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

Appendix D: Analytical Results of Landfill Leachate

-Reports as received from the laboratory

		CORD	v10-	0114	REIC	ise Y	CLIENT	ID_N	IAR07	71	DATE		She	ET
CHAIN OF COSIC		CURD	Marsha	all University C	enter for E	nvironm	ental, G	eotech	nical and	Applied S	ciences PO #			
		Cont	tact Person	George C	Carico/	Jamie	e Wo	olfe			Phone 3	04-696-5	5456	
R ANN	EIC	Addı	ress One	John Ma	arshall	Drive	е			City Hu	untington	St	ate_WV Z	25755 (ip)
Becearch Environmental & Industri	ial Consultants, I	Billin	ng Address (if	different)							State		Zin	
MAIN LABORATORY & CORPORA P.O. Box 286 • 225 Industrial Park R 800-999-0105 • 304-255-2500 • v	td, Beaver, WV 258 www.reiclabs.com	ERS: I3 Site	ID & State	ort Creek Landfi	City_	POTW F	Project	ID DI	rill Cu	tting/L	eachate Analysis	6	Sample	r
MID-OHIO VALLEY Service CenterSHENANC Service Co 101 17th Street101 17th Street1557 Commerce Verona, VA 606-393-5027606-393-5027540-248-	DOAH enter Rd., Ste 201 302 24482 R 0183	Service Center 9-C Peters Creek Rd oanoke, VA 24019 540-777-1276	Service Ce 16 Commerce Westover, WV 304-241-5	e Drive 26501 861	D REQUEST		Fi	ELS	Ken	DINGS	- ph 1- 8.39	TEMP	2	1.200
SAMPLE LOO	G & ANAL	SIS REQUES	r i		IETHO						2- 7.72	14.8		9.480
*Rush work needs prior lab	5 DAY O	3 DAY 2 DAY	1 DAY charges	Sampl	analysis	^a 1 ^a :	2 3	^a 5	² 10 ^a	a a	MSC Sampling Fee	L.C	Has (5):	
A Ohart Creek/Open E	Containers		Water	Grab			Ň			X	0 None 1 Hydrochloric Aci	d	7 Ascorbic	Acid
1-Short Creek/Open LF	20	11 24/14 0941	Water	Grab	$\widehat{}$		h				2 Nitric Acid 3 Sulfuric Acid		8 Sodium I 9 Ammoni	Bisulfate/Methar um Chloride
3-Wheeling POTW Effluent	23	1055	- Water	Grab	X			\cap	X		4 Sodium Thiosulfa 5 Sodium Hydroxia	ate de/	10 AS/A	Н
Trip Blank	1		Water	Grab	X						Sodium Arsenite * (Use b	lanks for prese	11 ervatives not l	isted.)
			Choose	Choose							COMMENTS:			
			Choose	Choose							Dissolved N	letals a	re Fiel	d Filtered
			Choose	Choose										
			Choose	Choose										
			Choose	Choose										
All analytical requests are subject to REIG	C's Standard Term	s and Conditions.	Tempera	ature at arri	val:	۰C	ICED	?	X	N	Containers prov	ided by:	K REIC	[] Client
1 Relinguished by signature	11. Daty	Relinquished	by (signature)				Date	e/Time	3	Relinquis	hed by (signature)			Date/Time
HECEIVE UNITAL A	Date	74/14 Times 45 Received by (9	signature)				Date	e/Time		Received	by (signature)			Date/Time

1

WVDEP Drill Cutting / Leachate Analysis List

Aluminum

Antimony

Arsenic

Barium

Beryllium

Boron

Cadmium

Chromium

Hexavalent Chromium

Copper

Lead

Lithium

Mercury

Nickel

Selenium

Silver

Strontium

Vanadium

Zinc

Chloride

Fluoride

Nitrate as Nitrogen

Nitrite as Nitrogen

Sulfate

Total Suspended Solids

Free Cyanide

Benzene

Chlorobenzene

Chlorodibromomethane

1,2-Dichlorobenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene 1,4-Dinitrobenzene 1,4-Naphthoquinone 2,4-Dinitrotoluene 2,6-Dinitrotoluene 4-Nitroquinoline-1-oxide bis(2-ethylhexyl) phthalate Butyl benzylphthalate **Di-N-Butyl Phthalate** Di-N-Octylphthalate Diethyl Phthalate **Dimethyl Phthalate** Flouranthene Nitrobenzene Pentachloronitrobenzene Gross Alpha Gross Beta Radium 226 Radium 228 Strontium 90 Radon pH Total Dissolved Solids **Total Suspended Solids** BOD 5-Day Ammonia as Nitrogen Total Kjeldahl Nitrogen Oil & Grease Acidity to pH 8.3

Specific Conductance Alkalinity to pH 4.5 Chemical Oxygen Demand Dissolved Iron and Iron Manganese and Dissolved Manganese

	Field L	REI Cons OG: pH Calil	Sultants bration Rec	, Inc. cords 6-2010.Rev.1
Client Name:	MARSMALL	Van WERSI 54	Site Location:	WHEELING WV
Date:	1/24/14		Analyst:	4
Calibration Location:	Field / L	aboratory	Instrument:	Oakton pH Meter
4.0 Buffer Lot #: 7.0 Buffer Lot #: 10.0 Buffer Lot #:	DOF5-14 D119-04 D112-08			
		pH (SU) - SM45	600-H+B, 18th Ec	lition
Standard	Initial Reading	Reading After Calibration	Temperature °C	Comments
4.0 Buffer	4.01	-101	20.3	
7.0 Buffer	6.55	7.00	1	
10.0 Buffer	9,93	10.01	ł	
			Slope:	98 %

Comments:

Calibration at the laboratory requires a pH 7.0 QC Check

All field pH analysis must be followed by a Post Analysis pH Check

Quality Control Samples	Reading	Acceptance Range:
QC Check, 7.0	7.02	True Value 101 (CO 71)
Post Analysis QC Check, 7.0	7.01	True value $\pm 0.1 (6.9 - 7.1)$



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

Thursday, December 04, 2014

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

TEL: (304) 696-6042 FAX:

RE: DRILL CUTTING/LEACHATE ANALYSIS Work Order #: 1411R54 Dear GEORGE CARICO:

REI Consultants, Inc. received 4 sample(s) on 11/24/2014 for the analyses presented in the following report.

Kathy Berry

Kathy Berry



Date Reported: 12/4/2014

Client: MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,

Project: DRILL CUTTING/LEACHATE ANALYSIS

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: 12/4/2014

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	11/24/2014 9:45:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	11/24/2014
Lab ID:	1411R54-01A	Matrix:	Liquid
Client Sample ID:	1-SHORT CREEK/OPEN LF	Site ID:	SHORT CREEK LANDFILL/WHEELING POTW

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
METALS BY ICP			Method: (1994)	EPA 20	0.7 Rev	. 4.4	Analyst: CGW	
Aluminum	0.123	0.005	0.100	NA		mg/L	12/2/2014 3:40 PM	PA/VA
Antimony	ND	0.020	0.200	NA		mg/L	12/2/2014 3:40 PM	PA/VA
Arsenic	0.094	0.020	0.200	NA	J	mg/L	12/2/2014 3:40 PM	PA/VA
Barium	2.49	0.002	0.100	NA		mg/L	12/2/2014 3:40 PM	PA/VA
Beryllium	ND	0.001	0.010	NA		mg/L	12/2/2014 3:40 PM	PA/VA
Boron	22.5	0.020	0.100	NA		mg/L	12/2/2014 3:40 PM	PA/VA
Cadmium	ND	0.001	0.020	NA		mg/L	12/2/2014 3:40 PM	PA/VA
Chromium	0.094	0.005	0.100	NA	J	mg/L	12/2/2014 3:40 PM	PA/VA
Copper	0.049	0.005	0.100	NA	J	mg/L	12/2/2014 3:40 PM	PA/VA
Iron	10.8	0.010	0.100	NA		mg/L	12/2/2014 3:40 PM	PA/VA
Lead	0.010	0.010	0.200	NA	J	mg/L	12/2/2014 3:40 PM	PA/VA
Lithium	0.343	0.020	0.100	NA		mg/L	12/3/2014 12:18 PM	
Manganese	0.271	0.002	0.100	NA		mg/L	12/2/2014 3:40 PM	PA/VA
Nickel	0.339	0.005	0.100	NA		mg/L	12/2/2014 3:40 PM	PA/VA
Selenium	ND	0.020	0.200	NA		mg/L	12/2/2014 3:40 PM	PA/VA
Silver	ND	0.004	0.050	NA		mg/L	12/2/2014 3:40 PM	PA/VA
Strontium	2.21	0.001	0.010	NA		mg/L	12/3/2014 12:18 PM	PA
Vanadium	0.040	0.005	0.100	NA	J	mg/L	12/2/2014 3:40 PM	PA/VA
Zinc	0.070	0.003	0.050	NA		mg/L	12/2/2014 3:40 PM	PA/VA
MERCURY, Total E245.1			Method:	EPA 24	5.1, Rev	<i>ı</i> .	Analyst: CR	

			3.0 (1994)				
Mercury	ND	0.0001	0.0010	NA	mg/L	12/1/2014 9:57 AM	PA/VA
SEMIVOLATILE ORGANIC COMPOL	JNDS		Method: S	SW82701	D (2007)	Analyst: JD	
1,4-Dinitrobenzene	ND	NA	0.0102	NA	mg/L	11/25/2014 8:27 PM	
1,4-Napthoquinone	ND	NA	0.0102	NA	mg/L	11/25/2014 8:27 PM	
4-Nitroquinoline-1-oxide	ND	NA	0.0510	NA	mg/L	11/25/2014 8:27 PM	
Pentachloronitrobenzene	ND	NA	0.0102	NA	mg/L	11/25/2014 8:27 PM	
Bis(2-ethylhexyl)phthalate	0.0405	0.0051	0.0102	NA	mg/L	11/25/2014 8:27 PM	PA/VA
Butyl benzyl phthalate	ND	0.0051	0.0102	NA	mg/L	11/25/2014 8:27 PM	PA/VA
Di-n-butyl phthalate	ND	0.0051	0.0102	NA	mg/L	11/25/2014 8:27 PM	PA/VA
Diethyl phthalate	ND	0.0020	0.0102	NA	mg/L	11/25/2014 8:27 PM	PA/VA
Dimethyl phthalate	ND	0.0020	0.0102	NA	mg/L	11/25/2014 8:27 PM	PA/VA
2,4-Dinitrotoluene	ND	0.0020	0.0102	NA	mg/L	11/25/2014 8:27 PM	PA/VA
2,6-Dinitrotoluene	ND	0.0020	0.0102	NA	mg/L	11/25/2014 8:27 PM	PA/VA

Page 3 of 18

WO#: 1411R54

Date Reported: 12/4/2014

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	11/24/2014 9:45:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	11/24/2014
Lab ID:	1411R54-01A	Matrix:	Liquid
Client Sample ID:	1-SHORT CREEK/OPEN LF	Site ID:	SHORT CREEK LANDFILL/WHEELING POTW

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
Di-n-octyl phthalate	ND	0.0051	0.0102	NA		mg/L	11/25/2014 8:27 PM	PA/VA
Fluoranthene	ND	0.0020	0.0102	NA		mg/L	11/25/2014 8:27 PM	PA/VA
Nitrobenzene	ND	0.0020	0.0102	NA		mg/L	11/25/2014 8:27 PM	PA/VA
Surr: 2-Fluorophenol	49.0	NA	32.9-110	NA		%REC	11/25/2014 8:27 PM	
Surr: Phenol-d5	46.5	NA	25.8-110	NA		%REC	11/25/2014 8:27 PM	
Surr: 2,4,6-Tribromophenol	88.2	NA	63.8-110	NA		%REC	11/25/2014 8:27 PM	
Surr: Nitrobenzene-d5	83.0	NA	61.8-110	NA		%REC	11/25/2014 8:27 PM	
Surr: 2-Fluorobiphenyl	79.3	NA	58.6-110	NA		%REC	11/25/2014 8:27 PM	
Surr: 4-Terphenyl-d14	66.4	NA	55.1-110	NA		%REC	11/25/2014 8:27 PM	

VOLATILE ORGANIC COMPOUNDS-8260			Method: S	W8260B	(1996)	Analyst: JM	
Benzene	ND	50.0	100	NA	µg/L	12/1/2014 5:56 PM	PA/VA
Chlorobenzene	ND	50.0	100	NA	µg/L	12/1/2014 5:56 PM	PA/VA
Dibromochloromethane	ND	50.0	100	NA	µg/L	12/1/2014 5:56 PM	PA/VA
1,2-Dichlorobenzene	ND	50.0	100	NA	μg/L	12/1/2014 5:56 PM	PA/VA
1,3-Dichlorobenzene	ND	50.0	100	NA	μg/L	12/1/2014 5:56 PM	PA/VA
1,4-Dichlorobenzene	ND	50.0	100	NA	μg/L	12/1/2014 5:56 PM	PA/VA
Surr: 1,2-Dichloroethane-d4	97.6	NA	68.7-129	NA	%REC	12/1/2014 5:56 PM	
Surr: 4-Bromofluorobenzene	101	NA	71.8-127	NA	%REC	12/1/2014 5:56 PM	
Surr: Dibromofluoromethane	108	NA	74.3-124	NA	%REC	12/1/2014 5:56 PM	
Surr: Toluene-d8	101	NA	71.4-129	NA	%REC	12/1/2014 5:56 PM	

Notes:

Elevated PQLs are due to matrix interference. Sample foamed during analysis.

BOD, 5 Day, 20°C		Method: S	SM5210	B-2001	Analyst: CB			
Biochemical Oxygen Demand	121	2	5	NA		mg/L	11/25/2014 12:45 PM	PA/VA
Chemical Oxygen Demand			Method: E (1993)	EPA 410).4, Rev	. 2	Analyst: SF	
Chemical Oxygen Demand	1,120	200	500	NA		mg/L	11/25/2014 8:25 AM	PA/VA
HEXAVALENT CHROMIUM BY IC			Method: E 3.3 (1994)	EPA 218	8.6, Rev	' -	Analyst: CF	
Chromium (VI)	0.0011	0.0005	0.0050	NA	J	mg/L	11/25/2014 12:39 PM	PA/VA

Notes:

Elevated PQLs are due to matrix interference.

WO#: 1411R54

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	11/24/2014 9:45:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	11/24/2014
Lab ID:	1411R54-01A	Matrix:	Liquid
Client Sample ID:	1-SHORT CREEK/OPEN LF	Site ID:	SHORT CREEK LANDFILL/WHEELING POTW

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	IELAP
ANIONS by ION CHROMATOGRA	PHY		Method: (1993)	EPA 30	0.0, Rev	/.2.1	Analyst: CF	
Chloride	4,000	25.0	250	NA		mg/L	11/25/2014 11:46 AM	PA/VA
Fluoride	7.55	0.25	1.00	NA		mg/L	11/25/2014 11:46 AM	PA/VA
Sulfate	44.6	5.00	25.0	NA		mg/L	11/25/2014 11:46 AM	PA/VA
ANIONS by ION CHROMATOGRA	PHY-48 H	OUR	Method: (1993)	EPA 300	0.0, Rev	/.2.1	Analyst: CF	
Nitrogen, Nitrate	0.40	0.10	0.50	NA	J	mg/L	11/25/2014 11:46 AM	PA/VA
Nitrogen, Nitrite	ND	0.25	2.50	NA		mg/L	11/25/2014 11:46 AM	PA/VA
Notes:								
Elevated PQLs are due to matrix interferer	nce.							
TOTAL KJELDAHL NITROGEN (T	KN)		Method: 2.0 (1993	EPA 35 [,])	1.2, Rev	/.	Analyst: JH	
Nitrogen, Kjeldahl, Total	701	40.0	200	NA		mg/L	11/25/2014 6:00 PM	PA/VA
OIL and GREASE			Method:	EPA 16	64 Rev	. A	Analyst: KS	
Oil & Grease	11.1	2.0	5.0	NA		mg/L	11/25/2014 8:25 AM	PA/VA
CYANIDE, Free			Method:	SM4500	-CN I-1	997	Analyst: JH	
Cyanide, Free	0.042	0.005	0.020	NA		mg/L	11/25/2014 12:14 PM	
AMMONIA NITROGEN			Method: (1993)	EPA 350	0.1, Rev	/.2.	Analyst: JH	
Nitrogen, Ammonia (As N)	794	16.0	40.0	NA		mg/L	11/25/2014 2:26 PM	PA/VA
Notes:								
Sample acidity or alkalinity exceeded the a	added preserv	ative, so	that the requi	ed preser	vation pH	was not ach	ieved.	
CONDUCTIVITY			Method:	SM2510	B - 199) 7	Analyst: KY	
Specific Conductivity	20,300	NA	NA	NA		µmhos/cm	11/25/2014 4:00 PM	PA/VA
TOTAL DISSOLVED SOLIDS			Method:	SM2540	C-1997	7	Analyst: DSD	
Total Dissolved Solids	10,000	10	20	NA		mg/L	11/25/2014 6:00 PM	PA/VA
TOTAL SUSPENDED SOLIDS			Method:	SM2540	D-1997	7	Analyst: KY	
Total Suspended Solids	28.0	4.0	20.0	NA		mg/L	11/25/2014 5:22 PM	PA/VA

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	11/24/2014 9:45:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	11/24/2014
Lab ID:	1411R54-01A	Matrix:	Liquid
Client Sample ID:	1-SHORT CREEK/OPEN LF	Site ID:	SHORT CREEK LANDFILL/WHEELING POTW

Analysis	Result	MDL	PQL	MCL Q	ual Units	Date Analyzed N	ELAP
ACIDITY			Method:	SM2310 B-	·1997	Analyst: DSD	
Acidity, Total	ND	1.0	10	NA	mg/L	11/25/2014 12:35 PM	PA/VA
ALKALINITY			Method:	SM2320 B-	1997	Analyst: DSD	
Alkalinity, Total (As CaCO3)	3,550	10	100	NA	mg/L	11/25/2014 12:35 PM	PA/VA
pH - LAB TEST, HOLD TIME EXI	PIRED		Method:	SM4500-H-	+-B-2000	Analyst: DSD	
рН	8.34	NA	NA	NA	SU	11/25/2014 12:35 PM	PA

WO#: 1411R54

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	11/24/2014 9:45:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	11/24/2014
Lab ID:	1411R54-01B	Matrix:	Liquid
Client Sample ID:	1-SHORT CREEK/OPEN LF	Site ID:	SHORT CREEK LANDFILL/WHEELING POTW

Analysis	Result	MDL	PQL	MCL	Qual U	nits	Date Analyzed N	ELAP
DISSOLVED METALS BY ICP			Method: (1994)	EPA 200).7 Rev. 4.	.4	Analyst: CGW	
Iron	4.96	0.010	0.100	NA	ı	mg/L	12/2/2014 3:53 PM	PA/VA
Manganese	0.246	0.002	0.100	NA	I	mg/L	12/2/2014 3:53 PM	PA/VA

WO#:	1411R54

Date Reported: 12/4/2014

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	11/24/2014 10:55:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	11/24/2014
Lab ID:	1411R54-02A	Matrix:	Liquid
Client Sample ID:	2-SHORT CREEK/CLOSED LF	Site ID:	SHORT CREEK LANDFILL/WHEELING POTW

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	IELAP
METALS BY ICP			Method: (1994)	EPA 20	0.7 Rev	. 4.4	Analyst: CGW	
Aluminum	0.007	0.005	0.100	NA	J	mg/L	12/2/2014 3:56 PM	PA/VA
Antimony	ND	0.020	0.200	NA		mg/L	12/2/2014 3:56 PM	PA/VA
Arsenic	0.032	0.020	0.200	NA	J	mg/L	12/2/2014 3:56 PM	PA/VA
Barium	1.43	0.002	0.100	NA		mg/L	12/2/2014 3:56 PM	PA/VA
Beryllium	ND	0.001	0.010	NA		mg/L	12/2/2014 3:56 PM	PA/VA
Boron	9.02	0.020	0.100	NA		mg/L	12/2/2014 3:56 PM	PA/VA
Cadmium	ND	0.001	0.020	NA		mg/L	12/2/2014 3:56 PM	PA/VA
Chromium	0.026	0.005	0.100	NA	J	mg/L	12/2/2014 3:56 PM	PA/VA
Copper	0.011	0.005	0.100	NA	J	mg/L	12/2/2014 3:56 PM	PA/VA
Iron	8.34	0.010	0.100	NA		mg/L	12/2/2014 3:56 PM	PA/VA
Lead	ND	0.010	0.200	NA		mg/L	12/2/2014 3:56 PM	PA/VA
Lithium	0.137	0.020	0.100	NA		mg/L	12/3/2014 12:24 PM	
Manganese	0.604	0.002	0.100	NA		mg/L	12/2/2014 3:56 PM	PA/VA
Nickel	0.110	0.005	0.100	NA		mg/L	12/2/2014 3:56 PM	PA/VA
Selenium	ND	0.020	0.200	NA		mg/L	12/2/2014 3:56 PM	PA/VA
Silver	ND	0.004	0.050	NA		mg/L	12/2/2014 3:56 PM	PA/VA
Strontium	1.61	0.001	0.010	NA		mg/L	12/3/2014 12:24 PM	PA
Vanadium	0.010	0.005	0.100	NA	J	mg/L	12/2/2014 3:56 PM	PA/VA
Zinc	0.024	0.003	0.050	NA	J	mg/L	12/2/2014 3:56 PM	PA/VA
MERCURY, Total E245.1			Method:	EPA 24	5.1, Rev	/.	Analyst: CR	

			3.0 (1994)				
Mercury	ND	0.0001	0.0010	NA	mg/L	12/1/2014 9:59 AM	PA/VA
SEMIVOLATILE ORGANIC COMPOUNDS			Method: S	W8270	D (2007)	Analyst: JD	
1,4-Dinitrobenzene	ND	NA	0.0102	NA	mg/L	11/25/2014 8:53 PM	
1,4-Napthoquinone	ND	NA	0.0102	NA	mg/L	11/25/2014 8:53 PM	
4-Nitroquinoline-1-oxide	ND	NA	0.0510	NA	mg/L	11/25/2014 8:53 PM	
Pentachloronitrobenzene	ND	NA	0.0102	NA	mg/L	11/25/2014 8:53 PM	
Bis(2-ethylhexyl)phthalate	ND	0.0051	0.0102	NA	mg/L	11/25/2014 8:53 PM	PA/VA
Butyl benzyl phthalate	ND	0.0051	0.0102	NA	mg/L	11/25/2014 8:53 PM	PA/VA
Di-n-butyl phthalate	ND	0.0051	0.0102	NA	mg/L	11/25/2014 8:53 PM	PA/VA
Diethyl phthalate	ND	0.0020	0.0102	NA	mg/L	11/25/2014 8:53 PM	PA/VA
Dimethyl phthalate	ND	0.0020	0.0102	NA	mg/L	11/25/2014 8:53 PM	PA/VA
2,4-Dinitrotoluene	ND	0.0020	0.0102	NA	mg/L	11/25/2014 8:53 PM	PA/VA
2,6-Dinitrotoluene	ND	0.0020	0.0102	NA	mg/L	11/25/2014 8:53 PM	PA/VA

Page 8 of 18

Date Reported: 12/4/2014

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	11/24/2014 10:55:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	11/24/2014
Lab ID:	1411R54-02A	Matrix:	Liquid
Client Sample ID:	2-SHORT CREEK/CLOSED LF	Site ID:	SHORT CREEK LANDFILL/WHEELING POTW

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
Di-n-octyl phthalate	ND	0.0051	0.0102	NA		mg/L	11/25/2014 8:53 PM	PA/VA
Fluoranthene	ND	0.0020	0.0102	NA		mg/L	11/25/2014 8:53 PM	PA/VA
Nitrobenzene	ND	0.0020	0.0102	NA		mg/L	11/25/2014 8:53 PM	PA/VA
Surr: 2-Fluorophenol	43.9	NA	32.9-110	NA		%REC	11/25/2014 8:53 PM	
Surr: Phenol-d5	34.4	NA	25.8-110	NA		%REC	11/25/2014 8:53 PM	
Surr: 2,4,6-Tribromophenol	89.9	NA	63.8-110	NA		%REC	11/25/2014 8:53 PM	
Surr: Nitrobenzene-d5	90.8	NA	61.8-110	NA		%REC	11/25/2014 8:53 PM	
Surr: 2-Fluorobiphenyl	82.5	NA	58.6-110	NA		%REC	11/25/2014 8:53 PM	
Surr: 4-Terphenyl-d14	68.2	NA	55.1-110	NA		%REC	11/25/2014 8:53 PM	

VOLATILE ORGANIC COMPOUNDS-8260			Method: S	W8260B	8 (1996)	Analyst: JM		
Benzene	ND	5.00	10.0	NA	μg/L	12/1/2014 6:29 PM	PA/VA	
Chlorobenzene	ND	5.00	10.0	NA	µg/L	12/1/2014 6:29 PM	PA/VA	
Dibromochloromethane	ND	5.00	10.0	NA	µg/L	12/1/2014 6:29 PM	PA/VA	
1,2-Dichlorobenzene	ND	5.00	10.0	NA	µg/L	12/1/2014 6:29 PM	PA/VA	
1,3-Dichlorobenzene	ND	5.00	10.0	NA	µg/L	12/1/2014 6:29 PM	PA/VA	
1,4-Dichlorobenzene	ND	5.00	10.0	NA	µg/L	12/1/2014 6:29 PM	PA/VA	
Surr: 1,2-Dichloroethane-d4	94.5	NA	68.7-129	NA	%REC	12/1/2014 6:29 PM		
Surr: 4-Bromofluorobenzene	109	NA	71.8-127	NA	%REC	12/1/2014 6:29 PM		
Surr: Dibromofluoromethane	106	NA	74.3-124	NA	%REC	12/1/2014 6:29 PM		
Surr: Toluene-d8	100	NA	71.4-129	NA	%REC	12/1/2014 6:29 PM		

Notes:

Elevated PQLs are due to matrix interference. Sample foamed during analysis.

BOD, 5 Day, 20°C	Method: SM5210 B-2001						Analyst: CB	
Biochemical Oxygen Demand	54	2	5	NA		mg/L	11/25/2014 12:45 PM	PA/VA
Chemical Oxygen Demand			Method: E (1993)	EPA 410).4, Rev.	2	Analyst: SF	
Chemical Oxygen Demand	282	100	250	NA		mg/L	11/25/2014 8:25 AM	PA/VA
HEXAVALENT CHROMIUM BY IC			Method: E 3.3 (1994)	EPA 218	8.6, Rev.		Analyst: CF	
Chromium (VI)	0.0006	0.0002	0.0020	NA	J	mg/L	11/25/2014 12:52 PM	PA/VA

Notes:

Elevated PQLs are due to matrix interference.

WO#: 1411R54

Date Reported: 12/4/2014

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	11/24/2014 10:55:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	11/24/2014
Lab ID:	1411R54-02A	Matrix:	Liquid
Client Sample ID:	2-SHORT CREEK/CLOSED LF	Site ID:	SHORT CREEK LANDFILL/WHEELING POTW

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
ANIONS by ION CHROMATOGRA	PHY		Method: I (1993)	EPA 300	0.0, Rev	/.2.1	Analyst: CF	
Chloride	1,470	10.0	100	NA		mg/L	11/25/2014 12:04 PM	PA/VA
Fluoride	4.48	0.10	0.40	NA		mg/L	11/25/2014 12:04 PM	PA/VA
Sulfate	62.8	2.00	10.0	NA		mg/L	11/25/2014 12:04 PM	PA/VA
ANIONS by ION CHROMATOGRA	PHY-48 H(DUR	Method: I (1993)	EPA 300	0.0, Rev	/.2.1	Analyst: CF	
Nitrogen, Nitrate	0.78	0.04	0.20	NA		mg/L	11/25/2014 12:04 PM	PA/VA
Nitrogen, Nitrite	ND	0.10	1.00	NA		mg/L	11/25/2014 12:04 PM	PA/VA
Notes:								
Elevated PQLs are due to matrix interference	ce.							
TOTAL KJELDAHL NITROGEN (TI	KN)		Method: I 2.0 (1993)	EPA 351)	1.2, Rev	Ι.	Analyst: JH	
Nitrogen, Kjeldahl, Total	350	10.0	50.0	NA		mg/L	11/25/2014 5:07 PM	PA/VA
OIL and GREASE			Method: I	EPA 166	64 Rev	. A	Analyst: KS	
Oil & Grease	ND	2.0	5.0	NA		mg/L	11/25/2014 8:25 AM	PA/VA
CYANIDE, Free			Method:	SM4500	-CN I-1	997	Analyst: JH	
Cyanide, Free	0.005	0.005	0.020	NA	J	mg/L	11/25/2014 12:18 PM	
AMMONIA NITROGEN			Method: I (1993)	EPA 350	0.1, Rev	/.2 .	Analyst: JH	
Nitrogen, Ammonia (As N)	399	10.4	26.0	NA		mg/L	11/25/2014 3:06 PM	PA/VA
CONDUCTIVITY			Method:	SM2510	B - 199	97	Analyst: KY	
Specific Conductivity	9.1	NA	NA	NA		µmhos/cm	11/25/2014 4:00 PM	PA/VA
TOTAL DISSOLVED SOLIDS			Method:	SM2540	C-1997	7	Analyst: DSD	
Total Dissolved Solids	4,490	10	20	NA		mg/L	11/25/2014 6:00 PM	PA/VA
TOTAL SUSPENDED SOLIDS			Method:	SM2540	D-1997	7	Analyst: KY	
Total Suspended Solids	26.0	4.0	20.0	NA		mg/L	11/25/2014 5:22 PM	PA/VA
ACIDITY			Method:	SM2310	B-1997	7	Analyst: DSD	
Acidity, Total	174	1.0	10	NA		mg/L	11/25/2014 12:35 PM	PA/VA

Page 10 of 18

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	11/24/2014 10:55:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	11/24/2014
Lab ID:	1411R54-02A	Matrix:	Liquid
Client Sample ID:	2-SHORT CREEK/CLOSED LF	Site ID:	SHORT CREEK LANDFILL/WHEELING POTW

Analysis	Result	MDL	PQL	MCL	Qual Units	Date Analyzed N	ELAP
ALKALINITY			Method:	SM2320	B-1997	Analyst: DSD	
Alkalinity, Total (As CaCO3)	1,980	10	100	NA	mg/L	11/25/2014 12:35 PM	PA/VA
pH - LAB TEST, HOLD TIME EXPIR	RED		Method:	SM4500	-H+-B-2000	Analyst: DSD	
рН	7.72	NA	NA	NA	SU	11/25/2014 12:35 PM	PA

WO#: 1411R54

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	11/24/2014 10:55:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	11/24/2014
Lab ID:	1411R54-02B	Matrix:	Liquid
Client Sample ID:	2-SHORT CREEK/CLOSED LF	Site ID:	SHORT CREEK LANDFILL/WHEELING POTW

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
DISSOLVED METALS BY ICP			Method: (1994)	EPA 200).7 Rev.	4.4	Analyst: CGW	
Iron	2.21	0.010	0.100	NA		mg/L	12/2/2014 4:03 PM	PA/VA
Manganese	0.588	0.002	0.100	NA		mg/L	12/2/2014 4:03 PM	PA/VA

WO#: 1411R54

Date Reported: 12/4/2014

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	11/24/2014 11:55:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	11/24/2014
Lab ID:	1411R54-03A	Matrix:	Liquid
Client Sample ID:	3-WHEELING POTW EFFLUENT	Site ID:	SHORT CREEK LANDFILL/WHEELING POTW

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
METALS BY ICP			Method: (1994)	EPA 20	0.7 Rev	. 4.4	Analyst: CGW	
Aluminum	ND	0.005	0.100	NA		mg/L	12/2/2014 4:06 PM	PA/VA
Antimony	ND	0.020	0.200	NA		mg/L	12/2/2014 4:06 PM	PA/VA
Arsenic	ND	0.020	0.200	NA		mg/L	12/2/2014 4:06 PM	PA/VA
Barium	0.046	0.002	0.100	NA	J	mg/L	12/2/2014 4:06 PM	PA/VA
Beryllium	ND	0.001	0.010	NA		mg/L	12/2/2014 4:06 PM	PA/VA
Boron	0.304	0.020	0.100	NA		mg/L	12/2/2014 4:06 PM	PA/VA
Cadmium	ND	0.001	0.020	NA		mg/L	12/2/2014 4:06 PM	PA/VA
Chromium	ND	0.005	0.100	NA		mg/L	12/2/2014 4:06 PM	PA/VA
Copper	0.005	0.005	0.100	NA	J	mg/L	12/2/2014 4:06 PM	PA/VA
Iron	0.125	0.010	0.100	NA		mg/L	12/3/2014 2:00 PM	PA/VA
Lead	ND	0.010	0.200	NA		mg/L	12/2/2014 4:06 PM	PA/VA
Lithium	0.025	0.020	0.100	NA	J	mg/L	12/3/2014 12:31 PM	
Manganese	0.567	0.002	0.100	NA		mg/L	12/2/2014 4:06 PM	PA/VA
Nickel	ND	0.005	0.100	NA		mg/L	12/2/2014 4:06 PM	PA/VA
Selenium	ND	0.020	0.200	NA		mg/L	12/2/2014 4:06 PM	PA/VA
Silver	ND	0.004	0.050	NA		mg/L	12/2/2014 4:06 PM	PA/VA
Strontium	0.708	0.001	0.010	NA		mg/L	12/3/2014 12:31 PM	PA
Vanadium	ND	0.005	0.100	NA		mg/L	12/2/2014 4:06 PM	PA/VA
Zinc	0.023	0.003	0.050	NA	J	mg/L	12/2/2014 4:06 PM	PA/VA
MERCURY, Total E245.1			Method:	EPA 24	5.1, Rev	<i>ı</i> .	Analyst: CR	

3.0 (1994)								
	Mercury	ND	0.0001	0.0010	NA	mg/L	12/1/2014 10:01 AM	PA/VA
	SEMIVOLATILE ORGANIC COMPOUND	os		Method: S	W8270I	D (2007)	Analyst: JD	
	1,4-Dinitrobenzene	ND	NA	0.0101	NA	mg/L	11/25/2014 9:20 PM	
	1,4-Napthoquinone	ND	NA	0.0101	NA	mg/L	11/25/2014 9:20 PM	
	4-Nitroquinoline-1-oxide	ND	NA	0.0503	NA	mg/L	11/25/2014 9:20 PM	
	Pentachloronitrobenzene	ND	NA	0.0101	NA	mg/L	11/25/2014 9:20 PM	
	Bis(2-ethylhexyl)phthalate	ND	0.0050	0.0101	NA	mg/L	11/25/2014 9:20 PM	PA/VA
	Butyl benzyl phthalate	ND	0.0050	0.0101	NA	mg/L	11/25/2014 9:20 PM	PA/VA
	Di-n-butyl phthalate	ND	0.0050	0.0101	NA	mg/L	11/25/2014 9:20 PM	PA/VA
	Diethyl phthalate	ND	0.0020	0.0101	NA	mg/L	11/25/2014 9:20 PM	PA/VA
	Dimethyl phthalate	ND	0.0020	0.0101	NA	mg/L	11/25/2014 9:20 PM	PA/VA
	2,4-Dinitrotoluene	ND	0.0020	0.0101	NA	mg/L	11/25/2014 9:20 PM	PA/VA
	2,6-Dinitrotoluene	ND	0.0020	0.0101	NA	mg/L	11/25/2014 9:20 PM	PA/VA

Page 13 of 18

Fluoride

WO#: 1411R54

Date Reported: 12/4/2014

Analysis	Result MDL PQL	MCL Qual Unit	5 Date Analyzed NELAP
Client Sample ID:	3-WHEELING POTW EFFLUENT	Site ID:	SHORT CREEK LANDFILL/WHEELING POTW
Lab ID:	1411R54-03A	Matrix:	Liquid
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	11/24/2014
Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	11/24/2014 11:55:00 AM

Analysis	Result			mol	Quai Onito		
Di-n-octyl phthalate	ND	0.0050	0.0101	NA	mg/L	11/25/2014 9:20 PM	PA/VA
Fluoranthene	ND	0.0020	0.0101	NA	mg/L	11/25/2014 9:20 PM	PA/VA
Nitrobenzene	ND	0.0020	0.0101	NA	mg/L	11/25/2014 9:20 PM	PA/VA
Surr: 2-Fluorophenol	34.6	NA	32.9-110	NA	%REC	11/25/2014 9:20 PM	
Surr: Phenol-d5	27.7	NA	25.8-110	NA	%REC	11/25/2014 9:20 PM	
Surr: 2,4,6-Tribromophenol	78.6	NA	63.8-110	NA	%REC	11/25/2014 9:20 PM	
Surr: Nitrobenzene-d5	79.2	NA	61.8-110	NA	%REC	11/25/2014 9:20 PM	
Surr: 2-Fluorobiphenyl	77.2	NA	58.6-110	NA	%REC	11/25/2014 9:20 PM	
Surr: 4-Terphenyl-d14	76.3	NA	55.1-110	NA	%REC	11/25/2014 9:20 PM	
VOLATILE ORGANIC COMPO	UNDS-8260		Method: \$	SW8260	B (1996)	Analyst: JM	
Benzene	ND	0.500	1.00	NA	μg/L	12/1/2014 7:02 PM	PA/VA
Chlorobenzene	ND	0.500	1.00	NA	μg/L	12/1/2014 7:02 PM	PA/VA
Dibromochloromethane	ND	0.500	1.00	NA	μg/L	12/1/2014 7:02 PM	PA/VA
1.2-Dichlorobenzene	ND	0.500	1.00	NA	ug/l	12/1/2014 7·02 PM	PA/VA

1,2-Dichlorobenzene	ND	0.500	1.00	NA	µg/L	12/1/2014 7:02 PM	PA/VA
1,3-Dichlorobenzene	ND	0.500	1.00	NA	μg/L	12/1/2014 7:02 PM	PA/VA
1,4-Dichlorobenzene	7.40	0.500	1.00	NA	μg/L	12/1/2014 7:02 PM	PA/VA
Surr: 1,2-Dichloroethane-d4	102	NA	68.7-129	NA	%REC	12/1/2014 7:02 PM	
Surr: 4-Bromofluorobenzene	106	NA	71.8-127	NA	%REC	12/1/2014 7:02 PM	
Surr: Dibromofluoromethane	106	NA	74.3-124	NA	%REC	12/1/2014 7:02 PM	
Surr: Toluene-d8	100	NA	71.4-129	NA	%REC	12/1/2014 7:02 PM	

BOD, 5 Day, 20°C			Method: S	M5210	B-200 1	1	Analyst: CB	
Biochemical Oxygen Demand	5	2	5	NA		mg/L	11/25/2014 12:45 PM	PA/VA
Chemical Oxygen Demand			Method: E (1993)	PA 410).4, Rev	. 2	Analyst: SF	
Chemical Oxygen Demand	25	4	10	NA		mg/L	11/25/2014 8:25 AM	PA/VA
HEXAVALENT CHROMIUM BY IC			Method: E 3.3 (1994)	PA 218	8.6, Rev	<i>.</i>	Analyst: CF	
HEXAVALENT CHROMIUM BY IC Chromium (VI)	0.0004	0.0001	Method: E 3.3 (1994) 0.0010	PA 218	3.6, Re v	/. mg/L	Analyst: CF 11/25/2014 1:06 PM	PA/VA
HEXAVALENT CHROMIUM BY IC Chromium (VI) ANIONS by ION CHROMATOGRAPH	0.0004	0.0001	Method: E 3.3 (1994) 0.0010 Method: E (1993)	PA 218 NA	3.6, Rev J).0, Rev	r. mg/L r.2.1	Analyst: CF 11/25/2014 1:06 PM Analyst: CF	PA/VA

0.20

NA

0.55

0.05

11/25/2014 12:22 PM PA/VA

mg/L

mg/L

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	11/24/2014 11:55:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	11/24/2014
Lab ID:	1411R54-03A	Matrix:	Liquid
Client Sample ID:	3-WHEELING POTW EFFLUENT	Site ID:	SHORT CREEK LANDFILL/WHEELING POTW

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	IELAP
Sulfate	99.0	5.00	25.0	NA		mg/L	11/25/2014 12:22 PM	PA/VA
ANIONS by ION CHROMATOGRA	PHY-48 H	OUR	Method: (1993)	EPA 300	0.0, Rev	v.2.1	Analyst: CF	
Nitrogen, Nitrate	0.54	0.02	0.10	NA		mg/L	11/25/2014 12:22 PM	PA/VA
Nitrogen, Nitrite	0.07	0.05	0.50	NA	J	mg/L	11/25/2014 12:22 PM	PA/VA
TOTAL KJELDAHL NITROGEN (T	KN)		Method: 2.0 (1993	EPA 35 [.])	1.2, Rev	<i>ı</i> .	Analyst: JH	
Nitrogen, Kjeldahl, Total	19.6	0.40	2.00	NA		mg/L	11/25/2014 6:01 PM	PA/VA
OIL and GREASE			Method:	EPA 16	64 Rev	. A	Analyst: KS	
Oil & Grease	ND	2.0	5.0	NA		mg/L	11/25/2014 8:25 AM	PA/VA
CYANIDE, Free			Method:	SM4500	-CN I-1	997	Analyst: JH	
Cyanide, Free	ND	0.005	0.020	NA		mg/L	11/25/2014 12:19 PM	
AMMONIA NITROGEN			Method: (1993)	EPA 350	0.1, Rev	/.2.	Analyst: JH	
Nitrogen, Ammonia (As N)	20.6	0.64	1.60	NA		mg/L	11/25/2014 2:50 PM	PA/VA
CONDUCTIVITY			Method:	SM2510	B - 199	97	Analyst: KY	
Specific Conductivity	1,180	NA	NA	NA		µmhos/cm	11/25/2014 4:00 PM	PA/VA
TOTAL DISSOLVED SOLIDS			Method:	SM2540	C-1997	7	Analyst: DSD	
Total Dissolved Solids	605	5	10	NA		mg/L	11/25/2014 6:00 PM	PA/VA
TOTAL SUSPENDED SOLIDS			Method:	SM2540	D-1997	7	Analyst: KY	
Total Suspended Solids	5.5	1.0	5.0	NA		mg/L	11/25/2014 5:22 PM	PA/VA
ACIDITY			Method:	SM2310	B-1997	7	Analyst: DSD	
Acidity, Total	40.1	1.0	10	NA		mg/L	11/25/2014 12:35 PM	PA/VA
ALKALINITY			Method:	SM2320	B-1997	7	Analyst: DSD	
Alkalinity, Total (As CaCO3)	188	1.0	10	NA		mg/L	- 11/25/2014 12:35 PM	PA/VA

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	11/24/2014 11:55:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	11/24/2014
Lab ID:	1411R54-03A	Matrix:	Liquid
Client Sample ID:	3-WHEELING POTW EFFLUENT	Site ID:	SHORT CREEK LANDFILL/WHEELING POTW

Analysis	Result	MDL	PQL	MCL	Qual Units	Date Analyzed NE	LAP
pH - LAB TEST, HOLD TIME EXPIR	ED		Method:	SM4500-	·H+-B-2000	Analyst: DSD	
рН	6.81	NA	NA	NA	SU	11/25/2014 12:35 PM	PA

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	11/24/2014 11:55:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	11/24/2014
Lab ID:	1411R54-03B	Matrix:	Liquid
Client Sample ID:	3-WHEELING POTW EFFLUENT	Site ID:	SHORT CREEK LANDFILL/WHEELING POTW

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
DISSOLVED METALS BY ICP			Method: (1994)	EPA 200).7 Rev	. 4.4	Analyst: CGW	
Iron	0.099	0.010	0.100	NA	J	mg/L	12/3/2014 2:03 PM	PA/VA
Manganese	0.523	0.002	0.100	NA		mg/L	12/2/2014 4:12 PM	PA/VA

Date Reported: 12/4/2014

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	11/24/2014 12:00:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	11/24/2014
Lab ID:	1411R54-04A	Matrix:	Trip Blank
Client Sample ID:	TRIP BLANK	Site ID:	SHORT CREEK LANDFILL/WHEELING POTW

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
VOLATILE ORGANIC COMPOUNDS-8260			Method:	SW8260)B (1996	6)	Analyst: JM	
Benzene	ND	0.500	1.00	NA		µg/L	12/1/2014 7:35 PM	PA/VA
Chlorobenzene	ND	0.500	1.00	NA		µg/L	12/1/2014 7:35 PM	PA/VA
Dibromochloromethane	ND	0.500	1.00	NA		µg/L	12/1/2014 7:35 PM	PA/VA
1,2-Dichlorobenzene	ND	0.500	1.00	NA		µg/L	12/1/2014 7:35 PM	PA/VA
1,3-Dichlorobenzene	ND	0.500	1.00	NA		µg/L	12/1/2014 7:35 PM	PA/VA
1,4-Dichlorobenzene	0.950	0.500	1.00	NA	J	µg/L	12/1/2014 7:35 PM	PA/VA
Surr: 1,2-Dichloroethane-d4	101	NA	68.7-129	NA		%REC	12/1/2014 7:35 PM	
Surr: 4-Bromofluorobenzene	102	NA	71.8-127	NA		%REC	12/1/2014 7:35 PM	
Surr: Dibromofluoromethane	112	NA	74.3-124	NA		%REC	12/1/2014 7:35 PM	
Surr: Toluene-d8	99.7	NA	71.4-129	NA		%REC	12/1/2014 7:35 PM	

Notes:

Analyte was detected in client sample ID: TRIP BLANK, however all QC was within acceptable REIC control limits. A repeat analysis could not be performed due to insufficient sample.



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, December 31, 2014

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

TEL: (304) 696-6042 FAX:

RE: DRILL CUTTING/LEACHATE ANALYSIS Work Order #: 1411R57 Dear GEORGE CARICO:

REI Consultants, Inc. received 3 sample(s) on 11/24/2014 for the analyses presented in the following report.

Kathy Berry

Kathy Berry



Client: MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,

Project: DRILL CUTTING/LEACHATE ANALYSIS

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

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL.	Collection Date:	11/24/2014 9:45:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	11/24/2014
Lab ID:	1411R57-01A	Matrix:	Liquid
Client Sample ID:	1-SHORT CREEK/OPEN LF	Site ID:	SHORT CREEK/WHEELING POTW

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	5.1		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	5.0		Analyst: Sub
Strontium-90	see attached	NA	NA	NA			

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	11/24/2014 10:55:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	11/24/2014
Lab ID:	1411R57-02A	Matrix:	Liquid
Client Sample ID:	2-SHORT CREEK/CLOSED LF	Site ID:	SHORT CREEK/WHEELING POTW

Analysis	Result	MDL	PQL	MCL	Qual Unit	s 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		

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	11/24/2014 11:55:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	11/24/2014
Lab ID:	1411R57-03A	Matrix:	Liquid
Client Sample ID:	3-WHEELING POTW EFFLUENT	Site ID:	SHORT CREEK/WHEELING POTW

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	0.0		Analyst: Sub
Gross Beta	see attached	NA	NA	NA			
RADIUM-226			Method:	EPA 903	3.1		Analyst: Sub
Radium-226	see attached	NA	NA	NA			
RADIUM-228			Method:	EPA 904	1.0		Analyst: Sub
Radium-228	see attached	NA	NA	NA			
STRONTIUM-90			Method:	EPA 90	5.0		Analyst: Sub
Strontium-90	see attached	NA	NA	NA			



Pace Analytical Services, Inc. 1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

December 17, 2014

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

RE: Project: 1411R57 Pace Project No.: 30135430

Dear Ms. Berry:

Enclosed are the analytical results for sample(s) received by the laboratory on November 26, 2014. 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,

Carino a. Ferrio

Carin Ferris carin.ferris@pacelabs.com Project Manager

Enclosures





Pace Analytical Services, Inc. 1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

CERTIFICATIONS

 Project:
 1411R57

 Pace Project No.:
 30135430

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-042 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



SAMPLE SUMMARY

 Project:
 1411R57

 Pace Project No.:
 30135430

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30135430001	1411R57-01A	Water	11/24/14 09:45	11/26/14 12:25
30135430002	1411R57-02A	Water	11/24/14 10:55	11/26/14 12:25
30135430003	1411R57-03A	Water	11/24/14 11:55	11/26/14 12:25



SAMPLE ANALYTE COUNT

 Project:
 1411R57

 Pace Project No.:
 30135430

Lab ID	Sample ID	Method	Analysts	Analytes Reported
30135430001	 1411R57-01A	SM 7500Rn-B	FCC	1
		EPA 900.0	FCC	2
		EPA 903.1	JC2	1
		EPA 904.0	JAL	1
		ASTM D5811-95	LAL	1
30135430002	1411R57-02A	SM 7500Rn-B	FCC	1
		EPA 900.0	FCC	2
		EPA 903.1	JC2	1
		EPA 904.0	JAL	1
		ASTM D5811-95	LAL	1
30135430003	1411R57-03A	SM 7500Rn-B	FCC	1
		EPA 900.0	FCC	2
		EPA 903.1	JC2	1
		EPA 904.0	JAL	1
		ASTM D5811-95	LAL	1



PROJECT NARRATIVE

 Project:
 1411R57

 Pace Project No.:
 30135430

Method:	SM 7500Rn-B	
Description:	7500RnB Radon	
Client [.]	RELConsultants	In

Client:REI Consultants, Inc.Date:December 17, 2014

General Information:

3 samples were analyzed for SM 7500Rn-B. 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:

Sample Comments:

- The sample was analyzed outside the EPA recommended holding time for radon.
 - 1411R57-01A (Lab ID: 30135430001)
 - 1411R57-02A (Lab ID: 30135430002)
 - 1411R57-03A (Lab ID: 30135430003)

Upon receipt at the laboratory, six mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis.

- 1411R57-01Å (Lab ID: 30135430001)
- 1411R57-02A (Lab ID: 30135430002)



PROJECT NARRATIVE

 Project:
 1411R57

 Pace Project No.:
 30135430

Method:	EPA 900.0
Description:	900.0 Gross Alpha/Beta
Client:	REI Consultants, Inc.
Date:	December 17, 2014

General Information:

3 samples were 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:

Sample Comments:

The sample was analyzed outside the EPA recommended holding time for radon.

- 1411R57-01A (Lab ID: 30135430001)
- 1411R57-02A (Lab ID: 30135430002)
- 1411R57-03A (Lab ID: 30135430003)

Upon receipt at the laboratory, six mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis.

- 1411R57-01Å (Lab ID: 30135430001)
- 1411R57-02A (Lab ID: 30135430002)



PROJECT NARRATIVE

 Project:
 1411R57

 Pace Project No.:
 30135430

Method: EPA 903.1

Description:903.1 Radium 226Client:REI Consultants, Inc.Date:December 17, 2014

General Information:

3 samples were analyzed for EPA 903.1. 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:

Sample Comments:

- The sample was analyzed outside the EPA recommended holding time for radon.
 - 1411R57-01A (Lab ID: 30135430001)
 - 1411R57-02A (Lab ID: 30135430002)
 - 1411R57-03A (Lab ID: 30135430003)

Upon receipt at the laboratory, six mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis.

- 1411R57-01A (Lab ID: 30135430001)
- 1411R57-02A (Lab ID: 30135430002)


PROJECT NARRATIVE

 Project:
 1411R57

 Pace Project No.:
 30135430

Method:	EPA 904.0
Description:	904.0 Radium 228
Client:	REI Consultants, Inc.
Date:	December 17, 2014

General Information:

3 samples were analyzed for EPA 904.0. 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:

Sample Comments:

- The sample was analyzed outside the EPA recommended holding time for radon.
 - 1411R57-01A (Lab ID: 30135430001)
 - 1411R57-02A (Lab ID: 30135430002)
 - 1411R57-03A (Lab ID: 30135430003)

Upon receipt at the laboratory, six mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis.

- 1411R57-01Å (Lab ID: 30135430001)
- 1411R57-02A (Lab ID: 30135430002)



PROJECT NARRATIVE

 Project:
 1411R57

 Pace Project No.:
 30135430

Method: ASTM D5811-95

Description:905.0 Strontium 89/90 EichromClient:REI Consultants, Inc.Date:December 17, 2014

General Information:

3 samples were 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:

Sample Comments:

The sample was analyzed outside the EPA recommended holding time for radon.

- 1411R57-01A (Lab ID: 30135430001)
- 1411R57-02A (Lab ID: 30135430002)
- 1411R57-03A (Lab ID: 30135430003)

Upon receipt at the laboratory, six mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis.

- 1411R57-01A (Lab ID: 30135430001)
- 1411R57-02A (Lab ID: 30135430002)

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



ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 1411R57

Pace Project No.: 30135430

Sample: 141 PWS:	1R57-01A	Lab ID: 3013 Site ID:	5430001 Collected: 11/24/14 09 Sample Type:	:45 Received:	11/26/14 12:25	Matrix: Water	
Comments:	 The sample wa Upon receipt at <2 for radiochem 	s analyzed outside the EPA the laboratory, six mls of n iistry analysis.	recommended holding time for rad itric acid were added to the sample	on. to meet the sam	ple preservation rec	quirement of pH	
P	arameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radon		SM 7500Rn-B	-87.5 ± 63.9 (117) C:NA T:NA	pCi/L	12/01/14 20:46	6 10043-92-2	
Gross Alpha		EPA 900.0	9.15 ± 22.3 (42.5) C:NA T:NA	pCi/L	12/05/14 18:14	12587-46-1	
Gross Beta		EPA 900.0	265 ± 52.0 (21.9) C:NA T:NA	pCi/L	12/05/14 18:14	12587-47-2	
Radium-226		EPA 903.1	4.70 ± 2.61 (0.979) C:NA T:79%	pCi/L	12/10/14 13:07	7 13982-63-3	
Radium-228		EPA 904.0	4.35 ± 2.92 (5.39) C:82% T:63%	pCi/L	12/11/14 14:03	15262-20-1	
Strontium-90		ASTM D5811-95	-0.753 ± 0.596 (1.11) C:108% T:NA	pCi/L	12/15/14 19:56	6 10098-97-2	

Sample: 1411R57-02A	Lab ID: 30135430002	Collected: 11/24/14 10:55	Received:	11/26/14 12:25	Matrix: Water
PWS:	Site ID:	Sample Type:			

Comments: • The sample was analyzed outside the EPA recommended holding time for radon.

• Upon receipt at the laboratory, six mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radon	SM 7500Rn-B	-63.6 ± 64.0 (117) C:NA T:NA	pCi/L	12/01/14 21:19	10043-92-2	
Gross Alpha	EPA 900.0	4.35 ± 12.8 (24.3) C:NA T:NA	pCi/L	12/05/14 18:15	12587-46-1	
Gross Beta	EPA 900.0	114 ± 22.0 (8.04) C:NA T:NA	pCi/L	12/05/14 18:15	12587-47-2	
Radium-226	EPA 903.1	5.01 ± 2.45 (0.798) C:NA T:80%	pCi/L	12/10/14 13:07	13982-63-3	
Radium-228	EPA 904.0	2.17 ± 2.29 (4.51) C:83% T:77%	pCi/L	12/11/14 14:03	15262-20-1	
Strontium-90	ASTM D5811-95	0.188 ± 0.555 (0.998) C:103% T:NA	pCi/L	12/15/14 19:56	10098-97-2	

 Sample:
 1411R57-03A
 Lab ID:
 30135430003
 Collected:
 11/24/14
 11:55
 Received:
 11/26/14
 12:25
 Matrix:
 Water

 PWS:
 Site ID:
 Sample Type:
 <

Comments: • The sample was analyzed outside the EPA recommended holding time for radon.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radon	SM 7500Rn-B	1.1 ± 66.3 (116) C:NA T:NA	pCi/L	12/01/14 21:52	10043-92-2	
Gross Alpha	EPA 900.0	0.877 ± 1.34 (2.48) C:NA T:NA	pCi/L	12/06/14 17:00	12587-46-1	
Gross Beta	EPA 900.0	7.04 ± 1.46 (0.900) C:NA T:NA	pCi/L	12/06/14 17:00	12587-47-2	
Radium-226	EPA 903.1	0.290 ± 0.349 (0.533) C:NA T:78%	pCi/L	12/10/14 13:07	13982-63-3	
Radium-228	EPA 904.0	0.203 ± 0.369 (0.798) C:85% T:59%	pCi/L	12/11/14 14:02	15262-20-1	



ANALYTICAL RESULTS - RADIOCHEMISTRY

Project:	1411R57								
Pace Project No .:	30135430								
Sample: 1411R57-0 PWS: Comments: • The s	03A sample was analyze	Lab ID: 301354 Site ID: d outside the EPA re	30003 ecomme	Collected: Sample Ty nded holding	11/24/14 11:55 pe: time for radon.	Received:	11/26/14 12:25	Matrix: Water	
Parame	ters	Method	Act	± Unc (MD	C) Carr Trac	Units	Analyzed	CAS No.	Qual
Strontium-90	AS	TM D5811-95	0.241 C:84%	± 0.648 (1. % T:NA	16)	pCi/L	12/16/14 19:0	5 10098-97-2	



Project:	1411R57						
Pace Project No.:	30135430						
QC Batch:	RADC/22416		Analysis Method:	EPA 90	3.1		
QC Batch Method:	EPA 903.1		Analysis Descripti	on: 903.1 F	Radium-226		
Associated Lab San	nples: 30135430	001, 301354300	02, 30135430003				
METHOD BLANK:	824000		Matrix: Wate	er			
Associated Lab San	nples: 30135430	001, 301354300	02, 30135430003				
Paran	neter	Act ± U	nc (MDC) Carr Trac	Units	Analyzed	Qualifiers	
Radium-226		0.112 ± 0.465	(0.887) C:NA T:91%	pCi/L	12/10/14 12:30		

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:	1411R57						
Pace Project No.:	30135430						
QC Batch:	RADC/22542		Analysis Method:	ASTM D581	1-95		
QC Batch Method:	ASTM D5811-95		Analysis Description	on: 905.0 Stron	tium 89/90 Eichrom		
Associated Lab Sam	nples: 30135430	001, 301354300	002, 30135430003				
METHOD BLANK:	828711		Matrix: Wate	er			
Associated Lab Sam	nples: 30135430	001, 301354300	002, 30135430003				
Param	neter	Act ± l	Jnc (MDC) Carr Trac	Units	Analyzed	Qualifiers	
Strontium-90		-0.375 ± 0.377	(1.08) C:98% T:NA	pCi/L	12/15/14 06:50		-

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:	1411R57					
Pace Project No.:	30135430					
QC Batch:	RADC/22408	Analysis Method:	SM 7500Rn-	В		
QC Batch Method:	SM 7500Rn-B	Analysis Description	: 7500Rn B Ra	adon		
Associated Lab Sam	nples: 301354300	001, 30135430002, 30135430003				
METHOD BLANK:	823664	Matrix: Water				
Associated Lab Sam	nples: 301354300	001, 30135430002, 30135430003				
Param	neter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers	
Radon		2.3 ± 17.4 (30.3) C:NA T:NA	pCi/L	12/01/14 20:12		

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:	1411R57							
Pace Project No.:	30135430							
QC Batch:	RADC/22462		Analysis Method:	: E	PA 900.0			
QC Batch Method:	EPA 900.0		Analysis Descript	tion: 90	00.0 Gross	Alpha/Beta		
Associated Lab Sar	nples: 30135430	001, 301354300	002, 30135430003					
METHOD BLANK:	825490		Matrix: Wa	ter				
Associated Lab Sar	mples: 30135430	001, 301354300	002, 30135430003					
Parar	neter	Act ± l	Jnc (MDC) Carr Trac		Units	Analyzed	Qualifiers	
Gross Alpha		0.065 ± 0.339	(0.653) C:NA T:NA	pCi/L		12/06/14 16:58		
Gross Beta		-0.108 ± 0.315	(0.608) C:NA T:NA	pCi/L		12/06/14 16:58		

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:	1411R57						
Pace Project No.:	30135430						
QC Batch:	RADC/22417		Analysis Method:	EPA 904.0			
QC Batch Method:	EPA 904.0		Analysis Description	on: 904.0 Radiu	ım 228		
Associated Lab Sam	nples: 30135430	001, 30135430	002, 30135430003				
METHOD BLANK:	824001		Matrix: Wate	r			
Associated Lab Sam	nples: 30135430	001, 30135430	002, 30135430003				
Param	neter	Act ± l	Jnc (MDC) Carr Trac	Units	Analyzed	Qualifiers	
Radium-228		0.614 ± 0.392	(0.740) C:83% T:79%	pCi/L	12/11/14 11:29		

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: 1411R57 30135430

Pace Project No.:

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.

Base Include Email Aldress of Raport Recipient Wheneve Possible.11 Relation and constructions of the enail Aldress of Raport Recipient Wheneve Possible.11 Transmission of the Email Aldress of Raport Recipient Wheneve Possible.11 Transmission of the Email Aldress of Raport Recipient Wheneve Possible.11 Transmission of the Email Aldress of Raport Recipient Wheneve Possible.11 Transmission of the Email Aldress of Raport Recipient Wheneve Possible.11 Transmission of the Email Aldress of Raport Recipient Whenever Possible.11 Transmission of the Email Aldress of Raport Recipient Whenever Possible.11 Transmission of the Email Aldress of Raport Recipient Whenever Possible.11 Transmission of the Email Aldress of Raport Recipient Whenever Possible.11 Transmission of the Email Aldress of Raport Recipient Whenever Possible.11 Transmission of the Email Aldress of Raport Recipient Whenever Possible.11 Transmission of the Email Aldress of Raport Recipient Whenever Possible.11 Transmission of the Email Aldress of Raport Recipient Whenever Possible.11 Transmission of the Email Aldress of Raport Recipient Whenever Possible.11 Transmission of the Email Aldress of Raport Recipient Whenever Possible.11 Transmission of the Email Aldress of Raport Recipient Whenever Possible.11 Transmission of the Email Aldress of Raport Recipient Whenever Possible.11 <	10 Construction Part and plants Part and plants<									Contraction of the second seco	DI ROY
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DDRESS 1638 ROSEYTOWN ROAD State code: WP Pastere use Sampleto Tr.S.TATL, ZP: GREENSBURG, PA 15601 First code: WP Pastere use Sampleto to be returned and can de disposed per your standard laborative THON: (724) 850–5600 FAX AAAATTCA.INAMETERS ************************************	00188: 0138 ROSETTOWY ROAD Name Code: Very equip to the charged of the product of the charged of the product of the charged of th	g	CONTRATOR PACE	L PA	COMPANY:	PACE AI	VALYTICAL SERVIC	SPECIAL INSTR	UCTIONS / COMMENTS:		
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COUNT# DS0719EVF1 EMAIL ISO010F 050719EVF1 EMAIL ISO010F EMAIL EMAIL I	CODING G50719FVF1 BOLT BOLT TOLT BOLT TOLT BOLT TOLT	NOH	E: (724)	850-5600	FAX:			ANALS	TTICAL PARAMETERS		* Preservation Codes: 0 None
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1 1411R57-01A 1-SHORT CREEK/OPEN LF Liquid 11/24/2014 9:45:00 6 1	1 1411R57-01A 15HORT CREEK/OPEN UF Liquid 11/24/2014 15/24/2014 2 <th2< th=""> <th2< th=""> 2 <</th2<></th2<>	IEW	SAMPLEID	Client Sample ID	Δ. Δ. Δ.	Pe		L_228_SUB (EPA 904.0) L_226_SUB (EPA 903.1) BETA_SUB (EPA 900.0) ALPHA_SUB (EPA 900.0) NUMBER OF	TUM_90_SUB (EPA 905.0)		 4 Sotium Lucsumate 5 Sodium Hydroxide/ 5 Sodium Hydroxide 6 Sodium Arsenite 6 Sodium Aufarter 7 Assorbic Aradi 8 Sodium SulfiferHCL 9 Potassinum Ditydrogen Citrate 10 Broumium Chloride 10 Broumium Chloride
1 1411R57-01A 1-SHORT CREEK/OPEN LF Liquid 11/24/2014 9:45:00 6 7 <th7< th=""> <th7< th=""> 7 <</th7<></th7<>	1 1411R57-01A 1							* 2220	2		
2 1411R57-02A 2-SHORT CREEK/CLOSED LF Liquid 11/24/2014 10:55:00 6 i	2 1411R57-02A 2:SHORT CREEKCLOSED LF Lequid 11/24/2014 10:355/00 6 \vee V		1411R57-01A	1-SHORT CREEK/OPEN	 1	Liquid	11/24/2014 9:45:00 4 AM	6 2 2 2 2	~ 7		
3 1411R57-03A 3-WHEELING POTW EFFLUENT . Liquid 11/24/2014 11:55:00 6 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	3 1411R57-03A 3-WHEELING POTW EFFLUENT Liquid 11/24/2014	2	1411R57-02A	2-SHORT CREEK/CLOSI	ED LF	Liquid	11/24/2014 10:55:00 (AM	6 V V V V	7 7		
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	Industed By: Date: Time: Proc 4/J Proc 5/J Proc 5/		And By I	Date: Date	Time's CO	Received By: A	Date:	14 Time	HARDCO	REPORT TRANSMITT?	AL DESIRED: KEMAIL ONLINE
Defined By Date: Time Constraint Date: Date:<	TAT: Standard C RUSH Next BD 2 2nd BD 3rd BD Comments:	elinq	uished By:	Date:	Time:	Xeod By: Received By:	Date:	Time:		FOR LAB USE (ONLY Attennet in Coul 3
Date induction by Control b	Note: DTICH monotes will income survivated		TAT:	Standard K	RUSH	Next BD Note: RI	2nd BD	3rd BD	1 стир и зад Соптисти:	v ン い い い い い	Attempt to Cool :

Sam	ple Condition	Upon Receipt Am
Pace Analytical Client Name:	RETC	Project # 30135430
Courier: Fed Ex DUSPS Client Tracking #: <u>7266 71313 61594600</u> Custody Seal on Cooler/Box Present: yes	Commercial	Pace Other intact: yes no Biological Tissue is Frozen: Yes No
Packing Material: Bubble Wrap Bubble Bags	None	Other
Thermometer Used AA Type	of Ice: Wet Blue	e None Samples on ice, cooling process has begun
Cooler Temp.: Observed Temp.:°C Cor	rection Factor:	C Final Temp:°C examining contents
Temp should be above freezing to 6°C	¥- = =	Comments:
Chain of Custody Present:		
Chain of Custody Filled Out:		2.
Chain of Custody Relinquished:		
Sampler Name & Signature on COC:		4. Manuel an till 21119
Samples Arrived within Hold Time:	Lyaryes ∐No ∐N/A	5.
Short Hold Time Analysis (<72hr):	ZHYes ∐No ∐N/A	6.
Rush Turn Around Time Requested:	LiYes DANO LIN/A	7.
Sufficient Volume:	XiYes LiNo LiN/A	
Correct Containers Used:	XIYes LINO LIN/A	9.0
-Pace Containers Used: SVV4 II-24-79		
Containers Intact:		10.
Filtered volume received for Dissolved tests	VYes INo D(N/A	11.
Sample Labels match COC:	All Yes LINo LIN/A	12,
-Includes date/time/ID/Analysis Matrix:	<u>MF</u>	No. 1 h - I + h - N/4 -
All containers modeling proservation nero seen etcentes	Yes □No □N/A	13. Added OM/ AWOSJO 1-2 DOTATIOS
All containers needing preservation are found to be in compliance with EPA recommendation.	□Yes XNo □N/A	from Sample # 1,2 @ 1820 11-20-14
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	DYes DANO	Initial when completed SRA Lot # of added preservative DL19 - 1/00
Samples checked for dechlorination:		14.
Headspace in VOA Vials (>6mm):	□Yes □No 🖾N/A	15.
Trip Blank Present:	□Yes \$10 □N/A	16.
Trip 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:
Comments/ Resolution:		
	_	
Project Manager Review:	Service	Date: 0/114

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)

Pace Analytical

-				 			1	r		1		
	Other											S
	Other Radon	M	-6									2012).xl
	Ziploc								2			4 15May
	Cubitainer (500 ml / 4L)											k (C016-
	Radchem Nalgene (1/2 gal. / 1 gal.L)											JRF Bac
	Radchem Nalgene (125 / 250 / 500 (11)	M	-1									SCI
	Wipes / swipe/ smeat/ filter											
	Bacteria (120 ml)											
	(lm 003) əbiiluð											
	Cyanide (250 ml)				-							
	(Im 05 Im 04) AOV											
	(11) нат											
	0 % פ (זר)											
	Dissolved Metals preserved Y N		1									
	zisi Metais											
	TOX (250 ml)											
	TOC (40 ml \ 220 ml)											
	Phenolics (250 ml)											
	Nutrient (250 / 500)											
	Organics (۱۲)											
	Chemistry (250 / 500 / ۱۱)											
	Soil kit (2 SB, 1M, soil jar)	1										
	Giass Jar (120 / 250 / 500 / 1L)											
	eboO xintsM	ち	4									
	⊲,oV metl	6011	1200							Pag	e 20 of 2	20

page 2

30135430

H

Project Number: Client Name:

CHAIN OF CUSTO	DDY RE	CORD	v10-	0114	EIC u	se Y	CLIEN	IT ID_	MA	R07	1	DATE SHEET	
1		Clier	nt: Marsha	all University Cent	er for Er	wiron	mental,	Geote	ohnica	al and	Applie	PO #	
	EI/	Con	tact Person	George Ca	rico/J	Driv	ie w	olte	35	_	-	Phone 304-696-5456	755
	EIL	Add	ress One	John Mars	shall	UIIV	e			-	City_	State VVV Zip ZJ	100
Research Environmental & Industr	ial Consultants,	Inc.	ng Address (if	(different)	Citu							State Zin	
MAIN LABORATORY & CORPORA P.O. Box 286 • 225 Industrial Park R 800-999-0105 • 304-255-2500 •	TE HEADQUAR Rd, Beaver, WV 258 www.reiclabs.com	TERS: 13 Site	ID & State P	hase II			Proje	ct ID_	Drill	Cut	tting	/Leachate Analysis Sampler	cGee
MID-OHIO VALLEY Service Center 101 17th Street Ashland, KY 41101 606-393-5027 S40-248-	DOAH enter Rd., Ste 201 30: 24482 F 0183	ROANOKE Service Center 29-C Peters Creek Rd Ioanoke, VA 24019 540-777-1276	MORGANT Service Ce 16 Commerce Westover, WV 304-241-5	OWN enter e Drive / 26501 861	S	e At	tachm	ient					
SAMPLE LO	G & ANAL	YSIS REQUES	Г	THO			ſ					Field Readings: pH Temp Co	nd
TURNAROUND TIME NORMAL *Rush work needs prior lab	RU	SH TURNAROUND* 3 DAY O 2 DAY and will incur additional	1 DAY	NALYSIS & MI	(thomas)						•	L.38 - 12.7 - 1 5.66 - P.6 - 5 6.13 - 11.5 - 1	2,52 ,670 10r
	No. & Type of		line some	Sample	*0	• 1 •	2 :	3 - 5	² 10	a	a a	MSC Sampling Fee L MAS	
SAMPLE ID	Containers	Sampling Date/Time	Matrix	Comp/Grab		b b	0	b	0	60	⁶ 0	0 None 6 Sodium Hydroxi 1 Hydrochloric Acid 7 Ascorbic Acid	de
1-Short Creek/Open LF	20	3/30/15 2/000	Water	Grab	X	_			X			2 Nitric Acid 8 Sodium Bisulfate	/Methar
2-Short Creek/Closed LF	20	Iorr	Water	Grab	X				-	X		4 Sodium Thiosulfate 10 AS/AH	moe
Trip Blank	23	1140	Water	Grab	$\overline{\mathbf{x}}$				+			5 Sodium Hydroxide/ Sodium Arsenite 11	
			Choose	Choose					-	2		COMMENTS:	_
			Choose	Choose								Dissolved Metals are Field Fil	tered
			Choose	Choose									
in the physical sector			Choose	Choose									
			Choose	Choose			228						
All analytical requests are subject to REIC	C's Standard Term	s and Conditions.	Tempera	ature at arrival	:2	٥C	ICE	D?	Y_	<	N_	Containers provided by: [] Containers provided by: [lient
Reincustrativ (summare)	Z Day	16-15 2 Africo Relinquished	by (signature)				Di	te/Time		3	Seling	uished by (signature) Date/T	me
here hallo (-	3/	Colls Received by 1	signature)				De	ne/Time	6		Receiv	ed by (signature) Date/T	me

DBPix Evaluation

REI Consultants, Inc.

FIELD LOG: pH Calibration Records 6-2010.Rev.1

Client Name:	MARSHAL	4	Site Location:	(P/Porw	
Date:	3/30/15	-	Analyst:	A	
Calibration Location:	Field /	Laboratory	Instrument:	Oakton pH Meter	
4.0 Buffer Lot #:	Doss-	14			
7.0 Buffer Lot #:	0119.0	4			
10.0 Buffer Lot #:	B116.0	P			

pH (SU) - SM4500-H+B, 18th Edition											
Standard	Initial Reading	Reading After Calibration	Temperature °C	Comments							
4.0 Buffer	4.02	4-01	20.0								
7.0 Buffer	7.01	7.00	1								
10.0 Buffer	5.50	10.01									

Slope: 94 .7

Comments:

Calibration at the laboratory requires a pH 7.0 QC Check

All field pH analysis must be followed by a Post Analysis pH Check

Quality Control Samples	Reading	Acceptance Range:
QC Check, 7.0	7.00	$T_{rus} V_{clus} + 0.1 (6.0, 7.1)$
Post Analysis QC Check, 7.0	7.07	The value ± 0.1 (0.9 - 7.1)

WVDEP Drill Cutting / Leachate Analysis List Aluminum Antimony Arsenic Barium Beryllium Boron Cadmium Chromium Hexavalent Chromium Copper Lead Lithium Mercury Nickel Selenium Silver Strontium Vanadium Zinc Chloride Fluoride Nitrate as Nitrogen Nitrite as Nitrogen Sulfate **Total Suspended Solids** Free Cyanide Benzene Chlorobenzene Chlorodibromomethane

1,2-Dichlorobenzene

1,3-Dichlorobenzene

1,4-Dichlorobenzene

1,4-Dinitrobenzene

1,4-Naphthoquinone

2,4-Dinitrotoluene

2,6-Dinitrotoluene

4-Nitroquinoline-1-oxide

bis(2-ethylhexyl) phthalate

Butyl benzylphthalate

Di-N-Butyl Phthalate

Di-N-Octylphthalate Diethyl Phthalate

Dimethyl Phthalate

Flouranthene

Nitrobenzene

Pentachloronitrobenzene

Gross Alpha

Gross Beta

Radium 226

Radium 228

Strontium 90

Radon

pН

Total Dissolved Solids

Total Suspended Solids

BOD 5-Day

Ammonia as Nitrogen

Total Kjeldahl Nitrogen

Oil & Grease

Acidity to pH 8.3

Specific Conductance

Alkalinity to pH 4.5

Chemical Oxygen Demand

Dissolved Iron and Iron

Manganese and Dissolved Manganese



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, April 17, 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/LEACHATE ANALYSIS Work Order #: 1503Y72 Dear GEORGE CARICO:

REI Consultants, Inc. received 4 sample(s) on 3/30/2015 for the analyses presented in the following report.

Sincerely,

Kathy Berry

Kathy Berry



Client: MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE

Project: DRILL CUTTING/LEACHATE ANALYSIS

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

Pentachloronitrobenzene

Bis(2-ethylhexyl)phthalate

Butyl benzyl phthalate

Di-n-butyl phthalate

Diethyl phthalate

Dimethyl phthalate

2,4-Dinitrotoluene

2,6-Dinitrotoluene

WO#: 1503Y72

Date Reported: 4/17/2015

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/30/2015 10:05:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	3/30/2015
Lab ID:	1503Y72-01A	Matrix:	Liquid
Client Sample ID:	1-SHORT CREEK/OPEN LF	Site ID:	PHASE II

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	IELAP
METALS BY ICP			Method: (1994)	EPA 20	0.7 Rev	. 4.4	Analyst: CGW	
Aluminum	0.031	0.006	0.100	NA	J	mg/L	4/6/2015 8:57 PM	PA/VA
Antimony	ND	0.040	0.200	NA		mg/L	4/6/2015 8:57 PM	PA/VA
Arsenic	0.047	0.020	0.200	NA	J	mg/L	4/6/2015 8:57 PM	PA/VA
Barium	1.68	0.002	0.100	NA		mg/L	4/6/2015 8:57 PM	PA/VA
Beryllium	ND	0.001	0.010	NA		mg/L	4/6/2015 8:57 PM	PA/VA
Boron	12.1	0.035	0.100	NA		mg/L	4/6/2015 8:57 PM	PA/VA
Cadmium	ND	0.001	0.020	NA		mg/L	4/6/2015 8:57 PM	PA/VA
Chromium	0.049	0.005	0.100	NA	J	mg/L	4/6/2015 8:57 PM	PA/VA
Copper	0.016	0.005	0.100	NA	J	mg/L	4/6/2015 8:57 PM	PA/VA
Iron	20.5	0.010	0.100	NA		mg/L	4/6/2015 8:57 PM	PA/VA
Lead	ND	0.010	0.200	NA		mg/L	4/6/2015 8:57 PM	PA/VA
Lithium	0.225	0.020	0.100	NA		mg/L	4/3/2015 3:55 PM	
Manganese	1.25	0.002	0.100	NA		mg/L	4/6/2015 8:57 PM	PA/VA
Nickel	0.178	0.005	0.100	NA		mg/L	4/6/2015 8:57 PM	PA/VA
Selenium	ND	0.020	0.200	NA		mg/L	4/6/2015 8:57 PM	PA/VA
Silver	ND	0.004	0.050	NA		mg/L	4/6/2015 8:57 PM	PA/VA
Strontium	2.25	0.001	0.010	NA		mg/L	4/3/2015 3:55 PM	
Vanadium	0.026	0.005	0.100	NA	J	mg/L	4/6/2015 8:57 PM	PA/VA
Zinc	0.036	0.003	0.050	NA	J	mg/L	4/6/2015 8:57 PM	PA/VA
MERCURY, Total E245.1			Method: 3.0 (1994	EPA 24:	5.1, Rev	<i>.</i>	Analyst: CR	
Mercury	ND	0.0001	0.0010	NA		mg/L	4/2/2015 12:28 PM	PA/VA
SEMIVOLATILE ORGANIC COM	MPOUNDS		Method:	SW8270)D (200 [°]	7)	Analyst: JD	
1,4-Dinitrobenzene	ND	NA	0.0104	NA		mg/L	4/13/2015 9:15 PM	
1,4-Napthoquinone	ND	NA	0.0104	NA		mg/L	4/13/2015 9:15 PM	
4-Nitroquinoline-1-oxide	ND	NA	0.0521	NA		mg/L	4/13/2015 9:15 PM	

ND

ND

ND

ND

ND

ND

ND

ND

NA

0.0052

0.0052

0.0052

0.0021

0.0021

0.0021

0.0021

0.0104

0.0104

0.0104

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0.0104

0.0104

0.0104

0.0104

NA

NA

NA

NA

NA

NA

NA

NA

mg/L

mg/L

mg/L

mg/L

mg/L

mg/L

mg/L

mg/L

4/13/2015 9:15 PM

4/13/2015 9:15 PM PA/VA

4/13/2015 9:15 PM PA/VA

PA/VA

PA/VA

PA/VA

PA/VA

PA/VA

Date Reported: 4/17/2015

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/30/2015 10:05:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	3/30/2015
Lab ID:	1503Y72-01A	Matrix:	Liquid
Client Sample ID:	1-SHORT CREEK/OPEN LF	Site ID:	PHASE II

Result	MDL	PQL	MCL	Qual	Units	Date Analyzed NELAP
ND	0.0052	0.0104	NA		mg/L	4/13/2015 9:15 PM PA/VA
ND	0.0021	0.0104	NA		mg/L	4/13/2015 9:15 PM PA/VA
ND	0.0021	0.0104	NA		mg/L	4/13/2015 9:15 PM PA/VA
37.9	NA	32.9-110	NA		%REC	4/13/2015 9:15 PM
32.9	NA	25.8-110	NA		%REC	4/13/2015 9:15 PM
77.5	NA	63.8-110	NA		%REC	4/13/2015 9:15 PM
82.7	NA	61.8-110	NA		%REC	4/13/2015 9:15 PM
53.2	NA	58.6-110	NA	S	%REC	4/13/2015 9:15 PM
69.7	NA	55.1-110	NA		%REC	4/13/2015 9:15 PM
	Result ND ND 37.9 32.9 77.5 82.7 53.2 69.7	Result MDL ND 0.0052 ND 0.0021 ND 0.0021 37.9 NA 32.9 NA 77.5 NA 82.7 NA 53.2 NA 69.7 NA	Result MDL PQL ND 0.0052 0.0104 ND 0.0021 0.0104 ND 0.0021 0.0104 ND 0.0021 0.0104 37.9 NA 32.9-110 32.9 NA 25.8-110 77.5 NA 63.8-110 82.7 NA 61.8-110 53.2 NA 58.6-110 69.7 NA 55.1-110	Result MDL PQL MCL ND 0.0052 0.0104 NA ND 0.0021 0.0104 NA ND 0.0021 0.0104 NA ND 0.0021 0.0104 NA 37.9 NA 32.9-110 NA 32.9 NA 25.8-110 NA 77.5 NA 63.8-110 NA 82.7 NA 61.8-110 NA 53.2 NA 58.6-110 NA 69.7 NA 55.1-110 NA	Result MDL PQL MCL Qual ND 0.0052 0.0104 NA ND 0.0021 0.0104 NA ND 0.0021 0.0104 NA ND 0.0021 0.0104 NA 37.9 NA 32.9-110 NA 32.9 NA 25.8-110 NA 77.5 NA 63.8-110 NA 82.7 NA 61.8-110 NA 53.2 NA 58.6-110 NA 69.7 NA 55.1-110 NA	Result MDL PQL MCL Qual Units ND 0.0052 0.0104 NA mg/L ND 0.0021 0.0104 NA mg/L ND 0.0021 0.0104 NA mg/L ND 0.0021 0.0104 NA mg/L 37.9 NA 32.9-110 NA %REC 32.9 NA 25.8-110 NA %REC 32.9 NA 63.8-110 NA %REC 82.7 NA 61.8-110 NA %REC 53.2 NA 58.6-110 NA %REC 69.7 NA 55.1-110 NA %REC

Notes:

Surrogate inadvertantly omited for the associated matrix spike sample.

VOLATILE ORGANIC COMPOUNDS		Method: S	W8260	В (1996)	Analyst: JM		
Benzene	ND	50.0	100	NA	μg/L	4/12/2015 1:32 PM	PA/VA
Chlorobenzene	ND	50.0	100	NA	µg/L	4/12/2015 1:32 PM	PA/VA
Dibromochloromethane	ND	50.0	100	NA	μg/L	4/12/2015 1:32 PM	PA/VA
1,2-Dichlorobenzene	ND	50.0	100	NA	μg/L	4/12/2015 1:32 PM	PA/VA
1,3-Dichlorobenzene	ND	50.0	100	NA	μg/L	4/12/2015 1:32 PM	PA/VA
1,4-Dichlorobenzene	ND	50.0	100	NA	μg/L	4/12/2015 1:32 PM	PA/VA
Surr: 1,2-Dichloroethane-d4	104	NA	68.7-129	NA	%REC	4/12/2015 1:32 PM	
Surr: 4-Bromofluorobenzene	102	NA	71.8-127	NA	%REC	4/12/2015 1:32 PM	
Surr: Dibromofluoromethane	105	NA	74.3-124	NA	%REC	4/12/2015 1:32 PM	
Surr: Toluene-d8	91.8	NA	71.4-129	NA	%REC	4/12/2015 1:32 PM	

Notes:

Elevated PQLs are due to matrix interference. Sample foamed during analysis.

BOD, 5 Day, 20°C			Method: S	SM5210 B-2	2001	Analyst: CB	
Biochemical Oxygen Demand	48	2	5	NA	mg/L	3/31/2015 4:02 PM	PA/VA
Chemical Oxygen Demand			Method: E (1993)	EPA 410.4,	Rev. 2	Analyst: SF	
Chemical Oxygen Demand	825	200	500	NA	mg/L	3/31/2015 7:49 AM	PA/VA
HEXAVALENT CHROMIUM BY IC			Method: E 3.3 (1994)	EPA 218.6,	Rev.	Analyst: CF	
Chromium (VI)	ND	0.0003	0.0010	NA	mg/L	3/31/2015 1:46 PM	
ANIONS by ION CHROMATOGRAPHY	,		Method: E (1993)	EPA 300.0,	Rev.2.1	Analyst: CF	
Chloride	2,130	20.0	100	NA	mg/L	3/31/2015 11:04 AM	

Page 4 of 18

Date Reported: 4/17/2015

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/30/2015 10:05:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	3/30/2015
Lab ID:	1503Y72-01A	Matrix:	Liquid
Client Sample ID:	1-SHORT CREEK/OPEN LF	Site ID:	PHASE II

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
Fluoride	3.20	0.25	1.00	NA		mg/L	3/31/2015 11:04 AM	
Sulfate	7.71	1.00	5.00	NA		mg/L	3/31/2015 11:04 AM	
ANIONS by ION CHROMATOGRA	PHY-48 H	OUR	Method: (1993)	EPA 300	0.0, Rev	/.2.1	Analyst: CF	
Nitrogen, Nitrate	ND	0.02	0.10	NA		mg/L	3/31/2015 11:04 AM	
Nitrogen, Nitrite	ND	0.25	2.50	NA		mg/L	3/31/2015 11:04 AM	
Notes:								
Elevated PQLs are due to matrix interferen	ce.							
TOTAL KJELDAHL NITROGEN (T	KN)		Method: 2.0 (1993	EPA 35 [,])	1.2, Rev	<i>.</i>	Analyst: JH	
Nitrogen, Kjeldahl, Total	426	20.0	100	NA		mg/L	4/2/2015 10:02 AM	PA/VA
OIL and GREASE			Method:	EPA 166	64 Rev	. A	Analyst: CC	
Oil & Grease	ND	2.0	5.0	NA		mg/L	3/31/2015 4:02 PM	PA/VA
Notes:								
Sample acidity or alkalinity exceeded the a	dded preserv	ative, so	that the requir	ed preserv	vation pH	was not ach	ieved.	
CYANIDE, Free			Method:	SM4500	-CN I-1	997	Analyst: JH	
Cyanide, Free	ND	0.005	0.020	NA		mg/L	4/6/2015 10:11 AM	
AMMONIA NITROGEN			Method: (1993)	EPA 350	0.1, Rev	/.2.	Analyst: JH	
Nitrogen, Ammonia (As N)	1,120	64.0	160	NA		mg/L	4/10/2015 7:54 PM	PA/VA
CONDUCTIVITY			Method:	SM2510	B - 199	97	Analyst: KY	
Specific Conductivity	12,100	NA	NA	NA		µmhos/cm	3/30/2015 11:00 AM	PA/VA
TOTAL DISSOLVED SOLIDS			Method:	SM2540	C-1997	7	Analyst: KY	
Total Dissolved Solids	5,740	10	20	NA		mg/L	3/31/2015 4:02 PM	PA/VA
TOTAL SUSPENDED SOLIDS			Method:	SM2540	D-1997	7	Analyst: KY	
Total Suspended Solids	60.0	4.0	20.0	NA		mg/L	3/31/2015 4:02 PM	PA/VA
ACIDITY			Method:	SM2310	B-1997	7	Analyst: DSD	
Acidity, Total	399	1.0	10	NA		mg/L	3/31/2015 4:51 PM	PA/VA

Date Reported: 4/17/2015

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/30/2015 10:05:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	3/30/2015
Lab ID:	1503Y72-01A	Matrix:	Liquid
Client Sample ID:	1-SHORT CREEK/OPEN LF	Site ID:	PHASE II

Analysis	Result	MDL	PQL	MCL	Qual Units	Date Analyzed NELA	٩P
ALKALINITY			Method:	SM2320	B-1997	Analyst: DSD	
Alkalinity, Total (As CaCO3)	2,470	10	100	NA	mg/L	3/31/2015 4:51 PM PA	/VA
pH - LAB TEST, HOLD TIME EXPIR	RED		Method:	SM4500	-H+-B-2000	Analyst: DSD	
рН	7.23	NA	NA	NA	SU	3/31/2015 4:51 PM	

Page 6 of 18

Date Reported: 4/17/2015

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/30/2015 10:05:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	3/30/2015
Lab ID:	1503Y72-01B	Matrix:	Liquid
Client Sample ID:	1-SHORT CREEK/OPEN LF	Site ID:	PHASE II

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
DISSOLVED METALS BY ICP			Method: (1994)	EPA 200	0.7 Rev.	4.4	Analyst: CGW	
Iron	14.3	0.010	0.100	NA		mg/L	4/2/2015 12:46 PM	PA/VA
Manganese	1.27	0.002	0.100	NA		mg/L	4/2/2015 12:46 PM	PA/VA

WO#: 1503Y72

Date Reported: 4/17/2015

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/30/2015 10:55:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	3/30/2015
Lab ID:	1503Y72-02A	Matrix:	Liquid
Client Sample ID:	2-SHORT CREEK/CLOSED LF	Site ID:	PHASE II

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
METALS BY ICP			Method: (1994)	EPA 20	0.7 Rev	/. 4.4	Analyst: CGW	
Aluminum	ND	0.006	0.100	NA		mg/L	4/6/2015 9:16 PM	PA/VA
Antimony	ND	0.040	0.200	NA		mg/L	4/6/2015 9:16 PM	PA/VA
Arsenic	ND	0.020	0.200	NA		mg/L	4/6/2015 9:16 PM	PA/VA
Barium	0.727	0.002	0.100	NA		mg/L	4/6/2015 9:16 PM	PA/VA
Beryllium	ND	0.001	0.010	NA		mg/L	4/6/2015 9:16 PM	PA/VA
Boron	3.78	0.035	0.100	NA		mg/L	4/6/2015 9:16 PM	PA/VA
Cadmium	ND	0.001	0.020	NA		mg/L	4/6/2015 9:16 PM	PA/VA
Chromium	0.008	0.005	0.100	NA	J	mg/L	4/6/2015 9:16 PM	PA/VA
Copper	0.017	0.005	0.100	NA	J	mg/L	4/6/2015 9:16 PM	PA/VA
Iron	5.99	0.010	0.100	NA		mg/L	4/6/2015 9:16 PM	PA/VA
Lead	ND	0.010	0.200	NA		mg/L	4/6/2015 9:16 PM	PA/VA
Lithium	0.082	0.020	0.100	NA	J	mg/L	4/3/2015 4:05 PM	
Manganese	0.744	0.002	0.100	NA		mg/L	4/6/2015 9:16 PM	PA/VA
Nickel	0.045	0.005	0.100	NA	J	mg/L	4/6/2015 9:16 PM	PA/VA
Selenium	ND	0.020	0.200	NA		mg/L	4/6/2015 9:16 PM	PA/VA
Silver	ND	0.004	0.050	NA		mg/L	4/6/2015 9:16 PM	PA/VA
Strontium	1.45	0.001	0.010	NA		mg/L	4/3/2015 4:05 PM	
Vanadium	ND	0.005	0.100	NA		mg/L	4/6/2015 9:16 PM	PA/VA
Zinc	0.076	0.003	0.050	NA		mg/L	4/6/2015 9:16 PM	PA/VA
MERCURY, Total E245.1			Method: 3.0 (1994	EPA 24)	5.1, Re	v.	Analyst: CR	
Mercury	ND	0.0001	0.0010	NA		mg/L	4/2/2015 12:30 PM	PA/VA
SEMIVOLATILE ORGANIC CO	MPOUNDS		Method:	SW8270	DD (200)7)	Analyst: JD	
1,4-Dinitrobenzene	ND	NA	0.0110	NA		mg/L	4/13/2015 8:49 PM	
1,4-Napthoguinone	ND	NA	0.0110	NA		ma/l	4/13/2015 8:49 PM	

					-		
1,4-Napthoquinone	ND	NA	0.0110	NA	mg/L	4/13/2015 8:49 PM	
4-Nitroquinoline-1-oxide	ND	NA	0.0552	NA	mg/L	4/13/2015 8:49 PM	
Pentachloronitrobenzene	ND	NA	0.0110	NA	mg/L	4/13/2015 8:49 PM	
Bis(2-ethylhexyl)phthalate	ND	0.0055	0.0110	NA	mg/L	4/13/2015 8:49 PM	PA/VA
Butyl benzyl phthalate	ND	0.0055	0.0110	NA	mg/L	4/13/2015 8:49 PM	PA/VA
Di-n-butyl phthalate	ND	0.0055	0.0110	NA	mg/L	4/13/2015 8:49 PM	PA/VA
Diethyl phthalate	ND	0.0022	0.0110	NA	mg/L	4/13/2015 8:49 PM	PA/VA
Dimethyl phthalate	ND	0.0022	0.0110	NA	mg/L	4/13/2015 8:49 PM	PA/VA
2,4-Dinitrotoluene	ND	0.0022	0.0110	NA	mg/L	4/13/2015 8:49 PM	PA/VA
2,6-Dinitrotoluene	ND	0.0022	0.0110	NA	mg/L	4/13/2015 8:49 PM	PA/VA
					-		

Date Reported: 4/17/2015

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/30/2015 10:55:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	3/30/2015
Lab ID:	1503Y72-02A	Matrix:	Liquid
Client Sample ID:	2-SHORT CREEK/CLOSED LF	Site ID:	PHASE II

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed NELA	١P
Di-n-octyl phthalate	ND	0.0055	0.0110	NA		mg/L	4/13/2015 8:49 PM PA/	VA
Fluoranthene	ND	0.0022	0.0110	NA		mg/L	4/13/2015 8:49 PM PA/	VA
Nitrobenzene	ND	0.0022	0.0110	NA		mg/L	4/13/2015 8:49 PM PA/	VA
Surr: 2-Fluorophenol	36.1	NA	32.9-110	NA		%REC	4/13/2015 8:49 PM	
Surr: Phenol-d5	31.7	NA	25.8-110	NA		%REC	4/13/2015 8:49 PM	
Surr: 2,4,6-Tribromophenol	76.4	NA	63.8-110	NA		%REC	4/13/2015 8:49 PM	
Surr: Nitrobenzene-d5	80.3	NA	61.8-110	NA		%REC	4/13/2015 8:49 PM	
Surr: 2-Fluorobiphenyl	78.7	NA	58.6-110	NA		%REC	4/13/2015 8:49 PM	
Surr: 4-Terphenyl-d14	75.9	NA	55.1-110	NA		%REC	4/13/2015 8:49 PM	

Notes:

Surrogate inadvertantly omited for the associated matrix spike sample.

VOLATILE ORGANIC COMPOUNDS		Method: SW8260B (1996)			Analyst: JM		
Benzene	ND	5.00	10.0	NA	μg/L	4/12/2015 2:05 PM	PA/VA
Chlorobenzene	ND	5.00	10.0	NA	μg/L	4/12/2015 2:05 PM	PA/VA
Dibromochloromethane	ND	5.00	10.0	NA	μg/L	4/12/2015 2:05 PM	PA/VA
1,2-Dichlorobenzene	ND	5.00	10.0	NA	μg/L	4/12/2015 2:05 PM	PA/VA
1,3-Dichlorobenzene	ND	5.00	10.0	NA	μg/L	4/12/2015 2:05 PM	PA/VA
1,4-Dichlorobenzene	ND	5.00	10.0	NA	μg/L	4/12/2015 2:05 PM	PA/VA
Surr: 1,2-Dichloroethane-d4	97.2	NA	68.7-129	NA	%REC	4/12/2015 2:05 PM	
Surr: 4-Bromofluorobenzene	101	NA	71.8-127	NA	%REC	4/12/2015 2:05 PM	
Surr: Dibromofluoromethane	99.5	NA	74.3-124	NA	%REC	4/12/2015 2:05 PM	
Surr: Toluene-d8	91.3	NA	71.4-129	NA	%REC	4/12/2015 2:05 PM	

Notes:

Elevated PQLs are due to matrix interference. Sample foamed during analysis.

BOD, 5 Day, 20°C			Method: S	SM5210 B-2	2001	Analyst: CB	
Biochemical Oxygen Demand	18	2	5	NA	mg/L	3/31/2015 4:02 PM	PA/VA
Chemical Oxygen Demand			Method: E (1993)	EPA 410.4,	Rev. 2	Analyst: SF	
Chemical Oxygen Demand	260	100	250	NA	mg/L	3/31/2015 7:49 AM	PA/VA
HEXAVALENT CHROMIUM BY IC			Method: E 3.3 (1994)	EPA 218.6,	Rev.	Analyst: CF	
Chromium (VI)	ND	0.0003	0.0010	NA	mg/L	3/31/2015 1:46 PM	
ANIONS by ION CHROMATOGRAPHY			Method: E (1993)	EPA 300.0,	Rev.2.1	Analyst: CF	
Chloride	815	10.0	50.0	NA	mg/L	3/31/2015 11:24 AM	

Page 9 of 18

Date Reported: 4/17/2015

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/30/2015 10:55:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	3/30/2015
Lab ID:	1503Y72-02A	Matrix:	Liquid
Client Sample ID:	2-SHORT CREEK/CLOSED LF	Site ID:	PHASE II

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
Fluoride	2.02	0.05	0.20	NA		mg/L	3/31/2015 11:24 AM	
Sulfate	85.6	1.00	5.00	NA		mg/L	3/31/2015 11:24 AM	
ANIONS by ION CHROMATOGRAPHY-48 HOUR			Method: (1993)	EPA 300	0.0, Rev	/.2.1	Analyst: CF	
Nitrogen, Nitrate	0.29	0.02	0.10	NA		mg/L	3/31/2015 11:24 AM	
Nitrogen, Nitrite	ND	0.25	2.50	NA		mg/L	3/31/2015 11:24 AM	
Notes:								
Elevated PQLs are due to matrix interference	ce.							
TOTAL KJELDAHL NITROGEN (TH	(N)		Method: 2.0 (1993	EPA 351)	1.2, Rev	<i>.</i>	Analyst: JH	
Nitrogen, Kjeldahl, Total	158	8.00	40.0	NA		mg/L	4/2/2015 10:04 AM	PA/VA
OIL and GREASE			Method:	EPA 166	64 Rev	. A	Analyst: CC	
Oil & Grease	2.1	2.0	5.0	NA	J	mg/L	3/31/2015 4:02 PM	PA/VA
CYANIDE, Free			Method:	SM4500	-CN I-1	997	Analyst: JH	
Cyanide, Free	ND	0.005	0.020	NA		mg/L	4/6/2015 10:11 AM	
AMMONIA NITROGEN			Method: (1993)	EPA 350	0.1, Rev	/.2.	Analyst: JH	
Nitrogen, Ammonia (As N)	406	16.0	40.0	NA		mg/L	4/10/2015 7:10 PM	PA/VA
CONDUCTIVITY			Method:	SM2510	B - 19	97	Analyst: KY	
Specific Conductivity	5,250	NA	NA	NA		µmhos/cm	3/30/2015 11:00 AM	PA/VA
TOTAL DISSOLVED SOLIDS			Method:	SM2540	C-1997	7	Analyst: KY	
Total Dissolved Solids	2,620	10	20	NA		mg/L	3/31/2015 4:02 PM	PA/VA
TOTAL SUSPENDED SOLIDS			Method:	SM2540	D-1997	7	Analyst: KY	
Total Suspended Solids	16.0	4.0	20.0	NA	J	mg/L	3/31/2015 4:02 PM	PA/VA
ACIDITY			Method:	SM2310	B-199	7	Analyst: DSD	
Acidity, Total	177	1.0	10	NA		mg/L	3/31/2015 4:51 PM	PA/VA
ALKALINITY			Method:	SM2320	B-1997	7	Analyst: DSD	
Alkalinity, Total (As CaCO3)	1,320	4.0	40.0	NA		mg/L	3/31/2015 4:51 PM	PA/VA

Page 10 of 18

Date Reported: 4/17/2015

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/30/2015 10:55:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	3/30/2015
Lab ID:	1503Y72-02A	Matrix:	Liquid
Client Sample ID:	2-SHORT CREEK/CLOSED LF	Site ID:	PHASE II

Analysis	Result	MDL	PQL	MCL (Qual Units	Date Analyzed NELAP
pH - LAB TEST, HOLD TIME EXPIR	ED		Method:	SM4500-H	l+-B-2000	Analyst: DSD
рН	7.33	NA	NA	NA	SU	3/31/2015 4:51 PM

Date Reported: 4/17/2015

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/30/2015 10:55:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	3/30/2015
Lab ID:	1503Y72-02B	Matrix:	Liquid
Client Sample ID:	2-SHORT CREEK/CLOSED LF	Site ID:	PHASE II

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
DISSOLVED METALS BY ICP			Method: (1994)	EPA 200	0.7 Rev. /	4.4	Analyst: CGW	
Iron	1.28	0.010	0.100	NA		mg/L	4/2/2015 12:49 PM	PA/VA
Manganese	0.761	0.002	0.100	NA		mg/L	4/2/2015 12:49 PM	PA/VA

4-Nitroquinoline-1-oxide

Pentachloronitrobenzene

Bis(2-ethylhexyl)phthalate

Butyl benzyl phthalate

Di-n-butyl phthalate

Diethyl phthalate

Dimethyl phthalate

2,4-Dinitrotoluene

2,6-Dinitrotoluene

WO#: 1503Y72

Date Reported: 4/17/2015

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/30/2015 11:40:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	3/30/2015
Lab ID:	1503Y72-03A	Matrix:	Liquid
Client Sample ID:	3-WHEELING POTW EFFLUENT	Site ID:	PHASE II

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	IELAP
METALS BY ICP			Method: (1994)	EPA 200	0.7 Rev	. 4.4	Analyst: CGW	
Aluminum	ND	0.006	0.100	NA		mg/L	4/6/2015 9:19 PM	PA/VA
Antimony	ND	0.040	0.200	NA		mg/L	4/6/2015 9:19 PM	PA/VA
Arsenic	ND	0.020	0.200	NA		mg/L	4/6/2015 9:19 PM	PA/VA
Barium	0.045	0.002	0.100	NA	J	mg/L	4/6/2015 9:19 PM	PA/VA
Beryllium	ND	0.001	0.010	NA		mg/L	4/6/2015 9:19 PM	PA/VA
Boron	0.212	0.035	0.100	NA		mg/L	4/6/2015 9:19 PM	PA/VA
Cadmium	ND	0.001	0.020	NA		mg/L	4/6/2015 9:19 PM	PA/VA
Chromium	ND	0.005	0.100	NA		mg/L	4/6/2015 9:19 PM	PA/VA
Copper	ND	0.005	0.100	NA		mg/L	4/6/2015 9:19 PM	PA/VA
Iron	0.090	0.010	0.100	NA	J	mg/L	4/8/2015 9:36 PM	PA/VA
Lead	ND	0.010	0.200	NA		mg/L	4/6/2015 9:19 PM	PA/VA
Lithium	ND	0.020	0.100	NA		mg/L	4/3/2015 4:08 PM	
Manganese	0.048	0.002	0.100	NA	J	mg/L	4/6/2015 9:19 PM	PA/VA
Nickel	0.006	0.005	0.100	NA	J	mg/L	4/6/2015 9:19 PM	PA/VA
Selenium	ND	0.020	0.200	NA		mg/L	4/6/2015 9:19 PM	PA/VA
Silver	ND	0.004	0.050	NA		mg/L	4/6/2015 9:19 PM	PA/VA
Strontium	0.709	0.001	0.010	NA		mg/L	4/3/2015 4:08 PM	
Vanadium	ND	0.005	0.100	NA		mg/L	4/6/2015 9:19 PM	PA/VA
Zinc	0.022	0.003	0.050	NA	J	mg/L	4/6/2015 9:19 PM	PA/VA
MERCURY, Total E245.1			Method: 3.0 (1994	EPA 24:)	5.1, Re ^v	v.	Analyst: CR	
Mercury	ND	0.0001	0.0010	NA		mg/L	4/1/2015 10:02 AM	PA/VA
SEMIVOLATILE ORGANIC CO	MPOUNDS		Method:	SW8270)D (200	7)	Analyst: JD	
1,4-Dinitrobenzene	ND	NA	0.0106	NA		mg/L	4/13/2015 8:23 PM	
1,4-Napthoquinone	ND	NA	0.0106	NA		mg/L	4/13/2015 8:23 PM	

ND	0.0053	0.0106	NA	mg/L	4/13/2015 8:23 PM
ND	0.0053	0.0106	NA	mg/L	4/13/2015 8:23 PM
ND	0.0053	0.0106	NA	mg/L	4/13/2015 8:23 PM
ND	0.0021	0.0106	NA	mg/L	4/13/2015 8:23 PM
ND	0.0021	0.0106	NA	mg/L	4/13/2015 8:23 PM
ND	0.0021	0.0106	NA	mg/L	4/13/2015 8:23 PM
ND	0.0021	0.0106	NA	mg/L	4/13/2015 8:23 PM

NA

NA

0.0529

0.0106

ND

ND

NA

NA

mg/L

mg/L

4/13/2015 8:23 PM

4/13/2015 8:23 PM

PA/VA

PA/VA

PA/VA

PA/VA

PA/VA

PA/VA

PM PA/VA

ΡM

WO#: 1503Y72

Date Reported: 4/17/2015

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/30/2015 11:40:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	3/30/2015
Lab ID:	1503Y72-03A	Matrix:	Liquid
Client Sample ID:	3-WHEELING POTW EFFLUENT	Site ID:	PHASE II

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed NELAP
Di-n-octyl phthalate	ND	0.0053	0.0106	NA		mg/L	4/13/2015 8:23 PM PA/VA
Fluoranthene	ND	0.0021	0.0106	NA		mg/L	4/13/2015 8:23 PM PA/VA
Nitrobenzene	ND	0.0021	0.0106	NA		mg/L	4/13/2015 8:23 PM PA/VA
Surr: 2-Fluorophenol	0	NA	32.9-110	NA	S	%REC	4/13/2015 8:23 PM
Surr: Phenol-d5	0	NA	25.8-110	NA	S	%REC	4/13/2015 8:23 PM
Surr: 2,4,6-Tribromophenol	0	NA	63.8-110	NA	S	%REC	4/13/2015 8:23 PM
Surr: Nitrobenzene-d5	0.180	NA	61.8-110	NA	S	%REC	4/13/2015 8:23 PM
Surr: 2-Fluorobiphenyl	0	NA	58.6-110	NA	S	%REC	4/13/2015 8:23 PM
Surr: 4-Terphenyl-d14	0	NA	55.1-110	NA	S	%REC	4/13/2015 8:23 PM

Notes:

Surrogate inadvertantly omited for the matrix spike sample.

VOLATILE ORGANIC COMPOUNDS-82	260		Method: S	SW8260	B (1996)		Analyst: JM	
Benzene	ND	0.500	1.00	NA		µg/L	4/12/2015 2:38 PM	PA/VA
Chlorobenzene	ND	0.500	1.00	NA		µg/L	4/12/2015 2:38 PM	PA/VA
Dibromochloromethane	0.500	0.500	1.00	NA	J	µg/L	4/12/2015 2:38 PM	PA/VA
1,2-Dichlorobenzene	ND	0.500	1.00	NA		µg/L	4/12/2015 2:38 PM	PA/VA
1,3-Dichlorobenzene	ND	0.500	1.00	NA		µg/L	4/12/2015 2:38 PM	PA/VA
1,4-Dichlorobenzene	1.19	0.500	1.00	NA		µg/L	4/12/2015 2:38 PM	PA/VA
Surr: 1,2-Dichloroethane-d4	105	NA	68.7-129	NA		%REC	4/12/2015 2:38 PM	
Surr: 4-Bromofluorobenzene	103	NA	71.8-127	NA		%REC	4/12/2015 2:38 PM	
Surr: Dibromofluoromethane	110	NA	74.3-124	NA		%REC	4/12/2015 2:38 PM	
Surr: Toluene-d8	91.3	NA	71.4-129	NA		%REC	4/12/2015 2:38 PM	
BOD, 5 Day, 20°C			Method: S	SM5210	B-2001		Analyst: CB	
Biochemical Oxygen Demand	4	2	5	NA	J	mg/L	3/31/2015 4:02 PM	PA/VA
Chemical Oxygen Demand			Method: E (1993)	EPA 410).4, Rev.	2	Analyst: SF	
Chemical Oxygen Demand	24	4	10	NA		mg/L	3/31/2015 7:49 AM	PA/VA
HEXAVALENT CHROMIUM BY IC			Method: E 3.3 (1994)	EPA 218	3.6, Rev.		Analyst: CF	
Chromium (VI)	ND	0.0003	0.0010	NA		mg/L	3/31/2015 1:46 PM	
ANIONS by ION CHROMATOGRAPHY			Method: E (1993)	EPA 300).0, Rev.	2.1	Analyst: CF	
Chloride	136	1.00	5.00	NA		mg/L	3/31/2015 11:44 AM	
Fluoride	0.28	0.05	0.20	NA		ma/L	3/31/2015 11:44 AM	

Page 14 of 18

WO#: 1503Y72

Date Reported: 4/17/2015

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/30/2015 11:40:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	3/30/2015
Lab ID:	1503Y72-03A	Matrix:	Liquid
Client Sample ID:	3-WHEELING POTW EFFLUENT	Site ID:	PHASE II

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	IELAP
Sulfate	158	5.00	25.0	NA		mg/L	3/31/2015 11:44 AM	
Notes:								
Matrix spike recoveries were not within	method criteria c	lue to ma	trix interferen	ce. LCS r	ecoveries	indicate me	thod was in control.	
ANIONS by ION CHROMATOG	RAPHY-48 H	OUR	Method: (1993)	EPA 30	0.0, Rev	/.2.1	Analyst: CF	
Nitrogen, Nitrate	2.50	0.10	0.50	NA		mg/L	3/31/2015 11:44 AM	
Nitrogen, Nitrite	ND	0.05	0.50	NA		mg/L	3/31/2015 11:44 AM	
Notes:								
Matrix spike recoveries were not within	method criteria c	lue to ma	ıtrix interferen	ce. LCS r	ecoveries	indicate me	thod was in control.	
TOTAL KJELDAHL NITROGEN	(TKN)		Method: 2.0 (1993	EPA 35 [.] 3)	1.2, Rev	Ι.	Analyst: JH	
Nitrogen, Kjeldahl, Total	9.11	0.40	2.00	NA		mg/L	4/1/2015 10:40 AM	PA/VA
OIL and GREASE			Method:	EPA 16	64 Rev	. A	Analyst: CC	
Oil & Grease	ND	2.0	5.0	NA		mg/L	3/31/2015 4:02 PM	PA/VA
CYANIDE, Free			Method:	SM4500	-CN I-1	997	Analyst: JH	
Cyanide, Free	ND	0.005	0.020	NA		mg/L	4/6/2015 10:14 AM	
AMMONIA NITROGEN			Method: (1993)	EPA 350	0.1, Rev	/.2.	Analyst: JH	
Nitrogen, Ammonia (As N)	8.72	0.40	1.00	NA		mg/L	4/10/2015 5:24 PM	PA/VA
CONDUCTIVITY			Method:	SM2510) B - 199	97	Analyst: KY	
Specific Conductivity	1,200	NA	NA	NA		µmhos/cm	4/3/2015 2:00 PM	PA/VA
TOTAL DISSOLVED SOLIDS			Method:	SM2540	C-1997	7	Analyst: KY	
Total Dissolved Solids	595	5	10	NA		mg/L	3/31/2015 5:10 PM	PA/VA
TOTAL SUSPENDED SOLIDS			Method:	SM2540	D-1997	7	Analyst: KY	
Total Suspended Solids	3.5	1.0	5.0	NA	J	mg/L	3/31/2015 4:19 PM	PA/VA
ACIDITY			Method:	SM2310) B-1997	7	Analyst: DSD	
Acidity, Total	48.4	1.0	10	NA		mg/L	3/31/2015 4:51 PM	PA/VA

Date Reported: 4/17/2015

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/30/2015 11:40:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	3/30/2015
Lab ID:	1503Y72-03A	Matrix:	Liquid
Client Sample ID:	3-WHEELING POTW EFFLUENT	Site ID:	PHASE II

Analysis	Result	MDL	PQL	MCL	Qual Units	Date Analyzed NE	ELAP
ALKALINITY			Method:	SM2320	B-1997	Analyst: DSD	
Alkalinity, Total (As CaCO3)	181	1.0	10	NA	mg/L	3/31/2015 4:51 PM	PA/VA
pH - LAB TEST, HOLD TIME EXPIR	ED		Method:	SM4500	-H+-B-2000	Analyst: DSD	
рН	6.87	NA	NA	NA	SU	3/31/2015 4:51 PM	

Page 16 of 18

Date Reported: 4/17/2015

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/30/2015 11:40:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	3/30/2015
Lab ID:	1503Y72-03B	Matrix:	Liquid
Client Sample ID:	3-WHEELING POTW EFFLUENT	Site ID:	PHASE II

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
DISSOLVED METALS BY ICP			Method: (1994)	EPA 20	0.7 Rev	/. 4.4	Analyst: CGW	
Iron	0.037	0.010	0.100	NA	J	mg/L	4/2/2015 12:52 PM	PA/VA
Manganese	0.045	0.002	0.100	NA	J	mg/L	4/2/2015 12:52 PM	PA/VA

Page 17 of 18

Date Reported: 4/17/2015

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/30/2015 12:00:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	3/30/2015
Lab ID:	1503Y72-04A	Matrix:	Trip Blank
Client Sample ID:	TRIP BLANK	Site ID:	PHASE II

Qual Units **Date Analyzed NELAP** PQL MCL MDL Result Analysis **VOLATILE ORGANIC COMPOUNDS-8260** Method: SW8260B (1996) Analyst: JM 0.500 1.00 NA 4/12/2015 3:11 PM PA/VA Benzene ND µg/L Chlorobenzene ND 0.500 1.00 NA 4/12/2015 3:11 PM PA/VA µg/L 4/12/2015 3:11 PM PA/VA Dibromochloromethane 0.500 1.00 NA ND µg/L 0.500 1.00 NA 1,2-Dichlorobenzene ND 4/12/2015 3:11 PM PA/VA µg/L 1,3-Dichlorobenzene ND 0.500 1.00 NA 4/12/2015 3:11 PM PA/VA µg/L 1,4-Dichlorobenzene ND 0.500 1.00 NA 4/12/2015 3:11 PM PA/VA µg/L Surr: 1,2-Dichloroethane-d4 104 NA 68.7-129 NA %REC 4/12/2015 3:11 PM Surr: 4-Bromofluorobenzene 100 NA 71.8-127 NA 4/12/2015 3:11 PM %REC Surr: Dibromofluoromethane 109 NA 74.3-124 NA %REC 4/12/2015 3:11 PM Surr: Toluene-d8 91.8 NA 71.4-129 NA 4/12/2015 3:11 PM %REC


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

Thursday, April 30, 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/LEACHATE ANALYSIS Work Order #: 1503Y76 Dear GEORGE CARICO:

REI Consultants, Inc. received 3 sample(s) on 3/30/2015 for the analyses presented in the following report.

Sincerely,

Kathy Berry

Kathy Berry



Date Reported: 4/30/2015

Client: MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE

Project: DRILL CUTTING/LEACHATE ANALYSIS

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

REI Consultants, Inc. - Analytical Report

Date Reported: 4/30/2015

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/30/2015 10:05:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	3/30/2015
Lab ID:	1503Y76-01A	Matrix:	Liquid
Client Sample ID:	1-SHORT CREEK/OPEN LF	Site ID:	PHASE II

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	3.1		Analyst: Sub
Radium-226	see attached	NA	NA	NA			
RADIUM-228			Method:	EPA 904	l.0		Analyst: Sub
Radium-228	see attached	NA	NA	NA			
STRONTIUM-90			Method:	EPA 905	5.0		Analyst: Sub
Strontium-90	see attached	NA	NA	NA			

REI Consultants, Inc. - Analytical Report

Date Reported: 4/30/2015

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/30/2015 10:55:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	3/30/2015
Lab ID:	1503Y76-02A	Matrix:	Liquid
Client Sample ID:	2-SHORT CREEK/CLOSED LF	Site ID:	PHASE II

Analysis	Result	MDL	PQL	MCL	Qual Uni	its 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. - Analytical Report

Date Reported: 4/30/2015

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/30/2015 11:40:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	3/30/2015
Lab ID:	1503Y76-03A	Matrix:	Liquid
Client Sample ID:	3-WHEELING POTW EFFLUENT	Site ID:	PHASE II

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			



Pace Analytical Services, Inc. 1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

April 22, 2015

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

RE: Project: 1503Y76 Pace Project No.: 30144826

Dear Ms. Berry:

Enclosed are the analytical results for sample(s) received by the laboratory on April 06, 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,

Carino a. Ferrio

Carin Ferris carin.ferris@pacelabs.com Project Manager

Enclosures





Pace Analytical Services, Inc. 1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

CERTIFICATIONS

 Project:
 1503Y76

 Pace Project No.:
 30144826

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-042 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



SAMPLE SUMMARY

 Project:
 1503Y76

 Pace Project No.:
 30144826

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30144826001	1503Y76-01A	Water	03/30/15 10:05	04/06/15 15:20
30144826002	1503Y76-02A	Water	03/30/15 10:55	04/06/15 15:20
30144826003	1503Y76-03A	Water	03/30/15 11:40	04/06/15 15:20



SAMPLE ANALYTE COUNT

 Project:
 1503Y76

 Pace Project No.:
 30144826

Lab ID	Sample ID	Method	Analysts	Analytes Reported
30144826001	 1503Y76-01A	SM 7110C	FCC	1
		EPA 900.0	FCC	1
		EPA 903.1	JC2	1
		EPA 904.0	JLW	1
		ASTM D5811-95	LAL	1
30144826002	1503Y76-02A	SM 7110C	FCC	1
		EPA 900.0	FCC	1
		EPA 903.1	JC2	1
		EPA 904.0	JLW	1
		ASTM D5811-95	LAL	1
30144826003	1503Y76-03A	EPA 900.0	FCC	2
		EPA 903.1	JC2	1
		EPA 904.0	JLW	1
		ASTM D5811-95	LAL	1



 Project:
 1503Y76

 Pace Project No.:
 30144826

Method: SM 7110C

Description:7110C Gross AlphaClient:REI Consultants, Inc.Date:April 22, 2015

General Information:

2 samples were analyzed for SM 7110C. 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:

Batch Comments:

The % RPD between the GRA 7110C Laboratory Control Sample(LCS)/LCSDuplicate(LCSD) associated with the samples in this analytical project was outside of Pace¿s default acceptance criteria. Pace allows an alternate assessment using the numerical performance indicator. The value was 1.88, which is acceptable. Results have been reported without qualification. • QC Batch: RADC / 24122



 Project:
 1503Y76

 Pace Project No.:
 30144826

Method:EPA 900.0Description:900.0 Gross Alpha/BetaClient:REI Consultants, Inc.Date:April 22, 2015

General Information:

3 samples were 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:



 Project:
 1503Y76

 Pace Project No.:
 30144826

Method: EPA 903.1

Description:903.1 Radium 226Client:REI Consultants, Inc.Date:April 22, 2015

General Information:

3 samples were analyzed for EPA 903.1. 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:
 1503Y76

 Pace Project No.:
 30144826

Method: EPA 904.0

Description:904.0 Radium 228Client:REI Consultants, Inc.Date:April 22, 2015

General Information:

3 samples were analyzed for EPA 904.0. 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:



 Project:
 1503Y76

 Pace Project No.:
 30144826

Method: ASTM D5811-95

Description:ASTM D5811 Sr 89/90 EichromClient:REI Consultants, Inc.Date:April 22, 2015

General Information:

3 samples were 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/23997

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

- 1503Y76-01A (Lab ID: 30144826001)
 - Strontium-90
- 1503Y76-02A (Lab ID: 30144826002)
- Strontium-90
- 1503Y76-03A (Lab ID: 30144826003)
 - Strontium-90
- BLANK (Lab ID: 877119)
 - Strontium-90

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



ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 1503Y76

Pace Project No.: 30144826

Sample Acceptance Policy Waiver on file from the client. • Upon receipt at the laboratory, six mis of nitric acid were added to the sample to meet the sample preservation requirement of pH • 2 for radiochemistry analysis. Parameters Method Act ± Unc (MDC) Carr Trac Units Analyzed CAS No. Gross Alpha SM 7110C 555 ± 4.06 (6.62) C:NA TNA pCi/L 04/18/15 15:30 12587-46-1 Gross Beta EPA 900.0 154 ± 30.0 (12.8) C:NA T:NA pCi/L 04/11/15 19:46 12587-47-2 Radium-226 EPA 903.1 1.67 ± 1.54 (0.907) C:NA T:86% pCi/L 04/16/15 12:12 13982-63-3 Radium-228 EPA 904.0 2.37 ± 1.51 (3.56) C:G99% T:75% pCi/L 04/10/15 21:24 10098-97-2 Strontium-90 ASTM D5811-95 Collected: 03/30/15 10:55 Received: 04/06/15 15:20 Matrix: Water PWS: Sample Acceptance Policy Waiver on file from the client. • Upon receipt at the laboratory, 3 mils of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis. CAS No. Parameters Method Act ± Unc (MDC) Carr Trac Units Analyzed CAS No. <	Sample: 1503Y76-01A PWS:	Lab ID: 30144826 Site ID:	001 Collected: 03/30/15 10:05 Sample Type:	Received:	04/06/15 15:20 M	Matrix: Water	
Parameters Method Act ± Unc (MDC) Carr Trac Units Analyzed CAS No. Gross Alpha SM 7110C 5.55 ± 4.06 (6.62) pCi/L 04/18/15 15:30 12587-46-1 Gross Beta EPA 900.0 154 ± 30.0 (12.8) pCi/L 04/18/15 15:20 12587-46-1 Radium-226 EPA 903.1 1.67 ± 1.54 (0.907) pCi/L 04/16/15 12:12 13982-63-3 Radium-228 EPA 904.0 2.37 ± 1.81 (3.56) pCi/L 04/17/15 16:39 15262-20-1 Strontium-90 ASTM D5811-95 -0.0800 ± 1.45 (2.66) pCi/L 04/10/15 21:24 10098-97-2 Sample: 1503Y76-02A Lab ID: 30144826002 Collected: 03/30/15 10:55 Received: 04/06/15 15:20 Matrix: Water PWS: Site ID: Sample Type: Sample Type: Comments: • Sample Acceptance Policy Waiver on file from the client. Upon receipt at the laboratory, 3 mis of nitric acid were added to the sample to meet the sample preservation requirement of PH <2 for radiochemistry analysis. C:NA T:NA Gross Alpha SM 7110C 3.16 ± 2.43 (4.07) pCi/L 04/18/15 15:30	Comments: • Sample Accep • Upon receipt a <2 for radiocher	tance Policy Waiver on file from a at the laboratory, six mls of nitric a mistry analysis.	the client. acid were added to the sample to n	neet the sam	ple preservation req	uirement of pł	ł
Gross Alpha SM 7110C 5.55 ± 4.06 (6.62) pCi/L 04/18/15 15:30 12587-46-1 Gross Beta EPA 900.0 154 ± 30.0 (12.8) pCi/L 04/18/15 15:30 12587-46-1 Radium-226 EPA 903.1 1.67 ± 1.54 (0.907) pCi/L 04/16/15 12:12 13982-63-3 Radium-228 EPA 904.0 2.37 ± 1.81 (3.56) pCi/L 04/17/15 16:39 15262-20-1 Strontium-90 ASTM D5811-95 -0.0800 ± 1.45 (2.66) pCi/L 04/10/15 21:24 10098-97-2 Comments: • Sample Acceptance Policy Waiver on file from the client. • Upon receipt at the laboratory, 3 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis. 24 for radiochemistry analysis. Parameters Method Act ± Unc (MDC) Carr Trac Units Analyzed CAS No. Gross Beta EPA 903.1 2.61 ± 1.28 (0.416/15 15:20 12587-46-1 C:NA T:NA SM 7110C 3.16 ± 2.43 (4.07) pCi/L 04/18/15 15:30 12587-46-1 Gross Beta EPA 900.0 <td< th=""><th>Parameters</th><th>Method</th><th>Act ± Unc (MDC) Carr Trac</th><th>Units</th><th>Analyzed</th><th>CAS No.</th><th>Qual</th></td<>	Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Gross Beta EPA 900.0 154 ± 30.0 (12.8) pCi/L 04/11/15 19:46 12587-47-2 Radium-226 EPA 903.1 1.67 ± 1.54 (0.907) pCi/L 04/11/15 12:12 13982-63-3 Radium-228 EPA 904.0 2.37 ± 1.81 (3.56) pCi/L 04/17/15 16:39 15262-20-1 Strontium-90 ASTM D5811-95 -0.0800 ± 1.45 (2.66) pCi/L 04/10/15 21:24 10098-97-2 Sample: 1503Y76-02A Lab ID: 30144826002 Collected: 03/30/15 10:55 Received: 04/06/15 15:20 Matrix: Water PWS: Sample Acceptance Policy Waiver on file from the client. • Upon receipt at the laboratory, 3 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH 24 for radiochemistry analysis. Parameters Method Act ± Unc (MDC) Carr Trac Units Analyzed CAS No. Gross Beta EPA 903.1 2.16 ± 1.28 (0.416) pCi/L 04/11/15 19:46 12587-47-2 Gross Beta EPA 903.1 2.16 ± 1.28 (0.416) pCi/L 04/11/15 19:46 12587-47-2	Gross Alpha	SM 7110C	5.55 ± 4.06 (6.62) C:NA T:NA	pCi/L	04/18/15 15:30	12587-46-1	
Radium-226 EPA 903.1 1.67 ± 1.54 (0.907) C:NA T:86% pCi/L 04/16/15 12:12 13982-63-3 Radium-228 EPA 904.0 2.37 ± 1.81 (3.56) pCi/L 04/17/15 16:39 15262-20-1 Strontium-90 ASTM D5811-95 -0.0800 ± 1.45 (2.66) pCi/L 04/10/15 21:24 10098-97-2 Sample: 1503Y76-02A Lab ID: 30144826002 Collected: 03/30/15 10:55 Received: 04/06/15 15:20 Matrix: Water PWS: Site ID: Sample Type: Sample Acceptance Policy Waiver on file from the client. • Upon receipt at the laboratory, 3 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis.	Gross Beta	EPA 900.0	154 ± 30.0 (12.8) C:NA T:NA	pCi/L	04/11/15 19:46	12587-47-2	
Radium-228 EPA 904.0 2.37 ± 1.81 (3.56) pCi/L 04/17/15 16:39 15262-20-1 Strontium-90 ASTM D5811-95 -0.0800 ± 1.45 (2.66) pCi/L 04/10/15 21:24 10098-97-2 Sample: 1503Y76-02A Lab ID: 30144826002 Collected: 03/30/15 10:55 Received: 04/06/15 15:20 Matrix: Water PWS: Site ID: Sample Type: Sample type: Collected: 03/30/15 10:55 Received: 04/06/15 15:20 Matrix: Water PWS: Site ID: Sample Type: Sample type: Collected: 03/30/15 10:55 Received: 04/06/15 15:20 Matrix: Water PWS: Site ID: Sample Type: Sample Type: Collected: 03/30/15 10:55 Received: 04/06/15 15:20 Matrix: Water PWS: Site ID: Site ID: Sample Acceptance Policy Waiver on file from the client. Units Analyzed CAS No. Gross Alpha SM 7110C 3.16 ± 2.43 (4.07) pCi/L 04/18/15 15:30 12587-46-1 Gross Beta EPA 900.0 54.6 ± 11.1 (7.01) pCi/L 04/16/15 12:14 13982-63-3	Radium-226	EPA 903.1	1.67 ± 1.54 (0.907) C:NA T:86%	pCi/L	04/16/15 12:12	13982-63-3	
Strontium-90 ASTM D5811-95 -0.0800 ± 1.45 (2.66) C:122% T:NA pCi/L 04/10/15 21:24 10098-97-2 Sample: 1503Y76-02A Lab ID: 30144826002 Collected: 03/30/15 10:55 Received: 04/06/15 15:20 Matrix: Water PWS: Sample Acceptance Policy Waiver on file from the client. Sample Acceptance Policy Waiver on file from the client. Outpon receipt at the laboratory, 3 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH < 2 for radiochemistry analysis. Parameters Method Act ± Unc (MDC) Carr Trac Units Analyzed CAS No. Gross Alpha SM 7110C 3.16 ± 2.43 (4.07) pCi/L 04/11/15 15:30 12587-46-1 Gross Beta EPA 900.0 54.6 ± 11.1 (7.01) pCi/L 04/16/15 12:14 13982-63-3 Radium-226 EPA 903.1 2.61 ± 1.28 (0.416) pCi/L 04/17/15 16:39 15262-20-1 Strontium-90 ASTM D5811-95 -1.01 ± 0.921 (1.73) pCi/L 04/10/15 21:24 10098-97-2 Sample: 1503Y76-03A Lab ID: 30144826003 Collected: 03/30/15 11:40 Received: 04/06/15 15:20 Matrix: Water	Radium-228	EPA 904.0	2.37 ± 1.81 (3.56) C:69% T:75%	pCi/L	04/17/15 16:39	15262-20-1	
Sample: 1503Y76-02A Lab ID: 30144826002 Collected: 03/30/15 10:55 Received: 04/06/15 15:20 Matrix: Water PWS: Site ID: Sample Type: Sample Acceptance Policy Waiver on file from the client. • Upon receipt at the laboratory, 3 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis.	Strontium-90	ASTM D5811-95	-0.0800 ± 1.45 (2.66) C:122% T:NA	pCi/L	04/10/15 21:24	10098-97-2	N2
Comments: Sample Acceptance Policy Waiver on file from the client. • Upon receipt at the laboratory, 3 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis. Parameters Method Act ± Unc (MDC) Carr Trac Units Analyzed CAS No. Gross Alpha SM 7110C 3.16 ± 2.43 (4.07) pCi/L 04/18/15 15:30 12587-46-1 Gross Alpha SM 7110C 3.16 ± 2.43 (4.07) pCi/L 04/18/15 15:30 12587-46-1 Gross Beta EPA 900.0 54.6 ± 11.1 (7.01) pCi/L 04/11/15 19:46 12587-47-2 Radium-226 EPA 903.1 2.61 ± 1.28 (0.416) pCi/L 04/16/15 12:14 13982-63-3 Radium-228 EPA 904.0 1.30 ± 0.582 (0.959) pCi/L 04/17/15 16:39 15262-20-1 Strontium-90 ASTM D5811-95 -1.01 ± 0.921 (1.73) pCi/L 04/10/15 21:24 10098-97-2 Sample: 1503Y76-03A Lab ID: 30144826003 Collected: 03/30/15 11:40 Received: 04/06/15 15:20 Matrix: Water	Sample: 1503Y76-02A PWS:	Lab ID: 30144826 Site ID:	002 Collected: 03/30/15 10:55 Sample Type:	Received:	04/06/15 15:20 M	Matrix: Water	
Parameters Method Act ± Unc (MDC) Carr Trac Units Analyzed CAS No. Gross Alpha SM 7110C 3.16 ± 2.43 (4.07) C:NA T:NA pCi/L 04/18/15 15:30 12587-46-1 Gross Beta EPA 900.0 54.6 ± 11.1 (7.01) C:NA T:NA pCi/L 04/11/15 19:46 12587-47-2 Radium-226 EPA 903.1 2.61 ± 1.28 (0.416) C:NA T:97% pCi/L 04/16/15 12:14 13982-63-3 Radium-228 EPA 904.0 1.30 ± 0.582 (0.959) C:76% T:79% pCi/L 04/17/15 16:39 15262-20-1 Strontium-90 ASTM D5811-95 -1.01 ± 0.921 (1.73) C:101% T:NA pCi/L 04/10/15 21:24 10098-97-2 Sample: 1503Y76-03A Lab ID: 30144826003 Collected: 03/30/15 11:40 Received: 04/06/15 15:20 Matrix: Water	Comments: • Sample Accep • Upon receipt a <2 for radiocher	tance Policy Waiver on file from a at the laboratory, 3 mls of nitric ac mistry analysis.	the client. id were added to the sample to me	eet the sampl	e preservation requi	irement of pH	
Gross Alpha SM 7110C 3.16 ± 2.43 (4.07) C:NA T:NA pCi/L 04/18/15 15:30 12587-46-1 Gross Beta EPA 900.0 54.6 ± 11.1 (7.01) C:NA T:NA pCi/L 04/18/15 15:30 12587-46-1 Radium-226 EPA 903.1 2.61 ± 1.28 (0.416) C:NA T:97% pCi/L 04/16/15 12:14 13982-63-3 Radium-228 EPA 904.0 1.30 ± 0.582 (0.959) C:76% T:79% pCi/L 04/17/15 16:39 15262-20-1 Strontium-90 ASTM D5811-95 -1.01 ± 0.921 (1.73) C:101% T:NA pCi/L 04/10/15 21:24 10098-97-2 Sample: 1503Y76-03A Lab ID: 30144826003 Collected: 03/30/15 11:40 Received: 04/06/15 15:20 Matrix: Water	Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Gross Beta EPA 900.0 54.6 ± 11.1 (7.01) C:NA T:NA pCi/L 04/11/15 19:46 12587-47-2 Radium-226 EPA 903.1 2.61 ± 1.28 (0.416) C:NA T:97% pCi/L 04/16/15 12:14 13982-63-3 Radium-228 EPA 904.0 1.30 ± 0.582 (0.959) C:76% T:79% pCi/L 04/17/15 16:39 15262-20-1 Strontium-90 ASTM D5811-95 -1.01 ± 0.921 (1.73) C:101% T:NA pCi/L 04/10/15 21:24 10098-97-2 Sample: 1503Y76-03A Lab ID: 30144826003 Collected: 03/30/15 11:40 Received: 04/06/15 15:20 Matrix: Water	Gross Alpha	SM 7110C	3.16 ± 2.43 (4.07) C:NA T:NA	pCi/L	04/18/15 15:30	12587-46-1	
Radium-226 EPA 903.1 2.61 ± 1.28 (0.416) C:NA T:97% pCi/L 04/16/15 12:14 13982-63-3 Radium-228 EPA 904.0 1.30 ± 0.582 (0.959) C:76% T:79% pCi/L 04/17/15 16:39 15262-20-1 Strontium-90 ASTM D5811-95 -1.01 ± 0.921 (1.73) C:101% T:NA pCi/L 04/10/15 21:24 10098-97-2 Sample: 1503Y76-03A Lab ID: 30144826003 Collected: 03/30/15 11:40 Received: 04/06/15 15:20 Matrix: Water	Gross Beta	EPA 900.0	54.6 ± 11.1 (7.01) C:NA T:NA	pCi/L	04/11/15 19:46	12587-47-2	
Radium-228 EPA 904.0 1.30 ± 0.582 (0.959) C:76% T:79% pCi/L 04/17/15 16:39 15262-20-1 Strontium-90 ASTM D5811-95 -1.01 ± 0.921 (1.73) C:101% T:NA pCi/L 04/10/15 21:24 10098-97-2 Sample: 1503Y76-03A Lab ID: 30144826003 Collected: 03/30/15 11:40 Received: 04/06/15 15:20 Matrix: Water PW/S: Site ID: Sample Type: Sample Type: Sample Type:	Radium-226	EPA 903.1	2.61 ± 1.28 (0.416) C:NA T:97%	pCi/L	04/16/15 12:14	13982-63-3	
Strontium-90 ASTM D5811-95 -1.01 ± 0.921 C:101% T:NA (1.73) pCi/L 04/10/15 21:24 10098-97-2 Sample: 1503Y76-03A Lab ID: 30144826003 Collected: 03/30/15 11:40 Received: 04/06/15 15:20 Matrix: Water PW/S: Site ID: Sample Type: Sample Type: Sample Type:	Radium-228	EPA 904.0	1.30 ± 0.582 (0.959) C:76% T:79%	pCi/L	04/17/15 16:39	15262-20-1	
Sample: 1503Y76-03A Lab ID: 30144826003 Collected: 03/30/15 11:40 Received: 04/06/15 15:20 Matrix: Water PWS: Site ID: Sample Type: <	Strontium-90	ASTM D5811-95	-1.01 ± 0.921 (1.73) C:101% T:NA	pCi/L	04/10/15 21:24	10098-97-2	N2
PWS: Site ID: Sample Lyne:	Sample: 1503Y76-03A	Lab ID: 30144826	003 Collected: 03/30/15 11:40	Received:	04/06/15 15:20 M	Matrix: Water	
Comments: • Sample Acceptance Policy Waiver on file from the client.	PWS: Comments: • Sample Acces	Site ID: stance Policy Waiver on file from	Sample Type: the client.				

<2 for radiochemistry analysis.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0	0.428 ± 1.05 (2.01) C·NA T·NA	pCi/L	04/11/15 19:46	12587-46-1	
Gross Beta	EPA 900.0	3.90 ± 1.10 (1.31) C:NA T:NA	pCi/L	04/11/15 19:46	12587-47-2	
Radium-226	EPA 903.1	0.210 ± 0.320 (0.515) C:NA T:93%	pCi/L	04/16/15 12:13	13982-63-3	
Radium-228	EPA 904.0	0.163 ± 0.383 (0.849) C:81% T:80%	pCi/L	04/21/15 16:19	15262-20-1	
Strontium-90	ASTM D5811-95	0.386 ± 0.862 (1.54) C:100% T:NA	pCi/L	04/10/15 21:24	10098-97-2	N2



Project:	1503Y76					
Pace Project No.:	30144826					
QC Batch:	RADC/23997	Analysis Method:	ASTM D581	1-95		
QC Batch Method:	ASTM D5811-95	Analysis Description:	ASTM D581	1 Sr 89/90 Eichrom		
Associated Lab San	nples: 301448260	001, 30144826002, 30144826003				
METHOD BLANK:	877119	Matrix: Water				
Associated Lab San	nples: 301448260	001, 30144826002, 30144826003				
Paran	neter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers	
Strontium-90		0.465 ± 0.489 (1.02) C:100% T:NA	pCi/L	04/10/15 16:43	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:	1503Y76						
Pace Project No.:	30144826						
QC Batch:	RADC/23982		Analysis Method:	EPA 904.0			
QC Batch Method:	EPA 904.0		Analysis Description:	904.0 Radiu	m 228		
Associated Lab Sar	nples: 30144826	003					
METHOD BLANK:	876223		Matrix: Water				
Associated Lab Sar	nples: 30144826	003					
Parar	neter	Act ±	Jnc (MDC) Carr Trac	Units	Analyzed	Qualifiers	
Radium-228		0.553 ± 0.385	(0.755) C:80% T:91%	pCi/L	04/21/15 16:19		

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:	1503Y76					
Pace Project No.:	30144826					
QC Batch:	RADC/24010	Analysis Method:	EPA 900.0			
QC Batch Method:	EPA 900.0	Analysis Description:	900.0 Gross	Alpha/Beta		
Associated Lab Sar	mples: 30144826	001, 30144826002, 30144826003				
METHOD BLANK:	877132	Matrix: Water				
Associated Lab Sar	mples: 30144826	001, 30144826002, 30144826003				
Parar	neter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers	
Gross Alpha		-0.122 ± 0.765 (2.10) C:NA T:NA	pCi/L	04/11/15 14:26		
Gross Beta		-0.040 ± 0.665 (1.69) C:NA T:NA	pCi/L	04/11/15 14:26		

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:	1503Y76						
Pace Project No.:	30144826						
QC Batch:	RADC/24122		Analysis Method:	SM 7110C			
QC Batch Method:	SM 7110C		Analysis Description:	7110C Gros	s Alpha		
Associated Lab San	nples: 30144826	001, 30144826002					
METHOD BLANK:	881300		Matrix: Water				
Associated Lab San	nples: 30144826	001, 30144826002					
Paran	neter	Act ± Unc (N	IDC) Carr Trac	Units	Analyzed	Qualifiers	
Gross Alpha		-0.0142 ± 0.698 (1.9	95) C:NA T:NA	pCi/L	04/18/15 17:08		

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:	1503Y76						
Pace Project No.:	30144826						
QC Batch:	RADC/24015		Analysis Method:	EPA 903.1			
QC Batch Method:	EPA 903.1		Analysis Description:	903.1 Radiur	n-226		
Associated Lab San	nples: 30144826	001, 301448260	002, 30144826003				
METHOD BLANK:	877137		Matrix: Water				
Associated Lab San	nples: 30144826	001, 301448260	002, 30144826003				
Paran	neter	Act ± l	Jnc (MDC) Carr Trac	Units	Analyzed	Qualifiers	
Radium-226		0.203 ± 0.399	(0.730) C:NA T:92%	pCi/L	04/16/15 12:24		-

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:	1503Y76						
Pace Project No.:	30144826						
QC Batch:	RADC/24019		Analysis Method:	EPA 904.0			
QC Batch Method:	EPA 904.0		Analysis Description:	904.0 Radiu	ım 228		
Associated Lab Sam	nples: 30144826	001, 30144826002					
METHOD BLANK:	877141		Matrix: Water				
Associated Lab Sam	nples: 30144826	001, 30144826002					
Param	neter	Act ± Unc	(MDC) Carr Trac	Units	Analyzed	Qualifiers	
Radium-228		0.288 ± 0.384 (0.	.822) C:79% T:88%	pCi/L	04/17/15 16:46		

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:
 1503Y76

 Pace Project No.:
 30144826

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

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

AATOR-PACE_PA 1638 ROSEYT	2 - 1 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 -		Please	e Include Email Ada	ress of Report	Recipient Whenever Possible	e e la constante tu	Beaver, WV 25813 TEL: (304) 255-2500 FAX: (304) 255-2572 Website: www.reiclabs.com
1638 ROSEYT	COMPANY	a a	ACE ANAL	LYTICAL SERV	/IC SPECIAL	, INSTRUCTIONS / COMMENTS		
	DWN ROAD				State C After a	ode: WV Please use Sample nalysis, the samples do not ne	ID as purchase order number. ed to be returned and can be dis	sposed per your standard laboratory
IE, ZIP: GREENSBURG	3, PA 15601				practic	es. All results to Kathy Berry	at kberry@reiclabs.com.	
(724) 850-5600	FAX					ANALYTICAL PARAMETERS		* Preservation Codes: > 0 None
# 050719EVF1	EMAIL:				GROSS_ GROSS_	STRONT		1.Hydrochlorie Acid 2 Nitrie Acid 3 Sulfarie Acid
SAMPLE ID Client Se	mple ID	Bottle Type	MATRIX	DATE COLLECTED	ALEPIA_SUB (EPA 903.1) A BETA_SUB (EPA 900.0) A ALEPIA_SUB (EPA 900.0) A NUMBER OF CONTAINERS *	TIUM_90_SUB (EPA 905.0)		 4 Sodium Thiosulfate 5 Sodium Arsenite 5 Sodium Hydroxide 8 Sodium Hydroxide 7 Ascorbic Acid 8 Sodium SulferHCL 9 Patassium Dibydrogen Citrate 10 Bromium Chloride COMMENTS:
503Y76-01A 1-SHORT CREEK/OPE	. IL		Liquid	3/30/2015 10:05:00 AN	1 V V V	N 1	100	
503Y76-02A 2-SHORT CREEK/CLC	SED LF		Liquid	3/30/2015 10:55:00 AM	1 1 1 1		200	
503Y76-03A 3-WHEELIN POTW EFFL	ULUENT .		Liquid	3/30/2015 11:40:00 Alv	$\frac{1}{\sqrt{\sqrt{\lambda}}}$		۲.) ٥	
ed By. A. C. Det	3/3/1/15 ^{Time:} 61.	Receiver Receiver	ad By: MJS ad By: MJS ad By: Next BD	C Date Let 10-10-10-10-10-10-10-10-10-10-10-10-10-1		Tenp of samp Comments:	T (EXTRANSMITTAL T (EXTRA 0031)TAX FOR LAB USE ON	DESIRED: LA'EMAIL D'ONLINE LY mpt to Cool 7

				pm
Sa	Imple Conditio	on Upon Receip	t	
Face Analytical Client Name	e: PEAC		Project #	30144820
		.		•
Courier: Fed Ex UPS USPS Clin	ent 🗌 Commercia	I 🛱 Pace Other		
Custody Seal on Cooler/Box Present:	Den Sei	ls intact: 🗍 ves	🗆 no Biologica	I Tissue is Frozen: Yes No
Packing Material: Rubble Wrap Bubble Ba	as None X	P Other		
Thermometer Used	e of Ice: Wet B		Samples on ice, cooling	process has begun
Cooler Temp.: Observed Temp.: MA °C C	orrection Factor:	مر مرکد °C Final Tem	oc کر ا	Date and initials of person
Temp should be above freezing to 6°C		Comments:		examining contents: 4m
Chain of Custody Present:	IEÌ¥es □No □N	/A 1		·
Chain of Custody Filled Out:	DORes DNo DN	A 2.		
Chain of Custody Relinquished:	ZØ¥es □No □N	A 3		
Sampler Name & Signature on COC:		Ad		
Samples Arrived within Hold Time:		A 5		
Short Hold Time Analysis (<72hr):		4 6)7	
Short Hold Time Analysis (<72111):		A 7		
Rush Turn Around Time Requested:	the DNA DNA		The life	
		A B.		
Correct Containers Used:		A 9.		ia: ۵.
-Pace Containers Used:		A		
Containers Intact:	Qeres INO IN	A 10,		
Filtered volume received for Dissolved tests	□Yes □No 121N/	A 11.		
Sample Labels match COC:	Des DNo DN/	A 12.		
-Includes date/time/ID/Analysis Matrix:	wt			
All containers needing preservation have been checked.	Pres □No □N/	A 13. added 6.	me Hows to 001.	added 3nd HNO3 to 002-00
All containers needing preservation are found to be in compliance with EPA recommendation.	TYes Pho DN/	A PHEZ A	mm 4/0/15	1620
exceptions: VOA, collform, TOC, O&G, Phenols	TYes No	Initial when completed	Lot # of added preservative	DU5-0264
Samples checked for dechlorination:	□Yes □No ØN	A 14.		
Headspace in VOA Vials (>6mm);	OYes ONO QN/	15.	1	
Trip Blank Present:	DYes DNo DN	16.		
Trip Blank Custody Seals Present				
Pace Trip Blank Lot # (if purchased):	2			
Client Notification/ Resolution:			Field Data Requir	red? Y / N
Person Contacted	Date	/Time:		
Comments/ Resolution:				
1				
*		3		
· · · · · · · · · · · · · · · · · · ·				
Project Manager Review:	Sen	6	Date:	417/45
Note: Whenever there is a discrepancy affecting North C (i.e. out of hold, incorrect preservative, out of temp, incor	arolina compliance sa rect containers)	mples, a copy of this form	n will be sent to the North	a Carolina DEHNR Certification Office

Page 19 of 20 J:\QAQC\Master\Document Management\Sample Mgt\SCURF\FALLC003-09 SCUR Front 3March2015

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	Cubitainer (500 ml / 4L)	•						1		< (C016-
-	Radchem Naigene (1/2 gal. / 1 gal.L)									IRF Bacl
-	Radchem Naigene (125 / 250 / 500	M	^							sci
	Wipes / swipe/ smear/ filter									
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	(im 082) XOT									
	TOC (40 ml / 250 ml)									
	(Im 025) soiloned9									
	(0550 / 500) Uutrient									
	Organics (1L)									
	Chemistry (250 / 500 / 1L)									
	Soil kit (2 SB, 1M, soil jar)									
1	Glass Jar (120 / 250 / 500 / 1L)				÷					
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page 2

30144826 Project Number:

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Pace Analytical Services, Inc. 1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

April 02, 2015

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

RE: Project: 1503Y76 Pace Project No.: 30144423

Dear Ms. Berry:

Enclosed are the analytical results for sample(s) received by the laboratory on April 01, 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,

Carino a. Ferrio

Carin Ferris carin.ferris@pacelabs.com Project Manager

Enclosures





Pace Analytical Services, Inc. 1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

CERTIFICATIONS

 Project:
 1503Y76

 Pace Project No.:
 30144423

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-042 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



SAMPLE SUMMARY

 Project:
 1503Y76

 Pace Project No.:
 30144423

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30144423001	1503Y76-01A	Water	03/30/15 10:05	04/01/15 10:00
30144423002	1503Y76-02A	Water	03/30/15 10:55	04/01/15 10:00
30144423003	1503Y76-03A	Water	03/30/15 11:40	04/01/15 10:00



SAMPLE ANALYTE COUNT

 Project:
 1503Y76

 Pace Project No.:
 30144423

Lab ID	Sample ID	Method	Analysts	Analytes Reported
30144423001	1503Y76-01A	SM 7500Rn-B	FCC	1
30144423002	1503Y76-02A	SM 7500Rn-B	FCC	1
30144423003	1503Y76-03A	SM 7500Rn-B	FCC	1



Pace Analytical Services, Inc. 1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

PROJECT NARRATIVE

 Project:
 1503Y76

 Pace Project No.:
 30144423

Method: SM 7500Rn-B

Description:7500RnB RadonClient:REI Consultants, Inc.Date:April 02, 2015

General Information:

3 samples were analyzed for SM 7500Rn-B. 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:	1503Y76							
Pace Project No.:	30144423							
Sample: 1503Y76- PWS:	-01A	Lab ID: 301444 Site ID:	23001	Collected: 03/30/15 10:05 Sample Type:	Received:	04/01/15 10:00	Matrix: Water	
Comments: • Sam	nple Acceptanc	e Policy Waiver on file fro	m the c	lient.				
Parame	eters	Method	A	ct ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radon		SM 7500Rn-B	-34.0 C:N/	9 ± 28.1 (51.0) A T:NA	pCi/L	04/01/15 23:39	10043-92-2	
Sample: 1503Y76 - PWS:	-02A	Lab ID: 301444 Site ID:	23002	Collected: 03/30/15 10:55 Sample Type:	Received:	04/01/15 10:00	Matrix: Water	
Comments: • Sam	nple Acceptanc	e Policy Waiver on file fro	m the c	lient.				
Parame	eters	Method	A	ct ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radon		SM 7500Rn-B	-2.8 C:N/	± 29.0 (50.9) A T:NA	pCi/L	04/02/15 00:12	2 10043-92-2	
Sample: 1503Y76- PWS:	-03A	Lab ID: 301444 Site ID:	23003	Collected: 03/30/15 11:40 Sample Type:	Received:	04/01/15 10:00	Matrix: Water	
Comments: • Sam	nple Acceptanc	e Policy Waiver on file fro	m the c	lient.				
Parame	eters	Method	A	ct ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radon		SM 7500Rn-B	-3.7 : C:N/	± 28.9 (50.8) A T:NA	pCi/L	04/02/15 00:46	10043-92-2	



Project:	1503Y76					
Pace Project No.:	30144423					
QC Batch:	RADC/23913	Analysis Method:	SM 7500Rn-	·B		
QC Batch Method:	SM 7500Rn-B	Analysis Description:	7500Rn B R	adon		
Associated Lab San	nples: 30144423001, 3	0144423002, 30144423003				
METHOD BLANK:	873548	Matrix: Water				
Associated Lab San	nples: 30144423001, 3	0144423002, 30144423003				
Paran	neter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers	
Radon	-1.7 ±	18.2 (32.1) C:NA T:NA	pCi/L	04/01/15 23:06		

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.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full, without the written consent of Pace Analytical Services, Inc..



QUALIFIERS

 Project:
 1503Y76

 Pace Project No.:
 30144423

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.

		5		CH	AIN OF (CUSTODY K	ECORD	COC ID: 3522		REI Consultants, PO Box Beaver, WV 25	a 22 28 51
ampro	ining the environment, o	ine client et a throu.			Please	Include Email Add	ess of Report Re	ipient Whenever Possible!	11	TEL: (304) 255-2 FAX: (304) 255-5 Website: www.reiclabs.	00 72 om
SUB	CONTRATOR PACE	PA	COMPANY:	PA	VCE ANAL	YTICAL SERV	TC SPECIAL IN	TRUCTIONS / COMMENTS:	D as murchase order mumb	ner	4. <u></u>
ADD	RESS: 1638 R	ROSEYTOWN RC	QVD				After anal	ysis, the samples do not nee All results to Kathy Berry a	od to be returned and can t t kberrv@reiclabs.com.	be disposed per your standard laborator	_
CITY	(, STATE, ZP: GREE	ENSBURG, PA 15	601		2		piacitos.				1
IOHd	NE: (724) §	850-5600	FAX:				AN T	ALYTICAL PARAMETERS		 Preservation Codes: 0 None 1 Hydrochloric Acid 	
ACO	00011 # 050719	9EVF1	EMAIL:		-		ADON			2 Nitric Acid 3 Suffuric Acid 4 Sodfum Thiosuffate	
ITEN	SAMPLE ID	Client Sample D		Bottle Type	MATRIX	DATE COLLECTED :	(913.0) (O) NUMBER OF CONTAINERS *	0 M	4423	 5 Sodium Hydroxide' Sodium Hydroxide' 6 Sodium Hydroxide 7 Ascorbic Acid 8 Sodium Sulfite/HCL 9 Porassium Dihydrogen Cirrate 10 Bromium Chloride COMMENTS: 	
	1503Y76-01A	1-SHORT CREEK/OPEN LF			iquid	3/30/2015 10:05:00 Ah	1 3 1		8	9	
2	1503Y76-02A	2-SHORT CREEK/CLOSED LF	-		iquid	3/30/2015 10:55:00 Al	1 3 V		702		
<u></u>	1503Y76-03A	3-WHEELING POTW EFFLUENT			iquid	3/30/2015 11:40:00 Ah	1 3 1 1 I		(Ja		
Rélir	nquished By Craf	L S. Date: 3/1/13	Time: { & !	Receiv	led By:	PS Det	3 (3) / /S Time: / G	:01	REPORT TRANSM	AITTAL DESIRED:	
Reli	nquished By: nquished By:	Date: Date:	Time: Time:	Receiv	ed By:	little Det	e: Time: e: Time:	000000 HMX0000	PPY (GRITE COST)	X 12 EMALL LONHING USE ONLY Assemblish Coals	1
	TAT:	Standard	B B B B B B B B B B B B B B B B B B B	HS	Next BD	2nd BD	3rd BD	Temp of sar Comments:	uples		11
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San	nple Conditio	n Upon Receip	t	
Pace Analytical Client Name	REEC		Project #	30144423
Courier: Fed Ex 🕅 UPS 🗆 USPS 🗔 Clier	nt 🗌 Commercial	Pace Other		
Tracking #: 1226x 713 137653880				I There is from the bi-
Custody Seal on Cooler/Box Present: Ques	🕅 no Seal	s intact: 🛄 yes	no Biologica	I IISSUE IS FIOZEN; Yes NO
Packing Material: Bubble Wrap <u></u> Bubble Bag	s None	Other		
Thermometer Used #6 Type	of Ice: Wet Blu	ue None 🗌	Samples on ice, cooling	process has begun
Cooler Temp.: Observed Temp.: Z-1 °C Co	rrection Factor:	<u>ーへうう</u> °C Final Ter	np: <u></u>	examining contents: SAL 3-
Temp should be above freezing to 6°C		Comments:		son u-1-11
Chain of Custody Present:	ÀlYes ⊡No □N//	A 1.		
Chain of Custody Filled Out:		A 2.		
Chain of Custody Relinquished:	XYes No N/	A 3.		
Sampler Name & Signature on COC:		A 4.		
Samples Arrived within Hold Time:		A 5.		
Short Hold Time Analysis (<72hr):		A 6.		
Rush Turn Around Time Requested:		A 7.		
Sufficient Volume:	XYes No N/	A 8.		
Correct Containers Used:	KolYes ⊡No ⊡N//	A 9.		
-Pace Containers Used:		A		
Containers Intact:	DYes DNo DN/	A 10.		
Filtered volume received for Dissolved tests	Yes No 🕬	A 11.		
Sample Labels match COC:	XYes ⊡No ⊡N/	A 12.		
-Includes date/time/ID/Analysis Matrix:	<u>nt</u>)	
All containers needing preservation have been checked.	□Yes □No 🖄N/	A 13.		
All containers needing preservation are found to be in compliance with EPA recommendation.	□Yes □No ĎN/	A	I ot # of added	
exceptions: VOA, coliform, TOC, O&G, Phenols	□Yes XNo	completed SA	A preservative	
Samples checked for dechlorination:		A 14.		
Headspace in VOA Vials (>6mm):	Yes SNO N/	A 15.		
Trip Blank Present:	TYes No DN	A 16.		
Trip Blank Custody Seals Present		A		
Pace Trip Blank Lot # (if purchased):				
Ollerst Nedification/ Preslution			Field Data Regu	uired? Y / N
Client Notification/ Resolution.	Date	e/Time:		
Comments/ Resolution:				
Project Manager Review:	D Se	Año	Date:	4/115
Note: Whenever there is a discrepancy affecting North (Carolina compliance s	amples, a copy of this f	orm will be sent to the No	rth Carolina DEHNR Certification Office
(i.e out of hold, incorrect preservative, out of temp, inco	prrect containers)	•:		Page 10 of 11

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Pace Analytical

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	Other								
	Other Ruday	M	-+						
	Ziploc							1	
	Cubitainer (500 ml / 4L)								
	Radchem Naigene (1/2 gai. / 1 gai.L)						+		
JZ	Radchem Nalgene (125 / 250 / 500 / 1L)								
Ser:	Wipes / swipe/ smear/ filter								
t Numl it Name	Bacleria (120 ml)								
Projec Clier	(Im 003) əbitiv2								
2	(Im 035) əbinay								
	(Im 06 Im 04) AOV								
	тен (1г)								
	0 % G (1F)								
	V berserved Metals preserved Y N					Ι,			
	zisi Metals								
	TOX (250 ml)								
	TOC (40 ml / 250 ml)								
-	Phenolics (250 ml)								
	Nutrient (250 / 500)		×						
	Organics (1L)								
	Chemistry (250 / 500 / 1L)								
	Soil kit (2 SB, 1M, soil jar)								
	Glass Jar (120 / 250 / 500 / 1L)								
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30144423

Page 11 of 11

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Research Environmental & Indust MAIN LABORATORY & CORPOR P.O. Box 286 - 225 Industrial Park	rial Consultants, ATE HEADQUAR Rd, Beaver, WV 258	Bil Inc. ITERS: 313 Sit	ling Address (if e ID & State <u>W</u>	different) (etzel Co Landfi	City	Proje	_{ct ID} Dri	ll Cuttir	ng/Lea	achate A	_ State Analysis	_ Zp Simple	er _J McGe
800-999-0105 • 304-255-2500 • MID-OHIO VALLEY SHENAN Service Center Service (101 17th Street 1557 Commerco Ashland, KY 41101 Verona, W 606-393-5027 540-248	WWW.reiclabs.com DOAH Center e Rd., Ste 201 30, A 24482 6 -0183	ROANOKE Service Center 29-C Peters Creek Rd Roanoke, VA 24019 540-777-1276	MORGANT Service Ce 16 Commerce Westover, WV 304-241-5	OWN nter e Drive (26501 861	See	Attachm	ient						
SAMPLE LO	G & ANAL	YSIS REQUES	т	AETHO									
TURNAROUND TIME	RU	SH TURNAROUND*	0	IS				al	11	78	Ten 0 - 10 8	· Com	- 4.47
NORMAL "Rush work needs prior la	O 5 DAY O	and will incur additiona	C 1 DAY	ANALYS				5	MS MS	し、デら GC Samplin	Teno - 9.8 ng Fee- L N	Gr.	- 7.0
NORMAL *Rush work needs prior la SAMPLE ID	O 5 DAY boratory approval No. & Type of Containers	and will incur additiona Sampling Date/Time	I charges Matrix	Sample Comp/Grab	5 0 2 -	1 2 2	3 ° 5 °1 5 5		MS	L.55 C Samplir ENTER P 0 None	Tenp - 9.8 ng Fee- L M RESERVATIVE COD	Cons A S (S): 6 Salium I	tydroxide
Normal "Rush work needs prior la sample ID 1-Wetzel Co LF	No. & Type of Containers 20	and will incur additiona Sampling Date/Time	Matrix Water	Sample Comp/Grab Grab	10 10 10	1 2 2	3 ° 5 °1 b b		MS X	L, 55 C Samplir ENTER P 0 None 1 Hydroi 2 Nitric/	Tenp - 9.8 ng Fee- L N. RESERVATIVE COD chloric Acid Acid	Cons A S E(S): 6 Salium 1 7 Ascorbic 8 Sadium 1	lydroxide Acid Bisulfate/Me
NORMAL "Rush work needs prior la sample ID I-Wetzel Co LF 2-Wetzel Co LF WWTP Effluent	No. & Type of Containers 20 23	and will incur additiona	Matrix Water Water	Sample Comp/Grab Grab Grab		1 2 2	3 ° 5 °1		MS X	L, 55 C Samplir ENTER P 0 None 1 Hydroi 2 Nitric / 3 Sulfuri 4 Sodiur	Tenp - 9.P ng Fee- L H RESERVATIVE COD chloric Acid Acid ic Acid in Thiosulfate	E(S): 6 Salium I 7 Asorbic 8 Salium I 9 Anrnoni 10 AS/A	lydroxide Acid Bisulfate/Me um Chloride H
NORMAL *Rush work needs prior la SAMPLE ID I-Wetzel Co LF P-Wetzel Co LF WWTP Effluent Trip Blank	No. & Type of Containers 20 23 1	and will incur additiona	Matrix Water Water Water	Sample Comp/Grab Grab Grab Grab			3 ° 5 °1 b b		Ms X	L.55 C Samplir ENTER P 0 None 1 Hydrov 2 Nitric / 3 Sulfuri 4 Sodiur 5 Sodiur	Tenp - 9.P ng Fee- 6 M. RESERVATIVE COD chloric Acid Acid ic Acid m Thiosulfate m Hydroxide/ m Arsenite	Const C	lydroxide Acid Bisulfate/Me um Chloride H
Normal *Rush work needs prior la sample ID 1-Wetzel Co LF 2-Wetzel Co LF WWTP Effluent Trip Blank	No. & Type of Containers 20 23 1	and will incur additiona	Matrix Water Water Water Water Choose	Sample Comp/Grab Grab Grab Grab Grab			3 * 5 *1 5 5		Ms X	L, 55 C Samplir ENTER P 0 None 1 Hydrov 2 Nitric / 3 Sulfuri 4 Sodiur 5 Sodiur Sodiur	Tenp - 9.8 ng Fee- L H, RESERVATIVE COD chloric Acid Acid ic Acid in Thiosulfate m Hydroxide/ m Arsenite *(Use blanks for pre	Cons 6 Solium 1 7 Ascribic 8 Solium 1 9 Anrmoni 10 <u>λS/A</u> 11 servatives noti	lydroxide Acid Bisulfate/Me um Chloride H
Normal *Rush work needs prior la SAMPLE ID 1-Wetzel Co LF 2-Wetzel Co LF WWTP Effluent Trip Blank	No. & Type of Containers 20 23 1	and will incur additiona	Matrix Water Water Water Choose Choose	Sample Comp/Grab Grab Grab Grab Choose Choose			3 * 5 *1 5 5		MS X	C.55 C Samplir ENTER P 0 None 1 Hydrod 2 Nitric/ 3 Sulfuri 4 Sodiur 5 Sodiur Sodiur	Tenp - 9.P ng Fee- L H RESERVATIVE COD chloric Acid Acid ic Acid m Thiosulfate m Hydroxide/ m Arsenite *(Use blanks for pre ENTS:	Cons A S (E(S): 6 Salium 1 7 Ascorbic 8 Salium 1 9 Anrmoni 10 <u>XS/A</u> 11 servatives not	lydroxide Acid Bisulfate/Me um Chloride H
NORMAL *Rush work needs prior la SAMPLE ID 1-Wetzel Co LF 2-Wetzel Co LF WWTP Effluent Trip Blank	No. & Type of Containers 20 23 1	and will incur additiona	Matrix Water Water Water Choose Choose	Sample Comp/Grab Grab Grab Grab Choose Choose Choose			3 * 5 *1 0 0		MS X	L.55 C Samplir Po None 1 Hydrov 2 Nitric / 3 Sulfuri 4 Sodiur 5 Sodiur Sodiur COMM Disso	Tong - 9.P ng Fee- 6 M RESERVATIVE COD chloric Acid Acid ic Acid in Thiosulfate in Hydroxide/ in Arsenite *(Use blanks for pre- ENTS: Ived Metals	Construction of the second sec	Hydroxide Acid Sisuifate/Me um Chloride H isted.) d Filter
Normal *Rush work needs prior la sample ID 1-Wetzel Co LF 2-Wetzel Co LF WWTP Effluent Trip Blank	No. & Type of Containers 20 23 1	and will incur additiona	Matrix Mater Water Water Choose Choose Choose	Sample Comp/Grab Grab Grab Grab Grab Choose Choose Choose Choose			3 9 5 91 5 5		MS X	C.55 C Samplir ENTER P 0 None 1 Hydrod 2 Nitric / 3 Sulfuri 4 Sodiur 5 Sodiur 5 Sodiur 5 Sodiur COMM DISSO	Tenp - 9.P ng Fee- L M. RESERVATIVE COD chloric Acid Acid ic Acid in Thiosulfate in Hydroxide/ m Arsenite *(Use blanks for pre ENTS: Ived Metals	Constant E(S): 6 Solium 1 7 Ascribic 8 Solium 1 9 Anrmoni 10 <u>λS/A</u> 11 <u></u> servatives noti	lydroxide Acid Bisulfate/Me um Chloride H isted.) d Filter
Normal *Rush work needs prior la SAMPLE ID 1-Wetzel Co LF 2-Wetzel Co LF WWTP Effluent Trip Blank	No. & Type of Containers 20 23 1	and will incur additiona	Matrix Water Water Water Choose Choose Choose Choose	Sample Comp/Grab Grab Grab Grab Choose Choose Choose Choose Choose			3 * 5 *1 5 5 0 1 1		MS X	C.55 C.Samplir ENTER P 0 None 1 Hydro 2 Nitric / 3 Sulfuri 4 Sodiur 5 Sodiur COMM DISSO	Tenp - 9.P ng Fee- L H RESERVATIVE COD chloric Acid Acid ic Acid m Thiosulfate m Hydroxide/ m Arsenite *(Use blanks for pre ENTS: Ived Metals	Constant (Constant) (Constan	lydroxide Acid Bisulfate/Met um Chloride H isted.)
NORMAL "Rush work needs prior la SAMPLE ID 1-Wetzel Co LF 2-Wetzel Co LF WWTP Effluent Trip Blank	No. & Type of Containers 20 23 1	and will incur additiona	V T DAY I charges Water Water Water Choose Choose Choose Choose Choose	Sample Comp/Grab Grab Grab Choose Choose Choose Choose Choose Choose Choose Choose Choose Choose			3 * 5 *1 0 0 1		MS X	C.55 C.Samplir P. O.None 1 Hydrov 2 Nitric / 3 Sulfuri 4 Sodiur 5 Sodiur Sodiur Disso	Tong - 9.P ng Fee- 6 M RESERVATIVE COD chloric Acid Acid ic Acid in Thiosulfate in Hydroxide/ in Arsenite *(Use blanks for pre- ENTS: Ived Metals	Construction of the second sec	Hydroxide Acid Sisulfate/Met um Chloride H isted.) d Filter
NORMAL "Rush work needs prior la "Rush work needs prior la SAMPLE ID 1-Wetzel Co LF 2-Wetzel Co LF WWTP Effluent Trip Blank	No. & Type of Containers 20 23 1	and will incur additiona	Matrix Matrix Water Water Choose Choose Choose Choose Choose Choose	Sample Comp/Grab Grab Grab Grab Choose Choose Choose Choose Choose Choose Choose		1 2 2 5 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 * 5 *1		X	Contain	Tenp - 9.8 ng Fee- 6 M. RESERVATIVE COD chloric Acid Acid ic Acid in Thiosulfate in Hydroxide/ in Arsenite *(Use blanks for pre ENTS: Ived Metals ers provided by:	Construction (Construction)	lydroxide Acid Bisulfate/Me um Chloride H isted.) d Filter
Normal "Rush work needs prior la "Rush work needs prior la Sample ID I-Wetzel Co LF 2-Wetzel Co LF WWTP Effluent Trip Blank	No. & Type of Containers 20 23 1 C's Standard Term	and will incur additiona Sampling Date/Time 12213 10:30 1050 1050 sampling Conditions. Curr 2 Felopuishe	Ary System 2	Sample Comp/Grab Grab Grab Grab Choose Choose Choose Choose Choose Choose			3 * 5 *1 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1		MS X	L.55 C Samplir ENTER P 0 None 1 Hydrod 2 Nitric / 3 Sulfuri 4 Sodiur 5 Sodiur COMM Disso	Tenp - 9.P ng Fee- L H RESERVATIVE COD chloric Acid Acid ic Acid m Thiosulfate m Hydroxide/ m Arsenite *(Use blanks for pre ENTS: Ived Metals ers provided by:	G AS E(S): 6 Solium 1 7 Ascribic 8 Solium 1 9 Anrmoni 10 <u>XS/A</u> 11 are Field	Hydroxide Acid Bisulfate/Me um Chloride H isted.) d Filter

DBPix Evaluation

REI Consultants, Inc.

FIELD LOG: pH Calibration Records 6-2010.Rev.1

Client Name:	Massime Univ	Site Location: Werer Co Co
Date:	stalir	Analyst:
Calibration Location:	Field / Laboratory	Instrument: Oakton pH Meter
4.0 Buffer Lot #:	D085-14	
7.0 Buffer Lot #:	0115-04	
10.0 Buffer Lot #:	N117-08	

pH (SU) - SM4500-H+B, 18th Edition									
Standard	Initial Reading	Reading After Calibration	Temperature °C	Comments					
4.0 Buffer	4.04	4.01	21.8						
7.0 Buffer	6.55	7.00							
10.0 Buffer	9.57	10.01							

Slope: 56.5

Comments:

Calibration at the laboratory requires a pH 7.0 QC Check

All field pH analysis must be followed by a Post Analysis pH Check

Quality Control Samples	Reading	Acceptance Range:
QC Check, 7.0	6.55	True Value + 0.1 (6.9 - 7.1)
Post Analysis QC Check, 7.0	7.03	

REI Consultants, Inc. P.O. Box 286 Beaver, WV 25813 Phone: 800-999-0105 Fax: 304-255-2572 www.reiclabs.com

WVDEP Drill Cutting / Leachate Analysis List

Aluminum

Antimony

Arsenic

Barium

Beryllium

Boron

Cadmium

Chromium

Hexavalent Chromium

Copper

Lead

Lithium

Mercury

Nickel

Selenium

Silver

Strontium

Vanadium

Zinc

Chloride

Fluoride

Nitrate as Nitrogen

Nitrite as Nitrogen

Sulfate

Total Suspended Solids

Free Cyanide

Benzene

Chlorobenzene

Chlorodibromomethane

Zor J

1,2-Dichlorobenzene

٩.,

1,3-Dichlorobenzene

1,4-Dichlorobenzene

1,4-Dinitrobenzene

1,4-Naphthoquinone

2,4-Dinitrotoluene

2,6-Dinitrotoluene

4-Nitroquinoline-1-oxide

bis(2-ethylhexyl) phthalate

Butyl benzylphthalate

Di-N-Butyl Phthalate

Di-N-Octylphthalate Diethyl Phthalate

Dimethyl Phthalate

Flouranthene

Nitrobenzene

Pentachloronitrobenzene

Gross Alpha

Gross Beta

Radium 226

Radium 228

Strontium 90

Radon

pН

Total Dissolved Solids

Total Suspended Solids

BOD 5-Day

Ammonia as Nitrogen

Total Kjeldahl Nitrogen

Oil & Grease

Acidity to pH 8.3

Jor)

Specific Conductance Alkalinity to pH 4.5 Chemical Oxygen Demand Dissolved Iron and Iron

Manganese and Dissolved Manganese



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 04, 2015

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

TEL: (304) 696-6042 FAX:

RE: DRILL CUTTING/LEACHATE ANALYSIS Work Order #: 1501P19 Dear GEORGE CARICO:

REI Consultants, Inc. received 3 sample(s) on 1/26/2015 for the analyses presented in the following report.

Kathy Berry

Kathy Berry



Date Reported: 2/4/2015

Client: MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,

Project: DRILL CUTTING/LEACHATE ANALYSIS

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

Bis(2-ethylhexyl)phthalate

Butyl benzyl phthalate

Di-n-butyl phthalate

Diethyl phthalate

Dimethyl phthalate

2,4-Dinitrotoluene

2,6-Dinitrotoluene

WO#: 1501P19

Date Reported: 2/4/2015

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Recei
Lab ID:	1501P19-01A	Matrix:
Client Sample ID:	1-WETZEL CO LF	Site ID:

Collection Date:	1/26/2015 10:30:00 AM
Date Received: Matrix:	1/26/2015 Liquid
Site ID:	WETZEL CO. LANDFILL/WWTP

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
METALS BY ICP			Method: (1994)	EPA 200).7 Rev	. 4.4	Analyst: CGW	
Aluminum	0.026	0.005	0.100	NA	J	mg/L	1/28/2015 9:04 PM	PA/VA
Antimony	ND	0.020	0.200	NA		mg/L	1/28/2015 9:04 PM	PA/VA
Arsenic	ND	0.020	0.200	NA		mg/L	1/28/2015 9:04 PM	PA/VA
Barium	1.01	0.002	0.100	NA		mg/L	1/28/2015 9:04 PM	PA/VA
Beryllium	ND	0.001	0.010	NA		mg/L	1/28/2015 9:04 PM	PA/VA
Boron	1.65	0.020	0.100	NA		mg/L	1/30/2015 6:39 PM	PA/VA
Cadmium	ND	0.001	0.020	NA		mg/L	1/28/2015 9:04 PM	PA/VA
Chromium	ND	0.005	0.100	NA		mg/L	1/28/2015 9:04 PM	PA/VA
Copper	ND	0.005	0.100	NA		mg/L	1/28/2015 9:04 PM	PA/VA
Iron	5.42	0.010	0.100	NA		mg/L	1/28/2015 9:04 PM	PA/VA
Lead	ND	0.010	0.200	NA		mg/L	1/28/2015 9:04 PM	PA/VA
Lithium	0.039	0.020	0.100	NA	J	mg/L	1/29/2015 3:33 PM	
Manganese	2.25	0.002	0.100	NA		mg/L	1/28/2015 9:04 PM	PA/VA
Nickel	0.023	0.005	0.100	NA	J	mg/L	1/28/2015 9:04 PM	PA/VA
Selenium	ND	0.020	0.200	NA		mg/L	1/28/2015 9:04 PM	PA/VA
Silver	ND	0.004	0.050	NA		mg/L	1/28/2015 9:04 PM	PA/VA
Strontium	4.12	0.001	0.010	NA		mg/L	1/29/2015 3:33 PM	PA
Vanadium	ND	0.005	0.100	NA		mg/L	1/28/2015 9:04 PM	PA/VA
Zinc	0.010	0.003	0.050	NA	J	mg/L	1/28/2015 9:04 PM	PA/VA
MERCURY, Total E245.1			Method: 3.0 (1994	EPA 24:)	5.1, Rev	<i>ı</i> .	Analyst: CR	
Mercury	ND	0.0001	0.0010	NA		mg/L	1/28/2015 11:10 AM	PA/VA
SEMIVOLATILE ORGANIC COMP	OUNDS		Method:	SW8270	D (200	7)	Analyst: JD	
1,4-Dinitrobenzene	ND	NA	0.0101	NA		mg/L	1/30/2015 2:46 PM	
1,4-Napthoquinone	ND	NA	0.0101	NA		mg/L	1/30/2015 2:46 PM	
4-Nitroquinoline-1-oxide	ND	NA	0.0503	NA		mg/L	1/30/2015 2:46 PM	
Pentachloronitrobenzene	ND	NA	0.0101	NA		- mg/L	1/30/2015 2:46 PM	

0.0050

0.0050

0.0050

0.0020

0.0020

0.0020

0.0020

ND

ND

ND

ND

ND

ND

ND

0.0101

0.0101

0.0101

0.0101

0.0101

0.0101

0.0101

NA

NA

NA

NA

NA

NA

NA

mg/L

mg/L

mg/L

mg/L

mg/L

mg/L

mg/L

Page 3 of 13

PA/VA

PA/VA

PA/VA

PA/VA

PA/VA

PA/VA

PA/VA

1/30/2015 2:46 PM

WO#: 1501P19

Date Reported: 2/4/2015

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	1/26/2015 10:30:00 AM
Project: Lab ID:	DRILL CUTTING/LEACHATE ANALYSIS 1501P19-01A	Date Received: Matrix:	1/26/2015 Liquid
Client Sample ID:	1-WETZEL CO LF	Site ID:	WETZEL CO. LANDFILL/WWTP

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
Di-n-octyl phthalate	ND	0.0050	0.0101	NA		mg/L	1/30/2015 2:46 PM	PA/VA
Fluoranthene	ND	0.0020	0.0101	NA		mg/L	1/30/2015 2:46 PM	PA/VA
Nitrobenzene	ND	0.0020	0.0101	NA		mg/L	1/30/2015 2:46 PM	PA/VA
Surr: 2-Fluorophenol	26.9	NA	32.9-110	NA	S	%REC	1/30/2015 2:46 PM	
Surr: Phenol-d5	21.2	NA	25.8-110	NA	S	%REC	1/30/2015 2:46 PM	
Surr: 2,4,6-Tribromophenol	54.6	NA	63.8-110	NA	S	%REC	1/30/2015 2:46 PM	
Surr: Nitrobenzene-d5	56.5	NA	61.8-110	NA	S	%REC	1/30/2015 2:46 PM	
Surr: 2-Fluorobiphenyl	53.1	NA	58.6-110	NA	S	%REC	1/30/2015 2:46 PM	
Surr: 4-Terphenyl-d14	50.2	NA	55.1-110	NA	S	%REC	1/30/2015 2:46 PM	

VOLATILE ORGANIC COMPOUNDS		Method: SW8260B (1996)				Analyst: JM		
Benzene	0.660	0.500	1.00	NA	J	µg/L	1/30/2015 6:21 PM	PA/VA
Chlorobenzene	3.23	0.500	1.00	NA		µg/L	1/30/2015 6:21 PM	PA/VA
Dibromochloromethane	ND	0.500	1.00	NA		µg/L	1/30/2015 6:21 PM	PA/VA
1,2-Dichlorobenzene	ND	0.500	1.00	NA		µg/L	1/30/2015 6:21 PM	PA/VA
1,3-Dichlorobenzene	ND	0.500	1.00	NA		µg/L	1/30/2015 6:21 PM	PA/VA
1,4-Dichlorobenzene	1.07	0.500	1.00	NA		µg/L	1/30/2015 6:21 PM	PA/VA
Surr: 1,2-Dichloroethane-d4	114	NA	68.7-129	NA		%REC	1/30/2015 6:21 PM	
Surr: 4-Bromofluorobenzene	80.2	NA	71.8-127	NA		%REC	1/30/2015 6:21 PM	
Surr: Dibromofluoromethane	112	NA	74.3-124	NA		%REC	1/30/2015 6:21 PM	
Surr: Toluene-d8	65.8	NA	71.4-129	NA	S	%REC	1/30/2015 6:21 PM	

BOD, 5 Day, 20°C			Method:	SM5210 B-2	2001	Analyst: VR	
Biochemical Oxygen Demand	18	2	5	NA	mg/L	1/27/2015 12:48 PM	PA/VA
Notes:							

Results of the GGA standard analysis for this sample exceeded REIC control limits.

Chemical Oxygen Demand	Method: I (1993)	EPA 410.4,	Analyst: SF				
Chemical Oxygen Demand	140	20	50	NA	mg/L	1/28/2015 8:30 AM	PA/VA
HEXAVALENT CHROMIUM BY IC			Method: I 3.3 (1994)	EPA 218.6,	Rev.	Analyst: CF	
Chromium (VI)	ND	0.0001	0.0010	NA	mg/L	1/27/2015 2:23 PM	PA/VA
ANIONS by ION CHROMATOGRAPH	Y		Method: I (1993)	EPA 300.0,	Rev.2.1	Analyst: CF	
Chloride	1,300	5.00	50.0	NA	mg/L	1/27/2015 9:47 AM	PA/VA
Fluoride	1.01	0.05	0.20	NA	mg/L	1/27/2015 9:47 AM	PA/VA

WO#: 1501P19

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	1/26/2015 10:30:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	1/26/2015
Lab ID:	1501P19-01A	Matrix:	Liquid
Client Sample ID:	1-WETZEL CO LF	Site ID:	WETZEL CO. LANDFILL/WWTP

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	IELAP
Sulfate	98.0	5.00	25.0	NA		mg/L	1/27/2015 9:47 AM	PA/VA
ANIONS by ION CHROMATOGRA	PHY-48 H	OUR	Method: (1993)	EPA 30	0.0, Rev	/.2.1	Analyst: CF	
Nitrogen, Nitrate	0.35	0.02	0.10	NA		mg/L	1/27/2015 9:47 AM	PA/VA
Nitrogen, Nitrite	ND	0.25	2.50	NA		mg/L	1/27/2015 9:47 AM	PA/VA
Notes:								
Elevated PQLs are due to matrix interferen	ce.							
TOTAL KJELDAHL NITROGEN (T	KN)		Method: 2.0 (1993	EPA 35 [.])	1.2, Rev	<i>ı</i> .	Analyst: JH	
Nitrogen, Kjeldahl, Total	70.2	4.00	20.0	NA		mg/L	1/28/2015 6:49 PM	PA/VA
OIL and GREASE			Method:	EPA 16	64 Rev	. A	Analyst: CC	
Oil & Grease	3.1	2.0	5.0	NA	J	mg/L	1/28/2015 2:00 PM	PA/VA
CYANIDE, Free			Method:	SM4500	-CN I-1	997	Analyst: JH	
Cyanide, Free	ND	0.005	0.020	NA		mg/L	1/29/2015 1:34 PM	
AMMONIA NITROGEN			Method: (1993)	EPA 350	0.1, Rev	/.2.	Analyst: JH	
Nitrogen, Ammonia (As N)	75.0	2.08	5.20	NA		mg/L	1/27/2015 5:49 PM	PA/VA
CONDUCTIVITY			Method:	SM2510	B - 199	97	Analyst: KY	
Specific Conductivity	6,120	NA	NA	NA		µmhos/cm	1/28/2015 10:00 AM	PA/VA
TOTAL DISSOLVED SOLIDS			Method:	SM2540	C-1997	7	Analyst: KY	
Total Dissolved Solids	3,500	10	20	NA		mg/L	1/27/2015 4:09 PM	PA/VA
TOTAL SUSPENDED SOLIDS			Method:	SM2540	D-1997	7	Analyst: KY	
Total Suspended Solids	11.0	2.0	10	NA		mg/L	1/27/2015 3:54 PM	PA/VA
ACIDITY			Method:	SM2310	B-1997	7	Analyst: DSD	
Acidity, Total	89.1	1.0	10	NA		mg/L	1/27/2015 10:38 AM	PA/VA
ALKALINITY			Method:	SM2320	B-1997	7	Analyst: DSD	
Alkalinity, Total (As CaCO3)	826	1.0	20.0	NA		mg/L	1/27/2015 10:38 AM	PA/VA

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	1/26/2015 10:30:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	1/26/2015
Lab ID:	1501P19-01A	Matrix:	Liquid
Client Sample ID:	1-WETZEL CO LF	Site ID:	WETZEL CO. LANDFILL/WWTP

Analysis	Result	MDL	PQL	MCL	Qual Units	Date Analyzed NE	LAP
pH - LAB TEST, HOLD TIME EXP	IRED		Method:	SM4500-	H+-B-2000	Analyst: DSD	
рН	7.44	NA	NA	NA	SU	1/27/2015 10:38 AM	PA

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	1/26/2015 10:30:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	1/26/2015
Lab ID:	1501P19-01B	Matrix:	Liquid
Client Sample ID:	1-WETZEL CO LF	Site ID:	WETZEL CO. LANDFILL/WWTP

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
DISSOLVED METALS BY ICP			Method: (1994)	EPA 200).7 Rev.	4.4	Analyst: CGW	
Iron	0.683	0.010	0.100	NA		mg/L	1/28/2015 9:08 PM	PA/VA
Manganese	2.20	0.002	0.100	NA		mg/L	1/28/2015 9:08 PM	PA/VA

WO#:	1501P19
VV O#.	1301719

Date Reported: 2/4/2015

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	1/26/2015 10:50:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	1/26/2015
Lab ID:	1501P19-02A	Matrix:	Liquid
Client Sample ID:	2-WETZEL CO LF WWTP EFFLUENT	Site ID:	WETZEL CO. LANDFILL/WWTP

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	IELAP
METALS BY ICP			Method: (1994)	EPA 20	0.7 Rev	. 4.4	Analyst: CGW	
Aluminum	0.668	0.005	0.100	NA		mg/L	1/28/2015 9:11 PM	PA/VA
Antimony	ND	0.020	0.200	NA		mg/L	1/28/2015 9:11 PM	PA/VA
Arsenic	ND	0.020	0.200	NA		mg/L	1/28/2015 9:11 PM	PA/VA
Barium	0.953	0.002	0.100	NA		mg/L	1/28/2015 9:11 PM	PA/VA
Beryllium	ND	0.001	0.010	NA		mg/L	1/28/2015 9:11 PM	PA/VA
Boron	1.90	0.020	0.100	NA		mg/L	1/30/2015 6:42 PM	PA/VA
Cadmium	ND	0.001	0.020	NA		mg/L	1/28/2015 9:11 PM	PA/VA
Chromium	0.005	0.005	0.100	NA	J	mg/L	1/28/2015 9:11 PM	PA/VA
Copper	0.006	0.005	0.100	NA	J	mg/L	1/28/2015 9:11 PM	PA/VA
Iron	3.32	0.010	0.100	NA		mg/L	1/28/2015 9:11 PM	PA/VA
Lead	ND	0.010	0.200	NA		mg/L	1/28/2015 9:11 PM	PA/VA
Lithium	0.043	0.020	0.100	NA	J	mg/L	1/29/2015 3:36 PM	
Manganese	1.30	0.002	0.100	NA		mg/L	1/28/2015 9:11 PM	PA/VA
Nickel	0.029	0.005	0.100	NA	J	mg/L	1/28/2015 9:11 PM	PA/VA
Selenium	ND	0.020	0.200	NA		mg/L	1/28/2015 9:11 PM	PA/VA
Silver	ND	0.004	0.050	NA		mg/L	1/28/2015 9:11 PM	PA/VA
Strontium	4.22	0.001	0.010	NA		mg/L	1/29/2015 3:36 PM	PA
Vanadium	0.006	0.005	0.100	NA	J	mg/L	1/28/2015 9:11 PM	PA/VA
Zinc	0.016	0.003	0.050	NA	J	mg/L	1/28/2015 9:11 PM	PA/VA
MERCURY Total E245 1			Method:	FPA 24	51 Re	v	Analyst: CR	

			3.0 (1994)	A 24011, NOV		Analyst: On	
Mercury	ND	0.0001	0.0010	NA	mg/L	1/28/2015 11:12 AM	PA/VA
SEMIVOLATILE ORGANIC COMPOUN	DS		Method: S	N8270D (2007)	Analyst: JD	
1,4-Dinitrobenzene	ND	NA	0.0111	NA	mg/L	1/30/2015 3:07 PM	
1,4-Napthoquinone	ND	NA	0.0111	NA	mg/L	1/30/2015 3:07 PM	
4-Nitroquinoline-1-oxide	ND	NA	0.0554	NA	mg/L	1/30/2015 3:07 PM	
Pentachloronitrobenzene	ND	NA	0.0111	NA	mg/L	1/30/2015 3:07 PM	
Bis(2-ethylhexyl)phthalate	ND	0.0055	0.0111	NA	mg/L	1/30/2015 3:07 PM	PA/VA
Butyl benzyl phthalate	ND	0.0055	0.0111	NA	mg/L	1/30/2015 3:07 PM	PA/VA
Di-n-butyl phthalate	ND	0.0055	0.0111	NA	mg/L	1/30/2015 3:07 PM	PA/VA
Diethyl phthalate	ND	0.0022	0.0111	NA	mg/L	1/30/2015 3:07 PM	PA/VA
Dimethyl phthalate	ND	0.0022	0.0111	NA	mg/L	1/30/2015 3:07 PM	PA/VA
2,4-Dinitrotoluene	ND	0.0022	0.0111	NA	mg/L	1/30/2015 3:07 PM	PA/VA
2,6-Dinitrotoluene	ND	0.0022	0.0111	NA	mg/L	1/30/2015 3:07 PM	PA/VA

Page 8 of 13

WO#: 1501P19

Date Reported: 2/4/2015

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	1/26/2015 10:50:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	1/26/2015
Lab ID:	1501P19-02A	Matrix:	Liquid
Client Sample ID:	2-WETZEL CO LF WWTP EFFLUENT	Site ID:	WETZEL CO. LANDFILL/WWTP
Analysis	Result MDL PQL	MCL Qual Unit	s Date Analyzed NELAP

-							
Di-n-octyl phthalate	ND	0.0055	0.0111	NA	mg/L	1/30/2015 3:07 PM	PA/VA
Fluoranthene	ND	0.0022	0.0111	NA	mg/L	1/30/2015 3:07 PM	PA/VA
Nitrobenzene	ND	0.0022	0.0111	NA	mg/L	1/30/2015 3:07 PM	PA/VA
Surr: 2-Fluorophenol	40.5	NA	32.9-110	NA	%REC	1/30/2015 3:07 PM	
Surr: Phenol-d5	31.0	NA	25.8-110	NA	%REC	1/30/2015 3:07 PM	
Surr: 2,4,6-Tribromophenol	79.0	NA	63.8-110	NA	%REC	1/30/2015 3:07 PM	
Surr: Nitrobenzene-d5	83.5	NA	61.8-110	NA	%REC	1/30/2015 3:07 PM	
Surr: 2-Fluorobiphenyl	75.5	NA	58.6-110	NA	%REC	1/30/2015 3:07 PM	
Surr: 4-Terphenyl-d14	70.9	NA	55.1-110	NA	%REC	1/30/2015 3:07 PM	
VOLATILE ORGANIC COMPOUNDS	-8260		Method: S	W8260)B (1996)	Analyst: JM	
Benzene	ND	0.500	1.00	NA	µg/L	1/30/2015 6:54 PM	PA/VA
Chlorobenzene	ND	0.500	1.00	NA	µg/L	1/30/2015 6:54 PM	PA/VA
Dibromochloromethane	ND	0.500	1.00	NA	µg/L	1/30/2015 6:54 PM	PA/VA
1,2-Dichlorobenzene	ND	0.500	1.00	NA	µg/L	1/30/2015 6:54 PM	PA/VA
1,3-Dichlorobenzene	ND	0.500	1.00	NA	µg/L	1/30/2015 6:54 PM	PA/VA
1,4-Dichlorobenzene	ND	0.500	1.00	NA	µg/L	1/30/2015 6:54 PM	PA/VA
Surr: 1,2-Dichloroethane-d4	91.0	NA	68.7-129	NA	%REC	1/30/2015 6:54 PM	
Surr: 4-Bromofluorobenzene	192	NA	71.8-127	NA	S %REC	1/30/2015 6:54 PM	
Surr: Dibromofluoromethane	89.6	NA	74.3-124	NA	%REC	1/30/2015 6:54 PM	
Surr: Toluene-d8	86.0	NA	71.4-129	NA	%REC	1/30/2015 6:54 PM	
BOD, 5 Day, 20°C			Method: S	M5210	B-2001	Analyst: VR	
Biochemical Oxygen Demand	19	2	5	NA	mg/L	1/27/2015 1:24 PM	PA/VA
Notes:							
Results of the GGA standard analysis for this	sample ex	ceeded F	REIC control lim	nits.			
Chemical Oxygen Demand			Method: E (1993)	PA 410).4, Rev. 2	Analyst: SF	
Chemical Oxygen Demand	142	4	10	NA	mg/L	1/27/2015 8:55 AM	PA/VA
HEXAVALENT CHROMIUM BY IC			Method: E 3.3 (1994)	PA 218	3.6, Rev.	Analyst: CF	
Chromium (VI)	ND	0.0001	0.0010	NA	mg/L	1/27/2015 2:36 PM	PA/VA

ANIONS by ION CHROMATOGRA	РНҮ		Method: (1993)	EPA 300.	0, Rev.2.1	Analyst: CF	
Chloride	1,550	12.5	125	NA	mg/L	1/27/2015 10:05 AM	PA/VA
Fluoride	0.86	0.05	0.20	NA	mg/L	1/27/2015 10:05 AM	PA/VA

Page 9 of 13

Date Reported: 2/4/2015

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	1/26/2015 10:50:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	1/26/2015
Lab ID:	1501P19-02A	Matrix:	Liquid
Client Sample ID:	2-WETZEL CO LF WWTP EFFLUENT	Site ID:	WETZEL CO. LANDFILL/WWTP

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
Sulfate	92.5	5.00	25.0	NA		mg/L	1/27/2015 10:05 AM	PA/VA
ANIONS by ION CHROMATOGRAF	PHY-48 H(OUR	Method: (1993)	EPA 300).0, Rev	/.2.1	Analyst: CF	
Nitrogen, Nitrate	35.0	2.50	12.5	NA		mg/L	1/27/2015 10:05 AM	PA/VA
Nitrogen, Nitrite	ND	0.25	2.50	NA		mg/L	1/27/2015 10:05 AM	PA/VA
Notes:								
Elevated PQLs are due to matrix interference	æ.							
TOTAL KJELDAHL NITROGEN (TH	(N)		Method: 2.0 (1993	EPA 351)	I.2, Rev	<i>.</i>	Analyst: JH	
Nitrogen, Kjeldahl, Total	37.4	0.80	4.00	NA		mg/L	1/28/2015 10:12 AM	PA/VA
OIL and GREASE			Method:	EPA 166	64 Rev	. A	Analyst: CC	
Oil & Grease	2.2	2.0	5.0	NA	J	mg/L	1/28/2015 2:00 PM	PA/VA
CYANIDE, Free			Method:	SM4500	-CN I-1	997	Analyst: JH	
Cyanide, Free	ND	0.005	0.020	NA		mg/L	1/29/2015 1:35 PM	
AMMONIA NITROGEN			Method: (1993)	EPA 350).1, Rev	2 .	Analyst: JH	
Nitrogen, Ammonia (As N)	36.3	1.04	2.60	NA		mg/L	1/27/2015 5:33 PM	PA/VA
CONDUCTIVITY			Method:	SM2510	B - 199	97	Analyst: KY	
Specific Conductivity	6,560	NA	NA	NA		µmhos/cm	1/28/2015 10:00 AM	PA/VA
TOTAL DISSOLVED SOLIDS			Method:	SM2540	C-1997	7	Analyst: KY	
Total Dissolved Solids	3,770	10	20	NA		mg/L	1/27/2015 4:09 PM	PA/VA
TOTAL SUSPENDED SOLIDS			Method:	SM2540	D-1997	7	Analyst: KY	
Total Suspended Solids	42.0	2.0	10	NA		mg/L	1/27/2015 3:54 PM	PA/VA
ACIDITY			Method:	SM2310	B-1997	7	Analyst: DSD	
Acidity, Total	24.3	1.0	10	NA		mg/L	1/27/2015 10:38 AM	PA/VA
ALKALINITY			Method:	SM2320	B-1997	7	Analyst: DSD	
Alkalinity, Total (As CaCO3)	475	1.0	10	NA		mg/L	1/27/2015 10:38 AM	PA/VA

Page 10 of 13

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	1/26/2015 10:50:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	1/26/2015
Lab ID:	1501P19-02A	Matrix:	Liquid
Client Sample ID:	2-WETZEL CO LF WWTP EFFLUENT	Site ID:	WETZEL CO. LANDFILL/WWTP

Analysis	Result	MDL	PQL	MCL	Qual Units	Date Analyzed NE	LAP
pH - LAB TEST, HOLD TIME EXPIR	RED		Method:	SM4500-	H+-B-2000	Analyst: DSD	
рН	7.82	NA	NA	NA	SU	1/27/2015 10:38 AM	PA

WO#: 1501P19

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	1/26/2015 10:50:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	1/26/2015
Lab ID:	1501P19-02B	Matrix:	Liquid
Client Sample ID:	2-WETZEL CO LF WWTP EFFLUENT	Site ID:	WETZEL CO. LANDFILL/WWTP

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
DISSOLVED METALS BY ICP			Method: (1994)	EPA 200).7 Rev.	4.4	Analyst: CGW	
Iron	0.113	0.010	0.100	NA		mg/L	1/28/2015 9:14 PM	PA/VA
Manganese	1.12	0.002	0.100	NA		mg/L	1/28/2015 9:14 PM	PA/VA

WO#: 1501P19

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	1/26/2015 12:00:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	1/26/2015
Lab ID:	1501P19-03A	Matrix:	Trip Blank
Client Sample ID:	TRIP BLANK	Site ID:	WETZEL CO. LANDFILL/WWTP

Analysis	Result	MDL	PQL	MCL	Qual Uni	its	Date Analyzed N	ELAP
VOLATILE ORGANIC COMPOU	NDS-8260		Method:	SW8260)B (1996)		Analyst: JM	
Benzene	ND	0.500	1.00	NA	hõ	ı/L	1/30/2015 7:27 PM	PA/VA
Chlorobenzene	ND	0.500	1.00	NA	μg	ı/L	1/30/2015 7:27 PM	PA/VA
Dibromochloromethane	ND	0.500	1.00	NA	hõ	ı/L	1/30/2015 7:27 PM	PA/VA
1,2-Dichlorobenzene	ND	0.500	1.00	NA	μç	ı/L	1/30/2015 7:27 PM	PA/VA
1,3-Dichlorobenzene	ND	0.500	1.00	NA	hõ	ı/L	1/30/2015 7:27 PM	PA/VA
1,4-Dichlorobenzene	ND	0.500	1.00	NA	μç	ı/L	1/30/2015 7:27 PM	PA/VA
Surr: 1,2-Dichloroethane-d4	114	NA	68.7-129	NA	%R	EC	1/30/2015 7:27 PM	
Surr: 4-Bromofluorobenzene	119	NA	71.8-127	NA	%R	EC	1/30/2015 7:27 PM	
Surr: Dibromofluoromethane	110	NA	74.3-124	NA	%R	EC	1/30/2015 7:27 PM	
Surr: Toluene-d8	59.4	NA	71.4-129	NA	S %R	EC	1/30/2015 7:27 PM	



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/LEACHATE ANALYSIS Work Order #: 1501P23 Dear GEORGE CARICO:

Kathy Berry

Kathy Berry



Client: MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,

Project: DRILL CUTTING/LEACHATE ANALYSIS

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:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	1/26/2015 10:30:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	1/26/2015
Lab ID:	1501P23-01A	Matrix:	Liquid
Client Sample ID:	1-WETZEL CO LF	Site ID:	WETZEL CO LANDFILL/WWTP

Analysis	Result	MDL	PQL	MCL	Qual U	nits Date Analyzed NELAP
GROSS ALPHA			Method:	EPA 900).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	3.1	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	5.0	Analyst: Sub
Strontium-90	see attached	NA	NA	NA		

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL.	Collection Date:	1/26/2015 10:50:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	1/26/2015
Lab ID:	1501P23-02A	Matrix:	Liquid
Client Sample ID:	2-WETZEL CO LF WWTP EFFLUENT	Site ID:	WETZEL CO LANDFILL/WWTP

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	0.0	Analyst: Sub
Gross Beta	see attached	NA	NA	NA		
RADIUM-226			Method:	EPA 903	8.1	Analyst: Sub
Radium-226	see attached	NA	NA	NA		
RADIUM-228			Method:	EPA 904	l.0	Analyst: Sub
Radium-228	see attached	NA	NA	NA		
STRONTIUM-90			Method:	EPA 905	5.0	Analyst: Sub
Strontium-90	see attached	NA	NA	NA		



Pace Analytical Services, Inc. 1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

February 13, 2015

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

RE: Project: 1501P23 Pace Project No.: 30139618

Dear Ms. Berry:

Enclosed are the analytical results for sample(s) received by the laboratory on January 28, 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,

Carino a. Ferrio

Carin Ferris carin.ferris@pacelabs.com Project Manager

Enclosures





Pace Analytical Services, Inc. 1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

CERTIFICATIONS

 Project:
 1501P23

 Pace Project No.:
 30139618

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-042 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



SAMPLE SUMMARY

Project: Pace Project No	1501P23 .: 30139618			
Lab ID	Sample ID	Matrix	Date Collected	Date Received
30139618001	1501P23-01A	Water	01/26/15 10:30	01/28/15 14:35
30139618002	1501P23-02A	Water	01/26/15 10:50	01/28/15 14:35



SAMPLE ANALYTE COUNT

 Project:
 1501P23

 Pace Project No.:
 30139618

Lab ID	Sample ID	Method	Analysts	Analytes Reported
30139618001	1501P23-01A	SM 7110C	FCC	1
		SM 7500Rn-B	FCC	1
		EPA 900.0	FCC	1
		EPA 903.1	JC2	1
		EPA 904.0	JLW	1
		ASTM D5811-95	LAL	1
30139618002	1501P23-02A	SM 7110C	FCC	1
		SM 7500Rn-B	FCC	1
		EPA 900.0	FCC	1
		EPA 903.1	JC2	1
		EPA 904.0	JLW	1
		ASTM D5811-95	LAL	1



 Project:
 1501P23

 Pace Project No.:
 30139618

Method: SM 7110C

Description:7110C Gross AlphaClient:REI Consultants, Inc.Date:February 13, 2015

General Information:

2 samples were analyzed for SM 7110C. 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:
 1501P23

 Pace Project No.:
 30139618

Method: SM 7500Rn-B

Description:7500RnB RadonClient:REI Consultants, Inc.Date:February 13, 2015

General Information:

2 samples were analyzed for SM 7500Rn-B. 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:

Batch Comments:

- 13007LCS3 fails low at 89.76% for Rn-222 batch 23199. Samples were collected on 1/26/15, and the initial count was on 1/30/15. Any recount would impact the recommended hold time of four days from collection.
- QC Batch: RADC / 23199



 Project:
 1501P23

 Pace Project No.:
 30139618

Method:EPA 900.0Description:900.0 Gross Alpha/BetaClient:REI Consultants, Inc.Date:February 13, 2015

General Information:

2 samples were 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:



 Project:
 1501P23

 Pace Project No.:
 30139618

Method: EPA 903.1

Description:903.1 Radium 226Client:REI Consultants, Inc.Date:February 13, 2015

General Information:

2 samples were analyzed for EPA 903.1. 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:
 1501P23

 Pace Project No.:
 30139618

Method: EPA 904.0

Description:904.0 Radium 228Client:REI Consultants, Inc.Date:February 13, 2015

General Information:

2 samples were analyzed for EPA 904.0. 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:



 Project:
 1501P23

 Pace Project No.:
 30139618

Method: ASTM D5811-95

Description:ASTM D5811 Sr 89/90 EichromClient:REI Consultants, Inc.Date:February 13, 2015

General Information:

2 samples were 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/23197

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

- 1501P23-01A (Lab ID: 30139618001)
 - Strontium-90
- 1501P23-02A (Lab ID: 30139618002)
- Strontium-90
- BLANK (Lab ID: 848157)
 - Strontium-90

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



ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 1501P23

Pace Project No.: 30139618

Sample: 1501P23-01A PWS:	Lab ID: 30139 Site ID:	618001 Collected: 01/26/15 10: Sample Type:	30 Received:	01/28/15 14:35 N	latrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Gross Alpha	SM 7110C	6.26 ± 4.40 (7.32) C:NA T:NA	pCi/L	02/07/15 17:12	12587-46-1	
Radon	SM 7500Rn-B	4.8 ± 39.8 (69.0) C:NA T:NA	pCi/L	01/30/15 10:09	10043-92-2	
Gross Beta	EPA 900.0	34.3 ± 7.65 (6.10) C:NA T:NA	pCi/L	02/02/15 19:42	12587-47-2	
Radium-226	EPA 903.1	5.47 ± 2.48 (0.741) C:NA T:90%	pCi/L	02/11/15 10:33	13982-63-3	
Radium-228	EPA 904.0	0.751 ± 2.39 (5.23) C:85% T:75%	pCi/L	02/12/15 16:12	15262-20-1	
Strontium-90	ASTM D5811-95	-0.107 ± 0.857 (1.48) C:104% T:NA	pCi/L	01/30/15 19:47	10098-97-2	N2

Sample: 1501P23-02A PWS:	Lab ID: 30139 Site ID:	618002 Collected: 01/26/15 10:5 Sample Type:	50 Received:	01/28/15 14:35 M	fatrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Gross Alpha	SM 7110C	3.56 ± 4.38 (7.93) C:NA T:NA	pCi/L	02/07/15 17:12	12587-46-1	
Radon	SM 7500Rn-B	-41.8 ± 38.4 (69.4) C:NA T:NA	pCi/L	01/30/15 11:15	10043-92-2	
Gross Beta	EPA 900.0	38.9 ± 8.84 (7.18) C:NA T:NA	pCi/L	01/31/15 21:27	12587-47-2	
Radium-226	EPA 903.1	3.87 ± 2.47 (2.57) C:NA T:75%	pCi/L	02/11/15 10:42	13982-63-3	
Radium-228	EPA 904.0	-0.835 ± 1.31 (3.09) C:83% T:69%	pCi/L	02/12/15 16:12	15262-20-1	
Strontium-90	ASTM D5811-95	-0.757 ± 0.831 (1.46) C:105% T:NA	pCi/L	01/30/15 20:50	10098-97-2	N2



QUALITY CONTROL - RADIOCHEMISTRY

Project:	1501P23						
Pace Project No.:	30139618						
QC Batch:	RADC/23197		Analysis Method:	ASTM D581	1-95		
QC Batch Method:	ASTM D5811-95		Analysis Descriptior	n: ASTM D581	1 Sr 89/90 Eichrom		
Associated Lab Sam	nples: 30139618	001, 301396180	02				
METHOD BLANK:	848157		Matrix: Water				
Associated Lab Sam	nples: 30139618	001, 301396180	02				
Param	neter	Act ± L	Inc (MDC) Carr Trac	Units	Analyzed	Qualifiers	
Strontium-90		-0.495 ± 0.671	(1.61) C:90% T:NA	pCi/L	01/30/15 18:08	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:	1501P23						
Pace Project No.:	30139618						
QC Batch:	RADC/23220		Analysis Method:	EPA 900.0			
QC Batch Method:	EPA 900.0		Analysis Descriptior	n: 900.0 Gross	s Alpha/Beta		
Associated Lab San	nples: 30139618	001, 301396180	02				
METHOD BLANK:	848993		Matrix: Water				
Associated Lab San	nples: 30139618	001, 301396180	02				
Paran	neter	Act ± U	Inc (MDC) Carr Trac	Units	Analyzed	Qualifiers	
Gross Beta		0.340 ± 0.748	(1.75) C:NA T:NA	pCi/L	02/01/15 11:44		-

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.



QUALITY CONTROL - RADIOCHEMISTRY

Project:	1501P23						
Pace Project No.:	30139618						
QC Batch:	RADC/23199		Analysis Method:	SM 7500Rn-	-B		
QC Batch Method:	SM 7500Rn-B		Analysis Description	n: 7500Rn B R	adon		
Associated Lab San	nples: 30139618	8001, 3013961	8002				
METHOD BLANK:	848159		Matrix: Water				
Associated Lab San	nples: 30139618	8001, 3013961	8002				
Paran	neter	Act ±	Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers	
Radon		-14.7 ± 18.7	(33.5) C:NA T:NA	pCi/L	01/30/15 09:36		

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:	1501P23						
Pace Project No.:	30139618						
QC Batch:	RADC/23297		Analysis Method:	SM 7110C			
QC Batch Method:	SM 7110C		Analysis Descriptior	n: 7110C Gros	s Alpha		
Associated Lab San	nples: 30139618	001, 30139618	002				
METHOD BLANK:	851088		Matrix: Water				
Associated Lab San	nples: 30139618	001, 30139618	002				
Paran	neter	Act ± l	Jnc (MDC) Carr Trac	Units	Analyzed	Qualifiers	
Gross Alpha		0.140 ± 0.762	(2.00) C:NA T:NA	pCi/L	02/08/15 12:18		-

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:	1501P23						
Pace Project No.:	30139618						
QC Batch:	RADC/23233		Analysis Method:	EPA 904.0			
QC Batch Method:	EPA 904.0		Analysis Description	: 904.0 Radiu	m 228		
Associated Lab San	nples: 30139618	001, 3013961800	2				
METHOD BLANK:	849471		Matrix: Water				
Associated Lab San	nples: 30139618	001, 3013961800	2				
Paran	neter	Act ± Ur	c (MDC) Carr Trac	Units	Analyzed	Qualifiers	
Radium-228		-0.0496 ± 0.288	(0.683) C:84% T:82%	pCi/L	02/12/15 16:11		-

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:	1501P23						
Pace Project No.:	30139618						
QC Batch:	RADC/23229		Analysis Method:	EPA 903.1			
QC Batch Method:	EPA 903.1		Analysis Description	n: 903.1 Radiu	m-226		
Associated Lab San	nples: 30139618	001, 301396180	02				
METHOD BLANK:	849467		Matrix: Water				
Associated Lab San	nples: 30139618	001, 301396180	02				
Paran	neter	Act ± U	nc (MDC) Carr Trac	Units	Analyzed	Qualifiers	
Radium-226		0.270 ± 0.438	(0.762) C:NA T:91%	pCi/L	02/11/15 09:45		

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:
 1501P23

 Pace Project No.:
 30139618

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

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

Here	RE	<u>u</u>		CHA	UN OF C	I YOOTSU	RECORD	COC D: 326	1 PAGE 1	OF: 1		ADDRESS REI Consultants, Inc. PO Box 286 Beaver, WY 25813	. 5 00
Impr	oving the environment.	ohe client at a time			Please	Include Email Ad	tdress of Report .	Recipient Whenever Poss	ible!!!		Web	TEL: (304) 255-2500 FAX: (304) 255-2572 site: www.reiclabs.com	0007
SUB	CONTRATOR: PACE	E PA	COMPANY:	PA	CE ANAL	YTICAL SER	VIC SPECIAL	INSTRUCTIONS / COMMENTS	in the second seco				
ADD	DRESS: 1638]	ROSEYTOWN F	QAD				After a	ouc. w v ricase use Sam alysis, the samples do not se All results to Kathy Ber	need to be returned to at kherry@reid	d and can be disposed	l per your stan	idard laboratory	
CIT	Y, STATE, ZIP: GREI	ENSBURG, PA 1	5601				hiadin	INT ANTANIA IN AVAILA					
она	NUE: (724)	850-5600	FAX:					ANALYTICAL PARAMETERS			* Preservation 0 Nor	on Codes: ne	
ACC	COUNT #: 05071	9EVF1	EMAIL:				FROSS_ FROSS_	TRONT RADON RADIUM			1 Hydrociu 2 Nitric 3 Sulfurio	one Acia Acid e Acid	_
ITEM	4 # SAMPLEID	Client Sample ID		lottle	MATRJX	DATE COLLECTED	AL225_SUB (EPA 903 1) BETA_SUB (EPA 900 0) ALPHA_SUB (EPA 900 0) NUMBER OF CONTAINERS	TIUM_90_SUB (EPA 905.0) (913.0) (_228_SUB (EPA 904.0)			4 Sodium TJ Sodium A Sodium A Sodium A Sodium Su Sodium Su P Plassium Dhy 10 Bromium	hiosulfate Vatoxide/ vaterite tursente ic Acid dafte/HCL dafte/HCL dafter c Acid dafter c Acid dafter dafter c Acid dafter dafter c Acid dafter dafter c Acid dafter c Acid da dafter c Acid da dafter c Acid dafter c Acid dafter c Acid da dafter c Acid dafter c Acid da da da da dafter c Acid dafter c Acid dafte	
	1501P23-01A	1-WETZEL CO LF		Ĕ	pint	1/26/2015 10:30:0	2 7 7 2 7 7 00 3			cinc		D	
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Relin	Iquished Br. Cond	Late Date	Sime: 1650	Received	By	L MSC Da	te: Time:		REPC	RT TRANSMITTAL D	DESIRED:		20
R	upphed by a li	non pheals	Time:	Net Bird	AM+ M	i Mile M	The Ist	OL, DH	UDCOPY (extra cost)	□ FAX [EMAIL	ONLINE	T
Page	April 1 1 1 1 1 1 1	WHE Date 11/28/15	7.35	Record	H' Country	Parce 1-2	te Barrier Cy-Co Iu-S	Temp	of samples	FOR LAB USE ONL	. Y nnt to Cool ?		
e 19 o	TAT:	Standard	RUS	Ŧ	Next BD	2nd BD	3rd BD	Connr	lents:				_
f 2					Note: RUSH req	uests will incur surcha	rges!						

San	nple Cond	ition	Upon Receip	ot	
Pace Analytical Client Name	REFC				Project # <u>30139618</u>
Courier: Fed Ex UPS USPS Clien	t Comme	rcial	Pace Other		
Custody Seal on Cooler/Box Present: yes	🗶 no	Seals	intact: 🗌 yes	🗌 no	Biological Lissue is Frozen: Yes No
Packing Material: Bubble Wrap <u></u> Bubble Bage	S None _		Other		
Thermometer Used <u><u><u></u></u><u><u></u><u><u></u><u></u><u></u><u></u><u></u><u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u></u></u></u></u>	of Ice: Wet) Blue	None	Samples	s on ice, cooling process has begun
Cooler Temp.: Observed Temp.:°C Co	rrection Facto	or:	°C Final Ten	np:	°C
Temp should be above freezing to 6°C			Comments:		examining contents: 3112 1 C 9
Chain of Custody Present:	Xyes ⊡No	⊡n/A	1.		
Chain of Custody Filled Out:	XYes □No	□n/A	2.		
Chain of Custody Relinquished:	XYes 🗆 No	□n/a	3.		
Sampler Name & Signature on COC:	□Yes XINo	□n/A	4 same c	o fi	Le CHETIBRIS
Samples Arrived within Hold Time:	Yes DNO	□n/a	5.		
Short Hold Time Analysis (<72hr):	XYes □No	□n/A	6.		
Rush Turn Around Time Requested:	□Yes XNo	□n/A	7.		
Sufficient Volume:	ØYes □No	□n/A	8.		
Correct Containers Used:	∭AYes ⊡No	□n/A	9.		
-Pace Containers Used:	DYes XNO	□n/A			
Containers Intact:	XYes □No	□n/a	10.		
Filtered volume received for Dissolved tests	□Yes □No		11.		
Sample Labels match COC:	XYes □No	□n/A	12.		
-Includes date/time/ID/Analysis Matrix:	nt				
All containers needing preservation have been checked.	Karles □No	□n/A	^{13.} РЦ/		
All containers needing preservation are found to be in compliance with EPA recommendation.	ØYes □No	□n/a	1112		
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	∐Yes ⊅No		completed SR		t#oraded sservative
Samples checked for dechlorination:	□Yes □No	ØN/A	14.		
Headspace in VOA Vials (>6mm):	□Yes □No	ǾN/A	15.		
Trip Blank Present:	DYes No	□n/A	16.		
Trip Blank Custody Seals Present	□Yes □No	N/A	1		
Pace Trip Blank Lot # (if purchased):					
Client Notification/ Resolution:					Field Data Required? Y / N
Person Contacted:		Date/	Time:		
Comments/ Resolution:					
		_			
Project Manager Review:) Fren	nº J	0		Date: 18815

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)

Pace Analytical

Pissolved Metals preserved Y N									
slateM latoT									
(Im 025) XOT									
TOC (40 ml / 250 ml)									
Phenolics (250 ml)									
Nutrient (250 / 500)									
Organics (1L)									
Chemistry (250 / 500 / ۱۱)									
Soil kit (2 SB, 1M, soil jar)									
Glass Jar (120 / 250 / 500 / 1L)									
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.oN mətl	00	602					Pa	ge 21 o	f 21

page 2

Project Number: 30139618 Client Name: NETC

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Other

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Radchem Natgene (1/2 gal. / 1 gal.L)

Radchem Nalgene (125 / 250 / 500/1L)

Cubitainer (500 ml / 4L)

Wipes / swipe/ smear/ filter

Bacteria (120 ml)

(Im 008) sbiilu8

(Im 032) sbins()

(Im 0£ Im 04) AOV

(11) H9T

0 8 G (1F)

SCURF Back (C016-4 15May2012).xls

CHAIN OF CUST	ODY RE	CORD	v10-	0114	EIC u	rvironm	CLIENT			207 and /	1 Applied	DATE SHEET
		6	ontact Person	George Car	ico/	Jamie	e Wo	olfe				Bhone 304-696-5456
	EIC	A	ddress One	e John Mars	hall	Drive	Ð				ity H	luntington
Research Environmental & Indust MAIN LABORATORY & CORPOR P.O. Box 286 • 225 Industrial Park 800-999-0105 • 304-255-2500 •	trial Consultants, ATE HEADQUAR Rd, Beaver, WV 258 www.reiclabs.com	Bi Inc. TERS: 113 Si	lling Address (i te ID & State <u>P</u>	f different) Phase II	City_	P	Project	t ID_	orill C	Cut	ting/	State Zip Leachate AnalysisSamplerJ McGe
MID-OHIO VALLEY Service Center 101 17th Street Ashland, KY 41101 606-393-5027 S40-248	IDOAH Center :e Rd., Ste 201 30; A 24482 F 8-0183	ROANOKE Service Center 29-C Peters Creek Rd Ioanoke, VA 24019 540-777-1276	MORGANT Service Ce 16 Commerc Westover, WV 304-241-5	rown enter te Drive V 26501 5861	Se	ee Atta	achme	ent				
SAMPLE LO	G & ANAL	YSIS REQUES	ST	METHO								
TURNAROUND TIME NORMAL *Rush work needs prior la	RU O 5 DAY O aboratory approval	3 DAY 2 DAY and will incur additiona	1 DAY	NALYSIS &						•		6.14 - 10.4- 6.14 7.11 - 12.2- 4,14
SAMPLE ID	No. & Type of	Sampling Date/Time	Matrix	Sample	10	1 2	2 3	*5	10	-	1	ENTER PRESERVATIVE CODE(S):
1-Wetzel Co LF	20	3/23/15 @ 1020	Water	Grab	X					×		1 Hydrochloric Acid 7 Ascorbic Acid
2-Wetzel Co LF WWTP Effluent	23	1 100	Water	Grab	X						X	3 Sulfuric Acid 9 Ammonium Chloride
Trip Blank	1		Water	Grab	X		1					4 Sodium Thiosulfate 10 AS/AH 5 Sodium Hydroxide/
			Choose	Choose								Sodium Arsenite 11 * (Use blanks for preservatives not listed.)
			Choose	Choose								COMMENTS:
			Choose	Choose		3						Dissolved Metals are Field Filtere
			Choose	Choose								
			Choose	Choose								
			Choose	Choose								
All analytical requests are subject to RE	IC's Standard Term	s and Conditions.	Tempera	ture at arrival:	1	۰C	ICED	07 1	12	-	N	Containers provided by: [] REIC [] Clien
1 Relinquisted to Usanscure)	3.2	2·// 2 Reinquishe	ed by (signature)				Date	sTime		3	lelinqu	shed by (signature) Date/Time
Received by (sensure) Suttle	3-2 Date	17-15 Tring/JOC) Received by	y (signature)				Date	Mine			lecelae	d by (signature) Date/Time

DBPix Evaluation

REI Consultants, Inc.

FIELD LOG: pH Calibration Records 6-2010.Rev.1

Client Name:	Marshare University	Site Location: LANDERLY / Porn's	
Date:	Jaslar	Analyst:	
Calibration Location:	Field / Laboratory	Instrument: Oakton pH Meter	
4.0 Buffer Lot #:	DOFF-14	- <u></u>	
7.0 Buffer Lot #:	D115.04		
10.0 Buffer Lot #:	DIROF		

and a second		pH (SU) - SM45	500-H+B, 18th Edition	
Standard	Initial Reading	Reading After Calibration	Temperature °C	Comments
4.0 Buffer	4.00	4.01	19.8	
7.0 Buffer	LSF	7,00		
10.0 Buffer	9.96	10.01		

Slope: 96.77.

Comments:

Calibration at the laboratory requires a pH 7.0 QC Check

All field pH analysis must be followed by a Post Analysis pH Check

Quality Control Samples	Reading	Acceptance Range:
QC Check, 7.0	7.00	True Value + 0.1 (6.9, 7.1)
Post Analysis QC Check, 7.0	7.02	The value 10.1 [0.9 - 7.1]

WVDEP Drill Cutting / Leachate Analysis List

Aluminum

Antimony

Arsenic

Barium

Beryllium

Boron

Cadmium

Chromium

Hexavalent Chromium

Copper

Lead

Lithium

Mercury

Nickel

Selenium

Silver

Strontium

Vanadium

Zinc

Chloride

Fluoride

Nitrate as Nitrogen

Nitrite as Nitrogen

Sulfate

Total Suspended Solids

Free Cyanide

Benzene

Chlorobenzene

Chlorodibromomethane

1,2-Dichlorobenzene

1,3-Dichlorobenzene

1,4-Dichlorobenzene

1,4-Dinitrobenzene

1,4-Naphthoquinone

2,4-Dinitrotoluene

2,6-Dinitrotoluene

4-Nitroquinoline-1-oxide

bis(2-ethylhexyl) phthalate

Butyl benzylphthalate

Di-N-Butyl Phthalate

Di-N-Octylphthalate Diethyl Phthalate

Dimethyl Phthalate

Flouranthene

Nitrobenzene

Pentachloronitrobenzene

Gross Alpha

Gross Beta

Radium 226

Radium 228

Strontium 90

Radon

pН

Total Dissolved Solids

Total Suspended Solids

BOD 5-Day

Ammonia as Nitrogen

Total Kjeldahl Nitrogen

Oil & Grease

Acidity to pH 8.3

Specific Conductance Alkalinity to pH 4.5 Chemical Oxygen Demand Dissolved Iron and Iron

Manganese and Dissolved Manganese

Contract Person: Outrige Calification International Analysis Sampler Discrete Control Person: Contract Person: Contr				a	ient: Marsh	all University Cent	ter for E	Invironm	ental, Ge	eotechn	ical and	Applied 3	Sciences PO #	206 5456	
Address of differents			EIC	Co	ontact Person	John Mar	shall	Drive		le		- H	Phone	090-0400 W/V	25755
Research Environmental & Industrial Consultants, Inc. Main Foundaiss (in uniferity) City	V		EIC	Ac	ling Address (i	f different)		2				City	antington	State	Zip_20700
MID-OHIO VALLEY Service Center Service Center Serv	Rese MAII P.	Arch Environmental & Industri N LABORATORY & CORPORA D. Box 286 • 225 Industrial Park 1 800-999-0105 • 304-255-2500 •	rial Consultants, ATE HEADQUAR Rd, Beaver, WV 25 www.reiclabs.cor	, Inc. RTERS: 813 Sin m	te ID & State <u>W</u>	/etzel Co Land	City_ fill/W	NTP f	roject l	_D Dri	ll Cut	tting/L	eachate Analysis	Zip Sam	pler J McGe
SAMPLE LOG & ANALYSIS REQUEST Image: State of the state o	MID-OI Servi 101 1 Ashlan 606-	HIO VALLEY SHENANI ce Center Service C 7th Street 1557 Commerce d, KY 41101 Verona, VA 393-5027 540-248-	DOAH Center e Rd., Ste 201 30 A 24482 -0183	ROANOKE Service Center 029-C Peters Creek Rd Roanoke, VA 24019 540-777-1276	MORGANT Service Ce 16 Commerc Westover, WV 304-241-5	OWN enter te Drive / 26501	G	Radi	pha/Gr um 220 Strontio	ross B 6 & 22 um 90	eta 28 1				
TURNAROUNDTIME RUSH TURNAROUND* Image: Stand of the standard standa		SAMPLE LO	G & ANAL	YSIS REQUES	T	ETHO									
SAMPLE ID No. & Type of Containers Sampling Date/Time Matrix Sample Comp/Grab 2 2 2 2 0 1 1 0 0 6 Sodium Hydroxide -Wetzel Co LF 4 P Simple 0	•	TURNAROUND TIME	RI O E DAY		0	IS &				1					
-Wetzel Co LF 4 P /////r //oizr Water Grab X X X X Image: Cold of the standard lems and conditions. 1 Hydrochloric Acid 7 Ascorbic Acid Wetzel Co LF WWTP Effluent 4 P /oizr Water Grab X X X X Image: Cold of the standard lems and conditions. Image: Choose		*Rush work needs prior la	boratory approva	and will incur additiona	C 1 DAY	ANALYS							MSC Sampling Fee\$0.00	(54.	.)
Wetzel Co LF WWTP Effluent 4 P /or J/ Water Grab X X X X 1 3 Suffixing and the provided by a summonium chloring and the provided by a suffixing and the pro		*Rush work needs prior la	No. & Type of Containers	and will incur additiona	Matrix	Sample Comp/Grab	a 2 0	*2 *2 0 b		a a	a	2 a 2 a	MSC Sampling Fee\$0.00	C5 Has CODE(S): 6 Sodiur) n Hydroxide
Choose	-Wet	*Rush work needs prior la SAMPLE ID ZEI CO LF	No. & Type of Containers 4 P	al and will incur additiona	Matrix Water	Sample Comp/Grab	22 0 X			4 0 0	a b		MSC Sampling Fee\$0.00 ENTER PRESERVATIVE (0 None 1 Hydrochloric Acid	C5 h <s CODE(S): 6 Sodiur 7 Ascorb</s) n Hydroxide Ic Acid
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Choose Choose Choose Choose Choose Choose Choose Choose I analytical requests are subject to REIC's Standard Terms and Conditions. Temperature at arrival: . • C ICED? YN Reinquiched by (signature) S-14-11 2 -cond 5 -fill 3 Reinquiched by (signature) Date/Time Containers provided by: [-] REIC [] Clip	-Wet Wetze	*Rush work needs prior la sample ID Zel Co LF	No. & Type of Containers 4 P 4 P	Sampling Date/Time	Matrix Water Water Choose Choose Choose Choose	Sample Comp/Grab Grab Grab Choose Choose Choose	*2 * * *				a D		MSC Sampling Fee\$0.00 Conce 1 Hydrochloric Acid 2 Nitric Acid 3 Sulfuric Acid 4 Sodium Thiosulfate 5 Sodium Arsenite *(Use blanks for COMMENTS:	CODE(S): 6 Sodiur 7 Ascorb 8 Sodiur 9 Amma 10 11 or preservatives no	n Hydroxide lic Acid n Bisulfate/Me nium Chloride nt fisted.)
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12

DBPix Evaluation

mprovi	ng the environment,	one client at a time		CHAIN OF	CUSTODY R	EC(ORD	COC ID:	4415 Possible.	PAGE: 1	OF: 1	ADDRESS REI Consultants, Inc. PO Box 286 Beaver, WV 25813 TEL: (304) 255-2500 FAX: (304) 255-2572 Website: www.reiclabs.com
SUB CO	ONTRATOR PACI	E_PA	COMPANY	PACE ANA	LYTICAL SERV	Т	SPECIAL INST	RUCTIONS / COM	MENTS			
ADDRE	I638	ROSEYTOWN R	OAD				State Code: After analys	WV Please us sis, the samples	e SampleI do not nec	D as purchase of to be returne	order number d and can be	disposed per your standard laboratory
CITY, 8	STATE, ZIP GREI	ENSBURG, PA 15	601				practices. I	lease email rest	ilts to kbe	rry@reiclabs.co	om Thank	c you
PHONE	(724)	850-5600	FAX.	<i>u</i> .,			ANA	LYTICAL PARAME	TERS			* Preservation Codes:
ACCOL	UNT # 05071	9EVF1	EMAIL:				RADIUM RADIUM GROSS_E GROSS_/	STRONT				1 Hydrochlonic Acid 2 Nitrie Acid 3 Sulfurie Acid
TEM	SAMPLE ID	Client Sample ID	B T	ottle MATRIX ype	DATE COLLECTED	NUMBER OF CONTAINERS	228_SUB (EPA 904.0) 226_SUB (EPA 903.1) 3ETA_SUB (EPA 900.0) NLPHA_SUB (EPA 900.0)	IUM_90_SUB (EPA 905.0)				4 Sodium Hindisutate 5 Sodium Arsenite 6 Sodium Arsenite 7 Ascorbic Acid 8 Sodium Sulfic/HCL 9 Potasium Diblytogen Cirate 10 Bromium Chloride 11 CR6 Buffer Solution COMMENTS:
			-			*	2222	2				- 42 M
1	1505H96-01A	1-WETZEL CO. LF	•	Liquid	5/14/2015 10:25:00 AM	1	1111	1				
2	1505H96-02A	2-WETZEL CO LF WWTP EFFLUENT		Liquid	5/14/2015 10:35:00 AM	1	1111	1				

Relinquished By: MAHalley	S/18/15	Time toolm	Received By: UPS	Date 5/18/15	Time; 4.00M	REPORT TRANSMITTAL DESIRED
Relinquished By:	Date:	Time:	Received By:	Date:	Time:	🗆 HARDCOPY (extra cost) 🗌 FAX 🗹 EMAIL 🗌 ONLINE
Relinquished By:	Date:	Time:	Received By:	Date:	Time:	FOR LAB USE ONLY
TAT: S	itandard	RUSH	Next BD 2nd BD] 3rd B rcharges!	0	Temp of samples*C Attempt to Cool ? Comments

1

www.ammara.com



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

Saturday, April 11, 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/LEACHATE ANALYSIS Work Order #: 1503Q84 Dear GEORGE CARICO:

REI Consultants, Inc. received 3 sample(s) on 3/23/2015 for the analyses presented in the following report.

Sincerely,

Kathy Berry

Kathy Berry



Date Reported: 4/11/2015

Client: MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE

Project: DRILL CUTTING/LEACHATE ANALYSIS

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#: 1503Q84

Date Reported: 4/11/2015

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/23/2015 10:20:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	3/23/2015
Lab ID:	1503Q84-01A	Matrix:	Liquid
Client Sample ID:	1-WETZEL CO LF	Site ID:	PHASE II

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
METALS BY ICP			Method: (1994)	EPA 200	0.7 Rev.	4.4	Analyst: CGW	
Aluminum	ND	0.005	0.100	NA		mg/L	3/26/2015 11:12 PM	PA/VA
Antimony	ND	0.020	0.200	NA		mg/L	3/26/2015 11:12 PM	PA/VA
Arsenic	ND	0.020	0.200	NA		mg/L	3/26/2015 11:12 PM	PA/VA
Barium	1.04	0.002	0.100	NA		mg/L	3/26/2015 11:12 PM	PA/VA
Beryllium	ND	0.001	0.010	NA		mg/L	3/26/2015 11:12 PM	PA/VA
Boron	2.16	0.035	0.100	NA		mg/L	3/30/2015 9:38 PM	PA/VA
Cadmium	ND	0.001	0.020	NA		mg/L	3/26/2015 11:12 PM	PA/VA
Chromium	0.006	0.005	0.100	NA	J	mg/L	3/26/2015 11:12 PM	PA/VA
Copper	ND	0.005	0.100	NA		mg/L	3/26/2015 11:12 PM	PA/VA
Iron	4.28	0.010	0.100	NA		mg/L	3/26/2015 11:12 PM	PA/VA
Lead	ND	0.010	0.200	NA		mg/L	3/26/2015 11:12 PM	PA/VA
Lithium	0.041	0.020	0.100	NA	J	mg/L	3/25/2015 2:53 PM	
Manganese	2.52	0.002	0.100	NA		mg/L	3/26/2015 11:12 PM	PA/VA
Nickel	0.025	0.005	0.100	NA	J	mg/L	3/26/2015 11:12 PM	PA/VA
Selenium	ND	0.020	0.200	NA		mg/L	3/26/2015 11:12 PM	PA/VA
Silver	ND	0.004	0.050	NA		mg/L	3/30/2015 9:38 PM	PA/VA
Strontium	3.60	0.001	0.010	NA		mg/L	3/25/2015 2:53 PM	PA
Vanadium	ND	0.005	0.100	NA		mg/L	3/26/2015 11:12 PM	PA/VA
Zinc	0.010	0.003	0.050	NA	J	mg/L	3/26/2015 11:12 PM	PA/VA
MERCURY, Total E245.1			Method:	EPA 24	5.1, Rev.		Analyst: CR	

·			3.0 (1994	4)		•	
Mercury	ND	0.0001	0.0010	NA	mg/L	3/25/2015 10:11 AM	PA/VA
SEMIVOLATILE ORGANIC COMPOUN	DS		Method:	SW8270D	(2007)	Analyst: JD	
1,4-Dinitrobenzene	ND	NA	0.0109	NA	mg/L	3/27/2015 9:25 PM	
1,4-Napthoquinone	ND	NA	0.0109	NA	mg/L	3/30/2015 7:39 PM	
4-Nitroquinoline-1-oxide	ND	NA	0.0546	NA	mg/L	3/30/2015 7:39 PM	
Pentachloronitrobenzene	ND	NA	0.0109	NA	mg/L	3/30/2015 7:39 PM	
Bis(2-ethylhexyl)phthalate	ND	0.0055	0.0109	NA	mg/L	3/27/2015 9:25 PM	PA/VA
Butyl benzyl phthalate	ND	0.0055	0.0109	NA	mg/L	3/27/2015 9:25 PM	PA/VA
Di-n-butyl phthalate	ND	0.0055	0.0109	NA	mg/L	3/27/2015 9:25 PM	PA/VA
Diethyl phthalate	ND	0.0022	0.0109	NA	mg/L	3/27/2015 9:25 PM	PA/VA
Dimethyl phthalate	ND	0.0022	0.0109	NA	mg/L	3/27/2015 9:25 PM	PA/VA
2,4-Dinitrotoluene	ND	0.0022	0.0109	NA	mg/L	3/27/2015 9:25 PM	PA/VA
2,6-Dinitrotoluene	ND	0.0022	0.0109	NA	mg/L	3/27/2015 9:25 PM	PA/VA

WO#: 1503Q84

Date Reported: 4/11/2015

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/23/2015 10:20:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	3/23/2015
Lab ID:	1503Q84-01A	Matrix:	Liquid
Client Sample ID:	1-WETZEL CO LF	Site ID:	PHASE II

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
Di-n-octyl phthalate	ND	0.0055	0.0109	NA		mg/L	3/27/2015 9:25 PM	PA/VA
Fluoranthene	ND	0.0022	0.0109	NA		mg/L	3/27/2015 9:25 PM	PA/VA
Nitrobenzene	ND	0.0022	0.0109	NA		mg/L	3/27/2015 9:25 PM	PA/VA
Surr: 2-Fluorophenol	47.5	NA	32.9-110	NA		%REC	3/27/2015 9:25 PM	
Surr: Phenol-d5	34.3	NA	25.8-110	NA		%REC	3/27/2015 9:25 PM	
Surr: 2,4,6-Tribromophenol	99.6	NA	63.8-110	NA		%REC	3/27/2015 9:25 PM	
Surr: Nitrobenzene-d5	114	NA	61.8-110	NA	S	%REC	3/27/2015 9:25 PM	
Surr: 2-Fluorobiphenyl	93.2	NA	58.6-110	NA		%REC	3/27/2015 9:25 PM	
Surr: 4-Terphenyl-d14	87.7	NA	55.1-110	NA		%REC	3/27/2015 9:25 PM	
VOLATILE ORGANIC COMPOUND	S-8260		Method: S	SW8260	B (199	6)	Analyst: JM	
Benzene	ND	5.00	10.0	NA		µg/L	4/4/2015 4:12 AM	PA/VA
Chlorobenzene	ND	5.00	10.0	NA		µg/L	4/4/2015 4:12 AM	PA/VA
Dibromochloromethane	ND	5.00	10.0	NA		µg/L	4/4/2015 4:12 AM	PA/VA
1,2-Dichlorobenzene	ND	5.00	10.0	NA		μg/L	4/4/2015 4:12 AM	PA/VA
1,3-Dichlorobenzene	ND	5.00	10.0	NA		µg/L	4/4/2015 4:12 AM	PA/VA
1,4-Dichlorobenzene	ND	5.00	10.0	NA		µg/L	4/4/2015 4:12 AM	PA/VA
Surr: 1,2-Dichloroethane-d4	106	NA	68.7-129	NA		%REC	4/4/2015 4:12 AM	
Surr: 4-Bromofluorobenzene	103	NA	71.8-127	NA		%REC	4/4/2015 4:12 AM	
Surr: Dibromofluoromethane	107	NA	74.3-124	NA		%REC	4/4/2015 4:12 AM	
Surr: Toluene-d8	86.5	NA	71.4-129	NA		%REC	4/4/2015 4:12 AM	

Notes:

Elevated PQLs are due to matrix interference. Sample foamed during analysis.

BOD, 5 Day, 20°C			Method: S	SM5210 B-2	2001	Analyst: CB	
Biochemical Oxygen Demand	38	2	5	NA	mg/L	3/24/2015 3:40 PM	PA/VA
Notes:							
The dilution water blank for the reported B	OD fell outsid	e REIC co	ontrol limits.				
Chemical Oxygen Demand			Method: I (1993)	EPA 410.4,	Rev. 2	Analyst: SF	
Chemical Oxygen Demand	180	20	50	NA	mg/L	3/24/2015 8:25 AM	PA/VA
HEXAVALENT CHROMIUM BY IC			Method: I 3.3 (1994)	EPA 218.6,	Rev.	Analyst: CF	
Chromium (VI)	ND	0.0003	0.0010	NA	mg/L	3/24/2015 4:11 PM	
ANIONS by ION CHROMATOGRA	PHY		Method: I (1993)	EPA 300.0,	Rev.2.1	Analyst: CF	
Chloride	1,840	5.00	50.0	NA	mg/L	3/24/2015 9:57 AM	

Page 4 of 13

WO#: 1503Q84

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/23/2015 10:20:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	3/23/2015
Lab ID:	1503Q84-01A	Matrix:	Liquid
Client Sample ID:	1-WETZEL CO LF	Site ID:	PHASE II

Analysis	Result	MDL	PQL	MCL	Qual Units	Date Analyzed NELAP
Fluoride	1.35	0.25	1.00	NA	mg/L	3/24/2015 9:57 AM
Sulfate	78.0	5.00	25.0	NA	mg/L	3/24/2015 9:57 AM

Notes:

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

ANIONS by ION CHROMATOGRAPH	IY-48 HC	DUR	Method: E (1993)	EPA 300).0, Rev	/.2.1	Analyst: CF
Nitrogen, Nitrate	0.06	0.02	0.10	NA	J	mg/L	3/24/2015 9:57 AM
Nitrogen, Nitrite	2.50	2.50	25.0	NA	J	mg/L	3/24/2015 9:57 AM

Notes:

Elevated PQLs are due to matrix interference.

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

TOTAL KJELDAHL NITROGEN (TKN)			Method: 2.0 (1993	EPA 351.)	2, Rev.	Analyst: JH	
Nitrogen, Kjeldahl, Total	80.3	4.00	20.0	NA	mg	/L 3/27/2015 1:49 PM	PA/VA
OIL and GREASE			Method:	EPA 1664	4 Rev. A	Analyst: CC	
Oil & Grease	2.0	2.0	5.0	NA	J mg	/L 3/26/2015 11:45 AM	PA/VA
CYANIDE, Free			Method:	SM4500-0	CN I-1997	Analyst: JH	
Cyanide, Free	ND	0.005	0.020	NA	mg	/L 3/30/2015 9:31 AM	
AMMONIA NITROGEN			Method: (1993)	EPA 350.	1, Rev.2.	Analyst: JH	
Nitrogen, Ammonia (As N)	87.1	2.08	5.20	NA	mg	/L 3/27/2015 10:12 AM	PA/VA
CONDUCTIVITY			Method:	SM2510 B	B - 1997	Analyst: KY	
Specific Conductivity	6,410	NA	NA	NA	µmho	s/cm 3/24/2015 12:10 PM	PA/VA
TOTAL DISSOLVED SOLIDS			Method:	SM2540 (C-1997	Analyst: KY	
Total Dissolved Solids	3,570	5	10	NA	mg	/L 3/24/2015 3:17 PM	PA/VA
TOTAL SUSPENDED SOLIDS			Method:	SM2540 I	D-1997	Analyst: KY	
Total Suspended Solids	10	2.0	10	NA	mg	/L 3/24/2015 3:17 PM	PA/VA
ACIDITY			Method:	SM2310 I	B-1997	Analyst: DSD	
Acidity, Total	130	1.0	10	NA	mg	/L 3/24/2015 2:44 PM	PA/VA

Date Reported: 4/11/2015

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/23/2015 10:20:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	3/23/2015
Lab ID:	1503Q84-01A	Matrix:	Liquid
Client Sample ID:	1-WETZEL CO LF	Site ID:	PHASE II

Analysis	Result	MDL	PQL	MCL	Qual Units	Date Analyzed N	ELAP
ALKALINITY			Method:	SM2320	B-1997	Analyst: DSD	
Alkalinity, Total (As CaCO3)	983	2.0	20.0	NA	mg/L	3/24/2015 2:44 PM	PA/VA
pH - LAB TEST, HOLD TIME EXPIR	ED		Method:	SM4500	-H+-B-2000	Analyst: DSD	
pН	7.57	NA	NA	NA	SU	3/24/2015 2:44 PM	PA

Page 6 of 13

Date Reported: 4/11/2015

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/23/2015 10:20:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	3/23/2015
Lab ID:	1503Q84-01B	Matrix:	Liquid
Client Sample ID:	1-WETZEL CO LF	Site ID:	PHASE II

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
DISSOLVED METALS BY ICP			Method: (1994)	EPA 200).7 Rev.	4.4	Analyst: CGW	
Iron	0.298	0.010	0.100	NA		mg/L	3/26/2015 11:15 PM	PA/VA
Manganese	2.89	0.002	0.100	NA		mg/L	3/26/2015 11:15 PM	PA/VA

WO#: 1503Q84

Date Reported: 4/11/2015

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/23/2015 10:50:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	3/23/2015
Lab ID:	1503Q84-02A	Matrix:	Liquid
Client Sample ID:	2-WETZEL CO LF WWTP EFFLUENT	Site ID:	PHASE II

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
METALS BY ICP			Method: (1994)	EPA 20	0.7 Rev.	4.4	Analyst: CGW	
Aluminum	0.206	0.005	0.100	NA		mg/L	3/26/2015 11:18 PM	PA/VA
Antimony	ND	0.020	0.200	NA		mg/L	3/26/2015 11:18 PM	PA/VA
Arsenic	ND	0.020	0.200	NA		mg/L	3/26/2015 11:18 PM	PA/VA
Barium	0.598	0.002	0.100	NA		mg/L	3/26/2015 11:18 PM	PA/VA
Beryllium	ND	0.001	0.010	NA		mg/L	3/26/2015 11:18 PM	PA/VA
Boron	1.07	0.035	0.100	NA		mg/L	3/30/2015 9:41 PM	PA/VA
Cadmium	ND	0.001	0.020	NA		mg/L	3/26/2015 11:18 PM	PA/VA
Chromium	ND	0.005	0.100	NA		mg/L	3/26/2015 11:18 PM	PA/VA
Copper	ND	0.005	0.100	NA		mg/L	3/26/2015 11:18 PM	PA/VA
Iron	1.32	0.010	0.100	NA		mg/L	3/26/2015 11:18 PM	PA/VA
Lead	ND	0.010	0.200	NA		mg/L	3/26/2015 11:18 PM	PA/VA
Lithium	0.033	0.020	0.100	NA	J	mg/L	3/25/2015 2:56 PM	
Manganese	1.26	0.002	0.100	NA		mg/L	3/26/2015 11:18 PM	PA/VA
Nickel	0.015	0.005	0.100	NA	J	mg/L	3/26/2015 11:18 PM	PA/VA
Selenium	ND	0.020	0.200	NA		mg/L	3/26/2015 11:18 PM	PA/VA
Silver	ND	0.004	0.050	NA		mg/L	3/30/2015 9:41 PM	PA/VA
Strontium	2.65	0.001	0.010	NA		mg/L	3/25/2015 2:56 PM	PA
Vanadium	ND	0.005	0.100	NA		mg/L	3/26/2015 11:18 PM	PA/VA
Zinc	0.015	0.003	0.050	NA	J	mg/L	3/26/2015 11:18 PM	PA/VA
MERCURY, Total E245.1			Method: 3.0 (1994	EPA 24	5.1, Rev.		Analyst: CR	
Mercury	ND	0.0001	0.0010	NA		mg/L	3/25/2015 10:13 AM	PA/VA

SEMIVOLATILE ORGANIC COMPOUN	DS		Method: S	W8270D	(2007)	Analyst: JD	
1,4-Dinitrobenzene	ND	NA	0.0104	NA	mg/L	3/27/2015 9:46 PM	
1,4-Napthoquinone	ND	NA	0.0104	NA	mg/L	3/30/2015 8:06 PM	
4-Nitroquinoline-1-oxide	ND	NA	0.0520	NA	mg/L	3/30/2015 8:06 PM	
Pentachloronitrobenzene	ND	NA	0.0104	NA	mg/L	3/30/2015 8:06 PM	
Bis(2-ethylhexyl)phthalate	ND	0.0052	0.0104	NA	mg/L	3/27/2015 9:46 PM	PA/VA
Butyl benzyl phthalate	ND	0.0052	0.0104	NA	mg/L	3/27/2015 9:46 PM	PA/VA
Di-n-butyl phthalate	ND	0.0052	0.0104	NA	mg/L	3/27/2015 9:46 PM	PA/VA
Diethyl phthalate	ND	0.0021	0.0104	NA	mg/L	3/27/2015 9:46 PM	PA/VA
Dimethyl phthalate	ND	0.0021	0.0104	NA	mg/L	3/27/2015 9:46 PM	PA/VA
2,4-Dinitrotoluene	ND	0.0021	0.0104	NA	mg/L	3/27/2015 9:46 PM	PA/VA
2,6-Dinitrotoluene	ND	0.0021	0.0104	NA	mg/L	3/27/2015 9:46 PM	PA/VA

WO#: 1503Q84

Date Reported: 4/11/2015

Client Sample ID:	2-WETZEL CO LF WWTP EFFLUENT	Site ID:	PHASE II
Lab ID:	1503Q84-02A	Matrix:	Liquid
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	3/23/2015
Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/23/2015 10:50:00 AM

Analysis	Result	MDL	PQL	MCL	Qual Units	Date Analyzed N	IELAP
Di-n-octyl phthalate	ND	0.0052	0.0104	NA	mg/L	3/27/2015 9:46 PM	PA/VA
Fluoranthene	ND	0.0021	0.0104	NA	mg/L	3/27/2015 9:46 PM	PA/VA
Nitrobenzene	ND	0.0021	0.0104	NA	mg/L	3/27/2015 9:46 PM	PA/VA
Surr: 2-Fluorophenol	39.1	NA	32.9-110	NA	%REC	3/27/2015 9:46 PM	
Surr: Phenol-d5	32.1	NA	25.8-110	NA	%REC	3/27/2015 9:46 PM	
Surr: 2,4,6-Tribromophenol	92.6	NA	63.8-110	NA	%REC	3/27/2015 9:46 PM	
Surr: Nitrobenzene-d5	107	NA	61.8-110	NA	%REC	3/27/2015 9:46 PM	
Surr: 2-Fluorobiphenyl	88.2	NA	58.6-110	NA	%REC	3/27/2015 9:46 PM	
Surr: 4-Terphenyl-d14	81.9	NA	55.1-110	NA	%REC	3/27/2015 9:46 PM	
VOLATILE ORGANIC COMPO	UNDS-8260		Method: \$	SW8260)B (1996)	Analyst: JM	
Benzene	ND	5.00	10.0	NA	µg/L	4/4/2015 4:46 AM	PA/VA
Chlorobenzene	ND	5.00	10.0	NA	µg/L	4/4/2015 4:46 AM	PA/VA
Dibromochloromethane	ND	5.00	10.0	NA		4/4/2015 4·46 AM	PA/VA

					P9/ -		
Dibromochloromethane	ND	5.00	10.0	NA	μg/L	4/4/2015 4:46 AM	PA/VA
1,2-Dichlorobenzene	ND	5.00	10.0	NA	µg/L	4/4/2015 4:46 AM	PA/VA
1,3-Dichlorobenzene	ND	5.00	10.0	NA	µg/L	4/4/2015 4:46 AM	PA/VA
1,4-Dichlorobenzene	ND	5.00	10.0	NA	μg/L	4/4/2015 4:46 AM	PA/VA
Surr: 1,2-Dichloroethane-d4	98.9	NA	68.7-129	NA	%REC	4/4/2015 4:46 AM	
Surr: 4-Bromofluorobenzene	101	NA	71.8-127	NA	%REC	4/4/2015 4:46 AM	
Surr: Dibromofluoromethane	106	NA	74.3-124	NA	%REC	4/4/2015 4:46 AM	
Surr: Toluene-d8	87.5	NA	71.4-129	NA	%REC	4/4/2015 4:46 AM	

Notes:

Elevated PQLs are due to matrix interference. Sample foamed during analysis.

BOD, 5 Day, 20°C			Method: S	SM5210 B-2	2001	Analyst: CB	
Biochemical Oxygen Demand	33	2	5	NA	mg/L	3/24/2015 3:40 PM	PA/VA
Notes:							
The dilution water blank for the reported	BOD fell outsid	e REIC co	ontrol limits.				
Chemical Oxygen Demand			Method: I (1993)	EPA 410.4,	Rev. 2	Analyst: SF	
Chemical Oxygen Demand	93	4	10	NA	mg/L	3/24/2015 8:25 AM	PA/VA
HEXAVALENT CHROMIUM BY I	С		Method: I 3.3 (1994)	EPA 218.6,	Rev.	Analyst: CF	
Chromium (VI)	0.0013	0.0003	0.0010	NA	mg/L	3/24/2015 4:11 PM	
ANIONS by ION CHROMATOGR	APHY		Method: I (1993)	EPA 300.0,	Rev.2.1	Analyst: CF	
Chloride	825	5.00	50.0	NA	mg/L	3/24/2015 10:15 AM	

Page 9 of 13

Date Reported: 4/11/2015

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/23/2015 10:50:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	3/23/2015
Lab ID:	1503Q84-02A	Matrix:	Liquid
Client Sample ID:	2-WETZEL CO LF WWTP EFFLUENT	Site ID:	PHASE II

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
Fluoride	0.82	0.05	0.20	NA		mg/L	3/24/2015 10:15 AM	
Sulfate	77.2	1.00	5.00	NA		mg/L	3/24/2015 10:15 AM	
ANIONS by ION CHROMATOGRA	PHY-48 H	OUR	Method: (1993)	EPA 300	0.0, Rev	/.2.1	Analyst: CF	
Nitrogen, Nitrate	16.5	1.00	5.00	NA		mg/L	3/24/2015 10:15 AM	
Nitrogen, Nitrite	3.80	0.10	1.00	NA		mg/L	3/24/2015 10:15 AM	
TOTAL KJELDAHL NITROGEN (T	KN)		Method: 2.0 (1993	EPA 35 ⁻	1.2, Rev	<i>ı</i> .	Analyst: JH	
Nitrogen, Kjeldahl, Total	20.8	0.50	2.50	NA		mg/L	3/27/2015 1:15 PM	PA/VA
OIL and GREASE			Method:	EPA 16	64 Rev	. A	Analyst: CC	
Oil & Grease	3.1	2.0	5.0	NA	J	mg/L	3/26/2015 11:45 AM	PA/VA
CYANIDE, Free			Method:	SM4500	-CN I-1	997	Analyst: JH	
Cyanide, Free	0.018	0.005	0.020	NA	J	mg/L	3/30/2015 9:32 AM	
AMMONIA NITROGEN			Method: (1993)	EPA 350	0.1, Rev	/.2.	Analyst: JH	
Nitrogen, Ammonia (As N)	18.9	0.64	1.60	NA		mg/L	3/27/2015 9:40 AM	PA/VA
CONDUCTIVITY			Method:	SM2510	B - 199	97	Analyst: KY	
Specific Conductivity	3,860	NA	NA	NA		µmhos/cm	3/24/2015 12:10 PM	PA/VA
TOTAL DISSOLVED SOLIDS			Method:	SM2540	C-1997	7	Analyst: KY	
Total Dissolved Solids	2,140	5	10	NA		mg/L	3/24/2015 3:17 PM	PA/VA
TOTAL SUSPENDED SOLIDS			Method:	SM2540	D-1997	7	Analyst: KY	
Total Suspended Solids	13.0	2.0	10	NA		mg/L	3/24/2015 3:17 PM	PA/VA
ACIDITY			Method:	SM2310	B-1997	7	Analyst: DSD	
Acidity, Total	36.2	1.0	10	NA		mg/L	3/24/2015 2:43 PM	PA/VA
ALKALINITY			Method:	SM2320	B-1997	7	Analyst: DSD	
Alkalinity, Total (As CaCO3)	450	1.0	10	NA		mg/L	3/24/2015 2:43 PM	PA/VA

Date Reported: 4/11/2015

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/23/2015 10:50:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	3/23/2015
Lab ID:	1503Q84-02A	Matrix:	Liquid
Client Sample ID:	2-WETZEL CO LF WWTP EFFLUENT	Site ID:	PHASE II

Analysis	Result	MDL	PQL	MCL 0	Qual Units	Date Analyzed NEI	LAP
pH - LAB TEST, HOLD TIME EXPIR	ED		Method:	SM4500-H	l+-B-2000	Analyst: DSD	
рН	7.63	NA	NA	NA	SU	3/24/2015 2:43 PM	PA

Page 11 of 13

WO#: 1503Q84

Date Reported: 4/11/2015

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/23/2015 10:50:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	3/23/2015
Lab ID:	1503Q84-02B	Matrix:	Liquid
Client Sample ID:	2-WETZEL CO LF WWTP EFFLUENT	Site ID:	PHASE II

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
DISSOLVED METALS BY ICP			Method: (1994)	EPA 200	0.7 Rev	. 4.4	Analyst: CGW	
Iron	0.074	0.010	0.100	NA	J	mg/L	3/26/2015 11:22 PM	PA/VA
Manganese	1.18	0.002	0.100	NA		mg/L	3/26/2015 11:22 PM	PA/VA

Analysis

Date Reported: 4/11/2015

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/23/2015 12:00:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	3/23/2015
Lab ID:	1503Q84-03A	Matrix:	Trip Blank
Client Sample ID:	TRIP BLANK	Site ID:	PHASE II

Result MDL PQL

MCL Qual Units

Date Analyzed NELAP

VOLATILE ORGANIC COMPOUNDS-	8260		Method: S	SW8260E	3 (1996)	Analyst: JM	
Benzene	ND	0.500	1.00	NA	µg/L	4/4/2015 5:19 AM	PA/VA
Chlorobenzene	ND	0.500	1.00	NA	µg/L	4/4/2015 5:19 AM	PA/VA
Dibromochloromethane	ND	0.500	1.00	NA	µg/L	4/4/2015 5:19 AM	PA/VA
1,2-Dichlorobenzene	ND	0.500	1.00	NA	µg/L	4/4/2015 5:19 AM	PA/VA
1,3-Dichlorobenzene	ND	0.500	1.00	NA	µg/L	4/4/2015 5:19 AM	PA/VA
1,4-Dichlorobenzene	ND	0.500	1.00	NA	µg/L	4/4/2015 5:19 AM	PA/VA
Surr: 1,2-Dichloroethane-d4	104	NA	68.7-129	NA	%REC	4/4/2015 5:19 AM	
Surr: 4-Bromofluorobenzene	103	NA	71.8-127	NA	%REC	4/4/2015 5:19 AM	
Surr: Dibromofluoromethane	104	NA	74.3-124	NA	%REC	4/4/2015 5:19 AM	
Surr: Toluene-d8	91.0	NA	71.4-129	NA	%REC	4/4/2015 5:19 AM	



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

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

TEL: (304) 696-6042 FAX:

RE: DRILL CUTTING/LEACHATE ANALYSIS Work Order #: 1503Q86 Dear GEORGE CARICO:

REI Consultants, Inc. received 2 sample(s) on 3/23/2015 for the analyses presented in the following report.

Sincerely,

Kathy Berry

Kathy Berry



Client: MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE

Project: DRILL CUTTING/LEACHATE ANALYSIS

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 1503Q86 RADON has been Sub Contracted. 1503Q86 RADON has been Sub Contracted.



Pace Analytical Services, Inc. 1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

March 30, 2015

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

RE: Project: 1503Q86 Pace Project No.: 30143786

Dear Ms. Berry:

Enclosed are the analytical results for sample(s) received by the laboratory on March 25, 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,

Carino a. Ferrio

Carin Ferris carin.ferris@pacelabs.com Project Manager

Enclosures





Pace Analytical Services, Inc. 1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

CERTIFICATIONS

 Project:
 1503Q86

 Pace Project No.:
 30143786

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-042 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



SAMPLE SUMMARY

Project:	1503Q86			
Pace Project No.:	30143786			
Lab ID	Sample ID	Matrix	Date Collected	Date Received
30143786001	1503Q86-01A	Water	03/23/15 10:20	03/25/15 10:15
30143786002	1503Q86-02A	Water	03/23/15 10:50	03/25/15 10:15



SAMPLE ANALYTE COUNT

 Project:
 1503Q86

 Pace Project No.:
 30143786

Lab ID	Sample ID	Method	Analysts	Analytes Reported
30143786001	1503Q86-01A	SM 7500Rn-B	FCC	1
30143786002	1503Q86-02A	SM 7500Rn-B	FCC	1



PROJECT NARRATIVE

 Project:
 1503Q86

 Pace Project No.:
 30143786

Method: SM 7500Rn-B

Description:7500RnB RadonClient:REI Consultants, Inc.Date:March 30, 2015

General Information:

2 samples were analyzed for SM 7500Rn-B. 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: 1503Q86

Pace Project No.:	30143786
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Sample: PWS:	1503Q86-01A	Lab ID: 30143786 Site ID:	Collected: 03/23/15 10:20 Sample Type:	Received:	03/25/15 10:15	Matrix: Water	
	Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radon		SM 7500Rn-B	33.3 ± 34.9 (57.3) C:NA T:NA	pCi/L	03/26/15 13:25	10043-92-2	
Sample: PWS:	1503Q86-02A	Lab ID: 30143786 Site ID:	Collected: 03/23/15 10:50 Sample Type:	Received:	03/25/15 10:15	Matrix: Water	
	Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radon		SM 7500Rn-B	-25.4 ± 31.9 (57.5) C:NA T:NA	pCi/L	03/26/15 14:17	10043-92-2	



Project:	1503Q86						
Pace Project No.:	30143786						
QC Batch:	RADC/23832		Analysis Method:	SM 7500Rn-	B		
QC Batch Method:	SM 7500Rn-B		Analysis Description:	7500Rn B R	adon		
Associated Lab San	nples: 30143786	001, 30143786002					
METHOD BLANK:	869570		Matrix: Water				
Associated Lab San	nples: 30143786	001, 30143786002					
Paran	neter	Act ± Unc (M	IDC) Carr Trac	Units	Analyzed	Qualifiers	
Radon		1.2 ± 18.7 (32.5) C	:NA T:NA	pCi/L	03/26/15 09:03		

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:
 1503Q86

 Pace Project No.:
 30143786

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.

P Beaver, TEL: (304) FAX: (304) Website: www.ret	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 laborate practices. <u>All results to Kathy Berry at kberry@reiclabs.com</u> .	ANALYTICAL PARAMETERS ANALYTICAL PARAMETERS * Preservation Codes: 0 None 1 Hydrobio Acid 2 Nutric Acid 3 Sulfuric Acid 3 Sulfuric Acid	COMMENTS: COMMEN	8		Time: 6.50 REPORT TRANSMITTAL DESIRED. Time: 6.5 HARDCOPY (extra cost) 7.4X CATANIL ONLINE FOR LAB USE ONLY Time: 7.00 Additional 2.50
Neoving the antroonneut, one client it allow	SUB CONTRATION: pace_Pa COMPANY: PACE ANALYTICAL SERVIC ADDRESS: 1638 ROSEYTOWN ROAD CITY, STATE, ZP: GREENSBURG, PA 15601	PHONE: (724) 850-5600 FAX: ACCOUNT #: 050719EVF1 EMAIL:	NUMBER OF CONTAINERS	1 1503Q86-01A 1-WETZEL CO LF Liquid 3/23/2015 10:20:00 3 AM AM <td>2 1303Q85-02A 2-WETZEL CO LF Jiquid 3/23/2015 10:50:00 3</td> <td>Relinquished BY US Date Lot Areas Lot Areas Lot Areas By US Date 24 Relinquished By Received By US Date 3/24/19</td>	2 1303Q85-02A 2-WETZEL CO LF Jiquid 3/23/2015 10:50:00 3	Relinquished BY US Date Lot Areas Lot Areas Lot Areas By US Date 24 Relinquished By Received By US Date 3/24/19

San	nple (Cond	lition	Upon Receip	ot				· · ·	0.0
Pace Analytical Oliont Nome		~ ^			Project	" J	UT	4	5/	86
Client Name		Kr	IC.							
Courler: Fed Ex DUPS USPS Clier	at 🗆 🤇	Comme	ercial	Pace Other						
Tracking #: 12 260 713 13 7639 6178				_						
Custody Seal on Cooler/Box Present: 🗌 yes	\square	no	Seals	intact: 🗌 yes	🗌 no 🛛 Biologi	cal Tissue) IS Fro	zen:	Yes N	10
Packing Material: Bubble Wrap Bubble Bag	s s	None		Other						
Thermometer Used Type	of Ice:	Wet	Blue	None 1312	Samples on ice, cooli	ng process	has beg	iun	Dere on	
Cooler Temp.: Observed Temp.:°C Co	rrectio	n Fact	or: <u>///</u>	°C Final Ter	mp:_ <u>^v</u> °C	Date at	id initia	IS OF P	A~~	
Temp should be above freezing to 6°C				Comments:		examin	ing cont	ents:	3/2	5/15
Chain of Custody Present:	₩ es	⊡No	□n/A	1						
Chain of Custody Filled Out:	Wes	□No	□n/A	2.						
Chain of Custody Relinguished:	Yes	⊡No	□n/a	3.						
Sampler Name & Signature on COC:	□Yes	- Jono	□n/A	4,						
Samples Arrived within Hold Time:	(DYes	□No		5.						
Short Hold Time Analysis (<72hr):	Pres	ĹΝο		6,						
Rush Turn Around Time Requested:	ÉlYes	⊡No	□N/A	7.						
Sufficient Volume:	[2]Yes	□No		8.						
Correct Containers Used:	Pres	□No	⊡n/A	9.						
-Pace Containers Used:	Yes	199Rio								
Containers Intact:	∯/Yes	□No	□n/A	10.	and the second se					
Filtered volume received for Dissolved tests	⊡Yes	⊡No	AN/A	11.						
Sample Labels match COC:	Pares	□No		12.						
-Includes date/time/ID/Analysis Matrix:	wit									
All containers needing preservation have been checked.	□Yes	□No	(ARVIA	13.						
All containers needing preservation are found to be in compliance with EPA recommendation.	□Yes	□No	UM/A							
exceptions: (OA), collform, TOC, O&G, Phenois	(Payes	□No		completed fm	Lot # of added preservative					
Samples checked for dechlorination:	Yes	□No	PIN/A	14.						
Headspace in VOA Vials (>6mm):	□Yes	□No	BN/A	15.		Já				
Trip Blank Present:	□Yes	□No	ZN/A	16.						
Trip Blank Custody Seals Present	□Yes	□No								
Pace Trip Blank Lot # (if purchased):										
Client Notification/ Resolution:					Field Data Re	quired?		Y	/ N	
Person Contacted:			Date/	Time:						
Comments/ Resolution:					a second and a second and					
	_									
^_		T	2			-	110	-1	15	
Project Manager Review:	3	Č	Per	NO	Date:	-6	SID	21	0	
Note: Whenever there is a discrepancy affecting North C (i.e. out of hold, Incorrect preservative, out of temp, inco	arolina d rrect con	complia tainers	nce san)	nples, a copy of this f	form will be sent to the N	North Caroli	na DEHI	NR Ce Pa	ertification ae 10 o	on Office f 11

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	Office 15 ADDIN	m	\sim											10100
	Ziploc													4 15Ma
	Cubitainer (500 ml / ₄L)													k (C016-
2	Radchem Nalgene (1/2 gal. / 1 gal.L)													IRF Bar
25	Radchem Nelgene (125 / 250 / 500 / 1L)													SC
	Wipes / swipe/ smear/ filter													1
it Name	Bacleria (120 ml)													
Clier	(Im 003) əbitivê			<u></u>										
	Cyanide (250 ml)													
	(1m 0E 1m 04) AOV													
	тен (1г)													
	ס ע פ (זר)													
	Dissolved Metals preserved Y N													
	Total Metals													
	TOX (250 ml)													
	TOC (40 ml / 250 ml)													
	(Im 055) soilonert9													
	(005 \ 025) freitiend			7		1								
	Urganics (1L)													
	Chemistry (250 / 500 / 1L)													
	Soil kit (2 SB, 1M, soil jar)													
	Glass Jar (120 / 250 / 500 / 1L)													
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page 2

Pace Analytical

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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 29, 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/LEACHATE ANALYSIS Work Order #: 1505H96 Dear GEORGE CARICO:

REI Consultants, Inc. received 2 sample(s) on 5/14/2015 for the analyses presented in the following report.

Sincerely,

Kathy Berry

Kathy Berry



Date Reported: 5/29/2015

Client: MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE

Project: DRILL CUTTING/LEACHATE ANALYSIS

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

REI Consultants, Inc. - Analytical Report

Date Reported: 5/29/2015

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	5/14/2015 10:25:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	5/14/2015
Lab ID:	1505H96-01A	Matrix:	Liquid
Client Sample ID:	1-WETZEL CO. LF	Site ID:	WETZEL CO. LANDFILL/WWTP

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed NELAP
GROSS ALPHA			Method:	EPA 90	0.0		Analyst: Sub
Gross Alpha	see attached	NA	NA	NA		pci/L	
GROSS BETA			Method:	EPA 90	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	4.0		Analyst: Sub
Radium-228	see attached	NA	NA	NA		pci/L	
STRONTIUM-90			Method:	EPA 90	5.0		Analyst: Sub
Strontium-90	see attached	NA	NA	NA			

REI Consultants, Inc. - Analytical Report

Date Reported: 5/29/2015

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	5/14/2015 10:35:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	5/14/2015
Lab ID:	1505H96-02A	Matrix:	Liquid
Client Sample ID:	2-WETZEL CO LF WWTP EFFLUENT	Site ID:	WETZEL CO. LANDEILL/WWTP

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	4.0		Analyst: Sub
Radium-228	see attached	NA	NA	NA		pci/L	
STRONTIUM-90			Method:	EPA 90	5.0		Analyst: Sub
Strontium-90	see attached	NA	NA	NA			



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

Sample Receipt Checklist

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

Client Nam	ne: MAR071	Work Order Number: 1505H96					
RCPNo:	1 Date and Time Received:	5/14/2015 6:15:00 PM	Received by:	Whitney Williams			
Completed	By: Mary Ann Holley	Reviewed By:					
Completed	Date: 5/15/2015 8:43:48 AM	Reviewed Date:					
Carrie	r Name: REIC						
1.	Chain of custody present?	Yes	< No 🗆				
2.	Chain of custody signed when relinquished and received?	Yes	< No 🗌				
3.	Are matrices correctly identified on Chain of custody?	Yes x	No 🗌				
4.	Is it clear what analyses were requested?	Yes					
5.	Custody seals intact?	Yes	No 🗆	Not Present x			
6.	Samples in proper container type and preservative?	Yes	K No				
7.	Were correct preservatives noted on COC?	Yes	< No 🗌	NA 🗌			
8.	Sample containers intact?	Yes	< No				
9.	Sufficient sample volume for indicated test?	Yes	< No 🗌				
10.	Were container labels complete?	Yes	< No 🗌				
11.	All samples received within holding time?	Yes	< No 🗌				
12.	Was an attempt made to cool the samples?	Yes	< No 🗌	NA 🗌			
13.	Sample Temp. taken and recorded upon receipt?	Yes	No 🗌	To 1 °C			
14.	Water - Were bubbles absent in VOC vials?	Yes	No 🗌	No Vials 🗙			
15.	Are Samples considered acceptable?	Yes	< No 🗌				
16.	COC filled out properly?	Yes	No 🗌				

Client Notification/Response

Client Name:	MAR071					W	ork Order Number: 1505H96
Comment:							
Client Contacted: Contact Mode:	Yes Phone	□ □ F	No	NA Email:	×	Person Contacted:	
Date Contacted:					Contac	cted By:	
Regarding:							
Client Instructions	5:						
Corrective Action							



Pace Analytical Services, Inc. 1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

May 28, 2015

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

RE: Project: 1505H96 Pace Project No.: 30148621

Dear Ms. Berry:

Enclosed are the analytical results for sample(s) received by the laboratory on May 20, 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,

Carino a. Ferrio

Carin Ferris carin.ferris@pacelabs.com Project Manager

Enclosures





Pace Analytical Services, Inc. 1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

CERTIFICATIONS

 Project:
 1505H96

 Pace Project No.:
 30148621

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-042 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



SAMPLE SUMMARY

Project: Pace Project No	1505H96 .: 30148621			
Lab ID	Sample ID	Matrix	Date Collected	Date Received
30148621001	1505H96-01A	Water	05/14/15 10:25	05/20/15 09:40
30148621002	1505H96-02A	Water	05/14/15 10:35	05/20/15 09:40



SAMPLE ANALYTE COUNT

 Project:
 1505H96

 Pace Project No.:
 30148621

Lab ID	Sample ID	Method	Analysts	Analytes Reported
30148621001	1505H96-01A	EPA 900.0	FCC	2
		EPA 903.1	JC2	1
		EPA 904.0	JLW	1
		ASTM D5811-95	LAL	1
30148621002	1505H96-02A	EPA 900.0	FCC	2
		EPA 903.1	JC2	1
		EPA 904.0	JLW	1
		ASTM D5811-95	LAL	1



PROJECT NARRATIVE

 Project:
 1505H96

 Pace Project No.:
 30148621

Method:EPA 900.0Description:900.0 Gross Alpha/BetaClient:REI Consultants, Inc.Date:May 28, 2015

General Information:

2 samples were 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:



Pace Analytical Services, Inc. 1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

PROJECT NARRATIVE

 Project:
 1505H96

 Pace Project No.:
 30148621

Method: EPA 903.1

Description:903.1 Radium 226Client:REI Consultants, Inc.Date:May 28, 2015

General Information:

2 samples were analyzed for EPA 903.1. 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:
 1505H96

 Pace Project No.:
 30148621

Method: EPA 904.0

Description:904.0 Radium 228Client:REI Consultants, Inc.Date:May 28, 2015

General Information:

2 samples were analyzed for EPA 904.0. 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:



Pace Analytical Services, Inc. 1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

PROJECT NARRATIVE

 Project:
 1505H96

 Pace Project No.:
 30148621

Method: ASTM D5811-95

Description:ASTM D5811 Sr 89/90 EichromClient:REI Consultants, Inc.Date:May 28, 2015

General Information:

2 samples were 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/24528

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

- 1505H96-01A (Lab ID: 30148621001)
 - Strontium-90
- 1505H96-02A (Lab ID: 30148621002)
- Strontium-90
- BLANK (Lab ID: 896233)
 - Strontium-90

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



ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 1505H96

Pace Project No.: 30148621

Sample: 1505H96-01A PWS:	Lab ID: 3014862 Site ID:	Collected: 05/14/15 10:25 Sample Type:	Received:	05/20/15 09:40	Matrix: Water	
Comments: • • Sample Ac	cceptance Policy Waiver on file from	the client.				
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0	18.4 ± 15.9 (27.3) C:NA T:NA	pCi/L	05/27/15 19:11	12587-46-1	
Gross Beta	EPA 900.0	56.2 ± 13.7 (13.6) C:NA T:NA	pCi/L	05/27/15 19:11	12587-47-2	
Radium-226	EPA 903.1	1.18 ± 1.01 (1.22) C:NA T:85%	pCi/L	05/27/15 14:57	1 13982-63-3	
Radium-228	EPA 904.0	1.45 ± 0.529 (0.771) C:79% T:78%	pCi/L	05/26/15 16:57	7 15262-20-1	
Strontium-90	ASTM D5811-95	1.09 ± 1.08 (1.94) C:99% T:NA	pCi/L	05/22/15 18:37	7 10098-97-2	N2
Sample: 1505H96-02A	Lab ID: 3014862	1002 Collected: 05/14/15 10:35	Received:	05/20/15 09:40	Matrix: Water	
Comments: • Upon rece requirement • Sample Ac	ipt at the laboratory, six mls of nitric t of pH <2 for radiochemistry analys cceptance Policy Waiver on file from	acid were added to 1 of 3 of the sar is. the client.	mple contain	ers to meet the san	nple preservatio	n
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0	9.03 ± 5.85 (9.21) C:NA T:NA	pCi/L	05/27/15 19:11	12587-46-1	
Gross Beta	EPA 900.0	28.3 ± 6.61 (5.75) C:NA T:NA	pCi/L	05/27/15 19:11	12587-47-2	
Radium-226	EPA 903.1	0.582 ± 0.809 (1.16)	pCi/L	05/27/15 14:13	3 13982-63-3	

 Radium-226
 EPA 903.1
 0.582 ± 0.809 (1.16)
 pCi/L
 05/27/15 14:13
 13982-63-3

 Radium-228
 EPA 904.0
 0.503 ± 0.401 (0.791)
 pCi/L
 05/26/15 16:57
 15262-20-1

 Strontium-90
 ASTM D5811-95
 5.78 ± 1.49 (1.78)
 pCi/L
 05/22/15 18:38
 10098-97-2
 N2



Project:	1505H96						
Pace Project No.:	30148621						
QC Batch:	RADC/24521		Analysis Method:	EPA 903.1			
QC Batch Method:	EPA 903.1		Analysis Description:	903.1 Radiu	m-226		
Associated Lab San	nples: 30148621001,	30148621002					
METHOD BLANK:	896222		Matrix: Water				
Associated Lab San	nples: 30148621001,	30148621002					
Paran	neter	Act ± Unc (N	IDC) Carr Trac	Units	Analyzed	Qualifiers	
Radium-226	-0.0	56 ± 0.512 (0.9	39) C:NA T:82%	pCi/L	05/27/15 14:13		

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:	1505H96							
Pace Project No.:	30148621							
QC Batch:	RADC/24579		Analysis Method:	EPA 900.0				
QC Batch Method: EPA 900.0			Analysis Description:	900.0 Gross Alpha/Beta				
Associated Lab Sar	mples: 3014862	001, 30148621002						
METHOD BLANK:	898455		Matrix: Water					
Associated Lab Sar	mples: 3014862 ²	001, 30148621002						
Parar	neter	Act ± Unc (M	IDC) Carr Trac	Units	Analyzed	Qualifiers		
Gross Alpha		0.019 ± 0.634 (1.72) C:NA T:NA	pCi/L	05/28/15 06:18			
Gross Beta		-0.388 ± 0.676 (1.82	2) C:NA T:NA	pCi/L	05/28/15 06:18			

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:	1505H96						
Pace Project No.:	30148621						
QC Batch:	RADC/24524		Analysis Method:	EPA 904.0			
QC Batch Method:	EPA 904.0		Analysis Description:	904.0 Radiu	m 228		
Associated Lab San	nples: 30148621	001, 30148621002					
METHOD BLANK:	896225		Matrix: Water				
Associated Lab San	nples: 30148621	001, 30148621002					
Paran	neter	Act ± Unc	(MDC) Carr Trac	Units	Analyzed	Qualifiers	
Radium-228		0.389 ± 0.344 (0.	697) C:89% T:87%	pCi/L	05/26/15 17:03		

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:	1505H96						
Pace Project No.:	30148621						
QC Batch:	RADC/24528		Analysis Method:	ASTM D581	1-95		
QC Batch Method:	ASTM D5811-95		Analysis Description:	ASTM D581	1 Sr 89/90 Eichrom		
Associated Lab San	nples: 30148621	001, 30148621	002				
METHOD BLANK:	896233		Matrix: Water				
Associated Lab San	nples: 30148621	001, 30148621	002				
Paran	neter	Act ± I	Jnc (MDC) Carr Trac	Units	Analyzed	Qualifiers	
Strontium-90		0.131 ± 0.359	(0.791) C:86% T:NA	pCi/L	05/23/15 13:05	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:	1505H96
Pace Project No.:	30148621

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

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

Image: Section of the sectio		, T						the state of the s	PO Bo Beaver, WV 2
The factor of a product of a	mproving the environment, ane	client at a time	I					30 2	ТЕЛ: (304) 255- ТЕЛ: (304) 255- FAX: (304) 255- Website: www.reiclabs
State Controls PACE Controls PACE ANALYTICAL SERVI State Controls State C				Please	Include Email Addre	ss of Report Recipio	nt Whenever Possible!	11	
JODEST IGS ROSENTOWN ROJD Addresses Beneficie de la Negleria de la Neg	SUB CONTRATOR PACE_	PA co	MPANY:	PACE ANAL	YTICAL SERVI	SPECIAL INSTRU	CTIONS / COMMENTS:		
Contracting CREENSBURG, PA 15001 Montaning Crash Selon 5600 Montaning Montan	ADDRESS: 1638 RO	SEYTOWN ROA	a			After analysis	the samples do not need	d to be returned and can be d	disposed per your standard laborator
Monte (T2) S10-560 MA COONT (T2) S10-560 (MA COONT (MA) (MA) MA (MA) (MA)	CITY, STATE, ZIP: GREEN	SBURG, PA 15601				piacuces. Fie	ase chiall lesuls to ADE		you
	PHONE: (724) 85(0-5600 FA	v			ANALY	TICAL PARAMETERS		* Preservation Codes: 0 None
	ACCOUNT #: 050719E	WF1 EM	AIL:			ADIUM ADIUM GROSS_ GROSS_			I Hydrochlonc Acid 2 Nitric Acid 3 Sulfuric Acid
1 1505H96-01A 1-WETZEL CO. LF 山口山山 5/142015 12:35:30 1	ITEM SAMPLE ID	Client Sample ID	Bottle	MATRIX	DATE COLLECTED	10M_90_SUB (EPA 905.0) r 1_228_SUB (EPA 904.0) r 1_226_SUB (EPA 903.1) r BETA_SUB (EPA 900.0) r ALPHA_SUB (EPA 900.0) r NUMBER OF CONTAINERS +			 4 Sodium Thiosuffate 5 Sodium Hydroxide/ Sodium Hydroxide Sodium SuffateHCL 9 Passoinis Dilydrogen Citrate 10 Bromium Chloride 11 CR6 Buffar Solution COMMENTS:
2 1505H96-07A 2-WETZEL CO LF Uquid 5/4/2015 10:35:00 1	1 1505H96-01A 1-	WETZEL CO. LF	_	Liquid	5/14/2015 10:25:00 AM	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		8	
Reingended PFL Date Targe Report TRANSMITAL DESPED: Reingended Pr. Dite: Targe Dite: D	2 1505H96-02A 2-	WETZEL CO LF		Liquid	5/14/2015 10:35:00 AM	$1 \left \sqrt{\sqrt{\sqrt{2}} \left \sqrt{\sqrt{2}} \right } \right $		2002	
Reinquisited By: Date Trans. Report TRANSMITTAL DESRED: Reinquisited By: Ender Trans. Bate: Trans. Reinquisited By: Date: Trans. Bate: Trans. Reinquisited By: Date: Trans. Bate: Trans. Reinquisited By: Date: Trans. Bate: Trans. Reinquisited By: Trans. Received By: Date: EAAL Reinquisited By: Trans. Received By: Date: Trans. Reinquisited By: Trans. Received By: Date: Trans. Reinquisited By: Trans. Received By: Date: Trans. ATI: Standad KISH Net BD Add B) Connets.									
Relinquished BY, Model Dark Method						1 			
TAT: Standard C Attempt to Cool ? TAT: Standard Comments: Comments: Note: RUSH Next BD 2nd BD 3rd BD	Relinquished By, Alley Relinquished By: Relinquished By:	Date Time Date Time Date Time	10 m Re	ceived By: ULPS ceived By:	Date: Sing Date: Date: Date:	1/5 Tipe AM	HARDCOP	Y (extra cost)	AL DESRED: C EMAIL ONLNE ONLY
	TAT:	Standard	RUSH	Next BD	2nd BD	3rd BD	Temp of sam Comments:	its M °C	Attempt to Cool ?

Sam	ple Conditio	n Upon Receipt
Pace Analytical Client Name:	RE	C Project #30148621
Courler:	t □Commercial	Pace Other Is intact: yes no Biological Tissue is Frozen: Yes No
Packing Material: Bubble Wrap 🗶 Bubble Bags	None	Other
Thermometer Used Type	of Ice: Wet BI	ue Noné Samples on ice, cooling process has begun
Cooler Temp.: Observed Temp.: MA_°C Cor	rection Factor: _	<u>uA</u> ℃ Final Temp: <u>MA</u> ℃
Temp should be above freezing to 6°C		Comments: examining contents: 700
Chain of Custody Present:	Bres DNO DN	A 1.
Chain of Custody Filled Out:		A 2.
Chain of Custody Relinguished:		A 3.
Sampler Name & Signature on COC:		A 4.
Samples Arrived within Hold Time:		A 5.
Short Hold Time Analysis (<72hr):		/A 6,
Rush Turn Around Time Requested:		/A 7.
Sufficient Volume:		/A 8.
Correct Containers Used:		/A 9.
-Pace Containers Used:		/A
Containers Intact:		/A 10.
Filtered volume received for Dissolved tests		/A 11.
Sample Labels match COC:		12.
-Includes date/time/ID/Analysis Matrix:	ur	
All containers needing preservation have been checked.	ØYes □No □N	13. added land HWO3 to all bottlesin col + lat 3
All containers needing preservation are found to be in compliance with EPA recommendation.		1A
exceptions: VOA, caliform, TOC, O&G, Phenois	□Yes ØNo	Initial when Lot # of added preservative Dus-0433
Samples checked for dechlorination:	Yes No QN	/A 14.
Headspace in VOA Vials (>6mm):		15.
Trip Blank Present:		/A 16.
Trip Blank Custody Seals Present	□Yes □No 10N	/Α
Pace Trip Blank Lot # (if purchased):		
Client Notification/ Resolution: Person Contacted: Comments/ Resolution:	Dat	Field Data Required? Y / N
	~	
Project Manager Review:) Ser	Date: 50115

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)

					 					 é
		Other								
		Other								2012).xts
-		Siploc								15May
6 2		Cubitainer (500 mi / 4L)								(C016-4
00	J	Radchem Nalgene (ז/צ gal. / ז gal.L)								IRF Back
- California	2	Radchem Walgene (125 / 250 / 500 / 🕖)	M	m						SCU
60 D		Wipes / swipe/ smear/ filter								
t Numl	it Name	Bacteria (120 ml)								
Projec	Clier	(im 003) suifide								
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		Dissolved Metals preserved Y N								
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		TOX (250 ml)								
		TOC (40 ml / 250 ml)								
		Phenolics (250 ml)								
		Nutrient (250 / 500)								
		Organics (1L)								
		Chemistry (250 / 500 / 1L)								
		Soil kit (2 SB, 1M, soil jar)								
		Glass Jar (120 / 250 / 500 / 1L)								
alytica		eboD xinteM	3	t						
PaceAn		.oN meti	100	2D						

Pace Analytical

	EIC	Add	ress One	John Mars	hall C	Drive			City Hu	ntington	St	ate_WV	_{Zip} 25755
Research Environmental & Industr MAIN LABORATORY & CORPORA P.O. Box 286 • 225 Industrial Park R 800-999-0105 • 304-255-2500 •	ial Consultants, TE HEADQUAR Id, Beaver, WV 258 www.reiclabs.com	Inc. TERS: 113 Site	ID & State Nor	theodom Landil Purk	City	^{wTP} _Proj	ect ID_D	rill Cu	itting/Le	Sta eachate Analys	ate sis	Zip Sample	er _J McGee
MID-OHIO VALLEY Service Center 101 17th Street Ashland, KY 41101 606-393-5027 SHENAND	DOAH enter Rd., Ste 201 302 24482 R 0183	ROANOKE Service Center 29-C Peters Creek Rd toanoke, VA 24019 540-777-1276	MORGANTO Service Cer 16 Commerce Westover, WV 304-241-58	OWN nter 20501 861	See	Attach	ment	. 10		ald	The	(
SAMPLE LOO	G & ANAL	YSIS REQUEST		THO				0 40	Mai~01 .	fr	127	1	0.000
				84.0						1.74	11.1		0,010
TURNAROUND TIME NORMAL *Rush work needs prior lab	RU S DAY O poratory approval	SH TURNAROUND*	1 DAY	VALYSIS & ME					•	1.44 4.28	r.21		1,045
TURNAROUND TIME NORMAL Rush work needs prior lab SAMPLE ID	RU S 5 DAY Doratory approval No. & Type of Containers	SH TURNAROUND*) 1 DAY harges Matrix	3W % SISATURE Sample Comp/Grab	*0 **	1 2	3 5	10 °	M	4.28 SC Sampling Fee ENTER PRESERV	IS.7	4	1,04C
TURNAROUND TIME Normal Rush work needs prior lat SAMPLE ID 1-Northwestern LF	RU Soratory approval No. & Type of Containers 20	Sampling Date/Time) 1 DAY harges Matrix Water	W & SISATURE Sample Comp/Grab Grab		1 2	3 5	*10 ⁸ > >	M b b	4.28 SC Sampling Fee ENTER PRESERV 0 None 1 Hydrochloric A		5): 6 Sodium I 7 Ascorbic	l,04C
TURNAROUND TIME NormaL Rush work needs prior lat SAMPLE ID 1-Northwestern LF 2-Parkersburg WWTP Effluent	RU S 5 DAY Dooratory approval No. & Type of Containers 20 23	Sampling Date/Time	D 1 DAY harges Matrix Water Water	Sample Comp/Grab Grab Grab		1 2	3 5	210 °	р С С С С С С	4.28 SC Sampling Fee ENTER PRESERV 0 None 1 Hydrochloric A 2 Nitric Acid 3 Sulfuric Acid	- C A	5): 6 Sodium I 7 Ascorbic 8 Sodium E 9 Ammoni	-lydroxide Acid Bisulfate/Meth um Chioride
TURNAROUND TIME NORMAL *Rush work needs prior lat SAMPLE ID 1-Northwestern LF 2-Parkersburg WWTP Effluent Trip Blank	RU Soratory approval No. & Type of Containers 20 23 1	Sampling Date/Time	Matrix Water Water Water	Sample Comp/Grab Grab Grab Grab		1 2 2	3 5	710 ² 5 5		C Sampling Fee C Sampling Fee C ENTER PRESER 0 None 1 Hydrochloric A 2 Nitric Acid 3 Sulfuric Acid 4 Sodium Thiosu 5 Sodium Hydrox	IS.7	5): 6 Sodium I 7 Ascorbic 8 Sodium F 9 Ammoni 10 AS/A	-lydroxide Acid Bisulfate/Meth um Chloride H
TURNAROUND TIME NORMAL *Rush work needs prior lat SAMPLE ID 1-Northwestern LF 2-Parkersburg WWTP Effluent Trip Blank	RU Social State of Containers 20 23 1	Sampling Date/Time	Matrix Water Water Water Choose	Sample Comp/Grab Grab Grab Grab Choose		1 2 5	3 2 5	*10 ° > >		1.44 4.28 SC Sampling Fee ENTER PRESERV 0 None 1 Hydrochloric A 2 Nitric Acid 3 Sulfuric Acid 4 Sodium Thiosu 5 Sodium Arseni *(Use	ATIVE CODE(cid lfate kide/ te blanks for presen	5): 6 Sodium I 7 Ascorbic 8 Sodium E 9 Ammoni 10 AS/A 11 vatives not I	-lydroxide Acid Bisulfate/Meth um Chloride H
TURNAROUND TIME NormaL Rush work needs prior lat SAMPLE ID 1-Northwestern LF 2-Parkersburg WWTP Effluent Trip Blank	RU Soratory approval No. & Type of Containers 20 23 1	Sampling Date/Time	Matrix Water Water Choose Choose	Sample Comp/Grab Grab Grab Grab Choose Choose		1 2	3 / 5	*10 ⁸ > 5		COMMENTS:	IS.7 IS.7 IATIVE CODE(cid Ifate kide/ te blanks for presen	5): 6 Sodium I 7 Ascorbic 8 Sodium E 9 Ammoni 10 AS/A 11 vvatives not I	-lydroxide Acid Bisulfate/Meth um Chloride H
TURNAROUND TIME	RU S DAY Doratory approval No. & Type of Containers 20 23 1	Sampling Date/Time	Matrix Water Water Water Choose Choose	Sample Comp/Grab Grab Grab Grab Choose Choose Choose			3 5	710 ° > > X		COMMENTS: Dissolved	ATIVE CODE(cid lifate skide/ te blanks for present	S): 6 Sodium I 7 Ascorbic 8 Sodium E 9 Ammoni 10 AS/A 11 rvatives not I	-lydroxide Acid Bisulfate/Meth um Chloride H listed.)
TURNAROUND TIME NormaL Rush work needs prior lat SAMPLE ID 1-Northwestern LF 2-Parkersburg WWTP Effluent Trip Blank	RU S DAY Doratory approval No. & Type of Containers 20 23 1	SH TURNAROUND 3 DAY 2 DAY 3 and will incur additional of Sampling Date/Time 12 15 14 0 09:00 10:00	Matrix Water Water Choose Choose Choose	Sample Comp/Grab Grab Grab Grab Choose Choose Choose		1 *2 * > t	3 * 5	*10 s > 3		COMMENTS: Dissolved	IS.7 ATIVE CODE(cid Ifate kide/ te blanks for present Metals al	S): 6 Sodium I 7 Ascorbic 8 Sodium E 9 Ammoni 10 AS/A 11 watives not I	Hydroxide Acid Bisulfate/Meth- um Chloride H Iisted.) d Filtere
TURNAROUND TIME	RU S DAY O poratory approval No. & Type of Containers 20 23 1	Sampling Date/Time	Matrix Matrix Water Water Choose Choose Choose Choose	Sample Comp/Grab Grab Grab Choose Choose Choose Choose Choose Choose Choose Choose			3 5	10 s 5		Comments: Dissolved	If ate kide/ te blanks for present	5): 6 Sodium I 7 Ascorbic 8 Sodium I 9 Ammoni 10 AS/A 11 rvatives nat I re Field	-lydroxide Acid Bisulfate/Metha um Chioride H issted.) d Filtere
TURNAROUND TIME	RU S DAY O poratory approval No. & Type of Containers 20 23 1	SH TURNAROUND* 3 DAY 2 DAY 3 and will incur additional of Sampling Date/Time 12 15/14 C 07:00 10:00	Matrix Water Water Water Choose Choose Choose Choose Choose	Bample Comp/Grab Grab Grab Grab Choose Choose				710 ° > > >		COMMENTS: Dissolved	IS.7 ATIVE CODE(cid Ifate kide/ te blanks for present Metals at	S): 6 Sodium I 7 Ascorbic 8 Sodium E 9 Ammoni 10 AS/A 11 rvatives not I	-lydroxide Acid Bisulfate/Metha um Chloride H isted.) d Filtered

pt / of 3

WVDEP Drill Cutting / Leachate Analysis List	
Aluminum	
Antimony	
Arsenic	
Barium	
Beryllium	
Boron	
Cadmium	
Chromium	
Hexavalent Chromium	
Copper	
Lead	
Lithium	
Mercury	
Nickel	
Selenium	
Silver	
Strontium	
Vanadium	
Zinc	
Chloride	
Fluoride	
Nitrate as Nitrogen	
Nitrite as Nitrogen	
Sulfate	
Total Suspended Solids	
Free Cyanide	
Benzene	
Chlorobenzene	
Chlorodibromomethane	

pt 2 of 3

1,2-Dichlorobenzene

1,3-Dichlorobenzene

1,4-Dichlorobenzene

1,4-Dinitrobenzene

1,4-Naphthoquinone

2,4-Dinitrotoluene

2,6-Dinitrotoluene

4-Nitroquinoline-1-oxide

bis(2-ethylhexyl) phthalate

Butyl benzylphthalate

Di-N-Butyl Phthalate

Di-N-Octylphthalate Diethyl Phthalate

Dimethyl Phthalate

Flouranthene

Nitrobenzene

Pentachloronitrobenzene

Gross Alpha

Gross Beta

Radium 226

Radium 228

Strontium 90

Radon

pH

Total Dissolved Solids

Total Suspended Solids

BOD 5-Day

Ammonia as Nitrogen

Total Kjeldahl Nitrogen

Oil & Grease

Acidity to pH 8.3

DBPix Evaluation

ps JoF 3

Specific Conductance

Alkalinity to pH 4.5

Chemical Oxygen Demand

Dissolved Iron and Iron

Manganese and Dissolved Manganese

DBPix Evaluation

REI Consultants, Inc.

FIELD LOG: pH Calibration Records 6-2010.Rev.1

Client Name:	MARSHALL UNIVERSITY	Site Location: PALKENSBURG WV	
Date:	12/15/14	Analyst:	
Calibration Location:	Field / Laboratory	Instrument: Oakton pH Meter	
4.0 Buffer Lot #:	0085-14		
7.0 Buffer Lot #:	0119-04		
10.0 Buffer Lot #:	5112-08		

A REPORT		pH (SU) - SM45	500-H+B, 18th Edition	
Standard	Initial Reading	Reading After Calibration	Temperature °C	Comments
4.0 Buffer	4.07	4.01	20.6	
7.0 Buffer	7.08	7.00		
10.0 Buffer	9.96	10,01		

Slope: 97.9%

Comments:

Calibration at the laboratory requires a pH 7.0 QC Check

All field pH analysis must be followed by a Post Analysis pH Check

Quality Control Samples	Reading	Acceptance Range:
QC Check, 7.0	7.09	$T_{rus} V_{alus} + 0.1 (6.9 - 7.1)$
Post Analysis QC Check, 7.0	7.02	The value ± 0.1 (0.9 - 7.1)



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, December 31, 2014

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

TEL: (304) 696-6042 FAX:

RE: DRILL CUTTING/LEACHATE ANALYSIS Work Order #: 1412J73 Dear GEORGE CARICO:

REI Consultants, Inc. received 3 sample(s) on 12/15/2014 for the analyses presented in the following report.

Kathy Berry

Kathy Berry



Client: MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,

Project: DRILL CUTTING/LEACHATE ANALYSIS

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

Di-n-butyl phthalate

Diethyl phthalate

Dimethyl phthalate

2,4-Dinitrotoluene

WO#: 1412J73

Date Reported: 12/31/2014

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	12/15/2014 9:00:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	12/15/2014
Lab ID:	1412J73-01A	Matrix:	Liquid
Client Sample ID:	1-NORTHWESTERN LF	Site ID:	NORTHWESTERN LANDFILL/PARKERSBURG WWTP

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
METALS BY ICP			Method: E (1994)	EPA 200).7 Rev	. 4.4	Analyst: CGW	
Aluminum	0.012	0.005	0.100	NA	J	mg/L	12/18/2014 7:54 PM	PA/VA
Antimony	ND	0.020	0.200	NA		mg/L	12/18/2014 7:54 PM	PA/VA
Arsenic	0.352	0.020	0.200	NA		mg/L	12/18/2014 7:54 PM	PA/VA
Barium	3.08	0.002	0.100	NA		mg/L	12/18/2014 7:54 PM	PA/VA
Beryllium	ND	0.001	0.010	NA		mg/L	12/18/2014 7:54 PM	PA/VA
Boron	42.8	0.020	0.100	NA		mg/L	12/18/2014 7:54 PM	PA/VA
Cadmium	ND	0.001	0.020	NA		mg/L	12/18/2014 7:54 PM	PA/VA
Chromium	0.014	0.005	0.100	NA	J	mg/L	12/18/2014 7:54 PM	PA/VA
Copper	ND	0.005	0.100	NA		mg/L	12/18/2014 7:54 PM	PA/VA
Iron	17.5	0.010	0.100	NA		mg/L	12/18/2014 7:54 PM	PA/VA
Lead	ND	0.010	0.200	NA		mg/L	12/18/2014 7:54 PM	PA/VA
Lithium	0.082	0.020	0.100	NA	J	mg/L	12/18/2014 1:53 PM	
Manganese	0.550	0.002	0.100	NA		mg/L	12/18/2014 7:54 PM	PA/VA
Nickel	0.166	0.005	0.100	NA		mg/L	12/18/2014 7:54 PM	PA/VA
Selenium	ND	0.020	0.200	NA		mg/L	12/18/2014 7:54 PM	PA/VA
Silver	ND	0.004	0.050	NA		mg/L	12/18/2014 7:54 PM	PA/VA
Strontium	5.71	0.001	0.010	NA		mg/L	12/18/2014 1:53 PM	PA
Vanadium	0.009	0.005	0.100	NA	J	mg/L	12/18/2014 7:54 PM	PA/VA
Zinc	0.005	0.003	0.050	NA	J	mg/L	12/18/2014 7:54 PM	PA/VA
MERCURY, Total E245.1			Method: E 3.0 (1994)	EPA 245	5.1, Rev	<i>.</i>	Analyst: CR	
Mercury	ND	0.0001	0.0010	NA		mg/L	12/17/2014 3:53 PM	PA/VA
SEMIVOLATILE ORGANIC COMP	OUNDS		Method: S	SW8270	D (200	7)	Analyst: JD	
1,4-Dinitrobenzene	ND	NA	0.0514	NA		mg/L	12/19/2014 6:24 PM	
1,4-Napthoquinone	ND	NA	0.0514	NA		mg/L	12/19/2014 6:24 PM	
4-Nitroquinoline-1-oxide	ND	NA	0.257	NA		mg/L	12/19/2014 6:24 PM	
Pentachloronitrobenzene	ND	NA	0.0514	NA		mg/L	12/19/2014 6:24 PM	
Bis(2-ethylhexyl)phthalate	ND	0.0257	0.0514	NA		mg/L	12/19/2014 6:24 PM	PA/VA
Butyl benzyl phthalate	ND	0.0257	0.0514	NA		mg/L	12/19/2014 6:24 PM	PA/VA

ND 0.0257

ND 0.0103

ND 0.0103

ND 0.0103

0.0514

0.0514

0.0514

0.0514

NA

NA

NA

NA

-

mg/L

mg/L

mg/L

mg/L

12/19/2014 6:24 PM PA/VA

12/19/2014 6:24 PM PA/VA

12/19/2014 6:24 PM PA/VA

12/19/2014 6:24 PM PA/VA

REI Consultants, Inc. - Analytical Report

WO#: 1412J73

Date Reported: 12/31/2014

Client:	MARSHALL UNIVERSITY ENVIRONMENTAL,	CENTE	R FOR	Col	lection Date:	12/15/2014 9:00:00 AM		
Project:	DRILL CUTTING/LEACHA	TE ANA	LYSIS	Dat	e Received:	12/15/2014		
Lab ID:	1412J73-01A			Mat	rix:	Liquid		
Client Sample ID:	1-NORTHWESTERN LF			Site) ID:	NORTHWESTERN LANDFILL/PARKERSBURG WWTP		
Analysis	Result	MDL	PQL	MCL	Qual Units	Date Analyzed N	ELAP	
2,6-Dinitrotoluene	ND	0.0103	0.0514	NA	mg/L	12/19/2014 6:24 PM	PA/VA	
Di-n-octyl phthalate	ND	0.0257	0.0514	NA	mg/L	12/19/2014 6:24 PM	PA/VA	
Fluoranthene	ND	0.0103	0.0514	NA	mg/L	12/19/2014 6:24 PM	PA/VA	
Nitrobenzene	ND	0.0103	0.0514	NA	mg/L	12/19/2014 6:24 PM	PA/VA	
Surr: 2-Fluorophenol	37.8	NA	32.9-110	NA	%REC	; 12/19/2014 6:24 PM		
Surr: Phenol-d5	28.2	NA	25.8-110	NA	%REC	; 12/19/2014 6:24 PM		
Surr: 2,4,6-Tribromophe	nol 75.0	NA	63.8-110	NA	%REC	; 12/19/2014 6:24 PM		
Surr: Nitrobenzene-d5	74.9	NA	61.8-110	NA	%REC	; 12/19/2014 6:24 PM		
Surr: 2-Fluorobiphenyl	72.2	NA	58.6-110	NA	%REC	; 12/19/2014 6:24 PM		
Surr: 4-Terphenyl-d14	64.2	NA	55.1-110	NA	%REC	2 12/19/2014 6:24 PM		
Notes:								
Elevated PQLs are due t	o matrix interference.		Method: S	SW8260)B (1996)	Analvst: JM		
Benzene		50.0	100	NA	ug/l	12/18/2014 11·27 PM	PA/VA	
Chlorobenzene	ND	50.0	100	NA	µg/L	12/18/2014 11:27 PM	PA/VA	
Dibromochloromethane	ND	50.0	100	NA	µg/L	12/18/2014 11:27 PM	PA/VA	
1,2-Dichlorobenzene	ND	50.0	100	NA	µg/L	12/18/2014 11:27 PM	PA/VA	
1,3-Dichlorobenzene	ND	50.0	100	NA	µg/L	12/18/2014 11:27 PM	PA/VA	
1,4-Dichlorobenzene	ND	50.0	100	NA	μg/L	12/18/2014 11:27 PM	PA/VA	
Surr: 1,2-Dichloroethane	e-d4 117	NA	68.7-129	NA	۴ <u>9</u> , = %REC	: 12/18/2014 11:27 PM		
Surr: 4-Bromofluorobenz	zene 91.0	NA	71.8-127	NA	%REC	; 12/18/2014 11:27 PM		
Surr: Dibromofluorometh	nane 115	NA	74.3-124	NA	%REC	; 12/18/2014 11:27 PM		
Surr: Toluene-d8	85.2	NA	71.4-129	NA	%REC	; 12/18/2014 11:27 PM		
Notes:								
Elevated PQLs are due t	o matrix interference. Sample	foamed du	uring analysis.					
BOD, 5 Day, 20°C			Method: S	SM5210	B-2001	Analyst: CB		
Biochemical Oxygen Dema	and 74	2	5	NA	mg/L	12/16/2014 1:04 PM	PA/VA	
Chemical Oxygen D	emand		Method: E (1993)	EPA 410.4, Rev. 2		Analyst: SF		
Chemical Oxygen Demand	130	4	10	NA	mg/L	12/16/2014 10:00 AM	PA/VA	

Method: EPA 218.6, Rev. HEXAVALENT CHROMIUM BY IC Analyst: CF 3.3 (1994) 0.0010 NA mg/L 12/18/2014 12:21 PM PA/VA Chromium (VI) ND 0.0001

Page 4 of 13

REI Consultants, Inc. - Analytical Report

WO#: 1412J73

Date Reported: 12/31/2014

Client:	MARSHALL UNIVERSITY ENVIRONMENTAL,	R FOR	Col	Collection Date:		12/15/2014 9:00:00 AM		
Project:	DRILL CUTTING/LEACHA	TE ANA	LYSIS	Date	Date Received:		12/15/2014	
Lab ID:	1412J73-01A			Mat	Matrix:		Liquid	
Client Sample ID:	1-NORTHWESTERN LF			Site	ID:		NORTHWESTERN LANDFILL/PARKERSBU WWTP	RG
Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
ANIONS by ION CHROMATOGRAPHY			Method: (1993)	EPA 300).0, Rev	.2.1	Analyst: CF	
Chloride	4,420	25.0	250	NA		mg/L	12/16/2014 9:29 AM	PA/VA
Fluoride	0.34	0.05	0.20	NA		mg/L	12/16/2014 9:29 AM	PA/VA
Sulfate	75.6	1.00	5.00	NA		mg/L	12/16/2014 9:29 AM	PA/VA

ANIONS by ION CHROMATOGRAPHY-48 HOUR			Method: EPA 300.0, Rev.2.1 (1993)			Analyst: CF	
Nitrogen, Nitrate	1.46	0.02	0.10	NA	mg/L	12/16/2014 9:29 AM	PA/VA
Nitrogen, Nitrite	ND	0.05	0.50	NA	mg/L	12/16/2014 9:29 AM	PA/VA

TOTAL KJELDAHL NITROGEN (TKN)			Method: E 2.0 (1993)	PA 351.2	2, Rev.	Analyst: JH	
Nitrogen, Kjeldahl, Total	410	10.0	50.0	NA	mg/L	12/18/2014 10:51 AM	PA/VA

OIL and GREASE			Method: EF	Analyst: KS			
Oil & Grease	ND	2.0	5.0	NA	mg/L	12/17/2014 3:30 PM	PA/VA

Notes:

Sample acidity or alkalinity exceeded the added preservative, so that the required preservation pH was not achieved.

CYANIDE, Free		Method:	SM4500-	Analyst: JH				
Cyanide, Free	0.015	0.005	0.020	NA	J	mg/L	12/16/2014 12:07 PM	
AMMONIA NITROGEN			Method: (1993)	EPA 350	.1, Rev	v.2.	Analyst: JH	
Nitrogen, Ammonia (As N)	405	16.0	40.0	NA		mg/L	12/17/2014 1:27 PM	PA/VA
CONDUCTIVITY			Method:	SM2510	B - 19	97	Analyst: KY	
Specific Conductivity	18,300	NA	NA	NA		µmhos/cm	12/16/2014 10:45 AM	PA/VA
TOTAL DISSOLVED SOLIDS			Method:	SM2540	C-1997	7	Analyst: CC	
Total Dissolved Solids	9,140	20	40	NA		mg/L	12/16/2014 5:51 PM	PA/VA
TOTAL SUSPENDED SOLIDS			Method:	SM2540	D-1997	7	Analyst: DSD	
Total Suspended Solids	104	8.0	40.0	NA		mg/L	12/16/2014 5:37 PM	PA/VA
ACIDITY			Method:	SM2310	B-1997	7	Analyst: DSD	
Acidity, Total	152	1.0	10	NA		mg/L	12/17/2014 9:27 AM	PA/VA
WO#: 1412J73

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	12/15/2014 9:00:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	12/15/2014
Lab ID:	1412J73-01A	Matrix:	Liquid
Client Sample ID:	1-NORTHWESTERN LF	Site ID:	NORTHWESTERN LANDFILL/PARKERSBURG WWTP

Analysis	Result	MDL	PQL	MCL	Qual Units	Date Analyzed N	ELAP
ALKALINITY			Method:	SM2320	B-1997	Analyst: DSD	
Alkalinity, Total (As CaCO3)	1,940	4.0	40.0	NA	mg/L	12/17/2014 9:27 AM	PA/VA
pH - LAB TEST, HOLD TIME EXPIR	RED		Method:	SM4500	-H+-B-2000	Analyst: DSD	
pН	7.80	NA	NA	NA	SU	12/17/2014 9:27 AM	PA

WO#:	1412J73
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Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	12/15/2014 9:00:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	12/15/2014
Lab ID:	1412J73-01B	Matrix:	Liquid
Client Sample ID:	1-NORTHWESTERN LF	Site ID:	NORTHWESTERN LANDFILL/PARKERSBURG WWTP

Analysis	Result	MDL	PQL	MCL	Qual Units	Date Analyzed N	ELAP
DISSOLVED METALS BY ICP			Method: (1994)	EPA 200	0.7 Rev. 4.4	Analyst: CGW	
Iron	1.27	0.010	0.100	NA	mg/L	12/18/2014 8:04 PM	PA/VA
Manganese	0.528	0.002	0.100	NA	mg/L	12/18/2014 8:04 PM	PA/VA

Butyl benzyl phthalate

Di-n-butyl phthalate

Diethyl phthalate

Dimethyl phthalate

2,4-Dinitrotoluene

WO#: 1412J73

Date Reported: 12/31/2014

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	12/15/2014 10:00:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	12/15/2014
Lab ID:	1412J73-02A	Matrix:	Liquid
Client Sample ID:	2-PARKERSBURG WWTP EFFLUENT	Site ID:	NORTHWESTERN LANDFILL/PARKERSBURG WWTP

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
METALS BY ICP			Method: (1994)	EPA 200).7 Rev	. 4.4	Analyst: CGW	
Aluminum	0.042	0.005	0.100	NA	J	mg/L	12/22/2014 12:32 PM	PA/VA
Antimony	ND	0.020	0.200	NA		mg/L	12/23/2014 10:48 AM	PA/VA
Arsenic	ND	0.020	0.200	NA		mg/L	12/22/2014 12:32 PM	PA/VA
Barium	0.030	0.002	0.100	NA	J	mg/L	12/23/2014 10:48 AM	PA/VA
Beryllium	ND	0.001	0.010	NA		mg/L	12/22/2014 12:32 PM	PA/VA
Boron	0.305	0.020	0.100	NA		mg/L	12/23/2014 10:48 AM	PA/VA
Cadmium	ND	0.001	0.020	NA		mg/L	12/23/2014 10:48 AM	PA/VA
Chromium	ND	0.005	0.100	NA		mg/L	12/22/2014 12:32 PM	PA/VA
Copper	0.013	0.005	0.100	NA	J	mg/L	12/23/2014 10:48 AM	PA/VA
Iron	0.077	0.010	0.100	NA	J	mg/L	12/22/2014 12:32 PM	PA/VA
Lead	ND	0.010	0.200	NA		mg/L	12/23/2014 10:48 AM	PA/VA
Lithium	ND	0.020	0.100	NA		mg/L	12/18/2014 2:36 PM	
Manganese	0.031	0.002	0.100	NA	J	mg/L	12/22/2014 12:32 PM	PA/VA
Nickel	ND	0.005	0.100	NA		mg/L	12/23/2014 10:48 AM	PA/VA
Selenium	ND	0.020	0.200	NA		mg/L	12/23/2014 10:48 AM	PA/VA
Silver	ND	0.004	0.050	NA		mg/L	12/22/2014 12:32 PM	PA/VA
Strontium	0.251	0.001	0.010	NA		mg/L	12/18/2014 2:36 PM	PA
Vanadium	ND	0.005	0.100	NA		mg/L	12/22/2014 12:32 PM	PA/VA
Zinc	0.046	0.003	0.050	NA	J	mg/L	12/23/2014 10:48 AM	PA/VA
MERCURY, Total E245.1			Method: 3.0 (1994	EPA 24:)	5.1, Rev	<i>ı</i> .	Analyst: CR	
Mercury	ND	0.0001	0.0010	NA		mg/L	12/17/2014 10:28 AM	PA/VA
SEMIVOLATILE ORGANIC COMP	OUNDS		Method:	SW8270	D (200	7)	Analyst: JD	
1,4-Dinitrobenzene	ND	NA	0.0100	NA		mg/L	12/19/2014 6:01 PM	
1,4-Napthoquinone	ND	NA	0.0100	NA		mg/L	12/19/2014 6:01 PM	
4-Nitroquinoline-1-oxide	ND	NA	0.0498	NA		mg/L	12/19/2014 6:01 PM	
Pentachloronitrobenzene	ND	NA	0.0100	NA		mg/L	12/19/2014 6:01 PM	
Bis(2-ethylhexyl)phthalate	ND	0.0050	0.0100	NA		mg/L	12/19/2014 6:01 PM	PA/VA

ND 0.0050

ND 0.0050

ND 0.0020

ND 0.0020

ND 0.0020

0.0100

0.0100

0.0100

0.0100

0.0100

NA

NA

NA

NA

NA

mg/L

mg/L

mg/L

mg/L

mg/L

12/19/2014 6:01 PM PA/VA

WO#: 1412J73

								Date Reported: 12/	31/2014		
Client:	MARSHALL ENVIRONM	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,				lection	Date:	12/15/2014 10:00:00 AM			
Project:	DRILL CUT	DRILL CUTTING/LEACHATE ANALYSIS				e Recei	ved:	12/15/2014			
Lab ID:	1412J73-02	A			Mat	rix:		Liquid			
Client Sample ID:	2-PARKERS	BURG WWT	PEFFLU	ENT	Site	D:		NORTHWESTERN LANDFILL/PARKERSB WWTP	URG		
Analysis		Result	MDL	PQL	MCL	Qual	Units	Date Analyzed	NELAP		
2,6-Dinitrotoluene		ND	0.0020	0.0100	NA		mg/L	12/19/2014 6:01 PM	PA/VA		
Di-n-octyl phthalate		ND	0.0050	0.0100	NA		mg/L	12/19/2014 6:01 PM	i PA/VA		
Fluoranthene		ND	0.0020	0.0100	NA		mg/L	12/19/2014 6:01 PM	i PA/VA		
Nitrobenzene		ND	0.0020	0.0100	NA		mg/L	12/19/2014 6:01 PM	i PA/VA		
Surr: 2-Fluorophenol		32.0	NA	32.9-110	NA	S	%REC	12/19/2014 6:01 PM	i .		
Surr: Phenol-d5		23.1	NA	25.8-110	NA	S	%REC	12/19/2014 6:01 PM	i .		
Surr: 2,4,6-Tribromop	henol	64.8	NA	63.8-110	NA		%REC	12/19/2014 6:01 PM	i .		
Surr: Nitrobenzene-d	5	73.7	NA	61.8-110	NA		%REC	12/19/2014 6:01 PM	i .		
Surr: 2-Fluorobipheny	1	69.6	NA	58.6-110	NA		%REC	12/19/2014 6:01 PM	i .		
Surr: 4-Terphenyl-d14	Ļ	76.1	NA	55.1-110	NA		%REC	12/19/2014 6:01 PM	I		
VOLATILE ORGAN		NDS-8260		Method: S	SW8260)B (199	6)	Analyst: JM	1		
Benzene		ND	0.500	1.00	NA		µg/L	12/19/2014 12:00 AM	I PA/VA		
Chlorobenzene		ND	0.500	1.00	NA		µg/L	12/19/2014 12:00 AM	I PA/VA		

Biochemical Oxygen Demand	4	2	5	NA	J mg/L	12/16/2014 1:04 PM	PA/VA
BOD, 5 Day, 20°C			Method: S	M5210	B-2001	Analyst: CB	
Surr: Toluene-d8	89.1	NA	71.4-129	NA	%REC	12/19/2014 12:00 AM	
Surr: Dibromofluoromethane	112	NA	74.3-124	NA	%REC	12/19/2014 12:00 AM	
Surr: 4-Bromofluorobenzene	90.2	NA	71.8-127	NA	%REC	12/19/2014 12:00 AM	
Surr: 1,2-Dichloroethane-d4	114	NA	68.7-129	NA	%REC	12/19/2014 12:00 AM	
1,4-Dichlorobenzene	ND	0.500	1.00	NA	µg/L	12/19/2014 12:00 AM	PA/VA
1,3-Dichlorobenzene	ND	0.500	1.00	NA	µg/L	12/19/2014 12:00 AM	PA/VA
1,2-Dichlorobenzene	ND	0.500	1.00	NA	µg/L	12/19/2014 12:00 AM	PA/VA
Dibromochloromethane	1.45	0.500	1.00	NA	μg/L	12/19/2014 12:00 AM	PA/VA

Chemical Oxygen Demand			Method: I (1993)	EPA 410.4	4, Rev. 2	Analyst: SF	
Chemical Oxygen Demand	17	4	10	NA	mg/L	12/17/2014 8:40 AM	PA/VA

HEXAVALENT CHROMIUM BY IC			Method: E 3.3 (1994)	EPA 218	8.6, Rev	/.	Analyst: CF	
Chromium (VI)	0.0002	0.0001	0.0010	NA	J	mg/L	12/18/2014 12:34 PM	PA/VA
ANIONS by ION CHROMATOGRAPH	v		Method: E	EPA 300).0, Rev	/.2.1	Analyst: CF	
	•		(1993)		,		, , e	
Chloride	141	0.50	(1993) 5.00	NA		mg/L	12/16/2014 9:48 AM	PA/VA

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	12/15/2014 10:00:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	12/15/2014
Lab ID:	1412J73-02A	Matrix:	Liquid
Client Sample ID:	2-PARKERSBURG WWTP EFFLUENT	Site ID:	NORTHWESTERN LANDFILL/PARKERSBURG WWTP

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
Sulfate	74.8	1.00	5.00	NA		mg/L	12/16/2014 9:48 AM	PA/VA
ANIONS by ION CHROMATOGRAF	PHY-48 H0	OUR	Method: (1993)	EPA 30	0.0, Rev	/.2.1	Analyst: CF	
Nitrogen, Nitrate	19.8	0.50	2.50	NA		mg/L	12/16/2014 9:48 AM	PA/VA
Nitrogen, Nitrite	ND	0.05	0.50	NA		mg/L	12/16/2014 9:48 AM	PA/VA
TOTAL KJELDAHL NITROGEN (TH	(N)		Method: 2.0 (1993	EPA 35 [.])	1.2, Rev	<i>.</i>	Analyst: JH	
Nitrogen, Kjeldahl, Total	0.82	0.10	0.50	NA		mg/L	12/17/2014 9:36 AM	PA/VA
OIL and GREASE			Method:	EPA 16	64 Rev	. A	Analyst: KS	
Oil & Grease	2.1	2.0	5.0	NA	J	mg/L	12/17/2014 3:30 PM	PA/VA
CYANIDE, Free			Method:	SM4500	-CN I-1	997	Analyst: JH	
Cyanide, Free	ND	0.005	0.020	NA		mg/L	12/17/2014 4:48 PM	
AMMONIA NITROGEN			Method: (1993)	EPA 350	0.1, Rev	/.2.	Analyst: JH	
Nitrogen, Ammonia (As N)	0.18	0.04	0.10	NA		mg/L	12/16/2014 4:21 PM	PA/VA
CONDUCTIVITY			Method:	SM2510	B - 199	97	Analyst: KY	
Specific Conductivity	1,020	NA	NA	NA		µmhos/cm	12/16/2014 10:45 AM	PA/VA
TOTAL DISSOLVED SOLIDS			Method:	SM2540	C-1997	7	Analyst: CC	
Total Dissolved Solids	583	5	10	NA		mg/L	12/16/2014 5:51 PM	PA/VA
TOTAL SUSPENDED SOLIDS			Method:	SM2540	D-1997	7	Analyst: DSD	
Total Suspended Solids	3.0	1.0	5.0	NA	J	mg/L	12/16/2014 5:37 PM	PA/VA
ACIDITY			Method:	SM2310	B-1997	7	Analyst: DSD	
Acidity, Total	9.9	1.0	10	NA	J	mg/L	12/17/2014 9:27 AM	PA/VA
ALKALINITY			Method:	SM2320	B-1997	7	Analyst: DSD	
Alkalinity, Total (As CaCO3)	98.3	1.0	10	NA		mg/L	12/17/2014 9:27 AM	PA/VA

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	12/15/2014 10:00:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	12/15/2014
Lab ID:	1412J73-02A	Matrix:	Liquid
Client Sample ID:	2-PARKERSBURG WWTP EFFLUENT	Site ID:	NORTHWESTERN LANDFILL/PARKERSBURG WWTP

Analysis	Result	MDL	PQL	MCL Q	ual Units	Date Analyzed NE	LAP
pH - LAB TEST, HOLD TIME EXPI	RED		Method:	SM4500-H-	+-B-2000	Analyst: DSD	
рН	7.13	NA	NA	NA	SU	12/17/2014 9:27 AM	PA

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	12/15/2014 10:00:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	12/15/2014
Lab ID:	1412J73-02B	Matrix:	Liquid
Client Sample ID:	2-PARKERSBURG WWTP EFFLUENT	Site ID:	NORTHWESTERN LANDFILL/PARKERSBURG

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	IELAP
DISSOLVED METALS BY ICP			Method: (1994)	EPA 20	0.7 Rev	. 4.4	Analyst: CGW	
Iron	0.046	0.010	0.100	NA	J	mg/L	12/18/2014 8:07 PM	PA/VA
Manganese	0.007	0.002	0.100	NA	J	mg/L	12/18/2014 8:07 PM	PA/VA

Date Reported: 12/31/2014

WWTP

WO#: 1412J73

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	12/15/2014 12:00:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	12/15/2014
Lab ID:	1412J73-03A	Matrix:	Trip Blank
Client Sample ID:	TRIP BLANK	Site ID:	NORTHWESTERN LANDFILL/PARKERSBURG WWTP

Analysis	Result	MDL	PQL	MCL	Qual Units	Date Analyzed N	ELAP
VOLATILE ORGANIC COMPOU	JNDS-8260		Method:	SW8260)B (1996)	Analyst: JM	
Benzene	ND	0.500	1.00	NA	μg/L	12/19/2014 12:33 AM	PA/VA
Chlorobenzene	ND	0.500	1.00	NA	μg/L	12/19/2014 12:33 AM	PA/VA
Dibromochloromethane	ND	0.500	1.00	NA	µg/L	12/19/2014 12:33 AM	PA/VA
1,2-Dichlorobenzene	ND	0.500	1.00	NA	µg/L	12/19/2014 12:33 AM	PA/VA
1,3-Dichlorobenzene	ND	0.500	1.00	NA	µg/L	12/19/2014 12:33 AM	PA/VA
1,4-Dichlorobenzene	ND	0.500	1.00	NA	µg/L	12/19/2014 12:33 AM	PA/VA
Surr: 1,2-Dichloroethane-d4	108	NA	68.7-129	NA	%REC	12/19/2014 12:33 AM	
Surr: 4-Bromofluorobenzene	91.0	NA	71.8-127	NA	%REC	12/19/2014 12:33 AM	
Surr: Dibromofluoromethane	107	NA	74.3-124	NA	%REC	12/19/2014 12:33 AM	
Surr: Toluene-d8	90.8	NA	71.4-129	NA	%REC	12/19/2014 12:33 AM	



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, January 09, 2015

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

TEL: (304) 696-6042 FAX:

RE: DRILL CUTTING/LEACHATE ANALYSIS Work Order #: 1412J77 Dear GEORGE CARICO:

REI Consultants, Inc. received 2 sample(s) on 12/15/2014 for the analyses presented in the following report.

Kathy Berry

Kathy Berry



Date Reported: 1/9/2015

Client: MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,

Project: DRILL CUTTING/LEACHATE ANALYSIS

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#: 1412J77

Date Reported: 1/9/2015

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	12/15/2014 9:00:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	12/15/2014
Lab ID:	1412J77-01A	Matrix:	Liquid
Client Sample ID:	1-NORTHWESTERN LF	Site ID:	NORTHWESTERN LANDFILL/PARKERSBURG WWTP

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		1/9/2015 8:43 AM
GROSS BETA			Method:	EPA 900	.0	Analyst: Sub
Gross Beta	see attached	NA	NA	NA		1/9/2015 8:43 AM
RADIUM-226			Method:	EPA 903	.1	Analyst: Sub
Radium-226	see attached	NA	NA	NA		1/9/2015 8:43 AM
RADIUM-228			Method:	EPA 904	.0	Analyst: Sub
Radium-228	see attached	NA	NA	NA		1/9/2015 8:43 AM
STRONTIUM-90			Method:	EPA 905	.0	Analyst: Sub
Strontium-90	see attached	NA	NA	NA		1/9/2015 8:43 AM

Date Reported: 1/9/2015

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	12/15/2014 10:00:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	12/15/2014
Lab ID:	1412J77-02A	Matrix:	Liquid
Client Sample ID:	2-PARKERSBURG WWTP EFFLUENT	Site ID:	NORTHWESTERN LANDFILL/PARKERSBURG WWTP

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		1/9/2015 8:43 AM
GROSS BETA			Method:	EPA 900	.0	Analyst: Sub
Gross Beta	see attached	NA	NA	NA		1/9/2015 8:43 AM
RADIUM-226			Method:	EPA 903	.1	Analyst: Sub
Radium-226	see attached	NA	NA	NA		1/9/2015 8:43 AM
RADIUM-228			Method:	EPA 904	.0	Analyst: Sub
Radium-228	see attached	NA	NA	NA		1/9/2015 8:43 AM
STRONTIUM-90			Method:	EPA 905	.0	Analyst: Sub
Strontium-90	see attached	NA	NA	NA		1/9/2015 8:43 AM

WO#: 1412J77



Pace Analytical Services, Inc. 1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

January 08, 2015

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

RE: Project: 1412J77 Pace Project No.: 30136905

Dear Ms. Berry:

Enclosed are the analytical results for sample(s) received by the laboratory on December 17, 2014. 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,

Carino a. Ferrio

Carin Ferris carin.ferris@pacelabs.com Project Manager

Enclosures





Pace Analytical Services, Inc. 1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

CERTIFICATIONS

 Project:
 1412J77

 Pace Project No.:
 30136905

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-042 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



SAMPLE SUMMARY

 Project:
 1412J77

 Pace Project No.:
 30136905

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30136905001	1412J77-01A	Water	12/15/14 09:00	12/17/14 09:45
30136905002	1412J77-02A	Water	12/15/14 10:00	12/17/14 09:45



SAMPLE ANALYTE COUNT

 Project:
 1412J77

 Pace Project No.:
 30136905

Lab ID	Sample ID	Method	Analysts	Analytes Reported
30136905001	 1412J77-01A	SM 7500Rn-B	FCC	1
		EPA 900.0	FCC	2
		EPA 903.1	JC2	1
		EPA 904.0	JAL	1
		ASTM D5811-95	LAL	1
30136905002	1412J77-02A	SM 7500Rn-B	FCC	1
		EPA 900.0	FCC	2
		EPA 903.1	JC2	1
		EPA 904.0	JAL	1
		ASTM D5811-95	LAL	1



 Project:
 1412J77

 Pace Project No.:
 30136905

Method:SM 7500Rn-BDescription:7500RnB RadonClient:REI Consultants, Inc.Date:January 08, 2015

General Information:

2 samples were analyzed for SM 7500Rn-B. 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:

Sample Comments:

Upon receipt at the laboratory, 3 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis.

• 1412J77-01A (Lab ID: 30136905001)



 Project:
 1412J77

 Pace Project No.:
 30136905

Method:EPA 900.0Description:900.0 Gross Alpha/BetaClient:REI Consultants, Inc.Date:January 08, 2015

General Information:

2 samples were 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:

Sample Comments:

Upon receipt at the laboratory, 3 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis.

• 1412J77-01A (Lab ID: 30136905001)



 Project:
 1412J77

 Pace Project No.:
 30136905

Method: EPA 903.1

Description:903.1 Radium 226Client:REI Consultants, Inc.Date:January 08, 2015

General Information:

2 samples were analyzed for EPA 903.1. 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:

Sample Comments:

Upon receipt at the laboratory, 3 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis.

• 1412J77-01A (Lab ID: 30136905001)



 Project:
 1412J77

 Pace Project No.:
 30136905

Method:EPA 904.0Description:904.0 Radium 228Client:REI Consultants, Inc.Date:January 08, 2015

General Information:

2 samples were analyzed for EPA 904.0. 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:

Sample Comments:

Upon receipt at the laboratory, 3 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis.

• 1412J77-01A (Lab ID: 30136905001)



 Project:
 1412J77

 Pace Project No.:
 30136905

Method: ASTM D5811-95

Description:905.0 Strontium 89/90 EichromClient:REI Consultants, Inc.Date:January 08, 2015

General Information:

2 samples were 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:

Sample Comments:

Upon receipt at the laboratory, 3 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis.

• 1412J77-01A (Lab ID: 30136905001)

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



ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 1412J77

Pace Project No.: 30136905

Sample: 1412J77-01A	Lab ID: 3013	6905001 Collected: 12/15/14 09	:00 Received:	12/17/14 09:45 N	latrix: Water	
PWS:	Site ID:	Sample Type:				
Comments: • Upon receipt at <2 for radiochemi	the laboratory, 3 mls of niti istry analysis.	ic acid were added to the sample to	o meet the sample	e preservation requi	rement of pH	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radon	SM 7500Rn-B	-45.3 ± 41.3 (74.6) C:NA T:NA	pCi/L	12/19/14 19:05	10043-92-2	
Gross Alpha	EPA 900.0	-10.7 ± 33.1 (65.8) C:NA T:NA	pCi/L	01/03/15 21:54	12587-46-1	
Gross Beta	EPA 900.0	1,174 ± 214 (24.3) C:NA T:NA	pCi/L	01/03/15 21:54	12587-47-2	
Radium-226	EPA 903.1	11.1 ± 3.36 (0.613) C:NA T:95%	pCi/L	12/31/14 11:46	13982-63-3	
Radium-228	EPA 904.0	6.33 ± 1.44 (1.18) C:79% T:78%	pCi/L	01/06/15 17:10	15262-20-1	
Strontium-90	ASTM D5811-95	0.566 ± 0.815 (1.37) C:107% T:NA	pCi/L	12/19/14 22:07	10098-97-2	

Sample: 1412J77-02A PWS:	Lab ID: 3013690 Site ID:	5002 Collected: 12/15/14 10:0 Sample Type:	0 Received:	12/17/14 09:45 N	latrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radon	SM 7500Rn-B	-45.4 ± 41.2 (74.4) C:NA T:NA	pCi/L	12/19/14 19:38	10043-92-2	
Gross Alpha	EPA 900.0	-1.44 ± 1.48 (3.25) C:NA T:NA	pCi/L	01/03/15 21:54	12587-46-1	
Gross Beta	EPA 900.0	8.74 ± 2.48 (2.97) C:NA T:NA	pCi/L	01/03/15 21:54	12587-47-2	
Radium-226	EPA 903.1	0.342 ± 0.319 (0.420) C:NA T:84%	pCi/L	12/31/14 11:46	13982-63-3	
Radium-228	EPA 904.0	0.543 ± 0.514 (1.02) C:75% T:63%	pCi/L	01/06/15 16:53	15262-20-1	
Strontium-90	ASTM D5811-95	-0.549 ± 0.901 (1.58) C:94% T:NA	pCi/L	12/19/14 22:07	10098-97-2	



Project:	1412J77						
Pace Project No .:	30136905						
QC Batch:	RADC/22653		Analysis Method:	ASTM D581	1-95		
QC Batch Method:	ASTM D5811-95		Analysis Description	n: 905.0 Stront	tium 89/90 Eichrom		
Associated Lab San	nples: 30136905	001, 301369050	02				
METHOD BLANK:	832585		Matrix: Water				
Associated Lab San	nples: 30136905	001, 301369050	02				
Paran	neter	Act ± U	nc (MDC) Carr Trac	Units	Analyzed	Qualifiers	
Strontium-90		-0.528 ± 0.439	(1.13) C:91% T:NA	pCi/L	12/19/14 17:49		-

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:	1412J77						
Pace Project No.:	30136905						
QC Batch:	RADC/22644		Analysis Method:	EPA 904.0			
QC Batch Method:	EPA 904.0		Analysis Description	n: 904.0 Radiu	m 228		
Associated Lab San	nples: 30136905	001, 301369050	02				
METHOD BLANK:	832576		Matrix: Water				
Associated Lab San	nples: 30136905	001, 301369050	02				
Paran	neter	Act ± U	nc (MDC) Carr Trac	Units	Analyzed	Qualifiers	
Radium-228		-0.124 ± 0.340	(0.822) C:80% T:90%	pCi/L	01/06/15 17:00		

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:	1412J77						
Pace Project No.:	30136905						
QC Batch:	RADC/22763		Analysis Method:	EPA 900.0			
QC Batch Method:	EPA 900.0		Analysis Description	n: 900.0 Gross	s Alpha/Beta		
Associated Lab Sar	nples: 30136905	001, 30136905	002				
METHOD BLANK:	836604		Matrix: Water				
Associated Lab Sar	nples: 30136905	001, 30136905	002				
Parar	neter	Act ±	Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers	
Gross Alpha		0.649 ± 0.458	(0.717) C:NA T:NA	pCi/L	01/04/15 10:09		
Gross Beta		0.725 ± 0.612	(1.21) C:NA T:NA	pCi/L	01/04/15 10:09		

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:	1412J77						
Pace Project No.:	30136905						
QC Batch:	RADC/22629		Analysis Method:	SM 7500Rn-	·B		
QC Batch Method:	SM 7500Rn-B		Analysis Description	n: 7500Rn B R	adon		
Associated Lab San	nples: 30136905	001, 3013690	05002				
METHOD BLANK:	831827		Matrix: Water				
Associated Lab San	nples: 30136905	001, 3013690	05002				
Paran	neter	Act :	± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers	
Radon		-12.5 ± 18.7	(33.5) C:NA T:NA	pCi/L	12/19/14 18:32		

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:	1412J77						
Pace Project No.:	30136905						
QC Batch:	RADC/22639		Analysis Method:	EPA 903.1			
QC Batch Method:	EPA 903.1		Analysis Description	: 903.1 Radiu	m-226		
Associated Lab San	nples: 30136905	001, 3013690500	2				
METHOD BLANK:	832571		Matrix: Water				
Associated Lab San	nples: 30136905	001, 3013690500	2				
Paran	neter	Act ± Un	c (MDC) Carr Trac	Units	Analyzed	Qualifiers	
Radium-226		0.306 ± 0.426 (0).719) C:NA T:108%	pCi/L	12/31/14 12:02		

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:
 1412J77

 Pace Project No.:
 30136905

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.

Please Include Email Address of Report Recipient Whenever Possible.!!! ANALYTICAL SERVIC State Code: WY Please use SampleID as purchase order number. AnaLYTICAL SERVIC State Code: WY Please use SampleID as purchase order number. AnaLYTICAL SERVIC State Code: WY 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. All results to Kuthy Barty at kberry/directabs.com.	ANALYTICAL PARAMETERS ANALYTICAL PARAMETERS * Preservation Codes: * Preservation Codes: ANALYTICAL PARAMETERS * Preservation Codes: * Preservation Codes: * Society 2 * S	And Arsenic Sodium Ar	12/15/2014 10:00:00 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Late: Date: Late: Late:
PACIE		Type M	Liquit	Received By Received By
PA COMPANY OSEYTOWN ROAD	INSBURG, FA LOUI 150-5600 FAX 1EVF1 EMAL:	Client Sample ID	1-NORTHWESTERN . LF 2. PARKERSBURG	Date Date Time (C.2.
JE CONTRATOR PACE	ONE: (724) 8. COUNT# 050719	EM SAMPLE ID	1 1412J77-01A 2 1412J77-02A	elinquisticad By Aradia

Sam	ple Cond	ition	Upon Receipt
Pace Analytical Client Name:	REFC		Project # 30 1 3 6 9 0 5
Courier: Fed Ex UPS USPS Client Tracking #: 1276/713 B663 Jack	Comme	ercial	Pace Other
Custody Seal on Cooler/Box Present: Uyes	🕅 no	Seals	ntact: 🗌 yes 🔄 no Biological Tissue is Frozen: Yes No
Packing Material: Bubble Wrap Bubble Bags	None	(Other
Thermometer Used ////4 Type of	of Ice: Wet	Blue	None Samples on ice, cooling process has begun
Cooler Temp.: Observed Temp.:°C Corre	ection Facto	or:	°C Final Temp:°C examining contents:SAA_12-17-14
Temp should be above freezing to 6°C	×/ _		comments:
Chain of Custody Present:	DaYes ∐No		1,
Chain of Custody Filled Out:	XYes UNo	LIN/A	2
Chain of Custody Relinquished:	XYes No	LIN/A	3
Sampler Name & Signature on COC:	□Yes XNo	□ N/A	4.
Samples Arrived within Hold Time:	X Yes □No	□n/A	5.
Short Hold Time Analysis (<72hr):	XYes No	□n/A	6.
Rush Turn Around Time Requested:		□n/A	7
Sufficient Volume:	ØYes □No	□n/A	8.
Correct Containers Used:	XYes □No	□n/A	9.
-Pace Containers Used: SRA 12-17-14	Yes No	□n/A	
Containers Intact:	Yes 🗆 No	□n/A	10,
Filtered volume received for Dissolved tests	□Yes □No	CARNIA	11.
Sample Labels match COC:	Xyes □No	□n/A	12.
-Includes date/time/ID/Analysis Matrix:	ht		
All containers needing preservation have been checked.	XYes □No	□n/A	13. Added Sm / HNO3 to Sample # 1 All both
All containers needing preservation are found to be in compliance with EPA recommendation.	□Yes \$1No	□n/A	From @ 1015 12-17-4 SRA
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	DYes KNo	1	completed SRA preservative DL14-1163
Samples checked for dechlorination:	□Yes □No	A N/A	14
Headspace in VOA Vials (>6mm):	□Yes □No	X N/A	15.
Trip Blank Present:	□Yes 🖉 No	□n/A	16.
Trip Blank Custody Seals Present	□Yes □No		
Pace Trip Blank Lot # (if purchased):			
Client Notification/ Resolution:			Field Data Required? Y / N
Person Contacted:		_Date/	ime:
Comments/ Resolution:			
H			
Project Manager Review:	80	Ne) Date: []]/7/14
Note: Whenever there is a discrepancy affecting North Card (i.e. out of hold, incorrect preservative, out of temp, incorrect	olina complian ct containers)	ice sam	eles, a copy of this form will be sent to the North Carolina DEHNR Certification Office

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	Other										
D	Other Rider	M									2012).xls
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36	Cubitainer (500 ml / ₄L)										k (C016-
0	Radchem Nalgene (ז/2 gal. / ז gal.L)										JRF Bac
N 12	Radchem Nalgene (125 / 250 / 500 11)	\sim		ŀ			-				SCI
ber:	vitees / swipe/ smearl filter										
st Num nt Nam	Bacteria (120 ml)										
Projec Clie	(Im 008) sbiilu&										
	(Im 025) əbinsyƏ										
-	(Im 0£ Im 04) AOV										
	(ור) нат										
	0 % פ (זד)										
	Dissolved Metals preserved Y N										
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	TOX (250 ml)										
	TOC (40 ml / 250 ml)										
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	Nutrient (250 / 500)										
	Organics (1L)										
	Chemistry (250 / 500 / ۱L)										
	Soil kit (2 SB, 1M, soil jar)										
·	Glass Jar (120 / 250 / 500 / 1L)		Υ.								
alytica	eboJ xitix Code	ty									
Pace Ar.	ltem No.	001	200						Page	19 of 19	

page 2

5

CHAIN OF CUST	ODY RE	CORD	v10-	0114	REIC u ONL	rvironm	LIENT I		IAR()71 nd Appled	DATESciences PO #	SHEET
	-	C.	ntact Percen	George Ca	arico/.	Jamie	e Wol	fe			Phone 304-696-5456	
V I IIII R	EIC	Ad	dress One	John Ma	rshall	Drive)		_	City_H	luntington State W	V _{Zip} 25755
Research Environmental & Indus MAIN LABORATORY & CORPOR P.O. Box 286 + 225 Industrial Parl	trial Consultants, I ATE HEADQUAR k Rd, Beaver, WV 258	rens: 13 Sit	ling Address (if e ID & State <u>P</u>	(different)	City_	P	roject l	D Di	rill C	utting/l	State Zij Leachate Analysis Sa	npler J McGee
800-999-0105 - 304-255-2500 MID-OHIO VALLEY SHENAI Service Center Service 101 17th Street 1557 Commer Ashland, KY 41101 Verona, V 606-393-5027 540-24	- www.reiclabs.com NDOAH Center ce Rd., Ste 201 302 (A 24482 R 8-0183	ROANOKE Service Center 19-C Peters Creek Rd oanoke, VA 24019 540-777-1276	MORGANT Service Ce 16 Commerce Westover, WV 304-241-5	OWN inter e Drive / 26501 i861	S	ee Atta	ichmen	ıt			Field Readings: pH Temp	Cond
SAMPLE LO	G & ANAL	SIS REQUES	т	1							6.05 10.2	1572
TURNAROUND TIME NORMAL *Rush work needs prior	RU S DAY	SH TURNAROUND* 3 DAY 2 DAY and will incur additiona	O 1 DAY		N & CICLIANA					۲,	6.56 19.3 6.56 20 6.20 10 MSC Sampling Fee- 7 Hr.c	1 25,100
SAMPLE ID	No. & Type of Containers	Sampling Date/Time	Matrix	Sample Comp/Gra	ь ^с О	0 1 02 0 0	2 3	5	10	4 8 0 0 0	ENTER PRESERVATIVE CODE(S): 0 None 6 Sod	um Hydroxide
1-Parkersburg POTW	20	The e ost	Water	Grab	X			X			1 Hydrochloric Acid 7 Aso	rbic Acid um Bisulfate/Metha
2-Northwestern LF	20	1 0941	Water	Grab	X				X		3 Sulfuric Acid 9 Am	nonium Chloride
3-Meadowfill LF	20	1100	Water	Grab	X				>	<	4 Sodium Thiosulfate 10 A 5 Sodium Hydroxide/	S/AH
4-Bridgeport POTW	23	1240	Water	Grab	X					X	Sodium Arsenite 11 * (Use blanks for preservatives	not listed.)
Trip Blank	1		Water	Grab	X			1		X	COMMENTS:	
			Choose	Choose				12.5	1		Dissolved Metals are F	ield Filtered
			Choose	Choose								
			Choose	Choose						1		
			Choose	Choose								
All analytical requests are subject to Ri	EIC's Standard Term	s and Conditions.	Tempera	ture at arriv	al:	۰C	ICED?	γ	-	N	Containers provided by:	EIC [] Client
Retinquisting (by langeature)	3-1	16-15 2 160 Relinquishe	d by (signature)				Date/	Dime		3 Relinqu	shed by (signature)	Date/Time
Received by (significate)	3	1111400 Received by	y (signature)				Date/	Ime	1	Receive	d by (signature)	Date/Trire

DBPix Evaluation

REI Consultants, Inc.

FIELD LOG: pH Calibration Records 6-2010.Rev.1

Client Name:	MARGARE UNIV.	Site Location: Lr / Porw's
Date:	3/10/15	Analyst:
Calibration Location:	Field / Laboratory	Instrument: Oakton pH Meter
4.0 Buffer Lot #:	0085-14	
7.0 Buffer Lot #:	0119.04	
10.0 Buffer Lot #:	0112-08	

pH (SU) - SM4500-H+B, 18th Edition							
Standard	Initial Reading	Reading After Calibration	Temperature °C	Comments			
4.0 Buffer	4.03	4.01	20.0				
7.0 Buffer	7.00	7.00	1				
10.0 Buffer	9.95	10.01					

Slope: 96.7%

Comments:

Calibration at the laboratory requires a pH 7.0 QC Check

All field pH analysis must be followed by a Post Analysis pH Check

Quality Control Samples	Reading	Acceptance Range:
QC Check, 7.0	7.01	$T_{rus} V_{alus} + 0.1 (6.9 - 7.1)$
Post Analysis QC Check, 7.0	6.94	The value ± 0.1 (0.9 - 7.1)

REI Consultants, Inc. P.O. Box 286 Beaver, WV 25813 Phone: 800-999-0105 Fax: 304-255-2572 www.reiclabs.com



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

Tuesday, March 31, 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/ LEACHATE ANALYSIS Work Order #: 1503I23 Dear GEORGE CARICO:

REI Consultants, Inc. received 5 sample(s) on 3/16/2015 for the analyses presented in the following report.

Sincerely,

Kathy Berry

Kathy Berry



Client: MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE

Project: DRILL CUTTING/ LEACHATE ANALYSIS

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#: 1503I23

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/16/2015 8:55:00 AM
Project:	DRILL CUTTING/ LEACHATE ANALYSIS	Date Received:	3/16/2015
Lab ID:	1503I23-01A	Matrix:	Liquid
Client Sample ID:	1- PARKERSBURG POTW	Site ID:	PHASE 2

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
METALS BY ICP			Method: (1994)	EPA 20	0.7 Rev	. 4.4	Analyst: JD	
Aluminum	0.221	0.006	0.100	NA		mg/L	3/25/2015 10:20 PM	PA/VA
Antimony	ND	0.040	0.200	NA		mg/L	3/28/2015 12:34 PM	PA/VA
Arsenic	ND	0.020	0.200	NA		mg/L	3/25/2015 10:20 PM	PA/VA
Barium	0.044	0.002	0.100	NA	J	mg/L	3/25/2015 10:20 PM	PA/VA
Beryllium	ND	0.001	0.010	NA		mg/L	3/25/2015 10:20 PM	PA/VA
Boron	0.082	0.035	0.100	NA	J	mg/L	3/25/2015 10:20 PM	PA/VA
Cadmium	ND	0.001	0.020	NA		mg/L	3/25/2015 10:20 PM	PA/VA
Chromium	ND	0.005	0.100	NA		mg/L	3/25/2015 10:20 PM	PA/VA
Copper	0.010	0.005	0.100	NA	J	mg/L	3/25/2015 10:20 PM	PA/VA
Iron	0.497	0.010	0.100	NA		mg/L	3/25/2015 10:20 PM	PA/VA
Lead	ND	0.010	0.200	NA		mg/L	3/25/2015 10:20 PM	PA/VA
Lithium	ND	0.020	0.100	NA		mg/L	3/25/2015 2:19 PM	
Manganese	0.156	0.002	0.100	NA		mg/L	3/25/2015 10:20 PM	PA/VA
Nickel	ND	0.005	0.100	NA		mg/L	3/28/2015 12:34 PM	PA/VA
Selenium	ND	0.020	0.200	NA		mg/L	3/25/2015 10:20 PM	PA/VA
Silver	ND	0.004	0.050	NA		mg/L	3/25/2015 10:20 PM	PA/VA
Strontium	0.182	0.001	0.010	NA		mg/L	3/25/2015 2:19 PM	PA
Vanadium	ND	0.005	0.100	NA		mg/L	3/25/2015 10:20 PM	PA/VA
Zinc	0.021	0.003	0.050	NA	J	mg/L	3/25/2015 10:20 PM	PA/VA
MERCURY, Total E245.1			Method: 3.0 (1994	EPA 24:	5.1, Rev	<i>י</i> .	Analyst: CR	
Mercury	ND	0.0001	0.0010	NA		mg/L	3/18/2015 11:17 AM	PA/VA
SEMIVOLATILE ORGANIC COM	POUNDS		Method: SW8270D (2007)			Analyst: JD		
1,4-Dinitrobenzene	ND	NA	0.0105	NA		ma/L	3/19/2015 6:39 PM	
1.4-Napthoquinone	ND	NA	0.0105	NA		ma/l	3/19/2015 6:39 PM	

	ND	1.1/1	0.0100	1.17.1	mg/L	3/13/2013 0.331 10	
1,4-Napthoquinone	ND	NA	0.0105	NA	mg/L	3/19/2015 6:39 PM	
4-Nitroquinoline-1-oxide	ND	NA	0.0524	NA	mg/L	3/19/2015 6:39 PM	
Pentachloronitrobenzene	ND	NA	0.0105	NA	mg/L	3/19/2015 6:39 PM	
Bis(2-ethylhexyl)phthalate	ND	0.0052	0.0105	NA	mg/L	3/19/2015 6:39 PM	PA/VA
Butyl benzyl phthalate	ND	0.0052	0.0105	NA	mg/L	3/19/2015 6:39 PM	PA/VA
Di-n-butyl phthalate	ND	0.0052	0.0105	NA	mg/L	3/19/2015 6:39 PM	PA/VA
Diethyl phthalate	ND	0.0021	0.0105	NA	mg/L	3/19/2015 6:39 PM	PA/VA
Dimethyl phthalate	ND	0.0021	0.0105	NA	mg/L	3/19/2015 6:39 PM	PA/VA
2,4-Dinitrotoluene	ND	0.0021	0.0105	NA	mg/L	3/19/2015 6:39 PM	PA/VA
2,6-Dinitrotoluene	ND	0.0021	0.0105	NA	mg/L	3/19/2015 6:39 PM	PA/VA
Fluoride

Sulfate

Date Reported: 3/31/2015

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/16/2015 8:55:00 AM
Project:	DRILL CUTTING/ LEACHATE ANALYSIS	Date Received:	3/16/2015
Lab ID:	1503I23-01A	Matrix:	Liquid
Client Sample ID:	1- PARKERSBURG POTW	Site ID:	PHASE 2

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
Di-n-octyl phthalate	ND	0.0052	0.0105	NA		mg/L	3/19/2015 6:39 PM	PA/VA
Fluoranthene	ND	0.0021	0.0105	NA		mg/L	3/19/2015 6:39 PM	PA/VA
Nitrobenzene	ND	0.0021	0.0105	NA		mg/L	3/19/2015 6:39 PM	PA/VA
Surr: 2-Fluorophenol	41.7	NA	32.9-110	NA		%REC	3/19/2015 6:39 PM	
Surr: Phenol-d5	30.4	NA	25.8-110	NA		%REC	3/19/2015 6:39 PM	
Surr: 2,4,6-Tribromophenol	76.8	NA	63.8-110	NA		%REC	3/19/2015 6:39 PM	
Surr: Nitrobenzene-d5	80.9	NA	61.8-110	NA		%REC	3/19/2015 6:39 PM	
Surr: 2-Fluorobiphenyl	82.4	NA	58.6-110	NA		%REC	3/19/2015 6:39 PM	
Surr: 4-Terphenyl-d14	78.9	NA	55.1-110	NA		%REC	3/19/2015 6:39 PM	
VOLATILE ORGANIC COMPOUNDS	-8260		Method:	SW8260	B (1996	5)	Analyst: JM	
Benzene	ND	0.500	1.00	NA		µg/L	3/27/2015 5:28 PM	PA/VA
Chlorobenzene	ND	0.500	1.00	NA		µg/L	3/27/2015 5:28 PM	PA/VA
Dibromochloromethane	ND	0.500	1.00	NA		µg/L	3/27/2015 5:28 PM	PA/VA
1,2-Dichlorobenzene	ND	0.500	1.00	NA		μg/L	3/27/2015 5:28 PM	PA/VA
1,3-Dichlorobenzene	ND	0.500	1.00	NA		µg/L	3/27/2015 5:28 PM	PA/VA
1,4-Dichlorobenzene	ND	0.500	1.00	NA		µg/L	3/27/2015 5:28 PM	PA/VA
Surr: 1,2-Dichloroethane-d4	108	NA	68.7-129	NA		%REC	3/27/2015 5:28 PM	
Surr: 4-Bromofluorobenzene	110	NA	71.8-127	NA		%REC	3/27/2015 5:28 PM	
Surr: Dibromofluoromethane	96.3	NA	74.3-124	NA		%REC	3/27/2015 5:28 PM	
Surr: Toluene-d8	89.9	NA	71.4-129	NA		%REC	3/27/2015 5:28 PM	
BOD, 5 Day, 20°C			Method:	SM5210	B-2001		Analyst: VR	
Biochemical Oxygen Demand	7	2	5	NA		mg/L	3/17/2015 1:20 PM	PA/VA
Chemical Oxygen Demand			Method: I (1993)	EPA 410).4, Rev	. 2	Analyst: SF	
Chemical Oxygen Demand	24	4	10	NA		mg/L	3/17/2015 8:09 AM	PA/VA
HEXAVALENT CHROMIUM BY IC			Method: I 3.3 (1994)	EPA 218	3.6, Rev	-	Analyst: CF	
Chromium (VI)	ND	0.0003	0.0010	NA		mg/L	3/18/2015 11:44 AM	PA/VA
ANIONS by ION CHROMATOGRAPH	łΥ		Method: I (1993)	EPA 300).0, Rev	.2.1	Analyst: CF	
Chloride	75.0	0.50	5.00	NA		mg/L	3/17/2015 9:07 AM	PA/VA

0.05

5.00

0.14

39.8

0.20

25.0

NA

NA

J

Page 4 of 21

mg/L

mg/L

3/17/2015 9:07 AM PA/VA

3/17/2015 9:07 AM PA/VA

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/16/2015 8:55:00 AM
Project:	DRILL CUTTING/ LEACHATE ANALYSIS	Date Received:	3/16/2015
Lab ID:	1503I23-01A	Matrix:	Liquid
Client Sample ID:	1- PARKERSBURG POTW	Site ID:	PHASE 2

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
ANIONS by ION CHROMATOGRAP	HY-48 HC	DUR	Method: (1993)	EPA 300.	0, Rev	/.2.1	Analyst: CF	
Nitrogen, Nitrate	5.50	0.10	0.50	NA		mg/L	3/17/2015 9:07 AM	PA/VA
Nitrogen, Nitrite	ND	0.05	0.50	NA		mg/L	3/17/2015 9:07 AM	PA/VA
TOTAL KJELDAHL NITROGEN (TK	N)		Method: 2.0 (1993	EPA 351. 3)	2, Rev	<i>ı</i> .	Analyst: JH	
Nitrogen, Kjeldahl, Total	1.15	0.10	0.50	NA		mg/L	3/19/2015 8:32 AM	PA/VA
OIL and GREASE			Method:	EPA 1664	Rev	. A	Analyst: CC	
Oil & Grease	2.0	2.0	5.0	NA	J	mg/L	3/25/2015 1:00 PM	PA/VA
CYANIDE, Free			Method:	SM4500-0	CN I-1	997	Analyst: JH	
Cyanide, Free	ND	0.005	0.020	NA		mg/L	3/17/2015 2:04 PM	
AMMONIA NITROGEN			Method: (1993)	EPA 350.	1, Rev	/.2.	Analyst: JH	
Nitrogen, Ammonia (As N)	ND	0.04	0.10	NA		mg/L	3/19/2015 4:55 PM	PA/VA
CONDUCTIVITY			Method:	SM2510 E	3 - 199	97	Analyst: KY	
Specific Conductivity	605	NA	NA	NA		µmhos/cm	3/17/2015 1:00 PM	PA/VA
TOTAL DISSOLVED SOLIDS			Method:	SM2540 (C-1997	7	Analyst: KY	
Total Dissolved Solids	307	5	10	NA		mg/L	3/18/2015 6:30 PM	PA/VA
TOTAL SUSPENDED SOLIDS			Method:	SM2540 [D-1997	7	Analyst: KY	
Total Suspended Solids	16.5	1.0	5.0	NA		mg/L	3/17/2015 5:53 PM	PA/VA
ACIDITY			Method:	SM2310 E	3-1997	7	Analyst: DSD	
Acidity, Total	19.0	1.0	10	NA		mg/L	3/17/2015 12:09 PM	PA/VA
ALKALINITY			Method:	SM2320 E	3-1997	7	Analyst: DSD	
Alkalinity, Total (As CaCO3)	70.8	1.0	10	NA		mg/L	3/17/2015 12:09 PM	PA/VA
pH - LAB TEST, HOLD TIME EXPIR	ED		Method:	SM4500-ł	1+-B-2	2000	Analyst: DSD	
рН	6.46	NA	NA	NA		SU	3/17/2015 12:09 PM	PA

Date Reported: 3/31/2015

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/16/2015 8:55:00 AM
Project:	DRILL CUTTING/ LEACHATE ANALYSIS	Date Received:	3/16/2015
Lab ID:	1503I23-01B	Matrix:	Liquid
Client Sample ID:	1- PARKERSBURG POTW	Site ID:	PHASE 2

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
DISSOLVED METALS BY ICP			Method: (1994)	EPA 20	0.7 Rev	. 4.4	Analyst: JD	
Iron	0.061	0.010	0.100	NA	J	mg/L	3/25/2015 10:23 PM	PA/VA
Manganese	0.005	0.002	0.100	NA	J	mg/L	3/25/2015 10:23 PM	PA/VA

Page 6 of 21

WO#: 1503I23

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/16/2015 9:45:00 AM
Project:	DRILL CUTTING/ LEACHATE ANALYSIS	Date Received:	3/16/2015
Lab ID:	1503I23-02A	Matrix:	Liquid
Client Sample ID:	2- NORTHWESTERN LF	Site ID:	PHASE 2

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	IELAP
METALS BY ICP			Method: (1994)	EPA 20	0.7 Rev	. 4.4	Analyst: JD	
Aluminum	0.018	0.006	0.100	NA	J	mg/L	3/25/2015 10:32 PM	PA/VA
Antimony	ND	0.040	0.200	NA		mg/L	3/28/2015 12:37 PM	PA/VA
Arsenic	0.423	0.020	0.200	NA		mg/L	3/25/2015 10:32 PM	PA/VA
Barium	2.27	0.002	0.100	NA		mg/L	3/25/2015 10:32 PM	PA/VA
Beryllium	ND	0.001	0.010	NA		mg/L	3/25/2015 10:32 PM	PA/VA
Boron	23.9	0.035	0.100	NA		mg/L	3/25/2015 10:32 PM	PA/VA
Cadmium	ND	0.001	0.020	NA		mg/L	3/25/2015 10:32 PM	PA/VA
Chromium	0.011	0.005	0.100	NA	J	mg/L	3/25/2015 10:32 PM	PA/VA
Copper	ND	0.005	0.100	NA		mg/L	3/25/2015 10:32 PM	PA/VA
Iron	15.4	0.010	0.100	NA		mg/L	3/25/2015 10:32 PM	PA/VA
Lead	ND	0.010	0.200	NA		mg/L	3/25/2015 10:32 PM	PA/VA
Lithium	0.060	0.020	0.100	NA	J	mg/L	3/25/2015 2:22 PM	
Manganese	1.77	0.002	0.100	NA		mg/L	3/25/2015 10:32 PM	PA/VA
Nickel	0.088	0.005	0.100	NA	J	mg/L	3/28/2015 12:37 PM	PA/VA
Selenium	ND	0.020	0.200	NA		mg/L	3/25/2015 10:32 PM	PA/VA
Silver	ND	0.004	0.050	NA		mg/L	3/25/2015 10:32 PM	PA/VA
Strontium	4.37	0.001	0.010	NA		mg/L	3/25/2015 2:22 PM	PA
Vanadium	0.011	0.005	0.100	NA	J	mg/L	3/25/2015 10:32 PM	PA/VA
Zinc	0.004	0.003	0.050	NA	J	mg/L	3/25/2015 10:32 PM	PA/VA
MERCURY, Total E245.1			Method: 3.0 (1994	EPA 24	5.1, Rev	<i>ı</i> .	Analyst: CR	
Mercury	ND	0.0001	0.0010	NA		mg/L	3/18/2015 11:24 AM	PA/VA
SEMIVOLATILE ORGANIC CO	MPOUNDS		Method:	SW8270)D (200 [°]	7)	Analyst: JD	

					· · ·		
1,4-Dinitrobenzene	ND	NA	0.0102	NA	mg/L	3/19/2015 7:01 PM	
1,4-Napthoquinone	ND	NA	0.0102	NA	mg/L	3/19/2015 7:01 PM	
4-Nitroquinoline-1-oxide	ND	NA	0.0510	NA	mg/L	3/19/2015 7:01 PM	
Pentachloronitrobenzene	ND	NA	0.0102	NA	mg/L	3/19/2015 7:01 PM	
Bis(2-ethylhexyl)phthalate	ND	0.0051	0.0102	NA	mg/L	3/19/2015 7:01 PM	PA/VA
Butyl benzyl phthalate	ND	0.0051	0.0102	NA	mg/L	3/19/2015 7:01 PM	PA/VA
Di-n-butyl phthalate	ND	0.0051	0.0102	NA	mg/L	3/19/2015 7:01 PM	PA/VA
Diethyl phthalate	ND	0.0020	0.0102	NA	mg/L	3/19/2015 7:01 PM	PA/VA
Dimethyl phthalate	ND	0.0020	0.0102	NA	mg/L	3/19/2015 7:01 PM	PA/VA
2,4-Dinitrotoluene	ND	0.0020	0.0102	NA	mg/L	3/19/2015 7:01 PM	PA/VA
2,6-Dinitrotoluene	ND	0.0020	0.0102	NA	mg/L	3/19/2015 7:01 PM	PA/VA

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/16/2015 9:45:00 AM
Project:	DRILL CUTTING/ LEACHATE ANALYSIS	Date Received:	3/16/2015
Lab ID:	1503I23-02A	Matrix:	Liquid
Client Sample ID:	2- NORTHWESTERN LF	Site ID:	PHASE 2

Analysis	Result	MDL	PQL	MCL	Qual Units	Date Analyzed N	IELAP
Di-n-octyl phthalate	ND	0.0051	0.0102	NA	mg/L	3/19/2015 7:01 PM	PA/VA
Fluoranthene	ND	0.0020	0.0102	NA	mg/L	3/19/2015 7:01 PM	PA/VA
Nitrobenzene	ND	0.0020	0.0102	NA	mg/L	3/19/2015 7:01 PM	PA/VA
Surr: 2-Fluorophenol	43.0	NA	32.9-110	NA	%REC	3/19/2015 7:01 PM	
Surr: Phenol-d5	34.4	NA	25.8-110	NA	%REC	3/19/2015 7:01 PM	
Surr: 2,4,6-Tribromophenol	94.6	NA	63.8-110	NA	%REC	3/19/2015 7:01 PM	
Surr: Nitrobenzene-d5	94.1	NA	61.8-110	NA	%REC	3/19/2015 7:01 PM	
Surr: 2-Fluorobiphenyl	86.3	NA	58.6-110	NA	%REC	3/19/2015 7:01 PM	
Surr: 4-Terphenyl-d14	70.2	NA	55.1-110	NA	%REC	3/19/2015 7:01 PM	
VOLATILE ORGANIC COMPOUND	S-8260		Method: S	SW8260)B (1996)	Analyst: JM	
Benzene	3.05	0.500	1.00	NA	µg/L	3/30/2015 3:32 PM	PA/VA
Chlorobenzene	65.0	5.00	10.0	NA	µg/L	3/27/2015 6:02 PM	PA/VA
Dibromochloromethane	ND	0.500	1.00	NA	µg/L	3/30/2015 3:32 PM	PA/VA
1,2-Dichlorobenzene	ND	0.500	1.00	NA	µg/L	3/30/2015 3:32 PM	PA/VA
1,3-Dichlorobenzene	ND	0.500	1.00	NA	µg/L	3/30/2015 3:32 PM	PA/VA
1,4-Dichlorobenzene	6.52	0.500	1.00	NA	µg/L	3/30/2015 3:32 PM	PA/VA
Surr: 1,2-Dichloroethane-d4	114	NA	68.7-129	NA	%REC	3/30/2015 3:32 PM	
Surr: 4-Bromofluorobenzene	115	NA	71.8-127	NA	%REC	3/30/2015 3:32 PM	
Surr: Dibromofluoromethane	112	NA	74.3-124	NA	%REC	3/30/2015 3:32 PM	
Surr: Toluene-d8	74.5	NA	71.4-129	NA	%REC	3/30/2015 3:32 PM	
BOD, 5 Day, 20°C			Method: S	SM5210	B-2001	Analyst: VR	
Biochemical Oxygen Demand	ND	120	300	NA	mg/L	3/17/2015 1:20 PM	PA/VA
Notes:							
BOD PQL was elevated due to insufficient of	xygen deple	tion in all	dilutions.				
Chemical Oxygen Demand			Method: E (1993)	EPA 410	0.4, Rev. 2	Analyst: SF	
Chemical Oxygen Demand	410	20	50	NA	mg/L	3/17/2015 8:09 AM	PA/VA
HEXAVALENT CHROMIUM BY IC			Method: E 3.3 (1994)	EPA 218	8.6, Rev.	Analyst: CF	
Chromium (VI)	ND	0.0003	0.0010	NA	mg/L	3/18/2015 11:57 AM	PA/VA

ANIONS by ION CHROMATOGRAPHY			Method: EPA 300.0, Rev.2.1 (1993)			Analyst: CF	
Chloride	2,570	10.0	100	NA	mg/L	3/17/2015 9:27 AM	PA/VA
Fluoride	0.83	0.05	0.20	NA	mg/L	3/17/2015 9:27 AM	PA/VA

WO#: 1503I23

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/16/2015 9:45:00 AM
Project:	DRILL CUTTING/ LEACHATE ANALYSIS	Date Received:	3/16/2015
Lab ID:	1503I23-02A	Matrix:	Liquid
Client Sample ID:	2- NORTHWESTERN LF	Site ID:	PHASE 2

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
Sulfate	42.6	1.00	5.00	NA		mg/L	3/17/2015 9:27 AM	PA/VA
ANIONS by ION CHROMATOGR	APHY-48 H	DUR	Method: (1993)	EPA 30	0.0, Rev	/.2.1	Analyst: CF	
Nitrogen, Nitrate	ND	0.02	0.10	NA		mg/L	3/17/2015 9:27 AM	PA/VA
Nitrogen, Nitrite	ND	0.50	5.00	NA		mg/L	3/17/2015 9:27 AM	PA/VA
Notes:								
Elevated PQLs are due to matrix interference	ence.							
TOTAL KJELDAHL NITROGEN (TKN)		Method: 2.0 (1993	EPA 35 5)	1.2, Rev	Ι.	Analyst: JH	
Nitrogen, Kjeldahl, Total	233	8.00	40.0	NA		mg/L	3/20/2015 10:08 AM	PA/VA
OIL and GREASE			Method:	EPA 16	64 Rev	. A	Analyst: CC	
Oil & Grease	ND	2.0	5.0	NA		mg/L	3/25/2015 1:00 PM	PA/VA
Notes:								
Sample acidity or alkalinity exceeded the	added preserv	ative, so	that the requi	red preser	vation pH	was not ach	ieved.	
CYANIDE, Free			Method:	SM4500)-CN I-1	997	Analyst: JH	
Cyanide, Free	ND	0.005	0.020	NA		mg/L	3/17/2015 2:07 PM	
AMMONIA NITROGEN			Method: (1993)	EPA 35	0.1, Rev	<i>ı</i> .2.	Analyst: JH	
Nitrogen, Ammonia (As N)	233	6.40	16.0	NA		mg/L	3/19/2015 7:48 PM	PA/VA
CONDUCTIVITY			Method:	SM2510) B - 199	97	Analyst: KY	
Specific Conductivity	11,400	NA	NA	NA		µmhos/cm	3/17/2015 1:00 PM	PA/VA
TOTAL DISSOLVED SOLIDS			Method:	SM2540) C-1997	7	Analyst: KY	
Total Dissolved Solids	6,040	10	20	NA		mg/L	3/18/2015 6:30 PM	PA/VA
TOTAL SUSPENDED SOLIDS			Method:	SM2540) D-1997	7	Analyst: KY	
Total Suspended Solids	30.0	4.0	20.0	NA		mg/L	3/17/2015 5:53 PM	PA/VA
ACIDITY			Method:	SM2310) B-1997	7	Analyst: DSD	
Acidity, Total	413	1.0	10	NA		mg/L	3/17/2015 12:09 PM	PA/VA

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/16/2015 9:45:00 AM
Project:	DRILL CUTTING/ LEACHATE ANALYSIS	Date Received:	3/16/2015
Lab ID:	1503I23-02A	Matrix:	Liquid
Client Sample ID:	2- NORTHWESTERN LF	Site ID:	PHASE 2

Analysis	Result	MDL	PQL	MCL	Qual Units	Date Analyzed N	ELAP
ALKALINITY			Method:	SM2320	B-1997	Analyst: DSD	
Alkalinity, Total (As CaCO3)	1,530	4.0	40.0	NA	mg/L	3/17/2015 12:09 PM	PA/VA
pH - LAB TEST, HOLD TIME EXPI	RED		Method:	SM4500	-H+-B-2000	Analyst: DSD	
pH	6.96	NA	NA	NA	SU	3/17/2015 12:09 PM	PA

Date Reported: 3/31/2015

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/16/2015 9:45:00 AM
Project:	DRILL CUTTING/ LEACHATE ANALYSIS	Date Received:	3/16/2015
Lab ID:	1503I23-02B	Matrix:	Liquid
Client Sample ID:	2- NORTHWESTERN LF	Site ID:	PHASE 2

Analysis	Result	MDL	PQL	MCL	Qual Units	Date Analyzed N	ELAP
DISSOLVED METALS BY ICP			Method: (1994)	EPA 200	0.7 Rev. 4.4	Analyst: JD	
Iron	10.3	0.010	0.100	NA	mg/L	3/25/2015 10:35 PM	PA/VA
Manganese	1.50	0.002	0.100	NA	mg/L	3/25/2015 10:35 PM	PA/VA

Page 11 of 21

WO#: 1503I23

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/16/2015 11:50:00 AM
Project:	DRILL CUTTING/ LEACHATE ANALYSIS	Date Received:	3/16/2015
Lab ID:	1503I23-03A	Matrix:	Liquid
Client Sample ID:	3- MEADOWFILL LF	Site ID:	PHASE 2

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
METALS BY ICP			Method: E (1994)	PA 200).7 Rev.	4.4	Analyst: JD	
Aluminum	0.376	0.006	0.100	NA		mg/L	3/25/2015 10:38 PM	PA/VA
Antimony	ND	0.040	0.200	NA		mg/L	3/28/2015 12:40 PM	PA/VA
Arsenic	ND	0.020	0.200	NA		mg/L	3/25/2015 10:38 PM	PA/VA
Barium	0.612	0.002	0.100	NA		mg/L	3/25/2015 10:38 PM	PA/VA
Beryllium	ND	0.001	0.010	NA		mg/L	3/25/2015 10:38 PM	PA/VA
Boron	3.92	0.035	0.100	NA		mg/L	3/25/2015 10:38 PM	PA/VA
Cadmium	ND	0.001	0.020	NA		mg/L	3/25/2015 10:38 PM	PA/VA
Chromium	ND	0.005	0.100	NA		mg/L	3/25/2015 10:38 PM	PA/VA
Copper	ND	0.005	0.100	NA		mg/L	3/25/2015 10:38 PM	PA/VA
Iron	18.9	0.010	0.100	NA		mg/L	3/25/2015 10:38 PM	PA/VA
Lead	ND	0.010	0.200	NA		mg/L	3/25/2015 10:38 PM	PA/VA
Lithium	0.449	0.020	0.100	NA		mg/L	3/25/2015 2:25 PM	
Manganese	16.8	0.002	0.100	NA		mg/L	3/25/2015 10:38 PM	PA/VA
Nickel	0.010	0.005	0.100	NA	J	mg/L	3/28/2015 12:40 PM	PA/VA
Selenium	ND	0.020	0.200	NA		mg/L	3/25/2015 10:38 PM	PA/VA
Silver	ND	0.004	0.050	NA		mg/L	3/25/2015 10:38 PM	PA/VA
Strontium	9.51	0.001	0.010	NA		mg/L	3/25/2015 2:25 PM	PA
Vanadium	0.044	0.005	0.100	NA	J	mg/L	3/25/2015 10:38 PM	PA/VA
Zinc	0.007	0.003	0.050	NA	J	mg/L	3/25/2015 10:38 PM	PA/VA
MERCURY, Total E245.1			Method: E 3.0 (1994)	PA 245	5.1, Rev	-	Analyst: CR	
Mercury	ND	0.0001	0.0010	NA		mg/L	3/19/2015 12:07 PM	PA/VA

SEMIVOLATILE ORGANIC COMPOUN	DS		Method: S	W8270D	0 (2007)	Analyst: JD	
1,4-Dinitrobenzene	ND	NA	0.0106	NA	mg/L	3/19/2015 7:22 PM	
1,4-Napthoquinone	ND	NA	0.0106	NA	mg/L	3/19/2015 7:22 PM	
4-Nitroquinoline-1-oxide	ND	NA	0.0532	NA	mg/L	3/19/2015 7:22 PM	
Pentachloronitrobenzene	ND	NA	0.0106	NA	mg/L	3/19/2015 7:22 PM	
Bis(2-ethylhexyl)phthalate	ND	0.0053	0.0106	NA	mg/L	3/19/2015 7:22 PM	PA/VA
Butyl benzyl phthalate	ND	0.0053	0.0106	NA	mg/L	3/19/2015 7:22 PM	PA/VA
Di-n-butyl phthalate	ND	0.0053	0.0106	NA	mg/L	3/19/2015 7:22 PM	PA/VA
Diethyl phthalate	ND	0.0021	0.0106	NA	mg/L	3/19/2015 7:22 PM	PA/VA
Dimethyl phthalate	ND	0.0021	0.0106	NA	mg/L	3/19/2015 7:22 PM	PA/VA
2,4-Dinitrotoluene	ND	0.0021	0.0106	NA	mg/L	3/19/2015 7:22 PM	PA/VA
2,6-Dinitrotoluene	ND	0.0021	0.0106	NA	mg/L	3/19/2015 7:22 PM	PA/VA

Date Reported: 3/31/2015

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/16/2015 11:50:00 AM
Project:	DRILL CUTTING/ LEACHATE ANALYSIS	Date Received:	3/16/2015
Lab ID:	1503I23-03A	Matrix:	Liquid
Client Sample ID:	3- MEADOWFILL LF	Site ID:	PHASE 2

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	IELAP
Di-n-octyl phthalate	ND	0.0053	0.0106	NA		mg/L	3/19/2015 7:22 PM	PA/VA
Fluoranthene	ND	0.0021	0.0106	NA		mg/L	3/19/2015 7:22 PM	PA/VA
Nitrobenzene	ND	0.0021	0.0106	NA		mg/L	3/19/2015 7:22 PM	PA/VA
Surr: 2-Fluorophenol	42.9	NA	32.9-110	NA		%REC	3/19/2015 7:22 PM	
Surr: Phenol-d5	34.3	NA	25.8-110	NA		%REC	3/19/2015 7:22 PM	
Surr: 2,4,6-Tribromophenol	83.1	NA	63.8-110	NA		%REC	3/19/2015 7:22 PM	
Surr: Nitrobenzene-d5	83.3	NA	61.8-110	NA		%REC	3/19/2015 7:22 PM	
Surr: 2-Fluorobiphenyl	82.2	NA	58.6-110	NA		%REC	3/19/2015 7:22 PM	
Surr: 4-Terphenyl-d14	69.2	NA	55.1-110	NA		%REC	3/19/2015 7:22 PM	
VOLATILE ORGANIC COMPOUNDS	-8260		Method: S	SW8260	B (199	6)	Analyst: JM	
Benzene	3.26	0.500	1.00	NA		µg/L	3/30/2015 4:05 PM	PA/VA
Chlorobenzene	1.47	0.500	1.00	NA		µg/L	3/30/2015 4:05 PM	PA/VA
Dibromochloromethane	ND	0.500	1.00	NA		µg/L	3/30/2015 4:05 PM	PA/VA
1,2-Dichlorobenzene	ND	0.500	1.00	NA		µg/L	3/30/2015 4:05 PM	PA/VA
1,3-Dichlorobenzene	ND	0.500	1.00	NA		µg/L	3/30/2015 4:05 PM	PA/VA
1,4-Dichlorobenzene	9.40	0.500	1.00	NA		µg/L	3/30/2015 4:05 PM	PA/VA
Surr: 1,2-Dichloroethane-d4	107	NA	68.7-129	NA		%REC	3/30/2015 4:05 PM	
Surr: 4-Bromofluorobenzene	108	NA	71.8-127	NA		%REC	3/30/2015 4:05 PM	
Surr: Dibromofluoromethane	97.6	NA	74.3-124	NA		%REC	3/30/2015 4:05 PM	
Surr: Toluene-d8	93.9	NA	71.4-129	NA		%REC	3/30/2015 4:05 PM	
BOD, 5 Day, 20°C			Method: \$	SM5210	B-200 1	1	Analyst: VR	
Biochemical Oxygen Demand	ND	120	300	NA		mg/L	3/17/2015 1:20 PM	PA/VA
Notes:								
BOD PQL was elevated due to insufficient ox	ygen deple	tion in all	dilutions.					
Chemical Oxygen Demand			Method: E (1993)	EPA 410).4, Rev	. 2	Analyst: SF	
Chemical Oxygen Demand	252	20	50	NA		mg/L	3/18/2015 8:12 AM	PA/VA
HEXAVALENT CHROMIUM BY IC			Method: E 3.3 (1994)	EPA 218	3.6, Rev	/.	Analyst: CF	
Chromium (VI)	ND	0.0003	0.0010	NA		mg/L	3/18/2015 12:10 PM	PA/VA
ANIONS by ION CHROMATOGRAPH	łΥ		Method: E (1993)	EPA 300).0, Rev	/.2.1	Analyst: CF	

5,750 25.0

ND

0.05

250

0.20

NA

NA

Chloride

Fluoride

Page 13 of 21

mg/L

mg/L

3/17/2015 9:48 AM PA/VA

3/17/2015 9:48 AM PA/VA

WO#: 1503I23

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/16/2015 11:50:00 AM
Project:	DRILL CUTTING/ LEACHATE ANALYSIS	Date Received:	3/16/2015
Lab ID:	1503I23-03A	Matrix:	Liquid
Client Sample ID:	3- MEADOWFILL LF	Site ID:	PHASE 2

Analysis	Result	MDL	PQL	MCL	Qual Units	Date Analyzed N	IELAP
Sulfate	872	25.0	125	NA	mg/L	3/17/2015 9:48 AM	PA/VA
ANIONS by ION CHROMATOGR	APHY-48 HO	OUR	Method: (1993)	EPA 30	0.0, Rev.2.1	Analyst: CF	
Nitrogen, Nitrate	ND	0.02	0.10	NA	mg/L	3/17/2015 9:48 AM	PA/VA
Nitrogen, Nitrite	ND	1.25	12.5	NA	mg/L	3/17/2015 9:48 AM	PA/VA
Notes:							
Elevated PQLs are due to matrix interfere	ence.						
TOTAL KJELDAHL NITROGEN (TKN)		Method: 2.0 (1993	EPA 35 [°] 3)	1.2, Rev.	Analyst: JH	
Nitrogen, Kjeldahl, Total	5.16	0.20	1.00	NA	mg/L	3/19/2015 8:34 AM	PA/VA
OIL and GREASE			Method:	EPA 16	64 Rev. A	Analyst: CC	
Oil & Grease	15.1	2.0	5.0	NA	mg/L	3/25/2015 1:00 PM	PA/VA
Notes:							
Sample acidity or alkalinity exceeded the	added preserv	ative, so	that the requi	red preser	vation pH was not a	achieved.	
CYANIDE, Free			Method:	SM4500)-CN I-1997	Analyst: JH	
Cyanide, Free	ND	0.005	0.020	NA	mg/L	3/17/2015 2:07 PM	
AMMONIA NITROGEN			Method: (1993)	EPA 35	0.1, Rev.2.	Analyst: JH	
Nitrogen, Ammonia (As N)	3.34	0.40	1.00	NA	mg/L	3/19/2015 4:56 PM	PA/VA
CONDUCTIVITY			Method:	SM2510) B - 1997	Analyst: KY	
Specific Conductivity	22,900	NA	NA	NA	µmhos/cr	n 3/17/2015 1:00 PM	PA/VA
TOTAL DISSOLVED SOLIDS			Method:	SM2540) C-1997	Analyst: KY	
Total Dissolved Solids	15,100	10	20	NA	mg/L	3/18/2015 6:30 PM	PA/VA
TOTAL SUSPENDED SOLIDS			Method:	SM2540) D-1997	Analyst: KY	
Total Suspended Solids	26.0	4.0	20.0	NA	mg/L	3/17/2015 5:53 PM	PA/VA
ACIDITY			Method:	SM2310) B-1997	Analyst: DSD	
Acidity, Total	264	1.0	10	NA	ma/L	3/17/2015 12:09 PM	PA/VA

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/16/2015 11:50:00 AM
Project:	DRILL CUTTING/ LEACHATE ANALYSIS	Date Received:	3/16/2015
Lab ID:	1503I23-03A	Matrix:	Liquid
Client Sample ID:	3- MEADOWFILL LF	Site ID:	PHASE 2

Analysis	Result	MDL	PQL	MCL	Qual Uni	ts Date Analyzed N	ELAP
ALKALINITY			Method:	SM2320) B-1997	Analyst: DSD	
Alkalinity, Total (As CaCO3)	848	2.0	20.0	NA	mg	/L 3/17/2015 12:09 PM	PA/VA
pH - LAB TEST, HOLD TIME EXPIR	ED		Method:	SM4500)-H+-B-2000	Analyst: DSD	
рН	6.92	NA	NA	NA	SI	J 3/17/2015 12:09 PM	PA

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/16/2015 11:50:00 AM
Project:	DRILL CUTTING/ LEACHATE ANALYSIS	Date Received:	3/16/2015
Lab ID:	1503I23-03B	Matrix:	Liquid
Client Sample ID:	3- MEADOWFILL LF	Site ID:	PHASE 2

Analysis	Result	MDL	PQL	MCL	Qual Units	Date Analyzed NELAP
DISSOLVED METALS BY ICP			Method: (1994)	EPA 200).7 Rev. 4.4	Analyst: JD
Iron	0.215	0.010	0.100	NA	mg/L	3/25/2015 10:41 PM PA/VA
Manganese	12.6	0.002	0.100	NA	mg/L	3/25/2015 10:41 PM PA/VA

WO#: 1503I23

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/16/2015 12:40:00 PM
Project:	DRILL CUTTING/ LEACHATE ANALYSIS	Date Received:	3/16/2015
Lab ID:	1503I23-04A	Matrix:	Liquid
Client Sample ID:	4- BRIDGEPORT POTW	Site ID:	PHASE 2

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
METALS BY ICP			Method: (1994)	EPA 200	0.7 Rev	. 4.4	Analyst: JD	
Aluminum	0.027	0.006	0.100	NA	J	mg/L	3/25/2015 10:44 PM	PA/VA
Antimony	ND	0.040	0.200	NA		mg/L	3/28/2015 12:43 PM	PA/VA
Arsenic	ND	0.020	0.200	NA		mg/L	3/25/2015 10:44 PM	PA/VA
Barium	0.051	0.002	0.100	NA	J	mg/L	3/25/2015 10:44 PM	PA/VA
Beryllium	ND	0.001	0.010	NA		mg/L	3/25/2015 10:44 PM	PA/VA
Boron	0.373	0.035	0.100	NA		mg/L	3/25/2015 10:44 PM	PA/VA
Cadmium	ND	0.001	0.020	NA		mg/L	3/25/2015 10:44 PM	PA/VA
Chromium	ND	0.005	0.100	NA		mg/L	3/25/2015 10:44 PM	PA/VA
Copper	ND	0.005	0.100	NA		mg/L	3/25/2015 10:44 PM	PA/VA
Iron	0.089	0.010	0.100	NA	J	mg/L	3/25/2015 10:44 PM	PA/VA
Lead	ND	0.010	0.200	NA		mg/L	3/25/2015 10:44 PM	PA/VA
Lithium	ND	0.020	0.100	NA		mg/L	3/25/2015 2:28 PM	
Manganese	0.019	0.002	0.100	NA	J	mg/L	3/25/2015 10:44 PM	PA/VA
Nickel	ND	0.005	0.100	NA		mg/L	3/28/2015 12:43 PM	PA/VA
Selenium	ND	0.020	0.200	NA		mg/L	3/25/2015 10:44 PM	PA/VA
Silver	ND	0.004	0.050	NA		mg/L	3/25/2015 10:44 PM	PA/VA
Strontium	0.202	0.001	0.010	NA		mg/L	3/25/2015 2:28 PM	PA
Vanadium	ND	0.005	0.100	NA		mg/L	3/25/2015 10:44 PM	PA/VA
Zinc	0.047	0.003	0.050	NA	J	mg/L	3/25/2015 10:44 PM	PA/VA
MERCURY, Total E245.1			Method: 3.0 (1994	EPA 24:)	5.1, Rev	/.	Analyst: CR	
Mercury	ND	0.0001	0.0010	NA		mg/L	3/19/2015 12:09 PM	PA/VA
SEMIVOLATILE ORGANIC CO	MPOUNDS		Method:	SW8270	D (200	7)	Analyst: JD	

1,4-Dinitrobenzene	ND	NA	0.0102	NA	mg/L	3/19/2015 7:44 PM	
1,4-Napthoquinone	ND	NA	0.0102	NA	mg/L	3/19/2015 7:44 PM	
4-Nitroquinoline-1-oxide	ND	NA	0.0512	NA	mg/L	3/19/2015 7:44 PM	
Pentachloronitrobenzene	ND	NA	0.0102	NA	mg/L	3/19/2015 7:44 PM	
Bis(2-ethylhexyl)phthalate	ND	0.0051	0.0102	NA	mg/L	3/19/2015 7:44 PM	PA/VA
Butyl benzyl phthalate	ND	0.0051	0.0102	NA	mg/L	3/19/2015 7:44 PM	PA/VA
Di-n-butyl phthalate	ND	0.0051	0.0102	NA	mg/L	3/19/2015 7:44 PM	PA/VA
Diethyl phthalate	ND	0.0020	0.0102	NA	mg/L	3/19/2015 7:44 PM	PA/VA
Dimethyl phthalate	ND	0.0020	0.0102	NA	mg/L	3/19/2015 7:44 PM	PA/VA
2,4-Dinitrotoluene	ND	0.0020	0.0102	NA	mg/L	3/19/2015 7:44 PM	PA/VA
2,6-Dinitrotoluene	ND	0.0020	0.0102	NA	mg/L	3/19/2015 7:44 PM	PA/VA

Sulfate

Date Reported: 3/31/2015

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/16/2015 12:40:00 PM
Project:	DRILL CUTTING/ LEACHATE ANALYSIS	Date Received:	3/16/2015
Lab ID:	1503I23-04A	Matrix:	Liquid
Client Sample ID:	4- BRIDGEPORT POTW	Site ID:	PHASE 2

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
Di-n-octyl phthalate	ND	0.0051	0.0102	NA		mg/L	3/19/2015 7:44 PM	PA/VA
Fluoranthene	ND	0.0020	0.0102	NA		mg/L	3/19/2015 7:44 PM	PA/VA
Nitrobenzene	ND	0.0020	0.0102	NA		mg/L	3/19/2015 7:44 PM	PA/VA
Surr: 2-Fluorophenol	40.7	NA	32.9-110	NA		%REC	3/19/2015 7:44 PM	
Surr: Phenol-d5	31.8	NA	25.8-110	NA		%REC	3/19/2015 7:44 PM	
Surr: 2,4,6-Tribromophenol	83.0	NA	63.8-110	NA		%REC	3/19/2015 7:44 PM	
Surr: Nitrobenzene-d5	81.9	NA	61.8-110	NA		%REC	3/19/2015 7:44 PM	
Surr: 2-Fluorobiphenyl	80.9	NA	58.6-110	NA		%REC	3/19/2015 7:44 PM	
Surr: 4-Terphenyl-d14	83.3	NA	55.1-110	NA		%REC	3/19/2015 7:44 PM	
VOLATILE ORGANIC COMPOUNDS	5-8260		Method: S	SW8260)B (1996	6)	Analyst: JM	
Benzene	ND	0.500	1.00	NA		µg/L	3/27/2015 7:08 PM	PA/VA
Chlorobenzene	ND	0.500	1.00	NA		μg/L	3/27/2015 7:08 PM	PA/VA
Dibromochloromethane	ND	0.500	1.00	NA		µg/L	3/27/2015 7:08 PM	PA/VA
1,2-Dichlorobenzene	ND	0.500	1.00	NA		μg/L	3/27/2015 7:08 PM	PA/VA
1,3-Dichlorobenzene	ND	0.500	1.00	NA		µg/L	3/27/2015 7:08 PM	PA/VA
1,4-Dichlorobenzene	1.03	0.500	1.00	NA		µg/L	3/27/2015 7:08 PM	PA/VA
Surr: 1,2-Dichloroethane-d4	108	NA	68.7-129	NA		%REC	3/27/2015 7:08 PM	
Surr: 4-Bromofluorobenzene	119	NA	71.8-127	NA		%REC	3/27/2015 7:08 PM	
Surr: Dibromofluoromethane	94.1	NA	74.3-124	NA		%REC	3/27/2015 7:08 PM	
Surr: Toluene-d8	90.7	NA	71.4-129	NA		%REC	3/27/2015 7:08 PM	
BOD, 5 Day, 20°C			Method: S	6M5210	B-2001		Analyst: VR	
Biochemical Oxygen Demand	ND	2	5	NA		mg/L	3/17/2015 1:20 PM	PA/VA
Chemical Oxygen Demand			Method: E (1993)	EPA 410	0.4, Rev	v. 2	Analyst: SF	
Chemical Oxygen Demand	25	4	10	NA		mg/L	3/17/2015 8:09 AM	PA/VA
HEXAVALENT CHROMIUM BY IC			Method: E 3.3 (1994)	EPA 218	8.6, Rev		Analyst: CF	
Chromium (VI)	ND	0.0003	0.0010	NA		mg/L	3/18/2015 12:23 PM	PA/VA
ANIONS by ION CHROMATOGRAP	ΗY		Method: E (1993)	EPA 300	0.0, Rev	2.2.1	Analyst: CF	
Chloride	124	1.00	10.0	NA		mg/L	3/17/2015 10:08 AM	PA/VA
Fluoride	0.30	0.05	0.20	NA		mg/L	3/17/2015 10:08 AM	PA/VA

74.6 1.00

5.00

NA

mg/L

3/17/2015 10:08 AM PA/VA

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/16/2015 12:40:00 PM
Project:	DRILL CUTTING/ LEACHATE ANALYSIS	Date Received:	3/16/2015
Lab ID:	1503I23-04A	Matrix:	Liquid
Client Sample ID:	4- BRIDGEPORT POTW	Site ID:	PHASE 2

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
ANIONS by ION CHROMATOGRAP	HY-48 H(OUR	Method: (1993)	EPA 300	.0, Rev	/.2.1	Analyst: CF	
Nitrogen, Nitrate	9.30	0.20	1.00	NA		mg/L	3/17/2015 10:08 AM	PA/VA
Nitrogen, Nitrite	ND	0.05	0.50	NA		mg/L	3/17/2015 10:08 AM	PA/VA
TOTAL KJELDAHL NITROGEN (TK	N)		Method: 2.0 (1993	EPA 351)	.2, Rev	<i>ı</i> .	Analyst: JH	
Nitrogen, Kjeldahl, Total	1.51	0.10	0.50	NA		mg/L	3/19/2015 8:34 AM	PA/VA
OIL and GREASE			Method:	EPA 166	4 Rev	. A	Analyst: CC	
Oil & Grease	ND	2.0	5.0	NA		mg/L	3/25/2015 1:00 PM	PA/VA
CYANIDE, Free			Method:	SM4500-	CN I-1	997	Analyst: JH	
Cyanide, Free	ND	0.005	0.020	NA		mg/L	3/17/2015 2:08 PM	
AMMONIA NITROGEN			Method: (1993)	EPA 350	.1, Rev	/.2.	Analyst: JH	
Nitrogen, Ammonia (As N)	0.08	0.04	0.10	NA	J	mg/L	3/19/2015 5:00 PM	PA/VA
CONDUCTIVITY			Method:	SM2510	B - 199	97	Analyst: KY	
Specific Conductivity	957	NA	NA	NA		µmhos/cm	3/17/2015 1:00 PM	PA/VA
TOTAL DISSOLVED SOLIDS			Method:	SM2540	C-1997	7	Analyst: KY	
Total Dissolved Solids	543	5	10	NA		mg/L	3/18/2015 6:30 PM	PA/VA
TOTAL SUSPENDED SOLIDS			Method:	SM2540	D-1997	7	Analyst: KY	
Total Suspended Solids	3.5	1.0	5.0	NA	J	mg/L	3/17/2015 5:53 PM	PA/VA
ACIDITY			Method:	SM2310	B-1997	7	Analyst: DSD	
Acidity, Total	7.9	1.0	10	NA	J	mg/L	3/17/2015 12:09 PM	PA/VA
ALKALINITY			Method:	SM2320	B-1997	7	Analyst: DSD	
Alkalinity, Total (As CaCO3)	72.7	1.0	10	NA		mg/L	3/17/2015 12:09 PM	PA/VA
pH - LAB TEST, HOLD TIME EXPIR	ED		Method:	SM4500-	·H+-B-2	2000	Analyst: DSD	
рН	7.07	NA	NA	NA		SU	3/17/2015 12:09 PM	PA

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/16/2015 12:40:00 PM
Project:	DRILL CUTTING/ LEACHATE ANALYSIS	Date Received:	3/16/2015
Lab ID:	1503I23-04B	Matrix:	Liquid
Client Sample ID:	4- BRIDGEPORT POTW	Site ID:	PHASE 2

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
DISSOLVED METALS BY ICP			Method: (1994)	EPA 200).7 Rev	[.] 4.4	Analyst: JD	
Iron	0.068	0.010	0.100	NA	J	mg/L	3/25/2015 10:47 PM	PA/VA
Manganese	0.017	0.002	0.100	NA	J	mg/L	3/25/2015 10:47 PM	PA/VA

Date Reported: 3/31/2015

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/16/2015 12:00:00 AM
Project:	DRILL CUTTING/ LEACHATE ANALYSIS	Date Received:	3/16/2015
Lab ID:	1503I23-05A	Matrix:	Trip Blank
Client Sample ID:	TRIP BLANK	Site ID:	PHASE 2

Qual Units **Date Analyzed NELAP** PQL MCL MDL Result Analysis **VOLATILE ORGANIC COMPOUNDS-8260** Method: SW8260B (1996) Analyst: JM 0.500 1.00 NA 3/28/2015 1:46 AM PA/VA Benzene ND µg/L Chlorobenzene ND 0.500 1.00 NA 3/28/2015 1:46 AM PA/VA µg/L Dibromochloromethane 0.500 1.00 NA PA/VA ND µg/L 3/28/2015 1:46 AM 0.500 1.00 NA PA/VA 1,2-Dichlorobenzene ND 3/28/2015 1:46 AM µg/L 1,3-Dichlorobenzene ND 0.500 1.00 NA 3/28/2015 1:46 AM PA/VA µg/L 1,4-Dichlorobenzene ND 0.500 1.00 NA 3/28/2015 1:46 AM PA/VA µg/L Surr: 1,2-Dichloroethane-d4 98.4 NA 68.7-129 NA %REC 3/28/2015 1:46 AM Surr: 4-Bromofluorobenzene 126 NA 71.8-127 NA 3/28/2015 1:46 AM %REC Surr: Dibromofluoromethane 96.0 NA 74.3-124 NA %REC 3/28/2015 1:46 AM Surr: Toluene-d8 89.7 NA 71.4-129 NA 3/28/2015 1:46 AM %REC



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

Sunday, April 26, 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/ LEACHATE ANALYSIS

Work Order #: 1503I30

Dear GEORGE CARICO:

Please find enclosed amended results. If you have any questions regarding these results, please do not hesitate to call.

Sincerely,

Kathy Berry

Kathy Berry



Client: MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE

Project: DRILL CUTTING/ LEACHATE ANALYSIS

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:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/16/2015 8:55:00 AM
Project:	DRILL CUTTING/ LEACHATE ANALYSIS	Date Received:	3/16/2015
Lab ID:	1503I30-01A	Matrix:	Liquid
Client Sample ID:	1- PARKERSBURG POTW	Site ID:	PHASE 2

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		

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/16/2015 9:45:00 AM
Project:	DRILL CUTTING/ LEACHATE ANALYSIS	Date Received:	3/16/2015
Lab ID:	1503I30-02A	Matrix:	Liquid
Client Sample ID:	2- NORTHWESTERN LF	Site ID:	PHASE 2

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			

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/16/2015 11:50:00 AM
Project:	DRILL CUTTING/ LEACHATE ANALYSIS	Date Received:	3/16/2015
Lab ID:	1503I30-03A	Matrix:	Liquid
Client Sample ID:	3-MEADOWFILL LF	Site ID:	PHASE 2

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			

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/16/2015 12:40:00 PM
Project:	DRILL CUTTING/ LEACHATE ANALYSIS	Date Received:	3/16/2015
Lab ID:	1503I30-04A	Matrix:	Liquid
Client Sample ID:	4- BRIDGEPORT POTW	Site ID:	PHASE 2

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		



Pace Analytical Services, Inc. 1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

June 10, 2015

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

RE: Project: 1503I30 Pace Project No.: 30143094

Dear Ms. Berry:

Enclosed are the analytical results for sample(s) received by the laboratory on March 18, 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,

Carino a. Ferrio

Carin Ferris carin.ferris@pacelabs.com Project Manager

Enclosures





Pace Analytical Services, Inc. 1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

CERTIFICATIONS

 Project:
 1503I30

 Pace Project No.:
 30143094

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-042 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



SAMPLE SUMMARY

 Project:
 1503I30

 Pace Project No.:
 30143094

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30143094001	1503I30-01A	Water	03/16/15 08:55	03/18/15 10:20
30143094002	1503I30-02A	Water	03/16/15 09:45	03/18/15 10:20
30143094003	1503I30-03A	Water	03/16/15 11:50	03/18/15 10:20
30143094004	1503I30-04A	Water	03/16/15 12:40	03/18/15 10:20



SAMPLE ANALYTE COUNT

 Project:
 1503I30

 Pace Project No.:
 30143094

Lab ID	Sample ID	Method	Analysts	Analytes Reported
30143094001	1503I30-01A	SM 7500Rn-B	JAL	1
30143094002	1503I30-02A	SM 7500Rn-B	JAL	1
30143094003	1503I30-03A	SM 7500Rn-B	JAL	1
30143094004	1503I30-04A	SM 7500Rn-B	JAL	1



PROJECT NARRATIVE

 Project:
 1503I30

 Pace Project No.:
 30143094

Method: SM 7500Rn-B

Description:7500RnB RadonClient:REI Consultants, Inc.Date:June 10, 2015

General Information:

4 samples were analyzed for SM 7500Rn-B. 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: 1503I30							
Pace Project No.: 30143094							
Sample: 1503I30-01A PWS:	Lab ID: 3014309 Site ID:	4001 Collected: 03/16/15 08:55 Sample Type:	Received:	03/18/15 10:20 Ma	atrix: Water	ix: Water	
Comments: • Sample collection	on dates and times were not p	present on the sample containers.					
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual	
Radon	SM 7500Rn-B	-0.7 ± 27.1 (47.6) C:NA T:NA	pCi/L	03/18/15 21:04	10043-92-2		
Sample: 1503I30-02A PWS:	Lab ID: 3014309 Site ID:	Collected: 03/16/15 09:45 Sample Type:	Received:	03/18/15 10:20 M	atrix: Water		
Comments: • Sample collection	on dates and times were not p	present on the sample containers.					
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual	
Radon	SM 7500Rn-B	34.0 ± 29.5 (47.5) C:NA T:NA	pCi/L	03/18/15 21:37	10043-92-2		
Sample: 1503I30-03A PWS:	Lab ID: 3014309 Site ID:	4003 Collected: 03/16/15 11:50 Sample Type:	Received:	03/18/15 10:20 Ma	atrix: Water		
Comments: • Sample collection	on dates and times were not p	present on the sample containers.					
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual	
Radon	SM 7500Rn-B	41.3 ± 29.9 (47.0) C:NA T:NA	pCi/L	03/18/15 22:11	10043-92-2		
Sample: 1503130-04A	Lab ID: 3014309 Site ID:	4004 Collected: 03/16/15 12:40 Sample Type:	Received:	03/18/15 10:20 Ma	atrix: Water		
Comments: • Sample collection	on dates and times were not p	present on the sample containers.					
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual	
Radon	SM 7500Rn-B	19.7 ± 28.1 (47.1) C:NA T:NA	pCi/L	03/18/15 23:17	10043-92-2		



QUALITY CONTROL - RADIOCHEMISTRY

Project:	1503130					
Pace Project No.:	30143094					
QC Batch:	RADC/23736	Analysis Method:	SM 7500Rn-B			
QC Batch Method:	SM 7500Rn-B	Analysis Description:	7500Rn B Rade	on		
Associated Lab Sar	mples: 30143094	001, 30143094002, 30143094003, 3014309400	4			
METHOD BLANK:	865504	Matrix: Water				-
Associated Lab Sar	mples: 30143094	001, 30143094002, 30143094003, 3014309400	4			
Parar	neter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers	_
Radon		7.1 ± 17.7 (30.2) C:NA T:NA	pCi/L	03/18/15 19:57		

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.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full, without the written consent of Pace Analytical Services, Inc..



QUALIFIERS

 Project:
 1503I30

 Pace Project No.:
 30143094

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.

REI	U	CHAIN OF CUSTODY REC	ORD COC ID: 3436 PAGE: 1 OF: 1 REI Consultants, Inc. PO Box 286 Beaver, WY 25813	
Improving the environment, on	ie cleut at a time	Please Include Email Address o	TEL: (304) 255-2500 FAX: (304) 255-2572 Website: www.reiclabs.com	9
SUB CONTRATOR: PACE	PA COMPANY	VK: PACE ANALYTICAL SERVIC	SPECIAL INSTRUCTIONS / COMMENTS: Come Code: VIV/ Disease use SemuleID as numbere order number	
ADDRESS: 1638 R	OSEYTOWN ROAD		A due could be a support of the province of province and can be disposed per your standard laboratory After analysis, the samples do not need to be returned and can be disposed per your standard laboratory monotices. Results the Kathy Berry at thermore testings com	
CITY, STATE, ZIP: GREE!	NSBURG, PA 15601		actions of characteristic frame of the firms of characteristic framework in the first state of the first sta	
PHONE: (724) 8:	50-5600 FAX:		ANALYTICAL PARAMETERS * Preservation Codes: 0 None 2 Hydrochhoric Acid	
ACCOUNT #: 050719	EVF1 EMAIL:		2 Nitric Acid 3 Sulfuric Acid 4 Sodium Thiosulfate	_
ITEM SAMPLE ID	Client Sample ID	* CONTAINERS *	 Sodium Hydroxide Sodium Hydroxide Sodium Hydroxide Tascorbic Acid Tascorbic Acid Sodium SufficteHCL Detassium Dilydrogen Citrate I Bromium Choride COMMENTS: 	
1 1503I30-01A	1- PARKERSBURG	Liquid 3/16/2015 8:55:00 AM 3	100	
2 1503130-02A	2- NORTHWESTERN LF	Liquid 3/16/2015 9:45:00 AM 3	700 1	
3 1503I30-03A	3-MEADOWFILL LF	Liquid 3/16/2015 11:50:00 3 AM	2 CO3	
4 1503130-04A	4- BRIDGEPORT POTW	Liquid 3/16/2015 12:40:00 3	The second	
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Sa	mple Condition	i Upon Receipt		
Pace Analytical Client Name	REIC		Project #	0143094
Courier: □ Fed Ex ピ UPS □ USPS □ Clie Tracking #: <u>17 26% 713 13 77</u> 96 50 42	ent Commercial	Pace Other		
Custody Seal on Cooler/Box Present: 🗌 yes	🔽 no Seala	s intact: 🔲 yes 🗌	no Biological T	Issue is Frozen: Yes No
Packing Material: Bubble Wrap 🖉 Bubble Bag	gs None	Other		
Thermometer UsedTyp	e of Ice: Wet Blu	ie None 🔲 Sar	nples on Ice, cooling pro	ucess has begun
Cooler Temp.: Observed Temp.:°C Co	orrection Factor:	<u>∿tp</u> ^ °C Final Temp:_	NA °C	ate and initials of person
Temp should be above freezing to 6°C		Comments:	θX	amining contents:
Chain of Custody Present:	ZYes □No □N/A	1.		, ,
Chain of Custody Filled Out:		2		
Chain of Custody Relinguished:		3.		
Sampler Name & Signature on COC:	⊡yes 🖾 Ro □N/A	4		
Samples Arrived within Hold Time:	ØYes □No □N/A	5.		
Short Hold Time Analysis (<72hr):	ØYes □No □N/A	6,		
Rush Turn Around Time Requested:	□Yes C\$Rto □N/A	7.		
Sufficient Volume:	ØYes □No □N/A	8.		
Correct Containers Used:		9.		
-Pace Containers Used:	⊡Yes BANo □N/A			
Containers Intact:		10.		
Filtered volume received for Dissolved tests	Yes No DANA	11.		
Sample Labels match COC:		12. no date ar.	hive or simple	is
-Includes date/time/ID/Analysis Matrix:	Wt			
All containers needing preservation have been checked.	□Yes □No \$\$N/A	13.		
All containers needing preservation are found to be in compliance with EPA recommendation.	□Yes □No ŪN/A			-
exceptions: YOA, coliform, TOC, O&G, Phenois	ØYes No	Initial when completed Arm	Lot # of added preservative	
Samples checked for dechlorination:	□Yes □No [2]N/A	14.		
Headspace in VOA Vials (>6mm):	TYes No GN/A	15.		
Trip Blank Present:		16.		
Trip Blank Custody Seals Present	□Yes □No □N/A			
Pace Trip Blank Lot # (if purchased):				
Client Notification/ Resolution:			Field Data Required	1? Y / N
Person Contacted:	Date/	Time:		
Comments/ Resolution:				
				/
				alialit
Project Manager Review:) Jen	üD	Date:	311815
Note: Whenever there is a discrepancy affecting North ((i.e. out of hold, incorrect preservative, out of temp, inco	Carolina compliance sar prrect containers)	nples, a copy of this form w	ill be sent to the North C	arolina DEHNR Certification Office

Other	×								
NOCIAS Tento	2								
ooldiZ					1	1		-	
Cubitainer (500 ml / 4L)								1	
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Radchem Nalgene (125 / 250 / 500 / 1L)									
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(Im 052 / Im 04) ODT									
Phenolics (250 ml)									
/utrient (250 / 500)									
סנפאונכא (11) Drganics (11)									
Chemistry (250 / 500 / 1L)									
Soil kit (2 SB, 1M, soil jar)									
Glass Jar (120 / 250 / 500 / 1L)									
Matrix Code	15	ł							
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		_	ł.						

30143094

page 2

Project Number:

Face Analytical



Pace Analytical Services, Inc. 1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

April 03, 2015

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

RE: Project: 1503I30 Pace Project No.: 30143334

Dear Ms. Berry:

Enclosed are the analytical results for sample(s) received by the laboratory on March 19, 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,

Carino a. Ferrio

Carin Ferris carin.ferris@pacelabs.com Project Manager

Enclosures




Pace Analytical Services, Inc. 1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

CERTIFICATIONS

 Project:
 1503I30

 Pace Project No.:
 30143334

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-042 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



SAMPLE SUMMARY

 Project:
 1503I30

 Pace Project No.:
 30143334

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30143334001	1503I30-01A	Water	03/16/15 08:55	03/19/15 15:20
30143334002	1503I30-02A	Water	03/16/15 09:45	03/19/15 15:20
30143334003	1503I30-03A	Water	03/16/15 11:50	03/19/15 15:20
30143334004	1503I30-04A	Water	03/16/15 12:40	03/19/15 15:20



SAMPLE ANALYTE COUNT

 Project:
 1503I30

 Pace Project No.:
 30143334

Lab ID	Sample ID	Method	Analysts	Analytes Reported
30143334001	1503I30-01A	EPA 900.0	FCC	2
		EPA 903.1	JC2	1
		EPA 904.0	JLW	1
		ASTM D5811-95	LAL	1
30143334002	1503I30-02A	SM 7110C	FCC	1
		EPA 900.0	FCC	1
		EPA 903.1	JC2	1
		EPA 904.0	JLW	1
		ASTM D5811-95	LAL	1
30143334003	1503I30-03A	SM 7110C	FCC	1
		EPA 900.0	FCC	1
		EPA 903.1	JC2	1
		EPA 904.0	JLW	1
		ASTM D5811-95	LAL	1
30143334004	1503I30-04A	EPA 900.0	FCC	2
		EPA 903.1	JC2	1
		EPA 904.0	JLW	1
		ASTM D5811-95	LAL	1



 Project:
 1503I30

 Pace Project No.:
 30143334

Method: SM 7110C

Description:7110C Gross AlphaClient:REI Consultants, Inc.Date:April 03, 2015

General Information:

2 samples were analyzed for SM 7110C. 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:
 1503I30

 Pace Project No.:
 30143334

Method:EPA 900.0Description:900.0 Gross Alpha/BetaClient:REI Consultants, Inc.Date:April 03, 2015

General Information:

4 samples were 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:



 Project:
 1503I30

 Pace Project No.:
 30143334

Method: EPA 903.1

Description:903.1 Radium 226Client:REI Consultants, Inc.Date:April 03, 2015

General Information:

4 samples were analyzed for EPA 903.1. 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:
 1503I30

 Pace Project No.:
 30143334

Method: EPA 904.0 Description: 904.0 Radium 228

Client:REI Consultants, Inc.Date:April 03, 2015

General Information:

4 samples were analyzed for EPA 904.0. 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:



 Project:
 1503I30

 Pace Project No.:
 30143334

Method: ASTM D5811-95

Description:ASTM D5811 Sr 89/90 EichromClient:REI Consultants, Inc.Date:April 03, 2015

General Information:

4 samples were 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/23846

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

- 1503I30-01A (Lab ID: 30143334001)
 - Strontium-90
- 1503I30-02A (Lab ID: 30143334002)
- Strontium-90
- 1503I30-03A (Lab ID: 30143334003)
 - Strontium-90
- 1503I30-04A (Lab ID: 30143334004)
 - Strontium-90
- BLANK (Lab ID: 870159)
 - Strontium-90

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



ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 1503I30

Pace Project No.: 30143334

Sample: 1503I30-01A	Lab ID: 30143	3334001 Collected: 03/16/15 08:55	Received:	03/19/15 15:20	Matrix: Water	
PWS:	Site ID:	Sample Type:				
Comments: • Sample Accept	ance Policy Waiver on file f	rom the client.				
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0	0.426 ± 0.648 (1.20) C:NA T:NA	pCi/L	03/28/15 11:36	12587-46-1	-
Gross Beta	EPA 900.0	4.79 ± 1.42 (1.81) C:NA T:NA	pCi/L	03/28/15 11:36	12587-47-2	
Radium-226	EPA 903.1	0.310 ± 0.708 (0.420) C:NA T:91%	pCi/L	04/01/15 11:37	13982-63-3	
Radium-228	EPA 904.0	-0.291 ± 0.380 (0.969) C:73% T:75%	pCi/L	04/01/15 15:48	3 15262-20-1	
Strontium-90	ASTM D5811-95	-0.00400 ± 0.866 (1.58) C:99% T:NA	pCi/L	03/27/15 21:40	10098-97-2	N2



Lab ID: 30143334002 Site ID:

334002 Collected: 03/16/15 09:45 Received: 03/19/15 15:20 Matrix: Water Sample Type:

Comments: • Sample Acceptance Policy Waiver on file from the client.

• Upon receipt at the laboratory, 3 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Gross Alpha	SM 7110C	12.8 ± 4.34 (4.52) C·NA T·NA	pCi/L	04/01/15 18:57	12587-46-1	
Gross Beta	EPA 900.0	776 ± 141 (16.0) C:NA T:NA	pCi/L	03/28/15 11:36	12587-47-2	
Radium-226	EPA 903.1	5.05 ± 2.10 (0.570) C:NA T:89%	pCi/L	04/01/15 11:26	13982-63-3	
Radium-228	EPA 904.0	3.27 ± 0.868 (0.921) C:70% T:79%	pCi/L	04/01/15 15:48	15262-20-1	
Strontium-90	ASTM D5811-95	0.0440 ± 0.747 (1.29) C:97% T:NA	pCi/L	03/28/15 11:44	10098-97-2	N2

 Sample:
 1503I30-03A
 Lab ID:
 30143334003
 Collected:
 03/16/15
 11:50
 Received:
 03/19/15
 15:20
 Matrix:
 Water

 PWS:
 Site ID:
 Sample Type:
 <

Comments: • Sample Acceptance Policy Waiver on file from the client.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Gross Alpha	SM 7110C	3.52 ± 1.77 (2.50) C:NA T:NA	pCi/L	04/01/15 18:57	12587-46-1	
Gross Beta	EPA 900.0	280 ± 55.7 (29.3) C:NA T:NA	pCi/L	03/28/15 11:36	12587-47-2	
Radium-226	EPA 903.1	1.26 ± 0.833 (0.378) C:NA T:92%	pCi/L	04/01/15 11:25	13982-63-3	
Radium-228	EPA 904.0	1.18 ± 0.553 (0.923) C:72% T:75%	pCi/L	04/01/15 15:48	15262-20-1	
Strontium-90	ASTM D5811-95	-0.131 ± 0.651 (1.14) C:107% T:NA	pCi/L	03/28/15 11:45	10098-97-2	N2



ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 1503I30

Pace Project No.: 30143334

Sample: 1503I30-04A	Lab ID: 30143	Collected: 03/16/15 12:40	Received:	03/19/15 15:20 N	latrix: Water	
PWS:	Site ID:	Sample Type:				
Comments: • Sample Accept	ance Policy Waiver on file fi	rom the client.				
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0	-0.496 ± 1.31 (2.86) C:NA T:NA	pCi/L	03/28/15 13:39	12587-46-1	
Gross Beta	EPA 900.0	6.09 ± 1.73 (2.08) C:NA T:NA	pCi/L	03/28/15 13:39	12587-47-2	
Radium-226	EPA 903.1	0.742 ± 1.13 (0.670) C:NA T:75%	pCi/L	04/01/15 11:36	13982-63-3	
Radium-228	EPA 904.0	0.519 ± 0.440 (0.885) C:76% T:75%	pCi/L	04/01/15 15:48	15262-20-1	
Strontium-90	ASTM D5811-95	-0.0720 ± 0.579 (1.01) C:97% T:NA	pCi/L	03/28/15 11:45	10098-97-2	N2



Project:	1503130										
Pace Project No.:	30143334										
QC Batch:	RADC/23795		Analysis Method:	EPA 904.0	EPA 904.0						
QC Batch Method:	EPA 904.0		Analysis Description: 904.0 Radium 228								
Associated Lab San	Associated Lab Samples: 30143334001, 30143334002, 30143334003, 30143334004										
METHOD BLANK:	868169		Matrix: Water								
Associated Lab San	nples: 30143334	001, 301433340	02, 30143334003, 301433340	04							
Paran	neter	Act ± U	nc (MDC) Carr Trac	Units	Analyzed	Qualifiers					
Radium-228		0.0726 ± 0.367	(0.836) C:70% T:86%	pCi/L	04/01/15 11:10						

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:	1503 30							
Pace Project No.:	30143334							
QC Batch:	RADC/23855	Analysis Method:	EPA 900.0					
QC Batch Method:EPA 900.0Analysis Description:900.0 Gross Alpha/Beta								
Associated Lab San	nples: 30143334	001, 30143334002, 30143334003, 30143334004	Ļ					
METHOD BLANK:	870170	Matrix: Water						
Associated Lab San	nples: 30143334	001, 30143334002, 30143334003, 30143334004	Ļ					
Paran	neter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers			
Gross Alpha		-0.372 ± 0.365 (1.45) C:NA T:NA	pCi/L	03/28/15 09:09				
Gross Beta		-0.356 ± 0.645 (1.77) C:NA T:NA	pCi/L 03/28/15 09:09					

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:	1503 30									
Pace Project No.:	30143334									
QC Batch:	RADC/23792	Analysis Method:	EPA 903.1							
QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226										
Associated Lab Samples: 30143334001, 30143334002, 30143334003, 30143334004										
METHOD BLANK:	868166	Matrix: Water								
Associated Lab San	nples: 30143334	001, 30143334002, 30143334003, 3014333400)4							
Paran	neter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers					
Radium-226		0.299 ± 0.310 (0.462) C:NA T:101%	pCi/L	04/01/15 11:27						

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:	1503130							
Pace Project No.:	30143334							
QC Batch:	RADC/23846	Analysis Method:	ASTM D5811	ASTM D5811-95				
QC Batch Method: ASTM D5811-95 Analysis Description: ASTM D5811 Sr 89/90 Eichrom								
Associated Lab San	nples: 30143334001, 30	143334002, 30143334003, 301433340	004					
METHOD BLANK:	870159	Matrix: Water						
Associated Lab San	nples: 30143334001, 30	143334002, 30143334003, 301433340	004					
Paran	neter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers			
Strontium-90	-0.117	± 0.329 (0.776) C:95% T:NA	pCi/L	03/28/15 11:44	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:	1503130						
Pace Project No.:	30143334						
QC Batch:	RADC/23909		Analysis Method:	SM 7110C			
QC Batch Method: SM 7110C Analysis Description: 7110C Gross Alpha							
Associated Lab San	nples: 30143334	002, 30143334003					
METHOD BLANK:	873323		Matrix: Water				
Associated Lab San	nples: 30143334	002, 30143334003					
Paran	neter	Act ± Unc (M	MDC) Carr Trac	Units	Analyzed	Qualifiers	
Gross Alpha		0.503 ± 1.05 (2.45)	C:NA T:NA	pCi/L	04/01/15 17:10		

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.



Pace Analytical Services, Inc. 1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

QUALIFIERS

 Project:
 1503I30

 Pace Project No.:
 30143334

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

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

ADDRESS REI Consultants, Inc. PO Box 286 Beaver, WV 25813	TEL: (304) 255-2500 FAX: (304) 255-2572 Website: www.reiclabs.com		isposed per your standard laboratory		* Preservation Codes: 0 None	1 Hydrochloric Acid 2 Nitric Acid 3 Sulfuric Acid	4 Sodium Thiosulfate 5 Sodium Hydroxide/ Sodium Hydroxide 6 Sodium Hydroxide 1 Ausorbit Acid 8 Sodium SulfiteHCL 9 Potassium Ditydrogen Citrate 10 Bromium Chloride COMMENTS:	-				T DESIRED:	NLY tempt to Cool ?
COC ID: 3437 PAGE: 1 OF: 1	nt Whenever Possible!!!	CTIONS / COMMENTS:	/V Please use SampleID as purchase order number. the samples do not need to be returned and can be d	ults to Kathy Berry at kberry@reiclabs.com	TICAL PARAMETERS		30143334	8	200	500	2	REPORT TRANSMITTA	FOR LAB USE O Temp of semples^C At Comments:
CUSTODY RECORD	se Include Email Address of Report Recipie	LYTICAL SERVIC SPECIAL INSTRUCT	State Code: W After analysis,	practices. Kesu	LATANA	STRONT RADIUM RADIUM GROSS_I GROSS_	IUM_90_SUB (EPA 905.0) Image: Constraint of the second secon	3/16/2015 8:55:00 AM 1 イ イ イ イ	3/16/2015 9:45:00 AM 1 2 2 2 2	3/16/2015 11:50:00 1 1 1 1 1 1	3/16/2015 12:40:00 1 1 4 4 4 4	S Bath 715 Tere of Date	Date 3:1X-15 1:1 Imme 3:1X-15 1:1 Imme 3:47 1:5 2nd BD 3:nd BD 1 requests will incur surcharges! 1 1
CHAIN OI	Plee	COMPANY: PACE ANA	QD	01	FAX:	EMAIL:	Bortle MATRIX Type	Liquid	Liquid	Liquid	Liquid	Inter Received By: A P.	RUSH Next BD
	rit, one clent at a thro	CE_PA	8 ROSEYTOWN RO	EENSBURG, PA 156	4) 850-5600	719EVF1	Client Sample ID	A 1- PARKERSBURG	A 2- NORTHWESTERN LF	A 3-MEADOWFILL LF	A 4- BRIDGEPORT POTW	2-16-15 1	Standard 2
R	Improving the environm	SUB CONTRATOR: PA	ADDRESS: 163	CITY, STATE, ZIP: GR	PHONE: (724	ACCOUNT #: 050	ITEM SAMPLE ID	1 1503130-01/	2 1503I30-02/	3 1503130-03/	4 1503130-04	Relinquicher By: R	LVL Page 18 of 20

Sar	nple Conditio	on Upon Receipt
Face Analytical Client Name	RETL	Project # <u>30143334</u>
Courier: Fed Ex UPS USPS Clier	nt 🗌 Commercia	I 🖄 Pace Other
Custody Seal on Cooler/Box Present: Uyes	🕅 no Se	als intact: 🔲 yes 🔲 no 🛛 Biological Tissue is Frozen: Yes No
Packing Material: Bubble Wrap X Bubble Bag	s None	_ Other
Thermometer Used NA Type	of Ice: Wet E	lue None Samples on Ice, cooling process has begun
Cooler Temp.: Observed Temp.:°C Co	rrection Factor:	°C Final Temp:°C
Temp should be above freezing to 6°C		Comments:
Chain of Custody Present:	ØYes □No □N	I/A 1.
Chain of Custody Filled Out:		VA 2.
Chain of Custody Relinquished:	XYes INO IN	I/A 3.
Sampler Name & Signature on COC:	TYes No DA	/A 4
Samples Arrived within Hold Time:		/A 5.
Short Hold Time Analysis (<72hr):		/A 6.
Rush Turn Around Time Requested:	□Yes ©No □N	/A 7.
Sufficient Volume:	Yas No DN	/A 8.
Correct Containers Used:	XYes No No	/A 9,
-Pace Containers Used:	□Yes ØNo □N	/Α
Containers Intact:	XYes ONO ON	/A 10.
Filtered volume received for Dissolved tests	DYes DNo D	/A 11.
Sample Labels match COC:	XYes DNo DN	/A 12.
-Includes date/time/ID/Analysis Matrix:	~+	
All containers needing preservation have been checked.	Yes DNo DN	1A 13. Sample #2 Added 3 ml HW03 @ 1735 3-ATT
All containers needing preservation are found to be in compliance with EPA recommendation.	TYES NO DA	IA SRA
exceptions: VOA, collform, TOC, O&G, Phenois	□Yes)©No	completed SPA Lot # of added DL/5 -0/62
Samples checked for dechlorination:	□Yes □No DIN	/A 14.
Headspace in VOA Vials (>6mm):		/A 15.
Trip Blank Present:		/A 16.
Trip Blank Custody Seals Present	□Yes □No QN	
Pace Trip Blank Lot # (if purchased):		¥
Client Notification/ Resolution:		Field Data Required? Y / N
Person Contacted	Dat	e/Time:
Comments/ Resolution:		
Project Manager Review:	Serio	Date: 30015
Note: Whenever there is a discrepancy affecting North Ca (i.e. out of hold, incorrect preservative, out of temp, incorr	arolina compliance s rect containers)	amples, a copy of this form will be sent to the North Carolina DEHNR Certification Office

J:\QAQC\Master\Document Management\Sample Mgt\SCURF\FALLC003-09 SCUR Front 3Mardb201519 of 20

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	Other											
T	Other			ñ				1				
	20lqiZ						•					
	Cubitainer (500 ml / 4L)											
	Radchem Naigene (1/2 gal. / 1 gal.L)	1										
14	Radohem Nalgene (125 / 250 / 500 AL)	3						_				
6Ž	Wipes / swipe/ smaar/ filter											
t Name	Bacteria (120 ml)											
Clien	(Im 002) ebiliu2	-			-		~					
	(Im 032) əbinayO											
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	Dissolved Metals preserved Y N											
	sist∋M isto⊺											
	(Im 035) XOT											
	TOC (40 ml / 250 ml)											
	Phenolics (250 ml)											
	Nutrient (250 / 500)									×		
	Organics (1L)											3
	Chemistry (250 / 500 / 1L)											
	Soil kit (2 SB, 1M, soil jar)											
	Glass Jar (120 / 250 / 500 / 1L)				0							×
	Batrix Code	+3	-+									
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page 2

- Face Analytical

Page 20 of 20

301433

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CHAIN OF CUST	DDY RE	C	ORD	v10-	0114	DN	use LY	CLIE	ENT IC	<u>_MA</u>	R07	1		DATE		SHEET
$ \rightarrow $			Clie	ent: Marsh	Coorgo Co	ter for	Enviro	nmenta	al, Geo	stechnic	al and A	opplied S	ciences	PO#	4 000 EAE	6
V AAAA R	EIC		Cor	dress One	e John Mar	shal	l Dri	ive	VOI	e	_ c	ity Hu	Inting	Phone 30	4-696-545 	o VV _{Zip} 25755
Research Environmental & Industr MAIN LABORATORY & CORPORA P.O. Box 286 • 225 Industrial Park F 800-999-0105 • 304-255-2500 • ·	ial Consultants, TE HEADQUAF Rd, Beaver, WV 25: www.reiclabs.cor	Inc. TERS	Bill Site	ing Address (i EID & State	f different) leadowfil Landflißrk	City	WWTP	Proj	ect ID	Drill	Cutt	ing/L	eacha	State te Analysis	2 S	lip ampler J McGe
MID-OHIO VALLEY Service Center Service Center 101 17th Street Ashland, KY 41101 606-393-5027 S40-248-	DOAH enter Rd., Ste 201 30 24482 0183	RO Serv 29-C P Roanol 540-	ANOKE ice Center eters Creek Rd ke, VA 24019 777-1276	MORGANT Service Ce 16 Commerc Westover, WV 304-241-5	TOWN enter Drive V 26501 5861		See A	ttach	ment		0					
SAMPLE LOO	G & ANAL	YSI	S REQUES	т	THOD			1	1	as	Ker	toinc	\$:	ph	TEMP	Cons.
TURNAROUND TIME NORMAL *Rush work needs prior lab	RU O 5 DAY poratory approval	3 DA	URNAROUND* W O 2 DAY	1 DAY charges	NALYSIS & ME	Succession of				•	• •			s.nu	10.8	1,110
SAMPLE ID	No. & Type of Containers	Sa	mpling Date/Time	Matrix	Sample Comp/Grab	^a 0	^a 1	2	3 1	5 10	a a) N	ISC Sa	mpling Fee ER PRESERVATI	3 HLS	
1-Meadowfill LF	20	1210	line entre	Water	Grab	×			5			×	0 N 1 H	one lydrochloric Acid	6 50 7 As	corbic Acid
2-Bridgeport WWTP Effluent	23		1020	Water	Grab	X			1	X		\cap	2 N 3 S	litric Acid ulfuric Acid	8 So 9 An	dium Bisulfate/Meth monium Chloride
Trip Blank	1			Water	Grab	X							4 S 5 S	odium Thiosulfate odium Hydroxide/	10 _	AS/AH
				Choose	Choose								S	odium Arsenite * (Use blan	11	is not listed.)
				Choose	Choose								co	MMENTS:		
				Choose	Choose								Dis	solved Me	tals are F	Field Filtere
				Choose	Choose								6			
				Choose	Choose											
11				Choose	Choose											
All analytical requests are subject to REIC	's Standard Term	s and (Conditions.	Temperat	ture at arrival:	1	۰C	ICE	D?	Y	-	<u>ا</u>	Cont	tainers provide	d by: [-]1	REIC []Client
Relinguistantar forseture:	7 12	700	2 Relinquished t	y (signature)				D	ate/Tim	e	3	singuishe	d by (signa	ture)		Date/Time
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www.ammara.com

WVDEP Drill Cutting / Leachate Analysis List Aluminum Antimony Arsenic Barium Beryllium Boron Cadmium Chromium Hexavalent Chromium Copper Lead Lithium Mercury Nickel Selenium Silver Strontium Vanadium Zinc Chloride Fluoride Nitrate as Nitrogen Nitrite as Nitrogen Sulfate **Total Suspended Solids** Free Cyanide Benzene Chlorobenzene

Chlorodibromomethane

18.

PI / OF] www.ammara.com

1,2-Dichlorobenzene

1,3-Dichlorobenzene

1,4-Dichlorobenzene

1,4-Dinitrobenzene

1,4-Naphthoquinone

2,4-Dinitrotoluene

2,6-Dinitrotoluene

4-Nitroquinoline-1-oxide

bis(2-ethylhexyl) phthalate

Butyl benzylphthalate

Di-N-Butyl Phthalate

Di-N-Octylphthalate Diethyl Phthalate

Dimethyl Phthalate

Flouranthene

Nitrobenzene

Pentachloronitrobenzene

Gross Alpha

Gross Beta

Radium 226

Radium 228

Strontium 90

Radon

pH

Total Dissolved Solids

Total Suspended Solids

BOD 5-Day

Ammonia as Nitrogen

Total Kjeldahl Nitrogen

Oil & Grease

Acidity to pH 8.3

ps 2 or 3 www.ammara.com

Specific Conductance

Alkalinity to pH 4.5

Chemical Oxygen Demand

Dissolved Iron and Iron

Manganese and Dissolved Manganese

ps Jor J www.ammara.com

DBPix Evaluation

REI Consultants, Inc.

FIELD LOG: pH Calibration Records 6-2010.Rev.1

Client Name: 🖊	Arshme	UNIVOLITY	Site Location:	MERDONALLE - BLIDGEDONT WWDD
Date:	2/1/14		Analyst:	t
Calibration Location:	ield /	Laboratory	Instrument:	Oakton pH Meter
4.0 Buffer Lot #: _	D085-12	(
7.0 Buffer Lot #:	D115-04			
10.0 Buffer Lot #:	D112-08	•		

Marine Contraction	pH (SU) - SM4500-H+B, 18th Edition											
Standard	Initial Reading	Reading After Calibration	Temperature °C	Comments								
4.0 Buffer	405	4.01	20.5									
7.0 Buffer	7.02	7.01	1									
10.0 Buffer	10.03	10.01	-									

Slope: 97.5

Comments:

Calibration at the laboratory requires a pH 7.0 QC Check

All field pH analysis must be followed by a Post Analysis pH Check

Quality Control Samples	Reading	Acceptance Range:
QC Check, 7.0	6.95	
Post Analysis QC Check, 7.0	7.00	True value ± 0.1 (6.9 - 7.1)



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

Thursday, December 18, 2014

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

TEL: (304) 696-6042 FAX:

RE: DRILL CUTTING/LEACHATE ANALYSIS Work Order #: 1412A31 Dear GEORGE CARICO:

REI Consultants, Inc. received 3 sample(s) on 12/8/2014 for the analyses presented in the following report.

Kathy Berry

Kathy Berry



Client: MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,

Project: DRILL CUTTING/LEACHATE ANALYSIS

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

2,4-Dinitrotoluene

WO#: 1412A31

Date Reported: 12/18/2014

Analysis	Result MDI POI	MCI Qual Unit	S Date Analyzed NELAP
Client Sample ID:	1-MEADOWFILL LF	Site ID:	MEADOWFILL LANDFILL/BRIDGEPORT WWTP
Lab ID:	1412A31-01A	Matrix:	Liquid
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	12/8/2014
Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	12/8/2014 9:10:00 AM

Analysis	Result		FQL	WICL	Quai	Units		
METALS BY ICP			Method: (1994)	EPA 200).7 Rev.	4.4	Analyst: CGW	
Aluminum	0.007	0.005	0.100	NA	J	mg/L	12/10/2014 5:47 PM	PA/VA
Antimony	ND	0.020	0.200	NA		mg/L	12/10/2014 5:47 PM	PA/VA
Arsenic	ND	0.020	0.200	NA		mg/L	12/10/2014 5:47 PM	PA/VA
Barium	0.681	0.002	0.100	NA		mg/L	12/10/2014 5:47 PM	PA/VA
Beryllium	ND	0.001	0.010	NA		mg/L	12/10/2014 5:47 PM	PA/VA
Boron	3.24	0.020	0.100	NA		mg/L	12/10/2014 5:47 PM	PA/VA
Cadmium	ND	0.001	0.020	NA		mg/L	12/10/2014 5:47 PM	PA/VA
Chromium	ND	0.005	0.100	NA		mg/L	12/10/2014 5:47 PM	PA/VA
Copper	ND	0.005	0.100	NA		mg/L	12/10/2014 5:47 PM	PA/VA
Iron	1.67	0.010	0.100	NA		mg/L	12/10/2014 5:47 PM	PA/VA
Lead	ND	0.010	0.200	NA		mg/L	12/10/2014 5:47 PM	PA/VA
Lithium	0.461	0.020	0.100	NA		mg/L	12/10/2014 11:31 AM	
Manganese	12.2	0.002	0.100	NA		mg/L	12/10/2014 5:47 PM	PA/VA
Nickel	0.011	0.005	0.100	NA	J	mg/L	12/10/2014 5:47 PM	PA/VA
Selenium	ND	0.020	0.200	NA		mg/L	12/10/2014 5:47 PM	PA/VA
Silver	ND	0.004	0.050	NA		mg/L	12/10/2014 5:47 PM	PA/VA
Strontium	16.0	0.010	0.100	NA		mg/L	12/10/2014 11:34 AM	PA
Vanadium	0.048	0.005	0.100	NA	J	mg/L	12/10/2014 5:47 PM	PA/VA
Zinc	ND	0.003	0.050	NA		mg/L	12/10/2014 5:47 PM	PA/VA
MERCURY, Total E245.1			Method: 3.0 (1994	EPA 245 4)	5.1, Rev	' -	Analyst: CR	
Mercury	ND	0.0001	0.0010	NA		mg/L	12/10/2014 12:13 PM	PA/VA
SEMIVOLATILE ORGANIC COMPO	UNDS		Method:	SW8270	D (2007	7)	Analyst: JD	
1,4-Dinitrobenzene	ND	NA	0.0108	NA		mg/L	12/12/2014 12:07 AM	
1,4-Napthoquinone	ND	NA	0.0108	NA		mg/L	12/12/2014 12:07 AM	
4-Nitroquinoline-1-oxide	ND	NA	0.0539	NA		mg/L	12/12/2014 10:29 PM	
Pentachloronitrobenzene	ND	NA	0.0108	NA		mg/L	12/12/2014 12:07 AM	
Bis(2-ethylhexyl)phthalate	ND	0.0054	0.0108	NA		mg/L	12/12/2014 12:07 AM	PA/VA
Butyl benzyl phthalate	ND	0.0054	0.0108	NA		mg/L	12/12/2014 12:07 AM	PA/VA
Di-n-butyl phthalate	ND	0.0054	0.0108	NA		mg/L	12/12/2014 12:07 AM	PA/VA
Diethyl phthalate	ND	0.0022	0.0108	NA		mg/L	12/12/2014 12:07 AM	PA/VA
Dimethyl phthalate	ND	0.0022	0.0108	NA		mg/L	12/12/2014 12:07 AM	PA/VA

ND 0.0022

0.0108

NA

mg/L

12/12/2014 12:07 AM PA/VA

WO#: 1412A31

Date Reported: 12/18/2014

12/12/2014 12:07 AM

%REC

Client: Project: Lab ID: Client Sample ID:	MARSHALL UNIVERSITY ENVIRONMENTAL, DRILL CUTTING/LEACH/ 1412A31-01A 1-MEADOWFILL LF	NVERSITY CENTER FOR TAL, G/LEACHATE ANALYSIS L LF			lection Date: e Received: rix: e ID:	12/8/2014 9:10:00 AM 12/8/2014 Liquid MEADOWFILL LANDFILL/BRIDGEPORT WWTP	
Analysis	Result	MDL	PQL	MCL	Qual Units	S Date Analyzed I	NELAP
2,6-Dinitrotoluene	ND	0.0022	0.0108	NA	mg/L	12/12/2014 12:07 AM	PA/VA
Di-n-octyl phthalate	ND	0.0054	0.0108	NA	mg/L	12/12/2014 12:07 AM	PA/VA
Fluoranthene	ND	0.0022	0.0108	NA	mg/L	12/12/2014 12:07 AM	PA/VA
Nitrobenzene	ND	0.0022	0.0108	NA	mg/L	12/12/2014 12:07 AM	PA/VA
Surr: 2-Fluorophenol	37.0	NA	32.9-110	NA	%RE	C 12/12/2014 12:07 AM	
Surr: Phenol-d5	28.9	NA	25.8-110	NA	%RE	C 12/12/2014 12:07 AM	
Surr: 2,4,6-Tribromopher	nol 73.1	NA	63.8-110	NA	%RE	C 12/12/2014 12:07 AM	
Surr: Nitrobenzene-d5	68.1	NA	61.8-110	NA	%RE	C 12/12/2014 12:07 AM	
Surr: 2-Fluorobiphenyl	63.6	NA	58.6-110	NA	%RE	C 12/12/2014 12:07 AM	

72.3 NA

VOLATILE ORGANIC COMPOUNDS-		Method: S	W8260E	3 (1996)	Analyst: TC		
Benzene	3.06	0.500	1.00	NA	μg/L	12/11/2014 2:27 PM	PA/VA
Chlorobenzene	1.83	0.500	1.00	NA	µg/L	12/11/2014 2:27 PM	PA/VA
Dibromochloromethane	ND	0.500	1.00	NA	µg/L	12/11/2014 2:27 PM	PA/VA
1,2-Dichlorobenzene	ND	0.500	1.00	NA	µg/L	12/11/2014 2:27 PM	PA/VA
1,3-Dichlorobenzene	ND	0.500	1.00	NA	µg/L	12/11/2014 2:27 PM	PA/VA
1,4-Dichlorobenzene	11.1	5.00	10.0	NA	µg/L	12/11/2014 5:18 AM	PA/VA
Surr: 1,2-Dichloroethane-d4	104	NA	68.7-129	NA	%REC	12/11/2014 5:18 AM	
Surr: 4-Bromofluorobenzene	101	NA	71.8-127	NA	%REC	12/11/2014 5:18 AM	
Surr: Dibromofluoromethane	97.1	NA	74.3-124	NA	%REC	12/11/2014 5:18 AM	
Surr: Toluene-d8	101	NA	71.4-129	NA	%REC	12/11/2014 5:18 AM	
BOD, 5 Day, 20°C			Method: S	M5210 E	3-2001	Analyst: CB	
Biochemical Oxygen Demand	285	2	5	NA	mg/L	12/9/2014 12:57 PM	PA/VA
Chemical Oxygen Demand			Method: E	PA 410.	4, Rev. 2	Analyst: SF	

55.1-110

NA

enemioar exygen bemana	(1993)			. 4	, maijen ei			
Chemical Oxygen Demand	335	40	100	NA		mg/L	12/9/2014 7:45 AM	PA/VA
HEXAVALENT CHROMIUM BY IC			Method: E 3.3 (1994)	EPA 218	8.6, Rev		Analyst: CF	
Chromium (VI)	ND	0.0001	0.0010	NA	н	mg/L	12/10/2014 11:21 AM	PA/VA

Notes:

Surr: 4-Terphenyl-d14

Sample acidity or alkalinity exceeded the added preservative, so that the required preservation pH was not achieved.

WO#: 1412A31

Date Reported: 12/18/2014

Client:	MARSHALL UNIVERSITY ENVIRONMENTAL,	CENTE	R FOR	Collection Date:			12/8/2014 9:10:00 AM			
Project:	DRILL CUTTING/LEACHA	TE ANA	ALYSIS	Date Received:			12/8/2014			
Lab ID:	1412A31-01A	1412A31-01A					Liquid			
Client Sample ID:	1-MEADOWFILL LF			Site	e ID:		MEADOWFILL LANDFILL/BRIDGEPORT WWTP			
Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP		
ANIONS by ION C	HROMATOGRAPHY		Method: (1993)	EPA 30	0.0, Re	v.2.1	Analyst: CF			
Chloride	6,100	50.0	500	NA		mg/L	12/9/2014 9:39 AM	PA/VA		
Fluoride	2.75	1.25	5.00	NA	J	mg/L	12/9/2014 9:39 AM	PA/VA		
Sulfate	690	25.0	125	NA		mg/L	12/9/2014 9:39 AM	PA/VA		
Notes:										
Elevated PQLs are du	e to matrix interference.									

ANIONS by ION CHROMATOGRAPHY-48 HOUR			Method: E (1993)	EPA 300	.0, Rev.2.1	Analyst: CF	
Nitrogen, Nitrate	ND	0.02	0.10	NA	mg/L	12/9/2014 9:39 AM	PA/VA
Nitrogen, Nitrite	ND	1.25	12.5	NA	mg/L	12/9/2014 9:39 AM	PA/VA

Notes:

Elevated PQLs are due to matrix interference.

TOTAL KJELDAHL NITROGEN (T	Method: 2.0 (1993)	EPA 351.2)	Analyst: JH				
Nitrogen, Kjeldahl, Total	9.04	0.20	1.00	NA	mg/L	12/10/2014 9:30 AM	PA/VA
OIL and GREASE			Method:	EPA 1664	Rev. A	Analyst: KS	
Oil & Grease	ND	2.0	5.0	NA	mg/L	12/9/2014 9:10 AM	PA/VA
CYANIDE, Free			Method:	SM4500-C	N I-1997	Analyst: JH	
Cyanide, Free	ND	0.005	0.020	NA	mg/L	12/10/2014 2:15 PM	
AMMONIA NITROGEN			Method: (1993)	EPA 350.1	, Rev.2.	Analyst: JH	
Nitrogen, Ammonia (As N)	0.72	0.04	0.10	NA	mg/L	12/9/2014 4:58 PM	PA/VA
CONDUCTIVITY			Method:	SM2510 B	- 1997	Analyst: CC	
Specific Conductivity	23,400	NA	NA	NA	µmhos/cm	12/9/2014 4:30 PM	PA/VA
TOTAL DISSOLVED SOLIDS			Method:	SM2540 C	-1997	Analyst: CC	
Total Dissolved Solids	15,400	10	20	NA	mg/L	12/9/2014 4:58 PM	PA/VA
TOTAL SUSPENDED SOLIDS			Method:	SM2540 D	-1997	Analyst: CC	
Total Suspended Solids	26.0	4.0	20.0	NA	mg/L	12/9/2014 4:59 PM	PA/VA

Date Reported: 12/18/2014

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	12/8/2014 9:10:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	12/8/2014
Lab ID:	1412A31-01A	Matrix:	Liquid
Client Sample ID:	1-MEADOWFILL LF	Site ID:	MEADOWFILL LANDFILL/BRIDGEPORT WWTP

Analysis	Result	MDL	PQL	MCL	Qual Units	Date Analyzed N	ELAP
ACIDITY			Method:	SM2310	B-1997	Analyst: DSD	
Acidity, Total	232	1.0	10	NA	mg/L	12/9/2014 10:07 AM	PA/VA
ALKALINITY			Method:	SM2320	B-1997	Analyst: DSD	
Alkalinity, Total (As CaCO3)	755	2.0	20.0	NA	mg/L	12/9/2014 10:07 AM	PA/VA
pH - LAB TEST, HOLD TIME EXPIR	RED		Method:	SM4500-	H+-B-2000	Analyst: DSD	
рН	6.83	NA	NA	NA	SU	12/9/2014 10:07 AM	PA

WO#: 1412A31

Date Reported: 12/18/2014

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	12/8/2014 9:10:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	12/8/2014
Lab ID:	1412A31-01B	Matrix:	Liquid
Client Sample ID:	1-MEADOWFILL LF	Site ID:	MEADOWFILL LANDFILL/BRIDGEPORT WWTP

Analysis	Result	MDL	PQL	MCL	Qual Units	Date Analyzed N	ELAP
DISSOLVED METALS BY ICP			Method: (1994)	EPA 200	0.7 Rev. 4.4	Analyst: CGW	
Iron	0.217	0.010	0.100	NA	mg/L	12/10/2014 5:53 PM	PA/VA
Manganese	12.2	0.002	0.100	NA	mg/L	12/10/2014 5:53 PM	PA/VA

WO#: 1412A31

Date Reported: 12/18/2014

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	12/8/2014 10:20:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	12/8/2014
Lab ID:	1412A31-02A	Matrix:	Liquid
Client Sample ID:	2-BRIDGEPORT WWTP EFFLUENT	Site ID:	MEADOWFILL LANDFILL/BRIDGEPORT WWTP

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
METALS BY ICP			Method: E (1994)	PA 200).7 Rev	. 4.4	Analyst: CGW	
Aluminum	0.025	0.005	0.100	NA	J	mg/L	12/10/2014 6:03 PM	PA/VA
Antimony	0.033	0.020	0.200	NA	J	mg/L	12/10/2014 6:03 PM	PA/VA
Arsenic	ND	0.020	0.200	NA		mg/L	12/10/2014 6:03 PM	PA/VA
Barium	0.047	0.002	0.100	NA	J	mg/L	12/10/2014 6:03 PM	PA/VA
Beryllium	ND	0.001	0.010	NA		mg/L	12/10/2014 6:03 PM	PA/VA
Boron	0.256	0.020	0.100	NA		mg/L	12/10/2014 6:03 PM	PA/VA
Cadmium	ND	0.001	0.020	NA		mg/L	12/10/2014 6:03 PM	PA/VA
Chromium	ND	0.005	0.100	NA		mg/L	12/10/2014 6:03 PM	PA/VA
Copper	ND	0.005	0.100	NA		mg/L	12/10/2014 6:03 PM	PA/VA
Iron	0.095	0.010	0.100	NA	J	mg/L	12/10/2014 6:03 PM	PA/VA
Lead	ND	0.010	0.200	NA		mg/L	12/10/2014 6:03 PM	PA/VA
Lithium	ND	0.020	0.100	NA		mg/L	12/10/2014 11:37 AM	
Manganese	0.015	0.002	0.100	NA	J	mg/L	12/12/2014 11:36 AM	PA/VA
Nickel	ND	0.005	0.100	NA		mg/L	12/10/2014 6:03 PM	PA/VA
Selenium	ND	0.020	0.200	NA		mg/L	12/10/2014 6:03 PM	PA/VA
Silver	ND	0.004	0.050	NA		mg/L	12/10/2014 6:03 PM	PA/VA
Strontium	0.249	0.001	0.010	NA		mg/L	12/10/2014 11:37 AM	PA
Vanadium	ND	0.005	0.100	NA		mg/L	12/10/2014 6:03 PM	PA/VA
Zinc	0.029	0.003	0.050	NA	J	mg/L	12/10/2014 6:03 PM	PA/VA
MERCURY, Total E245.1			Method: E 3.0 (1994)	PA 24	5.1, Rev	/.	Analyst: CR	
Mercury	ND	0.0001	0.0010	NA		mg/L	12/11/2014 4:26 PM	PA/VA
SEMIVOLATILE ORGANIC COMF	OUNDS		Method: S	W8270	D (200)	7)	Analyst: JD	
1,4-Dinitrobenzene	ND	NA	0.0104	NA		ma/L	12/12/2014 12:33 AM	
1,4-Napthoquinone	ND	NA	0.0104	NA		ma/L	12/12/2014 12:33 AM	
4-Nitroquinoline-1-oxide	ND	NA	0.0518	NA		mg/L	12/12/2014 10:53 PM	
Pentachloronitrobenzene	ND	NA	0.0104	NA		mg/L	12/12/2014 12:33 AM	
Bis(2-ethylhexyl)phthalate	ND	0.0052	0.0104	NA		mg/L	12/12/2014 12:33 AM	PA/VA
Butyl benzyl phthalate	ND	0.0052	0.0104	NA		mg/L	12/12/2014 12:33 AM	PA/VA

ND 0.0052

ND 0.0021

ND 0.0021

ND 0.0021

Di-n-butyl phthalate

Diethyl phthalate

Dimethyl phthalate

2,4-Dinitrotoluene

NA

NA

NA

NA

0.0104

0.0104

0.0104

0.0104

mg/L

mg/L

mg/L

mg/L

12/12/2014 12:33 AM PA/VA

12/12/2014 12:33 AM PA/VA

12/12/2014 12:33 AM PA/VA

12/12/2014 12:33 AM PA/VA

WO#: 1412A31

Date Reported: 12/18/2014

								Date Reported: 12/	18/2014	
Client:	MARSHALL ENVIRONME	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,					Date:	12/8/2014 10:20:00 AM		
Project:	DRILL CUTT	ING/LEACHA	TE ANA	LYSIS	Dat	e Receiv	ved:	12/8/2014		
Lab ID:	1412A31-02/	4			Mat	rix:		Liquid		
Client Sample ID:	2-BRIDGEP0	2-BRIDGEPORT WWTP EFFLUENT			Site) ID:		MEADOWFILL LANDFILL/BRIDGEPOF WWTP	۲۲	
Analysis		Result	MDL	PQL	MCL	Qual	Units	Date Analyzed I	NELAP	
2,6-Dinitrotoluene		ND	0.0021	0.0104	NA		mg/L	12/12/2014 12:33 AM	PA/VA	
Di-n-octyl phthalate		ND	0.0052	0.0104	NA		mg/L	12/12/2014 12:33 AM	PA/VA	
Fluoranthene		ND	0.0021	0.0104	NA		mg/L	12/12/2014 12:33 AM	PA/VA	
Nitrobenzene		ND	0.0021	0.0104	NA		mg/L	12/12/2014 12:33 AM	PA/VA	
Surr: 2-Fluorophenol		33.3	NA	32.9-110	NA		%REC	; 12/12/2014 12:33 AM		
Surr: Phenol-d5		24.8	NA	25.8-110	NA	S	%REC	; 12/12/2014 12:33 AM		
Surr: 2,4,6-Tribromopl	nenol	67.1	NA	63.8-110	NA		%REC	; 12/12/2014 12:33 AM		
Surr: Nitrobenzene-d5		61.4	NA	61.8-110	NA	S	%REC	; 12/12/2014 12:33 AM		
Surr: 2-Fluorobipheny	I	62.2	NA	58.6-110	NA		%REC	; 12/12/2014 12:33 AM		
Surr: 4-Terphenyl-d14		70.1	NA	55.1-110	NA		%REC	; 12/12/2014 12:33 AM		
VOLATILE ORGAN		NDS-8260		Method: S	SW8260)B (199	6)	Analyst: JM	1	
Benzene		ND	0.500	1.00	NA		ug/l	12/11/2014 5·51 AM	PA/VA	

Benzene	ND	0.500	1.00	NA	µg/L	12/11/2014 5:51 AM	PA/VA
Chlorobenzene	ND	0.500	1.00	NA	µg/L	12/11/2014 5:51 AM	PA/VA
Dibromochloromethane	ND	0.500	1.00	NA	µg/L	12/11/2014 5:51 AM	PA/VA
1,2-Dichlorobenzene	ND	0.500	1.00	NA	µg/L	12/11/2014 5:51 AM	PA/VA
1,3-Dichlorobenzene	ND	0.500	1.00	NA	µg/L	12/11/2014 5:51 AM	PA/VA
1,4-Dichlorobenzene	ND	0.500	1.00	NA	µg/L	12/11/2014 5:51 AM	PA/VA
Surr: 1,2-Dichloroethane-d4	107	NA	68.7-129	NA	%REC	12/11/2014 5:51 AM	
Surr: 4-Bromofluorobenzene	97.9	NA	71.8-127	NA	%REC	12/11/2014 5:51 AM	
Surr: Dibromofluoromethane	100	NA	74.3-124	NA	%REC	12/11/2014 5:51 AM	
Surr: Toluene-d8	98.8	NA	71.4-129	NA	%REC	12/11/2014 5:51 AM	

BOD, 5 Day, 20°C			Method: S	M5210	B-2001		Analyst: CB	
Biochemical Oxygen Demand	3	2	5	NA	J	mg/L	12/9/2014 12:57 PM	PA/VA
Chemical Oxygen Demand			Method: E (1993)	PA 410).4, Rev	. 2	Analyst: SF	
Chemical Oxygen Demand	33	4	10	NA		mg/L	12/9/2014 7:45 AM	PA/VA
HEXAVALENT CHROMIUM BY IC			Method: E 3.3 (1994)	PA 218	8.6, Rev	.	Analyst: CF	
Chromium (VI)	ND	0.0001	0.0010	NA		mg/L	12/10/2014 11:34 AM	PA/VA
ANIONS by ION CHROMATOGRAPHY			Method: E (1993)	PA 300).0, Rev	.2.1	Analyst: CF	
Chloride	127	2.50	25.0	NA		mg/L	12/9/2014 9:57 AM	PA/VA

0.20 NA J

0.12 0.05

Fluoride

Page 9 of 13

mg/L

12/9/2014 9:57 AM PA/VA

WO#: 1412A31

Date Reported: 12/18/2014

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	12/8/2014 10:20:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	12/8/2014
Lab ID:	1412A31-02A	Matrix:	Liquid
Client Sample ID:	2-BRIDGEPORT WWTP EFFLUENT	Site ID:	MEADOWFILL LANDFILL/BRIDGEPORT WWTP

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
Sulfate	78.9	1.00	5.00	NA		mg/L	12/9/2014 9:57 AM	PA/VA
ANIONS by ION CHROMATOGRAP	PHY-48 H0	OUR	Method: (1993)	EPA 300	0.0, Rev	/.2.1	Analyst: CF	
Nitrogen, Nitrate	16.5	0.50	2.50	NA		mg/L	12/9/2014 9:57 AM	PA/VA
Nitrogen, Nitrite	ND	0.05	0.50	NA		mg/L	12/9/2014 9:57 AM	PA/VA
TOTAL KJELDAHL NITROGEN (TK	(N)		Method: 2.0 (1993	EPA 35 ⁻)	1.2, Rev	<i>ı</i> .	Analyst: JH	
Nitrogen, Kjeldahl, Total	3.28	0.20	1.00	NA		mg/L	12/10/2014 9:31 AM	PA/VA
OIL and GREASE			Method:	EPA 160	64 Rev	. A	Analyst: KS	
Oil & Grease	ND	2.0	5.0	NA		mg/L	12/9/2014 9:10 AM	PA/VA
CYANIDE, Free			Method:	SM4500	-CN I-1	997	Analyst: JH	
Cyanide, Free	ND	0.005	0.020	NA		mg/L	12/10/2014 2:18 PM	
AMMONIA NITROGEN			Method: (1993)	EPA 350	0.1, Rev	/.2.	Analyst: JH	
Nitrogen, Ammonia (As N)	ND	0.04	0.10	NA		mg/L	12/10/2014 5:47 PM	PA/VA
CONDUCTIVITY			Method:	SM2510	B - 199	97	Analyst: CC	
Specific Conductivity	976	NA	NA	NA		µmhos/cm	12/9/2014 4:30 PM	PA/VA
TOTAL DISSOLVED SOLIDS			Method:	SM2540	C-1997	7	Analyst: CC	
Total Dissolved Solids	522	5	10	NA		mg/L	12/9/2014 4:58 PM	PA/VA
TOTAL SUSPENDED SOLIDS			Method:	SM2540	D-1997	7	Analyst: CC	
Total Suspended Solids	9.0	2.0	10	NA	J	mg/L	12/9/2014 4:59 PM	PA/VA
ACIDITY			Method:	SM2310	B-1997	7	Analyst: DSD	
Acidity, Total	8.1	1.0	10	NA	J	mg/L	12/9/2014 10:07 AM	PA/VA
ALKALINITY			Method:	SM2320	B-1997	7	Analyst: DSD	
Alkalinity, Total (As CaCO3)	60.4	1.0	10	NA		mg/L	12/9/2014 10:07 AM	PA/VA

Page 10 of 13

Date Reported: 12/18/2014

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	12/8/2014 10:20:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	12/8/2014
Lab ID:	1412A31-02A	Matrix:	Liquid
Client Sample ID:	2-BRIDGEPORT WWTP EFFLUENT	Site ID:	MEADOWFILL LANDFILL/BRIDGEPORT WWTP

Analysis	Result	MDL	PQL	MCL Q	Qual Units	Date Analyzed NE	LAP
pH - LAB TEST, HOLD TIME EXPI	RED		Method:	SM4500-H-	+-B-2000	Analyst: DSD	
рН	6.84	NA	NA	NA	SU	12/9/2014 10:07 AM	PA

Date Reported: 12/18/2014

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	12/8/2014 10:20:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	12/8/2014
Lab ID:	1412A31-02B	Matrix:	Liquid
Client Sample ID:	2-BRIDGEPORT WWTP EFFLUENT	Site ID:	MEADOWFILL LANDFILL/BRIDGEPORT WWTP

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed NELAP	
DISSOLVED METALS BY ICP			Method: (1994)	EPA 200).7 Rev	v. 4.4	Analyst: CGW	
Iron	0.055	0.010	0.100	NA	J	mg/L	12/10/2014 6:09 PM	PA/VA
Manganese	0.009	0.002	0.100	NA	J	mg/L	12/12/2014 11:40 AM	PA/VA

Page 12 of 13
Date Reported: 12/18/2014

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	12/8/2014 12:00:00 AM
Project:	DRILL CUTTING/LEACHATE ANALYSIS	Date Received:	12/8/2014
Lab ID:	1412A31-03A	Matrix:	Trip Blank
Client Sample ID:	TRIP BLANK	Site ID:	MEADOWFILL LANDFILL/BRIDGEPORT WWTP

Analysis	Result	MDL	PQL	MCL	Qual Units	Date Analyzed N	ELAP
VOLATILE ORGANIC COMPOUNDS-8260			Method: SW8260B (1996))B (1996)	Analyst: JM	
Benzene	ND	0.500	1.00	NA	μg/L	12/11/2014 6:24 AM	PA/VA
Chlorobenzene	ND	0.500	1.00	NA	µg/L	12/11/2014 6:24 AM	PA/VA
Dibromochloromethane	ND	0.500	1.00	NA	µg/L	12/11/2014 6:24 AM	PA/VA
1,2-Dichlorobenzene	ND	0.500	1.00	NA	µg/L	12/11/2014 6:24 AM	PA/VA
1,3-Dichlorobenzene	ND	0.500	1.00	NA	µg/L	12/11/2014 6:24 AM	PA/VA
1,4-Dichlorobenzene	ND	0.500	1.00	NA	µg/L	12/11/2014 6:24 AM	PA/VA
Surr: 1,2-Dichloroethane-d4	104	NA	68.7-129	NA	%REC	12/11/2014 6:24 AM	
Surr: 4-Bromofluorobenzene	98.2	NA	71.8-127	NA	%REC	12/11/2014 6:24 AM	
Surr: Dibromofluoromethane	102	NA	74.3-124	NA	%REC	12/11/2014 6:24 AM	
Surr: Toluene-d8	99.2	NA	71.4-129	NA	%REC	12/11/2014 6:24 AM	



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

Tuesday, December 30, 2014

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

TEL: (304) 696-6042 FAX:

RE: DRILL CUTTING.LEACHATE ANALYSIS Work Order #: 1412A33 Dear GEORGE CARICO:

REI Consultants, Inc. received 2 sample(s) on 12/8/2014 for the analyses presented in the following report.

Kathy Berry

Kathy Berry



Client: MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,

Project: DRILL CUTTING.LEACHATE ANALYSIS

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#: 1412A33

Date Reported: 12/30/2014

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	12/8/2014 9:10:00 AM
Project:	DRILL CUTTING.LEACHATE ANALYSIS	Date Received:	12/8/2014
Lab ID:	1412A33-01A	Matrix:	Liquid
Client Sample ID:	1-MEADOWFILL LF	Site ID:	MEADOWFILL LANDFILL/BRIDGEPORT WWTP

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		

Date Reported: 12/30/2014

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	12/8/2014 10:20:00 AM
Project:	DRILL CUTTING.LEACHATE ANALYSIS	Date Received:	12/8/2014
Lab ID:	1412A33-02A	Matrix:	Liquid
Client Sample ID:	2-BRIDGEPORT WWTP EFFLUENT	Site ID:	MEADOWFILL LANDFILL/BRIDGEPORT WWTP

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		



Pace Analytical Services, Inc. 1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

December 24, 2014

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

RE: Project: 1412A33 Pace Project No.: 30136235

Dear Ms. Berry:

Enclosed are the analytical results for sample(s) received by the laboratory on December 10, 2014. 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,

Carino a. Ferrio

Carin Ferris carin.ferris@pacelabs.com Project Manager

Enclosures





Pace Analytical Services, Inc. 1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

CERTIFICATIONS

 Project:
 1412A33

 Pace Project No.:
 30136235

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-042 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



SAMPLE SUMMARY

 Project:
 1412A33

 Pace Project No.:
 30136235

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30136235001	1412A33-01A	Water	12/08/14 10:00	12/10/14 09:50
30136235002	1412A33-02A	Water	12/08/14 10:20	12/10/14 09:50



SAMPLE ANALYTE COUNT

 Project:
 1412A33

 Pace Project No.:
 30136235

Lab ID	Sample ID	Method	Analysts	Analytes Reported
30136235001	–	SM 7110C	FCC	1
		SM 7500Rn-B	FCC	1
		EPA 900.0	FCC	1
	EPA 903.1	JC2	1	
		EPA 904.0	JAL	1
		ASTM D5811-95	LAL	1
30136235002	1412A33-02A	SM 7500Rn-B	FCC	1
		EPA 900.0	FCC	2
		EPA 903.1	JC2	1
		EPA 904.0	JAL	1
		ASTM D5811-95	LAL	1



 Project:
 1412A33

 Pace Project No.:
 30136235

Method: SM 7110C

Description:7110C Gross AlphaClient:REI Consultants, Inc.Date:December 24, 2014

General Information:

1 sample was analyzed for SM 7110C. 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:

Sample Comments:

- Sample 30136235001 from this analytical project was analyzed outside of the recommended Radon-222 hold time of four days. Results reported are decay corrected to the sample collection date and time supplied by the client.
 - 1412A33-01A (Lab ID: 30136235001)



 Project:
 1412A33

 Pace Project No.:
 30136235

Method:	SM 7500Rn-B
Description:	7500RnB Radon
Client:	REI Consultants, Inc
Date:	December 24, 2014

General Information:

2 samples were analyzed for SM 7500Rn-B. 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:

Sample Comments:

- Sample 30136235001 from this analytical project was analyzed outside of the recommended Radon-222 hold time of four days. Results reported are decay corrected to the sample collection date and time supplied by the client.
 - 1412A33-01A (Lab ID: 30136235001)

Sample 30136235002 from this analytical project was analyzed outside of the recommended Radon-222 hold time of four days. Results reported are decay corrected to the sample collection date and time supplied by the client.

• 1412A33-02A (Lab ID: 30136235002)



 Project:
 1412A33

 Pace Project No.:
 30136235

EPA 900.0
900.0 Gross Alpha/Beta
REI Consultants, Inc.
December 24, 2014

General Information:

2 samples were 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:

Sample Comments:

- Sample 30136235001 from this analytical project was analyzed outside of the recommended Radon-222 hold time of four days. Results reported are decay corrected to the sample collection date and time supplied by the client.
 - 1412A33-01A (Lab ID: 30136235001)

Sample 30136235002 from this analytical project was analyzed outside of the recommended Radon-222 hold time of four days. Results reported are decay corrected to the sample collection date and time supplied by the client.

• 1412A33-02A (Lab ID: 30136235002)



 Project:
 1412A33

 Pace Project No.:
 30136235

Method:EPA 903.1Description:903.1 Radium 226Client:REI Consultants, Inc.Date:December 24, 2014

General Information:

2 samples were analyzed for EPA 903.1. 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:

Sample Comments:

- Sample 30136235001 from this analytical project was analyzed outside of the recommended Radon-222 hold time of four days. Results reported are decay corrected to the sample collection date and time supplied by the client.
 - 1412A33-01A (Lab ID: 30136235001)

Sample 30136235002 from this analytical project was analyzed outside of the recommended Radon-222 hold time of four days. Results reported are decay corrected to the sample collection date and time supplied by the client.

• 1412A33-02A (Lab ID: 30136235002)



 Project:
 1412A33

 Pace Project No.:
 30136235

Method:	EPA 904.0
Description:	904.0 Radium 228
Client:	REI Consultants, Inc.
Date:	December 24, 2014

General Information:

2 samples were analyzed for EPA 904.0. 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:

Sample Comments:

- Sample 30136235001 from this analytical project was analyzed outside of the recommended Radon-222 hold time of four days. Results reported are decay corrected to the sample collection date and time supplied by the client.
 - 1412A33-01A (Lab ID: 30136235001)

Sample 30136235002 from this analytical project was analyzed outside of the recommended Radon-222 hold time of four days. Results reported are decay corrected to the sample collection date and time supplied by the client.

• 1412A33-02A (Lab ID: 30136235002)



 Project:
 1412A33

 Pace Project No.:
 30136235

Method: ASTM D5811-95

Description:905.0 Strontium 89/90 EichromClient:REI Consultants, Inc.Date:December 24, 2014

General Information:

2 samples were 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:

Sample Comments:

- Sample 30136235001 from this analytical project was analyzed outside of the recommended Radon-222 hold time of four days. Results reported are decay corrected to the sample collection date and time supplied by the client. • 1412A33-01A (Lab ID: 30136235001)
- Sample 30136235002 from this analytical project was analyzed outside of the recommended Radon-222 hold time of four days. Results reported are decay corrected to the sample collection date and time supplied by the client. • 1412A33-02A (Lab ID: 30136235002)

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



ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 1412A33

Pace Project No.: 30136235

Sample: 1412A33-01A PWS:	Lab ID: 30136 Site ID:	235001 Collected: 12/08/14 10:0 Sample Type:	0 Received:	12/10/14 09:50 N	latrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Gross Alpha	SM 7110C	5.36 ± 2.21 (2.86) C:NA T:NA	pCi/L	12/23/14 13:45	12587-46-1	
Radon	SM 7500Rn-B	38.7 ± 47.4 (78.6) C:NA T:NA	pCi/L	12/16/14 17:16	10043-92-2	
Gross Beta	EPA 900.0	136 ± 73.2 (120) C:NA T:NA	pCi/L	12/18/14 19:57	12587-47-2	
Radium-226	EPA 903.1	3.23 ± 2.14 (0.973) C:NA T:78%	pCi/L	12/19/14 11:47	13982-63-3	
Radium-228	EPA 904.0	1.41 ± 1.34 (2.66) C:75% T:84%	pCi/L	12/23/14 15:04	15262-20-1	
Strontium-90	ASTM D5811-95	0.775 ± 0.617 (1.05) C:95% T:NA	pCi/L	12/16/14 19:05	10098-97-2	

Sample: 1412A33-02A PWS:	Lab ID: 30136 Site ID:	2235002 Collected: 12/08/14 10:2 Sample Type:	20 Received:	12/10/14 09:50 N	latrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radon	SM 7500Rn-B	27.1 ± 47.2 (79.3) C:NA T:NA	pCi/L	12/16/14 18:50	10043-92-2	
Gross Alpha	EPA 900.0	0.156 ± 1.40 (2.99) C:NA T:NA	pCi/L	12/19/14 22:18	12587-46-1	
Gross Beta	EPA 900.0	5.38 ± 1.63 (2.07) C:NA T:NA	pCi/L	12/19/14 22:18	12587-47-2	
Radium-226	EPA 903.1	1.67 ± 1.72 (0.906) C:NA T:85%	pCi/L	12/19/14 12:10	13982-63-3	
Radium-228	EPA 904.0	0.381 ± 0.389 (0.787) C:80% T:74%	pCi/L	12/23/14 15:04	15262-20-1	
Strontium-90	ASTM D5811-95	0.0520 ± 0.429 (0.775) C:96% T:NA	pCi/L	12/16/14 19:05	10098-97-2	



Project:	1412A33						
Pace Project No.:	30136235						
QC Batch:	RADC/22542		Analysis Method:	ASTM D581	1-95		
QC Batch Method:	ASTM D5811-95		Analysis Descriptior	n: 905.0 Stron	tium 89/90 Eichrom		
Associated Lab San	nples: 30136235	001, 301362350	02				
METHOD BLANK:	828711		Matrix: Water				
Associated Lab San	nples: 30136235	001, 301362350	02				
Paran	neter	Act ± U	nc (MDC) Carr Trac	Units	Analyzed	Qualifiers	
Strontium-90		-0.375 ± 0.377	(1.08) C:98% T:NA	pCi/L	12/15/14 06:50		

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.

REPORT OF LABORATORY ANALYSIS

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Project:	1412A33						
Pace Project No.:	30136235						
QC Batch:	RADC/22525		Analysis Method:	SM 7500Rn-	В		
QC Batch Method:	SM 7500Rn-B		Analysis Description	n: 7500Rn B Ra	adon		
Associated Lab San	nples: 30136235	001, 3013623	35002				
METHOD BLANK:	828072		Matrix: Water				
Associated Lab San	nples: 30136235	001, 3013623	35002				
Paran	neter	Act :	± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers	
Radon		-17.7 ± 18.3	(33.1) C:NA T:NA	pCi/L	12/15/14 18:45		-

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:	1412A33						
Pace Project No.:	30136235						
QC Batch:	RADC/22538		Analysis Method:	EPA 904.0			
QC Batch Method:	EPA 904.0		Analysis Description	: 904.0 Radiu	m 228		
Associated Lab San	nples: 30136235	001, 301362350	02				
METHOD BLANK:	828707		Matrix: Water				
Associated Lab San	nples: 30136235	001, 301362350	02				
Paran	neter	Act ± U	nc (MDC) Carr Trac	Units	Analyzed	Qualifiers	
Radium-228		0.0489 ± 0.355	(0.789) C:72% T:80%	pCi/L	12/23/14 15:04		

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:	1412A33						
Pace Project No.:	30136235						
QC Batch:	RADC/22582		Analysis Method:	EPA 903.1			
QC Batch Method:	EPA 903.1		Analysis Description	n: 903.1 Radiu	m-226		
Associated Lab Sar	nples: 30136235	001, 301362350	002				
METHOD BLANK:	830301		Matrix: Water				
Associated Lab Sar	nples: 30136235	001, 301362350	002				
Parar	neter	Act ± l	Jnc (MDC) Carr Trac	Units	Analyzed	Qualifiers	
Radium-226		0.522 ± 0.569	(0.896) C:NA T:100%	pCi/L	12/19/14 11:59		

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:	1412A33							
Pace Project No.:	30136235							
QC Batch:	RADC/22696	Analysis Method:	SM 7110C					
QC Batch Method:	SM 7110C	Analysis Descripti	on: 7110C Gros	Gross Alpha				
Associated Lab Sar	mples: 30136235	001						
METHOD BLANK:	834521	Matrix: Wat	er					
Associated Lab Sar	mples: 30136235	001						
Parar	meter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers			
Gross Alpha		0.669 ± 0.692 (1.27) C:NA T:NA	pCi/L	12/24/14 07:05				

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:	1412A33						
Pace Project No.:	30136235						
QC Batch:	RADC/22646		Analysis Method:	EPA 900.0			
QC Batch Method:	EPA 900.0		Analysis Description	on: 900.0 Gross	s Alpha/Beta		
Associated Lab Sar	mples: 3013623	5001, 30136235002					
METHOD BLANK:	832578		Matrix: Wate	er			
Associated Lab Sa	mples: 3013623	5001, 30136235002					
Para	meter	Act ± Unc	(MDC) Carr Trac	Units	Analyzed	Qualifiers	
Gross Alpha		-0.173 ± 0.290 (0	.898) C:NA T:NA	pCi/L	12/19/14 07:37		
Gross Beta		0.507 ± 0.631 (1.1	35) C:NA T:NA	pCi/L	12/19/14 07:37		

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:
 1412A33

 Pace Project No.:
 30136235

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.



San	anle Cond	lition	Upon Receipt
			30136235
Pace Analytical Client Name:	KEEd	-	Project #
Courier: □ Fed Ex [및 UPS □ USPS □ Clien Tracking #: <u>1276X 73136048</u> 048	t Comme	ercial	Pace Other
Custody Seal on Cooler/Box Present:	🕅 no	Seals	intact: 🗌 yes 🔲 no Biological Tissue is Frozen: Yes No
Packing Material: Bubble Wrap <u>X</u> Bubble Bage	s None	(Other
Thermometer Used MAType	of Ice: Wet	Blue	Samples on ice, cooling process has begun
Cooler Temp.: Observed Temp.:°C Co	rrection Fact	or:	C Final Temp:°C
Temp should be above freezing to 6°C			Comments:
Chain of Custody Present:	Yes DNo	□n/A	1
Chain of Custody Filled Out:	Kyes □No	□n/A	2.
Chain of Custody Relinquished:	Xres 🗆 No	□n/A	3.
Sampler Name & Signature on COC	🗆 Yes 🕅 No	□n/A	4. waver on the publicy
Samples Arrived within Hold Time:	Yes 🗆 No	N/A	5.
Short Hold Time Analysis (<72hr): SA 12-10 t	Y Yes No	□n/A	6,
Rush Turn Around Time Requested:	□Yes 🕅 No	□n/A	7,
Sufficient Volume:	l≸lYes ⊡No	□n/A	8.
Correct Containers Used:	XYes □No	□n/A	9,
-Pace Containers Used:	□Yes DNo	□n/A	
Containers Intact:	Yes INO	□n/A	10.
Filtered volume received for Dissolved tests	□Yes □No		11,
Sample Labels match COC:	XYes □No	□n/A	12.
-Includes date/time/ID/Analysis Matrix:	<u> </u>		
All containers needing preservation have been checked.	Xyes □No	□n/A	13. PH17
All containers needing preservation are found to be in compliance with EPA recommendation.	Øiyes ⊡No	□n/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	🗆 Yes 🅅 No		completed SRA Lot # of added preservative
Samples checked for dechlorination:	□Yes □No		14.
Headspace in VOA Vials (>6mm):	□Yes □No		15.
Trip Blank Present:	🗆 Yes 🛱 No	□n/A	16.
Trip Blank Custody Seals Present	□Yes □No	XN/A	
Pace Trip Blank Lot # (if purchased):	4		
Client Notification/ Resolution: Person Contacted: Comments/ Resolution:		_Date/	Field Data Required? Y / N
	6		
Project Manager Review:	5 C	eri	Date: <u>Date:</u>

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)

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Image: Start Code Image: Start Code Image: Start Code Solar Start Code <t< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th>Other</th></t<>										Other
Image: Second		-						-	M	Other radon
Image: Second	+									Ziploc
Image: Second										Cubitainer (500 ml / 4L)
Image: Second	2 2									Radchem Naigene (۱/۲ gal. / ۲ gal.L)
Image: Second			v.					-1	M	Radchem Walgene (125 / 250 / 500 / 11)
Image: Second										Vipes / swipe/ smear/ آالفر
Image: Solution of the set of the s									-	Bacteria (120 ml)
Image: Second										(Im 003) əbifiluS
Amarix Code Amarix Code Image: Solution of the state of the solution of the state of the solution of the solut										(Im 052) əbinsyO
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Image: Second										(1г) нат
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Image: Second				2						Dissolved Metals preserved Y N
Image: Second	0									Total Metals
Image: Second										(Im 055) XOT
Image: Second										TOC (40 ml / 250 ml)
Matrix Code Soil kit (2 SB, 1M, soil jar) Organics (1L) Organics (1L)										Phenolics (250 ml)
Matrix Code Soil Kit (2 SB, 1M, soil jat) Soil Kit (2 SB, 1M, soil jat) Soil Kit (2 SB, 1M, soil jat)										Nutrient (250 / 500)
Matrix Code Soil Kit (2 SB, 1M, soil jar) Soil Kit (2 SB, 1M, soil jar)										Organics (1L)
Altrix Code Altrix Code Soil Kit (2 SB, 1M, soil jar) Soil Kit (2 SB, 1M, soil jar)										Chemistry (250 / 500 / 1L)
Class Jar (120 / 250 / 500 / 1L)										Soil kit (2 SB, 1M, soil jar)
eboo xitem 2 4				*						Glass Jar (120 / 250 / 500 / 1L)
									3	eboJ xitisM
- C C Item No.	age 21 o	Pag						200	00	ltem No.

page 2

Project Number: 30136235

Client Name:___

Pace Analytical

CHAIN OF CUST	ODY RE	CORD	v10-	0114	REIC u ONL	rvironm	LIENT I		IAR()71 nd Appled	DATESciences PO #	SHEET			
	-	C.	ntact Percen	George Ca	arico/.	Jamie	e Wol	fe			Phone 304-696-5456				
V I IIII R	EIC	Ad	dress One	John Ma	rshall	Drive)		_	City_H	luntington State W	V _{Zip} 25755			
Research Environmental & Indus MAIN LABORATORY & CORPOR P.O. Box 286 + 225 Industrial Parl	trial Consultants, I ATE HEADQUAR k Rd, Beaver, WV 258	rens: 13 Sit	ling Address (if e ID & State <u>P</u>	(different)	City_	P	roject l	D Di	rill C	utting/l	State Zij Leachate Analysis Sa	npler J McGee			
800-999-0105 - 304-255-2500 MID-OHIO VALLEY SHENAI Service Center Service 101 17th Street 1557 Commer Ashland, KY 41101 Verona, V 606-393-5027 540-24	- www.reiclabs.com NDOAH Center ce Rd., Ste 201 302 (A 24482 R 8-0183	ROANOKE Service Center 19-C Peters Creek Rd oanoke, VA 24019 540-777-1276	MORGANT Service Ce 16 Commerce Westover, WV 304-241-5	OWN inter e Drive / 26501 i861	S	ee Atta	ichmen	ıt			Field Readings: pH Temp	Cond			
SAMPLE LO	G & ANAL	SIS REQUES	т	1							6.05 10.2	1572			
TURNAROUND TIME NORMAL *Rush work needs prior	RU S DAY	SH TURNAROUND* 3 DAY 2 DAY and will incur additiona	O 1 DAY		N & CICLIANA					۲,	6.56 19.3 6.56 20 6.20 10 MSC Sampling Fee- 7 Hr.c	1 25,100			
SAMPLE ID	No. & Type of Containers	Sampling Date/Time	Matrix	Sample Comp/Gra	ь ^с О	0 1 02 0 0	2 3	5	10	4 8 0 0 0	ENTER PRESERVATIVE CODE(S): 0 None 6 Sod	um Hydroxide			
1-Parkersburg POTW	20	The e ost	Water	Grab	X			X			1 Hydrochloric Acid 7 Aso	rbic Acid um Bisulfate/Metha			
2-Northwestern LF	20	1 0941	Water	Grab	Grab	Grab	Grab	X				X		3 Sulfuric Acid 9 Am	nonium Chloride
3-Meadowfill LF	20	1100	Water	Grab	X						X	4 Sodium Thiosulfate 10 A 5 Sodium Hydroxide/	S/AH		
4-Bridgeport POTW	23	1240	Water	Grab	X					X	Sodium Arsenite 11 * (Use blanks for preservatives	not listed.)			
Trip Blank	1		Water	Grab	X			1		X	COMMENTS:				
			Choose	Choose				12.5	1		Dissolved Metals are F	ield Filtered			
			Choose	Choose											
			Choose	Choose						1					
			Choose	Choose											
All analytical requests are subject to Ri	EIC's Standard Term	s and Conditions.	Tempera	ture at arriv	al:	۰C	ICED?	γ	-	N	Containers provided by:	EIC [] Client			
Retinquisting (by langeature)	3-1	16-15 2 160 Relinquishe	d by (signature)				Date/	Dime		3 Relinqu	shed by (signature)	Date/Time			
Received by (significate)	3	1111400 Received by	y (signature)				Date/	Ime	1	Receive	d by (signature)	Date/Trire			

DBPix Evaluation

REI Consultants, Inc.

FIELD LOG: pH Calibration Records 6-2010.Rev.1

Client Name:	MARGARE UNIV.	Site Location: Lr / Porw's
Date:	3/10/15	Analyst:
Calibration Location:	Field / Laboratory	Instrument: Oakton pH Meter
4.0 Buffer Lot #:	0085-14	
7.0 Buffer Lot #:	0119.04	
10.0 Buffer Lot #:	0112-08	

pH (SU) - SM4500-H+B, 18th Edition									
Standard	Initial Reading	Reading After Calibration	Temperature °C	Comments					
4.0 Buffer	4.03	4.01	20.0						
7.0 Buffer	7.00	7.00	1						
10.0 Buffer	9.95	10.01							

Slope: 96.7%

Comments:

Calibration at the laboratory requires a pH 7.0 QC Check

All field pH analysis must be followed by a Post Analysis pH Check

Quality Control Samples	Reading	Acceptance Range:
QC Check, 7.0	7.01	$T_{rus} V_{alus} + 0.1 (6.9 - 7.1)$
Post Analysis QC Check, 7.0	6.94	The value ± 0.1 (0.9 - 7.1)

REI Consultants, Inc. P.O. Box 286 Beaver, WV 25813 Phone: 800-999-0105 Fax: 304-255-2572 www.reiclabs.com



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

Tuesday, March 31, 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/ LEACHATE ANALYSIS Work Order #: 1503I23 Dear GEORGE CARICO:

REI Consultants, Inc. received 5 sample(s) on 3/16/2015 for the analyses presented in the following report.

Sincerely,

Kathy Berry

Kathy Berry



Client: MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE

Project: DRILL CUTTING/ LEACHATE ANALYSIS

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#: 1503I23

Date Reported: 3/31/2015

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/16/2015 8:55:00 AM
Project:	DRILL CUTTING/ LEACHATE ANALYSIS	Date Received:	3/16/2015
Lab ID:	1503I23-01A	Matrix:	Liquid
Client Sample ID:	1- PARKERSBURG POTW	Site ID:	PHASE 2

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
METALS BY ICP			Method: (1994)	EPA 20	0.7 Rev	. 4.4	Analyst: JD	
Aluminum	0.221	0.006	0.100	NA		mg/L	3/25/2015 10:20 PM	PA/VA
Antimony	ND	0.040	0.200	NA		mg/L	3/28/2015 12:34 PM	PA/VA
Arsenic	ND	0.020	0.200	NA		mg/L	3/25/2015 10:20 PM	PA/VA
Barium	0.044	0.002	0.100	NA	J	mg/L	3/25/2015 10:20 PM	PA/VA
Beryllium	ND	0.001	0.010	NA		mg/L	3/25/2015 10:20 PM	PA/VA
Boron	0.082	0.035	0.100	NA	J	mg/L	3/25/2015 10:20 PM	PA/VA
Cadmium	ND	0.001	0.020	NA		mg/L	3/25/2015 10:20 PM	PA/VA
Chromium	ND	0.005	0.100	NA		mg/L	3/25/2015 10:20 PM	PA/VA
Copper	0.010	0.005	0.100	NA	J	mg/L	3/25/2015 10:20 PM	PA/VA
Iron	0.497	0.010	0.100	NA		mg/L	3/25/2015 10:20 PM	PA/VA
Lead	ND	0.010	0.200	NA		mg/L	3/25/2015 10:20 PM	PA/VA
Lithium	ND	0.020	0.100	NA		mg/L	3/25/2015 2:19 PM	
Manganese	0.156	0.002	0.100	NA		mg/L	3/25/2015 10:20 PM	PA/VA
Nickel	ND	0.005	0.100	NA		mg/L	3/28/2015 12:34 PM	PA/VA
Selenium	ND	0.020	0.200	NA		mg/L	3/25/2015 10:20 PM	PA/VA
Silver	ND	0.004	0.050	NA		mg/L	3/25/2015 10:20 PM	PA/VA
Strontium	0.182	0.001	0.010	NA		mg/L	3/25/2015 2:19 PM	PA
Vanadium	ND	0.005	0.100	NA		mg/L	3/25/2015 10:20 PM	PA/VA
Zinc	0.021	0.003	0.050	NA	J	mg/L	3/25/2015 10:20 PM	PA/VA
MERCURY, Total E245.1			Method: 3.0 (1994	EPA 24:	5.1, Rev	<i>י</i> .	Analyst: CR	
Mercury	ND	0.0001	0.0010	NA		mg/L	3/18/2015 11:17 AM	PA/VA
SEMIVOLATILE ORGANIC COM	POUNDS		Method:	SW8270	D (2007	7)	Analyst: JD	
1,4-Dinitrobenzene	ND	NA	0.0105	NA		ma/L	3/19/2015 6:39 PM	
1.4-Napthoquinone	ND	NA	0.0105	NA		ma/l	3/19/2015 6:39 PM	

	ND	1.1/1	0.0100	1.17.1	mg/L	3/13/2013 0.331 10	
1,4-Napthoquinone	ND	NA	0.0105	NA	mg/L	3/19/2015 6:39 PM	
4-Nitroquinoline-1-oxide	ND	NA	0.0524	NA	mg/L	3/19/2015 6:39 PM	
Pentachloronitrobenzene	ND	NA	0.0105	NA	mg/L	3/19/2015 6:39 PM	
Bis(2-ethylhexyl)phthalate	ND	0.0052	0.0105	NA	mg/L	3/19/2015 6:39 PM	PA/VA
Butyl benzyl phthalate	ND	0.0052	0.0105	NA	mg/L	3/19/2015 6:39 PM	PA/VA
Di-n-butyl phthalate	ND	0.0052	0.0105	NA	mg/L	3/19/2015 6:39 PM	PA/VA
Diethyl phthalate	ND	0.0021	0.0105	NA	mg/L	3/19/2015 6:39 PM	PA/VA
Dimethyl phthalate	ND	0.0021	0.0105	NA	mg/L	3/19/2015 6:39 PM	PA/VA
2,4-Dinitrotoluene	ND	0.0021	0.0105	NA	mg/L	3/19/2015 6:39 PM	PA/VA
2,6-Dinitrotoluene	ND	0.0021	0.0105	NA	mg/L	3/19/2015 6:39 PM	PA/VA

Fluoride

Sulfate

Date Reported: 3/31/2015

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/16/2015 8:55:00 AM
Project:	DRILL CUTTING/ LEACHATE ANALYSIS	Date Received:	3/16/2015
Lab ID:	1503I23-01A	Matrix:	Liquid
Client Sample ID:	1- PARKERSBURG POTW	Site ID:	PHASE 2

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
Di-n-octyl phthalate	ND	0.0052	0.0105	NA		mg/L	3/19/2015 6:39 PM	PA/VA
Fluoranthene	ND	0.0021	0.0105	NA		mg/L	3/19/2015 6:39 PM	PA/VA
Nitrobenzene	ND	0.0021	0.0105	NA		mg/L	3/19/2015 6:39 PM	PA/VA
Surr: 2-Fluorophenol	41.7	NA	32.9-110	NA		%REC	3/19/2015 6:39 PM	
Surr: Phenol-d5	30.4	NA	25.8-110	NA		%REC	3/19/2015 6:39 PM	
Surr: 2,4,6-Tribromophenol	76.8	NA	63.8-110	NA		%REC	3/19/2015 6:39 PM	
Surr: Nitrobenzene-d5	80.9	NA	61.8-110	NA		%REC	3/19/2015 6:39 PM	
Surr: 2-Fluorobiphenyl	82.4	NA	58.6-110	NA		%REC	3/19/2015 6:39 PM	
Surr: 4-Terphenyl-d14	78.9	NA	55.1-110	NA		%REC	3/19/2015 6:39 PM	
VOLATILE ORGANIC COMPOUNDS	-8260		Method:	SW8260	B (1996	5)	Analyst: JM	
Benzene	ND	0.500	1.00	NA		µg/L	3/27/2015 5:28 PM	PA/VA
Chlorobenzene	ND	0.500	1.00	NA		µg/L	3/27/2015 5:28 PM	PA/VA
Dibromochloromethane	ND	0.500	1.00	NA		µg/L	3/27/2015 5:28 PM	PA/VA
1,2-Dichlorobenzene	ND	0.500	1.00	NA		μg/L	3/27/2015 5:28 PM	PA/VA
1,3-Dichlorobenzene	ND	0.500	1.00	NA		µg/L	3/27/2015 5:28 PM	PA/VA
1,4-Dichlorobenzene	ND	0.500	1.00	NA		µg/L	3/27/2015 5:28 PM	PA/VA
Surr: 1,2-Dichloroethane-d4	108	NA	68.7-129	NA		%REC	3/27/2015 5:28 PM	
Surr: 4-Bromofluorobenzene	110	NA	71.8-127	NA		%REC	3/27/2015 5:28 PM	
Surr: Dibromofluoromethane	96.3	NA	74.3-124	NA		%REC	3/27/2015 5:28 PM	
Surr: Toluene-d8	89.9	NA	71.4-129	NA		%REC	3/27/2015 5:28 PM	
BOD, 5 Day, 20°C			Method:	SM5210	B-2001		Analyst: VR	
Biochemical Oxygen Demand	7	2	5	NA		mg/L	3/17/2015 1:20 PM	PA/VA
Chemical Oxygen Demand			Method: I (1993)	EPA 410).4, Rev	. 2	Analyst: SF	
Chemical Oxygen Demand	24	4	10	NA		mg/L	3/17/2015 8:09 AM	PA/VA
HEXAVALENT CHROMIUM BY IC			Method: I 3.3 (1994)	EPA 218	3.6, Rev	-	Analyst: CF	
Chromium (VI)	ND	0.0003	0.0010	NA		mg/L	3/18/2015 11:44 AM	PA/VA
ANIONS by ION CHROMATOGRAPH	łΥ		Method: I (1993)	EPA 300).0, Rev	.2.1	Analyst: CF	
Chloride	75.0	0.50	5.00	NA		mg/L	3/17/2015 9:07 AM	PA/VA

0.05

5.00

0.14

39.8

0.20

25.0

NA

NA

J

Page 4 of 21

mg/L

mg/L

3/17/2015 9:07 AM PA/VA

3/17/2015 9:07 AM PA/VA

Date Reported: 3/31/2015

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/16/2015 8:55:00 AM
Project:	DRILL CUTTING/ LEACHATE ANALYSIS	Date Received:	3/16/2015
Lab ID:	1503I23-01A	Matrix:	Liquid
Client Sample ID:	1- PARKERSBURG POTW	Site ID:	PHASE 2

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
ANIONS by ION CHROMATOGRAP	HY-48 HC	DUR	Method: (1993)	EPA 300.	0, Rev	/.2.1	Analyst: CF	
Nitrogen, Nitrate	5.50	0.10	0.50	NA		mg/L	3/17/2015 9:07 AM	PA/VA
Nitrogen, Nitrite	ND	0.05	0.50	NA		mg/L	3/17/2015 9:07 AM	PA/VA
TOTAL KJELDAHL NITROGEN (TK	N)		Method: 2.0 (1993	EPA 351. 3)	2, Rev	<i>ı</i> .	Analyst: JH	
Nitrogen, Kjeldahl, Total	1.15	0.10	0.50	NA		mg/L	3/19/2015 8:32 AM	PA/VA
OIL and GREASE			Method:	EPA 1664	Rev	. A	Analyst: CC	
Oil & Grease	2.0	2.0	5.0	NA	J	mg/L	3/25/2015 1:00 PM	PA/VA
CYANIDE, Free			Method:	SM4500-0	CN I-1	997	Analyst: JH	
Cyanide, Free	ND	0.005	0.020	NA		mg/L	3/17/2015 2:04 PM	
AMMONIA NITROGEN			Method: (1993)	EPA 350.	1, Rev	/.2.	Analyst: JH	
Nitrogen, Ammonia (As N)	ND	0.04	0.10	NA		mg/L	3/19/2015 4:55 PM	PA/VA
CONDUCTIVITY			Method:	SM2510 E	3 - 199	97	Analyst: KY	
Specific Conductivity	605	NA	NA	NA		µmhos/cm	3/17/2015 1:00 PM	PA/VA
TOTAL DISSOLVED SOLIDS			Method:	SM2540 (C-1997	7	Analyst: KY	
Total Dissolved Solids	307	5	10	NA		mg/L	3/18/2015 6:30 PM	PA/VA
TOTAL SUSPENDED SOLIDS			Method:	SM2540 [D-1997	7	Analyst: KY	
Total Suspended Solids	16.5	1.0	5.0	NA		mg/L	3/17/2015 5:53 PM	PA/VA
ACIDITY			Method:	SM2310 E	3-1997	7	Analyst: DSD	
Acidity, Total	19.0	1.0	10	NA		mg/L	3/17/2015 12:09 PM	PA/VA
ALKALINITY			Method:	SM2320 E	3-1997	7	Analyst: DSD	
Alkalinity, Total (As CaCO3)	70.8	1.0	10	NA		mg/L	3/17/2015 12:09 PM	PA/VA
pH - LAB TEST, HOLD TIME EXPIR	ED		Method:	SM4500-ł	·]+-Β-2	2000	Analyst: DSD	
рН	6.46	NA	NA	NA		SU	3/17/2015 12:09 PM	PA

Date Reported: 3/31/2015

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/16/2015 8:55:00 AM
Project:	DRILL CUTTING/ LEACHATE ANALYSIS	Date Received:	3/16/2015
Lab ID:	1503I23-01B	Matrix:	Liquid
Client Sample ID:	1- PARKERSBURG POTW	Site ID:	PHASE 2

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
DISSOLVED METALS BY ICP			Method: (1994)	EPA 20	0.7 Rev	. 4.4	Analyst: JD	
Iron	0.061	0.010	0.100	NA	J	mg/L	3/25/2015 10:23 PM	PA/VA
Manganese	0.005	0.002	0.100	NA	J	mg/L	3/25/2015 10:23 PM	PA/VA

Page 6 of 21

WO#: 1503I23

Date Reported: 3/31/2015

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/16/2015 9:45:00 AM
Project:	DRILL CUTTING/ LEACHATE ANALYSIS	Date Received:	3/16/2015
Lab ID:	1503I23-02A	Matrix:	Liquid
Client Sample ID:	2- NORTHWESTERN LF	Site ID:	PHASE 2

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	IELAP		
METALS BY ICP		Method: EPA 200.7 Rev. 4.4 (1994)						Analyst: JD		
Aluminum	0.018	0.006	0.100	NA	J	mg/L	3/25/2015 10:32 PM	PA/VA		
Antimony	ND	0.040	0.200	NA		mg/L	3/28/2015 12:37 PM	PA/VA		
Arsenic	0.423	0.020	0.200	NA		mg/L	3/25/2015 10:32 PM	PA/VA		
Barium	2.27	0.002	0.100	NA		mg/L	3/25/2015 10:32 PM	PA/VA		
Beryllium	ND	0.001	0.010	NA		mg/L	3/25/2015 10:32 PM	PA/VA		
Boron	23.9	0.035	0.100	NA		mg/L	3/25/2015 10:32 PM	PA/VA		
Cadmium	ND	0.001	0.020	NA		mg/L	3/25/2015 10:32 PM	PA/VA		
Chromium	0.011	0.005	0.100	NA	J	mg/L	3/25/2015 10:32 PM	PA/VA		
Copper	ND	0.005	0.100	NA		mg/L	3/25/2015 10:32 PM	PA/VA		
Iron	15.4	0.010	0.100	NA		mg/L	3/25/2015 10:32 PM	PA/VA		
Lead	ND	0.010	0.200	NA		mg/L	3/25/2015 10:32 PM	PA/VA		
Lithium	0.060	0.020	0.100	NA	J	mg/L	3/25/2015 2:22 PM			
Manganese	1.77	0.002	0.100	NA		mg/L	3/25/2015 10:32 PM	PA/VA		
Nickel	0.088	0.005	0.100	NA	J	mg/L	3/28/2015 12:37 PM	PA/VA		
Selenium	ND	0.020	0.200	NA		mg/L	3/25/2015 10:32 PM	PA/VA		
Silver	ND	0.004	0.050	NA		mg/L	3/25/2015 10:32 PM	PA/VA		
Strontium	4.37	0.001	0.010	NA		mg/L	3/25/2015 2:22 PM	PA		
Vanadium	0.011	0.005	0.100	NA	J	mg/L	3/25/2015 10:32 PM	PA/VA		
Zinc	0.004	0.003	0.050	NA	J	mg/L	3/25/2015 10:32 PM	PA/VA		
MERCURY, Total E245.1			Method: 3.0 (1994	EPA 24	5.1, Rev	<i>.</i>	Analyst: CR			
Mercury	ND	0.0001	0.0010	NA		mg/L	3/18/2015 11:24 AM	PA/VA		
SEMIVOLATILE ORGANIC CO	MPOUNDS		Method:	SW8270)D (200 [°]	7)	Analyst: JD			

					· · ·		
1,4-Dinitrobenzene	ND	NA	0.0102	NA	mg/L	3/19/2015 7:01 PM	
1,4-Napthoquinone	ND	NA	0.0102	NA	mg/L	3/19/2015 7:01 PM	
4-Nitroquinoline-1-oxide	ND	NA	0.0510	NA	mg/L	3/19/2015 7:01 PM	
Pentachloronitrobenzene	ND	NA	0.0102	NA	mg/L	3/19/2015 7:01 PM	
Bis(2-ethylhexyl)phthalate	ND	0.0051	0.0102	NA	mg/L	3/19/2015 7:01 PM	PA/VA
Butyl benzyl phthalate	ND	0.0051	0.0102	NA	mg/L	3/19/2015 7:01 PM	PA/VA
Di-n-butyl phthalate	ND	0.0051	0.0102	NA	mg/L	3/19/2015 7:01 PM	PA/VA
Diethyl phthalate	ND	0.0020	0.0102	NA	mg/L	3/19/2015 7:01 PM	PA/VA
Dimethyl phthalate	ND	0.0020	0.0102	NA	mg/L	3/19/2015 7:01 PM	PA/VA
2,4-Dinitrotoluene	ND	0.0020	0.0102	NA	mg/L	3/19/2015 7:01 PM	PA/VA
2,6-Dinitrotoluene	ND	0.0020	0.0102	NA	mg/L	3/19/2015 7:01 PM	PA/VA

Date Reported: 3/31/2015

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/16/2015 9:45:00 AM
Project:	DRILL CUTTING/ LEACHATE ANALYSIS	Date Received:	3/16/2015
Lab ID:	1503I23-02A	Matrix:	Liquid
Client Sample ID:	2- NORTHWESTERN LF	Site ID:	PHASE 2

Analysis	Result	MDL	PQL	MCL	Qual Units	Date Analyzed N	IELAP
Di-n-octyl phthalate	ND	0.0051	0.0102	NA	mg/L	3/19/2015 7:01 PM	PA/VA
Fluoranthene	ND	0.0020	0.0102	NA	mg/L	3/19/2015 7:01 PM	PA/VA
Nitrobenzene	ND	0.0020	0.0102	NA	mg/L	3/19/2015 7:01 PM	PA/VA
Surr: 2-Fluorophenol	43.0	NA	32.9-110	NA	%REC	3/19/2015 7:01 PM	
Surr: Phenol-d5	34.4	NA	25.8-110	NA	%REC	3/19/2015 7:01 PM	
Surr: 2,4,6-Tribromophenol	94.6	NA	63.8-110	NA	%REC	3/19/2015 7:01 PM	
Surr: Nitrobenzene-d5	94.1	NA	61.8-110	NA	%REC	3/19/2015 7:01 PM	
Surr: 2-Fluorobiphenyl	86.3	NA	58.6-110	NA	%REC	3/19/2015 7:01 PM	
Surr: 4-Terphenyl-d14	70.2	NA	55.1-110	NA	%REC	3/19/2015 7:01 PM	
VOLATILE ORGANIC COMPOUNDS-8260			Method: S	SW8260)B (1996)	Analyst: JM	
Benzene	3.05	0.500	1.00	NA	µg/L	3/30/2015 3:32 PM	PA/VA
Chlorobenzene	65.0	5.00	10.0	NA	µg/L	3/27/2015 6:02 PM	PA/VA
Dibromochloromethane	ND	0.500	1.00	NA	µg/L	3/30/2015 3:32 PM	PA/VA
1,2-Dichlorobenzene	ND	0.500	1.00	NA	µg/L	3/30/2015 3:32 PM	PA/VA
1,3-Dichlorobenzene	ND	0.500	1.00	NA	µg/L	3/30/2015 3:32 PM	PA/VA
1,4-Dichlorobenzene	6.52	0.500	1.00	NA	µg/L	3/30/2015 3:32 PM	PA/VA
Surr: 1,2-Dichloroethane-d4	114	NA	68.7-129	NA	%REC	3/30/2015 3:32 PM	
Surr: 4-Bromofluorobenzene	115	NA	71.8-127	NA	%REC	3/30/2015 3:32 PM	
Surr: Dibromofluoromethane	112	NA	74.3-124	NA	%REC	3/30/2015 3:32 PM	
Surr: Toluene-d8	74.5	NA	71.4-129	NA	%REC	3/30/2015 3:32 PM	
BOD, 5 Day, 20°C			Method: S	SM5210	B-2001	Analyst: VR	
Biochemical Oxygen Demand	ND	120	300	NA	mg/L	3/17/2015 1:20 PM	PA/VA
Notes:							
BOD PQL was elevated due to insufficient of	oxygen deple	etion in all	dilutions.				
Chemical Oxygen Demand			Method: E (1993)	EPA 410	0.4, Rev. 2	Analyst: SF	
Chemical Oxygen Demand	410	20	50	NA	mg/L	3/17/2015 8:09 AM	PA/VA
HEXAVALENT CHROMIUM BY IC			Method: E 3.3 (1994)	EPA 218	8.6, Rev.	Analyst: CF	
Chromium (VI)	ND	0.0003	0.0010	NA	mg/L	3/18/2015 11:57 AM	PA/VA

ANIONS by ION CHROMATOGRA	Method: (1993)	EPA 300.0), Rev.2.1	Analyst: CF			
Chloride	2,570	10.0	100	NA	mg/L	3/17/2015 9:27 AM	PA/VA
Fluoride	0.83	0.05	0.20	NA	mg/L	3/17/2015 9:27 AM	PA/VA
WO#: 1503I23

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/16/2015 9:45:00 AM
Project:	DRILL CUTTING/ LEACHATE ANALYSIS	Date Received:	3/16/2015
Lab ID:	1503I23-02A	Matrix:	Liquid
Client Sample ID:	2- NORTHWESTERN LF	Site ID:	PHASE 2

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
Sulfate	42.6	1.00	5.00	NA		mg/L	3/17/2015 9:27 AM	PA/VA
ANIONS by ION CHROMATOGR	APHY-48 H	DUR	Method: (1993)	EPA 30	0.0, Rev	/.2.1	Analyst: CF	
Nitrogen, Nitrate	ND	0.02	0.10	NA		mg/L	3/17/2015 9:27 AM	PA/VA
Nitrogen, Nitrite	ND	0.50	5.00	NA		mg/L	3/17/2015 9:27 AM	PA/VA
Notes:								
Elevated PQLs are due to matrix interference	ence.							
TOTAL KJELDAHL NITROGEN (TKN)		Method: 2.0 (1993	EPA 35 5)	1.2, Rev	Ι.	Analyst: JH	
Nitrogen, Kjeldahl, Total	233	8.00	40.0	NA		mg/L	3/20/2015 10:08 AM	PA/VA
OIL and GREASE			Method:	EPA 16	64 Rev	. A	Analyst: CC	
Oil & Grease	ND	2.0	5.0	NA		mg/L	3/25/2015 1:00 PM	PA/VA
Notes:								
Sample acidity or alkalinity exceeded the	added preserv	ative, so	that the requi	red preser	vation pH	was not ach	ieved.	
CYANIDE, Free			Method:	SM4500)-CN I-1	997	Analyst: JH	
Cyanide, Free	ND	0.005	0.020	NA		mg/L	3/17/2015 2:07 PM	
AMMONIA NITROGEN			Method: (1993)	EPA 35	0.1, Rev	<i>ı</i> .2.	Analyst: JH	
Nitrogen, Ammonia (As N)	233	6.40	16.0	NA		mg/L	3/19/2015 7:48 PM	PA/VA
CONDUCTIVITY			Method:	SM2510) B - 199	97	Analyst: KY	
Specific Conductivity	11,400	NA	NA	NA		µmhos/cm	3/17/2015 1:00 PM	PA/VA
TOTAL DISSOLVED SOLIDS			Method:	SM2540) C-1997	7	Analyst: KY	
Total Dissolved Solids	6,040	10	20	NA		mg/L	3/18/2015 6:30 PM	PA/VA
TOTAL SUSPENDED SOLIDS			Method:	SM2540) D-1997	7	Analyst: KY	
Total Suspended Solids	30.0	4.0	20.0	NA		mg/L	3/17/2015 5:53 PM	PA/VA
ACIDITY			Method:	SM2310) B-1997	7	Analyst: DSD	
Acidity, Total	413	1.0	10	NA		mg/L	3/17/2015 12:09 PM	PA/VA

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/16/2015 9:45:00 AM
Project:	DRILL CUTTING/ LEACHATE ANALYSIS	Date Received:	3/16/2015
Lab ID:	1503I23-02A	Matrix:	Liquid
Client Sample ID:	2- NORTHWESTERN LF	Site ID:	PHASE 2

Analysis	Result	MDL	PQL	MCL	Qual Units	Date Analyzed N	ELAP
ALKALINITY			Method:	SM2320	B-1997	Analyst: DSD	
Alkalinity, Total (As CaCO3)	1,530	4.0	40.0	NA	mg/L	3/17/2015 12:09 PM	PA/VA
pH - LAB TEST, HOLD TIME EXPI	RED		Method:	SM4500	-H+-B-2000	Analyst: DSD	
pH	6.96	NA	NA	NA	SU	3/17/2015 12:09 PM	PA

Date Reported: 3/31/2015

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/16/2015 9:45:00 AM
Project:	DRILL CUTTING/ LEACHATE ANALYSIS	Date Received:	3/16/2015
Lab ID:	1503I23-02B	Matrix:	Liquid
Client Sample ID:	2- NORTHWESTERN LF	Site ID:	PHASE 2

Analysis	Result	MDL	PQL	MCL	Qual Units	Date Analyzed N	ELAP
DISSOLVED METALS BY ICP			Method: (1994)	EPA 200	0.7 Rev. 4.4	Analyst: JD	
Iron	10.3	0.010	0.100	NA	mg/L	3/25/2015 10:35 PM	PA/VA
Manganese	1.50	0.002	0.100	NA	mg/L	3/25/2015 10:35 PM	PA/VA

Page 11 of 21

WO#: 1503I23

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/16/2015 11:50:00 AM
Project:	DRILL CUTTING/ LEACHATE ANALYSIS	Date Received:	3/16/2015
Lab ID:	1503I23-03A	Matrix:	Liquid
Client Sample ID:	3- MEADOWFILL LF	Site ID:	PHASE 2

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
METALS BY ICP			Method: E (1994)	PA 200).7 Rev.	4.4	Analyst: JD	
Aluminum	0.376	0.006	0.100	NA		mg/L	3/25/2015 10:38 PM	PA/VA
Antimony	ND	0.040	0.200	NA		mg/L	3/28/2015 12:40 PM	PA/VA
Arsenic	ND	0.020	0.200	NA		mg/L	3/25/2015 10:38 PM	PA/VA
Barium	0.612	0.002	0.100	NA		mg/L	3/25/2015 10:38 PM	PA/VA
Beryllium	ND	0.001	0.010	NA		mg/L	3/25/2015 10:38 PM	PA/VA
Boron	3.92	0.035	0.100	NA		mg/L	3/25/2015 10:38 PM	PA/VA
Cadmium	ND	0.001	0.020	NA		mg/L	3/25/2015 10:38 PM	PA/VA
Chromium	ND	0.005	0.100	NA		mg/L	3/25/2015 10:38 PM	PA/VA
Copper	ND	0.005	0.100	NA		mg/L	3/25/2015 10:38 PM	PA/VA
Iron	18.9	0.010	0.100	NA		mg/L	3/25/2015 10:38 PM	PA/VA
Lead	ND	0.010	0.200	NA		mg/L	3/25/2015 10:38 PM	PA/VA
Lithium	0.449	0.020	0.100	NA		mg/L	3/25/2015 2:25 PM	
Manganese	16.8	0.002	0.100	NA		mg/L	3/25/2015 10:38 PM	PA/VA
Nickel	0.010	0.005	0.100	NA	J	mg/L	3/28/2015 12:40 PM	PA/VA
Selenium	ND	0.020	0.200	NA		mg/L	3/25/2015 10:38 PM	PA/VA
Silver	ND	0.004	0.050	NA		mg/L	3/25/2015 10:38 PM	PA/VA
Strontium	9.51	0.001	0.010	NA		mg/L	3/25/2015 2:25 PM	PA
Vanadium	0.044	0.005	0.100	NA	J	mg/L	3/25/2015 10:38 PM	PA/VA
Zinc	0.007	0.003	0.050	NA	J	mg/L	3/25/2015 10:38 PM	PA/VA
MERCURY, Total E245.1			Method: E 3.0 (1994)	PA 245	5.1, Rev	-	Analyst: CR	
Mercury	ND	0.0001	0.0010	NA		mg/L	3/19/2015 12:07 PM	PA/VA

SEMIVOLATILE ORGANIC COMPOUN	DS		Method: S	W8270D	0 (2007)	Analyst: JD	
1,4-Dinitrobenzene	ND	NA	0.0106	NA	mg/L	3/19/2015 7:22 PM	
1,4-Napthoquinone	ND	NA	0.0106	NA	mg/L	3/19/2015 7:22 PM	
4-Nitroquinoline-1-oxide	ND	NA	0.0532	NA	mg/L	3/19/2015 7:22 PM	
Pentachloronitrobenzene	ND	NA	0.0106	NA	mg/L	3/19/2015 7:22 PM	
Bis(2-ethylhexyl)phthalate	ND	0.0053	0.0106	NA	mg/L	3/19/2015 7:22 PM	PA/VA
Butyl benzyl phthalate	ND	0.0053	0.0106	NA	mg/L	3/19/2015 7:22 PM	PA/VA
Di-n-butyl phthalate	ND	0.0053	0.0106	NA	mg/L	3/19/2015 7:22 PM	PA/VA
Diethyl phthalate	ND	0.0021	0.0106	NA	mg/L	3/19/2015 7:22 PM	PA/VA
Dimethyl phthalate	ND	0.0021	0.0106	NA	mg/L	3/19/2015 7:22 PM	PA/VA
2,4-Dinitrotoluene	ND	0.0021	0.0106	NA	mg/L	3/19/2015 7:22 PM	PA/VA
2,6-Dinitrotoluene	ND	0.0021	0.0106	NA	mg/L	3/19/2015 7:22 PM	PA/VA

Date Reported: 3/31/2015

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/16/2015 11:50:00 AM
Project:	DRILL CUTTING/ LEACHATE ANALYSIS	Date Received:	3/16/2015
Lab ID:	1503I23-03A	Matrix:	Liquid
Client Sample ID:	3- MEADOWFILL LF	Site ID:	PHASE 2

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	IELAP
Di-n-octyl phthalate	ND	0.0053	0.0106	NA		mg/L	3/19/2015 7:22 PM	PA/VA
Fluoranthene	ND	0.0021	0.0106	NA		mg/L	3/19/2015 7:22 PM	PA/VA
Nitrobenzene	ND	0.0021	0.0106	NA		mg/L	3/19/2015 7:22 PM	PA/VA
Surr: 2-Fluorophenol	42.9	NA	32.9-110	NA		%REC	3/19/2015 7:22 PM	
Surr: Phenol-d5	34.3	NA	25.8-110	NA		%REC	3/19/2015 7:22 PM	
Surr: 2,4,6-Tribromophenol	83.1	NA	63.8-110	NA		%REC	3/19/2015 7:22 PM	
Surr: Nitrobenzene-d5	83.3	NA	61.8-110	NA		%REC	3/19/2015 7:22 PM	
Surr: 2-Fluorobiphenyl	82.2	NA	58.6-110	NA		%REC	3/19/2015 7:22 PM	
Surr: 4-Terphenyl-d14	69.2	NA	55.1-110	NA		%REC	3/19/2015 7:22 PM	
VOLATILE ORGANIC COMPOUNDS	-8260		Method: S	SW8260	B (199	6)	Analyst: JM	
Benzene	3.26	0.500	1.00	NA		µg/L	3/30/2015 4:05 PM	PA/VA
Chlorobenzene	1.47	0.500	1.00	NA		µg/L	3/30/2015 4:05 PM	PA/VA
Dibromochloromethane	ND	0.500	1.00	NA		µg/L	3/30/2015 4:05 PM	PA/VA
1,2-Dichlorobenzene	ND	0.500	1.00	NA		µg/L	3/30/2015 4:05 PM	PA/VA
1,3-Dichlorobenzene	ND	0.500	1.00	NA		µg/L	3/30/2015 4:05 PM	PA/VA
1,4-Dichlorobenzene	9.40	0.500	1.00	NA		µg/L	3/30/2015 4:05 PM	PA/VA
Surr: 1,2-Dichloroethane-d4	107	NA	68.7-129	NA		%REC	3/30/2015 4:05 PM	
Surr: 4-Bromofluorobenzene	108	NA	71.8-127	NA		%REC	3/30/2015 4:05 PM	
Surr: Dibromofluoromethane	97.6	NA	74.3-124	NA		%REC	3/30/2015 4:05 PM	
Surr: Toluene-d8	93.9	NA	71.4-129	NA		%REC	3/30/2015 4:05 PM	
BOD, 5 Day, 20°C			Method: \$	SM5210	B-200 1	1	Analyst: VR	
Biochemical Oxygen Demand	ND	120	300	NA		mg/L	3/17/2015 1:20 PM	PA/VA
Notes:								
BOD PQL was elevated due to insufficient ox	ygen deple	tion in all	dilutions.					
Chemical Oxygen Demand			Method: E (1993)	EPA 410).4, Rev	. 2	Analyst: SF	
Chemical Oxygen Demand	252	20	50	NA		mg/L	3/18/2015 8:12 AM	PA/VA
HEXAVALENT CHROMIUM BY IC			Method: E 3.3 (1994)	EPA 218	3.6, Rev	/.	Analyst: CF	
Chromium (VI)	ND	0.0003	0.0010	NA		mg/L	3/18/2015 12:10 PM	PA/VA
ANIONS by ION CHROMATOGRAPH	łΥ		Method: E (1993)	EPA 300).0, Rev	/.2.1	Analyst: CF	

5,750 25.0

ND

0.05

250

0.20

NA

NA

Chloride

Fluoride

Page 13 of 21

mg/L

mg/L

3/17/2015 9:48 AM PA/VA

3/17/2015 9:48 AM PA/VA

WO#: 1503I23

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/16/2015 11:50:00 AM
Project:	DRILL CUTTING/ LEACHATE ANALYSIS	Date Received:	3/16/2015
Lab ID:	1503I23-03A	Matrix:	Liquid
Client Sample ID:	3- MEADOWFILL LF	Site ID:	PHASE 2

Analysis	Result	MDL	PQL	MCL	Qual Units	Date Analyzed N	IELAP
Sulfate	872	25.0	125	NA	mg/L	3/17/2015 9:48 AM	PA/VA
ANIONS by ION CHROMATOGR	APHY-48 HO	OUR	Method: (1993)	EPA 30	0.0, Rev.2.1	Analyst: CF	
Nitrogen, Nitrate	ND	0.02	0.10	NA	mg/L	3/17/2015 9:48 AM	PA/VA
Nitrogen, Nitrite	ND	1.25	12.5	NA	mg/L	3/17/2015 9:48 AM	PA/VA
Notes:							
Elevated PQLs are due to matrix interfere	ence.						
TOTAL KJELDAHL NITROGEN (TKN)		Method: 2.0 (1993	EPA 35 [°] 3)	1.2, Rev.	Analyst: JH	
Nitrogen, Kjeldahl, Total	5.16	0.20	1.00	NA	mg/L	3/19/2015 8:34 AM	PA/VA
OIL and GREASE			Method:	EPA 16	64 Rev. A	Analyst: CC	
Oil & Grease	15.1	2.0	5.0	NA	mg/L	3/25/2015 1:00 PM	PA/VA
Notes:							
Sample acidity or alkalinity exceeded the	added preserv	ative, so	that the requi	red preser	vation pH was not a	achieved.	
CYANIDE, Free			Method:	SM4500)-CN I-1997	Analyst: JH	
Cyanide, Free	ND	0.005	0.020	NA	mg/L	3/17/2015 2:07 PM	
AMMONIA NITROGEN			Method: (1993)	EPA 35	0.1, Rev.2.	Analyst: JH	
Nitrogen, Ammonia (As N)	3.34	0.40	1.00	NA	mg/L	3/19/2015 4:56 PM	PA/VA
CONDUCTIVITY			Method:	SM2510) B - 1997	Analyst: KY	
Specific Conductivity	22,900	NA	NA	NA	µmhos/cr	n 3/17/2015 1:00 PM	PA/VA
TOTAL DISSOLVED SOLIDS			Method:	SM2540) C-1997	Analyst: KY	
Total Dissolved Solids	15,100	10	20	NA	mg/L	3/18/2015 6:30 PM	PA/VA
TOTAL SUSPENDED SOLIDS			Method:	SM2540) D-1997	Analyst: KY	
Total Suspended Solids	26.0	4.0	20.0	NA	mg/L	3/17/2015 5:53 PM	PA/VA
ACIDITY			Method:	SM2310) B-1997	Analyst: DSD	
Acidity, Total	264	1.0	10	NA	ma/L	3/17/2015 12:09 PM	PA/VA

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/16/2015 11:50:00 AM
Project:	DRILL CUTTING/ LEACHATE ANALYSIS	Date Received:	3/16/2015
Lab ID:	1503I23-03A	Matrix:	Liquid
Client Sample ID:	3- MEADOWFILL LF	Site ID:	PHASE 2

Analysis	Result	MDL	PQL	MCL	Qual Uni	ts Date Analyzed N	ELAP
ALKALINITY			Method:	SM2320) B-1997	Analyst: DSD	
Alkalinity, Total (As CaCO3)	848	2.0	20.0	NA	mg	/L 3/17/2015 12:09 PM	PA/VA
pH - LAB TEST, HOLD TIME EXPIR	ED		Method:	SM4500)-H+-B-2000	Analyst: DSD	
рН	6.92	NA	NA	NA	SI	J 3/17/2015 12:09 PM	PA

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/16/2015 11:50:00 AM
Project:	DRILL CUTTING/ LEACHATE ANALYSIS	Date Received:	3/16/2015
Lab ID:	1503I23-03B	Matrix:	Liquid
Client Sample ID:	3- MEADOWFILL LF	Site ID:	PHASE 2

Analysis	Result	MDL	PQL	MCL	Qual Units	Date Analyzed NELAP
DISSOLVED METALS BY ICP			Method: (1994)	EPA 200).7 Rev. 4.4	Analyst: JD
Iron	0.215	0.010	0.100	NA	mg/L	3/25/2015 10:41 PM PA/VA
Manganese	12.6	0.002	0.100	NA	mg/L	3/25/2015 10:41 PM PA/VA

WO#: 1503I23

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/16/2015 12:40:00 PM
Project:	DRILL CUTTING/ LEACHATE ANALYSIS	Date Received:	3/16/2015
Lab ID:	1503I23-04A	Matrix:	Liquid
Client Sample ID:	4- BRIDGEPORT POTW	Site ID:	PHASE 2

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
METALS BY ICP			Method: (1994)	EPA 200	0.7 Rev	. 4.4	Analyst: JD	
Aluminum	0.027	0.006	0.100	NA	J	mg/L	3/25/2015 10:44 PM	PA/VA
Antimony	ND	0.040	0.200	NA		mg/L	3/28/2015 12:43 PM	PA/VA
Arsenic	ND	0.020	0.200	NA		mg/L	3/25/2015 10:44 PM	PA/VA
Barium	0.051	0.002	0.100	NA	J	mg/L	3/25/2015 10:44 PM	PA/VA
Beryllium	ND	0.001	0.010	NA		mg/L	3/25/2015 10:44 PM	PA/VA
Boron	0.373	0.035	0.100	NA		mg/L	3/25/2015 10:44 PM	PA/VA
Cadmium	ND	0.001	0.020	NA		mg/L	3/25/2015 10:44 PM	PA/VA
Chromium	ND	0.005	0.100	NA		mg/L	3/25/2015 10:44 PM	PA/VA
Copper	ND	0.005	0.100	NA		mg/L	3/25/2015 10:44 PM	PA/VA
Iron	0.089	0.010	0.100	NA	J	mg/L	3/25/2015 10:44 PM	PA/VA
Lead	ND	0.010	0.200	NA		mg/L	3/25/2015 10:44 PM	PA/VA
Lithium	ND	0.020	0.100	NA		mg/L	3/25/2015 2:28 PM	
Manganese	0.019	0.002	0.100	NA	J	mg/L	3/25/2015 10:44 PM	PA/VA
Nickel	ND	0.005	0.100	NA		mg/L	3/28/2015 12:43 PM	PA/VA
Selenium	ND	0.020	0.200	NA		mg/L	3/25/2015 10:44 PM	PA/VA
Silver	ND	0.004	0.050	NA		mg/L	3/25/2015 10:44 PM	PA/VA
Strontium	0.202	0.001	0.010	NA		mg/L	3/25/2015 2:28 PM	PA
Vanadium	ND	0.005	0.100	NA		mg/L	3/25/2015 10:44 PM	PA/VA
Zinc	0.047	0.003	0.050	NA	J	mg/L	3/25/2015 10:44 PM	PA/VA
MERCURY, Total E245.1			Method: 3.0 (1994	EPA 24:)	5.1, Rev	/.	Analyst: CR	
Mercury	ND	0.0001	0.0010	NA		mg/L	3/19/2015 12:09 PM	PA/VA
SEMIVOLATILE ORGANIC CO	MPOUNDS		Method:	SW8270	D (200	7)	Analyst: JD	

1,4-Dinitrobenzene	ND	NA	0.0102	NA	mg/L	3/19/2015 7:44 PM	
1,4-Napthoquinone	ND	NA	0.0102	NA	mg/L	3/19/2015 7:44 PM	
4-Nitroquinoline-1-oxide	ND	NA	0.0512	NA	mg/L	3/19/2015 7:44 PM	
Pentachloronitrobenzene	ND	NA	0.0102	NA	mg/L	3/19/2015 7:44 PM	
Bis(2-ethylhexyl)phthalate	ND	0.0051	0.0102	NA	mg/L	3/19/2015 7:44 PM	PA/VA
Butyl benzyl phthalate	ND	0.0051	0.0102	NA	mg/L	3/19/2015 7:44 PM	PA/VA
Di-n-butyl phthalate	ND	0.0051	0.0102	NA	mg/L	3/19/2015 7:44 PM	PA/VA
Diethyl phthalate	ND	0.0020	0.0102	NA	mg/L	3/19/2015 7:44 PM	PA/VA
Dimethyl phthalate	ND	0.0020	0.0102	NA	mg/L	3/19/2015 7:44 PM	PA/VA
2,4-Dinitrotoluene	ND	0.0020	0.0102	NA	mg/L	3/19/2015 7:44 PM	PA/VA
2,6-Dinitrotoluene	ND	0.0020	0.0102	NA	mg/L	3/19/2015 7:44 PM	PA/VA

Sulfate

Date Reported: 3/31/2015

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/16/2015 12:40:00 PM
Project:	DRILL CUTTING/ LEACHATE ANALYSIS	Date Received:	3/16/2015
Lab ID:	1503I23-04A	Matrix:	Liquid
Client Sample ID:	4- BRIDGEPORT POTW	Site ID:	PHASE 2

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
Di-n-octyl phthalate	ND	0.0051	0.0102	NA		mg/L	3/19/2015 7:44 PM	PA/VA
Fluoranthene	ND	0.0020	0.0102	NA		mg/L	3/19/2015 7:44 PM	PA/VA
Nitrobenzene	ND	0.0020	0.0102	NA		mg/L	3/19/2015 7:44 PM	PA/VA
Surr: 2-Fluorophenol	40.7	NA	32.9-110	NA		%REC	3/19/2015 7:44 PM	
Surr: Phenol-d5	31.8	NA	25.8-110	NA		%REC	3/19/2015 7:44 PM	
Surr: 2,4,6-Tribromophenol	83.0	NA	63.8-110	NA		%REC	3/19/2015 7:44 PM	
Surr: Nitrobenzene-d5	81.9	NA	61.8-110	NA		%REC	3/19/2015 7:44 PM	
Surr: 2-Fluorobiphenyl	80.9	NA	58.6-110	NA		%REC	3/19/2015 7:44 PM	
Surr: 4-Terphenyl-d14	83.3	NA	55.1-110	NA		%REC	3/19/2015 7:44 PM	
VOLATILE ORGANIC COMPOUNDS	5-8260		Method: S	SW8260)B (1996	6)	Analyst: JM	
Benzene	ND	0.500	1.00	NA		µg/L	3/27/2015 7:08 PM	PA/VA
Chlorobenzene	ND	0.500	1.00	NA		μg/L	3/27/2015 7:08 PM	PA/VA
Dibromochloromethane	ND	0.500	1.00	NA		µg/L	3/27/2015 7:08 PM	PA/VA
1,2-Dichlorobenzene	ND	0.500	1.00	NA		μg/L	3/27/2015 7:08 PM	PA/VA
1,3-Dichlorobenzene	ND	0.500	1.00	NA		µg/L	3/27/2015 7:08 PM	PA/VA
1,4-Dichlorobenzene	1.03	0.500	1.00	NA		µg/L	3/27/2015 7:08 PM	PA/VA
Surr: 1,2-Dichloroethane-d4	108	NA	68.7-129	NA		%REC	3/27/2015 7:08 PM	
Surr: 4-Bromofluorobenzene	119	NA	71.8-127	NA		%REC	3/27/2015 7:08 PM	
Surr: Dibromofluoromethane	94.1	NA	74.3-124	NA		%REC	3/27/2015 7:08 PM	
Surr: Toluene-d8	90.7	NA	71.4-129	NA		%REC	3/27/2015 7:08 PM	
BOD, 5 Day, 20°C			Method: S	6M5210	B-2001		Analyst: VR	
Biochemical Oxygen Demand	ND	2	5	NA		mg/L	3/17/2015 1:20 PM	PA/VA
Chemical Oxygen Demand			Method: E (1993)	EPA 410	0.4, Rev	v. 2	Analyst: SF	
Chemical Oxygen Demand	25	4	10	NA		mg/L	3/17/2015 8:09 AM	PA/VA
HEXAVALENT CHROMIUM BY IC			Method: E 3.3 (1994)	EPA 218	8.6, Rev		Analyst: CF	
Chromium (VI)	ND	0.0003	0.0010	NA		mg/L	3/18/2015 12:23 PM	PA/VA
ANIONS by ION CHROMATOGRAP	ΗY		Method: E (1993)	EPA 300	0.0, Rev	2.2.1	Analyst: CF	
Chloride	124	1.00	10.0	NA		mg/L	3/17/2015 10:08 AM	PA/VA
Fluoride	0.30	0.05	0.20	NA		mg/L	3/17/2015 10:08 AM	PA/VA

74.6 1.00

5.00

NA

mg/L

3/17/2015 10:08 AM PA/VA

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/16/2015 12:40:00 PM
Project:	DRILL CUTTING/ LEACHATE ANALYSIS	Date Received:	3/16/2015
Lab ID:	1503I23-04A	Matrix:	Liquid
Client Sample ID:	4- BRIDGEPORT POTW	Site ID:	PHASE 2

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
ANIONS by ION CHROMATOGRAP	HY-48 H(DUR	Method: (1993)	EPA 300	.0, Rev	/.2.1	Analyst: CF	
Nitrogen, Nitrate	9.30	0.20	1.00	NA		mg/L	3/17/2015 10:08 AM	PA/VA
Nitrogen, Nitrite	ND	0.05	0.50	NA		mg/L	3/17/2015 10:08 AM	PA/VA
TOTAL KJELDAHL NITROGEN (TK	N)		Method: 2.0 (1993	EPA 351)	.2, Rev	<i>ı</i> .	Analyst: JH	
Nitrogen, Kjeldahl, Total	1.51	0.10	0.50	NA		mg/L	3/19/2015 8:34 AM	PA/VA
OIL and GREASE			Method:	EPA 166	4 Rev	. A	Analyst: CC	
Oil & Grease	ND	2.0	5.0	NA		mg/L	3/25/2015 1:00 PM	PA/VA
CYANIDE, Free			Method:	SM4500-	CN I-1	997	Analyst: JH	
Cyanide, Free	ND	0.005	0.020	NA		mg/L	3/17/2015 2:08 PM	
AMMONIA NITROGEN			Method: (1993)	EPA 350	.1, Rev	/.2.	Analyst: JH	
Nitrogen, Ammonia (As N)	0.08	0.04	0.10	NA	J	mg/L	3/19/2015 5:00 PM	PA/VA
CONDUCTIVITY			Method:	SM2510	B - 199	97	Analyst: KY	
Specific Conductivity	957	NA	NA	NA		µmhos/cm	3/17/2015 1:00 PM	PA/VA
TOTAL DISSOLVED SOLIDS			Method:	SM2540	C-1997	7	Analyst: KY	
Total Dissolved Solids	543	5	10	NA		mg/L	3/18/2015 6:30 PM	PA/VA
TOTAL SUSPENDED SOLIDS			Method:	SM2540	D-1997	7	Analyst: KY	
Total Suspended Solids	3.5	1.0	5.0	NA	J	mg/L	3/17/2015 5:53 PM	PA/VA
ACIDITY			Method:	SM2310	B-1997	7	Analyst: DSD	
Acidity, Total	7.9	1.0	10	NA	J	mg/L	3/17/2015 12:09 PM	PA/VA
ALKALINITY			Method:	SM2320	B-1997	7	Analyst: DSD	
Alkalinity, Total (As CaCO3)	72.7	1.0	10	NA		mg/L	3/17/2015 12:09 PM	PA/VA
pH - LAB TEST, HOLD TIME EXPIR	ED		Method:	SM4500-	·H+-B-2	2000	Analyst: DSD	
рН	7.07	NA	NA	NA		SU	3/17/2015 12:09 PM	PA

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/16/2015 12:40:00 PM
Project:	DRILL CUTTING/ LEACHATE ANALYSIS	Date Received:	3/16/2015
Lab ID:	1503I23-04B	Matrix:	Liquid
Client Sample ID:	4- BRIDGEPORT POTW	Site ID:	PHASE 2

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
DISSOLVED METALS BY ICP			Method: (1994)	EPA 200).7 Rev	[.] 4.4	Analyst: JD	
Iron	0.068	0.010	0.100	NA	J	mg/L	3/25/2015 10:47 PM	PA/VA
Manganese	0.017	0.002	0.100	NA	J	mg/L	3/25/2015 10:47 PM	PA/VA

Date Reported: 3/31/2015

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/16/2015 12:00:00 AM
Project:	DRILL CUTTING/ LEACHATE ANALYSIS	Date Received:	3/16/2015
Lab ID:	1503I23-05A	Matrix:	Trip Blank
Client Sample ID:	TRIP BLANK	Site ID:	PHASE 2

Qual Units **Date Analyzed NELAP** PQL MCL MDL Result Analysis **VOLATILE ORGANIC COMPOUNDS-8260** Method: SW8260B (1996) Analyst: JM 0.500 1.00 NA 3/28/2015 1:46 AM PA/VA Benzene ND µg/L Chlorobenzene ND 0.500 1.00 NA 3/28/2015 1:46 AM PA/VA µg/L Dibromochloromethane 0.500 1.00 NA PA/VA ND µg/L 3/28/2015 1:46 AM 0.500 1.00 NA PA/VA 1,2-Dichlorobenzene ND 3/28/2015 1:46 AM µg/L 1,3-Dichlorobenzene ND 0.500 1.00 NA 3/28/2015 1:46 AM PA/VA µg/L 1,4-Dichlorobenzene ND 0.500 1.00 NA 3/28/2015 1:46 AM PA/VA µg/L Surr: 1,2-Dichloroethane-d4 98.4 NA 68.7-129 NA %REC 3/28/2015 1:46 AM Surr: 4-Bromofluorobenzene 126 NA 71.8-127 NA 3/28/2015 1:46 AM %REC Surr: Dibromofluoromethane 96.0 NA 74.3-124 NA %REC 3/28/2015 1:46 AM Surr: Toluene-d8 89.7 NA 71.4-129 NA 3/28/2015 1:46 AM %REC



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

Sunday, April 26, 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/ LEACHATE ANALYSIS

Work Order #: 1503I30

Dear GEORGE CARICO:

Please find enclosed amended results. If you have any questions regarding these results, please do not hesitate to call.

Sincerely,

Kathy Berry

Kathy Berry



Client: MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE

Project: DRILL CUTTING/ LEACHATE ANALYSIS

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:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/16/2015 8:55:00 AM
Project:	DRILL CUTTING/ LEACHATE ANALYSIS	Date Received:	3/16/2015
Lab ID:	1503I30-01A	Matrix:	Liquid
Client Sample ID:	1- PARKERSBURG POTW	Site ID:	PHASE 2

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		

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/16/2015 9:45:00 AM
Project:	DRILL CUTTING/ LEACHATE ANALYSIS	Date Received:	3/16/2015
Lab ID:	1503I30-02A	Matrix:	Liquid
Client Sample ID:	2- NORTHWESTERN LF	Site ID:	PHASE 2

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			

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/16/2015 11:50:00 AM
Project:	DRILL CUTTING/ LEACHATE ANALYSIS	Date Received:	3/16/2015
Lab ID:	1503I30-03A	Matrix:	Liquid
Client Sample ID:	3-MEADOWFILL LF	Site ID:	PHASE 2

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			

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/16/2015 12:40:00 PM
Project:	DRILL CUTTING/ LEACHATE ANALYSIS	Date Received:	3/16/2015
Lab ID:	1503I30-04A	Matrix:	Liquid
Client Sample ID:	4- BRIDGEPORT POTW	Site ID:	PHASE 2

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		



Pace Analytical Services, Inc. 1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

June 10, 2015

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

RE: Project: 1503I30 Pace Project No.: 30143094

Dear Ms. Berry:

Enclosed are the analytical results for sample(s) received by the laboratory on March 18, 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,

Carino a. Ferrio

Carin Ferris carin.ferris@pacelabs.com Project Manager

Enclosures





Pace Analytical Services, Inc. 1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

CERTIFICATIONS

 Project:
 1503I30

 Pace Project No.:
 30143094

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-042 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



SAMPLE SUMMARY

 Project:
 1503I30

 Pace Project No.:
 30143094

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30143094001	1503I30-01A	Water	03/16/15 08:55	03/18/15 10:20
30143094002	1503I30-02A	Water	03/16/15 09:45	03/18/15 10:20
30143094003	1503I30-03A	Water	03/16/15 11:50	03/18/15 10:20
30143094004	1503I30-04A	Water	03/16/15 12:40	03/18/15 10:20



SAMPLE ANALYTE COUNT

 Project:
 1503I30

 Pace Project No.:
 30143094

Lab ID	Sample ID	Method	Analysts	Analytes Reported
30143094001	1503I30-01A	SM 7500Rn-B	JAL	1
30143094002	1503I30-02A	SM 7500Rn-B	JAL	1
30143094003	1503I30-03A	SM 7500Rn-B	JAL	1
30143094004	1503I30-04A	SM 7500Rn-B	JAL	1



PROJECT NARRATIVE

 Project:
 1503I30

 Pace Project No.:
 30143094

Method: SM 7500Rn-B

Description:7500RnB RadonClient:REI Consultants, Inc.Date:June 10, 2015

General Information:

4 samples were analyzed for SM 7500Rn-B. 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: 1503I30						
Pace Project No.: 30143094						
Sample: 1503I30-01A PWS:	Lab ID: 3014309 Site ID:	4001 Collected: 03/16/15 08:55 Sample Type:	Received:	03/18/15 10:20 Ma	atrix: Water	
Comments: • Sample collection	on dates and times were not p	present on the sample containers.				
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radon	SM 7500Rn-B	-0.7 ± 27.1 (47.6) C:NA T:NA	pCi/L	03/18/15 21:04	10043-92-2	
Sample: 1503I30-02A PWS:	Lab ID: 3014309 Site ID:	Collected: 03/16/15 09:45 Sample Type:	Received:	03/18/15 10:20 M	atrix: Water	
Comments: • Sample collection	on dates and times were not p	present on the sample containers.				
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radon	SM 7500Rn-B	34.0 ± 29.5 (47.5) C:NA T:NA	pCi/L	03/18/15 21:37	10043-92-2	
Sample: 1503I30-03A PWS:	Lab ID: 3014309 Site ID:	4003 Collected: 03/16/15 11:50 Sample Type:	Received:	03/18/15 10:20 Ma	atrix: Water	
Comments: • Sample collection	on dates and times were not p	present on the sample containers.				
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radon	SM 7500Rn-B	41.3 ± 29.9 (47.0) C:NA T:NA	pCi/L	03/18/15 22:11	10043-92-2	
Sample: 1503I30-04A PWS:	Lab ID: 3014309 Site ID:	4004 Collected: 03/16/15 12:40 Sample Type:	Received:	03/18/15 10:20 Ma	atrix: Water	
Comments: • Sample collection	on dates and times were not p	present on the sample containers.				
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radon	SM 7500Rn-B	19.7 ± 28.1 (47.1) C:NA T:NA	pCi/L	03/18/15 23:17	10043-92-2	



QUALITY CONTROL - RADIOCHEMISTRY

Project:	1503130					
Pace Project No.:	30143094					
QC Batch:	RADC/23736	Analysis Method:	SM 7500Rn-B			
QC Batch Method:	SM 7500Rn-B	Analysis Description:	7500Rn B Rade	on		
Associated Lab Sar	mples: 30143094	001, 30143094002, 30143094003, 3014309400	4			
METHOD BLANK:	865504	Matrix: Water				-
Associated Lab Sar	mples: 30143094	001, 30143094002, 30143094003, 3014309400	4			
Parar	neter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers	_
Radon		7.1 ± 17.7 (30.2) C:NA T:NA	pCi/L	03/18/15 19:57		

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.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full, without the written consent of Pace Analytical Services, Inc..



QUALIFIERS

 Project:
 1503I30

 Pace Project No.:
 30143094

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.

REI	U	CHAIN OF CUSTODY REC	ORD COC ID: 3436 PAGE: 1 OF: 1 REI Consultants, Inc. PO Box 286 Beaver, WY 25813	
Improving the environment, on	ie cleut at a time	Please Include Email Address o	TEL: (304) 255-2500 FAX: (304) 255-2572 Website: www.reiclabs.com	9
SUB CONTRATOR: PACE	PA COMPANY	VK: PACE ANALYTICAL SERVIC	SPECIAL INSTRUCTIONS / COMMENTS: Come Code: VIV/ Disease use SemuleID as numbere order number	
ADDRESS: 1638 R	OSEYTOWN ROAD		A due could be a support of the province of province and can be disposed per your standard laboratory After analysis, the samples do not need to be returned and can be disposed per your standard laboratory monotices. Results the Kathy Berry at thermore testings com	
CITY, STATE, ZIP: GREE!	NSBURG, PA 15601		actions of class of the second s	
PHONE: (724) 8:	50-5600 FAX:		ANALYTICAL PARAMETERS * Preservation Codes: 0 None 2 Hydrochhoric Acid	
ACCOUNT #: 050719	EVF1 EMAIL:		2 Nitric Acid 3 Sulfuric Acid 4 Sodium Thiosulfate	_
ITEM SAMPLE ID	Client Sample ID	* CONTAINERS *	 Sodium Hydroxide Sodium Hydroxide Sodium Hydroxide Tascorbic Acid Tascorbic Acid Sodium SufficteHCL Detassium Dilydrogen Citrate I Bromium Choride COMMENTS: 	
1 1503I30-01A	1- PARKERSBURG	Liquid 3/16/2015 8:55:00 AM 3	100	
2 1503130-02A	2- NORTHWESTERN LF	Liquid 3/16/2015 9:45:00 AM 3	700 1	
3 1503I30-03A	3-MEADOWFILL LF	Liquid 3/16/2015 11:50:00 3	2 CO3	
4 1503130-04A	4- BRIDGEPORT POTW	Liquid 3/16/2015 12:40:00 3 PM	The second	
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Relinquished By:	Date: Time:	Received By	Time. Temp of sumples	
:TAT	Standard 📈	RUSH Next BD C 2nd BD 3 Note: RUSH requests will incur surcharges!	Std BD	T
57 11				-

		Lisson Descript		An
Sa	mple Condition	i Upon Receipt		r r a 4 4 7 a a 4
Pace Analytical Client Name	REIC		Project #	0145094
Courier: □ Fed Ex ピ UPS □ USPS □ Clie Tracking #: <u>17 26% 713 13 77</u> 96 50 42	ent Commercial	Pace Other		
Custody Seal on Cooler/Box Present: 🗌 yes	🔽 no Seala	s intact: 🔲 yes 🗌	no Biological T	Issue is Frozen: Yes No
Packing Material: Bubble Wrap 🖉 Bubble Bag	gs None	Other		
Thermometer UsedTyp	e of Ice: Wet Blu	ie None 🔲 Sar	nples on Ice, cooling pro	ocess has begun
Cooler Temp.: Observed Temp.:°C Co	orrection Factor:	<u>∿tp</u> ^ °C Final Temp:_	NA °C	ate and initials of person
Temp should be above freezing to 6°C		Comments:	62	amining contents:
Chain of Custody Present:	ZYes ⊡No ⊡N/A	1.		, ,
Chain of Custody Filled Out:		2		
Chain of Custody Relinguished:		3.		
Sampler Name & Signature on COC:	⊡yes 🖾 Ro □N/A	4		
Samples Arrived within Hold Time:	ØYes ⊡No □N/A	5.		
Short Hold Time Analysis (<72hr):	ØYes □No □N/A	6,		
Rush Turn Around Time Requested:	□Yes C\$Rto □N/A	7.		
Sufficient Volume:	10 ÎŶYes □No □N/A	8.		
Correct Containers Used:		9.		
-Pace Containers Used:	⊡Yes BANo □N/A			
Containers Intact:		10.		
Filtered volume received for Dissolved tests	Yes No DANA	11.		
Sample Labels match COC:		12. no date ar.	hive or simple	es
-Includes date/time/ID/Analysis Matrix:	wt.			
All containers needing preservation have been checked.	□Yes □No \$\$N/A	13.		
All containers needing preservation are found to be in compliance with EPA recommendation.	□Yes □No ŪN/A			-
exceptions: YOA, coliform, TOC, O&G, Phenois	ØYes No	Initial when completed Arm	Lot # of added preservative	
Samples checked for dechlorination:	⊡Yes ⊡No 🗗N/A	14.		
Headspace in VOA Vials (>6mm):		15.		
Trip Blank Present:		16.		
Trip Blank Custody Seals Present				
Pace Trip Blank Lot # (if purchased):	_			
Client Notification/ Resolution:			Field Data Required	J? Y / N
Person Contacted:	Date/	Time:		
Comments/ Resolution:				
				/
				alialit
Project Manager Review:) Jen	üD	Date:	311815
Note: Whenever there is a discrepancy affecting North ((i.e. out of hold, incorrect preservative, out of temp, inco	Carolina compliance sar prrect containers)	nples, a copy of this form w	ill be sent to the North (Carolina DEHNR Certification Office

Other	×								
NOCIAS Tento	~								
ooldiZ					1	1		-	
Cubitainer (500 ml / 4L)								1	
Radchem Naigene (ז/צ קאו. ו ז קאו.L)								1	
Radchem Nalgene (125 / 250 / 500 / 1L)									
wipe، swipe، smearl filter النوح / wipe، smearl									
Bacteria (120 ml)									
(im 00č) ebiliuč									
(1m 03%) əbinsyO								1	
(Im 05 Im 04) AOV								1	
(11) нат				-					
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Dissolved Metals preserved Y N									
sisteM istoT									
(Im 035) XOT									
(Im 052 / Im 04) ODT									
Phenolics (250 ml)									
/utrient (250 / 500)									
סנפאונכא (11) Drganics (11)									
Chemistry (250 / 500 / 1L)									
Soil kit (2 SB, 1M, soil jar)									
Glass Jar (120 / 250 / 500 / 1L)									
Matrix Code	15	ł							
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		_	ł.						

30143094

page 2

Project Number:

Face Analytical



Pace Analytical Services, Inc. 1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

April 03, 2015

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

RE: Project: 1503I30 Pace Project No.: 30143334

Dear Ms. Berry:

Enclosed are the analytical results for sample(s) received by the laboratory on March 19, 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,

Carino a. Ferrio

Carin Ferris carin.ferris@pacelabs.com Project Manager

Enclosures





Pace Analytical Services, Inc. 1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

CERTIFICATIONS

 Project:
 1503I30

 Pace Project No.:
 30143334

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-042 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



SAMPLE SUMMARY

 Project:
 1503I30

 Pace Project No.:
 30143334

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30143334001	1503I30-01A	Water	03/16/15 08:55	03/19/15 15:20
30143334002	1503I30-02A	Water	03/16/15 09:45	03/19/15 15:20
30143334003	1503I30-03A	Water	03/16/15 11:50	03/19/15 15:20
30143334004	1503I30-04A	Water	03/16/15 12:40	03/19/15 15:20



SAMPLE ANALYTE COUNT

 Project:
 1503I30

 Pace Project No.:
 30143334

Lab ID	Sample ID	Method	Analysts	Analytes Reported
30143334001	1503I30-01A	EPA 900.0	FCC	2
		EPA 903.1	JC2	1
		EPA 904.0	JLW	1
		ASTM D5811-95	LAL	1
30143334002	1503I30-02A	SM 7110C	FCC	1
		EPA 900.0	FCC	1
		EPA 903.1	JC2	1
		EPA 904.0	JLW	1
		ASTM D5811-95	LAL	1
30143334003	1503I30-03A	SM 7110C	FCC	1
		EPA 900.0	FCC	1
		EPA 903.1	JC2	1
		EPA 904.0	JLW	1
		ASTM D5811-95	LAL	1
30143334004	1503I30-04A	EPA 900.0	FCC	2
		EPA 903.1	JC2	1
		EPA 904.0	JLW	1
		ASTM D5811-95	LAL	1



PROJECT NARRATIVE

 Project:
 1503I30

 Pace Project No.:
 30143334

Method: SM 7110C

Description:7110C Gross AlphaClient:REI Consultants, Inc.Date:April 03, 2015

General Information:

2 samples were analyzed for SM 7110C. 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:
 1503I30

 Pace Project No.:
 30143334

Method:EPA 900.0Description:900.0 Gross Alpha/BetaClient:REI Consultants, Inc.Date:April 03, 2015

General Information:

4 samples were 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:


PROJECT NARRATIVE

 Project:
 1503I30

 Pace Project No.:
 30143334

Method: EPA 903.1

Description:903.1 Radium 226Client:REI Consultants, Inc.Date:April 03, 2015

General Information:

4 samples were analyzed for EPA 903.1. 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:
 1503I30

 Pace Project No.:
 30143334

Method: EPA 904.0 Description: 904.0 Radium 228

Client:REI Consultants, Inc.Date:April 03, 2015

General Information:

4 samples were analyzed for EPA 904.0. 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:



PROJECT NARRATIVE

 Project:
 1503I30

 Pace Project No.:
 30143334

Method: ASTM D5811-95

Description:ASTM D5811 Sr 89/90 EichromClient:REI Consultants, Inc.Date:April 03, 2015

General Information:

4 samples were 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/23846

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

- 1503I30-01A (Lab ID: 30143334001)
 - Strontium-90
- 1503I30-02A (Lab ID: 30143334002)
- Strontium-90
- 1503I30-03A (Lab ID: 30143334003)
 - Strontium-90
- 1503I30-04A (Lab ID: 30143334004)
 - Strontium-90
- BLANK (Lab ID: 870159)
 - Strontium-90

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



ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 1503I30

Pace Project No.: 30143334

Sample: 1503I30-01A	Lab ID: 30143	3334001 Collected: 03/16/15 08:55	Received:	03/19/15 15:20	Matrix: Water	
PWS:	Site ID:	Sample Type:				
Comments: • Sample Accept	ance Policy Waiver on file f	rom the client.				
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0	0.426 ± 0.648 (1.20) C:NA T:NA	pCi/L	03/28/15 11:36	12587-46-1	
Gross Beta	EPA 900.0	4.79 ± 1.42 (1.81) C:NA T:NA	pCi/L	03/28/15 11:36	12587-47-2	
Radium-226	EPA 903.1	0.310 ± 0.708 (0.420) C:NA T:91%	pCi/L	04/01/15 11:37	13982-63-3	
Radium-228	EPA 904.0	-0.291 ± 0.380 (0.969) C:73% T:75%	pCi/L	04/01/15 15:48	3 15262-20-1	
Strontium-90	ASTM D5811-95	-0.00400 ± 0.866 (1.58) C:99% T:NA	pCi/L	03/27/15 21:40	10098-97-2	N2



Lab ID: 30143334002 Site ID:

334002 Collected: 03/16/15 09:45 Received: 03/19/15 15:20 Matrix: Water Sample Type:

Comments: • Sample Acceptance Policy Waiver on file from the client.

• Upon receipt at the laboratory, 3 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Gross Alpha	SM 7110C	12.8 ± 4.34 (4.52) C·NA T·NA	pCi/L	04/01/15 18:57	12587-46-1	
Gross Beta	EPA 900.0	776 ± 141 (16.0) C:NA T:NA	pCi/L	03/28/15 11:36	12587-47-2	
Radium-226	EPA 903.1	5.05 ± 2.10 (0.570) C:NA T:89%	pCi/L	04/01/15 11:26	13982-63-3	
Radium-228	EPA 904.0	3.27 ± 0.868 (0.921) C:70% T:79%	pCi/L	04/01/15 15:48	15262-20-1	
Strontium-90	ASTM D5811-95	0.0440 ± 0.747 (1.29) C:97% T:NA	pCi/L	03/28/15 11:44	10098-97-2	N2

 Sample:
 1503I30-03A
 Lab ID:
 30143334003
 Collected:
 03/16/15
 11:50
 Received:
 03/19/15
 15:20
 Matrix:
 Water

 PWS:
 Site ID:
 Sample Type:
 <

Comments: • Sample Acceptance Policy Waiver on file from the client.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Gross Alpha	SM 7110C	3.52 ± 1.77 (2.50) C:NA T:NA	pCi/L	04/01/15 18:57	12587-46-1	
Gross Beta	EPA 900.0	280 ± 55.7 (29.3) C:NA T:NA	pCi/L	03/28/15 11:36	12587-47-2	
Radium-226	EPA 903.1	1.26 ± 0.833 (0.378) C:NA T:92%	pCi/L	04/01/15 11:25	13982-63-3	
Radium-228	EPA 904.0	1.18 ± 0.553 (0.923) C:72% T:75%	pCi/L	04/01/15 15:48	15262-20-1	
Strontium-90	ASTM D5811-95	-0.131 ± 0.651 (1.14) C:107% T:NA	pCi/L	03/28/15 11:45	10098-97-2	N2



ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 1503I30

Pace Project No.: 30143334

Sample: 1503I30-04A	Lab ID: 30143	Collected: 03/16/15 12:40	Received:	03/19/15 15:20 N	latrix: Water	
PWS:	Site ID:	Sample Type:				
Comments: • Sample Accept	ance Policy Waiver on file fi	rom the client.				
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0	-0.496 ± 1.31 (2.86) C:NA T:NA	pCi/L	03/28/15 13:39	12587-46-1	
Gross Beta	EPA 900.0	6.09 ± 1.73 (2.08) C:NA T:NA	pCi/L	03/28/15 13:39	12587-47-2	
Radium-226	EPA 903.1	0.742 ± 1.13 (0.670) C:NA T:75%	pCi/L	04/01/15 11:36	13982-63-3	
Radium-228	EPA 904.0	0.519 ± 0.440 (0.885) C:76% T:75%	pCi/L	04/01/15 15:48	15262-20-1	
Strontium-90	ASTM D5811-95	-0.0720 ± 0.579 (1.01) C:97% T:NA	pCi/L	03/28/15 11:45	10098-97-2	N2



Project:	1503 30						
Pace Project No.:	30143334						
QC Batch:	RADC/23795		Analysis Method:	EPA 904.0			
QC Batch Method:	EPA 904.0		Analysis Description:	904.0 Radiur	n 228		
Associated Lab San	nples: 30143334	001, 301433340	02, 30143334003, 301433340	04			
METHOD BLANK:	868169		Matrix: Water				
Associated Lab San	nples: 30143334	001, 301433340	02, 30143334003, 301433340	04			
Paran	neter	Act ± U	nc (MDC) Carr Trac	Units	Analyzed	Qualifiers	
Radium-228		0.0726 ± 0.367	(0.836) C:70% T:86%	pCi/L	04/01/15 11:10		

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:	1503 30					
Pace Project No.:	30143334					
QC Batch:	RADC/23855	Analysis Method:	EPA 900.0			
QC Batch Method:	EPA 900.0	Analysis Description:	900.0 Gross	s Alpha/Beta		
Associated Lab San	nples: 30143334	001, 30143334002, 30143334003, 30143334004	Ļ			
METHOD BLANK:	870170	Matrix: Water				
Associated Lab San	nples: 30143334	001, 30143334002, 30143334003, 30143334004	Ļ			
Paran	neter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers	
Gross Alpha		-0.372 ± 0.365 (1.45) C:NA T:NA	pCi/L	03/28/15 09:09		
Gross Beta		-0.356 ± 0.645 (1.77) C:NA T:NA	pCi/L	03/28/15 09:09		

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:	1503 30					
Pace Project No.:	30143334					
QC Batch:	RADC/23792	Analysis Method:	EPA 903.1			
QC Batch Method:	EPA 903.1	Analysis Description:	903.1 Radiur	n-226		
Associated Lab San	nples: 30143334	001, 30143334002, 30143334003, 3014333400)4			
METHOD BLANK:	868166	Matrix: Water				
Associated Lab San	nples: 30143334	001, 30143334002, 30143334003, 3014333400)4			
Paran	neter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers	
Radium-226		0.299 ± 0.310 (0.462) C:NA T:101%	pCi/L	04/01/15 11:27		

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:	1503130					
Pace Project No.:	30143334					
QC Batch:	RADC/23846	Analysis Method:	ASTM D5811	-95		
QC Batch Method:	ASTM D5811-95	Analysis Description:	ASTM D5811	Sr 89/90 Eichrom		
Associated Lab San	nples: 30143334001, 30	143334002, 30143334003, 301433340	004			
METHOD BLANK:	870159	Matrix: Water				
Associated Lab San	nples: 30143334001, 30	143334002, 30143334003, 301433340	004			
Paran	neter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers	
Strontium-90	-0.117	± 0.329 (0.776) C:95% T:NA	pCi/L	03/28/15 11:44	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:	1503130						
Pace Project No.:	30143334						
QC Batch:	RADC/23909		Analysis Method:	SM 7110C			
QC Batch Method:	SM 7110C		Analysis Description:	7110C Gros	s Alpha		
Associated Lab San	nples: 30143334	002, 30143334003					
METHOD BLANK:	873323		Matrix: Water				
Associated Lab San	nples: 30143334	002, 30143334003					
Paran	neter	Act ± Unc (M	MDC) Carr Trac	Units	Analyzed	Qualifiers	
Gross Alpha		0.503 ± 1.05 (2.45)	C:NA T:NA	pCi/L	04/01/15 17:10		

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.



Pace Analytical Services, Inc. 1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

QUALIFIERS

 Project:
 1503I30

 Pace Project No.:
 30143334

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

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

ADDRESS REI Consultants, Inc. PO Box 286 Beaver, WV 25813	TEL: (304) 255-2500 FAX: (304) 255-2572 Website: www.reiclabs.com		isposed per your standard laboratory		* Preservation Codes: 0 None	1 Hydrochloric Acid 2 Nitric Acid 3 Sulfuric Acid	4 Sodium Thiosulfate 5 Sodium Hydroxide/ Sodium Hydroxide 6 Sodium Hydroxide 1 Ausorbit Acid 8 Sodium SulfiteHCL 9 Potassium Ditydrogen Citrate 10 Bromium Chloride COMMENTS:	-				T DESIRED:	NLY tempt to Cool ?
COC ID: 3437 PAGE: 1 OF: 1	nt Whenever Possible!!!	CTIONS / COMMENTS:	/V Please use SampleID as purchase order number. the samples do not need to be returned and can be d	ults to Kathy Berry at kberry@reiclabs.com	TICAL PARAMETERS		30143334	8	200	500	2	REPORT TRANSMITTA	FOR LAB USE O Temp of semples^C At Comments:
CUSTODY RECORD	se Include Email Address of Report Recipie	LYTICAL SERVIC SPECIAL INSTRUCT	State Code: W After analysis,	practices. Kesu	LATANA	STRONT RADIUM RADIUM GROSS_I GROSS_	IUM_90_SUB (EPA 905.0) Image: Constraint of the second secon	3/16/2015 8:55:00 AM 1 イ イ イ イ	3/16/2015 9:45:00 AM 1 2 2 2 2	3/16/2015 11:50:00 1 1 1 1 1 1	3/16/2015 12:40:00 1 1 4 4 4 4	S Bath 715 Tere of Date	Date 3:1X-15 1:1 Imme 3:1X-15 1:1 Imme 3:47 1:52 2nd BD 3:nd BD 1 requests will incur surcharges! 1 1
CHAIN OI	Plee	COMPANY: PACE ANA	QD	01	FAX:	EMAIL:	Bortle MATRIX Type	Liquid	Liquid	Liquid	Liquid	Inter Received By: A P.	RUSH Next BD
	rit, one clent at a thro	CE_PA	8 ROSEYTOWN RO	EENSBURG, PA 156	4) 850-5600	719EVF1	Client Sample ID	A 1- PARKERSBURG	A 2- NORTHWESTERN LF	A 3-MEADOWFILL LF	A 4- BRIDGEPORT POTW	2-16-15 1	Standard 2
R	Improving the environm	SUB CONTRATOR: PA	ADDRESS: 163	CITY, STATE, ZIP: GR	PHONE: (724	ACCOUNT #: 050	ITEM SAMPLE ID	1 1503130-01/	2 1503I30-02/	3 1503130-03/	4 1503130-04	Relinquicher By: R	LVL Page 18 of 20

Sar	nple Conditio	on Upon Receipt
Face Analytical Client Name	RETC	Project # <u>30143334</u>
Courier: Fed Ex UPS USPS Clier	nt 🗌 Commercia	I 🖄 Pace Other
Custody Seal on Cooler/Box Present: Uyes	🕅 no Se	als intact: 🔲 yes 🔲 no 🛛 Biological Tissue is Frozen: Yes No
Packing Material: Bubble Wrap X Bubble Bag	s None	_ Other
Thermometer Used NA Type	of Ice: Wet E	lue None Samples on Ice, cooling process has begun
Cooler Temp.: Observed Temp.:°C Co	rrection Factor:	°C Final Temp:°C
Temp should be above freezing to 6°C		Comments:
Chain of Custody Present:	ØYes □No □N	I/A 1.
Chain of Custody Filled Out:		VA 2.
Chain of Custody Relinquished:	XYes INO IN	I/A 3.
Sampler Name & Signature on COC:	TYes No DA	/A 4
Samples Arrived within Hold Time:		/A 5.
Short Hold Time Analysis (<72hr):		/A 6.
Rush Turn Around Time Requested:	□Yes ©No □N	/A 7.
Sufficient Volume:	Yas No DN	/A 8.
Correct Containers Used:	XYes No No	/A 9,
-Pace Containers Used:	□Yes ØNo □N	/Α
Containers Intact:	XYes ONO ON	/A 10.
Filtered volume received for Dissolved tests	DYes DNo D	/A 11.
Sample Labels match COC:	XYes DNo DN	/A 12.
-Includes date/time/ID/Analysis Matrix:	~+	
All containers needing preservation have been checked.	Yes DNo DN	1A 13. Sample #2 Added 3 ml HW03 @ 1735 3-ATT
All containers needing preservation are found to be in compliance with EPA recommendation.	TYES NO DA	IA SRA
exceptions: VOA, collform, TOC, O&G, Phenois	□Yes)©No	completed SPA Lot # of added DL/5 -0/62
Samples checked for dechlorination:	□Yes □No DIN	/A 14.
Headspace in VOA Vials (>6mm):		/A 15.
Trip Blank Present:		/A 16.
Trip Blank Custody Seals Present	□Yes □No QN	
Pace Trip Blank Lot # (if purchased):		
Client Notification/ Resolution		Field Data Required? Y / N
Person Contacted	Dat	e/Time:
Comments/ Resolution:		
Project Manager Review:	Serio	Date: 30015
Note: Whenever there is a discrepancy affecting North Ca (i.e. out of hold, incorrect preservative, out of temp, incorr	arolina compliance s rect containers)	amples, a copy of this form will be sent to the North Carolina DEHNR Certification Office

J:\QAQC\Master\Document Management\Sample Mgt\SCURF\FALLC003-09 SCUR Front 3Mardb201519 of 20

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	Other											
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	20lqiZ						•					
	Cubitainer (500 ml / 4L)							1				
	Radchem Naigene (1/2 gal. / 1 gal.L)	1										
14	Radohem Nalgene (125 / 250 / 500 AL)	3						_				
6Ž	Wipes / swipel smaarl filter											
t Name	Bacteria (120 ml)							l				
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	(Im 032) əbinayO											
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	Dissolved Metals preserved Y N											
	sist∋M isto⊺											
	(Im 035) XOT											
	TOC (40 ml / 250 ml)											
	Phenolics (250 ml)											
	Nutrient (250 / 500)									×		
	Organics (1L)											3
	Chemistry (250 / 500 / 1L)											
	Soil kit (2 SB, 1M, soil jar)											
	Glass Jar (120 / 250 / 500 / 1L)				0							×
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page 2

- Face Analytical

Page 20 of 20

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		Con	tact Person G	George Ca	rico/Ja	mie W	olfe			Pł	hone 304-69	6-5456		
	EIC	Add	Iress One	Marshall D	Drive			Ci	ity Hu	intington		_State_W	V Zip 25755	
	ial Concultante	Billin	ng Address (if e	different)	-				_				-	
MAIN LABORATORY & CORPORA P.O. Box 286 • 225 Industrial Park I 800-999-0105 • 304-255-2500 •	TE HEADQUAR Rd, Beaver, WV 258 www.reiclabs.com	TERS: 13 Site	ID & State	HALLSTA	City	Projec	t ID_ K	ANAW	144	COUNTY	State	Zip L Sar	mpler <u>CB</u>	
MID-OHIO VALLEY Service Center 101 17th Street Ashland, KY 41101 606-393-5027 SHENAN SHENAN Service C 1557 Commerce 1557 Commerce Verona, VA	DOAH enter Rd., Ste 201 302 24482 R 0183	ROANOKE Service Center 9-C Peters Creek Rd oanoke, VA 24019 540-777-1276	MORGANTO Service Cen 16 Commerce Westover, WV 2 304-241-58	OWN nter 26501 861 QUIVE 26501 QUIVE 26501 QUIVE 26501 QUIVE 26501 QUIVE QUIVE 26501 QUIVE QUIVE QUIVE QUIVE 26501 QUIVE	See	Attachm	ent							
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SAMPLE LOO TURNAROUND TIME NORMAL *Bush work needs prior la	RU O 5 DAY	SH TURNAROUND* 3 DAY O 2 DAY (and will incur additional of	C 1 DAY charges	ANALYSIS & METH			•	•						
SAMPLE LO TURNAROUND TIME NORMAL *Rush work needs prior la SAMPLE ID	G & ANAL' RU O 5 DAY Coratory approval	SH TURNAROUND* 3 DAY 2 DAY (and will incur additional of Sampling Date/Time	C 1 DAY charges	ANALYSIS & METH Samble Comb/Quap	0 1	2 3	5 1		,) 	ENTER PRE 0 None	SERVATIVE CO	DDE(S): 6 Sodi	um Flydroxide	
SAMPLE LOO TURNAROUND TIME NORMAL *Bush work needs prior la SAMPLE ID MU - 2 Charleston SA POTH	B & ANALY RU O 5 DAY Dooratory approval No. 8 Type of Containers N 23	SH TURNAROUND* 3 DAY 2 DAY (and will incur additional of Sampling Date/Time 12-9-14 1055	C 1 DAY charges Matrix Water	Sample Comp/Grab Grab	0 21 0 X	2 3	4.5 °1(ENTER PRE 0 None 1 Hydrochil 2 Nitric Aci	ESERVATIVE CC	DDE(S); 6 Sodi 7 Asco 8 Sodi	um Flydroxide rbic Acid um Bisulfate/Methano	
SAMPLE LO TURNAROUND TIME NORMAL *Rush work needs prior la SAMPLE ID MU - 2 Charleston SF MU - 1 Charleston SF MU - 1 Charleston SF	G & ANALY RU O 5 DAY Doratory approval No. & Type of Containers N 23 ¥ 20	SH TURNAROUND* 3 DAY 2 DAY (and will incur additional of Sampling Date/Time 12-9-14 1055 12-9-14 0950	Charges Matrix Water Water	Sample Comp/Grab Grab	0 2 1 ×	92 × 3	4 5 °1(ENTER PRE 0 None 1 Hydrochi 2 Nitric Acie 3 Sulfuric A	ESERVATIVE CC Ioric Acid d Iscid	DDE(S): 6 Sodi 7 Asco 8 Sodi 9 Arm	um Rydroxide Irbic Acid um Bisulfate/Methano nonium Chloride	1
SAMPLE LO TURNAROUND TIME NORMAL *Bush work needs prior la SAMPLE ID SAMPLE ID MU - 2 Charleston SF MU - 1 Charleston SF MU - 1 Charleston SF MU - 1 Charleston SF MU - 1 Charleston SF POTW	RU O 5 DAY Dooratory approval	SH TURNAROUND* 3 DAY 2 DAY (and will incur additional of Sampling Date/Time 12-9-14 1055 12-9-14 0950	Charges Matrix Water Water Water	Sample Comp/Grab Grab Choose	0 - 1 V X X X	22 × 3	4.5 °1(2 b)			ENTER PRE 0 None 1 Hydrochi 2 Nitric Aci 3 Sulfuric A 4 Sodium T 5 Sodium H	ESERVATIVE CC loric Acid d kcid (hiosulfate +ydroxide/	DDE(S): 6 Sodi 7 Asco 8 Sodi 9 Amn 10 <u>AS</u> 11	um Rydroxide irbic Acid um Bisulfate/Methano onnium Chloride S/AH	4
SAMPLE LO TURNAROUND TIME NORMAL *Rush work needs prior la SAMPLE ID SAMPLE ID MU - 2 Charleston SF MU - 1 Charleston SF MU - 1 Charleston SF Tip Blank	S & ANALY RU O 5 DAY Doratory approval No. & Type of Containers N 23 ¥ 20 2	SH TURNAROUND* 3 DAY ② 2 DAY ③ and will incur additional of Sampling Date/Time 1 ス - 9 - 14 1055 1 こ - 9 - 14 0950	Charges Water Water Water Choose	Sample Comp/Grab Grab Choose Choose	× ×	2 ×3	15 °1(ENTER PRE 0 None 1 Hydrochl 2 Nitric Aci 3 Sulfuric A 4 Sodium 1 5 Sodium A	ESERVATIVE CC loric Acid d kcid Thiosulfate +ydroxide/ Assenite * (Use blanks for p	DDE(S): 6 Sodi 7 Asco 8 Sodi 9 Amn 10 <u>AS</u> 11 preservatives	um Rydroxide Irbic Acid um Bisulfate/Methano nonium Chloride S/AH nat listed.)	-
SAMPLE LO TURNAROUND TIME NORMAL *Rush work needs prior la SAMPLE ID MU - 2 Charleston SF MU - 1 Charleston SF	RU Costatory approval No. & Type of Containers N 23 * 20 2	SIS REQUEST SH TURNAROUND* 3 DAY ② 2 DAY ③ and will incur additional of Sampling Date/Time 12-9-14 1055 12-9-14 0950	Charges Matrix Water Water Choose Choose	Sample Comp/Grab Grab Choose Choose		2 × 3				ENTER PRE 0 None 1 Hydrochi 2 Nitric Aci 3 Sulfuric A 4 Sodium 1 5 Sodium 1 5 Sodium A	ESERVATIVE CC laric Acid d 'cid I'niosulfate Hydroxide/ Arsenite *(Use blanks for p VTS:	DDE(S): 6 Sodi 7 Asco 8 Sodi 9 Arnn 10 <u>AS</u> 11 11	um Rydroxide Irbic Acid um Bisulfate/Methano nonium Chloride S/AH	
SAMPLE LOO TURNAROUND TIME NORMAL *Rush work needs prior la SAMPLE ID MU - 2 Charleston SA MU - 1 Charleston SA Trip Blank	S & ANALY RU O 5 DAY Doratory approval No. & Type of Containers N 23 ¥ 20 2	SH TURNAROUND* 3 DAY ② 2 DAY ③ and will incur additional of Sampling Date/Time 1 ス - 9 - 14 1055 1 こ - 9 - 14 0950	Charges	Sample Comp/Grab Grab Choose Choose Choose	0 ² 1 v X X	92 93 9 U	4.5 °1(2 0)			ENTER PRE 0 None 1 Hydrochl 2 Nitric Aci 3 Sulfuric A 4 Sodium 1 5 Sodium A 5 Sodium A COMMEN Field Sa Per Doc	ESERVATIVE CC loric Acid d kcid Thiosulfate +/droxide/ Arsenite */Use blanks for p VTS: ampling T	DDE(S): 6 Sodi 7 Asco 8 Sodi 9 Amm 10 <u>AS</u> 11 meservatives Time:	um Rydroxide Irbic Acid um Bisulfate/Methano nonium Chloride S/AH nat listed.)	
SAMPLE LOO TURNAROUND TIME NORMAL *Rush work needs prior la SAMPLE ID MU - 2 Charleston SF MU - 1 Charleston SF MU - 1 Charleston SF Portu- Trip Blank	RU Costantial States No. & Type of Containers N 23 * 20 2	SIS REQUEST SH TURNAROUND* 3 DAY ② 2 DAY ③ and will incur additional of Sampling Date/Time 12-9-14 1055 12-9-14 0950	Charges Matrix Water Water Choose Choose Choose	Sample Comp/Grab Grab Choose Choose Choose Choose						ENTER PRE 0 None 1 Hydrochil 2 Nitric Aci 3 Sulfuric A 5 Sodium 1 5 Sodium 1 5 Sodium A COMMEN Field Sa Per Dou M UL - L	ESERVATIVE CO loric Acid d kcid Hydroxide/ Assenite *(Use blanks for; VTS: ampling T ug Arthur Ph= 6.2	DDE(S): 6 Sodi 7 Asco 8 Sodi 9 Arnn 10 <u>AS</u> 11 preservatives Time: <u>L</u> 24 C	um Rydroxide Irbic Acid um Bisulfate/Methano nonium Chloride S/AH nat listed.) thours ond = 42.50	Temp= 19.0
SAMPLE LOO TURNAROUND TIME NORMAL *Rush work needs prior la SAMPLE ID MU - 2 Charleston SA MU - 1 Charleston SA Trip Blank	S & ANALY RU O 5 DAY Dooratory approval No. & Type of Containers N 23 ¥ 20 2	SIS REQUEST SH TURNAROUND* 3 DAY ② 2 DAY ③ and will incur additional of Sampling Date/Time 1ス - 9 - 14 1055 12 - 9 - 14 0950	Choose Choose Choose Choose Choose	Sample Comp/Grab Grab Choose Choose Choose Choose Choose Choose		22 23 5 0				ENTER PRE 0 None 1 Hydrochl 2 Nitric Acit 3 Sulfuric A 4 Sodium A 5 Sodium A Sodium A COMMEN Field Sa Per Don MU-L MU-L	eservative co loric Acid d kcid Thiosulfate +/Use blanks for p vTS: ampling T ug Arthur Ph= 6.8 Ph= 6.6	DDE(S): 6 Sodi 7 Asco 8 Sodi 9 Amm 10 <u>AS</u> 11 meservatives Time: 24 0 0	um Rydroxide Irbic Acid um Bisulfate/Methano nonium Chloride S/AH nat listed.) thours ond: 4250 585 Temp:	Temp= 19.0
SAMPLE LOO TURNAROUND TIME NORMAL *Rush work needs prior la SAMPLE ID MU - 2 Charleston SA POTW MU - 1 Charleston SA POTW Trip Blank	G & ANALY RU O 5 DAY O Containers N 23 * 20 2	SH TURNAROUND* 3 DAY ② 2 DAY ③ and will incur additional of Sampling Date/Time 1ユーター14 1655 1ユーター14 0950	Charges Matrix Water Water Choose Choose Choose Choose Choose	Sample Comp/Grab Grab Choose Choose Choose Choose Choose Choose Choose Choose						ENTER PRE 0 None 1 Hydrochi 2 Nitric Ai 3 Sulfuric A 5 Sodium A Sodium A Sodium A COMMEN Field Sa Per Don MU-L MU-L MU-2	ESERVATIVE CO loric Acid d txid Thiosulfate Hydroxide/ Arsenite *(Use blanks for μ VTS: ampling T ug Arthur Ph= 6.8 Ph= 6.6	DDE(S): 6 Sodi 7 Asco 8 Sodi 9 Arnn 10 <u>AS</u> 11 rreservatives Time: <u></u> 24 <u>C</u> D C O A d	um Rydroxide Irbic Acid um Bisulfate/Methano nonium Chloride S/AH nor listed.) thours ond: 4250 595 Tenp:	Temp= 19.0 L2.5 c

DBPix Evaluation

WVDEP Drill Cutting / Lea	cha	te Ar	alys	is List
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				4
Cadmium				
Chromium				
Hexavalent Chromium				
Copper				
Lead				
Lithium				
Mercury				
Nickel				
Selenium				
Silver				
Strontium				
Vanadium				
Zinc				
Chloride				
Fluoride				
Nitrate as Nitrogen				
Nitrite as Nitrogen				
Sulfate				
Total Suspended Solids				
Free Cyanide				
Benzene				
Chlorobenzene				
Chlorodibromomethane				

4.

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DBPix Evaluation

1,2-Dichlorobenzene

1,3-Dichlorobenzene 1,4-Dichlorobenzene

1,4-Dinitrobenzene

1,4-Naphthoquinone

2,4-Dinitrotoluene

2,6-Dinitrotoluene

4-Nitroquinoline-1-oxide

bis(2-ethylhexyl) phthalate

Butyl benzylphthalate

Di-N-Butyl Phthalate

Di-N-Octylphthalate Diethyl Phthalate

4.

Dimethyl Phthalate

Flouranthene

Nitrobenzene

Pentachloronitrobenzene

Gross Alpha

Gross Beta

Radium 226

Radium 228

Strontium 90

Radon

pH

Total Dissolved Solids Total Suspended Solids

BOD 5-Day

Ammonia as Nitrogen

Total Kjeldahl Nitrogen

Oil & Grease

Acidity to pH 8.3

Zorl www.ammara.com

DBPix Evaluation

Specific Conductance Alkalinity to pH 4.5 Chemical Oxygen Demand Dissolved Iron and Iron

Manganese and Dissolved Manganese

4.

Jop) www.ammara.com

	KEI Cons	sultants,	Inc.
	FIELD LOG: pH Cali	bration Rec	ords 6-2010.Rev.1
Client Name: 1	Marshall University	_Site Location:	Charleston City Landfill
Date:	12-9-14	Analyst:	C. Belcher
Calibration Location:	Field / Laboratory	Instrument:	Oakton pH Meter
4.0 Buffer Lot #:	0197-01		
7.0 Buffer Lot #:	(323-04		
10.0 Buffer Lot #:	C-337-03		

pH (SU) - SM4500-H+B, 18th Edition								
Standard	Initial Reading	Reading After Calibration	Temperature °C	Comments				
4.0 Buffer	4.14	4,00	22.0					
7.0 Buffer	7.08	7.00	21.9					
10.0 Buffer	16.10	10.01	21.9					

Slope: 99.0 %

Comments:

Calibration at the laboratory requires a pH 7.0 QC Check

All field pH analysis must be followed by a Post Analysis pH Check

Quality Control Samples	Reading	Acceptance Range:
QC Check, 7.0	7.0	T
Post Analysis QC Check, 7.0	7.0	True value $\pm 0.1 (6.9 - 7.1)$

REI Consultants, Inc. P.O. Box 286 Beaver, WV 25813 Phone: 800-999-0105 Fax: 304-255-2572 www.reiclabs.com



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

Tuesday, December 16, 2014

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

TEL: (304) 696-6042 FAX:

RE: KANAWHA COUNTY LANDFILL

Work Order #: 1412B17

Dear GEORGE CARICO:

REI Consultants, Inc. received 3 sample(s) on 12/9/2014 for the analyses presented in the following report.

Kathy Berry

Kathy Berry



Client: MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,

Project: KANAWHA COUNTY LANDFILL

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#: 1412B17

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	12/9/2014 10:55:00 AM
Project:	KANAWHA COUNTY LANDFILL	Date Received:	12/9/2014
Lab ID:	1412B17-01A	Matrix:	Liquid
Client Sample ID:	MU-2 CHARLESTON SANITARY BOARD POTW	Site ID:	CHARLESTON, WV

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
METALS BY ICP			Method: (1994)	EPA 200).7 Rev.	. 4.4	Analyst: CGW	
Aluminum	0.017	0.005	0.100	NA	J	mg/L	12/11/2014 9:30 PM	PA/VA
Antimony	ND	0.020	0.200	NA		mg/L	12/11/2014 9:30 PM	PA/VA
Arsenic	ND	0.020	0.200	NA		mg/L	12/11/2014 9:30 PM	PA/VA
Barium	0.044	0.002	0.100	NA	J	mg/L	12/11/2014 9:30 PM	PA/VA
Beryllium	ND	0.001	0.010	NA		mg/L	12/11/2014 9:30 PM	PA/VA
Boron	0.116	0.020	0.100	NA		mg/L	12/11/2014 9:30 PM	PA/VA
Cadmium	ND	0.001	0.020	NA		mg/L	12/11/2014 9:30 PM	PA/VA
Chromium	ND	0.005	0.100	NA		mg/L	12/11/2014 9:30 PM	PA/VA
Copper	ND	0.005	0.100	NA		mg/L	12/11/2014 9:30 PM	PA/VA
Iron	0.110	0.010	0.100	NA		mg/L	12/11/2014 9:30 PM	PA/VA
Lead	ND	0.010	0.200	NA		mg/L	12/11/2014 9:30 PM	PA/VA
Lithium	ND	0.020	0.100	NA		mg/L	12/11/2014 11:56 AM	
Manganese	0.182	0.002	0.100	NA		mg/L	12/11/2014 9:30 PM	PA/VA
Nickel	ND	0.005	0.100	NA		mg/L	12/11/2014 9:30 PM	PA/VA
Selenium	ND	0.020	0.200	NA		mg/L	12/11/2014 9:30 PM	PA/VA
Silver	ND	0.004	0.050	NA		mg/L	12/11/2014 9:30 PM	PA/VA
Strontium	0.146	0.001	0.010	NA		mg/L	12/11/2014 11:56 AM	PA
Vanadium	ND	0.005	0.100	NA		mg/L	12/11/2014 9:30 PM	PA/VA
Zinc	0.046	0.003	0.050	NA	J	mg/L	12/11/2014 9:30 PM	PA/VA
MERCURY, Total E245.1			Method: 3.0 (1994	EPA 245	5.1, Rev	<i>.</i>	Analyst: CR	
Mercury	ND	0.0001	0.0010	NA		ma/L	12/11/2014 4:32 PM	PA/VA

SEMIVOLATILE ORGANIC COMPOU	Method: S	W8270)D (2007)	Analyst: JD			
1,4-Dinitrobenzene	ND	NA	0.0107	NA	mg/L	12/11/2014 11:15 PM	
1,4-Napthoquinone	ND	NA	0.0107	NA	mg/L	12/11/2014 11:15 PM	
4-Nitroquinoline-1-oxide	ND	NA	0.0535	NA	mg/L	12/12/2014 9:41 PM	
Pentachloronitrobenzene	ND	NA	0.0107	NA	mg/L	12/11/2014 11:15 PM	
Bis(2-ethylhexyl)phthalate	ND	0.0053	0.0107	NA	mg/L	12/11/2014 11:15 PM	PA/VA
Butyl benzyl phthalate	ND	0.0053	0.0107	NA	mg/L	12/11/2014 11:15 PM	PA/VA
Di-n-butyl phthalate	ND	0.0053	0.0107	NA	mg/L	12/11/2014 11:15 PM	PA/VA
Diethyl phthalate	ND	0.0021	0.0107	NA	mg/L	12/11/2014 11:15 PM	PA/VA
Dimethyl phthalate	0.0024	0.0021	0.0107	NA	J mg/L	12/11/2014 11:15 PM	PA/VA
2,4-Dinitrotoluene	ND	0.0021	0.0107	NA	mg/L	12/11/2014 11:15 PM	PA/VA
2,6-Dinitrotoluene	ND	0.0021	0.0107	NA	mg/L	12/11/2014 11:15 PM	PA/VA

WO#: 1412B17

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	12/9/2014 10:55:00 AM
Project:	KANAWHA COUNTY LANDFILL	Date Received:	12/9/2014
Lab ID:	1412B17-01A	Matrix:	Liquid
Client Sample ID:	MU-2 CHARLESTON SANITARY BOARD POTW	Site ID:	CHARLESTON, WV

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed NELAP
Di-n-octyl phthalate	ND	0.0053	0.0107	NA		mg/L	12/11/2014 11:15 PM PA/VA
Fluoranthene	ND	0.0021	0.0107	NA		mg/L	12/11/2014 11:15 PM PA/VA
Nitrobenzene	ND	0.0021	0.0107	NA		mg/L	12/11/2014 11:15 PM PA/VA
Surr: 2-Fluorophenol	34.2	NA	32.9-110	NA		%REC	12/11/2014 11:15 PM
Surr: Phenol-d5	24.4	NA	25.8-110	NA	S	%REC	12/11/2014 11:15 PM
Surr: 2,4,6-Tribromophenol	70.2	NA	63.8-110	NA		%REC	12/11/2014 11:15 PM
Surr: Nitrobenzene-d5	71.4	NA	61.8-110	NA		%REC	12/11/2014 11:15 PM
Surr: 2-Fluorobiphenyl	69.5	NA	58.6-110	NA		%REC	12/11/2014 11:15 PM
Surr: 4-Terphenyl-d14	77.6	NA	55.1-110	NA		%REC	12/11/2014 11:15 PM

VOLATILE ORGANIC COMPOUNDS-8260			Method: S	W8260B	Analyst: JM		
Benzene	ND	0.500	1.00	NA	µg/L	12/15/2014 11:41 PM	PA/VA
Chlorobenzene	ND	0.500	1.00	NA	µg/L	12/15/2014 11:41 PM	PA/VA
Dibromochloromethane	ND	0.500	1.00	NA	µg/L	12/15/2014 11:41 PM	PA/VA
1,2-Dichlorobenzene	ND	0.500	1.00	NA	μg/L	12/15/2014 11:41 PM	PA/VA
1,3-Dichlorobenzene	ND	0.500	1.00	NA	µg/L	12/15/2014 11:41 PM	PA/VA
1,4-Dichlorobenzene	ND	0.500	1.00	NA	µg/L	12/15/2014 11:41 PM	PA/VA
Surr: 1,2-Dichloroethane-d4	113	NA	68.7-129	NA	%REC	12/15/2014 11:41 PM	
Surr: 4-Bromofluorobenzene	107	NA	71.8-127	NA	%REC	12/15/2014 11:41 PM	
Surr: Dibromofluoromethane	105	NA	74.3-124	NA	%REC	12/15/2014 11:41 PM	
Surr: Toluene-d8	104	NA	71.4-129	NA	%REC	12/15/2014 11:41 PM	

BOD, 5 Day, 20°C	Method: S	SM5210	B-200 ⁻	Analyst: CB				
Biochemical Oxygen Demand	4	2	5	NA	J	mg/L	12/9/2014 4:02 PM	PA/VA
Chemical Oxygen Demand			Method: E (1993)	EPA 410).4, Rev	v. 2	Analyst: SF	
Chemical Oxygen Demand	22	4	10	NA		mg/L	12/10/2014 8:45 AM	PA/VA
HEXAVALENT CHROMIUM BY IC			Method: E 3.3 (1994)	EPA 218	8.6, Rev	v.	Analyst: CF	
Chromium (VI)	0.0008	0.0001	0.0010	NA	J	mg/L	12/10/2014 12:02 PM	PA/VA

ANIONS by ION CHROMATOGRAPHY	(Method: E (1993)	PA 30	0.0, Rev.2.1	Analyst: CF	
Chloride	60.0	0.20	2.00	NA	mg/L	12/9/2014 4:34 PM	PA/VA
Fluoride	0.37	0.05	0.20	NA	mg/L	12/9/2014 4:34 PM	PA/VA
Sulfate	33.3	1.00	5.00	NA	mg/L	12/9/2014 4:34 PM	PA/VA

WO#: 1412B17

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	12/9/2014 10:55:00 AM
Project:	KANAWHA COUNTY LANDFILL	Date Received:	12/9/2014
Lab ID:	1412B17-01A	Matrix:	Liquid
Client Sample ID:	MU-2 CHARLESTON SANITARY BOARD POTW	Site ID:	CHARLESTON, WV

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
ANIONS by ION CHROMATOGRAPH	1Y-48 H	OUR	Method: (1993)	EPA 300.	0, Rev	/.2.1	Analyst: CF	
Nitrogen, Nitrate	0.90	0.02	0.10	NA		mg/L	12/9/2014 4:34 PM	PA/VA
Nitrogen, Nitrite	1.39	0.05	0.50	NA		mg/L	12/9/2014 4:34 PM	PA/VA
TOTAL KJELDAHL NITROGEN (TKM	4)		Method: 2.0 (1993)	EPA 351.)	2, Rev	<i>.</i>	Analyst: JH	
Nitrogen, Kjeldahl, Total	7.68	0.40	2.00	NA		mg/L	12/11/2014 10:06 AM	PA/VA
OIL and GREASE			Method:	EPA 1664	l Rev	. A	Analyst: KS	
Oil & Grease	ND	2.0	5.0	NA		mg/L	12/11/2014 8:35 AM	PA/VA
CYANIDE, Free			Method:	SM4500-0	CN I-1	997	Analyst: JH	
Cyanide, Free	0.007	0.005	0.020	NA	J	mg/L	12/10/2014 2:23 PM	
AMMONIA NITROGEN			Method: (1993)	EPA 350.	1, Rev	<i>ı</i> .2.	Analyst: JH	
Nitrogen, Ammonia (As N)	6.96	0.16	0.40	NA		mg/L	12/10/2014 7:33 PM	PA/VA
CONDUCTIVITY			Method:	SM2510 E	3 - 19	97	Analyst: CC	
Specific Conductivity	534	NA	NA	NA		µmhos/cm	12/10/2014 4:45 PM	PA/VA
TOTAL DISSOLVED SOLIDS			Method:	SM2540 (C-199	7	Analyst: CC	
Total Dissolved Solids	255	5	10	NA		mg/L	12/10/2014 5:12 PM	PA/VA
TOTAL SUSPENDED SOLIDS			Method:	SM2540 [D-199	7	Analyst: CC	
Total Suspended Solids	5.5	1.0	5.0	NA		mg/L	12/10/2014 5:11 PM	PA/VA
ACIDITY			Method:	SM2310 E	3-199	7	Analyst: DSD	
Acidity, Total	40.5	1.0	10	NA		mg/L	12/9/2014 5:02 PM	PA/VA
ALKALINITY			Method:	SM2320 E	3-199	7	Analyst: DSD	
Alkalinity, Total (As CaCO3)	86.1	1.0	10	NA		mg/L	12/9/2014 5:02 PM	PA/VA
pH - LAB TEST, HOLD TIME EXPIRE	ED		Method:	SM4500-ł	-] -]+-Β-β	2000	Analyst: DSD	
рН	6.26	NA	NA	NA		SU	12/9/2014 5:02 PM	PA

Date Reported: 12/16/2014

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	12/9/2014 10:55:00 AM
Project:	KANAWHA COUNTY LANDFILL	Date Received:	12/9/2014
Lab ID:	1412B17-01B	Matrix:	Liquid
Client Sample ID:	MU-2 CHARLESTON SANITARY BOARD POTW	Site ID:	CHARLESTON, WV

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
DISSOLVED METALS BY ICP			Method: (1994)	EPA 200).7 Rev	/. 4.4	Analyst: CGW	
Iron	0.068	0.010	0.100	NA	J	mg/L	12/11/2014 9:33 PM	PA/VA
Manganese	0.177	0.002	0.100	NA		mg/L	12/11/2014 9:33 PM	PA/VA

Page 6 of 12

WO#: 1412B17

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	12/9/2014 9:50:00 AM
Project:	KANAWHA COUNTY LANDFILL	Date Received:	12/9/2014
Lab ID:	1412B17-02A	Matrix:	Liquid
Client Sample ID:	MU-1 CHARLESTON LANDFILL LEACHATE	Site ID:	CHARLESTON, WV

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	IELAP
METALS BY ICP			Method: (1994)	EPA 200	0.7 Rev.	4.4	Analyst: CGW	
Aluminum	0.026	0.005	0.100	NA	J	mg/L	12/11/2014 9:36 PM	PA/VA
Antimony	ND	0.020	0.200	NA		mg/L	12/11/2014 9:36 PM	PA/VA
Arsenic	0.059	0.020	0.200	NA	J	mg/L	12/11/2014 9:36 PM	PA/VA
Barium	0.891	0.002	0.100	NA		mg/L	12/11/2014 9:36 PM	PA/VA
Beryllium	ND	0.001	0.010	NA		mg/L	12/11/2014 9:36 PM	PA/VA
Boron	2.45	0.020	0.100	NA		mg/L	12/11/2014 9:36 PM	PA/VA
Cadmium	ND	0.001	0.020	NA		mg/L	12/11/2014 9:36 PM	PA/VA
Chromium	0.026	0.005	0.100	NA	J	mg/L	12/11/2014 9:36 PM	PA/VA
Copper	ND	0.005	0.100	NA		mg/L	12/11/2014 9:36 PM	PA/VA
Iron	13.3	0.010	0.100	NA		mg/L	12/11/2014 9:36 PM	PA/VA
Lead	ND	0.010	0.200	NA		mg/L	12/11/2014 9:36 PM	PA/VA
Lithium	0.044	0.020	0.100	NA	J	mg/L	12/11/2014 12:02 PM	
Manganese	1.13	0.002	0.100	NA		mg/L	12/11/2014 9:36 PM	PA/VA
Nickel	0.069	0.005	0.100	NA	J	mg/L	12/11/2014 9:36 PM	PA/VA
Selenium	ND	0.020	0.200	NA		mg/L	12/11/2014 9:36 PM	PA/VA
Silver	ND	0.004	0.050	NA		mg/L	12/11/2014 9:36 PM	PA/VA
Strontium	0.743	0.001	0.010	NA		mg/L	12/11/2014 12:02 PM	PA
Vanadium	0.017	0.005	0.100	NA	J	mg/L	12/11/2014 9:36 PM	PA/VA
Zinc	0.012	0.003	0.050	NA	J	mg/L	12/11/2014 9:36 PM	PA/VA
MERCURY Total E245 1			Mothodi	EDA 24	5 1 Pov		Analyst: CP	

MERCURY, Total E245.1			Method: 3.0 (1994	EPA 245.′	1, Rev.	Analyst: CR	
Mercury	ND	0.0001	0.0010	NA	mg/L	12/15/2014 12:43 PM	PA/VA
SEMIVOLATILE ORGANIC COMPOUN	IDS		Method:	SW8270D	(2007)	Analyst: JD	
1,4-Dinitrobenzene	ND	NA	0.0107	NA	mg/L	12/11/2014 11:41 PM	
1,4-Napthoquinone	ND	NA	0.0107	NA	mg/L	12/11/2014 11:41 PM	
4-Nitroquinoline-1-oxide	ND	NA	0.0533	NA	mg/L	12/12/2014 10:05 PM	
Pentachloronitrobenzene	ND	NA	0.0107	NA	mg/L	12/11/2014 11:41 PM	
Bis(2-ethylhexyl)phthalate	ND	0.0053	0.0107	NA	mg/L	12/11/2014 11:41 PM	PA/VA
Butyl benzyl phthalate	ND	0.0053	0.0107	NA	mg/L	12/11/2014 11:41 PM	PA/VA
Di-n-butyl phthalate	ND	0.0053	0.0107	NA	mg/L	12/11/2014 11:41 PM	PA/VA
Diethyl phthalate	ND	0.0021	0.0107	NA	mg/L	12/11/2014 11:41 PM	PA/VA
Dimethyl phthalate	ND	0.0021	0.0107	NA	mg/L	12/11/2014 11:41 PM	PA/VA
2,4-Dinitrotoluene	ND	0.0021	0.0107	NA	mg/L	12/11/2014 11:41 PM	PA/VA
2,6-Dinitrotoluene	ND	0.0021	0.0107	NA	mg/L	12/11/2014 11:41 PM	PA/VA

WO#: 1412B17

	· · ·		•			Date Reported: 12/	16/2014
Client:	MARSHALL UNIVERSITY ENVIRONMENTAL,	CENTE	R FOR	Col	lection Date:	12/9/2014 9:50:00 AM	
Project:	KANAWHA COUNTY LAN	NDFILL		Dat	e Received:	12/9/2014	
Lab ID:	1412B17-02A			Mat	rix:	Liquid	
Client Sample ID:	MU-1 CHARLESTON LAN	RLESTON LANDFILL LEACHATE		Site	D:	CHARLESTON, WV	
Analysis	Result	MDL	PQL	MCL	Qual Units	Date Analyzed	NELAP
Di-n-octyl phthalate	ND	0.0053	0.0107	NA	mg/L	12/11/2014 11:41 PN	PA/VA
Fluoranthene	ND	0.0021	0.0107	NA	mg/L	12/11/2014 11:41 PN	I PA/VA
Nitrobenzene	ND	0.0021	0.0107	NA	mg/L	12/11/2014 11:41 PN	I PA/VA
Surr: 2-Fluorophenol	34.3	NA	32.9-110	NA	%REC	; 12/11/2014 11:41 PN	1
Surr: Phenol-d5	26.5	NA	25.8-110	NA	%REC	; 12/11/2014 11:41 PN	í –
Surr: 2,4,6-Tribromoph	enol 70.5	NA	63.8-110	NA	%REC	: 12/11/2014 11:41 PN	i .
Surr: Nitrobenzene-d5	65.6	NA	61.8-110	NA	%REC	: 12/11/2014 11:41 PN	i
Surr: 2-Fluorobiphenyl	62.2	NA	58.6-110	NA	%REC	; 12/11/2014 11:41 PN	i
Surr: 4-Terphenyl-d14	55.7	NA	55.1-110	NA	%REC	: 12/11/2014 11:41 PN	1
VOLATILE ORGAN	IC COMPOUNDS-8260		Method:	SW8260)B (1996)	Analyst: JN	1
Benzene	ND	5.00	10.0	NA	µg/L	12/16/2014 12:15 AN	I PA/VA
Chlorobenzene	ND	5.00	10.0	NA	µg/L	12/16/2014 12:15 AN	I PA/VA
Dibromochloromethane	ND	5.00	10.0	NA	µg/L	12/16/2014 12:15 AN	i PA/VA
1,2-Dichlorobenzene	ND	5.00	10.0	NA	µg/L	12/16/2014 12:15 AN	i PA/VA
1,3-Dichlorobenzene	ND	5.00	10.0	NA	µg/L	12/16/2014 12:15 AN	i PA/VA
1,4-Dichlorobenzene	11.9	5.00	10.0	NA	µg/L	12/16/2014 12:15 AN	i PA/VA
Surr: 1,2-Dichloroethar	ne-d4 116	NA	68.7-129	NA	%REC	: 12/16/2014 12:15 AN	i
Surr: 4-Bromofluorober	nzene 103	NA	71.8-127	NA	%REC	: 12/16/2014 12:15 AN	i
Surr: Dibromofluorome	thane 101	NA	74.3-124	NA	%REC	; 12/16/2014 12:15 AN	i
Surr: Toluene-d8	103	NA	71.4-129	NA	%REC	: 12/16/2014 12:15 AN	l
Notes:							
Elevated PQLs are due	to matrix interference. Sample	foamed d	uring analysis				
BOD, 5 Day, 20°C			Method:	SM5210	B-2001	Analyst: CE	\$
Biochemical Oxygen Dem	nand ND	28	70	NA	mg/L	12/9/2014 4:02 PN) PA/VA
Notes:							
BOD PQL was elevated	I due to insufficient oxygen depl	etion in all	dilutions.		- -		_
Chemical Oxygen [Demand		Method: (1993)	EPA 410	0.4, Rev. 2	Analyst: SF	:
Chemical Oxygen Deman	d 362	20	50	NA	mg/L	12/10/2014 8:45 AN	I PA/VA

HEXAVALENT CHROMIUM BY IC Method: EPA 218.6, Rev. Analyst: CF 3.3 (1994) Chromium (VI) ND 0.0001 0.0010 NA 12/10/2014 12:15 PM PA/VA mg/L ANIONS by ION CHROMATOGRAPHY Method: EPA 300.0, Rev.2.1 Analyst: CF (1993) Chloride 2.50 25.0 NA 12/9/2014 4:52 PM PA/VA 190 mg/L

Page 8 of 12

WO#: 1412B17

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	12/9/2014 9:50:00 AM
Project:	KANAWHA COUNTY LANDFILL	Date Received:	12/9/2014
Lab ID:	1412B17-02A	Matrix:	Liquid
Client Sample ID:	MU-1 CHARLESTON LANDFILL LEACHATE	Site ID:	CHARLESTON, WV

Analysis	Result	MDL	PQL	MCL	Qual Units	Date Analyzed N	ELAP
Fluoride	0.43	0.05	0.20	NA	mg/L	12/9/2014 4:52 PM	PA/VA
Sulfate	80.5	1.00	5.00	NA	mg/L	12/9/2014 4:52 PM	PA/VA
ANIONS by ION CHROMATOGRA	РНҮ-48 НС	OUR	Method: (1993)	EPA 300	0.0, Rev.2.1	Analyst: CF	
Nitrogen, Nitrate	0.62	0.02	0.10	NA	mg/L	12/9/2014 4:52 PM	PA/VA
Nitrogen, Nitrite	ND	0.05	0.50	NA	mg/L	12/9/2014 4:52 PM	PA/VA
TOTAL KJELDAHL NITROGEN (TI	KN)		Method: 2.0 (1993	EPA 35 ⁻)	1.2, Rev.	Analyst: JH	
Nitrogen, Kjeldahl, Total	302	10.0	50.0	NA	mg/L	12/11/2014 10:08 AM	PA/VA
OIL and GREASE			Method:	EPA 160	64 Rev. A	Analyst: KS	
Oil & Grease	ND	2.0	5.0	NA	mg/L	12/11/2014 8:35 AM	PA/VA
Notes:							
Sample acidity or alkalinity exceeded the ac	dded preserva	ative, so f	that the requi	red preserv	vation pH was not	achieved.	
CYANIDE, Free			Method:	SM4500	-CN I-1997	Analyst: JH	

						· · · · · · · · · · · · · · · · · · ·	
Cyanide, Free	0.037	0.005	0.020	NA	mg/L	12/10/2014 2:24 PM	
AMMONIA NITROGEN			Method: (1993)	EPA 350.1	, Rev.2.	Analyst: JH	
Nitrogen, Ammonia (As N)	317	6.40	16.0	NA	mg/L	12/10/2014 8:14 PM	PA/VA
CONDUCTIVITY			Method:	SM2510 B	- 1997	Analyst: CC	
Specific Conductivity	5,280	NA	NA	NA	µmhos/cm	12/10/2014 4:45 PM	PA/VA
TOTAL DISSOLVED SOLIDS			Method:	SM2540 C	-1997	Analyst: CC	
Total Dissolved Solids	2,120	5	10	NA	mg/L	12/10/2014 5:12 PM	PA/VA
TOTAL SUSPENDED SOLIDS			Method:	SM2540 D	-1997	Analyst: CC	
Total Suspended Solids	40.0	8.0	40.0	NA	mg/L	12/10/2014 5:11 PM	PA/VA
ACIDITY			Method:	SM2310 B	-1997	Analyst: DSD	
Acidity, Total	378	1.0	10	NA	mg/L	12/9/2014 5:02 PM	PA/VA
ALKALINITY			Method:	SM2320 B	-1997	Analyst: DSD	
Alkalinity, Total (As CaCO3)	1,890	4.0	40.0	NA	mg/L	12/9/2014 5:02 PM	PA/VA

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	12/9/2014 9:50:00 AM
Project:	KANAWHA COUNTY LANDFILL	Date Received:	12/9/2014
Lab ID:	1412B17-02A	Matrix:	Liquid
Client Sample ID:	MU-1 CHARLESTON LANDFILL LEACHATE	Site ID:	CHARLESTON, WV

Analysis	Result	MDL	PQL	MCL Q	ual Units	Date Analyzed NE	LAP
pH - LAB TEST, HOLD TIME EXPIR	RED		Method:	SM4500-H+	B-2000	Analyst: DSD	
рН	6.90	NA	NA	NA	SU	12/9/2014 5:02 PM	PA

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	12/9/2014 9:50:00 AM
Project:	KANAWHA COUNTY LANDFILL	Date Received:	12/9/2014
Lab ID:	1412B17-02B	Matrix:	Liquid
Client Sample ID:	MU-1 CHARLESTON LANDFILL LEACHATE	Site ID:	CHARLESTON, WV

Analysis	Result	MDL	PQL	MCL	Qual Units	Date Analyzed N	ELAP
DISSOLVED METALS BY ICP			Method: (1994)	EPA 200).7 Rev. 4.4	Analyst: CGW	
Iron	10.5	0.010	0.100	NA	mg/L	12/11/2014 9:45 PM	PA/VA
Manganese	1.09	0.002	0.100	NA	mg/L	12/11/2014 9:45 PM	PA/VA

NO#: 1412B	1	7
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Date Reported: 12/16/2014

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	12/9/2014 12:00:00 AM
Project:	KANAWHA COUNTY LANDFILL	Date Received:	12/9/2014
Lab ID:	1412B17-03A	Matrix:	Trip Blank
Client Sample ID:	TRIP BLANK	Site ID:	CHARLESTON, WV

Qual Units **Date Analyzed NELAP** PQL MCL MDL Result Analysis **VOLATILE ORGANIC COMPOUNDS-8260** Method: SW8260B (1996) Analyst: JM 0.500 1.00 NA 12/15/2014 11:08 PM PA/VA Benzene ND µg/L Chlorobenzene ND 0.500 1.00 NA 12/15/2014 11:08 PM PA/VA µg/L Dibromochloromethane 0.500 1.00 NA PA/VA ND µg/L 12/15/2014 11:08 PM 0.500 1.00 NA 1,2-Dichlorobenzene ND 12/15/2014 11:08 PM PA/VA µg/L 1,3-Dichlorobenzene ND 0.500 1.00 NA 12/15/2014 11:08 PM PA/VA µg/L 1,4-Dichlorobenzene ND 0.500 1.00 NA 12/15/2014 11:08 PM PA/VA µg/L Surr: 1,2-Dichloroethane-d4 NA 68.7-129 NA 112 12/15/2014 11:08 PM %REC Surr: 4-Bromofluorobenzene 106 NA 71.8-127 NA 12/15/2014 11:08 PM %REC Surr: Dibromofluoromethane 102 NA 74.3-124 NA %REC 12/15/2014 11:08 PM Surr: Toluene-d8 104 NA 71.4-129 NA 12/15/2014 11:08 PM %REC



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

Thursday, January 08, 2015

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

TEL: (304) 696-6042 FAX:

RE: KANAWHA COUNTY LANDFILL

Work Order #: 1412B31

Dear GEORGE CARICO:

REI Consultants, Inc. received 2 sample(s) on 12/9/2014 for the analyses presented in the following report.

Kathy Berry

Kathy Berry



Date Reported: 1/8/2015

Client: MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,

Project: KANAWHA COUNTY LANDFILL

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: 1/8/2015

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	12/9/2014 10:55:00 AM
Project:	KANAWHA COUNTY LANDFILL	Date Received:	12/9/2014
Lab ID:	1412B31-01A	Matrix:	Liquid
Client Sample ID:	MU-2 CHARLESTON SANITARY BOARD POTW	Site ID:	CHARLESTON, WV

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	5.1		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	5.0		Analyst: Sub
Strontium-90	see attached	NA	NA	NA			

Date Reported: 1/8/2015

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	12/9/2014 9:50:00 AM
Project:	KANAWHA COUNTY LANDFILL	Date Received:	12/9/2014
Lab ID:	1412B31-02A	Matrix:	Liquid
Client Sample ID:	MU-1 CHARLESTON LANDFILL LEACHATE	Site ID:	CHARLESTON, WV

Analysis	Result	MDL	PQL	MCL	Qual Units	5 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		



Pace Analytical Services, Inc. 1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

December 24, 2014

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

RE: Project: 1412B31 Pace Project No.: 30136234

Dear Ms. Berry:

Enclosed are the analytical results for sample(s) received by the laboratory on December 10, 2014. 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,

Carino a. Ferrio

Carin Ferris carin.ferris@pacelabs.com Project Manager

Enclosures




Pace Analytical Services, Inc. 1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

CERTIFICATIONS

 Project:
 1412B31

 Pace Project No.:
 30136234

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-042 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



SAMPLE SUMMARY

 Project:
 1412B31

 Pace Project No.:
 30136234

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30136234001	1412B31-01A	Water	12/09/14 10:55	12/10/14 09:50
30136234002	1412B31-02A	Water	12/09/14 09:50	12/10/14 09:50



SAMPLE ANALYTE COUNT

 Project:
 1412B31

 Pace Project No.:
 30136234

Lab ID	Sample ID	Method	Analysts	Analytes Reported
30136234001	Sample ID 1412B31-01A 1412B31-02A	SM 7500Rn-B	FCC	1
		EPA 900.0	FCC	2
		EPA 903.1	JC2	1
		EPA 904.0	JAL	1
		ASTM D5811-95	LAL	1
30136234002	1412B31-02A	SM 7110C	FCC	1
		SM 7500Rn-B	FCC	1
		EPA 900.0	FCC	1
		EPA 903.1	JC2	1
		EPA 904.0	JAL	1
		ASTM D5811-95	LAL	1



 Project:
 1412B31

 Pace Project No.:
 30136234

Method: SM 7110C

Description:7110C Gross AlphaClient:REI Consultants, Inc.Date:December 24, 2014

General Information:

1 sample was analyzed for SM 7110C. 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:

Sample Comments:

Upon receipt at the laboratory, six mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis.

• 1412B31-02A (Lab ID: 30136234002)

Sample 30136234002 from this analytical project was analyzed outside of the recommended Radon-222 hold time of four days. Results reported are decay corrected to the sample collection date and time supplied by the client.

• 1412B31-02A (Lab ID: 30136234002)



 Project:
 1412B31

 Pace Project No.:
 30136234

Method:	SM 7500Rn-B
Description:	7500RnB Radon
Client:	REI Consultants, Inc
Date:	December 24, 2014

General Information:

2 samples were analyzed for SM 7500Rn-B. 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:

Sample Comments:

- Sample 30136234001 from this analytical project was analyzed outside of the recommended Radon-222 hold time of four days. Results reported are decay corrected to the sample collection date and time supplied by the client.
 - 1412B31-01A (Lab ID: 30136234001)

Upon receipt at the laboratory, six mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis.

• 1412B31-02Å (Lab ID: 30136234002)

Sample 30136234002 from this analytical project was analyzed outside of the recommended Radon-222 hold time of four days. Results reported are decay corrected to the sample collection date and time supplied by the client.

• 1412B31-02A (Lab ID: 30136234002)



 Project:
 1412B31

 Pace Project No.:
 30136234

EPA 900.0
900.0 Gross Alpha/Beta
REI Consultants, Inc.
December 24, 2014

General Information:

2 samples were 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:

Sample Comments:

- Sample 30136234001 from this analytical project was analyzed outside of the recommended Radon-222 hold time of four days. Results reported are decay corrected to the sample collection date and time supplied by the client.
 - 1412B31-01A (Lab ID: 30136234001)

Upon receipt at the laboratory, six mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis.

• 1412B31-02Å (Lab ID: 30136234002)

Sample 30136234002 from this analytical project was analyzed outside of the recommended Radon-222 hold time of four days. Results reported are decay corrected to the sample collection date and time supplied by the client.

• 1412B31-02A (Lab ID: 30136234002)



 Project:
 1412B31

 Pace Project No.:
 30136234

Method:EPA 903.1Description:903.1 Radium 226Client:REI Consultants, Inc.Date:December 24, 2014

General Information:

2 samples were analyzed for EPA 903.1. 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:

Sample Comments:

- Sample 30136234001 from this analytical project was analyzed outside of the recommended Radon-222 hold time of four days. Results reported are decay corrected to the sample collection date and time supplied by the client.
 - 1412B31-01A (Lab ID: 30136234001)

Upon receipt at the laboratory, six mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis.

• 1412B31-02Å (Lab ID: 30136234002)

Sample 30136234002 from this analytical project was analyzed outside of the recommended Radon-222 hold time of four days. Results reported are decay corrected to the sample collection date and time supplied by the client.

• 1412B31-02A (Lab ID: 30136234002)



 Project:
 1412B31

 Pace Project No.:
 30136234

Method:	EPA 904.0
Description:	904.0 Radium 228
Client:	REI Consultants, Inc.
Date:	December 24, 2014

General Information:

2 samples were analyzed for EPA 904.0. 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:

Sample Comments:

- Sample 30136234001 from this analytical project was analyzed outside of the recommended Radon-222 hold time of four days. Results reported are decay corrected to the sample collection date and time supplied by the client.
 - 1412B31-01A (Lab ID: 30136234001)

Upon receipt at the laboratory, six mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis.

• 1412B31-02Å (Lab ID: 30136234002)

Sample 30136234002 from this analytical project was analyzed outside of the recommended Radon-222 hold time of four days. Results reported are decay corrected to the sample collection date and time supplied by the client.

• 1412B31-02A (Lab ID: 30136234002)



 Project:
 1412B31

 Pace Project No.:
 30136234

Method: ASTM D5811-95

Description:905.0 Strontium 89/90 EichromClient:REI Consultants, Inc.Date:December 24, 2014

General Information:

2 samples were 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:

Sample Comments:

Sample 30136234001 from this analytical project was analyzed outside of the recommended Radon-222 hold time of four days. Results reported are decay corrected to the sample collection date and time supplied by the client. • 1412B31-01A (Lab ID: 30136234001)

Upon receipt at the laboratory, six mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis.

• 1412B31-02Å (Lab ID: 30136234002)

Sample 30136234002 from this analytical project was analyzed outside of the recommended Radon-222 hold time of four days. Results reported are decay corrected to the sample collection date and time supplied by the client. • 1412B31-02A (Lab ID: 30136234002)

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



ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 1412B31

Pace Project No.: 30136234

Sample: 1412B31-01A PWS:	Lab ID: 30136 Site ID:	S234001 Collected: 12/09/14 10:5 Sample Type:	55 Received:	12/10/14 09:50 N	latrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radon	SM 7500Rn-B	35.3 ± 41.2 (68.3) C:NA T:NA	pCi/L	12/16/14 23:30	10043-92-2	
Gross Alpha	EPA 900.0	1.35 ± 1.46 (2.88) C:NA T:NA	pCi/L	12/16/14 08:12	12587-46-1	
Gross Beta	EPA 900.0	5.37 ± 1.50 (1.44) C:NA T:NA	pCi/L	12/16/14 08:12	12587-47-2	
Radium-226	EPA 903.1	0.102 ± 0.464 (0.943) C:NA T:80%	pCi/L	12/19/14 11:52	13982-63-3	
Radium-228	EPA 904.0	0.0796 ± 0.344 (0.759) C:78% T:73%	pCi/L	12/23/14 15:03	15262-20-1	
Strontium-90	ASTM D5811-95	0.881 ± 0.781 (1.60) C:102% T:NA	pCi/L	12/15/14 06:52	10098-97-2	

 Sample: 1412B31-02A
 Lab ID: 30136234002
 Collected: 12/09/14 09:50
 Received: 12/10/14 09:50
 Matrix: Water

 PWS:
 Site ID:
 Sample Type:

Comments: • Upon receipt at the laboratory, six mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Gross Alpha	SM 7110C	7.55 ± 3.25 (2.94) C:NA T:NA	pCi/L	12/24/14 07:05	12587-46-1	
Radon	SM 7500Rn-B	-14.5 ± 40.1 (69.6) C:NA T:NA	pCi/L	12/17/14 01:03	10043-92-2	
Gross Beta	EPA 900.0	124 ± 23.0 (5.19) C:NA T:NA	pCi/L	12/18/14 19:40	12587-47-2	
Radium-226	EPA 903.1	2.83 ± 1.99 (0.958) C:NA T:88%	pCi/L	12/19/14 11:24	13982-63-3	
Radium-228	EPA 904.0	1.79 ± 0.881 (1.43) C:71% T:66%	pCi/L	12/23/14 15:03	15262-20-1	
Strontium-90	ASTM D5811-95	1.34 ± 0.748 (1.22) C:103% T:NA	pCi/L	12/16/14 19:05	10098-97-2	



Project:	1412B31						
Pace Project No.:	30136234						
QC Batch:	RADC/22542		Analysis Method:	ASTM D581	1-95		
QC Batch Method:	ASTM D5811-95		Analysis Description	: 905.0 Stront	ium 89/90 Eichrom		
Associated Lab Sam	nples: 30136234	001, 301362340	02				
METHOD BLANK:	828711		Matrix: Water				
Associated Lab Sam	nples: 30136234	001, 301362340	02				
Param	neter	Act ± L	nc (MDC) Carr Trac	Units	Analyzed	Qualifiers	
Strontium-90		-0.375 ± 0.377	(1.08) C:98% T:NA	pCi/L	12/15/14 06:50		

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:	1412B31						
Pace Project No.:	30136234						
QC Batch:	RADC/22525		Analysis Method:	SM 7500Rn-	В		
QC Batch Method:	SM 7500Rn-B		Analysis Description	: 7500Rn B Ra	adon		
Associated Lab San	nples: 30136234	001, 3013623	34002				
METHOD BLANK:	828072		Matrix: Water				
Associated Lab San	nples: 30136234	001, 3013623	34002				
Paran	neter	Act -	± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers	
Radon		-17.7 ± 18.3	(33.1) C:NA T:NA	pCi/L	12/15/14 18:45	-	

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:	1412B31						
Pace Project No.:	30136234						
QC Batch:	RADC/22538		Analysis Method:	EPA 904.0			
QC Batch Method:	EPA 904.0		Analysis Description	: 904.0 Radiu	m 228		
Associated Lab San	nples: 30136234	001, 301362340	02				
METHOD BLANK:	828707		Matrix: Water				
Associated Lab San	nples: 30136234	001, 301362340	02				
Paran	neter	Act ± U	nc (MDC) Carr Trac	Units	Analyzed	Qualifiers	
Radium-228		0.0489 ± 0.355	(0.789) C:72% T:80%	pCi/L	12/23/14 15:04		

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:	1412B31						
Pace Project No.:	30136234						
QC Batch:	RADC/22540		Analysis Method:	EPA 903.1			
QC Batch Method:	EPA 903.1		Analysis Descriptio	n: 903.1 Radiu	m-226		
Associated Lab San	nples: 30136234	001, 30136234	002				
METHOD BLANK:	828709		Matrix: Wate	r			
Associated Lab San	nples: 30136234	001, 30136234	002				
Paran	neter	Act ± l	Jnc (MDC) Carr Trac	Units	Analyzed	Qualifiers	
Radium-226		0.469 ± 0.609	(0.975) C:NA T:85%	pCi/L	12/19/14 10:28		-

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:	1412B31						
Pace Project No.:	30136234						
QC Batch:	RADC/22696	Analysis M	ethod: SM	17110C			
QC Batch Method:	SM 7110C	Analysis D	escription: 71	7110C Gross Alpha			
Associated Lab San	nples: 30136234	002					
METHOD BLANK:	834521	Matri	x: Water				
Associated Lab San	nples: 30136234	002					
Paran	neter	Act ± Unc (MDC) Carr Tra	ac l	Jnits	Analyzed	Qualifiers	
Gross Alpha		0.669 ± 0.692 (1.27) C:NA T:NA	pCi/L		12/24/14 07:05		

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:	1412B31							
Pace Project No.:	30136234							
QC Batch:	Batch: RADC/22563		alysis Method:	EPA 900.0				
QC Batch Method:	QC Batch Method: EPA 900.0			900.0 Gross	Alpha/Beta			
Associated Lab San	nples: 30136234	001, 30136234002						
METHOD BLANK:	828748		Matrix: Water					
Associated Lab San	nples: 30136234	001, 30136234002						
Paran	neter	Act ± Unc (MDC)	Carr Trac	Units	Analyzed	Qualifiers		
Gross Alpha		0.076 ± 0.620 (1.64) C:N	A T:NA	pCi/L	12/16/14 08:14			
Gross Beta		-0.423 ± 0.674 (1.82) C:N	NA T:NA	pCi/L	12/16/14 08:14			

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:
 1412B31

 Pace Project No.:
 30136234

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.

Place Include Email Address of Report Recipitent Phenomer Particulars and the state analysis for the sensitive sources (concerns) and the sensitive sources (concerns)	NEI CONSULTANS, INC.
Please Include Enual Iddress of Peyon Recipion Whenever Participation Conduction Conductions Conduction Conductine Conduction Conduction Conduction Conduction Conductina	PO Box 286 Remore WV 25813
Rease Include Enail Address of Report Recipical Whenever Parameter	TEL: (304) 255-2500 FAX: (304) 255-2500 WAANNON WAYAN AND AND AND AND AND AND AND AND AND A
GIB CONTANTOR FACE ANALYTICAL SERVIC SPECIAL INSTRUCTIONE (COMMANDING) JODURIS 1538 ROSEYTOWN ROAD Atter analysis (we presende scondens) ADDURIS 1538 ROSEYTOWN ROAD Atter analysis (we presende scondens) CITY SIATE JF CREENVSBURG, PA 15601 Atter analysis (we presende scondens) PRONE (724) 850-5600 FAX ADDURI # 050719EVT1 Bank ACCODINE # 050719EVT1 BAAL AARTICLI NOW Basis MAATING MERVEND AARTICLI ADDITIONAL Basis MAATING MERVEND AARTICLI ADDITIONAL Basis MAATING MERVEND AARTICLI NOW Basis MAATING MERVEND AARTICLI ADDITIONAL Basis MAATING MERVEND AARTICLI ADDITIONAL Basis MAATING MERVEND AARTICLI ADDITIONAL <td< td=""><td>reusine. www.reuciaus.com vient Whenever Possible!!!</td></td<>	reusine. www.reuciaus.com vient Whenever Possible!!!
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FHONE: (724) 850-5600 FAX: Accountrie: 050719 EVFT EMAIL: Client Sample ID Email: MATTEXX Date: MAATTEXX Accountrie: 050719 EVFT EMAIL: MAATTEXX Date: MAATTEXX ITEM Client Sample ID Email: MAATTEXX DATE: MAATTEXX Item SAMPLE ID Client Sample ID Email: MAATTEXX DATE: MAATTEXX Item SAMPLE ID Client Sample ID Email: MAATTEXX DATE: MAATTEXX Item SAMPLE ID Client Sample ID Email: MAATTEXX DATE: MAATTEXX Item SAMPLE ID Client Sample ID Item Item MAATTEXX DATE: DATE: DATE: </td <td>sults to Kathy Berry kberry@reiciabs.com. Thanks</td>	sults to Kathy Berry kberry@reiciabs.com. Thanks
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1 1412B31-01A MU-2 ・ Liquid 129/2014 10:55:00 1 <th1< th=""> <th1< th=""> 1</th1<></th1<>	4 Sodium Thiosuffate 4 Sodium Thiosuffate 5 Sodium Flydroxide/ 5 Sodium Flydroxide/ 5 Sodium Flydroxide/ 6 Sodium Flydroxide/ 7 Ascorbic Acid 8 Sodium SuffacHCL 9 Potassium Dihydrogen Citrate 10 Bromium Chloride 10 Bromium Chloride 10 Bromium Chloride 10 Bromium Chloride 10 Bromium Chloride 10 Bromium Chloride
1 1412B31-01A MU-2 Liquid 129/2014 129/2014 10.55:00 1	az 30136234
2 1412B31-02A MU-1 Liquid 12/9/2014 9:50:00 AM 1 <	44 001
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Refinquisched By: Relinquisched By: Relinquisched By: Relinquisched By: Date: Time: Received By: Received By:	* may use METHOD TIDC
Relinquished By: MS Date: Time: Received By: Date: Time: Date: </td <td>REPORT TRANSMITTAL DESIRED:</td>	REPORT TRANSMITTAL DESIRED:
Rejinquished By: Date: Time: Received By: Date: Time:	HARDCOPY (extra cost) C FAX FIMAIL C ONLINE
ag	FOR LAB USE ONLY
TAT: Standard [RUSH Next BD] 2nd BD] 3nd BD] Com	Temp of samples Contraction Cool ? Contraction Cool ? Contracts:

Sa	mple Conditie	on Upon Receipt
Ø		704700-1
<i>Pace Analytical</i> Client Name	: <u>REEC</u>	Project # 30136234
Courier: □ Fed Ex 및 UPS □ USPS □ Clier Tracking #: <u>1776X 7131360-18</u> 0-18	nt Commercia	Pace Other
Custody Seal on Cooler/Box Present:	🕅 no Se	als intact: 🗌 yes 🔲 no 🛛 Biological Tissue is Frozen: Yes No
Packing Material: Bubble Wrap X Bubble Bag	s None	Other
Thermometer Used <u>NA</u> Type	e of Ice: Wet B	lue None Samples on ice, cooling process has begun
Cooler Temp.: Observed Temp.:°C Co	rrection Factor: _	°C Final Temp:°C
Temp should be above freezing to 6°C		Comments:
Chain of Custody Present:	Yes DNO DN	//A 1.
Chain of Custody Filled Out:	Xyes DNO DN	/A 2.
Chain of Custody Relinquished:	Xyes INO IN	/A 3.
Sampler Name & Signature on COC:	TYes ONO DA	14 4. Walker on file Chiplin
Samples Arrived within Hold Time:		/A 5.
Short Hold Time Analysis (<72hr): SM 12-10-1		/A 6.
Rush Turn Around Time Requested:	DYes DNO DN	/A 7.
Sufficient Volume:	İXÎYes ⊡No ⊡N	/A 8.
Correct Containers Used:	Yes DNO DN	/A 9.
-Pace Containers Used:	, □Yes 🕅 No □N	/A
Containers Intact:		/A 10.
Filtered volume received for Dissolved tests	DYes DNO DIN	/A 11.
Sample Labels match COC:		^{/A} 12,
-Includes date/time/ID/Analysis Matrix:	nt	
All containers needing preservation have been checked.	Øves □No □N	A 13. Added 6ml HINUS to all bottles from
All containers needing preservation are found to be in compliance with EPA recommendation.	□Yes XNO □N	A Sample #2 @ 1045 12-10-14 SRA
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	⊡Yes DKNo	completed SRA Lot # of added preservative DL14 - 1100
Samples checked for dechlorination:	□Yes □No 🕅	A 14.
Headspace in VOA Vials (>6mm):		A 15.
Trip Blank Present:	□Yes ANO □N	A 16.
Trip 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	e/Time:
Comments/ Resolution:		
Project Manager Review:	Service	Date: 0/18/14
Note: Whenever there is a discrepancy affecting North Ca	rolina compliance sar	nples, 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)

Face Analytical

Other								
Other Padan	M	-						
Ziploc								
Cubitainer (500 ml / 4L)								
Radchem Nalgene (1/2 gal. / 1 gal.L)								
Radchem Nalgene (125 / 250 / 500 / 100	M	-1						
Wipes / swipe/ smear/ filter								
Bacteria (120 ml)								
(im 003) əbiilu2								
(lm 055) əbinsyO								
(Im 0£ Im 04) AOV								
(1L) HAT								
0 % G (1F)								
Dissolved Metals preserved Y N						12		
Zotal Metals						L		
TOX (250 ml)								
TOC (40 ml / 250 ml)								
Phenolics (250 ml)								
Nutrient (250 / 500)								
Organics (1L)							4	
Chemistry (ک50 / 500 / ۱۲)							 	
Soil kit (2 SB, 1M, soil jar)								
Glass Jar (120 / 250 / 500 / 1L)				 				
Matrix Code	3							
.oN mətl	00	200						

page 2

Project Number: 30136234

Client Name:___

SCURF Back (C016-4 15May2012).xls

Page 21 of 21

Δ.		Clie	nt:	LURINERSITY CENTER FO	ENVIRONMAN	NTAL GEDCH	EMICAL & A	PPLIED BOIER	ICH.	PO #		
		Con	tact Person	Geroge Ca	rico /	/ Jam	ie W	Volfe		Phone 304	.696.5456	
	FI(Add	Iress One	e Marshall	Drive	Э			City H	untington	State WV	Zip 25755
		Billi	ng Address (il	f different)								
Research Environmental & Industr	rial Consultants,	Inc.			City					State	Zip_	
PO. Box 286 + 225 Industrial Park F 800-999-0105 + 304-255-2500 +	Rd, Beaver, WV 258 www.reiclabs.com	B13 Site	ID & State		Contrast	Proje	ect ID_				Samp	oler
MID-OHIO VALLEY SHENANI Service Center Service C 101 17th Street 1557 Commerce Ashland, KY 41101 Verona, VA 606-393-5027 540-248-	DOAH Center Rd., Ste 201 30 24482 I -0183	ROANOKE Service Center 29-C Peters Creek Rd Roanoke, VA 24019 540-777-1276	MORGANT Service Ce 16 Commerc Westover, WV 304-241-5	OWN 4153 enter 33 e Drive 7 / 26501 34 / 265	See	Attache	d List					
SAMPLE LO	G & ANAL	YSIS REQUES	г	ETHO								
	2001 000		A	S	2333	1.33	3333					
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DBPix Evaluation

WVDEP Drill Cutting / Leachate Analysis List Aluminum Antimony Arsenic Barium Beryllium Boron Cadmium Chromium Hexavalent Chromium Copper Lead Lithium Mercury Nickel Selenium Silver Strontium Vanadium Zinc Chloride Fluoride Nitrate as Nitrogen Nitrite as Nitrogen Sulfate **Total Suspended Solids** Free Cyanide Benzene Chlorobenzene

Chlorodibromomethane

www.ammara.com

hes

DBPix Evaluation

1,2-Dichlorobenzene 1,3-Dichlorobenzene 1.4-Dichlorobenzene 1,4-Dinitrobenzene 1,4-Naphthoquinone 2,4-Dinitrotoluene 2,6-Dinitrotoluene 4-Nitroquinoline-1-oxide bis(2-ethylhexyl) phthalate **Butyl benzylphthalate Di-N-Butyl Phthalate Di-N-Octylphthalate Diethyl Phthalate Dimethyl Phthalate** Flouranthene Nitrobenzene Pentachloronitrobenzene Gross Alpha **Gross Beta** Radium 226 Radium 228 Strontium 90 Radon pH **Total Dissolved Solids Total Suspended Solids** BOD 5-Day Ammonia as Nitrogen **Total Kjeldahl Nitrogen** Oil & Grease

Acidity to pH 8.3

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Zor J

DBPix Evaluation

Specific Conductance Alkalinity to pH 4.5 Chemical Oxygen Demand Dissolved Iron and Iron Manganese and Dissolved Manganese

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Jor)

REI Consultants, Inc.

Field Log: Calibration Records

Client:	Site Location:	
Marshall University Environmental	Charleston Landfill	

Specific Conductance (umhos/cm) SM2510B-1997							
Check Standard	Initial Reading	Reading After Calibration	Temp °C	Comments			
1413	14 39	1413	23.0				
			Instrument ID: Oa	kton 300 Series	-		

Standard	Initial Reading	Reading After Calibration	Temp °C	Comments
4.0 Buffer	4.06	4.00	22.8	
7.0 Buffer	7.03	7.00	22.8	
10.0 Buffer	10.03	10.01	223	
QC Check, 7.0				SLOPE 99 %
Post Analysis 7.0		and the second second		11

Instrument ID: Oakton 300 Series

Turbidity (NTU) EPA180.1						
Standard	Reading After Calibration	Comments				
800	. К.					
100						
20.0						
0.02						
		Instrument ID: Oakton T 100				

Comments:	Acceptance Criteria:	Conductivity = 1272 - 1554 (T) + 10%)
Calibrations at the lab require a pH 7.0 QC Check		pH: TV ± 0.1
All field pri analyses must be followed by a post analysis pH ch	eck	Turbidity: TV <u>+</u> 10% pH slope: 85-100%
Methods References: pH: SM4500-H+B-2000; Conductivity: S	M2510B-1997; Turbidity: EPA1	80.1
4 (197-01 7 (32	3-04 12	0 0337-03
Date: 3/26/15	Performed By:	Belden

G:VAllen McBridelCopy of Sampling Field Calib Log 2007.xis



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

Saturday, April 11, 2015

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

TEL: (304) 696-6042 FAX:

RE: Work Order #: 1503V66 Dear GEORGE CARICO:

REI Consultants, Inc. received 3 sample(s) on 3/26/2015 for the analyses presented in the following report.

Sincerely,

Kathy Berry

Kathy Berry



REI Consultants, Inc. - Case Narrative

Client: MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE

Project:

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#: 1503V66

Date Reported: 4/11/2015

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/26/2015 9:30:00 AM
Project:		Date Received:	3/26/2015
Lab ID:	1503V66-01A	Matrix:	Liquid
Client Sample ID:	CHARLESTON LANDFILL	Site ID:	

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
METALS BY ICP			Method: (1994)	EPA 200	0.7 Rev	. 4.4	Analyst: CGW	
Aluminum	0.034	0.006	0.100	NA	J	mg/L	3/30/2015 9:26 PM	PA/VA
Antimony	ND	0.040	0.200	NA		mg/L	3/30/2015 9:26 PM	PA/VA
Arsenic	0.056	0.020	0.200	NA	J	mg/L	3/30/2015 9:26 PM	PA/VA
Barium	0.790	0.002	0.100	NA		mg/L	3/30/2015 9:26 PM	PA/VA
Beryllium	ND	0.001	0.010	NA		mg/L	3/30/2015 9:26 PM	PA/VA
Boron	2.06	0.035	0.100	NA		mg/L	3/30/2015 9:26 PM	PA/VA
Cadmium	0.001	0.001	0.020	NA	J	mg/L	3/30/2015 9:26 PM	PA/VA
Chromium	0.022	0.005	0.100	NA	J	mg/L	3/30/2015 9:26 PM	PA/VA
Copper	ND	0.005	0.100	NA		mg/L	3/30/2015 9:26 PM	PA/VA
Iron	22.0	0.010	0.100	NA		mg/L	3/30/2015 9:26 PM	PA/VA
Lead	ND	0.010	0.200	NA		mg/L	3/30/2015 9:26 PM	PA/VA
Lithium	0.042	0.020	0.100	NA	J	mg/L	3/30/2015 2:36 PM	
Manganese	1.72	0.002	0.100	NA		mg/L	3/30/2015 9:26 PM	PA/VA
Nickel	0.048	0.005	0.100	NA	J	mg/L	3/30/2015 9:26 PM	PA/VA
Selenium	ND	0.020	0.200	NA		mg/L	3/30/2015 9:26 PM	PA/VA
Silver	ND	0.004	0.050	NA		mg/L	3/30/2015 9:26 PM	PA/VA
Strontium	1.01	0.001	0.010	NA		mg/L	3/30/2015 2:36 PM	PA
Vanadium	0.013	0.005	0.100	NA	J	mg/L	3/30/2015 9:26 PM	PA/VA
Zinc	0.016	0.003	0.050	NA	J	mg/L	3/30/2015 9:26 PM	PA/VA

MERCURY, Total E245.1			Method: 3.0 (1994	EPA 245.1 !)	l, Rev.	Analyst: CR	
Mercury	ND	0.0001	0.0010	NA	mg/L	3/31/2015 11:14 AM	PA/VA
SEMIVOLATILE ORGANIC COMPOUN	DS		Method:	SW8270D	(2007)	Analyst: JD	
1,4-Dinitrobenzene	ND	NA	0.0112	NA	mg/L	3/28/2015 12:52 AM	
1,4-Napthoquinone	ND	NA	0.0112	NA	mg/L	3/28/2015 12:52 AM	
4-Nitroquinoline-1-oxide	ND	NA	0.0561	NA	mg/L	3/28/2015 12:52 AM	
Pentachloronitrobenzene	ND	NA	0.0112	NA	mg/L	3/28/2015 12:52 AM	
Bis(2-ethylhexyl)phthalate	ND	0.0056	0.0112	NA	mg/L	3/28/2015 12:52 AM	PA/VA
Butyl benzyl phthalate	ND	0.0056	0.0112	NA	mg/L	3/28/2015 12:52 AM	PA/VA
Di-n-butyl phthalate	ND	0.0056	0.0112	NA	mg/L	3/28/2015 12:52 AM	PA/VA
Diethyl phthalate	ND	0.0022	0.0112	NA	mg/L	3/28/2015 12:52 AM	PA/VA
Dimethyl phthalate	ND	0.0022	0.0112	NA	mg/L	3/28/2015 12:52 AM	PA/VA
2,4-Dinitrotoluene	ND	0.0022	0.0112	NA	mg/L	3/28/2015 12:52 AM	PA/VA
2,6-Dinitrotoluene	ND	0.0022	0.0112	NA	mg/L	3/28/2015 12:52 AM	PA/VA

WO#: 1503V66

tod. 1/11/2015 Data D

								Date Reported: 4/1	1/2015
Client:	MARSHALL UNI SCIENCE	VERSITY	CENTE	R. FOR ENV.	Col	lection [Date:	3/26/2015 9:30:00 AM	_
Project:					Date	e Receiv	/ed:	3/26/2015	
Lab ID:	1503V66-01A				Mat	rix:		Liquid	
Client Sample ID:	CHARLESTON L	ANDFILL			Site	ID:			
Analysis		Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
Di-n-octyl phthalate		ND	0.0056	0.0112	NA		mg/L	3/28/2015 12:52 AM	PA/VA
Fluoranthene		ND	0.0022	0.0112	NA		mg/L	3/28/2015 12:52 AM	PA/VA
Nitrobenzene		ND	0.0022	0.0112	NA		mg/L	3/28/2015 12:52 AM	PA/VA
Surr: 2-Fluorophenol		41.3	NA	32.9-110	NA		%REC	3/28/2015 12:52 AM	
Surr: Phenol-d5		33.4	NA	25.8-110	NA		%REC	; 3/28/2015 12:52 AM	
Surr: 2,4,6-Tribromophe	enol	85.4	NA	63.8-110	NA		%REC	; 3/28/2015 12:52 AM	
Surr: Nitrobenzene-d5		92.0	NA	61.8-110	NA		%REC	3/28/2015 12:52 AM	
Surr: 2-Fluorobiphenyl		82.7	NA	58.6-110	NA		%REC	; 3/28/2015 12:52 AM	
Surr: 4-Terphenyl-d14		55.0	NA	55.1-110	NA	S	%REC	3/28/2015 12:52 AM	
VOLATILE ORGANI		6-8260		Method: S	W8260	B (199	6)	Analyst: TC	
Benzene		3.48	0.500	1.00	NA		ua/L	4/7/2015 1:05 AM	PA/VA
Chlorobenzene		2.36	0.500	1.00	NA		ua/L	4/7/2015 1:05 AM	PA/VA
Dibromochloromethane		ND	0.500	1.00	NA		ua/L	4/7/2015 1:05 AM	PA/VA
1,2-Dichlorobenzene		12.5	0.500	1.00	NA		ua/l	4/7/2015 1:05 AM	PA/VA
1,3-Dichlorobenzene		7.78	0.500	1.00	NA		ua/l	4/7/2015 1:05 AM	PA/VA
1,4-Dichlorobenzene		8.02	0.500	1.00	NA		ua/l	4/7/2015 1:05 AM	PA/VA
Surr: 1,2-Dichloroethan	e-d4	79.5	NA	68.7-129	NA		%RFC	4/7/2015 1:05 AM	
Surr: 4-Bromofluoroben	zene	105	NA	71.8-127	NA		%REC	4/7/2015 1:05 AM	
Surr: Dibromofluoromet	hane	81.4	NA	74.3-124	NA		%REC	4/7/2015 1:05 AM	
Surr: Toluene-d8		97.0	NA	71.4-129	NA		%REC	4/7/2015 1:05 AM	
BOD, 5 Day, 20°C				Method: S	M5210	B-200 1	1	Analyst: CB	
Biochemical Oxygen Dem	and	102	2	5	NA		mg/L	3/27/2015 10:20 AM	PA/VA
Chemical Oxygen D	emand			Method: E (1993)	PA 410).4, Rev	. 2	Analyst: SF	
Chemical Oxygen Deman	d	356	20	50	NA		mg/L	3/27/2015 7:46 AM	PA/VA
HEXAVALENT CHR	OMIUM BY IC			Method: E 3.3 (1994)	PA 218	3.6, Rev	<i>ı</i> .	Analyst: CF	
Chromium (VI)		ND	0.0003	0.0010	NA		mg/L	3/31/2015 1:46 PM	
ANIONS by ION CH	ROMATOGRAP	HY		Method: E (1993)	PA 300).0, Rev	/.2.1	Analyst: CF	
Chloride		312	10.0	50.0	NA		mg/L	3/26/2015 9:11 PM	
Fluoride		0.11	0.05	0.20	NA	J	mg/L	3/26/2015 9:11 PM	
Sulfate		123	2.00	10.0	NA		ma/L	3/26/2015 9:11 PM	

Page 4 of 11

mg/L

WO#: 1503V66

MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/26/2015 9:30:00 AM
	Date Received:	3/26/2015
1503V66-01A	Matrix:	Liquid
CHARLESTON LANDFILL	Site ID:	
	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE 1503V66-01A CHARLESTON LANDFILL	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE 1503V66-01A CHARLESTON LANDFILL CHARLESTON LANDFILL CHARLESTON LANDFILL CHARLESTON LANDFILL CHARLESTON LANDFILL

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
ANIONS by ION CHROMATOGRA	APHY-48 H	OUR	Method: (1993)	EPA 300	0.0, Rev	/.2.1	Analyst: CF	
Nitrogen, Nitrate	0.08	0.02	0.10	NA	J	mg/L	3/26/2015 7:01 PM	
Nitrogen, Nitrite	0.35	0.05	0.50	NA	J	mg/L	3/26/2015 7:01 PM	
TOTAL KJELDAHL NITROGEN (TKN)		Method: 2.0 (1993	EPA 35 ⁻)	1.2, Rev	/.	Analyst: JH	
Nitrogen, Kjeldahl, Total	194	16.0	80.0	NA		mg/L	4/1/2015 10:47 AM	PA/VA
OIL and GREASE			Method:	EPA 160	64 Rev	. A	Analyst: CC	
Oil & Grease	ND	2.0	5.0	NA		mg/L	3/31/2015 4:02 PM	PA/VA
Notes:								
Sample acidity or alkalinity exceeded the	added preserv	ative, so	that the requir	red preserv	vation pH	was not ach	ieved.	
CYANIDE, Free			Method:	SM4500	-CN I-1	997	Analyst: JH	
Cyanide, Free	ND	0.005	0.020	NA		mg/L	3/30/2015 4:46 PM	
AMMONIA NITROGEN			Method: (1993)	EPA 350	0.1, Rev	/.2.	Analyst: JH	
Nitrogen, Ammonia (As N)	187	4.00	10.0	NA		mg/L	4/7/2015 8:24 AM	PA/VA
CONDUCTIVITY			Method:	SM2510	B - 19	97	Analyst: SF	
Specific Conductivity	4,040	NA	NA	NA		µmhos/cm	3/27/2015 12:15 PM	PA/VA
TOTAL DISSOLVED SOLIDS			Method:	SM2540	C-1997	7	Analyst: KY	
Total Dissolved Solids	2,140	5	10	NA		mg/L	3/30/2015 3:15 PM	PA/VA
TOTAL SUSPENDED SOLIDS			Method:	SM2540	D-1997	7	Analyst: KY	
Total Suspended Solids	49.0	2.0	10	NA		mg/L	3/30/2015 3:15 PM	PA/VA
ACIDITY			Method:	SM2310	B-1997	7	Analyst: DSD	
Acidity, Total	315	1.0	10	NA		mg/L	3/27/2015 9:56 AM	PA/VA
ALKALINITY			Method:	SM2320	B-1997	7	Analyst: DSD	
Alkalinity, Total (As CaCO3)	1,440	4.0	40.0	NA		mg/L	3/27/2015 9:56 AM	PA/VA
pH - LAB TEST, HOLD TIME EXF	PIRED		Method:	SM4500)-H+-B-2	2000	Analyst: DSD	
рН	7.10	NA	NA	NA		SU	3/27/2015 9:56 AM	PA

Date Reported: 4/11/2015

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/26/2015 9:30:00 AM
Project:		Date Received:	3/26/2015
Lab ID:	1503V66-01B	Matrix:	Liquid
Client Sample ID:	CHARLESTON LANDFILL	Site ID:	

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
DISSOLVED METALS BY ICP			Method: (1994)	EPA 200).7 Rev.	4.4	Analyst: CGW	
Iron	21.7	0.010	0.100	NA		mg/L	3/30/2015 9:29 PM	PA/VA
Manganese	1.73	0.002	0.100	NA		mg/L	3/30/2015 9:29 PM	PA/VA

Page 6 of 11

WO#: 1503V66

Date Reported: 4/11/2015

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/26/2015 10:20:00 AM
Project:		Date Received:	3/26/2015
Lab ID:	1503V66-02A	Matrix:	Liquid
Client Sample ID:	CHARLESTON SANITARY	Site ID:	

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
METALS BY ICP			Method: (1994)	EPA 20	0.7 Rev	. 4.4	Analyst: CGW	
Aluminum	0.034	0.006	0.100	NA	J	mg/L	3/30/2015 9:32 PM	PA/VA
Antimony	ND	0.040	0.200	NA		mg/L	3/30/2015 9:32 PM	PA/VA
Arsenic	ND	0.020	0.200	NA		mg/L	3/30/2015 9:32 PM	PA/VA
Barium	0.048	0.002	0.100	NA	J	mg/L	3/30/2015 9:32 PM	PA/VA
Beryllium	ND	0.001	0.010	NA		mg/L	3/30/2015 9:32 PM	PA/VA
Boron	0.117	0.070	0.200	NA	J	mg/L	4/6/2015 7:25 PM	PA/VA
Cadmium	ND	0.001	0.020	NA		mg/L	3/30/2015 9:32 PM	PA/VA
Chromium	ND	0.005	0.100	NA		mg/L	3/30/2015 9:32 PM	PA/VA
Copper	0.009	0.005	0.100	NA	J	mg/L	3/30/2015 9:32 PM	PA/VA
Iron	0.137	0.010	0.100	NA		mg/L	3/30/2015 9:32 PM	PA/VA
Lead	ND	0.010	0.200	NA		mg/L	3/30/2015 9:32 PM	PA/VA
Lithium	ND	0.020	0.100	NA		mg/L	3/30/2015 2:40 PM	
Manganese	0.010	0.002	0.100	NA	J	mg/L	3/30/2015 9:32 PM	PA/VA
Nickel	ND	0.005	0.100	NA		mg/L	3/30/2015 9:32 PM	PA/VA
Selenium	ND	0.020	0.200	NA		mg/L	3/30/2015 9:32 PM	PA/VA
Silver	ND	0.004	0.050	NA		mg/L	3/30/2015 9:32 PM	PA/VA
Strontium	0.147	0.001	0.010	NA		mg/L	3/30/2015 2:40 PM	PA
Vanadium	ND	0.005	0.100	NA		mg/L	3/30/2015 9:32 PM	PA/VA
Zinc	0.066	0.003	0.050	NA		mg/L	3/30/2015 9:32 PM	PA/VA

MERCURY, Total E245.1			Method: 3.0 (1994	EPA 245.′ •)	1, Rev.	Analyst: CR	
Mercury	ND	0.0001	0.0010	NA	mg/L	3/31/2015 11:16 AM	PA/VA
SEMIVOLATILE ORGANIC COMPOU	NDS		Method:	SW8270D	(2007)	Analyst: JD	
1,4-Dinitrobenzene	ND	NA	0.0114	NA	mg/L	3/28/2015 1:18 AM	
1,4-Napthoquinone	ND	NA	0.0114	NA	mg/L	3/28/2015 1:18 AM	
4-Nitroquinoline-1-oxide	ND	NA	0.0572	NA	mg/L	3/28/2015 1:18 AM	
Pentachloronitrobenzene	ND	NA	0.0114	NA	mg/L	3/28/2015 1:18 AM	
Bis(2-ethylhexyl)phthalate	ND	0.0057	0.0114	NA	mg/L	3/28/2015 1:18 AM	PA/VA
Butyl benzyl phthalate	ND	0.0057	0.0114	NA	mg/L	3/28/2015 1:18 AM	PA/VA
Di-n-butyl phthalate	ND	0.0057	0.0114	NA	mg/L	3/28/2015 1:18 AM	PA/VA
Diethyl phthalate	ND	0.0023	0.0114	NA	mg/L	3/28/2015 1:18 AM	PA/VA
Dimethyl phthalate	ND	0.0023	0.0114	NA	mg/L	3/28/2015 1:18 AM	PA/VA
2,4-Dinitrotoluene	ND	0.0023	0.0114	NA	mg/L	3/28/2015 1:18 AM	PA/VA
2,6-Dinitrotoluene	ND	0.0023	0.0114	NA	mg/L	3/28/2015 1:18 AM	PA/VA

WO#: 1503V66

Date Reported: 4/11/2015

Client:	MARSHALL UNIVERS	SHALL UNIVERSITY CENTER. FOR ENV NCE					Collection Date: 3/26/2015 10:20:00 AM			
Project:					Date	e Receiv	ved:	3/26/2015		
Lab ID:	1503V66-02A				Mat	rix:		Liquid		
Client Sample ID:	CHARLESTON SANIT	TAR	(Site	ID:				
Analysis	Res	ult	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP	
Di-n-octyl phthalate		ND	0.0057	0.0114	NA		mg/L	3/28/2015 1:18 AM	PA/VA	
Fluoranthene		ND	0.0023	0.0114	NA		mg/L	3/28/2015 1:18 AM	PA/VA	
Nitrobenzene		ND	0.0023	0.0114	NA		mg/L	3/28/2015 1:18 AM	PA/VA	
Surr: 2-Fluorophenol	2	44.4	NA	32.9-110	NA		%REC	3/28/2015 1:18 AM		
Surr: Phenol-d5	3	35.6	NA	25.8-110	NA		%REC	3/28/2015 1:18 AM		
Surr: 2,4,6-Tribromophe	nol 8	84.2	NA	63.8-110	NA		%REC	3/28/2015 1:18 AM		
Surr: Nitrobenzene-d5	Ş	94.3	NA	61.8-110	NA		%REC	3/28/2015 1:18 AM		
Surr: 2-Fluorobiphenyl	8	86.3	NA	58.6-110	NA		%REC	3/28/2015 1:18 AM		
Surr: 4-Terphenyl-d14	7	76.4	NA	55.1-110	NA		%REC	3/28/2015 1:18 AM		
VOLATILE ORGANIC COMPOUND		60		Method: S	W8260B (1996)			Analyst: TC		
Benzene		ND	0.500	1.00	NA		ua/L	4/7/2015 1:39 AM	PA/VA	
Chlorobenzene		ND	0.500	1.00	NA		ua/L	4/7/2015 1:39 AM	PA/VA	
Dibromochloromethane		ND	0.500	1.00	NA		ua/L	4/7/2015 1:39 AM	PA/VA	
1,2-Dichlorobenzene	1	1.34	0.500	1.00	NA		ua/L	4/7/2015 1:39 AM	PA/VA	
1,3-Dichlorobenzene	0.	.840	0.500	1.00	NA	J	µg/L	4/7/2015 1:39 AM	PA/VA	
1,4-Dichlorobenzene	0.	.860	0.500	1.00	NA	J	µg/L	4/7/2015 1:39 AM	PA/VA	
Surr: 1,2-Dichloroethane	e-d4 7	79.9	NA	68.7-129	NA		%REC	4/7/2015 1:39 AM		
Surr: 4-Bromofluorobenz	zene	111	NA	71.8-127	NA		%REC	4/7/2015 1:39 AM		
Surr: Dibromofluorometh	nane 8	81.4	NA	74.3-124	NA		%REC	4/7/2015 1:39 AM		
Surr: Toluene-d8	ç	99.2	NA	71.4-129	NA		%REC	4/7/2015 1:39 AM		
BOD, 5 Day, 20°C				Method: S	SM5210	B-200 1		Analyst: CB		
Biochemical Oxygen Dema	and	3	2	5	NA	J	mg/L	3/27/2015 10:20 AM	PA/VA	
Chemical Oxygen D	emand			Method: E (1993)	EPA 410).4, Rev	. 2	Analyst: SF		
Chemical Oxygen Demand		31	4	10	NA		mg/L	3/27/2015 7:46 AM	PA/VA	
HEXAVALENT CHRO	OMIUM BY IC			Method: E 3.3 (1994)	PA 218	3.6, Rev	<i>.</i>	Analyst: CF		
Chromium (VI)		ND	0.0003	0.0010	NA		mg/L	3/31/2015 1:46 PM		
ANIONS by ION CHE	ROMATOGRAPHY			Method: E (1993)	EPA 300).0, Rev	.2.1	Analyst: CF		
Chloride	8	81.0	1.00	5.00	NA		mg/L	3/26/2015 9:11 PM		
Fluoride	(0.55	0.05	0.20	NA		mg/L	3/26/2015 9:11 PM		
Sulfate	2	41.8	1.00	5.00	NA		mg/L	3/26/2015 9:11 PM		

WO#: 1503V66

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/26/2015 10:20:00 AM
Project:		Date Received:	3/26/2015
Lab ID:	1503V66-02A	Matrix:	Liquid
Client Sample ID:	CHARLESTON SANITARY	Site ID:	

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
ANIONS by ION CHROMATOGRAI	PHY-48 H(OUR	Method: (1993)	EPA 30	0.0, Rev	v.2.1	Analyst: CF	
Nitrogen, Nitrate	0.13	0.02	0.10	NA		mg/L	3/26/2015 7:20 PM	
Nitrogen, Nitrite	0.13	0.05	0.50	NA	J	mg/L	3/26/2015 7:20 PM	
TOTAL KJELDAHL NITROGEN (TH	(N)		Method: 2.0 (1993	EPA 35 [.]	1.2, Rev	v.	Analyst: JH	
Nitrogen, Kjeldahl, Total	13.9	0.40	2.00	NA		mg/L	3/31/2015 11:09 AM	PA/VA
OIL and GREASE			Method:	Method: EPA 1664 Rev. A			Analyst: CC	
Oil & Grease	ND	2.0	5.0	NA		mg/L	3/31/2015 4:02 PM	PA/VA
CYANIDE, Free			Method:	SM4500)-CN I-1	Analyst: JH		
Cyanide, Free	ND	0.005	0.020	NA		mg/L	3/30/2015 4:47 PM	
AMMONIA NITROGEN			Method: (1993)	EPA 350	0.1, Rev	v.2.	Analyst: JH	
Nitrogen, Ammonia (As N)	12.7	0.64	1.60	NA		mg/L	4/3/2015 1:41 PM	PA/VA
CONDUCTIVITY			Method:	SM2510) B - 19	97	Analyst: SF	
Specific Conductivity	654	NA	NA	NA		µmhos/cm	3/27/2015 12:15 PM	PA/VA
TOTAL DISSOLVED SOLIDS			Method:	SM2540) C-1997	7	Analyst: KY	
Total Dissolved Solids	359	5	10	NA		mg/L	3/30/2015 3:15 PM	PA/VA
TOTAL SUSPENDED SOLIDS			Method:	SM2540) D-1997	7	Analyst: KY	
Total Suspended Solids	4.0	1.0	5.0	NA	J	mg/L	3/30/2015 3:15 PM	PA/VA
ACIDITY			Method:	SM2310) B-1997	7	Analyst: DSD	
Acidity, Total	50.9	1.0	10	NA		mg/L	3/27/2015 9:56 AM	PA/VA
ALKALINITY			Method:	SM2320) B-1997	7	Analyst: DSD	
Alkalinity, Total (As CaCO3)	110	1.0	10	NA		mg/L	3/27/2015 9:56 AM	PA/VA
pH - LAB TEST, HOLD TIME EXPI	RED		Method:	SM4500)-H+-B-2	2000	Analyst: DSD	
pН	6.43	NA	NA	NA		SU	3/27/2015 9:56 AM	PA

Date Reported: 4/11/2015

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/26/2015 10:20:00 AM
Project:		Date Received:	3/26/2015
Lab ID:	1503V66-02B	Matrix:	Liquid
Client Sample ID:	CHARLESTON SANITARY	Site ID:	

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
DISSOLVED METALS BY ICP			Method: (1994)	EPA 200).7 Rev	. 4.4	Analyst: CGW	
Iron	0.080	0.010	0.100	NA	J	mg/L	3/30/2015 9:35 PM	PA/VA
Manganese	0.005	0.002	0.100	NA	J	mg/L	3/30/2015 9:35 PM	PA/VA

Page 10 of 11

WO#: 1503V66

Date Reported: 4/11/2015

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/26/2015 12:00:00 AM
Project:		Date Received:	3/26/2015
Lab ID:	1503V66-03A	Matrix:	Trip Blank
Client Sample ID:	TRIP BLANK	Site ID:	

Analysis	Result	MDL	PQL	MCL	Qual Units	Date Analyzed NELAP
VOLATILE ORGANIC COMPOUNDS-8260			Method: \$	SW8260)B (1996)	Analyst: TC
Benzene	ND	0.500	1.00	NA	µg/L	4/7/2015 12:31 AM PA/VA
Chlorobenzene	ND	0.500	1.00	NA	µg/L	4/7/2015 12:31 AM PA/VA
Dibromochloromethane	ND	0.500	1.00	NA	µg/L	4/7/2015 12:31 AM PA/VA
1,2-Dichlorobenzene	ND	0.500	1.00	NA	µg/L	4/7/2015 12:31 AM PA/VA
1,3-Dichlorobenzene	ND	0.500	1.00	NA	µg/L	4/7/2015 12:31 AM PA/VA
1,4-Dichlorobenzene	ND	0.500	1.00	NA	µg/L	4/7/2015 12:31 AM PA/VA
Surr: 1,2-Dichloroethane-d4	82.2	NA	68.7-129	NA	%REC	4/7/2015 12:31 AM
Surr: 4-Bromofluorobenzene	113	NA	71.8-127	NA	%REC	4/7/2015 12:31 AM
Surr: Dibromofluoromethane	82.6	NA	74.3-124	NA	%REC	4/7/2015 12:31 AM
Surr: Toluene-d8	97.3	NA	71.4-129	NA	%REC	4/7/2015 12:31 AM


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, May 06, 2015

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

TEL: (304) 696-6042 FAX:

RE: Work Order #: 1503V71 Dear GEORGE CARICO:

REI Consultants, Inc. received 2 sample(s) on 3/26/2015 for the analyses presented in the following report.

Sincerely,

Kathy Berry

Kathy Berry



Client: MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE

Project:

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

Date Reported: 5/6/2015

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/26/2015 9:30:00 AM
Project:		Date Received:	3/26/2015
Lab ID:	1503V71-01A	Matrix:	Liquid
Client Sample ID:	CHARLESTON LANDFILL	Site ID:	

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		

Date Reported: 5/6/2015

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/26/2015 10:20:00 AM
Project:		Date Received:	3/26/2015
Lab ID:	1503V71-02A	Matrix:	Liquid
Client Sample ID:	CHARLESTON SANITARY	Site ID:	

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			



Pace Analytical Services, Inc. 1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

April 14, 2015

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

RE: Project: 1503V71 Pace Project No.: 30144312

Dear Ms. Berry:

Enclosed are the analytical results for sample(s) received by the laboratory on March 30, 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,

Carino a. Ferrio

Carin Ferris carin.ferris@pacelabs.com Project Manager

Enclosures





Pace Analytical Services, Inc. 1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

CERTIFICATIONS

 Project:
 1503V71

 Pace Project No.:
 30144312

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-042 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



SAMPLE SUMMARY

Project:	1503V71			
Pace Project No.	30144312			
Lab ID	Sample ID	Matrix	Date Collected	Date Received
30144312001	1503V71-01A	Water	03/26/15 09:30	03/30/15 14:40
30144312002	1503V71-02A	Water	03/26/15 10:20	03/30/15 14:40



SAMPLE ANALYTE COUNT

 Project:
 1503V71

 Pace Project No.:
 30144312

Lab ID	Sample ID	Method	Analysts	Analytes Reported
30144312001	1503V71-01A	SM 7110C	FCC	1
		EPA 900.0	LAL	1
		EPA 903.1	JC2	1
		EPA 904.0	JAL	1
		ASTM D5811-95	MBT	1
30144312002	1503V71-02A	EPA 900.0	LAL	2
		EPA 903.1	JC2	1
		EPA 904.0	JLW	1
		ASTM D5811-95	MBT	1



 Project:
 1503V71

 Pace Project No.:
 30144312

Method: SM 7110C

Description:7110C Gross AlphaClient:REI Consultants, Inc.Date:April 14, 2015

General Information:

1 sample was analyzed for SM 7110C. 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:
 1503V71

 Pace Project No.:
 30144312

Method:EPA 900.0Description:900.0 Gross Alpha/BetaClient:REI Consultants, Inc.Date:April 14, 2015

General Information:

2 samples were 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:



 Project:
 1503V71

 Pace Project No.:
 30144312

Method: EPA 903.1

Description:903.1 Radium 226Client:REI Consultants, Inc.Date:April 14, 2015

General Information:

2 samples were analyzed for EPA 903.1. 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:
 1503V71

 Pace Project No.:
 30144312

Method: EPA 904.0

Description:904.0 Radium 228Client:REI Consultants, Inc.Date:April 14, 2015

General Information:

2 samples were analyzed for EPA 904.0. 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:



 Project:
 1503V71

 Pace Project No.:
 30144312

Method: ASTM D5811-95

Description:ASTM D5811 Sr 89/90 EichromClient:REI Consultants, Inc.Date:April 14, 2015

General Information:

2 samples were 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/23935

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

- 1503V71-01A (Lab ID: 30144312001)
 - Strontium-90
- 1503V71-02A (Lab ID: 30144312002)
- Strontium-90
- BLANK (Lab ID: 874037)
 - Strontium-90

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



ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 1503V71

Pace Project No.: 30144312

Sample: 1503V71-01A PWS:	Lab ID: 30144 Site ID:	I312001 Collected: 03/26/15 09:30 Sample Type:	Received:	03/30/15 14:40 N	latrix: Water	
Comments: • Sample Accep	tance Policy Waiver on file f	rom the client.				
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Gross Alpha	SM 7110C	7.14 ± 3.00 (4.11) C:NA T:NA	pCi/L	04/10/15 21:27	12587-46-1	_
Gross Beta	EPA 900.0	77.5 ± 14.4 (2.86) C:NA T:NA	pCi/L	04/07/15 18:06	12587-47-2	
Radium-226	EPA 903.1	1.24 ± 0.999 (0.558) C:NA T:86%	pCi/L	04/06/15 12:16	13982-63-3	
Radium-228	EPA 904.0	1.94 ± 0.933 (1.49) C:71% T:40%	pCi/L	04/13/15 16:01	15262-20-1	
Strontium-90	ASTM D5811-95	0.760 ± 1.20 (2.13) C:110% T:NA	pCi/L	04/06/15 16:57	10098-97-2	N2

 Sample:
 1503V71-02A
 Lab ID:
 30144312002
 Collected:
 03/26/15
 10:20
 Received:
 03/30/15
 14:40
 Matrix:
 Water

 PWS:
 Site ID:
 Sample Type:
 <

Comments: • Sample Acceptance Policy Waiver on file from the client.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0	0.928 ± 1.39 (2.97) C:NA T:NA	pCi/L	04/08/15 07:09	12587-46-1	
Gross Beta	EPA 900.0	4.64 ± 1.51 (1.87) C:NA T:NA	pCi/L	04/08/15 07:09	12587-47-2	
Radium-226	EPA 903.1	1.83 ± 1.28 (0.618) C:NA T:79%	pCi/L	04/06/15 12:16	13982-63-3	
Radium-228	EPA 904.0	0.704 ± 0.440 (0.806) C:75% T:76%	pCi/L	04/09/15 14:43	15262-20-1	
Strontium-90	ASTM D5811-95	-0.0380 ± 0.450 (0.826) C:104% T:NA	pCi/L	04/06/15 19:17	10098-97-2	N2



Project:	1503V71						
Pace Project No.:	30144312						
QC Batch:	RADC/23922		Analysis Method:	EPA 903.1			
QC Batch Method:	EPA 903.1		Analysis Description:	903.1 Radiu	m-226		
Associated Lab San	nples: 30144312	001, 30144312002					
METHOD BLANK:	874024		Matrix: Water				
Associated Lab San	nples: 30144312	001, 30144312002					
Paran	neter	Act ± Unc	(MDC) Carr Trac	Units	Analyzed	Qualifiers	
Radium-226		0.322 ± 0.558 (0.	972) C:NA T:83%	pCi/L	04/06/15 11:19		

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:	1503V71						
Pace Project No.:	30144312						
QC Batch:	RADC/23935		Analysis Method:	ASTM D5811	1-95		
QC Batch Method:	ASTM D5811-95		Analysis Description:	ASTM D5811	1 Sr 89/90 Eichrom		
Associated Lab San	nples: 30144312	001, 30144312002					
METHOD BLANK:	874037		Matrix: Water				
Associated Lab San	nples: 30144312	001, 30144312002					
Paran	neter	Act ± Unc (N	IDC) Carr Trac	Units	Analyzed	Qualifiers	
Strontium-90		-0.0230 ± 0.439 (1.	10) C:109% T:NA	pCi/L	04/07/15 13:03	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:	1503V71						
Pace Project No.:	30144312						
QC Batch:	RADC/23971		Analysis Method:	EPA 900.0			
QC Batch Method:	EPA 900.0		Analysis Description:	900.0 Gross	s Alpha/Beta		
Associated Lab Sa	mples: 30144312	2001, 30144312002					
METHOD BLANK:	875768		Matrix: Water				
Associated Lab Sa	mples: 30144312	2001, 30144312002					
Para	meter	Act ± Unc (I	MDC) Carr Trac	Units	Analyzed	Qualifiers	
Gross Alpha		0.957 ± 0.828 (1.4	8) C:NA T:NA	pCi/L	04/08/15 07:09		
Gross Beta		0.267 ± 0.758 (1.73	3) C:NA T:NA	pCi/L	04/08/15 07:09		

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:	1503V71						
Pace Project No .:	30144312						
QC Batch:	RADC/23926		Analysis Method:	EPA 904.0			
QC Batch Method:	EPA 904.0		Analysis Description:	904.0 Radiu	im 228		
Associated Lab San	nples: 30144312	001, 3014431200	2				
METHOD BLANK:	874028		Matrix: Water				
Associated Lab San	nples: 30144312	001, 3014431200	2				
Paran	neter	Act ± Un	c (MDC) Carr Trac	Units	Analyzed	Qualifiers	
Radium-228		-0.0335 ± 0.262	(0.620) C:81% T:95%	pCi/L	04/09/15 15:02	-	

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:	1503V71							
Pace Project No .:	30144312							
QC Batch:	RADC/24011		Analysis Method:	SM 7110C				
QC Batch Method: SM 7110C			Analysis Description:	7110C Gross Alpha				
Associated Lab San	nples: 30144312	001						
METHOD BLANK:	877133		Matrix: Water					
Associated Lab San	nples: 30144312	001						
Paran	neter	Act ±	Jnc (MDC) Carr Trac	Units	Analyzed	Qualifiers		
Gross Alpha		0.154 ± 0.387	(0.904) C:NA T:NA	pCi/L	04/11/15 14:45			

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:
 1503V71

 Pace Project No.:
 30144312

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

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

nproving the environment, one cleart at a time	1 16. (304) 2 FAX: (304) 2
Please Include Email Address of N	JUT443 12 Website: WWW.reicl Leport Recipient Whenever Possible!!!
SUB CONTRATOR PACE PA COMPANY: PACE ANALYTICAL SERVIC	SPECIAL INSTRUCTIONS / COMMENTS: Stote Code: WV Diseasues SamulaID as murchase order number
UDRESS: 1638 ROSEYTOWN ROAD	otate core. We reconcise our process of the returned and can be disposed per your standard labor After analysis, the samples do not need to be returned and can be disposed per your standard labor macritices All results to Kathy Berry at Rherry@reticlabs.com.
XIY, STATE, ZP: GREENSBURG, PA 15601	
HONE: (724) 850-5600	ANALYTICAL PARAMETERS
ACCOUNT #: 050719EVF1 EMAIL:	2 Ministry Add 2 Sulfaric Add 4 Solution Thissulfare Buoss 1 Buoss 1 Buoss 2
NUMBER OF CONTAINERS DATE COLLECTED Bottle Type Client Sample ID Type	CONVMENTS: CONV CONV CONV CONV CONV CONV CONV CONV
*	2 2 2 2 2
1 1503V71-01A CHARLESTON . Liquid 3/26/2015 9:30:00 AM 1 ANDFILI	120
2 1503V71-02A CHARLESTON . Liquid 3/26/2015 10:20:00 1 SANITARY AM	<u>1111110000000000000000000000000000000</u>
c	
M SC	
Relinquished By: LANS Dates 36 Mase: 16, 500 Received By: COS Dates Dates Dates International By: COS	Time: REPORT TRANSMITTAL DESIDEED: Tenes (if f) HARDCOPY (extra cost) RAX ONLINE ONLINE
Reinducked By ULT WE By Standard By L. C.U. Recognod By L. Date: 250 R	Time: Time: Temp of samplesC Attempt to Cool ? BD □ Continents:

Pare Analytical OF	ample Co	nditio	n Upon Rec	eipt	30144312
Client Name	e: KEt	<u>C</u>		Project	t #
Courler: 🔲 Fed Ex 🔲 UPS 🗍 USPS 🛄 Cliv Tracking #:	ent 🗌 Corr	mercial	CAPace Oth	er	
Custody Seal on Cooler/Box Present:	no 🖄 no	Sea	ls intact: 🔲 y	es 🗌 no Biolog	gical Tissue is Frozen: Yes No
Packing Material: Bubble Wrap	as Nor	e	Other	_	
Thermometer Used NA Typ	e of Ice:	et Bl	ue None (Samples on Ice. con	lind process has begun
Cooler Temp.: Observed Temp.: °C. C.	orrection Fa	ctor:	°C Final	Tamp: °C	Date and initials of person
Temp should be above freezing to 6°C	01120001112		Comments:	remp,0	examining contents: <u>S-M4 3-35</u> -45
Chain of Custody Present:	⊠Yes □N	o □N//	1.		
Chain of Custody Filled Out:	図Yes ON	₀ □N//	2.	1	
Chain of Custody Relinguished:	Xyes DN	₀ □N/A	3.		
Sampler Name & Signature on COC:	OYes XN		4		
Samples Arrived within Hold Time:		□ □ N/A	5.	C	
Short Hold Time Analysis (<72hr):	Yes 🖾 No		6,		
Rush Turn Around Time Requested:	□Yes ØN		7.		
Sufficient Volume:	XYes DN	→ □N/A	8.		
Correct Containers Used:	XYes ONC		9,		
-Pace Containers Used:	□Yes ØNo				
Containers Intact:	XYes ON	⊡n/a	10.	12	
Filtered volume received for Dissolved tests	□Yes □No	ŽİN/A	11.		
Sample Labels match COC:	∭Yas ⊡No	□n/a	12.		
-Includes date/time/ID/Analysis Matrix:	int			4) (4)	
All containers needing preservation have been checked.	∭Yes ⊡No	— ⊡n/a	13.		
All containers needing preservation are found to be in compliance with EPA recommendation.	Yes DNo	□n/a	PHLZ		
exceptions: VOA, collform, TOC, O&G, Phenols	□Yes ĎNo		Initial when SAL	Lot # of added preservative	-
Samples checked for dechlorination:	Yes No	ǾN/A	14.		0
Headspace in VOA Vials (>6mm):	□Yes □No	Än/A	15.		
Trip Blank Present:	□Yes ŔNo	□n/a	16.		
Trip Blank Custody Seals Present	⊡Yes ⊡No	Δ(N/A		3	
Pace Trip Blank Lot # (if purchased):					
Client Notification/ Resolution:				Field Data Reg	juired? Y / N
Person Contacted:		Date/T	ïme:		
Comments/ Resolution:					
				(inter-	
	HC				
A	20				
Project Manager Review:) 9	Oni	~	Date:	331/15

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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)

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4		Cubitainer (500 ml / 4L)	5										1	(C016-4
		Radchem Nalgene (1/2 gal. / 1 gal.L)												RF Back
>	ELC	Radchem Nalgene (125 / 250 / 500 (1L)	M	-										scu
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		TOX (250 ml)												
		TOC (40 ml / 250 ml)											W.	2
		Phenolics (250 ml)												
		Nutrient (250 / 500)												
		Organics (1L)												
		Chemistry (250 / 500 / 1L)												
		Soil kit (2 SB, 1M, soil jar)												
× N	P	Glass Jar (120 / 250 / 500 / 1L)												
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Pace Analytical Services, Inc. 1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

March 30, 2015

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

RE: Project: 1503V71 Pace Project No.: 30144059

Dear Ms. Berry:

Enclosed are the analytical results for sample(s) received by the laboratory on March 27, 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,

Carino a. Ferrio

Carin Ferris carin.ferris@pacelabs.com Project Manager

Enclosures





Pace Analytical Services, Inc. 1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

CERTIFICATIONS

 Project:
 1503V71

 Pace Project No.:
 30144059

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-042 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



SAMPLE SUMMARY

Project: 1503V71 Pace Project No.: 30144059				
Lab ID	Sample ID	Matrix	Date Collected	Date Received
30144059001	1503V71-01A	Water	03/26/15 09:30	03/27/15 10:10
30144059002	1503V71-02A	Water	03/26/15 10:20	03/27/15 10:10



SAMPLE ANALYTE COUNT

 Project:
 1503V71

 Pace Project No.:
 30144059

Lab ID	Sample ID	Method	Analysts	Analytes Reported	
30144059001	1503V71-01A	SM 7500Rn-B	FCC	1	
30144059002	1503V71-02A	SM 7500Rn-B	FCC	1	



 Project:
 1503V71

 Pace Project No.:
 30144059

Method: SM 7500Rn-B

Description:7500RnB RadonClient:REI Consultants, Inc.Date:March 30, 2015

General Information:

2 samples were analyzed for SM 7500Rn-B. 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:	1503V71								
Pace Project No.:	30144059								
Sample: 1503V71	-01A	Lab ID: 30144	059001	Collected:	03/26/15 09:30	Received:	03/27/15 10:10	Matrix: Water	
PWS:		Site ID:	Sample Type:						
Comments: • San	nple Acceptance	e Policy Waiver on file f	om the cl	ient.					
Parameters		Method	Ac	Act ± Unc (MDC) Carr Trac			Analyzed	CAS No.	Qual
Radon		SM 7500Rn-B	28.4 C:NA	± 25.2 (40.8 T:NA	3)	pCi/L	03/28/15 00:3	1 10043-92-2	
Sample: 1503V71 PWS:	-02A	Lab ID: 30144 Site ID:	059002	Collected: Sample Ty	03/26/15 10:20 /pe:	Received:	03/27/15 10:10	Matrix: Water	
Comments: • San	nple Acceptance	Policy Waiver on file f	om the cl	ient.					
Parame	eters	Method	Ac	t ± Unc (MD	C) Carr Trac	Units	Analyzed	CAS No.	Qual
Radon		SM 7500Rn-B	11.9 : C:NA	± 24.0 (40.8 T:NA	3)	pCi/L	03/28/15 01:3	8 10043-92-2	



Project:	1503V71					
Pace Project No.:	30144059					
QC Batch:	RADC/23872	Analysis Method:	SM 7500Rn-I	В		
QC Batch Method: SM 7500Rn-B		Analysis Descript	ion: 7500Rn B Ra	adon		
Associated Lab Sar	nples: 3014405900	1, 30144059002				
METHOD BLANK:	870946	Matrix: Wat	er			
Associated Lab Sar	nples: 3014405900	1, 30144059002				
Parar	neter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers	
Radon	2.	9 ± 17.5 (30.4) C:NA T:NA	pCi/L	03/27/15 22:53		

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:
 1503V71

 Pace Project No.:
 30144059

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.

Table (1990) 343-350 Table (1990) 340-350 Table (1990) 340-350 Table (1990) 343-350 Table (1990) 340-350 Table (1990) 340-350 <th></th> <th>Beaver</th>		Beaver
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Three international and the start of the	SUB CONTRATOR: PACE PA COMPANY: PACE ANALYTICAL SERVIC ADDRESS: 1530 DOCEVTOWN DOAD	ICIAL INSTRUCTIONS / COMMENTS: ate Code: WV Please use SampleID as purchase order number. ther analysis, the samples do not need to be returned and can be disposed per your standard l
	CITY, STATE, ZP: GREENSBURG, PA 15601	actices. All results to Kathy Berry at kberry@reiclabs.com.
	PHONE: (724) 850-5600 FAX	ANALYTICAL PARAMETERS ANALYTICAL PARAMETERS O None 1 Houroshoric Acid
Multi- advirta ID Care fore to ID Boint MUTRX DATE COLLECTION Boint Solar Section Secti	ACCOUNT # 050719EVF1 EMAIL:	2 Nitric Acid 3 Sulfarie Acid 4 Sodium Thiosulfate
1 1503Y71-01A CIARLESTON Liquid 3282015 93000 M 1 1 1 2 1503Y71-02A CIARLESTON Liquid 3282015 93000 M 1 1 1 1 1503Y71-02A CIARLESTON Liquid 3282015 93000 M 1 1 1 2 1503Y71-02A CIARLESTON Liquid 3282015 93000 M 1 1 1 1 1 2 Licuid 3282015 93000 M 1 1 1 1 1 1 2 Licuid 3282015 93000 M 1 1 1 1 1 1 2 Licuid 3282015 93000 M 1 1 1 1 1 1 2 Licuid 3282015 93000 M 1 1 1 1 1 1 1 Licuid 3282015 9300 M 1 1 1 1 1 1 Licuid 2 Licuid 2 2 1 1 1 1 Licuid Licuid Licuid Licuid 2 1 1 1 1 Licuid Licuid Licuid Licuid Licuid 1 1 <	* Client Sample ID LIEW Client Sample ID LIEW	3 0 1 4 0 5 9 6 sodium Hydroxide Sodium Arsentie 6 sodium Hydroxide 7 Ascorbic Acid 8 sodium Bhydroxide 1 Ascorbic Acid 8 sodium Bhydroxide 10 Bromium Chloride COMMENTS:
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Note: RUSH requests will incur surcharges!	Relinquished By: Date: Time: Received By: Date: Date: Time: Received By: 2nd BD Date: 3tr Tart: Standard C By: Next BD D Date: Note: RUSH requests will incur surcharges!	Time: FOR LAB USE ONLY Time: Temp of samples C Attempt to Cool 7 C Connents:

				SRI
Sam	iple C	ond	ition	Upon Receipt 70440 F 0
Face Analytical Client Name:	RE	IC		Project #
Courter: C Fed Ex 17 UPS USPS Client		omme	ercial	Pace Other
Tracking #: 17267 713137577429				
Custody Seal on Cooler/Box Present: U yes	X n	0	Seals	intact: 🗌 yes 🔲 no Biological Tissue is Frozen: Yes No
Packing Material: Bubble Wrap X Bubble Bags	(None		Other
Thermometer Used <u>AA</u> Type	of ice:	Wet	Blue	None Samples on ice, cooling process has begun
Cooler Temp.: Observed Temp.:°C Cor	rection	Facto	or:	•C Final Temp:°C
Temp should be above freezing to 6°C				Comments:
Chain of Custody Present:	Ø. ØYes	□No		1.
Chain of Custody Filled Out:	的 Yes	□No		2.
Chain of Custody Relinguished:	XYes	□No	□n/A	3.
Sampler Name & Signature on COC:	Yes	□No	□n/a	4,
Samples Arrived within Hold Time:	Yes	□No	□n/A	5,
Short Hold Time Analysis (<72hr):	Yes	□No		6.
Rush Turn Around Time Requested:	□Yes	K No	⊡n/A	7
Sufficient Volume:	Xes	□No	□n/a	8.
Correct Containers Used:	Ø Yes	□No	⊡n/A	9.
-Pace Containers Used:	Kiyes	□No	□n/A	2
Containers Intact:	XYes	□No		10.
Filtered volume received for Dissolved tests	□Yes	⊡No	BON/A	11.
Sample Labels match COC:	Yes	□No	□n/a	12.
-Includes date/time/ID/Analysis Matrix:	nt			
All containers needing preservation have been checked.	Yes	□No	XI N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	□Yes	□No	ØN/A	
exceptions: VOA, coliform, TOC, O&G, Phenois	□Yes	ЮNo		completed SRA Lot * of added preservative
Samples checked for dechlorination:	□Yes	□No	ŹN/A	14.
Headspace in VOA Vials (>6mm):	□Yes	2No	□n/A	15.
Trip Blank Present:	□Yes	AN0	□n/a	16.
Trip Blank Custody Seals Present	□Yes	□No		
Pace Trip Blank Lot # (if purchased):				
Client Notification/ Resolution:				Field Data Required? Y / N
Person Contacted:			_Date/	Time:
Comments/ Resolution:				
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Project Manager Review:	0	Ner.	1 Lik	

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)

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40	Cubitainer (500 ml / 4L)									k (C016-
4	Radchem Nalgene (۱/۲ gal. / ۱ gal.L)									JRF Bac
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	Nutrient (250 / 500)							L.		
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	Soil kit (2 SB, 1M, soil jar)									
_	Glass Jar (120 / 250 / 500 / 1L)									
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page 2

Face Analytical

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	FIC	Add		e Marsha	all Dri	ve				ity Hu	untington	State WV	_{Zip} 25755
		Billi	ng Address (if	f different)	<u></u>								
Research Environmental & Industri MAIN LABORATORY & CORPORA P.O. Box 286 • 225 Industrial Park R 800-999-0105 • 304-255-2500 • v	al Consultants, TE HEADQUAR d, Beaver, WV 258 www.reiclabs.com	Inc. TERS: 313 Site	ID & State		City_	P	roject	_{ID} Ra	leigh	Cou	Inty SWA	Zip Sample	er
MID-OHIO VALLEY Service Center 101 17th Street Ashland, KY 41101 606-393-5027 S40-248-0	00AH enter Rd., Ste 201 30 24482 F 0183	ROANOKE Service Center 29-C Peters Creek Rd Roanoke, VA 24019 540-777-1276	MORGANT Service Ce 16 Commerce Westover, WV 304-241-5	OWN inter e Drive / 26501 861	HOD REQUESTED	e Atta	ched l	Läst					
SAMPLE LOG	5 & ANAL	YSIS REQUES	r		METH			۲ .					
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TURNAROUND TIME NORMAL *Rush work needs prior lab	RU O 5 DAY C	3 DAY 2 DAY	O 1 DAY charges		ANALYSIS 8					•			
TURNAROUND TIME NORMAL *Rush work needs prior lab SAMPLE ID	RU O 5 DAY O poratory approval	3 DAY 2 DAY 3 DAY	O 1 DAY charges Matrix	Sample Comp/Gra	analysis 8	*1 *2	2 13	5 ⁶⁴ b 3	10 2			IDE(S): 6 Sodium I	Hydraxide
TURNAROUND TIME NORMAL *Rush work needs prior lab SAMPLE ID RALEIGH CO LF LEACHATE	RU O 5 DAY Coratory approval No. & Type of Containers 21	Sampling Date/Time	O 1 DAY charges Matrix Water	Sample Comp/Gra Grab	R analysis 8	*1 *2 5	2 3	5 da	10 2		ENTER PRESERVATIVE CO D None Hydrochloric Acid Nitric Acid	IDE(S): 6 Sodium I 7 Ascorbic 8 Sodium I	Hydroxide : Acid Bisulfate/Metha
TURNAROUND TIME NORMAL *Rush work needs prior lab SAMPLE ID RALFIGH CO LF LEACHATE Trip Blank	RU O 5 DAY C poratory approval No, & Type of Containers 21 2	Sampling Date/Time	O 1 DAY charges Matrix Water Water	Sample Comp/Gri Grab Grab	XX o	*1 *2 5	2 3 3	5 ⁴⁴	10 ²		ENTER PRESERVATIVE CO D None Hydrochloric Acid Xitric Acid Sulfuric Acid Sulfuric Acid Sodium Thiosulfate	DE(S): 5 Sodium 7 Ascorbic 8 Sodium 9 Ammoni 10 AS/A	Hydroxide : Acid Bsulfate/Metha ium Chloride QH
TURNAROUND TIME NORMAL *Rush work needs prior lab SAMPLE ID RALEICH CO LF LEACHATE Trip Blank	RU O 5 DAY C poratory approval No. & Type of Containers 21 2	Sampling Date/Time	Matrix Water Water Choose	Sample Comp/Gra Grab Grab Choose	X X o	*1 *2 >	2 3 3	5 ⁴⁴			ENTER PRESERVATIVE CO None Hydrochloric Acid Nitric Acid Solfuric Acid Sodium Thiosulfate Sodium Hydroxide/ Sodium Hydroxide/ Sodium Krsenite	DE(S): 6 Sodium 7 Ascorbic 8 Sodium 9 Ammoni 10 <u>AS/A</u> 11	Hydroxide : Acid Bisulfate/Metha um Chloride AH
TURNAROUND TIME	RU O 5 DAY C horatory approval No. & Type of Containers 21 2	Sampling Date/Time	O 1 DAY charges Matrix Water Water Choose Choose	Sample Comp/Gra Grab Grab Choose Choose	ANALYSIS 8	*1 *2 >	2 3 3	5 5 4 b			ENTER PRESERVATIVE CO None Hydrochloric Acid Nitric Acid Sulfuric Acid Sodium Thiosulfate Sodium Hydroxide/ Sodium Hydrox	DE(S): 6 Sodium 7 Ascorbic 8 Sodium 9 Ammoni 10 <u>AS/A</u> 11 reservatives not)	Hydroxide : Acid Bsulfate/Metha ium Chloride AH /itted.)
TURNAROUND TIME NORMAL *Rush work needs prior lab SAMPLE ID RALEICH CO LF LEACHNTE Trip Blank	RU O 5 DAY Soratory approval No. & Type of Containers 21 2	ISH TURNAROUND* 3 DAY 0 2 DAY 0 1 and will incur additional Sampling Date/Time 2/4/15 0950	O 1 DAY charges Matrix Water Water Choose Choose Choose	Sample Comp/Gra Grab Grab Choose Choose Choose	ate ANALYSIS &	* 1 * 3 b	2 2 3	5 ⁶⁴			ENTER PRESERVATIVE CO None Hydrochloric Acid Nitric Acid Sulfuric Acid Sodium Thiosulfate Sodium Thiosulfate Sodium Arsenite *(Use bionist for p COMMENTS: Field Sampling T	DE(S): 6 Sodium (7 Ascorbic 8 Sodium (9 Ammoni 10 <u>AS/A</u> 11 reservatives not (Hydroxida : Acid Bsulfate/Metha ium Chloride AH /itted.) 70 1 LIR
TURNAROUND TIME	RU O S DAY C poratory approval No. & Type of Containers 21 2	ISH TURNAROUND*	Choose Choose Choose Choose	Sample Comp/Gri Grab Grab Choose Choose Choose Choose Choose	analysis &	*1 *2	2 3 0	5 ³⁴			ENTER PRESERVATIVE CC None Hydrochloric Acid Nitric Acid Sodium Thiosulfate Sodium Arsenite *(Use blanks for p COMMENTS: Field Sampling T Per Doug Arthur	DE(S): 5 Sodium 7 Ascorbic 8 Sodium 9 Ammoni 10 AS/A 11 preservatives not Time	Hydroxide : Add Bsulfate/Metha ium Chloride AH fitted.) D 1 HR
TURNAROUND TIME	RU O 5 DAY C poratory approval No. & Type of Containers 21 2	ISH TURNAROUND* 3 DAY 0 2 DAY 0 1 and will incur additional Sampling Date/Time 2/4/15 0950	Matrix Matrix Water Water Choose Choose	Sample Comp/Gra Grab Grab Choose Choose Choose Choose Choose Choose	ANALYSIS &	*1 *2 > 		5 **			ENTER PRESERVATIVE CO None Hydrochloric Acid Nitric Acid Sulfuric Acid Sodium Thiosulfate Sodium Mydroxide/ Sodium Mydroxide/ Sodium Mydroxide/ Sodium Arsenite '(Use blanks for p COMMENTS: Field Sampling T Per Doug Arthur pH = 7.62 femp = 8.1 °C	DE(S): 6 Sodium 7 Ascorbic 8 Sodium 9 Ammoni 10 <u>AS//</u> 11 reservatives not 1 Time	Hydroxide : Acid Bsulfate/Metha Bsulfate/Metha Mum Chloride AH /itted.)
TURNAROUND TIME	RU O S DAY C poratory approval No. & Type of Containers 21 2	ISH TURNAROUND* 3 DAY 0 2 DAY 0 1 and will incur additional Sampling Date/Time 2/4/15 0950	Matrix Matrix Water Water Choose Choose	Sample Comp/Gra Grab Grab Choose Choose Choose Choose Choose Choose Choose	and the second s						ENTER PRESERVATIVE CO 0 None 1 Hydrochloric Acid 2 Nitric Acid 3 Sulfuric Acid 4 Sodium Thiosulfate 5 Sodium Arsenite *(Use blanks for p COMMENTS: Field Sampling T Per Doug Arthur pH = 7.62 Temp = 8.1°C COND = 4000	DE(S): 6 Sodium 7 Ascorbic 8 Sodium 9 Ammoni 10 <u>AS//</u> 11 <u></u> preservatives not / Time <u>995</u>	Hydroxide : Acid Bsulfate/Metha ium Chloride AH /inted.) D 1 LIR
TURNAROUND TIME NORMAL *Rush work needs prior lab SAMPLE ID RALEICH CO LF LEACHATE Trip Blank	RU O 5 DAY C poratory approval No. & Type of Containers 21 2	ISH TURNAROUND* 3 DAY O 2 DAY O 1 and will incur additional Sampling Date/Time 2/4/15 0950	O 1 DAY charges Matrix Water Water	Sample Comp/Gri Grab Grab	XX o	*1 *2	2 3	5 M	10 ² U		ENTER PRESERVATIVE CO D None Hydrochloric Acid Xitric Acid Sulfuric Acid Sulfuric Acid Sodium Thiosulfate	DE(S): 5 Sodium 7 Ascorbic 8 Sodium 9 Ammoni 10 AS/A	Hydroxidi : Acid Bisulfate/ ium Chlor \H
TURNAROUND TIME NORMAL *Rush work needs prior lab SAMPLE ID RALEICH CO LF LEACHATE Trip Blank	RU O 5 DAY C poratory approval No. & Type of Containers 21 2	ISH TURNAROUND*	Choose Choose Choose	Sample Comp/Gra Grab Grab Choose Choose Choose Choose	analysis &	*1 *2 5	2 3 3 0	5 5 M			ENTER PRESERVATIVE CO None Hydrochloric Acid Nitric Acid Solfuric Acid Sodium Thiosulfate Sodium Mrsenite *(Use bianks for p COMMENTS: Field Sampling T Per Doug Arthur	DE(S): 6 Sodium 7 Ascorbic 8 Sodium 9 Ammoni 10 <u>AS//</u> 11 reservatives not *ime	Hydroxide : Acid Bsulfate/Met ium Chloride AH litted.) The THR
TURNAROUND TIME	RU O 5 DAY C poratory approval No. & Type of Containers 21 2	ISH TURNAROUND* 3 DAY 0 2 DAY 0 1 and will incur additional Sampling Date/Time 2/4/15 0950	Matrix Matrix Water Water Choose Choose	Sample Comp/Gra Grab Grab Choose Choose Choose Choose Choose Choose	ANALYSIS &			5 "			COMMENTS: Field Sampling T Per Doug Arthur PH = 7.62 Fiend Sam = 7.62 Fiend Sam = 7.62 Fiend Sam = 7.62 Fiend Sampling T Per Doug Arthur PH = 7.62 Fiend Sampling T Ph = 7.62 Fiend Sa	DE(S): 6 Sodium 7 Ascorbic 8 Sodium 9 Ammoni 10 <u>AS//</u> 11 preservatives not /	Hydraxide : Acid Bsulfate/Meth Bsulfate/Meth Mathematica AH Inteal)
TURNAROUND TIME	RU O S DAY C poratory approval No. & Type of Containers 21 2	ISH TURNAROUND* 3 DAY 0 2 DAY 0 1 and will incur additional Sampling Date/Time 2/4/15 0950	Matrix Matrix Water Water Choose Choose	Sample Comp/Gra Grab Grab Choose Choose Choose Choose Choose Choose Choose	and the second s						ENTER PRESERVATIVE CO 0 None 1 Hydrochloric Acid 2 Nitric Acid 3 Sulfuric Acid 4 Sodium Thiosulfate 5 Sodium Arsenite *(Use blanks for p COMMENTS: Field Sampling T Per Doug Arthur pH = 7.62 Temp = 8.1°C COND = 4000	DE(S): 6 Sodium 7 Ascorbic 8 Sodium 9 Ammoni 10 <u>AS//</u> 11 <u></u> preservatives not / Time <u>995</u>	Hydroxide : Acid Bsulfate/Meth ium Chloride AH /itted.)

CHAIN OF CUST	ODY RE	CORD	v10-	0114	RE	IC us	se 7	CLIEN	T ID	MAI	R07	1	DATE		SHEET
		ci ci	lient:	Geroge	e Ca	rico	HANGAL O	ami	e V	Volfe	eiprei		PO# Phone 304.65	96.5456	
V AAAA REIC			Address One Marshall Drive					City HL					luntington State		_{Zip} 25755
Research Environmental & Industrial Consultants, Inc. MAIN LABORATORY & CORPORATE HEADQUARTERS: P.O. Box 286 • 225 Industrial Park Rd, Beaver, WV 25813 800-999-0105 • 304-255-2500 • www.reiclabs.com MID-OHIO VALLEY SHENANDOAH ROANOKE Service Center Service Center 3029-C Peters Creek Rd 101 17th Street 1557 Commerce Rd., Ste 201 3029-C Peters Creek Rd Ashland, KY 41101 Verona, VA 24482 Roanoke, VA 24019 606-393-5027 540-248-0183 540-777-1276		Inc. TERS: B13 Si	te ID & State _	G	ty	P	rojec	t ID	lort	h Be	ckl	ey Effluent	Zip Sam	Zip Sampler	
		n ROANOKE Service Center 29-C Peters Creek Rd Roanoke, VA 24019 540-777-1276	MORGANTOWN Service Center d 16 Commerce Drive Westover, WV 26501 304-241-5861		D REQUESTED	See	Atta	ttached List							
SAMPLE LO	G & ANAL	YSIS REQUES	ST		AETHO			ſ	•						
TURNAROUND TIME NORMAL *Rush work needs prior l	RU O 5 DAY aboratory approval	SH TURNAROUND* 3 DAY 2 DAY and will incur additiona	0 1 DAY		ANALYSIS &					`)	•				
SAMPLEID	No. & Type of Containers	Sampling Date/Time	Matrix	Samp Comp/G	le irab	0	1 2	* 3 1:	-5	10	9 U	6	ENTER PRESERVATIVE CO	DE(S): 6 Sodium	Hidroxide
N. BECKLEY WWIP EFF.	21	2/4/15 1040	Water	Grab		×							1 Hydrochloric Acid	7 Ascorbi	c Acid
Trip Blank	2		Water	Grab	>	×							3 Sulfuric Acid	9 Ammonium Chloride	Bisulfate/Metha hium Chloride
			Choose	Choose									4 Sodium Thiosulfate 5 Sodium Hydroxide/	10 AS/AH	AH
			Choose Choose	Choose									Sodium Arsenite * (Use blanks for pr	eservatives not	st listed)
			Choose	Choose								COMMENTS:			
			Choose Choose										Field Sampling Ti	me_/	412
			Choose	Choose									PH= 6.48		
	+		Choose	Choose	-								TEMP = 8.4 °C	=1	
All analytical converts are subject to BE	Ch Standard Term	and Conditions	Tompose	Choose			- 1.				_		COND = 8 LIN	Jem	
1 analytical requests are subject to REI	s standard lerm	and conditions.	Liemperat	ture at arri		00	- 10	CED?	Y	-	N_		Containers provided by:	IM REIC	[]Client
Surgestreed by Ugrande	- Pate	Sime 115 Petinguished	by (signature)					Date/	ine		Relin	quishe	d by (signature)		Date/Fime
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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 25, 2015

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

TEL: (304) 696-6042 FAX:

RE: RALEIGH COUNTY SWA Work Order #: 1502331 Dear GEORGE CARICO:

REI Consultants, Inc. received 2 sample(s) on 2/4/2015 for the analyses presented in the following report.

Sincerely,

Kathy Berry

Kathy Berry



Client: MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE

Project: RALEIGH COUNTY SWA

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#: 1502331

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	2/4/2015 9:50:00 AM
Project:	RALEIGH COUNTY SWA	Date Received:	2/4/2015
Lab ID:	1502331-01A	Matrix:	Liquid
Client Sample ID:	RALEIGH CO LF LEACHATE	Site ID:	

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
METALS BY ICP			Method: (1994)	EPA 200).7 Rev	. 4.4	Analyst: CGW	
Aluminum	0.227	0.005	0.100	NA		mg/L	2/6/2015 5:39 PM	PA/VA
Antimony	ND	0.020	0.200	NA		mg/L	2/6/2015 5:39 PM	PA/VA
Arsenic	0.035	0.020	0.200	NA	J	mg/L	2/6/2015 5:39 PM	PA/VA
Barium	0.630	0.002	0.100	NA		mg/L	2/6/2015 5:39 PM	PA/VA
Beryllium	ND	0.001	0.010	NA		mg/L	2/6/2015 5:39 PM	PA/VA
Boron	3.44	0.020	0.100	NA		mg/L	2/6/2015 5:39 PM	PA/VA
Cadmium	ND	0.001	0.020	NA		mg/L	2/6/2015 5:39 PM	PA/VA
Chromium	0.047	0.005	0.100	NA	J	mg/L	2/6/2015 5:39 PM	PA/VA
Copper	0.007	0.005	0.100	NA	J	mg/L	2/6/2015 5:39 PM	PA/VA
Iron	11.5	0.010	0.100	NA		mg/L	2/6/2015 5:39 PM	PA/VA
Lead	ND	0.010	0.200	NA		mg/L	2/6/2015 5:39 PM	PA/VA
Lithium	0.032	0.020	0.100	NA	J	mg/L	2/9/2015 1:11 PM	
Manganese	1.72	0.002	0.100	NA		mg/L	2/6/2015 5:39 PM	PA/VA
Nickel	0.074	0.005	0.100	NA	J	mg/L	2/6/2015 5:39 PM	PA/VA
Selenium	ND	0.020	0.200	NA		mg/L	2/6/2015 5:39 PM	PA/VA
Silver	ND	0.004	0.050	NA		mg/L	2/6/2015 5:39 PM	PA/VA
Strontium	0.997	0.001	0.010	NA		mg/L	2/9/2015 1:11 PM	PA
Vanadium	ND	0.005	0.100	NA		mg/L	2/6/2015 5:39 PM	PA/VA
Zinc	0.066	0.003	0.050	NA		mg/L	2/6/2015 5:39 PM	PA/VA

MERCURY, Total E245.1			Method: 3.0 (1994	EPA 24:)	5.1, Rev.		Analyst: CR	
Mercury	ND	0.0001	0.0010	NA		mg/L	2/9/2015 10:26 AM	PA/VA
SEMIVOLATILE ORGANIC COMP	OUNDS		Method:	SW8270)D (2007)	Analyst: JD	
1,4-Dinitrobenzene	ND	NA	0.0113	NA		mg/L	2/10/2015 11:47 PM	
1,4-Napthoquinone	ND	NA	0.0113	NA		mg/L	2/10/2015 11:47 PM	
4-Nitroquinoline-1-oxide	ND	NA	0.0564	NA		mg/L	2/10/2015 11:47 PM	
Pentachloronitrobenzene	ND	NA	0.0113	NA		mg/L	2/10/2015 11:47 PM	
Bis(2-ethylhexyl)phthalate	ND	0.0056	0.0113	NA		mg/L	2/6/2015 10:33 PM	PA/VA
Butyl benzyl phthalate	ND	0.0056	0.0113	NA		mg/L	2/6/2015 10:33 PM	PA/VA
Di-n-butyl phthalate	ND	0.0056	0.0113	NA		mg/L	2/6/2015 10:33 PM	PA/VA
Diethyl phthalate	0.0027	0.0023	0.0113	NA	J	mg/L	2/6/2015 10:33 PM	PA/VA
Dimethyl phthalate	ND	0.0023	0.0113	NA		mg/L	2/6/2015 10:33 PM	PA/VA
2,4-Dinitrotoluene	ND	0.0023	0.0113	NA		mg/L	2/6/2015 10:33 PM	PA/VA
2,6-Dinitrotoluene	ND	0.0023	0.0113	NA		mg/L	2/6/2015 10:33 PM	PA/VA

WO#: 1502331

Date Reported: 2/25/2015

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	2/4/2015 9:50:00 AM
Project:	RALEIGH COUNTY SWA	Date Received:	2/4/2015
Lab ID:	1502331-01A	Matrix:	Liquid
Client Sample ID:	RALEIGH CO LF LEACHATE	Site ID:	

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed NEL	_AP
Di-n-octyl phthalate	ND	0.0056	0.0113	NA		mg/L	2/6/2015 10:33 PM	A/VA
Fluoranthene	ND	0.0023	0.0113	NA		mg/L	2/6/2015 10:33 PM	A/VA
Nitrobenzene	ND	0.0023	0.0113	NA		mg/L	2/6/2015 10:33 PM P	A/VA
Surr: 2-Fluorophenol	53.4	NA	32.9-110	NA		%REC	2/6/2015 10:33 PM	
Surr: Phenol-d5	45.0	NA	25.8-110	NA		%REC	2/6/2015 10:33 PM	
Surr: 2,4,6-Tribromophenol	82.6	NA	63.8-110	NA		%REC	2/6/2015 10:33 PM	
Surr: Nitrobenzene-d5	102	NA	61.8-110	NA		%REC	2/6/2015 10:33 PM	
Surr: 2-Fluorobiphenyl	83.1	NA	58.6-110	NA		%REC	2/6/2015 10:33 PM	
Surr: 4-Terphenyl-d14	71.2	NA	55.1-110	NA		%REC	2/6/2015 10:33 PM	

VOLATILE ORGANIC COMPOUNDS-8260			Method: S	W8260E	B (1996)	Analyst: JM	
Benzene	ND	50.0	100	NA	µg/L	2/11/2015 3:07 PM	PA/VA
Chlorobenzene	ND	50.0	100	NA	µg/L	2/11/2015 3:07 PM	PA/VA
Dibromochloromethane	ND	50.0	100	NA	µg/L	2/11/2015 3:07 PM	PA/VA
1,2-Dichlorobenzene	ND	50.0	100	NA	µg/L	2/11/2015 3:07 PM	PA/VA
1,3-Dichlorobenzene	ND	50.0	100	NA	µg/L	2/11/2015 3:07 PM	PA/VA
1,4-Dichlorobenzene	ND	50.0	100	NA	µg/L	2/11/2015 3:07 PM	PA/VA
Surr: 1,2-Dichloroethane-d4	93.3	NA	68.7-129	NA	%REC	2/11/2015 3:07 PM	
Surr: 4-Bromofluorobenzene	110	NA	71.8-127	NA	%REC	2/11/2015 3:07 PM	
Surr: Dibromofluoromethane	97.7	NA	74.3-124	NA	%REC	2/11/2015 3:07 PM	
Surr: Toluene-d8	100	NA	71.4-129	NA	%REC	2/11/2015 3:07 PM	

Notes:

Elevated PQLs are due to matrix interference. Sample foamed during analysis.

BOD, 5 Day, 20°C			Method: S	6M5210 B	-2001	Analyst: VR	
Biochemical Oxygen Demand	136	2	5	NA	mg/L	2/4/2015 4:37 PM	PA/VA
Chemical Oxygen Demand			Method: E (1993)	PA 410.4	l, Rev. 2	Analyst: SF	
Chemical Oxygen Demand	102	4	10	NA	mg/L	2/4/2015 1:59 PM	PA/VA
HEXAVALENT CHROMIUM BY IC			Method: E 3.3 (1994)	PA 218.6	ö, Rev.	Analyst: CF	
Chromium (VI)	ND	0.0001	0.0010	NA	mg/L	2/5/2015 9:44 AM	PA/VA
ANIONS by ION CHROMATOGRAPHY			Method: E (1993)	PA 300.0), Rev.2.1	Analyst: CF	
Chloride	401	1.00	10.0	NA	mg/L	2/4/2015 1:32 PM	PA/VA
Fluoride	2.84	0.05	0.20	NA	mg/L	2/4/2015 1:32 PM	PA/VA

WO#: 1502331

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	2/4/2015 9:50:00 AM
Project:	RALEIGH COUNTY SWA	Date Received:	2/4/2015
Lab ID:	1502331-01A	Matrix:	Liquid
Client Sample ID:	RALEIGH CO LF LEACHATE	Site ID:	

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	IELAP
Sulfate	87.9	10.0	50.0	NA		mg/L	2/4/2015 1:32 PM	PA/VA
ANIONS by ION CHROMATOGRA	VPHY-48 H	OUR	Method: (1993)	EPA 30	0.0, Rev	v.2.1	Analyst: CF	
Nitrogen, Nitrate	ND	0.02	0.10	NA		mg/L	2/4/2015 1:32 PM	PA/VA
Nitrogen, Nitrite	0.22	0.05	0.50	NA	J	mg/L	2/4/2015 1:32 PM	PA/VA
TOTAL KJELDAHL NITROGEN (T	KN)		Method: 2.0 (1993	EPA 35 3)	1.2, Rev	v .	Analyst: JH	
Nitrogen, Kjeldahl, Total	196	4.00	20.0	NA		mg/L	2/10/2015 10:24 AM	PA/VA
OIL and GREASE			Method:	EPA 16	64 Rev	. A	Analyst: CC	
Oil & Grease	ND	2.0	5.0	NA		mg/L	2/6/2015 1:30 PM	PA/VA
Notes:								
Sample acidity or alkalinity exceeded the a	added preserv	ative, so	that the requi	red preser	vation pH	was not ach	ieved.	
CYANIDE, Free			Method:	SM4500	-CN I-1	997	Analyst: JH	
Cyanide, Free	0.019	0.005	0.020	NA	J	mg/L	2/6/2015 1:09 PM	
AMMONIA NITROGEN			Method: (1993)	EPA 35	0.1, Rev	v.2.	Analyst: JH	
Nitrogen, Ammonia (As N)	187	6.40	16.0	NA		mg/L	2/5/2015 6:27 PM	PA/VA
CONDUCTIVITY			Method:	SM2510) B - 199	97	Analyst: KY	
Specific Conductivity	4,230	NA	NA	NA		µmhos/cm	2/9/2015 11:19 AM	PA/VA
TOTAL DISSOLVED SOLIDS			Method:	SM2540	C-199	7	Analyst: KY	
Total Dissolved Solids	2,080	20	40	NA		mg/L	2/5/2015 5:44 PM	PA/VA
TOTAL SUSPENDED SOLIDS			Method:	SM2540	D-1997	7	Analyst: KY	
Total Suspended Solids	19.5	1.0	5.0	NA		mg/L	2/5/2015 5:44 PM	PA/VA
ACIDITY			Method:	SM2310	B-1997	7	Analyst: DSD	
Acidity, Total	88.3	1.0	10	NA		mg/L	2/5/2015 10:19 AM	PA/VA
ALKALINITY			Method:	SM2320	B-1997	7	Analyst: DSD	
Alkalinity, Total (As CaCO3)	1,350	4.0	40.0	NA		mg/L	2/5/2015 10:19 AM	PA/VA

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	2/4/2015 9:50:00 AM
Project:	RALEIGH COUNTY SWA	Date Received:	2/4/2015
Lab ID:	1502331-01A	Matrix:	Liquid
Client Sample ID:	RALEIGH CO LF LEACHATE	Site ID:	

Analysis	Result	MDL	PQL	MCL	Qual Units	Date Analyzed NE	LAP
pH - LAB TEST, HOLD TIME EXPIR	RED		Method:	SM4500-H	H+-B-2000	Analyst: DSD	
рН	7.71	NA	NA	NA	SU	2/5/2015 10:19 AM	PA

Date Reported: 2/25/2015

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	2/4/2015 9:50:00 AM
Project:	RALEIGH COUNTY SWA	Date Received:	2/4/2015
Lab ID:	1502331-01B	Matrix:	Liquid
Client Sample ID:	RALEIGH CO LF LEACHATE	Site ID:	

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
DISSOLVED METALS BY ICP			Method: (1994)	EPA 200).7 Rev.	4.4	Analyst: CGW	
Iron	3.86	0.010	0.100	NA		mg/L	2/6/2015 5:42 PM	PA/VA
Manganese	1.55	0.002	0.100	NA		mg/L	2/6/2015 5:42 PM	PA/VA

Page 7 of 8

Date Reported: 2/25/2015

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	2/4/2015 12:00:00 AM
Project:	RALEIGH COUNTY SWA	Date Received:	2/4/2015
Lab ID:	1502331-02A	Matrix:	Trip Blank
Client Sample ID:	TRIP BLANK	Site ID:	

Date Analyzed NELAP **Qual Units** PQL MCL Analysis Result MDL **VOLATILE ORGANIC COMPOUNDS-8260** Method: SW8260B (1996) Analyst: JM 0.500 1.00 PA/VA Benzene ND NA 2/11/2015 3:41 PM µg/L Chlorobenzene 0.500 1.00 NA PA/VA ND 2/11/2015 3:41 PM µg/L 0.500 1.00 PA/VA Dibromochloromethane ND NA 2/11/2015 3:41 PM µg/L 1,2-Dichlorobenzene 0.500 1.00 NA PA/VA ND 2/11/2015 3:41 PM µg/L 1,3-Dichlorobenzene 0.500 1.00 NA PA/VA ND 2/11/2015 3:41 PM µg/L 0.500 1,4-Dichlorobenzene ND 1.00 NA 2/11/2015 3:41 PM PA/VA µg/L Surr: 1,2-Dichloroethane-d4 68.7-129 NA NA 99.0 %REC 2/11/2015 3:41 PM Surr: 4-Bromofluorobenzene NA 71.8-127 NA 110 2/11/2015 3:41 PM %REC Surr: Dibromofluoromethane 95.7 NA 74.3-124 NA 2/11/2015 3:41 PM %REC Surr: Toluene-d8 71.4-129 NA NA 101 %REC 2/11/2015 3:41 PM



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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

Thursday, February 12, 2015

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

TEL: (304) 696-6042 FAX:

RE: NORTH BECKLEY EFFLUENT Work Order #: 1502329 Dear GEORGE CARICO:

REI Consultants, Inc. received 2 sample(s) on 2/4/2015 for the analyses presented in the following report.

Sincerely,

Kathy Berry

Kathy Berry



Client: MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,

Project: NORTH BECKLEY EFFLUENT

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#: 1502329

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	2/4/2015 10:40:00 AM
Project:	NORTH BECKLEY EFFLUENT	Date Received:	2/4/2015
Lab ID:	1502329-01A	Matrix:	Liquid
Client Sample ID:	N. BECKLEY WWTP EFF.	Site ID:	

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
METALS BY ICP			Method: (1994)	EPA 200).7 Rev	. 4.4	Analyst: CGW	
Aluminum	0.013	0.005	0.100	NA	J	mg/L	2/6/2015 5:33 PM	PA/VA
Antimony	ND	0.020	0.200	NA		mg/L	2/6/2015 5:33 PM	PA/VA
Arsenic	ND	0.020	0.200	NA		mg/L	2/6/2015 5:33 PM	PA/VA
Barium	0.038	0.002	0.100	NA	J	mg/L	2/6/2015 5:33 PM	PA/VA
Beryllium	ND	0.001	0.010	NA		mg/L	2/6/2015 5:33 PM	PA/VA
Boron	0.107	0.020	0.100	NA		mg/L	2/6/2015 5:33 PM	PA/VA
Cadmium	ND	0.001	0.020	NA		mg/L	2/6/2015 5:33 PM	PA/VA
Chromium	ND	0.005	0.100	NA		mg/L	2/6/2015 5:33 PM	PA/VA
Copper	0.011	0.005	0.100	NA	J	mg/L	2/6/2015 5:33 PM	PA/VA
Iron	0.107	0.010	0.100	NA		mg/L	2/6/2015 5:33 PM	PA/VA
Lead	ND	0.010	0.200	NA		mg/L	2/6/2015 5:33 PM	PA/VA
Lithium	ND	0.020	0.100	NA		mg/L	2/9/2015 1:08 PM	
Manganese	0.004	0.002	0.100	NA	J	mg/L	2/6/2015 5:33 PM	PA/VA
Nickel	ND	0.005	0.100	NA		mg/L	2/6/2015 5:33 PM	PA/VA
Selenium	ND	0.020	0.200	NA		mg/L	2/6/2015 5:33 PM	PA/VA
Silver	ND	0.004	0.050	NA		mg/L	2/6/2015 5:33 PM	PA/VA
Strontium	0.351	0.001	0.010	NA		mg/L	2/9/2015 1:08 PM	PA
Vanadium	ND	0.005	0.100	NA		mg/L	2/6/2015 5:33 PM	PA/VA
Zinc	0.071	0.003	0.050	NA		mg/L	2/6/2015 5:33 PM	PA/VA
MERCURY, Total E245.1			Method:	EPA 24	5.1. Rev	<i>.</i>	Analyst: CR	

			3.0 (1994)	A 240.1, K		Analyst. Or	
Mercury	ND	0.0001	0.0010	NA	mg/L	2/6/2015 10:11 AM	PA/VA
SEMIVOLATILE ORGANIC COMPOU	INDS		Method: S	W8270D (20	07)	Analyst: JD	
1,4-Dinitrobenzene	ND	NA	0.0100	NA	mg/L	2/10/2015 11:21 PM	
1,4-Napthoquinone	ND	NA	0.0100	NA	mg/L	2/10/2015 11:21 PM	
4-Nitroquinoline-1-oxide	ND	NA	0.0501	NA	mg/L	2/10/2015 11:21 PM	
Pentachloronitrobenzene	ND	NA	0.0100	NA	mg/L	2/10/2015 11:21 PM	
Bis(2-ethylhexyl)phthalate	ND	0.0050	0.0100	NA	mg/L	2/6/2015 10:07 PM	PA/VA
Butyl benzyl phthalate	ND	0.0050	0.0100	NA	mg/L	2/6/2015 10:07 PM	PA/VA
Di-n-butyl phthalate	ND	0.0050	0.0100	NA	mg/L	2/6/2015 10:07 PM	PA/VA
Diethyl phthalate	ND	0.0020	0.0100	NA	mg/L	2/6/2015 10:07 PM	PA/VA
Dimethyl phthalate	ND	0.0020	0.0100	NA	mg/L	2/6/2015 10:07 PM	PA/VA
2,4-Dinitrotoluene	ND	0.0020	0.0100	NA	mg/L	2/6/2015 10:07 PM	PA/VA
2,6-Dinitrotoluene	ND	0.0020	0.0100	NA	mg/L	2/6/2015 10:07 PM	PA/VA

WO#: 1502329

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	2/4/2015 10:40:00 AM
Project:	NORTH BECKLEY EFFLUENT	Date Received:	2/4/2015
Lab ID:	1502329-01A	Matrix:	Liquid
Client Sample ID:	N. BECKLEY WWTP EFF.	Site ID:	

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	IELAP
Di-n-octyl phthalate	ND	0.0050	0.0100	NA		mg/L	2/6/2015 10:07 PM	PA/VA
Fluoranthene	ND	0.0020	0.0100	NA		mg/L	2/6/2015 10:07 PM	PA/VA
Nitrobenzene	ND	0.0020	0.0100	NA		mg/L	2/6/2015 10:07 PM	PA/VA
Surr: 2-Fluorophenol	40.9	NA	32.9-110	NA		%REC	2/6/2015 10:07 PM	
Surr: Phenol-d5	32.5	NA	25.8-110	NA		%REC	2/6/2015 10:07 PM	
Surr: 2,4,6-Tribromophenol	70.7	NA	63.8-110	NA		%REC	2/6/2015 10:07 PM	
Surr: Nitrobenzene-d5	97.1	NA	61.8-110	NA		%REC	2/6/2015 10:07 PM	
Surr: 2-Fluorobiphenyl	75.7	NA	58.6-110	NA		%REC	2/6/2015 10:07 PM	
Surr: 4-Terphenyl-d14	68.0	NA	55.1-110	NA		%REC	2/6/2015 10:07 PM	
VOLATILE ORGANIC COMPOUND	S-8260		Method: \$	SW8260)B (199	6)	Analyst: JM	
Benzene	ND	0.500	1.00	NA		µg/L	2/10/2015 7:05 PM	PA/VA
Chlorobenzene	ND	0.500	1.00	NA		µg/L	2/10/2015 7:05 PM	PA/VA
Dibromochloromethane	ND	0.500	1.00	NA		µg/L	2/10/2015 7:05 PM	PA/VA
1,2-Dichlorobenzene	ND	0.500	1.00	NA		µg/L	2/10/2015 7:05 PM	PA/VA
1,3-Dichlorobenzene	ND	0.500	1.00	NA		µg/L	2/10/2015 7:05 PM	PA/VA
1,4-Dichlorobenzene	ND	0.500	1.00	NA		µg/L	2/10/2015 7:05 PM	PA/VA
Surr: 1,2-Dichloroethane-d4	96.7	NA	68.7-129	NA		%REC	2/10/2015 7:05 PM	
Surr: 4-Bromofluorobenzene	111	NA	71.8-127	NA		%REC	2/10/2015 7:05 PM	
Surr: Dibromofluoromethane	94.8	NA	74.3-124	NA		%REC	2/10/2015 7:05 PM	
Surr: Toluene-d8	101	NA	71.4-129	NA		%REC	2/10/2015 7:05 PM	
BOD, 5 Day, 20°C			Method: \$	SM5210	B-200 ²	1	Analyst: VR	
Biochemical Oxygen Demand	4	2	5	NA	J	mg/L	2/4/2015 4:37 PM	PA/VA
Chemical Oxygen Demand			Method: I (1993)	EPA 410	0.4, Rev	/. 2	Analyst: SF	
Chemical Oxygen Demand	29	4	10	NA		mg/L	2/4/2015 1:59 PM	PA/VA
HEXAVALENT CHROMIUM BY IC			Method: I 3.3 (1994)	EPA 218	8.6, Rev	<i>ı</i> .	Analyst: CF	
Chromium (VI)	0.0003	0.0001	0.0010	NA	J	mg/L	2/5/2015 9:31 AM	PA/VA
ANIONS by ION CHROMATOGRA	РНҮ		Method: I (1993)	EPA 300	0.0, Rev	/.2.1	Analyst: CF	
Chloride	154	0.50	5.00	NA		mg/L	2/4/2015 1:13 PM	PA/VA
Fluoride	0.29	0.05	0.20	NA		mg/L	2/4/2015 1:13 PM	PA/VA
Sulfate	31.1	1.00	5.00	NA		mg/L	2/4/2015 1:13 PM	PA/VA

WO#: 1502329

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	2/4/2015 10:40:00 AM
Project:	NORTH BECKLEY EFFLUENT	Date Received:	2/4/2015
Lab ID:	1502329-01A	Matrix:	Liquid
Client Sample ID:	N. BECKLEY WWTP EFF.	Site ID:	

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
ANIONS by ION CHROMATOGRAF	PHY-48 H	OUR	Method: (1993)	EPA 30	0.0, Rev	/.2.1	Analyst: CF	
Nitrogen, Nitrate	3.00	0.10	0.50	NA		mg/L	2/4/2015 1:13 PM	PA/VA
Nitrogen, Nitrite	ND	0.05	0.50	NA		mg/L	2/4/2015 1:13 PM	PA/VA
TOTAL KJELDAHL NITROGEN (TK	(N)		Method: 2.0 (1993)	EPA 35 [.])	1.2, Rev	<i>ı</i> .	Analyst: JH	
Nitrogen, Kjeldahl, Total	1.34	0.10	0.50	NA		mg/L	2/6/2015 9:07 AM	PA/VA
OIL and GREASE			Method:	EPA 16	64 Rev	. A	Analyst: CC	
Oil & Grease	2.3	2.0	5.0	NA	J	mg/L	2/5/2015 4:30 PM	PA/VA
CYANIDE, Free			Method:	SM4500)-CN I-1	997	Analyst: JH	
Cyanide, Free	ND	0.005	0.020	NA		mg/L	2/6/2015 1:09 PM	
AMMONIA NITROGEN			Method: (1993)	EPA 35	0.1, Rev	/.2.	Analyst: JH	
Nitrogen, Ammonia (As N)	ND	0.04	0.10	NA		mg/L	2/5/2015 4:04 PM	PA/VA
CONDUCTIVITY			Method:	SM2510) B - 199	97	Analyst: KY	
Specific Conductivity	841	NA	NA	NA		µmhos/cm	2/9/2015 11:19 AM	PA/VA
TOTAL DISSOLVED SOLIDS			Method:	SM2540) C-1997	7	Analyst: KY	
Total Dissolved Solids	423	5	10	NA		mg/L	2/5/2015 5:44 PM	PA/VA
TOTAL SUSPENDED SOLIDS			Method:	SM2540) D-1997	7	Analyst: KY	
Total Suspended Solids	4.0	1.6	8.0	NA	J	mg/L	2/5/2015 5:44 PM	PA/VA
ACIDITY			Method:	SM2310) B-1997	7	Analyst: DSD	
Acidity, Total	10.9	1.0	10	NA		mg/L	2/5/2015 10:19 AM	PA/VA
ALKALINITY			Method:	SM2320) B-1997	7	Analyst: DSD	
Alkalinity, Total (As CaCO3)	77.3	1.0	10	NA		mg/L	2/5/2015 10:19 AM	PA/VA
pH - LAB TEST, HOLD TIME EXPIR	ED		Method:	SM4500)-H+-B-2	2000	Analyst: DSD	
рН	6.67	NA	NA	NA		SU	2/5/2015 10:19 AM	PA

Date Reported: 2/12/2015

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	2/4/2015 10:40:00 AM
Project:	NORTH BECKLEY EFFLUENT	Date Received:	2/4/2015
Lab ID:	1502329-01B	Matrix:	Liquid
Client Sample ID:	N. BECKLEY WWTP EFF.	Site ID:	

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
DISSOLVED METALS BY ICP			Method: (1994)	EPA 200).7 Rev	. 4.4	Analyst: CGW	
Iron	0.059	0.010	0.100	NA	J	mg/L	2/6/2015 5:36 PM	PA/VA
Manganese	ND	0.002	0.100	NA		mg/L	2/6/2015 5:36 PM	PA/VA

Page 6 of 7

Client:	MARSHALL UNIVERSITY CENTER FOR ENVIRONMENTAL,	Collection Date:	2/4/2015 12:00:00 AM
Project:	NORTH BECKLEY EFFLUENT	Date Received:	2/4/2015
Lab ID:	1502329-02A	Matrix:	Trip Blank
Client Sample ID:	TRIP BLANK	Site ID:	

Analysis	Result	MDL	PQL	MCL	Qual Units	Date Analyzed NELAP
VOLATILE ORGANIC COMPOUND	S-8260		Method:	SW8260)B (1996)	Analyst: JM
Benzene	ND	0.500	1.00	NA	µg/L	2/10/2015 7:38 PM PA/VA
Chlorobenzene	ND	0.500	1.00	NA	µg/L	2/10/2015 7:38 PM PA/VA
Dibromochloromethane	ND	0.500	1.00	NA	µg/L	2/10/2015 7:38 PM PA/VA
1,2-Dichlorobenzene	ND	0.500	1.00	NA	µg/L	2/10/2015 7:38 PM PA/VA
1,3-Dichlorobenzene	ND	0.500	1.00	NA	µg/L	2/10/2015 7:38 PM PA/VA
1,4-Dichlorobenzene	ND	0.500	1.00	NA	µg/L	2/10/2015 7:38 PM PA/VA
Surr: 1,2-Dichloroethane-d4	93.5	NA	68.7-129	NA	%REC	2/10/2015 7:38 PM
Surr: 4-Bromofluorobenzene	109	NA	71.8-127	NA	%REC	2/10/2015 7:38 PM
Surr: Dibromofluoromethane	98.0	NA	74.3-124	NA	%REC	2/10/2015 7:38 PM
Surr: Toluene-d8	99.7	NA	71.4-129	NA	%REC	2/10/2015 7:38 PM



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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 09, 2015

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

TEL: (304) 696-6042 FAX:

RE: RALEIGH COUNTY SWA Work Order #: 1502332 Dear GEORGE CARICO:

REI Consultants, Inc. received 1 sample(s) on 2/4/2015 for the analyses presented in the following report.

Sincerely,

Kathy Berry

Kathy Berry



Date Reported: 3/9/2015

Client: MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE

Project: RALEIGH COUNTY SWA

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.

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DEFINITIONS:

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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#: 1502332

Date Reported: 3/9/2015

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	2/4/2015 9:50:00 AM
Project:	RALEIGH COUNTY SWA	Date Received:	2/4/2015
Lab ID:	1502332-01A	Matrix:	Liquid
Client Sample ID:	RALEIGH CO LF LEACHATE	Site ID:	

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		



Pace Analytical Services, Inc. 1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

February 09, 2015

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

RE: Project: 1502332 Pace Project No.: 30140068

Dear Ms. Berry:

Enclosed are the analytical results for sample(s) received by the laboratory on February 05, 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,

Carino a. Ferrio

Carin Ferris carin.ferris@pacelabs.com Project Manager

Enclosures





Pace Analytical Services, Inc. 1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

CERTIFICATIONS

 Project:
 1502332

 Pace Project No.:
 30140068

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-042 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



SAMPLE SUMMARY

30140068001	1502332-01A	Water	02/04/15 09:50	02/05/15 09:45
Lab ID	Sample ID	Matrix	Date Collected	Date Received
Pace Project No	.: 30140068			
Project:	1502332			



SAMPLE ANALYTE COUNT

Project:	1502332
Pace Proiect No.:	30140068

Lab ID	Sample ID	Method	Analysts	Analytes Reported
30140068001	1502332-01A	SM 7500Rn-B	FCC	1



 Project:
 1502332

 Pace Project No.:
 30140068

Method: SM 7500Rn-B

Description:7500RnB RadonClient:REI Consultants, Inc.Date:February 09, 2015

General Information:

1 sample was analyzed for SM 7500Rn-B. 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:

Batch Comments:

13007LCS3 fails low at 89.13% for Rn-222 batch 23296. Samples were collected on 2/3/15, 2/4/15, AND 2/5/15, and the initial count was on 2/6/15. Any recount would impact the recommended hold time of four days from collection. • QC Batch: RADC / 23296

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



ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 1502332 Pace Project No.: 30140068 Sample: 1502332-01A Lab ID: 30140068001 Collected: 02/04/15 09:50 Received: 02/05/15 09:45 Matrix: Water PWS: Site ID: Sample Type: Parameters Method Act ± Unc (MDC) Carr Trac Units CAS No. Analyzed Qual SM 7500Rn-B -18.8 ± 25.4 (45.9) Radon pCi/L 02/06/15 12:49 10043-92-2 C:NA T:NA



QUALITY CONTROL - RADIOCHEMISTRY

Project:	1502332					
Pace Project No.:	30140068					
QC Batch:	RADC/23296	Analysis Method:	SM 7500Rn-	·B		
QC Batch Method:	SM 7500Rn-B	Analysis Descriptio	n: 7500Rn B R	adon		
Associated Lab Sar	nples: 30140068	001				
METHOD BLANK:	851087	Matrix: Wate	r			
Associated Lab Sar	nples: 30140068	001				
Parar	neter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers	
Radon		-6.2 ± 17.5 (31.2) C:NA T:NA	pCi/L	02/06/15 10:37		

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:
 1502332

 Pace Project No.:
 30140068

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.

REIC	Ū	CHAIN OF (CUSTODY REC	ORD	COC ID: 3289	PAGE: 1	0F: 1	ADDRESS REI Consultants, Inc.
						(Particular)		PO Box 286 Beaver, WV 25813
improving the environment, one client at a time								TEL: (304) 255-2500 FAX: (304) 255-2572 Website: www.reiclabs.com
		Please	Include Email Address of	Г Керогт Кесір	ent Whenever Possible	111		
SUB CONTRATOR: PACE PA	COMPANY:	PACE ANAL	YTICAL SERVIC	SPECIAL INSTR	UCTIONS / COMMENTS: MV/ Dissis use Semulal	D as nurchase ord	er numher	
ADDRESS: 1638 ROSEYTOWN R	OAD			After analysi	s, the samples do not ne	to be returned a com Thank your	nd can be disposed	l per your standard laboratory
CITY, STATE, ZIP: GREENSBURG, PA 15	601			pidutues. In	and a cinc			
PHONE: (724) 850-5600	FAX:			TANA	TICAL PARAMETERS			* Preservation Codes: 0 None
ACCOUNT # 050719EVF1	EMAU:			RADON (t rydrociaone Actu 2 Nitrie Acid 3 Sulfurie Acid 4 Sodium Thiostifaie
ITEM SAMPLE ID Client Sample ID	Bott Typ	e MATRIX	NUMBER OF CONTAINERS	913.0)			ŭ 6	 5 Sodium Hydroxide/ Sodium Hydroxide 6 Sodium Hydroxide 7 Assorbic Acid 8 Sodium Sulfire/HCL 10 Bromium Chloride 10 Bromium Chloride COMMENTS:
			*	Q		M	0140	068
1 1502332-01A RALEIGH CO LF LEACHATE		Liquid	2/4/2015 9:50:00 AM 3	7		Õ	6	
	1							

Relinquished By: U. L. Han	Sillis	(R. 1)	Received By	Billis Tune	REPORT TRANSMITTAL DESIRED:
Relinquished By	Date:	Time:	Received By:	Date: Date: Date: Date:	HARDCOPY (extra cost)
Relinquished By:	Date:	Time:	Received By:	Date: Time:	FOR LAB USE ONLY
Pad					Temp of samples NA °C Attempt to Cool ?
p TAT: Sta	ndard	RUSH	Next BD 2nd BD	3rd BD	Comments:
of 1			Note: RUSH requests will incur su	ircharges!	

Sa	mple Cond	lition	Upon Receip	t	Ann
Pace Analytical Client Name	e: RELO	۷		Project #	30140068
Courier: ☐ Fed Ex 20UPS ☐ USPS ☐ Clie Tracking #: 12 26× 713 13 62 99 989	nt 🗌Comme Z	ercial	Pace Other		
Custody Seal on Cooler/Box Present: Uyes	🜠 no	Seals	intact: 🗌 yes	no Biologic	al Tissue is Frozen: Yes No
Packing Material: Bubble Wrap 🔶 Bubble Bag	gs None		Other		
Thermometer Used Typ	e of Ice: Wet	Blue	None	Samples on ice, cooling	process has begun
Cooler Temp.: Observed Temp.: <u>NA</u> °C Co	orrection Facto	or:/	<u>∕/</u> A_°C Final Tem	ıp: <u>//^A_</u> ℃	Date and Initials of person
Temp should be above freezing to 6°C			Comments:		examining contents:
Chain of Custody Present:	Kory res ⊡No	□n/a	1.		25. S.
Chain of Custody Filled Out:	Ø¢res □No	□n/a	2.		4 E.
Chain of Custody Relinquished:	ØYes □No	⊡n/a	3.		005
Sampler Name & Signature on COC:	□Yes ØNo	□n/A	4. Warer	on file	YSIB
Samples Arrived within Hold Time:	18 Yes □No	□n/A	5.		
Short Hold Time Analysis (<72hr):	ØYes □No	□n/A	6.		
Rush Turn Around Time Requested:	Yes WNo	□n/A	7,		
Sufficient Volume:	Ø∕Yes ⊡No	□n/A	8.		
Correct Containers Used:	ØYes □No	□n/A	9.		
-Pace Containers Used:	🗆 Yes 🕼 No	□n/A	8		
Containers Intact:	¥ØlYes ⊡No	□n/a	10.		÷
Filtered volume received for Dissolved tests	□Yes □No	₩ N/A	11		I
Sample Labels match COC:	ØYes □No	□n/a	12.		
-Includes date/time/ID/Analysis Matrix:	wt				
All containers needing preservation have been checked.	□Yes □No	₩ N/A	13.		
All containers needing preservation are found to be in compliance with EPA recommendation.	□Yes □No	ØN/A			
exceptions: ⁄ 🕰, coliform, TOC, O&G, WI-DRO (water)	,Øres □No	2	Initial when completed Am	Lot # of added preservative	
Samples checked for dechlorination;	□Yes □No	ØN/A	14.		
Headspace in VOA Vials (>6mm):	□Yes □No	CRN/A	15.		
Trip Blank Present:	□Yes □No	DAN/A	16.		
Trip Blank Custody Seals Present	□Yes □No	QN/A			
Pace Trip Blank Lot # (if purchased):					
Client Notification/ Resolution:				Field Data Requ	ired? Y / N
Person Contacted:		Date/1	lime:		
Comments/ Resolution:					0
				7	
		_			
		_			
Project Manager Review:	Ser	ri	0	Date: (21515
	analina any "				

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)

Face Analytical

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	Other								-			
11	Other RADON	2										2012).xls
89	Ziploc											15Mav2
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4	Radchem Nalgene (1/2 gal. / 1 gal.L)											IRF Back
02	Radchem Naigene (125 / 250 / 500 / 1L)											scu
ber:	wipes / swipe/ smear/ filter											
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	Total Metals											
	TOX (250 ml)											
	TOC (40 ml / 250 ml)											
	Phenolics (250 ml)											
	Nutrient (250 / 500)											
	Organics (1L)											
	Chemistry (250 / 500 / 1L)											
	Soil kit (2 SB, 1M, soil jar)											
	Glass Jar (120 / 250 / 500 / 1L)								1			
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page 2



Pace Analytical Services, Inc. 1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

February 27, 2015

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

RE: Project: 1502332 Pace Project No.: 30140371

Dear Ms. Berry:

Enclosed are the analytical results for sample(s) received by the laboratory on February 09, 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,

Carino a. Ferrio

Carin Ferris carin.ferris@pacelabs.com Project Manager

Enclosures





Pace Analytical Services, Inc. 1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

CERTIFICATIONS

 Project:
 1502332

 Pace Project No.:
 30140371

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-042 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



SAMPLE SUMMARY

30140371001	1502332-01A	Water	02/04/15 09:50	02/09/15 14:15
Lab ID	Sample ID	Matrix	Date Collected	Date Received
Pace Project No.: 30140371				
Project:	1502332			



SAMPLE ANALYTE COUNT

 Project:
 1502332

 Pace Project No.:
 30140371

Lab ID	Sample ID	Method	Analysts	Analytes Reported
30140371001	1502332-01A	EPA 900.0	LAL	2
		EPA 903.1	JC2	1
		EPA 904.0	JLW	1
		ASTM D5811-95	LAL	1



 Project:
 1502332

 Pace Project No.:
 30140371

Method:EPA 900.0Description:900.0 Gross Alpha/BetaClient: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:



 Project:
 1502332

 Pace Project No.:
 30140371

Method: EPA 903.1

Description:903.1 Radium 226Client:REI Consultants, Inc.Date:February 27, 2015

General Information:

1 sample was analyzed for EPA 903.1. 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:
 1502332

 Pace Project No.:
 30140371

Method:	EPA 904.0
Description:	904.0 Radium 228
Client:	REI Consultants, Inc.
Date:	February 27, 2015

General Information:

1 sample was analyzed for EPA 904.0. 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:

Batch Comments:

The Ra-228 Method Blank, sample 852908, associated with analytical batch 23336 had a lower than expected Ba-133 yield at 22.32%. The Ba-133 yield was confirmed by recounting. The routine Ra-228 RL of 1.0 pCi/L could not be achieved for the method blank due to the low Ba-133 yield even with an extended count time. The cause of the low Ba-133 yield is unknown, however, the Ba-133 yields for the remaining QC and all samples in the batch were not similarly affected. The low Ba-133 yield may have caused a high bias to the Method Blank result for Ra-228. The Method Blank activity is above the MDC. Samples with activity below the RL of 1.0 pCi/L, or below their associated MDC are reportable without qualification. Samples with results greater than ten times the Method Blank result are also reportable without qualification. All others require re-preparation and re-analysis due to the MB result greater than MDC.

• QC Batch: RADC / 23336

Analyte Comments:

QC Batch: RADC/23336

1c: The Ra-228 Method Blank, sample 852908, associated with analytical batch 23336 had a lower than expected Ba-133 yield at 22.32%. The Ba-133 yield was confirmed by recounting. The routine Ra-228 RL of 1.0 pCi/L could not be achieved for the method blank due to the low Ba-133 yield even with an extended count time. The cause of the low Ba-133 yield is unknown, however, the Ba-133 yields for the remaining QC and all samples in the batch were not similarly affected. The low Ba-133 yield may have caused a high bias to the Method Blank result for Ra-228. The Method Blank activity is above the MDC. Samples with activity below the RL of 1.0 pCi/L, or below their associated MDC are reportable without qualification. Samples with results greater than ten times the Method Blank result are also reportable without qualification. All others require re-preparation and re-analysis due to the MB result greater than MDC.

- 1502332-01A (Lab ID: 30140371001)
 - Radium-228
- BLANK (Lab ID: 852908)
 - Radium-228


 Project:
 1502332

 Pace Project No.:
 30140371

Method: ASTM D5811-95

Description:ASTM D5811 Sr 89/90 EichromClient: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/23348

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

- 1502332-01A (Lab ID: 30140371001)
 - Strontium-90
- BLANK (Lab ID: 853404)
 - Strontium-90

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



ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 1502332

Pace Project No.: 30140371

Sample: 1502332-01A PWS:	Lab ID: 30140 Site ID:	0371001 Collected: 02/04/15 09:50 Sample Type:	Received:	02/09/15 14:15 N	latrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0	6.06 ± 4.65 (7.86) C:NA T:NA	pCi/L	02/18/15 19:18	12587-46-1	
Gross Beta	EPA 900.0	81.4 ± 15.2 (3.43) C:NA T:NA	pCi/L	02/18/15 19:18	12587-47-2	
Radium-226	EPA 903.1	2.25 ± 1.30 (0.507) C:NA T:79%	pCi/L	02/19/15 10:11	13982-63-3	
Radium-228	EPA 904.0	0.906 ± 0.797 (1.59) C:88% T:55%	pCi/L	02/26/15 16:29	15262-20-1	1c
Strontium-90	ASTM D5811-95	3.64 ± 0.917 (1.05) C:103% T:NA	pCi/L	02/16/15 13:19	10098-97-2	N2



Project:	1502332						
Pace Project No.:	30140371						
QC Batch:	RADC/23334		Analysis Method:	EPA 903.1			
QC Batch Method:	EPA 903.1		Analysis Description:	on: 903.1 Radium-226			
Associated Lab Sar	mples: 30140371	001					
METHOD BLANK:	852906		Matrix: Water				
Associated Lab Sar	mples: 30140371	001					
Parar	neter	Act ±	Jnc (MDC) Carr Trac	Units	Analyzed	Qualifiers	
Radium-226		0.379 ± 0.498	(0.829) C:NA T:97%	pCi/L	02/19/15 09:51		

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:	1502332					
Pace Project No.:	30140371					
QC Batch:	RADC/23336	Analysis Method:	EPA 904.0			
QC Batch Method:	EPA 904.0	Analysis Descript	ion: 904.0 Radiun	204.0 Radium 228		
Associated Lab Sar	mples: 30140371	001				
METHOD BLANK:	852908	Matrix: Wat	er			
Associated Lab Sar	mples: 30140371	001				
Parar	neter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers	
Radium-228		1.77 ± 0.945 (1.53) C:88% T:22%	pCi/L	02/26/15 16:33	1c	

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:	1502332						
Pace Project No .:	30140371						
QC Batch:	RADC/23348		Analysis Method:	ASTM D581	1-95		
QC Batch Method:	ASTM D5811-95		Analysis Description:	ASTM D5811 Sr 89/90 Eichrom			
Associated Lab San	nples: 30140371	001					
METHOD BLANK:	853404		Matrix: Water				
Associated Lab San	nples: 30140371	001					
Paran	neter	Act ±	Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers	
Strontium-90		1.40 ± 0.636	(1.03) C:101% T:NA	pCi/L	02/16/15 08:13	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:	1502332						
Pace Project No.:	30140371						
QC Batch:	RADC/23415		Analysis Method:	EPA 900.0			
QC Batch Method:	EPA 900.0		Analysis Description:	n: 900.0 Gross Alpha/Beta			
Associated Lab Sar	mples: 30140371	001					
METHOD BLANK:	855097		Matrix: Water				
Associated Lab Sar	mples: 30140371	001					
Parar	neter	Act ±	Jnc (MDC) Carr Trac	Units	Analyzed	Qualifiers	
Gross Alpha		0.184 ± 0.622	(1.56) C:NA T:NA	pCi/L	02/18/15 19:50		
Gross Beta		0.391 ± 0.785	(1.79) C:NA T:NA	pCi/L	02/18/15 19:50		

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.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full, without the written consent of Pace Analytical Services, Inc..



QUALIFIERS

Project:	1502332
Pace Project No.:	30140371

ace Project No.:

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.

BATCH QUALIFIERS

Batch: RADC/23336

The Ra-228 Method Blank, sample 852908, associated with analytical batch 23336 had a lower than expected Ba-133 [1] yield at 22.32%. The Ba-133 yield was confirmed by recounting. The routine Ra-228 RL of 1.0 pCi/L could not be achieved for the method blank due to the low Ba-133 yield even with an extended count time. The cause of the low Ba-133 yield is unknown, however, the Ba-133 yields for the remaining QC and all samples in the batch were not similarly affected. The low Ba-133 yield may have caused a high bias to the Method Blank result for Ra-228. The Method Blank activity is above the MDC. Samples with activity below the RL of 1.0 pCi/L, or below their associated MDC are reportable without gualification. Samples with results greater than ten times the Method Blank result are also reportable without qualification. All others require re-preparation and re-analysis due to the MB result greater than MDC.

ANALYTE QUALIFIERS

The Ra-228 Method Blank, sample 852908, associated with analytical batch 23336 had a lower than expected Ba-133 1cyield at 22.32%. The Ba-133 yield was confirmed by recounting. The routine Ra-228 RL of 1.0 pCi/L could not be achieved for the method blank due to the low Ba-133 yield even with an extended count time. The cause of the low Ba-133 yield is unknown, however, the Ba-133 yields for the remaining QC and all samples in the batch were not similarly affected. The low Ba-133 yield may have caused a high bias to the Method Blank result for Ra-228. The Method Blank activity is above the MDC. Samples with activity below the RL of 1.0 pCi/L, or below their associated MDC are reportable without qualification. Samples with results greater than ten times the Method Blank result are also reportable without qualification. All others require re-preparation and re-analysis due to the MB result greater than MDC.



QUALIFIERS

 Project:
 1502332

 Pace Project No.:
 30140371

ANALYTE QUALIFIERS

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

PAGE: 1 OF: 1 ADDRESS REI Consultants, Inc. PO Box 286	Beaver, WV 25813	TEL: (304) 255-2500	SOLUOSIN FAX: (304) 255-2572 Website: www.reiclabs.com			b purchase order number. be returned and can be disposed per your standard laboratory means.	LITATIK you	* Preservation Codes: 0 None	1 Hydrochloric Acid 2 Nitric Acid 3 Sulfinic Acid	5 Sodium Hydroxide 5 Sodium Hydroxide 8 Sodium Hydroxide 7 Ascothic Acid 8 Sodium Suffice/HCL 9 Potessium Dhydrogen Citrate 10 Bromium Chloride COMMENTS:		<i>CO</i> /
ORD COC ID: 3288 ^E				Report Recipient Whenever Possible!!!	SPECIAL INSTRUCTIONS / COMMENTS:	After analysis, the samples do not need to	practices. Returns to KDerry wretciaos.com	ANALYTICAL PARAMETERS	STRONTI RADIUM RADIUM GROSS_F GROSS_/	UM_90_SUB (EPA 905.0) 228_SUB (EPA 904.0) 226_SUB (EPA 903.1) 16TA_SUB (EPA 900.0) 1LPHA_SUB (EPA 900.0)	2222	1 1 1 1 1 1
HAIN OF CUSTODY RECO				Please Include Email Address of	PACE ANALYTICAL SERVIC					NUMBER OF CONTAINERS QUICECTED DATE CONTAINERS QUICECTED	*	Liquid 2/4/2015 9:50:00 AM 3
REIC		ivironment, one client at a time			OR: PACE_PA COMPANY: P	1638 ROSEYTOWN ROAD	^{IP:} GREENSBURG, PA 15601	(724) 850-5600 FAX:	050719EVF1 EMAIL:	MPLE ID Client Sample ID Bottle Type		332-01A RALEIGH CO LF . LEACHATE
	1	Improving the e			SUB CONTRAT	ADDRESS:	CITY, STATE, 2	PHONE:	ACCOUNT #:	ITEM SA		1 1502



Sar	nple Conditio	n Upon Receipt
Face Analytical Client Name	REFC	Project #30140371
Courier: Fed Ex UPS USPS Clien	t Commercial	Pace Other
Custody Seal on Cooler/Box Present:	X no Sea	s intact: Ves no Biological Tissue is Frozen: Yes No
Backing Metarial: Rubble Wrap		Other
	of Ice: Wet Bl	Le None Samples on ice, cooling process has begun
Cooler Temp.: Observed Temp.:°C Co	rrection Factor:	°C Final Temp:°C
Temp should be above freezing to 6°C		Comments:
Chain of Custody Present:		A 1.
Chain of Custody Filled Out:	XYes DNo DN/	A 2.
Chain of Custody Relinquished:	XYes No N/	A 3.
Sampler Name & Signature on COC:	□Yes ŽNo □N/	4. Walker on the illolis
Samples Arrived within Hold Time:	Yes DNO DN/	A 5.
Short Hold Time Analysis (<72hr):	□Yes ØNo □N/	A 6.
Rush Turn Around Time Requested:	□Yes ¤No □N/	7.
Sufficient Volume:	QŶes □No □N//	A 8.
Correct Containers Used:	ĎYes ⊡No □N//	A 9.
-Pace Containers Used:	□Yes □N/	A
Containers Intact:	Yes DNo DN/	10.
Filtered volume received for Dissolved tests		11.
Sample Labels match COC:	Karles ⊡No ⊡N//	12.
-Includes date/time/ID/Analysis Matrix:	ut	
All containers needing preservation have been checked.	ØYes □No □N//	13. PAL-
All containers needing preservation are found to be in compliance with EPA recommendation.	√ ⊠Yes □No □N//	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	□Yes No	completed STA preservative
Samples checked for dechlorination:	□Yes □No ↓	14.
Headspace in VOA Vials (>6mm):	□Yes □No 凶N/A	15.
Trip Blank Present:	⊡Yes ØNo □N/A	16.
Trip Blank Custody Seals Present	□Yes □No 🕅N/4	
Pace Trip Blank Lot # (if purchased):		
Client Notification/ Resolution: Person Contacted: Comments/ Resolution:	Date	Field Data Required? Y / N /Time:
Project Manager Review:	s Sa	Date: 211015

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)

Page 18 of 18

SCURF Back (C016-4 15May2012).xls

	Sec.
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Other								
Other		5						
Ziploc								
Cubitainer (500 ml / 4L)								
Radchem Nalgene (1/2 gal. / 1 gal.L)								
Radchem Nalgene (125 / 250 / 500/ 1L)	M		48					
vipes / swipe/ smearl זוופר								
Bacteria (120 ml)								
(lm 00č) əbiliuč		17						
(Im 03S) əbinsyO						3.5		
(im 0£ im 04) AOV								
(11) Нат								
o %								
Dissolved Metals preserved Y N								
Total Metals				á				
(Im 035) XOT		-						
(40 mi / 250 mi)								
Phenolics (250 ml)								
Nutrient (250 / 500)								
Organics (1L)	с.							
Chemistry (250 / 500 / 1L)								
Soil kit (2 SB, 1M, soil jar)								
Glass Jar (120 / 250 / 500 / 1L)								
Matrix Code	3							
.oN məti	30-							

page 2

Project Number: 301 403 71 1 Client Name: REFC

Client Name:



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, February 20, 2015

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

TEL: (304) 696-6042 FAX:

RE: NORTH BECKLEY EFFLUENT Work Order #: 1502330 Dear GEORGE CARICO:

REI Consultants, Inc. received 1 sample(s) on 2/4/2015 for the analyses presented in the following report.

Sincerely,

Kathy Berry

Kathy Berry



Client: MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE

Project: NORTH BECKLEY EFFLUENT

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

REI Consultants, Inc. - Analytical Report

Date Reported: 2/20/2015

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	2/4/2015 10:40:00 AM
Project:	NORTH BECKLEY EFFLUENT	Date Received:	2/4/2015
Lab ID:	1502330-01A	Matrix:	Liquid
Client Sample ID:	N. BECKLEY WWTP EFF	Site ID:	

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	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		



Pace Analytical Services, Inc. 1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

February 27, 2015

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

RE: Project: 1502330 Pace Project No.: 30140369

Dear Ms. Berry:

Enclosed are the analytical results for sample(s) received by the laboratory on February 09, 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,

Carino a. Ferrio

Carin Ferris carin.ferris@pacelabs.com Project Manager

Enclosures





Pace Analytical Services, Inc. 1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

CERTIFICATIONS

 Project:
 1502330

 Pace Project No.:
 30140369

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-042 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



SAMPLE SUMMARY

30140369001	1502330-01A	Water	02/04/15 10:40	02/09/15 14:15	
Lab ID	Sample ID	Matrix	Date Collected	Date Received	
Pace Project No	o.: 30140369				
Project:	1502330				



SAMPLE ANALYTE COUNT

 Project:
 1502330

 Pace Project No.:
 30140369

Sample ID	Method	Analysts	Analytes Reported
1502330-01A	EPA 900.0	LAL	2
	EPA 903.1	JC2	1
	EPA 904.0	JLW	1
	ASTM D5811-95	LAL	1
	Sample ID 1502330-01A	Sample ID Method 1502330-01A EPA 900.0 EPA 903.1 EPA 904.0 ASTM D5811-95 ASTM D5811-95	Sample ID Method Analysts 1502330-01A EPA 900.0 LAL EPA 903.1 JC2 EPA 904.0 JLW ASTM D5811-95 LAL



 Project:
 1502330

 Pace Project No.:
 30140369

Method:EPA 900.0Description:900.0 Gross Alpha/BetaClient: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:



 Project:
 1502330

 Pace Project No.:
 30140369

Method: EPA 903.1

Description:903.1 Radium 226Client:REI Consultants, Inc.Date:February 27, 2015

General Information:

1 sample was analyzed for EPA 903.1. 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:
 1502330

 Pace Project No.:
 30140369

Method:	EPA 904.0
Description:	904.0 Radium 228
Client:	REI Consultants, Inc.
Date:	February 27, 2015

General Information:

1 sample was analyzed for EPA 904.0. 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:

Batch Comments:

The Ra-228 Method Blank, sample 852908, associated with analytical batch 23336 had a lower than expected Ba-133 yield at 22.32%. The Ba-133 yield was confirmed by recounting. The routine Ra-228 RL of 1.0 pCi/L could not be achieved for the method blank due to the low Ba-133 yield even with an extended count time. The cause of the low Ba-133 yield is unknown, however, the Ba-133 yields for the remaining QC and all samples in the batch were not similarly affected. The low Ba-133 yield may have caused a high bias to the Method Blank result for Ra-228. The Method Blank activity is above the MDC. Samples with activity below the RL of 1.0 pCi/L, or below their associated MDC are reportable without qualification. Samples with results greater than ten times the Method Blank result are also reportable without qualification. All others require re-preparation and re-analysis due to the MB result greater than MDC.

• QC Batch: RADC / 23336

Analyte Comments:

QC Batch: RADC/23336

1c: The Ra-228 Method Blank, sample 852908, associated with analytical batch 23336 had a lower than expected Ba-133 yield at 22.32%. The Ba-133 yield was confirmed by recounting. The routine Ra-228 RL of 1.0 pCi/L could not be achieved for the method blank due to the low Ba-133 yield even with an extended count time. The cause of the low Ba-133 yield is unknown, however, the Ba-133 yields for the remaining QC and all samples in the batch were not similarly affected. The low Ba-133 yield may have caused a high bias to the Method Blank result for Ra-228. The Method Blank activity is above the MDC. Samples with activity below the RL of 1.0 pCi/L, or below their associated MDC are reportable without qualification. Samples with results greater than ten times the Method Blank result are also reportable without qualification. All others require re-preparation and re-analysis due to the MB result greater than MDC.

- 1502330-01A (Lab ID: 30140369001)
 - Radium-228
- BLANK (Lab ID: 852908)
 - Radium-228



 Project:
 1502330

 Pace Project No.:
 30140369

Method: ASTM D5811-95

Description:ASTM D5811 Sr 89/90 EichromClient: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/23348

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

- 1502330-01A (Lab ID: 30140369001)
 - Strontium-90
- BLANK (Lab ID: 853404)
 - Strontium-90

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



ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 1502330

Pace Project No.: 30140369

Sample: 1502330-01A Lab ID: 30 PWS: Site ID: Site ID: Site ID:		369001 Collected: 02/04/15 10:40 Sample Type:	Received:	02/09/15 14:15 N	latrix: Water		
Parameters	Method	Act ± Unc (MDC) Carr Trac		Analyzed	CAS No.	Qual	
Gross Alpha	EPA 900.0	-0.900 ± 1.34 (2.97) C:NA T:NA	pCi/L	02/18/15 19:16	12587-46-1		
Gross Beta	EPA 900.0	4.67 ± 1.03 (0.811) C:NA T:NA	pCi/L	02/18/15 19:16	12587-47-2		
Radium-226	EPA 903.1	0.483 ± 0.738 (0.437) C:NA T:85%	pCi/L	02/19/15 10:18	13982-63-3		
Radium-228	EPA 904.0	0.139 ± 0.490 (1.08) C:88% T:74%	pCi/L	02/26/15 16:28	15262-20-1	1c	
Strontium-90	ASTM D5811-95	41.7 ± 6.78 (1.15) C:98% T:NA	pCi/L	02/16/15 13:19	10098-97-2	N2	



Project:	1502330							
Pace Project No.:	30140369							
QC Batch:	RADC/23334		Analysis Method:	EPA 903.1				
QC Batch Method:	EPA 903.1		Analysis Description:	903.1 Radium-226				
Associated Lab Sar	nples: 30140369	001						
METHOD BLANK:	852906		Matrix: Water					
Associated Lab Sar	nples: 30140369	001						
Parar	neter	Act ±	Jnc (MDC) Carr Trac	Units	Analyzed	Qualifiers		
Radium-226		0.379 ± 0.498	(0.829) C:NA T:97%	pCi/L	02/19/15 09:51			

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:	1502330						
Pace Project No.:	30140369						
QC Batch:	RADC/23336		Analysis Method:				
QC Batch Method:	EPA 904.0		Analysis Description:	904.0 Radiur	n 228		
Associated Lab Sar	mples: 30140369	001					
METHOD BLANK:	852908		Matrix: Water				
Associated Lab Sar	mples: 30140369	001					
Parar	neter	Act ±	Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers	
Radium-228		1.77 ± 0.945	(1.53) C:88% T:22%	pCi/L	02/26/15 16:33	1c	

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:	1502330						
Pace Project No.:	30140369						
QC Batch:	RADC/23348		Analysis Method:	ASTM D581	1-95		
QC Batch Method: ASTM D5811-95			Analysis Description:	ASTM D5811 Sr 89/90 Eichrom			
Associated Lab Sar	mples: 30140369	001					
METHOD BLANK:	853404		Matrix: Water				
Associated Lab Sar	mples: 30140369	001					
Parar	neter	Act ±	Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers	
Strontium-90		1.40 ± 0.636	(1.03) C:101% T:NA	pCi/L	02/16/15 08:13	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:	1502330						
Pace Project No.:	30140369						
QC Batch:	RADC/23414	Analysis Method:	Analysis Method: EPA 900.0				
QC Batch Method:	EPA 900.0	Analysis Description	900.0 Gross Alpha/Beta				
Associated Lab Sar	mples: 30140369	001					
METHOD BLANK:	855091	Matrix: Water	Matrix: Water				
Associated Lab Sar	mples: 30140369	001					
Parar	meter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers		
Gross Alpha		-0.175 ± 0.489 (1.55) C:NA T:NA	pCi/L	02/18/15 19:49			
Gross Beta		0.046 ± 0.951 (2.31) C:NA T:NA	pCi/L	02/18/15 19:49			

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.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full, without the written consent of Pace Analytical Services, Inc..



QUALIFIERS

Project: 1502330 Page Project No : 30140369

Pace Project No.: 30140369

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.

BATCH QUALIFIERS

Batch: RADC/23336

[1] The Ra-228 Method Blank, sample 852908, associated with analytical batch 23336 had a lower than expected Ba-133 yield at 22.32%. The Ba-133 yield was confirmed by recounting. The routine Ra-228 RL of 1.0 pCi/L could not be achieved for the method blank due to the low Ba-133 yield even with an extended count time. The cause of the low Ba-133 yield is unknown, however, the Ba-133 yields for the remaining QC and all samples in the batch were not similarly affected. The low Ba-133 yield may have caused a high bias to the Method Blank result for Ra-228. The Method Blank activity is above the MDC. Samples with activity below the RL of 1.0 pCi/L, or below their associated MDC are reportable without qualification. All others require re-preparation and re-analysis due to the MB result greater than MDC.

ANALYTE QUALIFIERS

1c The Ra-228 Method Blank, sample 852908, associated with analytical batch 23336 had a lower than expected Ba-133 yield at 22.32%. The Ba-133 yield was confirmed by recounting. The routine Ra-228 RL of 1.0 pCi/L could not be achieved for the method blank due to the low Ba-133 yield even with an extended count time. The cause of the low Ba-133 yield is unknown, however, the Ba-133 yields for the remaining QC and all samples in the batch were not similarly affected. The low Ba-133 yield may have caused a high bias to the Method Blank result for Ra-228. The Method Blank activity is above the MDC. Samples with activity below the RL of 1.0 pCi/L, or below their associated MDC are reportable without qualification. All others require re-preparation and re-analysis due to the MB result greater than MDC.



QUALIFIERS

 Project:
 1502330

 Pace Project No.:
 30140369

ANALYTE QUALIFIERS

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

OF: 1 ADDRESS RE/ Consultants, Inc. PO Box 286	Beaver, WV 23813 TEL: (304) 255-2500 FAX: (304) 255-2572 Website: www.reiclabs.com		ase order number.	imed and can be disposed per your standard laboratory ak you		Preservation Codes: O None	L HYDOCHOAC ACIU	3 Suffure Forder 4 Sodium Thriceaffate 5 Sodium Forderwick	2 sodium Arsentie 5 Sodium Arsentie 6 Sodium Mydroxide 7 Assorbie Acid 8 Sodium SulfteHCL 9 Patassium Chloride 10 Bromium Chloride COMMENTS:		100
JRD COC ID: 3285 PAGE 1	Zor	Report Recipient Whenever Possible!!!	SPECIAL INSTRUCTIONS / COMMENTS: State Code: WV Please use SampleID as purcha	After analysis, the samples do not need to be retu practices. Results to kberry@reiclabs.com Than		ANALYTICAL PARAMETERS	STI RA RA GR	RONTIL DIUM_2 DIUM_2 OSS_BE COSS_AI	DM_90_SUB (EPA 905.0) (228_SUB (EPA 904.0) (226_SUB (EPA 903.1) (5TA_SUB (EPA 900.0) (LPHA_SUB (EPA 900.0) (22224	7777
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			TRATOR: PACE	16381	ATE, ZIP: GREH	(TOA)	(17/)	τ#: 05071	SAMPLE ID		1502330-01A
	improving (SUB CON	ADDRESS	CITY, ST/	PHONE:		ACCOUN	ITEM		



San	nple Con	ditior	Upon Receipt
Face Analytical Client Name:	REFO		Project # <u>30140369</u>
Courier: Fed Ex UPS USPS Client Tracking #:	t ⊡Comm	ercial	DPace Other
Custody Seal on Cooler/Box Present: Uses		Seals	
Packing Material: Bubble Wrap A Bubble Bags	of Ice: We	– – – – – – – – – – – – – – – – – – –	None Samples on ice, cooling process has begun
	orice. we		Date and Initials of person
Cooler Temp.: Observed Temp.:°C Cor	rection Fact	or:	examining contents A 29-15
Temp should be above freezing to 6°C	V		Comments:
Chain of Custody Present:	Yes No	□n/A	1
Chain of Custody Filled Out:	ØYes □No	□n/A	2.
Chain of Custody Relinquished:		□n/A	3.
Sampler Name & Signature on COC:	□Yes ØNo	□n/A	4. Wayne an the ZIGID
Samples Arrived within Hold Time:	Yes No	⊡n/A	5.
Short Hold Time Analysis (<72hr):	□Yes ØNo	□n/A	6,
Rush Turn Around Time Requested:	□Yes ØNo	□n/A	7.
Sufficient Volume:	QÎŶes □No	⊡n/A	8.
Correct Containers Used:	Ď Yes ⊡No	⊡n/A	9.
-Pace Containers Used:	DYes Dino	□n/A	
Containers Intact:	XIYes □No	□N/A	10.
Filtered volume received for Dissolved tests	□Yes □No	¢Žin/A	11
Sample Labels match COC:	ØYes □No	□n/A	12,
-Includes date/time/ID/Analysis Matrix:	ut	-	
All containers needing preservation have been checked.	ØYes □No	⊡n/A	13. PHL7
All containers needing preservation are found to be in compliance with EPA recommendation.	ÅYes □No	□n/a	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	□Yes ₩o		completed STA preservative
Samples checked for dechlorination:	□Yes □No	₿́N/A	14.
Headspace in VOA Vials (>6mm):	□Yes □No	XIN/A	15.
Trip Blank Present:	□Yes 🕅No	□n/a	16.
Trip Blank Custody Seals Present	□Yes □No	Φ́Ν/Α	
Pace Trip Blank Lot # (if purchased):			
Client Notification/ Resolution: Person Contacted: Comments/ Resolution:		_Date/	Field Data Required? Y / N
Project Manager Review:	Ser	Nie	Date: 211815

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)

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Other										
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Cubitainer (500 ml / 4L)										
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Radchem Walgene (125 / 250 / 500 / 1L)	M			¥-						
Wipes / swipe/ smear/ filter										
Bacteria (120 ml)										
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Nutrient (250 / 500)										
Organics (1L)	>									
Chemistry (250 / 500 / ۱۱)										
Soil kit (2 SB, 1M, soil jar)										
Glass Jar (120 / 250 / 500 / 1L)										
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Project Number: 36140369 Client Name: REFC page 2

Client Name:

Pace Analytical

SCURF Back (C016-4 15May2012).xis



Pace Analytical Services, Inc. 1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

February 09, 2015

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

RE: Project: 1502330 Pace Project No.: 30140067

Dear Ms. Berry:

Enclosed are the analytical results for sample(s) received by the laboratory on February 05, 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,

Carino a. Ferrio

Carin Ferris carin.ferris@pacelabs.com Project Manager

Enclosures





Pace Analytical Services, Inc. 1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

CERTIFICATIONS

 Project:
 1502330

 Pace Project No.:
 30140067

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-042 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



SAMPLE SUMMARY

30140067001	1502330-01A	Water	02/04/15 10:40	02/05/15 09:45
Lab ID	Sample ID	Matrix	Date Collected	Date Received
Pace Project No.: 30140067				
Project:	1502330			



SAMPLE ANALYTE COUNT

 Project:
 1502330

 Pace Project No.:
 30140067

Lab ID	Sample ID	Method	Analysts	Analytes Reported
30140067001	1502330-01A	SM 7500Rn-B	FCC	1


PROJECT NARRATIVE

 Project:
 1502330

 Pace Project No.:
 30140067

Method: SM 7500Rn-B

Description:7500RnB RadonClient:REI Consultants, Inc.Date:February 09, 2015

General Information:

1 sample was analyzed for SM 7500Rn-B. 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:

Batch Comments:

13007LCS3 fails low at 89.13% for Rn-222 batch 23296. Samples were collected on 2/3/15, 2/4/15, AND 2/5/15, and the initial count was on 2/6/15. Any recount would impact the recommended hold time of four days from collection. • QC Batch: RADC / 23296

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



ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 1502330 Pace Project No.: 30140067 Sample: 1502330-01A Lab ID: 30140067001 Collected: 02/04/15 10:40 Received: 02/05/15 09:45 Matrix: Water PWS: Site ID: Sample Type: Parameters Method Act ± Unc (MDC) Carr Trac Units CAS No. Analyzed Qual 4.0 ± 26.2 (45.4) C:NA T:NA SM 7500Rn-B Radon pCi/L 02/06/15 12:16 10043-92-2



QUALITY CONTROL - RADIOCHEMISTRY

Project:	1502330					
Pace Project No.:	30140067					
QC Batch:	RADC/23296	Analysis Method:	SM 7500Rn-	B		
QC Batch Method:	SM 7500Rn-B	Analysis Descriptio	n: 7500Rn B R	adon		
Associated Lab Sar	mples: 30140067	001				
METHOD BLANK:	851087	Matrix: Wate	r			
Associated Lab Sar	mples: 30140067	001				
Parar	neter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers	
Radon		-6.2 ± 17.5 (31.2) C:NA T:NA	pCi/L	02/06/15 10:37		

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:
 1502330

 Pace Project No.:
 30140067

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.

REIC	CHAIN OF	CUSTODY REC	ORD COC ID: 3287	I I REI Consultants, Inc. PO Box 286 Beaver, WV 25813
improving the environment, one client at a time	Plea	e Include Email Address o	f Report Recipient Whenever Possible!!!	TEL: (304) 255-2500 FAX: (304) 255-2572 Website: www.reiclabs.com
SUB CONTRATOR PACE PA COMPANY: ADDRESS.	PACE ANA	LYTICAL SERVIC	special INSTRUCTIONS / COMMENTS: State Code: WV Please use SampleID as p	ourchase order number.
ADDRESS: 1638 ROSEYTOWN ROAD CITY, STATE, ZIP: GREENSBURG, PA 15601			After analysis, the samples do not need to t practices. Results to kberry@reiclabs.com	e returned and can be disposed per your standard laboratory Thank you
PHONE: (724) 850-5600 FAX:			ANALYTICAL PARAMETERS	* Preservation Codes: 0 None
ACCOUNT #: 050719EVF1 EMAIL:			RADON	1 Hydrochloric Acid 2 Nitric Acid 3 Sulfinic Acid
ITEM SAMPLE ID Client Sample ID	Bottle MATRIX Type		(913.0)	 4 Sodium Thiosulfate 5 Sodium Hydroxide/ Sodium Hydroxide Sodium Hydroxide Asconfac Acid R Sodium Sulfike/HCL Potessium Dihydrogen Citrate 10 Bromium Chloride COMMENTS:
		*	Q	20140007
1 1502330-01A N. BECKLEY EFF	Liauid	0111004E 40.40.00 AM		

Relinquished By: A L. D. L. L. K.	PTI-12	Tipe, "Afir	Received By: (NPS	Pyel 115 Time:	17	REPORT TRANSMITTAL DESIRED:	
Relinquished By:	Date:	Time:	Received By:	Date: Time:	3	HARDCOPY (extra cost) EAX EMAIL ONLINE	-
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Relinquished By:	Date:	Time:	Received By:	Date: Time:		FOR LAB USE ONLY	_
Page						Temp of samples C Attempt to Cool ?	-
6 TAT: Star	idard	RUSH	Next BD 2nd BD	3rd BD		Comments:	
of 1			Note: RUSH requests will incur su	rcharges!			

Sa	imple Condit	ion Upon Receipt	Aure a
Face Analytical Client Name	e: <u>REIC</u>		Project # 30140067
Courier: Ted Ex PUPS USPS Clie Tracking #: 12 26 × 713 13 62 99 984	ent □Commerc ℃	ial Pace Other	
Custody Seal on Cooler/Box Present: yes	no s	eals intact: 🗌 yes	no Biological Tissue is Frozen: Yes No
Packing Material: Bubble Wrap	gs None	Other	
Thermometer UsedTyp	be of Ice: Wet	Blue Node	Samples on ice, cooling process has begun
Cooler Temp.: Observed Temp.: <u>NA</u> C C	orrection Factor:	MA_°C Final Temp	Date and Initials of person
Temp should be above freezing to 6°C	ά.,	Comments:	examining contents: Arm
Chain of Custody Present:	Korran III No □	JN/A 1.	73/0
Chain of Custody Filled Out:	BRes □No □]N/A 2.	3
Chain of Custody Relinquished:	Øryes □No □]N/A 3.	000
Sampler Name & Signature on COC:	🗆 Yes 🛱 No 🗆	IN/A 4. WANKE ON	n file albits
Samples Arrived within Hold Time:	19 Yes ⊡No ⊡	IN/A 5.	
Short Hold Time Analysis (<72hr):	ØYes □No □	IN/A 6.	
Rush Turn Around Time Requested:	□Yes 🕼No 🗆	IN/A 7.	
Sufficient Volume:	ØYes □No □	IN/A 8:	
Correct Containers Used:	🖉 Yes 🗆 No 🗆	N/A 9.	
-Pace Containers Used:	□Yes 🕼No 🛛	N/A	
Containers Intact:	🕅 Yes 🗆 No 🗆	N/A 10.	
Filtered volume received for Dissolved tests	□Yes □No Ø	N/A 11.	
Sample Labels match COC:	1∕ØYes □No □	N/A 12.	8
-Includes date/time/ID/Analysis Matrix:	wt .		2
All containers needing preservation have been checked.	🗆 Yes 🖾 No 🛛 🖗	N/A 13.	
All containers needing preservation are found to be in compliance with EPA recommendation.	□Yes □No Ø	N/A	
exceptions: 2004, coliform, TOC, O&G, WI-DRO (water)	Pres 🗆 No	completed Arm	Lot # of added preservative
Samples checked for dechlorination:	□Yes □No 🛱	N/A 14.	· · · · · · · · · · · · · · · · · · ·
Headspace in VOA Vials (>6mm):	□Yes □No 🖗	N/A 15.	4,
Trip Blank Present:	□Yes □No □	N/A 16.	
Trip Blank Custody Seals Present	□Yes □No Ū	N/A	2
Pace Trip Blank Lot # (if purchased):	-	-	
Client Notification/ Resolution:	11 ÷ 1	2 2	Field Data Required? Y / N
Person Contacted:	Da	te/Time:	
Comments/ Resolution:		Α	
		31.5	<i>E</i> .
			. 8
Charc	San	120	DIELIC
Project Manager Review:	CARI	UN)	Date:

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)

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4	Radchem Naigene (1/2 gal. / 1 gal.L)					-								IRF Back
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FaceAn	ltem No.	00[
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page 2

6

		Co	ntact Person	Geroge Ca	arico	/ Jami	e Wolf	Э	Phone 304	.696.5456	12.53
	-1(Ad	dress One	e Marshall	I Drive	Э		City H	luntington	State WV	Zip 25755
		Bill	ling Address (if	f different)	_						
Research Environmental & Industri MAIN LABORATORY & CORPORA PD Box 266 - 235 Industrial Back B	al Consultants, TE HEADQUAR	Inc. RTERS:	e ID & State		City	Protect	-10		State	Zip	MH/a
800-999-0105 • 304-255-2500 • v MID-OHIO VALLEY SHENAND Service Center Service Center 101 17th Street 1557 Commerce Ashland, KY 41101 Verona, VA 606-393-5027 540-248-0	VWW.reiclabs.cor OAH enter Rd., Ste 201 30 24482 1183	n ROANOKE Service Center 129-C Peters Creek Rd Roanoke, VA 24019 540-777-1276	MORGANT Service Cer 16 Commerce Westover, WV 304-241-59	OWN e Drive 26501 861 Q	See /	Attached	List				
SAMPLE LOG	i & ANAL	YSIS REQUES	т	ETHO		ľ)				
TURNAROUND TIME	RL	ISH TURNAROUND*		S&N			Ζ,		-		Lineseen.
TURNAROUND TIME NORMAL *Rush work needs prior lab SAMPLE ID	RL S DAY C Dratory approval	Sampling Date/Time	O 1 DAY charges	V & SISATURE	10 1	12 3	* 5 °10 °	•	I ENTER PRESERVATIVE	CODE(S):	
TURNAROUND TIME	RI	Sampling Date/Time	O 1 DAY charges Matrix Water	V & SISATENE Sample Comp/Grab	10 1 b b	12 13 0	5 °10 /		ENTER PRESERVATIVE	CODE(S): 6 Sodium 1 7 Ascorbic	-tychroxide Acid
TURNAROUND TIME NORMAL *Rush work needs prior lab SAMPLE ID RNLEICH CO. LF LENCHNTE N. BECHLEY WWTP EFF	RI S DAY Oratory approval No. & Type of Containers 20 23	Sampling Date/Time	O 1 DAY charges Matrix Water Water	V & SISATURE Sample Comp/Grab Grab	* 0 * 1 b b	*2 *3 0	- 5		ENTER PRESERVATIVE O None Hydrochloric Acid 2 Nitric Acid 2 Silfric Acid	CODE(S): 6 Sodium i 7 Ascorbic 8 Sodium i	-lydroxide Acid Ilsulfate/Metha
TURNAROUND TIME NORMAL *Rush work needs prior lab SAMPLE ID RALEICH CO. LFLEACHATE N.BECKLEY WWTP EFF TRIP BLANK	RI S DAY Diratory approval No. & Type of Containers 20 23 2	Sampling Date/Time	O 1 DAY charges Matrix Water Water Water	Sample Comp/Grab Grab Grab Grab	10 1 5 6 X X	12 13	5 <u>210</u>		ENTER PRESERVATIVE O None Hydrochloric Acid Nitric Acid Sulfuric Acid Sulfuric Acid Sodium Thiosulfate	CODE(S): 6 Sodium I 7 Ascorbic 8 Sodium I 9 Ammoni 10 AS/A	-lydroxide Acid Sisulfate/Metha um Chloride JH
TURNAROUND TIME NORMAL *Rush work needs prior lab SAMPLE ID RALEICH CO. LF LEACHATE N.BECKLEY WWTP EFF TRIP BLANK	RI S DAY Doratory approval No. & Type of Containers 20 23 2 2	Sampling Date/Time 3 - 19 - 15 1040 3 - 19 - 15 1040	O 1 DAY charges Water Water Water Choose	Sample Comp/Grab Grab Grab Grab Choose		*2 *3 6	-5 <u>*10</u>		ENTER PRESERVATIVE O None Hydrochloric Acid Nitric Acid Sulfuric Acid Sodium Thiosulfate Sodium Hydroxide/ Sodium Hydroxide/ Sodium Arsenite * (Use blonks R	CODE(S): 6 Sodium I 7 Ascorbic 8 Sodium I 9 Ammoni 10 AS/A 11 11	-lydroxide Acid Issulfate/Methi um Chloride .H
TURNAROUND TIME NORMAL *Rush work needs prior lab SAMPLE ID RALEICH CO. LF LEACHATE N.BECHLEY WWTP EFF TRIP BLANK	RI S DAY Dratory approval No. & Type of Containers 20 23 2	Sampling Date/Time	O 1 DAY charges Matrix Water Water Water Choose Choose	Sample Comp/Grab Grab Grab Grab Choose Choose	 □ 1 □ □ × × × × 	<u>12</u> 5	25 °10 /		ENTER PRESERVATIVE O None Hydrochloric Acid Nitric Acid Sulfuric Acid Sodium Thiosulfate Sodium Hydroxide/ Sodium Hydroxide/ Sodium Arsenite	CODE(S): 6 Sodium I 7 Ascarbic 8 Sodium I 9 Ammoni 10 AS/A 11 11 or preservatives not I	Hydroxide Acid Sisulfate/Metha um Chloride H isted.)
TURNAROUND TIME NORMAL *Rush work needs prior lab SAMPLE ID RALEICH CO. LF LEACHATE N.BECALLY WWTP EFF TRIP BLANK	RI S DAY oratory approva No. & Type of Containers 20 23 2	Sampling Date/Time	Matrix Water Water Water Choose Choose	Sample Comp/Grab Grab Grab Grab Choose Choose Choose		*2 *3 5	5 10 0		ENTER PRESERVATIVE O None Hydrochloric Acid Sulfuric Acid Sulfuric Acid Sodium Thiosulfate Sodium Arsenite "(Use blanks fe COMMENTS: Field Sampling	CODE(S): 6 Sodium 1 7 Ascorbic 8 Sodium 1 9 Ammoni 10 AS/A 11 or preservatives not 1 Time 2 1	Hydroxide Acid Ilsulfate/Methu um Chloride IH Inted.) HR_S
TURNAROUND TIME NORMAL *Rush work needs prior lab SAMPLE ID RNLEICH CO. LF LENCHNTE N.BECKLEY WWTP EFF TRIP BLANK	RI S DAY Coratory approval No. & Type of Containers 20 23 2	ISH TURNAROUND* 3 DAY ② 2DAY ④ and will incur additional Sampling Date/Time 3 - 19 - 15 1040 3 - 19 - 15 1135	Matrix Water Water Water Choose Choose Choose	Sample Comp/Grab Grab Grab Grab Choose Choose Choose		*2 *3 0			ENTER PRESERVATIVE O None Hydrochloric Acid Nitric Acid Sulfuric Acid Sulfuric Acid Sodium Thiosulfate Sodium Hydroxide/ Sodium Hydroxide/ Sodium Arsenite *(Use blanks fe COMMENTS: Field Sampling Per Doug Arthu (3)	CODE(S): 6 Sodium I 7 Ascarbic 8 Sodium I 9 Ammoni 10 AS/A 11 or preservatives not I Time 2 / IF (4)	Hydroxide Acid Jisulfate/Metha um Chloride H H isted.J
TURNAROUND TIME NORMAL *Rush work needs prior lab SAMPLE ID RALEICH CO. LF LEACHATE N.BECKLEY WWTP EFF TRIP BLANK	RI S DAY Oratory approval No. & Type of Containers 20 23 2	ISH TURNAROUND*	Matrix Water Water Water Choose Choose Choose Choose	Sample Comp/Grab Grab Grab Grab Choose Choose Choose Choose Choose		*2 *3 *			ENTER PRESERVATIVE 0 None 1 Hydrochloric Acid 2 Nitric Acid 3 Sulfuric Acid 4 Sodium Thiosulfate 5 Sodium Arsenite *(Use blanks fr COMMENTS: Field Sampling Per Doug Arthu (3) 4 7,37	CODE(S): 6 Sodium 1 7 Ascorbic 8 Sodium 1 9 Ammoni 10 AS/A 11 or preservatives not 1 Time 2 / IT (4) 4.42	Hydroxide Acid Jisulfate/Metha um Chloride LH isted.) HR_S
TURNAROUND TIME NORMAL *Rush work needs prior lab SAMPLE ID RINLEICH CO. LF LENCHNTE N.BECHLEY WWTP EFF TRIP BLANK	RI S DAY C oratory approval No. & Type of Containers 20 23 2	ISH TURNAROUND* 3 DAY ② 2DAY ④ and will incur additional Sampling Date/Time 3 - 19 - 15 10 40 3 - 19 - 15 113 5	Matrix Water Water Water Choose Choose Choose Choose Choose	Sample Comp/Grab Grab Grab Grab Choose Choose Choose Choose Choose Choose		*2 *3 6			ENTER PRESERVATIVE 0 None 1 Hydrochloric Acid 2 Nitric Acid 3 Sulfuric Acid 3 Sulfuric Acid 4 Sodium Thiosulfate 5 Sodium Hydroxide/ Sodium Arsenite *(Use blonks fr COMMENTS: Field Sampling Per Doug Arthu (3) H 7.37 FEMP 15.5 Lomy 5500	CODE(S): 6 Sodium I 7 Ascorbic 8 Sodium I 9 Ammoni 10 AS/A 11 or preservatives not I Time Z / IT (4) 6.92 11-6 966	Hydroxide Acid Ilsulfate/Metha um Chloride .H Isted.) HR.S

DBPix Evaluation

DBPix Evaluation

WVDEP Drill Cutting / Leachate Analysis List Aluminum Antimony Arsenic Barium Beryllium Boron Cadmium Chromium Hexavalent Chromium Copper Lead Lithium Mercury Nickel Selenium Silver Strontium Vanadium Zinc Chloride Fluoride Nitrate as Nitrogen Nitrite as Nitrogen Sulfate **Total Suspended Solids** Free Cyanide Benzene Chlorobenzene Chlorodibromomethane

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1.03

DBPix Evaluation

DBPix Evaluation

1.2-Dichlorobenzene 1.3-Dichlorobenzene 1.4-Dichlorobenzene 1.4-Dinitrobenzene 1.4-Naphthoquinone 2.4-Dinitrotoluene 2.5-Dinitrotoluene

4-Nitroquinoline-1-oxide

bis(2-ethylhexyl) phthalate

Butyi benzyiphthalate

Di-N-Butyl Phthalate

Di-N-Octylphthalate Diethyl Phthalate

Dimethyl Phthalate

Houranthene

Nitrobenzene

Pentachloronitrobenzen

Gross Alpha

Gross Beta

Radium 226

Radium 228

Strontium 90

Radon

pH

Total Dissolved Solids

Total Suspended Solids

BOD 5-Day

Ammonia as Nitrogen

Total Kjeldahi Nitrogen

and the

Oil & Grease

Acidity to pH 8.3

243

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DBPix Evaluation

DBPix Evaluation

Specific Conductance

Alkalinity to pH 4.5

Chemical Oxygen Demand

Dissolved Iron and Iron

Manganese and Dissolved Manganese

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Jor)



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

Thursday, April 02, 2015

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

TEL: (304) 696-6042 FAX:

RE: RALEIGH CO LF / N. BECKLEY WWTP Work Order #: 1503N56 Dear GEORGE CARICO:

REI Consultants, Inc. received 3 sample(s) on 3/19/2015 for the analyses presented in the following report.

Sincerely,

Kathy Berry

Kathy Berry



Date Reported: 4/2/2015

Client: MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE

Project: RALEIGH CO LF / N. BECKLEY WWTP

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#: 1503N56

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/19/2015 10:40:00 AM
Project:	RALEIGH CO LF / N. BECKLEY WWTP	Date Received:	3/19/2015
Lab ID:	1503N56-01A	Matrix:	Leachate
Client Sample ID:	RALEIGH CO LF. LF LEACHATE	Site ID:	

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
METALS BY ICP			Method: (1994)	EPA 200	0.7 Rev	. 4.4	Analyst: CGW	
Aluminum	0.244	0.005	0.100	NA		mg/L	3/25/2015 3:13 PM	PA/VA
Antimony	0.027	0.020	0.200	NA	J	mg/L	3/25/2015 3:13 PM	PA/VA
Arsenic	0.087	0.020	0.200	NA	J	mg/L	3/25/2015 3:13 PM	PA/VA
Barium	0.804	0.002	0.100	NA		mg/L	3/25/2015 3:13 PM	PA/VA
Beryllium	ND	0.001	0.010	NA		mg/L	3/25/2015 3:13 PM	PA/VA
Boron	5.10	0.020	0.100	NA		mg/L	3/25/2015 3:13 PM	PA/VA
Cadmium	ND	0.001	0.020	NA		mg/L	3/25/2015 3:13 PM	PA/VA
Chromium	0.042	0.005	0.100	NA	J	mg/L	3/25/2015 3:13 PM	PA/VA
Copper	0.011	0.005	0.100	NA	J	mg/L	3/25/2015 3:13 PM	PA/VA
Iron	29.2	0.010	0.100	NA		mg/L	3/25/2015 3:13 PM	PA/VA
Lead	ND	0.010	0.200	NA		mg/L	3/25/2015 3:13 PM	PA/VA
Lithium	0.054	0.020	0.100	NA	J	mg/L	3/25/2015 1:52 PM	
Manganese	3.32	0.002	0.100	NA		mg/L	3/25/2015 3:13 PM	PA/VA
Nickel	0.106	0.005	0.100	NA		mg/L	3/25/2015 3:13 PM	PA/VA
Selenium	ND	0.020	0.200	NA		mg/L	3/25/2015 3:13 PM	PA/VA
Silver	ND	0.004	0.050	NA		mg/L	3/25/2015 3:13 PM	PA/VA
Strontium	1.32	0.001	0.010	NA		mg/L	3/25/2015 1:52 PM	PA
Vanadium	0.007	0.005	0.100	NA	J	mg/L	3/25/2015 3:13 PM	PA/VA
Zinc	0.580	0.003	0.050	NA		mg/L	3/25/2015 3:13 PM	PA/VA

MERCURY, Total E245.1			Method: 3.0 (1994	EPA 245)	.1, Rev.		Analyst: CR	
Mercury	ND	0.0001	0.0010	NA		mg/L	3/24/2015 10:09 AM	PA/VA
SEMIVOLATILE ORGANIC COMPOU	NDS		Method:	SW8270	D (2007))	Analyst: JD	
1,4-Dinitrobenzene	ND	NA	0.0412	NA		mg/L	3/27/2015 5:47 PM	
1,4-Napthoquinone	ND	NA	0.0412	NA		mg/L	3/27/2015 5:47 PM	
4-Nitroquinoline-1-oxide	ND	NA	0.206	NA		mg/L	3/27/2015 5:47 PM	
Pentachloronitrobenzene	ND	NA	0.0412	NA		mg/L	3/27/2015 5:47 PM	
Bis(2-ethylhexyl)phthalate	ND	0.0206	0.0412	NA		mg/L	3/27/2015 5:47 PM	PA/VA
Butyl benzyl phthalate	ND	0.0206	0.0412	NA		mg/L	3/27/2015 5:47 PM	PA/VA
Di-n-butyl phthalate	ND	0.0206	0.0412	NA		mg/L	3/27/2015 5:47 PM	PA/VA
Diethyl phthalate	0.0203	0.0082	0.0412	NA	J	mg/L	3/27/2015 5:47 PM	PA/VA
Dimethyl phthalate	ND	0.0082	0.0412	NA		mg/L	3/27/2015 5:47 PM	PA/VA
2,4-Dinitrotoluene	ND	0.0082	0.0412	NA		mg/L	3/27/2015 5:47 PM	PA/VA
2,6-Dinitrotoluene	ND	0.0082	0.0412	NA		mg/L	3/27/2015 5:47 PM	PA/VA

WO#: 1503N56

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/19/2015 10:40:00 AM
Project:	RALEIGH CO LF / N. BECKLEY WWTP	Date Received:	3/19/2015
Lab ID:	1503N56-01A	Matrix:	Leachate
Client Sample ID:	RALEIGH CO LF. LF LEACHATE	Site ID:	

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
Di-n-octyl phthalate	ND	0.0206	0.0412	NA		mg/L	3/27/2015 5:47 PM	PA/VA
Fluoranthene	ND	0.0082	0.0412	NA		mg/L	3/27/2015 5:47 PM	PA/VA
Nitrobenzene	ND	0.0082	0.0412	NA		mg/L	3/27/2015 5:47 PM	PA/VA
Surr: 2-Fluorophenol	45.5	NA	32.9-110	NA		%REC	3/27/2015 5:47 PM	
Surr: Phenol-d5	38.5	NA	25.8-110	NA		%REC	3/27/2015 5:47 PM	
Surr: 2,4,6-Tribromophenol	88.3	NA	63.8-110	NA		%REC	3/27/2015 5:47 PM	
Surr: Nitrobenzene-d5	99.7	NA	61.8-110	NA		%REC	3/27/2015 5:47 PM	
Surr: 2-Fluorobiphenyl	86.6	NA	58.6-110	NA		%REC	3/27/2015 5:47 PM	
Surr: 4-Terphenyl-d14	75.9	NA	55.1-110	NA		%REC	3/27/2015 5:47 PM	
VOLATILE ORGANIC COMPOUNDS	6-8260		Method: S	SW8260	B (199	6)	Analyst: JM	
Benzene	1.28	0.500	1.00	NA		µg/L	3/30/2015 10:14 PM	PA/VA
Chlorobenzene	ND	0.500	1.00	NA		μg/L	3/30/2015 10:14 PM	PA/VA
Dibromochloromethane	ND	0.500	1.00	NA		µg/L	3/30/2015 10:14 PM	PA/VA
1,2-Dichlorobenzene	ND	0.500	1.00	NA		µg/L	3/30/2015 10:14 PM	PA/VA
1,3-Dichlorobenzene	ND	0.500	1.00	NA		µg/L	3/30/2015 10:14 PM	PA/VA
1,4-Dichlorobenzene	3.07	0.500	1.00	NA		µg/L	3/30/2015 10:14 PM	PA/VA
Surr: 1,2-Dichloroethane-d4	134	NA	68.7-129	NA	S	%REC	3/30/2015 10:14 PM	
Surr: 4-Bromofluorobenzene	106	NA	71.8-127	NA		%REC	3/30/2015 10:14 PM	
Surr: Dibromofluoromethane	111	NA	74.3-124	NA		%REC	3/30/2015 10:14 PM	
Surr: Toluene-d8	90.2	NA	71.4-129	NA		%REC	3/30/2015 10:14 PM	
BOD, 5 Day, 20°C			Method: S	6M5210	B-200 ²	1	Analyst: CB	
Biochemical Oxygen Demand	1,230	2	5	NA		mg/L	3/19/2015 4:24 PM	PA/VA
Chemical Oxygen Demand			Method: E (1993)	EPA 410).4, Rev	/. 2	Analyst: SF	
Chemical Oxygen Demand	2,100	100	250	NA		mg/L	3/20/2015 9:00 AM	PA/VA
HEXAVALENT CHROMIUM BY IC			Method: E 3.3 (1994)	EPA 218	3.6, Rev	/.	Analyst: CF	
Chromium (VI)	0.0019	0.0003	0.0010	NA		mg/L	3/23/2015 4:21 PM	
ANIONS by ION CHROMATOGRAPH	HY		Method: E	EPA 300).0, Rev	/.2.1	Analyst: CF	

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/19/2015 10:40:00 AM
Project:	RALEIGH CO LF / N. BECKLEY WWTP	Date Received:	3/19/2015
Lab ID:	1503N56-01A	Matrix:	Leachate
Client Sample ID:	RALEIGH CO LF. LF LEACHATE	Site ID:	

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	IELAP
ANIONS by ION CHROMATOGRA	APHY-48 H	OUR	Method: (1993)	EPA 300	0.0, Rev	/.2.1	Analyst: CF	
Nitrogen, Nitrate	ND	0.02	0.10	NA		mg/L	3/19/2015 8:39 PM	
Nitrogen, Nitrite	3.00	0.25	2.50	NA		mg/L	3/19/2015 8:39 PM	
TOTAL KJELDAHL NITROGEN (1	ΓKN)		Method: 2.0 (1993	EPA 35 ⁻)	1.2, Rev	<i>ı</i> .	Analyst: JH	
Nitrogen, Kjeldahl, Total	210	5.00	25.0	NA		mg/L	3/27/2015 12:43 PM	PA/VA
OIL and GREASE			Method:	EPA 160	64 Rev	. A	Analyst: CC	
Oil & Grease	2.3	2.0	5.0	NA	J	mg/L	3/23/2015 4:00 PM	PA/VA
Notes:								
Sample acidity or alkalinity exceeded the	added preserv	ative, so	that the requir	red preserv	vation pH	was not ach	ieved.	
CYANIDE, Free			Method:	SM4500	-CN I-1	997	Analyst: JH	
Cyanide, Free	0.005	0.005	0.020	NA	J	mg/L	3/20/2015 11:41 AM	
AMMONIA NITROGEN			Method: (1993)	EPA 350	0.1, Rev	<i>v</i> .2.	Analyst: JH	
Nitrogen, Ammonia (As N)	224	16.0	40.0	NA		mg/L	3/25/2015 4:41 PM	PA/VA
Notes:								
Sample acidity or alkalinity exceeded the	added preserv	ative, so	that the requir	red preserv	vation pH	was not ach	ieved.	
CONDUCTIVITY			Method:	SM2510	B - 19	97	Analyst: KY	
Specific Conductivity	5,400	NA	NA	NA		µmhos/cm	3/23/2015 2:00 PM	PA/VA
TOTAL DISSOLVED SOLIDS			Method:	SM2540	C-1997	7	Analyst: KY	
Total Dissolved Solids	2,860	10	20	NA		mg/L	3/20/2015 5:00 PM	PA/VA
TOTAL SUSPENDED SOLIDS			Method:	SM2540	D-1997	7	Analyst: KY	
Total Suspended Solids	138	4.0	20.0	NA		mg/L	3/20/2015 4:45 PM	PA/VA
ACIDITY			Method:	SM2310	B-1997	7	Analyst: DSD	
Acidity, Total	211	1.0	10	NA		mg/L	3/20/2015 8:45 AM	PA/VA
ALKALINITY			Method:	SM2320	B-1997	7	Analyst: DSD	
Alkalinity, Total (As CaCO3)	1,950	4.0	40.0	NA		mg/L	3/20/2015 8:45 AM	PA/VA

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/19/2015 10:40:00 AM
Project:	RALEIGH CO LF / N. BECKLEY WWTP	Date Received:	3/19/2015
Lab ID:	1503N56-01A	Matrix:	Leachate
Client Sample ID:	RALEIGH CO LF. LF LEACHATE	Site ID:	

Analysis	Result	MDL	PQL	MCL	Qual Units	Date Analyzed NEI	LAP
pH - LAB TEST, HOLD TIME EXPIR	RED		Method:	SM4500-F	l+-B-2000	Analyst: DSD	
рН	7.55	NA	NA	NA	SU	3/20/2015 8:45 AM	PA

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/19/2015 10:40:00 AM
Project:	RALEIGH CO LF / N. BECKLEY WWTP	Date Received:	3/19/2015
Lab ID:	1503N56-01B	Matrix:	Leachate
Client Sample ID:	RALEIGH CO LF. LF LEACHATE	Site ID:	

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
DISSOLVED METALS BY ICP			Method: (1994)	EPA 200).7 Rev.	4.4	Analyst: CGW	
Iron	0.770	0.010	0.100	NA		mg/L	3/25/2015 3:16 PM	PA/VA
Manganese	2.97	0.002	0.100	NA		mg/L	3/25/2015 3:16 PM	PA/VA

WO#: 1503N56

Date Reported: 4/2/2015

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/19/2015 11:35:00 AM
Project:	RALEIGH CO LF / N. BECKLEY WWTP	Date Received:	3/19/2015
Lab ID:	1503N56-02A	Matrix:	Liquid
Client Sample ID:	N. BECKLEY WWTP EFF	Site ID:	

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
METALS BY ICP			Method: (1994)	EPA 200	0.7 Rev	. 4.4	Analyst: CGW	
Aluminum	0.031	0.005	0.100	NA	J	mg/L	3/25/2015 3:19 PM	PA/VA
Antimony	ND	0.020	0.200	NA		mg/L	3/25/2015 3:19 PM	PA/VA
Arsenic	ND	0.020	0.200	NA		mg/L	3/25/2015 3:19 PM	PA/VA
Barium	0.085	0.002	0.100	NA	J	mg/L	3/25/2015 3:19 PM	PA/VA
Beryllium	ND	0.001	0.010	NA		mg/L	3/25/2015 3:19 PM	PA/VA
Boron	0.279	0.020	0.100	NA		mg/L	3/25/2015 3:19 PM	PA/VA
Cadmium	ND	0.001	0.020	NA		mg/L	3/25/2015 3:19 PM	PA/VA
Chromium	ND	0.005	0.100	NA		mg/L	3/25/2015 3:19 PM	PA/VA
Copper	ND	0.005	0.100	NA		mg/L	3/25/2015 3:19 PM	PA/VA
Iron	0.205	0.010	0.100	NA		mg/L	3/25/2015 3:19 PM	PA/VA
Lead	ND	0.010	0.200	NA		mg/L	3/25/2015 3:19 PM	PA/VA
Lithium	ND	0.020	0.100	NA		mg/L	3/25/2015 1:55 PM	
Manganese	0.016	0.002	0.100	NA	J	mg/L	3/25/2015 3:19 PM	PA/VA
Nickel	0.008	0.005	0.100	NA	J	mg/L	3/25/2015 3:19 PM	PA/VA
Selenium	ND	0.020	0.200	NA		mg/L	3/25/2015 3:19 PM	PA/VA
Silver	ND	0.004	0.050	NA		mg/L	3/25/2015 3:19 PM	PA/VA
Strontium	0.437	0.001	0.010	NA		mg/L	3/25/2015 1:55 PM	PA
Vanadium	ND	0.005	0.100	NA		mg/L	3/25/2015 3:19 PM	PA/VA
Zinc	0.032	0.003	0.050	NA	J	mg/L	3/25/2015 3:19 PM	PA/VA

MERCURY, Total E245.1			Method: I 3.0 (1994)	EPA 245.)	.1, Rev.	Analyst: CR	
Mercury	ND	0.0001	0.0010	NA	mg/L	3/23/2015 11:46 AM	PA/VA
SEMIVOLATILE ORGANIC COMPOUN	NDS		Method: \$	SW8270I	D (2007)	Analyst: JD	
1,4-Dinitrobenzene	ND	NA	0.0105	NA	mg/L	3/24/2015 10:57 PM	
1,4-Napthoquinone	ND	NA	0.0105	NA	mg/L	3/27/2015 6:13 PM	
4-Nitroquinoline-1-oxide	ND	NA	0.0525	NA	mg/L	3/27/2015 6:13 PM	
Pentachloronitrobenzene	ND	NA	0.0105	NA	mg/L	3/27/2015 6:13 PM	
Bis(2-ethylhexyl)phthalate	ND	0.0052	0.0105	NA	mg/L	3/24/2015 10:57 PM	PA/VA
Butyl benzyl phthalate	ND	0.0052	0.0105	NA	mg/L	3/24/2015 10:57 PM	PA/VA
Di-n-butyl phthalate	ND	0.0052	0.0105	NA	mg/L	3/24/2015 10:57 PM	PA/VA
Diethyl phthalate	ND	0.0021	0.0105	NA	mg/L	3/24/2015 10:57 PM	PA/VA
Dimethyl phthalate	ND	0.0021	0.0105	NA	mg/L	3/24/2015 10:57 PM	PA/VA
2,4-Dinitrotoluene	ND	0.0021	0.0105	NA	mg/L	3/24/2015 10:57 PM	PA/VA
2,6-Dinitrotoluene	ND	0.0021	0.0105	NA	mg/L	3/24/2015 10:57 PM	PA/VA

Page 8 of 12

Sulfate

WO#: 1503N56

Date Reported: 4/2/2015

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/19/2015 11:35:00 AM
Project:	RALEIGH CO LF / N. BECKLEY WWTP	Date Received:	3/19/2015
Lab ID:	1503N56-02A	Matrix:	Liquid
Client Sample ID:	N. BECKLEY WWTP EFF	Site ID:	

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
Di-n-octyl phthalate	ND	0.0052	0.0105	NA		mg/L	3/24/2015 10:57 PM	PA/VA
Fluoranthene	ND	0.0021	0.0105	NA		mg/L	3/24/2015 10:57 PM	PA/VA
Nitrobenzene	ND	0.0021	0.0105	NA		mg/L	3/24/2015 10:57 PM	PA/VA
Surr: 2-Fluorophenol	40.9	NA	32.9-110	NA		%REC	3/24/2015 10:57 PM	
Surr: Phenol-d5	31.6	NA	25.8-110	NA		%REC	3/24/2015 10:57 PM	
Surr: 2,4,6-Tribromophenol	91.0	NA	63.8-110	NA		%REC	3/24/2015 10:57 PM	
Surr: Nitrobenzene-d5	101	NA	61.8-110	NA		%REC	3/24/2015 10:57 PM	
Surr: 2-Fluorobiphenyl	87.2	NA	58.6-110	NA		%REC	3/24/2015 10:57 PM	
Surr: 4-Terphenyl-d14	77.5	NA	55.1-110	NA		%REC	3/24/2015 10:57 PM	
VOLATILE ORGANIC COMPOUNDS	5-8260		Method: \$	SW8260)B (199	6)	Analyst: JM	
Benzene	ND	0.500	1.00	NA		µg/L	3/26/2015 1:30 AM	PA/VA
Chlorobenzene	ND	0.500	1.00	NA		μg/L	3/26/2015 1:30 AM	PA/VA
Dibromochloromethane	ND	0.500	1.00	NA		μg/L	3/26/2015 1:30 AM	PA/VA
1,2-Dichlorobenzene	ND	0.500	1.00	NA		μg/L	3/26/2015 1:30 AM	PA/VA
1,3-Dichlorobenzene	ND	0.500	1.00	NA		µg/L	3/26/2015 1:30 AM	PA/VA
1,4-Dichlorobenzene	0.800	0.500	1.00	NA	J	µg/L	3/26/2015 1:30 AM	PA/VA
Surr: 1,2-Dichloroethane-d4	107	NA	68.7-129	NA		%REC	3/26/2015 1:30 AM	
Surr: 4-Bromofluorobenzene	104	NA	71.8-127	NA		%REC	3/26/2015 1:30 AM	
Surr: Dibromofluoromethane	95.8	NA	74.3-124	NA		%REC	3/26/2015 1:30 AM	
Surr: Toluene-d8	91.4	NA	71.4-129	NA		%REC	3/26/2015 1:30 AM	
BOD, 5 Day, 20°C			Method: \$	SM5210	B-200 ²	1	Analyst: CB	
Biochemical Oxygen Demand	10	2	5	NA		mg/L	3/19/2015 4:24 PM	PA/VA
Chemical Oxygen Demand			Method: I (1993)	EPA 410	0.4, Rev	. 2	Analyst: SF	
Chemical Oxygen Demand	49	4	10	NA		mg/L	3/20/2015 9:00 AM	PA/VA
HEXAVALENT CHROMIUM BY IC			Method: I 3.3 (1994)	EPA 218	8.6, Rev	Ι.	Analyst: CF	
Chromium (VI)	ND	0.0003	0.0010	NA		mg/L	3/23/2015 4:36 PM	
ANIONS by ION CHROMATOGRAP	НҮ		Method: I (1993)	EPA 300	0.0, Rev	/.2.1	Analyst: CF	
Chloride	128	1.00	10.0	NA		mg/L	3/19/2015 9:00 PM	
Fluoride	0.37	0.05	0.20	NA		mg/L	3/19/2015 9:00 PM	

52.2 1.00

5.00

NA

mg/L

3/19/2015 9:00 PM

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/19/2015 11:35:00 AM
Project:	RALEIGH CO LF / N. BECKLEY WWTP	Date Received:	3/19/2015
Lab ID:	1503N56-02A	Matrix:	Liquid
Client Sample ID:	N. BECKLEY WWTP EFF	Site ID:	

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed N	ELAP
ANIONS by ION CHROMATOGRAP	HY-48 H(OUR	Method: (1993)	EPA 30	0.0, Rev	/.2.1	Analyst: CF	
Nitrogen, Nitrate	1.62	0.02	0.10	NA		mg/L	3/19/2015 9:00 PM	
Nitrogen, Nitrite	ND	0.05	0.50	NA		mg/L	3/19/2015 9:00 PM	
TOTAL KJELDAHL NITROGEN (TK	N)		Method: 2.0 (1993	EPA 35 [.])	1.2, Rev	<i>ı</i> .	Analyst: JH	
Nitrogen, Kjeldahl, Total	24.4	0.80	4.00	NA		mg/L	3/27/2015 1:39 PM	PA/VA
OIL and GREASE			Method:	EPA 16	64 Rev	. A	Analyst: CC	
Oil & Grease	3.2	2.0	5.0	NA	J	mg/L	3/23/2015 4:00 PM	PA/VA
CYANIDE, Free			Method:	SM4500)-CN I-1	997	Analyst: JH	
Cyanide, Free	ND	0.005	0.020	NA		mg/L	3/20/2015 11:42 AM	
AMMONIA NITROGEN			Method: (1993)	EPA 35	0.1, Rev	/.2.	Analyst: JH	
Nitrogen, Ammonia (As N)	4.21	0.16	0.40	NA		mg/L	3/25/2015 4:44 PM	PA/VA
CONDUCTIVITY			Method:	SM2510) B - 19	97	Analyst: KY	
Specific Conductivity	965	NA	NA	NA		µmhos/cm	3/23/2015 2:00 PM	PA/VA
TOTAL DISSOLVED SOLIDS			Method:	SM2540) C-199	7	Analyst: KY	
Total Dissolved Solids	524	5	10	NA		mg/L	3/20/2015 5:00 PM	PA/VA
TOTAL SUSPENDED SOLIDS			Method:	SM2540) D-199	7	Analyst: KY	
Total Suspended Solids	5.5	1.0	5.0	NA		mg/L	3/20/2015 4:45 PM	PA/VA
ACIDITY			Method:	SM2310) B-199 ⁻	7	Analyst: DSD	
Acidity, Total	22.6	1.0	10	NA		mg/L	3/20/2015 8:45 AM	PA/VA
ALKALINITY			Method:	SM2320) B-199	7	Analyst: DSD	
Alkalinity, Total (As CaCO3)	138	1.0	10	NA		mg/L	3/20/2015 8:45 AM	PA/VA
pH - LAB TEST, HOLD TIME EXPIR	ED		Method:	SM4500)-H+-B-:	2000	Analyst: DSD	
рН	6.99	NA	NA	NA		SU	3/20/2015 8:45 AM	PA

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/19/2015 11:35:00 AM
Project:	RALEIGH CO LF / N. BECKLEY WWTP	Date Received:	3/19/2015
Lab ID:	1503N56-02B	Matrix:	Liquid
Client Sample ID:	N. BECKLEY WWTP EFF	Site ID:	

Analysis	Result	MDL	PQL	MCL	Qual	Units	Date Analyzed NELAP	
DISSOLVED METALS BY ICP			Method: (1994)	EPA 200).7 Rev	. 4.4	Analyst: CGW	
Iron	0.064	0.010	0.100	NA	J	mg/L	3/25/2015 3:23 PM	PA/VA
Manganese	0.008	0.002	0.100	NA	J	mg/L	3/25/2015 3:23 PM	PA/VA

Analysis

Date Reported: 4/2/2015

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/19/2015 12:00:00 AM
Project:	RALEIGH CO LF / N. BECKLEY WWTP	Date Received:	3/19/2015
Lab ID:	1503N56-03A	Matrix:	Trip Blank
Client Sample ID:	TRIPBLANK	Site ID:	

Result MDL PQL

MCL Qual Units

Date Analyzed NELAP

VOLATILE ORGANIC COMPOUNDS-8260			Method: SW8260B (1996)			Analyst: JM	
Benzene	ND	0.500	1.00	NA	µg/L	3/26/2015 2:03 AM	PA/VA
Chlorobenzene	ND	0.500	1.00	NA	µg/L	3/26/2015 2:03 AM	PA/VA
Dibromochloromethane	ND	0.500	1.00	NA	µg/L	3/26/2015 2:03 AM	PA/VA
1,2-Dichlorobenzene	ND	0.500	1.00	NA	µg/L	3/26/2015 2:03 AM	PA/VA
1,3-Dichlorobenzene	ND	0.500	1.00	NA	µg/L	3/26/2015 2:03 AM	PA/VA
1,4-Dichlorobenzene	ND	0.500	1.00	NA	µg/L	3/26/2015 2:03 AM	PA/VA
Surr: 1,2-Dichloroethane-d4	98.1	NA	68.7-129	NA	%REC	3/26/2015 2:03 AM	
Surr: 4-Bromofluorobenzene	115	NA	71.8-127	NA	%REC	3/26/2015 2:03 AM	
Surr: Dibromofluoromethane	101	NA	74.3-124	NA	%REC	3/26/2015 2:03 AM	
Surr: Toluene-d8	99.9	NA	71.4-129	NA	%REC	3/26/2015 2:03 AM	



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, April 27, 2015

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

TEL: (304) 696-6042 FAX:

RE: RALEIGH CO. LF LEACHATE / N. BECKLEY WWTP EFF Work Order #: 1503N68 Dear GEORGE CARICO:

REI Consultants, Inc. received 2 sample(s) on 3/19/2015 for the analyses presented in the following report.

Sincerely,

Kathy Berry

Kathy Berry



Client: MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE

Project: RALEIGH CO. LF LEACHATE / N. BECKLEY WWTP EFF

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#: 1503N68

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/19/2015 10:40:00 AM
Project:	RALEIGH CO. LF LEACHATE / N. BECKLEY WWTP EFF	Date Received:	3/19/2015
Lab ID:	1503N68-01A	Matrix:	Leachate
Client Sample ID:	RALEIGH CO. LF LEACHATE	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	D	Analyst: Sub
Gross Beta	see attached	NA	NA	NA		
RADIUM-226			Method:	EPA 903.1	1	Analyst: Sub
Radium-226	see attached	NA	NA	NA		
RADIUM-228			Method:	EPA 904.0	D	Analyst: Sub
Radium-228	see attached	NA	NA	NA		
STRONTIUM-90			Method:	EPA 905.0	D	Analyst: Sub
Strontium-90	see attached	NA	NA	NA		

WO#: 1503N68

Client:	MARSHALL UNIVERSITY CENTER. FOR ENV. SCIENCE	Collection Date:	3/19/2015 11:35:00 AM
Project:	RALEIGH CO. LF LEACHATE / N. BECKLEY WWTP EFF	Date Received:	3/19/2015
Lab ID:	1503N68-02A	Matrix:	Liquid
Client Sample ID:	N. BECKLEY WWTP EFF	Site ID:	

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		



Pace Analytical Services, Inc. 1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

April 09, 2015

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

RE: Project: 1503N68 Pace Project No.: 30143866

Dear Ms. Berry:

Enclosed are the analytical results for sample(s) received by the laboratory on March 25, 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,

Carino a. Ferrio

Carin Ferris carin.ferris@pacelabs.com Project Manager

Enclosures





Pace Analytical Services, Inc. 1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

CERTIFICATIONS

 Project:
 1503N68

 Pace Project No.:
 30143866

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-042 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



SAMPLE SUMMARY

Project: Pace Project No.:	1503N68 30143866			
Lab ID	Sample ID	Matrix	Date Collected	Date Received
30143866001	1503N68-01A	Water	03/19/15 10:40	03/25/15 14:45
30143866002	1503N68-02A	Water	03/19/15 11:35	03/25/15 14:45



SAMPLE ANALYTE COUNT

 Project:
 1503N68

 Pace Project No.:
 30143866

Lab ID	Sample ID	Method	Analysts	Analytes Reported
30143866001		SM 7110C	LAL	1
		EPA 900.0	FCC	1
		EPA 903.1	JC2	1
		EPA 904.0	JLW	1
		ASTM D5811-95	LAL	1
30143866002	1503N68-02A	SM 7110C	LAL	1
		EPA 900.0	FCC	1
		EPA 903.1	JC2	1
		EPA 904.0	JLW	1
		ASTM D5811-95	LAL	1



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PROJECT NARRATIVE

 Project:
 1503N68

 Pace Project No.:
 30143866

Method: SM 7110C

Description:7110C Gross AlphaClient:REI Consultants, Inc.Date:April 09, 2015

General Information:

2 samples were analyzed for SM 7110C. 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:
 1503N68

 Pace Project No.:
 30143866

Method:EPA 900.0Description:900.0 Gross Alpha/BetaClient:REI Consultants, Inc.Date:April 09, 2015

General Information:

2 samples were 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:



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PROJECT NARRATIVE

 Project:
 1503N68

 Pace Project No.:
 30143866

Method: EPA 903.1

Description:903.1 Radium 226Client:REI Consultants, Inc.Date:April 09, 2015

General Information:

2 samples were analyzed for EPA 903.1. 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:
 1503N68

 Pace Project No.:
 30143866

Method: EPA 904.0

Description:904.0 Radium 228Client:REI Consultants, Inc.Date:April 09, 2015

General Information:

2 samples were analyzed for EPA 904.0. 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:



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PROJECT NARRATIVE

 Project:
 1503N68

 Pace Project No.:
 30143866

Method: ASTM D5811-95

Description:ASTM D5811 Sr 89/90 EichromClient:REI Consultants, Inc.Date:April 09, 2015

General Information:

2 samples were 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/23846

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

- 1503N68-01A (Lab ID: 30143866001)
 - Strontium-90
- 1503N68-02A (Lab ID: 30143866002)
- Strontium-90
- BLANK (Lab ID: 870159)
 - Strontium-90

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


ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 1503N68

Pace Project No.: 30143866

Sample: 1503N68-01A PWS:	Lab ID: 30143 Site ID:	3866001 Collected: 03/19/15 10:40 Sample Type:	Received:	03/25/15 14:45 N	latrix: Water	
Comments: • Sample Accept	tance Policy Waiver on file f	rom the client.				
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Gross Alpha	SM 7110C	2.61 ± 1.37 (1.96) C:NA T:NA	pCi/L	04/07/15 16:43	12587-46-1	
Gross Beta	EPA 900.0	121 ± 22.6 (5.34) C:NA T:NA	pCi/L	04/03/15 21:24	12587-47-2	
Radium-226	EPA 903.1	10.6 ± 10.7 (14.0) C:NA T:82%	pCi/L	04/07/15 14:45	13982-63-3	
Radium-228	EPA 904.0	10.2 ± 10.6 (20.9) C:64% T:63%	pCi/L	04/08/15 10:48	15262-20-1	
Strontium-90	ASTM D5811-95	-0.275 ± 0.764 (1.33) C:99% T:NA	pCi/L	03/28/15 11:45	10098-97-2	N2

 Sample:
 1503N68-02A
 Lab ID:
 30143866002
 Collected:
 03/19/15
 11:35
 Received:
 03/25/15
 14:45
 Matrix:
 Water

 PWS:
 Site ID:
 Sample Type:
 <

Comments: • Sample Acceptance Policy Waiver on file from the client.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Gross Alpha	SM 7110C	-0.722 ± 1.04 (2.18) C:NA T:NA	pCi/L	04/07/15 16:43	12587-46-1	
Gross Beta	EPA 900.0	8.47 ± 2.23 (2.60) C:NA T:NA	pCi/L	04/03/15 21:25	12587-47-2	
Radium-226	EPA 903.1	1.09 ± 0.831 (0.967) C:NA T:81%	pCi/L	04/07/15 14:57	13982-63-3	
Radium-228	EPA 904.0	1.12 ± 0.603 (1.06) C:61% T:68%	pCi/L	04/08/15 13:55	15262-20-1	
Strontium-90	ASTM D5811-95	-0.322 ± 0.796 (1.39) C:94% T:NA	pCi/L	03/28/15 11:45	10098-97-2	N2



Project:	1503N68						
Pace Project No.:	30143866						
QC Batch:	RADC/23972		Analysis Method:	SM 7110C			
QC Batch Method:	SM 7110C		Analysis Description:	7110C Gross	s Alpha		
Associated Lab San	nples: 3014386600	01, 30143866002					
METHOD BLANK:	875769		Matrix: Water				
Associated Lab San	nples: 3014386600	01, 30143866002					
Paran	neter	Act ± Unc (N	IDC) Carr Trac	Units	Analyzed	Qualifiers	
Gross Alpha	-(0.125 ± 0.495 (1.6	4) C:NA T:NA	pCi/L	04/07/15 15:01		

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:	1503N68					
Pace Project No.:	30143866					
QC Batch:	RADC/23846	Analysis Method:	ASTM D581	1-95		
QC Batch Method:	ASTM D5811-95	Analysis Description:	ASTM D581	1 Sr 89/90 Eichrom		
Associated Lab Sam	nples: 30143866001, 3014386600	02				
METHOD BLANK:	870159	Matrix: Water				
Associated Lab Sam	nples: 30143866001, 3014386600	02				
Param	neter Act ± Ur	nc (MDC) Carr Trac	Units	Analyzed	Qualifiers	
Strontium-90	-0.117 ± 0.329	(0.776) C:95% T:NA	pCi/L	03/28/15 11:44	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:	1503N68						
Pace Project No.:	30143866						
QC Batch:	RADC/23867		Analysis Method:	EPA 903.1			
QC Batch Method:	EPA 903.1		Analysis Description:	903.1 Radiu	m-226		
Associated Lab San	nples: 30143866	001, 3014386600	2				
METHOD BLANK:	870393		Matrix: Water				
Associated Lab San	nples: 30143866	001, 3014386600	2				
Paran	neter	Act ± Un	c (MDC) Carr Trac	Units	Analyzed	Qualifiers	
Radium-226		0.303 ± 0.545 (0.960) C:NA T:88%	pCi/L	04/07/15 13:20		

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:	1503N68						
Pace Project No.:	30143866						
QC Batch:	RADC/23931		Analysis Method:	EPA 900.0			
QC Batch Method:	EPA 900.0		Analysis Description:	900.0 Gross	Alpha/Beta		
Associated Lab San	nples: 30143866	001, 30143866002					
METHOD BLANK:	874033		Matrix: Water				-
Associated Lab San	nples: 30143866	001, 30143866002					
Paran	neter	Act ± Unc (I	MDC) Carr Trac	Units	Analyzed	Qualifiers	
Gross Beta		0.732 ± 1.06 (2.32)) C:NA T:NA	pCi/L	04/03/15 07:51		

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:	1503N68						
Pace Project No.:	30143866						
QC Batch:	RADC/23868		Analysis Method:	EPA 904.0			
QC Batch Method:	EPA 904.0		Analysis Description:	904.0 Radiu	m 228		
Associated Lab San	nples: 30143866	001, 30143866002	2				
METHOD BLANK:	870398		Matrix: Water				
Associated Lab San	nples: 30143866	001, 30143866002	2				
Paran	neter	Act ± Unc	(MDC) Carr Trac	Units	Analyzed	Qualifiers	
Radium-228		0.343 ± 0.333 (0)	.683) C:75% T:92%	pCi/L	04/08/15 11:11		

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.



Pace Analytical Services, Inc. 1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

QUALIFIERS

 Project:
 1503N68

 Pace Project No.:
 30143866

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

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

Rel Construction of the Co	FAX: (304 Website: www.re Recipient Whenever Possible!!!	L INSTRUCTIONS / COMMENTS: Code: WV Please use SampleID as purchase order number. analysis: the samples do not need to be returned and can be disposed per your standard lab	ces. Results to Kathy Berry kberry@reiclabs.com. Thanks	ANALYTICAL PARAMETERS ANALYTICAL PARAMETERS 1 Hydrobloid Acid	2 Nutric Acid 3 Sulfuric Acid 4 Sodium Thioatliftic ADTION	COMMENTS: COMMENTS:		1111	me: REPORT TRANSMITTAL DESIRED: PROFY (actine cost)
	clude Email Address of Report	TICAL SERVIC SPECIA State	practi	G	ROSS_A	ETA_SUB (EPA 900.0) LPHA_SUB (EPA 900.0) NUMBER OF CONTAINERS E E E E E E E E E E E E E E E E E E	3/19/2015 10:40:00 1 2 2	3/19/2015 11:35:00 1 V	Date Ta
	Please In	PACE ANALY				Bottle MATRIX Type	Leachate	Liquid	Received By: UNS
	colleg the endfromment, one client at a time	B CONTRATOR PACE PA COMPANY:	IV STATE, ZPP. CDEFENSRIRG, PA 15601	ONE: (724) 850-5600 FAX:	count #: 050719EVF1 EMAIL:	EM SAMPLE ID Client Sample ID	1 1503N68-01A RALEIGH CO. LF	2 1503N68-02A N. BECKLEY WMTP	Relignmished Bry Line: Date: 19-15 Time: Relinemisted Bry Time: Date: 19-15 Time:

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Packing Material: Bubble Wrap	Bubble Bags	K	lone		Other							
Thermometer Used	JA Type	of Ice:	Wey	Blue	None		Sample	s on Ice, coolin	g proces	s has begur		
Cooler Temp : Observed Temp	· ALA .C COL	rection	Fact	or:	°C	Final Ten	np:	•C	Date	nd Initials	of person	
Temp should be above freezing to 6°	c				Commer	nts:			exami	ning conter	its: <u>AML</u> 3-75	15
Chain of Custody Present:		ØYes		□n/A	1.							
Chain of Custody Filled Out:		ØYes	□No		2.							
Chain of Custody Relinquished		ØYes	□No	□n/a	3.							
Sampler Name & Signature on C	OC:	□Yes	⊑øΝο	□n/a	4.							
Samples Arrived within Hold Time	9:	[]a∰res	No		5.							
Short Hold Time Analysis (<72)	nr):	Yes	ØN0	□n/A	6.							
Rush Turn Around Time Reque	sted:	□Yes	(2No	⊡n/A	7.							
Sufficient Volume:		ØYas	(DNo	□n/a	8.							
Correct Containers Used:		ØYes	□No	⊡n/A	9.							
-Pace Containers Used:		Yes	M No							11		
Containers Intact:)ØYes	□No		10.							
Filtered volume received for Diss	olved tests	□Yes	□ N₀		11.							
Sample Labels match COC:		Ş⊡Yes	□No		12.							
-Includes date/time/ID/Analysi	s Matrix:	WT										
All containers needing preservation hav	e been checked.	Ves	□No	□n/a	13. adde	ed 6mL	- HNO	z to all	3 00	Hes &	mor zamp	zke
All containers needing preservation a compliance with EPA recommendation	ire found to be in on.	′ □Yes	<u></u> σμνο	□n/A	cc) :	3 25-15	1530	PHOZ				
exceptions: VOA, coliform, TOC, O&G, P	henols	□Yes	92No		Initial whe completed	n 1 AM	Lo	ot # of added eservative	0115	0167		
Samples checked for dechlorinat	ion:	□Yes	□No	GAN/A	14.							
Headspace in VOA Vials (>6mm):	□Yes	⊡No	×N/A	15.							
Trip Blank Present:		⊡Yes	⊡No	DAN/A	16.							
Trip Blank Custody Seals Presen	it	□Yes	□No	BAN/A								
Pace Trip Blank Lot # (if purchas	ed):											
Client Notification/ Resolution:								Field Data Red	uired?		Y / N	
Person Contacted:				Date/	Time:							
Comments/ Resolution:												
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Note: Whenever there is a discrepant (i.e. out of hold, Incorrect preservation	ncy affecting North C ve, out of temp, incor	arolina c rect cont	omplia ainers	ince sar)	nples, a co	py of this f	orm will b	e sent to the N	orth Car	lina DEHNI	R Certificati Page 18 c	on Office of 19

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		Cyanide (250 ml)											
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		Total Metals											
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		Phenolics (250 ml)											
		Nutrient (250 / 500)											
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		Chemistry (250 / 500 / 1L)											
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Pace Analytical Services, Inc. 1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

March 23, 2015

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

RE: Project: 1503N68 Pace Project No.: 30143386

Dear Ms. Berry:

Enclosed are the analytical results for sample(s) received by the laboratory on March 20, 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,

Carino a. Ferrio

Carin Ferris carin.ferris@pacelabs.com Project Manager

Enclosures





Pace Analytical Services, Inc. 1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

CERTIFICATIONS

 Project:
 1503N68

 Pace Project No.:
 30143386

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-042 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



SAMPLE SUMMARY

Project:	1503N68			
Pace Project No.:	30143386			
Lab ID	Sample ID	Matrix	Date Collected	Date Received
30143386001	1503N68-01A	Water	03/19/15 10:40	03/20/15 09:45
30143386002	1503N68-02A	Water	03/19/15 11:35	03/20/15 09:45



SAMPLE ANALYTE COUNT

 Project:
 1503N68

 Pace Project No.:
 30143386

Lab ID	Sample ID	Method	Analysts	Analytes Reported
30143386001	1503N68-01A	SM 7500Rn-B	FCC	1
30143386002	1503N68-02A	SM 7500Rn-B	FCC	1



PROJECT NARRATIVE

 Project:
 1503N68

 Pace Project No.:
 30143386

Method: SM 7500Rn-B

Description:7500RnB RadonClient:REI Consultants, Inc.Date:March 23, 2015

General Information:

2 samples were analyzed for SM 7500Rn-B. 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:	1503N68								
Pace Project No.:	30143386								
Sample: 1503N68	-01A	Lab ID: 30143	386001	Collected:	03/19/15 10:40	Received:	03/20/15 09:45	Matrix: Water	
PWS:		Site ID:	Site ID: Sample Type:						
Comments: • San	nple Acceptance	e Policy Waiver on file fr	om the cl	ient.					
Parameters		Method	Act ± Unc (MDC) Carr Trac			Units	Analyzed	CAS No.	Qual
		SM 7500Rn-B	SM 7500Rn-B -37.8 ± 24.2 (44.1) C:NA T:NA					3 10043-92-2	
Sample: 1503N68 PWS:	-02A	Lab ID: 30143 Site ID:	386002	Collected: Sample Ty	03/19/15 11:35 /pe:	Received:	03/20/15 09:45	Matrix: Water	
Comments: • San	nple Acceptance	e Policy Waiver on file fr	om the cl	ient.					
Parameters		Method	Ac	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Radon		SM 7500Rn-B	-7.9 ±	± 24.8 (43.9 ∖ T:NA)	pCi/L	03/21/15 03:46	6 10043-92-2	



Project:	1503N68						
Pace Project No.:	30143386						
QC Batch: RADC/23788		Analysis Method:					
QC Batch Method:	SM 7500Rn-B		Analysis Description:	adon			
Associated Lab San	nples: 30143386	001, 30143386002					
METHOD BLANK:	867184		Matrix: Water				
Associated Lab San	nples: 30143386	001, 30143386002					
Paran	neter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers	
Radon 1		13.5 ± 19.4 (32.4) C:NA T:NA		pCi/L	03/21/15 00:28		

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:
 1503N68

 Pace Project No.:
 30143386

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.

CHAIN OF CUSTODY RECO Please Include Email Address of PACE ANALYTICAL SERVIC PACE ANALYTICAL SERVIC Anarecolubereb MATRIX Type Leachate Leachate Leachate Jaylo2015 10:3000 1 Liquid Jaylo2015 11:35:00 1	Time: REPORT TRANSMITTAL DESTRED: Time: HARDCOPY (extra cost) FAX FAMAL ONLINE ONLINE Time: Temp of samples Comments: Comments:
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Pace Analytical Client Name	e: REIC		Project	# 30143386
Courier: Fed Ex 🕅 UPS 🗆 USPS 🗆 Clin Tracking #: 126X 113337526	ent 🗌 Commerci	al 🗌 Pace Other _		
Custody Seal on Cooler/Box Present: Use	🗶 no Se	als intact: 🗌 yes 🏼 [no Biologia	al Tissue is Frozen: Yes No
Packing Material: Bubble Wrap <u>X</u> Bubble Ba	gs <u>X</u> None	Other		
Thermometer Used Typ	e of Ice: Wet	Blue None 🗌 S	amples on ice, coolin	g process has begun
Cooler Temp.: Observed Temp.: <u>५२</u> ०с с	orrection Factor:		: <u> 4.6 </u> °C	Date and Initials of person
Temp should be above freezing to 6°C	1.	Comments:		examining contents: <u>Georgia Con</u>
Chain of Custody Present:		I/A 1.		
Chain of Custody Filled Out:		VA 2.		
Chain of Custody Relinguished:		I/A 3.		
Sampler Name & Signature on COC:		I/A 4 .		
Samples Arrived within Hold Time:	XYes DNo DN	I/A 5.		
Short Hold Time Analysis (<72hr):		/A 6.		
Rush Turn Around Time Requested:	UYes DNO UN	/A 7.		
Sufficient Volume:		/A 8.		
Correct Containers Used:	Yes DNo DN	/A 9.		
-Pace Containers Used:		/A		
Containers Intact:	Yes DNo DN	/A 10.		
Filtered volume received for Dissolved tests	🗆 Yes 🗆 No 🕅	/A 11.		
Sample Labels match COC:		/A 12.		
-Includes date/time/ID/Analysis Matrix:	nt			
All containers needing preservation have been checked.	Dyes DNo DN	A 13.		
All containers needing preservation are found to be in compliance with EPA recommendation.	□Yes □No ĎN	A		
exceptions: VOA, coliform, TOC, O&G, Phenois	DYes XNo	Initial when ShA	Lot # of added	
Samples checked for dechlorination:		A 14	IP. COL. ISANO	
Headspace in VOA Vials (>6mm)		A 15		
Trip Blank Present:		A 16		
Trip Blank Custody Seals Present		A		
Pace Trip Blank Lot # (if purchased):	K''			
Client Notification/ Resolution:			Field Data Base	
Person Contacted:	Date	/Time [,]	Field Data Requ	NFECT T / N
Comments/ Resolution:	Cat			
Con 15	5			712015
Project Manager Review:	DOW	D	Date:	SOUD
Note: Whenever there is a discrepancy affecting North C (i.e. out of hold, incorrect preservative, out of temp, incor	arolina compliance sa rect containers)	mples, a copy of this form w	vill be sent to the Nor	th Carolina DEHNR Certification Office

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	Organics (1L)												
	Chemistry (250 / 500 / 1L)												
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Page 11 of 11