



## 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:	Germantown Elementary School
Address:	19110 Liberty Mill Road
	Germantown, MD 20874

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	
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):	01/22/24
<input type="checkbox"/> Long-Term				01/25/24
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>	44	0	44
Duplicates <sup>2</sup>	5	0	5
Field Blanks <sup>3</sup>	2	0	2
Grand Total			51

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>

	Ground-Contact	Upper-Level(s)	Total
Number of test locations:	44	0	0
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> :	0	0	0
Percentage of missing test locations for the facility <sup>4,5</sup> :	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  $\geq 18$ , 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 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>	
<b>If No to either above</b> , were all results obtained under 4.0-pCi/L <b>and</b> were there sufficient valid measurements obtained? <sup>1,2</sup> <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 ≤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>Germantown Elementary School</b>		
<b>Test Period: 01/22/2024 - 01/25/2024</b>		
Kit Number	Room / Area	Result
11287123	1	< 0.3
11287128	1	0.8
11287115	2	0.9
11287133	2	0.7
11287135	3	0.8
11287134	4	< 0.3
11287136	5	0.8
11287142	6	1.1
11287143	7	1.0
11287149	7	1.0
11287151	8	0.7
11287113	9	0.9
11287152	10	1.1
11287150	11	0.6
11287144	12	0.6
11287159	13	< 0.3
11287166	13	< 0.3
11287167	14	< 0.3
11287160	15	< 0.3
11287122	16	0.6
11287158	16	< 0.3
11287137	17	< 0.3
11287145	17	0.9
11287119	APR	0.6
11287120	APR	0.8
11287125	ART	0.8
11287109	ASP	< 0.3
11287117	BLDG SERVICES	1.1
11287118	BLDG SERVICES	0.7
11287107	CONFERENCE	0.8
11287141	COUNSELOR	0.7
11287105	ELD	0.8
11287110	GYM	< 0.3
11287111	GYM	0.6
11287112	GYM OFFICE	< 0.3
11287157	HSM	1.0
11287106	K1	1.0
11287101	K2	< 0.3

<b>Table 1- Radon Testing Results</b>		
<b>Germantown Elementary School</b>		
<b>Test Period: 01/22/2024 - 01/25/2024</b>		
11287114	LL	0.9
11287102	MAIN OFFICE	0.6
11287129	MEDIA	< 0.3
11287130	MEDIA	0.7
11287168	MEDIA OFFICE	0.8
11287127	MUSIC	0.8
11287108	NURSE	0.7
11287165	PEP	0.8
11287104	PRINCIPAL	< 0.3
11287121	R	0.6
11287116	SPT	0.8
11287126	STAFF LOUNGE	0.7
11287103	WORKROOM	0.9





<b>Table 3 - QC Radon Testing Results</b>			
<b>Germantown Elementary School</b>			
<b>Test Period: 01/22/2024 - 01/25/2024</b>			
<b>Kit Number</b>	<b>QC Type</b>	<b>Room / Area</b>	<b>Result</b>
11287123	FB	1	< 0.3
11287115	D	2	0.9
11287143	D	7	1.0
11287166	D	13	< 0.3
11287158	FB	16	< 0.3
11287145	D	17	0.9
11287117	D	Bldg services	1.1
11463686	OB	OFFICE BLANK	< 0.3
11463685	TB	TRAVEL BLANK	< 0.3



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

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

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11287128	1	2024-01-22 @ 11:00 am	2024-01-25 @ 11:00 am	0.8 ± 0.3	2024-01-29
11287123	1	2024-01-22 @ 11:00 am	2024-01-25 @ 11:00 am	< 0.3	2024-01-29
11287152	10	2024-01-22 @ 11:00 am	2024-01-25 @ 11:00 am	1.1 ± 0.3	2024-01-29
11287150	11	2024-01-22 @ 11:00 am	2024-01-25 @ 11:00 am	0.6 ± 0.3	2024-01-29
11287144	12	2024-01-22 @ 11:00 am	2024-01-25 @ 11:00 am	0.6 ± 0.3	2024-01-29
11287159	13	2024-01-22 @ 12:00 pm	2024-01-25 @ 11:00 am	< 0.3	2024-01-29
11287166	13	2024-01-22 @ 12:00 pm	2024-01-25 @ 11:00 am	< 0.3	2024-01-29
11287167	14	2024-01-22 @ 12:00 pm	2024-01-25 @ 11:00 am	< 0.3	2024-01-29
11287160	15	2024-01-22 @ 12:00 pm	2024-01-25 @ 11:00 am	< 0.3	2024-01-29
11287122	16	2024-01-22 @ 12:00 pm	2024-01-25 @ 11:00 am	0.6 ± 0.3	2024-01-29
11287158	16	2024-01-22 @ 12:00 pm	2024-01-25 @ 11:00 am	< 0.3	2024-01-29
11287145	17	2024-01-22 @ 12:00 pm	2024-01-25 @ 11:00 am	0.9 ± 0.3	2024-01-29
11287137	17	2024-01-22 @ 12:00 pm	2024-01-25 @ 11:00 am	< 0.3	2024-01-29
11287133	2	2024-01-22 @ 11:00 am	2024-01-25 @ 11:00 am	0.7 ± 0.3	2024-01-29
11287115	2	2024-01-22 @ 11:00 am	2024-01-25 @ 11:00 am	0.9 ± 0.3	2024-01-29
11287135	3	2024-01-22 @ 11:00 am	2024-01-25 @ 11:00 am	0.8 ± 0.3	2024-01-29
11287134	4	2024-01-22 @ 11:00 am	2024-01-25 @ 11:00 am	< 0.3	2024-01-29
11287136	5	2024-01-22 @ 11:00 am	2024-01-25 @ 11:00 am	0.8 ± 0.3	2024-01-29
11287142	6	2024-01-22 @ 11:00 am	2024-01-25 @ 11:00 am	1.1 ± 0.3	2024-01-29
11287149	7	2024-01-22 @ 11:00 am	2024-01-25 @ 11:00 am	1.0 ± 0.3	2024-01-29
11287143	7	2024-01-22 @ 11:00 am	2024-01-25 @ 11:00 am	1.0 ± 0.3	2024-01-29
11287151	8	2024-01-22 @ 11:00 am	2024-01-25 @ 11:00 am	0.7 ± 0.3	2024-01-29
11287113	9	2024-01-22 @ 11:00 am	2024-01-25 @ 11:00 am	0.9 ± 0.3	2024-01-29
11287119	APR	2024-01-22 @ 11:00 am	2024-01-25 @ 11:00 am	0.6 ± 0.3	2024-01-29
11287120	APR	2024-01-22 @ 11:00 am	2024-01-25 @ 11:00 am	0.8 ± 0.3	2024-01-29
11287125	ART	2024-01-22 @ 11:00 am	2024-01-25 @ 11:00 am	0.8 ± 0.3	2024-01-29
11287109	ASP	2024-01-22 @ 11:00 am	2024-01-25 @ 11:00 am	< 0.3	2024-01-29
11287118	BLDG SERVICES	2024-01-22 @ 11:00 am	2024-01-25 @ 11:00 am	0.7 ± 0.3	2024-01-29
11287117	BLDG SERVICES	2024-01-22 @ 11:00 am	2024-01-25 @ 11:00 am	1.1 ± 0.3	2024-01-29
11287107	CONFERENCE	2024-01-22 @ 11:00 am	2024-01-25 @ 11:00 am	0.8 ± 0.3	2024-01-29
11287141	COUNSELOR	2024-01-22 @ 11:00 am	2024-01-25 @ 11:00 am	0.7 ± 0.3	2024-01-29
11287105	ELD	2024-01-22 @ 11:00 am	2024-01-25 @ 11:00 am	0.8 ± 0.3	2024-01-29
11287111	GYM	2024-01-22 @ 11:00 am	2024-01-25 @ 11:00 am	0.6 ± 0.3	2024-01-29
11287110	GYM	2024-01-22 @ 11:00 am	2024-01-25 @ 11:00 am	< 0.3	2024-01-29
11287112	GYM OFFICE	2024-01-22 @ 11:00 am	2024-01-25 @ 11:00 am	< 0.3	2024-01-29
11287157	HSM	2024-01-22 @ 11:00 am	2024-01-25 @ 11:00 am	1.0 ± 0.3	2024-01-29
11287106	K1	2024-01-22 @ 11:00 am	2024-01-25 @ 11:00 am	1.0 ± 0.3	2024-01-29

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

<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
11287101	K2	2024-01-22 @ 11:00 am	2024-01-25 @ 11:00 am	< 0.3	2024-01-29
11287114	LL	2024-01-22 @ 11:00 am	2024-01-25 @ 11:00 am	0.9 ± 0.3	2024-01-29
11287102	MAIN OFFICE	2024-01-22 @ 11:00 am	2024-01-25 @ 11:00 am	0.6 ± 0.3	2024-01-29
11287129	MEDIA	2024-01-22 @ 12:00 pm	2024-01-25 @ 11:00 am	< 0.3	2024-01-29
11287130	MEDIA	2024-01-22 @ 12:00 pm	2024-01-25 @ 11:00 am	0.7 ± 0.3	2024-01-29
11287168	MEDIA OFFICE	2024-01-22 @ 12:00 pm	2024-01-25 @ 11:00 am	0.8 ± 0.3	2024-01-29
11287127	MUSIC	2024-01-22 @ 11:00 am	2024-01-25 @ 11:00 am	0.8 ± 0.3	2024-01-29
11287108	NURSE	2024-01-22 @ 11:00 am	2024-01-25 @ 11:00 am	0.7 ± 0.3	2024-01-29
11287165	PEP	2024-01-22 @ 12:00 pm	2024-01-25 @ 11:00 am	0.8 ± 0.3	2024-01-29
11287104	PRINCIPAL	2024-01-22 @ 11:00 am	2024-01-25 @ 11:00 am	< 0.3	2024-01-29
11287121	R	2024-01-22 @ 12:00 pm	2024-01-25 @ 11:00 am	0.6 ± 0.3	2024-01-29
11287116	SPT	2024-01-22 @ 12:00 pm	2024-01-25 @ 11:00 am	0.8 ± 0.3	2024-01-29
11287126	STAFF LOUNGE	2024-01-22 @ 11:00 am	2024-01-25 @ 11:00 am	0.7 ± 0.3	2024-01-29
11287103	WORKROOM	2024-01-22 @ 11:00 am	2024-01-25 @ 11:00 am	0.9 ± 0.3	2024-01-29

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January 30, 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>
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

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

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January 29, 2024

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

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Radon test result report for:  
**BOWSER MORNER  
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>
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

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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 22<sup>nd</sup> to January 25<sup>th</sup>

Name of Schools:

1. Fields Road ES
2. Germantown ES
3. Highland View ES
4. Westbrook ES
5. John T. Baker MS
6. Herbert Hoover MS

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	Date	Initials
Radon Test Kits Deployed	01/22/2024	BMM
Radon Test Kits Collected	01/25/2024	BMM
Radon Test Kits Shipped to Lab*	01/25/2024	BMM
Radon Test Kits Received by Lab*	01/29/2024	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	Germantown Elementary School
Date of Test Report	4/6/2022
Round of Testing	Initial Follow-up Post Remediation 2 Year Testing 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility
# Rooms Tested	46
# Rooms $\geq$ 4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	1.9 pCi/L

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



April 6, 2022

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

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

Location: Germantown ES  
19110 Liberty Mill Rd.  
Germantown, MD 20874

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 Germantown ES, located at 19110 Liberty Mill Rd. Germantown, MD 20874 (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 February 15, 2022 and deployed fifty three (53) 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 February 18, 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 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 20s and high temperatures ranged from the high 30s to the high 40s Fahrenheit. Maximum sustained winds ranged from 5-18 miles per hour. Average humidity was around 15% with 1.5 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>
≥4.0 pCi/L	None	N/A
<4.0 pCi/L	See Attachment B	

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

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

Sincerely,



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

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



# ATTACHMENT A

## Floor Plan With Test Locations

# ATTACHMENT B

## Radon Test Summary Spreadsheet

**Table Notes:**

AC- Activated Charcoal

ACI- Air Check, Inc.

D- Duplicate

FB- Field Blank

KCI- KCI Technologies, Inc.

OB- Office Blank

PM- Project Manager

OC- Quality Control

Table 1- Radon Testing Results		
Germantown ES		
Test Period: 02/15/2022 - 02/18/2022		
Kit Number	Room / Area	Result
11123133	1	0.7
11123111	2	0.7
11123115	3	< 0.3
11123134	4	< 0.3
11123116	5	1.0
11123112	6	1.3
11123119	6	< 0.3
11123141	6	1.4
11123113	7	< 0.3
11123114	8	0.8
11123157	9	1.9
11123147	10	1.4
11123108	11	< 0.3
11123155	12	0.8
11123158	13	< 0.3
11123121	14	< 0.3
11123123	14	< 0.3
11123103	15	< 0.3
11123135	16	< 0.3
11123165	17	< 0.3
11123136	15 OFFICE	< 0.3
11123122	1T	< 0.3
11123156	9 OFFICE	1.0
11123173	AP	0.6
11123131	APR	< 0.3
11123139	APR	< 0.3
11123117	ART	< 0.3
11123105	BOOK ROOM	0.8
11123118	BSO	< 0.3
11123140	CAFE OFFICE	< 0.3
11123144	CONFERENCE	0.6
11123152	CONFERENCE	0.8
11123127	COU	< 0.3
11123142	ESOL	0.7
11123106	G2	0.8
11123107	G2	0.7
11123164	GOF	0.5
11123110	GYM	< 0.3
11123124	GYM	< 0.3
11123109	GYM OFFICE	1.0
11123172	HR	0.8
11123148	K1	1.1

Table 1- Radon Testing Results		
Germantown ES		
Test Period: 02/15/2022 - 02/18/2022		
Kit Number	Room / Area	Result
11123149	K2	0.8
11123104	MC	0.5
11123128	MC	0.6
11123125	MU	0.7
11123132	MU	< 0.3
11123151	PR	1.0
11123120	R	< 0.3
11123150	SDT	< 0.3
11123143	SPT	0.8
11123126	STAFF LOUNGE	< 0.3
11123163	WR	1.0

Table 2- Radon Testing Results			
Germantown ES			
Test Period: 02/15/2022 - 02/18/2022			
Kit Number	QC Type	Room / Area	Result
11123132	D	MU	< 0.3
11123112	D	6	1.3
11123119	FB	6	< 0.3
11123106	D	G2	0.8
11123121	D	14	< 0.3
11123122	FB	14	< 0.3
11123152	D	Conference	0.8
11131660	OB	OFFICE BLANK	< 0.3
11131661	TB	TRAVEL BLANK	< 0.3

Summary of Missed Locations		
Germantown ES		
Test Period: 02/15/22 - 02/18/22		
Kit Number	Room/Area	Result
	NA	

Summary of Missing, Compromised and >= 4 piC/L Tests		
Germantown ES		
Test Period: 02/15/22 - 02/18/22		
Kit Number	Room/Area	Result
	NA	

Table Note:  
\* Missing or Compromised Sample

# ATTACHMENT C

## Laboratory Analytical Results



Radon test result report for:  
**GERMANTOWN ES****1**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11123133	1	2022-02-15 @ 9:00 am	2022-02-18 @ 8:00 am	0.7 ± 0.3	2022-02-22
11123147	10	2022-02-15 @ 9:00 am	2022-02-18 @ 8:00 am	1.4 ± 0.4	2022-02-22
11123108	11	2022-02-15 @ 9:00 am	2022-02-18 @ 8:00 am	< 0.3	2022-02-22
11123155	12	2022-02-15 @ 9:00 am	2022-02-18 @ 8:00 am	0.8 ± 0.3	2022-02-22
11123158	13	2022-02-15 @ 9:00 am	2022-02-18 @ 8:00 am	< 0.3	2022-02-22
11123123	14	2022-02-15 @ 9:00 am	2022-02-18 @ 8:00 am	< 0.3	2022-02-22
11123121	14	2022-02-15 @ 9:00 am	2022-02-18 @ 8:00 am	< 0.3	2022-02-22
11123103	15	2022-02-15 @ 9:00 am	2022-02-18 @ 8:00 am	< 0.3	2022-02-22
11123136	15 OFFICE	2022-02-15 @ 9:00 am	2022-02-18 @ 8:00 am	< 0.3	2022-02-22
11123135	16	2022-02-15 @ 9:00 am	2022-02-18 @ 8:00 am	< 0.3	2022-02-22
11123165	17	2022-02-15 @ 9:00 am	2022-02-18 @ 9:00 am	< 0.3	2022-02-22
11123122	1T	2022-02-15 @ 9:00 am	2022-02-18 @ 8:00 am	< 0.3	2022-02-22
11123111	2	2022-02-15 @ 9:00 am	2022-02-18 @ 8:00 am	0.7 ± 0.3	2022-02-22
11123115	3	2022-02-15 @ 9:00 am	2022-02-18 @ 8:00 am	< 0.3	2022-02-22
11123134	4	2022-02-15 @ 9:00 am	2022-02-18 @ 8:00 am	< 0.3	2022-02-22
11123116	5	2022-02-15 @ 9:00 am	2022-02-18 @ 8:00 am	1.0 ± 0.3	2022-02-22
11123141	6	2022-02-15 @ 9:00 am	2022-02-18 @ 8:00 am	1.4 ± 0.4	2022-02-22
11123119	6	2022-02-15 @ 9:00 am	2022-02-18 @ 8:00 am	< 0.3	2022-02-22
11123112	6	2022-02-15 @ 9:00 am	2022-02-18 @ 8:00 am	1.3 ± 0.3	2022-02-22
11123113	7	2022-02-15 @ 9:00 am	2022-02-18 @ 8:00 am	< 0.3	2022-02-22
11123114	8	2022-02-15 @ 9:00 am	2022-02-18 @ 8:00 am	0.8 ± 0.3	2022-02-22
11123157	9	2022-02-15 @ 9:00 am	2022-02-18 @ 8:00 am	1.9 ± 0.3	2022-02-22
11123156	9 OFFICE	2022-02-15 @ 9:00 am	2022-02-18 @ 8:00 am	1.0 ± 0.3	2022-02-22
11123173	AP	2022-02-15 @ 10:00 am	2022-02-18 @ 9:00 am	0.6 ± 0.3	2022-02-22
11123131	APR	2022-02-15 @ 8:00 am	2022-02-18 @ 8:00 am	< 0.3	2022-02-22
11123139	APR	2022-02-15 @ 8:00 am	2022-02-18 @ 8:00 am	< 0.3	2022-02-22
11123117	ART	2022-02-15 @ 8:00 am	2022-02-18 @ 8:00 am	< 0.3	2022-02-22
11123105	BOOK ROOM	2022-02-15 @ 9:00 am	2022-02-18 @ 8:00 am	0.8 ± 0.3	2022-02-22
11123118	BSO	2022-02-15 @ 8:00 am	2022-02-18 @ 8:00 am	< 0.3	2022-02-22
11123140	CAFE OFFICE	2022-02-15 @ 8:00 am	2022-02-18 @ 8:00 am	< 0.3	2022-02-22
11123152	CONFERENCE	2022-02-15 @ 9:00 am	2022-02-18 @ 9:00 am	0.8 ± 0.4	2022-02-22
11123144	CONFERENCE	2022-02-15 @ 9:00 am	2022-02-18 @ 9:00 am	0.6 ± 0.3	2022-02-22
11123127	COU	2022-02-15 @ 9:00 am	2022-02-18 @ 8:00 am	< 0.3	2022-02-22
11123142	ESOL	2022-02-15 @ 8:00 am	2022-02-18 @ 8:00 am	0.7 ± 0.3	2022-02-22
11123107	G2	2022-02-15 @ 9:00 am	2022-02-18 @ 8:00 am	0.7 ± 0.3	2022-02-22
11123106	G2	2022-02-15 @ 9:00 am	2022-02-18 @ 8:00 am	0.8 ± 0.3	2022-02-22
11123164	GOF	2022-02-15 @ 9:00 am	2022-02-18 @ 9:00 am	0.5 ± 0.3	2022-02-22

Radon test result report for:**GERMANTOWN ES****1**

<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
11123124	GYM	2022-02-15 @ 8:00 am	2022-02-18 @ 8:00 am	< 0.3	2022-02-22
11123110	GYM	2022-02-15 @ 8:00 am	2022-02-18 @ 8:00 am	< 0.3	2022-02-22
11123109	GYM OFFICE	2022-02-15 @ 8:00 am	2022-02-18 @ 8:00 am	1.0 ± 0.4	2022-02-22
11123172	HR	2022-02-15 @ 10:00 am	2022-02-18 @ 9:00 am	0.8 ± 0.3	2022-02-22
11123148	K1	2022-02-15 @ 9:00 am	2022-02-18 @ 8:00 am	1.1 ± 0.4	2022-02-22
11123149	K2	2022-02-15 @ 8:00 am	2022-02-18 @ 8:00 am	0.8 ± 0.4	2022-02-22
11123104	MC	2022-02-15 @ 9:00 am	2022-02-18 @ 8:00 am	0.5 ± 0.3	2022-02-22
11123128	MC	2022-02-15 @ 9:00 am	2022-02-18 @ 8:00 am	0.6 ± 0.3	2022-02-22
11123132	MU	2022-02-15 @ 8:00 am	2022-02-18 @ 8:00 am	< 0.3	2022-02-22
11123125	MU	2022-02-15 @ 8:00 am	2022-02-18 @ 8:00 am	0.7 ± 0.3	2022-02-22
11123151	PR	2022-02-15 @ 9:00 am	2022-02-18 @ 9:00 am	1.0 ± 0.3	2022-02-22
11123120	R	2022-02-15 @ 9:00 am	2022-02-18 @ 8:00 am	< 0.3	2022-02-22
11123150	SDT	2022-02-15 @ 9:00 am	2022-02-18 @ 8:00 am	< 0.3	2022-02-22
11123143	SPT	2022-02-15 @ 9:00 am	2022-02-18 @ 9:00 am	0.8 ± 0.3	2022-02-22
11123126	STAFF LOUNGE	2022-02-15 @ 8:00 am	2022-02-18 @ 8:00 am	< 0.3	2022-02-22
11123163	WR	2022-02-15 @ 9:00 am	2022-02-18 @ 9:00 am	1.0 ± 0.4	2022-02-22

**EXPOSURE IN BOWSER-MORNER RADON CHAMBER**

CLIENT KCI Technologies, Inc. Job Number 204186

NOMINAL Conditions: Radon Conc 25.8 pCi/L Rel. Hum 50.1 % Temp. 70.9 F

Date Start: 2/18/22 Date Stop: 2/21/22 Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

Time Start: 0911 Time Stop: 0911 Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_

Device No.'s: (3) Char Bags -  
11113484, 1112998, 20107126 Device No.'s: \_\_\_\_\_

23 Right

Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_ Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

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

Device No.'s: \_\_\_\_\_ Device No.'s: \_\_\_\_\_

Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_ Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

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

Device No.'s: \_\_\_\_\_ Device No.'s: \_\_\_\_\_

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

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

---

<b>Kit Number</b>	<b>Start Date</b>	<b>Start Time</b>	<b>End Date</b>	<b>End Time</b>	<b>Temp.</b>	<b>Facility</b>	<b>Building</b>	<b>Room</b>	<b>Project ID</b>	<b>Floor</b>	<b>Result</b>
11113484	2022-02-18	9:00 am	2022-02-21	9:00 am	71	OFFICE	MAIN	SK1		1	27.9
11122998	2022-02-18	9:00 am	2022-02-21	9:00 am	71	OFFICE	MAIN	SK2		1	26.0
20107126	2022-02-18	9:00 am	2022-02-21	9:00 am	71	OFFICE	MAIN	SK3		1	27.6

---



### Radon Test Kit Chain of Custody

Project Name: MCPS Radon – February 2022 Schools

Name of Schools:

1. Damascus HS
2. Germantown ES
3. Great Seneca Creek ES
4. Lake Seneca ES
5. S. Christa McAuliffe ES
6. Northwest HS
7. Waters Landing ES
8. Seneca Valley HS
9. Cedar Grove ES
10. Capt. James E. Daly ES
11. Neelsville MS
12. Dr. Sally K. Ride ES

---

	Date	Initials
Radon Test Kits Deployed	02/15/2022	DM
Radon Test Kits Collected	02/18/2022	DM
Radon Test Kits Shipped to Lab*	02/18/2022	DM
Radon Test Kits Received by Lab*	02/21/2022	DM

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



**MCPS RADON TESTING - EXECUTIVE SUMMARY**

Site Name	Germantown Elementary School
Date of Report	1/28/2020
Round of Testing	Initial Follow-up Post Remediation <b>2 year testing</b> 5 year testing HVAC Upgrade Window Replacement New Addition New Facility
# of Rooms Tested	42
# Rooms $\geq$ 4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	1.5 pCi/L

**Project Status**

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



1/28/2020

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

Re: Radon Testing Services

KCI Job #12146341126

**Location: Germantown Elementary School**

19110 Liberty Mill Road  
Germantown, Maryland 20874

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 Germantown Elementary School, located at 19110 Liberty Mill Road in Germantown, Maryland 20874 (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/departments/facilities/maintenance/default.aspx?id=458858> or [www.epa.gov/radon](http://www.epa.gov/radon).

KCI visited the site on 12/9/2019 and deployed fifty-two (52) 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 sixty (60) 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 12/12/2019 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 upper-30s and high temperatures ranged from the upper-30s to the mid-50s. Maximum sustained winds ranged from 7-21 miles per hour. Average humidity was around 75%. 0.52 inches of precipitation (rain) 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). 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>
≥4.0 pCi/L	None	N/A
≤4.0 pCi/L	See Attachment 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 410-316-7800.

Sincerely,

Mr. Tyler P. McCleaf  
Radon Measurement Provider  
111004 RT

KCI Technologies, Inc.

Attachments:

A- Floor Plan with Test Locations

B - Tables 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 Chek, Inc.

D- Duplicate

FB- Field Blank

KCI- KCI Technologies, Inc.

OB- Office Blank

PM- Project Manager

QC- Quality Control

Table 1- Radon Testing Results		
Germantown Elementary School		
Test Period: 12/9/2019-12/12/2019		
Kit Number	Room / Area	Result
9335501	SDV	0.6
9335502	SDV	< 0.3
9335503	SDV	0.6
9335504	COMMUNICATIONS	< 0.3
9335505	SPT	< 0.3
9335506	HEALTH RM	1.2
9335507	APR	< 0.3
9335508	APR	< 0.3
9335509	KITCHEN	0.5
9335510	STAFF LOUNGE	< 0.3
9335511	CR13	1.1
9335512	RSC2	< 0.3
9335513	CR15	< 0.3
9335514	PE OFFICE	0.7
9335515	MU	< 0.3
9335516	COUNSELOR	< 0.3
9335517	ART	< 0.3
9335518	IMC	< 0.3
9335519	MAIN OFFICE	0.6
9335520	STAFF DEVELOPER	1.3
9335521	GYM	< 0.3
9335522	GYM	< 0.3
9335523	BSO	< 0.3
9335524	WR	1.5
9335525	PR	1.4
9335526	CONFERENCE	1.4
9335527	PE OFFICE	< 0.3
9335528	RSC	< 0.3
9335647	CR10	1.1
9335668	CR14	< 0.3
9335672	CR6	1
9335673	CR5	< 0.3
9335674	CR4	< 0.3
9335676	CR2	0.5
9335680	CR9	1.3
9335681	CR12	0.7
9335682	CR1	0.6
9335687	CR8	0.9
9335688	RSC3	0.8
9335689	K1	0.8
9335690	K2	< 0.3
9335691	CR7	< 0.3
9335692	ESOL	< 0.3
9335693	CR17	< 0.3
9335694	CR17	< 0.3
9335695	CR11	0.6
9335696	K2	< 0.3
9335697	CR16	< 0.3
9335698	CR16	< 0.3
9335699	CR3	0.8

9335700	K2	< 0.3
9334518	OFFICE BLANK	<0.3

Table 2- Radon Testing Results			
Germantown Elementary School			
Test Period: 12/9/2019-12/12/2019			
Kit Number	QC Type	Room / Area	Result
9335514	D	PE OFFICE	0.7
9335501	D	SDV	0.6
9335502	FB	SDV	<0.3
9335698	D	CR16	<0.3
9335700	D	K2	<0.3
9335696	FB	K2	<0.3
9335693	D	CR17	<0.3
9334850	TRANSIT BLANK	NA	< 0.3
9334914	TRANSIT BLANK	NA	< 0.3
9334916	TRANSIT BLANK	NA	< 0.3
9334963	TRANSIT BLANK	NA	< 0.3

Summary of Missed Locations		
Germantown Elementary School		
Test Period: 12/9/2019 - 12/12/2019		
Kit Number	Room/Area	Result
	NA	

Summary of Missing, Compromised and $\geq 4$ piC/L Tests		
Germantown Elementary School		
Test Period: 12/9/2019-12/12/2019		
Kit Number	Room/Area	Result
	NA	

Table Note:  
\* Missing or Compromised Sample



# ATTACHMENT C

## Laboratory Analytical Results

# EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KEI Technologies Inc. Job Number 193475

NOMINAL Conditions: Radon Conc 25.7 pCi/L Rel. Hum 74.6 % Temp. 69.9 F

Date Start: 12/13/19 Date Stop: 12/16/19 Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_  
Time Start: 0806 Time Stop: 0806 Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_  
(Group 1)  
Device No.'s: (20) Char. Bags - Device No.'s: \_\_\_\_\_  
9334502 thru 9334510,  
9334514, 9334516, 9334517,  
9334519, 9334519  
9334522 thru 9334528  
B4

Date Start: 12/13/19 Date Stop: 12/16/19 Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_  
Time Start: 0811 Time Stop: 0811 Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_  
(Group 2)  
Device No.'s: (20) Char. Bags - Device No.'s: \_\_\_\_\_  
9334529 thru 9334538,  
9334540,  
9334542 thru 9334550  
B3

Date Start: 12/16/19 Date Stop: 12/16/19 Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_  
Time Start: 0816 Time Stop: 0816 Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_  
(Group 3)  
Device No.'s: (20) Char. Bags - Device No.'s: \_\_\_\_\_  
9334551, 9334552, 9334562,  
9334555 thru 9334559,  
9334569, 9334576, 9334579,  
9334580, 9334583, 9334584,  
9334591, 9334593, 9334594,  
9334597, 9334598, 9334599  
B2

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

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

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9335507	APR	2019-12-09 @ 4:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-16
9335508	APR	2019-12-09 @ 4:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-17
9335517	ART	2019-12-09 @ 4:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-16
9335523	BSO	2019-12-09 @ 4:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-16
9335504	COMMUNICATIO	2019-12-09 @ 4:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-16
9335526	CONFERENCE	2019-12-09 @ 4:00 pm	2019-12-12 @ 10:00 am	1.4 ± 0.4	2019-12-16
9335516	COUNSELOR	2019-12-09 @ 4:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-16
9335682	CR1	2019-12-09 @ 4:00 pm	2019-12-12 @ 10:00 am	0.6 ± 0.4	2019-12-16
9335647	CR10	2019-12-09 @ 4:00 pm	2019-12-12 @ 10:00 am	1.1 ± 0.4	2019-12-16
9335695	CR11	2019-12-09 @ 4:00 pm	2019-12-12 @ 10:00 am	0.6 ± 0.4	2019-12-16
9335681	CR12	2019-12-09 @ 4:00 pm	2019-12-12 @ 10:00 am	0.7 ± 0.4	2019-12-16
9335511	CR13	2019-12-09 @ 4:00 pm	2019-12-12 @ 10:00 am	1.1 ± 0.4	2019-12-17
9335668	CR14	2019-12-09 @ 4:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-16
9335513	CR15	2019-12-09 @ 4:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-16
9335698	CR16	2019-12-09 @ 4:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-16
9335697	CR16	2019-12-09 @ 4:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-16
9335693	CR17	2019-12-09 @ 4:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-16
9335694	CR17	2019-12-09 @ 4:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-16
9335676	CR2	2019-12-09 @ 4:00 pm	2019-12-12 @ 10:00 am	0.5 ± 0.4	2019-12-17
9335699	CR3	2019-12-09 @ 4:00 pm	2019-12-12 @ 10:00 am	0.8 ± 0.5	2019-12-17
9335674	CR4	2019-12-09 @ 4:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-16
9335673	CR5	2019-12-09 @ 4:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-16
9335672	CR6	2019-12-09 @ 4:00 pm	2019-12-12 @ 10:00 am	1.0 ± 0.4	2019-12-16
9335691	CR7	2019-12-09 @ 4:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-16
9335687	CR8	2019-12-09 @ 4:00 pm	2019-12-12 @ 10:00 am	0.9 ± 0.4	2019-12-16
9335680	CR9	2019-12-09 @ 4:00 pm	2019-12-12 @ 10:00 am	1.3 ± 0.4	2019-12-16
9335692	ESOL	2019-12-09 @ 4:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-16
9335522	GYM	2019-12-09 @ 4:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-16
9335521	GYM	2019-12-09 @ 4:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-17
9335506	HEALTH RM	2019-12-09 @ 4:00 pm	2019-12-12 @ 10:00 am	1.2 ± 0.4	2019-12-16
9335518	IMC	2019-12-09 @ 4:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-16
9335689	K1	2019-12-09 @ 4:00 pm	2019-12-12 @ 10:00 am	0.8 ± 0.4	2019-12-16
9335696	K2	2019-12-09 @ 4:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-16
9335690	K2	2019-12-09 @ 4:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-16
9335700	K2	2019-12-09 @ 4:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-16
9335509	KITCHEN	2019-12-09 @ 4:00 pm	2019-12-12 @ 10:00 am	0.5 ± 0.4	2019-12-16
9335519	MAIN OFFICE	2019-12-09 @ 4:00 pm	2019-12-12 @ 10:00 am	0.6 ± 0.4	2019-12-16

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

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9335515	MU	2019-12-09 @ 4:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-17
9335514	PE OFFICE	2019-12-09 @ 4:00 pm	2019-12-12 @ 10:00 am	0.7 ± 0.4	2019-12-16
9335527	PE OFFICE	2019-12-09 @ 4:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-16
9335525	PR	2019-12-09 @ 4:00 pm	2019-12-12 @ 10:00 am	1.4 ± 0.4	2019-12-16
9335528	RSC	2019-12-09 @ 4:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-16
9335512	RSC2	2019-12-09 @ 4:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-16
9335688	RSC3	2019-12-09 @ 4:00 pm	2019-12-12 @ 10:00 am	0.8 ± 0.4	2019-12-16
9335502	SDV	2019-12-09 @ 4:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-16
9335503	SDV	2019-12-09 @ 4:00 pm	2019-12-12 @ 10:00 am	0.6 ± 0.4	2019-12-16
9335501	SDV	2019-12-09 @ 4:00 pm	2019-12-12 @ 10:00 am	0.6 ± 0.4	2019-12-16
9335505	SPT	2019-12-09 @ 4:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-16
9335520	STAFF DEVELOPER	2019-12-09 @ 4:00 pm	2019-12-12 @ 10:00 am	1.3 ± 0.4	2019-12-16
9335510	STAFF LOUNGE	2019-12-09 @ 4:00 pm	2019-12-12 @ 10:00 am	< 0.3	2019-12-16
9335524	WR	2019-12-09 @ 4:00 pm	2019-12-12 @ 10:00 am	1.5 ± 0.5	2019-12-17

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
9334583	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.3 $\pm$ 1.4	2019-12-18
9334529	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.3 $\pm$ 1.5	2019-12-18
9334597	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.8 $\pm$ 1.4	2019-12-18
9334534	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.3 $\pm$ 1.4	2019-12-18
9334540	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.9 $\pm$ 1.4	2019-12-18
9334546	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.9 $\pm$ 1.5	2019-12-18
9334551	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.3 $\pm$ 1.4	2019-12-18
9334558	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.6 $\pm$ 1.4	2019-12-18
9334579	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.6 $\pm$ 1.4	2019-12-18
9334593	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.3 $\pm$ 1.4	2019-12-18
9334532	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.6 $\pm$ 1.4	2019-12-18
9334537	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.8 $\pm$ 1.4	2019-12-18
9334544	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.5 $\pm$ 1.4	2019-12-18
9334549	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.4 $\pm$ 1.5	2019-12-18
9334556	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.1 $\pm$ 1.4	2019-12-18
9334569	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.7 $\pm$ 1.4	2019-12-18
9334584	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.4 $\pm$ 1.5	2019-12-18
9334530	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.6 $\pm$ 1.4	2019-12-18
9334598	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.7 $\pm$ 1.4	2019-12-18
9334535	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.0 $\pm$ 1.4	2019-12-18
9334542	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.7 $\pm$ 1.4	2019-12-18
9334547	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	25.2 $\pm$ 1.5	2019-12-18
9334552	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.2 $\pm$ 1.4	2019-12-18
9334559	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.1 $\pm$ 1.4	2019-12-18
9334580	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.1 $\pm$ 1.4	2019-12-18
9334594	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.1 $\pm$ 1.4	2019-12-18
9334533	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.3 $\pm$ 1.5	2019-12-18
9334538	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.6 $\pm$ 1.5	2019-12-18
9334545	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.0 $\pm$ 1.4	2019-12-18
9334550	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.1 $\pm$ 1.4	2019-12-18
9334557	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.6 $\pm$ 1.5	2019-12-18
9334576	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.3 $\pm$ 1.4	2019-12-18
9334591	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.7 $\pm$ 1.4	2019-12-18
9334531	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.3 $\pm$ 1.5	2019-12-18
9334599	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.8 $\pm$ 1.4	2019-12-18
9334536	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.4 $\pm$ 1.5	2019-12-18
9334543	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.4 $\pm$ 1.5	2019-12-18

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December 18, 2019

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

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Radon test result report for:

**N/A**

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<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
9334548	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.0 ± 1.4	2019-12-18
9334555	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.4 ± 1.4	2019-12-18
9334562	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.5 ± 1.4	2019-12-18

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

Radon test result report for:**S****N/A**

<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
9334505	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.5 ± 1.5	2019-12-18
9334510	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.4 ± 1.5	2019-12-18
9334522	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.9 ± 1.4	2019-12-18
9334527	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	22.6 ± 1.4	2019-12-18
9334503	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.6 ± 1.4	2019-12-18
9334508	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.7 ± 1.5	2019-12-18
9334517	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.5 ± 1.4	2019-12-18
9334525	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.8 ± 1.4	2019-12-18
9334506	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.3 ± 1.5	2019-12-18
9334514	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.5 ± 1.5	2019-12-18
9334523	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.6 ± 1.4	2019-12-18
9334528	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.8 ± 1.4	2019-12-18
9334504	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.8 ± 1.4	2019-12-18
9334509	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.5 ± 1.4	2019-12-18
9334519	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.1 ± 1.4	2019-12-18
9334526	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.3 ± 1.4	2019-12-18
9334502	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	23.7 ± 1.4	2019-12-18
9334507	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.7 ± 1.5	2019-12-18
9334516	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	22.2 ± 1.3	2019-12-18
9334524	N/A	2019-12-13 @ 8:00 am	2019-12-16 @ 8:00 am	24.6 ± 1.5	2019-12-18



### Radon Test Kit Chain of Custody

Project Name: MCPS Radon 2019 Week 1

Name of Schools:

- |                             |                         |
|-----------------------------|-------------------------|
| 1. Baker M.S.               | 13. Jones Lane E.S.     |
| 2. Belmont E.S.             | 14. Lake Seneca E.S.    |
| 3. Clarksburg E.S.          | 15. McAuliffe E.S.      |
| 4. Clarksburg H.S.          | 16. Quince Orchard H.S. |
| 5. Clearspring E.S.         | 17. Rosa Parks M.S.     |
| 6. Damascus E.S.            | 18. Snowden Farm E.S.   |
| 7. Damascus H.S.            | 19. South Lake E.S.     |
| 8. Dufief E.S.              | 20. Stone Mill E.S.     |
| 9. Fields Road E.S.         | 21. Travilah E.S.       |
| 10. Gaithersburg E.S.       | 22. Watkins Mill E.S.   |
| 11. Germantown E.S.         | 23. Watkins Mill H.S.   |
| 12. Great Seneca Creek E.S. | 24. Whitman H.S.        |

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	Date	Initials
Radon Test Kits Deployed	12/09/19 to 12/10/19	JM
Radon Test Kits Collected	12/12/19 to 12/13/19	JM
Radon Test Kits Shipped to Lab*	12/13/19	JM
Radon Test Kits Received by Lab*	12/16/19	JM

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





**MCPS RADON TESTING - EXECUTIVE SUMMARY**

Site Name	Germantown Elementary School
Date of Report	March 9, 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	3
# Rooms $\geq$ 4.0 pCi/L	0
Lowest Value	0.6 pCi/L
Highest Value	0.8 pCi/L

**Project Status**

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



March 9, 2018

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

Re: Radon Testing Services

KCI Job #1214634188

**Location: Germantown Elementary School**

19110 Liberty Mill Rd.  
Germantown, Maryland 20874

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 Germantown Elementary School, located at 19110 Liberty Mill Rd. in Germantown, Maryland 20874 (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 13, 2018 and deployed five (5) 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).

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

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

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

### **EVALUATION OF TESTING CONDITIONS**

These tests represent:

- Follow-up to post-mitigation biennial testing.

These tests were conducted to:

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

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

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

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

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

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## **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>Germantown Elementary School</b>		
<b>Test Period: 02/13/18-02/16/18</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result</b>
7986612	CAFE	0.6
7986609	COMPUTER LAB	0.7
7986606	OFF BETWEEN 14 & 15	0.8

Table Note:

\* Missing or Compromised Sample

<b>Table 2 - Radon Testing Results</b>		
<b>Germantown Elementary School</b>		
<b>Test Period: 02/13/18-02/16/18</b>		
<b>Kit Number</b>	<b>QC Type</b>	<b>Result</b>
7986611	D (CAFE)	0.6
7986608	FB (OFF BETWEEN 14 & 15)	< 0.3

Table Note:

\* Missing or Compromised Sample



# ATTACHMENT C

## Laboratory Analytical Results

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February 27, 2018

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

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Radon test result report for:

**GERMANTOWN ELEMENTARY SCHOOL**

**1**

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<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
7986611	CAFE	2018-02-13 @ 9:00 am	2018-02-16 @ 9:00 am	0.6 ± 0.3	2018-02-20
7986612	CAFE	2018-02-13 @ 9:00 am	2018-02-16 @ 9:00 am	0.6 ± 0.3	2018-02-20
7986609	COMPUTER LAB	2018-02-13 @ 9:00 am	2018-02-16 @ 9:00 am	0.7 ± 0.3	2018-02-20
7986608	OFF BTW 14 15	2018-02-13 @ 9:00 am	2018-02-16 @ 9:00 am	< 0.3	2018-02-20
7986606	OFF BTW 14 15	2018-02-13 @ 9:00 am	2018-02-16 @ 9:00 am	0.8 ± 0.3	2018-02-20

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



## Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase

Names of Schools:

1. Westbrook Elementary School
2. Westland Middle School
3. Walt Whitman High School
4. Cloverly Elementary School
5. Sligo Middle School
6. Flora Singer Elementary School
7. Albert Einstein High School
8. Roscoe Nix Elementary School
9. Mario Loiederman Middle School
10. Sargent Shriver Elementary School
11. Whetstone Elementary School
12. Brooke Grove Elementary School
13. Clearspring Elementary School
14. Beall Elementary School
15. Maryvale Elementary School
16. Lathrop E. Smith Center
17. Laytonsville Elementary School
18. Germantown Elementary School
19. Spring Mill Center
20. Northwood High School
21. E. Silver Spring Elementary School
22. Silver Spring Int. Middle School
23. Clarksburg High School
24. Rosa Parks Middle School
25. Greenwood Elementary School
26. Montgomery Knolls Elem. School
27. Watkins Mill Elementary School
28. Gaithersburg Elementary School
29. Viers Mill Elementary School
30. Rock View Elementary School

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	Date	Initials
Radon Test Kits Deployed	2/13/18	JM
Radon Test Kits Collected	2/16/18	JM
Radon Test Kits Shipped to Lab*	2/16/18	JM
Radon Test Kits Received by Lab*	2/20/18	JM

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

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: <u>2/16/18</u> Date Stop: <u>2/19/18</u>	Date Start: _____ Date Stop: _____
Time Start: <u>1052</u> Time Stop: <u>1052</u>	Time Start: _____ Time Stop: _____
Device No.'s: <u>(6) Char. Bags</u>	Device No.'s: _____
<u>7984181, 7986621, 7985683</u>	_____
<u>7984168, 7986618, 7984169</u>	_____
<u>G3 Middle</u>	_____

Date Start: _____ Date Stop: _____	Date Start: _____ Date Stop: _____
Time Start: _____ Time Stop: _____	Time Start: _____ Time Stop: _____
Device No.'s: _____	Device No.'s: _____
_____	_____
_____	_____

Date Start: _____ Date Stop: _____	Date Start: _____ Date Stop: _____
Time Start: _____ Time Stop: _____	Time Start: _____ Time Stop: _____
Device No.'s: _____	Device No.'s: _____
_____	_____
_____	_____

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



**MCPS RADON TESTING - EXECUTIVE SUMMARY**

Site Name	Germantown Elementary School
Date of Report	February 1, 2018
Round of Testing	Initial Follow-up Post Remediation <b>2 year testing</b> 5 year testing HVAC Upgrade Window Replacement New Addition New Facility
# of Rooms Tested	40
# Rooms $\geq 4.0$ pCi/L	0
Lowest Value	< 0.3 pCi/L
Highest Value	2.3 pCi/L

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





February 1, 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: Germantown Elementary School**

19110 Liberty Mill Rd.  
Germantown, Maryland 20874

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 Germantown Elementary School, located at 19110 Liberty Mill Rd. in Germantown, Maryland 20874 (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 December 4, 2017 and deployed fifty (50) 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 7, 2017 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Aircheck, Inc. for analysis by gamma-ray spectroscopy. Aircheck, Inc. is a NRSB certified analytical laboratory for radon analysis (certification #ARL1402) located at 1936 Butler Bridge Road, Mills River, North Carolina.

### **EVALUATION OF TESTING CONDITIONS**

These tests represent:

- Post-mitigation biennial testing.

These tests were conducted to:

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

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

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

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

KCI also compiled weather data for the testing period and conducted observations of relevant field conditions. During the test period, weather records indicate low temperatures were in the high-20s to mid-40s and high temperatures ranged from the low-40s to mid-50s. Maximum sustained winds ranged from 12-17 miles per hour. Average humidity was around 65%. 0.16 Inches of precipitation was recorded during the testing period.

### **RESULTS**

The sampling locations, field observations, and analytical results are listed on Table 1 (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>
$\geq 4.0$ 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 blank, and lab transit blanks had test results of less than the laboratory detection limit of 0.3 pCi/L.
Adequate Laboratory Precision?	Review of the duplicate sample analysis indicates that adequate laboratory measurement precision was achieved.
Spike Sample Analysis:	The Spike sample analysis results indicate the laboratory is operating within statistical control limits.

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

Sincerely,



James 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>Germantown Elementary School</b>		
<b>Test Period: 12/04/17-12/07/17</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result</b>
7194021	1	1.0
7194020	2	1.0
7194034	3	0.8
7194030	4	1.0
7194025	5	1.2
7194032	6	1.4
7194006	7	1.0
7194014	8	1.3
7194019	9	1.7
7194016	10	1.5
7194015	11	0.8
7194012	12	0.7
7194002	13	1.3
7194008	14	0.8
7194010	15	0.6
7194009	16	1.4
7193752	17	1.0
7194011	15 OFFICE	0.9
7193794	APR	< 0.3
7193795	APR	< 0.3
7193789	ART	0.8
7193764	ASST PRIN	2.2
7193799	BLDG SERV	2.2
7193797	COMM	0.9
7193771	CONFER RM	2.0
7194022	COU	0.7
7193782	GOF	1.6
7193788	GYM	0.8
7193784	GYM	0.8
7193798	GYM OFFICE	0.9
7193722	HEALTH	2.3
7194018	HSM	1.3
7194004	K1	1.4
7194017	K2	1.0
7193793	MEDIA CNTER	1.1
7193790	MEDIA CNTER	1.4
7194029	MU	0.9
7193776	PR	2.3
7193796	R	1.4
7193783	READING ROOM	1.0
7194007	SPT	0.9
7193710	STAFF LOUNGE	0.9
7193777	WORKROOM	1.8

Table Note:

\* Missing or Compromised Sample

<b>Radon Testing Results</b>		
<b>Germantown Elementary School</b>		
<b>Test Period: 12/04/17-12/07/17</b>		
<b>Kit Number</b>	<b>QC Type</b>	<b>Result</b>
7194013	D (7)	0.9
7193800	D (COMM)	0.8
7194028	D (COU)	1.0
7193765	D (HEALTH)	2.0
7194003	D (K1)	1.7
7194005	FB (7)	< 0.3
7194087	OB (OFFICE BLANK)	< 0.3

Table Note:

\* Missing or Compromised Sample





# ATTACHMENT C

## Laboratory Analytical Results

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December 29, 2017

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

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Radon test result report for:

**GERMANTOWN ELEMENTARY SCHOOL  
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>
7194087	OFFICE BLANK	2017-12-04 @ 12:00 pm	2017-12-07 @ 12:00 pm	< 0.3	2017-12-12

---

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

Radon test result report for:

**GERMANTOWN ELEMENTARY SCHOOL  
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7194021	1	2017-12-04 @ 1:00 pm	2017-12-07 @ 10:00 am	1.0 ± 0.4	2017-12-12
7194016	10	2017-12-04 @ 12:00 pm	2017-12-07 @ 10:00 am	1.5 ± 0.4	2017-12-12
7194015	11	2017-12-04 @ 12:00 pm	2017-12-07 @ 10:00 am	0.8 ± 0.4	2017-12-12
7194012	12	2017-12-04 @ 12:00 pm	2017-12-07 @ 10:00 am	0.7 ± 0.4	2017-12-12
7194002	13	2017-12-04 @ 12:00 pm	2017-12-07 @ 10:00 am	1.3 ± 0.4	2017-12-12
7194008	14	2017-12-04 @ 12:00 pm	2017-12-07 @ 10:00 am	0.8 ± 0.4	2017-12-12
7194010	15	2017-12-04 @ 12:00 pm	2017-12-07 @ 10:00 am	0.6 ± 0.4	2017-12-12
7194011	15 OFFICE	2017-12-04 @ 12:00 pm	2017-12-07 @ 10:00 am	0.9 ± 0.4	2017-12-12
7194009	16	2017-12-04 @ 12:00 pm	2017-12-07 @ 10:00 am	1.4 ± 0.4	2017-12-12
7193752	17	2017-12-04 @ 12:00 pm	2017-12-07 @ 10:00 am	1.0 ± 0.4	2017-12-12
7194020	2	2017-12-04 @ 1:00 pm	2017-12-07 @ 10:00 am	1.0 ± 0.4	2017-12-12
7194034	3	2017-12-04 @ 1:00 pm	2017-12-07 @ 10:00 am	0.8 ± 0.4	2017-12-12
7194030	4	2017-12-04 @ 1:00 pm	2017-12-07 @ 10:00 am	1.0 ± 0.4	2017-12-12
7194025	5	2017-12-04 @ 1:00 pm	2017-12-07 @ 10:00 am	1.2 ± 0.4	2017-12-12
7194032	6	2017-12-04 @ 1:00 pm	2017-12-07 @ 10:00 am	1.4 ± 0.4	2017-12-12
7194006	7	2017-12-04 @ 12:00 pm	2017-12-07 @ 10:00 am	1.0 ± 0.4	2017-12-12
7194013	7	2017-12-04 @ 12:00 pm	2017-12-07 @ 10:00 am	0.9 ± 0.4	2017-12-12
7194005	7	2017-12-04 @ 12:00 pm	2017-12-07 @ 10:00 am	< 0.3	2017-12-12
7194014	8	2017-12-04 @ 12:00 pm	2017-12-07 @ 10:00 am	1.3 ± 0.4	2017-12-12
7194019	9	2017-12-04 @ 12:00 pm	2017-12-07 @ 10:00 am	1.7 ± 0.4	2017-12-12
7193795	APR	2017-12-04 @ 11:00 am	2017-12-07 @ 10:00 am	< 0.3	2017-12-12
7193794	APR	2017-12-04 @ 11:00 am	2017-12-07 @ 10:00 am	< 0.3	2017-12-12
7193789	ART	2017-12-04 @ 12:00 pm	2017-12-07 @ 10:00 am	0.8 ± 0.4	2017-12-12
7193764	ASST PRIN	2017-12-04 @ 12:00 pm	2017-12-07 @ 10:00 am	2.2 ± 0.4	2017-12-12
7193799	BLDG SERV	2017-12-04 @ 12:00 pm	2017-12-07 @ 10:00 am	2.2 ± 0.4	2017-12-12
7193800	COMM	2017-12-04 @ 12:00 pm	2017-12-07 @ 10:00 am	0.8 ± 0.4	2017-12-12
7193797	COMM	2017-12-04 @ 12:00 pm	2017-12-07 @ 10:00 am	0.9 ± 0.4	2017-12-12
7193771	CONFER RM	2017-12-04 @ 12:00 pm	2017-12-07 @ 10:00 am	2.0 ± 0.4	2017-12-12
7194022	COU	2017-12-04 @ 1:00 pm	2017-12-07 @ 10:00 am	0.7 ± 0.4	2017-12-12
7194028	COU	2017-12-04 @ 1:00 pm	2017-12-07 @ 10:00 am	1.0 ± 0.4	2017-12-12
7193782	GOF	2017-12-04 @ 12:00 pm	2017-12-07 @ 10:00 am	1.6 ± 0.4	2017-12-12
7193784	GYM	2017-12-04 @ 12:00 pm	2017-12-07 @ 10:00 am	0.8 ± 0.3	2017-12-12
7193788	GYM	2017-12-04 @ 12:00 pm	2017-12-07 @ 10:00 am	0.8 ± 0.4	2017-12-12
7193798	GYM OFFICE	2017-12-04 @ 12:00 pm	2017-12-07 @ 10:00 am	0.9 ± 0.4	2017-12-12
7193722	HEALTH	2017-12-04 @ 12:00 pm	2017-12-07 @ 10:00 am	2.3 ± 0.4	2017-12-12
7193765	HEALTH	2017-12-04 @ 12:00 pm	2017-12-07 @ 10:00 am	2.0 ± 0.5	2017-12-12
7194018	HSM	2017-12-04 @ 12:00 pm	2017-12-07 @ 10:00 am	1.3 ± 0.4	2017-12-12

Radon test result report for:

**GERMANTOWN ELEMENTARY SCHOOL  
MAIN**

<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
7194003	K1	2017-12-04 @ 1:00 pm	2017-12-07 @ 10:00 am	1.7 ± 0.4	2017-12-12
7194004	K1	2017-12-04 @ 1:00 pm	2017-12-07 @ 10:00 am	1.4 ± 0.4	2017-12-12
7194017	K2	2017-12-04 @ 1:00 pm	2017-12-07 @ 10:00 am	1.0 ± 0.4	2017-12-12
7193790	MEDIA CNTER	2017-12-04 @ 12:00 pm	2017-12-07 @ 11:00 am	1.4 ± 0.4	2017-12-12
7193793	MEDIA CNTER	2017-12-04 @ 12:00 pm	2017-12-07 @ 11:00 am	1.1 ± 0.4	2017-12-12
7194029	MU	2017-12-04 @ 1:00 pm	2017-12-07 @ 10:00 am	0.9 ± 0.4	2017-12-12
7193776	PR	2017-12-04 @ 12:00 pm	2017-12-07 @ 11:00 am	2.3 ± 0.4	2017-12-12
7193796	R	2017-12-04 @ 12:00 pm	2017-12-07 @ 10:00 am	1.4 ± 0.4	2017-12-12
7193783	READING ROOM	2017-12-04 @ 12:00 pm	2017-12-07 @ 11:00 am	1.0 ± 0.4	2017-12-12
7194007	SPT	2017-12-04 @ 12:00 pm	2017-12-07 @ 10:00 am	0.9 ± 0.4	2017-12-12
7193710	STAFF LOUNGE	2017-12-04 @ 12:00 pm	2017-12-07 @ 10:00 am	0.9 ± 0.4	2017-12-12
7193777	WORKROOM	2017-12-04 @ 12:00 pm	2017-12-07 @ 10:00 am	1.8 ± 0.4	2017-12-12



## Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase

Names of Schools:

- |                                       |                                  |
|---------------------------------------|----------------------------------|
| 1. Brooke Grove Elementary School     | 14. Newport Mill Middle School   |
| 2. Brown Station Elementary School    | 15. Oakview Elementary School    |
| 3. Diamond Elementary School Addition | 16. Quince Orchard High School   |
| 4. Dufief Elementary School           | 17. Robert Frost Middle School   |
| 5. Emory Grove Center                 | 18. Rosa Parks Middle School     |
| 6. Fields Road Elementary School      | 19. South Lake Elementary School |
| 7. Facilities Maintenance Depot       |                                  |
| 8. Forest Oak Middle School           |                                  |
| 9. Francis Scott Key Middle School    |                                  |
| 10. Gaithersburg Elementary School    |                                  |
| 11. Gaithersburg Middle School        |                                  |
| 12. Germantown Elementary School      |                                  |
| 13. Greenwood Elementary School       |                                  |
| 14. Jones Lane Elementary School      |                                  |

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	Date	Initials
Radon Test Kits Deployed	12/04/17	JM
Radon Test Kits Collected	12/07/17	JM
Radon Test Kits Shipped to Lab*	12/07/17	JM
Radon Test Kits Received by Lab*	12/11/17	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).**

---

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





## MCPS RADON TESTING

### Executive Summary: Germantown Elementary School

Date of Test Report:	10/19/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	8
# Rooms $\geq$ 4.0 pCi/L:	0
Low Value:	< 0.3
High Value:	0.9

#### Project Status:

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



October 19, 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 # 12146341.54

Location: Germantown Elementary School  
19110 Liberty Mill Road  
Germantown, MD 20874

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 Germantown Elementary School, located at 19110 Liberty Mill Road in Germantown, Maryland 20874 (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 September 27, 2016 and deployed eleven (11) 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 September 30, 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:**

These tests represent:

- Post-mitigation testing for radon mitigation systems installed recently.

To expedite the testing, tests were conducted in September as soon as students and staff returned to:

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

Future periodic testing should be conducted during the heating season in ideal conditions as described below. 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 cooling mode; therefore, KCI concludes that this test was not 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 50s and high temperatures in the mid-60s to mid-70s. Maximum sustained winds ranged from 3-15 miles per hour. Average humidity ranged from 71 to 89 percent. Rain (1.83 inches in Gaithersburg, MD) was recorded on 9/29/16. The weather conditions during the testing period may have resulted in atypical radon test results for this facility.

### **Results:**

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>	none	n/a
<b>&lt;4.0 pCi/L</b>	See Attachment B	

Notes:

D- Duplicate sample

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

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

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

Sincerely,



James M. 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

<b>Radon Testing Results</b>		
<b>Germantown Elementary School</b>		
<b>Test Period: 09/27/16-09/30/16</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result</b>
7802947	12	< 0.3
7802953	13	< 0.3
7802946	14	0.9
7802945	15	0.5
7802943	14 SDT	0.5
7802948	GYM	< 0.3
7802950	GYM	< 0.3
7802944	MEDIA CENTER	0.7
7802938	READING ROOM	0.7

Table Note:

\* Missing or Compromised Sample

<b>Radon Testing Results</b>		
<b>Germantown Elementary School</b>		
<b>Test Period: 09/27/16-09/30/16</b>		
<b>Kit Number</b>	<b>QC Type</b>	<b>Result</b>
7802949	D (14)	0.7
7802954	FB (13)	< 0.3

Table Note:

\* Missing or Compromised Sample



# ATTACHMENT C

## Laboratory Analytical Results

October 7, 2016

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

Radon test result report for:

**GERMANTOWN ELEMENTARY SCHOOL  
MAIN**

<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
7802947	12	2016-09-27 @ 3:00 pm	2016-09-30 @ 11:00 am	< 0.3	2016-10-03
7802953	13	2016-09-27 @ 2:00 pm	2016-09-30 @ 11:00 am	< 0.3	2016-10-03
7802954	13	2016-09-27 @ 2:00 pm	2016-09-30 @ 11:00 am	< 0.3	2016-10-03
7802946	14	2016-09-27 @ 2:00 pm	2016-09-30 @ 11:00 am	0.9 ± 0.3	2016-10-03
7802949	14	2016-09-27 @ 2:00 pm	2016-09-30 @ 11:00 am	0.7 ± 0.3	2016-10-03
7802943	14 SDT	2016-09-27 @ 2:00 pm	2016-09-30 @ 11:00 am	0.5 ± 0.3	2016-10-03
7802945	15	2016-09-27 @ 2:00 pm	2016-09-30 @ 11:00 am	0.5 ± 0.3	2016-10-03
7802948	GYM	2016-09-27 @ 2:00 pm	2016-09-30 @ 11:00 am	< 0.3	2016-10-03
7802950	GYM	2016-09-27 @ 2:00 pm	2016-09-30 @ 11:00 am	< 0.3	2016-10-03
7802944	MEDIA CENTER	2016-09-27 @ 3:00 pm	2016-09-30 @ 11:00 am	0.7 ± 0.3	2016-10-03
7802938	READING ROOM	2016-09-27 @ 3:00 pm	2016-09-30 @ 11:00 am	0.7 ± 0.2	2016-10-03

October 7, 2016

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

Radon test result report for:

**MCPS Radon**

**Phase 18 Office Blanks**

<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
7802697	1	2016-09-26 @ 11:00 am	2016-09-29 @ 11:00 am	< 0.3	2016-10-03
7801899	10	2016-09-26 @ 11:00 am	2016-09-29 @ 11:00 am	< 0.3	2016-10-03
7802932	11	2016-09-26 @ 11:00 am	2016-09-29 @ 11:00 am	< 0.3	2016-10-03
7802935	12	2016-09-26 @ 11:00 am	2016-09-29 @ 11:00 am	< 0.3	2016-10-03
7802915	13	2016-09-26 @ 11:00 am	2016-09-29 @ 11:00 am	< 0.3	2016-10-03
7802941	2	2016-09-26 @ 11:00 am	2016-09-29 @ 11:00 am	< 0.3	2016-10-03
7802942	3	2016-09-26 @ 11:00 am	2016-09-29 @ 11:00 am	< 0.3	2016-10-03
7802919	4	2016-09-26 @ 11:00 am	2016-09-29 @ 11:00 am	< 0.3	2016-10-03
7802918	5	2016-09-26 @ 11:00 am	2016-09-29 @ 11:00 am	< 0.3	2016-10-03
7802917	6	2016-09-26 @ 11:00 am	2016-09-29 @ 11:00 am	< 0.3	2016-10-03
7802916	7	2016-09-26 @ 11:00 am	2016-09-29 @ 11:00 am	< 0.3	2016-10-03
7802952	8	2016-09-26 @ 11:00 am	2016-09-29 @ 11:00 am	< 0.3	2016-10-03
7802928	9	2016-09-26 @ 11:00 am	2016-09-29 @ 11:00 am	< 0.3	2016-10-03

Radon test result report for:**MCPS Radon****Phase 18 Transit Blanks**

<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
7714274	1	2016-09-26 @ 10:00 am	2016-09-29 @ 10:00 am	< 0.3	2016-10-03
7802962	10	2016-09-26 @ 10:00 am	2016-09-29 @ 10:00 am	< 0.3	2016-10-03
7714295	11	2016-09-26 @ 10:00 am	2016-09-29 @ 10:00 am	< 0.3	2016-10-03
7714299	12	2016-09-26 @ 10:00 am	2016-09-29 @ 10:00 am	< 0.3	2016-10-03
7714273	13	2016-09-26 @ 10:00 am	2016-09-29 @ 10:00 am	< 0.3	2016-10-03
7714270	14	2016-09-26 @ 10:00 am	2016-09-29 @ 10:00 am	< 0.3	2016-10-03
7802965	2	2016-09-26 @ 10:00 am	2016-09-29 @ 10:00 am	< 0.3	2016-10-03
7802696	3	2016-09-26 @ 10:00 am	2016-09-29 @ 10:00 am	< 0.3	2016-10-03
7802690	4	2016-09-26 @ 10:00 am	2016-09-29 @ 10:00 am	< 0.3	2016-10-03
7714275	5	2016-09-26 @ 10:00 am	2016-09-29 @ 10:00 am	< 0.3	2016-10-03
7714298	6	2016-09-26 @ 10:00 am	2016-09-29 @ 10:00 am	< 0.3	2016-10-03
7802990	7	2016-09-26 @ 10:00 am	2016-09-29 @ 10:00 am	< 0.3	2016-10-03
7802974	8	2016-09-26 @ 10:00 am	2016-09-29 @ 10:00 am	< 0.3	2016-10-03
7802694	9	2016-09-26 @ 10:00 am	2016-09-29 @ 10:00 am	< 0.3	2016-10-03

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October 12, 2016

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

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Radon test result report for:  
**MCPS Radon  
Spike Sample Results**

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<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
7769880	101	2016-09-24 @ 8:00 am	2016-09-26 @ 8:00 am	22.9 ± 1.0	2016-09-28
7769884	102	2016-09-24 @ 8:00 am	2016-09-26 @ 8:00 am	22.4 ± 1.0	2016-09-28
7769885	103	2016-09-24 @ 8:00 am	2016-09-26 @ 8:00 am	23.0 ± 1.0	2016-09-28
7769890	104	2016-09-24 @ 8:00 am	2016-09-26 @ 8:00 am	22.3 ± 1.0	2016-09-28
7769891	105	2016-09-24 @ 8:00 am	2016-09-26 @ 8:00 am	26.8 ± 1.2	2016-09-28
7769899	106	2016-09-24 @ 8:00 am	2016-09-26 @ 8:00 am	24.1 ± 1.1	2016-09-28

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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 176788

NOMINAL Conditions: Radon Conc 26.1 pCi/L Rel. Hum 49.6 % Temp. 70.0 F

Date Start: 9/24/16 Date Stop: 9/26/16 Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

Time Start: 0758 Time Stop: 0758 Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_

Device No.'s: (6) Char. Bags - Device No.'s: \_\_\_\_\_

7769899, 7769884, 7769885, \_\_\_\_\_

7769889, 7769890, 7769891 \_\_\_\_\_

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



## Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase 18

Name of Schools:

1. Wood Acres Elementary School
2. Walt Whitman High School
3. Burning Tree Elementary School
4. Ashburton Elementary School
5. Bethesda Maintenance
6. Bethesda Transportation
7. Herbert Hoover Middle School
8. Cold Spring Elementary School
9. Garret Park Elementary School
10. Rock View Elementary School
11. Francis Scott Key Middle School
12. Montgomery Blair High School
13. Stephen Knolls School
14. Lourie Center
15. Shriver Elementary School
16. Viers Mill Elementary School
17. Highland Elementary School
18. Newport Middle School
19. Albert Einstein High School
20. Sligo Middle School
21. East Silver Spring Elementary School
22. Oak View Elementary School
23. Roscoe Nix Elementary School
24. Northwood High School
25. Springbrook High School
26. John F. Kennedy High School

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	Date	Initials
Radon Test Kits Deployed	9/26/16	JM
Radon Test Kits Collected	9/29/16	JM
Radon Test Kits Shipped to Lab*	9/30/16	JM
Radon Test Kits Received by Lab*	10/03/16	JM

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



## Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase 18

Name of Schools:

- |  |                                   |
|--|-----------------------------------|
| 1. Damascus High School                  | 17. Watkins Mills High School     |
| 2. Cedar Grove Elementary School         | 18. Forest Oak Middle School      |
| 3. Hallie Wells Middle School            | 19. Gaithersburg Middle School    |
| 4. Clarksburg Elementary School          | 20. Emory Grove                   |
| 5. Clarksburg High School                | 21. Fields Road Elementary School |
| 6. Woodlin Elementary School             | 22. Beall Elementary School       |
| 7. Flora Singer Elementary School        | 23. Julius West Middle School     |
| 8. Spring Mill Center                    | 24. Thomas Wootton High School    |
| 9. Dr. Charles Drew Elementary School    | 25. Robert Frost High School      |
| 10. William Farquah Middle School        | 26. Travilah Elementary School    |
| 11. Rosa Parks Middle School             | 27. Jones Lane Elementary School  |
| 12. Blair Ewing Center                   | 28. Longview School               |
| 13. Lathrop Smith Environmental Center   | 29. Rock Terrace High School      |
| 14. Sequoyah Elementary School           | 30. Germantown Elementary School  |
| 15. Shady Grove Middle School            | 31. Lake Seneca Elementary School |
| 16. Captain James Daly Elementary School |                                   |

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	Date	Initials
Radon Test Kits Deployed	9/27/16	JM
Radon Test Kits Collected	9/30/16	JM
Radon Test Kits Shipped to Lab*	9/30/16	JM
Radon Test Kits Received by Lab*	10/03/16	JM

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



**RADON SCREENING SURVEY – FOLLOW-UP GERMANTOWN ES ELEMENTARY  
SCHOOL**

19110 Liberty Mill Road, Germantown, Maryland 20874

**EXECUTIVE SUMMARY**

Date of Test Report:	3/4/16
Round of Testing:	Initial <span style="border: 1px solid red; border-radius: 50%; padding: 2px;">Follow-up</span> Post Remediation
# Rooms Tested	4
# Rooms $\geq$ 4.0 pCi/L:	0
Low Value:	2.1
High Value:	3.7
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) 1/20/16	Result (pCi/L) 3/4/16	Average Result (pCi/L)
Gym	6.9	2.1	4.5
Room 14 Office	4.5	3.7	4.1
Room 15	3.9	2.8	3.4
Computer Lab	3.7	3.2	3.5



### MCPS RADON TESTING

Executive Summary: Germantown Elementary School

Date of Test Report:	3/4/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	4
# Rooms $\geq$ 4.0 pCi/L:	0
Low Value:	2.1
High Value:	3.7

Project Status:

Retesting completed; use the average of the initial and re-test results in a room to determine if remediation is necessary.

Retesting completed; missing or compromised samples need re-test.



March 4, 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 # 12146341.28

Location: Germantown Elementary School  
19110 Liberty Mill Road  
Germantown, MD 20874

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 Germantown Elementary School, located at 19110 Liberty Mill Road in Germantown, Maryland 20874 (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 8, 2016 and deployed seven (7) activated charcoal (AC) radon test kits. KCI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. A floor plan map of the building with the test locations is included as Attachment A of this report.

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

KCI returned to the site on February 11, 2016 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Airchek, Inc. for analysis by gamma-ray spectroscopy. Airchek, Inc. is a NRSB certified analytical laboratory for radon analysis (certification # ARL1402) located at 1936

Butler Bridge Road, Mills River, North Carolina.

**Evaluation of Testing Conditions:**

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

<b>Radon Concentration</b>	<b>Room</b>	<b>Result</b>
$\geq 4.0$ pCi/L	none	n/a
$< 4.0$ pCi/L	See Attachment B	

Notes:  
D- Duplicate sample

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

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

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

Sincerely,



James M. 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

\*Office blanks were submitted at a rate of 1% for all samples deployed in Phase 8 testing. Office blanks were not submitted under each school individually.



<b>Radon Testing Results</b>		
<b>Germantown Elementary School</b>		
<b>Test Period: 02/08/16-02/11/16</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result</b>
7722190	15	2.8
7731078	14 OFFICE	3.7
7731055	COMP. LAB	3.2
7717241	GYM	2.1
7737240	* GYM (Missing)	-

Table Note:

\* Missing or Compromised Sample

<b>Radon Testing Results</b>		
<b>Germantown Elementary School</b>		
<b>Test Period: 02/08/16-02/11/16</b>		
<b>Kit Number</b>	<b>QC Type</b>	<b>Result</b>
7731079	D (COMP. LAB)	3.0
7731097	FB (14 OFFICE)	< 0.3

Table Note:

\* Missing or Compromised Sample

# ATTACHMENT C

## Laboratory Analytical Results

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February 25, 2016 **LABORATORY ANALYSIS REPORT** \*\*

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

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Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7731078	14 OFFICE	2016-02-08 @ 9:00 am	2016-02-11 @ 11:00 am	3.7 ± 0.4	2016-02-15
7731097	14 OFFICE	2016-02-08 @ 9:00 am	2016-02-11 @ 11:00 am	< 0.3	2016-02-15
7722190	15	2016-02-08 @ 9:00 am	2016-02-11 @ 11:00 am	2.8 ± 0.3	2016-02-15
7731055	COMP. LAB	2016-02-08 @ 9:00 am	2016-02-11 @ 11:00 am	3.2 ± 0.3	2016-02-15
7731079	COMP. LAB	2016-02-08 @ 9:00 am	2016-02-11 @ 11:00 am	3.0 ± 0.3	2016-02-15
7717240	GYM	@	@		
7717241	GYM	2016-02-08 @ 9:00 am	2016-02-11 @ 11:00 am	2.1 ± 0.3	2016-02-15

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

---

February 25, 2016 **\*\* LABORATORY ANALYSIS REPORT \*\***

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Radon test result report for:

**MCPS RADON  
PHASE 8  
OFFICE BLANKS**

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<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
7729754	0	2016-02-08 @ 4:00 pm	2016-02-11 @ 5:00 pm	< 0.3	2016-02-15
7729757	0	2016-02-08 @ 4:00 pm	2016-02-11 @ 5:00 pm	< 0.3	2016-02-15
7729758	0	2016-02-08 @ 4:00 pm	2016-02-11 @ 5:00 pm	< 0.3	2016-02-15

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

February  
23,  
2016

**LABORATORY ANALYSIS  
REPORT \*\***

Radon test result report for:  
**TRANSIT- PHASE 7, 8, 9**  
**NONE**

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

February  
15,  
2016

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

Spike Sample Laboratory Results

Radon test result report for:  
**MCPS**

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

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

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

**EXPOSURE IN BOWSER-MORNER RADON CHAMBER**

CLIENT KCF Technologies Inc. Job Number 173704

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

Date Start: 11/30/16 Date Stop: 2/1/16 Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

Time Start: 0926 Time Stop: 0926 Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_

Device No.'s: (6) Char. Bags - Device No.'s: \_\_\_\_\_

7718281, 7718282, 7718291, \_\_\_\_\_

7718288, 7718289, 7718273 \_\_\_\_\_

ε3 Left

Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_ Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

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

Device No.'s: \_\_\_\_\_ Device No.'s: \_\_\_\_\_

Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_ Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

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

Device No.'s: \_\_\_\_\_ Device No.'s: \_\_\_\_\_

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





## Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase 8

Name of Schools:

- |                          |                          |
|--------------------------|--------------------------|
| 1. Blair G. Ewing Center | 12. Jackson Road ES      |
| 2. Cedar Grove ES        | 13. Jones Lane ES        |
| 3. Clarksburg ES         | 14. Lake Seneca ES       |
| 4. Cloverly ES           | 15. Laytonsville ES      |
| 5. Cold Spring ES        | 16. Montgomery Knolls ES |
| 6. Damascus ES           | 17. North Chevy Chase ES |
| 7. Dufief ES             | 18. Oakview ES           |
| 8. East Silver Spring    | 19. Randolph Maint       |
| 9. Georgian Forest ES    | 20. Robert Frost MS      |
| 10. Germantown ES        | 21. Shady Grove Maint    |
| 11. Glenallen ES         | 22. Viers Mill ES        |

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	Date	Initials
Radon Test Kits Deployed	2/8/16	JM
Radon Test Kits Collected	2/11/16	JM
Radon Test Kits Shipped to Lab*	12/11/16	JM
Radon Test Kits Received by Lab*	12/15/16	JM

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



### MCPS RADON TESTING

Executive Summary: Germantown Elementary School

Date of Test Report:	1/20/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	55
# Rooms $\geq$ 4.0 pCi/L:	2
Low Value:	< 0.3
High Value:	6.9

Rooms with results  $\geq$  4.0 pCi/L:  
Gym (6.9 pCi/L), Room 14 Office (4.5 pCi/L),

Project Status:  
Initial testing completed; re-test needed for results  $\geq$  4.0 pCi/L.



January 20, 2016

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

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

Location: Germantown Elementary School  
19110 Liberty Mill Road  
Germantown, MD 20874

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 Germantown Elementary School, located at 19110 Liberty Mill Road in Germantown, Maryland 20874 (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 December 28, 2015 and deployed sixty-four (64) activated charcoal (AC) radon test kits. KCI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. A floor plan map of the building with the test locations is included as Attachment A of this report.

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

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

Butler Bridge Road, Mills River, North Carolina.

**Evaluation of Testing Conditions:**

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

<b>Radon Concentration</b>	<b>Room</b>	<b>Result</b>
<b><math>\geq 4.0</math> pCi/L</b>	Gym	6.9
	14 Office	4.5
<b><math>&lt; 4.0</math> pCi/L</b>	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 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>Germantown Elementary School</b>		
<b>Test Period: 12/28/15-12/31/15</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result</b>
7713907	1	< 0.3
7710200	2	0.7
7713823	3	< 0.3
7707151	4	0.7
7707152	5	1
7707137	6	1.8
7710650	7	2.5
7707135	8	1.6
7710506	9	2.8
7710515	9	2.6
7710527	10	1.9
7710505	11	2.5
7710516	12	2.4
7710523	12	2.2
7710571	13	1.5
7710573	14	2.8
7710580	15	3.9
7710658	16	0.6
7710504	17	0.8
7710567	14 OFFICE	4.5
7712169	ART	1
7710577	BOOK ROOM	2.1
7712168	BUILDING SERV	1.8
7712170	CAFE	< 0.3
7712171	CAFE	< 0.3
7712172	CAFE	0.8
7712173	CAFE	0.7
7710652	COMPUTER LAB	3.7
7712176	CONF	2.7
7710501	COUNSELORS	1.6
7710507	GYM	2
7710510	GYM	6.9
7710568	GYM	1.6
7712162	HEALTH ROOM	2.9
7711812	K1	1.7
7711813	K1	1.4
7710197	K1 STORAGE	1.9
7710193	K2	1
7713828	K2	0.9
7710648	LAMINATE ROOM	2.1
7710569	LIBRARY	2.4
7710584	LIBRARY	2
7712174	MAIL ROOM	2.6
7710653	MATERIALS	2.2
7710656	MATH MATERIALS	1.8
7711811	MUSIC	1.3

Table Note:

\* Missing or Compromised Sample



<b>Radon Testing Results</b>		
<b>Germantown Elementary School</b>		
<b>Test Period: 12/28/15-12/31/15</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result</b>
7712177	OFFICE	2.1
7712175	PRINCIPAL	2.5
7710654	READING SPEC	2.1
7710655	RESOURCE	1.5
7710524	SPEECH	2.3
7712178	STAFF DEV.	2.5
7712166	STAFF LOUNGE	1.6
7710195	STORAGE	1.5
7712164	STORAGE	2.9

Table Note:

\* Missing or Compromised Sample

<b>Radon Testing Results</b>		
<b>Germantown Elementary School</b>		
<b>Test Period: 12/28/15-12/31/15</b>		
<b>Kit Number</b>	<b>QC Type</b>	<b>Result</b>
7710574	D (13)	1.9
7707132	D (7)	1.9
7710514	D (GYM)	2.1
7713820	D (K2)	1.1
7712161	D (OFFICE)	2.1
7710528	D (SPEECH)	1.5
7710578	FB (14)	< 0.3
7712165	FB (STAFF LOUNGE)	< 0.3
7710512	OB (0)	< 0.3

Table Note:

\* Missing or Compromised Sample

# ATTACHMENT C

## Laboratory Analytical Results

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

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

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7710512	0	2015-12-28 @ 2:00 pm	2015-12-31 @ 12:00 pm	< 0.3	2016-01-04
7713907	1	2015-12-28 @ 12:00 pm	2015-12-31 @ 9:00 am	< 0.3	2016-01-04
7710527	10	2015-12-28 @ 12:00 pm	2015-12-31 @ 9:00 am	1.9 ± 0.4	2016-01-04
7710505	11	2015-12-28 @ 12:00 pm	2015-12-31 @ 9:00 am	2.5 ± 0.4	2016-01-04
7710516	12	2015-12-28 @ 12:00 pm	2015-12-31 @ 9:00 am	2.4 ± 0.4	2016-01-04
7710523	12	2015-12-28 @ 12:00 pm	2015-12-31 @ 9:00 am	2.2 ± 0.4	2016-01-04
7710571	13	2015-12-28 @ 1:00 pm	2015-12-31 @ 9:00 am	1.5 ± 0.3	2016-01-04
7710574	13	2015-12-28 @ 1:00 pm	2015-12-31 @ 9:00 am	1.9 ± 0.4	2016-01-04
7710573	14	2015-12-28 @ 1:00 pm	2015-12-31 @ 9:00 am	2.8 ± 0.4	2016-01-04
7710578	14	2015-12-28 @ 1:00 pm	2015-12-31 @ 9:00 am	< 0.3	2016-01-04
7710567	14 OFFICE	2015-12-28 @ 1:00 pm	2015-12-31 @ 9:00 am	4.5 ± 0.5	2016-01-04
7710580	15	2015-12-28 @ 1:00 pm	2015-12-31 @ 9:00 am	3.9 ± 0.5	2016-01-04
7710658	16	2015-12-28 @ 1:00 pm	2015-12-31 @ 9:00 am	0.6 ± 0.3	2016-01-04
7710504	17	2015-12-28 @ 1:00 pm	2015-12-31 @ 9:00 am	0.8 ± 0.3	2016-01-04
7710200	2	2015-12-28 @ 12:00 pm	2015-12-31 @ 9:00 am	0.7 ± 0.3	2016-01-04
7713823	3	2015-12-28 @ 12:00 pm	2015-12-31 @ 9:00 am	< 0.3	2016-01-04
7707151	4	2015-12-28 @ 12:00 pm	2015-12-31 @ 9:00 am	0.7 ± 0.3	2016-01-04
7707152	5	2015-12-28 @ 12:00 pm	2015-12-31 @ 9:00 am	1.0 ± 0.3	2016-01-04
7707137	6	2015-12-28 @ 12:00 pm	2015-12-31 @ 9:00 am	1.8 ± 0.4	2016-01-04
7710650	7	2015-12-28 @ 12:00 pm	2015-12-31 @ 9:00 am	2.5 ± 0.4	2016-01-04
7707132	7	2015-12-28 @ 12:00 pm	2015-12-31 @ 9:00 am	1.9 ± 0.4	2016-01-04
7707135	8	2015-12-28 @ 12:00 pm	2015-12-31 @ 9:00 am	1.6 ± 0.3	2016-01-04
7710506	9	2015-12-28 @ 12:00 pm	2015-12-31 @ 9:00 am	2.8 ± 0.4	2016-01-04
7710515	9	2015-12-28 @ 12:00 pm	2015-12-31 @ 9:00 am	2.6 ± 0.4	2016-01-04
7712169	ART	2015-12-28 @ 12:00 pm	2015-12-31 @ 8:00 am	1.0 ± 0.3	2016-01-04
7710577	BOOK ROOM	2015-12-28 @ 1:00 pm	2015-12-31 @ 9:00 am	2.1 ± 0.4	2016-01-04
7712168	BUILDING SERV	2015-12-28 @ 12:00 pm	2015-12-31 @ 8:00 am	1.8 ± 0.4	2016-01-04
7712170	CAFE	2015-12-28 @ 12:00 pm	2015-12-31 @ 8:00 am	< 0.3	2016-01-04
7712171	CAFE	2015-12-28 @ 12:00 pm	2015-12-31 @ 8:00 am	< 0.3	2016-01-04
7712172	CAFE	2015-12-28 @ 12:00 pm	2015-12-31 @ 8:00 am	0.8 ± 0.3	2016-01-04
7712173	CAFE	2015-12-28 @ 12:00 pm	2015-12-31 @ 8:00 am	0.7 ± 0.3	2016-01-04
7710652	COMPUTER LAB	2015-12-28 @ 1:00 pm	2015-12-31 @ 9:00 am	3.7 ± 0.5	2016-01-04
7712176	CONF	2015-12-28 @ 12:00 pm	2015-12-31 @ 8:00 am	2.7 ± 0.4	2016-01-04
7710501	COUNSELORS	2015-12-28 @ 12:00 pm	2015-12-31 @ 9:00 am	1.6 ± 0.3	2016-01-04
7710507	GYM	2015-12-28 @ 1:00 pm	2015-12-31 @ 9:00 am	2.0 ± 0.4	2016-01-04
7710510	GYM	2015-12-28 @ 1:00 pm	2015-12-31 @ 9:00 am	6.9 ± 0.6	2016-01-04
7710514	GYM	2015-12-28 @ 1:00 pm	2015-12-31 @ 9:00 am	2.1 ± 0.4	2016-01-04

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

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

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7710568	GYM	2015-12-28 @ 1:00 pm	2015-12-31 @ 9:00 am	1.6 ± 0.4	2016-01-04
7712162	HEALTH ROOM	2015-12-28 @ 12:00 pm	2015-12-31 @ 8:00 am	2.9 ± 0.4	2016-01-04
7711812	K1	2015-12-28 @ 12:00 pm	2015-12-31 @ 9:00 am	1.7 ± 0.4	2016-01-04
7711813	K1	2015-12-28 @ 12:00 pm	2015-12-31 @ 9:00 am	1.4 ± 0.3	2016-01-04
7710197	K1 STORAGE	2015-12-28 @ 12:00 pm	2015-12-31 @ 9:00 am	1.9 ± 0.4	2016-01-04
7710193	K2	2015-12-28 @ 12:00 pm	2015-12-31 @ 9:00 am	1.0 ± 0.3	2016-01-04
7713820	K2	2015-12-28 @ 12:00 pm	2015-12-31 @ 9:00 am	1.1 ± 0.3	2016-01-04
7713828	K2	2015-12-28 @ 12:00 pm	2015-12-31 @ 9:00 am	0.9 ± 0.3	2016-01-04
7710648	LAMINATE ROOM	2015-12-28 @ 1:00 pm	2015-12-31 @ 9:00 am	2.1 ± 0.4	2016-01-04
7710569	LIBRARY	2015-12-28 @ 12:00 pm	2015-12-31 @ 9:00 am	2.4 ± 0.4	2016-01-04
7710584	LIBRARY	2015-12-28 @ 12:00 pm	2015-12-31 @ 9:00 am	2.0 ± 0.4	2016-01-04
7712174	MAIL ROOM	2015-12-28 @ 12:00 pm	2015-12-31 @ 8:00 am	2.6 ± 0.4	2016-01-04
7710653	MATERIALS	2015-12-28 @ 1:00 pm	2015-12-31 @ 9:00 am	2.2 ± 0.4	2016-01-04
7710656	MATH MATERIALS	2015-12-28 @ 1:00 pm	2015-12-31 @ 9:00 am	1.8 ± 0.4	2016-01-04
7711811	MUSIC	2015-12-28 @ 12:00 pm	2015-12-31 @ 8:00 am	1.3 ± 0.3	2016-01-04
7712161	OFFICE	2015-12-28 @ 12:00 pm	2015-12-31 @ 8:00 am	2.1 ± 0.4	2016-01-04
7712177	OFFICE	2015-12-28 @ 12:00 pm	2015-12-31 @ 8:00 am	2.1 ± 0.4	2016-01-04
7712175	PRINCIPAL	2015-12-28 @ 12:00 pm	2015-12-31 @ 8:00 am	2.5 ± 0.4	2016-01-04
7710654	READING SPEC	2015-12-28 @ 1:00 pm	2015-12-31 @ 9:00 am	2.1 ± 0.4	2016-01-04
7710655	RESOURCE	2015-12-28 @ 1:00 pm	2015-12-31 @ 9:00 am	1.5 ± 0.3	2016-01-04
7710524	SPEECH	2015-12-28 @ 1:00 pm	2015-12-31 @ 9:00 am	2.3 ± 0.4	2016-01-04
7710528	SPEECH	2015-12-28 @ 1:00 pm	2015-12-31 @ 9:00 am	1.5 ± 0.4	2016-01-04
7712178	STAFF DEV.	2015-12-28 @ 12:00 pm	2015-12-31 @ 8:00 am	2.5 ± 0.4	2016-01-04
7712165	STAFF LOUNGE	2015-12-28 @ 12:00 pm	2015-12-31 @ 8:00 am	< 0.3	2016-01-04
7712166	STAFF LOUNGE	2015-12-28 @ 12:00 pm	2015-12-31 @ 8:00 am	1.6 ± 0.4	2016-01-04
7712164	STORAGE	2015-12-28 @ 12:00 pm	2015-12-31 @ 9:00 am	2.9 ± 0.4	2016-01-04
7710195	STORAGE	2015-12-28 @ 12:00 pm	2015-12-31 @ 9:00 am	1.5 ± 0.3	2016-01-04

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





## Chain of Custody

Project Name: MCPS Radon Phase III

Name of Schools:

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

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

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