



MCPS RADON TESTING – EXECUTIVE SUMMARY

Site Name	Stedwick Elementary School
Date of Test Report	4/26/2022
Round of Testing	Initial Follow-up Post Remediation 2 Year Testing 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility
# Rooms Tested	47
# Rooms \geq 4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	2.4 pCi/L

Project Status:
Initial testing completed; no further action needed.



April 26, 2022

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

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

Location: Stedwick Elementary School
10631 Stedwick Rd.
Montgomery Village, MD 20886

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 Stedwick ES, located at 10631 Stedwick Rd. Montgomery Village, MD 20886 (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 February 28, 2022 and deployed fifty four (54) 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 3, 2022 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Airchek, Inc. for analysis by gamma-ray spectroscopy. Airchek, Inc. is a

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

Evaluation of Testing Conditions:

These tests represent:

- Follow-up to initial testing.

These tests were conducted to:

- Evaluate radon concentration levels at the facility.

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

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

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

KCI also compiled weather data for the testing period and conducted observations of relevant field conditions. During the test period, weather records indicate low temperatures were in the 20s and high temperatures ranged from the high 50s to the low 60s Fahrenheit. Maximum sustained winds ranged from 9-17 miles per hour. Average humidity was around 40% with 0 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		
Stedwick ES		
Test Period: 02/28/2022 - 03/03/2022		
Kit Number	Room / Area	Result
11132830	100	0.7
11132839	101	1.4
11132831	103	1.1
11132832	104	0.7
11132829	109	< 0.3
11132837	109	< 0.3
11132836	111	< 0.3
11132820	113	< 0.3
11132819	115	< 0.3
11132834	116	< 0.3
11132854	118	< 0.3
11132855	124	1.9
11132835	128	0.8
11132838	129	< 0.3
11132833	133	2.4
11132846	135	1.3
11132853	135	1.6
11132843	136	0.8
11132847	136	< 0.3
11132828	139	1.4
11132844	140	0.9
11132840	142	1.0
11132827	143	0.8
11132861	145	0.9
11132856	148	1.0
11132862	150	1.2
11132863	150	< 0.3
11132848	152	1.1
11132845	154	1.2
11132842	156	0.9
11132814	200	0.7
11132803	201	0.7
11132818	201	0.7
11132821	202	< 0.3
11132805	206	< 0.3
11132801	208	0.9
11132802	212	< 0.3
11132810	212	< 0.3
11132816	214	< 0.3
11132817	216	< 0.3
11132824	300	< 0.3
11132825	300	< 0.3

Table 1- Radon Testing Results		
Stedwick ES		
Test Period: 02/28/2022 - 03/03/2022		
Kit Number	Room / Area	Result
11132826	300	0.7
11132812	344	< 0.3
11132807	200A	0.6
11132813	200C	0.6
11132806	200D	< 0.3
11132808	200E	0.8
11132809	300A	1.1
11132823	300A	0.9
11132804	GYM	1.3
11132822	GYM	1.1
11132815	GYM OFFICE	1.5
11132811	KITCHEN	0.7

Table 2- Radon Testing Results			
Stedwick ES			
Test Period: 02/28/2022 - 03/03/2022			
Kit Number	QC Type	Room / Area	Result
11132802	D	212	< 0.3
11132809	D	300A	1.1
11132825	FB	300	< 0.3
11132829	D	109	< 0.3
11132853	D	135	1.6
11132847	FB	136	< 0.3
11132863	D	150	< 0.3
11130811	OB	OFFICE BLANK	< 0.3
11130816	TB	TRAVEL BLANK	< 0.3

Summary of Missed Locations		
Stedwick ES		
Test Period: 02/28/2022 - 03/03/2022		
Kit Number	Room/Area	Result
	NA	

Summary of Missing, Compromised and >= 4 piC/L Tests		
Stedwick ES		
Test Period: 02/28/2022 - 03/03/2022		
Kit Number	Room/Area	Result
	NA	

Table Note:
 * Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

Radon test result report for:
STEDWICK ES
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11132830	100	2022-02-28 @ 9:00 am	2022-03-03 @ 10:00 am	0.7 ± 0.4	2022-03-08
11132839	101	2022-02-28 @ 9:00 am	2022-03-03 @ 10:00 am	1.4 ± 0.4	2022-03-07
11132831	103	2022-02-28 @ 9:00 am	2022-03-03 @ 11:00 am	1.1 ± 0.4	2022-03-08
11132832	104	2022-02-28 @ 9:00 am	2022-03-03 @ 10:00 am	0.7 ± 0.3	2022-03-07
11132829	109	2022-02-28 @ 9:00 am	2022-03-03 @ 11:00 am	< 0.3	2022-03-07
11132837	109	2022-02-28 @ 9:00 am	2022-03-03 @ 11:00 am	< 0.3	2022-03-08
11132836	111	2022-02-28 @ 9:00 am	2022-03-03 @ 11:00 am	< 0.3	2022-03-07
11132820	113	2022-02-28 @ 9:00 am	2022-03-03 @ 11:00 am	< 0.3	2022-03-07
11132819	115	2022-02-28 @ 9:00 am	2022-03-03 @ 11:00 am	< 0.3	2022-03-08
11132834	116	2022-02-28 @ 9:00 am	2022-03-03 @ 11:00 am	< 0.3	2022-03-07
11132854	118	2022-02-28 @ 9:00 am	2022-03-03 @ 11:00 am	< 0.3	2022-03-07
11132855	124	2022-02-28 @ 9:00 am	2022-03-03 @ 11:00 am	1.9 ± 0.4	2022-03-08
11132835	128	2022-02-28 @ 10:00 am	2022-03-03 @ 11:00 am	0.8 ± 0.4	2022-03-08
11132838	129	2022-02-28 @ 10:00 am	2022-03-03 @ 11:00 am	< 0.3	2022-03-07
11132833	133	2022-02-28 @ 10:00 am	2022-03-03 @ 11:00 am	2.4 ± 0.4	2022-03-08
11132846	135	2022-02-28 @ 10:00 am	2022-03-03 @ 11:00 am	1.3 ± 0.3	2022-03-07
11132853	135	2022-02-28 @ 10:00 am	2022-03-03 @ 11:00 am	1.6 ± 0.4	2022-03-08
11132843	136	2022-02-28 @ 10:00 am	2022-03-03 @ 11:00 am	0.8 ± 0.4	2022-03-08
11132847	136	2022-02-28 @ 10:00 am	2022-03-03 @ 11:00 am	< 0.3	2022-03-08
11132828	139	2022-02-28 @ 10:00 am	2022-03-03 @ 11:00 am	1.4 ± 0.3	2022-03-07
11132844	140	2022-02-28 @ 10:00 am	2022-03-03 @ 11:00 am	0.9 ± 0.4	2022-03-08
11132840	142	2022-02-28 @ 10:00 am	2022-03-03 @ 11:00 am	1.0 ± 0.3	2022-03-07
11132827	143	2022-02-28 @ 10:00 am	2022-03-03 @ 11:00 am	0.8 ± 0.4	2022-03-08
11132861	145	2022-02-28 @ 10:00 am	2022-03-03 @ 11:00 am	0.9 ± 0.3	2022-03-07
11132856	148	2022-02-28 @ 10:00 am	2022-03-03 @ 11:00 am	1.0 ± 0.4	2022-03-07
11132862	150	2022-02-28 @ 10:00 am	2022-03-03 @ 11:00 am	1.2 ± 0.3	2022-03-07
11132863	150	2022-02-28 @ 10:00 am	2022-03-03 @ 11:00 am	< 0.3	2022-03-07
11132848	152	2022-02-28 @ 10:00 am	2022-03-03 @ 11:00 am	1.1 ± 0.3	2022-03-07
11132845	154	2022-02-28 @ 10:00 am	2022-03-03 @ 11:00 am	1.2 ± 0.4	2022-03-08
11132842	156	2022-02-28 @ 10:00 am	2022-03-03 @ 10:00 am	0.9 ± 0.3	2022-03-07
11132814	200	2022-02-28 @ 9:00 am	2022-03-03 @ 10:00 am	0.7 ± 0.3	2022-03-07
11132807	200A	2022-02-28 @ 9:00 am	2022-03-03 @ 10:00 am	0.6 ± 0.4	2022-03-08
11132813	200C	2022-02-28 @ 9:00 am	2022-03-03 @ 10:00 am	0.6 ± 0.3	2022-03-07
11132806	200D	2022-02-28 @ 9:00 am	2022-03-03 @ 10:00 am	< 0.3	2022-03-07
11132808	200E	2022-02-28 @ 9:00 am	2022-03-03 @ 10:00 am	0.8 ± 0.3	2022-03-07
11132818	201	2022-02-28 @ 9:00 am	2022-03-03 @ 10:00 am	0.7 ± 0.3	2022-03-07
11132803	201	2022-02-28 @ 9:00 am	2022-03-03 @ 10:00 am	0.7 ± 0.3	2022-03-07

March 8, 2022

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
STEDWICK ES
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11132821	202	2022-02-28 @ 9:00 am	2022-03-03 @ 10:00 am	< 0.3	2022-03-07
11132805	206	2022-02-28 @ 9:00 am	2022-03-03 @ 10:00 am	< 0.3	2022-03-07
11132801	208	2022-02-28 @ 9:00 am	2022-03-03 @ 10:00 am	0.9 ± 0.4	2022-03-08
11132802	212	2022-02-28 @ 9:00 am	2022-03-03 @ 10:00 am	< 0.3	2022-03-08
11132810	212	2022-02-28 @ 9:00 am	2022-03-03 @ 10:00 am	< 0.3	2022-03-08
11132816	214	2022-02-28 @ 9:00 am	2022-03-03 @ 10:00 am	< 0.3	2022-03-08
11132817	216	2022-02-28 @ 9:00 am	2022-03-03 @ 10:00 am	< 0.3	2022-03-07
11132825	300	2022-02-28 @ 9:00 am	2022-03-03 @ 10:00 am	< 0.3	2022-03-07
11132824	300	2022-02-28 @ 9:00 am	2022-03-03 @ 10:00 am	< 0.3	2022-03-07
11132826	300	2022-02-28 @ 9:00 am	2022-03-03 @ 10:00 am	0.7 ± 0.4	2022-03-08
11132823	300A	2022-02-28 @ 9:00 am	2022-03-03 @ 10:00 am	0.9 ± 0.3	2022-03-07
11132809	300A	2022-02-28 @ 9:00 am	2022-03-03 @ 10:00 am	1.1 ± 0.4	2022-03-08
11132812	344	2022-02-28 @ 9:00 am	2022-03-03 @ 10:00 am	< 0.3	2022-03-08
11132822	GYM	2022-02-28 @ 9:00 am	2022-03-03 @ 10:00 am	1.1 ± 0.3	2022-03-07
11132804	GYM	2022-02-28 @ 9:00 am	2022-03-03 @ 10:00 am	1.3 ± 0.3	2022-03-08
11132815	GYM OFFICE	2022-02-28 @ 9:00 am	2022-03-03 @ 10:00 am	1.5 ± 0.4	2022-03-08
11132811	KITCHEN	2022-02-28 @ 9:00 am	2022-03-03 @ 10:00 am	0.7 ± 0.3	2022-03-07

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

March 30, 2022

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

**RSH
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11139726	BASEMENT	2022-03-20 @ 8:00 am	2022-03-23 @ 7:00 am	0.9 ± 0.5	2022-03-30
11139725	DINING	2022-03-20 @ 8:00 am	2022-03-23 @ 7:00 am	< 0.3	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. Marshall, Thurgood ES
2. Ridgeview MS
3. Travilah ES
4. Flower Hill ES
5. Resnik, Judith A. ES
6. Strawberry Knolls ES
7. Whetstone ES
8. Laytonsville ES
9. Stedwick ES
10. Watkins Mill ES
11. Watkins Mill HS
12. Einstein, Albert E. HS

	Date	Initials
Radon Test Kits Deployed	02/28/2022	PM
Radon Test Kits Collected	03/03/2022	PM
Radon Test Kits Shipped to Lab*	03/3/2022	PM
Radon Test Kits Received by Lab*	03/5/2022	PM

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