School / Facility Radon Testing Report Form

School Year: **24-25**

Facility:	Redland Middle School
Address:	6505 Muncaster Mill Road
	Rockville, MD 20855
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 ☒ Consider (≥2.0 & <4.0-pCi/L) ☐ 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	87	Lowest Value (pCi/L)	< 0.3
Number of Rooms (≥4.0-pCi/L)	0	Highest Value (pCi/L)	3.3

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 Lab	

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

Testing

☒ Short-Term ☐ Long-Term	Length of Test (days):	3	Date of Deployment and Retrieval (mm/dd/yy):	03/04/25 03/07/25	03/31/25 04/03/25
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]	86	2	0	0	88
Duplicates[2]	7	1	0	0	8
Field Blanks[3]	4	1	0	0	5
				Grand Total	101

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	1	2
Office Blanks[3, 4]	1	1	2
			14

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

Quality Assurance / Quality Control (continued)

Spike Sample Lab Results. Measured values are satisfactory, i.e., within ± 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

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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:	86	1	0	0	87
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:	1	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]:	1	0	0	0	1
Number of failed duplicate control locations:	1	0	0	0	1
Percentage of missing test locations for the facility[4,5]:	1.16%	0	0	0	1.14%

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		
Redland Middle School		
Test Period: 3/4/2025 - 3/7/2025		
Kit Number	Room / Area	Result
11887305	100	0.6
11887185	101	< 0.3
11887310	102	< 0.3
11887191	108	Missing Kit
11887194	112	0.8
11887307	115	< 0.3
11887180	116	< 0.3
11887176	120	< 0.3
11887192	120	< 0.3
11887312	124	< 0.3
11887313	124	< 0.3
11887314	129	0.6
11887159	130	< 0.3
11887308	131	< 0.3
11887143	132	< 0.3
11887172	133	< 0.3
11887171	135	0.5
11887133	139	< 0.3
11887149	141	0.9
11887124	142	1.0
11887158	143	0.9
11887128	144	0.9
11887173	145	< 0.3
11887123	146	1.0
11887096	147	0.6
11887094	148	1.1
11887108	148	0.9
11887134	149	< 0.3
11887126	150	1.2
11887148	151	1.2
11887127	152	0.8
11887150	153	1.0
11887151	153	< 0.3
11887135	154	0.8
11887144	156	1.0
11887152	158	1.1
11887146	160	0.8
11887147	160	0.9

Table 1- Radon Testing Results		
Redland Middle School		
Test Period: 3/4/2025 - 3/7/2025		
11887145	163	< 0.3
11887165	165	< 0.3
11887179	168	< 0.3
11887153	173	< 0.3
11887132	175	< 0.3
11887137	180	< 0.3
11887168	181	3.3
11887183	182	0.7
11887170	187	0.6
11887178	189	1.6
11887190	195	< 0.3
11887188	199	0.7
11887198	199	< 0.3
11887177	207	0.9
11887199	207	< 0.3
11887189	211	0.7
11887181	215	< 0.3
11887182	217	0.5
11887193	221	1.1
11887187	229	0.6
11887197	233	< 0.3
11887200	233	< 0.3
11887301	100A	< 0.3
11887303	100B	< 0.3
11887304	100B	< 0.3
11887306	100C	< 0.3
11887302	100D	< 0.3
11887309	100E	< 0.3
11887317	100F	< 0.3
11887316	100G	0.5
11887315	100H	< 0.3
11887311	100M	< 0.3
11887186	105 HEALTH	< 0.3
11887196	105B	< 0.3
11887184	105C	0.5
11887161	171 GLR	0.8
11887162	171 GLR	0.8
11887139	171B	0.5
11887169	177 AUX GYM	1.7

Table 1- Radon Testing Results		
Redland Middle School		
Test Period: 3/4/2025 - 3/7/2025		
11887167	179 BLR	1.1
11887175	179B	0.7
11887129	180A	0.5
11887164	180B	0.6
11887174	180B	0.8
11887130	180C	< 0.3
11887166	180C	< 0.3
11887131	180D	< 0.3
11887195	229B	0.6
11887136	BS OFFICE	< 0.3
11887138	CAFETERIA	< 0.3
11887141	CAFETERIA	< 0.3
11887154	GYM	< 0.3
11887156	GYM	< 0.3
11887142	KITCHEN OFFICE	< 0.3
11887140	MEDIA CENTER	0.6
11887160	MEDIA CENTER	< 0.3
11887157	MEDIA OFFICE	< 0.3
11887163	MEDIA OFFICE	< 0.3
11887155	STAGE	< 0.3

Table 2 - Summary Testing Results ≥2.0 pCi/L							
Redland Middle School							
Test Period: 3/4/2025 - 3/7/2025							
≥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	181	3.3	N/A	N/A	N/A	N/A

Table 3 - QC Radon Testing Results			
Redland Middle School			
Test Period: 3/4/2025 - 3/7/2025			
Kit Number	**QC Type**	**Room / Area**	**Result**
11887312	FB	124	< 0.3
11887108	D	148	0.9
11887151	FB	153	< 0.3
11887147	D	160	0.9
11887198	D	199	< 0.3
11887199	FB	207	< 0.3
11887200	D	233	< 0.3
11887303	D	100B	< 0.3
11887161	D	171 GLR	0.8
11887174	D	180B	0.8
11887166	FB	180C	< 0.3
11887000	OB	OFFICE BLANK	< 0.3
11886974	TB	TRAVEL BLANK	< 0.3

Table 3a - Duplicate Worksheet / Data Validation										
Redland Middle School										
Test Period: 3/4/2025 - 3/7/2025										
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
11887108	11887094	148	1.1	0.9	✓	1.8	PASS	1.0	<1-pCi/L	✓
11887147	11887146	160	0.9	0.8	✓	1.6	PASS	0.9	<1-pCi/L	✓
11887198	11887188	199	0.7	0.3	✓	0.6	FAIL	0.5	<1-pCi/L	✓
11887200	11887197	233	0.3	0.3	✓	0.6	PASS	0.3	<1-pCi/L	✓
11887303	11887304	100B	0.3	0.3	✓	0.6	PASS	0.3	<1-pCi/L	✓
11887161	11887162	171 GLR	0.8	0.8	✓	1.6	PASS	0.8	<1-pCi/L	✓
11887174	11887164	180B	0.8	0.6	✓	1.2	PASS	0.7	<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		
Redland Middle School		
Test Period: 3/4/25 - 3/7/25		
Kit Number	**Room/Area**	**Reason**
N/A	201 - Testing Office	Missed Location
11887191	108	Missing Kit

Table 1- Radon Testing Results		
Redland Middle School RT		
Test Period: 3/31/2025 - 4/3/2025		
Kit Number	Room / Area	Result
11887276	181	1.2
11887291	181	1.5
11887262	199	0.6
11887264	199	0.6
11887289	199	< 0.3
11887292	199	0.7

Table 2 - Summary Testing Results ≥2.0 pCi/L							
Redland Middle School RT							
Test Period: 3/31/2025 - 4/3/2025							
≥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			
Redland Middle School RT			
Test Period: 3/31/2025 - 4/3/2025			
Kit Number	**QC Type**	**Room / Area**	**Result**
11887292	D	199	0.7
11887289	FB	199	< 0.3
11886694	OB	OFFICE BLANK	< 0.3
11886589	TB	TRAVEL BLANK	< 0.3

Table 3a - Duplicate Worksheet / Data Validation										
Redland Middle School RT										
Test Period: 3/31/2025 - 4/3/2025										
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
11887292	11887262 11887264	199	0.7	0.6	✓	1.2	PASS	0.7	<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		
Redland Middle School RT		
Test Period: 3/31/2025 - 4/3/2025		
Kit Number	**Room/Area**	**Reason**
N/A	N/A	N/A

Attachment 2:

Laboratory Reports

March 12, 2025

** LABORATORY ANALYSIS REPORT **

Radon test result report for:

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11887305	100	2025-03-04 @ 8:00 am	2025-03-07 @ 8:00 am	0.6 ± 0.3	2025-03-11
11887301	100A	2025-03-04 @ 8:00 am	2025-03-07 @ 8:00 am	< 0.3	2025-03-11
11887304	100B	2025-03-04 @ 8:00 am	2025-03-07 @ 8:00 am	< 0.3	2025-03-11
11887303	100B	2025-03-04 @ 8:00 am	2025-03-07 @ 8:00 am	< 0.3	2025-03-11
11887306	100C	2025-03-04 @ 8:00 am	2025-03-07 @ 8:00 am	< 0.3	2025-03-11
11887302	100D	2025-03-04 @ 8:00 am	2025-03-07 @ 8:00 am	< 0.3	2025-03-11
11887309	100E	2025-03-04 @ 8:00 am	2025-03-07 @ 8:00 am	< 0.3	2025-03-11
11887317	100F	2025-03-04 @ 8:00 am	2025-03-07 @ 8:00 am	< 0.3	2025-03-11
11887316	100G	2025-03-04 @ 8:00 am	2025-03-07 @ 8:00 am	0.5 ± 0.3	2025-03-11
11887315	100H	2025-03-04 @ 8:00 am	2025-03-07 @ 8:00 am	< 0.3	2025-03-11
11887311	100M	2025-03-04 @ 8:00 am	2025-03-07 @ 8:00 am	< 0.3	2025-03-11
11887185	101	2025-03-04 @ 8:00 am	2025-03-07 @ 8:00 am	< 0.3	2025-03-11
11887310	102	2025-03-04 @ 8:00 am	2025-03-07 @ 8:00 am	< 0.3	2025-03-11
11887186	105 HEALTH	2025-03-04 @ 8:00 am	2025-03-07 @ 8:00 am	< 0.3	2025-03-11
11887196	105B	2025-03-04 @ 8:00 am	2025-03-07 @ 8:00 am	< 0.3	2025-03-11
11887184	105C	2025-03-04 @ 8:00 am	2025-03-07 @ 8:00 am	0.5 ± 0.3	2025-03-11
11887194	112	2025-03-04 @ 8:00 am	2025-03-07 @ 8:00 am	0.8 ± 0.3	2025-03-11
11887307	115	2025-03-04 @ 8:00 am	2025-03-07 @ 8:00 am	< 0.3	2025-03-11
11887180	116	2025-03-04 @ 8:00 am	2025-03-07 @ 8:00 am	< 0.3	2025-03-11
11887192	120	2025-03-04 @ 8:00 am	2025-03-07 @ 8:00 am	< 0.3	2025-03-11
11887176	120	2025-03-04 @ 8:00 am	2025-03-07 @ 8:00 am	< 0.3	2025-03-11
11887313	124	2025-03-04 @ 8:00 am	2025-03-07 @ 8:00 am	< 0.3	2025-03-11
11887312	124	2025-03-04 @ 8:00 am	2025-03-07 @ 8:00 am	< 0.3	2025-03-11
11887314	129	2025-03-04 @ 8:00 am	2025-03-07 @ 8:00 am	0.6 ± 0.3	2025-03-11
11887159	130	2025-03-04 @ 7:00 am	2025-03-07 @ 8:00 am	< 0.3	2025-03-11
11887308	131	2025-03-04 @ 8:00 am	2025-03-07 @ 8:00 am	< 0.3	2025-03-11
11887143	132	2025-03-04 @ 7:00 am	2025-03-07 @ 8:00 am	< 0.3	2025-03-11
11887172	133	2025-03-04 @ 7:00 am	2025-03-07 @ 8:00 am	< 0.3	2025-03-11
11887171	135	2025-03-04 @ 7:00 am	2025-03-07 @ 8:00 am	0.5 ± 0.3	2025-03-11
11887133	139	2025-03-04 @ 7:00 am	2025-03-07 @ 8:00 am	< 0.3	2025-03-11
11887149	141	2025-03-04 @ 7:00 am	2025-03-07 @ 8:00 am	0.9 ± 0.3	2025-03-11
11887124	142	2025-03-04 @ 7:00 am	2025-03-07 @ 8:00 am	1.0 ± 0.3	2025-03-11
11887158	143	2025-03-04 @ 7:00 am	2025-03-07 @ 8:00 am	0.9 ± 0.3	2025-03-11
11887128	144	2025-03-04 @ 7:00 am	2025-03-07 @ 8:00 am	0.9 ± 0.3	2025-03-11
11887173	145	2025-03-04 @ 7:00 am	2025-03-07 @ 8:00 am	< 0.3	2025-03-11
11887123	146	2025-03-04 @ 7:00 am	2025-03-07 @ 8:00 am	1.0 ± 0.3	2025-03-11
11887096	147	2025-03-04 @ 7:00 am	2025-03-07 @ 8:00 am	0.6 ± 0.3	2025-03-11

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

March 12, 2025

** LABORATORY ANALYSIS REPORT **

Radon test result report for:

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11887108	148	2025-03-04 @ 7:00 am	2025-03-07 @ 8:00 am	0.9 ± 0.3	2025-03-11
11887094	148	2025-03-04 @ 7:00 am	2025-03-07 @ 8:00 am	1.1 ± 0.3	2025-03-11
11887134	149	2025-03-04 @ 7:00 am	2025-03-07 @ 8:00 am	< 0.3	2025-03-11
11887126	150	2025-03-04 @ 7:00 am	2025-03-07 @ 8:00 am	1.2 ± 0.3	2025-03-11
11887148	151	2025-03-04 @ 7:00 am	2025-03-07 @ 8:00 am	1.2 ± 0.3	2025-03-11
11887127	152	2025-03-04 @ 7:00 am	2025-03-07 @ 8:00 am	0.8 ± 0.3	2025-03-11
11887150	153	2025-03-04 @ 7:00 am	2025-03-07 @ 8:00 am	1.0 ± 0.3	2025-03-11
11887151	153	2025-03-04 @ 7:00 am	2025-03-07 @ 8:00 am	< 0.3	2025-03-11
11887135	154	2025-03-04 @ 7:00 am	2025-03-07 @ 8:00 am	0.8 ± 0.3	2025-03-11
11887144	156	2025-03-04 @ 7:00 am	2025-03-07 @ 8:00 am	1.0 ± 0.3	2025-03-11
11887152	158	2025-03-04 @ 7:00 am	2025-03-07 @ 8:00 am	1.1 ± 0.3	2025-03-11
11887146	160	2025-03-04 @ 7:00 am	2025-03-07 @ 8:00 am	0.8 ± 0.3	2025-03-11
11887147	160	2025-03-04 @ 7:00 am	2025-03-07 @ 8:00 am	0.9 ± 0.3	2025-03-11
11887145	163	2025-03-04 @ 7:00 am	2025-03-07 @ 8:00 am	< 0.3	2025-03-11
11887165	165	2025-03-04 @ 7:00 am	2025-03-07 @ 8:00 am	< 0.3	2025-03-11
11887179	168	2025-03-04 @ 7:00 am	2025-03-07 @ 8:00 am	< 0.3	2025-03-11
11887162	171 GLR	2025-03-04 @ 8:00 am	2025-03-07 @ 8:00 am	0.8 ± 0.3	2025-03-11
11887161	171 GLR	2025-03-04 @ 8:00 am	2025-03-07 @ 8:00 am	0.8 ± 0.3	2025-03-11
11887139	171B	2025-03-04 @ 8:00 am	2025-03-07 @ 8:00 am	0.5 ± 0.3	2025-03-11
11887153	173	2025-03-04 @ 7:00 am	2025-03-07 @ 8:00 am	< 0.3	2025-03-11
11887132	175	2025-03-04 @ 7:00 am	2025-03-07 @ 8:00 am	< 0.3	2025-03-11
11887169	177 AUX GYM	2025-03-04 @ 8:00 am	2025-03-07 @ 8:00 am	1.7 ± 0.4	2025-03-11
11887167	179 BLR	2025-03-04 @ 8:00 am	2025-03-07 @ 8:00 am	1.1 ± 0.4	2025-03-11
11887175	179B	2025-03-04 @ 8:00 am	2025-03-07 @ 8:00 am	0.7 ± 0.3	2025-03-11
11887137	180	2025-03-04 @ 7:00 am	2025-03-07 @ 8:00 am	< 0.3	2025-03-11
11887129	180A	2025-03-04 @ 7:00 am	2025-03-07 @ 8:00 am	0.5 ± 0.3	2025-03-11
11887164	180B	2025-03-04 @ 7:00 am	2025-03-07 @ 8:00 am	0.6 ± 0.3	2025-03-11
11887174	180B	2025-03-04 @ 7:00 am	2025-03-07 @ 8:00 am	0.8 ± 0.3	2025-03-11
11887130	180C	2025-03-04 @ 7:00 am	2025-03-07 @ 8:00 am	< 0.3	2025-03-11
11887166	180C	2025-03-04 @ 7:00 am	2025-03-07 @ 8:00 am	< 0.3	2025-03-11
11887131	180D	2025-03-04 @ 7:00 am	2025-03-07 @ 8:00 am	< 0.3	2025-03-11
11887168	181	2025-03-04 @ 8:00 am	2025-03-07 @ 8:00 am	3.3 ± 0.4	2025-03-11
11887183	182	2025-03-04 @ 8:00 am	2025-03-07 @ 8:00 am	0.7 ± 0.3	2025-03-11
11887170	187	2025-03-04 @ 8:00 am	2025-03-07 @ 8:00 am	0.6 ± 0.3	2025-03-11
11887178	189	2025-03-04 @ 8:00 am	2025-03-07 @ 8:00 am	1.6 ± 0.4	2025-03-11
11887190	195	2025-03-04 @ 8:00 am	2025-03-07 @ 8:00 am	< 0.3	2025-03-11
11887188	199	2025-03-04 @ 8:00 am	2025-03-07 @ 8:00 am	0.7 ± 0.3	2025-03-11

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

March 12, 2025

** LABORATORY ANALYSIS REPORT **

Radon test result report for:

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11887198	199	2025-03-04 @ 8:00 am	2025-03-07 @ 8:00 am	< 0.3	2025-03-11
11887199	207	2025-03-04 @ 8:00 am	2025-03-07 @ 8:00 am	< 0.3	2025-03-11
11887177	207	2025-03-04 @ 8:00 am	2025-03-07 @ 8:00 am	0.9 ± 0.3	2025-03-11
11887189	211	2025-03-04 @ 8:00 am	2025-03-07 @ 8:00 am	0.7 ± 0.3	2025-03-11
11887181	215	2025-03-04 @ 8:00 am	2025-03-07 @ 8:00 am	< 0.3	2025-03-11
11887182	217	2025-03-04 @ 8:00 am	2025-03-07 @ 8:00 am	0.5 ± 0.3	2025-03-11
11887193	221	2025-03-04 @ 8:00 am	2025-03-07 @ 8:00 am	1.1 ± 0.3	2025-03-11
11887187	229	2025-03-04 @ 8:00 am	2025-03-07 @ 8:00 am	0.6 ± 0.3	2025-03-11
11887195	229B	2025-03-04 @ 8:00 am	2025-03-07 @ 8:00 am	0.6 ± 0.3	2025-03-11
11887200	233	2025-03-04 @ 8:00 am	2025-03-07 @ 8:00 am	< 0.3	2025-03-11
11887197	233	2025-03-04 @ 8:00 am	2025-03-07 @ 8:00 am	< 0.3	2025-03-11
11887136	BS OFFICE	2025-03-04 @ 7:00 am	2025-03-07 @ 8:00 am	< 0.3	2025-03-11
11887141	CAFETERIA	2025-03-04 @ 7:00 am	2025-03-07 @ 8:00 am	< 0.3	2025-03-11
11887138	CAFETERIA	2025-03-04 @ 7:00 am	2025-03-07 @ 8:00 am	< 0.3	2025-03-11
11887154	GYM	2025-03-04 @ 7:00 am	2025-03-07 @ 8:00 am	< 0.3	2025-03-11
11887156	GYM	2025-03-04 @ 7:00 am	2025-03-07 @ 8:00 am	< 0.3	2025-03-11
11887142	KITCHEN OFFICE	2025-03-04 @ 7:00 am	2025-03-07 @ 8:00 am	< 0.3	2025-03-11
11887140	MEDIA CENTER	2025-03-04 @ 7:00 am	2025-03-07 @ 8:00 am	0.6 ± 0.3	2025-03-11
11887160	MEDIA CENTER	2025-03-04 @ 7:00 am	2025-03-07 @ 8:00 am	< 0.3	2025-03-11
11887163	MEDIA OFFICE	2025-03-04 @ 7:00 am	2025-03-07 @ 8:00 am	< 0.3	2025-03-11
11887157	MEDIA OFFICE	2025-03-04 @ 7:00 am	2025-03-07 @ 8:00 am	< 0.3	2025-03-11
11887155	STAGE	2025-03-04 @ 7:00 am	2025-03-07 @ 8:00 am	< 0.3	2025-03-11

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March 11, 2025 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
OFFICE
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11887000	OB	2025-03-04 @ 11:00 am	2025-03-07 @ 11:00 am	< 0.3	2025-03-11

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March 11, 2025 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
TRAVEL
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11886974	TB	2025-03-04 @ 11:00 am	2025-03-07 @ 11:00 am	< 0.3	2025-03-11

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

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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 – Testing March 4th – March 7th, 2025

Name of Schools:

1. Poolesville HS
2. Quince Orchard HS
3. Redland MS
4. Ridgeview MS
5. Rocky Hill MS
6. Rosemont ES
7. Poolesville ES

	Date	Initials
Radon Test Kits Deployed	3/4/2025	
Radon Test Kits Collected	3/7/2025	
Radon Test Kits Shipped to Lab*	3/7/2025	
Radon Test Kits Received by Lab*	3/10/2025	

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

P4792 / TYLER MCCLEAF

Kit Number	Start Date	Start Time	End Date	End Time	Temp.	Facility	Building	Room	Project ID	Floor	Result
11887262	2025-03-31	9:00 am	2025-04-03	12:00 pm	70			199	REDLAND MS - RETESTING	1	0.6
11887264	2025-03-31	9:00 am	2025-04-03	12:00 pm	70			199	REDLAND MS - RETESTING	1	0.6
11887276	2025-03-31	9:00 am	2025-04-03	12:00 pm	70			181	REDLAND MS - RETESTING	1	1.2
11887289	2025-03-31	9:00 am	2025-04-03	12:00 pm	70			199	REDLAND MS - RETESTING	1	< 0.3
11887291	2025-03-31	9:00 am	2025-04-03	12:00 pm	70			181	REDLAND MS - RETESTING	1	1.5
11887292	2025-03-31	9:00 am	2025-04-03	12:00 pm	70			199	REDLAND MS - RETESTING	1	0.7

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

April 7, 2025

** LABORATORY ANALYSIS REPORT **

Radon test result report for:
KCI
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11886694	OB	2025-03-31 @ 11:00 am	2025-04-04 @ 9:00 am	< 0.3	2025-04-07
11886589	TB	2025-03-31 @ 11:00 am	2025-04-04 @ 9:00 am	< 0.3	2025-04-07

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

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI TECHNOLOGIES, INC Job Number 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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Corporate Office: 936 Ridgebrook road • Sparks , Maryland 21152 • 410-316-7800 • (Fax) 410-316-7935

Radon Test Kit Chain of Custody

Project Name: MCPS Radon – Testing March 31st – April 3rd, 2025

Name of Schools:

1. Hallie Wells MS
2. Neelsville MS
3. Quince Orchard HS
4. Redland MS
5. Ridgeview MS
6. Rosemont ES

	Date	Initials
Radon Test Kits Deployed	3/31/2025	BMM
Radon Test Kits Collected	4/03/2025	BMM
Radon Test Kits Shipped to Lab*	4/03/2025	BMM
Radon Test Kits Received by Lab*	4/07/2025	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	Redland Middle School
Date of Test Report	05/12/2022
Round of Testing	Initial Follow-up Post Remediation 2 Year Testing 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility
# Rooms Tested	4
# Rooms ≥ 4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	0.8 pCi/L

Project Status

Current Project Status at this time: Testing completed; no further action needed

KCI TECHNOLOGIES

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May 12, 2022

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

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

Location: Redland Middle School
6505 Muncaster Mill Rd.
Rockville, MD 20855

Dear Mr. Croyle:

KCI Technologies, Inc. (KCI) is pleased to submit the following report to Montgomery County Public Schools (MCPS) pursuant to completing a "short-term" 3 day radon test for the Redland Middle School, located at 6505 Muncaster Mill Rd. Rockville, MD 20855 (subject site).

Scope of Services:

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

KCI visited the site on March 22, 2022 and deployed six (6) activated charcoal (AC) radon test kits. KCI deployed radon test kits in all frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance.

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

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

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

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

KCI returned to the site on March 25, 2022 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Airchek, Inc. for analysis by gamma-ray spectroscopy. Airchek, Inc. is a NRSB certified analytical laboratory for radon analysis (certification # ARL1402) located at 1936 Butler Bridge Road, Mills River, North Carolina.

Evaluation of Testing Conditions:

These tests represent:

- Follow-up to initial testing.

These tests were conducted to:

- Evaluate radon concentrations at the facility.

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

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

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

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

Results:

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

The results of the radon test analysis indicated the following:

Radon Concentration	Room	Result
≥4.0 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 Notes:

AC- Activated Charcoal
ACI- Air Check, Inc.
D- Duplicate
FB- Field Blank
KCI- KCI Technologies, Inc.
OB- Office Blank
PM- Project Manager
QC- Quality Control

Table 1- Radon Testing Results		
Redland MS RT		
Test Period: 03/22/2022 - 03/25/2022		
Kit Number	Room / Area	Result
11138968	112	0.5
11138975	135	< 0.3
11138970	147	0.7
11138976	147	< 0.3
11138980	147	0.8
11138979	189	0.7

Table 2- Radon Testing Results			
Redland MS RT			
Test Period: 03/22/2022 - 03/25/2022			
Kit Number	QC Type	Room / Area	Result
11138980	D	147	0.8
11138976	FB	147	< 0.3
11139902	OB	OFFICE BLANK	< 0.3
11139928	TB	TRAVEL BLANK	< 0.3

Summary of Missed Locations		
Redland MS RT		
Test Period: 03/22/22 - 03/25/22		
Kit Number	Room/Area	Result
	NA	

Summary of Missing, Compromised and >/= 4 piC/L Tests		
Redland MS RT		
Test Period: 03/22/22 - 03/25/22		
Kit Number	Room/Area	Result
	NA	

Table Note:

* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

March 28, 2022

** LABORATORY ANALYSIS REPORT **

Radon test result report for:
REDLAND MS RT
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11138968	112	2022-03-22 @ 12:00 pm	2022-03-25 @ 11:00 am	0.5 ± 0.3	2022-03-28
11138975	135	2022-03-22 @ 12:00 pm	2022-03-25 @ 11:00 am	< 0.3	2022-03-28
11138970	147	2022-03-22 @ 12:00 pm	2022-03-25 @ 11:00 am	0.7 ± 0.3	2022-03-28
11138976	147	2022-03-22 @ 12:00 pm	2022-03-25 @ 11:00 am	< 0.3	2022-03-28
11138980	147	2022-03-22 @ 12:00 pm	2022-03-25 @ 11:00 am	0.8 ± 0.3	2022-03-28
11138979	189	2022-03-22 @ 12:00 pm	2022-03-25 @ 11:00 am	0.7 ± 0.3	2022-03-28

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

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI Technologies, Inc. Job Number 204620

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

Date Start: 3/18/22 Date Stop: 3/21/22	Date Start: _____ Date Stop: _____
Time Start: 0705 Time Stop: 0705	Time Start: _____ Time Stop: _____
Device No.'s: (5) Char Bags -	Device No.'s: _____
11139367, 11139368, 11139371,	_____
11139710, 11139717	_____
E3 Eight	_____
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 30, 2022

** 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
11139367	SK1	2022-03-18 @ 7:00 am	2022-03-21 @ 7:00 am	25.9 ± 2.1	2022-03-30
11139368	SK2	2022-03-18 @ 7:00 am	2022-03-21 @ 7:00 am	23.9 ± 2.0	2022-03-30
11139371	SK3	2022-03-18 @ 7:00 am	2022-03-21 @ 7:00 am	25.7 ± 2.1	2022-03-30
11139710	SK4	2022-03-18 @ 7:00 am	2022-03-21 @ 7:00 am	26.4 ± 2.1	2022-03-30
11139717	SK5	2022-03-18 @ 7:00 am	2022-03-21 @ 7:00 am	24.6 ± 2.0	2022-03-30

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

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 – March 2022 Schools – Retesting

Name of Schools:

1. Herbert Hoover MS
2. Parkland MS
3. Redland MS
4. Rock Creek Valley ES
5. Tilden MS
6. Rockville HS
7. Wootton HS
8. Capt. James E. Daly ES
9. Clarksburg HS
10. Clearspring ES
11. Hallie Wells MS
12. Northwest HS
13. Paint Branch HS
14. Rocky Hills MS
15. Seneca Valley HS
16. Sherwood HS
17. Wilson Wims ES

	Date	Initials
Radon Test Kits Deployed	03/22/2022	BMM
Radon Test Kits Collected	03/25/2022	BMM
Radon Test Kits Shipped to Lab*	03/25/2022	BMM
Radon Test Kits Received by Lab*	03/28/2022	BMM

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

KCI TECHNOLOGIES

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

MCPS RADON TESTING – EXECUTIVE SUMMARY

Site Name	Redland Middle School
Date of Test Report	4/6/2022
Round of Testing	Initial Follow-up Post Remediation 2 Year Testing 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility
# Rooms Tested	78
# Rooms ≥ 4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	1.5 pCi/L

Project Status:
Initial testing completed; Missing or compromised kits need re-sampling.

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April 6, 2022

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

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

Location: Redland MS
6505 Muncaster Mill Rd.
Rockville, MD 20855

Dear Mr. Croyle:

KCI Technologies, Inc. (KCI) is pleased to submit the following report to Montgomery County Public Schools (MCPS) pursuant to completing a "short-term" 3 day radon test for the Redland MS, located at 6505 Muncaster Mill Rd. Rockville, MD 20855 (subject site).

Scope of Services:

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

KCI visited the site on February 8, 2022 and deployed eighty eight (88) 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 February 11, 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).

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

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

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

KCI also compiled weather data for the testing period and conducted observations of relevant field conditions. During the test period, weather records indicate low temperatures were in the 30s and high temperatures ranged from the mid 30s to the mid 50s Fahrenheit. Maximum sustained winds ranged from 3-12 miles per hour. Average humidity was around 23% with 0.1 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 Notes:

AC- Activated Charcoal
ACI- Air Check, Inc.
D- Duplicate
FB- Field Blank
KCI- KCI Technologies, Inc.
OB- Office Blank
PM- Project Manager
QC- Quality Control

Table 1- Radon Testing Results		
Redland MS		
Test Period: 02/8/2022 - 02/11/2022		
Kit Number	Room / Area	Result
11115080	100	1.3
11107378	101	1.0
11114989	102	0.9
11114995	105	0.9
11114999	105	1.1
11114951	108	1.0
11115022	115	0.6
11114901	116	0.9
11114917	116	0.8
11115012	120	0.8
11115013	124	1.0
11115036	128	0.6
11115040	128	0.8
11115035	129	0.6
11115027	130	0.8
11115043	131	0.8
11115011	132	< 0.3
11115019	132	1.1
11115028	132	< 0.3
11115026	133	0.6
11115033	135	0.6
11115037	139	< 0.3
11115045	139	1.0
11115046	139	0.7
11115018	141	1.2
11115029	142	1.2
11115015	143	1.2
11115016	144	1.2
11115010	145	1.1
11115030	146	1.4
11115006	148	1.1
11115004	149	1.1
11115031	150	1.2
11115032	150	1.3
11115008	151	< 0.3
11115024	152	1.5
11115017	153	0.9
11115023	154	1.3
11115009	156	1.0
11115005	158	1.3
11115003	160	0.8
11115025	163	1.1

Table 1- Radon Testing Results		
Redland MS		
Test Period: 02/8/2022 - 02/11/2022		
Kit Number	Room / Area	Result
11115055	165	0.8
11115042	168	0.7
11115002	176	0.9
11115044	176	1.0
11115047	176	< 0.3
11115061	176	0.9
11115056	177	0.8
11115054	180	1.1
11115048	181	1.2
11115078	182	0.7
11115085	182	< 0.3
11115086	182	0.7
11115007	187	0.8
11115050	195	0.7
11115059	199	0.9
11115064	199	0.7
11107377	201	1.2
11115071	207	0.8
11115049	211	0.8
11115060	215	0.9
11115001	217	0.9
11115057	221	1.1
11115068	231	1.2
11115087	233	1.2
11115079	100B	0.7
11115000	100C	0.7
11115072	100D	0.8
11115084	100E	0.6
11115074	100F	1.0
11115073	100G	1.0
11115076	100H	0.8
11115067	100M	0.5
11115075	100M	0.7
11114987	101A	0.8
11114996	112A	1.4
11115014	126C	1.2
11115038	126H	0.9
11115039	128A	0.9
11115063	176A	< 0.3
11115053	180A	0.7
11115051	180B	0.6
11115052	180C	1.1

Table 1- Radon Testing Results		
Redland MS		
Test Period: 02/8/2022 - 02/11/2022		
Kit Number	Room / Area	Result
11115041	180D	1.2
11115077	229B	1.1
11115020	CAFETERIA	0.6
11115021	CAFETERIA	1.0

Table 2- Radon Testing Results			
Redland MS			
Test Period: 02/8/2022 - 02/11/2022			
Kit Number	QC Type	Room / Area	Result
11114901	D	116	0.9
11115019	D	132	1.1
11115011	FB	132	< 0.3
11115031	D	150	1.2
11115046	D	139	0.7
11115037	FB	139	< 0.3
11115034	D	135	NA
11115044	D	176	1.0
11115047	FB	176	< 0.3
11115064	D	199	0.7
11115078	D	182	0.7
11115085	FB	182	< 0.3
11115067	D	100m	0.5
11113478	OB	OFFICE BLANK	< 0.3
11113477	TB	TRAVEL BLANK	< 0.3

Summary of Missed Locations		
Redland MS		
Test Period: 02/8/22 - 02/11/22		
Kit Number	Room/Area	Result
NA	147	NA

Summary of Missing, Compromised and >/= 4 piC/L Tests		
Redland MS		
Test Period: 02/8/22 - 02/11/22		
Kit Number	Room/Area	Result
11114990	112	Missing
11115034	135	Missing
11115069	189	Missing

Table Note:

* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

February 15, 2022 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
REDLAND MS
1

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11115080	100	2022-02-08 @ 10:00 am	2022-02-11 @ 9:00 am	1.3 ± 0.3	2022-02-14
11115079	100B	2022-02-08 @ 10:00 am	2022-02-11 @ 9:00 am	0.7 ± 0.3	2022-02-14
11115000	100C	2022-02-08 @ 8:00 am	2022-02-11 @ 8:00 am	0.7 ± 0.3	2022-02-14
11115072	100D	2022-02-08 @ 10:00 am	2022-02-11 @ 9:00 am	0.8 ± 0.3	2022-02-14
11115084	100E	2022-02-08 @ 10:00 am	2022-02-11 @ 9:00 am	0.6 ± 0.3	2022-02-14
11115074	100F	2022-02-08 @ 10:00 am	2022-02-11 @ 9:00 am	1.0 ± 0.3	2022-02-14
11115073	100G	2022-02-08 @ 11:00 am	2022-02-11 @ 9:00 am	1.0 ± 0.3	2022-02-14
11115076	100H	2022-02-08 @ 10:00 am	2022-02-11 @ 9:00 am	0.8 ± 0.3	2022-02-14
11115067	100M	2022-02-08 @ 11:00 am	2022-02-11 @ 9:00 am	0.5 ± 0.3	2022-02-14
11115075	100M	2022-02-08 @ 11:00 am	2022-02-11 @ 9:00 am	0.7 ± 0.3	2022-02-14
11107378	101	2022-02-08 @ 8:00 am	2022-02-11 @ 8:00 am	1.0 ± 0.3	2022-02-14
11114987	101A	2022-02-08 @ 8:00 am	2022-02-11 @ 8:00 am	0.8 ± 0.3	2022-02-14
11114989	102	2022-02-08 @ 8:00 am	2022-02-11 @ 8:00 am	0.9 ± 0.3	2022-02-14
11114995	105	2022-02-08 @ 8:00 am	2022-02-11 @ 8:00 am	0.9 ± 0.3	2022-02-14
11114999	105	2022-02-08 @ 8:00 am	2022-02-11 @ 8:00 am	1.1 ± 0.3	2022-02-14
11114951	108	2022-02-08 @ 8:00 am	2022-02-11 @ 8:00 am	1.0 ± 0.3	2022-02-14
11114996	112A	2022-02-08 @ 8:00 am	2022-02-11 @ 8:00 am	1.4 ± 0.3	2022-02-14
11115022	115	2022-02-08 @ 8:00 am	2022-02-11 @ 8:00 am	0.6 ± 0.3	2022-02-14
11114901	116	2022-02-08 @ 8:00 am	2022-02-11 @ 8:00 am	0.9 ± 0.3	2022-02-14
11114917	116	2022-02-08 @ 8:00 am	2022-02-11 @ 8:00 am	0.8 ± 0.3	2022-02-15
11115012	120	2022-02-08 @ 8:00 am	2022-02-11 @ 8:00 am	0.8 ± 0.3	2022-02-14
11115013	124	2022-02-08 @ 8:00 am	2022-02-11 @ 8:00 am	1.0 ± 0.3	2022-02-14
11115014	126C	2022-02-08 @ 8:00 am	2022-02-11 @ 8:00 am	1.2 ± 0.3	2022-02-14
11115038	126H	2022-02-08 @ 8:00 am	2022-02-11 @ 8:00 am	0.9 ± 0.3	2022-02-14
11115036	128	2022-02-08 @ 9:00 am	2022-02-11 @ 8:00 am	0.6 ± 0.3	2022-02-14
11115040	128	2022-02-08 @ 9:00 am	2022-02-11 @ 8:00 am	0.8 ± 0.3	2022-02-15
11115039	128A	2022-02-08 @ 9:00 am	2022-02-11 @ 8:00 am	0.9 ± 0.3	2022-02-14
11115035	129	2022-02-08 @ 9:00 am	2022-02-11 @ 9:00 am	0.6 ± 0.3	2022-02-14
11115027	130	2022-02-08 @ 9:00 am	2022-02-11 @ 8:00 am	0.8 ± 0.3	2022-02-14
11115043	131	2022-02-08 @ 9:00 am	2022-02-11 @ 9:00 am	0.8 ± 0.3	2022-02-14
11115019	132	2022-02-08 @ 8:00 am	2022-02-11 @ 8:00 am	1.1 ± 0.3	2022-02-14
11115011	132	2022-02-08 @ 8:00 am	2022-02-11 @ 8:00 am	< 0.3	2022-02-14
11115028	132	2022-02-08 @ 8:00 am	2022-02-11 @ 8:00 am	< 0.3	2022-02-15
11115026	133	2022-02-08 @ 9:00 am	2022-02-11 @ 8:00 am	0.6 ± 0.3	2022-02-14
11115033	135	2022-02-08 @ 9:00 am	2022-02-11 @ 8:00 am	0.6 ± 0.3	2022-02-15
11115037	139	2022-02-08 @ 9:00 am	2022-02-11 @ 8:00 am	< 0.3	2022-02-15
11115045	139	2022-02-08 @ 9:00 am	2022-02-11 @ 8:00 am	1.0 ± 0.3	2022-02-15

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February 15, 2022 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
REDLAND MS
1

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11115046	139	2022-02-08 @ 9:00 am	2022-02-11 @ 8:00 am	0.7 ± 0.3	2022-02-15
11115018	141	2022-02-08 @ 9:00 am	2022-02-11 @ 8:00 am	1.2 ± 0.3	2022-02-15
11115029	142	2022-02-08 @ 9:00 am	2022-02-11 @ 8:00 am	1.2 ± 0.3	2022-02-14
11115015	143	2022-02-08 @ 9:00 am	2022-02-11 @ 8:00 am	1.2 ± 0.3	2022-02-14
11115016	144	2022-02-08 @ 9:00 am	2022-02-11 @ 8:00 am	1.2 ± 0.3	2022-02-14
11115010	145	2022-02-08 @ 8:00 am	2022-02-11 @ 8:00 am	1.1 ± 0.3	2022-02-14
11115030	146	2022-02-08 @ 9:00 am	2022-02-11 @ 8:00 am	1.4 ± 0.3	2022-02-14
11115006	148	2022-02-08 @ 9:00 am	2022-02-11 @ 8:00 am	1.1 ± 0.3	2022-02-14
11115004	149	2022-02-08 @ 9:00 am	2022-02-11 @ 8:00 am	1.1 ± 0.3	2022-02-15
11115032	150	2022-02-08 @ 9:00 am	2022-02-11 @ 8:00 am	1.3 ± 0.3	2022-02-14
11115031	150	2022-02-08 @ 9:00 am	2022-02-11 @ 8:00 am	1.2 ± 0.3	2022-02-15
11115008	151	2022-02-08 @ 9:00 am	2022-02-11 @ 8:00 am	< 0.3	2022-02-15
11115024	152	2022-02-08 @ 9:00 am	2022-02-11 @ 8:00 am	1.5 ± 0.3	2022-02-15
11115017	153	2022-02-08 @ 9:00 am	2022-02-11 @ 8:00 am	0.9 ± 0.3	2022-02-15
11115023	154	2022-02-08 @ 9:00 am	2022-02-11 @ 8:00 am	1.3 ± 0.3	2022-02-15
11115009	156	2022-02-08 @ 9:00 am	2022-02-11 @ 8:00 am	1.0 ± 0.3	2022-02-15
11115005	158	2022-02-08 @ 9:00 am	2022-02-11 @ 8:00 am	1.3 ± 0.3	2022-02-15
11115003	160	2022-02-08 @ 9:00 am	2022-02-11 @ 8:00 am	0.8 ± 0.3	2022-02-15
11115025	163	2022-02-08 @ 9:00 am	2022-02-11 @ 8:00 am	1.1 ± 0.3	2022-02-15
11115055	165	2022-02-08 @ 9:00 am	2022-02-11 @ 8:00 am	0.8 ± 0.3	2022-02-14
11115042	168	2022-02-08 @ 9:00 am	2022-02-11 @ 8:00 am	0.7 ± 0.3	2022-02-15
11115061	176	2022-02-08 @ 10:00 am	2022-02-11 @ 8:00 am	0.9 ± 0.3	2022-02-14
11115047	176	2022-02-08 @ 10:00 am	2022-02-11 @ 8:00 am	< 0.3	2022-02-14
11115044	176	2022-02-08 @ 10:00 am	2022-02-11 @ 8:00 am	1.0 ± 0.3	2022-02-15
11115002	176	2022-02-08 @ 10:00 am	2022-02-11 @ 8:00 am	0.9 ± 0.3	2022-02-15
11115063	176A	2022-02-08 @ 10:00 am	2022-02-11 @ 8:00 am	< 0.3	2022-02-14
11115056	177	2022-02-08 @ 10:00 am	2022-02-11 @ 8:00 am	0.8 ± 0.3	2022-02-14
11115054	180	2022-02-08 @ 9:00 am	2022-02-11 @ 8:00 am	1.1 ± 0.3	2022-02-14
11115053	180A	2022-02-08 @ 9:00 am	2022-02-11 @ 8:00 am	0.7 ± 0.3	2022-02-14
11115051	180B	2022-02-08 @ 10:00 am	2022-02-11 @ 8:00 am	0.6 ± 0.3	2022-02-14
11115052	180C	2022-02-08 @ 10:00 am	2022-02-11 @ 8:00 am	1.1 ± 0.3	2022-02-14
11115041	180D	2022-02-08 @ 10:00 am	2022-02-11 @ 8:00 am	1.2 ± 0.3	2022-02-14
11115048	181	2022-02-08 @ 10:00 am	2022-02-11 @ 8:00 am	1.2 ± 0.3	2022-02-14
11115085	182	2022-02-08 @ 10:00 am	2022-02-11 @ 9:00 am	< 0.3	2022-02-14
11115078	182	2022-02-08 @ 10:00 am	2022-02-11 @ 9:00 am	0.7 ± 0.3	2022-02-14
11115086	182	2022-02-08 @ 10:00 am	2022-02-11 @ 9:00 am	0.7 ± 0.3	2022-02-14
11115007	187	2022-02-08 @ 10:00 am	2022-02-11 @ 8:00 am	0.8 ± 0.3	2022-02-14

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February 15, 2022 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
REDLAND MS
1

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11115050	195	2022-02-08 @ 10:00 am	2022-02-11 @ 8:00 am	0.7 ± 0.3	2022-02-14
11115064	199	2022-02-08 @ 10:00 am	2022-02-11 @ 8:00 am	0.7 ± 0.3	2022-02-14
11115059	199	2022-02-08 @ 10:00 am	2022-02-11 @ 8:00 am	0.9 ± 0.3	2022-02-14
11107377	201	2022-02-08 @ 8:00 am	2022-02-11 @ 8:00 am	1.2 ± 0.3	2022-02-14
11115071	207	2022-02-08 @ 10:00 am	2022-02-11 @ 9:00 am	0.8 ± 0.3	2022-02-15
11115049	211	2022-02-08 @ 10:00 am	2022-02-11 @ 9:00 am	0.8 ± 0.3	2022-02-14
11115060	215	2022-02-08 @ 10:00 am	2022-02-11 @ 9:00 am	0.9 ± 0.3	2022-02-14
11115001	217	2022-02-08 @ 10:00 am	2022-02-11 @ 9:00 am	0.9 ± 0.3	2022-02-14
11115057	221	2022-02-08 @ 10:00 am	2022-02-11 @ 9:00 am	1.1 ± 0.3	2022-02-14
11115077	229B	2022-02-08 @ 10:00 am	2022-02-11 @ 9:00 am	1.1 ± 0.3	2022-02-14
11115068	231	2022-02-08 @ 10:00 am	2022-02-11 @ 9:00 am	1.2 ± 0.3	2022-02-14
11115087	233	2022-02-08 @ 10:00 am	2022-02-11 @ 9:00 am	1.2 ± 0.3	2022-02-14
11115021	CAFETERIA	2022-02-08 @ 8:00 am	2022-02-11 @ 8:00 am	1.0 ± 0.3	2022-02-14
11115020	CAFETERIA	2022-02-08 @ 8:00 am	2022-02-11 @ 8:00 am	0.6 ± 0.3	2022-02-14

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 204186

NOMINAL Conditions: Radon Conc 25.8 pCi/L Rel. Hum 59.1 % Temp. 70.9 F

Date Start: 2/18/22 Date Stop: 2/21/22	Date Start: _____ Date Stop: _____
Time Start: 0911 Time Stop: 0911	Time Start: _____ Time Stop: _____
Device No.'s: (3) Char Bags -	Device No.'s: _____
11113484, 11192998, 20107126	_____
_____	_____
23 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

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

Kit Number	Start Date	Start Time	End Date	End Time	Temp.	Facility	Building	Room	Project ID	Floor	Result
11113484	2022-02-18	9:00 am	2022-02-21	9:00 am	71	OFFICE	MAIN	SK1		1	27.9
11122998	2022-02-18	9:00 am	2022-02-21	9:00 am	71	OFFICE	MAIN	SK2		1	26.0
20107126	2022-02-18	9:00 am	2022-02-21	9:00 am	71	OFFICE	MAIN	SK3		1	27.6

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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 – February 2022 Schools

Name of Schools:

1. Earle. B Wood MS
2. Flower Valley ES
3. Parkland MS
4. Herbert Hoover MS
5. Ritchie Park ES
6. Wayside ES
7. Potomac ES
8. Redland MS
9. Sequoyah ES
10. Sherwood ES
11. Rock Terrace School

	Date	Initials
Radon Test Kits Deployed	02/08/2022	
Radon Test Kits Collected	02/11/2022	
Radon Test Kits Shipped to Lab*	02/11/2022	
Radon Test Kits Received by Lab*	02/15/2022	

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

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MCPS RADON TESTING - EXECUTIVE SUMMARY

Site Name	Redland Middle School
Date of Report	3/5/2020
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	1
# Rooms ≥4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	0.5 pCi/L

Project Status

Current Project Status at this time: Retesting completed; no further action.

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3/5/2020

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

Re: Radon Testing Services

KCI Job #12146341.126

Location: Redland Middle School
6505 Muncaster Mill Road
Rockville, Maryland 20855

Dear Mr. Cox:

KCI Technologies, Inc. (KCI) is pleased to submit the following report to Montgomery County Public Schools pursuant to completing a "short-term" 3-day radon test for the Redland Middle School, located at 6505 Muncaster Mill Road in Rockville, Maryland 20855 (subject site).

SCOPE OF SERVICES

KCI conducted radon testing at the subject site to evaluate indoor radon levels relative to the USEPA's recommended action level of 4.0 picocuries per Liter (pCi/L) - the level at which EPA recommends that schools take action to reduce the level. KCI conducted the radon testing in accordance with American Association of Radon Scientists and Technologists (AARST) *Protocol for Conducting Measurements of Radon and Radon Decay Products in Schools and Large Buildings*. A National Radon Safety Board (NRSB) Radon Measurement Specialist (certification #111004 RT) 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 2/18/2020 and deployed two (2) activated charcoal (AC) radon test kits. KCI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance.

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

1. Rooms with missing test kits from the December 2019 testing period (i.e. test kit was deployed but not recovered),

2. Rooms with invalidated test kits from the December 2019 testing period (e.g. an open window in the room or disturbed test kit),
3. Rooms which were locked/inaccessible during the December 2019 testing period,
4. Rooms with elevated December 2019 results (i.e. ≥3.5 piC/L),
5. Rooms previously tested for radon but not tested in December 2019, and
6. Additional rooms that require testing (if applicable.)

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 nine (9) 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 2/21/2020 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 mid-20s to the lower-40s; and high temperatures ranged from the upper-30s to the upper-50s. Maximum sustained winds ranged from 13-21 miles per hour. Average humidity was approximately 50%. A total of .01 inches of rain were recorded during the testing period. The weather conditions during the testing period may have resulted in atypical radon test results for this facility.

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). Follow-up 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
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

Floor Plan Legend
X-Sample Location (in red)
X- Previous Sample Location
1- Not Samled; No Ground Contact
2- Not Samled; Unoccupied (e.g. Storage, Mechanical)
3- Not Samled; High Humidity/Moisture
4- Not Samled; Bathroom/Hallway

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		
Redland Middle School		
Test Period: 02/18/20-02/21/20		
Kit Number	Room / Area	Result
9346959	149	0.5
9348571	OFFICE BLANK	< 0.3

Table 2- Radon Testing Results			
Redland Middle School			
Test Period: 02/18/20-02/21/20			
Kit Number	QC Type	Room / Area	Result
9348506	TRANSIT BLANK	NA	< 0.3

ATTACHMENT C

Laboratory Analytical Results

February 28, 2020 **** 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
9341725	N/A	2020-02-21 @ 8:00 am	2020-02-24 @ 8:00 am	26.9 ± 1.6	2020-02-26
9341730	N/A	2020-02-21 @ 8:00 am	2020-02-24 @ 8:00 am	26.1 ± 1.6	2020-02-26
9341728	N/A	2020-02-21 @ 8:00 am	2020-02-24 @ 8:00 am	26.9 ± 1.6	2020-02-26
9341726	N/A	2020-02-21 @ 8:00 am	2020-02-24 @ 8:00 am	25.8 ± 1.5	2020-02-26
9341731	N/A	2020-02-21 @ 8:00 am	2020-02-24 @ 8:00 am	25.1 ± 1.5	2020-02-26
9341729	N/A	2020-02-21 @ 8:00 am	2020-02-24 @ 8:00 am	26.2 ± 1.6	2020-02-26
9341727	N/A	2020-02-21 @ 8:00 am	2020-02-24 @ 8:00 am	27.2 ± 1.6	2020-02-26
9341732	N/A	2020-02-21 @ 8:00 am	2020-02-24 @ 8:00 am	27.3 ± 1.6	2020-02-26

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

March 5, 2020

** 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
9341733		2020-02-21 @ 8:00 am	2020-02-24 @ 8:00 am	26.4 ± 1.6	2020-02-26

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

March 5, 2020

** LABORATORY ANALYSIS REPORT **

Radon test result report for:
S
N/A

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9341729	N/A	2020-02-21 @ 8:00 am	2020-02-24 @ 8:00 am	26.2 ± 1.6	2020-02-26
9341727	N/A	2020-02-21 @ 8:00 am	2020-02-24 @ 8:00 am	27.2 ± 1.6	2020-02-26
9341732	N/A	2020-02-21 @ 8:00 am	2020-02-24 @ 8:00 am	27.3 ± 1.6	2020-02-26
9341725	N/A	2020-02-21 @ 8:00 am	2020-02-24 @ 8:00 am	26.9 ± 1.6	2020-02-26
9341730	N/A	2020-02-21 @ 8:00 am	2020-02-24 @ 8:00 am	26.1 ± 1.6	2020-02-26
9341728	N/A	2020-02-21 @ 8:00 am	2020-02-24 @ 8:00 am	26.9 ± 1.6	2020-02-26
9341726	N/A	2020-02-21 @ 8:00 am	2020-02-24 @ 8:00 am	25.8 ± 1.5	2020-02-26
9341731	N/A	2020-02-21 @ 8:00 am	2020-02-24 @ 8:00 am	25.1 ± 1.5	2020-02-26

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 194523

NOMINAL Conditions: Radon Conc 25.8 pCi/L Rel. Hum 49.8 % Temp. 70.2 F

Date Start: 2/21/20 Date Stop: 2/24/20	Date Start: _____ Date Stop: _____
Time Start: 0745 Time Stop: 0745	Time Start: _____ Time Stop: _____
Device No.'s: (9) Char Bags - 9341725 thru 9341733	Device No.'s: _____
52 Cell	
Date Start: _____ Date Stop: _____	Date Start: _____ Date Stop: _____
Time Start: _____ Time Stop: _____	Time Start: _____ Time Stop: _____
Device No.'s: _____	Device No.'s: _____
Date Start: _____ Date Stop: _____	Date Start: _____ Date Stop: _____
Time Start: _____ Time Stop: _____	Time Start: _____ Time Stop: _____
Device No.'s: _____	Device No.'s: _____

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

February 26, 2020 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
REDLAND MS
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9346959	149	2020-02-18 @ 10:00 am	2020-02-21 @ 9:00 am	0.5 ± 0.4	2020-02-26

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

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Radon Test Kit Chain of Custody

Project Name: MCPS Radon 2019 Week 3

Name of Schools:

1. Bannockburn E.S.
2. Bradley Hills E.S.
3. East Silver Spring E.S.
4. Einstein H.S.
5. Flora M. Singer E.S.
6. Francis Scott Key M.S.
7. Jones Lane E.S
8. Montgomery Blair H.S.
9. Oak View E.S.
10. Redland M.S.
11. Springbrook H.S.

	Date	Initials
Radon Test Kits Deployed	2/18/20	
Radon Test Kits Collected	2/21/20	
Radon Test Kits Shipped to Lab*	2/21/20	
Radon Test Kits Received by Lab*	2/24/20	

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

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MCPS RADON TESTING - EXECUTIVE SUMMARY

Site Name	Redland Middle 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	49
# Rooms ≥4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	1.2 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: Redland Middle School
6505 Muncaster Mill Road
Rockville, Maryland 20855

Dear Mr. Cox:

KCI Technologies, Inc. (KCI) is pleased to submit the following report to Montgomery County Public Schools pursuant to completing a "short-term" 3-day radon test for the Redland Middle School, located at 6505 Muncaster Mill Road in Rockville, Maryland 20855 (subject site).

SCOPE OF SERVICES

KCI conducted radon testing at the subject site to evaluate indoor radon levels relative to the USEPA's recommended action level of 4.0 picocuries per Liter (pCi/L) - the level at which EPA recommends that schools take action to reduce the level. KCI conducted the radon testing in accordance with American Association of Radon Scientists and Technologists (AARST) *Protocol for Conducting Measurements of Radon and Radon Decay Products in Schools and Large Buildings*. A National Radon Proficiency Program (NRPP) Radon Measurement 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 12/10/2019 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 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 12/13/2019 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 post-mitigation biennial testing.

These tests were conducted to:

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

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

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

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

KCI also compiled weather data for the testing period and conducted observations of relevant field conditions. During the test period, weather records indicate low temperatures were in the 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		
Redland Middle School		
Test Period: 12/10/2019-12/13/2019		
Kit Number	Room / Area	Result
9334083	171B	< 0.3
9334084	179A	0.7
9334085	105	< 0.3
9334086	101	< 0.3
9334087	171B	< 0.3
9334088	215	0.7
9334089	187	0.7
9334090	229B	< 0.3
9334091	171B	< 0.3
9334092	211	< 0.3
9334093	211	0.6
9334289	100A	< 0.3
9334290	100E	0.5
9334291	100H	0.5
9334292	111	< 0.3
9334293	100F	< 0.3
9334294	100G	< 0.3
9334295	100M	0.5
9334296	108	0.5
9334297	108	< 0.3
9334298	100F	< 0.3
9334299	100C	0.6
9334300	100	0.7
9334995	OFFICE BLANK	<0.3
9335076	130	< 0.3
9335078	150	0.9
9335080	132	< 0.3
9335081	168	< 0.3
9335082	165	0.5
9335083	180A	< 0.3
9335084	176A	< 0.3
9335085	176	0.8
9335086	177	< 0.3
9335087	176	0.6
9335088	180A	< 0.3
9335089	180	< 0.3
9335090	180B	0.5
9335091	180C	< 0.3
9335092	180D	< 0.3
9335093	180A	< 0.3
9335094	199	< 0.3
9335096	189	0.8
9335097	207	0.6
9335098	221	1.1
9335099	181	0.7
9335157	116	< 0.3
9335158	115	0.6
9335159	126	0.5
9335160	126A	< 0.3
9335161	160	0.9

9335162	148	0.7
9335163	156	0.6
9335164	158	0.9
9335165	163	< 0.3
9335169	154	0.6
9335170	145	0.6
9335171	154	< 0.3
9335172	131	< 0.3
9335173	128A	< 0.3
9335174	128	< 0.3
9335175	124	0.9
9335176	146	0.7
9335177	102	< 0.3
9335178	229	0.9
9335179	152	0.6
9335180	142	1.1
9335181	147	0.6
9335182	144	1.2
9335183	120	< 0.3
9335184	151	0.5
9335185	133	< 0.3
9335186	139	0.5
9335187	141	0.8
9335188	139	< 0.3
9335189	126	0.6
9335190	129	< 0.3
9335191	126A	< 0.3
9335193	112	0.6
9335194	126A	0.7
9335195	233	< 0.3
9335196	154	0.7
9335197	145	0.5
9335198	143	0.6

Table 2- Radon Testing Results			
Redland Middle School			
Test Period: 12/10/2019-12/13/2019			
Kit Number	QC Type	Room / Area	Result
9334297	D	108	<0.3
9335160	D	126A	<0.3
9335191	FB	126A	<0.3
9335186	D	139	0.5
9335169	D	154	0.6
9335171	FB	154	<0.3
9335170	D	145	0.6
9335093	D	180A	<0.3
9335083	FB	180A	<0.3
9334093	D	211	0.6
9334091	D	171B	<0.3
9334083	FB	171B	<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		
Redland Middle School		
Test Period: 12/10/2019 - 12/13/2019		
Kit Number	Room/Area	Result
NA	149	NA

Summary of Missing, Compromised and >/= 4 piC/L Tests		
Redland Middle School		
Test Period: 12/10/2019-12/13/2019		
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:
REDLAND MIDDLE SCHOOL
562

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9335192		2019-12-10 @ 3:00 pm	2019-12-13 @ 1:00 pm	< 0.3	2019-12-16
9334300	100	2019-12-10 @ 2:00 pm	2019-12-13 @ 1:00 pm	0.7 ± 0.3	2019-12-16
9334289	100A	2019-12-10 @ 2:00 pm	2019-12-13 @ 3:00 pm	< 0.3	2019-12-16
9334299	100C	2019-12-10 @ 2:00 pm	2019-12-13 @ 1:00 pm	0.6 ± 0.3	2019-12-16
9334290	100E	2019-12-10 @ 2:00 pm	2019-12-13 @ 1:00 pm	0.5 ± 0.3	2019-12-16
9334293	100F	2019-12-10 @ 2:00 pm	2019-12-13 @ 1:00 pm	< 0.3	2019-12-16
9334298	100F	2019-12-10 @ 2:00 pm	2019-12-13 @ 1:00 pm	< 0.3	2019-12-16
9334294	100G	2019-12-10 @ 2:00 pm	2019-12-13 @ 1:00 pm	< 0.3	2019-12-16
9334291	100H	2019-12-10 @ 2:00 pm	2019-12-13 @ 1:00 pm	0.5 ± 0.3	2019-12-16
9334295	100M	2019-12-10 @ 2:00 pm	2019-12-13 @ 1:00 pm	0.5 ± 0.3	2019-12-16
9334086	101	2019-12-10 @ 6:00 pm	2019-12-13 @ 3:00 pm	< 0.3	2019-12-16
9335177	102	2019-12-10 @ 2:00 pm	2019-12-13 @ 1:00 pm	< 0.3	2019-12-16
9334085	105	2019-12-10 @ 6:00 pm	2019-12-13 @ 2:00 pm	< 0.3	2019-12-16
9334296	108	2019-12-10 @ 2:00 pm	2019-12-13 @ 1:00 pm	0.5 ± 0.3	2019-12-16
9334297	108	2019-12-10 @ 2:00 pm	2019-12-13 @ 1:00 pm	< 0.3	2019-12-16
9334292	111	2019-12-10 @ 2:00 pm	2019-12-13 @ 1:00 pm	< 0.3	2019-12-16
9335193	112	2019-12-10 @ 2:00 pm	2019-12-13 @ 1:00 pm	0.6 ± 0.3	2019-12-16
9335158	115	2019-12-10 @ 3:00 pm	2019-12-13 @ 1:00 pm	0.6 ± 0.3	2019-12-16
9335157	116	2019-12-10 @ 3:00 pm	2019-12-13 @ 1:00 pm	< 0.3	2019-12-16
9335183	120	2019-12-10 @ 3:00 pm	2019-12-13 @ 1:00 pm	< 0.3	2019-12-16
9335175	124	2019-12-10 @ 3:00 pm	2019-12-13 @ 1:00 pm	0.9 ± 0.3	2019-12-16
9335189	126	2019-12-10 @ 3:00 pm	2019-12-13 @ 1:00 pm	0.6 ± 0.3	2019-12-16
9335159	126	2019-12-10 @ 3:00 pm	2019-12-13 @ 1:00 pm	0.5 ± 0.3	2019-12-16
9335191	126A	2019-12-10 @ 3:00 pm	2019-12-13 @ 1:00 pm	< 0.3	2019-12-16
9335194	126A	2019-12-10 @ 3:00 pm	2019-12-13 @ 1:00 pm	0.7 ± 0.3	2019-12-16
9335160	126A	2019-12-10 @ 3:00 pm	2019-12-13 @ 1:00 pm	< 0.3	2019-12-16
9335174	128	2019-12-10 @ 3:00 pm	2019-12-13 @ 1:00 pm	< 0.3	2019-12-16
9335173	128A	2019-12-10 @ 3:00 pm	2019-12-13 @ 1:00 pm	< 0.3	2019-12-16
9335190	129	2019-12-10 @ 3:00 pm	2019-12-13 @ 1:00 pm	< 0.3	2019-12-16
9335076	130	2019-12-10 @ 4:00 pm	2019-12-13 @ 2:00 pm	< 0.3	2019-12-16
9335172	131	2019-12-10 @ 3:00 pm	2019-12-13 @ 1:00 pm	< 0.3	2019-12-16
9335080	132	2019-12-10 @ 4:00 pm	2019-12-13 @ 2:00 pm	< 0.3	2019-12-16
9335185	133	2019-12-10 @ 3:00 pm	2019-12-13 @ 1:00 pm	< 0.3	2019-12-16
9335186	139	2019-12-10 @ 3:00 pm	2019-12-13 @ 2:00 pm	0.5 ± 0.3	2019-12-16
9335188	139	2019-12-10 @ 3:00 pm	2019-12-13 @ 2:00 pm	< 0.3	2019-12-16
9335187	141	2019-12-10 @ 3:00 pm	2019-12-13 @ 2:00 pm	0.8 ± 0.3	2019-12-16
9335180	142	2019-12-10 @ 4:00 pm	2019-12-13 @ 2:00 pm	1.1 ± 0.3	2019-12-17

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

Radon test result report for:
REDLAND MIDDLE SCHOOL
562

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9335198	143	2019-12-10 @ 3:00 pm	2019-12-13 @ 2:00 pm	0.6 ± 0.3	2019-12-16
9335182	144	2019-12-10 @ 4:00 pm	2019-12-13 @ 2:00 pm	1.2 ± 0.3	2019-12-16
9335170	145	2019-12-10 @ 4:00 pm	2019-12-13 @ 2:00 pm	0.6 ± 0.3	2019-12-16
9335197	145	2019-12-10 @ 4:00 pm	2019-12-13 @ 2:00 pm	0.5 ± 0.3	2019-12-16
9335176	146	2019-12-10 @ 4:00 pm	2019-12-13 @ 2:00 pm	0.7 ± 0.3	2019-12-16
9335181	147	2019-12-10 @ 4:00 pm	2019-12-13 @ 2:00 pm	0.6 ± 0.3	2019-12-16
9335162	148	2019-12-10 @ 4:00 pm	2019-12-13 @ 2:00 pm	0.7 ± 0.3	2019-12-17
9335078	150	2019-12-10 @ 4:00 pm	2019-12-13 @ 2:00 pm	0.9 ± 0.3	2019-12-16
9335184	151	2019-12-10 @ 4:00 pm	2019-12-13 @ 3:00 pm	0.5 ± 0.3	2019-12-16
9335179	152	2019-12-10 @ 4:00 pm	2019-12-13 @ 2:00 pm	0.6 ± 0.3	2019-12-16
9335171	154	2019-12-10 @ 4:00 pm	2019-12-13 @ 2:00 pm	< 0.3	2019-12-16
9335169	154	2019-12-10 @ 4:00 pm	2019-12-13 @ 2:00 pm	0.6 ± 0.3	2019-12-16
9335196	154	2019-12-10 @ 4:00 pm	2019-12-13 @ 2:00 pm	0.7 ± 0.3	2019-12-16
9335163	156	2019-12-10 @ 4:00 pm	2019-12-13 @ 2:00 pm	0.6 ± 0.3	2019-12-16
9335164	158	2019-12-10 @ 4:00 pm	2019-12-13 @ 2:00 pm	0.9 ± 0.3	2019-12-16
9335161	160	2019-12-10 @ 4:00 pm	2019-12-13 @ 2:00 pm	0.9 ± 0.3	2019-12-16
9335165	163	2019-12-10 @ 4:00 pm	2019-12-13 @ 2:00 pm	< 0.3	2019-12-16
9335082	165	2019-12-10 @ 4:00 pm	2019-12-13 @ 2:00 pm	0.5 ± 0.3	2019-12-16
9335081	168	2019-12-10 @ 4:00 pm	2019-12-13 @ 2:00 pm	< 0.3	2019-12-16
9334087	171B	2019-12-10 @ 6:00 pm	2019-12-13 @ 2:00 pm	< 0.3	2019-12-16
9334091	171B	2019-12-10 @ 6:00 pm	2019-12-13 @ 2:00 pm	< 0.3	2019-12-16
9334083	171B	2019-12-10 @ 6:00 pm	2019-12-13 @ 2:00 pm	< 0.3	2019-12-17
9335087	176	2019-12-10 @ 4:00 pm	2019-12-13 @ 2:00 pm	0.6 ± 0.3	2019-12-16
9335085	176	2019-12-10 @ 4:00 pm	2019-12-13 @ 2:00 pm	0.8 ± 0.3	2019-12-17
9335084	176A	2019-12-10 @ 4:00 pm	2019-12-13 @ 2:00 pm	< 0.3	2019-12-17
9335086	177	2019-12-10 @ 5:00 pm	2019-12-13 @ 2:00 pm	< 0.3	2019-12-16
9334084	179A	2019-12-10 @ 6:00 pm	2019-12-13 @ 2:00 pm	0.7 ± 0.3	2019-12-17
9335089	180	2019-12-10 @ 5:00 pm	2019-12-13 @ 2:00 pm	< 0.3	2019-12-16
9335083	180A	2019-12-10 @ 5:00 pm	2019-12-13 @ 2:00 pm	< 0.3	2019-12-16
9335088	180A	2019-12-10 @ 5:00 pm	2019-12-13 @ 2:00 pm	< 0.3	2019-12-16
9335093	180A	2019-12-10 @ 5:00 pm	2019-12-13 @ 2:00 pm	< 0.3	2019-12-16
9335090	180B	2019-12-10 @ 5:00 pm	2019-12-13 @ 2:00 pm	0.5 ± 0.3	2019-12-16
9335091	180C	2019-12-10 @ 5:00 pm	2019-12-13 @ 2:00 pm	< 0.3	2019-12-16
9335092	180D	2019-12-10 @ 5:00 pm	2019-12-13 @ 2:00 pm	< 0.3	2019-12-16
9335099	181	2019-12-10 @ 5:00 pm	2019-12-13 @ 2:00 pm	0.7 ± 0.3	2019-12-17
9334089	187	2019-12-10 @ 5:00 pm	2019-12-13 @ 2:00 pm	0.7 ± 0.3	2019-12-16
9335096	189	2019-12-10 @ 5:00 pm	2019-12-13 @ 2:00 pm	0.8 ± 0.3	2019-12-16

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

Radon test result report for:
REDLAND MIDDLE SCHOOL
562

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9335094	199	2019-12-10 @ 5:00 pm	2019-12-13 @ 2:00 pm	< 0.3	2019-12-17
9335097	207	2019-12-10 @ 5:00 pm	2019-12-13 @ 2:00 pm	0.6 ± 0.3	2019-12-17
9334092	211	2019-12-10 @ 5:00 pm	2019-12-13 @ 3:00 pm	< 0.3	2019-12-16
9334093	211	2019-12-10 @ 5:00 pm	2019-12-13 @ 3:00 pm	0.6 ± 0.3	2019-12-17
9334088	215	2019-12-10 @ 6:00 pm	2019-12-13 @ 3:00 pm	0.7 ± 0.3	2019-12-16
9335098	221	2019-12-10 @ 5:00 pm	2019-12-13 @ 3:00 pm	1.1 ± 0.3	2019-12-16
9335178	229	2019-12-10 @ 5:00 pm	2019-12-13 @ 3:00 pm	0.9 ± 0.3	2019-12-17
9334090	229B	2019-12-10 @ 6:00 pm	2019-12-13 @ 3:00 pm	< 0.3	2019-12-16
9335195	233	2019-12-10 @ 5:00 pm	2019-12-13 @ 3:00 pm	< 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 - 9334502 thru 9334510, 9334514, 9334516, 9334517, ~~9334518~~, 9334519 9334522 thru 9334528	Device No.'s: _____
B4	

Date Start: 12/13/19 Date Stop: 12/16/19	Date Start: _____ Date Stop: _____
Time Start: ~~0800~~ 0811 Time Stop: 0811	Time Start: _____ Time Stop: _____
(Group 2) Device No.'s: (20) Char. Bags - 9334529 thru 9334538, 9334540, 9334542 thru 9334550	Device No.'s: _____
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 - 9334551, 9334552, 9334562, 9334555 thru 9334559, 9334569, 9334576, 9334579, 9334580, 9334583, 9334584, 9334591, 9334593, 9334594, 9334597, 9334598, 9334599	Device No.'s: _____
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

RADON SCREENING SURVEY – FOLLOW-UP REDLAND MIDDLE SCHOOL

6505 Muncaster Mill Rd., Rockville, Maryland 20855

EXECUTIVE SUMMARY

Date of Test Report:	3/28/19
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested	7
# Rooms ≥ 4.0 pCi/L:	1
Low Value:	<0.4
High Value:	5.0
Confirmed Rooms ≥ 4.0 pCi/L US EPA Action Level	0

Summary of Sampling Events ≥ 4.0 pCi/L

Room	Result (pCi/L) 1/31/19	Result (pCi/L) 3/28/19	Average Result (pCi/L)
100	Unable to report	1.2	1.2
102	Missed	<0.4	<0.4
128A	Missing	0.4	0.4
149	Unable to report	0.4	0.4
151	Missing	0.4	0.4
176	Missing	Tampered	---
Stage	Missed	5.0	5.0 (needs evaluation by mitigation contractor)

MONTGOMERY COUNTY PUBLIC SCHOOLS
RADON TESTING

Executive Summary:
Redland Middle School

6505 Muncaster Mill Road,
Derwood, MD 20855

Date of Test Report:	3/28/2019
Round of Testing:	Initial **Follow-up** Post Remediation 2 Year Testing 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility
# of Rooms Tested:	7
# of Rooms ≥ 4.0 pCi/L:	1
Low Value:	<0.4
High Value:	5.0

Project Status
Rooms with results ≥ 4.0 pCi/L: Stage (5.0 pCi/L)
Follow Up testing complete: Re-test needed for results ≥ 4.0 pCi/L

March 28, 2019

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

Re: Radon Testing Services

Location: Redland Middle School
6505 Muncaster Mill Road,
Derwood, MD 20855

Dear Mr. Cox:

Intertek-PSI (PSI) is pleased to submit the following report to the Montgomery County Public Schools (MCPS) for completion of a "short-term" 3-day radon test for Redland Middle School, located at 6505 Muncaster Mill Road, Derwood, MD 20855 (subject site).

Scope of Services:

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

PSI visited the site on February 26, 2019 and deployed seven (7) activated charcoal (AC) radon test kit. PSI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. PSI returned to the site on March 1, 2019 to retrieve the radon sampling test kit. A floor plan map of the building with the test location is included as Attachment A of this report.

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

Evaluation of Testing Conditions:

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

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

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

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

Results:

The results of the radon test analysis indicated the following:

Radon Concentration	Room	Result
≥ 4.0 pCi/L	Stage	5.0 pCi/L
≤ 4.0 pCi/L	See Attachment B	

Notes:
D -Duplicate Sample

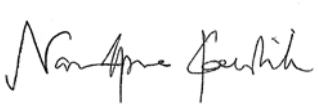
The office blank and lab transit blanks had test results of less than the laboratory detection limit of 0.4 pCi/L. Review of the duplicate sample analysis indicates that adequate laboratory measurement precision was achieved. The Spike sample analysis results indicate the laboratory is operating within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

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

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

Respectfully Submitted,

INTERTEK-PSI



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

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

ATTACHMENT A

Floor Plan with Test Locations

Radon Testing Results		
Redland Middle School		
Testing period: 2/26/19 - 3/01/19		
Kit Number	**Room / Area**	**Result (pCi/L)**
3923537	100	1.2
3923533	102	<0.4
3923532	128A	0.4
3923538	151	0.4
3923536	149	0.4
3923440	176 (Gym) Tampered	--
3923521	Stage	5.0

Table Notes:

D – Duplicate

FB – Field Blank

OB – Office Blank

TB – Transit Blank

QC – Quality Control

ATTACHMENT C

Laboratory Analytical Results

AccuStar
Professional Radon Laboratory Services Since 1984

Radon in Air

NRPP 105011 AL
NRSB ARL0007

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

Laboratory Report for:

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

Property Tested: Project # 04481387-1

MCPS Radon Survey Redland MS
6505 Muncaster Mill Road
Derwood MD 20855

Log Number	Device Number	Test Exposure Duration:				Area Tested	Result pCi/L
3220798	3923537	02/26/2019	11:00 am	03/01/2019	11:00 am	Floor Main level Room 100	1.2
3220799	3923533	02/26/2019	11:04 am	03/01/2019	11:04 am	Floor Main level Room 102	< 0.4
3220800	3923532	02/26/2019	11:06 am	03/01/2019	11:06 am	Floor Main level Room 128A	0.4
3220801	3923538	02/26/2019	11:08 am	03/01/2019	11:08 am	Floor Main level Room 151	0.4
3220802	3923536	02/26/2019	11:10 am	03/01/2019	11:10 am	Floor Main level Room 149	0.7
3220803	3923440	02/26/2019	11:12 am	03/01/2019	11:12 am	Floor Main level Room 176 (Gym)	
3220804	3923521	02/26/2019	11:15 am	03/01/2019	11:15 am	Floor Main level Room Stage	5.0

Comment: Device 3923440- client noted that device was tampered- no result.

Distributed by: Intertek-PSI (VA)

Date Received: 03/05/2019 Date Logged: 03/05/2019 Date Analyzed: 03/05/2019 Date Reported: 03/06/2019

Report Reviewed By: _____ Report Approved By: _____

Shawn Price, Director of Laboratory Operations, AccuStar Labs

Disclaimer:

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

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

MONTGOMERY COUNTY PUBLIC SCHOOLS
RADON TESTING

Executive Summary:
Redland Middle School

6505 Muncaster Mill Road,
Derwood, MD 20855

Date of Test Report:	02/21/2019
Round of Testing:	Initial Follow-up **Post Remediation** 2 Year Testing 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility
# of Rooms Tested:	77
# of Rooms ≥ 4.0 pCi/L:	0
Low Value:	< 0.4
High Value:	2.7

Project Status

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

February 21, 2019

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

Re: Radon Testing Services

Location: Redland Middle School
6505 Muncaster Mill Road,
Derwood, MD 20855

Dear Mr. Cox:

Intertek-PSI (PSI) is pleased to submit the following report to the Montgomery County Public Schools (MCPS) for completion of a "short-term" 3-day radon test for Redland Middle School, located at 6505 Muncaster Mill Road, Derwood, MD 20855 (subject site).

Scope of Services:

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

PSI visited the site on December 4, 2018 and deployed ninety-seven (97) activated charcoal (AC) radon test kits. PSI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. PSI returned to the site on December 7, 2018 to retrieve the radon sampling test kits. A floor plan map of the building with the test locations is included as Attachment A of this report.

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

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

Evaluation of Testing Conditions:

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

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

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

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

Results:

The results of the radon test analysis indicated the following:

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

Notes:
D -Duplicate Sample

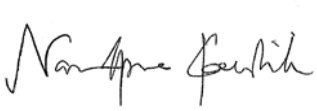
The office blank and lab transit blanks had test results of less than the laboratory detection limit of 0.4 pCi/L. Review of the duplicate sample analysis indicates that adequate laboratory measurement precision was achieved. The Spike sample analysis results indicate the laboratory is operating within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

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

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

Respectfully Submitted,

INTERTEK-PSI



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

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

ATTACHMENT B

Radon Test Summary Spreadsheet

Radon Testing Results		
Redland Middle School		
Testing period: 12/4/18 - 12/7/18		
Kit Number	**Room / Area**	**Result (pCi/L)**
3917978	100	Unable to Report
3927030	100A	<0.4
3917974	100B	0.4
3917975	100C	0.8
3917810	100D	0.6
3917849	100E	<0.4
3917415	100F	<0.4
3927028	100G	0.7
3927029	100H	<0.4
3917983	101	<0.4
--	102 (MISSED)	--
3927024	105	<0.4
3917337	105A	<0.4
3927025	105B	0.4
3917801	108	<0.4
3917850	108	<0.4
3917848	112	<0.4
3917802	115	<0.4
3917861	116	<0.4
3917972	120	<0.4
3917803	124	<0.4
3917335	126 (Kitchen)	<0.4
3917336	126 C (Kitchen Office)	<0.4
3917339	126 H (Game Room)	<0.4
3917870	128	0.5
3917353	128	<0.4
3917926	128A (MISSING)	--
3917804	129	<0.4
3917333	130	<0.4
3917805	131	0.4
3917331	132	<0.4
3917403	139	<0.4
3917404	141	0.4
3917408	142	0.5
3917406	143	<0.4
3917409	144	0.6
3917405	145	<0.4
3917410	146	<0.4
3927027	147	<0.4
3927021	148	<0.4
3927022	149	Unable to Report
3917949	150	<0.4
3917947	151 (MISSING)	--

Radon Testing Results		
Redland Middle School		
Testing period: 12/4/18 - 12/7/18		
Kit Number	**Room / Area**	**Result (pCi/L)**
3917948	152	0.4
3917942	153	0.4
3917946	154	0.8
3917945	156	1.6
3917941	158	0.5
3917943	160	<0.4
3917951	163	<0.4
3917979	168	<0.4
3917950	170	0.4
3917981	173	<0.4
3917351	176	2.7
3917980	176 (MISSING)	--
3917964	177	<0.4
3917953	180	<0.4
3917960	180A	<0.4
3917959	180B	<0.4
3917955	180C	<0.4
3917954	180D	<0.4
3917963	181	<0.4
3917973	182/184	<0.4
3917962	187	<0.4
3917969	189	0.5
3917966	195	<0.4
3917965	199	<0.4
3927026	201	<0.4
3917961	207	<0.4
3917967	211	<0.4
3917970	215	<0.4
3917989	217	<0.4
3917988	221	<0.4
3917985	229	<0.4
3917987	229B	0.5
3917984	233	<0.4
3917957	BLR Office	<0.4
3917332	Cafeteria	<0.4
3917334	Cafeteria	<0.4
3917956	GLR Office	<0.4
3917402	ISS	0.6
--	Stage (MISSED)	--
3917990	Stem/Health	<0.4

Radon Testing Results		
Redland Middle School		
Testing period: 12/4/18 - 12/7/18		
Kit Number	**QC Type**	**Result (pCi/L)**
3917977	100 (D)	0.5
3917352	128 (D)	<0.4
3919730	131 (D)	<0.4
3917407	144 (D)	0.6
3927023	150 (D)	<0.4
3917944	158 (D)	<0.4
3917952	163 (D)	<0.4
3917982	173 (D)	<0.4
3917958	180A (D)	<0.4
3917968	215 (D)	0.4
3917986	229 (D)	0.5
3922981	Field Blank	0.4
3922982	Field Blank	<0.4
3922983	Field Blank	<0.4
3922985	Office Blank	0.6
3922984	Transit Blank	<0.4

Table Notes:

D – Duplicate

FB – Field Blank

OB – Office Blank

TB – Transit Blank

QC – Quality Control

ATTACHMENT C

Laboratory Analytical Results

AccuStar
Professional Radon Laboratory Services Since 1984

Radon in Air

NELAC NY 11769
NRPP 103216 AL
NRSB ARL0017

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

Laboratory Report for:

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

Property Tested: Project # 04481387-1

MCPS Radon Survey
Redland MS
6505 Muncaster Mill Road
MD 02855

Log Number	Device Number	Test Exposure Duration:		Area Tested	Result pCi/L
2405025	3917352	12/04/2018 6:38 pm	12/07/2018 8:15 am	Redland Middle School Floor First Room 128	< 0.4
2405026	3917978	12/04/2018 6:15 am	12/07/2018 7:59 am	Redland Middle School Floor First Room 100	< 0.4
2405027	3917977	12/04/2018 6:15 am	12/07/2018 7:59 am	Redland Middle School Floor First Room 100	0.5
2405028	3927030	12/04/2018 8:05 am	12/07/2018 8:00 am	Redland Middle School Flr First Rm 100A	< 0.4
2405029	3917974	12/04/2018 8:06 am	12/07/2018 8:01 am	Redland Middle School Flr First Rm 100B	0.4
2405030	3917975	12/04/2018 8:07 am	12/07/2018 12:00 am	Redland Middle School Flr First Rm 100C	0.8
2405031	3917810	12/04/2018 8:09 am	12/07/2018 8:03 am	Redland Middle School Flr First Rm 100D	0.6
2405032	3917849	12/04/2018 6:24 am	12/07/2018 8:04 am	Redland Middle School Flr First Rm 100E	< 0.4
2405033	3917415	12/04/2018 8:10 am	12/07/2018 8:05 am	Redland Middle School Flr First Rm 100F	< 0.4
2405034	3927028	12/04/2018 8:11 am	12/07/2018 8:06 am	Redland Middle School Flr First Rm 100G	0.7
2405035	3927029	12/04/2018 8:12 am	12/07/2018 8:07 am	Redland Middle School Flr First Rm 100H	< 0.4

Comment: Intertek-PSI (VA) was emailed a copy of this report.

Distributed by: Intertek-PSI (VA)

Date Received: 12/08/2018 Date Logged: 12/08/2018 Date Analyzed: 12/10/2018 Date Reported: 01/31/2019

Report Reviewed By: _____ Report Approved By: _____

Shawn Price, Director of Laboratory Operations, AccuStar Labs

Disclaimer:

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

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

NELAC NY 11769
NRPP 103216 AL
NRSB ARL0017

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

Laboratory Report for:

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

Property Tested: Project # 04481387-1

MCPS Radon Survey
Redland MS
6505 Muncaster Mill Road
MD 02855

Log Number	Device Number	Test Exposure Duration:		Area Tested	Result pCi/L
2405036	3917801	12/04/2018 6:26 am	12/07/2018 8:08 am	Redland Middle School Floor First Room 108	< 0.4
2405037	3917850	12/04/2018 6:27 am	12/07/2018 8:08 am	Redland Middle School Floor First Room 108	< 0.4
2405038	3917848	12/04/2018 6:28 am	12/07/2018 8:09 am	Redland Middle School Floor First Room 112	< 0.4
2405039	3917861	12/04/2018 6:29 am	12/07/2018 8:09 am	Redland Middle School Floor First Room 116	< 0.4
2405040	3917802	12/04/2018 6:30 am	12/07/2018 8:10 am	Redland Middle School Floor First Room 115	< 0.4
2405041	3917972	12/04/2018 6:31 am	12/07/2018 8:11 am	Redland Middle School Floor First Room 120	< 0.4
2405042	3917803	12/04/2018 6:32 am	12/07/2018 8:12 am	Redland Middle School Floor First Room 124	< 0.4
2405043	3917804	12/04/2018 6:33 am	12/07/2018 8:12 am	Redland Middle School Floor First Room 129	< 0.4
2405044	3917805	12/04/2018 6:35 am	12/07/2018 8:13 am	Redland Middle School Floor First Room 131	0.4
2405045	3919730	12/04/2018 6:35 am	12/07/2018 8:13 am	Redland Middle School Floor First Room 131	< 0.4
2405046	3917353	12/04/2018 6:38 am	12/07/2018 8:14 am	Redland Middle School Floor First Room 128	< 0.4

Comment: Intertek-PSI (VA) was emailed a copy of this report.

Distributed by: Intertek-PSI (VA)

Date Received: 12/08/2018 Date Logged: 12/08/2018 Date Analyzed: 12/10/2018 Date Reported: 01/31/2019

Report Reviewed By: _____ Report Approved By: _____

Shawn Price, Director of Laboratory Operations, AccuStar Labs

Disclaimer:

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

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NELAC NY 11769
NRPP 103216 AL
NRSB ARL0017

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

Laboratory Report for:

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

Property Tested: Project # 04481387-1

MCPS Radon Survey
Redland MS
6505 Muncaster Mill Road
MD 02855

Log Number	Device Number	Test Exposure Duration:		Area Tested	Result pCi/L
2405047	3917870	12/04/2018 6:40 am	12/07/2018 8:16 am	Redland Middle School Floor First Room 128	0.5
2405048	3917979	12/04/2018 6:44 am	12/07/2018 8:18 am	Redland Middle School Floor First Room 168	< 0.4
2405049	3917351	12/04/2018 6:46 am	12/07/2018 8:19 am	Redland Middle School Floor First Room 176	2.7
2405050	3917973	12/04/2018 6:50 am	12/07/2018 8:21 am	Redland Middle School Flr First Rm 182/184	< 0.4
2405051	3917983	12/04/2018 6:53 am	12/07/2018 8:22 am	Redland Middle School Floor First Room 101	< 0.4
2405052	3917984	12/04/2018 6:54 am	12/07/2018 8:23 am	Redland Middle School Floor First Room 233	< 0.4
2405053	3917985	12/04/2018 6:56 am	12/07/2018 8:24 am	Redland Middle School Floor First Room 229	< 0.4
2405054	3917986	12/04/2018 6:56 am	12/07/2018 8:24 am	Redland Middle School Floor First Room 229	0.5
2405055	3917987	12/04/2018 6:58 am	12/07/2018 8:25 am	Redland Middle School Flr First Rm 229B	0.5
2405056	3917988	12/04/2018 7:00 am	12/07/2018 8:25 am	Redland Middle School Floor First Room 221	< 0.4
2405057	3917989	12/04/2018 7:02 am	12/07/2018 8:26 am	Redland Middle School Floor First Room 217	< 0.4

Comment: Intertek-PSI (VA) was emailed a copy of this report.

Distributed by: Intertek-PSI (VA)

Date Received: 12/08/2018 Date Logged: 12/08/2018 Date Analyzed: 12/10/2018 Date Reported: 01/31/2019

Report Reviewed By: _____ Report Approved By: _____

Shawn Price, Director of Laboratory Operations, AccuStar Labs

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NELAC NY 11769
NRPP 103216 AL
NRSB ARL0017

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

Laboratory Report for:

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

Property Tested: Project # 04481387-1

MCPS Radon Survey
Redland MS
6505 Muncaster Mill Road
MD 02855

Log Number	Device Number	Test Exposure Duration:		Area Tested	Result pCi/L
2405058	3917970	12/04/2018 7:03 am	12/07/2018 8:27 am	Redland Middle School Floor First Room 215	< 0.4
2405059	3917968	12/04/2018 7:03 am	12/07/2018 8:27 am	Redland Middle School Floor First Room 215	0.4
2405060	3917967	12/04/2018 7:04 am	12/07/2018 8:28 am	Redland Middle School Floor First Room 211	< 0.4
2405061	3917961	12/04/2018 7:04 am	12/07/2018 8:31 am	Redland Middle School Floor First Room 207	< 0.4
2405062	3917965	12/04/2018 7:05 am	12/07/2018 8:32 am	Redland Middle School Floor First Room 199	< 0.4
2405063	3917966	12/04/2018 7:06 am	12/07/2018 8:33 am	Redland Middle School Floor First Room 195	< 0.4
2405064	3917969	12/04/2018 7:07 am	12/07/2018 8:34 am	Redland Middle School Floor First Room 189	0.5
2405065	3917962	12/04/2018 7:08 am	12/07/2018 8:36 am	Redland Middle School Floor First Room 187	< 0.4
2405066	3917963	12/04/2018 7:10 am	12/07/2018 8:37 am	Redland Middle School Floor First Room 181	< 0.4
2405067	3917981	12/04/2018 7:12 am	12/07/2018 8:38 am	Redland Middle School Floor First Room 173	< 0.4
2405068	3917982	12/04/2018 7:15 am	12/07/2018 8:40 am	Redland Middle School Floor First Room 173	< 0.4

Comment: Intertek-PSI (VA) was emailed a copy of this report.

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NRPP 103216 AL
NRSB ARL0017

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

Laboratory Report for:

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

Property Tested: Project # 04481387-1

MCPS Radon Survey
Redland MS
6505 Muncaster Mill Road
MD 02855

Log Number	Device Number	Test Exposure Duration:		Area Tested	Result pCi/L
2405069	3917964	12/04/2018 7:20 am	12/07/2018 8:42 am	Redland Middle School Floor First Room 177	< 0.4
2405070	3917990	12/04/2018 7:24 am	12/07/2018 8:44 am	Redland Middle School Flr First Rm 167/165	< 0.4
2405071	3917951	12/04/2018 7:28 am	12/07/2018 8:45 am	Redland Middle School Floor First Room 163	< 0.4
2405072	3917952	12/04/2018 7:28 am	12/07/2018 8:45 am	Redland Middle School Floor First Room 163	< 0.4
2405073	3917957	12/04/2018 7:30 am	12/07/2018 8:46 am	Redland Middle School Flr First Rm 179A	< 0.4
2405074	3917956	12/04/2018 7:34 am	12/07/2018 8:46 am	Redland Middle School Flr First Rm 171A	< 0.4
2405075	3917953	12/04/2018 7:40 am	12/07/2018 8:46 am	Redland Middle School Floor First Room 180	< 0.4
2405076	3917960	12/04/2018 7:41 am	12/07/2018 8:47 am	Redland Middle School Flr First Rm 180A	< 0.4
2405077	3917958	12/04/2018 7:41 am	12/07/2018 8:47 am	Redland Middle School Flr First Rm 180A	< 0.4
2405078	3917959	12/04/2018 7:42 am	12/07/2018 8:48 am	Redland Middle School Flr First Rm 180B	< 0.4
2405079	3917955	12/04/2018 7:42 am	12/07/2018 8:48 am	Redland Middle School Flr First Rm 180C	< 0.4

Comment: Intertek-PSI (VA) was emailed a copy of this report.

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NRPP 103216 AL
NRSB ARL0017

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

Laboratory Report for:

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

Property Tested: Project # 04481387-1

MCPS Radon Survey
Redland MS
6505 Muncaster Mill Road
MD 02855

Log Number	Device Number	Test Exposure Duration:		Area Tested	Result pCi/L
2405080	3917954	12/04/2018 7:43 am	12/07/2018 8:49 am	Redland Middle School Flr First Rm 180D	< 0.4
2405081	3917950	12/04/2018 7:44 am	12/07/2018 8:49 am	Redland Middle School Floor First Room 170	0.4
2405082	3917942	12/04/2018 7:45 am	12/07/2018 8:50 am	Redland Middle School Floor First Room 153	0.4
2405083	3917943	12/04/2018 7:45 am	12/07/2018 8:51 am	Redland Middle School Floor First Room 160	< 0.4
2405084	3917941	12/04/2018 7:46 am	12/07/2018 8:53 am	Redland Middle School Floor First Room 158	0.5
2405085	3917944	12/04/2018 7:46 am	12/07/2018 8:53 am	Redland Middle School Floor First Room 158	< 0.4
2405086	3917945	12/04/2018 7:47 am	12/07/2018 8:55 am	Redland Middle School Floor First Room 156	1.6
2405087	3917946	12/04/2018 7:47 am	12/07/2018 8:56 am	Redland Middle School Floor First Room 154	0.8
2405088	3917948	12/04/2018 7:48 am	12/07/2018 9:00 am	Redland Middle School Floor First Room 152	0.4
2405089	3917949	12/04/2018 7:49 am	12/07/2018 9:07 am	Redland Middle School Floor First Room 150	< 0.4
2405090	3927023	12/04/2018 7:49 am	12/07/2018 9:08 am	Redland Middle School Floor First Room 150	< 0.4

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NELAC NY 11769
NRPP 103216 AL
NRSB ARL0017

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

Laboratory Report for:

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

Property Tested: Project # 04481387-1

MCPS Radon Survey
Redland MS
6505 Muncaster Mill Road
MD 02855

Log Number	Device Number	Test Exposure Duration:				Area Tested	Result pCi/L
2405092	3927021	12/04/2018	7:51 am	12/07/2018	9:10 am	Redland Middle School Floor First Room 148	< 0.4
2405093	3927027	12/04/2018	7:52 am	12/07/2018	9:11 am	Redland Middle School Floor First Room 147	< 0.4
2405094	3917410	12/04/2018	7:53 am	12/07/2018	9:12 am	Redland Middle School Floor First Room 146	< 0.4
2405095	3917409	12/04/2018	7:54 am	12/07/2018	9:13 am	Redland Middle School Floor First Room 144	0.6
2405096	3917407	12/04/2018	7:55 am	12/07/2018	9:13 am	Redland Middle School Floor First Room 144	0.6
2405097	3917408	12/04/2018	7:56 am	12/07/2018	9:14 am	Redland Middle School Floor First Room 142	0.5
2405098	3917405	12/04/2018	7:58 am	12/07/2018	9:15 am	Redland Middle School Floor First Room 145	< 0.4
2405099	3917406	12/04/2018	8:00 am	12/07/2018	9:16 am	Redland Middle School Floor First Room 143	< 0.4
2405100	3917404	12/04/2018	8:02 am	12/07/2018	9:17 am	Redland Middle School Floor First Room 141	0.4
2405101	3917403	12/04/2018	8:03 am	12/07/2018	9:18 am	Redland Middle School Floor First Room 139	< 0.4
2405102	3917402	12/04/2018	8:05 am	12/07/2018	8:17 am	Redland Middle School Floor First Room 135	0.6

Comment: Intertek-PSI (VA) was emailed a copy of this report.

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NELAC NY 11769
NRPP 103216 AL
NRSB ARL0017

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

Laboratory Report for:

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

Property Tested: Project # 04481387-1

MCPS Radon Survey
Redland MS
6505 Muncaster Mill Road
MD 02855

Log Number	Device Number	Test Exposure Duration:		Area Tested	Result pCi/L
2405103	3927026	12/04/2018 8:14 am	12/07/2018 9:19 am	Redland Middle School Floor First Room 201	< 0.4
2405104	3927024	12/04/2018 8:15 am	12/07/2018 9:20 am	Redland Middle School Floor First Room 105	< 0.4
2405105	3927025	12/04/2018 8:16 am	12/07/2018 9:21 am	Redland Middle School Flr First Rm 105B	0.4
2405106	3917337	12/04/2018 8:17 am	12/07/2018 9:22 am	Redland Middle School Flr First Rm 105A	< 0.4
2405107	3917333	12/04/2018 8:21 am	12/07/2018 9:24 am	Redland Middle School Floor First Room 130	< 0.4
2405108	3917331	12/04/2018 8:22 am	12/07/2018 9:26 am	Redland Middle School Floor First Room 132	< 0.4
2405109	3917332	12/04/2018 8:23 am	12/07/2018 9:28 am	Redland Middle School Flr First Rm Café	< 0.4
2405110	3917334	12/04/2018 8:24 am	12/07/2018 9:30 am	Redland Middle School Flr First Rm Café	< 0.4
2405111	3917335	12/04/2018 8:26 am	12/07/2018 9:32 am	Redland Middle School Flr First Rm 126 (Kitchen)	< 0.4
2405112	3917339	12/04/2018 8:28 am	12/07/2018 9:34 am	Redland Middle School Flr First Rm 126 H (Game	< 0.4
2405113	3917336	12/04/2018 8:30 am	12/07/2018 9:35 am	Redland Middle School Flr First Rm 126 C (Kitche	< 0.4

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NRPP 103216 AL
NRSB ARL0017

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

Laboratory Report for:

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

Property Tested: Project # 04481387-1

MCPS Radon Survey
Redland MS
6505 Muncaster Mill Road
MD 02855

Log Number	Device Number	Test Exposure Duration:		Area Tested	Result pCi/L
2405114	3922981	12/03/2018 6:15 am	12/06/2018 9:35 am	Redland Middle School Floor NA Room NA	0.4
2405115	3922982	12/03/2018 6:15 am	12/06/2018 9:35 am	Redland Middle School Floor NA Room NA	< 0.4
2405116	3922983	12/03/2018 6:15 am	12/06/2018 9:35 am	Redland Middle School Floor NA Room NA	< 0.4
2405117	3922984	12/03/2018 6:15 am	12/06/2018 9:35 am	Redland Middle School Floor NA Room NA	< 0.4
2405118	3922985	12/03/2018 6:00 am	12/06/2018 6:00 pm	Redland Middle School Floor NA Room NA	0.6

Comment: Intertek-PSI (VA) was emailed a copy of this report.

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AccuStar
Professional Radon Laboratory Services Since 1984

Radon in Air

NRPP 105011 AL
NRSB ARL0007
Ohio RL41

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

Laboratory Report for:

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

Property Tested:

MCPS Radon Survey
4514 Taylorsville Road
Dayton OH 45424

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

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

Test Performed By: Unknown

Distributed by: Intertek-PSI (VA)

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

Report Reviewed By: _____ Report Approved By: _____

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EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT Intertek - PSI Job Number 187732

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

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

Time Start: 0947 Time Stop: 0947

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

3926831 thru 3926840

Ga Loft

Date Start: ______ Date Stop: ______

Time Start: ______ Time Stop: ______

Device No.'s: ______

Date Start: ______ Date Stop: ______

Time Start: ______ Time Stop: ______

Device No.'s: ______

Date Start: ______ Date Stop: ______

Time Start: ______ Time Stop: ______

Device No.'s: ______

Date Start: ______ Date Stop: ______

Time Start: ______ Time Stop: ______

Device No.'s: ______

Date Start: ______ Date Stop: ______

Time Start: ______ Time Stop: ______

Device No.'s: ______

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

intertek
psi

Chain of Custody

Project Name: MCPS Radon Survey 2018

Name of Schools:

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

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

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

RADON SCREENING SURVEY – FOLLOW-UP REDLAND MIDDLE SCHOOL

6505 Muncaster Mill Rd., Rockville, Maryland 20855

EXECUTIVE SUMMARY

Date of Test Report:	3/9/18
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested	34
# Rooms ≥ 4.0 pCi/L:	1
Low Value:	<0.3
High Value:	7.7
Confirmed Rooms ≥ 4.0 pCi/L US EPA Action Level	1

Summary of Sampling Events ≥ 4.0 pCi/L

Room	Result (pCi/L) 1/31/18	Result (pCi/L) 3/9/18	Average Result (pCi/L)
180E	4.8	7.7	6.3
126A	4.7	1.8	3.3

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

Site Name	Redland Middle School
Date of Report	March 9, 2018
Round of Testing	Initial **Follow-up** Post Remediation 2 year testing 5 year testing HVAC Upgrade Window Replacement New Addition New Facility
# of Rooms Tested	34
# Rooms ≥4.0 pCi/L	1
Lowest Value	<0.3 pCi/L
Highest Value	7.7 pCi/L

Project Status

Room with results ≥ 4.0 pCi/L:
180E (7.7 pCi/L)

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

KCI TECHNOLOGIES
ENGINEERS • PLANNERS • SCIENTISTS • CONSTRUCTION MANAGERS
936 RIDGEBROOK ROAD • SPARKS, MD 21152 • 410-316-7800 • (FAX) 410-316-7935

March 9, 2018

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

Re: Radon Testing Services

KCI Job #1214634188

Location: Redland Middle School
6505 Muncaster Mill Rd.
Rockville, Maryland 20855

Dear Mr. Cox:

KCI Technologies, Inc. (KCI) is pleased to submit the following report to Montgomery County Public Schools pursuant to completing a "short-term" 3-day radon test for the Redland Middle School, located at 6505 Muncaster Mill Rd. in Rockville, Maryland 20855 (subject site).

SCOPE OF SERVICES

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

KCI visited the site on February 12, 2018 and deployed 40 activated charcoal (AC) radon test kits. KCI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance.

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

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

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

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

KCI returned to the site on February 15, 2018 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Aircheck, Inc. for analysis by gamma-ray spectroscopy. Aircheck, Inc. is a NRSB certified analytical laboratory for radon analysis (certification #ARL1402) located at 1936 Butler Bridge Road, Mills River, North Carolina.

EVALUATION OF TESTING CONDITIONS

These tests represent:

- Follow-up to post-mitigation biennial testing.

These tests were conducted to:

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

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

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

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

KCI also compiled weather data for the testing period and conducted observations of relevant field conditions. During the test period, weather records indicate low temperatures ranged from the mid-20s to upper 40s and high temperatures ranged from the high-30s to the high-60s. Maximum sustained winds ranged from 10-15 miles per hour. Average humidity was around 69%. 0.05 Inches of precipitation was recorded during the testing period.

RESULTS

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

The results of the radon test analysis indicated the following:

Radon Concentration	Room	Result
≥4.0 piC/L	180E	7.7
≤4.0 piC/L	See Attachment B	See Attachment B

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

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

Sincerely,

Radon Measurement Specialist
KCI Technologies, Inc.

Attachments:

B - Radon Test Summary Spreadsheets

C- Laboratory Analytical Results

ATTACHMENT B

Radon Test Summary Spreadsheet

Table Notes:

AC- Activated Charcoal

ACI- Air Chek, Inc.

D- Duplicate

FB- Field Blank

KCI- KCI Technologies, Inc.

OB- Office Blank

PM- Project Manager

QC- Quality Control

Table 1 - Radon Testing Results		
Redland Middle School		
Test Period: 02/12/18-02/15/18		
Kit Number	**Room / Area**	**Result**
7986436	102	1.2
7986472	111	1.2
7986454	132	0.9
7986447	133	0.7
7986463	143	2.5
7986459	153	2.3
7986461	173	1.6
7986476	184	0.9
7986448	187	1.8
7986451	201	1.2
7986441	221	2.1
7986456	100B	1.3
7986437	100C	1.1
7986462	100E ASSIST PRIN	1.2
7986443	100G	1.1
7986444	100M	1.0
7986475	105A	1.1
7986471	108A	2.6
7986468	112A	1.0
7986473	115A	1.6
7986467	120A	0.8
7986450	126A	1.8
7986465	126A	1.8
7986460	153A	2.6
7986453	163A	0.7
7986477	180E	7.7
7986445	ASST. PRIN	1.1
7986469	BLR / 179	1.2
7986440	BLR OFFICE	1.3
7986439	GLR/171	1.6
7986446	ISS	0.9
7986466	KITCHEN	1.6
7986442	PRINCIPAL	1.1
7986457	STAGE/176A	2.3
7986452	STEM/HEALTH 165	1.2

Table Note:
* Missing or Compromised Sample

Table 2 - Radon Testing Results		
Redland Middle School		
Test Period: 02/12/18-02/15/18		
Kit Number	**QC Type**	**Result**
7986470	D (112A D)	1.2
7986455	D (126A)	1.7
7986474	D (184)	1.1
7986458	D (STAGE/176A)	2.1
7986449	FB (STAGE/176A)	< 0.3

Table Note:
* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

February 27, 2018 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
REDLAND MIDDLE SCHOOL
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7986456	100B	2018-02-12 @ 1:00 pm	2018-02-15 @ 8:00 am	1.3 ± 0.4	2018-02-19
7986437	100C	2018-02-12 @ 1:00 pm	2018-02-15 @ 8:00 am	1.1 ± 0.4	2018-02-19
7986462	100E ASSIST PRIN	2018-02-12 @ 1:00 pm	2018-02-15 @ 8:00 am	1.2 ± 0.4	2018-02-19
7986443	100G	2018-02-12 @ 1:00 pm	2018-02-15 @ 8:00 am	1.1 ± 0.4	2018-02-19
7986444	100M	2018-02-12 @ 1:00 pm	2018-02-15 @ 8:00 am	1.0 ± 0.4	2018-02-19
7986436	102	2018-02-12 @ 1:00 pm	2018-02-15 @ 10:00 am	1.2 ± 0.4	2018-02-19
7986475	105A	2018-02-12 @ 3:00 pm	2018-02-15 @ 9:00 am	1.1 ± 0.4	2018-02-19
7986471	108A	2018-02-12 @ 3:00 pm	2018-02-15 @ 9:00 am	2.6 ± 0.4	2018-02-19
7986472	111	2018-02-12 @ 3:00 pm	2018-02-15 @ 9:00 am	1.2 ± 0.4	2018-02-19
7986468	112A	2018-02-12 @ 3:00 pm	2018-02-15 @ 9:00 am	1.0 ± 0.4	2018-02-19
7986470	112A D	2018-02-12 @ 3:00 pm	2018-02-15 @ 9:00 am	1.2 ± 0.4	2018-02-19
7986473	115A	2018-02-12 @ 3:00 pm	2018-02-15 @ 10:00 am	1.6 ± 0.4	2018-02-19
7986467	120A	2018-02-12 @ 3:00 pm	2018-02-15 @ 9:00 am	0.8 ± 0.3	2018-02-19
7986465	126A	2018-02-12 @ 3:00 pm	2018-02-15 @ 8:00 am	1.8 ± 0.4	2018-02-19
7986455	126A	2018-02-12 @ 3:00 pm	2018-02-15 @ 8:00 am	1.7 ± 0.4	2018-02-19
7986450	126A	2018-02-12 @ 3:00 pm	2018-02-15 @ 8:00 am	1.8 ± 0.4	2018-02-19
7986454	132	2018-02-12 @ 2:00 pm	2018-02-15 @ 9:00 am	0.9 ± 0.4	2018-02-19
7986447	133	2018-02-12 @ 2:00 pm	2018-02-15 @ 9:00 am	0.7 ± 0.4	2018-02-19
7986463	143	2018-02-12 @ 1:00 pm	2018-02-15 @ 8:00 am	2.5 ± 0.4	2018-02-19
7986459	153	2018-02-12 @ 1:00 pm	2018-02-15 @ 8:00 am	2.3 ± 0.4	2018-02-19
7986460	153A	2018-02-12 @ 1:00 pm	2018-02-15 @ 8:00 am	2.6 ± 0.4	2018-02-19
7986453	163A	2018-02-12 @ 2:00 pm	2018-02-15 @ 9:00 am	0.7 ± 0.4	2018-02-19
7986461	173	2018-02-12 @ 2:00 pm	2018-02-15 @ 9:00 am	1.6 ± 0.4	2018-02-19
7986477	180E	2018-02-12 @ 3:00 pm	2018-02-15 @ 10:00 am	7.7 ± 0.6	2018-02-19
7986474	184	2018-02-12 @ 3:00 pm	2018-02-15 @ 9:00 am	1.1 ± 0.4	2018-02-19
7986476	184	2018-02-12 @ 3:00 pm	2018-02-15 @ 9:00 am	0.9 ± 0.4	2018-02-19
7986448	187	2018-02-12 @ 2:00 pm	2018-02-15 @ 9:00 am	1.8 ± 0.4	2018-02-19
7986451	201	2018-02-12 @ 2:00 pm	2018-02-15 @ 10:00 am	1.2 ± 0.3	2018-02-19
7986441	221	2018-02-12 @ 2:00 pm	2018-02-15 @ 9:00 am	2.1 ± 0.4	2018-02-19
7986445	ASST. PRIN	2018-02-12 @ 1:00 pm	2018-02-15 @ 8:00 am	1.1 ± 0.4	2018-02-19
7986469	BLR / 179	2018-02-12 @ 2:00 pm	2018-02-15 @ 9:00 am	1.2 ± 0.4	2018-02-19
7986440	BLR OFFICE	2018-02-12 @ 2:00 pm	2018-02-15 @ 10:00 am	1.3 ± 0.4	2018-02-19
7986439	GLR/171	2018-02-12 @ 2:00 pm	2018-02-15 @ 9:00 am	1.6 ± 0.4	2018-02-19
7986446	ISS	2018-02-12 @ 2:00 pm	2018-02-15 @ 9:00 am	0.9 ± 0.4	2018-02-19
7986466	KITCHEN	2018-02-12 @ 3:00 pm	2018-02-15 @ 8:00 am	1.6 ± 0.4	2018-02-19
7986442	PRINCIPAL	2018-02-12 @ 1:00 pm	2018-02-15 @ 8:00 am	1.1 ± 0.4	2018-02-19
7986457	STAGE/176A	2018-02-12 @ 2:00 pm	2018-02-15 @ 9:00 am	2.3 ± 0.5	2018-02-19

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

February 27, 2018 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
REDLAND MIDDLE SCHOOL
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7986458	STAGE/176A	2018-02-12 @ 2:00 pm	2018-02-15 @ 9:00 am	2.1 ± 0.4	2018-02-19
7986449	STAGE/176A	2018-02-12 @ 2:00 pm	2018-02-15 @ 9:00 am	< 0.3	2018-02-19
7986452	STEM/HEALTH 165	2018-02-12 @ 2:00 pm	2018-02-15 @ 9:00 am	1.2 ± 0.4	2018-02-19

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

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

Names of Schools:

1. Highland Elementary School
2. Stephen Knolls Elementary School
3. Silver Creek Middle School
4. Woodlin Elementary School
5. Sligo Creek Elementary School
6. Francis Scott Key Middle School
7. John T. Baker Middle School
8. Cedar Grove Elementary School
9. Clarksburg Elementary School
10. Clarksburg Elementary School Annex
11. Fields Road Elementary School
12. Dufief Elementary School
13. Brown Station Elementary School
14. Diamond Elementary School
15. Fallsmeade Elementary School
16. Thomas Whootton High School
17. Lake Seneca Elementary School
18. Redland Middle School
19. Newport Mill Middle School
20. Bethesda Trans. and Maint. Depot
21. Sequoyah Elementary School
22. Gaithersburg Middle School
23. Wayside Elementary School
24. Travilah Elementary School
25. Damascus High School
26. Jones Lane Elementary School
27. Greencastle Elementary School
28. Spring Brook High School
29. Montgomery Blair High School
30. Watkins Mill High School

	Date	Initials
Radon Test Kits Deployed	2/12/18	JM
Radon Test Kits Collected	2/15/18	JM
Radon Test Kits Shipped to Lab*	2/15/18	JM
Radon Test Kits Received by Lab*	2/19/15	JM

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

February 27, 2018 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
OFFICE BLANKS

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

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

February 27, 2018 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
TRANSIT BLANKS

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

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

February 28, 2018 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

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

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

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

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI Technologies Inc. Job Number 183530

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

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

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

KCI TECHNOLOGIES
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MCPS RADON TESTING - EXECUTIVE SUMMARY

Site Name	Redland Middle School
Date of Report	January 31, 2018
Round of Testing	Initial Follow-up Post Remediation **2 year testing** 5 year testing HVAC Upgrade Window Replacement New Addition New Facility
# of Rooms Tested	63
# Rooms ≥4.0 pCi/L	2
Lowest Value	< 0.3 pCi/L
Highest Value	4.8 pCi/L

Rooms with results ≥ 4.0 pCi/L:

180E (4.8 pCi/L), 126A (4.7 pCi/L)

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

Missing or compromised samples need re-test.

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

January 31, 2018

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

Re: Radon Testing Services

KCI Job #1214694182

Location: Redland Middle School
6505 Muncaster Mill Rd.
Rockville, Maryland 20855

Dear Mr. Cox:

KCI Technologies, Inc. (KCI) is pleased to submit the following report to Montgomery County Public Schools pursuant to completing a "short-term" 3-day radon test for the Redland Middle School, located at 6505 Muncaster Mill Rd. in Rockville, Maryland 20855 (subject site).

SCOPE OF SERVICES

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

KCI visited the site on November 28, 2017 and deployed seventy-three (73) activated charcoal (AC) radon test kits. KCI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. A floor plan map of the building with the test locations is included as Appendix A of this report.

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

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

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

EVALUATION OF TESTING CONDITIONS

These tests represent:

- Post-mitigation biennial testing.

These tests were conducted to:

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

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

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

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

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

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

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

RESULTS

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

The results of the radon test analysis indicated the following:

Radon Concentration	Room	Result
≥4.0 piC/L	180E	4.8
≥4.0 piC/L	126A	4.7, 4.4 (duplicate sample)
≤4.0 piC/L	See Attachment B	See Attachment B

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

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

Sincerely,

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

Attachments:

B - Tables 1-3, Radon Test Summary Spreadsheets

C- Laboratory Analytical Results

ATTACHMENT B

Radon Test Summary Spreadsheet

Table Notes:

AC- Activated Charcoal

ACI- Air Chek, Inc.

D- Duplicate

FB- Field Blank

KCI- KCI Technologies, Inc.

OB- Office Blank

PM- Project Manager

QC- Quality Control

Radon Testing Results		
Redland Middle School		
Test Period: 11/28/17-12/01/17		
Kit Number	**Room / Area**	**Result**
7978511	100	1.4
7978538	101	0.6
7978537	105	0.6
7978509	108	0.9
7978521	112	0.8
7978505	115	0.9
7978512	116	0.8
7978513	120	1.1
7978531	124	0.8
7978519	126	1.4
7978520	126	0.9
7978523	128	< 0.3
7978525	128	0.6
7978504	129	0.5
7978534	130	0.6
7978503	131	0.8
7978562	139	1.8
7978561	141	2.1
7978508	142	2.5
7978552	144	2.5
7978507	145	1.8
7978532	146	2.5
7978555	147	2.1
7978558	148	2.0
7978550	149	2.3
7978517	150	2.5
7978557	151	2.1
7978514	152	2.5
7978556	154	2.1
7978551	156	2.3
7978553	158	1.9
7978554	160	1.9
7978527	163	0.6
7978544	165	1.0
7978540	168	0.7
7978546	176	0.9
7978560	176	0.7
7978563	176	0.9
7978564	176	0.9
7978569	177	0.6
7978570	177	0.6
7978536	180	1.3
7978559	181	0.8
7978567	189	1.3
7978566	195	1.0
7978524	199	0.7

Table Note:
* Missing or Compromised Sample

Radon Testing Results		
Redland Middle School		
Test Period: 11/28/17-12/01/17		
Kit Number	**Room / Area**	**Result**
7978547	207	1.1
7978542	211	1.1
7978584	215	1.3
7978541	217	1.0
7978573	229	1.0
7978572	233	0.6
7978501	100A	1.4
7978510	100D	0.9
7978526	100F	1.0
7978539	100H	1.0
7978549	105B	< 0.3
7978502	105MAIN	0.5
7978522	126A	4.7
7978515	126C	1.2
7978518	126H	0.9
7978506	128A	0.6
7978533	* 132 (Tampered)	0.5
7978543	171B	0.9
7978545	180A	1.0
7978529	180B	0.9
7978548	180C	0.9
7978530	180D	1.3
7978528	180E	4.8

Table Note:
* Missing or Compromised Sample

Radon Testing Results		
Redland Middle School		
Test Period: 11/28/17-12/01/17		
Kit Number	**QC Type**	**Result**
7978516	* D (126A:Open Door)	4.4
7978535	D (180)	1.1
7978565	D (215)	1.2
7977594	OB (OB)	< 0.3

Table Note:
* Missing or Compromised Sample

Summary of Missed Locations		
Redland Middle School		
Test Period: 11/28/17-12/02/17		
Kit Number	**Room / Area**	**Result**
-	102 (Missed location)	-
-	143 (Missed location)	-
-	153 (Missed location)	-
-	187 (Missed location)	-
-	201 (Missed location)	-
-	221 (Missed location)	-
-	100B (Missed location)	-
-	100C (Missed location)	-
-	100E (Missed location)	-
-	100G (Missed location)	-
-	105A (Missed location)	-
-	179A (Missed location)	-
-	Assistant Principal (Missed location)	-
-	Principal (Missed location)	-
-	KITCHEN OFFICE (Missed location)	-
-	Stage (Missed location)	-
-	BLR OFFICE (Missed location)	-
-	GLR OFFICE (Missed location)	-
-	STEM/HEALTH (Missed location)	-
-	ISS (Missed location)	-
-	KITCHEN (Missed location)	-
-	133 (Missed location)	-

Summary of Missing, Compromised and ≥4 piC/L Tests			
Redland Middle School			
Test Period: 11/28/17-12/01/17			
Kit Number		**Room / Area**	**Result**
7978522		126A	4.7
7978533	*	132 (Tampered)	0.5
7978528		180E	4.8
7978516	*	D (126A:Open Door)	4.4

Table Note:
* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

December 19, 2017 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
REDLAND MS
REDLAND MS

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7977594	OB	2017-11-28 @ 3:00 pm	2017-12-01 @ 3:00 pm	< 0.3	2017-12-04

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

December 19, 2017 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
REDLAND MS
REDLAND MS

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7978511	100	2017-11-28 @ 9:00 am	2017-12-01 @ 12:00 pm	1.4 ± 0.3	2017-12-04
7978501	100A	2017-11-28 @ 11:00 am	2017-12-01 @ 1:00 pm	1.4 ± 0.3	2017-12-04
7978510	100D	2017-11-28 @ 9:00 am	2017-12-01 @ 12:00 pm	0.9 ± 0.3	2017-12-04
7978526	100F	2017-11-28 @ 9:00 am	2017-12-01 @ 12:00 pm	1.0 ± 0.3	2017-12-04
7978539	100H	2017-11-28 @ 9:00 am	2017-12-01 @ 12:00 pm	1.0 ± 0.2	2017-12-04
7978538	101	2017-11-28 @ 12:00 pm	2017-12-01 @ 1:00 pm	0.6 ± 0.3	2017-12-04
7978537	105	2017-11-28 @ 11:00 am	2017-12-01 @ 1:00 pm	0.6 ± 0.3	2017-12-04
7978549	105B	2017-11-28 @ 11:00 am	2017-12-01 @ 1:00 pm	< 0.3	2017-12-04
7978502	105MAIN	2017-11-28 @ 12:00 pm	2017-12-01 @ 1:00 pm	0.5 ± 0.3	2017-12-04
7978509	108	2017-11-28 @ 9:00 am	2017-12-01 @ 12:00 pm	0.9 ± 0.2	2017-12-04
7978521	112	2017-11-28 @ 9:00 am	2017-12-01 @ 12:00 pm	0.8 ± 0.2	2017-12-04
7978505	115	2017-11-28 @ 11:00 am	2017-12-01 @ 1:00 pm	0.9 ± 0.3	2017-12-05
7978512	116	2017-11-28 @ 9:00 am	2017-12-01 @ 12:00 pm	0.8 ± 0.2	2017-12-04
7978513	120	2017-11-28 @ 9:00 am	2017-12-01 @ 12:00 pm	1.1 ± 0.3	2017-12-04
7978531	124	2017-11-28 @ 10:00 am	2017-12-01 @ 12:00 pm	0.8 ± 0.2	2017-12-04
7978520	126	2017-11-28 @ 10:00 am	2017-12-01 @ 12:00 pm	0.9 ± 0.3	2017-12-04
7978519	126	2017-11-28 @ 10:00 am	2017-12-01 @ 12:00 pm	1.4 ± 0.3	2017-12-05
7978522	126A	2017-11-28 @ 10:00 am	2017-12-01 @ 12:00 pm	4.7 ± 0.4	2017-12-04
7978516	126A	2017-11-28 @ 10:00 am	2017-12-01 @ 12:00 pm	4.4 ± 0.4	2017-12-05
7978515	126C	2017-11-28 @ 10:00 am	2017-12-01 @ 12:00 pm	1.2 ± 0.3	2017-12-05
7978518	126H	2017-11-28 @ 10:00 am	2017-12-01 @ 12:00 pm	0.9 ± 0.3	2017-12-04
7978525	128	2017-11-28 @ 11:00 am	2017-12-01 @ 1:00 pm	0.6 ± 0.2	2017-12-04
7978523	128	2017-11-28 @ 11:00 am	2017-12-01 @ 1:00 pm	< 0.3	2017-12-04
7978506	128A	2017-11-28 @ 11:00 am	2017-12-01 @ 1:00 pm	0.6 ± 0.2	2017-12-04
7978504	129	2017-11-28 @ 11:00 am	2017-12-01 @ 1:00 pm	0.5 ± 0.3	2017-12-04
7978534	130	2017-11-28 @ 10:00 am	2017-12-01 @ 1:00 pm	0.6 ± 0.2	2017-12-04
7978503	131	2017-11-28 @ 11:00 am	2017-12-01 @ 1:00 pm	0.8 ± 0.3	2017-12-04
7978533	132	2017-11-28 @ 10:00 am	2017-12-01 @ 1:00 pm	0.5 ± 0.2	2017-12-04
7978562	139	2017-11-28 @ 11:00 am	2017-12-01 @ 1:00 pm	1.8 ± 0.3	2017-12-04
7978561	141	2017-11-28 @ 11:00 am	2017-12-01 @ 1:00 pm	2.1 ± 0.3	2017-12-04
7978508	142	2017-11-28 @ 11:00 am	2017-12-01 @ 1:00 pm	2.5 ± 0.3	2017-12-05
7978552	144	2017-11-28 @ 11:00 am	2017-12-01 @ 1:00 pm	2.5 ± 0.3	2017-12-05
7978507	145	2017-11-28 @ 11:00 am	2017-12-01 @ 1:00 pm	1.8 ± 0.3	2017-12-04
7978532	146	2017-11-28 @ 11:00 am	2017-12-01 @ 1:00 pm	2.5 ± 0.3	2017-12-05
7978555	147	2017-11-28 @ 11:00 am	2017-12-01 @ 1:00 pm	2.1 ± 0.3	2017-12-04
7978558	148	2017-11-28 @ 11:00 am	2017-12-01 @ 1:00 pm	2.0 ± 0.3	2017-12-05
7978550	149	2017-11-28 @ 11:00 am	2017-12-01 @ 1:00 pm	2.3 ± 0.3	2017-12-05

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December 19, 2017 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
REDLAND MS
REDLAND MS

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7978517	150	2017-11-28 @ 11:00 am	2017-12-01 @ 1:00 pm	2.5 ± 0.3	2017-12-04
7978557	151	2017-11-28 @ 11:00 am	2017-12-01 @ 1:00 pm	2.1 ± 0.3	2017-12-04
7978514	152	2017-11-28 @ 11:00 am	2017-12-01 @ 1:00 pm	2.5 ± 0.3	2017-12-04
7978556	154	2017-11-28 @ 11:00 am	2017-12-01 @ 1:00 pm	2.1 ± 0.3	2017-12-04
7978551	156	2017-11-28 @ 11:00 am	2017-12-01 @ 1:00 pm	2.3 ± 0.3	2017-12-04
7978553	158	2017-11-28 @ 11:00 am	2017-12-01 @ 1:00 pm	1.9 ± 0.3	2017-12-04
7978554	160	2017-11-28 @ 11:00 am	2017-12-01 @ 1:00 pm	1.9 ± 0.3	2017-12-04
7978527	163	2017-11-28 @ 12:00 pm	2017-12-01 @ 1:00 pm	0.6 ± 0.3	2017-12-04
7978544	165	2017-11-28 @ 12:00 pm	2017-12-01 @ 1:00 pm	1.0 ± 0.3	2017-12-04
7978540	168	2017-11-28 @ 12:00 pm	2017-12-01 @ 1:00 pm	0.7 ± 0.3	2017-12-04
7978543	171B	2017-11-28 @ 12:00 pm	2017-12-01 @ 1:00 pm	0.9 ± 0.3	2017-12-04
7978546	176	2017-11-28 @ 12:00 pm	2017-12-01 @ 2:00 pm	0.9 ± 0.3	2017-12-04
7978563	176	2017-11-28 @ 12:00 pm	2017-12-01 @ 2:00 pm	0.9 ± 0.3	2017-12-04
7978564	176	2017-11-28 @ 12:00 pm	2017-12-01 @ 2:00 pm	0.9 ± 0.3	2017-12-04
7978560	176	2017-11-28 @ 12:00 pm	2017-12-01 @ 2:00 pm	0.7 ± 0.3	2017-12-04
7978569	177	2017-11-28 @ 12:00 pm	2017-12-01 @ 1:00 pm	0.6 ± 0.2	2017-12-04
7978570	177	2017-11-28 @ 12:00 pm	2017-12-01 @ 2:00 pm	0.6 ± 0.3	2017-12-04
7978535	180	2017-11-28 @ 12:00 pm	2017-12-01 @ 1:00 pm	1.1 ± 0.3	2017-12-04
7978536	180	2017-11-28 @ 12:00 pm	2017-12-01 @ 1:00 pm	1.3 ± 0.3	2017-12-04
7978545	180A	2017-11-28 @ 12:00 pm	2017-12-01 @ 1:00 pm	1.0 ± 0.3	2017-12-04
7978529	180B	2017-11-28 @ 12:00 pm	2017-12-01 @ 1:00 pm	0.9 ± 0.2	2017-12-04
7978548	180C	2017-11-28 @ 12:00 pm	2017-12-01 @ 1:00 pm	0.9 ± 0.3	2017-12-04
7978530	180D	2017-11-28 @ 12:00 pm	2017-12-01 @ 1:00 pm	1.3 ± 0.3	2017-12-04
7978528	180E	2017-11-28 @ 12:00 pm	2017-12-01 @ 1:00 pm	4.8 ± 0.4	2017-12-04
7978559	181	2017-11-28 @ 1:00 pm	2017-12-01 @ 2:00 pm	0.8 ± 0.3	2017-12-04
7978567	189	2017-11-28 @ 1:00 pm	2017-12-01 @ 2:00 pm	1.3 ± 0.3	2017-12-04
7978566	195	2017-11-28 @ 1:00 pm	2017-12-01 @ 2:00 pm	1.0 ± 0.3	2017-12-04
7978524	199	2017-11-28 @ 1:00 pm	2017-12-01 @ 2:00 pm	0.7 ± 0.2	2017-12-04
7978547	207	2017-11-28 @ 1:00 pm	2017-12-01 @ 2:00 pm	1.1 ± 0.3	2017-12-04
7978542	211	2017-11-28 @ 1:00 pm	2017-12-01 @ 2:00 pm	1.1 ± 0.3	2017-12-04
7978584	215	2017-11-28 @ 1:00 pm	2017-12-01 @ 2:00 pm	1.3 ± 0.3	2017-12-04
7978565	215	2017-11-28 @ 1:00 pm	2017-12-01 @ 2:00 pm	1.2 ± 0.3	2017-12-04
7978541	217	2017-11-28 @ 1:00 pm	2017-12-01 @ 2:00 pm	1.0 ± 0.3	2017-12-04
7978573	229	2017-11-28 @ 1:00 pm	2017-12-01 @ 2:00 pm	1.0 ± 0.3	2017-12-04
7978572	233	2017-11-28 @ 1:00 pm	2017-12-01 @ 2:00 pm	0.6 ± 0.2	2017-12-04

Air Chek, Inc. 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 Phase

Names of Schools:

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

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

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

December 19, 2017 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
TRANSIT 1
NONE

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

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December 19, 2017 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

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

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

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

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI Technologies Inc. Job Number 182393

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

Date Start: 12/1/17 Date Stop: 12/4/17	Date Start: _____ Date Stop: _____
Time Start: 1049 Time Stop: 1049	Time Start: _____ Time Stop: _____
Device No.'s: (6) Chan. Bags.	Device No.'s: _____
7975075, 7975064, 7975063,	_____
7975065, 7975069, 7975070	_____
F4 Right	_____
Date Start: _____ Date Stop: _____	Date Start: _____ Date Stop: _____
Time Start: _____ Time Stop: _____	Time Start: _____ Time Stop: _____
Device No.'s: _____	Device No.'s: _____
_____	_____
_____	_____
_____	_____
Date Start: _____ Date Stop: _____	Date Start: _____ Date Stop: _____
Time Start: _____ Time Stop: _____	Time Start: _____ Time Stop: _____
Device No.'s: _____	Device No.'s: _____
_____	_____
_____	_____
_____	_____

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

KCI TECHNOLOGIES

ENGINEERS • PLANNERS • SCIENTISTS • CONSTRUCTION MANAGERS

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MCPS RADON TESTING

Executive Summary: Redland Middle School

Date of Test Report:	2/29/2016 (Rev.1)
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	74
# Rooms ≥ 4.0 pCi/L:	0
Low Value:	< 0.3
High Value:	2.6

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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February 29, 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 # 12146341.26

Location: Redland Middle School
6505 Muncaster Mill Road
Rockville, MD 20855

Dear Mr. Cox:

KCI Technologies, Inc. (KCI) is pleased to submit the following report to the Montgomery County Public Schools (MCPS) pursuant to completing a "short-term" 3 day radon test for the Redland Middle School, located at 6505 Muncaster Mill Road in Rockville, Maryland 20855 (subject site).

Scope of Services:

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

KCI visited the site on February 2, 2016 and deployed ninety (90) 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 5, 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	none	n/a
<4.0 piC/L	See Attachment B	

Notes:
D- Duplicate sample

The 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		
Redland Middle School		
Test Period: 02/02/16-02/05/16		
Kit Number	**Room / Area**	**Result**
7732312	100	0.7
7732329	101	< 0.3
7732328	102	< 0.3
7732275	105	< 0.3
7732334	108	0.6
7732333	112	< 0.3
7732339	115	< 0.3
7732335	116	< 0.3
7732336	120	< 0.3
7732337	124	< 0.3
7732294	126	< 0.3
7732296	126	< 0.3
7732324	128	< 0.3
7732340	129	< 0.3
7732269	130	< 0.3
7732303	131	0.5
7732295	132	0.8
7732289	139	< 0.3
7732274	141	< 0.3
7732297	142	< 0.3
7732262	143	< 0.3
7732299	144	< 0.3
7732270	145	< 0.3
7732283	146	< 0.3
7732264	147	< 0.3
7732298	148	< 0.3
7732282	149	< 0.3
7732281	150	< 0.3
7732285	151	< 0.3
7732284	152	0.6
7732251	153	< 0.3
7732286	154	< 0.3
7732268	156	< 0.3
7732255	158	< 0.3
7732288	160	< 0.3
7732258	163	< 0.3
7732272	165	0.6
7732265	168	< 0.3
7732315	176	1.4
7732318	176	1.1
7732322	176	1.7
7732327	176	1.5
7732331	177	1.7
7732332	177	1.8
7732319	180	0.7
7732263	181	1.5

Table Note:
* Missing or Compromised Sample

Radon Testing Results		
Redland Middle School		
Test Period: 02/02/16-02/05/16		
Kit Number	**Room / Area**	**Result**
7732261	187	2.1
7732266	189	2.3
7732271	195	1.2
7732260	199	1.0
7732267	201	0.6
7732253	207	0.5
7732252	211	< 0.3
7732257	215	0.8
7732291	217	1.0
7732279	221	1.1
7732290	229	2.6
7732278	233	0.6
7732311	100A	0.9
7732310	100B	< 0.3
7732309	100C	0.6
7732306	100D	0.7
7732301	100E	0.7
7732321	100F	0.9
7732305	100G	0.6
7732304	100H	0.8
7732277	105A	< 0.3
7732326	105B	0.6
7732280	126C	0.9
7732293	126H	< 0.3
7732302	128A	< 0.3
7732287	171B	1.5
7732273	179A	2.0
7732320	180A	< 0.3
7732314	180B	0.6
7732316	180C	0.6
7732313	180D	< 0.3
7732330	180E	1.1
7732300	RECEIVING RM	1.1

Table Note:
* Missing or Compromised Sample

Radon Testing Results		
Redland Middle School		
Test Period: 02/02/16-02/05/16		
Kit Number	**QC Type**	**Result**
7732307	D (100C)	0.8
7732323	D (100F)	0.7
7732325	D (128)	< 0.3
7732256	D (145)	< 0.3
7732254	D (160)	< 0.3
7732317	D (180)	< 0.3
7732276	D (215)	< 0.3
7732292	D (RECEIVING RM)	0.9
7732308	FB (100D)	< 0.3
7732259	FB (179A)	< 0.3
7730076	OB (0)	< 0.3

Table Note:
* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

February 17, 2016

** LABORATORY ANALYSIS REPORT **

Radon test result report for:

REDLAND MIDDLE SCHOOL
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7730076	0	2016-02-02 @ 5:00 pm	2016-02-05 @ 12:00 pm	< 0.3	2016-02-09
7732312	100	2016-02-02 @ 11:00 am	2016-02-05 @ 8:00 am	0.7 ± 0.3	2016-02-09
7732311	100A	2016-02-02 @ 11:00 am	2016-02-05 @ 8:00 am	0.9 ± 0.3	2016-02-09
7732310	100B	2016-02-02 @ 11:00 am	2016-02-05 @ 8:00 am	< 0.3	2016-02-09
7732307	100C	2016-02-02 @ 11:00 am	2016-02-05 @ 8:00 am	0.8 ± 0.3	2016-02-09
7732309	100C	2016-02-02 @ 11:00 am	2016-02-05 @ 8:00 am	0.6 ± 0.3	2016-02-09
7732306	100D	2016-02-02 @ 11:00 am	2016-02-05 @ 8:00 am	0.7 ± 0.3	2016-02-09
7732308	100D	2016-02-02 @ 11:00 am	2016-02-05 @ 8:00 am	< 0.3	2016-02-09
7732301	100E	2016-02-02 @ 11:00 am	2016-02-05 @ 8:00 am	0.7 ± 0.3	2016-02-09
7732321	100F	2016-02-02 @ 11:00 am	2016-02-05 @ 8:00 am	0.9 ± 0.3	2016-02-09
7732323	100F	2016-02-02 @ 11:00 am	2016-02-05 @ 8:00 am	0.7 ± 0.3	2016-02-09
7732305	100G	2016-02-02 @ 11:00 am	2016-02-05 @ 8:00 am	0.6 ± 0.3	2016-02-09
7732304	100H	2016-02-02 @ 11:00 am	2016-02-05 @ 8:00 am	0.8 ± 0.3	2016-02-09
7732329	101	2016-02-02 @ 12:00 pm	2016-02-05 @ 8:00 am	< 0.3	2016-02-09
7732328	102	2016-02-02 @ 12:00 pm	2016-02-05 @ 8:00 am	< 0.3	2016-02-09
7732275	105	2016-02-02 @ 11:00 am	2016-02-05 @ 8:00 am	< 0.3	2016-02-09
7732277	105A	2016-02-02 @ 12:00 pm	2016-02-05 @ 8:00 am	< 0.3	2016-02-09
7732326	105B	2016-02-02 @ 12:00 pm	2016-02-05 @ 8:00 am	0.6 ± 0.3	2016-02-09
7732334	108	2016-02-02 @ 12:00 pm	2016-02-05 @ 9:00 am	0.6 ± 0.3	2016-02-09
7732333	112	2016-02-02 @ 12:00 pm	2016-02-05 @ 9:00 am	< 0.3	2016-02-09
7732339	115	2016-02-02 @ 12:00 pm	2016-02-05 @ 9:00 am	< 0.3	2016-02-09
7732335	116	2016-02-02 @ 12:00 pm	2016-02-05 @ 9:00 am	< 0.3	2016-02-09
7732336	120	2016-02-02 @ 12:00 pm	2016-02-05 @ 9:00 am	< 0.3	2016-02-09
7732337	124	2016-02-02 @ 12:00 pm	2016-02-05 @ 9:00 am	< 0.3	2016-02-09
7732294	126	2016-02-02 @ 9:00 am	2016-02-05 @ 7:00 am	< 0.3	2016-02-09
7732296	126	2016-02-02 @ 9:00 am	2016-02-05 @ 9:00 am	< 0.3	2016-02-09
7732280	126C	2016-02-02 @ 9:00 am	2016-02-05 @ 9:00 am	0.9 ± 0.3	2016-02-09
7732293	126H	2016-02-02 @ 9:00 am	2016-02-05 @ 7:00 am	< 0.3	2016-02-09
7732324	128	2016-02-02 @ 12:00 pm	2016-02-05 @ 9:00 am	< 0.3	2016-02-09
7732325	128	2016-02-02 @ 12:00 pm	2016-02-05 @ 9:00 am	< 0.3	2016-02-09
7732302	128A	2016-02-02 @ 12:00 pm	2016-02-05 @ 8:00 am	< 0.3	2016-02-09
7732340	129	2016-02-02 @ 12:00 pm	2016-02-05 @ 8:00 am	< 0.3	2016-02-09
7732269	130	2016-02-02 @ 10:00 am	2016-02-05 @ 8:00 am	< 0.3	2016-02-09
7732303	131	2016-02-02 @ 12:00 pm	2016-02-05 @ 8:00 am	0.5 ± 0.3	2016-02-09
7732295	132	2016-02-02 @ 9:00 am	2016-02-05 @ 7:00 am	0.8 ± 0.3	2016-02-09
7732289	139	2016-02-02 @ 10:00 am	2016-02-05 @ 8:00 am	< 0.3	2016-02-09
7732274	141	2016-02-02 @ 10:00 am	2016-02-05 @ 8:00 am	< 0.3	2016-02-09

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

February 17, 2016

** LABORATORY ANALYSIS REPORT **

Radon test result report for:

REDLAND MIDDLE SCHOOL
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7732297	142	2016-02-02 @ 9:00 am	2016-02-05 @ 7:00 am	< 0.3	2016-02-09
7732262	143	2016-02-02 @ 10:00 am	2016-02-05 @ 8:00 am	< 0.3	2016-02-09
7732299	144	2016-02-02 @ 9:00 am	2016-02-05 @ 7:00 am	< 0.3	2016-02-09
7732270	145	2016-02-02 @ 10:00 am	2016-02-05 @ 8:00 am	< 0.3	2016-02-09
7732256	145	2016-02-02 @ 10:00 am	2016-02-05 @ 8:00 am	< 0.3	2016-02-09
7732283	146	2016-02-02 @ 9:00 am	2016-02-05 @ 7:00 am	< 0.3	2016-02-09
7732264	147	2016-02-02 @ 9:00 am	2016-02-05 @ 7:00 am	< 0.3	2016-02-09
7732298	148	2016-02-02 @ 9:00 am	2016-02-05 @ 7:00 am	< 0.3	2016-02-09
7732282	149	2016-02-02 @ 9:00 am	2016-02-05 @ 7:00 am	< 0.3	2016-02-09
7732281	150	2016-02-02 @ 9:00 am	2016-02-05 @ 7:00 am	< 0.3	2016-02-09
7732285	151	2016-02-02 @ 9:00 am	2016-02-05 @ 7:00 am	< 0.3	2016-02-09
7732284	152	2016-02-02 @ 9:00 am	2016-02-05 @ 7:00 am	0.6 ± 0.3	2016-02-09
7732251	153	2016-02-02 @ 9:00 am	2016-02-05 @ 8:00 am	< 0.3	2016-02-09
7732286	154	2016-02-02 @ 9:00 am	2016-02-05 @ 7:00 am	< 0.3	2016-02-09
7732268	156	2016-02-02 @ 9:00 am	2016-02-05 @ 7:00 am	< 0.3	2016-02-09
7732255	158	2016-02-02 @ 9:00 am	2016-02-05 @ 7:00 am	< 0.3	2016-02-09
7732288	160	2016-02-02 @ 9:00 am	2016-02-05 @ 7:00 am	< 0.3	2016-02-09
7732254	160	2016-02-02 @ 9:00 am	2016-02-05 @ 7:00 am	< 0.3	2016-02-09
7732258	163	2016-02-02 @ 10:00 am	2016-02-05 @ 8:00 am	< 0.3	2016-02-09
7732272	165	2016-02-02 @ 10:00 am	2016-02-05 @ 8:00 am	0.6 ± 0.3	2016-02-09
7732265	168	2016-02-02 @ 10:00 am	2016-02-05 @ 8:00 am	< 0.3	2016-02-09
7732287	171B	2016-02-02 @ 10:00 am	2016-02-05 @ 8:00 am	1.5 ± 0.3	2016-02-09
7732315	176	2016-02-02 @ 11:00 am	2016-02-05 @ 8:00 am	1.4 ± 0.3	2016-02-09
7732318	176	2016-02-02 @ 11:00 am	2016-02-05 @ 8:00 am	1.1 ± 0.3	2016-02-09
7732322	176	2016-02-02 @ 11:00 am	2016-02-05 @ 8:00 am	1.7 ± 0.3	2016-02-09
7732327	176	2016-02-02 @ 11:00 am	2016-02-05 @ 8:00 am	1.5 ± 0.3	2016-02-09
7732331	177	2016-02-02 @ 11:00 am	2016-02-05 @ 8:00 am	1.7 ± 0.3	2016-02-09
7732332	177	2016-02-02 @ 11:00 am	2016-02-05 @ 8:00 am	1.8 ± 0.3	2016-02-09
7732259	179A	2016-02-02 @ 10:00 am	2016-02-05 @ 8:00 am	< 0.3	2016-02-09
7732273	179A	2016-02-02 @ 10:00 am	2016-02-05 @ 8:00 am	2.0 ± 0.3	2016-02-09
7732317	180	2016-02-02 @ 11:00 am	2016-02-05 @ 8:00 am	< 0.3	2016-02-09
7732319	180	2016-02-02 @ 11:00 am	2016-02-05 @ 8:00 am	0.7 ± 0.3	2016-02-09
7732320	180A	2016-02-02 @ 11:00 am	2016-02-05 @ 8:00 am	< 0.3	2016-02-09
7732314	180B	2016-02-02 @ 11:00 am	2016-02-05 @ 8:00 am	0.6 ± 0.3	2016-02-09
7732316	180C	2016-02-02 @ 11:00 am	2016-02-05 @ 8:00 am	0.6 ± 0.3	2016-02-09
7732313	180D	2016-02-02 @ 11:00 am	2016-02-05 @ 8:00 am	< 0.3	2016-02-09
7732330	180E	2016-02-02 @ 11:00 am	2016-02-05 @ 8:00 am	1.1 ± 0.3	2016-02-09

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

February 17, 2016

**LABORATORY ANALYSIS REPORT **

Radon test result report for:

REDLAND MIDDLE SCHOOL
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7732263	181	2016-02-02 @ 10:00 am	2016-02-05 @ 8:00 am	1.5 ± 0.3	2016-02-09
7732261	187	2016-02-02 @ 10:00 am	2016-02-05 @ 8:00 am	2.1 ± 0.4	2016-02-09
7732266	189	2016-02-02 @ 10:00 am	2016-02-05 @ 8:00 am	2.3 ± 0.4	2016-02-09
7732271	195	2016-02-02 @ 10:00 am	2016-02-05 @ 8:00 am	1.2 ± 0.3	2016-02-09
7732260	199	2016-02-02 @ 10:00 am	2016-02-05 @ 8:00 am	1.0 ± 0.3	2016-02-09
7732267	201	2016-02-02 @ 10:00 am	2016-02-05 @ 8:00 am	0.6 ± 0.3	2016-02-09
7732253	207	2016-02-02 @ 10:00 am	2016-02-05 @ 8:00 am	0.5 ± 0.3	2016-02-09
7732252	211	2016-02-02 @ 10:00 am	2016-02-05 @ 8:00 am	< 0.3	2016-02-09
7732257	215	2016-02-02 @ 10:00 am	2016-02-05 @ 8:00 am	0.8 ± 0.3	2016-02-09
7732276	215	2016-02-02 @ 10:00 am	2016-02-05 @ 8:00 am	< 0.3	2016-02-09
7732291	217	2016-02-02 @ 10:00 am	2016-02-05 @ 8:00 am	1.0 ± 0.3	2016-02-09
7732279	221	2016-02-02 @ 10:00 am	2016-02-05 @ 8:00 am	1.1 ± 0.3	2016-02-09
7732290	229	2016-02-02 @ 10:00 am	2016-02-05 @ 8:00 am	2.6 ± 0.4	2016-02-09
7732278	233	2016-02-02 @ 10:00 am	2016-02-05 @ 8:00 am	0.6 ± 0.3	2016-02-09
7732300	RECEIVING RM	2016-02-02 @ 9:00 am	2016-02-05 @ 7:00 am	1.1 ± 0.3	2016-02-09
7732292	RECEIVING RM	2016-02-02 @ 9:00 am	2016-02-05 @ 7:00 am	0.9 ± 0.3	2016-02-09

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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

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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 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 7 (2-1-2016)

Name of School/Facility:

1. Wyngate E.S.
2. Seven Locks E.S.
3. Takoma Park M.S.
4. Somerset E.S.
5. Silver Spring Int. M.S.
6. Sligo Creek E.S.
7. Tilden M.S.
8. Tilden Center
9. Bethesda Annex
10. Bethesda Depot
11. Bethesda Trans Depot
12. Sligo M.S.
13. Stonegate E.S.
14. Randolph Transportation
15. Earl B. Wood M.S.
16. Sargent Shriver E.S.
17. Thomas Wooten H.S.
18. Stone Mill E.S.
19. Strawberry Knoll E.S.
20. Shady Grove M.S.
21. Washington Grove E.S.
22. Sherwood E.S.
23. Woodfield E.S.
24. Taylor Learning Center
25. Kingsley Wilderness

	Date	Initials
Radon Test Kits Deployed	2/1/16	JM
Radon Test Kits Collected	2/4/16	JM
Radon Test Kits Shipped to Lab*	2/4/16	JM
Radon Test Kits Received by Lab*	2/8/16	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 7 (2-2-2016)

Name of School/Facility:

1. Concord Center
2. Lynnbrook Center
3. Carver (CESC)
4. Spring Mill (area 1 Office)
5. Wheaton H.S
6. Montrose Center
7. West Farm Trans Depot
8. Food & Nutritional Services
9. Fairland Center
10. Redland M.S. (retest)
11. Clarksburg Trans Depot
12. Clarksburg Main Depot
13. Clarksburg E.S.

	Date	Initials
Radon Test Kits Deployed	2/2/16	JM
Radon Test Kits Collected	2/5/16	JM
Radon Test Kits Shipped to Lab*	2/5/16	JM
Radon Test Kits Received by Lab*	2/9/16	JM

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

M. A. CECIL & ASSOCIATES, INC.
4475 Shannon Way, Port Republic, Maryland 20676 (301) 855-7710
INDUSTRIAL HYGIENE AND ENVIRONMENTAL HEALTH

MCPS RADON TESTING

Executive Summary

Name of Facility	Redland Middle
Date of Test report	December 29, 2015
Round of Testing	Re-Test
Number of rooms tested	12
Number of room >/= 4.0	0
Low value	1.5
High value	1.9

M. A. CECIL & ASSOCIATES, INC.

4475 Shannon Way, Port Republic, Maryland 20676 (301) 855-7710
INDUSTRIAL HYGIENE AND ENVIRONMENTAL HEALTH

December 24, 2015

Mr. Sean Yarup
Montgomery County Public Schools
16651 Crabbs Branch Way
Rockville, Maryland 20855

Re: Radon Evaluation- Redland Middle School

Dear Mr. Yarup:

Follow-up environmental radon testing has been completed at Redland Middle School. Thirteen charcoal canisters were placed in various rooms within the school. The canisters were placed on December 10, 2015 and retrieved on December 14, 2015.

The detected radon concentrations were below the EPA recommended level of 4.0 pico curies per liter (pCi/l). Testing locations and results are summarized in the table below.

Location	Detected Radon Concentration (pCi/l)
Blank	<0.5
Room 141	1.6
Room 143	1.7
Room 144	1.5
Room 146	1.8
Room 148	1.7
Room 150	1.6
Room 151	1.8
Room 152-A	1.9
Room 152-B	1.8
Room 154	1.7
Room 156	1.8
Room 158	1.7
Room 160	1.8

Should you have any questions concerning this report please do not hesitate to contact us.

Sincerely,

Michael A. Cecil
Michael A. Cecil, CIH

A.B.E. Radiation Measurements Laboratory

Division of Health Physics Associates, Inc.
1005 Old 22 PO Box 214 Lenhartsville, PA 19534
dee@radprotection.com
(610) 756-4153 (Voice) (610) 756-0042 (FAX)

December 22, 2015

MA Cecil & Associates, Inc.
4475 Shannon Way
Port Republic, MD 20676

Attn: Kimberly Tayman

re: **Radon Sampling,** Redland Middle School**,**
6505 Muncaster Mill Rd., Rockville, MD 20855
Dates of tests: December 10 to 14, 2015
Chamber Spikes: 2.9 % Deviation; September 19 to 21, 2015
Re-test

Dear Ms. Tayman:

The following is a report of the radon sampling your company conducted at the referenced property using activated charcoal. The charcoal analysis procedures have passed the US EPA's Radon Measurement Proficiency Testing program, and A.B.E. Radiation Measurements Lab is certified by the PA DEP as a laboratory (certification number 0048). The table lists each sample location and the net radon levels in picocuries per liter (pCi/l). Screening testing should be conducted under "closed house" conditions; however, A.B.E. Radiation Measurements Laboratory has no control over how the test device is treated in our absence or the degree of ventilation at the property over the course of the test.

Canister Number	Location	Start Time	End Time	pCi/l
174422	Blank	N/A	N/A	<0.5
174601	Room 152-A	16:50	12:51	1.9
174606	Room 152-B	16:50	12:51	1.8
174602	Room 148	16:52	12:53	1.7
174605	Room 143	16:54	12:58	1.7
174610	Room 150	16:52	12:52	1.6
174611	Room 141	16:44	13:00	1.6
*174621		16:46	12:46	1.8
174622	Room 151	16:48	12:48	1.8
174626	Room 156	16:48	12:50	1.8
174627	Room 146	16:53	12:53	1.8
174637	Room 154	16:49	12:49	1.7
174638	Room 158	16:47	12:47	1.7
174654	Room 144	16:53	12:56	1.5

*No location on canister.

CONCLUSIONS

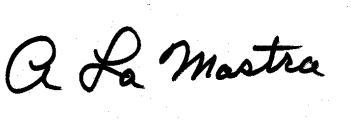
The results of the radon tests from Aug. 2013, Feb. 2015 and Dec. 2015 in Rooms 152A, 152B, 143, 150 and 151 averaged above the US EPA guideline of less than 4.0 pCi/l and should be remediated. Rooms 148, 141 and 156 had average concentrations close to the guideline and should be considered for remediation.

The results of this test are valid only for the date, time and conditions under which the test was conducted and only for the client ordering the test.

Should you wish to discuss this report, please do not hesitate to contact us at (610) 756-4153.

Thank you for the opportunity to serve you.

Sincerely,



A. LaMastra
President

M. A. CECIL & ASSOCIATES, INC.
4475 Shannon Way, Port Republic, Maryland 20676 (301) 855-7710
INDUSTRIAL HYGIENE AND ENVIRONMENTAL HEALTH

August 20, 2013

Mr. Sean Yarup
Montgomery County Public Schools
16651 Crabbs Branch Way
Rockville, Maryland 20855

Re: Radon Evaluation- Redland Middle School

Dear Mr. Yarup:

Environmental radon testing has been completed at Redland Middle School.

Forty-three charcoal canisters were placed in various rooms throughout the school. The canisters were placed on August 6, 2013 and retrieved on August 8, 2013. The detected radon concentration was below the EPA recommended level of 4.0 pico curies per liter (pCi/l) of air with the exception of rooms 144, 146, 148, 149, 150, 152, 151, 154, 156, 160, 158, 141 and 143.

Radon testing should be repeated in the thirteen rooms listed above. Alternatively, radon levels could be determined with long term film dosimeters. Based on those results appropriate response actions should be initiated. The EPA recommends some form of a response action for areas with radon levels exceeding the recommended level of 4.0 pCi/l.

Should you have any questions concerning this report please do not hesitate to contact us.

Sincerely,

Michael A. Cecil, CIH

Redland Middle School
Environmental Radon Results
August 6 to 8, 2013

Location	Detected Radon Concentration (pCi/l)
Main Office	0.6
Room 101-A	<0.5
Room 101-B	<0.5
Room 108	0.5
Room 112	0.9
Room116	<0.5
Room 120	<0.5
Room 115	0.7
IMC	1.3
Room 124	0.6
Cafeteria	1.8
Room 132	0.6
Room 130	1.3
Room 144	**4.7**
Room 146	**5.1**
Room 148-A	**5.6**
Room 148-B	**5.0**
Room 149	**5.1**
Room 150	**5.1**
Room 152	**5.5**
Room 151	**5.7**
Room 154	**5.0**
Room 156	**6.0**
Room 160	**4.5**
Room 158	**4.8**
Room141	**5.3**
Room 143	**4.9**
Room 168	<0.5
Room 163	0.9
Room 165	1.0
Room 177,Aux. Gym	2.6
Room 176, Gym	<0.5
Room 189	1.8
Room 187	1.7
Room 195	0.9
Room 199-A	<0.5
Room 199-B	0.7
Room 207	1.5
Room 211	0.7
Room 217	0.6
Room 221-A	<0.5
Room 221-B	0.6
Room 229, Staff Lounge	1.9