



MCPS RADON TESTING – EXECUTIVE SUMMARY

Site Name	Strathmore 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	54
# Rooms \geq 4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	0.7 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: Strathmore Elementary School
3200 Beaverwood Lane
Silver Spring, MD 20906

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 Strathmore Elementary School, located at 3200 Beaverwood Lane, Silver Spring, MD 20906 (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.

KCI visited the site on March 15, 2022 and deployed sixty-one (61) 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 18, 2022 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Airchek, Inc. for analysis by gamma-ray spectroscopy. Airchek, Inc. is a

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

Evaluation of Testing Conditions:

These tests represent:

- Follow-up to initial testing.

These tests were conducted to:

- Evaluate radon concentration levels at the facility.

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

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

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

KCI also compiled weather data for the testing period and conducted observations of relevant field conditions. During the test period, weather records indicate low temperatures were in the 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:

Radon Concentration	Room	Result
≥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		
Strathmore ES		
Test Period: 03/15/2022 - 03/18/2022		
Kit Number	Room / Area	Result
11132699	5	< 0.3
11139523	13	< 0.3
11139519	15	< 0.3
11139577	100	< 0.3
11139582	100	< 0.3
11139584	100	< 0.3
11132617	101	< 0.3
11132684	101	< 0.3
11139583	102	< 0.3
11133854	103	< 0.3
11139592	104	< 0.3
11139593	105	< 0.3
11139590	107	0.7
11139510	109	< 0.3
11139589	110	< 0.3
11139517	111	< 0.3
11139587	112	< 0.3
11139594	113	< 0.3
11139598	114	< 0.3
11139508	115	< 0.3
11139501	116	< 0.3
11139506	119	< 0.3
11139507	120	< 0.3
11139597	120	0.5
11139505	121	0.6
11139588	122	< 0.3
11132698	123	< 0.3
11139513	124	< 0.3
11139514	125	< 0.3
11139595	126	0.5
11139520	127	< 0.3
11139525	128	< 0.3
11132609	129	0.5
11133876	130	< 0.3
11132697	131	< 0.3
11132692	132	< 0.3
11132691	133	0.5
11132700	133	0.7
11133895	133	< 0.3
11139511	134	0.6
11139515	136	< 0.3
11132696	138	< 0.3

Table 1- Radon Testing Results		
Strathmore ES		
Test Period: 03/15/2022 - 03/18/2022		
Kit Number	Room / Area	Result
11132689	140	< 0.3
11132616	142	< 0.3
11139512	142	< 0.3
11133883	144	< 0.3
11139524	145	< 0.3
11132622	151	< 0.3
11132620	153	0.7
11139600	100A	0.6
11139599	100B	0.7
11139591	100C	< 0.3
11139586	100E	< 0.3
11139585	100G	< 0.3
11139596	ASSISTANT PRINCIPAL	< 0.3
11132614	GYM	< 0.3
11132683	GYM	< 0.3
11139509	I-1	0.5
11139526	I-2	0.5
11139516	I-3	< 0.3
11139518	I-3	0.6

Table 2- Radon Testing Results			
Strathmore ES			
Test Period: 03/15/2022 - 03/18/2022			
Kit Number	QC Type	Room / Area	Result
11139582	D	100	< 0.3
11139577	FB	100	< 0.3
11139507	D	120	0.5
11139516	D	I-3	< 0.3
11132700	D	133	0.7
11133895	FB	133	< 0.3
11139512	D	142	< 0.3
11138953	OB	OFFICE BLANK	< 0.3
11138945	TB	TRAVEL BLANK	< 0.3

ATTACHMENT C

Laboratory Analytical Results

Radon test result report for:
STRATHMORE ES

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11132699	005	2022-03-15 @ 11:00 am	2022-03-18 @ 10:00 am	< 0.3	2022-03-21
11139582	100	2022-03-15 @ 10:00 am	2022-03-18 @ 10:00 am	< 0.3	2022-03-21
11139577	100	2022-03-15 @ 10:00 am	2022-03-18 @ 10:00 am	< 0.3	2022-03-21
11139584	100	2022-03-15 @ 10:00 am	2022-03-18 @ 10:00 am	< 0.3	2022-03-21
11139600	100A	2022-03-15 @ 10:00 am	2022-03-18 @ 10:00 am	0.6 ± 0.3	2022-03-21
11139599	100B	2022-03-15 @ 10:00 am	2022-03-18 @ 10:00 am	0.7 ± 0.3	2022-03-21
11139591	100C	2022-03-15 @ 10:00 am	2022-03-18 @ 10:00 am	< 0.3	2022-03-21
11139586	100E	2022-03-15 @ 11:00 am	2022-03-18 @ 10:00 am	< 0.3	2022-03-21
11139585	100G	2022-03-15 @ 11:00 am	2022-03-18 @ 10:00 am	< 0.3	2022-03-21
11132617	101	2022-03-15 @ 11:00 am	2022-03-18 @ 10:00 am	< 0.3	2022-03-21
11132684	101	2022-03-15 @ 11:00 am	2022-03-18 @ 10:00 am	< 0.3	2022-03-21
11139583	102	2022-03-15 @ 11:00 am	2022-03-18 @ 10:00 am	< 0.3	2022-03-21
11133854	103	2022-03-15 @ 12:00 pm	2022-03-18 @ 10:00 am	< 0.3	2022-03-21
11139592	104	2022-03-15 @ 11:00 am	2022-03-18 @ 10:00 am	< 0.3	2022-03-21
11139593	105	2022-03-15 @ 11:00 am	2022-03-18 @ 10:00 am	< 0.3	2022-03-21
11139590	107	2022-03-15 @ 11:00 am	2022-03-18 @ 10:00 am	0.7 ± 0.3	2022-03-21
11139510	109	2022-03-15 @ 11:00 am	2022-03-18 @ 10:00 am	< 0.3	2022-03-21
11139589	110	2022-03-15 @ 11:00 am	2022-03-18 @ 10:00 am	< 0.3	2022-03-21
11139517	111	2022-03-15 @ 11:00 am	2022-03-18 @ 10:00 am	< 0.3	2022-03-21
11139587	112	2022-03-15 @ 11:00 am	2022-03-18 @ 10:00 am	< 0.3	2022-03-21
11139594	113	2022-03-15 @ 11:00 am	2022-03-18 @ 10:00 am	< 0.3	2022-03-21
11139598	114	2022-03-15 @ 11:00 am	2022-03-18 @ 10:00 am	< 0.3	2022-03-21
11139508	115	2022-03-15 @ 11:00 am	2022-03-18 @ 10:00 am	< 0.3	2022-03-21
11139501	116	2022-03-15 @ 11:00 am	2022-03-18 @ 10:00 am	< 0.3	2022-03-21
11139506	119	2022-03-15 @ 11:00 am	2022-03-18 @ 10:00 am	< 0.3	2022-03-21
11139507	120	2022-03-15 @ 11:00 am	2022-03-18 @ 10:00 am	< 0.3	2022-03-21
11139597	120	2022-03-15 @ 11:00 am	2022-03-18 @ 10:00 am	0.5 ± 0.3	2022-03-21
11139505	121	2022-03-15 @ 11:00 am	2022-03-18 @ 10:00 am	0.6 ± 0.3	2022-03-21
11139588	122	2022-03-15 @ 11:00 am	2022-03-18 @ 10:00 am	< 0.3	2022-03-21
11132698	123	2022-03-15 @ 11:00 am	2022-03-18 @ 10:00 am	< 0.3	2022-03-21
11139513	124	2022-03-15 @ 11:00 am	2022-03-18 @ 10:00 am	< 0.3	2022-03-21
11139514	125	2022-03-15 @ 11:00 am	2022-03-18 @ 10:00 am	< 0.3	2022-03-21
11139595	126	2022-03-15 @ 11:00 am	2022-03-18 @ 10:00 am	0.5 ± 0.3	2022-03-21
11139520	127	2022-03-15 @ 11:00 am	2022-03-18 @ 10:00 am	< 0.3	2022-03-21
11139525	128	2022-03-15 @ 11:00 am	2022-03-18 @ 10:00 am	< 0.3	2022-03-21
11132609	129	2022-03-15 @ 11:00 am	2022-03-18 @ 10:00 am	0.5 ± 0.3	2022-03-21
11139523	13	2022-03-15 @ 11:00 am	2022-03-18 @ 10:00 am	< 0.3	2022-03-21

Radon test result report for:
STRATHMORE ES

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11133876	130	2022-03-15 @ 11:00 am	2022-03-18 @ 10:00 am	< 0.3	2022-03-21
11132697	131	2022-03-15 @ 11:00 am	2022-03-18 @ 10:00 am	< 0.3	2022-03-21
11132692	132	2022-03-15 @ 11:00 am	2022-03-18 @ 10:00 am	< 0.3	2022-03-21
11133895	133	2022-03-15 @ 11:00 am	2022-03-18 @ 10:00 am	< 0.3	2022-03-21
11132700	133	2022-03-15 @ 11:00 am	2022-03-18 @ 10:00 am	0.7 ± 0.3	2022-03-21
11132691	133	2022-03-15 @ 11:00 am	2022-03-18 @ 10:00 am	0.5 ± 0.3	2022-03-21
11139511	134	2022-03-15 @ 11:00 am	2022-03-18 @ 10:00 am	0.6 ± 0.3	2022-03-21
11139515	136	2022-03-15 @ 11:00 am	2022-03-18 @ 10:00 am	< 0.3	2022-03-21
11132696	138	2022-03-15 @ 11:00 am	2022-03-18 @ 10:00 am	< 0.3	2022-03-21
11132689	140	2022-03-15 @ 11:00 am	2022-03-18 @ 10:00 am	< 0.3	2022-03-21
11132616	142	2022-03-15 @ 11:00 am	2022-03-18 @ 10:00 am	< 0.3	2022-03-21
11139512	142	2022-03-15 @ 11:00 am	2022-03-18 @ 10:00 am	< 0.3	2022-03-21
11133883	144	2022-03-15 @ 11:00 am	2022-03-18 @ 10:00 am	< 0.3	2022-03-21
11139524	145	2022-03-15 @ 11:00 am	2022-03-18 @ 10:00 am	< 0.3	2022-03-21
11139519	15	2022-03-15 @ 11:00 am	2022-03-18 @ 10:00 am	< 0.3	2022-03-21
11132622	151	2022-03-15 @ 11:00 am	2022-03-18 @ 10:00 am	< 0.3	2022-03-21
11132620	153	2022-03-15 @ 11:00 am	2022-03-18 @ 10:00 am	0.7 ± 0.3	2022-03-21
11139596	ASSISTANT PRINCIPAL	2022-03-15 @ 11:00 am	2022-03-18 @ 10:00 am	< 0.3	2022-03-21
11132614	GYM	2022-03-15 @ 11:00 am	2022-03-18 @ 10:00 am	< 0.3	2022-03-21
11132683	GYM	2022-03-15 @ 11:00 am	2022-03-18 @ 10:00 am	< 0.3	2022-03-21
11139509	I-1	2022-03-15 @ 11:00 am	2022-03-18 @ 10:00 am	0.5 ± 0.3	2022-03-21
11139526	I-2	2022-03-15 @ 11:00 am	2022-03-18 @ 10:00 am	0.5 ± 0.3	2022-03-21
11139516	I-3	2022-03-15 @ 11:00 am	2022-03-18 @ 10:00 am	< 0.3	2022-03-21
11139518	I-3	2022-03-15 @ 11:00 am	2022-03-18 @ 10:00 am	0.6 ± 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 μ R/h Elevation = 820 ft

March 30, 2022

**** LABORATORY ANALYSIS REPORT ****

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).

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
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

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. Singer, Flora M. ES
2. Sligo MS
3. Spring Mill Center
4. Fairland ES
5. Bel Pre ES
6. Shriver, Sargent ES
7. Strathmore ES
8. Viers Mill ES
9. Piney Branch ES

	Date	Initials
Radon Test Kits Deployed	03/15/2022	BMM
Radon Test Kits Collected	03/18/2022	BMM
Radon Test Kits Shipped to Lab*	03/18/2022	Bell
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