



**MCPS RADON TESTING – EXECUTIVE SUMMARY**

Site Name	Wood Acres Elementary School
Date of Test Report	1/04/2023
Round of Testing	Initial Follow-up Post Remediation 2 Year Testing 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility
# Rooms Tested	47
# Rooms $\geq$ 4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	1.4 pCi/L

Project Status:

1. 5-Year retesting completed



January 4, 2023

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

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

Location: Wood Acres Elementary School  
5800 Cromwell Drive  
Bethesda, MD 20816

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 Wood Acres ES, located at 5800 Cromwell Drive Bethesda, MD 20816 (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 5, 2022 and deployed fifty-four (54) 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 8, 2022 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:**

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 low temperatures were in the 20s°F and high temperatures ranged to the mid-50s°F. Maximum sustained winds ranged from 0-12 miles per hour. Average humidity was around 75% with .04 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:

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

<b>Quality Control Samples</b>	
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		
Wood Acres ES		
Test Period: 12/05/2022 - 12/08/2022		
Kit Number	Room / Area	Result
11139898	102	< 0.3
11139879	103	< 0.3
11139899	110	1.2
11139886	115	< 0.3
11139880	117	< 0.3
11140053	121	< 0.3
11140059	121	1.0
11131712	122	< 0.3
11131794	124	< 0.3
11140050	126	< 0.3
11131729	128	< 0.3
11139885	128	< 0.3
11131755	129	< 0.3
11140056	129	1.2
11140051	130	< 0.3
11140052	130	< 0.3
11131793	131	1.3
11140066	132	1.4
11140021	133	< 0.3
11140060	134	0.9
11140054	135	< 0.3
11131792	137	0.8
11140030	149	< 0.3
11140058	149	< 0.3
11140065	155	< 0.3
11140055	161	< 0.3
11140068	162	1.1
11140049	169	0.9
11140032	170	0.6
11140067	172	0.6
11140073	173	< 0.3
11140074	174	< 0.3
11140057	200	< 0.3
11140075	223	< 0.3
11139892	100A	< 0.3
11139889	100B	0.6
11139894	100C	< 0.3
11139888	101 IMC	< 0.3
11139895	101 IMC	< 0.3
11139887	101A	< 0.3
11139893	101A	0.8
11139891	101B	1.0



Table 1- Radon Testing Results		
Wood Acres ES		
Test Period: 12/05/2022 - 12/08/2022		
Kit Number	Room / Area	Result
11139896	104 WR	< 0.3
11139884	114 CON	< 0.3
11139900	114A	< 0.3
11140069	204 BS	1.0
11140061	GYM	0.7
11140062	GYM	0.9
11140064	GYM OFFICE	1.2
11131780	KITCHEN OFFICE	< 0.3
11139890	MAIN OFFICE	< 0.3
11140070	MULTIPURPOSE	0.6
11140076	MULTIPURPOSE	0.7
11139897	TELEPHONE	1.2

Table 2- Radon Testing Results			
Wood Acres ES			
Test Period: 12/05/22 - 12/08/22			
Kit Number	QC Type	Room / Area	Result
11140059	D	121	1.0
11131729	D	128	< 0.3
11131755	FB	129	< 0.3
11140052	D	130	< 0.3
11140030	FB	149	< 0.3
11139893	D	101A	0.8
11140076	D	Multipurpose	0.7
11133716	OB	OFFICE BLANK	< 0.3
11140129	TB	TRAVEL BLANK	< 0.3



# ATTACHMENT C

## Laboratory Analytical Results

Radon test result report for:

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11139892	100A	2022-12-05 @ 8:00 am	2022-12-08 @ 8:00 am	< 0.3	2022-12-14
11139889	100B	2022-12-05 @ 8:00 am	2022-12-08 @ 8:00 am	0.6 ± 0.4	2022-12-14
11139894	100C	2022-12-05 @ 8:00 am	2022-12-08 @ 8:00 am	< 0.3	2022-12-14
11139888	101 IMC	2022-12-05 @ 8:00 am	2022-12-08 @ 9:00 am	< 0.3	2022-12-14
11139895	101 IMC	2022-12-05 @ 8:00 am	2022-12-08 @ 8:00 am	< 0.3	2022-12-14
11139887	101A	2022-12-05 @ 8:00 am	2022-12-08 @ 8:00 am	< 0.3	2022-12-14
11139893	101A	2022-12-05 @ 8:00 am	2022-12-08 @ 8:00 am	0.8 ± 0.4	2022-12-14
11139891	101B	2022-12-05 @ 8:00 am	2022-12-08 @ 8:00 am	1.0 ± 0.5	2022-12-14
11139898	102	2022-12-05 @ 8:00 am	2022-12-08 @ 8:00 am	< 0.3	2022-12-14
11139879	103	2022-12-05 @ 8:00 am	2022-12-08 @ 8:00 am	< 0.3	2022-12-14
11139896	104 WR	2022-12-05 @ 8:00 am	2022-12-08 @ 8:00 am	< 0.3	2022-12-14
11139899	110	2022-12-05 @ 8:00 am	2022-12-08 @ 8:00 am	1.2 ± 0.5	2022-12-14
11139884	114 CON	2022-12-05 @ 8:00 am	2022-12-08 @ 8:00 am	< 0.3	2022-12-14
11139900	114A	2022-12-05 @ 8:00 am	2022-12-08 @ 8:00 am	< 0.3	2022-12-14
11139886	115	2022-12-05 @ 8:00 am	2022-12-08 @ 9:00 am	< 0.3	2022-12-14
11139880	117	2022-12-05 @ 8:00 am	2022-12-08 @ 9:00 am	< 0.3	2022-12-14
11140053	121	2022-12-05 @ 8:00 am	2022-12-08 @ 9:00 am	< 0.3	2022-12-14
11140059	121	2022-12-05 @ 8:00 am	2022-12-08 @ 9:00 am	1.0 ± 0.5	2022-12-14
11140050	126	2022-12-05 @ 9:00 am	2022-12-08 @ 9:00 am	< 0.3	2022-12-14
11139885	128	2022-12-05 @ 9:00 am	2022-12-08 @ 9:00 am	< 0.3	2022-12-14
11140056	129	2022-12-05 @ 9:00 am	2022-12-08 @ 9:00 am	1.2 ± 0.5	2022-12-14
11140051	130	2022-12-05 @ 9:00 am	2022-12-08 @ 9:00 am	< 0.3	2022-12-14
11140052	130	2022-12-05 @ 9:00 am	2022-12-08 @ 9:00 am	< 0.3	2022-12-14
11140066	132	2022-12-05 @ 9:00 am	2022-12-08 @ 9:00 am	1.4 ± 0.5	2022-12-14
11140021	133	2022-12-05 @ 9:00 am	2022-12-08 @ 9:00 am	< 0.3	2022-12-14
11140060	134	2022-12-05 @ 9:00 am	2022-12-08 @ 9:00 am	0.9 ± 0.5	2022-12-14
11140054	135	2022-12-05 @ 9:00 am	2022-12-08 @ 9:00 am	< 0.3	2022-12-14
11140030	149	2022-12-05 @ 9:00 am	2022-12-08 @ 9:00 am	< 0.3	2022-12-14
11140058	149	2022-12-05 @ 9:00 am	2022-12-08 @ 9:00 am	< 0.3	2022-12-14
11140065	155	2022-12-05 @ 9:00 am	2022-12-08 @ 9:00 am	< 0.3	2022-12-14
11140055	161	2022-12-05 @ 9:00 am	2022-12-08 @ 9:00 am	< 0.3	2022-12-14
11140068	162	2022-12-05 @ 9:00 am	2022-12-08 @ 9:00 am	1.1 ± 0.5	2022-12-14
11140049	169	2022-12-05 @ 9:00 am	2022-12-08 @ 9:00 am	0.9 ± 0.5	2022-12-14
11140032	170	2022-12-05 @ 9:00 am	2022-12-08 @ 9:00 am	0.6 ± 0.5	2022-12-14
11140067	172	2022-12-05 @ 9:00 am	2022-12-08 @ 9:00 am	0.6 ± 0.4	2022-12-14
11140073	173	2022-12-05 @ 9:00 am	2022-12-08 @ 9:00 am	< 0.3	2022-12-14
11140074	174	2022-12-05 @ 9:00 am	2022-12-08 @ 9:00 am	< 0.3	2022-12-14

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December 14, 2022

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

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Radon test result report for:

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<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
11140057	200	2022-12-05 @ 9:00 am	2022-12-08 @ 9:00 am	< 0.3	2022-12-14
11140069	204 BS	2022-12-05 @ 9:00 am	2022-12-08 @ 9:00 am	1.0 ± 0.5	2022-12-14
11140075	223	2022-12-05 @ 10:00 am	2022-12-08 @ 9:00 am	< 0.3	2022-12-14
11140062	GYM	2022-12-05 @ 9:00 am	2022-12-08 @ 9:00 am	0.9 ± 0.5	2022-12-14
11140061	GYM	2022-12-05 @ 9:00 am	2022-12-08 @ 9:00 am	0.7 ± 0.5	2022-12-14
11140064	GYM OFFICE	2022-12-05 @ 10:00 am	2022-12-08 @ 9:00 am	1.2 ± 0.5	2022-12-14
11139890	MAIN OFFICE	2022-12-05 @ 8:00 am	2022-12-08 @ 8:00 am	< 0.3	2022-12-14
11140070	MULTIPURPOSE	2022-12-05 @ 9:00 am	2022-12-08 @ 9:00 am	0.6 ± 0.4	2022-12-14
11140076	MULTIPURPOSE	2022-12-05 @ 9:00 am	2022-12-08 @ 9:00 am	0.7 ± 0.4	2022-12-14
11139897	TELEPHONE	2022-12-05 @ 8:00 am	2022-12-08 @ 8:00 am	1.2 ± 0.5	2022-12-14

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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**

December 29, 2022

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

Radon test result report for:

**OFFICE**

**MA** MCPS - Spike Sample Lab Results. Measured values are satisfactory, i.e., within  $\pm 25\%$  of the chamber's reference value (34.7 pCi/L).

<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 $\pm$ 2.5	2022-12-29
11285101	SK2	2022-12-24 @ 8:00 am	2022-12-27 @ 8:00 am	30.1 $\pm$ 2.4	2022-12-29
11285103	SK3	2022-12-24 @ 8:00 am	2022-12-27 @ 8:00 am	34.0 $\pm$ 2.7	2022-12-29
11285102	SK4	2022-12-24 @ 8:00 am	2022-12-27 @ 8:00 am	30.9 $\pm$ 2.5	2022-12-29
11285109	SK5	2022-12-24 @ 8:00 am	2022-12-27 @ 8:00 am	32.0 $\pm$ 2.6	2022-12-29

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 – April 2022 Schools – Retesting

Name of Schools:

1. Lynnbrook Center
2. Chevy Chase ES
3. North Chevy Chase ES
4. Wood Acres ES
5. Ashburton ES
6. Carderock Springs ES
7. North Bethesda MS
8. Brooke Grove ES

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	Date	Initials
Radon Test Kits Deployed	12/05/2022	BMLY
Radon Test Kits Collected	12/08/2022	BMLY
Radon Test Kits Shipped to Lab*	12/08/2022	BMLY
Radon Test Kits Received by Lab*	12/14/2022	BMLY

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



**MONTGOMERY COUNTY PUBLIC SCHOOLS  
RADON TESTING**

**Executive Summary:**  
**Wood Acres Elementary School**  
5800 Cromwell Drive,  
Bethesda, MD 20816

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:	46
# of Rooms $\geq$ 4.0 pCi/L:	0
Low Value:	< 0.4
High Value:	1.1

**Project Status**

**Initial testing complete:** No further action at this time.



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: Wood Acres Elementary School  
5800 Cromwell Drive,  
Bethesda, MD 20816

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 Wood Acres Elementary School, located at 5800 Cromwell Drive, Bethesda, MD 20816 (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 December 4, 2018 and deployed fifty-seven (57) 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 December 7, 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:

<b>Radon Concentration</b>	<b>Room</b>	<b>Result</b>
$\geq 4.0$ 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 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>Wood Acres Elementary School</b>		
<b>Testing period: 12/4/18 - 12/7/18</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result (pCi/L)</b>
3923097	100	<0.4
3923099	100A	0.4
3923098	100B	<0.4
3923101	100C	<0.4
3923103	100E	<0.4
3923092	101	0.4
3923091	101	<0.4
3923095	101A	<0.4
3923094	101B	<0.4
3923104	102	<0.4
3923096	103	0.6
3923102	104	<0.4
3923089	110	<0.4
3923088	114	<0.4
3923093	114A	0.4
3923086	115	0.7
3923087	117	<0.4
3923085	121	0.6
3923082	122	0.5
3923079	124	<0.4
3923077	126	0.4
3923075	128	<0.4
3923083	129	<0.4
3923073	130	<0.4
3923081	131	<0.4
3923071	132	1.1
3923078	133	<0.4
3923068	134	1.0
3923076	135	<0.4
3923074	137	<0.4
3923072	149	<0.4
3923069	155	0.9
3923067	161	<0.4
3923066	162	<0.4
3923063	169	<0.4
3923062	170	0.4
3923061	172	0.5
3923064	173	0.7
3923065	174	<0.4
3923105	215	<0.4
3923106	215	<0.4
3923107	218	<0.4
3923142	220	<0.4

<b>Radon Testing Results</b>		
<b>Wood Acres Elementary School</b>		
<b>Testing period: 12/4/18 - 12/7/18</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result (pCi/L)</b>
3923143	239	<0.4
3923144	266	<0.4
3923084	Copy Room	<0.4
3923109	Kitchen	<0.4
3923110	Kitchen Office	<0.4



<b>Radon Testing Results</b>		
<b>Wood Acres Elementary School</b>		
<b>Testing period: 12/4/18 - 12/7/18</b>		
<b>Kit Number</b>	<b>QC Type</b>	<b>Result (pCi/L)</b>
3923100	100A (D)	<0.4
3923090	110 (D)	<0.4
3923080	124 (D)	<0.4
3923070	155 (D)	0.4
3923141	Kitchen Office (D)	0.4
3923179	Field Blank	<0.4
3923180	Field Blank	<0.4
3917534	Office Blank	<0.4
3917521	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

NELAC NY 11769  
NRPP 103216 AL  
NRSB ARL0017

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  
Wood Acres Elementary School  
Bethesda MD 20816

Log Number	Device Number	Test Exposure Duration:		Area Tested	Result pCi/L
2405641	3923061	12/04/2018 3:13 pm	12/07/2018 12:15 pm	Wood Acres Elementary School Flr 1 Rm 172	0.5
2405642	3923062	12/04/2018 3:14 pm	12/07/2018 12:15 pm	Wood Acres Elementary School Flr 1 Rm 170	0.4
2405643	3923063	12/04/2018 3:15 pm	12/07/2018 12:16 pm	Wood Acres Elementary School Flr 1 Rm 169	< 0.4
2405644	3923064	12/04/2018 3:17 pm	12/07/2018 12:06 pm	Wood Acres Elementary School Flr 1 Rm 173	0.7
2405645	3923065	12/04/2018 3:18 pm	12/07/2018 12:07 pm	Wood Acres Elementary School Flr 1 Rm 174	< 0.4
2405646	3923066	12/04/2018 3:19 pm	12/07/2018 12:26 pm	Wood Acres Elementary School Flr 1 Rm 162	< 0.4
2405647	3923067	12/04/2018 3:20 pm	12/07/2018 12:18 pm	Wood Acres Elementary School Flr 1 Rm 161	< 0.4
2405648	3923068	12/04/2018 3:21 pm	12/07/2018 12:19 pm	Wood Acres Elementary School Flr 1 Rm 134	1.0
2405649	3923069	12/04/2018 3:22 pm	12/07/2018 12:20 pm	Wood Acres Elementary School Flr 1 Rm 155	0.9
2405650	3923070	12/04/2018 3:23 pm	12/07/2018 12:20 pm	Wood Acres Elementary School Flr 1 Rm 155	0.4
2405651	3923071	12/04/2018 3:24 pm	12/07/2018 12:21 pm	Wood Acres Elementary School Flr 1 Rm 132	1.1

**Comment:** Per ANSI/AARST MAH 2014, requirements for test locations within a room were not met for device 3923109, 3923110 and 3923141 (Kitchen). Your test is for informational purposes only. A copy of this report was emailed to Intertek-PSI (VA).

Distributed by: Intertek-PSI (VA)

Date Received: 12/09/2018    Date Logged: 12/09/2018    Date Analyzed: 12/11/2018    Date Reported: 01/30/2019

Report Reviewed By: 

Report Approved By: 

Shawn Price, Director of Laboratory Operations, AccuStar Labs

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NELAC NY 11769  
NRPP 103216 AL  
NRSB ARL0017

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  
Wood Acres Elementary School  
Bethesda MD 20816

Log Number	Device Number	Test Exposure Duration:		Area Tested	Result pCi/L
2405652	3923072	12/04/2018 3:25 pm	12/07/2018 12:22 pm	Wood Acres Elementary School Flr 1 Rm 149	< 0.4
2405653	3923073	12/04/2018 3:26 pm	12/07/2018 12:23 pm	Wood Acres Elementary School Flr 1 Rm 130	< 0.4
2405654	3923074	12/04/2018 3:27 pm	12/07/2018 12:24 pm	Wood Acres Elementary School Flr 1 Rm 137	< 0.4
2405655	3923075	12/04/2018 3:28 pm	12/07/2018 12:25 pm	Wood Acres Elementary School Flr 1 Rm 128	< 0.4
2405656	3923076	12/04/2018 3:29 pm	12/07/2018 12:26 pm	Wood Acres Elementary School Flr 1 Rm 135	< 0.4
2405657	3923077	12/04/2018 3:29 pm	12/07/2018 12:26 pm	Wood Acres Elementary School Flr 1 Rm 126	0.4
2405658	3923078	12/04/2018 3:31 pm	12/07/2018 12:27 pm	Wood Acres Elementary School Flr 1 Rm 133	< 0.4
2405659	3923079	12/04/2018 3:31 pm	12/07/2018 12:27 pm	Wood Acres Elementary School Flr 1 Rm 124	< 0.4
2405660	3923080	12/04/2018 3:32 pm	12/07/2018 12:28 pm	Wood Acres Elementary School Flr 1 Rm 124	< 0.4
2405661	3923081	12/04/2018 3:33 pm	12/07/2018 12:28 pm	Wood Acres Elementary School Flr 1 Rm 131	< 0.4
2405662	3923082	12/04/2018 3:33 pm	12/07/2018 12:08 pm	Wood Acres Elementary School Flr 1 Rm 122	0.5

**Comment:** Per ANSI/AARST MAH 2014, requirements for test locations within a room were not met for device 3923109, 3923110 and 3923141 (Kitchen). Your test is for informational purposes only. A copy of this report was emailed to Intertek-PSI (VA).

Distributed by: Intertek-PSI (VA)

Date Received: 12/09/2018 Date Logged: 12/09/2018 Date Analyzed: 12/11/2018 Date Reported: 01/30/2019

Report Reviewed By: 

Report Approved By: 

Shawn Price, Director of Laboratory Operations, AccuStar Labs

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NELAC NY 11769  
NRPP 103216 AL  
NRSB ARL0017

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  
Wood Acres Elementary School  
Bethesda MD 20816

Log Number	Device Number	Test Exposure Duration:		Area Tested	Result pCi/L
2405663	3923083	12/04/2018 3:33 pm	12/07/2018 12:29 pm	Wood Acres Elementary School Flr 1 Rm 129	< 0.4
2405664	3923084	12/04/2018 3:34 pm	12/07/2018 12:29 pm	Wood Acres Elementary School Flr 1 Rm Copy R	< 0.4
2405665	3923085	12/04/2018 3:37 pm	12/07/2018 12:30 pm	Wood Acres Elementary School Flr 1 Rm 121	0.6
2405666	3923086	12/04/2018 3:38 pm	12/07/2018 12:35 pm	Wood Acres Elementary School Flr 1 Rm 115	0.7
2405667	3923087	12/04/2018 3:40 pm	12/07/2018 12:31 pm	Wood Acres Elementary School Flr 1 Rm 117	< 0.4
2405668	3923088	12/04/2018 3:41 pm	12/07/2018 12:31 pm	Wood Acres Elementary School Flr 1 Rm 114	< 0.4
2405669	3923089	12/04/2018 3:41 pm	12/07/2018 12:34 pm	Wood Acres Elementary School Flr 1 Rm 110	< 0.4
2405670	3923090	12/04/2018 3:41 pm	12/07/2018 12:34 pm	Wood Acres Elementary School Flr 1 Rm 110	< 0.4
2405671	3923091	12/04/2018 3:44 pm	12/07/2018 12:35 pm	Wood Acres Elementary School Flr 1 Rm 101	< 0.4
2405672	3923092	12/04/2018 3:44 pm	12/07/2018 12:35 pm	Wood Acres Elementary School Flr 1 Rm 101	0.4
2405673	3923093	12/04/2018 3:45 pm	12/07/2018 12:36 pm	Wood Acres Elementary School Flr 1 Rm 114A	0.4

**Comment:** Per ANSI/AARST MAH 2014, requirements for test locations within a room were not met for device 3923109, 3923110 and 3923141 (Kitchen). Your test is for informational purposes only. A copy of this report was emailed to Intertek-PSI (VA).

Distributed by: Intertek-PSI (VA)

Date Received: 12/09/2018 Date Logged: 12/09/2018 Date Analyzed: 12/11/2018 Date Reported: 01/30/2019

Report Reviewed By: 

Report Approved By: 

Shawn Price, Director of Laboratory Operations, AccuStar Labs

**Disclaimer:**

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NELAC NY 11769  
NRPP 103216 AL  
NRSB ARL0017

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  
Wood Acres Elementary School  
Bethesda MD 20816

Log Number	Device Number	Test Exposure Duration:	Area Tested	Result pCi/L
2405674	3923094	12/04/2018 3:46 pm 12/07/2018 12:36 pm	Wood Acres Elementary School Flr 1 Rm 101B	< 0.4
2405675	3923095	12/04/2018 3:46 pm 12/07/2018 12:36 pm	Wood Acres Elementary School Flr 1 Rm 101A	< 0.4
2405676	3923096	12/04/2018 3:47 pm 12/07/2018 12:37 pm	Wood Acres Elementary School Flr 1 Rm 103	0.6
2405677	3923097	12/04/2018 3:48 pm 12/07/2018 12:38 pm	Wood Acres Elementary School Flr 1 Rm 100	< 0.4
2405678	3923098	12/04/2018 3:48 pm 12/07/2018 12:39 pm	Wood Acres Elementary School Flr 1 Rm 100B	< 0.4
2405679	3923099	12/04/2018 3:49 pm 12/07/2018 12:40 pm	Wood Acres Elementary School Flr 1 Rm 100A	0.4
2405680	3923100	12/04/2018 3:49 pm 12/07/2018 12:41 pm	Wood Acres Elementary School Flr 1 Rm 100A	< 0.4
2405681	3923101	12/04/2018 3:50 pm 12/07/2018 12:42 pm	Wood Acres Elementary School Flr 1 Rm 100C	< 0.4
2405682	3923102	12/04/2018 3:51 pm 12/07/2018 12:43 pm	Wood Acres Elementary School Flr 1 Rm 104	< 0.4
2405683	3923103	12/04/2018 3:52 pm 12/07/2018 12:44 pm	Wood Acres Elementary School Flr 1 Rm 100E	< 0.4
2405684	3923104	12/04/2018 3:53 pm 12/07/2018 12:45 pm	Wood Acres Elementary School Flr 1 Rm 102	< 0.4

**Comment:** Per ANSI/AARST MAH 2014, requirements for test locations within a room were not met for device 3923109, 3923110 and 3923141 (Kitchen). Your test is for informational purposes only. A copy of this report was emailed to Intertek-PSI (VA).

Distributed by: Intertek-PSI (VA)

Date Received: 12/09/2018 Date Logged: 12/09/2018 Date Analyzed: 12/11/2018 Date Reported: 01/30/2019

Report Reviewed By: 

Report Approved By: 

Shawn Price, Director of Laboratory Operations, AccuStar Labs

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NELAC NY 11769  
NRPP 103216 AL  
NRSB ARL0017

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  
Wood Acres Elementary School  
Bethesda MD 20816

Log Number	Device Number	Test Exposure Duration:		Area Tested	Result pCi/L
2405685	3923105	12/04/2018 3:59 pm	12/07/2018 12:46 pm	Wood Acres Elementary School Flr 2 Rm 215	< 0.4
2405686	3923106	12/04/2018 3:59 pm	12/07/2018 12:46 pm	Wood Acres Elementary School Flr 2 Rm 215	< 0.4
2405687	3923107	12/04/2018 4:05 pm	12/07/2018 12:56 pm	Wood Acres Elementary School Flr 2 Rm 218	< 0.4
2405688	3923109	12/04/2018 4:10 pm	12/07/2018 12:08 pm	Wood Acres Elementary School Flr 2 Rm Kitchen	< 0.4
2405689	3923110	12/04/2018 4:10 pm	12/07/2018 12:48 pm	Wood Acres Elementary Flr 2 Rm Kitchen Office	< 0.4
2405690	3923141	12/04/2018 4:10 pm	12/07/2018 12:48 pm	Wood Acres Elementary Flr 2 Rm Kitchen Office	0.4
2405691	3923142	12/04/2018 4:11 pm	12/07/2018 12:58 pm	Wood Acres Elementary School Flr 2 Rm 220	< 0.4
2405692	3923143	12/04/2018 4:12 pm	12/07/2018 12:09 pm	Wood Acres Elementary School Flr 2 Rm 239	< 0.4
2405693	3923144	12/04/2018 4:13 pm	12/07/2018 1:00 pm	Wood Acres Elementary School Flr 2 Rm 266	< 0.4
2405694	3923180	12/04/2018 3:12 pm	12/07/2018 1:00 pm	Wood Acres Elementary School	< 0.4
2405695	3917534	12/04/2018 6:00 am	12/07/2018 1:00 pm	Wood Acres Elementary School	< 0.4

**Comment:** Per ANSI/AARST MAH 2014, requirements for test locations within a room were not met for device 3923109, 3923110 and 3923141 (Kitchen). Your test is for informational purposes only. A copy of this report was emailed to Intertek-PSI (VA).

Distributed by: Intertek-PSI (VA)

Date Received: 12/09/2018    Date Logged: 12/09/2018    Date Analyzed: 12/11/2018    Date Reported: 01/30/2019

Report Reviewed By: 

Report Approved By: 

Shawn Price, Director of Laboratory Operations, AccuStar Labs

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NELAC NY 11769  
NRPP 103216 AL  
NRSB ARL0017

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  
Wood Acres Elementary School  
Bethesda MD 20816

Log Number	Device Number	Test Exposure Duration:	Area Tested	Result pCi/L
2405696	3917521	12/04/2018 6:00 am - 12/07/2018 1:00 pm	Wood Acres Elementary School	< 0.4
2405697	3923179	12/04/2018 3:13 pm - 12/07/2018 1:00 pm	Wood Acres Elementary School	< 0.4

**Comment:** Per ANSI/AARST MAH 2014, requirements for test locations within a room were not met for device 3923109, 3923110 and 3923141 (Kitchen). Your test is for informational purposes only. A copy of this report was emailed to Intertek-PSI (VA).

Distributed by: Intertek-PSI (VA)

Date Received: 12/09/2018 Date Logged: 12/09/2018 Date Analyzed: 12/11/2018 Date Reported: 01/30/2019

Report Reviewed By: 

Report Approved By: 

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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

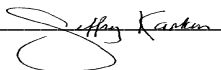
Log Number	Device Number	Test Exposure Duration:	Area Tested	Result pCi/L
3204125	3926831	12/07/2018 9:47 am - 12/10/2018 9:47 am	Spike	36.1
3204126	3926832	12/07/2018 9:47 am - 12/10/2018 9:47 am	Spike	34.8
3204127	3926833	12/07/2018 9:47 am - 12/10/2018 9:47 am	Spike	33.7
3204128	3926834	12/07/2018 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: 

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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. Grosvenor Center (Luxmanor ES)
2. Montrose Center
3. Gibbs ES
4. Westbrook ES
5. Hadley Farms (Resnik ES)
6. Kingsview MS
7. Longview School
8. Lynnbrook Center
9. Magruder HS
10. McAuliffe ES
11. McNair ES
12. Mill Creek Towne ES
13. Martin Luther King MS
14. Montgomery Village MS
15. Great Seneca Creek ES
16. Quince Orchard HS
17. Redland MS
18. North Bethesda MS
19. Spark Matsunaga ES
20. Whetstone ES
21. Wood Acres ES

---

	Date	Initials
Radon Test Kits Deployed	12/04/2018	ML
Radon Test Kits Sampled	12/07/2018	ML
Radon Test Kits Shipped to Lab*	12/07/2018	ML
Radon Test Kits Received by Lab*	12/08/2018; 12/09/2018	ML

\*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: Wood Acres Elementary School

Date of Test Report:	11/28/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	52
# Rooms $\geq$ 4.0 pCi/L:	0
Low Value:	< 0.3
High Value:	1.6

Project Status:

Initial testing completed; No further action at this time.



November 28, 2016

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

Re: **Radon Testing Services**  
KCI Job # 12146341.60

Location: Wood Acres Elementary School  
5800 Cromwell Drive  
Bethesda, MD 20816

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 Wood Acres Elementary School, located at 5800 Cromwell Drive in Bethesda, Maryland 20816 (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 November 14, 2016 and deployed sixty (60) 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 three (3) 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 November 17, 2016 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:**

These tests represent:

- Initial testing after a newly constructed addition was completed during the summer.

These tests were conducted to:

- Determine if the newly constructed facility or addition needs a mitigation system.

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 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.

KCI also compiled weather data for the testing period and conducted observations of relevant field conditions. During the test period, weather records indicate low temperatures were in the high 20's to 30s and high temperatures were in the high 50s to low 60s. Maximum sustained winds ranged from 8-14 miles per hour. Average humidity ranged was around 55%. No precipitation was recorded during the testing period.

**Results:**

The results of the radon test analysis indicated the following:

<b>Radon Concentration</b>	<b>Room</b>	<b>Result</b>
<b>≥4.0 pCi/L</b>	none	n/a
<b>&lt;4.0 pCi/L</b>	See Attachment B	

Notes:

D- Duplicate sample

The field blank, office blank, and lab transit blank 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.

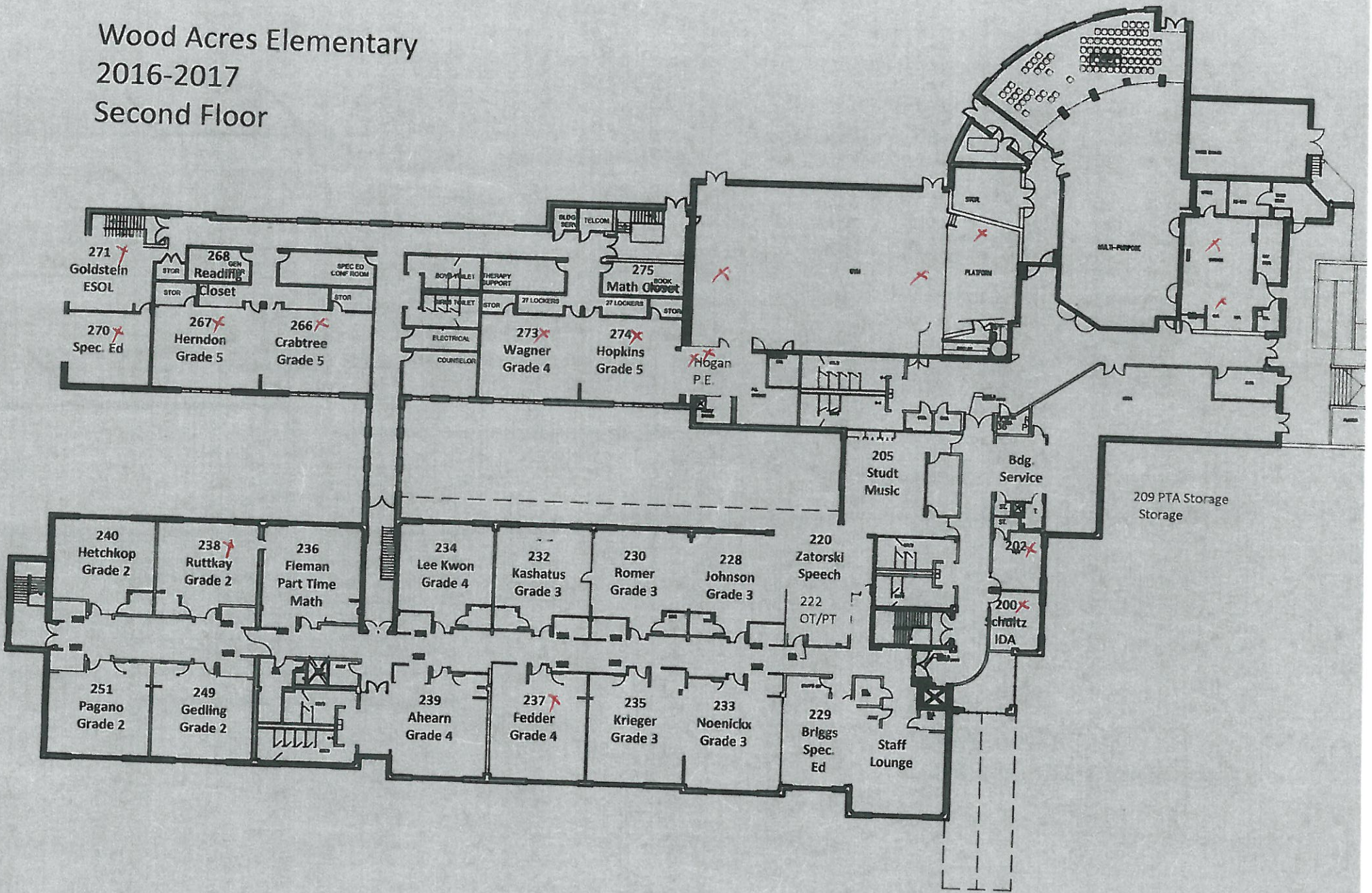
Attachments:      A- Floor Plan with Test Locations  
                          B- Table 1-Radon Test Summary Spreadsheet  
                          C- Laboratory Analytical Results



# ATTACHMENT A

## Floor Plan With Test Locations

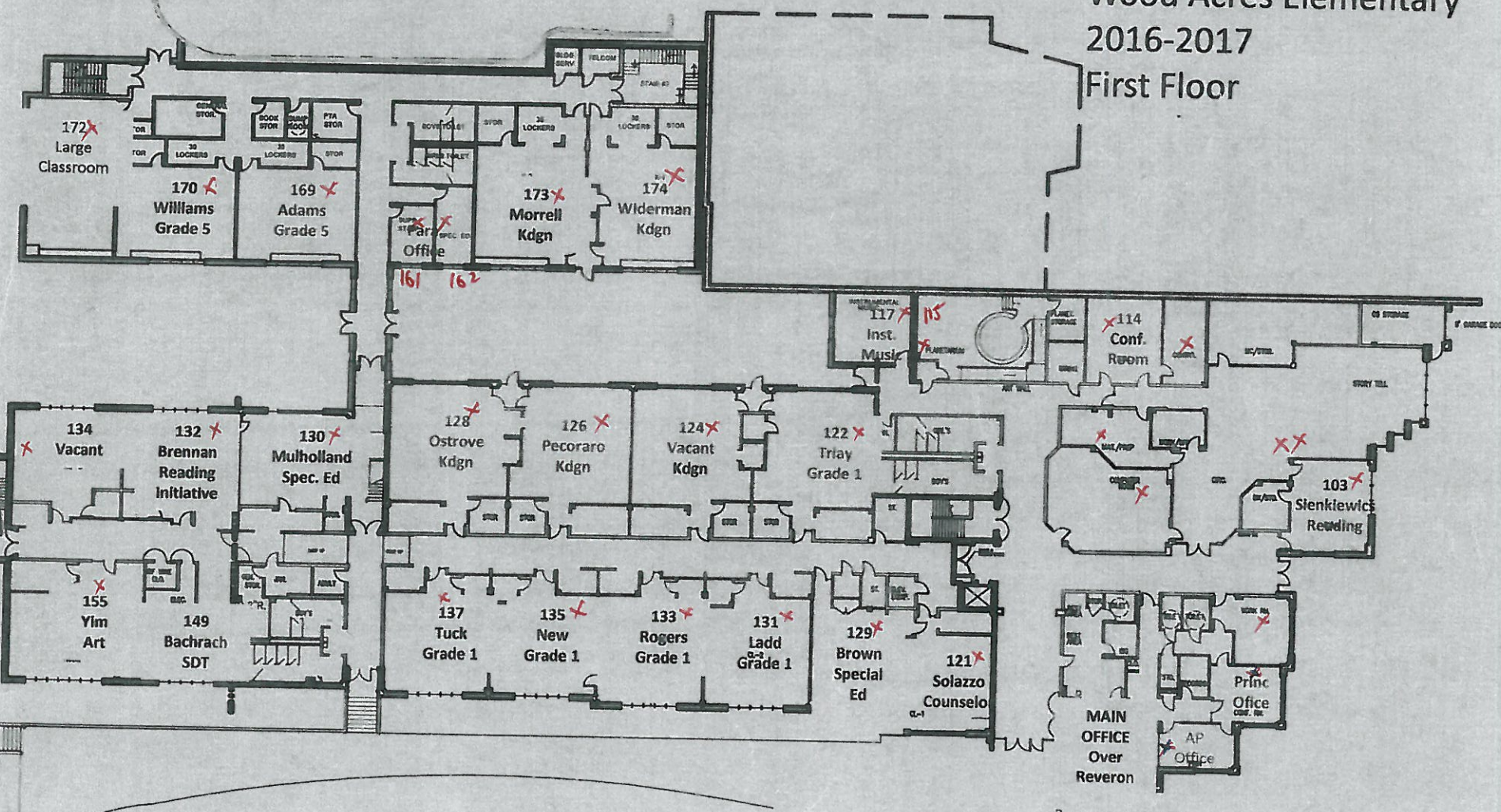
Wood Acres Elementary  
 2016-2017  
 Second Floor



Legend  
 X-Sample Location



# Wood Acres Elementary 2016-2017 First Floor



Legend  
X-Sample Location

# ATTACHMENT B

## Radon Test Summary Spreadsheet

<b>Radon Testing Results</b>		
<b>Wood Acres Elementary School</b>		
<b>Test Period: 11/14/16-11/17/16</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result</b>
7802075	103	0.8
7802798	104	0.9
7802908	114	1.1
7802791	117	0.7
7802072	121	0.7
7802073	122	1.0
7802904	124	1.3
7802004	126	1.1
7802074	128	1.2
7802009	129	1.2
7802906	130	0.9
7802076	131	1.1
7714262	132	1.6
7802027	133	0.8
7802800	134	1.4
7802343	135	0.8
7802022	137	0.8
7802699	149	1.3
7714248	155	1.6
7802794	161	0.7
7802796	162	0.6
7802356	169	< 0.3
7714269	170	< 0.3
7802785	172	< 0.3
7802905	174	0.7
7802355	200	< 0.3
7802698	202	0.6
7802933	204	< 0.3
7714245	228	0.7
7802797	237	< 0.3
7714255	238	0.6
7802700	261	< 0.3
7714251	265	< 0.3
7802903	266	1.0
7802914	267	0.6
7802907	270	< 0.3
7714263	271	< 0.3
7802960	273	< 0.3
7802795	274	< 0.3
7802793	* 173 (Tampered)	-
7802063	AP	0.9
7802787	CAFE	0.8
7802901	CAFE	0.7
7714253	CLASS 114	1.0
7802069	COMPUTER LAB	0.9
7802789	GYM	< 0.3

Table Note:

\* Missing or Compromised Sample

<b>Radon Testing Results</b>		
<b>Wood Acres Elementary School</b>		
<b>Test Period: 11/14/16-11/17/16</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result</b>
7802780	GYM	0.8
7802070	LIBRARY	0.9
7802077	MUSIC RM	1.0
7802792	PE	1.0
7802799	PLANET ROOM	0.9
7802079	PRINC OFFICE	0.8
7802790	STAGE	< 0.3
7802788	STUDY HALL	0.6

Table Note:

\* Missing or Compromised Sample

<b>Radon Testing Results</b>		
<b>Wood Acres Elementary School</b>		
<b>Test Period: 11/14/16-11/17/16</b>		
<b>Kit Number</b>	<b>QC Type</b>	<b>Result</b>
7802786	D (103)	1.1
7802902	D (104)	0.6
7802046	D (COMPUTER LAB)	1.0
7802345	D (LIBRARY)	< 0.3
7802984	D (PE)	0.8
7802078	FB (COMPUTER LAB)	< 0.3

Table Note:

\* Missing or Compromised Sample

# ATTACHMENT C

## Laboratory Analytical Results



Radon test result report for:

**WOOD ACRES ELEMENTARY SCHOOL  
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7802075	103	2016-11-14 @ 8:00 am	2016-11-17 @ 9:00 am	0.8 ± 0.3	2016-11-21
7802786	103	2016-11-14 @ 8:00 am	2016-11-17 @ 9:00 am	1.1 ± 0.3	2016-11-21
7802798	104	2016-11-14 @ 8:00 am	2016-11-17 @ 9:00 am	0.9 ± 0.3	2016-11-21
7802902	104	2016-11-14 @ 8:00 am	2016-11-17 @ 9:00 am	0.6 ± 0.4	2016-11-21
7802908	114	2016-11-14 @ 10:00 am	2016-11-17 @ 9:00 am	1.1 ± 0.4	2016-11-21
7802791	117	2016-11-14 @ 9:00 am	2016-11-17 @ 9:00 am	0.7 ± 0.3	2016-11-21
7802072	121	2016-11-14 @ 8:00 am	2016-11-17 @ 9:00 am	0.7 ± 0.4	2016-11-21
7802073	122	2016-11-14 @ 8:00 am	2016-11-17 @ 9:00 am	1.0 ± 0.4	2016-11-21
7802904	124	2016-11-14 @ 9:00 am	2016-11-17 @ 9:00 am	1.3 ± 0.4	2016-11-21
7802004	126	2016-11-14 @ 9:00 am	2016-11-17 @ 9:00 am	1.1 ± 0.4	2016-11-21
7802074	128	2016-11-14 @ 9:00 am	2016-11-17 @ 9:00 am	1.2 ± 0.4	2016-11-21
7802009	129	2016-11-14 @ 9:00 am	2016-11-17 @ 9:00 am	1.2 ± 0.4	2016-11-21
7802906	130	2016-11-14 @ 9:00 am	2016-11-17 @ 9:00 am	0.9 ± 0.4	2016-11-21
7802076	131	2016-11-14 @ 9:00 am	2016-11-17 @ 9:00 am	1.1 ± 0.4	2016-11-21
7714262	132	2016-11-14 @ 9:00 am	2016-11-17 @ 9:00 am	1.6 ± 0.5	2016-11-21
7802027	133	2016-11-14 @ 9:00 am	2016-11-17 @ 9:00 am	0.8 ± 0.4	2016-11-21
7802800	134	2016-11-14 @ 9:00 am	2016-11-17 @ 9:00 am	1.4 ± 0.4	2016-11-21
7802343	135	2016-11-14 @ 9:00 am	2016-11-17 @ 9:00 am	0.8 ± 0.3	2016-11-21
7802022	137	2016-11-14 @ 9:00 am	2016-11-17 @ 9:00 am	0.8 ± 0.3	2016-11-21
7802699	149	2016-11-14 @ 9:00 am	2016-11-17 @ 9:00 am	1.3 ± 0.4	2016-11-21
7714248	155	2016-11-14 @ 9:00 am	2016-11-17 @ 9:00 am	1.6 ± 0.4	2016-11-21
7802794	161	2016-11-14 @ 9:00 am	2016-11-17 @ 9:00 am	0.7 ± 0.3	2016-11-21
7802796	162	2016-11-14 @ 9:00 am	2016-11-17 @ 9:00 am	0.6 ± 0.3	2016-11-21
7802356	169	2016-11-14 @ 9:00 am	2016-11-17 @ 9:00 am	< 0.3	2016-11-21
7714269	170	2016-11-14 @ 9:00 am	2016-11-17 @ 9:00 am	< 0.3	2016-11-21
7802785	172	2016-11-14 @ 9:00 am	2016-11-17 @ 9:00 am	< 0.3	2016-11-21
7802793	173	2016-11-14 @ 9:00 am	2016-11-17 @ 9:00 am	???? IF2	2016-11-21
7802905	174	2016-11-14 @ 9:00 am	2016-11-17 @ 9:00 am	0.7 ± 0.4	2016-11-21
7802355	200	2016-11-14 @ 10:00 am	2016-11-17 @ 9:00 am	< 0.3	2016-11-21
7802698	202	2016-11-14 @ 10:00 am	2016-11-17 @ 9:00 am	0.6 ± 0.3	2016-11-21
7802933	204	2016-11-14 @ 10:00 am	2016-11-17 @ 9:00 am	< 0.3	2016-11-21
7714245	228	2016-11-14 @ 9:00 am	2016-11-17 @ 9:00 am	0.7 ± 0.4	2016-11-21
7802797	237	2016-11-14 @ 9:00 am	2016-11-17 @ 9:00 am	< 0.3	2016-11-21
7714255	238	2016-11-14 @ 9:00 am	2016-11-17 @ 9:00 am	0.6 ± 0.3	2016-11-21
7802700	261	2016-11-14 @ 10:00 am	2016-11-17 @ 9:00 am	< 0.3	2016-11-21
7714251	265	2016-11-14 @ 10:00 am	2016-11-17 @ 9:00 am	< 0.3	2016-11-21
7802903	266	2016-11-14 @ 10:00 am	2016-11-17 @ 9:00 am	1.0 ± 0.4	2016-11-21

Radon test result report for:

**WOOD ACRES ELEMENTARY SCHOOL  
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7802914	267	2016-11-14 @ 10:00 am	2016-11-17 @ 9:00 am	0.6 ± 0.4	2016-11-21
7802907	270	2016-11-14 @ 10:00 am	2016-11-17 @ 9:00 am	< 0.3	2016-11-21
7714263	271	2016-11-14 @ 10:00 am	2016-11-17 @ 9:00 am	< 0.3	2016-11-21
7802960	273	2016-11-14 @ 10:00 am	2016-11-17 @ 9:00 am	< 0.3	2016-11-21
7802795	274	2016-11-14 @ 10:00 am	2016-11-17 @ 9:00 am	< 0.3	2016-11-21
7802063	AP	2016-11-14 @ 8:00 am	2016-11-17 @ 9:00 am	0.9 ± 0.4	2016-11-21
7802787	CAFE	2016-11-14 @ 10:00 am	2016-11-17 @ 9:00 am	0.8 ± 0.3	2016-11-21
7802901	CAFE	2016-11-14 @ 10:00 am	2016-11-17 @ 9:00 am	0.7 ± 0.4	2016-11-21
7714253	CLASS 114	2016-11-14 @ 9:00 am	2016-11-17 @ 9:00 am	1.0 ± 0.4	2016-11-21
7802046	COMPUTER LAB	2016-11-14 @ 8:00 am	2016-11-17 @ 9:00 am	1.0 ± 0.3	2016-11-21
7802069	COMPUTER LAB	2016-11-14 @ 8:00 am	2016-11-17 @ 9:00 am	0.9 ± 0.4	2016-11-21
7802078	COMPUTER LAB	2016-11-14 @ 8:00 am	2016-11-17 @ 9:00 am	< 0.3	2016-11-21
7802789	GYM	2016-11-14 @ 10:00 am	2016-11-17 @ 9:00 am	< 0.3	2016-11-21
7802780	GYM	2016-11-14 @ 10:00 am	2016-11-17 @ 9:00 am	0.8 ± 0.3	2016-11-21
7802792	PE	2016-11-14 @ 10:00 am	2016-11-17 @ 9:00 am	1.0 ± 0.4	2016-11-21
7802984	PE	2016-11-14 @ 10:00 am	2016-11-17 @ 9:00 am	0.8 ± 0.3	2016-11-21
7802345	LIBRARY	2016-11-14 @ 8:00 am	2016-11-17 @ 9:00 am	< 0.3	2016-11-21
7802070	LIBRARY	2016-11-14 @ 8:00 am	2016-11-17 @ 9:00 am	0.9 ± 0.4	2016-11-21
7802077	MUSIC RM	2016-11-14 @ 10:00 am	2016-11-17 @ 9:00 am	1.0 ± 0.4	2016-11-21
7802799	PLANET ROOM	2016-11-14 @ 9:00 am	2016-11-17 @ 9:00 am	0.9 ± 0.4	2016-11-21
7802079	PRINC OFFICE	2016-11-14 @ 8:00 am	2016-11-17 @ 9:00 am	0.8 ± 0.4	2016-11-21
7802790	STAGE	2016-11-14 @ 10:00 am	2016-11-17 @ 9:00 am	< 0.3	2016-11-21
7802788	STUDY HALL	2016-11-14 @ 9:00 am	2016-11-17 @ 9:00 am	0.6 ± 0.3	2016-11-21

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November 22, 2016

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

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Radon test result report for:  
**MCPS Radon**  
**Phase 19 BLANKS**

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<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
7802909	OFFICE	2016-11-11 @ 10:00 am	2016-11-14 @ 10:00 am	< 0.3	2016-11-16
7802910	TRANSIT	2016-11-11 @ 10:00 am	2016-11-14 @ 10:00 am	< 0.3	2016-11-16

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

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November 22, 2016

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

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Radon test result report for:  
**MCPS Radon  
Spike Sample Results**

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<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
7802912	1	2016-11-11 @ 10:00 am	2016-11-14 @ 10:00 am	23.5 ± 0.8	2016-11-16
7802913	2	2016-11-11 @ 10:00 am	2016-11-14 @ 10:00 am	23.0 ± 0.8	2016-11-16
7802911	3	2016-11-11 @ 10:00 am	2016-11-14 @ 10:00 am	25.6 ± 0.9	2016-11-16

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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 177376

NOMINAL Conditions: Radon Conc 26.3 pCi/L Rel. Hum 59.1 % Temp. 29.0 F

Date Start: 11/11/16 Date Stop: 11/14/16 Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

Time Start: 0958 Time Stop: 0958 Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_

Device No.'s: (3) Char. Bags - Device No.'s: \_\_\_\_\_

7802911 thro 7802913

GS Middle

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**



## Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase 19

Names of Schools:

1. Wood Acres Elementary School
2. Walt Whitman High School
3. East Silver Spring Elementary School

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	Date	Initials
Radon Test Kits Deployed	11/14/16	JM
Radon Test Kits Collected	11/17/16	JM
Radon Test Kits Shipped to Lab*	11/18/16	JM
Radon Test Kits Received by Lab*	11/21/16	JM

\*All samples sent to Air Check, Inc., 1936 Butler Bridge Rd, Mills River, NC 28759



## Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase 19

Names of Schools:

1. Montgomery Blair High School
2. Springbrook High School
3. Sligo Middle School
4. Einstein High School
5. John F. Kennedy High School
6. Blair Ewing Center
7. Rock Terrace School
8. Thomas Wootton High School
9. Fields Road Elementary School

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	Date	Initials
Radon Test Kits Deployed	11/15/16	JM
Radon Test Kits Collected	11/18/16	JM
Radon Test Kits Shipped to Lab*	11/18/16	JM
Radon Test Kits Received by Lab*	11/21/16	JM

\*All samples sent to Air Check, Inc., 1936 Butler Bridge Rd, Mills River, NC 28759