



MCPS RADON TESTING – EXECUTIVE SUMMARY

Site Name	Garrett Park Elementary School
Date of Test Report	2/16/2023
Round of Testing	Initial Follow-up Post Remediation 2 Year Testing 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility
# Rooms Tested	49
# Rooms \geq 4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	2.1 pCi/L

Project Status:

1. 5-Year retesting completed.



February 16, 2023

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

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

Location: Garrett Park Elementary School
4810 Oxford Street
Kensington, MD 20895

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 Garrett Park Elementary School, located at 4810 Oxford St. Kensington, MD 20895 (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 January 10, 2023 and deployed fifty-six (56) 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 January 13, 2023 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Accustar Labs - MA for analysis by gamma-ray spectroscopy.

Accustar Labs - MA is a NRSB certified analytical laboratory for radon analysis (certification #ARL0017) located at 2 Saber Way, Ward Hill, MA 01835.

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 ranged from the 26°F to the mid 56°F. Maximum sustained winds ranged from 0-21 miles per hour. Average humidity was around 68% with .09 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		
Garrett Park ES		
Test Period: 01/10/2023 - 01/13/2023		
Kit Number	Room / Area	Result
11288197	A100A	1.2
11132182	A100B	2.1
11132181	A100C	1.5
11131953	A100E	1.2
11131947	A101	< 0.3
11288195	A102	0.8
11131978	A103	< 0.3
11288199	A104	0.9
11131946	A104A	0.7
11132176	A104B	0.6
11131983	A106	0.9
11131984	A106	0.9
11132193	A204	< 0.3
11132167	A214	< 0.3
11132174	A214	< 0.3
11131948	B117	< 0.3
11633403	B117	< 0.3
11131970	B119	< 0.3
11633423	B119	< 0.3
11633426	B121	< 0.3
11131986	B122	< 0.3
11131988	B122	0.6
11633431	B123	< 0.3
11288249	B124A	1.0
11131954	B130	< 0.3
11131963	B130	< 0.3
11131969	B132	1.7
11633428	B132	1.5
11131956	B137	0.7
11131955	B141	0.7
11131962	B143	0.7
11633401	B147	1.5
11132183	B232	< 0.3
11132170	BS OFFICE	0.5
11633487	C148	1.3
11633427	C149	< 0.3
11131979	C151	< 0.3
11131975	C152	1.2
11131980	C154	< 0.3
11131957	C155	0.7
11131977	C155	< 0.3
11131949	C159	< 0.3

Table 1- Radon Testing Results		
Garrett Park ES		
Test Period: 01/10/2023 - 01/13/2023		
Kit Number	Room / Area	Result
11288200	C159	0.6
11633472	C163	0.7
11633471	C166	< 0.3
11288244	C167	0.6
11132160	C169	1.3
11132159	C170	< 0.3
11132161	C171	0.6
11132172	C175	0.7
11132190	C175	0.6
11132165	C249	< 0.3
11132175	C266	< 0.3
11131985	GYM OFFICE	1.8
11288243	MAIN	0.9
11633404	STAGE	0.7

Table 2- Radon Testing Results			
Garrett Park ES			
Test Period: 01/10/23 - 01/13/23			
Kit Number	QC Type	Room / Area	Result
11131983	D	A106	0.9
11131948	D	B117	< 0.3
11131970	FB	B119	< 0.3
11131969	D	B132	1.7
11131957	D	C155	0.7
11131949	FB	C159	< 0.3
11132172	D	C175	0.7
11285162	OB	OFFICE BLANK	< 0.3
11284899	TB	TRAVEL BLANK	< 0.3

Summary of Missed Locations		
Garrett Park ES		
Test Period: 01/10/23 - 01/13/23		
Kit Number	Room/Area	Result
	N/A	

Summary of Missing, Compromised and ≥ 4 piC/L Tests		
Garrett Park ES		
Test Period: 01/10/23 - 01/13/23		
Kit Number	Room/Area	Result
	N/A	

Table Note:
 * Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

Radon test result report for:

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11288197	A100A	2023-01-10 @ 11:00 am	2023-01-13 @ 8:00 am	1.2 ± 0.3	2023-01-16
11288195	A102	2023-01-10 @ 11:00 am	2023-01-13 @ 8:00 am	0.8 ± 0.3	2023-01-16
11288199	A104	2023-01-10 @ 11:00 am	2023-01-13 @ 8:00 am	0.9 ± 0.3	2023-01-16
11633403	B117	2023-01-10 @ 12:00 pm	2023-01-13 @ 9:00 am	< 0.3	2023-01-16
11633423	B119	2023-01-10 @ 12:00 pm	2023-01-13 @ 9:00 am	< 0.3	2023-01-16
11633426	B121	2023-01-10 @ 12:00 pm	2023-01-13 @ 9:00 am	< 0.3	2023-01-16
11633431	B123	2023-01-10 @ 12:00 pm	2023-01-13 @ 9:00 am	< 0.3	2023-01-16
11288249	B124A	2023-01-10 @ 11:00 am	2023-01-13 @ 8:00 am	1.0 ± 0.3	2023-01-16
11633428	B132	2023-01-10 @ 12:00 pm	2023-01-13 @ 9:00 am	1.5 ± 0.3	2023-01-16
11633401	B147	2023-01-10 @ 12:00 pm	2023-01-13 @ 9:00 am	1.5 ± 0.3	2023-01-16
11633487	C148	2023-01-10 @ 12:00 pm	2023-01-13 @ 9:00 am	1.3 ± 0.3	2023-01-16
11633427	C149	2023-01-10 @ 12:00 pm	2023-01-13 @ 9:00 am	< 0.3	2023-01-16
11288200	C159	2023-01-10 @ 12:00 pm	2023-01-13 @ 9:00 am	0.6 ± 0.3	2023-01-16
11633472	C163	2023-01-10 @ 12:00 pm	2023-01-13 @ 9:00 am	0.7 ± 0.3	2023-01-16
11633471	C166	2023-01-10 @ 12:00 pm	2023-01-13 @ 9:00 am	< 0.3	2023-01-16
11288244	C167	2023-01-10 @ 12:00 pm	2023-01-13 @ 9:00 am	0.6 ± 0.3	2023-01-16
11288243	MAIN	2023-01-10 @ 11:00 am	2023-01-13 @ 8:00 am	0.9 ± 0.3	2023-01-16
11633404	STAGE	2023-01-10 @ 11:00 am	2023-01-13 @ 8:00 am	0.7 ± 0.3	2023-01-16

Radon test result report for:

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11132182	A100B	2023-01-10 @ 11:00 am	2023-01-13 @ 8:00 am	2.1 ± 0.3	2023-01-16
11132181	A100C	2023-01-10 @ 11:00 am	2023-01-13 @ 8:00 am	1.5 ± 0.3	2023-01-16
11131953	A100E	2023-01-10 @ 11:00 am	2023-01-13 @ 8:00 am	1.2 ± 0.3	2023-01-16
11131947	A101	2023-01-10 @ 12:00 pm	2023-01-13 @ 9:00 am	< 0.3	2023-01-16
11131978	A103	2023-01-10 @ 12:00 pm	2023-01-13 @ 9:00 am	< 0.3	2023-01-16
11131946	A104A	2023-01-10 @ 11:00 am	2023-01-13 @ 8:00 am	0.7 ± 0.3	2023-01-16
11132176	A104B	2023-01-10 @ 11:00 am	2023-01-13 @ 8:00 am	0.6 ± 0.3	2023-01-16
11131984	A106	2023-01-10 @ 11:00 am	2023-01-13 @ 8:00 am	0.9 ± 0.3	2023-01-16
11131983	A106	2023-01-10 @ 11:00 am	2023-01-13 @ 8:00 am	0.9 ± 0.3	2023-01-16
11132193	A204	2023-01-10 @ 12:00 pm	2023-01-13 @ 9:00 am	< 0.3	2023-01-16
11132167	A214	2023-01-10 @ 12:00 pm	2023-01-13 @ 9:00 am	< 0.3	2023-01-16
11132174	A214	2023-01-10 @ 12:00 pm	2023-01-13 @ 9:00 am	< 0.3	2023-01-16
11131948	B117	2023-01-10 @ 12:00 pm	2023-01-13 @ 9:00 am	< 0.3	2023-01-16
11131970	B119	2023-01-10 @ 12:00 pm	2023-01-13 @ 9:00 am	< 0.3	2023-01-16
11131988	B122	2023-01-10 @ 12:00 pm	2023-01-13 @ 8:00 am	0.6 ± 0.3	2023-01-16
11131986	B122	2023-01-10 @ 12:00 pm	2023-01-13 @ 8:00 am	< 0.3	2023-01-16
11131954	B130	2023-01-10 @ 11:00 am	2023-01-13 @ 8:00 am	< 0.3	2023-01-16
11131963	B130	2023-01-10 @ 11:00 am	2023-01-13 @ 8:00 am	< 0.3	2023-01-16
11131969	B132	2023-01-10 @ 12:00 pm	2023-01-13 @ 9:00 am	1.7 ± 0.3	2023-01-16
11131956	B137	2023-01-10 @ 12:00 pm	2023-01-13 @ 9:00 am	0.7 ± 0.3	2023-01-16
11131955	B141	2023-01-10 @ 12:00 pm	2023-01-13 @ 9:00 am	0.7 ± 0.3	2023-01-16
11131962	B143	2023-01-10 @ 12:00 pm	2023-01-13 @ 9:00 am	0.7 ± 0.3	2023-01-16
11132183	B232	2023-01-10 @ 12:00 pm	2023-01-13 @ 9:00 am	< 0.3	2023-01-16
11132170	BS OFFICE	2023-01-10 @ 11:00 am	2023-01-13 @ 8:00 am	0.5 ± 0.3	2023-01-16
11131979	C151	2023-01-10 @ 12:00 pm	2023-01-13 @ 9:00 am	< 0.3	2023-01-16
11131975	C152	2023-01-10 @ 12:00 pm	2023-01-13 @ 9:00 am	1.2 ± 0.3	2023-01-16
11131980	C154	2023-01-10 @ 12:00 pm	2023-01-13 @ 9:00 am	< 0.3	2023-01-16
11131977	C155	2023-01-10 @ 12:00 pm	2023-01-13 @ 9:00 am	< 0.3	2023-01-16
11131957	C155	2023-01-10 @ 12:00 pm	2023-01-13 @ 9:00 am	0.7 ± 0.3	2023-01-16
11131949	C159	2023-01-10 @ 12:00 pm	2023-01-13 @ 9:00 am	< 0.3	2023-01-16
11132160	C169	2023-01-10 @ 12:00 pm	2023-01-13 @ 9:00 am	1.3 ± 0.3	2023-01-16
11132159	C170	2023-01-10 @ 12:00 pm	2023-01-13 @ 9:00 am	< 0.3	2023-01-16
11132161	C171	2023-01-10 @ 12:00 pm	2023-01-13 @ 9:00 am	0.6 ± 0.3	2023-01-16
11132190	C175	2023-01-10 @ 12:00 pm	2023-01-13 @ 9:00 am	0.6 ± 0.3	2023-01-16
11132172	C175	2023-01-10 @ 12:00 pm	2023-01-13 @ 9:00 am	0.7 ± 0.3	2023-01-16
11132165	C249	2023-01-10 @ 12:00 pm	2023-01-13 @ 9:00 am	< 0.3	2023-01-16
11132175	C266	2023-01-10 @ 12:00 pm	2023-01-13 @ 9:00 am	< 0.3	2023-01-16

January 16, 2023

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11131985	GYM OFFICE	2023-01-10 @ 12:00 pm	2023-01-13 @ 8:00 am	1.8 ± 0.3	2023-01-16

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 KC1 TECHNOLOGIES, INC Job Number 208343

NOMINAL Conditions: Radon Conc 34.7 pCi/L Rel. Hum 49.4 % Temp. 69.6 F

Date Start: 12/24/22 Date Stop: 12/27/22 Date Start: _____ Date Stop: _____

Time Start: 0810 Time Stop: 0810 Time Start: _____ Time Stop: _____

Device No.'s: (5) CHAR BAGS - Device No.'s: _____

11285109, 11285110, 11285101

THRU 11285103

BY LEFT

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**

December 29, 2022

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

OFFICE

MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11285110	SK1	2022-12-24 @ 8:00 am	2022-12-27 @ 8:00 am	31.7 ± 2.5	2022-12-29
11285101	SK2	2022-12-24 @ 8:00 am	2022-12-27 @ 8:00 am	30.1 ± 2.4	2022-12-29
11285103	SK3	2022-12-24 @ 8:00 am	2022-12-27 @ 8:00 am	34.0 ± 2.7	2022-12-29
11285102	SK4	2022-12-24 @ 8:00 am	2022-12-27 @ 8:00 am	30.9 ± 2.5	2022-12-29
11285109	SK5	2022-12-24 @ 8:00 am	2022-12-27 @ 8:00 am	32.0 ± 2.6	2022-12-29

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 – Week 1 January Schools

Name of Schools:

1. Woodfield ES
2. Montgomery Village MS
3. Albert Einstein HS
4. Garrett Park Annex
5. Garrett Park ES
6. Kensington-Parkwood ES
7. Silver Creek MS
8. Stephen Knolls School
9. Highland View ES
10. MacDonald Knolls ECC
11. Montgomery Knolls ES
12. Rock Terrace HS

	Date	Initials
Radon Test Kits Deployed	01/10/2023	BMM
Radon Test Kits Collected	01/13/2023	BMM
Radon Test Kits Shipped to Lab*	01/13/2023	BMM
Radon Test Kits Received by Lab*	01/17/2023	BMM

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



**MONTGOMERY COUNTY PUBLIC SCHOOLS
RADON TESTING**

Executive Summary:
Garret Park Elementary School
4810 Oxford Street
Garrett Park, MD 20896

Date of Test Report:	3/15/2019
Round of Testing:	Initial Follow-up Post Remediation 2 Year Testing 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility
# of Rooms Tested:	1
# of Rooms \geq 4.0 pCi/L:	0
Low Value:	0.5
High Value:	0.5

Project Status

Retesting completed: No further action at this time.



March 15, 2019

Mr. Richard Cox
Indoor Air Quality Team Leader
Montgomery County Public Schools
850 Hungerford Drive
Rockville, MD 20850

Re: Radon Testing Services

Location: Garret Park Elementary School
4810 Oxford Street
Garrett Park, MD 20896

Dear Mr. Cox:

Intertek-PSI (PSI) is pleased to submit the following report to the Montgomery County Public Schools (MCPS) for completion of a "short-term" 3-day radon test for Garret Park Elementary School, located at 4810 Oxford St, Garrett Park, MD 20896 (subject site).

Scope of Services:

PSI 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. PSI 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 Safety Board (NRSB) Radon Measurement Specialist (certification #14SS007) supervised the testing. Additional information on radon management and the health effects of radon exposure is available from www.montgomerycountymd.gov/dep/air/radon or www.epa.gov/radon.

PSI visited the site on February 26, 2019 and deployed one (1) activated charcoal (AC) radon test kit. PSI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. PSI returned to the site on March 01, 2019 to retrieve the radon sampling test kit. A floor plan map of the building with the test location is included as Attachment A of this report.

PSI shipped all radon tests via overnight delivery to AccuStar Labs for analysis by gamma-ray spectroscopy. Accustar Labs is a NRSB certified analytical laboratory for radon analysis located at 929 Mount Zion Road, Lebanon, Pennsylvania (certification # ARLO007).

Evaluation of Testing Conditions:

The operating condition that represents the greatest amount of significantly occupied time for this building is; heating active, with outdoor temperature averages $\leq 65^{\circ}\text{F}$.

PSI concludes that the test period reasonably represents normal conditions when the building is significantly occupied. Clear characterization of the radon hazard is most likely to be observed under this normal operating condition. Based on the evaluation of test conditions, this test should reasonably characterize radon hazards.



PSI also conducted observations of field conditions which could affect the results of the test and compiled weather data for the testing period. PSI recorded observations of the following conditions in each room at 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.

Results:

The results of the radon test analysis indicated the following:

Radon Concentration	Room	Result
≥ 4.0 pCi/L	None	NA
≤ 4.0 pCi/L	See Attachment B	

Notes:
D -Duplicate Sample

The office blank and lab transit blanks had test results of less than the laboratory detection limit of 0.4 pCi/L. Review of the duplicate sample analysis indicates that adequate laboratory measurement precision was achieved. The Spike sample analysis results indicate the laboratory is operating within statistical control limits.

The sampling locations, field observations, and analytical results are listed on Table 1 (Attachment B). The laboratory analytical results are also attached (Attachment C).

Laboratory results and exposure data for the spike samples are also included in Attachment C. 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 (703) 698-9300.

ATTACHMENT B

Radon Test Summary Spreadsheet

Radon Testing Results		
Garrett Park Elementary School		
Testing period: 2/26/19 - 3/01/19		
Kit Number	Room / Area	Result (pCi/L)
3923304	A104B	0.5

Table Notes:

D – Duplicate

FB – Field Blank

OB – Office Blank

TB – Transit Blank

QC – Quality Control

ATTACHMENT C

Laboratory Analytical Results

NRPP 105011 AL
NRSB ARL0007

EPA Method #402-R-92-004
Charcoal Canister
NRPP Device Code 6048
NRSB Device Code 10317

Laboratory Report for:

Property Tested: Project # 0448138-1

Intertek-PSI (VA)
2930 Eskridge Road
Fairfax VA 22031

MCPS Radon Survey, Garrett Park ES
4810 Oxford St
Garrett Park MD 20896

Log Number	Device Number	Test Exposure Duration:	Area Tested	Result pCi/L
3220659	3923304	02/26/2019 1:25 pm 03/01/2019 10:57 am	First Floor Room A104B	0.5

Comment: A copy of this report was e-mailed to Intertek-PSI (VA)

Distributed by: Intertek-PSI (VA)

Date Received: 03/04/2019 Date Logged: 03/04/2019 Date Analyzed: 03/05/2019 Date Reported: 03/05/2019

Report Reviewed By: 

Report Approved By: 

Disclaimer:

Shawn Price, Director of Laboratory Operations, AccuStar Labs

The uncertainty of this radon measurement is $\sim\pm 10\%$. Factors contributing to uncertainty include statistical variations, daily and seasonal variations in radon concentrations, sample collection techniques and operation of the dwelling. Interference with test conditions may influence the test results.

This report may only be transferred to a third party in its entirety. Analytical results relate to the samples AS RECEIVED BY THE LABORATORY. Results shown on this report represent levels of radon gas measured between the dates shown in the room or area of the site identified above as "Property Tested". Incorrect information will affect results. The results may not be construed as either predictive or supportive of measurements conducted in any area of this structure at any other time. AccuStar Labs, its employees and agents are not responsible for the consequences of any action taken or not taken based upon the results reported or any verbal or written interpretation of the results.



MONTGOMERY COUNTY PUBLIC SCHOOLS RADON TESTING

Executive Summary:
Garret Park Elementary School
4810 Oxford Street
Garrett Park, MD 20896

Date of Test Report:	2/13/2019
Round of Testing:	Initial Follow-up Post Remediation 2 Year Testing 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility
# of Rooms Tested:	45
# of Rooms \geq 4.0 pCi/L:	0
Low Value:	< 0.4
High Value:	2.2

Project Status

Initial testing complete: Missing or compromised samples need re-test.



February 13, 2019

Mr. Richard Cox
Indoor Air Quality Team Leader
Montgomery County Public Schools
850 Hungerford Drive
Rockville, MD 20850

Re: Radon Testing Services

Location: Garret Park Elementary School
4810 Oxford Street
Garrett Park, MD 20896

Dear Mr. Cox:

Intertek-PSI (PSI) is pleased to submit the following report to the Montgomery County Public Schools (MCPS) for completion of a "short-term" 3-day radon test for Garret Park Elementary School, located at 4810 Oxford St, Garrett Park, MD 20896 (subject site).

Scope of Services:

PSI 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. PSI 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 Safety Board (NRSB) Radon Measurement Specialist (certification #14SS007) supervised the testing. Additional information on radon management and the health effects of radon exposure is available from www.montgomerycountymd.gov/dep/air/radon or www.epa.gov/radon.

PSI visited the site on November 27, 2018 and deployed fifty-six (56) activated charcoal (AC) radon test kits. PSI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. PSI returned to the site on November 30, 2018 to retrieve the radon sampling test kits. A floor plan map of the building with the test locations is included as Attachment A of this report.

As a quality control measure, PSI included duplicate samples, field blanks, lab transit blanks, and office blanks in accordance with AARST recommendations. In addition, PSI submitted ten (10) test kits to Bowser-Morner Inc. as spike samples. The spiked tests were exposed to a known radon concentration by Bowser-Morner Inc. prior to being returned to the laboratory for analysis.

PSI shipped all radon tests via overnight delivery to AccuStar Labs for analysis by gamma-ray spectroscopy. Accustar Labs is a NRSB certified analytical laboratory for radon analysis located at 929 Mount Zion Road, Lebanon, Pennsylvania (certification # ARL0007) and 2 Saber Way, Haverhill, Massachusetts (certification # ARL0017).



Evaluation of Testing Conditions:

The operating condition that represents the greatest amount of significantly occupied time for this building is; heating active, with outdoor temperature averages $\leq 65^{\circ}\text{F}$.

PSI concludes that the test period reasonably represents normal conditions when the building is significantly occupied. Clear characterization of the radon hazard is most likely to be observed under this normal operating condition. Based on the evaluation of test conditions, this test should reasonably characterize radon hazards.

PSI also conducted observations of field conditions which could affect the results of the test and compiled weather data for the testing period. PSI recorded observations of the following conditions in each room at 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.

Results:

The results of the radon test analysis indicated the following:

Radon Concentration	Room	Result
≥ 4.0 pCi/L	None	NA
≤ 4.0 pCi/L	See Attachment B	

Notes:

D -Duplicate Sample

The office blank and lab transit blanks had test results of less than the laboratory detection limit of 0.4 pCi/L. Review of the duplicate sample analysis indicates that adequate laboratory measurement precision was achieved. The Spike sample analysis results indicate the laboratory is operating within statistical control limits.

The sampling locations, field observations, and analytical results are listed on Table 1 (Attachment B). The laboratory analytical results are also attached (Attachment C).

Laboratory results and exposure data for the spike samples are also included in Attachment C. 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 (703) 698-9300.



Respectfully Submitted,

INTERTEK-PSI

A handwritten signature in black ink that reads "Nand Kaushik". The signature is written in a cursive style.

Nand Kaushik, P.E.
Department Manager, Environmental Services
Nand.Kaushik@intertek.com

Attachments: A – Floor Plan with Test Locations
 B – Table 1 – Radon Test Summary Spreadsheet
 C – Laboratory Analytical Results

ATTACHMENT B

Radon Test Summary Spreadsheet

Radon Testing Results		
Garrett Park Elementary School		
Testing period: 11/27/18 - 11/30/18		
Kit Number	Room / Area	Result (pCi/L)
3919561	A100	0.4
3919565	A100A	0.7
3919566	A100B	1.4
3919567	A100C	0.5
3919569	A100E	0.7
3919591	A101	0.5
3919562	A102	<0.4
3919592	A103	<0.4
3919563	A104	<0.4
3919564	A104A	<0.4
--	A104B (Missed)	--
3919568	A106	<0.4
3919369	A204	0.4
3919589	B117	<0.4
3919587	B119	<0.4
3919586	B121	0.6
3888465	B122	1.2
3888466	B122	0.9
3919584	B122A	2.2
3919585	B123	<0.4
3919595	B124A	<0.4
3919594	B124A	0.7
3919593	B128	0.4
3919596	B130	<0.4
3919597	B130	<0.4
3919598	B132	0.8
3919583	B137	0.9
3919582	B141	0.5
3919581	B143	0.7
3919599	B147	1.2
3919368	B223	<0.4
3919494	C124	<0.4
3919590	C148	0.9
3919491	C149	<0.4
3919493	C151	0.5
3919492	C152	0.5
3919495	C155	<0.4
3919496	C159	<0.4
3919499	C163	<0.4
3919497	C166	0.5
3919361	C167	<0.4
3919364	C169	0.5
3919500	C170	<0.4

Radon Testing Results		
Garrett Park Elementary School		
Testing period: 11/27/18 - 11/30/18		
Kit Number	Room / Area	Result (pCi/L)
3919363	C171	<0.4
3919362	C175	0.4
3919367	C249	<0.4
3919366	C266	<0.4
3919365	C271	<0.4

Radon Testing Results		
Garrett Park Elementary School		
Testing period: 11/27/18 - 11/30/18		
Kit Number	QC Type	Result (pCi/L)
3919370	A204 (D)	0.6
3919570	A100E (D)	0.8
3919600	B147 (D)	1.2
3919588	B119 (D)	<0.4
3919498	C163 (D)	<0.4
3918018	Field Blank	<0.4
3919579	Field Blank	<0.4
3919429	Office Blank	<0.4
3919425	Trip Blank	<0.4

Table Notes:

D – Duplicate

FB – Field Blank

OB – Office Blank

TB – Transit Blank

QC – Quality Control

ATTACHMENT C

Laboratory Analytical Results

NELAC NY 11769
NRPP 103216 AL
NRSB ARL0017

EPA Method #402-R-92-004
Charcoal Canister
NRPP Device Code 6048
NRSB Device Code 10317

Laboratory Report for:

Property Tested: Project # 04481387-1

Intertek-PSI (VA)
2930 Eskridge Road
Fairfax VA 22031


MCPS Radon Survey
Garrett Park Elementary School
Garrett Park MD 20896


Log Number	Device Number	Test Exposure Duration:	Area Tested	Result pCi/L
2400616	3919561	11/27/2018 3:43 pm 11/30/2018 11:15 am	Bldg Garrett Park Elementary Flr 1 Rm A100	0.4
2400617	3919562	11/27/2018 3:44 pm 11/30/2018 11:15 am	Bldg Garrett Park Elementary Flr 1 Rm A102	< 0.4
2400618	3919563	11/27/2018 3:47 pm 11/30/2018 11:16 am	Bldg Garrett Park Elementary Flr 1 Rm A104	< 0.4
2400619	3919564	11/27/2018 3:47 pm 11/30/2018 11:16 am	Bldg Garrett Park Elementary Flr 1 Rm A104A	< 0.4
2400620	3919565	11/27/2018 3:48 pm 11/30/2018 11:16 am	Bldg Garrett Park Elementary Flr 1 Rm A100A	0.7
2400621	3919566	11/27/2018 3:49 pm 11/30/2018 11:50 am	Bldg Garrett Park Elementary Flr 1 Rm A100B	1.4
2400622	3919567	11/27/2018 3:51 pm 11/30/2018 11:17 am	Bldg Garrett Park Elementary School Flr 1 Rm A1	0.5
2400623	3919568	11/27/2018 3:52 pm 11/30/2018 11:18 am	Bldg Garrett Park Elementary School Flr 1 Rm A1	< 0.4
2400624	3919569	11/27/2018 3:53 pm 11/30/2018 11:19 am	Bldg Garrett Park Elementary Flr 1 Rm A100E	0.7
2400625	3919570	11/27/2018 3:54 pm 11/30/2018 11:20 am	Bldg Garrett Park Elementary School Flr 1 Rm A1	0.8
2400626	3919591	11/27/2018 3:57 pm 11/30/2018 11:24 am	Bldg Garrett Park Elementary School Flr 1 Rm A1	0.5

Comment: A copy of this report was emailed to Intertek-PSI (VA).

Distributed by: Intertek-PSI (VA)

Date Received: 12/03/2018 Date Logged: 12/03/2018 Date Analyzed: 12/03/2018 Date Reported: 01/29/2019

Report Reviewed By: 

Report Approved By: 

Shawn Price, Director of Laboratory Operations, AccuStar Labs

Disclaimer:

The uncertainty of this radon measurement is ~+/- 10 %. Factors contributing to uncertainty include statistical variations, daily and seasonal variations in radon concentrations, sample collection techniques and operation of the dwelling. Interference with test conditions may influence the test results.

This report may only be transferred to a third party in its entirety. Analytical results relate to the samples AS RECEIVED BY THE LABORATORY. Results shown on this report represent levels of radon gas measured between the dates shown in the room or area of the site identified above as "Property Tested". Incorrect information will affect results. The results may not be construed as either predictive or supportive of measurements conducted in any area of this structure at any other time. AccuStar Labs, its employees and agents are not responsible for the consequences of any action taken or not taken based upon the results reported or any verbal or written interpretation of the results.

NELAC NY 11769
NRPP 103216 AL
NRSB ARL0017

EPA Method #402-R-92-004
Charcoal Canister
NRPP Device Code 6048
NRSB Device Code 10317

Laboratory Report for:

Property Tested: Project # 04481387-1

Intertek-PSI (VA)
2930 Eskridge Road
Fairfax VA 22031


MCPS Radon Survey
Garrett Park Elementary School
Garrett Park MD 20896


Log Number	Device Number	Test Exposure Duration:	Area Tested	Result pCi/L
2400627	3919592	11/27/2018 3:58 pm 11/30/2018 11:21 am	Bldg Garrett Park Elementary Flr 1 Rm A103	< 0.4
2400628	3919593	11/27/2018 4:01 pm 11/30/2018 11:24 am	Bldg Garrett Park Elementary Flr 1 Rm B128	0.4
2400629	3919594	11/27/2018 4:03 pm 11/30/2018 11:25 am	Bldg Garrett Park Elementary Flr 1 Rm B124A	0.7
2400630	3919595	11/27/2018 4:04 pm 11/30/2018 11:25 am	Bldg Garrett Park Elementary Flr 1 Rm B124A	< 0.4
2400631	3919596	11/27/2018 4:06 pm 11/30/2018 11:27 am	Bldg Garrett Park Elementary Flr 1 Rm B130	< 0.4
2400632	3919597	11/27/2018 4:07 pm 11/30/2018 11:27 am	Bldg Garrett Park Elementary Flr 1 Rm B130	< 0.4
2400633	3919598	11/27/2018 4:10 pm 11/30/2018 11:28 am	Bldg Garrett Park Elementary Flr 1 Rm B132	0.8
2400634	3919599	11/27/2018 4:13 pm 11/30/2018 11:29 am	Bldg Garrett Park Elementary Flr 1 Rm B147	1.2
2400635	3919600	11/27/2018 4:16 pm 11/30/2018 11:29 am	Bldg Garrett Park Elementary Flr 1 Rm B147 Dupli	1.2
2400636	3919581	11/27/2018 4:17 pm 11/30/2018 11:30 am	Bldg Garrett Park Elementary Flr 1 Rm B143	0.7
2400637	3919582	11/27/2018 4:19 pm 11/30/2018 11:31 am	Bldg Garrett Park Elementary Flr 1 Rm B139	0.5

Comment: A copy of this report was emailed to Intertek-PSI (VA).

Distributed by: Intertek-PSI (VA)

Date Received: 12/03/2018 Date Logged: 12/03/2018 Date Analyzed: 12/03/2018 Date Reported: 01/29/2019

Report Reviewed By: 

Report Approved By: 

Shawn Price, Director of Laboratory Operations, AccuStar Labs

Disclaimer:

The uncertainty of this radon measurement is +/- 10%. Factors contributing to uncertainty include statistical variations, daily and seasonal variations in radon concentrations, sample collection techniques and operation of the dwelling. Interference with test conditions may influence the test results.

This report may only be transferred to a third party in its entirety. Analytical results relate to the samples AS RECEIVED BY THE LABORATORY. Results shown on this report represent levels of radon gas measured between the dates shown in the room or area of the site identified above as "Property Tested". Incorrect information will affect results. The results may not be construed as either predictive or supportive of measurements conducted in any area of this structure at any other time. AccuStar Labs, its employees and agents are not responsible for the consequences of any action taken or not taken based upon the results reported or any verbal or written interpretation of the results.

NELAC NY 11769
NRPP 103216 AL
NRSB ARL0017

EPA Method #402-R-92-004
Charcoal Canister
NRPP Device Code 6048
NRSB Device Code 10317

Laboratory Report for:

Property Tested: Project # 04481387-1

Intertek-PSI (VA)
2930 Eskridge Road
Fairfax VA 22031


MCPS Radon Survey
Garrett Park Elementary School
Garrett Park MD 20896


Log Number	Device Number	Test Exposure Duration:	Area Tested	Result pCi/L
2400638	3919583	11/27/2018 4:21 pm 11/30/2018 11:31 am	Bldg Garrett Park Elementary School Flr 1 Rm B1	0.9
2400639	3919584	11/27/2018 6:26 am 11/30/2018 11:32 am	Bldg Garrett Park Elementary Flr 1 Rm B122A	2.2
2400640	3919585	11/27/2018 4:27 pm 11/30/2018 11:33 am	Bldg Garrett Park Elementary Flr 1 Rm B123	< 0.4
2400641	3919586	11/27/2018 4:29 pm 11/30/2018 11:33 am	Bldg Garrett Park Elementary Flr 1 Rm B121	0.6
2400642	3919587	11/27/2018 4:29 pm 11/30/2018 11:34 am	Bldg Garrett Park Elementary Flr 1 Rm B119	< 0.4
2400643	3919588	11/27/2018 4:30 pm 11/30/2018 11:34 am	Bldg Garrett Park Elementary Flr 1 Rm B119 Dupli	< 0.4
2400644	3919589	11/27/2018 4:32 pm 11/30/2018 11:35 am	Bldg Garrett Park Elementary Flr 1 Rm B117	< 0.4
2400645	3919590	11/27/2018 4:35 pm 11/30/2018 11:35 am	Bldg Garrett Park Elementary Flr 1 Rm C148	0.9
2400646	3919491	11/27/2018 4:36 pm 11/30/2018 11:36 am	Bldg Garrett Park Elementary Flr 1 Rm C149	< 0.4
2400647	3919492	11/27/2018 4:37 pm 11/30/2018 11:37 am	Bldg Garrett Park Elementary Flr 1 Rm C152	0.5
2400648	3919493	11/27/2018 4:39 pm 11/30/2018 11:38 am	Bldg Garrett Park Elementary Flr 1 Rm C151	0.5

Comment: A copy of this report was emailed to Intertek-PSI (VA).

Distributed by: Intertek-PSI (VA)

Date Received: 12/03/2018 Date Logged: 12/03/2018 Date Analyzed: 12/03/2018 Date Reported: 01/29/2019

Report Reviewed By: 

Report Approved By: 

Shawn Price, Director of Laboratory Operations, AccuStar Labs

Disclaimer:

The uncertainty of this radon measurement is ~+/- 10 %. Factors contributing to uncertainty include statistical variations, daily and seasonal variations in radon concentrations, sample collection techniques and operation of the dwelling. Interference with test conditions may influence the test results.

This report may only be transferred to a third party in its entirety. Analytical results relate to the samples AS RECEIVED BY THE LABORATORY. Results shown on this report represent levels of radon gas measured between the dates shown in the room or area of the site identified above as "Property Tested". Incorrect information will affect results. The results may not be construed as either predictive or supportive of measurements conducted in any area of this structure at any other time. AccuStar Labs, its employees and agents are not responsible for the consequences of any action taken or not taken based upon the results reported or any verbal or written interpretation of the results.

NELAC NY 11769
NRPP 103216 AL
NRSB ARL0017

EPA Method #402-R-92-004
Charcoal Canister
NRPP Device Code 6048
NRSB Device Code 10317

Laboratory Report for:

Property Tested: Project # 04481387-1

Intertek-PSI (VA)
2930 Eskridge Road
Fairfax VA 22031


MCPS Radon Survey
Garrett Park Elementary School
Garrett Park MD 20896


Log Number	Device Number	Test Exposure Duration:	Area Tested	Result pCi/L
2400649	3919494	11/27/2018 4:41 pm 11/30/2018 11:08 am	Bldg Garrett Park Elementary Flr 1 Rm C124	< 0.4
2400650	3919495	11/27/2018 4:41 pm 11/30/2018 11:39 am	Bldg Garrett Park Elementary Flr 1 Rm C155	< 0.4
2400651	3919496	11/27/2018 4:44 pm 11/30/2018 11:39 am	Bldg Garrett Park Elementary Flr 1 Rm C159	< 0.4
2400652	3919497	11/27/2018 4:45 pm 11/30/2018 11:40 am	Bldg Garrett Park Elementary Flr 1 Rm C166	0.5
2400653	3919498	11/27/2018 4:45 pm 11/30/2018 11:40 am	Bldg Garrett Park Elementary Flr 1 Rm C163 Dupli	< 0.4
2400654	3919499	11/27/2018 4:47 pm 11/30/2018 11:41 am	Bldg Garrett Park Elementary Flr 1 Rm C163	< 0.4
2400655	3919500	11/27/2018 4:48 pm 11/30/2018 11:41 am	Bldg Garrett Park Elementary Flr 1 Rm C170	< 0.4
2400656	3919361	11/27/2018 4:50 pm 11/30/2018 11:41 am	Bldg Garrett Park Elementary School Flr 1 Rm C1	< 0.4
2400657	3919362	11/27/2018 4:52 pm 11/30/2018 11:42 am	Bldg Garrett Park Elementary School Flr 1 Rm C1	0.4
2400658	3919363	11/27/2018 4:54 pm 11/30/2018 11:42 am	Bldg Garrett Park Elementary Flr 1 Rm C171	< 0.4
2400659	3919364	11/27/2018 4:59 pm 11/30/2018 11:02 am	Bldg Garrett Park Elementary School Flr 1 Rm C1	0.5

Comment: A copy of this report was emailed to Intertek-PSI (VA).

Distributed by: Intertek-PSI (VA)

Date Received: 12/03/2018 Date Logged: 12/03/2018 Date Analyzed: 12/03/2018 Date Reported: 01/29/2019

Report Reviewed By: 

Report Approved By: 

Shawn Price, Director of Laboratory Operations, AccuStar Labs

Disclaimer:

The uncertainty of this radon measurement is +/- 10 %. Factors contributing to uncertainty include statistical variations, daily and seasonal variations in radon concentrations, sample collection techniques and operation of the dwelling. Interference with test conditions may influence the test results.

This report may only be transferred to a third party in its entirety. Analytical results relate to the samples AS RECEIVED BY THE LABORATORY. Results shown on this report represent levels of radon gas measured between the dates shown in the room or area of the site identified above as "Property Tested". Incorrect information will affect results. The results may not be construed as either predictive or supportive of measurements conducted in any area of this structure at any other time. AccuStar Labs, its employees and agents are not responsible for the consequences of any action taken or not taken based upon the results reported or any verbal or written interpretation of the results.

NELAC NY 11769
NRPP 103216 AL
NRSB ARL0017

EPA Method #402-R-92-004
Charcoal Canister
NRPP Device Code 6048
NRSB Device Code 10317

Laboratory Report for:

Property Tested: Project # 04481387-1

Intertek-PSI (VA)
2930 Eskridge Road
Fairfax VA 22031


MCPS Radon Survey
Garrett Park Elementary School
Garrett Park MD 20896


Log Number	Device Number	Test Exposure Duration:	Area Tested	Result pCi/L
2400660	3919365	11/27/2018 4:59 pm 11/30/2018 11:44 am	Bldg Garrett Park Elementary Flr 2 Rm C271	< 0.4
2400661	3919366	11/27/2018 5:02 pm 11/30/2018 11:45 am	Bldg Garrett Park Elementary Flr 2 Rm C266	< 0.4
2400662	3919367	11/27/2018 5:03 pm 11/30/2018 11:46 am	Bldg Garrett Park Elementary Flr 2 Rm C249	< 0.4
2400663	3919368	11/27/2018 5:04 pm 11/30/2018 11:48 am	Bldg Garrett Park Elementary Flr 2 Rm B223	< 0.4
2400664	3919369	11/27/2018 5:05 pm 11/30/2018 11:48 am	Bldg Garrett Park Elementary Flr 2 Rm A204	0.4
2400665	3919370	11/27/2018 5:05 pm 11/30/2018 11:48 am	Bldg Garrett Park Elementary Flr 2 Rm A204 Dupli	0.6
2400666	3918018	11/27/2018 3:43 pm 11/30/2018 11:08 am	Bldg Garrett Park Elementary Flr 1 Rm 1 Blank	< 0.4
2400667	3919579	11/27/2018 3:43 pm 11/30/2018 11:48 am	Bldg Garrett Park Elementary Flr 1 Rm 1 Blank	< 0.4
2400668	3919429	11/27/2018 6:00 am 11/30/2018 11:48 am	Bldg Garrett Park Elementary School Flr 1 Rm 1	< 0.4
2400669	3919425	11/27/2018 6:00 am 11/30/2018 11:48 am	Bldg Garrett Park Elementary Flr 1 Rm 1 Blank	< 0.4

Comment: A copy of this report was emailed to Intertek-PSI (VA).

Distributed by: Intertek-PSI (VA)

Date Received: 12/03/2018 Date Logged: 12/03/2018 Date Analyzed: 12/03/2018 Date Reported: 01/29/2019

Report Reviewed By: 

Report Approved By: 

Shawn Price, Director of Laboratory Operations, AccuStar Labs

Disclaimer:

The uncertainty of this radon measurement is ~+/- 10 %. Factors contributing to uncertainty include statistical variations, daily and seasonal variations in radon concentrations, sample collection techniques and operation of the dwelling. Interference with test conditions may influence the test results.

This report may only be transferred to a third party in its entirety. Analytical results relate to the samples AS RECEIVED BY THE LABORATORY. Results shown on this report represent levels of radon gas measured between the dates shown in the room or area of the site identified above as "Property Tested". Incorrect information will affect results. The results may not be construed as either predictive or supportive of measurements conducted in any area of this structure at any other time. AccuStar Labs, its employees and agents are not responsible for the consequences of any action taken or not taken based upon the results reported or any verbal or written interpretation of the results.

NELAC NY 11769
NRPP 103216 AL
NRSB ARL0017

EPA Method #402-R-92-004
Liquid Scintillation
NRPP Device Code 8088
NRSB Device Code 12193

Laboratory Report for:

Property Tested: Project # 04481387-1

Intertek-PSI (VA)
2930 Eskridge Road
Fairfax VA 22031


MCPS Radon Survey
Garrett Park Elementary School
MD 20896

Log Number	Device Number	Test Date	Exposure Duration	Area Tested	Result pCi/L
2400679	3888465	11/27/2018	4:21 pm - 11/30/2018 11:32 am	Bldg Garrett Park Elementary School Flr 1 Rm B1	1.2
2400680	3888466	11/27/2018	4:24 pm - 11/30/2018 11:32 am	Bldg Garrett Park Elementary School Flr 1 Rm B1	0.9

Comment: A copy of this report was emailed to Intertek-PSI (VA).

Distributed by: Intertek-PSI (VA)

Date Received: 12/03/2018 Date Logged: 12/03/2018 Date Analyzed: 12/04/2018 Date Reported: 12/04/2018

Report Reviewed By: 

Report Approved By: 

Disclaimer:

The uncertainty of this radon measurement is +/- 10 %. Factors contributing to uncertainty include statistical variations, daily and seasonal variations in radon concentrations, sample collection techniques and operation of the dwelling. Interference with test conditions may influence the test results.

This report may only be transferred to a third party in its entirety. Analytical results relate to the samples AS RECEIVED BY THE LABORATORY. Results shown on this report represent levels of radon gas measured between the dates shown in the room or area of the site identified above as "Property Tested". Incorrect information will affect results. The results may not be construed as either predictive or supportive of measurements conducted in any area of this structure at any other time. AccuStar Labs, its employees and agents are not responsible for the consequences of any action taken or not taken based upon the results reported or any verbal or written interpretation of the results.

NRPP 105011 AL
NRSB ARL0007
Ohio RL41

EPA Method #402-R-92-004
Charcoal Canister
NRPP Device Code 6048
NRSB Device Code 10317

Laboratory Report for:

Property Tested:

Intertek-PSI (VA)
2930 Eskridge Road
Fairfax VA 22031

MCPS Radon Survey
4514 Taylorsville Road
Dayton OH 45424

Log Number	Device Number	Test Exposure Duration:	Area Tested	Result pCi/L
3204125	3926831	12/07/2018 9:47 am - 12/10/2018 9:47 am	Spike	36.1
3204126	3926832	12/07/2018 9:47 am - 12/10/2018 9:47 am	Spike	34.8
3204127	3926833	12/07/2018 9:47 am - 12/10/2018 9:47 am	Spike	33.7
3204128	3926834	12/07/2018 9:47 am - 12/10/2018 9:47 am	Spike	35.8
3204129	3926835	12/07/2018 9:47 am - 12/10/2018 9:47 am	Spike	35.0
3204130	3926836	12/07/2018 9:47 am - 12/10/2018 9:47 am	Spike	34.5
3204131	3926837	12/07/2018 9:47 am - 12/10/2018 9:47 am	Spike	34.6
3204132	3926838	12/07/2018 9:47 am - 12/10/2018 9:47 am	Spike	34.3
3204133	3926839	12/07/2018 9:47 am - 12/10/2018 9:47 am	Spike	33.2
3204134	3926840	12/07/2018 9:47 am - 12/10/2018 9:47 am	Spike	34.0

Comment: A copy of this report was e-mailed to Intertek-PSI (VA)

Test Performed By: Unknown

Distributed by: Intertek-PSI (VA)

Date Received: 12/12/2018 Date Logged: 12/12/2018 Date Analyzed: 12/12/2018 Date Reported: 12/13/2018

Report Reviewed By: 

Report Approved By: 

Disclaimer:

The uncertainty of this radon measurement is +/- 10 %. Factors contributing to uncertainty include statistical variations, daily and seasonal variations in radon concentrations, sample collection techniques and operation of the dwelling. Interference with test conditions may influence the test results.

Shawn Price, Director of Laboratory Operations, AccuStar Labs

This report may only be transferred to a third party in its entirety. Analytical results relate to the samples AS RECEIVED BY THE LABORATORY. Results shown on this report represent levels of radon gas measured between the dates shown in the room or area of the site identified above as "Property Tested". Incorrect information will affect results. The results may not be construed as either predictive or supportive of measurements conducted in any area of this structure at any other time. AccuStar Labs, its employees and agents are not responsible for the consequences of any action taken or not taken based upon the results reported or any verbal or written interpretation of the results.

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT Intertek - PSI

Job Number 187732

NOMINAL Conditions: Radon Conc 32.6 pCi/L Rel. Hum 49.1 % Temp. 70.1 F

Date Start: 12/7/18 Date Stop: 12/10/18

Date Start: _____ Date Stop: _____

Time Start: 0947 Time Stop: 0947

Time Start: _____ Time Stop: _____

Device No.'s: (10) Char. Cans-

Device No.'s: _____

3926831 thru 3926840

G2 left

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



Chain of Custody

Project Name: MCPS Radon Survey 2018

Name of Schools:

1. Ashburton ES
2. Carderock Springs ES
3. Diamond ES
4. Fox Chapel ES
5. Baker MS
6. Damascus ES
7. Clemente MS
8. Clopper Mill ES
9. Broad Acres ES
10. Greencastle ES
11. Harmony Hills ES
12. Silver Spring International MS
13. Gaithersburg MS
14. Garrett Park ES
15. New Hampshire Estates ES
16. Georgian Forest ES

	Date	Initials
Radon Test Kits Deployed	11/27/2018	NL
Radon Test Kits Sampled	11/30/2018	NL
Radon Test Kits Shipped to Lab*	11/30/2018	NL
Radon Test Kits Received by Lab*	12/01/2018; 12/02/2018; 12/03/2018	NL

*All samples sent to AccuStar Laboratories, 929 Mount Zion Road, Lebanon, PA 17046 and 2 Saber Way, Haverhill, MA 01835



MCPS RADON TESTING

Executive Summary: Garrett Park Elementary School

Date of Test Report:	10/19/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	2
# Rooms \geq 4.0 pCi/L:	0
Low Value:	0.6
High Value:	1.1

Project Status:

Follow-up testing after renovation (wall move) completed; no further action at this time.



October 19, 2016

Mr. Richard Cox
Indoor Air Quality Team Leader
Montgomery County Public Schools
850 Hungerford Drive
Rockville, MD 20850

Re: **Radon Testing Services**
KCI Job # 12146341.54

Location: Garrett Park Elementary School
4810 Oxford Street
Kensington, MD 20895

Dear Mr. Cox:

KCI Technologies, Inc. (KCI) is pleased to submit the following report to the Montgomery County Public Schools (MCPS) pursuant to completing a “short-term” 3 day radon test for the Garrett Park Elementary School, located at 4810 Oxford Street in Kensington, Maryland 20895 (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 Safety Board (NRSB) Radon Measurement Specialist (certification #14SS056) supervised the testing. Additional information on radon management and the health effects of radon exposure is available from www.montgomerycountymd.gov/dep/air/radon or www.epa.gov/radon.

KCI visited the site on September 26, 2016 and deployed four (4) activated charcoal (AC) radon test kits. KCI deployed radon test kits in 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 included duplicate samples, field blanks, lab transit blanks, and office blanks in accordance with AARST recommendations. In addition, KCI submitted six (6) 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 September 29, 2016 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 sampling of a school that had interior modifications over the summer.

To expedite the testing, tests were conducted in September as soon as students and staff returned to:

- Determine if the renovation project changed previously detected radon levels.

Future periodic testing should be conducted during the heating season in ideal conditions as described below. 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 cooling mode; therefore, KCI concludes that this test was not conducted during ideal testing conditions.

KCI recorded observations of the following conditions in each room at 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 50s and high temperatures in the mid-60s to mid-70s. Maximum sustained winds ranged from 3-15 miles per hour. Average humidity ranged from 71 to 89 percent. Rain (1.83 inches in Gaithersburg, MD) was recorded on 9/29/16. The weather conditions during the testing period may have resulted in atypical radon test results for this facility.

Results:

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	

Notes:

D- Duplicate sample

The field blank, office blanks, and lab transit blanks had test results of less than the laboratory detection limit of 0.3 pCi/L. Review of the duplicate sample analysis indicates that adequate laboratory measurement precision was achieved. The Spike sample analysis results indicate the laboratory is operating within statistical control limits.

The sampling locations, field observations, and analytical results are listed on Table 1 (Attachment B). The laboratory analytical results are also attached (Attachment C). Laboratory results and exposure data

for the spike samples are also included in Attachment C.

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) 316-7800.

Sincerely,



James M. Mouldsdale
Radon Measurement Specialist
KCI Technologies, Inc.

Attachments: A- Floor Plan with Test Locations
 B- Table 1-Radon Test Summary Spreadsheet
 C- Laboratory Analytical Results

ATTACHMENT A

Floor Plan With Test Locations

ATTACHMENT B

Radon Test Summary Spreadsheet

Radon Testing Results		
Garrett Park Elementary School		
Test Period: 09/26/16-09/29/16		
Kit Number	Room / Area	Result
7801945	167	1.1
7802258	267	0.6

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
Garrett Park Elementary School		
Test Period: 09/26/16-09/29/16		
Kit Number	QC Type	Result
7801939	D (167)	1.2
7802000	FB (167)	< 0.3

Table Note:

* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

October 17, 2016

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

**GARRETT PARK ELEMENTARY SCHOOL
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7801945	167	2016-09-26 @ 4:00 pm	2016-09-29 @ 1:00 pm	1.1 ± 0.3	2016-10-03
7802000	167	2016-09-26 @ 4:00 pm	2016-09-29 @ 1:00 pm	< 0.3	2016-10-03
7801939	167	2016-09-26 @ 4:00 pm	2016-09-29 @ 1:00 pm	1.2 ± 0.3	2016-10-03
7802258	267	2016-09-26 @ 4:00 pm	2016-09-29 @ 1:00 pm	0.6 ± 0.3	2016-10-03

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

October 7, 2016

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

MCPS Radon

Phase 18 Office Blanks

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7802697	1	2016-09-26 @ 11:00 am	2016-09-29 @ 11:00 am	< 0.3	2016-10-03
7801899	10	2016-09-26 @ 11:00 am	2016-09-29 @ 11:00 am	< 0.3	2016-10-03
7802932	11	2016-09-26 @ 11:00 am	2016-09-29 @ 11:00 am	< 0.3	2016-10-03
7802935	12	2016-09-26 @ 11:00 am	2016-09-29 @ 11:00 am	< 0.3	2016-10-03
7802915	13	2016-09-26 @ 11:00 am	2016-09-29 @ 11:00 am	< 0.3	2016-10-03
7802941	2	2016-09-26 @ 11:00 am	2016-09-29 @ 11:00 am	< 0.3	2016-10-03
7802942	3	2016-09-26 @ 11:00 am	2016-09-29 @ 11:00 am	< 0.3	2016-10-03
7802919	4	2016-09-26 @ 11:00 am	2016-09-29 @ 11:00 am	< 0.3	2016-10-03
7802918	5	2016-09-26 @ 11:00 am	2016-09-29 @ 11:00 am	< 0.3	2016-10-03
7802917	6	2016-09-26 @ 11:00 am	2016-09-29 @ 11:00 am	< 0.3	2016-10-03
7802916	7	2016-09-26 @ 11:00 am	2016-09-29 @ 11:00 am	< 0.3	2016-10-03
7802952	8	2016-09-26 @ 11:00 am	2016-09-29 @ 11:00 am	< 0.3	2016-10-03
7802928	9	2016-09-26 @ 11:00 am	2016-09-29 @ 11:00 am	< 0.3	2016-10-03

Radon test result report for:**MCPS Radon****Phase 18 Transit Blanks**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7714274	1	2016-09-26 @ 10:00 am	2016-09-29 @ 10:00 am	< 0.3	2016-10-03
7802962	10	2016-09-26 @ 10:00 am	2016-09-29 @ 10:00 am	< 0.3	2016-10-03
7714295	11	2016-09-26 @ 10:00 am	2016-09-29 @ 10:00 am	< 0.3	2016-10-03
7714299	12	2016-09-26 @ 10:00 am	2016-09-29 @ 10:00 am	< 0.3	2016-10-03
7714273	13	2016-09-26 @ 10:00 am	2016-09-29 @ 10:00 am	< 0.3	2016-10-03
7714270	14	2016-09-26 @ 10:00 am	2016-09-29 @ 10:00 am	< 0.3	2016-10-03
7802965	2	2016-09-26 @ 10:00 am	2016-09-29 @ 10:00 am	< 0.3	2016-10-03
7802696	3	2016-09-26 @ 10:00 am	2016-09-29 @ 10:00 am	< 0.3	2016-10-03
7802690	4	2016-09-26 @ 10:00 am	2016-09-29 @ 10:00 am	< 0.3	2016-10-03
7714275	5	2016-09-26 @ 10:00 am	2016-09-29 @ 10:00 am	< 0.3	2016-10-03
7714298	6	2016-09-26 @ 10:00 am	2016-09-29 @ 10:00 am	< 0.3	2016-10-03
7802990	7	2016-09-26 @ 10:00 am	2016-09-29 @ 10:00 am	< 0.3	2016-10-03
7802974	8	2016-09-26 @ 10:00 am	2016-09-29 @ 10:00 am	< 0.3	2016-10-03
7802694	9	2016-09-26 @ 10:00 am	2016-09-29 @ 10:00 am	< 0.3	2016-10-03

October 12, 2016

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
**MCPS Radon
Spike Sample Results**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7769880	101	2016-09-24 @ 8:00 am	2016-09-26 @ 8:00 am	22.9 ± 1.0	2016-09-28
7769884	102	2016-09-24 @ 8:00 am	2016-09-26 @ 8:00 am	22.4 ± 1.0	2016-09-28
7769885	103	2016-09-24 @ 8:00 am	2016-09-26 @ 8:00 am	23.0 ± 1.0	2016-09-28
7769890	104	2016-09-24 @ 8:00 am	2016-09-26 @ 8:00 am	22.3 ± 1.0	2016-09-28
7769891	105	2016-09-24 @ 8:00 am	2016-09-26 @ 8:00 am	26.8 ± 1.2	2016-09-28
7769899	106	2016-09-24 @ 8:00 am	2016-09-26 @ 8:00 am	24.1 ± 1.1	2016-09-28

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

Note: Spike samples are test canisters that are deliberately exposed to a controlled high level of radon in a laboratory. They provide a quality control measure in the testing process and do NOT reflect radon levels in the building being tested.

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI Technologies Inc. Job Number 176788

NOMINAL Conditions: Radon Conc 26.1 pCi/L Rel. Hum 49.6 % Temp. 70.0 F

Date Start: 9/24/16 Date Stop: 9/26/16 Date Start: _____ Date Stop: _____

Time Start: 0758 Time Stop: 0758 Time Start: _____ Time Stop: _____

Device No.'s: (6) Char. Bags - Device No.'s: _____

7769899, 7769884, 7769885, _____

7769889, 7769890, 7769891 _____

F3 Left

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**



Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase 18

Name of Schools:

1. Wood Acres Elementary School
2. Walt Whitman High School
3. Burning Tree Elementary School
4. Ashburton Elementary School
5. Bethesda Maintenance
6. Bethesda Transportation
7. Herbert Hoover Middle School
8. Cold Spring Elementary School
9. Garret Park Elementary School
10. Rock View Elementary School
11. Francis Scott Key Middle School
12. Montgomery Blair High School
13. Stephen Knolls School
14. Lourie Center
15. Shriver Elementary School
16. Viers Mill Elementary School
17. Highland Elementary School
18. Newport Middle School
19. Albert Einstein High School
20. Sligo Middle School
21. East Silver Spring Elementary School
22. Oak View Elementary School
23. Roscoe Nix Elementary School
24. Northwood High School
25. Springbrook High School
26. John F. Kennedy High School

	Date	Initials
Radon Test Kits Deployed	9/26/16	JM
Radon Test Kits Collected	9/29/16	JM
Radon Test Kits Shipped to Lab*	9/30/16	JM
Radon Test Kits Received by Lab*	10/03/16	JM

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



Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase 18

Name of Schools:

1. Damascus High School
2. Cedar Grove Elementary School
3. Hallie Wells Middle School
4. Clarksburg Elementary School
5. Clarksburg High School
6. Woodlin Elementary School
7. Flora Singer Elementary School
8. Spring Mill Center
9. Dr. Charles Drew Elementary School
10. William Farquah Middle School
11. Rosa Parks Middle School
12. Blair Ewing Center
13. Lathrop Smith Environmental Center
14. Sequoyah Elementary School
15. Shady Grove Middle School
16. Captain James Daly Elementary School
17. Watkins Mills High School
18. Forest Oak Middle School
19. Gaithersburg Middle School
20. Emory Grove
21. Fields Road Elementary School
22. Beall Elementary School
23. Julius West Middle School
24. Thomas Wootton High School
25. Robert Frost High School
26. Travilah Elementary School
27. Jones Lane Elementary School
28. Longview School
29. Rock Terrace High School
30. Germantown Elementary School
31. Lake Seneca Elementary School

	Date	Initials
Radon Test Kits Deployed	9/27/16	JM
Radon Test Kits Collected	9/30/16	JM
Radon Test Kits Shipped to Lab*	9/30/16	JM
Radon Test Kits Received by Lab*	10/03/16	JM

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



MCPS RADON TESTING

Executive Summary: Garrett Park Elementary School

Date of Test Report:	1/28/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	47
# Rooms \geq 4.0 pCi/L:	0
Low Value:	< 0.3
High Value:	2.7

Project Status:

Initial testing completed; no further action at this time.



January 28, 2016

Mr. Richard Cox
Indoor Air Quality Team Leader
Montgomery County Public Schools
850 Hungerford Drive
Rockville, MD 20850

Re: **Radon Testing Services**
KCI Job # 12146341.22

Location: Garrett Park Elementary School
4810 Oxford Street
Kensington, MD 20895

Dear Mr. Cox:

KCI Technologies, Inc. (KCI) is pleased to submit the following report to the Montgomery County Public Schools (MCPS) pursuant to completing a “short-term” 3 day radon test for the Garrett Park Elementary School, located at 4810 Oxford Street in Kensington, Maryland 20895 (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 Safety Board (NRSB) Radon Measurement Specialist (certification #14SS056) supervised the testing. Additional information on radon management and the health effects of radon exposure is available from www.montgomerycountymd.gov/dep/air/radon or www.epa.gov/radon.

KCI visited the site on January 4, 2016 and deployed fifty-six (56) activated charcoal (AC) radon test kits. KCI deployed radon test kits in 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 included duplicate samples, field blanks, lab transit blanks, and office blanks in accordance with AARST recommendations. In addition, KCI submitted six (6) 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 January 7, 2016 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:

The operating condition that represents the greatest amount of significantly occupied time for this building is; heating active, with outdoor temperature averages $\leq 65^{\circ}$ F.

KCI concludes that the test period reasonably represents normal conditions when the building is significantly occupied. Clear characterization of the radon hazard is most likely to be observed under this normal operating condition. Based on the evaluation of test conditions, this test should reasonably characterize radon hazards.

KCI also conducted observations of field conditions which could affect the results of the test and compiled weather data for the testing period. KCI recorded observations of the following conditions in each room at 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.

Results:

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	

Notes:
D- Duplicate sample

All field blanks, office blank, and lab transit blanks had test results of less than the laboratory detection limit of 0.3 pCi/L. Review of the duplicate sample analysis indicates that adequate laboratory measurement precision was achieved. The Spike sample analysis results indicate the laboratory is operating within statistical control limits.

The sampling locations, field observations, and analytical results are listed on Table 1 (Attachment B). The laboratory analytical results are also attached (Attachment C). Laboratory results and exposure data for the spike samples are also included in Attachment C.

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) 316-7800.

Sincerely,



James M. Mouldale
Radon Measurement Specialist
KCI Technologies, Inc.

Attachments: A- Floor Plan with Test Locations
 B- Table 1-Radon Test Summary Spreadsheet
 C- Laboratory Analytical Results

ATTACHMENT B

Radon Test Summary Spreadsheet

Table Notes:

AC- Activated Charcoal

ACI- Air Chek, Inc.

D- Duplicate

FB- Field Blank

KCI- KCI Technologies, Inc.

OB- Office Blank

PM- Project Manager

QC- Quality Control

Radon Testing Results		
Garrett Park E.S.		
Test Period: 01/04/16-01/07/16		
Kit Number	Room / Area	Result
7720287	A 100	< 0.3
7720286	A 100	0.8
7720298	A 100 A	1.8
7720299	A 100 B	2.7
7720294	A 100 C	2.1
7720262	A 101	0.6
7720346	A 102	1.2
7720297	A 103	< 0.3
7720284	A 104	0.6
7720283	A 104 A	1.1
7720300	A 104 B	1.3
7720290	A 106	2.1
7720311	A 204	0.7
7720295	B 117	0.6
7720291	B 119	< 0.3
7720296	B 121	1
7720310	B 122	< 0.3
7720313	B 122	0.8
7720293	B 122 A	2.6
7720285	B 123	1.2
7720329	B 124 A	0.7
7720309	B 128	1
7720317	B 130	< 0.3
7720377	B 130	< 0.3
7720400	B 132	1.8
7720312	B 137	2
7720343	B 141	1.6
7720288	B 143	1.4
7720319	B 147	1.5
7720332	B 227	0.7
7720307	C 148	1.6
7720306	C 149	0.6
7720304	C 151	0.9
7720305	C 152	1.2
7720337	C 154	0.8
7720338	C 155	1.3
7720324	C 159	0.9
7720326	C 163	0.6
7720330	C 166	0.8
7720341	C 167	0.9
7720328	C 169	1.5
7720322	C 170	0.7
7720327	C 171	0.8
7720325	C 175	0.6
7720335	C 257	0.8
7720315	C 269	0.7

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
Garrett Park E.S.		
Test Period: 01/04/16-01/07/16		
Kit Number	Room / Area	Result
7720333	C 269	< 0.3

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
Garrett Park E.S.		
Test Period: 01/04/16-01/07/16		
Kit Number	QC Type	Result
7720289	D (A 100)	1.5
7720342	D (B 130)	< 0.3
7720292	D (B123)	0.6
7720323	D (C 155)	0.6
7720334	D (C 269)	0.8
7720316	FB (B 122 A)	< 0.3
7720303	FB (B 147)	< 0.3
7720331	FB (C 159)	< 0.3
7720318	OB (0)	< 0.3

Table Note:

* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

Radon test result report for:
GARRETT PARK E.S.
MAIN FLOOR

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7720287	A 100	2016-01-04 @ 2:00 pm	2016-01-07 @ 2:00 pm	< 0.3	2016-01-12
7720289	A 100	2016-01-04 @ 2:00 pm	2016-01-07 @ 2:00 pm	1.5 ± 0.4	2016-01-12
7720286	A 100	2016-01-04 @ 2:00 pm	2016-01-07 @ 2:00 pm	0.8 ± 0.3	2016-01-12
7720298	A 100 A	2016-01-04 @ 2:00 pm	2016-01-07 @ 2:00 pm	1.8 ± 0.4	2016-01-12
7720299	A 100 B	2016-01-04 @ 2:00 pm	2016-01-07 @ 2:00 pm	2.7 ± 0.5	2016-01-12
7720294	A 100 C	2016-01-04 @ 2:00 pm	2016-01-07 @ 2:00 pm	2.1 ± 0.4	2016-01-12
7720262	A 101	2016-01-04 @ 2:00 pm	2016-01-07 @ 2:00 pm	0.6 ± 0.3	2016-01-12
7720346	A 102	2016-01-04 @ 2:00 pm	2016-01-07 @ 4:00 pm	1.2 ± 0.3	2016-01-12
7720297	A 103	2016-01-04 @ 2:00 pm	2016-01-07 @ 2:00 pm	< 0.3	2016-01-12
7720284	A 104	2016-01-04 @ 2:00 pm	2016-01-07 @ 2:00 pm	0.6 ± 0.3	2016-01-12
7720283	A 104 A	2016-01-04 @ 2:00 pm	2016-01-07 @ 2:00 pm	1.1 ± 0.3	2016-01-12
7720300	A 104 B	2016-01-04 @ 2:00 pm	2016-01-07 @ 2:00 pm	1.3 ± 0.4	2016-01-12
7720290	A 106	2016-01-04 @ 2:00 pm	2016-01-07 @ 2:00 pm	2.1 ± 0.4	2016-01-12
7720295	B 117	2016-01-04 @ 2:00 pm	2016-01-07 @ 2:00 pm	0.6 ± 0.3	2016-01-12
7720291	B 119	2016-01-04 @ 2:00 pm	2016-01-07 @ 2:00 pm	< 0.3	2016-01-11
7720296	B 121	2016-01-04 @ 2:00 pm	2016-01-07 @ 2:00 pm	1.0 ± 0.4	2016-01-12
7720310	B 122	2016-01-04 @ 2:00 pm	2016-01-07 @ 2:00 pm	< 0.3	2016-01-12
7720313	B 122	2016-01-04 @ 2:00 pm	2016-01-07 @ 2:00 pm	0.8 ± 0.3	2016-01-12
7720293	B 122 A	2016-01-04 @ 2:00 pm	2016-01-07 @ 2:00 pm	2.6 ± 0.4	2016-01-11
7720316	B 122 A	2016-01-04 @ 2:00 pm	2016-01-07 @ 2:00 pm	< 0.3	2016-01-11
7720285	B 123	2016-01-04 @ 2:00 pm	2016-01-07 @ 2:00 pm	1.2 ± 0.4	2016-01-12
7720329	B 124 A	2016-01-04 @ 2:00 pm	2016-01-07 @ 2:00 pm	0.7 ± 0.3	2016-01-12
7720309	B 128	2016-01-04 @ 2:00 pm	2016-01-07 @ 2:00 pm	1.0 ± 0.4	2016-01-12
7720342	B 130	2016-01-04 @ 3:00 pm	2016-01-07 @ 2:00 pm	< 0.3	2016-01-12
7720377	B 130	2016-01-04 @ 3:00 pm	2016-01-07 @ 2:00 pm	< 0.3	2016-01-12
7720317	B 130	2016-01-04 @ 2:00 pm	2016-01-07 @ 2:00 pm	< 0.3	2016-01-12
7720400	B 132	2016-01-04 @ 3:00 pm	2016-01-07 @ 2:00 pm	1.8 ± 0.4	2016-01-12
7720312	B 137	2016-01-04 @ 2:00 pm	2016-01-07 @ 2:00 pm	2.0 ± 0.4	2016-01-12
7720343	B 141	2016-01-04 @ 3:00 pm	2016-01-07 @ 2:00 pm	1.6 ± 0.4	2016-01-12
7720288	B 143	2016-01-04 @ 3:00 pm	2016-01-07 @ 2:00 pm	1.4 ± 0.4	2016-01-12
7720303	B 147	2016-01-04 @ 3:00 pm	2016-01-07 @ 2:00 pm	< 0.3	2016-01-12
7720319	B 147	2016-01-04 @ 3:00 pm	2016-01-07 @ 4:00 pm	1.5 ± 0.4	2016-01-12
7720307	C 148	2016-01-04 @ 3:00 pm	2016-01-07 @ 2:00 pm	1.6 ± 0.4	2016-01-12
7720306	C 149	2016-01-04 @ 3:00 pm	2016-01-07 @ 2:00 pm	0.6 ± 0.3	2016-01-12
7720304	C 151	2016-01-04 @ 3:00 pm	2016-01-07 @ 2:00 pm	0.9 ± 0.4	2016-01-12
7720305	C 152	2016-01-04 @ 3:00 pm	2016-01-07 @ 2:00 pm	1.2 ± 0.4	2016-01-12
7720337	C 154	2016-01-04 @ 3:00 pm	2016-01-07 @ 2:00 pm	0.8 ± 0.4	2016-01-12

January 25, 2016
** LABORATORY ANALYSIS REPORT **

Radon test result report for:
GARRETT PARK E.S.
MAIN FLOOR

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7720338	C 155	2016-01-04 @ 3:00 pm	2016-01-07 @ 2:00 pm	1.3 ± 0.4	2016-01-12
7720323	C 155	2016-01-04 @ 3:00 pm	2016-01-07 @ 2:00 pm	0.6 ± 0.3	2016-01-12
7720324	C 159	2016-01-04 @ 3:00 pm	2016-01-07 @ 2:00 pm	0.9 ± 0.3	2016-01-12
7720331	C 159	2016-01-04 @ 3:00 pm	2016-01-07 @ 2:00 pm	< 0.3	2016-01-12
7720326	C 163	2016-01-04 @ 3:00 pm	2016-01-07 @ 2:00 pm	0.6 ± 0.3	2016-01-12
7720330	C 166	2016-01-04 @ 3:00 pm	2016-01-07 @ 2:00 pm	0.8 ± 0.3	2016-01-12
7720341	C 167	2016-01-04 @ 3:00 pm	2016-01-07 @ 2:00 pm	0.9 ± 0.3	2016-01-12
7720328	C 169	2016-01-04 @ 3:00 pm	2016-01-07 @ 2:00 pm	1.5 ± 0.4	2016-01-12
7720322	C 170	2016-01-04 @ 3:00 pm	2016-01-07 @ 2:00 pm	0.7 ± 0.3	2016-01-11
7720327	C 171	2016-01-04 @ 3:00 pm	2016-01-07 @ 3:00 pm	0.8 ± 0.4	2016-01-12
7720325	C 175	2016-01-04 @ 3:00 pm	2016-01-07 @ 3:00 pm	0.6 ± 0.3	2016-01-12

January 25, 2016
**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
**GARRETT PARK ES
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7720292	B123	2016-01-04 @ 2:00 pm	2016-01-07 @ 2:00 pm	0.6 ± 0.3	2016-01-11

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

January 25, 2016 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
GARRETT PARK E.S.
SECOND FLOOR

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7720318	00	2016-01-04 @ 4:00 pm	2016-01-07 @ 4:00 pm	< 0.3	2016-01-12
7720311	A 204	2016-01-04 @ 3:00 pm	2016-01-07 @ 3:00 pm	0.7 ± 0.4	2016-01-12
7720332	B 227	2016-01-04 @ 3:00 pm	2016-01-07 @ 3:00 pm	0.7 ± 0.3	2016-01-11
7720335	C 257	2016-01-04 @ 3:00 pm	2016-01-07 @ 3:00 pm	0.8 ± 0.3	2016-01-12
7720315	C 269	2016-01-04 @ 3:00 pm	2016-01-07 @ 3:00 pm	0.7 ± 0.4	2016-01-12
7720333	C 269	2016-01-04 @ 3:00 pm	2016-01-07 @ 3:00 pm	< 0.3	2016-01-12
7720334	C 269	2016-01-04 @ 3:00 pm	2016-01-07 @ 3:00 pm	0.8 ± 0.4	2016-01-12

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

January 15, 2016
** LABORATORY ANALYSIS REPORT **

Radon test result report for:
**MCPS PHASE 3 & 4
TRANSIT BLANKS**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7708218	TRANSIT 4	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708200	TRANSIT 1	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708190	TRANSIT 10	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708189	TRANSIT 11	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708191	TRANSIT 12	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708188	TRANSIT 13	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708197	TRANSIT 14	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708186	TRANSIT 15	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708185	TRANSIT 16	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708184	TRANSIT 17	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708182	TRANSIT 18	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708187	TRANSIT 18	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708199	TRANSIT 2	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708181	TRANSIT 20	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708180	TRANSIT 21	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708183	TRANSIT 22	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708178	TRANSIT 23	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708179	TRANSIT 24	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708177	TRANSIT 25	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708176	TRANSIT 26	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708174	TRANSIT 27	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708173	TRANSIT 28	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708175	TRANSIT 29	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708198	TRANSIT 3	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708172	TRANSIT 30	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708194	TRANSIT 5	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708196	TRANSIT 6	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708193	TRANSIT 7	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708192	TRANSIT 8	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708195	TRANSIT 9	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23

December
23,
2015

**LABORATORY ANALYSIS
REPORT ****

Spike Sample Laboratory Results

Radon test result report for:
MCPS

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7706380	101	2015-12-18 @ 9:00 am	2015-12-21 @ 9:00 am	25.2	2015-12-23
7706381	102	2015-12-18 @ 9:00 am	2015-12-21 @ 9:00 am	26.5	2015-12-23
7706208	103	2015-12-18 @ 9:00 am	2015-12-21 @ 9:00 am	27.7	2015-12-23
7705132	104	2015-12-18 @ 9:00 am	2015-12-21 @ 9:00 am	28.6	2015-12-23
7706366	105	2015-12-18 @ 9:00 am	2015-12-21 @ 9:00 am	26.5	2015-12-23
7706211	106	2015-12-18 @ 9:00 am	2015-12-21 @ 9:00 am	26.1	2015-12-23

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

Note: Spike samples are test canisters that are deliberately exposed to a controlled high level of radon in a laboratory. They provide a quality control measure in the testing process and do NOT reflect radon levels in the building being tested.

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI Technologies Inc. Job Number 173224

NOMINAL Conditions: Radon Conc 26.9 pCi/L Rel. Hum 49.6 % Temp. 69.9 F

Date Start: 12/18/15 Date Stop: 12/21/15 Date Start: _____ Date Stop: _____

Time Start: 0929 Time Stop: 0929 Time Start: _____ Time Stop: _____

Device No.'s: 7705132, 7706208, Device No.'s: _____

7706211, 7706366, _____

7706380, 7706381 _____

F3 Left

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



Chain of Custody

Project Name: MCPS Radon Phase IV

Name of Schools:

- | | | |
|----------------------------|----------------------------|---------------------------|
| 1. Albert Einstein HS | 12. Herbert Hoover MS | 23. Stephen Knolls School |
| 2. Bel Pre ES | 13. Kohn F. Kennedy HS | 24. Strathmore ES |
| 3. Benjamin Banneker MS | 14. Julius West MS | 25. Summit Hall ES |
| 4. Bethesda Chevy Chase HS | 15. Kensington Parkwood ES | 26. Travilah ES |
| 5. Beverly Farms ES | 16. Lakewood ES | 27. Twinbrook ES |
| 6. Cabin John MS | 17. Mill Creek ES | 28. Waters Landing ES |
| 7. Chevy Chase ES | 18. Montgomery Blair HS | 29. Watkins Mill HAS |
| 8. Farmland ES | 19. Montgomery Village MS | 30. Weller Road ES |
| 9. Forest Oak MS | 20. Northwood HS | 31. White Oak MS |
| 10. Gaithersburg HS | 21. Paint Branch ES | 32. Winston Churchill HS |
| 11. Garrett Park ES | 22. Rock Creek Forest ES | |

	Date	Initials
Radon Test Kits Deployed	1/4/16	JM
Radon Test Kits Sampled	1/7/16	JM
Radon Test Kits Shipped to Lab*	1/8/16	JM
Radon Test Kits Received by Lab*	1/11/16	JM

*All samples sent to Air Check, Inc., 1936 Butler Bridge Road, Mills River, NC 28758

Note: tests kits deployed at Montgomery Blair HS 1/4/16 and 1/5/16, test kits sampled at Montgomery Blair HS 1/7/16 and 1/8/16