

## 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  $\geq 2.0$ -pCi/L;  $\geq 2.7$ -pCi/L;  $\geq 4.0$ -pCi/L; and  $\geq 8.0$ -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:	English Manor
Address:	4511 Bestor Drive
	Rockville, MD 20853

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 <b>-or-</b> <input type="checkbox"/> Follow-up Testing
Testing Status:	<input checked="" type="checkbox"/> No Further Testing Needed <b>-or-</b> <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 or Considered <input type="checkbox"/> Required ( $>8.0$ -pCi/L) <input type="checkbox"/> Required ( $\geq 4.0$ -pCi/L) <input type="checkbox"/> Consider ( $\geq 2.0$ & $<4.0$ -pCi/L)	<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)			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):	
<input type="checkbox"/> Long-Term				
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 <sup>1</sup>	31	2	33
Duplicates <sup>2</sup>	1	1	2
Field Blanks <sup>3</sup>	1	0	1
Grand Total			36

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 <sup>1</sup>	6	Trip Blank(s) <sup>2</sup>	1	Office Blank(s) <sup>3,4</sup>	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 Results<sup>1</sup> and Determination of Valid Measurements<sup>2</sup>**

	<b>Ground-Contact</b>	<b>Upper-Level(s)</b>	<b>Total</b>
Number of test locations:	31	2	33
Number of locations $\geq 8.0$ -pCi/L:	0	0	0
Number of locations $\geq 4.0$ and $\leq 8$ -pCi/L:	0	0	0
Number of locations $\geq 2.7$ and $\leq 4$ -pCi/L:	0	0	0
Number of locations $\geq 2.0$ and $\leq 4$ -pCi/L:	0	0	0
Number of missing required test locations <sup>3</sup> :	1	0	0
Percentage of missing test locations for the facility <sup>4,5</sup> :	3.2%	0	3.2%

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

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

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

4 – if all valid measurements are  $< 4.0$ -pCi/L and the total number of test locations are  $\geq 18$ , 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  $\geq 4.0$ -pCi/L and the total number of test locations are  $\geq 20$ , 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 Results<sup>1</sup> and Determination of Valid Measurements<sup>2</sup> (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 type="checkbox"/> Yes <input checked="" 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
<b><i>If Yes to both above – then Testing Status – ‘No Further Testing Needed’ mark ‘NA’ below and complete Conclusions section</i></b>	
<b>If No to either above, were all results obtained under 4.0-pCi/L and were there sufficient valid measurements obtained?<sup>1,2</sup></b>  <b><i>If Yes – then Testing Status - ‘No Further Testing Needed’ complete Conclusion section</i></b> <b><i>If No, then Testing Status - ‘Follow-up Testing Required’ continue below</i></b>	<input checked="" 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.

- **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**

<b>Table 1- Radon Testing Results</b>		
<b>English Manor</b>		
<b>Test Period: 02/06/2024 - 02/09/2024</b>		
Kit Number	Room / Area	Result
11469383	100	< 0.3
11469384	100	< 0.3
11469378	101	< 0.3
11469385	102	< 0.3
11469386	103	< 0.3
11469392	105	< 0.3
11469389	106	< 0.3
11469393	107	< 0.3
11469382	108	< 0.3
11469395	110	< 0.3
11469396	110	< 0.3
11469381	111	< 0.3
11464588	120	< 0.3
11469398	121	0.6
11469394	122	0.6
11469399	127	< 0.3
11469388	128	< 0.3
11469390	128	< 0.3
11469391	129	< 0.3
11469380	130	< 0.3
11469387	131	< 0.3
11469317	136	< 0.3
11469375	136	< 0.3
11469376	145	0.7
11469374	146	< 0.3
11464575	218	< 0.3
11470095	121A	< 0.3
11470074	121C	< 0.3
11469397	121E	0.6
11469379	146A	< 0.3
11469377	146B	< 0.3
11470098	215J	< 0.3
11469370	APR	< 0.3
11469373	APR	< 0.3
11469372	BUILDING SERVICES	1.4
11469371	STAFF LOUNGE	0.8





<b>Table 3 - QC Radon Testing Results</b>			
<b>English Manor</b>			
<b>Test Period: 02/06/2024 - 02/09/2024</b>			
<b>Kit Number</b>	<b>QC Type</b>	<b>Room / Area</b>	<b>Result</b>
11469383	D	100	<0.3
11469388	FB	128	<0.3
11464575	D	218	<0.3
11478304	OB	OFFICE BLANK	< 0.3
11478309	TB	TRAVEL BLANK	< 0.3



**Attachment 2:**  
**Laboratory Reports**

Radon test result report for:  
**ENGLISH MANOR  
 MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11469383	100	2024-02-06 @ 9:00 am	2024-02-09 @ 11:00 am	< 0.3	2024-02-12
11469384	100	2024-02-06 @ 9:00 am	2024-02-09 @ 11:00 am	< 0.3	2024-02-12
11469378	101	2024-02-06 @ 9:00 am	2024-02-09 @ 11:00 am	< 0.3	2024-02-12
11469385	102	2024-02-06 @ 9:00 am	2024-02-09 @ 11:00 am	< 0.3	2024-02-12
11469386	103	2024-02-06 @ 9:00 am	2024-02-09 @ 11:00 am	< 0.3	2024-02-12
11469392	105	2024-02-06 @ 9:00 am	2024-02-09 @ 11:00 am	< 0.3	2024-02-12
11469389	106	2024-02-06 @ 9:00 am	2024-02-09 @ 11:00 am	< 0.3	2024-02-12
11469393	107	2024-02-06 @ 9:00 am	2024-02-09 @ 11:00 am	< 0.3	2024-02-12
11469382	108	2024-02-06 @ 9:00 am	2024-02-09 @ 11:00 am	< 0.3	2024-02-12
11469396	110	2024-02-06 @ 9:00 am	2024-02-09 @ 11:00 am	< 0.3	2024-02-12
11469395	110	2024-02-06 @ 9:00 am	2024-02-09 @ 11:00 am	< 0.3	2024-02-12
11469381	111	2024-02-06 @ 9:00 am	2024-02-09 @ 11:00 am	< 0.3	2024-02-12
11469398	121	2024-02-06 @ 10:00 am	2024-02-09 @ 11:00 am	0.6 ± 0.3	2024-02-12
11469397	121E	2024-02-06 @ 9:00 am	2024-02-09 @ 11:00 am	0.6 ± 0.3	2024-02-12
11469394	122	2024-02-06 @ 9:00 am	2024-02-09 @ 11:00 am	0.6 ± 0.3	2024-02-12
11469399	127	2024-02-06 @ 9:00 am	2024-02-09 @ 11:00 am	< 0.3	2024-02-12
11469388	128	2024-02-06 @ 9:00 am	2024-02-09 @ 11:00 am	< 0.3	2024-02-12
11469390	128	2024-02-06 @ 9:00 am	2024-02-09 @ 11:00 am	< 0.3	2024-02-12
11469391	129	2024-02-06 @ 9:00 am	2024-02-09 @ 11:00 am	< 0.3	2024-02-12
11469380	130	2024-02-06 @ 9:00 am	2024-02-09 @ 11:00 am	< 0.3	2024-02-12
11469387	131	2024-02-06 @ 9:00 am	2024-02-09 @ 11:00 am	< 0.3	2024-02-12
11469375	136	2024-02-06 @ 9:00 am	2024-02-09 @ 10:00 am	< 0.3	2024-02-12
11469317	136	2024-02-06 @ 9:00 am	2024-02-09 @ 10:00 am	< 0.3	2024-02-12
11469376	145	2024-02-06 @ 9:00 am	2024-02-09 @ 10:00 am	0.7 ± 0.3	2024-02-12
11469374	146	2024-02-06 @ 9:00 am	2024-02-09 @ 10:00 am	< 0.3	2024-02-12
11469379	146A	2024-02-06 @ 9:00 am	2024-02-09 @ 10:00 am	< 0.3	2024-02-12
11469377	146B	2024-02-06 @ 9:00 am	2024-02-09 @ 10:00 am	< 0.3	2024-02-12
11469373	APR	2024-02-06 @ 9:00 am	2024-02-09 @ 10:00 am	< 0.3	2024-02-12
11469370	APR	2024-02-06 @ 9:00 am	2024-02-09 @ 10:00 am	< 0.3	2024-02-12
11469372	BUILDING SERVICES	2024-02-06 @ 9:00 am	2024-02-09 @ 10:00 am	1.4 ± 0.3	2024-02-12
11469371	STAFF LOUNGE	2024-02-06 @ 9:00 am	2024-02-09 @ 10:00 am	0.8 ± 0.3	2024-02-12

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February 12, 2024

**\*\* LABORATORY ANALYSIS REPORT \*\***

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Radon test result report for:

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<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
11464588	120	2024-02-06 @ 3:00 pm	2024-02-11 @ 10:00 pm	< 0.3	2024-02-12
11470095	121A	2024-02-06 @ 3:00 pm	2024-02-11 @ 10:00 pm	< 0.3	2024-02-12
11470074	121C	2024-02-06 @ 3:00 pm	2024-02-11 @ 10:00 pm	< 0.3	2024-02-12
11470098	215J	2024-02-06 @ 3:00 pm	2024-02-11 @ 10:00 pm	< 0.3	2024-02-12
11464575	218	2024-02-06 @ 3:00 pm	2024-02-11 @ 10:00 pm	< 0.3	2024-02-12

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

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February 13, 2024

**\*\* LABORATORY ANALYSIS REPORT \*\***

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Radon test result report for:

**KCI  
MAIN**

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<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
11470089	OB	2024-02-05 @ 8:00 am	2024-02-08 @ 12:00 pm	< 0.3	2024-02-12
11478304	OB	2024-02-06 @ 8:00 am	2024-02-09 @ 12:00 pm	< 0.3	2024-02-12
11470096	TB	2024-02-05 @ 8:00 am	2024-02-08 @ 12:00 pm	< 0.3	2024-02-12
11478309	TB	2024-02-06 @ 8:00 am	2024-02-09 @ 12:00 pm	< 0.3	2024-02-12

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January 29, 2024

**\*\* LABORATORY ANALYSIS REPORT \*\***

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Radon test result report for:  
**STORAGE**  
**KCI**

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

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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  $\mu$ R/h Elevation = 820 ft



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March 1, 2024

**\*\* LABORATORY ANALYSIS REPORT \*\***

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Radon test result report for:

**FEB SK**

**MAIN**

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<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
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

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### Radon Test Kit Chain of Custody

Project Name: MCPS Radon – Testing February 6<sup>th</sup> to February 9<sup>th</sup> 2024

Name of Schools:

1. English Manor
2. MacDonald Knolls ECC
3. Watkins Mill ES
4. Wilson Wims ES

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	Date	Initials
Radon Test Kits Deployed	02/06/2024	AM
Radon Test Kits Collected	02/09/2024	AM
Radon Test Kits Shipped to Lab*	02/09/2024	AM
Radon Test Kits Received by Lab*	02/13/2024	AM

\*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	English Manor
Date of Test Report	01/20/2022
Round of Testing	Initial Follow-up Post Remediation <b>2 Year Testing</b> 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility
# Rooms Tested	36
# Rooms $\geq$ 4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	1.7 pCi/L

**Project Status**

Current Project Status at this time: Testing Complete; no further action.



January 20, 2022

Mr. Richard Cox  
Indoor Air Quality Team Leader  
Montgomery County Public Schools  
Gaithersburg, MD 20879

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

Location: English Manor  
4511 Bestor Dr.  
Rockville, MD 20853

Dear Mr. Cox:

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 English Manor, located at 4511 Bestor Dr. Rockville, MD 20853 (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](http://www.epa.gov/radon).

KCI visited the site on December 13, 2021 and deployed forty-two (42) 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 December 16, 2021 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Airchek, Inc. for analysis by gamma-ray spectroscopy. Airchek, Inc. is a NRSB certified analytical laboratory for radon analysis (certification # ARL1402) located at 1936 Butler Bridge Road, Mills River, North Carolina.

### **Evaluation of Testing Conditions:**

These tests represent:

- Follow-up to post-mitigation biennial testing.

These tests were conducted to:

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

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

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

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

KCI also compiled weather data for the testing period and conducted observations of relevant field conditions. During the test period, weather records indicate low temperatures were in the low 30°Fs and high temperatures ranged from the mid 50°Fs to the high 60°Fs. Maximum sustained winds ranged from 3-12 miles per hour. Average humidity was around 50% with 0.0 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:

<b>Radon Concentration</b>	<b>Room</b>	<b>Result</b>
<b>≥4.0 pCi/L</b>	NA	NA
<b>&lt;4.0 pCi/L</b>	See Attachment B	

<b>Quality Control Samples</b>	
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 Spreadsheets

**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		
English Manor		
Test Period: 12/13/2021-12/16/2021		
Kit Number	Room / Area	Result
9339913	122	0.9
9339920	101 COORDINATOR	< 0.3
9341738	121C	0.8
9341741	121D	0.6
9341750	122	0.7
9341752	108 THERAPY	< 0.3
9341755	121	0.6
9341756	121A	< 0.3
9341757	121G	< 0.3
9341759	110	< 0.3
9341764	100 MAIN OFFICE	< 0.3
9341765	102	< 0.3
9341766	111	< 0.3
9341771	104	< 0.3
9341772	107	< 0.3
9341773	122	1.3
9341778	110	< 0.3
9341792	146A	1
9341796	103	< 0.3
9346903	121E	0.5
9346995	146	0.8
9346996	128	< 0.3
9346999	120	0.9
9347901	127	< 0.3
9347902	129	< 0.3
9347903	130	< 0.3
9347904	131	< 0.3
9347905	143 LUNCH	1.1
9347906	136	< 0.3
9347907	144 ALL PURPOSE	< 0.3
9347908	145	1.6
9347909	143A	1.7
9347910	143A	1.2
9347911	144 ALL PURPOSE	< 0.3
9347912	146B	1
9347913	200	< 0.3
9347914	215J CONFERENCE	< 0.3
9347915	213D	0.5
9347916	213D	< 0.3
9347917	213D	0.6
9348334	106	< 0.3
9348358	105	< 0.3

Table 2- Radon Testing Results			
English Manor			
Test Period: 12/13/2021-12/16/2021			
Kit Number	QC Type	Room / Area	Result
9341759	D	110	< 0.3
9341773	D	122	1.3
9341750	FB	122	0.7
9347910	D	143A	1.2
9347916	D	213D	< 0.3
9347917	FB	213D	0.6
9347000	OB	OFFICE BLANK	< 0.3
9347992	TB	TRAVEL BLANK	< 0.3



# ATTACHMENT C

## Laboratory Analytical Results

Radon test result report for:  
**ENGLISH MANOR**  
**MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9341764	100 MAIN OFFICE	2021-12-13 @ 8:00 am	2021-12-15 @ 8:00 am	< 0.3	2021-12-17
9339920	101 COORDINATOR	2021-12-13 @ 8:00 am	2021-12-15 @ 8:00 am	< 0.3	2021-12-17
9341765	102	2021-12-13 @ 8:00 am	2021-12-15 @ 8:00 am	< 0.3	2021-12-17
9341796	103	2021-12-13 @ 8:00 am	2021-12-15 @ 8:00 am	< 0.3	2021-12-17
9341771	104	2021-12-13 @ 8:00 am	2021-12-15 @ 8:00 am	< 0.3	2021-12-17
9348358	105	2021-12-13 @ 8:00 am	2021-12-15 @ 8:00 am	< 0.3	2021-12-17
9348334	106	2021-12-13 @ 8:00 am	2021-12-15 @ 8:00 am	< 0.3	2021-12-17
9341772	107	2021-12-13 @ 8:00 am	2021-12-15 @ 8:00 am	< 0.3	2021-12-17
9341752	108 THERAPY	2021-12-13 @ 8:00 am	2021-12-15 @ 8:00 am	< 0.3	2021-12-17
9341759	110	2021-12-13 @ 8:00 am	2021-12-15 @ 8:00 am	< 0.3	2021-12-17
9341778	110	2021-12-13 @ 8:00 am	2021-12-15 @ 8:00 am	< 0.3	2021-12-17
9341766	111	2021-12-13 @ 8:00 am	2021-12-15 @ 8:00 am	< 0.3	2021-12-17
9346999	120	2021-12-13 @ 8:00 am	2021-12-15 @ 8:00 am	0.9 ± 0.3	2021-12-17
9341755	121	2021-12-13 @ 8:00 am	2021-12-15 @ 8:00 am	0.6 ± 0.3	2021-12-17
9341756	121A	2021-12-13 @ 8:00 am	2021-12-15 @ 8:00 am	< 0.3	2021-12-17
9341738	121C	2021-12-13 @ 8:00 am	2021-12-15 @ 8:00 am	0.8 ± 0.3	2021-12-17
9341741	121D	2021-12-13 @ 8:00 am	2021-12-15 @ 8:00 am	0.6 ± 0.3	2021-12-17
9346903	121E	2021-12-13 @ 8:00 am	2021-12-15 @ 8:00 am	0.5 ± 0.3	2021-12-17
9341757	121G	2021-12-13 @ 8:00 am	2021-12-15 @ 8:00 am	< 0.3	2021-12-17
9339913	122	2021-12-13 @ 8:00 am	2021-12-15 @ 8:00 am	0.9 ± 0.3	2021-12-17
9341750	122	2021-12-13 @ 8:00 am	2021-12-15 @ 8:00 am	0.7 ± 0.3	2021-12-17
9341773	122	2021-12-13 @ 8:00 am	2021-12-15 @ 8:00 am	1.3 ± 0.3	2021-12-17
9347901	127	2021-12-13 @ 9:00 am	2021-12-15 @ 9:00 am	< 0.3	2021-12-17
9346996	128	2021-12-13 @ 9:00 am	2021-12-15 @ 9:00 am	< 0.3	2021-12-17
9347902	129	2021-12-13 @ 9:00 am	2021-12-15 @ 9:00 am	< 0.3	2021-12-17
9347903	130	2021-12-13 @ 9:00 am	2021-12-15 @ 9:00 am	< 0.3	2021-12-17
9347904	131	2021-12-13 @ 9:00 am	2021-12-15 @ 9:00 am	< 0.3	2021-12-17
9347906	136	2021-12-13 @ 9:00 am	2021-12-15 @ 9:00 am	< 0.3	2021-12-17
9347905	143 LUNCH	2021-12-13 @ 9:00 am	2021-12-15 @ 9:00 am	1.1 ± 0.3	2021-12-17
9347910	143A	2021-12-13 @ 9:00 am	2021-12-15 @ 9:00 am	1.2 ± 0.3	2021-12-17
9347909	143A	2021-12-13 @ 9:00 am	2021-12-15 @ 9:00 am	1.7 ± 0.3	2021-12-17
9347911	144 ALL PURPOSE	2021-12-13 @ 9:00 am	2021-12-15 @ 9:00 am	< 0.3	2021-12-17
9347907	144 ALL PURPOSE	2021-12-13 @ 9:00 am	2021-12-15 @ 9:00 am	< 0.3	2021-12-17
9347908	145	2021-12-13 @ 9:00 am	2021-12-15 @ 9:00 am	1.6 ± 0.3	2021-12-17
9346995	146	2021-12-13 @ 9:00 am	2021-12-15 @ 9:00 am	0.8 ± 0.3	2021-12-17
9341792	146A	2021-12-13 @ 9:00 am	2021-12-15 @ 9:00 am	1.0 ± 0.3	2021-12-17
9347912	146B	2021-12-13 @ 9:00 am	2021-12-15 @ 9:00 am	1.0 ± 0.3	2021-12-17

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December 18, 2021

**\*\* LABORATORY ANALYSIS REPORT \*\***

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Radon test result report for:  
**ENGLISH MANOR**  
**MAIN**

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<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
9347913	200	2021-12-13 @ 9:00 am	2021-12-15 @ 9:00 am	< 0.3	2021-12-17
9347915	213D	2021-12-13 @ 9:00 am	2021-12-15 @ 9:00 am	0.5 ± 0.3	2021-12-17
9347916	213D	2021-12-13 @ 9:00 am	2021-12-15 @ 9:00 am	< 0.3	2021-12-17
9347917	213D	2021-12-13 @ 9:00 am	2021-12-15 @ 9:00 am	0.6 ± 0.3	2021-12-17
9347914	215J CONFERENCE	2021-12-13 @ 9:00 am	2021-12-15 @ 9:00 am	< 0.3	2021-12-17

---

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



# EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI Technologies, Inc. Job Number 203404

NOMINAL Conditions: Radon Conc 16.2 pCi/L Rel. Hum 28.8 % Temp. 59.9 F

Date Start: 12/24/21 Date Stop: 12/27/21 Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

Time Start: 0809 Time Stop: 0809 Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_

Device No.'s: (2) Char Bags- Device No.'s: \_\_\_\_\_

9341721, 9341722

64 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  $\mu$ R/h Elevation = 820 ft

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December 31, 2021

**\*\* LABORATORY ANALYSIS REPORT \*\***

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Radon test result report for:

**SK**  
**MA** MCPS - Spike Sample Lab Results. Measured values are satisfactory, i.e., within  $\pm 25\%$  of the chamber's reference value (16.2 pCi/L).

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<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
9341721	1	2021-12-24 @ 8:00 am	2021-12-27 @ 8:00 am	11.6 $\pm$ 0.9	2021-12-31
9341722	1	2021-12-24 @ 8:00 am	2021-12-27 @ 8:00 am	15.4 $\pm$ 1.2	2021-12-31

---

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 - December 2021 Schools

Name of Schools:

1. 45 Gude
2. Concord Center
3. English Manor
4. Smith Education Center
5. Randolph Main. & Tran.
6. Rollingwood Center
7. Ewing at Plum Orchard

---

	Date	Initials
Radon Test Kits Deployed	12/13/2021	JM
Radon Test Kits Collected	12/16/2021	JM
Radon Test Kits Shipped to Lab*	12/16/2021	JM
Radon Test Kits Received by Lab*	12/17/2021	JM

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



## MONTGOMERY COUNTY PUBLIC SCHOOLS RADON TESTING

### Executive Summary:

#### English Manor

4511 Bestor Drive  
Rockville, MD 20853

Date of Test Report:	12/28/2018
Round of Testing:	Initial Follow-up <b>Post Remediation</b> 2 Year Testing 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility
# of Rooms Tested:	32
# of Rooms $\geq$ 4.0 pCi/L:	0
Low Value:	< 0.4
High Value:	1.5

### Project Status

**Initial testing complete:** No further action at this time



December 28, 2018

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

Re: Radon Testing Services

Location: English Manor  
4511 Bestor Drive  
Rockville, MD 20853

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 English Manor, located at 4511 Bestor Drive, Rockville, MD 20853 (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](http://www.montgomerycountymd.gov/dep/air/radon) or [www.epa.gov/radon](http://www.epa.gov/radon).

PSI visited the site on November 12, 2018 and deployed forty-seven (47) 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 November 15, 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:

<b>Radon Concentration</b>	<b>Room</b>	<b>Result</b>
$\geq 4.0$ pCi/L	None	NA
$\leq 4.0$ 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**

A handwritten signature in black ink that reads "Nand Kaushik". The signature is fluid and cursive.

Nand Kaushik, P.E.  
Department Manager, Environmental Services  
[Nand.Kaushik@intertek.com](mailto: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



<b>Radon Testing Results</b>		
<b>English Manor</b>		
<b>Testing period: 11/12/18 - 11/15/18</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result (pCi/L)</b>
3916084	100	0.4
3916892	101	<0.4
3916117	102	0.5
3916118	103	0.4
3916065	104	0.8
3916891	105	0.7
3916897	106	0.6
3916825	107	0.4
3916116	108	0.5
3916081	110	0.6
3916044	111	0.8
3916765	120	0.9
3916128	121	0.6
3916086	121	<0.4
3916062	121	<0.4
3916120	122	<0.4
3916090	122	0.5
3916067	122	0.4
3916643	122	0.5
3916199	127	0.6
3916646	128	<0.4
3916130	129	0.6
3916060	130	0.9
3916122	131	<0.4
3916064	136	<0.4
3916087	136	0.4
3916829	143	0.4
3881161	144	<0.4
3881180	144	<0.4
3916088	145	1.5
3916068	146	<0.4
3916085	200	<0.4
3916061	202	<0.4
3916648	143A	1.2
3916082	146A	0.9
3916652	146B	0.7
3032016	213G	0.4
3916089	215F	<0.4
3916111	Room next to 145	<0.4

<b>Radon Testing Results</b>		
<b>English Manor</b>		
<b>Testing period: 11/12/18 - 11/15/18</b>		
<b>Kit Number</b>	<b>QC Type</b>	<b>Result (pCi/L)</b>
3916894	105 (D)	0.4
3916899	129 (D)	0.8
3916119	136 (D)	<0.4
3916063	200 (D)	0.7
3918229	Field Blank	<0.4
3918038	Field Blank	<0.4
3918022	Office Blank	<0.4
3916278	Trip 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  
English Manor  
Potomac MD 20854


Log Number	Device Number	Test Exposure Duration:		Area Tested	Result pCi/L
2393445	3916120	11/12/2018 7:48 pm	11/15/2018 1:34 pm	Flr 1 Room 122	< 0.4
2393446	3916090	11/12/2018 7:48 pm	11/15/2018 1:39 pm	Flr 1 Rm 122 Assesement 1	0.5
2393447	3916067	11/12/2018 7:50 pm	11/15/2018 1:36 pm	Flr 1 Rm 122 School Psychologist	0.4
2393448	3916643	11/12/2018 7:53 pm	11/15/2018 1:38 pm	Flr 1 Room 122 Work Room	0.5
2393449	3916128	11/12/2018 7:54 pm	11/15/2018 1:39 pm	Flr 1 Rm 121 Desc Reception	0.6
2393450	3916086	11/12/2018 7:55 pm	11/15/2018 1:38 pm	Flr 1 Rm 121 Waiting Area	< 0.4
2393451	3916062	11/12/2018 7:57 pm	11/15/2018 1:39 pm	Flr 1 Rm 121 Assessment 2	< 0.4
2393452	3916765	11/12/2018 7:59 pm	11/15/2018 1:36 pm	Flr 1 Room 120 Desc Team 2	0.9
2393453	3916081	11/12/2018 8:00 pm	11/15/2018 1:47 pm	Flr 1 Room 110 Classroom	0.6
2393454	3916044	11/12/2018 8:01 pm	11/15/2018 1:46 pm	Flr 1 Rm 111 Conference Room	0.8
2393455	3916116	11/12/2018 8:05 pm	11/15/2018 1:47 pm	Flr 1 Room 108 Therapy	0.5

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

Distributed by: Intertek-PSI (VA)

Date Received: 11/17/2018    Date Logged: 11/21/2018    Date Analyzed: 11/17/2018    Date Reported: 12/20/2018

Report Reviewed By: 

Report Approved By: 

Shawn Price, Director of Laboratory Operations, AccuStar Labs

**Disclaimer:**

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

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

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  
English Manor  
Potomac MD 20854


Log Number	Device Number	Test Exposure	Duration:	Area Tested	Result pCi/L
2393456	3916825	11/12/2018 8:09 pm	11/15/2018 1:45 pm	Flr 1 Rm 107 Observation Room	0.4
2393457	3916646	11/12/2018 8:11 pm	11/15/2018 1:41 pm	Flr 1 Room 128 Office	< 0.4
2393458	3916899	11/12/2018 8:11 pm	11/15/2018 1:41 pm	Flr 1 Room 129 Office	0.8
2393459	3916130	11/12/2018 8:13 pm	11/15/2018 1:42 pm	Flr 1 Room 129 Office	0.6
2393460	3916897	11/12/2018 8:14 pm	11/15/2018 1:40 pm	Flr 1 Room 106 Classroom	0.6
2393461	3916891	11/12/2018 8:16 pm	11/15/2018 1:00 pm	Flr 1 Rm 105 Computer Room	0.7
2393462	3916894	11/12/2018 8:16 pm	11/15/2018 1:40 pm	Flr 1 Rm 105 Computer Room	0.4
2393463	3916060	11/12/2018 8:17 pm	11/15/2018 1:48 pm	Flr 1 Room 130 Office	0.9
2393464	3916122	11/12/2018 8:18 pm	11/15/2018 1:48 pm	Flr 1 Room 131 Office	< 0.4
2393465	3916065	11/12/2018 8:19 pm	11/15/2018 1:48 pm	Flr 1 Room 104 Mail Room	0.8
2393466	3916084	11/12/2018 8:20 pm	11/15/2018 1:49 pm	Flr 1 Room 100 Main Office	0.4

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

Distributed by: Intertek-PSI (VA)

Date Received: 11/17/2018    Date Logged: 11/21/2018    Date Analyzed: 11/17/2018    Date Reported: 12/20/2018

Report Reviewed By: 

Report Approved By: 

Shawn Price, Director of Laboratory Operations, AccuStar Labs

**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  
English Manor  
Potomac MD 20854


Log Number	Device Number	Test Exposure Duration:	Area Tested	Result pCi/L
2393467	3916118	11/12/2018 8:21 pm - 11/15/2018 1:51 pm	Flr 1 Room 103 Office	0.4
2393468	3916117	11/12/2018 8:27 pm - 11/15/2018 1:51 pm	Flr 1 Rm 102 Program Specialist	0.5
2393469	3916892	11/12/2018 8:28 pm - 11/15/2018 1:50 pm	Flr 1 Room 101 Coordinator	< 0.4
2393470	3916068	11/12/2018 8:30 pm - 11/15/2018 1:53 pm	Flr 1 Room 146 Open Office	< 0.4
2393471	3916082	11/12/2018 8:31 pm - 11/15/2018 1:54 pm	Flr 1 Room 146A Work Room	0.9
2393472	3916652	11/12/2018 8:32 pm - 11/15/2018 1:54 pm	Flr 1 Rm 146B Supervisor Office 2	0.7
2393473	3916088	11/12/2018 8:35 pm - 11/15/2018 1:53 pm	Flr 1 Room 145 Test	1.5
2393474	3916111	11/12/2018 8:36 pm - 11/15/2018 1:57 pm	Flr 1 Room next to 145	< 0.4
2393475	3916064	11/12/2018 8:39 pm - 11/15/2018 1:55 pm	Flr 1 Rm 136 Clinical Assessment	< 0.4
2393476	3916087	11/12/2018 8:40 pm - 11/15/2018 1:55 pm	Flr 1 Rm 136 Clinical Assessment	0.4
2393477	3916119	11/12/2018 8:40 pm - 11/15/2018 1:56 pm	Flr 1 Rm 136 Clinical Assessment	< 0.4

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

Distributed by: Intertek-PSI (VA)

Date Received: 11/17/2018    Date Logged: 11/21/2018    Date Analyzed: 11/17/2018    Date Reported: 12/20/2018

Report Reviewed By: 

Report Approved By: 

Shawn Price, Director of Laboratory Operations, AccuStar Labs

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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  
English Manor  
Potomac MD 20854


Log Number	Device Number	Test	Exposure	Duration:	Area Tested	Result pCi/L
2393478	3916829	11/12/2018	8:43 pm	11/15/2018 1:59 pm	Flr 1 Room 143 Lunch Room	0.4
2393479	3916648	11/12/2018	8:44 pm	11/15/2018 1:59 pm	Flr 1 Room 143A BS Office	1.2
2393480	3916085	11/12/2018	8:49 pm	11/15/2018 2:03 pm	Flr 2 Rm 200 Student Services 5	< 0.4
2393481	3916063	11/12/2018	8:49 pm	11/15/2018 2:03 pm	Flr 2 Rm 200 Student Services 5	0.7
2393482	3916061	11/12/2018	8:50 pm	11/15/2018 2:02 pm	Flr 2 Rm 202 Student Services 3	< 0.4
2393483	3916089	11/12/2018	8:51 pm	11/15/2018 2:03 pm	Flr 2 Room 215F Office 7	< 0.4
2393484	3032016	11/12/2018	8:52 pm	11/15/2018 2:04 pm	Flr 2 Room 213G Office 1	0.4
2393485	3916199	11/12/2018	8:55 pm	11/15/2018 1:41 pm	Flr 1 Rm 127 Staff Lounge/Conference Room	0.6
2393486	3918229	11/12/2018	7:48 pm	11/15/2018 2:04 pm	Flr 1	< 0.4
2393487	3918038	11/12/2018	7:48 pm	11/15/2018 2:04 pm	Flr 1	< 0.4
2393488	3918022	11/12/2018	6:00 am	11/15/2018 2:04 pm	Flr 1	< 0.4

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

Distributed by: Intertek-PSI (VA)

Date Received: 11/17/2018    Date Logged: 11/21/2018    Date Analyzed: 11/17/2018    Date Reported: 12/20/2018

Report Reviewed By: 

Report Approved By: 

Shawn Price, Director of Laboratory Operations, AccuStar Labs

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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  
English Manor  
Potomac MD 20854


Log Number	Device Number	Test Exposure Duration:	Area Tested	Result pCi/L
2393489	3916278	11/12/2018 6:00 am 11/15/2018 2:04 pm	Flr 1	< 0.4

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

Distributed by: Intertek-PSI (VA)

Date Received: 11/17/2018 Date Logged: 11/21/2018 Date Analyzed: 11/17/2018 Date Reported: 12/20/2018

Report Reviewed By: 

Report Approved By: 

Shawn Price, Director of Laboratory Operations, AccuStar Labs

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NELAC NY 11769  
NRPP 103216 AL  
NRSB ARL0017

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

Laboratory Report for:

Property Tested: Project # 04481387-1

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


MCPS Radon Survey  
English Manor  
Potomac MD 20854


Log Number	Device Number	Test Exposure	Duration:	Area Tested	Result pCi/L
2393072	3881161	11/12/2018 8:41 pm	11/15/2018 1:59 pm	Bldg. English Manor Floor 1 Room 144 APR	<0.4
2393073	3881180	11/12/2018 8:41 pm	11/15/2018 1:59 pm	Bldg. English Manor Floor 1 Room 144 APR	<0.4

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

Distributed by: Intertek-PSI (VA)

Date Received: 11/18/2018 Date Logged: 11/18/2018 Date Analyzed: 11/19/2018 Date Reported: 12/17/2018

Report Reviewed By: 

Report Approved By: 

**Disclaimer:**

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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:**

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# EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT Intertek - PSI

Job Number 187732

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

Date Start: 12/7/18 Date Stop: 12/10/18 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  $\mu$ R/h Elevation = 820 ft**



## Chain of Custody

Project Name: MCPS Radon Survey 2018

Name of Schools:

- |                   |                      |                    |
|-------------------|----------------------|--------------------|
| 1. Arcola ES      | 7. North Lake Center | 13. Cold Spring ES |
| 2. Glen Haven ES  | 8. Barnsley ES       | 14. Hoover MS      |
| 3. Jackson Road   | 9. Bayard Rustin ES  | 15. Wayside ES     |
| 4. Cashell ES     | 10. Julius West MS   | 16. English Manor  |
| 5. Frost MS       | 11. Rock Terrace HS  |                    |
| 6. Meadow Hall ES | 12. Churchill HS     |                    |

---

	Date	Initials
Radon Test Kits Deployed	11/12/2018	NL
Radon Test Kits Sampled	11/15/2018	NL
Radon Test Kits Shipped to Lab*	11/15/2018	NL
Radon Test Kits Received by Lab*	11/17/2018; 11/18/2018	NL

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

RADON SCREENING SURVEY – FOLLOW-UP ENGLISH MANOR

4511 Bestor Dr., Rockville, Maryland 20853

EXECUTIVE SUMMARY

Date of Test Report:	3/7/18
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested	10
# Rooms $\geq$ 4.0 pCi/L:	0
Low Value:	1.0
High Value:	3.6
Confirmed Rooms $\geq$ 4.0 pCi/L US EPA Action Level	2

Summary of Sampling Events  $\geq$  4.0 pCi/L

Room	Result (pCi/L) 1/31/18	Result (pCi/L) 3/7/18	Average Result (pCi/L)
100	5.7	2.6	4.2
102	5.7	1.5	3.6
103	5.4	2.1	3.8
111	4.6	2.3	3.5
110	4.4	3.6	4.0



**MCPS RADON TESTING - EXECUTIVE SUMMARY**

Site Name	English Manor
Date of Report	March 7, 2018
Round of Testing	Initial <b>Follow-up</b> Post Remediation 2 year testing 5 year testing HVAC Upgrade Window Replacement New Addition New Facility
# of Rooms Tested	10
# Rooms $\geq 4.0$ pCi/L	0
Lowest Value	1.0 pCi/L
Highest Value	3.6 pCi/L

**Project Status**

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



March 7, 2018

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

Re: Radon Testing Services

KCI Job #1214634188

**Location: English Manor**

4511 Bestor Dr.  
Rockville, Maryland 20853

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 English Manor, located at 4511 Bestor Dr. in Rockville, Maryland 20853 (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](http://www.montgomerycountymd.gov/dep/air/radon) or [www.epa.gov/radon](http://www.epa.gov/radon).

KCI visited the site on February 6, 2018 and deployed twelve (12) activated charcoal (AC) radon test kits. KCI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance.

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

1. Rooms not successfully tested,
2. Rooms with elevated November 2017 results (i.e.  $\geq 3.5$  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 9, 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 initial testing.

These tests were conducted to:

- Evaluate radon concentrations at the facility.

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

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

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

KCI also compiled weather data for the testing period and conducted observations of relevant field conditions. During the test period, weather records indicate low temperatures were in the teens and 20s and high temperatures ranged from the mid-30s to low-40s. Maximum sustained winds ranged from 10-17 miles per hour. Average humidity was around 75%. 0.41 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:

<b>Radon Concentration</b>	<b>Room</b>	<b>Result</b>
$\geq 4.0$ pCi/L	None	N/A
$\leq 4.0$ pCi/L	See Attachment B	See Attachment B

<b>Quality Control Samples</b>	
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

<b>Table 1- Radon Testing Results</b>		
<b>English Manor</b>		
<b>Test Period: 02/06/18-02/09/18</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result</b>
7979049	100	2.6
7978988	101	1.3
7978989	102	1.5
7978990	103	2.1
7978975	104	1.0
7978976	105	1.6
7978977	106	1.9
7978985	110	3.6
7978986	111	2.3
7978987	131	2.5

Table Note:

\* Missing or Compromised Sample

<b>Table 2- Radon Testing Results</b>		
<b>English Manor</b>		
<b>Test Period: 02/06/18-02/09/18</b>		
<b>Kit Number</b>	<b>QC Type</b>	<b>Result</b>
7978978	D (106)	2.2
7978979	FB (106)	< 0.3

Table Note:

\* Missing or Compromised Sample

# ATTACHMENT C

## Laboratory Analytical Results

February 27, 2018

**\*\* LABORATORY ANALYSIS REPORT \*\***

Radon test result report for:  
**ENGLISH MANOR  
MAIN**

<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
7979049	100	2018-02-06 @ 4:00 pm	2018-02-09 @ 10:00 am	2.6 ± 0.4	2018-02-12
7978988	101	2018-02-06 @ 4:00 pm	2018-02-09 @ 10:00 am	1.3 ± 0.3	2018-02-12
7978989	102	2018-02-06 @ 4:00 pm	2018-02-09 @ 10:00 am	1.5 ± 0.3	2018-02-12
7978990	103	2018-02-06 @ 4:00 pm	2018-02-09 @ 10:00 am	2.1 ± 0.4	2018-02-12
7978975	104	2018-02-06 @ 4:00 pm	2018-02-09 @ 10:00 am	1.0 ± 0.3	2018-02-12
7978976	105	2018-02-06 @ 4:00 pm	2018-02-09 @ 10:00 am	1.6 ± 0.3	2018-02-12
7978979	106	2018-02-06 @ 4:00 pm	2018-02-09 @ 10:00 am	< 0.3	2018-02-12
7978977	106	2018-02-06 @ 4:00 pm	2018-02-09 @ 10:00 am	1.9 ± 0.3	2018-02-12
7978978	106	2018-02-06 @ 4:00 pm	2018-02-09 @ 10:00 am	2.2 ± 0.4	2018-02-12
7978985	110	2018-02-06 @ 4:00 pm	2018-02-09 @ 10:00 am	3.6 ± 0.4	2018-02-12
7978986	111	2018-02-06 @ 4:00 pm	2018-02-09 @ 10:00 am	2.3 ± 0.4	2018-02-12
7978987	131	2018-02-06 @ 4:00 pm	2018-02-09 @ 10:00 am	2.5 ± 0.4	2018-02-12

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

Names of Schools:

1. English Manor
2. Forest Oak Middle School
3. Robert Frost Middle
4. Damascus Elementary School
5. Quince Orchard High School
6. Blair G. Ewing Center

---

	Date	Initials
Radon Test Kits Deployed	02/06/18	JM
Radon Test Kits Collected	02/09/18	JM
Radon Test Kits Shipped to Lab*	02/09/18	JM
Radon Test Kits Received by Lab*	02/12/18	JM

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

Radon test result report for:  
**OFFICE BLANKS**

<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
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

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

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

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February 28, 2018

**\*\* LABORATORY ANALYSIS REPORT \*\***

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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).**

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

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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  $\mu$ R/h Elevation = 820 ft



**MCPS RADON TESTING - EXECUTIVE SUMMARY**

Site Name	English Manor
Date of Report	January 31, 2018
Round of Testing	<p><b>Initial Testing</b></p> <p>Follow-up</p> <p>Post Remediation</p> <p>2 year testing</p> <p>5 year testing</p> <p>HVAC Upgrade</p> <p>Window Replacement</p> <p>New Addition</p> <p>New Facility</p>
# of Rooms Tested	17
# Rooms $\geq 4.0$ pCi/L	5
Lowest Value	1.6 pCi/L
Highest Value	5.7 pCi/L

Rooms with results  $\geq 4.0$  pCi/L:

100 (5.7 pCi/L), 102 (5.7 pCi/L), 103 (5.4 pCi/L), 111 (4.6 pCi/L), 110 (4.4 pCi/L)

Current Project Status at this time: Initial Testing Completed; retesting needed for results  $\geq 4.0$  pCi/L.



January 31, 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: English Manor**

4511 Bestor Dr.  
Rockville, Maryland 20853

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 English Manor, located at 4511 Bestor Dr. in Rockville, Maryland 20853 (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](http://www.montgomerycountymd.gov/dep/air/radon) or [www.epa.gov/radon](http://www.epa.gov/radon).

KCI visited the site on November 28, 2017 and deployed nineteen (19) 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 1, 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:

- Initial Testing.

These tests were conducted to:

- Evaluate radon concentrations at the facility.

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

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

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

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

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



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

## **RESULTS**

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

The results of the radon test analysis indicated the following:

<b>Radon Concentration</b>	<b>Room</b>	<b>Result</b>
≥4.0 pCi/L	100	5.7
≥4.0 pCi/L	102	5.7
≥4.0 pCi/L	103	5.4
≥4.0 pCi/L	111	4.6
≥4.0 pCi/L	110	4.4
≤4.0 pCi/L	See Attachment B	See Attachment B

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

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

Sincerely,

A handwritten signature in blue ink that reads "James Mouldale". The signature is written in a cursive, flowing style.

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

**Attachments:**

B - Tables 1-3, Radon Test Summary Spreadsheets

C- Laboratory Analytical Results

# ATTACHMENT B

## Radon Test Summary Spreadsheet

**Table Notes:**

AC- Activated Charcoal

ACI- Air Chek, Inc.

D- Duplicate

FB- Field Blank

KCI- KCI Technologies, Inc.

OB- Office Blank

PM- Project Manager

QC- Quality Control

<b>Radon Testing Results</b>		
<b>English Manor</b>		
<b>Test Period: 11/28/17-12/01/17</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result</b>
7977177	100	5.7
7977176	101	3.7
7977167	102	5.7
7977170	103	5.4
7977169	104	3.7
7977165	105	3.6
7977164	106	3.5
7977161	107	2.8
7977144	108	1.8
7977179	110	4.4
7977171	111	4.6
7977173	117	2.5
7977172	127	2.0
7977178	128	1.8
7977174	129	1.6
7977166	130	1.6
7977168	131	3.2

Table Note:

\* Missing or Compromised Sample

<b>Radon Testing Results</b>		
<b>English Manor</b>		
<b>Test Period: 11/28/17-12/01/17</b>		
<b>Kit Number</b>	<b>QC Type</b>	<b>Result</b>
7977160	D (107)	2.3
7978096	OB (OB)	< 0.3

Table Note:

\* Missing or Compromised Sample



# ATTACHMENT C

## Laboratory Analytical Results



Radon test result report for:  
**ENGLISH MANOR  
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7977177	100	2017-11-28 @ 10:00 am	2017-12-01 @ 7:00 am	5.7 ± 0.5	2017-12-05
7977176	101	2017-11-28 @ 10:00 am	2017-12-01 @ 7:00 am	3.7 ± 0.4	2017-12-05
7977167	102	2017-11-28 @ 10:00 am	2017-12-01 @ 7:00 am	5.7 ± 0.5	2017-12-05
7977170	103	2017-11-28 @ 10:00 am	2017-12-01 @ 7:00 am	5.4 ± 0.5	2017-12-05
7977169	104	2017-11-28 @ 10:00 am	2017-12-01 @ 7:00 am	3.7 ± 0.4	2017-12-05
7977165	105	2017-11-28 @ 10:00 am	2017-12-01 @ 7:00 am	3.6 ± 0.4	2017-12-05
7977164	106	2017-11-28 @ 10:00 am	2017-12-01 @ 7:00 am	3.5 ± 0.4	2017-12-05
7977160	107	2017-11-28 @ 11:00 am	2017-12-01 @ 7:00 am	2.3 ± 0.4	2017-12-05
7977161	107	2017-11-28 @ 11:00 am	2017-12-01 @ 7:00 am	2.8 ± 0.4	2017-12-05
7977144	108	2017-11-28 @ 11:00 am	2017-12-01 @ 7:00 am	1.8 ± 0.4	2017-12-05
7977179	110	2017-11-28 @ 11:00 am	2017-12-01 @ 7:00 am	4.4 ± 0.4	2017-12-05
7977171	111	2017-11-28 @ 11:00 am	2017-12-01 @ 7:00 am	4.6 ± 0.4	2017-12-05
7977173	117	2017-11-28 @ 11:00 am	2017-12-01 @ 7:00 am	2.5 ± 0.4	2017-12-05
7977172	127	2017-11-28 @ 11:00 am	2017-12-01 @ 7:00 am	2.0 ± 0.4	2017-12-05
7977178	128	2017-11-28 @ 11:00 am	2017-12-01 @ 7:00 am	1.8 ± 0.4	2017-12-05
7977174	129	2017-11-28 @ 11:00 am	2017-12-01 @ 7:00 am	1.6 ± 0.4	2017-12-05
7977166	130	2017-11-28 @ 10:00 am	2017-12-01 @ 7:00 am	1.6 ± 0.4	2017-12-05
7977168	131	2017-11-28 @ 10:00 am	2017-12-01 @ 7:00 am	3.2 ± 0.4	2017-12-05
7978096	OB	2017-11-28 @ 1:00 pm	2017-12-01 @ 1:00 pm	< 0.3	2017-12-05



## Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase

Names of Schools:

- |                                    |                                   |
|------------------------------------|-----------------------------------|
| 1. Chevy Chase Elementary School   | 15. Viers Mill Elementary School  |
| 2. Greencastle Elementary School   | 16. Albert Einstein High School   |
| 3. English Manor                   | 17. Wayside Elementary School     |
| 4. Rock View Elementary School     | 18. Thomas S. Wootton High School |
| 5. Wheaton Woods Elementary School | 19. Highland Elementary School    |
| 6. Sequoyah Elementary School      | 20. Bethesda Transportation Depot |
| 7. Fallsmead Elementary School     | 21. Bethesda Maintenance Depot    |
| 8. Beall Elementary School         | 22. Travilah Elementary School    |
| 9. Stephen Knolls School           | 23. Lathrop E. Smith Center       |
| 10. Maryvale Elementary School     |                                   |
| 11. Redland Middle School          |                                   |
| 12. Walt Whitman High School       |                                   |
| 13. Springbrook High School        |                                   |
| 14. Blair G. Ewing Center          |                                   |

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	Date	Initials
Radon Test Kits Deployed	11/28/17	JM
Radon Test Kits Collected	12/01/17	JM
Radon Test Kits Shipped to Lab*	12/01/17	JM
Radon Test Kits Received by Lab*	12/05/17	JM

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

Radon test result report for:**TRANSIT 1****NONE**

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

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December 19, 2017

**\*\* LABORATORY ANALYSIS REPORT \*\***

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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).**

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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

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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) Char. 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  $\mu$ R/h Elevation = 820 ft