

School Year: **24-25**

Facility:	Julius West Middle School		
Address:	651 Great Falls Road		
	Rockville, MD 20850		
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 checked="" 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 type="checkbox"/> Initial Testing -or- <input checked="" 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 (≥ 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	97	Lowest Value (pCi/L)	< 0.3
Number of Rooms (≥ 4.0 -pCi/L)	0	Highest Value (pCi/L)	1.6

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 ≥ 2.0 -pCi/L; ≥ 2.7 -pCi/L; ≥ 4.0 -pCi/L; and ≥ 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)
Other—Specify here:		
Detector/Device Name:	Air Chek – Radon Test Kits	
Manufacturer:	Radon Lab	
Person(s) Deploying or Retrieving Test Devices and certification number		Organization/Company
Shakia Dawkins		KCI Technologies, Inc.
Brittany Maas		KCI Technologies, Inc.
<i>If noncertified individuals, the qualified measurement professional providing oversight -</i>		
Tyler McCleaf, CSP – Cert. #111004 – RMP		KCI Technologies, Inc.

Testing

<input checked="" type="checkbox"/> Short-Term <input type="checkbox"/> Long-Term	Length of Test (days):	3	Date of Deployment and Retrieval (mm/dd/yy):	02/04/25 02/07/25	03/24/25 03/27/25
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				
	Ground-Contact		Upper-Level(s)		Total
	Initial	Follow-Up	Initial	Follow-Up	
Test Locations ¹	91	2	5	0	98
Duplicates ²	10	1	1	0	12
Field Blanks ³	5	1	0	0	6
Grand Total					116

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 ¹	Not applicable		10
Trip Blanks ²	1	1	2
Office Blanks ^{3, 4}	1	1	2
			14

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
Round of Testing	Initial Follow-Up
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"/> No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
For all Duplicate Samples ¹ , the higher value is $\leq 2x$ the lower value?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
For all Duplicate Samples ¹ , Relative Percent Difference(s) (RPD) ² are less than the Warning Level ³ ?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
For all Duplicate Samples ¹ , Relative Percent Difference(s) (RPD) ² are less than the Control Level ³ ?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes <input 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
≥ 4.0 -pCi/L	28% RPD	36% RPD

Summary of Test Results¹ and Determination of Valid Measurements²

Round of Testing	Ground-Contact		Upper-Level(s)		Total
	Initial	Follow-Up	Initial	Follow-Up	
Number of test locations:	91	1	5	0	97
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 ³ :	0	0	0	0	0
Number of failed duplicate control locations:	1	1	0	0	2
Percentage of missing test locations for the facility ^{4,5} :	0	0	0	0	0

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 $\leq 33\%$. 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 $\leq 25\%$ 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 Results¹ and Determination of Valid Measurements² (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 checked="" type="checkbox"/> Yes <input 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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<i>If Yes to both above – then Testing Status – ‘No Further Testing Needed’ mark ‘NA’ below and complete Conclusions section</i>		
If No to either above, were all results obtained under 4.0-pCi/L and were sufficient valid measurements obtained?^{1,2} <i>If Yes, then - ‘No Further Testing Needed’ complete Conclusion section on first page.</i> <i>If No, then - ‘Follow-up Testing Required’ continue below.</i>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input 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

Table 1- Radon Testing Results		
Julius West Middle School		
Test Period: 2/4/2025 - 2/7/2025		
Kit Number	Room / Area	Result
11919588	6	0.7
11919566	6	< 0.3
11919581	7	0.5
11919593	8	< 0.3
11919548	9	< 0.3
11919578	16	< 0.3
11919569	100	1.6
11919539	102	1.5
11920108	107	< 0.3
11920113	109	< 0.3
11920107	109	< 0.3
11920109	110	< 0.3
11920101	111	< 0.3
11920111	112	0.6
11919570	113	0.8
11920103	114	< 0.3
11920112	114	< 0.3
19702384	115	1.1
11920102	116	0.7
11919513	117	1.1
11920119	118	1.0
11920120	120	0.8
11919519	122	< 0.3
11919549	124	< 0.3
11919558	126	< 0.3
11919586	128	< 0.3
11919594	128	< 0.3
11919531	130	< 0.3
11919525	131	0.5
11919514	132	1.5
11920124	136	0.6
11919537	138	1.6
11919591	140	< 0.3
11919541	143	< 0.3
11919544	144	< 0.3
11919592	146	< 0.3
11919542	148	< 0.3

Table 1- Radon Testing Results		
Julius West Middle School		
Test Period: 2/4/2025 - 2/7/2025		
Kit Number	Room / Area	Result
11920117	204	< 0.3
11920110	211	< 0.3
11920121	216	< 0.3
11919511	121 Communications	0.6
11919526	122 Office	< 0.3
11920123	222A	< 0.3
11920114	222A	< 0.3
11920125	234A	< 0.3
11919557	A101	0.9
11919534	A101	< 0.3
11919572	A103	< 0.3
11919598	A104	< 0.3
11919582	A106	0.6
11919583	A109	< 0.3
11919597	A111	< 0.3
11919577	A112	< 0.3
11919599	A115	< 0.3
11919550	A115	< 0.3
11919510	A121	< 0.3
11919596	A121	0.5
11919516	A122	< 0.3
11919515	A123	< 0.3
11919587	A128	< 0.3
11919533	A131	< 0.3
11919553	ADM A ADMIN SEC	0.7
11919545	ADM B PRINCIPAL	< 0.3
11919527	ADM C ASST PRINCIPAL	0.9
11919547	ADM D ASST PRINCIPAL	0.7
1918459	ADM GPA	0.7
11919568	ADM H FINANCIAL	0.7
11919562	ADM K	1.2
11919561	ASSISTANT PRINCIPAL	1.1
11919563	ASSISTANT PRINCIPAL	0.9
11919574	BOYS LOCKER ROOM	< 0.3
11919522	BOYS LOCKER ROOM	< 0.3
11919590	BOYS LOCKER ROOM OFFICE	< 0.3

Table 1- Radon Testing Results		
Julius West Middle School		
Test Period: 2/4/2025 - 2/7/2025		
Kit Number	Room / Area	Result
11919595	BOYS LOCKER ROOM OFFICE	< 0.3
11919567	BS OFFICE	< 0.3
11919508	CAFETERIA	< 0.3
11919517	CAFETERIA	0.6
11919520	CONFERENCE	0.8
11919529	COUNSELING	0.5
11919580	GIRLS LOCKER ROOM	< 0.3
11919565	GIRLS LOCKER ROOM OFFICE	< 0.3
11919524	GUI A	< 0.3
11919538	GUI B	0.6
11919551	GUI B	< 0.3
11919554	GUI C	< 0.3
11919507	GUI D	< 0.3
11919501	GUI E	< 0.3
11919600	GYM	0.7
11919589	GYM	0.8
11919560	HEALTH	1.2
11919535	HEALTH OFFICE	1.0
11919521	KITCHEN OFFICE	< 0.3
11919546	MAIN OFFICE	0.5
11919528	MEDIA	0.9
11919536	MEDIA	0.9
11919530	MEDIA SPECIALIST	1.2
11919509	MEDIA SPECIALIST	< 0.3
11919523	MEDIA WORKROOM	0.9
11919552	MEDIA WORKROOM	0.7
11919543	STAGE	0.5
11919579	TECH LAB 1	< 0.3
11919585	TECH LAB 1	< 0.3
11919584	TECH LAB 2	0.6
11919575	TECH LAB 3	< 0.3
11919564	TECH LAB 3 OFFICE	< 0.3
11919576	TECH LAB 4	< 0.3
11919556	TECH LAB 5	< 0.3
11919555	TECH LAB 5 OFFICE	< 0.3

Table 1- Radon Testing Results		
Julius West Middle School		
Test Period: 2/4/2025 - 2/7/2025		
Kit Number	Room / Area	Result
11919518	TV STUDIO	< 0.3
11919573	WEIGHT ROOM	< 0.3
11919571	WEIGHT ROOM	< 0.3
11919540	WORKROOM	0.6

[illegible]

Table 3 - QC Radon Testing Results			
Julius West Middle School			
Test Period: 2/4/2025 - 2/7/2025			
Kit Number	QC Type	Room / Area	Result
11919566	D	6	< 0.3
11920107	D	109	< 0.3
11920103	FB	114	< 0.3
11919594	D	128	< 0.3
11920123	D	222A	< 0.3
11919557	FB	A101	0.9
11919550	D	A115	< 0.3
11919596	D	A121	0.5
11919561	D	Assistant Principal	1.1
11919574	FB	Boys Locker Room	< 0.3
11919595	D	Boys Locker Room Office	< 0.3
11919551	D	GUI B	< 0.3
11919530	FB	Media Specialist	1.2
11919552	D	Media Workroom	0.7
11919579	FB	Tech Lab 1	< 0.3
11919571	D	Weight Room	< 0.3
11931544	OB	OFFICE BLANK	< 0.3
11931543	TB	TRAVEL BLANK	< 0.3

Table 3a - Duplicate Worksheet / Data Validation

Julius West Middle School

Test Period: 2/4/2025 - 2/7/2025

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
11919563	11919561	Assistant Principal	1.1	0.9	✓	1.8	PASS	1.0	<1-pCi/L	✓
11919523	11919552	Media Workroom	0.9	0.7	✓	1.4	PASS	0.8	<1-pCi/L	✓
11919538	11919551	GUI B	0.6	0.3	✓	0.6	PASS	0.5	<1-pCi/L	✓
11919573	11919571	Weight Room	0.3	0.3	✓	0.6	PASS	0.3	<1-pCi/L	✓
11919588	11919566	6	0.7	0.3	✓	0.6	FAIL	0.5	<1-pCi/L	✗
11919590	11919595	Boys Locker Room Office	0.3	0.3	✓	0.6	PASS	0.3	<1-pCi/L	✓
11919510	11919596	A121	0.5	0.3	✓	0.6	PASS	0.4	<1-pCi/L	✓
11919599	11919550	A115	0.3	0.3	✓	0.6	PASS	0.3	<1-pCi/L	✓
11919586	11919594	128	0.3	0.3	✓	0.6	PASS	0.3	<1-pCi/L	✓
11920113	11920107	109	0.3	0.3	✓	0.6	PASS	0.3	<1-pCi/L	✓
11920114	11920123	222A	0.3	0.3	✓	0.6	PASS	0.3	<1-pCi/L	✓

NOTES:

QC Check #1 - Data Entry

QC Check #2 - Higher duplicate concentration is < or = to 2x the Lower

QC Check #3 - Meets RPD Limits, by average duplicate concentration

- 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

Average (pCi/L)	Warning Level	Control Level
< 2.0	1-pCi/L	NA
Between 2.0 and 3.9	50% RPD	67% RPD
≥ 4.0	28% RPD	36% RPD

[illegible]

Table 1- Radon Testing Results		
Julius West Middle School RT		
Test Period: 3/24/2025 - 3/27/2025		
Kit Number	Room / Area	Result
11886562	6	< 0.3
11886567	6	< 0.3
11886568	6	0.8
11886569	6	0.7

[illegible]

Table 3 - QC Radon Testing Results			
Julius West Middle School RT			
Test Period: 3/24/2025 - 3/27/2025			
Kit Number	QC Type	Room / Area	Result
11886568	D	6	0.8
11886567	FB	6	< 0.3
11886664	OB	OFFICE BLANK	< 0.3
11886691	TB	TRAVEL BLANK	< 0.3

Table 3a - Duplicate Worksheet / Data Validation										
Julius West Middle School RT										
Test Period: 3/24/2025 - 3/27/2025										
Sample ID			Duplicate Concentrations (pCi/L) and QC 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
11886568	11886562 11886569	6	0.8	0.3	✓	0.6	FAIL	0.6	<1-pCi/L	✗
NOTES: QC Check #1 - Data Entry QC Check #2 - Higher duplicate concentration is < or = to 2x the Lower QC Check #3 - Meets RPD Limits, by average duplicate concentration - 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							Average (pCi/L)		Warning Level	Control Level
							< 2.0		1-pCi/L	NA
							Between 2.0 and 3.9		50% RPD	67% RPD
							≥ 4.0		28% RPD	36% RPD

[illegible]

Attachment 2:

Laboratory Reports

Radon test result report for:

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11919569	100	2025-02-04 @ 8:00 am	2025-02-07 @ 8:00 am	1.6 ± 0.4	2025-02-11
11919539	102	2025-02-04 @ 8:00 am	2025-02-07 @ 8:00 am	1.5 ± 0.4	2025-02-11
11920108	107	2025-02-04 @ 10:00 am	2025-02-07 @ 8:00 am	< 0.3	2025-02-11
11920113	109	2025-02-04 @ 10:00 am	2025-02-07 @ 8:00 am	< 0.3	2025-02-11
11920107	109	2025-02-04 @ 10:00 am	2025-02-07 @ 8:00 am	< 0.3	2025-02-11
11920109	110	2025-02-04 @ 10:00 am	2025-02-07 @ 8:00 am	< 0.3	2025-02-11
11920101	111	2025-02-04 @ 10:00 am	2025-02-07 @ 8:00 am	< 0.3	2025-02-11
11920111	112	2025-02-04 @ 10:00 am	2025-02-07 @ 8:00 am	0.6 ± 0.3	2025-02-11
11919570	113	2025-02-04 @ 10:00 am	2025-02-07 @ 8:00 am	0.8 ± 0.3	2025-02-11
11920103	114	2025-02-04 @ 10:00 am	2025-02-07 @ 8:00 am	< 0.3	2025-02-11
11920112	114	2025-02-04 @ 10:00 am	2025-02-07 @ 8:00 am	< 0.3	2025-02-11
11919532	115	2025-02-04 @ 10:00 am	2025-02-07 @ 8:00 am	1.1 ± 0.4	2025-02-11
11920102	116	2025-02-04 @ 10:00 am	2025-02-07 @ 8:00 am	0.7 ± 0.4	2025-02-11
11919513	117	2025-02-04 @ 10:00 am	2025-02-07 @ 8:00 am	1.1 ± 0.3	2025-02-11
11920119	118	2025-02-04 @ 10:00 am	2025-02-07 @ 8:00 am	1.0 ± 0.3	2025-02-11
11920120	120	2025-02-04 @ 10:00 am	2025-02-07 @ 8:00 am	0.8 ± 0.4	2025-02-11
11919511	121 COMMUNICATIONS	2025-02-04 @ 8:00 am	2025-02-07 @ 9:00 am	0.6 ± 0.3	2025-02-11
11919519	122	2025-02-04 @ 10:00 am	2025-02-07 @ 8:00 am	< 0.3	2025-02-11
11919526	122 OFFICE	2025-02-04 @ 10:00 am	2025-02-07 @ 9:00 am	< 0.3	2025-02-11
11919549	124	2025-02-04 @ 10:00 am	2025-02-07 @ 8:00 am	< 0.3	2025-02-11
11919558	126	2025-02-04 @ 10:00 am	2025-02-07 @ 9:00 am	< 0.3	2025-02-11
11919586	128	2025-02-04 @ 10:00 am	2025-02-07 @ 9:00 am	< 0.3	2025-02-11
11919594	128	2025-02-04 @ 10:00 am	2025-02-07 @ 9:00 am	< 0.3	2025-02-11
11919531	130	2025-02-04 @ 10:00 am	2025-02-07 @ 9:00 am	< 0.3	2025-02-11
11919525	131	2025-02-04 @ 10:00 am	2025-02-07 @ 8:00 am	0.5 ± 0.3	2025-02-11
11919514	132	2025-02-04 @ 10:00 am	2025-02-07 @ 8:00 am	1.5 ± 0.4	2025-02-11
11920124	136	2025-02-04 @ 11:00 am	2025-02-07 @ 9:00 am	0.6 ± 0.3	2025-02-11
11919537	138	2025-02-04 @ 10:00 am	2025-02-07 @ 9:00 am	1.6 ± 0.4	2025-02-11
11919591	140	2025-02-04 @ 10:00 am	2025-02-07 @ 8:00 am	< 0.3	2025-02-11
11919541	143	2025-02-04 @ 9:00 am	2025-02-07 @ 9:00 am	< 0.3	2025-02-11
11919544	144	2025-02-04 @ 9:00 am	2025-02-07 @ 9:00 am	< 0.3	2025-02-11
11919592	146	2025-02-04 @ 9:00 am	2025-02-07 @ 9:00 am	< 0.3	2025-02-11
11919542	148	2025-02-04 @ 9:00 am	2025-02-07 @ 9:00 am	< 0.3	2025-02-11
11919578	16	2025-02-04 @ 9:00 am	2025-02-07 @ 9:00 am	< 0.3	2025-02-11
11920117	204	2025-02-04 @ 10:00 am	2025-02-07 @ 9:00 am	< 0.3	2025-02-11
11920110	211	2025-02-04 @ 10:00 am	2025-02-07 @ 9:00 am	< 0.3	2025-02-11
11920121	216	2025-02-04 @ 11:00 am	2025-02-07 @ 9:00 am	< 0.3	2025-02-11

Radon test result report for:

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11920114	222A	2025-02-04 @ 11:00 am	2025-02-07 @ 8:00 am	< 0.3	2025-02-11
11920123	222A	2025-02-04 @ 11:00 am	2025-02-07 @ 8:00 am	< 0.3	2025-02-11
11920125	234A	2025-02-04 @ 10:00 am	2025-02-07 @ 8:00 am	< 0.3	2025-02-11
11919566	6	2025-02-04 @ 9:00 am	2025-02-07 @ 9:00 am	0.7 ± 0.3	2025-02-11
11919588	6	2025-02-04 @ 9:00 am	2025-02-07 @ 8:00 am	< 0.3	2025-02-11
11919581	7	2025-02-04 @ 9:00 am	2025-02-07 @ 8:00 am	0.5 ± 0.4	2025-02-11
11919593	8	2025-02-04 @ 9:00 am	2025-02-07 @ 9:00 am	< 0.3	2025-02-11
11919548	9	2025-02-04 @ 9:00 am	2025-02-07 @ 8:00 am	< 0.3	2025-02-11
11919534	A101	2025-02-04 @ 10:00 am	2025-02-07 @ 8:00 am	0.9 ± 0.3	2025-02-11
11919557	A101	2025-02-04 @ 10:00 am	2025-02-07 @ 8:00 am	< 0.3	2025-02-11
11919572	A103	2025-02-04 @ 10:00 am	2025-02-07 @ 8:00 am	< 0.3	2025-02-11
11919598	A104	2025-02-04 @ 10:00 am	2025-02-07 @ 8:00 am	< 0.3	2025-02-11
11919582	A106	2025-02-04 @ 10:00 am	2025-02-07 @ 9:00 am	0.6 ± 0.3	2025-02-11
11919583	A109	2025-02-04 @ 10:00 am	2025-02-07 @ 8:00 am	< 0.3	2025-02-11
11919597	A111	2025-02-04 @ 10:00 am	2025-02-07 @ 9:00 am	< 0.3	2025-02-11
11919577	A112	2025-02-04 @ 10:00 am	2025-02-07 @ 8:00 am	< 0.3	2025-02-11
11919550	A115	2025-02-04 @ 10:00 am	2025-02-07 @ 8:00 am	< 0.3	2025-02-11
11919599	A115	2025-02-04 @ 10:00 am	2025-02-07 @ 9:00 am	< 0.3	2025-02-11
11919596	A121	2025-02-04 @ 10:00 am	2025-02-07 @ 8:00 am	0.5 ± 0.3	2025-02-11
11919510	A121	2025-02-04 @ 10:00 am	2025-02-07 @ 8:00 am	< 0.3	2025-02-11
11919516	A122	2025-02-04 @ 10:00 am	2025-02-07 @ 9:00 am	< 0.3	2025-02-11
11919515	A123	2025-02-04 @ 10:00 am	2025-02-07 @ 9:00 am	< 0.3	2025-02-11
11919587	A128	2025-02-04 @ 10:00 am	2025-02-07 @ 9:00 am	< 0.3	2025-02-11
11919533	A131	2025-02-04 @ 10:00 am	2025-02-07 @ 8:00 am	< 0.3	2025-02-11
11919553	ADM A ADMIN SEC	2025-02-04 @ 8:00 am	2025-02-07 @ 8:00 am	0.7 ± 0.3	2025-02-11
11919545	ADM B PRINCIPAL	2025-02-04 @ 8:00 am	2025-02-07 @ 9:00 am	< 0.3	2025-02-11
11919527	ADM C ASST PRINCIPAL	2025-02-04 @ 8:00 am	2025-02-07 @ 8:00 am	0.9 ± 0.3	2025-02-11
11919547	ADM D ASST PRINCIPAL	2025-02-04 @ 8:00 am	2025-02-07 @ 8:00 am	0.7 ± 0.3	2025-02-11
11919559	ADM G P.A	2025-02-04 @ 8:00 am	2025-02-07 @ 8:00 am	0.7 ± 0.3	2025-02-11
11919568	ADM H FINANCIAL	2025-02-04 @ 8:00 am	2025-02-07 @ 9:00 am	0.7 ± 0.3	2025-02-11
11919562	ADM K	2025-02-04 @ 8:00 am	2025-02-07 @ 9:00 am	1.2 ± 0.4	2025-02-11
11919561	ASSISTANT PRINCIPAL	2025-02-04 @ 8:00 am	2025-02-07 @ 8:00 am	1.1 ± 0.4	2025-02-11
11919563	ASSISTANT PRINCIPAL	2025-02-04 @ 8:00 am	2025-02-07 @ 8:00 am	0.9 ± 0.4	2025-02-11
11919522	BOYS LOCKER ROOM	2025-02-04 @ 9:00 am	2025-02-07 @ 8:00 am	< 0.3	2025-02-11
11919574	BOYS LOCKER ROOM	2025-02-04 @ 9:00 am	2025-02-07 @ 9:00 am	< 0.3	2025-02-11
11919590	BOYS LOCKER ROOM OFFICE	2025-02-04 @ 9:00 am	2025-02-07 @ 9:00 am	< 0.3	2025-02-11
11919595	BOYS LOCKER ROOM OFFICE	2025-02-04 @ 9:00 am	2025-02-07 @ 9:00 am	< 0.3	2025-02-11

Radon test result report for:

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11919567	BS OFFICE	2025-02-04 @ 9:00 am	2025-02-07 @ 9:00 am	< 0.3	2025-02-11
11919508	CAFETERIA	2025-02-04 @ 8:00 am	2025-02-07 @ 8:00 am	< 0.3	2025-02-11
11919517	CAFETERIA	2025-02-04 @ 8:00 am	2025-02-07 @ 8:00 am	0.6 ± 0.3	2025-02-11
11919520	CONFERENCE	2025-02-04 @ 8:00 am	2025-02-07 @ 8:00 am	0.8 ± 0.3	2025-02-11
11919529	COUNSELING	2025-02-04 @ 8:00 am	2025-02-07 @ 8:00 am	0.5 ± 0.3	2025-02-11
11919580	GIRLS LOCKER ROOM	2025-02-04 @ 9:00 am	2025-02-07 @ 8:00 am	< 0.3	2025-02-11
11919565	GIRLS LOCKER ROOM OFFICE	2025-02-04 @ 9:00 am	2025-02-07 @ 9:00 am	< 0.3	2025-02-11
11919524	GUI A	2025-02-04 @ 8:00 am	2025-02-07 @ 8:00 am	< 0.3	2025-02-11
11919538	GUI B	2025-02-04 @ 8:00 am	2025-02-07 @ 8:00 am	0.6 ± 0.3	2025-02-11
11919551	GUI B	2025-02-04 @ 8:00 am	2025-02-07 @ 8:00 am	< 0.3	2025-02-11
11919554	GUI C	2025-02-04 @ 8:00 am	2025-02-07 @ 8:00 am	< 0.3	2025-02-11
11919507	GUI D	2025-02-04 @ 8:00 am	2025-02-07 @ 8:00 am	< 0.3	2025-02-11
11919501	GUI E	2025-02-04 @ 8:00 am	2025-02-07 @ 8:00 am	< 0.3	2025-02-11
11919589	GYM	2025-02-04 @ 8:00 am	2025-02-07 @ 9:00 am	0.7 ± 0.3	2025-02-11
11919600	GYM	2025-02-04 @ 8:00 am	2025-02-07 @ 9:00 am	0.8 ± 0.3	2025-02-11
11919560	HEALTH	2025-02-04 @ 8:00 am	2025-02-07 @ 8:00 am	1.2 ± 0.4	2025-02-11
11919535	HEALTH OFFICE	2025-02-04 @ 8:00 am	2025-02-07 @ 8:00 am	1.0 ± 0.4	2025-02-11
11919521	KITCHEN OFFICE	2025-02-04 @ 8:00 am	2025-02-07 @ 9:00 am	< 0.3	2025-02-11
11919546	MAIN OFFICE	2025-02-04 @ 8:00 am	2025-02-07 @ 8:00 am	0.5 ± 0.3	2025-02-11
11919528	MEDIA	2025-02-04 @ 8:00 am	2025-02-07 @ 9:00 am	0.9 ± 0.3	2025-02-11
11919536	MEDIA	2025-02-04 @ 8:00 am	2025-02-07 @ 9:00 am	0.9 ± 0.3	2025-02-11
11919509	MEDIA SPECIALIST	2025-02-04 @ 8:00 am	2025-02-07 @ 9:00 am	1.2 ± 0.3	2025-02-11
11919530	MEDIA SPECIALIST	2025-02-04 @ 8:00 am	2025-02-07 @ 9:00 am	< 0.3	2025-02-11
11919552	MEDIA WORKROOM	2025-02-04 @ 8:00 am	2025-02-07 @ 9:00 am	0.7 ± 0.3	2025-02-11
11919523	MEDIA WORKROOM	2025-02-04 @ 8:00 am	2025-02-07 @ 9:00 am	0.9 ± 0.4	2025-02-11
11919543	STAGE	2025-02-04 @ 8:00 am	2025-02-07 @ 8:00 am	0.5 ± 0.3	2025-02-11
11919585	TECH LAB 1	2025-02-04 @ 9:00 am	2025-02-07 @ 9:00 am	< 0.3	2025-02-11
11919579	TECH LAB 1	2025-02-04 @ 9:00 am	2025-02-07 @ 9:00 am	< 0.3	2025-02-11
11919584	TECH LAB 2	2025-02-04 @ 9:00 am	2025-02-07 @ 9:00 am	0.6 ± 0.3	2025-02-11
11919575	TECH LAB 3	2025-02-04 @ 9:00 am	2025-02-07 @ 8:00 am	< 0.3	2025-02-11
11919564	TECH LAB 3 OFFICE	2025-02-04 @ 9:00 am	2025-02-07 @ 9:00 am	< 0.3	2025-02-11
11919576	TECH LAB 4	2025-02-04 @ 9:00 am	2025-02-07 @ 9:00 am	< 0.3	2025-02-11
11919556	TECH LAB 5	2025-02-04 @ 9:00 am	2025-02-07 @ 9:00 am	< 0.3	2025-02-11
11919555	TECH LAB 5 OFFICE	2025-02-04 @ 9:00 am	2025-02-07 @ 9:00 am	< 0.3	2025-02-11
11919518	TV STUDIO	2025-02-04 @ 8:00 am	2025-02-07 @ 9:00 am	< 0.3	2025-02-11
11919573	WEIGHT ROOM	2025-02-04 @ 9:00 am	2025-02-07 @ 9:00 am	< 0.3	2025-02-11
11919571	WEIGHT ROOM	2025-02-04 @ 9:00 am	2025-02-07 @ 9:00 am	< 0.3	2025-02-11

February 11, 2025

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11919540	WORKROOM	2025-02-04 @ 8:00 am	2025-02-07 @ 8:00 am	0.6 ± 0.3	2025-02-11

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

February 11, 2025

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

**OFFICE
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11931544	O	2025-02-04 @ 11:00 am	2025-02-07 @ 11:00 am	< 0.3	2025-02-11

February 11, 2025

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

**TRAVEL
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11931543	T	2025-02-04 @ 11:00 am	2025-02-07 @ 11:00 am	< 0.3	2025-02-11

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 μ R/h Elevation = 820 ft

December 23, 2024

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

**SK
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
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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Corporate Office: 936 Ridgebrook road • Sparks , Maryland 21152 • 410-316-7800 • (Fax) 410-316-7935

Radon Test Kit Chain of Custody

Project Name: MCPS Radon – Testing February 4th – February 7th, 2025

Name of Schools:

1. Candlewood ES
2. Viers Mill ES
3. Wayside ES
4. Julius West MS
5. Westland MS

	Date	Initials
Radon Test Kits Deployed	2/4/2025	
Radon Test Kits Collected	2/7/2025	
Radon Test Kits Shipped to Lab*	2/7/2025	
Radon Test Kits Received by Lab*	2/10/2025	

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

April 2, 2025

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
**JULIUS WEST MS
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11886562	6	2025-03-24 @ 1:00 pm	2025-03-27 @ 11:00 am	< 0.3	2025-04-02
11886567	6	2025-03-24 @ 1:00 pm	2025-03-27 @ 11:00 am	< 0.3	2025-04-02
11886568	6	2025-03-24 @ 1:00 pm	2025-03-27 @ 11:00 am	0.8 ± 0.5	2025-04-02
11886569	6	2025-03-24 @ 1:00 pm	2025-03-27 @ 11:00 am	0.7 ± 0.5	2025-04-02

April 3, 2025

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

**OFFICE
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11886664	OB	2025-03-24 @ 11:00 am	2025-03-27 @ 11:00 am	< 0.3	2025-04-02
11886692	OB	2025-03-25 @ 11:00 am	2025-03-28 @ 11:00 am	< 0.3	2025-04-02
11951800	OB	2025-03-24 @ 11:00 am	2025-03-28 @ 11:00 am	< 0.3	2025-04-02

April 3, 2025

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

**TRAVEL
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11886691	TB	2025-03-24 @ 11:00 am	2025-03-27 @ 11:00 am	< 0.3	2025-04-02
11886693	TB	2025-03-25 @ 11:00 am	2025-03-28 @ 11:00 am	< 0.3	2025-04-02
11892493	TB	2025-03-24 @ 11:00 am	2025-03-28 @ 11:00 am	< 0.3	2025-04-02

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 μ R/h Elevation = 820 ft

March 19, 2025

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

QC
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
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

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



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Radon Test Kit Chain of Custody

Project Name: MCPS Radon – Testing March 24th – March 27th, 2025

Name of Schools:

- | | |
|----------------------|----------------------------|
| 1. Beverly Farms ES | 7. Julius West MS |
| 2. Bradley Hills ES | 8. Parkland MS |
| 3. Cabin John MS | 9. Rockville HS |
| 4. Springbrook HS | 10. Westland MS |
| 5. Thomas Edison HS | 11. Charles W. Woodward HS |
| 6. Walter Johnson HS | 12. Walt Whitman HS |

	Date	Initials
Radon Test Kits Deployed	3/24/2025	BMM
Radon Test Kits Collected	3/27/2025	BMM
Radon Test Kits Shipped to Lab*	3/28/2025	BMM
Radon Test Kits Received by Lab*	4/01/2025	BMM

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



MCPS RADON TESTING – EXECUTIVE SUMMARY

Site Name	Julius West Middle School
Date of Test Report	05/12/2022
Round of Testing	Initial Follow-up Post Remediation 2 Year Testing 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility
# Rooms Tested	4
# Rooms \geq 4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	1.0 pCi/L

Project Status

Current Project Status at this time: Testing completed; missing kits need re-sampling



May 12, 2022

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

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

Location: Julius West Middle School
651 Great Falls Rd.
Rockville, MD 20850

Dear Mr. Croyle:

KCI Technologies, Inc. (KCI) is pleased to submit the following report to Montgomery County Public Schools (MCPS) pursuant to completing a “short-term” 3 day radon test for the Julius West Middle School, located at 651 Great Falls Rd. Rockville, MD 20850 (subject site).

Scope of Services:

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

KCI visited the site on March 21, 2022 and deployed six (6) activated charcoal (AC) radon test kits. KCI deployed radon test kits in all frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance.

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

1. Rooms with missing test kits from the Radon 2022 testing period (i.e. test kit was deployed but not recovered),
2. Rooms with invalidated test kits from the Radon 2022 testing period (e.g. an open window in the room or disturbed test kit),
3. Rooms which were locked/inaccessible during the Radon 2022 testing period,
4. Rooms with elevated radon results (i.e. ≥ 3.5 pCi/L),
5. Rooms previously tested for radon but not tested in Radon 2022, and
6. Additional rooms that require testing (if applicable.)

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

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

KCI returned to the site on March 24, 2022 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Airchek, Inc. for analysis by gamma-ray spectroscopy. Airchek, Inc. is a NRSB certified analytical laboratory for radon analysis (certification # ARL1402) located at 1936 Butler Bridge Road, Mills River, North Carolina.

Evaluation of Testing Conditions:

These tests represent:

- Follow-up to initial testing.

These tests were conducted to:

- Evaluate radon concentration levels at the facility.

According to AARST, *Protocol for Conducting Measurements of Radon and Radon Decay Products in Schools and Large Buildings*, ideal testing conditions would be when the building is fully occupied and the heating system is active. For this test, the facility's HVAC system was operating in heating mode; therefore, KCI concludes that this test was conducted during ideal testing conditions.

KCI recorded observations of the following conditions in each room during the time of deployment and collection of the radon test kits:

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

KCI also compiled weather data for the testing period and conducted observations of relevant field conditions. During the test period, weather records indicate low temperatures were in the low 40°Fs and high temperatures ranged from the low 50°Fs to the low 70°Fs. Maximum sustained winds ranged from 0-29 miles per hour. Average humidity was around 56% with 0.51 inches of precipitation (rain) was recorded during testing period.

Results:

The sampling locations and analytical results are listed on Table 1 (Attachment B). The quality control sample locations and analytical results are listed on Table 2 (Attachment B). Sampling locations and associated test kit identification numbers and relevant field observations are listed on Table 3 (Attachment B). The laboratory analytical results are included in Attachment C. Laboratory results and exposure data for the spike samples are also included in Attachment C.

The results of the radon test analysis indicated the following:

Radon Concentration	Room	Result
≥4.0 pCi/L	None	N/A
<4.0 pCi/L	See Attachment B	

Quality Control Samples	
Results of Blank Canisters:	The office blanks, and lab transit blanks had test results of less than the laboratory detection limit of 0.3 pCi/L.
Adequate Laboratory Precision?	Review of the duplicate sample analysis indicates that adequate laboratory measurement precision was achieved.
Spike Sample Analysis:	The Spike Sample analysis results indicate the laboratory is operating within statistical control limits.

Our professional services have been performed in accordance with customary principles and practices in the field of industrial hygiene and engineering. If you have any questions or comments regarding this report, please feel free to contact me at (410) 891-1769.

Sincerely,



Tyler P. McCleaf
Radon Measurement Provider
#111004 RT
KCI Technologies, Inc.

Attachments: A- Floor Plan with Test Locations
 B- Table 1-3, Radon Test Summary Spreadsheets
 C- Laboratory Analytical Results

ATTACHMENT A

Floor Plan With Test Locations

ATTACHMENT B

Radon Test Summary Spreadsheet

Table Notes:

AC- Activated Charcoal

ACI- Air Check, Inc.

D- Duplicate

FB- Field Blank

KCI- KCI Technologies, Inc.

OB- Office Blank

PM- Project Manager

OC- Quality Control

Table 1- Radon Testing Results		
Julius West MS RT		
Test Period: 03/21/2022 - 03/24/2022		
Kit Number	Room / Area	Result
11139266	130	< 0.3
11139267	130	< 0.3
11139272	130	< 0.3
11139247	132	1.0
11139274	122B	< 0.3
11139261	142 OFFICE	NA

Table 2- Radon Testing Results			
Julius West MS RT			
Test Period: 03/21/2022 - 03/24/2022			
Kit Number	QC Type	Room / Area	Result
11139272	D	130	< 0.3
11139267	FB	130	< 0.3
11139902	OB	OFFICE BLANK	< 0.3
11139928	TB	TRAVEL BLANK	< 0.3

ATTACHMENT C

Laboratory Analytical Results

March 28, 2022

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
Julius West MS RT

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11139266	130	2022-03-21 @ 9:00 am	2022-03-24 @ 8:00 am	< 0.3	2022-03-28
11139267	130	2022-03-21 @ 9:00 am	2022-03-24 @ 8:00 am	< 0.3	2022-03-28
11139272	130	2022-03-21 @ 9:00 am	2022-03-24 @ 8:00 am	< 0.3	2022-03-28
11139247	132	2022-03-21 @ 9:00 am	2022-03-24 @ 8:00 am	1.0	2022-03-28
11139274	122B	2022-03-21 @ 9:00 am	2022-03-24 @ 8:00 am	< 0.3	2022-03-28
11139261	142 Office	2022-03-21 @ 9:00 am	2022-03-24 @ 8:00 am	???	2022-03-28

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 204620

NOMINAL Conditions: Radon Conc 27.0 pCi/L Rel. Hum 50.1 % Temp. 70.0 F

Date Start: 3/18/22 Date Stop: 3/21/22 Date Start: _____ Date Stop: _____

Time Start: 0705 Time Stop: 0705 Time Start: _____ Time Stop: _____

Device No.'s: (5) Char Bags - Device No.'s: _____

11139367, 11139368, 11139371, _____

11139710, 11139717 _____

E3 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 μ R/h Elevation = 820 ft

March 30, 2022

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

MCPS - Spike Sample Lab Results. Measured values are satisfactory, i.e., within $\pm 25\%$ of the chamber's reference value (25.7 pCi/L).

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11139367	SK1	2022-03-18 @ 7:00 am	2022-03-21 @ 7:00 am	25.9 \pm 2.1	2022-03-30
11139368	SK2	2022-03-18 @ 7:00 am	2022-03-21 @ 7:00 am	23.9 \pm 2.0	2022-03-30
11139371	SK3	2022-03-18 @ 7:00 am	2022-03-21 @ 7:00 am	25.7 \pm 2.1	2022-03-30
11139710	SK4	2022-03-18 @ 7:00 am	2022-03-21 @ 7:00 am	26.4 \pm 2.1	2022-03-30
11139717	SK5	2022-03-18 @ 7:00 am	2022-03-21 @ 7:00 am	24.6 \pm 2.0	2022-03-30

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



ENGINEERS • PLANNERS • SCIENTISTS • CONSTRUCTION MANAGERS
Corporate Office: 936 Ridgebrook road • Sparks , Maryland 21152 • 410-316-7800 • (Fax) 410-316-7935

Radon Test Kit Chain of Custody

Project Name: MCPS Radon – March 2022 Schools – Retesting

Name of Schools:

1. Rosa Parks MS
2. Poolesville ES
3. Wyngate ES
4. Seven Locks ES
5. Walt Whitman HS
6. Somerset ES
7. Rock Creek Forest ES
8. Walter Johnson HS
9. Westbrook ES
10. Westland MS
11. Farmland ES
12. College Gardens ES
13. Julius West MS
14. Robert Frost MS
15. Carl Sandburg Learning Center

	Date	Initials
Radon Test Kits Deployed	03/21/2022	BMM
Radon Test Kits Collected	03/24/2022	BMM
Radon Test Kits Shipped to Lab*	03/25/2022	BMM
Radon Test Kits Received by Lab*	03/28/2022	BMM

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



MCPS RADON TESTING – EXECUTIVE SUMMARY

Site Name	Julius West Middle School
Date of Test Report	05/31/2022
Round of Testing	Initial Follow-up Post Remediation 2 Year Testing 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility
# Rooms Tested	1
# 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: Testing completed; no further action needed



May 31, 2022

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

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

Location: Julius West Middle School
651 Great Falls Rd.
Rockville, MD 20850

Dear Mr. Croyle:

KCI Technologies, Inc. (KCI) is pleased to submit the following report to Montgomery County Public Schools (MCPS) pursuant to completing a “short-term” 3 day radon test for the Julius West Middle School, located at 651 Great Falls Rd. Rockville, MD 20850 (subject site).

Scope of Services:

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

KCI visited the site on April 05, 2022 and deployed three (3) activated charcoal (AC) radon test kits. KCI deployed radon test kits in all frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance.

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

1. Rooms with missing test kits from the Radon 2022 testing period (i.e. test kit was deployed but not recovered),
2. Rooms with invalidated test kits from the Radon 2022 testing period (e.g. an open window in the room or disturbed test kit),
3. Rooms which were locked/inaccessible during the Radon 2022 testing period,
4. Rooms with elevated radon results (i.e. ≥ 3.5 pCi/L),
5. Rooms previously tested for radon but not tested in Radon 2022, and
6. Additional rooms that require testing (if applicable.)

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

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

KCI returned to the site on April 08, 2022 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Airchek, Inc. for analysis by gamma-ray spectroscopy. Airchek, Inc. is a NRSB certified analytical laboratory for radon analysis (certification # ARL1402) located at 1936 Butler Bridge Road, Mills River, North Carolina.

Evaluation of Testing Conditions:

These tests represent:

- Follow-up to initial testing.

These tests were conducted to:

- Evaluate radon concentrations at the facility.

According to AARST, *Protocol for Conducting Measurements of Radon and Radon Decay Products in Schools and Large Buildings*, ideal testing conditions would be when the building is fully occupied and the heating system is active. For this test, the facility's HVAC system was operating in heating mode; therefore, KCI concludes that this test was conducted during ideal testing conditions.

KCI recorded observations of the following conditions in each room during the time of deployment and collection of the radon test kits:

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

KCI also compiled weather data for the testing period and conducted observations of relevant field conditions. During the test period, weather records indicate low temperatures were in the mid 20°Fs and high temperatures ranged from the low 50°Fs to the mid 70°Fs. Maximum sustained winds ranged from 0-33 miles per hour. Average humidity was around 47% with 0.23 inches of precipitation (rain) was recorded during testing period.

Results:

The sampling locations and analytical results are listed on Table 1 (Attachment B). The quality control sample locations and analytical results are listed on Table 2 (Attachment B). Sampling locations and associated test kit identification numbers and relevant field observations are listed on Table 3 (Attachment B). The laboratory analytical results are included in Attachment C. Laboratory results and exposure data for the spike samples are also included in Attachment C.

The results of the radon test analysis indicated the following:

Radon Concentration	Room	Result
≥4.0 pCi/L	None	N/A
<4.0 pCi/L	See Attachment B	

Quality Control Samples	
Results of Blank Canisters:	The office blanks, and lab transit blanks had test results of less than the laboratory detection limit of 0.3 pCi/L.
Adequate Laboratory Precision?	Review of the duplicate sample analysis indicates that adequate laboratory measurement precision was achieved.
Spike Sample Analysis:	The Spike Sample analysis results indicate the laboratory is operating within statistical control limits.

Our professional services have been performed in accordance with customary principles and practices in the field of industrial hygiene and engineering. If you have any questions or comments regarding this report, please feel free to contact me at (410) 891-1769.

Sincerely,



Tyler P. McCleaf
Radon Measurement Provider
#111004 RT
KCI Technologies, Inc.

Attachments: A- Floor Plan with Test Locations
 B- Table 1-3, Radon Test Summary Spreadsheets
 C- Laboratory Analytical Results

ATTACHMENT A

Floor Plan With Test Locations

ATTACHMENT B

Radon Test Summary Spreadsheet

Table Notes:

AC- Activated Charcoal

ACI- Air Check, Inc.

D- Duplicate

FB- Field Blank

KCI- KCI Technologies, Inc.

OB- Office Blank

PM- Project Manager

OC- Quality Control

Table 1- Radon Testing Results		
Julius West MS RT		
Test Period: 04/05/2022 - 04/08/2022		
Kit Number	Room / Area	Result
11132026	142 OFFICE	< 0.3
11132034	142 OFFICE	< 0.3
11139741	142 OFFICE	< 0.3

Table 2- Radon Testing Results			
Julius West MS RT			
Test Period: 04/05/2022 - 04/08/2022			
Kit Number	QC Type	Room / Area	Result
11132034	D	142 Office	< 0.3
11132026	FB	142 Office	< 0.3
11139882	OB	OFFICE BLANK	< 0.3
11139881	TB	TRAVEL BLANK	< 0.3

ATTACHMENT C

Laboratory Analytical Results

April 12, 2022

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11132026	142 OFFICE	2022-04-05 @ 1:00 pm	2022-04-08 @ 11:00 am	< 0.3	2022-04-12
11132034	142 OFFICE	2022-04-05 @ 1:00 pm	2022-04-08 @ 11:00 am	< 0.3	2022-04-12

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

April 12, 2022

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11139741	142 OFFICE	2022-04-05 @ 1:00 pm	2022-04-08 @ 11:00 am	< 0.3	2022-04-12

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 204620

NOMINAL Conditions: Radon Conc 27.0 pCi/L Rel. Hum 50.1 % Temp. 70.0 F

Date Start: 3/18/22 Date Stop: 3/21/22 Date Start: _____ Date Stop: _____

Time Start: 0705 Time Stop: 0705 Time Start: _____ Time Stop: _____

Device No.'s: (5) Char Bags - Device No.'s: _____

11139367, 11139368, 11139371, _____

11139710, 11139717 _____

E3 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 μ R/h Elevation = 820 ft

March 30, 2022

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

MCPS - Spike Sample Lab Results. Measured values are satisfactory, i.e., within $\pm 25\%$ of the chamber's reference value (25.7 pCi/L).

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11139367	SK1	2022-03-18 @ 7:00 am	2022-03-21 @ 7:00 am	25.9 ± 2.1	2022-03-30
11139368	SK2	2022-03-18 @ 7:00 am	2022-03-21 @ 7:00 am	23.9 ± 2.0	2022-03-30
11139371	SK3	2022-03-18 @ 7:00 am	2022-03-21 @ 7:00 am	25.7 ± 2.1	2022-03-30
11139710	SK4	2022-03-18 @ 7:00 am	2022-03-21 @ 7:00 am	26.4 ± 2.1	2022-03-30
11139717	SK5	2022-03-18 @ 7:00 am	2022-03-21 @ 7:00 am	24.6 ± 2.0	2022-03-30

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



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Corporate Office: 936 Ridgebrook road • Sparks , Maryland 21152 • 410-316-7800 • (Fax) 410-316-7935

Radon Test Kit Chain of Custody

Project Name: MCPS Radon – April 2022 Schools – Retesting

Name of Schools:

1. Gaithersburg MS
2. Julius West MS
3. Sherwood HS

	Date	Initials
Radon Test Kits Deployed	04/05/2022	BMM
Radon Test Kits Collected	04/08/2022	BMM
Radon Test Kits Shipped to Lab*	04/08/2022	BMM
Radon Test Kits Received by Lab*	04/11/2022	BMM

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



MONTGOMERY COUNTY PUBLIC SCHOOLS RADON TESTING

Executive Summary: Julius West Middle School

651 Great Falls Road,
Rockville, MD 20850

Date of Test Report:	3/28/2019
Round of Testing:	Initial Follow-up Post Remediation 2 Year Testing 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility
# of Rooms Tested:	10
# of Rooms ≥ 4.0 pCi/L:	0
Low Value:	<0.4
High Value:	0.9

Project Status

Retesting completed: No further action at this time.



March 28, 2019

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

Re: Radon Testing Services

Location: Julius West Middle School
651 Great Falls Road,
Rockville, MD 20850

Dear Mr. Cox:

Intertek-PSI (PSI) is pleased to submit the following report to the Montgomery County Public Schools (MCPS) for completion of a "short-term" 3-day radon test for Julius West Middle School, located at 651 Great Falls Road, Rockville, MD 20850 (subject site).

Scope of Services:

PSI conducted radon testing at the subject site to evaluate indoor radon levels relative to the USEPA's recommended action level of 4.0 picocuries per Liter (pCi/L) - the level at which EPA recommends that schools take action to reduce the level. PSI conducted the radon testing in accordance with American Association of Radon Scientists and Technologists (AARST) Protocol for Conducting Measurements of Radon and Radon Decay Products in Schools and Large Buildings. A National Radon Safety Board (NRSB) Radon Measurement Specialist (certification #14SS007) supervised the testing. Additional information on radon management and the health effects of radon exposure is available from www.montgomerycountymd.gov/dep/air/radon or www.epa.gov/radon.

PSI visited the site on February 26, 2019 and deployed eleven (11) activated charcoal (AC) radon test kit. PSI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. PSI returned to the site on February 28, 2019 to retrieve the radon sampling test kit. On March 11, 2019 PSI deployed two (2) additional radon test kit in Cafeteria and TL 4. On March 14, 2019 PSI returned to retrieve the test kit. A floor plan map of the building with the test location is included as Attachment A of this report.

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

Evaluation of Testing Conditions:

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

PSI concludes that the test period reasonably represents normal conditions when the building is significantly



occupied. Clear characterization of the radon hazard is most likely to be observed under this normal operating condition. Based on the evaluation of test conditions, this test should reasonably characterize radon hazards.

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

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

Results:

The results of the radon test analysis indicated the following:

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

Notes:

D -Duplicate Sample

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

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

Laboratory results and exposure data for the spike samples are also included in Attachment C. Our professional services have been performed in accordance with customary principles and practices in the field of industrial hygiene and engineering. If you have any questions or comments regarding this report, please feel free to contact me at (703) 698-9300.

Respectfully Submitted,

INTERTEK - PSI

A handwritten signature in black ink, appearing to read "Nand Kaushik". The signature is fluid and cursive, with the first name "Nand" and last name "Kaushik" clearly distinguishable.

Nand Kaushik, P.E.

Department Manager, Environmental Services

Nand.Kaushik@intertek.com

Attachments:

A – Floor Plan with Test Locations

B – Table 1 – Radon Test Summary Spreadsheet

C – Laboratory Analytical Results

ATTACHMENT B

Radon Test Summary Spreadsheet

Radon Testing Results		
Julius West Middle School		
Testing period: 2/26/19 - 3/01/19		
Kit Number	Room / Area	Result (pCi/L)
3923514	114	<0.4
3923513	115	0.9
3923519	119A	<0.4
3923518	119B (Conference Room)	<0.4
3923511	119C	<0.4
3923529	A123	<0.4
3923525	Building Services	<0.4
3923522	Cafeteria (Missing)	--
3923512	Cafeteria	<0.4
3293516	Media Center	0.7
3923520	TL4 (Missing)	--

Radon Testing Results		
Julius West Middle School		
Testing period: 3/11/19 - 3/14/19		
Kit Number	Room / Area	Result (pCi/L)
3923334	Cafeteria	0.6
3923335	TL4	<0.4

Table Notes:

D – Duplicate

FB – Field Blank

OB – Office Blank

TB – Transit Blank

QC – Quality Control

ATTACHMENT C

Laboratory Analytical Results

NRPP 105011 AL
NRSB ARL0007

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

Laboratory Report for:

Property Tested: Project # 04481387-1

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

MCPS Radon Survey Julius West MS
651 Great Falls Road
Rockville MD 20850

Log Number	Device Number	Test Exposure Duration:				Area Tested	Result pCi/L
3220695	3923516	02/26/2019	9:15 am	03/01/2019	9:02 am	Floor Main Room Media Center	0.7
3220696	3923514	02/26/2019	9:17 am	03/01/2019	9:04 am	Floor Main Room 114	< 0.4
3220697	3923513	02/26/2019	9:20 am	03/01/2019	9:06 am	Floor Main Room 115	0.9
3220698	3923519	02/26/2019	9:30 am	03/01/2019	9:08 am	Floor Main Room 119A	< 0.4
3220699	3923518	02/26/2019	9:32 am	03/01/2019	9:10 am	Floor Main 119B (Conference Room)	< 0.4
3220700	3923511	02/26/2019	9:36 am	03/01/2019	9:12 am	Floor Main Room 119C	< 0.4
3220701	3923525	02/26/2019	9:48 am	03/01/2019	9:16 am	Floor Main Room Building Services	< 0.4
3220702	3923512	02/26/2019	9:52 am	03/01/2019	9:18 am	Floor Main Room Cafeteria	< 0.4
3220703	3923529	02/26/2019	9:54 am	03/01/2019	9:22 am	Floor Main Room A123	< 0.4

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

Distributed by: Intertek-PSI (VA)

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

Report Reviewed By: 

Report Approved By: 

Disclaimer:

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

Shawn Price, Director of Laboratory Operations, AccuStar Labs

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

NRPP 105011 AL
NRSB ARL0007

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

Laboratory Report for:

Property Tested: Project # 04481387-1

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

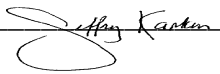
MCPS Radon Survey Julius West MS
651 Great Falls Road
Rockville MD 20850

Log Number	Device Number	Test Exposure Duration:				Area Tested	Result pCi/L
3223849	3923334	03/11/2019	1:45 pm	03/14/2019	1:45 pm	Floor Main Room Cafeteria	0.6
3223850	3923335	03/11/2019	1:50 pm	03/14/2019	1:50 pm	First Floor Room TL4	< 0.4

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

Distributed by: Intertek-PSI (VA)

Date Received: 03/15/2019 Date Logged: 03/15/2019 Date Analyzed: 03/15/2019 Date Reported: 03/15/2019

Report Reviewed By: 

Report Approved By: 

Disclaimer:

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

Shawn Price, Director of Laboratory Operations, AccuStar Labs

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



MONTGOMERY COUNTY PUBLIC SCHOOLS RADON TESTING

Executive Summary: Julius West Middle School

651 Great Falls Road,
Rockville, MD 20850

Date of Test Report:	02/21/2019
Round of Testing:	Initial Follow-up Post Remediation 2 Year Testing 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility
# of Rooms Tested:	79
# of Rooms \geq 4.0 pCi/L:	0
Low Value:	< 0.4
High Value:	3.0

Project Status

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



February 21, 2019

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

Re: Radon Testing Services

Location: Julius West Middle School
651 Great Falls Road,
Rockville, MD 20850

Dear Mr. Cox:

Intertek-PSI (PSI) is pleased to submit the following report to the Montgomery County Public Schools (MCPS) for completion of a “short-term” 3-day radon test for Julius West Middle School, located at 651 Great Falls Road, Rockville, MD 20850 (subject site).

Scope of Services:

PSI conducted radon testing at the subject site to evaluate indoor radon levels relative to the USEPA's recommended action level of 4.0 picocuries per Liter (pCi/L) - the level at which EPA recommends that schools take action to reduce the level. PSI conducted the radon testing in accordance with American Association of Radon Scientists and Technologists (AARST) Protocol for Conducting Measurements of Radon and Radon Decay Products in Schools and Large Buildings. A National Radon Safety Board (NRSB) Radon Measurement Specialist (certification #14SS007) supervised the testing. Additional information on radon management and the health effects of radon exposure is available from www.montgomerycountymd.gov/dep/air/radon or www.epa.gov/radon.

PSI visited the site on November 12, 2018 and deployed ninety-seven (97) activated charcoal (AC) radon test kits. PSI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. PSI returned to the site on November 15, 2018 to retrieve the radon sampling test kits. A floor plan map of the building with the test locations is included as Attachment A of this report.

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

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



Evaluation of Testing Conditions:

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

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

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

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

Results:

The results of the radon test analysis indicated the following:

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

Notes:

D -Duplicate Sample

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

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

Laboratory results and exposure data for the spike samples are also included in Attachment C. Our professional services have been performed in accordance with customary principles and practices in the field of industrial hygiene and engineering. If you have any questions or comments regarding this report, please feel free to contact me at (703) 698-9300.



Respectfully Submitted,

INTERTEK-PSI

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

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

ATTACHMENT B

Radon Test Summary Spreadsheet

Radon Testing Results		
Julius West Middle School		
Testing period: 11/12/18 - 11/15/18		
Kit Number	Room / Area	Result (pCi/L)
3915865	11	0.4
3915760	100	1.7
3915903	101	<0.4
3915940	102	1.3
3915936	104	0.6
3915870	107	0.6
3915868	109	<0.4
3915867	110	0.4
3915952	111	0.9
3915863	112	<0.4
3915816	113	0.7
3915864	114 (MISSING)	--
3915815	115	Unable to Report
3915861	116	1.0
3915811	117	<0.4
--	119 (MISSED)	--
3915869	120	3.0
3915905	122	1.3
--	123 (MISSED)	--
3915819	124	<0.4
3915818	126	<0.4
3915817	128	0.4
3915814	130	<0.4
3915813	131	0.7
3915812	132	1.4
--	134 (MISSED)	--
3915900	136	1.9
3915892	140	0.4
3915850	142	0.7
3915844	142A	<0.4
3915954	144	0.6
3915959	146	<0.4
3915955	148	0.6
3915996	206	<0.4
3915995	210	<0.4
3915994	216	0.8
3915993	217	0.9
3915992	223	<0.4
3915997	234C	0.7
3915950	A-103	1.2
3915846	A-104	<0.4
3915845	A-106	0.4
3915956	A-109	1.2

Radon Testing Results		
Julius West Middle School		
Testing period: 11/12/18 - 11/15/18		
Kit Number	Room / Area	Result (pCi/L)
3915951	A-112	<0.4
3915901	A-115	0.6
3915909	A-121	<0.4
3915843	A-122	1.0
3915953	A-123	0.4
3881157	A-128	<0.4
3881247	A-128	<0.4
3915847	A-131	0.8
3915758	Admin A	1.6
3915756	Admin B	<0.4
3915759	Admin C	0.8
3915753	Admin D	0.8
3915754	Admin E	0.8
3915751	Admin G	<0.4
3915931	Admin H	<0.4
--	Building Services (MISSED)	--
5811246	Cafeteria (MISSING)	--
5811236	Cafeteria (MISSING)	--
3915907	Center Gym	1.2
3915849	Center Gym	2.2
3915932	Conference Room	1.3
3915960	Counselor Main Office	1.0
3915757	Financial Sec	0.6
3916000	Kitchen	1.6
3915752	Main	0.8
3915998	Media Center	0.7
3915999	Media Center (MISSING)	--
3915938	Nurse Office	<0.4
3915934	Office B	0.8
3915933	Office C	<0.4
3915935	Office D	<0.4
3915939	Office E	1.1
3915958	Stage	1.6
3915896	TL 1	<0.4
3915897	TL 2	<0.4
3915895	TL 3	0.4
3915893	TL 3 Office	<0.4
3915894	TL 4 (MISSING)	--
3915898	TL 5	<0.4
3915910	TL 6	1.5
3915906	TL 7	1.1
3915902	TL 8	0.5
3915908	TL 9	0.8

Radon Testing Results		
Julius West Middle School		
Testing period: 11/12/18 - 11/15/18		
Kit Number	Room / Area	Result (pCi/L)
3915937	Weight Room	1.4

Radon Testing Results		
Julius West Middle School		
Testing period: 11/12/18 - 11/15/18		
Kit Number	QC Type	Result (pCi/L)
3915862	110 (D)	0.5
3915866	116 (D)	0.4
3915820	124 (D)	0.4
3915904	140 (D)	<0.4
3915842	101 (D)	0.5
3915891	A-123 (D)	<0.4
3915755	A-131 (D)	<0.4
3915848	Center Gym (D)	<0.4
3915957	Counselor Main Office (D)	0.6
3917294	Field Blank	<0.4
3917291	Field Blank	<0.4
3917293	Field Blank	<0.4
3917292	Office Blank	<0.4
3917310	Transit Blank	<0.4

Table Notes:

D – Duplicate

FB – Field Blank

OB – Office Blank

TB – Transit Blank

QC – Quality Control

ATTACHMENT C

Laboratory Analytical Results

NELAC NY 11769
NRPP 103216 AL
NRSB ARL0017

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

Laboratory Report for:

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

Property Tested: Project # 04481387-1


MCPS Radon Survey
Julius West MS
651 Great Falls Road
Rockville MD 20850

Log Number	Device Number	Test Exposure Duration:		Area Tested		Result pCi/L
2393907	3915752	11/12/2018 1:16 pm	11/15/2018 11:00 am	Julius West MS Floor First Room Main		0.8
2393908	3915862	11/12/2018 4:15 pm	11/15/2018 12:53 pm	Julius West MS Floor First Room 110		0.5
2393909	3915758	11/12/2018 1:18 pm	11/15/2018 11:02 am	Julius West MS Floor First Room Adm A		1.6
2393910	3915905	11/12/2018 3:59 pm	11/15/2018 12:41 pm	122		1.3
2393911	3915756	11/12/2018 1:20 pm	11/15/2018 11:03 am	Julius West MS Floor First Room Adm B		< 0.4
2393912	3915958	11/12/2018 2:53 pm	11/15/2018 11:52 am	Stage		1.6
2393913	3915754	11/12/2018 1:25 pm	11/15/2018 11:05 am	Julius West MS Floor First Room Adm E		0.8
2393914	3915759	11/12/2018 1:22 pm	11/15/2018 11:04 am	Julius West MS Floor First Room Adm C		0.8
2393915	3915753	11/12/2018 1:25 pm	11/15/2018 11:05 am	Julius West MS Floor First Room Adm E		0.8
2393916	3915751	11/12/2018 1:27 pm	11/15/2018 11:06 am	Julius West MS Floor First Room Adm G		< 0.4
2393917	3915931	11/12/2018 1:28 pm	11/15/2018 11:07 am	Julius West MS Floor First Room Adm H		< 0.4

Comment: AMENDED REPORT for 3915905, 3915958 and 3915754 on 02/05/2019 to add the test dates and times and areas tested.

Distributed by: Intertek-PSI (VA)

Date Received: 11/19/2018 Date Logged: 11/21/2018 Date Analyzed: 11/20/2018 Date Reported: 01/31/2019

Report Reviewed By: 

Report Approved By: 

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Shawn Price, Director of Laboratory Operations, AccuStar Labs

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NRPP 103216 AL
NRSB ARL0017

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

Laboratory Report for:

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

Property Tested: Project # 04481387-1


MCPS Radon Survey
Julius West MS
651 Great Falls Road
Rockville MD 20850


Log Number	Device Number	Test Exposure Duration:		Area Tested		Result pCi/L
2393918	3915932	11/12/2018 1:30 pm	11/15/2018 11:08 am	Julius West MS Floor First Room Conf. Room		1.3
2393919	3915760	11/12/2018 1:34 pm	11/15/2018 11:10 am	Julius West MS Floor First Room 100		1.7
2393920	3915937	11/12/2018 1:40 pm	11/15/2018 11:12 am	Julius West MS Floor First Room 108		1.4
2393921	3915936	11/12/2018 1:43 pm	11/15/2018 11:15 am	Julius West MS Floor First Room 104A		0.6
2393922	3915938	11/12/2018 1:44 pm	11/15/2018 11:16 am	Julius West MS Floor First Nurse Office		< 0.4
2393923	3915940	11/12/2018 1:46 pm	11/15/2018 11:20 am	Julius West MS Floor First Room 102D		1.3
2393924	3915757	11/12/2018 1:50 pm	11/15/2018 11:23 am	Julius West MS Flr First Rm Counsel Off A		1.0
2393925	3915934	11/12/2018 1:51 pm	11/15/2018 11:24 am	Julius West MS Floor First Room Off B		0.8
2393926	3915933	11/12/2018 1:52 pm	11/15/2018 11:25 am	Julius West MS Floor First Room Off C		< 0.4
2393927	3915935	11/12/2018 1:53 pm	11/15/2018 11:26 am	Julius West MS Floor First Room Off D		< 0.4
2393928	3915939	11/12/2018 1:54 pm	11/15/2018 11:27 am	Julius West MS Floor First Room Off E		1.1

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Property Tested: Project # 04481387-1


MCPS Radon Survey
Julius West MS
651 Great Falls Road
Rockville MD 20850


Log Number	Device Number	Test Exposure Duration:		Area Tested		Result pCi/L
2393929	3915960	11/12/2018 1:55 pm	11/15/2018 11:22 am	Julius West MS Flr First Rm Counsel off Main		1.0
2393930	3915957	11/12/2018 1:55 pm	11/15/2018 11:22 am	Julius West MS Flr First Rm Counsel off Main		0.6
2393931	3915954	11/12/2018 2:07 pm	11/15/2018 11:28 am	Julius West MS Floor First Room 144		0.6
2393932	3915959	11/12/2018 2:09 pm	11/15/2018 11:30 am	Julius West MS Floor First Room 146		< 0.4
2393933	3915955	11/12/2018 2:12 pm	11/15/2018 11:32 am	Julius West MS Floor First Room 148		0.6
2393934	3915896	11/12/2018 2:17 pm	11/15/2018 11:34 am	Julius West MS Floor First Room TL 1		< 0.4
2393935	3915897	11/12/2018 2:20 pm	11/15/2018 11:36 am	Julius West MS Floor First Room TL 2		< 0.4
2393936	3915895	11/12/2018 2:22 pm	11/15/2018 11:38 am	Julius West MS Floor First Room TL 3		0.4
2393937	3915893	11/12/2018 2:25 pm	11/15/2018 11:40 am	Julius West MS Floor First Room TL 3 Off		< 0.4
2393938	3915898	11/12/2018 2:29 pm	11/15/2018 11:43 am	Julius West MS Floor First Room TL 5		< 0.4
2393939	3915910	11/12/2018 2:33 pm	11/15/2018 11:44 am	Julius West MS Floor First Room TL 6		1.5

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NRPP 103216 AL
NRSB ARL0017

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

Laboratory Report for:

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

Property Tested: Project # 04481387-1


MCPS Radon Survey
Julius West MS
651 Great Falls Road
Rockville MD 20850

Log Number	Device Number	Test Exposure Duration:		Area Tested		Result pCi/L
2393940	3915906	11/12/2018 2:35 pm	11/15/2018 11:45 am	Julius West MS Floor First Room TL 7		1.1
2393941	3915902	11/12/2018 2:37 pm	11/15/2018 11:46 am	Julius West MS Floor First Room TL 8		0.5
2393942	3915908	11/12/2018 2:40 pm	11/15/2018 11:47 am	Julius West MS Floor First Room TL 9		0.8
2393943	3915844	11/12/2018 2:46 pm	11/15/2018 11:48 am	Julius West MS Floor First Room 142A		< 0.4
2393944	3915850	11/12/2018 2:47 pm	11/15/2018 11:49 am	Julius West MS Floor First Room 142		0.7
2393945	3915849	11/12/2018 2:52 pm	11/15/2018 11:50 am	Julius West MS Floor First Room Cent Gym		2.2
2393946	3915848	11/12/2018 2:52 pm	11/15/2018 11:50 am	Julius West MS Floor First Room Cent Gym		< 0.4
2393947	3915907	11/12/2018 2:53 pm	11/15/2018 11:51 am	Julius West MS Floor First Room Cent Gym		1.2
2393948	3915892	11/12/2018 3:00 pm	11/15/2018 11:53 am	Julius West MS Floor First Room 140		0.4
2393949	3915904	11/12/2018 3:00 pm	11/15/2018 11:53 am	Julius West MS Floor First Room 140		< 0.4
2393950	3915900	11/12/2018 3:03 pm	11/15/2018 11:54 am	Julius West MS Floor First Room 136		1.9

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Report Reviewed By: 

Report Approved By: 

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Property Tested: Project # 04481387-1


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Log Number	Device Number	Test Exposure Duration:		Area Tested		Result pCi/L
2393951	3915847	11/12/2018 3:07 pm	11/15/2018 11:56 am	Julius West MS Floor First	Room A-131	0.8
2393952	3915755	11/12/2018 3:07 pm	11/15/2018 11:56 am	Julius West MS Floor First	Room A-131	< 0.4
2393953	3915909	11/12/2018 3:17 pm	11/15/2018 12:04 pm	Julius West MS Floor First	Room A-121	< 0.4
2393954	3915843	11/12/2018 3:20 pm	11/15/2018 12:08 pm	Julius West MS Floor First	Room A-122	1.0
2393955	3915953	11/12/2018 3:22 pm	11/15/2018 12:10 pm	Julius West MS Floor First	Room A-123	0.4
2393956	3915891	11/12/2018 3:22 pm	11/15/2018 12:10 pm	Julius West MS Floor First	Room A-123	< 0.4
2393957	3915845	11/12/2018 3:26 pm	11/15/2018 12:15 pm	Julius West MS Floor First	Room A-106	0.4
2393958	3915956	11/12/2018 3:27 pm	11/15/2018 12:16 pm	Julius West MS Floor First	Room A-109	1.2
2393959	3915846	11/12/2018 3:28 pm	11/15/2018 12:18 pm	Julius West MS Floor First	Room A-104	< 0.4
2393960	3915952	11/12/2018 3:30 pm	11/15/2018 12:20 pm	Julius West MS Floor First	Room A-111	0.9
2393961	3915951	11/12/2018 3:31 pm	11/15/2018 12:21 pm	Julius West MS Floor First	Room A-112	< 0.4

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EPA Method #402-R-92-004
Charcoal Canister
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2930 Eskridge Road
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Property Tested: Project # 04481387-1


MCPS Radon Survey
Julius West MS
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Log Number	Device Number	Test Exposure Duration:		Area Tested		Result pCi/L
2393962	3915901	11/12/2018 3:32 pm	11/15/2018 12:22 pm	Julius West MS Floor First	Room A-115	0.6
2393963	3915950	11/12/2018 3:33 pm	11/15/2018 12:23 pm	Julius West MS Floor First	Room A-103	1.2
2393964	3915903	11/12/2018 3:37 pm	11/15/2018 12:24 pm	Julius West MS Floor First	Room A-101	< 0.4
2393965	3915842	11/12/2018 3:38 pm	11/15/2018 12:24 pm	Julius West MS Floor First	Room A-101	0.5
2393966	3915812	11/12/2018 3:41 pm	11/15/2018 12:26 pm	Julius West MS Floor First	Room 132	1.4
2393967	3915811	11/12/2018 3:42 pm	11/15/2018 12:27 pm	Julius West MS Floor First	Room 117	< 0.4
2393968	3915813	11/12/2018 3:44 pm	11/15/2018 12:28 pm	Julius West MS Floor First	Room 131	0.7
2393969	3915814	11/12/2018 3:47 pm	11/15/2018 12:30 pm	Julius West MS Floor First	Room 130	< 0.4
2393971	3915816	11/12/2018 3:49 pm	11/15/2018 12:34 pm	Julius West MS Floor First	Room 113	0.7
2393972	3915817	11/12/2018 3:51 pm	11/15/2018 12:36 pm	Julius West MS Floor First	Room 128	0.4
2393973	3915818	11/12/2018 3:55 pm	11/15/2018 12:37 pm	Julius West MS Floor First	Room 126	< 0.4

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Report Approved By: 

Disclaimer:

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

Shawn Price, Director of Laboratory Operations, AccuStar Labs

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NELAC NY 11769
NRPP 103216 AL
NRSB ARL0017

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

Laboratory Report for:

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

Property Tested: Project # 04481387-1


MCPS Radon Survey
Julius West MS
651 Great Falls Road
Rockville MD 20850

Log Number	Device Number	Test Exposure Duration:		Area Tested		Result pCi/L
2393974	3915819	11/12/2018 3:56 pm	11/15/2018 12:38 pm	Julius West MS Floor First Room 124		< 0.4
2393975	3915820	11/12/2018 3:56 pm	11/15/2018 12:38 pm	Julius West MS Floor First Room 124		0.4
2393976	3915869	11/12/2018 4:01 pm	11/15/2018 12:42 pm	Julius West MS Floor First Room 120		3.0
2393977	3915865	11/12/2018 4:04 pm	11/15/2018 12:44 pm	Julius West MS Floor First Room 11		< 0.4
2393978	3915861	11/12/2018 4:06 pm	11/15/2018 12:46 pm	Julius West MS Floor First Room 116		1.0
2393979	3915866	11/12/2018 4:06 pm	11/15/2018 12:47 pm	Julius West MS Floor First Room 116		0.4
2393980	3915868	11/12/2018 4:08 pm	11/15/2018 12:48 pm	Julius West MS Floor First Room 109		< 0.4
2393981	3915863	11/12/2018 4:12 pm	11/15/2018 12:50 pm	Julius West MS Floor First Room 112		< 0.4
2393982	3915870	11/12/2018 4:14 pm	11/15/2018 12:51 pm	Julius West MS Floor First Room 107		0.6
2393983	3915867	11/12/2018 4:15 pm	11/15/2018 12:52 pm	Julius West MS Floor First Room 110		0.4
2393984	3916000	11/12/2018 4:31 pm	11/15/2018 12:57 pm	Julius West MS Floor First Room Kitchen		1.6

Comment: AMENDED REPORT for 3915905, 3915958 and 3915754 on 02/05/2019 to add the test dates and times and areas tested.

Distributed by: Intertek-PSI (VA)

Date Received: 11/19/2018 Date Logged: 11/21/2018 Date Analyzed: 11/20/2018 Date Reported: 01/31/2019

Report Reviewed By: 

Report Approved By: 

Disclaimer:

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Shawn Price, Director of Laboratory Operations, AccuStar Labs

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NELAC NY 11769
NRPP 103216 AL
NRSB ARL0017

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

Laboratory Report for:

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

Property Tested: Project # 04481387-1


MCPS Radon Survey
Julius West MS
651 Great Falls Road
Rockville MD 20850

Log Number	Device Number	Test Exposure Duration:				Area Tested	Result pCi/L
2393985	3915998	11/12/2018	4:32 pm	11/15/2018	12:58 pm	Julius West MS Floor First Room Media	0.7
2393986	3915997	11/12/2018	4:35 pm	11/15/2018	1:08 pm	Julius West MS Floor Second Room 234C	0.7
2393987	3915996	11/12/2018	4:37 pm	11/15/2018	1:10 pm	Julius West MS Floor Second Room 206	< 0.4
2393988	3915995	11/12/2018	4:39 pm	11/15/2018	1:11 pm	Julius West MS Floor Second Room 210	< 0.4
2393989	3915994	11/12/2018	4:40 pm	11/15/2018	1:12 pm	Julius West MS Floor Second Room 216	0.8
2393990	3915993	11/12/2018	4:42 pm	11/15/2018	1:13 pm	Julius West MS Floor Second Room 217	0.9
2393991	3915992	11/12/2018	4:44 pm	11/15/2018	1:15 pm	Julius West MS Floor Second Room 223	< 0.4
2393992	3917294	11/12/2018	1:16 pm	11/15/2018	1:15 pm	Julius West MS	< 0.4
2393993	3917291	11/12/2018	1:16 pm	11/15/2018	1:15 pm	Julius West MS	< 0.4
2393994	3917293	11/12/2018	1:16 pm	11/15/2018	1:15 pm	Julius West MS	< 0.4
2393995	3917310	11/12/2018	1:16 pm	11/15/2018	1:15 pm	Julius West MS	< 0.4

Comment: AMENDED REPORT for 3915905, 3915958 and 3915754 on 02/05/2019 to add the test dates and times and areas tested.

Distributed by: Intertek-PSI (VA)

Date Received: 11/19/2018 Date Logged: 11/21/2018 Date Analyzed: 11/20/2018 Date Reported: 01/31/2019

Report Reviewed By: 

Report Approved By: 

Disclaimer:

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Shawn Price, Director of Laboratory Operations, AccuStar Labs

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NELAC NY 11769
NRPP 103216 AL
NRSB ARL0017

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

Laboratory Report for:

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

Property Tested: Project # 04481387-1


MCPS Radon Survey
Julius West MS
651 Great Falls Road
Rockville MD 20850


Log Number	Device Number	Test Exposure Duration:		Area Tested	Result pCi/L
2393996	3917292	11/12/2018 6:00 pm	11/15/2018 6:00 pm	Julius West MS	< 0.4

Comment: AMENDED REPORT for 3915905, 3915958 and 3915754 on 02/05/2019 to add the test dates and times and areas tested.

Distributed by: Intertek-PSI (VA)

Date Received: 11/19/2018 Date Logged: 11/21/2018 Date Analyzed: 11/20/2018 Date Reported: 01/31/2019

Report Reviewed By: 

Report Approved By: 

Disclaimer:

Shawn Price, Director of Laboratory Operations, AccuStar Labs

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

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NRPP 105011 AL
NRSB ARL0007
Ohio RL41

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

Laboratory Report for:

Property Tested:

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

MCPS Radon Survey
4514 Taylorsville Road
Dayton OH 45424

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

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

Test Performed By: Unknown

Distributed by: Intertek-PSI (VA)

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

Report Reviewed By: 

Report Approved By: 

Disclaimer:

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Shawn Price, Director of Laboratory Operations, AccuStar Labs

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EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT Intertek - PSI

Job Number 187732

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

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

Date Start: _____ Date Stop: _____

Time Start: 0947 Time Stop: 0947

Time Start: _____ Time Stop: _____

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

Device No.'s: _____

3926831 thru 3926840

G2 Left

Date Start: _____ Date Stop: _____

Date Start: _____ Date Stop: _____

Time Start: _____ Time Stop: _____

Time Start: _____ Time Stop: _____

Device No.'s: _____

Device No.'s: _____

Date Start: _____ Date Stop: _____

Date Start: _____ Date Stop: _____

Time Start: _____ Time Stop: _____

Time Start: _____ Time Stop: _____

Device No.'s: _____

Device No.'s: _____

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

Chain of Custody

Project Name: MCPS Radon Survey 2018

Name of Schools:

- | | | |
|-------------------|----------------------|--------------------|
| 1. Arcola ES | 7. North Lake Center | 13. Cold Spring ES |
| 2. Glen Haven ES | 8. Barnsley ES | 14. Hoover MS |
| 3. Jackson Road | 9. Bayard Rustin ES | 15. Wayside ES |
| 4. Cashell ES | 10. Julius West MS | 16. English Manor |
| 5. Frost MS | 11. Rock Terrace HS | |
| 6. Meadow Hall ES | 12. Churchill HS | |

	Date	Initials
Radon Test Kits Deployed	11/12/2018	NL
Radon Test Kits Sampled	11/15/2018	NL
Radon Test Kits Shipped to Lab*	11/15/2018	NL
Radon Test Kits Received by Lab*	11/17/2018; 11/18/2018	NL

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



MCPS RADON TESTING

Executive Summary: Julius West Middle School

Date of Test Report:	10/19/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	25
# Rooms \geq 4.0 pCi/L:	0
Low Value:	< 0.3
High Value:	0.9

Project Status:

Post remediation testing and initial testing for new additions completed;
no further action at this time.



ENGINEERS • PLANNERS • SCIENTISTS • CONSTRUCTION MANAGERS

936 RIDGEBROOK ROAD • SPARKS, MD 21152 • 410-316-7800 • (FAX) 410-316-7935

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: Julius West Middle School
651 Great Falls Road
Rockville, MD 20850

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 Julius West Middle School, located at 651 Great Falls Road in Rockville, Maryland 20850 (subject site).

Scope of Services:

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

KCI visited the site on September 27, 2016 and deployed twenty-eight (28) 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,
- Initial testing of a newly constructed addition completed during the summer,

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)
- Determine if the newly constructed addition needs a mitigation system

Future periodic testing should be conducted during the heating season in ideal conditions as described below. According to AARST, *Protocol for Conducting Measurements of Radon and Radon Decay Products in Schools and Large Buildings*, ideal testing conditions would be when the building is fully occupied and the heating system is active. For this test, the facility's HVAC system was operating in cooling mode; therefore, KCI concludes that this test was not conducted during ideal testing conditions.

KCI recorded observations of the following conditions in each room at the time of deployment and collection of the radon test kits:

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

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

Results:

The results of the radon test analysis indicated the following:

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

Notes:

D- Duplicate sample

The 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. Moulds
Radon Measurement Specialist
KCI Technologies, Inc.

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

ATTACHMENT A

Floor Plan With Test Locations

ATTACHMENT B

Radon Test Summary Spreadsheet

Radon Testing Results		
Julius West Middle School		
Test Period: 09/27/16-09/30/16		
Kit Number	Room / Area	Result
7714202	6	0.9
7714206	7	0.9
7714235	16	0.7
7714241	117	< 0.3
7714219	132	< 0.3
7714205	* 8 (Missing)	-
7714207	* 9 (Tampered)	0.8
7714227	A101	< 0.3
7714224	A103	< 0.3
7714220	A104	< 0.3
7714242	A106	< 0.3
7714218	A109	0.8
7714223	A111	< 0.3
7714213	A112	0.7
7714217	A115	0.7
7714228	A121	< 0.3
7714238	A122	0.6
7714233	A123	< 0.3
7714229	A128	< 0.3
7714230	A128	< 0.3
7714225	A131	< 0.3
7714214	A203	< 0.3
7714209	CAF NEW	< 0.3
7714210	TECH1	< 0.3
7714231	TECH2	< 0.3
7714201	TECH3	< 0.3

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
Julius West Middle School		
Test Period: 09/27/16-09/30/16		
Kit Number	QC Type	Result
7714216	D (A103)	< 0.3
7714208	D (TECH3)	< 0.3

Table Note:

* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

Radon test result report for:**JULIUS WEST MIDDLE SCHOOL
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7714241	117	2016-09-27 @ 11:00 am	2016-09-30 @ 9:00 am	< 0.3	2016-10-03
7714219	132	2016-09-27 @ 11:00 am	2016-09-30 @ 9:00 am	< 0.3	2016-10-03
7714235	16	2016-09-27 @ 12:00 pm	2016-09-30 @ 10:00 am	0.7 ± 0.3	2016-10-03
7714202	6	2016-09-27 @ 12:00 pm	2016-09-30 @ 10:00 am	0.9 ± 0.3	2016-10-03
7714206	7	2016-09-27 @ 12:00 pm	2016-09-30 @ 10:00 am	0.9 ± 0.3	2016-10-03
7714205	8	@	@		
7714207	9	2016-09-27 @ 12:00 pm	2016-09-30 @ 10:00 am	0.8 ± 0.3	2016-10-03
7714227	A101	2016-09-27 @ 11:00 am	2016-09-30 @ 9:00 am	< 0.3	2016-10-03
7714224	A103	2016-09-27 @ 11:00 am	2016-09-30 @ 9:00 am	< 0.3	2016-10-03
7714216	A103	2016-09-27 @ 11:00 am	2016-09-30 @ 9:00 am	< 0.3	2016-10-03
7714220	A104	2016-09-27 @ 11:00 am	2016-09-30 @ 9:00 am	< 0.3	2016-10-03
7714242	A106	2016-09-27 @ 11:00 am	2016-09-30 @ 9:00 am	< 0.3	2016-10-03
7714218	A109	2016-09-27 @ 11:00 am	2016-09-30 @ 9:00 am	0.8 ± 0.3	2016-10-03
7714223	A111	2016-09-27 @ 11:00 am	2016-09-30 @ 9:00 am	< 0.3	2016-10-03
7714213	A112	2016-09-27 @ 11:00 am	2016-09-30 @ 9:00 am	0.7 ± 0.3	2016-10-03
7714217	A115	2016-09-27 @ 11:00 am	2016-09-30 @ 10:00 am	0.7 ± 0.3	2016-10-03
7714228	A121	2016-09-27 @ 11:00 am	2016-09-30 @ 9:00 am	< 0.3	2016-10-03
7714238	A122	2016-09-27 @ 11:00 am	2016-09-30 @ 9:00 am	0.6 ± 0.3	2016-10-03
7714233	A123	2016-09-27 @ 11:00 am	2016-09-30 @ 9:00 am	< 0.3	2016-10-03
7714229	A128	2016-09-27 @ 11:00 am	2016-09-30 @ 10:00 am	< 0.3	2016-10-03
7714230	A128	2016-09-27 @ 11:00 am	2016-09-30 @ 10:00 am	< 0.3	2016-10-03
7714225	A131	2016-09-27 @ 11:00 am	2016-09-30 @ 9:00 am	< 0.3	2016-10-03
7714214	A203	2016-09-27 @ 11:00 am	2016-09-30 @ 10:00 am	< 0.3	2016-10-03
7714209	CAF NEW	2016-09-27 @ 12:00 pm	2016-09-30 @ 10:00 am	< 0.3	2016-10-03
7714210	TECH1	2016-09-27 @ 11:00 am	2016-09-30 @ 10:00 am	< 0.3	2016-10-03
7714231	TECH2	2016-09-27 @ 11:00 am	2016-09-30 @ 10:00 am	< 0.3	2016-10-03
7714201	TECH3	2016-09-27 @ 12:00 pm	2016-09-30 @ 10:00 am	< 0.3	2016-10-03
7714208	TECH3	2016-09-27 @ 12:00 pm	2016-09-30 @ 10:00 am	< 0.3	2016-10-03

October 7, 2016

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

MCPS Radon

Phase 18 Office Blanks

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

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 Transit Blanks

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

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

October 12, 2016

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
MCPS Radon
Spike Sample Results

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

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

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

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI Technologies Inc. Job Number 176788

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

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

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

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

7769899, 7769884, 7769885, _____

7769889, 7769890, 7769891 _____

F3 Left

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

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

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

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

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

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

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



Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase 18

Name of Schools:

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

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

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



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Corporate Office: 936 Ridgebrook road • Sparks, Maryland 21152 • 410-316-7800 • (Fax) 410-316-7935

Radon Test Kit Chain of Custody

Project Name: MCPS Radon 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 | |

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

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

RADON SCREENING SURVEY – FOLLOW-UP JULIUS WEST MIDDLE SCHOOL

651 Great Falls Road, Rockville, Maryland 20850

EXECUTIVE SUMMARY

Date of Test Report:	3/18/16 Follow-Up
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested	1
# Rooms \geq 4.0 pCi/L:	0
Low Value:	3.0
High Value:	3.2
Confirmed Rooms \geq 4.0 pCi/L US EPA Action Level	1

Summary of Sampling Events \geq 4.0 pCi/L

Room	Result (pCi/L) 1/28/16 Initial	Result (pCi/L) 3/18/16 Follow-Up	Average Result (pCi/L)
132	6.5	3.2	4.9



MCPS RADON TESTING

Executive Summary: Julius West Middle School

Date of Test Report:	3/18/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	1
# Rooms \geq 4.0 pCi/L:	0
Low Value:	3.0
High Value:	3.2

Project Status:

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



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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: Julius West Middle School
651 Great Falls Road
Rockville, MD 20850

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 Julius West Middle School, located at 651 Great Falls Road in Rockville, Maryland 20850 (subject site).

Scope of Services:

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

KCI visited the site on February 22, 2016 and deployed three (3) 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 $\leq 65^{\circ}\text{F}$.

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

KCI also conducted observations of field conditions which could affect the results of the test and compiled weather data for the testing period. Note that strong storms and heavy rainfall were recorded during the test period. The unusual weather conditions may have resulted in atypical radon test results for this facility.

KCI recorded observations of the following conditions in each room at the time of deployment and collection of the radon test kits:

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

Results:

The results of the radon test analysis indicated the following:

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

Notes:

D- Duplicate sample

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

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

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

Sincerely,



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

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

ATTACHMENT A

Floor Plan With Test Locations

ATTACHMENT B

Radon Test Summary Spreadsheet

Table Notes:

AC- Activated Charcoal

ACI- Air Chek, Inc.

D- Duplicate

FB- Field Blank

KCI- KCI Technologies, Inc.

OB- Office Blank*

PM- Project Manager

QC- Quality Control

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

Radon Testing Results		
Julius West MS		
Test Period: 02/22/16-02/25/16		
Kit Number	Room / Area	Result
7712598	132	3.2

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
Julius West MS		
Test Period: 02/22/16-02/25/16		
Kit Number	QC Type	Result
7712575	D (132)	3.0
7712587	FB (132)	< 0.3

Table Note:

* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

March 8, 2016

**** LABORATORY ANALYSIS
REPORT ****

Radon test result report for:
**JULIUS WEST MS
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7712575	132	2016-02-22 @ 10:00 am	2016-02-25 @ 11:00 am	3.0 ± 0.4	2016-02-29
7712587	132	2016-02-22 @ 10:00 am	2016-02-25 @ 11:00 am	< 0.3	2016-02-29
7712598	132	2016-02-22 @ 10:00 am	2016-02-25 @ 11:00 am	3.2 ± 0.4	2016-02-29

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

March 9, 2016

**** LABORATORY ANALYSIS
REPORT ****

Radon test result report for:

MCPS

Phase 9 Office Blanks

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

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

March 9, 2016

**** LABORATORY ANALYSIS
REPORT ****

Radon test result report for:

MCPS

Phase 9 Office Blanks

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

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

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

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

February
15,
2016

**** LABORATORY ANALYSIS
REPORT ****

Spike Sample Laboratory Results

Radon test result report for:
MCPS

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

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

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

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCF Technologies Inc. Job Number 173704

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

Date Start: 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

3 Left

Date Start: _____ Date Stop: _____

Date Start: _____ Date Stop: _____

Time Start: _____ Time Stop: _____

Time Start: _____ Time Stop: _____

Device No.'s: _____

Device No.'s: _____

Date Start: _____ Date Stop: _____

Date Start: _____ Date Stop: _____

Time Start: _____ Time Stop: _____

Time Start: _____ Time Stop: _____

Device No.'s: _____

Device No.'s: _____

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



Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase 9

Name of Schools:

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

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

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



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Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase 9

Name of Schools:

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

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

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



MCPS RADON TESTING

Executive Summary: Julius West Middle School

Date of Test Report:	1/28/2016
Round of Testing:	<u>Initial</u> Follow-up Post Remediation
# Rooms Tested:	88
# Rooms ≥ 4.0 pCi/L:	1
Low Value:	< 0.3
High Value:	6.5

Rooms with results ≥ 4.0 pCi/L:
Room 132 (6.5 pCi/L)

Project Status:
Initial testing completed; re-test needed for results ≥ 4.0 pCi/L.



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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: Julius West Middle School
651 Great Falls Road
Rockville, MD 20850

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 Julius West Middle School, located at 651 Great Falls Road in Rockville, Maryland 20850 (subject site).

Scope of Services:

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

KCI visited the site on January 4, 2016 and deployed one hundred seven (107) activated charcoal (AC) radon test kits. KCI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. A floor plan map of the building with the test locations is included as Attachment A of this report.

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

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

Bridge Road, Mills River, North Carolina.

Evaluation of Testing Conditions:

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

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

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

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

Results:

The results of the radon test analysis indicated the following:

Radon Concentration	Room	Result
≥ 4.0 pCi/L	132	6.5
< 4.0 pCi/L	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. 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. Moulds
Radon Measurement Specialist
KCI Technologies, Inc.

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

ATTACHMENT B

Radon Test Summary Spreadsheet

Table Notes:

AC- Activated Charcoal

ACI- Air Chek, Inc.

D- Duplicate

FB- Field Blank

KCI- KCI Technologies, Inc.

OB- Office Blank

PM- Project Manager

QC- Quality Control

Radon Testing Results		
Julius West MS		
Test Period: 01/04/16-01/07/16		
Kit Number	Room / Area	Result
7719919	2	< 0.3
7719918	4	< 0.3
7719904	6	0.6
7719928	8	0.6
7708993	100	1.4
7708994	101	0.5
7708992	102	0.8
7708989	104	1.2
7708985	107	0.6
7708983	109	< 0.3
7708987	110	< 0.3
7708980	111	< 0.3
7708986	112	< 0.3
7708972	113	1.1
7708984	114	0.8
7719916	115	1
7708982	116	0.8
7719931	117	1.4
7708981	118	0.6
7719908	119	0.8
7708979	120	< 0.3
7719910	121	1.1
7708977	122	0.9
7719950	123	1
7708976	124	< 0.3
7708974	126	< 0.3
7708973	128	0.6
7708971	130	1
7719930	132	6.5
7719929	134	1.9
7719927	136	< 0.3
7719922	140	< 0.3
7719925	142	< 0.3
7719932	143	0.6
7719934	144	0.7
7719935	146	< 0.3
7719902	148	< 0.3
7705011	200	< 0.3
7706231	203	< 0.3
7706201	209	0.6
7704625	218	< 0.3
7706204	221	0.8
7706246	231	0.7
7719924	142 A	< 0.3
7719923	142 A PE	< 0.3
7719926	142 PE	< 0.3

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
Julius West MS		
Test Period: 01/04/16-01/07/16		
Kit Number	Room / Area	Result
7719940	143 A	< 0.3
7719937	144 A	< 0.3
7719901	2 C	< 0.3
7719903	2D	< 0.3
7719915	4 B	0.8
7719906	4 C	0.5
7719939	4 D	< 0.3
7719938	4A	< 0.3
7708996	ADM 1	0.9
7708998	ADM A	0.7
7708969	ADM B	< 0.3
7708970	ADM C	< 0.3
7708968	ADM D	< 0.3
7719917	BUILDING SERVICE	< 0.3
7719920	CAFE	0.7
7719942	CAFE	0.9
7719943	CAFE	0.7
7708995	FINANICAL SECRET	0.9
7719945	GCO CONF RM	< 0.3
7719944	GUI B	0.5
7719947	GUI C	0.5
7719948	GUI CONF	< 0.3
7719949	GUI D	0.7
7719946	GUI E	< 0.3
7706216	GYM	0.6
7706507	GYM	0.6
7706205	GYM	0.5
7708392	GYM	0.7
7719913	IMC B	1.3
7708999	MAIN OFFICE	< 0.3
7708967	MEDIA CENTER	< 0.3
7719911	MEDIA CENTER	0.9
7706237	ML 1083	< 0.3
7704687	ML1024	< 0.3
7704673	ML1026	< 0.3
7704639	ML1084	< 0.3
7704621	ML817	< 0.3
7706217	ML818	< 0.3
7708991	NURSE OFFICE	1.3
7719905	WEIGHT RM	< 0.3
7708997	WORK RM	0.9
7719909	WORK RM	0.6

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
Julius West Ms		
Test Period: 01/04/16-01/07/16		
Kit Number	QC Type	Result
7708990	D (104)	1.4
7708988	D (110)	0.7
7719936	D (117)	1.3
7719912	D (121)	1.2
7708978	D (122)	0.7
7719933	D (143)	< 0.3
7706236	D (209)	< 0.3
7719907	D (4 C)	< 0.3
7719941	D (CAFE)	0.8
7709000	D (MAIN OFFICE)	0.7
7704665	D (ML817)	< 0.3
7719921	D (WORK RM)	0.9
7708975	FB (126)	< 0.3
7706232	FB (218)	< 0.3
7719914	FB (6)	< 0.3
7708963	FB (ADM D)	< 0.3
7706213	FB (CAFE)	< 0.3
7708608	OB (0)	< 0.3
7708611	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:
**JULIUS WEST MS
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7708608	0	2016-01-04 @ 9:00 am	2016-01-07 @ 1:00 pm	< 0.3	2016-01-11
7708611	0	2016-01-04 @ 9:00 am	2016-01-07 @ 1:00 pm	< 0.3	2016-01-11
7708993	100	2016-01-04 @ 11:00 am	2016-01-07 @ 10:00 am	1.4 ± 0.3	2016-01-11
7708994	101	2016-01-04 @ 11:00 am	2016-01-07 @ 10:00 am	0.5 ± 0.3	2016-01-11
7708992	102	2016-01-04 @ 11:00 am	2016-01-07 @ 9:00 am	0.8 ± 0.3	2016-01-11
7708989	104	2016-01-04 @ 11:00 am	2016-01-07 @ 9:00 am	1.2 ± 0.3	2016-01-11
7708990	104	2016-01-04 @ 11:00 am	2016-01-07 @ 9:00 am	1.4 ± 0.4	2016-01-12
7708985	107	2016-01-04 @ 11:00 am	2016-01-07 @ 9:00 am	0.6 ± 0.3	2016-01-12
7708983	109	2016-01-04 @ 11:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-11
7708987	110	2016-01-04 @ 11:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-11
7708988	110	2016-01-04 @ 11:00 am	2016-01-07 @ 9:00 am	0.7 ± 0.3	2016-01-12
7708980	111	2016-01-04 @ 11:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-11
7708986	112	2016-01-04 @ 11:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-11
7708972	113	2016-01-04 @ 1:00 pm	2016-01-07 @ 11:00 am	1.1 ± 0.3	2016-01-11
7708984	114	2016-01-04 @ 11:00 am	2016-01-07 @ 9:00 am	0.8 ± 0.3	2016-01-12
7719916	115	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	1.0 ± 0.3	2016-01-11
7708982	116	2016-01-04 @ 11:00 am	2016-01-07 @ 9:00 am	0.8 ± 0.3	2016-01-11
7719931	117	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	1.4 ± 0.3	2016-01-11
7719936	117	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	1.3 ± 0.3	2016-01-11
7708981	118	2016-01-04 @ 11:00 am	2016-01-07 @ 9:00 am	0.6 ± 0.3	2016-01-11
7719908	119	2016-01-04 @ 12:00 pm	2016-01-07 @ 10:00 am	0.8 ± 0.3	2016-01-12
7708979	120	2016-01-04 @ 11:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-11
7719910	121	2016-01-04 @ 12:00 pm	2016-01-07 @ 10:00 am	1.1 ± 0.3	2016-01-12
7719912	121	2016-01-04 @ 12:00 pm	2016-01-07 @ 10:00 am	1.2 ± 0.3	2016-01-12
7708977	122	2016-01-04 @ 11:00 am	2016-01-07 @ 9:00 am	0.9 ± 0.3	2016-01-12
7708978	122	2016-01-04 @ 11:00 am	2016-01-07 @ 9:00 am	0.7 ± 0.3	2016-01-12
7719950	123	2016-01-04 @ 12:00 pm	2016-01-07 @ 10:00 am	1.0 ± 0.3	2016-01-12
7708976	124	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-11
7708974	126	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-11
7708975	126	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-11
7708973	128	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	0.6 ± 0.3	2016-01-12
7708971	130	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	1.0 ± 0.3	2016-01-11
7719930	132	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	6.5 ± 0.6	2016-01-12
7719929	134	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	1.9 ± 0.4	2016-01-12
7719927	136	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-12
7719922	140	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-12
7719925	142	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-12

Radon test result report for:
JULIUS WEST MS
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7719924	142 A	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-11
7719923	142 A PE	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-12
7719926	142 PE	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-12
7719932	143	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	0.6 ± 0.3	2016-01-11
7719933	143	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-11
7719940	143 A	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-12
7719934	144	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	0.7 ± 0.3	2016-01-12
7719937	144 A	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-11
7719935	146	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-11
7719902	148	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-12
7719919	2	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-11
7719901	2 C	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-12
7705011	200	2016-01-04 @ 1:00 pm	2016-01-07 @ 10:00 am	< 0.3	2016-01-12
7706231	203	2016-01-04 @ 1:00 pm	2016-01-07 @ 10:00 am	< 0.3	2016-01-12
7706201	209	2016-01-04 @ 1:00 pm	2016-01-07 @ 10:00 am	0.6 ± 0.3	2016-01-11
7706236	209	2016-01-04 @ 1:00 pm	2016-01-07 @ 10:00 am	< 0.3	2016-01-12
7704625	218	2016-01-04 @ 1:00 pm	2016-01-07 @ 10:00 am	< 0.3	2016-01-12
7706232	218	2016-01-04 @ 1:00 pm	2016-01-07 @ 10:00 am	< 0.3	2016-01-12
7706204	221	2016-01-04 @ 1:00 pm	2016-01-07 @ 10:00 am	0.8 ± 0.3	2016-01-12
7706246	231	2016-01-04 @ 1:00 pm	2016-01-07 @ 10:00 am	0.7 ± 0.3	2016-01-12
7719903	2D	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-11
7719918	4	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-12
7719915	4 B	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.8 ± 0.3	2016-01-11
7719906	4 C	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.5 ± 0.3	2016-01-11
7719907	4 C	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-11
7719939	4 D	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-11
7719938	4:00 AM	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-11
7719904	6	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.6 ± 0.3	2016-01-11
7719914	6	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-12
7719928	8	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.6 ± 0.3	2016-01-12
7708996	ADM 1	2016-01-04 @ 11:00 am	2016-01-07 @ 10:00 am	0.9 ± 0.3	2016-01-11
7708998	ADM A	2016-01-04 @ 11:00 am	2016-01-07 @ 10:00 am	0.7 ± 0.3	2016-01-11
7708969	ADM B	2016-01-04 @ 11:00 am	2016-01-07 @ 10:00 am	< 0.3	2016-01-11
7708970	ADM C	2016-01-04 @ 11:00 am	2016-01-07 @ 10:00 am	< 0.3	2016-01-12
7708968	ADM D	2016-01-04 @ 11:00 am	2016-01-07 @ 10:00 am	< 0.3	2016-01-11
7708963	ADM D	2016-01-04 @ 11:00 am	2016-01-07 @ 10:00 am	< 0.3	2016-01-12
7719917	BUILDING SERVICE	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-11

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Radon test result report for:
**JULIUS WEST MS
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7706213	CAFE	2016-01-04 @ 12:00 pm	2016-01-07 @ 10:00 am	< 0.3	2016-01-12
7719920	CAFE	2016-01-04 @ 12:00 pm	2016-01-07 @ 10:00 am	0.7 ± 0.3	2016-01-12
7719941	CAFE	2016-01-04 @ 12:00 pm	2016-01-07 @ 10:00 am	0.8 ± 0.3	2016-01-12
7719942	CAFE	2016-01-04 @ 12:00 pm	2016-01-07 @ 10:00 am	0.9 ± 0.3	2016-01-12
7719943	CAFE	2016-01-04 @ 12:00 pm	2016-01-07 @ 10:00 am	0.7 ± 0.3	2016-01-12
7708995	FINANICAL SECRET	2016-01-04 @ 11:00 am	2016-01-07 @ 10:00 am	0.9 ± 0.3	2016-01-12
7719945	GCO CONF RM	2016-01-04 @ 12:00 pm	2016-01-07 @ 10:00 am	< 0.3	2016-01-12
7719944	GUI B	2016-01-04 @ 12:00 pm	2016-01-07 @ 10:00 am	0.5 ± 0.3	2016-01-11
7719947	GUI C	2016-01-04 @ 12:00 pm	2016-01-07 @ 10:00 am	0.5 ± 0.3	2016-01-12
7719948	GUI CONF	2016-01-04 @ 12:00 pm	2016-01-07 @ 10:00 am	< 0.3	2016-01-12
7719949	GUI D	2016-01-04 @ 12:00 pm	2016-01-07 @ 10:00 am	0.7 ± 0.3	2016-01-12
7719946	GUI E	2016-01-04 @ 12:00 pm	2016-01-07 @ 10:00 am	< 0.3	2016-01-12
7706205	GYM	2016-01-04 @ 1:00 pm	2016-01-07 @ 9:00 am	0.5 ± 0.3	2016-01-11
7706216	GYM	2016-01-04 @ 12:00 pm	2016-01-07 @ 9:00 am	0.6 ± 0.3	2016-01-11
7706507	GYM	2016-01-04 @ 1:00 pm	2016-01-07 @ 9:00 am	0.6 ± 0.3	2016-01-11
7708392	GYM	2016-01-04 @ 1:00 pm	2016-01-07 @ 9:00 am	0.7 ± 0.3	2016-01-11
7719913	IMC B	2016-01-04 @ 12:00 pm	2016-01-07 @ 10:00 am	1.3 ± 0.4	2016-01-12
7708999	MAIN OFFICE	2016-01-04 @ 11:00 am	2016-01-07 @ 10:00 am	< 0.3	2016-01-12
7709000	MAIN OFFICE	2016-01-04 @ 11:00 am	2016-01-07 @ 10:00 am	0.7 ± 0.3	2016-01-12
7708967	MEDIA CENTER	2016-01-04 @ 12:00 pm	2016-01-07 @ 10:00 am	< 0.3	2016-01-12
7719911	MEDIA CENTER	2016-01-04 @ 12:00 pm	2016-01-07 @ 10:00 am	0.9 ± 0.3	2016-01-12
7708991	NURSE OFFICE	2016-01-04 @ 11:00 am	2016-01-07 @ 9:00 am	1.3 ± 0.4	2016-01-12
7719905	WEIGHT RM	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-12
7719909	WORK RM	2016-01-04 @ 12:00 pm	2016-01-07 @ 10:00 am	0.6 ± 0.3	2016-01-11
7708997	WORK RM	2016-01-04 @ 11:00 am	2016-01-07 @ 10:00 am	0.9 ± 0.3	2016-01-12
7719921	WORK RM	2016-01-04 @ 12:00 pm	2016-01-07 @ 10:00 am	0.9 ± 0.3	2016-01-12

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Radon test result report for:
**JULIUS WEST MS
PORTABLE # 1**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7704687	ML1024	2016-01-04 @ 1:00 pm	2016-01-07 @ 10:00 am	< 0.3	2016-01-12

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

January 25, 2016

**** LABORATORY ANALYSIS
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Radon test result report for:
**JULIUS WEST MS
PORTABLE # 2**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7704673	ML1026	2016-01-04 @ 1:00 pm	2016-01-07 @ 10:00 am	< 0.3	2016-01-12

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

January 25, 2016

**** LABORATORY ANALYSIS
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Radon test result report for:
**JULIUS WEST MS
PORTABLE # 3**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7704621	ML817	2016-01-04 @ 1:00 pm	2016-01-07 @ 10:00 am	< 0.3	2016-01-12
7704665	ML817	2016-01-04 @ 1:00 pm	2016-01-07 @ 10:00 am	< 0.3	2016-01-12

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

January 25, 2016

**** LABORATORY ANALYSIS
REPORT ****

Radon test result report for:
**JULIUS WEST MS
PORTABLE # 4**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7706217	ML818	2016-01-04 @ 1:00 pm	2016-01-07 @ 10:00 am	< 0.3	2016-01-11

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

January 25, 2016

**** LABORATORY ANALYSIS
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Radon test result report for:
**JULIUS WEST MS
PORTABLE # 5**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7704639	ML1084	2016-01-04 @ 1:00 pm	2016-01-07 @ 10:00 am	< 0.3	2016-01-12

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

January 25, 2016

**** LABORATORY ANALYSIS
REPORT ****

Radon test result report for:
**JULIUS WEST MS
PORTABLE # 6**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7706237	ML 1083	2016-01-04 @ 1:00 pm	2016-01-07 @ 10:00 am	< 0.3	2016-01-12

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

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

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

December
23,
2015

****LABORATORY ANALYSIS
REPORT ****

Spike Sample Laboratory Results

Radon test result report for:
MCPS

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

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

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

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI Technologies Inc. Job Number 173224

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

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

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

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

7706211, 7706366, _____

7706380, 7706381 _____

F3 Left

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

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

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

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

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

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

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



ENGINEERS • PLANNERS • SCIENTISTS • CONSTRUCTION MANAGERS

Corporate Office: 936 Ridgebrook road • Sparks , Maryland 21152 • 410-316-7800 • (Fax) 410-316-7935

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



MCPS RADON TESTING

Executive Summary: Julius West Middle School

Date of Test Report:	10/19/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	25
# Rooms \geq 4.0 pCi/L:	0
Low Value:	< 0.3
High Value:	0.9

Project Status:

Post remediation testing and initial testing for new additions completed;
no further action at this time.



ENGINEERS • PLANNERS • SCIENTISTS • CONSTRUCTION MANAGERS

936 RIDGEBROOK ROAD • SPARKS, MD 21152 • 410-316-7800 • (FAX) 410-316-7935

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: Julius West Middle School
651 Great Falls Road
Rockville, MD 20850

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 Julius West Middle School, located at 651 Great Falls Road in Rockville, Maryland 20850 (subject site).

Scope of Services:

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

KCI visited the site on September 27, 2016 and deployed twenty-eight (28) 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,
- Initial testing of a newly constructed addition completed during the summer,

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)
- Determine if the newly constructed addition needs a mitigation system

Future periodic testing should be conducted during the heating season in ideal conditions as described below. According to AARST, *Protocol for Conducting Measurements of Radon and Radon Decay Products in Schools and Large Buildings*, ideal testing conditions would be when the building is fully occupied and the heating system is active. For this test, the facility's HVAC system was operating in cooling mode; therefore, KCI concludes that this test was not conducted during ideal testing conditions.

KCI recorded observations of the following conditions in each room at the time of deployment and collection of the radon test kits:

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

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

Results:

The results of the radon test analysis indicated the following:

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

Notes:

D- Duplicate sample

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

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

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

Sincerely,



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

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

ATTACHMENT A

Floor Plan With Test Locations

ATTACHMENT B

Radon Test Summary Spreadsheet

Radon Testing Results		
Julius West Middle School		
Test Period: 09/27/16-09/30/16		
Kit Number	Room / Area	Result
7714202	6	0.9
7714206	7	0.9
7714235	16	0.7
7714241	117	< 0.3
7714219	132	< 0.3
7714205	* 8 (Missing)	-
7714207	* 9 (Tampered)	0.8
7714227	A101	< 0.3
7714224	A103	< 0.3
7714220	A104	< 0.3
7714242	A106	< 0.3
7714218	A109	0.8
7714223	A111	< 0.3
7714213	A112	0.7
7714217	A115	0.7
7714228	A121	< 0.3
7714238	A122	0.6
7714233	A123	< 0.3
7714229	A128	< 0.3
7714230	A128	< 0.3
7714225	A131	< 0.3
7714214	A203	< 0.3
7714209	CAF NEW	< 0.3
7714210	TECH1	< 0.3
7714231	TECH2	< 0.3
7714201	TECH3	< 0.3

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
Julius West Middle School		
Test Period: 09/27/16-09/30/16		
Kit Number	QC Type	Result
7714216	D (A103)	< 0.3
7714208	D (TECH3)	< 0.3

Table Note:

* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

Radon test result report for:**JULIUS WEST MIDDLE SCHOOL
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7714241	117	2016-09-27 @ 11:00 am	2016-09-30 @ 9:00 am	< 0.3	2016-10-03
7714219	132	2016-09-27 @ 11:00 am	2016-09-30 @ 9:00 am	< 0.3	2016-10-03
7714235	16	2016-09-27 @ 12:00 pm	2016-09-30 @ 10:00 am	0.7 ± 0.3	2016-10-03
7714202	6	2016-09-27 @ 12:00 pm	2016-09-30 @ 10:00 am	0.9 ± 0.3	2016-10-03
7714206	7	2016-09-27 @ 12:00 pm	2016-09-30 @ 10:00 am	0.9 ± 0.3	2016-10-03
7714205	8	@	@		
7714207	9	2016-09-27 @ 12:00 pm	2016-09-30 @ 10:00 am	0.8 ± 0.3	2016-10-03
7714227	A101	2016-09-27 @ 11:00 am	2016-09-30 @ 9:00 am	< 0.3	2016-10-03
7714224	A103	2016-09-27 @ 11:00 am	2016-09-30 @ 9:00 am	< 0.3	2016-10-03
7714216	A103	2016-09-27 @ 11:00 am	2016-09-30 @ 9:00 am	< 0.3	2016-10-03
7714220	A104	2016-09-27 @ 11:00 am	2016-09-30 @ 9:00 am	< 0.3	2016-10-03
7714242	A106	2016-09-27 @ 11:00 am	2016-09-30 @ 9:00 am	< 0.3	2016-10-03
7714218	A109	2016-09-27 @ 11:00 am	2016-09-30 @ 9:00 am	0.8 ± 0.3	2016-10-03
7714223	A111	2016-09-27 @ 11:00 am	2016-09-30 @ 9:00 am	< 0.3	2016-10-03
7714213	A112	2016-09-27 @ 11:00 am	2016-09-30 @ 9:00 am	0.7 ± 0.3	2016-10-03
7714217	A115	2016-09-27 @ 11:00 am	2016-09-30 @ 10:00 am	0.7 ± 0.3	2016-10-03
7714228	A121	2016-09-27 @ 11:00 am	2016-09-30 @ 9:00 am	< 0.3	2016-10-03
7714238	A122	2016-09-27 @ 11:00 am	2016-09-30 @ 9:00 am	0.6 ± 0.3	2016-10-03
7714233	A123	2016-09-27 @ 11:00 am	2016-09-30 @ 9:00 am	< 0.3	2016-10-03
7714229	A128	2016-09-27 @ 11:00 am	2016-09-30 @ 10:00 am	< 0.3	2016-10-03
7714230	A128	2016-09-27 @ 11:00 am	2016-09-30 @ 10:00 am	< 0.3	2016-10-03
7714225	A131	2016-09-27 @ 11:00 am	2016-09-30 @ 9:00 am	< 0.3	2016-10-03
7714214	A203	2016-09-27 @ 11:00 am	2016-09-30 @ 10:00 am	< 0.3	2016-10-03
7714209	CAF NEW	2016-09-27 @ 12:00 pm	2016-09-30 @ 10:00 am	< 0.3	2016-10-03
7714210	TECH1	2016-09-27 @ 11:00 am	2016-09-30 @ 10:00 am	< 0.3	2016-10-03
7714231	TECH2	2016-09-27 @ 11:00 am	2016-09-30 @ 10:00 am	< 0.3	2016-10-03
7714201	TECH3	2016-09-27 @ 12:00 pm	2016-09-30 @ 10:00 am	< 0.3	2016-10-03
7714208	TECH3	2016-09-27 @ 12:00 pm	2016-09-30 @ 10:00 am	< 0.3	2016-10-03

October 7, 2016

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

MCPS Radon

Phase 18 Office Blanks

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

October 7, 2016

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

MCPS Radon

Phase 18 Transit Blanks

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

October 12, 2016

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
MCPS Radon
Spike Sample Results

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

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

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

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI Technologies Inc. Job Number 176788

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

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

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

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

7769899, 7769884, 7769885, _____

7769889, 7769890, 7769891 _____

F3 Left

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

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

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

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

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

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

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



Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase 18

Name of Schools:

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

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

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



Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase 18

Name of Schools:

- | | |
|--|-----------------------------------|
| 1. Damascus High School | 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 | |

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

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

RADON SCREENING SURVEY – FOLLOW-UP JULIUS WEST MIDDLE SCHOOL

651 Great Falls Road, Rockville, Maryland 20850

EXECUTIVE SUMMARY

Date of Test Report:	3/18/16 Follow-Up
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested	1
# Rooms \geq 4.0 pCi/L:	0
Low Value:	3.0
High Value:	3.2
Confirmed Rooms \geq 4.0 pCi/L US EPA Action Level	1

Summary of Sampling Events \geq 4.0 pCi/L

Room	Result (pCi/L) 1/28/16 Initial	Result (pCi/L) 3/18/16 Follow-Up	Average Result (pCi/L)
132	6.5	3.2	4.9



MCPS RADON TESTING

Executive Summary: Julius West Middle School

Date of Test Report:	3/18/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	1
# Rooms \geq 4.0 pCi/L:	0
Low Value:	3.0
High Value:	3.2

Project Status:

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



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936 RIDGEBROOK ROAD • SPARKS, MD 21152 • 410-316-7800 • (FAX) 410-316-7935

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: Julius West Middle School
651 Great Falls Road
Rockville, MD 20850

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 Julius West Middle School, located at 651 Great Falls Road in Rockville, Maryland 20850 (subject site).

Scope of Services:

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

KCI visited the site on February 22, 2016 and deployed three (3) 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 $\leq 65^{\circ}\text{F}$.

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

KCI also conducted observations of field conditions which could affect the results of the test and compiled weather data for the testing period. Note that strong storms and heavy rainfall were recorded during the test period. The unusual weather conditions may have resulted in atypical radon test results for this facility.

KCI recorded observations of the following conditions in each room at the time of deployment and collection of the radon test kits:

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

Results:

The results of the radon test analysis indicated the following:

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

Notes:

D- Duplicate sample

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

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

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

Sincerely,



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

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

ATTACHMENT A

Floor Plan With Test Locations

ATTACHMENT B

Radon Test Summary Spreadsheet

Table Notes:

AC- Activated Charcoal

ACI- Air Chek, Inc.

D- Duplicate

FB- Field Blank

KCI- KCI Technologies, Inc.

OB- Office Blank*

PM- Project Manager

QC- Quality Control

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

Radon Testing Results		
Julius West MS		
Test Period: 02/22/16-02/25/16		
Kit Number	Room / Area	Result
7712598	132	3.2

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
Julius West MS		
Test Period: 02/22/16-02/25/16		
Kit Number	QC Type	Result
7712575	D (132)	3.0
7712587	FB (132)	< 0.3

Table Note:

* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

March 8, 2016

**** LABORATORY ANALYSIS
REPORT ****

Radon test result report for:
**JULIUS WEST MS
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7712575	132	2016-02-22 @ 10:00 am	2016-02-25 @ 11:00 am	3.0 ± 0.4	2016-02-29
7712587	132	2016-02-22 @ 10:00 am	2016-02-25 @ 11:00 am	< 0.3	2016-02-29
7712598	132	2016-02-22 @ 10:00 am	2016-02-25 @ 11:00 am	3.2 ± 0.4	2016-02-29

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

March 9, 2016

**** LABORATORY ANALYSIS
REPORT ****

Radon test result report for:

MCPS

Phase 9 Office Blanks

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

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

March 9, 2016

**** LABORATORY ANALYSIS
REPORT ****

Radon test result report for:

MCPS

Phase 9 Office Blanks

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

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

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

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

February
15,
2016

**** LABORATORY ANALYSIS
REPORT ****

Spike Sample Laboratory Results

Radon test result report for:
MCPS

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

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

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

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCF Technologies Inc. Job Number 173704

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

Date Start: 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

3 Left

Date Start: _____ Date Stop: _____

Date Start: _____ Date Stop: _____

Time Start: _____ Time Stop: _____

Time Start: _____ Time Stop: _____

Device No.'s: _____

Device No.'s: _____

Date Start: _____ Date Stop: _____

Date Start: _____ Date Stop: _____

Time Start: _____ Time Stop: _____

Time Start: _____ Time Stop: _____

Device No.'s: _____

Device No.'s: _____

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



Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase 9

Name of Schools:

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

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

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



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Corporate Office: 936 Ridgebrook road • Sparks, Maryland 21152 • 410-316-7800 • (Fax) 410-316-7935

Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase 9

Name of Schools:

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

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

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



MCPS RADON TESTING

Executive Summary: Julius West Middle School

Date of Test Report:	1/28/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	88
# Rooms ≥ 4.0 pCi/L:	1
Low Value:	< 0.3
High Value:	6.5

Rooms with results ≥ 4.0 pCi/L:
Room 132 (6.5 pCi/L)

Project Status:

Initial testing completed; re-test needed for results ≥ 4.0 pCi/L.



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936 RIDGEBROOK ROAD • SPARKS, MD 21152 • 410-316-7800 • (FAX) 410-316-7935

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: Julius West Middle School
651 Great Falls Road
Rockville, MD 20850

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 Julius West Middle School, located at 651 Great Falls Road in Rockville, Maryland 20850 (subject site).

Scope of Services:

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

KCI visited the site on January 4, 2016 and deployed one hundred seven (107) 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 $\leq 65^{\circ}\text{F}$.

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

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

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

Results:

The results of the radon test analysis indicated the following:

Radon Concentration	Room	Result
≥ 4.0 pCi/L	132	6.5
< 4.0 pCi/L	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. 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. Moulds
Radon Measurement Specialist
KCI Technologies, Inc.

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

ATTACHMENT B

Radon Test Summary Spreadsheet

Table Notes:

AC- Activated Charcoal

ACI- Air Chek, Inc.

D- Duplicate

FB- Field Blank

KCI- KCI Technologies, Inc.

OB- Office Blank

PM- Project Manager

QC- Quality Control

Radon Testing Results		
Julius West MS		
Test Period: 01/04/16-01/07/16		
Kit Number	Room / Area	Result
7719919	2	< 0.3
7719918	4	< 0.3
7719904	6	0.6
7719928	8	0.6
7708993	100	1.4
7708994	101	0.5
7708992	102	0.8
7708989	104	1.2
7708985	107	0.6
7708983	109	< 0.3
7708987	110	< 0.3
7708980	111	< 0.3
7708986	112	< 0.3
7708972	113	1.1
7708984	114	0.8
7719916	115	1
7708982	116	0.8
7719931	117	1.4
7708981	118	0.6
7719908	119	0.8
7708979	120	< 0.3
7719910	121	1.1
7708977	122	0.9
7719950	123	1
7708976	124	< 0.3
7708974	126	< 0.3
7708973	128	0.6
7708971	130	1
7719930	132	6.5
7719929	134	1.9
7719927	136	< 0.3
7719922	140	< 0.3
7719925	142	< 0.3
7719932	143	0.6
7719934	144	0.7
7719935	146	< 0.3
7719902	148	< 0.3
7705011	200	< 0.3
7706231	203	< 0.3
7706201	209	0.6
7704625	218	< 0.3
7706204	221	0.8
7706246	231	0.7
7719924	142 A	< 0.3
7719923	142 A PE	< 0.3
7719926	142 PE	< 0.3

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
Julius West MS		
Test Period: 01/04/16-01/07/16		
Kit Number	Room / Area	Result
7719940	143 A	< 0.3
7719937	144 A	< 0.3
7719901	2 C	< 0.3
7719903	2D	< 0.3
7719915	4 B	0.8
7719906	4 C	0.5
7719939	4 D	< 0.3
7719938	4A	< 0.3
7708996	ADM 1	0.9
7708998	ADM A	0.7
7708969	ADM B	< 0.3
7708970	ADM C	< 0.3
7708968	ADM D	< 0.3
7719917	BUILDING SERVICE	< 0.3
7719920	CAFE	0.7
7719942	CAFE	0.9
7719943	CAFE	0.7
7708995	FINANICAL SECRET	0.9
7719945	GCO CONF RM	< 0.3
7719944	GUI B	0.5
7719947	GUI C	0.5
7719948	GUI CONF	< 0.3
7719949	GUI D	0.7
7719946	GUI E	< 0.3
7706216	GYM	0.6
7706507	GYM	0.6
7706205	GYM	0.5
7708392	GYM	0.7
7719913	IMC B	1.3
7708999	MAIN OFFICE	< 0.3
7708967	MEDIA CENTER	< 0.3
7719911	MEDIA CENTER	0.9
7706237	ML 1083	< 0.3
7704687	ML1024	< 0.3
7704673	ML1026	< 0.3
7704639	ML1084	< 0.3
7704621	ML817	< 0.3
7706217	ML818	< 0.3
7708991	NURSE OFFICE	1.3
7719905	WEIGHT RM	< 0.3
7708997	WORK RM	0.9
7719909	WORK RM	0.6

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
Julius West Ms		
Test Period: 01/04/16-01/07/16		
Kit Number	QC Type	Result
7708990	D (104)	1.4
7708988	D (110)	0.7
7719936	D (117)	1.3
7719912	D (121)	1.2
7708978	D (122)	0.7
7719933	D (143)	< 0.3
7706236	D (209)	< 0.3
7719907	D (4 C)	< 0.3
7719941	D (CAFE)	0.8
7709000	D (MAIN OFFICE)	0.7
7704665	D (ML817)	< 0.3
7719921	D (WORK RM)	0.9
7708975	FB (126)	< 0.3
7706232	FB (218)	< 0.3
7719914	FB (6)	< 0.3
7708963	FB (ADM D)	< 0.3
7706213	FB (CAFE)	< 0.3
7708608	OB (0)	< 0.3
7708611	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:
**JULIUS WEST MS
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7708608	0	2016-01-04 @ 9:00 am	2016-01-07 @ 1:00 pm	< 0.3	2016-01-11
7708611	0	2016-01-04 @ 9:00 am	2016-01-07 @ 1:00 pm	< 0.3	2016-01-11
7708993	100	2016-01-04 @ 11:00 am	2016-01-07 @ 10:00 am	1.4 ± 0.3	2016-01-11
7708994	101	2016-01-04 @ 11:00 am	2016-01-07 @ 10:00 am	0.5 ± 0.3	2016-01-11
7708992	102	2016-01-04 @ 11:00 am	2016-01-07 @ 9:00 am	0.8 ± 0.3	2016-01-11
7708989	104	2016-01-04 @ 11:00 am	2016-01-07 @ 9:00 am	1.2 ± 0.3	2016-01-11
7708990	104	2016-01-04 @ 11:00 am	2016-01-07 @ 9:00 am	1.4 ± 0.4	2016-01-12
7708985	107	2016-01-04 @ 11:00 am	2016-01-07 @ 9:00 am	0.6 ± 0.3	2016-01-12
7708983	109	2016-01-04 @ 11:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-11
7708987	110	2016-01-04 @ 11:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-11
7708988	110	2016-01-04 @ 11:00 am	2016-01-07 @ 9:00 am	0.7 ± 0.3	2016-01-12
7708980	111	2016-01-04 @ 11:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-11
7708986	112	2016-01-04 @ 11:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-11
7708972	113	2016-01-04 @ 1:00 pm	2016-01-07 @ 11:00 am	1.1 ± 0.3	2016-01-11
7708984	114	2016-01-04 @ 11:00 am	2016-01-07 @ 9:00 am	0.8 ± 0.3	2016-01-12
7719916	115	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	1.0 ± 0.3	2016-01-11
7708982	116	2016-01-04 @ 11:00 am	2016-01-07 @ 9:00 am	0.8 ± 0.3	2016-01-11
7719931	117	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	1.4 ± 0.3	2016-01-11
7719936	117	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	1.3 ± 0.3	2016-01-11
7708981	118	2016-01-04 @ 11:00 am	2016-01-07 @ 9:00 am	0.6 ± 0.3	2016-01-11
7719908	119	2016-01-04 @ 12:00 pm	2016-01-07 @ 10:00 am	0.8 ± 0.3	2016-01-12
7708979	120	2016-01-04 @ 11:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-11
7719910	121	2016-01-04 @ 12:00 pm	2016-01-07 @ 10:00 am	1.1 ± 0.3	2016-01-12
7719912	121	2016-01-04 @ 12:00 pm	2016-01-07 @ 10:00 am	1.2 ± 0.3	2016-01-12
7708977	122	2016-01-04 @ 11:00 am	2016-01-07 @ 9:00 am	0.9 ± 0.3	2016-01-12
7708978	122	2016-01-04 @ 11:00 am	2016-01-07 @ 9:00 am	0.7 ± 0.3	2016-01-12
7719950	123	2016-01-04 @ 12:00 pm	2016-01-07 @ 10:00 am	1.0 ± 0.3	2016-01-12
7708976	124	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-11
7708974	126	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-11
7708975	126	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-11
7708973	128	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	0.6 ± 0.3	2016-01-12
7708971	130	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	1.0 ± 0.3	2016-01-11
7719930	132	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	6.5 ± 0.6	2016-01-12
7719929	134	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	1.9 ± 0.4	2016-01-12
7719927	136	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-12
7719922	140	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-12
7719925	142	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-12

January 25, 2016

**LABORATORY ANALYSIS
REPORT ****

Radon test result report for:
**JULIUS WEST MS
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7719924	142 A	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-11
7719923	142 A PE	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-12
7719926	142 PE	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-12
7719932	143	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	0.6 ± 0.3	2016-01-11
7719933	143	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-11
7719940	143 A	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-12
7719934	144	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	0.7 ± 0.3	2016-01-12
7719937	144 A	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-11
7719935	146	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-11
7719902	148	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-12
7719919	2	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-11
7719901	2 C	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-12
7705011	200	2016-01-04 @ 1:00 pm	2016-01-07 @ 10:00 am	< 0.3	2016-01-12
7706231	203	2016-01-04 @ 1:00 pm	2016-01-07 @ 10:00 am	< 0.3	2016-01-12
7706201	209	2016-01-04 @ 1:00 pm	2016-01-07 @ 10:00 am	0.6 ± 0.3	2016-01-11
7706236	209	2016-01-04 @ 1:00 pm	2016-01-07 @ 10:00 am	< 0.3	2016-01-12
7704625	218	2016-01-04 @ 1:00 pm	2016-01-07 @ 10:00 am	< 0.3	2016-01-12
7706232	218	2016-01-04 @ 1:00 pm	2016-01-07 @ 10:00 am	< 0.3	2016-01-12
7706204	221	2016-01-04 @ 1:00 pm	2016-01-07 @ 10:00 am	0.8 ± 0.3	2016-01-12
7706246	231	2016-01-04 @ 1:00 pm	2016-01-07 @ 10:00 am	0.7 ± 0.3	2016-01-12
7719903	2D	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-11
7719918	4	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-12
7719915	4 B	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.8 ± 0.3	2016-01-11
7719906	4 C	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.5 ± 0.3	2016-01-11
7719907	4 C	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-11
7719939	4 D	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-11
7719938	4:00 AM	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-11
7719904	6	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.6 ± 0.3	2016-01-11
7719914	6	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-12
7719928	8	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.6 ± 0.3	2016-01-12
7708996	ADM 1	2016-01-04 @ 11:00 am	2016-01-07 @ 10:00 am	0.9 ± 0.3	2016-01-11
7708998	ADM A	2016-01-04 @ 11:00 am	2016-01-07 @ 10:00 am	0.7 ± 0.3	2016-01-11
7708969	ADM B	2016-01-04 @ 11:00 am	2016-01-07 @ 10:00 am	< 0.3	2016-01-11
7708970	ADM C	2016-01-04 @ 11:00 am	2016-01-07 @ 10:00 am	< 0.3	2016-01-12
7708968	ADM D	2016-01-04 @ 11:00 am	2016-01-07 @ 10:00 am	< 0.3	2016-01-11
7708963	ADM D	2016-01-04 @ 11:00 am	2016-01-07 @ 10:00 am	< 0.3	2016-01-12
7719917	BUILDING SERVICE	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-11

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

Radon test result report for:
**JULIUS WEST MS
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7706213	CAFE	2016-01-04 @ 12:00 pm	2016-01-07 @ 10:00 am	< 0.3	2016-01-12
7719920	CAFE	2016-01-04 @ 12:00 pm	2016-01-07 @ 10:00 am	0.7 ± 0.3	2016-01-12
7719941	CAFE	2016-01-04 @ 12:00 pm	2016-01-07 @ 10:00 am	0.8 ± 0.3	2016-01-12
7719942	CAFE	2016-01-04 @ 12:00 pm	2016-01-07 @ 10:00 am	0.9 ± 0.3	2016-01-12
7719943	CAFE	2016-01-04 @ 12:00 pm	2016-01-07 @ 10:00 am	0.7 ± 0.3	2016-01-12
7708995	FINANICAL SECRET	2016-01-04 @ 11:00 am	2016-01-07 @ 10:00 am	0.9 ± 0.3	2016-01-12
7719945	GCO CONF RM	2016-01-04 @ 12:00 pm	2016-01-07 @ 10:00 am	< 0.3	2016-01-12
7719944	GUI B	2016-01-04 @ 12:00 pm	2016-01-07 @ 10:00 am	0.5 ± 0.3	2016-01-11
7719947	GUI C	2016-01-04 @ 12:00 pm	2016-01-07 @ 10:00 am	0.5 ± 0.3	2016-01-12
7719948	GUI CONF	2016-01-04 @ 12:00 pm	2016-01-07 @ 10:00 am	< 0.3	2016-01-12
7719949	GUI D	2016-01-04 @ 12:00 pm	2016-01-07 @ 10:00 am	0.7 ± 0.3	2016-01-12
7719946	GUI E	2016-01-04 @ 12:00 pm	2016-01-07 @ 10:00 am	< 0.3	2016-01-12
7706205	GYM	2016-01-04 @ 1:00 pm	2016-01-07 @ 9:00 am	0.5 ± 0.3	2016-01-11
7706216	GYM	2016-01-04 @ 12:00 pm	2016-01-07 @ 9:00 am	0.6 ± 0.3	2016-01-11
7706507	GYM	2016-01-04 @ 1:00 pm	2016-01-07 @ 9:00 am	0.6 ± 0.3	2016-01-11
7708392	GYM	2016-01-04 @ 1:00 pm	2016-01-07 @ 9:00 am	0.7 ± 0.3	2016-01-11
7719913	IMC B	2016-01-04 @ 12:00 pm	2016-01-07 @ 10:00 am	1.3 ± 0.4	2016-01-12
7708999	MAIN OFFICE	2016-01-04 @ 11:00 am	2016-01-07 @ 10:00 am	< 0.3	2016-01-12
7709000	MAIN OFFICE	2016-01-04 @ 11:00 am	2016-01-07 @ 10:00 am	0.7 ± 0.3	2016-01-12
7708967	MEDIA CENTER	2016-01-04 @ 12:00 pm	2016-01-07 @ 10:00 am	< 0.3	2016-01-12
7719911	MEDIA CENTER	2016-01-04 @ 12:00 pm	2016-01-07 @ 10:00 am	0.9 ± 0.3	2016-01-12
7708991	NURSE OFFICE	2016-01-04 @ 11:00 am	2016-01-07 @ 9:00 am	1.3 ± 0.4	2016-01-12
7719905	WEIGHT RM	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-12
7719909	WORK RM	2016-01-04 @ 12:00 pm	2016-01-07 @ 10:00 am	0.6 ± 0.3	2016-01-11
7708997	WORK RM	2016-01-04 @ 11:00 am	2016-01-07 @ 10:00 am	0.9 ± 0.3	2016-01-12
7719921	WORK RM	2016-01-04 @ 12:00 pm	2016-01-07 @ 10:00 am	0.9 ± 0.3	2016-01-12

January 25, 2016

**** LABORATORY ANALYSIS
REPORT ****

Radon test result report for:
**JULIUS WEST MS
PORTABLE # 1**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7704687	ML1024	2016-01-04 @ 1:00 pm	2016-01-07 @ 10:00 am	< 0.3	2016-01-12

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

January 25, 2016

**** LABORATORY ANALYSIS
REPORT ****

Radon test result report for:
**JULIUS WEST MS
PORTABLE # 2**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7704673	ML1026	2016-01-04 @ 1:00 pm	2016-01-07 @ 10:00 am	< 0.3	2016-01-12

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

January 25, 2016

**** LABORATORY ANALYSIS
REPORT ****

Radon test result report for:
**JULIUS WEST MS
PORTABLE # 3**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7704621	ML817	2016-01-04 @ 1:00 pm	2016-01-07 @ 10:00 am	< 0.3	2016-01-12
7704665	ML817	2016-01-04 @ 1:00 pm	2016-01-07 @ 10:00 am	< 0.3	2016-01-12

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

January 25, 2016

**** LABORATORY ANALYSIS
REPORT ****

Radon test result report for:
**JULIUS WEST MS
PORTABLE # 4**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7706217	ML818	2016-01-04 @ 1:00 pm	2016-01-07 @ 10:00 am	< 0.3	2016-01-11

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

January 25, 2016

**** LABORATORY ANALYSIS
REPORT ****

Radon test result report for:
**JULIUS WEST MS
PORTABLE # 5**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7704639	ML1084	2016-01-04 @ 1:00 pm	2016-01-07 @ 10:00 am	< 0.3	2016-01-12

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January 25, 2016

**** LABORATORY ANALYSIS
REPORT ****

Radon test result report for:
**JULIUS WEST MS
PORTABLE # 6**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7706237	ML 1083	2016-01-04 @ 1:00 pm	2016-01-07 @ 10:00 am	< 0.3	2016-01-12

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

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

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

December
23,
2015

****LABORATORY ANALYSIS
REPORT ****

Spike Sample Laboratory Results

Radon test result report for:
MCPS

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

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

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

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI Technologies Inc. Job Number 173224

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

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

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

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

7706211, 7706366, _____

7706380, 7706381 _____

F3 Left

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

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

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

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

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

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

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



ENGINEERS • PLANNERS • SCIENTISTS • CONSTRUCTION MANAGERS

Corporate Office: 936 Ridgebrook road • Sparks , Maryland 21152 • 410-316-7800 • (Fax) 410-316-7935

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 | |
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	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