



MCPS RADON TESTING – EXECUTIVE SUMMARY

Site Name	Silver Spring International Middle 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	58
# Rooms \geq 4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	1.8 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: Silver Spring International Middle School
313 Wayne Ave.
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 Silver Spring International Middle School, located at 313 Wayne Ave. Silver Spring, MD 21053 (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 14, 2022 and deployed sixty-seven (67) 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:

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		
Silver Spring International MS		
Test Period: 03/14/2022 - 03/17/2022		
Kit Number	Room / Area	Result
11132494	103	1.2
11132464	104	< 0.3
11132427	105	< 0.3
11130373	106	0.8
11133044	107	1.1
11132429	110	< 0.3
11132430	111	< 0.3
11132441	112	1.5
11132442	112	1.0
11132432	113	< 0.3
11132436	113	0.7
11132451	114	0.9
11133046	116	< 0.3
11132437	117	0.7
11132445	117	< 0.3
11132439	118	0.8
11132459	119	< 0.3
11132438	120	0.6
11132465	123	< 0.3
11132466	123	< 0.3
11132448	126	< 0.3
11132468	127	< 0.3
11132447	128	< 0.3
11132446	129	< 0.3
11132475	130	1.8
11132474	131	1.4
11132467	132	0.7
11132476	133	0.7
11132456	134	0.6
11132455	135	0.6
11132483	136	0.8
11132482	137	0.8
11132484	138	< 0.3
11132492	139	< 0.3
11132491	140	< 0.3
11132495	244	0.6
11132497	245	< 0.3
11132490	246	< 0.3
11132498	246	< 0.3
11132481	247	< 0.3
11132496	247	< 0.3
11132489	308	< 0.3

Table 1- Radon Testing Results		
Silver Spring International MS		
Test Period: 03/14/2022 - 03/17/2022		
Kit Number	Room / Area	Result
11133035	105A	< 0.3
11132433	105C	< 0.3
11133039	105D	0.6
11133036	105E	< 0.3
11130374	105G	< 0.3
11133040	105H	< 0.3
11132428	106B	0.7
11132434	106B	0.7
11133037	106C	< 0.3
11132435	106E	< 0.3
11133038	106F	< 0.3
11130372	106G	< 0.3
11132443	114 OFFICE	0.9
11132444	114B	0.9
11132458	114C	1.2
11132449	114F	0.7
11132453	119A	0.7
11132457	119A	< 0.3
11132452	119B	< 0.3
11132460	119B OFFICE	0.6
11132487	CAFETERIA	1.1
11132493	CAFETERIA	1.3
11132488	KITCHEN CAFETERIA	1.5
11132431	MAIN OFFICE CONFERENCE ROOM	< 0.3
11132450	TV STUDIO 1141	1.1

Table 2- Radon Testing Results			
Silver Spring International MS			
Test Period: 03/14/2022 - 03/17/2022			
Kit Number	QC Type	Room / Area	Result
11132428	D	106B	0.7
11132441	D	112	1.5
11132432	FB	113	< 0.3
11132445	D	117	< 0.3
11132457	D	119A	< 0.3
11132465	FB	123	< 0.3
11132473	D	132	0.7
11132498	D	246	< 0.3
11132481	FB	247	< 0.3
11138932	OB	OFFICE BLANK	< 0.3
11138946	TB	TRAVEL BLANK	< 0.3

ATTACHMENT C

Laboratory Analytical Results

Radon test result report for:
**SILVER SPRING INTO MS
 MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11132494	103	2022-03-14 @ 10:00 am	2022-03-17 @ 9:00 am	1.2 ± 0.4	2022-03-21
11132464	104	2022-03-14 @ 10:00 am	2022-03-17 @ 9:00 am	< 0.3	2022-03-21
11132427	105	2022-03-14 @ 8:00 am	2022-03-17 @ 11:00 am	< 0.3	2022-03-21
11133035	105A	2022-03-14 @ 8:00 am	2022-03-17 @ 9:00 am	< 0.3	2022-03-21
11132433	105C	2022-03-14 @ 8:00 am	2022-03-17 @ 9:00 am	< 0.3	2022-03-21
11133039	105D	2022-03-14 @ 8:00 am	2022-03-17 @ 10:00 am	0.6 ± 0.3	2022-03-21
11133036	105E	2022-03-14 @ 9:00 am	2022-03-17 @ 11:00 am	< 0.3	2022-03-21
11133040	105H	2022-03-14 @ 8:00 am	2022-03-17 @ 10:00 am	< 0.3	2022-03-21
11132428	106B	2022-03-14 @ 9:00 am	2022-03-17 @ 10:00 am	0.7 ± 0.3	2022-03-21
11132434	106B	2022-03-14 @ 9:00 am	2022-03-17 @ 10:00 am	0.7 ± 0.3	2022-03-21
11133037	106C	2022-03-14 @ 9:00 am	2022-03-17 @ 10:00 am	< 0.3	2022-03-21
11132435	106E	2022-03-14 @ 9:00 am	2022-03-17 @ 10:00 am	< 0.3	2022-03-21
11133038	106F	2022-03-14 @ 9:00 am	2022-03-17 @ 10:00 am	< 0.3	2022-03-21
11133044	107	2022-03-14 @ 9:00 am	2022-03-17 @ 10:00 am	1.1 ± 0.3	2022-03-21
11132429	110	2022-03-14 @ 9:00 am	2022-03-17 @ 10:00 am	< 0.3	2022-03-21
11132430	111	2022-03-14 @ 9:00 am	2022-03-17 @ 10:00 am	< 0.3	2022-03-21
11132441	112	2022-03-14 @ 9:00 am	2022-03-17 @ 10:00 am	1.5 ± 0.4	2022-03-21
11132442	112	2022-03-14 @ 9:00 am	2022-03-17 @ 10:00 am	1.0 ± 0.3	2022-03-21
11132432	113	2022-03-14 @ 9:00 am	2022-03-17 @ 10:00 am	< 0.3	2022-03-21
11132436	113	2022-03-14 @ 9:00 am	2022-03-17 @ 10:00 am	0.7 ± 0.3	2022-03-21
11132451	114	2022-03-14 @ 9:00 am	2022-03-17 @ 11:00 am	0.9 ± 0.3	2022-03-21
11132443	114 OFFICE	2022-03-14 @ 9:00 am	2022-03-17 @ 10:00 am	0.9 ± 0.3	2022-03-21
11132444	114B	2022-03-14 @ 9:00 am	2022-03-17 @ 10:00 am	0.9 ± 0.3	2022-03-21
11132458	114C	2022-03-14 @ 9:00 am	2022-03-17 @ 10:00 am	1.2 ± 0.3	2022-03-21
11132449	114F	2022-03-14 @ 9:00 am	2022-03-17 @ 10:00 am	0.7 ± 0.3	2022-03-21
11133046	116	2022-03-14 @ 9:00 am	2022-03-17 @ 10:00 am	< 0.3	2022-03-21
11132437	117	2022-03-14 @ 9:00 am	2022-03-17 @ 10:00 am	0.7 ± 0.3	2022-03-21
11132445	117	2022-03-14 @ 9:00 am	2022-03-17 @ 10:00 am	< 0.3	2022-03-21
11132439	118	2022-03-14 @ 9:00 am	2022-03-17 @ 10:00 am	0.8 ± 0.3	2022-03-21
11132459	119	2022-03-14 @ 9:00 am	2022-03-17 @ 10:00 am	< 0.3	2022-03-21
11132453	119A	2022-03-14 @ 9:00 am	2022-03-17 @ 10:00 am	0.7 ± 0.3	2022-03-21
11132457	119A	2022-03-14 @ 9:00 am	2022-03-17 @ 10:00 am	< 0.3	2022-03-21
11132452	119B	2022-03-14 @ 9:00 am	2022-03-17 @ 11:00 am	< 0.3	2022-03-21
11132460	119B OFFICE	2022-03-14 @ 9:00 am	2022-03-17 @ 10:00 am	0.6 ± 0.3	2022-03-21
11132438	120	2022-03-14 @ 9:00 am	2022-03-17 @ 10:00 am	0.6 ± 0.3	2022-03-21
11132466	123	2022-03-14 @ 9:00 am	2022-03-17 @ 10:00 am	< 0.3	2022-03-21
11132465	123	2022-03-14 @ 9:00 am	2022-03-17 @ 10:00 am	< 0.3	2022-03-21

Radon test result report for:
**SILVER SPRING INTO MS
 MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11132448	126	2022-03-14 @ 9:00 am	2022-03-17 @ 10:00 am	< 0.3	2022-03-21
11132468	127	2022-03-14 @ 9:00 am	2022-03-17 @ 10:00 am	< 0.3	2022-03-21
11132447	128	2022-03-14 @ 9:00 am	2022-03-17 @ 10:00 am	< 0.3	2022-03-21
11132446	129	2022-03-14 @ 9:00 am	2022-03-17 @ 10:00 am	< 0.3	2022-03-21
11132475	130	2022-03-14 @ 9:00 am	2022-03-17 @ 10:00 am	1.8 ± 0.4	2022-03-21
11132474	131	2022-03-14 @ 10:00 am	2022-03-17 @ 10:00 am	1.4 ± 0.3	2022-03-21
11132467	132	2022-03-14 @ 10:00 am	2022-03-17 @ 10:00 am	0.7 ± 0.3	2022-03-21
11132476	133	2022-03-14 @ 10:00 am	2022-03-17 @ 10:00 am	0.7 ± 0.3	2022-03-21
11132456	134	2022-03-14 @ 10:00 am	2022-03-17 @ 11:00 am	0.6 ± 0.3	2022-03-21
11132455	135	2022-03-14 @ 10:00 am	2022-03-17 @ 10:00 am	0.6 ± 0.3	2022-03-21
11132483	136	2022-03-14 @ 10:00 am	2022-03-17 @ 11:00 am	0.8 ± 0.3	2022-03-21
11132482	137	2022-03-14 @ 10:00 am	2022-03-17 @ 11:00 am	0.8 ± 0.3	2022-03-21
11132484	138	2022-03-14 @ 10:00 am	2022-03-17 @ 11:00 am	< 0.3	2022-03-21
11132492	139	2022-03-14 @ 10:00 am	2022-03-17 @ 11:00 am	< 0.3	2022-03-21
11132491	140	2022-03-14 @ 10:00 am	2022-03-17 @ 11:00 am	< 0.3	2022-03-21
11132495	244	2022-03-14 @ 10:00 am	2022-03-17 @ 11:00 am	0.6 ± 0.3	2022-03-21
11132497	245	2022-03-14 @ 10:00 am	2022-03-17 @ 11:00 am	< 0.3	2022-03-21
11132490	246	2022-03-14 @ 10:00 am	2022-03-17 @ 11:00 am	< 0.3	2022-03-21
11132498	246	2022-03-14 @ 10:00 am	2022-03-17 @ 11:00 am	< 0.3	2022-03-21
11132481	247	2022-03-14 @ 10:00 am	2022-03-17 @ 11:00 am	< 0.3	2022-03-21
11132496	247	2022-03-14 @ 10:00 am	2022-03-17 @ 11:00 am	< 0.3	2022-03-21
11132489	308	2022-03-14 @ 10:00 am	2022-03-17 @ 11:00 am	< 0.3	2022-03-21
11132493	CAFETERIA	2022-03-14 @ 10:00 am	2022-03-17 @ 10:00 am	1.3 ± 0.3	2022-03-21
11132487	CAFETERIA	2022-03-14 @ 10:00 am	2022-03-17 @ 10:00 am	1.1 ± 0.4	2022-03-21
11132488	KITCHEN CAFETERIA	2022-03-14 @ 10:00 am	2022-03-17 @ 10:00 am	1.5 ± 0.3	2022-03-21
11132431	MAIN OFFICE CONFERENCE ROOM	2022-03-14 @ 9:00 am	2022-03-17 @ 11:00 am	< 0.3	2022-03-21
11132450	TV STUDIO 1141	2022-03-14 @ 9:00 am	2022-03-17 @ 10:00 am	1.1 ± 0.3	2022-03-21

March 22, 2022

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
**SILVER SPRING INTO MS
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11130374	105G	2022-03-14 @ 9:00 am	2022-03-17 @ 10:00 am	< 0.3	2022-03-21
11130373	106	2022-03-14 @ 9:00 am	2022-03-17 @ 10:00 am	0.8 ± 0.3	2022-03-21
11130372	106G	2022-03-14 @ 9:00 am	2022-03-17 @ 10:00 am	< 0.3	2022-03-21

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

March 22, 2022

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

**SILVER SPRING INTERNATIONAL MS
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11132473	132	2022-03-14 @ 9:00 am	2022-03-17 @ 11:00 am	0.6 ± 0.3	2022-03-21

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 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 light

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

	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