

School / Facility Radon Testing Report Form

School Year: **24-25**

Facility:	Whetstone Elementary School		
Address:	19201 Thomas Farm Rd.		
	Montgomery Village, MD 20886		
Reason for Testing:	Scheduled Re-Testing - <input checked="" type="checkbox"/> 2-year or <input type="checkbox"/> 5-year schedule <input type="checkbox"/> Clearance Testing (Post-Mitigation) <input checked="" type="checkbox"/> Building Envelope or HVAC Upgrades <input type="checkbox"/> New Construction – Addition or Facility		
Current Radon Status:	<input checked="" type="checkbox"/> Active Mitigation (2-year regular schedule) <input type="checkbox"/> No Active Mitigation (5-year regular schedule) <input type="checkbox"/> Not Previously Tested (New Facility)		
Round of Testing:	<input checked="" type="checkbox"/> Initial Testing -or- <input type="checkbox"/> Follow-up Testing		
Testing Status:	<input checked="" type="checkbox"/> No Further Testing Needed -or- <input type="checkbox"/> Follow-Up Testing Required		

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

Mitigation -	Facility Radon Status:		
<input checked="" type="checkbox"/> Not Required <input type="checkbox"/> Required (≥ 4.0 -pCi/L) Rooms:	<input checked="" type="checkbox"/> No Change in Status <input type="checkbox"/> Active Mitigation (2-year regular schedule) <input type="checkbox"/> No Active Mitigation (5-year regular schedule)		
Number of Rooms Tested	59	Lowest Value (pCi/L)	<0.3
Number of Rooms (≥ 4.0 -pCi/L)	0	Highest Value (pCi/L)	2.4

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.

School / Facility Radon Testing Report Form

Detector and Deployment

Detector/Device Type:	<input checked="" type="checkbox"/> Passive	<input checked="" type="checkbox"/> Charcoal Absorption (CAD) <input type="checkbox"/> Alpha Track (ATD) <input type="checkbox"/> Other
	<input type="checkbox"/> Continuous	<input type="checkbox"/> Electret ion Chamber (EIC) <input type="checkbox"/> 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
Shakia Dawkins		KCI Technologies, Inc.
If noncertified individuals, the qualified measurement professional providing oversight -		
Tyler McCleaf, CSP Cert. # 111004-RMP		KCI Technologies, Inc.

Testing

<input checked="" type="checkbox"/> Short-Term <input type="checkbox"/> Long-Term	Length of Test (days):	3	Date of Deployment and Retrieval (mm/dd/yy):	3/10/2025
				3/13/2025
Does the test period include weekends, school breaks or holidays?				<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
If “Yes” please explain/detail in the space below:				
Was HVAC operating under occupied conditions?				<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
If “No” please explain/detail in the space below:				

Testing (continued)

Round of Testing	Detectors Deployed				Total
	Ground-Contact		Upper-Level(s)		
	Initial	Follow-Up	Initial	Follow-Up	
Test Locations ¹	56	0	3	0	59
Duplicates ²	4	0	0	0	4
Field Blanks ³	3	0	0	0	3
Grand Total					66

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

2 - 10% of all locations tested, per floor

3 – 5% of all locations tested, per floor

Quality Assurance / Quality Control (QA/QC)

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

Round of Testing	QA/QC Samples		Total
	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 $\pm 25\%$ of the chamber's reference value?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Quality Control measurements comply with QA/QC requirements in the submitted testing organization's/company's QA plan?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Round of Testing	Initial Follow-Up
All Field, Trip and Office Blanks are \leq (less than or equal to) to the Method Detection Limit?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> No <input type="checkbox"/> No
For all Duplicate Samples ¹ , the higher value is $\leq 2x$ the lower value?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> No <input type="checkbox"/> No
For all Duplicate Samples ¹ , Relative Percent Difference(s) (RPD) ² are less than the Warning Level ³ ?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> No <input type="checkbox"/> No
For all Duplicate Samples ¹ , Relative Percent Difference(s) (RPD) ² are less than the Control Level ³ ?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> No <input type="checkbox"/> 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

Summary of Test Results¹ and Determination of Valid Measurements²

Round of Testing	Ground-Contact		Upper-Level(s)		Total
	Initial	Follow-Up	Initial	Follow-Up	
Number of test locations:	56	0	3	0	59
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:	2	0	0	0	2
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 $\leq 33\%$. 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 $\leq 25\%$ 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 Results¹ and Determination of Valid Measurements² (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?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> 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?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> 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.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> 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		
Whetstone Elementary School		
Test Period: 3/10/2025 - 3/13/2025		
Kit Number	Room / Area	Result
11892338	1	< 0.3
11892314	2	< 0.3
11892306	4	1.8
11892332	5	1.8
11892305	6	0.6
11892284	7	1.2
11892277	8	1.1
11892285	10	< 0.3
11892316	20	< 0.3
11892309	21	< 0.3
11892310	21	< 0.3
11892308	22	< 0.3
11892350	23	< 0.3
11892328	24	< 0.3
11892313	26	< 0.3
11892317	27	< 0.3
11892307	28	< 0.3
11892312	31	< 0.3
11892311	33	0.6
11892343	34	< 0.3
11892341	38	0.5
11892342	38	< 0.3
11892318	40	0.7
11892352	100	< 0.3
11892286	104	< 0.3
11892347	100A	< 0.3
11892353	100C	< 0.3
11892355	100C	< 0.3
11892351	100D	< 0.3
11892348	100F	< 0.3
11892344	101 HEALTH	< 0.3
11892345	101B	< 0.3
11892346	101C	< 0.3
11892349	101C	< 0.3
11892320	19A	< 0.3
11892333	3A	< 0.3
11892340	3A	0.5

Table 1- Radon Testing Results		
Whetstone Elementary School		
Test Period: 3/10/2025 - 3/13/2025		
Kit Number	Room / Area	Result
11892301	3B	0.7
11892336	3B	< 0.3
11892283	8A	< 0.3
11892325	APR	0.7
11892326	APR	1.0
11892324	BS OFFICE	0.7
11892299	D1	< 0.3
11892300	D10	< 0.3
11892302	D2	0.5
11892304	D2	< 0.3
11892329	D3	< 0.3
11892330	D3	< 0.3
11892288	D4	< 0.3
11892287	D5	< 0.3
11892280	GYM	1.9
11892321	GYM	2.4
11892331	GYM OFFICE	2.2
11892337	K1	< 0.3
11892335	K2	< 0.3
11892339	K3	< 0.3
11892334	K4	< 0.3
11892322	MEDIA CENTER	< 0.3
11892323	MEDIA OFFICE	< 0.3
11892278	MEDIA WORKROOM	< 0.3
11892319	MEDIA WORKROOM	< 0.3
11892327	PARA	< 0.3
11892303	SLP	< 0.3
11892279	STAFF LOUNGE	< 0.3
11892315	STAGE	< 0.3

[illegible]

Table 3 - QC Radon Testing Results			
Whetstone Elementary School			
Test Period: 3/10/2025 - 3/13/2025			
Kit Number	QC Type	Room / Area	Result
11892309	D	21	<0.3
11892342	D	38	<0.3
11892355	FB	100C	<0.3
11892336	FB	3B	<0.3
11892304	FB	D2	<0.3
11892330	D	D3	<0.3
11892278	D	Media Workroom	<0.3
11892446	OB	OFFICE BLANK	< 0.3
11892444	TB	TRAVEL BLANK	< 0.3

Table 3a - Duplicate Worksheet / Data Validation										
Whetstone Elementary School										
Test Period: 3/10/2025 - 3/13/2025										
Sample ID			Duplicate Concentrations (pCi/L) and OC 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
11892342	11892341	38	0.5	0.3	✓	0.6	PASS	0.4	<1-pCi/L	✓
11892309	11892310	21	0.3	0.3	✓	0.6	PASS	0.3	<1-pCi/L	✓
11892330	11892329	D3	0.5	0.3	✓	0.6	PASS	0.4	<1-pCi/L	✓
11892278	11892319	Media Workroom	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

[illegible]

Attachment 2:

Laboratory Reports

Radon test result report for:**WHETSTONE ES
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11892338	1	2025-03-10 @ 11:00 am	2025-03-13 @ 9:00 am	< 0.3	2025-03-17
11892285	10	2025-03-10 @ 11:00 am	2025-03-13 @ 9:00 am	< 0.3	2025-03-17
11892352	100	2025-03-10 @ 12:00 pm	2025-03-13 @ 9:00 am	< 0.3	2025-03-17
11892347	100A	2025-03-10 @ 12:00 pm	2025-03-13 @ 9:00 am	< 0.3	2025-03-17
11892355	100C	2025-03-10 @ 12:00 pm	2025-03-13 @ 9:00 am	< 0.3	2025-03-17
11892353	100C	2025-03-10 @ 12:00 pm	2025-03-13 @ 9:00 am	< 0.3	2025-03-17
11892351	100D	2025-03-10 @ 12:00 pm	2025-03-13 @ 9:00 am	< 0.3	2025-03-17
11892348	100F	2025-03-10 @ 12:00 pm	2025-03-13 @ 9:00 am	< 0.3	2025-03-17
11892344	101 HEALTH	2025-03-10 @ 12:00 pm	2025-03-13 @ 9:00 am	< 0.3	2025-03-17
11892345	101B	2025-03-10 @ 12:00 pm	2025-03-13 @ 9:00 am	< 0.3	2025-03-17
11892349	101C	2025-03-10 @ 12:00 pm	2025-03-13 @ 9:00 am	< 0.3	2025-03-17
11892346	101C	2025-03-10 @ 12:00 pm	2025-03-13 @ 9:00 am	< 0.3	2025-03-17
11892286	104	2025-03-10 @ 11:00 am	2025-03-13 @ 9:00 am	< 0.3	2025-03-17
11892320	19A	2025-03-10 @ 11:00 am	2025-03-13 @ 9:00 am	< 0.3	2025-03-17
11892314	2	2025-03-10 @ 11:00 am	2025-03-13 @ 9:00 am	< 0.3	2025-03-17
11892316	20	2025-03-10 @ 11:00 am	2025-03-13 @ 9:00 am	< 0.3	2025-03-17
11892310	21	2025-03-10 @ 11:00 am	2025-03-13 @ 9:00 am	< 0.3	2025-03-17
11892309	21	2025-03-10 @ 11:00 am	2025-03-13 @ 9:00 am	< 0.3	2025-03-17
11892308	22	2025-03-10 @ 11:00 am	2025-03-13 @ 9:00 am	< 0.3	2025-03-17
11892350	23	2025-03-10 @ 12:00 pm	2025-03-13 @ 9:00 am	< 0.3	2025-03-17
11892328	24	2025-03-10 @ 12:00 pm	2025-03-13 @ 9:00 am	< 0.3	2025-03-17
11892313	26	2025-03-10 @ 12:00 pm	2025-03-13 @ 9:00 am	< 0.3	2025-03-17
11892317	27	2025-03-10 @ 12:00 pm	2025-03-13 @ 9:00 am	< 0.3	2025-03-17
11892307	28	2025-03-10 @ 12:00 pm	2025-03-13 @ 9:00 am	< 0.3	2025-03-17
11892312	31	2025-03-10 @ 12:00 pm	2025-03-13 @ 9:00 am	< 0.3	2025-03-17
11892311	33	2025-03-10 @ 12:00 pm	2025-03-13 @ 9:00 am	0.6 ± 0.3	2025-03-17
11892343	34	2025-03-10 @ 12:00 pm	2025-03-13 @ 9:00 am	< 0.3	2025-03-17
11892341	38	2025-03-10 @ 12:00 pm	2025-03-13 @ 9:00 am	0.5 ± 0.3	2025-03-17
11892342	38	2025-03-10 @ 12:00 pm	2025-03-13 @ 9:00 am	< 0.3	2025-03-17
11892333	3A	2025-03-10 @ 11:00 am	2025-03-13 @ 9:00 am	< 0.3	2025-03-17
11892340	3A	2025-03-10 @ 11:00 am	2025-03-13 @ 9:00 am	0.5 ± 0.3	2025-03-17
11892301	3B	2025-03-10 @ 12:00 pm	2025-03-13 @ 9:00 am	0.7 ± 0.3	2025-03-17
11892336	3B	2025-03-10 @ 11:00 am	2025-03-13 @ 9:00 am	< 0.3	2025-03-17
11892306	4	2025-03-10 @ 12:00 pm	2025-03-13 @ 9:00 am	1.8 ± 0.4	2025-03-17
11892318	40	2025-03-10 @ 12:00 pm	2025-03-13 @ 9:00 am	0.7 ± 0.3	2025-03-17
11892332	5	2025-03-10 @ 12:00 pm	2025-03-13 @ 9:00 am	1.8 ± 0.4	2025-03-17
11892305	6	2025-03-10 @ 12:00 pm	2025-03-13 @ 9:00 am	0.6 ± 0.3	2025-03-17

Radon test result report for:
WHETSTONE ES
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11892284	7	2025-03-10 @ 11:00 am	2025-03-13 @ 9:00 am	1.2 ± 0.4	2025-03-17
11892277	8	2025-03-10 @ 11:00 am	2025-03-13 @ 9:00 am	1.1 ± 0.4	2025-03-17
11892283	8A	2025-03-10 @ 10:00 am	2025-03-13 @ 9:00 am	< 0.3	2025-03-17
11892325	APR	2025-03-10 @ 11:00 am	2025-03-13 @ 9:00 am	0.7 ± 0.3	2025-03-17
11892326	APR	2025-03-10 @ 11:00 am	2025-03-13 @ 9:00 am	1.0 ± 0.3	2025-03-17
11892324	BS OFFICE	2025-03-10 @ 10:00 am	2025-03-13 @ 9:00 am	0.7 ± 0.3	2025-03-17
11892299	D1	2025-03-10 @ 11:00 am	2025-03-13 @ 9:00 am	< 0.3	2025-03-17
11892300	D10	2025-03-10 @ 11:00 am	2025-03-13 @ 9:00 am	< 0.3	2025-03-17
11892302	D2	2025-03-10 @ 11:00 am	2025-03-13 @ 9:00 am	0.5 ± 0.3	2025-03-17
11892304	D2	2025-03-10 @ 11:00 am	2025-03-13 @ 9:00 am	< 0.3	2025-03-17
11892329	D3	2025-03-10 @ 11:00 am	2025-03-13 @ 9:00 am	< 0.3	2025-03-17
11892330	D3	2025-03-10 @ 11:00 am	2025-03-13 @ 9:00 am	< 0.3	2025-03-17
11892288	D4	2025-03-10 @ 11:00 am	2025-03-13 @ 9:00 am	< 0.3	2025-03-17
11892287	D5	2025-03-10 @ 11:00 am	2025-03-13 @ 9:00 am	< 0.3	2025-03-17
11892280	GYM	2025-03-10 @ 10:00 am	2025-03-13 @ 9:00 am	1.9 ± 0.4	2025-03-17
11892321	GYM	2025-03-10 @ 10:00 am	2025-03-13 @ 9:00 am	2.4 ± 0.4	2025-03-17
11892331	GYM OFFICE	2025-03-10 @ 10:00 am	2025-03-13 @ 9:00 am	2.2 ± 0.4	2025-03-17
11892337	K1	2025-03-10 @ 11:00 am	2025-03-13 @ 9:00 am	< 0.3	2025-03-17
11892335	K2	2025-03-10 @ 11:00 am	2025-03-13 @ 9:00 am	< 0.3	2025-03-17
11892339	K3	2025-03-10 @ 11:00 am	2025-03-13 @ 9:00 am	< 0.3	2025-03-17
11892334	K4	2025-03-10 @ 11:00 am	2025-03-13 @ 9:00 am	< 0.3	2025-03-17
11892322	MEDIA CENTER	2025-03-10 @ 11:00 am	2025-03-13 @ 9:00 am	< 0.3	2025-03-17
11892323	MEDIA OFFICE	2025-03-10 @ 11:00 am	2025-03-13 @ 9:00 am	< 0.3	2025-03-17
11892319	MEDIA WORKROOM	2025-03-10 @ 11:00 am	2025-03-13 @ 9:00 am	< 0.3	2025-03-17
11892278	MEDIA WORKROOM	2025-03-10 @ 11:00 am	2025-03-13 @ 9:00 am	< 0.3	2025-03-17
11892327	PARA	2025-03-10 @ 11:00 am	2025-03-13 @ 9:00 am	< 0.3	2025-03-17
11892303	SLP	2025-03-10 @ 11:00 am	2025-03-13 @ 9:00 am	< 0.3	2025-03-17
11892279	STAFF LOUNGE	2025-03-10 @ 11:00 am	2025-03-13 @ 9:00 am	< 0.3	2025-03-17
11892315	STAGE	2025-03-10 @ 11:00 am	2025-03-13 @ 9:00 am	< 0.3	2025-03-17

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 μ R/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

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 μ R/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

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



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

Radon Test Kit Chain of Custody

Project Name: MCPS Radon – Testing March 4th – March 7th, 2025

Name of Schools:

1. Hallie Wells MS
2. Snowden Farms ES
3. Watkins Mill HS
4. Whestone ES
5. Woodfield ES

	Date	Initials
Radon Test Kits Deployed	3/10/2025	<i>[Signature]</i>
Radon Test Kits Collected	3/13/2025	<i>[Signature]</i>
Radon Test Kits Shipped to Lab*	3/13/2025	<i>[Signature]</i>
Radon Test Kits Received by Lab*	3/15/2025	<i>[Signature]</i>

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



MCPS RADON TESTING – EXECUTIVE SUMMARY

Site Name	Whestone Elementary School
Date of Test Report	4/26/2022
Round of Testing	Initial Follow-up Post Remediation 2 Year Testing 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility
# Rooms Tested	60
# Rooms ≥ 4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	3.3 pCi/L

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



April 26, 2022

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

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

Location: Whetstone Elementary School
19201 Thomas Farm Rd.
Gaithersburg, MD 20879

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 Whetstone ES, located at 19201 Thomas Farm Rd. Gaithersburg, MD 20879 (subject site).

Scope of Services:

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

KCI visited the site on February 28, 2022 and deployed sixty nine (69) activated charcoal (AC) radon test kits. KCI deployed radon test kits in all frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance.

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

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

KCI returned to the site on March 3, 2022 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Airchek, Inc. for analysis by gamma-ray spectroscopy. Airchek, Inc. is a

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

Evaluation of Testing Conditions:

These tests represent:

- Follow-up to biennial post-mitigation testing.

These tests were conducted to:

- Confirm the success of mitigation system(s).

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

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

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

KCI also compiled weather data for the testing period and conducted observations of relevant field conditions. During the test period, weather records indicate low temperatures were in the 20s and high temperatures ranged from the high 50s to the low 60s Fahrenheit. Maximum sustained winds ranged from 9-17 miles per hour. Average humidity was around 40% with 0 inches of precipitation (rain) was recorded during testing period.

Results:

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

The results of the radon test analysis indicated the following:

Radon Concentration	Room	Result
≥4.0 pCi/L	None	N/A
<4.0 pCi/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 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

OC- Quality Control

Table 1- Radon Testing Results		
Whetstone ES		
Test Period: 02/28/2022 - 03/03/2022		
Kit Number	Room / Area	Result
11133795	1	< 0.3
11133796	2	0.9
11133764	4	1.7
11133769	5	2.4
11133755	6	0.8
11133744	7	2.2
11133750	8	1.9
11133777	20	< 0.3
11133783	21	< 0.3
11133800	22	< 0.3
11133793	23	< 0.3
11133760	27	< 0.3
11133767	31	< 0.3
11133756	33	< 0.3
11133754	34	0.8
11133762	34	0.8
11133766	38	0.6
11133761	40	0.8
11133799	104	< 0.3
11133787	100 MAIN	0.6
11133786	100A ASST PRINCIPAL	0.6
11133789	100C	< 0.3
11133790	100D	0.8
11133788	100F	< 0.3
11133794	100G	< 0.3
11133778	101 HEALTH	< 0.3
11133784	101B	< 0.3
11133785	101C	< 0.3
11133791	101C	< 0.3
11133749	103 PARA	1.0
11133737	11A	0.5
11133743	11A	0.6
11133742	19B	0.6
11133776	24 OFFICE	< 0.3
11133782	26 OFFICE	0.9
11133781	28 OFFICE	0.9
11133774	3A	0.7
11133775	3B	0.7
11133763	6 CONTROL	1.0
11133738	8A	< 0.3
11133745	ALL PURPOSE	1.1
11133758	ALL PURPOSE	1.1

Table 1- Radon Testing Results		
Whetstone ES		
Test Period: 02/28/2022 - 03/03/2022		
Kit Number	Room / Area	Result
11133792	BOOK ROOM	0.9
11133724	BUILDING SERVICES	0.8
11133740	BUILDING SERVICES	1.0
11133770	D1	< 0.3
11133771	D1	1.2
11133736	D10	0.7
11133759	D2	< 0.3
11133765	D3	0.6
11133780	D4	0.7
11133772	D5	< 0.3
11133779	D5	< 0.3
11133723	GYM	2.6
11133730	GYM	2.3
11133722	GYM OFFICE	3.3
11133798	K1	0.9
11133768	K2	< 0.3
11133773	K2	< 0.3
11133747	KAUFMAN	< 0.3
11133748	KAUFMAN	0.6
11133739	KITCHEN OFFICE	1.2
11133753	KITCHEN OFFICE	0.6
11133757	LOUNGE	0.9
11133751	MEDIA CENTER	0.6
11133752	MEDIA CENTER	< 0.3
11133732	MEDIA OFFICE	< 0.3
11133731	MEDIA WORKROOM	< 0.3
11133746	STAGE	1.6

Table 2- Radon Testing Results			
Whetstone ES			
Test Period: 02/28/2022 - 03/03/2022			
Kit Number	QC Type	Room / Area	Result
11133791	D	101C	< 0.3
11133798	D	K1	0.9
11133768	FB	K2	< 0.3
11133754	D	34	0.8
11133771	D	D1	1.2
11133772	FB	D5	< 0.3
11133724	D	Building Services	0.8
11133748	D	Kaufman	0.6
11133753	FB	Kitchen Office	0.6
11133737	D	11A	0.5
11130811	OB	OFFICE BLANK	< 0.3
11130816	TB	TRAVEL BLANK	< 0.3

ATTACHMENT C

Laboratory Analytical Results

Radon test result report for:

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11133795	1	2022-02-28 @ 9:00 am	2022-03-03 @ 9:00 am	< 0.3	2022-03-08
11133787	100 MAIN	2022-02-28 @ 8:00 am	2022-03-03 @ 9:00 am	0.6 ± 0.4	2022-03-08
11133786	100A ASST PRINCIPAL	2022-02-28 @ 8:00 am	2022-03-03 @ 9:00 am	0.6 ± 0.4	2022-03-08
11133789	100C	2022-02-28 @ 8:00 am	2022-03-03 @ 9:00 am	< 0.3	2022-03-08
11133790	100D	2022-02-28 @ 8:00 am	2022-03-03 @ 9:00 am	0.8 ± 0.4	2022-03-08
11133788	100F	2022-02-28 @ 8:00 am	2022-03-03 @ 9:00 am	< 0.3	2022-03-08
11133794	100G	2022-02-28 @ 8:00 am	2022-03-03 @ 9:00 am	< 0.3	2022-03-07
11133778	101 HEALTH	2022-02-28 @ 8:00 am	2022-03-03 @ 9:00 am	< 0.3	2022-03-08
11133784	101B	2022-02-28 @ 8:00 am	2022-03-03 @ 9:00 am	< 0.3	2022-03-07
11133785	101C	2022-02-28 @ 8:00 am	2022-03-03 @ 9:00 am	< 0.3	2022-03-08
11133791	101C	2022-02-28 @ 8:00 am	2022-03-03 @ 9:00 am	< 0.3	2022-03-08
11133749	103 PARA	2022-02-28 @ 10:00 am	2022-03-03 @ 10:00 am	1.0 ± 0.4	2022-03-08
11133799	104	2022-02-28 @ 9:00 am	2022-03-03 @ 9:00 am	< 0.3	2022-03-07
11133743	11A	2022-02-28 @ 10:00 am	2022-03-03 @ 10:00 am	0.6 ± 0.3	2022-03-07
11133737	11A	2022-02-28 @ 10:00 am	2022-03-03 @ 10:00 am	0.5 ± 0.3	2022-03-08
11133742	19B	2022-02-28 @ 10:00 am	2022-03-03 @ 10:00 am	0.6 ± 0.4	2022-03-08
11133796	2	2022-02-28 @ 9:00 am	2022-03-03 @ 10:00 am	0.9 ± 0.3	2022-03-07
11133777	20	2022-02-28 @ 9:00 am	2022-03-03 @ 9:00 am	< 0.3	2022-03-08
11133783	21	2022-02-28 @ 8:00 am	2022-03-03 @ 9:00 am	< 0.3	2022-03-08
11133800	22	2022-02-28 @ 9:00 am	2022-03-03 @ 9:00 am	< 0.3	2022-03-08
11133793	23	2022-02-28 @ 8:00 am	2022-03-03 @ 9:00 am	< 0.3	2022-03-08
11133776	24 OFFICE	2022-02-28 @ 9:00 am	2022-03-03 @ 10:00 am	< 0.3	2022-03-08
11133782	26 OFFICE	2022-02-28 @ 9:00 am	2022-03-03 @ 10:00 am	0.9 ± 0.4	2022-03-08
11133760	27	2022-02-28 @ 9:00 am	2022-03-03 @ 10:00 am	< 0.3	2022-03-08
11133781	28 OFFICE	2022-02-28 @ 9:00 am	2022-03-03 @ 10:00 am	0.9 ± 0.4	2022-03-08
11133767	31	2022-02-28 @ 9:00 am	2022-03-03 @ 10:00 am	< 0.3	2022-03-08
11133756	33	2022-02-28 @ 9:00 am	2022-03-03 @ 10:00 am	< 0.3	2022-03-08
11133754	34	2022-02-28 @ 9:00 am	2022-03-03 @ 10:00 am	0.8 ± 0.3	2022-03-08
11133762	34	2022-02-28 @ 9:00 am	2022-03-03 @ 10:00 am	0.8 ± 0.3	2022-03-08
11133766	38	2022-02-28 @ 9:00 am	2022-03-03 @ 10:00 am	0.6 ± 0.4	2022-03-08
11133774	3A	2022-02-28 @ 9:00 am	2022-03-03 @ 10:00 am	0.7 ± 0.4	2022-03-08
11133775	3B	2022-02-28 @ 9:00 am	2022-03-03 @ 10:00 am	0.7 ± 0.4	2022-03-08
11133764	4	2022-02-28 @ 9:00 am	2022-03-03 @ 10:00 am	1.7 ± 0.4	2022-03-08
11133761	40	2022-02-28 @ 9:00 am	2022-03-03 @ 10:00 am	0.8 ± 0.3	2022-03-08
11133769	5	2022-02-28 @ 9:00 am	2022-03-03 @ 10:00 am	2.4 ± 0.4	2022-03-08
11133755	6	2022-02-28 @ 9:00 am	2022-03-03 @ 10:00 am	0.8 ± 0.4	2022-03-08
11133763	6 CONTROL	2022-02-28 @ 9:00 am	2022-03-03 @ 10:00 am	1.0 ± 0.4	2022-03-08

Radon test result report for:

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11133744	7	2022-02-28 @ 9:00 am	2022-03-03 @ 10:00 am	2.2 ± 0.4	2022-03-08
11133750	8	2022-02-28 @ 9:00 am	2022-03-03 @ 10:00 am	1.9 ± 0.4	2022-03-08
11133738	8A	2022-02-28 @ 9:00 am	2022-03-03 @ 10:00 am	< 0.3	2022-03-08
11133745	ALL PURPOSE	2022-02-28 @ 10:00 am	2022-03-03 @ 10:00 am	1.1 ± 0.4	2022-03-08
11133758	ALL PURPOSE	2022-02-28 @ 10:00 am	2022-03-03 @ 10:00 am	1.1 ± 0.4	2022-03-08
11133792	BOOK ROOM	2022-02-28 @ 9:00 am	2022-03-03 @ 10:00 am	0.9 ± 0.4	2022-03-08
11133740	BUILDING SERVICES	2022-02-28 @ 9:00 am	2022-03-03 @ 10:00 am	1.0 ± 0.4	2022-03-08
11133724	BUILDING SERVICES	2022-02-28 @ 9:00 am	2022-03-03 @ 10:00 am	0.8 ± 0.4	2022-03-08
11133771	D1	2022-02-28 @ 9:00 am	2022-03-03 @ 10:00 am	1.2 ± 0.4	2022-03-08
11133770	D1	2022-02-28 @ 9:00 am	2022-03-03 @ 10:00 am	< 0.3	2022-03-08
11133736	D10	2022-02-28 @ 10:00 am	2022-03-03 @ 10:00 am	0.7 ± 0.4	2022-03-08
11133759	D2	2022-02-28 @ 9:00 am	2022-03-03 @ 10:00 am	< 0.3	2022-03-08
11133765	D3	2022-02-28 @ 9:00 am	2022-03-03 @ 10:00 am	0.6 ± 0.3	2022-03-08
11133780	D4	2022-02-28 @ 9:00 am	2022-03-03 @ 10:00 am	0.7 ± 0.4	2022-03-08
11133779	D5	2022-02-28 @ 9:00 am	2022-03-03 @ 10:00 am	< 0.3	2022-03-08
11133772	D5	2022-02-28 @ 9:00 am	2022-03-03 @ 10:00 am	< 0.3	2022-03-08
11133730	GYM	2022-02-28 @ 10:00 am	2022-03-03 @ 10:00 am	2.3 ± 0.4	2022-03-08
11133723	GYM	2022-02-28 @ 10:00 am	2022-03-03 @ 10:00 am	2.6 ± 0.4	2022-03-08
11133722	GYM OFFICE	2022-02-28 @ 10:00 am	2022-03-03 @ 10:00 am	3.3 ± 0.5	2022-03-08
11133798	K1	2022-02-28 @ 9:00 am	2022-03-03 @ 10:00 am	0.9 ± 0.4	2022-03-08
11133773	K2	2022-02-28 @ 9:00 am	2022-03-03 @ 10:00 am	< 0.3	2022-03-08
11133768	K2	2022-02-28 @ 9:00 am	2022-03-03 @ 10:00 am	< 0.3	2022-03-08
11133748	KAUFMAN	2022-02-28 @ 10:00 am	2022-03-03 @ 10:00 am	0.6 ± 0.3	2022-03-07
11133747	KAUFMAN	2022-02-28 @ 10:00 am	2022-03-03 @ 10:00 am	< 0.3	2022-03-07
11133739	KITCHEN OFFICE	2022-02-28 @ 10:00 am	2022-03-03 @ 10:00 am	1.2 ± 0.3	2022-03-07
11133753	KITCHEN OFFICE	2022-02-28 @ 10:00 am	2022-03-03 @ 10:00 am	0.6 ± 0.4	2022-03-08
11133757	LOUNGE	2022-02-28 @ 10:00 am	2022-03-03 @ 10:00 am	0.9 ± 0.4	2022-03-08
11133752	MEDIA CENTER	2022-02-28 @ 10:00 am	2022-03-03 @ 10:00 am	< 0.3	2022-03-07
11133751	MEDIA CENTER	2022-02-28 @ 10:00 am	2022-03-03 @ 10:00 am	0.6 ± 0.3	2022-03-08
11133732	MEDIA OFFICE	2022-02-28 @ 10:00 am	2022-03-03 @ 10:00 am	< 0.3	2022-03-08
11133731	MEDIA WORKROOM	2022-02-28 @ 10:00 am	2022-03-03 @ 10:00 am	< 0.3	2022-03-08
11133746	STAGE	2022-02-28 @ 10:00 am	2022-03-03 @ 10:00 am	1.6 ± 0.4	2022-03-08

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI Technologies, Inc. Job Number 204620

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

Date Start: 3/18/22 Date Stop: 3/21/22 Date Start: _____ Date Stop: _____

Time Start: 0705 Time Stop: 0705 Time Start: _____ Time Stop: _____

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

11139367, 11139368, 11139371, _____

11139710, 11139717 _____

E3 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 μ R/h Elevation = 820 ft

March 30, 2022

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

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

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

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

March 30, 2022

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

RSH

MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11139726	BASEMENT	2022-03-20 @ 8:00 am	2022-03-23 @ 7:00 am	0.9 ± 0.5	2022-03-30
11139725	DINING	2022-03-20 @ 8:00 am	2022-03-23 @ 7:00 am	< 0.3	2022-03-30

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



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

Radon Test Kit Chain of Custody

Project Name: MCPS Radon – March 2022 Schools

Name of Schools:

1. Marshall, Thurgood ES
2. Ridgeview MS
3. Travilah ES
4. Flower Hill ES
5. Resnik, Judith A. ES
6. Strawberry Knolls ES
7. Whetstone ES
8. Laytonsville ES
9. Stedwick ES
10. Watkins Mill ES
11. Watkins Mill HS
12. Einstein, Albert E. HS

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

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



MONTGOMERY COUNTY PUBLIC SCHOOLS RADON TESTING

Executive Summary:
Whetstone Elementary School
19201 Thomas Farm Rd
Montgomery Village, MD 20886

Date of Test Report:	02/05/2019
Round of Testing:	Initial Follow-up Post Remediation 2 Year Testing 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility
# of Rooms Tested:	61
# of Rooms ≥ 4.0 pCi/L:	0
Low Value:	< 0.4
High Value:	2.6

Project Status

Initial testing complete: No further action at this time.



February 5, 2019

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

Re: Radon Testing Services

Location: Whetstone Elementary School
19201 Thomas Farm Rd
Montgomery Village, MD 20886

Dear Mr. Cox:

Intertek-PSI (PSI) is pleased to submit the following report to the Montgomery County Public Schools (MCPS) for completion of a “short-term” 3-day radon test for Whetstone Elementary School located at 19201 Thomas Farm Rd Montgomery Village, MD 20886 (subject site).

Scope of Services:

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

PSI visited the site on December 4, 2018 and deployed seventy-five (75) activated charcoal (AC) radon test kits. PSI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. PSI returned to the site on December 7, 2018 to retrieve the radon sampling test kits. A floor plan map of the building with the test locations is included as Attachment A of this report.

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

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

Evaluation of Testing Conditions:

The operating condition that represents the greatest amount of significantly occupied time for this building is;



heating active, with outdoor temperature averages $\leq 65^{\circ}\text{F}$.

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

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

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

Results:

The results of the radon test analysis indicated the following:

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

Notes:

D -Duplicate Sample

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

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

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



Respectfully Submitted,

INTERTEK-PSI

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

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

ATTACHMENT B

Radon Test Summary Spreadsheet

Radon Testing Results		
Whetstone Elementary School		
Testing period: 12/4/18 - 12/7/18		
Kit Number	Room / Area	Result (pCi/L)
3928504	1	<0.4
3928503	2	<0.4
3928537	3A	<0.4
3928538	3B	0.4
3928536	4	1.2
3928533	5	1.0
3928535	6	<0.4
3928528	7	2.6
3928527	8	1.5
3928526	8A	<0.4
3926865	9	<0.4
3926863	12	<0.4
3926861	14	<0.4
3928505	20	0.5
3928506	21	<0.4
3928507	22	<0.4
3928508	23	<0.4
3928539	24	<0.4
3928540	26	<0.4
3928483	27	<0.4
3928482	28	<0.4
3928485	31	<0.4
3928488	33	<0.4
3928484	34	0.4
3928486	38	0.8
3928487	40	<0.4
3926866	56	<0.4
3928442	APR	0.7
3928443	APR	0.8
3928441	APR Stage	0.8
3928444	APR Storage	0.5
3928509	Art	<0.4
3928510	Art Office	<0.4
3926889	Assistant Principal	0.7
3928449	Building Service	<0.4
3926890	Conference	<0.4
3928529	D1	0.5
3928532	D2	<0.4
3928531	D3	0.4
3928460	D4	1.1
3928530	D5	<0.4
3926862	D8	<0.4
3928847	Gym	1.0

Radon Testing Results		
Whetstone Elementary School		
Testing period: 12/4/18 - 12/7/18		
Kit Number	Room / Area	Result (pCi/L)
3928448	Gym	<0.4
3928450	Gym Office	1.2
3928512	Health	0.7
3928513	Health Office	0.5
3928524	IMC	<0.4
3928525	IMC	<0.4
3928521	IMC Office	0.4
3928523	IMC Workroom	<0.4
3928501	K1	<0.4
3928502	K2	<0.4
3928489	K3	0.8
3928490	K4	0.4
3928519	Kitchen	1.2
3928515	Mail	<0.4
3928514	Main Office	0.6
3926887	Main Office Workroom	<0.4
3928518	Para Educator	<0.4
3928517	Parant Resource	0.4
3926888	Principal	<0.4
3928445	Speech Therapy	0.5
3928446	Staff Lounge	0.4

Radon Testing Results		
Whetstone Elementary School		
Testing period: 12/4/18 - 12/7/18		
Kit Number	QC Type	Result (pCi/L)
3928534	5 (D)	1.3
3926864	12 (D)	<0.4
3928481	28 (D)	0.5
3928511	Conference (D)	<0.4
3928522	IMC Office (D)	<0.4
3928520	Kitchen (D)	0.6
3928516	Mail (D)	0.7
3928599	Field Blank	<0.4
3928600	Field Blank	<0.4
3928597	Office Blank	<0.4
3928598	Transit Blank	<0.4

Table Notes:

D – Duplicate

FB – Field Blank

OB – Office Blank

TB – Transit Blank

QC – Quality Control

ATTACHMENT C

Laboratory Analytical Results

NELAC NY 11769
NRPP 103216 AL
NRSB ARL0017

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

Laboratory Report for:

Property Tested: Project # 04481387-1

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

MCPS Radon Survey
Whetstone ES
Gaithersburg MD 20886

Log Number	Device Number	Test Exposure Duration:		Area Tested		Result pCi/L
2405273	3928449	12/04/2018 4:27 pm	12/07/2018 2:14 pm	Building Service		< 0.4
2405274	3928443	12/04/2018 4:15 pm	12/07/2018 2:08 pm	APR		0.8
2405275	3928445	12/04/2018 4:19 pm	12/07/2018 2:10 pm	Speech Therapy		0.5
2405276	3928446	12/04/2018 4:21 pm	12/07/2018 2:11 pm	Staff Lounge		0.4
2405277	3928448	12/04/2018 4:25 pm	12/07/2018 2:13 pm	Gym		< 0.4
2405278	3928444	12/04/2018 4:17 pm	12/07/2018 12:09 pm	APR Storage		0.5
2405279	3928447	12/04/2018 4:23 pm	12/07/2018 2:12 pm	Gym		1.0
2405280	3928442	12/04/2018 4:13 pm	12/07/2018 2:07 pm	APR		0.7
2405281	3928450	12/04/2018 4:29 pm	12/07/2018 2:15 pm	Gym Office		1.2
2405282	3928521	12/04/2018 2:25 pm	12/07/2018 1:13 pm	Floor First Room IMC Office		0.4
2405283	3928522	12/04/2018 2:25 pm	12/07/2018 1:13 pm	Floor First Room IMC Office		< 0.4

Comment: AMENDED REPORT on 1/31/2019 to add the beginning & ending dates & times for devices 3928442 3928450. Per ANSI/AARST MAH 2014, requirements for test locations within a room were not met for device 3928519 3928520 (Kitchen).

Distributed by: Intertek-PSI (VA)

Date Received: 12/08/2018 Date Logged: 12/08/2018 Date Analyzed: 12/11/2018 Date Reported: 01/30/2019

Report Reviewed By: Michelle Cleveland

Report Approved By: Shawn Price

Disclaimer:

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NELAC NY 11769
NRPP 103216 AL
NRSB ARL0017

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

Laboratory Report for:

Property Tested: Project # 04481387-1

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

MCPS Radon Survey
Whetstone ES
Gaithersburg MD 20886

Log Number	Device Number	Test Exposure Duration:				Area Tested	Result pCi/L
2405284	3928523	12/04/2018	2:27 pm	12/07/2018	1:14 pm	Floor First Room IMC Workroom	< 0.4
2405285	3928524	12/04/2018	2:29 pm	12/07/2018	1:15 pm	Floor First Room IMC	< 0.4
2405286	3928525	12/04/2018	2:31 pm	12/07/2018	1:16 pm	Floor First Room IMC	< 0.4
2405287	3928526	12/04/2018	2:33 pm	12/07/2018	1:17 pm	Floor First Room 8A	< 0.4
2405288	3928527	12/04/2018	2:35 pm	12/07/2018	1:18 pm	Floor First Room 8	1.5
2405289	3928528	12/04/2018	2:37 pm	12/07/2018	1:19 pm	Floor First Room 7	2.6
2405290	3928529	12/04/2018	2:39 pm	12/07/2018	1:20 pm	Floor First Room D1	0.5
2405291	3928530	12/04/2018	2:41 pm	12/07/2018	1:21 pm	Floor First Room D5	< 0.4
2405292	3928531	12/04/2018	2:43 pm	12/07/2018	1:22 pm	Floor First Room D3	0.4
2405293	3928532	12/04/2018	2:45 pm	12/07/2018	1:23 pm	Floor First Room D2	< 0.4
2405294	3928533	12/04/2018	2:49 pm	12/07/2018	1:25 pm	Floor First Room 5	1.0

Comment: AMENDED REPORT on 1/31/2019 to add the beginning & ending dates & times for devices 3928442 3928450. Per ANSI/AARST MAH 2014, requirements for test locations within a room were not met for device 3928519 3928520 (Kitchen).

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Date Received: 12/08/2018 Date Logged: 12/08/2018 Date Analyzed: 12/11/2018 Date Reported: 01/30/2019

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Report Approved By: Shawn Price

Disclaimer:

Shawn Price, Director of Laboratory Operations, AccuStar Labs

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NRPP 103216 AL
NRSB ARL0017

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

Laboratory Report for:

Property Tested: Project # 04481387-1

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

MCPS Radon Survey
Whetstone ES
Gaithersburg MD 20886

Log Number	Device Number	Test Exposure Duration:				Area Tested	Result pCi/L
2405295	3928534	12/04/2018	2:49 pm	12/07/2018	1:25 pm	Floor First Room 5	1.3
2405296	3928535	12/04/2018	2:51 pm	12/07/2018	1:26 pm	Floor First Room 6	< 0.4
2405297	3928536	12/04/2018	2:53 pm	12/07/2018	1:27 pm	Floor First Room 4	1.2
2405298	3928537	12/04/2018	2:55 pm	12/07/2018	1:28 pm	Floor First Room 3A	< 0.4
2405299	3928538	12/04/2018	2:57 pm	12/07/2018	1:29 pm	Floor First Room 3B	0.4
2405300	3928539	12/04/2018	2:59 pm	12/07/2018	1:30 pm	Floor First Room 24	< 0.4
2405301	3928540	12/04/2018	3:01 pm	12/07/2018	1:31 pm	Floor First Room 26	< 0.4
2405302	3928481	12/04/2018	3:03 pm	12/07/2018	1:31 pm	Floor First Room 28	0.5
2405303	3928482	12/04/2018	3:03 pm	12/07/2018	1:33 pm	Floor First Room 28	< 0.4
2405304	3928483	12/04/2018	3:07 pm	12/07/2018	1:34 pm	Floor First Room 27	< 0.4
2405305	3928484	12/04/2018	3:09 pm	12/07/2018	1:35 pm	Floor First Room 34	0.4

Comment: AMENDED REPORT on 1/31/2019 to add the beginning & ending dates & times for devices 3928442 3928450. Per ANSI/AARST MAH 2014, requirements for test locations within a room were not met for device 3928519 3928520 (Kitchen).

Distributed by: Intertek-PSI (VA)

Date Received: 12/08/2018 Date Logged: 12/08/2018 Date Analyzed: 12/11/2018 Date Reported: 01/30/2019

Report Reviewed By: Michelle Cleveland

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NRPP 103216 AL
NRSB ARL0017

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

Laboratory Report for:

Property Tested: Project # 04481387-1

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

MCPS Radon Survey
Whetstone ES
Gaithersburg MD 20886

Log Number	Device Number	Test Exposure Duration:				Area Tested	Result pCi/L
2405306	3928485	12/04/2018 3:11 pm	12/07/2018 1:36 pm			Floor First Room 31	< 0.4
2405307	3928486	12/04/2018 3:13 pm	12/07/2018 1:37 pm			Floor First Room 38	0.8
2405308	3928487	12/04/2018 3:15 pm	12/07/2018 1:38 pm			Floor First Room 40	< 0.4
2405309	3928488	12/04/2018 3:17 pm	12/07/2018 1:39 pm			Floor First Room 33	< 0.4
2405310	3928489	12/04/2018 3:19 pm	12/07/2018 1:40 pm			Floor First Room K3	0.8
2405311	3928490	12/04/2018 3:21 pm	12/07/2018 1:41 pm			Floor First Room K4	0.4
2405312	3928501	12/04/2018 3:23 pm	12/07/2018 1:42 pm			Floor First Room K1	< 0.4
2405313	3928502	12/04/2018 3:25 pm	12/07/2018 1:43 pm			Floor First Room K2	< 0.4
2405314	3928503	12/04/2018 3:27 pm	12/07/2018 1:44 pm			Floor First Room 2	< 0.4
2405315	3928504	12/04/2018 3:29 pm	12/07/2018 1:45 pm			Floor First Room 1	< 0.4
2405316	3928505	12/04/2018 3:31 pm	12/07/2018 1:46 pm			Floor First Room 20	0.5

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Report Reviewed By: Michelle Cleveland

Report Approved By: Shawn Price

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NRPP 103216 AL
NRSB ARL0017

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

Laboratory Report for:

Property Tested: Project # 04481387-1

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

MCPS Radon Survey
Whetstone ES
Gaithersburg MD 20886

Log Number	Device Number	Test Exposure Duration:				Area Tested	Result pCi/L
2405317	3928506	12/04/2018	3:33 pm	12/07/2018	1:47 pm	Floor First Room 21	< 0.4
2405318	3928507	12/04/2018	3:35 pm	12/07/2018	1:48 pm	Floor First Room 22	< 0.4
2405319	3928508	12/04/2018	3:37 pm	12/07/2018	1:49 pm	Floor First Room 23	< 0.4
2405320	3928509	12/04/2018	3:39 pm	12/07/2018	1:50 pm	Floor First Room Art	< 0.4
2405321	3928510	12/04/2018	3:41 pm	12/07/2018	1:51 pm	Floor First Room Art Office	< 0.4
2405322	3926887	12/04/2018	3:43 pm	12/07/2018	1:52 pm	Floor First Room Main Office Workroom	< 0.4
2405323	3926888	12/04/2018	3:45 pm	12/07/2018	1:53 pm	Floor First Room Principal	< 0.4
2405324	3926889	12/04/2018	3:47 pm	12/07/2018	1:54 pm	Floor First Room Assistant Principal	0.7
2405325	3926890	12/04/2018	3:49 pm	12/07/2018	1:55 pm	Floor First Room Conference	< 0.4
2405326	3928511	12/04/2018	3:49 pm	12/07/2018	1:55 pm	Floor First Room Conference	< 0.4
2405327	3928512	12/04/2018	3:53 pm	12/07/2018	1:57 pm	Floor First Room Health	0.7

Comment: AMENDED REPORT on 1/31/2019 to add the beginning & ending dates & times for devices 3928442 3928450. Per ANSI/AARST MAH 2014, requirements for test locations within a room were not met for device 3928519 3928520 (Kitchen).

Distributed by: Intertek-PSI (VA)

Date Received: 12/08/2018 Date Logged: 12/08/2018 Date Analyzed: 12/11/2018 Date Reported: 01/30/2019

Report Reviewed By: Michelle Cleveland

Report Approved By: Shawn Price

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NELAC NY 11769
NRPP 103216 AL
NRSB ARL0017

EPA Method #402-R-92-004
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Laboratory Report for:

Property Tested: Project # 04481387-1

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

MCPS Radon Survey
Whetstone ES
Gaithersburg MD 20886

Log Number	Device Number	Test Exposure Duration:				Area Tested	Result pCi/L
2405328	3928513	12/04/2018 3:55 pm	12/07/2018 1:58 pm			Floor First Room Health Office	0.4
2405329	3928514	12/04/2018 3:57 pm	12/07/2018 1:59 pm			Floor First Room Main Office	0.6
2405330	3928515	12/04/2018 3:59 pm	12/07/2018 2:00 pm			Floor First Room Mail	< 0.4
2405331	3928516	12/04/2018 3:59 pm	12/07/2018 2:00 pm			Floor First Room Mail	0.7
2405332	3928517	12/04/2018 4:03 pm	12/07/2018 2:02 pm			Floor First Room Parant Resource	0.4
2405333	3928518	12/04/2018 4:05 pm	12/07/2018 2:03 pm			Floor First Room Para Educator	< 0.4
2405334	3928519	12/04/2018 4:07 pm	12/07/2018 2:05 pm			Floor First Room Kitchen	1.2
2405335	3928520	12/04/2018 4:07 pm	12/07/2018 2:05 pm			Floor First Room Kitchen	0.6
2405336	3928441	12/04/2018 4:11 pm	12/07/2018 2:06 pm			Floor First Room APR Stage	0.8
2405337	3926861	12/04/2018 4:31 pm	12/07/2018 2:16 pm			Floor Second Room 14	< 0.4
2405338	3926862	12/04/2018 4:33 pm	12/07/2018 2:17 pm			Floor Second Room D8	< 0.4

Comment: AMENDED REPORT on 1/31/2019 to add the beginning & ending dates & times for devices 3928442 3928450. Per ANSI/AARST MAH 2014, requirements for test locations within a room were not met for device 3928519 3928520 (Kitchen).

Distributed by: Intertek-PSI (VA)

Date Received: 12/08/2018 Date Logged: 12/08/2018 Date Analyzed: 12/11/2018 Date Reported: 01/30/2019

Report Reviewed By: Michelle Cleveland

Report Approved By: Shawn Price

Disclaimer:

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

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

NELAC NY 11769
NRPP 103216 AL
NRSB ARL0017

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

Laboratory Report for:

Property Tested: Project # 04481387-1

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

MCPS Radon Survey
Whetstone ES
Gaithersburg MD 20886

Log Number	Device Number	Test Exposure Duration:				Area Tested	Result pCi/L
2405339	3926863	12/04/2018	4:35 pm	12/07/2018	2:18 pm	Floor Second Room 12	< 0.4
2405340	3926864	12/04/2018	4:39 pm	12/07/2018	2:20 pm	Floor Second Room 12	< 0.4
2405341	3926865	12/04/2018	4:39 pm	12/07/2018	2:20 pm	Floor Second Room 9	< 0.4
2405342	3926866	12/04/2018	4:41 pm	12/07/2018	2:21 pm	Floor Second Room 56	< 0.4
2405343	3928460	12/04/2018	4:48 pm	12/07/2018	2:25 pm	Floor First Room D4	1.1
2405344	3928597	12/04/2018	6:00 am	12/07/2018	6:00 pm	Office Blank	< 0.4
2405345	3928598	12/04/2018	6:00 am	12/07/2018	6:00 pm	Transit Blank	< 0.4
2405346	3928599	12/04/2018	2:25 pm	12/07/2018	2:25 pm	Field Blank	< 0.4
2405347	3928600	12/04/2018	2:25 pm	12/07/2018	2:25 pm	Field Blank	< 0.4

Comment: AMENDED REPORT on 1/31/2019 to add the beginning & ending dates & times for devices 3928442 3928450. Per ANSI/AARST MAH 2014, requirements for test locations within a room were not met for device 3928519 3928520 (Kitchen).

Distributed by: Intertek-PSI (VA)

Date Received: 12/08/2018 Date Logged: 12/08/2018 Date Analyzed: 12/11/2018 Date Reported: 01/30/2019

Report Reviewed By: Michelle Cleveland

Report Approved By: Shawn Price

Disclaimer:

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

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NRPP 105011 AL
NRSB ARL0007
Ohio RL41

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

Laboratory Report for:

Property Tested:

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

MCPS Radon Survey
4514 Taylorsville Road
Dayton OH 45424

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

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

Test Performed By: Unknown

Distributed by: Intertek-PSI (VA)

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

Report Reviewed By: 

Report Approved By: 

Disclaimer:

The uncertainty of this radon measurement is $\sim \pm 10\%$. 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.

Shawn Price, Director of Laboratory Operations, AccuStar Labs

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.

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT Intertek - PSI

Job Number 187732

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

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

Date Start: _____ Date Stop: _____

Time Start: 0947 Time Stop: 0947

Time Start: _____ Time Stop: _____

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

Device No.'s: _____

3926831 thru 3926840

G2 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 μ R/h Elevation = 820 ft



Chain of Custody

Project Name: MCPS Radon Survey 2018

Name of Schools:

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

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

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

MCPS RADON TESTING - EXECUTIVE SUMMARY

Site Name	Whetstone Elementary School
Date of Report	March 14, 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	8
# Rooms ≥ 4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	1.5 pCi/L

Project Status

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



ENGINEERS • PLANNERS • SCIENTISTS • CONSTRUCTION MANAGERS

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

March 14, 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: Whetstone Elementary School

19201 Thomas Farm Rd.
Gaithersburg, Maryland 20879

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 Whetstone Elementary School, located at 19201 Thomas Farm Rd. in Gaithersburg, Maryland 20879 (subject site).

SCOPE OF SERVICES

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

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

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

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

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

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

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

EVALUATION OF TESTING CONDITIONS

These tests represent:

- Follow-up to post-mitigation biennial testing.

These tests were conducted to:

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

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

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

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

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

RESULTS

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

The results of the radon test analysis indicated the following:

Radon Concentration	Room	Result
≥ 4.0 pCi/L	None	N/A
≤ 4.0 pCi/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		
Whetstone Elementary School		
Test Period: 02/13/18-02/16/18		
Kit Number	Room / Area	Result
7984218	14	< 0.3
7986857	GYM OFFICE	1.5
7986858	IDA	0.5
7986854	KITCHEN	1.1
7986807	OFF 1	0.8
7986808	OFF 2	< 0.3
7986860	PCC	< 0.3
7986861	STAFF LOUNGE	< 0.3

Table Note:

* Missing or Compromised Sample

Table 2 - Radon Testing Results		
Whetstone Elementary School		
Test Period: 02/13/18-02/16/18		
Kit Number	QC Type	Result
7986856	D (STAFF LOUNGE)	< 0.3
7986855	FB (GYM OFFICE)	< 0.3

Table Note:

* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

February 27, 2018

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

**WHETSTONE ELEMENTARY SCHOOL
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7984218	14	2018-02-13 @ 11:00 am	2018-02-16 @ 10:00 am	< 0.3	2018-02-20
7986855	GYM OFFICE	2018-02-13 @ 11:00 am	2018-02-16 @ 10:00 am	< 0.3	2018-02-20
7986857	GYM OFFICE	2018-02-13 @ 11:00 am	2018-02-16 @ 10:00 am	1.5 ± 0.4	2018-02-20
7986858	IDA	2018-02-13 @ 11:00 am	2018-02-16 @ 10:00 am	0.5 ± 0.3	2018-02-20
7986854	KITCHEN	2018-02-13 @ 11:00 am	2018-02-16 @ 10:00 am	1.1 ± 0.3	2018-02-20
7986807	OFF 1	2018-02-13 @ 11:00 am	2018-02-16 @ 10:00 am	0.8 ± 0.3	2018-02-20
7986808	OFF 2	2018-02-13 @ 11:00 am	2018-02-16 @ 10:00 am	< 0.3	2018-02-20
7986860	PCC	2018-02-13 @ 11:00 am	2018-02-16 @ 10:00 am	< 0.3	2018-02-20
7986861	STAFF LOUNGE	2018-02-13 @ 11:00 am	2018-02-16 @ 10:00 am	< 0.3	2018-02-20
7986856	STAFF LOUNGE	2018-02-13 @ 11:00 am	2018-02-16 @ 10:00 am	< 0.3	2018-02-20

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



Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase

Names of Schools:

- | | |
|---------------------------------------|--|
| 1. Westbrook Elementary School | 21. E. Silver Spring Elementary School |
| 2. Westland Middle School | 22. Silver Spring Int. Middle School |
| 3. Walt Whitman High School | 23. Clarksburg High School |
| 4. Cloverly Elementary School | 24. Rosa Parks Middle School |
| 5. Sligo Middle School | 25. Greenwood Elementary School |
| 6. Flora Singer Elementary School | 26. Montgomery Knolls Elem. School |
| 7. Albert Einstein High School | 27. Watkins Mill Elementary School |
| 8. Roscoe Nix Elementary School | 28. Gaithersburg Elementary School |
| 9. Mario Loiederman Middle School | 29. Viers Mill Elementary School |
| 10. Sargent Shriver Elementary School | 30. Rock View 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 | |

	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

February 27, 2018

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
TRANSIT BLANKS

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

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

February 28, 2018

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

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

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

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

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI Technologies Inc. Job Number 183530

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

Date Start: 2/16/18 Date Stop: 2/19/18 Date Start: _____ Date Stop: _____

Time Start: 1052 Time Stop: 1052 Time Start: _____ Time Stop: _____

Device No.'s: (6) Char. Bags Device No.'s: _____

7984181, 7986621, 7985683 _____

7984168, 7986618, 7984169 _____

G3 Middle _____

Date Start: _____ Date Stop: _____ Date Start: _____ Date Stop: _____

Time Start: _____ Time Stop: _____ Time Start: _____ Time Stop: _____

Device No.'s: _____ Device No.'s: _____

Date Start: _____ Date Stop: _____ Date Start: _____ Date Stop: _____

Time Start: _____ Time Stop: _____ Time Start: _____ Time Stop: _____

Device No.'s: _____ Device No.'s: _____

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

MCPS RADON TESTING - EXECUTIVE SUMMARY

Site Name	Whetstone Elementary School
Date of Report	February 2, 2018
Round of Testing	Initial Follow-up Post Remediation 2 year testing 5 year testing HVAC Upgrade Window Replacement New Addition New Facility
# of Rooms Tested	49
# Rooms ≥ 4.0 pCi/L	0
Lowest Value	< 0.3 pCi/L
Highest Value	2.0 pCi/L

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



ENGINEERS • PLANNERS • SCIENTISTS • CONSTRUCTION MANAGERS

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

February 2, 2018

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

Re: Radon Testing Services

KCI Job #1214694182

Location: Whetstone Elementary School

19201 Thomas Farm Rd.
Gaithersburg, Maryland 20879

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 Whetstone Elementary School, located at 19201 Thomas Farm Rd. in Gaithersburg, Maryland 20879 (subject site).

SCOPE OF SERVICES

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

KCI visited the site on December 5, 2017 and deployed sixty (60) activated charcoal (AC) radon test kits. KCI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. A floor plan map of the building with the test locations is included as Appendix A of this report.

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

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

KCI returned to the site on December 8, 2017 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Aircheck, Inc. for analysis by gamma-ray spectroscopy. Aircheck, Inc. is a NRSB certified analytical laboratory for radon analysis (certification #ARL1402) located at 1936 Butler Bridge Road, Mills River, North Carolina.

EVALUATION OF TESTING CONDITIONS

These tests represent:

- Post-mitigation biennial testing.

These tests were conducted to:

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

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

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

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

KCI also compiled weather data for the testing period and conducted observations of relevant field conditions. During the test period, weather records indicate low temperatures were in the low-30s to mid-40s and high temperatures ranged from the upper-30s to mid-50s. Maximum sustained winds ranged from 4-17 miles per hour. Average humidity was around 60%. 0.16 Inches of precipitation was recorded during the testing period.

RESULTS

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

The results of the radon test analysis indicated the following:

Radon Concentration	Room	Result
≥ 4.0 pCi/L	None	N/A
≤ 4.0 pCi/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.

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 Moulds, CHMM
Radon Measurement Specialist
KCI Technologies, Inc.

Attachments:

B- Table 1-Radon Test Summary Spreadsheet

C- Laboratory Analytical Results

ATTACHMENT B

Radon Test Summary Spreadsheet

Table Notes:

AC- Activated Charcoal

ACI- Air Chek, Inc.

D- Duplicate

FB- Field Blank

KCI- KCI Technologies, Inc.

OB- Office Blank

PM- Project Manager

QC- Quality Control

Radon Testing Results		
Whetstone Elementary School		
Test Period: 12/05/17-12/08/17		
Kit Number	Room / Area	Result
7983786	1	< 0.3
7983787	2	0.6
7975256	4	1.5
7975264	5	1.5
7983748	6	1.1
7983751	7	2.0
7983752	8	2.0
7194299	13	< 0.3
7975261	15	0.8
7975265	16	< 0.3
7983779	20	< 0.3
7983781	21	< 0.3
7983783	22	< 0.3
7983785	23	< 0.3
7983791	24	< 0.3
7983795	26	< 0.3
7983792	27	< 0.3
7983741	28	0.7
7983739	31	< 0.3
7983742	33	< 0.3
7983743	34	0.7
7983747	38	0.5
7983797	40	< 0.3
7983793	3A	0.5
7983794	3B	0.6
7975262	8A	0.6
7983774	AP	< 0.3
7983729	APR	1.2
7983782	ART	< 0.3
7983784	ARTOFF	< 0.3
7983777	CONFERENCE	< 0.3
7983738	D1	0.8
7975263	D2	1.3
7983732	D3	0.5
7983798	D4	0.7
7983734	D5	0.7
7983745	GYM	0.9
7194212	GYM	0.8
7983775	HEALTH	< 0.3
7983773	HEALTH OFFICE	< 0.3
7983788	K1	1.1
7983790	K2	0.8
7983800	MAIL	0.6
7983799	MAIN OFFICE	0.9
7983735	MEDIA	< 0.3
7983733	MEDIA	0.6

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
Whetstone Elementary School		
Test Period: 12/05/17-12/08/17		
Kit Number	Room / Area	Result
7194244	MEDIAOFF	0.5
7978396	PARA	0.6
7983776	PRINCIPAL	< 0.3
7194300	SLP	< 0.3
7983778	WORK	0.8

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
Whetstone Elementary School		
Test Period: 12/05/17-12/08/17		
Kit Number	QC Type	Result
7978348	D (15)	0.7
7983780	D (21)	< 0.3
7983796	D (33)	< 0.3
7983789	D (3A)	< 0.3
7983737	D (D1)	0.6
7194219	D (GYM)	0.6
7975277	FB (16)	< 0.3
7983740	FB (31)	< 0.3
7193833	OB (OFFICE BLANK)	< 0.3

Table Note:

* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

Radon test result report for:**WHETSTONE ELEMENTARY SCHOOL
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7983786	1	2017-12-05 @ 11:00 am	2017-12-08 @ 11:00 am	< 0.3	2017-12-11
7194299	13	2017-12-05 @ 12:00 pm	2017-12-08 @ 11:00 am	< 0.3	2017-12-11
7978348	15	2017-12-05 @ 11:00 am	2017-12-08 @ 11:00 am	0.7 ± 0.3	2017-12-11
7975261	15	2017-12-05 @ 12:00 pm	2017-12-08 @ 11:00 am	0.8 ± 0.4	2017-12-12
7975265	16	2017-12-05 @ 12:00 pm	2017-12-08 @ 11:00 am	< 0.3	2017-12-12
7975277	16	2017-12-05 @ 12:00 pm	2017-12-08 @ 11:00 am	< 0.3	2017-12-12
7983787	2	2017-12-05 @ 11:00 am	2017-12-08 @ 11:00 am	0.6 ± 0.3	2017-12-12
7983779	20	2017-12-05 @ 11:00 am	2017-12-08 @ 11:00 am	< 0.3	2017-12-12
7983781	21	2017-12-05 @ 11:00 am	2017-12-08 @ 11:00 am	< 0.3	2017-12-11
7983780	21	2017-12-05 @ 11:00 am	2017-12-08 @ 11:00 am	< 0.3	2017-12-11
7983783	22	2017-12-05 @ 11:00 am	2017-12-08 @ 11:00 am	< 0.3	2017-12-12
7983785	23	2017-12-05 @ 11:00 am	2017-12-08 @ 11:00 am	< 0.3	2017-12-11
7983791	24	2017-12-05 @ 11:00 am	2017-12-08 @ 11:00 am	< 0.3	2017-12-11
7983795	26	2017-12-05 @ 11:00 am	2017-12-08 @ 11:00 am	< 0.3	2017-12-12
7983792	27	2017-12-05 @ 11:00 am	2017-12-08 @ 11:00 am	< 0.3	2017-12-11
7983741	28	2017-12-05 @ 11:00 am	2017-12-08 @ 11:00 am	0.7 ± 0.3	2017-12-12
7983739	31	2017-12-05 @ 11:00 am	2017-12-08 @ 11:00 am	< 0.3	2017-12-11
7983740	31	2017-12-05 @ 11:00 am	2017-12-08 @ 11:00 am	< 0.3	2017-12-11
7983742	33	2017-12-05 @ 11:00 am	2017-12-08 @ 11:00 am	< 0.3	2017-12-12
7983796	33	2017-12-05 @ 11:00 am	2017-12-08 @ 11:00 am	< 0.3	2017-12-12
7983743	34	2017-12-05 @ 11:00 am	2017-12-08 @ 11:00 am	0.7 ± 0.3	2017-12-12
7983747	38	2017-12-05 @ 11:00 am	2017-12-08 @ 11:00 am	0.5 ± 0.3	2017-12-12
7983789	3A	2017-12-05 @ 11:00 am	2017-12-08 @ 11:00 am	< 0.3	2017-12-11
7983793	3A	2017-12-05 @ 11:00 am	2017-12-08 @ 11:00 am	0.5 ± 0.3	2017-12-12
7983794	3B	2017-12-05 @ 11:00 am	2017-12-08 @ 11:00 am	0.6 ± 0.3	2017-12-11
7975256	4	2017-12-05 @ 11:00 am	2017-12-08 @ 11:00 am	1.5 ± 0.4	2017-12-12
7983797	40	2017-12-05 @ 11:00 am	2017-12-08 @ 11:00 am	< 0.3	2017-12-11
7975264	5	2017-12-05 @ 11:00 am	2017-12-08 @ 11:00 am	1.5 ± 0.3	2017-12-11
7983748	6	2017-12-05 @ 11:00 am	2017-12-08 @ 11:00 am	1.1 ± 0.3	2017-12-12
7983751	7	2017-12-05 @ 12:00 pm	2017-12-08 @ 11:00 am	2.0 ± 0.3	2017-12-12
7983752	8	2017-12-05 @ 12:00 pm	2017-12-08 @ 11:00 am	2.0 ± 0.4	2017-12-12
7975262	8A	2017-12-05 @ 12:00 pm	2017-12-08 @ 11:00 am	0.6 ± 0.3	2017-12-11
7983774	AP	2017-12-05 @ 11:00 am	2017-12-08 @ 11:00 am	< 0.3	2017-12-11
7983729	APR	2017-12-05 @ 12:00 pm	2017-12-08 @ 11:00 am	1.2 ± 0.3	2017-12-11
7983782	ART	2017-12-05 @ 11:00 am	2017-12-08 @ 11:00 am	< 0.3	2017-12-11
7983784	ARTOFF	2017-12-05 @ 11:00 am	2017-12-08 @ 11:00 am	< 0.3	2017-12-12
7983777	CONFERENCE	2017-12-05 @ 11:00 am	2017-12-08 @ 11:00 am	< 0.3	2017-12-12

Radon test result report for:**WHETSTONE ELEMENTARY SCHOOL
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7983737	D1	2017-12-05 @ 12:00 pm	2017-12-08 @ 11:00 am	0.6 ± 0.3	2017-12-11
7983738	D1	2017-12-05 @ 12:00 pm	2017-12-08 @ 11:00 am	0.8 ± 0.3	2017-12-12
7975263	D2	2017-12-05 @ 12:00 pm	2017-12-08 @ 11:00 am	1.3 ± 0.4	2017-12-12
7983732	D3	2017-12-05 @ 12:00 pm	2017-12-08 @ 11:00 am	0.5 ± 0.4	2017-12-12
7983798	D4	2017-12-05 @ 12:00 pm	2017-12-08 @ 11:00 am	0.7 ± 0.3	2017-12-11
7983734	D5	2017-12-05 @ 12:00 pm	2017-12-08 @ 11:00 am	0.7 ± 0.3	2017-12-11
7983775	HEALTH	2017-12-05 @ 11:00 am	2017-12-08 @ 11:00 am	< 0.3	2017-12-11
7983773	HEALTH OFFICE	2017-12-05 @ 11:00 am	2017-12-08 @ 11:00 am	< 0.3	2017-12-12
7983788	K1	2017-12-05 @ 11:00 am	2017-12-08 @ 11:00 am	1.1 ± 0.3	2017-12-12
7983790	K2	2017-12-05 @ 11:00 am	2017-12-08 @ 11:00 am	0.8 ± 0.3	2017-12-11
7983800	MAIL	2017-12-05 @ 11:00 am	2017-12-08 @ 11:00 am	0.6 ± 0.3	2017-12-11
7983799	MAIN OFFICE	2017-12-05 @ 11:00 am	2017-12-08 @ 11:00 am	0.9 ± 0.3	2017-12-11
7194212	GYM	2017-12-05 @ 12:00 pm	2017-12-08 @ 11:00 am	0.8 ± 0.3	2017-12-11
7194219	GYM	2017-12-05 @ 12:00 pm	2017-12-08 @ 11:00 am	0.6 ± 0.3	2017-12-12
7983735	MEDIA	2017-12-05 @ 12:00 pm	2017-12-08 @ 11:00 am	< 0.3	2017-12-11
7983733	MEDIA	2017-12-05 @ 12:00 pm	2017-12-08 @ 11:00 am	0.6 ± 0.3	2017-12-12
7194244	MEDIAOFF	2017-12-05 @ 12:00 pm	2017-12-08 @ 11:00 am	0.5 ± 0.3	2017-12-11
7193833	OFFICE BLANK	2017-12-05 @ 12:00 pm	2017-12-08 @ 12:00 pm	< 0.3	2017-12-12
7978396	PARA	2017-12-05 @ 12:00 pm	2017-12-08 @ 11:00 am	0.6 ± 0.3	2017-12-11
7983745	GYM	2017-12-05 @ 12:00 pm	2017-12-08 @ 11:00 am	0.9 ± 0.3	2017-12-12
7983776	PRINCIPAL	2017-12-05 @ 11:00 am	2017-12-08 @ 11:00 am	< 0.3	2017-12-11
7194300	SLP	2017-12-05 @ 12:00 pm	2017-12-08 @ 11:00 am	< 0.3	2017-12-11
7983778	WORK	2017-12-05 @ 11:00 am	2017-12-08 @ 11:00 am	0.8 ± 0.3	2017-12-12



Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase

Names of Schools:

- | | |
|--|---------------------------------|
| 1. John T. Baker Middle School | 15. Whetstone Elementary School |
| 2. Cedar Grove Elementary School | |
| 3. Clarksburg Elementary School | |
| 4. Clarksburg Elementary School Annex | |
| 5. Clarksburg High School | |
| 6. Clearspring Elementary School | |
| 7. Damascus Elementary School | |
| 8. Damascus High School | |
| 9. Dr. Charles R. Drew Elementary School | |
| 10. Facilities Maintenance Depot - Shop | |
| 11. Lake Seneca Elementary School | |
| 12. Laytonville Elementary School | |
| 13. Watkins Mill Elementary School | |
| 14. Watkins Mill High School | |

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

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

Radon test result report for:**TRANSIT 2
MAIN**

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

December 19, 2017

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

MCPS - Spike Sample Laboratory Results. Measured values are satisfactory, i.e. within $\pm 25\%$ 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 \pm 0.7	2017-12-07
7975064	S2	2017-12-01 @ 11:00 am	2017-12-04 @ 11:00 am	27.4 \pm 0.8	2017-12-07
7975063	S3	2017-12-01 @ 11:00 am	2017-12-04 @ 11:00 am	26.3 \pm 0.7	2017-12-07
7975065	S4	2017-12-01 @ 11:00 am	2017-12-04 @ 11:00 am	23.0 \pm 0.7	2017-12-07
7975069	S5	2017-12-01 @ 11:00 am	2017-12-04 @ 11:00 am	25.6 \pm 0.7	2017-12-07
7975070	S6	2017-12-01 @ 11:00 am	2017-12-04 @ 11:00 am	23.0 \pm 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 μ R/h Elevation = 820 ft



MCPS RADON TESTING

Executive Summary: Whetstone Elementary School

Date of Test Report:	7/7/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	52
# Rooms \geq 4.0 pCi/L:	0
Low Value:	< 0.3
High Value:	1.2

Project Status:

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



ENGINEERS • PLANNERS • SCIENTISTS • CONSTRUCTION MANAGERS

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

July 7, 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 # 12146341.40

Location: Whetstone Elementary School
19201 Thomas Farm Road
Gaithersburg, MD 20879

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 Whetstone Elementary School, located at 19201 Thomas Farm Road in Gaithersburg, Maryland 20879 (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 June 14, 2016 and deployed sixty-five (65) activated charcoal (AC) radon test kits. KCI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. A floor plan map of the building with the test locations is included as Attachment A of this report.

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

KCI returned to the site on June 17, 2016 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Airchek, Inc. for analysis by gamma-ray spectroscopy. Airchek, Inc. is a NRSB certified analytical laboratory for radon analysis (certification # ARL1402) located at 1936 Butler

Bridge Road, Mills River, North Carolina.

Evaluation of Testing Conditions:

The operating condition that represents the greatest amount of significantly occupied time for this building is; heating active, with outdoor temperature averages $\leq 65^{\circ}$ F.

KCI concludes that the test period does not represent normal conditions when the building is significantly occupied due to the average outdoor temperatures being $> 65^{\circ}$ F. Based on the evaluation of test conditions, this test may not 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 pCi/L	none	n/a
< 4.0 pCi/L	See Attachment B	

Notes:

D- Duplicate sample

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

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

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

Sincerely,



James M. Moulds
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 17 testing.

Radon Testing Results		
Whetstone Elementary School		
Test Period: 06/14/16-06/17/16		
Kit Number	Room / Area	Result
7756891	1	0.8
7756848	2	0.8
7756862	3	1.2
7756890	4	< 0.3
7756884	5	< 0.3
7756896	6	0.9
7756856	7	0.7
7756895	8	0.7
7769806	14	< 0.3
7769824	15	< 0.3
7769813	16	< 0.3
7756877	20	< 0.3
7756872	21	< 0.3
7756857	22	0.9
7756885	23	< 0.3
7756852	24	0.6
7769815	27	< 0.3
7756878	28	0.7
7756854	31	< 0.3
7756874	33	< 0.3
7756859	34	0.5
7756900	38	0.7
7769807	40	< 0.3
7756873	3B	0.6
7756889	8A	< 0.3
7769817	APR	1.2
7769820	APR	1.0
7756853	ART	< 0.3
7756886	ART OFFICE	< 0.3
7756855	ASST PRINCIPAL	0.8
7756871	BS OFFICE	0.7
7756858	CONFERENCE ROOM	0.7
7756865	COPY ROOM	0.8
7769814	D1	< 0.3
7756883	D2	0.5
7756888	D3	0.7
7769811	D4	0.8
7756860	D5	0.8
7769809	GYM	< 0.3
7769801	GYM	< 0.3
7769808	GYM	0.6
7756881	GYM OFFICE	1.0
7756892	HEALTH OFFICE	0.6
7756845	HEALTH ROOM	< 0.3
7756869	IDA	< 0.3
7756861	K1	0.8

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
Whetstone Elementary School		
Test Period: 06/14/16-06/17/16		
Kit Number	Room / Area	Result
7756875	K2	0.5
7769802	LOUNGE	< 0.3
7756894	MAIL	0.9
7756887	MAIN OFFICE	0.8
7769819	MEDIA	< 0.3
7756897	MEDIA CENTER	< 0.3
7756870	MEDIA CENTER	0.6
7756898	PARA	0.6
7756876	PRINCIPAL	< 0.3
7756899	SLP	0.8

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
Whetstone Elementary School		
Test Period: 06/14/16-06/17/16		
Kit Number	QC Type	Result
7769803	D (24)	0.5
7769810	D (8A)	< 0.3
7756880	D (K1)	0.7
7769804	D (LOUNGE)	0.6
7756879	D (MAIL)	1.1
7769812	FB (16)	< 0.3
7756893	FB (HEALTH ROOM)	< 0.3
7756882	FB (K2)	< 0.3
7769825	OB (0)	< 0.3

Table Note:

* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

Radon test result report for:

WHETSTONE ELEMENTARY SCHOOL
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7769825	0	2016-06-14 @ 10:00 am	2016-06-17 @ 10:00 am	< 0.3	2016-06-21
7756862	3	2016-06-14 @ 8:00 am	2016-06-17 @ 7:00 am	1.2 ± 0.3	2016-06-21
7756873	3B	2016-06-14 @ 8:00 am	2016-06-17 @ 7:00 am	0.6 ± 0.3	2016-06-21
7769810	8A	2016-06-14 @ 8:00 am	2016-06-17 @ 7:00 am	< 0.3	2016-06-21
7756889	8A	2016-06-14 @ 8:00 am	2016-06-17 @ 7:00 am	< 0.3	2016-06-21
7756853	ART	2016-06-14 @ 7:00 am	2016-06-17 @ 7:00 am	< 0.3	2016-06-21
7756886	ART OFFICE	2016-06-14 @ 7:00 am	2016-06-17 @ 8:00 am	< 0.3	2016-06-21
7756855	ASST PRINCIPAL	2016-06-14 @ 7:00 am	2016-06-17 @ 7:00 am	0.8 ± 0.3	2016-06-21
7756871	BS OFFICE	2016-06-14 @ 8:00 am	2016-06-17 @ 7:00 am	0.7 ± 0.3	2016-06-21
7756858	CONFERENCE	2016-06-14 @ 7:00 am	2016-06-17 @ 7:00 am	0.7 ± 0.3	2016-06-21
7756891	1	2016-06-14 @ 7:00 am	2016-06-17 @ 7:00 am	0.8 ± 0.3	2016-06-21
7769806	14	2016-06-14 @ 9:00 am	2016-06-17 @ 8:00 am	< 0.3	2016-06-21
7769824	15	2016-06-14 @ 9:00 am	2016-06-17 @ 8:00 am	< 0.3	2016-06-21
7769812	16	2016-06-14 @ 9:00 am	2016-06-17 @ 8:00 am	< 0.3	2016-06-21
7769813	16	2016-06-14 @ 9:00 am	2016-06-17 @ 8:00 am	< 0.3	2016-06-21
7756848	2	2016-06-14 @ 8:00 am	2016-06-17 @ 7:00 am	0.8 ± 0.3	2016-06-21
7756877	20	2016-06-14 @ 7:00 am	2016-06-17 @ 7:00 am	< 0.3	2016-06-21
7756872	21	2016-06-14 @ 7:00 am	2016-06-17 @ 7:00 am	< 0.3	2016-06-21
7756857	22	2016-06-14 @ 7:00 am	2016-06-17 @ 7:00 am	0.9 ± 0.3	2016-06-21
7756885	23	2016-06-14 @ 7:00 am	2016-06-17 @ 7:00 am	< 0.3	2016-06-21
7769815	27	2016-06-14 @ 8:00 am	2016-06-17 @ 7:00 am	< 0.3	2016-06-21
7756854	31	2016-06-14 @ 8:00 am	2016-06-17 @ 7:00 am	< 0.3	2016-06-21
7756874	33	2016-06-14 @ 8:00 am	2016-06-17 @ 7:00 am	< 0.3	2016-06-21
7756859	34	2016-06-14 @ 8:00 am	2016-06-17 @ 7:00 am	0.5 ± 0.3	2016-06-21
7756900	38	2016-06-14 @ 8:00 am	2016-06-17 @ 7:00 am	0.7 ± 0.3	2016-06-21
7756890	4	2016-06-14 @ 8:00 am	2016-06-17 @ 7:00 am	< 0.3	2016-06-21
7769807	40	2016-06-14 @ 8:00 am	2016-06-17 @ 7:00 am	< 0.3	2016-06-21
7756884	5	2016-06-14 @ 8:00 am	2016-06-17 @ 7:00 am	< 0.3	2016-06-21
7756896	6	2016-06-14 @ 8:00 am	2016-06-17 @ 7:00 am	0.9 ± 0.3	2016-06-21
7756856	7	2016-06-14 @ 8:00 am	2016-06-17 @ 7:00 am	0.7 ± 0.3	2016-06-21
7756895	8	2016-06-14 @ 8:00 am	2016-06-17 @ 7:00 am	0.7 ± 0.3	2016-06-21
7769814	D1	2016-06-14 @ 8:00 am	2016-06-17 @ 7:00 am	< 0.3	2016-06-21
7756883	D2	2016-06-14 @ 8:00 am	2016-06-17 @ 7:00 am	0.5 ± 0.3	2016-06-21
7756888	D3	2016-06-14 @ 8:00 am	2016-06-17 @ 7:00 am	0.7 ± 0.3	2016-06-21
7769811	D4	2016-06-14 @ 8:00 am	2016-06-17 @ 7:00 am	0.8 ± 0.3	2016-06-21
7756860	D5	2016-06-14 @ 8:00 am	2016-06-17 @ 7:00 am	0.8 ± 0.3	2016-06-21
7769808	GYM	2016-06-14 @ 9:00 am	2016-06-17 @ 8:00 am	0.6 ± 0.3	2016-06-21

June ** LABORATORY ANALYSIS
21, REPORT **
2016

Radon test result report for:

**WHETSTONE ELEMENTARY SCHOOL
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7769809	GYM	2016-06-14 @ 9:00 am	2016-06-17 @ 8:00 am	< 0.3	2016-06-21
7769801	GYM	2016-06-14 @ 9:00 am	2016-06-17 @ 8:00 am	< 0.3	2016-06-21
7756881	GYM OFFICE	2016-06-14 @ 9:00 am	2016-06-17 @ 8:00 am	1.0 ± 0.3	2016-06-21
7756893	HEALTH ROOM	2016-06-14 @ 7:00 am	2016-06-17 @ 7:00 am	< 0.3	2016-06-21
7756845	HEALTH ROOM	2016-06-14 @ 7:00 am	2016-06-17 @ 7:00 am	< 0.3	2016-06-21
7756869	IDA	2016-06-14 @ 9:00 am	2016-06-17 @ 7:00 am	< 0.3	2016-06-21
7756870	MEDIA CENTER	2016-06-14 @ 8:00 am	2016-06-17 @ 7:00 am	0.6 ± 0.3	2016-06-21
7756897	MEDIA CENTER	2016-06-14 @ 8:00 am	2016-06-17 @ 7:00 am	< 0.3	2016-06-21
7756861	K1	2016-06-14 @ 8:00 am	2016-06-17 @ 7:00 am	0.8 ± 0.3	2016-06-21
7756880	K1	2016-06-14 @ 8:00 am	2016-06-17 @ 7:00 am	0.7 ± 0.3	2016-06-21
7756875	K2	2016-06-14 @ 8:00 am	2016-06-17 @ 7:00 am	0.5 ± 0.3	2016-06-21
7756882	K2	2016-06-14 @ 8:00 am	2016-06-17 @ 7:00 am	< 0.3	2016-06-21
7756879	MAIL	2016-06-14 @ 7:00 am	2016-06-17 @ 7:00 am	1.1 ± 0.3	2016-06-21
7756887	MAIN OFFICE	2016-06-14 @ 7:00 am	2016-06-17 @ 7:00 am	0.8 ± 0.3	2016-06-21
7769819	MEDIA	2016-06-14 @ 9:00 am	2016-06-17 @ 7:00 am	< 0.3	2016-06-21
7769817	APR	2016-06-14 @ 9:00 am	2016-06-17 @ 7:00 am	1.2 ± 0.3	2016-06-21
7769820	APR	2016-06-14 @ 9:00 am	2016-06-17 @ 7:00 am	1.0 ± 0.3	2016-06-21
7756892	NURSE OFFICE	2016-06-14 @ 7:00 am	2016-06-17 @ 7:00 am	0.6 ± 0.3	2016-06-21
7756852	24	2016-06-14 @ 8:00 am	2016-06-17 @ 7:00 am	0.6 ± 0.3	2016-06-21
7769803	24	2016-06-14 @ 8:00 am	2016-06-17 @ 7:00 am	0.5 ± 0.3	2016-06-21
7756878	28	2016-06-14 @ 8:00 am	2016-06-17 @ 7:00 am	0.7 ± 0.3	2016-06-21
7756876	PRINCIPAL	2016-06-14 @ 7:00 am	2016-06-17 @ 7:00 am	< 0.3	2016-06-21
7756898	PARA	2016-06-14 @ 9:00 am	2016-06-17 @ 7:00 am	0.6 ± 0.3	2016-06-21
7756899	SLP	2016-06-14 @ 9:00 am	2016-06-17 @ 7:00 am	0.8 ± 0.3	2016-06-21
7769802	LOUNGE	2016-06-14 @ 9:00 am	2016-06-17 @ 7:00 am	< 0.3	2016-06-21
7769804	LOUNGE	2016-06-14 @ 9:00 am	2016-06-17 @ 7:00 am	0.6 ± 0.3	2016-06-21
7756894	MAIL	2016-06-14 @ 7:00 am	2016-06-17 @ 7:00 am	0.9 ± 0.3	2016-06-21
7756865	COPY ROOM	2016-06-14 @ 7:00 am	2016-06-17 @ 7:00 am	0.8 ± 0.3	2016-06-21

June 21, 2016 **** LABORATORY ANALYSIS
REPORT ****

Radon test result report for:
**TRANSIT
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7769826	0	2016-06-14 @ 10:00 am	2016-06-17 @ 10:00 am	< 0.3	2016-06-21

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

May 27, 2016 **** LABORATORY ANALYSIS
REPORT ****

Radon test result report for:

MCPS

Spike Sample Results

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7756802	1	2016-05-20 @ 10:00 am	2016-05-23 @ 10:00 am	22.0 ± 0.7	2016-05-25
7756804	2	2016-05-20 @ 10:00 am	2016-05-23 @ 10:00 am	23.7 ± 0.7	2016-05-25
7756805	3	2016-05-20 @ 10:00 am	2016-05-23 @ 10:00 am	22.9 ± 0.7	2016-05-25
7756809	4	2016-05-20 @ 10:00 am	2016-05-23 @ 10:00 am	24.3 ± 0.7	2016-05-25
7756810	5	2016-05-20 @ 10:00 am	2016-05-23 @ 10:00 am	25.1 ± 0.7	2016-05-25
7756811	6	2016-05-20 @ 10:00 am	2016-05-23 @ 10:00 am	22.4 ± 0.7	2016-05-25

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

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

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI Technologies Inc. Job Number 175202

NOMINAL Conditions: Radon Conc 25.6 pCi/L Rel. Hum 48.2 % Temp. 79.0 F

Date Start: 5/20/16 Date Stop: 5/23/16 Date Start: _____ Date Stop: _____

Time Start: 1026 Time Stop: 1026 Time Start: _____ Time Stop: _____

Device No.'s: (6) Char. Bags Device No.'s: _____

7756802, 7756804, 7756805, _____

7756809 thru 7756811 _____

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 μ R/h Elevation = 820 ft



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 17

Name of Schools:

1. Whetstone Elementary School

	Date	Initials
Radon Test Kits Deployed	6/14/16	JM
Radon Test Kits Collected	6/17/16	JM
Radon Test Kits Shipped to Lab*	6/17/16	JM
Radon Test Kits Received by Lab*	6/21/16	JM

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



MCPS RADON TESTING

Executive Summary: Whetstone Elementary School

Date of Test Report:	1/26/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	52
# Rooms ≥ 4.0 pCi/L:	4
Low Value:	< 0.3
High Value:	27.6

Rooms with results ≥ 4.0 pCi/L:

Room 40 (27.6 pCi/L), Room 38 (23.6 pCi/L), Room 34 (17.2 pCi/L), Room 33 (5.2 pCi/L),

Project Status:

Initial testing completed; re-test needed for results ≥ 4.0 pCi/L.

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



ENGINEERS • PLANNERS • SCIENTISTS • CONSTRUCTION MANAGERS

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

January 26, 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 # 12146341.21

Location: Whetstone Elementary School
19201 Thomas Farm Road
Gaithersburg, MD 20879

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 Whetstone Elementary School, located at 19201 Thomas Farm Road in Gaithersburg, Maryland 20879 (subject site).

Scope of Services:

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

KCI visited the site on December 28, 2015 and deployed sixty-four (64) activated charcoal (AC) radon test kits. KCI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. A floor plan map of the building with the test locations is included as Attachment A of this report.

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

KCI returned to the site on December 31, 2015 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Airchek, Inc. for analysis by gamma-ray spectroscopy. Airchek, Inc. is a NRSB certified analytical laboratory for radon analysis (certification # ARL1402) located at 1936

Butler Bridge Road, Mills River, North Carolina.

Evaluation of Testing Conditions:

The operating condition that represents the greatest amount of significantly occupied time for this building is; heating active, with outdoor temperature averages $\leq 65^{\circ}\text{F}$.

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 pCi/L	40	27.6
	38	23.6
	34	17.2
	33	5.2
< 4.0 pCi/L	See Attachment B	

Notes:

D- Duplicate sample

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

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

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

Sincerely,



James M. Moulds
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		
Whetstone E.S.		
Test Period: 12/28/15-12/31/15		
Kit Number	Room / Area	Result
7707838	1	1.2
7707837	2	1.7
7707820	4	0.8
7707818	5	0.7
7707821	6	< 0.3
7707807	7	1.7
7707806	8	2.4
7707862	14	< 0.3
7707859	15	< 0.3
7707860	16	< 0.3
7707839	20	< 0.3
7707841	21	< 0.3
7707842	22	< 0.3
7707843	23	< 0.3
7707825	24	2.5
7707826	26	1.9
7707828	27	3.2
7707827	28	2.8
7707830	31	3
7707832	33	5.2
7707829	34	17.2
7707833	38	23.6
7707834	40	27.6
7707823	3A	2.5
7707824	3B	2.3
7707805	BA	< 0.3
7707854	CAFE	0.7
7707855	CAFE	< 0.3
7707847	CONF ROOM	< 0.3
7707848	* COPY ROOM (tampered)	0.6
7707810	D1	< 0.3
7707813	D2	1.4
7707815	D3	< 0.3
7707816	D4	0.7
7707817	D5	1.8
7707856	* GYM (missing)	0
7707857	* GYM (missing)	0
7707858	GYM OFFICE	1
7707845	HEALTH OFFICE	< 0.3
7707844	HEALTH ROOM	< 0.3
7707851	IDA	1
7707835	K1	1
7707836	K2	< 0.3
7707846	* MAIN OFFICE (tampered)	< 0.3
7707803	MC-OFFICE	< 0.3
7707802	MEDIA CENTER	< 0.3

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
Whetstone E.S.		
Test Period: 12/28/15-12/31/15		
Kit Number	Room / Area	Result
7707801	* MEDIA CENTER (tampered)	< 0.3
7707849	OFF1	< 0.3
7707850	OFF2	0.6
7707852	PARA	0.8
7707853	SLP	2.2
7707804	STAFF LOUNGE	1.1

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
Whetstone E.S.		
Test Period: 12/28/15-12/31/15		
Kit Number	QC Type	Result
7707861	D (16)	< 0.3
7707831	D (31)	2.6
7707819	D (5)	0.9
7707822	D (6)	< 0.3
7707808	D (7)	2
7707811	D (D1)	< 0.3
7707814	D (D2)	1.7
7707840	FB (20)	< 0.3
7707809	FB (7)	< 0.3
7707812	FB (D1)	< 0.3
7707933	OB (0)	< 0.3

Table Note:

* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

January 16, 2016

**** LABORATORY ANALYSIS
REPORT ****

Radon test result report for:
**WHETSTONE E.S.
 MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7707838	1	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	1.2 ± 0.4	2016-01-05
7707862	14	2015-12-28 @ 11:00 am	2015-12-31 @ 10:00 am	< 0.3	2016-01-05
7707859	15	2015-12-28 @ 11:00 am	2015-12-31 @ 10:00 am	< 0.3	2016-01-04
7707860	16	2015-12-28 @ 11:00 am	2015-12-31 @ 10:00 am	< 0.3	2016-01-05
7707861	16	2015-12-28 @ 11:00 am	2015-12-31 @ 10:00 am	< 0.3	2016-01-05
7707837	2	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	1.7 ± 0.5	2016-01-05
7707839	20	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	< 0.3	2016-01-04
7707840	20	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	< 0.3	2016-01-05
7707841	21	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	< 0.3	2016-01-05
7707842	22	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	< 0.3	2016-01-05
7707843	23	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	< 0.3	2016-01-05
7707825	24	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	2.5 ± 0.5	2016-01-05
7707826	26	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	1.9 ± 0.4	2016-01-04
7707828	27	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	3.2 ± 0.5	2016-01-04
7707827	28	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	2.8 ± 0.4	2016-01-04
7707830	31	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	3.0 ± 0.5	2016-01-05
7707831	31	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	2.6 ± 0.5	2016-01-05
7707832	33	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	5.2 ± 0.6	2016-01-04
7707829	34	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	17.2 ± 1.4	2016-01-05
7707833	38	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	23.6 ± 1.8	2016-01-05
7707823	3A	2015-12-28 @ 9:00 am	2015-12-31 @ 9:00 am	2.5 ± 0.4	2016-01-04
7707824	3B	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	2.3 ± 0.4	2016-01-04
7707820	4	2015-12-28 @ 9:00 am	2015-12-31 @ 8:00 am	0.8 ± 0.3	2016-01-04
7707834	40	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	27.6 ± 1.5	2016-01-04
7707818	5	2015-12-28 @ 9:00 am	2015-12-31 @ 8:00 am	0.7 ± 0.3	2016-01-04
7707819	5	2015-12-28 @ 9:00 am	2015-12-31 @ 8:00 am	0.9 ± 0.3	2016-01-04
7707821	6	2015-12-28 @ 9:00 am	2015-12-31 @ 9:00 am	< 0.3	2016-01-04
7707822	6	2015-12-28 @ 9:00 am	2015-12-31 @ 9:00 am	< 0.3	2016-01-04
7707807	7	2015-12-28 @ 9:00 am	2015-12-31 @ 8:00 am	1.7 ± 0.4	2016-01-04
7707808	7	2015-12-28 @ 9:00 am	2015-12-31 @ 8:00 am	2.0 ± 0.4	2016-01-04
7707809	7	2015-12-28 @ 9:00 am	2015-12-31 @ 8:00 am	< 0.3	2016-01-04
7707806	8	2015-12-28 @ 9:00 am	2015-12-31 @ 8:00 am	2.4 ± 0.5	2016-01-05
7707805	BA	2015-12-28 @ 9:00 am	2015-12-31 @ 10:00 am	< 0.3	2016-01-05
7707854	CAFE	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	0.7 ± 0.3	2016-01-04
7707855	CAFE	2015-12-28 @ 11:00 am	2015-12-31 @ 9:00 am	< 0.3	2016-01-05
7707847	CONF ROOM	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	< 0.3	2016-01-04
7707848	COPY ROOM	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	0.6 ± 0.3	2016-01-04

January 16, 2016
*** LABORATORY ANALYSIS
REPORT ****

Radon test result report for:
**WHETSTONE E.S.
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7707810	D1	2015-12-28 @ 9:00 am	2015-12-31 @ 10:00 am	< 0.3	2016-01-05
7707811	D1	2015-12-28 @ 9:00 am	2015-12-31 @ 10:00 am	< 0.3	2016-01-05
7707812	D1	2015-12-28 @ 9:00 am	2015-12-31 @ 10:00 am	< 0.3	2016-01-05
7707813	D2	2015-12-28 @ 9:00 am	2015-12-31 @ 10:00 am	1.4 ± 0.3	2016-01-04
7707814	D2	2015-12-28 @ 9:00 am	2015-12-31 @ 10:00 am	1.7 ± 0.4	2016-01-05
7707815	D3	2015-12-28 @ 9:00 am	2015-12-31 @ 10:00 am	< 0.3	2016-01-04
7707816	D4	2015-12-28 @ 9:00 am	2015-12-31 @ 10:00 am	0.7 ± 0.3	2016-01-04
7707817	D5	2015-12-28 @ 9:00 am	2015-12-31 @ 10:00 am	1.8 ± 0.4	2016-01-04
7707856	GYM	@	@		
7707857	GYM	@	@		
7707858	GYM OFFICE	2015-12-28 @ 11:00 am	2015-12-31 @ 9:00 am	1.0 ± 0.4	2016-01-05
7707845	HEALTH OFFICE	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	< 0.3	2016-01-05
7707844	HEALTH ROOM	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	< 0.3	2016-01-05
7707851	IDA	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	1.0 ± 0.3	2016-01-04
7707835	K1	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	1.0 ± 0.4	2016-01-05
7707836	K2	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	< 0.3	2016-01-05
7707846	MAIN OFFICE	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	< 0.3	2016-01-05
7707803	MC-OFFICE	2015-12-28 @ 9:00 am	2015-12-31 @ 8:00 am	< 0.3	2016-01-04
7707801	MEDIA CENTER	2015-12-28 @ 9:00 am	2015-12-31 @ 8:00 am	< 0.3	2016-01-05
7707802	MEDIA CENTER	2015-12-28 @ 9:00 am	2015-12-31 @ 8:00 am	< 0.3	2016-01-05
7707849	OFF1	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	< 0.3	2016-01-05
7707850	OFF2	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	0.6 ± 0.4	2016-01-05
7707852	PARA	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	0.8 ± 0.4	2016-01-05
7707853	SLP	2015-12-28 @ 10:00 am	2015-12-31 @ 9:00 am	2.2 ± 0.4	2016-01-04
7707804	STAFF LOUNGE	2015-12-28 @ 9:00 am	2015-12-31 @ 8:00 am	1.1 ± 0.3	2016-01-04

January 16, 2016

**** LABORATORY ANALYSIS
REPORT ****

Radon test result report for:
**WHETSTONE E.S.
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7707933	0	2015-12-28 @ 3:00 pm	2015-12-31 @ 12:00 pm	< 0.3	2016-01-04

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

Radon test result report for:
MCPS PHASE 3 & 4
TRANSIT BLANKS

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

December
23,
2015

****LABORATORY ANALYSIS
REPORT ****

Spike Sample Laboratory Results

Radon test result report for:
MCPS

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

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

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI Technologies Inc. Job Number 173224

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

Date Start: 12/18/15 Date Stop: 12/21/15 Date Start: _____ Date Stop: _____

Time Start: 0929 Time Stop: 0929 Time Start: _____ Time Stop: _____

Device No.'s: 7705132, 7706208, Device No.'s: _____

7706211, 7706366, _____

7706380, 7706381 _____

F3 Left

Date Start: _____ Date Stop: _____ Date Start: _____ Date Stop: _____

Time Start: _____ Time Stop: _____ Time Start: _____ Time Stop: _____

Device No.'s: _____ Device No.'s: _____

Date Start: _____ Date Stop: _____ Date Start: _____ Date Stop: _____

Time Start: _____ Time Stop: _____ Time Start: _____ Time Stop: _____

Device No.'s: _____ Device No.'s: _____

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



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

Chain of Custody

Project Name: MCPS Radon Phase III

Name of Schools:

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

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

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