MCPS DEM SUSTAINABILITY & COMPLIANCE

School / Facility Radon Testing Report Form

School Year: **24-25**

Facility:	Beall Elementary School
Address:	451 Beall Avenue
	Rockville, MD 20850
Reason for Testing:	Scheduled Re-Testing - ☐ 2-year or ☒ 5-year schedule ☐ Clearance Testing (Post-Mitigation) ☒ Building Envelope or HVAC Upgrades ☐ New Construction – Addition or Facility
Current Radon Status:	☐ Active Mitigation (2-year regular schedule) ☒ No Active Mitigation (5-year regular schedule) ☐ Not Previously Tested (New Facility)
Round of Testing:	☒ Initial Testing **-or-** ☐ Follow-up Testing
Testing Status:	☒ No Further Testing Needed **-or-** ☐ Follow-Up Testing Required

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

Mitigation -	**Facility Radon Status:**		
☒ Not Required ☐ Required (≥4.0-pCi/L) Rooms:	☒ No Change in Status ☐ Active Mitigation (2-year regular schedule) ☐ No Active Mitigation (5-year regular schedule)		
Number of Rooms Tested	58	Lowest Value (pCi/L)	< 0.3
Number of Rooms (≥4.0-pCi/L)	0	Highest Value (pCi/L)	1.7

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.

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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):	1/12/2025 1/16/2025
Does the test period include weekends, school breaks or holidays?				☐ Yes ☒ No
*If "**Yes**" please explain/detail in the space below:*				
Was HVAC operating under occupied conditions?				☒ Yes ☐ No
*If "**No**" please explain/detail in the space below:*				

Testing (continued)

	Detectors Deployed				
	Ground-Contact		Upper-Level(s)		Total
Round of Testing	Initial	Follow-Up	Initial	Follow-Up	
Test Locations[1]	56	0	2	0	58
Duplicates[2]	6	0	0	0	6
Field Blanks[3]	2	0	0	0	2
				Grand Total	66

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		3
Trip Blanks[2]	1	0	1
Office Blanks[3, 4]	1	0	1
			5

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:	56	0	2	0	58
Number of locations ≥8.0-pCi/L:	0	0	0	0	0
Number of locations ≥4.0 and ≤8-pCi/L:	0	0	0	0	0
Number of locations ≥2.7 and <4-pCi/L:	0	0	0	0	0
Number of locations ≥2.0 and <2.7-pCi/L:	0	0	0	0	0
Number of missing required test locations[3]:	0	0	0	0	0
Number of failed duplicate control locations:	0	0	0	0	0
Percentage of missing test locations for the facility[4,5]:	0%	0%	0%	0%	0%

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

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

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

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

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

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

Round of Testing	Initial	Follow-Up
Were test devices deployed in all occupied and intended to be occupied rooms in contact with the ground, and, if applicable, 10% of upper floor rooms?	☒ Yes ☐ No	☐ Yes ☒ No
Were valid measurements obtained in all occupied and intended to be occupied rooms in contact with the ground, and, if applicable, 10% of upper floor rooms?	☒ Yes ☐ No	☐ Yes ☒ No
If Yes to both above *– then Testing Status –* ***'No Further Testing Needed'*** *mark 'NA' below and complete Conclusions section*		
If No to either above, were all results obtained under 4.0-pCi/L **and** were sufficient valid measurements obtained?[1,2] ***If Yes,*** *then -* ***'No Further Testing Needed'*** *complete Conclusion section on first page.* ***If No****, then -* ***'Follow-up Testing Required'*** *continue below.*	☐ Yes ☐ No ☒ NA	☐ Yes ☐ No ☒ NA

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

Follow-Up Testing

Required –

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

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

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

Attachment 1:

Summary Data Tables

Table 1- Radon Testing Results		
Beall Elementary School		
Test Period: 1/12/2025 - 1/16/2025		
Kit Number	Room / Area	Result
11906720	1	< 0.3
11906754	2	0.5
11906725	3	< 0.3
11906703	4	< 0.3
11906708	5	0.5
11906701	6	0.8
11906751	6	1.2
11906702	7	< 0.3
11906768	8	< 0.3
11906761	9	< 0.3
11906763	10	0.9
11906710	11	< 0.3
11906762	12	< 0.3
11906757	13	< 0.3
11906767	14	< 0.3
11906758	15	< 0.3
11906765	15	< 0.3
11906756	16	1.1
11906764	17	< 0.3
11906766	17	< 0.3
11906774	18	< 0.3
11906748	101	0.7
11906742	102	0.6
11906755	102	0.9
11906724	103	0.7
11906752	104	0.5
11906732	105	1.0
11906716	106	1.5
11906750	107	1.7
11906749	108	0.8
11906717	109	0.6
11906723	110	< 0.3
11906733	110	< 0.3
11906709	111	< 0.3
11906731	111	< 0.3
11906759	204	< 0.3
11906718	209	< 0.3

Table 1- Radon Testing Results		
Beall Elementary School		
Test Period: 1/12/2025 - 1/16/2025		
Kit Number	Room / Area	Result
11906753	106A	0.9
11906707	8A	1.0
11906704	APR	< 0.3
11906746	APR	< 0.3
11906738	ASSISTANT PRINCIPAL	< 0.3
11906730	BSM	0.6
11906713	BUILDING SERVICE	< 0.3
11906711	CONFERENCE	0.6
11906722	FILE OFFICE	< 0.3
11906745	FILE OFFICE	< 0.3
11906739	GYM	0.9
11906747	GYM	0.9
11906740	GYM OFFICE	1.5
11906743	HEALTH	< 0.3
11906744	HEALTH OFFICE	< 0.3
11906729	MAIN	< 0.3
11906734	MEDIA	< 0.3
11906735	MEDIA	< 0.3
11906728	MEDIA OFFICE	0.5
11906726	MEDIA WORKROOM	0.5
11906727	MEDIA WORKROOM	< 0.3
11906714	MEETING ROOM	< 0.3
11906712	PRINCIPAL	< 0.3
11906719	STAFF LOUNGE	< 0.3
11906705	STAGE	< 0.3
11906737	TESTING OFFICE	0.7
11906706	TV STUDIO	< 0.3
11906721	TV STUDIO	< 0.3
11906736	WORKROOM	< 0.3

Table 2 - Summary Testing Results ≥2.0 pCi/L							
Beall Elementary School							
Test Period: 1/12/2025 - 1/16/2025							
≥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			
Beall Elementary School			
Test Period: 1/12/2025 - 1/16/2025			
Kit Number	**QC Type**	**Room / Area**	**Result**
11906751	D	6	1.2
11906765	FB	15	< 0.3
11906764	D	17	< 0.3
11906742	D	102	0.6
11906733	D	110	< 0.3
11906731	FB	111	< 0.3
11906722	D	File Office	< 0.3
11906726	D	Media Workroom	0.5
11906877	OB	OFFICE BLANK	< 0.3
11903993	TB	TRAVEL BLANK	< 0.3

Table 3a - Duplicate Worksheet / Data Validation										
Beall Elementary School										
Test Period: 1/12/2025 - 1/16/2025										
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
11906745	11906722	File Office	0.3	0.3	✓	0.6	PASS	0.3	<1-pCi/L	✓
11906727	11906726	Media Workroom	0.5	0.3	✓	0.6	PASS	0.4	<1-pCi/L	✓
11906755	11906742	102	0.9	0.6	✓	1.2	PASS	0.8	<1-pCi/L	✓
11906723	11906733	110	0.3	0.3	✓	0.6	PASS	0.3	<1-pCi/L	✓
11906701	11906751	6	1.2	0.8	✓	1.6	PASS	1.0	<1-pCi/L	✓
11906766	11906764	17	0.3	0.3	✓	0.6	PASS	0.3	<1-pCi/L	✓

NOTES:

QC Check #1 - Data Entry

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

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

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

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

Table 4 - Summary of Invalid Measurement Locations		
Beall Elementary School		
Test Period: 1/12/25 - 1/16/25		
Kit Number	**Room/Area**	**Reason**
N/A	N/A	N/A

Attachment 2:

Laboratory Reports

January 20, 2025

** LABORATORY ANALYSIS REPORT **

Radon test result report for:

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11906720	1	2025-01-13 @ 8:00 am	2025-01-16 @ 8:00 am	< 0.3	2025-01-20
11906763	10	2025-01-13 @ 9:00 am	2025-01-16 @ 8:00 am	0.9 ± 0.4	2025-01-20
11906748	101	2025-01-13 @ 8:00 am	2025-01-16 @ 8:00 am	0.7 ± 0.4	2025-01-20
11906755	102	2025-01-13 @ 8:00 am	2025-01-16 @ 8:00 am	0.9 ± 0.4	2025-01-20
11906742	102	2025-01-13 @ 8:00 am	2025-01-16 @ 8:00 am	0.6 ± 0.4	2025-01-20
11906724	103	2025-01-13 @ 8:00 am	2025-01-16 @ 8:00 am	0.7 ± 0.4	2025-01-20
11906752	104	2025-01-13 @ 8:00 am	2025-01-16 @ 8:00 am	0.5 ± 0.4	2025-01-20
11906732	105	2025-01-13 @ 8:00 am	2025-01-16 @ 8:00 am	1.0 ± 0.4	2025-01-20
11906716	106	2025-01-13 @ 8:00 am	2025-01-16 @ 8:00 am	1.5 ± 0.4	2025-01-20
11906753	106A	2025-01-13 @ 8:00 am	2025-01-16 @ 8:00 am	0.9 ± 0.4	2025-01-20
11906750	107	2025-01-13 @ 8:00 am	2025-01-16 @ 8:00 am	1.7 ± 0.4	2025-01-20
11906749	108	2025-01-13 @ 8:00 am	2025-01-16 @ 8:00 am	0.8 ± 0.4	2025-01-20
11906717	109	2025-01-13 @ 8:00 am	2025-01-16 @ 8:00 am	0.6 ± 0.4	2025-01-20
11906710	11	2025-01-13 @ 9:00 am	2025-01-16 @ 8:00 am	< 0.3	2025-01-20
11906723	110	2025-01-13 @ 8:00 am	2025-01-16 @ 8:00 am	< 0.3	2025-01-20
11906733	110	2025-01-13 @ 8:00 am	2025-01-16 @ 8:00 am	< 0.3	2025-01-20
11906731	111	2025-01-13 @ 8:00 am	2025-01-16 @ 8:00 am	< 0.3	2025-01-20
11906709	111	2025-01-13 @ 8:00 am	2025-01-16 @ 8:00 am	< 0.3	2025-01-20
11906762	12	2025-01-13 @ 9:00 am	2025-01-16 @ 8:00 am	< 0.3	2025-01-20
11906757	13	2025-01-13 @ 9:00 am	2025-01-16 @ 8:00 am	< 0.3	2025-01-20
11906767	14	2025-01-13 @ 9:00 am	2025-01-16 @ 8:00 am	< 0.3	2025-01-20
11906765	15	2025-01-13 @ 9:00 am	2025-01-16 @ 8:00 am	< 0.3	2025-01-20
11906758	15	2025-01-13 @ 9:00 am	2025-01-16 @ 8:00 am	< 0.3	2025-01-20
11906756	16	2025-01-13 @ 9:00 am	2025-01-16 @ 8:00 am	1.1 ± 0.4	2025-01-20
11906764	17	2025-01-13 @ 9:00 am	2025-01-16 @ 8:00 am	< 0.3	2025-01-20
11906766	17	2025-01-13 @ 9:00 am	2025-01-16 @ 8:00 am	< 0.3	2025-01-20
11906774	18	2025-01-13 @ 9:00 am	2025-01-16 @ 8:00 am	< 0.3	2025-01-20
11906754	2	2025-01-13 @ 8:00 am	2025-01-16 @ 8:00 am	0.5 ± 0.4	2025-01-20
11906759	204	2025-01-13 @ 9:00 am	2025-01-16 @ 8:00 am	< 0.3	2025-01-20
11906718	209	2025-01-13 @ 9:00 am	2025-01-16 @ 8:00 am	< 0.3	2025-01-20
11906725	3	2025-01-13 @ 8:00 am	2025-01-16 @ 8:00 am	< 0.3	2025-01-20
11906703	4	2025-01-13 @ 8:00 am	2025-01-16 @ 8:00 am	< 0.3	2025-01-20
11906708	5	2025-01-13 @ 8:00 am	2025-01-16 @ 8:00 am	0.5 ± 0.3	2025-01-20
11906701	6	2025-01-13 @ 9:00 am	2025-01-16 @ 8:00 am	0.8 ± 0.3	2025-01-20
11906751	6	2025-01-13 @ 9:00 am	2025-01-16 @ 8:00 am	1.2 ± 0.4	2025-01-20
11906702	7	2025-01-13 @ 9:00 am	2025-01-16 @ 8:00 am	< 0.3	2025-01-20
11906768	8	2025-01-13 @ 9:00 am	2025-01-16 @ 8:00 am	< 0.3	2025-01-20

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

January 20, 2025 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11906707	8A	2025-01-13 @ 9:00 am	2025-01-16 @ 8:00 am	1.0 ± 0.4	2025-01-20
11906761	9	2025-01-13 @ 9:00 am	2025-01-16 @ 8:00 am	< 0.3	2025-01-20
11906704	APR	2025-01-13 @ 8:00 am	2025-01-16 @ 8:00 am	< 0.3	2025-01-20
11906746	APR	2025-01-13 @ 8:00 am	2025-01-16 @ 8:00 am	< 0.3	2025-01-20
11906738	ASSISTANT PRINCIPAL	2025-01-13 @ 8:00 am	2025-01-16 @ 8:00 am	< 0.3	2025-01-20
11906730	BSM	2025-01-13 @ 8:00 am	2025-01-16 @ 8:00 am	0.6 ± 0.3	2025-01-20
11906713	BUILDING SERVICE	2025-01-13 @ 8:00 am	2025-01-16 @ 8:00 am	< 0.3	2025-01-20
11906711	CONFERENCE	2025-01-13 @ 8:00 am	2025-01-16 @ 8:00 am	0.6 ± 0.4	2025-01-20
11906745	FILE OFFICE	2025-01-13 @ 8:00 am	2025-01-16 @ 8:00 am	< 0.3	2025-01-20
11906722	FILE OFFICE	2025-01-13 @ 8:00 am	2025-01-16 @ 8:00 am	< 0.3	2025-01-20
11906739	GYM	2025-01-13 @ 8:00 am	2025-01-16 @ 8:00 am	0.9 ± 0.4	2025-01-20
11906747	GYM	2025-01-13 @ 8:00 am	2025-01-16 @ 8:00 am	0.9 ± 0.4	2025-01-20
11906740	GYM OFFICE	2025-01-13 @ 8:00 am	2025-01-16 @ 8:00 am	1.5 ± 0.4	2025-01-20
11906743	HEALTH	2025-01-13 @ 7:00 am	2025-01-16 @ 8:00 am	< 0.3	2025-01-20
11906744	HEALTH OFFICE	2025-01-13 @ 7:00 am	2025-01-16 @ 8:00 am	< 0.3	2025-01-20
11906729	MAIN	2025-01-13 @ 7:00 am	2025-01-16 @ 8:00 am	< 0.3	2025-01-20
11906734	MEDIA	2025-01-13 @ 8:00 am	2025-01-16 @ 8:00 am	< 0.3	2025-01-20
11906735	MEDIA	2025-01-13 @ 8:00 am	2025-01-16 @ 8:00 am	< 0.3	2025-01-20
11906728	MEDIA OFFICE	2025-01-13 @ 8:00 am	2025-01-16 @ 8:00 am	0.5 ± 0.4	2025-01-20
11906726	MEDIA WORKROOM	2025-01-13 @ 8:00 am	2025-01-16 @ 8:00 am	0.5 ± 0.3	2025-01-20
11906727	MEDIA WORKROOM	2025-01-13 @ 8:00 am	2025-01-16 @ 8:00 am	< 0.3	2025-01-20
11906714	MEETING ROOM	2025-01-13 @ 8:00 am	2025-01-16 @ 8:00 am	< 0.3	2025-01-20
11906712	PRINCIPAL	2025-01-13 @ 8:00 am	2025-01-16 @ 8:00 am	< 0.3	2025-01-20
11906719	STAFF LOUNGE	2025-01-13 @ 8:00 am	2025-01-16 @ 8:00 am	< 0.3	2025-01-20
11906705	STAGE	2025-01-13 @ 8:00 am	2025-01-16 @ 8:00 am	< 0.3	2025-01-20
11906737	TESTING OFFICE	2025-01-13 @ 8:00 am	2025-01-16 @ 8:00 am	0.7 ± 0.4	2025-01-20
11906706	TV STUDIO	2025-01-13 @ 8:00 am	2025-01-16 @ 8:00 am	< 0.3	2025-01-20
11906721	TV STUDIO	2025-01-13 @ 8:00 am	2025-01-16 @ 8:00 am	< 0.3	2025-01-20
11906736	WORKROOM	2025-01-13 @ 8:00 am	2025-01-16 @ 8:00 am	< 0.3	2025-01-20

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January 20, 2025 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
OFFICE
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11906876	O	2025-01-14 @ 11:00 am	2025-01-17 @ 11:00 am	< 0.3	2025-01-20
11906877	O	2025-01-13 @ 11:00 am	2025-01-16 @ 11:00 am	< 0.3	2025-01-20

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January 20, 2025 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
TRAVEL
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11903993	T	2025-01-13 @ 11:00 am	2025-01-16 @ 11:00 am	< 0.3	2025-01-20
11906878	T	2025-01-14 @ 11:00 am	2025-01-17 @ 11:00 am	< 0.3	2025-01-20

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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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EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI TECHNOLOGIES, INC Job Number 20002919

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

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

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

March 19, 2025 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
QC
MAIN

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

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KCI TECHNOLOGIES

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 January 13th – January 16th, 2024

Name of Schools:

1. Springbrook HS
2. Woodlin ES
3. Parkside Center
4. Bannockburn ES
5. Beall ES
6. Bells Mill ES
7. Bethesda ES

	Date	Initials
Radon Test Kits Deployed	01/13/2025	BMM
Radon Test Kits Collected	01/16/2025	BMM
Radon Test Kits Shipped to Lab*	01/17/2025	BMM
Radon Test Kits Received by Lab*	01/21/2025	BMM

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

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

MCPS RADON TESTING – EXECUTIVE SUMMARY

Site Name	Beall Elementary School
Date of Test Report	2/20/2022
Round of Testing	Initial Follow-up Post Remediation 2 Year Testing 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility
# Rooms Tested	55
# Rooms Re-tested	1
# Rooms ≥ 4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	2.4 pCi/L

Project Status:

1. Initial testing completed;
2. Missing or compromised samples need re-test.
3. Retesting Completed 1/31/23 – 2/3/23.
4. 5-Year Testing Completed.

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February 20, 2023

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

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

Location: Beall Elementary School
451 Beall Avenue
Rockville, MD 20850

Dear Mr. Croyle:

KCI Technologies, Inc. (KCI) is pleased to submit the following report to Montgomery County Public Schools (MCPS) pursuant to completing a "short-term" 3 day radon test for the Beall Elementary School, located at 451 Beall Avenue in Rockville, Maryland 20850 (subject site).

Scope of Services:

KCI conducted radon testing at the subject site to evaluate indoor radon levels relative to the USEPA's recommended action level of 4.0 picocuries per Liter (pCi/L) - the level at which EPA recommends that schools take action to reduce the level. KCI conducted the radon testing in accordance with American Association of Radon Scientists and Technologists (AARST) *Protocol for Conducting Measurements of Radon and Radon Decay Products in Schools and Large Buildings*. A National Radon 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 initially on December 5, 2022 and deployed sixty-six (66) activated charcoal (AC) radon test kits. KCI deployed radon test kits in all frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance.

KCI returned to the site on December 8, 2022 to retrieve initial testing 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.

KCI re-visited the site on January 31, 2023 to deploy three (3) activated charcoal (AC) radon test kits for testing of missed rooms or compromised test kits during initial testing.

KCI returned to the site on February 3, 2023 to retrieve the radon re-sampling test kits. KCI shipped all radon tests via overnight delivery to Accustar Labs – MA for analysis by gamma-ray spectroscopy. Accustar Labs – MA is a NRSB certified analytical laboratory for radon analysis (certification #ARL0017) located at 2 Saber Way, Ward Hill, MA 01835.

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.

Evaluation of Testing Conditions:

These tests represent:

- Follow up to initial testing.

These tests were conducted to:

- Evaluated 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 initial test period, weather records indicate low temperatures were in the 20s°F and high temperatures ranged to the mid-50s°F. Maximum sustained winds ranged from 0-12 miles per hour. Average humidity was around 75% with .04 inches of precipitation (rain) was recorded during testing period.

During the re-testing period, weather records indicate low temperatures were in the mid-20s°F and high temperatures ranged to the low 40s°F. Maximum sustained winds ranged from 0-21 miles per hour. Average humidity was around 70% with .18 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	

The results of the radon re-testing 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		
Beall ES		
Test Period: 12/06/2022 - 12/09/2022		
Kit Number	Room / Area	Result
11139474	1	< 0.3
11139459	2	0.8
11139456	3	0.9
11139464	4	0.6
11139434	5	0.9
11139448	6	< 0.3
11139455	6	1.2
11139473	7	0.8
11139433	8	0.7
11139447	9	< 0.3
11139440	10	< 0.3
11139483	11	< 0.3
11139457	12	< 0.3
11139491	13	< 0.3
11139480	14	< 0.3
11139481	15	< 0.3
11139422	16	< 0.3
11139466	16	< 0.3
11139475	17	< 0.3
11139421	18	0.8
11139458	18	< 0.3
11139443	101	0.6
11139442	102	1.1
11139450	102	0.8
11139449	103	0.8
11139444	104	0.9
11139435	105	0.9
11139452	106	1.3
11139454	107	2.4
11139427	108	1.0
11139451	109	1.0
11139445	110	0.6
11139446	110	0.8
11139437	111	< 0.3
11139439	111	1.2
11139472	204	0.6
11139482	209	0.7
11139488	10A	< 0.3
11139432	8A	0.6
11139412	APR	0.7
11139413	APR	0.6
11139416	ASST PRINCIPAL	< 0.3

Table 1- Radon Testing Results		
Beall ES		
Test Period: 12/06/2022 - 12/09/2022		
Kit Number	Room / Area	Result
11139418	BS OFFICE	< 0.3
11139414	CONFERENCE	< 0.3
11139410	FILE	0.6
11139423	GYM	1.2
11139429	GYM	0.9
11139420	HEALTH	0.5
11139406	KITCHEN OFFICE	1.0
11139436	LAMINATION ROOM	< 0.3
11139409	LH	0.7
11139426	MAIN OFFICE	< 0.3
11139403	MEDIA CENTER	< 0.3
11139404	MEDIA CENTER	< 0.3
11139401	MEDIA OFFICE	< 0.3
11139402	MEDIA OFFICE	< 0.3
11139428	MEDIA WORKROOM	< 0.3
11139425	NURSE OFFICE	< 0.3
11139415	PRINCIPAL	< 0.3
11139453	SMALL GROUP	1.3
11139405	STAFF LOUNGE	< 0.3
11139411	STAGE	< 0.3
11139407	TELEPHONE	< 0.3
11139408	TELEPHONE	0.6
11139417	TESTING	< 0.3
11139419	WORKROOM	0.6

Table 2- Radon Testing Results			
Beall ES			
Test Period: 12/06/22 - 12/09/22			
Kit Number	QC Type	Room / Area	Result
11139455	D	6	1.2
11139422	FB	16	< 0.3
11139458	D	18	< 0.3
11139450	D	102	0.8
11139445	D	110	0.6
11139437	FB	111	< 0.3
11139403	D	Media Center	< 0.3
11139402	FB	Media Office	< 0.3
11139408	D	Telephone	0.6
11287676	OB	OFFICE BLANK	< 0.3
11287288	TB	TRAVEL BLANK	< 0.3

Summary of Missed Locations		
Beall ES		
Test Period: 12/06/22 - 12/09/22		
Kit Number	Room/Area	Result
	N/A	

Summary of Missing, Compromised and >/= 4 piC/L Tests		
Beall ES		
Test Period: 12/06/22 - 12/09/22		
Kit Number	Room/Area	Result
11139430	Gym Office	N/A

Table Note:

* Missing or Compromised Sample

Table 1- Radon Testing Results		
Beall ES RT		
Test Period: 01/31/2023 - 02/03/2023		
Kit Number	Room / Area	Result
11634003	GYM OFFICE	1.8
11634020	GYM OFFICE	< 0.3
11634038	GYM OFFICE	1.7

Table 2- Radon Testing Results			
Beall ES RT			
Test Period: 01/31/23 - 02/03/23			
Kit Number	QC Type	Room / Area	Result
11634038	D	GYM OFFICE	1.7
11634020	FB	GYM OFFICE	< 0.3
11634990	OB	OFFICE BLANK	< 0.3
11634991	TB	TRAVEL BLANK	< 0.3

Summary of Missed Locations		
Beall ES RT		
Test Period: 01/31/23 - 02/03/23		
Kit Number	Room/Area	Result
	N/A	

Summary of Missing, Compromised and >/= 4 piC/L Tests		
Beall ES RT		
Test Period: 01/31/23 - 02/03/23		
Kit Number	Room/Area	Result
	N/A	

Table Note:
* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

December 14, 2022 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11139474	1	2022-12-06 @ 9:00 am	2022-12-09 @ 10:00 am	< 0.3	2022-12-13
11139440	10	2022-12-06 @ 9:00 am	2022-12-09 @ 10:00 am	< 0.3	2022-12-13
11139443	101	2022-12-06 @ 9:00 am	2022-12-09 @ 9:00 am	0.6 ± 0.3	2022-12-13
11139442	102	2022-12-06 @ 9:00 am	2022-12-09 @ 9:00 am	1.1 ± 0.3	2022-12-13
11139450	102	2022-12-06 @ 9:00 am	2022-12-09 @ 9:00 am	0.8 ± 0.3	2022-12-13
11139449	103	2022-12-06 @ 9:00 am	2022-12-09 @ 9:00 am	0.8 ± 0.3	2022-12-13
11139444	104	2022-12-06 @ 9:00 am	2022-12-09 @ 9:00 am	0.9 ± 0.3	2022-12-13
11139435	105	2022-12-06 @ 9:00 am	2022-12-09 @ 9:00 am	0.9 ± 0.3	2022-12-13
11139452	106	2022-12-06 @ 9:00 am	2022-12-09 @ 9:00 am	1.3 ± 0.3	2022-12-13
11139454	107	2022-12-06 @ 9:00 am	2022-12-09 @ 9:00 am	2.4 ± 0.4	2022-12-13
11139427	108	2022-12-06 @ 9:00 am	2022-12-09 @ 10:00 am	1.0 ± 0.3	2022-12-13
11139451	109	2022-12-06 @ 9:00 am	2022-12-09 @ 10:00 am	1.0 ± 0.3	2022-12-13
11139488	10A	2022-12-06 @ 10:00 am	2022-12-09 @ 10:00 am	< 0.3	2022-12-13
11139483	11	2022-12-06 @ 9:00 am	2022-12-09 @ 10:00 am	< 0.3	2022-12-13
11139445	110	2022-12-06 @ 9:00 am	2022-12-09 @ 10:00 am	0.6 ± 0.3	2022-12-13
11139446	110	2022-12-06 @ 9:00 am	2022-12-09 @ 10:00 am	0.8 ± 0.3	2022-12-13
11139439	111	2022-12-06 @ 9:00 am	2022-12-09 @ 10:00 am	1.2 ± 0.3	2022-12-13
11139437	111	2022-12-06 @ 9:00 am	2022-12-09 @ 10:00 am	< 0.3	2022-12-13
11139457	12	2022-12-06 @ 10:00 am	2022-12-09 @ 10:00 am	< 0.3	2022-12-13
11139491	13	2022-12-06 @ 9:00 am	2022-12-09 @ 10:00 am	< 0.3	2022-12-13
11139480	14	2022-12-06 @ 10:00 am	2022-12-09 @ 10:00 am	< 0.3	2022-12-13
11139481	15	2022-12-06 @ 9:00 am	2022-12-09 @ 10:00 am	< 0.3	2022-12-13
11139466	16	2022-12-06 @ 10:00 am	2022-12-09 @ 10:00 am	< 0.3	2022-12-13
11139422	16	2022-12-06 @ 10:00 am	2022-12-09 @ 10:00 am	< 0.3	2022-12-13
11139475	17	2022-12-06 @ 10:00 am	2022-12-09 @ 10:00 am	< 0.3	2022-12-13
11139421	18	2022-12-06 @ 10:00 am	2022-12-09 @ 10:00 am	0.8 ± 0.3	2022-12-13
11139458	18	2022-12-06 @ 10:00 am	2022-12-09 @ 10:00 am	< 0.3	2022-12-13
11139459	2	2022-12-06 @ 9:00 am	2022-12-09 @ 10:00 am	0.8 ± 0.3	2022-12-13
11139472	204	2022-12-06 @ 10:00 am	2022-12-09 @ 10:00 am	0.6 ± 0.3	2022-12-13
11139482	209	2022-12-06 @ 10:00 am	2022-12-09 @ 10:00 am	0.7 ± 0.3	2022-12-13
11139456	3	2022-12-06 @ 9:00 am	2022-12-09 @ 10:00 am	0.9 ± 0.3	2022-12-13
11139464	4	2022-12-06 @ 9:00 am	2022-12-09 @ 10:00 am	0.6 ± 0.3	2022-12-13
11139434	5	2022-12-06 @ 9:00 am	2022-12-09 @ 10:00 am	0.9 ± 0.3	2022-12-13
11139455	6	2022-12-06 @ 9:00 am	2022-12-09 @ 10:00 am	1.2 ± 0.3	2022-12-13
11139448	6	2022-12-06 @ 9:00 am	2022-12-09 @ 10:00 am	< 0.3	2022-12-13
11139473	7	2022-12-06 @ 9:00 am	2022-12-09 @ 10:00 am	0.8 ± 0.3	2022-12-13
11139433	8	2022-12-06 @ 9:00 am	2022-12-09 @ 10:00 am	0.7 ± 0.3	2022-12-13

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

December 14, 2022 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11139432	8A	2022-12-06 @ 9:00 am	2022-12-09 @ 10:00 am	0.6 ± 0.3	2022-12-13
11139447	9	2022-12-06 @ 9:00 am	2022-12-09 @ 10:00 am	< 0.3	2022-12-13
11139412	APR	2022-12-06 @ 8:00 am	2022-12-09 @ 9:00 am	0.7 ± 0.3	2022-12-13
11139413	APR	2022-12-06 @ 8:00 am	2022-12-09 @ 9:00 am	0.6 ± 0.3	2022-12-13
11139416	ASST PRINCIPAL	2022-12-06 @ 8:00 am	2022-12-09 @ 9:00 am	< 0.3	2022-12-13
11139418	BS OFFICE	2022-12-06 @ 8:00 am	2022-12-09 @ 9:00 am	< 0.3	2022-12-13
11139414	CONFERENCE	2022-12-06 @ 8:00 am	2022-12-09 @ 9:00 am	< 0.3	2022-12-13
11139410	FILE	2022-12-06 @ 8:00 am	2022-12-09 @ 9:00 am	0.6 ± 0.3	2022-12-13
11139429	GYM	2022-12-06 @ 9:00 am	2022-12-09 @ 9:00 am	0.9 ± 0.3	2022-12-13
11139423	GYM	2022-12-06 @ 9:00 am	2022-12-09 @ 9:00 am	1.2 ± 0.3	2022-12-13
11139420	HEALTH	2022-12-06 @ 8:00 am	2022-12-09 @ 9:00 am	0.5 ± 0.3	2022-12-13
11139406	KITCHEN OFFICE	2022-12-06 @ 8:00 am	2022-12-09 @ 9:00 am	1.0 ± 0.3	2022-12-13
11139436	LAMINATION ROOM	2022-12-06 @ 9:00 am	2022-12-09 @ 10:00 am	< 0.3	2022-12-13
11139409	LH	2022-12-06 @ 8:00 am	2022-12-09 @ 9:00 am	0.7 ± 0.3	2022-12-13
11139426	MAIN OFFICE	2022-12-06 @ 8:00 am	2022-12-09 @ 9:00 am	< 0.3	2022-12-13
11139403	MEDIA CENTER	2022-12-06 @ 8:00 am	2022-12-09 @ 10:00 am	< 0.3	2022-12-13
11139404	MEDIA CENTER	2022-12-06 @ 8:00 am	2022-12-09 @ 10:00 am	< 0.3	2022-12-13
11139401	MEDIA OFFICE	2022-12-06 @ 8:00 am	2022-12-09 @ 10:00 am	< 0.3	2022-12-13
11139402	MEDIA OFFICE	2022-12-06 @ 8:00 am	2022-12-09 @ 10:00 am	< 0.3	2022-12-13
11139428	MEDIA WORKROOM	2022-12-06 @ 8:00 am	2022-12-09 @ 10:00 am	< 0.3	2022-12-13
11139425	NURSE OFFICE	2022-12-06 @ 8:00 am	2022-12-09 @ 9:00 am	< 0.3	2022-12-13
11139415	PRINCIPAL	2022-12-06 @ 8:00 am	2022-12-09 @ 9:00 am	< 0.3	2022-12-13
11139453	SMALL GROUP	2022-12-06 @ 9:00 am	2022-12-09 @ 9:00 am	1.3 ± 0.3	2022-12-13
11139405	STAFF LOUNGE	2022-12-06 @ 8:00 am	2022-12-09 @ 10:00 am	< 0.3	2022-12-13
11139411	STAGE	2022-12-06 @ 8:00 am	2022-12-09 @ 9:00 am	< 0.3	2022-12-13
11139407	TELEPHONE	2022-12-06 @ 8:00 am	2022-12-09 @ 9:00 am	< 0.3	2022-12-13
11139408	TELEPHONE	2022-12-06 @ 8:00 am	2022-12-09 @ 9:00 am	0.6 ± 0.3	2022-12-13
11139417	TESTING	2022-12-06 @ 8:00 am	2022-12-09 @ 9:00 am	< 0.3	2022-12-13
11139419	WORKROOM	2022-12-06 @ 8:00 am	2022-12-09 @ 9:00 am	0.6 ± 0.3	2022-12-13

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

February 7, 2023 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
BEALL ES
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11634003	GYM OFFICE	2023-01-31 @ 10:00 am	2023-02-03 @ 10:00 am	1.8 ± 0.4	2023-02-07
11634020	GYM OFFICE	2023-01-31 @ 10:00 am	2023-02-03 @ 10:00 am	< 0.3	2023-02-07
11634038	GYM OFFICE	2023-01-31 @ 10:00 am	2023-02-03 @ 10:00 am	1.7 ± 0.4	2023-02-07

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EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI TECHNOLOGIES, INC Job Number 208802

NOMINAL Conditions: Radon Conc 24.4 pCi/L Rel. Hum 48.6 % Temp. 79.3 F

Date Start: 1/27/23 Date Stop: 1/30/23	Date Start: _____ Date Stop: _____
Time Start: 0816 Time Stop: 0816	Time Start: _____ Time Stop: _____
Device No.'s: (5) CHAR BAGS -	Device No.'s: _____
11633682, 11633687, 11633688	_____
11633695, 11633696	_____
F3 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 3, 2023 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
OFFICE
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11633696	SK10	2023-01-27 @ 8:00 am	2023-01-30 @ 8:00 am	24.2 ± 1.9	2023-02-03
11633682	SK6	2023-01-27 @ 8:00 am	2023-01-30 @ 8:00 am	26.9 ± 2.1	2023-02-03
11633687	SK7	2023-01-27 @ 8:00 am	2023-01-30 @ 8:00 am	23.8 ± 1.9	2023-02-03
11633688	SK8	2023-01-27 @ 8:00 am	2023-01-30 @ 8:00 am	25.9 ± 2.1	2023-02-03
11633695	SK9	2023-01-27 @ 8:00 am	2023-01-30 @ 8:00 am	27.0 ± 2.2	2023-02-03

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

KCI TECHNOLOGIES

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

Radon Test Kit Chain of Custody

Project Name: MCPS Radon – Week 2 January Schools

Name of Schools:

1. Beall ES
2. Gaithersburg HS
3. Kingsview MS
4. Lucy V. Barnsley ES
5. Martin Luther King Jr. MS
6. Mill Creek Towne ES
7. North Bethesda MS
8. Radnor Center
9. Winston Churchill HS

	Date	Initials
Radon Test Kits Deployed	01/31/2023	
Radon Test Kits Collected	02/03/2023	
Radon Test Kits Shipped to Lab*	02/03/2023	
Radon Test Kits Received by Lab*	02/06/2023	

*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	Beall Elementary School
Date of Report	March 12, 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	7
# Rooms ≥4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	2.1 pCi/L

Project Status

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

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March 12, 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: Beall Elementary School
451 Beall Ave.
Rockville, Maryland 20850

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 Beall Elementary School, located at 451 Beall Ave. in Rockville, Maryland 20850 (subject site).

SCOPE OF SERVICES

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

KCI visited the site on February 13, 2018 and deployed ten (10) activated charcoal (AC) radon test kits. KCI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance.

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

EVALUATION OF TESTING CONDITIONS

These tests represent:

- Follow-up to routine five-year re-test.

These tests were conducted to:

- verify radon levels remain low throughout 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 ranged from the mid-20s to upper 40s and high temperatures ranged from the high-30s to the high-60s. Maximum sustained winds ranged from 10-18 miles per hour. Average humidity was around 73%. 0.30 Inches of precipitation was recorded during the testing period.

RESULTS

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

The results of the radon test analysis indicated the following:

Radon Concentration	Room	Result
≥4.0 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,

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		
Beall Elementary School		
Test Period: 02/13/18-02/16/18		
Kit Number	**Room / Area**	**Result**
7986674	1	1.8
7986675	1	2.1
7986644	118	< 0.3
7986663	119	< 0.3
7986652	BUILDING SERVICE	0.6
7986632	IMC STORAGE	0.6
7986667	KITCHEN	0.6
7986671	SDT	0.6

Table Note:
* Missing or Compromised Sample

Table 2- Radon Testing Results		
Beall Elementary School		
Test Period: 02/13/18-02/16/18		
Kit Number	**QC Type**	**Result**
7986651	D (KITCHEN)	0.7
7986664	D (SDT)	0.9

Table Note:
* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

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

Radon test result report for:
BEALL ELEMENTARY SCHOOL
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7986674	1	2018-02-13 @ 1:00 pm	2018-02-16 @ 12:00 pm	1.8 ± 0.4	2018-02-20
7986675	1	2018-02-13 @ 1:00 pm	2018-02-16 @ 12:00 pm	2.1 ± 0.4	2018-02-20
7986644	118	2018-02-13 @ 1:00 pm	2018-02-16 @ 12:00 pm	< 0.3	2018-02-20
7986663	119	2018-02-13 @ 1:00 pm	2018-02-16 @ 12:00 pm	< 0.3	2018-02-20
7986652	BUILDING SERVICE	2018-02-13 @ 1:00 pm	2018-02-16 @ 12:00 pm	0.6 ± 0.3	2018-02-20
7986632	IMC STORAGE	2018-02-13 @ 1:00 pm	2018-02-16 @ 12:00 pm	0.6 ± 0.3	2018-02-20
7986667	KITCHEN	2018-02-13 @ 1:00 pm	2018-02-16 @ 12:00 pm	0.6 ± 0.3	2018-02-20
7986651	KITCHEN	2018-02-13 @ 1:00 pm	2018-02-16 @ 12:00 pm	0.7 ± 0.3	2018-02-20
7986664	SDT	2018-02-13 @ 1:00 pm	2018-02-16 @ 12:00 pm	0.9 ± 0.3	2018-02-20
7986671	SDT	2018-02-13 @ 1:00 pm	2018-02-16 @ 12:00 pm	0.6 ± 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

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Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase

Names of Schools:

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

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

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

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

Radon test result report for:
OFFICE BLANKS

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

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

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MCPS RADON TESTING - EXECUTIVE SUMMARY

Site Name	Beall Elementary 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	54
# Rooms ≥4.0 pCi/L	0
Lowest Value	< 0.3 pCi/L
Highest Value	3.4 pCi/L

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

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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: Beall Elementary School
451 Beall Ave.
Rockville , Maryland 20850

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 Beall Elementary School, located at 451 Beall Ave. in Rockville , Maryland 20850 (subject site).

SCOPE OF SERVICES

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

KCI visited the site on November 28, 2017 and deployed sixty-four (64) 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:

- Routine five-year re-test

These tests were conducted to:

- verify radon levels remain low throughout 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 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	None	N/A
≤4.0 piC/L	See Attachment B	See Attachment B

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

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

Sincerely,

James 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		
Beall Elementary School		
Test Period: 11/28/17-12/01/17		
Kit Number	**Room / Area**	**Result**
7975135	2	0.8
7975128	3	0.7
7975133	4	1.7
7975126	5	1.4
7975125	6	2.1
7975129	7	1.2
7975124	8	1.9
7975123	9	1.2
7975122	10	1.4
7975112	12	0.8
7975115	13	1.1
7975121	13	0.8
7975118	14	1.9
7975116	15	0.7
7975117	16	0.8
7975114	17	< 0.3
7975113	18	< 0.3
7975161	101	0.8
7975153	102	1.2
7975159	103	0.8
7975162	104	1.5
7975200	105	0.9
7975160	106	1.7
7975163	106	1.0
7975171	108	1.5
7975179	109	1.6
7975197	110	0.9
7975172	111	0.9
7975109	205	0.7
7975108	208	0.7
7975134	* 1 (Fan On)	1.6
7975165	106A	3.4
7975119	10A	0.7
7975127	8A	1.3
7975136	AP	< 0.3
7975155	APR	0.8
7975131	BSM	1.0
7975158	* BUILDING SERVICE (Missing)	-
7975167	CONFERENCE	0.6
7975148	EMPLOYEE LOUNGE	0.8
7975139	FILE ROOM	0.6
7975156	GYM	2.1
7975164	GYM OFFICE	3.1
7975140	HEALTH ROOM	0.5
7975146	HEALTH ROOM OFFI	< 0.3
7975154	IMC	< 0.3

Table Note:
* Missing or Compromised Sample

Radon Testing Results		
Beall Elementary School		
Test Period: 11/28/17-12/01/17		
Kit Number	**Room / Area**	**Result**
7975142	IMC OFFICE	1.0
7975143	* IMC STORAGE (Missing)	-
7975138	MAILROOM	0.7
7975145	MAIN OFFICE	0.5
7975141	MEDIA RM	0.7
7975130	PHONE ROOM	< 0.3
7975144	PRINCIPAL	< 0.3
7975147	STAGE	0.8
7975132	TESTING OFFICE	0.8

Table Note:
* Missing or Compromised Sample

Radon Testing Results		
Beall Elementary School		
Test Period: 11/28/17-12/01/17		
Kit Number	**QC Type**	**Result**
7975152	D (102)	1.0
7975120	D (8A)	1.3
7975157	D (APR)	0.6
7975137	D (CONFERENCE)	0.6
7975166	D (GYM)	1.9
7975149	D (IMC OFFICE)	0.5
7975150	D (IMC)	0.9
7975151	FB (IMC)	< 0.3
7978577	OB (OB)	< 0.3

Table Note:
* Missing or Compromised Sample

Summary of Missed Locations		
Beall Elementary School		
Test Period: 11/28/17-12/02/17		
Kit Number	**Room / Area**	**Result**
-	118 (Missed location)	-
-	KITCHEN (Missed location)	-
-	SDT (Missed location)	-

Summary of Missing, Compromised and ≥4 piC/L Tests			
Beall Elementary School			
Test Period: 11/28/17-12/01/17			
Kit Number		**Room / Area**	**Result**
7975134	*	1 (Fan On)	1.6
7975158	*	BUILDING SERVICE (Missing)	-
7975143	*	IMC STORAGE (Missing)	-

Table Note:
* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

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

Radon test result report for:
BEALL ES
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7975134	1	2017-11-28 @ 2:00 pm	2017-12-01 @ 11:00 am	1.6 ± 0.4	2017-12-05
7975122	10	2017-11-28 @ 2:00 pm	2017-12-01 @ 11:00 am	1.4 ± 0.3	2017-12-05
7975161	101	2017-11-28 @ 1:00 pm	2017-12-01 @ 11:00 am	0.8 ± 0.3	2017-12-04
7975152	102	2017-11-28 @ 1:00 pm	2017-12-01 @ 11:00 am	1.0 ± 0.3	2017-12-04
7975153	102	2017-11-28 @ 1:00 pm	2017-12-01 @ 11:00 am	1.2 ± 0.3	2017-12-04
7975159	103	2017-11-28 @ 1:00 pm	2017-12-01 @ 11:00 am	0.8 ± 0.3	2017-12-04
7975162	104	2017-11-28 @ 1:00 pm	2017-12-01 @ 11:00 am	1.5 ± 0.3	2017-12-05
7975200	105	2017-11-28 @ 1:00 pm	2017-12-01 @ 11:00 am	0.9 ± 0.3	2017-12-05
7975160	106	2017-11-28 @ 1:00 pm	2017-12-01 @ 11:00 am	1.7 ± 0.3	2017-12-04
7975163	106	2017-11-28 @ 1:00 pm	2017-12-01 @ 11:00 am	1.0 ± 0.3	2017-12-05
7975165	106A	2017-11-28 @ 12:00 pm	2017-12-01 @ 11:00 am	3.4 ± 0.4	2017-12-05
7975171	108	2017-11-28 @ 12:00 pm	2017-12-01 @ 11:00 am	1.5 ± 0.3	2017-12-05
7975179	109	2017-11-28 @ 12:00 pm	2017-12-01 @ 11:00 am	1.6 ± 0.3	2017-12-04
7975119	10A	2017-11-28 @ 2:00 pm	2017-12-01 @ 11:00 am	0.7 ± 0.3	2017-12-04
7975197	110	2017-11-28 @ 12:00 pm	2017-12-01 @ 11:00 am	0.9 ± 0.3	2017-12-04
7975172	111	2017-11-28 @ 12:00 pm	2017-12-01 @ 11:00 am	0.9 ± 0.3	2017-12-05
7975112	12	2017-11-28 @ 2:00 pm	2017-12-01 @ 11:00 am	0.8 ± 0.3	2017-12-04
7975115	13	2017-11-28 @ 2:00 pm	2017-12-01 @ 11:00 am	1.1 ± 0.3	2017-12-04
7975121	13	2017-11-28 @ 2:00 pm	2017-12-01 @ 11:00 am	0.8 ± 0.3	2017-12-05
7975118	14	2017-11-28 @ 2:00 pm	2017-12-01 @ 11:00 am	1.9 ± 0.3	2017-12-04
7975116	15	2017-11-28 @ 2:00 pm	2017-12-01 @ 11:00 am	0.7 ± 0.3	2017-12-04
7975117	16	2017-11-28 @ 2:00 pm	2017-12-01 @ 11:00 am	0.8 ± 0.3	2017-12-05
7975114	17	2017-11-28 @ 2:00 pm	2017-12-01 @ 11:00 am	< 0.3	2017-12-05
7975113	18	2017-11-28 @ 2:00 pm	2017-12-01 @ 11:00 am	< 0.3	2017-12-04
7975135	2	2017-11-28 @ 2:00 pm	2017-12-01 @ 12:00 pm	0.8 ± 0.3	2017-12-05
7975109	205	2017-11-28 @ 3:00 pm	2017-12-01 @ 11:00 am	0.7 ± 0.3	2017-12-05
7975108	208	2017-11-28 @ 3:00 pm	2017-12-01 @ 11:00 am	0.7 ± 0.3	2017-12-05
7975128	3	2017-11-28 @ 2:00 pm	2017-12-01 @ 11:00 am	0.7 ± 0.3	2017-12-05
7975133	4	2017-11-28 @ 2:00 pm	2017-12-01 @ 11:00 am	1.7 ± 0.4	2017-12-05
7975126	5	2017-11-28 @ 2:00 pm	2017-12-01 @ 11:00 am	1.4 ± 0.4	2017-12-05
7975125	6	2017-11-28 @ 2:00 pm	2017-12-01 @ 11:00 am	2.1 ± 0.4	2017-12-05
7975129	7	2017-11-28 @ 2:00 pm	2017-12-01 @ 11:00 am	1.2 ± 0.3	2017-12-05
7975124	8	2017-11-28 @ 2:00 pm	2017-12-01 @ 11:00 am	1.9 ± 0.4	2017-12-04
7975127	8A	2017-11-28 @ 2:00 pm	2017-12-01 @ 11:00 am	1.3 ± 0.4	2017-12-05
7975120	8A	2017-11-28 @ 2:00 pm	2017-12-01 @ 11:00 am	1.3 ± 0.3	2017-12-05
7975123	9	2017-11-28 @ 2:00 pm	2017-12-01 @ 11:00 am	1.2 ± 0.4	2017-12-05
7975136	AP	2017-11-28 @ 2:00 pm	2017-12-01 @ 10:00 am	< 0.3	2017-12-05

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:
BEALL ES
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7975155	APR	2017-11-28 @ 1:00 pm	2017-12-01 @ 11:00 am	0.8 ± 0.3	2017-12-05
7975157	APR	2017-11-28 @ 1:00 pm	2017-12-01 @ 11:00 am	0.6 ± 0.3	2017-12-05
7975131	BSM	2017-11-28 @ 2:00 pm	2017-12-01 @ 11:00 am	1.0 ± 0.3	2017-12-05
7975167	CONFERENCE	2017-11-28 @ 2:00 pm	2017-12-01 @ 10:00 am	0.6 ± 0.3	2017-12-05
7975137	CONFERENCE	2017-11-28 @ 2:00 pm	2017-12-01 @ 10:00 am	0.6 ± 0.3	2017-12-05
7975148	EMPLOYEE LOUNGE	2017-11-28 @ 1:00 pm	2017-12-01 @ 11:00 am	0.8 ± 0.3	2017-12-04
7975139	FILE ROOM	2017-11-28 @ 2:00 pm	2017-12-01 @ 10:00 am	0.6 ± 0.3	2017-12-05
7975156	GYM	2017-11-28 @ 1:00 pm	2017-12-01 @ 12:00 pm	2.1 ± 0.3	2017-12-04
7975166	GYM	2017-11-28 @ 1:00 pm	2017-12-01 @ 12:00 pm	1.9 ± 0.3	2017-12-04
7975164	GYM OFFICE	2017-11-28 @ 1:00 pm	2017-12-01 @ 12:00 pm	3.1 ± 0.4	2017-12-04
7975140	HEALTH ROOM	2017-11-28 @ 1:00 pm	2017-12-01 @ 10:00 am	0.5 ± 0.3	2017-12-05
7975146	HEALTH ROOM OFFI	2017-11-28 @ 1:00 pm	2017-12-01 @ 10:00 am	< 0.3	2017-12-04
7975151	IMC	2017-11-28 @ 1:00 pm	2017-12-01 @ 11:00 am	< 0.3	2017-12-04
7975154	IMC	2017-11-28 @ 1:00 pm	2017-12-01 @ 11:00 am	< 0.3	2017-12-04
7975150	IMC	2017-11-28 @ 1:00 pm	2017-12-01 @ 11:00 am	0.9 ± 0.4	2017-12-05
7975142	IMC OFFICE	2017-11-28 @ 1:00 pm	2017-12-01 @ 11:00 am	1.0 ± 0.3	2017-12-05
7975149	IMC OFFICE	2017-11-28 @ 1:00 pm	2017-12-01 @ 11:00 am	0.5 ± 0.3	2017-12-05
7975138	MAILROOM	2017-11-28 @ 2:00 pm	2017-12-01 @ 10:00 am	0.7 ± 0.3	2017-12-04
7975145	MAIN OFFICE	2017-11-28 @ 2:00 pm	2017-12-01 @ 10:00 am	0.5 ± 0.3	2017-12-04
7975141	MEDIA RM	2017-11-28 @ 1:00 pm	2017-12-01 @ 11:00 am	0.7 ± 0.3	2017-12-04
7978577	OB	2017-11-28 @ 4:00 pm	2017-12-01 @ 4:00 pm	< 0.3	2017-12-05
7975130	PHONE ROOM	2017-11-28 @ 2:00 pm	2017-12-01 @ 10:00 am	< 0.3	2017-12-04
7975144	PRINCIPAL	2017-11-28 @ 2:00 pm	2017-12-01 @ 11:00 am	< 0.3	2017-12-04
7975147	STAGE	2017-11-28 @ 1:00 pm	2017-12-01 @ 11:00 am	0.8 ± 0.3	2017-12-04
7975132	TESTING OFFICE	2017-11-28 @ 2:00 pm	2017-12-01 @ 11:00 am	0.8 ± 0.3	2017-12-05

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December 21, 2017 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
BEALL ES
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7975158	BUILDING SERVICE	@	@		
7975143	IMC STORAGE	@	@		

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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 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

Time Start: 1049 Time Stop: 1049

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

7975075, 7975064, 7975063,

7975065, 7975069, 7975070

F4 Right

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

KCI TECHNOLOGIES

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

MCPS RADON TESTING

Executive Summary: Beall Elementary School

Date of Test Report:	10/18/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	52
# Rooms ≥ 4.0 pCi/L:	0
Low Value:	< 0.3
High Value:	1.8

Project Status:
Follow-up testing after HVAC update completed; no further action at this time.

KCI TECHNOLOGIES

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

October 18, 2016

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

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

Location: Beall Elementary School
451 Beall Avenue
Rockville, MD 20850

Dear Mr. Cox:

KCI Technologies, Inc. (KCI) is pleased to submit the following report to the Montgomery County Public Schools (MCPS) pursuant to completing a "short-term" 3 day radon test for the Beall Elementary School, located at 451 Beall Avenue in Rockville, Maryland 20850 (subject site).

Scope of Services:

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

KCI visited the site on September 27, 2016 and deployed sixty (60) activated charcoal (AC) radon test kits. KCI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. A floor plan map of the building with the test locations is included as Attachment A of this report.

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

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

Evaluation of Testing Conditions:

These tests represent:

- Follow-up sampling of a school that had HVAC modifications over the summer.

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

- Determine if the HVAC project changed previously detected radon levels.

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

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

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

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

Results:

The results of the radon test analysis indicated the following:

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

Notes:
D- Duplicate sample

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

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

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

Sincerely,

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

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

ATTACHMENT A

Floor Plan With Test Locations

ATTACHMENT B

Radon Test Summary Spreadsheet

Radon Testing Results		
Beall Elementary School		
Test Period: 09/27/16-09/30/16		
Kit Number	**Room / Area**	**Result**
7714152	1	1.4
7769864	2	1.4
7756849	3	0.7
7714153	4	1.2
7769861	5	< 0.3
7802101	6	1.2
7756846	7	1.0
7756847	8	1.1
7714148	9	0.6
7714156	10	0.7
7714151	11	0.8
7769869	12	< 0.3
7714157	13	< 0.3
7714160	14	0.6
7802118	15	< 0.3
7802102	16	1.0
7802138	17	< 0.3
7714163	18	< 0.3
7769874	101	< 0.3
7756851	102	< 0.3
7756808	103	< 0.3
7714185	104	< 0.3
7756826	105	< 0.3
7714176	106	0.9
7756841	107	0.9
7769865	108	0.6
7769871	109	0.8
7756850	110	< 0.3
7769872	111	< 0.3
7769866	205	< 0.3
7714179	106A	1.1
7714155	10A	< 0.3
7769863	201A	0.5
7714139	APR	< 0.3
7769867	APR	< 0.3
7756843	* AS PRIN (Fan on)	< 0.3
7756868	BSM	< 0.3
7756821	CONF	0.8
7756825	FILE	0.8
7756867	* GOF (Tampered)	< 0.3
7714181	GYM	1.1
7769873	GYM	1.2
7714177	GYM OFF	1.8
7756863	IDA	0.8
7756842	MAIL	0.7
7714203	* MAIN CONF (Tampered)	< 0.3

Table Note:
* Missing or Compromised Sample

Radon Testing Results		
Beall Elementary School		
Test Period: 09/27/16-09/30/16		
Kit Number	**QC Type**	**Result**
7714154	D (9)	0.9
7806840	* D (GYM:Missing)	-
7714204	D (MAIN CONF)	< 0.3
7756864	D (SDT)	< 0.3
7769868	FB (110)	< 0.3

Table Note:
* Missing or Compromised Sample

Radon Testing Results		
Beall Elementary School		
Test Period: 09/27/16-09/30/16		
Kit Number	**Room / Area**	**Result**
7769859	MEDIA	< 0.3
7769860	MEDIA	< 0.3
7769878	MEDIA OFF	< 0.3
7769875	MINI	< 0.3
7756866	NURSE	0.7
7756844	PRIN	0.7
7769879	SDT	< 0.3
7714180	STAGE	< 0.3
7769870	* STUDIO (Tampered)	< 0.3

Table Note:
* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

October 17, 2016 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

BEALL ELEMENTARY SCHOOL
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7714152	1	2016-09-27 @ 10:00 am	2016-09-30 @ 9:00 am	1.4 ± 0.3	2016-10-03
7714156	10	2016-09-27 @ 10:00 am	2016-09-30 @ 9:00 am	0.7 ± 0.3	2016-10-03
7769874	101	2016-09-27 @ 9:00 am	2016-09-30 @ 8:00 am	< 0.3	2016-10-03
7756851	102	2016-09-27 @ 9:00 am	2016-09-30 @ 8:00 am	< 0.3	2016-10-03
7756808	103	2016-09-27 @ 9:00 am	2016-09-30 @ 8:00 am	< 0.3	2016-10-03
7714185	104	2016-09-27 @ 9:00 am	2016-09-30 @ 8:00 am	< 0.3	2016-10-03
7756826	105	2016-09-27 @ 9:00 am	2016-09-30 @ 8:00 am	< 0.3	2016-10-03
7714176	106	2016-09-27 @ 9:00 am	2016-09-30 @ 8:00 am	0.9 ± 0.3	2016-10-03
7714179	106A	2016-09-27 @ 9:00 am	2016-09-30 @ 8:00 am	1.1 ± 0.3	2016-10-03
7756841	107	2016-09-27 @ 9:00 am	2016-09-30 @ 8:00 am	0.9 ± 0.3	2016-10-03
7769865	108	2016-09-27 @ 9:00 am	2016-09-30 @ 8:00 am	0.6 ± 0.3	2016-10-03
7769871	109	2016-09-27 @ 9:00 am	2016-09-30 @ 9:00 am	0.8 ± 0.3	2016-10-03
7714155	10A	2016-09-27 @ 10:00 am	2016-09-30 @ 9:00 am	< 0.3	2016-10-03
7714151	11	2016-09-27 @ 10:00 am	2016-09-30 @ 9:00 am	0.8 ± 0.3	2016-10-03
7769868	110	2016-09-27 @ 9:00 am	2016-09-30 @ 8:00 am	< 0.3	2016-10-03
7756850	110	2016-09-27 @ 9:00 am	2016-09-30 @ 8:00 am	< 0.3	2016-10-03
7769872	111	2016-09-27 @ 9:00 am	2016-09-30 @ 8:00 am	< 0.3	2016-10-03
7769869	12	2016-09-27 @ 10:00 am	2016-09-30 @ 9:00 am	< 0.3	2016-10-03
7714157	13	2016-09-27 @ 10:00 am	2016-09-30 @ 9:00 am	< 0.3	2016-10-03
7714160	14	2016-09-27 @ 10:00 am	2016-09-30 @ 9:00 am	0.6 ± 0.3	2016-10-03
7802118	15	2016-09-27 @ 10:00 am	2016-09-30 @ 9:00 am	< 0.3	2016-10-03
7802102	16	2016-09-27 @ 10:00 am	2016-09-30 @ 9:00 am	1.0 ± 0.3	2016-10-03
7802138	17	2016-09-27 @ 10:00 am	2016-09-30 @ 9:00 am	< 0.3	2016-10-03
7714163	18	2016-09-27 @ 10:00 am	2016-09-30 @ 9:00 am	< 0.3	2016-10-03
7769864	2	2016-09-27 @ 10:00 am	2016-09-30 @ 9:00 am	1.4 ± 0.3	2016-10-03
7769863	201A	2016-09-27 @ 9:00 am	2016-09-30 @ 8:00 am	0.5 ± 0.2	2016-10-03
7769866	205	2016-09-27 @ 9:00 am	2016-09-30 @ 8:00 am	< 0.3	2016-10-03
7756849	3	2016-09-27 @ 10:00 am	2016-09-30 @ 9:00 am	0.7 ± 0.3	2016-10-03
7714153	4	2016-09-27 @ 10:00 am	2016-09-30 @ 9:00 am	1.2 ± 0.3	2016-10-03
7769861	5	2016-09-27 @ 10:00 am	2016-09-30 @ 9:00 am	< 0.3	2016-10-03
7802101	6	2016-09-27 @ 10:00 am	2016-09-30 @ 9:00 am	1.2 ± 0.3	2016-10-03
7756846	7	2016-09-27 @ 10:00 am	2016-09-30 @ 9:00 am	1.0 ± 0.3	2016-10-03
7756847	8	2016-09-27 @ 10:00 am	2016-09-30 @ 9:00 am	1.1 ± 0.3	2016-10-03
7714154	9	2016-09-27 @ 10:00 am	2016-09-30 @ 9:00 am	0.9 ± 0.3	2016-10-03
7714148	9	2016-09-27 @ 10:00 am	2016-09-30 @ 9:00 am	0.6 ± 0.3	2016-10-03
7769867	APR	2016-09-27 @ 8:00 am	2016-09-30 @ 8:00 am	< 0.3	2016-10-03
7714139	APR	2016-09-27 @ 8:00 am	2016-09-30 @ 8:00 am	< 0.3	2016-10-03

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

October 17, 2016 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

BEALL ELEMENTARY SCHOOL
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7756843	AS PRIN	2016-09-27 @ 8:00 am	2016-09-30 @ 8:00 am	< 0.3	2016-10-03
7756868	BSM	2016-09-27 @ 8:00 am	2016-09-30 @ 8:00 am	< 0.3	2016-10-03
7756821	CONF	2016-09-27 @ 8:00 am	2016-09-30 @ 8:00 am	0.8 ± 0.3	2016-10-03
7756825	FILE	2016-09-27 @ 8:00 am	2016-09-30 @ 8:00 am	0.8 ± 0.3	2016-10-03
7756867	GOF	2016-09-27 @ 8:00 am	2016-09-30 @ 8:00 am	< 0.3	2016-10-03
7756840	GYM	@	@		
7769873	GYM	2016-09-27 @ 9:00 am	2016-09-30 @ 8:00 am	1.2 ± 0.3	2016-10-03
7714181	GYM	2016-09-27 @ 9:00 am	2016-09-30 @ 8:00 am	1.1 ± 0.3	2016-10-03
7714177	GYM OFF	2016-09-27 @ 9:00 am	2016-09-30 @ 8:00 am	1.8 ± 0.4	2016-10-03
7756863	IDA	2016-09-27 @ 8:00 am	2016-09-30 @ 8:00 am	0.8 ± 0.3	2016-10-03
7756842	MAIL	2016-09-27 @ 8:00 am	2016-09-30 @ 8:00 am	0.7 ± 0.3	2016-10-03
7714203	MAIN CONF	2016-09-27 @ 11:00 am	2016-09-30 @ 8:00 am	< 0.3	2016-10-03
7714204	MAIN CONF	2016-09-27 @ 11:00 am	2016-09-30 @ 8:00 am	< 0.3	2016-10-03
7769859	MEDIA	2016-09-27 @ 8:00 am	2016-09-30 @ 8:00 am	< 0.3	2016-10-03
7769860	MEDIA	2016-09-27 @ 8:00 am	2016-09-30 @ 8:00 am	< 0.3	2016-10-03
7769878	MEDIA OFF	2016-09-27 @ 8:00 am	2016-09-30 @ 8:00 am	< 0.3	2016-10-03
7769875	MINI	2016-09-27 @ 8:00 am	2016-09-30 @ 8:00 am	< 0.3	2016-10-03
7756866	NURSE	2016-09-27 @ 8:00 am	2016-09-30 @ 8:00 am	0.7 ± 0.3	2016-10-03
7756844	PRIN	2016-09-27 @ 8:00 am	2016-09-30 @ 8:00 am	0.7 ± 0.3	2016-10-03
7769879	SDT	2016-09-27 @ 8:00 am	2016-09-30 @ 8:00 am	< 0.3	2016-10-03
7756864	SDT	2016-09-27 @ 8:00 am	2016-09-30 @ 8:00 am	< 0.3	2016-10-03
7714180	STAGE	2016-09-27 @ 8:00 am	2016-09-30 @ 8:00 am	< 0.3	2016-10-03
7769870	STUDIO	2016-09-27 @ 8:00 am	2016-09-30 @ 8:00 am	< 0.3	2016-10-03

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

Radon test result report for:

MCPS Radon
Phase 18 Office Blanks

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

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

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

Radon test result report for:

MCPS Radon
Phase 18 Transit Blanks

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

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

Radon test result report for:
MCPS Radon
Spike Sample Results

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

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

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

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI Technologies Inc. Job Number 176788

NOMINAL Conditions: Radon Conc 26.1 pCi/L Rel. Hum 49.6 % Temp. 79.0 F

Date Start: 9/24/16 Date Stop: 9/26/16	Date Start: _____ Date Stop: _____
Time Start: 0758 Time Stop: 0758	Time Start: _____ Time Stop: _____
Device No.'s: (6) Char. Bags -	Device No.'s: _____
7769899, 7769884, 7769885,	_____
7769889, 7769890, 7769891	_____
F3 Left	_____
Date Start: _____ Date Stop: _____	Date Start: _____ Date Stop: _____
Time Start: _____ Time Stop: _____	Time Start: _____ Time Stop: _____
Device No.'s: _____	Device No.'s: _____
_____	_____
_____	_____
_____	_____
Date Start: _____ Date Stop: _____	Date Start: _____ Date Stop: _____
Time Start: _____ Time Stop: _____	Time Start: _____ Time Stop: _____
Device No.'s: _____	Device No.'s: _____
_____	_____
_____	_____
_____	_____

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

KCI TECHNOLOGIES

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 18

Name of Schools:

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

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

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

KCI TECHNOLOGIES

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

Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase 18

Name of Schools:

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

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

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

RADON SCREENING SURVEY – FOLLOW-UP BEALL ELEMENTARY SCHOOL

6520 Dalroy Lane, Bethesda, Maryland 20817

EXECUTIVE SUMMARY

Date of Test Report:	3/11/16 Follow-Up
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested	7
# Rooms ≥ 4.0 pCi/L:	0
Low Value:	<0.3
High Value:	3.5
Confirmed Rooms ≥ 4.0 pCi/L US EPA Action Level	0

Summary of Sampling Events ≥ 4.0 pCi/L

Room	Result (pCi/L) 2/19/16 (Rev 3 Initial)	Result (pCi/L) 3/11/16 Follow-Up	Average Result (pCi/L)
110	<0.3 Tampered	0.9	0.6
118	3.4 Tampered	3.5	3.5
120	--- Missing	1.4	1.4
148	0.8 Tampered	<0.3	0.6
148	0.9 Tampered	0.7	0.8
149	<0.3 Tampered	0.9	0.6
GYM	1.6 Tampered	2.1	1.9
GYM	1.6 Tampered	2.4	2.0
GYM	1.1 (D) Tampered	Not Sampled	1.1
GYM	1.1 (D) Tampered	Not Sampled	1.1
176	1.5	1.2	1.4

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: Beall Elementary School

Date of Test Report:	3/11/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	7
# Rooms ≥ 4.0 pCi/L:	0
Low Value:	< 0.3
High Value:	3.5

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

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

March 11, 2016

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

Re: **Radon Testing Services**
KCI Job # 12146341.29

Location: Beall Elementary School
451 Beall Avenue
Rockville, MD 20850

Dear Mr. Cox:

KCI Technologies, Inc. (KCI) is pleased to submit the following report to the Montgomery County Public Schools (MCPS) pursuant to completing a "short-term" 3 day radon test for the Beall Elementary School, located at 451 Beall Avenue in Rockville, Maryland 20850 (subject site).

Scope of Services:

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

KCI visited the site on February 22, 2016 and deployed eleven (11) activated charcoal (AC) radon test kits. KCI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. A floor plan map of the building with the test locations is included as Attachment A of this report.

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

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

Butler Bridge Road, Mills River, North Carolina.

Evaluation of Testing Conditions:

The operating condition that represents the greatest amount of significantly occupied time for this building is; heating active, with outdoor temperature averages ≤ 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. Note that strong storms and heavy rainfall were recorded during the test period. The unusual weather conditions may have resulted in atypical radon test results for this facility.

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

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

Results:

The results of the radon test analysis indicated the following:

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

Notes:
D- Duplicate sample

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

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

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

Sincerely,

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

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

ATTACHMENT A

Floor Plan With Test Locations

Table Notes:

AC- Activated Charcoal

ACI- Air Chek, Inc.

D- Duplicate

FB- Field Blank

KCI- KCI Technologies, Inc.

OB- Office Blank*

PM- Project Manager

QC- Quality Control

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

Radon Testing Results		
Beall ES		
Test Period: 02/22/16-02/25/16		
Kit Number	**Room / Area**	**Result**
7712597	110	0.9
7712594	118	3.5
7712593	120	1.4
7712596	148	< 0.3
7712586	148	0.7
7712577	149	0.9
7712560	176	1.2
7712565	GYM	2.1
7712590	GYM	2.4

Table Note:
* Missing or Compromised Sample

Radon Testing Results		
Beall ES		
Test Period: 02/22/16-02/25/16		
Kit Number	**QC Type**	**Result**
7712591	D (148)	< 0.3
7712576	FB (148)	< 0.3

Table Note:
* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

March 8, 2016

** LABORATORY ANALYSIS REPORT **

Radon test result report for:

BEALL ES
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7712597	110	2016-02-22 @ 11:00 am	2016-02-25 @ 12:00 pm	0.9 ± 0.3	2016-02-29
7712594	118	2016-02-22 @ 11:00 am	2016-02-25 @ 12:00 pm	3.5 ± 0.4	2016-02-29
7712593	120	2016-02-22 @ 11:00 am	2016-02-25 @ 12:00 pm	1.4 ± 0.3	2016-02-29
7712576	148	2016-02-22 @ 11:00 am	2016-02-25 @ 12:00 pm	< 0.3	2016-02-29
7712586	148	2016-02-22 @ 11:00 am	2016-02-25 @ 12:00 pm	0.7 ± 0.3	2016-02-29
7712591	148	2016-02-22 @ 11:00 am	2016-02-25 @ 12:00 pm	< 0.3	2016-02-29
7712596	148	2016-02-22 @ 11:00 am	2016-02-25 @ 12:00 pm	< 0.3	2016-02-29
7712577	149	2016-02-22 @ 11:00 am	2016-02-25 @ 12:00 pm	0.9 ± 0.3	2016-02-29
7712560	176	2016-02-22 @ 11:00 am	2016-02-25 @ 12:00 pm	1.2 ± 0.3	2016-02-29
7712565	GYM	2016-02-22 @ 11:00 am	2016-02-25 @ 12:00 pm	2.1 ± 0.4	2016-02-29
7712590	GYM	2016-02-22 @ 11:00 am	2016-02-25 @ 12:00 pm	2.4 ± 0.4	2016-02-29

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

March 9, 2016

** LABORATORY ANALYSIS REPORT **

Radon test result report for:

MCPS
Phase 9 Office Blanks

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

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

March 9, 2016

** LABORATORY ANALYSIS REPORT **

Radon test result report for:

MCPS
Phase 9 Office Blanks

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

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

February 23, 2016

** LABORATORY ANALYSIS REPORT **

Radon test result report for:

TRANSIT- PHASE 7, 8, 9
NONE

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

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

February 15, 2016

** LABORATORY ANALYSIS REPORT **

Spike Sample Laboratory Results

Radon test result report for:

MCPS

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

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

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

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCF Technologies Inc. Job Number 173704

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

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

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

KCI TECHNOLOGIES

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

Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase 9

Name of Schools:

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

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

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

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 9

Name of Schools:

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

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

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

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MCPS RADON TESTING

Executive Summary: Beall Elementary School

Date of Test Report:	2/19/2016 (Rev 3)
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	65
# Rooms ≥ 4.0 pCi/L:	0
Low Value:	< 0.3
High Value:	3.4

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

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

February 19, 2016 (Rev 3)

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

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

Location: Beall Elementary School
451 Beall Avenue
Rockville MD 20850

Dear Mr. Cox:

KCI Technologies, Inc. (KCI) is pleased to submit the following report to the Montgomery County Public Schools (MCPS) pursuant to completing a "short-term" 3 day radon test for the Beall Elementary School, located at 451 Beall Avenue in Rockville Maryland 20850 (subject site).

Scope of Services:

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

KCI visited the site on December 15, 2016 and deployed eighty-one (81) activated charcoal (AC) radon test kits. KCI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. A floor plan map of the building with the test locations is included as Attachment A of this report.

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

KCI returned to the site on December 18, 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

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

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

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

Sincerely,

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

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

ATTACHMENT A

Floor Plan With Test Locations

ATTACHMENT B

Radon Test Summary Spreadsheet

Table Notes:

AC- Activated Charcoal

ACI- Air Chek, Inc.

D- Duplicate

FB- Field Blank

KCI- KCI Technologies, Inc.

OB- Office Blank

PM- Project Manager

QC- Quality Control

Radon Testing Results		
Beall Elementary School		
Test Period: 12/15/15-12/18/15		
Kit Number	**Room / Area**	**Result**
7705197	102	0.5
7705199	103	< 0.3
7705200	104	< 0.3
7704997	105	0.7
7704996	107	0.7
7705193	107	< 0.3
7704327	108	0.6
7705194	109	< 0.3
7705192	111	0.8
7705198	112	0.6
7704294	113	0.6
7704325	114	< 0.3
7704973	115	3.2
7704974	116	1.5
7704999	117	1
7704991	119	0.9
7704977	121	2.7
7704998	122	1.4
7704976	123	1.6
7704985	125	1
7704986	129	< 0.3
7704955	130	< 0.3
7704971	131	0.8
7704318	132	0.7
7704984	133	1.5
7704306	134	1.2
7704967	135	0.6
7704961	136	< 0.3
7704954	137	< 0.3
7704978	138	0.6
7704311	141	< 0.3
7704956	141	0.6
7704958	142	< 0.3
7704990	143	< 0.3
7704979	144	0.8
7704960	146	< 0.3
7704304	165	0.7
7704296	166	0.8
7704965	167	0.9
7704992	168	0.8
7704963	170	1.1
7704981	171	1.4
7704993	172	< 0.3
7704957	172	0.9
7704959	173	2.2
7704962	174	1.1

Table Note:
* Missing or Compromised Sample

Radon Testing Results		
Beall Elementary School		
Test Period: 12/15/15-12/18/15		
Kit Number	**Room / Area**	**Result**
7704964	175	1.5
7704945	176	1.5
7704987	182	1.7
7704937	206	0.6
7704943	207	0.6
7704989	208	< 0.3
7704982	209	0.9
7704948	210	< 0.3
7704952	211	0.9
7704972	212	1.1
7704966	213	0.8
7704970	214	1.1
7704968	215	1.1
7704969	216	0.8
7705190	* 110 (Tampered)	< 0.3
7704980	* 118 (Tampered)	3.4
7705187	* 120 (Missing)	-
7705186	* 148 (Tampered)	0.8
7705189	* 148 (Tampered)	0.9
7704326	* 149 (Tampered)	< 0.3
7704941	* GYM (Tampered)	1.6
7704995	* GYM (Tampered)	1.6

Table Note:
* Missing or Compromised Sample

Radon Testing Results		
Beall Elementary School		
Test Period: 12/15/15-12/18/15		
Kit Number	**QC Type**	**Result**
7705196	D (102)	0.6
7705195	D (113)	< 0.3
7705182	D (114)	0.6
7704975	D (118)	2.8
7705000	D (119)	0.7
7704983	D (176)	1.6
7704988	* D (GYM:Tampered)	1.1
7704994	* D (GYM:Tampered)	1.1
7705181	FB (107)	< 0.3
7704295	FB (108)	< 0.3
7705191	FB (110)	< 0.3
7705103	FB (112)	< 0.3
7704398	OB (OFFICE BLANK)	< 0.3

Table Note:
* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

December 30, 2015

** LABORATORY ANALYSIS REPORT **

Radon test result report for:

BEALL ES SCHOOL
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7705196	102	2015-12-15 @ 9:00 am	2015-12-18 @ 8:00 am	0.6 ± 0.3	2015-12-22
7705197	102	2015-12-15 @ 8:00 am	2015-12-18 @ 8:00 am	0.5 ± 0.3	2015-12-22
7705199	103	2015-12-15 @ 8:00 am	2015-12-18 @ 8:00 am	< 0.3	2015-12-22
7705200	104	2015-12-15 @ 8:00 am	2015-12-18 @ 8:00 am	< 0.3	2015-12-22
7704997	105	2015-12-15 @ 9:00 am	2015-12-18 @ 8:00 am	0.7 ± 0.3	2015-12-22
7704996	101	2015-12-15 @ 9:00 am	2015-12-18 @ 8:00 am	0.7 ± 0.3	2015-12-22
7705181	107	2015-12-15 @ 9:00 am	2015-12-18 @ 8:00 am	< 0.3	2015-12-22
7705193	107	2015-12-15 @ 8:00 am	2015-12-18 @ 8:00 am	< 0.3	2015-12-22
7704327	108	2015-12-15 @ 8:00 am	2015-12-18 @ 8:00 am	0.6 ± 0.3	2015-12-22
7704295	108	2015-12-15 @ 9:00 am	2015-12-18 @ 8:00 am	< 0.3	2015-12-22
7705194	109	2015-12-15 @ 9:00 am	2015-12-18 @ 8:00 am	< 0.3	2015-12-22
7705190	110	2015-12-15 @ 9:00 am	2015-12-18 @ 8:00 am	< 0.3	2015-12-22
7705191	110	2015-12-15 @ 9:00 am	2015-12-18 @ 8:00 am	< 0.3	2015-12-22
7705192	111	2015-12-15 @ 9:00 am	2015-12-18 @ 8:00 am	0.8 ± 0.3	2015-12-22
7705103	112	2015-12-15 @ 9:00 am	2015-12-18 @ 8:00 am	< 0.3	2015-12-22
7705198	112	2015-12-15 @ 9:00 am	2015-12-18 @ 8:00 am	0.6 ± 0.3	2015-12-22
7705195	113	2015-12-15 @ 9:00 am	2015-12-18 @ 8:00 am	< 0.3	2015-12-22
7704294	113	2015-12-15 @ 9:00 am	2015-12-18 @ 8:00 am	0.6 ± 0.3	2015-12-22
7705182	114	2015-12-15 @ 9:00 am	2015-12-18 @ 8:00 am	0.6 ± 0.3	2015-12-22
7704325	114	2015-12-15 @ 9:00 am	2015-12-18 @ 8:00 am	< 0.3	2015-12-22
7704973	115	2015-12-15 @ 9:00 am	2015-12-18 @ 8:00 am	3.2 ± 0.4	2015-12-22
7704974	116	2015-12-15 @ 9:00 am	2015-12-18 @ 8:00 am	1.5 ± 0.3	2015-12-22
7704999	117	2015-12-15 @ 9:00 am	2015-12-18 @ 8:00 am	1.0 ± 0.3	2015-12-22
7704975	118	2015-12-15 @ 10:00 am	2015-12-18 @ 9:00 am	2.8 ± 0.4	2015-12-22
7704980	118	2015-12-15 @ 10:00 am	2015-12-18 @ 9:00 am	3.4 ± 0.4	2015-12-22
7704991	119	2015-12-15 @ 9:00 am	2015-12-18 @ 9:00 am	0.9 ± 0.3	2015-12-22
7705000	119	2015-12-15 @ 9:00 am	2015-12-18 @ 9:00 am	0.7 ± 0.3	2015-12-22
7704977	121	2015-12-15 @ 10:00 am	2015-12-18 @ 8:00 am	2.7 ± 0.3	2015-12-22
7704998	122	2015-12-15 @ 10:00 am	2015-12-18 @ 8:00 am	1.4 ± 0.3	2015-12-22
7704976	123	2015-12-15 @ 10:00 am	2015-12-18 @ 9:00 am	1.6 ± 0.3	2015-12-22
7704985	125	2015-12-15 @ 10:00 am	2015-12-18 @ 8:00 am	1.0 ± 0.3	2015-12-22
7704986	129	2015-12-15 @ 10:00 am	2015-12-18 @ 8:00 am	< 0.3	2015-12-22
7704955	130	2015-12-15 @ 10:00 am	2015-12-18 @ 9:00 am	< 0.3	2015-12-22
7704971	131	2015-12-15 @ 10:00 am	2015-12-18 @ 8:00 am	0.8 ± 0.3	2015-12-22
7704318	132	2015-12-15 @ 10:00 am	2015-12-18 @ 8:00 am	0.7 ± 0.3	2015-12-22
7704984	133	2015-12-15 @ 10:00 am	2015-12-18 @ 8:00 am	1.5 ± 0.3	2015-12-22
7704306	134	2015-12-15 @ 10:00 am	2015-12-18 @ 8:00 am	1.2 ± 0.3	2015-12-22

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

December 30, 2015

** LABORATORY ANALYSIS REPORT **

Radon test result report for:

BEALL ES SCHOOL
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7704967	135	2015-12-15 @ 10:00 am	2015-12-18 @ 8:00 am	0.6 ± 0.3	2015-12-22
7704961	136	2015-12-15 @ 10:00 am	2015-12-18 @ 8:00 am	< 0.3	2015-12-22
7704954	137	2015-12-15 @ 10:00 am	2015-12-18 @ 8:00 am	< 0.3	2015-12-22
7704978	138	2015-12-15 @ 10:00 am	2015-12-18 @ 8:00 am	0.6 ± 0.3	2015-12-22
7704956	141	2015-12-15 @ 11:00 am	2015-12-18 @ 9:00 am	0.6 ± 0.3	2015-12-22
7704311	141	2015-12-15 @ 11:00 am	2015-12-18 @ 9:00 am	< 0.3	2015-12-22
7704958	142	2015-12-15 @ 11:00 am	2015-12-18 @ 9:00 am	< 0.3	2015-12-22
7704990	143	2015-12-15 @ 11:00 am	2015-12-18 @ 9:00 am	< 0.3	2015-12-22
7704979	144	2015-12-15 @ 11:00 am	2015-12-18 @ 9:00 am	0.8 ± 0.3	2015-12-22
7704960	146	2015-12-15 @ 11:00 am	2015-12-18 @ 9:00 am	< 0.3	2015-12-22
7705186	148	2015-12-15 @ 11:00 am	2015-12-18 @ 9:00 am	0.8 ± 0.3	2015-12-22
7705189	148	2015-12-15 @ 11:00 am	2015-12-18 @ 9:00 am	0.9 ± 0.3	2015-12-22
7704326	149	2015-12-15 @ 11:00 am	2015-12-18 @ 9:00 am	< 0.3	2015-12-22
7704304	165	2015-12-15 @ 11:00 am	2015-12-18 @ 9:00 am	0.7 ± 0.3	2015-12-22
7704296	166	2015-12-15 @ 11:00 am	2015-12-18 @ 9:00 am	0.8 ± 0.3	2015-12-22
7704965	167	2015-12-15 @ 11:00 am	2015-12-18 @ 9:00 am	0.9 ± 0.3	2015-12-22
7704992	168	2015-12-15 @ 11:00 am	2015-12-18 @ 9:00 am	0.8 ± 0.3	2015-12-22
7704963	170	2015-12-15 @ 11:00 am	2015-12-18 @ 9:00 am	1.1 ± 0.3	2015-12-22
7704981	171	2015-12-15 @ 1:00 pm	2015-12-18 @ 9:00 am	1.4 ± 0.3	2015-12-22
7704993	172	2015-12-15 @ 11:00 am	2015-12-18 @ 9:00 am	< 0.3	2015-12-22
7704957	169	2015-12-15 @ 11:00 am	2015-12-18 @ 9:00 am	0.9 ± 0.3	2015-12-22
7704959	173	2015-12-15 @ 11:00 am	2015-12-18 @ 9:00 am	2.2 ± 0.3	2015-12-22
7704962	174	2015-12-15 @ 11:00 am	2015-12-18 @ 9:00 am	1.1 ± 0.3	2015-12-22
7704964	175	2015-12-15 @ 11:00 am	2015-12-18 @ 9:00 am	1.5 ± 0.3	2015-12-22
7704945	176	2015-12-15 @ 1:00 pm	2015-12-18 @ 9:00 am	1.5 ± 0.3	2015-12-22
7704983	176	2015-12-15 @ 1:00 pm	2015-12-18 @ 9:00 am	1.6 ± 0.3	2015-12-22
7704987	182	2015-12-15 @ 1:00 pm	2015-12-18 @ 9:00 am	1.7 ± 0.3	2015-12-22
7704937	206	2015-12-15 @ 11:00 am	2015-12-18 @ 9:00 am	0.6 ± 0.3	2015-12-22
7704943	207	2015-12-15 @ 11:00 am	2015-12-18 @ 9:00 am	0.6 ± 0.3	2015-12-22
7704989	208	2015-12-15 @ 11:00 am	2015-12-18 @ 9:00 am	< 0.3	2015-12-22
7704982	209	2015-12-15 @ 11:00 am	2015-12-18 @ 9:00 am	0.9 ± 0.3	2015-12-22
7704948	210	2015-12-15 @ 11:00 am	2015-12-18 @ 9:00 am	< 0.3	2015-12-22
7704952	211	2015-12-15 @ 11:00 am	2015-12-18 @ 9:00 am	0.9 ± 0.3	2015-12-22
7704972	212	2015-12-15 @ 11:00 am	2015-12-18 @ 9:00 am	1.1 ± 0.3	2015-12-22
7704966	213	2015-12-15 @ 11:00 am	2015-12-18 @ 9:00 am	0.8 ± 0.3	2015-12-22
7704970	214	2015-12-15 @ 11:00 am	2015-12-18 @ 9:00 am	1.1 ± 0.3	2015-12-22
7704968	215	2015-12-15 @ 11:00 am	2015-12-18 @ 9:00 am	1.1 ± 0.3	2015-12-22

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

December 30, 2015

** LABORATORY ANALYSIS REPORT **

Radon test result report for:

BEALL ES SCHOOL
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7704969	216	2015-12-15 @ 11:00 am	2015-12-18 @ 9:00 am	0.8 ± 0.3	2015-12-22
7704941	GYM	2015-12-15 @ 12:00 pm	2015-12-18 @ 9:00 am	1.6 ± 0.3	2015-12-22
7704994	GYM	2015-12-15 @ 12:00 pm	2015-12-18 @ 9:00 am	1.1 ± 0.3	2015-12-22
7704995	GYM	2015-12-15 @ 12:00 pm	2015-12-18 @ 9:00 am	1.6 ± 0.3	2015-12-22
7704988	GYM	2015-12-15 @ 12:00 pm	2015-12-18 @ 9:00 am	1.1 ± 0.3	2015-12-22

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

December 30, 2015

** LABORATORY ANALYSIS REPORT **

Radon test result report for:

BEALL ES SCHOOL
OFFICE BLANK

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7704398	OFFICE BLANK	2015-12-15 @ 2:00 pm	2015-12-18 @ 2:00 pm	< 0.3	2015-12-22

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

December 29, 2015

** LABORATORY ANALYSIS REPORT **

Radon test result report for:

TRANSIT DEC 14 2015
NONE

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

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

December 23, 2015

** LABORATORY ANALYSIS REPORT **

Spike Sample Laboratory Results

Radon test result report for:

MCPS

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

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

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

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI Technologies Inc. Job Number 173224

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

Date Start: 12/18/15 Date Stop: 12/21/15	Date Start: _____ Date Stop: _____
Time Start: 0929 Time Stop: 0929	Time Start: _____ Time Stop: _____
Device No.'s: 7705132, 7706208, 7706211, 7706366, 7706380, 7706381 F3 Left	Device No.'s: _____
Date Start: _____ Date Stop: _____	Date Start: _____ Date Stop: _____
Time Start: _____ Time Stop: _____	Time Start: _____ Time Stop: _____
Device No.'s: _____	Device No.'s: _____
Date Start: _____ Date Stop: _____	Date Start: _____ Date Stop: _____
Time Start: _____ Time Stop: _____	Time Start: _____ Time Stop: _____
Device No.'s: _____	Device No.'s: _____

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

KCI TECHNOLOGIES

ENGINEERS • PLANNERS • SCIENTISTS • CONSTRUCTION MANAGERS

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

Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase I

Name of Schools:

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

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

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

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,** Beall Elementary School,
451 Beall Ave., Rockville, MD 20850.
Dates of tests: December 9 to 11, 2015
Chamber Spikes: 2.9 % Deviation; September 19 to 21, 2015

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
174424	Mail Room	16:59	17:01	0.9
174430	Conference Room	16:59	17:01	0.7

CONCLUSIONS

The radon concentrations measured during the test were below the US EPA screening guideline of less than 4.0 pCi/l and remedial action to reduce the radon concentration is not indicated based on the results of this test. Because of the variability of radon air concentrations over the course of a year, follow-up biannual testing during a different season, under occupied conditions, is recommended to better estimate the annual average air concentrations.

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

A. LaMastra
President