



MCPS RADON TESTING – EXECUTIVE SUMMARY

Site Name	Mill Creek Towne Elementary School
Date of Test Report	2/21/2023
Round of Testing	Initial Follow-up Post Remediation 2 Year Testing 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility
# Rooms Tested	39
# Rooms Re-tested	1
# Rooms ≥ 4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	1.8 pCi/L

Project Status:

1. Initial testing completed;
2. Missing or compromised samples need re-test.
3. Retesting Completed 1/31/23 – 2/3/23.
4. 5-Year Testing Completed.



February 21, 2023

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

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

Location: Mill Creek Towne Elementary School
17700 Park Mill Drive
Rockville, MD 20855

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 Beall Elementary School, located at 451 Beall Avenue in Rockville, Maryland 20850 (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 initially on December 5, 2022 and deployed sixty-six (66) 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.

KCI returned to the site on December 8, 2022 to retrieve initial testing 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.

KCI re-visited the site on January 31, 2023 to deploy three (3) activated charcoal (AC) radon test kits for testing of missed rooms or compromised test kits during initial testing.

KCI returned to the site on February 3, 2023 to retrieve the radon re-sampling test kits. KCI shipped all radon tests via overnight delivery to Accustar Labs – MA for analysis by gamma-ray spectroscopy. Accustar Labs – MA is a NRSB certified analytical laboratory for radon analysis (certification #ARL0017) located at 2 Saber Way, Ward Hill, MA 01835.

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.

Evaluation of Testing Conditions:

These tests represent:

- Follow up to initial testing.

These tests were conducted to:

- Evaluated 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 initial 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.

During the re-testing period, weather records indicate low temperatures were in the mid-20s°F and high temperatures ranged to the low 40s°F. Maximum sustained winds ranged from 0-21 miles per hour. Average humidity was around 70% with .18 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	

The results of the radon re-testing 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		
Mill Creek Towne ES		
Test Period: 12/12/2022 - 12/15/2022		
Kit Number	Room / Area	Result
11285639	102	1.5
11285649	104	1.8
11285626	108	0.8
11285299	110	< 0.3
11285620	111	0.8
11285294	115	0.8
11285630	115	0.6
11285627	118	0.9
11285629	120	0.9
11285619	122	1.1
11285296	123	0.7
11285300	124	1.1
11285622	125	1.0
11285632	126	0.9
11285633	126	< 0.3
11285635	126	0.6
11285634	127	0.7
11285628	128	0.9
11285625	129	0.9
11285642	137	1.1
11285641	141	0.8
11285636	143	1.3
11285650	208	1.4
11285652	208	< 0.3
11285654	208	0.8
11285657	213	0.9
11285655	227	1.0
11285293	100B	0.7
11285663	100E	0.5
11285664	101C	0.6
11285643	109A	1.3
11285644	109A	N/A
11285640	139A	0.8
11285631	139B	0.9
11285646	GYM 109	1.3
11285647	GYM 109	1.3
11285295	HEALTH ROOM	0.5
11285298	HEALTH ROOM OFFICE	0.9
11285653	KITCHEN OFFICE	1.0
11285297	MAIN OFFICE 100	0.5
11285637	MEDIA CENTER 139	0.9
11285638	MEDIA CENTER 139	1.0

Table 1- Radon Testing Results		
Mill Creek Towne ES		
Test Period: 12/12/2022 - 12/15/2022		
Kit Number	Room / Area	Result
11285645	MULTI PURPOSE ROOM 101	0.9
11285648	MULTI PURPOSE ROOM 101	1.2
11285621	WORK ROOM 100H	0.7

Table 2- Radon Testing Results			
Mill Creek Towne ES			
Test Period: 12/12/22 - 12/15/22			
Kit Number	QC Type	Room / Area	Result
11285294	D	115	0.8
11285632	D	126	0.9
11285633	FB	126	< 0.3
11285650	D	208	1.4
11285652	FB	208	< 0.3
11285644	D	109A	N/A
11286981	OB	OFFICE BLANK	< 0.3
11286982	TB	TRAVEL BLANK	< 0.3

Table 1- Radon Testing Results		
Mill Creek Towne ES RT		
Test Period: 01/31/2023 - 02/03/2023		
Kit Number	Room / Area	Result
11288288	109A	< 0.3
11634699	109A	< 0.3
11634700	109A	< 0.3

Table 2- Radon Testing Results			
Mill Creek Towne ES RT			
Test Period: 01/31/23 - 02/03/23			
Kit Number	QC Type	Room / Area	Result
11634699	D	109A	< 0.3
11288288	FB	109A	< 0.3
11634990	OB	OFFICE BLANK	< 0.3
11634991	TB	TRAVEL BLANK	< 0.3

ATTACHMENT C

Laboratory Analytical Results

Radon test result report for:

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11285663	100E	2022-12-13 @ 11:00 am	2022-12-16 @ 8:00 am	0.5 ± 0.3	2022-12-19
11285664	101C	2022-12-13 @ 10:00 am	2022-12-16 @ 9:00 am	0.6 ± 0.3	2022-12-19
11285639	102	2022-12-13 @ 10:00 am	2022-12-16 @ 9:00 am	1.5 ± 0.3	2022-12-19
11285649	104	2022-12-13 @ 10:00 am	2022-12-16 @ 9:00 am	1.8 ± 0.3	2022-12-19
11285643	109A	2022-12-13 @ 10:00 am	2022-12-16 @ 9:00 am	1.3 ± 0.3	2022-12-19
11285644	109A	2022-12-13 @ 10:00 am	2022-12-16 @ 9:00 am	???? TWI	2022-12-19
11285642	137	2022-12-13 @ 9:00 am	2022-12-16 @ 9:00 am	1.1 ± 0.3	2022-12-19
11285641	141	2022-12-13 @ 9:00 am	2022-12-16 @ 9:00 am	0.8 ± 0.3	2022-12-19
11285636	143	2022-12-13 @ 9:00 am	2022-12-16 @ 9:00 am	1.3 ± 0.3	2022-12-19
11285652	208	2022-12-13 @ 10:00 am	2022-12-16 @ 9:00 am	< 0.3	2022-12-19
11285650	208	2022-12-13 @ 10:00 am	2022-12-16 @ 9:00 am	1.4 ± 0.3	2022-12-19
11285654	208	2022-12-13 @ 10:00 am	2022-12-16 @ 9:00 am	0.8 ± 0.3	2022-12-19
11285657	213	2022-12-13 @ 10:00 am	2022-12-16 @ 9:00 am	0.9 ± 0.3	2022-12-19
11285655	227	2022-12-13 @ 10:00 am	2022-12-16 @ 9:00 am	1.0 ± 0.3	2022-12-19
11285647	GYM 109	2022-12-13 @ 10:00 am	2022-12-16 @ 9:00 am	1.3 ± 0.3	2022-12-19
11285646	GYM 109	2022-12-13 @ 10:00 am	2022-12-16 @ 9:00 am	1.3 ± 0.3	2022-12-19
11285653	KITCHEN OFFICE	2022-12-13 @ 10:00 am	2022-12-16 @ 9:00 am	1.0 ± 0.3	2022-12-19
11285648	MULTI PURPOSE ROOM 101	2022-12-13 @ 10:00 am	2022-12-16 @ 9:00 am	1.2 ± 0.3	2022-12-19
11285645	MULTI PURPOSE ROOM 101	2022-12-13 @ 10:00 am	2022-12-16 @ 9:00 am	0.9 ± 0.3	2022-12-19

Radon test result report for:**MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11285293	100B	2022-12-13 @ 8:00 am	2022-12-16 @ 8:00 am	0.7 ± 0.3	2022-12-19
11285626	108	2022-12-13 @ 9:00 am	2022-12-16 @ 9:00 am	0.8 ± 0.3	2022-12-19
11285299	110	2022-12-13 @ 9:00 am	2022-12-16 @ 9:00 am	< 0.3	2022-12-19
11285620	111	2022-12-13 @ 9:00 am	2022-12-16 @ 9:00 am	0.8 ± 0.3	2022-12-19
11285294	115	2022-12-13 @ 9:00 am	2022-12-16 @ 9:00 am	0.8 ± 0.3	2022-12-19
11285630	115	2022-12-13 @ 9:00 am	2022-12-16 @ 9:00 am	0.6 ± 0.3	2022-12-19
11285627	118	2022-12-13 @ 9:00 am	2022-12-16 @ 9:00 am	0.9 ± 0.3	2022-12-19
11285629	120	2022-12-13 @ 9:00 am	2022-12-16 @ 9:00 am	0.9 ± 0.3	2022-12-19
11285619	122	2022-12-13 @ 9:00 am	2022-12-16 @ 9:00 am	1.1 ± 0.3	2022-12-19
11285296	123	2022-12-13 @ 9:00 am	2022-12-16 @ 9:00 am	0.7 ± 0.3	2022-12-19
11285300	124	2022-12-13 @ 9:00 am	2022-12-16 @ 9:00 am	1.1 ± 0.3	2022-12-19
11285622	125	2022-12-13 @ 9:00 am	2022-12-16 @ 9:00 am	1.0 ± 0.3	2022-12-19
11285635	126	2022-12-13 @ 9:00 am	2022-12-16 @ 9:00 am	0.6 ± 0.3	2022-12-19
11285633	126	2022-12-13 @ 9:00 am	2022-12-16 @ 9:00 am	< 0.3	2022-12-19
11285632	126	2022-12-13 @ 9:00 am	2022-12-16 @ 9:00 am	0.9 ± 0.3	2022-12-19
11285634	127	2022-12-13 @ 9:00 am	2022-12-16 @ 9:00 am	0.7 ± 0.3	2022-12-19
11285628	128	2022-12-13 @ 9:00 am	2022-12-16 @ 9:00 am	0.9 ± 0.3	2022-12-19
11285625	129	2022-12-13 @ 9:00 am	2022-12-16 @ 9:00 am	0.9 ± 0.3	2022-12-19
11285640	139A	2022-12-13 @ 9:00 am	2022-12-16 @ 9:00 am	0.8 ± 0.3	2022-12-19
11285631	139B	2022-12-13 @ 9:00 am	2022-12-16 @ 9:00 am	0.9 ± 0.3	2022-12-19
11285295	HEALTH ROOM	2022-12-13 @ 8:00 am	2022-12-16 @ 8:00 am	0.5 ± 0.3	2022-12-19
11285298	HEALTH ROOM OFFICE	2022-12-13 @ 8:00 am	2022-12-16 @ 8:00 am	0.9 ± 0.3	2022-12-19
11285297	MAIN OFFICE 100	2022-12-13 @ 8:00 am	2022-12-16 @ 8:00 am	0.5 ± 0.3	2022-12-19
11285638	MEDIA CENTER 139	2022-12-13 @ 9:00 am	2022-12-16 @ 9:00 am	1.0 ± 0.3	2022-12-19
11285637	MEDIA CENTER 139	2022-12-13 @ 9:00 am	2022-12-16 @ 9:00 am	0.9 ± 0.3	2022-12-19
11285621	WORK ROOM 100H	2022-12-13 @ 9:00 am	2022-12-16 @ 9:00 am	0.7 ± 0.3	2022-12-19

February 7, 2023

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11288288	109A	2023-01-31 @ 11:00 am	2023-02-03 @ 10:00 am	< 0.3	2023-02-07
11634699	109A	2023-01-31 @ 11:00 am	2023-02-03 @ 10:00 am	< 0.3	2023-02-07
11634700	109A	2023-01-31 @ 11:00 am	2023-02-03 @ 10:00 am	< 0.3	2023-02-07

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 KCI TECHNOLOGIES, INC Job Number 208802

NOMINAL Conditions: Radon Conc 24.4 pCi/L Rel. Hum 48.6 % Temp. 79.3 F

Date Start: 1/27/23 Date Stop: 1/30/23 Date Start: _____ Date Stop: _____

Time Start: 0816 Time Stop: 0816 Time Start: _____ Time Stop: _____

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

11633682, 11633687, 11633688 _____

11633695, 11633696 _____

P3 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 µR/h Elevation = 820 ft**

February 3, 2023

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

OFFICE

MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11633696	SK10	2023-01-27 @ 8:00 am	2023-01-30 @ 8:00 am	24.2 ± 1.9	2023-02-03
11633682	SK6	2023-01-27 @ 8:00 am	2023-01-30 @ 8:00 am	26.9 ± 2.1	2023-02-03
11633687	SK7	2023-01-27 @ 8:00 am	2023-01-30 @ 8:00 am	23.8 ± 1.9	2023-02-03
11633688	SK8	2023-01-27 @ 8:00 am	2023-01-30 @ 8:00 am	25.9 ± 2.1	2023-02-03
11633695	SK9	2023-01-27 @ 8:00 am	2023-01-30 @ 8:00 am	27.0 ± 2.2	2023-02-03

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



Radon Test Kit Chain of Custody

Project Name: MCPS Radon – Week 2 January Schools

Name of Schools:

1. Beall ES
2. Gaithersburg HS
3. Kingsview MS
4. Lucy V. Barnsley ES
5. Martin Luther King Jr. MS
6. Mill Creek Towne ES
7. North Bethesda MS
8. Radnor Center
9. Winston Churchill HS

	Date	Initials
Radon Test Kits Deployed	01/31/2023	DM
Radon Test Kits Collected	02/03/2023	DM
Radon Test Kits Shipped to Lab*	02/03/2023	DM
Radon Test Kits Received by Lab*	02/06/2023	DM

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



**MONTGOMERY COUNTY PUBLIC SCHOOLS
RADON TESTING**

**Executive Summary:
Mill Creek Towne Elementary School**

17700 Park Mill Drive,
Derwood, MD 20855

Date of Test Report:	1/15/2019
Round of Testing:	Initial Follow-up Post Remediation 2 Year Testing 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility
# of Rooms Tested:	39
# of Rooms \geq 4.0 pCi/L:	0
Low Value:	< 0.4
High Value:	1.4

Project Status

Initial testing complete: No further action at this time



January 15, 2019

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

Re: Radon Testing Services

Location: Mill Creek Towne Elementary School
17700 Park Mill Drive,
Derwood, MD 20855

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 Mill Creek Towne Elementary School, located at 17700 Park Mill Drive, Derwood, MD 20855 (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 December 04, 2018 and deployed forty-eight (48) 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 December 07, 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, flowing 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		
Mill Creek Towne Elementary School		
Testing period: 12/04/18 - 12/07/18		
Kit Number	Room / Area	Result (pCi/L)
3928365	102	0.5
3928366	104	0.6
3928344	108	0.4
3928351	109	< 0.4
3928352	109	< 0.4
3928347	110	0.4
3928345	111	0.6
3928342	118	0.7
3928343	120	0.7
3928348	122	1.2
3928350	123	0.5
3928349	124	0.5
3928391	125	0.8
3928392	126	0.9
3928396	127	0.8
3928393	128	1.0
3928395	129	0.8
3928363	137	0.8
3928399	139	1.0
3928400	139	1.0
3928397	141	1.1
3928398	143	1.3
3928317	201	0.7
3928331	211	0.7
3928332	220	0.7
3928353	109A	< 0.4
3928364	137A	1.1
3928361	139A	1.3
3928362	139B	1.4
3928369	Building Services	0.8
3928370	Cafeteria	0.9
3928358	Conference Room	0.6
3928355	Health	0.6
3928368	Kitchen	0.9
3928367	Kitchen Office	1.1
3928354	Main Office	0.6
3928357	Principal	0.9
3928341	Staff Lounge	0.6
3928316	Stage	0.8
3928356	Treatment	0.8
3928359	Work Room	0.6

Radon Testing Results		
Mill Creek Towne Elementary School		
Testing period: 12/04/18 - 12/07/18		
Kit Number	QC Type	Result (pCi/L)
3928346	111 (D)	0.5
3928394	128 (D)	1.1
3928360	Work Room (D)	0.5
3926704	Field Blank	< 0.4
3926703	Field Blank	< 0.4
3917614	Office Blank	< 0.4
3927503	Transit 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

Laboratory Report for:

Property Tested: Project # 04481387-1

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

MCPS Radon Survey Mill Creek Town ES
17700 Park Mill Drive
Derwood MD 20855

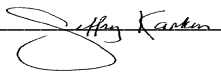
Log Number	Device Number	Test Exposure Duration:	Area Tested	Result pCi/L
3202431	3928341	12/04/2018 12:15 pm 12/07/2018 10:53 am	Floor First Floor Room Staff Lounge	0.5
3202432	3928342	12/04/2018 12:16 pm 12/07/2018 10:55 am	Floor First Floor Room 118	0.5
3202433	3928343	12/04/2018 12:17 pm 12/07/2018 10:56 am	Floor First Floor Room 120	0.5
3202434	3928344	12/04/2018 12:19 pm 12/07/2018 10:57 am	Floor First Floor Room 108	< 0.4
3202435	3928345	12/04/2018 12:20 pm 12/07/2018 10:59 am	Floor First Floor Room 111	0.4
3202436	3928346	12/04/2018 12:20 pm 12/07/2018 10:59 am	Floor First Floor Room 111 Duplicate	< 0.4
3202437	3928347	12/04/2018 12:21 pm 12/07/2018 11:02 am	Floor First Floor Room 110	< 0.4
3202438	3928348	12/04/2018 12:23 pm 12/07/2018 11:04 am	Floor First Floor Room 122	0.9
3202439	3928349	12/04/2018 12:24 pm 12/07/2018 11:54 am	Floor First Floor Room 124	0.4
3202440	3928350	12/04/2018 12:25 pm 12/07/2018 11:06 am	Floor First Floor Room 123	0.4
3202441	3928391	12/04/2018 12:26 pm 12/07/2018 11:07 am	Floor First Floor Room 125	0.6

Comment: AMENDED REPORT on 1-4-19 to add corrected stop date of 12-7-18. AMENDED report on 1-14-19 to add device 3917614 to report.

Test Performed By: Lian Zadeng

Distributed by: Intertek-PSI (VA)

Date Received: 12/08/2018 Date Logged: 12/08/2018 Date Analyzed: 12/08/2018 Date Reported: 12/17/2018

Report Reviewed By: 

Report Approved By: 

Disclaimer:

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Shawn Price, Director of Laboratory Operations, AccuStar Labs

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NRPP 105011 AL
NRSB ARL0007

Laboratory Report for:

Property Tested: Project # 04481387-1

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

MCPS Radon Survey Mill Creek Town ES
17700 Park Mill Drive
Derwood MD 20855

Log Number	Device Number	Test Exposure Duration:		Area Tested		Result pCi/L
3202442	3928392	12/04/2018 12:28 pm	12/07/2018 11:08 am	Floor First Floor	Room 126	0.7
3202443	3928393	12/04/2018 12:29 pm	12/07/2018 11:11 am	Floor First Floor	Room 128	0.7
3202444	3928394	12/04/2018 12:29 pm	12/07/2018 11:11 am	Floor First Floor	Room 128 Duplicate	0.9
3202445	3928395	12/04/2018 12:30 pm	12/07/2018 11:12 am	Floor First Floor	Room 129	0.6
3202446	3928396	12/04/2018 12:31 pm	12/07/2018 11:13 am	Floor First Floor	Room 127	0.6
3202447	3928397	12/04/2018 12:32 pm	12/07/2018 11:15 am	Floor First Floor	Room 141	0.9
3202448	3928398	12/04/2018 12:33 pm	12/07/2018 11:16 am	Floor First Floor	Room 143	1.0
3202449	3928399	12/04/2018 12:34 pm	12/07/2018 11:17 am	Floor First Floor	Room 139	0.8
3202450	3928400	12/04/2018 12:35 pm	12/07/2018 11:19 am	Floor First Floor	Room 139	0.8
3202451	3928361	12/04/2018 12:36 pm	12/07/2018 11:22 am	Floor First Floor	Room 139A	1.0
3202452	3928362	12/04/2018 12:37 pm	12/07/2018 11:23 am	Floor First Floor	Room 139B	1.0

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Test Performed By: Lian Zadeng

Distributed by: Intertek-PSI (VA)

Date Received: 12/08/2018 Date Logged: 12/08/2018 Date Analyzed: 12/08/2018 Date Reported: 12/17/2018

Report Reviewed By: 

Report Approved By: 

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NRPP 105011 AL
NRSB ARL0007

Laboratory Report for:

Property Tested: Project # 04481387-1

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

MCPS Radon Survey Mill Creek Town ES
17700 Park Mill Drive
Derwood MD 20855

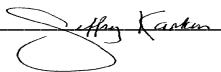
Log Number	Device Number	Test Exposure Duration:	Area Tested	Result pCi/L
3202453	3928363	12/04/2018 12:39 pm 12/07/2018 11:24 am	Floor First Floor Room 137	0.6
3202454	3928364	12/04/2018 12:41 pm 12/07/2018 11:26 am	Floor First Floor Room 137A	0.8
3202455	3928365	12/04/2018 12:42 pm 12/07/2018 11:29 am	Floor First Floor Room 102	0.4
3202456	3928366	12/04/2018 12:44 pm 12/07/2018 11:30 am	Floor First Floor Room 104	0.5
3202457	3928367	12/04/2018 12:46 pm 12/07/2018 11:35 am	Floor First Floor Room Kitchen Office	0.8
3202458	3928368	12/04/2018 12:47 pm 12/07/2018 11:36 am	Floor First Floor Room Kitchen	0.7
3202459	3928369	12/04/2018 12:48 pm 12/07/2018 11:37 am	Floor First Floor Room Building Service Office	0.6
3202460	3928370	12/04/2018 12:49 pm 12/07/2018 11:39 am	Floor First Floor Room Cafeteria	0.7
3202461	3928316	12/04/2018 12:51 pm 12/07/2018 11:44 am	Floor First Floor Room Stage	0.6
3202462	3928351	12/04/2018 12:53 pm 12/07/2018 11:46 am	Floor First Floor Room 109 Gym	< 0.4
3202463	3928352	12/04/2018 12:54 pm 12/07/2018 11:47 am	Floor First Floor Room 109 Gym	< 0.4


Comment: AMENDED REPORT on 1-4-19 to add corrected stop date of 12-7-18. AMENDED report on 1-14-19 to add device 3917614 to report.

Test Performed By: Lian Zadeng

Distributed by: Intertek-PSI (VA)

Date Received: 12/08/2018 Date Logged: 12/08/2018 Date Analyzed: 12/08/2018 Date Reported: 12/17/2018

Report Reviewed By: 

Report Approved By: 

Shawn Price, Director of Laboratory Operations, AccuStar Labs

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NRPP 105011 AL
NRSB ARL0007

Laboratory Report for:

Property Tested: Project # 04481387-1

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

MCPS Radon Survey Mill Creek Town ES
17700 Park Mill Drive
Derwood MD 20855

Log Number	Device Number	Test	Exposure	Duration:	Area Tested	Result pCi/L
3202464	3928353	12/04/2018	1:01 pm	12/07/2018 11:50 am	Floor First Floor Room 109A	< 0.4
3202465	3928354	12/04/2018	1:06 pm	12/07/2018 11:58 am	Floor First Floor Room Main Office	0.5
3202466	3928355	12/04/2018	1:07 pm	12/07/2018 11:59 am	Floor First Floor Room Health Room	0.5
3202467	3928356	12/04/2018	1:08 pm	12/07/2018 12:01 pm	Floor First Floor Room Treatment	0.6
3202468	3928357	12/04/2018	1:09 pm	12/07/2018 12:03 pm	Floor First Floor Room Principal	0.7
3202469	3928358	12/04/2018	1:10 pm	12/07/2018 12:04 pm	Floor First Floor Room Conference Room	0.5
3202470	3928359	12/04/2018	1:11 pm	12/07/2018 12:08 pm	Floor First Floor Room Work Room	0.5
3202471	3928360	12/04/2018	1:11 pm	12/07/2018 12:08 pm	Floor First Floor Room Work Room Duplicate	0.4
3202472	3928317	12/04/2018	1:13 pm	12/07/2018 12:13 pm	Floor Second Floor Room 201	0.6
3202473	3928331	12/04/2018	1:14 pm	12/07/2018 12:15 pm	Floor Second Floor Room 211	0.6
3202474	3928332	12/04/2018	1:16 pm	12/07/2018 12:18 pm	Floor Second Floor Room 220	0.5

Comment: AMENDED REPORT on 1-4-19 to add corrected stop date of 12-7-18. AMENDED report on 1-14-19 to add device 3917614 to report.

Test Performed By: Lian Zadeng

Distributed by: Intertek-PSI (VA)

Date Received: 12/08/2018 Date Logged: 12/08/2018 Date Analyzed: 12/08/2018 Date Reported: 12/17/2018

Report Reviewed By: 

Report Approved By: 

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NRPP 105011 AL
NRSB ARL0007

Laboratory Report for:

Property Tested: Project # 04481387-1

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

MCPS Radon Survey Mill Creek Town ES
17700 Park Mill Drive
Derwood MD 20855

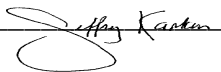
Log Number	Device Number	Test Exposure	Duration:	Area Tested	Result pCi/L
3202475	3926704	12/04/2018 12:15 pm	12/07/2018 12:18 pm	Blank	< 0.4
3202476	3926703	12/04/2018 12:15 pm	12/07/2018 12:18 pm	Blank	< 0.4
3202477	3927503	12/04/2018 6:00 am	12/07/2018 4:35 pm	Blank	< 0.4
3203159	3917614	12/04/2018 6:00 am	12/07/2018 4:35 pm	Office Blank	< 0.4


Comment: AMENDED REPORT on 1-4-19 to add corrected stop date of 12-7-18. AMENDED report on 1-14-19 to add device 3917614 to report.

Test Performed By: Lian Zadeng

Distributed by: Intertek-PSI (VA)

Date Received: 12/08/2018 Date Logged: 12/08/2018 Date Analyzed: 12/08/2018 Date Reported: 12/17/2018

Report Reviewed By: 

Report Approved By: 

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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

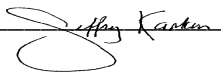
Log Number	Device Number	Test Exposure Duration:	Area Tested	Result pCi/L
3204125	3926831	12/07/2018 9:47 am - 12/10/2018 9:47 am	Spike	36.1
3204126	3926832	12/07/2018 9:47 am - 12/10/2018 9:47 am	Spike	34.8
3204127	3926833	12/07/2018 9:47 am - 12/10/2018 9:47 am	Spike	33.7
3204128	3926834	12/07/2018 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: 

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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. Grosvenor Center (Luxmanor ES)
2. Montrose Center
3. Gibbs ES
4. Westbrook ES
5. Hadley Farms (Resnik ES)
6. Kingsview MS
7. Longview School
8. Lynnbrook Center
9. Magruder HS
10. McAuliffe ES
11. McNair ES
12. Mill Creek Towne ES
13. Martin Luther King MS
14. Montgomery Village MS
15. Great Seneca Creek ES
16. Quince Orchard HS
17. Redland MS
18. North Bethesda MS
19. Spark Matsunaga ES
20. Whetstone ES
21. Wood Acres ES

	Date	Initials
Radon Test Kits Deployed	12/04/2018	ML
Radon Test Kits Sampled	12/07/2018	ML
Radon Test Kits Shipped to Lab*	12/07/2018	ML
Radon Test Kits Received by Lab*	12/08/2018; 12/09/2018	ML

*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: Mill Creek Towne Elementary School

Date of Test Report:	1/29/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	38
# Rooms \geq 4.0 pCi/L:	0
Low Value:	< 0.3
High Value:	1.7

Project Status:

Initial testing completed; no further action at this time.



January 29, 2016

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

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

Location: Mill Creek Towne Elementary School
17700 Park Mill Drive
Derwood, MD 20855

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 Mill Creek Towne Elementary School, located at 17700 Park Mill Drive in Derwood, Maryland 20855 (subject site).

Scope of Services:

KCI conducted radon testing at the subject site to evaluate indoor radon levels relative to the USEPA's recommended action level of 4.0 picocuries per Liter (pCi/L) - the level at which EPA recommends that schools take action to reduce the level. KCI conducted the radon testing in accordance with American Association of Radon Scientists and Technologists (AARST) *Protocol for Conducting Measurements of Radon and Radon Decay Products in Schools and Large Buildings*. A National Radon Safety Board (NRSB) Radon Measurement Specialist (certification #14SS056) supervised the testing. Additional information on radon management and the health effects of radon exposure is available from www.montgomerycountymd.gov/dep/air/radon or www.epa.gov/radon.

KCI visited the site on January 4, 2016 and deployed forty-seven (47) activated charcoal (AC) radon test kits. KCI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. A floor plan map of the building with the test locations is included as Attachment A of this report.

As a quality control measure, KCI included duplicate samples, field blanks, lab transit blanks, and office blanks in accordance with AARST recommendations. In addition, KCI submitted six (6) test kits to Bowser-Morner, Inc. as spike samples. The spiked tests were exposed to a known radon concentration by Bowser-Morner prior to being returned to the laboratory for analysis.

KCI returned to the site on January 7, 2016 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Airchek, Inc. for analysis by gamma-ray spectroscopy. Airchek, Inc. is a NRSB certified analytical laboratory for radon analysis (certification # ARL1402) located at 1936 Butler

Bridge Road, Mills River, North Carolina.

Evaluation of Testing Conditions:

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

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

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

- Indoor temperature,
- HVAC Operation,
- Dehumidifier operation,
- Humidifier operation,
- Ceiling fan operation, and
- Open windows or doors.

Results:

The results of the radon test analysis indicated the following:

Radon Concentration	Room	Result
≥ 4.0 pCi/L	none	n/a
< 4.0 pCi/L	See Attachment B	

Notes:
D- Duplicate sample

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

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

Our professional services have been performed in accordance with customary principles and practices in the field of industrial hygiene and engineering. If you have any questions or comments regarding this report, please feel free to contact me at (410) 316-7800.

Sincerely,



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

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

ATTACHMENT B

Radon Test Summary Spreadsheet

Table Notes:

AC- Activated Charcoal

ACI- Air Chek, Inc.

D- Duplicate

FB- Field Blank

KCI- KCI Technologies, Inc.

OB- Office Blank

PM- Project Manager

QC- Quality Control

Radon Testing Results		
Mill Creek ES		
Test Period: 01/04/16-01/07/16		
Kit Number	Room / Area	Result
7714976	100	1.2
7707650	101	1.1
7707654	101	< 0.3
7707661	102	0.7
7707658	104	0.8
7707653	108	1.2
7707647	109	0.6
7707657	109	< 0.3
7707660	109	< 0.3
7707646	110	0.9
7707643	111	0.8
7707625	115	1.1
7714977	118	1
7714978	120	1.7
7707611	122	0.8
7707601	123	0.8
7707604	124	0.9
7707605	125	0.8
7707606	126	0.6
7707614	127	0.9
7707659	128	1
7707618	129	0.8
7707644	137	1.2
7707638	139	1.3
7707607	139	1.4
7707645	141	0.7
7707648	143	0.6
7707664	201	1
7707663	223	< 0.3
7707668	229	1.1
7714974	100A	1.2
7707608	100B	1.6
7707609	100E	1.1
7707651	101D	1.1
7707656	109A	0.5
7707641	139A	1
7707640	139B	1.5
7707655	KIT OFFICE	0.8

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
Mill Creek ES		
Test Period: 01/04/16-01/07/16		
Kit Number	QC Type	Result
7714973	D (100)	1
7707652	D (110)	0.8
7707639	D (139)	1.1
7707649	D (143)	0.7
7707662	D (201)	< 0.3
7714975	FB (100)	< 0.3
7707642	FB (139)	< 0.3
7707665	FB (223)	< 0.3
7720607	OB (0)	< 0.3

Table Note:

* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

Radon test result report for:
MILL CREEK ES

1

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7720607	0	2016-01-04 @ 3:00 pm	2016-01-07 @ 12:00 pm	< 0.3	2016-01-11
7714973	100	2016-01-04 @ 8:00 am	2016-01-07 @ 8:00 am	1.0 ± 0.3	2016-01-11
7714975	100	2016-01-04 @ 8:00 am	2016-01-07 @ 8:00 am	< 0.3	2016-01-11
7714976	100	2016-01-04 @ 8:00 am	2016-01-07 @ 8:00 am	1.2 ± 0.3	2016-01-11
7714974	100A	2016-01-04 @ 8:00 am	2016-01-07 @ 8:00 am	1.2 ± 0.4	2016-01-12
7707608	100B	2016-01-04 @ 9:00 am	2016-01-07 @ 8:00 am	1.6 ± 0.4	2016-01-12
7707609	100E	2016-01-04 @ 9:00 am	2016-01-07 @ 8:00 am	1.1 ± 0.3	2016-01-12
7707654	101	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-11
7707650	101	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	1.1 ± 0.4	2016-01-12
7707651	101D	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	1.1 ± 0.4	2016-01-12
7707661	102	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	0.7 ± 0.3	2016-01-12
7707658	104	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	0.8 ± 0.3	2016-01-11
7707653	108	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	1.2 ± 0.4	2016-01-12
7707647	109	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.6 ± 0.3	2016-01-11
7707657	109	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-11
7707660	109	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-12
7707656	109A	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	0.5 ± 0.3	2016-01-11
7707646	110	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.9 ± 0.3	2016-01-12
7707652	110	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.8 ± 0.3	2016-01-12
7707643	111	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.8 ± 0.3	2016-01-11
7707625	115	2016-01-04 @ 9:00 am	2016-01-07 @ 8:00 am	1.1 ± 0.4	2016-01-12
7714977	118	2016-01-04 @ 9:00 am	2016-01-07 @ 8:00 am	1.0 ± 0.3	2016-01-11
7714978	120	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	1.7 ± 0.4	2016-01-11
7707611	122	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.8 ± 0.3	2016-01-12
7707601	123	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.8 ± 0.3	2016-01-11
7707604	124	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.9 ± 0.3	2016-01-11
7707605	125	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.8 ± 0.3	2016-01-11
7707606	126	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.6 ± 0.3	2016-01-11
7707614	127	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.9 ± 0.3	2016-01-11
7707659	128	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	1.0 ± 0.3	2016-01-12
7707618	129	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.8 ± 0.3	2016-01-11
7707644	137	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	1.2 ± 0.3	2016-01-11
7707642	139	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-11
7707638	139	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	1.3 ± 0.4	2016-01-12
7707639	139	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	1.1 ± 0.4	2016-01-12
7707607	139	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	1.4 ± 0.4	2016-01-12
7707641	139A	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	1.0 ± 0.3	2016-01-12

January 25, 2016
** LABORATORY ANALYSIS REPORT **

Radon test result report for:

MILL CREEK ES

1

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7707640	139B	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	1.5 ± 0.4	2016-01-12
7707645	141	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.7 ± 0.3	2016-01-11
7707648	143	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.6 ± 0.3	2016-01-11
7707649	143	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.7 ± 0.3	2016-01-11
7707662	201	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-11
7707664	201	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	1.0 ± 0.3	2016-01-11
7707663	223	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-11
7707665	223	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-11
7707668	229	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	1.1 ± 0.3	2016-01-11
7707655	KIT OFFICE	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	0.8 ± 0.3	2016-01-11

January 15, 2016
** LABORATORY ANALYSIS REPORT **

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

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

December
23,
2015

**LABORATORY ANALYSIS
REPORT ****

Spike Sample Laboratory Results

Radon test result report for:
MCPS

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

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

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

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI Technologies Inc. Job Number 173224

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

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

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

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

7706211, 7706366, _____

7706380, 7706381 _____

F3 Left

Date Start: _____ Date Stop: _____ Date Start: _____ Date Stop: _____

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

Device No.'s: _____ Device No.'s: _____

Date Start: _____ Date Stop: _____ Date Start: _____ Date Stop: _____

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

Device No.'s: _____ Device No.'s: _____

**Note: All times are in 24-hour (military) notation, Eastern Standard Time (EST)
Background = 7 μ R/h Elevation = 820 ft**



Chain of Custody

Project Name: MCPS Radon Phase IV

Name of Schools:

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

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

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

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