



## 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:	Travilah Elementary School
Address:	13801 DuFief Mill Road
	North Potomac, MD 20878

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	
Shakia Dawkins			KCI Technologies, Inc.	
<i>If noncertified individuals, the qualified measurement professional providing oversight -</i>				
Tyler McCleaf, CSP – Cert. #111004-RMP			KCI Technologies, Inc.	

**Testing**

<input checked="" type="checkbox"/> Short-Term	Length of Test (days):	3	Date of Deployment and Retrieval (mm/dd/yy):	02/12/2024
<input type="checkbox"/> Long-Term				02/15/2024
Does the test period include weekends, school breaks or holidays?				<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<i>If “Yes” please explain/detail in the space below:</i>				
Was HVAC operating under occupied conditions?				<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<i>If “No” please explain/detail in the space below:</i>				

Testing (continued)

	Detectors Deployed		
	Ground-Contact	Upper-Level(s)	Total
Test Locations <sup>1</sup>	56	0	56
Duplicates <sup>2</sup>	7	0	7
Field Blanks <sup>3</sup>	3	0	3
Grand Total			66

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

2 - 10% of all locations tested, per floor

3 – 5% of all locations tested, per floor

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

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

Spike Samples <sup>1</sup>	6	Trip Blank(s) <sup>2</sup>	2	Office Blank(s) <sup>3,4</sup>	2
----------------------------	---	----------------------------	---	--------------------------------	---

1 - 3% of EIC detectors; and 3% from each LOT of CAD and ATD detectors; a maximum of 6-spiked measurements per month for both EIC detectors and each LOT of CAD and ATD detectors.

2 – One per shipping container from start of detector deployment

3 – One per facility tested as devices are removed/allocated from the storage location for deployment;

4 - One additional blank, analyzed prior to deployment, for storage locations that have not been evaluated or monitored, for detectors that have been stored for more than 30-day durations.

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

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

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

**Summary of Test Results<sup>1</sup> and Determination of Valid Measurements<sup>2</sup>**

	<b>Ground-Contact</b>	<b>Upper-Level(s)</b>	<b>Total</b>
Number of test locations:	56	0	56
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>Travilah Elementary School</b>		
<b>Test Period: 02/12/2024 - 02/15/2024</b>		
Kit Number	Room / Area	Result
11478005	102	0.5
11478013	104	< 0.3
11478197	104	< 0.3
11478008	106	0.7
11478015	112	1.1
11478021	119	< 0.3
11478011	120	< 0.3
11478054	121	0.7
11478012	122	< 0.3
11478020	123	< 0.3
11478027	125	1.1
11478025	127	0.7
11478026	132	0.9
11478036	132	0.6
11478030	134	0.6
11478041	135	0.6
11478039	139	1.0
11478010	141	1.2
11478018	145	1.3
11478016	146	0.8
11478017	147	< 0.3
11478009	148	0.6
11478042	148	< 0.3
11478035	151	0.6
11478200	151	0.6
11478031	152	0.6
11478034	155	< 0.3
11478047	155	0.7
11478024	156	0.7
11478033	157	< 0.3
11478038	160	0.6
11478032	161	< 0.3
11478044	162	0.5
11478040	164	< 0.3
11478023	165	< 0.3
11478045	166	< 0.3
11478028	167	0.5
11478037	169	0.6

<b>Table 1- Radon Testing Results</b>		
<b>Travilah Elementary School</b>		
<b>Test Period: 02/12/2024 - 02/15/2024</b>		
Kit Number	Room / Area	Result
11478043	169	< 0.3
11478052	171	< 0.3
11478053	173	0.6
11478062	178	< 0.3
11478065	179	< 0.3
11478050	180	< 0.3
11478059	181	< 0.3
11478060	183	< 0.3
11478061	185	< 0.3
11478048	100 MAIN	0.6
11478051	100A	0.8
11478019	100C	0.8
11478006	102A	0.9
11478001	114 STAFF LOUNGE	1.1
11478046	166B	0.7
11478055	APR	< 0.3
11478057	APR	0.7
11478099	APR	0.6
11478193	APR	< 0.3
11478002	BS OFFICE	< 0.3
11478056	GYM	0.7
11478058	GYM	1.1
11478063	GYM OFFICE	0.8
11478003	KITCHEN OFFICE	< 0.3
11478014	MEDIA CENTER	< 0.3
11478022	MEDIA CENTER	< 0.3
11478004	MEDIA CENTER OFFICE	< 0.3
11478049	STAGE	< 0.3





<b>Table 3 - QC Radon Testing Results</b>			
<b>Travilah Elementary School</b>			
<b>Test Period: 02/12/2024 - 02/15/2024</b>			
<b>Kit Number</b>	<b>QC Type</b>	<b>Room / Area</b>	<b>Result</b>
11478197	D	104	< 0.3
11478036	D	132	0.6
11478009	D	148	0.6
11478200	D	151	0.6
11478034	FB	155	< 0.3
11478037	D	169	0.6
11478055	FB	APR	< 0.3
11478193	D	APR	< 0.3
11478099	D	APR	0.6
11478014	FB	Media Center	< 0.3
11284661	OB	OFFICE BLANK	< 0.3
11284664	TB	TRAVEL BLANK	< 0.3



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

Radon test result report for:

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11478048	100 MAIN	2024-02-12 @ 9:00 am	2024-02-15 @ 9:00 am	0.6 ± 0.3	2024-02-19
11478051	100A	2024-02-12 @ 9:00 am	2024-02-15 @ 9:00 am	0.8 ± 0.3	2024-02-19
11478019	100C	2024-02-12 @ 9:00 am	2024-02-15 @ 9:00 am	0.8 ± 0.4	2024-02-19
11478005	102	2024-02-12 @ 8:00 am	2024-02-15 @ 9:00 am	0.5 ± 0.3	2024-02-19
11478006	102A	2024-02-12 @ 9:00 am	2024-02-15 @ 9:00 am	0.9 ± 0.3	2024-02-19
11478013	104	2024-02-12 @ 8:00 am	2024-02-15 @ 9:00 am	< 0.3	2024-02-19
11478008	106	2024-02-12 @ 9:00 am	2024-02-15 @ 9:00 am	0.7 ± 0.4	2024-02-19
11478015	112	2024-02-12 @ 9:00 am	2024-02-15 @ 9:00 am	1.1 ± 0.4	2024-02-19
11478001	114 STAFF LOUNGE	2024-02-12 @ 8:00 am	2024-02-15 @ 9:00 am	1.1 ± 0.3	2024-02-19
11478021	119	2024-02-12 @ 8:00 am	2024-02-15 @ 9:00 am	< 0.3	2024-02-19
11478011	120	2024-02-12 @ 8:00 am	2024-02-15 @ 9:00 am	< 0.3	2024-02-19
11478054	121	2024-02-12 @ 8:00 am	2024-02-15 @ 9:00 am	0.7 ± 0.3	2024-02-19
11478012	122	2024-02-12 @ 8:00 am	2024-02-15 @ 9:00 am	< 0.3	2024-02-19
11478020	123	2024-02-12 @ 8:00 am	2024-02-15 @ 9:00 am	< 0.3	2024-02-19
11478027	125	2024-02-12 @ 8:00 am	2024-02-15 @ 9:00 am	1.1 ± 0.4	2024-02-19
11478025	127	2024-02-12 @ 8:00 am	2024-02-15 @ 9:00 am	0.7 ± 0.3	2024-02-19
11478026	132	2024-02-12 @ 8:00 am	2024-02-15 @ 9:00 am	0.9 ± 0.3	2024-02-19
11478036	132	2024-02-12 @ 8:00 am	2024-02-15 @ 9:00 am	0.6 ± 0.3	2024-02-19
11478030	134	2024-02-12 @ 8:00 am	2024-02-15 @ 9:00 am	0.6 ± 0.3	2024-02-19
11478041	135	2024-02-12 @ 8:00 am	2024-02-15 @ 9:00 am	0.6 ± 0.3	2024-02-19
11478039	139	2024-02-12 @ 8:00 am	2024-02-15 @ 9:00 am	1.0 ± 0.4	2024-02-19
11478010	141	2024-02-12 @ 8:00 am	2024-02-15 @ 9:00 am	1.2 ± 0.4	2024-02-19
11478018	145	2024-02-12 @ 8:00 am	2024-02-15 @ 9:00 am	1.3 ± 0.4	2024-02-19
11478016	146	2024-02-12 @ 8:00 am	2024-02-15 @ 9:00 am	0.8 ± 0.3	2024-02-19
11478017	147	2024-02-12 @ 8:00 am	2024-02-15 @ 9:00 am	< 0.3	2024-02-19
11478009	148	2024-02-12 @ 9:00 am	2024-02-15 @ 9:00 am	0.6 ± 0.3	2024-02-19
11478042	148	2024-02-12 @ 9:00 am	2024-02-15 @ 9:00 am	< 0.3	2024-02-19
11478035	151	2024-02-12 @ 8:00 am	2024-02-15 @ 9:00 am	0.6 ± 0.3	2024-02-19
11478031	152	2024-02-12 @ 8:00 am	2024-02-15 @ 9:00 am	0.6 ± 0.3	2024-02-19
11478034	155	2024-02-12 @ 8:00 am	2024-02-15 @ 9:00 am	< 0.3	2024-02-19
11478047	155	2024-02-12 @ 8:00 am	2024-02-15 @ 9:00 am	0.7 ± 0.3	2024-02-19
11478024	156	2024-02-12 @ 8:00 am	2024-02-15 @ 9:00 am	0.7 ± 0.3	2024-02-19
11478033	157	2024-02-12 @ 8:00 am	2024-02-15 @ 9:00 am	< 0.3	2024-02-19
11478038	160	2024-02-12 @ 8:00 am	2024-02-15 @ 9:00 am	0.6 ± 0.3	2024-02-19
11478032	161	2024-02-12 @ 8:00 am	2024-02-15 @ 9:00 am	< 0.3	2024-02-19
11478044	162	2024-02-12 @ 8:00 am	2024-02-15 @ 9:00 am	0.5 ± 0.3	2024-02-19
11478040	164	2024-02-12 @ 8:00 am	2024-02-15 @ 9:00 am	< 0.3	2024-02-19

Radon test result report for:

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11478023	165	2024-02-12 @ 8:00 am	2024-02-15 @ 9:00 am	< 0.3	2024-02-19
11478045	166	2024-02-12 @ 8:00 am	2024-02-15 @ 9:00 am	< 0.3	2024-02-19
11478046	166B	2024-02-12 @ 8:00 am	2024-02-15 @ 9:00 am	0.7 ± 0.3	2024-02-19
11478028	167	2024-02-12 @ 8:00 am	2024-02-15 @ 9:00 am	0.5 ± 0.3	2024-02-19
11478037	169	2024-02-12 @ 8:00 am	2024-02-15 @ 9:00 am	0.6 ± 0.3	2024-02-19
11478043	169	2024-02-12 @ 8:00 am	2024-02-15 @ 9:00 am	< 0.3	2024-02-19
11478052	171	2024-02-12 @ 8:00 am	2024-02-15 @ 9:00 am	< 0.3	2024-02-19
11478053	173	2024-02-12 @ 8:00 am	2024-02-15 @ 9:00 am	0.6 ± 0.3	2024-02-19
11478062	178	2024-02-12 @ 9:00 am	2024-02-15 @ 9:00 am	< 0.3	2024-02-19
11478065	179	2024-02-12 @ 9:00 am	2024-02-15 @ 9:00 am	< 0.3	2024-02-19
11478050	180	2024-02-12 @ 9:00 am	2024-02-15 @ 9:00 am	< 0.3	2024-02-19
11478059	181	2024-02-12 @ 9:00 am	2024-02-15 @ 9:00 am	< 0.3	2024-02-19
11478060	183	2024-02-12 @ 9:00 am	2024-02-15 @ 9:00 am	< 0.3	2024-02-19
11478061	185	2024-02-12 @ 9:00 am	2024-02-15 @ 9:00 am	< 0.3	2024-02-19
11478055	APR	2024-02-12 @ 9:00 am	2024-02-15 @ 9:00 am	< 0.3	2024-02-19
11478057	APR	2024-02-12 @ 9:00 am	2024-02-15 @ 9:00 am	0.7 ± 0.3	2024-02-19
11478002	BS OFFICE	2024-02-12 @ 8:00 am	2024-02-15 @ 9:00 am	< 0.3	2024-02-19
11478056	GYM	2024-02-12 @ 9:00 am	2024-02-15 @ 9:00 am	0.7 ± 0.3	2024-02-19
11478058	GYM	2024-02-12 @ 9:00 am	2024-02-15 @ 9:00 am	1.1 ± 0.4	2024-02-19
11478063	GYM OFFICE	2024-02-12 @ 9:00 am	2024-02-15 @ 9:00 am	0.8 ± 0.4	2024-02-19
11478003	KITCHEN OFFICE	2024-02-12 @ 8:00 am	2024-02-15 @ 9:00 am	< 0.3	2024-02-19
11478022	MEDIA CENTER	2024-02-12 @ 8:00 am	2024-02-15 @ 9:00 am	< 0.3	2024-02-19
11478014	MEDIA CENTER	2024-02-12 @ 8:00 am	2024-02-15 @ 9:00 am	< 0.3	2024-02-19
11478004	MEDIA CENTER OFFICE	2024-02-12 @ 8:00 am	2024-02-15 @ 9:00 am	< 0.3	2024-02-19
11478049	STAGE	2024-02-12 @ 9:00 am	2024-02-15 @ 9:00 am	< 0.3	2024-02-19

---

March 6, 2024

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

---

Radon test result report for:

---

<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
11478197	104	2024-02-27 @ 12:00 pm	2024-03-01 @ 1:00 pm	< 0.3	2024-03-05
11478200	151	2024-02-27 @ 12:00 pm	2024-03-01 @ 1:00 pm	0.6 ± 0.3	2024-03-05
11478099	APR	2024-02-27 @ 12:00 pm	2024-03-01 @ 1:00 pm	0.6 ± 0.3	2024-03-05
11478193	APR	2024-02-27 @ 12:00 pm	2024-03-01 @ 1:00 pm	< 0.3	2024-03-05

---

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

---

February 20, 2024

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

---

Radon test result report for:  
**OFFICE BLANK**  
**MAIN**

---

<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
11284661	OB	2024-02-12 @ 10:00 am	2024-02-15 @ 11:00 am	< 0.3	2024-02-20
11284674	OB	2024-02-13 @ 10:00 am	2024-02-16 @ 11:00 am	< 0.3	2024-02-20

---

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



---

February 20, 2024

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

---

Radon test result report for:  
**TRAVEL BLANK**  
**MAIN**

---

<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
11284664	TB	2024-02-12 @ 10:00 am	2024-02-15 @ 11:00 am	< 0.3	2024-02-20
11285521	TB	2024-02-13 @ 10:00 am	2024-02-16 @ 11:00 am	< 0.3	2024-02-20

---

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

---

February 27, 2024

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

---

Radon test result report for:

**KCI  
MAIN**

---

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

---

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

**EXPOSURE IN BOWSER-MORNER RADON CHAMBER**

CLIENT KCI TECHNOLOGIES, Inc Job Number 213819

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

Date Start: 2/23/24 Date Stop: 2/26/24 Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

Time Start: 0812 Time Stop: 0812 Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_

Device No.'s: (6) CHAR BAGS Device No.'s: \_\_\_\_\_

11478400, 11477842, 11477845, \_\_\_\_\_

11477852, 11477996, 11477999 \_\_\_\_\_

E3 left

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

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

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

\_\_\_\_\_

\_\_\_\_\_

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

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

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

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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

---

March 1, 2024

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

---

Radon test result report for:

**FEB SK**

**MAIN**

---

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

---

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



### Radon Test Kit Chain of Custody

Project Name: MCPS Radon – Testing February 12<sup>th</sup> – February 15<sup>th</sup> 2024

Name of Schools:

1. Montgomery Blair HS
2. Sargent Shriver ES
3. Southlake ES
4. Stonegate ES
5. Flora M. Singer ES
6. Sligo Creek ES
7. Travilah ES

---

	Date	Initials
Radon Test Kits Deployed	02/12/2024	RM
Radon Test Kits Collected	02/15/2024	RM
Radon Test Kits Shipped to Lab*	02/15/2024	RM
Radon Test Kits Received by Lab*	02/19/2024	RM

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



### Radon Test Kit Chain of Custody

Project Name: MCPS Radon – Testing February 27<sup>th</sup> to March 1<sup>st</sup> 2024

Name of Schools:

1. Montgomery Blair HS
2. Cloverly ES
3. John T. Baker MS
4. Sargent Shriver ES
5. Travilah ES
6. Rosa Parks MS
7. Carver Educational Center

---

	Date	Initials
Radon Test Kits Deployed	02/27/2024	JM
Radon Test Kits Collected	03/01/2024	JM
Radon Test Kits Shipped to Lab*	03/01/2024	JM
Radon Test Kits Received by Lab*	03/04/2024	JM

\*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	Travilah Elementary School
Date of Test Report	4/26/2022
Round of Testing	Initial Follow-up Post Remediation 2 Year Testing 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility
# Rooms Tested	52
# Rooms $\geq$ 4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	2.3 pCi/L

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





April 26, 2022

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

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

Location: Travilah Elementary School  
13801 DuFief Mill Rd  
North Potomac, MD 20878

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 Travilah ES, located at 13801 DuFief Mill Rd. North Potomac, MD 20878 (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 28, 2022 and deployed fifty nine (59) activated charcoal (AC) radon test kits. KCI deployed radon test kits in all frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance.

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

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

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

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

**Evaluation of Testing Conditions:**

These tests represent:

- Follow-up to biennial post-mitigation testing.

These tests were conducted to:

- Confirm the success of mitigation system(s).

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

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

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

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

**Results:**

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

The results of the radon test analysis indicated the following:

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

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

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

Sincerely,



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

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

# ATTACHMENT A

## Floor Plan With Test Locations

# ATTACHMENT B

## Radon Test Summary Spreadsheet

**Table Notes:**

AC- Activated Charcoal

ACI- Air Check, Inc.

D- Duplicate

FB- Field Blank

KCI- KCI Technologies, Inc.

OB- Office Blank

PM- Project Manager

OC- Quality Control

Table 1- Radon Testing Results		
Travilah ES		
Test Period: 02/28/2022 - 03/03/2022		
Kit Number	Room / Area	Result
11133011	100	< 0.3
11133012	102	0.6
11133019	106	1.0
11130356	109	< 0.3
11133018	112	1.1
11133020	114	< 0.3
11130368	115	1.0
11130369	119	1.0
11130366	120	< 0.3
11130367	121	0.6
11130363	122	< 0.3
11130380	122	0.7
11130371	123	0.7
11130378	125	< 0.3
11130370	127	1.2
11130375	132	1.2
11130399	134	0.9
11130364	135	1.2
11130398	135	0.7
11130397	139	1.6
11133014	139	< 0.3
11130382	141	2.3
11130396	145	1.4
11133008	146	1.2
11130379	147	0.8
11130385	148	0.8
11133002	151	0.8
11130301	152	1.3
11130394	152	0.9
11130384	155	0.8
11130393	156	1.1
11130381	157	1.2
11130389	160	1.0
11130390	162	< 0.3
11130302	164	0.7
11130383	164	< 0.3
11130395	165	1.2
11130400	166	1.0
11130392	167	1.7
11130388	169	0.8
11130386	171	1.3
11130387	171	0.9

Table 1- Radon Testing Results		
Travilah ES		
Test Period: 02/28/2022 - 03/03/2022		
Kit Number	Room / Area	Result
11130391	173	0.9
11133013	175	0.7
11133009	178	< 0.3
11133023	178	0.7
11133005	179	0.8
11133007	180	0.7
11133021	181	0.9
11133022	183	0.7
11133001	185	< 0.3
11133017	100A	< 0.3
11133016	100C	0.7
11130359	APR	0.8
11130365	APR	0.7
11133006	GYM	0.6
11133010	GYM	1.0
11133015	GYM OFFICE	< 0.3
11130376	IMC	0.7



Table 2- Radon Testing Results			
Travilah ES			
Test Period: 02/28/2022 - 03/03/2022			
Kit Number	QC Type	Room / Area	Result
11133009	D	178	< 0.3
11130383	FB	164	< 0.3
11130387	D	171	0.9
11130394	D	152	0.9
11133014	FB	139	< 0.3
11130364	D	135	1.2
11130380	D	122	0.7
11130811	OB	OFFICE BLANK	< 0.3
11130816	TB	TRAVEL BLANK	< 0.3



# ATTACHMENT C

## Laboratory Analytical Results

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

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11130356	109	2022-02-28 @ 10:00 am	2022-03-03 @ 12:00 pm	< 0.3	2022-03-08
11130368	115	2022-02-28 @ 10:00 am	2022-03-03 @ 12:00 pm	1.0 ± 0.4	2022-03-08
11130369	119	2022-02-28 @ 10:00 am	2022-03-03 @ 12:00 pm	1.0 ± 0.3	2022-03-08
11130366	120	2022-02-28 @ 10:00 am	2022-03-03 @ 12:00 pm	< 0.3	2022-03-08
11130367	121	2022-02-28 @ 10:00 am	2022-03-03 @ 12:00 pm	0.6 ± 0.3	2022-03-08
11130363	122	2022-02-28 @ 10:00 am	2022-03-03 @ 12:00 pm	< 0.3	2022-03-08
11130380	122	2022-02-28 @ 10:00 am	2022-03-03 @ 12:00 pm	0.7 ± 0.4	2022-03-08
11130371	123	2022-02-28 @ 10:00 am	2022-03-03 @ 12:00 pm	0.7 ± 0.3	2022-03-08
11130378	125	2022-02-28 @ 10:00 am	2022-03-03 @ 12:00 pm	< 0.3	2022-03-08
11130370	127	2022-02-28 @ 10:00 am	2022-03-03 @ 12:00 pm	1.2 ± 0.4	2022-03-08
11130375	132	2022-02-28 @ 10:00 am	2022-03-03 @ 12:00 pm	1.2 ± 0.4	2022-03-08
11130399	134	2022-02-28 @ 10:00 am	2022-03-03 @ 12:00 pm	0.9 ± 0.4	2022-03-08
11130398	135	2022-02-28 @ 10:00 am	2022-03-03 @ 12:00 pm	0.7 ± 0.3	2022-03-08
11130364	135	2022-02-28 @ 10:00 am	2022-03-03 @ 12:00 pm	1.2 ± 0.4	2022-03-08
11130397	139	2022-02-28 @ 10:00 am	2022-03-03 @ 12:00 pm	1.6 ± 0.4	2022-03-08
11130382	141	2022-02-28 @ 10:00 am	2022-03-03 @ 12:00 pm	2.3 ± 0.4	2022-03-08
11130396	145	2022-02-28 @ 10:00 am	2022-03-03 @ 12:00 pm	1.4 ± 0.4	2022-03-08
11130379	147	2022-02-28 @ 10:00 am	2022-03-03 @ 12:00 pm	0.8 ± 0.3	2022-03-08
11130385	148	2022-02-28 @ 10:00 am	2022-03-03 @ 12:00 pm	0.8 ± 0.3	2022-03-08
11130394	152	2022-02-28 @ 10:00 am	2022-03-03 @ 12:00 pm	1.2 ± 0.4	2022-03-08
11130301	152	2022-02-28 @ 10:00 am	2022-03-03 @ 12:00 pm	1.3 ± 0.4	2022-03-08
11130384	155	2022-02-28 @ 10:00 am	2022-03-03 @ 12:00 pm	0.8 ± 0.4	2022-03-08
11130393	156	2022-02-28 @ 10:00 am	2022-03-03 @ 12:00 pm	1.1 ± 0.4	2022-03-08
11130381	157	2022-02-28 @ 10:00 am	2022-03-03 @ 12:00 pm	1.2 ± 0.4	2022-03-08
11130389	160	2022-02-28 @ 10:00 am	2022-03-03 @ 12:00 pm	1.0 ± 0.4	2022-03-08
11130390	162	2022-02-28 @ 10:00 am	2022-03-03 @ 12:00 pm	< 0.3	2022-03-08
11130383	164	2022-02-28 @ 10:00 am	2022-03-03 @ 12:00 pm	< 0.3	2022-03-08
11130302	164	2022-02-28 @ 10:00 am	2022-03-03 @ 12:00 pm	0.7 ± 0.4	2022-03-08
11130395	165	2022-02-28 @ 10:00 am	2022-03-03 @ 12:00 pm	1.2 ± 0.3	2022-03-08
11130400	166	2022-02-28 @ 10:00 am	2022-03-03 @ 11:00 am	1.0 ± 0.4	2022-03-08
11130392	167	2022-02-28 @ 10:00 am	2022-03-03 @ 12:00 pm	1.7 ± 0.4	2022-03-08
11130388	169	2022-02-28 @ 10:00 am	2022-03-03 @ 12:00 pm	0.8 ± 0.3	2022-03-08
11130386	171	2022-02-28 @ 10:00 am	2022-03-03 @ 11:00 am	1.3 ± 0.4	2022-03-08
11130387	171	2022-02-28 @ 10:00 am	2022-03-03 @ 11:00 am	0.9 ± 0.4	2022-03-08
11130391	173	2022-02-28 @ 10:00 am	2022-03-03 @ 11:00 am	0.9 ± 0.3	2022-03-08
11130359	APR	2022-02-28 @ 10:00 am	2022-03-03 @ 11:00 am	0.8 ± 0.4	2022-03-08
11130365	APR	2022-02-28 @ 10:00 am	2022-03-03 @ 12:00 pm	0.7 ± 0.4	2022-03-08

---

March 8, 2022

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

---

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

---

<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
11130376	IMC	2022-02-28 @ 10:00 am	2022-03-03 @ 12:00 pm	0.7 ± 0.4	2022-03-08

---

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

March 8, 2022

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

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

<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
11133011	100	2022-02-28 @ 9:00 am	2022-03-03 @ 11:00 am	< 0.3	2022-03-08
11133017	100A	2022-02-28 @ 9:00 am	2022-03-03 @ 11:00 am	< 0.3	2022-03-08
11133016	100C	2022-02-28 @ 9:00 am	2022-03-03 @ 12:00 pm	0.7 ± 0.3	2022-03-08
11133012	102	2022-02-28 @ 9:00 am	2022-03-03 @ 11:00 am	0.6 ± 0.4	2022-03-08
11133019	106	2022-02-28 @ 9:00 am	2022-03-03 @ 11:00 am	1.0 ± 0.4	2022-03-08
11133018	112	2022-02-28 @ 9:00 am	2022-03-03 @ 11:00 am	1.1 ± 0.4	2022-03-08
11133020	114	2022-02-28 @ 9:00 am	2022-03-03 @ 11:00 am	< 0.3	2022-03-08
11133014	139	2022-02-28 @ 10:00 am	2022-03-03 @ 12:00 pm	< 0.3	2022-03-08
11133008	146	2022-02-28 @ 10:00 am	2022-03-03 @ 12:00 pm	1.2 ± 0.4	2022-03-08
11133002	151	2022-02-28 @ 10:00 am	2022-03-03 @ 12:00 pm	0.8 ± 0.3	2022-03-08
11133013	175	2022-02-28 @ 10:00 am	2022-03-03 @ 11:00 am	0.7 ± 0.3	2022-03-08
11133009	178	2022-02-28 @ 10:00 am	2022-03-03 @ 11:00 am	< 0.3	2022-03-08
11133023	178	2022-02-28 @ 10:00 am	2022-03-03 @ 11:00 am	0.7 ± 0.3	2022-03-08
11133005	179	2022-02-28 @ 10:00 am	2022-03-03 @ 11:00 am	0.8 ± 0.3	2022-03-08
11133007	180	2022-02-28 @ 10:00 am	2022-03-03 @ 11:00 am	0.7 ± 0.4	2022-03-08
11133021	181	2022-02-28 @ 10:00 am	2022-03-03 @ 12:00 pm	0.9 ± 0.3	2022-03-08
11133022	183	2022-02-28 @ 10:00 am	2022-03-03 @ 11:00 am	0.7 ± 0.3	2022-03-08
11133001	185	2022-02-28 @ 10:00 am	2022-03-03 @ 11:00 am	< 0.3	2022-03-08
11133010	GYM	2022-02-28 @ 10:00 am	2022-03-03 @ 11:00 am	1.0 ± 0.3	2022-03-08
11133006	GYM	2022-02-28 @ 10:00 am	2022-03-03 @ 11:00 am	0.6 ± 0.3	2022-03-08
11133015	GYM OFFICE	2022-02-28 @ 10:00 am	2022-03-03 @ 12:00 pm	< 0.3	2022-03-08

# EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI Technologies, Inc. Job Number 204620

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

Date Start: 3/18/22 Date Stop: 3/21/22 Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

Time Start: 0705 Time Stop: 0705 Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_

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

11139367, 11139368, 11139371, \_\_\_\_\_

11139710, 11139717 \_\_\_\_\_

E3 Right

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

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

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

\_\_\_\_\_

\_\_\_\_\_

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

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

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

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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

---

March 30, 2022

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

---

Radon test result report for:

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

---

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

---

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



---

March 30, 2022

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

---

Radon test result report for:

**RSH  
MAIN**

---

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

---

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



### Radon Test Kit Chain of Custody

Project Name: MCPS Radon – March 2022 Schools

Name of Schools:

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

---

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

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



**MCPS RADON TESTING - EXECUTIVE SUMMARY**

Site Name	Travilah Elementary School
Date of Report	2/28/2020
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	1
# Rooms $\geq$ 4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	0.6 pCi/L

**Project Status**

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



2/28/2020

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

Re: Radon Testing Services

KCI Job #1214634188

**Location: Travilah Elementary School**

13801 DuFief Mill Road  
North Potomac, Maryland 20878

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 Travilah Elementary School, located at 13801 DuFief Mill Road in North Potomac, Maryland 20878 (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 #111004 RT) 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 2/4/2020 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 with missing test kits from the December 2019 testing period (i.e. test kit was deployed but not recovered),

- 
2. Rooms with invalidated test kits from the December 2019 testing period (e.g. an open window in the room or disturbed test kit),
  3. Rooms which were locked/inaccessible during the December 2019 testing period,
  4. Rooms with elevated December 2019 results (i.e.  $\geq 3.5$  pCi/L),
  5. Rooms previously tested for radon but not tested in December 2019, and
  6. Additional rooms that require testing (if applicable.)

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 2/7/2020 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 ranged from the mid-30s to the low-50s; and high temperatures ranged from the upper-40s to the mid-60s. Maximum sustained winds ranged from 13-21 miles per hour. Average humidity was approximately 76%. A total of 1.09 Inches of rain were recorded during the testing period. The weather conditions during the testing period may have resulted in atypical radon test results for this facility.

**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). Follow-up sampling locations and associated test kit identification numbers and relevant field observations are listed on Table 3 (Attachment B). The laboratory analytical results are included in Attachment C. Laboratory results and exposure data for the spike samples are also included in Attachment C.

The results of the radon test analysis indicated the following:

Radon Concentration	Room	Result
≥4.0 pCi/L	None	N/A
≤4.0 pCi/L	See Attachment B	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 410-316-7800.

Sincerely,

Mr. Tyler P. McCleaf  
 Radon Measurement Provider  
 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

### Floor Plan Legend

X-Sample Location (in red)

X- Previous Sample Location

1- Not Samled; No Ground Contact

2- Not Samled; Unoccupied (e.g. Storage, Mechanical)

3- Not Samled; High Humidity/Moisture

4- Not Samled; Bathroom/Hallway

# 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		
Travilah Elementary School		
Test Period: 02/04/20-02/07/20		
Kit Number	Room / Area	Result
9339937	162	<0.3
9339938	162	0.6
9339949	162	<0.3
9334909	OFFICE BLANK	<0.3
9334910	OFFICE BLANK	<0.3

Table 2- Radon Testing Results			
Travilah Elementary School			
Test Period: 02/04/20-02/07/20			
Kit Number	QC Type	Room / Area	Result
9339938	D	162	0.6
9339937	FB	162	<0.3
9334902	TRANSIT BLANK	NA	<0.3

# ATTACHMENT C

## Laboratory Analytical Results

---

February 28, 2020

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

---

Radon test result report for:

**MAIN**

---

<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
9339949	162	2020-02-04 @ 11:00 am	2020-02-07 @ 9:00 am	< 0.3	2020-02-11
9339937	162	2020-02-04 @ 11:00 am	2020-02-07 @ 9:00 am	< 0.3	2020-02-11
9339938	162	2020-02-04 @ 11:00 am	2020-02-07 @ 9:00 am	0.7 ± 0.3	2020-02-11

---

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 194523

NOMINAL Conditions: Radon Conc 25.8 pCi/L Rel. Hum 49.8 % Temp. 70.2 F

Date Start: 2/21/20 Date Stop: 2/24/20 Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_

Time Start: 0745 Time Stop: 0745 Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_

Device No.'s: (9) Char Bags - Device No.'s: \_\_\_\_\_

9341725 thru 9341733

52 ceph

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 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
9341725	N/A	2020-02-21 @ 8:00 am	2020-02-24 @ 8:00 am	26.9 $\pm$ 1.6	2020-02-26
9341730	N/A	2020-02-21 @ 8:00 am	2020-02-24 @ 8:00 am	26.1 $\pm$ 1.6	2020-02-26
9341728	N/A	2020-02-21 @ 8:00 am	2020-02-24 @ 8:00 am	26.9 $\pm$ 1.6	2020-02-26
9341726	N/A	2020-02-21 @ 8:00 am	2020-02-24 @ 8:00 am	25.8 $\pm$ 1.5	2020-02-26
9341731	N/A	2020-02-21 @ 8:00 am	2020-02-24 @ 8:00 am	25.1 $\pm$ 1.5	2020-02-26
9341729	N/A	2020-02-21 @ 8:00 am	2020-02-24 @ 8:00 am	26.2 $\pm$ 1.6	2020-02-26
9341727	N/A	2020-02-21 @ 8:00 am	2020-02-24 @ 8:00 am	27.2 $\pm$ 1.6	2020-02-26
9341732	N/A	2020-02-21 @ 8:00 am	2020-02-24 @ 8:00 am	27.3 $\pm$ 1.6	2020-02-26



## Radon Test Kit Chain of Custody

Project Name: MCPS Radon 2019 Week 1 Retesting

Name of Schools:

1. Belmont E.S.
2. Clarksburg H.S.
3. Damascus E.S.
4. Damascus H.S.
5. DuFief E.S.
6. Fields Road E.S.
7. Gaithersburg E.S.
8. McAuliffe E.S.
9. Quince Orchard H.S.
10. Snowden Farms E.S.
11. South Lake E.S.
12. Stone Mill E.S.
13. Travilah ES
14. Watkins Mill ES
15. Whitman H.S.

---

	Date	Initials
Radon Test Kits Deployed	02/03/20 to 02/04/20	JM
Radon Test Kits Collected	02/06/20 to 02/07/20	JM
Radon Test Kits Shipped to Lab*	02/07/20	JM
Radon Test Kits Received by Lab*	02/10/20	JM

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





**MCPS RADON TESTING - EXECUTIVE SUMMARY**

Site Name	Travilah 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	48
# Rooms $\geq$ 4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	2.1 pCi/L

**Project Status**

Current Project Status at this time: Testing Complete; missing/compromised tests to be sampled.



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: Travilah Elementary School**

13801 DuFief Mill Road,  
North Potomac, Maryland 20878

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 Travilah Elementary School, located at 13801 DuFief Mill Road, in North Potomac, Maryland 20878 (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 12/10/2019 and deployed sixty-three 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 12/13/2019 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		
Travilah Elementary School		
Test Period: 12/10/2019-12/13/2019		
Kit Number	Room / Area	Result
9334918	OFFICE BLANK	< 0.3
9334919	102	0.5
9334920	MAIN OFFICE	< 0.3
9334921	100A	< 0.3
9334922	172	< 0.3
9334923	185	< 0.3
9334925	178	0.6
9334926	183	< 0.3
9334927	181	0.7
9334928	179	< 0.3
9334929	114	< 0.3
9334930	162	MISSING
9334931	169	0.8
9334932	171	0.6
9334933	173	< 0.3
9334934	173	0.6
9334935	173	0.6
9334936	166	< 0.3
9334937	112	< 0.3
9334938	112	1
9334939	112	< 0.3
9334940	106	< 0.3
9334941	106	< 0.3
9334942	106	< 0.3
9334943	101	< 0.3
9334944	101	< 0.3
9334945	100C	0.5
9334946	175	< 0.3
9334947	GYM	1.5
9334948	188A	0.5
9334949	GYM	1.4
9334950	164	0.6
9334951	157	0.5
9334952	148	0.7
9334953	135	1.4
9334954	125	0.5
9334955	134	< 0.3
9334956	127	< 0.3
9334957	141	< 0.3
9334958	141	1.7
9334959	152	0.6
9334960	156	0.8
9334961	156	0.9
9334962	109	< 0.3
9334964	141	1.5
9334965	145	2.1
9334966	147	0.7
9334967	151	0.7
9334968	155	0.7
9334969	146	1.2



9334970	165	0.6
9334971	139	1.5
9334972	160	< 0.3
9334973	167	0.6
9334974	107	0.9
9334975	107	0.8
9334976	109	< 0.3
9334987	119	< 0.3
9334988	119	< 0.3
9334989	119	< 0.3
9334990	120	< 0.3
9334991	121	< 0.3
9334992	122	0.5
9334993	123	0.7

Table 2- Radon Testing Results			
Travilah Elementary School			
Test Period: 12/10/2019-12/13/2019			
Kit Number	QC Type	Room / Area	Result
9334941	D	106	<0.3
9334940	FB	106	<0.3
9334938	D	112	1
9334937	FB	112	<0.3
9334934	D	173	0.6
9334933	FB	173	<0.3
9334958	D	141	1.7
9334957	FB	141	<0.3
9334988	D	119	<0.3
9334987	FB	119	<0.3
9334976	D	109	<0.3
9334961	D	156	0.9
9334850	TRANSIT BLANK	NA	< 0.3
9334914	TRANSIT BLANK	NA	< 0.3
9334916	TRANSIT BLANK	NA	< 0.3
9334963	TRANSIT BLANK	NA	< 0.3



# ATTACHMENT C

## Laboratory Analytical Results

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

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9334921	100A	2019-12-10 @ 11:00 am	2019-12-13 @ 10:00 am	< 0.3	2019-12-16
9334945	100C	2019-12-10 @ 11:00 am	2019-12-13 @ 10:00 am	0.5 ± 0.3	2019-12-16
9334943	101	2019-12-10 @ 11:00 am	2019-12-13 @ 10:00 am	< 0.3	2019-12-16
9334944	101	2019-12-10 @ 11:00 am	2019-12-13 @ 10:00 am	< 0.3	2019-12-16
9334919	102	2019-12-10 @ 11:00 am	2019-12-13 @ 10:00 am	0.5 ± 0.3	2019-12-16
9334942	106	2019-12-10 @ 11:00 am	2019-12-13 @ 10:00 am	< 0.3	2019-12-16
9334940	106	2019-12-10 @ 11:00 am	2019-12-13 @ 10:00 am	< 0.3	2019-12-16
9334941	106	2019-12-10 @ 11:00 am	2019-12-13 @ 10:00 am	< 0.3	2019-12-16
9334975	107	2019-12-10 @ 1:00 pm	2019-12-13 @ 10:00 am	0.8 ± 0.3	2019-12-16
9334974	107	2019-12-10 @ 1:00 pm	2019-12-13 @ 10:00 am	0.9 ± 0.3	2019-12-16
9334962	109	2019-12-10 @ 1:00 pm	2019-12-13 @ 10:00 am	< 0.3	2019-12-16
9334976	109	2019-12-10 @ 1:00 pm	2019-12-13 @ 10:00 am	< 0.3	2019-12-16
9334937	112	2019-12-10 @ 11:00 am	2019-12-13 @ 10:00 am	< 0.3	2019-12-16
9334938	112	2019-12-10 @ 11:00 am	2019-12-13 @ 10:00 am	1.0 ± 0.3	2019-12-16
9334939	112	2019-12-10 @ 11:00 am	2019-12-13 @ 10:00 am	< 0.3	2019-12-16
9334929	114	2019-12-10 @ 11:00 am	2019-12-13 @ 10:00 am	< 0.3	2019-12-16
9334988	119	2019-12-10 @ 12:00 pm	2019-12-13 @ 10:00 am	< 0.3	2019-12-16
9334989	119	2019-12-10 @ 12:00 pm	2019-12-13 @ 10:00 am	< 0.3	2019-12-16
9334987	119	2019-12-10 @ 12:00 pm	2019-12-13 @ 10:00 am	< 0.3	2019-12-16
9334990	120	2019-12-10 @ 12:00 pm	2019-12-13 @ 10:00 am	< 0.3	2019-12-16
9334991	121	2019-12-10 @ 12:00 pm	2019-12-13 @ 10:00 am	< 0.3	2019-12-16
9334992	122	2019-12-10 @ 12:00 pm	2019-12-13 @ 10:00 am	0.5 ± 0.3	2019-12-16
9334993	123	2019-12-10 @ 12:00 pm	2019-12-13 @ 10:00 am	0.7 ± 0.3	2019-12-16
9334954	125	2019-12-10 @ 12:00 pm	2019-12-13 @ 10:00 am	0.5 ± 0.3	2019-12-16
9334956	127	2019-12-10 @ 12:00 pm	2019-12-13 @ 10:00 am	< 0.3	2019-12-16
9334955	134	2019-12-10 @ 12:00 pm	2019-12-13 @ 10:00 am	< 0.3	2019-12-16
9334953	135	2019-12-10 @ 12:00 pm	2019-12-13 @ 10:00 am	1.4 ± 0.3	2019-12-16
9334971	139	2019-12-10 @ 12:00 pm	2019-12-13 @ 10:00 am	1.5 ± 0.3	2019-12-16
9334957	141	2019-12-10 @ 12:00 pm	2019-12-13 @ 10:00 am	< 0.3	2019-12-16
9334958	141	2019-12-10 @ 12:00 pm	2019-12-13 @ 10:00 am	1.7 ± 0.3	2019-12-16
9334964	141	2019-12-10 @ 12:00 pm	2019-12-13 @ 10:00 am	1.5 ± 0.3	2019-12-16
9334965	145	2019-12-10 @ 12:00 pm	2019-12-13 @ 10:00 am	2.1 ± 0.3	2019-12-16
9334969	146	2019-12-10 @ 12:00 pm	2019-12-13 @ 10:00 am	1.2 ± 0.3	2019-12-16
9334966	147	2019-12-10 @ 12:00 pm	2019-12-13 @ 10:00 am	0.7 ± 0.3	2019-12-16
9334952	148	2019-12-10 @ 12:00 pm	2019-12-13 @ 10:00 am	0.7 ± 0.3	2019-12-16
9334967	151	2019-12-10 @ 12:00 pm	2019-12-13 @ 10:00 am	0.7 ± 0.3	2019-12-16
9334959	152	2019-12-10 @ 12:00 pm	2019-12-13 @ 10:00 am	0.6 ± 0.3	2019-12-16

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

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9334968	155	2019-12-10 @ 12:00 pm	2019-12-13 @ 10:00 am	0.7 ± 0.3	2019-12-16
9334960	156	2019-12-10 @ 12:00 pm	2019-12-13 @ 10:00 am	0.8 ± 0.3	2019-12-16
9334961	156	2019-12-10 @ 1:00 pm	2019-12-13 @ 10:00 am	0.9 ± 0.3	2019-12-16
9334951	157	2019-12-10 @ 12:00 pm	2019-12-13 @ 10:00 am	0.5 ± 0.3	2019-12-16
9334972	160	2019-12-10 @ 12:00 pm	2019-12-13 @ 10:00 am	< 0.3	2019-12-16
9334930	162	2019-12-10 @ 12:00 pm	2019-12-13 @ 10:00 am	???? UI	2019-12-16
9334950	164	2019-12-10 @ 12:00 pm	2019-12-13 @ 10:00 am	0.6 ± 0.3	2019-12-16
9334970	165	2019-12-10 @ 12:00 pm	2019-12-13 @ 10:00 am	0.6 ± 0.3	2019-12-16
9334936	166	2019-12-10 @ 12:00 pm	2019-12-13 @ 10:00 am	< 0.3	2019-12-16
9334973	167	2019-12-10 @ 12:00 pm	2019-12-13 @ 10:00 am	0.6 ± 0.3	2019-12-16
9334931	169	2019-12-10 @ 12:00 pm	2019-12-13 @ 10:00 am	0.8 ± 0.3	2019-12-16
9334932	171	2019-12-10 @ 12:00 pm	2019-12-13 @ 10:00 am	0.6 ± 0.3	2019-12-16
9334922	172	2019-12-10 @ 11:00 am	2019-12-13 @ 10:00 am	< 0.3	2019-12-16
9334935	173	2019-12-10 @ 12:00 pm	2019-12-13 @ 10:00 am	0.6 ± 0.3	2019-12-16
9334933	173	2019-12-10 @ 12:00 pm	2019-12-13 @ 10:00 am	< 0.3	2019-12-16
9334934	173	2019-12-10 @ 12:00 pm	2019-12-13 @ 10:00 am	0.6 ± 0.3	2019-12-16
9334946	175	2019-12-10 @ 12:00 pm	2019-12-13 @ 10:00 am	< 0.3	2019-12-16
9334925	178	2019-12-10 @ 12:00 pm	2019-12-13 @ 10:00 am	0.6 ± 0.3	2019-12-16
9334928	179	2019-12-10 @ 11:00 am	2019-12-13 @ 10:00 am	< 0.3	2019-12-16
9334927	181	2019-12-10 @ 12:00 pm	2019-12-13 @ 10:00 am	0.7 ± 0.3	2019-12-16
9334926	183	2019-12-10 @ 12:00 pm	2019-12-13 @ 10:00 am	< 0.3	2019-12-16
9334923	185	2019-12-10 @ 12:00 pm	2019-12-13 @ 10:00 am	< 0.3	2019-12-16
9334948	188A	2019-12-10 @ 12:00 pm	2019-12-13 @ 10:00 am	0.5 ± 0.3	2019-12-16
9334947	GYM	2019-12-10 @ 12:00 pm	2019-12-13 @ 10:00 am	1.5 ± 0.3	2019-12-16
9334949	GYM	2019-12-10 @ 12:00 pm	2019-12-13 @ 10:00 am	1.4 ± 0.3	2019-12-16
9334920	MAIN OFFICE	2019-12-10 @ 11:00 am	2019-12-13 @ 10:00 am	< 0.3	2019-12-16

# 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: \_\_\_\_\_  
0811  
Time Start: 0800 acm 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: 12/13/19 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:

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



---

December 18, 2019

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

---

Radon test result report for:

**N/A**

---

<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

---

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.        |

---

	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	Travilah Elementary School
Date of Report	March 14, 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	<0.3 pCi/L
Highest Value	2.2 pCi/L

**Project Status**

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



March 14, 2018

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

Re: Radon Testing Services

KCI Job #1214634188

**Location: Travilah Elementary School**

13801 Dufief Mill Rd.  
North Potomac, Maryland 20878

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 Travilah Elementary School, located at 13801 Dufief Mill Rd. in North Potomac, Maryland 20878 (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 12, 2018 and deployed four (4) activated charcoal (AC) radon test kits. KCI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance.

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

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

---

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

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

KCI returned to the site on February 15, 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 10-15 miles per hour. Average humidity was around 69%. 0.05 Inches of precipitation was recorded during the testing period.

---

## **RESULTS**

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

The results of the radon test analysis indicated the following:

<b>Radon Concentration</b>	<b>Room</b>	<b>Result</b>
≥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,



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>Travilah Elementary School</b>		
<b>Test Period: 02/12/18-02/15/18</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result</b>
7985651	115	2.2
7985867	177	< 0.3
7986179	KITCHEN	0.5

Table Note:

\* Missing or Compromised Sample

<b>Table 2 - Radon Testing Results</b>		
<b>Travilah Elementary School</b>		
<b>Test Period: 02/12/18-02/15/18</b>		
<b>Kit Number</b>	<b>QC Type</b>	<b>Result</b>
7985662	D (KITCHEN)	< 0.3

Table Note:

\* Missing or Compromised Sample

# ATTACHMENT C

## Laboratory Analytical Results

---

February 27, 2018

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

---

Radon test result report for:

**TRAVILAH ELEMENTARY SCHOOL  
MAIN**

---

<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
7985651	115	2018-02-12 @ 1:00 pm	2018-02-15 @ 11:00 am	2.2 ± 0.4	2018-02-19
7985867	177	2018-02-12 @ 12:00 pm	2018-02-15 @ 11:00 am	< 0.3	2018-02-19
7986179	KITCHEN	2018-02-12 @ 1:00 pm	2018-02-15 @ 11:00 am	0.5 ± 0.3	2018-02-19
7985662	KITCHEN	2018-02-12 @ 1:00 pm	2018-02-15 @ 11:00 am	< 0.3	2018-02-19

---

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



## Radon Test Kit Chain of Custody

Project Name: MCPS Radon

Names of Schools:

1. Highland Elementary School
2. Stephen Knolls Elementary School
3. Silver Creek Middle School
4. Woodlin Elementary School
5. Sligo Creek Elementary School
6. Francis Scott Key Middle School
7. John T. Baker Middle School
8. Cedar Grove Elementary School
9. Clarksburg Elementary School
10. Clarksburg Elementary School Annex
11. Fields Road Elementary School
12. Dufief Elementary School
13. Brown Station Elementary School
14. Diamond Elementary School
15. Fallsmeade Elementary School
16. Thomas Whootton High School
17. Lake Seneca Elementary School
18. Redland Middle School
19. Newport Mill Middle School
20. Bethesda Trans. and Maint. Depot
21. Sequoyah Elementary School
22. Gaithersburg Middle School
23. Wayside Elementary School
24. Travilah Elementary School
25. Damascus High School
26. Jones Lane Elementary School
27. Greencastle Elementary School
28. Spring Brook High School
29. Montgomery Blair High School
30. Watkins Mill High School

---

	Date	Initials
Radon Test Kits Deployed	2/12/18	JM
Radon Test Kits Collected	2/15/18	JM
Radon Test Kits Shipped to Lab*	2/15/18	JM
Radon Test Kits Received by Lab*	2/19/15	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



---

February 28, 2018

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

---

Radon test result report for:

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

---

<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

---

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

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI Technologies Inc. Job Number 183530

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

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

Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_ Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_  
 Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_ Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_  
 Device No.'s: \_\_\_\_\_ Device No.'s: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_ Date Start: \_\_\_\_\_ Date Stop: \_\_\_\_\_  
 Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_ Time Start: \_\_\_\_\_ Time Stop: \_\_\_\_\_  
 Device No.'s: \_\_\_\_\_ Device No.'s: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

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



**MCPS RADON TESTING - EXECUTIVE SUMMARY**

Site Name	Travilah Elementary School
Date of Report	January 31, 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	50
# Rooms $\geq 4.0$ pCi/L	0
Lowest Value	< 0.3 pCi/L
Highest Value	2.2 pCi/L

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



January 31, 2018

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

Re: Radon Testing Services

KCI Job #1214694182

**Location: Travilah Elementary School**

13801 DuFief Mill Rd.  
North Potomac, Maryland 20878

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 Travilah Elementary School, located at 13801 DuFief Mill Rd. in North Potomac, Maryland 20878 (subject site).

**SCOPE OF SERVICES**

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

KCI visited the site on November 28, 2017 and deployed 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 Appendix A of this report.

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

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

KCI returned to the site on December 1, 2017 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Aircheck, Inc. for analysis by gamma-ray spectroscopy. Aircheck, Inc. is a NRSB certified analytical laboratory for radon analysis (certification #ARL1402) located at 1936 Butler Bridge Road, Mills River, North Carolina.

#### **EVALUATION OF TESTING CONDITIONS**

These tests represent:

- 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 30s and high temperatures ranged from the low-50s to mid-60s. Maximum sustained winds ranged from 8-15 miles per hour. Average humidity was around 65%. 0.02 Inches of precipitation was recorded during the testing period.

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

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

**RESULTS**

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

The results of the radon test analysis indicated the following:

<b>Radon Concentration</b>	<b>Room</b>	<b>Result</b>
≥4.0 pCi/L	None	N/A
≤4.0 pCi/L	See Attachment B	See Attachment B

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

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

Sincerely,



James 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>Travilah Elementary School</b>		
<b>Test Period: 11/28/17-12/01/17</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result</b>
7977928	100	0.6
7977938	101	0.6
7977939	101	< 0.3
7977929	102	0.8
7977936	106	< 0.3
7977937	107	0.8
7977942	107	< 0.3
7977934	109	< 0.3
7977933	112	0.7
7977982	114	< 0.3
7977941	119	0.5
7977948	120	0.6
7977943	121	0.7
7977940	122	< 0.3
7977944	123	< 0.3
7977946	125	0.8
7977953	127	0.7
7977947	132	0.8
7977952	134	< 0.3
7977954	135	1.3
7977955	139	1.6
7977959	141	2.2
7977960	145	1.9
7977963	146	0.9
7977961	147	0.6
7977951	148	0.7
7977949	151	< 0.3
7977958	152	0.6
7977950	155	0.8
7977964	156	0.8
7977957	157	0.8
7977966	160	1.0
7977972	162	1.1
7977974	164	0.7
7977956	165	0.8
7977981	166	< 0.3
7977967	167	0.9
7977971	169	0.9
7977973	171	0.9
7977975	173	0.8
7977980	175	< 0.3
7977984	178	< 0.3
7977976	179	< 0.3
7977979	180	0.6
7977977	181	0.5
7977983	183	0.5

Table Note:

\* Missing or Compromised Sample

<b>Radon Testing Results</b>		
<b>Travilah Elementary School</b>		
<b>Test Period: 11/28/17-12/01/17</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result</b>
7977978	185	0.6
7977993	188	1.5
7977994	188	1.7
7977931	100A	0.6
7977932	100C	0.5
7977930	102A	0.6
7977988	188A	1.2

Table Note:

\* Missing or Compromised Sample

<b>Radon Testing Results</b>		
<b>Travilah Elementary School</b>		
<b>Test Period: 11/28/17-12/01/17</b>		
<b>Kit Number</b>	<b>QC Type</b>	<b>Result</b>
7977935	D (107)	0.8
7977945	D (125)	0.8
7977962	D (147)	0.7
7977965	D (156)	0.5
7977969	D (175)	< 0.3
7977987	D (180)	0.9
7977985	D (185)	< 0.3
7977970	FB (114)	< 0.3
7977968	FB (147)	< 0.3
7977986	FB (185)	< 0.3
7978079	OB (OB)	< 0.3

Table Note:

\* Missing or Compromised Sample



# ATTACHMENT C

## Laboratory Analytical Results

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

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7977928	100	2017-11-28 @ 4:00 pm	2017-12-01 @ 10:00 am	0.6 ± 0.3	2017-12-04
7977931	100A	2017-11-28 @ 4:00 pm	2017-12-01 @ 10:00 am	0.6 ± 0.3	2017-12-04
7977932	100C	2017-11-28 @ 4:00 pm	2017-12-01 @ 10:00 am	0.5 ± 0.3	2017-12-04
7977939	101	2017-11-28 @ 4:00 pm	2017-12-01 @ 10:00 am	< 0.3	2017-12-04
7977938	101	2017-11-28 @ 4:00 pm	2017-12-01 @ 10:00 am	0.6 ± 0.3	2017-12-05
7977929	102	2017-11-28 @ 4:00 pm	2017-12-01 @ 10:00 am	0.8 ± 0.3	2017-12-04
7977930	102A	2017-11-28 @ 4:00 pm	2017-12-01 @ 10:00 am	0.6 ± 0.3	2017-12-05
7977936	106	2017-11-28 @ 4:00 pm	2017-12-01 @ 10:00 am	< 0.3	2017-12-04
7977942	107	2017-11-28 @ 4:00 pm	2017-12-01 @ 10:00 am	< 0.3	2017-12-04
7977935	107	2017-11-28 @ 4:00 pm	2017-12-01 @ 10:00 am	0.8 ± 0.3	2017-12-04
7977937	107	2017-11-28 @ 4:00 pm	2017-12-01 @ 10:00 am	0.8 ± 0.3	2017-12-05
7977934	109	2017-11-28 @ 4:00 pm	2017-12-01 @ 10:00 am	< 0.3	2017-12-04
7977933	112	2017-11-28 @ 4:00 pm	2017-12-01 @ 10:00 am	0.7 ± 0.3	2017-12-04
7977970	114	2017-11-28 @ 5:00 pm	2017-12-01 @ 11:00 am	< 0.3	2017-12-04
7977982	114	2017-11-28 @ 5:00 pm	2017-12-01 @ 11:00 am	< 0.3	2017-12-05
7977941	119	2017-11-28 @ 4:00 pm	2017-12-01 @ 11:00 am	0.5 ± 0.3	2017-12-04
7977948	120	2017-11-28 @ 4:00 pm	2017-12-01 @ 11:00 am	0.6 ± 0.3	2017-12-04
7977943	121	2017-11-28 @ 4:00 pm	2017-12-01 @ 11:00 am	0.7 ± 0.3	2017-12-04
7977940	122	2017-11-28 @ 4:00 pm	2017-12-01 @ 11:00 am	< 0.3	2017-12-04
7977944	123	2017-11-28 @ 4:00 pm	2017-12-01 @ 11:00 am	< 0.3	2017-12-05
7977946	125	2017-11-28 @ 4:00 pm	2017-12-01 @ 11:00 am	0.8 ± 0.3	2017-12-04
7977945	125	2017-11-28 @ 4:00 pm	2017-12-01 @ 11:00 am	0.8 ± 0.3	2017-12-04
7977953	127	2017-11-28 @ 5:00 pm	2017-12-01 @ 11:00 am	0.7 ± 0.3	2017-12-04
7977947	132	2017-11-28 @ 4:00 pm	2017-12-01 @ 11:00 am	0.8 ± 0.3	2017-12-04
7977952	134	2017-11-28 @ 4:00 pm	2017-12-01 @ 11:00 am	< 0.3	2017-12-04
7977954	135	2017-11-28 @ 5:00 pm	2017-12-01 @ 11:00 am	1.3 ± 0.3	2017-12-05
7977955	139	2017-11-28 @ 5:00 pm	2017-12-01 @ 11:00 am	1.6 ± 0.3	2017-12-05
7977959	141	2017-11-28 @ 5:00 pm	2017-12-01 @ 11:00 am	2.2 ± 0.3	2017-12-04
7977960	145	2017-11-28 @ 5:00 pm	2017-12-01 @ 11:00 am	1.9 ± 0.3	2017-12-04
7977963	146	2017-11-28 @ 5:00 pm	2017-12-01 @ 11:00 am	0.9 ± 0.3	2017-12-05
7977962	147	2017-11-28 @ 5:00 pm	2017-12-01 @ 11:00 am	0.7 ± 0.3	2017-12-04
7977961	147	2017-11-28 @ 5:00 pm	2017-12-01 @ 11:00 am	0.6 ± 0.3	2017-12-04
7977968	147	2017-11-28 @ 5:00 pm	2017-12-01 @ 11:00 am	< 0.3	2017-12-05
7977951	148	2017-11-28 @ 5:00 pm	2017-12-01 @ 11:00 am	0.7 ± 0.3	2017-12-05
7977949	151	2017-11-28 @ 5:00 pm	2017-12-01 @ 11:00 am	< 0.3	2017-12-05
7977958	152	2017-11-28 @ 5:00 pm	2017-12-01 @ 11:00 am	0.6 ± 0.3	2017-12-05
7977950	155	2017-11-28 @ 5:00 pm	2017-12-01 @ 11:00 am	0.8 ± 0.3	2017-12-04

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

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7977964	156	2017-11-28 @ 5:00 pm	2017-12-01 @ 11:00 am	0.8 ± 0.3	2017-12-04
7977965	156	2017-11-28 @ 5:00 pm	2017-12-01 @ 11:00 am	0.5 ± 0.3	2017-12-05
7977957	157	2017-11-28 @ 5:00 pm	2017-12-01 @ 11:00 am	0.8 ± 0.3	2017-12-04
7977966	160	2017-11-28 @ 5:00 pm	2017-12-01 @ 11:00 am	1.0 ± 0.3	2017-12-04
7977972	162	2017-11-28 @ 5:00 pm	2017-12-01 @ 11:00 am	1.1 ± 0.3	2017-12-04
7977974	164	2017-11-28 @ 5:00 pm	2017-12-01 @ 11:00 am	0.7 ± 0.3	2017-12-04
7977956	165	2017-11-28 @ 5:00 pm	2017-12-01 @ 11:00 am	0.8 ± 0.3	2017-12-04
7977981	166	2017-11-28 @ 5:00 pm	2017-12-01 @ 11:00 am	< 0.3	2017-12-04
7977967	167	2017-11-28 @ 5:00 pm	2017-12-01 @ 11:00 am	0.9 ± 0.3	2017-12-05
7977971	169	2017-11-28 @ 5:00 pm	2017-12-01 @ 11:00 am	0.9 ± 0.3	2017-12-04
7977973	171	2017-11-28 @ 5:00 pm	2017-12-01 @ 11:00 am	0.9 ± 0.3	2017-12-04
7977975	173	2017-11-28 @ 5:00 pm	2017-12-01 @ 11:00 am	0.8 ± 0.3	2017-12-05
7977969	175	2017-11-28 @ 5:00 pm	2017-12-01 @ 11:00 am	< 0.3	2017-12-04
7977980	175	2017-11-28 @ 5:00 pm	2017-12-01 @ 11:00 am	< 0.3	2017-12-04
7977984	178	2017-11-28 @ 6:00 pm	2017-12-01 @ 11:00 am	< 0.3	2017-12-05
7977976	179	2017-11-28 @ 6:00 pm	2017-12-01 @ 11:00 am	< 0.3	2017-12-04
7977979	180	2017-11-28 @ 6:00 pm	2017-12-01 @ 11:00 am	0.6 ± 0.3	2017-12-04
7977987	180	2017-11-28 @ 6:00 pm	2017-12-01 @ 11:00 am	0.9 ± 0.3	2017-12-04
7977977	181	2017-11-28 @ 6:00 pm	2017-12-01 @ 11:00 am	0.5 ± 0.3	2017-12-04
7977983	183	2017-11-28 @ 6:00 pm	2017-12-01 @ 11:00 am	0.5 ± 0.3	2017-12-04
7977978	185	2017-11-28 @ 6:00 pm	2017-12-01 @ 11:00 am	0.6 ± 0.3	2017-12-04
7977986	185	2017-11-28 @ 6:00 pm	2017-12-01 @ 11:00 am	< 0.3	2017-12-04
7977985	185	2017-11-28 @ 6:00 pm	2017-12-01 @ 11:00 am	< 0.3	2017-12-05
7977993	188	2017-11-28 @ 6:00 pm	2017-12-01 @ 11:00 am	1.5 ± 0.3	2017-12-04
7977994	188	2017-11-28 @ 6:00 pm	2017-12-01 @ 11:00 am	1.7 ± 0.3	2017-12-04
7977988	188A	2017-11-28 @ 6:00 pm	2017-12-01 @ 11:00 am	1.2 ± 0.3	2017-12-04
7978079	OB	2017-11-28 @ 1:00 pm	2017-12-01 @ 1:00 pm	< 0.3	2017-12-04





## Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase

Names of Schools:

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

---

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

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

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

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

---

December 19, 2017

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

---

Radon test result report for:

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

---

<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

---

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: Travilah Elementary School

Date of Test Report:	10/20/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	10
# Rooms $\geq$ 4.0 pCi/L:	0
Low Value:	< 0.3
High Value:	1.8

### Project Status:

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



October 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 # 12146341.54

Location: Travilah Elementary School  
13801 DuFief Mill Road  
North Potomac, Maryland 20878

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 Travilah Elementary School, located at 13801 DuFief Mill Road in North Potomac, Maryland 20878 (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 thirteen (13) 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 lab transit blanks and office 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>Travilah Elementary School</b>		
<b>Test Period: 09/27/16-09/30/16</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result</b>
7714286	139	0.7
7714285	141	< 0.3
7714283	145	0.7
7714288	146	< 0.3
7714290	147	< 0.3
7714250	148	< 0.3
7714292	151	< 0.3
7714278	152	0.6
7714291	155	< 0.3
7714280	156	< 0.3
7714287	157	< 0.3
7714289	* 135 (Open Window)	< 0.3

Table Note:

\* Missing or Compromised Sample

<b>Radon Testing Results</b>		
<b>Travilah Elementary School</b>		
<b>Test Period: 09/27/16-09/30/16</b>		
<b>Kit Number</b>	<b>QC Type</b>	<b>Result</b>
7714281	D (146)	< 0.3

Table Note:

\* Missing or Compromised Sample

# ATTACHMENT C

## Laboratory Analytical Results

Radon test result report for:

**TRAVILAH ELEMENTARY SCHOOL  
MAIN**

<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
7714289	135	2016-09-27 @ 2:00 pm	2016-09-30 @ 11:00 am	< 0.3	2016-10-03
7714286	139	2016-09-27 @ 2:00 pm	2016-09-30 @ 11:00 am	0.7 ± 0.3	2016-10-03
7714285	141	2016-09-27 @ 2:00 pm	2016-09-30 @ 11:00 am	< 0.3	2016-10-03
7714283	145	2016-09-27 @ 2:00 pm	2016-09-30 @ 11:00 am	0.7 ± 0.3	2016-10-03
7714288	146	2016-09-27 @ 2:00 pm	2016-09-30 @ 11:00 am	< 0.3	2016-10-03
7714281	146	2016-09-27 @ 2:00 pm	2016-09-30 @ 11:00 am	< 0.3	2016-10-03
7714290	147	2016-09-27 @ 2:00 pm	2016-09-30 @ 11:00 am	< 0.3	2016-10-03
7714250	148	2016-09-27 @ 2:00 pm	2016-09-30 @ 11:00 am	< 0.3	2016-10-03
7714292	151	2016-09-27 @ 2:00 pm	2016-09-30 @ 11:00 am	< 0.3	2016-10-03
7714278	152	2016-09-27 @ 2:00 pm	2016-09-30 @ 12:00 pm	0.6 ± 0.3	2016-10-03
7714291	155	2016-09-27 @ 2:00 pm	2016-09-30 @ 11:00 am	< 0.3	2016-10-03
7714280	156	2016-09-27 @ 2:00 pm	2016-09-30 @ 12:00 pm	< 0.3	2016-10-03
7714287	157	2016-09-27 @ 2:00 pm	2016-09-30 @ 12:00 pm	< 0.3	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



---

October 12, 2016

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

---

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

---

<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

---

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

---

	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 |                                   |

---

	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 TRAVILAH ELEMENTARY SCHOOL

13801 DuFief Mill Rd, North Potomac, Maryland 20878

EXECUTIVE SUMMARY

Date of Test Report:	3/14/16 Follow-Up
Round of Testing:	Initial <span style="border: 1px solid red; border-radius: 50%; padding: 2px;">Follow-up</span> Post Remediation
# Rooms Tested	12
# Rooms $\geq$ 4.0 pCi/L:	6
Low Value:	<0.3
High Value:	9.2
Confirmed Rooms $\geq$ 4.0 pCi/L US EPA Action Level	6

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

Room	Result (pCi/L) 2/2/16 (REV. 1 Initial)	Result (pCi/L) 3/14/16 Follow-Up	Average Result (pCi/L)
155	7.9	9.2	8.6
157	4.8	5.7	5.3
145	4.7	5.2	5.0
148	4.5	5.0	4.8
141	4.3	4.0	4.2
109	<0.3 Tampered	<0.3	<0.3
MPR	0.5 Tampered	<0.3	0.4
139	3.7	3.5	3.6
147	3.4	3.7	3.6
151	3.7	5.1	4.4
152	3.7	3.5	3.6
156	3.5	2.7	3.1



### MCPS RADON TESTING

Executive Summary: Travilah Elementary School

Date of Test Report:	3/14/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	12
# Rooms $\geq$ 4.0 pCi/L:	6
Low Value:	< 0.3
High Value:	9.2

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

155 (9.2 pCi/L), 157 (5.7 pCi/L), 145 (5.2 pCi/L), 151 (5.1 pCi/L), 148 (5.0 pCi/L), 141 (4.0 pCi/L)

**Project Status:**

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



March 14, 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 # 12146341.29

Location: Travilah Elementary School  
13801 DuFief Mill Road  
North Potomac, Maryland 20878

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 Travilah Elementary School, located at 13801 DuFief Mill Road in North Potomac, Maryland 20878 (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 22, 2016 and deployed fifteen (15) activated charcoal (AC) radon test kits. KCI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. 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 25, 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. Note that strong storms and heavy rainfall were recorded during the test period. The unusual weather conditions may have resulted in atypical radon test results for this facility.

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>	155	9.2
	157	5.7, 4.6 (D)
	145	5.2
	151	5.1
	148	5.0
	141	4.0
<b><math>&lt; 4.0</math> 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

**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 9 testing. Office blanks were not submitted under each school individually.

<b>Radon Testing Results</b>		
<b>Travilah Elementary School</b>		
<b>Test Period: 02/22/16-02/25/16</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result</b>
7732373	109	< 0.3
7732367	139	3.5
7732368	141	4.0
7732372	145	5.2
7732375	147	3.7
7732376	148	5.0
7732379	151	5.1
7732381	152	3.5
7732378	155	9.2
7729853	156	2.7
7732380	157	5.7
7732374	MPR	< 0.3

Table Note:

\* Missing or Compromised Sample

<b>Radon Testing Results</b>		
<b>Travilah Elementary School</b>		
<b>Test Period: 02/22/16-02/25/16</b>		
<b>Kit Number</b>	<b>QC Type</b>	<b>Result</b>
7729852	D (156)	3.2
7729851	D (157)	4.6
7732382	FB (152)	< 0.3

Table Note:

\* Missing or Compromised Sample

# ATTACHMENT C

## Laboratory Analytical Results

March 8, 2016 **\*\* LABORATORY ANALYSIS REPORT \*\***

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

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7732374	MPR	2016-02-22 @ 1:00 pm	2016-02-25 @ 12:00 pm	< 0.3	2016-02-29
7732373	109	2016-02-22 @ 1:00 pm	2016-02-25 @ 12:00 pm	< 0.3	2016-02-29
7732367	139	2016-02-22 @ 1:00 pm	2016-02-25 @ 12:00 pm	3.5 ± 0.5	2016-02-29
7732368	141	2016-02-22 @ 1:00 pm	2016-02-25 @ 12:00 pm	4.0 ± 0.5	2016-02-29
7732372	145	2016-02-22 @ 1:00 pm	2016-02-25 @ 12:00 pm	5.2 ± 0.6	2016-02-29
7732375	147	2016-02-22 @ 1:00 pm	2016-02-25 @ 12:00 pm	3.7 ± 0.5	2016-02-29
7732376	148	2016-02-22 @ 1:00 pm	2016-02-25 @ 12:00 pm	5.0 ± 0.6	2016-02-29
7732379	151	2016-02-22 @ 1:00 pm	2016-02-25 @ 12:00 pm	5.1 ± 0.6	2016-02-29
7732381	152	2016-02-22 @ 1:00 pm	2016-02-25 @ 12:00 pm	3.5 ± 0.5	2016-02-29
7732382	152	2016-02-22 @ 1:00 pm	2016-02-25 @ 12:00 pm	< 0.3	2016-02-29
7732378	155	2016-02-22 @ 1:00 pm	2016-02-25 @ 12:00 pm	9.2 ± 0.8	2016-02-29
7729852	156	2016-02-22 @ 1:00 pm	2016-02-25 @ 12:00 pm	3.2 ± 0.5	2016-02-29
7729853	156	2016-02-22 @ 1:00 pm	2016-02-25 @ 12:00 pm	2.7 ± 0.5	2016-02-29
7729851	157	2016-02-22 @ 1:00 pm	2016-02-25 @ 12:00 pm	4.6 ± 0.6	2016-02-29
7732380	157	2016-02-22 @ 1:00 pm	2016-02-25 @ 12:00 pm	5.7 ± 0.6	2016-02-29



---

March 9, 2016 **\*\* LABORATORY ANALYSIS REPORT \*\***

---

Radon test result report for:  
**MCPS**  
**Phase 9 Office Blanks**

---

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7712568	0	2016-02-22 @ 6:00 pm	2016-02-25 @ 3:00 pm	< 0.3	2016-02-29
7712584	0	2016-02-22 @ 6:00 pm	2016-02-25 @ 3:00 pm	< 0.3	2016-02-29
7719460	0	2016-02-22 @ 6:00 pm	2016-02-25 @ 3:00 pm	< 0.3	2016-02-29
7719481	0	2016-02-22 @ 6:00 pm	2016-02-25 @ 3:00 pm	< 0.3	2016-02-29
7719497	0	2016-02-22 @ 6:00 pm	2016-02-25 @ 3:00 pm	< 0.3	2016-02-29
7719498	0	2016-02-22 @ 6:00 pm	2016-02-25 @ 3:00 pm	< 0.3	2016-02-29

---

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

---

March 9, 2016 **\*\* LABORATORY ANALYSIS REPORT \*\***

---

Radon test result report for:  
**MCPS**  
**Phase 9 Office Blanks**

---

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7731626	0	2016-02-23 @ 2:00 pm	2016-02-26 @ 3:00 pm	< 0.3	2016-03-01
7731633	0	2016-02-23 @ 2:00 pm	2016-02-26 @ 3:00 pm	< 0.3	2016-03-01
7735204	0	2016-02-23 @ 2:00 pm	2016-02-26 @ 3:00 pm	< 0.3	2016-03-01

---

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  $\mu$ R/h Elevation = 820 ft



## Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase 9

Name of Schools:

- |                          |                           |                        |
|--------------------------|---------------------------|------------------------|
| 1. Rocking Horse Road ES | 16. Broad Acres ES        | 31. Rosa Parks MS      |
| 2. Rockwell ES           | 17. Belmont ES            | 32. Rosemary Hills ES  |
| 3. Oakland Terrace ES    | 18. Emory Grove Center    | 33. Sequoyah ES        |
| 4. Rosemont ES           | 19. Forest Knolls ES      | 34. Damascus HS        |
| 5. Beall ES              | 20. Baker MS              | 35. Einstein ES        |
| 6. Cresthaven ES         | 21. MLK MS                | 36. Forest Oak MS      |
| 7. Quince Orchard HS     | 22. Richard Montgomery HS | 37. Hoover MS          |
| 8. Smith Center          | 23. Sherwood HS           | 38. Julius West MS     |
| 9. Ashburton ES          | 24. Walter Johnson HS     | 39. John F. Kennedy HS |
| 10. Bannockburn ES       | 25. Diamond ES            | 40. Travilah ES        |
| 11. Bradley Hills ES     | 26. Newport Mill MS       | 41. Watkins Mill HS    |
| 12. Cannon Road ES       | 27. Drew ES               | 42. Northwood HS       |
| 13. Flora M. Singer ES   | 28. Monocacy ES           | 43. Lincoln Center     |
| 14. Clarksburg HS        | 29. Potomac ES            |                        |
| 15. Briggs Chaney MS     | 30. Rock Terrace School   |                        |

---

	Date	Initials
Radon Test Kits Deployed	2/22/16	JM
Radon Test Kits Collected	2/25/16	JM
Radon Test Kits Shipped to Lab*	2/25/16	JM
Radon Test Kits Received by Lab*	2/29/16	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 9

Name of Schools:

- |                            |                         |
|----------------------------|-------------------------|
| 1. Banneker MS             | 10. Maryvale ES         |
| 2. Bethesda-Chevy Chase HS | 11. Montgomery Blair HS |
| 3. Burtonsville ES         | 12. Poolesville HS      |
| 4. Chevy Chase ES          | 13. Rachel Carson ES    |
| 5. Clopper Mill ES         | 14. Stedwick ES         |
| 6. Edison HS               | 15. Watkins Mill ES     |
| 7. Flower Hill ES          | 16. Laytonsville ES     |
| 8. Flower Valley ES        | 17. Lincoln Center      |
| 9. Greencastle ES          |                         |

---

	Date	Initials
Radon Test Kits Deployed	2/23/16	JM
Radon Test Kits Collected	2/26/16	JM
Radon Test Kits Shipped to Lab*	2/26/16	JM
Radon Test Kits Received by Lab*	3/01/16	JM

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



### MCPS RADON TESTING

Executive Summary: Travilah Elementary School

Date of Test Report:	2/2/2016 (Rev 1)
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	54
# Rooms $\geq$ 4.0 pCi/L:	5
Low Value:	< 0.3
High Value:	7.9

Rooms with results  $\geq$  4.0 pCi/L:  
Room 155 (7.9 pCi/L); Room 157 (4.8 pCi/L); Room 145 (4.7 pCi/L); Room 148 (4.5 pCi/L);  
and Room 141 (4.3 pCi/L).

Project Status:

Initial testing completed; re-test needed for results  $\geq$  4.0 pCi/L.  
Initial testing completed; compromised samples need re-test.





February 2, 2016 (Rev 1)

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

Re: **Radon Testing Services**  
KCI Job # 12146341.22

Location: Travilah Elementary School  
13801 Dufief Mill Road  
North Potomac, Maryland 20878

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 Travilah Elementary School, located at 13801 Dufief Mill Road in North Potomac, Maryland 20878 (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 January 4, 2016 and deployed sixty-six (66) activated charcoal (AC) radon test kits. KCI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. A floor plan map of the building with the test locations is included as Attachment A of this report.

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

KCI returned to the site on January 7, 2016 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Airchek, Inc. for analysis by gamma-ray spectroscopy. Airchek, Inc. is a NRSB certified analytical laboratory for radon analysis (certification # ARL1402) located at 1936 Butler

Bridge Road, Mills River, North Carolina.

**Evaluation of Testing Conditions:**

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

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

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

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

**Results:**

The results of the radon test analysis indicated the following:

<b>Radon Concentration</b>	<b>Room</b>	<b>Result (pCi/L)</b>
<b><math>\geq 4.0</math> pCi/L</b>	155	7.9, 7.1(D)
	157	4.8
	145	4.7
	148	4.5
	141	4.3
<b><math>&lt; 4.0</math> pCi/L</b>	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 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>Travilah ES</b>		
<b>Test Period: 01/04/16-01/07/16</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result</b>
7704611	100	< 0.3
7704606	102	0.5
7706250	104	< 0.3
7707543	106	0.8
7707548	107	< 0.3
7707547	107	0.8
7707539	112	0.5
7707544	114	0.7
7707557	119	< 0.3
7707589	120	0.7
7707565	121	0.7
7707574	122	0.9
7707572	123	0.9
7707588	125	0.6
7707577	127	1
7707575	132	1.7
7707578	134	0.8
7707553	135	2.2
7707583	139	3.7
7707585	141	4.3
7707586	145	4.7
7707576	146	2.5
7707579	147	3.4
7707568	148	4.5
7707587	151	3.7
7707570	152	3.7
7707571	155	7.9
7707569	156	3.5
7707530	157	4.8
7707560	160	1.8
7707567	161	3.2
7707558	162	1.2
7707562	164	1
7707581	165	2.5
7707556	166	0.5
7707584	167	1.9
7707549	169	1.4
7707566	171	1.3
7707535	172	0.9
7707564	173	1.1
7707550	175	0.8
7707533	177	0.6
7707532	178	< 0.3
7707563	179	< 0.3
7707542	180	0.6
7707561	181	0.6

Table Note:

\* Missing or Compromised Sample

<b>Radon Testing Results</b>		
<b>Travilah ES</b>		
<b>Test Period: 01/04/16-01/07/16</b>		
<b>Kit Number</b>	<b>Room / Area</b>	<b>Result</b>
7707531	183	< 0.3
7707536	185	0.6
7707538	188	1.2
7707537	188	1.2
7704699	100A	0.7
7704646	101C	< 0.3
7704697	102A	< 0.3
7707546	* 109 (Tampered)	< 0.3
7707541	188A	0.7
7707545	MPR	< 0.3
7707551	* MPR (Tampered)	0.5

Table Note:

\* Missing or Compromised Sample

<b>Radon Testing Results</b>		
<b>Travilah ES</b>		
<b>Test Period: 01/04/16-01/07/16</b>		
<b>Kit Number</b>	<b>QC Type</b>	<b>Result</b>
7707540	D (112)	0.5
7707573	D (122)	0.9
7707580	D (155)	7.1
7707555	D (162)	1.7
7707534	D (178)	< 0.3
7707552	* D (MPR:Tampered)	< 0.3
7707554	FB (123)	< 0.3
7707559	FB (160)	< 0.3
7720629	OB (0)	< 0.3

Table Note:

\* Missing or Compromised Sample



# ATTACHMENT C

## Laboratory Analytical Results

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

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7720629	0	2016-01-04 @ 4:00 pm	2016-01-07 @ 1:00 pm	< 0.3	2016-01-11
7704611	100	2016-01-04 @ 11:00 am	2016-01-07 @ 10:00 am	< 0.3	2016-01-11
7704699	100A	2016-01-04 @ 11:00 am	2016-01-07 @ 10:00 am	0.7 ± 0.3	2016-01-11
7707545	MPR	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	< 0.3	2016-01-11
7707551	MPR	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	0.5 ± 0.3	2016-01-11
7707552	MPR	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	< 0.3	2016-01-11
7704646	101C	2016-01-04 @ 11:00 am	2016-01-07 @ 10:00 am	< 0.3	2016-01-11
7704606	102	2016-01-04 @ 11:00 am	2016-01-07 @ 10:00 am	0.5 ± 0.3	2016-01-11
7704697	102A	2016-01-04 @ 11:00 am	2016-01-07 @ 10:00 am	< 0.3	2016-01-12
7706250	104	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	< 0.3	2016-01-11
7707543	106	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	0.8 ± 0.3	2016-01-11
7707547	107	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	0.8 ± 0.3	2016-01-11
7707548	107	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	< 0.3	2016-01-11
7707546	109	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	< 0.3	2016-01-11
7707539	112	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	0.5 ± 0.3	2016-01-11
7707540	112	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	0.5 ± 0.2	2016-01-11
7707544	114	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	0.7 ± 0.3	2016-01-11
7707557	119	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-11
7707589	120	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.7 ± 0.3	2016-01-11
7707565	121	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	0.7 ± 0.3	2016-01-11
7707573	122	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.9 ± 0.3	2016-01-12
7707574	122	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.9 ± 0.3	2016-01-12
7707554	123	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	< 0.3	2016-01-11
7707572	123	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.9 ± 0.3	2016-01-11
7707588	125	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.6 ± 0.3	2016-01-11
7707577	127	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	1.0 ± 0.3	2016-01-11
7707575	132	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	1.7 ± 0.3	2016-01-11
7707578	134	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	0.8 ± 0.3	2016-01-11
7707553	135	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	2.2 ± 0.4	2016-01-11
7707583	139	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	3.7 ± 0.4	2016-01-11
7707585	141	2016-01-04 @ 9:00 am	2016-01-07 @ 9:00 am	4.3 ± 0.5	2016-01-11
7707586	145	2016-01-04 @ 9:00 am	2016-01-07 @ 10:00 am	4.7 ± 0.5	2016-01-11
7707576	146	2016-01-04 @ 9:00 am	2016-01-07 @ 10:00 am	2.5 ± 0.4	2016-01-11
7707579	147	2016-01-04 @ 9:00 am	2016-01-07 @ 10:00 am	3.4 ± 0.4	2016-01-11
7707568	148	2016-01-04 @ 9:00 am	2016-01-07 @ 10:00 am	4.5 ± 0.5	2016-01-11
7707587	151	2016-01-04 @ 9:00 am	2016-01-07 @ 10:00 am	3.7 ± 0.4	2016-01-11
7707570	152	2016-01-04 @ 9:00 am	2016-01-07 @ 10:00 am	3.7 ± 0.4	2016-01-11

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

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

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7707571	155	2016-01-04 @ 9:00 am	2016-01-07 @ 10:00 am	7.9 ± 0.6	2016-01-11
7707580	155	2016-01-04 @ 9:00 am	2016-01-07 @ 10:00 am	7.1 ± 0.6	2016-01-11
7707569	156	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	3.5 ± 0.4	2016-01-11
7707530	157	2016-01-04 @ 9:00 am	2016-01-07 @ 10:00 am	4.8 ± 0.5	2016-01-11
7707559	160	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	< 0.3	2016-01-11
7707560	160	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	1.8 ± 0.3	2016-01-11
7707567	161	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	3.2 ± 0.4	2016-01-11
7707555	162	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	1.7 ± 0.3	2016-01-11
7707558	162	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	1.2 ± 0.3	2016-01-11
7707562	164	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	1.0 ± 0.3	2016-01-11
7707581	165	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	2.5 ± 0.4	2016-01-11
7707556	166	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	0.5 ± 0.3	2016-01-11
7707584	167	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	1.9 ± 0.3	2016-01-11
7707549	169	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	1.4 ± 0.3	2016-01-11
7707566	171	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	1.3 ± 0.3	2016-01-11
7707535	172	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	0.9 ± 0.3	2016-01-11
7707564	173	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	1.1 ± 0.3	2016-01-11
7707550	175	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	0.8 ± 0.3	2016-01-11
7707533	177	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	0.6 ± 0.3	2016-01-11
7707532	178	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	< 0.3	2016-01-11
7707534	178	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	< 0.3	2016-01-11
7707563	179	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	< 0.3	2016-01-11
7707542	180	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	0.6 ± 0.3	2016-01-11
7707561	181	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	0.6 ± 0.3	2016-01-11
7707531	183	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	< 0.3	2016-01-11
7707536	185	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	0.6 ± 0.3	2016-01-11
7707537	188	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	1.2 ± 0.3	2016-01-11
7707538	188	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	1.2 ± 0.3	2016-01-11
7707541	188A	2016-01-04 @ 10:00 am	2016-01-07 @ 10:00 am	0.7 ± 0.3	2016-01-12

January 15, 2016  
\*\* LABORATORY ANALYSIS REPORT \*\*

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

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

December  
23,  
2015

**LABORATORY ANALYSIS  
REPORT \*\***

Spike Sample Laboratory Results

Radon test result report for:  
**MCPS**

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

Name of Schools:

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

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

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

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