



**MCPS RADON TESTING – EXECUTIVE SUMMARY**

Site Name	Martin Luther King Jr. Middle School
Date of Test Report	2/20/2023
Round of Testing	Initial Follow-up Post Remediation 2 Year Testing 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility
# Rooms Tested	71
# Rooms Re-tested	2
# Rooms $\geq$ 4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	2.5 pCi/L

Project Status:

1. Initial testing completed;
2. Missing or compromised samples need re-test.
3. Retesting Completed 1/31/23 – 2/3/23.
4. 5-Year Testing Completed.



February 20, 2023

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

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

Location: Martin Luther King Jr. Middle School  
13737 Wisteria Drive  
Germantown, MD 20874

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 Beall Elementary School, located at 451 Beall Avenue 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 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 initially on December 5, 2022 and deployed sixty-six (66) 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.

KCI returned to the site on December 8, 2022 to retrieve initial testing 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.

KCI re-visited the site on January 31, 2023 to deploy four (4) activated charcoal (AC) radon test kits for testing of missed rooms or compromised test kits during initial testing.

KCI returned to the site on February 3, 2023 to retrieve the radon re-sampling test kits. KCI shipped all radon tests via overnight delivery to Accustar Labs – MA for analysis by gamma-ray spectroscopy. Accustar Labs – MA is a NRSB certified analytical laboratory for radon analysis (certification #ARL0017) located at 2 Saber Way, Ward Hill, MA 01835.

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.

### **Evaluation of Testing Conditions:**

These tests represent:

- Follow up to initial testing.

These tests were conducted to:

- Evaluated radon concentrations 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 initial 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.

During the re-testing period, weather records indicate low temperatures were in the mid-20s°F and high temperatures ranged to the low 40s°F. Maximum sustained winds ranged from 0-21 miles per hour. Average humidity was around 70% with .18 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>
<b>≥4.0 pCi/L</b>	None	N/A
<b>&lt;4.0 pCi/L</b>	See Attachment B	

The results of the radon re-testing 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	

<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		
Dr. Martin Luther King Jr. MS		
Test Period: 12/13/2022 - 12/20/2022		
Kit Number	Room / Area	Result
11288202	A102	1.3
11288239	A102	1.4
11288235	A108	0.5
11288231	A112	0.8
11288236	A113	< 0.3
11288242	A115	0.7
11288205	A116	0.6
11288215	A117	< 0.3
11288233	A120	< 0.3
11288207	A123	0.8
11288208	A126	1.0
11288182	A211	0.6
11288175	APR	0.6
11288211	APR	< 0.3
11288204	B101	< 0.3
11288229	B101	< 0.3
11288203	B102	< 0.3
11288214	B103	0.5
11288240	B104	0.8
11288230	B105	< 0.3
11288063	B106	< 0.3
11288083	B106	< 0.3
11288082	B107	0.6
11288052	B108	0.6
11288051	B109	< 0.3
11288089	B110	< 0.3
11288090	B111	< 0.3
11288206	B112	0.8
11288201	B113	0.9
11288234	B113	1.1
11288219	B115	0.8
11288232	B116	0.7
11288184	B207	< 0.3
11288181	B212	0.7
11288187	B213	0.7
11288247	C102	1.9
11288216	C103	1.7
11288225	C103	1.6
11288162	C106	1.1
11288160	C107	1.2
11288238	C108	1.1
11288226	C109	0.9



Table 1- Radon Testing Results		
Dr. Martin Luther King Jr. MS		
Test Period: 12/13/2022 - 12/20/2022		
Kit Number	Room / Area	Result
11288168	C110	2.0
11288161	C111	2.4
11288246	C112	1.4
11288218	C113	1.1
11288151	C114	0.6
11288217	C115	0.6
11288167	C116	0.8
11288171	C117	0.8
11288209	C118	0.8
11288183	C118A	0.7
11288130	C119	0.8
11288164	C119	0.8
11288248	C122	1.5
11288116	C123	1.0
11288228	C124	0.8
11288117	C125	1.0
11288210	C127	0.7
11288213	C127	0.8
11288179	C129	0.7
11288178	C131	0.7
11288227	C135	0.5
11288119	C136	< 0.3
11288224	C136	0.5
11288223	C138	2.3
11288241	C139	1.1
11288170	D102	1.5
11288176	D102	< 0.3
11288169	D103	1.8
11288194	D107	1.0
11288180	D109	1.1
11288186	D109	1.1
11288177	GYM	2.5
11288185	GYM	2.3
11288188	KITCHEN OFFICE	0.6
11288172	MAIN	0.6
11288173	MEDIA	0.9
11288174	MEDIA	0.9
11288115	MEDIA OFFICE	0.6
11288212	STAGE	0.7

Table 2- Radon Testing Results			
Dr. Martin Luther King Jr. MS			
Test Period: 12/13/22 - 12/20/22			
Kit Number	QC Type	Room / Area	Result
11288239	D	A102	1.4
11288204	FB	B101	< 0.3
11288083	D	B106	< 0.3
11288201	D	B113	0.9
11288225	D	C103	1.6
11288164	D	C119	0.8
11288213	D	C127	0.8
11288119	FB	C136	< 0.3
11288176	FB	D102	< 0.3
11288186	D	D109	1.1
11286988	OB	OFFICE BLANK	< 0.3
11286990	TB	TRAVEL BLANK	< 0.3



Table 1- Radon Testing Results		
Martin Luther King Jr. MS RT		
Test Period: 01/31/2023 - 02/03/2023		
Kit Number	Room / Area	Result
11288277	A101	2.7
11288279	C147	1.0
11288280	C147	1.3
11288285	C147	< 0.3

Table 2- Radon Testing Results			
Martin Luther King Jr. MS RT			
Test Period: 01/31/23 - 02/03/23			
Kit Number	QC Type	Room / Area	Result
11288279	D	C147	1.0
11288285	FB	C147	< 0.3
11634990	OB	OFFICE BLANK	< 0.3
11634991	TB	TRAVEL BLANK	< 0.3



# ATTACHMENT C

## Laboratory Analytical Results

Radon test result report for:

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11288202	A102	2022-12-13 @ 12:00 pm	2022-12-20 @ 12:00 pm	1.3 ± 0.3	2022-12-22
11288239	A102	2022-12-13 @ 12:00 pm	2022-12-20 @ 12:00 pm	1.4 ± 0.3	2022-12-22
11288235	A108	2022-12-13 @ 12:00 pm	2022-12-20 @ 12:00 pm	0.5 ± 0.3	2022-12-22
11288231	A112	2022-12-13 @ 12:00 pm	2022-12-20 @ 12:00 pm	0.8 ± 0.3	2022-12-22
11288236	A113	2022-12-13 @ 12:00 pm	2022-12-20 @ 12:00 pm	< 0.3	2022-12-22
11288242	A115	2022-12-13 @ 12:00 pm	2022-12-20 @ 12:00 pm	0.7 ± 0.3	2022-12-22
11288205	A116	2022-12-13 @ 12:00 pm	2022-12-20 @ 12:00 pm	0.6 ± 0.3	2022-12-22
11288215	A117	2022-12-13 @ 12:00 pm	2022-12-20 @ 12:00 pm	< 0.3	2022-12-22
11288233	A120	2022-12-13 @ 12:00 pm	2022-12-20 @ 12:00 pm	< 0.3	2022-12-22
11288207	A123	2022-12-13 @ 12:00 pm	2022-12-20 @ 12:00 pm	0.8 ± 0.3	2022-12-22
11288208	A126	2022-12-13 @ 12:00 pm	2022-12-20 @ 12:00 pm	1.0 ± 0.3	2022-12-22
11288182	A211	2022-12-13 @ 2:00 pm	2022-12-20 @ 12:00 pm	0.6 ± 0.3	2022-12-22
11288211	APR	2022-12-13 @ 1:00 pm	2022-12-20 @ 12:00 pm	< 0.3	2022-12-22
11288175	APR	2022-12-13 @ 1:00 pm	2022-12-20 @ 12:00 pm	0.6 ± 0.3	2022-12-22
11288229	B101	2022-12-13 @ 12:00 pm	2022-12-20 @ 12:00 pm	< 0.3	2022-12-22
11288204	B101	2022-12-13 @ 12:00 pm	2022-12-20 @ 12:00 pm	< 0.3	2022-12-22
11288203	B102	2022-12-13 @ 12:00 pm	2022-12-20 @ 12:00 pm	< 0.3	2022-12-22
11288214	B103	2022-12-13 @ 1:00 pm	2022-12-20 @ 12:00 pm	0.5 ± 0.3	2022-12-22
11288240	B104	2022-12-13 @ 1:00 pm	2022-12-20 @ 12:00 pm	0.8 ± 0.3	2022-12-22
11288230	B105	2022-12-13 @ 1:00 pm	2022-12-20 @ 12:00 pm	< 0.3	2022-12-22
11288063	B106	2022-12-13 @ 1:00 pm	2022-12-20 @ 11:00 am	< 0.3	2022-12-22
11288083	B106	2022-12-13 @ 1:00 pm	2022-12-20 @ 11:00 am	< 0.3	2022-12-22
11288082	B107	2022-12-13 @ 1:00 pm	2022-12-20 @ 11:00 am	0.6 ± 0.3	2022-12-22
11288052	B108	2022-12-13 @ 1:00 pm	2022-12-20 @ 11:00 am	0.6 ± 0.3	2022-12-22
11288051	B109	2022-12-13 @ 1:00 pm	2022-12-20 @ 11:00 am	< 0.3	2022-12-22
11288089	B110	2022-12-13 @ 1:00 pm	2022-12-20 @ 11:00 am	< 0.3	2022-12-22
11288090	B111	2022-12-13 @ 1:00 pm	2022-12-20 @ 11:00 am	< 0.3	2022-12-22
11288206	B112	2022-12-13 @ 12:00 pm	2022-12-20 @ 12:00 pm	0.8 ± 0.3	2022-12-22
11288234	B113	2022-12-13 @ 12:00 pm	2022-12-20 @ 12:00 pm	1.1 ± 0.3	2022-12-22
11288201	B113	2022-12-13 @ 12:00 pm	2022-12-20 @ 12:00 pm	0.9 ± 0.3	2022-12-22
11288219	B115	2022-12-13 @ 1:00 pm	2022-12-20 @ 12:00 pm	0.8 ± 0.3	2022-12-22
11288232	B116	2022-12-13 @ 1:00 pm	2022-12-20 @ 11:00 am	0.7 ± 0.3	2022-12-22
11288184	B207	2022-12-13 @ 2:00 pm	2022-12-20 @ 12:00 pm	< 0.3	2022-12-22
11288181	B212	2022-12-13 @ 2:00 pm	2022-12-20 @ 12:00 pm	0.7 ± 0.3	2022-12-22
11288187	B213	2022-12-13 @ 2:00 pm	2022-12-20 @ 12:00 pm	0.7 ± 0.3	2022-12-22
11288247	C102	2022-12-13 @ 12:00 pm	2022-12-20 @ 11:00 am	1.9 ± 0.3	2022-12-22
11288225	C103	2022-12-13 @ 12:00 pm	2022-12-20 @ 11:00 am	1.6 ± 0.3	2022-12-22



Radon test result report for:

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11288216	C103	2022-12-13 @ 12:00 pm	2022-12-20 @ 11:00 am	1.7 ± 0.3	2022-12-22
11288162	C106	2022-12-13 @ 12:00 pm	2022-12-20 @ 11:00 am	1.1 ± 0.3	2022-12-22
11288160	C107	2022-12-13 @ 12:00 pm	2022-12-20 @ 11:00 am	1.2 ± 0.3	2022-12-22
11288238	C108	2022-12-13 @ 12:00 pm	2022-12-20 @ 11:00 am	1.1 ± 0.3	2022-12-22
11288226	C109	2022-12-13 @ 12:00 pm	2022-12-20 @ 11:00 am	0.9 ± 0.3	2022-12-22
11288168	C110	2022-12-13 @ 12:00 pm	2022-12-20 @ 11:00 am	2.0 ± 0.3	2022-12-22
11288161	C111	2022-12-13 @ 12:00 pm	2022-12-20 @ 11:00 am	2.4 ± 0.3	2022-12-22
11288246	C112	2022-12-13 @ 11:00 am	2022-12-20 @ 11:00 am	1.4 ± 0.3	2022-12-22
11288218	C113	2022-12-13 @ 11:00 am	2022-12-20 @ 11:00 am	1.1 ± 0.3	2022-12-22
11288151	C114	2022-12-13 @ 11:00 am	2022-12-20 @ 11:00 am	0.6 ± 0.3	2022-12-22
11288217	C115	2022-12-13 @ 11:00 am	2022-12-20 @ 11:00 am	0.6 ± 0.3	2022-12-22
11288167	C116	2022-12-13 @ 11:00 am	2022-12-20 @ 11:00 am	0.8 ± 0.3	2022-12-22
11288171	C117	2022-12-13 @ 11:00 am	2022-12-20 @ 11:00 am	0.8 ± 0.3	2022-12-22
11288209	C118	2022-12-13 @ 11:00 am	2022-12-20 @ 11:00 am	0.8 ± 0.3	2022-12-22
11288183	C118A	2022-12-13 @ 2:00 pm	2022-12-20 @ 11:00 am	0.7 ± 0.3	2022-12-22
11288130	C119	2022-12-13 @ 12:00 pm	2022-12-20 @ 11:00 am	0.8 ± 0.3	2022-12-22
11288164	C119	2022-12-13 @ 12:00 pm	2022-12-20 @ 11:00 am	0.8 ± 0.3	2022-12-22
11288248	C122	2022-12-13 @ 12:00 pm	2022-12-20 @ 11:00 am	1.5 ± 0.3	2022-12-22
11288116	C123	2022-12-13 @ 1:00 pm	2022-12-20 @ 12:00 pm	1.0 ± 0.3	2022-12-22
11288228	C124	2022-12-13 @ 12:00 pm	2022-12-20 @ 12:00 pm	0.8 ± 0.3	2022-12-22
11288117	C125	2022-12-13 @ 1:00 pm	2022-12-20 @ 12:00 pm	1.0 ± 0.3	2022-12-22
11288213	C127	2022-12-13 @ 1:00 pm	2022-12-20 @ 12:00 pm	0.8 ± 0.3	2022-12-22
11288210	C127	2022-12-13 @ 1:00 pm	2022-12-20 @ 12:00 pm	0.7 ± 0.3	2022-12-22
11288179	C129	2022-12-13 @ 1:00 pm	2022-12-20 @ 11:00 am	0.7 ± 0.3	2022-12-22
11288178	C131	2022-12-13 @ 1:00 pm	2022-12-20 @ 11:00 am	0.7 ± 0.3	2022-12-22
11288227	C135	2022-12-13 @ 12:00 pm	2022-12-20 @ 11:00 am	0.5 ± 0.3	2022-12-22
11288119	C136	2022-12-13 @ 12:00 pm	2022-12-20 @ 11:00 am	< 0.3	2022-12-22
11288224	C136	2022-12-13 @ 12:00 pm	2022-12-20 @ 11:00 am	0.5 ± 0.3	2022-12-22
11288223	C138	2022-12-13 @ 12:00 pm	2022-12-20 @ 12:00 pm	2.3 ± 0.3	2022-12-22
11288241	C139	2022-12-13 @ 12:00 pm	2022-12-20 @ 12:00 pm	1.1 ± 0.3	2022-12-22
11288170	D102	2022-12-13 @ 1:00 pm	2022-12-20 @ 11:00 am	1.5 ± 0.3	2022-12-22
11288176	D102	2022-12-13 @ 1:00 pm	2022-12-20 @ 11:00 am	< 0.3	2022-12-22
11288169	D103	2022-12-13 @ 1:00 pm	2022-12-20 @ 11:00 am	1.8 ± 0.3	2022-12-22
11288194	D107	2022-12-13 @ 1:00 pm	2022-12-20 @ 11:00 am	1.0 ± 0.3	2022-12-22
11288186	D109	2022-12-13 @ 1:00 pm	2022-12-20 @ 11:00 am	1.1 ± 0.3	2022-12-22
11288180	D109	2022-12-13 @ 1:00 pm	2022-12-20 @ 11:00 am	1.1 ± 0.3	2022-12-22
11288177	GYM	2022-12-13 @ 1:00 pm	2022-12-20 @ 11:00 am	2.5 ± 0.3	2022-12-22

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December 22, 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>
11288185	GYM	2022-12-13 @ 1:00 pm	2022-12-20 @ 11:00 am	2.3 ± 0.3	2022-12-22
11288188	KITCHEN OFFICE	2022-12-13 @ 1:00 pm	2022-12-20 @ 12:00 pm	0.6 ± 0.3	2022-12-22
11288172	MAIN	2022-12-13 @ 11:00 am	2022-12-20 @ 11:00 am	0.6 ± 0.3	2022-12-22
11288173	MEDIA	2022-12-13 @ 1:00 pm	2022-12-20 @ 12:00 pm	0.9 ± 0.3	2022-12-22
11288174	MEDIA	2022-12-13 @ 1:00 pm	2022-12-20 @ 12:00 pm	0.9 ± 0.3	2022-12-22
11288115	MEDIA OFFICE	2022-12-13 @ 1:00 pm	2022-12-20 @ 12:00 pm	0.6 ± 0.3	2022-12-22
11288212	STAGE	2022-12-13 @ 1:00 pm	2022-12-20 @ 12:00 pm	0.7 ± 0.3	2022-12-22

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

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February 7, 2023

**\*\* 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>
11288277	A101	2023-01-31 @ 9:00 am	2023-02-03 @ 10:00 am	2.7 ± 0.4	2023-02-07
11288279	C147	2023-01-31 @ 9:00 am	2023-02-03 @ 10:00 am	1.0 ± 0.3	2023-02-07
11288280	C147	2023-01-31 @ 9:00 am	2023-02-03 @ 10:00 am	1.3 ± 0.4	2023-02-07
11288285	C147	2023-01-31 @ 9:00 am	2023-02-03 @ 10:00 am	< 0.3	2023-02-07

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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 KCI TECHNOLOGIES, INC Job Number 208802

NOMINAL Conditions: Radon Conc 24.4 pCi/L Rel. Hum 48.6 % Temp. 79.3 F

Date Start: 1/27/23 Date Stop: 1/30/23 Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

Time Start: 0816 Time Stop: 0816 Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_

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

11633682, 11633687, 11633688 \_\_\_\_\_

11633695, 11633696 \_\_\_\_\_

P3 left

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

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

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

\_\_\_\_\_

\_\_\_\_\_

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

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

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

\_\_\_\_\_

\_\_\_\_\_

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

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February 3, 2023

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

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Radon test result report for:

**OFFICE**

**MAIN**

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<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
11633696	SK10	2023-01-27 @ 8:00 am	2023-01-30 @ 8:00 am	24.2 ± 1.9	2023-02-03
11633682	SK6	2023-01-27 @ 8:00 am	2023-01-30 @ 8:00 am	26.9 ± 2.1	2023-02-03
11633687	SK7	2023-01-27 @ 8:00 am	2023-01-30 @ 8:00 am	23.8 ± 1.9	2023-02-03
11633688	SK8	2023-01-27 @ 8:00 am	2023-01-30 @ 8:00 am	25.9 ± 2.1	2023-02-03
11633695	SK9	2023-01-27 @ 8:00 am	2023-01-30 @ 8:00 am	27.0 ± 2.2	2023-02-03

---

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



## Radon Test Kit Chain of Custody

Project Name: MCPS Radon – Week 2 January Schools

Name of Schools:

1. Beall ES
2. Gaithersburg HS
3. Kingsview MS
4. Lucy V. Barnsley ES
5. Martin Luther King Jr. MS
6. Mill Creek Towne ES
7. North Bethesda MS
8. Radnor Center
9. Winston Churchill HS

---

	Date	Initials
Radon Test Kits Deployed	01/31/2023	DM
Radon Test Kits Collected	02/03/2023	DM
Radon Test Kits Shipped to Lab*	02/03/2023	DM
Radon Test Kits Received by Lab*	02/06/2023	DM

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



## MONTGOMERY COUNTY PUBLIC SCHOOLS RADON TESTING

**Executive Summary:**  
**Martin Luther King Jr. Middle School**  
13737 Wisteria Drive,  
Germantown, MD 20874

Date of Test Report:	1/15/2019
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:	68
# of Rooms $\geq$ 4.0 pCi/L:	0
Low Value:	< 0.4
High Value:	1.4

### Project Status

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



January 15, 2019

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

Re: Radon Testing Services

Location: Martin Luther King Jr. Middle School  
13737 Wisteria Drive,  
Germantown, MD 20874

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 Martin Luther King Jr. Middle School, located at 137137 Wisteria Drive, Germantown, MD 20874 (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 eighty-six (86) 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>Martin Luther King Jr. Middle 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>
3927792	B111	0.4
3918590	C118A	0.4
3927728	C124	0.4
3927758	IMC (C126)	0.4
3927759	IMC (C126)	0.4
3927607	C135	0.4
3927625	TV Studio (C129)	0.4
3927748	BSM (C144)	0.4
3927698	A120 Office	0.5
3927754	B102	0.5
3927675	Health (C102)	0.5
3927629	C107	0.5
3918588	C116	0.5
3927682	C123	0.5
3927760	C127	0.5
3927699	A102	0.6
3927696	A118	0.6
3927791	A123	0.6
3927800	B107	0.6
3927671	B201	0.6
3918581	C109	0.6
3927683	C125	0.6
3927681	IMC Workroom	0.6
3927621	D108	0.6
3927693	A112 Office	0.7
3927695	A116 Office	0.7
3927753	B104	0.7
3927798	B108	0.7
3927756	B112	0.7
3918584	C112	0.7
3927749	Chorus (C139)	0.7
3927689	D107	0.7
3927752	B105	0.8
3927757	B113	0.8
3927796	B116	0.8
3918582	C110	0.8
3927622	D108A	0.8
3927692	A112	0.9
3927797	B115	0.9
3918583	C111	0.9
3927747	C147	0.9
3927686	Gym (D102)	0.9
3927730	C138 Office	1.0

<b>Radon Testing Results</b>		
<b>Martin Luther King Jr. Middle 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>
3927685	Gym (D102)	1.0
3927688	Gym (D103)	1.0
3927623	Gym (D101)	1.1
3927751	B106	1.2
3927624	Gym (D101)	1.2
3927687	Gym (D103)	1.2
3927750	C138	1.4
3927691	A116	<0.4
3927694	A117	<0.4
3927697	A120	<0.4
3927725	A201	<0.4
3927674	A208	<0.4
3927742	APR	<0.4
3927743	APR	<0.4
3927755	B101	<0.4
3927794	B109	<0.4
3927793	B110	<0.4
3927673	B206	<0.4
3927606	Health Office	<0.4
3927627	Guidance (C106)	<0.4
3927630	C108	<0.4
3918586	C114	<0.4
3918585	C115	<0.4
3918587	C115	<0.4
3918589	C118	<0.4
3927672	C131	<0.4
3927626	TV Control Room	<0.4
3927727	Security room (C136)	<0.4
3927744	Kitchen	<0.4
3927746	Kitchen Office	<0.4
3927741	Stage	<0.4

<b>Radon Testing Results</b>		
<b>Martin Luther King Jr. Middle 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>
3927700	A102 (D)	0.5
3927799	B108 (D)	0.8
3927795	B109 (D)	<0.4
3927684	C125 (D)	0.7
3927729	C138 Office (D)	1.2
3927690	D107 (D)	0.6
3927628	Guidance (C106) (D)	<0.4
3927745	Kitchen (D)	<0.4
3927604	Field Blank	<0.4
3927653	Field Blank	<0.4
3918511	Office Blank	<0.4
3928655	Transit Blank	<0.4

**Table Notes:**

D – Duplicate

FB – Field Blank

OB – Office Blank

TB – Transit Blank

QC – Quality Control

# **ATTACHMENT C**

Laboratory Analytical Results



NRPP 105011 AL  
NRSB ARL0007

Laboratory Report for:

Property Tested: Project # 04481387-1

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

MCPS Radon Survey Martin Luther King, Jr. MS  
Not Indicated  
Darnestown MD 20874

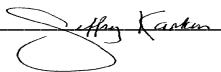
Log Number	Device Number	Test Exposure Duration:		Area Tested	Result pCi/L
3203073	3927691	12/04/2018 5:00 pm	12/07/2018 4:00 pm	Floor First Room A116	< 0.4
3203074	3927604	12/04/2018 6:00 am	12/07/2018 6:00 pm	Floor NA Room Field Blank	< 0.4
3203075	3927692	12/04/2018 5:01 pm	12/07/2018 4:01 pm	Floor First Room A112	0.9
3203076	3927693	12/04/2018 5:02 pm	12/07/2018 4:02 pm	Floor First Room A112 Office	0.7
3203077	3927694	12/04/2018 5:03 pm	12/07/2018 4:03 pm	Floor First Room A117	< 0.4
3203078	3927695	12/04/2018 5:04 pm	12/07/2018 4:04 pm	Floor First Room A116 Office	0.7
3203079	3927696	12/04/2018 5:05 pm	12/07/2018 4:05 pm	Floor First Room A118	0.6
3203080	3927697	12/04/2018 5:06 pm	12/07/2018 4:06 pm	Floor First Room A120	< 0.4
3203081	3927698	12/04/2018 5:07 pm	12/07/2018 4:07 pm	Floor First Room A120 Office	0.5
3203082	3927699	12/04/2018 5:08 pm	12/07/2018 4:09 pm	Floor First Room A102	0.6
3203083	3927700	12/04/2018 5:08 pm	12/07/2018 4:09 pm	Floor First Room A102 Duplicate	0.5


**Comment:** AMENDED REPORT on 1-8-19 to add corrected dates and times for 3927604

Test Performed By: Rinzo Renthlei

Distributed by: Intertek-PSI (VA)

Date Received: 12/08/2018 Date Logged: 12/08/2018 Date Analyzed: 12/08/2018 Date Reported: 12/17/2018

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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NRPP 105011 AL  
NRSB ARL0007

Laboratory Report for:

Property Tested: Project # 04481387-1

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

MCPS Radon Survey Martin Luther King, Jr. MS  
Not Indicated  
Darnestown MD 20874

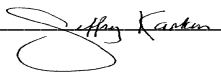
Log Number	Device Number	Test Exposure Duration:		Area Tested	Result pCi/L
3203084	3927791	12/04/2018 5:10 pm	12/07/2018 4:10 pm	Floor First Room A123	0.6
3203085	3927792	12/04/2018 5:11 pm	12/07/2018 4:11 pm	Floor First Room B111	0.4
3203086	3927793	12/04/2018 5:12 pm	12/07/2018 4:12 pm	Floor First Room B110	< 0.4
3203087	3927794	12/04/2018 5:13 pm	12/07/2018 4:14 pm	Floor First Room B109	< 0.4
3203088	3927795	12/04/2018 5:13 pm	12/07/2018 4:14 pm	Floor First Room B109 Duplicate	< 0.4
3203089	3927796	12/04/2018 5:15 pm	12/07/2018 4:15 pm	Floor First Room B116	0.8
3203090	3927797	12/04/2018 5:16 pm	12/07/2018 4:16 pm	Floor First Room B115	0.9
3203091	3927798	12/04/2018 5:17 pm	12/07/2018 4:18 pm	Floor First Room B108	0.7
3203092	3927799	12/04/2018 5:17 pm	12/07/2018 4:18 pm	Floor First Room B108 Duplicate	0.8
3203093	3927800	12/04/2018 5:19 pm	12/07/2018 4:19 pm	Floor First Room B107	0.6
3203094	3927751	12/04/2018 5:20 pm	12/07/2018 4:20 pm	Floor First Room B106	1.2


**Comment:** AMENDED REPORT on 1-8-19 to add corrected dates and times for 3927604

Test Performed By: Rinzo Renthlei

Distributed by: Intertek-PSI (VA)

Date Received: 12/08/2018 Date Logged: 12/08/2018 Date Analyzed: 12/08/2018 Date Reported: 12/17/2018

Report Reviewed By: 

Report Approved By: 

Shawn Price, Director of Laboratory Operations, AccuStar Labs

**Disclaimer:**

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NRPP 105011 AL  
NRSB ARL0007

Laboratory Report for:

Property Tested: Project # 04481387-1

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

MCPS Radon Survey Martin Luther King, Jr. MS  
Not Indicated  
Darnestown MD 20874

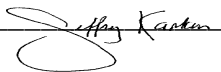
Log Number	Device Number	Test Exposure Duration:		Area Tested	Result pCi/L
3203095	3927752	12/04/2018 5:21 pm	12/07/2018 4:21 pm	Floor First Room B105	0.8
3203096	3927754	12/04/2018 5:23 pm	12/07/2018 4:23 pm	Floor First Room B102	0.5
3203097	3927755	12/04/2018 5:24 pm	12/07/2018 4:24 pm	Floor First Room B101	< 0.4
3203098	3927756	12/04/2018 5:25 pm	12/07/2018 4:25 pm	Floor First Room B112	0.7
3203099	3927757	12/04/2018 5:26 pm	12/07/2018 4:26 pm	Floor First Room B113	0.8
3203100	3927758	12/04/2018 5:27 pm	12/07/2018 4:27 pm	Floor First Room IMC (C126)	0.4
3203101	3927759	12/04/2018 5:28 pm	12/07/2018 4:28 pm	Floor First Room IMC (C126)	0.4
3203102	3927760	12/04/2018 5:29 pm	12/07/2018 4:29 pm	Floor First Room C127	0.5
3203103	3927681	12/04/2018 5:30 pm	12/07/2018 4:30 pm	Floor First Room IMC Workroom	0.6
3203104	3927682	12/04/2018 5:31 pm	12/07/2018 4:31 pm	Floor First Room C123	0.5
3203105	3927683	12/04/2018 5:32 pm	12/07/2018 4:33 pm	Floor First Room C125	0.6


**Comment:** AMENDED REPORT on 1-8-19 to add corrected dates and times for 3927604

Test Performed By: Rinzo Renthlei

Distributed by: Intertek-PSI (VA)

Date Received: 12/08/2018 Date Logged: 12/08/2018 Date Analyzed: 12/08/2018 Date Reported: 12/17/2018

Report Reviewed By: 

Report Approved By: 

Shawn Price, Director of Laboratory Operations, AccuStar Labs

**Disclaimer:**

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NRPP 105011 AL  
NRSB ARL0007

Laboratory Report for:

Property Tested: Project # 04481387-1

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

MCPS Radon Survey Martin Luther King, Jr. MS  
Not Indicated  
Darnestown MD 20874

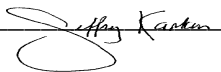
Log Number	Device Number	Test Exposure	Duration:	Area Tested	Result pCi/L
3203106	3927684	12/04/2018 5:32 pm	12/07/2018 4:33 pm	Floor First Room C125 Duplicate	0.7
3203107	3927685	12/04/2018 5:34 pm	12/07/2018 4:34 pm	Floor First Room Aux. Gym (D102)	1.0
3203108	3927686	12/04/2018 5:35 pm	12/07/2018 4:35 pm	Floor First Room Aux. Gym (D102)	0.9
3203109	3927687	12/04/2018 5:36 pm	12/07/2018 4:36 pm	Floor First Room Aux. Gym (D103)	1.2
3203110	3927688	12/04/2018 5:37 pm	12/07/2018 4:37 pm	Floor First Room Aux. Gym (D103)	1.0
3203111	3927689	12/04/2018 5:38 pm	12/07/2018 4:39 pm	Floor First Room D107	0.7
3203112	3927690	12/04/2018 5:38 pm	12/07/2018 4:39 pm	Floor First Room D107 Duplicate	0.6
3203113	3927621	12/04/2018 5:40 pm	12/07/2018 4:40 pm	Floor First Room D108	0.6
3203114	3927622	12/04/2018 5:41 pm	12/07/2018 4:41 pm	Floor First Room D108A (Bet D107-D108)	0.8
3203115	3927623	12/04/2018 5:42 pm	12/07/2018 4:42 pm	Floor First Room Gym (D101)	1.1
3203116	3927624	12/04/2018 5:43 pm	12/07/2018 4:43 pm	Floor First Room Gym (D101)	1.2


**Comment:** AMENDED REPORT on 1-8-19 to add corrected dates and times for 3927604

Test Performed By: Rinzo Renthlei

Distributed by: Intertek-PSI (VA)

Date Received: 12/08/2018 Date Logged: 12/08/2018 Date Analyzed: 12/08/2018 Date Reported: 12/17/2018

Report Reviewed By: 

Report Approved By: 

**Disclaimer:**

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Shawn Price, Director of Laboratory Operations, AccuStar Labs

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NRPP 105011 AL  
NRSB ARL0007

Laboratory Report for:

Property Tested: Project # 04481387-1

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

MCPS Radon Survey Martin Luther King, Jr. MS  
Not Indicated  
Darnestown MD 20874

Log Number	Device Number	Test Exposure Duration:		Area Tested	Result pCi/L
3203117	3927625	12/04/2018 5:44 pm	12/07/2018 4:44 pm	Floor First Room TV Studio (C129)	0.4
3203118	3927626	12/04/2018 5:45 pm	12/07/2018 4:45 pm	Floor First Room TV Control Room	< 0.4
3203119	3927627	12/04/2018 5:46 pm	12/07/2018 4:47 pm	Floor First Room Guidance (C106)	< 0.4
3203120	3927753	12/04/2018 5:22 pm	12/07/2018 4:22 pm	Floor First Room Guidance B104	0.7
3203121	3927628	12/04/2018 5:46 pm	12/07/2018 4:47 pm	Floor First Room Guidance (C106) Duplicate	< 0.4
3203122	3927629	12/04/2018 5:48 pm	12/07/2018 4:48 pm	Floor First Room C107	0.5
3203123	3927630	12/04/2018 5:49 pm	12/07/2018 4:49 pm	Floor First Room C108	< 0.4
3203124	3918581	12/04/2018 5:50 pm	12/07/2018 4:50 pm	Floor First Room C109	0.6
3203125	3918582	12/04/2018 5:51 pm	12/07/2018 4:51 pm	Floor First Room C110	0.8
3203126	3918583	12/04/2018 5:52 pm	12/07/2018 4:52 pm	Floor First Room C111	0.9
3203127	3918584	12/04/2018 5:53 pm	12/07/2018 4:53 pm	Floor First Room C112	0.7

**Comment:** AMENDED REPORT on 1-8-19 to add corrected dates and times for 3927604

Test Performed By: Rinzo Renthlei

Distributed by: Intertek-PSI (VA)

Date Received: 12/08/2018 Date Logged: 12/08/2018 Date Analyzed: 12/08/2018 Date Reported: 12/17/2018

Report Reviewed By: 

Report Approved By: 

**Disclaimer:**

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

Shawn Price, Director of Laboratory Operations, AccuStar Labs

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NRPP 105011 AL  
NRSB ARL0007

Laboratory Report for:

Property Tested: Project # 04481387-1

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

MCPS Radon Survey Martin Luther King, Jr. MS  
Not Indicated  
Darnestown MD 20874

Log Number	Device Number	Test Exposure Duration:		Area Tested	Result pCi/L
3203128	3918585	12/04/2018 5:54 pm	12/07/2018 4:54 pm	Floor First Room C115	< 0.4
3203129	3918586	12/04/2018 5:55 pm	12/07/2018 4:55 pm	Floor First Room C114	< 0.4
3203130	3918587	12/04/2018 5:56 pm	12/07/2018 4:56 pm	Floor First Room C115	< 0.4
3203131	3918588	12/04/2018 5:57 pm	12/07/2018 4:57 pm	Floor First Room C116	0.5
3203132	3918589	12/04/2018 5:58 pm	12/07/2018 4:58 pm	Floor First Room C118	< 0.4
3203133	3918590	12/04/2018 6:00 pm	12/07/2018 4:59 pm	Floor First Room C118A	0.4
3203134	3927741	12/04/2018 6:02 pm	12/07/2018 5:00 pm	Floor First Room Stage	< 0.4
3203135	3927742	12/04/2018 6:04 pm	12/07/2018 5:01 pm	Floor First Room APR	< 0.4
3203136	3927743	12/04/2018 6:06 pm	12/07/2018 5:02 pm	Floor First Room APR	< 0.4
3203137	3927744	12/04/2018 6:08 pm	12/07/2018 5:04 pm	Floor First Room Kitchen	< 0.4
3203138	3927745	12/04/2018 6:08 pm	12/07/2018 5:04 pm	Floor First Room Kitchen Duplicate	< 0.4

**Comment:** AMENDED REPORT on 1-8-19 to add corrected dates and times for 3927604

Test Performed By: Rinzo Renthlei

Distributed by: Intertek-PSI (VA)

Date Received: 12/08/2018    Date Logged: 12/08/2018    Date Analyzed: 12/08/2018    Date Reported: 12/17/2018

Report Reviewed By: 

Report Approved By: 

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NRPP 105011 AL  
NRSB ARL0007

Laboratory Report for:

Property Tested: Project # 04481387-1

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

MCPS Radon Survey Martin Luther King, Jr. MS  
Not Indicated  
Darnestown MD 20874

Log Number	Device Number	Test Exposure Duration:	Area Tested	Result pCi/L
3203139	3927746	12/04/2018 6:12 pm - 12/07/2018 5:05 pm	Floor First Room Kitchen Office	< 0.4
3203140	3927747	12/04/2018 6:14 pm - 12/07/2018 5:06 pm	Floor First Room C147	0.9
3203141	3927748	12/04/2018 6:16 pm - 12/07/2018 5:07 pm	Floor First Room BSM (C144)	0.4
3203142	3927749	12/04/2018 6:18 pm - 12/07/2018 5:08 pm	Floor First Room Chorus (C139)	0.7
3203143	3927750	12/04/2018 6:20 pm - 12/07/2018 5:09 pm	Floor First Room C138	1.4
3203144	3927730	12/04/2018 6:22 pm - 12/07/2018 5:11 pm	Floor First Room C138 Office	1.0
3203145	3927729	12/04/2018 6:22 pm - 12/07/2018 5:11 pm	Floor First Room C138 Office Duplicate	1.2
3203146	3927728	12/04/2018 6:26 pm - 12/07/2018 5:12 pm	Floor First Room C124	0.4
3203147	3927727	12/04/2018 6:28 pm - 12/07/2018 5:13 pm	Floor First Room Security room (C136)	< 0.4
3203148	3927671	12/04/2018 6:30 pm - 12/07/2018 5:14 pm	Floor Second Room B201	0.6
3203149	3927673	12/04/2018 6:32 pm - 12/07/2018 5:15 pm	Floor Second Room B206	< 0.4

**Comment:** AMENDED REPORT on 1-8-19 to add corrected dates and times for 3927604

Test Performed By: Rinzo Renthlei

Distributed by: Intertek-PSI (VA)

Date Received: 12/08/2018 Date Logged: 12/08/2018 Date Analyzed: 12/08/2018 Date Reported: 12/17/2018

Report Reviewed By: 

Report Approved By: 

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NRPP 105011 AL  
NRSB ARL0007

Laboratory Report for:

Property Tested: Project # 04481387-1

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

MCPS Radon Survey Martin Luther King, Jr. MS  
Not Indicated  
Darnestown MD 20874

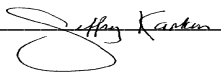
Log Number	Device Number	Test Date	Exposure Duration	Area Tested	Result pCi/L
3203150	3927674	12/04/2018	6:34 pm - 12/07/2018 5:16 pm	Floor Second Room A208	< 0.4
3203151	3927725	12/04/2018	6:36 pm - 12/07/2018 5:17 pm	Floor Second Room A201	< 0.4
3203152	3927607	12/04/2018	6:38 pm - 12/07/2018 5:18 pm	Floor First Room C135	0.4
3203153	3927672	12/04/2018	6:40 pm - 12/07/2018 5:19 pm	Floor First Room C131	< 0.4
3203154	3927675	12/04/2018	6:42 pm - 12/07/2018 5:20 pm	Floor First Room Health (C102)	0.5
3203155	3927606	12/04/2018	6:44 pm - 12/07/2018 5:21 pm	Floor First Room Health Office	< 0.4
3203156	3918511	12/04/2018	6:00 am - 12/07/2018 6:00 pm	Floor NA Room Office Blank	< 0.4
3203157	3927655	12/04/2018	6:00 am - 12/07/2018 6:00 pm	Floor NA Room Transit Blank	< 0.4
3203158	3927653	12/04/2018	5:00 pm - 12/07/2018 5:30 pm	Floor NA Room Field Blank	< 0.4


**Comment:** AMENDED REPORT on 1-8-19 to add corrected dates and times for 3927604

Test Performed By: Rinzo Renthlei

Distributed by: Intertek-PSI (VA)

Date Received: 12/08/2018 Date Logged: 12/08/2018 Date Analyzed: 12/08/2018 Date Reported: 12/17/2018

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: 

**Disclaimer:**

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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

**RADON SCREENING SURVEY – FOLLOW-UP MARTIN LUTHER KING JR MIDDLE  
SCHOOL**

13737 Wisteria Drive, Germantown, Maryland 20874

**EXECUTIVE SUMMARY**

Date of Test Report:	3/17/16 Follow-Up
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested	4
# Rooms $\geq$ 4.0 pCi/L:	0
Low Value:	<0.3
High Value:	1.1
Confirmed Rooms $\geq$ 4.0 pCi/L US EPA Action Level	0

**Summary of Sampling Events  $\geq$  4.0 pCi/L**

Room	Result (pCi/L) 3/4/16 (Rev 1 Initial)	Result (pCi/L) 3/17/16 Follow-Up	Average Result (pCi/L)
B112	--- Missing	1.1	1.1
C129	--- Tampered	<0.3	<0.3
C129A	--- Tampered	<0.3	<0.3
Kitchen Office	--- Tampered	<0.3	<0.3



## MCPS RADON TESTING

### Executive Summary: Martin Luther King Jr. Middle School

Date of Test Report:	3/17/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	4
# Rooms $\geq$ 4.0 pCi/L:	0
Low Value:	< 0.3
High Value:	1.1

#### Project Status:

Retesting completed; no further action at this time.



March 17, 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 # 12146341.29

Location: Martin Luther King Jr. Middle School  
13737 Wisteria Drive  
Germantown, MD 20874

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 Martin Luther King Jr. Middle School, located at 13737 Wisteria Drive in Germantown, Maryland 20874 (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 February 22, 2016 and deployed six (6) 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 February 25, 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. Note that strong storms and heavy rainfall were recorded during the test period. The unusual weather conditions may have resulted in atypical radon test results for this facility.

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

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

**Results:**

The results of the radon test analysis indicated the following:

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

Notes:

D- Duplicate sample

The field blank, 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

\*Office blanks were submitted at a rate of 1% for all samples deployed in Phase 9 testing. Office blanks were not submitted under each school individually.

<b>Radon Testing Results</b>		
<b>Martin Luther King MS</b>		
<b>Test Period: 02/22/16-02/25/16</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result</b>
7719170	B112	1.1
7719482	C129	< 0.3
7719172	C129A	< 0.3
7712580	KITCHEN OFF	< 0.3

Table Note:

\* Missing or Compromised Sample

<b>Radon Testing Results</b>		
<b>Martin Luther King MS</b>		
<b>Test Period: 02/22/16-02/25/16</b>		
<b>Kit Number</b>	<b>QC Type</b>	<b>Result</b>
7732197	D (C129A)	0.7
7732175	FB (C129)	< 0.3

Table Note:

\* Missing or Compromised Sample

# ATTACHMENT C

## Laboratory Analytical Results

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March 8, 2016 **\*\* LABORATORY ANALYSIS REPORT \*\***

---

Radon test result report for:  
**MARTIN LUTHER KING MS  
MAIN**

---

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7719170	B112	2016-02-22 @ 3:00 pm	2016-02-25 @ 3:00 pm	1.1 ± 0.3	2016-02-29
7719482	C129	2016-02-22 @ 3:00 pm	2016-02-25 @ 3:00 pm	< 0.3	2016-02-29
7732175	C129	2016-02-22 @ 3:00 pm	2016-02-25 @ 3:00 pm	< 0.3	2016-02-29
7719172	C129A	2016-02-22 @ 3:00 pm	2016-02-25 @ 3:00 pm	< 0.3	2016-02-29
7732197	C129A	2016-02-22 @ 3:00 pm	2016-02-25 @ 3:00 pm	0.7 ± 0.3	2016-02-29
7712580	KITCHEN OFF	2016-02-22 @ 3:00 pm	2016-02-25 @ 3:00 pm	< 0.3	2016-02-29

---

---

March 9, 2016 **\*\* LABORATORY ANALYSIS REPORT \*\***

---

Radon test result report for:  
**MCPS**  
**Phase 9 Office Blanks**

---

<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
7712568	0	2016-02-22 @ 6:00 pm	2016-02-25 @ 3:00 pm	< 0.3	2016-02-29
7712584	0	2016-02-22 @ 6:00 pm	2016-02-25 @ 3:00 pm	< 0.3	2016-02-29
7719460	0	2016-02-22 @ 6:00 pm	2016-02-25 @ 3:00 pm	< 0.3	2016-02-29
7719481	0	2016-02-22 @ 6:00 pm	2016-02-25 @ 3:00 pm	< 0.3	2016-02-29
7719497	0	2016-02-22 @ 6:00 pm	2016-02-25 @ 3:00 pm	< 0.3	2016-02-29
7719498	0	2016-02-22 @ 6:00 pm	2016-02-25 @ 3:00 pm	< 0.3	2016-02-29

---

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



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March 8, 2016 **\*\* LABORATORY ANALYSIS REPORT \*\***

---

Radon test result report for:  
**MARTIN LUTHER KING MS  
MAIN**

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<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
7719170	B112	2016-02-22 @ 3:00 pm	2016-02-25 @ 3:00 pm	1.1 ± 0.3	2016-02-29
7719482	C129	2016-02-22 @ 3:00 pm	2016-02-25 @ 3:00 pm	< 0.3	2016-02-29
7732175	C129	2016-02-22 @ 3:00 pm	2016-02-25 @ 3:00 pm	< 0.3	2016-02-29
7719172	C129A	2016-02-22 @ 3:00 pm	2016-02-25 @ 3:00 pm	< 0.3	2016-02-29
7732197	C129A	2016-02-22 @ 3:00 pm	2016-02-25 @ 3:00 pm	0.7 ± 0.3	2016-02-29
7712580	KITCHEN OFF	2016-02-22 @ 3:00 pm	2016-02-25 @ 3:00 pm	< 0.3	2016-02-29

---

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

---

March 9, 2016 **\*\* LABORATORY ANALYSIS REPORT \*\***

---

Radon test result report for:  
**MCPS**  
**Phase 9 Office Blanks**

---

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7731626	0	2016-02-23 @ 2:00 pm	2016-02-26 @ 3:00 pm	< 0.3	2016-03-01
7731633	0	2016-02-23 @ 2:00 pm	2016-02-26 @ 3:00 pm	< 0.3	2016-03-01
7735204	0	2016-02-23 @ 2:00 pm	2016-02-26 @ 3:00 pm	< 0.3	2016-03-01

---

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

February 23, 2016  
**LABORATORY ANALYSIS REPORT \*\***

Radon test result report for:  
**TRANSIT- PHASE 7, 8, 9**  
**NONE**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7734937	1	2016-02-19 @ 3:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734946	10	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734955	11	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734956	12	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734959	13	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734930	14	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734953	15	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734954	16	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734940	17	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734949	18	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734948	19	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734939	2	2016-02-19 @ 3:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734942	20	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734929	21	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734933	22	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734934	23	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734936	24	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734943	25	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734944	26	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734935	27	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734928	28	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734952	29	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734947	3	2016-02-19 @ 3:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734931	30	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734932	31	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7718520	32	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7718523	33	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7718522	34	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7718521	35	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734945	4	2016-02-19 @ 3:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734960	5	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734958	6	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734951	7	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734957	8	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734938	9	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23

February  
15,  
2016

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

Spike Sample Laboratory Results

Radon test result report for:  
**MCPS**

<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
7718273	101A	2016-01-30 @ 9:00 am	2016-02-01 @ 9:00 am	6.5 ± 0.6	2016-02-04
7718281	102B	2016-01-30 @ 9:00 am	2016-02-01 @ 9:00 am	6.4 ± 0.6	2016-02-04
7718282	103C	2016-01-30 @ 9:00 am	2016-02-01 @ 9:00 am	6.3 ± 0.6	2016-02-04
7718288	104D	2016-01-30 @ 9:00 am	2016-02-01 @ 9:00 am	6.7 ± 0.6	2016-02-04
7718289	105E	2016-01-30 @ 9:00 am	2016-02-01 @ 9:00 am	6.6 ± 0.6	2016-02-04
7718291	106F	2016-01-30 @ 9:00 am	2016-02-01 @ 9:00 am	6.5 ± 0.6	2016-02-04

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 KCF Technologies Inc. Job Number 173704

NOMINAL Conditions: Radon Conc 5.9 pCi/L Rel. Hum 45.9 % Temp. 79.0 F

Date Start: 1/30/16 Date Stop: 2/1/16 Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

Time Start: 0926 Time Stop: 0926 Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_

Device No.'s: (6) Char. Bags - Device No.'s: \_\_\_\_\_

7718281, 7718282, 7718291, \_\_\_\_\_

7718288, 7718289, 7718273 \_\_\_\_\_

ε3 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



## Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase 9

Name of Schools:

- |                          |                           |                        |
|--------------------------|---------------------------|------------------------|
| 1. Rocking Horse Road ES | 16. Broad Acres ES        | 31. Rosa Parks MS      |
| 2. Rockwell ES           | 17. Belmont ES            | 32. Rosemary Hills ES  |
| 3. Oakland Terrace ES    | 18. Emory Grove Center    | 33. Sequoyah ES        |
| 4. Rosemont ES           | 19. Forest Knolls ES      | 34. Damascus HS        |
| 5. Beall ES              | 20. Baker MS              | 35. Einstein ES        |
| 6. Cresthaven ES         | 21. MLK MS                | 36. Forest Oak MS      |
| 7. Quince Orchard HS     | 22. Richard Montgomery HS | 37. Hoover MS          |
| 8. Smith Center          | 23. Sherwood HS           | 38. Julius West MS     |
| 9. Ashburton ES          | 24. Walter Johnson HS     | 39. John F. Kennedy HS |
| 10. Bannockburn ES       | 25. Diamond ES            | 40. Travilah ES        |
| 11. Bradley Hills ES     | 26. Newport Mill MS       | 41. Watkins Mill HS    |
| 12. Cannon Road ES       | 27. Drew ES               | 42. Northwood HS       |
| 13. Flora M. Singer ES   | 28. Monocacy ES           | 43. Lincoln Center     |
| 14. Clarksburg HS        | 29. Potomac ES            |                        |
| 15. Briggs Chaney MS     | 30. Rock Terrace School   |                        |

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	Date	Initials
Radon Test Kits Deployed	2/22/16	JM
Radon Test Kits Collected	2/25/16	JM
Radon Test Kits Shipped to Lab*	2/25/16	JM
Radon Test Kits Received by Lab*	2/29/16	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 9

Name of Schools:

- |                            |                         |
|----------------------------|-------------------------|
| 1. Banneker MS             | 10. Maryvale ES         |
| 2. Bethesda-Chevy Chase HS | 11. Montgomery Blair HS |
| 3. Burtonsville ES         | 12. Poolesville HS      |
| 4. Chevy Chase ES          | 13. Rachel Carson ES    |
| 5. Clopper Mill ES         | 14. Stedwick ES         |
| 6. Edison HS               | 15. Watkins Mill ES     |
| 7. Flower Hill ES          | 16. Laytonsville ES     |
| 8. Flower Valley ES        | 17. Lincoln Center      |
| 9. Greencastle ES          |                         |

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	Date	Initials
Radon Test Kits Deployed	2/23/16	JM
Radon Test Kits Collected	2/26/16	JM
Radon Test Kits Shipped to Lab*	2/26/16	JM
Radon Test Kits Received by Lab*	3/01/16	JM

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



## MCPS RADON TESTING

### Executive Summary: Martin Luther King Jr. Middle School

Date of Test Report:	3/4/2016 (Rev 1)
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	62
# Rooms $\geq$ 4.0 pCi/L:	0
Low Value:	< 0.3
High Value:	1.6

#### Project Status:

Initial testing completed; missing or compromised samples need re-test





March 4, 2016 (Rev 1)

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

Re: **Radon Testing Services**  
KCI Job # 12146341.20

Location: Martin Luther King Jr. Middle School  
13737 Wisteria Drive  
Germantown, MD 20874

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 Martin Luther King Jr. Middle School, located at 13737 Wisteria Drive in Germantown, Maryland 20874 (subject site).

**Scope of Services:**

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

KCI visited the site on December 21, 2015 and deployed seventy-six (76) 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. Prior to sampling, KCI returned 1% of the test batch to the laboratory for analysis as lab transit blanks. In addition, KCI submitted six (6) test kits to Bowser-Morner, Inc. as spike samples. The spiked tests were exposed to a known radon concentration by Bowser-Morner prior to being returned to the laboratory for analysis.

KCI returned to the site on December 24, 2015 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Airchek, Inc. for analysis by gamma-ray spectroscopy. Airchek, Inc.

is a NRSB certified analytical laboratory for radon analysis (certification # ARL1402) located at 1936 Butler Bridge Road, Mills River, North Carolina.

**Evaluation of Testing Conditions:**

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

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

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

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

**Results:**

The results of the radon test analysis indicated the following:

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

Notes:  
D- Duplicate sample

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

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

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

Sincerely,



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

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

# ATTACHMENT A

## Floor Plan With Test Locations

# ATTACHMENT B

## Radon Test Summary Spreadsheet

**Table Notes:**

AC- Activated Charcoal

ACI- Air Chek, Inc.

D- Duplicate

FB- Field Blank

KCI- KCI Technologies, Inc.

OB- Office Blank

PM- Project Manager

QC- Quality Control

<b>Radon Testing Results</b>		
<b>Martin Luther King Jr Middle School</b>		
<b>Test Period: 12/21/15-12/27/15</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result</b>
7712355	A102	0.9
7712372	A105	1.0
7712369	A112	0.9
7712357	A116	< 0.3
7712363	A117	< 0.3
7712345	A120	< 0.3
7712362	A123	1.4
7712366	A123	1.2
7712370	A207	< 0.3
7712347	B101	0.9
7712324	B102	0.9
7712353	B104	1.5
7712349	B105	0.7
7712354	B106	1.0
7712359	B107	0.5
7712356	B108	1.1
7712360	B109	0.7
7712338	B110	< 0.3
7712358	B111	0.6
7712352	* B112 (missing)	-
7712350	B113	1.4
7712390	B205	< 0.3
7712308	BACK KITCHEN	< 0.3
7712318	BREAK ROOM	< 0.3
7712319	C101	< 0.3
7712326	C102	< 0.3
7712313	C103	< 0.3
7712337	C106	< 0.3
7712336	C107	< 0.3
7712335	C108	< 0.3
7712331	C109	< 0.3
7712327	C110	< 0.3
7712325	C111	0.6
7712321	C112	0.5
7712315	C113	0.7
7712307	C114	< 0.3
7712333	C115	< 0.3
7712332	C116	< 0.3
7712323	C118	< 0.3
7712328	C118A	0.6
7712317	C119	< 0.3
7712380	C123	< 0.3
7712382	C124	0.8
7712376	C125	0.7
7712351	C127	0.6
7712341	* C129 (tampered)	< 0.3

Table Note:

\* Missing or Compromised Sample

<b>Radon Testing Results</b>		
<b>Martin Luther King Jr Middle School</b>		
<b>Test Period: 12/21/15-12/27/15</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result</b>
7712373	* C129A (tampered)	< 0.3
7712304	C131	< 0.3
7712322	C136	< 0.3
7712311	C138	1.6
7712309	C139	0.6
7712303	C144	< 0.3
7712306	CAFETERIA	< 0.3
7712316	CAFETERIA	< 0.3
7712346	D102	1.3
7712343	D103	0.9
7712340	D105	0.9
7712330	D107	< 0.3
7712339	D108	0.9
7712312	FRONT KITCHEN	< 0.3
7712310	GYM	0.6
7712314	GYM	1.1
7712320	GYM	1.1
7712302	* KITCHEN OFFICE (tampered)	< 0.3
7712348	MEDIA CENTER	< 0.3
7712368	MEDIA CENTER	< 0.3
7712386	MEDIA CENTER	< 0.3
7712377	TEACHER WORKROOM	< 0.3

Table Note:

\* Missing or Compromised Sample



<b>Radon Testing Results</b>		
<b>Martin Luther King Jr Middle School</b>		
<b>Test Period: 12/21/15-12/24/15</b>		
<b>Kit Number</b>	<b>QC Type</b>	<b>Result</b>
7712391	D (B205)	< 0.3
7712342	D (C107)	< 0.3
7712305	D (C118A)	< 0.3
7712344	D (D105)	0.6
7712395	FB (A207)	< 0.3
7712329	FB (C118)	< 0.3
7712334	FB (D105)	< 0.3
7712381	OB (0)	< 0.3

Table Note:

\* Missing or Compromised Sample

# ATTACHMENT C

## Laboratory Analytical Results

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January 13, 2016  
\*\* LABORATORY ANALYSIS REPORT \*\*

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Radon test result report for:  
**MARTIN LUTHER KING JR MIDDLE SCHOOL**

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Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7712319	C101	2015-12-21 @ 11:00 am	2015-12-24 @ 9:00 am	< 0.3	2015-12-28
7712326	C102	2015-12-21 @ 11:00 am	2015-12-24 @ 9:00 am	< 0.3	2015-12-28
7712305	C118A	2015-12-21 @ 11:00 am	2015-12-24 @ 9:00 am	< 0.3	2015-12-28
7712328	C118A	2015-12-21 @ 11:00 am	2015-12-24 @ 9:00 am	0.6 ± 0.3	2015-12-28
7712322	C136	2015-12-21 @ 11:00 am	2015-12-24 @ 9:00 am	< 0.3	2015-12-28
7712311	C138	2015-12-21 @ 11:00 am	2015-12-24 @ 8:00 am	1.6 ± 0.3	2015-12-28
7712309	C139	2015-12-21 @ 10:00 am	2015-12-24 @ 8:00 am	0.6 ± 0.3	2015-12-28
7712303	C144	2015-12-21 @ 10:00 am	2015-12-24 @ 8:00 am	< 0.3	2015-12-28

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

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Radon test result report for:  
**MARTIN LUTHER KING JR MIDDLE SCHOOL**  
**MAIN**

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<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
7712308	BACK KITCHEN	2015-12-21 @ 10:00 am	2015-12-24 @ 8:00 am	< 0.3	2015-12-28
7712318	BREAK ROOM	2015-12-21 @ 10:00 am	2015-12-24 @ 8:00 am	< 0.3	2015-12-28
7712306	CAFETERIA	2015-12-21 @ 10:00 am	2015-12-24 @ 8:00 am	< 0.3	2015-12-28
7712316	CAFETERIA	2015-12-21 @ 10:00 am	2015-12-24 @ 8:00 am	< 0.3	2015-12-28
7712312	FRONT KITCHEN	2015-12-21 @ 10:00 am	2015-12-24 @ 8:00 am	< 0.3	2015-12-28
7712302	KITCHEN OFFICE	2015-12-21 @ 10:00 am	2015-12-24 @ 8:00 am	< 0.3	2015-12-28

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

January 13, 2016  
**\*\* LABORATORY ANALYSIS REPORT \*\***

Radon test result report for:  
**MARTIN LUTHER KING JR MIDDLE SCHOOL**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7712381	00	2015-12-21 @ 4:00 pm	2015-12-24 @ 1:00 pm	< 0.3	2015-12-29
7712355	A102	2015-12-21 @ 12:00 pm	2015-12-24 @ 10:00 am	0.9 ± 0.3	2015-12-28
7712372	A105	2015-12-21 @ 12:00 pm	2015-12-24 @ 10:00 am	1.0 ± 0.3	2015-12-28
7712369	A112	2015-12-21 @ 12:00 pm	2015-12-24 @ 10:00 am	0.9 ± 0.3	2015-12-28
7712357	A116	2015-12-21 @ 12:00 pm	2015-12-24 @ 10:00 am	< 0.3	2015-12-28
7712363	A117	2015-12-21 @ 12:00 pm	2015-12-24 @ 10:00 am	< 0.3	2015-12-28
7712345	A120	2015-12-21 @ 12:00 pm	2015-12-24 @ 10:00 am	< 0.3	2015-12-28
7712362	A123	2015-12-21 @ 12:00 pm	2015-12-24 @ 10:00 am	1.4 ± 0.3	2015-12-28
7712366	A123	2015-12-21 @ 12:00 pm	2015-12-24 @ 10:00 am	1.2 ± 0.3	2015-12-28
7712370	A207	2015-12-21 @ 1:00 pm	2015-12-24 @ 10:00 am	< 0.3	2015-12-28
7712395	A207	2015-12-21 @ 1:00 pm	2015-12-24 @ 10:00 am	< 0.3	2015-12-28
7712347	B101	2015-12-21 @ 12:00 pm	2015-12-24 @ 9:00 am	0.9 ± 0.3	2015-12-28
7712324	B102	2015-12-21 @ 12:00 pm	2015-12-24 @ 9:00 am	0.9 ± 0.3	2015-12-28
7712353	B104	2015-12-21 @ 12:00 pm	2015-12-24 @ 9:00 am	1.5 ± 0.3	2015-12-28
7712349	B105	2015-12-21 @ 12:00 pm	2015-12-24 @ 9:00 am	0.7 ± 0.3	2015-12-28
7712359	B107	2015-12-21 @ 12:00 pm	2015-12-24 @ 9:00 am	0.5 ± 0.3	2015-12-28
7712356	B108	2015-12-21 @ 12:00 pm	2015-12-24 @ 9:00 am	1.1 ± 0.3	2015-12-28
7712360	B109	2015-12-21 @ 12:00 pm	2015-12-24 @ 9:00 am	0.7 ± 0.3	2015-12-28
7712338	B110	2015-12-21 @ 12:00 pm	2015-12-24 @ 9:00 am	< 0.3	2015-12-28
7712358	B111	2015-12-21 @ 12:00 pm	2015-12-24 @ 9:00 am	0.6 ± 0.3	2015-12-28
7712352	B112	@	@		
7712350	B113	2015-12-21 @ 12:00 pm	2015-12-24 @ 9:00 am	1.4 ± 0.3	2015-12-28
7712390	B205	2015-12-21 @ 12:00 pm	2015-12-24 @ 9:00 am	< 0.3	2015-12-28
7712391	B205	2015-12-21 @ 12:00 pm	2015-12-24 @ 9:00 am	< 0.3	2015-12-28
7712337	C106	2015-12-21 @ 11:00 am	2015-12-24 @ 9:00 am	< 0.3	2015-12-28
7712342	C107	2015-12-21 @ 11:00 am	2015-12-24 @ 9:00 am	< 0.3	2015-12-28
7712336	C107	2015-12-21 @ 11:00 am	2015-12-24 @ 9:00 am	< 0.3	2015-12-28
7712335	C108	2015-12-21 @ 11:00 am	2015-12-24 @ 9:00 am	< 0.3	2015-12-28
7712331	C109	2015-12-21 @ 11:00 am	2015-12-24 @ 9:00 am	< 0.3	2015-12-28
7712327	C110	2015-12-21 @ 11:00 am	2015-12-24 @ 1:00 pm	< 0.3	2015-12-28
7712325	C111	2015-12-21 @ 11:00 am	2015-12-24 @ 9:00 am	0.6 ± 0.3	2015-12-28
7712321	C112	2015-12-21 @ 11:00 am	2015-12-24 @ 9:00 am	0.5 ± 0.3	2015-12-28
7712315	C113	2015-12-21 @ 11:00 am	2015-12-24 @ 9:00 am	0.7 ± 0.3	2015-12-28
7712307	C114	2015-12-21 @ 11:00 am	2015-12-24 @ 9:00 am	< 0.3	2015-12-28
7712333	C115	2015-12-21 @ 11:00 am	2015-12-24 @ 9:00 am	< 0.3	2015-12-28
7712332	C116	2015-12-21 @ 11:00 am	2015-12-24 @ 9:00 am	< 0.3	2015-12-28
7712317	C119	2015-12-21 @ 11:00 am	2015-12-24 @ 9:00 am	< 0.3	2015-12-28

January 13, 2016  
**LABORATORY ANALYSIS  
REPORT \*\***

Radon test result report for:  
**MARTIN LUTHER KING JR MIDDLE SCHOOL**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7712380	C123	2015-12-21 @ 12:00 pm	2015-12-24 @ 10:00 am	< 0.3	2015-12-28
7712382	C124	2015-12-21 @ 12:00 pm	2015-12-24 @ 10:00 am	0.8 ± 0.3	2015-12-28
7712376	C125	2015-12-21 @ 12:00 pm	2015-12-24 @ 10:00 am	0.7 ± 0.3	2015-12-28
7712351	C127	2015-12-21 @ 12:00 pm	2015-12-24 @ 10:00 am	0.6 ± 0.3	2015-12-28
7712341	C129	2015-12-21 @ 12:00 pm	2015-12-24 @ 10:00 am	< 0.3	2015-12-28
7712373	C129A	2015-12-21 @ 12:00 pm	2015-12-24 @ 10:00 am	< 0.3	2015-12-28
7712304	C131	2015-12-21 @ 11:00 am	2015-12-24 @ 9:00 am	< 0.3	2015-12-28
7712346	D102	2015-12-21 @ 11:00 am	2015-12-24 @ 9:00 am	1.3 ± 0.3	2015-12-28
7712343	D103	2015-12-21 @ 11:00 am	2015-12-24 @ 9:00 am	0.9 ± 0.3	2015-12-28
7712340	D105	2015-12-21 @ 11:00 am	2015-12-24 @ 9:00 am	0.9 ± 0.3	2015-12-28
7712344	D105	2015-12-21 @ 11:00 am	2015-12-24 @ 9:00 am	0.6 ± 0.3	2015-12-28
7712334	D105	2015-12-21 @ 11:00 am	2015-12-24 @ 9:00 am	< 0.3	2015-12-28
7712330	D107	2015-12-21 @ 11:00 am	2015-12-24 @ 9:00 am	< 0.3	2015-12-28
7712339	D108	2015-12-21 @ 11:00 am	2015-12-24 @ 9:00 am	0.9 ± 0.3	2015-12-28
7712310	GYM	2015-12-21 @ 11:00 am	2015-12-24 @ 9:00 am	0.6 ± 0.3	2015-12-28
7712314	GYM	2015-12-21 @ 11:00 am	2015-12-24 @ 9:00 am	1.1 ± 0.3	2015-12-28
7712320	GYM	2015-12-21 @ 11:00 am	2015-12-24 @ 9:00 am	1.1 ± 0.3	2015-12-28
7712348	MEDIA CENTER	2015-12-21 @ 12:00 pm	2015-12-24 @ 10:00 am	< 0.3	2015-12-28
7712368	MEDIA CENTER	2015-12-21 @ 12:00 pm	2015-12-24 @ 10:00 am	< 0.3	2015-12-28
7712386	MEDIA CENTER	2015-12-21 @ 12:00 pm	2015-12-24 @ 10:00 am	< 0.3	2015-12-28
7712377	TEACHER WORKROOM	2015-12-21 @ 12:00 pm	2015-12-24 @ 10:00 am	< 0.3	2015-12-28

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January 13, 2016  
**\*\* LABORATORY ANALYSIS REPORT \*\***

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Radon test result report for:  
**MARTIN LUTHER KING JR MIDDLE SCHOOL  
MAIN**

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<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
7712354	B106	2015-12-21 @ 11:00 am	2015-12-24 @ 9:00 am	1.0 ± 0.3	2015-12-28
7712313	C103	2015-12-21 @ 11:00 am	2015-12-24 @ 9:00 am	< 0.3	2015-12-28
7712323	C118	2015-12-24 @ 1:00 pm	2015-12-27 @ 6:00 pm	< 0.3	2015-12-28
7712329	C118	2015-12-21 @ 11:00 am	2015-12-24 @ 9:00 am	< 0.3	2015-12-28

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

December  
29,  
2015

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

Radon test result report for:  
**TRANSIT DEC 14 2015**  
**NONE**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7704395	TRANSIT 1	2015-12-13 @ 10:00 am	2015-12-15 @ 10:00 am	< 0.3	2015-12-16
7706508	TRANSIT 10	2015-12-13 @ 10:00 am	2015-12-15 @ 10:00 am	< 0.3	2015-12-16
7706510	TRANSIT 11	2015-12-13 @ 10:00 am	2015-12-15 @ 10:00 am	< 0.3	2015-12-16
7706511	TRANSIT 12	2015-12-13 @ 10:00 am	2015-12-15 @ 10:00 am	< 0.3	2015-12-16
7706505	TRANSIT 13	2015-12-13 @ 10:00 am	2015-12-15 @ 10:00 am	< 0.3	2015-12-16
7704371	TRANSIT 14	2015-12-13 @ 10:00 am	2015-12-15 @ 10:00 am	< 0.3	2015-12-16
7706506	TRANSIT 15	2015-12-13 @ 10:00 am	2015-12-15 @ 10:00 am	< 0.3	2015-12-16
7704381	TRANSIT 16	2015-12-13 @ 10:00 am	2015-12-15 @ 10:00 am	< 0.3	2015-12-16
7704399	TRANSIT 17	2015-12-13 @ 10:00 am	2015-12-15 @ 10:00 am	< 0.3	2015-12-16
7704390	TRANSIT 18	2015-12-13 @ 10:00 am	2015-12-15 @ 10:00 am	< 0.3	2015-12-16
7704396	TRANSIT 2	2015-12-13 @ 10:00 am	2015-12-15 @ 10:00 am	< 0.3	2015-12-16
7704364	TRANSIT 3	2015-12-13 @ 10:00 am	2015-12-15 @ 10:00 am	< 0.3	2015-12-16
7704370	TRANSIT 4	2015-12-13 @ 10:00 am	2015-12-15 @ 10:00 am	< 0.3	2015-12-16
7704368	TRANSIT 5	2015-12-13 @ 10:00 am	2015-12-15 @ 10:00 am	< 0.3	2015-12-16
7706524	TRANSIT 6	2015-12-13 @ 10:00 am	2015-12-15 @ 10:00 am	< 0.3	2015-12-16
7706526	TRANSIT 7	2015-12-13 @ 10:00 am	2015-12-15 @ 10:00 am	< 0.3	2015-12-16
7706518	TRANSIT 8	2015-12-13 @ 10:00 am	2015-12-15 @ 10:00 am	< 0.3	2015-12-16
7706516	TRANSIT 9	2015-12-13 @ 10:00 am	2015-12-15 @ 10:00 am	< 0.3	2015-12-16



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 II

School Names:

- |                           |                             |                           |
|---------------------------|-----------------------------|---------------------------|
| 1. Bannockburn ES         | 11. Sherwood HS             | 21. Fairland ES           |
| 2. Walt Whitman HS        | 12. Hadley Farms            | 22. Cannon Road ES        |
| 3. Walter Johnson HS      | 13. S. Christa McAuliffe ES | 23. Richard Montgomery HS |
| 4. North Chevy Chase ES   | 14. Ronald A. McNair ES     | 24. Brooke Grove ES       |
| 5. Piney Branch ES        | 15. MLK MS                  | 25. Belmont ES            |
| 6. Forest Knolls ES       | 16. Ashburton ES            | 26. Emory Grove           |
| 7. Newport Mill MS        | 17. Bradley Hills ES        | 27. Clarksburg HS         |
| 8. Broad Acres ES         | 18. Flora M. Singer ES      | 28. Clarksburg ES         |
| 9. Briggs Chaney MS       | 19. Woodlin ES              | 29. John T. Baker MS      |
| 10. Blair G. Ewing Center | 20. Montgomery Knolls ES    |                           |

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	Date	Initials
Radon Test Kits Deployed	12/21/2015	JM
Radon Test Kits Collected	12/24/2015	JM
Radon Test Kits Shipped to Lab*	12/24/2015	JM
Radon Test Kits Received by Lab*	12/28/2015	JM

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