School / Facility Radon Testing Report Form

School Year: **24-25**

Facility:	A. Mario Loiederman Middle School
Address:	12701 Goodhill Rd.
	Silver Spring, MD 20906
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	81	Lowest Value (pCi/L)	<0.3
Number of Rooms (≥4.0-pCi/L)	0	Highest Value (pCi/L)	0.6

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
Brittany Maas	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):	2/3/2025 2/6/2025
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]	69	0	12	0	81
Duplicates[2]	8	0	1	0	9
Field Blanks[3]	3	0	1	0	4
				Grand Total	94

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:	69	0	12	0	81
Number of locations ≥8.0-pCi/L:	0	0	0	0	0
Number of locations ≥4.0 and ≤8-pCi/L:	0	0	0	0	0
Number of locations ≥2.7 and <4-pCi/L:	0	0	0	0	0
Number of locations ≥2.0 and <2.7-pCi/L:	0	0	0	0	0
Number of missing required test locations[3]:	0	0	0	0	0
Number of failed duplicate control locations:	0	0	0	0	0
Percentage of missing test locations for the facility[4,5]:	0	0	0	0	0

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

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

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

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

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

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

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

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

Follow-Up Testing

Required –

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

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

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

Attachment 1:

Summary Data Tables

Table 1- Radon Testing Results		
A. Mario Loiederman Middle School		
Test Period: 2/3/2025 - 2/6/2025		
Kit Number	Room / Area	Result
11906871	100	< 0.3
11906884	101	< 0.3
11931687	104	0.5
11906893	105	< 0.3
11931614	107	< 0.3
11931605	109	< 0.3
11931623	110	< 0.3
11931620	111	< 0.3
11931612	112	< 0.3
11931621	112	< 0.3
11931622	112	< 0.3
11931613	114	< 0.3
11931624	116	< 0.3
11931607	118	< 0.3
11931616	119	< 0.3
11931615	120	< 0.3
11931611	121	< 0.3
11931601	130	< 0.3
11931602	130	< 0.3
11931608	132	< 0.3
11931609	134	0.6
11931610	136	< 0.3
11931617	137	< 0.3
11931618	137	< 0.3
11931629	138	< 0.3
11931625	139	< 0.3
11931640	140	< 0.3
11931688	141	< 0.3
11931632	142	< 0.3
11931631	143	< 0.3
11931603	145	< 0.3
11931628	146	< 0.3
11931604	147	< 0.3
11931630	147	< 0.3
11931639	147	< 0.3
11931637	148	< 0.3
11931638	149	< 0.3

Table 1- Radon Testing Results		
A. Mario Loiederman Middle School		
Test Period: 2/3/2025 - 2/6/2025		
Kit Number	Room / Area	Result
11931650	160	< 0.3
11931652	165	< 0.3
11931654	165	< 0.3
11931655	165	< 0.3
11931642	166	< 0.3
11931643	167	< 0.3
11931641	168	< 0.3
11931636	169	< 0.3
11931653	170	< 0.3
11931644	172	< 0.3
11931656	182	< 0.3
11931633	192	< 0.3
11931670	208	< 0.3
11931669	213	< 0.3
11931671	236	< 0.3
11931664	266	< 0.3
11931673	268	< 0.3
11931619	269	< 0.3
11931659	269	< 0.3
11931660	269	< 0.3
11931674	271	< 0.3
11931668	284	< 0.3
11931679	284	< 0.3
11931667	289	< 0.3
11931678	294	< 0.3
11931680	298	< 0.3
11906898	100A	< 0.3
11906896	100C	< 0.3
11906894	100D	< 0.3
11906895	100E	< 0.3
11906892	100F	< 0.3
11906891	100G	< 0.3
11906886	100H	< 0.3
11931677	100I	< 0.3
11951599	100J	< 0.3
11906883	100K	< 0.3
11951598	100K	< 0.3

Table 1- Radon Testing Results		
A. Mario Loiederman Middle School		
Test Period: 2/3/2025 - 2/6/2025		
Kit Number	Room / Area	Result
11931606	109A	< 0.3
11931662	111A	< 0.3
11931661	111B	< 0.3
11931672	111C	< 0.3
11931626	146B	< 0.3
11931666	160B	< 0.3
11931665	160C	< 0.3
11931657	160D	< 0.3
11931663	160E	< 0.3
11931635	160F	< 0.3
11931658	160F	< 0.3
11931651	160G	< 0.3
11931645	186C	< 0.3
11931649	186E	< 0.3
11906897	ADMIN OFFICE	< 0.3
11931627	BOYS LOCKER ROOM	< 0.3
11931634	BOYS PE OFFICE	< 0.3
11931648	GIRLS LOCKER ROOM	< 0.3
11931646	GIRLS PE OFFICE	< 0.3
11931647	GIRLS PE OFFICE	< 0.3

Table 2 - Summary Testing Results ≥2.0 pCi/L							
A. Mario Loiederman Middle School							
Test Period: 2/3/2025 - 2/6/2025							
≥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			
A. Mario Loiederman Middle School			
Test Period: 2/3/2025 - 2/6/2025			
Kit Number	**QC Type**	**Room / Area**	**Result**
11931621	D	112	< 0.3
11931622	FB	112	< 0.3
11931601	D	130	< 0.3
11931617	D	137	< 0.3
11931639	D	147	< 0.3
11931604	FB	147	< 0.3
11931655	D	165	< 0.3
11931652	FB	165	< 0.3
11931659	D	269	< 0.3
11931660	FB	269	< 0.3
11951598	D	100K	< 0.3
11931635	D	160F	< 0.3
11931647	D	Girls PE Office	< 0.3
11931691	OB	OFFICE BLANK	< 0.3
11931692	TB	TRAVEL BLANK	< 0.3

Table 3a - Duplicate Worksheet / Data Validation										
A. Mario Loiederman Middle School										
Test Period: 2/3/2025 - 2/6/2025										
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
11906883	11951598	100K	0.3	0.3	✓	0.6	PASS	0.3	<1-pCi/L	✓
11931612	11931621	112	0.3	0.3	✓	0.6	PASS	0.3	<1-pCi/L	✓
11931618	11931617	137	0.3	0.3	✓	0.6	PASS	0.3	<1-pCi/L	✓
11931630	11931639	147	0.3	0.3	✓	0.6	PASS	0.3	<1-pCi/L	✓
11931646	11931647	Girls' PE Office	0.3	0.3	✓	0.6	PASS	0.3	<1-pCi/L	✓
11931654	11931655	165	0.3	0.3	✓	0.6	PASS	0.3	<1-pCi/L	✓
11931658	11931635	160F	0.3	0.3	✓	0.6	PASS	0.3	<1-pCi/L	✓
11931619	11931659	269	0.3	0.3	✓	0.6	PASS	0.3	<1-pCi/L	✓
11931602	11931601	130	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		
A. Mario Loiederman Middle School		
Test Period: 2/3/25 - 2/6/25		
Kit Number	**Room/Area**	**Reason**
N/A	N/A	N/A

Attachment 2:

Laboratory Reports

February 11, 2025 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
A. MARIO LOIEDERMAN MS
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11906871	100	2025-02-03 @ 8:00 am	2025-02-06 @ 11:00 am	< 0.3	2025-02-10
11906898	100A	2025-02-03 @ 8:00 am	2025-02-06 @ 10:00 am	< 0.3	2025-02-10
11906896	100C	2025-02-03 @ 8:00 am	2025-02-06 @ 11:00 am	< 0.3	2025-02-10
11906894	100D	2025-02-03 @ 8:00 am	2025-02-06 @ 10:00 am	< 0.3	2025-02-10
11906895	100E	2025-02-03 @ 8:00 am	2025-02-06 @ 10:00 am	< 0.3	2025-02-10
11906892	100F	2025-02-03 @ 8:00 am	2025-02-06 @ 10:00 am	< 0.3	2025-02-10
11906891	100G	2025-02-03 @ 8:00 am	2025-02-06 @ 10:00 am	< 0.3	2025-02-10
11906886	100H	2025-02-03 @ 8:00 am	2025-02-06 @ 10:00 am	< 0.3	2025-02-10
11931677	100I	2025-02-03 @ 11:00 am	2025-02-06 @ 10:00 am	< 0.3	2025-02-10
11951599	100J	2025-02-03 @ 8:00 am	2025-02-06 @ 10:00 am	< 0.3	2025-02-10
11906883	100K	2025-02-03 @ 8:00 am	2025-02-06 @ 10:00 am	< 0.3	2025-02-10
11951598	100K	2025-02-03 @ 8:00 am	2025-02-06 @ 10:00 am	< 0.3	2025-02-10
11906884	101	2025-02-03 @ 8:00 am	2025-02-06 @ 10:00 am	< 0.3	2025-02-10
11931687	104	2025-02-03 @ 11:00 am	2025-02-06 @ 11:00 am	0.5 ± 0.3	2025-02-10
11906893	105	2025-02-03 @ 8:00 am	2025-02-06 @ 10:00 am	< 0.3	2025-02-10
11931614	107	2025-02-03 @ 8:00 am	2025-02-06 @ 10:00 am	< 0.3	2025-02-10
11931605	109	2025-02-03 @ 8:00 am	2025-02-06 @ 10:00 am	< 0.3	2025-02-10
11931606	109A	2025-02-03 @ 8:00 am	2025-02-06 @ 10:00 am	< 0.3	2025-02-10
11931623	110	2025-02-03 @ 8:00 am	2025-02-06 @ 10:00 am	< 0.3	2025-02-10
11931620	111	2025-02-03 @ 8:00 am	2025-02-06 @ 10:00 am	< 0.3	2025-02-10
11931662	111A	2025-02-03 @ 10:00 am	2025-02-06 @ 10:00 am	< 0.3	2025-02-10
11931661	111B	2025-02-03 @ 10:00 am	2025-02-06 @ 11:00 am	< 0.3	2025-02-10
11931672	111C	2025-02-03 @ 10:00 am	2025-02-06 @ 11:00 am	< 0.3	2025-02-10
11931612	112	2025-02-03 @ 8:00 am	2025-02-06 @ 10:00 am	< 0.3	2025-02-10
11931621	112	2025-02-03 @ 8:00 am	2025-02-06 @ 10:00 am	< 0.3	2025-02-10
11931622	112	2025-02-03 @ 8:00 am	2025-02-06 @ 10:00 am	< 0.3	2025-02-10
11931613	114	2025-02-03 @ 8:00 am	2025-02-06 @ 10:00 am	< 0.3	2025-02-10
11931624	116	2025-02-03 @ 8:00 am	2025-02-06 @ 10:00 am	< 0.3	2025-02-10
11931607	118	2025-02-03 @ 8:00 am	2025-02-06 @ 10:00 am	< 0.3	2025-02-10
11931616	119	2025-02-03 @ 9:00 am	2025-02-06 @ 10:00 am	< 0.3	2025-02-10
11931615	120	2025-02-03 @ 9:00 am	2025-02-06 @ 10:00 am	< 0.3	2025-02-10
11931611	121	2025-02-03 @ 9:00 am	2025-02-06 @ 10:00 am	< 0.3	2025-02-10
11931601	130	2025-02-03 @ 11:00 am	2025-02-06 @ 11:00 am	< 0.3	2025-02-10
11931602	130	2025-02-03 @ 11:00 am	2025-02-06 @ 11:00 am	< 0.3	2025-02-10
11931608	132	2025-02-03 @ 9:00 am	2025-02-06 @ 10:00 am	< 0.3	2025-02-10
11931609	134	2025-02-03 @ 9:00 am	2025-02-06 @ 10:00 am	0.6 ± 0.3	2025-02-10
11931610	136	2025-02-03 @ 9:00 am	2025-02-06 @ 10:00 am	< 0.3	2025-02-10

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

February 11, 2025 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
A. MARIO LOIEDERMAN MS
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11931617	137	2025-02-03 @ 9:00 am	2025-02-06 @ 10:00 am	< 0.3	2025-02-10
11931618	137	2025-02-03 @ 9:00 am	2025-02-06 @ 10:00 am	< 0.3	2025-02-10
11931629	138	2025-02-03 @ 9:00 am	2025-02-06 @ 10:00 am	< 0.3	2025-02-10
11931625	139	2025-02-03 @ 9:00 am	2025-02-06 @ 11:00 am	< 0.3	2025-02-10
11931640	140	2025-02-03 @ 9:00 am	2025-02-06 @ 10:00 am	< 0.3	2025-02-10
11931688	141	2025-02-03 @ 11:00 am	2025-02-06 @ 11:00 am	< 0.3	2025-02-10
11931632	142	2025-02-03 @ 9:00 am	2025-02-06 @ 10:00 am	< 0.3	2025-02-10
11931631	143	2025-02-03 @ 9:00 am	2025-02-06 @ 10:00 am	< 0.3	2025-02-10
11931603	145	2025-02-03 @ 9:00 am	2025-02-06 @ 10:00 am	< 0.3	2025-02-10
11931628	146	2025-02-03 @ 9:00 am	2025-02-06 @ 11:00 am	< 0.3	2025-02-10
11931626	146B	2025-02-03 @ 9:00 am	2025-02-06 @ 10:00 am	< 0.3	2025-02-10
11931604	147	2025-02-03 @ 9:00 am	2025-02-06 @ 10:00 am	< 0.3	2025-02-10
11931639	147	2025-02-03 @ 9:00 am	2025-02-06 @ 10:00 am	< 0.3	2025-02-10
11931630	147	2025-02-03 @ 9:00 am	2025-02-06 @ 11:00 am	< 0.3	2025-02-10
11931637	148	2025-02-03 @ 9:00 am	2025-02-06 @ 11:00 am	< 0.3	2025-02-10
11931638	149	2025-02-03 @ 9:00 am	2025-02-06 @ 11:00 am	< 0.3	2025-02-10
11931650	160	2025-02-03 @ 10:00 am	2025-02-06 @ 11:00 am	< 0.3	2025-02-10
11931666	160B	2025-02-03 @ 10:00 am	2025-02-06 @ 11:00 am	< 0.3	2025-02-10
11931665	160C	2025-02-03 @ 10:00 am	2025-02-06 @ 11:00 am	< 0.3	2025-02-10
11931657	160D	2025-02-03 @ 10:00 am	2025-02-06 @ 11:00 am	< 0.3	2025-02-10
11931663	160E	2025-02-03 @ 10:00 am	2025-02-06 @ 11:00 am	< 0.3	2025-02-10
11931635	160F	2025-02-03 @ 10:00 am	2025-02-06 @ 11:00 am	< 0.3	2025-02-10
11931658	160F	2025-02-03 @ 10:00 am	2025-02-06 @ 11:00 am	< 0.3	2025-02-10
11931651	160G	2025-02-03 @ 10:00 am	2025-02-06 @ 11:00 am	< 0.3	2025-02-10
11931655	165	2025-02-03 @ 9:00 am	2025-02-06 @ 11:00 am	< 0.3	2025-02-10
11931652	165	2025-02-03 @ 9:00 am	2025-02-06 @ 11:00 am	< 0.3	2025-02-10
11931654	165	2025-02-03 @ 9:00 am	2025-02-06 @ 11:00 am	< 0.3	2025-02-10
11931642	166	2025-02-03 @ 10:00 am	2025-02-06 @ 11:00 am	< 0.3	2025-02-10
11931643	167	2025-02-03 @ 9:00 am	2025-02-06 @ 11:00 am	< 0.3	2025-02-10
11931641	168	2025-02-03 @ 10:00 am	2025-02-06 @ 11:00 am	< 0.3	2025-02-10
11931636	169	2025-02-03 @ 9:00 am	2025-02-06 @ 11:00 am	< 0.3	2025-02-10
11931653	170	2025-02-03 @ 9:00 am	2025-02-06 @ 11:00 am	< 0.3	2025-02-10
11931644	172	2025-02-03 @ 9:00 am	2025-02-06 @ 11:00 am	< 0.3	2025-02-10
11931656	182	2025-02-03 @ 9:00 am	2025-02-06 @ 11:00 am	< 0.3	2025-02-10
11931645	186C	2025-02-03 @ 9:00 am	2025-02-06 @ 11:00 am	< 0.3	2025-02-10
11931649	186E	2025-02-03 @ 9:00 am	2025-02-06 @ 11:00 am	< 0.3	2025-02-10
11931633	192	2025-02-03 @ 9:00 am	2025-02-06 @ 11:00 am	< 0.3	2025-02-10

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February 11, 2025 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
A. MARIO LOIEDERMAN MS
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11931670	208	2025-02-03 @ 10:00 am	2025-02-06 @ 11:00 am	< 0.3	2025-02-10
11931669	213	2025-02-03 @ 10:00 am	2025-02-06 @ 11:00 am	< 0.3	2025-02-10
11931671	236	2025-02-03 @ 10:00 am	2025-02-06 @ 11:00 am	< 0.3	2025-02-10
11931664	266	2025-02-03 @ 10:00 am	2025-02-06 @ 11:00 am	< 0.3	2025-02-10
11931673	268	2025-02-03 @ 10:00 am	2025-02-06 @ 11:00 am	< 0.3	2025-02-10
11931660	269	2025-02-03 @ 10:00 am	2025-02-06 @ 11:00 am	< 0.3	2025-02-10
11931659	269	2025-02-03 @ 10:00 am	2025-02-06 @ 11:00 am	< 0.3	2025-02-10
11931619	269	2025-02-03 @ 10:00 am	2025-02-06 @ 11:00 am	< 0.3	2025-02-10
11931674	271	2025-02-03 @ 10:00 am	2025-02-06 @ 11:00 am	< 0.3	2025-02-10
11931679	284	2025-02-03 @ 10:00 am	2025-02-06 @ 11:00 am	< 0.3	2025-02-10
11931668	284	2025-02-03 @ 10:00 am	2025-02-06 @ 11:00 am	< 0.3	2025-02-10
11931667	289	2025-02-03 @ 10:00 am	2025-02-06 @ 11:00 am	< 0.3	2025-02-10
11931678	294	2025-02-03 @ 10:00 am	2025-02-06 @ 11:00 am	< 0.3	2025-02-10
11931680	298	2025-02-03 @ 10:00 am	2025-02-06 @ 11:00 am	< 0.3	2025-02-10
11906897	ADMIN OFFICE	2025-02-03 @ 8:00 am	2025-02-06 @ 10:00 am	< 0.3	2025-02-10
11931627	BOYS LOCKER ROOM	2025-02-03 @ 9:00 am	2025-02-06 @ 11:00 am	< 0.3	2025-02-10
11931634	BOYS PE OFFICE	2025-02-03 @ 9:00 am	2025-02-06 @ 11:00 am	< 0.3	2025-02-10
11931648	GIRLS LOCKER ROO	2025-02-03 @ 9:00 am	2025-02-06 @ 11:00 am	< 0.3	2025-02-10
11931647	GIRLS PE OFFICE	2025-02-03 @ 9:00 am	2025-02-06 @ 11:00 am	< 0.3	2025-02-10
11931646	GIRLS PE OFFICE	2025-02-03 @ 9:00 am	2025-02-06 @ 11:00 am	< 0.3	2025-02-10

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February 11, 2025 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
OFFICE
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11931691	O	2025-02-03 @ 11:00 am	2025-02-06 @ 11:00 am	< 0.3	2025-02-10

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February 11, 2025 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
TRAVEL
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11931692	T	2025-02-03 @ 11:00 am	2025-02-06 @ 11:00 am	< 0.3	2025-02-10

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EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI TECHNOLOGIES, INC Job Number 20001560

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

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

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

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

Radon test result report for:
SK
MAIN

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

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EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI TECHNOLOGIES, INC Job Number 20002919

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

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

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

March 19, 2025

** LABORATORY ANALYSIS REPORT **

Radon test result report for:
QC
MAIN

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

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KCI TECHNOLOGIES

ENGINEERS • PLANNERS • SCIENTISTS • CONSTRUCTION MANAGERS

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

Radon Test Kit Chain of Custody

Project Name: MCPS Radon – Testing February 3rd – February 6th, 2025

Name of Schools:

1. A. Mario Loiederman MS
2. Parkland MS
3. Rockville HS
4. Stone Mill ES
5. Wyngate ES

	Date	Initials
Radon Test Kits Deployed	2/3/2025	
Radon Test Kits Collected	2/6/2025	
Radon Test Kits Shipped to Lab*	2/6/2025	
Radon Test Kits Received by Lab*	2/8/2025	

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

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MCPS RADON TESTING – EXECUTIVE SUMMARY

Site Name	A. Mario Loiederman Middle School
Date of Test Report	3/2/2023
Round of Testing	Initial Follow-up Post Remediation 2 Year Testing 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility
# Rooms Tested	86
# Room Re-tested	6
# Rooms ≥ 4.0 pCi/L	N/A
Lowest Value	<0.3 pCi/L
Highest Value	2.2 pCi/L

Project Status:

1. Initial testing completed;
2. Missing or compromised samples need re-test.
3. Retesting Completed 2/14/23 – 2/17/23.
4. 5-Year Testing Completed.

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March 2, 2023

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

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

Location: A. Mario Loiederman Middle School
12701 Goodhill Road
Silver Spring, MD 20906

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 A. Mario Loiederman Middle School, located at 12701 Goodhill Rd. Silver Spring, MD 20906 (subject site).

Scope of Services:

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

KCI visited the site initially on January 23, 2023 and deployed ninety-seven (97) activated charcoal (AC) radon test kits. KCI deployed radon test kits in all frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance.

KCI returned to the site on January 26, 2023 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Accustar Labs - MA. for analysis by gamma-ray spectroscopy. Accustar Labs - MA is a NRSB certified analytical laboratory for radon analysis (certification #ARL0017) located at 2 Saber Way, Ward Hill, MA 01835.

KCI re-visited the site on February 14, 2023 to deploy eight (8) activated charcoal (AC) radon test kits for testing of missed rooms or compromised test kits during initial testing.

KCI returned to the site on February 17, 2023 to retrieve the radon re-sampling test kits. KCI shipped all radon tests via overnight delivery to Accustar Labs – MA for analysis by gamma-ray spectroscopy. Accustar Labs – MA is a NRSB certified analytical laboratory for radon analysis (certification #ARL0017) located at 2 Saber Way, Ward Hill, MA 01835.

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

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

Evaluation of Testing Conditions:

These tests represent:

- Follow up to initial testing.

These tests were conducted to:

- Evaluate radon concentration levels at the facility.

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

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

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

KCI also compiled weather data for the testing period and conducted observations of relevant field conditions. During the test period, weather records indicate temperatures ranged from the 31°F to 52°F. Maximum sustained winds ranged from 5-25 miles per hour. Average humidity was around 60% with .32 inches of precipitation (rain) was recorded during testing period.

During the re-testing period, weather records indicate low temperatures were in the mid-20s°F and high temperatures ranged to the 70s°F. Maximum sustained winds ranged from 0-33 miles per hour. Average humidity was around 62% with 1.01 inches of precipitation (rain) was recorded during testing period.

Results:

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

The results of the radon test analysis indicated the following:

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

The results of the radon re-testing analysis indicated the following:

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

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

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

Sincerely,

Tyler McCleaf

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

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

ATTACHMENT A

Floor Plan With Test Locations

ATTACHMENT B

Radon Test Summary Spreadsheet

Table Notes:

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

Table 1- Radon Testing Results		
A. Mario Loiederman MS		
Test Period: 01/23/2023 - 01/26/2023		
Kit Number	Room / Area	Result
11634802	100	< 0.3
11634821	101	< 0.3
11634814	104	N/A
11634812	105	< 0.3
11634815	107	< 0.3
11634823	109	< 0.3
11634853	110	0.8
11634842	111	< 0.3
11634845	112	0.7
11634831	114	0.6
11634846	116	< 0.3
11634851	118	< 0.3
11634856	119	1.1
11634861	120	< 0.3
11634854	121	0.6
11634862	121	1.0
11634850	130	< 0.3
11634855	132	0.6
11634852	134	< 0.3
11634857	134	0.7
11634864	134	0.5
11634847	136	0.7
11634849	137	0.6
11634848	138	0.7
11634860	139	< 0.3
11634858	140	< 0.3
11634859	141	1.4
11634865	142	< 0.3
11634863	143	0.9
11634868	145	< 0.3
11634870	146	< 0.3
11634867	147	< 0.3
11634871	148	< 0.3
11634866	149	< 0.3
11634869	149	< 0.3
11634820	160	< 0.3
11634827	160	< 0.3
11634829	160	< 0.3
11634816	165	< 0.3
11634819	166	0.6
11634835	167	0.8
11634825	168	< 0.3

Table 1- Radon Testing Results		
A. Mario Loiederman MS		
Test Period: 01/23/2023 - 01/26/2023		
Kit Number	Room / Area	Result
11634822	169	0.6
11634817	170	0.7
11634830	170	0.9
11634837	172	2.2
11634875	182	< 0.3
11634877	184	0.5
11634873	192	0.6
11634884	206	N/A
11634880	220	0.5
11634881	220	< 0.3
11634882	220	< 0.3
11634883	234	0.6
11634891	266	< 0.3
11634890	268	< 0.3
11634892	268	< 0.3
11634896	284	1.2
11634894	289	1.3
11634895	291	0.5
11634893	294	0.6
11634897	298	0.7
11634805	100A	< 0.3
11634804	100C	< 0.3
11634801	100D	0.7
11634807	100F	0.6
11634808	100G	< 0.3
11634809	100H	< 0.3
11634813	100I	< 0.3
11634810	100J	0.6
11634811	100K	0.6
11634803	100R	< 0.3
11634824	109A	< 0.3
11634832	111A	< 0.3
11634839	111A	0.6
11634843	111A	< 0.3
11634840	111B	< 0.3
11634841	111C	0.6
11634818	160A	< 0.3
11634826	160B	< 0.3
11634834	160C	< 0.3
11634844	160D	< 0.3
11634833	160E	< 0.3
11634828	160F	N/A

Table 1- Radon Testing Results		
A. Mario Loiederman MS		
Test Period: 01/23/2023 - 01/26/2023		
Kit Number	Room / Area	Result
11634838	172-1	N/A
11634836	172-2	N/A
11634876	186E	1.0
11634879	186E	< 0.3
11634874	192 CONFERENCE	< 0.3
11634806	200J	0.9
11634878	BOYS LOCKER ROOM 186	< 0.3
11634888	DINING ROOM 250	< 0.3
11634889	DINING ROOM 250	< 0.3
11634872	GIRLS LOCKER ROOM 196	< 0.3
11634885	GYM	< 0.3
11634886	Gym	N/A
11634887	MEDIA CENTER 242	< 0.3

Table 2- Radon Testing Results			
A. Mario Loiderman MS			
Test Period: 01/23/23 - 01/26/23			
Kit Number	QC Type	Room / Area	Result
11634862	D	121	1.0
11634852	FB	134	< 0.3
11634857	D	134	0.7
11634820	D	160	< 0.3
11634829	FB	160	< 0.3
11634881	FB	220	< 0.3
11634882	D	220	< 0.3
11634892	D	268	< 0.3
11634832	FB	111A	< 0.3
11634839	D	111A	0.6
11634806	D	200J	0.9
11633990	OB	OFFICE BLANK	< 0.3
11633992	TB	TRAVEL BLANK	< 0.3

Summary of Missed Locations		
A. Mario Loiederman MS		
Test Period: 01/23/23 - 01/26/23		
Kit Number	Room/Area	Result
	N/A	

Summary of Missing, Compromised and >/= 4 piC/L Tests		
A. Mario Loiederman MS		
Test Period: 01/23/23 - 01/26/23		
Kit Number	Room/Area	Result
11634814	104	Missing
11634884	206	Missing
11634828	160F	Missing
11634838	172-1	Missing
11634836	172-2	Missing
11634886	Gym	Missing

Table Note:

* Missing or Compromised Sample

Table 1- Radon Testing Results		
A. Mario Loiderman MS RT		
Test Period: 02/14/2023 - 02/17/2023		
Kit Number	Room / Area	Result
11634974	104	0.8
11634959	206	< 0.3
11634956	160F	0.5
11634972	172-1	2.9
11634984	172-1	2.5
11634952	172-2	1.8
11634985	172-2	< 0.3
11634971	GYM	< 0.3
11634975	GYM	< 0.3

Table 2- Radon Testing Results			
A. Mario Loidermain MS RT			
Test Period: 02/14/23 - 02/17/23			
Kit Number	QC Type	Room / Area	Result
11634984	D	172-1	2.5
11634985	FB	172-2	< 0.3
11634060	OB	OFFICE BLANK	< 0.3
11634067	TB	TRAVEL BALNK	< 0.3

Summary of Missed Locations		
A. Mario Loiderman MS RT		
Test Period: 02/14/23 - 02/17/23		
Kit Number	Room/Area	Result
	N/A	

Summary of Missing, Compromised and >/= 4 piC/L Tests		
A. Mario Loiderman MS RT		
Test Period: 02/14/23 - 02/17/23		
Kit Number	Room/Area	Result
	N/A	

Table Note:
* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

January 30, 2023 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
A. MARIO LOIEDERMAN MS
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11634802	100	2023-01-23 @ 1:00 pm	2023-01-26 @ 1:00 pm	< 0.3	2023-01-30
11634805	100A	2023-01-23 @ 1:00 pm	2023-01-26 @ 1:00 pm	< 0.3	2023-01-30
11634804	100C	2023-01-23 @ 1:00 pm	2023-01-26 @ 1:00 pm	< 0.3	2023-01-30
11634801	100D	2023-01-23 @ 1:00 pm	2023-01-26 @ 1:00 pm	0.7 ± 0.4	2023-01-30
11634807	100F	2023-01-23 @ 1:00 pm	2023-01-26 @ 1:00 pm	0.6 ± 0.3	2023-01-30
11634808	100G	2023-01-23 @ 1:00 pm	2023-01-26 @ 1:00 pm	< 0.3	2023-01-30
11634809	100H	2023-01-23 @ 1:00 pm	2023-01-26 @ 1:00 pm	< 0.3	2023-01-30
11634813	100I	2023-01-23 @ 1:00 pm	2023-01-26 @ 1:00 pm	< 0.3	2023-01-30
11634810	100J	2023-01-23 @ 1:00 pm	2023-01-26 @ 1:00 pm	0.6 ± 0.4	2023-01-30
11634811	100K	2023-01-23 @ 1:00 pm	2023-01-26 @ 1:00 pm	0.6 ± 0.3	2023-01-30
11634803	100R	2023-01-23 @ 1:00 pm	2023-01-26 @ 1:00 pm	< 0.3	2023-01-30
11634821	101	2023-01-23 @ 1:00 pm	2023-01-26 @ 1:00 pm	< 0.3	2023-01-30
11634812	105	2023-01-23 @ 1:00 pm	2023-01-26 @ 1:00 pm	< 0.3	2023-01-30
11634815	107	2023-01-23 @ 1:00 pm	2023-01-26 @ 1:00 pm	< 0.3	2023-01-30
11634823	109	2023-01-23 @ 1:00 pm	2023-01-26 @ 1:00 pm	< 0.3	2023-01-30
11634824	109A	2023-01-23 @ 1:00 pm	2023-01-26 @ 1:00 pm	< 0.3	2023-01-30
11634853	110	2023-01-23 @ 2:00 pm	2023-01-26 @ 1:00 pm	0.8 ± 0.4	2023-01-30
11634842	111	2023-01-23 @ 2:00 pm	2023-01-26 @ 1:00 pm	< 0.3	2023-01-30
11634832	111A	2023-01-23 @ 2:00 pm	2023-01-26 @ 1:00 pm	< 0.3	2023-01-30
11634839	111A	2023-01-23 @ 2:00 pm	2023-01-26 @ 1:00 pm	0.6 ± 0.3	2023-01-30
11634843	111A	2023-01-23 @ 2:00 pm	2023-01-26 @ 1:00 pm	< 0.3	2023-01-30
11634840	111B	2023-01-23 @ 2:00 pm	2023-01-26 @ 1:00 pm	< 0.3	2023-01-30
11634841	111C	2023-01-23 @ 2:00 pm	2023-01-26 @ 1:00 pm	0.6 ± 0.3	2023-01-30
11634845	112	2023-01-23 @ 2:00 pm	2023-01-26 @ 1:00 pm	0.7 ± 0.3	2023-01-30
11634831	114	2023-01-23 @ 2:00 pm	2023-01-26 @ 1:00 pm	0.6 ± 0.4	2023-01-30
11634846	116	2023-01-23 @ 2:00 pm	2023-01-26 @ 1:00 pm	< 0.3	2023-01-30
11634851	118	2023-01-23 @ 2:00 pm	2023-01-26 @ 2:00 pm	< 0.3	2023-01-30
11634856	119	2023-01-23 @ 2:00 pm	2023-01-26 @ 2:00 pm	1.1 ± 0.3	2023-01-30
11634861	120	2023-01-23 @ 2:00 pm	2023-01-26 @ 2:00 pm	< 0.3	2023-01-30
11634862	121	2023-01-23 @ 2:00 pm	2023-01-26 @ 2:00 pm	1.0 ± 0.4	2023-01-30
11634854	121	2023-01-23 @ 2:00 pm	2023-01-26 @ 2:00 pm	0.6 ± 0.3	2023-01-30
11634850	130	2023-01-23 @ 2:00 pm	2023-01-26 @ 2:00 pm	< 0.3	2023-01-30
11634855	132	2023-01-23 @ 2:00 pm	2023-01-26 @ 2:00 pm	0.6 ± 0.3	2023-01-30
11634857	134	2023-01-23 @ 2:00 pm	2023-01-26 @ 2:00 pm	0.7 ± 0.3	2023-01-30
11634864	134	2023-01-23 @ 2:00 pm	2023-01-26 @ 2:00 pm	0.5 ± 0.3	2023-01-30
11634852	134	2023-01-23 @ 2:00 pm	2023-01-26 @ 2:00 pm	< 0.3	2023-01-30
11634847	136	2023-01-23 @ 2:00 pm	2023-01-26 @ 2:00 pm	0.7 ± 0.3	2023-01-30

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

January 30, 2023 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

A. MARIO LOIEDERMAN MS
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11634849	137	2023-01-23 @ 2:00 pm	2023-01-26 @ 2:00 pm	0.6 ± 0.3	2023-01-30
11634848	138	2023-01-23 @ 2:00 pm	2023-01-26 @ 2:00 pm	0.7 ± 0.4	2023-01-30
11634860	139	2023-01-23 @ 2:00 pm	2023-01-26 @ 2:00 pm	< 0.3	2023-01-30
11634858	140	2023-01-23 @ 2:00 pm	2023-01-26 @ 2:00 pm	< 0.3	2023-01-30
11634859	141	2023-01-23 @ 2:00 pm	2023-01-26 @ 2:00 pm	1.4 ± 0.4	2023-01-30
11634865	142	2023-01-23 @ 2:00 pm	2023-01-26 @ 2:00 pm	< 0.3	2023-01-30
11634863	143	2023-01-23 @ 2:00 pm	2023-01-26 @ 2:00 pm	0.9 ± 0.3	2023-01-30
11634868	145	2023-01-23 @ 2:00 pm	2023-01-26 @ 2:00 pm	< 0.3	2023-01-30
11634870	146	2023-01-23 @ 2:00 pm	2023-01-26 @ 2:00 pm	< 0.3	2023-01-30
11634867	147	2023-01-23 @ 2:00 pm	2023-01-26 @ 2:00 pm	< 0.3	2023-01-30
11634871	148	2023-01-23 @ 2:00 pm	2023-01-26 @ 2:00 pm	< 0.3	2023-01-30
11634866	149	2023-01-23 @ 2:00 pm	2023-01-26 @ 2:00 pm	< 0.3	2023-01-30
11634869	149	2023-01-23 @ 2:00 pm	2023-01-26 @ 2:00 pm	< 0.3	2023-01-30
11634820	160	2023-01-23 @ 1:00 pm	2023-01-26 @ 1:00 pm	< 0.3	2023-01-30
11634827	160	2023-01-23 @ 1:00 pm	2023-01-26 @ 1:00 pm	< 0.3	2023-01-30
11634829	160	2023-01-23 @ 1:00 pm	2023-01-26 @ 1:00 pm	< 0.3	2023-01-30
11634818	160A	2023-01-23 @ 1:00 pm	2023-01-26 @ 1:00 pm	< 0.3	2023-01-30
11634826	160B	2023-01-23 @ 1:00 pm	2023-01-26 @ 1:00 pm	< 0.3	2023-01-30
11634834	160C	2023-01-23 @ 1:00 pm	2023-01-26 @ 1:00 pm	< 0.3	2023-01-30
11634844	160D	2023-01-23 @ 2:00 pm	2023-01-26 @ 1:00 pm	< 0.3	2023-01-30
11634833	160E	2023-01-23 @ 1:00 pm	2023-01-26 @ 1:00 pm	< 0.3	2023-01-30
11634816	165	2023-01-23 @ 1:00 pm	2023-01-26 @ 1:00 pm	< 0.3	2023-01-30
11634819	166	2023-01-23 @ 1:00 pm	2023-01-26 @ 1:00 pm	0.6 ± 0.3	2023-01-30
11634835	167	2023-01-23 @ 2:00 pm	2023-01-26 @ 1:00 pm	0.8 ± 0.3	2023-01-30
11634825	168	2023-01-23 @ 1:00 pm	2023-01-26 @ 1:00 pm	< 0.3	2023-01-30
11634822	169	2023-01-23 @ 2:00 pm	2023-01-26 @ 1:00 pm	0.6 ± 0.3	2023-01-30
11634830	170	2023-01-23 @ 2:00 pm	2023-01-26 @ 1:00 pm	0.9 ± 0.3	2023-01-30
11634817	170	2023-01-23 @ 2:00 pm	2023-01-26 @ 1:00 pm	0.7 ± 0.3	2023-01-30
11634837	172	2023-01-23 @ 2:00 pm	2023-01-26 @ 1:00 pm	2.2 ± 0.4	2023-01-30
11634875	182	2023-01-23 @ 2:00 pm	2023-01-26 @ 2:00 pm	< 0.3	2023-01-30
11634877	184	2023-01-23 @ 2:00 pm	2023-01-26 @ 2:00 pm	0.5 ± 0.3	2023-01-30
11634879	186E	2023-01-23 @ 2:00 pm	2023-01-26 @ 2:00 pm	< 0.3	2023-01-30
11634876	186E	2023-01-23 @ 2:00 pm	2023-01-26 @ 2:00 pm	1.0 ± 0.3	2023-01-30
11634873	192	2023-01-23 @ 2:00 pm	2023-01-26 @ 2:00 pm	0.6 ± 0.3	2023-01-30
11634874	192 CONFERENCE	2023-01-23 @ 2:00 pm	2023-01-26 @ 2:00 pm	< 0.3	2023-01-30
11634806	200J	2023-01-23 @ 1:00 pm	2023-01-26 @ 1:00 pm	0.9 ± 0.4	2023-01-30
11634880	220	2023-01-23 @ 2:00 pm	2023-01-26 @ 2:00 pm	0.5 ± 0.3	2023-01-30

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January 30, 2023 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
A. MARIO LOIEDERMAN MS
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11634882	220	2023-01-23 @ 2:00 pm	2023-01-26 @ 2:00 pm	< 0.3	2023-01-30
11634881	220	2023-01-23 @ 2:00 pm	2023-01-26 @ 2:00 pm	< 0.3	2023-01-30
11634883	234	2023-01-23 @ 2:00 pm	2023-01-26 @ 2:00 pm	0.6 ± 0.3	2023-01-30
11634891	266	2023-01-23 @ 3:00 pm	2023-01-26 @ 2:00 pm	< 0.3	2023-01-30
11634890	268	2023-01-23 @ 3:00 pm	2023-01-26 @ 2:00 pm	< 0.3	2023-01-30
11634892	268	2023-01-23 @ 3:00 pm	2023-01-26 @ 2:00 pm	< 0.3	2023-01-30
11634896	284	2023-01-23 @ 3:00 pm	2023-01-26 @ 2:00 pm	1.2 ± 0.3	2023-01-30
11634894	289	2023-01-23 @ 3:00 pm	2023-01-26 @ 2:00 pm	1.3 ± 0.4	2023-01-30
11634895	291	2023-01-23 @ 3:00 pm	2023-01-26 @ 2:00 pm	0.5 ± 0.3	2023-01-30
11634893	294	2023-01-23 @ 3:00 pm	2023-01-26 @ 2:00 pm	0.6 ± 0.3	2023-01-30
11634897	298	2023-01-23 @ 3:00 pm	2023-01-26 @ 2:00 pm	0.7 ± 0.3	2023-01-30
11634878	BOYS LOCKER ROOM 186	2023-01-23 @ 2:00 pm	2023-01-26 @ 2:00 pm	< 0.3	2023-01-30
11634888	DINING ROOM 250	2023-01-23 @ 2:00 pm	2023-01-26 @ 2:00 pm	< 0.3	2023-01-30
11634889	DINING ROOM 250	2023-01-23 @ 2:00 pm	2023-01-26 @ 2:00 pm	< 0.3	2023-01-30
11634872	GIRLS LOCKER ROOM 196	2023-01-23 @ 2:00 pm	2023-01-26 @ 2:00 pm	< 0.3	2023-01-30
11634885	GYM	2023-01-23 @ 2:00 pm	2023-01-26 @ 2:00 pm	< 0.3	2023-01-30
11634887	MEDIA CENTER 242	2023-01-23 @ 2:00 pm	2023-01-26 @ 2:00 pm	< 0.3	2023-01-30

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February 20, 2023 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

A. MARIO LOIEDERMAN MS

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11634974	104	2023-02-14 @ 8:00 am	2023-02-17 @ 9:00 am	0.8 ± 0.3	2023-02-20
11634956	160F	2023-02-14 @ 8:00 am	2023-02-17 @ 9:00 am	0.5 ± 0.3	2023-02-20
11634972	172-1	2023-02-14 @ 8:00 am	2023-02-17 @ 9:00 am	2.9 ± 0.3	2023-02-20
11634984	172-1	2023-02-14 @ 8:00 am	2023-02-17 @ 9:00 am	2.5 ± 0.3	2023-02-20
11634952	172-2	2023-02-14 @ 8:00 am	2023-02-17 @ 9:00 am	1.8 ± 0.3	2023-02-20
11634985	172-2	2023-02-14 @ 8:00 am	2023-02-17 @ 9:00 am	< 0.3	2023-02-20
11634959	206	2023-02-14 @ 8:00 am	2023-02-17 @ 9:00 am	< 0.3	2023-02-20
11634971	GYM	2023-02-14 @ 8:00 am	2023-02-17 @ 9:00 am	< 0.3	2023-02-20
11634975	GYM	2023-02-14 @ 8:00 am	2023-02-17 @ 9:00 am	< 0.3	2023-02-20

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EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI TECHNOLOGIES, INC Job Number 208802

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

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

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

February 3, 2023 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
OFFICE
MAIN

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

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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 – Week 2 Retesting January Schools

Name of Schools:

1. A. Mario Loiederman MS
2. Cannon Road ES
3. Forest Knolls ES
4. Glen Haven ES
5. Goshen ES
6. Highland View ES
7. John F. Kennedy HS
8. Lakelands Park MS
9. Montgomery Village MS
10. Poolesville HS
11. Springbrook HS

	Date	Initials
Radon Test Kits Deployed	02/14/2023	BMM
Radon Test Kits Collected	02/17/2023	BMM
Radon Test Kits Shipped to Lab*	02/17/2023	BMM
Radon Test Kits Received by Lab*	02/20/2023	BMM

*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	Mario Loiederman Middle 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	13
# Rooms ≥4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	1.9 pCi/L

Project Status

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

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March 12, 2018

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

Re: Radon Testing Services

KCI Job #1214634188

Location: Mario Loiederman Middle School
12701 Goodhill Rd.
Silver Spring, Maryland 20906

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 Mario Loiederman Middle School, located at 12701 Goodhill Rd. in Silver Spring, Maryland 20906 (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 fifteen (15) 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 window replacement testing.

These tests were conducted to:

- Evaluate radon concentrations following the installation of new windows.

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		
Mario Loiederman Middle School		
Test Period: 02/13/18-02/16/18		
Kit Number	**Room / Area**	**Result**
7986853	149	0.6
7986837	172	1.5
7986841	206	0.6
7986836	211	< 0.3
7986847	106C	< 0.3
7986850	109A	< 0.3
7986849	* 143 (Missing)	-
7986846	146B	< 0.3
7986848	AUX GYM	< 0.3
7986851	* BLR (Missing)	-
7986852	GLR	0.8
7986843	KITCHEN	1.4
7986844	KITCHEN OFFICE	1.9

Table Note:
* Missing or Compromised Sample

Table 2 - Radon Testing Results		
Mario Loiederman Middle School		
Test Period: 02/13/18-02/16/18		
Kit Number	**QC Type**	**Result**
7986838	D (172)	1.4
7986840	FB (206)	< 0.3

Table Note:
* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

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

Radon test result report for:

MARIO LOIEDERMAN MIDDLE SCHOOL
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7986847	106C	2018-02-13 @ 9:00 am	2018-02-16 @ 9:00 am	< 0.3	2018-02-20
7986850	109A	2018-02-13 @ 9:00 am	2018-02-16 @ 9:00 am	< 0.3	2018-02-20
7986849	143	@	@		
7986846	146B	2018-02-13 @ 9:00 am	2018-02-16 @ 9:00 am	< 0.3	2018-02-20
7986853	149	2018-02-13 @ 9:00 am	2018-02-16 @ 9:00 am	0.6 ± 0.3	2018-02-20
7986837	172	2018-02-13 @ 9:00 am	2018-02-16 @ 9:00 am	1.5 ± 0.4	2018-02-20
7986838	172	2018-02-13 @ 9:00 am	2018-02-16 @ 9:00 am	1.4 ± 0.4	2018-02-20
7986841	206	2018-02-13 @ 9:00 am	2018-02-16 @ 9:00 am	0.6 ± 0.3	2018-02-20
7986840	206	2018-02-13 @ 9:00 am	2018-02-16 @ 9:00 am	< 0.3	2018-02-20
7986836	211	2018-02-13 @ 9:00 am	2018-02-16 @ 9:00 am	< 0.3	2018-02-20
7986848	AUX GYM	2018-02-13 @ 9:00 am	2018-02-16 @ 9:00 am	< 0.3	2018-02-20
7986851	BLR	@	@		
7986852	GLR	2018-02-13 @ 9:00 am	2018-02-16 @ 9:00 am	0.8 ± 0.3	2018-02-20
7986843	KITCHEN	2018-02-13 @ 9:00 am	2018-02-16 @ 9:00 am	1.4 ± 0.4	2018-02-20
7986844	KITCHEN OFFICE	2018-02-13 @ 9:00 am	2018-02-16 @ 9:00 am	1.9 ± 0.4	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

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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	Mario Loiederman Middle School
Date of Report	January 30, 2018
Round of Testing	Initial Follow-up Post Remediation 2 year testing 5 year testing HVAC Upgrade **Window Replacement** New Addition New Facility
# of Rooms Tested	66
# Rooms ≥4.0 pCi/L	0
Lowest Value	< 0.3 pCi/L
Highest Value	1.4 pCi/L

Project Status

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

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January 30, 2018

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

Re: Radon Testing Services

KCI Job #1214694182

Location: Mario Loiederman Middle School
12701 Goodhill Rd.
Silver Spring, Maryland 20906

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 Mario Loiederman Middle School, located at 12701 Goodhill Rd. in Silver Spring, Maryland 20906 (subject site).

SCOPE OF SERVICES

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

KCI visited the site on November 27, 2017 and deployed seventy-seven (77) activated charcoal (AC) radon test kits. KCI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. A floor plan map of the building with the test locations is included as Appendix A of this report.

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

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

KCI returned to the site on November 30, 2017 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Aircheck, Inc. for analysis by gamma-ray spectroscopy. Aircheck, Inc. is a NRSB certified analytical laboratory for radon analysis (certification #ARL1402) located at 1936 Butler Bridge Road, Mills River, North Carolina.

EVALUATION OF TESTING CONDITIONS

These tests represent:

- Window replacement testing.

These tests were conducted to:

- Evaluate radon concentrations following the installation of new windows.

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

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

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

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

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

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

RESULTS

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

The results of the radon test analysis indicated the following:

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

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

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

Sincerely,

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

Attachments:

B - Tables 1-3, Radon Test Summary Spreadsheets

C- Laboratory Analytical Results

ATTACHMENT B

Radon Test Summary Spreadsheet

Table Notes:

AC- Activated Charcoal

ACI- Air Chek, Inc.

D- Duplicate

FB- Field Blank

KCI- KCI Technologies, Inc.

OB- Office Blank

PM- Project Manager

QC- Quality Control

Radon Testing Results		
Mario Loiederman Middle School		
Test Period: 11/27/17-11/30/17		
Kit Number	**Room / Area**	**Result**
7977645	100	1.0
7977692	101	0.6
7977691	105	0.8
7977690	107	0.6
7977687	109	0.6
7977613	110	1.4
7977611	111	1.1
7977620	112	1.0
7977683	114	0.6
7977685	116	< 0.3
7977684	118	< 0.3
7977678	119	0.8
7977686	120	< 0.3
7977688	121	< 0.3
7977601	130	0.5
7977609	132	0.8
7977606	134	1.0
7977605	136	1.1
7977627	137	0.9
7977640	138	0.7
7977604	139	0.5
7977639	140	0.7
7977602	141	1.3
7977629	142	0.7
7977621	145	0.8
7977651	146	< 0.3
7977623	147	0.8
7977624	148	0.6
7977638	148	< 0.3
7977656	160	0.5
7977630	165	0.7
7977634	167	0.7
7977658	168	< 0.3
7977635	169	0.7
7977636	170	< 0.3
7977631	192	0.8
7977695	201	0.7
7977665	203	0.6
7977669	213	< 0.3
7977671	220	< 0.3
7977655	256	0.7
7977693	258	< 0.3
7977694	267	0.6
7977660	100A	< 0.3
7977663	100C	0.8
7977646	100D	0.7

Table Note:
* Missing or Compromised Sample

Radon Testing Results		
Mario Loiederman Middle School		
Test Period: 11/27/17-11/30/17		
Kit Number	**Room / Area**	**Result**
7977642	100E	< 0.3
7977643	100F	0.5
7977644	100G	0.8
7977647	100H	< 0.3
7977664	100I	0.8
7977659	100J	< 0.3
7977652	100K	0.7
7977653	106B	0.9
7977657	106D	< 0.3
7977654	106E	0.8
7977615	111A	0.9
7977612	111B	0.6
7977610	111C	0.6
7977619	* 143 (Missing)	-
7977661	160A	< 0.3
7977662	160G	0.6
7977649	186E	0.8
7977637	192A	0.6
7977622	192B	0.7
7977670	* 206 (Missing)	-
7977628	DANCE	0.8

Table Note:
* Missing or Compromised Sample

Radon Testing Results		
Mario Loiederman Middle School		
Test Period: 11/27/17-11/30/17		
Kit Number	**QC Type**	**Result**
7977648	D (100K)	1.0
7977641	D (111)	< 0.3
7977689	D (121)	1.1
7977603	D (141)	1.4
7977633	D (148)	0.7
7977632	D (165)	0.6
7977699	D (258)	0.7
7977682	FB (119)	< 0.3
7977650	FB (148)	< 0.3
7975632	OB (OB)	< 0.3

Table Note:
* Missing or Compromised Sample

Summary of Missed Locations		
Mario Loiederman Middle School		
Test Period: 11/27/17-11/30/17		
Kit Number	**Room / Area**	**Result**
-	143 (Missed location)	-
-	149 (Missed location)	-
-	190 (Missed location)	-
-	211 (Missed location)	-
-	106C (Missed location)	-
-	109A (Missed location)	-
-	146B (Missed location)	-
-	Aux Gym (Missed location)	-
-	BLR (Missed location)	-
-	GLR (Missed location)	-
-	180 (Missed location)	-
-	178 (Missed location)	-
-	172 (Missed location)	-
-	Kitchen (Missed location)	-

Summary of Missing, Compromised and ≥4 piC/L Tests		
Mario Loiederman Middle School		
Test Period: 11/27/17-11/30/17		
Kit Number	**Room / Area**	**Result**
7977619	* 143 (Missing)	-
7977670	* 206 (Missing)	-

Table Note:
* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

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

Radon test result report for:
MARIO LOIEDERMAN MS
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7977645	100	2017-11-27 @ 9:00 am	2017-11-30 @ 9:00 am	1.0 ± 0.4	2017-12-05
7977660	100A	2017-11-27 @ 9:00 am	2017-11-30 @ 9:00 am	< 0.3	2017-12-04
7977663	100C	2017-11-27 @ 9:00 am	2017-11-30 @ 9:00 am	0.8 ± 0.4	2017-12-04
7977646	100D	2017-11-27 @ 9:00 am	2017-11-30 @ 9:00 am	0.7 ± 0.4	2017-12-04
7977642	100E	2017-11-27 @ 9:00 am	2017-11-30 @ 9:00 am	< 0.3	2017-12-05
7977643	100F	2017-11-27 @ 9:00 am	2017-11-30 @ 9:00 am	0.5 ± 0.4	2017-12-05
7977644	100G	2017-11-27 @ 9:00 am	2017-11-30 @ 9:00 am	0.8 ± 0.4	2017-12-04
7977647	100H	2017-11-27 @ 9:00 am	2017-11-30 @ 9:00 am	< 0.3	2017-12-04
7977664	100I	2017-11-27 @ 9:00 am	2017-11-30 @ 10:00 am	0.8 ± 0.4	2017-12-05
7977659	100J	2017-11-27 @ 9:00 am	2017-11-30 @ 9:00 am	< 0.3	2017-12-05
7977652	100K	2017-11-27 @ 9:00 am	2017-11-30 @ 9:00 am	0.7 ± 0.4	2017-12-05
7977648	100K	2017-11-27 @ 9:00 am	2017-11-30 @ 9:00 am	1.0 ± 0.4	2017-12-05
7977692	101	2017-11-27 @ 11:00 am	2017-11-30 @ 10:00 am	0.6 ± 0.4	2017-12-04
7977691	105	2017-11-27 @ 11:00 am	2017-11-30 @ 10:00 am	0.8 ± 0.4	2017-12-05
7977653	106B	2017-11-27 @ 9:00 am	2017-11-30 @ 9:00 am	0.9 ± 0.4	2017-12-05
7977657	106D	2017-11-27 @ 10:00 am	2017-11-30 @ 9:00 am	< 0.3	2017-12-04
7977654	106E	2017-11-27 @ 10:00 am	2017-11-30 @ 9:00 am	0.8 ± 0.4	2017-12-05
7977690	107	2017-11-27 @ 11:00 am	2017-11-30 @ 10:00 am	0.6 ± 0.4	2017-12-05
7977687	109	2017-11-27 @ 11:00 am	2017-11-30 @ 10:00 am	0.6 ± 0.4	2017-12-05
7977613	110	2017-11-27 @ 11:00 am	2017-11-30 @ 10:00 am	1.4 ± 0.4	2017-12-05
7977611	111	2017-11-27 @ 11:00 am	2017-11-30 @ 10:00 am	1.1 ± 0.4	2017-12-05
7977641	111	2017-11-27 @ 11:00 am	2017-11-30 @ 10:00 am	< 0.3	2017-12-05
7977615	111A	2017-11-27 @ 11:00 am	2017-11-30 @ 10:00 am	0.9 ± 0.4	2017-12-05
7977612	111B	2017-11-27 @ 11:00 am	2017-11-30 @ 10:00 am	0.6 ± 0.4	2017-12-04
7977610	111C	2017-11-27 @ 11:00 am	2017-11-30 @ 10:00 am	0.6 ± 0.4	2017-12-05
7977620	112	2017-11-27 @ 11:00 am	2017-11-30 @ 10:00 am	1.0 ± 0.4	2017-12-04
7977683	114	2017-11-27 @ 11:00 am	2017-11-30 @ 10:00 am	0.6 ± 0.4	2017-12-04
7977685	116	2017-11-27 @ 11:00 am	2017-11-30 @ 10:00 am	< 0.3	2017-12-04
7977684	118	2017-11-27 @ 11:00 am	2017-11-30 @ 10:00 am	< 0.3	2017-12-05
7977678	119	2017-11-27 @ 11:00 am	2017-11-30 @ 10:00 am	0.8 ± 0.4	2017-12-04
7977682	119	2017-11-27 @ 11:00 am	2017-11-30 @ 10:00 am	< 0.3	2017-12-04
7977686	120	2017-11-27 @ 11:00 am	2017-11-30 @ 10:00 am	< 0.3	2017-12-05
7977688	121	2017-11-27 @ 11:00 am	2017-11-30 @ 10:00 am	< 0.3	2017-12-05
7977689	121	2017-11-27 @ 11:00 am	2017-11-30 @ 10:00 am	1.1 ± 0.4	2017-12-05
7977601	130	2017-11-27 @ 10:00 am	2017-11-30 @ 10:00 am	0.5 ± 0.4	2017-12-05
7977609	132	2017-11-27 @ 10:00 am	2017-11-30 @ 10:00 am	0.8 ± 0.4	2017-12-04
7977606	134	2017-11-27 @ 10:00 am	2017-11-30 @ 9:00 am	1.0 ± 0.4	2017-12-05

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

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

Radon test result report for:
MARIO LOIEDERMAN MS
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7977605	136	2017-11-27 @ 10:00 am	2017-11-30 @ 9:00 am	1.1 ± 0.4	2017-12-05
7977627	137	2017-11-27 @ 10:00 am	2017-11-30 @ 10:00 am	0.9 ± 0.4	2017-12-05
7977640	138	2017-11-27 @ 10:00 am	2017-11-30 @ 9:00 am	0.7 ± 0.4	2017-12-04
7977604	139	2017-11-27 @ 10:00 am	2017-11-30 @ 9:00 am	0.5 ± 0.3	2017-12-04
7977639	140	2017-11-27 @ 10:00 am	2017-11-30 @ 9:00 am	0.7 ± 0.4	2017-12-04
7977602	141	2017-11-27 @ 10:00 am	2017-11-30 @ 9:00 am	1.3 ± 0.4	2017-12-05
7977603	141	2017-11-27 @ 10:00 am	2017-11-30 @ 9:00 am	1.4 ± 0.4	2017-12-05
7977629	142	2017-11-27 @ 10:00 am	2017-11-30 @ 9:00 am	0.7 ± 0.4	2017-12-04
7977621	145	2017-11-27 @ 10:00 am	2017-11-30 @ 9:00 am	0.8 ± 0.4	2017-12-05
7977651	146	2017-11-27 @ 10:00 am	2017-11-30 @ 9:00 am	< 0.3	2017-12-04
7977623	147	2017-11-27 @ 10:00 am	2017-11-30 @ 9:00 am	0.8 ± 0.4	2017-12-05
7977624	148	2017-11-27 @ 10:00 am	2017-11-30 @ 9:00 am	0.6 ± 0.4	2017-12-04
7977638	148	2017-11-27 @ 10:00 am	2017-11-30 @ 9:00 am	< 0.3	2017-12-05
7977633	148	2017-11-27 @ 10:00 am	2017-11-30 @ 9:00 am	0.7 ± 0.4	2017-12-05
7977650	148	2017-11-27 @ 10:00 am	2017-11-30 @ 9:00 am	< 0.3	2017-12-05
7977656	160	2017-11-27 @ 9:00 am	2017-11-30 @ 10:00 am	0.5 ± 0.3	2017-12-04
7977661	160A	2017-11-27 @ 9:00 am	2017-11-30 @ 9:00 am	< 0.3	2017-12-04
7977662	160G	2017-11-27 @ 9:00 am	2017-11-30 @ 9:00 am	0.6 ± 0.4	2017-12-04
7977632	165	2017-11-27 @ 10:00 am	2017-11-30 @ 9:00 am	0.6 ± 0.4	2017-12-04
7977630	165	2017-11-27 @ 10:00 am	2017-11-30 @ 9:00 am	0.7 ± 0.4	2017-12-05
7977634	167	2017-11-27 @ 10:00 am	2017-11-30 @ 9:00 am	0.7 ± 0.3	2017-12-04
7977658	168	2017-11-27 @ 10:00 am	2017-11-30 @ 9:00 am	< 0.3	2017-12-05
7977635	169	2017-11-27 @ 10:00 am	2017-11-30 @ 9:00 am	0.7 ± 0.3	2017-12-04
7977636	170	2017-11-27 @ 10:00 am	2017-11-30 @ 9:00 am	< 0.3	2017-12-04
7977649	186E	2017-11-27 @ 10:00 am	2017-11-30 @ 10:00 am	0.8 ± 0.4	2017-12-05
7977631	192	2017-11-27 @ 10:00 am	2017-11-30 @ 9:00 am	0.8 ± 0.4	2017-12-05
7977637	192A	2017-11-27 @ 10:00 am	2017-11-30 @ 9:00 am	0.6 ± 0.4	2017-12-05
7977622	192B	2017-11-27 @ 10:00 am	2017-11-30 @ 9:00 am	0.7 ± 0.3	2017-12-04
7977695	201	2017-11-27 @ 11:00 am	2017-11-30 @ 10:00 am	0.7 ± 0.4	2017-12-05
7977665	203	2017-11-27 @ 11:00 am	2017-11-30 @ 10:00 am	0.6 ± 0.4	2017-12-05
7977669	213	2017-11-27 @ 11:00 am	2017-11-30 @ 10:00 am	< 0.3	2017-12-04
7977671	220	2017-11-27 @ 11:00 am	2017-11-30 @ 10:00 am	< 0.3	2017-12-05
7977655	256	2017-11-27 @ 11:00 am	2017-11-30 @ 10:00 am	0.7 ± 0.4	2017-12-05
7977693	258	2017-11-27 @ 11:00 am	2017-11-30 @ 10:00 am	< 0.3	2017-12-05
7977699	258	2017-11-27 @ 11:00 am	2017-11-30 @ 10:00 am	0.7 ± 0.4	2017-12-05
7977694	267	2017-11-27 @ 11:00 am	2017-11-30 @ 10:00 am	0.6 ± 0.4	2017-12-05
7977628	DANCE	2017-11-27 @ 10:00 am	2017-11-30 @ 10:00 am	0.8 ± 0.4	2017-12-05

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

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

Radon test result report for:
MARIO LOIEDERMAN MS
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7975632	OB	2017-11-27 @ 1:00 pm	2017-11-30 @ 1:00 pm	< 0.3	2017-12-04

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

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

Radon test result report for:
MARIO LOIEDERMAN MS
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7977619	143	@	@		
7977670	206	@	@		

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

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

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

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

Radon test result report for:
TRANSIT 1
NONE

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

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

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

Radon test result report for:

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

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

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

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI Technologies Inc. Job Number 182393

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

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

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

RADON SCREENING SURVEY – FOLLOW-UP A. MARIO LOIEDERMAN MIDDLE SCHOOL

12701 Goodhill Road, Silver Spring, Maryland 20906

EXECUTIVE SUMMARY

Date of Test Report:	4/6/16 (Follow-Up)
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested	1
# Rooms ≥ 4.0 pCi/L:	0
Low Value:	<0.4
High Value:	<0.4
Confirmed Rooms ≥ 4.0 pCi/L US EPA Action Level	0

Summary of Sampling Events ≥ 4.0 pCi/L

Room	Result (pCi/L) 2/17/16 Initial	Result (pCi/L) 4/6/16 Follow-Up	Average Result (pCi/L)
100I	--- Missing	<0.4	<0.4

KCI TECHNOLOGIES

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

MCPS RADON TESTING

Executive Summary: A. Mario Loiederman Middle School

Date of Test Report:	4/6/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	1
# Rooms ≥ 4.0 pCi/L:	0
Low Value:	< 0.4
High Value:	< 0.4

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

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

April 6, 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 # 12146341.31

Location: A. Mario Loiederman Middle School
12701 Goodhill Road
Silver Spring, MD 20906

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 A. Mario Loiederman Middle School, located at 12701 Goodhill Road in Silver Spring, Maryland 20906 (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 March 21, 2016 and deployed one (1) 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 TCS Industries Inc. as spike samples. The spiked tests were exposed to a known radon concentration by TCS prior to being returned to the laboratory for analysis.

KCI returned to the site on March 24, 2016 to retrieve the radon sampling test kits. KCI 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 (certification # ARL0007) located at 929 Mount

Zion Road, Lebanon, Pennsylvania.

Evaluation of Testing Conditions:

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

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

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

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

Results:

The results of the radon test analysis indicated the following:

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

Notes:
D- Duplicate sample

The 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 (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 11 testing. Office blanks were not submitted under each school individually.

Radon Testing Results		
Loiederman Middle School		
Test Period: 03/21/16-03/24/16		
Kit Number	**Room / Area**	**Result**
3029253	100 I	<0.4

Table Note:
* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

AccuStar
Professional Radon Laboratory Services Since 1984

Radon in Air

NRPP 10511AL
NRSB ARL0007

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

Laboratory Report for:

KCI Technologies
936 Ridgebrook Rd
Sparks MD 21152

Property Tested: Project # 12146341

Loiederman MS
12701 Goodhill Road
Aspen Hill MD 20906

Log Number	Device Number	Test Exposure Duration:		Area Tested	Result (pCi/L)
3018395	3029253	03/21/2016 9:35 am	03/24/2016 9:50 am	Unit 100I First Floor	<0.4

Comment: A copy of this report was emailed to tehsin@kci.com.

Distributed by: KCI Technologies, Inc.

Date Received: 03/28/2016 Date Logged: 03/28/2016 Date Analyzed: 03/28/2016 Date Reported: 03/29/2016

Report Reviewed By: Grace E. Heverly Report Approved By: Carolyn D. Koke

Carolyn D. Koke, President, 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.

AccuStar
Professional Radon Laboratory Services Since 1984

AccuStar Labs
11 Awl Street
Medway MA 02053
888-480-8812
www.accustarlabs.com

Radon Device Type Open Face Canister

Send Written Report To:

Name	KCI Technologies, Inc
Address	936 Ridgebrook Road
Address	
City / Town	Sparks
State/Province Postal Code	MD 21152
Report Country	Baltimore County
Email Address	tehsin@kci.com

Site Tested:

Site Name	Loiederman M. S.
Address	
Address	12701 Goodhill Rd
City / Town	
State/Province Postal Code	MD 20906
Test Country	Montgomery County
Project Number	12146341

Contact Information:

Contact	Tehsin Aurangabadwala
Telephone	410-891-1726
Technician	
Cert. Number	
Signature	

Lab Use Only	Device Number	Building Number	Unit Number	Floor	Name of Room	Start Date mm/dd/yyyy	Start Time hh:mm am / pm	Stop Date mm/dd/yyyy	Stop Time hh:mm am / pm	Lab Use Only
					Temp					
	3029253		100I	1	72	3/21/2016	9 35 AM	3/24/16	9 50 AM	

Rev E1512

Test must start before the expiration date shown on your device or test results will be invalid

AccuStar
Professional Radon Laboratory Services Since 1984

Radon in Air

NRPP 10511AL
NRSB ARL0007

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

Laboratory Report for:

KCI Technologies
936 Ridgebrook Rd
Sparks MD 21152

Property Tested: Project # 12146341

MCPS Radon Phase 11 (re-testing) Office Blank

Log Number	Device Number	Test Exposure Duration:		Area Tested	Result (pCi/L)
3018362	3029232	03/21/2016 8:00 am	03/24/2016 8:00 am	Unit O First Floor Main Room	<0.4

Comment: A copy of this report was emailed to tehsin@kci.com.

Distributed by: KCI Technologies, Inc.

Date Received: 03/28/2016 Date Logged: 03/28/2016 Date Analyzed: 03/28/2016 Date Reported: 03/29/2016

Report Reviewed By: Grace E. Hebner

Report Approved By: Carolyn D. Koke

Carolyn D. Koke, President, 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.

AccuStar
Professional Radon Laboratory Services Since 1984

AccuStar Labs
11 Awl Street
Medway MA 02053
888-480-8812
www.accustarlabs.com

Radon Device Type Open Face Canister

Send Written Report To:

Name	KCI Technologies, Inc
Address	936 Ridgebrook Road
Address	
City / Town	Sparks
State/Province Postal Code	MD 21152
Report Country	Baltimore County
Email Address	tehsin@kci.com

Site Tested:

Site Name	KCI OFFICE
Address	936 RIDGEBROOK RD
Address	
City / Town	SPARKS
State/Province Postal Code	MD 21152
Test Country	Montgomery County
Project Number	12146341

Contact Information:

Contact	Tehsin Aurangabadwala
Telephone	410-891-1726
Technician	
Cert. Number	
Signature	

Lab Use Only	Device Number	Building Number	Unit Number	Floor	Name of Room Temp	Start Date mm/dd/yyyy	Start Time hh:mm am / pm	Stop Date mm/dd/yyyy	Stop Time hh:mm am / pm	Lab Use Only
	3029232		0	1	MAIN 72	3/21/2016	8:00AM	3/24/2016	8:00 AM	

Rev E1512

Test must start before the expiration date shown on your device or test results will be invalid

AccuStar
Professional Radon Laboratory Services Since 1984

Radon in Air

NRPP 10511AL
NRSB ARL0007

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

Laboratory Report for:

KCI Technologies
936 Ridgebrook Rd
Sparks MD 21152

Property Tested:

MCPS
Transit Blanks

Log Number	Device Number	Test Exposure Duration:		Area Tested	Result (pCi/L)
3010588	3028953	01/19/2016 1:00 pm	01/22/2016 9:30 am	1	< 0.4
3010589	3028955	01/19/2016 1:00 pm	01/22/2016 9:30 am	2	< 0.4
3010590	3028954	01/19/2016 1:00 pm	01/22/2016 9:30 am	3	< 0.4
3010591	3028997	01/19/2016 1:00 pm	01/22/2016 9:30 am	4	< 0.4

Comment: AMENDED REPORT for 3028953-8955, 3028997 on 2/22/16 to add all missing information from the blank datasheet. A copy of this report was emailed to james.moulsdale@kci.com.

Distributed by: KCI Technologies, Inc.

Date Received: 01/27/2016 Date Logged: 01/27/2016 Date Analyzed: 01/28/2016 Date Reported: 01/28/2016

Report Reviewed By: _____ Report Approved By: _____

Carolyn D. Koke, President, 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.

Return canisters for analysis to:
AccuStar Labs
929 Mt. Zion Rd., Lebanon, PA 17046
800-523-4964

RECEIVED JAN 27 2016

AccuStar Labs – Lebanon, PA
INFORMATION FORM - Large Buildings - Projects - Apartments

Instructions on back of form
Read instructions carefully
Discrepancies will invalidate tests

Do not use this form in New Jersey or Florida Call for correct forms.

Test Site Info

Name of Building/Project or Owner Transit

Site Address: Transit

City: _____ State _____ Zip _____ County _____

Projects Contact Name: Jon Coale Phone: _____ Email: _____

Multi-Page Report Y-N

Detector Serial#	ROOM NAME & NUMBER - LOCATION OF DETECTOR IN ROOM (indicate duplicates and blanks)		Floor	Start Date	Start Time Include AM/PM	Stop Date	Stop Time Include AM/PM	LAB USE ONLY Wgt. Gain	LAB USE ONLY pCi/L
12 3028953	Transit	3010588	1	1/19/16	1:00pm	1/22/16	9:30am		<0.4
1 8955	Transit	3010589	1	1/19/16	↓	↓	↓		<0.4
2 8954	Transit	3010590	1	1/19/16					<0.4
3 8997	Transit	3010591	1	1/19/16					<0.4

1/27/2016
KCI Technologies, Inc.
3010588 **3028953** ACPC275B EXP12/31/2018

Structure Type: (circle one or more) Basement - Crawlspace - Slab on Grade - Other

Test Purpose: (Circle all that apply) Initial Screening - Follow Up Test - Post Mitigation - Real Estate - Other

Building Type: (Circle One) Residential - Non Residential; Private Day Care - Private School; Day Care in Public School - Public School

Both Placed by and Retrieved by signatures are required Certified Tester's Name & #

Canisters placed by _____ #_____

Canisters retrieved by _____ #_____

Owner waives confidentiality by signing here _____ Date 1/22/16

Were general operating conditions maintained? Yes - No explain if NO

Were closed building conditions maintained? Yes - No explain if NO

Normal Temp. Yes - No
Normal Humidity Yes - No
Windy Y-N Rainy Y-N

Send Results To:

Company Name: KCI Tech Attention: James Moulsdale

Address: 936 Ridgebrook

City: Sparks State: MD Zip 21152

Phone: 410-584-3826 Fax:

EMAIL Results to: James.Moulsdale@kci.com

Make sure information is complete and correct.

If a recalculation is requested there is a $10.00 recalc fee PER Canister.

Mailing: PO Box 990 Jonestown, PA 17038
Shipping: 929 Mt Zion Road, Lebanon, PA 17046
800-523-4964 fax 717-274-5662
NEHA 10511AL NRSB ARL 0007

TCS INDUSTRIES, INC.

(717) 657-7032 RADON GAS DETECTION

www.radondetek.com 4326 Crestview Road, Harrisburg, PA 17112

James Moulsdale
KCI
936 Ridgebrook Rd.
Sparks, MD 21152

April 04, 2016

Dear Mr. Moulsdale:

The spike exposure data were:

Start 04/04/16 @ 1110 hrs EDT
End 04/06/16 @ 1113 hrs EDT

AC 3029218, 3029219, 3029220, 3029217, 3029214, 3029217, and 3029166

Average radon concentration was 10.6 pCi/L +/- 5%

Avg, Temp. was 71F
Avg. RH was 51%
Elevation was 490 feet above sea level

Sincerely,

Carl H. Distenfeld, CHP

****
TCS Radon Chamber NRSB CHM 0002
****

AccuStar
Professional Radon Laboratory Services Since 1984

Radon in Air

NRPP 10511AL
NRSB ARL0007

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

Laboratory Report for:

KCI Technologies
936 Ridgebrook Rd
Sparks MD 21152

Property Tested:

MCPS
Radon Spike Sample Laboratory Results

Log Number	Device Number	Test Exposure Duration:		Area Tested	Result (pCi/L)
3020102	3029166	04/04/2016 11:10 am	04/06/2016 11:13 am	Not Indicated	11.9
3020103	3029214	04/04/2016 11:10 am	04/06/2016 11:13 am	Not Indicated	11.5
3020104	3029217	04/04/2016 11:10 am	04/06/2016 11:13 am	Not Indicated	10.7
3020105	3029218	04/04/2016 11:10 am	04/06/2016 11:13 am	Not Indicated	11.3
3020106	3029219	04/04/2016 11:10 am	04/06/2016 11:13 am	Not Indicated	11.0
3020107	3029220	04/04/2016 11:10 am	04/06/2016 11:13 am	Not Indicated	10.5

Comment: A copy of this report was emailed to james.moulsdale@kci.com.

Distributed by: KCI Technologies, Inc.

Date Received: 04/07/2016 Date Logged: 04/07/2016 Date Analyzed: 04/07/2016 Date Reported: 04/08/2016

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.

Report Reviewed By: _____ Report Approved By: _____

Carolyn D. Koke, President, 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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AccuStar
Professional Radon Laboratory Services Since 1984

AccuStar Labs
11 Awl Street
Medway MA 02053
888-480-8812
www.accustarlabs.com

Radon Device Type Open Face Canister

Send Written Report To:

Name	KCI Technologies, Inc
Address	936 Ridgebrook Road
Address	
City / Town	Sparks
State/Province Postal Code	MD 21152
Report Country	Baltimore County
Email Address	tehsin@kci.com

Site Tested:

Site Name	MCPS
Address	850 Hungerford Dr
Address	
City / Town	Rockville
State/Province Postal Code	MD 20850
Test Country	Montgomery County
Project Number	12146341

Contact Information:

Contact	Tehsin Aurangabadwala
Telephone	410-891-1726
Technician	
Cert. Number	
Signature	

Lab Use Only	Device Number	Building Number	Unit Number	Floor	Name of Room Temp	Start Date mm/dd/yyyy	Start Time hh:mm am / pm	Stop Date mm/dd/yyyy	Stop Time hh:mm am / pm	Lab Use Only
	3029166	1		1	1	4/4/16	11:10am	4/6/16	11:13am	
	3029214	1		1	2					
	3029217	1		1	3					
	3029218	1		1	4					
	3029219	1		1	5					
	3029220	1		1	6					

Rev E1512

Test must start before the expiration date shown on your device or test results will be invalid

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: A. Mario Loiederman Middle School

Date of Test Report:	2/17/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	70
# Rooms ≥ 4.0 pCi/L:	0
Low Value:	< 0.3
High Value:	1.9

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

KCI TECHNOLOGIES

ENGINEERS • PLANNERS • SCIENTISTS • CONSTRUCTION MANAGERS

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

February 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 # 12146341.25

Location: A. Mario Loiederman Middle School
12701 Goodhill Road
Silver Spring, MD 20906

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 A. Mario Loiederman Middle School, located at 12701 Goodhill Road in Silver Spring, Maryland 20906 (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 January 19, 2016 and deployed eighty-four (84) 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 January 22, 2016 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Airchek, Inc. for analysis by gamma-ray spectroscopy. Airchek, Inc. is a NRSB certified analytical laboratory for radon analysis (certification # ARL1402) located at 1936

Butler Bridge Road, Mills River, North Carolina.

Evaluation of Testing Conditions:

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

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

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

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

Results:

The results of the radon test analysis indicated the following:

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

Notes:
D- Duplicate sample

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

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

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

Sincerely,

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

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

ATTACHMENT A

Floor Plan With Test Locations

ATTACHMENT B

Radon Test Summary Spreadsheet

Table Notes:

AC- Activated Charcoal

ACI- Air Chek, Inc.

D- Duplicate

FB- Field Blank

KCI- KCI Technologies, Inc.

OB- Office Blank

PM- Project Manager

QC- Quality Control

Radon Testing Results		
A. Mario Loiderman Middle School		
Test Period: 01/19/16-01/22/16		
Kit Number	**Room / Area**	**Result**
7715133	100	0.6
7704610	101	0.7
7715139	105	0.6
7714341	107	0.7
7715141	109	0.9
7710093	110	1.3
7705032	111	0.7
7712899	112	< 0.3
7705007	114	0.7
7715129	116	< 0.3
7705031	118	< 0.3
7705029	119	< 0.3
7715128	120	< 0.3
7705036	121	0.7
7710049	130	< 0.3
7704661	132	0.9
7704741	134	0.7
7712895	136	0.7
7710067	137	0.8
7714336	138	< 0.3
7712898	139	< 0.3
7704609	140	0.6
7704638	141	< 0.3
7714333	142	< 0.3
7710087	143	< 0.3
7706705	145	< 0.3
7714332	146	0.6
7714353	147	< 0.3
7714331	148	0.6
7710068	149	< 0.3
7715125	160	< 0.3
7714335	165	0.6
7715142	165	0.8
7715134	168	0.6
7715137	169	< 0.3
7705004	170	0.7
7714555	190	0.6
7708662	192	< 0.3
7714328	201	0.7
7710075	211	0.6
7712900	220	< 0.3
7710078	256	< 0.3
7710069	258	< 0.3
7714329	263	< 0.3
7714339	100A	< 0.3
7715140	100C	< 0.3

Table Note:
* Missing or Compromised Sample

Radon Testing Results		
A. Mario Loiderman Middle School		
Test Period: 01/19/16-01/22/16		
Kit Number	**Room / Area**	**Result**
7715143	100D	< 0.3
7715136	100E	< 0.3
7705061	100F	< 0.3
7715138	100G	< 0.3
7714554	100H	< 0.3
7714347	* 100I (missing)	0
7714344	100J	1.1
7704658	100K	1.9
7705039	106B	< 0.3
7705050	106C	< 0.3
7706549	106D	< 0.3
7705035	106E	0.7
7706220	109A	0.8
7714342	111A	< 0.3
7714338	111B	0.8
7714340	111C	< 0.3
7714327	146B	< 0.3
7715135	160A	< 0.3
7705056	160G	< 0.3
7710070	192A	0.6
7715131	192A (Boys)	< 0.3
7710077	192B	< 0.3
7710076	203A	0.7
7710072	AUX GYM	< 0.3
7710074	DANCE STUDIO	0.8

Table Note:
* Missing or Compromised Sample

Radon Testing Results		
A. Mario Loiderman Middle School		
Test Period: 01/19/16-01/22/16		
Kit Number	**QC Type**	**Result**
7715132	D (100)	< 0.3
7714337	D (107)	< 0.3
7712880	D (110)	1
7710050	D (139)	0.6
7714334	D (148)	< 0.3
7705037	D (160)	< 0.3
7710065	D (201)	< 0.3
7710071	D (203A)	< 0.3
7710073	D (211)	< 0.3
7704659	FB (130)	< 0.3
7706703	FB (134)	< 0.3
7715130	FB (190)	< 0.3
7717555	OB (0)	< 0.3

Table Note:
* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

February 11, 2016

** LABORATORY ANALYSIS REPORT **

Radon test result report for:

LOIDERMAN MIDDLE SCHOOL
1

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7717555		2016-01-19 @ 12:00 pm	2016-01-22 @ 11:00 am	< 0.3	2016-01-27
7715132	100	2016-01-19 @ 9:00 am	2016-01-22 @ 8:00 am	< 0.3	2016-01-27
7715133	100	2016-01-19 @ 9:00 am	2016-01-22 @ 7:00 am	0.6 ± 0.3	2016-01-27
7714339	100A	2016-01-19 @ 9:00 am	2016-01-22 @ 8:00 am	< 0.3	2016-01-27
7715140	100C	2016-01-19 @ 9:00 am	2016-01-22 @ 8:00 am	< 0.3	2016-01-27
7715143	100D	2016-01-19 @ 9:00 am	2016-01-22 @ 8:00 am	< 0.3	2016-01-27
7715136	100E	2016-01-19 @ 9:00 am	2016-01-22 @ 8:00 am	< 0.3	2016-01-27
7705061	100F	2016-01-19 @ 9:00 am	2016-01-22 @ 8:00 am	< 0.3	2016-01-27
7715138	100G	2016-01-19 @ 9:00 am	2016-01-22 @ 8:00 am	< 0.3	2016-01-27
7714554	100H	2016-01-19 @ 9:00 am	2016-01-22 @ 8:00 am	< 0.3	2016-01-27
7714347	100I	@	@		
7714344	100J	2016-01-19 @ 9:00 am	2016-01-22 @ 7:00 am	1.1 ± 0.4	2016-01-27
7704658	100K	2016-01-19 @ 9:00 am	2016-01-22 @ 7:00 am	1.9 ± 0.4	2016-01-27
7704610	101	2016-01-19 @ 9:00 am	2016-01-22 @ 7:00 am	0.7 ± 0.3	2016-01-27
7715139	105	2016-01-19 @ 9:00 am	2016-01-22 @ 8:00 am	0.6 ± 0.3	2016-01-27
7705039	106B	2016-01-19 @ 9:00 am	2016-01-22 @ 8:00 am	< 0.3	2016-01-27
7705050	106C	2016-01-19 @ 9:00 am	2016-01-22 @ 8:00 am	< 0.3	2016-01-27
7706549	106D	2016-01-19 @ 9:00 am	2016-01-22 @ 7:00 am	< 0.3	2016-01-27
7705035	106E	2016-01-19 @ 9:00 am	2016-01-22 @ 7:00 am	0.7 ± 0.3	2016-01-27
7714337	107	2016-01-19 @ 9:00 am	2016-01-22 @ 8:00 am	< 0.3	2016-01-27
7714341	107	2016-01-19 @ 9:00 am	2016-01-22 @ 8:00 am	0.7 ± 0.3	2016-01-27
7715141	109	2016-01-19 @ 9:00 am	2016-01-22 @ 7:00 am	0.9 ± 0.4	2016-01-27
7706220	109A	2016-01-19 @ 10:00 am	2016-01-22 @ 7:00 am	0.8 ± 0.3	2016-01-27
7710093	110	2016-01-19 @ 10:00 am	2016-01-22 @ 8:00 am	1.3 ± 0.4	2016-01-27
7712880	110	2016-01-19 @ 10:00 am	2016-01-22 @ 8:00 am	1.0 ± 0.4	2016-01-27
7705032	111	2016-01-19 @ 10:00 am	2016-01-22 @ 7:00 am	0.7 ± 0.3	2016-01-27
7714342	111A	2016-01-19 @ 10:00 am	2016-01-22 @ 8:00 am	< 0.3	2016-01-27
7714338	111B	2016-01-19 @ 10:00 am	2016-01-22 @ 8:00 am	0.8 ± 0.3	2016-01-27
7714340	111C	2016-01-19 @ 10:00 am	2016-01-22 @ 7:00 am	< 0.3	2016-01-27
7712899	112	2016-01-19 @ 10:00 am	2016-01-22 @ 8:00 am	< 0.3	2016-01-27
7705007	114	2016-01-19 @ 10:00 am	2016-01-22 @ 8:00 am	0.7 ± 0.3	2016-01-27
7715129	116	2016-01-19 @ 10:00 am	2016-01-22 @ 8:00 am	< 0.3	2016-01-27
7705031	118	2016-01-19 @ 10:00 am	2016-01-22 @ 7:00 am	< 0.3	2016-01-27
7705029	119	2016-01-19 @ 10:00 am	2016-01-22 @ 7:00 am	< 0.3	2016-01-27
7715128	120	2016-01-19 @ 10:00 am	2016-01-22 @ 8:00 am	< 0.3	2016-01-27
7705036	121	2016-01-19 @ 10:00 am	2016-01-22 @ 8:00 am	0.7 ± 0.3	2016-01-27
7704659	130	2016-01-19 @ 10:00 am	2016-01-22 @ 8:00 am	< 0.3	2016-01-27

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

February 11, 2016

** LABORATORY ANALYSIS REPORT **

Radon test result report for:

LOIDERMAN MIDDLE SCHOOL
1

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7710049	130	2016-01-19 @ 10:00 am	2016-01-22 @ 8:00 am	< 0.3	2016-01-27
7704661	132	2016-01-19 @ 10:00 am	2016-01-22 @ 7:00 am	0.9 ± 0.4	2016-01-27
7704741	134	2016-01-19 @ 10:00 am	2016-01-22 @ 7:00 am	0.7 ± 0.3	2016-01-27
7706703	134	2016-01-19 @ 10:00 am	2016-01-22 @ 8:00 am	< 0.3	2016-01-27
7712895	136	2016-01-19 @ 10:00 am	2016-01-22 @ 7:00 am	0.7 ± 0.3	2016-01-27
7710067	137	2016-01-19 @ 10:00 am	2016-01-22 @ 8:00 am	0.8 ± 0.3	2016-01-27
7714336	138	2016-01-19 @ 10:00 am	2016-01-22 @ 7:00 am	< 0.3	2016-01-27
7712898	139	2016-01-19 @ 10:00 am	2016-01-22 @ 7:00 am	< 0.3	2016-01-27
7710050	139	2016-01-19 @ 10:00 am	2016-01-22 @ 8:00 am	0.6 ± 0.3	2016-01-27
7704609	140	2016-01-19 @ 10:00 am	2016-01-22 @ 7:00 am	0.6 ± 0.3	2016-01-27
7704638	141	2016-01-19 @ 10:00 am	2016-01-22 @ 8:00 am	< 0.3	2016-01-27
7714333	142	2016-01-19 @ 10:00 am	2016-01-22 @ 7:00 am	< 0.3	2016-01-27
7710087	143	2016-01-19 @ 10:00 am	2016-01-22 @ 7:00 am	< 0.3	2016-01-27
7706705	145	2016-01-19 @ 10:00 am	2016-01-22 @ 7:00 am	< 0.3	2016-01-27
7714332	146	2016-01-19 @ 10:00 am	2016-01-22 @ 7:00 am	0.6 ± 0.3	2016-01-27
7714327	146B	2016-01-19 @ 10:00 am	2016-01-22 @ 8:00 am	< 0.3	2016-01-27
7714353	147	2016-01-19 @ 10:00 am	2016-01-22 @ 8:00 am	< 0.3	2016-01-27
7714331	148	2016-01-19 @ 10:00 am	2016-01-22 @ 8:00 am	0.6 ± 0.3	2016-01-27
7714334	148	2016-01-19 @ 10:00 am	2016-01-22 @ 7:00 am	< 0.3	2016-01-27
7710068	149	2016-01-19 @ 10:00 am	2016-01-22 @ 7:00 am	< 0.3	2016-01-27
7715137	169	2016-01-19 @ 9:00 am	2016-01-22 @ 8:00 am	< 0.3	2016-01-27
7705037	160	2016-01-19 @ 9:00 am	2016-01-22 @ 7:00 am	< 0.3	2016-01-27
7715125	160	2016-01-19 @ 9:00 am	2016-01-22 @ 8:00 am	< 0.3	2016-01-27
7715135	160A	2016-01-19 @ 9:00 am	2016-01-22 @ 7:00 am	< 0.3	2016-01-27
7705056	160G	2016-01-19 @ 9:00 am	2016-01-22 @ 7:00 am	< 0.3	2016-01-27
7715142	165	2016-01-19 @ 9:00 am	2016-01-22 @ 8:00 am	0.8 ± 0.3	2016-01-27
7714335	165	2016-01-19 @ 9:00 am	2016-01-22 @ 8:00 am	0.6 ± 0.3	2016-01-27
7715134	168	2016-01-19 @ 9:00 am	2016-01-22 @ 7:00 am	0.6 ± 0.3	2016-01-27
7705004	170	2016-01-19 @ 9:00 am	2016-01-22 @ 8:00 am	0.7 ± 0.3	2016-01-27
7714555	190	2016-01-19 @ 9:00 am	2016-01-22 @ 7:00 am	0.6 ± 0.3	2016-01-27
7715130	190	2016-01-19 @ 9:00 am	2016-01-22 @ 7:00 am	< 0.3	2016-01-27
7708662	192	2016-01-19 @ 10:00 am	2016-01-22 @ 7:00 am	< 0.3	2016-01-27
7715131	192A(boys)	2016-01-19 @ 9:00 am	2016-01-22 @ 8:00 am	< 0.3	2016-01-27
7710070	192A	2016-01-19 @ 10:00 am	2016-01-22 @ 7:00 am	0.6 ± 0.3	2016-01-27
7710077	192B	2016-01-19 @ 10:00 am	2016-01-22 @ 7:00 am	< 0.3	2016-01-27
7714328	201	2016-01-19 @ 10:00 am	2016-01-22 @ 7:00 am	0.7 ± 0.4	2016-01-27
7710065	201	2016-01-19 @ 10:00 am	2016-01-22 @ 8:00 am	< 0.3	2016-01-27

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

February 11, 2016

** LABORATORY ANALYSIS REPORT **

Radon test result report for:

LOIDERMAN MIDDLE SCHOOL
1

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7710071	203A	2016-01-19 @ 10:00 am	2016-01-22 @ 7:00 am	< 0.3	2016-01-27
7710076	203A	2016-01-19 @ 10:00 am	2016-01-22 @ 8:00 am	0.7 ± 0.3	2016-01-27
7710073	211	2016-01-19 @ 10:00 am	2016-01-22 @ 7:00 am	< 0.3	2016-01-27
7710075	211	2016-01-19 @ 10:00 am	2016-01-22 @ 8:00 am	0.6 ± 0.3	2016-01-27
7712900	220	2016-01-19 @ 10:00 am	2016-01-22 @ 7:00 am	< 0.3	2016-01-27
7710078	256	2016-01-19 @ 10:00 am	2016-01-22 @ 7:00 am	< 0.3	2016-01-27
7710069	258	2016-01-19 @ 10:00 am	2016-01-22 @ 7:00 am	< 0.3	2016-01-27
7714329	263	2016-01-19 @ 10:00 am	2016-01-22 @ 8:00 am	< 0.3	2016-01-27
7710072	AUX GYM	2016-01-19 @ 10:00 am	2016-01-22 @ 7:00 am	< 0.3	2016-01-27
7710074	DANCE STUDIO	2016-01-19 @ 10:00 am	2016-01-22 @ 7:00 am	0.8 ± 0.4	2016-01-27

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February 2, 2016

** LABORATORY ANALYSIS REPORT **

Radon test result report for:

MCPS PHASE 5 & 6
TRANSIT BLANKS

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7722194	1	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7718494	10	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7718475	11	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7718495	12	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7718496	13	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7718497	14	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7718498	15	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7718499	16	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7718500	17	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7718296	18	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7718295	19	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7722195	2	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7716789	20	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7716785	21	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-26
7716791	22	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7716786	23	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7716793	24	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7718274	25	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7716792	26	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7718294	27	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7718293	28	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7718292	29	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7722197	3	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7718290	30	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7722198	4	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7722199	5	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7722211	6	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7718491	7	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27
7718476	8	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-26
7718479	9	2016-01-19 @ 12:00 pm	2016-01-22 @ 12:00 pm	< 0.3	2016-01-27

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February 15, 2016

** LABORATORY ANALYSIS REPORT **

Spike Sample Laboratory Results

Radon test result report for:

MCPS

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

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

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCF Technologies Inc. Job Number 173704

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

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

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

KCI TECHNOLOGIES

ENGINEERS • PLANNERS • SCIENTISTS • CONSTRUCTION MANAGERS

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

Chain of Custody

Project Name: MCPS Radon Phase VI

Name of Schools:

1. Francis Scott Key MS
2. Gaithersburg ES
3. Gaithersburg MS
4. Galway ES
5. Great Seneca Creek ES
6. Harmony Hills ES
7. John Poole MS
8. Judith A. Resnik ES
9. Kemp Mill ES
10. Kingsview MS
11. Lakelands Park MS
12. Little Bennett ES
13. Loiderman MS
14. Longview ES
15. Meadow Hall ES
16. Neelsville MS
17. New Hampshire Estates ES
18. North Bethesda MS
19. Northwest HS
20. Pine Crest ES
21. Radnor Center
22. Ritchie Park ES
23. Rolling Terrace ES
24. Roscoe Nix ES
25. Sally K. Ride ES
26. Spark Matsunaga ES
27. Tacoma Park ES
28. Thomas Pyle MS
29. Wayside ES
30. Westbrook ES (retest)
31. Westland MS (retest)
32. William B. Gibbs ES
33. William Tyler Page ES

	Date	Initials
Radon Test Kits Deployed	1/19/16	JM
Radon Test Kits Sampled	1/22/16	JM
Radon Test Kits Shipped to Lab*	1/22/16	JM
Radon Test Kits Received by Lab*	1/26/16	JM

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