School / Facility Radon Testing Report Form

School Year: **24-25**

Facility:	Laytonsville Elementary School
Address:	21401 Laytonsville RD.
	Gaithersburg, MD 20882
Reason for Testing:	Scheduled Re-Testing - ☒ 2-year or ☐ 5-year schedule ☐ Clearance Testing (Post-Mitigation) ☒ Building Envelope or HVAC Upgrades ☐ New Construction – Addition or Facility
Current Radon Status:	☒ Active Mitigation (2-year regular schedule) ☐ No Active Mitigation (5-year regular schedule) ☐ Not Previously Tested (New Facility)
Round of Testing:	☒ Initial Testing **-or-** ☐ Follow-up Testing
Testing Status:	☒ No Further Testing Needed **-or-** ☐ Follow-Up Testing Required

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

Mitigation -	**Facility Radon Status:**		
☒ Not Required ☐ Required (≥4.0-pCi/L) Rooms:	☒ No Change in Status ☐ Active Mitigation (2-year regular schedule) ☐ No Active Mitigation (5-year regular schedule)		
Number of Rooms Tested	49	Lowest Value (pCi/L)	<0.3
Number of Rooms (≥4.0-pCi/L)	0	Highest Value (pCi/L)	1.1

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

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

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

Attachment 2 – Laboratory Report(s)

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

MCPS DEM SUSTAINABILITY & COMPLIANCE

School / Facility Radon Testing Report Form

Detector and Deployment

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

Person(s) Deploying or Retrieving Test Devices and certification number	Organization/Company
Shannon King	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):	2/25/2025 2/28/2025
Does the test period include weekends, school breaks or holidays?				☐ Yes ☒ No
*If "**Yes**" please explain/detail in the space below:*				
Was HVAC operating under occupied conditions?				☒ Yes ☐ No
*If "**No**" please explain/detail in the space below:*				

Testing (continued)

	Detectors Deployed				
	Ground-Contact		Upper-Level(s)		Total
Round of Testing	Initial	Follow-Up	Initial	Follow-Up	
Test Locations[1]	49	0	0	0	49
Duplicates[2]	6	0	0	0	6
Field Blanks[3]	3	0	0	0	3
				Grand Total	58

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

Quality Assurance / Quality Control (QA/QC)

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

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

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

Quality Assurance / Quality Control (continued)

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

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

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

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

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

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

MCPS DEM SUSTAINABILITY & COMPLIANCE

School / Facility Radon Testing Report Form

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

	Ground-Contact		Upper-Level(s)		Total
Round of Testing	**Initial**	**Follow-Up**	**Initial**	**Follow-Up**	
Number of test locations:	49	0	0	0	49
Number of locations ≥8.0-pCi/L:	0	0	0	0	0
Number of locations ≥4.0 and ≤8-pCi/L:	0	0	0	0	0
Number of locations ≥2.7 and <4-pCi/L:	0	0	0	0	0
Number of locations ≥2.0 and <2.7-pCi/L:	0	0	0	0	0
Number of missing required test locations[3]:	1	0	0	0	1
Number of failed duplicate control locations:	0	0	0	0	0
Percentage of missing test locations for the facility[4,5]:	2%	0	0	0	2%

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		
Laytonsville Elementary School		
Test Period: 2/25/2025 - 2/28/2025		
Kit Number	Room / Area	Result
11927223	1	< 0.3
11927224	1	< 0.3
11927225	2	< 0.3
11927226	2	< 0.3
11927227	3	< 0.3
11927228	4	< 0.3
11927230	5	< 0.3
11927231	6	< 0.3
11927232	7	< 0.3
11927233	8	< 0.3
11927234	8	< 0.3
11927238	10	< 0.3
11927235	12	< 0.3
11927236	13	< 0.3
11927237	14	< 0.3
11927243	16	< 0.3
11927244	16	< 0.3
11927240	18	< 0.3
11927241	19	< 0.3
11927242	20	< 0.3
11927229	3A	< 0.3
11927222	ALT CONF	< 0.3
11927249	APR	< 0.3
11927256	ART	< 0.3
11927207	AST PRINCIPAL	< 0.3
11927221	BOARD ROOM	< 0.3
11927252	BSO	0.8
11927210	CONF	< 0.3
11927250	COUNSELOR	0.6
11927245	ESOL	< 0.3
11927246	ESOL	< 0.3
11927253	GYM	1.0
11927254	GYM	1.1
11927206	HEALTH ROOM	< 0.3
11927259	HSM	< 0.3
11927260	HSM	< 0.3
11927213	K1	< 0.3

Table 1- Radon Testing Results		
Laytonsville Elementary School		
Test Period: 2/25/2025 - 2/28/2025		
Kit Number	Room / Area	Result
11927211	K2	< 0.3
11927208	K3	< 0.3
11927214	K3	< 0.3
11927212	K4	< 0.3
11927209	MAIL	< 0.3
11927205	MAIN OFFICE	< 0.3
11927215	MEDIA CENTER	< 0.3
11927216	MEDIA OFFICE	< 0.3
11927217	MEDIA WORK ROOM	< 0.3
11927247	MUSIC	< 0.3
11927255	PE OFFICE	1.0
11927204	PRINCIPAL	< 0.3
11927258	READING	< 0.3
11927218	RR 1	< 0.3
11927239	RR 2	1.0
11927257	SD	< 0.3
11927261	SPEECH	< 0.3
11927262	SPEECH	< 0.3
11927219	STAFF LOUNGE	< 0.3
11927220	STAFF WELLNESS	< 0.3
11927251	TV STUDIO	0.6

Table 2 - Summary Testing Results ≥2.0 pCi/L							
Laytonsville Elementary School							
Test Period: 2/25/2025 - 2/28/2025							
≥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			
Laytonsville Elementary School			
Test Period: 2/25/2025 - 2/28/2025			
Kit Number	**QC Type**	**Room / Area**	**Result**
11927224	D	1	< 0.3
11927226	FB	2	< 0.3
11927234	D	8	< 0.3
11927244	D	16	< 0.3
11927246	FB	ESOL	< 0.3
11927254	D	Gym	1.1
11927260	D	HSM	< 0.3
11927214	D	K3	< 0.3
11927262	FB	SPEECH	< 0.3
11926885	OB	OFFICE BLANK	< 0.3
11926889	TB	TRAVEL BLANK	< 0.3

Table 3a - Duplicate Worksheet / Data Validation										
Laytonsville Elementary School										
Test Period: 2/25/2025 - 2/28/2025										
Sample ID			Duplicate Concentrations (pCi/L) and QC Checks							
Kit Numbers		Room / Area	Higher	Lower	Check #1 (Pass/Fail)	2x the Lower	Check #2 (Pass/Fail)	Average	Relative Percent Difference (RPD)	Check #3
11927223	11927224	1	0.3	0.3	✓	0.6	PASS	0.3	<1-pCi/L	✓
11927233	11927234	8	0.3	0.3	✓	0.6	PASS	0.3	<1-pCi/L	✓
11927243	11927244	16	0.3	0.3	✓	0.6	PASS	0.3	<1-pCi/L	✓
11927254	11927253	Gym	1.1	1.0	✓	2.0	PASS	1.1	<1-pCi/L	✓
11927259	11927260	HSM	0.3	0.3	✓	0.6	PASS	0.3	<1-pCi/L	✓
11927208	11927214	K3	0.3	0.3	✓	0.6	PASS	0.3	<1-pCi/L	✓

NOTES:

QC Check #1 - Data Entry

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

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

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

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

Table 4 - Summary of Invalid Measurement Locations		
Laytonsville Elementary School		
Test Period: 2/25/25 - 2/28/25		
Kit Number	**Room/Area**	**Reason**
11927248	Stage	Missing Kit

Attachment 2:

Laboratory Reports

March 4, 2025

** LABORATORY ANALYSIS REPORT **

Radon test result report for:

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11927223	1	2025-02-25 @ 11:00 am	2025-02-28 @ 10:00 am	< 0.3	2025-03-04
11927224	1	2025-02-25 @ 11:00 am	2025-02-28 @ 10:00 am	< 0.3	2025-03-04
11927238	10	2025-02-25 @ 12:00 pm	2025-02-28 @ 11:00 am	< 0.3	2025-03-04
11927235	12	2025-02-25 @ 12:00 pm	2025-02-28 @ 11:00 am	< 0.3	2025-03-04
11927236	13	2025-02-25 @ 12:00 pm	2025-02-28 @ 11:00 am	< 0.3	2025-03-04
11927237	14	2025-02-25 @ 12:00 pm	2025-02-28 @ 11:00 am	< 0.3	2025-03-04
11927243	16	2025-02-25 @ 12:00 pm	2025-02-28 @ 11:00 am	< 0.3	2025-03-04
11927244	16	2025-02-25 @ 12:00 pm	2025-02-28 @ 11:00 am	< 0.3	2025-03-04
11927240	18	2025-02-25 @ 12:00 pm	2025-02-28 @ 11:00 am	< 0.3	2025-03-04
11927241	19	2025-02-25 @ 12:00 pm	2025-02-28 @ 11:00 am	< 0.3	2025-03-04
11927226	2	2025-02-25 @ 11:00 am	2025-02-28 @ 10:00 am	< 0.3	2025-03-04
11927225	2	2025-02-25 @ 11:00 am	2025-02-28 @ 10:00 am	< 0.3	2025-03-04
11927242	20	2025-02-25 @ 12:00 pm	2025-02-28 @ 11:00 am	< 0.3	2025-03-04
11927227	3	2025-02-25 @ 11:00 am	2025-02-28 @ 10:00 am	< 0.3	2025-03-04
11927229	3A	2025-02-25 @ 11:00 am	2025-02-28 @ 10:00 am	< 0.3	2025-03-04
11927228	4	2025-02-25 @ 11:00 am	2025-02-28 @ 10:00 am	< 0.3	2025-03-04
11927230	5	2025-02-25 @ 11:00 am	2025-02-28 @ 11:00 am	< 0.3	2025-03-04
11927231	6	2025-02-25 @ 12:00 pm	2025-02-28 @ 11:00 am	< 0.3	2025-03-04
11927232	7	2025-02-25 @ 12:00 pm	2025-02-28 @ 11:00 am	< 0.3	2025-03-04
11927233	8	2025-02-25 @ 12:00 pm	2025-02-28 @ 11:00 am	< 0.3	2025-03-04
11927234	8	2025-02-25 @ 12:00 pm	2025-02-28 @ 11:00 am	< 0.3	2025-03-04
11927222	ALT CONF	2025-02-25 @ 11:00 am	2025-02-28 @ 10:00 am	< 0.3	2025-03-04
11927249	APR	2025-02-25 @ 12:00 pm	2025-02-28 @ 11:00 am	< 0.3	2025-03-04
11927256	ART	2025-02-25 @ 12:00 pm	2025-02-28 @ 11:00 am	< 0.3	2025-03-04
11927207	AST PRINCIPAL	2025-02-25 @ 11:00 am	2025-02-28 @ 10:00 am	< 0.3	2025-03-04
11927221	BOARD ROOM	2025-02-25 @ 11:00 am	2025-02-28 @ 10:00 am	< 0.3	2025-03-04
11927252	BSO	2025-02-25 @ 12:00 pm	2025-02-28 @ 11:00 am	0.8 ± 0.4	2025-03-04
11927210	CONF	2025-02-25 @ 11:00 am	2025-02-28 @ 10:00 am	< 0.3	2025-03-04
11927250	COUNSELOR	2025-02-25 @ 12:00 pm	2025-02-28 @ 11:00 am	0.6 ± 0.3	2025-03-04
11927245	ESOL	2025-02-25 @ 12:00 pm	2025-02-28 @ 11:00 am	< 0.3	2025-03-04
11927246	ESOL	2025-02-25 @ 12:00 pm	2025-02-28 @ 11:00 am	< 0.3	2025-03-04
11927254	GYM	2025-02-25 @ 12:00 pm	2025-02-28 @ 11:00 am	1.1 ± 0.4	2025-03-04
11927253	GYM	2025-02-25 @ 12:00 pm	2025-02-28 @ 11:00 am	1.0 ± 0.3	2025-03-04
11927206	HEALTH ROOM	2025-02-25 @ 11:00 am	2025-02-28 @ 10:00 am	< 0.3	2025-03-04
11927259	HSM	2025-02-25 @ 12:00 pm	2025-02-28 @ 11:00 am	< 0.3	2025-03-04
11927260	HSM	2025-02-25 @ 12:00 pm	2025-02-28 @ 11:00 am	< 0.3	2025-03-04
11927213	K1	2025-02-25 @ 11:00 am	2025-02-28 @ 10:00 am	< 0.3	2025-03-04

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

March 4, 2025

** LABORATORY ANALYSIS REPORT **

Radon test result report for:

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11927211	K2	2025-02-25 @ 11:00 am	2025-02-28 @ 10:00 am	< 0.3	2025-03-04
11927214	K3	2025-02-25 @ 11:00 am	2025-02-28 @ 10:00 am	< 0.3	2025-03-04
11927208	K3	2025-02-25 @ 11:00 am	2025-02-28 @ 10:00 am	< 0.3	2025-03-04
11927212	K4	2025-02-25 @ 11:00 am	2025-02-28 @ 10:00 am	< 0.3	2025-03-04
11927209	MAIL	2025-02-25 @ 11:00 am	2025-02-28 @ 10:00 am	< 0.3	2025-03-04
11927205	MAIN OFFICE	2025-02-25 @ 11:00 am	2025-02-28 @ 10:00 am	< 0.3	2025-03-04
11927215	MEDIA CENTER	2025-02-25 @ 11:00 am	2025-02-28 @ 10:00 am	< 0.3	2025-03-04
11927216	MEDIA OFFICE	2025-02-25 @ 11:00 am	2025-02-28 @ 10:00 am	< 0.3	2025-03-04
11927217	MEDIA WORK ROOM	2025-02-25 @ 11:00 am	2025-02-28 @ 10:00 am	< 0.3	2025-03-04
11927247	MUSIC	2025-02-25 @ 12:00 pm	2025-02-28 @ 11:00 am	< 0.3	2025-03-04
11927255	PE OFFICE	2025-02-25 @ 12:00 pm	2025-02-28 @ 11:00 am	1.0 ± 0.4	2025-03-04
11927204	PRINCIPAL	2025-02-25 @ 11:00 am	2025-02-28 @ 10:00 am	< 0.3	2025-03-04
11927258	READING	2025-02-25 @ 12:00 pm	2025-02-28 @ 11:00 am	< 0.3	2025-03-04
11927218	RR 1	2025-02-25 @ 11:00 am	2025-02-28 @ 10:00 am	< 0.3	2025-03-04
11927239	RR 2	2025-02-25 @ 12:00 pm	2025-02-28 @ 11:00 am	1.0 ± 0.3	2025-03-04
11927257	SD	2025-02-25 @ 12:00 pm	2025-02-28 @ 11:00 am	< 0.3	2025-03-04
11927261	SPEECH	2025-02-25 @ 12:00 pm	2025-02-28 @ 11:00 am	< 0.3	2025-03-04
11927262	SPEECH	2025-02-25 @ 12:00 pm	2025-02-28 @ 11:00 am	< 0.3	2025-03-04
11927219	STAFF LOUNGE	2025-02-25 @ 11:00 am	2025-02-28 @ 10:00 am	< 0.3	2025-03-04
11927220	STAFF WELLNESS	2025-02-25 @ 11:00 am	2025-02-28 @ 10:00 am	< 0.3	2025-03-04
11927251	TV STUDIO	2025-02-25 @ 12:00 pm	2025-02-28 @ 11:00 am	0.6 ± 0.3	2025-03-04

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

March 4, 2025 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
OFFICE
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11926885	OB	2025-02-25 @ 11:00 am	2025-02-28 @ 11:00 am	< 0.3	2025-03-04

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

March 4, 2025 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
TRAVEL
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11926889	TB	2025-02-25 @ 11:00 am	2025-02-28 @ 11:00 am	< 0.3	2025-03-04

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 20001560

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

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

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

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

Radon test result report for:
SK
MAIN

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

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EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI TECHNOLOGIES, INC Job Number 20002919

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

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

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

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

Radon test result report for:
QC
MAIN

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

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KCI TECHNOLOGIES

ENGINEERS • PLANNERS • SCIENTISTS • CONSTRUCTION MANAGERS

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

Radon Test Kit Chain of Custody

Project Name: MCPS Radon – Testing February 25th – February 28th, 2025

Name of Schools:

1. Gaithersburg MS
2. Germantown ES
3. William B Gibbs ES
4. Goshen ES
5. Great Seneca Creek ES
6. Jones Lane ES
7. MLK Jr. MS
8. Lake Seneca ES
9. Laytonsville ES

	Date	Initials
Radon Test Kits Deployed	2/25/2025	
Radon Test Kits Collected	2/28/2025	
Radon Test Kits Shipped to Lab*	2/28/2025	
Radon Test Kits Received by Lab*	3/3/2025	

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

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	Laytonsville Elementary School
Date of Test Report	4/26/2022
Round of Testing	Initial Follow-up Post Remediation 2 Year Testing 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility
# Rooms Tested	62
# Rooms ≥ 4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	2.7 pCi/L

Project Status:
Initial testing completed; no further action needed.

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April 26, 2022

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

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

Location: Laytonsville Elementary School
21401 Laytonsville Road
Gaithersburg, MD 20882

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 Laytonsville ES, located at 21401 Laytonsville Rd. Gaithersburg, MD 20882 (subject site).

Scope of Services:

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

KCI visited the site on February 28, 2022 and deployed seventy two (72) 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 3, 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 biennial post-mitigation 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 20s and high temperatures ranged from the high 50s to the low 60s Fahrenheit. Maximum sustained winds ranged from 9-17 miles per hour. Average humidity was around 40% with 0 inches of precipitation (rain) was recorded during testing period.

Results:

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

The results of the radon test analysis indicated the following:

Radon Concentration	Room	Result
≥4.0 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		
Laytonsville ES		
Test Period: 02/28/2022 - 03/03/2022		
Kit Number	Room / Area	Result
11132770	1	< 0.3
11132768	2	< 0.3
11132769	3	< 0.3
11132776	4	< 0.3
11132765	5	1.0
11132759	6	< 0.3
11132760	7	< 0.3
11132764	8	< 0.3
11132763	9	< 0.3
11132755	10	0.5
11132742	11	< 0.3
11132758	12	< 0.3
11132762	13	< 0.3
11132746	14	< 0.3
11132766	14	< 0.3
11132752	15	< 0.3
11132750	16	< 0.3
11132775	17	< 0.3
11132751	18	< 0.3
11132757	18	< 0.3
11132747	19	< 0.3
11132748	19	< 0.3
11132741	20	< 0.3
11132761	3A	< 0.3
11132713	ART	< 0.3
11132731	ASST PRINCIPAL	< 0.3
11132754	BOOK CLOSET 3	1.1
11132717	BUILDING SERVICES	0.9
11132720	BUILDING SERVICES	1.2
11132727	CAFETERIA	0.7
11132744	CAFETERIA	< 0.3
11132767	COMPUTER LAB	< 0.3
11132733	CONFERENCE	< 0.3
11132749	CONFERENCE	< 0.3
11132728	COPY ROOM	< 0.3
11132729	COPY ROOM	< 0.3
11132738	COUNSELOR WARD	0.9
11132722	ESOL	< 0.3
11132712	FILE ROOM	< 0.3
11132707	GYM	1.4
11132708	GYM	1.4
11132714	GYM OFFICE	1.2

Table 1- Radon Testing Results		
Laytonsville ES		
Test Period: 02/28/2022 - 03/03/2022		
Kit Number	Room / Area	Result
11132734	HEALTH	< 0.3
11132740	HEALTH OFFICE	< 0.3
11132718	INSTRUMENTAL MUSIC	1.6
11132710	K1	< 0.3
11132711	K2	0.5
11132723	K3	< 0.3
11132724	K4	< 0.3
11132725	K4	< 0.3
11132721	KITCHEN OFFICE	< 0.3
11132716	LOUNGE	< 0.3
11132732	MAIL ROOM	< 0.3
11132739	MAIN OFFICE	< 0.3
11132709	MEDIA CENTER	< 0.3
11132715	MEDIA CENTER	< 0.3
11132705	MEDIA OFFICE	< 0.3
11132706	MEDIA WORKROOM	< 0.3
11132773	MINDFULNESS	< 0.3
11132730	MUSIC SILVA	< 0.3
11132726	PRINCIPAL	< 0.3
11132737	READING RESOURCE	< 0.3
11132745	READING RESOURCE	0.6
11132704	RESOURCE 1	< 0.3
11132756	RESOURCE 2	2.7
11132735	RESOURCE 3	< 0.3
11132703	RESOURCE1	< 0.3
11132736	SPEECH	0.7
11132701	STAFF DEVELOPMENT	< 0.3
11132702	STAFF DEVELOPMENT	< 0.3
11132743	STAGE	< 0.3
11132719	TV STUDIO	1.6

Table 2- Radon Testing Results			
Laytonsville ES			
Test Period: 02/28/2022 - 03/03/2022			
Kit Number	QC Type	Room / Area	Result
11132725	D	K4	< 0.3
11132703	D	Resource 1	< 0.3
11132701	FB	Staff Development	< 0.3
11132720	D	Building Services	1.2
11132745	D	Reading Resource	0.6
11132728	FB	Copy Room	< 0.3
11132766	D	14	< 0.3
11132748	D	19	< 0.3
11132751	FB	18	< 0.3
11132749	D	Conference	< 0.3
11130811	OB	OFFICE BLANK	< 0.3
11130816	TB	TRAVEL BLANK	< 0.3

Summary of Missed Locations		
Laytonsville ES		
Test Period: 02/28/2022 - 03/03/2022		
Kit Number	Room/Area	Result
	NA	

Summary of Missing, Compromised and >/= 4 piC/L Tests		
Laytonsville ES		
Test Period: 02/28/2022 - 03/03/2022		
Kit Number	Room/Area	Result
	NA	

Table Note:

* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

March 8, 2022

** LABORATORY ANALYSIS REPORT **

Radon test result report for:

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11132770	1	2022-02-28 @ 1:00 pm	2022-03-03 @ 9:00 am	< 0.3	2022-03-08
11132755	10	2022-02-28 @ 12:00 pm	2022-03-03 @ 8:00 am	0.5 ± 0.3	2022-03-08
11132742	11	2022-02-28 @ 12:00 pm	2022-03-03 @ 8:00 am	< 0.3	2022-03-08
11132758	12	2022-02-28 @ 12:00 pm	2022-03-03 @ 8:00 am	< 0.3	2022-03-08
11132762	13	2022-02-28 @ 12:00 pm	2022-03-03 @ 8:00 am	< 0.3	2022-03-08
11132746	14	2022-02-28 @ 12:00 pm	2022-03-03 @ 8:00 am	< 0.3	2022-03-08
11132766	14	2022-02-28 @ 12:00 pm	2022-03-03 @ 8:00 am	< 0.3	2022-03-08
11132752	15	2022-02-28 @ 12:00 pm	2022-03-03 @ 8:00 am	< 0.3	2022-03-08
11132750	16	2022-02-28 @ 12:00 pm	2022-03-03 @ 8:00 am	< 0.3	2022-03-08
11132775	17	2022-02-28 @ 1:00 pm	2022-03-03 @ 8:00 am	< 0.3	2022-03-08
11132751	18	2022-02-28 @ 12:00 pm	2022-03-03 @ 8:00 am	< 0.3	2022-03-08
11132757	18	2022-02-28 @ 12:00 pm	2022-03-03 @ 8:00 am	< 0.3	2022-03-08
11132747	19	2022-02-28 @ 12:00 pm	2022-03-03 @ 8:00 am	< 0.3	2022-03-08
11132748	19	2022-02-28 @ 12:00 pm	2022-03-03 @ 8:00 am	< 0.3	2022-03-08
11132768	2	2022-02-28 @ 1:00 pm	2022-03-03 @ 9:00 am	< 0.3	2022-03-08
11132741	20	2022-02-28 @ 12:00 pm	2022-03-03 @ 8:00 am	< 0.3	2022-03-08
11132769	3	2022-02-28 @ 1:00 pm	2022-03-03 @ 9:00 am	< 0.3	2022-03-08
11132761	3A	2022-02-28 @ 12:00 pm	2022-03-03 @ 9:00 am	< 0.3	2022-03-08
11132776	4	2022-02-28 @ 1:00 pm	2022-03-03 @ 9:00 am	< 0.3	2022-03-08
11132765	5	2022-02-28 @ 12:00 pm	2022-03-03 @ 9:00 am	1.0 ± 0.4	2022-03-08
11132759	6	2022-02-28 @ 12:00 pm	2022-03-03 @ 8:00 am	< 0.3	2022-03-08
11132760	7	2022-02-28 @ 12:00 pm	2022-03-03 @ 8:00 am	< 0.3	2022-03-08
11132764	8	2022-02-28 @ 12:00 pm	2022-03-03 @ 8:00 am	< 0.3	2022-03-08
11132763	9	2022-02-28 @ 12:00 pm	2022-03-03 @ 8:00 am	< 0.3	2022-03-08
11132713	ART	2022-02-28 @ 11:00 am	2022-03-03 @ 9:00 am	< 0.3	2022-03-08
11132731	ASST PRINCIPAL	2022-02-28 @ 11:00 am	2022-03-03 @ 8:00 am	< 0.3	2022-03-08
11132754	BOOK CLOSET 3	2022-02-28 @ 12:00 pm	2022-03-03 @ 8:00 am	1.1 ± 0.4	2022-03-08
11132717	BUILDING SERVICES	2022-02-28 @ 11:00 am	2022-03-03 @ 8:00 am	0.9 ± 0.4	2022-03-08
11132720	BUILDING SERVICES	2022-02-28 @ 11:00 am	2022-03-03 @ 8:00 am	1.2 ± 0.4	2022-03-08
11132744	CAFETERIA	2022-02-28 @ 12:00 pm	2022-03-03 @ 8:00 am	< 0.3	2022-03-08
11132727	CAFETERIA	2022-02-28 @ 12:00 pm	2022-03-03 @ 8:00 am	0.7 ± 0.4	2022-03-08
11132767	COMPUTER LAB	2022-02-28 @ 1:00 pm	2022-03-03 @ 9:00 am	< 0.3	2022-03-08
11132733	CONFERENCE	2022-02-28 @ 11:00 am	2022-03-03 @ 8:00 am	< 0.3	2022-03-08
11132749	CONFERENCE	2022-02-28 @ 1:00 pm	2022-03-03 @ 9:00 am	< 0.3	2022-03-08
11132728	COPY ROOM	2022-02-28 @ 12:00 pm	2022-03-03 @ 9:00 am	< 0.3	2022-03-08
11132729	COPY ROOM	2022-02-28 @ 12:00 pm	2022-03-03 @ 9:00 am	< 0.3	2022-03-08
11132738	COUNSELOR WARD	2022-02-28 @ 12:00 pm	2022-03-03 @ 9:00 am	0.9 ± 0.4	2022-03-08

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

March 8, 2022

** LABORATORY ANALYSIS REPORT **

Radon test result report for:

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11132722	ESOL	2022-02-28 @ 12:00 pm	2022-03-03 @ 8:00 am	< 0.3	2022-03-08
11132712	FILE ROOM	2022-02-28 @ 11:00 am	2022-03-03 @ 8:00 am	< 0.3	2022-03-08
11132708	GYM	2022-02-28 @ 11:00 am	2022-03-03 @ 8:00 am	1.4 ± 0.4	2022-03-08
11132707	GYM	2022-02-28 @ 11:00 am	2022-03-03 @ 8:00 am	1.4 ± 0.4	2022-03-08
11132714	GYM OFFICE	2022-02-28 @ 11:00 am	2022-03-03 @ 8:00 am	1.2 ± 0.4	2022-03-08
11132734	HEALTH	2022-02-28 @ 11:00 am	2022-03-03 @ 8:00 am	< 0.3	2022-03-08
11132740	HEALTH OFFICE	2022-02-28 @ 11:00 am	2022-03-03 @ 8:00 am	< 0.3	2022-03-08
11132718	INSTRUMENTAL MUSIC	2022-02-28 @ 11:00 am	2022-03-03 @ 8:00 am	1.6 ± 0.4	2022-03-08
11132710	K1	2022-02-28 @ 11:00 am	2022-03-03 @ 8:00 am	< 0.3	2022-03-08
11132711	K2	2022-02-28 @ 11:00 am	2022-03-03 @ 8:00 am	0.5 ± 0.4	2022-03-08
11132723	K3	2022-02-28 @ 11:00 am	2022-03-03 @ 8:00 am	< 0.3	2022-03-08
11132724	K4	2022-02-28 @ 11:00 am	2022-03-03 @ 8:00 am	< 0.3	2022-03-08
11132725	K4	2022-02-28 @ 11:00 am	2022-03-03 @ 8:00 am	< 0.3	2022-03-08
11132721	KITCHEN OFFICE	2022-02-28 @ 12:00 pm	2022-03-03 @ 8:00 am	< 0.3	2022-03-08
11132716	LOUNGE	2022-02-28 @ 11:00 am	2022-03-03 @ 9:00 am	< 0.3	2022-03-08
11132732	MAIL ROOM	2022-02-28 @ 11:00 am	2022-03-03 @ 8:00 am	< 0.3	2022-03-08
11132739	MAIN OFFICE	2022-02-28 @ 11:00 am	2022-03-03 @ 8:00 am	< 0.3	2022-03-08
11132715	MEDIA CENTER	2022-02-28 @ 11:00 am	2022-03-03 @ 8:00 am	< 0.3	2022-03-08
11132709	MEDIA CENTER	2022-02-28 @ 11:00 am	2022-03-03 @ 8:00 am	< 0.3	2022-03-08
11132705	MEDIA OFFICE	2022-02-28 @ 11:00 am	2022-03-03 @ 8:00 am	< 0.3	2022-03-08
11132706	MEDIA WORKROOM	2022-02-28 @ 11:00 am	2022-03-03 @ 8:00 am	< 0.3	2022-03-08
11132773	MINDFULNESS	2022-02-28 @ 1:00 pm	2022-03-03 @ 9:00 am	< 0.3	2022-03-08
11132730	MUSIC SILVA	2022-02-28 @ 12:00 pm	2022-03-03 @ 8:00 am	< 0.3	2022-03-08
11132726	PRINCIPAL	2022-02-28 @ 11:00 am	2022-03-03 @ 8:00 am	< 0.3	2022-03-08
11132745	READING RESOURCE	2022-02-28 @ 12:00 pm	2022-03-03 @ 9:00 am	0.6 ± 0.4	2022-03-08
11132737	READING RESOURCE	2022-02-28 @ 12:00 pm	2022-03-03 @ 9:00 am	< 0.3	2022-03-08
11132704	RESOURCE 1	2022-02-28 @ 11:00 am	2022-03-03 @ 9:00 am	< 0.3	2022-03-08
11132756	RESOURCE 2	2022-02-28 @ 12:00 pm	2022-03-03 @ 8:00 am	2.7 ± 0.4	2022-03-08
11132735	RESOURCE 3	2022-02-28 @ 12:00 pm	2022-03-03 @ 9:00 am	< 0.3	2022-03-08
11132703	RESOURCE1	2022-02-28 @ 11:00 am	2022-03-03 @ 9:00 am	< 0.3	2022-03-08
11132736	SPEECH	2022-02-28 @ 12:00 pm	2022-03-03 @ 9:00 am	0.7 ± 0.4	2022-03-08
11132701	STAFF DEVELOPMENT	2022-02-28 @ 11:00 am	2022-03-03 @ 9:00 am	< 0.3	2022-03-08
11132702	STAFF DEVELOPMENT	2022-02-28 @ 11:00 am	2022-03-03 @ 9:00 am	< 0.3	2022-03-08
11132743	STAGE	2022-02-28 @ 12:00 pm	2022-03-03 @ 8:00 am	< 0.3	2022-03-08
11132719	TV STUDIO	2022-02-28 @ 11:00 am	2022-03-03 @ 8:00 am	1.6 ± 0.4	2022-03-08

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

March 30, 2022

** LABORATORY ANALYSIS REPORT **

Radon test result report for:
RSH
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11139726	BASEMENT	2022-03-20 @ 8:00 am	2022-03-23 @ 7:00 am	0.9 ± 0.5	2022-03-30
11139725	DINING	2022-03-20 @ 8:00 am	2022-03-23 @ 7:00 am	< 0.3	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. Marshall, Thurgood ES
2. Ridgeview MS
3. Travilah ES
4. Flower Hill ES
5. Resnik, Judith A. ES
6. Strawberry Knolls ES
7. Whetstone ES
8. Laytonsville ES
9. Stedwick ES
10. Watkins Mill ES
11. Watkins Mill HS
12. Einstein, Albert E. HS

	Date	Initials
Radon Test Kits Deployed	02/28/2022	
Radon Test Kits Collected	03/03/2022	
Radon Test Kits Shipped to Lab*	03/3/2022	
Radon Test Kits Received by Lab*	03/5/2022	

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

MONTGOMERY COUNTY PUBLIC SCHOOLS
RADON TESTING

Executive Summary:
Laytonsville Elementary School

21401 Laytonsville Road
Gaithersburg, MD 20882

Date of Test Report:	3/28/2019
Round of Testing:	Initial **Follow-up** Post Remediation 2 Year Testing 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility
# of Rooms Tested:	2
# of Rooms ≥ 4.0 pCi/L:	0
Low Value:	<0.4
High Value:	2.5

Project Status

Retesting completed: No further action at this time.

March 28, 2019

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

Re: Radon Testing Services

Location: Laytonsville Elementary School
21401 Laytonsville Road
Gaithersburg, MD 20882

Dear Mr. Cox:

Intertek-PSI (PSI) is pleased to submit the following report to the Montgomery County Public Schools (MCPS) for completion of a "short-term" 3-day radon test for Laytonsville Elementary School, located at 21401 Laytonsville Road, Gaithersburg, MD 20882 (subject site).

Scope of Services:

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

PSI visited the site on February 25, 2019 and deployed two (2) activated charcoal (AC) radon test kit. PSI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. PSI returned to the site on February 28, 2019 to retrieve the radon sampling test kit. A floor plan map of the building with the test location is included as Attachment A of this report.

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

Evaluation of Testing Conditions:

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

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

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

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

Results:

The results of the radon test analysis indicated the following:

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

Notes:
D -Duplicate Sample

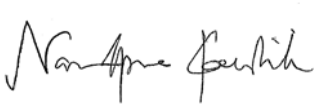
The office blank and lab transit blanks had test results of less than the laboratory detection limit of 0.4 pCi/L. Review of the duplicate sample analysis indicates that adequate laboratory measurement precision was achieved. The Spike sample analysis results indicate the laboratory is operating within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

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

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

Respectfully Submitted,

INTERTEK - PSI



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

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

ATTACHMENT B

Radon Test Summary Spreadsheet

Radon Testing Results		
Laytonsville Elementary School		
Testing period: 2/25/19 - 2/28/19		
Kit Number	**Room / Area**	**Result (pCi/L)**
3923481	K3	<0.4
3923482	PTA	2.5

Table Notes:

D – Duplicate

FB – Field Blank

OB – Office Blank

TB – Transit Blank

QC – Quality Control

ATTACHMENT C

Laboratory Analytical Results

AccuStar
Professional Radon Laboratory Services Since 1984

Radon in Air

NRPP 105011 AL
NRSB ARL0007

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

Laboratory Report for:

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

Property Tested: Project # 04481387-1

MCPS Radon Survey Laytonsville ES
21401 Laytonsville Rd.
Gaithersburg MD 20882

Log Number	Device Number	Test Exposure Duration:				Area Tested	Result pCi/L
3220598	3923481	02/25/2019	6:40 am	02/28/2019	6:40 am	Main Floor K3	< 0.4
3220599	3923482	02/25/2019	6:40 am	02/28/2019	6:40 am	Main Floor PTA	2.5

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

Distributed by: Intertek-PSI (VA)

Date Received: 03/04/2019 Date Logged: 03/04/2019 Date Analyzed: 03/04/2019 Date Reported: 03/05/2019

Report Reviewed By: _____ Report Approved By: _____

Shawn Price, Director of Laboratory Operations, AccuStar Labs

Disclaimer:

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

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

MONTGOMERY COUNTY PUBLIC SCHOOLS
RADON TESTING

Executive Summary:
Laytonsville Elementary School

21401 Laytonsville Road
Gaithersburg, MD 20882

Date of Test Report:	2/13/2019
Round of Testing:	Initial Follow-up Post Remediation 2 Year Testing 5 Year Testing **HVAC Upgrade** Window Replacement New Addition New Facility
# of Rooms Tested:	58
# of Rooms ≥ 4.0 pCi/L:	0
Low Value:	< 0.4
High Value:	3.3

Project Status

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

February 13, 2019

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

Re: Radon Testing Services

Location: Laytonsville Elementary School
21401 Laytonsville Road
Gaithersburg, MD 20882

Dear Mr. Cox:

Intertek-PSI (PSI) is pleased to submit the following report to the Montgomery County Public Schools (MCPS) for completion of a "short-term" 3-day radon test for Laytonsville Elementary School, located at 21401 Laytonsville Road, Gaithersburg, MD 20882 (subject site).

Scope of Services:

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

PSI visited the site on December 03, 2018 and deployed sixty-nine (69) activated charcoal (AC) radon test kits. PSI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. PSI returned to the site on December 06, 2018 to retrieve the radon sampling test kits. A floor plan map of the building with the test locations is included as Attachment A of this report.

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

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

Evaluation of Testing Conditions:

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

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

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

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

Results:

The results of the radon test analysis indicated the following:

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

Notes:
D -Duplicate Sample

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

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

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

Respectfully Submitted,

INTERTEK-PSI

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

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

ATTACHMENT B

Radon Test Summary Spreadsheet

Radon Testing Results		
Laytonsville Elementary School		
Testing period: 12/03/18 - 12/06/18		
Kit Number	**Room / Area**	**Result (pCi/L)**
3928272	1	< 0.4
3928273	2	< 0.4
3928276	2	< 0.4
3928274	3	< 0.4
3928139	3A	< 0.4
3928275	4	< 0.4
3928138	5	< 0.4
3928137	6	< 0.4
3928136	7	< 0.4
3928135	8	< 0.4
3926148	9	< 0.4
3926149	10	< 0.4
3926150	11	0.4
3928131	12	< 0.4
3928132	13	< 0.4
3928134	14	0.4
3925905	15	< 0.4
3925906	16	< 0.4
3925907	17	0.8
3925908	18	0.4
3925909	19	< 0.4
3925910	20	0.5
3928111	Art	< 0.4
3928127	Assistant Principal	< 0.4
3928114	BSO	0.4
3888381	Cafeteria	< 0.4
3888413	Cafeteria	< 0.4
3928277	Computer Lab	< 0.4
3928126	Conference	0.4
3928271	Conference Room	< 0.4
3928120	Counselor	< 0.4
3925904	ESOL	< 0.4
3888393	GYM	3.3
3888412	GYM	2.0
3928123	Health Office	< 0.4
3928122	Health room	0.4
3928269	IDA	< 0.4
3928128	K1	< 0.4
3928129	K2	< 0.4
3928130	K3 (MISSING)	--
3928261	K4	< 0.4
3925903	Kitchen	< 0.4
3928125	Mail Room	< 0.4

Radon Testing Results		
Laytonsville Elementary School		
Testing period: 12/03/18 - 12/06/18		
Kit Number	**Room / Area**	**Result (pCi/L)**
3928121	Main Office	< 0.4
3928265	Media Center	0.5
3928264	Media Center Office 1	< 0.4
3928266	Media Center Office 2	< 0.4
3928263	Media Center Storage	< 0.4
3928118	Music	< 0.4
3928113	PE Office	< 0.4
3928124	Principal	< 0.4
--	PTA (MISSED)	--
3925901	Reading Resource 3	< 0.4
3928267	Resource 1	< 0.4
3926147	Resource 2	1.3
3928117	Resources	< 0.4
3928119	Speech	< 0.4
3928270	Staff Development	< 0.4
3928268	Staff Lounge	< 0.4
3928116	TV St./Instr. Music	0.6
3928115	TV Studio	0.7

Radon Testing Results		
Laytonsville Elementary School		
Testing period: 12/03/18 - 12/06/18		
Kit Number	**QC Type**	**Result (pCi/L)**
3928140	3A (D)	< 0.4
3928133	13 (D)	0.4
3928112	ART (D)	< 0.4
3928262	K4 (D)	< 0.4
3925902	Reading Resource 3 (D)	< 0.4
3926663	Field Blank	< 0.4
3926662	Field Blank	< 0.4
3917611	Office Blank	< 0.4
3926651	Transit Blank	< 0.4

Table Notes:

D – Duplicate

FB – Field Blank

OB – Office Blank

TB – Transit Blank

QC – Quality Control

ATTACHMENT C

Laboratory Analytical Results

AccuStar
Professional Radon Laboratory Services Since 1984

Radon in Air

NRPP 105011 AL
NRSB ARL0007

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

Laboratory Report for:

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

Property Tested: Project # 04481387-1

MCPS Radon Survey Laytonsville ES
21401 Laytonsville RD
Gaithersburg MD 20882

Log Number	Device Number	Test Exposure Duration:				Area Tested	Result pCi/L
3201885	3928121	12/03/2018	5:22 pm	12/06/2018	1:42 pm	Floor 1 Room Main Office	< 0.4
3201886	3928122	12/03/2018	5:23 pm	12/06/2018	1:43 pm	First Floor Room Health	0.4
3201887	3928123	12/03/2018	5:24 pm	12/06/2018	1:44 pm	First Floor Room Health	< 0.4
3201888	3928124	12/03/2018	5:25 pm	12/06/2018	1:45 pm	First Floor Room Principal	< 0.4
3201889	3928125	12/03/2018	5:27 pm	12/06/2018	1:47 pm	First Floor Room Mail	< 0.4
3201890	3928126	12/03/2018	5:28 pm	12/06/2018	1:49 pm	First Floor Room Conference	0.4
3201891	3928127	12/03/2018	5:29 pm	12/06/2018	1:50 pm	First Floor Room Asst. Principal	< 0.4
3201892	3928128	12/03/2018	5:30 pm	12/06/2018	1:53 pm	First Floor Room K1	< 0.4
3201893	3928129	12/03/2018	5:31 pm	12/06/2018	1:54 pm	First Floor Room K2	< 0.4
3201894	3928261	12/03/2018	5:33 pm	12/06/2018	2:03 pm	First Floor Room K4	< 0.4
3201895	3928262	12/03/2018	5:33 pm	12/06/2018	2:03 pm	First Floor Room K4 Duplicate	< 0.4

Comment: AMENDED REPORT on 1-16-19 to remove several devices listed incorrectly from original report.

Test Performed By: Lian Zadeng

Distributed by: Intertek-PSI (VA)

Date Received: 12/07/2018 Date Logged: 12/07/2018 Date Analyzed: 12/07/2018 Date Reported: 12/19/2018

Report Reviewed By: _____ Report Approved By: _____

Shawn Price, Director of Laboratory Operations, AccuStar Labs

Disclaimer:

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

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

NRPP 105011 AL
NRSB ARL0007

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

Laboratory Report for:

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

Property Tested: Project # 04481387-1

MCPS Radon Survey Laytonsville ES
21401 Laytonsville RD
Gaithersburg MD 20882

Log Number	Device Number	Test Exposure Duration:				Area Tested	Result pCi/L
3201896	3928263	12/03/2018	5:34 pm	12/06/2018	2:05 pm	First Floor Room Media Center Storage	< 0.4
3201897	3928264	12/03/2018	5:35 pm	12/06/2018	2:06 pm	First Floor Room Media Center Office 1	< 0.4
3201898	3928265	12/03/2018	5:37 pm	12/06/2018	2:07 pm	First Floor Room Media Center	0.5
3201899	3928266	12/03/2018	5:38 pm	12/06/2018	2:09 pm	First Floor Room Media Center Office 2	< 0.4
3201900	3928267	12/03/2018	5:39 pm	12/06/2018	2:11 pm	First Floor Room Resource 1	< 0.4
3201901	3928268	12/03/2018	5:41 pm	12/06/2018	2:14 pm	First Floor Room Staff Lounge	< 0.4
3201902	3928269	12/03/2018	5:42 pm	12/06/2018	2:16 pm	First Floor Room IDA Hustek	< 0.4
3201903	3928270	12/03/2018	5:44 pm	12/06/2018	2:18 pm	First Floor Room Staff Development	< 0.4
3201904	3928111	12/03/2018	5:46 pm	12/06/2018	2:20 pm	First Floor Room Art	< 0.4
3201905	3928112	12/03/2018	5:46 pm	12/06/2018	2:20 pm	First Floor Room Art Duplicate	< 0.4
3201906	3928113	12/03/2018	5:49 pm	12/06/2018	2:27 pm	First Floor Room PE Office	0.8

Comment: AMENDED REPORT on 1-16-19 to remove several devices listed incorrectly from original report.

Test Performed By: Lian Zadeng

Distributed by: Intertek-PSI (VA)

Date Received: 12/07/2018 Date Logged: 12/07/2018 Date Analyzed: 12/07/2018 Date Reported: 12/19/2018

Report Reviewed By: _____ Report Approved By: _____

Shawn Price, Director of Laboratory Operations, AccuStar Labs

Disclaimer:

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

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NRPP 105011 AL
NRSB ARL0007

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

Laboratory Report for:

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

Property Tested: Project # 04481387-1

MCPS Radon Survey Laytonsville ES
21401 Laytonsville RD
Gaithersburg MD 20882

Log Number	Device Number	Test Exposure Duration:				Area Tested	Result pCi/L
3201907	3928114	12/03/2018	5:50 pm	12/06/2018	2:29 pm	First Floor Room BSO	0.4
3201908	3928115	12/03/2018	5:52 pm	12/06/2018	2:31 pm	First Floor Room TV Studio	0.7
3201909	3928116	12/03/2018	5:53 pm	12/06/2018	2:32 pm	First Floor Room TV St / Instr Music	0.6
3201910	3928118	12/03/2018	6:04 pm	12/06/2018	2:45 pm	First Floor Room Music	< 0.4
3201911	3928119	12/03/2018	6:05 pm	12/06/2018	3:04 pm	First Floor Room Speech	< 0.4
3201912	3928120	12/03/2018	8:07 am	12/06/2018	3:06 pm	First Floor Room Counselor Ward	< 0.4
3201913	3925901	12/03/2018	6:08 pm	12/06/2018	3:08 pm	First Floor Room Reading Resource 3	< 0.4
3201914	3925902	12/03/2018	6:08 pm	12/06/2018	3:08 pm	First Floor Room Reading Resource 3 Duplicate	< 0.4
3201915	3925903	12/03/2018	6:10 pm	12/06/2018	3:10 pm	First Floor Room Kitchen	< 0.4
3201916	3925904	12/03/2018	6:11 pm	12/06/2018	3:11 pm	First Floor Room ESOL	< 0.4
3201917	3925905	12/03/2018	6:12 pm	12/06/2018	3:12 pm	Floor Second Room 15	< 0.4

Comment: AMENDED REPORT on 1-16-19 to remove several devices listed incorrectly from original report.

Test Performed By: Lian Zadeng

Distributed by: Intertek-PSI (VA)

Date Received: 12/07/2018 Date Logged: 12/07/2018 Date Analyzed: 12/07/2018 Date Reported: 12/19/2018

Report Reviewed By: _____ Report Approved By: _____

Shawn Price, Director of Laboratory Operations, AccuStar Labs

Disclaimer:

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NRPP 105011 AL
NRSB ARL0007

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

Laboratory Report for:

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

Property Tested: Project # 04481387-1

MCPS Radon Survey Laytonsville ES
21401 Laytonsville RD
Gaithersburg MD 20882

Log Number	Device Number	Test Exposure Duration:				Area Tested	Result pCi/L
3201918	3925906	12/03/2018	6:13 pm	12/06/2018	3:15 pm	Floor Second Room 16	< 0.4
3201919	3925907	12/03/2018	6:14 pm	12/06/2018	3:19 pm	Floor Second Room 17	0.8
3201920	3925908	12/03/2018	6:15 pm	12/06/2018	3:21 pm	First Floor Room 18	0.4
3201921	3925909	12/03/2018	6:16 pm	12/06/2018	3:23 pm	First Floor Room 19	< 0.4
3201922	3925910	12/03/2018	6:17 pm	12/06/2018	3:24 pm	First Floor Room 20	0.5
3201923	3926147	12/03/2018	6:18 pm	12/06/2018	3:27 pm	First Floor Room Resource 2	1.3
3201924	3926148	12/03/2018	6:19 pm	12/06/2018	3:30 pm	Floor Second Room 9	< 0.4
3201925	3926149	12/03/2018	6:20 pm	12/06/2018	3:37 pm	Floor Second Room 10	< 0.4
3201926	3926150	12/03/2018	6:21 pm	12/06/2018	3:38 pm	Floor Second Room 11	0.4
3201927	3928131	12/03/2018	6:22 pm	12/06/2018	3:39 pm	First Floor Room 12	< 0.4
3201928	3928132	12/03/2018	6:23 pm	12/06/2018	3:42 pm	First Floor Room 13	< 0.4

Comment: AMENDED REPORT on 1-16-19 to remove several devices listed incorrectly from original report.

Test Performed By: Lian Zadeng

Distributed by: Intertek-PSI (VA)

Date Received: 12/07/2018 Date Logged: 12/07/2018 Date Analyzed: 12/07/2018 Date Reported: 12/19/2018

Report Reviewed By: _____ Report Approved By: _____

Shawn Price, Director of Laboratory Operations, AccuStar Labs

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NRPP 105011 AL
NRSB ARL0007

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

Laboratory Report for:

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

Property Tested: Project # 04481387-1

MCPS Radon Survey Laytonsville ES
21401 Laytonsville RD
Gaithersburg MD 20882

Log Number	Device Number	Test Exposure Duration:				Area Tested	Result pCi/L
3201929	3928133	12/03/2018	6:23 pm	12/06/2018	3:42 pm	First Floor Room 13 Duplicate	0.4
3201930	3928134	12/03/2018	6:24 pm	12/06/2018	3:44 pm	First Floor Room 14	0.4
3201931	3928135	12/03/2018	6:25 pm	12/06/2018	3:47 pm	First Floor Room 8	< 0.4
3201932	3928136	12/03/2018	6:26 pm	12/06/2018	3:48 pm	First Floor Room 7	< 0.4
3201933	3928137	12/03/2018	6:26 pm	12/06/2018	3:51 pm	First Floor Room 6	< 0.4
3201934	3928138	12/03/2018	6:25 pm	12/06/2018	3:52 pm	First Floor Room 5	< 0.4
3201935	3928139	12/03/2018	6:26 pm	12/06/2018	3:53 pm	First Floor Room 3A	< 0.4
3201936	3928140	12/03/2018	6:26 pm	12/06/2018	3:53 pm	First Floor Room 3A Duplicate	< 0.4
3201937	3928275	12/03/2018	6:30 pm	12/06/2018	3:55 pm	First Floor Room 4	< 0.4
3201938	3928274	12/03/2018	6:31 pm	12/06/2018	3:56 pm	First Floor Room 3	< 0.4
3201939	3928273	12/03/2018	6:32 pm	12/06/2018	3:57 pm	First Floor Room 2	< 0.4

Comment: AMENDED REPORT on 1-16-19 to remove several devices listed incorrectly from original report.

Test Performed By: Lian Zadeng

Distributed by: Intertek-PSI (VA)

Date Received: 12/07/2018 Date Logged: 12/07/2018 Date Analyzed: 12/07/2018 Date Reported: 12/19/2018

Report Reviewed By: _____ Report Approved By: _____

Shawn Price, Director of Laboratory Operations, AccuStar Labs

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AccuStar
Professional Radon Laboratory Services Since 1984

Radon in Air

NRPP 105011 AL
NRSB ARL0007

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

Laboratory Report for:

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

Property Tested: Project # 04481387-1

MCPS Radon Survey Laytonsville ES
21401 Laytonsville RD
Gaithersburg MD 20882

Log Number	Device Number	Test Exposure Duration:				Area Tested	Result pCi/L
3201940	3928272	12/03/2018	6:33 pm	12/06/2018	4:00 pm	First Floor Room 1	< 0.4
3201941	3928276	12/03/2018	6:33 pm	12/06/2018	4:01 pm	First Floor Room 2	< 0.4
3201942	3928271	12/03/2018	6:34 pm	12/06/2018	4:03 pm	First Floor Room Conference	< 0.4
3201943	3928277	12/03/2018	6:35 pm	12/06/2018	4:06 pm	First Floor Room Computer Lab	< 0.4
3201944	3917611	12/03/2018	6:00 pm	12/06/2018	4:45 pm	Field Blank	< 0.4
3201945	3926663	12/03/2018	5:22 pm	12/06/2018	4:06 pm	Field Blank	< 0.4
3201946	3926662	12/03/2018	5:22 pm	12/06/2018	4:06 pm	Field Blank	< 0.4
3201947	3926651	12/03/2018	6:00 am	12/06/2018	4:45 pm	Field Blank	< 0.4

Comment: AMENDED REPORT on 1-16-19 to remove several devices listed incorrectly from original report.

Test Performed By: Lian Zadeng

Distributed by: Intertek-PSI (VA)

Date Received: 12/07/2018 Date Logged: 12/07/2018 Date Analyzed: 12/07/2018 Date Reported: 12/19/2018

Report Reviewed By: _____ Report Approved By: _____

Shawn Price, Director of Laboratory Operations, AccuStar Labs

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Radon in Air

NELAC NY 11769
NRPP 103216 AL
NRSB ARL0017

EPA Method #402-R-92-004
Liquid Scintillation
NRPP Device Code 8088
NRSB Device Code 12193

Laboratory Report for:

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

Property Tested:

MCPS Radon Survey
21401 Laytonsville Rd
Gaithersburg MD 20882

Log Number	Device Number	Test Exposure Duration:		Area Tested	Result pCi/L
2391567	3888381	12/03/2018 5:55 pm	12/06/2018 2:40 pm	Floor Ground Floor Room Cafeteria	< 0.4
2391570	3888413	12/03/2018 5:56 pm	12/06/2018 2:40 pm	Floor Ground Floor Room Cafeteria	< 0.4
2403702	3888393	12/03/2018 5:47 pm	12/06/2018 2:22 pm	Floor Ground Floor Room GYM	3.3
2403703	3888412	12/03/2018 5:48 pm	12/06/2018 2:24 pm	Floor Ground Floor Room GYM	2.0

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

Distributed by: Intertek-PSI (VA)

Date Received: 12/12/2018 Date Logged: 12/12/2018 Date Analyzed: 12/08/2018 Date Reported: 01/02/2019

Report Reviewed By: _____ Report Approved By: _____

Shawn Price, Director of Laboratory Operations, AccuStar Labs

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AccuStar
Professional Radon Laboratory Services Since 1984

Radon in Air

NRPP 105011 AL
NRSB ARL0007
Ohio RL41

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

Laboratory Report for:

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

Property Tested:

MCPS Radon Survey
4514 Taylorsville Road
Dayton OH 45424

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

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

Test Performed By: Unknown

Distributed by: Intertek-PSI (VA)

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

Report Reviewed By: _____ Report Approved By: _____

Shawn Price, Director of Laboratory Operations, AccuStar Labs

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EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT Intertek - PSI Job Number 187732

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

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

Time Start: 0947 Time Stop: 0947

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

3926831 thru 3926840

G2 Left

Date Start: ______ Date Stop: ______

Time Start: ______ Time Stop: ______

Device No.'s: ______

Date Start: ______ Date Stop: ______

Time Start: ______ Time Stop: ______

Device No.'s: ______

Date Start: ______ Date Stop: ______

Time Start: ______ Time Stop: ______

Device No.'s: ______

Date Start: ______ Date Stop: ______

Time Start: ______ Time Stop: ______

Device No.'s: ______

Date Start: ______ Date Stop: ______

Time Start: ______ Time Stop: ______

Device No.'s: ______

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

intertek psi

Chain of Custody

Project Name: MCPS Radon Survey 2018

Name of Schools:

1. Ewing Center
2. Department of Food & Nutrition Services
3. Damascus HS
4. Edison HS
5. Emory Grove Center
6. John Poole MS
7. Lakelands Park MS
8. Laytonsville ES
9. Gaithersburg HS
10. Neelsville MS
11. Sequoyah ES
12. Clarksburg ES Annex
13. Garrett Park ES Annex
14. Goshen ES
15. Kingsley Wilderness Center
16. Kensington Parkwood ES
17. Monocacy ES
18. Lakewood ES
19. Little Bennett ES
20. Lois P. Rockwell ES
21. Olney ES
22. North Chevy Chase ES
23. Woodfield ES
24. Wootton HS

	Date	Initials
Radon Test Kits Deployed	12/03/2018	NL
Radon Test Kits Sampled	12/06/2018	NL
Radon Test Kits Shipped to Lab*	12/06/2018	NL
Radon Test Kits Received by Lab*	12/07/2018; 12/08/2018	NL

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

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	Laytonsville Elementary School
Date of Report	March 12, 2018
Round of Testing	Initial **Follow-up** Post Remediation 2 year testing 5 year testing HVAC Upgrade Window Replacement New Addition New Facility
# of Rooms Tested	6
# Rooms ≥4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	1.7 pCi/L

Project Status

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

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

March 12, 2018

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

Re: Radon Testing Services

KCI Job #1214634188

Location: Laytonsville Elementary School
21401 Laytonsville Rd.
Gaithersburg, Maryland 20882

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 Laytonsville Elementary School, located at 21401 Laytonsville Rd. in Gaithersburg, Maryland 20882 (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 eight (8) activated charcoal (AC) radon test kits. KCI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance.

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

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

Sincerely,

Radon Measurement Specialist
KCI Technologies, Inc.

Attachments:

B - Radon Test Summary Spreadsheets

C- Laboratory Analytical Results

ATTACHMENT B

Radon Test Summary Spreadsheet

Table Notes:

AC- Activated Charcoal

ACI- Air Chek, Inc.

D- Duplicate

FB- Field Blank

KCI- KCI Technologies, Inc.

OB- Office Blank

PM- Project Manager

QC- Quality Control

Table 1 - Radon Testing Results		
Laytonsville Elementary School		
Test Period: 02/13/18-02/16/18		
Kit Number	**Room / Area**	**Result**
7986601	BLDG SERV	0.9
7986604	COPY STORAGE	0.5
7986617	GYM	1.7
7986603	INSTRUMENTAL MUSIC	< 0.3
7986616	KITCHEN	0.8
7986602	MATH INTERVENTIO	< 0.3

Table Note:
* Missing or Compromised Sample

Table 2 - Radon Testing Results		
Laytonsville Elementary School		
Test Period: 02/13/18-02/16/18		
Kit Number	**QC Type**	**Result**
7986615	D (MATH INTERVENTION)	< 0.3
7986627	FB (MATH INTERVENTION)	< 0.3

Table Note:
* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

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

Radon test result report for:
LAYTONSVILLE ELEMENTARY SCHOOL
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7986601	BLDG SERV	2018-02-13 @ 8:00 am	2018-02-16 @ 8:00 am	0.9 ± 0.3	2018-02-20
7986604	COPY STORAGE	2018-02-13 @ 8:00 am	2018-02-16 @ 8:00 am	0.5 ± 0.3	2018-02-20
7986617	GYM	2018-02-13 @ 8:00 am	2018-02-16 @ 8:00 am	1.7 ± 0.4	2018-02-20
7986603	INST. MUSIC	2018-02-13 @ 8:00 am	2018-02-16 @ 8:00 am	< 0.3	2018-02-20
7986616	KITCHEN	2018-02-13 @ 8:00 am	2018-02-16 @ 8:00 am	0.8 ± 0.3	2018-02-20
7986627	MATH INTERVENTIO	2018-02-13 @ 8:00 am	2018-02-16 @ 8:00 am	< 0.3	2018-02-20
7986615	MATH INTERVENTIO	2018-02-13 @ 8:00 am	2018-02-16 @ 8:00 am	< 0.3	2018-02-20
7986602	MATH INTERVENTIO	2018-02-13 @ 8:00 am	2018-02-16 @ 8:00 am	< 0.3	2018-02-20

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

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. 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	Laytonsville Elementary School
Date of Report	February 2, 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	52
# Rooms ≥4.0 pCi/L	0
Lowest Value	< 0.3 pCi/L
Highest Value	2.6 pCi/L

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

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February 2, 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: Laytonsville Elementary School
21401 Laytonsville Rd.
Gaithersburg, Maryland 20882

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 Laytonsville Elementary School, located at 21401 Laytonsville Rd. in Gaithersburg, Maryland 20882 (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 5, 2017 and deployed sixty-three (63) activated charcoal (AC) radon test kits. KCI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. A floor plan map of the building with the test locations is included as Appendix A of this report.

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

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

KCI returned to the site on December 8, 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 low-30s to mid-40s and high temperatures ranged from the upper-30s to mid-50s. Maximum sustained winds ranged from 4-17 miles per hour. Average humidity was around 60%. 0.16 Inches of precipitation was recorded during the testing period.

RESULTS

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

The results of the radon test analysis indicated the following:

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

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

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 Moulsdale, CHMM
Radon Measurement Specialist
KCI Technologies, Inc.

Attachments:

B- Table 1-Radon Test Summary Spreadsheet

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		
Laytonsville Elementary School		
Test Period: 12/05/17-12/08/17		
Kit Number	**Room / Area**	**Result**
7834572	1	0.6
7834501	2	< 0.3
7834573	3	< 0.3
7834577	4	0.7
7834578	5	0.6
7834580	6	0.6
7834587	7	0.7
7834581	8	< 0.3
7834583	9	0.6
7834584	10	0.7
7834585	11	< 0.3
7834582	12	0.8
7834576	13	0.7
7834575	14	0.7
7834593	15	0.8
7834594	16	0.6
7834589	17	< 0.3
7834592	18	0.7
7834532	19	0.8
7834588	20	< 0.3
7834574	3A	0.7
7834550	APR	0.8
7834590	APR	0.8
7194079	ART	< 0.3
7834554	ASST PRINCIPAL	< 0.3
7834569	COMP LAB	< 0.3
7834570	CONFERENCE ROOM 2	< 0.3
7834509	CONFERENCE ROOM	0.7
7834598	COUNSELOR	< 0.3
7834600	ESOL	0.6
7194080	GYM	1.3
7194083	* GYM (Tampered)	2.6
7143438	HEALTH	0.7
7834571	IDA	0.6
7834564	K1	< 0.3
7834565	K2	1.0
7834560	K3	< 0.3
7978579	K4	< 0.3
7834566	LOUNGE	< 0.3
7834510	MAIL ROOM	< 0.3
7834551	MAIN OFFICE	< 0.3
7834553	MEDIA CENTER	< 0.3
7834507	MEDIA CNTER	< 0.3
7143443	MEDIA OFFICE	0.6
7143437	MEDIA WORK ROOM	< 0.3
7834597	MUSIC	< 0.3

Table Note:
* Missing or Compromised Sample

Radon Testing Results		
Laytonsville Elementary School		
Test Period: 12/05/17-12/08/17		
Kit Number	**Room / Area**	**Result**
7194081	PE OFFICE	1.7
7834514	PRINCIPAL	< 0.3
7834595	READING	0.7
7834567	RESOURSE 1	< 0.3
7194084	RESOURSE 3	< 0.3
7834591	RESOURSE2	2.2
7834599	SPEECH	< 0.3
7194077	STAFF DEVELOPMEN	0.6
7834559	TV STUDIO	1.4

Table Note:
* Missing or Compromised Sample

Radon Testing Results		
Laytonsville Elementary School		
Test Period: 12/05/17-12/08/17		
Kit Number	**QC Type**	**Result**
7834505	D (18)	< 0.3
7834586	D (7)	< 0.3
7834568	D (IDA)	< 0.3
7194082	D (PE OFFICE)	1.5
7834596	D (READING)	0.7
7834519	D (TV STUDIO)	1.2
7834579	FB (7)	< 0.3
7978197	OB (OFFICE BLANK)	< 0.3

Table Note:
* Missing or Compromised Sample

Summary of Missed Locations		
Laytonsville Elementary School		
Test Period: 12/05/17-12/08/17		
Kit Number	**Room / Area**	**Result**
-	COPY ROOM (Missed location)	-
-	BUILDING SERVICE (Missed location)	-
-	INSTRUMENTAL MUSIC (Missed location)	-
-	MATH INTERVENTION (Missed location)	-
-	PTA (Missed location)	-
-	KITCHEN (Missed location)	-

Summary of Missing, Compromised and ≥4 piC/L Tests		
Laytonsville Elementary School		
Test Period: 12/05/17-12/08/17		
Kit Number	**Room / Area**	**Result**
7194083	* GYM (Tampered)	2.6

Table Note:
* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

December 29, 2017 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
LAYTONSVILLE ELEMENTARY SCHOOL
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7978197	OFFICE BLANK	2017-12-05 @ 12:00 pm	2017-12-08 @ 12:00 pm	< 0.3	2017-12-11
7194077	STAFF DEVELOPMEN	2017-12-05 @ 12:00 pm	2017-12-08 @ 8:00 am	0.6 ± 0.3 Z	2017-12-11

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December 29, 2017 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

LAYTONSVILLE ELEMENTARY SCHOOL
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7834572	1	2017-12-05 @ 11:00 am	2017-12-08 @ 8:00 am	0.6 ± 0.3	2017-12-11
7834584	10	2017-12-05 @ 11:00 am	2017-12-08 @ 8:00 am	0.7 ± 0.3	2017-12-11
7834585	11	2017-12-05 @ 11:00 am	2017-12-08 @ 8:00 am	< 0.3	2017-12-11
7834582	12	2017-12-05 @ 11:00 am	2017-12-08 @ 8:00 am	0.8 ± 0.3	2017-12-12
7834576	13	2017-12-05 @ 11:00 am	2017-12-08 @ 8:00 am	0.7 ± 0.3	2017-12-11
7834575	14	2017-12-05 @ 11:00 am	2017-12-08 @ 8:00 am	0.7 ± 0.3	2017-12-12
7834593	15	2017-12-05 @ 12:00 pm	2017-12-08 @ 7:00 am	0.8 ± 0.3	2017-12-12
7834594	16	2017-12-05 @ 12:00 pm	2017-12-08 @ 7:00 am	0.6 ± 0.3	2017-12-11
7834589	17	2017-12-05 @ 12:00 pm	2017-12-08 @ 7:00 am	< 0.3	2017-12-12
7834592	18	2017-12-05 @ 11:00 am	2017-12-08 @ 7:00 am	0.7 ± 0.3	2017-12-11
7834505	18	2017-12-05 @ 11:00 am	2017-12-08 @ 7:00 am	< 0.3	2017-12-11
7834532	19	2017-12-05 @ 11:00 am	2017-12-08 @ 7:00 am	0.8 ± 0.3	2017-12-12
7834501	2	2017-12-05 @ 11:00 am	2017-12-08 @ 8:00 am	< 0.3	2017-12-11
7834588	20	2017-12-05 @ 11:00 am	2017-12-08 @ 7:00 am	< 0.3	2017-12-11
7834573	3	2017-12-05 @ 11:00 am	2017-12-08 @ 8:00 am	< 0.3	2017-12-11
7834574	3A	2017-12-05 @ 11:00 am	2017-12-08 @ 8:00 am	0.7 ± 0.3	2017-12-12
7834577	4	2017-12-05 @ 11:00 am	2017-12-08 @ 8:00 am	0.7 ± 0.3	2017-12-12
7834578	5	2017-12-05 @ 11:00 am	2017-12-08 @ 8:00 am	0.6 ± 0.3	2017-12-11
7834580	6	2017-12-05 @ 11:00 am	2017-12-08 @ 8:00 am	0.6 ± 0.3	2017-12-12
7834579	7	2017-12-05 @ 11:00 am	2017-12-08 @ 8:00 am	< 0.3	2017-12-11
7834586	7	2017-12-05 @ 11:00 am	2017-12-08 @ 8:00 am	< 0.3	2017-12-11
7834587	7	2017-12-05 @ 11:00 am	2017-12-08 @ 8:00 am	0.7 ± 0.3	2017-12-12
7834581	8	2017-12-05 @ 11:00 am	2017-12-08 @ 8:00 am	< 0.3	2017-12-11
7834583	9	2017-12-05 @ 11:00 am	2017-12-08 @ 8:00 am	0.6 ± 0.3	2017-12-11
7834590	APR	2017-12-05 @ 12:00 pm	2017-12-08 @ 7:00 am	0.8 ± 0.3	2017-12-12
7834550	APR	2017-12-05 @ 12:00 pm	2017-12-08 @ 7:00 am	0.8 ± 0.3	2017-12-12
7194079	ART	2017-12-05 @ 12:00 pm	2017-12-08 @ 8:00 am	< 0.3	2017-12-11
7834554	ASST PRINCIPAL	2017-12-05 @ 10:00 am	2017-12-08 @ 8:00 am	< 0.3	2017-12-11
7834569	COMP LAB	2017-12-05 @ 11:00 am	2017-12-08 @ 8:00 am	< 0.3	2017-12-11
7834570	CONFERENCE RM 2	2017-12-05 @ 11:00 am	2017-12-08 @ 8:00 am	< 0.3	2017-12-11
7834509	CONFERENCE ROOM	2017-12-05 @ 10:00 am	2017-12-08 @ 8:00 am	0.7 ± 0.3	2017-12-11
7834598	COUNSELOR	2017-12-05 @ 12:00 pm	2017-12-08 @ 7:00 am	< 0.3	2017-12-11
7834600	ESOL	2017-12-05 @ 12:00 pm	2017-12-08 @ 7:00 am	0.6 ± 0.3	2017-12-11
7194080	GYM	2017-12-05 @ 12:00 pm	2017-12-08 @ 8:00 am	1.3 ± 0.3	2017-12-11
7194083	GYM	2017-12-05 @ 12:00 pm	2017-12-08 @ 8:00 am	2.6 ± 0.4	2017-12-12
7143438	HEALTH	2017-12-05 @ 10:00 am	2017-12-08 @ 8:00 am	0.7 ± 0.3	2017-12-12
7834571	IDA	2017-12-05 @ 11:00 am	2017-12-08 @ 8:00 am	0.6 ± 0.3	2017-12-12

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December 29, 2017 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

LAYTONSVILLE ELEMENTARY SCHOOL
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7834568	IDA	2017-12-05 @ 11:00 am	2017-12-08 @ 8:00 am	< 0.3	2017-12-12
7834564	K1	2017-12-05 @ 11:00 am	2017-12-08 @ 8:00 am	< 0.3	2017-12-11
7834565	K2	2017-12-05 @ 11:00 am	2017-12-08 @ 8:00 am	1.0 ± 0.3	2017-12-12
7834560	K3	2017-12-05 @ 11:00 am	2017-12-08 @ 8:00 am	< 0.3	2017-12-11
7978579	K4	2017-12-05 @ 11:00 am	2017-12-08 @ 8:00 am	< 0.3	2017-12-11
7834566	LOUNGE	2017-12-05 @ 11:00 am	2017-12-08 @ 8:00 am	< 0.3	2017-12-12
7834510	MAIL ROOM	2017-12-05 @ 10:00 am	2017-12-08 @ 8:00 am	< 0.3	2017-12-11
7834551	MAIN OFFICE	2017-12-05 @ 10:00 am	2017-12-08 @ 8:00 am	< 0.3	2017-12-11
7834553	MEDIA CENTER	2017-12-05 @ 11:00 am	2017-12-08 @ 8:00 am	< 0.3	2017-12-11
7834507	MEDIA CNTER	2017-12-05 @ 10:00 am	2017-12-08 @ 8:00 am	< 0.3	2017-12-11
7143443	MEDIA OFFICE	2017-12-05 @ 11:00 am	2017-12-08 @ 8:00 am	0.6 ± 0.3	2017-12-11
7143437	MEDIA WORK ROOM	2017-12-05 @ 11:00 am	2017-12-08 @ 8:00 am	< 0.3	2017-12-11
7834597	MUSIC	2017-12-05 @ 12:00 pm	2017-12-08 @ 7:00 am	< 0.3	2017-12-11
7194081	PE OFFICE	2017-12-05 @ 12:00 pm	2017-12-08 @ 8:00 am	1.7 ± 0.3	2017-12-11
7194082	PE OFFICE	2017-12-05 @ 12:00 pm	2017-12-08 @ 8:00 am	1.5 ± 0.3	2017-12-11
7834514	PRINCIPAL	2017-12-05 @ 10:00 am	2017-12-08 @ 8:00 am	< 0.3	2017-12-11
7834595	READING	2017-12-05 @ 12:00 pm	2017-12-08 @ 7:00 am	0.7 ± 0.3	2017-12-12
7834596	READING	2017-12-05 @ 12:00 pm	2017-12-08 @ 7:00 am	0.7 ± 0.3	2017-12-12
7834567	RESOURSE 1	2017-12-05 @ 11:00 am	2017-12-08 @ 8:00 am	< 0.3	2017-12-11
7194084	RESOURSE 3	2017-12-05 @ 12:00 pm	2017-12-08 @ 8:00 am	< 0.3	2017-12-11
7834591	RESOURSE2	2017-12-05 @ 11:00 am	2017-12-08 @ 8:00 am	2.2 ± 0.4	2017-12-11
7834599	SPEECH	2017-12-05 @ 12:00 pm	2017-12-08 @ 7:00 am	< 0.3	2017-12-12
7834519	TV STUDIO	2017-12-05 @ 11:00 am	2017-12-08 @ 8:00 am	1.2 ± 0.3	2017-12-11
7834559	TV STUDIO	2017-12-05 @ 11:00 am	2017-12-08 @ 8:00 am	1.4 ± 0.3	2017-12-11

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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. John T. Baker Middle School
2. Cedar Grove Elementary School
3. Clarksburg Elementary School
4. Clarksburg Elementary School Annex
5. Clarksburg High School
6. Clearspring Elementary School
7. Damascus Elementary School
8. Damascus High School
9. Dr. Charles R. Drew Elementary School
10. Facilities Maintenance Depot - Shop
11. Lake Seneca Elementary School
12. Laytonsville Elementary School
13. Watkins Mill Elementary School
14. Watkins Mill High School
15. Whetstone Elementary School

	Date	Initials
Radon Test Kits Deployed	12/05/17	JM
Radon Test Kits Collected	12/08/17	JM
Radon Test Kits Shipped to Lab*	12/08/17	JM
Radon Test Kits Received by Lab*	12/13/17	JM

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

December 29, 2017 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
TRANSIT 2
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7193838	TRANSIT 1	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7979384	TRANSIT 10	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7979385	TRANSIT 11	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7984056	TRANSIT 12	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7983834	TRANSIT 13	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7194097	TRANSIT 14	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7194092	TRANSIT 15	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7193840	TRANSIT 16	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7979072	TRANSIT 17	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7979071	TRANSIT 18	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7979065	TRANSIT 19	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	0.6 ± 0.4	2017-12-13
7978194	TRANSIT 2	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7985660	TRANSIT 20	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7985661	TRANSIT 21	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	0.7 ± 0.4	2017-12-13
7193843	TRANSIT 22	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7984055	TRANSIT 23	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7983813	TRANSIT 24	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7983827	TRANSIT 25	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7978193	TRANSIT 3	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7978189	TRANSIT 4	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	0.5 ± 0.4	2017-12-13
7986187	TRANSIT 5	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7986188	TRANSIT 6	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7986177	TRANSIT 7	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7979077	TRANSIT 8	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13
7979386	TRANSIT 9	2017-12-05 @ 2:00 pm	2017-12-08 @ 2:00 pm	< 0.3	2017-12-13

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

Time Start: 1049 Time Stop: 1049

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

7975075, 7975064, 7975063,

7975065, 7975069, 7975070

F4 Right

Date Start: _____ Date Stop: _____

Time Start: _____ Time Stop: _____

Device No.'s: _____

Date Start: _____ Date Stop: _____

Time Start: _____ Time Stop: _____

Device No.'s: _____

Date Start: _____ Date Stop: _____

Time Start: _____ Time Stop: _____

Device No.'s: _____

Date Start: _____ Date Stop: _____

Time Start: _____ Time Stop: _____

Device No.'s: _____

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

KCI TECHNOLOGIES

ENGINEERS • PLANNERS • SCIENTISTS • CONSTRUCTION MANAGERS

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

MCPS RADON TESTING

Executive Summary: Laytonsville Elementary School

Date of Test Report:	5/18/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	52
# Rooms ≥ 4.0 pCi/L:	0
Low Value:	< 0.3
High Value:	1.5

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

KCI TECHNOLOGIES

ENGINEERS • PLANNERS • SCIENTISTS • CONSTRUCTION MANAGERS

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

May 18, 2016

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

Re: **Radon Testing Services**
KCI Job # 12146341.38

Location: Laytonsville Elementary School
21401 Laytonsville Road
Gaithersburg, MD 20882

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 Laytonsville Elementary School, located at 21401 Laytonsville Road in Gaithersburg, Maryland 20882 (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 May 2, 2016 and deployed sixty (60) activated charcoal (AC) radon test kits. KCI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. A floor plan map of the building with the test locations is included as Attachment A of this report.

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

KCI returned to the site on May 5, 2016 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Airchek, Inc. for analysis by gamma-ray spectroscopy. Airchek, Inc. is a NRSB certified analytical laboratory for radon analysis (certification # ARL1402) located at 1936 Butler

Bridge Road, Mills River, North Carolina.

Evaluation of Testing Conditions:

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

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

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

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

School personnel informed KCI during the sample collection that numerous windows were opened for extended periods during the testing due to a problem with the facility's HVAC system.

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

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 15 testing. Office blanks were not submitted under each school individually.

Radon Testing Results		
Laytonsville Elementary School		
Test Period: 05/02/16-05/05/16		
Kit Number	**Room / Area**	**Result**
7752190	Asst. Prin.	< 0.3
7756741	ART	< 0.3
7756718	BLDG SVC	0.8
7756734	COMPUTER LAB	0.5
7756723	CONFERENCE 2	0.6
7756725	CONFERENCE RM 1	0.7
7756701	COPY RM	< 0.3
7756709	COUNSELOR OFFICE	< 0.3
7756749	CR1	< 0.3
7752187	CR10	< 0.3
7752191	CR11	< 0.3
7756737	CR12	0.9
7756746	CR13	0.6
7756719	CR14	0.8
7756708	CR17	< 0.3
7756704	CR18	0.8
7756750	CR19	0.7
7756713	CR2	0.6
7752192	CR20	< 0.3
7756747	CR3	0.8
7752186	CR3A	< 0.3
7756739	CR4	< 0.3
7756753	CR5	< 0.3
7756724	CR6	0.5
7756707	CR7	0.6
7756706	CR8	0.6
7756703	ESOL	0.7
7756716	GYM	0.8
7756731	GYM	0.9
7756752	HEALTH RM	0.5
7756727	IDA	< 0.3
7756711	K1	0.6
7752195	K2	< 0.3
7756736	K3	0.6
7756751	K4	< 0.3
7756722	MAIL RM	< 0.3
7752182	OFFICE	< 0.3
7752197	MEDIA	0.6
7756744	MEDIA OFFICE	0.6
7752200	MEDIA WORK	< 0.3
7756720	MULTI	< 0.3
7752196	MULTI	< 0.3
7756705	MUSIC	0.6
7756732	OFFICE 1	< 0.3
7756717	PE OFFICE	1.0
7756728	PRINCIPAL	0.5

Table Note:
* Missing or Compromised Sample

Radon Testing Results		
Laytonsville Elementary School		
Test Period: 05/02/16-05/05/16		
Kit Number	**Room / Area**	**Result**
7756715	READING	0.6
7756743	RESOURCE 3	< 0.3
7752194	RESOURCE 1	0.6
7756742	RESOURCE 2	1.1
7756730	SPEECH	0.6
7756745	STAFF LOUNGE	< 0.3
7756726	TV OFFICE 1	1.5
7756735	TV OFFICE 2	1.5

Table Note:
* Missing or Compromised Sample

Radon Testing Results		
Laytonsville Elementary School		
Test Period: 05/02/16-05/05/16		
Kit Number	**QC Type**	**Result**
7756710	D (COPY ROOM)	< 0.3
7756733	D (CR14)	0.7
7756729	D (IDA)	< 0.3
7756748	D (STAFF LOUNGE)	< 0.3
7756721	D (TV OFFICE 1)	1.1
7756712	FB (MUSIC)	< 0.3

Table Note:
* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

May 10, 2016

** LABORATORY ANALYSIS REPORT **

Radon test result report for:

LAYTONSVILLE ELEMENTARY SCHOOL
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7752190	ASST PRIN	2016-05-02 @ 7:00 am	2016-05-05 @ 7:00 am	< 0.3	2016-05-09
7756741	ART	2016-05-02 @ 10:00 am	2016-05-05 @ 7:00 am	< 0.3	2016-05-09
7756718	BLDG SVC	2016-05-02 @ 9:00 am	2016-05-05 @ 6:00 am	0.8 ± 0.3	2016-05-09
7756734	COMPUTER LAB	2016-05-02 @ 8:00 am	2016-05-05 @ 7:00 am	0.5 ± 0.3	2016-05-09
7756723	CONFERENCE 2	2016-05-02 @ 8:00 am	2016-05-05 @ 7:00 am	0.6 ± 0.3	2016-05-09
7756725	CONFERENCE RM 1	2016-05-02 @ 7:00 am	2016-05-05 @ 7:00 am	0.7 ± 0.3	2016-05-09
7756701	COPY RM	2016-05-02 @ 8:00 am	2016-05-05 @ 6:00 am	< 0.3	2016-05-09
7756710	COPY ROOM	2016-05-02 @ 8:00 am	2016-05-05 @ 6:00 am	< 0.3	2016-05-09
7756709	COUNSELOR OFFICE	2016-05-02 @ 10:00 am	2016-05-05 @ 6:00 am	< 0.3	2016-05-09
7756749	CR1	2016-05-02 @ 8:00 am	2016-05-05 @ 7:00 am	< 0.3	2016-05-09
7752187	CR10	2016-05-02 @ 8:00 am	2016-05-05 @ 6:00 am	< 0.3	2016-05-09
7752191	CR11	2016-05-02 @ 8:00 am	2016-05-05 @ 6:00 am	< 0.3	2016-05-09
7756737	CR12	2016-05-02 @ 8:00 am	2016-05-05 @ 7:00 am	0.9 ± 0.3	2016-05-09
7756746	CR13	2016-05-02 @ 8:00 am	2016-05-05 @ 6:00 am	0.6 ± 0.3	2016-05-09
7756733	CR14	2016-05-02 @ 8:00 am	2016-05-05 @ 6:00 am	0.7 ± 0.3	2016-05-09
7756719	CR14	2016-05-02 @ 8:00 am	2016-05-05 @ 6:00 am	0.8 ± 0.3	2016-05-09
7756708	CR17	2016-05-02 @ 8:00 am	2016-05-05 @ 6:00 am	< 0.3	2016-05-09
7756704	CR18	2016-05-02 @ 8:00 am	2016-05-05 @ 6:00 am	0.8 ± 0.3	2016-05-09
7756750	CR19	2016-05-02 @ 8:00 am	2016-05-05 @ 6:00 am	0.7 ± 0.3	2016-05-09
7756713	CR2	2016-05-02 @ 10:00 am	2016-05-05 @ 7:00 am	0.6 ± 0.3	2016-05-09
7752192	CR20	2016-05-02 @ 8:00 am	2016-05-05 @ 6:00 am	< 0.3	2016-05-09
7756747	CR3	2016-05-02 @ 8:00 am	2016-05-05 @ 7:00 am	0.8 ± 0.3	2016-05-09
7752186	CR3A	2016-05-02 @ 8:00 am	2016-05-05 @ 6:00 am	< 0.3	2016-05-09
7756739	CR4	2016-05-02 @ 8:00 am	2016-05-05 @ 7:00 am	< 0.3	2016-05-09
7756753	CR5	2016-05-02 @ 10:00 am	2016-05-05 @ 6:00 am	< 0.3	2016-05-09
7756724	CR6	2016-05-02 @ 8:00 am	2016-05-05 @ 6:00 am	0.5 ± 0.3	2016-05-09
7756707	CR7	2016-05-02 @ 8:00 am	2016-05-05 @ 6:00 am	0.6 ± 0.3	2016-05-09
7756706	CR8	2016-05-02 @ 8:00 am	2016-05-05 @ 6:00 am	0.6 ± 0.3	2016-05-09
7756703	ESOL	2016-05-02 @ 8:00 am	2016-05-05 @ 6:00 am	0.7 ± 0.3	2016-05-09
7756731	GYM	2016-05-02 @ 9:00 am	2016-05-05 @ 6:00 am	0.9 ± 0.3	2016-05-09
7756716	GYM	2016-05-02 @ 9:00 am	2016-05-05 @ 6:00 am	0.8 ± 0.3	2016-05-09
7756752	HEALTH RM	2016-05-02 @ 7:00 am	2016-05-05 @ 7:00 am	0.5 ± 0.3	2016-05-09
7756727	IDA	2016-05-02 @ 7:00 am	2016-05-05 @ 7:00 am	< 0.3	2016-05-09
7756729	IDA	2016-05-02 @ 7:00 am	2016-05-05 @ 7:00 am	< 0.3	2016-05-09
7756711	K1	2016-05-02 @ 10:00 am	2016-05-05 @ 7:00 am	0.6 ± 0.3	2016-05-09
7752195	K2	2016-05-02 @ 10:00 am	2016-05-05 @ 7:00 am	< 0.3	2016-05-09
7756736	K3	2016-05-02 @ 10:00 am	2016-05-05 @ 7:00 am	0.6 ± 0.3	2016-05-09

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

May 10, 2016

** LABORATORY ANALYSIS REPORT **

Radon test result report for:

LAYTONSVILLE ELEMENTARY SCHOOL
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7756751	K4	2016-05-02 @ 10:00 am	2016-05-05 @ 7:00 am	< 0.3	2016-05-09
7756722	MAIL RM	2016-05-02 @ 7:00 am	2016-05-05 @ 7:00 am	< 0.3	2016-05-09
7752182	OFFICE	2016-05-02 @ 7:00 am	2016-05-05 @ 7:00 am	< 0.3	2016-05-09
7752197	MEDIA CENTER	2016-05-02 @ 10:00 am	2016-05-05 @ 7:00 am	0.6 ± 0.3	2016-05-09
7756744	MEDIA OFFICE	2016-05-02 @ 10:00 am	2016-05-05 @ 7:00 am	0.6 ± 0.3	2016-05-09
7752200	MEDIA WORK	2016-05-02 @ 10:00 am	2016-05-05 @ 7:00 am	< 0.3	2016-05-09
7752196	MULTI	2016-05-02 @ 9:00 am	2016-05-05 @ 6:00 am	< 0.3	2016-05-09
7756720	MULTI	2016-05-02 @ 9:00 am	2016-05-05 @ 6:00 am	< 0.3	2016-05-09
7756705	MUSIC	2016-05-02 @ 8:00 am	2016-05-05 @ 6:00 am	0.6 ± 0.3	2016-05-09
7756712	MUSIC	2016-05-02 @ 8:00 am	2016-05-05 @ 6:00 am	< 0.3	2016-05-09
7756732	OFFICE 1	2016-05-02 @ 7:00 am	2016-05-05 @ 7:00 am	< 0.3	2016-05-09
7756717	PE OFFICE	2016-05-02 @ 9:00 am	2016-05-05 @ 7:00 am	1.0 ± 0.3	2016-05-09
7756728	PRINCIPAL	2016-05-02 @ 7:00 am	2016-05-05 @ 7:00 am	0.5 ± 0.3	2016-05-09
7756715	READING	2016-05-02 @ 8:00 am	2016-05-05 @ 6:00 am	0.6 ± 0.3	2016-05-09
7756743	RESOURCE 3	2016-05-02 @ 9:00 am	2016-05-05 @ 6:00 am	< 0.3	2016-05-09
7752194	RESOURCE 1	2016-05-02 @ 10:00 am	2016-05-05 @ 7:00 am	0.6 ± 0.3	2016-05-09
7756742	RESOURCE 2	2016-05-02 @ 10:00 am	2016-05-05 @ 6:00 am	1.1 ± 0.3	2016-05-09
7756730	SPEECH	2016-05-02 @ 9:00 am	2016-05-05 @ 6:00 am	0.6 ± 0.3	2016-05-09
7756745	STAFF LOUNGE	2016-05-02 @ 10:00 am	2016-05-05 @ 7:00 am	< 0.3	2016-05-09
7756748	STAFF LOUNGE	2016-05-02 @ 10:00 am	2016-05-05 @ 7:00 am	< 0.3	2016-05-09
7756726	TV OFFICE1	2016-05-02 @ 9:00 am	2016-05-05 @ 7:00 am	1.5 ± 0.3	2016-05-09
7756721	TV OFFICE1	2016-05-02 @ 9:00 am	2016-05-05 @ 7:00 am	1.1 ± 0.3	2016-05-09
7756735	TV OFFICE2	2016-05-02 @ 9:00 am	2016-05-05 @ 7:00 am	1.5 ± 0.3	2016-05-09

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

May 9, 2016

** LABORATORY ANALYSIS REPORT **

Radon test result report for:

OFFICE BLANK
Phase 15

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7756755	0	2016-05-02 @ 12:00 pm	2016-05-05 @ 12:00 pm	< 0.3	2016-05-09

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

May 11, 2016

** LABORATORY ANALYSIS REPORT **

Radon test result report for:

TRANSIT BLANK
Phase 14 & 15

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7752162	1	2016-04-11 @ 4:00 pm	2016-04-14 @ 4:00 pm	< 0.3	2016-04-18

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

March 24, 2016

** LABORATORY ANALYSIS REPORT **

Radon test result report for:

MCPS

Spike Sample Results

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7735295	1	2016-03-18 @ 1:00 pm	2016-03-21 @ 1:00 pm	30.0 ± 2.0	2016-03-24
7735289	2	2016-03-18 @ 1:00 pm	2016-03-21 @ 1:00 pm	29.9 ± 2.0	2016-03-24
7735274	3	2016-03-18 @ 1:00 pm	2016-03-21 @ 1:00 pm	25.6 ± 1.7	2016-03-24
7735278	4	2016-03-18 @ 1:00 pm	2016-03-21 @ 1:00 pm	26.2 ± 1.8	2016-03-24
7735299	5	2016-03-18 @ 1:00 pm	2016-03-21 @ 1:00 pm	28.3 ± 1.9	2016-03-24
7735293	6	2016-03-18 @ 1:00 pm	2016-03-21 @ 1:00 pm	31.0 ± 2.0	2016-03-24

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 174430

NOMINAL Conditions: Radon Conc 26.1 pCi/L Rel. Hum 48.8 % Temp. 70.1 F

Date Start: 3/18/16 Date Stop: 3/21/16	Date Start: _____ Date Stop: _____
Time Start: 1250 Time Stop: 1250	Time Start: _____ Time Stop: _____
Device No.'s: (6) Char. Cans -	Device No.'s: _____
3029154 thru 3029157,	_____
3029083, 3029086	_____
FS Right	_____

Date Start: 3/18/16 Date Stop: 3/21/16	Date Start: _____ Date Stop: _____
Time Start: 1250 Time Stop: 1250	Time Start: _____ Time Stop: _____
Device No.'s: (6) Char. Boggs -	Device No.'s: _____
7735299, 7735293, 7735295,	_____
7735274, 7735278, 7735289	_____
FS Right	_____

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 15

Name of Schools:

1. Laytonsville ES

	Date	Initials
Radon Test Kits Deployed	5/2/16	JM
Radon Test Kits Collected	5/5/16	JM
Radon Test Kits Shipped to Lab*	5/5/16	JM
Radon Test Kits Received by Lab*	5/9/16	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 15

Name of Schools:

1. Northwood HS

	Date	Initials
Radon Test Kits Deployed	4/25/16	JM
Radon Test Kits Collected	4/28/16	JM
Radon Test Kits Shipped to Lab*	4/28/16	JM
Radon Test Kits Received by Lab*	5/2/16	JM

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

RADON SCREENING SURVEY – FOLLOW-UP LAYTONSVILLE ES ELEMENTARY SCHOOL

21401 Laytonsville Road, Gaithersburg, Maryland 20882

EXECUTIVE SUMMARY

Date of Test Report:	3/2/16 (Rev 1) Follow-Up & 3/17/16
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested	34
# Rooms ≥ 4.0 pCi/L:	16
Low Value:	1.4
High Value:	7.3
Confirmed Rooms ≥ 4.0 pCi/L US EPA Action Level	24

Summary of Sampling Events ≥ 4.0 pCi/L

Room	Result (pCi/L) 3/2/16 (Rev 1) Initial	Result (pCi/L) 3/2/16 (Rev 1) Follow-Up & 3/17/16 Follow-Up	Average Result (pCi/L)
Classroom 3	12.4	7.3	9.9
Classroom 1	11.6	5.6	8.6
IDA	11.0	5.9	8.5
Classroom 20	9.9	3.8	6.9
Copy Room	9.7	5.0	7.4
Computer Lab	7.4	3.3	5.4
ESOL	7.3	4.4	5.9
Classroom 7	7.2	4.0	5.6
Music Room	7.1	4.6	5.9
Health Room	6.8	2.2	4.5
Classroom 8	6.7	4.6	5.7
Assistant Principal	5.9	3.0	4.5
Classroom 12	5.8	5.5	5.7
Classroom 14	5.8	4.7	5.3
Classroom 4	5.8	3.0	4.4
Classroom 6	5.7	4.2	5.0
Conference	5.5	4.1	4.8
Classroom 17	5.3	3.8	4.6
Mail Room	5.2	2.1	3.7
Classroom 18	5.1	4.2	4.7
Conference	5.0	2.7	3.9
Principal	4.9	3.2	4.1

Classroom 13	4.7	4.1	4.4
Office	4.6	2.1	3.4
K1	4.6	3.6	4.1
Office	4.6	1.9	3.3
Classroom 19	4.5	3.1	3.8
Classroom 3A	4.3	3.4	3.9
Classroom 10	4.2	4.1	4.2
Reading Room	4.2	2.9	3.6
PTA	Missing	Not Tested	----
Classroom 2	3.4	Not Tested	3.4
K3	3.8	2.1	3.0
Resource 2	3.9	3.4	3.7
Classroom 11	Not Tested	4.5	4.5

KCI TECHNOLOGIES

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MCPS RADON TESTING

Executive Summary: Laytonsville Elementary School

Date of Test Report:	3/17/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	1
# Rooms ≥ 4.0 pCi/L:	1
Low Value:	4.4
High Value:	4.5

Rooms with results ≥ 4.0 pCi/L:
11 (4.5 pCi/L)

Project Status:
Retesting completed; remediation required for room 11.

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

March 17, 2016

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

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

Location: Laytonsville Elementary School
21401 Laytonsville Road
Gaithersburg, MD 20882

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 Laytonsville Elementary School, located at 21401 Laytonsville Road in Gaithersburg, Maryland 20882 (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 23, 2016 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. 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 26, 2016 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Airchek, Inc. for analysis by gamma-ray spectroscopy. Airchek, Inc. is a NRSB certified analytical laboratory for radon analysis (certification # ARL1402) located at 1936

Butler Bridge Road, Mills River, North Carolina.

Evaluation of Testing Conditions:

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

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

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

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

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

Results:

The results of the radon test analysis indicated the following:

Radon Concentration	Room	Result
≥4.0 piC/L	11	4.5, 4.4 (D)
<4.0 piC/L	See Attachment B	

Notes:
D- Duplicate sample

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

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

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

Sincerely,

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

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

ATTACHMENT A

Floor Plan With Test Locations

ATTACHMENT B

Radon Test Summary Spreadsheet

Table Notes:

AC- Activated Charcoal

ACI- Air Chek, Inc.

D- Duplicate

FB- Field Blank

KCI- KCI Technologies, Inc.

OB- Office Blank*

PM- Project Manager

QC- Quality Control

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

Radon Testing Results		
Laytonsville Elementary School		
Test Period: 02/23/16-02/26/16		
Kit Number	**Room / Area**	**Result**
7731679	11	4.5

Table Note:
* Missing or Compromised Sample

Radon Testing Results		
Laytonsville Elementary School		
Test Period: 02/23/16-02/26/16		
Kit Number	**QC Type**	**Result**
7731699	D (11)	4.4
7731636	FB (11)	< 0.3

Table Note:
* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

March 8, 2016

** LABORATORY ANALYSIS REPORT **

Radon test result report for:

LAYTONSVILLE ELEMENTARY SCHOOL
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7731636	11	2016-02-23 @ 4:00 pm	2016-02-26 @ 10:00 am	< 0.3	2016-03-01
7731679	11	2016-02-23 @ 4:00 pm	2016-02-26 @ 10:00 am	4.5 ± 0.4	2016-03-01
7731699	11	2016-02-23 @ 4:00 pm	2016-02-26 @ 10:00 am	4.4 ± 0.4	2016-03-01

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

March 9, 2016

** LABORATORY ANALYSIS REPORT **

Radon test result report for:

MCPS
Phase 9 Office Blanks

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

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

March 9, 2016

** LABORATORY ANALYSIS REPORT **

Radon test result report for:

MCPS
Phase 9 Office Blanks

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

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February 23, 2016

** LABORATORY ANALYSIS REPORT **

Radon test result report for:

TRANSIT- PHASE 7, 8, 9
NONE

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

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

February 15, 2016

** LABORATORY ANALYSIS REPORT **

Spike Sample Laboratory Results

Radon test result report for:

MCPS

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

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

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

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCF Technologies Inc. Job Number 173704

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

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

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

KCI TECHNOLOGIES

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

Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase 9

Name of Schools:

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

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

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

KCI TECHNOLOGIES

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Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase 9

Name of Schools:

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

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

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

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MCPS RADON TESTING

Executive Summary: Laytonsville Elementary School

Date of Test Report:	3/2/2016-(Rev 1)
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	33
# Rooms ≥ 4.0 pCi/L:	15
Low Value:	1.4
High Value:	7.3

Rooms with results ≥ 4.0 pCi/L:
CR 3 (7.3 pCi/L), IDA (5.9 pCi/L), CR 1 (5.6 pCi/L), CR 12 (5.5 pCi/L), Copy Room (5.0 pCi/L), CR 14 (4.7 pCi/L), Music Room (4.6 pCi/L), CR 8 (4.6 pCi/L), ESOL (4.4 pCi/L), CR 18 (4.2 pCi/L), CR 6 (4.2 pCi/L), Conference (4.1 pCi/L), CR 10 (4.1 pCi/L), CR 13 (4.1 pCi/L), CR 7 (4.0 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.

Additional rooms that need re-testing:
PTA, Classroom 2

KCI TECHNOLOGIES

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March 2, 2016 (Rev 1)

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

Re: **Radon Testing Services**
KCI Job # 12146341.26

Location: Laytonsville Elementary School
21401 Laytonsville Road
Gaithersburg, MD 20882

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 Laytonsville Elementary School, located at 21401 Laytonsville Road in Gaithersburg, Maryland 20882 (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 thirty-eight (38) 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	CR 3	7.3
	IDA	5.9, 5.9 (D)
	CR 1	5.6
	CR 12	5.5
	Copy	5.0, 4.8 (D)
	CR 14	4.7
	Music	4.6
	CR 8	4.1, 4.6 (D)
	ESOL	4.4
	CR 18	4.2
	CR 6	4.2
	Conference	4.1
	CR 10	4.1
	CR 13	4.1
	CR 7	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

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		
Laytonsville Elementary School		
Test Period: 02/08/16-02/11/16		
Kit Number	**Room / Area**	**Result**
7729907	ASST PRINCIPLE	3.0
7729929	COMPUTER LAB	3.3
7729908	CONF	2.7
7729924	CONFERENCE	4.1
7731147	COPY ROOM	5.0
7729915	CR1	5.6
7731181	CR10	4.1
7729946	CR12	5.5
7731174	CR13	4.1
7731173	CR14	4.7
7729949	CR17	3.8
7729948	CR18	4.2
7729917	CR19	3.1
7729926	CR20	3.8
7729928	CR3	7.3
7729922	CR3A	3.4
7729923	CR4	3.0
7729933	CR6	4.2
7731144	CR7	4.0
7731165	CR8	4.1
7729904	ESOL	4.4
7729934	HEALTH	2.2
7729931	IDA	5.9
7731198	K1	3.6
7729927	K3	2.1
7729911	MAIL ROOM	2.1
7729905	MUSIC	4.6
7729910	OFFICE	1.9
7729918	OFFICE 1	2.1
7729909	PRINCIPLE	3.2
7731195	READING ROOM	2.9
7729925	RESOURCE 1	1.4
7729912	RESOURCE 2	3.4

Table Note:
* Missing or Compromised Sample

Radon Testing Results		
Laytonsville Elementary School		
Test Period: 02/08/16-02/11/16		
Kit Number	**QC Type**	**Result**
7729952	D (COPY ROOM)	4.8
7729947	D (CR19)	3.3
7731182	D (CR8)	4.6
7729932	D (IDA)	5.9
7729950	FB (CR19)	< 0.3

Table Note:
* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

February 25, 2016

** LABORATORY ANALYSIS REPORT **

Radon test result report for:

LAYTONSVILLE ELEMENTARY SCHOOL
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7729907	ASST PRINCIPLE	2016-02-08 @ 12:00 pm	2016-02-11 @ 11:00 am	3.0 ± 0.4	2016-02-15
7729929	COMPUTER LAB	2016-02-08 @ 12:00 pm	2016-02-11 @ 11:00 am	3.3 ± 0.4	2016-02-15
7729908	CONF	2016-02-08 @ 12:00 pm	2016-02-11 @ 11:00 am	2.7 ± 0.4	2016-02-15
7729924	CONFERENCE	2016-02-08 @ 12:00 pm	2016-02-11 @ 11:00 am	4.1 ± 0.5	2016-02-15
7729952	COPY ROOM	2016-02-08 @ 1:00 pm	2016-02-11 @ 12:00 pm	4.8 ± 0.5	2016-02-15
7731147	COPY ROOM	2016-02-08 @ 1:00 pm	2016-02-11 @ 12:00 pm	5.0 ± 0.5	2016-02-15
7729915	CR1	2016-02-08 @ 12:00 pm	2016-02-11 @ 11:00 am	5.6 ± 0.6	2016-02-15
7731181	CR10	2016-02-08 @ 12:00 pm	2016-02-11 @ 11:00 am	4.1 ± 0.5	2016-02-15
7729946	CR12	2016-02-08 @ 12:00 pm	2016-02-11 @ 11:00 am	5.5 ± 0.5	2016-02-15
7731174	CR13	2016-02-08 @ 12:00 pm	2016-02-11 @ 12:00 pm	4.1 ± 0.5	2016-02-15
7731173	CR14	2016-02-08 @ 12:00 pm	2016-02-11 @ 12:00 pm	4.7 ± 0.5	2016-02-15
7729949	CR17	2016-02-08 @ 1:00 pm	2016-02-11 @ 11:00 am	3.8 ± 0.5	2016-02-15
7729948	CR18	2016-02-08 @ 1:00 pm	2016-02-11 @ 11:00 am	4.2 ± 0.5	2016-02-15
7729917	CR19	2016-02-08 @ 1:00 pm	2016-02-11 @ 11:00 am	3.1 ± 0.4	2016-02-15
7729947	CR19	2016-02-08 @ 1:00 pm	2016-02-11 @ 11:00 am	3.3 ± 0.4	2016-02-15
7729950	CR19	2016-02-08 @ 1:00 pm	2016-02-11 @ 11:00 am	< 0.3	2016-02-15
7729926	CR20	2016-02-08 @ 1:00 pm	2016-02-11 @ 11:00 am	3.8 ± 0.5	2016-02-15
7729928	CR3	2016-02-08 @ 12:00 pm	2016-02-11 @ 11:00 am	7.3 ± 0.6	2016-02-15
7729922	CR3A	2016-02-08 @ 12:00 pm	2016-02-11 @ 11:00 am	3.4 ± 0.4	2016-02-15
7729923	CR4	2016-02-08 @ 12:00 pm	2016-02-11 @ 11:00 am	3.0 ± 0.4	2016-02-15
7729933	CR6	2016-02-08 @ 12:00 pm	2016-02-11 @ 11:00 am	4.2 ± 0.5	2016-02-15
7731144	CR7	2016-02-08 @ 12:00 pm	2016-02-11 @ 11:00 am	4.0 ± 0.5	2016-02-15
7731165	CR8	2016-02-08 @ 12:00 pm	2016-02-11 @ 11:00 am	4.1 ± 0.5	2016-02-15
7731182	CR8	2016-02-08 @ 12:00 pm	2016-02-11 @ 11:00 am	4.6 ± 0.5	2016-02-15
7729904	ESOL	2016-02-08 @ 1:00 pm	2016-02-11 @ 11:00 am	4.4 ± 0.5	2016-02-15
7729934	HEALTH	2016-02-08 @ 12:00 pm	2016-02-11 @ 11:00 am	2.2 ± 0.4	2016-02-15
7729931	IDA	2016-02-08 @ 12:00 pm	2016-02-11 @ 11:00 am	5.9 ± 0.6	2016-02-15
7729932	IDA	2016-02-08 @ 12:00 pm	2016-02-11 @ 11:00 am	5.9 ± 0.6	2016-02-15
7731198	K1	2016-02-08 @ 12:00 pm	2016-02-11 @ 11:00 am	3.6 ± 0.4	2016-02-15
7729927	K3	2016-02-08 @ 12:00 pm	2016-02-11 @ 11:00 am	2.1 ± 0.4	2016-02-15
7729911	MAIL ROOM	2016-02-08 @ 12:00 pm	2016-02-11 @ 11:00 am	2.1 ± 0.4	2016-02-15
7729905	MUSIC	2016-02-08 @ 1:00 pm	2016-02-11 @ 11:00 am	4.6 ± 0.5	2016-02-15
7729910	OFFICE	2016-02-08 @ 11:00 am	2016-02-11 @ 11:00 am	1.9 ± 0.4	2016-02-15
7729918	OFFICE 1	2016-02-08 @ 11:00 am	2016-02-11 @ 11:00 am	2.1 ± 0.4	2016-02-15
7729909	PRINCIPLE	2016-02-08 @ 12:00 pm	2016-02-11 @ 11:00 am	3.2 ± 0.4	2016-02-15
7731195	READING ROOM	2016-02-08 @ 1:00 pm	2016-02-11 @ 12:00 pm	2.9 ± 0.4	2016-02-15
7729925	RESOURCE 1	2016-02-08 @ 12:00 pm	2016-02-11 @ 11:00 am	1.4 ± 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 25, 2016

** LABORATORY ANALYSIS REPORT **

Radon test result report for:

LAYTONSVILLE ELEMENTARY SCHOOL
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7729912	RESOURCE 2	2016-02-08 @ 1:00 pm	2016-02-11 @ 11:00 am	3.4 ± 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: Laytonsville Elementary School

Date of Test Report:	3/2/2016 (Rev 1)
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	53
# Rooms ≥ 4.0 pCi/L:	30
Low Value:	< 0.3
High Value:	12.4

Rooms with results ≥ 4.0 pCi/L:
Classroom 3 (12.4 pCi/L), Classroom 1 (11.6 pCi/L), IDA (11.0 pCi/L), Classroom 20 (9.9 pCi/L), Copy Room (9.7 pCi/L), Computer Lab (7.4 pCi/L), ESOL (7.3 pCi/L), Classroom 7 (7.2 pCi/L), Music Room (7.1 pCi/L), Health Room (6.8 pCi/L), Classroom 8 (6.7 pCi/L), Assistant Principal (5.9 pCi/L), Classroom 12 (5.8 pCi/L), Classroom 14 (5.8 pCi/L), Classroom 4 (5.8 pCi/L), Classroom 6 (5.7 pCi/L), Conference (5.5 pCi/L), Classroom 17 (5.3 pCi/L), Mail Room (5.2 pCi/L), Classroom 18 (5.1 pCi/L), Conf (5.0 pCi/L), Principal (4.9 pCi/L), Classroom 13 (4.7 pCi/L), Office 1 (4.6 pCi/L), K1 (4.6 pCi/L), Office (4.6 pCi/L), Classroom 19 (4.5 pCi/L), Classroom 3A (4.3 pCi/L), Classroom 10 (4.2 pCi/L), Reading Room (4.2 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

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

March 2, 2016 (Rev 1)

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

Re: **Radon Testing Services**
KCI Job # 12146341.21

Location: Laytonsville Elementary School
21401 Laytonsville Road
Gaithersburg, MD 20882

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 Laytonsville Elementary School, located at 21401 Laytonsville Road in Gaithersburg, Maryland 20882 (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 28, 2015 and deployed sixty-five (65) 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 31, 2015 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Airchek, Inc. for analysis by gamma-ray spectroscopy. Airchek, Inc. is a NRSB certified analytical laboratory for radon analysis (certification # ARL1402) located at 1936

Butler Bridge Road, Mills River, North Carolina.

Evaluation of Testing Conditions:

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

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

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

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

Results:

The results of the radon test analysis indicated the following:

Radon Concentration	Room	Result
≥4.0 piC/L	3	12.4
	1	11.6
	IDA	11.0(D), 9.7
	20	9.9
	Copy Room	9.7
	Computer Lab	7.4
	ESOL	7.3
	7	7.2
	Music	7.1, 7.1(D)
	Health	6.8
	8	6.7
	Assistant Principal	5.9
	12	5.8
	14	5.8
	4	5.8
	6	5.7
	Conference	5.5
	17	5.3
	Mail	5.2
	18	5.1
	Conf	5.0

Radon Concentration	Room	Result
≥4.0 piC/L	Principal	4.9
	13	4.7
	Office 1	4.6
	K1	4.6
	Office	4.6
	19	4.5
	3A	4.3
	10	4.2
	Reading	4.2
<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		
Laytonsville Es		
Test Period: 12/28/15-12/31/15		
Kit Number	**Room / Area**	**Result**
7708161	ART	2.1
7708137	ASST PRINCAPAL	5.9
7708142	BLDG SERVICE	2.9
7708167	CLASS 1	11.6
7708136	COMPUTER LAB	7.4
7708151	CONF	5.0
7712653	CONFERENCE	5.5
7712667	COPY RM	9.7
7708171	COUNSELOR	1.9
7708162	CR10	4.2
7708152	CR12	5.8
7708160	CR13	4.7
7708154	CR14	5.8
7712664	CR17	5.3
7712661	CR18	5.1
7708159	CR19	4.5
7712666	CR2	3.4
7708166	CR20	9.9
7708140	CR3	12.4
7708153	CR3A	4.3
7712663	CR4	5.8
7708164	CR5	1.3
7708157	CR6	5.7
7712660	CR7	7.2
7708156	CR8	6.7
7712694	ESOL	7.3
7712695	GYM	2.0
7712696	GYM	2.9
7712690	HEALTH	6.8
7712698	IDA	9.7
7708144	K1	4.6
7708147	K2	1.3
7708150	K3	3.8
7712697	K4	1.7
7708133	MAIL	5.2
7708146	MEDIA	1.7
7708141	MEDIA OFFICE	1.1
7708149	MEDIA STORAGE	1.6
7708145	MEDIA WORK	1.6
7708139	MULTI	2.2
7708169	MULTI	1.9
7708135	MULTI STORAGE	2.4
7712657	MUSIC	7.1
7708165	OFFICE	4.6
7708134	OFFICE 1	4.6
7712693	PE OFFICE	2.2

Table Note:
* Missing or Compromised Sample

Radon Testing Results		
Laytonsville Es		
Test Period: 12/28/15-12/31/15		
Kit Number	**Room / Area**	**Result**
7712658	PRINCIPAL	4.9
7708163	* PTA (missing)	-
7712654	READING	4.2
7708132	RESOURCE 1	2.7
7708168	RESOURCE 2	3.9
7712655	RESOURCE 3	1.8
7708170	SPEECH	2.5
7712659	STAFF LOUNGE	2.3
7712656	TV OFFICE	1.9
7712692	TV OFFICE	2.9

Table Note:
* Missing or Compromised Sample

Radon Testing Results		
Laytonsville Es		
Test Period: 12/28/15-12/31/15		
Kit Number	**QC Type**	**Result**
7712650	D (IDA)	11
7708148	D (K2)	1.5
7708138	D (MUSIC)	7.1
7712662	D (RESOURCE 1)	3.1
7712665	D (RESOURCE 2)	3.9
7712689	D (TV OFFICE)	2.5
7708155	FB (CR20)	< 0.3
7708143	FB (MEDIA WORK)	< 0.3
7708119	OB (0)	< 0.3

Table Note:
* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

January 16, 2016

** LABORATORY ANALYSIS REPORT **

Radon test result report for:

LAYTONSVILLE ES
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7708119	0	2015-12-28 @ 2:00 pm	2015-12-31 @ 12:00 pm	< 0.3	2016-01-05
7708161	ART	2015-12-28 @ 10:00 am	2015-12-31 @ 8:00 am	2.1 ± 0.4	2016-01-05
7708137	ASST PRINCAPAL	2015-12-28 @ 9:00 am	2015-12-31 @ 8:00 am	5.9 ± 0.6	2016-01-05
7708142	BLDG SERVICE	2015-12-28 @ 11:00 am	2015-12-31 @ 9:00 am	2.9 ± 0.5	2016-01-05
7708167	CLASS 1	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	11.6 ± 1.0	2016-01-05
7708136	COMPUTER LAB	2015-12-28 @ 10:00 am	2015-12-31 @ 8:00 am	7.4 ± 0.8	2016-01-05
7708151	CONF	2015-12-28 @ 10:00 am	2015-12-31 @ 8:00 am	5.0 ± 0.6	2016-01-05
7712653	CONFERENCE	2015-12-28 @ 9:00 am	2015-12-31 @ 8:00 am	5.5 ± 0.6	2016-01-05
7712667	COPY RM	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	9.7 ± 0.9	2016-01-05
7708171	COUNSELOR	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	1.9 ± 0.4	2016-01-05
7708162	CR10	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	4.2 ± 0.6	2016-01-05
7708152	CR12	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	5.8 ± 0.7	2016-01-05
7708160	CR13	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	4.7 ± 0.6	2016-01-05
7708154	CR14	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	5.8 ± 0.7	2016-01-05
7712664	CR17	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	5.3 ± 0.6	2016-01-05
7712661	CR18	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	5.1 ± 0.6	2016-01-05
7708159	CR19	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	4.5 ± 0.6	2016-01-05
7712666	CR2	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	3.4 ± 0.5	2016-01-05
7708166	CR20	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	9.9 ± 0.9	2016-01-05
7708155	CR20	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	< 0.3	2016-01-05
7708140	CR3	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	12.4 ± 1.0	2016-01-05
7708153	CR3A	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	4.3 ± 0.5	2016-01-05
7712663	CR4	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	5.8 ± 0.6	2016-01-05
7708164	CR5	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	1.3 ± 0.4	2016-01-05
7708157	CR6	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	5.7 ± 0.7	2016-01-05
7712660	CR7	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	7.2 ± 0.8	2016-01-05
7708156	CR8	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	6.7 ± 0.7	2016-01-05
7712694	ESOL	2015-12-28 @ 11:00 am	2015-12-31 @ 9:00 am	7.3 ± 0.8	2016-01-05
7712695	GYM	2015-12-28 @ 11:00 am	2015-12-31 @ 9:00 am	2.0 ± 0.4	2016-01-05
7712696	GYM	2015-12-28 @ 11:00 am	2015-12-31 @ 9:00 am	2.9 ± 0.5	2016-01-05
7712690	HEALTH	2015-12-28 @ 11:00 am	2015-12-31 @ 8:00 am	6.8 ± 0.8	2016-01-05
7712650	IDA	2015-12-28 @ 11:00 am	2015-12-31 @ 8:00 am	11.0 ± 1.0	2016-01-05
7712698	IDA	2015-12-28 @ 11:00 am	2015-12-31 @ 8:00 am	9.7 ± 0.9	2016-01-05
7708144	K1	2015-12-28 @ 9:00 am	2015-12-31 @ 8:00 am	4.6 ± 0.6	2016-01-05
7708147	K2	2015-12-28 @ 9:00 am	2015-12-31 @ 8:00 am	1.3 ± 0.4	2016-01-05
7708148	K2	2015-12-28 @ 9:00 am	2015-12-31 @ 8:00 am	1.5 ± 0.4	2016-01-05
7708150	K3	2015-12-28 @ 9:00 am	2015-12-31 @ 8:00 am	3.8 ± 0.5	2016-01-05

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

January 16, 2016

** LABORATORY ANALYSIS REPORT **

Radon test result report for:

LAYTONSVILLE ES
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7712697	K4	2015-12-28 @ 11:00 am	2015-12-31 @ 8:00 am	1.7 ± 0.4	2016-01-05
7708133	MAIL	2015-12-28 @ 9:00 am	2015-12-31 @ 8:00 am	5.2 ± 0.6	2016-01-05
7708146	MEDIA	2015-12-28 @ 9:00 am	2015-12-31 @ 8:00 am	1.7 ± 0.4	2016-01-05
7708141	MEDIA OFFICE	2015-12-28 @ 9:00 am	2015-12-31 @ 8:00 am	1.1 ± 0.4	2016-01-05
7708149	MEDIA STORAGE	2015-12-28 @ 9:00 am	2015-12-31 @ 8:00 am	1.6 ± 0.4	2016-01-05
7708143	MEDIA WORK	2015-12-28 @ 9:00 am	2015-12-31 @ 8:00 am	< 0.3	2016-01-05
7708145	MEDIA WORK	2015-12-28 @ 9:00 am	2015-12-31 @ 8:00 am	1.6 ± 0.4	2016-01-05
7708169	MULTI	2015-12-28 @ 11:00 am	2015-12-31 @ 9:00 am	1.9 ± 0.4	2016-01-05
7708139	MULTI	2015-12-28 @ 11:00 am	2015-12-31 @ 9:00 am	2.2 ± 0.4	2016-01-05
7708135	MULTI STORAGE	2015-12-28 @ 11:00 am	2015-12-31 @ 9:00 am	2.4 ± 0.5	2016-01-05
7712657	MUSIC	2015-12-28 @ 11:00 am	2015-12-31 @ 9:00 am	7.1 ± 0.8	2016-01-05
7708138	MUSIC	2015-12-28 @ 11:00 am	2015-12-31 @ 9:00 am	7.1 ± 0.8	2016-01-05
7708165	OFFICE	2015-12-28 @ 10:00 am	2015-12-31 @ 8:00 am	4.6 ± 0.6	2016-01-05
7708134	OFFICE 1	2015-12-28 @ 9:00 am	2015-12-31 @ 8:00 am	4.6 ± 0.6	2016-01-05
7712693	PE OFFICE	2015-12-28 @ 11:00 am	2015-12-31 @ 9:00 am	2.2 ± 0.5	2016-01-05
7712658	PRINCIPAL	2015-12-28 @ 9:00 am	2015-12-31 @ 8:00 am	4.9 ± 0.6	2016-01-05
7708163	PTA	@	@		
7712654	READING	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	4.2 ± 0.6	2016-01-05
7708132	RESOURCE 1	2015-12-28 @ 9:00 am	2015-12-31 @ 9:00 am	2.7 ± 0.5	2016-01-05
7712662	RESOURCE 1	2015-12-28 @ 9:00 am	2015-12-31 @ 9:00 am	3.1 ± 0.5	2016-01-05
7708168	RESOURCE 2	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	3.9 ± 0.6	2016-01-05
7712665	RESOURCE 2	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	3.9 ± 0.5	2016-01-05
7712655	RESOURCE 3	2015-12-28 @ 11:00 am	2015-12-31 @ 9:00 am	1.8 ± 0.4	2016-01-05
7708170	SPEECH	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	2.5 ± 0.5	2016-01-05
7712659	STAFF LOUNGE	2015-12-28 @ 9:00 am	2015-12-31 @ 9:00 am	2.3 ± 0.4	2016-01-05
7712656	TV OFFICE	2015-12-28 @ 11:00 am	2015-12-31 @ 9:00 am	1.9 ± 0.4	2016-01-05
7712689	TV OFFICE	2015-12-28 @ 11:00 am	2015-12-31 @ 9:00 am	2.5 ± 0.5	2016-01-05
7712692	TV OFFICE	2015-12-28 @ 11:00 am	2015-12-31 @ 9:00 am	2.9 ± 0.5	2016-01-05

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

January 15, 2016

** LABORATORY ANALYSIS REPORT **

Radon test result report for:

MCPS PHASE 3 & 4
TRANSIT BLANKS

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7708218	TRAMSIT 4	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708200	TRANSIT 1	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708190	TRANSIT 10	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708189	TRANSIT 11	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708191	TRANSIT 12	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708188	TRANSIT 13	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708197	TRANSIT 14	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708186	TRANSIT 15	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708185	TRANSIT 16	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708184	TRANSIT 17	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708182	TRANSIT 18	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708187	TRANSIT 18	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708199	TRANSIT 2	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708181	TRANSIT 20	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708180	TRANSIT 21	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708183	TRANSIT 22	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708178	TRANSIT 23	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708179	TRANSIT 24	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708177	TRANSIT 25	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708176	TRANSIT 26	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708174	TRANSIT 27	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708173	TRANSIT 28	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708175	TRANSIT 29	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708198	TRANSIT 3	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708172	TRANSIT 30	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708194	TRANSIT 5	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708196	TRANSIT 6	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708193	TRANSIT 7	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708192	TRANSIT 8	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23
7708195	TRANSIT 9	2015-12-18 @ 12:00 pm	2015-12-21 @ 12:00 pm	< 0.3	2015-12-23

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

December 23, 2015

** LABORATORY ANALYSIS REPORT **

Spike Sample Laboratory Results

Radon test result report for:

MCPS

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

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

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

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI Technologies Inc. Job Number 173224

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

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

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

KCI TECHNOLOGIES

ENGINEERS • PLANNERS • SCIENTISTS • CONSTRUCTION MANAGERS

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

Chain of Custody

Project Name: MCPS Radon Phase III

Name of Schools:

1. Burnt Mills ES
2. Burtonsville ES
3. Cedar Grove ES
4. Cloverly ES
5. Cold Spring ES
6. Damascus HS
7. Darnestown ES
8. Diamond ES
9. Charles R. Drew ES
10. DuFief ES
11. Thomas Edison HS
12. Robert Frost MS
13. Georgian Frost ES
14. Germantown ES
15. Goshen ES
16. Greencastle ES
17. Greenwood ES
18. Lake Seneca ES
19. Laytonsville ES
20. Col. E. Brooke MS
21. Luxmanor ES
22. Magruder HS
23. Thur. Marshall ES
24. Monocacy ES
25. Northlake Center
26. Olney ES
27. Rosa Parks MS
28. Poolesville ES
29. Poolesville HS
30. Potomac ES
31. Rock Terrace HS
32. Rosemary Hills ES
33. Carl Sandburg
34. Sequoyah ES
35. Stedwick ES
36. Whetstone ES

	Date	Initials
Radon Test Kits Deployed	12/28/15	JM
Radon Test Kits Sampled	12/31/15	JM
Radon Test Kits Shipped to Lab*	12/31/15	JM
Radon Test Kits Received by Lab*	1/4/16	JM

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