

School / Facility Radon Testing Report Form

School Year: **24-25**

Facility:	Lathrop E. Smith Environmental Education Center		
Address:	5110 Meadowside Lane		
	Rockville, MD 20855		
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 type="checkbox"/> Not Required <input checked="" type="checkbox"/> Consider (≥ 2.0 & < 4.0 -pCi/L) <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	31	Lowest Value (pCi/L)	< 0.3
Number of Rooms (≥ 4.0 -pCi/L)	3	Highest Value (pCi/L)	4.8

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.
<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	Length of Test (days):	3	Date of Deployment and Retrieval (mm/dd/yy):	02/24/25	03/25/25
<input type="checkbox"/> Long-Term				02/27/25	03/28/25
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	27	8	0	0	35
Duplicates ²	5	4	0	0	9
Field Blanks ³	5	4	0	0	9
Grand Total					53

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 checked="" type="checkbox"/> Yes <input 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:	27	4	0	0	31
Number of locations ≥ 8.0 -pCi/L:	0	0	0	0	0
Number of locations ≥ 4.0 and ≤ 8 -pCi/L:	3	0	0	0	3
Number of locations ≥ 2.7 and < 4 -pCi/L:	6	4	0	0	10
Number of locations ≥ 2.0 and < 2.7 -pCi/L:	4	2	0	0	6
Number of missing required test locations ³ :	0	0	0	0	0
Number of failed duplicate control locations:	1	0	0	0	1
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 type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA

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

Follow-Up Testing

Required –

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

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

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

Attachment 1:

Summary Data Tables

Table 1- Radon Testing Results		
Lathrop E. Smith Environmental Education Center		
Test Period: 2/24/2025 - 2/27/2025		
Kit Number	Room / Area	Result
11920042	BACK OFFICE	< 0.3
11920047	BACK OFFICE	0.8
11920002	BC MAIN	1.5
11920039	BC MAIN	1.1
11920051	BC MAIN	< 0.3
11920048	BC ROOM 1	2.0
11920061	BC ROOM 2	4.0
11920041	BC ROOM 3	2.1
11951482	BO MAIN	3.0
11951483	BO MAIN	< 0.3
11951495	BO MAIN	3.3
11951480	BO ROOM 1	3.9
11951487	BO ROOM 2	4.0
11951477	BO ROOM 3	3.2
11920058	BS MAIN	< 0.3
11920060	BS MAIN	1.6
11920066	BS MAIN	1.7
11920068	BS ROOM 1	3.3
11920059	BS ROOM 2	1.9
11920050	BS ROOM 3	3.2
11920038	DORM ROOM	0.5
11920044	HEALTH OFFICE	< 0.3
11920043	MAIN OFFICE	< 0.3
11920055	PLANETARIUM	< 0.3
11920054	PUP ROOM	< 0.3
11920052	RETRIEVER ROOM	0.8
11920057	SB MAIN	1.7
11920067	SB MAIN	< 0.3
11951478	SB MAIN	1.5
11920049	SB ROOM 1	2.1
11920069	SB ROOM 2	2.1
11920070	SB ROOM 3	4.8
11920046	SUPERVISOR OFFICE	0.5
11920053	WHITE OAK HALL	< 0.3
11920056	WHITE OAK HALL	< 0.3
11920037	WORKSHOP	< 0.3
11920045	WORKSHOP	< 0.3

[illegible]

Table 3 - QC Radon Testing Results			
Lathrop E. Smith Environmental Education Center			
Test Period: 2/24/2025 - 2/27/2025			
Kit Number	QC Type	Room / Area	Result
11920042	D	Back Office	< 0.3
11920002	D	BC Main	1.5
11920051	FB	BC Main	< 0.3
11951482	D	BO Main	3.0
11951483	FB	BO Main	< 0.3
11920060	D	BS Main	1.6
11920058	FB	BS Main	< 0.3
11951478	D	SB Main	1.5
11920067	FB	SB Main	< 0.3
11920037	FB	Workshop	< 0.3
11926882	OB	OFFICE BLANK	< 0.3
11926890	TB	TRAVEL BLANK	< 0.3

Table 3a - Duplicate Worksheet / Data Validation										
Lathrop E. Smith Environmental Education Center										
Test Period: 2/24/2025 - 2/27/2025										
Sample ID			Duplicate Concentrations (pCi/L) and OC Checks							
Kit Numbers		Room / Area	Higher	Lower	Check #1 (Pass/Fail)	2x the Lower	Check #2 (Pass/Fail)	Average	Relative Percent Difference (RPD)	Check #3
11920042	11920047	Back Office	0.8	0.3	✓	0.6	FAIL	0.6	<1-pCi/L	✗
11920002	11920039	BC Main	1.5	1.1	✓	2.2	PASS	1.3	<1-pCi/L	✓
11951482	11951495	BO Main	3.3	3.0	✓	6.0	PASS	3.2	9.5%	✓
11920060	11920066	BS Main	1.7	1.6	✓	3.2	PASS	1.7	<1-pCi/L	✓
11920057	11951478	SB Main	1.7	1.5	✓	3.0	PASS	1.6	<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]

Table 1- Radon Testing Results		
Lathrop E. Smith Environmental Education Center RT		
Test Period: 3/25/2025 - 3/28/2025		
Kit Number	Room / Area	Result
11887239	BACK OFFICE	< 0.3
11887240	BACK OFFICE	< 0.3
11887246	BACK OFFICE	< 0.3
11887248	BACK OFFICE	< 0.3
11887259	BC ROOM 2	2.5
11887260	BC ROOM 2	2.6
11887265	BC ROOM 2	< 0.3
11887266	BC ROOM 2	2.8
11887245	BO ROOM 2	0.7
11887247	BO ROOM 2	1.0
11887258	BO ROOM 2	< 0.3
11887267	BO ROOM 2	0.8
11887253	SB ROOM 3	3.7
11887254	SB ROOM 3	3.2
11887261	SB ROOM 3	3.3
11887268	SB ROOM 3	< 0.3

[illegible]

Table 3 - QC Radon Testing Results			
Lathrop E. Smith Environmental Education Center RT			
Test Period: 3/25/2025 - 3/28/2025			
Kit Number	QC Type	Room / Area	Result
11887240	D	BACK OFFICE	< 0.3
11887248	FB	BACK OFFICE	< 0.3
11887245	D	BO ROOM 2	0.7
11887258	FB	BO ROOM 2	< 0.3
11887259	D	BC ROOM 2	2.5
11887265	FB	BC ROOM 2	< 0.3
11887261	D	SB ROOM 3	3.3
11887268	FB	SB ROOM 3	< 0.3
11886692	OB	OFFICE BLANK	< 0.3
11886693	TB	TRAVEL BLANK	< 0.3

Table 3a - Duplicate Worksheet / Data Validation											
Lathrop E. Smith Environmental Education Center RT											
Test Period: 3/25/2025 - 3/28/2025											
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	
11887240	11887239 11887246	BACK OFFICE	0.3	0.3	✓	0.6	PASS	0.3	<1-pCi/L	✓	
11887245	11887247 11887267	BO ROOM 2	1.0	0.7	✓	1.4	PASS	0.9	<1-pCi/L	✓	
11887259	11887260 11887266	BC ROOM 2	2.8	2.5	✓	5.0	PASS	2.7	11.3%	✓	
11887261	11887253 11887254	SB ROOM 3	3.7	3.2	✓	6.4	PASS	3.5	14.5%	✓	
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

March 3, 2025

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11920042	BACK OFFICE	2025-02-24 @ 10:00 am	2025-02-27 @ 9:00 am	< 0.3	2025-03-03
11920047	BACK OFFICE	2025-02-24 @ 10:00 am	2025-02-27 @ 9:00 am	0.8 ± 0.4	2025-03-03
11920038	DORM ROOM	2025-02-24 @ 10:00 am	2025-02-27 @ 9:00 am	0.5 ± 0.3	2025-03-03
11920044	HEALTH OFFICE	2025-02-24 @ 10:00 am	2025-02-27 @ 9:00 am	< 0.3	2025-03-03
11920043	MAIN OFFICE	2025-02-24 @ 10:00 am	2025-02-27 @ 9:00 am	< 0.3	2025-03-03
11920055	PLANETARIUM	2025-02-24 @ 10:00 am	2025-02-27 @ 9:00 am	< 0.3	2025-03-03
11920054	PUP ROOM	2025-02-24 @ 10:00 am	2025-02-27 @ 9:00 am	< 0.3	2025-03-03
11920052	RETRIEVER ROOM	2025-02-24 @ 10:00 am	2025-02-27 @ 9:00 am	0.8 ± 0.4	2025-03-03
11920046	SUPERVISOR OFFICE	2025-02-24 @ 10:00 am	2025-02-27 @ 9:00 am	0.5 ± 0.3	2025-03-03
11920056	WHITE OAK HALL	2025-02-24 @ 10:00 am	2025-02-27 @ 9:00 am	< 0.3	2025-03-03
11920053	WHITE OAK HALL	2025-02-24 @ 10:00 am	2025-02-27 @ 9:00 am	< 0.3	2025-03-03
11920037	WORKSHOP	2025-02-24 @ 10:00 am	2025-02-27 @ 9:00 am	< 0.3	2025-03-03
11920045	WORKSHOP	2025-02-24 @ 10:00 am	2025-02-27 @ 9:00 am	< 0.3	2025-03-03

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

March 3, 2025

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

BALTIMORE CHECKERSPOT

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11920051	BC MAIN	2025-02-24 @ 10:00 am	2025-02-27 @ 9:00 am	< 0.3	2025-03-03
11920039	BC MAIN	2025-02-24 @ 10:00 am	2025-02-27 @ 9:00 am	1.1 ± 0.4	2025-03-03
11920002	BC MAIN	2025-02-24 @ 10:00 am	2025-02-27 @ 9:00 am	1.5 ± 0.4	2025-03-03
11920048	BC ROOM 1	2025-02-24 @ 10:00 am	2025-02-27 @ 9:00 am	2.0 ± 0.4	2025-03-03
11920061	BC ROOM 2	2025-02-24 @ 10:00 am	2025-02-27 @ 9:00 am	4.0 ± 0.4	2025-03-03
11920041	BC ROOM 3	2025-02-24 @ 10:00 am	2025-02-27 @ 9:00 am	2.1 ± 0.4	2025-03-03

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

March 3, 2025

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

BALTIMORE ORIOLES

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11951495	BO MAIN	2025-02-24 @ 10:00 am	2025-02-27 @ 9:00 am	3.3 ± 0.4	2025-03-03
11951483	BO MAIN	2025-02-24 @ 10:00 am	2025-02-27 @ 9:00 am	< 0.3	2025-03-03
11951482	BO MAIN	2025-02-24 @ 10:00 am	2025-02-27 @ 9:00 am	3.0 ± 0.4	2025-03-03
11951480	BO ROOM 1	2025-02-24 @ 10:00 am	2025-02-27 @ 9:00 am	3.9 ± 0.4	2025-03-03
11951487	BO ROOM 2	2025-02-24 @ 10:00 am	2025-02-27 @ 9:00 am	4.0 ± 0.4	2025-03-03
11951477	BO ROOM 3	2025-02-24 @ 10:00 am	2025-02-27 @ 9:00 am	3.2 ± 0.4	2025-03-03

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

March 3, 2025

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

BLACKEYED SUSAN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11920060	BS MAIN	2025-02-24 @ 11:00 am	2025-02-27 @ 9:00 am	1.6 ± 0.4	2025-03-03
11920058	BS MAIN	2025-02-24 @ 11:00 am	2025-02-27 @ 9:00 am	< 0.3	2025-03-03
11920066	BS MAIN	2025-02-24 @ 11:00 am	2025-02-27 @ 9:00 am	1.7 ± 0.4	2025-03-03
11920068	BS ROOM 1	2025-02-24 @ 11:00 am	2025-02-27 @ 9:00 am	3.3 ± 0.4	2025-03-03
11920059	BS ROOM 2	2025-02-24 @ 11:00 am	2025-02-27 @ 9:00 am	1.9 ± 0.4	2025-03-03
11920050	BS ROOM 3	2025-02-24 @ 11:00 am	2025-02-27 @ 9:00 am	3.2 ± 0.4	2025-03-03

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

March 3, 2025

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

STRIPED BASS

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11920067	SB MAIN	2025-02-24 @ 11:00 am	2025-02-27 @ 9:00 am	< 0.3	2025-03-03
11951478	SB MAIN	2025-02-24 @ 11:00 am	2025-02-27 @ 9:00 am	1.5 ± 0.4	2025-03-03
11920057	SB MAIN	2025-02-24 @ 11:00 am	2025-02-27 @ 9:00 am	1.7 ± 0.4	2025-03-03
11920049	SB ROOM 1	2025-02-24 @ 10:00 am	2025-02-27 @ 9:00 am	2.1 ± 0.4	2025-03-03
11920069	SB ROOM 2	2025-02-24 @ 10:00 am	2025-02-27 @ 9:00 am	2.1 ± 0.4	2025-03-03
11920070	SB ROOM 3	2025-02-24 @ 10:00 am	2025-02-27 @ 9:00 am	4.8 ± 0.5	2025-03-03

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

March 3, 2025

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

**OFFICE
MAIN**

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

March 3, 2025

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

**TRAVEL
MAIN**

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

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



Radon Test Kit Chain of Custody

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

Name of Schools:

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

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

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

Radon test result report for:

LATHROP SMITH CENTER - RETESTING**BALTIMORE CHECKERSPOT**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11887259	ROOM 2	2025-03-25 @ 10:00 am	2025-03-28 @ 10:00 am	2.5	2025-04-02
11887260	ROOM 2	2025-03-25 @ 10:00 am	2025-03-28 @ 10:00 am	2.6	2025-04-02
11887265	ROOM 2	2025-03-25 @ 10:00 am	2025-03-28 @ 10:00 am	< 0.3	2025-04-02
11887266	ROOM 2	2025-03-25 @ 10:00 am	2025-03-28 @ 10:00 am	2.8	2025-04-02

Radon test result report for:

LATHROP SMITH CENTER - RETESTING**BALTIMORE ORIOLES**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11887245	ROOM 2	2025-03-25 @ 10:00 am	2025-03-28 @ 10:00 am	0.7	2025-04-02
11887247	ROOM 2	2025-03-25 @ 10:00 am	2025-03-28 @ 10:00 am	1.0	2025-04-02
11887258	ROOM 2	2025-03-25 @ 10:00 am	2025-03-28 @ 10:00 am	< 0.3	2025-04-02
11887267	ROOM 2	2025-03-25 @ 10:00 am	2025-03-28 @ 10:00 am	0.8	2025-04-02

Radon test result report for:

LATHROP SMITH CENTER - RETESTING**MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11887239	BACK OFFICE	2025-03-25 @ 9:00 am	2025-03-28 @ 10:00 am	< 0.3	2025-04-02
11887240	BACK OFFICE	2025-03-25 @ 9:00 am	2025-03-28 @ 10:00 am	< 0.3	2025-04-02
11887246	BACK OFFICE	2025-03-25 @ 9:00 am	2025-03-28 @ 10:00 am	< 0.3	2025-04-02
11887248	BACK OFFICE	2025-03-25 @ 9:00 am	2025-03-28 @ 10:00 am	< 0.3	2025-04-02

Radon test result report for:

LATHROP SMITH CENTER - RETESTING**STRIPED BASS**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11887253	ROOM 3	2025-03-25 @ 10:00 am	2025-03-28 @ 10:00 am	3.7	2025-04-02
11887254	ROOM 3	2025-03-25 @ 10:00 am	2025-03-28 @ 10:00 am	3.2	2025-04-02
11887261	ROOM 3	2025-03-25 @ 10:00 am	2025-03-28 @ 10:00 am	3.3	2025-04-02
11887268	ROOM 3	2025-03-25 @ 10:00 am	2025-03-28 @ 10:00 am	< 0.3	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



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 – Testing March 25th – March 28th, 2025

Name of Schools:

- | | |
|--------------------|-------------------------------|
| 1. Wheaton HS | 7. Goshen ES |
| 2. Clarksburg HS | 8. Great Seneca Creek ES |
| 3. Darnestown ES | 9. Lake Seneca ES |
| 4. Diamond ES | 10. Lathrop E. Smith Center |
| 5. Gaithersburg ES | 11. Martin Luther King Jr. MS |
| 6. Germantown ES | |

	Date	Initials
Radon Test Kits Deployed	3/25/2025	BMM
Radon Test Kits Collected	3/28/2025	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	Lathrop E. Smith Environmental Education Center
Date of Report	2/3/2020
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	15
# Rooms ≥ 4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	1.8 pCi/L

Project Status

Current Project Status at this time: Testing Complete; no further action.



ENGINEERS • PLANNERS • SCIENTISTS • CONSTRUCTION MANAGERS

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

2/3/2020

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

Re: Radon Testing Services

KCI Job #12146341126

Location: Lathrop E. Smith Environmental Education Center

5110 Meadowside Lane
Rockville, Maryland 20855

Dear Mr. Cox:

KCI Technologies, Inc. (KCI) is pleased to submit the following report to Montgomery County Public Schools pursuant to completing a “short-term” 3-day radon test for the Lathrop E. Smith Environmental Education Center, located at 5110 Meadowside Lane in Rockville, Maryland 20855 (subject site).

SCOPE OF SERVICES

KCI conducted radon testing at the subject site to evaluate indoor radon levels relative to the USEPA's recommended action level of 4.0 picocuries per Liter (pCi/L) - the level at which EPA recommends that schools take action to reduce the level. KCI conducted the radon testing in accordance with American Association of Radon Scientists and Technologists (AARST) *Protocol for Conducting Measurements of Radon and Radon Decay Products in Schools and Large Buildings*. A National Radon Proficiency Program (NRPP) Radon Measurement Provider (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/departments/facilities/maintenance/default.aspx?id=458858> or www.epa.gov/radon.

KCI visited the site on 12/17/2019 and deployed thirty-four (34) activated charcoal (AC) radon test kits. KCI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance.

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

As a quality control measure, KCI included duplicate samples, field blanks, lab transit blanks, and office blanks in accordance with AARST recommendations. In addition, KCI submitted sixty (60) test kits to Bowser-Morner, Inc. as spike samples. The spiked tests were exposed to a known radon concentration by Bowser-Morner, Inc. prior to being returned to the laboratory for analysis.

KCI returned to the site on 12/20/2019 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Aircheck, Inc. for analysis by gamma-ray spectroscopy. Aircheck, Inc. is a National Radon Safety Board (NRSB) radon measurement provider and is a 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:

-

These tests were conducted to:

-

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

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

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

KCI also compiled weather data for the testing period and conducted observations of relevant field conditions. During the test period, weather records indicate low temperatures were in the lower-20s and high temperatures were in the lower-40s. Maximum sustained winds ranged from 12-26 miles per hour. Average humidity was around 67%. 0.54 inches of precipitation (rain and snow) was recorded during the testing period.

RESULTS

The sampling locations and analytical results are listed on Table 1 (Attachment B). The quality control sample locations and analytical results are listed on Table 2 (Attachment B). 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	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 410-316-7800.

Sincerely,

Mr. Tyler P. McCleaf
Radon Measurement Provider
111004 RT

KCI Technologies, Inc.

Attachments:

A- Floor Plan with Test Locations

B - Tables 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 Chek, Inc.

D- Duplicate

FB- Field Blank

KCI- KCI Technologies, Inc.

OB- Office Blank

PM- Project Manager

QC- Quality Control

Table 1- Radon Testing Results		
Lathrop E. Smith Environmental Ed Center		
Test Period: 12/17/2019-12/20/2019		
Kit Number	Room / Area	Result
9340750	MAIN OFFICE	< 0.3
9340751	SUPERVISOR	< 0.3
9340752	REAR OFFICE	< 0.3
9340753	BEDROOM	< 0.3
9340754	BEDROOM	< 0.3
9340755	HEALTH	< 0.3
9340756	HEALTH	< 0.3
9340757	WORKSHOP	< 0.3
9340758	WHITE OAK HALL	0.6
9340759	RETRIEVER ROOM	< 0.3
9340760	PUP ROOM	0.5
9340761	PUP ROOM	0.5
9340762	WHITE OAK HALL	< 0.3
9340763	PLANETARIUM	0.6
9340764	LOBBY	1.1
9340765	REAR DORM	1.3
9340766	SE	1.4
9340767	REAR DORM	1.4
9340768	NW	1.3
9340769	LOBBY	1
9340770	REAR DORM	1.7
9340771	SE	0.9
9340772	NW	0.9
9340773	SE	1.6
9340774	NW	1.6
9340775	LOBBY	1.5
9340776	LOBBY	1.5
9340777	REAR DORM	1.3
9340778	NW	1.8
9340779	SE	1.2
9340780	LOBBY	< 0.3
9340781	LOBBY	0.8
9340783	MAIN	< 0.3
9340784	MAIN	< 0.3
9341498	OFFICE BLANK	< 0.3

Table 2- Radon Testing Results			
Lathrop E. Smith Environmental Education Center			
Test Period: 12/16/2019-12/19/2019			
Kit Number	QC Type	Room / Area	Result
9340756	D	HEALTH	<0.3
9340753	FB	BEDROOM	<0.3
9340761	D	PUP ROOM	0.5
9340775	D	LOBBY	1.5
9340780	FB	LOBBY	<0.3
9340784	D	MAIN	<0.3
9341377	TRANSIT BLANK	NA	0.5
9341379	TRANSIT BLANK	NA	< 0.3
9341380	TRANSIT BLANK	NA	< 0.3
9341398	TRANSIT BLANK	NA	< 0.3

ATTACHMENT C

Laboratory Analytical Results

December 24, 2019

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

**SMITH CENTER
1 BALTIMORE ORIOLE**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9340769	LOBBY	2019-12-17 @ 9:00 am	2019-12-20 @ 8:00 am	1.0 ± 0.4	2019-12-24
9340768	NW	2019-12-17 @ 9:00 am	2019-12-20 @ 8:00 am	1.3 ± 0.4	2019-12-24
9340767	REAR DORM	2019-12-17 @ 9:00 am	2019-12-20 @ 8:00 am	1.4 ± 0.4	2019-12-24
9340771	SE	2019-12-17 @ 9:00 am	2019-12-20 @ 8:00 am	0.9 ± 0.4	2019-12-24

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

December 24, 2019

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

**SMITH CENTER
2 STRIPED BASS**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9340780	LOBBY	2019-12-17 @ 9:00 am	2019-12-20 @ 8:00 am	< 0.3	2019-12-24
9340781	LOBBY	2019-12-17 @ 9:00 am	2019-12-20 @ 8:00 am	0.8 ± 0.4	2019-12-24
9340778	NW	2019-12-17 @ 9:00 am	2019-12-20 @ 8:00 am	1.8 ± 0.4	2019-12-24
9340777	REAR DORM	2019-12-17 @ 9:00 am	2019-12-20 @ 8:00 am	1.3 ± 0.4	2019-12-24
9340779	SE	2019-12-17 @ 9:00 am	2019-12-20 @ 8:00 am	1.2 ± 0.4	2019-12-24

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

December 24, 2019

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

SMITH CENTER

3 BLACK EYED SUSAN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9340775	LOBBY	2019-12-17 @ 9:00 am	2019-12-20 @ 8:00 am	1.5 ± 0.4	2019-12-24
9340776	LOBBY	2019-12-17 @ 9:00 am	2019-12-20 @ 8:00 am	1.5 ± 0.4	2019-12-24
9340774	NW	2019-12-17 @ 9:00 am	2019-12-20 @ 8:00 am	1.6 ± 0.4	2019-12-24
9340770	REAR DORM	2019-12-17 @ 9:00 am	2019-12-20 @ 8:00 am	1.7 ± 0.4	2019-12-24
9340773	SE	2019-12-17 @ 9:00 am	2019-12-20 @ 8:00 am	1.6 ± 0.4	2019-12-24

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

December 24, 2019

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

SMITH CENTER

4 BALTIMORE CHECKERSPOT

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9340764	LOBBY	2019-12-17 @ 8:00 am	2019-12-20 @ 8:00 am	1.1 ± 0.4	2019-12-24
9340772	NW	2019-12-17 @ 8:00 am	2019-12-20 @ 8:00 am	0.9 ± 0.4	2019-12-24
9340765	REAR DORM	2019-12-17 @ 9:00 am	2019-12-20 @ 8:00 am	1.3 ± 0.4	2019-12-24
9340766	SE	2019-12-17 @ 8:00 am	2019-12-20 @ 8:00 am	1.4 ± 0.4	2019-12-24

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

December 24, 2019

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

**SMITH CENTER
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9340753	BEDROOM	2019-12-17 @ 8:00 am	2019-12-20 @ 8:00 am	< 0.3	2019-12-24
9340754	BEDROOM	2019-12-17 @ 8:00 am	2019-12-20 @ 8:00 am	< 0.3	2019-12-24
9340755	HEALTH	2019-12-17 @ 8:00 am	2019-12-20 @ 8:00 am	< 0.3	2019-12-24
9340756	HEALTH	2019-12-17 @ 8:00 am	2019-12-20 @ 8:00 am	< 0.3	2019-12-24
9340750	MAIN OFFICE	2019-12-17 @ 8:00 am	2019-12-20 @ 8:00 am	< 0.3	2019-12-24
9340763	PLANETARIUM	2019-12-17 @ 8:00 am	2019-12-20 @ 8:00 am	0.6 ± 0.4	2019-12-24
9340760	PUP ROOM	2019-12-17 @ 8:00 am	2019-12-20 @ 8:00 am	0.5 ± 0.4	2019-12-24
9340761	PUP ROOM	2019-12-17 @ 8:00 am	2019-12-20 @ 8:00 am	0.5 ± 0.4	2019-12-24
9340752	REAR OFFICE	2019-12-17 @ 8:00 am	2019-12-20 @ 8:00 am	< 0.3	2019-12-24
9340759	RETRIEVER ROOM	2019-12-17 @ 8:00 am	2019-12-20 @ 8:00 am	< 0.3	2019-12-24
9340751	SUPERVISOR	2019-12-17 @ 8:00 am	2019-12-20 @ 8:00 am	< 0.3	2019-12-24
9340762	WHITE OAK HALL	2019-12-17 @ 8:00 am	2019-12-20 @ 8:00 am	< 0.3	2019-12-24
9340758	WHITE OAK HALL	2019-12-17 @ 8:00 am	2019-12-20 @ 8:00 am	0.6 ± 0.4	2019-12-24
9340757	WORKSHOP	2019-12-17 @ 8:00 am	2019-12-20 @ 8:00 am	< 0.3	2019-12-24

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

December 24, 2019

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

**SMITH CENTER
SOLAR SCHOOL HOUSE**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9340783	MAIN	2019-12-17 @ 9:00 am	2019-12-20 @ 8:00 am	< 0.3	2019-12-24
9340784	MAIN	2019-12-17 @ 9:00 am	2019-12-20 @ 8:00 am	< 0.3	2019-12-24

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 193598

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

Date Start: 12/21/19 Date Stop: 12/23/19

Time Start: 0815 Time Stop: 0815

(Group 1)

Device No.'s: (20) Char. Bags-

9340001 thru 9340020

55

Date Start: 12/21/19 Date Stop: 12/23/19

Time Start: 0829 Time Stop: 0820

(Group 2)

Device No.'s: (20) Char. Bags-

9340021 thru 9340040

54

Date Start: 12/21/19 Date Stop: 12/23/19

Time Start: 0825 Time Stop: 0825

(Group 3)

Device No.'s: (20) Char. Bags-

9340041 thru 9340060

53

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

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
9340067	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	25.1 \pm 2.4 D	2020-01-03
9340035	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	22.5 \pm 2.3 D	2020-01-03
9340003	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	25.2 \pm 2.4 D	2020-01-03
9340089	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	23.3 \pm 2.3 D	2020-01-03
9340072	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	18.3 \pm 2.0 D	2020-01-03
9340040	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	27.3 \pm 2.6 D	2020-01-03
9340008	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	24.8 \pm 2.5 D	2020-01-03
9340094	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	24.7 \pm 2.5 D	2020-01-03
9340099	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	27.5 \pm 2.6 D	2020-01-03
9340077	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	25.2 \pm 2.5 D	2020-01-03
9340045	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	24.7 \pm 2.4 D	2020-01-03
9340013	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	25.9 \pm 2.6 D	2020-01-03
9340018	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	29.1 \pm 2.8 D	2020-01-03
9341704	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	25.1 \pm 2.4 D	2020-01-03
9340050	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	27.2 \pm 2.6 D	2020-01-03
9340023	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	28.2 \pm 2.7 D	2020-01-03
9341709	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	25.5 \pm 2.4 D	2020-01-03
9340055	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	27.8 \pm 2.6 D	2020-01-03
9340060	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	27.3 \pm 2.5 D	2020-01-03
9340028	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	23.9 \pm 2.3 D	2020-01-03
9341714	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	28.3 \pm 2.7 D	2020-01-03
9340082	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	26.4 \pm 2.6 D	2020-01-03
9340065	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	24.2 \pm 2.4 D	2020-01-03
9340033	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	26.2 \pm 2.5 D	2020-01-03
9341719	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	26.7 \pm 2.5 D	2020-01-03
9340001	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	26.3 \pm 2.5 D	2020-01-03
9340087	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	24.8 \pm 2.4 D	2020-01-03
9340070	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	19.5 \pm 2.4 D	2020-01-03
9340038	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	24.7 \pm 2.3 D	2020-01-03
9340006	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	25.2 \pm 2.4 D	2020-01-03
9340092	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	31.4 \pm 2.8 D	2020-01-03
9340097	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	26.7 \pm 2.5 D	2020-01-03
9340075	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	29.6 \pm 2.6 D	2020-01-03
9340043	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	28.1 \pm 2.6 D	2020-01-03
9340011	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	26.8 \pm 2.5 D	2020-01-03
9340016	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	23.2 \pm 2.4 D	2020-01-03
9341702	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	26.8 \pm 2.5 D	2020-01-03

Radon test result report for:**S****N/A**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9340048	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	25.5 ± 2.4 D	2020-01-03
9340021	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	26.7 ± 2.6 D	2020-01-03
9341707	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	25.8 ± 2.4 D	2020-01-03
9340053	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	25.8 ± 2.5 D	2020-01-03
9340058	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	28.5 ± 2.7 D	2020-01-03
9340026	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	25.9 ± 2.4 D	2020-01-03
9341712	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	24.3 ± 2.4 D	2020-01-03
9340080	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	25.1 ± 2.4 D	2020-01-03
9340063	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	25.8 ± 2.5 D	2020-01-03
9340031	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	24.9 ± 2.4 D	2020-01-03
9341717	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	25.7 ± 2.4 D	2020-01-03
9340085	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	26.9 ± 2.5 D	2020-01-03
9340068	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	26.2 ± 2.5 D	2020-01-03
9340036	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	23.6 ± 2.3 D	2020-01-03
9340004	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	26.9 ± 2.6 D	2020-01-03
9340090	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	26.3 ± 2.5 D	2020-01-03
9340073	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	26.8 ± 2.5 D	2020-01-03
9340041	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	25.6 ± 2.4 D	2020-01-03
9340009	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	24.1 ± 2.4 D	2020-01-03
9340095	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	25.2 ± 2.5 D	2020-01-03
9340100	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	24.5 ± 2.4 D	2020-01-03
9340078	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	25.0 ± 2.4 D	2020-01-03
9340046	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	28.0 ± 2.6 D	2020-01-03
9340014	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	21.8 ± 2.8 D	2020-01-03
9340019	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	26.0 ± 2.5 D	2020-01-03
9341705	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	27.8 ± 2.6 D	2020-01-03
9340051	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	25.5 ± 2.4 D	2020-01-03
9340056	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	27.7 ± 2.6 D	2020-01-03
9340024	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	28.3 ± 2.5 D	2020-01-03
9341710	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	24.2 ± 2.3 D	2020-01-03
9340061	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	28.9 ± 2.6 D	2020-01-03
9340029	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	23.0 ± 2.3 D	2020-01-03
9341715	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	27.0 ± 2.5 D	2020-01-03
9340083	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	24.9 ± 2.4 D	2020-01-03
9340066	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	25.1 ± 2.4 D	2020-01-03
9340034	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	26.4 ± 2.5 D	2020-01-03
9341720	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	25.3 ± 2.5 D	2020-01-03

Radon test result report for:**S****N/A**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9340002	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	25.7 ± 2.5 D	2020-01-03
9340088	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	26.4 ± 2.5 D	2020-01-03
9340071	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	24.9 ± 2.4 D	2020-01-03
9340039	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	26.9 ± 2.5 D	2020-01-03
9340007	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	26.9 ± 2.4 D	2020-01-03
9340093	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	25.1 ± 2.5 D	2020-01-03
9340098	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	26.8 ± 2.5 D	2020-01-03
9340076	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	25.1 ± 2.5 D	2020-01-03
9340044	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	25.2 ± 2.5 D	2020-01-03
9340012	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	22.5 ± 2.2 D	2020-01-03
9340017	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	25.3 ± 2.5 D	2020-01-03
9341703	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	26.0 ± 2.5 D	2020-01-03
9340049	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	26.0 ± 2.5 D	2020-01-03
9340022	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	28.6 ± 2.6 D	2020-01-03
9341708	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	28.8 ± 2.8 D	2020-01-03
9340054	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	26.8 ± 2.5 D	2020-01-03
9340059	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	26.5 ± 2.6 D	2020-01-03
9340027	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	26.6 ± 2.5 D	2020-01-03
9341713	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	26.5 ± 2.5 D	2020-01-03
9340081	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	18.4 ± 2.1 D	2020-01-03
9340064	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	26.5 ± 2.5 D	2020-01-03
9340032	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	26.1 ± 2.4 D	2020-01-03
9341718	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	23.7 ± 2.4 D	2020-01-03
9340086	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	26.9 ± 2.6 D	2020-01-03
9340069	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	25.6 ± 2.5 D	2020-01-03
9340037	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	28.4 ± 2.6 D	2020-01-03
9340005	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	???? DIF1	2020-01-03
9340091	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	26.5 ± 2.5 D	2020-01-03
9340096	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	26.2 ± 2.5 D	2020-01-03
9340074	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	27.7 ± 2.5 D	2020-01-03
9340042	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	26.6 ± 2.5 D	2020-01-03
9340010	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	27.5 ± 2.5 D	2020-01-03
9341701	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	22.9 ± 2.3 D	2020-01-03
9340047	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	26.7 ± 2.5 D	2020-01-03
9340015	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	25.4 ± 2.5 D	2020-01-03
9340020	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	24.1 ± 2.4 D	2020-01-03
9341706	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	31.0 ± 2.7 D	2020-01-03

January 3, 2020

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

S

N/A

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9340052	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	27.4 ± 2.6 D	2020-01-03
9340057	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	27.3 ± 2.5 D	2020-01-03
9340025	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	25.1 ± 2.4 D	2020-01-03
9341711	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	22.5 ± 2.2 D	2020-01-03
9340079	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	26.9 ± 2.5 D	2020-01-03
9340062	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	25.6 ± 2.5 D	2020-01-03
9340030	N/A	2019-12-21 @ 8:00 am	2019-12-23 @ 8:00 am	25.0 ± 2.4 D	2020-01-03
9341716	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	25.1 ± 2.4 D	2020-01-03
9340084	N/A	2019-12-21 @ 9:00 am	2019-12-23 @ 9:00 am	24.5 ± 2.3 D	2020-01-03

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 2019 Week 2

Name of Schools:

- | | |
|-------------------------------|---------------------|
| 1. Argyle M.S. | 13. Candelwood E.S. |
| 2. Banneker M.S. | 14. Drew E.S. |
| 3. Bel Pre E.S. | 15. Fallsmead E.S. |
| 4. Bells Mill E.S. | 16. Farquhar M.S. |
| 5. Bethesda Maintenance Depot | 17. Kennedy H.S. |
| 6. Beverly Farms E.S. | 18. Luxmanor E.S. |
| 7. Blake H.S. | 19. Magruder H.S. |
| 8. Dufief E.S. | 20. Redland M.S. |
| 9. Briggs Chaney M.S. | 21. Shriver E.S. |
| 10. Brookhaven E.S. | 22. Smith Center |
| 11. Burtonsville E.S. | 23. Viers Mill E.S. |
| 12. Cabin John M.S. | 24. Wheaton H.S. |

	Date	Initials
Radon Test Kits Deployed	12/16/19 to 12/17/19	
Radon Test Kits Collected	12/19/19 to 12/20/19	
Radon Test Kits Shipped to Lab*	12/20/19	
Radon Test Kits Received by Lab*	12/23/19	

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

MCPS RADON TESTING - EXECUTIVE SUMMARY

Site Name	Lathrop E. Smith Center
Date of Report	March 13, 2018
Round of Testing	Initial Follow-up Post Remediation 2 year testing 5 year testing HVAC Upgrade Window Replacement New Addition New Facility
# of Rooms Tested	15
# Rooms ≥ 4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	1.9 pCi/L

Project Status

Current Project Status at this time: Retesting 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

March 13, 2018

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

Re: Radon Testing Services

KCI Job #1214634188

Location: Lathrop E. Smith Center

5110 Meadowside Lane
Rockville, Maryland 20855

Dear Mr. Cox:

KCI Technologies, Inc. (KCI) is pleased to submit the following report to Montgomery County Public Schools pursuant to completing a “short-term” 3-day radon test for the Lathrop E. Smith Center, located at 5110 Meadowside Lane in Rockville, Maryland 20855 (subject site).

SCOPE OF SERVICES

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

KCI visited the site on February 13, 2018 and deployed eighteen (18) activated charcoal (AC) radon test kits. KCI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance.

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

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

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

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

KCI returned to the site on February 16, 2018 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Aircheck, Inc. for analysis by gamma-ray spectroscopy. Aircheck, Inc. is a NRSB certified analytical laboratory for radon analysis (certification #ARL1402) located at 1936 Butler Bridge Road, Mills River, North Carolina.

EVALUATION OF TESTING CONDITIONS

These tests represent:

- Follow-up to post-mitigation biennial testing.

These tests were conducted to:

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

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

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

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

KCI also compiled weather data for the testing period and conducted observations of relevant field conditions. During the test period, weather records indicate low temperatures ranged from the mid-20s to upper 40s and high temperatures ranged from the high-30s to the high-60s. Maximum sustained winds ranged from 10-18 miles per hour. Average humidity was around 73%. 0.30 Inches of precipitation was recorded during the testing period.

RESULTS

The sampling locations and analytical results are listed on Table 1 (Attachment B). The quality control sample locations and analytical results are listed on Table 2 (Attachment B). The laboratory analytical results are included in Attachment C. Laboratory results and exposure data for the spike samples are also included in Attachment C.

The results of the radon test analysis indicated the following:

Radon Concentration	Room	Result
≥ 4.0 pCi/L	None	N/A
≤ 4.0 pCi/L	See Attachment B	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 410-316-7800.

Sincerely,



Radon Measurement Specialist
KCI Technologies, Inc.

Attachments:

B - Radon Test Summary Spreadsheets

C- Laboratory Analytical Results

ATTACHMENT B

Radon Test Summary Spreadsheet

Table Notes:

AC- Activated Charcoal

ACI- Air Chek, Inc.

D- Duplicate

FB- Field Blank

KCI- KCI Technologies, Inc.

OB- Office Blank

PM- Project Manager

QC- Quality Control

Table 1 - Radon Testing Results		
Smith Center		
Test Period: 02/13/18-02/16/18		
Kit Number	Room / Area	Result
7986661	BALTIMORE O ADULT	1.9
7986670	BALTIMORE O MID	1.3
7986662	BALTIMORE O NW	1.7
7986680	LIBRARY	0.7
7986679	PLANETARIUM	< 0.3
7986681	PUP ROOM	< 0.3
7986669	STORM SHELTER AR	1.0
7986673	WHITE OAK 14	0.6
7986665	WHITE OAK 3	< 0.3
7986643	WHITE OAK HALL	< 0.3
7986631	WHITE OAK HALL	0.5
7986660	WHITE OAK HEALTH	0.8
7986666	WHITE OAK KITCHEN	0.6
7986678	WHITE OAK OFFICE	0.7
7986653	WHITE OAK SLEEP	0.7
7986672	WHITE OAK SUP	0.9

Table Note:

* Missing or Compromised Sample

Table 2 - Radon Testing Results		
Smith Center		
Test Period: 02/13/18-02/16/18		
Kit Number	QC Type	Result
7986668	D (BALTIMORE O NW)	1.6
7986635	D (WHITE OAK 14)	< 0.3

Table Note:

* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

Radon test result report for:**SMITH CENTER
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7986668	BALTIMORE O NW	2018-02-13 @ 11:00 am	2018-02-16 @ 12:00 pm	1.6 ± 0.4	2018-02-20
7986661	BALTIMORE O Adult	2018-02-13 @ 11:00 am	2018-02-16 @ 12:00 pm	1.9 ± 0.4	2018-02-20
7986670	BALTIMORE O MID	2018-02-13 @ 11:00 am	2018-02-16 @ 12:00 pm	1.3 ± 0.3	2018-02-20
7986662	BALTIMORE O NW	2018-02-13 @ 11:00 am	2018-02-16 @ 12:00 pm	1.7 ± 0.4	2018-02-20
7986680	LIBRARY	2018-02-13 @ 3:00 pm	2018-02-16 @ 12:00 pm	0.7 ± 0.3	2018-02-20
7986679	PLANETARIUM	2018-02-13 @ 3:00 pm	2018-02-16 @ 12:00 pm	< 0.3	2018-02-20
7986681	PUP ROOM	2018-02-13 @ 3:00 pm	2018-02-16 @ 12:00 pm	< 0.3	2018-02-20
7986669	STORM SHELTER AR	2018-02-13 @ 11:00 am	2018-02-16 @ 12:00 pm	1.0 ± 0.4	2018-02-20
7986665	WHITE OAK 3	2018-02-13 @ 11:00 am	2018-02-16 @ 12:00 pm	< 0.3	2018-02-20
7986635	WHITE OAK 14	2018-02-13 @ 11:00 am	2018-02-16 @ 12:00 pm	< 0.3	2018-02-20
7986673	WHITE OAK 14	2018-02-13 @ 11:00 am	2018-02-16 @ 12:00 pm	0.6 ± 0.3	2018-02-20
7986631	WHITE OAK HALL	2018-02-13 @ 11:00 am	2018-02-16 @ 12:00 pm	0.5 ± 0.3	2018-02-20
7986643	WHITE OAK HALL	2018-02-13 @ 11:00 am	2018-02-16 @ 12:00 pm	< 0.3	2018-02-20
7986660	WHITE OAK HEALTH	2018-02-13 @ 11:00 am	2018-02-16 @ 12:00 pm	0.8 ± 0.3	2018-02-20
7986666	WHITE OAK KITCHEN	2018-02-13 @ 11:00 am	2018-02-16 @ 12:00 pm	0.6 ± 0.4	2018-02-20
7986678	WHITE OAK OFFICE	2018-02-13 @ 2:00 pm	2018-02-16 @ 12:00 pm	0.7 ± 0.3	2018-02-20
7986653	WHITE OAK SLEEP	2018-02-13 @ 11:00 am	2018-02-16 @ 12:00 pm	0.7 ± 0.4	2018-02-20
7986672	WHITE OAK SUP	2018-02-13 @ 11:00 am	2018-02-16 @ 12:00 pm	0.9 ± 0.3	2018-02-20



Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase

Names of Schools:

- | | |
|---------------------------------------|--|
| 1. Westbrook Elementary School | 21. E. Silver Spring Elementary School |
| 2. Westland Middle School | 22. Silver Spring Int. Middle School |
| 3. Walt Whitman High School | 23. Clarksburg High School |
| 4. Cloverly Elementary School | 24. Rosa Parks Middle School |
| 5. Sligo Middle School | 25. Greenwood Elementary School |
| 6. Flora Singer Elementary School | 26. Montgomery Knolls Elem. School |
| 7. Albert Einstein High School | 27. Watkins Mill Elementary School |
| 8. Roscoe Nix Elementary School | 28. Gaithersburg Elementary School |
| 9. Mario Loiederman Middle School | 29. Viers Mill Elementary School |
| 10. Sargent Shriver Elementary School | 30. Rock View Elementary School |
| 11. Whetstone Elementary School | |
| 12. Brooke Grove Elementary School | |
| 13. Clearspring Elementary School | |
| 14. Beall Elementary School | |
| 15. Maryvale Elementary School | |
| 16. Lathrop E. Smith Center | |
| 17. Laytonsville Elementary School | |
| 18. Germantown Elementary School | |
| 19. Spring Mill Center | |
| 20. Northwood High School | |

	Date	Initials
Radon Test Kits Deployed	2/13/18	JM
Radon Test Kits Collected	2/16/18	JM
Radon Test Kits Shipped to Lab*	2/16/18	JM
Radon Test Kits Received by Lab*	2/20/18	JM

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

February 27, 2018

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

OFFICE BLANKS

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

February 27, 2018

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
TRANSIT BLANKS

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

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

February 28, 2018

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

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

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

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

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI Technologies Inc. Job Number 183530

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

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

MCPS RADON TESTING - EXECUTIVE SUMMARY

Site Name	Lathrop E. Smith Center
Date of Report	January 31, 2018
Round of Testing	Initial Follow-up Post Remediation 2 year testing 5 year testing HVAC Upgrade Window Replacement New Addition New Facility
# of Rooms Tested	23
# Rooms ≥ 4.0 pCi/L	0
Lowest Value	< 0.3 pCi/L
Highest Value	2.7 pCi/L

Current Project Status at this time: Results satisfactory to date; missed locations and missing/
compromised tests to be sampled.



ENGINEERS • PLANNERS • SCIENTISTS • CONSTRUCTION MANAGERS

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

January 31, 2018

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

Re: Radon Testing Services

KCI Job #1214694182

Location: Lathrop E. Smith Center

5110 Meadows Lane
Rockville, Maryland 20855

Dear Mr. Cox:

KCI Technologies, Inc. (KCI) is pleased to submit the following report to Montgomery County Public Schools pursuant to completing a “short-term” 3-day radon test for the Lathrop E. Smith Center, located at 5110 Meadows Lane in Rockville, Maryland 20855 (subject site).

SCOPE OF SERVICES

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

KCI visited the site on November 28, 2017 and deployed twenty-nine (29) activated charcoal (AC) radon test kits. KCI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. A floor plan map of the building with the test locations is included as Appendix A of this report.

As a quality control measure, KCI included duplicate samples, field blanks, lab transit blanks, and office blanks in accordance with AARST recommendations. In addition, KCI submitted six (6) test kits to

Bowser-Morner, Inc. as spike samples. The spiked tests were exposed to a known radon concentration by Bowser-Morner, Inc. prior to being returned to the laboratory for analysis.

KCI returned to the site on December 1, 2017 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Aircheck, Inc. for analysis by gamma-ray spectroscopy. Aircheck, Inc. is a NRSB certified analytical laboratory for radon analysis (certification #ARL1402) located at 1936 Butler Bridge Road, Mills River, North Carolina.

EVALUATION OF TESTING CONDITIONS

These tests represent:

- Post-mitigation biennial testing.

These tests were conducted to:

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

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

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

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

KCI also compiled weather data for the testing period and conducted observations of relevant field conditions. During the test period, weather records indicate low temperatures were in the 30s and high temperatures ranged from the low-50s to mid-60s. Maximum sustained winds ranged from 8-15 miles per hour. Average humidity was around 65%. 0.02 Inches of precipitation was recorded during the testing period.

A magnitude 4.1 earthquake was reported on Thursday, November 30 near Dover, Delaware approximately 95 miles east of Gaithersburg, Maryland. The earthquake occurred during or just after the radon testing period for this facility. In general, enhanced radon emissions have been observed prior to earthquakes and this has been recorded all over the world, according to the research article entitled *Radon-222: A Potential Short-Term Earthquake Precursor*, published June 30, 2015 in the Journal of Earth Science and Climate

Change. The nearby earthquake, which occurred during or prior to the testing period, may have resulted in higher-than-normal radon test results for this facility.

RESULTS

The sampling locations, field observations, and analytical results are listed on Table 1 (Attachment B). The quality control sample locations and analytical results are listed on Table 2 (Attachment B). Missing/compromised tests, missed rooms, and locked rooms are listed on Table 3 (Attachment B). The laboratory analytical results are included in Attachment C. Laboratory results and exposure data for the spike samples are also included in Attachment C.

The results of the radon test analysis indicated the following:

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

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

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

Sincerely,



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

Attachments:

B - Tables 1-3, Radon Test Summary Spreadsheets

C- Laboratory Analytical Results

ATTACHMENT B

Radon Test Summary Spreadsheet

Table Notes:

AC- Activated Charcoal

ACI- Air Chek, Inc.

D- Duplicate

FB- Field Blank

KCI- KCI Technologies, Inc.

OB- Office Blank

PM- Project Manager

QC- Quality Control

Radon Testing Results		
Smith Environmental Education Center		
Test Period: 11/28/17-12/01/17		
Kit Number	Room / Area	Result
7975181	BALTIMORE CHECKERSPOT DORM-MID	2.2
7975177	BALTIMORE CHECKERSPOT DORM-SE	2.1
7975178	BALTIMORE ORIOLE DORM-MID	1.5
7975183	* BALTIMORE ORIOLE DORM-NW (Missing)	-
7975176	BALTIMORE ORIOLE DORM-SE	1.4
7975170	BLACKEYED SUSAN DORM-MID	1.5
7975182	BLACKEYED SUSAN DORM-NW	2.2
7975175	BLACKEYED SUSAN DORM-NW	1.5
7975184	BLACKEYED SUSAN DORM-SE	1.1
7975196	HEALTH RM	0.8
7975195	OFFICE	0.7
7975168	PUP ROOM	0.9
7975169	PUP STORM SHULTE	1.0
7975198	RETRIEVER ROOM	0.9
7975180	SOLAR HOUSE	< 0.3
7975191	STAFF BDRM	0.6
7975185	STAFF ROOM	0.7
7975187	* STORM SHELTER AR (Missing)	-
7975193	STRIPED BASS DORM-MID	2.7
7975188	STRIPED BASS DORM-NW	2.3
7975194	STRIPED BASS DORM-SE	2.7
7975190	SUPERVISOR	0.8
7975174	WHITE OAK HALL	0.5

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
Smith Environmental Education Center		
Test Period: 11/28/17-12/01/17		
Kit Number	QC Type	Result
7975189	D (STAFF BDRM)	0.7
7975192	D (STAFF ROOM)	0.6
7975173	D (WHITE OAK HALL)	0.9
7975199	FB (STAFF BDRM)	< 0.3
7975186	FB (STAFF ROOM)	< 0.3
7978580	OB (OFFICE BLANK)	< 0.3

Table Note:

* Missing or Compromised Sample

[illegible]

Table Note:

* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

Radon test result report for:**SMITH ENVIRONMENTAL EDUCATION CENTE
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7975181	BALT CHE MID	2017-11-28 @ 11:00 am	2017-12-01 @ 3:00 pm	2.2 ± 0.3	2017-12-04
7975182	BALT CHE NW	2017-11-28 @ 11:00 am	2017-12-01 @ 3:00 pm	2.2 ± 0.3	2017-12-05
7975177	BALT CHE SE	2017-11-28 @ 11:00 am	2017-12-01 @ 3:00 pm	2.1 ± 0.3	2017-12-05
7975178	BALT ORI MID	2017-11-28 @ 11:00 am	2017-12-01 @ 3:00 pm	1.5 ± 0.3	2017-12-05
7975176	BALT ORI SE	2017-11-28 @ 11:00 am	2017-12-01 @ 3:00 pm	1.4 ± 0.3	2017-12-05
7975170	BLK EYE MID	2017-11-28 @ 11:00 am	2017-12-01 @ 3:00 pm	1.5 ± 0.3	2017-12-05
7975175	BLK EYE NW	2017-11-28 @ 11:00 am	2017-12-01 @ 3:00 pm	1.5 ± 0.3	2017-12-05
7975184	BLK EYE SE	2017-11-28 @ 11:00 am	2017-12-01 @ 2:00 pm	1.1 ± 0.3	2017-12-05
7975196	HEALTH RM	2017-11-28 @ 11:00 am	2017-12-01 @ 2:00 pm	0.8 ± 0.3	2017-12-05
7978580	OB	2017-11-28 @ 3:00 pm	2017-12-01 @ 3:00 pm	< 0.3	2017-12-05
7975195	OFFICE	2017-11-28 @ 11:00 am	2017-12-01 @ 2:00 pm	0.7 ± 0.3	2017-12-05
7975168	PUP ROOM	2017-11-28 @ 11:00 am	2017-12-01 @ 2:00 pm	0.9 ± 0.3	2017-12-05
7975169	PUP STORM SHULTE	2017-11-28 @ 11:00 am	2017-12-01 @ 3:00 pm	1.0 ± 0.3	2017-12-04
7975198	RETRIEVER ROOM	2017-11-28 @ 12:00 pm	2017-12-01 @ 2:00 pm	0.9 ± 0.3	2017-12-05
7975180	SOLAR HOUSE	2017-11-28 @ 12:00 pm	2017-12-01 @ 3:00 pm	< 0.3	2017-12-04
7975188	SPR BAS NW	2017-11-28 @ 11:00 am	2017-12-01 @ 2:00 pm	2.3 ± 0.3	2017-12-04
7975194	SPR BAS SE	2017-11-28 @ 11:00 am	2017-12-01 @ 2:00 pm	2.7 ± 0.4	2017-12-04
7975193	SPR BS MID	2017-11-28 @ 11:00 am	2017-12-01 @ 2:00 pm	2.7 ± 0.4	2017-12-05
7975191	STAFF BDRM	2017-11-28 @ 11:00 am	2017-12-01 @ 3:00 pm	0.6 ± 0.3	2017-12-04
7975199	STAFF BDRM	2017-11-28 @ 11:00 am	2017-12-01 @ 3:00 pm	< 0.3	2017-12-05
7975189	STAFF BDRM	2017-11-28 @ 11:00 am	2017-12-01 @ 3:00 pm	0.7 ± 0.3	2017-12-05
7975185	STAFF ROOM	2017-11-28 @ 11:00 am	2017-12-01 @ 2:00 pm	0.7 ± 0.4	2017-12-05
7975192	STAFF ROOM	2017-11-28 @ 11:00 am	2017-12-01 @ 2:00 pm	0.6 ± 0.3	2017-12-05
7975186	STAFF ROOM	2017-11-28 @ 11:00 am	2017-12-01 @ 2:00 pm	< 0.3	2017-12-05
7975190	SUPERVISOR	2017-11-28 @ 11:00 am	2017-12-01 @ 3:00 pm	0.8 ± 0.3	2017-12-05
7975173	WHITE OAK	2017-11-28 @ 11:00 am	2017-12-01 @ 2:00 pm	0.9 ± 0.3	2017-12-05
7975174	WHITE OAK	2017-11-28 @ 11:00 am	2017-12-01 @ 2:00 pm	0.5 ± 0.3	2017-12-05

December 21, 2017

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

**SMITH ENVIRONMENTAL EDUCATION CENTE
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7975183	BALT ORI NW	@	@		
7975187	STORM SHELTER AR	@	@		

Air Chek, Inc. 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 Phase

Names of Schools:

- | | |
|------------------------------------|-----------------------------------|
| 1. Chevy Chase Elementary School | 15. Viers Mill Elementary School |
| 2. Greencastle Elementary School | 16. Albert Einstein High School |
| 3. English Manor | 17. Wayside Elementary School |
| 4. Rock View Elementary School | 18. Thomas S. Wootton High School |
| 5. Wheaton Woods Elementary School | 19. Highland Elementary School |
| 6. Sequoyah Elementary School | 20. Bethesda Transportation Depot |
| 7. Fallsmead Elementary School | 21. Bethesda Maintenance Depot |
| 8. Beall Elementary School | 22. Travilah Elementary School |
| 9. Stephen Knolls School | 23. Lathrop E. Smith Center |
| 10. Maryvale Elementary School | |
| 11. Redland Middle School | |
| 12. Walt Whitman High School | |
| 13. Springbrook High School | |
| 14. Blair G. Ewing Center | |

	Date	Initials
Radon Test Kits Deployed	11/28/17	JM
Radon Test Kits Collected	12/01/17	JM
Radon Test Kits Shipped to Lab*	12/01/17	JM
Radon Test Kits Received by Lab*	12/05/17	JM

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

Radon test result report for:**TRANSIT 1****NONE**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7978062	TRANSIT 1	2017-11-27 @ 4:00 pm	2017-11-30 @ 4:00 pm	< 0.3	2017-12-04
7975804	TRANSIT 10	2017-11-27 @ 4:00 pm	2017-11-30 @ 4:00 pm	< 0.3	2017-12-04
7977990	TRANSIT 11	2017-11-27 @ 4:00 pm	2017-11-30 @ 4:00 pm	< 0.3	2017-12-04
7978201	TRANSIT 12	2017-11-27 @ 4:00 pm	2017-11-30 @ 4:00 pm	< 0.3	2017-12-04
7978203	TRANSIT 13	2017-11-27 @ 4:00 pm	2017-11-30 @ 4:00 pm	< 0.3	2017-12-04
7978206	TRANSIT 14	2017-11-27 @ 4:00 pm	2017-11-30 @ 4:00 pm	< 0.3	2017-12-05
7978246	TRANSIT 15	2017-11-27 @ 4:00 pm	2017-11-30 @ 4:00 pm	< 0.3	2017-12-05
7978239	TRANSIT 16	2017-11-27 @ 4:00 pm	2017-11-30 @ 4:00 pm	< 0.3	2017-12-05
7978226	TRANSIT 17	2017-11-27 @ 4:00 pm	2017-11-30 @ 4:00 pm	< 0.3	2017-12-05
7975078	TRANSIT 18	2017-11-27 @ 4:00 pm	2017-11-30 @ 4:00 pm	< 0.3	2017-12-05
7975077	TRANSIT 19	2017-11-27 @ 4:00 pm	2017-11-30 @ 4:00 pm	< 0.3	2017-12-05
7978074	TRANSIT 2	2017-11-27 @ 4:00 pm	2017-11-30 @ 4:00 pm	< 0.3	2017-12-04
7975076	TRANSIT 20	2017-11-27 @ 4:00 pm	2017-11-30 @ 4:00 pm	< 0.3	2017-12-04
7975684	TRANSIT 21	2017-11-27 @ 4:00 pm	2017-11-30 @ 4:00 pm	< 0.3	2017-12-04
7975683	TRANSIT 22	2017-11-27 @ 4:00 pm	2017-11-30 @ 4:00 pm	< 0.3	2017-12-04
7975601	TRANSIT 23	2017-11-27 @ 4:00 pm	2017-11-30 @ 4:00 pm	< 0.3	2017-12-04
7978011	TRANSIT 24	2017-11-27 @ 4:00 pm	2017-11-30 @ 4:00 pm	< 0.3	2017-12-04
7978012	TRANSIT 25	2017-11-27 @ 4:00 pm	2017-11-30 @ 4:00 pm	< 0.3	2017-12-04
7978094	TRANSIT 26	2017-11-27 @ 4:00 pm	2017-11-30 @ 4:00 pm	< 0.3	2017-12-05
7975624	TRANSIT 27	2017-11-27 @ 4:00 pm	2017-11-30 @ 4:00 pm	< 0.3	2017-12-05
7834562	TRANSIT 28	2017-11-27 @ 4:00 pm	2017-11-30 @ 4:00 pm	< 0.3	2017-12-05
7977995	TRANSIT 29	2017-11-27 @ 4:00 pm	2017-11-30 @ 4:00 pm	< 0.3	2017-12-05
7978098	TRANSIT 3	2017-11-27 @ 4:00 pm	2017-11-30 @ 4:00 pm	< 0.3	2017-12-04
7977992	TRANSIT 30	2017-11-27 @ 4:00 pm	2017-11-30 @ 4:00 pm	< 0.3	2017-12-04
7978719	TRANSIT 4	2017-11-27 @ 4:00 pm	2017-11-30 @ 4:00 pm	< 0.3	2017-12-05
7978732	TRANSIT 5	2017-11-27 @ 4:00 pm	2017-11-30 @ 4:00 pm	< 0.3	2017-12-04
7978731	TRANSIT 6	2017-11-27 @ 4:00 pm	2017-11-30 @ 4:00 pm	< 0.3	2017-12-04
7975806	TRANSIT 7	2017-11-27 @ 4:00 pm	2017-11-30 @ 4:00 pm	< 0.3	2017-12-04
7975815	TRANSIT 8	2017-11-27 @ 4:00 pm	2017-11-30 @ 4:00 pm	< 0.3	2017-12-04
7975805	TRANSIT 9	2017-11-27 @ 4:00 pm	2017-11-30 @ 4:00 pm	< 0.3	2017-12-04

December 19, 2017

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

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

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

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

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI Technologies Inc. Job Number 182393

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

Date Start: 12/1/17 Date Stop: 12/4/17 Date Start: _____ Date Stop: _____

Time Start: 1049 Time Stop: 1049 Time Start: _____ Time Stop: _____

Device No.'s: (6) Chan. Bags. Device No.'s: _____

7975075, 7975064, 7975063, _____

7975065, 7975069, 7975070 _____

F4 Right

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

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

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

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

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

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

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



MCPS RADON TESTING

Executive Summary: Lathrop E. Smith Environmental Education Center

Date of Test Report:	10/20/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	4
# Rooms \geq 4.0 pCi/L:	0
Low Value:	< 0.3
High Value:	< 0.3

Project Status:

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



ENGINEERS • PLANNERS • SCIENTISTS • CONSTRUCTION MANAGERS

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

October 13, 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: Lathrop E. Smith Environmental Education Center
5110 Meadowside Lane
Rockville, Maryland 20855

Dear Mr. Cox:

KCI Technologies, Inc. (KCI) is pleased to submit the following report to the Montgomery County Public Schools (MCPS) pursuant to completing a “short-term” 3 day radon test for the Lathrop E. Smith Environmental Education Center, located at 5110 Meadowside Lane in Rockville, Maryland 20855 (subject site).

Scope of Services:

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

KCI visited the site on September 27, 2016 and deployed five (5) activated charcoal (AC) radon test kits. KCI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. A floor plan map of the building with the test locations is included as Attachment A of this report.

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

KCI returned to the site on September 30, 2016 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Airchek, Inc. for analysis by gamma-ray spectroscopy. Airchek, Inc. is a NRSB certified analytical laboratory for radon analysis (certification # ARL1402) located at 1936

Butler Bridge Road, Mills River, North Carolina.

Evaluation of Testing Conditions:

These tests represent:

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

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

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

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

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

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

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

Results:

The results of the radon test analysis indicated the following:

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

Notes:

D- Duplicate sample

The lab transit blanks and office 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		
Lathrop E Smith Center		
Test Period: 09/27/16-09/30/16		
Kit Number	Room / Area	Result
7802586	MAIN 1	< 0.3
7802589	MAIN 2	< 0.3
7802579	MAIN 3	< 0.3
7802587	MAIN OFFICE	< 0.3

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
Lathrop E Smith Center		
Test Period: 09/27/16-09/30/16		
Kit Number	QC Type	Result
7802588	D (MAIN OFFICE)	< 0.3

Table Note:

* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

October 7, 2016

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

**LATHROP E SMITH CENTER
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7802586	MAIN 1	2016-09-27 @ 11:00 am	2016-09-30 @ 9:00 am	< 0.3	2016-10-03
7802589	MAIN 2	2016-09-27 @ 11:00 am	2016-09-30 @ 9:00 am	< 0.3	2016-10-03
7802579	MAIN 3	2016-09-27 @ 11:00 am	2016-09-30 @ 9:00 am	< 0.3	2016-10-03
7802588	MAIN OFFICE	2016-09-27 @ 11:00 am	2016-09-30 @ 9:00 am	< 0.3	2016-10-03
7802587	MAIN OFFICE	2016-09-27 @ 11:00 am	2016-09-30 @ 9:00 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 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

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 LATHROP E. SMITH CENTER

5110 Meadowside Lane, Rockville, Maryland 20855

EXECUTIVE SUMMARY

Date of Test Report:	3/14/16 Follow-Up
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested	3
# Rooms \geq 4.0 pCi/L:	2
Low Value:	1.2
High Value:	4.5
Confirmed Rooms \geq 4.0 pCi/L US EPA Action Level	2

Summary of Sampling Events ≥ 4.0 pCi/L

[illegible]



MCPS RADON TESTING

Executive Summary: Lathrop E. Smith Environmental Education Center

Date of Test Report:	3/14/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	3
# Rooms \geq 4.0 pCi/L:	2
Low Value:	1.2
High Value:	4.5

Rooms with results \geq 4.0 pCi/L:
Main 1 (4.5 pCi/L), Main 3 (4.1 pCi/L)

Project Status:

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



ENGINEERS • PLANNERS • SCIENTISTS • CONSTRUCTION MANAGERS

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

March 14, 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: Lathrop E. Smith Environmental Education Center
5110 Meadows Lane
Rockville, Maryland 20855

Dear Mr. Cox:

KCI Technologies, Inc. (KCI) is pleased to submit the following report to the Montgomery County Public Schools (MCPS) pursuant to completing a “short-term” 3 day radon test for the Travilah Elementary School, located at 5110 Meadows Lane in Rockville, Maryland 20855 (subject site).

Scope of Services:

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

KCI visited the site on February 22, 2016 and deployed five (5) activated charcoal (AC) radon test kits. KCI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. A floor plan map of the building with the test locations is included as Attachment A of this report.

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

KCI returned to the site on February 25, 2016 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Airchek, Inc. for analysis by gamma-ray spectroscopy. Airchek, Inc. is a NRSB certified analytical laboratory for radon analysis (certification # ARL1402) located at 1936

Butler Bridge Road, Mills River, North Carolina.

Evaluation of Testing Conditions:

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

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

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

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

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

Results:

The results of the radon test analysis indicated the following:

Radon Concentration	Room	Result
≥ 4.0 pCi/L	Main 1	4.5
	Main 3	4.1
< 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		
Smith Environmental Center		
Test Period: 02/22/16-02/25/16		
Kit Number	Room / Area	Result
7729797	BALT ORIOL DORM4	1.2
7729795	MAIN 1	4.5
7729796	MAIN 3	4.1

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
Smith Environmental Center		
Test Period: 02/22/16-02/25/16		
Kit Number	QC Type	Result
7726830	D (MAIN 1)	4.5
7726831	FB (MAIN 1)	< 0.3

Table Note:

* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

March 8, 2016

**** LABORATORY ANALYSIS
REPORT ****

Radon test result report for:
**SMITH ENVIRONMENTAL CENTER
BALT ORIOLE DORM**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7729797	BALT ORIOL DORM4	2016-02-22 @ 9:00 am	2016-02-25 @ 7:00 am	1.2 ± 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 8, 2016

**** LABORATORY ANALYSIS
REPORT ****

Radon test result report for:
**SMITH ENVIRONMENTAL CENTER
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7726830	MAIN 1	2016-02-22 @ 2:00 pm	2016-02-25 @ 7:00 am	4.5 ± 0.5	2016-02-29
7726831	MAIN 1	2016-02-22 @ 2:00 pm	2016-02-25 @ 7:00 am	< 0.3	2016-02-29
7729795	MAIN 1	2016-02-22 @ 9:00 am	2016-02-25 @ 7:00 am	4.5 ± 0.4	2016-02-29
7729796	MAIN 3	2016-02-22 @ 9:00 am	2016-02-25 @ 7:00 am	4.1 ± 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



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 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: Lathrop E. Smith Environmental Education Center

Date of Test Report:	1/6/2016 (Rev1)
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	31
# Rooms \geq 4.0 pCi/L:	0
Low Value:	< 0.3
High Value:	3.9

Project Status:

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



January 6, 2016 (Rev1)

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

Re: **Radon Testing Services**
KCI Job # 12146341.19

Location: Lathrop E. Smith Environmental Education Center
5110 Meadowside Lane
Rockville, MD 20855

Dear Mr. Cox:

KCI Technologies, Inc. (KCI) is pleased to submit the following report to the Montgomery County Public Schools (MCPS) pursuant to completing a “short-term” 3 day radon test for the Lathrop E. Smith Environmental Education Center, located at 5110 Meadowside Lane in Rockville, Maryland 20855 (subject site).

Scope of Services:

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

KCI visited the site on December 15, 2015 and deployed sixty-six (66) activated charcoal (AC) radon test kits. KCI deployed radon test kits in all frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. 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 25 duplicate samples (10%), 9 field blanks (3%), and 1 office blank (1%). Prior to sampling, KCI returned 1% of the test batch to the laboratory for analysis as lab transit blanks. In addition, KCI submitted six (6) test kits to Bowser-Morner, Inc. as spike samples. The spiked tests were exposed to a known radon concentration by Bowser-Morner prior to being returned to the laboratory for analysis.

KCI returned to the site on December 18, 2015 to retrieve the radon sampling test kits. KCI shipped all

radon tests via overnight delivery to Airchek, Inc. for analysis by gamma-ray spectroscopy. Airchek, Inc. is a NRSB certified analytical laboratory for radon analysis (certification # ARL1402) located at 1936 Butler Bridge Road, Mills River, North Carolina.

Evaluation of Testing Conditions:

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

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 during the deployment and collection of the radon test kits:

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

Results:

The results of the radon test analysis indicated the following:

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

Notes:

D- Duplicate sample

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

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

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

Sincerely,



James M. 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

M:\2014\12146341.19\Reports\Smith Center\MCPs radon letter report- Smith Center.doc

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		
Lathrop E. Smith Environmental Education Center		
Test Period: 12/15/15-12/18/15		
Kit Number	Room / Area	Result
7705188	Baltimore Oriole Dorm - 1	1.4
7706554	Baltimore Oriole Dorm - 2	1.4
7704951	Baltimore Oriole Dorm - 3	1.3
7704921	*Baltimore Oriole Dorm - 4 (Tampered)	1
7704930	Baltimore Checker Spot Dorm - 2	1.6
7704928	Baltimore Checker Spot Dorm - 4	1.5
7704920	Baltimore Checker Spot Dorm - 3	1.4
7706555	Baltimore Checker Spot Dorm - 1	1.1
7704908	Black Eyed Susan Dorm - 4	1.5
7704904	Black Eyed Susan Dorm - 2	1.3
7704931	Black Eyed Susan Dorm - 3	1.2
7704910	Black Eyed Susan Dorm - 1	1
7704936	Striped Bass Dorm - 2	1.8
7704934	Striped Bass Dorm - 3	1.6
7704942	Striped Bass Dorm - 1	1.4
7704949	Striped Bass Dorm - 4	1.4
7704923	EARTH COTTAGE - MAIN	< 0.3
7706570	MAIN - 3	3.9
7706559	MAIN - 1	3.5
7706561	MAIN - 6	3.1
7706562	MAIN - 11	3.1
7706563	MAIN - 14	3.1
7706558	MAIN - 13	2.9
7706565	MAIN - 5	2.7
7706551	MAIN - 7	2.7
7706560	MAIN - 12	2.7
7706566	MAIN - 4	2.4
7706552	MAIN - 7	2.4
7704926	SOLAR SCHOOL - MAIN	< 0.3
7704912	SOLAR SCHOOL - TINSHOP	0.6
7704932	STREAM COTTAGE - MAIN	< 0.3

Table Notes:

* Missing or Compromised Sample

Radon Testing Results		
Lathrop E. Smith Environmental Education Center		
Test Period: 12/15/15-12/18/15		
Kit Number	QC Type	Result
7704935	FB (Baltimore Oriole Dorm - 4)	< 0.3
7704947	D (Baltimore Oriole Dorm - 3)	1.3
7706553	D (Baltimore Oriole Dorm - 1)	1
7704953	D (Baltimore Oriole Dorm - 2)	1
7704919	FB (Baltimore Checker Spot Dorm - 4)	< 0.3
7704929	D (Baltimore Checker Spot Dorm - 3)	1.9
7704927	D (Baltimore Checker Spot Dorm - 1)	1.5
7704922	D (Baltimore Checker Spot Dorm - 2)	1.2
7704907	FB (Black Eyed Susan Dorm - 4)	< 0.3
7704906	D (Black Eyed Susan Dorm - 1)	1.3
7704911	D (Black Eyed Susan Dorm - 2)	1.3
7704940	D (Black Eyed Susan Dorm - 3)	1
7704944	FB (Striped Bass Dorm - 4)	< 0.3
7704950	D (Striped Bass Dorm - 1)	1.7
7704946	D (Striped Bass Dorm - 3)	1.6
7704939	D (Striped Bass Dorm - 2)	1.5
7704909	D (EARTH COTTAGE - MAIN)	< 0.3
7704917	FB (EARTH COTTAGE - MAIN)	< 0.3
7704905	D (EARTH COTTAGE - MAIN)	0.6
7704925	D (EARTH COTTAGE - MAIN)	0.5
7706557	FB (MAIN - 6)	< 0.3
7706567	D (MAIN - 4)	3.2
7706568	D (MAIN - 3)	2.7
7706564	D (MAIN - 5)	2.1
7704391	OB (OFFICE BLANK - OFFICE BLANK)	< 0.3
7704902	D (SOLAR SCHOOL - MAIN)	< 0.3
7704924	FB (SOLAR SCHOOL - MAIN)	< 0.3
7704933	D (SOLAR SCHOOL - MAIN)	< 0.3
7704914	D (SOLAR SCHOOL - TINSHOP)	< 0.3
7704915	D (SOLAR SCHOOL - TINSHOP)	< 0.3
7704918	FB (SOLAR SCHOOL - TINSHOP)	< 0.3
7704901	D (STREAM COTTAGE - MAIN)	< 0.3
7704913	D (STREAM COTTAGE - MAIN)	< 0.3
7704916	D (STREAM COTTAGE - MAIN)	< 0.3
7704938	FB (STREAM COTTAGE - MAIN)	< 0.3

ATTACHMENT C

Laboratory Analytical Results

December
30,
2015

****LABORATORY ANALYSIS
REPORT ****

Radon test result report for:
**SMITH CENTER
DORM 1**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7705188	1	2015-12-15 @ 3:00 pm	2015-12-18 @ 10:00 am	1.4 ± 0.3	2015-12-22
7706553	1	2015-12-15 @ 3:00 pm	2015-12-18 @ 10:00 am	1.0 ± 0.3	2015-12-22
7704953	2	2015-12-15 @ 3:00 pm	2015-12-18 @ 10:00 am	1.0 ± 0.3	2015-12-22
7706554	2	2015-12-15 @ 3:00 pm	2015-12-18 @ 10:00 am	1.4 ± 0.3	2015-12-22
7704947	3	2015-12-15 @ 3:00 pm	2015-12-18 @ 10:00 am	1.3 ± 0.3	2015-12-22
7704951	3	2015-12-15 @ 3:00 pm	2015-12-18 @ 10:00 am	1.3 ± 0.3	2015-12-22
7704921	4	2015-12-15 @ 3:00 pm	2015-12-18 @ 10:00 am	1.0 ± 0.3	2015-12-22
7704935	4	2015-12-15 @ 3:00 pm	2015-12-18 @ 10:00 am	< 0.3	2015-12-22

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

December
30,
2015

****LABORATORY ANALYSIS
REPORT ****

Radon test result report for:
**SMITH CENTER
DORM 2**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7706555	1	2015-12-15 @ 4:00 pm	2015-12-18 @ 10:00 am	1.1 ± 0.3	2015-12-22
7704927	1	2015-12-15 @ 4:00 pm	2015-12-18 @ 10:00 am	1.5 ± 0.3	2015-12-22
7704922	2	2015-12-15 @ 4:00 pm	2015-12-18 @ 10:00 am	1.2 ± 0.3	2015-12-22
7704930	2	2015-12-15 @ 4:00 pm	2015-12-18 @ 10:00 am	1.6 ± 0.3	2015-12-22
7704920	3	2015-12-15 @ 4:00 pm	2015-12-18 @ 10:00 am	1.4 ± 0.3	2015-12-22
7704929	3	2015-12-15 @ 4:00 pm	2015-12-18 @ 10:00 am	1.9 ± 0.3	2015-12-22
7704919	4	2015-12-15 @ 4:00 pm	2015-12-18 @ 10:00 am	< 0.3	2015-12-22
7704928	4	2015-12-15 @ 4:00 pm	2015-12-18 @ 10:00 am	1.5 ± 0.3	2015-12-22

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

December
30,
2015

**** LABORATORY ANALYSIS
REPORT ****

Radon test result report for:
**SMITH CENTER
DORM 3**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7704906	1	2015-12-15 @ 4:00 pm	2015-12-18 @ 10:00 am	1.3 ± 0.3	2015-12-22
7704910	1	2015-12-15 @ 4:00 pm	2015-12-18 @ 10:00 am	1.0 ± 0.3	2015-12-22
7704904	2	2015-12-15 @ 4:00 pm	2015-12-18 @ 10:00 am	1.3 ± 0.3	2015-12-22
7704911	2	2015-12-15 @ 4:00 pm	2015-12-18 @ 10:00 am	1.3 ± 0.3	2015-12-22
7704940	3	2015-12-15 @ 4:00 pm	2015-12-18 @ 10:00 am	1.0 ± 0.3	2015-12-22
7704931	3	2015-12-15 @ 4:00 pm	2015-12-18 @ 10:00 am	1.2 ± 0.3	2015-12-22
7704907	4	2015-12-15 @ 4:00 pm	2015-12-18 @ 10:00 am	< 0.3	2015-12-22
7704908	4	2015-12-15 @ 4:00 pm	2015-12-18 @ 10:00 am	1.5 ± 0.3	2015-12-22

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

December
30,
2015

**** LABORATORY ANALYSIS
REPORT ****

Radon test result report for:
**SMITH CENTER
DORM 4**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7704942	1	2015-12-15 @ 3:00 pm	2015-12-18 @ 10:00 am	1.4 ± 0.3	2015-12-22
7704950	1	2015-12-15 @ 3:00 pm	2015-12-18 @ 10:00 am	1.7 ± 0.3	2015-12-22
7704936	2	2015-12-15 @ 3:00 pm	2015-12-18 @ 10:00 am	1.8 ± 0.3	2015-12-22
7704939	2	2015-12-15 @ 3:00 pm	2015-12-18 @ 10:00 am	1.5 ± 0.3	2015-12-22
7704946	3	2015-12-15 @ 3:00 pm	2015-12-18 @ 10:00 am	1.6 ± 0.3	2015-12-22
7704934	3	2015-12-15 @ 3:00 pm	2015-12-18 @ 10:00 am	1.6 ± 0.3	2015-12-22
7704944	4	2015-12-15 @ 3:00 pm	2015-12-18 @ 10:00 am	< 0.3	2015-12-22
7704949	4	2015-12-15 @ 3:00 pm	2015-12-18 @ 10:00 am	1.4 ± 0.3	2015-12-22

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

December
30,
2015

****LABORATORY ANALYSIS
REPORT ****

Radon test result report for:
**SMITH CENTER
EARTH COTTAGE**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7704905	MAIN	2015-12-15 @ 5:00 pm	2015-12-18 @ 10:00 am	0.6 ± 0.3	2015-12-22
7704909	MAIN	2015-12-15 @ 5:00 pm	2015-12-18 @ 10:00 am	< 0.3	2015-12-22
7704917	MAIN	2015-12-15 @ 6:00 pm	2015-12-18 @ 10:00 am	< 0.3	2015-12-22
7704923	MAIN	2015-12-15 @ 5:00 pm	2015-12-18 @ 10:00 am	< 0.3	2015-12-22
7704925	MAIN	2015-12-15 @ 5:00 pm	2015-12-18 @ 10:00 am	0.5 ± 0.3	2015-12-22

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

December
30,
2015

****LABORATORY ANALYSIS
REPORT ****

Radon test result report for:

**SMITH CENTER
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7706559	1	2015-12-15 @ 3:00 pm	2015-12-18 @ 9:00 am	3.5 ± 0.4	2015-12-22
7706562	11	2015-12-15 @ 3:00 pm	2015-12-18 @ 10:00 am	3.1 ± 0.4	2015-12-22
7706560	12	2015-12-15 @ 3:00 pm	2015-12-18 @ 10:00 am	2.7 ± 0.4	2015-12-22
7706558	13	2015-12-15 @ 3:00 pm	2015-12-18 @ 10:00 am	2.9 ± 0.4	2015-12-22
7706563	14	2015-12-15 @ 3:00 pm	2015-12-18 @ 9:00 am	3.1 ± 0.4	2015-12-22
7706568	3	2015-12-15 @ 2:00 pm	2015-12-18 @ 9:00 am	2.7 ± 0.4	2015-12-22
7706570	3	2015-12-15 @ 2:00 pm	2015-12-18 @ 9:00 am	3.9 ± 0.4	2015-12-22
7706566	4	2015-12-15 @ 2:00 pm	2015-12-18 @ 10:00 am	2.4 ± 0.4	2015-12-22
7706567	4	2015-12-15 @ 2:00 pm	2015-12-18 @ 10:00 am	3.2 ± 0.4	2015-12-22
7706564	5	2015-12-15 @ 2:00 pm	2015-12-18 @ 10:00 am	2.1 ± 0.3	2015-12-22
7706565	5	2015-12-15 @ 2:00 pm	2015-12-18 @ 10:00 am	2.7 ± 0.4	2015-12-22
7706557	6	2015-12-15 @ 2:00 pm	2015-12-18 @ 9:00 am	< 0.3	2015-12-22
7706561	6	2015-12-15 @ 2:00 pm	2015-12-18 @ 9:00 am	3.1 ± 0.4	2015-12-22
7706551	7	2015-12-15 @ 3:00 pm	2015-12-18 @ 10:00 am	2.7 ± 0.4	2015-12-22
7706552	7	2015-12-15 @ 3:00 pm	2015-12-18 @ 10:00 am	2.4 ± 0.4	2015-12-22

December
30,
2015

**** LABORATORY ANALYSIS
REPORT ****

Radon test result report for:
**SMITH CENTER
OFFICE BLANK**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7704391	OFFICE BLANK	2015-12-15 @ 3:00 pm	2015-12-18 @ 3:00 pm	< 0.3	2015-12-22

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

December
30,
2015

****LABORATORY ANALYSIS
REPORT ****

Radon test result report for:
**SMITH CENTER
SOLAR SCHOOL**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7704902	MAIN	2015-12-15 @ 5:00 pm	2015-12-18 @ 10:00 am	< 0.3	2015-12-22
7704924	MAIN	2015-12-15 @ 4:00 pm	2015-12-18 @ 10:00 am	< 0.3	2015-12-22
7704926	MAIN	2015-12-15 @ 5:00 pm	2015-12-18 @ 10:00 am	< 0.3	2015-12-22
7704933	MAIN	2015-12-15 @ 5:00 pm	2015-12-18 @ 10:00 am	< 0.3	2015-12-22
7704912	TINSHOP	2015-12-15 @ 5:00 pm	2015-12-18 @ 10:00 am	0.6 ± 0.3	2015-12-22
7704914	TINSHOP	2015-12-15 @ 5:00 pm	2015-12-18 @ 10:00 am	< 0.3	2015-12-22
7704915	TINSHOP	2015-12-15 @ 5:00 pm	2015-12-18 @ 10:00 am	< 0.3	2015-12-22
7704918	TINSHOP	2015-12-15 @ 5:00 pm	2015-12-18 @ 10:00 am	< 0.3	2015-12-22

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

December
30,
2015

****LABORATORY ANALYSIS
REPORT ****

Radon test result report for:
**SMITH CENTER
STREAM COTTAGE**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7704938	MAIN	2015-12-15 @ 5:00 pm	2015-12-18 @ 10:00 am	< 0.3	2015-12-22
7704901	MAIN	2015-12-15 @ 5:00 pm	2015-12-18 @ 10:00 am	< 0.3	2015-12-22
7704913	MAIN	2015-12-15 @ 5:00 pm	2015-12-18 @ 10:00 am	< 0.3	2015-12-22
7704916	MAIN	2015-12-15 @ 5:00 pm	2015-12-18 @ 10:00 am	< 0.3	2015-12-22
7704932	MAIN	2015-12-15 @ 5:00 pm	2015-12-18 @ 10:00 am	< 0.3	2015-12-22

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

December
29,
2015

****LABORATORY ANALYSIS
REPORT ****

Radon test result report for:
TRANSIT DEC 14 2015
NONE

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

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

Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase I

Name of Schools:

- | | | | |
|----------------------------|------------------------|------------------------|-----------------------|
| 1. Westland M.S. | 6. South Lake E.S. | 11. Highland View E.S. | 16. Ridgeview M.S. |
| 2. East Silver Spring E.S. | 7. Jones Lane E.S. | 12. Cresthaven E.S. | 17. Rockwell E.S. |
| 3. Oakland Terrace E.S. | 8. Quince Orchard H.S. | 13. Viers Mill E.S. | 18. Oak View E.S. |
| 4. Rocking Horse Road E.S. | 9. Damascus E.S. | 14. Smith Center | 19. Jackson Road E.S. |
| 5. Beall E.S. | 10. Westbrooke E.S. | 15. Rosemont E.S. | 20. Highland E.S. |
| | | | 21. Watkins Mill E.S. |

	Date	Initials
Radon Test Kits Deployed	12/15/15	KM
Radon Test Kits Collected	12/18/15	KM
Radon Test Kits Shipped to Lab*	12/18/15	KM
Radon Test Kits Received by Lab*	12/22/15	KM

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



MCPS RADON TESTING – EXECUTIVE SUMMARY

Site Name	Smith, Lathrope E. Environmental Education Center
Date of Test Report	01/20/2022
Round of Testing	Initial Follow-up Post Remediation <u>2 Year Testing</u> 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility
# Rooms Tested	27
# Rooms ≥ 4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	2.8 pCi/L

Project Status

Current Project Status at this time: Testing Complete; no further action.



ENGINEERS • PLANNERS • SCIENTISTS • CONSTRUCTION MANAGERS

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

January 20, 2022

Mr. Richard Cox
Indoor Air Quality Team Leader
Montgomery County Public Schools
Gaithersburg, MD 20879

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

Location: Smith, Lathrope E. Environmental Education Center
5110 Meadowside Lane
Rockville, MD 20855

Dear Mr. Cox:

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 Smith, Lathrope E. Environmental Education Center located at 5110 Meadowside Lane Rockville, MD 20855 (subject site).

Scope of Services:

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

KCI visited the site on December 13, 2021 and deployed thirty-one (31) activated charcoal (AC) radon test kits. KCI deployed radon test kits in all frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance.

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

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

KCI returned to the site on December 16, 2021 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 post-mitigation biennial testing.

These tests were conducted to:

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

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

KCI recorded observations of the following conditions in each room 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 30°Fs and high temperatures ranged from the mid 50°Fs to the high 60°Fs. Maximum sustained winds ranged from 3-12 miles per hour. Average humidity was around 50% with 0.0 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	NA	NA
<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 Spreadsheets

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		
Smith, Lathrop E. Environmental Education Center		
Test Period: 12/13/2021-12/16/2021		
Kit Number	Room / Area	Result
9339710	SOLAR SCHOOLHOUSE	< 0.3
9339902	STRIPED BASS NW	2.1
9339914	BES GENDER NEUTRAL ROOM	1.5
9339916	STRIPED BASS SE	2.6
9339917	SUPERVISOR	0.7
9339921	BES NW	1.3
9339926	OFFICE	1
9339927	PLANETARIUM	2.8
9341768	STRIPED BASS FRONT ROOM	2.2
9341774	NURSE OFFICE	0.7
9341775	SHOP	1
9341795	BALTIMORE CHECKERSPOT LEFT SIDE ROO	< 0.3
9346983	BACK OFFICE	0.9
9346988	CAFETERIA	0.8
9346989	SHOP	0.9
9346990	LIBRARY	0.8
9346991	BALTIMORE CHECKERSPOT LEFT SIDE ROO	1.5
9348329	STRIPED BASS GENDER NEUTRAL	2.2
9348335	BALTIMORE CHECKERSPOT RIGHT ROOM	1.5
9348336	BALTIMORE ORIOLE	2.3
9348347	BALTIMORE CHECKERSPOT BACK ROOM	1.7
9348355	CAFETERIA	1.2
9348361	BOYS	2.5
9348366	BALTIMORE CHECKERSPOT FRONT ROOM	1.7
9348369	PUP ROOM	1.7
9348377	BREAKROOM	0.8
9348388	BALTIMORE CHECKERSPOT LEFT SIDE ROO	1.7
9348390	GENDER NEUTRAL	1.8
9348391	BES SE	1.4
9348393	SOLAR SCHOOLHOUSE	0.6
9348394	GIRLS	2.2

Table 2- Radon Testing Results			
Smith, Lathrop E. Environmental Education Center			
Test Period: 12/13/2021-12/16/2021			
Kit Number	QC Type	Room / Area	Result
9346989	D	Shop	0.9
9348388	D	Baltimore checkerspot left side room	1.7
9341795	FB	Baltimore checkerspot left side room	< 0.3
9348393	D	Solar Schoolhouse	0.6
9347000	OB	OFFICE BLANK	< 0.3
9347992	TB	TRAVEL BLANK	< 0.3

ATTACHMENT C

Laboratory Analytical Results

Radon test result report for:**SMITH EEC
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9346983	BACK OFFICE	2021-12-13 @ 7:00 am	2021-12-16 @ 7:00 am	0.9 ± 0.3	2021-12-17
9348347	BALTIMORE CHECKERSPOT BACK ROOM	2021-12-13 @ 9:00 am	2021-12-16 @ 8:00 am	1.7 ± 0.3	2021-12-17
9348366	BALTIMORE CHECKERSPOT FRONT ROOM	2021-12-13 @ 8:00 am	2021-12-16 @ 8:00 am	1.7 ± 0.3	2021-12-17
9346991	BALTIMORE CHECKERSPOT LEFT SIDE ROO	2021-12-13 @ 9:00 am	2021-12-16 @ 8:00 am	1.5 ± 0.3	2021-12-17
9348388	BALTIMORE CHECKERSPOT LEFT SIDE ROO	2021-12-13 @ 9:00 am	2021-12-16 @ 8:00 am	1.7 ± 0.3	2021-12-17
9341795	BALTIMORE CHECKERSPOT LEFT SIDE ROO	2021-12-13 @ 9:00 am	2021-12-16 @ 8:00 am	< 0.3	2021-12-17
9348335	BALTIMORE CHECKERSPOT RIGHT ROOM	2021-12-13 @ 8:00 am	2021-12-16 @ 8:00 am	1.5 ± 0.3	2021-12-17
9348336	BALTIMORE ORIOLE	2021-12-13 @ 8:00 am	2021-12-16 @ 8:00 am	2.3 ± 0.3	2021-12-17
9339914	BES GENDER NEUTRAL ROOM	2021-12-13 @ 9:00 am	2021-12-16 @ 8:00 am	1.5 ± 0.3	2021-12-17
9339921	BES NW	2021-12-13 @ 9:00 am	2021-12-16 @ 8:00 am	1.3 ± 0.3	2021-12-17
9348391	BES SE	2021-12-13 @ 9:00 am	2021-12-16 @ 8:00 am	1.4 ± 0.3	2021-12-17
9348361	BOYS	2021-12-13 @ 8:00 am	2021-12-16 @ 8:00 am	2.5 ± 0.3	2021-12-17
9348377	BREAKROOM	2021-12-13 @ 8:00 am	2021-12-16 @ 7:00 am	0.8 ± 0.3	2021-12-17
9348355	CAFETERIA	2021-12-13 @ 8:00 am	2021-12-16 @ 7:00 am	1.2 ± 0.3	2021-12-17
9346988	CAFETERIA	2021-12-13 @ 8:00 am	2021-12-16 @ 7:00 am	0.8 ± 0.3	2021-12-17
9348390	GENDER NEUTRAL	2021-12-13 @ 8:00 am	2021-12-16 @ 8:00 am	1.8 ± 0.3	2021-12-17
9348394	GIRLS	2021-12-13 @ 8:00 am	2021-12-16 @ 8:00 am	2.2 ± 0.3	2021-12-17
9346990	LIBRARY	2021-12-13 @ 8:00 am	2021-12-16 @ 7:00 am	0.8 ± 0.3	2021-12-17
9341774	NURSE OFFICE	2021-12-13 @ 7:00 am	2021-12-16 @ 7:00 am	0.7 ± 0.3	2021-12-17
9339926	OFFICE	2021-12-13 @ 8:00 am	2021-12-16 @ 7:00 am	1.0 ± 0.3	2021-12-17
9339927	PLANETARIUM	2021-12-13 @ 8:00 am	2021-12-16 @ 7:00 am	2.8 ± 0.3	2021-12-17
9348369	PUP ROOM	2021-12-13 @ 8:00 am	2021-12-16 @ 7:00 am	1.7 ± 0.3	2021-12-17
9346989	SHOP	2021-12-13 @ 8:00 am	2021-12-16 @ 7:00 am	0.9 ± 0.3	2021-12-17
9341775	SHOP	2021-12-13 @ 8:00 am	2021-12-16 @ 7:00 am	1.0 ± 0.3	2021-12-17
9339710	SOLAR SCHOOLHOUSE	2021-12-13 @ 9:00 am	2021-12-16 @ 8:00 am	< 0.3	2021-12-17
9348393	SOLAR SCHOOLHOUSE	2021-12-13 @ 9:00 am	2021-12-16 @ 8:00 am	0.6 ± 0.3	2021-12-17
9341768	STRIPED BASS FRONT ROOM	2021-12-13 @ 9:00 am	2021-12-16 @ 8:00 am	2.2 ± 0.3	2021-12-17
9348329	STRIPED BASS GENDER NEUTRAL	2021-12-13 @ 9:00 am	2021-12-16 @ 8:00 am	2.2 ± 0.3	2021-12-17
9339902	STRIPED BASS NW	2021-12-13 @ 9:00 am	2021-12-16 @ 8:00 am	2.1 ± 0.3	2021-12-17
9339916	STRIPED BASS SE	2021-12-13 @ 9:00 am	2021-12-16 @ 8:00 am	2.6 ± 0.3	2021-12-17
9339917	SUPERVISOR	2021-12-13 @ 7:00 am	2021-12-16 @ 7:00 am	0.7 ± 0.3	2021-12-17

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI Technologies, Inc. Job Number 203404

NOMINAL Conditions: Radon Conc 16.2 pCi/L Rel. Hum 28.8 % Temp. 59.9 F

Date Start: 12/24/21 Date Stop: 12/27/21 Date Start: _____ Date Stop: _____

Time Start: 0809 Time Stop: 0809 Time Start: _____ Time Stop: _____

Device No.'s: (2) Char Bags- Device No.'s: _____

9341721, 9341722

G4 Left

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

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

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

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

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

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

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

December 31, 2021

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

SK
MA MCPS - Spike Sample Lab Results. Measured values are satisfactory, i.e., within $\pm 25\%$ of the chamber's reference value (16.2 pCi/L).

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9341721	1	2021-12-24 @ 8:00 am	2021-12-27 @ 8:00 am	11.6 \pm 0.9	2021-12-31
9341722	1	2021-12-24 @ 8:00 am	2021-12-27 @ 8:00 am	15.4 \pm 1.2	2021-12-31

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 - December 2021 Schools

Name of Schools:

1. 45 Gude
2. Concord Center
3. English Manor
4. Smith Education Center
5. Randolph Main. & Tran.
6. Rollingwood Center
7. Ewing at Plum Orchard

	Date	Initials
Radon Test Kits Deployed	12/13/2021	JM
Radon Test Kits Collected	12/16/2021	JM
Radon Test Kits Shipped to Lab*	12/16/2021	JM
Radon Test Kits Received by Lab*	12/17/2021	JM

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