KCI TECHNOLOGIES

ENGINEERS • PLANNERS • SCIENTISTS • CONSTRUCTION MANAGERS

936 RIDGEBROOK ROAD • SPARKS, MD 21152 • 410-316-7800 • (FAX) 410-316-7935

MCPS RADON TESTING – EXECUTIVE SUMMARY

Site Name	Bayard Rustin Elementary School
Date of Test Report	1/12/2023
Round of Testing	Initial Follow-up Post Remediation 2 Year Testing 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility
# Rooms Tested	43
# Rooms ≥ 4.0 pCi/L	6
Lowest Value	<0.3 pCi/L
Highest Value	6.7 pCi/L

Project Status:

1. Initial testing completed;
2. Missing or compromised samples need re-test.
3. Mitigate Rooms 103, 119, 129, 133, 187, & 100D

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January 12, 2023

Mr. Brian Croyle
Environmental Specialist
Montgomery County Public Schools
Gaithersburg, MD 20879

Re: **Radon Testing Services**
KCI Job # 122210551

Location: Bayard Rustin Elementary School
332 West Edmonston Drive
Rockville, MD 20852

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 Bayard Rustin Elementary School, located at 332 West Edmonston Dr. Rockville, MD 20852 (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 December 12, 2022 and deployed forty-nine (49) 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 December 15, 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 temperatures were between 22°F and 53°F. Maximum sustained winds ranged from 0-20 miles per hour. Average humidity was around 70% with 1.98 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 piC/L	103	3.6
	119	3.5
	129	4.7
	133	4.5
	187	3.5
	100D	6.7
<4.0 piC/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 McCleaf

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 1- Radon Testing Results		
Bayard Rustin ES		
Test Period: 12/12/2022 - 12/15/2022		
Kit Number	Room / Area	Result
11140192	102	1.6
11140181	103	3.6
11285476	119	3.5
11285455	121	2.4
11285470	125	1.6
11140194	126	1.2
11140200	127	1.3
11287999	129	4.7
11114399	133	4.5
11140195	134	3.4
11140198	135	2.0
11285445	137	2.2
11285453	137	1.9
11285454	137	< 0.3
11140190	141	1.3
11140188	142	0.7
11140189	143	1.2
11140130	149	1.1
11285460	149	1.6
11140197	153	1.5
11285468	155	1.5
11285462	159	1.7
11140122	165	1.7
11140121	169	1.9
11140196	173	1.0
11140199	175	1.5
11285461	179	1.5
11285469	181	1.3
11285467	183	1.3
11285465	187	3.5
11285477	187	3.0
11285478	187	< 0.3
11285485	205	1.4
11285472	226	1.4
11285475	305	2.0
11140183	100B	2.0
11140184	100D	6.7
11140185	100F	2.5
11140191	102B	1.7
11140186	102C	1.8
11140179	APR	1.5
11140180	APR	1.3

Table 1- Radon Testing Results		
Bayard Rustin ES		
Test Period: 12/12/2022 - 12/15/2022		
Kit Number	Room / Area	Result
11140182	APR	1.7
11285471	GYM	2.6
11285479	GYM	2.4
11285463	GYM OFFICE	1.9
11140187	KITCHEN OFFICE	0.8
11140193	MAIN OFFICE	1.8
11140114	WORK ROOM	1.7

Table 2- Radon Testing Results			
Bayard Rustin ES			
Test Period: 12/12/22 - 12/15/22			
Kit Number	QC Type	Room / Area	Result
11285453	D	137	1.9
11285454	FB	137	< 0.3
11140130	D	149	1.1
11285477	D	187	3.0
11285478	FB	187	< 0.3
11140179	D	APR	1.5
11286981	OB	OFFICE BLANK	< 0.3
11286982	TB	TRAVEL BLANK	< 0.3

Summary of Missed Locations		
Bayard Rustin ES		
Test Period: 12/12/22 - 12/15/22		
Kit Number	Room/Area	Result
	N/A	

Summary of Missing, Compromised and >/= 4 piC/L Tests		
Bayard Rustin ES		
Test Period: 12/12/22 - 12/15/22		
Kit Number	Room/Area	Result
11140181	103	3.6
11285476	119	3.5
11287999	129	4.7
11114399	133	4.5
11285465	187	3.5
11140184	100D	6.7

Table Note:
* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

December 19, 2022 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
BAYARD RUSTIN ES
1

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11140183	100B	2022-12-12 @ 11:00 am	2022-12-15 @ 10:00 am	2.0 ± 0.4	2022-12-19
11140184	100D	2022-12-12 @ 11:00 am	2022-12-15 @ 10:00 am	6.7 ± 0.5	2022-12-19
11140185	100F	2022-12-12 @ 11:00 am	2022-12-15 @ 10:00 am	2.5 ± 0.4	2022-12-19
11140192	102	2022-12-12 @ 11:00 am	2022-12-15 @ 10:00 am	1.6 ± 0.4	2022-12-19
11140191	102B	2022-12-12 @ 11:00 am	2022-12-15 @ 10:00 am	1.7 ± 0.4	2022-12-19
11140186	102C	2022-12-12 @ 11:00 am	2022-12-15 @ 10:00 am	1.8 ± 0.4	2022-12-19
11140181	103	2022-12-12 @ 11:00 am	2022-12-15 @ 11:00 am	3.6 ± 0.4	2022-12-19
11285476	119	2022-12-12 @ 12:00 pm	2022-12-15 @ 11:00 am	3.5 ± 0.4	2022-12-19
11285455	121	2022-12-12 @ 12:00 pm	2022-12-15 @ 11:00 am	2.4 ± 0.4	2022-12-19
11285470	125	2022-12-12 @ 12:00 pm	2022-12-15 @ 11:00 am	1.6 ± 0.4	2022-12-19
11140194	126	2022-12-12 @ 11:00 am	2022-12-15 @ 11:00 am	1.2 ± 0.4	2022-12-19
11140200	127	2022-12-12 @ 11:00 am	2022-12-15 @ 11:00 am	1.3 ± 0.4	2022-12-19
11287999	129	2022-12-12 @ 11:00 am	2022-12-15 @ 11:00 am	4.7 ± 0.5	2022-12-19
11114399	133	2022-12-12 @ 11:00 am	2022-12-15 @ 11:00 am	4.5 ± 0.4	2022-12-19
11140195	134	2022-12-12 @ 11:00 am	2022-12-15 @ 11:00 am	3.4 ± 0.4	2022-12-19
11140198	135	2022-12-12 @ 11:00 am	2022-12-15 @ 11:00 am	2.0 ± 0.4	2022-12-19
11285445	137	2022-12-12 @ 11:00 am	2022-12-15 @ 11:00 am	< 0.3	2022-12-19
11285453	137	2022-12-12 @ 11:00 am	2022-12-15 @ 11:00 am	1.9 ± 0.4	2022-12-19
11285454	137	2022-12-12 @ 11:00 am	2022-12-15 @ 11:00 am	2.2 ± 0.4	2022-12-19
11140190	141	2022-12-12 @ 11:00 am	2022-12-15 @ 11:00 am	1.3 ± 0.3	2022-12-19
11140188	142	2022-12-12 @ 11:00 am	2022-12-15 @ 11:00 am	0.7 ± 0.3	2022-12-19
11140189	143	2022-12-12 @ 11:00 am	2022-12-15 @ 11:00 am	1.2 ± 0.3	2022-12-19
11140130	149	2022-12-12 @ 11:00 am	2022-12-15 @ 11:00 am	1.1 ± 0.3	2022-12-19
11285460	149	2022-12-12 @ 11:00 am	2022-12-15 @ 11:00 am	1.6 ± 0.4	2022-12-19
11140197	153	2022-12-12 @ 11:00 am	2022-12-15 @ 11:00 am	1.5 ± 0.4	2022-12-19
11285468	155	2022-12-12 @ 12:00 pm	2022-12-15 @ 11:00 am	1.5 ± 0.4	2022-12-19
11285462	159	2022-12-12 @ 12:00 pm	2022-12-15 @ 11:00 am	1.7 ± 0.4	2022-12-19
11140122	165	2022-12-12 @ 11:00 am	2022-12-15 @ 11:00 am	1.7 ± 0.4	2022-12-19
11140121	169	2022-12-12 @ 11:00 am	2022-12-15 @ 11:00 am	1.9 ± 0.4	2022-12-19
11140196	173	2022-12-12 @ 11:00 am	2022-12-15 @ 11:00 am	1.0 ± 0.3	2022-12-19
11140199	175	2022-12-12 @ 11:00 am	2022-12-15 @ 11:00 am	1.5 ± 0.4	2022-12-19
11285461	179	2022-12-12 @ 12:00 pm	2022-12-15 @ 11:00 am	1.5 ± 0.4	2022-12-19
11285469	181	2022-12-12 @ 12:00 pm	2022-12-15 @ 11:00 am	1.3 ± 0.4	2022-12-19
11285467	183	2022-12-12 @ 12:00 pm	2022-12-15 @ 11:00 am	1.3 ± 0.4	2022-12-19
11285465	187	2022-12-12 @ 12:00 pm	2022-12-15 @ 11:00 am	3.5 ± 0.4	2022-12-19
11285478	187	2022-12-12 @ 12:00 pm	2022-12-15 @ 11:00 am	< 0.3	2022-12-19
11285477	187	2022-12-12 @ 12:00 pm	2022-12-15 @ 11:00 am	3.0 ± 0.4	2022-12-19

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

December 19, 2022 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
BAYARD RUSTIN ES
1

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11285485	205	2022-12-12 @ 12:00 pm	2022-12-15 @ 11:00 am	1.4 ± 0.4	2022-12-19
11285472	226	2022-12-12 @ 12:00 pm	2022-12-15 @ 11:00 am	1.4 ± 0.4	2022-12-19
11285475	305	2022-12-12 @ 12:00 pm	2022-12-15 @ 11:00 am	2.0 ± 0.4	2022-12-19
11140180	APR	2022-12-12 @ 11:00 am	2022-12-15 @ 11:00 am	1.3 ± 0.4	2022-12-19
11140182	APR	2022-12-12 @ 11:00 am	2022-12-15 @ 11:00 am	1.7 ± 0.4	2022-12-19
11140179	APR	2022-12-12 @ 11:00 am	2022-12-15 @ 11:00 am	1.5 ± 0.4	2022-12-19
11285471	GYM	2022-12-12 @ 12:00 pm	2022-12-15 @ 11:00 am	2.6 ± 0.4	2022-12-19
11285479	GYM	2022-12-12 @ 12:00 pm	2022-12-15 @ 11:00 am	2.4 ± 0.4	2022-12-19
11285463	GYM OFFICE	2022-12-12 @ 12:00 pm	2022-12-15 @ 11:00 am	1.9 ± 0.4	2022-12-19
11140187	KITCHEN OFFICE	2022-12-12 @ 11:00 am	2022-12-15 @ 11:00 am	0.8 ± 0.4	2022-12-19
11140193	MAIN OFFICE	2022-12-12 @ 11:00 am	2022-12-15 @ 10:00 am	1.8 ± 0.4	2022-12-19
11140114	WORK ROOM	2022-12-12 @ 11:00 am	2022-12-15 @ 10:00 am	1.7 ± 0.4	2022-12-19

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Corporate Office: 936 Ridgebrook road • Sparks , Maryland 21152 • 410-316-7800 • (Fax) 410-316-7935

Radon Test Kit Chain of Custody

Project Name: MCPS Radon – April 2022 Schools – Retesting

Name of Schools:

1. Meadow Hall ES
2. Bayard Rustin ES
3. Lucy V. Barnsley ES
4. Cashell ES
5. Wheaton Woods ES
6. Winston Churchill HS

	Date	Initials
Radon Test Kits Deployed	12/12/2022	BMH
Radon Test Kits Collected	12/15/2022	BMH
Radon Test Kits Shipped to Lab*	12/15/2022	BMH
Radon Test Kits Received by Lab*	12/19/2022	BMH

*All samples sent to Air Check, Inc., 2 Saber Way, Ward Hill, MA 01835