EXHIBIT J

February 22, 2016

Mr. Mark Domagala
New York State Department of Environmental Conservation - Region 8
Division of Solid and Hazardous Materials
6274 East Avon-Lima Road
Avon, New York 14414

RE: Hakes C&D, Painted Post N.Y.
Hakes C&D Landfill Permit No. 8-4630-00010/00001-0
2015 4th Quarter Radionuclide Monitoring Results

Dear Mr. Domagala:

Enclosed please find a copy of the radionuclide sampling and analysis report for leachate and leachate tank sediment sampling conducted during the third and fourth quarter 2015 at Hakes C&D Landfill. This report is being submitted as required by the facility Environmental Monitoring Plan. Should you have any questions or require clarification of the enclosed data, please do not hesitate to contact me at 814-335-5183.

Sincerely,

CASELLA WASTE SERVICES

Lance Stevens
Environmental Manager

cc: Robert Kras, Casella
Jonathan Brandes, On-Site Technical Services
Yasmin Guevara, NYSDEC
Richard Clarkson, NYSDEC
Timothy Rice, NYSDEC

Enclosures

ON-SITE TECHNICAL SERVICES, INC
72 Railroad Avenue
Wellsville, New York 14895
Phone: (585) 593-1824
Fax: (585) 593-7471

February 19, 2016

Mr. Lance Stevens
Casella Waste Systems, Inc.
4376 Manning Ridge Road
Painted Post, New York 14870

Re: Hakes C & D Landfill Painted Post, New York – 4th Quarter 2015 Leachate and Annual Leachate Tank Sediment Radionuclide Test Results

Dear Lance:

The purpose of this letter is to present results of the leachate radiological sampling conducted at the Hakes C & D Landfill. 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 and analysis of each landfill cell and combined leachate was completed in May 2012. Therefore, the sampling required in the fourth quarter 2015 includes only landfill cells which contain gas well waste. Currently, the cells containing gas well waste includes Cells 5, 6, 7 and 8. Leachate from cell 7 drains through cell 4 and the constructed part of cell 8 flows through cell 3. Therefore, leachate samples were collected from Cells 3, 4, 5 and 6 on November 11, 2015 and sent to ALS Environmental in Rochester, New York. Additionally, a sediment sample was collected from the north leachate tank on September 24, 2015 as part of annual leachate tank cleaning activities. A laboratory results summary table that includes minimum detectible concentrations (MDC), field sampling forms and the laboratory analytical reports are attached.

If you have any questions regarding the information in this report, please call me at 585-593-1824.

Sincerely,

Jonathan E. Brandes, P.G.
Senior Geologist

Enclosures

Table 1

2015 Radionuclide Results
Hakes C and D Landfill
Painted Post, New York
Act + Unc (MDC) pCi/L

November 11, 2015 Cells 3-6 Leachate
Act + Unc (MDC) (pCi/L)

Radionuclide	Cell 3 Leachate	Cell 4 Leachate	Cell 5 Leachate	Cell 6 Leachate
Actinium-228 (EPA 901.1)	0 ± 4.384 (21.4)	12.968 ± 14.548 (16.16)	2.06 ± 13.792 (16.16)	11.14 ± 9.835 (11.8)
Actinium-228, Dissolved (EPA 901.1)	9.101 ± 26.524 (34.5)	0 ± 17.365 (38.32)	5.82 ± 26.105 (34.51)	9.101 ± 26.524 (34.51)
Bismuth-212 (EPA 901.1)	5.033 ± 66.631 (74.22)	0 ± 10.427 (74.22)	0 ± 13.461 (74.22)	38.732 ± 52.851 (57.12)
Bismuth-212, Dissolved (EPA 901.1)	0 ± 36.567 (113)	20.005 ± 127.980 (149.1)	0 ± 46.255 (138.3)	22.897 ± 94.957 (113)
Bismuth-214 (EPA 901.1)	28.356 ± 9.066 (8.704)	37.991 ± 10.867 (10.07)	49.436 ± 12.938 (10.31)	17.557 ± 11.768 (12.09)
Bismuth-214, Dissolved (EPA 901.1)	14.895 ± 13.603 (18.48)	25.958 ± 18.004 (21.03)	22.554 ± 13.425 (16.82)	36.899 ± 16.695 (18.42)
Cesium-134 (EPA 901.1)	3.052 ± 3.069 (5.64)	3.398 ± 2.537 (5.771)	1.664 ± 3.820 (4.274)	-2.506 ± 5.363 (5.899)
Cesium-134, Dissolved (EPA 901.1)	5.375 ± 5.540 (6.026)	2.813 ± 7.274 (8.353)	0.194 ± 8.158 (9.562)	1.105 ± 7.107 (8.353)
Cesium-137 (EPA 901.1)	-0.736 ± 4.737 (5.219)	-1.168 ± 4.551 (4.995)	-1.27 ± 5.364 (5.835)	-1.041 ± 5.884 (6.387)
Cesium-137, Dissolved (EPA 901.1)	0 ± 0.815 (8.748)	2.643 ± 5.782 (6.649)	2.304 ± 6.721 (7.782)	2.236 ± 5.722 (6.649)
Lead-212 (EPA 901.1)	1.962 ± 6.949 (8.667)	2.952 ± 5.243 (8.61)	0 ± 2.824 (10.1)	5.1 ± 6.860 (8.35)
Lead-212, Dissolved (EPA 901.1)	0 ± 8.755 (17.06)	4.828 ± 12.260 (15.62)	0 ± 7.831 (19.9)	0 ± 8.756 (15.99)
Lead-214 (EPA 901.1)	14.132 ± 8.782 (11.13)	48.796 ± 12.998 (9.549)	37.508 ± 11.916 (9.768)	22.521 ± 8.520 (8.884)
Lead-214, Dissolved (EPA 901.1)	7.03 ± 18.878 (24.52)	30.886 ± 16.585 (19.84)	14.916 ± 17.730 (21.63)	32.969 ± 14.911 (19.87)
Potassium-40 (EPA 901.1)	108.09 ± 38.360 (39.08)	151.28 ± 51.200 (48.24)	56.529 ± 75.814 (75.48)	179.64 ± 47.476 (39.08)
Potassium-40, Dissolved (EPA 901.1)	0 ± 53.073 (153.1)	83.108 ± 132.290 (153.1)	186.83 ± 109.530 (124)	134.97 ± 121.320 (139.4)
Radium-226 (EPA 901.1)	0 ± 68.875 (131.1)	91.528 ± 107.210 (128.3)	39.43 ± 91.210 (113.3)	25.29 ± 101.430 (125.4)
Radium-226 (EPA 903.1)	1.43 ± 1.03 (1.26)	5.11 ± 1.38 (0.213)	0.958 ± 0.712 (0.809)	0.984 ± 0.796 (0.985)
Radium-226, Dissolved (EPA 901.1)	0 ± 102.540 (200.3)	64.564 ± 155.530 (200.3)	10.972 ± 141.870 (188.3)	0 ± 96.482 (224.9)
Radium-226, Dissolved (EPA 903.1)	1.29 ± 0.935 (1.14)	4.59 ± 1.97 (1.64)	2.06 ± 1.15 (1.21)	2.7 ± 0.985 (0.228)
Radium-228 (EPA 901.1)	0 ± 4.384 (21.4)	12.968 ± 14.548 (16.16)	2.06 ± 13.792 (16.16)	11.14 ± 9.835 (11.8)
Radium-228 (EPA 904.0)	1.38 ± 0.591 (0.948)	5.13 ± 1.27 (1.07)	1.66 ± 0.629 (0.956)	2.09 ± 0.652 (0.78)
Radium-228, Dissolved (EPA 901.1)	9.101 ± 26.524 (34.5)	0 ± 17.365 (38.32)	5.82 ± 26.105 (34.51)	9.101 ± 26.524 (34.51)
Radium-228, Dissolved (EPA 904.0)	1.33 ± 0.526 (0.815)	5.92 ± 1.35 (0.996)	1.24 ± 0.541 (0.872)	1.64 ± 0.596 (0.857)
Thallium-208 (EPA 901.1)	0 ± 2.884 (5.473)	0 ± 2.163 (4.908)	0 ± 1.102 (5.292)	2.568 ± 3.895 (4.489)
Thallium-208, Dissolved (EPA 901.1)	0 ± 4.078 (10.77)	0.577 ± 7.654 (10.11)	0 ± 5.558 (12.52)	0 ± 3.930 (10.11)
Thorium-232 (EPA 901.1)	0 ± 3404.400 (9737)	0 ± 3284.900 (9901)	0 ± 3686.200 (9737)	0 ± 4097.000 (9228)
Thorium-232, Dissolved (EPA 901.1)	2903.2 ± 3952.500 (4780)	3454.6 ± 4185.800 (5031)	1184 ± 4262.300 (5269)	859.6 ± 4436.100 (5497)
Thorium-234 (EPA 901.1)	0 ± 187.440 (536.1)	0 ± 127.450 (517)	0 ± 212.310 (559.1)	87.586 ± 160.400 (486.8)
Thorium-234, Dissolved (EPA 901.1)	37.85 ± 230.230 (293.8)	69.849 ± 245.530 (310)	0 ± 142.200 (348.3)	0 ± 112.960 (319.2)
Total Uranium (EPA 908.0)	2.09 ± 0.708 (0.709)	1.29 ± 0.587 (0.753)	2.23 ± 0.731 (0.675)	2.59 ± 0.805 (0.736)
Total Uranium, Dissolved (EPA 908.0)	1.36 ± 0.658 (0.922)	1.15 ± 0.544 (0.704)	2.74 ± 0.853 (0.818)	0.536 ± 0.602 (1.07)

Notes:

Act + Unc (MDC) = Activity ± Uncertainty (Minimum Detectable Concentration)

Dissolved - Indicates sample filtered with 0.45 micron filter prior to analysis.

Each of EPA 901.1, EPA 903.1, EPA 904.0 & EPA 908.0 are laboratory analysis methods.

Table 1

2015 Radionuclide Results
Hakes C and D Landfill
Painted Post, New York
Act + Unc (MDC) pCi/L

September 24, 2015 Leachate Pond Sediment
(pCi/g)

Paramater	North Tank
Actinium-228 (EPA 901.1)	2.208 ± 0.473 (0.35)
Bismuth-212 (EPA 901.1)	2.347 ± 1.684 (1.592)
Bismuth-214 (EPA 901.1)	1.565 ± 0.388 (0.278)
Cesium-134 (EPA 901.1)	0 ± 0.037 (0.196)
Cesium-137 (EPA 901.1)	0.049 ± 0.100 (0.107)
Lead-212 (EPA 901.1)	1.521 ± 0.305 (0.233)
Lead-214 (EPA 901.1)	1.918 ± 0.409 (0.25)
Potassium-40 (EPA 901.1)	17.396 ± 3.797 (2.151)
Radium-226 (EPA 901.1)	1.817 ± 0.337 (0.269)
Radium-228 (EPA 901.1)	2.208 ± 0.473 (0.35)
Thallium-208 (EPA 901.1)	0.53 ± 0.148 (0.108)
Thorium-232 (EPA 901.1)	10.47 ± 65.464 (81.56)
Thorium-234 (EPA 901.1)	1.364 ± 1.298 (4.8)
Uranium-234 (HSL-300)	0.656 ± 0.202 (0.107)
Uranium-235 (HSL-300)	0.035 ± 0.056 (0.103)
Uranium-238 (HSL-300)	0.578 ± 0.187 (0.099)

Note:
Leachate Pond Sediment sampling was collected in association with the Leachate Pond Cleaning

Groundwater Suppression and Leachate Sampling Field Form
On-Site Technical Services, Inc.

Project: Hakes C&D Landfill, Painted Post, New York **Date:** 11-11-15

Sampling Location: Cell-3 Leachate **Sample ID:** Cell3-1115 **Arrival Time:** 1130

Weather Conditions:

Temp. 49 ° F ( ) Sunny ( ) Partly Cloudy (X) Cloudy ( ) Light Rain ( ) Hvy. Rain ( ) Snow

Wind Conditions: 0-5 mph

Location Type

( ) Groundwater Suppression (X) 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: 12410)

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)
1140	6.80	3387	89.4	NA	16.02	98.1

Sample Information

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

Location Description/Condition: Access road west from MW-F

Sample Collection Equipment/Method: Ded 5 GAL PAIL Sample Time: 1140

Sample Description (clarity\color): Slightly Cloudy light Yellowish Brown color Sample Odor (Y) or (N) Explain: Slight leachate odor

Other Observations/Comments: _____

Analysis Requested: RAD Number of Containers: 10

Sampling Completion: Time 1151 Date 11-11-15 Samplers K Dye

Groundwater Suppression and Leachate Sampling Field Form
On-Site Technical Services, Inc.

Project: Hakes C&D Landfill, Painted Post, New York **Date:** 11-11-15

Sampling Location: Cell-4 Leachate **Sample ID:** Cell 4-1115 **Arrival Time:** 1200

Weather Conditions:

Temp. 49 ° F ( ) Sunny ( ) Partly Cloudy (X) Cloudy ( ) Light Rain ( ) Hvy. Rain ( ) Snow

Wind Conditions: 0-5 mph

Location Type

( ) Groundwater Suppression (X) 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: 06E25114P), Hach 2100P (sn: 12410)

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

Note: Turbidity measured from a vial grab sample

Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)
1215	7.09	8252	52.1	NA	17.09	-143.1

Sample Information

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

Location Description/Condition: Across road west from MWGR

Sample Collection Equipment/Method: Ded 5 gal Pail Sample Time: 1215

Sample Description (clarity\color): Transparent Yellow Sample Odor (Y) or (N) Explain: leachate odor

Other Observations/Comments: _____

Analysis Requested: RAD Number of Containers: 10

Sampling Completion: Time 1223 Date 11-11-15 Samplers KDE

Groundwater Suppression and Leachate Sampling Field Form
On-Site Technical Services, Inc.

Project: Hakes C&D Landfill, Painted Post, New York **Date:** 11-11-15

Sampling Location: Cell-5 Leachate **Sample ID:** Cell5-1115 **Arrival Time:** 1230

Weather Conditions:

Temp. 49 ° F ( ) Sunny ( ) Partly Cloudy (X) Cloudy ( ) Light Rain ( ) Hvy. Rain ( ) Snow

Wind Conditions: 0-5mph

Location Type

( ) Groundwater Suppression (X) 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: 1241O)

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

Note: Turbidity measured from a vial grab sample

Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)
1245	6.93	6704	96.3	NA	16.03	-126.4

Sample Information

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

Location Description/Condition: Across road west of MW N

Sample Collection Equipment/Method: Ded 5 gal Bail Sample Time: 1245

Sample Description (clarity\color): Slightly Cloudy with yellowish Brown tint Sample Odor (Y) or (N) Explain: leachate odor

Other Observations/Comments: _____

Analysis Requested: RAD Number of Containers: 10

Sampling Completion: Time 1256 Date 11-11-15 Samplers K DJE

Groundwater Suppression and Leachate Sampling Field Form
On-Site Technical Services, Inc.

Project: Hakes C&D Landfill, Painted Post, New York **Date:** 11-11-15

Sampling Location: Cell-6 Leachate **Sample ID:** Cell6-1115 **Arrival Time:** 1302

Weather Conditions:

Temp. 49 ° F ( ) Sunny ( ) Partly Cloudy (X) Cloudy ( ) Light Rain ( ) Hvy. Rain ( ) Snow

Wind Conditions: 0-5mph

Location Type

( ) Groundwater Suppression (X) 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: 16E2511AP), Hach 2100P (sn: 12410)

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

Note: Turbidity measured from a vial grab sample

Time	pH	Conductivity (us/cm)	Turbidity (ntu)	D.O. (mg/L)	Temp. (°C)	ORP (mV)
1317	6.97	10151	80.5	NA	17.73	-107.2

Sample Information

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

Location Description/Condition: Cell6 Riser Pipe Adjacent to Rip Rap for SW-6

Sample Collection Equipment/Method: Ded 5 gal Pail Sample Time: 1317

Sample Description (clarity\color): Transparent Black Sample Odor (Y) or (N) Explain: Leachate odor

Other Observations/Comments: _____

Analysis Requested: RAD Number of Containers: 10

Sampling Completion: Time 1329 Date 11-11-15 Samplers K Dye

Groundwater Suppression and Leachate Sampling Field Form
On-Site Technical Services, Inc.

Project: Hakes C&D Landfill, Painted Post, New York **Date:** 9-24-15

Sampling Location: Leach Sed **Sample ID:** Leach Sed 0915 **Arrival Time:** 0918

Weather Conditions:

Temp. 68 ° F (X) Sunny ( ) Partly Cloudy ( ) Cloudy ( ) Light Rain ( ) Hvy. Rain ( ) Snow

Wind Conditions: 0-5mph

Location Type

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

( ) Other _____

Flow and Depth Information (as appropriate)

Depth: 12" Estimated Flow: NA

Comments: _____

Field Parameters (as appropriate)

Meter: YSI 556 (sn: _____), Hach 2100P (sn: _____)

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)
1050						

Sample Information

Sample Type: (X) Grab ( ) Composite Sample Location: ( ) Discharge Pipe ( ) Pond ( ) ~~Ditch~~ North SED Tank

Location Description/Condition: Sampled From entry Port on Eastside of North Tank

Sample Collection Equipment/Method: long handle dipper - Stainless Steel Bowl Sample Time: 1050

Sample Description (clarity\color): Mostly Black with some light Gray Spots Sample Odor (Y) or (N) Explain: Very slight leachate odor

Other Observations/Comments: Water in Tank was Appox 12" From Bottom Prior to Sampling. After 3 Truck loads pumped out Sediment was visable Along the Sides for Sampling.

Analysis Requested: RAD Number of Containers: 2

Sampling Completion: Time 1115 Date 9-24-15 Samplers KDyE

1565 Jefferson Rd., Suite 360
Rochester, NY 14623
T: +1 585 288 5380
F: +1 585 288 8475
www.alsglobal.com

December 8, 2015

Mr. Jerry Leone
Casella Waste Systems
Ontario County Landfill
1979 Rte. 5 & 20
Stanley, NY 14561

Re: Hakes C&D Landfill – Leachate
Service Request # R1508073

Dear Mr. Leone:

Enclosed is the analytical data report for the above referenced facility. A total of one sample was 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. 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,

ALS Environmental

Janice M. Jaeger
Project Chemist

enc.

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

Columbia Analytical Services

1565 Jefferson Road
Bldg 300, Suite 360
Rochester, NY 14623

800.695.7222
www.caslab.com

CHAIN of CUSTODY

Page 1 of 1

Client: Casella/On-Site
4376 Manning Ridge Road
Painted Post, NY 14870

Project Manager: Jerry Leone/Jon Brandes

Project: Hakes - Leachate Tank Sediment

Telephone No.: 585-593-1824

Fax No.: 585-593-7471

Method of Shipment: FED EX

Special Detection Limit / Reporting

PDF to Jerry and On-Site, and EDD to On-Site.

Sample I.D.	Lab Sample No.	No. of Containers	Matrix: Soil/SED	Matrix: Water	Matrix: Air	Matrix: Other	Prsv.: Yes	Prsv.: No	Sampling Date	Sampling Time	Total: Gamma Spec (901.1), Ra-226 (903.1), Ra-228 (904.0)	Total: Uranium (908.0)	Turn Around Time (working days)
Leach Sed-0915		2	X					X	9-24-15	1050	X	X	

Sample Received Intact: Yes No

Temperature received: Ice No ice

Relinq. by sampler (Sign & Print Name)	Date	Time	Received by (Sign & Print Name)
Kevin Dye / Kevin Dye	9-24-15	1330	
Relinquished by	Date	Time	Received by
Relinquished by	Date	Time	Received by
Relinquished by	Date	Time	Received by laboratory: ALS — Date 9/25/15 — Time 1238

Lab Work No.

R1508073 5
Casella Waste Systems
Hakes - Leachate Tank Sediment
Page 1 of 1

Cooler Receipt and Preservation Check Form

Project/Client Caselh Folder Number R15-8073.

Cooler received on 9/25/15 by: DW COURIER: ALS UPS FEDEX VELOCITY CLIENT

1	Were **Custody seals** on outside of cooler?	Y N	5a	**Perchlorate** samples have required headspace?	Y N NA
2	**Custody papers** properly completed (ink, signed)?	Y N	5b	Did VOA vials, Alk, or Sulfide have sig* **bubbles**?	Y N NA
3	Did all bottles arrive in good **condition** (unbroken)?	Y N	6	Where did the bottles originate?	ALS/ROC CLIENT
4	Circle: **Wet Ice** **Dry Ice** **Gel packs** present?	Y N	7	Soil VOA received as:	Bulk Encore 5035set NA

8. Temperature Readings Date: 9/25/15 Time: 1432 ID: IR#3 IR#5 From: Temp Blank Sample Bottle

Observed Temp (°C)	2.5c						
Correction Factor (°C)	-0.3						
Corrected Temp (°C)	2.2						
Within 0-6°C?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: ______ Ice melted Poorly Packed Same Day Rule

&Client Approval to Run Samples: ______ Standing Approval Client aware at drop-off Client notified by: ______

All samples held in storage location: R-002 by DW on 9/25/15 at 1432
5035 samples placed in storage location: ______ by ______ on ______ at ______

PC Secondary Review: JMS 9/28/15

Cooler Breakdown: Date: 9/28 Time: 0922 by: MDS

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	Yes	No	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3								
≤2	H_2SO_4								
<4	$NaHSO_4$								
Residual Chlorine (-)	For CN Phenol and 522			If +, contact PM to add $Na_2S_2O_3$ (CN), ascorbic (phenol).					
	$Na_2S_2O_3$	-	-						
	ZnAcetate	-	-						
	HCl	**	**						

**Not to be tested before analysis – pH tested and recorded by VOAs on a separate worksheet

Yes=All samples OK

No=Samples were preserved at The lab as listed

PM OK to Adjust: ______

Bottle lot numbers: 072715-1BNU

Other Comments:

1 BOD
1 NO3
1 Cr6+ (7196)
1 TDS
9/25/15
1430
[ASP HT]

PC Secondary Review: JMS 9/28/15 *significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

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: R1508073
Project Manager: Janice Jaeger

Lab Code	Sample ID	# of Cont.	Matrix	Sample Date	Sample Time	Lab ID	Gamma Spec 901.1	Misc Out 1 ~~None~~ Uranium by HSL 302
R1508073-001	Leach-Sed - 0915	2	Soil	9/24/15	1050	Pace PA	X	X

Folder Comments:
Gamma Isotope list:Rad 226& 228,Actinium 228,Bismuth 212&214,Cesium 134&137,Lead 212&214,Potassium 40,Thallium 208 & Thorium 232&234

Special Instructions/Comments

excel

Invoice:
Customer :
Phone # :
Dept :

Date : 30Sep15
Weight : 9.35 LBS
COD :
DV : 0.00

Shipping : 52.43
Special : 0.35
Handling : 0.00
Total : 52.43

Svcs: PRIORITY OVERNIGHT
TRCK: 6296 7601 3717

H - Test is On Hold
P - Test is Authorized for Prep Only

Turnaround Requirements

____ **RUSH** (Surcharges Apply)

PLEASE CIRCLE WORK DAYS
1 2 3 4 5

X **STANDARD**

Requested FAX Date: _____

Requested Report Date: 10/12/15

Report Requirements

___ I. Results Only
X II. Results + QC Summaries
___ III. Results + QC and Calibration Summaries
___ IV. Data Validation Report with Raw Data

PQL/MDL/J N
EDD Y

Invoice Information

PO# 58R1508073

Bill to

Relinquished By: [signature] 9/30/15/1540

Received By: _____

Airbill Number: _____

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

October 30, 2015

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

RE: Project: R1508073
Pace Project No.: 30160826

Dear Ms. Jaeger:
Enclosed are the analytical results for sample(s) received by the laboratory on October 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,

Carin A. Ferris

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: R1508073
Pace Project No.: 30160826

Pennsylvania Certification IDs

Georgia Certification #: C040
1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
L-A-B DOD-ELAP Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification
Connecticut Certification #: PH-0694
Delaware Certification
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana 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 #: PA014572015-1
New Hampshire/TNI Certification #: 2976
New Jersey/TNI Certification #: PA 051
New Mexico Certification #: PA01457
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
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: TN2867
Texas/TNI Certification #: T104704188-14-8
Utah/TNI Certification #: PA014572015-5
USDA Soil Permit #: P330-14-00213
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 460198
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Certification
Wyoming Certification #: 8TMS-L

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

SAMPLE SUMMARY

Project: R1508073
Pace Project No.: 30160826

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30160826001	**R1508073-001**	Solid	09/24/15 10:50	10/01/15 09:30

REPORT OF LABORATORY ANALYSIS

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

SAMPLE ANALYTE COUNT

Project: R1508073
Pace Project No.: 30160826

Lab ID	Sample ID	Method	Analysts	Analytes Reported
30160826001	**R1508073-001**	EPA 901.1	MAH	13
		HSL-300	JAL	3

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

PROJECT NARRATIVE

Project: R1508073
Pace Project No.: 30160826

Method: **EPA 901.1**
Description: 901.1 Gamma Spec INGROWTH
Client: ALS Environmental Columbia
Date: October 30, 2015

General Information:
1 sample was analyzed for EPA 901.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

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

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: R1508073
Pace Project No.: 30160826

Method: **HSL-300**
Description: HSL300(AS) Actinides
Client: ALS Environmental Columbia
Date: October 30, 2015

General Information:
1 sample was analyzed for HSL-300. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

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

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/26497

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

- BLANK (Lab ID: 970227)
  - Uranium-234
  - Uranium-235
  - Uranium-238
- R1508073-001 (Lab ID: 30160826001)
  - Uranium-234
  - Uranium-235
  - Uranium-238

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

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: R1508073
Pace Project No.: 30160826

Sample: R1508073-001 **Lab ID: 30160826001** Collected: 09/24/15 10:50 Received: 10/01/15 09:30 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Actinium-228	EPA 901.1	**2.208 ± 0.473 (0.350) C:NA T:NA**	pCi/g	10/28/15 10:11	14331-83-0	
Bismuth-212	EPA 901.1	**2.347 ± 1.684 (1.592) C:NA T:NA**	pCi/g	10/28/15 10:11	14913-49-6	
Bismuth-214	EPA 901.1	**1.565 ± 0.388 (0.278) C:NA T:NA**	pCi/g	10/28/15 10:11	14733-03-0	
Cesium-134	EPA 901.1	**0.000 ± 0.037 (0.196) C:NA T:NA**	pCi/g	10/28/15 10:11	13967-70-9	
Cesium-137	EPA 901.1	**0.049 ± 0.100 (0.107) C:NA T:NA**	pCi/g	10/28/15 10:11	10045-97-3	
Lead-212	EPA 901.1	**1.521 ± 0.305 (0.233) C:NA T:NA**	pCi/g	10/28/15 10:11	15092-94-1	
Lead-214	EPA 901.1	**1.918 ± 0.409 (0.250) C:NA T:NA**	pCi/g	10/28/15 10:11	15067-28-4	
Potassium-40	EPA 901.1	**17.396 ± 3.797 (2.151) C:NA T:NA**	pCi/g	10/28/15 10:11	13966-00-2	
Radium-226	EPA 901.1	**1.817 ± 0.337 (0.269) C:NA T:NA**	pCi/g	10/28/15 10:11	13982-63-3	
Radium-228	EPA 901.1	**2.208 ± 0.473 (0.350) C:NA T:NA**	pCi/g	10/28/15 10:11	15262-20-1	
Thallium-208	EPA 901.1	**0.530 ± 0.148 (0.108) C:NA T:NA**	pCi/g	10/28/15 10:11	14913-50-9	
Thorium-232	EPA 901.1	**10.470 ± 65.464 (81.560) C:NA T:NA**	pCi/g	10/28/15 10:11	7440-29-1	
Thorium-234	EPA 901.1	**1.364 ± 1.298 (4.800) C:NA T:NA**	pCi/g	10/28/15 10:11	15065-10-8	
Uranium-234	HSL-300	**0.656 ± 0.202 (0.107) C:NA T:101%**	pCi/g	10/28/15 06:52	13966-29-5	N2
Uranium-235	HSL-300	**0.035 ± 0.056 (0.103) C:NA T:101%**	pCi/g	10/28/15 06:52	15117-96-1	N2
Uranium-238	HSL-300	**0.578 ± 0.187 (0.099) C:NA T:101%**	pCi/g	10/28/15 06:52		N2

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: R1508073
Pace Project No.: 30160826

QC Batch: RADC/26497 Analysis Method: HSL-300
QC Batch Method: HSL-300 Analysis Description: HSL300(AS) Actinides
Associated Lab Samples: 30160826001

METHOD BLANK: 970227 Matrix: Solid
Associated Lab Samples: 30160826001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Uranium-234	0.065 ± 0.079 (0.150) C:NA T:104%	pCi/g	10/28/15 06:52	N2
Uranium-235	-0.004 ± 0.063 (0.087) C:NA T:104%	pCi/g	10/28/15 06:52	N2
Uranium-238	0.057 ± 0.060 (0.089) C:NA T:104%	pCi/g	10/28/15 06:52	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.

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: R1508073
Pace Project No.: 30160826

QC Batch: RADC/26493 Analysis Method: EPA 901.1
QC Batch Method: EPA 901.1 Analysis Description: 901.1 Gamma Spec Ingrowth
Associated Lab Samples: 30160826001

METHOD BLANK: 969977 Matrix: Solid
Associated Lab Samples: 30160826001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Actinium-228	0.000 ± 0.056 (0.389) C:NA T:NA	pCi/g	10/21/15 14:16	
Bismuth-212	0.497 ± 0.838 (0.899) C:NA T:NA	pCi/g	10/21/15 14:16	
Bismuth-214	0.066 ± 0.148 (0.177) C:NA T:NA	pCi/g	10/21/15 14:16	
Cesium-134	0.027 ± 0.047 (0.053) C:NA T:NA	pCi/g	10/21/15 14:16	
Cesium-137	0.000 ± 0.014 (0.114) C:NA T:NA	pCi/g	10/21/15 14:16	
Lead-212	0.000 ± 0.066 (0.161) C:NA T:NA	pCi/g	10/21/15 14:16	
Lead-214	0.000 ± 0.067 (0.185) C:NA T:NA	pCi/g	10/21/15 14:16	
Potassium-40	0.000 ± 0.134 (1.227) C:NA T:NA	pCi/g	10/21/15 14:16	
Radium-226	0.066 ± 0.148 (0.177) C:NA T:NA	pCi/g	10/21/15 14:16	
Radium-228	0.000 ± 0.056 (0.389) C:NA T:NA	pCi/g	10/21/15 14:16	
Thallium-208	0.000 ± 0.009 (0.104) C:NA T:NA	pCi/g	10/21/15 14:16	
Thorium-232	1.161 ± 34.564 (46.070) C:NA T:NA	pCi/g	10/21/15 14:16	
Thorium-234	0.000 ± 0.415 (2.866) C:NA T:NA	pCi/g	10/21/15 14:16	

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

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

QUALIFIERS

Project: R1508073
Pace Project No.: 30160826

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.

REPORT OF LABORATORY ANALYSIS

ALS Environmental Chain of Custody

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

ALS Contact: Janice Jaeger

30160826

Project Number: R1508073
Project Manager: Janice Jaeger

Lab Code	Sample ID	# of Cont.	Matrix	Sample Date	Sample Time	Lab ID	Gamma Spec 901.1	Misc Out 1 ~~None~~ Uranium by HSL302
R1508073-001	Leach-Sed - 0915	2	Soil	9/24/15	1050	Pace PA	X	X

Folder Comments:
Gamma Isotope list:Rad 226& 228,Actinium 228,Bismuth 212&214,Cesium 134&137,Lead 212&214,Potassium 40,Thallium 208 & Thorium 232&234

Special Instructions/Comments
excel

H - Test is On Hold P - Test is Authorized for Prep Only

Turnaround Requirements
____ **RUSH** (Surcharges Apply)
PLEASE CIRCLE WORK DAYS
1 2 3 4 5
X **STANDARD**
Requested FAX Date: _____
Requested Report Date: 10/12/15

Report Requirements
___ I. Results Only
X II. Results + QC Summaries
___ III. Results + QC and Calibration Summaries
___ IV. Data Validation Report with Raw Data
PQL/MDL/J N
EDD Y

Invoice Information
PO# 58R1508073
Bill to

Relinquished By: _____ 9/30/15/1540 Received By: _____ 10-1-15 0930 Airbill Number: _____

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: R1508073
Project Manager: Janice Jaeger

R1508073

MW **Ship To: Pace PA**
Pace Analytical Services
1638 Roseytown Road
Suites 2,3, & 4
Greensburg, PA 15601

PC MW Date 9/28/15
SMO _____ Date _____

Instructions:

Ice _____
Dry Ice _____
No Ice _____

Shipping:

Overnight _____
2nd Day _____
Ground _____

Bill to Client Account _____

Comments:

NJV

Sample Condition Upon Receipt

30160826

Pace Analytical

Client Name: ALS Environmental Project # _____

Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Tracking #: 6296 7601 3717

Custody Seal on Cooler/Box Present: ☒ yes ☐ no Seals intact: ☒ yes ☐ no Biological Tissue is Frozen: Yes No

Packing Material: Bubble Wrap ____ Bubble Bags X None ____ Other _____

Thermometer Used 8 Type of Ice: (Wet) Blue None ☐ Samples on ice, cooling process has begun

Cooler Temp.: Observed Temp.: 3.0 °C Correction Factor: -0.2 °C Final Temp: 2.8 °C

Date and Initials of person examining contents: 10-7-15 NJV

Temp should be above freezing to 6°C

		Comments:
Chain of Custody Present:	☒Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☒Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☒Yes ☐No ☐N/A	3.
Sampler Name & 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 ☐N/A	6.
Rush Turn Around Time Requested:	☐Yes ☒No ☐N/A	7.
Sufficient Volume:	☒Yes ☐No ☐N/A	8.
Correct Containers Used:	☒Yes ☐No ☐N/A	9.
-Pace Containers Used:	☐Yes ☒No ☐N/A	
Containers Intact:	☒Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☒N/A	11.
Sample Labels match COC:	☒Yes ☐No ☐N/A	12.
-Includes date/time/ID/Analysis Matrix: SL		
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 ☒N/A	
exceptions: VOA, coliform, TOC, O&G, Phenols	☐Yes ☒No	Initial when completed NJV Lot # of added preservative
Samples checked for dechlorination:	☐Yes ☐No ☒N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☐No ☒N/A	15.
Trip Blank Present:	☐Yes ☐No ☒N/A	16.
Trip Blank Custody Seals Present	☐Yes ☐No ☒N/A	
Pace Trip Blank Lot # (if purchased): _____		

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ **Date:** 10/7/15

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

Project Number: 30160826

Client Name: ALS Environmental

Item No.	Matrix Code	Glass Jar (120 / 250 / 500 / 1L)	Soil kit (2 SB, 1M, soil jar)	Chemistry (250 / 500 / 1L)	Organics (1L)	Nutrient (250 / 500)	Phenolics (250 ml)	TOC (40 ml / 250 ml)	TOX (250 ml)	Total Metals	Dissolved Metals preserved Y N	O & G (1L)	TPH (1L)	VOA (40 ml 30 ml)	Cyanide (250 ml)	Sulfide (500 ml)	Bacteria (120 ml)	Wipes / swipe/ smear/ filter	Radchem Nalgene (125 / 250 / 500 / 1L)	Radchem Nalgene (1/2 gal. / 1 gal.L)	Cubitainer (500 ml / 4L)	Ziploc	Other	Other
001	SL	2																					

SCURF Back (C016-4 15May2012).xls

1565 Jefferson Rd., Suite 360
Rochester, NY 14623
T: +1 585 288 5380
F: +1 585 288 8475
www.alsglobal.com

January 22, 2015

Mr. Jerry Leone
Casella Waste Systems
Ontario County Landfill
1979 Rte. 5 & 20
Stanley, NY 14561

Re: Hakes C&D Landfill – Leachate
Service Request # R1509857

Dear Mr. Leone:

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. 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,

ALS Environmental

Janice M. Jaeger
Project Chemist

enc.

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

CHAIN of CUSTODY

Page 1 of 1

ALS-Environmental
1565 Jefferson Rd, Bldg 300, Suite 360
Rochester, NY 14623
585.288.5380

Client: **Casella/On-Site**
4376 Manning Ridge Road
Painted Post, NY 14870

Project Manager: **Jerry Leone/Jon Brandes**

Project: **Hakes C&D Landfill - Leachate RAD.**

Telephone No.: 585-593-1824

Email: jonb@on-sitehs.com

Method of Shipment: FED EX

Special Detection Limit/Reporting

PDF to Jerry and On-Site, and EDD to On-Site.

Sample I.D.	Lab Sample No.	No. of Containers	Matrix: Soil	Matrix: Water	Matrix: Air	Matrix: Other	Prsv.: Yes	Prsv.: No	Sampling Date	Sampling Time	Total: Gamma Spec (901.1), Ra-226 (903.1), Ra-228 (904.0) (HNO3).		Total: Uranium (908.0) (HNO3).	Dissolved: Gamma Spec (901.1), Ra-226 (903.1), Ra-228 (904.0)		Dissolved: Uranium (908.0)	REMARKS
Cell3-1115		10		X			X	X	11-11-15	1140	X	X	X	X	X	X	Looks like acid had leaked in this cooler.
Cell4-1115		10		X			X	X	11-11-15	1215	X	X	X	X	X	X	
Cell5-1115		10		X			X	X	11-11-15	1245	X	X	X	X	X	X	
Cell6-1115		10		X			X	X	11-11-15	1317	X	X	X	X	X	X	
Note: Dissolved analysis requires lab filtering																	

Sample Received Intact: Yes No

Temperature received: Ice No ice

	Date	Time		
Relinq. by sampler (Sign & Print Name): Kevin Dye / Kevin Dye	11-11-15	1530	Received by (Sign & Print Name)	
Relinquished by	Date	Time	Received by	
Relinquished by	Date	Time	Received by	
Relinquished by	Date	Time	Received by laboratory	Date 11/12/15 Time 1600

R1509857 5
Casella Waste Systems
Hakes C&D Landfill

Cooler Receipt and Preservation Check Form

R1509857 5
Casella Waste Systems
Hakes C&D Landfill

Project/Client Casella Folder Number R15-9857

Cooler received on 11/12/15 by: MDS COURIER: ALS UPS (FEDEX) VELOCITY CLIENT

1	Were **Custody seals** on outside of cooler?	(Y) N	5a	**Perchlorate** samples have required headspace?	Y N (NA)
2	**Custody papers** properly completed (ink, signed)?	(Y) N	5b	Did VOA vials, Alk,or Sulfide have sig* **bubbles**?	Y N (NA)
3	Did all bottles arrive in good **condition** (unbroken)?	(Y) N	6	Where did the bottles originate?	(ALS/ROC) CLIENT
4	Circle: (Wet Ice) **Dry Ice Gel packs** present?	(Y) N	7	Soil VOA received as: Bulk Encore 5035set	(NA)

8. Temperature Readings Date: 11/12/15 Time: 1617 ID: (IR#3) IR#5 From: ~~Temp Blank~~ (Sample Bottle)

Observed Temp (°C)	6.1	2.9	2.5	1.5	3.6		
Correction Factor (°C)	−0.6	+1.0	+1.0	+0.5	+0.5		
Corrected Temp (°C)	5.5	3.9	3.5	2.0	4.1		
Within 0-6°C?	(Y) N	Y N	Y N	(Y) N	~~Y~~ N	Y N	Y N
If <0°C, were samples frozen?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: R-002 by MDS on 11/12/15 at 1620
5035 samples placed in storage location: _____ by _____ on _____ at _____

PC Secondary Review: MDS 11/17/15

Cooler Breakdown: Date: 11/12/15 Time: 1825 by: DW

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	Yes	No	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3								
≤2	H_2SO_4								
<4	$NaHSO_4$								
Residual Chlorine (-)	For CN Phenol and 522			If +, contact PM to add $Na_2S_2O_3$ (CN), ascorbic (phenol).					
	$Na_2S_2O_3$	-	-						
	ZnAcetate	-	-						
	HCl	**	**						

**Not to be tested before analysis – pH tested and recorded by VOAs on a separate worksheet

Yes=All samples OK

No=Samples were preserved at The lab as listed

PM OK to Adjust: _____

Bottle lot numbers: 071315-2HBL

Other Comments:

9 TDS
9 BOD } ASPHT
9 NO_3

PC Secondary Review: MDS 11/17/15 *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 09, 2015

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

RE: Project: R1509857
Pace Project No.: 30165283

Dear Ms. Jaeger:
Enclosed are the analytical results for sample(s) received by the laboratory on November 14, 2015. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Carin A. Ferris

Carin Ferris
carin.ferris@pacelabs.com
Project Manager

Enclosures

Pace Analytical Services, Inc.
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Greensburg, PA 15601
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CERTIFICATIONS

Project: R1509857
Pace Project No.: 30165283

Pennsylvania Certification IDs

Georgia Certification #: C040
1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
L-A-B DOD-ELAP Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification
Connecticut Certification #: PH-0694
Delaware Certification
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana 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 #: PA014572015-1
New Hampshire/TNI Certification #: 2976
New Jersey/TNI Certification #: PA 051
New Mexico Certification #: PA01457
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
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: TN2867
Texas/TNI Certification #: T104704188-14-8
Utah/TNI Certification #: PA014572015-5
USDA Soil Permit #: P330-14-00213
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 460198
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Certification
Wyoming Certification #: 8TMS-L

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SAMPLE SUMMARY

Project: R1509857
Pace Project No.: 30165283

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30165283001	**Cell 3-1115**	Water	11/11/15 11:40	11/14/15 10:00
30165283002	**Cell 3-1115 Dissolved**	Water	11/11/15 11:40	11/14/15 10:00
30165283003	**Cell 4-1115**	Water	11/11/15 12:15	11/14/15 10:00
30165283004	**Cell 4-1115 Dissolved**	Water	11/11/15 12:15	11/14/15 10:00
30165283005	**Cell 5-1115**	Water	11/11/15 12:45	11/14/15 10:00
30165283006	**Cell 5-1115 Dissolved**	Water	11/11/15 12:45	11/14/15 10:00
30165283007	**Cell 6-1115**	Water	11/11/15 13:17	11/14/15 10:00
30165283008	**Cell 6-1115 Dissolved**	Water	11/11/15 13:17	11/14/15 10:00

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SAMPLE ANALYTE COUNT

Project: R1509857
Pace Project No.: 30165283

Lab ID	Sample ID	Method	Analysts	Analytes Reported
30165283001	**Cell 3-1115**	EPA 901.1	MAH	13
		EPA 903.1	WRR	1
		EPA 904.0	JLW	1
		EPA 908.0	JC2	1
30165283002	**Cell 3-1115 Dissolved**	EPA 901.1	MAH	13
		EPA 903.1	WRR	1
		EPA 904.0	JLW	1
		EPA 908.0	JC2	1
30165283003	**Cell 4-1115**	EPA 901.1	MAH	13
		EPA 903.1	WRR	1
		EPA 904.0	JLW	1
		EPA 908.0	JC2	1
30165283004	**Cell 4-1115 Dissolved**	EPA 901.1	MAH	13
		EPA 903.1	WRR	1
		EPA 904.0	JLW	1
		EPA 908.0	JC2	1
30165283005	**Cell 5-1115**	EPA 901.1	MAH	13
		EPA 903.1	WRR	1
		EPA 904.0	JLW	1
		EPA 908.0	JC2	1
30165283006	**Cell 5-1115 Dissolved**	EPA 901.1	MAH	13
		EPA 903.1	WRR	1
		EPA 904.0	JLW	1
		EPA 908.0	JC2	1
30165283007	**Cell 6-1115**	EPA 901.1	MAH	13
		EPA 903.1	WRR	1
		EPA 904.0	JLW	1
		EPA 908.0	JC2	1
30165283008	**Cell 6-1115 Dissolved**	EPA 901.1	MAH	13
		EPA 903.1	WRR	1
		EPA 904.0	JLW	1
		EPA 908.0	JC2	1

Pace Analytical Services, Inc.
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PROJECT NARRATIVE

Project: R1509857
Pace Project No.: 30165283

Method: **EPA 901.1**
Description: 901.1 Gamma Spec
Client: ALS Environmental Columbia
Date: December 09, 2015

General Information:
8 samples were analyzed for EPA 901.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

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

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.
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PROJECT NARRATIVE

Project: R1509857
Pace Project No.: 30165283

Method: **EPA 903.1**
Description: 903.1 Radium 226
Client: ALS Environmental Columbia
Date: December 09, 2015

General Information:
8 samples were analyzed for EPA 903.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

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

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: R1509857
Pace Project No.: 30165283

Method: **EPA 904.0**
Description: 904.0 Radium 228
Client: ALS Environmental Columbia
Date: December 09, 2015

General Information:
8 samples were analyzed for EPA 904.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

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

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: R1509857
Pace Project No.: 30165283

Method: **EPA 908.0**
Description: 908.0 Total Uranium
Client: ALS Environmental Columbia
Date: December 09, 2015

General Information:
8 samples were analyzed for EPA 908.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

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

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.

Pace Analytical Services, Inc.
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(724)850-5600

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: R1509857
Pace Project No.: 30165283

Sample: Cell 3-1115 **Lab ID: 30165283001** Collected: 11/11/15 11:40 Received: 11/14/15 10:00 Matrix: Water
PWS: Site ID: Sample Type:

Comments: • The sampler's name and signature were not listed on the COC.
• 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
Actinium-228	EPA 901.1	**0.000 ± 4.384 (21.400) C:NA T:NA**	pCi/L	12/09/15 08:17	14331-83-0	
Bismuth-212	EPA 901.1	**5.033 ± 66.631 (74.220) C:NA T:NA**	pCi/L	12/09/15 08:17	14913-49-6	
Bismuth-214	EPA 901.1	**28.356 ± 9.066 (8.704) C:NA T:NA**	pCi/L	12/09/15 08:17	14733-03-0	
Cesium-134	EPA 901.1	**3.052 ± 3.069 (5.640) C:NA T:NA**	pCi/L	12/09/15 08:17	13967-70-9	
Cesium-137	EPA 901.1	**-0.736 ± 4.737 (5.219) C:NA T:NA**	pCi/L	12/09/15 08:17	10045-97-3	
Lead-212	EPA 901.1	**1.962 ± 6.949 (8.667) C:NA T:NA**	pCi/L	12/09/15 08:17	15092-94-1	
Lead-214	EPA 901.1	**14.132 ± 8.782 (11.130) C:NA T:NA**	pCi/L	12/09/15 08:17	15067-28-4	
Potassium-40	EPA 901.1	**108.090 ± 38.360 (39.080) C:NA T:NA**	pCi/L	12/09/15 08:17	13966-00-2	
Radium-226	EPA 901.1	**0.000 ± 68.875 (131.100) C:NA T:NA**	pCi/L	12/09/15 08:17	13982-63-3	
Radium-228	EPA 901.1	**0.000 ± 4.384 (21.400) C:NA T:NA**	pCi/L	12/09/15 08:17	15262-20-1	
Thallium-208	EPA 901.1	**0.000 ± 2.884 (5.473) C:NA T:NA**	pCi/L	12/09/15 08:17	14913-50-9	
Thorium-232	EPA 901.1	**0.000 ± 3404.400 (9737.000) C:NA T:NA**	pCi/L	12/09/15 08:17	7440-29-1	
Thorium-234	EPA 901.1	**0.000 ± 187.440 (536.100) C:NA T:NA**	pCi/L	12/09/15 08:17	15065-10-8	
Radium-226	EPA 903.1	**1.43 ± 1.03 (1.26) C:NA T:77%**	pCi/L	12/02/15 19:15	13982-63-3	
Radium-228	EPA 904.0	**1.38 ± 0.591 (0.948) C:74% T:82%**	pCi/L	12/03/15 12:13	15262-20-1	
Total Uranium	EPA 908.0	**2.09 ± 0.708 (0.709) C:NA T:50%**	pCi/L	11/20/15 18:09	7440-61-1	

Sample: Cell 3-1115 Dissolved **Lab ID: 30165283002** Collected: 11/11/15 11:40 Received: 11/14/15 10:00 Matrix: Water
PWS: Site ID: Sample Type:

Comments: • The sampler's name and signature were not listed on the COC.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Actinium-228	EPA 901.1	**9.101 ± 26.524 (34.500) C:NA T:NA**	pCi/L	12/09/15 08:18	14331-83-0	
Bismuth-212	EPA 901.1	**0.000 ± 36.567 (113.000) C:NA T:NA**	pCi/L	12/09/15 08:18	14913-49-6	
Bismuth-214	EPA 901.1	**14.895 ± 13.603 (18.480) C:NA T:NA**	pCi/L	12/09/15 08:18	14733-03-0	
Cesium-134	EPA 901.1	**5.375 ± 5.540 (6.026) C:NA T:NA**	pCi/L	12/09/15 08:18	13967-70-9	
Cesium-137	EPA 901.1	**0.000 ± 0.815 (8.748) C:NA T:NA**	pCi/L	12/09/15 08:18	10045-97-3	
Lead-212	EPA 901.1	**0.000 ± 8.755 (17.060) C:NA T:NA**	pCi/L	12/09/15 08:18	15092-94-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: R1509857
Pace Project No.: 30165283

Sample: Cell 3-1115 Dissolved **Lab ID: 30165283002** Collected: 11/11/15 11:40 Received: 11/14/15 10:00 Matrix: Water
PWS: Site ID: Sample Type:

Comments: • The sampler's name and signature were not listed on the COC.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Lead-214	EPA 901.1	**7.030 ± 18.878 (24.520) C:NA T:NA**	pCi/L	12/09/15 08:18	15067-28-4	
Potassium-40	EPA 901.1	**0.000 ± 53.073 (153.100) C:NA T:NA**	pCi/L	12/09/15 08:18	13966-00-2	
Radium-226	EPA 901.1	**0.000 ± 102.540 (200.300) C:NA T:NA**	pCi/L	12/09/15 08:18	13982-63-3	
Radium-228	EPA 901.1	**9.101 ± 26.524 (34.500) C:NA T:NA**	pCi/L	12/09/15 08:18	15262-20-1	
Thallium-208	EPA 901.1	**0.000 ± 4.078 (10.770) C:NA T:NA**	pCi/L	12/09/15 08:18	14913-50-9	
Thorium-232	EPA 901.1	**2903.200 ± 3952.500 (4780.000) C:NA T:NA**	pCi/L	12/09/15 08:18	7440-29-1	
Thorium-234	EPA 901.1	**37.850 ± 230.230 (293.800) C:NA T:NA**	pCi/L	12/09/15 08:18	15065-10-8	
Radium-226	EPA 903.1	**1.29 ± 0.935 (1.14) C:NA T:86%**	pCi/L	12/02/15 19:03	13982-63-3	
Radium-228	EPA 904.0	**1.33 ± 0.526 (0.815) C:78% T:93%**	pCi/L	12/03/15 12:13	15262-20-1	
Total Uranium	EPA 908.0	**1.36 ± 0.658 (0.922) C:NA T:50%**	pCi/L	11/20/15 18:09	7440-61-1	

Sample: Cell 4-1115 **Lab ID: 30165283003** Collected: 11/11/15 12:15 Received: 11/14/15 10:00 Matrix: Water
PWS: Site ID: Sample Type:

Comments: • The sampler's name and signature were not listed on the COC.
• 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
Actinium-228	EPA 901.1	**12.968 ± 14.548 (16.160) C:NA T:NA**	pCi/L	12/09/15 09:19	14331-83-0	
Bismuth-212	EPA 901.1	**0.000 ± 10.427 (74.220) C:NA T:NA**	pCi/L	12/09/15 09:19	14913-49-6	
Bismuth-214	EPA 901.1	**37.991 ± 10.867 (10.070) C:NA T:NA**	pCi/L	12/09/15 09:19	14733-03-0	
Cesium-134	EPA 901.1	**3.398 ± 2.537 (5.771) C:NA T:NA**	pCi/L	12/09/15 09:19	13967-70-9	
Cesium-137	EPA 901.1	**-1.168 ± 4.551 (4.995) C:NA T:NA**	pCi/L	12/09/15 09:19	10045-97-3	
Lead-212	EPA 901.1	**2.952 ± 5.243 (8.610) C:NA T:NA**	pCi/L	12/09/15 09:19	15092-94-1	
Lead-214	EPA 901.1	**48.796 ± 12.998 (9.549) C:NA T:NA**	pCi/L	12/09/15 09:19	15067-28-4	
Potassium-40	EPA 901.1	**151.280 ± 51.200 (48.240) C:NA T:NA**	pCi/L	12/09/15 09:19	13966-00-2	
Radium-226	EPA 901.1	**91.528 ± 107.210 (128.300) C:NA T:NA**	pCi/L	12/09/15 09:19	13982-63-3	
Radium-228	EPA 901.1	**12.968 ± 14.548 (16.160) C:NA T:NA**	pCi/L	12/09/15 09:19	15262-20-1	
Thallium-208	EPA 901.1	**0.000 ± 2.163 (4.908) C:NA T:NA**	pCi/L	12/09/15 09:19	14913-50-9	
Thorium-232	EPA 901.1	**0.000 ± 3284.900 (9901.000) C:NA T:NA**	pCi/L	12/09/15 09:19	7440-29-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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(724)850-5600

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: R1509857
Pace Project No.: 30165283

Sample: Cell 4-1115 **Lab ID: 30165283003** Collected: 11/11/15 12:15 Received: 11/14/15 10:00 Matrix: Water
PWS: Site ID: Sample Type:

Comments: • The sampler's name and signature were not listed on the COC.
• 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
Thorium-234	EPA 901.1	**0.000 ± 127.450 (517.000) C:NA T:NA**	pCi/L	12/09/15 09:19	15065-10-8	
Radium-226	EPA 903.1	**5.11 ± 1.38 (0.213) C:NA T:90%**	pCi/L	12/02/15 19:04	13982-63-3	
Radium-228	EPA 904.0	**5.13 ± 1.27 (1.07) C:64% T:67%**	pCi/L	12/03/15 12:17	15262-20-1	
Total Uranium	EPA 908.0	**1.29 ± 0.587 (0.753) C:NA T:50%**	pCi/L	11/20/15 18:10	7440-61-1	

Sample: Cell 4-1115 Dissolved **Lab ID: 30165283004** Collected: 11/11/15 12:15 Received: 11/14/15 10:00 Matrix: Water
PWS: Site ID: Sample Type:

Comments: • The sampler's name and signature were not listed on the COC.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Actinium-228	EPA 901.1	**0.000 ± 17.365 (38.320) C:NA T:NA**	pCi/L	12/09/15 09:20	14331-83-0	
Bismuth-212	EPA 901.1	**20.005 ± 127.980 (149.100) C:NA T:NA**	pCi/L	12/09/15 09:20	14913-49-6	
Bismuth-214	EPA 901.1	**25.958 ± 18.004 (21.030) C:NA T:NA**	pCi/L	12/09/15 09:20	14733-03-0	
Cesium-134	EPA 901.1	**2.813 ± 7.274 (8.353) C:NA T:NA**	pCi/L	12/09/15 09:20	13967-70-9	
Cesium-137	EPA 901.1	**2.643 ± 5.782 (6.649) C:NA T:NA**	pCi/L	12/09/15 09:20	10045-97-3	
Lead-212	EPA 901.1	**4.828 ± 12.260 (15.620) C:NA T:NA**	pCi/L	12/09/15 09:20	15092-94-1	
Lead-214	EPA 901.1	**30.886 ± 16.585 (19.840) C:NA T:NA**	pCi/L	12/09/15 09:20	15067-28-4	
Potassium-40	EPA 901.1	**83.108 ± 132.290 (153.100) C:NA T:NA**	pCi/L	12/09/15 09:20	13966-00-2	
Radium-226	EPA 901.1	**64.564 ± 155.530 (200.300) C:NA T:NA**	pCi/L	12/09/15 09:20	13982-63-3	
Radium-228	EPA 901.1	**0.000 ± 17.365 (38.320) C:NA T:NA**	pCi/L	12/09/15 09:20	15262-20-1	
Thallium-208	EPA 901.1	**0.577 ± 7.654 (10.110) C:NA T:NA**	pCi/L	12/09/15 09:20	14913-50-9	
Thorium-232	EPA 901.1	**3454.600 ± 4185.800 (5031.000) C:NA T:NA**	pCi/L	12/09/15 09:20	7440-29-1	
Thorium-234	EPA 901.1	**69.849 ± 245.530 (310.000) C:NA T:NA**	pCi/L	12/09/15 09:20	15065-10-8	
Radium-226	EPA 903.1	**4.59 ± 1.97 (1.64) C:NA T:89%**	pCi/L	12/02/15 19:04	13982-63-3	
Radium-228	EPA 904.0	**5.92 ± 1.35 (0.996) C:67% T:78%**	pCi/L	12/03/15 12:17	15262-20-1	
Total Uranium	EPA 908.0	**1.15 ± 0.544 (0.704) C:NA T:50%**	pCi/L	11/20/15 18:10	7440-61-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: R1509857
Pace Project No.: 30165283

Sample: Cell 5-1115 **Lab ID: 30165283005** Collected: 11/11/15 12:45 Received: 11/14/15 10:00 Matrix: Water
PWS: Site ID: Sample Type:

Comments: • The sampler's name and signature were not listed on the COC.
• 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
Actinium-228	EPA 901.1	**2.060 ± 13.792 (16.160) C:NA T:NA**	pCi/L	12/09/15 10:21	14331-83-0	
Bismuth-212	EPA 901.1	**0.000 ± 13.461 (74.220) C:NA T:NA**	pCi/L	12/09/15 10:21	14913-49-6	
Bismuth-214	EPA 901.1	**49.436 ± 12.938 (10.310) C:NA T:NA**	pCi/L	12/09/15 10:21	14733-03-0	
Cesium-134	EPA 901.1	**1.664 ± 3.820 (4.274) C:NA T:NA**	pCi/L	12/09/15 10:21	13967-70-9	
Cesium-137	EPA 901.1	**-1.270 ± 5.364 (5.835) C:NA T:NA**	pCi/L	12/09/15 10:21	10045-97-3	
Lead-212	EPA 901.1	**0.000 ± 2.824 (10.100) C:NA T:NA**	pCi/L	12/09/15 10:21	15092-94-1	
Lead-214	EPA 901.1	**37.508 ± 11.916 (9.768) C:NA T:NA**	pCi/L	12/09/15 10:21	15067-28-4	
Potassium-40	EPA 901.1	**56.529 ± 75.814 (75.480) C:NA T:NA**	pCi/L	12/09/15 10:21	13966-00-2	
Radium-226	EPA 901.1	**39.430 ± 91.210 (113.300) C:NA T:NA**	pCi/L	12/09/15 10:21	13982-63-3	
Radium-228	EPA 901.1	**2.060 ± 13.792 (16.160) C:NA T:NA**	pCi/L	12/09/15 10:21	15262-20-1	
Thallium-208	EPA 901.1	**0.000 ± 1.102 (5.292) C:NA T:NA**	pCi/L	12/09/15 10:21	14913-50-9	
Thorium-232	EPA 901.1	**0.000 ± 3686.200 (9737.000) C:NA T:NA**	pCi/L	12/09/15 10:21	7440-29-1	
Thorium-234	EPA 901.1	**0.000 ± 212.310 (559.100) C:NA T:NA**	pCi/L	12/09/15 10:21	15065-10-8	
Radium-226	EPA 903.1	**0.958 ± 0.712 (0.809) C:NA T:84%**	pCi/L	12/02/15 19:24	13982-63-3	
Radium-228	EPA 904.0	**1.66 ± 0.629 (0.956) C:76% T:84%**	pCi/L	12/03/15 12:13	15262-20-1	
Total Uranium	EPA 908.0	**2.23 ± 0.731 (0.675) C:NA T:50%**	pCi/L	11/20/15 18:10	7440-61-1	

Sample: Cell 5-1115 Dissolved **Lab ID: 30165283006** Collected: 11/11/15 12:45 Received: 11/14/15 10:00 Matrix: Water
PWS: Site ID: Sample Type:

Comments: • The sampler's name and signature were not listed on the COC.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Actinium-228	EPA 901.1	**5.820 ± 26.105 (34.510) C:NA T:NA**	pCi/L	12/09/15 10:22	14331-83-0	
Bismuth-212	EPA 901.1	**0.000 ± 46.255 (138.300) C:NA T:NA**	pCi/L	12/09/15 10:22	14913-49-6	
Bismuth-214	EPA 901.1	**22.554 ± 13.425 (16.820) C:NA T:NA**	pCi/L	12/09/15 10:22	14733-03-0	
Cesium-134	EPA 901.1	**0.194 ± 8.158 (9.562) C:NA T:NA**	pCi/L	12/09/15 10:22	13967-70-9	
Cesium-137	EPA 901.1	**2.304 ± 6.721 (7.782) C:NA T:NA**	pCi/L	12/09/15 10:22	10045-97-3	
Lead-212	EPA 901.1	**0.000 ± 7.831 (19.900) C:NA T:NA**	pCi/L	12/09/15 10:22	15092-94-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: R1509857
Pace Project No.: 30165283

Sample: Cell 5-1115 Dissolved **Lab ID: 30165283006** Collected: 11/11/15 12:45 Received: 11/14/15 10:00 Matrix: Water
PWS: Site ID: Sample Type:

Comments: • The sampler's name and signature were not listed on the COC.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Lead-214	EPA 901.1	**14.916 ± 17.730 (21.630) C:NA T:NA**	pCi/L	12/09/15 10:22	15067-28-4	
Potassium-40	EPA 901.1	**186.830 ± 109.530 (124.000) C:NA T:NA**	pCi/L	12/09/15 10:22	13966-00-2	
Radium-226	EPA 901.1	**10.972 ± 141.870 (188.300) C:NA T:NA**	pCi/L	12/09/15 10:22	13982-63-3	
Radium-228	EPA 901.1	**5.820 ± 26.105 (34.510) C:NA T:NA**	pCi/L	12/09/15 10:22	15262-20-1	
Thallium-208	EPA 901.1	**0.000 ± 5.558 (12.520) C:NA T:NA**	pCi/L	12/09/15 10:22	14913-50-9	
Thorium-232	EPA 901.1	**1184.000 ± 4262.300 (5269.000) C:NA T:NA**	pCi/L	12/09/15 10:22	7440-29-1	
Thorium-234	EPA 901.1	**0.000 ± 142.200 (348.300) C:NA T:NA**	pCi/L	12/09/15 10:22	15065-10-8	
Radium-226	EPA 903.1	**2.06 ± 1.15 (1.21) C:NA T:86%**	pCi/L	12/02/15 19:55	13982-63-3	
Radium-228	EPA 904.0	**1.24 ± 0.541 (0.872) C:76% T:82%**	pCi/L	12/03/15 12:14	15262-20-1	
Total Uranium	EPA 908.0	**2.74 ± 0.853 (0.818) C:NA T:50%**	pCi/L	11/20/15 18:10	7440-61-1	

Sample: Cell 6-1115 **Lab ID: 30165283007** Collected: 11/11/15 13:17 Received: 11/14/15 10:00 Matrix: Water
PWS: Site ID: Sample Type:

Comments: • The sampler's name and signature were not listed on the COC.
• 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
Actinium-228	EPA 901.1	**11.140 ± 9.835 (11.800) C:NA T:NA**	pCi/L	12/09/15 11:38	14331-83-0	
Bismuth-212	EPA 901.1	**38.732 ± 52.851 (57.120) C:NA T:NA**	pCi/L	12/09/15 11:38	14913-49-6	
Bismuth-214	EPA 901.1	**17.557 ± 11.768 (12.090) C:NA T:NA**	pCi/L	12/09/15 11:38	14733-03-0	
Cesium-134	EPA 901.1	**-2.506 ± 5.363 (5.899) C:NA T:NA**	pCi/L	12/09/15 11:38	13967-70-9	
Cesium-137	EPA 901.1	**-1.041 ± 5.884 (6.387) C:NA T:NA**	pCi/L	12/09/15 11:38	10045-97-3	
Lead-212	EPA 901.1	**5.100 ± 6.860 (8.350) C:NA T:NA**	pCi/L	12/09/15 11:38	15092-94-1	
Lead-214	EPA 901.1	**22.521 ± 8.520 (8.884) C:NA T:NA**	pCi/L	12/09/15 11:38	15067-28-4	
Potassium-40	EPA 901.1	**179.640 ± 47.476 (39.080) C:NA T:NA**	pCi/L	12/09/15 11:38	13966-00-2	
Radium-226	EPA 901.1	**25.290 ± 101.430 (125.400) C:NA T:NA**	pCi/L	12/09/15 11:38	13982-63-3	
Radium-228	EPA 901.1	**11.140 ± 9.835 (11.800) C:NA T:NA**	pCi/L	12/09/15 11:38	15262-20-1	
Thallium-208	EPA 901.1	**2.568 ± 3.895 (4.489) C:NA T:NA**	pCi/L	12/09/15 11:38	14913-50-9	
Thorium-232	EPA 901.1	**0.000 ± 4097.000 (9228.000) C:NA T:NA**	pCi/L	12/09/15 11:38	7440-29-1	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: R1509857
Pace Project No.: 30165283

Sample: Cell 6-1115 **Lab ID: 30165283007** Collected: 11/11/15 13:17 Received: 11/14/15 10:00 Matrix: Water
PWS: Site ID: Sample Type:

Comments: • The sampler's name and signature were not listed on the COC.
• 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
Thorium-234	EPA 901.1	**87.586 ± 160.400 (486.800) C:NA T:NA**	pCi/L	12/09/15 11:38	15065-10-8	
Radium-226	EPA 903.1	**0.984 ± 0.796 (0.985) C:NA T:89%**	pCi/L	12/02/15 19:25	13982-63-3	
Radium-228	EPA 904.0	**2.09 ± 0.652 (0.780) C:80% T:75%**	pCi/L	12/03/15 15:54	15262-20-1	
Total Uranium	EPA 908.0	**2.59 ± 0.805 (0.736) C:NA T:50%**	pCi/L	11/20/15 18:10	7440-61-1	

Sample: Cell 6-1115 Dissolved **Lab ID: 30165283008** Collected: 11/11/15 13:17 Received: 11/14/15 10:00 Matrix: Water
PWS: Site ID: Sample Type:

Comments: • The sampler's name and signature were not listed on the COC.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Actinium-228	EPA 901.1	**9.101 ± 26.524 (34.510) C:NA T:NA**	pCi/L	12/09/15 11:39	14331-83-0	
Bismuth-212	EPA 901.1	**22.897 ± 94.957 (113.000) C:NA T:NA**	pCi/L	12/09/15 11:39	14913-49-6	
Bismuth-214	EPA 901.1	**36.899 ± 16.695 (18.420) C:NA T:NA**	pCi/L	12/09/15 11:39	14733-03-0	
Cesium-134	EPA 901.1	**1.105 ± 7.107 (8.353) C:NA T:NA**	pCi/L	12/09/15 11:39	13967-70-9	
Cesium-137	EPA 901.1	**2.236 ± 5.722 (6.649) C:NA T:NA**	pCi/L	12/09/15 11:39	10045-97-3	
Lead-212	EPA 901.1	**0.000 ± 8.756 (15.990) C:NA T:NA**	pCi/L	12/09/15 11:39	15092-94-1	
Lead-214	EPA 901.1	**32.969 ± 14.911 (19.870) C:NA T:NA**	pCi/L	12/09/15 11:39	15067-28-4	
Potassium-40	EPA 901.1	**134.970 ± 121.320 (139.400) C:NA T:NA**	pCi/L	12/09/15 11:39	13966-00-2	
Radium-226	EPA 901.1	**0.000 ± 96.482 (224.900) C:NA T:NA**	pCi/L	12/09/15 11:39	13982-63-3	
Radium-228	EPA 901.1	**9.101 ± 26.524 (34.510) C:NA T:NA**	pCi/L	12/09/15 11:39	15262-20-1	
Thallium-208	EPA 901.1	**0.000 ± 3.930 (10.110) C:NA T:NA**	pCi/L	12/09/15 11:39	14913-50-9	
Thorium-232	EPA 901.1	**859.600 ± 4436.100 (5497.000) C:NA T:NA**	pCi/L	12/09/15 11:39	7440-29-1	
Thorium-234	EPA 901.1	**0.000 ± 112.960 (319.200) C:NA T:NA**	pCi/L	12/09/15 11:39	15065-10-8	
Radium-226	EPA 903.1	**2.70 ± 0.985 (0.228) C:NA T:89%**	pCi/L	12/02/15 20:03	13982-63-3	
Radium-228	EPA 904.0	**1.64 ± 0.596 (0.857) C:76% T:80%**	pCi/L	12/03/15 15:54	15262-20-1	
Total Uranium	EPA 908.0	**0.536 ± 0.602 (1.07) C:NA T:50%**	pCi/L	11/20/15 18:10	7440-61-1	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: R1509857
Pace Project No.: 30165283

QC Batch: RADC/26961 Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228
Associated Lab Samples: 30165283001, 30165283002, 30165283003, 30165283004, 30165283005, 30165283006, 30165283007, 30165283008

METHOD BLANK: 988160 Matrix: Water
Associated Lab Samples: 30165283001, 30165283002, 30165283003, 30165283004, 30165283005, 30165283006, 30165283007, 30165283008

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.677 ± 0.376 (0.679) C:80% T:86%	pCi/L	12/03/15 12:23	

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REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: R1509857
Pace Project No.: 30165283

QC Batch: RADC/26917 Analysis Method: EPA 908.0
QC Batch Method: EPA 908.0 Analysis Description: 908.0 Total Uranium
Associated Lab Samples: 30165283001, 30165283002, 30165283003, 30165283004, 30165283005, 30165283006, 30165283007, 30165283008

METHOD BLANK: 986217 Matrix: Water
Associated Lab Samples: 30165283001, 30165283002, 30165283003, 30165283004, 30165283005, 30165283006, 30165283007, 30165283008

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Total Uranium	0.233 ± 0.157 (0.245) C:NA T:81%	pCi/L	11/20/15 18:09	

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REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: R1509857
Pace Project No.: 30165283

QC Batch: RADC/26989 Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226
Associated Lab Samples: 30165283001, 30165283002, 30165283003, 30165283004, 30165283005, 30165283006, 30165283007, 30165283008

METHOD BLANK: 988728 Matrix: Water
Associated Lab Samples: 30165283001, 30165283002, 30165283003, 30165283004, 30165283005, 30165283006, 30165283007, 30165283008

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.194 ± 0.381 (0.697) C:NA T:90%	pCi/L	12/02/15 12:05	

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Greensburg, PA 15601
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QUALITY CONTROL - RADIOCHEMISTRY

Project: R1509857
Pace Project No.: 30165283

QC Batch: RADC/27089 Analysis Method: EPA 901.1
QC Batch Method: EPA 901.1 Analysis Description: 901.1 Gamma Spec
Associated Lab Samples: 30165283003, 30165283004, 30165283005, 30165283006, 30165283007, 30165283008

METHOD BLANK: 991491 Matrix: Water
Associated Lab Samples: 30165283003, 30165283004, 30165283005, 30165283006, 30165283007, 30165283008

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Actinium-228	1.106 ± 30.011 (38.560) C:NA T:NA	pCi/L	12/04/15 09:16	
Bismuth-212	9.373 ± 97.915 (117.900) C:NA T:NA	pCi/L	12/04/15 09:16	
Bismuth-214	11.228 ± 16.990 (20.470) C:NA T:NA	pCi/L	12/04/15 09:16	
Cesium-134	1.343 ± 6.859 (7.835) C:NA T:NA	pCi/L	12/04/15 09:16	
Cesium-137	2.997 ± 5.860 (6.677) C:NA T:NA	pCi/L	12/04/15 09:16	
Lead-212	0.000 ± 7.928 (15.560) C:NA T:NA	pCi/L	12/04/15 09:16	
Lead-214	0.000 ± 9.463 (20.010) C:NA T:NA	pCi/L	12/04/15 09:16	
Potassium-40	0.000 ± 45.260 (124.800) C:NA T:NA	pCi/L	12/04/15 09:16	
Radium-226	121.280 ± 121.060 (144.200) C:NA T:NA	pCi/L	12/04/15 09:16	
Radium-228	1.106 ± 30.011 (38.560) C:NA T:NA	pCi/L	12/04/15 09:16	
Thallium-208	1.809 ± 7.390 (9.054) C:NA T:NA	pCi/L	12/04/15 09:16	
Thorium-232	1913.800 ± 3136.300 (3844.000) C:NA T:NA	pCi/L	12/04/15 09:16	
Thorium-234	0.000 ± 115.070 (244.300) C:NA T:NA	pCi/L	12/04/15 09:16	

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Greensburg, PA 15601
(724)850-5600

QUALITY CONTROL - RADIOCHEMISTRY

Project: R1509857
Pace Project No.: 30165283

QC Batch: RADC/26951 Analysis Method: EPA 901.1
QC Batch Method: EPA 901.1 Analysis Description: 901.1 Gamma Spec
Associated Lab Samples: 30165283001, 30165283002

METHOD BLANK: 987110 Matrix: Water
Associated Lab Samples: 30165283001, 30165283002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Actinium-228	10.587 ± 9.792 (32.330) C:NA T:NA	pCi/L	11/20/15 09:26	
Bismuth-212	28.135 ± 35.241 (111.100) C:NA T:NA	pCi/L	11/20/15 09:26	
Bismuth-214	4.811 ± 6.547 (21.910) C:NA T:NA	pCi/L	11/20/15 09:26	
Cesium-134	2.151 ± 3.688 (7.764) C:NA T:NA	pCi/L	11/20/15 09:26	
Cesium-137	-1.217 ± 7.021 (7.911) C:NA T:NA	pCi/L	11/20/15 09:26	
Lead-212	0.000 ± 6.165 (13.930) C:NA T:NA	pCi/L	11/20/15 09:26	
Lead-214	7.320 ± 9.341 (13.460) C:NA T:NA	pCi/L	11/20/15 09:26	
Potassium-40	13.233 ± 60.873 (79.290) C:NA T:NA	pCi/L	11/20/15 09:26	
Radium-226	0.000 ± 68.015 (190.000) C:NA T:NA	pCi/L	11/20/15 09:26	
Radium-228	10.587 ± 9.792 (32.330) C:NA T:NA	pCi/L	11/20/15 09:26	
Thallium-208	0.000 ± 3.968 (7.876) C:NA T:NA	pCi/L	11/20/15 09:26	
Thorium-232	312.290 ± 8831.800 (11480.000) C:NA T:NA	pCi/L	11/20/15 09:26	
Thorium-234	111.310 ± 448.780 (591.800) C:NA T:NA	pCi/L	11/20/15 09:26	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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Greensburg, PA 15601
(724)850-5600

QUALIFIERS

Project: R1509857
Pace Project No.: 30165283

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.

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: R1509857
Project Manager: Janice Jaeger
QAP: LAB QAP

30165283

Lab Code	Sample ID	# of Cont.	Matrix	Sample Date	Sample Time	Lab ID	Gamma Spec 901.1	Nat U 908.0	Radium 226 903.1	Radium 228 904.0	
[redacted]	Cell 3-1115		Water	11/11/15	1140	Pace PA	X	X	X	X	001
[redacted]	Cell 3-1115 Dissolved		Water	11/11/15	1140	Pace PA	X	X	X	X	002
[redacted]	Cell 4-1115		Water	11/11/15	1215	Pace PA	X	X	X	X	003
[redacted]	Cell 4-1115 Dissolved		Water	11/11/15	1215	Pace PA	X	X	X	X	004
[redacted]	Cell 5-1115		Water	11/11/15	1245	Pace PA	X	X	X	X	005
[redacted]	Cell 5-1115 Dissolved		Water	11/11/15	1245	Pace PA	X	X	X	X	006
[redacted]	Cell 6-1115		Water	11/11/15	1317	Pace PA	X	X	X	X	007
[redacted]	Cell 6-1115 Dissolved		Water	11/11/15	1317	Pace PA	X	X	X	X	008

Gamma isotope list - Rad 226 & 228, Actinium 228, Bismuth 212 & 214, Cesium 134 & 137, Lead 212 & 214, Potassium 40, Thallium 208 & Thorium 232 & 234

SOLUBLE NEED IN LAB FILTER BEFORE PRESERVING

Special Instructions/Comments

excel EDD

H - Test is On Hold P - Test is Authorized for Prep Only

Turnaround Requirements

____ **RUSH** (Surcharges Apply)

PLEASE CIRCLE WORK DAYS

1 2 3 4 5

X **STANDARD**

Requested FAX Date: _____

Requested Report Date: 11/26/15

Report Requirements

___ I. Results Only

X II. Results + QC Summaries

___ III. Results + QC and Calibration Summaries

___ IV. Data Validation Report with Raw Data

PQL/MDL/J N

EDD Y

Invoice Information

PO# 58R1509857

Bill to

Relinquished By: [signature] 11/13/15 1525 Received By: [signature] 11-14-15 1000 Airbill Number: _____

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: R1509857
Project Manager: Janice Jaeger
QAP: LAB QAP

R1509857

Ship To: Pace PA
Pace Analytical Services
1638 Roseytown Road
Suites 2,3, & 4
Greensburg, PA 15601

PC _____ Date _____

SMO _____ Date _____

Instructions:

Ice _____

Dry Ice _____

No Ice _____

Shipping:

Overnight _____

2nd Day _____

Ground _____

Bill to Client Account _____

Comments:

AWM

Sample Condition Upon Receipt

30165283

Pace Analytical

Client Name: ALS1 Project # _____

Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Tracking #: 629676023854

Custody Seal on Cooler/Box Present: ☒ yes ☐ no Seals intact: ☒ yes ☐ no Biological Tissue Is Frozen: Yes No

Packing Material: Bubble Wrap ___ Bubble Bags ___ None ___ Other _____

Thermometer Used NA Type of Ice: Wet Blue None ☐ Samples on ice, cooling process has begun

Cooler Temp.: Observed Temp.: NA °C Correction Factor: ___ °C Final Temp: ___ °C

Date and initials of person examining contents: AWM 11/14/15

Temp should be above freezing to 6°C

		Comments:
Chain of Custody Present:	☒Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☒Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☒Yes ☐No ☐N/A	3.
Sampler Name & 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 ☐N/A	6.
Rush Turn Around Time Requested:	☐Yes ☒No ☐N/A	7.
Sufficient Volume:	☒Yes ☐No ☐N/A	8.
Correct Containers Used:	☒Yes ☐No ☐N/A	9.
-Pace Containers Used:	☐Yes ☒No ☐N/A	
Containers Intact:	☒Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes ☒No ☐N/A	11.
Sample Labels match COC:	☒Yes ☐No ☐N/A	12.
-Includes date/time/ID/Analysis Matrix: WT		
All containers needing preservation have been checked.	☒Yes ☐No ☐N/A	13. added 3mL HNO_3 to 1 bottle 001, and all bottles for 003, 005, and 007 11/14/15 1140
All containers needing preservation are found to be in compliance with EPA recommendation.	☐Yes ☒No ☐N/A	002, 004, 006, 008 need filtered before preserving
exceptions: VOA, coliform, TOC, O&G, Phenols	☐Yes ☒No	Initial when completed: AWM Lot # of added preservative: DL15-1035
Samples checked for dechlorination:	☐Yes ☐No ☒N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☐No ☒N/A	15.
Trip Blank Present:	☐Yes ☐No ☒N/A	16.
Trip Blank Custody Seals Present	☐Yes ☐No ☒N/A	
Pace Trip Blank Lot # (if purchased): _____		

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: [signature] **Date:** 11/16/15

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

30165283

Project Number: _____

Client Name: ALS

Item No.	Matrix Code	Glass Jar (120 / 250 / 500 / 1L)	Soil kit (2 SB, 1M, soil jar)	Chemistry (250 / 500 (1L))	Organics (1L)	Nutrient (250 / 500)	Phenolics (250 ml)	TOC (40 ml / 250 ml)	TOX (250 ml)	Total Metals	Dissolved Metals preserved Y N	O & G (1L)	TPH (1L)	VOA (40 ml 30 ml)	Cyanide (250 ml)	Sulfide (500 ml)	Bacteria (120 ml)	Wipes / swipe/ smear/ filter	Radchem Nalgene (125 / 250 / 500 (1L))	Radchem Nalgene (1/2 gal. / 1 gal.L)	Cubitainer (500 ml / 4L)	Ziploc	Other	Other
001	WT																							
002																								
003																								
004																								
005																								
006																								
007																								
008	WT																							

SCURF Back (C016-4 15May2012).xls