

EXHIBIT D



ON-SITE TECHNICAL SERVICES, INC

72 Railroad Avenue
Wellsville, New York 14895

Phone: (585) 593-1824
Fax: (585) 593-7471

June 11, 2013

Mr. Mark Domagala
NYSDEC – Region 8
Division of Solid and Hazardous Materials
6274 East Avon-Lima Road
Avon, New York 14414

Re: Hakes C & D Landfill Painted Post, New York – 4th Quarter 2012 Leachate Radiological Test Results

Dear Mark:

On behalf of Hakes C & D Landfill, the purpose of this letter is to transmit the results of the fourth quarter 2012 leachate radiological testing. Leachate sampling and analysis for radiological testing is required as detailed in section 2.6.3 of the March 2012 Environmental Monitoring Plan (EMP). The initial radiological sampling of each landfill cell and combined leachate was completed in May 2012. Therefore, the sampling required in the fourth quarter 2012 includes only landfill cells which contain gas well waste. Currently the cells containing gas well waste includes Cells 5 and 6. Leachate samples were collected from Cells 5 and 6 between November 14 and December 4, 2012 and sent to ALS Environmental (formerly Columbia Analytical Services) in Rochester, New York. The field sampling forms and the laboratory analytical reports are attached.

Please feel free to call myself at 585-593-1824 or Joe Boyles at 585-466-7271 if you have any questions.

Sincerely,

Jonathan E. Brandes, P.G.
Senior Geologist

cc: Joe Boyles, Casella Waste Systems Inc.
Carla Jordan, Casella Waste Systems Inc.
Mark Amann, NYSDEC

Attachments

Groundwater Suppression and Leachate Sampling Field Form

On-Site Technical Services, Inc.

Project: Hakes C&D Landfill, Painted Post, New York

12-4-12
Date: 11-14-12

Sampling Location: Cell 5 **Sample ID:** Cell 5-1112 **Arrival Time:** 1221

Weather Conditions: Cell 5-1212 1208

Temp. 38 ° F () Sunny () Partly Cloudy () Cloudy () Light Rain () Hvy. Rain () Snow

Wind Conditions: 0-5mph

Location Type

- () Groundwater Suppression () Leachate () Secondary Leachate () Surface Water/Sediment () Res. Water
() Other _____

Flow and Depth Information (as appropriate)

Depth: NA Estimated Flow: _____

Comments: _____

Field Parameters (as appropriate)

Meter: YSI 556 (sn: 06E2511AP), Hach 2100P (sn: 13309)

Field Parameters tested in: () Submerged Probe () Cup
Note: Turbidity measured from a vial grab sample

Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)
<u>1230</u>	<u>6.92</u>	<u>6506</u>	<u>77.0</u>	<u>NA</u>	<u>13.74</u>	<u>6.7</u>
<u>12-4-12 1220</u>	<u>6.97</u>	<u>5090</u>	<u>565.0</u>	<u>NA</u>	<u>22.54</u>	<u>13.8</u>

Sample Information

Sample Type: () Grab () Composite Sample Location: () Discharge Pipe () Pond () Ditch

Location Description/Condition: Discharge Pipe Next to Control Panel

Sample Collection Equipment/Method: 5 Gal Bucket Sample Time: 1230

Sample Description (clarity/color): Foamy Black Sample Odor (Y) or (N) Explain: leachate
12-4-12 Black lint

Other Observations/Comments: _____

Analysis Requested: Radionuclide Number of Containers: (4) 8

Sampling Completion: Time 1246 Date 11-14-12 Samplers K' Dye
12-4-12 1312

Groundwater Suppression and Leachate Sampling Field Form

On-Site Technical Services, Inc.

Project: Hakes C&D Landfill, Painted Post, New York

Date: 12-1-12

Sampling Location: Cell 6 Sample ID: Cell 6-1212 Arrival Time: 1016

Weather Conditions:

Temp. 58° F (Sunny () Partly Cloudy () Cloudy () Light Rain () Hvy. Rain () Snow

Wind Conditions: 0-10 mph

Location Type

() Groundwater Suppression () Leachate () Secondary Leachate () Surface Water/Sediment () Res. Water
() Other _____

Flow and Depth Information (as appropriate)

Depth: NA Estimated Flow: 20 GPM

Comments: _____

Field Parameters (as appropriate)

Meter: YSI 556 (sn: 06EAS11AP), Hach 2100P (sn: 13309)

Field Parameters tested in: () Submerged Probe () Cup

Note: Turbidity measured from a vial grab sample

Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)
<u>1100</u>	<u>6.94</u>	<u>14553</u>	<u>93.8</u>	<u>NA</u>	<u>23.09</u>	<u>+216</u>

Sample Information

Sample Type: () Grab () Composite Sample Location: () Discharge Pipe () Pond () Ditch

Location Description/Condition: North most Discharge pipe right of Central panel.

Sample Collection Equipment/Method: 5 Gal Bucket Sample Time: 1100

Sample Description (clarity/color): clear w/ black dirt Sample Odor (Y) or (N) Explain: leachate odor

Other Observations/Comments: _____

Analysis Requested: Radionuclide Number of Containers: 8

Sampling Completion: Time 1206 Date 12-1-12 Samplers K D E



December 5, 2012

Mr. Joe Boyles
Casella Waste Systems
Hyland Facility
6653 Herdman Road
Angelica, NY 14709

Re: Hakes C&D Landfill – Leachate
Service Request # R1207900

Dear Mr. Boyles:

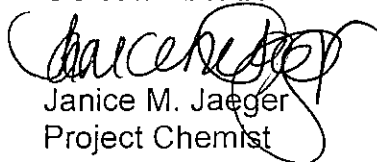
Enclosed is the analytical data report for the above referenced facility. A total of two samples were subcontracted to Pace Analytical for Radiological Testing.

This report consists of one (1) package: the sample data summary package. The summary package has been e-mailed to your attention and to On-Site. A hard copy of the summary package has also been mailed to On-Site. All data presented in this package has been reviewed prior to report submission. If you should have any questions or concerns, please contact me at (585) 288-5380.

Thank you for your continued use of our services.

Sincerely,

COLUMBIA ANALYTICAL SERVICES


Janice M. Jaeger
Project Chemist

enc.

cc: Mr. Jon Brandes
Ms. Michelle Denhoff
On-Site
72 Railroad Avenue
Wellsville, NY 14895



ADDRESS 1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
PHONE +1 585 288 5380 | FAX +1 585 288 8475
Columbia Analytical Services, Inc.
Part of the ALS Group A Campbell Brothers Limited Company



www.caslab.com ■ www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER



Cooler Receipt and Preservation Check Form

Project/Client Casella Huber LF Folder Number R17-7900 ground

Cooler received on 11/15/12 by: AD COURIER: ALS UPS FEDEX VELOCITY CLIENT

1. Were custody seals on outside of cooler? YES NO
2. Were custody papers properly filled out (ink, signed, etc.)? YES NO signed
3. Did all bottles arrive in good condition (unbroken)? YES NO
4. Did VOA vials, Alkalinity, or Sulfide have significant* air bubbles? YES NO N/A
5. Were Ice or Ice packs present? YES NO
6. Where did the bottles originate? ALS/ROC, CLIENT
7. Soil VOA samples received as: Bulk Jar Encore TerraCore Lab5035set N/A
8. Temperature of cooler(s) upon receipt: 2.0° 2.3° _____

Is the temperature within 0° - 6° C?: YN YN Y N Y N Y N

If No, Explain Below Date/Time Temperatures Taken: 11/15/12 1300

Thermometer ID: IR GUN#3 / IR GUN#4 Reading From: Temp Blank / Sample Bottle

If out of Temperature, note packing/ice condition & Client Approval to Run Samples:

All Samples held in storage location	<u>R-002</u>	by	<u>AD</u>	on	<u>11/15/12</u>	at	<u>1255</u>
5035 samples placed in storage location		by		on		at	

PC Secondary Review: JMS 11/15/12

Cooler Breakdown: Date: 11/15/12 Time: 1636 by: AD

1. Were all bottle labels complete (i.e. analysis, preservation, etc.)? YES NO
2. Did all bottle labels and tags agree with custody papers? YES NO
3. Were correct containers used for the tests indicated? YES NO
4. Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated N/A

Explain any discrepancies:

pH	Reagent			Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH	Yes = All samples OK
		YES	NO							
≥2	NaOH									No = Samples were preserved at lab as listed PM OK to Adjust:
≥2	HNO ₃									
≥2	H ₂ SO ₄									
<4	NaHSO ₄									
Residual Chlorine (-)	For TCN Phenol and 522			If present, contact PM to add ascorbic acid Or sodium sulfite (522)						
	Na ₂ S ₂ O ₃	-	-							*Not to be tested before analysis – pH tested and recorded by VOAs or GenChem on a separate worksheet
	Zn Aceta	-	-							
	HCl	*	*							

Bottle lot numbers: 0910-12-2KK

Other Comments:

PC Secondary Review: JMS 12/5/12 *significant air bubbles: VOA > 5-6 mm : WC > 1 in. diameter



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

December 05, 2012

Ms. Janice Jaeger
ALS Environmental Columbia
1565 Jefferson Road
Building 300
Rochester, NY 14623

RE: Project: R1207900
Pace Project No.: 3082118

Dear Ms. Jaeger:

Enclosed are the analytical results for sample(s) received by the laboratory on November 16, 2012. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Carin A. Ferris

Carin Ferris

carin.ferris@pacelabs.com
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
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CERTIFICATIONS

Project: R1207900
Pace Project No.: 3082118

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4 Greensburg, PA 15601
ACCLASS 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/TNI Certification #: LA080002
Louisiana/TNI Certification #: 4086
Maine Certification #: PA0091
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification
Missouri Certification #: 235
Montana Certification #: Cert 0082
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
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 #: ANTE
Virgin Island/PADEP Certification
Virginia Certification #: 00112
Virginia/VELAP Certification #: 460198
Washington Certification #: C868
West Virginia Certification #: 143
Wisconsin/PADEP Certification
Wyoming Certification #: 8TMS-Q

REPORT OF LABORATORY ANALYSIS



SAMPLE SUMMARY

Project: R1207900
Pace Project No.: 3082118

Lab ID	Sample ID	Matrix	Date Collected	Date Received
3082118001	R1207900-001 CELL5-1112	Water	11/14/12 12:30	11/16/12 09:30
3082118002	R1207900-002 CELL5-1112 Dissol	Water	11/14/12 12:30	11/16/12 09:30

REPORT OF LABORATORY ANALYSIS



SAMPLE ANALYTE COUNT

Project: R1207900
Pace Project No.: 3082118

Lab ID	Sample ID	Method	Analysts	Analytes Reported
3082118001	R1207900-001 CELL5-1112	EPA 903.1	SLA	1
		EPA 904.0	MAW	1
3082118002	R1207900-002 CELL5-1112 Dissol	EPA 903.1	SLA	1
		EPA 904.0	MAW	1

REPORT OF LABORATORY ANALYSIS

PROJECT NARRATIVE

Project: R1207900
Pace Project No.: 3082118

Method: EPA 903.1
Description: 903.1 Radium 226
Client: ALS Environmental Columbia
Date: December 05, 2012

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 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:

REPORT OF LABORATORY ANALYSIS

Page 5 of 14

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PROJECT NARRATIVE

Project: R1207900
Pace Project No.: 3082118

Method: EPA 903.1
Description: 903.1 Radium 226, Dissolved
Client: ALS Environmental Columbia
Date: December 05, 2012

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 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:

REPORT OF LABORATORY ANALYSIS

PROJECT NARRATIVE

Project: R1207900
Pace Project No.: 3082118

Method: EPA 904.0
Description: 904.0 Radium 228
Client: ALS Environmental Columbia
Date: December 05, 2012

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 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:

REPORT OF LABORATORY ANALYSIS



PROJECT NARRATIVE

Project: R1207900
Pace Project No.: 3082118

Method: EPA 904.0
Description: 904.0 Radium 228, Dissolved
Client: ALS Environmental Columbia
Date: December 05, 2012

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 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.

REPORT OF LABORATORY ANALYSIS



ANALYTICAL RESULTS

Project: R1207900
 Pace Project No.: 3082118

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.733 ± 1.76 (3.40)	pCi/L	11/27/12 13:45	13982-63-3	
Radium-228	EPA 904.0	1.09 ± 0.638 (1.07)	pCi/L	11/26/12 14:17	15262-20-1	

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Radium-226, Dissolved	EPA 903.1	0.877 ± 0.746 (0.904)	pCi/L	12/04/12 13:52	13982-63-3	
Radium-228, Dissolved	EPA 904.0	0.939 ± 0.545 (0.907)	pCi/L	12/04/12 14:52	15262-20-1	



QUALITY CONTROL DATA

Project: R1207900
Pace Project No.: 3082118

QC Batch: RADC/13868 Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226
Associated Lab Samples: 3082118001

METHOD BLANK: 514122 Matrix: Water
Associated Lab Samples: 3082118001

Parameter	Act ± Unc (MDC)	Units	Analyzed	Qualifiers
Radium-226	-0.114 ± 0.388 (0.858)	pCi/L	11/27/12 12:41	



QUALITY CONTROL DATA

Project: R1207900
Pace Project No.: 3082118

QC Batch: RADC/13869 Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226, Dissolved
Associated Lab Samples: 3082118002

METHOD BLANK: 514123 Matrix: Water
Associated Lab Samples: 3082118002

Parameter	Act ± Unc (MDC)	Units	Analyzed	Qualifiers
Radium-226, Dissolved	-0.150 ± 0.343 (0.807)	pCi/L	12/04/12 13:38	



QUALITY CONTROL DATA

Project: R1207900
Pace Project No.: 3082118

QC Batch: RADC/13870 Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228
Associated Lab Samples: 3082118001

METHOD BLANK: 514124 Matrix: Water
Associated Lab Samples: 3082118001

Parameter	Act ± Unc (MDC)	Units	Analyzed	Qualifiers
Radium-228	0.724 ± 0.412 (0.745)	pCi/L	11/26/12 11:51	



QUALITY CONTROL DATA

Project: R1207900
Pace Project No.: 3082118

QC Batch:	RADC/13981	Analysis Method:	EPA 904.0
QC Batch Method:	EPA 904.0	Analysis Description:	904.0 Radium 228, Dissolved
Associated Lab Samples:	3082118002		

METHOD BLANK:	517189	Matrix:	Water
Associated Lab Samples:	3082118002		

Parameter	Act ± Unc (MDC)	Units	Analyzed	Qualifiers
Radium-228, Dissolved	0.336 ± 0.290 (0.581)	pCi/L	12/04/12 14:52	

QUALIFIERS

Project: R1207900
Pace Project No.: 3082118

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.

PRL - Pace Reporting 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

(MDC) - Minimum Detectable Concentration

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

TNI - The NELAC Institute.

ALS Environmental Chain of Custody

1565 Jefferson Rd, Building 300 • Rochester, NY 14623 • 585-288-5380 • FAX 585-288-8475

ALS Contact: Janice Jaeger

Project Number: R1207900
 Project Manager: Janice Jaeger

Lab Code	Sample ID	# of Cont.	Matrix	Sample		Lab ID	Radium 226 903.1	Radium 228 904.0	
				Date	Time				
R1207900-001	CELL5-1112	2 ↓	Water	11/14/12	1230	Pace PA			3082118 001
R1207900-002	CELL5-1112 Dissolved	↓	Water	11/14/12	1230	Pace PA			002

Special Instructions/Comments 	Turnaround Requirements ___ RUSH (Surcharges Apply) PLEASE CIRCLE WORK DAYS 1 2 3 4 5 ___ STANDARD Requested FAX Date: _____ Requested Report Date: <u>11/29/12</u>	Report Requirements ___ I. Results Only ___ II. Results + QC Summaries ___ III. Results + QC and Calibration Summaries ___ IV. Data Validation Report with Raw Data PQL/MDL/J <u>N</u> EDD <u>Y</u>	Invoice Information <hr/> PO# R1207900 <hr/> Bill to
--	---	--	--

Relinquished By: David Wood 11/15/12

Received By: Simon De Bruyn 11/16/12

Airbill Number: _____

0930



Sample Condition Upon Receipt

Client Name: ALS Enviro Project # 3082118

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____

Tracking #: 1Z17W43801491783526

Optional:
Proj. Due Date:
Proj. Name:

Custody Seal on Cooler/Box Present: yes no Seals intact: yes no

Packing Material: Bubble Wrap Bubble Bags None Other _____

Thermometer Used 5 6 7 Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temperature NA

Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: SMB 11/16/12

Temp should be above freezing to 6°C

Comments:

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis	<u>Matrix: WT</u>	
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13. 6mls to OO: 11/16/12 @ 1400
All containers needing preservation are found to be in compliance with EPA recommendation.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed <u>SMB</u> Lot # of added preservative <u>RF12-0213-2</u>
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> 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:

Conrad Ferris

Date: 11/19/12

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)



December 28, 2012

Mr. Joe Boyles
Casella Waste Systems
Hyland Facility
6653 Herdman Road
Angelica, NY 14709

Re: Hakes C&D Landfill – Leachate
Service Request # R1208316

Dear Mr. Boyles:

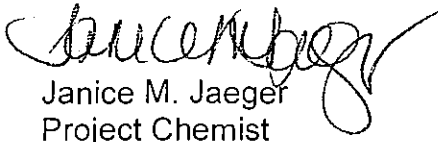
Enclosed is the analytical data report for the above referenced facility. A total of four samples were subcontracted to Pace Analytical for Radiological Testing.

This report consists of one (1) package: the sample data summary package. The summary package has been e-mailed to your attention and to On-Site. A hard copy of the summary package has also been mailed to On-Site. All data presented in this package has been reviewed prior to report submission. If you should have any questions or concerns, please contact me at (585) 288-5380.

Thank you for your continued use of our services.

Sincerely,

COLUMBIA ANALYTICAL SERVICES dba ALS Environmental


Janice M. Jaeger
Project Chemist

enc.

cc: Mr. Jon Brandes
Ms. Michelle Denhoff
On-Site
72 Railroad Avenue
Wellsville, NY 14895




ADDRESS 1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
PHONE +1 585 288 5380 | FAX +1 585 288 8475
Columbia Analytical Services, Inc.
Part of the ALS Group A Campbell Brothers Limited Company

Environmental 

www.caslab.com ■ www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

Project Name Hakes C&D Landfill		Project Number		ANALYSIS REQUESTED (Include Method Number and Container Preservative)																
Project Manager Jon Brandes / Joe Bayless		Report CC		PRESERVATIVE																
Company/Address ON-SITE / Casella				NUMBER OF CONTAINERS	908.0 NAT		908.0 NAT		908.0 NAT		908.0 NAT		908.0 NAT		908.0 NAT		908.0 NAT		Preservative Key 0. NONE 1. HCL 2. HNO ₃ 3. H ₂ SO ₄ 4. NaOH 5. Zn. Acetate 6. MeOH 7. NaHSO ₄ 8. Other _____	
72 Railroad Ave					904.0		904.0		904.0		904.0		904.0		904.0		904.0			
Wellsville, NY 14895					901.1		901.1		901.1		901.1		901.1		901.1		901.1			
Phone # 585-593-1824		Email			901.1		901.1		901.1		901.1		901.1		901.1		901.1			
Sampler's Signature <i>Kevin Dye</i>		Sampler's Printed Name Kevin Dye		REMARKS/ ALTERNATE DESCRIPTION																
CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE TIME		MATRIX																
Cell 6-1212		12-4-12	1100	H ₂ O	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Cell 5-1212		12-4-12	1220	H ₂ O	4	1	1	1	1											
SPECIAL INSTRUCTIONS/COMMENTS Metals					TURNAROUND REQUIREMENTS RUSH (SURCHARGES APPLY) 1 day 2 day 3 day 4 day 5 day REQUESTED REPORT DATE				REPORT REQUIREMENTS I. Results Only II. Results + QC Summaries (LCS, DUP, MS/MSD as required) III. Results + QC and Calibration Summaries IV. Data Validation Report Edata Yes				INVOICE INFORMATION PO # BILL TO: R1208316 Casella Waste Systems Hakes C&D Landfill 5 							
STATE WHERE SAMPLES WERE COLLECTED					RELINQUISHED BY				RECEIVED BY				RELINQUISHED BY				RECEIVED BY			
					<i>Daniel Ward</i>				<i>Daniel Ward</i>											
Signature					Signature				Signature				Signature				Signature			
Printed Name					Printed Name				Printed Name				Printed Name				Printed Name			
Firm					Firm				Firm				Firm				Firm			
Date/Time					Date/Time				Date/Time				Date/Time				Date/Time			



Cooler Receipt and Preservation Check Form

Project/Client Casella - Hakes LF Folder Number R12-8316

Cooler received on 12/5/12 by: dm COURIER: ALS UPS FEDEX VELOCITY CLIENT

1. Were custody seals on outside of cooler? YES NO
2. Were custody papers properly filled out (ink, signed, etc.)? YES NO → CoC not relinquished
3. Did all bottles arrive in good condition (unbroken)? YES NO
4. Did VOA vials, Alkalinity, or Sulfide have significant* air bubbles? YES ^{dm} NO N/A
5. Were ~~ice~~ or Ice packs present? YES NO
6. Where did the bottles originate? ALS/ROC, CLIENT
7. Soil VOA samples received as: Bulk Jar Encore TerraCore Lab5035set N/A
8. Temperature of cooler(s) upon receipt: 0.9°

Is the temperature within 0° - 6° C?: Y N Y N Y N Y N Y N

If No, Explain Below Date/Time Temperatures Taken: 12/5/12 / 1355

Thermometer ID: IR GUN#3 / IR GUN#4 Reading From: Temp Blank / Sample Bottle

If out of Temperature, note packing/ice condition & Client Approval to Run Samples:

All Samples held in storage location R-002 by dm on 12/5/12 at 1356
 5035 samples placed in storage location _____ by _____ on _____ at _____

PC Secondary Review: dm 12/5/12

Cooler Breakdown: Date: 12/5/12 Time: 1515 by: dm

1. Were all bottle labels complete (i.e. analysis, preservation, etc.)? YES NO
2. Did all bottle labels and tags agree with custody papers? YES NO
3. Were correct containers used for the tests indicated? YES NO
4. Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated N/A

Explain any discrepancies:

pH	Reagent			Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH	Yes = All samples OK No = Samples were preserved at lab as listed PM OK to Adjust: _____
		YES	NO							
≥12	NaOH									
≤2	HNO ₃									
≤2	H ₂ SO ₄									
<4	NaHSO ₄									
Residual Chlorine (-)	For TCN Phenol and 522			If present, contact PM to add ascorbic acid Or sodium sulfite (522)						
	Na ₂ S ₂ O ₃	-	-			*Not to be tested before analysis – pH tested and recorded by VOAs or GenChem on a separate worksheet				
	Zn Aceta	-	-							
	HCl	*	*							

Bottle lot numbers: _____
Other Comments: _____

PC Secondary Review: _____ *significant air bubbles: VOA > 5-6 mm : WC > 1 in. diameter



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

December 28, 2012

Ms. Janice Jaeger
ALS Environmental Columbia
1565 Jefferson Road
Building 300
Rochester, NY 14623

RE: Project: R1208316
Pace Project No.: 3083317

Dear Ms. Jaeger:

Enclosed are the analytical results for sample(s) received by the laboratory on December 06, 2012. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Carin Ferris

carin.ferris@pacelabs.com
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: R1208316
Pace Project No.: 3083317

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4 Greensburg, PA 15601
ACCLASS 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/TNI Certification #: LA080002
Louisiana/TNI Certification #: 4086
Maine Certification #: PA0091
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification
Missouri Certification #: 235
Montana Certification #: Cert 0082
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
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 #: ANTE
Virgin Island/PADEP Certification
Virginia Certification #: 00112
Virginia/VELAP Certification #: 460198
Washington Certification #: C868
West Virginia Certification #: 143
Wisconsin/PADEP Certification
Wyoming Certification #: 8TMS-Q

REPORT OF LABORATORY ANALYSIS

SAMPLE SUMMARY

Project: R1208316
Pace Project No.: 3083317

Lab ID	Sample ID	Matrix	Date Collected	Date Received
3083317001	R1208316-001 Cell6-1212	Water	12/04/12 11:00	12/06/12 10:30
3083317002	R1208316-002 Cell6-1212 Dissol	Water	12/04/12 11:00	12/06/12 10:30
3083317003	R1208316-003 Cell5-1212	Water	12/04/12 12:20	12/06/12 10:30
3083317004	R1208316-004 Cell5-1212 Dissol	Water	12/04/12 12:20	12/06/12 10:30

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: R1208316
Pace Project No.: 3083317

Lab ID	Sample ID	Method	Analysts	Analytes Reported
3083317001	R1208316-001 Cell6-1212	EPA 901.1m	AEH	15
		EPA 903.1	SLA	1
		EPA 904.0	MAW	1
		EPA 908.0	MBT	1
3083317002	R1208316-002 Cell6-1212 Dissol	EPA 901.1m	AEH	15
		EPA 903.1	SLA	1
		EPA 904.0	MAW	1
		EPA 908.0	MBT	1
3083317003	R1208316-003 Cell5-1212	EPA 901.1m	AEH	15
		EPA 908.0	MBT	1
3083317004	R1208316-004 Cell5-1212 Dissol	EPA 901.1m	AEH	15
		EPA 908.0	MBT	1

REPORT OF LABORATORY ANALYSIS

PROJECT NARRATIVE

Project: R1208316
Pace Project No.: 3083317

Method: EPA 901.1m
Description: 901.1 Gamma Spec
Client: ALS Environmental Columbia
Date: December 28, 2012

General Information:

4 samples were analyzed for EPA 901.1m. 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 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:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: R1208316
Pace Project No.: 3083317

Method: EPA 903.1
Description: 903.1 Radium 226
Client: ALS Environmental Columbia
Date: December 28, 2012

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 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:

REPORT OF LABORATORY ANALYSIS

Page 6 of 19

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PROJECT NARRATIVE

Project: R1208316
Pace Project No.: 3083317

Method: EPA 903.1
Description: 903.1 Radium 226, Dissolved
Client: ALS Environmental Columbia
Date: December 28, 2012

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 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:

REPORT OF LABORATORY ANALYSIS

PROJECT NARRATIVE

Project: R1208316
Pace Project No.: 3083317

Method: EPA 904.0
Description: 904.0 Radium 228
Client: ALS Environmental Columbia
Date: December 28, 2012

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 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:

REPORT OF LABORATORY ANALYSIS



PROJECT NARRATIVE

Project: R1208316
Pace Project No.: 3083317

Method: EPA 904.0
Description: 904.0 Radium 228, Dissolved
Client: ALS Environmental Columbia
Date: December 28, 2012

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 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:

REPORT OF LABORATORY ANALYSIS

PROJECT NARRATIVE

Project: R1208316
Pace Project No.: 3083317

Method: EPA 908.0
Description: 908.0 Total Uranium
Client: ALS Environmental Columbia
Date: December 28, 2012

General Information:

4 samples were analyzed for EPA 908.0. 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 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.

REPORT OF LABORATORY ANALYSIS

ANALYTICAL RESULTS

Project: R1208316
Pace Project No.: 3083317

Sample: R1208316-001 Cell6-1212 Lab ID: 3083317001 Collected: 12/04/12 11:00 Received: 12/06/12 10:30 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Actinium-228	EPA 901.1m	9.20 ± 16.6 (29.7)	pCi/L	12/19/12 11:39	14331-83-0	
Bismuth-212	EPA 901.1m	22.0 ± 58.4 (104)	pCi/L	12/19/12 11:39	14913-49-6	
Bismuth-214	EPA 901.1m	-23.9 ± 144 (65.7)	pCi/L	12/19/12 11:39	14733-03-0	
Cesium-134	EPA 901.1m	-1.28 ± 4.12 (7.24)	pCi/L	12/19/12 11:39	13967-70-9	
Cesium-137	EPA 901.1m	-0.943 ± 6.21 (7.73)	pCi/L	12/19/12 11:39	10045-97-3	
Lead-212	EPA 901.1m	-1.83 ± 19.3 (14.4)	pCi/L	12/19/12 11:39	15092-94-1	
Lead-214	EPA 901.1m	3.52 ± 10.2 (19.0)	pCi/L	12/19/12 11:39	15067-28-4	
Potassium-40	EPA 901.1m	254 ± 92.1 (119)	pCi/L	12/19/12 11:39	13966-00-2	
Radium-226	EPA 901.1m	-2.36 ± 94.2 (185)	pCi/L	12/19/12 11:39	13982-63-3	
Radium-228	EPA 901.1m	9.20 ± 16.6 (29.7)	pCi/L	12/19/12 11:39	15262-20-1	
Thallium-208	EPA 901.1m	-2.61 ± 129 (9.28)	pCi/L	12/19/12 11:39	14913-50-9	
Thorium-232	EPA 901.1m	9.20 ± 16.6 (29.7)	pCi/L	12/19/12 11:39	7440-29-1	
Thorium-234	EPA 901.1m	277 ± 759 (1299)	pCi/L	12/19/12 11:39	15065-10-8	
Uranium-235	EPA 901.1m	0.502 ± 31.1 (56.2)	pCi/L	12/19/12 11:39	15117-96-1	
Uranium-238	EPA 901.1m	0.382 ± 85.1 (158)	pCi/L	12/19/12 11:39		
Radium-226	EPA 903.1	5.60 ± 2.66 (0.842)	pCi/L	12/17/12 13:28	13982-63-3	
Radium-228	EPA 904.0	5.84 ± 2.51 (3.86)	pCi/L	12/14/12 15:05	15262-20-1	
Total Uranium	EPA 908.0	0.0671 ± 0.140 (0.246)	pCi/L	12/17/12 14:32	7440-61-1	

Sample: R1208316-002 Cell6-1212 Lab ID: 3083317002 Collected: 12/04/12 11:00 Received: 12/06/12 10:30 Matrix: Water
Dissol PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Actinium-228	EPA 901.1m	6.35 ± 14.4 (26.8)	pCi/L	12/19/12 12:34	14331-83-0	
Bismuth-212	EPA 901.1m	15.9 ± 48.9 (89.4)	pCi/L	12/19/12 12:34	14913-49-6	
Bismuth-214	EPA 901.1m	-8.78 ± 118 (64.6)	pCi/L	12/19/12 12:34	14733-03-0	
Cesium-134	EPA 901.1m	-1.22 ± 4.93 (8.63)	pCi/L	12/19/12 12:34	13967-70-9	
Cesium-137	EPA 901.1m	1.80 ± 3.67 (6.42)	pCi/L	12/19/12 12:34	10045-97-3	
Lead-212	EPA 901.1m	-4.41 ± 233 (14.4)	pCi/L	12/19/12 12:34	15092-94-1	
Lead-214	EPA 901.1m	8.53 ± 9.80 (17.5)	pCi/L	12/19/12 12:34	15067-28-4	
Potassium-40	EPA 901.1m	67.4 ± 69.7 (121)	pCi/L	12/19/12 12:34	13966-00-2	
Radium-226	EPA 901.1m	37.7 ± 79.4 (136)	pCi/L	12/19/12 12:34	13982-63-3	
Radium-228	EPA 901.1m	6.35 ± 14.4 (26.8)	pCi/L	12/19/12 12:34	15262-20-1	
Thallium-208	EPA 901.1m	0.980 ± 4.22 (8.12)	pCi/L	12/19/12 12:34	14913-50-9	
Thorium-232	EPA 901.1m	6.35 ± 14.4 (26.8)	pCi/L	12/19/12 12:34	7440-29-1	
Thorium-234	EPA 901.1m	247 ± 667 (1146)	pCi/L	12/19/12 12:34	15065-10-8	
Uranium-235	EPA 901.1m	-2.73 ± 307 (54.3)	pCi/L	12/19/12 12:34	15117-96-1	
Uranium-238	EPA 901.1m	-30.0 ± 129 (192)	pCi/L	12/19/12 12:34		
Radium-226, Dissolved	EPA 903.1	5.74 ± 1.66 (0.950)	pCi/L	12/20/12 13:17	13982-63-3	
Radium-228, Dissolved	EPA 904.0	3.87 ± 0.991 (1.03)	pCi/L	12/14/12 15:01	15262-20-1	
Total Uranium	EPA 908.0	0.178 ± 0.154 (0.245)	pCi/L	12/17/12 14:32	7440-61-1	



ANALYTICAL RESULTS

Project: R1208316
 Pace Project No.: 3083317

Sample: R1208316-003 Cell5-1212 Lab ID: 3083317003 Collected: 12/04/12 12:20 Received: 12/06/12 10:30 Matrix: Water
 PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Actinium-228	EPA 901.1m	-5.74 ± 648 (20.5)	pCi/L	12/19/12 13:08	14331-83-0	
Bismuth-212	EPA 901.1m	19.5 ± 44.3 (77.3)	pCi/L	12/19/12 13:08	14913-49-6	
Bismuth-214	EPA 901.1m	87.6 ± 18.4 (43.5)	pCi/L	12/19/12 13:08	14733-03-0	
Cesium-134	EPA 901.1m	-2.09 ± 5.50 (9.28)	pCi/L	12/19/12 13:08	13967-70-9	
Cesium-137	EPA 901.1m	-0.205 ± 8.22 (9.03)	pCi/L	12/19/12 13:08	10045-97-3	
Lead-212	EPA 901.1m	-7.24 ± 43.3 (16.1)	pCi/L	12/19/12 13:08	15092-94-1	
Lead-214	EPA 901.1m	76.8 ± 15.4 (13.9)	pCi/L	12/19/12 13:08	15067-28-4	
Potassium-40	EPA 901.1m	94.6 ± 50.6 (81.0)	pCi/L	12/19/12 13:08	13966-00-2	
Radium-226	EPA 901.1m	4.34 ± 88.5 (153)	pCi/L	12/19/12 13:08	13982-63-3	
Radium-228	EPA 901.1m	-5.74 ± 648 (20.5)	pCi/L	12/19/12 13:08	15262-20-1	
Thallium-208	EPA 901.1m	-2.03 ± 22.9 (7.08)	pCi/L	12/19/12 13:08	14913-50-9	
Thorium-232	EPA 901.1m	-5.74 ± 648 (20.5)	pCi/L	12/19/12 13:08	7440-29-1	
Thorium-234	EPA 901.1m	18.7 ± 1037 (1759)	pCi/L	12/19/12 13:08	15065-10-8	
Uranium-235	EPA 901.1m	-7.47 ± 91.0 (52.3)	pCi/L	12/19/12 13:08	15117-96-1	
Uranium-238	EPA 901.1m	26.0 ± 90.4 (156)	pCi/L	12/19/12 13:08		
Total Uranium	EPA 908.0	0.133 ± 0.164 (0.272)	pCi/L	12/17/12 13:59	7440-61-1	

Sample: R1208316-004 Cell5-1212 Lab ID: 3083317004 Collected: 12/04/12 12:20 Received: 12/06/12 10:30 Matrix: Water
 Dissol
 PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Actinium-228	EPA 901.1m	1.48 ± 10.5 (20.3)	pCi/L	12/19/12 18:30	14331-83-0	
Bismuth-212	EPA 901.1m	-6.22 ± 249 (105)	pCi/L	12/19/12 18:30	14913-49-6	
Bismuth-214	EPA 901.1m	24.2 ± 8.80 (47.9)	pCi/L	12/19/12 18:30	14733-03-0	
Cesium-134	EPA 901.1m	-0.672 ± 3.45 (6.00)	pCi/L	12/19/12 18:30	13967-70-9	
Cesium-137	EPA 901.1m	-0.209 ± 8.368 (5.46)	pCi/L	12/19/12 18:30	10045-97-3	
Lead-212	EPA 901.1m	2.31 ± 6.50 (11.6)	pCi/L	12/19/12 18:30	15092-94-1	
Lead-214	EPA 901.1m	33.5 ± 15.9 (16.0)	pCi/L	12/19/12 18:30	15067-28-4	
Potassium-40	EPA 901.1m	111 ± 48.3 (64.1)	pCi/L	12/19/12 18:30	13966-00-2	
Radium-226	EPA 901.1m	-7.11 ± 231 (176)	pCi/L	12/19/12 18:30	13982-63-3	
Radium-228	EPA 901.1m	1.48 ± 10.5 (20.3)	pCi/L	12/19/12 18:30	15262-20-1	
Thallium-208	EPA 901.1m	-0.065 ± 3.70 (6.76)	pCi/L	12/19/12 18:30	14913-50-9	
Thorium-232	EPA 901.1m	1.48 ± 10.5 (20.3)	pCi/L	12/19/12 18:30	7440-29-1	
Thorium-234	EPA 901.1m	334 ± 631 (1056)	pCi/L	12/19/12 18:30	15065-10-8	
Uranium-235	EPA 901.1m	1.27 ± 29.4 (51.4)	pCi/L	12/19/12 18:30	15117-96-1	
Uranium-238	EPA 901.1m	-5.15 ± 375 (170)	pCi/L	12/19/12 18:30		
Total Uranium	EPA 908.0	0.0564 ± 0.190 (0.330)	pCi/L	12/17/12 13:59	7440-61-1	

QUALITY CONTROL DATA

Project: R1208316
Pace Project No.: 3083317

QC Batch: RADC/14077 Analysis Method: EPA 901.1m
QC Batch Method: EPA 901.1m Analysis Description: 901.1 Gamma Spec
Associated Lab Samples: 3083317001, 3083317002, 3083317003, 3083317004

METHOD BLANK: 521954 Matrix: Water
Associated Lab Samples: 3083317001, 3083317002, 3083317003, 3083317004

Parameter	Act ± Unc (MDC)	Units	Analyzed	Qualifiers
Actinium-228	-5.99 ± 240 (24.1)	pCi/L	12/19/12 15:51	
Bismuth-212	-5.33 ± 526 (69.7)	pCi/L	12/19/12 15:51	
Bismuth-214	-17.5 ± 12216 (48.8)	pCi/L	12/19/12 15:51	
Cesium-134	-2.05 ± 4.28 (7.21)	pCi/L	12/19/12 15:51	
Cesium-137	0.932 ± 2.92 (5.16)	pCi/L	12/19/12 15:51	
Lead-212	-0.817 ± 8.77 (11.5)	pCi/L	12/19/12 15:51	
Lead-214	-6.77 ± 31.4 (12.7)	pCi/L	12/19/12 15:51	
Potassium-40	-28.5 ± 106 (74.8)	pCi/L	12/19/12 15:51	
Radium-226	60.1 ± 67.5 (110)	pCi/L	12/19/12 15:51	
Radium-228	-5.99 ± 240 (24.1)	pCi/L	12/19/12 15:51	
Thallium-208	-1.12 ± 7.71 (6.53)	pCi/L	12/19/12 15:51	
Thorium-232	-5.99 ± 240 (24.1)	pCi/L	12/19/12 15:51	
Thorium-234	830 ± 385 (503)	pCi/L	12/19/12 15:51	
Uranium-235	-12.1 ± 43.9 (40.1)	pCi/L	12/19/12 15:51	
Uranium-238	-3.03 ± 121 (156)	pCi/L	12/19/12 15:51	



QUALITY CONTROL DATA

Project: R1208316
Pace Project No.: 3083317

QC Batch: RADC/14083 Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226, Dissolved
Associated Lab Samples: 3083317002

METHOD BLANK: 522036 Matrix: Water
Associated Lab Samples: 3083317002

Parameter	Act ± Unc (MDC)	Units	Analyzed	Qualifiers
Radium-226, Dissolved	-0.053 ± 0.373 (0.793)	pCi/L	12/20/12 13:28	



QUALITY CONTROL DATA

Project: R1208316
Pace Project No.: 3083317

QC Batch: RADC/14084 Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228, Dissolved
Associated Lab Samples: 3083317002

METHOD BLANK: 522037 Matrix: Water
Associated Lab Samples: 3083317002

Parameter	Act ± Unc (MDC)	Units	Analyzed	Qualifiers
Radium-228, Dissolved	0.332 ± 0.300 (0.608)	pCi/L	12/14/12 15:02	

QUALITY CONTROL DATA

Project: R1208316
Pace Project No.: 3083317

QC Batch:	RADC/14087	Analysis Method:	EPA 904.0
QC Batch Method:	EPA 904.0	Analysis Description:	904.0 Radium 228
Associated Lab Samples:	3083317001		

METHOD BLANK:	522040	Matrix:	Water
Associated Lab Samples:	3083317001		

Parameter	Act ± Unc (MDC)	Units	Analyzed	Qualifiers
Radium-228	0.497 ± 0.402 (0.799)	pCi/L	12/14/12 12:15	



QUALITY CONTROL DATA

Project: R1208316
 Pace Project No.: 3083317

QC Batch: RADC/14117 Analysis Method: EPA 908.0
 QC Batch Method: EPA 908.0 Analysis Description: 908.0 Total Uranium
 Associated Lab Samples: 3083317001, 3083317002, 3083317003, 3083317004

METHOD BLANK: 523388 Matrix: Water
 Associated Lab Samples: 3083317001, 3083317002, 3083317003, 3083317004

Parameter	Act ± Unc (MDC)	Units	Analyzed	Qualifiers
Total Uranium	-0.00818 ± 0.142 (0.267)	pCi/L	12/17/12 14:32	

QUALIFIERS

Project: R1208316
Pace Project No.: 3083317

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.

PRL - Pace Reporting 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

(MDC) - Minimum Detectable Concentration

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

TNi - The NELAC Institute.

ALS Environmental Chain of Custody
 1565 Jefferson Rd, Building 300 • Rochester, NY 14623 • 585-288-5380 • FAX 585-288-8475

ALS Contact: Janice Jaeger

Project Number: R1208316
 Project Manager: Janice Jaeger

Lab Code	Sample ID	# of Cont.	Matrix	Sample		Lab ID	
				Date	Time		
R1208316-001	Cell6-1212	4	Water	12/4/12	1100	ACZ Pace	✓
R1208316-002	Cell6-1212 Dissolved	4	Water	12/4/12	1100	ACZ	✓
R1208316-003	Cell5-1212	2	Water	12/4/12	1220	ACZ	✓
R1208316-004	Cell5-1212 Dissolved	2	Water	12/4/12	1220	ACZ	✓

Gamma Spec
901.1
Uranium .988.0

Rad 224, 228

3083317

001
002
003
004

Special Instructions/Comments	Turnaround Requirements <input type="checkbox"/> RUSH (Surcharges Apply) PLEASE CIRCLE WORK DAYS 1 2 3 4 5 <input checked="" type="checkbox"/> STANDARD Requested FAX Date: _____ Requested Report Date: <u>12/19/12</u>	Report Requirements <input type="checkbox"/> I. Results Only <input checked="" type="checkbox"/> II. Results + QC Summaries <input type="checkbox"/> III. Results + QC and Calibration Summaries <input type="checkbox"/> IV. Data Validation Report with Raw Data PQL/MDL/1 <u>N</u> EDD <u>Y</u>	Invoice Information PO# R1208316 Bill to
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Relinquished By: [Signature] 12/19/12 @ 1510

Received By: [Signature] 12/19/12 1030

Airbill Number: _____

RTL



Sample Condition Upon Receipt

Client Name: ALS Project # 3063317

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____

Tracking #: 1Z17W4381319053177

Custody Seal on Cooler/Box Present: yes no Seals intact: yes no

Optional:
Proj. Due Date:
Proj. Name:

Packing Material: Bubble Wrap Bubble Bags None Other _____

Thermometer Used 5 6 7 Type of Ice: (Wet) Blue None Samples on ice, cooling process has begun

Cooler Temperature NA Biological Tissue is Frozen: Yes No
Temp should be above freezing to 6°C

Date and Initials of person examining contents: <u>SMB 12/6/12</u>
--

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>WT</u>		
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13. Samples 002, 004 are unpreserved for dissolved
All containers needing preservation are found to be in compliance with EPA recommendation.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	analysis, 001, 003 should be preserved
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	12/6/12 @ 1530
		Initial when completed <u>SMB</u> Lot # of added preservative <u>RFID-0213-3</u>
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> 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: Carina Ferris Date: 12/7/12

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)

