



**MCPS RADON TESTING – EXECUTIVE SUMMARY**

Site Name	Lakewood 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	43
# Rooms $\geq$ 4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	1.0 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: Lakewood Elementary School  
2534 Lindley Terrace  
Rockville, MD 20850

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 Lakewood Elementary School, located at 2534 Lindley Terrace Rockville, Maryland 20850 (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 6, 2022 and deployed forty-eight (48) 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 9, 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:

<b>Radon Concentration</b>	<b>Room</b>	<b>Result</b>
≥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		
Lakewood ES		
Test Period: 12/06/2022 - 12/09/2022		
Kit Number	Room / Area	Result
11287800	105	0.6
11287793	106	< 0.3
11287794	107	< 0.3
11287798	109	< 0.3
11287796	111	< 0.3
11287797	114	< 0.3
11287764	115	< 0.3
11287795	115	< 0.3
11287263	134	< 0.3
11287264	135	0.6
11287770	139	< 0.3
11287777	139	0.6
11287771	141	< 0.3
11287763	143	0.7
11287787	144	0.6
11287785	147	< 0.3
11287275	148	< 0.3
11287790	151	0.7
11287276	152	< 0.3
11287265	153	0.7
11287273	153	0.6
11287266	155	0.7
11287277	156	< 0.3
11287284	163	0.9
11287283	165	0.8
11287291	168	0.8
11287281	171	0.6
11287289	171	1.0
11287792	174	< 0.3
11287282	176	< 0.3
11287293	176	< 0.3
11287274	177	< 0.3
11287290	181	< 0.3
11287285	182	< 0.3
11287278	186	0.6
11287286	186	< 0.3
11287269	193	< 0.3
11287270	193	< 0.3
11287299	222	< 0.3
11287292	240	< 0.3
11287788	105 OFFICE	0.7
11287786	APR	< 0.3



Table 1- Radon Testing Results		
Lakewood ES		
Test Period: 12/06/2022 - 12/09/2022		
Kit Number	Room / Area	Result
11287791	APR	0.6
11287272	G107	0.9
11287271	GYM	< 0.3
11287799	GYM	< 0.3
11287769	KITCHEN OFFICE	0.8
11287778	MAIN OFFICE	< 0.3

Table 2- Radon Testing Results			
Lakewood ES			
Test Period: 12/06/22 - 12/09/22			
Kit Number	QC Type	Room / Area	Result
11287764	D	115	< 0.3
11287289	D	171	1.0
11287293	FB	176	< 0.3
11287286	D	186	< 0.3
11287270	FB	193	< 0.3
11287676	OB	OFFICE BLANK	< 0.3
11287288	TB	TRAVEL BLANK	< 0.3



# ATTACHMENT C

## Laboratory Analytical Results

Radon test result report for:**LAKWOOD ES  
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11287800	105	2022-12-06 @ 10:00 am	2022-12-09 @ 9:00 am	0.6 ± 0.3	2022-12-13
11287788	105 OFFICE	2022-12-06 @ 10:00 am	2022-12-09 @ 9:00 am	0.7 ± 0.3	2022-12-13
11287793	106	2022-12-06 @ 10:00 am	2022-12-09 @ 9:00 am	< 0.3	2022-12-13
11287794	107	2022-12-06 @ 10:00 am	2022-12-09 @ 9:00 am	< 0.3	2022-12-13
11287798	109	2022-12-06 @ 10:00 am	2022-12-09 @ 9:00 am	< 0.3	2022-12-13
11287796	111	2022-12-06 @ 10:00 am	2022-12-09 @ 9:00 am	< 0.3	2022-12-13
11287797	114	2022-12-06 @ 10:00 am	2022-12-09 @ 9:00 am	< 0.3	2022-12-13
11287795	115	2022-12-06 @ 10:00 am	2022-12-09 @ 9:00 am	< 0.3	2022-12-13
11287764	115	2022-12-06 @ 10:00 am	2022-12-09 @ 9:00 am	< 0.3	2022-12-13
11287263	134	2022-12-06 @ 10:00 am	2022-12-09 @ 9:00 am	< 0.3	2022-12-13
11287264	135	2022-12-06 @ 10:00 am	2022-12-09 @ 9:00 am	0.6 ± 0.3	2022-12-13
11287777	139	2022-12-06 @ 10:00 am	2022-12-09 @ 9:00 am	0.6 ± 0.3	2022-12-13
11287770	139	2022-12-06 @ 10:00 am	2022-12-09 @ 9:00 am	< 0.3	2022-12-13
11287771	141	2022-12-06 @ 10:00 am	2022-12-09 @ 9:00 am	< 0.3	2022-12-13
11287763	143	2022-12-06 @ 10:00 am	2022-12-09 @ 9:00 am	0.7 ± 0.3	2022-12-13
11287787	144	2022-12-06 @ 10:00 am	2022-12-09 @ 9:00 am	0.6 ± 0.3	2022-12-13
11287785	147	2022-12-06 @ 10:00 am	2022-12-09 @ 9:00 am	< 0.3	2022-12-13
11287275	148	2022-12-06 @ 10:00 am	2022-12-09 @ 9:00 am	< 0.3	2022-12-13
11287790	151	2022-12-06 @ 10:00 am	2022-12-09 @ 9:00 am	0.7 ± 0.3	2022-12-13
11287276	152	2022-12-06 @ 10:00 am	2022-12-09 @ 9:00 am	< 0.3	2022-12-13
11287265	153	2022-12-06 @ 10:00 am	2022-12-09 @ 9:00 am	0.7 ± 0.4	2022-12-13
11287273	153	2022-12-06 @ 10:00 am	2022-12-09 @ 9:00 am	0.6 ± 0.3	2022-12-13
11287266	155	2022-12-06 @ 10:00 am	2022-12-09 @ 9:00 am	0.7 ± 0.4	2022-12-13
11287277	156	2022-12-06 @ 10:00 am	2022-12-09 @ 9:00 am	< 0.3	2022-12-13
11287284	163	2022-12-06 @ 10:00 am	2022-12-09 @ 9:00 am	0.9 ± 0.4	2022-12-13
11287283	165	2022-12-06 @ 10:00 am	2022-12-09 @ 9:00 am	0.8 ± 0.3	2022-12-13
11287291	168	2022-12-06 @ 10:00 am	2022-12-09 @ 9:00 am	0.8 ± 0.4	2022-12-13
11287281	171	2022-12-06 @ 10:00 am	2022-12-09 @ 9:00 am	0.6 ± 0.4	2022-12-13
11287289	171	2022-12-06 @ 10:00 am	2022-12-09 @ 9:00 am	1.0 ± 0.3	2022-12-13
11287792	174	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	< 0.3	2022-12-13
11287282	176	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	< 0.3	2022-12-13
11287293	176	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	< 0.3	2022-12-13
11287274	177	2022-12-06 @ 10:00 am	2022-12-09 @ 9:00 am	< 0.3	2022-12-13
11287290	181	2022-12-06 @ 10:00 am	2022-12-09 @ 9:00 am	< 0.3	2022-12-13
11287285	182	2022-12-06 @ 10:00 am	2022-12-09 @ 9:00 am	< 0.3	2022-12-13
11287286	186	2022-12-06 @ 10:00 am	2022-12-09 @ 9:00 am	< 0.3	2022-12-13
11287278	186	2022-12-06 @ 10:00 am	2022-12-09 @ 9:00 am	0.6 ± 0.4	2022-12-13

December 14, 2022

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

Radon test result report for:  
**LAKWOOD ES  
MAIN**

<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
11287269	193	2022-12-06 @ 10:00 am	2022-12-09 @ 9:00 am	< 0.3	2022-12-13
11287270	193	2022-12-06 @ 10:00 am	2022-12-09 @ 9:00 am	< 0.3	2022-12-13
11287299	222	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	< 0.3	2022-12-13
11287292	240	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	< 0.3	2022-12-13
11287791	APR	2022-12-06 @ 10:00 am	2022-12-09 @ 9:00 am	0.6 ± 0.4	2022-12-13
11287786	APR	2022-12-06 @ 10:00 am	2022-12-09 @ 9:00 am	< 0.3	2022-12-13
11287272	G107	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	0.9 ± 0.4	2022-12-13
11287271	GYM	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	< 0.3	2022-12-13
11287799	GYM	2022-12-06 @ 11:00 am	2022-12-09 @ 9:00 am	< 0.3	2022-12-13
11287769	KITCHEN OFFICE	2022-12-06 @ 10:00 am	2022-12-09 @ 9:00 am	0.8 ± 0.4	2022-12-13
11287778	MAIN OFFICE	2022-12-06 @ 10:00 am	2022-12-09 @ 9:00 am	< 0.3	2022-12-13

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. Olney ES
2. Greenwood ES
3. John Poole MS
4. Monocacy ES
5. Beall ES
6. Fallsmead ES
7. Lakewood ES

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	Date	Initials
Radon Test Kits Deployed	12/06/2022	BMM
Radon Test Kits Collected	12/09/2022	BMM
Radon Test Kits Shipped to Lab*	12/09/2022	BMM
Radon Test Kits Received by Lab*	12/13/2022	BMM

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



**MONTGOMERY COUNTY PUBLIC SCHOOLS  
RADON TESTING**

**Executive Summary:  
Lakewood Elementary School**

2534 Lindley Terrace,  
Rockville, MD 20850

Date of Test Report:	1/10/2019
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:	42
# of Rooms $\geq$ 4.0 pCi/L:	0
Low Value:	< 0.4
High Value:	0.5

**Project Status**

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



January 10, 2019

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

Re: Radon Testing Services

Location: Lakewood Elementary School  
2534 Lindley Terrace,  
Rockville, MD 20850

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 Lakewood Elementary School, located at 2534 Lindley Terrace, Rockville, MD 20850 (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 3, 2018 and deployed fifty-four (54) 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 6, 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, 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>Lakewood Elementary School</b>		
<b>Testing period: 12/3/18 - 12/6/18</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result (pCi/L)</b>
3918504	105	<0.4
3918506	105 Office	<0.4
3918502	106	<0.4
3918503	107	<0.4
3918507	109	<0.4
3918510	111	<0.4
3918508	114	<0.4
3918509	115	<0.4
3918591	119	<0.4
3918339	126	<0.4
3918600	134	<0.4
3918337	135	<0.4
3918599	139	0.5
3918598	141	<0.4
3918597	143	<0.4
3918596	144	<0.4
3918594	147	<0.4
3918592	148	<0.4
3918496	151	<0.4
3918305	152	<0.4
3918514	155	<0.4
3918500	156	<0.4
3918497	157	<0.4
3918493	163	<0.4
3918491	165	0.4
3918488	168	<0.4
3918486	171	<0.4
3918484	174	<0.4
3918485	176	<0.4
3918489	177	<0.4
3918490	181	<0.4
3918492	182	<0.4
3918495	186	<0.4
3918595	193	<0.4
3918334	221	<0.4
3918335	247	<0.4
3888400	APR	<0.4
3888390	APR	<0.4
3918483	G107	<0.4
3918481	Gym (G113)	<0.4
3918482	Gym (G113)	<0.4
3918498	IMC (153)	<0.4
3918499	IMC (153)	<0.4

<b>Radon Testing Results</b>		
<b>Lakewood Elementary School</b>		
<b>Testing period: 12/3/18 - 12/6/18</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result (pCi/L)</b>
3918338	Kitchen (125)	<0.4
3918501	Main Office (103)	<0.4



<b>Radon Testing Results</b>		
<b>Lakewood Elementary School</b>		
<b>Testing period: 12/3/18 - 12/6/18</b>		
<b>Kit Number</b>	<b>QC Type</b>	<b>Result (pCi/L)</b>
3918505	105 (D)	<0.4
3918593	148 (D)	<0.4
3918494	163 (D)	<0.4
3918487	171 (D)	<0.4
3918336	247 (D)	<0.4
3927726	Field Blank	<0.4
3918340	Field Blank	<0.4
3927601	Office Blank	<0.4
3918317	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

Laboratory Report for:

Property Tested: Project # 04481387-1

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


MCPS Radon Survey  
Lakewood Elementary School  
Maryland 20850 USA


Log Number	Device Number	Test Exposure Duration:		Area Tested	Result pCi/L
2404313	3918481	12/03/2018 2:45 pm	12/06/2018 2:00 pm	Floor First Room Gym (G113)	< 0.4
2404314	3918482	12/03/2018 2:45 pm	12/06/2018 2:01 pm	Floor First Room Gym (G113)	< 0.4
2404315	3918483	12/03/2018 2:46 pm	12/06/2018 2:02 pm	Floor First Room G107	< 0.4
2404316	3918484	12/03/2018 2:47 pm	12/06/2018 2:03 pm	Floor First Room 174	< 0.4
2404317	3918485	12/03/2018 2:48 pm	12/06/2018 2:04 pm	Floor First Room 176	< 0.4
2404318	3918486	12/03/2018 2:49 pm	12/06/2018 2:05 pm	Floor First Room 171	< 0.4
2404319	3918487	12/03/2018 2:49 pm	12/06/2018 2:06 pm	Floor First Room 171	< 0.4
2404320	3918488	12/03/2018 2:51 pm	12/06/2018 2:07 pm	Floor First Room 168	< 0.4
2404321	3918489	12/03/2018 2:52 pm	12/06/2018 2:08 pm	Floor First Room 177	< 0.4
2404322	3918490	12/03/2018 2:53 pm	12/06/2018 2:09 pm	Floor First Room 181	< 0.4
2404323	3918491	12/03/2018 2:54 pm	12/06/2018 2:10 pm	Floor First Room 165	0.4

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

Distributed by: Intertek-PSI (VA)

Date Received: 12/08/2018    Date Logged:    Date Analyzed: 12/09/2018    Date Reported: 12/21/2018

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.

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NELAC NY 11769  
NRPP 103216 AL  
NRSB ARL0017

Laboratory Report for:

Property Tested: Project # 04481387-1

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


MCPS Radon Survey  
Lakewood Elementary School  
Maryland 20850 USA


Log Number	Device Number	Test Exposure Duration:		Area Tested	Result pCi/L
2404324	3918492	12/03/2018 2:55 pm	12/06/2018 2:11 pm	Floor First Room 182	< 0.4
2404325	3918493	12/03/2018 2:56 pm	12/06/2018 2:12 pm	Floor First Room 163	< 0.4
2404326	3918495	12/03/2018 2:58 pm	12/06/2018 2:14 pm	Floor First Room 186	< 0.4
2404327	3918496	12/03/2018 2:59 pm	12/06/2018 2:15 pm	Floor First Room 151	< 0.4
2404328	3918497	12/03/2018 3:00 pm	12/06/2018 2:16 pm	Floor First Room 157	< 0.4
2404329	3918498	12/03/2018 3:01 pm	12/06/2018 2:17 pm	Floor First Room IMC (153)	< 0.4
2404330	3918499	12/03/2018 3:02 pm	12/06/2018 2:18 pm	Floor First Room IMC (153)	< 0.4
2404331	3918500	12/03/2018 3:03 pm	12/06/2018 2:19 pm	Floor First Room 156	< 0.4
2404332	3918514	12/03/2018 3:04 pm	12/06/2018 2:20 pm	Floor First Room 155	< 0.4
2404333	3918305	12/03/2018 3:05 pm	12/06/2018 2:21 pm	Floor First Room 152	< 0.4
2404334	3918501	12/03/2018 3:20 pm	12/06/2018 2:22 pm	Floor First Room Main Office (103)	< 0.4

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

Distributed by: Intertek-PSI (VA)

Date Received: 12/08/2018    Date Logged:    Date Analyzed: 12/09/2018    Date Reported: 12/21/2018

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Report Approved By: 

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NELAC NY 11769  
NRPP 103216 AL  
NRSB ARL0017

Laboratory Report for:

Property Tested: Project # 04481387-1

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


MCPS Radon Survey  
Lakewood Elementary School  
Maryland 20850 USA


Log Number	Device Number	Test Exposure Duration:		Area Tested	Result pCi/L
2404335	3918502	12/03/2018 3:21 pm	12/06/2018 2:23 pm	Floor First Room 106	< 0.4
2404336	3918503	12/03/2018 3:22 pm	12/06/2018 2:24 pm	Floor First Room 107	< 0.4
2404337	3918504	12/03/2018 3:23 pm	12/06/2018 2:25 pm	Floor First Room 105	< 0.4
2404338	3918505	12/03/2018 3:23 pm	12/06/2018 2:26 pm	Floor First Room 105	< 0.4
2404339	3918506	12/03/2018 3:25 pm	12/06/2018 2:27 pm	Floor First Room 105 Office	< 0.4
2404340	3918507	12/03/2018 3:26 pm	12/06/2018 2:28 pm	Floor First Room 109	< 0.4
2404341	3918508	12/03/2018 3:27 pm	12/06/2018 2:29 pm	Floor First Room 114	< 0.4
2404342	3918509	12/03/2018 3:28 pm	12/06/2018 2:30 pm	Floor First Room 115	< 0.4
2404343	3918510	12/03/2018 3:29 pm	12/06/2018 2:31 pm	Floor First Room 111	< 0.4
2404344	3918591	12/03/2018 3:30 pm	12/06/2018 2:32 pm	Floor First Room 119	< 0.4
2404345	3918592	12/03/2018 3:31 pm	12/06/2018 2:33 pm	Floor First Room 148	< 0.4

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

Distributed by: Intertek-PSI (VA)

Date Received: 12/08/2018    Date Logged:    Date Analyzed: 12/09/2018    Date Reported: 12/21/2018

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

Laboratory Report for:

Property Tested: Project # 04481387-1

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


MCPS Radon Survey  
Lakewood Elementary School  
Maryland 20850 USA


Log Number	Device Number	Test Exposure Duration:		Area Tested	Result pCi/L
2404346	3918593	12/03/2018 3:31 pm	12/06/2018 2:34 pm	Floor First Room 148	< 0.4
2404347	3918594	12/03/2018 3:33 pm	12/06/2018 2:35 pm	Floor First Room 147	< 0.4
2404348	3918595	12/03/2018 3:34 pm	12/06/2018 2:36 pm	Floor First Room 193	< 0.4
2404349	3918596	12/03/2018 3:35 pm	12/06/2018 2:37 pm	Floor First Room 144	< 0.4
2404350	3918597	12/03/2018 3:36 pm	12/06/2018 2:38 pm	Floor First Room 143	< 0.4
2404351	3918598	12/03/2018 3:37 pm	12/06/2018 2:39 pm	Floor First Room 141	< 0.4
2404352	3918599	12/03/2018 3:38 pm	12/06/2018 2:40 pm	Floor First Room 139	0.5
2404353	3918337	12/03/2018 3:39 pm	12/06/2018 2:41 pm	Floor First Room 135	< 0.4
2404354	3918600	12/03/2018 3:40 pm	12/06/2018 2:42 pm	Floor First Room 134	< 0.4
2404355	3918334	12/03/2018 3:43 pm	12/06/2018 2:45 pm	Floor Second Room 221	< 0.4
2404356	3918335	12/03/2018 3:44 pm	12/06/2018 2:46 pm	Floor Second Room 247	< 0.4

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

Distributed by: Intertek-PSI (VA)

Date Received: 12/08/2018    Date Logged:    Date Analyzed: 12/09/2018    Date Reported: 12/21/2018

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

Laboratory Report for:

Property Tested: Project # 04481387-1

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


MCPS Radon Survey  
Lakewood Elementary School  
MD 20850 USA


Log Number	Device Number	Test Exposure Duration:		Area Tested	Result pCi/L
2391553	3918494	12/03/2018 2:56 pm	12/06/2018 2:13 pm	Floor First Room 163	< 0.4
2391557	3918338	12/03/2018 3:46 pm	12/06/2018 2:48 pm	Floor First Room Kitchen (125)	< 0.4

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

Distributed by: Intertek-PSI (VA)

Date Received: 12/12/2018 Date Logged: 12/12/2018 Date Analyzed: 12/13/2018 Date Reported: 01/02/2019

Report Reviewed By: 

Report Approved By: 

Shawn Price, Director of Laboratory Operations, AccuStar Labs

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NELAC NY 11769  
NRPP 101193 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  
Lakewood Elementary School  
Rockville MD 20850

Log Number	Device Number	Area Tested	Result pCi/L
2403710	3888400	Floor First Room APR	< 0.4
2403711	3888390	Floor First Room APR	< 0.4

Radon test results are below the EPA action level of 4 pCi/L. The EPA suggests that you may want to test again in the future to ensure that radon levels remain below the action level. If the property tested uses water from a private well, you may wish to consider testing for radon in water.

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

Distributed by: Intertek-PSI (VA)

Test Began:	12/03/2018	3:41 pm	Date Received:	12/10/2018	Date Analyzed:	12/08/2018
Test Ended:	12/06/2018	2:43 pm	Date Logged:	12/10/2018	Date Reported:	12/21/2018
Test Exposure Duration: 71.0 Hours						

Report Reviewed By:  Report Approved By: 

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Shawn Price, Director of Laboratory Operations, AccuStar Labs

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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

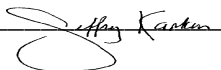
Log Number	Device Number	Test Exposure Duration:	Area Tested	Result pCi/L
3204125	3926831	12/07/2018 9:47 am - 12/10/2018 9:47 am	Spike	36.1
3204126	3926832	12/07/2018 9:47 am - 12/10/2018 9:47 am	Spike	34.8
3204127	3926833	12/07/2018 9:47 am - 12/10/2018 9:47 am	Spike	33.7
3204128	3926834	12/07/2018 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. Ewing Center                            | 13. Garrett Park ES Annex      |
| 2. Department of Food & Nutrition Services | 14. Goshen ES                  |
| 3. Damascus HS                             | 15. Kingsley Wilderness Center |
| 4. Edison HS                               | 16. Kensington Parkwood ES     |
| 5. Emory Grove Center                      | 17. Monocacy ES                |
| 6. John Poole MS                           | 18. Lakewood ES                |
| 7. Lakelands Park MS                       | 19. Little Bennett ES          |
| 8. Laytonsville ES                         | 20. Lois P. Rockwell ES        |
| 9. Gaithersburg HS                         | 21. Olney ES                   |
| 10. Neelsville MS                          | 22. North Chevy Chase ES       |
| 11. Sequoyah ES                            | 23. Woodfield ES               |
| 12. Clarksburg ES Annex                    | 24. Wootton HS                 |

---

	Date	Initials
Radon Test Kits Deployed	12/03/2018	ML
Radon Test Kits Sampled	12/06/2018	ML
Radon Test Kits Shipped to Lab*	12/06/2018	ML
Radon Test Kits Received by Lab*	12/07/2018; 12/08/2018	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: Lakewood Elementary School

Date of Test Report:	1/29/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	43
# Rooms $\geq$ 4.0 pCi/L:	0
Low Value:	< 0.3
High Value:	0.9

Project Status:

Initial testing completed; no further action at this time.



January 29, 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 # 12146341.22

Location: Lakewood Elementary School  
2534 Lindley Terrace  
Rockville, MD 20850

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 Lakewood Elementary School, located at 2534 Lindley Terrace in Rockville, Maryland 20850 (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 January 4, 2016 and deployed fifty-four (54) 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 January 7, 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:**

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

All field blanks, office blanks, 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>Lakewood ES</b>		
<b>Test Period: 01/04/16-01/07/16</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result</b>
7714551	105	0.9
7714547	106	0.6
7714546	107	< 0.3
7714545	109	< 0.3
7714543	110	< 0.3
7714542	111	< 0.3
7714544	114	< 0.3
7714509	115	< 0.3
7714505	121	< 0.3
7714506	121	< 0.3
7714501	134	< 0.3
7714502	135	< 0.3
7714503	139	0.6
7714504	141	< 0.3
7714507	143	< 0.3
7714508	144	< 0.3
7714511	147	0.7
7714513	148	< 0.3
7714515	151	0.8
7714516	152	0.7
7714518	153	< 0.3
7714519	153	< 0.3
7714520	155	< 0.3
7714521	156	< 0.3
7714524	163	< 0.3
7714525	165	< 0.3
7714529	168	< 0.3
7714530	171	0.6
7714532	174	< 0.3
7714531	176	< 0.3
7714528	177	< 0.3
7714526	181	< 0.3
7714523	182	< 0.3
7714522	186	< 0.3
7714510	193	0.7
7714540	221	0.6
7714537	235	< 0.3
7714538	241	< 0.3
7714536	247	< 0.3
7714533	G 107	0.7
7714534	GYM	< 0.3
7714535	GYM	< 0.3
7714549	MAIN OFFICE	< 0.3

Table Note:

\* Missing or Compromised Sample

<b>Radon Testing Results</b>		
<b>Lakewood ES</b>		
<b>Test Period: 01/04/16-01/07/16</b>		
<b>Kit Number</b>	<b>QC Type</b>	<b>Result</b>
7714552	D (105)	0.5
7714512	D (147)	0.5
7714517	D (152)	< 0.3
7714527	D (181)	< 0.3
7714541	D (221)	0.6
7714550	D (MAIN OFFICE)	0.6
7714553	FB (105)	< 0.3
7714548	FB (106)	< 0.3
7714514	FB (148)	< 0.3
7714539	FB (241)	< 0.3
7704829	OB (0)	< 0.3

Table Note:

\* Missing or Compromised Sample

# ATTACHMENT C

## Laboratory Analytical Results

January 25, 2016  
\*\* LABORATORY ANALYSIS REPORT \*\*

Radon test result report for:  
**LAKESWOOD ES**  
**MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7704829	0	2016-01-04 @ 9:00 am	2016-01-07 @ 1:00 pm	< 0.3	2016-01-11
7714552	105	2016-01-04 @ 5:00 pm	2016-01-07 @ 12:00 pm	0.5 ± 0.3	2016-01-11
7714551	105	2016-01-04 @ 5:00 pm	2016-01-07 @ 12:00 pm	0.9 ± 0.4	2016-01-12
7714553	105	2016-01-04 @ 5:00 pm	2016-01-07 @ 12:00 pm	< 0.3	2016-01-12
7714547	106	2016-01-04 @ 5:00 pm	2016-01-07 @ 12:00 pm	0.6 ± 0.3	2016-01-11
7714548	106	2016-01-04 @ 5:00 pm	2016-01-07 @ 12:00 pm	< 0.3	2016-01-11
7714546	107	2016-01-04 @ 5:00 pm	2016-01-07 @ 12:00 pm	< 0.3	2016-01-11
7714545	109	2016-01-04 @ 5:00 pm	2016-01-07 @ 12:00 pm	< 0.3	2016-01-11
7714543	110	2016-01-04 @ 5:00 pm	2016-01-07 @ 12:00 pm	< 0.3	2016-01-11
7714542	111	2016-01-04 @ 5:00 pm	2016-01-07 @ 12:00 pm	< 0.3	2016-01-11
7714544	114	2016-01-04 @ 5:00 pm	2016-01-07 @ 12:00 pm	< 0.3	2016-01-11
7714509	115	2016-01-04 @ 3:00 pm	2016-01-07 @ 11:00 am	< 0.3	2016-01-11
7714506	121	2016-01-04 @ 3:00 pm	2016-01-07 @ 11:00 am	< 0.3	2016-01-11
7714505	121	2016-01-04 @ 3:00 pm	2016-01-07 @ 11:00 am	< 0.3	2016-01-12
7714501	134	2016-01-04 @ 3:00 pm	2016-01-07 @ 11:00 am	< 0.3	2016-01-12
7714502	135	2016-01-04 @ 3:00 pm	2016-01-07 @ 11:00 am	< 0.3	2016-01-11
7714503	139	2016-01-04 @ 3:00 pm	2016-01-07 @ 11:00 am	0.6 ± 0.3	2016-01-11
7714504	141	2016-01-04 @ 3:00 pm	2016-01-07 @ 11:00 am	< 0.3	2016-01-12
7714507	143	2016-01-04 @ 3:00 pm	2016-01-07 @ 11:00 am	< 0.3	2016-01-12
7714508	144	2016-01-04 @ 3:00 pm	2016-01-07 @ 11:00 am	< 0.3	2016-01-12
7714511	147	2016-01-04 @ 3:00 pm	2016-01-07 @ 11:00 am	0.7 ± 0.4	2016-01-12
7714512	147	2016-01-04 @ 3:00 pm	2016-01-07 @ 11:00 am	0.5 ± 0.3	2016-01-12
7714513	148	2016-01-04 @ 3:00 pm	2016-01-07 @ 11:00 am	< 0.3	2016-01-12
7714514	148	2016-01-04 @ 3:00 pm	2016-01-07 @ 11:00 am	< 0.3	2016-01-12
7714515	151	2016-01-04 @ 3:00 pm	2016-01-07 @ 11:00 am	0.8 ± 0.3	2016-01-11
7714517	152	2016-01-04 @ 3:00 pm	2016-01-07 @ 11:00 am	< 0.3	2016-01-11
7714516	152	2016-01-04 @ 3:00 pm	2016-01-07 @ 11:00 am	0.7 ± 0.3	2016-01-12
7714518	153	2016-01-04 @ 4:00 pm	2016-01-07 @ 11:00 am	< 0.3	2016-01-11
7714519	153	2016-01-04 @ 4:00 pm	2016-01-07 @ 11:00 am	< 0.3	2016-01-11
7714520	155	2016-01-04 @ 4:00 pm	2016-01-07 @ 11:00 am	< 0.3	2016-01-12
7714521	156	2016-01-04 @ 4:00 pm	2016-01-07 @ 11:00 am	< 0.3	2016-01-12
7714524	163	2016-01-04 @ 3:00 pm	2016-01-07 @ 12:00 pm	< 0.3	2016-01-11
7714525	165	2016-01-04 @ 4:00 pm	2016-01-07 @ 11:00 am	< 0.3	2016-01-11
7714529	168	2016-01-04 @ 4:00 pm	2016-01-07 @ 11:00 am	< 0.3	2016-01-12
7714530	171	2016-01-04 @ 4:00 pm	2016-01-07 @ 11:00 am	0.6 ± 0.4	2016-01-12
7714532	174	2016-01-04 @ 4:00 pm	2016-01-07 @ 11:00 am	< 0.3	2016-01-11
7714531	176	2016-01-04 @ 4:00 pm	2016-01-07 @ 11:00 am	< 0.3	2016-01-11



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

Radon test result report for:  
**LAKESWOOD ES**  
**MAIN**

<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
7714528	177	2016-01-04 @ 4:00 pm	2016-01-07 @ 11:00 am	< 0.3	2016-01-11
7714526	181	2016-01-04 @ 4:00 pm	2016-01-07 @ 11:00 am	< 0.3	2016-01-11
7714527	181	2016-01-04 @ 4:00 pm	2016-01-07 @ 11:00 am	< 0.3	2016-01-11
7714523	182	2016-01-04 @ 4:00 pm	2016-01-07 @ 11:00 am	< 0.3	2016-01-11
7714522	186	2016-01-04 @ 4:00 pm	2016-01-07 @ 11:00 am	< 0.3	2016-01-11
7714510	193	2016-01-04 @ 3:00 pm	2016-01-07 @ 11:00 am	0.7 ± 0.3	2016-01-11
7714540	221	2016-01-04 @ 5:00 pm	2016-01-07 @ 12:00 pm	0.6 ± 0.4	2016-01-12
7714541	221	2016-01-04 @ 5:00 pm	2016-01-07 @ 12:00 pm	0.6 ± 0.4	2016-01-12
7714537	235	2016-01-04 @ 4:00 pm	2016-01-07 @ 12:00 pm	< 0.3	2016-01-11
7714539	241	2016-01-04 @ 4:00 pm	2016-01-07 @ 12:00 pm	< 0.3	2016-01-11
7714538	241	2016-01-04 @ 4:00 pm	2016-01-07 @ 12:00 pm	< 0.3	2016-01-12
7714536	247	2016-01-04 @ 4:00 pm	2016-01-07 @ 12:00 pm	< 0.3	2016-01-11
7714533	G 107	2016-01-04 @ 4:00 pm	2016-01-07 @ 11:00 am	0.7 ± 0.4	2016-01-12
7714535	GYM	2016-01-04 @ 4:00 pm	2016-01-07 @ 11:00 am	< 0.3	2016-01-11
7714534	GYM	2016-01-04 @ 4:00 pm	2016-01-07 @ 11:00 am	< 0.3	2016-01-12
7714549	MAIN OFFICE	2016-01-04 @ 5:00 pm	2016-01-07 @ 12:00 pm	< 0.3	2016-01-11
7714550	MAIN OFFICE	2016-01-04 @ 5:00 pm	2016-01-07 @ 12:00 pm	0.6 ± 0.3	2016-01-11

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 IV

Name of Schools:

- |                            |                            |                           |
|----------------------------|----------------------------|---------------------------|
| 1. Albert Einstein HS      | 12. Herbert Hoover MS      | 23. Stephen Knolls School |
| 2. Bel Pre ES              | 13. Kohn F. Kennedy HS     | 24. Strathmore ES         |
| 3. Benjamin Banneker MS    | 14. Julius West MS         | 25. Summit Hall ES        |
| 4. Bethesda Chevy Chase HS | 15. Kensington Parkwood ES | 26. Travilah ES           |
| 5. Beverly Farms ES        | 16. Lakewood ES            | 27. Twinbrook ES          |
| 6. Cabin John MS           | 17. Mill Creek ES          | 28. Waters Landing ES     |
| 7. Chevy Chase ES          | 18. Montgomery Blair HS    | 29. Watkins Mill HAS      |
| 8. Farmland ES             | 19. Montgomery Village MS  | 30. Weller Road ES        |
| 9. Forest Oak MS           | 20. Northwood HS           | 31. White Oak MS          |
| 10. Gaithersburg HS        | 21. Paint Branch ES        | 32. Winston Churchill HS  |
| 11. Garrett Park ES        | 22. Rock Creek Forest ES   |                           |

	Date	Initials
Radon Test Kits Deployed	1/4/16	JM
Radon Test Kits Sampled	1/7/16	JM
Radon Test Kits Shipped to Lab*	1/8/16	JM
Radon Test Kits Received by Lab*	1/11/16	JM

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

Note: tests kits deployed at Montgomery Blair HS 1/4/16 and 1/5/16, test kits sampled at Montgomery Blair HS 1/7/16 and 1/8/16