



**MCPS RADON TESTING – EXECUTIVE SUMMARY**

Site Name	Sligo Creek Elementary School
Date of Test Report	5/11/2022
Round of Testing	Initial Follow-up Post Remediation 2 Year Testing 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility
# Rooms Tested	32
# Rooms $\geq$ 4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	1.9 pCi/L

Project Status:  
Initial testing completed; No further action needed



May 11, 2022

Brian T. Croyle, PG, CHMM  
Environmental Specialist  
Montgomery County Public Schools  
Gaithersburg, MD 20879

Re: **Radon Testing Services**  
KCI Job # 122108316

Location: Sligo Creek Elementary School  
500 Schuyler Rd.  
Silver Spring, MD 20910

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 Sligo Creek Elementary School, located at 500 Schuyler Rd. Silver Spring, MD 20910 (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 March 14, 2022 and deployed thirty-six (36) 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 March 17, 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 post-mitigation biennial testing.

These tests were conducted to:

- Confirm the success of the mitigation system(s).

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 low 20s and high temperatures ranged from the mid 70s to the high 50s Fahrenheit. Maximum sustained winds ranged from 0-32 miles per hour. Average humidity was around 61% with 0.1 inches of precipitation (rain) was recorded during testing period.

**Results:**

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

The results of the radon test analysis indicated the following:

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

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

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

Sincerely,



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

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

# ATTACHMENT A

## Floor Plan With Test Locations

# ATTACHMENT B

## Radon Test Summary Spreadsheet

**Table Notes:**

AC- Activated Charcoal

ACI- Air Check, Inc.

D- Duplicate

FB- Field Blank

KCI- KCI Technologies, Inc.

OB- Office Blank

PM- Project Manager

OC- Quality Control

Table 1- Radon Testing Results		
Sligo Creek ES		
Test Period: 03/14/2022 - 03/17/2022		
Kit Number	Room / Area	Result
11139143	10	1.0
11139140	12	1.0
11139128	17	0.9
11139123	18	0.9
11139112	20	< 0.3
11139125	22	0.8
11139126	22	< 0.3
11139121	24	1.0
11139113	25	1.0
11139122	26	0.6
11139114	27	< 0.3
11139120	29	< 0.3
11139111	31	1.0
11139124	31	< 0.3
11139104	100	1.0
11139101	102	0.7
11139102	104	0.7
11139108	106	0.5
11139109	108	< 0.3
11139107	115	0.6
11139119	117	< 0.3
11139117	119	< 0.3
11139118	121	< 0.3
11139139	208	0.8
11139150	213	0.8
11139105	102A	< 0.3
11139106	102E	0.6
11139103	102F	< 0.3
11139110	108 A	0.6
11139133	BUILDING SERVICES	1.8
11139134	BUILDING SERVICES	1.9
11139127	CAFETERIA	1.0
11139132	CAFETERIA	0.9
11139131	CAFETERIA KITCHEN OFFICE	0.8
11139115	MEDIA CENTER	< 0.3
11139116	MEDIA CENTER	< 0.3



Table 2- Radon Testing Results			
Sligo Creek ES			
Test Period: 03/14/2022 - 03/17/2022			
Kit Number	QC Type	Room / Area	Result
11139116	D	Media center	< 0.3
11139111	D	31	1.0
11139126	FB	22	< 0.3
11139134	D	Building services	1.9
11138932	OB	OFFICE BLANK	< 0.3
11138946	TB	TRAVEL BLANK	< 0.3



# ATTACHMENT C

## Laboratory Analytical Results

Radon test result report for:

**SLIGO CREEK ELEMENTARY SCHOOL  
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11139143	10	2022-03-14 @ 12:00 pm	2022-03-17 @ 12:00 pm	1.0 ± 0.3	2022-03-21
11139104	100	2022-03-14 @ 11:00 am	2022-03-17 @ 11:00 am	1.0 ± 0.3	2022-03-21
11139101	102	2022-03-14 @ 11:00 am	2022-03-17 @ 11:00 am	0.7 ± 0.3	2022-03-21
11139105	102A	2022-03-14 @ 11:00 am	2022-03-17 @ 12:00 pm	< 0.3	2022-03-21
11139106	102E	2022-03-14 @ 11:00 am	2022-03-17 @ 11:00 am	0.6 ± 0.3	2022-03-21
11139103	102F	2022-03-14 @ 11:00 am	2022-03-17 @ 11:00 am	< 0.3	2022-03-21
11139102	104	2022-03-14 @ 11:00 am	2022-03-17 @ 11:00 am	0.7 ± 0.3	2022-03-21
11139108	106	2022-03-14 @ 11:00 am	2022-03-17 @ 11:00 am	0.5 ± 0.3	2022-03-21
11139109	108	2022-03-14 @ 11:00 am	2022-03-17 @ 11:00 am	< 0.3	2022-03-21
11139110	108 A	2022-03-14 @ 11:00 am	2022-03-17 @ 11:00 am	0.6 ± 0.3	2022-03-21
11139107	115	2022-03-14 @ 11:00 am	2022-03-17 @ 12:00 pm	0.6 ± 0.3	2022-03-21
11139119	117	2022-03-14 @ 11:00 am	2022-03-17 @ 11:00 am	< 0.3	2022-03-21
11139117	119	2022-03-14 @ 11:00 am	2022-03-17 @ 12:00 pm	< 0.3	2022-03-21
11139140	12	2022-03-14 @ 12:00 pm	2022-03-17 @ 12:00 pm	1.0 ± 0.3	2022-03-21
11139118	121	2022-03-14 @ 11:00 am	2022-03-17 @ 12:00 pm	< 0.3	2022-03-21
11139128	17	2022-03-14 @ 12:00 pm	2022-03-17 @ 12:00 pm	0.9 ± 0.3	2022-03-21
11139123	18	2022-03-14 @ 11:00 am	2022-03-17 @ 12:00 pm	0.9 ± 0.3	2022-03-21
11139112	20	2022-03-14 @ 11:00 am	2022-03-17 @ 12:00 pm	< 0.3	2022-03-21
11139139	208	2022-03-14 @ 12:00 pm	2022-03-17 @ 12:00 pm	0.8 ± 0.3	2022-03-21
11139150	213	2022-03-14 @ 12:00 pm	2022-03-17 @ 12:00 pm	0.8 ± 0.3	2022-03-21
11139125	22	2022-03-14 @ 12:00 pm	2022-03-17 @ 12:00 pm	0.8 ± 0.3	2022-03-21
11139126	22	2022-03-14 @ 12:00 pm	2022-03-17 @ 12:00 pm	< 0.3	2022-03-21
11139121	24	2022-03-14 @ 12:00 pm	2022-03-17 @ 12:00 pm	1.0 ± 0.3	2022-03-21
11139113	25	2022-03-14 @ 11:00 am	2022-03-17 @ 12:00 pm	1.0 ± 0.3	2022-03-21
11139122	26	2022-03-14 @ 12:00 pm	2022-03-17 @ 12:00 pm	0.6 ± 0.3	2022-03-21
11139114	27	2022-03-14 @ 11:00 am	2022-03-17 @ 12:00 pm	< 0.3	2022-03-21
11139120	29	2022-03-14 @ 11:00 am	2022-03-17 @ 12:00 pm	< 0.3	2022-03-21
11139124	31	2022-03-14 @ 11:00 am	2022-03-17 @ 12:00 pm	< 0.3	2022-03-21
11139111	31	2022-03-14 @ 11:00 am	2022-03-17 @ 12:00 pm	1.0 ± 0.3	2022-03-21
11139133	BUILDING SERVICES	2022-03-14 @ 12:00 pm	2022-03-17 @ 12:00 pm	1.8 ± 0.4	2022-03-21
11139134	BUILDING SERVICES	2022-03-14 @ 12:00 pm	2022-03-17 @ 12:00 pm	1.9 ± 0.3	2022-03-21
11139127	CAFETERIA	2022-03-14 @ 12:00 pm	2022-03-17 @ 12:00 pm	1.0 ± 0.3	2022-03-21
11139132	CAFETERIA	2022-03-14 @ 12:00 pm	2022-03-17 @ 12:00 pm	0.9 ± 0.3	2022-03-21
11139131	CAFETERIA KITCHEN OFFICE	2022-03-14 @ 12:00 pm	2022-03-17 @ 12:00 pm	0.8 ± 0.3	2022-03-21
11139116	MEDIA CENTER	2022-03-14 @ 11:00 am	2022-03-17 @ 12:00 pm	< 0.3	2022-03-21
11139115	MEDIA CENTER	2022-03-14 @ 11:00 am	2022-03-17 @ 12:00 pm	< 0.3	2022-03-21

# EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI Technologies, Inc. Job Number 204620

NOMINAL Conditions: Radon Conc 27.0 pCi/L Rel. Hum 50.1 % Temp. 70.0 F

Date Start: 3/18/22 Date Stop: 3/21/22 Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

Time Start: 0705 Time Stop: 0705 Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_

Device No.'s: (5) Char Bags - Device No.'s: \_\_\_\_\_

11139367, 11139368, 11139371, \_\_\_\_\_

11139710, 11139717 \_\_\_\_\_

E3 Right

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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March 30, 2022

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

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Radon test result report for:

MCPS - Spike Sample Lab Results. Measured values are satisfactory, i.e., within  $\pm 25\%$  of the chamber's reference value (25.7 pCi/L).

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<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
11139367	SK1	2022-03-18 @ 7:00 am	2022-03-21 @ 7:00 am	25.9 $\pm$ 2.1	2022-03-30
11139368	SK2	2022-03-18 @ 7:00 am	2022-03-21 @ 7:00 am	23.9 $\pm$ 2.0	2022-03-30
11139371	SK3	2022-03-18 @ 7:00 am	2022-03-21 @ 7:00 am	25.7 $\pm$ 2.1	2022-03-30
11139710	SK4	2022-03-18 @ 7:00 am	2022-03-21 @ 7:00 am	26.4 $\pm$ 2.1	2022-03-30
11139717	SK5	2022-03-18 @ 7:00 am	2022-03-21 @ 7:00 am	24.6 $\pm$ 2.0	2022-03-30

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



### Radon Test Kit Chain of Custody

Project Name: MCPS Radon – March 2022 Schools

Name of Schools:

1. Silver Spring International MS
2. Sligo Creek ES
3. Takoma Park MS
4. Takoma Park ES
5. Highland ES
6. Rolling Terrace ES

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	Date	Initials
Radon Test Kits Deployed	03/14/2022	BMM
Radon Test Kits Collected	03/17/2022	BMM
Radon Test Kits Shipped to Lab*	03/17/2022	BMM
Radon Test Kits Received by Lab*	03/20/2022	BMM

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