



MCPS RADON TESTING – EXECUTIVE SUMMARY

Site Name	Fields Road Elementary School
Date of Test Report	4/7/2022
Round of Testing	Initial Follow-up Post Remediation 2 Year Testing 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility
# Rooms Tested	57
# 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.



April 7, 2022

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

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

Location: Fields Road ES
One School Dr.
Gaithersburg, MD 20878

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 Fields Road ES, located at One School Dr. Gaithersburg, MD 20878 (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 22, 2022 and deployed sixty four (64) 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 February 25, 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 20s and high temperatures ranged from the high 30s to the high 40s Fahrenheit. Maximum sustained winds ranged from 5-18 miles per hour. Average humidity was around 15% with 1.5 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	NA	NA
<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		
Fields Rd ES		
Test Period: 02/22/2022 - 02/25/2022		
Kit Number	Room / Area	Result
11131463	4	< 0.3
11131442	8	1.2
11131411	101	< 0.3
11131405	102	< 0.3
11131415	103	< 0.3
11131419	103	< 0.3
11131407	105	< 0.3
11131410	106	< 0.3
11131417	107	< 0.3
11131401	108	< 0.3
11131402	108	< 0.3
11131409	115	< 0.3
11131423	115	< 0.3
11131418	116	< 0.3
11131471	117	< 0.3
11131450	118	< 0.3
11131472	119	< 0.3
11131449	123	< 0.3
11131470	124	< 0.3
11131448	125	< 0.3
11131478	125	< 0.3
11131468	126	< 0.3
11131479	126	< 0.3
11131429	128	< 0.3
11131427	129	0.6
11131425	130	< 0.3
11131426	131	< 0.3
11131428	133	< 0.3
11131435	135	< 0.3
11131436	135	< 0.3
11131430	139	0.6
11131434	140	< 0.3
11131424	141	< 0.3
11131431	143	< 0.3
11131437	149	< 0.3
11131432	151	< 0.3
11131438	153	< 0.3
11131433	155	< 0.3
11131443	157	< 0.3
11131444	157	< 0.3
11131439	159	< 0.3
11131445	160	< 0.3
11131462	160	< 0.3
11131446	161	< 0.3
11131447	162	< 0.3

Table 1- Radon Testing Results		
Fields Rd ES		
Test Period: 02/22/2022 - 02/25/2022		
Kit Number	Room / Area	Result
11131455	164	< 0.3
11131460	168	0.9
11131456	169	< 0.3
11131454	172	0.7
11131461	172	< 0.3
11131440	174	< 0.3
11131414	ASSISTANT PRINCIPAL	< 0.3
11131453	CAFETERIA	< 0.3
11131469	CAFETERIA	0.8
11131406	CONFERENCE ROOM	< 0.3
11131416	CONFERENCE ROOM MEDIA CENTER	< 0.3
11131404	COUNSELOR	< 0.3
11131441	GYM	1.1
11131464	GYM	1.8
11131413	HEALTH ROOM	< 0.3
11131412	MAIN OFFICE	< 0.3
11131421	MEDIA CENTER	< 0.3
11131422	MEDIA CENTER	< 0.3
11131408	MEDIA PTA	< 0.3
11131403	PRINCIPAL	< 0.3
11131420	STAFF LOUNGE	< 0.3

Table 2- Radon Testing Results			
Fields Rd. ES			
Test Period: 02/22/2022 - 02/25/2022			
Kit Number	QC Type	Room / Area	Result
11131415	D	103	< 0.3
11131402	D	108	< 0.3
11131423	FB	115	< 0.3
11131435	D	135	< 0.3
11131444	D	157	< 0.3
11131462	FB	160	< 0.3
11131454	D	172	0.7
11131478	D	125	< 0.3
11131468	FB	126	< 0.3
11139384	OB	OFFICE BLANK	< 0.3
11131222	TB	TRAVEL BLANK	< 0.3

ATTACHMENT C

Laboratory Analytical Results

March 3, 2022

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
FIELDS ROAD ES
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11131402	108	2022-02-22 @ 9:00 am	2022-02-25 @ 9:00 am	< 0.3	2022-03-03
11131409	115	2022-02-22 @ 9:00 am	2022-02-25 @ 9:00 am	< 0.3	2022-03-03

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

Radon test result report for:
FIELDS ROAD ES
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11131463	004	2022-02-22 @ 10:00 am	2022-02-25 @ 9:00 am	< 0.3	2022-03-03
11131442	008	2022-02-22 @ 10:00 am	2022-02-25 @ 9:00 am	1.2 ± 0.5	2022-03-03
11131411	101	2022-02-22 @ 8:00 am	2022-02-25 @ 8:00 am	< 0.3	2022-03-03
11131405	102	2022-02-22 @ 8:00 am	2022-02-25 @ 8:00 am	< 0.3	2022-03-03
11131419	103	2022-02-22 @ 8:00 am	2022-02-25 @ 8:00 am	< 0.3	2022-03-03
11131415	103	2022-02-22 @ 8:00 am	2022-02-25 @ 8:00 am	< 0.3	2022-03-03
11131407	105	2022-02-22 @ 9:00 am	2022-02-25 @ 9:00 am	< 0.3	2022-03-03
11131410	106	2022-02-22 @ 9:00 am	2022-02-25 @ 9:00 am	< 0.3	2022-03-03
11131417	107	2022-02-22 @ 9:00 am	2022-02-25 @ 9:00 am	< 0.3	2022-03-03
11131401	108	2022-02-22 @ 9:00 am	2022-02-25 @ 9:00 am	< 0.3	2022-03-03
11131423	115	2022-02-22 @ 9:00 am	2022-02-25 @ 9:00 am	< 0.3	2022-03-03
11131418	116	2022-02-22 @ 9:00 am	2022-02-25 @ 9:00 am	< 0.3	2022-03-03
11131471	117	2022-02-22 @ 10:00 am	2022-02-25 @ 9:00 am	< 0.3	2022-03-03
11131450	118	2022-02-22 @ 10:00 am	2022-02-25 @ 9:00 am	< 0.3	2022-03-03
11131472	119	2022-02-22 @ 10:00 am	2022-02-25 @ 9:00 am	< 0.3	2022-03-03
11131449	123	2022-02-22 @ 10:00 am	2022-02-25 @ 9:00 am	< 0.3	2022-03-03
11131470	124	2022-02-22 @ 10:00 am	2022-02-25 @ 9:00 am	< 0.3	2022-03-03
11131478	125	2022-02-22 @ 10:00 am	2022-02-25 @ 9:00 am	< 0.3	2022-03-03
11131448	125	2022-02-22 @ 10:00 am	2022-02-25 @ 9:00 am	< 0.3	2022-03-03
11131468	126	2022-02-22 @ 10:00 am	2022-02-25 @ 9:00 am	< 0.3	2022-03-03
11131479	126	2022-02-22 @ 10:00 am	2022-02-25 @ 9:00 am	< 0.3	2022-03-03
11131429	128	2022-02-22 @ 9:00 am	2022-02-25 @ 9:00 am	< 0.3	2022-03-03
11131427	129	2022-02-22 @ 9:00 am	2022-02-25 @ 9:00 am	0.6 ± 0.5	2022-03-03
11131425	130	2022-02-22 @ 9:00 am	2022-02-25 @ 9:00 am	< 0.3	2022-03-03
11131426	131	2022-02-22 @ 9:00 am	2022-02-25 @ 9:00 am	< 0.3	2022-03-03
11131428	133	2022-02-22 @ 9:00 am	2022-02-25 @ 9:00 am	< 0.3	2022-03-03
11131436	135	2022-02-22 @ 9:00 am	2022-02-25 @ 9:00 am	< 0.3	2022-03-03
11131435	135	2022-02-22 @ 9:00 am	2022-02-25 @ 9:00 am	< 0.3	2022-03-03
11131430	139	2022-02-22 @ 9:00 am	2022-02-25 @ 9:00 am	0.6 ± 0.4	2022-03-03
11131434	140	2022-02-22 @ 9:00 am	2022-02-25 @ 9:00 am	< 0.3	2022-03-03
11131424	141	2022-02-22 @ 9:00 am	2022-02-25 @ 9:00 am	< 0.3	2022-03-03
11131431	143	2022-02-22 @ 9:00 am	2022-02-25 @ 9:00 am	< 0.3	2022-03-03
11131437	149	2022-02-22 @ 9:00 am	2022-02-25 @ 9:00 am	< 0.3	2022-03-03
11131432	151	2022-02-22 @ 9:00 am	2022-02-25 @ 9:00 am	< 0.3	2022-03-03
11131438	153	2022-02-22 @ 9:00 am	2022-02-25 @ 9:00 am	< 0.3	2022-03-03
11131433	155	2022-02-22 @ 9:00 am	2022-02-25 @ 9:00 am	< 0.3	2022-03-03
11131444	157	2022-02-22 @ 9:00 am	2022-02-25 @ 9:00 am	< 0.3	2022-03-03

Radon test result report for:
FIELDS ROAD ES
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11131443	157	2022-02-22 @ 9:00 am	2022-02-25 @ 9:00 am	< 0.3	2022-03-03
11131439	159	2022-02-22 @ 9:00 am	2022-02-25 @ 9:00 am	< 0.3	2022-03-03
11131462	160	2022-02-22 @ 9:00 am	2022-02-25 @ 9:00 am	< 0.3	2022-03-03
11131445	160	2022-02-22 @ 9:00 am	2022-02-25 @ 9:00 am	< 0.3	2022-03-03
11131446	161	2022-02-22 @ 9:00 am	2022-02-25 @ 9:00 am	< 0.3	2022-03-03
11131447	162	2022-02-22 @ 9:00 am	2022-02-25 @ 9:00 am	< 0.3	2022-03-03
11131455	164	2022-02-22 @ 9:00 am	2022-02-25 @ 9:00 am	< 0.3	2022-03-03
11131460	168	2022-02-22 @ 9:00 am	2022-02-25 @ 9:00 am	0.9 ± 0.5	2022-03-03
11131456	169	2022-02-22 @ 9:00 am	2022-02-25 @ 9:00 am	< 0.3	2022-03-03
11131454	172	2022-02-22 @ 9:00 am	2022-02-25 @ 9:00 am	0.7 ± 0.5	2022-03-03
11131461	172	2022-02-22 @ 9:00 am	2022-02-25 @ 9:00 am	< 0.3	2022-03-03
11131440	174	2022-02-22 @ 9:00 am	2022-02-25 @ 9:00 am	< 0.3	2022-03-03
11131414	ASSISTANT PRINCIPAL	2022-02-22 @ 8:00 am	2022-02-25 @ 8:00 am	< 0.3	2022-03-03
11131453	CAFETERIA	2022-02-22 @ 10:00 am	2022-02-25 @ 9:00 am	< 0.3	2022-03-03
11131469	CAFETERIA	2022-02-22 @ 10:00 am	2022-02-25 @ 9:00 am	0.8 ± 0.5	2022-03-03
11131406	CONFERENCE ROOM	2022-02-22 @ 8:00 am	2022-02-25 @ 8:00 am	< 0.3	2022-03-03
11131416	CONFERENCE ROOM MEDIA CENTER	2022-02-22 @ 9:00 am	2022-02-25 @ 9:00 am	< 0.3	2022-03-03
11131404	COUNSELOR	2022-02-22 @ 8:00 am	2022-02-25 @ 8:00 am	< 0.3	2022-03-03
11131464	GYM	2022-02-22 @ 10:00 am	2022-02-25 @ 9:00 am	1.8 ± 0.5	2022-03-03
11131441	GYM	2022-02-22 @ 10:00 am	2022-02-25 @ 9:00 am	1.1 ± 0.5	2022-03-03
11131413	HEALTH ROOM	2022-02-22 @ 8:00 am	2022-02-25 @ 8:00 am	< 0.3	2022-03-03
11131412	MAIN OFFICE	2022-02-22 @ 8:00 am	2022-02-25 @ 8:00 am	< 0.3	2022-03-03
11131421	MEDIA CENTER	2022-02-22 @ 9:00 am	2022-02-25 @ 8:00 am	< 0.3	2022-03-03
11131422	MEDIA CENTER	2022-02-22 @ 9:00 am	2022-02-25 @ 9:00 am	< 0.3	2022-03-03
11131408	MEDIA PTA	2022-02-22 @ 9:00 am	2022-02-25 @ 9:00 am	< 0.3	2022-03-03
11131403	PRINCIPAL	2022-02-22 @ 8:00 am	2022-02-25 @ 8:00 am	< 0.3	2022-03-03
11131420	STAFF LOUNGE	2022-02-22 @ 9:00 am	2022-02-25 @ 9:00 am	< 0.3	2022-03-03

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI Technologies, Inc. Job Number 204186

NOMINAL Conditions: Radon Conc 25.8 pCi/L Rel. Hum 50.1 % Temp. 70.9 F

Date Start: 2/18/22 Date Stop: 2/21/22 Date Start: _____ Date Stop: _____

Time Start: 0911 Time Stop: 0911 Time Start: _____ Time Stop: _____

Device No.'s: (3) Char Bags -
11113484, 1112998, 20107126 Device No.'s: _____

23 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**

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 Number	Start Date	Start Time	End Date	End Time	Temp.	Facility	Building	Room	Project ID	Floor	Result
11113484	2022-02-18	9:00 am	2022-02-21	9:00 am	71	OFFICE	MAIN	SK1		1	27.9
11122998	2022-02-18	9:00 am	2022-02-21	9:00 am	71	OFFICE	MAIN	SK2		1	26.0
20107126	2022-02-18	9:00 am	2022-02-21	9:00 am	71	OFFICE	MAIN	SK3		1	27.6



Radon Test Kit Chain of Custody

Project Name: MCPS Radon – February 2022 Schools

Name of Schools:

1. Dufief ES
2. Emory Grove Center
3. Fields Road ES
4. Forest Oak MS
5. Gaithersburg ES
6. Gaithersburg MS
7. Jones Lane ES
8. Rachel Carson ES
9. Rosemont ES
10. Shady Grove MS
11. Summit Hall ES
12. Washington Grove ES

	Date	Initials
Radon Test Kits Deployed	02/22/2022	PM
Radon Test Kits Collected	02/25/2022	PM
Radon Test Kits Shipped to Lab*	02/25/2022	JM
Radon Test Kits Received by Lab*	02/28/2022	PM

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