MCPS DEM SUSTAINABILITY & COMPLIANCE

School / Facility Radon Testing Report Form

School Year: **24-25**

Facility:	East Silver Spring Elementary School
Address:	631 Silver Spring Avenue
	Silver Spring, MD 20910
Reason for Testing:	Scheduled Re-Testing - ☒ 2-year or ☐ 5-year schedule ☐ Clearance Testing (Post-Mitigation) ☒ Building Envelope or HVAC Upgrades ☐ New Construction – Addition or Facility
Current Radon Status:	☒ Active Mitigation (2-year regular schedule) ☐ No Active Mitigation (5-year regular schedule) ☐ Not Previously Tested (New Facility)
Round of Testing:	☐ Initial Testing **-or-** ☒ Follow-up Testing
Testing Status:	☒ No Further Testing Needed **-or-** ☐ Follow-Up Testing Required

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

Mitigation -	**Facility Radon Status:**		
☐ Not Required ☒ Consider (≥2.0 & <4.0-pCi/L) ☐ Required (≥4.0-pCi/L) Rooms:	☒ No Change in Status ☐ Active Mitigation (2-year regular schedule) ☐ No Active Mitigation (5-year regular schedule)		
Number of Rooms Tested	46	Lowest Value (pCi/L)	< 0.3
Number of Rooms (≥4.0-pCi/L)	0	Highest Value (pCi/L)	3.8

Instructions: Submit one testing report form per-facility. Include the following as attachments:

Attachment 1- Summary Data Tables – containing the following: (see attached samples tables)

- Testing Results – lab/detector Identification, by room number/name (alpha-numeric order) as depicted on facility map/floor plan provided by the facility/school at the time of test device deployment;
- Summary Results – list of rooms by test result ≥2.0-pCi/L; ≥2.7-pCi/L; ≥4.0-pCi/L; and ≥8.0-pCi/L;
- QA/QC Results - (field blanks and duplicates) indicating location collected; trip and office blanks; and spike sample results;
- Invalid Measurement Locations – missed locations, missing and or damaged/compromised testing devices.

Attachment 2 – Laboratory Report(s)

Attachment 3 – Sampling Location Map(s) – indicating approximate location of samples, duplicates and blanks.

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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):	12/03/24 12/06/24	03/11/25 03/14/25
Does the test period include weekends, school breaks or holidays?				☐ Yes ☒ No	
*If "**Yes**" please explain/detail in the space below:*					
Was HVAC operating under occupied conditions?				☒ Yes ☐ No	
*If "**No**" please explain/detail in the space below:*					

Testing (continued)

	Detectors Deployed				
	Ground-Contact		Upper-Level(s)		Total
Round of Testing	Initial	Follow-Up	Initial	Follow-Up	
Test Locations[1]	43	0	0	3	46
Duplicates[2]	5	0	0	1	6
Field Blanks[3]	2	0	0	1	3
				Grand Total	55

1 – include all detectors deployed (duplicates, field blanks); 1 detector per occupied (or intended to be occupied) ground-contact space ≤ 2,000-square feet; large spaces ≥ 2,000-square feet - 1 detector per 2,000-square feet or part thereof); and upper floors - 10% of all occupied or intended to be occupied rooms per floor (these are in addition to ground contact locations)
2 - 10% of all locations tested, per floor
3 – 5% of all locations tested, per floor

Quality Assurance / Quality Control (QA/QC)

A Quality Assurance plan that is consistent with ANSI/AARST MS-QA (Radon Measurement Systems Quality Assurance) was submitted under separate cover, and is available to review at the MCPS Radon Testing and Mitigation Program website. The following number of QA/QC samples are associated this facility.

	QA/QC Samples		Total
Round of Testing	Initial	Follow-Up	
Spikes[1]	Not applicable		10
Trip Blanks[2]	1	1	2
Office Blanks[3, 4]	1	1	2
			14

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

Quality Assurance / Quality Control (continued)

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

1 – Duplicate Control – a "NO" response constitute a control failure and the space/location represented by the duplicate sample becomes an invalid measurement location and should be listed in the "Invalid Measurement Locations" Table attached to this report.

2 - The objective of duplicate tests is to assess the precision error of the measurement method or, how well two side-by-side measurements agree or disagree. Precision involving duplicates is calculated by using Relative Percent Difference (RPD). RPD is equal to the difference between the higher test result minus the lower value test result divided by the average of the two duplicate test results, multiplied by 100. The RPD result is then compared to the warning and control limits.

3 - The Warning Level is set at the deviation from ideal performance that would be expected to occur by chance only 5% of the time, and Control Limits are set at that deviation from ideal performance that would be expected to occur by chance only 1% of the time. The Warning Level indicates a potential problem, which should be investigated. The Control Level indicates that the measurement system should be subject to corrective action.

The control and warning levels for duplicates, based on the averaged duplicate test result, are -

Average concentration of the two duplicate test results	**Warning Level**	**Control Level**
< 2.0-pCi/L	1-pCi/L	Not applicable
Between 2.0 and 3.9-pCi/L	50% RPD	67% RPD
≥ 4.0-pCi/L	28% RPD	36% RPD

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

	Ground-Contact		Upper-Level(s)		Total
Round of Testing	**Initial**	**Follow-Up**	**Initial**	**Follow-Up**	
Number of test locations:	43	0	0	3	46
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:	8	0	0	0	8
Number of locations ≥2.0 and <2.7-pCi/L:	8	0	0	0	8
Number of missing required test locations[3]:	0	0	3	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	100%	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		
East Silver Spring Elementary School		
Test Period: 12/03/2024 - 12/06/2024		
Kit Number	Room / Area	Result
11903779	12	2.0
11903760	13	1.5
11903759	14	1.0
11903778	15	3.6
11903774	16	0.9
11903775	17	1.3
11903780	17	1.8
11903800	18	1.0
11903766	19	< 0.3
11903767	19	1.9
11903765	20	1.0
11903761	21	2.5
11903762	22	3.4
11903509	31	0.5
11903745	31	0.8
11903501	32	0.7
11903510	33	0.8
11903504	34	1.4
11903511	34	1.5
11903506	35	1.2
11903502	36	1.2
11903503	37	0.5
11903754	38	0.8
11903768	40	3.6
11903773	41	0.9
11903776	102	3.8
11903770	103	1.6
11903790	103	1.9
11903786	104	0.8
11903781	109	1.2
11903777	110	2.0
11903784	100 MAIN	1.6
11903799	100B	2.0
11903794	100C	2.1
11903788	100D	3.0
11903792	102A	3.6
11903796	102B	3.4
11903782	104A	1.5
11903783	105 GYM	1.4
11903787	105 GYM	1.8
11903789	105B	1.7

Table 1- Radon Testing Results		
East Silver Spring Elementary School		
Test Period: 12/03/2024 - 12/06/2024		
Kit Number	Room / Area	Result
11903785	106C	2.1
11903771	41B	1.5
11903795	M-1	2.6
11903793	M-4	1.6
11903769	MAIL ROOM	2.1
11903791	MEDIA CENTER	1.9
11903797	MEDIA CENTER	1.5
11903798	MEDIA CENTER	< 0.3
11903772	R-1	2.9

Table 2 - Summary Testing Results ≥2.0 pCi/L							
East Silver Spring Elementary School							
Test Period: 12/03/2024 - 12/06/2024							
≥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**
110	2.0	R-1	2.9	N/A	N/A	N/A	N/A
12	2.0	100D	3.0				
100B	2.0	22	3.4				
MAIL ROOM	2.1	102B	3.4				
106C	2.1	40	3.6				
100C	2.1	15	3.6				
21	2.5	102A	3.6				
M-1	2.6	102	3.8				

Table 3 - QC Radon Testing Results			
East Silver Spring Elementary School			
Test Period: 12/03/2024 - 12/06/2024			
Kit Number	**QC Type**	**Room / Area**	**Result**
11903775	D	17	1.3
11903766	FB	19	< 0.3
11903509	D	31	0.5
11903504	D	34	1.4
11903770	D	103	1.6
11903798	FB	MEDIA CENTER	< 0.3
11903797	D	MEDIA CENTER	1.5
11904291	OB	OFFICE BLANK	< 0.3
11904272	TB	TRAVEL BLANK	< 0.3

Table 3a - Duplicate Worksheet / Data Validation										
East Silver Spring Elementary School										
Test Period: 12/03/2024 - 12/06/2024										
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
11903770	11903790	103	1.9	1.6	✓	3.2	PASS	1.8	<1-pCi/L	✓
11903797	11903791	Media Center	1.9	1.5	✓	3.0	PASS	1.7	<1-pCi/L	✓
11903775	11812081	17	1.8	1.3	✓	2.6	PASS	1.6	<1-pCi/L	✓
11903504	11903511	34	1.5	1.4	✓	2.8	PASS	1.5	<1-pCi/L	✓
11903745	11903509	31	0.8	0.5	✓	1.0	PASS	0.7	<1-pCi/L	✓

NOTES:

QC Check #1 - Data Entry

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

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

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

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

Table 4 - Summary of Invalid Measurement Locations		
East Silver Spring Elementary School		
Test Period: 12/03/24 - 12/06/24		
Kit Number	**Room/Area**	**Reason**
N/A	N/A	N/A

Table 1- Radon Testing Results		
East Silver Spring Elementary School RT		
Test Period: 3/11/2025 - 3/14/2025		
Kit Number	Room / Area	Result
11892362	27	0.6
11892370	MAIN 100	1.0
11892371	STAFF LOUNGE 103	1.0
11892374	STAFF LOUNGE 103	1.0
11892377	STAFF LOUNGE 103	< 0.3

Table 2 - Summary Testing Results ≥2.0 pCi/L							
East Silver Spring Elementary School RT							
Test Period: 3/11/2025 - 3/14/2025							
≥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			
East Silver Spring Elementary School RT			
Test Period: 3/11/2025 - 3/14/2025			
Kit Number	**QC Type**	**Room / Area**	**Result**
11892374	D	103 STAFF LOUNGE	1
11892377	FB	103 STAFF LOUNGE	< 0.3
11886599	OB	OFFICE BLANK	< 0.3
11886600	TB	TRAVEL BLANK	< 0.3

Table 3a - Duplicate Worksheet / Data Validation

East Silver Spring Elementary School RT

Test Period: 3/11/2025 - 3/14/2025

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
11892374	11892371	103 STAFF LOUNGE	1.0	1.0	✓	2.0	PASS	1.0	<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		
East Silver Spring Elementary School RT		
Test Period: 3/11/25 - 3/14/25		
Kit Number	**Room/Area**	**Reason**
N/A	N/A	N/A

Attachment 2:

Laboratory Reports

December 12, 2024 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11903784	100 MAIN	2024-12-03 @ 11:00 am	2024-12-06 @ 8:00 am	1.6 ± 0.4	2024-12-10
11903799	100B	2024-12-03 @ 11:00 am	2024-12-06 @ 8:00 am	2.0 ± 0.4	2024-12-10
11903794	100C	2024-12-03 @ 11:00 am	2024-12-06 @ 8:00 am	2.1 ± 0.4	2024-12-10
11903788	100D	2024-12-03 @ 11:00 am	2024-12-06 @ 8:00 am	3.0 ± 0.4	2024-12-10
11903776	102	2024-12-03 @ 11:00 am	2024-12-06 @ 8:00 am	3.8 ± 0.4	2024-12-10
11903792	102A	2024-12-03 @ 11:00 am	2024-12-06 @ 8:00 am	3.6 ± 0.4	2024-12-10
11903796	102B	2024-12-03 @ 11:00 am	2024-12-06 @ 8:00 am	3.4 ± 0.4	2024-12-10
11903790	103	2024-12-03 @ 11:00 am	2024-12-06 @ 8:00 am	1.9 ± 0.4	2024-12-10
11903770	103	2024-12-03 @ 11:00 am	2024-12-06 @ 8:00 am	1.6 ± 0.4	2024-12-10
11903786	104	2024-12-03 @ 11:00 am	2024-12-06 @ 8:00 am	0.8 ± 0.4	2024-12-10
11903782	104A	2024-12-03 @ 11:00 am	2024-12-06 @ 8:00 am	1.5 ± 0.4	2024-12-10
11903787	105 GYM	2024-12-03 @ 11:00 am	2024-12-06 @ 9:00 am	1.8 ± 0.4	2024-12-10
11903783	105 GYM	2024-12-03 @ 11:00 am	2024-12-06 @ 9:00 am	1.4 ± 0.4	2024-12-10
11903789	105B	2024-12-03 @ 11:00 am	2024-12-06 @ 9:00 am	1.7 ± 0.4	2024-12-10
11903785	106C	2024-12-03 @ 11:00 am	2024-12-06 @ 9:00 am	2.1 ± 0.4	2024-12-10
11903781	109	2024-12-03 @ 11:00 am	2024-12-06 @ 9:00 am	1.2 ± 0.4	2024-12-10
11903777	110	2024-12-03 @ 11:00 am	2024-12-06 @ 9:00 am	2.0 ± 0.4	2024-12-10
11903779	12	2024-12-03 @ 11:00 am	2024-12-06 @ 9:00 am	2.0 ± 0.4	2024-12-10
11903760	13	2024-12-03 @ 11:00 am	2024-12-06 @ 9:00 am	1.5 ± 0.4	2024-12-10
11903759	14	2024-12-03 @ 11:00 am	2024-12-06 @ 9:00 am	1.0 ± 0.4	2024-12-10
11903778	15	2024-12-03 @ 12:00 pm	2024-12-06 @ 9:00 am	3.6 ± 0.4	2024-12-10
11903774	16	2024-12-03 @ 12:00 pm	2024-12-06 @ 9:00 am	0.9 ± 0.3	2024-12-10
11903780	17	2024-12-03 @ 12:00 pm	2024-12-06 @ 9:00 am	1.8 ± 0.4	2024-12-10
11903775	17	2024-12-03 @ 12:00 pm	2024-12-06 @ 9:00 am	1.3 ± 0.4	2024-12-10
11903800	18	2024-12-03 @ 12:00 pm	2024-12-06 @ 9:00 am	1.0 ± 0.3	2024-12-10
11903767	19	2024-12-03 @ 12:00 pm	2024-12-06 @ 9:00 am	1.9 ± 0.4	2024-12-10
11903766	19	2024-12-03 @ 12:00 pm	2024-12-06 @ 9:00 am	< 0.3	2024-12-10
11903765	20	2024-12-03 @ 12:00 pm	2024-12-06 @ 9:00 am	1.0 ± 0.4	2024-12-10
11903761	21	2024-12-03 @ 12:00 pm	2024-12-06 @ 9:00 am	2.5 ± 0.4	2024-12-10
11903762	22	2024-12-03 @ 12:00 pm	2024-12-06 @ 9:00 am	3.4 ± 0.4	2024-12-10
11903509	31	2024-12-03 @ 12:00 pm	2024-12-06 @ 9:00 am	0.5 ± 0.4	2024-12-10
11903745	31	2024-12-03 @ 12:00 pm	2024-12-06 @ 9:00 am	0.8 ± 0.4	2024-12-10
11903501	32	2024-12-03 @ 12:00 pm	2024-12-06 @ 9:00 am	0.7 ± 0.4	2024-12-10
11903510	33	2024-12-03 @ 12:00 pm	2024-12-06 @ 9:00 am	0.8 ± 0.4	2024-12-10
11903511	34	2024-12-03 @ 12:00 pm	2024-12-06 @ 9:00 am	1.5 ± 0.4	2024-12-10
11903504	34	2024-12-03 @ 12:00 pm	2024-12-06 @ 9:00 am	1.4 ± 0.4	2024-12-10
11903506	35	2024-12-03 @ 12:00 pm	2024-12-06 @ 9:00 am	1.2 ± 0.4	2024-12-10

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

December 12, 2024 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11903502	36	2024-12-03 @ 12:00 pm	2024-12-06 @ 9:00 am	1.2 ± 0.4	2024-12-10
11903503	37	2024-12-03 @ 12:00 pm	2024-12-06 @ 9:00 am	0.5 ± 0.4	2024-12-10
11903754	38	2024-12-03 @ 12:00 pm	2024-12-06 @ 9:00 am	0.8 ± 0.4	2024-12-10
11903768	40	2024-12-03 @ 12:00 pm	2024-12-06 @ 9:00 am	3.6 ± 0.4	2024-12-10
11903773	41	2024-12-03 @ 12:00 pm	2024-12-06 @ 9:00 am	0.9 ± 0.4	2024-12-10
11903771	41B	2024-12-03 @ 12:00 pm	2024-12-06 @ 9:00 am	1.5 ± 0.4	2024-12-10
11903795	M-1	2024-12-03 @ 11:00 am	2024-12-06 @ 9:00 am	2.6 ± 0.4	2024-12-10
11903793	M-4	2024-12-03 @ 12:00 pm	2024-12-06 @ 9:00 am	1.6 ± 0.4	2024-12-10
11903769	MAIL ROOM	2024-12-03 @ 11:00 am	2024-12-06 @ 8:00 am	2.1 ± 0.4	2024-12-10
11903791	MEDIA CENTER	2024-12-03 @ 11:00 am	2024-12-06 @ 9:00 am	1.9 ± 0.4	2024-12-10
11903797	MEDIA CENTER	2024-12-03 @ 11:00 am	2024-12-06 @ 9:00 am	1.5 ± 0.4	2024-12-10
11903798	MEDIA CENTER	2024-12-03 @ 11:00 am	2024-12-06 @ 9:00 am	< 0.3	2024-12-10
11903772	R-1	2024-12-03 @ 12:00 pm	2024-12-06 @ 9:00 am	2.9 ± 0.4	2024-12-10

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P4792 / TYLER MCCLEAF

Kit Number	Start Date	Start Time	End Date	End Time	Temp.	Facility	Building	Room	Project ID	Floor	Result
11892899	2024-12-02	11:00 am	2024-12-05	11:00 am	70	OFFICE	MAIN	O		1	< 0.3
11892900	2024-12-02	11:00 am	2024-12-05	11:00 am	70	TRAVEL	MAIN	T		1	< 0.3
11904003	2024-12-02	10:00 am	2024-12-05	11:00 am	70	JAMES HUBERT BLAKE HS	MAIN	SMALL GYM		1	1.4
11904272	2024-12-03	11:00 am	2024-12-06	11:00 am	70	TRAVEL	MAIN	T		1	< 0.3
11904291	2024-12-03	11:00 am	2024-12-06	11:00 am	70	OFFICE	MAIN	O		1	< 0.3

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

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI TECHNOLOGIES, INC Job Number 20001560

NOMINAL Conditions: Radon Conc 50.6 pCi/L Rel. Hum 50.6 % Temp. 70.8 F

Date Start: 12/14/24 Date Stop: 12/17/24	Date Start: _____ Date Stop: _____
Time Start: 0815 Time Stop: 0815	Time Start: _____ Time Stop: _____
Device No.'s: (3) CHAR BAGS	Device No.'s: _____
11477880, 11477883, 11477896	_____
_____	_____
B4 Right	_____
Date Start: _____ Date Stop: _____	Date Start: _____ Date Stop: _____
Time Start: _____ Time Stop: _____	Time Start: _____ Time Stop: _____
Device No.'s: _____	Device No.'s: _____
_____	_____
_____	_____
_____	_____
Date Start: _____ Date Stop: _____	Date Start: _____ Date Stop: _____
Time Start: _____ Time Stop: _____	Time Start: _____ Time Stop: _____
Device No.'s: _____	Device No.'s: _____
_____	_____
_____	_____
_____	_____

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

December 23, 2024 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
SK
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11477880	SK1	2024-12-14 @ 8:00 am	2024-12-17 @ 8:00 am	52.0 ± 4.2	2024-12-23
11477883	SK2	2024-12-14 @ 8:00 am	2024-12-17 @ 8:00 am	54.6 ± 4.4	2024-12-23
11477896	SK3	2024-12-14 @ 8:00 am	2024-12-17 @ 8:00 am	45.5 ± 3.6	2024-12-23

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KCI TECHNOLOGIES

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

Radon Test Kit Chain of Custody

Project Name: MCPS Radon – Testing December 3rd – December 6th, 2024

Name of Schools:

1. Cannon Road ES
2. Cloverly ES
3. Dr. Charles R. Drew ES
4. East Silver Spring ES
5. Albert Einstein HS
6. Fairland ES
7. William H. Farquhar MS

	Date	Initials
Radon Test Kits Deployed	12/03/2024	BMM
Radon Test Kits Collected	12/06/2024	BMM
Radon Test Kits Shipped to Lab*	12/06/2024	BMM
Radon Test Kits Received by Lab*	12/10/2024	BMM

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

March 17, 2025

** LABORATORY ANALYSIS REPORT **

Radon test result report for:

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11892362	27	2025-03-11 @ 11:00 am	2025-03-14 @ 8:00 am	0.6 ± 0.3	2025-03-17
11892370	MAIN 100	2025-03-11 @ 11:00 am	2025-03-14 @ 8:00 am	1.0 ± 0.3	2025-03-17
11892371	STAFF LOUNGE 103	2025-03-11 @ 11:00 am	2025-03-14 @ 8:00 am	1.0 ± 0.3	2025-03-17
11892374	STAFF LOUNGE 103	2025-03-11 @ 11:00 am	2025-03-14 @ 8:00 am	1.0 ± 0.3	2025-03-17
11892377	STAFF LOUNGE 103	2025-03-11 @ 11:00 am	2025-03-14 @ 8:00 am	< 0.3	2025-03-17

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

March 17, 2025 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
OFFICE
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11892446	OB	2025-03-11 @ 11:00 am	2025-03-14 @ 11:00 am	< 0.3	2025-03-17
11886599	OB	2025-03-10 @ 11:00 am	2025-03-13 @ 11:00 am	< 0.3	2025-03-17

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March 17, 2025

** LABORATORY ANALYSIS REPORT **

Radon test result report for:
TRAVEL
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11892444	TB	2025-03-11 @ 11:00 am	2025-03-14 @ 11:00 am	< 0.3	2025-03-17
11886600	TB	2025-03-10 @ 11:00 am	2025-03-13 @ 11:00 am	< 0.3	2025-03-17

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

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI TECHNOLOGIES, INC Job Number 20002919

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

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

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

March 19, 2025

** LABORATORY ANALYSIS REPORT **

Radon test result report for:
QC
MAIN

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

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Radon Test Kit Chain of Custody

Project Name: MCPS Radon – Re-Testing March 11th – March 14th, 2025

Name of Schools:

1. Albert Einstein HS
2. Argyle MS
3. Belmont ES
4. Benjamin Banneker MS
5. Cannon Road ES
6. Dr. Charles R. Drew ES
7. East Silver Spring ES
8. James Hubert Blake HS
9. William Farquhar MS

	Date	Initials
Radon Test Kits Deployed	3/11/2025	BMM
Radon Test Kits Collected	3/14/2025	BMM
Radon Test Kits Shipped to Lab*	3/14/2025	BMM
Radon Test Kits Received by Lab*	3/16/2025	BMM

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

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MCPS RADON TESTING – EXECUTIVE SUMMARY

Site Name	East Silver Spring Elementary School
Date of Test Report	4/29/2022
Round of Testing	Initial Follow-up Post Remediation 2 Year Testing 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility
# Rooms Tested	42
# Rooms ≥ 4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	2.3 pCi/L

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

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April 29, 2022

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

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

Location: East Silver Spring Elementary School
631 Silver Spring Ave.
Silver Spring, MD 20910

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 East Silver Spring Elementary School, located at 631 Silver Spring Ave. Silver Spring, MD 20910 (subject site).

Scope of Services:

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

KCI visited the site on March 8, 2022 and deployed fifty-two (52) activated charcoal (AC) radon test kits. KCI deployed radon test kits in all frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance.

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

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

KCI returned to the site on March 11, 2022 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Airchek, Inc. for analysis by gamma-ray spectroscopy. Airchek, Inc. is a

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

Evaluation of Testing Conditions:

These tests represent:

- Follow-up to post-mitigation biennial testing.

These tests were conducted to:

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

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

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

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

KCI also compiled weather data for the testing period and conducted observations of relevant field conditions. During the test period, weather records indicate low temperatures were in the mid 20s and high temperatures ranged from the high 70s to the low 50s Fahrenheit. Maximum sustained winds ranged from 0-32 miles per hour. Average humidity was around 65% with 1.09 inches of precipitation (rain) was recorded during testing period.

Results:

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

The results of the radon test analysis indicated the following:

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

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

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

Sincerely,

Tyler McCleaf

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

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

ATTACHMENT A

Floor Plan With Test Locations

ATTACHMENT B

Radon Test Summary Spreadsheet

Table Notes:

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

Table 1- Radon Testing Results		
East Silver Spring ES		
Test Period: 03/08/2022 - 03/11/2022		
Kit Number	Room / Area	Result
11134010	12	0.9
11134006	13	1.1
11131580	14	0.6
11131587	16	0.9
11131581	17	0.7
11131586	18	0.7
11131600	19	2.3
11131599	20	1.4
11134001	20	< 0.3
11134002	20	1.1
11134009	21	1.7
11134008	22	2.3
11131588	31	< 0.3
11131590	31	< 0.3
11131595	32	< 0.3
11131597	33	< 0.3
11131589	34	< 0.3
11131598	35	0.8
11131593	36	0.7
11131596	37	0.6
11131594	38	< 0.3
11134015	40	0.5
11134014	41	< 0.3
11134016	41	< 0.3
11131560	100	NA
11131567	100	1.0
11131570	103	NA
11131571	103	< 0.3
11131578	104	1.4
11131584	107	< 0.3
11131585	107	< 0.3
11131591	107	< 0.3
11131572	108	< 0.3
11131592	109	0.8
11131573	110	0.6
11131553	100 MAIL	0.9
11131565	100A	1.1
11131554	100B	1.1
11131569	100B	NA
11131564	100C	1.3
11131555	100D	1.3
11131556	100D	1.6

Table 1- Radon Testing Results		
East Silver Spring ES		
Test Period: 03/08/2022 - 03/11/2022		
Kit Number	Room / Area	Result
11131562	100D	< 0.3
11131577	104A	0.9
11131523	CAFETERIA	0.6
11131563	CAFETERIA	1.0
11131575	GYM	NA
11131582	HOY	< 0.3
11134005	M-1	1.2
11131579	QUINN	0.8
11134007	R 1	2.3
11131583	RIZK	< 0.3

Table 2- Radon Testing Results			
East Silver Spring ES			
Test Period: 03/08/2022 - 03/11/2022			
Kit Number	QC Type	Room / Area	Result
11131556	D	100D	1.6
11131562	FB	100D	< 0.3
11131563	D	Cafeteria	1.0
11131571	D	103	< 0.3
11131585	D	107	< 0.3
11131591	FB	107	< 0.3
11131588	D	31	< 0.3
11134002	D	20	1.1
11134001	FB	20	< 0.3
11134016	D	41	< 0.3
11131663	OB	OFFICE BLANK	< 0.3
11131669	TB	TRAVEL BLANK	< 0.3

Summary of Missed Locations		
East Silver Spring ES		
Test Period: 03/08/22 - 03/11/22		
Kit Number	Room/Area	Result
NA	15	NA

Summary of Missing, Compromised and >/= 4 piC/L Tests		
East Silver Spring ES		
Test Period: 02/28/22 - 03/04/22		
Kit Number	Room/Area	Result
11131575	Gym	Missing
11131560	100	Compromised
11131570	103	Compromised
11131569	100B	Compromised

Table Note:

* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

P4792 / WILLIAM LYMAN

Kit Number	Start Date	Start Time	End Date	End Time	Temp.	Facility	Building	Room	Project ID	Floor	Result
11131501	2022-03-07	9:00 am	2022-03-10	10:00 am	72	WEST FARM TRANSPORTATION DEPOT	MAIN	BLDG B MANAGER		1	0.7
11131502	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	FAIRLAND CENTER	MAIN	101		1	0.7
11131503	2022-03-07	9:00 am	2022-03-10	10:00 am	72	WEST FARM TRANSPORTATION DEPOT	MAIN	BLDG B CONFERENCE		1	1.2
11131504	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	FAIRLAND CENTER	MAIN	114		1	< 0.3
11131505	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	FAIRLAND CENTER	MAIN	101		1	0.8
11131506	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	FAIRLAND CENTER	MAIN	101		1	< 0.3
11131507	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	FAIRLAND CENTER	MAIN	102		1	1.3
11131508	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	FAIRLAND CENTER	MAIN	104		1	< 0.3
11131509	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	FAIRLAND CENTER	MAIN	167		1	1.5
11131510	2022-03-07	9:00 am	2022-03-10	10:00 am	72	WEST FARM TRANSPORTATION DEPOT	MAIN	BLDG A STAFF		1	< 0.3
11131511	2022-03-07	9:00 am	2022-03-10	10:00 am	72	WEST FARM TRANSPORTATION DEPOT	MAIN	BLDG A SERVICE WRITER		1	< 0.3
11131512	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	FAIRLAND CENTER	MAIN	169		1	0.9
11131513	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	FAIRLAND CENTER	MAIN	168		1	2.9
11131514	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	FAIRLAND CENTER	MAIN	106		1	0.9
11131515	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	FAIRLAND CENTER	MAIN	109		1	< 0.3
11131516	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	FAIRLAND CENTER	MAIN	111A		1	0.7
11131517	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	FAIRLAND CENTER	MAIN	110		1	0.5
11131518	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	FAIRLAND CENTER	MAIN	167		1	< 0.3
11131519	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	FAIRLAND CENTER	MAIN	167		1	1.7
11131520	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	FAIRLAND CENTER	MAIN	111		1	0.6
11131521	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	FAIRLAND CENTER	MAIN	162		1	0.7
11131522	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	FAIRLAND CENTER	MAIN	159		1	0.8
11131523	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	EAST SILVER SPRING ES	MAIN	CAFETERIA		1	0.6
11131524	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	FAIRLAND CENTER	MAIN	163		1	0.7
11131525	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	FAIRLAND CENTER	MAIN	164		1	1.3
11131526	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	FAIRLAND CENTER	MAIN	112		1	0.5
11131527	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	FAIRLAND CENTER	MAIN	115		1	< 0.3
11131528	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	FAIRLAND CENTER	MAIN	162		1	< 0.3
11131529	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	FAIRLAND CENTER	MAIN	123		1	0.9
11131530	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	FAIRLAND CENTER	MAIN	121		1	0.5
11131531	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	FAIRLAND CENTER	MAIN	122		1	0.6
11131532	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	FAIRLAND CENTER	MAIN	122		1	< 0.3
11131533	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	FAIRLAND CENTER	MAIN	124		1	0.7
11131534	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	FAIRLAND CENTER	MAIN	162		1	0.6
11131535	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	FAIRLAND CENTER	MAIN	116		1	1.1

P4792 / WILLIAM LYMAN

Kit Number	Start Date	Start Time	End Date	End Time	Temp.	Facility	Building	Room	Project ID	Floor	Result
11131536	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	FAIRLAND CENTER	MAIN	118		1	0.8
11131537	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	FAIRLAND CENTER	MAIN	125		1	0.6
11131538	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	FAIRLAND CENTER	MAIN	MEDIA CENTER		1	< 0.3
11131539	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	FAIRLAND CENTER	MAIN	126		1	0.7
11131540	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	FAIRLAND CENTER	MAIN	152A		1	0.7
11131541	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	FAIRLAND CENTER	MAIN	151		1	0.7
11131542	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	FAIRLAND CENTER	MAIN	119		1	0.6
11131543	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	FAIRLAND CENTER	MAIN	120		1	0.6
11131544	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	FAIRLAND CENTER	MAIN	158		1	1.0
11131545	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	FAIRLAND CENTER	MAIN	140		1	1.0
11131546	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	FAIRLAND CENTER	MAIN	133		1	1.1
11131547	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	FAIRLAND CENTER	MAIN	MEDIA CENTER		1	< 0.3
11131548	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	FAIRLAND CENTER	MAIN	149A		1	< 0.3
11131549	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	FAIRLAND CENTER	MAIN	131		1	0.8
11131550	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	FAIRLAND CENTER	MAIN	131		1	
11131551	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	FAIRLAND CENTER	MAIN	MEDIA CENTER		1	< 0.3
11131552	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	FAIRLAND CENTER	MAIN	143		1	2.1
11131553	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	EAST SILVER SPRING ES	MAIN	100 MAIL		1	0.9
11131554	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	EAST SILVER SPRING ES	MAIN	100B		1	1.1
11131555	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	EAST SILVER SPRING ES	MAIN	100D		1	1.3
11131556	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	EAST SILVER SPRING ES	MAIN	100D		1	1.6
11131557	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	FAIRLAND CENTER	MAIN	144		1	1.2
11131558	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	FAIRLAND CENTER	MAIN	136		1	1.2
11131559	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	FAIRLAND CENTER	MAIN	139		1	2.3
11131560	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	EAST SILVER SPRING ES	MAIN	100		1	
11131562	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	EAST SILVER SPRING ES	MAIN	100D		1	< 0.3
11131563	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	EAST SILVER SPRING ES	MAIN	CAFETERIA		1	1.0
11131564	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	EAST SILVER SPRING ES	MAIN	100C		1	1.3
11131565	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	EAST SILVER SPRING ES	MAIN	100A		1	1.1
11131566	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	FAIRLAND CENTER	MAIN	137		1	< 0.3
11131567	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	EAST SILVER SPRING ES	MAIN	100		1	1.0
11131568	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	FAIRLAND CENTER	MAIN	138		1	1.6
11131569	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	EAST SILVER SPRING ES	MAIN	100B		1	
11131570	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	EAST SILVER SPRING ES	MAIN	103		1	
11131571	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	EAST SILVER SPRING ES	MAIN	103		1	< 0.3

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Kit Number	Start Date	Start Time	End Date	End Time	Temp.	Facility	Building	Room	Project ID	Floor	Result
11131572	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	EAST SILVER SPRING ES	MAIN	108		1	< 0.3
11131573	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	EAST SILVER SPRING ES	MAIN	110		1	0.6
11131574	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	FAIRLAND CENTER	MAIN	137		1	0.9
11131575	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	EAST SILVER SPRING ES	MAIN	GYM		1	
11131577	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	EAST SILVER SPRING ES	MAIN	104A		1	0.9
11131578	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	EAST SILVER SPRING ES	MAIN	104		1	1.4
11131579	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	EAST SILVER SPRING ES	MAIN	QUINN		1	0.8
11131580	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	EAST SILVER SPRING ES	MAIN	14		1	0.6
11131581	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	EAST SILVER SPRING ES	MAIN	17		1	0.7
11131582	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	EAST SILVER SPRING ES	MAIN	HOY		1	< 0.3
11131583	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	EAST SILVER SPRING ES	MAIN	RIZK		1	< 0.3
11131584	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	EAST SILVER SPRING ES	MAIN	107		1	< 0.3
11131585	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	EAST SILVER SPRING ES	MAIN	107		1	< 0.3
11131586	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	EAST SILVER SPRING ES	MAIN	18		1	0.7
11131587	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	EAST SILVER SPRING ES	MAIN	16		1	0.9
11131588	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	EAST SILVER SPRING ES	MAIN	31		1	< 0.3
11131589	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	EAST SILVER SPRING ES	MAIN	34		1	< 0.3
11131590	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	EAST SILVER SPRING ES	MAIN	31		1	< 0.3
11131591	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	EAST SILVER SPRING ES	MAIN	107		1	< 0.3
11131592	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	EAST SILVER SPRING ES	MAIN	109		1	0.8
11131593	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	EAST SILVER SPRING ES	MAIN	36		1	0.7
11131594	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	EAST SILVER SPRING ES	MAIN	38		1	< 0.3
11131595	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	EAST SILVER SPRING ES	MAIN	32		1	< 0.3
11131596	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	EAST SILVER SPRING ES	MAIN	37		1	0.6
11131597	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	EAST SILVER SPRING ES	MAIN	33		1	< 0.3
11131598	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	EAST SILVER SPRING ES	MAIN	35		1	0.8
11131599	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	EAST SILVER SPRING ES	MAIN	20		1	1.4
11131600	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	EAST SILVER SPRING ES	MAIN	19		1	2.3
11131660	2022-03-07	12:00 pm	2022-03-10	1:00 pm	70	OFFICE 1	MAIN	O		1	< 0.3
11131661	2022-03-07	12:00 pm	2022-03-10	1:00 pm	70	TRAVEL 1	MAIN	T		1	< 0.3
11131662	2022-03-07	10:00 am	2022-03-10	10:00 am	70	OFFICE	MAIN	O		1	< 0.3
11131663	2022-03-08	10:00 am	2022-03-11	11:00 am	70	OFFICE	MAIN	O		1	< 0.3
11131669	2022-03-08	10:00 am	2022-03-11	11:00 am	70	TRAVEL	MAIN	T		1	< 0.3
11131691	2022-03-07	10:00 am	2022-03-10	10:00 am	70	TRAVEL	MAIN	T		1	< 0.3
11133501	2022-03-07	10:00 am	2022-03-10	1:00 pm	71	PAGE, WILLIAM TYLER ES	MAIN	F104		1	0.5

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Kit Number	Start Date	Start Time	End Date	End Time	Temp.	Facility	Building	Room	Project ID	Floor	Result
11133502	2022-03-07	9:00 am	2022-03-10	10:00 am	72	WEST FARM TRANSPORTATION DEPOT	MAIN	BLDG B STAFF		1	0.7
11133503	2022-03-07	9:00 am	2022-03-10	10:00 am	72	WEST FARM TRANSPORTATION DEPOT	MAIN	BLDG C MONICA		1	< 0.3
11133504	2022-03-07	9:00 am	2022-03-10	10:00 am	72	WEST FARM TRANSPORTATION DEPOT	MAIN	MONIQUE		1	< 0.3
11133505	2022-03-07	9:00 am	2022-03-10	10:00 am	72	WEST FARM TRANSPORTATION DEPOT	MAIN	BLDG B RM 3		1	< 0.3
11133506	2022-03-07	10:00 am	2022-03-10	1:00 pm	71	PAGE, WILLIAM TYLER ES	MAIN	F101		1	0.6
11133507	2022-03-07	10:00 am	2022-03-10	1:00 pm	71	PAGE, WILLIAM TYLER ES	MAIN	A104		1	< 0.3
11133509	2022-03-07	9:00 am	2022-03-10	10:00 am	72	WEST FARM TRANSPORTATION DEPOT	MAIN	BLDG B RM 1		1	< 0.3
11133510	2022-03-07	9:00 am	2022-03-10	10:00 am	72	WEST FARM TRANSPORTATION DEPOT	MAIN	BLDG B RM 2		1	0.6
11133512	2022-03-07	9:00 am	2022-03-10	10:00 am	72	WEST FARM TRANSPORTATION DEPOT	MAIN	SUPERVISOR		1	< 0.3
11133513	2022-03-07	10:00 am	2022-03-10	1:00 pm	71	PAGE, WILLIAM TYLER ES	MAIN	2ND FLOOD OFFICE		1	
11133514	2022-03-07	10:00 am	2022-03-10	1:00 pm	71	PAGE, WILLIAM TYLER ES	MAIN	A110		1	< 0.3
11133515	2022-03-07	10:00 am	2022-03-10	1:00 pm	71	PAGE, WILLIAM TYLER ES	MAIN	A109		1	< 0.3
11133516	2022-03-07	10:00 am	2022-03-10	1:00 pm	71	PAGE, WILLIAM TYLER ES	MAIN	A111		1	0.6
11133517	2022-03-07	9:00 am	2022-03-10	10:00 am	72	WEST FARM TRANSPORTATION DEPOT	MAIN	BLDG C STAFF		1	< 0.3
11133518	2022-03-07	9:00 am	2022-03-10	10:00 am	72	WEST FARM TRANSPORTATION DEPOT	MAIN	BLDB C BROTHERTON		1	< 0.3
11133519	2022-03-07	9:00 am	2022-03-10	10:00 am	72	WEST FARM TRANSPORTATION DEPOT	MAIN	BLDG C ROUTE SUPERVISOR 1		1	< 0.3
11133520	2022-03-07	9:00 am	2022-03-10	10:00 am	72	WEST FARM TRANSPORTATION DEPOT	MAIN	SUPERVISOR BLDG C		1	< 0.3
11133521	2022-03-07	10:00 am	2022-03-10	1:00 pm	71	PAGE, WILLIAM TYLER ES	MAIN	A104		1	0.6
11133522	2022-03-07	10:00 am	2022-03-10	1:00 pm	71	PAGE, WILLIAM TYLER ES	MAIN	A113		1	1.3
11133523	2022-03-07	10:00 am	2022-03-10	1:00 pm	71	PAGE, WILLIAM TYLER ES	MAIN	A112		1	0.6
11133524	2022-03-07	10:00 am	2022-03-10	1:00 pm	71	PAGE, WILLIAM TYLER ES	MAIN	A115		1	0.8
11133525	2022-03-07	10:00 am	2022-03-10	1:00 pm	71	PAGE, WILLIAM TYLER ES	MAIN	A103		1	< 0.3
11133526	2022-03-07	10:00 am	2022-03-10	1:00 pm	71	PAGE, WILLIAM TYLER ES	MAIN	CAFETERIA		1	
11133527	2022-03-07	10:00 am	2022-03-10	1:00 pm	71	PAGE, WILLIAM TYLER ES	MAIN	H208		1	< 0.3
11133529	2022-03-07	10:00 am	2022-03-10	1:00 pm	71	PAGE, WILLIAM TYLER ES	MAIN	A106		1	< 0.3
11133530	2022-03-07	10:00 am	2022-03-10	1:00 pm	71	PAGE, WILLIAM TYLER ES	MAIN	G102		1	< 0.3
11133531	2022-03-07	10:00 am	2022-03-10	1:00 pm	71	PAGE, WILLIAM TYLER ES	MAIN	E102 OFFICE		1	0.6
11133532	2022-03-07	10:00 am	2022-03-10	1:00 pm	71	PAGE, WILLIAM TYLER ES	MAIN	E102		1	< 0.3
11133533	2022-03-07	10:00 am	2022-03-10	1:00 pm	71	PAGE, WILLIAM TYLER ES	MAIN	E102		1	< 0.3
11133534	2022-03-07	9:00 am	2022-03-10	10:00 am	72	WEST FARM TRANSPORTATION DEPOT	MAIN	BLDG C STAFF		1	< 0.3
11133535	2022-03-07	10:00 am	2022-03-10	1:00 pm	71	PAGE, WILLIAM TYLER ES	MAIN	A107		1	< 0.3
11133536	2022-03-07	9:00 am	2022-03-10	10:00 am	72	WEST FARM TRANSPORTATION DEPOT	MAIN	BLDG C TRAINING		1	< 0.3
11133537	2022-03-07	10:00 am	2022-03-10	1:00 pm	71	PAGE, WILLIAM TYLER ES	MAIN	A113		1	0.8
11133538	2022-03-07	10:00 am	2022-03-10	1:00 pm	71	PAGE, WILLIAM TYLER ES	MAIN	E102		1	< 0.3
11133539	2022-03-07	10:00 am	2022-03-10	1:00 pm	71	PAGE, WILLIAM TYLER ES	MAIN	MEDIA CENTER		1	< 0.3

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Kit Number	Start Date	Start Time	End Date	End Time	Temp.	Facility	Building	Room	Project ID	Floor	Result
11133540	2022-03-07	10:00 am	2022-03-10	1:00 pm	71	PAGE, WILLIAM TYLER ES	MAIN	MEDIA CENTER OFFICE		1	0.5
11133541	2022-03-07	10:00 am	2022-03-10	1:00 pm	71	PAGE, WILLIAM TYLER ES	MAIN	C104		1	0.8
11133542	2022-03-07	10:00 am	2022-03-10	1:00 pm	71	PAGE, WILLIAM TYLER ES	MAIN	E101		1	< 0.3
11133543	2022-03-07	10:00 am	2022-03-10	1:00 pm	71	PAGE, WILLIAM TYLER ES	MAIN	G101		1	< 0.3
11133544	2022-03-07	10:00 am	2022-03-10	1:00 pm	71	PAGE, WILLIAM TYLER ES	MAIN	E103		1	< 0.3
11133545	2022-03-07	10:00 am	2022-03-10	1:00 pm	71	PAGE, WILLIAM TYLER ES	MAIN	MAIN OFFICE HEALTH		1	0.7
11133546	2022-03-07	10:00 am	2022-03-10	1:00 pm	71	PAGE, WILLIAM TYLER ES	MAIN	X101		1	0.6
11133547	2022-03-07	10:00 am	2022-03-10	1:00 pm	71	PAGE, WILLIAM TYLER ES	MAIN	B101		1	< 0.3
11133548	2022-03-07	10:00 am	2022-03-10	1:00 pm	71	PAGE, WILLIAM TYLER ES	MAIN	102		1	< 0.3
11133549	2022-03-07	10:00 am	2022-03-10	1:00 pm	71	PAGE, WILLIAM TYLER ES	MAIN	GYM OFFICE		1	< 0.3
11133550	2022-03-07	10:00 am	2022-03-10	1:00 pm	71	PAGE, WILLIAM TYLER ES	MAIN	GYM OFFICE		1	< 0.3
11133551	2022-03-07	10:00 am	2022-03-10	1:00 pm	71	PAGE, WILLIAM TYLER ES	MAIN	GYM		1	
11133552	2022-03-07	10:00 am	2022-03-10	1:00 pm	71	PAGE, WILLIAM TYLER ES	MAIN	C102		1	< 0.3
11133553	2022-03-07	10:00 am	2022-03-10	1:00 pm	71	PAGE, WILLIAM TYLER ES	MAIN	C103		1	0.6
11133554	2022-03-07	10:00 am	2022-03-10	1:00 pm	71	PAGE, WILLIAM TYLER ES	MAIN	GYM		1	
11133555	2022-03-07	10:00 am	2022-03-10	1:00 pm	71	PAGE, WILLIAM TYLER ES	MAIN	MAIN OFFICE KURSHANNA		1	0.6
11133556	2022-03-07	10:00 am	2022-03-10	1:00 pm	71	PAGE, WILLIAM TYLER ES	MAIN	MAIN OFFICE		1	< 0.3
11133557	2022-03-07	10:00 am	2022-03-10	1:00 pm	71	PAGE, WILLIAM TYLER ES	MAIN	MAIN OFFICE		1	< 0.3
11133558	2022-03-07	10:00 am	2022-03-10	1:00 pm	71	PAGE, WILLIAM TYLER ES	MAIN	MAIN OFFICE WORKROOM		1	0.6
11133559	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	PAGE, WILLIAM TYLER ES	MAIN	MAIN OFFICE		1	0.5
11133560	2022-03-07	9:00 am	2022-03-10	10:00 am	72	WEST FARM TRANSPORTATION DEPOT	MAIN	SUPERVISOR		1	< 0.3
11133561	2022-03-07	10:00 am	2022-03-10	1:00 pm	71	PAGE, WILLIAM TYLER ES	MAIN	MAIN OFFICE CONFERENCE		1	< 0.3
11133567	2022-03-07	10:00 am	2022-03-10	1:00 pm	71	PAGE, WILLIAM TYLER ES	MAIN	MAIN OFFICE PRINCIPAL		1	0.6
11133568	2022-03-07	10:00 am	2022-03-10	1:00 pm	71	PAGE, WILLIAM TYLER ES	MAIN	A116		1	0.6
11134001	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	EAST SILVER SPRING ES	MAIN	20		1	< 0.3
11134002	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	EAST SILVER SPRING ES	MAIN	20		1	1.1
11134005	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	EAST SILVER SPRING ES	MAIN	M-1		1	1.2
11134006	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	EAST SILVER SPRING ES	MAIN	13		1	1.1
11134007	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	EAST SILVER SPRING ES	MAIN	R 1		1	2.3
11134008	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	EAST SILVER SPRING ES	MAIN	22		1	2.3
11134009	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	EAST SILVER SPRING ES	MAIN	21		1	1.7
11134010	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	EAST SILVER SPRING ES	MAIN	12		1	0.9
11134014	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	EAST SILVER SPRING ES	MAIN	41		1	< 0.3
11134015	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	EAST SILVER SPRING ES	MAIN	40		1	0.5
11134016	2022-03-08	10:00 am	2022-03-11	1:00 pm	71	EAST SILVER SPRING ES	MAIN	41		1	< 0.3

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI Technologies, Inc. Job Number 204620

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

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

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

March 30, 2022

** LABORATORY ANALYSIS REPORT **

Radon test result report for:

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

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

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

KCI TECHNOLOGIES

ENGINEERS • PLANNERS • SCIENTISTS • CONSTRUCTION MANAGERS

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

Radon Test Kit Chain of Custody

Project Name: MCPS Radon – March 2022 Schools

Name of Schools:

1. Fairland Center
2. Cloverly ES
3. Drew, Dr. Charles ES
4. Weller Road ES
5. Wheaton HS
6. East Silver Spring ES
7. Rosemary Hills ES

	Date	Initials
Radon Test Kits Deployed	03/08/2022	BM
Radon Test Kits Collected	03/11/2022	BM
Radon Test Kits Shipped to Lab*	03/11/2022	BM
Radon Test Kits Received by Lab*	03/13/2022	BM

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

KCI TECHNOLOGIES

ENGINEERS • PLANNERS • SCIENTISTS • CONSTRUCTION MANAGERS

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

MCPS RADON TESTING – EXECUTIVE SUMMARY

Site Name	East Silver Spring Elementary School
Date of Test Report	05/27/2022
Round of Testing	Initial Follow-up Post Remediation 2 Year Testing 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility
# Rooms Tested	4
# Rooms ≥ 4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	1.0 pCi/L

Project Status

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

KCI TECHNOLOGIES

ENGINEERS • PLANNERS • SCIENTISTS • CONSTRUCTION MANAGERS

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

May 27, 2022

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

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

Location: East Silver Spring Elementary School
631 Silver Spring Ave.
Silver Spring, MD 20910

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 East Silver Spring Elementary School, located at 631 Silver Spring Ave. Silver Spring, MD 20910 (subject site).

Scope of Services:

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

KCI visited the site on March 29, 2022 and deployed seven (7) activated charcoal (AC) radon test kits. KCI deployed radon test kits in all frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance.

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

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

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

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

KCI returned to the site on April 01, 2022 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Airchek, Inc. for analysis by gamma-ray spectroscopy. Airchek, Inc. is a NRSB certified analytical laboratory for radon analysis (certification # ARL1402) located at 1936 Butler Bridge Road, Mills River, North Carolina.

Evaluation of Testing Conditions:

These tests represent:

- Follow-up to initial testing.

These tests were conducted to:

- Evaluate radon concentrations at the facility.

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

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

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

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

Results:

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

The results of the radon test analysis indicated the following:

Radon Concentration	Room	Result
≥4.0 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		
East Silver Spring ES RT		
Test Period: 03/29/2022 - 04/01/2022		
Kit Number	Room / Area	Result
11139870	100	0.8
11139867	103	< 0.3
11139868	103	< 0.3
11139864	100B	1.0
11139869	100B	0.9
11139861	GYM	0.9
11139862	GYM	0.8

Table 2- Radon Testing Results			
East Silver Spring ES RT			
Test Period: 03/29/2022 - 04/01/2022			
Kit Number	QC Type	Room / Area	Result
11139869	D	100b	0.9
11139868	FB	103	< 0.3
11139883	OB	OFFICE BLANK	< 0.3
11139841	TB	TRAVEL BLANK	< 0.3

Summary of Missed Locations		
East Silver Spring ES RT		
Test Period: 03/29/22 - 04/01/22		
Kit Number	Room/Area	Result
	NA	

Summary of Missing, Compromised and >/= 4 piC/L Tests		
East Silver Spring ES RT		
Test Period: 03/29/22 - 04/01/22		
Kit Number	Room/Area	Result
	NA	

Table Note:

* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

April 4, 2022

** LABORATORY ANALYSIS REPORT **

Radon test result report for:

EAST SILVER SPRING ES
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11139870	100	2022-03-29 @ 11:00 am	2022-04-01 @ 10:00 am	0.8 ± 0.3	2022-04-04
11139864	100B	2022-03-29 @ 11:00 am	2022-04-01 @ 10:00 am	1.0 ± 0.3	2022-04-04
11139869	100B	2022-03-29 @ 11:00 am	2022-04-01 @ 10:00 am	0.9 ± 0.3	2022-04-04
11139867	103	2022-03-29 @ 11:00 am	2022-04-01 @ 10:00 am	< 0.3	2022-04-04
11139868	103	2022-03-29 @ 11:00 am	2022-04-01 @ 10:00 am	< 0.3	2022-04-04
11139861	GYM	2022-03-29 @ 11:00 am	2022-04-01 @ 10:00 am	0.9 ± 0.3	2022-04-04
11139862	GYM	2022-03-29 @ 11:00 am	2022-04-01 @ 10:00 am	0.8 ± 0.3	2022-04-04

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

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI Technologies, Inc. Job Number 204620

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

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

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

March 30, 2022

** LABORATORY ANALYSIS REPORT **

Radon test result report for:

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

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

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

KCI TECHNOLOGIES

ENGINEERS • PLANNERS • SCIENTISTS • CONSTRUCTION MANAGERS

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

Radon Test Kit Chain of Custody

Project Name: MCPS Radon – March 2022 Schools – Retesting

Name of Schools:

1. Watkins Mill HS
2. Cresthaven ES
3. East Silver Spring ES
4. Fairland Center
5. Francis Scott Key MS
6. Greencastle ES
7. Roscoe Nix ES
8. West Farm Transportation Depot
9. Wheaton HS
10. White Oak MS
11. William Tyler Page ES
12. Bel Pre ES
13. Fairland ES
14. Highland ES
15. Rolling Terrace ES
16. Takoma Park MS
17. Viers Mill ES
18. Poolesville ES

	Date	Initials
Radon Test Kits Deployed	03/29/2022	BMM
Radon Test Kits Collected	04/01/2022	BMM
Radon Test Kits Shipped to Lab*	04/01/2022	BMM
Radon Test Kits Received by Lab*	04/04/2022	BMM

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

Soil and Land Use Technology, Inc.

(301) 595-3783
1818 New York NE, Suite 231 • Washington, DC 20002 www.SaLUTinc.com

MCPS RADON TESTING - EXECUTIVE SUMMARY

Site Name	East Silver Spring Elementary School
Date of Report	12/24/2020
Round of Testing	Initial Follow-up **Post Remediation** 2 year testing 5 year testing HVAC Upgrade Window Replacement New Addition New Facility
# of Rooms Tested	2
# Rooms ≥4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	0.4 pCi/L

Project Status

Current Project Status at this time: Testing Complete

Soil and Land Use Technology, Inc.

(301) 595-3783
1818 New York NE, Suite 231 • Washington, DC 20002 www.SaLUTinc.com

12/24/2020

Brian Croyle, PG, CHMM
Environmental Specialist
Environmental Services/Indoor Air Quality
Montgomery County Public Schools
Division oof Sustainability and Compliance
Gaithersburg, Maryland 20879

Re: Radon Testing Services

SaLUT Job #20-173

Location: East Silver Spring Elementary School
631 Silver Spring Avenue
Silver Spring, MD 20910

Dear Mr. Croyle:

Soil and Land Use Technology, Inc. (SaLUT) is pleased to submit the following report to Montgomery County Public Schools pursuant to completing a "Post Remediation radon test for the East Silver Spring Elementary School, located at 631 Silver Spring Avenue Silver Spring, MD 20910 (subject site).

SCOPE OF SERVICES

SaLUT 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. SaLUT 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.* 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.

SaLUT visited the site on 12/1/2020 and deployed five (5) activated charcoal (AC) radon test kits. SaLUT deployed radon test kits in remediated 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, SaLUT included duplicate samples, field blanks, lab transit blanks, and office blanks in accordance with AARST recommendations. In addition, SaLUT submitted one (1) test kit 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.

SaLUT returned to the site on 12/4/2020 to retrieve the radon sampling test kits. SaLUT shipped all radon tests via overnight delivery to EMSL Analytical, Inc. for analysis by gamma-ray spectroscopy. EMSL Analytical, Inc. is a National Radon Safety Board (NRSB) radon measurement provider and is a certified analytical laboratory for radon analysis (certification #109000 AL) located at 200 Route 130 North, Cinnaminson, NJ 08077.

EVALUATION OF TESTING CONDITIONS

These tests represent:

- Post Remediation Testing.

These tests were conducted to:

- Evaluate radon concentrations at the facility.

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

SaLUT 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.

SaLUT also compiled weather data for the testing period and conducted observations of relevant field conditions. During the test period, weather records indicate low temperatures were in the mid-30s and high temperatures were in the mid-50s. Maximum sustained winds ranged from 10-15 miles per hour. Average humidity was around 57%. 0.0 inches of precipitation (rain) was recorded during the testing period.

RESULTS

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

The results of the radon test analysis indicated the following:

Radon Concentration	Room	Result
≥4.0 piC/L	N/A	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 301-595-3783.

Sincerely,

Mark McGrath

Soil and Land Use Technology, Inc. (SaLUT)
1818 New York Avenue, NE, Suite 231
Washington, DC 20002
202-446-7211 Mobile
301-595-3783
202-379-9504 fax

Attachments:

A- Floor Plan with Test Locations

B - Tables 1-3, Radon Test Summary Spreadsheets

C- Laboratory Analytical Results

ATTACHMENT A

Floor Plan With Test Locations

ATTACHMENT B

Radon Test Summary Spreadsheet

Table Notes:

AC- Activated Charcoal

D- Duplicate

FB- Field Blank

OB- Office Blank

PM- Project Manager

QC- Quality Control

Table 1- Radon Testing Results		
East Silver Spring Elementary School		
Test Period: 12/1/2020-12/4/2020		
Kit Number	Room / Area	Result
426533	Room 41B	0
426519	Room 41B	0.5
440162	Room 41B	0.2
440237	Room 41B	0
440309	Room 41	0.4

Table 2- Radon Testing Results			
East Silver Spring Elementary School			
Test Period: 12/1/2020-12/4/2020			
Kit Number	QC Type	Room / Area	Result
426533	FB	41B	0
440162	D	41B	0.2
437292	TRANSIT BLANK	N/A	<0.3

ATTACHMENT C

Laboratory Analytical Results

EMSL Analytical, Inc.
200 Route 130 North, Cinnaminson, NJ 08077
Phone/Fax: (800) 220-3675 / (856) 786-0327
http://www.EMSL.com cinnaminsonradonlab@emsl.com

EMSL Order:	382013021
CustomerID:	SALU50
CustomerPO:	
ProjectID:	

Attn: **Indika Jayatilake**
SaLUT
1818 New York Avenue, NE
Suite 231
Washington, DC 20002

Phone:	(301) 595-3783
Fax:	(301) 595-3787
Received:	12/7/2020 08:10 AM
Analysis Date:	12/7/2020
Collected:	12/1/2020

Project: **East Silver Spring ES / 631 Silver Spring Avenue**

Test Site: **East Silver Spring ES**
631 Silver Spring Avenue
Silver Spring, MD 20910

Test Report: Radon in Air Test Results

Samples for EMSL Kit 244275

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
426533	Room 41B	0	12/1/2020	12/4/2020	32	68	Blank
382013021-0001			12:25:00 PM	12:40:00 PM			
Sample Notes:							
426519	Room 41B	0.5	12/1/2020	12/4/2020	32	68	Customer
382013021-0002			12:25:00 PM	12:40:00 PM			
Sample Notes:							

Samples for EMSL Kit 252528

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
440162	Room 41B	0.2	12/1/2020	12/4/2020	32	68	Duplicate
382013021-0003			12:25:00 PM	12:40:00 PM			
Sample Notes:							
440237	Room 41B	0	12/1/2020	12/4/2020	32	68	Customer
382013021-0004			12:25:00 PM	12:40:00 PM			
Sample Notes:							

Duplicate RPD = 200%

Samples for EMSL Kit 252511

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
440309	Room 41	0.4	12/1/2020	12/4/2020	37	67	Customer
382013021-0005			12:25:00 PM	12:40:00 PM			
Sample Notes:							

Samples for EMSL Kit 250639

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
437292	Transportation Sample	-0.2	12/1/2020	12/4/2020	32.1	68	Customer
382013021-0006			12:25:00 PM	12:40:00 PM			
Sample Notes:							

EMSL Analytical, Inc.
200 Route 130 North, Cinnaminson, NJ 08077
Phone/Fax: (800) 220-3675 / (856) 786-0327
http://www.EMSL.com cinnaminsonradonlab@emsl.com

EMSL Order:	382013021
CustomerID:	SALU50
CustomerPO:	
ProjectID:	

Attn: **Indika Jayatilake**
SaLUT
1818 New York Avenue, NE
Suite 231
Washington, DC 20002

Phone:	(301) 595-3783
Fax:	(301) 595-3787
Received:	12/7/2020 08:10 AM
Analysis Date:	12/7/2020
Collected:	12/1/2020

Project: **East Silver Spring ES / 631 Silver Spring Avenue**

Test Site: **East Silver Spring ES**
631 Silver Spring Avenue
Silver Spring, MD 20910

Test Report: Radon in Air Test Results

The radon test was performed using a liquid scintillation radon detector/s and counted on a liquid scintillation counter using approved EPA testing protocols for Radon in Air testing. The EPA recommends fixing your home if the average of two short-term tests taken in the lowest lived-in level of the home show radon levels that are equal to or greater than 4.0pCi/L.
The EPA recommends retesting your home every two years.

Please contact EMSL Analytical, Inc. or your State Health Department for further information.
All procedures used for generating this report are in complete accordance with the current EPA protocols for the analysis of Radon in Air.

Report Note

Analyst(s)

Racquel Hafiz (6)

Dominic Gehret, Radiochemistry Laboratory Manager, NJ Radon
Measurement Specialist MES 13910
or other approved signatory

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ FL RB2034/R2687,IL RNL2008202,IN RTL00935,IA RNLAB10005,KS KS-LB-0005/KS-MS-0482,ME SPC202,MN RL-0005,NE 474/RMB-1083,NJ 03036/MEB92525/MES13910,NY 10872,OH RL39,OK D9952,PA 2573/3393/68-00367,RI RMB-108/RI00179,WV RL000220,NRSB-ARL6006,NRPP

Initial report from 12/11/2020 10:20:17

Please visit www.radontestinglab.com

OrderID: 382013021

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

Radon Testing Chain of Custody

EMSL Order Number *(Lab Use Only)*:

EMSL CINNAMINSON, N.J. 382013021

EMSL Analytical, Inc.
200 Route 130 North
Cinnaminson, NJ 08077
PHONE: 1-800-220-3675
FAX: (856) 786-5974

2020 DEC -7 A 8:10

Company: SaLUT		**EMSL-Bill to:** ☐ Same ☐ Different If Bill to Is Different note Instructions in Comments**	
Street: 1818 New York Avenue, NE Suite 231		*Third Party Billing requires written authorization from third party*	
City: Washington	**State/Province:** DC	**Zip/Postal Code:** 20002	**Country:** US
Report To (Name): Indika Jayatilake		**Fax #:** 301-595-3787	
Telephone #: 301-595-3783		**Email Address:** ijayatilake@salutinc.com	
Project Name/Number: MCPS (East Silver Spring ES			
Please Provide Results: ☐Fax ☐Email ☐Mail	**Purchase Order:**	**U.S. State Samples Taken:** MD	

Project Property Information

Project Name:			
Project Address: 631 Silver Spring Ave			
City: Silver Spring	**State:** MD	**Zip Code:** 20910	
County:		**Municipality:**	
Technician Name: Jude	**Technician Cert #:**	**Technician Signature:**	

New Jersey Testing Information

NJDEP Laboratory Certification # 03036 **NJDEP Radon Business Certification #** MEB92525

1.) Is the radon test being conducted for the purpose of: ☐ Real Estate Transaction ☐ Homeowner Testing ☒ Other
2.) Test Conditions observed? ☒ Closed House ☐ Open House
3.) What is the building type? ☐ Residential ☐ Non-Residential ☐ Daycare ☒ School
4.) What is the building foundation type? ☒ Basement ☐ Crawlspace ☐ Slab on Grade ☐ Other
5.) For School Testing, please enter: School Code _____ Room Name/Number _____

Box Number	Device Number	Location	Exposure Period Beginning Date and Time	Exposure Period Ending Date and Time	Temperature °F	Humidity, %
~~244275~~	~~Mist~~					
244275	426533 Blank	Room 41B	12-1-20 12.25	12-4-20 12.40	32.1	68
244275	426519 Sample	—do—	12-1-20 12.25	12-4-20 12.40	32.1	68
252528	440162 Duplicate	—do—	12-1-20 12.25	12-4-20 12.40	32.1	68
252528	440237 Sample	—do—	12-1-20 12-25	12-4-20 12-40	32.1	68
252511	440309 E/Sample	Room 41	12-1-20 12-25	12-4-20 12-40	37.1	67.1
250639	437292	Transportation Sample	—	—	—	—

Client Sample # (s): - **Total # of Samples:**

Relinquished (Client): **Date:** **Time:**

Received (Lab): R. Hafy **Date:** 12.7.20 **Time:**

Comments/Special Instructions:

Page 1 of _____ pages

OrderID: 382013021

EMSL Analytical, Inc.
200 Route 130 North
Cinnaminson NJ 08077
800-220-3675
radlab@emsl.com

RADON IN AIR CHAIN OF CUSTODY

Turnaround: ☐ Same Day ☐ Next Day ☐ Two Day

EMSL KIT ID NUMBER _____

SEND REPORT TO

EMSL CUSTOMER ID _____

NAME _____

ADDRESS _____

CITY _____

STATE _____ ZIPCODE _____

PHONE _____

EMAIL _____

SEND COPY OF REPORT TO

EMAIL _____

EMAIL _____

PROPERTY TESTED ☐ SAME AS ABOVE

NAME _____

ADDRESS _____

CITY _____

MUNICIPALITY _____ ☐ N/A

COUNTY _____

STATE _____ ZIPCODE _____

TECHNICIAN WHO DROPPED-OFF CANISTER(S)

NAME _____

CERTIFICATION # _____ ☐ N/A

SIGNATURE _____

TECHNICIAN WHO PICKED-UP CANISTER(S) ☐ SAME

NAME _____

CERTIFICATION # _____ ☐ N/A

SIGNATURE _____

NRPP ID 109000 ◆ AL NRSB-ARL-6006 ◆ NJDEP MEB92525
EMSL MAINTAINS MULTIPLE NATIONAL AND STATE CERTIFICATIONS FOR RADON ANALYSIS. PLEASE SEE OUR WEBSITE FOR THE MOST UP TO DATE LIST:
WWW.EMSL.COM

Expiration Date: 12/31/2022

INDOOR CANISTER COLLECTION CONDITIONS

TEMPERATURE 68 °F HUMIDITY 32.0 %

START DATE 12/01/20 TIME 12 : 25 ☑ AM ☒ PM

STOP DATE __/__/__ TIME ___:___ ☐ AM ☐ PM

LOCATION ☐ BASEMENT ☑ 1st FLOOR ☐ 2nd FLOOR

☐ BEDROOM ☐ LIVING ROOM ☐ OTHER _____

1ST CANISTER NUMBER 252528

SAMPLE TYPE ☐ CUSTOMER ☑ DUPLICATE ☐ BLANK

2ND CANISTER NUMBER 244275

SAMPLE TYPE ☐ CUSTOMER ☐ DUPLICATE ☑ BLANK

PROJECT BACKGROUND QUESTIONS

1. IS THIS A REAL ESTATE TRANSACTION? ☐ YES ☑ NO
2. IS THIS A POST MITIGATION TEST? ☑ YES ☐ NO
3. IS THIS A RETEST? ☐ YES ☑ NO
4. BUILDING CONDITIONS: ☐ OPEN ☑ CLOSED
5. BUILDING TYPE: ☐ RESIDENTIAL ☐ NON-RESIDENTIAL
   ☐ SINGLE FAMILY ☐ MULTI-UNIT
   ☐ COMMERCIAL ☑ SCHOOL ☐ DAYCARE
   ☐ OTHER _____
6. SCHOOL CODE _____ ☐ N/A
7. ROOM NUMBER _____ ☐ N/A
   ROOM LOCATION _____ ☐ N/A
8. WHAT IS THE BUILDING FOUNDATION TYPE
   ☐ BASEMENT ☐ CRAWLSPACE ☐ SLAB ON GRADE
   ☐ OTHER _____ ☐ N/A

NOTES: East Silver Spring 418

COC Revision 3.0; 01/03/2020

SAMPLES RELEASED TO THE LABORATORY

NAME _____

SIGNATURE _____

DATE __/__/__ TIME ___:___ ☐ AM ☐ PM

SAMPLES RECEIVED BY THE LABORATORY

NAME _____

SIGNATURE _____

DATE __/__/__ TIME ___:___ ☐ AM ☐ PM

OrderID: 382013021

EMSL Analytical, Inc.
200 Route 130 North
Cinnaminson NJ 08077
800-220-3675
radlab@emsl.com

RADON IN AIR CHAIN OF CUSTODY

Turnaround: ☐ Same Day ☐ Next Day ☐ Two Day

EMSL KIT ID NUMBER _____

SEND REPORT TO

EMSL CUSTOMER ID _____

NAME _____

ADDRESS _____

CITY _____

STATE _____ ZIPCODE _____

PHONE _____

EMAIL _____

SEND COPY OF REPORT TO

EMAIL _____

EMAIL _____

PROPERTY TESTED ☐ SAME AS ABOVE

NAME _____

ADDRESS _____

CITY _____

MUNICIPALITY _____ ☐ N/A

COUNTY _____

STATE _____ ZIPCODE _____

TECHNICIAN WHO DROPPED-OFF CANISTER(S)

NAME _____

CERTIFICATION # _____ ☐ N/A

SIGNATURE _____

TECHNICIAN WHO PICKED-UP CANISTER(S) ☐ SAME

NAME _____

CERTIFICATION # _____ ☐ N/A

SIGNATURE _____

NRPP ID 109000 ◆ AL NRSB-ARL-6006 ◆ NJDEP MEB92525
EMSL MAINTAINS MULTIPLE NATIONAL AND STATE CERTIFICATIONS FOR RADON ANALYSIS. PLEASE SEE OUR WEBSITE FOR THE MOST UP TO DATE LIST:
WWW.EMSL.COM

Expiration Date: 08/31/2022

INDOOR CANISTER COLLECTION CONDITIONS

TEMPERATURE 68 °F HUMIDITY 31.7 %

START DATE 12/01/20 TIME 12:25 ☐ AM ☑ PM

STOP DATE ___/___/___ TIME ___:___ ☐ AM ☐ PM

LOCATION ☐ BASEMENT ☑ 1st FLOOR ☐ 2nd FLOOR

☐ BEDROOM ☐ LIVING ROOM ☐ OTHER _____

1ST CANISTER NUMBER 252511

SAMPLE TYPE ☑ CUSTOMER ☐ DUPLICATE ☐ BLANK

2ND CANISTER NUMBER _____

SAMPLE TYPE ☐ CUSTOMER ☐ DUPLICATE ☐ BLANK

PROJECT BACKGROUND QUESTIONS

1. IS THIS A REAL ESTATE TRANSACTION? ☐ YES ☑ NO
2. IS THIS A POST MITIGATION TEST? ☑ YES ☐ NO
3. IS THIS A RETEST? ☐ YES ☑ NO
4. BUILDING CONDITIONS: ☐ OPEN ☑ CLOSED
5. BUILDING TYPE: ☐ RESIDENTIAL ☐ NON-RESIDENTIAL
   ☐ SINGLE FAMILY ☐ MULTI-UNIT
   ☐ COMMERCIAL ☑ SCHOOL ☐ DAYCARE
   ☐ OTHER _____
6. SCHOOL CODE _____ ☐ N/A
7. ROOM NUMBER _____ ☐ N/A
   ROOM LOCATION _____ ☐ N/A
8. WHAT IS THE BUILDING FOUNDATION TYPE
   ☐ BASEMENT ☐ CRAWLSPACE ☐ SLAB ON GRADE
   ☐ OTHER _____ ☐ N/A

NOTES: East Silver Spring 41

COC Revision 3.0; 01/03/2020

SAMPLES RELEASED TO THE LABORATORY

NAME _____

SIGNATURE _____

DATE ___/___/___ TIME ___:___ ☐ AM ☐ PM

SAMPLES RECEIVED BY THE LABORATORY

NAME _____

SIGNATURE _____

DATE ___/___/___ TIME ___:___ ☐ AM ☐ PM

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

MCPS RADON TESTING - EXECUTIVE SUMMARY

Site Name	East Silver Spring Elementary School
Date of Report	3/5/2020
Round of Testing	Initial **Follow-up** Post Remediation 2 year testing 5 year testing HVAC Upgrade Window Replacement New Addition New Facility
# of Rooms Tested	1
# Rooms ≥4.0 pCi/L	1
Lowest Value	<0.3 pCi/L
Highest Value	4.9 pCi/L

Project Status

Current Project Status at this time: Retesting completed; Remediation Plan

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

3/5/2020

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

Re: Radon Testing Services

KCI Job #12146341.126

Location: East Silver Spring Elementary School
631 Silver Spring Avenue
Silver Spring, Maryland 20910

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 East Silver Spring Elementary School, located at 631 Silver Spring Avenue in Silver Spring, Maryland 20910 (subject site).

SCOPE OF SERVICES

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

KCI visited the site on 2/18/2020 and deployed two (2) activated charcoal (AC) radon test kits. KCI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance.

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

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

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

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

As a quality control measure, KCI included duplicate samples, field blanks, lab transit blanks, and office blanks in accordance with AARST recommendations. In addition, KCI submitted nine (9) test kits to Bowser-Morner, Inc. as spike samples. The spiked tests were exposed to a known radon concentration by Bowser-Morner, Inc. prior to being returned to the laboratory for analysis.

KCI returned to the site on 2/21/2020 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Aircheck, Inc. for analysis by gamma-ray spectroscopy. Aircheck, Inc. is a NRSB certified analytical laboratory for radon analysis (certification #ARL1402) located at 1936 Butler Bridge Road, Mills River, North Carolina.

EVALUATION OF TESTING CONDITIONS

These tests represent:

- Follow-up to initial testing.

These tests were conducted to:

- Evaluate radon concentrations at the facility.

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

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

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

KCI also compiled weather data for the testing period and conducted observations of relevant field conditions. During the test period, weather records indicate low temperatures were in the mid-20s to the lower-40s; and high temperatures ranged from the upper-30s to the upper-50s. Maximum sustained winds ranged from 13-21 miles per hour. Average humidity was approximately 50%. A total of .01 inches of rain were recorded during the testing period. The weather conditions during the testing period may have resulted in atypical radon test results for this facility.

RESULTS

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

The results of the radon test analysis indicated the following:

Radon Concentration	Room	Result
≥4.0 piC/L	41B	4.9
≤4.0 piC/L	See Attachment B	See Attachment B

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

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

Sincerely,

Mr. Tyler P. McCleaf
Radon Measurement Provider
KCI Technologies, Inc.

Attachments:

A- Floor Plan with Test Locations

B - Tables 1-3, Radon Test Summary Spreadsheets

C- Laboratory Analytical Results

ATTACHMENT A

Floor Plan With Test Locations

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

ATTACHMENT B

Radon Test Summary Spreadsheet

Table Notes:

AC- Activated Charcoal

ACI- Air Chek, Inc.

D- Duplicate

FB- Field Blank

KCI- KCI Technologies, Inc.

OB- Office Blank

PM- Project Manager

QC- Quality Control

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

Table 1- Radon Testing Results		
East Silver Spring Elementary School		
Test Period: 02/18/20-02/21/20		
Kit Number	Room / Area	Result
9346970	41B	4.9
9348571	OFFICE BLANK	< 0.3

ATTACHMENT C

Laboratory Analytical Results

February 28, 2020 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

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

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

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

March 5, 2020

** LABORATORY ANALYSIS REPORT **

Radon test result report for:

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

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9341733		2020-02-21 @ 8:00 am	2020-02-24 @ 8:00 am	26.4 ± 1.6	2020-02-26

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

March 5, 2020

** LABORATORY ANALYSIS REPORT **

Radon test result report for:
S
N/A

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

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

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI Technologies, Inc. Job Number 194523

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

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

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

P4792 / WILLIAM LYMAN

Kit Number	Start Date	Start Time	End Date	End Time	Temp.	Facility	Building	Room	Project ID	Floor	Result
9346970	2020-02-18	12:00 pm	2020-02-21	12:00 pm	70	EAST SILVER SPRING	756	41B		3	4.9

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

KCI TECHNOLOGIES

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

Radon Test Kit Chain of Custody

Project Name: MCPS Radon 2019 Week 3

Name of Schools:

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

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

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

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

MCPS RADON TESTING - EXECUTIVE SUMMARY

Site Name	East Silver Spring Elementary School
Date of Report	2/21/2020
Round of Testing	Initial Follow-up Post Remediation **2 year testing** 5 year testing HVAC Upgrade Window Replacement New Addition New Facility
# of Rooms Tested	49
# Rooms ≥4.0 pCi/L	1
Lowest Value	<0.3 pCi/L
Highest Value	4.1 pCi/L

Project Status

Current Project Status at this time: Testing Complete; missing/compromised tests to be sampled; elevated tests to be re-sampled.

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

2/21/2020

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

Re: Radon Testing Services

KCI Job #12146341126

Location: East Silver Spring Elementary School
631 Silver Spring Avenue
Silver Spring, Maryland 20910

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 East Silver Spring Elementary School, located at 631 Silver Spring Avenue in Silver Spring, Maryland 20910 (subject site).

SCOPE OF SERVICES

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

KCI visited the site on 1/6/2020 and deployed fifty-eight (58) activated charcoal (AC) radon test kits. KCI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance.

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

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

KCI returned to the site on 1/9/2020 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Aircheck, Inc. for analysis by gamma-ray spectroscopy. Aircheck, Inc. is a National Radon Safety Board (NRSB) radon measurement provider and is a certified analytical laboratory for radon analysis (certification #ARL1402) located at 1936 Butler Bridge Road, Mills River, North Carolina.

EVALUATION OF TESTING CONDITIONS

These tests represent:

- Follow-up to initial testing.

These tests were conducted to:

- Evaluate radon concentrations at the facility.

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

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

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

KCI also compiled weather data for the testing period and conducted observations of relevant field conditions. During the test period, weather records indicate low temperatures were in the upper-20s and high temperatures were in the mid-50s. Maximum sustained winds ranged from 10-23 miles per hour. Average humidity was around 64%. 0.32 inches of precipitation (rain) was recorded during the testing period.

RESULTS

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

The results of the radon test analysis indicated the following:

Radon Concentration	Room	Result
≥4.0 piC/L	41B	4.1
≤4.0 piC/L	See Attachment B	See Attachment B

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

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

Sincerely,

Mr. Tyler P. McCleaf
Radon Measurement Provider
111004 RT

KCI Technologies, Inc.

Attachments:

A- Floor Plan with Test Locations

B - Tables 1-3, Radon Test Summary Spreadsheets

C- Laboratory Analytical Results

ATTACHMENT A

Floor Plan With Test Locations

ATTACHMENT B

Radon Test Summary Spreadsheet

Table Notes:

AC- Activated Charcoal

ACI- Air Chek, Inc.

D- Duplicate

FB- Field Blank

KCI- KCI Technologies, Inc.

OB- Office Blank

PM- Project Manager

QC- Quality Control

Table 1- Radon Testing Results		
East Silver Spring Elementary School		
Test Period: 1/6/2020-1/9/2020		
Kit Number	Room / Area	Result
9340167	102A	2.1
9340168	102B	1.6
9340171	104	< 0.3
9340172	106	1.7
9340173	106	1.2
9340174	105B	1.1
9340175	100D	< 0.3
9340176	100B	< 0.3
9340179	104A	1.8
9340180	105	1.1
9340181	102	1.1
9340182	103	< 0.3
9340183	100C	0.9
9340184	100	0.6
9340190	100A	0.6
9347555	104	0.7
9347557	105	0.7
9347558	18	1.1
9347559	M-1	2.3
9347560	12	1.9
9347561	16	1.5
9347562	17	1.5
9347563	16	1.4
9347564	16	< 0.3
9347565	200B	1.5
9347566	200	1.8
9347567	13	2
9347568	15	3.3
9347569	14	1.2
9347570	19	1.3
9347571	20	1.2
9347572	19	1.7
9347573	21	2.6
9347574	22	2.3
9347575	R-1	1.9
9347576	33	< 0.3
9347577	36	< 0.3
9347578	36	0.8
9347579	37	1
9347580	34	< 0.3
9347582	32	< 0.3
9347583	31	< 0.3

9347584	41B	4.1
9347585	40	3.1
9347586	36	< 0.3
9347587	38	0.7
9347588	41	2.5
9347589	1	1.7
9347590	5	1.7
9347591	5	1.6
9347592	107	1.6
9347593	109	1.4
9347594	108	1.6
9347595	23	0.7
9347597	110	1.5
9347599	8	1.8
9347600	27	0.8
9348306	OFFICE BLANK	< 0.3
9347581	35	0.8

Table 2- Radon Testing Results			
East Silver Spring Elementary School			
Test Period: 1/6/2020-1/9/2020			
Kit Number	QC Type	Room / Area	Result
9347561	D	16	1.5
9347564	FB	16	<0.3
9347570	D	19	1.3
9347578	D	36	0.8
9347586	FB	36	<0.3
9347590	D	5	1.7
9348319	TRANSIT BLANK	NA	<0.3
9348320	TRANSIT BLANK	NA	<0.3
9348313	TRANSIT BLANK	NA	<0.3

Summary of Missed Locations		
East Silver Spring Elementary School		
Test Period: 01/06/2020 - 01/09/2020		
Kit Number	Room/Area	Result
-	N/A	-

Summary of Missing, Compromised and >/= 4 piC/L Tests		
East Silver Spring Elementary School		
Test Period: 01/06/2020 - 01/09/2020		
Kit Number	Room/Area	Result
9347584	41B	4.1

Table Note:
* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

January 3, 2020

** LABORATORY ANALYSIS REPORT **

Radon test result report for:

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

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

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January 3, 2020

** LABORATORY ANALYSIS REPORT **

Radon test result report for:

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

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

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January 3, 2020

** LABORATORY ANALYSIS REPORT **

Radon test result report for:

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

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

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January 3, 2020

** LABORATORY ANALYSIS REPORT **

Radon test result report for:

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

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

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EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI Technologies Inc Job Number 193598

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

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

Time Start: 0830 Time Stop: 0830

(Group 4)
Device No.'s: (20) Char. Bags -

9340061 thru 9340080

52

Avg pCi/L 35.5 RH % 50.1 Temp °F 70.0

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

Time Start: 0835 Time Stop: 0835

(Group 5)
Device No.'s: (20) Char. Bags -

9340081 thru 9340100

Q5

Avg pCi/L 35.5 RH % 50.1 Temp °F 70.0

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

Time Start: 0840 Time Stop: 0840

(Group 6)
Device No.'s: (20) Char. Bags -

9341701 thru 9341720

R5

Avg pCi/L 35.5 RH % 50.1 Temp °F 70.0

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

January 14, 2020 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
EAST SILVER SPRING ES
756

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9347589	1	2020-01-06 @ 2:00 pm	2020-01-09 @ 11:00 am	1.7 ± 0.5	2020-01-14
9340184	100	2020-01-06 @ 11:00 am	2020-01-09 @ 11:00 am	0.6 ± 0.4	2020-01-14
9340190	100A	2020-01-06 @ 11:00 am	2020-01-09 @ 11:00 am	0.6 ± 0.4	2020-01-14
9340176	100B	2020-01-06 @ 11:00 am	2020-01-09 @ 11:00 am	< 0.3	2020-01-14
9340183	100C	2020-01-06 @ 11:00 am	2020-01-09 @ 11:00 am	0.9 ± 0.4	2020-01-14
9340175	100D	2020-01-06 @ 11:00 am	2020-01-09 @ 11:00 am	< 0.3	2020-01-14
9340181	102	2020-01-06 @ 12:00 pm	2020-01-09 @ 11:00 am	1.1 ± 0.5	2020-01-14
9340167	102A	2020-01-06 @ 12:00 pm	2020-01-09 @ 11:00 am	2.1 ± 0.5	2020-01-14
9340168	102B	2020-01-06 @ 12:00 pm	2020-01-09 @ 11:00 am	1.6 ± 0.5	2020-01-14
9340182	103	2020-01-06 @ 12:00 pm	2020-01-09 @ 11:00 am	< 0.3	2020-01-14
9347555	104	2020-01-06 @ 12:00 pm	2020-01-09 @ 11:00 am	0.7 ± 0.4	2020-01-14
9340171	104	2020-01-06 @ 12:00 pm	2020-01-09 @ 11:00 am	< 0.3	2020-01-14
9340179	104A	2020-01-06 @ 12:00 pm	2020-01-09 @ 12:00 pm	1.8 ± 0.5	2020-01-14
9347557	105	2020-01-06 @ 12:00 pm	2020-01-09 @ 11:00 am	0.7 ± 0.4	2020-01-14
9340180	105	2020-01-06 @ 12:00 pm	2020-01-09 @ 11:00 am	1.1 ± 0.5	2020-01-14
9340174	105B	2020-01-06 @ 12:00 pm	2020-01-09 @ 12:00 pm	1.1 ± 0.4	2020-01-14
9340172	106	2020-01-06 @ 12:00 pm	2020-01-09 @ 11:00 am	1.7 ± 0.5	2020-01-14
9340173	106	2020-01-06 @ 12:00 pm	2020-01-09 @ 11:00 am	1.2 ± 0.4	2020-01-14
9347592	107	2020-01-06 @ 2:00 pm	2020-01-09 @ 12:00 pm	1.6 ± 0.5	2020-01-14
9347594	108	2020-01-06 @ 2:00 pm	2020-01-09 @ 12:00 pm	1.6 ± 0.5	2020-01-14
9347593	109	2020-01-06 @ 2:00 pm	2020-01-09 @ 12:00 pm	1.4 ± 0.5	2020-01-14
9347597	110	2020-01-06 @ 2:00 pm	2020-01-09 @ 12:00 pm	1.5 ± 0.5	2020-01-14
9347560	12	2020-01-06 @ 1:00 pm	2020-01-09 @ 12:00 pm	1.9 ± 0.5	2020-01-14
9347567	13	2020-01-06 @ 12:00 pm	2020-01-09 @ 12:00 pm	2.0 ± 0.5	2020-01-14
9347569	14	2020-01-06 @ 12:00 pm	2020-01-09 @ 12:00 pm	1.2 ± 0.4	2020-01-14
9347568	15	2020-01-06 @ 1:00 pm	2020-01-09 @ 12:00 pm	3.3 ± 0.6	2020-01-14
9347563	16	2020-01-06 @ 12:00 pm	2020-01-09 @ 12:00 pm	1.4 ± 0.5	2020-01-14
9347561	16	2020-01-06 @ 12:00 pm	2020-01-09 @ 12:00 pm	1.5 ± 0.5	2020-01-14
9347564	16	2020-01-06 @ 12:00 pm	2020-01-09 @ 12:00 pm	< 0.3	2020-01-14
9347562	17	2020-01-06 @ 12:00 pm	2020-01-09 @ 12:00 pm	1.5 ± 0.5	2020-01-14
9347558	18	2020-01-06 @ 12:00 pm	2020-01-09 @ 12:00 pm	1.1 ± 0.4	2020-01-14
9347572	19	2020-01-06 @ 1:00 pm	2020-01-09 @ 12:00 pm	1.7 ± 0.5	2020-01-14
9347570	19	2020-01-06 @ 1:00 pm	2020-01-09 @ 12:00 pm	1.3 ± 0.5	2020-01-14
9347571	20	2020-01-06 @ 1:00 pm	2020-01-09 @ 12:00 pm	1.2 ± 0.5	2020-01-14
9347566	200	2020-01-06 @ 1:00 pm	2020-01-09 @ 12:00 pm	1.8 ± 0.5	2020-01-14
9347565	200B	2020-01-06 @ 1:00 pm	2020-01-09 @ 12:00 pm	1.5 ± 0.5	2020-01-14
9347573	21	2020-01-06 @ 1:00 pm	2020-01-09 @ 12:00 pm	2.6 ± 0.5	2020-01-14

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January 14, 2020 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

EAST SILVER SPRING ES
756

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9347574	22	2020-01-06 @ 1:00 pm	2020-01-09 @ 12:00 pm	2.3 ± 0.5	2020-01-14
9347595	23	2020-01-06 @ 2:00 pm	2020-01-09 @ 12:00 pm	0.7 ± 0.4	2020-01-14
9347600	27	2020-01-06 @ 2:00 pm	2020-01-09 @ 12:00 pm	0.8 ± 0.4	2020-01-14
9347583	31	2020-01-06 @ 1:00 pm	2020-01-09 @ 12:00 pm	< 0.3	2020-01-14
9347582	32	2020-01-06 @ 1:00 pm	2020-01-09 @ 12:00 pm	< 0.3	2020-01-14
9347576	33	2020-01-06 @ 1:00 pm	2020-01-09 @ 12:00 pm	< 0.3	2020-01-14
9347580	34	2020-01-06 @ 1:00 pm	2020-01-09 @ 12:00 pm	< 0.3	2020-01-14
9347578	36	2020-01-06 @ 1:00 pm	2020-01-09 @ 12:00 pm	0.8 ± 0.4	2020-01-14
9347586	36	2020-01-06 @ 1:00 pm	2020-01-09 @ 12:00 pm	< 0.3	2020-01-14
9347577	36	2020-01-06 @ 1:00 pm	2020-01-09 @ 12:00 pm	< 0.3	2020-01-14
9347579	37	2020-01-06 @ 1:00 pm	2020-01-09 @ 12:00 pm	1.0 ± 0.4	2020-01-14
9347587	38	2020-01-06 @ 1:00 pm	2020-01-09 @ 12:00 pm	0.7 ± 0.4	2020-01-14
9347585	40	2020-01-06 @ 1:00 pm	2020-01-09 @ 12:00 pm	3.1 ± 0.5	2020-01-14
9347588	41	2020-01-06 @ 1:00 pm	2020-01-09 @ 12:00 pm	2.5 ± 0.5	2020-01-14
9347584	41B	2020-01-06 @ 1:00 pm	2020-01-09 @ 12:00 pm	4.1 ± 0.6	2020-01-14
9347590	5	2020-01-06 @ 2:00 pm	2020-01-09 @ 11:00 am	1.7 ± 0.5	2020-01-14
9347591	5	2020-01-06 @ 2:00 pm	2020-01-09 @ 11:00 am	1.6 ± 0.4	2020-01-14
9347599	8	2020-01-06 @ 2:00 pm	2020-01-09 @ 12:00 pm	1.8 ± 0.5	2020-01-14
9347559	M-1	2020-01-06 @ 1:00 pm	2020-01-09 @ 12:00 pm	2.3 ± 0.5	2020-01-14
9347575	R-1	2020-01-06 @ 1:00 pm	2020-01-09 @ 12:00 pm	1.9 ± 0.5	2020-01-14

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January 14, 2020 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

756

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9347581	35	2020-01-06 @ 1:00 pm	2020-01-09 @ 12:00 pm	0.8 ± 0.4	2020-01-14

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Radon Test Kit Chain of Custody

Project Name: MCPS Radon 2019 Week 3

Name of Schools:

1. Bannockburn E.S.
2. Bethesda E.S.
3. Bethesda-Chevy Chase H.S.
4. Bradley Hill E.S.
5. Burning Tree E.S.
6. Burnt Mills E.S.
7. East Silver Springs E.S.
8. Einstein H.S.
9. Flora Singer E.S.
10. Key M.S.
11. Montgomery Blair H.S.
12. Montgomery Knolls E.S.
13. Newport Mills M.S.
14. Oak View E.S.
15. Rock View E.S.
16. Roscoe Nix E.S.
17. Sligo M.S.
18. Spring Mill Center
19. Springbrook H.S.
20. Westland M.S.
21. Woodlin M.S.

	Date	Initials
Radon Test Kits Deployed	1/6/20 to 1/7/20	JM
Radon Test Kits Collected	1/9/20 to 1/10/20	JM
Radon Test Kits Shipped to Lab*	1/10/20	JM
Radon Test Kits Received by Lab*	1/13/202	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

Site Name	East Silver Spring Elementary School
Date of Report	March 9, 2018
Round of Testing	Initial **Follow-up** Post Remediation 2 year testing 5 year testing HVAC Upgrade Window Replacement New Addition New Facility
# of Rooms Tested	3
# Rooms ≥4.0 pCi/L	0
Lowest Value	0.9 pCi/L
Highest Value	1.4 pCi/L

Project Status

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

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March 9, 2018

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

Re: Radon Testing Services

KCI Job #1214634188

Location: East Silver Spring Elementary School
631 Sliver Spring Ave.
Silver Spring, Maryland 20910

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 East Silver Spring Elementary School, located at 631 Sliver Spring Ave. in Silver Spring, Maryland 20910 (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 three (3) activated charcoal (AC) radon test kits. KCI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance.

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 post-mitigation biennial testing.

These tests were conducted to:

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

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

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

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

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

RESULTS

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

The results of the radon test analysis indicated the following:

Radon Concentration	Room	Result
≥4.0 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		
East Silver Spring Elementary Schoo		
Test Period: 02/13/18-02/16/18		
Kit Number	**Room / Area**	**Result**
7984136	8	1.4
7984177	37	1.1
7984135	106C/FOOD SERVICE	0.9

Table Note:
* Missing or Compromised Sample

Table 2 - Radon Testing Results		
Facility		
Test Period: 02/12/18-02/15/18		
Kit Number	**QC Type**	**Result**

Table Note:
* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

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

Radon test result report for:
EAST SILVER SPRING ELEMENTARY SCHOO
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7984135	106C/FOOD SERVIC	2018-02-13 @ 1:00 pm	2018-02-16 @ 7:00 am	0.9 ± 0.4	2018-02-20
7984177	37	2018-02-13 @ 1:00 pm	2018-02-16 @ 7:00 am	1.1 ± 0.4	2018-02-20
7984136	8	2018-02-13 @ 1:00 pm	2018-02-16 @ 7:00 am	1.4 ± 0.4	2018-02-20

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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

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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

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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	East Silver Spring Elementary School
Date of Report	January 30, 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	39
# Rooms ≥4.0 pCi/L	0
Lowest Value	< 0.3 pCi/L
Highest Value	3 pCi/L

Project Status

Current Project Status at this time: Results satisfactory to date; missed locations to be sampled.

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January 30, 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: East Silver Spring Elementary School
631 Sliver Spring Ave.
Silver Spring , Maryland 20910

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 East Silver Spring Elementary School, located at 631 Sliver Spring Ave. in Silver Spring , Maryland 20910 (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 27, 2017 and deployed fifty-one (51) 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 November 30, 2017 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Aircheck, Inc. for analysis by gamma-ray spectroscopy. Aircheck, Inc. is a NRSB certified analytical laboratory for radon analysis (certification #ARL1402) located at 1936 Butler Bridge Road, Mills River, North Carolina.

EVALUATION OF TESTING CONDITIONS

These tests represent:

- Post-mitigation biennial testing.

These tests were conducted to:

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

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

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

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

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

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

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

RESULTS

The sampling locations, field observations, and analytical results are listed on Table 1 (Attachment B). The quality control sample locations and analytical results are listed on Table 2 (Attachment B). Missing/compromised tests, missed rooms, and locked rooms are listed on Table 3 (Attachement 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 blank had test results of less than the laboratory detection limit of 0.3 pCi/L.
Adequate Laboratory Precision?	Review of the duplicate sample analysis indicates that adequate laboratory measurement precision was achieved.
Spike Sample Analysis:	The Spike sample analysis results indicate the laboratory is operating within statistical control limits.

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

Sincerely,

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

Attachments:

B - Tables 1-3, Radon Test Summary Spreadsheets

C- Laboratory Analytical Results

ATTACHMENT B

Radon Test Summary Spreadsheet

Table Notes:

AC- Activated Charcoal

ACI- Air Chek, Inc.

D- Duplicate

FB- Field Blank

KCI- KCI Technologies, Inc.

OB- Office Blank

PM- Project Manager

QC- Quality Control

Radon Testing Results		
East Silver Spring Elementary School		
Test Period: 11/27/17-11/30/17		
Kit Number	**Room / Area**	**Result**
7977444	3	0.8
7977463	12	1.5
7977466	13	1.3
7977467	14	1.0
7977487	15	1.4
7977461	16	1.5
7977490	17	1.4
7977457	18	0.8
7977488	19	3.0
7977491	20	1.6
7977492	21	2.3
7977482	22	2.9
7977473	31	0.6
7977485	32	< 0.3
7977486	33	< 0.3
7977454	34	0.9
7977469	35	0.8
7977499	36	1.1
7977495	37	< 0.3
7977456	38	0.8
7977479	40	1.2
7977450	41	1.6
7977481	100	1.0
7977474	102	0.8
7977476	103	0.9
7977478	104	1.0
7977449	105	0.7
7977451	105	1.0
7977477	106	0.8
7977480	106	1.7
7977448	107	1.1
7977493	110	1.1
7977468	100A	1.3
7977498	100B	< 0.3
7977500	100C	< 0.3
7977470	M	1.5
7977472	M1	1.6
7977484	M4	1.7
7977464	MC1	1.7
7977465	MEDIA CENTER	1.6
7977483	R1	1.5

Table Note:
* Missing or Compromised Sample

Radon Testing Results		
East Silver Spring Elementary School		
Test Period: 11/27/17-11/30/17		
Kit Number	**QC Type**	**Result**
7977452	D (100)	0.6
7977494	D (100C)	0.7
7977475	D (102)	< 0.3
7977460	D (31)	0.5
7977455	D (40)	1.5
7977489	D (41)	1.4
7977471	D (R1)	2.1
7977496	FB (21)	< 0.3
7977497	FB (22)	< 0.3
7977282	OB (OB)	< 0.3

Table Note:
* Missing or Compromised Sample

Summary of Missed Locations		
East Silver Spring Elementary School		
Test Period: 11/27/17-12/01/17		
Kit Number	Room / Area	Result
-	8 (Missed location)	-
-	Council 37 (Missed location)	-
-	FOOD SERVICE (Missed location)	-

Summary of Missing, Compromised and ≥4 piC/L Tests		
East Silver Spring Elementary School		
Test Period: 11/27/17-11/30/17		
Kit Number	Room / Area	Result
	(none)	

Table Note:
* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

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

Radon test result report for:
EAST SILVER SPRING ES
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7977481	100	2017-11-27 @ 12:00 pm	2017-11-30 @ 9:00 am	1.0 ± 0.5	2017-12-05
7977452	100	2017-11-27 @ 12:00 pm	2017-11-30 @ 9:00 am	0.6 ± 0.5	2017-12-05
7977468	100A	2017-11-27 @ 12:00 pm	2017-11-30 @ 9:00 am	1.3 ± 0.4	2017-12-05
7977498	100B	2017-11-27 @ 12:00 pm	2017-11-30 @ 9:00 am	< 0.3	2017-12-05
7977500	100C	2017-11-27 @ 12:00 pm	2017-11-30 @ 9:00 am	< 0.3	2017-12-05
7977494	100C	2017-11-27 @ 12:00 pm	2017-11-30 @ 9:00 am	0.7 ± 0.4	2017-12-05
7977474	102	2017-11-27 @ 12:00 pm	2017-11-30 @ 9:00 am	0.8 ± 0.4	2017-12-05
7977475	102	2017-11-27 @ 12:00 pm	2017-11-30 @ 9:00 am	< 0.3	2017-12-05
7977476	103	2017-11-27 @ 12:00 pm	2017-11-30 @ 9:00 am	0.9 ± 0.4	2017-12-05
7977478	104	2017-11-27 @ 12:00 pm	2017-11-30 @ 9:00 am	1.0 ± 0.4	2017-12-05
7977449	105	2017-11-27 @ 12:00 pm	2017-11-30 @ 9:00 am	0.7 ± 0.4	2017-12-05
7977451	105	2017-11-27 @ 12:00 pm	2017-11-30 @ 9:00 am	1.0 ± 0.5	2017-12-05
7977480	106	2017-11-27 @ 12:00 pm	2017-11-30 @ 9:00 am	1.7 ± 0.5	2017-12-05
7977477	106	2017-11-27 @ 12:00 pm	2017-11-30 @ 9:00 am	0.8 ± 0.4	2017-12-05
7977448	107	2017-11-27 @ 1:00 pm	2017-11-30 @ 10:00 am	1.1 ± 0.4	2017-12-05
7977493	110	2017-11-27 @ 1:00 pm	2017-11-30 @ 10:00 am	1.1 ± 0.4	2017-12-05
7977463	12	2017-11-27 @ 9:00 am	2017-11-30 @ 9:00 am	1.5 ± 0.4	2017-12-05
7977466	13	2017-11-27 @ 9:00 am	2017-11-30 @ 9:00 am	1.3 ± 0.4	2017-12-05
7977467	14	2017-11-27 @ 9:00 am	2017-11-30 @ 9:00 am	1.0 ± 0.4	2017-12-05
7977487	15	2017-11-27 @ 9:00 am	2017-11-30 @ 10:00 am	1.4 ± 0.4	2017-12-05
7977461	16	2017-11-27 @ 10:00 am	2017-11-30 @ 10:00 am	1.5 ± 0.4	2017-12-05
7977490	17	2017-11-27 @ 10:00 am	2017-11-30 @ 10:00 am	1.4 ± 0.4	2017-12-05
7977457	18	2017-11-27 @ 10:00 am	2017-11-30 @ 10:00 am	0.8 ± 0.4	2017-12-05
7977488	19	2017-11-27 @ 10:00 am	2017-11-30 @ 10:00 am	3.0 ± 0.5	2017-12-05
7977491	20	2017-11-27 @ 10:00 am	2017-11-30 @ 10:00 am	1.6 ± 0.4	2017-12-04
7977496	21	2017-11-27 @ 10:00 am	2017-11-30 @ 10:00 am	< 0.3	2017-12-04
7977492	21	2017-11-27 @ 10:00 am	2017-11-30 @ 10:00 am	2.3 ± 0.5	2017-12-05
7977497	22	2017-11-27 @ 10:00 am	2017-11-30 @ 10:00 am	< 0.3	2017-12-05
7977482	22	2017-11-27 @ 10:00 am	2017-11-30 @ 10:00 am	2.9 ± 0.5	2017-12-05
7977444	3	2017-11-27 @ 12:00 pm	2017-11-30 @ 10:00 am	0.8 ± 0.4	2017-12-05
7977460	31	2017-11-27 @ 11:00 am	2017-11-30 @ 10:00 am	0.5 ± 0.4	2017-12-05
7977473	31	2017-11-27 @ 11:00 am	2017-11-30 @ 10:00 am	0.6 ± 0.4	2017-12-05
7977485	32	2017-11-27 @ 11:00 am	2017-11-30 @ 10:00 am	< 0.3	2017-12-05
7977486	33	2017-11-27 @ 11:00 am	2017-11-30 @ 10:00 am	< 0.3	2017-12-05
7977454	34	2017-11-27 @ 11:00 am	2017-11-30 @ 10:00 am	0.9 ± 0.4	2017-12-05
7977469	35	2017-11-27 @ 11:00 am	2017-11-30 @ 10:00 am	0.8 ± 0.4	2017-12-05
7977499	36	2017-11-27 @ 11:00 am	2017-11-30 @ 10:00 am	1.1 ± 0.4	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:
EAST SILVER SPRING ES
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7977495	37	2017-11-27 @ 11:00 am	2017-11-30 @ 10:00 am	< 0.3	2017-12-04
7977456	38	2017-11-27 @ 11:00 am	2017-11-30 @ 10:00 am	0.8 ± 0.4	2017-12-05
7977479	40	2017-11-27 @ 10:00 am	2017-11-30 @ 9:00 am	1.2 ± 0.4	2017-12-05
7977455	40	2017-11-27 @ 10:00 am	2017-11-30 @ 9:00 am	1.5 ± 0.5	2017-12-05
7977450	41	2017-11-27 @ 10:00 am	2017-11-30 @ 10:00 am	1.6 ± 0.4	2017-12-05
7977489	41	2017-11-27 @ 10:00 am	2017-11-30 @ 10:00 am	1.4 ± 0.5	2017-12-05
7977470	M	2017-11-27 @ 11:00 am	2017-11-30 @ 10:00 am	1.5 ± 0.4	2017-12-04
7977472	M1	2017-11-27 @ 9:00 am	2017-11-30 @ 10:00 am	1.6 ± 0.4	2017-12-04
7977484	M4	2017-11-27 @ 10:00 am	2017-11-30 @ 10:00 am	1.7 ± 0.4	2017-12-05
7977464	MC1	2017-11-27 @ 11:00 am	2017-11-30 @ 10:00 am	1.7 ± 0.5	2017-12-05
7977465	MEDIA CENTER	2017-11-27 @ 11:00 am	2017-11-30 @ 10:00 am	1.6 ± 0.5	2017-12-05
7977282	OB	2017-11-27 @ 2:00 pm	2017-11-30 @ 2:00 pm	< 0.3	2017-12-05
7977471	R1	2017-11-27 @ 10:00 am	2017-11-30 @ 10:00 am	2.1 ± 0.5	2017-12-05
7977483	R1	2017-11-27 @ 10:00 am	2017-11-30 @ 10:00 am	1.5 ± 0.5	2017-12-05

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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. Montgomery Knolls Elementary School
2. New Hampshire Estates Elementary School
3. Montgomery Blair High School
4. Silver Creek Middle School
5. Sligo Creek Elementary School
6. East Silver Spring Elementary School
7. Silver Spring International Middle School
8. Woodlin Elementary School
9. Northwood High School
10. Spring Mill Center
11. Westbrook Elementary School
12. Westland Middle School
13. Cloverly Elementary School
14. Flora Singer Elementary School
15. Sligo Middle School
16. Mario Loiederman Middle School
17. Roscoe Nix Elementary School
18. Sargent Shriver Elementary School
19.
20.
21.
22.
23.
24.
25.
26.

	Date	Initials
Radon Test Kits Deployed	11/27/17	JM
Radon Test Kits Collected	11/30/17	JM
Radon Test Kits Shipped to Lab*	11/30/17	JM
Radon Test Kits Received by Lab*	12/04/17	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

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:

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

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

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

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI Technologies Inc. Job Number 182393

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

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

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

KCI TECHNOLOGIES

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MCPS RADON TESTING

Executive Summary: East Silver Spring Elementary School

Date of Test Report:	11/28/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	4
# Rooms ≥ 4.0 pCi/L:	0
Low Value:	1.2
High Value:	1.6

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

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November 28, 2016

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

Re: **Radon Testing Services**
KCI Job # 12146341.60

Location: East Silver Spring Elementary School
631 Silver Spring Avenue
East Silver Spring, MD 20910

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 East Silver Spring Elementary School, located at 631 Silver Spring Avenue in Silver Spring, Maryland 20910 (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 14, 2016 and deployed six (6) 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 three (3) 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 November 17, 2016 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Airchek, Inc. for analysis by gamma-ray spectroscopy. Airchek, Inc. is a NRSB certified analytical laboratory for radon analysis (certification # ARL1402) located at 1936 Butler Bridge Road, Mills River, North Carolina.

Evaluation of Testing Conditions:

These tests represent:

- Post-mitigation testing for radon mitigation systems installed recently

These tests were conducted to:

- Confirm the success of the mitigation system(s)

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

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

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

KCI also compiled weather data for the testing period and conducted observations of relevant field conditions. During the test period, weather records indicate low temperatures were in the high 20's to 30s and high temperatures were in the high 50s to low 60s. Maximum sustained winds ranged from 8-14 miles per hour. Average humidity ranged was around 55%. No precipitation was recorded during the testing period.

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 blank, and lab transit blank 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		
East Silver Spring Elementary School		
Test Period: 11/14/16-11/17/16		
Kit Number	**Room / Area**	**Result**
7802080	14	1.6
7802081	15	1.4
7802094	18	1.3
7802093	37	1.5

Table Note:
* Missing or Compromised Sample

Radon Testing Results		
East Silver Spring Elementary School		
Test Period: 11/14/16-11/17/16		
Kit Number	**QC Type**	**Result**
7802092	D (15)	1.2
7802084	FB (15)	< 0.3

Table Note:
* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

November 22, 2016 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
EAST SILVER SPRING ELEMENTARY SCHOO
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7802080	14	2016-11-14 @ 11:00 am	2016-11-17 @ 10:00 am	1.6 ± 0.4	2016-11-21
7802084	15	2016-11-14 @ 11:00 am	2016-11-17 @ 10:00 am	< 0.3	2016-11-21
7802081	15	2016-11-14 @ 11:00 am	2016-11-17 @ 10:00 am	1.4 ± 0.4	2016-11-21
7802092	15	2016-11-14 @ 11:00 am	2016-11-17 @ 10:00 am	1.2 ± 0.4	2016-11-21
7802094	18	2016-11-14 @ 11:00 am	2016-11-17 @ 10:00 am	1.3 ± 0.4	2016-11-21
7802093	37	2016-11-14 @ 12:00 pm	2016-11-17 @ 10:00 am	1.5 ± 0.4	2016-11-21

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

November 22, 2016 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

MCPS Radon
Phase 19 BLANKS

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7802909	OFFICE	2016-11-11 @ 10:00 am	2016-11-14 @ 10:00 am	< 0.3	2016-11-16
7802910	TRANSIT	2016-11-11 @ 10:00 am	2016-11-14 @ 10:00 am	< 0.3	2016-11-16

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

November 22, 2016 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

MCPS Radon
Spike Sample Results

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7802912	1	2016-11-11 @ 10:00 am	2016-11-14 @ 10:00 am	23.5 ± 0.8	2016-11-16
7802913	2	2016-11-11 @ 10:00 am	2016-11-14 @ 10:00 am	23.0 ± 0.8	2016-11-16
7802911	3	2016-11-11 @ 10:00 am	2016-11-14 @ 10:00 am	25.6 ± 0.9	2016-11-16

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 177376

NOMINAL Conditions: Radon Conc 26.3 pCi/L Rel. Hum 50.1 % Temp. 70.0 F

Date Start: 11/11/16 Date Stop: 11/14/16	Date Start: _____ Date Stop: _____
Time Start: 0958 Time Stop: 0958	Time Start: _____ Time Stop: _____
Device No.'s: (3) Char. Bags - 7802911 thru 7802913	Device No.'s: _____
GS Middle	
Date Start: _____ Date Stop: _____	Date Start: _____ Date Stop: _____
Time Start: _____ Time Stop: _____	Time Start: _____ Time Stop: _____
Device No.'s: _____	Device No.'s: _____
Date Start: _____ Date Stop: _____	Date Start: _____ Date Stop: _____
Time Start: _____ Time Stop: _____	Time Start: _____ Time Stop: _____
Device No.'s: _____	Device No.'s: _____

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

KCI TECHNOLOGIES

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 19

Names of Schools:

1. Wood Acres Elementary School
2. Walt Whitman High School
3. East Silver Spring Elementary School

	Date	Initials
Radon Test Kits Deployed	11/14/16	JM
Radon Test Kits Collected	11/17/16	JM
Radon Test Kits Shipped to Lab*	11/18/16	JM
Radon Test Kits Received by Lab*	11/21/16	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 19

Names of Schools:

1. Montgomery Blair High School
2. Springbrook High School
3. Sligo Middle School
4. Einstein High School
5. John F. Kennedy High School
6. Blair Ewing Center
7. Rock Terrace School
8. Thomas Wootton High School
9. Fields Road Elementary School

	Date	Initials
Radon Test Kits Deployed	11/15/16	JM
Radon Test Kits Collected	11/18/16	JM
Radon Test Kits Shipped to Lab*	11/18/16	JM
Radon Test Kits Received by Lab*	11/21/16	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: East Silver Spring Elementary School

Date of Test Report:	10/19/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	10
# Rooms ≥ 4.0 pCi/L:	1
Low Value:	< 0.3
High Value:	4.0

Rooms with results ≥ 4.0 pCi/L:
Room 15 (4.0 pCi/L)

Project Status:
Post remediation testing completed; Room 15 requires additional remedial action
Missing or compromised samples need re-test. (Room 37).

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October 19, 2016

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

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

Location: East Silver Spring Elementary School
631 Silver Spring Avenue
East Silver Spring, MD 20910

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 East Silver Spring Elementary School, located at 631 Silver Spring Avenue in Silver Spring, Maryland 20910 (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 26, 2016 and deployed twelve (12) 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 29, 2016 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Airchek, Inc. for analysis by gamma-ray spectroscopy. Airchek, Inc. is a NRSB certified analytical laboratory for radon analysis (certification # ARL1402) located at 1936 Butler Bridge Road, Mills River, North Carolina.

Evaluation of Testing Conditions:

These tests represent:

- Post-mitigation testing for radon mitigation systems installed recently

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

- Confirm the success of the mitigation system(s)

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

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

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

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

Results:

The results of the radon test analysis indicated the following:

Radon Concentration	Room	Result
≥4.0 piC/L	15	4.0
<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		
East Silver Spring Elementary School		
Test Period: 09/26/16-09/29/16		
Kit Number	**Room / Area**	**Result**
7802848	14	1.2
7802859	15	4.0
7802852	18	1.1
7802838	32	< 0.3
7802845	33	0.8
7802840	36	1.0
7802837	38	0.7
7802847	40	2.6
7802846	41	2.5
7802839	* 37 (Missing)	-

Table Note:
* Missing or Compromised Sample

Radon Testing Results		
East Silver Spring Elementary School		
Test Period: 09/26/16-09/29/16		
Kit Number	**QC Type**	**Result**
7802849	D (14)	1.0
7802851	FB (18)	< 0.3

Table Note:
* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

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

Radon test result report for:

EAST SILVER SPRING ELEMENTARY SCHOO
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7802848	14	2016-09-26 @ 11:00 am	2016-09-29 @ 10:00 am	1.2 ± 0.3	2016-10-03
7802849	14	2016-09-26 @ 11:00 am	2016-09-29 @ 10:00 am	1.0 ± 0.3	2016-10-03
7802859	15	2016-09-26 @ 12:00 pm	2016-09-29 @ 10:00 am	4.0 ± 0.4	2016-10-03
7802852	18	2016-09-26 @ 12:00 pm	2016-09-29 @ 10:00 am	1.1 ± 0.3	2016-10-03
7802851	18	2016-09-26 @ 12:00 pm	2016-09-29 @ 10:00 am	< 0.3	2016-10-03
7802838	32	2016-09-26 @ 12:00 pm	2016-09-29 @ 10:00 am	< 0.3	2016-10-03
7802845	33	2016-09-26 @ 12:00 pm	2016-09-29 @ 10:00 am	0.8 ± 0.3	2016-10-03
7802840	36	2016-09-26 @ 12:00 pm	2016-09-29 @ 10:00 am	1.0 ± 0.3	2016-10-03
7802839	37	@	@		
7802837	38	2016-09-26 @ 12:00 pm	2016-09-29 @ 10:00 am	0.7 ± 0.3	2016-10-03
7802847	40	2016-09-26 @ 12:00 pm	2016-09-29 @ 10:00 am	2.6 ± 0.4	2016-10-03
7802846	41	2016-09-26 @ 12:00 pm	2016-09-29 @ 10:00 am	2.5 ± 0.4	2016-10-03

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

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

Radon test result report for:

MCPS Radon
Phase 18 Office Blanks

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

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

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

Radon test result report for:

MCPS Radon
Phase 18 Transit Blanks

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

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

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

Radon test result report for:
MCPS Radon
Spike Sample Results

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

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

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

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI Technologies Inc. Job Number 176788

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

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

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

KCI TECHNOLOGIES

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Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase 18

Name of Schools:

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

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

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

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

Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase 18

Name of Schools:

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

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

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

RADON SCREENING SURVEY – FOLLOW-UP EAST SILVER SPRING ES ELEMENTARY SCHOOL

631 Silver Spring Ave., Silver Spring, Maryland 20910

EXECUTIVE SUMMARY

Date of Test Report:	3/4/16 Follow-Up
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested	5
# Rooms ≥ 4.0 pCi/L:	3
Low Value:	1.9
High Value:	11.5
Confirmed Rooms ≥ 4.0 pCi/L US EPA Action Level	2

Summary of Sampling Events ≥ 4.0 pCi/L

Room	Result (pCi/L) 2/23/16 (Rev 2) Initial	Result (pCi/L) 3/4/16 Follow-up	Average Result (pCi/L)
Council 37	6.4	11.5	9.0
CAFÉ	1.4	2.9	2.2
102	3.4	1.9	2.7
40	3.2	4.2	3.7
15	3.3	5.8	4.6

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MCPS RADON TESTING

Executive Summary: East Silver Spring Elementary School

Date of Test Report:	3/4/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	5
# Rooms ≥ 4.0 pCi/L:	3
Low Value:	1.9
High Value:	11.5

Rooms with results ≥ 4.0 pCi/L:
Room 37 (11.5 pCi/L), Room 15 (5.8 pCi/L), Room 40 (4.2 pCi/L)

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

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March 4, 2016

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

Re: **Radon Testing Services**
KCI Job # 12146341.28

Location: East Silver Spring Elementary School
631 Silver Spring Avenue
Silver Spring, MD 20910

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 East Silver Spring Elementary School, located at 631 Silver Spring Avenue in Silver Spring, Maryland 20910 (subject site).

Scope of Services:

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

KCI visited the site on February 8, 2016 and deployed seven (7) activated charcoal (AC) radon test kits. KCI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. A floor plan map of the building with the test locations is included as Attachment A of this report.

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

KCI returned to the site on February 11, 2016 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Airchek, Inc. for analysis by gamma-ray spectroscopy. Airchek, Inc. is a NRSB certified analytical laboratory for radon analysis (certification # ARL1402) located at 1936

Butler Bridge Road, Mills River, North Carolina.

Evaluation of Testing Conditions:

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

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

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

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

Results:

The results of the radon test analysis indicated the following:

Radon Concentration	Room	Result
≥4.0 piC/L	37	11.5
	15	5.8
	40	4.2
<4.0 piC/L	See Attachment B	

Notes:
D- Duplicate sample

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

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

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

Sincerely,

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

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

ATTACHMENT A

Floor Plan With Test Locations

ATTACHMENT B

Radon Test Summary Spreadsheet

Table Notes:

AC- Activated Charcoal

ACI- Air Chek, Inc.

D- Duplicate

FB- Field Blank

KCI- KCI Technologies, Inc.

OB- Office Blank*

PM- Project Manager

QC- Quality Control

*Office blanks were submitted at a rate of 1% for all samples deployed in Phase 8 testing. Office blanks were not submitted under each school individually.

Radon Testing Results		
East Silver Spring Elementary School		
Test Period: 02/08/16-02/11/16		
Kit Number	**Room / Area**	**Result**
7730293	15	5.8
7730294	37	11.5
7730292	102	1.9
7730291	40	4.2
7730288	CAFE	2.9

Table Note:
* Missing or Compromised Sample

Radon Testing Results		
East Silver Spring Elementary School		
Test Period: 02/08/16-02/11/16		
Kit Number	**QC Type**	**Result**
7730290	D (CAFE)	2.6
7730284	FB (CAFE)	< 0.3

Table Note:
* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

February 25, 2016

** LABORATORY ANALYSIS REPORT **

Radon test result report for:

EAST SILVER SPRING ELEMENTARY SCHOO
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7730292	102	2016-02-08 @ 10:00 am	2016-02-11 @ 8:00 am	1.9 ± 0.4	2016-02-15
7730293	15	2016-02-08 @ 10:00 am	2016-02-11 @ 8:00 am	5.8 ± 0.6	2016-02-15
7730294	37	2016-02-08 @ 10:00 am	2016-02-11 @ 8:00 am	11.5 ± 0.8	2016-02-15
7730291	40	2016-02-08 @ 10:00 am	2016-02-11 @ 8:00 am	4.2 ± 0.5	2016-02-15
7730284	CAFE	2016-02-08 @ 10:00 am	2016-02-11 @ 8:00 am	< 0.3	2016-02-15
7730288	CAFE	2016-02-08 @ 10:00 am	2016-02-11 @ 8:00 am	2.9 ± 0.4	2016-02-15
7730290	CAFE	2016-02-08 @ 10:00 am	2016-02-11 @ 8:00 am	2.6 ± 0.4	2016-02-15

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

February 25, 2016

** LABORATORY ANALYSIS REPORT **

Radon test result report for:

MCPS RADON
PHASE 8
OFFICE BLANKS

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

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

February 23, 2016

** LABORATORY ANALYSIS REPORT **

Radon test result report for:

TRANSIT- PHASE 7, 8, 9
NONE

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

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

February 15, 2016

** LABORATORY ANALYSIS REPORT **

Spike Sample Laboratory Results

Radon test result report for:

MCPS

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

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

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

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCF Technologies Inc. Job Number 173704

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

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

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

KCI TECHNOLOGIES

ENGINEERS • PLANNERS • SCIENTISTS • CONSTRUCTION MANAGERS

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

Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase 8

Name of Schools:

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

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

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

KCI TECHNOLOGIES

ENGINEERS • PLANNERS • SCIENTISTS • CONSTRUCTION MANAGERS

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

MCPS RADON TESTING

Executive Summary: East Silver Spring Elementary School

Date of Test Report:	2/23/2016 (Rev 2)
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	36
# Rooms ≥ 4.0 pCi/L:	1
Low Value:	< 0.3
High Value:	6.4

Rooms with results ≥ 4.0 pCi/L:
Room: Council 37 (6.4 pCi/L)

Project Status:
Initial testing completed; re-test needed for results ≥ 4.0 pCi/L.
Initial testing completed; missing or compromised samples need re-test.

KCI TECHNOLOGIES

ENGINEERS • PLANNERS • SCIENTISTS • CONSTRUCTION MANAGERS

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

February 23, 2016 (Rev 2)

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: East Silver Spring Elementary School
631 Silver Spring Avenue
East Silver Spring, MD 20910

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 East Silver Spring Elementary School, located at 631 Silver Spring Avenue in Silver Spring, Maryland 20910 (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 fourty-eight (48) 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	Council 37	6.4
<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		
East Silver Spring E.S.		
Test Period: 12/15/15-12/18/15		
Kit Number	**Room / Area**	**Result**
7704114	3	1.2
7704120	8	1.6
7704336	12	2.4
7704135	13	1.6
7704335	14	< 0.3
7705183	15	3.3
7704126	16	1.3
7704123	17	1.6
7704125	18	2.1
7704346	19	2.3
7704345	20	0.8
7704320	21	2.1
7704344	22	2.1
7705184	32	0.6
7705178	33	< 0.3
7705177	34	0.8
7705185	35	1.9
7705176	36	1.5
7704122	40	3.2
7704115	41	2.0
7705168	102	3.4
7704116	103	2.3
7704117	104	0.6
7704124	107	2.0
7705161	100C	1.0
7704108	A. PRINC	1.1
7704111	CAFE	1.4
7704112	* CAFE (Tampered)	2.1
7705179	COUNCIL 37	6.4
7704118	GYM	1.5
7704119	GYM	1.3
7704128	M-1	2.4
7704341	M-4	2.1
7704127	MEDIA CENTER 200	1.8
7704129	MEDIA CENTER 200	2.0
7705169	OFFICE	1.6
7705173	PRE K 31	0.6
7704334	R-1	2.0
7705180	SPEC ED 38	2.8

Table Note:
* Missing or Compromised Sample

Radon Testing Results		
East Silver Spring E.S.		
Test Period: 12/15/15-12/18/15		
Kit Number	**QC Type**	**Result**
7705162	D (102)	2.6
7704121	D (40)	3.6
7705166	D (41)	2.3
7705171	D (PRE K 31)	0.6
7704343	D (R-1)	1.8
7704147	FB (21)	< 0.3
7704347	FB (22)	< 0.3
7704148	FB (OFFICE)	< 0.3
7704394	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:

EAST SILVER SPRING E.S.
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7705161	100C	2015-12-15 @ 11:00 am	2015-12-18 @ 9:00 am	1.0 ± 0.3	2015-12-22
7705162	102	2015-12-15 @ 11:00 am	2015-12-18 @ 9:00 am	2.6 ± 0.3	2015-12-22
7705168	102	2015-12-15 @ 11:00 am	2015-12-18 @ 9:00 am	3.4 ± 0.4	2015-12-22
7704116	103	2015-12-15 @ 11:00 am	2015-12-18 @ 9:00 am	2.3 ± 0.4	2015-12-22
7704117	104	2015-12-15 @ 11:00 am	2015-12-18 @ 9:00 am	0.6 ± 0.3	2015-12-22
7704124	107	2015-12-15 @ 10:00 am	2015-12-18 @ 9:00 am	2.0 ± 0.4	2015-12-22
7704336	12	2015-12-15 @ 10:00 am	2015-12-18 @ 8:00 am	2.4 ± 0.4	2015-12-22
7704135	13	2015-12-15 @ 9:00 am	2015-12-18 @ 8:00 am	1.6 ± 0.3	2015-12-22
7704335	14	2015-12-15 @ 9:00 am	2015-12-18 @ 8:00 am	< 0.3	2015-12-22
7705183	15	2015-12-15 @ 9:00 am	2015-12-18 @ 8:00 am	3.3 ± 0.4	2015-12-22
7704126	16	2015-12-15 @ 10:00 am	2015-12-18 @ 8:00 am	1.3 ± 0.3	2015-12-22
7704123	17	2015-12-15 @ 10:00 am	2015-12-18 @ 8:00 am	1.6 ± 0.3	2015-12-22
7704125	18	2015-12-15 @ 10:00 am	2015-12-18 @ 9:00 am	2.1 ± 0.3	2015-12-22
7704346	19	2015-12-15 @ 9:00 am	2015-12-18 @ 8:00 am	2.3 ± 0.3	2015-12-22
7704345	20	2015-12-15 @ 9:00 am	2015-12-18 @ 8:00 am	0.8 ± 0.3	2015-12-22
7704147	21	2015-12-15 @ 2:00 pm	2015-12-18 @ 8:00 am	< 0.3	2015-12-22
7704320	21	2015-12-15 @ 9:00 am	2015-12-18 @ 8:00 am	2.1 ± 0.3	2015-12-22
7704344	22	2015-12-15 @ 10:00 am	2015-12-18 @ 8:00 am	2.1 ± 0.3	2015-12-22
7704347	22	2015-12-15 @ 9:00 am	2015-12-18 @ 8:00 am	< 0.3	2015-12-22
7704114	3	2015-12-15 @ 10:00 am	2015-12-18 @ 9:00 am	1.2 ± 0.3	2015-12-22
7705184	32	2015-12-15 @ 9:00 am	2015-12-18 @ 8:00 am	0.6 ± 0.3	2015-12-22
7705178	33	2015-12-15 @ 9:00 am	2015-12-18 @ 8:00 am	< 0.3	2015-12-22
7705177	34	2015-12-15 @ 9:00 am	2015-12-18 @ 8:00 am	0.8 ± 0.3	2015-12-22
7705185	35	2015-12-15 @ 9:00 am	2015-12-18 @ 8:00 am	1.9 ± 0.3	2015-12-22
7705176	36	2015-12-15 @ 9:00 am	2015-12-18 @ 8:00 am	1.5 ± 0.3	2015-12-22
7704121	40	2015-12-15 @ 10:00 am	2015-12-18 @ 9:00 am	3.6 ± 0.4	2015-12-22
7704122	40	2015-12-15 @ 10:00 am	2015-12-18 @ 9:00 am	3.2 ± 0.4	2015-12-22
7704115	41	2015-12-15 @ 10:00 am	2015-12-18 @ 9:00 am	2.0 ± 0.4	2015-12-22
7705166	41	2015-12-15 @ 10:00 am	2015-12-18 @ 9:00 am	2.3 ± 0.3	2015-12-22
7704120	8	2015-12-15 @ 10:00 am	2015-12-18 @ 9:00 am	1.6 ± 0.3	2015-12-22
7704108	A. PRINC	2015-12-15 @ 11:00 am	2015-12-18 @ 9:00 am	1.1 ± 0.3	2015-12-22
7704111	CAFE	2015-12-15 @ 10:00 am	2015-12-18 @ 9:00 am	1.4 ± 0.3	2015-12-22
7704112	CAFE	2015-12-15 @ 10:00 am	2015-12-18 @ 9:00 am	2.1 ± 0.3	2015-12-22
7705179	COUNCIL 37	2015-12-15 @ 9:00 am	2015-12-18 @ 8:00 am	6.4 ± 0.4	2015-12-22
7704118	GYM	2015-12-15 @ 11:00 am	2015-12-18 @ 9:00 am	1.5 ± 0.3	2015-12-22
7704119	GYM	2015-12-15 @ 11:00 am	2015-12-18 @ 9:00 am	1.3 ± 0.4	2015-12-22
7704128	M-1	2015-12-15 @ 10:00 am	2015-12-18 @ 8:00 am	2.4 ± 0.4	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:

EAST SILVER SPRING E.S.
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7704341	M-4	2015-12-15 @ 9:00 am	2015-12-18 @ 8:00 am	2.1 ± 0.3	2015-12-22
7704127	MEDIA CENTER 200	2015-12-15 @ 10:00 am	2015-12-18 @ 8:00 am	1.8 ± 0.3	2015-12-22
7704129	MEDIA CENTER 200	2015-12-15 @ 10:00 am	2015-12-18 @ 8:00 am	2.0 ± 0.4	2015-12-22
7704148	OFFICE	2015-12-15 @ 2:00 pm	2015-12-18 @ 9:00 am	< 0.3	2015-12-22
7705169	OFFICE	2015-12-15 @ 11:00 am	2015-12-18 @ 9:00 am	1.6 ± 0.3	2015-12-22
7705171	PRE K 31	2015-12-15 @ 9:00 am	2015-12-18 @ 8:00 am	0.6 ± 0.3	2015-12-22
7705173	PRE K 31	2015-12-15 @ 8:00 am	2015-12-18 @ 8:00 am	0.6 ± 0.3	2015-12-22
7704334	R-1	2015-12-15 @ 9:00 am	2015-12-18 @ 8:00 am	2.0 ± 0.3	2015-12-22
7704343	R-1	2015-12-15 @ 9:00 am	2015-12-18 @ 8:00 am	1.8 ± 0.3	2015-12-22
7705180	SPEC ED 38	2015-12-15 @ 9:00 am	2015-12-18 @ 8:00 am	2.8 ± 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:

EAST SILVER SPRING E.S.
OFFICE BLANK

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7704394	OFFICE BLANK	2015-12-15 @ 3:00 pm	2015-12-18 @ 3:00 pm	< 0.3	2015-12-22

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December 29, 2015

** LABORATORY ANALYSIS REPORT **

Radon test result report for:

TRANSIT DEC 14 2015
NONE

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

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December 23, 2015

** LABORATORY ANALYSIS REPORT **

Spike Sample Laboratory Results

Radon test result report for:

MCPS

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

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

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI Technologies Inc. Job Number 173224

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

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

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

KCI TECHNOLOGIES

ENGINEERS • PLANNERS • SCIENTISTS • CONSTRUCTION MANAGERS

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

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