



School / Facility Radon Testing Report Form

Instructions: Submit one testing report form per-facility per-round of testing. 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 Year: **23-24**

Facility:	White Oak Middle School
Address:	12201 New Hampshire Avenue
	Silver Spring, MD 20904

Reason for Testing:	<input checked="" type="checkbox"/> Scheduled Re-Testing (2 or 5-year schedule) <input type="checkbox"/> Clearance Testing (Post-Mitigation) <input type="checkbox"/> System(s) Performance Testing (Post-Mitigation) <input type="checkbox"/> New Construction/Facility
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
Round of Testing:	<input type="checkbox"/> Initial Testing -or- <input checked="" 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 type="checkbox"/> Not Required or Considered <input type="checkbox"/> Required (>8.0 -pCi/L) <input type="checkbox"/> Required (≥ 4.0 -pCi/L) <input checked="" type="checkbox"/> Consider (≥ 2.0 & <4.0 -pCi/L) Rooms: 101 Boys Locker Room	<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)

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)	
<i>Other—Specify here:</i>				
Detector/Device Name:	Air Chek – Radon Test Kits			
Manufacturer:	Radon Lab			
Person(s) Deploying or Retrieving Test Devices and certification number			Organization/Company	
(Field Tech)				
John Adams			KCI Technologies, Inc.	
<i>If noncertified individuals, the qualified measurement professional providing oversight -</i>				
Tyler McCleaf, CSP – Cert. #111004-RMP			KCI Technologies, Inc.	

Testing

<input checked="" type="checkbox"/> Short-Term	Length of Test (days):	3	Date of Deployment and Retrieval (mm/dd/yy):	02/20/2024
<input type="checkbox"/> Long-Term				02/23/2024
Does the test period include weekends, school breaks or holidays?				<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<i>If "Yes" please explain/detail in the space below:</i>				
Was HVAC operating under occupied conditions?				<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<i>If "No" please explain/detail in the space below:</i>				

Testing (continued)

	Detectors Deployed		
	Ground-Contact	Upper-Level(s)	Total
Test Locations ¹	2	0	2
Duplicates ²	1	0	1
Field Blanks ³	0	0	0
Grand Total			3

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.

Spike Samples ¹	6	Trip Blank(s) ²	1	Office Blank(s) ^{3,4}	1
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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.

Spike Sample Lab Results. Measured values are satisfactory, i.e., within ± 25% of the chamber's reference value.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Quality Control measurements comply with QA/QC requirements in the QA plan previously submitted?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Quality Assurance / Quality Control (QA/QC) (continued)

If "No" to either, please describe any QC measurements that were missing or outside of control tolerances established in the QAP here:

Summary of Test Results¹ and Determination of Valid Measurements²

	Ground-Contact	Upper-Level(s)	Total
Number of test locations:	2	0	2
Number of locations ≥ 8.0 -pCi/L:	0	0	0
Number of locations ≥ 4.0 and ≤ 8 -pCi/L:	0	0	0
Number of locations ≥ 2.7 and ≤ 4 -pCi/L:	0	0	0
Number of locations ≥ 2.0 and ≤ 4 -pCi/L:	3	0	3
Number of missing required test locations ³ :	0	0	0
Percentage of missing test locations for the facility ^{4,5} :	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)

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
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
<i>If Yes to both above – then Testing Status – ‘No Further Testing Needed’ mark ‘NA’ below and complete Conclusions section</i>	
If No to either above, were all results obtained under 4.0-pCi/L and were there sufficient valid measurements obtained? ^{1,2} <i>If Yes – then Testing Status - ‘No Further Testing Needed’ complete Conclusion section</i> <i>If No, then Testing Status - ‘Follow-up Testing Required’ continue below</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" 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 $\leq 33\%$. 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 $\leq 25\%$ of the total locations tested. If less than 20 test locations please review section 6.2 of the ANSI/AARST MA-MFLB 2023 – Conducting Measurements of Radon in Multifamily, School, Commercial and Mix-Use Buildings to determine the number the allowance.

- If ‘No Further Testing Needed’ complete conclusions section on first page.
- If ‘Follow-up Testing Required’ – complete Follow-up Testing described below and the conclusion section on the first page for only the valid measurements/results obtained

Follow-Up Testing (if required)

Required if –

- 1- Not enough valid results were obtained from a facility (table above);
- 2- Any results ≥ 4.0 – pCi/L; and
- 3- At the discretion of MCPS IAQ Staff

Follow-up Testing:

- 1- If an insufficient number of valid measurements obtained during initial round:
 - return to facility to test locations that require valid measurements
- 2- Follow-up Testing for valid measurements ≥ 4.0 -pCi/L

Initial Result(s)	Procedure	Follow-up Result	Conclusion
≥ 4.0-pCi/L	1- Short-term follow-up test 2- Average the results of the two tests	≥4.0	Mitigation Required
		<4.0 but >2.0	Consider Mitigation
		<2.0	Not Required or Considered

- **Complete second School/Facility Radon Testing Report Form for only Follow-up Testing locations.**

Attachment 1:
Summary Data Tables

Table 1- Radon Retesting Results		
White Oak Middle School		
Test Period: 02/20/2024 - 02/23/2024		
Kit Number	Room / Area	Result
11477995	101	2.9
11477869	BOYS LOCKER ROOM	2.6
11477878	BOYS LOCKER ROOM	2.4

Table 3 - QC Radon Retesting Results			
White Oak Middle School			
Test Period: 02/20/2024 - 02/23/2024			
Kit Number	QC Type	Room / Area	Result
11477878	D	BOYS LOCKER ROOM	2.4

Attachment 2:
Laboratory Reports

February 27, 2024

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

MAIN

MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11477882	022	2024-02-20 @ 10:00 am	2024-02-23 @ 11:00 am	0.9 ± 0.3	2024-02-27
11477885	022	2024-02-20 @ 10:00 am	2024-02-23 @ 11:00 am	< 0.3	2024-02-27
11477886	022	2024-02-20 @ 10:00 am	2024-02-23 @ 11:00 am	1.1 ± 0.3	2024-02-27
11477879	101	2024-02-20 @ 10:00 am	2024-02-23 @ 11:00 am	< 0.3	2024-02-27
11477995	101	2024-02-20 @ 10:00 am	2024-02-23 @ 11:00 am	2.9 ± 0.4	2024-02-27
11477869	BOYS LOCKER ROOM	2024-02-20 @ 10:00 am	2024-02-23 @ 11:00 am	2.6 ± 0.4	2024-02-27
11477878	BOYS LOCKER ROOM	2024-02-20 @ 10:00 am	2024-02-23 @ 11:00 am	2.4 ± 0.4	2024-02-27

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

February 27, 2024

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

**KCI
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11477832	OB	2024-02-23 @ 8:00 am	2024-02-26 @ 11:00 am	< 0.3	2024-02-27
11482793	OB	2024-02-23 @ 8:00 am	2024-02-26 @ 11:00 am	< 0.3	2024-02-27
11477841	TB	2024-02-23 @ 8:00 am	2024-02-26 @ 11:00 am	< 0.3	2024-02-27
11482795	TB	2024-02-23 @ 8:00 am	2024-02-26 @ 11:00 am	< 0.3	2024-02-27

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

January 29, 2024

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
STORAGE
KCI

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11635097	Storage	2024-01-07 @ 9:00 am	2024-01-11 @ 9:00 am	< 0.3	2024-01-15

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

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI TECHNOLOGIES, Inc Job Number 213819

NOMINAL Conditions: Radon Conc 50.0 pCi/L Rel. Hum 28.9 % Temp. 69.1 F

Date Start: 2/23/24 Date Stop: 2/26/24 Date Start: _____ Date Stop: _____

Time Start: 0812 Time Stop: 0812 Time Start: _____ Time Stop: _____

Device No.'s: (6) CHAR BAGS Device No.'s: _____

11478400, 11477842, 11477845, _____

11477852, 11477996, 11477999 _____

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**

March 1, 2024

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

FEB SK

MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11477842	NA	2024-02-23 @ 8:00 am	2024-02-26 @ 8:00 am	50.3 ± 4.0	2024-03-01
11477845	NA	2024-02-23 @ 8:00 am	2024-02-26 @ 8:00 am	55.3 ± 4.4	2024-03-01
11477852	NA	2024-02-23 @ 8:00 am	2024-02-26 @ 8:00 am	49.4 ± 4.0	2024-03-01
11477996	NA	2024-02-23 @ 8:00 am	2024-02-26 @ 8:00 am	49.8 ± 4.0	2024-03-01
11477999	NA	2024-02-23 @ 8:00 am	2024-02-26 @ 8:00 am	55.4 ± 4.4	2024-03-01
11478400	NA	2024-02-23 @ 8:00 am	2024-02-26 @ 8:00 am	47.0 ± 3.8	2024-03-01

Air Chek 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 – Testing February 20th – February 23rd, 2024

Name of Schools:

1. Cabin Branch ES
2. Clarksburg HS
3. Fairland ES
4. Jackson Road ES
5. JFK HS
6. John T. Baker MS
7. White Oak MS

	Date	Initials
Radon Test Kits Deployed	02/20/2024	JM
Radon Test Kits Collected	02/23/2024	AM
Radon Test Kits Shipped to Lab*	02/23/2024	AM
Radon Test Kits Received by Lab*	02/27/2024	AM

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

Attachment 3:
Sampling Location Map



School / Facility Radon Testing Report Form

Instructions: Submit one testing report form per-facility per-round of testing. 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 Year: **23-24**

Facility:	White Oak Middle School
Address:	12201 New Hampshire Avenue
	Silver Spring, MD 20904

Reason for Testing:	<input checked="" type="checkbox"/> Scheduled Re-Testing (2 or 5-year schedule) <input type="checkbox"/> Clearance Testing (Post-Mitigation) <input type="checkbox"/> System(s) Performance Testing (Post-Mitigation) <input type="checkbox"/> New Construction/Facility
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
Round of Testing:	<input checked="" type="checkbox"/> Initial Testing -or- <input type="checkbox"/> Follow-up Testing
Testing Status:	<input type="checkbox"/> No Further Testing Needed -or- <input checked="" type="checkbox"/> Follow-Up Testing Required

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

Mitigation -	Facility Radon Status:
<input type="checkbox"/> Not Required or Considered <input type="checkbox"/> Required (>8.0 -pCi/L) <input type="checkbox"/> Required (≥ 4.0 -pCi/L) <input type="checkbox"/> Consider (≥ 2.0 & <4.0 -pCi/L)	<input 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)

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)	
<i>Other—Specify here:</i>				
Detector/Device Name:	Air Chek – Radon Test Kits			
Manufacturer:	Radon Lab			
Person(s) Deploying or Retrieving Test Devices and certification number			Organization/Company	
(Field Tech)				
Tyler McCleaf			KCI Technologies, Inc.	
<i>If noncertified individuals, the qualified measurement professional providing oversight -</i>				
Tyler McCleaf, CSP – Cert. #111004-RMP			KCI Technologies, Inc.	

Testing

<input checked="" type="checkbox"/> Short-Term	Length of Test (days):	3	Date of Deployment and Retrieval (mm/dd/yy):	01/23/2024
<input type="checkbox"/> Long-Term				01/26/2024
Does the test period include weekends, school breaks or holidays?				<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<i>If "Yes" please explain/detail in the space below:</i>				
Was HVAC operating under occupied conditions?				<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<i>If "No" please explain/detail in the space below:</i>				

Testing (continued)

	Detectors Deployed		
	Ground-Contact	Upper-Level(s)	Total
Test Locations ¹	52	3	55
Duplicates ²	5	0	5
Field Blanks ³	2	1	3
Grand Total			63

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.

Spike Samples ¹	6	Trip Blank(s) ²	1	Office Blank(s) ^{3,4}	1
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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.

Spike Sample Lab Results. Measured values are satisfactory, i.e., within ± 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 QA plan previously submitted?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Quality Assurance / Quality Control (QA/QC) (continued)

If “No” to either, please describe any QC measurements that were missing or outside of control tolerances established in the QAP here:

Summary of Test Results¹ and Determination of Valid Measurements²

	Ground-Contact	Upper-Level(s)	Total
Number of test locations:	52	3	55
Number of locations ≥8.0-pCi/L:	0	0	0
Number of locations ≥4.0 and ≤8-pCi/L:	0	0	0
Number of locations ≥2.7 and ≤4-pCi/L:	0	0	0
Number of locations ≥2.0 and ≤4-pCi/L:	6	0	6
Number of missing required test locations ³ :	1	0	0
Percentage of missing test locations for the facility ^{4,5} :	1.9%	0	1.9%

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

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

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

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

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

Summary of Test Results¹ and Determination of Valid Measurements² (continued)

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
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
<i>If Yes to both above – then Testing Status – ‘No Further Testing Needed’ mark ‘NA’ below and complete Conclusions section</i>	
If No to either above , were all results obtained under 4.0-pCi/L and were there sufficient valid measurements obtained? ^{1,2} <i>If Yes – then Testing Status - ‘No Further Testing Needed’ complete Conclusion section</i> <i>If No, then Testing Status - ‘Follow-up Testing Required’ continue below</i>	<input type="checkbox"/> Yes <input checked="" 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.

- **If ‘No Further Testing Needed’** complete conclusions section on first page.
- **If ‘Follow-up Testing Required’** – complete Follow-up Testing described below and the conclusion section on the first page for only the valid measurements/results obtained

Follow-Up Testing (if required)

Required if –

- 1- Not enough valid results were obtained from a facility (table above);
- 2- Any results ≥ 4.0 – pCi/L; and
- 3- At the discretion of MCPS IAQ Staff

Follow-up Testing:

- 1- If an insufficient number of valid measurements obtained during initial round:
 - return to facility to test locations that require valid measurements
- 2- Follow-up Testing for valid measurements ≥ 4.0-pCi/L

Initial Result(s)	Procedure	Follow-up Result	Conclusion
≥ 4.0-pCi/L	1- Short-term follow-up test 2- Average the results of the two tests	≥4.0	Mitigation Required
		<4.0 but >2.0	Consider Mitigation
		<2.0	Not Required or Considered

- **Complete second School/Facility Radon Testing Report Form for only Follow-up Testing locations.**

Attachment 1:
Summary Data Tables

Table 1- Radon Testing Results		
White Oak Middle School		
Test Period: 01/23/2024 - 01/26/2024		
Kit Number	Room / Area	Result
11463676	100	1.8
11463670	101	2.4
11463632	102	1.1
11463668	103	1.5
11463675	104	1.4
11463634	105	1.6
11463669	105	1.0
11463639	106	0.5
11463640	108	1.3
11463677	108	1.2
11463633	109	< 0.3
11463649	110	0.8
11463650	110	< 0.3
11463624	111	2.1
11463623	113	1.0
11463642	114	1.9
11463667	115	1.1
11463625	117	0.6
11463626	117	0.8
11463661	119	0.9
11463662	119	< 0.3
11463660	120	1.1
11463654	123	1.9
11463645	124	1.4
11463653	125	1.5
11463652	127	1.1
11463646	129	1.3
11463651	131	1.5
11463638	132	1.5
11463644	132	1.0
11463618	134	2.5
11463610	140	2.7
11463614	202	< 0.3
11463621	202	< 0.3
11463601	203	< 0.3
11463628	205	0.6
11463606	208	< 0.3
11463622	212	< 0.3

Table 1- Radon Testing Results		
White Oak Middle School		
Test Period: 01/23/2024 - 01/26/2024		
11463608	221	< 0.3
11463636	231	< 0.3
11463637	231	< 0.3
11463617	304	< 0.3
11463631	101A	3.0
11463641	106A	1.2
11463678	107A	1.0
11463659	125A	1.3
11463615	138A	2.4
11463616	138A	2.8
11463602	202A	< 0.3
11463605	202A	< 0.3
11463627	202B	< 0.3
11463603	ATTENDANCE	< 0.3
111463643	BLR	N/A
11463629	CAFE	< 0.3
11463635	CAFE	< 0.3
11463607	CAFE OFFICE	2.0
11463611	CONFERENCE	< 0.3
11463619	CONFERENCE2	< 0.3
11463613	CONFERENCE3	< 0.3
11463620	CONFERENCE4	< 0.3
11463609	GYM	0.6
11463630	GYM	< 0.3
11463604	MAIN OFFICE	< 0.3
11463612	WORKROOM	< 0.3

Table 3 - QC Radon Testing Results			
White Oak Middle School			
Test Period: 01/23/2024 - 01/26/2024			
Kit Number	QC Type	Room / Area	Result
11463634	D	105	1.6
11463640	D	108	1.3
11463650	FB	110	< 0.3
11463626	D	117	0.8
11463662	FB	119	< 0.3
11463638	D	132	1.5
11463637	FB	231	< 0.3
11463616	D	138a	2.8
11463605	D	202a	< 0.3
11463691	OB	OFFICE BLANK	< 0.3
11463647	TB	TRAVEL BLANK	< 0.3

Attachment 2:
Laboratory Reports

Radon test result report for:**MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11463676	100	2024-01-23 @ 2:00 pm	2024-01-26 @ 11:00 am	1.8 ± 0.4	2024-01-30
11463670	101	2024-01-23 @ 2:00 pm	2024-01-26 @ 11:00 am	2.4 ± 0.4	2024-01-30
11463631	101A	2024-01-23 @ 2:00 pm	2024-01-26 @ 11:00 am	3.0 ± 0.4	2024-01-30
11463632	102	2024-01-23 @ 2:00 pm	2024-01-26 @ 11:00 am	1.1 ± 0.3	2024-01-30
11463668	103	2024-01-23 @ 2:00 pm	2024-01-26 @ 11:00 am	1.5 ± 0.4	2024-01-30
11463675	104	2024-01-23 @ 2:00 pm	2024-01-26 @ 11:00 am	1.4 ± 0.3	2024-01-30
11463669	105	2024-01-23 @ 2:00 pm	2024-01-26 @ 11:00 am	1.0 ± 0.3	2024-01-30
11463634	105	2024-01-23 @ 2:00 pm	2024-01-26 @ 11:00 am	1.6 ± 0.4	2024-01-30
11463639	106	2024-01-23 @ 2:00 pm	2024-01-26 @ 11:00 am	0.5 ± 0.3	2024-01-30
11463641	106A	2024-01-23 @ 2:00 pm	2024-01-26 @ 11:00 am	1.2 ± 0.3	2024-01-30
11463678	107A	2024-01-23 @ 2:00 pm	2024-01-26 @ 11:00 am	1.0 ± 0.3	2024-01-30
11463677	108	2024-01-23 @ 2:00 pm	2024-01-26 @ 11:00 am	1.2 ± 0.3	2024-01-30
11463640	108	2024-01-23 @ 2:00 pm	2024-01-26 @ 11:00 am	1.3 ± 0.3	2024-01-30
11463633	109	2024-01-23 @ 2:00 pm	2024-01-26 @ 11:00 am	< 0.3	2024-01-30
11463650	110	2024-01-23 @ 2:00 pm	2024-01-26 @ 11:00 am	< 0.3	2024-01-30
11463649	110	2024-01-23 @ 2:00 pm	2024-01-26 @ 11:00 am	0.8 ± 0.3	2024-01-30
11463624	111	2024-01-23 @ 2:00 pm	2024-01-26 @ 11:00 am	2.1 ± 0.4	2024-01-30
11463623	113	2024-01-23 @ 2:00 pm	2024-01-26 @ 11:00 am	1.0 ± 0.3	2024-01-30
11463642	114	2024-01-23 @ 2:00 pm	2024-01-26 @ 11:00 am	1.9 ± 0.4	2024-01-30
11463667	115	2024-01-23 @ 2:00 pm	2024-01-26 @ 11:00 am	1.1 ± 0.3	2024-01-30
11463625	117	2024-01-23 @ 1:00 pm	2024-01-26 @ 11:00 am	0.6 ± 0.3	2024-01-30
11463626	117	2024-01-23 @ 1:00 pm	2024-01-26 @ 11:00 am	0.8 ± 0.3	2024-01-30
11463662	119	2024-01-23 @ 1:00 pm	2024-01-26 @ 11:00 am	< 0.3	2024-01-30
11463661	119	2024-01-23 @ 1:00 pm	2024-01-26 @ 11:00 am	0.9 ± 0.3	2024-01-30
11463660	120	2024-01-23 @ 1:00 pm	2024-01-26 @ 11:00 am	1.1 ± 0.3	2024-01-30
11463654	123	2024-01-23 @ 1:00 pm	2024-01-26 @ 11:00 am	1.9 ± 0.3	2024-01-30
11463645	124	2024-01-23 @ 1:00 pm	2024-01-26 @ 11:00 am	1.4 ± 0.3	2024-01-30
11463653	125	2024-01-23 @ 1:00 pm	2024-01-26 @ 11:00 am	1.5 ± 0.3	2024-01-30
11463659	125A	2024-01-23 @ 1:00 pm	2024-01-26 @ 11:00 am	1.3 ± 0.3	2024-01-30
11463652	127	2024-01-23 @ 1:00 pm	2024-01-26 @ 11:00 am	1.1 ± 0.3	2024-01-30
11463646	129	2024-01-23 @ 1:00 pm	2024-01-26 @ 12:00 pm	1.3 ± 0.3	2024-01-30
11463651	131	2024-01-23 @ 1:00 pm	2024-01-26 @ 12:00 pm	1.5 ± 0.3	2024-01-30
11463638	132	2024-01-23 @ 1:00 pm	2024-01-26 @ 11:00 am	1.5 ± 0.3	2024-01-30
11463644	132	2024-01-23 @ 1:00 pm	2024-01-26 @ 11:00 am	1.0 ± 0.3	2024-01-30
11463618	134	2024-01-23 @ 1:00 pm	2024-01-26 @ 11:00 am	2.5 ± 0.4	2024-01-30
11463617	304	2024-01-23 @ 1:00 pm	2024-01-26 @ 11:00 am	< 0.3	2024-01-30

Radon test result report for:
WHITE OAK MS
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11463615	138A	2024-01-23 @ 1:00 pm	2024-01-26 @ 12:00 pm	2.4 ± 0.4	2024-01-30
11463616	138A	2024-01-23 @ 1:00 pm	2024-01-26 @ 12:00 pm	2.8 ± 0.4	2024-01-30
11463610	140	2024-01-23 @ 1:00 pm	2024-01-26 @ 11:00 am	2.7 ± 0.4	2024-01-30
11463614	202	2024-01-23 @ 1:00 pm	2024-01-26 @ 11:00 am	< 0.3	2024-01-30
11463621	202	2024-01-23 @ 1:00 pm	2024-01-26 @ 11:00 am	< 0.3	2024-01-30
11463605	202A	2024-01-23 @ 1:00 pm	2024-01-26 @ 11:00 am	< 0.3	2024-01-30
11463602	202A	2024-01-23 @ 1:00 pm	2024-01-26 @ 11:00 am	< 0.3	2024-01-30
11463627	202B	2024-01-23 @ 1:00 pm	2024-01-26 @ 11:00 am	< 0.3	2024-01-30
11463601	203	2024-01-23 @ 1:00 pm	2024-01-26 @ 12:00 pm	< 0.3	2024-01-30
11463628	205	2024-01-23 @ 1:00 pm	2024-01-26 @ 11:00 am	0.6 ± 0.3	2024-01-30
11463606	208	2024-01-23 @ 1:00 pm	2024-01-26 @ 11:00 am	< 0.3	2024-01-30
11463622	212	2024-01-23 @ 1:00 pm	2024-01-26 @ 11:00 am	< 0.3	2024-01-30
11463608	221	2024-01-23 @ 1:00 pm	2024-01-26 @ 11:00 am	< 0.3	2024-01-30
11463636	231	2024-01-23 @ 1:00 pm	2024-01-26 @ 12:00 pm	< 0.3	2024-01-30
11463637	231	2024-01-23 @ 1:00 pm	2024-01-26 @ 12:00 pm	< 0.3	2024-01-30
11463603	ATTENDANCE	2024-01-23 @ 12:00 pm	2024-01-26 @ 11:00 am	< 0.3	2024-01-30
11463629	CAFE	2024-01-23 @ 1:00 pm	2024-01-26 @ 11:00 am	< 0.3	2024-01-30
11463635	CAFE	2024-01-23 @ 1:00 pm	2024-01-26 @ 11:00 am	< 0.3	2024-01-30
11463607	CAFE OFFICE	2024-01-23 @ 1:00 pm	2024-01-26 @ 11:00 am	2.0 ± 0.4	2024-01-30
11463611	CONFERENCE	2024-01-23 @ 1:00 pm	2024-01-26 @ 11:00 am	< 0.3	2024-01-30
11463619	CONFERENCE2	2024-01-23 @ 1:00 pm	2024-01-26 @ 11:00 am	< 0.3	2024-01-30
11463613	CONFERENCE3	2024-01-23 @ 1:00 pm	2024-01-26 @ 11:00 am	< 0.3	2024-01-30
11463620	CONFERENCE4	2024-01-23 @ 1:00 pm	2024-01-26 @ 11:00 am	< 0.3	2024-01-30
11463630	GYM	2024-01-23 @ 1:00 pm	2024-01-26 @ 11:00 am	< 0.3	2024-01-30
11463609	GYM	2024-01-23 @ 1:00 pm	2024-01-26 @ 11:00 am	0.6 ± 0.3	2024-01-30
11463604	MAIN OFFICE	2024-01-23 @ 12:00 pm	2024-01-26 @ 11:00 am	< 0.3	2024-01-30
11463612	WORKROOM	2024-01-23 @ 1:00 pm	2024-01-26 @ 11:00 am	< 0.3	2024-01-30

January 30, 2024

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

**KCI
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11463691	OB	2024-01-23 @ 8:00 am	2024-01-26 @ 2:00 pm	< 0.3	2024-01-30
11463647	TB	2024-01-23 @ 8:00 am	2024-01-26 @ 2:00 pm	< 0.3	2024-01-30

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

January 29, 2024

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
STORAGE
KCI

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11635097	Storage	2024-01-07 @ 9:00 am	2024-01-11 @ 9:00 am	< 0.3	2024-01-15

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

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI TECHNOLOGIES, INC Job Number 213327

NOMINAL Conditions: Radon Conc 49.5 pCi/L Rel. Hum 24.7 % Temp. 69.8 F

Date Start: 1/19/24 Date Stop: 1/22/24 Date Start: _____ Date Stop: _____

Time Start: 0831 Time Stop: 0831 Time Start: _____ Time Stop: _____

Device No.'s: (6) CHAR BAGS - Device No.'s: _____

11284003, 11284005, 11284006

11284007, 11284008, 11284013

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**

January 29, 2024

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
**BOWSER MORNER
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11284003	SK	2024-01-19 @ 9:00 am	2024-01-22 @ 9:00 am	47.0 ± 3.8	2024-01-29
11284005	SK	2024-01-19 @ 9:00 am	2024-01-22 @ 9:00 am	43.4 ± 3.5	2024-01-29
11284006	SK	2024-01-19 @ 9:00 am	2024-01-22 @ 9:00 am	42.1 ± 3.4	2024-01-29
11284007	SK	2024-01-19 @ 9:00 am	2024-01-22 @ 9:00 am	46.4 ± 3.7	2024-01-29
11284008	SK	2024-01-19 @ 9:00 am	2024-01-22 @ 9:00 am	46.2 ± 3.7	2024-01-29
11284013	SK	2024-01-19 @ 9:00 am	2024-01-22 @ 9:00 am	45.6 ± 3.6	2024-01-29

Air Chek 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 – Testing January 23rd to January 26th

Name of Schools:

1. Thomas S. Wootton HS
2. Sligo MS
3. White Oak MS
4. Rosa M. Parks MD
5. Clopper Mill ES
6. Thomas W. Pyle MS
7. Burnt Mills ES

	Date	Initials
Radon Test Kits Deployed	01/23/2024	BMM
Radon Test Kits Collected	01/26/2024	BMM
Radon Test Kits Shipped to Lab*	01/26/2024	BMM
Radon Test Kits Received by Lab*	01/30/2024	BMM

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

Attachment 3:
Sampling Location Map



MCPS RADON TESTING – EXECUTIVE SUMMARY

Site Name	White Oak Middle School
Date of Test Report	05/27/2022
Round of Testing	Initial <u>Follow-up</u> Post Remediation 2 Year Testing 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility
# Rooms Tested	2
# Rooms \geq 4.0 pCi/L	1
Lowest Value	0.6 pCi/L
Highest Value	6.7 pCi/L

Project Status

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

Mitigation needed - Room 138A



May 27, 2022

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

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

Location: White Oak Middle School
12201 New Hampshire Ave.
Silver Spring, MD 20904

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 White Oak Middle School, located at 12201 New Hampshire Ave. Silver Spring, MD (subject site).

Scope of Services:

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

KCI visited the site on March 29, 2022 and deployed five (5) activated charcoal (AC) radon test kits. KCI deployed radon test kits in all frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance.

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

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

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

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

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

Evaluation of Testing Conditions:

These tests represent:

- Follow-up to initial testing.

These tests were conducted to:

- Evaluate radon concentrations at the facility.

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

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

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

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

Results:

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

The results of the radon test analysis indicated the following:

Radon Concentration	Room	Result
≥4.0 pCi/L	138A	6.7
≥4.0 pCi/L	138A	5.5
<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		
White Oak MS RT		
Test Period: 03/29/2022 - 04/01/2022		
Kit Number	Room / Area	Result
11139926	138A	1.4
11139966	138A	6.7
11139970	138A	5.5
11139965	GYM 244	0.6
11139968	GYM 244	0.7

Table 2- Radon Testing Results			
White Oak MS RT			
Test Period: 03/29/2022 - 04/01/2022			
Kit Number	QC Type	Room / Area	Result
11139966	D	138A	6.7
11139926	FB	138A	1.4
11139883	OB	OFFICE BLANK	< 0.3
11139841	TB	TRAVEL BLANK	< 0.3

ATTACHMENT C

Laboratory Analytical Results

April 4, 2022

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11139926	138A	2022-03-29 @ 11:00 am	2022-04-01 @ 11:00 am	1.4 ± 0.3	2022-04-04
11139966	138A	2022-03-29 @ 11:00 am	2022-04-01 @ 11:00 am	6.7 ± 0.5	2022-04-04
11139970	138A	2022-03-29 @ 11:00 am	2022-04-01 @ 11:00 am	5.5 ± 0.4	2022-04-04
11139965	GYM 244	2022-03-29 @ 11:00 am	2022-04-01 @ 11:00 am	0.6 ± 0.3	2022-04-04
11139968	GYM 244	2022-03-29 @ 11:00 am	2022-04-01 @ 11:00 am	0.7 ± 0.3	2022-04-04

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

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI Technologies, Inc. Job Number 204620

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

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

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

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

11139367, 11139368, 11139371, _____

11139710, 11139717 _____

E3 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



Radon Test Kit Chain of Custody

Project Name: MCPS Radon – March 2022 Schools – Retesting

Name of Schools:

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

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

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



MCPS RADON TESTING – EXECUTIVE SUMMARY

Site Name	White Oak Middle School
Date of Test Report	4/29/2022
Round of Testing	Initial Follow-up Post Remediation 2 Year Testing 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility
# Rooms Tested	64
# Rooms \geq 4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	6.6 pCi/L

Project Status:

Initial testing completed; Missing, elevated, or compromised samples need re-sampling



April 29, 2022

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

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

Location: White Oak Middle School
12201 New Hampshire Ave.
Silver Spring, MD 20904

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 White Oak Middle School located at 12201 New Hampshire Ave. Silver Spring, MD 20904 (subject site).

Scope of Services:

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

KCI visited the site on March 7, 2022 and deployed seventy-three (73) 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 10, 2022 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Airchek, Inc. for analysis by gamma-ray spectroscopy. Airchek, Inc. is a

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

Evaluation of Testing Conditions:

These tests represent:

- Follow-up to initial testing

These tests were conducted to:

- Evaluate radon concentration levels at the facility

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

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

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

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

Results:

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

The results of the radon test analysis indicated the following:

Radon Concentration	Room	Result
≥4.0 pCi/L	138A	6.6
<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		
White Oak MS		
Test Period: 03/07/2022 - 03/10/2022		
Kit Number	Room / Area	Result
11123489	101	1.6
11123499	102	1.2
11123490	103	1.7
11123483	104	1.2
11123498	105	1.6
11134316	105	1.6
11123486	106	0.9
11123477	107	1.4
11123479	108	1.2
11123493	109	0.8
11123487	110	1.2
11123480	111	1.2
11123488	112	1.4
11123495	113	1.0
11123491	114	1.7
11123482	115	0.8
11123485	115	< 0.3
11123492	115	1.0
11123494	117	0.9
11134356	119	0.8
11134348	120	< 0.3
11134355	122	1.2
11134354	123	1.3
11134359	124	1.4
11134351	125	1.7
11134353	127	0.9
11123496	129	1.0
11134347	129	1.1
11134357	130	2.1
11134362	131	1.4
11134350	132	0.5
11134361	134	1.7
11134360	138	2.4
11134358	140	2.1
11134381	200	< 0.3
11134384	200	< 0.3
11134386	200	< 0.3
11134371	201	< 0.3
11134377	205	< 0.3
11134382	212	< 0.3
11134388	222	< 0.3
11134389	225	< 0.3

Table 1- Radon Testing Results		
White Oak MS		
Test Period: 03/07/2022 - 03/10/2022		
Kit Number	Room / Area	Result
11134393	225	< 0.3
11134394	233	< 0.3
11134395	241	< 0.3
11134368	250	1.3
11134349	252	0.7
11134396	320	< 0.3
11123500	101A	2.6
11123478	106A	1.5
11123484	107A	1.3
11134352	125A	1.1
11123497	138A	6.6
11134372	201A	< 0.3
11134375	201B	< 0.3
11134376	201B	< 0.3
11134379	201D	0.7
11134373	201E	< 0.3
11134366	201F	0.6
11134369	201G	< 0.3
11134374	201J	0.8
11134380	202 MEDIA CENTER	0.6
11134383	202 MEDIA CENTER	< 0.3
11134392	202A	0.7
11134385	202B	< 0.3
11134378	205A	< 0.3
11134390	214 CAFETERIA	< 0.3
11134391	214 CAFETERIA	< 0.3
11134387	216A	1.0
11134365	244 GYM	0.8
11134363	252A	1.2
11134364	252A	< 0.3
11134367	252A	1.5

Table 2- Radon Testing Results			
White Oak MS			
Test Period: 03/07/2022 - 03/10/2022			
Kit Number	QC Type	Room / Area	Result
11134316	D	105	1.6
11123492	D	115	1.0
11123485	FB	115	< 0.3
11123496	D	129	1.0
11134367	D	252A	1.5
11134364	FB	252A	< 0.3
11134386	D	200	< 0.3
11134381	FB	200	< 0.3
11134393	D	225	< 0.3
11131662	OB	OFFICE BLANK	< 0.3
11131691	TB	TRAVEL BLANK	< 0.3

ATTACHMENT C

Laboratory Analytical Results

Radon test result report for:

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11123489	101	2022-03-07 @ 9:00 am	2022-03-10 @ 9:00 am	1.6 ± 0.4	2022-03-14
11123500	101A	2022-03-07 @ 9:00 am	2022-03-10 @ 9:00 am	2.6 ± 0.4	2022-03-14
11123499	102	2022-03-07 @ 9:00 am	2022-03-10 @ 9:00 am	1.2 ± 0.3	2022-03-14
11123490	103	2022-03-07 @ 9:00 am	2022-03-10 @ 9:00 am	1.7 ± 0.4	2022-03-14
11123483	104	2022-03-07 @ 9:00 am	2022-03-10 @ 9:00 am	1.2 ± 0.3	2022-03-14
11123498	105	2022-03-07 @ 9:00 am	2022-03-10 @ 9:00 am	1.6 ± 0.4	2022-03-14
11134316	105	2022-03-07 @ 9:00 am	2022-03-10 @ 9:00 am	1.6 ± 0.4	2022-03-14
11123486	106	2022-03-07 @ 9:00 am	2022-03-10 @ 9:00 am	0.9 ± 0.3	2022-03-14
11123478	106A	2022-03-07 @ 9:00 am	2022-03-10 @ 9:00 am	1.5 ± 0.3	2022-03-14
11123477	107	2022-03-07 @ 9:00 am	2022-03-10 @ 9:00 am	1.4 ± 0.4	2022-03-14
11123484	107A	2022-03-07 @ 9:00 am	2022-03-10 @ 9:00 am	1.3 ± 0.3	2022-03-14
11123479	108	2022-03-07 @ 9:00 am	2022-03-10 @ 9:00 am	1.2 ± 0.3	2022-03-14
11123493	109	2022-03-07 @ 9:00 am	2022-03-10 @ 9:00 am	0.8 ± 0.3	2022-03-14
11123487	110	2022-03-07 @ 9:00 am	2022-03-10 @ 9:00 am	1.2 ± 0.3	2022-03-14
11123480	111	2022-03-07 @ 9:00 am	2022-03-10 @ 9:00 am	1.2 ± 0.3	2022-03-14
11123488	112	2022-03-07 @ 9:00 am	2022-03-10 @ 9:00 am	1.4 ± 0.4	2022-03-14
11123495	113	2022-03-07 @ 9:00 am	2022-03-10 @ 9:00 am	1.0 ± 0.3	2022-03-14
11123491	114	2022-03-07 @ 9:00 am	2022-03-10 @ 9:00 am	1.7 ± 0.4	2022-03-14
11123482	115	2022-03-07 @ 10:00 am	2022-03-10 @ 9:00 am	0.8 ± 0.3	2022-03-14
11123492	115	2022-03-07 @ 10:00 am	2022-03-10 @ 9:00 am	1.0 ± 0.3	2022-03-14
11123485	115	2022-03-07 @ 10:00 am	2022-03-10 @ 9:00 am	< 0.3	2022-03-14
11123494	117	2022-03-07 @ 9:00 am	2022-03-10 @ 9:00 am	0.9 ± 0.3	2022-03-14
11134356	119	2022-03-07 @ 10:00 am	2022-03-10 @ 9:00 am	0.8 ± 0.3	2022-03-14
11134348	120	2022-03-07 @ 10:00 am	2022-03-10 @ 9:00 am	< 0.3	2022-03-14
11134355	122	2022-03-07 @ 10:00 am	2022-03-10 @ 9:00 am	1.2 ± 0.4	2022-03-14
11134354	123	2022-03-07 @ 10:00 am	2022-03-10 @ 9:00 am	1.3 ± 0.4	2022-03-14
11134359	124	2022-03-07 @ 10:00 am	2022-03-10 @ 9:00 am	1.4 ± 0.4	2022-03-14
11134351	125	2022-03-07 @ 10:00 am	2022-03-10 @ 9:00 am	1.7 ± 0.3	2022-03-14
11134352	125A	2022-03-07 @ 10:00 am	2022-03-10 @ 9:00 am	1.1 ± 0.3	2022-03-14
11134353	127	2022-03-07 @ 10:00 am	2022-03-10 @ 9:00 am	0.9 ± 0.3	2022-03-14
11123496	129	2022-03-07 @ 10:00 am	2022-03-10 @ 9:00 am	1.0 ± 0.4	2022-03-14
11134347	129	2022-03-07 @ 10:00 am	2022-03-10 @ 9:00 am	1.1 ± 0.3	2022-03-14
11134357	130	2022-03-07 @ 10:00 am	2022-03-10 @ 9:00 am	2.1 ± 0.4	2022-03-14
11134362	131	2022-03-07 @ 10:00 am	2022-03-10 @ 9:00 am	1.4 ± 0.3	2022-03-14
11134350	132	2022-03-07 @ 10:00 am	2022-03-10 @ 9:00 am	0.5 ± 0.3	2022-03-14
11134361	134	2022-03-07 @ 10:00 am	2022-03-10 @ 9:00 am	1.7 ± 0.4	2022-03-14
11134360	138	2022-03-07 @ 10:00 am	2022-03-10 @ 9:00 am	2.4 ± 0.4	2022-03-14

Radon test result report for:

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11123497	138A	2022-03-07 @ 10:00 am	2022-03-10 @ 10:00 am	6.6 ± 0.5	2022-03-14
11134358	140	2022-03-07 @ 11:00 am	2022-03-10 @ 10:00 am	2.1 ± 0.4	2022-03-14
11134384	200	2022-03-07 @ 12:00 pm	2022-03-10 @ 10:00 am	< 0.3	2022-03-14
11134386	200	2022-03-07 @ 12:00 pm	2022-03-10 @ 10:00 am	< 0.3	2022-03-14
11134381	200	2022-03-07 @ 12:00 pm	2022-03-10 @ 10:00 am	< 0.3	2022-03-14
11134371	201	2022-03-07 @ 11:00 am	2022-03-10 @ 10:00 am	< 0.3	2022-03-14
11134372	201A	2022-03-07 @ 11:00 am	2022-03-10 @ 10:00 am	< 0.3	2022-03-14
11134375	201B	2022-03-07 @ 11:00 am	2022-03-10 @ 10:00 am	< 0.3	2022-03-14
11134376	201B	2022-03-07 @ 11:00 am	2022-03-10 @ 10:00 am	< 0.3	2022-03-14
11134379	201D	2022-03-07 @ 12:00 pm	2022-03-10 @ 10:00 am	0.7 ± 0.3	2022-03-14
11134373	201E	2022-03-07 @ 11:00 am	2022-03-10 @ 10:00 am	< 0.3	2022-03-14
11134366	201F	2022-03-07 @ 11:00 am	2022-03-10 @ 10:00 am	0.6 ± 0.3	2022-03-14
11134369	201G	2022-03-07 @ 11:00 am	2022-03-10 @ 10:00 am	< 0.3	2022-03-14
11134374	201J	2022-03-07 @ 11:00 am	2022-03-10 @ 10:00 am	0.8 ± 0.3	2022-03-14
11134380	202 MEDIA CENTER	2022-03-07 @ 12:00 pm	2022-03-10 @ 10:00 am	0.6 ± 0.3	2022-03-14
11134383	202 MEDIA CENTER	2022-03-07 @ 12:00 pm	2022-03-10 @ 10:00 am	< 0.3	2022-03-14
11134392	202A	2022-03-07 @ 12:00 pm	2022-03-10 @ 10:00 am	0.7 ± 0.3	2022-03-14
11134385	202B	2022-03-07 @ 12:00 pm	2022-03-10 @ 10:00 am	< 0.3	2022-03-14
11134377	205	2022-03-07 @ 12:00 pm	2022-03-10 @ 10:00 am	< 0.3	2022-03-14
11134378	205A	2022-03-07 @ 12:00 pm	2022-03-10 @ 10:00 am	< 0.3	2022-03-14
11134382	212	2022-03-07 @ 12:00 pm	2022-03-10 @ 9:00 am	< 0.3	2022-03-14
11134391	214 CAFETERIA	2022-03-07 @ 12:00 pm	2022-03-10 @ 10:00 am	< 0.3	2022-03-14
11134390	214 CAFETERIA	2022-03-07 @ 12:00 pm	2022-03-10 @ 10:00 am	< 0.3	2022-03-14
11134387	216A	2022-03-07 @ 12:00 pm	2022-03-10 @ 10:00 am	1.0 ± 0.3	2022-03-14
11134388	222	2022-03-07 @ 12:00 pm	2022-03-10 @ 10:00 am	< 0.3	2022-03-14
11134389	225	2022-03-07 @ 12:00 pm	2022-03-10 @ 10:00 am	< 0.3	2022-03-14
11134393	225	2022-03-07 @ 12:00 pm	2022-03-10 @ 10:00 am	< 0.3	2022-03-14
11134394	233	2022-03-07 @ 12:00 pm	2022-03-10 @ 10:00 am	< 0.3	2022-03-14
11134395	241	2022-03-07 @ 12:00 pm	2022-03-10 @ 10:00 am	< 0.3	2022-03-14
11134365	244 GYM	2022-03-07 @ 11:00 am	2022-03-10 @ 10:00 am	0.8 ± 0.3	2022-03-14
11134368	250	2022-03-07 @ 11:00 am	2022-03-10 @ 10:00 am	1.3 ± 0.3	2022-03-14
11134349	252	2022-03-07 @ 11:00 am	2022-03-10 @ 10:00 am	0.7 ± 0.3	2022-03-14
11134364	252A	2022-03-07 @ 11:00 am	2022-03-10 @ 10:00 am	< 0.3	2022-03-14
11134363	252A	2022-03-07 @ 11:00 am	2022-03-10 @ 10:00 am	1.2 ± 0.3	2022-03-14
11134367	252A	2022-03-07 @ 11:00 am	2022-03-10 @ 10:00 am	1.5 ± 0.3	2022-03-14
11134396	320	2022-03-07 @ 12:00 pm	2022-03-10 @ 11:00 am	< 0.3	2022-03-14

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 light

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



Radon Test Kit Chain of Custody

Project Name: MCPS Radon – March 2022 Schools

Name of Schools:

1. Cresthaven ES
2. Key, Francis Scott MS
3. Nix, Roscoe ES
4. Greencastle ES
5. Jackson Road
6. Page, William Tyler ES
7. West Farm Transportation Depot
8. Westover ES
9. White Oak MS

	Date	Initials
Radon Test Kits Deployed	03/07/2022	BMM
Radon Test Kits Collected	03/10/2022	BMM
Radon Test Kits Shipped to Lab*	03/10/2022	BMM
Radon Test Kits Received by Lab*	03/13/2022	BMM

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



MCPS RADON TESTING

Executive Summary: White Oak Middle School

Date of Test Report:	2/2/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	52
# Rooms \geq 4.0 pCi/L:	0
Low Value:	0.6
High Value:	3.7

Project Status:

Initial testing completed; no further action at this time.



February 2, 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 # 12146341.22

Location: White Oak Middle School
12201 New Hampshire Avenue
Silver Spring, MD 20904

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 White Oak Middle School, located at 12201 New Hampshire Avenue in Silver Spring, Maryland 20904 (subject site).

Scope of Services:

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

KCI visited the site on January 4, 2016 and deployed fifty-eight (58) activated charcoal (AC) radon test kits. KCI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. A floor plan map of the building with the test locations is included as Attachment A of this report.

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

KCI returned to the site on January 7, 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 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	none	n/a
< 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. Mouldale
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		
White Oak Middle School		
Test Period: 01/04/16-01/07/16		
Kit Number	Room / Area	Result
7707340	101	2.9
7714944	102	1.1
7707331	103	2.9
7714947	104	1.4
7707330	105	2.3
7714943	106	1.5
7713481	108	2.1
7707324	109	1
7707314	111	2.2
7714942	112	2.4
7713474	113	1.7
7707276	114	2.6
7713489	115	1.1
7713486	117	1.5
7714948	119	1.4
7707335	120	0.7
7707310	122	1.2
7706556	123	1
7714941	125	1.9
7713431	127	1.4
7707334	129	1.2
7707280	132	0.9
7707321	134	1.6
7713463	203	0.9
7713469	205	0.8
7713484	208	1.2
7713488	210	0.7
7713473	212	1.3
7714940	241	1
7707339	243	2.1
7714939	300	1.3
7713475	101A	3.7
7707313	106A	2.3
7714949	107A	2.1
7713450	201A	1.1
7713454	201B	1.1
7713461	201D	0.7
7713460	201E	0.7
7713451	201F	1
7713455	201G	0.6
7713444	201I	1
7713464	205A	1.4
7713465	CAFE	1.1
7713470	CAFE	0.7
7707224	CONFERENCE	0.7
7713457	COPY ROOM	1

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
White Oak Middle School		
Test Period: 01/04/16-01/07/16		
Kit Number	Room / Area	Result
7707264	GYM	1.4
7713476	GYM	1
7713492	MAIN OFFICE	1
7713485	MEDIA	0.7
7713487	MEDIA	0.9
7713482	MEDIA WORKROOM	1.3

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
White Oak Middle School		
Test Period: 01/04/16-01/07/16		
Kit Number	QC Type	Result
7707325	D (125)	1.8
7713471	D (CAFE)	0.6
7713483	D (MEDIA)	0.9
7707322	FB (104)	< 0.3
7707332	FB (GYM)	< 0.3
7714901	OB (0)	< 0.3

Table Note:

* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

January 25, 2016
LABORATORY ANALYSIS REPORT

Radon test result report for:
WHITE OAK MIDDLE SCHOOL MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7714901	0	2016-01-04 @ 4:00 pm	2016-01-07 @ 1:00 pm	< 0.3	2016-01-11
7707340	101	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	2.9 ± 0.5	2016-01-12
7713475	101A	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	3.7 ± 0.4	2016-01-11
7714944	102	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	1.1 ± 0.3	2016-01-11
7707331	103	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	2.9 ± 0.4	2016-01-11
7707322	104	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-12
7714947	104	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	1.4 ± 0.4	2016-01-12
7707330	105	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	2.3 ± 0.4	2016-01-12
7714943	106	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	1.5 ± 0.3	2016-01-11
7707313	106A	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	2.3 ± 0.4	2016-01-12
7714949	107A	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	2.1 ± 0.4	2016-01-12
7713481	108	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	2.1 ± 0.4	2016-01-11
7707324	109	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	1.0 ± 0.3	2016-01-11
7707314	111	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	2.2 ± 0.4	2016-01-11
7714942	112	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	2.4 ± 0.4	2016-01-11
7713474	113	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	1.7 ± 0.3	2016-01-11
7707276	114	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	2.6 ± 0.5	2016-01-12
7713489	115	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	1.1 ± 0.4	2016-01-12
7713486	117	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	1.5 ± 0.4	2016-01-12
7714948	119	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	1.4 ± 0.3	2016-01-11
7707335	120	2016-01-04 @ 11:00 am	2016-01-07 @ 9:00 am	0.7 ± 0.3	2016-01-11
7707310	122	2016-01-04 @ 11:00 am	2016-01-07 @ 10:00 am	1.2 ± 0.3	2016-01-11
7706556	123	2016-01-04 @ 11:00 am	2016-01-07 @ 10:00 am	1.0 ± 0.3	2016-01-11
7714941	125	2016-01-04 @ 11:00 am	2016-01-07 @ 10:00 am	1.9 ± 0.4	2016-01-12
7707325	125	2016-01-04 @ 11:00 am	2016-01-07 @ 10:00 am	1.8 ± 0.4	2016-01-12
7713431	127	2016-01-04 @ 11:00 am	2016-01-07 @ 10:00 am	1.4 ± 0.4	2016-01-12
7707334	129	2016-01-04 @ 11:00 am	2016-01-07 @ 10:00 am	1.2 ± 0.3	2016-01-11
7707280	132	2016-01-04 @ 11:00 am	2016-01-07 @ 10:00 am	0.9 ± 0.3	2016-01-11
7707321	134	2016-01-04 @ 11:00 am	2016-01-07 @ 10:00 am	1.6 ± 0.4	2016-01-12
7713450	201A	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	1.1 ± 0.4	2016-01-12
7713454	201B	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	1.1 ± 0.3	2016-01-12
7713461	201D	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.7 ± 0.3	2016-01-11
7713460	201E	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.7 ± 0.3	2016-01-12
7713451	201F	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	1.0 ± 0.3	2016-01-11
7713455	201G	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.6 ± 0.3	2016-01-11
7713444	201I	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	1.0 ± 0.3	2016-01-12
7713463	203	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.9 ± 0.3	2016-01-11

January 25, 2016 **LABORATORY ANALYSIS REPORT ****

Radon test result report for:
**WHITE OAK MIDDLE SCHOOL
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7713469	205	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.8 ± 0.3	2016-01-12
7713464	205A	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	1.4 ± 0.4	2016-01-12
7713484	208	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	1.2 ± 0.4	2016-01-12
7713488	210	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.7 ± 0.3	2016-01-11
7713473	212	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	1.3 ± 0.4	2016-01-12
7714940	241	2016-01-04 @ 11:00 am	2016-01-07 @ 10:00 am	1.0 ± 0.3	2016-01-12
7707339	243	2016-01-04 @ 11:00 am	2016-01-07 @ 10:00 am	2.1 ± 0.4	2016-01-12
7714939	300	2016-01-04 @ 11:00 am	2016-01-07 @ 10:00 am	1.3 ± 0.3	2016-01-12
7713470	CAFE	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.7 ± 0.3	2016-01-11
7713465	CAFE	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	1.1 ± 0.4	2016-01-12
7713471	CAFE	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.6 ± 0.3	2016-01-12
7707224	CONFERENCE	2016-01-04 @ 11:00 am	2016-01-07 @ 9:00 am	0.7 ± 0.3	2016-01-11
7713457	COPY ROOM	2016-01-04 @ 9:00 am	2016-01-07 @ 10:00 am	1.0 ± 0.3	2016-01-11
7713476	GYM	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	1.0 ± 0.3	2016-01-12
7707264	GYM	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	1.4 ± 0.4	2016-01-12
7707332	GYM	2016-01-04 @ 11:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-12
7713492	MAIN OFFICE	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	1.0 ± 0.3	2016-01-12
7713483	MEDIA	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	0.9 ± 0.3	2016-01-12
7713485	MEDIA	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	0.7 ± 0.3	2016-01-12
7713487	MEDIA	2016-01-04 @ 10:00 am	2016-01-07 @ 9:00 am	0.9 ± 0.3	2016-01-12
7713482	MEDIA WORKROOM	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	1.3 ± 0.4	2016-01-12

January 15, 2016
** LABORATORY ANALYSIS REPORT **

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

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7708218	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

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

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

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI Technologies Inc. Job Number 173224

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

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

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

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



Chain of Custody

Project Name: MCPS Radon Phase IV

Name of Schools:

- | | | |
|----------------------------|----------------------------|---------------------------|
| 1. Albert Einstein HS | 12. Herbert Hoover MS | 23. Stephen Knolls School |
| 2. Bel Pre ES | 13. Kohn F. Kennedy HS | 24. Strathmore ES |
| 3. Benjamin Banneker MS | 14. Julius West MS | 25. Summit Hall ES |
| 4. Bethesda Chevy Chase HS | 15. Kensington Parkwood ES | 26. Travilah ES |
| 5. Beverly Farms ES | 16. Lakewood ES | 27. Twinbrook ES |
| 6. Cabin John MS | 17. Mill Creek ES | 28. Waters Landing ES |
| 7. Chevy Chase ES | 18. Montgomery Blair HS | 29. Watkins Mill HAS |
| 8. Farmland ES | 19. Montgomery Village MS | 30. Weller Road ES |
| 9. Forest Oak MS | 20. Northwood HS | 31. White Oak MS |
| 10. Gaithersburg HS | 21. Paint Branch ES | 32. Winston Churchill HS |
| 11. Garrett Park ES | 22. Rock Creek Forest ES | |

	Date	Initials
Radon Test Kits Deployed	1/4/16	JM
Radon Test Kits Sampled	1/7/16	JM
Radon Test Kits Shipped to Lab*	1/8/16	JM
Radon Test Kits Received by Lab*	1/11/16	JM

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

Note: tests kits deployed at Montgomery Blair HS 1/4/16 and 1/5/16, test kits sampled at Montgomery Blair HS 1/7/16 and 1/8/16