUB (EPA 903.1) BETA_SUB (EPA 900.0) ALPHA_SUB (EPA 900.0) NUMBER OF	00000	7777
ALYTICAL SERVIC					CONTAINERS	*	1/28/2015 1:30:00 PM 1
PACE ANAL					e MATRIX		Liquid
COMPANY:	ROAD	15601	FAX:	EMAIL:	Bottle Type		
PA	1638 ROSEYTOWN ROAD	CITY, STATE, ZIP. GREENSBURG, PA 15601	(724) 850-5600	EVF1	Client Sample ID		1501U76-01A MCGEE UNIT 2H
SUB CONTRATOR: PACE_PA		TATE, ZIP. GREE!		NT #: 050719EVF1	SAMPLE ID		1501U76-01A
SUB CC	ADDRESS	спту, s	PHONE:	ACCOUNT #:	ІТЕМ		1

Series Control of the		☐ HARDCOPY (extra cost) ☐ FAX ☐ FMAIL ☐ ONLINE	FOR LAB USE ONLY	Temp of samplesC Attempt to Cool ? Comments:		
	11:3/15 PM	Date Time: 1430	Date: Time:	2nd BD	ncur surcharges!	
(4)	Received By MLJoy	Received By America	Received By:	Next BD	Note: RUSH requests will incur surcharges!	
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Custody Seal on Cooler/Box Pr	resent: yes	⊠ no	Seal	s intact:	☐ yes	no no	Biological	Tissue is Froze	n: Yes No
Packing Material: Bubble Wrap						Samples o		rocess has begun	of person
Cooler Temp.: Observed Temp.	.:°C Cor	rection Fa	ctor:	°C	Final Tem	rp:	°c		ts: <u>SRA Z-3-15</u>
Temp should be above freezing to 6°0	С			Comme	nts:		e	examining conten	IS: 251/6 \ 4 (5
Chain of Custody Present:		YYes □	10 DN/A	1.					
Chain of Custody Filled Out:		∯Yes □N	lo 🗆 N/A	2.					
Chain of Custody Relinquished:		X Yes □N	lo 🗆 N/A	3.			me		
Sampler Name & Signature on Co	OC:	□Yes 🆄	lo 🗆 N/A	4. 600	Jue (on file	2 214	115	
Samples Arrived within Hold Time	e:	Mayes □N							
Short Hold Time Analysis (<72h	nr);	□Yes ⊅N	lo □N/A	6.					
Rush Turn Around Time Reque	sted:	□Yes 🖎	lo □N/A	7.					
Sufficient Volume:		Yes □N	lo □N/A	8.					
Correct Containers Used:		ÄYes □N	o □N/A	9.					
-Pace Containers Used		□Yes 🛱 N	o □N/A						
Containers Intact:		Y Yes ON	o □N/A	10.				11	
Filtered volume received for Disso		□Yes □N	o 🖄 N/A	11.					
Sample Labels Materi CCG.	SRA 2-3-45	Yes MN	o □N/A	12. C¢	ic Saul	2 may	fer but ,	surple '.s	Solly
 Includes date/time/ID/Analysis Containers needing preservation have 		□Yes □N	o MN/A	12					
All containers needing preservation are compliance with EPA recommendation		□Yes □N	o X N/A			l			
xceptions: VOA, collform, TOC, O&G, WI-	-DRO (water)	□Yes XIN	0	Initial whe	SRA		of added rvative		
Samples checked for dechlorination	on:	□Yes □N	14.4						
leadspace in VOA Vials (>6mm)	.	□Yes □N	aviet c	15.					
rip Blank Present:		□Yes ⊠N	o □N/A	16.					
rip Blank Custody Seals Present		□Yes □N	N/A						
ace Trip Blank Lot # (if purchase	d):		``						
Person Contacted: Comments/ Resolution:	ty Gern Should	be	_Date/	Fime: _C	08	Fiel	d Data Required	d? Y	/ N

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)

Project Manager Review:

Date:

Project Number: 301399777 Client Name: RETE

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	(122 \ 220 \ 200 \ 1T)	4											SCU
	Vipes √ swipe/ smear/ filter	\											
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	(Im 003) əbilid												
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	Organics (1L)												
	Chemistry (250 / 500 / 1L)												
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Research Environmental & Indu AAIN LABORATORY & CORPO				City_			State	Zip
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Improving the environment, one client at a time...

REI Consultants, Inc. PO Box 286 Beaver, WV 25813 TEL: (304) 255-2500 Website: www.reiclabs.com

3029-C Peters Creek Road Roanoke, VA 24019 TEL: 540.777.1276 101 17th Street Ashland, KY 41101 TEL: 606.393.5027 1557 Commerce Road, Suite 201 Verona, VA 24482 TEL: 540.248.0183 16 Commerce Drive Westover, WV 26501 TEL: 304.241.5861

Wednesday, February 18, 2015

GEORGE CARICO
MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,
1 JOHN MARSHALL DRIVE
HUNTINGTON, WV 25755-2585

TEL: (304) 696-6042

FAX:

RE: DRILL CUTTING ANAL.
Work Order #: 1501U73
Dear GEORGE CARICO:

Kathy Berry

REI Consultants, Inc. received 1 sample(s) on 1/30/2015 for the analyses presented in the following report.

Sincerely,

Kathy Berry



REI Consultants, Inc. - Case Narrative

WO#: 1501U73

Date Reported: 2/18/2015

Client: MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,

Project: DRILL CUTTING ANAL.

The analytical results presented in this report were produced using documented laboratory SOPs that incorporate appropriate quality control procedures as described in the applicable methods. Verification of required sample preservation (as required) is recorded on associated laboratory logs. Any deviation from compliance or method modification is identified within the body of this report by a qualifier footnote which is defined at the bottom of this page.

All sample results for solid samples are reported on an "as-received" wet weight basis unless otherwise noted.

Results reported for sums of individual parameters, such as TTHM and HAA5, may vary slightly from the sum of the individual parameter results, due to rounding of individual results, as required by EPA.

The test results in this report meet all NELAP (and/or VELAP) requirements for parameters except as noted in this report.

Please note if the sample collection time is not provided on the Chain of Custody, the default recording will be 0:00:00. This may cause some tests to be apparently analyzed out of hold.

All tests performed by REIC Service Centers are designated by an annotation on the test code. All other tests were performed by REIC's Main Laboratory in Beaver, WV.

This report may not be reproduced, except in full, without the written approval of REIC.

DEFINITIONS:

MCL: Maximum Contaminant Level

MDL: Method Detection Limit; The lowest concentration of analyte that can be detected by the method in the applicable matrix. Mg/Kg or mg/L: Units of part per million (PPM) - milligram per Kilogram (weight/weight) or milligram per Liter (weight/volume).

NA: Not Applicable

ND: Not Detected at the PQL or MDL

PQL: Practical Quantitation Limit; The lowest verified limit to which data is quantified without qualifications. Analyte concentrations below PQL are reported either as ND or as a number with a "J" qualifier.

Qual: Qualifier that applies to the analyte reported.

TIC: Tentatively Identified Compound, Estimated Concentration denoted by "J" qualifier.

Ug/Kg or ug/L: Units of part per billion (PPB) - microgram per kilogram (weight/weight) or microgram per liter (weight/volume).

QUALIFIERS:

- X: Reported value exceeds required MCL
- B: Analyte detected in the associated Method Blank at a concentration > 1/2 the PQL
- E: Analyte concentration reported that exceeds the upper calibration standard. Greater uncertainty is associated with this result and data should be consider estimated.
- H: Holding time for preparation or analysis has been exceeded.
- J: Analyte concentration is reported, and is less than the PQL and greater than or equal to the MDL. The result reported is an estimate.
- S: % REC (% recovery) exceeds control limits

CERTIFICATIONS:

Beaver, WV: WVDHHR 00412CM, WVDEP 060, VADCLS 00281, KYDEP 90039, TNDEQ TN02926, NCDWQ 466, PADEP 68-00839, VADCLS (VELAP) 460148

Bioassay (Beaver, WV): WVDEP 060, VADCLS(VELAP) 460148, PADEP 68-00839

Roanoke, VA: VADCLS(VELAP) 460150 Verona, VA: VADCLS(VELAP) 460151 Ashland, KY: KYDEP 00094, WVDEP 389

Morgantown, WV: WVDHHR 003112M, WVDEP 387

WO#: 1501U73

Date Reported: 2/18/2015

1/28/2015 11:30:00 AM

Collection Date:

Client: MARSHALL UNIVERSITY CENTER FOR

ENVIRONMENTAL,

Project:DRILL CUTTING ANAL.Date Received:1/30/2015Lab ID:1501U73-01AMatrix:Solid

Client Sample ID: MORTON 1H Site ID: MORTON 1H

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	IELAP
METALS by ICP			Method:	SW6010	OC (200	7)	Analyst: JD	
Aluminum	5,300	3.00	25.0	NA		mg/Kg	2/2/2015 7:14 PM	PA/VA
Antimony	4.21	2.00	5.00	NA	J	mg/Kg	2/2/2015 7:11 PM	PA/VA
Arsenic	36.9	1.00	5.00	NA		mg/Kg	2/2/2015 7:11 PM	PA/VA
Barium	122	0.200	2.50	NA		mg/Kg	2/2/2015 7:11 PM	PA/VA
Beryllium	0.674	0.0500	0.250	NA		mg/Kg	2/2/2015 7:11 PM	PA/VA
Boron	23.4	1.00	2.50	NA		mg/Kg	2/3/2015 11:33 AM	PA/VA
Cadmium	7.18	0.100	0.500	NA		mg/Kg	2/2/2015 7:11 PM	PA/VA
Chromium	37.2	0.200	2.50	NA		mg/Kg	2/2/2015 7:11 PM	PA/VA
Copper	170	0.200	2.50	NA		mg/Kg	2/2/2015 7:11 PM	PA/VA
Iron	21,500	5.00	25.0	NA		mg/Kg	2/2/2015 7:14 PM	PA/VA
Lead	25.4	1.00	5.00	NA		mg/Kg	2/2/2015 7:11 PM	PA/VA
Lithium	4.66	0.100	5.00	NA	J	mg/Kg	2/4/2015 1:43 PM	
Manganese	121	0.200	2.50	NA		mg/Kg	2/2/2015 7:11 PM	PA/VA
Nickel	116	0.200	2.50	NA		mg/Kg	2/2/2015 7:11 PM	PA/VA
Selenium	11.6	1.00	5.00	NA		mg/Kg	2/2/2015 7:11 PM	PA/VA
Silver	1.36	0.100	1.25	NA		mg/Kg	2/2/2015 7:11 PM	PA/VA
Strontium	4,640	10.0	250	NA		mg/Kg	2/4/2015 3:46 PM	PA/VA
Vanadium	209	0.200	2.50	NA		mg/Kg	2/2/2015 7:11 PM	PA/VA
Zinc	405	0.500	2.50	NA		mg/Kg	2/2/2015 7:11 PM	PA/VA
MERCURY, Total SW7417B			Method:	SW7471	IB (2/07	')	Analyst: CR	
Mercury	0.160	0.020	0.100	NA		mg/Kg	2/5/2015 12:15 PM	PA/VA
HEXAVALENT CHROMIUM, WA	ATER SOLUE	BLE	Method:	SW7196	6A (199	2)	Analyst: JB	
Chromium, Hexavalent	2.68	0.012	0.040	NA		mg/kg	2/4/2015 7:45 AM	PA/VA
PERCENT MOISTURE			Method:	SM2540	B-199	7	Analyst: TS	
Percent Moisture	17	0.010	0.50	NA		wt%	2/2/2015 2:08 PM	
Oil and Grease			Method:	SW9071	IB (4/98	3)	Analyst: NC	
Oil & Grease, Total Recoverable	0.039	0.001	0.060	NA	J	wt%-dry	2/3/2015 11:00 AM	
SEMIVOLATILE ORGANIC COM	MPOUNDS		Method:	SW8270	D (200	7)	Analyst: JD	
1,4-Dinitrobenzene	ND	0.168	0.334	NA		mg/Kg	2/3/2015 7:32 PM	
1,4-Napthoquinone	ND	NA	0.334	NA		mg/Kg	2/3/2015 7:32 PM	
4-Nitroquinoline-1-oxide	ND	NA	0.334	NA		mg/Kg	2/3/2015 7:32 PM	

WO#: 1501U73

Date Reported: 2/18/2015

Client: MARSHALL UNIVERSITY CENTER FOR Collection Date: 1/28/2015 11:30:00 AM

ENVIRONMENTAL,

Project:DRILL CUTTING ANAL.Date Received:1/30/2015Lab ID:1501U73-01AMatrix:Solid

Client Sample ID: MORTON 1H Site ID: MORTON 1H

						IVI	ORTON IH	
Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	IELAP
Pentachloronitrobenzene	ND	NA	0.334	NA		mg/Kg	2/3/2015 7:32 PM	
Bis(2-ethylhexyl)phthalate	ND	0.168	0.334	NA		mg/Kg	2/3/2015 7:32 PM	PA/VA
Butyl benzyl phthalate	ND	0.168	0.334	NA		mg/Kg	2/3/2015 7:32 PM	
Di-n-butyl phthalate	ND	0.168	0.334	NA		mg/Kg	2/3/2015 7:32 PM	PA/VA
Diethyl phthalate	ND	0.067	0.334	NA		mg/Kg	2/3/2015 7:32 PM	PA/VA
Dimethyl phthalate	ND	0.067	0.334	NA		mg/Kg	2/3/2015 7:32 PM	PA/VA
2,4-Dinitrotoluene	ND	0.067	0.334	NA		mg/Kg	2/3/2015 7:32 PM	PA/VA
2,6-Dinitrotoluene	ND	0.067	0.334	NA		mg/Kg	2/3/2015 7:32 PM	PA/VA
Di-n-octyl phthalate	ND	0.168	0.334	NA		mg/Kg	2/3/2015 7:32 PM	PA/VA
Fluoranthene	ND	0.067	0.334	NA		mg/Kg	2/3/2015 7:32 PM	PA/VA
Nitrobenzene	ND	0.067	0.334	NA		mg/Kg	2/3/2015 7:32 PM	PA/VA
Surr: 2-Fluorophenol	65.7	NA	54.1-110	NA		%REC	2/3/2015 7:32 PM	
Surr: Phenol-d5	72.7	NA	60.1-110	NA		%REC	2/3/2015 7:32 PM	
Surr: 2,4,6-Tribromophenol	41.5	NA	58.8-128	NA	S	%REC	2/3/2015 7:32 PM	
Surr: Nitrobenzene-d5	87.6	NA	68.2-123	NA		%REC	2/3/2015 7:32 PM	
Surr: 2-Fluorobiphenyl	81.9	NA	68.4-116	NA		%REC	2/3/2015 7:32 PM	
Surr: 4-Terphenyl-d14	86.8	NA	52.2-121	NA		%REC	2/3/2015 7:32 PM	
VOLATILE ORGANIC COMPOU	NDS-8260		Method: \$	SW8260	B (199	6)	Analyst: JM	
Benzene	773	50.0	100	NA		μg/Kg	2/10/2015 3:11 PM	PA/VA
Bromodichloromethane	ND	1.92	3.84	NA		μg/Kg	2/5/2015 1:35 PM	PA/VA
Chlorobenzene	ND	1.92	3.84	NA		μg/Kg	2/5/2015 1:35 PM	PA/VA
1,2-Dichlorobenzene	ND	1.92	3.84	NA		μg/Kg	2/5/2015 1:35 PM	PA/VA
1,3-Dichlorobenzene	ND	1.92	3.84	NA		μg/Kg	2/5/2015 1:35 PM	PA/VA
1,4-Dichlorobenzene	ND	1.92	3.84	NA		μg/Kg	2/5/2015 1:35 PM	PA/VA
Surr: 1,2-Dichloroethane-d4	83.0	NA	70-130	NA		%REC	2/10/2015 3:11 PM	
Surr: 4-Bromofluorobenzene	106	NA	70-130	NA		%REC	2/10/2015 3:11 PM	
Surr: Dibromofluoromethane	83.7	NA	70-130	NA		%REC	2/10/2015 3:11 PM	
Surr: Toluene-d8	110	NA	70-130	NA		%REC	2/10/2015 3:11 PM	
ANIONS by IC, WATER SOLUBI	LE		Method: \$	SW9056	SA (200	0)	Analyst: CF	
Chloride	27,000	200	2,000	NA		mg/Kg	2/2/2015 4:03 PM	PA/VA
Fluoride	2.00	1.00	4.00	NA	J	mg/Kg	2/2/2015 4:03 PM	
Nitrogen, Nitrate	0.800	0.400	2.00	NA	J	mg/Kg	2/2/2015 4:03 PM	PA/VA
Nitrogen, Nitrite	1.60	1.00	10.0	NA	J	mg/Kg	2/2/2015 4:03 PM	

WO#: 1501U73

Date Reported: 2/18/2015

1/28/2015 11:30:00 AM

Collection Date:

Client: MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,

DRILL CUTTING ANAL.

Project: **Date Received:** 1/30/2015 Lab ID: 1501U73-01A Matrix: Solid

Client Sample ID: MORTON 1H Site ID: **MORTON 1H**

Date Analyzed NELAP **PQL** MCL **Qual Units MDL** Result **Analysis AMMONIA NITROGEN** Method: SM4500-NH3 B-C-**Analyst: CC** 1997 Nitrogen, Ammonia 8.00 10.0 NA ND 2/5/2015 2:11 PM mg/Kg Notes: Elevated PQLs are due to matrix interference. **TOTAL KJELDAHL NITROGEN (TKN)** Method: EPA 351.2, Rev. Analyst: JH 2.0 (1993) 504 Nitrogen, Kjeldahl, Total 101 NA 2/2/2015 9:23 PM PA/VA 1,970 mg/Kg Method: SM4500-CN I-1997 CYANIDE, FREE **Analyst: JH** Cyanide, Free 0.250 1.00 NA ND 2/2/2015 1:10 PM mg/Kg Notes: Elevated PQLs are due to matrix interference. CONDUCTIVITY Method: SM2510 B-1997 Analyst: KY Specific Conductivity NA NA 84,700 NA 2/10/2015 10:35 AM µmhos/cm Notes: Conductivity result was estimated based on measuring a 1:10 dilution. **ALKALINITY** Method: SM2320 B-1997 **Analyst: DSD**

Alkalinity, Total (As CaCO3) 10,200 100 1,000 NA 2/2/2015 4:49 PM mg/Kg pН Method: SW9045D (2002) **Analyst: DSD** NA рΗ 10.7 NA NA 2/4/2015 3:20 PM PA/VA SU



Improving the environment, one client at a time...

Ashland, KY 41101 TEL: 606.393.5027

101 17th Street

REI Consultants, Inc. PO Box 286 Beaver, WV 25813 TEL: (304) 255-2500

Website: www.reiclabs.com

3029-C Peters Creek Road Roanoke, VA 24019 TEL: 540.777.1276 1557 Commerce Road, Suite 201 Verona, VA 24482 TEL: 540.248.0183 16 Commerce Drive Westover, WV 26501 TEL: 304.241.5861

Monday, March 02, 2015

GEORGE CARICO MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE 1 JOHN MARSHALL DRIVE HUNTINGTON, WV 25755-2585

TEL: (304) 696-6042

FAX:

RE: DRILL CUTTING ANAL.
Work Order #: 1501U75
Dear GEORGE CARICO:

Kathy Berry

REI Consultants, Inc. received 1 sample(s) on 1/30/2015 for the analyses presented in the following report.

Sincerely,

Kathy Berry



REI Consultants, Inc. - Case Narrative

WO#: 1501U75

Date Reported: 3/2/2015

Client: MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE

Project: DRILL CUTTING ANAL.

The analytical results presented in this report were produced using documented laboratory SOPs that incorporate appropriate quality control procedures as described in the applicable methods. Verification of required sample preservation (as required) is recorded on associated laboratory logs. Any deviation from compliance or method modification is identified within the body of this report by a qualifier footnote which is defined at the bottom of this page.

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Results reported for sums of individual parameters, such as TTHM and HAA5, may vary slightly from the sum of the individual parameter results, due to rounding of individual results, as required by EPA.

The test results in this report meet all NELAP (and/or VELAP) requirements for parameters except as noted in this report.

Please note if the sample collection time is not provided on the Chain of Custody, the default recording will be 0:00:00. This may cause some tests to be apparently analyzed out of hold.

All tests performed by REIC Service Centers are designated by an annotation on the test code. All other tests were performed by REIC's Main Laboratory in Beaver, WV.

This report may not be reproduced, except in full, without the written approval of REIC.

DEFINITIONS:

MCL: Maximum Contaminant Level

MDL: Method Detection Limit; The lowest concentration of analyte that can be detected by the method in the applicable matrix. Mg/Kg or mg/L: Units of part per million (PPM) - milligram per Kilogram (weight/weight) or milligram per Liter (weight/volume).

NA: Not Applicable

ND: Not Detected at the PQL or MDL

PQL: Practical Quantitation Limit; The lowest verified limit to which data is quantified without qualifications. Analyte concentrations below PQL are reported either as ND or as a number with a "J" qualifier.

Qual: Qualifier that applies to the analyte reported.

TIC: Tentatively Identified Compound, Estimated Concentration denoted by "J" qualifier.

Ug/Kg or ug/L: Units of part per billion (PPB) - microgram per kilogram (weight/weight) or microgram per liter (weight/volume).

QUALIFIERS:

- X: Reported value exceeds required MCL
- B: Analyte detected in the associated Method Blank at a concentration > 1/2 the PQL
- E: Analyte concentration reported that exceeds the upper calibration standard. Greater uncertainty is associated with this result and data should be consider estimated.
- H: Holding time for preparation or analysis has been exceeded.
- J: Analyte concentration is reported, and is less than the PQL and greater than or equal to the MDL. The result reported is an estimate.
- S: % REC (% recovery) exceeds control limits

CERTIFICATIONS:

Beaver, WV: WVDHHR 00412CM, WVDEP 060, VADCLS 00281, KYDEP 90039, TNDEQ TN02926, NCDWQ 466, PADEP 68-00839, VADCLS (VELAP) 460148

Bioassay (Beaver, WV): WVDEP 060, VADCLS(VELAP) 460148, PADEP 68-00839

Roanoke, VA: VADCLS(VELAP) 460150 Verona, VA: VADCLS(VELAP) 460151 Ashland, KY: KYDEP 00094, WVDEP 389

Morgantown, WV: WVDHHR 003112M, WVDEP 387

Date Reported: 3/2/2015

WO#: 1501U75

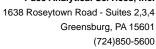
Client: MARSHALL UNIVERSITY CENTER. FOR ENV. Collection Date: 1/28/2015 11:30:00 AM

SCIENCE

Project:DRILL CUTTING ANAL.Date Received:1/30/2015Lab ID:1501U75-01AMatrix:Solid

Client Sample ID: MORTON 1H Site ID:

Analysis	Result	MDL	PQL	MCL	Qual Units	Date Analyzed NELAP
GROSS ALPHA			Method:	EPA 900.0	0	Analyst: Sub
Gross Alpha	see attached	NA	NA	NA		
GROSS BETA			Method:	EPA 900.0	0	Analyst: Sub
Gross Beta	see attached	NA	NA	NA		
RADIUM-226			Method:	EPA 903.	1	Analyst: Sub
Radium-226	see attached	NA	NA	NA		
RADIUM-228			Method:	EPA 904.0	0	Analyst: Sub
Radium-228	see attached	NA	NA	NA		
STRONTIUM-90			Method:	EPA 905.0	0	Analyst: Sub
Strontium-90	see attached	NA	NA	NA		





February 27, 2015

Ms. Kathy Berry REI Consultants, Inc. 225 Industrial Park Drive PO Box 286 Beaver, WV 25813

RE: Project: 1501U75

Pace Project No.: 30139976

Dear Ms. Berry:

Enclosed are the analytical results for sample(s) received by the laboratory on February 03, 2015. 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.

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

Sincerely,

Carin a. Ferris

Carin Ferris carin.ferris@pacelabs.com Project Manager

Enclosures





1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

CERTIFICATIONS

Project: 1501U75 Pace Project No.: 30139976

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ACLASS DOD-ELAP Accreditation #: ADE-1544

Alabama Certification #: 41590 Arizona Certification #: AZ0734

Arkansas Certification
California/TNI Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683

Guam/PADEP Certification Hawaii/PADEP Certification

Idaho Certification

Illinois/PADEP Certification Indiana/PADEP Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: 90133

Louisiana DHH/TNI Certification #: LA140008 Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: PA00091 Maryland Certification #: 308

Massachusetts Certification #: M-PA1457 Michigan/PADEP Certification

Missouri Certification #: 235

Montana Certification #: Cert 0082 Nebraska Certification #: NE-05-29-14

Nevada Certification

New Hampshire/TNI Certification #: 2976

New Jersey/TNI Certification #: PA 051

New Mexico Certification

New York/TNI Certification #: 10888 North Carolina Certification #: 42706

North Dakota Certification #: R-190

Oregon/TNI Certification #: PA200002 Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

South Dakota Certification

Tennessee Certification #: TN2867

Texas/TNI Certification #: T104704188

Utah/TNI Certification #: PA014572014-4

Vermont Dept. of Health: ID# VT-0282 Virgin Island/PADEP Certification Virginia/VELAP Certification #: 460198

Washington Certification #: C868

West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C

Wisconsin/PADEP Certification

Wyoming Certification #: 8TMS-Q

Pace Analytical Services, Inc.

1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600



SAMPLE SUMMARY

Project: 1501U75
Pace Project No.: 30139976

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30139976001	1501U75-01A	Solid	01/28/15 11:30	02/03/15 14:30

Pace Analytical Services, Inc.

(724)850-5600

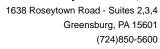
1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601



SAMPLE ANALYTE COUNT

Project: 1501U75 Pace Project No.: 30139976

Lab ID	Sample ID	Method	Analysts	Analytes Reported
30139976001	1501U75-01A	EPA 900.0	FCC	2
		EPA 901.1	MAH	2
		ASTM D5811-95	LAL	1





PROJECT NARRATIVE

Project: 1501U75
Pace Project No.: 30139976

Method: EPA 900.0

Description: 900.0 Gross Alpha/Beta
Client: REI Consultants, Inc.
Date: February 27, 2015

General Information:

1 sample was analyzed for EPA 900.0. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times 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.

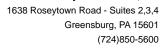
Additional Comments:

Analyte Comments:

QC Batch: RADC/23298

N2: The lab does not hold TNI accreditation for this parameter.

- 1501U75-01A (Lab ID: 30139976001)
 - Gross Alpha
 - Gross Beta
- BLANK (Lab ID: 851090)
 - Gross Alpha
 - Gross Beta





PROJECT NARRATIVE

Project: 1501U75
Pace Project No.: 30139976

Method: EPA 901.1

Description: 901.1 Gamma Spec INGROWTH

Client: REI Consultants, Inc.

Date: February 27, 2015

General Information:

1 sample was analyzed for EPA 901.1. All samples were received in acceptable condition with any exceptions noted below.

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 901.1 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.

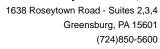
Laboratory Control Spike:

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:





PROJECT NARRATIVE

Project: 1501U75
Pace Project No.: 30139976

Method: ASTM D5811-95

Description: ASTM D5811 Sr 89/90 Eichrom

Client: REI Consultants, Inc.

Date: February 27, 2015

General Information:

1 sample was analyzed for ASTM D5811-95. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times 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:

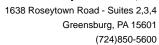
Analyte Comments:

QC Batch: RADC/23349

N2: The lab does not hold TNI accreditation for this parameter.

- BLANK (Lab ID: 853405)
 - Strontium-90

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





ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 1501U75
Pace Project No.: 30139976

Sample: 1501U75-01A Lab ID: 30139976001 Collected: 01/28/15 11:30 Received: 02/03/15 14:30 Matrix: Solid

PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0	30.4 ± 9.49 (8.90) C:NA T:NA	pCi/g	02/07/15 20:49	12587-46-1	N2
Gross Beta	EPA 900.0	31.2 ± 7.10 (4.78) C:NA T:NA	pCi/g	02/07/15 20:49	12587-47-2	N2
Radium-226	EPA 901.1	8.189 ± 1.195 (0.281) C:NA T:NA	pCi/g	02/26/15 12:44	13982-63-3	
Radium-228	EPA 901.1	0.794 ± 0.469 (0.746) C:NA T:NA	pCi/g	02/26/15 12:44	15262-20-1	
Strontium-90	ASTM D5811-95	0.0740 ± 0.565 (1.30) C:114% T:NA	pCi/g	02/14/15 10:58	10098-97-2	



Pace Analytical www.pacelabs.com

1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

QUALITY CONTROL - RADIOCHEMISTRY

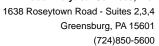
Project: 1501U75
Pace Project No.: 30139976

QC Batch: RADC/23312 Analysis Method: EPA 901.1

QC Batch Method: EPA 901.1 Analysis Description: 901.1 Gamma Spec Ingrowth

Associated Lab Samples: 30139976001

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.





QUALITY CONTROL - RADIOCHEMISTRY

Project: 1501U75
Pace Project No.: 30139976

QC Batch: RADC/23298 Analysis Method: EPA 900.0

QC Batch Method: EPA 900.0 Analysis Description: 900.0 Gross Alpha/Beta

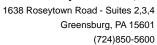
Associated Lab Samples: 30139976001

METHOD BLANK: 851090 Matrix: Solid

Associated Lab Samples: 30139976001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed Qualifiers	
Gross Alpha	-0.004 ± 0.0857 (0.218) C:NA T:NA	pCi/g	02/07/15 20:49 N2	
Gross Beta	-0.031 ± 0.0984 (0.237) C:NA T:NA	pCi/g	02/07/15 20:49 N2	

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.





QUALITY CONTROL - RADIOCHEMISTRY

ASTM D5811-95

Project: 1501U75
Pace Project No.: 30139976

QC Batch: RADC/23349

QC Batch Method: ASTM D5811-95 Analysis Description: ASTM D5811 Sr 89/90 Eichrom

Associated Lab Samples: 30139976001

METHOD BLANK: 853405 Matrix: Solid

Associated Lab Samples: 30139976001

 Parameter
 Act ± Unc (MDC) Carr Trac
 Units
 Analyzed
 Qualifiers

 Strontium-90
 0.240 ± 0.561 (1.22) C:100% T:NA
 pCi/g
 02/16/15 08:12 N2
 N2

Analysis Method:

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.



QUALIFIERS

Project: 1501U75 Pace Project No.: 30139976

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

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 (8270 listed analyte) decomposes to Azobenzene.

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.

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

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval). Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

Date: 02/27/2015 12:13 PM

N2 The lab does not hold TNI accreditation for this parameter.



Improving the environment, one client at a time...

CHAIN OF CUSTODY RECORD

COC ID: 3279

OF: 1 PAGE: 1

Beaver, WV 25813 TEL: (304) 255-2500 FAX: (304) 255-2572 REI Consultants, Inc. PO Box 286 ADDRESS

Website: www.reiclabs.com

30139976

Please Include Email Address of Report Recipient Whenever Possible!!!

odsili	SUB CC	SUB CONTRATOR: PACE PA	PA	COMPANY:		ACE ANAI	PACE ANALYTICAL SERVIC	IC SPECIAL INSTRUCTIONS / COMMENTS:	
Bottle Bottle Bottle Bottle ANALYTICAL PARAMETERS ANALYTICAL PA	ADDRE		ROSEYTOWN	ROAD				After analysis, the samples do not need to be returned and can be dispersion. Are noticed because to therrogenicals come Thank your	sposed per your standard laboratory
ANALTICAL PARAMETERS ANALTICAL PARAMETERS	CITY, §	STATE, ZP. GREE	ENSBURG, PA 1	10951				plactices. Accounts to Routly (electrolates, cont., 111ants, 5 cu.	
SAMPLE ID CIERT Sample ID Bottle MATRIX DATE COLLECTED BOTTLE COLLECTED Type Type Solid 1/28/2015 11:30:00 1 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	PHONE		850-5600	FAX:				ANALYTICAL PARAMETERS	* Preservation Codes: 0 None
SAMPLE ID Client Sample ID Bottle MATRIX DATE COLLECTED (0°506 VAB) 8fns 06 Wind Type (0°006 VAB) 8fns 06 Wind VATRIX DATE COLLECTED (0°006 VAB) 8fns 06 Wind VAB COLLECTED (0°006 VAB) 8fns 06 Wind VAB COLLECTED (0°006 VAB) 8fns 06 Wind VAB COLLECTED (0°006 VAB) 8fns 06 Wind VAB COLLECTED (0°006 VAB) 8fns 06 Wind VAB COLLECTED (0°006 VAB) 8fns 06 Wind VAB COLLECTED (0°006 VAB) 8fns 06 Wind VAB COLLECTED (0°006 V	ACCOL		9EVF1	EMAIL:				RADIUM GROSS_E	Hydrochloric Acid Ninto Acid Sulfura Acid Sulfura Acid Sulfura Acid Scalima Thiosulfare
* (Solid 1/28/2015 11:30:00 1	ITEM	SAMPLE ID	Client Sample ID		Bottle Type	MATRIX	DATE COLLECTED	_228_SUB (EPA 904.0) _226_SUB (EPA 903.1) ETA_SUB (EPA 900.0) LEPHA_SUB (EPA 900.0) NUMBER OF	5 Sodium Hydroxidel Sodium Arsenire 6 Sodium Hydroxide 7 Assorbic Acid 8 Sodium Sulfite/HCL 9 Potassium Dilydrogen Cifrate 10 Bromium Chloride COMMENTS:
Solid 1/28/2015 11:30:00 1								22200 *	
	-	1501U75-01A	MORTON 1H			Solid	1/28/2015 11:30:00 AM	1	(00)

ORT TRANSMITTAL DESIRED:	☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE	FOR	Temp of samples Comments:	
PT2115 1100	15 5 851	Paco Dire Time	2nd BD	cur surcharges!
Received By:	Register IN F. J. V.	Reserved By G. C. C. P.	Next BD	Note: RUSH requests will incur surcharges!
[100 TAN	Time	Mine 300	RUSH	
Pate: //S	Date/	23115	Standard Standard	
Relinquished By:	Relinquished By:	O. A. A. C. C. C. C. C. C. C. C. C. C. C. C. C.	TAT:	01.15

	Sample Condition Opon Receip	ot
Pace Analytical Client Na	me: RETC	Project #
Courier: Fed Ex UPS USPS Tracking #:	Client Commercial Pace Other	
Custody Seal on Cooler/Box Present:	yes 🕅 no Seals intact: 🗌 yes	no Biological Tissue is Frozen: Yes No
Packing Material: Bubble Wrap 1	Bags None Other	
Thermometer Used	Type of Ice: Wet Blue None	Samples on ice, cooling process has begun
Cooler Temp.: Observed Temp.:°C		mp:°C Date and Initials of person
Temp should be above freezing to 6°C	Comments:	examining contents: 300 (3)
Chain of Custody Present:	X1Yes □No □N/A 1.	
Chain of Custody Filled Out:	Qves □No □N/A 2.	
Chain of Custody Relinquished:	XQYes □No □N/A 3.	AC .
Sampler Name & Signature on COC:	DYES KINO DN/A 4. WAWE	on file 24115
Samples Arrived within Hold Time:	X[Yes □No □N/A 5.	
Short Hold Time Analysis (<72hr):	□Yes ⊅No □N/A 6.	
Rush Turn Around Time Requested:	□Yes ANo □N/A 7.	
Sufficient Volume:	Xes □No □N/A 8.	
Correct Containers Used:	ÄYes □No □N/A 9.	
-Pace Containers Used:	□Yes X No □N/A	
Containers Intact:	YQYes □No □N/A 10.	
Filtered volume received for Dissolved tests	□Yes □No XN/A 11,	
Sample Labels match COC:	YYes □No □N/A 12.	
-Includes date/time/ID/Analysis Matrix:	· (
All containers needing preservation have been checked.	□Yes □No XIN/A 13.	
All containers needing preservation are found to be in compliance with EPA recommendation.	/ _	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	□Yes ANo Initial when SRA	Lot # of added preservative
Samples checked for dechlorination:	□Yes □No ŽN/A 14.	
Headspace in VOA Vials (>6mm):	□Yes □No ŽN/A 15.	
Trip Blank Present:	□Yes XNo □N/A 16.	
Frip Blank Custody Seals Present	Yes □No 【N/A	
Pace Trip Blank Lot # (if purchased):		
Client Notification/ Resolution:		Field Data Required? Y / N
Person Contacted:	Date/Time:	Tied Data Required:
Comments/ Resolution:		
	_ v	
7		
1	N 8	21011

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)

Project Manager Review:

Date:

Project Number: 30139976

Face Analytical

		 	 						4
Other)								
Jeher									2012).xls
Ziploc									15May
Cubitainer (500 ml / 4L)									SCURF Back (C016-4 15May2012).xls
Radchem Nalgene (1/2 gal. / 1 gal.L)									IRF Back
Zsqcµem Ns 3ene (125 / 250 / 500 / 1L)									SCL
Wipes / swipe/ smear/ filter									
Bacteria (120 ml)									
Sulfide (500 ml)									
(Im 025) əbinsyO									
(Im 0£ Im 04) AOV									
(1r) H q T									
O & G (1L)									
Y bevresery preserved Y N									
zlatel Metals									
(S50 ml)					-				
TOC (40 ml \ 250 ml)									
(Im 03S) soilonad									
Nutrient (250 \ 500)				3					
(Jr) soinsgrO									
Chemistry (250 / 500 / 1L)									
Soil kit (2 SB, 1M, soil jar)									
Glass Jan (120) 250 / 500 / 1L)	1)								
Boc Xirix Matrix Code	S								
ltem No.	ઝ						Pa	ge 15 o	f 15
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	ORATE HEADQUART Park Rd, Beaver, WV 2581 00 • www.reiclabs.com	Add Billin	ress Z Jong Address (if d	shn Ma ifferent) entz It wn ter		Fax: Cit	Hunting Anal.	State Sampler G. Co	Zip
101 17th Street 1557 Comm Ashland, KY 41101 Veron		9-C Peters Creek Rd panoke, VA 24019 540-777-1276	16 Commerce I Westover, WV 2 304-241-586						
SAMPLE	LOG & ANALY	SIS REQUES	Г	METHOD					
TURNAROUND TIME	5 DAY	SH TURNAROUND 3 DAY 2 DAY	1 DAY	ঠ					
*Rush work needs pr		and will incur additional	charges	ANALYSIS					
			charges	Sample Comp/Grab			0 No		Sodium Hydroxide
*Rush work needs pr	ior laboratory approval	and will incur additional		Sample			0 No 1 Hy 2 No 3 Su	one 5 ydrochloric Acid 6 itric Acid 7	
*Rush work needs pr	No. & Type of Containers 3-16 02.	Sampling Date/Time	Matrix	Sample Comp/Grab			0 No 1 Hy 2 Ni 3 Su 4 So	one 5 ydrochloric Acid 6 itric Acid 7 ulfuric Acid 8 odium Thiosulfate MENTS: Went ock Run A	Sodium Hydroxide Zinc Acetate EDTA Ascorbic Acid
*Rush work needs pr	No. & Type of Containers 3-16 oz. 3-4 oz.	Sampling Date/Fime 1/28/15, 10:30 a.m.	Matrix Drill Zuff) ngs	Sample Comp/Grab	3 °C 10	ED? Y	0 No 1 Hy 2 Ni 3 Su 4 So	one 5 ydrochloric Acid 6 itric Acid 7 ulfuric Acid 8 odium Thiosulfate MENTS: Wen	Sodium Hydroxide Zinc Acetate EDTA Ascorbic Acid



3029-C Peters Creek Road

Roanoke, VA 24019

TEL: 540.777.1276

Improving the environment, one client at a time...

101 17th Street Ashland, KY 41101 TEL: 606.393.5027

1557 Commerce Road, Suite 201 Verona, VA 24482 TEL: 540.248.0183 16 Commerce Drive

Westover, WV 26501

TEL: 304.241.5861

REI Consultants, Inc. PO Box 286 Beaver, WV 25813 TEL: (304) 255-2500 Website: www.reiclabs.com

Wednesday, February 18, 2015

GEORGE CARICO MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE 1 JOHN MARSHALL DRIVE HUNTINGTON, WV 25755-2585

TEL: (304) 696-6042

FAX:

RE: WENTZ 1H

Work Order #: 1501U70
Dear GEORGE CARICO:

Kathy Berry

REI Consultants, Inc. received 1 sample(s) on 1/30/2015 for the analyses presented in the following report.

Sincerely,

Kathy Berry



REI Consultants, Inc. - Case Narrative

WO#: 1501U70

Date Reported: 2/18/2015

Client: MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE

Project: WENTZ 1H

The analytical results presented in this report were produced using documented laboratory SOPs that incorporate appropriate quality control procedures as described in the applicable methods. Verification of required sample preservation (as required) is recorded on associated laboratory logs. Any deviation from compliance or method modification is identified within the body of this report by a qualifier footnote which is defined at the bottom of this page.

All sample results for solid samples are reported on an "as-received" wet weight basis unless otherwise noted.

Results reported for sums of individual parameters, such as TTHM and HAA5, may vary slightly from the sum of the individual parameter results, due to rounding of individual results, as required by EPA.

The test results in this report meet all NELAP (and/or VELAP) requirements for parameters except as noted in this report.

Please note if the sample collection time is not provided on the Chain of Custody, the default recording will be 0:00:00. This may cause some tests to be apparently analyzed out of hold.

All tests performed by REIC Service Centers are designated by an annotation on the test code. All other tests were performed by REIC's Main Laboratory in Beaver, WV.

This report may not be reproduced, except in full, without the written approval of REIC.

DEFINITIONS:

MCL: Maximum Contaminant Level

MDL: Method Detection Limit; The lowest concentration of analyte that can be detected by the method in the applicable matrix. Mg/Kg or mg/L: Units of part per million (PPM) - milligram per Kilogram (weight/weight) or milligram per Liter (weight/volume).

NA: Not Applicable

ND: Not Detected at the PQL or MDL

PQL: Practical Quantitation Limit; The lowest verified limit to which data is quantified without qualifications. Analyte concentrations below PQL are reported either as ND or as a number with a "J" qualifier.

Qual: Qualifier that applies to the analyte reported.

TIC: Tentatively Identified Compound, Estimated Concentration denoted by "J" qualifier.

Ug/Kg or ug/L: Units of part per billion (PPB) - microgram per kilogram (weight/weight) or microgram per liter (weight/volume).

QUALIFIERS:

- X: Reported value exceeds required MCL
- B: Analyte detected in the associated Method Blank at a concentration > 1/2 the PQL
- E: Analyte concentration reported that exceeds the upper calibration standard. Greater uncertainty is associated with this result and data should be consider estimated.
- H: Holding time for preparation or analysis has been exceeded.
- J: Analyte concentration is reported, and is less than the PQL and greater than or equal to the MDL. The result reported is an estimate.
- S: % REC (% recovery) exceeds control limits

CERTIFICATIONS:

Beaver, WV: WVDHHR 00412CM, WVDEP 060, VADCLS 00281, KYDEP 90039, TNDEQ TN02926, NCDWQ 466, PADEP 68-00839, VADCLS (VELAP) 460148

Bioassay (Beaver, WV): WVDEP 060, VADCLS(VELAP) 460148, PADEP 68-00839

Roanoke, VA: VADCLS(VELAP) 460150 Verona, VA: VADCLS(VELAP) 460151 Ashland, KY: KYDEP 00094, WVDEP 389

Morgantown, WV: WVDHHR 003112M, WVDEP 387

WO#: 1501U70

Date Reported: 2/18/2015

Client: MARSHALL UNIVERSITY CENTER. FOR ENV. Collection Date: 1/28/2015 10:30:00 AM

SCIENCE

 Project:
 WENTZ 1H
 Date Received:
 1/30/2015

 Lab ID:
 1501U70-01A
 Matrix:
 Solid

Client Sample ID: WENTZ Site ID: DRILL CUTTING ANAL

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
METALS by ICP			Method:	SW6010	Analyst: JD			
Aluminum	4,170	3.00	25.0	NA		mg/Kg	2/2/2015 6:54 PM	PA/VA
Antimony	4.29	2.00	5.00	NA	J	mg/Kg	2/2/2015 6:51 PM	PA/VA
Arsenic	42.8	1.00	5.00	NA		mg/Kg	2/2/2015 6:51 PM	PA/VA
Barium	125	0.200	2.50	NA		mg/Kg	2/2/2015 6:51 PM	PA/VA
Beryllium	0.739	0.0500	0.250	NA		mg/Kg	2/2/2015 6:51 PM	PA/VA
Boron	26.3	1.00	2.50	NA		mg/Kg	2/3/2015 11:29 AM	PA/VA
Cadmium	2.57	0.100	0.500	NA		mg/Kg	2/2/2015 6:51 PM	PA/VA
Chromium	21.9	0.200	2.50	NA		mg/Kg	2/2/2015 6:51 PM	PA/VA
Copper	177	0.200	2.50	NA		mg/Kg	2/2/2015 6:51 PM	PA/VA
Iron	22,100	50.0	250	NA		mg/Kg	2/2/2015 6:58 PM	PA/VA
Lead	28.3	1.00	5.00	NA		mg/Kg	2/2/2015 6:51 PM	PA/VA
Lithium	4.69	0.100	5.00	NA	J	mg/Kg	2/4/2015 1:40 PM	
Manganese	132	0.200	2.50	NA		mg/Kg	2/2/2015 6:51 PM	PA/VA
Nickel	98.0	0.200	2.50	NA		mg/Kg	2/2/2015 6:51 PM	PA/VA
Selenium	13.5	1.00	5.00	NA		mg/Kg	2/2/2015 6:51 PM	PA/VA
Silver	0.789	0.100	1.25	NA	J	mg/Kg	2/2/2015 6:51 PM	PA/VA
Strontium	5,560	10.0	250	NA		mg/Kg	2/4/2015 3:43 PM	PA/VA
Vanadium	155	0.200	2.50	NA		mg/Kg	2/2/2015 6:51 PM	PA/VA
Zinc	138	0.500	2.50	NA		mg/Kg	2/2/2015 6:51 PM	PA/VA
MERCURY, Total SW7417B			Method:	SW7471	B (2/0	7)	Analyst: CR	
Mercury	0.140	0.020	0.100	NA		mg/Kg	2/5/2015 12:13 PM	PA/VA
HEXAVALENT CHROMIUM, WAT	ER SOLUE	BLE	Method:	SW7196	SA (199	92)	Analyst: JB	
Chromium, Hexavalent	1.96	0.100	0.200	NA		mg/kg	2/4/2015 7:45 AM	PA/VA
PERCENT MOISTURE			Method:	SM2540	B-199	7	Analyst: TS	
Percent Moisture	18	0.010	0.50	NA		wt%	2/2/2015 2:08 PM	
Oil and Grease			Method:	SW9071	B (4/9	8)	Analyst: NC	
Oil & Grease, Total Recoverable	0.032	0.001	0.061	NA	J	•	2/3/2015 11:00 AM	
on a orease, retain toooverable	0.032	0.001	0.001	100	J	wt%-dry	2/3/2013 11:00 AIVI	
SEMIVOLATILE ORGANIC COMP	OUNDS		Method:	SW8270	D (200) 7)	Analyst: JD	
1,4-Dinitrobenzene	ND	0.066	0.332	NA		mg/Kg	2/3/2015 7:10 PM	
1,4-Napthoquinone	ND	NA	0.332	NA		mg/Kg	2/3/2015 7:10 PM	
4-Nitroquinoline-1-oxide	ND	NA	0.332	NA		mg/Kg	2/3/2015 7:10 PM	

Date Reported: 2/18/2015

WO#: 1501U70

Client: MARSHALL UNIVERSITY CENTER. FOR ENV. Collection Date: 1/28/2015 10:30:00 AM

SCIENCE

 Project:
 WENTZ 1H
 Date Received:
 1/30/2015

 Lab ID:
 1501U70-01A
 Matrix:
 Solid

Client Sample ID: WENTZ Site ID: DRILL CUTTING ANAL

Butyl benzyl phthalaite	Client Sample ID: WEN12				Site	: טו:	Di	RILL CUTTING ANAL		
Bis(2-ethyfhexyl)phthalate	Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	IELAP	
Butyl benzyl phthalate	Pentachloronitrobenzene	ND	NA	0.332	NA		mg/Kg	2/3/2015 7:10 PM		
Dim-butyl phthalate	Bis(2-ethylhexyl)phthalate	ND	0.166	0.332	NA		mg/Kg	2/3/2015 7:10 PM	PA/VA	
Diethyl phthalate	Butyl benzyl phthalate	ND	0.166	0.332	NA			2/3/2015 7:10 PM		
Dimethyl phthalate	Di-n-butyl phthalate	ND	0.166	0.332	NA		mg/Kg	2/3/2015 7:10 PM	PA/VA	
2,4-Dinitrotoluene ND 0.066 0.332 NA mg/Kg 2/3/2015 7:10 PM PA/VA 2,6-Dinitrotoluene ND 0.066 0.332 NA mg/Kg 2/3/2015 7:10 PM PA/VA 2,6-Dinitrotoluene ND 0.066 0.332 NA mg/Kg 2/3/2015 7:10 PM PA/VA PA/VA NItrobenzene ND 0.066 0.332 NA mg/Kg 2/3/2015 7:10 PM PA/VA NItrobenzene ND 0.066 0.332 NA mg/Kg 2/3/2015 7:10 PM PA/VA NItrobenzene ND 0.066 0.332 NA mg/Kg 2/3/2015 7:10 PM PA/VA Surr: 2-Fluorophenol 56.1 NA 54.1-110 NA %REC 2/3/2015 7:10 PM PA/VA Surr: 2-Fluorophenol 56.1 NA 54.1-110 NA %REC 2/3/2015 7:10 PM Surr: 2-4.6-Tribromophenol 28.8 NA 58.8-128 NA \$ %REC 2/3/2015 7:10 PM Surr: 2-Horophenol 28.8 NA 58.8-128 NA \$ %REC 2/3/2015 7:10 PM Surr: 2-Horophenol 28.8 NA 58.8-128 NA \$ %REC 2/3/2015 7:10 PM Surr: 2-Horophenol 28.8 NA 58.8-128 NA \$ %REC 2/3/2015 7:10 PM Surr: 2-Horophenol 47.0 NA 52.2-121 NA %REC 2/3/2015 7:10 PM Surr: 4-Terphenyl-d14 74.0 NA 52.2-121 NA %REC 2/3/2015 7:10 PM Surr: 4-Terphenyl-d14 74.0 NA 52.2-121 NA %REC 2/3/2015 7:10 PM Surr: 4-Terphenyl-d14 74.0 NA 52.2-121 NA %REC 2/3/2015 7:0 PM PA/VA NA 52.2-121 NA %REC 2/3/2015 7:0 PM Surr: 4-Terphenyl-d14 74.0 NA 52.2-121 NA %REC 2/3/2015 7:0 PM PA/VA NA 52.2-121 NA %REC 2/3/2015 7:0 PM PA/VA NA 52.2-121 NA %REC 2/3/2015 7:0 PM PA/VA NA 52.2-121 NA %REC 2/3/2015 7:0 PM PA/VA NA 52.2-121 NA Mg/Kg 2/5/2015 1:0 PM PA/VA NA PA/VA NA PA/VA PA/VA NA PA/VA PA/VA NA PA/VA PA/VA NA PA/VA PA/VA NA PA/VA PA/VA NA PA/VA PA/VA NA PA/VA PA/VA PA/VA NA PA/VA PA/VA PA/VA NA PA/VA PA/VA PA/VA NA PA/VA PA/VA PA/VA NA PA/VA	Diethyl phthalate	ND	0.066	0.332	NA		mg/Kg	2/3/2015 7:10 PM	PA/VA	
2,6-Dinitrotoluene ND 0.066 0.332 NA mg/kg 2/3/2015 7:10 PM PAVAR Di-n-octyl phthalate ND 0.166 0.332 NA mg/kg 2/3/2015 7:10 PM PAVAR Fluoranthene 0.240 0.066 0.332 NA mg/kg 2/3/2015 7:10 PM PAVAR Nitrobenzene ND 0.066 0.332 NA mg/kg 2/3/2015 7:10 PM PAVAR Surr: 2-Fluorophenol 66.1 NA 54.1-110 NA %REC 2/3/2015 7:10 PM PAVAR Surr: 2-Fluorobiphenol 28.8 NA 58.8-128 NA \$ %REC 2/3/2015 7:10 PM Surr: 2-Fluorobiphenol 28.8 NA 58.8-128 NA %REC 2/3/2015 7:10 PM Surr: 2-Fluorobiphenyl 69.9 NA 68.4-116 NA %REC 2/3/2015 7:10 PM Surr: 2-Fluorobiphenyl 69.9 NA 68.4-116 NA %REC 2/3/2015 7:10 PM Analyst: JM VOLATILE ORGANIC COMPOUNDS-8260 Method: SW8260B (1996) Analyst: JM PAVAR	Dimethyl phthalate	ND	0.066	0.332	NA		mg/Kg	2/3/2015 7:10 PM	PA/VA	
Di-n-octyl phthalate	2,4-Dinitrotoluene	ND	0.066	0.332	NA		mg/Kg	2/3/2015 7:10 PM	PA/VA	
Fluoranthene	2,6-Dinitrotoluene	ND	0.066	0.332	NA		mg/Kg	2/3/2015 7:10 PM	PA/VA	
Nitrobenzene ND 0.066 0.332 NA mg/kg 2/3/2015 7:10 PM PAVA Surr: 2-Fluorophenol 56.1 NA 54.1-110 NA %REC 2/3/2015 7:10 PM PAVA Surr: 2-Fluorophenol 28.8 NA 60.1-110 NA %REC 2/3/2015 7:10 PM PM Surr: 2-4,6-Tribromophenol 28.8 NA 58.8-128 NA \$ %REC 2/3/2015 7:10 PM PM Surr: 2-Fluorobiphenyl 69.9 NA 68.4-116 NA %REC 2/3/2015 7:10 PM PM Surr: 4-Terphenyl-d14 74.0 NA 52.2-121 NA %REC 2/3/2015 7:10 PM PM VOLATILE ORGANIC COMPOUNDS-8260 Method: SW8260B (1996) Analyst: JM PM	Di-n-octyl phthalate	ND	0.166	0.332	NA		mg/Kg	2/3/2015 7:10 PM	PA/VA	
Surr: 2-Fluorophenol 56.1	Fluoranthene	0.240	0.066	0.332	NA	J	mg/Kg	2/3/2015 7:10 PM	PA/VA	
Surr: Phenol-d5 61.8 NA 60.1-110 NA %REC 2/3/2015 7:10 PM Surr: 2,4,6-Tribromophenol 28.8 NA 58.8-128 NA S %REC 2/3/2015 7:10 PM Surr: Nitrobenzene-d5 73.1 NA 68.2-123 NA %REC 2/3/2015 7:10 PM Surr: Nitrobenzene-d5 73.1 NA 68.2-123 NA %REC 2/3/2015 7:10 PM Surr: 2-Fluorobiphenyl 69.9 NA 68.4-116 NA %REC 2/3/2015 7:10 PM Surr: 4-Terphenyl-d14 74.0 NA 52.2-121 NA %REC 2/3/2015 7:10 PM Surr: 4-Terphenyl-d14 74.0 NA 52.2-121 NA %REC 2/3/2015 7:10 PM Method: SW8260B (1996) Analyst: JM PA/VA Surr: 4-Terphenyl-d14 74.0 NA 52.2-121 NA %REC 2/3/2015 7:10 PM PA/VA Surr: 4-Terphenyl-d14 74.0 NA 52.2-121 NA %REC 2/3/2015 7:10 PM PA/VA Surr: 4-Terphenyl-d14 74.0 NA 52.2-121 NA %REC 2/3/2015 7:10 PM PA/VA Surr: 4-Terphenyl-d14 74.0 NA 1.82 3.64 NA 1.99/Kg 2/5/2015 1:02 PM PA/VA 1,2-Dichlorobenzene ND 1.82 3.64 NA 1.99/Kg 2/5/2015 1:02 PM PA/VA 1,2-Dichlorobenzene ND 1.82 3.64 NA 1.99/Kg 2/5/2015 1:02 PM PA/VA 1,3-Dichlorobenzene ND 1.82 3.64 NA 1.99/Kg 2/5/2015 1:02 PM PA/VA 1,3-Dichlorobenzene ND 1.82 3.64 NA 1.99/Kg 2/5/2015 1:02 PM PA/VA 2.90/Fill 1,2-Dichlorobenzene ND 1.82 3.64 NA 1.99/Kg 2/5/2015 1:02 PM PA/VA 2.90/Fill 1,2-Dichlorobenzene ND 1.82 3.64 NA 1.99/Kg 2/5/2015 1:02 PM PA/VA 2.90/Fill 1,2-Dichlorobenzene ND 1.82 3.64 NA 1.99/Kg 2/5/2015 1:02 PM PA/VA 2.90/Fill 1,2-Dichlorobenzene ND 1.82 3.64 NA 1.99/Kg 2/5/2015 1:02 PM PA/VA 2.90/Fill 1,2-Dichlorobenzene ND 1.82 3.64 NA 1.99/Kg 2/5/2015 1:02 PM PA/VA 2.90/Fill 1,2-Dichlorobenzene ND 1.82 3.64 NA 1.99/Kg 2/5/2015 1:02 PM PA/VA 2.90/Fill 1,2-Dichlorobenzene ND 1.82 3.64 NA 1.99/Kg 2/5/2015 1:02 PM PA/VA 2.90/Fill 1,2-Dichlorobenzene ND 1.82 3.64 NA 1.99/Kg 2/5/2015 1:02 PM PA/VA 2.90/Fill 1,2-Dichlorobenzene ND 1.82 3.64 NA 1.99/Kg 2/5/2015 1:02 PM PA/VA 2.90/Fill 1,2-Dichlorobenzene ND 1.82 3.64 NA 1.99/Kg 2/5/2015 1:02 PM PA/VA 2.90/Fill 1,2-Dichlorobenzene ND 1.82 3.64 NA 1.99/Kg 2/5/2015 2:17 PM 2.90/Fill 1,2-Dichlorobenzene ND 1.82 3.64 NA 1.99/Kg 2/2015 2:17 PM 2.90/Fill 1,2-Dichlorobenzene ND 1.82 3.64 NA 1.99/Kg 2/2015 3:40 PM PA/VA 2.90/Fill 1,2-Dich	Nitrobenzene	ND	0.066	0.332	NA		mg/Kg	2/3/2015 7:10 PM	PA/VA	
Surr: 2,4,6-Tribromophenol 28.8 NA 58.8-128 NA S %REC 2/3/2015 7:10 PM Surr: Nitrobenzene-d5 73.1 NA 68.2-123 NA %REC 2/3/2015 7:10 PM Surr: Nitrobenzene-d5 73.1 NA 68.2-123 NA %REC 2/3/2015 7:10 PM Surr: 2-Fluorobiphenyl 69.9 NA 68.4-116 NA %REC 2/3/2015 7:10 PM Surr: 4-Terphenyl-d14 74.0 NA 52.2-121 NA %REC 2/3/2015 7:10 PM PAVA 52.2-121 NA %REC 2/3/2015 7:10 PM PAVA 52.2-121 NA %REC 2/3/2015 7:10 PM PAVA 52.2-121 NA %REC 2/3/2015 7:10 PM PAVA 52.2-121 NA %REC 2/3/2015 7:10 PM PAVA 52.2-121 NA %REC 2/3/2015 7:10 PM PAVA 1.2-Dichlorobenzene ND 1.82 3.64 NA µg/Kg 2/5/2015 1:02 PM PAVA 1.2-Dichlorobenzene ND 1.82 3.64 NA µg/Kg 2/5/2015 1:02 PM PAVA 1.3-Dichlorobenzene ND 1.82 3.64 NA µg/Kg 2/5/2015 1:02 PM PAVA 1.3-Dichlorobenzene ND 1.82 3.64 NA µg/Kg 2/5/2015 1:02 PM PAVA 1.3-Dichlorobenzene ND 1.82 3.64 NA µg/Kg 2/5/2015 1:02 PM PAVA 1.3-Dichlorobenzene ND 1.82 3.64 NA µg/Kg 2/5/2015 1:02 PM PAVA 1.3-Dichlorobenzene ND 1.82 3.64 NA µg/Kg 2/5/2015 1:02 PM PAVA 1.3-Dichlorobenzene ND 1.82 3.64 NA µg/Kg 2/5/2015 1:02 PM PAVA 1.3-Dichlorobenzene ND 1.82 3.64 NA µg/Kg 2/5/2015 1:02 PM PAVA 1.3-Dichlorobenzene ND 1.82 3.64 NA µg/Kg 2/5/2015 1:02 PM PAVA 1.3-Dichlorobenzene ND 1.82 3.64 NA µg/Kg 2/5/2015 1:02 PM PAVA 1.3-Dichlorobenzene ND 1.82 3.64 NA µg/Kg 2/5/2015 1:02 PM PAVA 1.3-Dichlorobenzene ND 1.82 3.64 NA µg/Kg 2/5/2015 1:02 PM PAVA 1.3-Dichlorobenzene ND 1.82 3.64 NA µg/Kg 2/5/2015 1:02 PM PAVA 1.3-Dichlorobenzene ND 1.82 3.64 NA µg/Kg 2/5/2015 1:02 PM PAVA 1.3-Dichlorobenzene ND 1.82 3.64 NA µg/Kg 2/5/2015 1:02 PM PAVA 1.3-Dichlorobenzene ND 1.82 3.64 NA µg/Kg 2/5/2015 1:02 PM PAVA 1.3-Dichlorobenzene ND 1.82 3.64 NA µg/Kg 2/2015 2:17 PM Surr: 1.3-Dichlorobenzene ND 1.82 3.64 NA µg/Kg 2/2015 2:17 PM Surr: 1.3-Dichlorobenzene ND 1.82 3.64 NA µg/Kg 2/2015 3:40 PM PAVA 1.3-Dichlorobenzene ND 1.3-Dichlorobenzene ND 1.3-Dichlorobenzene ND 1.3-Dichlorobenzene ND 1.3-Dichlorobenzene ND 1.3-Dichlorobenzene ND 1.3-Dichlorobenzene ND 1.3-Dichlorobenzene ND 1.3-Dichlorobenzene ND 1.3-Dichlorobenzene ND 1.3-Dichloro	Surr: 2-Fluorophenol	56.1	NA	54.1-110	NA		%REC	2/3/2015 7:10 PM		
Surr: Nitrobenzene-d5 73.1 NA 68.2-123 NA %REC 2/3/2015 7:10 PM Surr: 2-Fluorobiphenyl 69.9 NA 68.4-116 NA %REC 2/3/2015 7:10 PM Surr: 4-Terphenyl-d14 74.0 NA 52.2-121 NA %REC 2/3/2015 7:10 PM Surr: 4-Terphenyl-d14 74.0 NA 52.2-121 NA %REC 2/3/2015 7:10 PM Surr: 4-Terphenyl-d14 74.0 NA 52.2-121 NA %REC 2/3/2015 7:10 PM Surr: 4-Terphenyl-d14 74.0 NA 52.2-121 NA %REC 2/3/2015 7:10 PM Surr: 4-Terphenyl-d14 74.0 NA 52.2-121 NA %REC 2/3/2015 7:10 PM Surr: 4-Terphenyl-d14 74.0 NA 52.2-121 NA %REC 2/3/2015 7:10 PM Surr: 4-Terphenyl-d14 74.0 NA 10.1 NA	Surr: Phenol-d5	61.8	NA	60.1-110	NA		%REC	2/3/2015 7:10 PM		
Surr: 2-Fluorobiphenyl 69.9 NA 68.4-116 NA %REC 2/3/2015 7:10 PM Surr: 4-Terphenyl-d14 74.0 NA 52.2-121 NA %REC 2/3/2015 7:10 PM PA/VA 52.2-121 NA %REC 2/3/2015 7:10 PM PA/VA 52.2-121 NA %REC 2/3/2015 7:10 PM PA/VA 52.2-121 NA %REC 2/3/2015 7:10 PM PA/VA 52.2-121 NA %REC 2/3/2015 7:10 PM PA/VA 52.2-121 NA %REC 2/3/2015 7:10 PM PA/VA 52.2-121 NA %REC 2/10/2015 2:17 PM PA/VA 52.2-121 NA %REC 2/10/2015 2:17 PM PA/VA 52.2-121 NA %REC 2/10/2015 2:17 PM PA/VA 52.2-121 NA WAS 52.2-121 NA WAS 52.2-121 NA %REC 2/10/2015 2:17 PM PA/VA 52.2-121 NA PA/VA 52.2-121 NA PA/VA 52.2-121 NA WAS 52.2-121 NA WAS 52.2-121 NA WAS 52.2-121 NA WAS 52.2-121 NA WAS 52.2-121 NA WAS 52.2-121 NA WAS 52.2-121 NA PA/VA	Surr: 2,4,6-Tribromophenol	28.8	NA	58.8-128	NA	S	%REC	2/3/2015 7:10 PM		
Surr: 4-Terphenyl-d14 74.0 NA 52.2-121 NA %REC 2/3/2015 7:10 PM VOLATILE ORGANIC COMPOUNDS-8260 Method: SW8260B (1996) Analyst: JM Benzene 2,010 50.0 100 NA μg/kg 2/10/2015 2:17 PM PAVA Bromodichloromethane ND 1.82 3.64 NA μg/kg 2/5/2015 1:02 PM PAVA Chlorobenzene ND 1.82 3.64 NA μg/kg 2/5/2015 1:02 PM PAVA 1,2-Dichlorobenzene ND 1.82 3.64 NA μg/kg 2/5/2015 1:02 PM PAVA 1,3-Dichlorobenzene ND 1.82 3.64 NA μg/kg 2/5/2015 1:02 PM PAVA 1,4-Dichlorobenzene ND 1.82 3.64 NA μg/kg 2/5/2015 1:02 PM PAVA Surr: 1,2-Dichloroethane-d4 80.3 NA 70-130 NA %REC 2/10/2015 2:17 PM Surr: 2-Dichloroethane-d4 80.3 NA 70-130 NA %REC 2/10/2015 2:17 PM	Surr: Nitrobenzene-d5	73.1	NA	68.2-123	NA		%REC	2/3/2015 7:10 PM		
VOLATILE ORGANIC COMPOUNDS-8260 Method: SW8260B (1996) Analyst: JM Benzene 2,010 50.0 100 NA μg/Kg 2/10/2015 2:17 PM PAVAB Bromodichloromethane ND 1.82 3.64 NA μg/Kg 2/5/2015 1:02 PM PAVAB Chlorobenzene ND 1.82 3.64 NA μg/Kg 2/5/2015 1:02 PM PAVAB 1,2-Dichlorobenzene ND 1.82 3.64 NA μg/Kg 2/5/2015 1:02 PM PAVAB 1,3-Dichlorobenzene ND 1.82 3.64 NA μg/Kg 2/5/2015 1:02 PM PAVAB 1,4-Dichlorobenzene ND 1.82 3.64 NA μg/Kg 2/5/2015 1:02 PM PAVAB 1,4-Dichlorobenzene ND 1.82 3.64 NA μg/Kg 2/5/2015 1:02 PM PAVAB Surr: 1,2-Dichloroethane-d4 80.3 NA 70-130 NA %REC 2/10/2015 2:17 PM Surr: 2-Bromofluoromethane 89.5 NA 70-130 NA %REC	Surr: 2-Fluorobiphenyl	69.9	NA	68.4-116	NA		%REC	2/3/2015 7:10 PM		
Benzene 2,010 50.0 100 NA μg/kg 2/10/2015 2:17 PM PA/VA Bromodichloromethane ND 1.82 3.64 NA μg/kg 2/5/2015 1:02 PM PA/VA Chlorobenzene ND 1.82 3.64 NA μg/kg 2/5/2015 1:02 PM PA/VA 1,2-Dichlorobenzene ND 1.82 3.64 NA μg/kg 2/5/2015 1:02 PM PA/VA 1,3-Dichlorobenzene ND 1.82 3.64 NA μg/kg 2/5/2015 1:02 PM PA/VA 1,4-Dichlorobenzene ND 1.82 3.64 NA μg/kg 2/5/2015 1:02 PM PA/VA Surr: 1,2-Dichloroethane-d4 80.3 NA 70-130 NA %REC 2/10/2015 2:17 PM AVA Surr: 4-Bromofluorobenzene 109 NA 70-130 NA %REC 2/10/2015 2:17 PM AVA Surr: Dibromofluoromethane 89.5 NA 70-130 NA %REC 2/10/2015 2:17 PM ANIONS by IC, WATER SOLUBLE <td <="" rowspan="2" td=""><td>Surr: 4-Terphenyl-d14</td><td>74.0</td><td>NA</td><td>52.2-121</td><td>NA</td><td></td><td>%REC</td><td>2/3/2015 7:10 PM</td><td></td></td>	<td>Surr: 4-Terphenyl-d14</td> <td>74.0</td> <td>NA</td> <td>52.2-121</td> <td>NA</td> <td></td> <td>%REC</td> <td>2/3/2015 7:10 PM</td> <td></td>	Surr: 4-Terphenyl-d14	74.0	NA	52.2-121	NA		%REC	2/3/2015 7:10 PM	
Bromodichloromethane ND 1.82 3.64 NA μg/Kg 2/5/2015 1:02 PM PA/VA Chlorobenzene ND 1.82 3.64 NA μg/Kg 2/5/2015 1:02 PM PA/VA 1,2-Dichlorobenzene ND 1.82 3.64 NA μg/Kg 2/5/2015 1:02 PM PA/VA 1,3-Dichlorobenzene ND 1.82 3.64 NA μg/Kg 2/5/2015 1:02 PM PA/VA 1,4-Dichlorobenzene ND 1.82 3.64 NA μg/Kg 2/5/2015 1:02 PM PA/VA 1,4-Dichlorobenzene ND 1.82 3.64 NA μg/Kg 2/5/2015 1:02 PM PA/VA Surr: 1,2-Dichloroethane-d4 80.3 NA 70-130 NA %REC 2/10/2015 2:17 PM Surr: 3/2000 2:17 PM Surr: 3000 NA %REC 2/10/2015 2:17 PM Surr: 3000 NA %REC 2/10/2015 2:17 PM Surr: 70luene-d8 103 NA 70-130 NA %REC 2/10/2015 2:17 PM Method: SW9056A (2000) Analyst: CF Chloride 35,400		VOLATILE ORGANIC COMPOUND	S-8260		Method: \$	SW8260)B (199	6)	Analyst: JM	
Bromodichloromethane ND 1.82 3.64 NA μg/kg 2/5/2015 1:02 PM PA/VA Chlorobenzene ND 1.82 3.64 NA μg/kg 2/5/2015 1:02 PM PA/VA 1,2-Dichlorobenzene ND 1.82 3.64 NA μg/kg 2/5/2015 1:02 PM PA/VA 1,3-Dichlorobenzene ND 1.82 3.64 NA μg/kg 2/5/2015 1:02 PM PA/VA 1,4-Dichlorobenzene ND 1.82 3.64 NA μg/kg 2/5/2015 1:02 PM PA/VA 1,4-Dichlorobenzene ND 1.82 3.64 NA μg/kg 2/5/2015 1:02 PM PA/VA Surr: 1,2-Dichloroethane-d4 80.3 NA 70-130 NA %REC 2/10/2015 2:17 PM Surr: Dibromofluorobenzene 109 NA 70-130 NA %REC 2/10/2015 2:17 PM Surr: Toluene-d8 103 NA 70-130 NA %REC 2/10/2015 2:17 PM Method: SW9056A (2000) Analyst: CF Chloride 2/2/2015 3:40 PM PA/VA Analy	Benzene	2,010	50.0	100	NA		μg/Kg	2/10/2015 2:17 PM	PA/VA	
1,2-Dichlorobenzene ND 1.82 3.64 NA µg/Kg 2/5/2015 1:02 PM PA/VA 1,3-Dichlorobenzene ND 1.82 3.64 NA µg/Kg 2/5/2015 1:02 PM PA/VA 1,4-Dichlorobenzene ND 1.82 3.64 NA µg/Kg 2/5/2015 1:02 PM PA/VA 1,4-Dichlorobenzene ND 1.82 3.64 NA µg/Kg 2/5/2015 1:02 PM PA/VA 1,4-Dichlorobenzene ND 1.82 3.64 NA µg/Kg 2/5/2015 1:02 PM PA/VA 1,4-Dichlorobenzene ND 1.82 3.64 NA µg/Kg 2/5/2015 1:02 PM PA/VA 1,4-Dichlorobenzene ND 1.82 3.64 NA µg/Kg 2/5/2015 1:02 PM PA/VA 1,4-Dichlorobenzene ND 1.82 3.64 NA µg/Kg 2/5/2015 1:02 PM PA/VA 1,4-Dichlorobenzene ND 1.82 3.64 NA µg/Kg 2/10/2015 2:17 PM PA/VA 1,4-Dichlorobenzene ND 1.00 NA 70-130 NA %REC 2/10/2015 2:17 PM PA/VA 1,4-Dichlorobenzene ND 1.00 NA NA 70-130 NA %REC 2/10/2015 2:17 PM PA/VA 1,4-Dichlorobenzene ND 1.20 0.400 2.00 NA Mag/Kg 2/2/2015 3:40 PM PA/VA 1,4-Dichlorobenzene ND 1.	Bromodichloromethane	ND	1.82	3.64	NA			2/5/2015 1:02 PM	PA/VA	
1,3-Dichlorobenzene ND 1.82 3.64 NA µg/Kg 2/5/2015 1:02 PM PA/VA 1,4-Dichlorobenzene ND 1.82 3.64 NA µg/Kg 2/5/2015 1:02 PM PA/VA 2,4-Dichlorobenzene ND 1.82 3.64 NA µg/Kg 2/5/2015 1:02 PM PA/VA 2,4-Dichlorobenzene ND 1.82 3.64 NA µg/Kg 2/5/2015 1:02 PM PA/VA 2,4-Dichlorobenzene ND 1.82 3.64 NA µg/Kg 2/5/2015 1:02 PM PA/VA 2,4-Dichlorobenzene ND 1.82 3.64 NA NA %REC 2/10/2015 2:17 PM 2,4-Dichlorobenzene ND NA 70-130 NA %REC 2/10/2015 2:17 PM 3,4-Dichlorobenzene ND NA 70-130 NA %REC 2/10/2015 2:17 PM 3,4-Dichlorobenzene ND NA 70-130 NA %REC 2/10/2015 2:17 PM 3,4-Dichlorobenzene ND NA 70-130 NA %REC 2/10/2015 2:17 PM 3,4-Dichlorobenzene ND NA 70-130 NA %REC 2/10/2015 2:17 PM 3,4-Dichlorobenzene ND NA 70-130 NA %REC 2/10/2015 2:17 PM 3,4-Dichlorobenzene ND NA 70-130 NA %REC 2/10/2015 2:17 PM 3,4-Dichlorobenzene ND NA 70-130 NA 70-130 NA 70-130 NA %REC 2/10/2015 2:17 PM 3,4-Dichlorobenzene ND NA 70-130 NA 7	Chlorobenzene	ND	1.82	3.64	NA		μg/Kg	2/5/2015 1:02 PM	PA/VA	
1,4-Dichlorobenzene ND 1.82 3.64 NA µg/Kg 2/5/2015 1:02 PM PA/VA Surr: 1,2-Dichloroethane-d4 80.3 NA 70-130 NA %REC 2/10/2015 2:17 PM Surr: 4-Bromofluorobenzene 109 NA 70-130 NA %REC 2/10/2015 2:17 PM Surr: Dibromofluoromethane 89.5 NA 70-130 NA %REC 2/10/2015 2:17 PM Surr: Toluene-d8 103 NA 70-130 NA %REC 2/10/2015 2:17 PM MREC 2/10/2015 2:17 PM Surr: Toluene-d8 103 NA 70-130 NA %REC 2/10/2015 2:17 PM MREC 2/10/2015 2:17 PM MREC 2/10/2015 2:17 PM MREC 2/10/2015 2:17 PM NA MREC 2/1	1,2-Dichlorobenzene	ND	1.82	3.64	NA		μg/Kg	2/5/2015 1:02 PM	PA/VA	
Surr: 1,2-Dichloroethane-d4 80.3 NA 70-130 NA %REC 2/10/2015 2:17 PM Surr: 4-Bromofluorobenzene 109 NA 70-130 NA %REC 2/10/2015 2:17 PM Surr: Dibromofluoromethane 89.5 NA 70-130 NA %REC 2/10/2015 2:17 PM Surr: Toluene-d8 103 NA 70-130 NA %REC 2/10/2015 2:17 PM MREC 2/10/2015	1,3-Dichlorobenzene	ND	1.82	3.64	NA		μg/Kg	2/5/2015 1:02 PM	PA/VA	
Surr: 1,2-Dichloroethane-d4 80.3 NA 70-130 NA %REC 2/10/2015 2:17 PM Surr: 4-Bromofluorobenzene 109 NA 70-130 NA %REC 2/10/2015 2:17 PM Surr: Dibromofluoromethane 89.5 NA 70-130 NA %REC 2/10/2015 2:17 PM Surr: Toluene-d8 103 NA 70-130 NA %REC 2/10/2015 2:17 PM ANIONS by IC, WATER SOLUBLE Method: SW9056A (2000) Analyst: CF Chloride 35,400 200 2,000 NA mg/Kg 2/2/2015 3:40 PM PA/VA Fluoride 2.20 1.00 4.00 NA J mg/Kg 2/2/2015 3:40 PM PA/VA Nitrogen, Nitrate ND 1.00 10.0 NA mg/Kg 2/2/2015 3:40 PM PA/VA	1,4-Dichlorobenzene	ND	1.82	3.64	NA		μg/Kg	2/5/2015 1:02 PM	PA/VA	
Surr: Dibromofluoromethane 89.5 NA 70-130 NA %REC 2/10/2015 2:17 PM Surr: Toluene-d8 103 NA 70-130 NA %REC 2/10/2015 2:17 PM ANIONS by IC, WATER SOLUBLE Method: SW9056A (2000) Analyst: CF Chloride 35,400 200 2,000 NA mg/Kg 2/2/2015 3:40 PM PA/VA Fluoride 2.20 1.00 4.00 NA J mg/Kg 2/2/2015 3:40 PM PA/VA Nitrogen, Nitrate 1.20 0.400 2.00 NA J mg/Kg 2/2/2015 3:40 PM PA/VA Nitrogen, Nitrite ND 1.00 10.0 NA mg/Kg 2/2/2015 3:40 PM PA/VA	Surr: 1,2-Dichloroethane-d4	80.3	NA	70-130	NA			2/10/2015 2:17 PM		
Surr: Toluene-d8 103 NA 70-130 NA %REC 2/10/2015 2:17 PM ANIONS by IC, WATER SOLUBLE Method: SW9056A (2000) Analyst: CF Chloride 35,400 200 2,000 NA mg/Kg 2/2/2015 3:40 PM PA/VA Fluoride 2.20 1.00 4.00 NA J mg/Kg 2/2/2015 3:40 PM Nitrogen, Nitrate 1.20 0.400 2.00 NA J mg/Kg 2/2/2015 3:40 PM PA/VA Nitrogen, Nitrite ND 1.00 10.0 NA mg/Kg 2/2/2015 3:40 PM	Surr: 4-Bromofluorobenzene	109	NA	70-130	NA		%REC	2/10/2015 2:17 PM		
ANIONS by IC, WATER SOLUBLE Method: SW9056A (2000) Analyst: CF Chloride 35,400 200 2,000 NA mg/Kg Fluoride 2.20 1.00 4.00 NA J mg/Kg 2/2/2015 3:40 PM Nitrogen, Nitrate 1.20 0.400 2.00 NA J mg/Kg 2/2/2015 3:40 PM PA/VA Nitrogen, Nitrite ND 1.00 10.0 NA mg/Kg 2/2/2015 3:40 PM PA/VA Mitrogen, Nitrite	Surr: Dibromofluoromethane	89.5	NA	70-130	NA		%REC	2/10/2015 2:17 PM		
Chloride 35,400 200 2,000 NA mg/Kg 2/2/2015 3:40 PM PA/VA Fluoride 2.20 1.00 4.00 NA J mg/Kg 2/2/2015 3:40 PM PA/VA Nitrogen, Nitrate 1.20 0.400 2.00 NA J mg/Kg 2/2/2015 3:40 PM PA/VA Nitrogen, Nitrite ND 1.00 10.0 NA mg/Kg 2/2/2015 3:40 PM	Surr: Toluene-d8	103	NA	70-130	NA		%REC	2/10/2015 2:17 PM		
Fluoride 2.20 1.00 4.00 NA J mg/Kg 2/2/2015 3:40 PM Nitrogen, Nitrate 1.20 0.400 2.00 NA J mg/Kg 2/2/2015 3:40 PM PA/VA Nitrogen, Nitrite ND 1.00 10.0 NA mg/Kg 2/2/2015 3:40 PM	ANIONS by IC, WATER SOLUBLE			Method: \$	SW9056	6A (200	0)	Analyst: CF		
Fluoride 2.20 1.00 4.00 NA J mg/Kg 2/2/2015 3:40 PM Nitrogen, Nitrate 1.20 0.400 2.00 NA J mg/Kg 2/2/2015 3:40 PM PA/VA Nitrogen, Nitrite ND 1.00 10.0 NA mg/Kg 2/2/2015 3:40 PM	Chloride	35,400	200	2,000	NA		mg/Kg	2/2/2015 3:40 PM	PA/VA	
Nitrogen, Nitrate 1.20 0.400 2.00 NA J mg/Kg 2/2/2015 3:40 PM PA/VA Nitrogen, Nitrite ND 1.00 10.0 NA mg/Kg 2/2/2015 3:40 PM	Fluoride	2.20	1.00	4.00	NA	J		2/2/2015 3:40 PM		
Nitrogen, Nitrite ND 1.00 10.0 NA mg/Kg 2/2/2015 3:40 PM	Nitrogen, Nitrate	1.20	0.400	2.00	NA	J		2/2/2015 3:40 PM	PA/VA	
	Nitrogen, Nitrite	ND	1.00	10.0	NA			2/2/2015 3:40 PM		
	Sulfate	510	20.0	100	NA		mg/Kg	2/2/2015 3:40 PM		

WO#: 1501U70

Date Reported: 2/18/2015

Client: MARSHALL UNIVERSITY CENTER. FOR ENV. **Collection Date:**

1/28/2015 10:30:00 AM

SCIENCE Project:

WENTZ 1H 1501U70-01A **Date Received:** 1/30/2015 Matrix: Solid

Client Sample ID: WENTZ Site ID: DRILL CUTTING ANAL

Date Analyzed NELAP **PQL** MCL **Qual Units MDL** Result **Analysis AMMONIA NITROGEN** Method: SM4500-NH3 B-C-Analyst: CC 1997 Nitrogen, Ammonia 8.00 10.0 NA 2/5/2015 2:11 PM 11.2 mg/Kg

TOTAL KJELDAHL NITROGEN (TKN) Method: EPA 351.2, Rev. Analyst: JH

2.0 (1993)

502 Nitrogen, Kjeldahl, Total 100 NA 2/2/2015 9:18 PM PA/VA 1,910 mg/Kg

CYANIDE, FREE Method: SM4500-CN I-1997 Analyst: JH Cyanide, Free 0.250 1.00 NA ND 2/2/2015 1:10 PM mg/Kg

Notes:

Lab ID:

Elevated PQLs are due to matrix interference.

CONDUCTIVITY Method: SM2510 B-1997 Analyst: KY Specific Conductivity NA NA NA 118,000 2/10/2015 10:35 AM µmhos/cm

Notes:

Conductivity result was estimated based on measuring a 1:10 dilution.

ALKALINITY Method: SM2320 B-1997 **Analyst: DSD** Alkalinity, Total (As CaCO3) 20.0 200 NA 6,630 mg/Kg 2/2/2015 4:49 PM

Method: SW9045D (2002) **Analyst: DSD** pН рΗ NA NA NA 2/4/2015 3:20 PM PA/VA

10.5 SU



Improving the environment, one client at a time...

REI Consultants, Inc. PO Box 286 Beaver, WV 25813 TEL: (304) 255-2500

Website: www.reiclabs.com

3029-C Peters Creek Road Roanoke, VA 24019 TEL: 540.777.1276

101 17th Street Ashland, KY 41101 TEL: 606.393.5027

1557 Commerce Road, Suite 201 Verona, VA 24482 TEL: 540.248.0183

16 Commerce Drive Westover, WV 26501 TEL: 304.241.5861

Monday, March 02, 2015

GEORGE CARICO MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE 1 JOHN MARSHALL DRIVE **HUNTINGTON, WV 25755-2585**

TEL: (304) 696-6042

FAX:

RE: WENTZ 1H

Work Order #: 1501U74 Dear GEORGE CARICO:

Kathy Berry

REI Consultants, Inc. received 1 sample(s) on 1/30/2015 for the analyses presented in the following report.

Sincerely,

Kathy Berry



REI Consultants, Inc. - Case Narrative

WO#: 1501U74

Date Reported: 3/2/2015

Client: MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE

Project: WENTZ 1H

The analytical results presented in this report were produced using documented laboratory SOPs that incorporate appropriate quality control procedures as described in the applicable methods. Verification of required sample preservation (as required) is recorded on associated laboratory logs. Any deviation from compliance or method modification is identified within the body of this report by a qualifier footnote which is defined at the bottom of this page.

All sample results for solid samples are reported on an "as-received" wet weight basis unless otherwise noted.

Results reported for sums of individual parameters, such as TTHM and HAA5, may vary slightly from the sum of the individual parameter results, due to rounding of individual results, as required by EPA.

The test results in this report meet all NELAP (and/or VELAP) requirements for parameters except as noted in this report.

Please note if the sample collection time is not provided on the Chain of Custody, the default recording will be 0:00:00. This may cause some tests to be apparently analyzed out of hold.

All tests performed by REIC Service Centers are designated by an annotation on the test code. All other tests were performed by REIC's Main Laboratory in Beaver, WV.

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DEFINITIONS:

MCL: Maximum Contaminant Level

MDL: Method Detection Limit; The lowest concentration of analyte that can be detected by the method in the applicable matrix. Mg/Kg or mg/L: Units of part per million (PPM) - milligram per Kilogram (weight/weight) or milligram per Liter (weight/volume).

NA: Not Applicable

ND: Not Detected at the PQL or MDL

PQL: Practical Quantitation Limit; The lowest verified limit to which data is quantified without qualifications. Analyte concentrations below PQL are reported either as ND or as a number with a "J" qualifier.

Qual: Qualifier that applies to the analyte reported.

TIC: Tentatively Identified Compound, Estimated Concentration denoted by "J" qualifier.

Ug/Kg or ug/L: Units of part per billion (PPB) - microgram per kilogram (weight/weight) or microgram per liter (weight/volume).

QUALIFIERS:

- X: Reported value exceeds required MCL
- B: Analyte detected in the associated Method Blank at a concentration > 1/2 the PQL
- E: Analyte concentration reported that exceeds the upper calibration standard. Greater uncertainty is associated with this result and data should be consider estimated.
- H: Holding time for preparation or analysis has been exceeded.
- J: Analyte concentration is reported, and is less than the PQL and greater than or equal to the MDL. The result reported is an estimate.
- S: % REC (% recovery) exceeds control limits

CERTIFICATIONS:

Beaver, WV: WVDHHR 00412CM, WVDEP 060, VADCLS 00281, KYDEP 90039, TNDEQ TN02926, NCDWQ 466, PADEP 68-00839, VADCLS (VELAP) 460148

Bioassay (Beaver, WV): WVDEP 060, VADCLS(VELAP) 460148, PADEP 68-00839

Roanoke, VA: VADCLS(VELAP) 460150 Verona, VA: VADCLS(VELAP) 460151 Ashland, KY: KYDEP 00094, WVDEP 389

Morgantown, WV: WVDHHR 003112M, WVDEP 387

REI Consultants, Inc. - Analytical Report

Date Reported: 3/2/2015

WO#: 1501U74

Client: MARSHALL UNIVERSITY CENTER. FOR ENV. Collection Date: 1/28/2015 10:30:00 AM

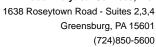
SCIENCE

 Project:
 WENTZ 1H
 Date Received:
 1/30/2015

 Lab ID:
 1501U74-01A
 Matrix:
 Solid

Client Sample ID: WENTZ 1H Site ID: DRILL CUTTING ANAL

Analysis	Result	MDL	PQL	MCL	Qual Units	Date Analyzed NELAP
GROSS ALPHA			Method:	EPA 900	.0	Analyst: Sub
Gross Alpha	see attached	NA	NA	NA		
GROSS BETA			Method:	EPA 900	.0	Analyst: Sub
Gross Beta	see attached	NA	NA	NA		
RADIUM-226			Method:	EPA 903	.1	Analyst: Sub
Radium-226	see attached	NA	NA	NA		
RADIUM-228			Method:	EPA 904	.0	Analyst: Sub
Radium-228	see attached	NA	NA	NA		
STRONTIUM-90			Method:	EPA 905	.0	Analyst: Sub
Strontium-90	see attached	NA	NA	NA		





February 27, 2015

Ms. Kathy Berry REI Consultants, Inc. 225 Industrial Park Drive PO Box 286 Beaver, WV 25813

RE: Project: 1501U74

Pace Project No.: 30139981

Dear Ms. Berry:

Enclosed are the analytical results for sample(s) received by the laboratory on February 03, 2015. 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.

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

Sincerely,

Carin a. Ferris

Carin Ferris carin.ferris@pacelabs.com Project Manager

Enclosures



Greensburg, PA 15601 (724)850-5600



CERTIFICATIONS

Project: 1501U74 Pace Project No.: 30139981

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ACLASS DOD-ELAP Accreditation #: ADE-1544

Alabama Certification #: 41590 Arizona Certification #: AZ0734

Arkansas Certification
California/TNI Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683

Guam/PADEP Certification Hawaii/PADEP Certification

Idaho Certification

Illinois/PADEP Certification Indiana/PADEP Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: 90133

Louisiana DHH/TNI Certification #: LA140008

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: PA00091 Maryland Certification #: 308

Massachusetts Certification #: M-PA1457 Michigan/PADEP Certification

Missouri Certification #: 235

Montana Certification #: Cert 0082 Nebraska Certification #: NE-05-29-14

Nevada Certification

New Hampshire/TNI Certification #: 2976

New Jersey/TNI Certification #: PA 051

New Mexico Certification

New York/TNI Certification #: 10888 North Carolina Certification #: 42706 North Dakota Certification #: R-190 Oregon/TNI Certification #: PA200002 Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

South Dakota Certification

Tennessee Certification #: TN2867 Texas/TNI Certification #: T104704188 Utah/TNI Certification #: PA014572014-4 Vermont Dept. of Health: ID# VT-0282 Virgin Island/PADEP Certification Virginia/VELAP Certification #: 460198 Washington Certification #: C868

West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C

Wisconsin/PADEP Certification Wyoming Certification #: 8TMS-Q

Pace Analytical Services, Inc.

1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600



SAMPLE SUMMARY

Project: 1501U74 Pace Project No.: 30139981

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30139981001	1501U74-01A	Solid	01/28/15 10:30	02/03/15 14:30

Pace Analytical Services, Inc.

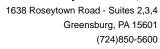
Pace Analytical www.pacelabs.com

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SAMPLE ANALYTE COUNT

Project: 1501U74
Pace Project No.: 30139981

Lab ID	Sample ID	Method	Analysts	Reported
30139981001	1501U74-01A	EPA 900.0	FCC	2
		EPA 901.1	MAH	2
		ASTM D5811-95	LAL	1





PROJECT NARRATIVE

Project: 1501U74
Pace Project No.: 30139981

Method: EPA 900.0

Description: 900.0 Gross Alpha/Beta
Client: REI Consultants, Inc.
Date: February 27, 2015

General Information:

1 sample was analyzed for EPA 900.0. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times 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.

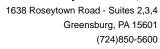
Additional Comments:

Analyte Comments:

QC Batch: RADC/23298

N2: The lab does not hold TNI accreditation for this parameter.

- 1501U74-01A (Lab ID: 30139981001)
 - Gross Alpha
 - Gross Beta
- BLANK (Lab ID: 851090)
 - Gross Alpha
 - Gross Beta





PROJECT NARRATIVE

Project: 1501U74
Pace Project No.: 30139981

Method: EPA 901.1

Description: 901.1 Gamma Spec INGROWTH

Client: REI Consultants, Inc.

Date: February 27, 2015

General Information:

1 sample was analyzed for EPA 901.1. All samples were received in acceptable condition with any exceptions noted below.

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 901.1 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.

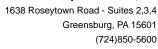
Laboratory Control Spike:

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:





PROJECT NARRATIVE

Project: 1501U74
Pace Project No.: 30139981

Method: ASTM D5811-95

Description: ASTM D5811 Sr 89/90 Eichrom

Client: REI Consultants, Inc.

Date: February 27, 2015

General Information:

1 sample was analyzed for ASTM D5811-95. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times 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:

Analyte Comments:

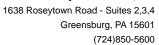
QC Batch: RADC/23280

N2: The lab does not hold TNI accreditation for this parameter.

• BLANK (Lab ID: 850775)

• Strontium-90

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





ANALYTICAL RESULTS - RADIOCHEMISTRY

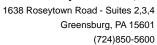
Project: 1501U74
Pace Project No.: 30139981

Sample: 1501U74-01A Lab ID: 30139981001 Collected: 01/28/15 10:30 Received: 02/03/15 14:30 Matrix: Solid

PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0	26.3 ± 8.93 (9.28) C:NA T:NA	pCi/g	02/07/15 20:49	12587-46-1	N2
Gross Beta	EPA 900.0	34.8 ± 7.78 (4.58) C:NA T:NA	pCi/g	02/07/15 20:49	12587-47-2	N2
Radium-226	EPA 901.1	4.442 ± 0.708 (0.213) C:NA T:NA	pCi/g	02/26/15 13:01	13982-63-3	
Radium-228	EPA 901.1	1.230 ± 0.329 (0.289) C:NA T:NA	pCi/g	02/26/15 13:01	15262-20-1	
Strontium-90	ASTM D5811-95	0.151 ± 0.152 (0.321) C:62% T:NA	pCi/g	02/09/15 07:18	10098-97-2	





QUALITY CONTROL - RADIOCHEMISTRY

Project: 150

1501U74

Pace Project No.:

30139981

QC Batch:

RADC/23280

Analysis Method:

ASTM D5811-95

QC Batch Method:

ASTM D5811-95

Analysis Description:

ASTM D5811 Sr 89/90 Eichrom

Associated Lab Samples:

30139981001

Matrix: Solid

METHOD BLANK: 850775 Associated Lab Samples:

30139981001

Parameter

Act ± Unc (MDC) Carr Trac

Units

Analyzed

Qualifiers

Strontium-90

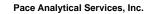
-0.0355 ± 0.0831 (0.220) C:97% T:NA

pCi/g

02/09/15 07:18 N2

VI2

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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QUALITY CONTROL - RADIOCHEMISTRY

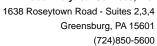
Project: 1501U74
Pace Project No.: 30139981

QC Batch: RADC/23312 Analysis Method: EPA 901.1

QC Batch Method: EPA 901.1 Analysis Description: 901.1 Gamma Spec Ingrowth

Associated Lab Samples: 30139981001

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.





QUALITY CONTROL - RADIOCHEMISTRY

Project: 1501U74
Pace Project No.: 30139981

QC Batch: RADC/23298 Analysis Method: EPA 900.0

QC Batch Method: EPA 900.0 Analysis Description: 900.0 Gross Alpha/Beta

Associated Lab Samples: 30139981001

METHOD BLANK: 851090 Matrix: Solid

Associated Lab Samples: 30139981001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed Quali	fiers
Gross Alpha	-0.004 ± 0.0857 (0.218) C:NA T:NA	pCi/g	02/07/15 20:49 N2	_
Gross Beta	-0.031 ± 0.0984 (0.237) C:NA T:NA	pCi/g	02/07/15 20:49 N2	

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.



QUALIFIERS

Project: 1501U74
Pace Project No.: 30139981

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

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 (8270 listed analyte) decomposes to Azobenzene.

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.

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

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval). Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

Date: 02/27/2015 12:13 PM

N2 The lab does not hold TNI accreditation for this parameter.



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CHAIN OF CUSTODY RECORD

OF:	1
PAGE:	T
: 3277	
OC III	

REI Consultants, Inc. PO Box 286

Beaver, WV 25813 TEL: (304) 255-2500 FAX: (304) 255-2572

Website: www.reiclabs.com

30139981

	REPORT NEXTWICTIONS / COMMENTS: SPECIAL INSTRUCTIONS / COMMENTS: State Code: WV Please use SampleID as purchase order number. After analysis, the samples do not need to be returned and can be disposed per your standard laboratory practices. Results to kberry@reiclabs.com Thank you				I Hydrochloric Acid 2 Nitric Acid 3 Sulfuric Acid	4 Sodium Hydroxifate 5 Sodium Hydroxide/ Sodium Hydroxide 7 Ascotic Acid 7 Ascotic Acid 8 Sodium BuffireHCL 9 Porassium Dibydrogen Cirrate 10 Brontum Chloride COMMENTS:	801
rieuse inciuue Eman Adaress of Report Recipient Whenever Possible!!!	SPECIAL INSTRUCTIONS / COMMENTS:	State Code: WV Frease use sample. It as purchase order number. After analysis, the samples do not need to be returned and can be de	practices. Results to knerty@retcians.com 1 nank you		STRONT RADIUM RADIUM GROSS J GROSS S	TUM_90_SUB (EPA 905.0) < 1_228_SUB (EPA 904.0) < 1_226_SUB (EPA 900.1) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226_SUB (EPA 900.0) < 1_226	7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7
I tease Incinate Eman Aum ess of	PACE ANALYTICAL SERVIC					ATTACKED OF	1/28/2015 10:30:00 2 AM
	COMPANY: PACE	OAD	601	FAX:	ЕМАЦ.:	Bottle M. Type	Solid
	CE_PA	1638 ROSEYTOWN ROAD	CITY, STATE, ZIP: GREENSBURG, PA 15601	(724) 850-5600	050719EVF1	Clent Sample ID	1501U74-01A WENTZ 1H
	SUB CONTRATOR: PACE_PA	ADDRESS: 1638	ITY, STATE, ZIP: GRI	PHONE: (724	ACCOUNT #: 0507	ITEM SAMPLE ID	1 1501U74-01A

	Re Constant	Received By: MS	Dat	POLICE THE INS	REPORT TRANSMITTAL DESIRED:	
quished by.	Line:	adeived Hy. I. L. A.	10 m	で	☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE	
11:12	2:0		アクイ	213		r
gardehed By: Tri	ne. And	Socioned By	Done Da	Time:	FOR LAB USE ONLY	_
7		XXX MANN TO	1	3	Temp of samples Cod?	_
TAT: Standard	RUSH	Next BD	2nd BID	3rd BD	Comments	-
		Note: RUSH requests will incur surcharges!	9 will incur surchan	jest		-

Sample Condition Upon Receipt



Face Analytical Client Name	RET	SALISM MANUFACTURE OF SALISMY. BY STORY	Project #	30134981
/ Silon Name		- 10	1 10,001	
Courier: Fed Ex UPS USPS Clie	nt □Commercial Ď	Pace Other		
Custody Seal on Cooler/Box Present:	☑ no Seals in	tact: 🗌 yes 🗀] _{no} Biological 1	issue is Frozen: Yes No
Packing Material: Bubble WrapBubble Bag	gs None Ot	her		
Thermometer UsedTyp	e of Ice: Wet Blue	None	nples on ice, cooling pro	
Cooler Temp.: Observed Temp.:°C Co	orrection Factor:	°C Final Temp:	۰۵	ate and Initials of person
Temp should be above freezing to 6°C	C	omments:	ex	ramining contents: SRA 2-8-15
Chain of Custody Present:	YYes □No □N/A 1.			
Chain of Custody Filled Out:	∯Yes □No □N/A 2.			
Chain of Custody Relinquished:	XOYes □No □N/A 3.			
Sampler Name & Signature on COC:	□Yes ĎNo □N/A 4.	waver o	o file	21415
Samples Arrived within Hold Time:	Mary of the Mary			
Short Hold Time Analysis (<72hr):	□Yes ⊅No □N/A 6.			
Rush Turn Around Time Requested:	□Yes XNo □N/A 7.			
Sufficient Volume:	Mary Yes □No □N/A 8.			· · · · · · · · · · · · · · · · · · ·
Correct Containers Used:	Yes □No □N/A 9.			
-Pace Containers Used:	□Yes 🛱 No □N/A			
Containers Intact:	YYes □No □N/A 10			
Filtered volume received for Dissolved tests	□Yes □No ĀN/A 11			
Sample Labels match COC:	Yes □No □N/A 12			
-Includes date/time/ID/Analysis Matrix:	12			
All containers needing preservation have been checked.	□Yes □No ĎN/A 13			
All containers needing preservation are found to be in compliance with EPA recommendation.	□Yes □No □NA		ji.	P
xceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	□Yes □No cor	ial when SRA	Lot # of added preservative	
Samples checked for dechlorination:	□Yes □No DN/A 14.	-		
leadspace in VOA Vials (>6mm):	□Yes □No ĎN/A 15.			
rip Blank Present:	□Yes ⊠No □N/A 16.			>
rip Blank Custody Seals Present	□Yes □No DNA			1
Pace Trip Blank Lot # (if purchased):				
lient Notification/ Resolution:			Field Data Required	? Y / N
Person Contacted:	Date/Time	e:		
Comments/ Resolution:				
				<u> </u>
		10 10		
(h., n	\$.			20111
Project Manager Review:	061190		Date:	01410

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)

Project Number: 34139981

page 2

herr									
Miner									SCURF Back (C016-4 15May2012).xls
iploc	Z								1 4 15May
(14 \ Im 003) renisidu							12		(C016-
sadchem Naigene (1/2 gal. / 1 gal.L)	1		,						JRF Back
/sadchem Nalgene (125 / 250 / 500 / 1L)	ł								SCI
Wipes / swipe/ smear/ filter									
Sacteria (120 ml)	ĺ			×		-			
Sulfide (500 ml)									
(Im 05S) əbinsyC		6	8						
(Im 0£ Im 04) AOV							13		
(Jr) H9T									
O ४ ट (।r)									
Y bevresery preserved Y N							h.'		
slateM latoT				Ť),					
(lm 02S) XOT			1.5		16				
(40 ml / 250 ml)									
Phenolics (250 ml)									
Nutrient (250 \ 500)				-					
(1L) SoinsgiO									
Chemistry (250 / 500 / 1L)						. 4			
Soil Kit (2 SB, 1M, soil jar)									
Class Jac (120 / 250 / 500 / 1L)	N								
eboO xintsM	15								
"oM mətl	1500							age 15	-1 · -