



**MCPS RADON TESTING – EXECUTIVE SUMMARY**

Site Name	North Lake Center
Date of Test Report	1/25/2023
Round of Testing	Initial Follow-up Post Remediation 2 Year Testing 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility
# Rooms Tested	40
# Rooms ≥ 4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	1.4 pCi/L

Project Status:

1. 5-Year Re-Testing Completed.



January 25, 2023

Mr. Brian Croyle  
Environmental Specialist  
Montgomery County Public Schools  
Gaithersburg, MD 20879

Re: **Radon Testing Services**  
KCI Job # 122210551

Location: North Lake Center  
15101 Bauer Drive  
Rockville, MD 20852

Dear Mr. Croyle:

KCI Technologies, Inc. (KCI) is pleased to submit the following report to Montgomery County Public Schools (MCPS) pursuant to completing a “short-term” 3 day radon test for the North Lake Center located at 15101 Bauer Dr. Rockville, MD 20852 (subject site).

**Scope of Services:**

KCI conducted radon testing at the subject site to evaluate indoor radon levels relative to the USEPA's recommended action level of 4.0 picocuries per Liter (pCi/L) - the level at which EPA recommends that schools take action to reduce the level. KCI conducted the radon testing in accordance with American Association of Radon Scientists and Technologists (AARST) *Protocol for Conducting Measurements of Radon and Radon Decay Products in Schools and Large Buildings*. A National Radon Proficiency Program (NRPP) Radon Measurement Specialist (certification #111004 RT) supervised the testing. Additional information on radon management and the health effects of radon exposure is available from <https://www.montgomeryschoolsmd.org> or [www.epa.gov/radon](http://www.epa.gov/radon).

KCI visited the site on December 19, 2022 and deployed forty-six (46) activated charcoal (AC) radon test kits. KCI deployed radon test kits in all frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance.

A floor plan map of the building with the test locations is included as Attachment A of this report.

As a quality control measure, KCI also included duplicate samples, field blanks, lab transit blanks, and office blanks in accordance with AARST recommendations. In addition, KCI submitted test kits to Bowser-Morner, Inc. as spike samples. The spiked tests were exposed to a known radon concentration by Bowser-Morner prior to being returned to the laboratory for analysis.

KCI returned to the site on December 22, 2022 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Accustar Labs - MA for analysis by gamma-ray spectroscopy.

Accustar Labs - MA is a NRSB certified analytical laboratory for radon analysis (certification #ARL0017) located at 2 Saber Way, Ward Hill, MA 01835.

**Evaluation of Testing Conditions:**

These tests represent:

- Follow up to initial testing.

These tests were conducted to:

- Evaluate radon concentration levels at the facility.

According to AARST, *Protocol for Conducting Measurements of Radon and Radon Decay Products in Schools and Large Buildings*, ideal testing conditions would be when the building is fully occupied and the heating system is active. For this test, the facility’s HVAC system was operating in heating mode; therefore, KCI concludes that this test was conducted during ideal testing conditions.

KCI recorded observations of the following conditions in each room during the time of deployment and collection of the radon test kits:

- Indoor temperature,
- HVAC Operation,
- Dehumidifier operation,
- Humidifier operation,
- Ceiling fan operation, and
- Open windows or doors.

KCI also compiled weather data for the testing period and conducted observations of relevant field conditions. During the test period, weather records indicate temperatures ranged from 23°F to 55°F. Maximum sustained winds ranged from 0-18 miles per hour. Average humidity was around 75% with 0.0 inches of precipitation (rain) was recorded during testing period.

**Results:**

The sampling locations and analytical results are listed on Table 1 (Attachment B). The quality control sample locations and analytical results are listed on Table 2 (Attachment B). Sampling locations and associated test kit identification numbers and relevant field observations are listed on Table 3 (Attachment B). The laboratory analytical results are included in Attachment C. Laboratory results and exposure data for the spike samples are also included in Attachment C.

The results of the radon test analysis indicated the following:

<b>Radon Concentration</b>	<b>Room</b>	<b>Result</b>
≥4.0 pCi/L	None	N/A
<4.0 pCi/L	See Attachment B	

Quality Control Samples	
Results of Blank Canisters:	The office blanks, and lab transit blanks had test results of less than the laboratory detection limit of 0.3 pCi/L.
Adequate Laboratory Precision?	Review of the duplicate sample analysis indicates that adequate laboratory measurement precision was achieved.
Spike Sample Analysis:	The Spike Sample analysis results indicate the laboratory is operating within statistical control limits.

Our professional services have been performed in accordance with customary principles and practices in the field of industrial hygiene and engineering. If you have any questions or comments regarding this report, please feel free to contact me at (410) 891-1769.

Sincerely,



Tyler P. McCleaf  
Radon Measurement Provider  
#111004 RT  
KCI Technologies, Inc.

Attachments:     A- Floor Plan with Test Locations  
                      B- Table 1-3, Radon Test Summary Spreadsheets  
                      C- Laboratory Analytical Results

# ATTACHMENT A

## Floor Plan With Test Locations

# ATTACHMENT B

## Radon Test Summary Spreadsheet

**Table Notes:**

AC- Activated Charcoal

ACI- Air Check, Inc.

D- Duplicate

FB- Field Blank

KCI- KCI Technologies, Inc.

OB- Office Blank

PM- Project Manager

OC- Quality Control

Table 1- Radon Testing Results		
North Lake Center		
Test Period: 12/19/2022 - 12/22/2022		
Kit Number	Room / Area	Result
11287801	1	< 0.3
11287700	2	< 0.3
11287809	3	0.6
11287813	4	< 0.3
11287297	5	< 0.3
11287814	5	< 0.3
11287680	6	< 0.3
11287810	7	1.1
11287812	8	< 0.3
11287811	9	< 0.3
11287692	10	< 0.3
11287821	11	< 0.3
11287295	12	< 0.3
11287805	12	< 0.3
11287815	13	1.0
11287279	14	0.8
11287662	15	< 0.3
11287675	15	0.8
11287674	16	< 0.3
11287691	17	0.8
11287690	18	0.7
11287697	19	< 0.3
11287686	20	0.9
11287661	21	< 0.3
11287683	22	< 0.3
11287696	22	0.7
11287694	17A	1.0
11287695	18A	0.8
11287817	23A	< 0.3
11287699	7A	0.9
11287296	8A	< 0.3
11287298	APR	< 0.3
11287679	APR	0.8
11287682	APR	< 0.3
11287808	ASP	< 0.3
11287822	COUNSELOR	0.9
11287818	GOF	< 0.3
11287807	MAIN OFFICE	< 0.3
11287806	MEDIA	0.8
11287287	MEDIA OFFICE	1.4
11287678	MEDIA WORKROOM	< 0.3
11287698	MEDIA WORKROOM	1.0



Table 1- Radon Testing Results		
North Lake Center		
Test Period: 12/19/2022 - 12/22/2022		
Kit Number	Room / Area	Result
11287294	NURSING MOTHERS	< 0.3
11287816	PRINCIPAL	0.6
11287669	STAFF LOUNGE	< 0.3
11287819	WORKROOM	< 0.3

Table 2- Radon Testing Results			
North Lake Center			
Test Period: 12/19/22 - 12/22/22			
Kit Number	QC Type	Room / Area	Result
11287297	D	5	< 0.3
11287295	FB	12	< 0.3
11287675	D	15	0.8
11287696	FB	22	0.7
11287679	D	Apr	0.8
11287678	D	Media workroom	< 0.3
11288518	OB	OFFICE BLANK	< 0.3
11287685	TB	TRAVEL BLANK	< 0.3



# ATTACHMENT C

## Laboratory Analytical Results

Radon test result report for:  
**NORTH LAKE CENTER  
 MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11287801	1	2022-12-19 @ 10:00 am	2022-12-22 @ 10:00 am	< 0.3	2022-12-28
11287692	10	2022-12-19 @ 10:00 am	2022-12-22 @ 10:00 am	< 0.3	2022-12-28
11287821	11	2022-12-19 @ 10:00 am	2022-12-22 @ 10:00 am	< 0.3	2022-12-28
11287295	12	2022-12-19 @ 10:00 am	2022-12-22 @ 10:00 am	< 0.3	2022-12-28
11287805	12	2022-12-19 @ 10:00 am	2022-12-22 @ 10:00 am	< 0.3	2022-12-28
11287815	13	2022-12-19 @ 10:00 am	2022-12-22 @ 10:00 am	1.0 ± 0.5	2022-12-28
11287279	14	2022-12-19 @ 10:00 am	2022-12-22 @ 10:00 am	0.8 ± 0.5	2022-12-28
11287662	15	2022-12-19 @ 10:00 am	2022-12-22 @ 10:00 am	< 0.3	2022-12-28
11287675	15	2022-12-19 @ 10:00 am	2022-12-22 @ 10:00 am	0.8 ± 0.5	2022-12-28
11287674	16	2022-12-19 @ 10:00 am	2022-12-22 @ 10:00 am	< 0.3	2022-12-28
11287691	17	2022-12-19 @ 10:00 am	2022-12-22 @ 10:00 am	0.8 ± 0.5	2022-12-28
11287694	17A	2022-12-19 @ 10:00 am	2022-12-22 @ 10:00 am	1.0 ± 0.5	2022-12-28
11287690	18	2022-12-19 @ 10:00 am	2022-12-22 @ 10:00 am	0.7 ± 0.5	2022-12-28
11287695	18A	2022-12-19 @ 10:00 am	2022-12-22 @ 10:00 am	0.8 ± 0.5	2022-12-28
11287697	19	2022-12-19 @ 10:00 am	2022-12-22 @ 10:00 am	< 0.3	2022-12-28
11287700	2	2022-12-19 @ 10:00 am	2022-12-22 @ 10:00 am	< 0.3	2022-12-28
11287686	20	2022-12-19 @ 10:00 am	2022-12-22 @ 10:00 am	0.9 ± 0.5	2022-12-28
11287661	21	2022-12-19 @ 10:00 am	2022-12-22 @ 10:00 am	< 0.3	2022-12-28
11287683	22	2022-12-19 @ 10:00 am	2022-12-22 @ 10:00 am	< 0.3	2022-12-28
11287696	22	2022-12-19 @ 10:00 am	2022-12-22 @ 10:00 am	0.7 ± 0.5	2022-12-28
11287817	23A	2022-12-19 @ 9:00 am	2022-12-22 @ 9:00 am	< 0.3	2022-12-28
11287809	3	2022-12-19 @ 10:00 am	2022-12-22 @ 9:00 am	0.6 ± 0.5	2022-12-28
11287813	4	2022-12-19 @ 10:00 am	2022-12-22 @ 9:00 am	< 0.3	2022-12-28
11287297	5	2022-12-19 @ 10:00 am	2022-12-22 @ 9:00 am	< 0.3	2022-12-28
11287814	5	2022-12-19 @ 10:00 am	2022-12-22 @ 9:00 am	< 0.3	2022-12-28
11287680	6	2022-12-19 @ 10:00 am	2022-12-22 @ 9:00 am	< 0.3	2022-12-28
11287810	7	2022-12-19 @ 10:00 am	2022-12-22 @ 9:00 am	1.1 ± 0.5	2022-12-28
11287699	7A	2022-12-19 @ 10:00 am	2022-12-22 @ 9:00 am	0.9 ± 0.6	2022-12-28
11287812	8	2022-12-19 @ 10:00 am	2022-12-22 @ 10:00 am	< 0.3	2022-12-28
11287296	8A	2022-12-19 @ 10:00 am	2022-12-22 @ 10:00 am	< 0.3	2022-12-28
11287811	9	2022-12-19 @ 10:00 am	2022-12-22 @ 10:00 am	< 0.3	2022-12-28
11287298	APR	2022-12-19 @ 10:00 am	2022-12-22 @ 10:00 am	< 0.3	2022-12-28
11287682	APR	2022-12-19 @ 10:00 am	2022-12-22 @ 10:00 am	< 0.3	2022-12-28
11287679	APR	2022-12-19 @ 10:00 am	2022-12-22 @ 10:00 am	0.8 ± 0.5	2022-12-28
11287808	ASP	2022-12-19 @ 10:00 am	2022-12-22 @ 9:00 am	< 0.3	2022-12-28
11287822	COUNSELOR	2022-12-19 @ 10:00 am	2022-12-22 @ 9:00 am	0.9 ± 0.5	2022-12-28
11287818	GOF	2022-12-19 @ 9:00 am	2022-12-22 @ 9:00 am	< 0.3	2022-12-28

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December 28, 2022

**\*\* LABORATORY ANALYSIS REPORT \*\***

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Radon test result report for:  
**NORTH LAKE CENTER  
MAIN**

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<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
11287807	MAIN OFFICE	2022-12-19 @ 9:00 am	2022-12-22 @ 9:00 am	< 0.3	2022-12-28
11287806	MEDIA	2022-12-19 @ 10:00 am	2022-12-22 @ 10:00 am	0.8 ± 0.5	2022-12-28
11287287	MEDIA OFFICE	2022-12-19 @ 10:00 am	2022-12-22 @ 10:00 am	1.4 ± 0.6	2022-12-28
11287698	MEDIA WORKROOM	2022-12-19 @ 10:00 am	2022-12-22 @ 10:00 am	1.0 ± 0.5	2022-12-28
11287678	MEDIA WORKROOM	2022-12-19 @ 10:00 am	2022-12-22 @ 10:00 am	< 0.3	2022-12-28
11287294	NURSING MOTHERS	2022-12-19 @ 10:00 am	2022-12-22 @ 10:00 am	< 0.3	2022-12-28
11287816	PRINCIPAL	2022-12-19 @ 10:00 am	2022-12-22 @ 9:00 am	0.6 ± 0.5	2022-12-28
11287669	STAFF LOUNGE	2022-12-19 @ 10:00 am	2022-12-22 @ 10:00 am	< 0.3	2022-12-28
11287819	WORKROOM	2022-12-19 @ 10:00 am	2022-12-22 @ 9:00 am	< 0.3	2022-12-28

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Air Chek 1936 Butler Bridge Rd, Mills River, NC 28759-3892 Phone: (828) 684-0893 Fax: (828) 684-8498

# EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KC1 TECHNOLOGIES, INC Job Number 208343

NOMINAL Conditions: Radon Conc 34.7 pCi/L Rel. Hum 49.4 % Temp. 69.6 F

Date Start: 12/24/22 Date Stop: 12/27/22 Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

Time Start: 0810 Time Stop: 0810 Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_

Device No.'s: (5) CHAR BAGS - Device No.'s: \_\_\_\_\_

11285109, 11285110, 11285101

THRU 11285103

BY LEFT

Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_ Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_ Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_

Device No.'s: \_\_\_\_\_ Device No.'s: \_\_\_\_\_

Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_ Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_ Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_

Device No.'s: \_\_\_\_\_ Device No.'s: \_\_\_\_\_

Note: All times are in 24-hour (military) notation, Eastern Standard Time (EST)  
Background = 7  $\mu$ R/h Elevation = 820 ft

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December 29, 2022

**\*\* LABORATORY ANALYSIS REPORT \*\***

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Radon test result report for:

**OFFICE**

**MAIN**

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<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
11285110	SK1	2022-12-24 @ 8:00 am	2022-12-27 @ 8:00 am	31.7 ± 2.5	2022-12-29
11285101	SK2	2022-12-24 @ 8:00 am	2022-12-27 @ 8:00 am	30.1 ± 2.4	2022-12-29
11285103	SK3	2022-12-24 @ 8:00 am	2022-12-27 @ 8:00 am	34.0 ± 2.7	2022-12-29
11285102	SK4	2022-12-24 @ 8:00 am	2022-12-27 @ 8:00 am	30.9 ± 2.5	2022-12-29
11285109	SK5	2022-12-24 @ 8:00 am	2022-12-27 @ 8:00 am	32.0 ± 2.6	2022-12-29

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Air Chek 1936 Butler Bridge Rd, Mills River, NC 28759-3892 Phone: (828) 684-0893 Fax: (828) 684-8498





### Radon Test Kit Chain of Custody

Project Name: MCPS Radon – Week 3 December Schools

Name of Schools:

1. Clopper Mill ES
2. Cold Spring ES
3. Fox Chapel ES
4. Gaithersburg HS
5. Longview School
6. North Lake Center
7. Ronald McNair ES
8. Rosemont ES
9. S. Christa McAuliffe ES
10. Spark M. Matsunaga ES
11. William B. Gibbs, JR. ES

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	Date	Initials
Radon Test Kits Deployed	12/19/2022	BMM
Radon Test Kits Collected	12/22/2022	BMM
Radon Test Kits Shipped to Lab*	12/22/2022	BMM
Radon Test Kits Received by Lab*	12/28/2022	BMM

\*All samples sent to Air Check, Inc., 2 Saber Way, Ward Hill, MA 01835



**MONTGOMERY COUNTY PUBLIC SCHOOLS  
RADON TESTING**

**Executive Summary:**

**North Lake Center**

15101 Bauer Drive  
Rockville, MD 20853

Date of Test Report:	3/15/2019
Round of Testing:	Initial <b>Follow-up</b> Post Remediation 2 Year Testing 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility
# of Rooms Tested:	2
# of Rooms $\geq$ 4.0 pCi/L:	0
Low Value:	<0.4
High Value:	0.4

**Project Status**

**Retesting completed:** No further action at this time.



March 15, 2019

Mr. Richard Cox  
Indoor Air Quality Team Leader  
Montgomery County Public Schools  
850 Hungerford Drive  
Rockville, MD 20850

Re: Radon Testing Services

Location: Northlake Center  
15101 Bauer Drive  
Rockville, MD 20853

Dear Mr. Cox:

Intertek-PSI (PSI) is pleased to submit the following report to the Montgomery County Public Schools (MCPS) for completion of a "short-term" 3-day radon test for Northlake Center, located at 15101 Bauer Drive, Rockville, MD 20853 (subject site).

**Scope of Services:**

PSI conducted radon testing at the subject site to evaluate indoor radon levels relative to the USEPA's recommended action level of 4.0 picocuries per Liter (pCi/L) - the level at which EPA recommends that schools take action to reduce the level. PSI conducted the radon testing in accordance with American Association of Radon Scientists and Technologists (AARST) Protocol for Conducting Measurements of Radon and Radon Decay Products in Schools and Large Buildings. A National Radon Safety Board (NRSB) Radon Measurement Specialist (certification #14SS007) supervised the testing. Additional information on radon management and the health effects of radon exposure is available from [www.montgomerycountymd.gov/dep/air/radon](http://www.montgomerycountymd.gov/dep/air/radon) or [www.epa.gov/radon](http://www.epa.gov/radon).

PSI visited the site on February 26, 2019 and deployed two (2) activated charcoal (AC) radon test kit. PSI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. PSI returned to the site on March 01, 2019 to retrieve the radon sampling test kit. A floor plan map of the building with the test location is included as Attachment A of this report.

PSI shipped all radon tests via overnight delivery to AccuStar Labs for analysis by gamma-ray spectroscopy. Accustar Labs is a NRSB certified analytical laboratory for radon analysis located at 929 Mount Zion Road, Lebanon, Pennsylvania (certification # ARLO007).

**Evaluation of Testing Conditions:**

The operating condition that represents the greatest amount of significantly occupied time for this building is; heating active, with outdoor temperature averages  $\leq 65^{\circ}\text{F}$ .

PSI concludes that the test period reasonably represents normal conditions when the building is significantly occupied. Clear characterization of the radon hazard is most likely to be observed under this normal operating condition. Based on the evaluation of test conditions, this test should reasonably characterize radon hazards.



PSI also conducted observations of field conditions which could affect the results of the test and compiled weather data for the testing period. PSI recorded observations of the following conditions in each room at the time of deployment and collection of the radon test kits:

- Indoor temperature,
- HVAC Operation,
- Dehumidifier operation,
- Humidifier operation,
- Ceiling fan operation, and
- Open windows or doors.

**Results:**

The results of the radon test analysis indicated the following:

Radon Concentration	Room	Result
≥ 4.0 pCi/L	None	NA
≤ 4.0 pCi/L	See Attachment B	

Notes:  
D -Duplicate Sample

The office blank and lab transit blanks had test results of less than the laboratory detection limit of 0.4 pCi/L. Review of the duplicate sample analysis indicates that adequate laboratory measurement precision was achieved. The Spike sample analysis results indicate the laboratory is operating within statistical control limits.

The sampling locations, field observations, and analytical results are listed on Table 1 (Attachment B). The laboratory analytical results are also attached (Attachment C).

Laboratory results and exposure data for the spike samples are also included in Attachment C. Our professional services have been performed in accordance with customary principles and practices in the field of industrial hygiene and engineering. If you have any questions or comments regarding this report, please feel free to contact me at (703) 698-9300.



# **ATTACHMENT B**

Radon Test Summary Spreadsheet

<b>Radon Testing Results</b>		
<b>North Lake Center</b>		
<b>Testing period: 2/26/19 - 3/01/19</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result (pCi/L)</b>
3923381	14	<0.4
3923382	Teachers Lounge	0.4

**Table Notes:**

D – Duplicate

FB – Field Blank

OB – Office Blank

TB – Transit Blank

QC – Quality Control



# **ATTACHMENT C**

Laboratory Analytical Results

NRPP 105011 AL  
NRSB ARL0007

EPA Method #402-R-92-004  
Charcoal Canister  
NRPP Device Code 6048  
NRSB Device Code 10317

Laboratory Report for:

Property Tested: Project # 04481387-1

Intertek-PSI (VA)  
2930 Eskridge Road  
Fairfax VA 22031

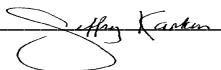
MCPS Radon Survey Northlake Center  
15101 Bauer Drive  
Rockville MD 20853


Log Number	Device Number	Test Date	Exposure Start	Exposure End	Area Tested	Result pCi/L
3220815	3923381	02/26/2019	8:43 am	03/01/2019 8:19 am	Floor Main Level Room 14	< 0.4
3220816	3923382	02/26/2019	8:45 am	03/01/2019 8:21 am	Floor Main Level Room Teachers Lounge	0.4

**Comment:** A copy of this report was e-mailed to Intertek-PSI (VA)

Distributed by: Intertek-PSI (VA)

Date Received: 03/05/2019    Date Logged: 03/05/2019    Date Analyzed: 03/05/2019    Date Reported: 03/06/2019

Report Reviewed By: 

Report Approved By: 

Shawn Price, Director of Laboratory Operations, AccuStar Labs

**Disclaimer:**

The uncertainty of this radon measurement is +/- 10 %. Factors contributing to uncertainty include statistical variations, daily and seasonal variations in radon concentrations, sample collection techniques and operation of the dwelling. Interference with test conditions may influence the test results.

This report may only be transferred to a third party in its entirety. Analytical results relate to the samples AS RECEIVED BY THE LABORATORY. Results shown on this report represent levels of radon gas measured between the dates shown in the room or area of the site identified above as "Property Tested". Incorrect information will affect results. The results may not be construed as either predictive or supportive of measurements conducted in any area of this structure at any other time. AccuStar Labs, its employees and agents are not responsible for the consequences of any action taken or not taken based upon the results reported or any verbal or written interpretation of the results.



## MONTGOMERY COUNTY PUBLIC SCHOOLS RADON TESTING

### Executive Summary:

#### North Lake Center

15101 Bauer Drive  
Rockville, MD 20853

Date of Test Report:	02/05/2019
Round of Testing:	Initial Follow-up Post Remediation 2 Year Testing <b>5 Year Testing</b> HVAC Upgrade Window Replacement New Addition New Facility
# of Rooms Tested:	40
# of Rooms $\geq$ 4.0 pCi/L:	0
Low Value:	< 0.4
High Value:	0.9

#### Project Status

**Initial testing complete:** Missing or compromised samples need re-test.



February 5, 2019

Mr. Richard Cox  
Indoor Air Quality Team Leader  
Montgomery County Public Schools  
850 Hungerford Drive  
Rockville, MD 20850

Re: Radon Testing Services

Location: Northlake Center  
15101 Bauer Drive  
Rockville, MD 20853

Dear Mr. Cox:

Intertek-PSI (PSI) is pleased to submit the following report to the Montgomery County Public Schools (MCPS) for completion of a "short-term" 3-day radon test for Northlake Center, located at 15101 Bauer Drive, Rockville, MD 20853 (subject site).

**Scope of Services:**

PSI conducted radon testing at the subject site to evaluate indoor radon levels relative to the USEPA's recommended action level of 4.0 picocuries per Liter (pCi/L) - the level at which EPA recommends that schools take action to reduce the level. PSI conducted the radon testing in accordance with American Association of Radon Scientists and Technologists (AARST) Protocol for Conducting Measurements of Radon and Radon Decay Products in Schools and Large Buildings. A National Radon Safety Board (NRSB) Radon Measurement Specialist (certification #14SS007) supervised the testing. Additional information on radon management and the health effects of radon exposure is available from [www.montgomerycountymd.gov/dep/air/radon](http://www.montgomerycountymd.gov/dep/air/radon) or [www.epa.gov/radon](http://www.epa.gov/radon).

PSI visited the site on November 12, 2018 and deployed fifty-one (51) activated charcoal (AC) radon test kits. PSI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. PSI returned to the site on November 15, 2018 to retrieve the radon sampling test kits. A floor plan map of the building with the test locations is included as Attachment A of this report.

As a quality control measure, PSI included duplicate samples, field blanks, lab transit blanks, and office blanks in accordance with AARST recommendations. In addition, PSI submitted ten (10) test kits to Bowser-Morner Inc. as spike samples. The spiked tests were exposed to a known radon concentration by Bowser-Morner Inc. prior to being returned to the laboratory for analysis.

PSI shipped all radon tests via overnight delivery to AccuStar Labs for analysis by gamma-ray spectroscopy. Accustar Labs is a NRSB certified analytical laboratory for radon analysis located at 929 Mount Zion Road, Lebanon, Pennsylvania (certification # ARL0007) and 2 Saber Way, Haverhill, Massachusetts (certification # ARL0017).



**Evaluation of Testing Conditions:**

The operating condition that represents the greatest amount of significantly occupied time for this building is; heating active, with outdoor temperature averages  $\leq 65^{\circ}\text{F}$ .

PSI concludes that the test period reasonably represents normal conditions when the building is significantly occupied. Clear characterization of the radon hazard is most likely to be observed under this normal operating condition. Based on the evaluation of test conditions, this test should reasonably characterize radon hazards.

PSI also conducted observations of field conditions which could affect the results of the test and compiled weather data for the testing period. PSI recorded observations of the following conditions in each room at the time of deployment and collection of the radon test kits:

- Indoor temperature,
- HVAC Operation,
- Dehumidifier operation,
- Humidifier operation,
- Ceiling fan operation, and
- Open windows or doors.

**Results:**

The results of the radon test analysis indicated the following:

Radon Concentration	Room	Result
$\geq 4.0$ pCi/L	None	NA
$\leq 4.0$ pCi/L	See Attachment B	

Notes:  
D -Duplicate Sample

The office blank and lab transit blanks had test results of less than the laboratory detection limit of 0.4 pCi/L. Review of the duplicate sample analysis indicates that adequate laboratory measurement precision was achieved. The Spike sample analysis results indicate the laboratory is operating within statistical control limits.

The sampling locations, field observations, and analytical results are listed on Table 1 (Attachment B). The laboratory analytical results are also attached (Attachment C).

Laboratory results and exposure data for the spike samples are also included in Attachment C. Our professional services have been performed in accordance with customary principles and practices in the field of industrial hygiene and engineering. If you have any questions or comments regarding this report, please feel free to contact me at (703) 698-9300.



Respectfully Submitted,

**INTERTEK-PSI**

A handwritten signature in black ink that reads "Nand Kaushik". The signature is written in a cursive, flowing style.

Nand Kaushik, P.E.  
Department Manager, Environmental Services  
[Nand.Kaushik@intertek.com](mailto:Nand.Kaushik@intertek.com)

Attachments:           A – Floor Plan with Test Locations  
                              B – Table 1 – Radon Test Summary Spreadsheet  
                              C – Laboratory Analytical Results

# **ATTACHMENT B**

Radon Test Summary Spreadsheet

<b>Radon Testing Results</b>		
<b>Northlake Center</b>		
<b>Testing period: 11/12/18 - 11/15/18</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result (pCi/L)</b>
3916909	1	< 0.4
3917021	1A	< 0.4
3917022	1B	< 0.4
3916910	2	< 0.4
3916917	3	0.5
3916918	4	0.4
3916919	5	0.7
3916921	6	0.5
3916922	7	0.5
3916923	7A	0.5
3916925	8	< 0.4
3916924	8A	< 0.4
3916926	9	0.6
3916927	10	0.8
3916928	11	0.5
3916929	12	0.7
3916932	13	0.9
3916934	14 (MISSING)	--
3916935	15	< 0.4
3916936	16	0.5
3916937	17	< 0.4
3916939	18	< 0.4
3916938	18A	< 0.4
3916940	19	< 0.4
3916902	20	< 0.4
3916903	21	< 0.4
3916905	22	0.6
3916915	23	0.5
3917023	23A	0.6
3881267	APR	0.4
3881268	APR	0.4
3916931	Building Service	0.4
3916906	Kitchen	< 0.4
3916908	Kitchen	< 0.4
3916988	Media Center Office	0.9
3916990	Media Center	0.7
3916989	Media Center	0.7
3916914	PIP	0.5
3916912	Principal	< 0.4
3916907	Teachers Lounge	Unable to Report
3916911	Vice Principal	< 0.4
3916913	Workroom (Main Office)	0.6
3916930	Workroom (Media Center)	0.6



<b>Radon Testing Results</b>		
<b>Northlake Center</b>		
<b>Testing period: 11/12/18 - 11/15/18</b>		
<b>Kit Number</b>	<b>QC Type</b>	<b>Result (pCi/L)</b>
3916920	5 (D)	0.9
3916933	13 (D)	0.9
3916901	19 (D)	0.4
3917024	23A (D)	0.4
3916916	Field Blank	< 0.4
3916904	Field Blank	< 0.4
3917874	Office Blank	< 0.4
3916322	Transit Blank	< 0.4

**Table Notes:**

D – Duplicate

FB – Field Blank

OB – Office Blank

TB – Transit Blank

QC – Quality Control

# **ATTACHMENT C**

Laboratory Analytical Results

NRPP 105011 AL  
NRSB ARL0007

EPA Method #402-R-92-004  
Charcoal Canister  
NRPP Device Code 6048  
NRSB Device Code 10317

Laboratory Report for:

Property Tested: Project # 04481387-1

Intertek-PSI (VA)  
2930 Eskridge Road  
Fairfax VA 22031

MCPS Radon Survey - Northlake Center  
15101 Bauer Drive  
Rockville MD 20853

Log Number	Device Number	Test Exposure Duration:	Area Tested	Result (pCi/L)
3195687	3916916	11/12/2018 10:00 am 11/15/2018 9:53 am	First Floor Room N/A Field Blank	< 0.4
3195688	3916904	11/12/2018 10:00 am 11/15/2018 9:53 am	First Floor Room N/A Field Blank	< 0.4
3195689	3916911	11/12/2018 10:00 am 11/15/2018 8:51 am	First Floor Room VP Office	< 0.4
3195690	3916912	11/12/2018 10:03 am 11/15/2018 8:53 am	First Floor Room Principal Office	< 0.4
3195691	3916913	11/12/2018 10:05 am 11/15/2018 8:54 am	First Floor Workroom	0.6
3195692	3916914	11/12/2018 10:07 am 11/15/2018 8:55 am	First Floor Room PIP	0.5
3195693	3916915	11/12/2018 10:10 am 11/15/2018 8:56 am	First Floor Room 23	0.5
3195694	3916917	11/12/2018 10:13 am 11/15/2018 8:58 am	First Floor Room 3	0.5
3195695	3916918	11/12/2018 10:14 am 11/15/2018 8:59 am	First Floor Room 4	0.4
3195696	3916919	11/12/2018 10:16 am 11/15/2018 9:01 am	First Floor Room 5	0.7

**Comment:** Device 3916934 was listed but not received with this datasheet.

Test Performed By: Lian Zadeng

Distributed by: Intertek-PSI (VA)

Date Received: 11/17/2018 Date Logged: 11/17/2018 Date Analyzed: 11/17/2018 Date Reported: 11/28/2018

Report Reviewed By: 

Report Approved By: 

**Disclaimer:**

The uncertainty of this radon measurement is +/- 10 %. Factors contributing to uncertainty include statistical variations, daily and seasonal variations in radon concentrations, sample collection techniques and operation of the dwelling. Interference with test conditions may influence the test results.

This report may only be transferred to a third party in its entirety. Analytical results relate to the samples AS RECEIVED BY THE LABORATORY. Results shown on this report represent levels of radon gas measured between the dates shown in the room or area of the site identified above as "Property Tested". Incorrect information will affect results. The results may not be construed as either predictive or supportive of measurements conducted in any area of this structure at any other time. AccuStar Labs, its employees and agents are not responsible for the consequences of any action taken or not taken based upon the results reported or any verbal or written interpretation of the results.

NRPP 105011 AL  
NRSB ARL0007

EPA Method #402-R-92-004  
Charcoal Canister  
NRPP Device Code 6048  
NRSB Device Code 10317

Laboratory Report for:

Property Tested: Project # 04481387-1

Intertek-PSI (VA)  
2930 Eskridge Road  
Fairfax VA 22031

MCPS Radon Survey - Northlake Center  
15101 Bauer Drive  
Rockville MD 20853

Log Number	Device Number	Test Exposure Duration:	Area Tested	Result (pCi/L)
3195697	3916920	11/12/2018 10:16 am 11/15/2018 9:01 am	First Floor Room 5 Duplicate	0.9
3195698	3916921	11/12/2018 10:18 am 11/15/2018 9:02 am	First Floor Room 6	0.5
3195699	3916922	11/12/2018 10:19 am 11/15/2018 9:03 am	First Floor Room 7	0.5
3195700	3916923	11/12/2018 10:31 am 11/15/2018 9:05 am	First Floor Room 7A	0.5
3195701	3916924	11/12/2018 10:35 am 11/15/2018 9:07 am	First Floor Room 8A	< 0.4
3195702	3916925	11/12/2018 10:38 am 11/15/2018 9:08 am	First Floor Room 8	< 0.4
3195703	3916926	11/12/2018 10:41 am 11/15/2018 9:09 am	First Floor Room 9	0.6
3195704	3916927	11/12/2018 10:42 am 11/15/2018 9:11 am	First Floor Room 10	0.8
3195705	3916928	11/12/2018 10:44 am 11/15/2018 9:13 am	First Floor Room 11	0.5
3195706	3916929	11/12/2018 10:46 am 11/15/2018 9:14 am	First Floor Room 12	0.7

**Comment:** Device 3916934 was listed but not received with this datasheet.

Test Performed By: Lian Zadeng

Distributed by: Intertek-PSI (VA)

Date Received: 11/17/2018 Date Logged: 11/17/2018 Date Analyzed: 11/17/2018 Date Reported: 11/28/2018

Report Reviewed By: 

Report Approved By: 

**Disclaimer:**

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NRPP 105011 AL  
NRSB ARL0007

EPA Method #402-R-92-004  
Charcoal Canister  
NRPP Device Code 6048  
NRSB Device Code 10317

Laboratory Report for:

Property Tested: Project # 04481387-1

Intertek-PSI (VA)  
2930 Eskridge Road  
Fairfax VA 22031

MCPS Radon Survey - Northlake Center  
15101 Bauer Drive  
Rockville MD 20853

Log Number	Device Number	Test Exposure Duration:	Area Tested	Result (pCi/L)
3195707	3916989	11/12/2018 10:52 am 11/15/2018 9:15 am	First Floor Room Media Center (MC)	0.7
3195708	3916990	11/12/2018 10:53 am 11/15/2018 9:16 am	First Floor Room Media Center	0.7
3195709	3916988	11/12/2018 11:00 am 11/15/2018 9:18 am	First Floor Room MC Office	0.9
3195710	3916930	11/12/2018 11:02 am 11/15/2018 9:19 am	First Floor Workroom	0.6
3195711	3916931	11/12/2018 11:05 am 11/15/2018 9:22 am	First Floor Room Building Service	0.4
3195712	3916932	11/12/2018 11:09 am 11/15/2018 9:25 am	First Floor Room 13	0.9
3195713	3916933	11/12/2018 11:09 am 11/15/2018 9:25 am	First Floor Room 13 Duplicate	0.9
3195714	3916935	11/12/2018 11:12 am 11/15/2018 9:27 am	First Floor Room 15	< 0.4
3195715	3916936	11/12/2018 11:16 am 11/15/2018 9:28 am	First Floor Room 16	0.5
3195716	3916937	11/12/2018 11:18 am 11/15/2018 9:29 am	First Floor Room 17	< 0.4

**Comment:** Device 3916934 was listed but not received with this datasheet.

Test Performed By: Lian Zadeng

Distributed by: Intertek-PSI (VA)

Date Received: 11/17/2018 Date Logged: 11/17/2018 Date Analyzed: 11/17/2018 Date Reported: 11/28/2018

Report Reviewed By: 

Report Approved By: 

**Disclaimer:**

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NRPP 105011 AL  
NRSB ARL0007

EPA Method #402-R-92-004  
Charcoal Canister  
NRPP Device Code 6048  
NRSB Device Code 10317

Laboratory Report for:

Property Tested: Project # 04481387-1

Intertek-PSI (VA)  
2930 Eskridge Road  
Fairfax VA 22031

MCPS Radon Survey - Northlake Center  
15101 Bauer Drive  
Rockville MD 20853

Log Number	Device Number	Test Exposure Duration:	Area Tested	Result (pCi/L)
3195717	3916938	11/12/2018 11:24 am 11/15/2018 9:31 am	First Floor Room 18A	< 0.4
3195718	3916939	11/12/2018 11:25 am 11/15/2018 9:32 am	First Floor Room 18	< 0.4
3195719	3916940	11/12/2018 11:27 am 11/15/2018 9:33 am	First Floor Room 19	< 0.4
3195720	3916901	11/12/2018 11:27 am 11/15/2018 9:33 am	First Floor Room 19 Duplicate	0.4
3195721	3916902	11/12/2018 11:32 am 11/15/2018 9:34 am	First Floor Room 20	< 0.4
3195722	3916903	11/12/2018 11:34 am 11/15/2018 9:35 am	First Floor Room 21	< 0.4
3195723	3916905	11/12/2018 11:38 am 11/15/2018 9:38 am	First Floor Room 22	0.6
3195724	3916907	11/12/2018 11:42 am 11/15/2018 9:41 am	First Floor Room Teacher Lounge	Invalid
3195725	3916906	11/12/2018 11:46 am 11/15/2018 9:44 am	First Floor Room Kitchen	< 0.4
3195726	3916908	11/12/2018 11:46 am 11/15/2018 9:45 am	First Floor Room Kitchen	< 0.4

**Comment:** Device 3916934 was listed but not received with this datasheet.

Test Performed By: Lian Zadeng

Distributed by: Intertek-PSI (VA)

Date Received: 11/17/2018 Date Logged: 11/17/2018 Date Analyzed: 11/17/2018 Date Reported: 11/28/2018

Report Reviewed By: 

Report Approved By: 

**Disclaimer:**

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NRPP 105011 AL  
NRSB ARL0007

EPA Method #402-R-92-004  
Charcoal Canister  
NRPP Device Code 6048  
NRSB Device Code 10317

Laboratory Report for:

Property Tested: Project # 04481387-1

Intertek-PSI (VA)  
2930 Eskridge Road  
Fairfax VA 22031

MCPS Radon Survey - Northlake Center  
15101 Bauer Drive  
Rockville MD 20853

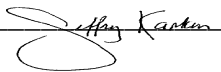
Log Number	Device Number	Test Exposure Duration:	Area Tested	Result (pCi/L)
3195727	3916909	11/12/2018 12:00 pm 11/15/2018 9:48 am	First Floor Room 1	< 0.4
3195728	3916910	11/12/2018 12:02 pm 11/15/2018 9:49 am	First Floor Room 2	< 0.4
3195729	3917021	11/12/2018 12:03 pm 11/15/2018 9:50 am	First Floor Room 1A	< 0.4
3195730	3917022	11/12/2018 12:03 pm 11/15/2018 9:51 am	First Floor Room 1B	< 0.4
3195731	3917023	11/12/2018 12:07 pm 11/15/2018 9:53 am	First Floor Room 23A	0.6
3195732	3917024	11/12/2018 12:07 pm 11/15/2018 9:53 am	First Floor Room 23A Duplicate	0.4
3195733	3917874	11/12/2018 6:00 am 11/15/2018 4:10 pm	Floor N/A Room N/A Field Blank	< 0.4
3195734	3916322	11/12/2018 6:00 am 11/15/2018 4:10 pm	Floor N/A Room N/A Field Blank	< 0.4

**Comment:** Device 3916934 was listed but not received with this datasheet.

Test Performed By: Lian Zadeng

Distributed by: Intertek-PSI (VA)

Date Received: 11/17/2018 Date Logged: 11/17/2018 Date Analyzed: 11/17/2018 Date Reported: 11/28/2018

Report Reviewed By: 

Report Approved By: 

**Disclaimer:**

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NELAC NY 11769  
NRPP 103216 AL  
NRSB ARL0017

EPA Method #402-R-92-004  
Liquid Scintillation  
NRPP Device Code 8088  
NRSB Device Code 12193

Laboratory Report for:

Property Tested: Project # 04481387-1

Intertek-PSI (VA)  
2930 Eskridge Road  
Fairfax VA 22031


MCPS Radon Survey  
15101 Bauer Dr.  
Rockville MD 20853


Log Number	Device Number	Test Exposure Duration:	Area Tested	Result pCi/L
2393096	3881267	11/12/2018 11:51 am 11/15/2018 9:46 am	First Floor Room APR	0.4
2393097	3881268	11/12/2018 11:52 am 11/15/2018 9:47 am	First Floor Room APR	0.4

**Comment:** A copy of this report was emailed to Intertek-PSI (VA).

Distributed by: Intertek-PSI (VA)

Date Received: 11/18/2018 Date Logged: 11/18/2018 Date Analyzed: 11/19/2018 Date Reported: 01/04/2019

Report Reviewed By: 

Report Approved By: 

Shawn Price, Director of Laboratory Operations, AccuStar Labs

**Disclaimer:**

The uncertainty of this radon measurement is  $\sim\pm 10\%$ . Factors contributing to uncertainty include statistical variations, daily and seasonal variations in radon concentrations, sample collection techniques and operation of the dwelling. Interference with test conditions may influence the test results.

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NRPP 105011 AL  
NRSB ARL0007  
Ohio RL41

EPA Method #402-R-92-004  
Charcoal Canister  
NRPP Device Code 6048  
NRSB Device Code 10317

Laboratory Report for:

Property Tested:

Intertek-PSI (VA)  
2930 Eskridge Road  
Fairfax VA 22031

MCPS Radon Survey  
4514 Taylorsville Road  
Dayton OH 45424

Log Number	Device Number	Test Exposure Duration:	Area Tested	Result pCi/L
3204125	3926831	12/07/2018 9:47 am - 12/10/2018 9:47 am	Spike	36.1
3204126	3926832	12/07/2018 9:47 am - 12/10/2018 9:47 am	Spike	34.8
3204127	3926833	12/07/2018 9:47 am - 12/10/2018 9:47 am	Spike	33.7
3204128	3926834	12/07/2018 9:47 am - 12/10/2018 9:47 am	Spike	35.8
3204129	3926835	12/07/2018 9:47 am - 12/10/2018 9:47 am	Spike	35.0
3204130	3926836	12/07/2018 9:47 am - 12/10/2018 9:47 am	Spike	34.5
3204131	3926837	12/07/2018 9:47 am - 12/10/2018 9:47 am	Spike	34.6
3204132	3926838	12/07/2018 9:47 am - 12/10/2018 9:47 am	Spike	34.3
3204133	3926839	12/07/2018 9:47 am - 12/10/2018 9:47 am	Spike	33.2
3204134	3926840	12/07/2018 9:47 am - 12/10/2018 9:47 am	Spike	34.0

**Comment:** A copy of this report was e-mailed to Intertek-PSI (VA)

Test Performed By: Unknown

Distributed by: Intertek-PSI (VA)

Date Received: 12/12/2018    Date Logged: 12/12/2018    Date Analyzed: 12/12/2018    Date Reported: 12/13/2018

Report Reviewed By: 

Report Approved By: 

**Disclaimer:**

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Shawn Price, Director of Laboratory Operations, AccuStar Labs

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# EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT Intertek - PSI

Job Number 187732

NOMINAL Conditions: Radon Conc 32.6 pCi/L Rel. Hum 49.1 % Temp. 70.1 F

Date Start: 12/7/18 Date Stop: 12/10/18

Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

Time Start: 0947 Time Stop: 0947

Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_

Device No.'s: (10) Char. Cans-

Device No.'s: \_\_\_\_\_

3926831 thru 3926840

G2 left

Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_

Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_

Device No.'s: \_\_\_\_\_

Device No.'s: \_\_\_\_\_

Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_

Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_

Device No.'s: \_\_\_\_\_

Device No.'s: \_\_\_\_\_

Note: All times are in 24-hour (military) notation, Eastern Standard Time (EST)  
Background = 7  $\mu$ R/h Elevation = 820 ft



## Chain of Custody

Project Name: MCPS Radon Survey 2018

Name of Schools:

- |                   |                      |                    |
|-------------------|----------------------|--------------------|
| 1. Arcola ES      | 7. North Lake Center | 13. Cold Spring ES |
| 2. Glen Haven ES  | 8. Barnsley ES       | 14. Hoover MS      |
| 3. Jackson Road   | 9. Bayard Rustin ES  | 15. Wayside ES     |
| 4. Cashell ES     | 10. Julius West MS   | 16. English Manor  |
| 5. Frost MS       | 11. Rock Terrace HS  |                    |
| 6. Meadow Hall ES | 12. Churchill HS     |                    |

---

	Date	Initials
Radon Test Kits Deployed	11/12/2018	NL
Radon Test Kits Sampled	11/15/2018	NL
Radon Test Kits Shipped to Lab*	11/15/2018	NL
Radon Test Kits Received by Lab*	11/17/2018; 11/18/2018	NL

\*All samples sent to AccuStar Laboratories, 929 Mount Zion Road, Lebanon, PA 17046 and 2 Saber Way, Haverhill, MA 01835



## MCPS RADON TESTING

### Executive Summary: North Lake Center

Date of Test Report:	3/11/2016 (Rev 1)
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	39
# Rooms $\geq$ 4.0 pCi/L:	0
Low Value:	< 0.3
High Value:	1.3

#### Project Status:

Initial testing completed; no further action at this time.



March 11, 2016 (Rev 1)

Mr. Richard Cox  
Indoor Air Quality Team Leader  
Montgomery County Public Schools  
850 Hungerford Drive  
Rockville, MD 20850

Re: **Radon Testing Services**  
KCI Job # 12146341.22

Location: North Lake Center  
15101 Bauer Drive  
Rockville, MD 20853

Dear Mr. Cox:

KCI Technologies, Inc. (KCI) is pleased to submit the following report to the Montgomery County Public Schools (MCPS) pursuant to completing a “short-term” 3 day radon test for the North Lake Center, located at 15101 Bauer Drive in Rockville, Maryland 20853 (subject site).

**Scope of Services:**

KCI conducted radon testing at the subject site to evaluate indoor radon levels relative to the USEPA's recommended action level of 4.0 picocuries per Liter (pCi/L) - the level at which EPA recommends that schools take action to reduce the level. KCI conducted the radon testing in accordance with American Association of Radon Scientists and Technologists (AARST) *Protocol for Conducting Measurements of Radon and Radon Decay Products in Schools and Large Buildings*. A National Radon Safety Board (NRSB) Radon Measurement Specialist (certification #14SS056) supervised the testing. Additional information on radon management and the health effects of radon exposure is available from [www.montgomerycountymd.gov/dep/air/radon](http://www.montgomerycountymd.gov/dep/air/radon) or [www.epa.gov/radon](http://www.epa.gov/radon).

KCI visited the site on December 28, 2015 and deployed fifty-one (51) activated charcoal (AC) radon test kits. KCI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. A floor plan map of the building with the test locations is included as Attachment A of this report.

As a quality control measure, KCI included duplicate samples, field blanks, lab transit blanks, and office blanks in accordance with AARST recommendations. In addition, KCI submitted six (6) test kits to Bowser-Morner, Inc. as spike samples. The spiked tests were exposed to a known radon concentration by Bowser-Morner prior to being returned to the laboratory for analysis.

KCI returned to the site on December 31, 2015 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Airchek, Inc. for analysis by gamma-ray spectroscopy. Airchek, Inc. is a NRSB certified analytical laboratory for radon analysis (certification # ARL1402) located at 1936

Butler Bridge Road, Mills River, North Carolina.

**Evaluation of Testing Conditions:**

The operating condition that represents the greatest amount of significantly occupied time for this building is; heating active, with outdoor temperature averages  $\leq 65^{\circ}$  F.

KCI concludes that the test period reasonably represents normal conditions when the building is significantly occupied. Clear characterization of the radon hazard is most likely to be observed under this normal operating condition. Based on the evaluation of test conditions, this test should reasonably characterize radon hazards.

KCI also conducted observations of field conditions which could affect the results of the test and compiled weather data for the testing period. KCI recorded observations of the following conditions in each room at the time of deployment and collection of the radon test kits:

- Indoor temperature,
- HVAC Operation,
- Dehumidifier operation,
- Humidifier operation,
- Ceiling fan operation, and
- Open windows or doors.

**Results:**

The results of the radon test analysis indicated the following:

<b>Radon Concentration</b>	<b>Room</b>	<b>Result</b>
$\geq 4.0$ pCi/L	none	n/a
$< 4.0$ pCi/L	See Attachment B	

Notes:  
D- Duplicate sample

The field blanks, office blank, and lab transit blanks had test results of less than the laboratory detection limit of 0.3 pCi/L. Review of the duplicate sample analysis indicates that adequate laboratory measurement precision was achieved. The Spike sample analysis results indicate the laboratory is operating within statistical control limits.

The sampling locations, field observations, and analytical results are listed on Table 1 (Attachment B). The laboratory analytical results are also attached (Attachment C). Laboratory results and exposure data for the spike samples are also included in Attachment C.

Our professional services have been performed in accordance with customary principles and practices in the field of industrial hygiene and engineering. If you have any questions or comments regarding this report, please feel free to contact me at (410) 316-7800.

Sincerely,



James M. Mouldale  
Radon Measurement Specialist  
KCI Technologies, Inc.

Attachments:      A- Floor Plan with Test Locations  
                          B- Table 1-Radon Test Summary Spreadsheet  
                          C- Laboratory Analytical Results



# ATTACHMENT A

## Floor Plan With Test Locations

# ATTACHMENT B

## Radon Test Summary Spreadsheet

**Table Notes:**

AC- Activated Charcoal

ACI- Air Chek, Inc.

D- Duplicate

FB- Field Blank

KCI- KCI Technologies, Inc.

OB- Office Blank

PM- Project Manager

QC- Quality Control

<b>Radon Testing Results</b>		
<b>North Lake Elementary</b>		
<b>Test Period: 12/28/15-12/31/15</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result</b>
7706666	101	< 0.3
7706375	102	< 0.3
7706657	103	< 0.3
7706652	104	0.5
7706662	106	< 0.3
7706665	107	< 0.3
7706458	108	< 0.3
7708656	109	< 0.3
7708657	110	< 0.3
7706202	111	< 0.3
7706302	112	< 0.3
7706383	112	< 0.3
7706658	125	< 0.3
7706659	126	0.6
7708645	126	0.7
7708652	127	0.7
7708653	129	0.7
7706206	130	< 0.3
7708647	131	< 0.3
7705131	132	< 0.3
7706392	133	0.7
7708646	134	< 0.3
7706229	135	< 0.3
7706692	139	0.6
7706691	140	< 0.3
7706690	141	< 0.3
7706397	142	0.6
7706672	143	< 0.3
7706673	144	1.3
7706680	145	0.9
7706225	146	0.6
7706227	147	0.9
7705139	148	0.7
7706687	149	< 0.3
7706682	150	0.5
7706661	154	< 0.3
7706663	155	0.7
7704005	156	0.7
7706664	157	0.6
7706399	158	< 0.3
7706653	159	< 0.3

Table Note:

\* Missing or Compromised Sample

<b>Radon Testing Results</b>		
<b>North Lake Elementary</b>		
<b>Test Period: 12/28/15-12/31/15</b>		
<b>Kit Number</b>	<b>QC Type</b>	<b>Result</b>
7706472	D (108)	< 0.3
7704811	D (125)	< 0.3
7706207	D (143)	< 0.3
7706222	D (145)	1.1
7706400	D (154)	0.6
7706654	D (159)	< 0.3
7706387	FB (106)	< 0.3
7706674	FB (144)	< 0.3
7706677	FB (150)	< 0.3
7710541	OB (0)	< 0.3

Table Note:

\* Missing or Compromised Sample

# ATTACHMENT C

## Laboratory Analytical Results

January 16, 2016  
\***LABORATORY ANALYSIS**  
**REPORT** \*\*

Radon test result report for:  
**NORTH LAKE ELEMENTARY**  
**MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7710541	0	2015-12-28 @ 3:00 pm	2015-12-31 @ 9:00 am	< 0.3	2016-01-04
7706666	101	2015-12-28 @ 12:00 pm	2015-12-31 @ 9:00 am	< 0.3	2016-01-04
7706375	102	2015-12-28 @ 12:00 pm	2015-12-31 @ 9:00 am	< 0.3	2016-01-04
7706657	103	2015-12-28 @ 12:00 pm	2015-12-31 @ 9:00 am	< 0.3	2016-01-04
7706652	104	2015-12-28 @ 12:00 pm	2015-12-31 @ 9:00 am	0.5 ± 0.3	2016-01-04
7706387	106	2015-12-28 @ 12:00 pm	2015-12-31 @ 9:00 am	< 0.3	2016-01-04
7706662	106	2015-12-28 @ 12:00 pm	2015-12-31 @ 9:00 am	< 0.3	2016-01-04
7706665	107	2015-12-28 @ 12:00 pm	2015-12-31 @ 9:00 am	< 0.3	2016-01-04
7706458	108	2015-12-28 @ 12:00 pm	2015-12-31 @ 9:00 am	< 0.3	2016-01-04
7706472	108	2015-12-28 @ 12:00 pm	2015-12-31 @ 9:00 am	< 0.3	2016-01-04
7708656	109	2015-12-28 @ 12:00 pm	2015-12-31 @ 9:00 am	< 0.3	2016-01-04
7708657	110	2015-12-28 @ 12:00 pm	2015-12-31 @ 9:00 am	< 0.3	2016-01-04
7706202	111	2015-12-28 @ 12:00 pm	2015-12-31 @ 9:00 am	< 0.3	2016-01-04
7706302	112	2015-12-28 @ 12:00 pm	2015-12-31 @ 9:00 am	< 0.3	2016-01-04
7706383	112	2015-12-28 @ 12:00 pm	2015-12-31 @ 9:00 am	< 0.3	2016-01-04
7704811	125	2015-12-28 @ 12:00 pm	2015-12-31 @ 9:00 am	< 0.3	2016-01-04
7706658	125	2015-12-28 @ 12:00 pm	2015-12-31 @ 9:00 am	< 0.3	2016-01-04
7708645	126	2015-12-28 @ 11:00 am	2015-12-31 @ 9:00 am	0.7 ± 0.3	2016-01-04
7706659	126	2015-12-28 @ 11:00 am	2015-12-31 @ 9:00 am	0.6 ± 0.3	2016-01-04
7708652	127	2015-12-28 @ 11:00 am	2015-12-31 @ 9:00 am	0.7 ± 0.3	2016-01-04
7708653	129	2015-12-28 @ 11:00 am	2015-12-31 @ 9:00 am	0.7 ± 0.3	2016-01-04
7708646	134	2015-12-28 @ 11:00 am	2015-12-31 @ 8:00 am	< 0.3	2016-01-04
7706229	135	2015-12-28 @ 11:00 am	2015-12-31 @ 8:00 am	< 0.3	2016-01-04
7706692	139	2015-12-28 @ 11:00 am	2015-12-31 @ 8:00 am	0.6 ± 0.3	2016-01-04
7706691	140	2015-12-28 @ 11:00 am	2015-12-31 @ 8:00 am	< 0.3	2016-01-04
7706690	141	2015-12-28 @ 11:00 am	2015-12-31 @ 8:00 am	< 0.3	2016-01-04
7706397	142	2015-12-28 @ 11:00 am	2015-12-31 @ 8:00 am	0.6 ± 0.3	2016-01-04
7706672	143	2015-12-28 @ 11:00 am	2015-12-31 @ 8:00 am	< 0.3	2016-01-04
7706207	143	2015-12-28 @ 11:00 am	2015-12-31 @ 8:00 am	< 0.3	2016-01-04
7706673	144	2015-12-28 @ 11:00 am	2015-12-31 @ 8:00 am	1.3 ± 0.3	2016-01-04
7706674	144	2015-12-28 @ 11:00 am	2015-12-31 @ 8:00 am	< 0.3	2016-01-04
7706680	145	2015-12-28 @ 11:00 am	2015-12-31 @ 8:00 am	0.9 ± 0.3	2016-01-04
7706222	145	2015-12-28 @ 11:00 am	2015-12-31 @ 8:00 am	1.1 ± 0.3	2016-01-04
7706225	146	2015-12-28 @ 11:00 am	2015-12-31 @ 8:00 am	0.6 ± 0.3	2016-01-04
7706227	147	2015-12-28 @ 11:00 am	2015-12-31 @ 8:00 am	0.9 ± 0.3	2016-01-04
7705139	148	2015-12-28 @ 11:00 am	2015-12-31 @ 8:00 am	0.7 ± 0.3	2016-01-04
7706687	149	2015-12-28 @ 11:00 am	2015-12-31 @ 8:00 am	< 0.3	2016-01-04

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January 16, 2016  
\*\* LABORATORY ANALYSIS REPORT \*\*

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Radon test result report for:  
**NORTH LAKE ELEMENTARY  
MAIN**

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Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7706677	150	2015-12-28 @ 11:00 am	2015-12-31 @ 8:00 am	< 0.3	2016-01-04
7706682	150	2015-12-28 @ 11:00 am	2015-12-31 @ 8:00 am	0.5 ± 0.3	2016-01-04
7706400	154	2015-12-28 @ 11:00 am	2015-12-31 @ 8:00 am	0.6 ± 0.3	2016-01-04
7706661	154	2015-12-28 @ 11:00 am	2015-12-31 @ 8:00 am	< 0.3	2016-01-04
7706663	155	2015-12-28 @ 11:00 am	2015-12-31 @ 8:00 am	0.7 ± 0.3	2016-01-04
7704005	156	2015-12-28 @ 11:00 am	2015-12-31 @ 8:00 am	0.7 ± 0.3	2016-01-04
7706664	157	2015-12-28 @ 11:00 am	2015-12-31 @ 8:00 am	0.6 ± 0.3	2016-01-04
7706399	158	2015-12-28 @ 11:00 am	2015-12-31 @ 8:00 am	< 0.3	2016-01-04
7706653	159	2015-12-28 @ 11:00 am	2015-12-31 @ 8:00 am	< 0.3	2016-01-04
7706654	159	2015-12-28 @ 11:00 am	2015-12-31 @ 9:00 am	< 0.3	2016-01-04
7706206	130	2015-12-28 @ 11:00 am	2015-12-31 @ 8:00 am	< 0.3	2016-01-04
7708647	131	2015-12-28 @ 11:00 am	2015-12-31 @ 8:00 am	< 0.3	2016-01-04
7706392	133	2015-12-28 @ 11:00 am	2015-12-31 @ 8:00 am	0.7 ± 0.3	2016-01-04
7705131	132	2015-12-28 @ 11:00 am	2015-12-31 @ 8:00 am	< 0.3	2016-01-04

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January 15, 2016  
\*\* LABORATORY ANALYSIS REPORT \*\*

Radon test result report for:  
**MCPS PHASE 3 & 4  
TRANSIT BLANKS**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7708218	TRANSIT 4	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708200	TRANSIT 1	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708190	TRANSIT 10	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708189	TRANSIT 11	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708191	TRANSIT 12	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708188	TRANSIT 13	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708197	TRANSIT 14	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708186	TRANSIT 15	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708185	TRANSIT 16	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708184	TRANSIT 17	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708182	TRANSIT 18	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708187	TRANSIT 18	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708199	TRANSIT 2	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708181	TRANSIT 20	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708180	TRANSIT 21	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708183	TRANSIT 22	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708178	TRANSIT 23	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708179	TRANSIT 24	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708177	TRANSIT 25	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708176	TRANSIT 26	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708174	TRANSIT 27	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708173	TRANSIT 28	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708175	TRANSIT 29	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708198	TRANSIT 3	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708172	TRANSIT 30	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708194	TRANSIT 5	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708196	TRANSIT 6	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708193	TRANSIT 7	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708192	TRANSIT 8	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708195	TRANSIT 9	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23

December  
23,  
2015

**LABORATORY ANALYSIS  
REPORT \*\***

Spike Sample Laboratory Results

Radon test result report for:  
**MCPS**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7706380	101	2015-12-18 @ 9:00 am	2015-12-21 @ 9:00 am	25.2	2015-12-23
7706381	102	2015-12-18 @ 9:00 am	2015-12-21 @ 9:00 am	26.5	2015-12-23
7706208	103	2015-12-18 @ 9:00 am	2015-12-21 @ 9:00 am	27.7	2015-12-23
7705132	104	2015-12-18 @ 9:00 am	2015-12-21 @ 9:00 am	28.6	2015-12-23
7706366	105	2015-12-18 @ 9:00 am	2015-12-21 @ 9:00 am	26.5	2015-12-23
7706211	106	2015-12-18 @ 9:00 am	2015-12-21 @ 9:00 am	26.1	2015-12-23

Air Chek, Inc. 1936 Butler Bridge Rd, Mills River, NC 28759-3892 Phone: (828) 684-0893 Fax: (828) 684-8498

**Note: Spike samples are test canisters that are deliberately exposed to a controlled high level of radon in a laboratory. They provide a quality control measure in the testing process and do NOT reflect radon levels in the building being tested.**

**EXPOSURE IN BOWSER-MORNER RADON CHAMBER**

CLIENT KCI Technologies Inc. Job Number 173224

NOMINAL Conditions: Radon Conc 26.9 pCi/L Rel. Hum 49.6 % Temp. 69.9 F

Date Start: 12/18/15 Date Stop: 12/21/15 Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

Time Start: 0929 Time Stop: 0929 Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_

Device No.'s: 7705132, 7706208, Device No.'s: \_\_\_\_\_

7706211, 7706366, \_\_\_\_\_

7706380, 7706381 \_\_\_\_\_

F3 Left

Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_ Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_ Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_

Device No.'s: \_\_\_\_\_ Device No.'s: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_ Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_ Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_

Device No.'s: \_\_\_\_\_ Device No.'s: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

**Note: All times are in 24-hour (military) notation, Eastern Standard Time (EST)  
Background = 7  $\mu$ R/h Elevation = 820 ft**



## Chain of Custody

Project Name: MCPS Radon Phase III

Name of Schools:

- |                       |                       |                       |
|-----------------------|-----------------------|-----------------------|
| 1. Burnt Mills ES     | 13. Georgian Frost ES | 25. Northlake Center  |
| 2. Burtonsville ES    | 14. Germantown ES     | 26. Olney ES          |
| 3. Cedar Grove ES     | 15. Goshen ES         | 27. Rosa Parks MS     |
| 4. Cloverly ES        | 16. Greencastle ES    | 28. Poolesville ES    |
| 5. Cold Spring ES     | 17. Greenwood ES      | 29. Poolesville HS    |
| 6. Damascus HS        | 18. Lake Seneca ES    | 30. Potomac ES        |
| 7. Darnestown ES      | 19. Laytonsville ES   | 31. Rock Terrace HS   |
| 8. Diamond ES         | 20. Col. E. Brooke MS | 32. Rosemary Hills ES |
| 9. Charles R. Drew ES | 21. Luxmanor ES       | 33. Carl Sandburg     |
| 10. DuFief ES         | 22. Magruder HS       | 34. Sequoyah ES       |
| 11. Thomas Edison HS  | 23. Thur. Marshall ES | 35. Stedwick ES       |
| 12. Robert Frost MS   | 24. Monocacy ES       | 36. Whetstone ES      |

	Date	Initials
Radon Test Kits Deployed	12/28/15	JM
Radon Test Kits Sampled	12/31/15	JM
Radon Test Kits Shipped to Lab*	12/31/15	JM
Radon Test Kits Received by Lab*	1/4/16	JM

\*All samples sent to Air Check, Inc., 1936 Butler Bridge Road, Mills River, NC 28758