School / Facility Radon Testing Report Form

School Year: **24-25**

Facility:	Clarksburg Elementary School
Address:	13530 Redgrave Pl.
	Clarksburg, MD 20871
Reason for Testing:	Scheduled Re-Testing - ☒ 2-year or ☐ 5-year schedule ☐ Clearance Testing (Post-Mitigation) ☐ Building Envelope or HVAC Upgrades ☐ New Construction – Addition or Facility
Current Radon Status:	☒ Active Mitigation (2-year regular schedule) ☐ No Active Mitigation (5-year regular schedule) ☐ Not Previously Tested (New Facility)
Round of Testing:	☒ Initial Testing **-or-** ☐ Follow-up Testing
Testing Status:	☒ No Further Testing Needed **-or-** ☐ Follow-Up Testing Required

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

Mitigation -	**Facility Radon Status:**		
☒ Not Required ☐ Required (≥4.0-pCi/L) Rooms:	☒ No Change in Status ☐ Active Mitigation (2-year regular schedule) ☐ No Active Mitigation (5-year regular schedule)		
Number of Rooms Tested	47	Lowest Value (pCi/L)	<0.3
Number of Rooms (≥4.0-pCi/L)	0	Highest Value (pCi/L)	<0.3

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.

MCPS DEM SUSTAINABILITY & COMPLIANCE

School / Facility Radon Testing Report Form

Detector and Deployment

Detector/Device Type:	☒ Passive ☐ Continuous	☒ Charcoal Absorption (CAD) ☐ Alpha Track (ATD) ☐ Other ☐ Electret ion Chamber (EIC) ☐ Electronic Integration (EID)
	Other–Specify here:	
Detector/Device Name:	Air Chek – Radon Test Kits	
Manufacturer:	Radon Labs	

Person(s) Deploying or Retrieving Test Devices and certification number	Organization/Company
Tyler McCleaf, CSP Cert. # 111004-RMP	KCI Technologies, Inc.
If noncertified individuals, the qualified measurement professional providing oversight -	

Testing

☒ Short-Term ☐ Long-Term	Length of Test (days):	3	Date of Deployment and Retrieval (mm/dd/yy):	2/18/2025 2/21/2025
Does the test period include weekends, school breaks or holidays?				☐ Yes ☒ No
*If "**Yes**" please explain/detail in the space below:*				
Was HVAC operating under occupied conditions?				☒ Yes ☐ No
*If "**No**" please explain/detail in the space below:*				

Testing (continued)

	Detectors Deployed				
	Ground-Contact		Upper-Level(s)		Total
Round of Testing	Initial	Follow-Up	Initial	Follow-Up	
Test Locations[1]	47	0	0	0	47
Duplicates[2]	5	0	0	0	5
Field Blanks[3]	2	0	0	0	2
				Grand Total	54

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.

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

1 - 3% of EIC detectors; and 3% from each LOT of CAD and ATD detectors; a maximum of 6-spiked measurements per month for both EIC detectors and each LOT of CAD and ATD detectors.
2 – One per shipping container from start of detector deployment
3 – One per facility tested as devices are removed/allocated from the storage location for deployment;
4 - One additional blank, analyzed prior to deployment, for storage locations that have not been evaluated or monitored, for detectors that have been stored for more than 30-day durations.

Quality Assurance / Quality Control (continued)

Spike Sample Lab Results. Measured values are satisfactory, i.e., within ± 25% of the chamber's reference value?	☒ Yes ☐ No	
Quality Control measurements comply with QA/QC requirements in the submitted testing organization's/company's QA plan?	☒ Yes ☐ No	
Round of Testing	**Initial**	**Follow-Up**
All Field, Trip and Office Blanks are **≤** (less than or equal to) to the Method Detection Limit?	☒ Yes ☐ No	☐ Yes ☒ No
For all Duplicate Samples[1], the higher value is **≤ 2x** the lower value?	☒ Yes ☐ No	☐ Yes ☒ No
For all Duplicate Samples[1], Relative Percent Difference(s) (RPD)[2] are less than the Warning Level[3]?	☒ Yes ☐ No	☐ Yes ☒ No
For all Duplicate Samples[1], Relative Percent Difference(s) (RPD)[2] are less than the Control Level[3]?	☒ Yes ☐ No	☐ Yes ☒ 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

MCPS DEM SUSTAINABILITY & COMPLIANCE

School / Facility Radon Testing Report Form

Summary of Test Results[1] and Determination of Valid Measurements[2]

	Ground-Contact		Upper-Level(s)		Total
Round of Testing	**Initial**	**Follow-Up**	**Initial**	**Follow-Up**	
Number of test locations:	47	0	0	0	47
Number of locations ≥8.0-pCi/L:	0	0	0	0	0
Number of locations ≥4.0 and ≤8-pCi/L:	0	0	0	0	0
Number of locations ≥2.7 and <4-pCi/L:	0	0	0	0	0
Number of locations ≥2.0 and <2.7-pCi/L:	0	0	0	0	0
Number of missing required test locations[3]:	0	0	0	0	0
Number of failed duplicate control locations:	0	0	0	0	0
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 ≤33%. If less than 18 test locations please review section 6.2 of the ANSI/AARST MA-MFLB 2023;

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

Summary of Test Results[1] and Determination of Valid Measurements[2] (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?	☒ Yes ☐ No	☐ Yes ☒ 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?	☒ Yes ☐ No	☐ Yes ☒ No
If Yes to both above *– then Testing Status –* ***'No Further Testing Needed'*** *mark 'NA' below and complete Conclusions section*		
If No to either above, were all results obtained under 4.0-pCi/L **and** were sufficient valid measurements obtained?[1,2] ***If Yes,*** *then -* ***'No Further Testing Needed'*** *complete Conclusion section on first page.* ***If No****, then -* ***'Follow-up Testing Required'*** *continue below.*	☐ Yes ☐ No ☒ NA	☐ Yes ☐ No ☒ 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		
Clarksburg Elementary School		
Test Period: 2/18/2025 - 2/21/2025		
Kit Number	Room / Area	Result
11931101	1	< 0.3
11931103	2	< 0.3
11931104	3	< 0.3
11931124	4	< 0.3
11931110	5	< 0.3
11931147	6	< 0.3
11931133	7	< 0.3
11931139	8	< 0.3
11931144	8	< 0.3
11931143	9	< 0.3
11931136	10	< 0.3
11931130	11	< 0.3
11931132	12	< 0.3
11931145	12	< 0.3
11931151	13	< 0.3
11931135	14	< 0.3
11931138	15	< 0.3
11931137	16	< 0.3
11931113	APR	< 0.3
11931117	APR	< 0.3
11931105	ART	< 0.3
11931150	ASSISTANT PRINCIPAL	< 0.3
11931112	BSO	< 0.3
11931114	BSO	< 0.3
11931148	COMM LAB	< 0.3
11931146	COMPUTER LAB	< 0.3
11931119	CONFERENCE	< 0.3
11931153	COUNSELOR	< 0.3
11931128	GYM	< 0.3
11931129	GYM	< 0.3
11931102	GYM OFFICE	< 0.3
11931115	GYM OFFICE	< 0.3
11931122	HEALTH	< 0.3
11931120	HEALTH OFFICE	< 0.3
11931125	MAIN OFFICE	< 0.3
11931134	MEDIA	< 0.3
11931152	MEDIA	< 0.3

Table 1- Radon Testing Results		
Clarksburg Elementary School		
Test Period: 2/18/2025 - 2/21/2025		
Kit Number	Room / Area	Result
11931141	MEDIA OFFICE	< 0.3
11931154	MEDIA OFFICE	< 0.3
11931142	MEDIA WORKROOM	< 0.3
11931111	MUSIC	< 0.3
11931126	MUSIC	< 0.3
11931158	OT	< 0.3
11931159	OT	< 0.3
11931127	PARA	< 0.3
11931140	PD OFFICE	< 0.3
11931118	PRINCIPAL	< 0.3
11931157	PSYCHOLOGIST	< 0.3
11931131	READING	< 0.3
11931149	RESOURCE	< 0.3
11931106	SPED	< 0.3
11931160	SPEECH	< 0.3
11931109	STAFF LOUNGE	< 0.3
11931121	WORKROOM	< 0.3

Table 2 - Summary Testing Results ≥2.0 pCi/L							
Clarksburg Elementary School							
Test Period: 2/18/2025 - 2/21/2025							
≥2.0 and <2.7 pCi/L		≥2.7 and <4.0 pCi/L		≥4.0 and <8.0 pCi/l		≥8.0 pCi/L	
Room / Area	Result	Room / Area	Result	Room / Area	Result	Room / Area	Result
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 3 - QC Radon Testing Results			
Clarksburg Elementary School			
Test Period: 2/18/2025 - 2/21/2025			
Kit Number	**QC Type**	**Room / Area**	**Result**
11931139	FB	8	< 0.3
11931145	D	12	< 0.3
11931114	D	BSO	< 0.3
11931102	D	Gym office	< 0.3
11931154	D	Media office	< 0.3
11931126	FB	Music	< 0.3
11931158	D	OT	< 0.3
11919902	OB	OFFICE BLANK	< 0.3
11919963	TB	TRAVEL BLANK	< 0.3

Table 3a - Duplicate Worksheet / Data Validation										
Clarksburg Elementary School										
Test Period: 2/18/2025 - 2/21/2025										
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
11931145	11931132	12	0.3	0.3	✓	0.6	PASS	0.3	<1-pCi/L	✓
11931114	11931112	BSO	0.3	0.3	✓	0.6	PASS	0.3	<1-pCi/L	✓
11931102	11931115	Gym office	0.3	0.3	✓	0.6	PASS	0.3	<1-pCi/L	✓
11931154	11931141	Media office	0.3	0.3	✓	0.6	PASS	0.3	<1-pCi/L	✓
11931158	11931159	OT	0.3	0.3	✓	0.6	PASS	0.3	<1-pCi/L	✓

NOTES:

QC Check #1 - Data Entry

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

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

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

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

Table 4 - Summary of Invalid Measurement Locations		
Clarksburg Elementary School		
Test Period: 2/18/25 - 2/21/25		
Kit Number	**Room/Area**	**Reason**
N/A	N/A	N/A

Attachment 2:

Laboratory Reports

February 24, 2025 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
CLARKSBURG ES
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11931101	1	2025-02-18 @ 11:00 am	2025-02-21 @ 11:00 am	< 0.3	2025-02-24
11931136	10	2025-02-18 @ 12:00 pm	2025-02-21 @ 12:00 pm	< 0.3	2025-02-24
11931130	11	2025-02-18 @ 12:00 pm	2025-02-21 @ 12:00 pm	< 0.3	2025-02-24
11931132	12	2025-02-18 @ 11:00 am	2025-02-21 @ 12:00 pm	< 0.3	2025-02-24
11931145	12	2025-02-18 @ 11:00 am	2025-02-21 @ 12:00 pm	< 0.3	2025-02-24
11931151	13	2025-02-18 @ 11:00 am	2025-02-21 @ 12:00 pm	< 0.3	2025-02-24
11931135	14	2025-02-18 @ 11:00 am	2025-02-21 @ 12:00 pm	< 0.3	2025-02-24
11931138	15	2025-02-18 @ 11:00 am	2025-02-21 @ 12:00 pm	< 0.3	2025-02-24
11931137	16	2025-02-18 @ 11:00 am	2025-02-21 @ 12:00 pm	< 0.3	2025-02-24
11931103	2	2025-02-18 @ 11:00 am	2025-02-21 @ 11:00 am	< 0.3	2025-02-24
11931104	3	2025-02-18 @ 11:00 am	2025-02-21 @ 11:00 am	< 0.3	2025-02-24
11931124	4	2025-02-18 @ 11:00 am	2025-02-21 @ 11:00 am	< 0.3	2025-02-24
11931110	5	2025-02-18 @ 11:00 am	2025-02-21 @ 11:00 am	< 0.3	2025-02-24
11931147	6	2025-02-18 @ 11:00 am	2025-02-21 @ 12:00 pm	< 0.3	2025-02-24
11931133	7	2025-02-18 @ 11:00 am	2025-02-21 @ 12:00 pm	< 0.3	2025-02-24
11931144	8	2025-02-18 @ 11:00 am	2025-02-21 @ 12:00 pm	< 0.3	2025-02-24
11931139	8	2025-02-18 @ 11:00 am	2025-02-21 @ 12:00 pm	< 0.3	2025-02-24
11931143	9	2025-02-18 @ 11:00 am	2025-02-21 @ 12:00 pm	< 0.3	2025-02-24
11931117	APR	2025-02-18 @ 11:00 am	2025-02-21 @ 11:00 am	< 0.3	2025-02-24
11931113	APR	2025-02-18 @ 11:00 am	2025-02-21 @ 11:00 am	< 0.3	2025-02-24
11931105	ART	2025-02-18 @ 11:00 am	2025-02-21 @ 11:00 am	< 0.3	2025-02-24
11931150	ASSISTANT PRINCIPAL	2025-02-18 @ 11:00 am	2025-02-21 @ 11:00 am	< 0.3	2025-02-24
11931112	BSO	2025-02-18 @ 11:00 am	2025-02-21 @ 11:00 am	< 0.3	2025-02-24
11931114	BSO	2025-02-18 @ 11:00 am	2025-02-21 @ 11:00 am	< 0.3	2025-02-24
11931148	COMM LAB	2025-02-18 @ 11:00 am	2025-02-21 @ 12:00 pm	< 0.3	2025-02-24
11931146	COMPUTER LAB	2025-02-18 @ 11:00 am	2025-02-21 @ 12:00 pm	< 0.3	2025-02-24
11931119	CONFERENCE	2025-02-18 @ 11:00 am	2025-02-21 @ 11:00 am	< 0.3	2025-02-24
11931153	COUNSELOR	2025-02-18 @ 11:00 am	2025-02-21 @ 11:00 am	< 0.3	2025-02-24
11931128	GYM	2025-02-18 @ 11:00 am	2025-02-21 @ 11:00 am	< 0.3	2025-02-24
11931129	GYM	2025-02-18 @ 11:00 am	2025-02-21 @ 11:00 am	< 0.3	2025-02-24
11931102	GYM OFFICE	2025-02-18 @ 11:00 am	2025-02-21 @ 11:00 am	< 0.3	2025-02-24
11931115	GYM OFFICE	2025-02-18 @ 11:00 am	2025-02-21 @ 11:00 am	< 0.3	2025-02-24
11931122	HEALTH	2025-02-18 @ 11:00 am	2025-02-21 @ 11:00 am	< 0.3	2025-02-24
11931120	HEALTH OFFICE	2025-02-18 @ 11:00 am	2025-02-21 @ 11:00 am	< 0.3	2025-02-24
11931125	MAIN OFFICE	2025-02-18 @ 11:00 am	2025-02-21 @ 11:00 am	< 0.3	2025-02-24
11931134	MEDIA	2025-02-18 @ 11:00 am	2025-02-21 @ 12:00 pm	< 0.3	2025-02-24
11931152	MEDIA	2025-02-18 @ 11:00 am	2025-02-21 @ 12:00 pm	< 0.3	2025-02-24

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

February 24, 2025 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
CLARKSBURG ES
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11931154	MEDIA OFFICE	2025-02-18 @ 11:00 am	2025-02-21 @ 12:00 pm	< 0.3	2025-02-24
11931141	MEDIA OFFICE	2025-02-18 @ 11:00 am	2025-02-21 @ 12:00 pm	< 0.3	2025-02-24
11931142	MEDIA WORKROOM	2025-02-18 @ 11:00 am	2025-02-21 @ 11:00 am	< 0.3	2025-02-24
11931111	MUSIC	2025-02-18 @ 11:00 am	2025-02-21 @ 11:00 am	< 0.3	2025-02-24
11931126	MUSIC	2025-02-18 @ 11:00 am	2025-02-21 @ 11:00 am	< 0.3	2025-02-24
11931158	OT	2025-02-18 @ 12:00 pm	2025-02-21 @ 12:00 pm	< 0.3	2025-02-24
11931159	OT	2025-02-18 @ 12:00 pm	2025-02-21 @ 12:00 pm	< 0.3	2025-02-24
11931127	PARA	2025-02-18 @ 11:00 am	2025-02-21 @ 11:00 am	< 0.3	2025-02-24
11931140	PD OFFICE	2025-02-18 @ 11:00 am	2025-02-21 @ 11:00 am	< 0.3	2025-02-24
11931118	PRINCIPAL	2025-02-18 @ 11:00 am	2025-02-21 @ 11:00 am	< 0.3	2025-02-24
11931157	PSYCHOLOGIST	2025-02-18 @ 12:00 pm	2025-02-21 @ 12:00 pm	< 0.3	2025-02-24
11931131	READING	2025-02-18 @ 11:00 am	2025-02-21 @ 12:00 pm	< 0.3	2025-02-24
11931149	RESOURCE	2025-02-18 @ 11:00 am	2025-02-21 @ 11:00 am	< 0.3	2025-02-24
11931106	SPED	2025-02-18 @ 11:00 am	2025-02-21 @ 11:00 am	< 0.3	2025-02-24
11931160	SPEECH	2025-02-18 @ 12:00 pm	2025-02-21 @ 12:00 pm	< 0.3	2025-02-24
11931109	STAFF LOUNGE	2025-02-18 @ 11:00 am	2025-02-21 @ 11:00 am	< 0.3	2025-02-24
11931121	WORKROOM	2025-02-18 @ 11:00 am	2025-02-21 @ 11:00 am	< 0.3	2025-02-24

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

February 26, 2025 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
OFFICE
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11919902	OB	2025-02-18 @ 11:00 am	2025-02-21 @ 11:00 am	< 0.3	2025-02-24

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

February 26, 2025 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
TRAVEL
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11919963	TB	2025-02-18 @ 11:00 am	2025-02-21 @ 11:00 am	< 0.3	2025-02-24

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 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 µR/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

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

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI TECHNOLOGIES, INC Job Number 20002919

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

Date Start: 3/7/25 Date Stop: 3/10/25	Date Start: _____ Date Stop: _____
Time Start: 0832 Time Stop: 0832	Time Start: _____ Time Stop: _____
Device No.'s: (7) CHAR BAGS	Device No.'s: _____
11886401 thru 11886406,	
11886410	
G3 Right	
Date Start: _____ Date Stop: _____	Date Start: _____ Date Stop: _____
Time Start: _____ Time Stop: _____	Time Start: _____ Time Stop: _____
Device No.'s: _____	Device No.'s: _____
Date Start: _____ Date Stop: _____	Date Start: _____ Date Stop: _____
Time Start: _____ Time Stop: _____	Time Start: _____ Time Stop: _____
Device No.'s: _____	Device No.'s: _____

Note: All times are in 24-hour (military) notation, Eastern Standard Time (EST)
Background = 7 µR/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

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KCI TECHNOLOGIES

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

Radon Test Kit Chain of Custody

Project Name: MCPS Radon – Testing February 18th – February 21st, 2025

Name of Schools:

1. Cashell ES
2. Cedar Grove ES
3. Clarksburg ES
4. Clarksburg HS
5. Clarksburg Annex
6. Damascus ES
7. Darnestown ES

	Date	Initials
Radon Test Kits Deployed	2/18/2025	
Radon Test Kits Collected	2/21/2025	
Radon Test Kits Shipped to Lab*	2/21/2025	
Radon Test Kits Received by Lab*	2/24/2025	

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

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MCPS RADON TESTING – EXECUTIVE SUMMARY

Site Name	Clarksburg Elementary School
Date of Test Report	1/12/2023
Round of Testing	Initial Follow-up Post Remediation 2 Year Testing 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility
# Rooms Tested	47
# Rooms ≥ 4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	1.5 pCi/L

Project Status:

1. 2-Year retesting completed.

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January 12, 2023

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

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

Location: Clarksburg Elementary School
13530 Redgrave Place
Clarksburg, MD 20871

Dear Mr. Croyle:

KCI Technologies, Inc. (KCI) is pleased to submit the following report to Montgomery County Public Schools (MCPS) pursuant to completing a "short-term" 3 day radon test for the Clarksburg Elementary School, located at 13530 Redgrave Pl. Clarksburg, MD 20871 (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, 2022 and deployed fifty-four (54) 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, 2022 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Airchek, Inc. for analysis by gamma-ray spectroscopy. Airchek, Inc.

is a NRSB certified analytical laboratory for radon analysis (certification # ARL1402) located at 1936 Butler Bridge Road, Mills River, North Carolina.

Evaluation of Testing Conditions:

These tests represent:

- Follow-up to post mitigation biennial testing.

These tests were conducted to:

- Confirm the success of the mitigation system(s).
- Evaluate radon concentration levels due to Addition/HVAC Upgrades/Replacement.

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 temperatures were between 22°F and 53°F. Maximum sustained winds ranged from 0-20 miles per hour. Average humidity was around 70% with 1.98 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 piC/L	None	N/A
<4.0 piC/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 McCleaf

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

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

ATTACHMENT A

Floor Plan With Test Locations

ATTACHMENT B

Radon Test Summary Spreadsheet

Table 1- Radon Testing Results		
Clarksburg ES		
Test Period: 12/13/2022 - 12/16/2022		
Kit Number	Room / Area	Result
11285659	ALL PURPOSE ROOM	< 0.3
11285660	ALL PURPOSE ROOM	< 0.3
11285311	AP OFFICE	< 0.3
11285322	ART	0.6
11285301	ASA OFFICE	< 0.3
11285665	BUILDING SERVICES OFFICE	< 0.3
11285670	COMMUNICATIONS LAB	0.5
11285676	COMPUTER LAB	< 0.3
11285312	COUNSELORS OFFICE	< 0.3
11285675	ESOL/READING	< 0.3
11285305	GYM	1.0
11285309	GYM	1.5
11285658	HEALTH ROOM	0.5
11285651	MAIN OFFICE	< 0.3
11285685	MATH AIDE	< 0.3
11285662	MEDIA CENTER	< 0.3
11285661	MEDIA CENTER OFFICE	< 0.3
11285668	MEDIA CENTER OFFICE	< 0.3
11285666	MEDIA/PARAEDUCATOR OFFICE	< 0.3
11285667	MEDIA/PARAEDUCATOR OFFICE	< 0.3
11285302	MUSIC ROOM	< 0.3
11285306	MUSIC ROOM	< 0.3
11285308	MUSIC ROOM	< 0.3
11285656	NURSE OFFICE	0.6
11285679	OCCUPATIONAL/SPEECH OFFICE	< 0.3
11285317	OFFICE CONFERENCE ROOM	0.5
11285325	OFFICE WORK ROOM	< 0.3
11285307	PD OFFICE	< 0.3
11285310	PHYSICAL EDUCATION OFFICE	< 0.3
11285318	PRINCIPAL OFFICE	< 0.3
11285682	PSYCHOLOGIST OFFICE	< 0.3
11285304	RESOURCES/SPED	< 0.3
11285303	ROOM 1	< 0.3
11285681	ROOM 10	< 0.3
11285680	ROOM 11	< 0.3
11285673	ROOM 12	< 0.3
11285683	ROOM 13	< 0.3
11285687	ROOM 13	< 0.3
11285686	ROOM 14	< 0.3
11285684	ROOM 15	< 0.3
11285689	ROOM 16	< 0.3
11285327	ROOM 2	< 0.3

Table 1- Radon Testing Results		
Clarksburg ES		
Test Period: 12/13/2022 - 12/16/2022		
Kit Number	Room / Area	Result
11285319	ROOM 3	< 0.3
11285326	ROOM 3	< 0.3
11285314	ROOM 4	< 0.3
11285320	ROOM 5	< 0.3
11285669	ROOM 6	< 0.3
11285671	ROOM 7	< 0.3
11285672	ROOM 8	< 0.3
11285674	ROOM 8	< 0.3
11285678	ROOM 8	< 0.3
11285677	ROOM 9	< 0.3
11285321	SPED	< 0.3
11285313	STAFF LOUNGE	< 0.3

Table 2- Radon Testing Results			
Clarksburg ES			
Test Period: 12/13/22 - 12/16/22			
Kit Number	QC Type	Room / Area	Result
11285667	D	Media/Para-Educator Office	< 0.3
11285306	D	Music Room	< 0.3
11285302	FB	Music Room	< 0.3
11285687	D	Room 13	< 0.3
11285326	D	Room 3	< 0.3
11285672	D	Room 8	< 0.3
11285678	FB	Room 8	< 0.3
11286988	OB	OFFICE BLANK	< 0.3
11286990	TB	TRAVEL BLANK	< 0.3

Summary of Missed Locations		
Clarksburg ES		
Test Period: 12/13/22 - 12/16/22		
Kit Number	Room/Area	Result
	N/A	

Summary of Missing, Compromised and >/= 4 piC/L Tests		
Clarksburg ES		
Test Period: 12/13/22 - 12/16/22		
Kit Number	Room/Area	Result
	N/A	

Table Note:

* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

December 19, 2022 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11285659	ALL PURPOSE ROOM	2022-12-13 @ 1:00 pm	2022-12-16 @ 10:00 am	< 0.3	2022-12-19
11285660	ALL PURPOSE ROOM	2022-12-13 @ 1:00 pm	2022-12-16 @ 10:00 am	< 0.3	2022-12-19
11285311	AP OFFICE	2022-12-13 @ 1:00 pm	2022-12-16 @ 11:00 am	< 0.3	2022-12-19
11285322	ART	2022-12-13 @ 1:00 pm	2022-12-16 @ 11:00 am	0.6 ± 0.3	2022-12-19
11285301	ASA OFFICE	2022-12-13 @ 12:00 pm	2022-12-16 @ 10:00 am	< 0.3	2022-12-19
11285665	BUILDING SERVICES OFFICE	2022-12-13 @ 1:00 pm	2022-12-16 @ 10:00 am	< 0.3	2022-12-19
11285670	COMMUNICATIONS LAB	2022-12-13 @ 1:00 pm	2022-12-16 @ 11:00 am	0.5 ± 0.3	2022-12-19
11285676	COMPUTER LAB	2022-12-13 @ 1:00 pm	2022-12-16 @ 11:00 am	< 0.3	2022-12-19
11285312	COUNSELORS OFFICE	2022-12-13 @ 1:00 pm	2022-12-16 @ 11:00 am	< 0.3	2022-12-19
11285675	ESOL/READING	2022-12-13 @ 1:00 pm	2022-12-16 @ 11:00 am	< 0.3	2022-12-19
11285309	GYM	2022-12-13 @ 12:00 pm	2022-12-16 @ 10:00 am	1.5 ± 0.3	2022-12-19
11285305	GYM	2022-12-13 @ 12:00 pm	2022-12-16 @ 10:00 am	1.0 ± 0.3	2022-12-19
11285658	HEALTH ROOM	2022-12-13 @ 12:00 pm	2022-12-16 @ 10:00 am	0.5 ± 0.3	2022-12-19
11285651	MAIN OFFICE	2022-12-13 @ 12:00 pm	2022-12-16 @ 10:00 am	< 0.3	2022-12-19
11285685	MATH AIDE	2022-12-13 @ 2:00 pm	2022-12-16 @ 11:00 am	< 0.3	2022-12-19
11285662	MEDIA CENTER	2022-12-13 @ 1:00 pm	2022-12-16 @ 11:00 am	< 0.3	2022-12-19
11285661	MEDIA CENTER OFFICE	2022-12-13 @ 1:00 pm	2022-12-16 @ 11:00 am	< 0.3	2022-12-19
11285668	MEDIA CENTER OFFICE	2022-12-13 @ 1:00 pm	2022-12-16 @ 11:00 am	< 0.3	2022-12-19
11285667	MEDIA/PARAEDUCATOR OFFICE	2022-12-13 @ 1:00 pm	2022-12-16 @ 11:00 am	< 0.3	2022-12-19
11285666	MEDIA/PARAEDUCATOR OFFICE	2022-12-13 @ 1:00 pm	2022-12-16 @ 11:00 am	< 0.3	2022-12-19
11285302	MUSIC ROOM	2022-12-13 @ 1:00 pm	2022-12-16 @ 10:00 am	< 0.3	2022-12-19
11285308	MUSIC ROOM	2022-12-13 @ 1:00 pm	2022-12-16 @ 10:00 am	< 0.3	2022-12-19
11285306	MUSIC ROOM	2022-12-13 @ 1:00 pm	2022-12-16 @ 10:00 am	< 0.3	2022-12-19
11285656	NURSE OFFICE	2022-12-13 @ 12:00 pm	2022-12-16 @ 10:00 am	0.6 ± 0.3	2022-12-19
11285679	OCCUPATIONAL/SPEECH OFFICE	2022-12-13 @ 2:00 pm	2022-12-16 @ 11:00 am	< 0.3	2022-12-19
11285317	OFFICE CONFERENCE ROOM	2022-12-13 @ 12:00 pm	2022-12-16 @ 10:00 am	0.5 ± 0.3	2022-12-19
11285325	OFFICE WORK ROOM	2022-12-13 @ 12:00 pm	2022-12-16 @ 10:00 am	< 0.3	2022-12-19
11285307	PD OFFICE	2022-12-13 @ 1:00 pm	2022-12-16 @ 11:00 am	< 0.3	2022-12-19
11285310	PHYSICAL EDUCATION OFFICE	2022-12-13 @ 12:00 pm	2022-12-16 @ 10:00 am	< 0.3	2022-12-19
11285318	PRINCIPAL OFFICE	2022-12-13 @ 12:00 pm	2022-12-16 @ 11:00 am	< 0.3	2022-12-19
11285682	PSYCHOLOGIST OFFICE	2022-12-13 @ 2:00 pm	2022-12-16 @ 11:00 am	< 0.3	2022-12-19
11285304	RESOURCES/SPED	2022-12-13 @ 1:00 pm	2022-12-16 @ 11:00 am	< 0.3	2022-12-19
11285303	ROOM 1	2022-12-13 @ 12:00 pm	2022-12-16 @ 10:00 am	< 0.3	2022-12-19
11285681	ROOM 10	2022-12-13 @ 2:00 pm	2022-12-16 @ 11:00 am	< 0.3	2022-12-19
11285680	ROOM 11	2022-12-13 @ 2:00 pm	2022-12-16 @ 11:00 am	< 0.3	2022-12-19
11285673	ROOM 12	2022-12-13 @ 2:00 pm	2022-12-16 @ 11:00 am	< 0.3	2022-12-19
11285687	ROOM 13	2022-12-13 @ 2:00 pm	2022-12-16 @ 11:00 am	< 0.3	2022-12-19

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December 19, 2022 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11285683	ROOM 13	2022-12-13 @ 2:00 pm	2022-12-16 @ 11:00 am	< 0.3	2022-12-19
11285686	ROOM 14	2022-12-13 @ 2:00 pm	2022-12-16 @ 11:00 am	< 0.3	2022-12-19
11285684	ROOM 15	2022-12-13 @ 2:00 pm	2022-12-16 @ 11:00 am	< 0.3	2022-12-19
11285689	ROOM 16	2022-12-13 @ 2:00 pm	2022-12-16 @ 11:00 am	< 0.3	2022-12-19
11285327	ROOM 2	2022-12-13 @ 12:00 pm	2022-12-16 @ 10:00 am	< 0.3	2022-12-19
11285319	ROOM 3	2022-12-13 @ 12:00 pm	2022-12-16 @ 10:00 am	< 0.3	2022-12-19
11285326	ROOM 3	2022-12-13 @ 12:00 pm	2022-12-16 @ 10:00 am	< 0.3	2022-12-19
11285314	ROOM 4	2022-12-13 @ 12:00 pm	2022-12-16 @ 10:00 am	< 0.3	2022-12-19
11285320	ROOM 5	2022-12-13 @ 12:00 pm	2022-12-16 @ 10:00 am	< 0.3	2022-12-19
11285669	ROOM 6	2022-12-13 @ 1:00 pm	2022-12-16 @ 11:00 am	< 0.3	2022-12-19
11285671	ROOM 7	2022-12-13 @ 1:00 pm	2022-12-16 @ 11:00 am	< 0.3	2022-12-19
11285678	ROOM 8	2022-12-13 @ 2:00 pm	2022-12-16 @ 11:00 am	< 0.3	2022-12-19
11285674	ROOM 8	2022-12-13 @ 1:00 pm	2022-12-16 @ 11:00 am	< 0.3	2022-12-19
11285672	ROOM 8	2022-12-13 @ 2:00 pm	2022-12-16 @ 11:00 am	< 0.3	2022-12-19
11285677	ROOM 9	2022-12-13 @ 2:00 pm	2022-12-16 @ 11:00 am	< 0.3	2022-12-19
11285321	SPED	2022-12-13 @ 12:00 pm	2022-12-16 @ 10:00 am	< 0.3	2022-12-19
11285313	STAFF LOUNGE	2022-12-13 @ 12:00 pm	2022-12-16 @ 10:00 am	< 0.3	2022-12-19

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

KCI TECHNOLOGIES

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

Radon Test Kit Chain of Custody

Project Name: MCPS Radon – April 2022 Schools – Retesting

Name of Schools:

1. Mill Creek Towne ES
2. Clarksburg ES
3. Little Bennett ES
4. Lois P. Rockwell ES
5. Roberto Clemente MS

	Date	Initials
Radon Test Kits Deployed	12/13/2022	BMM
Radon Test Kits Collected	12/16/2022	BMM
Radon Test Kits Shipped to Lab*	12/16/2022	BMM
Radon Test Kits Received by Lab*	12/19/2022	BMM

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

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MCPS RADON TESTING - EXECUTIVE SUMMARY

Site Name	Clarksburg Elementary School
Date of Report	1/28/2020
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	42
# Rooms ≥4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	1.4 pCi/L

Project Status

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

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1/28/2020

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: Clarksburg Elementary School
13530 Redgrave Place
Clarksburg, Maryland 20871

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 Clarksburg Elementary School, located at 13530 Redgrave Place in Clarksburg, Maryland 20871 (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/departments/facilities/maintenance/default.aspx?id=458858 or www.epa.gov/radon.

KCI visited the site on 12/9/2019 and deployed fifty-four (54) 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 12/12/2019 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 NRSB certified analytical laboratory for radon analysis (certification #ARL1402) located at 1936 Butler Bridge Road, Mills River, North Carolina.

EVALUATION OF TESTING CONDITIONS

These tests represent:

- Follow-up to initial testing.

These tests were conducted to:

- Evaluate radon concentrations at the facility.

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

KCI recorded observations of the following conditions in each room 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 upper-30s and high temperatures ranged from the upper-30s to the mid-50s. Maximum sustained winds ranged from 7-21 miles per hour. Average humidity was around 75%. 0.52 inches of precipitation (rain) 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 piC/L	None	N/A
≤4.0 piC/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		
Clarksburg Elementary School		
Test Period: 12/9/2019-12/12/2019		
Kit Number	Room / Area	Result
9334905	OFFICE BLANK	< 0.3
9335201	MUS	< 0.3
9335202	GYM OFFICE	< 0.3
9335203	GYM	1.2
9335204	GYM	1.4
9335205	1	< 0.3
9335206	2	< 0.3
9335207	2	< 0.3
9335208	BSO	< 0.3
9335209	STAFF	< 0.3
9335210	CONF 1	< 0.3
9335211	PRN	< 0.3
9335212	WR	< 0.3
9335213	HE	< 0.3
9335214	MAIN	< 0.3
9335215	MPR	< 0.3
9335216	MPR	< 0.3
9335217	MPR	< 0.3
9335218	MPR	< 0.3
9335365	6	< 0.3
9335366	7	< 0.3
9335367	7	< 0.3
9335368	8	< 0.3
9335369	9	< 0.3
9335370	10	< 0.3
9335371	11	< 0.3
9335372	CONF 3	< 0.3
9335373	CONF 2	< 0.3
9335374	MATH AIDE	< 0.3
9335375	13	< 0.3
9335376	15	< 0.3
9335377	15	< 0.3
9335378	16	< 0.3
9335379	16	< 0.3
9335380	14	< 0.3
9335381	12	< 0.3
9335382	COMP	< 0.3
9335383	READ	< 0.3
9335384	COM	< 0.3
9335385	IMC	< 0.3
9335386	MO	< 0.3
9335387	MO	< 0.3
9335388	MP	< 0.3
9335389	RES	< 0.3
9335390	SP	< 0.3
9335391	CONF 3	< 0.3
9335392	OFF	< 0.3
9335393	5	< 0.3
9335394	4	< 0.3
9335395	3	< 0.3

9335396	OFF	< 0.3
9335397	OFF	< 0.3
9335398	SR	< 0.3
9335399	SR	< 0.3
9335400	ART	< 0.3

Table 2- Radon Testing Results			
Clarksburg Elementary School			
Test Period: 12/9/2019-12/12/2019			
Kit Number	QC Type	Room / Area	Result
9335367	D	7	<0.3
9335377	D	15	<0.3
9335379	FB	16	<0.3
9335387	D	MO	<0.3
9335397	D	OFF	<0.3
9335399	FB	SR	<0.3
9335207	D	2	<0.3
9335216	D	MPR	<0.3
9335218	FB	MPR	<0.3
9334850	TRANSIT BLANK	NA	< 0.3
9334914	TRANSIT BLANK	NA	< 0.3
9334916	TRANSIT BLANK	NA	< 0.3
9334963	TRANSIT BLANK	NA	< 0.3

Summary of Missed Locations		
Clarksburg Elementary School		
Test Period: 12/9/2019 - 12/12/2019		
Kit Number	Room/Area	Result
	NA	

Summary of Missing, Compromised and >/= 4 piC/L Tests		
Clarksburg Elementary School		
Test Period: 12/9/2019-12/12/2019		
Kit Number	Room/Area	Result
	NA	

Table Note:
* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

December 17, 2019 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9335205	1	2019-12-09 @ 2:00 pm	2019-12-12 @ 11:00 am	< 0.3	2019-12-16
9335370	10	2019-12-09 @ 12:00 pm	2019-12-12 @ 11:00 am	< 0.3	2019-12-16
9335371	11	2019-12-09 @ 12:00 pm	2019-12-12 @ 11:00 am	< 0.3	2019-12-16
9335381	12	2019-12-09 @ 12:00 pm	2019-12-12 @ 11:00 am	< 0.3	2019-12-16
9335375	13	2019-12-09 @ 12:00 pm	2019-12-12 @ 11:00 am	< 0.3	2019-12-16
9335380	14	2019-12-09 @ 12:00 pm	2019-12-12 @ 11:00 am	< 0.3	2019-12-16
9335377	15	2019-12-09 @ 12:00 pm	2019-12-12 @ 11:00 am	< 0.3	2019-12-16
9335376	15	2019-12-09 @ 12:00 pm	2019-12-12 @ 11:00 am	< 0.3	2019-12-16
9335379	16	2019-12-09 @ 12:00 pm	2019-12-12 @ 11:00 am	< 0.3	2019-12-16
9335378	16	2019-12-09 @ 12:00 pm	2019-12-12 @ 11:00 am	< 0.3	2019-12-16
9335206	2	2019-12-09 @ 2:00 pm	2019-12-12 @ 11:00 am	< 0.3	2019-12-16
9335207	2	2019-12-09 @ 2:00 pm	2019-12-12 @ 11:00 am	< 0.3	2019-12-16
9335395	3	2019-12-09 @ 1:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-16
9335394	4	2019-12-09 @ 1:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-16
9335393	5	2019-12-09 @ 1:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-16
9335365	6	2019-12-09 @ 12:00 pm	2019-12-12 @ 11:00 am	< 0.3	2019-12-16
9335367	7	2019-12-09 @ 12:00 pm	2019-12-12 @ 11:00 am	< 0.3	2019-12-16
9335366	7	2019-12-09 @ 12:00 pm	2019-12-12 @ 11:00 am	< 0.3	2019-12-16
9335368	8	2019-12-09 @ 12:00 pm	2019-12-12 @ 11:00 am	< 0.3	2019-12-16
9335369	9	2019-12-09 @ 12:00 pm	2019-12-12 @ 11:00 am	< 0.3	2019-12-16
9335400	ART	2019-12-09 @ 1:00 pm	2019-12-12 @ 11:00 am	< 0.3	2019-12-16
9335208	BSO	2019-12-09 @ 2:00 pm	2019-12-12 @ 11:00 am	< 0.3	2019-12-16
9335384	COM	2019-12-09 @ 12:00 pm	2019-12-12 @ 11:00 am	< 0.3	2019-12-16
9335382	COMP	2019-12-09 @ 12:00 pm	2019-12-12 @ 11:00 am	< 0.3	2019-12-16
9335210	CONF 1	2019-12-09 @ 2:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-16
9335373	CONF 2	2019-12-09 @ 12:00 pm	2019-12-12 @ 11:00 am	< 0.3	2019-12-16
9335391	CONF 3	2019-12-09 @ 1:00 pm	2019-12-12 @ 11:00 am	< 0.3	2019-12-16
9335372	CONF 3	2019-12-09 @ 12:00 pm	2019-12-12 @ 11:00 am	< 0.3	2019-12-16
9335203	GYM	2019-12-09 @ 1:00 pm	2019-12-12 @ 11:00 am	1.2 ± 0.4	2019-12-16
9335204	GYM	2019-12-09 @ 2:00 pm	2019-12-12 @ 11:00 am	1.4 ± 0.3	2019-12-16
9335202	GYM OFFICE	2019-12-09 @ 1:00 pm	2019-12-12 @ 11:00 am	< 0.3	2019-12-16
9335213	HE	2019-12-09 @ 2:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-16
9335385	IMC	2019-12-09 @ 12:00 pm	2019-12-12 @ 11:00 am	< 0.3	2019-12-16
9335214	MAIN	2019-12-09 @ 2:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-16
9335374	MATH AIDE	2019-12-09 @ 12:00 pm	2019-12-12 @ 11:00 am	< 0.3	2019-12-16
9335386	MO	2019-12-09 @ 12:00 pm	2019-12-12 @ 11:00 am	< 0.3	2019-12-16
9335387	MO	2019-12-09 @ 1:00 pm	2019-12-12 @ 11:00 am	< 0.3	2019-12-16

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December 17, 2019 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9335388	MP	2019-12-09 @ 1:00 pm	2019-12-12 @ 11:00 am	< 0.3	2019-12-16
9335218	MPR	2019-12-09 @ 2:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-16
9335216	MPR	2019-12-09 @ 2:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-16
9335217	MPR	2019-12-09 @ 2:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-16
9335215	MPR	2019-12-09 @ 2:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-16
9335201	MUS	2019-12-09 @ 1:00 pm	2019-12-12 @ 11:00 am	< 0.3	2019-12-16
9335396	OFF	2019-12-09 @ 1:00 pm	2019-12-12 @ 11:00 am	< 0.3	2019-12-16
9335392	OFF	2019-12-09 @ 1:00 pm	2019-12-12 @ 11:00 am	< 0.3	2019-12-16
9335397	OFF	2019-12-09 @ 1:00 pm	2019-12-12 @ 11:00 am	< 0.3	2019-12-16
9335211	PRN	2019-12-09 @ 2:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-16
9335383	READ	2019-12-09 @ 12:00 pm	2019-12-12 @ 11:00 am	< 0.3	2019-12-16
9335389	RES	2019-12-09 @ 1:00 pm	2019-12-12 @ 11:00 am	< 0.3	2019-12-16
9335390	SP	2019-12-09 @ 1:00 pm	2019-12-12 @ 11:00 am	< 0.3	2019-12-16
9335399	SR	2019-12-09 @ 1:00 pm	2019-12-12 @ 11:00 am	< 0.3	2019-12-16
9335398	SR	2019-12-09 @ 1:00 pm	2019-12-12 @ 11:00 am	< 0.3	2019-12-16
9335209	STAFF	2019-12-09 @ 2:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-16
9335212	WR	2019-12-09 @ 2:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-16

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EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KEI Technologies Inc. Job Number 193475

NOMINAL Conditions: Radon Conc 25.7 pCi/L Rel. Hum 74.6 % Temp. 69.9 F

Date Start: 12/13/19 Date Stop: 12/16/19 | Date Start: _____ Date Stop: _____

Time Start: 0806 Time Stop: 0806 | Time Start: _____ Time Stop: _____

(Group 1)

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

9334502 thru 9334510, 9334514, 9334516, 9334517, ~~9334518~~ acm, 9334519 9334522 thru 9334528

B4

Date Start: 12/13/19 Date Stop: 12/16/19 | Date Start: _____ Date Stop: _____

Time Start: ~~0800~~ acm Time Stop: 0811 | Time Start: _____ Time Stop: _____

0811

(Group 2)

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

9334529 thru 9334538, 9334540, 9334542 thru 9334550

B3

Date Start: 12/13/19 Date Stop: 12/16/19 | Date Start: _____ Date Stop: _____

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

(Group 3)

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

9334551, 9334552, 9334562, 9334555 thru 9334559, 9334569, 9334576, 9334579, 9334580, 9334583, 9334584, 9334591, 9334593, 9334594, 9334597, 9334598, 9334599

B2

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

December 18, 2019 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

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

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9334583	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.3 ± 1.4	2019-12-18
9334529	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.3 ± 1.5	2019-12-18
9334597	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.8 ± 1.4	2019-12-18
9334534	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.3 ± 1.4	2019-12-18
9334540	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.9 ± 1.4	2019-12-18
9334546	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.9 ± 1.5	2019-12-18
9334551	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.3 ± 1.4	2019-12-18
9334558	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.6 ± 1.4	2019-12-18
9334579	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.6 ± 1.4	2019-12-18
9334593	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.3 ± 1.4	2019-12-18
9334532	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.6 ± 1.4	2019-12-18
9334537	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.8 ± 1.4	2019-12-18
9334544	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.5 ± 1.4	2019-12-18
9334549	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.4 ± 1.5	2019-12-18
9334556	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.1 ± 1.4	2019-12-18
9334569	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.7 ± 1.4	2019-12-18
9334584	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.4 ± 1.5	2019-12-18
9334530	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.6 ± 1.4	2019-12-18
9334598	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.7 ± 1.4	2019-12-18
9334535	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.0 ± 1.4	2019-12-18
9334542	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.7 ± 1.4	2019-12-18
9334547	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	25.2 ± 1.5	2019-12-18
9334552	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.2 ± 1.4	2019-12-18
9334559	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.1 ± 1.4	2019-12-18
9334580	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.1 ± 1.4	2019-12-18
9334594	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.1 ± 1.4	2019-12-18
9334533	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.3 ± 1.5	2019-12-18
9334538	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.6 ± 1.5	2019-12-18
9334545	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.0 ± 1.4	2019-12-18
9334550	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.1 ± 1.4	2019-12-18
9334557	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.6 ± 1.5	2019-12-18
9334576	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.3 ± 1.4	2019-12-18
9334591	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.7 ± 1.4	2019-12-18
9334531	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.3 ± 1.5	2019-12-18
9334599	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.8 ± 1.4	2019-12-18
9334536	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.4 ± 1.5	2019-12-18
9334543	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.4 ± 1.5	2019-12-18

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December 18, 2019 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

N/A

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9334548	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.0 ± 1.4	2019-12-18
9334555	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.4 ± 1.4	2019-12-18
9334562	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.5 ± 1.4	2019-12-18

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December 18, 2019 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
S
N/A

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9334505	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.5 ± 1.5	2019-12-18
9334510	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.4 ± 1.5	2019-12-18
9334522	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.9 ± 1.4	2019-12-18
9334527	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	22.6 ± 1.4	2019-12-18
9334503	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.6 ± 1.4	2019-12-18
9334508	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.7 ± 1.5	2019-12-18
9334517	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.5 ± 1.4	2019-12-18
9334525	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.8 ± 1.4	2019-12-18
9334506	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.3 ± 1.5	2019-12-18
9334514	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.5 ± 1.5	2019-12-18
9334523	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.6 ± 1.4	2019-12-18
9334528	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.8 ± 1.4	2019-12-18
9334504	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.8 ± 1.4	2019-12-18
9334509	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.5 ± 1.4	2019-12-18
9334519	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.1 ± 1.4	2019-12-18
9334526	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.3 ± 1.4	2019-12-18
9334502	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.7 ± 1.4	2019-12-18
9334507	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.7 ± 1.5	2019-12-18
9334516	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	22.2 ± 1.3	2019-12-18
9334524	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.6 ± 1.5	2019-12-18

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KCI TECHNOLOGIES

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 1

Name of Schools:

1. Baker M.S.
2. Belmont E.S.
3. Clarksburg E.S.
4. Clarksburg H.S.
5. Clearspring E.S.
6. Damascus E.S.
7. Damascus H.S.
8. Dufief E.S.
9. Fields Road E.S.
10. Gaithersburg E.S.
11. Germantown E.S.
12. Great Seneca Creek E.S.
13. Jones Lane E.S.
14. Lake Seneca E.S.
15. McAuliffe E.S.
16. Quince Orchard H.S.
17. Rosa Parks M.S.
18. Snowden Farm E.S.
19. South Lake E.S.
20. Stone Mill E.S.
21. Travilah E.S.
22. Watkins Mill E.S.
23. Watkins Mill H.S.
24. Whitman H.S.

	Date	Initials
Radon Test Kits Deployed	12/09/19 to 12/10/19	
Radon Test Kits Collected	12/12/19 to 12/13/19	
Radon Test Kits Shipped to Lab*	12/13/19	
Radon Test Kits Received by Lab*	12/16/19	

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

KCI TECHNOLOGIES

ENGINEERS • PLANNERS • SCIENTISTS • CONSTRUCTION MANAGERS

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

MCPS RADON TESTING

Executive Summary: Clarksburg Elementary School

Date of Test Report:	10/18/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	13
# Rooms ≥ 4.0 pCi/L:	0
Low Value:	< 0.3
High Value:	0.7

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

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October 18, 2016

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

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

Location: Clarksburg Elementary School
13530 Redgrave Place
Clarksburg, MD 20871

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 Clarksburg Elementary School, located at 13530 Redgrave Place in Clarksburg, Maryland 20871 (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 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. A floor plan map of the building with the test locations is included as Attachment A of this report.

s 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 piC/L	none	n/a
<4.0 piC/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. Moulsdale
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		
Clarksburg Elementary School		
Test Period: 09/27/16-09/30/16		
Kit Number	**Room / Area**	**Result**
7802011	1	< 0.3
7802018	3	< 0.3
7802017	8	< 0.3
7802019	12	0.6
7802049	13	< 0.3
7802013	APR	< 0.3
7802014	APR	< 0.3
7802015	ART	< 0.3
7802010	GYM	0.7
7802016	GYM	0.7
7802002	HEALTH	< 0.3
7802051	OFFICE WORK ROOM	< 0.3
7802035	PRINCIPAL	< 0.3
7802050	READING	< 0.3
7802008	RECORD	< 0.3

Table Note:
* Missing or Compromised Sample

Radon Testing Results		
Clarksburg Elementary School		
Test Period: 09/27/16-09/30/16		
Kit Number	**QC Type**	**Result**
7802005	D (ART)	< 0.3
7802057	D (PRINCIPAL)	< 0.3
7802012	FB (PRINCIPAL)	< 0.3

Table Note:
* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

October 7, 2016 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
CLARKSBURG ELEMETNARY SCHOOL
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7802011	1	2016-09-27 @ 4:00 pm	2016-09-30 @ 12:00 pm	< 0.3	2016-10-03
7802019	12	2016-09-27 @ 4:00 pm	2016-09-30 @ 12:00 pm	0.6 ± 0.2	2016-10-03
7802049	13	2016-09-27 @ 4:00 pm	2016-09-30 @ 12:00 pm	< 0.3	2016-10-03
7802018	3	2016-09-27 @ 4:00 pm	2016-09-30 @ 12:00 pm	< 0.3	2016-10-03
7802017	8	2016-09-27 @ 4:00 pm	2016-09-30 @ 12:00 pm	< 0.3	2016-10-03
7802013	APR	2016-09-27 @ 4:00 pm	2016-09-30 @ 12:00 pm	< 0.3	2016-10-03
7802014	APR	2016-09-27 @ 4:00 pm	2016-09-30 @ 12:00 pm	< 0.3	2016-10-03
7802005	ART	2016-09-27 @ 4:00 pm	2016-09-30 @ 12:00 pm	< 0.3	2016-10-03
7802015	ART	2016-09-27 @ 4:00 pm	2016-09-30 @ 12:00 pm	< 0.3	2016-10-03
7802010	GYM	2016-09-27 @ 4:00 pm	2016-09-30 @ 12:00 pm	0.7 ± 0.2	2016-10-03
7802016	GYM	2016-09-27 @ 4:00 pm	2016-09-30 @ 12:00 pm	0.7 ± 0.2	2016-10-03
7802002	HEALTH	2016-09-27 @ 3:00 pm	2016-09-30 @ 12:00 pm	< 0.3	2016-10-03
7802012	PRINCIPAL	2016-09-27 @ 3:00 pm	2016-09-30 @ 12:00 pm	< 0.3	2016-10-03
7802057	PRINCIPAL	2016-09-27 @ 3:00 pm	2016-09-30 @ 12:00 pm	< 0.3	2016-10-03
7802035	PRINCIPAL	2016-09-27 @ 3:00 pm	2016-09-30 @ 12:00 pm	< 0.3	2016-10-03
7802050	READING	2016-09-27 @ 4:00 pm	2016-09-30 @ 12:00 pm	< 0.3	2016-10-03
7802008	RECORD	2016-09-27 @ 3:00 pm	2016-09-30 @ 12:00 pm	< 0.3	2016-10-03
7802051	OFFWORK ROOM	2016-09-27 @ 3:00 pm	2016-09-30 @ 12:00 pm	< 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

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

October 12, 2016 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
MCPS Radon
Spike Sample Results

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

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

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

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI Technologies Inc. Job Number 176788

NOMINAL Conditions: Radon Conc 26.1 pCi/L Rel. Hum 49.6 % Temp. 79.0 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 μR/h Elevation = 820 ft

KCI TECHNOLOGIES

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

Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase 18

Name of Schools:

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

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

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

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

Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase 18

Name of Schools:

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

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

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

RADON SCREENING SURVEY – FOLLOW-UP CLARKSBURG ELEMENTARY SCHOOL

13530 Redgrave Place, Clarksburg, Maryland 20871

EXECUTIVE SUMMARY

Date of Test Report:	3/8/16 Follow-Up
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested	6
# Rooms ≥ 4.0 pCi/L:	1
Low Value:	<0.3
High Value:	4.3
Confirmed Rooms ≥ 4.0 pCi/L US EPA Action Level	1

Summary of Sampling Events ≥ 4.0 pCi/L

Room	Result (pCi/L) 3/10/16 (Rev 1 Initial)	Result (pCi/L) 3/8/16 Follow-Up	Average Result (pCi/L)
Record	5.2	3.7	4.5
Gym Office	4.3	0.7	2.5
Class 2	3.6	1.6	2.6
Computer	3.3	3.9	3.6
Music	3.6	<0.3	2.0
Stage	3.1	4.3	3.7

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MCPS RADON TESTING

Executive Summary: Clarksburg Elementary School

Date of Test Report:	3/8/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	6
# Rooms ≥ 4.0 pCi/L:	1
Low Value:	< 0.3
High Value:	4.3

Rooms with results ≥ 4.0 pCi/L:
Stage (4.3 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.

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March 8, 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 # 12146341.28

Location: Clarksburg Elementary School
13530 Redgrave Place
Clarksburg, MD 20871

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 Clarksburg Elementary School, located at 13530 Redgrave Place in Clarksburg, Maryland 20871 (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 8, 2016 and deployed eight (8) 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 11, 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 ≤ 65° F.

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

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

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

Results:

The results of the radon test analysis indicated the following:

Radon Concentration	Room	Result
≥4.0 piC/L	Stage	4.3
<4.0 piC/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. Moulsdale
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 8 testing. Office blanks were not submitted under each school individually.

Radon Testing Results		
Clarksburg Elementary School		
Test Period: 02/08/16-02/11/16		
Kit Number	**Room / Area**	**Result**
7729955	COMPUTER	3.9
7731189	GYM OFFICE	0.7
7731145	MUSIC	< 0.3
7729937	RECORD	3.7
7729939	ROOM 2	1.6
7729957	STAGE	4.3

Table Note:
* Missing or Compromised Sample

Radon Testing Results		
Clarksburg Elementary School		
Test Period: 02/08/16-02/11/16		
Kit Number	**QC Type**	**Result**
7731159	D (COMPUTER)	3.9
7729940	FB (RECORD)	< 0.3

Table Note:
* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

February 25, 2016

** LABORATORY ANALYSIS REPORT **

Radon test result report for:

CLARKSBURG ELEMENTARY SCHOOL
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7729955	COMPUTER	2016-02-08 @ 10:00 am	2016-02-11 @ 10:00 am	3.9 ± 0.5	2016-02-15
7731159	COMPUTER	2016-02-08 @ 10:00 am	2016-02-11 @ 10:00 am	3.9 ± 0.5	2016-02-15
7731189	GYM OFFICE	2016-02-08 @ 11:00 am	2016-02-11 @ 10:00 am	0.7 ± 0.3	2016-02-15
7731145	MUSIC	2016-02-08 @ 11:00 am	2016-02-11 @ 10:00 am	< 0.3	2016-02-15
7729937	RECORD	2016-02-08 @ 10:00 am	2016-02-11 @ 10:00 am	3.7 ± 0.4	2016-02-15
7729940	RECORD	2016-02-08 @ 10:00 am	2016-02-11 @ 10:00 am	< 0.3	2016-02-15
7729939	ROOM 2	2016-02-08 @ 10:00 am	2016-02-11 @ 10:00 am	1.6 ± 0.3	2016-02-15
7729957	STAGE	2016-02-08 @ 10:00 am	2016-02-11 @ 10:00 am	4.3 ± 0.5	2016-02-15

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

February 25, 2016

** LABORATORY ANALYSIS REPORT **

Radon test result report for:

MCPS RADON
PHASE 8
OFFICE BLANKS

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7729754	0	2016-02-08 @ 4:00 pm	2016-02-11 @ 5:00 pm	< 0.3	2016-02-15
7729757	0	2016-02-08 @ 4:00 pm	2016-02-11 @ 5:00 pm	< 0.3	2016-02-15
7729758	0	2016-02-08 @ 4:00 pm	2016-02-11 @ 5:00 pm	< 0.3	2016-02-15

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

February 23, 2016

** LABORATORY ANALYSIS REPORT **

Radon test result report for:

TRANSIT- PHASE 7, 8, 9
NONE

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

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

February 15, 2016

** LABORATORY ANALYSIS REPORT **

Spike Sample Laboratory Results

Radon test result report for:

MCPS

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

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

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

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCF Technologies Inc. Job Number 173704

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

Date Start: 1/30/16 Date Stop: 2/1/16	Date Start: _____ Date Stop: _____
Time Start: 0926 Time Stop: 0926	Time Start: _____ Time Stop: _____
Device No.'s: (6) Char. Bags -	Device No.'s: _____
7718281, 7718282, 7718291,	_____
7718288, 7718289, 7718273	_____
E3 Left	_____
Date Start: _____ Date Stop: _____	Date Start: _____ Date Stop: _____
Time Start: _____ Time Stop: _____	Time Start: _____ Time Stop: _____
Device No.'s: _____	Device No.'s: _____
_____	_____
_____	_____
_____	_____
Date Start: _____ Date Stop: _____	Date Start: _____ Date Stop: _____
Time Start: _____ Time Stop: _____	Time Start: _____ Time Stop: _____
Device No.'s: _____	Device No.'s: _____
_____	_____
_____	_____
_____	_____

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

KCI TECHNOLOGIES

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 8

Name of Schools:

1. Blair G. Ewing Center
2. Cedar Grove ES
3. Clarksburg ES
4. Cloverly ES
5. Cold Spring ES
6. Damascus ES
7. Dufief ES
8. East Silver Spring
9. Georgian Forest ES
10. Germantown ES
11. Glenallen ES
12. Jackson Road ES
13. Jones Lane ES
14. Lake Seneca ES
15. Laytonsville ES
16. Montgomery Knolls ES
17. North Chevy Chase ES
18. Oakview ES
19. Randolph Maint
20. Robert Frost MS
21. Shady Grove Maint
22. Viers Mill ES

	Date	Initials
Radon Test Kits Deployed	2/8/16	JM
Radon Test Kits Collected	2/11/16	JM
Radon Test Kits Shipped to Lab*	12/11/16	JM
Radon Test Kits Received by Lab*	12/15/16	JM

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

KCI TECHNOLOGIES

ENGINEERS • PLANNERS • SCIENTISTS • CONSTRUCTION MANAGERS

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

MCPS RADON TESTING

Executive Summary: Clarksburg Elementary School

Date of Test Report:	3/10/2016 (Rev 1)
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	48
# Rooms ≥ 4.0 pCi/L:	2
Low Value:	< 0.3
High Value:	5.2

Rooms with results ≥ 4.0 pCi/L:
Record (5.2 pCi/L), Gym Office (4.3 pCi/L)

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

KCI TECHNOLOGIES

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

March 10, 2016 (Rev 1)

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

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

Location: Clarksburg Elementary School
13530 Redgrave Place
Clarksburg, MD 20871

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 Clarksburg Elementary School, located at 13530 Redgrave Place in Clarksburg, Maryland 20871 (subject site).

Scope of Services:

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

KCI visited the site on December 21, 2015 and deployed sixty-one (61) activated charcoal (AC) radon test kits. KCI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. A floor plan map of the building with the test locations is included as Attachment A of this report.

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

KCI returned to the site on December 24, 2015 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Airchek, Inc. for analysis by gamma-ray spectroscopy. Airchek, Inc. is a NRSB certified analytical laboratory for radon analysis (certification # ARL1402) located at 1936

Butler Bridge Road, Mills River, North Carolina.

Evaluation of Testing Conditions:

The operating condition that represents the greatest amount of significantly occupied time for this building is; heating active, with outdoor temperature averages ≤ 65° F.

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

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

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

Results:

The results of the radon test analysis indicated the following:

Radon Concentration	Room	Result
≥4.0 piC/L	Record	5.2
	Gym Office	4.3
<4.0 piC/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. Moulsdale
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

Radon Testing Results		
Clarksburg ES		
Test Period: 12/21/15-12/24/15		
Kit Number	**Room / Area**	**Result**
7710550	ART	0.6
7710594	CAFETERIA	2.6
7710592	CAFETERIA	2.2
7710576	CLASS 1	3.0
7710535	CLASS 10	1.8
7710531	CLASS 11	0.6
7710534	CLASS 12	1.1
7710545	CLASS 13	0.8
7710519	CLASS 14	1.6
7710522	CLASS 15	2.9
7710562	CLASS 16	3.3
7710595	CLASS 2	3.6
7710554	CLASS 3	1.4
7710559	CLASS 4	2.2
7710558	CLASS 5	< 0.3
7710549	CLASS 6	1.0
7710570	CLASS 7	0.9
7710579	CLASS 8	1.2
7710538	CLASS 9	1.4
7710560	COMMUNICATION	1.4
7710561	COMPUTER	3.3
7710598	CONFERENCE 1	0.7
7710588	CONFERENCE 2	< 0.3
7710548	CONFERENCE 3	2.0
7710503	CONFERENCE 4	0.8
7710582	COUNSELORS OFFICE	2.5
7710557	GYM	2.9
7710551	GYM	3.1
7710552	GYM OFFICE	4.3
7710599	HEALTH	1.2
7710565	INSTRUMENT MUSIC	1.0
7710564	LIBRARY	2.7
7710563	LIBRARY	2.2
7710555	LIBRARY	1.7
7710597	MAIL	1.4
7710547	MATERIAL PREP	1.9
7710583	MATH AID	2.6
7710543	MEDIA OFFICE	1.9
7710589	MIAN OFFICE	1.5
7710546	MUSIC	3.6
7710596	OFFICE 3	< 0.3
7710572	PORTABLE 1	< 0.3
7710517	PORTABLE 2	< 0.3
7710544	PORTABLE 3	< 0.3
7710540	PORTABLE 4	< 0.3
7710587	PRINCIPAL	0.9

Table Note:
* Missing or Compromised Sample

Radon Testing Results		
Clarksburg ES		
Test Period: 12/21/15-12/24/15		
Kit Number	**Room / Area**	**Result**
7710586	READ	0.7
7710575	RECORD	5.2
7710556	RESOURCE	0.7
7710591	SPEECH	0.9
7710600	STAFF	1.5
7710593	STAGE	3.1

Table Note:
* Missing or Compromised Sample

Radon Testing Results		
Clarksburg ES		
Test Period: 12/21/15-12/24/15		
Kit Number	**QC Type**	**Result**
7710539	D (CLASS 10)	2.1
7710521	D (CLASS 14)	1.7
7710553	D (CLASS 3)	1.4
7710518	D (PORTABLE 3)	< 0.3
7710542	D (READ)	1.1
7710581	D (STAFF)	1.9
7710529	FB (CLASS 13)	< 0.3
7710590	FB (CONFERENCE 2)	< 0.3
7710419	OB (0)	< 0.3

Table Note:
* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

January 12, 2016

** LABORATORY ANALYSIS REPORT **

Radon test result report for:

CLARKSBURG ES
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7710419	00	2015-12-21 @ 6:00 pm	2015-12-24 @ 1:00 pm	< 0.3	2015-12-29
7710550	ART	2015-12-21 @ 12:00 pm	2015-12-24 @ 9:00 am	0.6 ± 0.3	2015-12-28
7710594	CAFETERIA	2015-12-21 @ 11:00 am	2015-12-24 @ 9:00 am	2.6 ± 0.4	2015-12-28
7710592	CAFETERIA	2015-12-21 @ 11:00 am	2015-12-24 @ 9:00 am	2.2 ± 0.4	2015-12-28
7710576	CLASS 1	2015-12-21 @ 11:00 am	2015-12-24 @ 8:00 am	3.0 ± 0.4	2015-12-28
7710535	CLASS 10	2015-12-21 @ 12:00 pm	2015-12-24 @ 10:00 am	1.8 ± 0.4	2015-12-28
7710539	CLASS 10	2015-12-21 @ 12:00 pm	2015-12-24 @ 10:00 am	2.1 ± 0.4	2015-12-28
7710531	CLASS 11	2015-12-21 @ 12:00 pm	2015-12-24 @ 10:00 am	0.6 ± 0.3	2015-12-28
7710534	CLASS 12	2015-12-21 @ 12:00 pm	2015-12-24 @ 9:00 am	1.1 ± 0.3	2015-12-28
7710545	CLASS 13	2015-12-21 @ 12:00 pm	2015-12-24 @ 10:00 am	0.8 ± 0.3	2015-12-28
7710529	CLASS 13	2015-12-21 @ 1:00 pm	2015-12-24 @ 10:00 am	< 0.3	2015-12-28
7710519	CLASS 14	2015-12-21 @ 1:00 pm	2015-12-24 @ 10:00 am	1.6 ± 0.4	2015-12-28
7710521	CLASS 14	2015-12-21 @ 1:00 pm	2015-12-24 @ 10:00 am	1.7 ± 0.4	2015-12-28
7710522	CLASS 15	2015-12-21 @ 1:00 pm	2015-12-24 @ 10:00 am	2.9 ± 0.4	2015-12-28
7710562	CLASS 16	2015-12-21 @ 1:00 pm	2015-12-24 @ 10:00 am	3.3 ± 0.4	2015-12-28
7710595	CLASS 2	2015-12-21 @ 11:00 am	2015-12-24 @ 8:00 am	3.6 ± 0.5	2015-12-28
7710554	CLASS 3	2015-12-21 @ 11:00 am	2015-12-24 @ 9:00 am	1.4 ± 0.4	2015-12-28
7710553	CLASS 3	2015-12-21 @ 11:00 am	2015-12-24 @ 9:00 am	1.4 ± 0.3	2015-12-28
7710559	CLASS 4	2015-12-21 @ 11:00 am	2015-12-24 @ 9:00 am	2.2 ± 0.4	2015-12-28
7710558	CLASS 5	2015-12-21 @ 11:00 am	2015-12-24 @ 9:00 am	< 0.3	2015-12-28
7710549	CLASS 6	2015-12-21 @ 12:00 pm	2015-12-24 @ 9:00 am	1.0 ± 0.4	2015-12-28
7710570	CLASS 7	2015-12-21 @ 12:00 pm	2015-12-24 @ 9:00 am	0.9 ± 0.3	2015-12-28
7710579	CLASS 8	2015-12-21 @ 12:00 pm	2015-12-24 @ 10:00 am	1.2 ± 0.3	2015-12-28
7710538	CLASS 9	2015-12-21 @ 12:00 pm	2015-12-24 @ 10:00 am	1.4 ± 0.4	2015-12-28
7710560	COMMUNICATION	2015-12-21 @ 12:00 pm	2015-12-24 @ 9:00 am	1.4 ± 0.4	2015-12-28
7710561	COMPUTER	2015-12-21 @ 12:00 pm	2015-12-24 @ 9:00 am	3.3 ± 0.5	2015-12-28
7710598	CONFERENCE 1	2015-12-21 @ 11:00 am	2015-12-24 @ 9:00 am	0.7 ± 0.3	2015-12-28
7710548	CONFERENCE 3	2015-12-21 @ 12:00 pm	2015-12-24 @ 10:00 am	2.0 ± 0.4	2015-12-28
7710503	CONFERENCE 4	2015-12-21 @ 12:00 pm	2015-12-24 @ 10:00 am	0.8 ± 0.3	2015-12-28
7710588	CONFERENCE 2	2015-12-21 @ 11:00 am	2015-12-24 @ 9:00 am	< 0.3	2015-12-28
7710590	CONFERENCE 2	2015-12-21 @ 11:00 am	2015-12-24 @ 9:00 am	< 0.3	2015-12-28
7710582	COUNSELORS OFFIC	2015-12-21 @ 11:00 am	2015-12-24 @ 9:00 am	2.5 ± 0.4	2015-12-28
7710557	GYM	2015-12-21 @ 11:00 am	2015-12-24 @ 8:00 am	2.9 ± 0.4	2015-12-28
7710551	GYM	2015-12-21 @ 12:00 pm	2015-12-24 @ 8:00 am	3.1 ± 0.4	2015-12-28
7710552	GYM OFFICE	2015-12-21 @ 11:00 am	2015-12-24 @ 8:00 am	4.3 ± 0.5	2015-12-28
7710599	HEALTH	2015-12-21 @ 10:00 am	2015-12-24 @ 9:00 am	1.2 ± 0.3	2015-12-28
7710565	INSTRUMENT MUSIC	2015-12-21 @ 11:00 am	2015-12-24 @ 8:00 am	1.0 ± 0.4	2015-12-28

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

January 12, 2016

** LABORATORY ANALYSIS REPORT **

Radon test result report for:

CLARKSBURG ES
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7710564	LIBARY	2015-12-21 @ 12:00 pm	2015-12-24 @ 9:00 am	2.7 ± 0.4	2015-12-28
7710563	LIBARY	2015-12-21 @ 12:00 pm	2015-12-24 @ 9:00 am	2.2 ± 0.4	2015-12-28
7710555	LIBARY	2015-12-21 @ 12:00 pm	2015-12-24 @ 9:00 am	1.7 ± 0.4	2015-12-28
7710597	MAIL	2015-12-21 @ 10:00 am	2015-12-24 @ 9:00 am	1.4 ± 0.3	2015-12-28
7710547	MATERIAL PREP	2015-12-21 @ 12:00 pm	2015-12-24 @ 9:00 am	1.9 ± 0.4	2015-12-28
7710583	MATH AID	2015-12-21 @ 12:00 pm	2015-12-24 @ 10:00 am	2.6 ± 0.4	2015-12-28
7710543	MEDIA OFFICE	2015-12-21 @ 12:00 pm	2015-12-24 @ 9:00 am	1.9 ± 0.4	2015-12-28
7710589	MIAN OFFICE	2015-12-21 @ 10:00 am	2015-12-24 @ 9:00 am	1.5 ± 0.3	2015-12-28
7710546	MUSIC	2015-12-21 @ 12:00 pm	2015-12-24 @ 9:00 am	3.6 ± 0.5	2015-12-28
7710596	OFFICE 3	2015-12-21 @ 11:00 am	2015-12-24 @ 8:00 am	< 0.3	2015-12-28
7710572	PORTABLE 1	2015-12-21 @ 1:00 pm	2015-12-24 @ 9:00 am	< 0.3	2015-12-28
7710517	PORTABLE 2	2015-12-21 @ 1:00 pm	2015-12-24 @ 9:00 am	< 0.3	2015-12-28
7710544	PORTABLE 3	2015-12-21 @ 1:00 pm	2015-12-24 @ 9:00 am	< 0.3	2015-12-28
7710518	PORTABLE 3	2015-12-21 @ 1:00 pm	2015-12-24 @ 9:00 am	< 0.3	2015-12-28
7710540	PORTABLE 4	2015-12-21 @ 1:00 pm	2015-12-24 @ 9:00 am	< 0.3	2015-12-28
7710587	PRINCIPAL	2015-12-21 @ 10:00 am	2015-12-24 @ 9:00 am	0.9 ± 0.3	2015-12-28
7710586	READ	2015-12-21 @ 12:00 pm	2015-12-24 @ 9:00 am	0.7 ± 0.3	2015-12-28
7710542	READ	2015-12-21 @ 12:00 pm	2015-12-24 @ 9:00 am	1.1 ± 0.4	2015-12-28
7710575	RECORD	2015-12-21 @ 10:00 am	2015-12-24 @ 9:00 am	5.2 ± 0.5	2015-12-28
7710556	RESOURCE	2015-12-21 @ 12:00 pm	2015-12-24 @ 9:00 am	0.7 ± 0.3	2015-12-28
7710591	SPEECH	2015-12-21 @ 11:00 am	2015-12-24 @ 9:00 am	0.9 ± 0.3	2015-12-28
7710600	STAFF	2015-12-21 @ 11:00 am	2015-12-24 @ 9:00 am	1.5 ± 0.3	2015-12-28
7710581	STAFF	2015-12-21 @ 11:00 am	2015-12-24 @ 9:00 am	1.9 ± 0.4	2015-12-28
7710593	STAGE	2015-12-21 @ 11:00 am	2015-12-24 @ 9:00 am	3.1 ± 0.4	2015-12-28

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

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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

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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, 7706211, 7706366, 7706380, 7706381 F3 Left	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: _____
Date Start: _____ Date Stop: _____	Date Start: _____ Date Stop: _____
Time Start: _____ Time Stop: _____	Time Start: _____ Time Stop: _____
Device No.'s: _____	Device No.'s: _____

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

KCI TECHNOLOGIES

ENGINEERS • PLANNERS • SCIENTISTS • CONSTRUCTION MANAGERS

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

Chain of Custody

Project Name: MCPS Radon Phase II

School Names:

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

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

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