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	Dr. Sally K. Ride Elementary School
Date of Test Report	4/6/2022
Round of Testing	Initial Follow-up Post Remediation 2 Year Testing 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility
# Rooms Tested	51
# Rooms ≥ 4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	0.9 pCi/L

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

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April 6, 2022

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

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

Location: Dr. Sally K. Ride ES
21301 Seneca Crossing Dr.
Germantown, MD 20876

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 Dr. Sally K. Ride ES, located at 21301 Seneca Crossing Dr. Germantown, MD 20876 (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 15, 2022 and deployed fifty eight (58) 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 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 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 piC/L	None	N/A
<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 Notes:

AC- Activated Charcoal
ACI- Air Check, Inc.
D- Duplicate
FB- Field Blank
KCI- KCI Technologies, Inc.
OB- Office Blank
PM- Project Manager
QC- Quality Control

Table 1- Radon Testing Results		
Dr. Sally K. Ride ES		
Test Period: 02/15/2022 - 02/18/2022		
Kit Number	Room / Area	Result
11107395	1	0.5
11123146	1	< 0.3
11105792	2	0.9
11123295	3	< 0.3
11107396	4	< 0.3
11123138	5	< 0.3
11123102	6	0.6
11115083	7	0.6
11123101	8	< 0.3
11115093	9	0.7
11115090	10	< 0.3
11123129	11	0.9
11107400	12	< 0.3
11123294	13	0.7
11123154	16	< 0.3
11123153	19	< 0.3
11123679	123	< 0.3
11123691	124	< 0.3
11123686	126	< 0.3
11123687	126	< 0.3
11123677	128	< 0.3
11105967	129	< 0.3
11123698	131	< 0.3
11114290	132	< 0.3
11123685	133	< 0.3
11114291	146	< 0.3
11123288	149	1.0
11123293	151	< 0.3
11123297	153	0.8
11123696	100A	< 0.3
11123678	100D	0.6
11123689	100D	0.9
11123683	100E	< 0.3
11123684	100F	0.7
11114285	100G	0.8
11123693	100I	< 0.3
11123699	100J	0.7
11123695	100J1	< 0.3
11123688	105A	< 0.3
11123690	105B	0.6
11123694	105C	< 0.3
11123697	105C1	< 0.3

Table 1- Radon Testing Results		
Dr. Sally K. Ride ES		
Test Period: 02/15/2022 - 02/18/2022		
Kit Number	Room / Area	Result
11123669	GYM	< 0.3
11123676	GYM	< 0.3
11123667	GYM OFFICE	1.0
11123130	K1	0.6
11123296	K1	< 0.3
11123298	K1	0.8
11123292	K2	0.8
11123145	K3	0.7
11123137	K4	0.7
11123159	KITCHEN OFFICE	< 0.3
11123692	MAIN OFFICE	< 0.3
11123671	MEDIA CENTER	< 0.3
11123700	MEDIA CENTER	0.8
11114293	MULTIPURPOSE	< 0.3
11114294	MULTIPURPOSE	< 0.3
11114292	STAGE	< 0.3

Table 2- Radon Testing Results			
Dr. Sally K. Ride ES			
Test Period: 02/15/2022 - 02/18/2022			
Kit Number	QC Type	Room / Area	Result
11107395	D	1	0.5
11123298	D	K1	0.8
11123296	FB	K1	< 0.3
11123689	D	100D	0.9
11123686	D	126	< 0.3
11123687	FB	126	< 0.3
11114293	D	Multipurpose	< 0.3
11131660	OB	OFFICE BLANK	< 0.3
11131661	TB	TRAVEL BLANK	< 0.3

Summary of Missed Locations		
Dr. Sally K. Ride ES		
Test Period: 02/15/22 - 02/18/22		
Kit Number	Room/Area	Result
	NA	

Summary of Missing, Compromised and >/= 4 piC/L Tests		
Dr. Sally K. Ride ES		
Test Period: 02/15/22 - 02/18/22		
Kit Number	Room/Area	Result
	NA	

Table Note:

* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

February 23, 2022 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11123696	100A	2022-02-15 @ 1:00 pm	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11123689	100D	2022-02-15 @ 1:00 pm	2022-02-18 @ 10:00 am	0.9 ± 0.3	2022-02-22
11123678	100D	2022-02-15 @ 1:00 pm	2022-02-18 @ 10:00 am	0.6 ± 0.3	2022-02-22
11123683	100E	2022-02-15 @ 1:00 pm	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11123684	100F	2022-02-15 @ 1:00 pm	2022-02-18 @ 10:00 am	0.7 ± 0.3	2022-02-22
11114285	100G	2022-02-15 @ 1:00 pm	2022-02-18 @ 10:00 am	0.8 ± 0.3	2022-02-22
11123693	100I	2022-02-15 @ 1:00 pm	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11123699	100J	2022-02-15 @ 1:00 pm	2022-02-18 @ 10:00 am	0.7 ± 0.3	2022-02-22
11123695	100J1	2022-02-15 @ 1:00 pm	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11123688	105A	2022-02-15 @ 1:00 pm	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11123690	105B	2022-02-15 @ 1:00 pm	2022-02-18 @ 10:00 am	0.6 ± 0.3	2022-02-22
11123694	105C	2022-02-15 @ 1:00 pm	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11123697	105C1	2022-02-15 @ 1:00 pm	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11123679	123	2022-02-15 @ 2:00 pm	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11123691	124	2022-02-15 @ 1:00 pm	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11123686	126	2022-02-15 @ 1:00 pm	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11123687	126	2022-02-15 @ 1:00 pm	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11123677	128	2022-02-15 @ 1:00 pm	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11105967	129	2022-02-15 @ 2:00 pm	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11123698	131	2022-02-15 @ 1:00 pm	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11114290	132	2022-02-15 @ 2:00 pm	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11123685	133	2022-02-15 @ 1:00 pm	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11123676	GYM	2022-02-15 @ 2:00 pm	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11123669	GYM	2022-02-15 @ 2:00 pm	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11123667	GYM OFFICE	2022-02-15 @ 2:00 pm	2022-02-18 @ 10:00 am	1.0 ± 0.3	2022-02-22
11123692	MAIN OFFICE	2022-02-15 @ 1:00 pm	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11123671	MEDIA CENTER	2022-02-15 @ 1:00 pm	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11123700	MEDIA CENTER	2022-02-15 @ 1:00 pm	2022-02-18 @ 10:00 am	0.8 ± 0.3	2022-02-22
11114294	MULTIPURPOSE	2022-02-15 @ 2:00 pm	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11114293	MULTIPURPOSE	2022-02-15 @ 2:00 pm	2022-02-18 @ 10:00 am	< 0.3	2022-02-22
11114292	STAGE	2022-02-15 @ 2:00 pm	2022-02-18 @ 10:00 am	< 0.3	2022-02-22

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

February 23, 2022 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

DR. SALLY K RIDE ES
1

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11107395	1	2022-02-15 @ 1:00 pm	2022-02-18 @ 11:00 am	0.5 ± 0.3	2022-02-22
11123146	1	2022-02-15 @ 1:00 pm	2022-02-18 @ 11:00 am	< 0.3	2022-02-22
11115090	10	2022-02-15 @ 1:00 pm	2022-02-18 @ 11:00 am	< 0.3	2022-02-22
11123129	11	2022-02-15 @ 1:00 pm	2022-02-18 @ 11:00 am	0.9 ± 0.3	2022-02-22
11107400	12	2022-02-15 @ 1:00 pm	2022-02-18 @ 11:00 am	< 0.3	2022-02-22
11123294	13	2022-02-15 @ 1:00 pm	2022-02-18 @ 11:00 am	0.7 ± 0.3	2022-02-22
11114291	146	2022-02-15 @ 2:00 pm	2022-02-18 @ 11:00 am	< 0.3	2022-02-22
11123288	149	2022-02-15 @ 2:00 pm	2022-02-18 @ 11:00 am	1.0 ± 0.3	2022-02-22
11123293	151	2022-02-15 @ 2:00 pm	2022-02-18 @ 11:00 am	< 0.3	2022-02-22
11123297	153	2022-02-15 @ 2:00 pm	2022-02-18 @ 11:00 am	0.8 ± 0.3	2022-02-22
11123154	16	2022-02-15 @ 1:00 pm	2022-02-18 @ 11:00 am	< 0.3	2022-02-22
11123153	19	2022-02-15 @ 1:00 pm	2022-02-18 @ 11:00 am	< 0.3	2022-02-22
11105792	2	2022-02-15 @ 1:00 pm	2022-02-18 @ 11:00 am	0.9 ± 0.3	2022-02-22
11123295	3	2022-02-15 @ 1:00 pm	2022-02-18 @ 11:00 am	< 0.3	2022-02-22
11107396	4	2022-02-15 @ 1:00 pm	2022-02-18 @ 11:00 am	< 0.3	2022-02-22
11123138	5	2022-02-15 @ 1:00 pm	2022-02-18 @ 11:00 am	< 0.3	2022-02-22
11123102	6	2022-02-15 @ 1:00 pm	2022-02-18 @ 11:00 am	0.6 ± 0.3	2022-02-22
11115083	7	2022-02-15 @ 1:00 pm	2022-02-18 @ 11:00 am	0.6 ± 0.3	2022-02-22
11123101	8	2022-02-15 @ 1:00 pm	2022-02-18 @ 11:00 am	< 0.3	2022-02-22
11115093	9	2022-02-15 @ 1:00 pm	2022-02-18 @ 11:00 am	0.7 ± 0.3	2022-02-22
11123130	K1	2022-02-15 @ 2:00 pm	2022-02-18 @ 11:00 am	0.6 ± 0.3	2022-02-22
11123296	K1	2022-02-15 @ 2:00 pm	2022-02-18 @ 11:00 am	< 0.3	2022-02-22
11123298	K1	2022-02-15 @ 2:00 pm	2022-02-18 @ 11:00 am	0.8 ± 0.3	2022-02-22
11123292	K2	2022-02-15 @ 2:00 pm	2022-02-18 @ 11:00 am	0.8 ± 0.3	2022-02-22
11123145	K3	2022-02-15 @ 1:00 pm	2022-02-18 @ 11:00 am	0.7 ± 0.3	2022-02-22
11123137	K4	2022-02-15 @ 1:00 pm	2022-02-18 @ 11:00 am	0.7 ± 0.3	2022-02-22
11123159	KITCHEN OFFICE	2022-02-15 @ 2:00 pm	2022-02-18 @ 11:00 am	< 0.3	2022-02-22

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EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI Technologies, Inc. Job Number 204186

NOMINAL Conditions: Radon Conc 25.8 pCi/L Rel. Hum 59.1 % 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, 11192998, 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 µR/h Elevation = 820 ft

MCPS - Spike Sample Lab Results. Measured values are satisfactory, i.e., within ± 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

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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 – February 2022 Schools

Name of Schools:

1. Damascus HS
2. Germantown ES
3. Great Seneca Creek ES
4. Lake Seneca ES
5. S. Christa McAuliffe ES
6. Northwest HS
7. Waters Landing ES
8. Seneca Valley HS
9. Cedar Grove ES
10. Capt. James E. Daly ES
11. Neelsville MS
12. Dr. Sally K. Ride ES

	Date	Initials
Radon Test Kits Deployed	02/15/2022	
Radon Test Kits Collected	02/18/2022	
Radon Test Kits Shipped to Lab*	02/18/2022	
Radon Test Kits Received by Lab*	02/21/2022	

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