

School Year: **24-25**

Facility:	Forest Oak Middle School		
Address:	651 Saybrooke Oaks Blvd.		
	Gaithersburg, MD 20877		
Reason for Testing:	Scheduled Re-Testing - <input checked="" type="checkbox"/> 2-year or <input type="checkbox"/> 5-year schedule <input type="checkbox"/> Clearance Testing (Post-Mitigation) <input type="checkbox"/> Building Envelope or HVAC Upgrades <input type="checkbox"/> New Construction – Addition or Facility		
Current Radon Status:	<input checked="" type="checkbox"/> Active Mitigation (2-year regular schedule) <input type="checkbox"/> No Active Mitigation (5-year regular schedule) <input type="checkbox"/> Not Previously Tested (New Facility)		
Round of Testing:	<input checked="" type="checkbox"/> Initial Testing -or- <input type="checkbox"/> Follow-up Testing		
Testing Status:	<input checked="" type="checkbox"/> No Further Testing Needed -or- <input type="checkbox"/> Follow-Up Testing Required		

**Conclusion** (When Testing Status is - No Further Testing Needed)

Mitigation -	Facility Radon Status:		
<input checked="" type="checkbox"/> Not Required <input type="checkbox"/> Required ( $\geq 4.0$ -pCi/L) Rooms:	<input checked="" type="checkbox"/> No Change in Status <input type="checkbox"/> Active Mitigation (2-year regular schedule) <input type="checkbox"/> No Active Mitigation (5-year regular schedule)		
Number of Rooms Tested	68	Lowest Value (pCi/L)	<0.3
Number of Rooms ( $\geq 4.0$ -pCi/L)	0	Highest Value (pCi/L)	0.9

**Instructions:** Submit one testing report form per-facility. Include the following as attachments:

Attachment 1- Summary Data Tables – containing the following: (see attached samples tables)

- Testing Results – lab/detector Identification, by room number/name (alpha-numeric order) as depicted on facility map/floor plan provided by the facility/school at the time of test device deployment;
- Summary Results – list of rooms by test result  $\geq 2.0$ -pCi/L;  $\geq 2.7$ -pCi/L;  $\geq 4.0$ -pCi/L; and  $\geq 8.0$ -pCi/L;
- QA/QC Results - (field blanks and duplicates) indicating location collected; trip and office blanks; and spike sample results;
- Invalid Measurement Locations – missed locations, missing and or damaged/compromised testing devices.

Attachment 2 – Laboratory Report(s)

Attachment 3 – Sampling Location Map(s) – indicating approximate location of samples, duplicates and blanks.

**Detector and Deployment**

Detector/Device Type:	<input checked="" type="checkbox"/> Passive	<input checked="" type="checkbox"/> Charcoal Absorption (CAD) <input type="checkbox"/> Alpha Track (ATD) <input type="checkbox"/> Other
	<input type="checkbox"/> Continuous	<input type="checkbox"/> Electret ion Chamber (EIC) <input type="checkbox"/> Electronic Integration (EID)
<i>Other—Specify here:</i>		
Detector/Device Name:	Air Chek – Radon Test Kits	
Manufacturer:	Radon Labs	
Person(s) Deploying or Retrieving Test Devices and certification number		Organization/Company
Tyler McCleaf, CSP Cert. # 111004-RMP		KCI Technologies, Inc.
<i>If noncertified individuals, the qualified measurement professional providing oversight -</i>		

**Testing**

<input checked="" type="checkbox"/> Short-Term	Length of Test (days):	3	Date of Deployment and Retrieval (mm/dd/yy):	2/24/2025
<input type="checkbox"/> Long-Term				2/27/2025
Does the test period include weekends, school breaks or holidays?				<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<i>If “Yes” please explain/detail in the space below:</i>				
Was HVAC operating under occupied conditions?				<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<i>If “No” please explain/detail in the space below:</i>				

Testing (continued)

Round of Testing	Detectors Deployed				Total
	Ground-Contact		Upper-Level(s)		
	Initial	Follow-Up	Initial	Follow-Up	
Test Locations <sup>1</sup>	65	0	3	0	68
Duplicates <sup>2</sup>	6	0	1	0	7
Field Blanks <sup>3</sup>	3	0	1	0	4
Grand Total					79

1 – include all detectors deployed (duplicates, field blanks); 1 detector per occupied (or intended to be occupied) ground-contact space ≤ 2,000-square feet; large spaces ≥ 2,000-square feet - 1 detector per 2,000-square feet or part thereof); and upper floors - 10% of all occupied or intended to be occupied rooms per floor (these are in addition to ground contact locations)

2 - 10% of all locations tested, per floor

3 – 5% of all locations tested, per floor

Quality Assurance / Quality Control (QA/QC)

A Quality Assurance plan that is consistent with ANSI/AARST MS-QA (Radon Measurement Systems Quality Assurance) was submitted under separate cover, and is available to review at the MCPS Radon Testing and Mitigation Program website. The following number of QA/QC samples are associated this facility.

Round of Testing	QA/QC Samples		Total
	Initial	Follow-Up	
Spikes <sup>1</sup>	Not applicable		10
Trip Blanks <sup>2</sup>	1	0	1
Office Blanks <sup>3, 4</sup>	1	0	1
			12

1 - 3% of EIC detectors; and 3% from each LOT of CAD and ATD detectors; a maximum of 6-spiked measurements per month for both EIC detectors and each LOT of CAD and ATD detectors.

2 – One per shipping container from start of detector deployment

3 – One per facility tested as devices are removed/allocated from the storage location for deployment;

4 - One additional blank, analyzed prior to deployment, for storage locations that have not been evaluated or monitored, for detectors that have been stored for more than 30-day durations.

Quality Assurance / Quality Control (continued)

Spike Sample Lab Results. Measured values are satisfactory, i.e., within $\pm 25\%$ of the chamber's reference value?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Quality Control measurements comply with QA/QC requirements in the submitted testing organization's/company's QA plan?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
	<b>Initial</b> <b>Follow-Up</b>
All Field, Trip and Office Blanks are $\leq$ (less than or equal to) to the Method Detection Limit?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> No
For all Duplicate Samples <sup>1</sup> , the higher value is $\leq 2x$ the lower value?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> No
For all Duplicate Samples <sup>1</sup> , Relative Percent Difference(s) (RPD) <sup>2</sup> are less than the Warning Level <sup>3</sup> ?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> No
For all Duplicate Samples <sup>1</sup> , Relative Percent Difference(s) (RPD) <sup>2</sup> are less than the Control Level <sup>3</sup> ?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> No

1 – Duplicate Control – a “NO” response constitute a control failure and the space/location represented by the duplicate sample becomes an invalid measurement location and should be listed in the “Invalid Measurement Locations” Table attached to this report.

2 - The objective of duplicate tests is to assess the precision error of the measurement method or, how well two side-by-side measurements agree or disagree. Precision involving duplicates is calculated by using Relative Percent Difference (RPD). RPD is equal to the difference between the higher test result minus the lower value test result divided by the average of the two duplicate test results, multiplied by 100. The RPD result is then compared to the warning and control limits.

3 - The Warning Level is set at the deviation from ideal performance that would be expected to occur by chance only 5% of the time, and Control Limits are set at that deviation from ideal performance that would be expected to occur by chance only 1% of the time. The Warning Level indicates a potential problem, which should be investigated. The Control Level indicates that the measurement system should be subject to corrective action.

The control and warning levels for duplicates, based on the averaged duplicate test result, are -

Average concentration of the two duplicate test results	Warning Level	Control Level
< 2.0-pCi/L	1-pCi/L	Not applicable
Between 2.0 and 3.9-pCi/L	50% RPD	67% RPD
$\geq 4.0$ -pCi/L	28% RPD	36% RPD

Summary of Test Results<sup>1</sup> and Determination of Valid Measurements<sup>2</sup>

Round of Testing	Ground-Contact		Upper-Level(s)		Total
	Initial	Follow-Up	Initial	Follow-Up	
Number of test locations:	65	0	3	0	68
Number of locations ≥8.0-pCi/L:	0	0	0	0	0
Number of locations ≥4.0 and ≤8-pCi/L:	0	0	0	0	0
Number of locations ≥2.7 and <4-pCi/L:	0	0	0	0	0
Number of locations ≥2.0 and <2.7-pCi/L:	0	0	0	0	0
Number of missing required test locations <sup>3</sup> :	1	0	0	0	0
Number of failed duplicate control locations:	0	0	0	0	0
Percentage of missing test locations for the facility <sup>4,5</sup> :	1.5%	0	0	0	1.5%

1 – for locations with multiple test results, report consistent with Section 7.2(When Two Test Results Disagree) and 8.1.2 (Averaging) of ANSI/AARST MA-MFLB 2023 – Conducting Measurements of Radon in Multifamily, School, Commercial and Mix-Use Buildings;

2 - the allowance is to be calculated individually for Ground-Contact and Upper-Level(s) Test Locations;

3 – includes missed or inaccessible locations upon deployment or retrieval, damaged (not able to analyze) and missing detectors upon retrieval;

4 – if all valid measurements are <4.0-pCi/L and the total number of test locations are ≥18, there is an allowance of ≤33%. If less than 18 test locations please review section 6.2 of the ANSI/AARST MA-MFLB 2023;

5 – if any valid measurements are ≥4.0-pCi/L and the total number of test locations are ≥20, there is an allowance of ≤25% of the total locations tested. If less than 20 test locations please review section 6.2 of the ANSI/AARST MA-MFLB 2023.

Summary of Test Results<sup>1</sup> and Determination of Valid Measurements<sup>2</sup> (continued)

	Round of Testing	Initial	Follow-Up
Were test devices deployed in all occupied and intended to be occupied rooms in contact with the ground, and, if applicable, 10% of upper floor rooms?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Were valid measurements obtained in all occupied and intended to be occupied rooms in contact with the ground, and, if applicable, 10% of upper floor rooms?		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<i>If Yes to both above – then Testing Status – ‘No Further Testing Needed’ mark ‘NA’ below and complete Conclusions section</i>			
<b>If No to either above, were all results obtained under 4.0-pCi/L and were sufficient valid measurements obtained?<sup>1,2</sup></b> <i>If Yes, then - ‘No Further Testing Needed’ complete Conclusion section on first page. If No, then - ‘Follow-up Testing Required’ continue below.</i>		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA

1 – if all valid measurements are <4.0-pCi/L and the total number of test locations are ≥18, there is an allowance of ≤33%. If less than 18 test locations please review section 6.2 of the ANSI/AARST MA-MFLB 2023 – Conducting Measurements of Radon in Multifamily, School, Commercial and Mix-Use Buildings to determine the allowance;  
 2 – if any valid measurements are ≥4.0-pCi/L and the total number of test locations are ≥20, there is an allowance of ≤25% of the total locations tested. If less than 20 test locations please review section 6.2 of the ANSI/AARST MA-MFLB 2023 – Conducting Measurements of Radon in Multifamily, School, Commercial and Mix-Use Buildings to determine the number the allowance.

**Follow-Up Testing**

**Required –**

- If an insufficient number (greater than the allowance provided above) of valid measurements were obtained during the initial round of testing (the “missing required test locations” in the table above);
- Any location test results ≥ 4.0-pCi/L;
- Any location where duplicates fail QC checks; and or
- At the discretion of MCPS IAQ Staff

Reason for Follow-Up Testing	Testing Procedure	Follow-up Result	Conclusion
Insufficient Number of Measurements	Follow same procedures as Initial Testing	Not Applicable	Follow Initial Testing procedures
Results ≥ 4.0-pCi/L	Deploy two Short-term follow-up tests and required blanks and duplicates; Average the results of the two tests	≥4.0	Mitigation Required
Failed QC checks		≥2.0 and <4.0	Consider Mitigation
		<2.0	Mitigation Not Required

➤ *If follow-up testing identifies additional spaces requiring additional testing it will be performed as part of the ongoing follow-testing round.*

**Attachment 1:**  
**Summary Data Tables**

<b>Table 1- Radon Testing Results</b>		
<b>Forest Oak Middle School</b>		
<b>Test Period: 2/24/2025 - 2/27/2025</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result</b>
11926779	226	< 0.3
11926771	A118	0.9
11926764	AUX GYM	0.6
11926755	B110	< 0.3
11926742	B115	< 0.3
11926748	B121	< 0.3
11926726	B125	< 0.3
11926757	B125	< 0.3
11926734	C106	< 0.3
11926723	C107	< 0.3
11926722	C109	< 0.3
11926733	C110	< 0.3
11926740	C110	< 0.3
11926717	C111	< 0.3
11926716	C112	< 0.3
11926732	C114	< 0.3
11926729	C115	< 0.3
11926739	C116	< 0.3
11926714	C117	< 0.3
11926756	C118	< 0.3
11926750	C121	< 0.3
11926718	C131	< 0.3
11926721	C132	< 0.3
11926724	C133	< 0.3
11926761	C146	< 0.3
11926773	C146	< 0.3
11926768	C147	< 0.3
11926741	C148	< 0.3
11926758	C149	< 0.3
11926763	C149	< 0.3
11926759	C157	< 0.3
11926706	D103	< 0.3
11926707	D103	< 0.3
11926754	D108	< 0.3
11926753	D109	< 0.3
11926770	D110	< 0.3
11926746	D113	< 0.3

<b>Table 1- Radon Testing Results</b>		
<b>Forest Oak Middle School</b>		
<b>Test Period: 2/24/2025 - 2/27/2025</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result</b>
11926728	D114	< 0.3
11926745	D114	< 0.3
11926769	D119A	< 0.3
11926776	D123	< 0.3
11926701	D124	< 0.3
11926747	D127	< 0.3
11926704	D208	< 0.3
11926782	D208	< 0.3
11926743	DINING	< 0.3
11926749	DINING	< 0.3
11926736	E104	< 0.3
11926711	E105	< 0.3
11926735	E105	< 0.3
11926712	E106	< 0.3
11926751	E107	< 0.3
11926720	E108	< 0.3
11926774	E108	< 0.3
11926719	E109	< 0.3
11926752	E115	< 0.3
11926738	E118	< 0.3
11926744	E119	< 0.3
11926702	E123	< 0.3
11926708	E124	< 0.3
11926705	E125	< 0.3
11926777	E126	< 0.3
11926778	E127	< 0.3
11926775	E205	< 0.3
11926780	E205	< 0.3
11926710	FINANCIAL ASSISTANCE	< 0.3
11926765	FITNESS	< 0.3
11926737	GYM	< 0.3
11926766	GYM	< 0.3
11926772	GYM OFFICE	< 0.3
11926727	GYM OFFICE BOYS	< 0.3
11926760	GYM OFFICE BOYS	0.6
11926709	HEALTH	< 0.3
11926731	HEALTH OFFICE	< 0.3

<b>Table 1- Radon Testing Results</b>		
<b>Forest Oak Middle School</b>		
<b>Test Period: 2/24/2025 - 2/27/2025</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result</b>
11926762	IMC	0.6
11926767	IMC	< 0.3
11926713	KITCHEN OFFICE	< 0.3
11926730	KITCHEN OFFICE	< 0.3
11926725	MAIN OFFICE	< 0.3



<b>Table 3 - QC Radon Testing Results</b>			
<b>Forest Oak Middle School</b>			
<b>Test Period: 2/24/2025 - 2/27/2025</b>			
<b>Kit Number</b>	<b>QC Type</b>	<b>Room / Area</b>	<b>Result</b>
11926726	D	B125	< 0.3
11926733	D	C110	< 0.3
11926773	FB	C146	< 0.3
11926763	D	C149	< 0.3
11926707	D	D103	< 0.3
11926728	FB	D114	< 0.3
11926704	D	D208	< 0.3
11926711	D	E105	< 0.3
11926720	D	E108	< 0.3
11926775	FB	E205	< 0.3
11926713	FB	Kitchen Office	< 0.3
11926882	OB	OFFICE BLANK	< 0.3
11926890	TB	TRAVEL BLANK	< 0.3

Table 3a - Duplicate Worksheet / Data Validation

Forest Oak Middle School

Test Period: 2/24/2025 - 2/27/2025

Sample ID		Duplicate Concentrations (pCi/L) and OC Checks								
Kit Numbers	Room / Area	Higher	Lower	Check #1 (Pass/Fail)	2x the Lower	Check #2 (Pass/Fail)	Average	Relative Percent Difference (RPD)	Check #3	
11926726	11926757	B125	0.3	0.3	✓	0.6	PASS	0.3	<1-pCi/L	✓
11926733	11926740	C110	0.3	0.3	✓	0.6	PASS	0.3	<1-pCi/L	✓
11926758	11926763	C149	0.3	0.3	✓	0.6	PASS	0.3	<1-pCi/L	✓
11926706	11926707	D103	0.3	0.3	✓	0.6	PASS	0.3	<1-pCi/L	✓
11926704	11926782	D208	0.3	0.3	✓	0.6	PASS	0.3	<1-pCi/L	✓
11926711	11926735	E105	0.3	0.3	✓	0.6	PASS	0.3	<1-pCi/L	✓
11926720	11926774	E108	0.3	0.3	✓	0.6	PASS	0.3	<1-pCi/L	✓
<b>NOTES:</b>							<b>Average (pCi/L)</b>	<b>Warning Level</b>	<b>Control Level</b>	
QC Check #1 - Data Entry							< 2.0	1-pCi/L	NA	
QC Check #2 - Higher duplicate concentration is < or = to 2x the Lower							Between 2.0 and 3.9	50% RPD	67% RPD	
QC Check #3 - Meets RPD Limits, by average duplicate concentration							≥ 4.0	28% RPD	36% RPD	

- enter 2 if RPD is BELOW warning and control levels, AND passes QC Check 1 and 2
- enter 1 if RPD is ABOVE warning and BELOW control levels, AND passes QC Check 1 and 2
- enter 0 if RPD is ABOVE control level, or 'FAILS' QC Check 1 or 2



**Attachment 2:**  
**Laboratory Reports**

Radon test result report for:  
**FOREST OAK MS**  
**MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11926779	226	2025-02-24 @ 12:00 pm	2025-02-27 @ 12:00 pm	< 0.3	2025-03-04
11926771	A118	2025-02-24 @ 11:00 am	2025-02-27 @ 12:00 pm	0.9 ± 0.4	2025-03-04
11926764	AUX GYM	2025-02-24 @ 11:00 am	2025-02-27 @ 12:00 pm	0.6 ± 0.4	2025-03-04
11926755	B110	2025-02-24 @ 11:00 am	2025-02-27 @ 12:00 pm	< 0.3	2025-03-04
11926742	B115	2025-02-24 @ 11:00 am	2025-02-27 @ 12:00 pm	< 0.3	2025-03-04
11926748	B121	2025-02-24 @ 11:00 am	2025-02-27 @ 12:00 pm	< 0.3	2025-03-04
11926726	B125	2025-02-24 @ 11:00 am	2025-02-27 @ 11:00 am	< 0.3	2025-03-04
11926757	B125	2025-02-24 @ 11:00 am	2025-02-27 @ 12:00 pm	< 0.3	2025-03-04
11926734	C106	2025-02-24 @ 11:00 am	2025-02-27 @ 11:00 am	< 0.3	2025-03-04
11926723	C107	2025-02-24 @ 11:00 am	2025-02-27 @ 11:00 am	< 0.3	2025-03-04
11926722	C109	2025-02-24 @ 11:00 am	2025-02-27 @ 11:00 am	< 0.3	2025-03-04
11926740	C110	2025-02-24 @ 11:00 am	2025-02-27 @ 11:00 am	< 0.3	2025-03-04
11926733	C110	2025-02-24 @ 11:00 am	2025-02-27 @ 11:00 am	< 0.3	2025-03-04
11926717	C111	2025-02-24 @ 11:00 am	2025-02-27 @ 11:00 am	< 0.3	2025-03-04
11926716	C112	2025-02-24 @ 11:00 am	2025-02-27 @ 11:00 am	< 0.3	2025-03-04
11926732	C114	2025-02-24 @ 11:00 am	2025-02-27 @ 11:00 am	< 0.3	2025-03-04
11926729	C115	2025-02-24 @ 11:00 am	2025-02-27 @ 11:00 am	< 0.3	2025-03-04
11926739	C116	2025-02-24 @ 11:00 am	2025-02-27 @ 11:00 am	< 0.3	2025-03-04
11926714	C117	2025-02-24 @ 11:00 am	2025-02-27 @ 11:00 am	< 0.3	2025-03-04
11926756	C118	2025-02-24 @ 11:00 am	2025-02-27 @ 11:00 am	< 0.3	2025-03-04
11926750	C121	2025-02-24 @ 11:00 am	2025-02-27 @ 11:00 am	< 0.3	2025-03-04
11926718	C131	2025-02-24 @ 11:00 am	2025-02-27 @ 11:00 am	< 0.3	2025-03-04
11926721	C132	2025-02-24 @ 11:00 am	2025-02-27 @ 11:00 am	< 0.3	2025-03-04
11926724	C133	2025-02-24 @ 11:00 am	2025-02-27 @ 11:00 am	< 0.3	2025-03-04
11926761	C146	2025-02-24 @ 11:00 am	2025-02-27 @ 11:00 am	< 0.3	2025-03-04
11926773	C146	2025-02-24 @ 11:00 am	2025-02-27 @ 11:00 am	< 0.3	2025-03-04
11926768	C147	2025-02-24 @ 11:00 am	2025-02-27 @ 11:00 am	< 0.3	2025-03-04
11926741	C148	2025-02-24 @ 11:00 am	2025-02-27 @ 11:00 am	< 0.3	2025-03-04
11926758	C149	2025-02-24 @ 11:00 am	2025-02-27 @ 11:00 am	< 0.3	2025-03-04
11926763	C149	2025-02-24 @ 11:00 am	2025-02-27 @ 11:00 am	< 0.3	2025-03-04
11926759	C157	2025-02-24 @ 11:00 am	2025-02-27 @ 12:00 pm	< 0.3	2025-03-04
11926706	D103	2025-02-24 @ 12:00 pm	2025-02-27 @ 11:00 am	< 0.3	2025-03-04
11926707	D103	2025-02-24 @ 12:00 pm	2025-02-27 @ 11:00 am	< 0.3	2025-03-04
11926754	D108	2025-02-24 @ 12:00 pm	2025-02-27 @ 11:00 am	< 0.3	2025-03-04
11926753	D109	2025-02-24 @ 12:00 pm	2025-02-27 @ 11:00 am	< 0.3	2025-03-04
11926770	D110	2025-02-24 @ 12:00 pm	2025-02-27 @ 11:00 am	< 0.3	2025-03-04
11926746	D113	2025-02-24 @ 12:00 pm	2025-02-27 @ 11:00 am	< 0.3	2025-03-04

Radon test result report for:  
**FOREST OAK MS**  
**MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11926745	D114	2025-02-24 @ 12:00 pm	2025-02-27 @ 11:00 am	< 0.3	2025-03-04
11926728	D114	2025-02-24 @ 12:00 pm	2025-02-27 @ 11:00 am	< 0.3	2025-03-04
11926769	D119A	2025-02-24 @ 12:00 pm	2025-02-27 @ 11:00 am	< 0.3	2025-03-04
11926776	D123	2025-02-24 @ 12:00 pm	2025-02-27 @ 11:00 am	< 0.3	2025-03-04
11926701	D124	2025-02-24 @ 12:00 pm	2025-02-27 @ 11:00 am	< 0.3	2025-03-04
11926747	D127	2025-02-24 @ 11:00 am	2025-02-27 @ 11:00 am	< 0.3	2025-03-04
11926704	D208	2025-02-24 @ 12:00 pm	2025-02-27 @ 12:00 pm	< 0.3	2025-03-04
11926782	D208	2025-02-24 @ 12:00 pm	2025-02-27 @ 12:00 pm	< 0.3	2025-03-04
11926743	DINING	2025-02-24 @ 11:00 am	2025-02-27 @ 12:00 pm	< 0.3	2025-03-04
11926749	DINING	2025-02-24 @ 11:00 am	2025-02-27 @ 12:00 pm	< 0.3	2025-03-04
11926736	E104	2025-02-24 @ 12:00 pm	2025-02-27 @ 12:00 pm	< 0.3	2025-03-04
11926735	E105	2025-02-24 @ 12:00 pm	2025-02-27 @ 12:00 pm	< 0.3	2025-03-04
11926711	E105	2025-02-24 @ 12:00 pm	2025-02-27 @ 12:00 pm	< 0.3	2025-03-04
11926712	E106	2025-02-24 @ 12:00 pm	2025-02-27 @ 12:00 pm	< 0.3	2025-03-04
11926751	E107	2025-02-24 @ 12:00 pm	2025-02-27 @ 12:00 pm	< 0.3	2025-03-04
11926774	E108	2025-02-24 @ 12:00 pm	2025-02-27 @ 12:00 pm	< 0.3	2025-03-04
11926720	E108	2025-02-24 @ 12:00 pm	2025-02-27 @ 12:00 pm	< 0.3	2025-03-04
11926719	E109	2025-02-24 @ 12:00 pm	2025-02-27 @ 12:00 pm	< 0.3	2025-03-04
11926752	E115	2025-02-24 @ 12:00 pm	2025-02-27 @ 12:00 pm	< 0.3	2025-03-04
11926738	E118	2025-02-24 @ 12:00 pm	2025-02-27 @ 12:00 pm	< 0.3	2025-03-04
11926744	E119	2025-02-24 @ 12:00 pm	2025-02-27 @ 12:00 pm	< 0.3	2025-03-04
11926702	E123	2025-02-24 @ 12:00 pm	2025-02-27 @ 12:00 pm	< 0.3	2025-03-04
11926708	E124	2025-02-24 @ 12:00 pm	2025-02-27 @ 12:00 pm	< 0.3	2025-03-04
11926705	E125	2025-02-24 @ 12:00 pm	2025-02-27 @ 12:00 pm	< 0.3	2025-03-04
11926777	E126	2025-02-24 @ 12:00 pm	2025-02-27 @ 12:00 pm	< 0.3	2025-03-04
11926778	E127	2025-02-24 @ 12:00 pm	2025-02-27 @ 12:00 pm	< 0.3	2025-03-04
11926775	E205	2025-02-24 @ 12:00 pm	2025-02-27 @ 12:00 pm	< 0.3	2025-03-04
11926780	E205	2025-02-24 @ 12:00 pm	2025-02-27 @ 12:00 pm	< 0.3	2025-03-04
11926710	FINANCIAL ASSISTANCE	2025-02-24 @ 11:00 am	2025-02-27 @ 11:00 am	< 0.3	2025-03-04
11926765	FITNESS	2025-02-24 @ 11:00 am	2025-02-27 @ 12:00 pm	< 0.3	2025-03-04
11926766	GYM	2025-02-24 @ 11:00 am	2025-02-27 @ 12:00 pm	< 0.3	2025-03-04
11926737	GYM	2025-02-24 @ 11:00 am	2025-02-27 @ 12:00 pm	< 0.3	2025-03-04
11926772	GYM OFFICE	2025-02-24 @ 11:00 am	2025-02-27 @ 12:00 pm	< 0.3	2025-03-04
11926727	GYM OFFICE BOYS	2025-02-24 @ 11:00 am	2025-02-27 @ 12:00 pm	< 0.3	2025-03-04
11926760	GYM OFFICE BOYS	2025-02-24 @ 11:00 am	2025-02-27 @ 12:00 pm	0.6 ± 0.4	2025-03-04
11926709	HEALTH	2025-02-24 @ 11:00 am	2025-02-27 @ 11:00 am	< 0.3	2025-03-04
11926731	HEALTH OFFICE	2025-02-24 @ 11:00 am	2025-02-27 @ 11:00 am	< 0.3	2025-03-04

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March 4, 2025

**\*\* LABORATORY ANALYSIS REPORT \*\***

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Radon test result report for:  
**FOREST OAK MS**  
**MAIN**

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<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
11926767	IMC	2025-02-24 @ 11:00 am	2025-02-27 @ 11:00 am	< 0.3	2025-03-04
11926762	IMC	2025-02-24 @ 11:00 am	2025-02-27 @ 11:00 am	0.6 ± 0.4	2025-03-04
11926713	KITCHEN OFFICE	2025-02-24 @ 11:00 am	2025-02-27 @ 12:00 pm	< 0.3	2025-03-04
11926730	KITCHEN OFFICE	2025-02-24 @ 11:00 am	2025-02-27 @ 12:00 pm	< 0.3	2025-03-04
11926725	MAIN OFFICE	2025-02-24 @ 11:00 am	2025-02-27 @ 11:00 am	< 0.3	2025-03-04

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

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March 3, 2025

**\*\* LABORATORY ANALYSIS REPORT \*\***

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Radon test result report for:

**OFFICE  
MAIN**

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<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
11926882	OB	2025-02-24 @ 11:00 am	2025-02-27 @ 11:00 am	< 0.3	2025-03-03

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

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March 3, 2025

**\*\* LABORATORY ANALYSIS REPORT \*\***

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Radon test result report for:

**TRAVEL  
MAIN**

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<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
11926890	TB	2025-02-24 @ 11:00 am	2025-02-27 @ 11:00 am	< 0.3	2025-03-03

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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 20001560

NOMINAL Conditions: Radon Conc 50.6 pCi/L Rel. Hum 50.6% Temp. 70.8 F

Date Start: 12/14/24 Date Stop: 12/17/24 Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

Time Start: 0815 Time Stop: 0815 Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_

Device No.'s: (3) CHAR BAGS Device No.'s: \_\_\_\_\_

11477880, 11477883, 11477896

B4 Right

Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_ Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_ Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_

Device No.'s: \_\_\_\_\_ Device No.'s: \_\_\_\_\_

Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_ Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_ Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_

Device No.'s: \_\_\_\_\_ Device No.'s: \_\_\_\_\_

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

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December 23, 2024

**\*\* LABORATORY ANALYSIS REPORT \*\***

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Radon test result report for:

**SK  
MAIN**

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<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
11477880	SK1	2024-12-14 @ 8:00 am	2024-12-17 @ 8:00 am	52.0 ± 4.2	2024-12-23
11477883	SK2	2024-12-14 @ 8:00 am	2024-12-17 @ 8:00 am	54.6 ± 4.4	2024-12-23
11477896	SK3	2024-12-14 @ 8:00 am	2024-12-17 @ 8:00 am	45.5 ± 3.6	2024-12-23

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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 20002919

NOMINAL Conditions: Radon Conc 7.0 pCi/L Rel. Hum 51.4 % Temp. 70.7 F

Date Start: 3/7/25 Date Stop: 3/10/25 Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

Time Start: 0832 Time Stop: 0832 Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_

Device No.'s: (7) CHAR BAGS Device No.'s: \_\_\_\_\_

11886401 thru 11886406,

11886410

G3 Right

Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_ Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_ Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_

Device No.'s: \_\_\_\_\_ Device No.'s: \_\_\_\_\_

Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_ Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_ Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_

Device No.'s: \_\_\_\_\_ Device No.'s: \_\_\_\_\_

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

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March 19, 2025

**\*\* LABORATORY ANALYSIS REPORT \*\***

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Radon test result report for:

**QC  
MAIN**

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<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
11886401	SK1	2025-03-07 @ 9:00 am	2025-03-10 @ 9:00 am	7.8 ± 1.1	2025-03-19
11886405	SK2	2025-03-07 @ 9:00 am	2025-03-10 @ 9:00 am	7.1 ± 1.1	2025-03-19
11886406	SK3	2025-03-07 @ 9:00 am	2025-03-10 @ 9:00 am	7.7 ± 1.1	2025-03-19
11886403	SK4	2025-03-07 @ 9:00 am	2025-03-10 @ 9:00 am	7.9 ± 1.2	2025-03-19
11886404	SK5	2025-03-07 @ 9:00 am	2025-03-10 @ 9:00 am	7.6 ± 1.2	2025-03-19
11886410	SK6	2025-03-07 @ 9:00 am	2025-03-10 @ 9:00 am	7.0 ± 1.1	2025-03-19
11886402	SK7	2025-03-07 @ 9:00 am	2025-03-10 @ 9:00 am	8.6 ± 1.2	2025-03-19

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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 – Testing February 24<sup>th</sup> – February 27<sup>th</sup>, 2025

**Name of Schools:**

1. Diamond ES
2. Smith Center
3. Fields Road ES
4. Forest Oak MS
5. Fox Chapel ES
6. Gaithersburg ES
7. Gaithersburg HS

---

	Date	Initials
Radon Test Kits Deployed	2/24/2025	DM
Radon Test Kits Collected	2/27/2025	AM
Radon Test Kits Shipped to Lab*	2/27/2025	AM
Radon Test Kits Received by Lab*	3/1/2025	AM

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

**MCPS RADON TESTING - EXECUTIVE SUMMARY**

Site Name	Forest Oak Middle School
Date of Report	May 18, 2018
Round of Testing	Initial Follow-up <b>Post Remediation</b> 2 year testing 5 year testing HVAC Upgrade Window Replacement New Addition New Facility
# of Rooms Tested	13
# Rooms $\geq 4.0$ pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	<0.3 pCi/L

**Project Status**

Current Project Status at this time: Post-mitigation testing completed; no further action at this time.



May 18, 2018

Mr. Richard Cox, MS  
Team Leader  
Montgomery County Public Schools  
Division of Maintenance  
Gaithersburg, Maryland 20879

Re: Radon Testing Services

KCI Job #1214634188

**Location: Forest Oak Middle School**

651 Saybrooke Oaks Blvd.  
Gaithersburg, Maryland 20877

Dear Mr. Cox:

KCI Technologies, Inc. (KCI) is pleased to submit the following report to Montgomery County Public Schools pursuant to completing a “short-term” 3-day radon test for the Forest Oak Middle School, located at 651 Saybrooke Oaks Blvd. in Gaithersburg, Maryland 20877 (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](http://www.montgomerycountymd.gov/dep/air/radon) or [www.epa.gov/radon](http://www.epa.gov/radon).

KCI visited the site on May 8, 2018 and deployed fifteen (15) 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.

KCI sampled the following locations during this follow-up test:

1. Rooms requiring post-mitigation testing

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A floor plan map of the building with the test locations is included as Appendix 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 two (2) 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.

KCI returned to the site on May 11, 2018 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Aircheck, Inc. for analysis by gamma-ray spectroscopy. Aircheck, 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:

- Post-mitigation testing

These tests were conducted to:

- Confirm the success of the mitigation system(s).

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. Future testing should be conducted during the next heating season under 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 high-40s to mid-50s and high temperatures ranged from the mid-70s to the low-80s. Maximum sustained winds were up to 10 miles per hour. Average humidity was around 64%. 0.1 inches of precipitation, was recorded during the testing period.

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## **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). 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:

<b>Radon Concentration</b>	<b>Room</b>	<b>Result</b>
$\geq 4.0$ pCi/L	None	N/A
$\leq 4.0$ pCi/L	See Attachment B	See Attachment B

<b>Quality Control Samples</b>	
Results of Blank Canisters:	The office blank, field blank, 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 410-316-7800.

Sincerely,



Radon Measurement Specialist  
KCI Technologies, Inc.

Attachments:

B - Tables 1-3, Radon Test Summary Spreadsheets

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

<b>Table 1 - Radon Testing Results</b>		
<b>Forest Oak Middle School</b>		
<b>Test Period: 05/08/18-05/11/18</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result</b>
7986540	D106	< 0.3
7986676	D107	< 0.3
7986693	D108	< 0.3
7986510	D109	< 0.3
7986535	D110	< 0.3
7986688	D113	< 0.3
7984133	D114	< 0.3
7986682	D114B	< 0.3
7984144	D116	< 0.3
7984118	D119	< 0.3
7986502	D121	< 0.3
7986687	D123	< 0.3
7986692	D124	< 0.3

Table Note:

\* Missing or Compromised Sample

<b>Table 2 - Radon Testing Results</b>		
<b>Forest Oak Middle School</b>		
<b>Kit Number</b>	<b>QC Type</b>	<b>Result</b>
7984142	D (D114)	< 0.3
7984145	FB (D116)	< 0.3

Table Note:

\* Missing or Compromised Sample

# ATTACHMENT C

## Laboratory Analytical Results

May 15, 2018

**\*\* LABORATORY ANALYSIS REPORT \*\***

Radon test result report for:

**FOREST OAK MIDDLE SCHOOL  
MAIN-248**

<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
7986540	D106	2018-05-08 @ 5:00 pm	2018-05-11 @ 4:00 pm	< 0.3	2018-05-14
7986676	D107	2018-05-08 @ 5:00 pm	2018-05-11 @ 4:00 pm	< 0.3	2018-05-14
7986693	D108	2018-05-08 @ 5:00 pm	2018-05-11 @ 4:00 pm	< 0.3	2018-05-14
7986510	D109	2018-05-08 @ 5:00 pm	2018-05-11 @ 4:00 pm	< 0.3	2018-05-14
7986535	D110	2018-05-08 @ 5:00 pm	2018-05-11 @ 4:00 pm	< 0.3	2018-05-14
7986688	D113	2018-05-08 @ 5:00 pm	2018-05-11 @ 4:00 pm	< 0.3	2018-05-14
7984133	D114	2018-05-08 @ 11:00 am	2018-05-11 @ 4:00 pm	< 0.3	2018-05-14
7984142	D114	2018-05-08 @ 11:00 am	2018-05-11 @ 4:00 pm	< 0.3	2018-05-14
7986682	D114B	2018-05-08 @ 5:00 pm	2018-05-11 @ 3:00 pm	< 0.3	2018-05-14
7984145	D116	2018-05-08 @ 11:00 am	2018-05-11 @ 4:00 pm	< 0.3	2018-05-14
7984144	D116	2018-05-08 @ 11:00 am	2018-05-11 @ 4:00 pm	< 0.3	2018-05-14
7984118	D119	2018-05-08 @ 5:00 pm	2018-05-11 @ 3:00 pm	< 0.3	2018-05-14
7986502	D121	2018-05-08 @ 4:00 pm	2018-05-11 @ 3:00 pm	< 0.3	2018-05-14
7986687	D123	2018-05-08 @ 4:00 pm	2018-05-11 @ 3:00 pm	< 0.3	2018-05-14
7986692	D124	2018-05-08 @ 5:00 pm	2018-05-11 @ 3:00 pm	< 0.3	2018-05-14



## Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase

Names of Schools:

1. Cedar Grove Elementary School
2. Forest Oak Middle School

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	Date	Initials
Radon Test Kits Deployed	5/8/18	JM
Radon Test Kits Collected	5/11/18	JM
Radon Test Kits Shipped to Lab*	5/11/18	JM
Radon Test Kits Received by Lab*	5/14/18	JM

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

Radon test result report for:  
**TRANSIT BLANKS**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7984188	1	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7984044	10	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7986582	11	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7986999	12	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7987000	13	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7984196	14	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7986996	2	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7986994	3	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7986992	4	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7985680	5	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7985698	6	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7985699	7	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7985700	8	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7985872	9	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20

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May 15, 2018

**\*\* LABORATORY ANALYSIS REPORT \*\***

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Radon test result report for:  
**OFFICE BLANK**  
**MAIN**

---

<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
7986591	OB	2018-05-08 @ 5:00 pm	2018-05-11 @ 3:00 pm	< 0.3	2018-05-14

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

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May 16, 2018

**\*\* LABORATORY ANALYSIS REPORT \*\***

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Radon test result report for:

**MCPS - Spike Sample Laboratory Results. Measured values are satisfactory, i.e. within  $\pm 25\%$  of the chamber's reference value (31.3 pCi/L).**

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<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
7984194	SP	2018-05-11 @ 9:00 am	2018-05-14 @ 9:00 am	$28.7 \pm 1.5$	2018-05-16
7986531	SP	2018-05-11 @ 9:00 am	2018-05-14 @ 9:00 am	$32.3 \pm 1.6$	2018-05-16

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

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KEI Technologies Inc. Job Number 184899

NOMINAL Conditions: Radon Conc 31.3 pCi/L Rel. Hum 51.9 % Temp. 79.4 F

Date Start: 5/11/18 Date Stop: 5/14/18 Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

Time Start: 0902 Time Stop: 0902 Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_

Device No.'s: (2) Char. Bags Device No.'s: \_\_\_\_\_

7986531, 7984194

F4 Right

Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_ Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_ Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_

Device No.'s: \_\_\_\_\_ Device No.'s: \_\_\_\_\_

Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_ Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_ Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_

Device No.'s: \_\_\_\_\_ Device No.'s: \_\_\_\_\_

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

RADON SCREENING SURVEY – FOLLOW-UP FOREST OAK MIDDLE SCHOOL

651 Saybrooke Oaks Blvd., Gaithersburg, Maryland 20877

EXECUTIVE SUMMARY

Date of Test Report:	3/7/18
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested	25
# Rooms $\geq$ 4.0 pCi/L:	2
Low Value:	<0.3
High Value:	9.8
Confirmed Rooms $\geq$ 4.0 pCi/L US EPA Action Level	2

Summary of Sampling Events  $\geq$  4.0 pCi/L

Room	Result (pCi/L) 2/1/18	Result (pCi/L) 3/7/18	Average Result (pCi/L)
D116	26.6	9.8	18.2
D114	4.7	7.4	6.1

**MCPS RADON TESTING - EXECUTIVE SUMMARY**

Site Name	Forest Oak Middle School
Date of Report	March 7, 2018
Round of Testing	Initial <b>Follow-up</b> Post Remediation 2 year testing 5 year testing HVAC Upgrade Window Replacement New Addition New Facility
# of Rooms Tested	25
# Rooms $\geq 4.0$ pCi/L	2
Lowest Value	< 0.3 pCi/L
Highest Value	9.8 pCi/L

**Project Status**

Rooms with results  $\geq 4.0$  pCi/L:

D116 (9.8 pCi/L), D114 (7.4 pCi/L)

Project Status at this time: Retesting completed; use the average of the initial and re-test results in a room to determine if remediation is necessary.



March 7, 2018

Mr. Richard Cox, MS  
Team Leader  
Montgomery County Public Schools  
Division of Maintenance  
Rockville, Maryland 20855

Re: Radon Testing Services

KCI Job #1214634188

**Location: Forest Oak Middle School**

651 Saybrooke Oaks Blvd.  
Gaithersburg, Maryland 20877

Dear Mr. Cox:

KCI Technologies, Inc. (KCI) is pleased to submit the following report to Montgomery County Public Schools pursuant to completing a “short-term” 3-day radon test for the Forest Oak Middle School, located at 651 Saybrooke Oaks Blvd. in Gaithersburg, Maryland 20877 (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](http://www.montgomerycountymd.gov/dep/air/radon) or [www.epa.gov/radon](http://www.epa.gov/radon).

KCI visited the site on February 6, 2018 and deployed thirty (30) 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.

KCI sampled the following locations during this follow-up test:

1. Rooms not successfully tested,
2. Rooms with elevated November 2017 results (i.e.  $\geq 3.5$  pCi/L).

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A floor plan map of the building with the test locations is included as Appendix 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, Inc. prior to being returned to the laboratory for analysis.

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, Inc. prior to being returned to the laboratory for analysis.

KCI returned to the site on February 9, 2018 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Aircheck, Inc. for analysis by gamma-ray spectroscopy. Aircheck, 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 post-mitigation biennial testing.

These tests were conducted to:

- Confirm the success of the mitigation system(s).

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 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 teens and 20s

and high temperatures ranged from the mid-30s to low-40s. Maximum sustained winds ranged from 10-17 miles per hour. Average humidity was around 75%. 0.41 Inches of precipitation was recorded during the 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). The laboratory analytical results are included in Attachment C. Laboratory results and exposure data for the spike samples are also included in Attachment C.

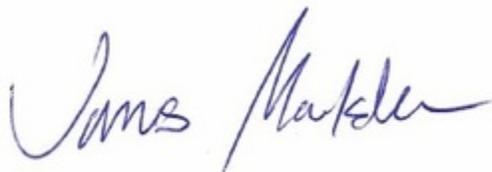
The results of the radon test analysis indicated the following:

<b>Radon Concentration</b>	<b>Room</b>	<b>Result</b>
≥4.0 piC/L	D116	9.8
≥4.0 piC/L	D114	7.4
≤4.0 piC/L	See Attachment B	See Attachment B

<b>Quality Control Samples</b>	
Results of Blank Canisters:	The field blank, 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 410-316-7800.

Sincerely,



Radon Measurement Specialist  
KCI Technologies, Inc.

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Attachments:

B - Radon Test Summary Spreadsheets

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

<b>Table 1- Radon Testing Results</b>		
<b>Forest Oaks Middle School</b>		
<b>Test Period: 02/06/18-02/09/18</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result</b>
7194100	A118	< 0.3
7985889	A126	< 0.3
7985888	A130	0.6
7194098	B101	< 0.3
7985883	B107	< 0.3
7985882	B107-1	< 0.3
7985887	B119	< 0.3
7979382	B120	< 0.3
7985886	B121	0.6
7985890	B124	< 0.3
7985891	B125	< 0.3
7979055	BOYS LOCKER ROOM	< 0.3
7979377	C108	< 0.3
7194096	C145	< 0.3
7194099	D108	< 0.3
7979383	D109	< 0.3
7979387	D110	0.6
7979041	D114	7.4
7979388	D116	9.8
7979080	D119	1.0
7194094	E108	< 0.3
7194095	* E126 (Missing)	-
7979056	GIRLS LOCKER ROOM	< 0.3
7985879	KITCHEN	< 0.3
7985880	KITCHEN OFFICE	< 0.3

Table Note:

\* Missing or Compromised Sample

<b>Table 2- Radon Testing Results</b>		
<b>Forest Oaks Middle School</b>		
<b>Test Period: 02/06/18-02/09/18</b>		
<b>Kit Number</b>	<b>QC Type</b>	<b>Result</b>
7194093	D (A118)	0.6
7985881	D (B101)	< 0.3
7985885	D (B107-1)	< 0.3
7979074	D (D114)	7.4
7985884	FB (B107)	< 0.3

Table Note:

\* Missing or Compromised Sample

# ATTACHMENT C

## Laboratory Analytical Results

Radon test result report for:

**FOREST OAKS MIDDLE SCHOOL  
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7194093	A118	2018-02-06 @ 11:00 am	2018-02-09 @ 2:00 pm	0.6 ± 0.2	2018-02-12
7194100	A118	2018-02-06 @ 11:00 am	2018-02-09 @ 2:00 pm	< 0.3	2018-02-12
7985889	A126	2018-02-06 @ 11:00 am	2018-02-09 @ 2:00 pm	< 0.3	2018-02-12
7985888	A130	2018-02-06 @ 11:00 am	2018-02-09 @ 2:00 pm	0.6 ± 0.3	2018-02-12
7985881	B101	2018-02-06 @ 11:00 am	2018-02-09 @ 2:00 pm	< 0.3	2018-02-12
7194098	B101	2018-02-06 @ 11:00 am	2018-02-09 @ 2:00 pm	< 0.3	2018-02-12
7985883	B107	2018-02-06 @ 10:00 am	2018-02-09 @ 2:00 pm	< 0.3	2018-02-12
7985884	B107	2018-02-06 @ 11:00 am	2018-02-09 @ 2:00 pm	< 0.3	2018-02-12
7985885	B107-1	2018-02-06 @ 10:00 am	2018-02-09 @ 2:00 pm	< 0.3	2018-02-12
7985882	B107-1	2018-02-06 @ 10:00 am	2018-02-09 @ 2:00 pm	< 0.3	2018-02-12
7985887	B119	2018-02-06 @ 11:00 am	2018-02-09 @ 2:00 pm	< 0.3	2018-02-12
7979382	B120	2018-02-06 @ 11:00 am	2018-02-09 @ 2:00 pm	< 0.3	2018-02-12
7985886	B121	2018-02-06 @ 11:00 am	2018-02-09 @ 2:00 pm	0.6 ± 0.3	2018-02-12
7985890	B124	2018-02-06 @ 11:00 am	2018-02-09 @ 2:00 pm	< 0.3	2018-02-12
7985891	B125	2018-02-06 @ 11:00 am	2018-02-09 @ 2:00 pm	< 0.3	2018-02-12
7979055	BOYS LOCKER ROOM	2018-02-06 @ 12:00 pm	2018-02-09 @ 2:00 pm	< 0.3	2018-02-12
7979377	C108	2018-02-06 @ 12:00 pm	2018-02-09 @ 2:00 pm	< 0.3	2018-02-12
7194096	C145	2018-02-06 @ 11:00 am	2018-02-09 @ 2:00 pm	< 0.3	2018-02-12
7194099	D108	2018-02-06 @ 12:00 pm	2018-02-09 @ 2:00 pm	< 0.3	2018-02-12
7979383	D109	2018-02-06 @ 12:00 pm	2018-02-09 @ 2:00 pm	< 0.3	2018-02-12
7979387	D110	2018-02-06 @ 12:00 pm	2018-02-09 @ 2:00 pm	0.6 ± 0.3	2018-02-12
7979041	D114	2018-02-06 @ 12:00 pm	2018-02-09 @ 2:00 pm	7.4 ± 0.5	2018-02-12
7979074	D114	2018-02-06 @ 12:00 pm	2018-02-09 @ 2:00 pm	7.4 ± 0.5	2018-02-12
7979388	D116	2018-02-06 @ 12:00 pm	2018-02-09 @ 2:00 pm	9.8 ± 0.6	2018-02-12
7979080	D119	2018-02-06 @ 12:00 pm	2018-02-09 @ 2:00 pm	1.0 ± 0.3	2018-02-12
7194094	E108	2018-02-06 @ 11:00 am	2018-02-09 @ 2:00 pm	< 0.3	2018-02-12
7194095	E126	@	@		
7979056	GIRLS LOCKER ROO	2018-02-06 @ 12:00 pm	2018-02-09 @ 2:00 pm	< 0.3	2018-02-12
7985879	KITCHEN	2018-02-06 @ 11:00 am	2018-02-09 @ 2:00 pm	< 0.3	2018-02-12
7985880	KITCHEN OFFICE	2018-02-06 @ 11:00 am	2018-02-09 @ 2:00 pm	< 0.3	2018-02-12



## Radon Test Kit Chain of Custody

Project Name: MCPS Radon

Names of Schools:

1. English Manor
2. Forest Oak Middle School
3. Robert Frost Middle
4. Damascus Elementary School
5. Quince Orchard High School
6. Blair G. Ewing Center

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	Date	Initials
Radon Test Kits Deployed	02/06/18	JM
Radon Test Kits Collected	02/09/18	JM
Radon Test Kits Shipped to Lab*	02/09/18	JM
Radon Test Kits Received by Lab*	02/12/18	JM

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

February 27, 2018

**\*\* LABORATORY ANALYSIS REPORT \*\***

Radon test result report for:  
**OFFICE BLANKS**

<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
7979482	1	2018-02-13 @ 1:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7986991	10	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7985684	11	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7986987	12	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7986993	13	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7986990	14	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7979485	2	2018-02-13 @ 1:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7985686	3	2018-02-13 @ 1:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7986995	4	2018-02-13 @ 1:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7986989	5	2018-02-13 @ 1:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7986998	6	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7986986	7	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7986985	8	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7986997	9	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20

Radon test result report for:  
**TRANSIT BLANKS**

<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
7984188	1	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7984044	10	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7986582	11	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7986999	12	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7987000	13	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7984196	14	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7986996	2	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7986994	3	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7986992	4	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7985680	5	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7985698	6	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7985699	7	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7985700	8	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7985872	9	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20

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February 28, 2018

**\*\* LABORATORY ANALYSIS REPORT \*\***

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Radon test result report for:

**MCPS - Spike Sample Laboratory Results. Measured values are satisfactory, i.e. within  $\pm 25\%$  of the chamber's reference value (20.9 pCi/L).**

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<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
7984181	1	2018-02-16 @ 11:00 am	2018-02-19 @ 11:00 am	19.7 $\pm$ 0.8	2018-02-21
7986621	2	2018-02-16 @ 11:00 am	2018-02-19 @ 11:00 am	19.4 $\pm$ 0.8	2018-02-21
7985683	3	2018-02-16 @ 11:00 am	2018-02-19 @ 11:00 am	19.5 $\pm$ 0.8	2018-02-21
7984168	4	2018-02-16 @ 11:00 am	2018-02-19 @ 11:00 am	20.5 $\pm$ 0.8	2018-02-21
7986618	5	2018-02-16 @ 11:00 am	2018-02-19 @ 11:00 am	19.9 $\pm$ 0.8	2018-02-21
7984169	6	2018-02-16 @ 11:00 am	2018-02-19 @ 11:00 am	20.4 $\pm$ 0.8	2018-02-21

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Air Chek, Inc. 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 183530

NOMINAL Conditions: Radon Conc 20.9 pCi/L Rel. Hum 49.8 % Temp. 79.1 F

Date Start: 2/16/18 Date Stop: 2/19/18 Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_  
Time Start: 1052 Time Stop: 1052 Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_  
Device No.'s: (6) Char. Bags Device No.'s: \_\_\_\_\_  
7984181, 7986621, 7985683 \_\_\_\_\_  
7984168, 7986618, 7984169 \_\_\_\_\_  
G3 Middle

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  $\mu$ R/h Elevation = 820 ft



**MCPS RADON TESTING - EXECUTIVE SUMMARY**

Site Name	Forest Oak Middle School
Date of Report	February 1, 2018
Round of Testing	Initial Follow-up Post Remediation <b>2 year testing</b> 5 year testing HVAC Upgrade Window Replacement New Addition New Facility
# of Rooms Tested	64
# Rooms $\geq 4.0$ pCi/L	2
Lowest Value	< 0.3 pCi/L
Highest Value	26.6 pCi/L

Rooms with results  $\geq 4.0$  pCi/L:

D116 (26.6 pCi/L), D114 (4.7 pCi/L, 4.1 pCi/L)

Current Project Status at this time: Testing Completed; retesting needed for results  $\geq 4.0$  pCi/L.

Missing or compromised samples need re-test.



February 1, 2018

Mr. Richard Cox, MS  
Team Leader  
Montgomery County Public Schools  
Division of Maintenance  
Rockville, Maryland 20855

Re: Radon Testing Services

KCI Job #1214694182

**Location: Forest Oak Middle School**

651 Saybrooke Oaks Blvd.  
Gaithersburg, Maryland 20877

Dear Mr. Cox:

KCI Technologies, Inc. (KCI) is pleased to submit the following report to Montgomery County Public Schools pursuant to completing a “short-term” 3-day radon test for the Forest Oak Middle School, located at 651 Saybrooke Oaks Blvd. in Gaithersburg, Maryland 20877 (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](http://www.montgomerycountymd.gov/dep/air/radon) or [www.epa.gov/radon](http://www.epa.gov/radon).

KCI visited the site on December 4, 2017 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 Appendix 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, Inc. prior to being returned to the laboratory for analysis.

KCI returned to the site on December 7, 2017 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Aircheck, Inc. for analysis by gamma-ray spectroscopy. Aircheck, 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:

- Post-mitigation biennial testing.

These tests were conducted to:

- Confirm the success of the mitigation system(s).

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 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 high-20s to mid-40s and high temperatures ranged from the low-40s to mid-50s. Maximum sustained winds ranged from 12-17 miles per hour. Average humidity was around 65%. 0.16 Inches of precipitation was recorded during the testing period.

### **RESULTS**

The sampling locations, field observations, 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). Missing/compromised tests, missed rooms, and locked rooms 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:

<b>Radon Concentration</b>	<b>Room</b>	<b>Result</b>
≥4.0 pCi/L	D116	26.6
≥4.0 pCi/L	D114	4.1, 4.7 (duplicate)
≤4.0 pCi/L	See Attachment B	See Attachment B

<b>Quality Control Samples</b>	
Results of Blank Canisters:	The field blanks, office blank, 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 410-316-7800.

Sincerely,



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

Attachments:

B- Tables 1-3, Radon Test Summary Spreadsheets

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

<b>Radon Testing Results</b>		
<b>Forest Oak Middle School</b>		
<b>Test Period: 12/04/17-12/07/17</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result</b>
7979191	A108	< 0.3
7979200	* A126 (Tampered)	< 0.3
7979190	A127	0.7
7979196	A130	< 0.3
7979197	* A130 (Tampered)	< 0.3
7979194	B101	< 0.3
7979193	* B101 (Tampered)	< 0.3
7979127	B110	0.7
7979119	B114	< 0.3
7979120	B115	< 0.3
7979124	* B125 (Missing)	-
7979135	C106	< 0.3
7979134	C107	< 0.3
7979133	C109	0.5
7979140	C110	< 0.3
7979139	C111	< 0.3
7979146	C112	< 0.3
7979145	C114	< 0.3
7979144	C115	< 0.3
7979143	C116	< 0.3
7979142	C117	< 0.3
7979141	C118	< 0.3
7979147	C121	< 0.3
7979138	C131	< 0.3
7979153	C132	< 0.3
7979136	C133	< 0.3
7979126	C135	< 0.3
7979131	C136	< 0.3
7979172	C145	0.5
7979171	* C145 (Tampered)	< 0.3
7979170	C146	0.7
7979169	C147	0.6
7979167	C148	< 0.3
7979123	C157	0.6
7979151	D102	0.6
7979156	D103	< 0.3
7979163	* D108 (Missing)	-
7979165	* D109 (Missing)	-
7979164	* D110 (Tampered)	1.1
7979162	D113	0.8
7979157	D114	1.5
7979158	D114	4.1
7979150	D116	26.6
7979161	* D119 (Tampered)	0.9
7979166	D124	1.1
7979152	D127	0.9

Table Note:

\* Missing or Compromised Sample

<b>Radon Testing Results</b>		
<b>Forest Oak Middle School</b>		
<b>Test Period: 12/04/17-12/07/17</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result</b>
7979148	D210	0.9
7979149	D215	0.6
7979155	D226	0.6
7979179	E104	0.6
7979182	E105	0.5
7979185	E106	< 0.3
7979184	E107	< 0.3
7979183	* E108 (Missing)	-
7979181	E109	< 0.3
7979178	E110	< 0.3
7979186	E115	0.8
7979180	E118	0.6
7979168	E119	< 0.3
7979173	E123	0.5
7979174	E124	< 0.3
7979175	E125	< 0.3
7979176	* E126 (Missing)	-
7979177	E127	< 0.3
7979154	E205	0.7
7979132	HEALTH	< 0.3
7979137	MAIN OFFICE	< 0.3
7979125	REST AREA	< 0.3

Table Note:

\* Missing or Compromised Sample

Radon Testing Results		
Forest Oak Middle School		
Test Period: 12/04/17-12/07/17		
Kit Number	QC Type	Result
7979192	D (A127)	0.8
7979198	D (A130)	< 0.3
7979195	* D (B101:Tampered)	< 0.3
7979128	D (B110)	0.6
7979159	D (D114)	4.7
7979189	D (E115)	0.7
7979187	D (E118)	< 0.3
7979199	FB (A130)	< 0.3
7979160	FB (D114)	< 0.3
7979188	FB (E118)	< 0.3
7978198	OB (OB)	< 0.3

Table Note:

\* Missing or Compromised Sample



# ATTACHMENT C

## Laboratory Analytical Results

Radon test result report for:  
**FOREST OAK MS**  
**MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7979191	A108	2017-12-04 @ 9:00 am	2017-12-07 @ 1:00 pm	< 0.3	2017-12-12
7979200	A126	2017-12-04 @ 9:00 am	2017-12-07 @ 1:00 pm	< 0.3	2017-12-12
7979192	A127	2017-12-04 @ 9:00 am	2017-12-07 @ 1:00 pm	0.8 ± 0.3	2017-12-11
7979190	A127	2017-12-04 @ 9:00 am	2017-12-07 @ 1:00 pm	0.7 ± 0.3	2017-12-12
7979199	A130	2017-12-04 @ 8:00 am	2017-12-07 @ 1:00 pm	< 0.3	2017-12-11
7979196	A130	2017-12-04 @ 8:00 am	2017-12-07 @ 1:00 pm	< 0.3	2017-12-12
7979197	A130	2017-12-04 @ 8:00 am	2017-12-07 @ 1:00 pm	< 0.3	2017-12-12
7979198	A130	2017-12-04 @ 8:00 am	2017-12-07 @ 1:00 pm	< 0.3	2017-12-12
7979193	B101	2017-12-04 @ 8:00 am	2017-12-07 @ 1:00 pm	< 0.3	2017-12-11
7979194	B101	2017-12-04 @ 8:00 am	2017-12-07 @ 1:00 pm	< 0.3	2017-12-12
7979195	B101	2017-12-04 @ 8:00 am	2017-12-07 @ 1:00 pm	< 0.3	2017-12-12
7979127	B110	2017-12-04 @ 12:00 pm	2017-12-07 @ 2:00 pm	0.7 ± 0.3	2017-12-12
7979128	B110	2017-12-04 @ 12:00 pm	2017-12-07 @ 2:00 pm	0.6 ± 0.3	2017-12-12
7979119	B114	2017-12-04 @ 12:00 pm	2017-12-07 @ 2:00 pm	< 0.3	2017-12-11
7979120	B115	2017-12-04 @ 12:00 pm	2017-12-07 @ 2:00 pm	< 0.3	2017-12-12
7979124	B125	@	@		
7979135	C106	2017-12-04 @ 11:00 am	2017-12-07 @ 2:00 pm	< 0.3	2017-12-12
7979134	C107	2017-12-04 @ 11:00 am	2017-12-07 @ 2:00 pm	< 0.3	2017-12-12
7979133	C109	2017-12-04 @ 11:00 am	2017-12-07 @ 2:00 pm	0.5 ± 0.3	2017-12-12
7979140	C110	2017-12-04 @ 11:00 am	2017-12-07 @ 2:00 pm	< 0.3	2017-12-11
7979139	C111	2017-12-04 @ 11:00 am	2017-12-07 @ 2:00 pm	< 0.3	2017-12-11
7979146	C112	2017-12-04 @ 11:00 am	2017-12-07 @ 2:00 pm	< 0.3	2017-12-11
7979145	C114	2017-12-04 @ 11:00 am	2017-12-07 @ 2:00 pm	< 0.3	2017-12-12
7979144	C115	2017-12-04 @ 11:00 am	2017-12-07 @ 2:00 pm	< 0.3	2017-12-11
7979143	C116	2017-12-04 @ 11:00 am	2017-12-07 @ 2:00 pm	< 0.3	2017-12-12
7979142	C117	2017-12-04 @ 11:00 am	2017-12-07 @ 2:00 pm	< 0.3	2017-12-12
7979141	C118	2017-12-04 @ 11:00 am	2017-12-07 @ 2:00 pm	< 0.3	2017-12-12
7979147	C121	2017-12-04 @ 11:00 am	2017-12-07 @ 2:00 pm	< 0.3	2017-12-12
7979138	C131	2017-12-04 @ 11:00 am	2017-12-07 @ 2:00 pm	< 0.3	2017-12-12
7979153	C132	2017-12-04 @ 11:00 am	2017-12-07 @ 2:00 pm	< 0.3	2017-12-12
7979136	C133	2017-12-04 @ 11:00 am	2017-12-07 @ 2:00 pm	< 0.3	2017-12-12
7979126	C135	2017-12-04 @ 11:00 am	2017-12-07 @ 1:00 pm	< 0.3	2017-12-12
7979131	C136	2017-12-04 @ 11:00 am	2017-12-07 @ 1:00 pm	< 0.3	2017-12-12
7979171	C145	2017-12-04 @ 10:00 am	2017-12-07 @ 1:00 pm	< 0.3	2017-12-11
7979172	C145	2017-12-04 @ 10:00 am	2017-12-07 @ 1:00 pm	0.5 ± 0.3	2017-12-12
7979170	C146	2017-12-04 @ 10:00 am	2017-12-07 @ 1:00 pm	0.7 ± 0.3	2017-12-11
7979169	C147	2017-12-04 @ 10:00 am	2017-12-07 @ 1:00 pm	0.6 ± 0.3	2017-12-11

Radon test result report for:  
**FOREST OAK MS**  
**MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7979167	C148	2017-12-04 @ 10:00 am	2017-12-07 @ 2:00 pm	< 0.3	2017-12-12
7979123	C157	2017-12-04 @ 12:00 pm	2017-12-07 @ 2:00 pm	0.6 ± 0.3	2017-12-12
7979151	D102	2017-12-04 @ 10:00 am	2017-12-07 @ 1:00 pm	0.6 ± 0.3	2017-12-11
7979156	D103	2017-12-04 @ 10:00 am	2017-12-07 @ 1:00 pm	< 0.3	2017-12-11
7979163	D108	@	@		
7979165	D109	@	@		
7979164	D110	2017-12-04 @ 10:00 am	2017-12-07 @ 1:00 pm	1.1 ± 0.3	2017-12-11
7979162	D113	2017-12-04 @ 10:00 am	2017-12-07 @ 1:00 pm	0.8 ± 0.3	2017-12-12
7979157	D114	2017-12-04 @ 10:00 am	2017-12-07 @ 1:00 pm	1.5 ± 0.3	2017-12-11
7979158	D114	2017-12-04 @ 10:00 am	2017-12-07 @ 1:00 pm	4.1 ± 0.4	2017-12-11
7979159	D114	2017-12-04 @ 10:00 am	2017-12-07 @ 1:00 pm	4.7 ± 0.4	2017-12-12
7979160	D114	2017-12-04 @ 10:00 am	2017-12-07 @ 1:00 pm	< 0.3	2017-12-12
7979150	D116	2017-12-04 @ 10:00 am	2017-12-07 @ 1:00 pm	26.6 ± 0.9	2017-12-11
7979161	D119	2017-12-04 @ 10:00 am	2017-12-07 @ 1:00 pm	0.9 ± 0.3	2017-12-11
7979166	D124	2017-12-04 @ 10:00 am	2017-12-07 @ 1:00 pm	1.1 ± 0.3	2017-12-11
7979152	D127	2017-12-04 @ 10:00 am	2017-12-07 @ 1:00 pm	0.9 ± 0.3	2017-12-11
7979148	D210	2017-12-04 @ 11:00 am	2017-12-07 @ 2:00 pm	0.9 ± 0.3	2017-12-11
7979149	D215	2017-12-04 @ 11:00 am	2017-12-07 @ 2:00 pm	0.6 ± 0.3	2017-12-11
7979155	D226	2017-12-04 @ 11:00 am	2017-12-07 @ 2:00 pm	0.6 ± 0.3	2017-12-11
7979179	E104	2017-12-04 @ 9:00 am	2017-12-07 @ 1:00 pm	0.6 ± 0.3	2017-12-12
7979182	E105	2017-12-04 @ 9:00 am	2017-12-07 @ 1:00 pm	0.5 ± 0.3	2017-12-11
7979185	E106	2017-12-04 @ 9:00 am	2017-12-07 @ 1:00 pm	< 0.3	2017-12-11
7979184	E107	2017-12-04 @ 9:00 am	2017-12-07 @ 1:00 pm	< 0.3	2017-12-12
7979183	E108	@	@		
7979181	E109	2017-12-04 @ 9:00 am	2017-12-07 @ 1:00 pm	< 0.3	2017-12-11
7979178	E110	2017-12-04 @ 9:00 am	2017-12-07 @ 1:00 pm	< 0.3	2017-12-11
7979186	E115	2017-12-04 @ 9:00 am	2017-12-07 @ 1:00 pm	0.8 ± 0.3	2017-12-11
7979189	E115	2017-12-04 @ 9:00 am	2017-12-07 @ 1:00 pm	0.7 ± 0.3	2017-12-11
7979180	E118	2017-12-04 @ 9:00 am	2017-12-07 @ 1:00 pm	0.6 ± 0.3	2017-12-11
7979187	E118	2017-12-04 @ 9:00 am	2017-12-07 @ 1:00 pm	< 0.3	2017-12-11
7979188	E118	2017-12-04 @ 9:00 am	2017-12-07 @ 1:00 pm	< 0.3	2017-12-12
7979168	E119	2017-12-04 @ 9:00 am	2017-12-07 @ 1:00 pm	< 0.3	2017-12-12
7979173	E123	2017-12-04 @ 9:00 am	2017-12-07 @ 1:00 pm	0.5 ± 0.3	2017-12-11
7979174	E124	2017-12-04 @ 9:00 am	2017-12-07 @ 1:00 pm	< 0.3	2017-12-11
7979175	E125	2017-12-04 @ 9:00 am	2017-12-07 @ 1:00 pm	< 0.3	2017-12-11
7979176	E126	@	@		
7979177	E127	2017-12-04 @ 9:00 am	2017-12-07 @ 1:00 pm	< 0.3	2017-12-11

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December 29, 2017

**\*\* LABORATORY ANALYSIS REPORT \*\***

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Radon test result report for:  
**FOREST OAK MS**  
**MAIN**

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<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
7979154	E205	2017-12-04 @ 11:00 am	2017-12-07 @ 2:00 pm	0.7 ± 0.3	2017-12-11
7979132	HEALTH	2017-12-04 @ 11:00 am	2017-12-07 @ 1:00 pm	< 0.3	2017-12-12
7979137	MAIN OFFICE	2017-12-04 @ 11:00 am	2017-12-07 @ 1:00 pm	< 0.3	2017-12-12
7979125	REST AREA	2017-12-04 @ 11:00 am	2017-12-07 @ 1:00 pm	< 0.3	2017-12-12

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

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December 29, 2017

**\*\* LABORATORY ANALYSIS REPORT \*\***

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Radon test result report for:  
**FOREST OAK MS**  
**MAIN**

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<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
7978198	OB	2017-12-04 @ 3:00 pm	2017-12-07 @ 3:00 pm	< 0.3	2017-12-12

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## Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase

Names of Schools:

- |                                       |                                  |
|---------------------------------------|----------------------------------|
| 1. Brooke Grove Elementary School     | 14. Newport Mill Middle School   |
| 2. Brown Station Elementary School    | 15. Oakview Elementary School    |
| 3. Diamond Elementary School Addition | 16. Quince Orchard High School   |
| 4. Dufief Elementary School           | 17. Robert Frost Middle School   |
| 5. Emory Grove Center                 | 18. Rosa Parks Middle School     |
| 6. Fields Road Elementary School      | 19. South Lake Elementary School |
| 7. Facilities Maintenance Depot       |                                  |
| 8. Forest Oak Middle School           |                                  |
| 9. Francis Scott Key Middle School    |                                  |
| 10. Gaithersburg Elementary School    |                                  |
| 11. Gaithersburg Middle School        |                                  |
| 12. Germantown Elementary School      |                                  |
| 13. Greenwood Elementary School       |                                  |
| 14. Jones Lane Elementary School      |                                  |

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	Date	Initials
Radon Test Kits Deployed	12/04/17	JM
Radon Test Kits Collected	12/07/17	JM
Radon Test Kits Shipped to Lab*	12/07/17	JM
Radon Test Kits Received by Lab*	12/11/17	JM

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

Radon test result report for:**TRANSIT 2  
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7193838	TRANSIT 1	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7979384	TRANSIT 10	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7979385	TRANSIT 11	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7984056	TRANSIT 12	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7983834	TRANSIT 13	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7194097	TRANSIT 14	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7194092	TRANSIT 15	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7193840	TRANSIT 16	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7979072	TRANSIT 17	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7979071	TRANSIT 18	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7979065	TRANSIT 19	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	0.6 ± 0.4	2017-12-13
7978194	TRANSIT 2	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7985660	TRANSIT 20	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7985661	TRANSIT 21	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	0.7 ± 0.4	2017-12-13
7193843	TRANSIT 22	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7984055	TRANSIT 23	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7983813	TRANSIT 24	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7983827	TRANSIT 25	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7978193	TRANSIT 3	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7978189	TRANSIT 4	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	0.5 ± 0.4	2017-12-13
7986187	TRANSIT 5	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7986188	TRANSIT 6	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7986177	TRANSIT 7	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7979077	TRANSIT 8	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7979386	TRANSIT 9	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13

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December 19, 2017

**\*\* LABORATORY ANALYSIS REPORT \*\***

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Radon test result report for:

**MCPS - Spike Sample Laboratory Results. Measured values are satisfactory, i.e. within  $\pm 25\%$  of the chamber's reference value (27.7 pCi/L).**

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<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
7975075	S1	2017-12-01 @ 11:00 am	2017-12-04 @ 11:00 am	25.6 $\pm$ 0.7	2017-12-07
7975064	S2	2017-12-01 @ 11:00 am	2017-12-04 @ 11:00 am	27.4 $\pm$ 0.8	2017-12-07
7975063	S3	2017-12-01 @ 11:00 am	2017-12-04 @ 11:00 am	26.3 $\pm$ 0.7	2017-12-07
7975065	S4	2017-12-01 @ 11:00 am	2017-12-04 @ 11:00 am	23.0 $\pm$ 0.7	2017-12-07
7975069	S5	2017-12-01 @ 11:00 am	2017-12-04 @ 11:00 am	25.6 $\pm$ 0.7	2017-12-07
7975070	S6	2017-12-01 @ 11:00 am	2017-12-04 @ 11:00 am	23.0 $\pm$ 0.7	2017-12-07

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Air Chek, Inc. 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 182393

NOMINAL Conditions: Radon Conc 27.7 pCi/L Rel. Hum 49.1 % Temp. 70.1 F

Date Start: 12/1/17 Date Stop: 12/4/17 Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

Time Start: 1049 Time Stop: 1049 Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_

Device No.'s: (6) Char. Bags. Device No.'s: \_\_\_\_\_

7975075, 7975064, 7975063, \_\_\_\_\_

7975065, 7975069, 7975070 \_\_\_\_\_

F4 Right

Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_ Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_ Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_

Device No.'s: \_\_\_\_\_ Device No.'s: \_\_\_\_\_

Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_ Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_ Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_

Device No.'s: \_\_\_\_\_ Device No.'s: \_\_\_\_\_

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



### MCPS RADON TESTING

#### Executive Summary: Forest Oak Middle School

Date of Test Report:	10/19/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	7
# Rooms $\geq$ 4.0 pCi/L:	0
Low Value:	< 0.3
High Value:	< 0.3

#### Project Status:

Post remediation testing completed; no further action at this time.



October 19, 2016

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

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

Location: Forest Oak Middle School  
651 Saybrooke Oaks Boulevard  
Gaithersburg, MD 20877

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 Forest Oak Middle School, located at 651 Saybrooke Oaks Boulevard in Gaithersburg, Maryland 20877 (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](http://www.montgomerycountymd.gov/dep/air/radon) or [www.epa.gov/radon](http://www.epa.gov/radon).

KCI visited the site on September 27, 2016 and deployed ten (10) 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 30, 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:

- Post-mitigation testing for radon mitigation systems installed recently.

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

- Confirm the success of the mitigation system(s).

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:

<b>Radon Concentration</b>	<b>Room</b>	<b>Result</b>
<b>≥4.0 pCi/L</b>	none	n/a
<b>&lt;4.0 pCi/L</b>	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

<b>Radon Testing Results</b>		
<b>Forest Oak Middle School</b>		
<b>Test Period: 09/27/16-09/30/16</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result</b>
7802640	B110	< 0.3
7802657	B115	< 0.3
7802634	B115	< 0.3
7802618	C111	< 0.3
7802660	C112	< 0.3
7802649	C114	< 0.3
7802647	C115	< 0.3
7802202	C116	< 0.3

Table Note:

\* Missing or Compromised Sample

<b>Radon Testing Results</b>		
<b>Forest Oak Middle School</b>		
<b>Test Period: 09/27/16-09/30/16</b>		
<b>Kit Number</b>	<b>QC Type</b>	<b>Result</b>
7802675	D (B110)	< 0.3
7802639	FB (B115)	< 0.3

Table Note:

\* Missing or Compromised Sample

# ATTACHMENT C

## Laboratory Analytical Results

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October 7, 2016

**\*\* LABORATORY ANALYSIS REPORT \*\***

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Radon test result report for:

**FOREST OAK MIDDLE SCHOOL  
MAIN**

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<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
7802675	B110	2016-09-27 @ 1:00 pm	2016-09-30 @ 11:00 am	< 0.3	2016-10-03
7802640	B110	2016-09-27 @ 1:00 pm	2016-09-30 @ 11:00 am	< 0.3	2016-10-03
7802657	B115	2016-09-27 @ 1:00 pm	2016-09-30 @ 11:00 am	< 0.3	2016-10-03
7802634	B115	2016-09-27 @ 1:00 pm	2016-09-30 @ 11:00 am	< 0.3	2016-10-03
7802639	B115	2016-09-27 @ 1:00 pm	2016-09-30 @ 11:00 am	< 0.3	2016-10-03
7802618	C111	2016-09-27 @ 1:00 pm	2016-09-30 @ 11:00 am	< 0.3	2016-10-03
7802660	C112	2016-09-27 @ 1:00 pm	2016-09-30 @ 11:00 am	< 0.3	2016-10-03
7802649	C114	2016-09-27 @ 1:00 pm	2016-09-30 @ 11:00 am	< 0.3	2016-10-03
7802647	C115	2016-09-27 @ 1:00 pm	2016-09-30 @ 11:00 am	< 0.3	2016-10-03
7802202	C116	2016-09-27 @ 1:00 pm	2016-09-30 @ 11:00 am	< 0.3	2016-10-03

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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**

<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
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**

<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
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

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October 12, 2016

**\*\* LABORATORY ANALYSIS REPORT \*\***

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

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<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
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

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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  $\mu$ 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

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

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

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





## MCPS RADON TESTING

### Executive Summary: Forest Oak Middle School

Date of Test Report:	3/18/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	8
# Rooms $\geq$ 4.0 pCi/L:	0
Low Value:	< 0.3
High Value:	2.8

#### Project Status:

Retesting completed; use the average of the initial and re-test results in a room to determine if remediation is necessary.



March 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 # 12146341.29

Location: Forest Oak Middle School  
651 Saybrooke Oaks Boulevard  
Gaithersburg, MD 20877

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 Forest Oak Middle School, located at 651 Saybrooke Oaks Boulevard in Gaithersburg, Maryland 20877 (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](http://www.montgomerycountymd.gov/dep/air/radon) or [www.epa.gov/radon](http://www.epa.gov/radon).

KCI visited the site on February 22, 2016 and deployed twelve (12) 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:

<b>Radon Concentration</b>	<b>Room</b>	<b>Result</b>
<b><math>\geq 4.0</math> pCi/L</b>	None	n/a
<b><math>&lt; 4.0</math> pCi/L</b>	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.

<b>Radon Testing Results</b>		
<b>Forest Oak Middle School</b>		
<b>Test Period: 02/22/16-02/25/16</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result</b>
7726855	B101	< 0.3
7726856	B101	< 0.3
7726816	B110	2.8
7726814	C112	< 0.3
7726808	C114	0.8
7726829	C115	0.6
7726805	C145	< 0.3
7729793	C148	0.6
7726858	E127	< 0.3

Table Note:

\* Missing or Compromised Sample

<b>Radon Testing Results</b>		
<b>Forest Oak Middle School</b>		
<b>Test Period: 02/22/16-02/25/16</b>		
<b>Kit Number</b>	<b>QC Type</b>	<b>Result</b>
7726817	D (B110)	2.4
7729794	D (C145)	< 0.3
7726850	FB (C115)	< 0.3

Table Note:

\* Missing or Compromised Sample

# ATTACHMENT C

## Laboratory Analytical Results

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

Radon test result report for:  
**FOREST OAK MIDDLE SCHOOL  
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7726855	B101	2016-02-22 @ 12:00 pm	2016-02-25 @ 10:00 am	< 0.3	2016-02-29
7726856	B101	2016-02-22 @ 12:00 pm	2016-02-25 @ 10:00 am	< 0.3	2016-02-29
7726816	B110	2016-02-22 @ 12:00 pm	2016-02-25 @ 10:00 am	2.8 ± 0.4	2016-02-29
7726817	B110	2016-02-22 @ 12:00 pm	2016-02-25 @ 10:00 am	2.4 ± 0.3	2016-02-29
7726814	C112	2016-02-22 @ 1:00 pm	2016-02-25 @ 10:00 am	< 0.3	2016-02-29
7726808	C114	2016-02-22 @ 1:00 pm	2016-02-25 @ 10:00 am	0.8 ± 0.3	2016-02-29
7726829	C115	2016-02-22 @ 1:00 pm	2016-02-25 @ 10:00 am	0.6 ± 0.3	2016-02-29
7726850	C115	2016-02-22 @ 1:00 pm	2016-02-25 @ 10:00 am	< 0.3	2016-02-29
7726805	C145	2016-02-22 @ 1:00 pm	2016-02-25 @ 10:00 am	< 0.3	2016-02-29
7729794	C145	2016-02-22 @ 1:00 pm	2016-02-25 @ 10:00 am	< 0.3	2016-02-29
7729793	C148	2016-02-22 @ 1:00 pm	2016-02-25 @ 10:00 am	0.6 ± 0.3	2016-02-29
7726858	E127	2016-02-22 @ 12:00 pm	2016-02-25 @ 10:00 am	< 0.3	2016-02-29

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

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Radon test result report for:  
**MCPS**  
**Phase 9 Office Blanks**

---

<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
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

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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 \*\***

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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

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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**

<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
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: 11/30/16 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  $\mu$ 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   |                        |

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	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          |                         |

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	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: Forest Oak Middle School

Date of Test Report:	1/28/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	65
# Rooms $\geq$ 4.0 pCi/L:	3
Low Value:	0.6
High Value:	6.7

Rooms with results  $\geq$  4.0 pCi/L:

Room C114 (6.7 pCi/L), Room B110 (5.3 pCi/L), Room C115 (4.5 pCi/L)

#### Project Status:

Initial testing completed; re-test needed for results  $\geq$  4.0 pCi/L.

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



January 28, 2016

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

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

Location: Forest Oak Middle School  
651 Saybrooke Oaks Boulevard  
Gaithersburg, MD 20877

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 Forest Oak Middle School, located at 651 Saybrooke Oaks Boulevard in Gaithersburg, Maryland 20877 (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](http://www.montgomerycountymd.gov/dep/air/radon) or [www.epa.gov/radon](http://www.epa.gov/radon).

KCI visited the site on January 4, 2016 and deployed seventy-four (74) 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:

<b>Radon Concentration</b>	<b>Room</b>	<b>Result</b>
<b><math>\geq 4.0</math> pCi/L</b>	C114	6.7
	B110	5.3
	C115	4.4, 4.5(D)
<b><math>&lt; 4.0</math> pCi/L</b>	See Attachment B	

Notes:

D- Duplicate sample

All field blanks, office blanks, and lab transit blanks had test results of less than the laboratory detection limit of 0.3 pCi/L, with the exception of one field blank from room C114. The analytical result for the field blank from C114 indicated a low level (0.6 pCi/L) of radon. KCI concludes this field blank was not fully sealed at the time of deployment. 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

<b>Radon Testing Results</b>		
<b>Forest Oak MS</b>		
<b>Test Period: 01/04/16-01/07/16</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result</b>
7712684	A108	0.9
7711314	A130	1.2
7711310	A130	1.5
7712686	B101	1.3
7711312	* B101 (Missing)	0
7704671	B110	5.3
7704670	B114	1.6
7712678	B115	1.4
7704614	B124	1.4
7704655	B125	1.3
7711365	C106	2.3
7711363	C107	2.2
7706239	C108	0.6
7711369	C109	2.3
7711370	C110	2.3
7711374	C111	3.2
7711367	C112	3.6
7711368	C114	6.7
7711315	C115	4.4
7711372	C116	3.1
7706454	C117	2.3
7706465	C118	2.4
7711375	C119	2.3
7711376	C121	2.1
7711373	C131	2.3
7711366	C132	2.4
7711364	C133	2.3
7711359	C135	1.5
7711362	C136	1.4
7711311	C145	1.8
7714783	* C145 (Tampered)	1.8
7711313	C146	1.5
7714784	C147	1.4
7704675	* C148 (Missing)	0
7706469	D102	0.8
7711320	D103	0.8
7706249	D109	0.8
7706238	D110	0.8
7711318	D113	0.6
7706243	D114	2.5
7704809	D116	1.7
7711304	D119	1.3
7706468	D124	0.9
7706464	D127	0.9
7706470	D210	0.8
7704676	D215	1

Table Note:

\* Missing or Compromised Sample

<b>Radon Testing Results</b>		
<b>Forest Oak MS</b>		
<b>Test Period: 01/04/16-01/07/16</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result</b>
7711317	D226	0.9
7711308	E104	1.1
7706242	E105	0.8
7711347	E106	0.9
7706459	E107	0.7
7713978	E108	0.8
7714781	E109	0.8
7713995	E110	1
7714794	E115	1.1
7711319	E118	1
7704630	E119	0.9
7704657	E123	1.2
7704656	E124	0.8
7706203	E125	1
7706248	E126	0.9
7706240	* E127 (Missing)	0
7711356	HEALTH	1.7
7711360	MAIN OFFICE	1.6
7711361	REST AREA	1.3

Table Note:

\* Missing or Compromised Sample

<b>Radon Testing Results</b>		
<b>Forest Oak MS</b>		
<b>Test Period: 01/04/16-01/07/16</b>		
<b>Kit Number</b>	<b>QC Type</b>	<b>Result</b>
7711316	D (A108)	1
7711309	D (C115)	4.5
7711371	D (C119)	2.9
7706245	D (D124)	1.1
7706244	D (E104)	1
7713077	D (E108)	0.7
7713991	FB (B124)	< 0.3
7711343	FB (C114)	0.6
7714428	OB (0)	< 0.3

Table Note:

\* Missing or Compromised Sample

# ATTACHMENT C

## Laboratory Analytical Results

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

Radon test result report for:  
**FOREST OAK MS  
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7714428	0	2016-01-04 @ 12:00 pm	2016-01-07 @ 12:00 pm	< 0.3	2016-01-12
7712684	A108	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	0.9 ± 0.3	2016-01-12
7711316	A108	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	1.0 ± 0.3	2016-01-12
7711310	A130	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	1.5 ± 0.4	2016-01-12
7711314	A130	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	1.2 ± 0.4	2016-01-12
7711312	B101	@	@		
7712686	B101	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	1.3 ± 0.4	2016-01-12
7704671	B110	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	5.3 ± 0.6	2016-01-12
7704670	B114	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	1.6 ± 0.4	2016-01-12
7712678	B115	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	1.4 ± 0.4	2016-01-12
7713991	B124	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-12
7704614	B124	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	1.4 ± 0.4	2016-01-12
7704655	B125	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	1.3 ± 0.4	2016-01-12
7711365	C106	2016-01-04 @ 8:00 am	2016-01-07 @ 9:00 am	2.3 ± 0.4	2016-01-12
7711363	C107	2016-01-04 @ 8:00 am	2016-01-07 @ 9:00 am	2.2 ± 0.4	2016-01-11
7706239	C108	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.6 ± 0.4	2016-01-12
7711369	C109	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	2.3 ± 0.4	2016-01-12
7711370	C110	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	2.3 ± 0.4	2016-01-12
7711374	C111	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	3.2 ± 0.5	2016-01-12
7711367	C112	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	3.6 ± 0.5	2016-01-12
7711368	C114	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	6.7 ± 0.7	2016-01-12
7711343	C114	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.6 ± 0.3	2016-01-12
7711309	C115	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	4.5 ± 0.5	2016-01-12
7711315	C115	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	4.4 ± 0.5	2016-01-12
7711372	C116	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	3.1 ± 0.5	2016-01-12
7706454	C117	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	2.3 ± 0.4	2016-01-12
7706465	C118	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	2.4 ± 0.4	2016-01-12
7711371	C119	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	2.9 ± 0.5	2016-01-12
7711375	C119	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	2.3 ± 0.4	2016-01-12
7711376	C121	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	2.1 ± 0.4	2016-01-12
7711373	C131	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	2.3 ± 0.4	2016-01-12
7711366	C132	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	2.4 ± 0.4	2016-01-12
7711364	C133	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	2.3 ± 0.4	2016-01-12
7711359	C135	2016-01-04 @ 8:00 am	2016-01-07 @ 10:00 am	1.5 ± 0.3	2016-01-12
7711362	C136	2016-01-04 @ 8:00 am	2016-01-07 @ 9:00 am	1.4 ± 0.4	2016-01-12
7714783	C145	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	1.8 ± 0.4	2016-01-12
7711311	C145	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	1.8 ± 0.4	2016-01-12

January\*  
25,  
2016

**\*\* LABORATORY ANALYSIS  
REPORT \*\***

Radon test result report for:  
**FOREST OAK MS  
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7711313	C146	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	1.5 ± 0.4	2016-01-12
7714784	C147	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	1.4 ± 0.3	2016-01-11
7704675	C148	@	@		
7706469	D102	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.8 ± 0.3	2016-01-12
7711320	D103	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.8 ± 0.3	2016-01-12
7706249	D109	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.8 ± 0.3	2016-01-12
7706238	D110	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.8 ± 0.3	2016-01-12
7711318	D113	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.6 ± 0.3	2016-01-11
7706243	D114	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	2.5 ± 0.4	2016-01-12
7704809	D116	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	1.7 ± 0.4	2016-01-12
7711304	D119	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	1.3 ± 0.4	2016-01-12
7706245	D124	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	1.1 ± 0.3	2016-01-12
7706468	D124	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.9 ± 0.3	2016-01-12
7706464	D127	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.9 ± 0.4	2016-01-12
7706470	D210	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	0.8 ± 0.3	2016-01-12
7704676	D215	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	1.0 ± 0.3	2016-01-12
7711317	D226	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	0.9 ± 0.3	2016-01-12
7706244	E104	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	1.0 ± 0.3	2016-01-12
7711308	E104	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	1.1 ± 0.4	2016-01-12
7706242	E105	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.8 ± 0.3	2016-01-12
7711347	E106	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.9 ± 0.3	2016-01-12
7706459	E107	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.7 ± 0.3	2016-01-12
7713077	E108	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.7 ± 0.3	2016-01-12
7713978	E108	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.8 ± 0.4	2016-01-12
7714781	E109	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.8 ± 0.3	2016-01-12
7713995	E110	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	1.0 ± 0.3	2016-01-12
7714794	E115	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	1.1 ± 0.4	2016-01-12
7711319	E118	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	1.0 ± 0.3	2016-01-12
7704630	E119	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	0.9 ± 0.3	2016-01-12
7704657	E123	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	1.2 ± 0.4	2016-01-12
7704656	E124	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	0.8 ± 0.3	2016-01-12
7706203	E125	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	1.0 ± 0.4	2016-01-12
7706248	E126	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	0.9 ± 0.3	2016-01-12
7706240	E127	@	@		
7711356	HEALTH	2016-01-04 @ 8:00 am	2016-01-07 @ 10:00 am	1.7 ± 0.4	2016-01-12
7711360	MAIN OFFICE	2016-01-04 @ 8:00 am	2016-01-07 @ 9:00 am	1.6 ± 0.4	2016-01-12
7711361	REST AREA	2016-01-04 @ 8:00 am	2016-01-07 @ 10:00 am	1.3 ± 0.4	2016-01-12

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 µR/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