



MCPS RADON TESTING – EXECUTIVE SUMMARY

Site Name	Ashburton Elementary School
Date of Test Report	1/04/2023
Round of Testing	Initial Follow-up Post Remediation 2 Year Testing 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility
# Rooms Tested	65
# Rooms \geq 4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	1.8 pCi/L

Project Status:

1. 5-Year retesting completed.



January 4, 2023

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

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

Location: Ashburton Elementary School
6314 Lone Oak Dr.
Bethesda, MD 20817

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 Ashburton Elementary School, located at 6314 Lone Oak Dr. Bethesda, MD 20817 (subject site).

Scope of Services:

KCI conducted radon testing at the subject site to evaluate indoor radon levels relative to the USEPA's recommended action level of 4.0 picocuries per Liter (pCi/L) - the level at which EPA recommends that schools take action to reduce the level. KCI conducted the radon testing in accordance with American Association of Radon Scientists and Technologists (AARST) *Protocol for Conducting Measurements of Radon and Radon Decay Products in Schools and Large Buildings*. A National Radon Proficiency Program (NRPP) Radon Measurement Specialist (certification #111004 RT) supervised the testing. Additional information on radon management and the health effects of radon exposure is available from <https://www.montgomeryschoolsmd.org> or www.epa.gov/radon.

KCI visited the site on December 5, 2022 and deployed seventy-eight (78) activated charcoal (AC) radon test kits. KCI deployed radon test kits in all frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance.

A floor plan map of the building with the test locations is included as Attachment A of this report.

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

KCI returned to the site on December 8, 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 concentrations 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°F and high temperatures ranged to the mid-50s°F. Maximum sustained winds ranged from 0-12 miles per hour. Average humidity was around 75% with .04 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		
Ashburton ES		
Test Period: 12/05/2022 - 12/08/2022		
Kit Number	Room / Area	Result
11287730	101	1.0
11287716	102	0.6
11287715	103	< 0.3
11287767	104	0.9
11287774	108	1.1
11287768	109	1.1
11287737	110	< 0.3
11287738	110	0.8
11287773	117	< 0.3
11287775	118	1.0
11287776	121	< 0.3
11287782	123	0.9
11287745	124	< 0.3
11287746	125	< 0.3
11287781	126	0.8
11287783	126	< 0.3
11287747	127	0.9
11287748	127	< 0.3
11287754	128	< 0.3
11287753	129	< 0.3
11287765	130	1.3
11287760	132	1.4
11287766	132	< 0.3
11287729	133	1.6
11287759	133	1.3
11287757	135	1.8
11287758	139	1.6
11287722	141	1.3
11287721	145	1.5
11287751	147	1.2
11287752	150	1.5
11287749	152	1.3
11287750	152	1.4
11287714	156	1.4
11287701	206	< 0.3
11287711	206	0.7
11287761	218	< 0.3
11287726	222	< 0.3
11287713	223	< 0.3
11287728	223	< 0.3
11287733	224	< 0.3
11287734	224	< 0.3

Table 1- Radon Testing Results		
Ashburton ES		
Test Period: 12/05/2022 - 12/08/2022		
Kit Number	Room / Area	Result
11287735	225	0.7
11287736	226	< 0.3
11287742	228	< 0.3
11287741	229	< 0.3
11287706	235	1.8
11287707	236	< 0.3
11287727	240	0.9
11287756	320	< 0.3
11287724	336	< 0.3
11287779	401	0.9
11287772	402	1.3
11287780	403	< 0.3
11287762	404	0.8
11287739	405	< 0.3
11287732	406	< 0.3
11287731	413	0.9
11287740	414	0.6
11287755	414	< 0.3
11287723	109B	1.2
11287789	128A	0.8
11287784	129A	0.8
11287710	201D	< 0.3
11287709	201F	< 0.3
11287704	201G	< 0.3
11287718	207B	< 0.3
11287705	APR	< 0.3
11287725	APR	< 0.3
11287743	GYM	1.3
11287744	GYM	0.6
11287708	GYM OFFICE	1.3
11287717	HEALTH	< 0.3
11287703	MAIN OFFICE	< 0.3
11287719	MEDIA	< 0.3
11287712	MEDIA OFFICE	< 0.3
11287720	MEDIA OFFICE	< 0.3
11287702	WORKROOM	< 0.3

Table 2- Radon Testing Results			
Ashburton ES			
Test Period: 12/05/22 - 12/08/22			
Kit Number	QC Type	Room / Area	Result
11287738	D	110	0.8
11287783	D	126	< 0.3
11287748	FB	127	< 0.3
11287766	FB	132	< 0.3
11287759	D	133	1.3
11287749	D	152	1.3
11287713	D	223	< 0.3
11287733	FB	224	< 0.3
11287755	D	414	< 0.3
11287720	D	Media office	< 0.3
11133716	OB	OFFICE BLANK	< 0.3
11140129	TB	TRAVEL BLANK	< 0.3

ATTACHMENT C

Laboratory Analytical Results

Radon test result report for:
ASHBURTON ES
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11287730	101	2022-12-05 @ 1:00 pm	2022-12-08 @ 12:00 pm	1.0 ± 0.5	2022-12-14
11287716	102	2022-12-05 @ 1:00 pm	2022-12-08 @ 12:00 pm	0.6 ± 0.5	2022-12-14
11287715	103	2022-12-05 @ 1:00 pm	2022-12-08 @ 12:00 pm	< 0.3	2022-12-14
11287767	104	2022-12-05 @ 1:00 pm	2022-12-08 @ 12:00 pm	0.9 ± 0.5	2022-12-14
11287774	108	2022-12-05 @ 1:00 pm	2022-12-08 @ 12:00 pm	1.1 ± 0.5	2022-12-14
11287768	109	2022-12-05 @ 1:00 pm	2022-12-08 @ 12:00 pm	1.1 ± 0.5	2022-12-14
11287723	109B	2022-12-05 @ 1:00 pm	2022-12-08 @ 12:00 pm	1.2 ± 0.5	2022-12-14
11287738	110	2022-12-05 @ 1:00 pm	2022-12-08 @ 12:00 pm	0.8 ± 0.4	2022-12-14
11287737	110	2022-12-05 @ 1:00 pm	2022-12-08 @ 12:00 pm	< 0.3	2022-12-14
11287773	117	2022-12-05 @ 1:00 pm	2022-12-08 @ 12:00 pm	< 0.3	2022-12-14
11287775	118	2022-12-05 @ 1:00 pm	2022-12-08 @ 12:00 pm	1.0 ± 0.5	2022-12-14
11287776	121	2022-12-05 @ 1:00 pm	2022-12-08 @ 12:00 pm	< 0.3	2022-12-14
11287782	123	2022-12-05 @ 1:00 pm	2022-12-08 @ 12:00 pm	0.9 ± 0.5	2022-12-14
11287745	124	2022-12-05 @ 1:00 pm	2022-12-08 @ 12:00 pm	< 0.3	2022-12-14
11287746	125	2022-12-05 @ 1:00 pm	2022-12-08 @ 12:00 pm	< 0.3	2022-12-14
11287781	126	2022-12-05 @ 1:00 pm	2022-12-08 @ 12:00 pm	0.8 ± 0.5	2022-12-14
11287783	126	2022-12-05 @ 1:00 pm	2022-12-08 @ 12:00 pm	< 0.3	2022-12-14
11287748	127	2022-12-05 @ 1:00 pm	2022-12-08 @ 12:00 pm	< 0.3	2022-12-14
11287747	127	2022-12-05 @ 1:00 pm	2022-12-08 @ 12:00 pm	0.9 ± 0.5	2022-12-14
11287754	128	2022-12-05 @ 1:00 pm	2022-12-08 @ 12:00 pm	< 0.3	2022-12-14
11287789	128A	2022-12-05 @ 1:00 pm	2022-12-08 @ 12:00 pm	0.8 ± 0.5	2022-12-14
11287753	129	2022-12-05 @ 1:00 pm	2022-12-08 @ 12:00 pm	< 0.3	2022-12-14
11287784	129A	2022-12-05 @ 1:00 pm	2022-12-08 @ 12:00 pm	0.8 ± 0.5	2022-12-14
11287765	130	2022-12-05 @ 1:00 pm	2022-12-08 @ 12:00 pm	1.3 ± 0.5	2022-12-14
11287766	132	2022-12-05 @ 1:00 pm	2022-12-08 @ 12:00 pm	< 0.3	2022-12-14
11287760	132	2022-12-05 @ 1:00 pm	2022-12-08 @ 12:00 pm	1.4 ± 0.5	2022-12-14
11287729	133	2022-12-05 @ 12:00 pm	2022-12-08 @ 12:00 pm	1.6 ± 0.5	2022-12-14
11287759	133	2022-12-05 @ 12:00 pm	2022-12-08 @ 12:00 pm	1.3 ± 0.5	2022-12-14
11287757	135	2022-12-05 @ 12:00 pm	2022-12-08 @ 12:00 pm	1.8 ± 0.5	2022-12-14
11287758	139	2022-12-05 @ 12:00 pm	2022-12-08 @ 12:00 pm	1.6 ± 0.5	2022-12-14
11287722	141	2022-12-05 @ 12:00 pm	2022-12-08 @ 12:00 pm	1.3 ± 0.5	2022-12-14
11287721	145	2022-12-05 @ 12:00 pm	2022-12-08 @ 12:00 pm	1.5 ± 0.5	2022-12-14
11287751	147	2022-12-05 @ 12:00 pm	2022-12-08 @ 12:00 pm	1.2 ± 0.5	2022-12-14
11287752	150	2022-12-05 @ 12:00 pm	2022-12-08 @ 12:00 pm	1.5 ± 0.5	2022-12-14
11287749	152	2022-12-05 @ 12:00 pm	2022-12-08 @ 12:00 pm	1.3 ± 0.5	2022-12-14
11287750	152	2022-12-05 @ 12:00 pm	2022-12-08 @ 12:00 pm	1.4 ± 0.5	2022-12-14
11287714	156	2022-12-05 @ 12:00 pm	2022-12-08 @ 12:00 pm	1.4 ± 0.5	2022-12-14

Radon test result report for:
ASHBURTON ES
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11287710	201D	2022-12-05 @ 12:00 pm	2022-12-08 @ 11:00 am	< 0.3	2022-12-14
11287709	201F	2022-12-05 @ 12:00 pm	2022-12-08 @ 11:00 am	< 0.3	2022-12-14
11287704	201G	2022-12-05 @ 12:00 pm	2022-12-08 @ 11:00 am	< 0.3	2022-12-14
11287701	206	2022-12-05 @ 12:00 pm	2022-12-08 @ 12:00 pm	< 0.3	2022-12-14
11287711	206	2022-12-05 @ 12:00 pm	2022-12-08 @ 11:00 am	0.7 ± 0.5	2022-12-14
11287718	207B	2022-12-05 @ 12:00 pm	2022-12-08 @ 11:00 am	< 0.3	2022-12-14
11287761	218	2022-12-05 @ 1:00 pm	2022-12-08 @ 11:00 am	< 0.3	2022-12-14
11287726	222	2022-12-05 @ 12:00 pm	2022-12-08 @ 11:00 am	< 0.3	2022-12-14
11287713	223	2022-12-05 @ 12:00 pm	2022-12-08 @ 11:00 am	< 0.3	2022-12-14
11287728	223	2022-12-05 @ 12:00 pm	2022-12-08 @ 11:00 am	< 0.3	2022-12-14
11287734	224	2022-12-05 @ 12:00 pm	2022-12-08 @ 11:00 am	< 0.3	2022-12-14
11287733	224	2022-12-05 @ 12:00 pm	2022-12-08 @ 11:00 am	< 0.3	2022-12-14
11287735	225	2022-12-05 @ 12:00 pm	2022-12-08 @ 11:00 am	0.7 ± 0.4	2022-12-14
11287736	226	2022-12-05 @ 12:00 pm	2022-12-08 @ 11:00 am	< 0.3	2022-12-14
11287742	228	2022-12-05 @ 12:00 pm	2022-12-08 @ 11:00 am	< 0.3	2022-12-14
11287741	229	2022-12-05 @ 12:00 pm	2022-12-08 @ 11:00 am	< 0.3	2022-12-14
11287706	235	2022-12-05 @ 12:00 pm	2022-12-08 @ 11:00 am	1.8 ± 0.5	2022-12-14
11287707	236	2022-12-05 @ 12:00 pm	2022-12-08 @ 11:00 am	< 0.3	2022-12-14
11287727	240	2022-12-05 @ 12:00 pm	2022-12-08 @ 11:00 am	0.9 ± 0.5	2022-12-14
11287756	320	2022-12-05 @ 1:00 pm	2022-12-08 @ 12:00 pm	< 0.3	2022-12-14
11287724	336	2022-12-05 @ 1:00 pm	2022-12-08 @ 12:00 pm	< 0.3	2022-12-14
11287740	414	2022-12-05 @ 1:00 pm	2022-12-08 @ 12:00 pm	0.6 ± 0.5	2022-12-14
11287755	414	2022-12-05 @ 1:00 pm	2022-12-08 @ 12:00 pm	< 0.3	2022-12-14
11287705	APR	2022-12-05 @ 12:00 pm	2022-12-08 @ 11:00 am	< 0.3	2022-12-14
11287725	APR	2022-12-05 @ 12:00 pm	2022-12-08 @ 11:00 am	< 0.3	2022-12-14
11287743	GYM	2022-12-05 @ 12:00 pm	2022-12-08 @ 11:00 am	1.3 ± 0.5	2022-12-14
11287744	GYM	2022-12-05 @ 12:00 pm	2022-12-08 @ 11:00 am	0.6 ± 0.4	2022-12-14
11287708	GYM OFFICE	2022-12-05 @ 12:00 pm	2022-12-08 @ 11:00 am	1.3 ± 0.5	2022-12-14
11287717	HEALTH	2022-12-05 @ 12:00 pm	2022-12-08 @ 11:00 am	< 0.3	2022-12-14
11287703	MAIN OFFICE	2022-12-05 @ 12:00 pm	2022-12-08 @ 11:00 am	< 0.3	2022-12-14
11287719	MEDIA	2022-12-05 @ 12:00 pm	2022-12-08 @ 11:00 am	< 0.3	2022-12-14
11287720	MEDIA OFFICE	2022-12-05 @ 12:00 pm	2022-12-08 @ 11:00 am	< 0.3	2022-12-14
11287712	MEDIA OFFICE	2022-12-05 @ 12:00 pm	2022-12-08 @ 11:00 am	< 0.3	2022-12-14
11287702	WORKROOM	2022-12-05 @ 12:00 pm	2022-12-08 @ 11:00 am	< 0.3	2022-12-14

December 14, 2022

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
ASHBURTON ES
MOD

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11287779	401	2022-12-05 @ 1:00 pm	2022-12-08 @ 12:00 pm	0.9 ± 0.5	2022-12-14
11287772	402	2022-12-05 @ 1:00 pm	2022-12-08 @ 12:00 pm	1.3 ± 0.5	2022-12-14
11287780	403	2022-12-05 @ 2:00 pm	2022-12-08 @ 12:00 pm	< 0.3	2022-12-14
11287762	404	2022-12-05 @ 1:00 pm	2022-12-08 @ 12:00 pm	0.8 ± 0.5	2022-12-14
11287739	405	2022-12-05 @ 1:00 pm	2022-12-08 @ 12:00 pm	< 0.3	2022-12-14
11287732	406	2022-12-05 @ 1:00 pm	2022-12-08 @ 12:00 pm	< 0.3	2022-12-14
11287731	413	2022-12-05 @ 1:00 pm	2022-12-08 @ 12:00 pm	0.9 ± 0.5	2022-12-14

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

MA MCPS - Spike Sample Lab Results. Measured values are satisfactory, i.e., within $\pm 25\%$ of the chamber's reference value (34.7 pCi/L).

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

Name of Schools:

1. Lynnbrook Center
2. Chevy Chase ES
3. North Chevy Chase ES
4. Wood Acres ES
5. Ashburton ES
6. Carderock Springs ES
7. North Bethesda MS
8. Brooke Grove ES

	Date	Initials
Radon Test Kits Deployed	12/05/2022	Bully
Radon Test Kits Collected	12/08/2022	Bully
Radon Test Kits Shipped to Lab*	12/08/2022	Bully
Radon Test Kits Received by Lab*	12/14/2022	Bully

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



MONTGOMERY COUNTY PUBLIC SCHOOLS RADON TESTING

Executive Summary: Ashburton Elementary School

6314 Lone Oak Drive
Bethesda, MD 20817

Date of Test Report:	3/28/2019
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:	1.2
High Value:	1.2

Project Status

Retesting completed: No further action at this time.



March 28, 2019

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

Re: Radon Testing Services

Location: Ashburton Elementary School
6314 Lone Oak Drive
Bethesda, MD 20817

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 Ashburton Elementary School, located at 6314 Lone Oak Drive, Bethesda, MD 20817 (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 1, 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 # ARL0007).

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		
Ashburton Elementary School		
Testing period: 2/26/19 - 3/1/19		
Kit Number	Room / Area	Result (pCi/L)
3923321	107	1.2

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 # 04481387-1

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

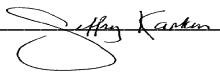
MCPS Radon Survey Ashburton ES
6314 Lone Oak Drive
Bethesda MD 20817

Log Number	Device Number	Test Exposure Duration:	Area Tested	Result pCi/L
3220810	3923321	02/26/2019 11:30 am 02/28/2019 10:00 am	Floor Lower Level Room 107	1.2

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

Distributed by: Intertek-PSI (VA)

Date Received: 03/05/2019 Date Logged: 03/05/2019 Date Analyzed: 03/05/2019 Date Reported: 03/06/2019

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

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MONTGOMERY COUNTY PUBLIC SCHOOLS RADON TESTING

Executive Summary: Ashburton Elementary School

6314 Lone Oak Drive
Bethesda, MD 20817

Date of Test Report:	12/18/2018
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:	60
# of Rooms \geq 4.0 pCi/L:	0
Low Value:	< 0.4
High Value:	1.6

Project Status

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



December 18, 2018

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

Re: Radon Testing Services

Location: Ashburton Elementary School
6314 Lone Oak Drive
Bethesda, MD 20817

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 Ashburton Elementary School, located at 6314 Lone Oak Drive, Bethesda, MD 20817 (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 seventy-five (75) 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		
Ashburton Elementary School		
Testing period: 11/27/18 - 11/30/18		
Kit Number	Room / Area	Result (pCi/L)
3917646	101	0.6
3917648	102	< 0.4
3917649	103	< 0.4
3917650	104	< 0.4
3917619	108	< 0.4
3917539	109	< 0.4
3917618	110	< 0.4
3917546	117	0.4
3917548	118	0.4
3917549	121	< 0.4
3917771	123	< 0.4
3917772	124	0.4
3917773	125	< 0.4
3917774	126	0.4
3917775	130	0.8
3917778	132	1.6
3917777	133	1.4
3917779	135	1.1
3917780	139	0.7
3917731	141	1.0
3917732	145	0.9
3917735	147	0.8
3917733	150	1.1
3917736	152	0.8
3917737	156	0.6
3917767	201	0.6
3917785	203	0.5
3917766	204	0.4
3917781	206	0.4
3917765	207	0.4
3917764	211	< 0.4
3917787	215	0.4
3917788	219	0.4
3917789	222	< 0.4
3917794	223	0.7
3917795	224	0.4
3917797	225	< 0.4
3917798	226	< 0.4
3917799	228	< 0.4
3917800	229	< 0.4
3917790	235	0.7
3917792	236	1.1
3917793	240	0.7

Radon Testing Results		
Ashburton Elementary School		
Testing period: 11/27/18 - 11/30/18		
Kit Number	Room / Area	Result (pCi/L)
3917738	302	< 0.4
3917739	313	< 0.4
3917740	321	< 0.4
3917538	107 (MISSING)	--
3917540	109A	< 0.4
3917620	109B and 109C	< 0.4
3917769	201D	0.6
3917770	201F	0.4
3917752	201G	0.6
3917784	205A	< 0.4
3917768	207B	0.6
3917786	215B	0.4
3888380	APR	< 0.4
3888360	APR	< 0.4
3888330	APR Stage	0.6
3917761	Gym	0.7
3917762	Gym	0.9
3917763	Gym Office	1.3
3917782	IMC	0.4
3917783	IMC	0.4

Radon Testing Results		
Ashburton Elementary School		
Testing period: 11/27/18 - 11/30/18		
Kit Number	QC Type	Result (pCi/L)
3917647	101 (D)	0.4
3917547	117 (D)	< 0.4
3917550	121 (D)	< 0.4
3917776	130 (D)	0.9
3917734	150 (D)	1.0
3917791	235 (D)	0.9
3917796	224 (D)	< 0.4
3917751	201F (D)	0.5
3917522	Office Blank	< 0.4
3917617	Transit Blank	< 0.4
3918826	Field Blank	< 0.4
3918812	Field Blank	< 0.4

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 # 04481387-1

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

MCPS Radon Survey Ashburton ES
Not Indicated
Bethesda MD 20817

Log Number	Device Number	Test Exposure Duration:	Area Tested	Result (pCi/L)
3199142	3917646	11/27/2018 1:15 pm 11/30/2018 11:00 am	Floor 1st Room 101	0.6
3199143	3917647	11/27/2018 1:15 pm 11/30/2018 11:00 am	Floor 1st Room 101 Duplicate	0.4
3199144	3917648	11/27/2018 1:17 pm 11/30/2018 11:02 am	Floor 1st Room 102	< 0.4
3199145	3917649	11/27/2018 1:19 pm 11/30/2018 11:03 am	Floor 1st Room 103	< 0.4
3199146	3917650	11/27/2018 1:21 pm 11/30/2018 11:04 am	Floor 1st Room 104	< 0.4
3199147	3917539	11/27/2018 1:25 pm 11/30/2018 11:06 am	Floor 1st Room 109	< 0.4
3199148	3917540	11/27/2018 1:27 pm 11/30/2018 11:07 am	Floor 1st Room 109A	< 0.4
3199149	3917620	11/27/2018 1:29 pm 11/30/2018 11:08 am	Floor 1st Room 109B and 109C	< 0.4
3199150	3917619	11/27/2018 1:31 pm 11/30/2018 11:09 am	Floor 1st Room 108	< 0.4
3199151	3917618	11/27/2018 1:33 pm 11/30/2018 11:10 am	Floor 1st Room 110	< 0.4

Comment: Device 3917538 was listed but not received.

Test Performed By: Nan Lin

Distributed by: Intertek-PSI (VA)

Date Received: 12/01/2018 Date Logged: 12/01/2018 Date Analyzed: 12/01/2018 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.

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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 # 04481387-1

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

MCPS Radon Survey Ashburton ES
Not Indicated
Bethesda MD 20817

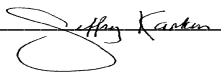
Log Number	Device Number	Test Exposure Duration:	Area Tested	Result (pCi/L)
3199152	3917546	11/27/2018 1:35 pm 11/30/2018 11:12 am	Floor 1st Room 117	0.4
3199153	3917547	11/27/2018 1:35 pm 11/30/2018 11:12 am	Floor 1st Room 117 Duplicate	< 0.4
3199154	3917548	11/27/2018 1:39 pm 11/30/2018 11:13 am	Floor 1st Room 118	0.4
3199155	3917549	11/27/2018 1:41 pm 11/30/2018 11:15 am	Floor 1st Room 121	< 0.4
3199156	3917550	11/27/2018 1:41 pm 11/30/2018 11:15 am	Floor 1st Room 121 Duplicate	< 0.4
3199157	3917771	11/27/2018 1:45 pm 11/30/2018 11:16 am	Floor 1st Room 123	< 0.4
3199158	3917772	11/27/2018 1:47 pm 11/30/2018 11:17 am	Floor 1st Room 124	0.4
3199159	3917773	11/27/2018 1:49 pm 11/30/2018 11:18 am	Floor 1st Room 125	< 0.4
3199160	3917774	11/27/2018 1:51 pm 11/30/2018 11:19 am	Floor 1st Room 126	0.4
3199161	3917775	11/27/2018 1:53 pm 11/30/2018 11:20 am	Floor 1st Room 130	0.8

Comment: Device 3917538 was listed but not received.

Test Performed By: Nan Lin

Distributed by: Intertek-PSI (VA)

Date Received: 12/01/2018 Date Logged: 12/01/2018 Date Analyzed: 12/01/2018 Date Reported: 12/04/2018

Report Reviewed By: 

Report Approved By: 

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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 # 04481387-1

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

MCPS Radon Survey Ashburton ES
Not Indicated
Bethesda MD 20817

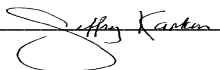
Log Number	Device Number	Test Exposure Duration:	Area Tested	Result (pCi/L)
3199162	3917776	11/27/2018 1:53 pm 11/30/2018 11:20 am	Floor 1st Room 130 Duplicate	0.9
3199163	3917777	11/27/2018 1:57 pm 11/30/2018 11:22 am	Floor 1st Room 133	1.4
3199164	3917778	11/27/2018 1:59 pm 11/30/2018 11:23 am	Floor 1st Room 132	1.6
3199165	3917779	11/27/2018 2:01 pm 11/30/2018 11:24 am	Floor 1st Room 135	1.1
3199166	3917780	11/27/2018 2:03 pm 11/30/2018 11:25 am	Floor 1st Room 139	0.7
3199167	3917731	11/27/2018 2:05 pm 11/30/2018 11:26 am	Floor 1st Room 141	1.0
3199168	3917732	11/27/2018 2:07 pm 11/30/2018 11:27 am	Floor 1st Room 145	0.9
3199169	3917733	11/27/2018 2:09 pm 11/30/2018 11:28 am	Floor 1st Room 150	1.1
3199170	3917734	11/27/2018 2:09 pm 11/30/2018 11:28 am	Floor 1st Room 150 Duplicate	1.0
3199171	3917735	11/27/2018 2:13 pm 11/30/2018 11:30 am	Floor 1st Room 147	0.8

Comment: Device 3917538 was listed but not received.

Test Performed By: Nan Lin

Distributed by: Intertek-PSI (VA)

Date Received: 12/01/2018 Date Logged: 12/01/2018 Date Analyzed: 12/01/2018 Date Reported: 12/04/2018

Report Reviewed By: 

Report Approved By: 

Disclaimer:

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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 # 04481387-1

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

MCPS Radon Survey Ashburton ES
Not Indicated
Bethesda MD 20817

Log Number	Device Number	Test Exposure Duration:	Area Tested	Result (pCi/L)
3199172	3917736	11/27/2018 2:15 pm 11/30/2018 11:31 am	Floor 1st Room 152	0.8
3199173	3917737	11/27/2018 2:17 pm 11/30/2018 11:32 am	Floor 1st Room 156	0.6
3199174	3917738	11/27/2018 2:19 pm 11/30/2018 11:33 am	Floor 3rd Room 302	< 0.4
3199175	3917739	11/27/2018 2:21 pm 11/30/2018 11:34 am	Floor 3rd Room 313	< 0.4
3199176	3917740	11/27/2018 2:23 pm 11/30/2018 11:35 am	Floor 3rd Room 321	< 0.4
3199177	3917781	11/27/2018 2:25 pm 11/30/2018 11:36 am	Floor 2nd Room 206	0.4
3199178	3917782	11/27/2018 2:27 pm 11/30/2018 11:37 am	Floor 2nd Room IMC	0.4
3199179	3917783	11/27/2018 2:29 pm 11/30/2018 11:38 am	Floor 2nd Room IMC	0.4
3199180	3917784	11/27/2018 2:31 pm 11/30/2018 11:39 am	Floor 2nd Room 205A	< 0.4
3199181	3917785	11/27/2018 2:33 pm 11/30/2018 11:40 am	Floor 2nd Room 203	0.5

Comment: Device 3917538 was listed but not received.

Test Performed By: Nan Lin

Distributed by: Intertek-PSI (VA)

Date Received: 12/01/2018 Date Logged: 12/01/2018 Date Analyzed: 12/01/2018 Date Reported: 12/04/2018

Report Reviewed By: 

Report Approved By: 

Disclaimer:

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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 # 04481387-1

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

MCPS Radon Survey Ashburton ES
Not Indicated
Bethesda MD 20817

Log Number	Device Number	Test Exposure Duration:	Area Tested	Result (pCi/L)
3199182	3917786	11/27/2018 2:35 pm 11/30/2018 11:41 am	Floor 2nd Room 215B	0.4
3199183	3917787	11/27/2018 2:37 pm 11/30/2018 11:42 am	Floor 2nd Room 215	0.4
3199184	3917788	11/27/2018 2:39 pm 11/30/2018 11:43 am	Floor 2nd Room 219	0.4
3199185	3917789	11/27/2018 2:41 pm 11/30/2018 11:44 am	Floor 2nd Room 222	< 0.4
3199186	3917790	11/27/2018 2:43 pm 11/30/2018 11:45 am	Floor 2nd Room 235	0.7
3199187	3917791	11/27/2018 2:43 pm 11/30/2018 11:45 am	Floor 2nd Room 235 Duplicate	0.9
3199188	3917792	11/27/2018 2:47 pm 11/30/2018 11:47 am	Floor 2nd Room 236	1.1
3199189	3917793	11/27/2018 2:49 pm 11/30/2018 11:48 am	Floor 2nd Room 240	0.7
3199190	3917794	11/27/2018 2:51 pm 11/30/2018 11:49 am	Floor 2nd Room 223	0.7
3199191	3917795	11/27/2018 2:53 pm 11/30/2018 11:50 am	Floor 2nd Room 224	0.4

Comment: Device 3917538 was listed but not received.

Test Performed By: Nan Lin

Distributed by: Intertek-PSI (VA)

Date Received: 12/01/2018 Date Logged: 12/01/2018 Date Analyzed: 12/01/2018 Date Reported: 12/04/2018

Report Reviewed By: 

Report Approved By: 

Disclaimer:

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EPA Method #402-R-92-004
Charcoal Canister
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Laboratory Report for:

Property Tested: Project # 04481387-1

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2930 Eskridge Road
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MCPS Radon Survey Ashburton ES
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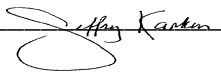
Log Number	Device Number	Test Exposure Duration:	Area Tested	Result (pCi/L)
3199192	3917796	11/27/2018 2:53 pm 11/30/2018 11:50 am	Floor 2nd Room 224 Duplicate	< 0.4
3199193	3917797	11/27/2018 2:57 pm 11/30/2018 11:52 am	Floor 2nd Room 225	< 0.4
3199194	3917798	11/27/2018 2:59 pm 11/30/2018 11:53 am	Floor 2nd Room 226	< 0.4
3199195	3917799	11/27/2018 3:01 pm 11/30/2018 11:54 am	Floor 2nd Room 228	< 0.4
3199196	3917800	11/27/2018 3:03 pm 11/30/2018 11:55 am	Floor 2nd Room 229	< 0.4
3199197	3917761	11/27/2018 3:05 pm 11/30/2018 11:56 am	Floor 2nd Room Gym	0.7
3199198	3917762	11/27/2018 3:07 pm 11/30/2018 11:57 am	Floor 2nd Room Gym	0.9
3199199	3917763	11/27/2018 3:09 pm 11/30/2018 11:58 am	Floor 2nd Room Gym Office	1.3
3199200	3917764	11/27/2018 3:17 pm 11/30/2018 12:02 pm	Floor 2nd Room 211	< 0.4
3199201	3917765	11/27/2018 3:19 pm 11/30/2018 12:03 pm	Floor 2nd Room 207	0.4

Comment: Device 3917538 was listed but not received.

Test Performed By: Nan Lin

Distributed by: Intertek-PSI (VA)

Date Received: 12/01/2018 Date Logged: 12/01/2018 Date Analyzed: 12/01/2018 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.

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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 # 04481387-1

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

MCPS Radon Survey Ashburton ES
Not Indicated
Bethesda MD 20817

Log Number	Device Number	Test Exposure Duration:			Area Tested	Result (pCi/L)
3199202	3917766	11/27/2018 3:21 pm	11/30/2018 12:04 pm	Floor 2nd Room 204	0.4	
3199203	3917767	11/27/2018 3:23 pm	11/30/2018 12:05 pm	Floor 2nd Room 201	0.6	
3199204	3917768	11/27/2018 3:25 pm	11/30/2018 12:06 pm	Floor 2nd Room 207B	0.6	
3199205	3917769	11/27/2018 3:27 pm	11/30/2018 12:07 pm	Floor 2nd Room 201D	0.6	
3199206	3917770	11/27/2018 3:29 pm	11/30/2018 12:08 pm	Floor 2nd Room 201F	0.4	
3199207	3917751	11/27/2018 3:29 pm	11/30/2018 12:08 pm	Floor 2nd Room 201F Duplicate	0.5	
3199208	3917752	11/27/2018 3:33 pm	11/30/2018 12:10 pm	Floor 2nd Room 201G	0.6	
3199209	3917522	11/27/2018 6:00 am	11/30/2018 6:00 pm	Floor NA Room Office Blank	< 0.4	
3199210	3917617	11/27/2018 6:00 am	11/30/2018 6:00 pm	Floor NA Room Transit Blank	< 0.4	
3199211	3918826	11/27/2018 1:15 pm	11/30/2018 12:10 pm	Floor NA Room Field Blank	< 0.4	

Comment: Device 3917538 was listed but not received.

Test Performed By: Nan Lin

Distributed by: Intertek-PSI (VA)

Date Received: 12/01/2018 Date Logged: 12/01/2018 Date Analyzed: 12/01/2018 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.

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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 # 04481387-1

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

MCPS Radon Survey Ashburton ES
Not Indicated
Bethesda MD 20817

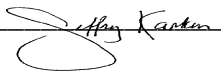
Log Number	Device Number	Test Exposure Duration:	Area Tested	Result (pCi/L)
3199212	3918812	11/27/2018 1:15 pm 11/30/2018 12:10 pm	Floor NA Room Field Blank	< 0.4

Comment: Device 3917538 was listed but not received.

Test Performed By: Nan Lin

Distributed by: Intertek-PSI (VA)

Date Received: 12/01/2018 Date Logged: 12/01/2018 Date Analyzed: 12/01/2018 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.

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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
Ashburton ES
MD 20817

Log Number	Device Number	Test Exposure Duration:	Area Tested	Result pCi/L
2401283	3888330	11/27/2018 3:11 pm - 11/30/2018 11:59 am	Floor 2nd Room APR Stage	0.6
2401284	3888380	11/27/2018 3:13 pm - 11/30/2018 12:00 pm	Floor 2nd Room APR	< 0.4
2401285	3888360	11/27/2018 3:15 pm - 11/30/2018 12:01 pm	Floor 2nd Room APR	< 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: 12/04/2018 Date Reported: 12/04/2018

Report Reviewed By: 

Report Approved By: 

Disclaimer:

Shawn Price, Director of Laboratory Operations, AccuStar Labs

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.

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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: Ashburton Elementary School

Date of Test Report:	10/18/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	7
# Rooms \geq 4.0 pCi/L:	0
Low Value:	0.5
High Value:	1.3

Project Status:

Follow-up testing after HVAC update completed; no further action at this time.



October 18, 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: Ashburton Elementary School
6314 Lone Oak Drive
Bethesda, MD 20817

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 Ashburton Elementary School, located at 6314 Lone Oak Drive in Bethesda, Maryland 20817 (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 nine (9) 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 HVAC modifications over the summer.

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

- Determine if the HVAC 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. 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 A

Floor Plan With Test Locations

ATTACHMENT B

Radon Test Summary Spreadsheet

Radon Testing Results		
Ashburton Elementary School		
Test Period: 09/26/16-09/29/16		
Kit Number	Room / Area	Result
7801922	201D	1.3
7801997	201F	1.2
7801921	201G	0.9
7801917	HEALTH OFFICE	1.1
7801919	HEALTH	0.7
7801913	MAIN OFFICE	1.1
7801916	WORKROOM	0.6

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
Ashburton Elementary School		
Test Period: 09/26/16-09/29/16		
Kit Number	QC Type	Result
7801914	D (MAIN OFFICE)	0.6
7801912	FB (MAIN OFFICE)	0.5

Table Note:

* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

October 7, 2016

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

**ASHBURTON ELEMENTARY SCHOOL
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7801922	201D	2016-09-26 @ 1:00 pm	2016-09-29 @ 11:00 am	1.3 ± 0.3	2016-10-03
7801997	201F	2016-09-26 @ 1:00 pm	2016-09-29 @ 11:00 am	1.2 ± 0.3	2016-10-03
7801921	201G	2016-09-26 @ 12:00 pm	2016-09-29 @ 11:00 am	0.9 ± 0.3	2016-10-03
7801917	HEALTH OFFICE	2016-09-26 @ 12:00 pm	2016-09-29 @ 11:00 am	1.1 ± 0.3	2016-10-03
7801919	HEALTH	2016-09-26 @ 12:00 pm	2016-09-29 @ 11:00 am	0.7 ± 0.3	2016-10-03
7801913	MAIN OFFICE	2016-09-26 @ 12:00 pm	2016-09-29 @ 11:00 am	1.1 ± 0.3	2016-10-03
7801914	MAIN OFFICE	2016-09-26 @ 12:00 pm	2016-09-29 @ 11:00 am	0.6 ± 0.3	2016-10-03
7801912	MAIN OFFICE	2016-09-26 @ 12:00 pm	2016-09-29 @ 11:00 am	0.5 ± 0.3	2016-10-03
7801916	WORKROOM	2016-09-26 @ 12:00 pm	2016-09-29 @ 11:00 am	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

RADON SCREENING SURVEY – FOLLOW-UP ASHBURTON ES ELEMENTARY SCHOOL

6314 Lone Oak Drive, Bethesda, Maryland 20817

EXECUTIVE SUMMARY

Date of Test Report:	3/10/16
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested	3
# Rooms \geq 4.0 pCi/L:	0
Low Value:	<0.3
High Value:	0.7
Confirmed Rooms \geq 4.0 pCi/L US EPA Action Level	0

Summary of Sampling Events \geq 4.0 pCi/L

Room	Result (pCi/L) 2/23/16 (Rev 1)	Result (pCi/L) 3/10/16	Average Result (pCi/L)
117	<0.3 (tampered)	0.5	0.4
123	<0.3 (tampered)	<0.3	<0.3
235	0.7 (tampered)	0.7	0.7



MCPS RADON TESTING

Executive Summary: Ashburton Elementary School

Date of Test Report:	3/10/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	3
# Rooms \geq 4.0 pCi/L:	0
Low Value:	< 0.3
High Value:	0.7

Project Status:

Retesting completed; no further action at this time.



March 10, 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 # 12146341.29

Location: Ashburton Elementary School
6314 Lone Oak Drive
Bethesda, MD 20817

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 Ashburton Elementary School, located at 6314 Lone Oak Drive in Bethesda, Maryland 20817 (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 February 22, 2016 and deployed five (5) 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 February 25, 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. Note that strong storms and heavy rainfall were recorded during the test period. The unusual weather conditions may have resulted in atypical radon test results for this facility.

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

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. 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 A

Floor Plan With Test Locations

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

*Office blanks were submitted at a rate of 1% for all samples deployed in Phase 9 testing. Office blanks were not submitted under each school individually.

Radon Testing Results		
Ashburton Elementary School		
Test Period: 02/22/16-02/25/16		
Kit Number	Room / Area	Result
7731476	117	0.5
7731489	123	< 0.3
7731490	235	0.7

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
Ashburton Elementary School		
Test Period: 02/22/16-02/25/16		
Kit Number	QC Type	Result
7731493	D (235)	0.7
7731487	FB (117)	< 0.3

Table Note:

* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

March 8, 2016 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
**ASHBURTON ELEMENTARY SCHOOL
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7731476	117	2016-02-22 @ 12:00 pm	2016-02-25 @ 11:00 am	0.5 ± 0.3	2016-02-29
7731487	117	2016-02-22 @ 12:00 pm	2016-02-25 @ 11:00 am	< 0.3	2016-02-29
7731489	123	2016-02-22 @ 12:00 pm	2016-02-25 @ 11:00 am	< 0.3	2016-02-29
7731490	235	2016-02-22 @ 12:00 pm	2016-02-25 @ 11:00 am	0.7 ± 0.3	2016-02-29
7731493	235	2016-02-22 @ 12:00 pm	2016-02-25 @ 11:00 am	0.7 ± 0.3	2016-02-29

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

March 9, 2016 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
MCPS
Phase 9 Office Blanks

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7712568	0	2016-02-22 @ 6:00 pm	2016-02-25 @ 3:00 pm	< 0.3	2016-02-29
7712584	0	2016-02-22 @ 6:00 pm	2016-02-25 @ 3:00 pm	< 0.3	2016-02-29
7719460	0	2016-02-22 @ 6:00 pm	2016-02-25 @ 3:00 pm	< 0.3	2016-02-29
7719481	0	2016-02-22 @ 6:00 pm	2016-02-25 @ 3:00 pm	< 0.3	2016-02-29
7719497	0	2016-02-22 @ 6:00 pm	2016-02-25 @ 3:00 pm	< 0.3	2016-02-29
7719498	0	2016-02-22 @ 6:00 pm	2016-02-25 @ 3:00 pm	< 0.3	2016-02-29

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

March 9, 2016 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
MCPS
Phase 9 Office Blanks

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7731626	0	2016-02-23 @ 2:00 pm	2016-02-26 @ 3:00 pm	< 0.3	2016-03-01
7731633	0	2016-02-23 @ 2:00 pm	2016-02-26 @ 3:00 pm	< 0.3	2016-03-01
7735204	0	2016-02-23 @ 2:00 pm	2016-02-26 @ 3:00 pm	< 0.3	2016-03-01

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

February 23, 2016
LABORATORY ANALYSIS REPORT

Radon test result report for:
TRANSIT- PHASE 7, 8, 9
NONE

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7734937	1	2016-02-19 @ 3:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734946	10	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734955	11	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734956	12	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734959	13	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734930	14	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734953	15	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734954	16	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734940	17	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734949	18	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734948	19	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734939	2	2016-02-19 @ 3:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734942	20	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734929	21	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734933	22	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734934	23	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734936	24	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734943	25	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734944	26	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734935	27	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734928	28	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734952	29	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734947	3	2016-02-19 @ 3:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734931	30	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734932	31	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7718520	32	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7718523	33	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7718522	34	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7718521	35	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734945	4	2016-02-19 @ 3:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734960	5	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734958	6	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734951	7	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734957	8	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23
7734938	9	2016-02-19 @ 4:00 pm	2016-02-22 @ 11:00 am	< 0.3	2016-02-23

February
15,
2016

**** LABORATORY ANALYSIS
REPORT ****

Spike Sample Laboratory Results

Radon test result report for:
MCPS

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7718273	101A	2016-01-30 @ 9:00 am	2016-02-01 @ 9:00 am	6.5 ± 0.6	2016-02-04
7718281	102B	2016-01-30 @ 9:00 am	2016-02-01 @ 9:00 am	6.4 ± 0.6	2016-02-04
7718282	103C	2016-01-30 @ 9:00 am	2016-02-01 @ 9:00 am	6.3 ± 0.6	2016-02-04
7718288	104D	2016-01-30 @ 9:00 am	2016-02-01 @ 9:00 am	6.7 ± 0.6	2016-02-04
7718289	105E	2016-01-30 @ 9:00 am	2016-02-01 @ 9:00 am	6.6 ± 0.6	2016-02-04
7718291	106F	2016-01-30 @ 9:00 am	2016-02-01 @ 9:00 am	6.5 ± 0.6	2016-02-04

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 KCF Technologies Inc. Job Number 173704

NOMINAL Conditions: Radon Conc 5.9 pCi/L Rel. Hum 45.9 % Temp. 79.0 F

Date Start: 1/30/16 Date Stop: 2/1/16 Date Start: _____ Date Stop: _____

Time Start: 0926 Time Stop: 0926 Time Start: _____ Time Stop: _____

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

7718281, 7718282, 7718291, _____

7718288, 7718289, 7718273 _____

ε3 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 9

Name of Schools:

- | | | |
|--------------------------|---------------------------|------------------------|
| 1. Rocking Horse Road ES | 16. Broad Acres ES | 31. Rosa Parks MS |
| 2. Rockwell ES | 17. Belmont ES | 32. Rosemary Hills ES |
| 3. Oakland Terrace ES | 18. Emory Grove Center | 33. Sequoyah ES |
| 4. Rosemont ES | 19. Forest Knolls ES | 34. Damascus HS |
| 5. Beall ES | 20. Baker MS | 35. Einstein ES |
| 6. Cresthaven ES | 21. MLK MS | 36. Forest Oak MS |
| 7. Quince Orchard HS | 22. Richard Montgomery HS | 37. Hoover MS |
| 8. Smith Center | 23. Sherwood HS | 38. Julius West MS |
| 9. Ashburton ES | 24. Walter Johnson HS | 39. John F. Kennedy HS |
| 10. Bannockburn ES | 25. Diamond ES | 40. Travilah ES |
| 11. Bradley Hills ES | 26. Newport Mill MS | 41. Watkins Mill HS |
| 12. Cannon Road ES | 27. Drew ES | 42. Northwood HS |
| 13. Flora M. Singer ES | 28. Monocacy ES | 43. Lincoln Center |
| 14. Clarksburg HS | 29. Potomac ES | |
| 15. Briggs Chaney MS | 30. Rock Terrace School | |

	Date	Initials
Radon Test Kits Deployed	2/22/16	JM
Radon Test Kits Collected	2/25/16	JM
Radon Test Kits Shipped to Lab*	2/25/16	JM
Radon Test Kits Received by Lab*	2/29/16	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 9

Name of Schools:

- | | |
|----------------------------|-------------------------|
| 1. Banneker MS | 10. Maryvale ES |
| 2. Bethesda-Chevy Chase HS | 11. Montgomery Blair HS |
| 3. Burtonsville ES | 12. Poolesville HS |
| 4. Chevy Chase ES | 13. Rachel Carson ES |
| 5. Clopper Mill ES | 14. Stedwick ES |
| 6. Edison HS | 15. Watkins Mill ES |
| 7. Flower Hill ES | 16. Laytonsville ES |
| 8. Flower Valley ES | 17. Lincoln Center |
| 9. Greencastle ES | |

	Date	Initials
Radon Test Kits Deployed	2/23/16	JM
Radon Test Kits Collected	2/26/16	JM
Radon Test Kits Shipped to Lab*	2/26/16	JM
Radon Test Kits Received by Lab*	3/01/16	JM

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



MCPS RADON TESTING

Executive Summary: Ashburton Elementary School

Date of Test Report:	2/23/2016 (Rev 1)
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	63
# Rooms \geq 4.0 pCi/L:	0
Low Value:	< 0.3
High Value:	1.7

Project Status:

Initial testing completed; missing or compromised samples need re-test



February 23, 2016 (Rev 1)

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

Re: **Radon Testing Services**
KCI Job # 12146341.20

Location: Ashburton Elementary School
6314 Lone Oak Drive
Bethesda, MD 20817

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 Ashburton Elementary School, located at 6314 Lone Oak Drive in Bethesda, Maryland 20817 (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 December 21, 2015 and deployed seventy-nine (79) 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 December 24, 2015 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 A

Floor Plan With Test Locations

ATTACHMENT B

Radon Test Summary Spreadsheet

Table Notes:

AC- Activated Charcoal

ACI- Air Chek, Inc.

D- Duplicate

B- Field Blank

KCI- KCI Technologies, Inc.

OB- Office Blank

PM- Project Manager

QC- Quality Control

Radon Testing Results		
Ashburton Elementary School		
Test Period: 12/21/15-12/24/15		
Kit Number	Room / Area	Result
7713762	101	0.7
7713763	102	< 0.3
7713764	103	< 0.3
7713765	104	< 0.3
7713766	107	0.8
7713774	108	< 0.3
7713771	110	< 0.3
7713773	110	< 0.3
7713776	118	< 0.3
7713777	121	< 0.3
7713780	124	0.7
7713781	125	0.8
7713783	126	< 0.3
7713784	130	1.0
7713786	132	1.7
7713785	133	1.2
7713787	135	1.2
7713788	139	1.1
7713789	141	1.4
7713792	145	1.5
7713793	147	1.2
7713790	150	1.4
7713794	152	0.9
7713795	156	1.0
7713750	201	< 0.3
7713749	201	0.6
7713759	203	0.7
7713758	204	< 0.3
7712216	205	< 0.3
7712215	205	< 0.3
7713761	206	< 0.3
7713756	207	< 0.3
7712212	213	< 0.3
7712211	213	0.6
7712213	215	0.8
7713799	222	< 0.3
7712201	223	< 0.3
7712202	224	< 0.3
7712203	225	< 0.3
7712205	226	< 0.3
7712206	228	< 0.3
7712207	229	< 0.3
7712208	230	< 0.3
7712209	230	0.6
7713797	236	0.8
7713796	240	0.9

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
Ashburton Elementary School		
Test Period: 12/21/15-12/24/15		
Kit Number	Room / Area	Result
7712217	302	< 0.3
7712218	318	< 0.3
7713769	109A	< 0.3
7713768	109B	< 0.3
7713770	109C	< 0.3
7713775	* 117 (tampered)	< 0.3
7713779	* 123 (tampered)	< 0.3
7713754	201D	< 0.3
7713751	201F	< 0.3
7713753	201G	0.5
7713760	205A	< 0.3
7713757	207B	< 0.3
7712210	230B	1.3
7713798	* 235 (tampered)	0.7
7712220	ML1002	< 0.3
7712221	ML1044	< 0.3
7712226	ML1076	< 0.3
7712225	ML1085	< 0.3
7712223	ML922	< 0.3
7712222	ML943	< 0.3
7712224	ML964	< 0.3
7712219	ML992	< 0.3

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
Ashburton Elementary School		
Test Period: 12/21/15-12/24/15		
Kit Number	QC Type	Result
7713767	D (107)	< 0.3
7713772	D (110)	< 0.3
7713778	D (121)	< 0.3
7713791	D (150)	1.3
7713752	D (201F)	< 0.3
7713800	D (222)	< 0.3
7712204	D (225)	< 0.3
7713782	FB (125)	< 0.3
7713755	FB (201D)	< 0.3
7712214	FB (215)	< 0.3
7707318	OB (0)	< 0.3

Table Note:

* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

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**LABORATORY ANALYSIS
REPORT ****

Radon test result report for:

**ASHBURTON ELEMENTARY SCHOOL
ASHBURTON ELEMENTARY SCHOOL**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7707318	0	2015-12-22 @ 9:00 am	2015-12-24 @ 12:00 pm	< 0.3	2015-12-28
7713762	101	2015-12-21 @ 12:00 pm	2015-12-24 @ 10:00 am	0.7 ± 0.3	2015-12-28
7713763	102	2015-12-21 @ 12:00 pm	2015-12-24 @ 10:00 am	< 0.3	2015-12-28
7713764	103	2015-12-21 @ 12:00 pm	2015-12-24 @ 10:00 am	< 0.3	2015-12-28
7713765	104	2015-12-21 @ 12:00 pm	2015-12-24 @ 10:00 am	< 0.3	2015-12-28
7713766	107	2015-12-21 @ 12:00 pm	2015-12-24 @ 10:00 am	0.8 ± 0.3	2015-12-28
7713767	107	2015-12-21 @ 12:00 pm	2015-12-24 @ 10:00 am	< 0.3	2015-12-28
7713774	108	2015-12-21 @ 12:00 pm	2015-12-24 @ 10:00 am	< 0.3	2015-12-28
7713769	109A	2015-12-21 @ 12:00 pm	2015-12-24 @ 10:00 am	< 0.3	2015-12-28
7713768	109B	2015-12-21 @ 12:00 pm	2015-12-24 @ 10:00 am	< 0.3	2015-12-28
7713770	109C	2015-12-21 @ 12:00 pm	2015-12-24 @ 10:00 am	< 0.3	2015-12-28
7713771	110	2015-12-21 @ 12:00 pm	2015-12-24 @ 10:00 am	< 0.3	2015-12-28
7713772	110	2015-12-21 @ 12:00 pm	2015-12-24 @ 10:00 am	< 0.3	2015-12-28
7713773	110	2015-12-21 @ 12:00 pm	2015-12-24 @ 10:00 am	< 0.3	2015-12-28
7713775	117	2015-12-21 @ 1:00 pm	2015-12-24 @ 10:00 am	< 0.3	2015-12-28
7713776	118	2015-12-21 @ 1:00 pm	2015-12-24 @ 10:00 am	< 0.3	2015-12-28
7713777	121	2015-12-21 @ 1:00 pm	2015-12-24 @ 10:00 am	< 0.3	2015-12-28
7713778	121	2015-12-21 @ 1:00 pm	2015-12-24 @ 10:00 am	< 0.3	2015-12-28
7713779	123	2015-12-21 @ 1:00 pm	2015-12-24 @ 10:00 am	< 0.3	2015-12-28
7713780	124	2015-12-21 @ 1:00 pm	2015-12-24 @ 10:00 am	0.7 ± 0.3	2015-12-28
7713781	125	2015-12-21 @ 1:00 pm	2015-12-24 @ 10:00 am	0.8 ± 0.3	2015-12-28
7713782	125	2015-12-21 @ 1:00 pm	2015-12-24 @ 10:00 am	< 0.3	2015-12-28
7713783	126	2015-12-21 @ 1:00 pm	2015-12-24 @ 10:00 am	< 0.3	2015-12-28
7713784	130	2015-12-21 @ 1:00 pm	2015-12-24 @ 11:00 am	1.0 ± 0.3	2015-12-28
7713786	132	2015-12-21 @ 1:00 pm	2015-12-24 @ 11:00 am	1.7 ± 0.3	2015-12-28
7713785	133	2015-12-21 @ 1:00 pm	2015-12-24 @ 11:00 am	1.2 ± 0.3	2015-12-28
7713787	135	2015-12-21 @ 1:00 pm	2015-12-24 @ 11:00 am	1.2 ± 0.3	2015-12-28
7713788	139	2015-12-21 @ 1:00 pm	2015-12-24 @ 11:00 am	1.1 ± 0.3	2015-12-28
7713789	141	2015-12-21 @ 1:00 pm	2015-12-24 @ 11:00 am	1.4 ± 0.3	2015-12-28
7713792	145	2015-12-21 @ 1:00 pm	2015-12-24 @ 11:00 am	1.5 ± 0.3	2015-12-28
7713793	147	2015-12-21 @ 1:00 pm	2015-12-24 @ 11:00 am	1.2 ± 0.3	2015-12-28
7713790	150	2015-12-21 @ 1:00 pm	2015-12-24 @ 11:00 am	1.4 ± 0.3	2015-12-28
7713791	150	2015-12-21 @ 1:00 pm	2015-12-24 @ 11:00 am	1.3 ± 0.3	2015-12-28
7713794	152	2015-12-21 @ 1:00 pm	2015-12-24 @ 11:00 am	0.9 ± 0.3	2015-12-28
7713795	156	2015-12-21 @ 1:00 pm	2015-12-24 @ 11:00 am	1.0 ± 0.3	2015-12-28
7713749	201	2015-12-21 @ 12:00 pm	2015-12-24 @ 10:00 am	0.6 ± 0.3	2015-12-28
7713750	201	2015-12-21 @ 12:00 pm	2015-12-24 @ 10:00 am	< 0.3	2015-12-28

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Radon test result report for:

**ASHBURTON ELEMENTARY SCHOOL
ASHBURTON ELEMENTARY SCHOOL**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7713754	201D	2015-12-21 @ 12:00 pm	2015-12-24 @ 11:00 am	< 0.3	2015-12-28
7713755	201D	2015-12-21 @ 12:00 pm	2015-12-24 @ 11:00 am	< 0.3	2015-12-28
7713751	201F	2015-12-21 @ 12:00 pm	2015-12-24 @ 11:00 am	< 0.3	2015-12-28
7713752	201F	2015-12-21 @ 12:00 pm	2015-12-24 @ 11:00 am	< 0.3	2015-12-28
7713753	201G	2015-12-21 @ 12:00 pm	2015-12-24 @ 11:00 am	0.5 ± 0.3	2015-12-28
7713759	203	2015-12-21 @ 12:00 pm	2015-12-24 @ 11:00 am	0.7 ± 0.3	2015-12-28
7713758	204	2015-12-21 @ 12:00 pm	2015-12-24 @ 11:00 am	< 0.3	2015-12-28
7712215	205	2015-12-21 @ 2:00 pm	2015-12-24 @ 11:00 am	< 0.3	2015-12-28
7712216	205	2015-12-21 @ 2:00 pm	2015-12-24 @ 11:00 am	< 0.3	2015-12-28
7713760	205A	2015-12-21 @ 12:00 pm	2015-12-24 @ 11:00 am	< 0.3	2015-12-28
7713761	206	2015-12-21 @ 12:00 pm	2015-12-24 @ 12:00 pm	< 0.3	2015-12-28
7713756	207	2015-12-21 @ 12:00 pm	2015-12-24 @ 10:00 am	< 0.3	2015-12-28
7713757	207B	2015-12-21 @ 12:00 pm	2015-12-24 @ 12:00 pm	< 0.3	2015-12-28
7712211	213	2015-12-21 @ 2:00 pm	2015-12-24 @ 10:00 am	0.6 ± 0.3	2015-12-28
7712212	213	2015-12-21 @ 2:00 pm	2015-12-24 @ 10:00 am	< 0.3	2015-12-28
7712213	215	2015-12-21 @ 2:00 pm	2015-12-24 @ 11:00 am	0.8 ± 0.3	2015-12-28
7712214	215	2015-12-21 @ 2:00 pm	2015-12-24 @ 11:00 am	< 0.3	2015-12-28
7713799	222	2015-12-21 @ 1:00 pm	2015-12-24 @ 11:00 am	< 0.3	2015-12-28
7713800	222	2015-12-21 @ 2:00 pm	2015-12-24 @ 11:00 am	< 0.3	2015-12-28
7712201	223	2015-12-21 @ 2:00 pm	2015-12-24 @ 11:00 am	< 0.3	2015-12-28
7712202	224	2015-12-21 @ 2:00 pm	2015-12-24 @ 11:00 am	< 0.3	2015-12-28
7712203	225	2015-12-21 @ 2:00 pm	2015-12-24 @ 11:00 am	< 0.3	2015-12-28
7712204	225	2015-12-21 @ 2:00 pm	2015-12-24 @ 11:00 am	< 0.3	2015-12-28
7712205	226	2015-12-21 @ 2:00 pm	2015-12-24 @ 11:00 am	< 0.3	2015-12-28
7712206	228	2015-12-21 @ 2:00 pm	2015-12-24 @ 11:00 am	< 0.3	2015-12-28
7712207	229	2015-12-21 @ 2:00 pm	2015-12-24 @ 11:00 am	< 0.3	2015-12-28
7712208	230	2015-12-21 @ 2:00 pm	2015-12-24 @ 11:00 am	< 0.3	2015-12-28
7712209	230	2015-12-21 @ 2:00 pm	2015-12-24 @ 11:00 am	0.6 ± 0.3	2015-12-28
7712210	230B	2015-12-21 @ 2:00 pm	2015-12-24 @ 11:00 am	1.3 ± 0.3	2015-12-28
7713798	235	2015-12-21 @ 1:00 pm	2015-12-24 @ 11:00 am	0.7 ± 0.3	2015-12-28
7713797	236	2015-12-21 @ 1:00 pm	2015-12-24 @ 11:00 am	0.8 ± 0.3	2015-12-28
7713796	240	2015-12-21 @ 1:00 pm	2015-12-24 @ 11:00 am	0.9 ± 0.3	2015-12-28
7712217	302	2015-12-21 @ 2:00 pm	2015-12-24 @ 12:00 pm	< 0.3	2015-12-28
7712218	318	2015-12-21 @ 3:00 pm	2015-12-24 @ 12:00 pm	< 0.3	2015-12-28
7712220	ML1002	2015-12-21 @ 3:00 pm	2015-12-24 @ 11:00 am	< 0.3	2015-12-28
7712221	ML1044	2015-12-21 @ 3:00 pm	2015-12-24 @ 11:00 am	< 0.3	2015-12-28
7712226	ML1076	2015-12-21 @ 3:00 pm	2015-12-24 @ 11:00 am	< 0.3	2015-12-28

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Radon test result report for:

**ASHBURTON ELEMENTARY SCHOOL
ASHBURTON ELEMENTARY SCHOOL**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7712225	ML1085	2015-12-21 @ 3:00 pm	2015-12-24 @ 11:00 am	< 0.3	2015-12-28
7712223	ML922	2015-12-21 @ 3:00 pm	2015-12-24 @ 11:00 am	< 0.3	2015-12-28
7712222	ML943	2015-12-21 @ 3:00 pm	2015-12-24 @ 11:00 am	< 0.3	2015-12-28
7712224	ML964	2015-12-21 @ 3:00 pm	2015-12-24 @ 11:00 am	< 0.3	2015-12-28
7712219	ML992	2015-12-21 @ 3:00 pm	2015-12-24 @ 11:00 am	< 0.3	2015-12-28

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

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Radon test result report for:
TRANSIT DEC 14 2015
NONE

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7704395	TRANSIT 1	2015-12-13 @ 10:00 am	2015-12-15 @ 10:00 am	< 0.3	2015-12-16
7706508	TRANSIT 10	2015-12-13 @ 10:00 am	2015-12-15 @ 10:00 am	< 0.3	2015-12-16
7706510	TRANSIT 11	2015-12-13 @ 10:00 am	2015-12-15 @ 10:00 am	< 0.3	2015-12-16
7706511	TRANSIT 12	2015-12-13 @ 10:00 am	2015-12-15 @ 10:00 am	< 0.3	2015-12-16
7706505	TRANSIT 13	2015-12-13 @ 10:00 am	2015-12-15 @ 10:00 am	< 0.3	2015-12-16
7704371	TRANSIT 14	2015-12-13 @ 10:00 am	2015-12-15 @ 10:00 am	< 0.3	2015-12-16
7706506	TRANSIT 15	2015-12-13 @ 10:00 am	2015-12-15 @ 10:00 am	< 0.3	2015-12-16
7704381	TRANSIT 16	2015-12-13 @ 10:00 am	2015-12-15 @ 10:00 am	< 0.3	2015-12-16
7704399	TRANSIT 17	2015-12-13 @ 10:00 am	2015-12-15 @ 10:00 am	< 0.3	2015-12-16
7704390	TRANSIT 18	2015-12-13 @ 10:00 am	2015-12-15 @ 10:00 am	< 0.3	2015-12-16
7704396	TRANSIT 2	2015-12-13 @ 10:00 am	2015-12-15 @ 10:00 am	< 0.3	2015-12-16
7704364	TRANSIT 3	2015-12-13 @ 10:00 am	2015-12-15 @ 10:00 am	< 0.3	2015-12-16
7704370	TRANSIT 4	2015-12-13 @ 10:00 am	2015-12-15 @ 10:00 am	< 0.3	2015-12-16
7704368	TRANSIT 5	2015-12-13 @ 10:00 am	2015-12-15 @ 10:00 am	< 0.3	2015-12-16
7706524	TRANSIT 6	2015-12-13 @ 10:00 am	2015-12-15 @ 10:00 am	< 0.3	2015-12-16
7706526	TRANSIT 7	2015-12-13 @ 10:00 am	2015-12-15 @ 10:00 am	< 0.3	2015-12-16
7706518	TRANSIT 8	2015-12-13 @ 10:00 am	2015-12-15 @ 10:00 am	< 0.3	2015-12-16
7706516	TRANSIT 9	2015-12-13 @ 10:00 am	2015-12-15 @ 10:00 am	< 0.3	2015-12-16

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**LABORATORY ANALYSIS
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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 II

School Names:

- | | | |
|---------------------------|-----------------------------|---------------------------|
| 1. Bannockburn ES | 11. Sherwood HS | 21. Fairland ES |
| 2. Walt Whitman HS | 12. Hadley Farms | 22. Cannon Road ES |
| 3. Walter Johnson HS | 13. S. Christa McAuliffe ES | 23. Richard Montgomery HS |
| 4. North Chevy Chase ES | 14. Ronald A. McNair ES | 24. Brooke Grove ES |
| 5. Piney Branch ES | 15. MLK MS | 25. Belmont ES |
| 6. Forest Knolls ES | 16. Ashburton ES | 26. Emory Grove |
| 7. Newport Mill MS | 17. Bradley Hills ES | 27. Clarksburg HS |
| 8. Broad Acres ES | 18. Flora M. Singer ES | 28. Clarksburg ES |
| 9. Briggs Chaney MS | 19. Woodlin ES | 29. John T. Baker MS |
| 10. Blair G. Ewing Center | 20. Montgomery Knolls ES | |

	Date	Initials
Radon Test Kits Deployed	12/21/2015	JM
Radon Test Kits Collected	12/24/2015	JM
Radon Test Kits Shipped to Lab*	12/24/2015	JM
Radon Test Kits Received by Lab*	12/28/2015	JM

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