

School / Facility Radon Testing Report Form

Instructions: Submit one testing report form per-facility per-round of testing. Include the following as attachments:

Attachment 1- Summary Data Tables – containing the following: (see attached samples tables)

- Testing Results – lab/detector Identification, by room number/name (alpha-numeric order) as depicted on facility map/floor plan provided by the facility/school at the time of test device deployment;
- Summary Results – list of rooms by test result ≥ 2.0 -pCi/L; ≥ 2.7 -pCi/L; ≥ 4.0 -pCi/L; and ≥ 8.0 -pCi/L;
- QA/QC Results - (field blanks and duplicates) indicating location collected; trip and office blanks; and spike sample results;
- Invalid Measurement Locations – missed locations, missing and or damaged/compromised testing devices.

Attachment 2 – Laboratory Report(s)

Attachment 3 – Sampling Location Map(s) – indicating approximate location of samples, duplicates and blanks.

School Year: **23-24**

Facility:	Sequoyah Elementary School
Address:	17301 Bowie Mill Road
	Derwood, MD 20855

Reason for Testing:	<input checked="" type="checkbox"/> Scheduled Re-Testing (2 or 5-year schedule) <input type="checkbox"/> Clearance Testing (Post-Mitigation) <input type="checkbox"/> System(s) Performance Testing (Post-Mitigation) <input type="checkbox"/> New Construction/Facility
Facility Current Radon Status:	<input checked="" type="checkbox"/> Active Mitigation (2-year regular schedule) <input type="checkbox"/> No Active Mitigation (5-year regular schedule) <input type="checkbox"/> Not Previously Tested
Round of Testing:	<input checked="" type="checkbox"/> Initial Testing -or- <input type="checkbox"/> Follow-up Testing
Testing Status:	<input checked="" type="checkbox"/> No Further Testing Needed -or- <input type="checkbox"/> Follow-Up Testing Required

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

Mitigation -	Facility Radon Status:
<input checked="" type="checkbox"/> Not Required or Considered <input type="checkbox"/> Required (>8.0 -pCi/L) <input type="checkbox"/> Required (≥ 4.0 -pCi/L) <input type="checkbox"/> Consider (≥ 2.0 & <4.0 -pCi/L)	<input checked="" type="checkbox"/> No Change in Status <input type="checkbox"/> Active Mitigation (2-year regular schedule) <input type="checkbox"/> No Active Mitigation (5-year regular schedule)

Detector and Deployment

Detector/Device Type:	<input checked="" type="checkbox"/> Passive	<input checked="" type="checkbox"/> Charcoal Absorption (CAD)	<input type="checkbox"/> Alpha Track (ATD)	<input type="checkbox"/> Other
	<input type="checkbox"/> Continuous	<input type="checkbox"/> Electret ion Chamber (EIC)	<input type="checkbox"/> Electronic Integration (EID)	
<i>Other—Specify here:</i>				
Detector/Device Name:	Air Chek – Radon Test Kits			
Manufacturer:	Radon Lab			
Person(s) Deploying or Retrieving Test Devices and certification number			Organization/Company	
Tyler McCleaf			KCI Technologies, Inc.	
<i>If noncertified individuals, the qualified measurement professional providing oversight -</i>				
Tyler McCleaf, CSP – Cert. #111004-RMP			KCI Technologies, Inc.	

Testing

<input checked="" type="checkbox"/> Short-Term	Length of Test (days):	3	Date of Deployment and Retrieval (mm/dd/yy):	02/05/2024
<input type="checkbox"/> Long-Term				02/08/2024
Does the test period include weekends, school breaks or holidays?				<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<i>If "Yes" please explain/detail in the space below:</i>				
Was HVAC operating under occupied conditions?				<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<i>If "No" please explain/detail in the space below:</i>				

Testing (continued)

	Detectors Deployed		
	Ground-Contact	Upper-Level(s)	Total
Test Locations ¹	51	1	52
Duplicates ²	5	0	5
Field Blanks ³	2	0	2
Grand Total			59

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

2 - 10% of all locations tested, per floor

3 – 5% of all locations tested, per floor

Quality Assurance / Quality Control (QA/QC)

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

Spike Samples ¹	6	Trip Blank(s) ²	1	Office Blank(s) ^{3,4}	1
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1 - 3% of EIC detectors; and 3% from each LOT of CAD and ATD detectors; a maximum of 6-spiked measurements per month for both EIC detectors and each LOT of CAD and ATD detectors.

2 – One per shipping container from start of detector deployment

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

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

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

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

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

Summary of Test Results¹ and Determination of Valid Measurements²

	Ground-Contact	Upper-Level(s)	Total
Number of test locations:	51	1	52
Number of locations ≥ 8.0 -pCi/L:	0	0	0
Number of locations ≥ 4.0 and ≤ 8 -pCi/L:	0	0	0
Number of locations ≥ 2.7 and ≤ 4 -pCi/L:	0	0	0
Number of locations ≥ 2.0 and ≤ 4 -pCi/L:	0	0	0
Number of missing required test locations ³ :	2	0	2
Percentage of missing test locations for the facility ^{4,5} :	3.9%	0	3.9%

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

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

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

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

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

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

Were test devices deployed in all occupied and intended to be occupied rooms in contact with the ground, and, if applicable, 10% of upper floor rooms?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Were valid measurements obtained in all occupied and intended to be occupied rooms in contact with the ground, and, if applicable, 10% of upper floor rooms?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<i>If Yes to both above – then Testing Status – ‘No Further Testing Needed’ mark ‘NA’ below and complete Conclusions section</i>	
If No to either above , were all results obtained under 4.0-pCi/L and were there sufficient valid measurements obtained? ^{1,2} <i>If Yes – then Testing Status - ‘No Further Testing Needed’ complete Conclusion section</i> <i>If No, then Testing Status - ‘Follow-up Testing Required’ continue below</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA

1 – if all valid measurements are <4.0-pCi/L and the total number of test locations are ≥18, there is an allowance of ≤33%. If less than 18 test locations please review section 6.2 of the ANSI/AARST MA-MFLB 2023 – Conducting Measurements of Radon in Multifamily, School, Commercial and Mix-Use Buildings to determine the allowance;
 2 – if any valid measurements are ≥4.0-pCi/L and the total number of test locations are ≥20, there is an allowance of ≤25% of the total locations tested. If less than 20 test locations please review section 6.2 of the ANSI/AARST MA-MFLB 2023 – Conducting Measurements of Radon in Multifamily, School, Commercial and Mix-Use Buildings to determine the number the allowance.

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

Follow-Up Testing (if required)

Required if –

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

Follow-up Testing:

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

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

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

Attachment 1:
Summary Data Tables

Table 1- Radon Testing Results		
Sequoyah Elementary School		
Test Period: 02/05/2024 - 02/08/2024		
Kit Number	Room / Area	Result
11469316	1	0.6
11469315	2	< 0.3
11469450	3	< 0.3
11469449	4	0.6
11469455	4	< 0.3
11469302	5	< 0.3
11469303	5	< 0.3
11469301	6	< 0.3
11469443	7	< 0.3
11469456	8	0.5
11469444	9	0.6
11469430	10	0.6
11469445	11	< 0.3
11469451	11	< 0.3
11284653	11	N/A
11469459	12	0.6
11469463	13	0.5
11469469	14	< 0.3
11469470	15	< 0.3
11469452	16	< 0.3
11469462	17	0.8
11469461	18	0.6
11469457	23	< 0.3
11469458	16 OFFICE	< 0.3
11469477	A	< 0.3
11469472	ART	< 0.3
11469476	ART	< 0.3
11469305	ASP	< 0.3
11469478	BUILDING SERVICES	< 0.3
11469453	Conf1	N/A
11469454	Conf2	N/A
11469471	CONF3	< 0.3
11469310	CONFERENCE	< 0.3
11469475	COUNSELOR	< 0.3
11469468	ELD1	< 0.3
11469474	ELD1	< 0.3
11469473	FOCUS	< 0.3
11469307	GYM	0.6

Table 1- Radon Testing Results		
Sequoyah Elementary School		
Test Period: 02/05/2024 - 02/08/2024		
Kit Number	Room / Area	Result
11469308	GYM	0.8
11469304	GYM OFFICE	< 0.3
11469479	IMU	< 0.3
11469314	MAIN OFFICE	0.8
11469446	MEDIA	< 0.3
11469460	MEDIA	< 0.3
11469464	MEDIA OFFICE	< 0.3
11469465	MEDIA OFFICE	< 0.3
11469482	MPR	0.6
11469483	MPR	0.8
11469480	MUSIC	< 0.3
11469312	NURSE	0.7
11469306	NURSE OFFICE	0.6
11469311	PRINCIPAL	0.7
11469401	RDG	< 0.3
11469466	RESOURCE	< 0.3
11469467	RESOURCE	< 0.3
11469438	SPT	0.6
11469309	STAFF	< 0.3
11469484	STAFF LOUNGE	< 0.3
11469313	WORKROOM	< 0.3

Table 3 - QC Radon Testing Results			
Sequoyah Elementary School			
Test Period: 02/05/2024 - 02/08/2024			
Kit Number	QC Type	Room / Area	Result
11469455	FB	4	<0.3
11469302	D	5	<0.3
11469445	D	11	<0.3
11469472	D	Art	<0.3
11469468	FB	Eld1	<0.3
11469464	D	Media office	<0.3
11469466	D	Resource	<0.3
11470089	OB	OFFICE BLANK	< 0.3
11470096	TB	TRAVEL BLANK	< 0.3

Attachment 2:
Laboratory Reports

Radon test result report for:
SEQUOYAH ES
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11469316	1	2024-02-05 @ 10:00 am	2024-02-08 @ 11:00 am	0.6 ± 0.3	2024-02-12
11469430	10	2024-02-05 @ 11:00 am	2024-02-08 @ 11:00 am	0.6 ± 0.3	2024-02-12
11469451	11	2024-02-05 @ 11:00 am	2024-02-08 @ 11:00 am	< 0.3	2024-02-12
11469445	11	2024-02-05 @ 11:00 am	2024-02-08 @ 11:00 am	< 0.3	2024-02-12
11469459	12	2024-02-05 @ 11:00 am	2024-02-08 @ 11:00 am	0.6 ± 0.3	2024-02-12
11469463	13	2024-02-05 @ 11:00 am	2024-02-08 @ 11:00 am	0.5 ± 0.3	2024-02-12
11469469	14	2024-02-05 @ 11:00 am	2024-02-08 @ 11:00 am	< 0.3	2024-02-12
11469470	15	2024-02-05 @ 11:00 am	2024-02-08 @ 11:00 am	< 0.3	2024-02-12
11469452	16	2024-02-05 @ 11:00 am	2024-02-08 @ 11:00 am	< 0.3	2024-02-12
11469458	16 OFFICE	2024-02-05 @ 11:00 am	2024-02-08 @ 11:00 am	< 0.3	2024-02-12
11469462	17	2024-02-05 @ 11:00 am	2024-02-08 @ 11:00 am	0.8 ± 0.4	2024-02-12
11469461	18	2024-02-05 @ 11:00 am	2024-02-08 @ 11:00 am	0.6 ± 0.3	2024-02-12
11469315	2	2024-02-05 @ 11:00 am	2024-02-08 @ 11:00 am	< 0.3	2024-02-12
11469457	23	2024-02-05 @ 11:00 am	2024-02-08 @ 11:00 am	< 0.3	2024-02-12
11469450	3	2024-02-05 @ 11:00 am	2024-02-08 @ 11:00 am	< 0.3	2024-02-12
11469455	4	2024-02-05 @ 11:00 am	2024-02-08 @ 11:00 am	< 0.3	2024-02-12
11469449	4	2024-02-05 @ 11:00 am	2024-02-08 @ 11:00 am	0.6 ± 0.3	2024-02-12
11469302	5	2024-02-05 @ 10:00 am	2024-02-08 @ 11:00 am	< 0.3	2024-02-12
11469303	5	2024-02-05 @ 10:00 am	2024-02-08 @ 11:00 am	< 0.3	2024-02-12
11469301	6	2024-02-05 @ 10:00 am	2024-02-08 @ 11:00 am	< 0.3	2024-02-12
11469443	7	2024-02-05 @ 11:00 am	2024-02-08 @ 11:00 am	< 0.3	2024-02-12
11469456	8	2024-02-05 @ 11:00 am	2024-02-08 @ 11:00 am	0.5 ± 0.3	2024-02-12
11469444	9	2024-02-05 @ 11:00 am	2024-02-08 @ 11:00 am	0.6 ± 0.3	2024-02-12
11469477	A	2024-02-05 @ 11:00 am	2024-02-08 @ 11:00 am	< 0.3	2024-02-12
11469472	ART	2024-02-05 @ 11:00 am	2024-02-08 @ 11:00 am	< 0.3	2024-02-12
11469476	ART	2024-02-05 @ 11:00 am	2024-02-08 @ 11:00 am	< 0.3	2024-02-12
11469305	ASP	2024-02-05 @ 10:00 am	2024-02-08 @ 11:00 am	< 0.3	2024-02-12
11469478	BUILDING SERVICES	2024-02-05 @ 11:00 am	2024-02-08 @ 11:00 am	< 0.3	2024-02-12
11469471	CONF3	2024-02-05 @ 11:00 am	2024-02-08 @ 11:00 am	< 0.3	2024-02-12
11469310	CONFERENCE	2024-02-05 @ 10:00 am	2024-02-08 @ 11:00 am	< 0.3	2024-02-12
11469475	COUNSELOR	2024-02-05 @ 11:00 am	2024-02-08 @ 11:00 am	< 0.3	2024-02-12
11469468	ELD1	2024-02-05 @ 11:00 am	2024-02-08 @ 11:00 am	< 0.3	2024-02-12
11469474	ELD1	2024-02-05 @ 11:00 am	2024-02-08 @ 11:00 am	< 0.3	2024-02-12
11469473	FOCUS	2024-02-05 @ 11:00 am	2024-02-08 @ 11:00 am	< 0.3	2024-02-12
11469308	GYM	2024-02-05 @ 10:00 am	2024-02-08 @ 11:00 am	0.8 ± 0.4	2024-02-12
11469307	GYM	2024-02-05 @ 10:00 am	2024-02-08 @ 11:00 am	0.6 ± 0.3	2024-02-12
11469304	GYM OFFICE	2024-02-05 @ 10:00 am	2024-02-08 @ 11:00 am	< 0.3	2024-02-12

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

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11469479	IMU	2024-02-05 @ 11:00 am	2024-02-08 @ 11:00 am	< 0.3	2024-02-12
11469314	MAIN OFFICE	2024-02-05 @ 10:00 am	2024-02-08 @ 11:00 am	0.8 ± 0.4	2024-02-12
11469446	MEDIA	2024-02-05 @ 11:00 am	2024-02-08 @ 11:00 am	< 0.3	2024-02-12
11469460	MEDIA	2024-02-05 @ 11:00 am	2024-02-08 @ 11:00 am	< 0.3	2024-02-12
11469465	MEDIA OFFICE	2024-02-05 @ 11:00 am	2024-02-08 @ 11:00 am	< 0.3	2024-02-12
11469464	MEDIA OFFICE	2024-02-05 @ 11:00 am	2024-02-08 @ 11:00 am	< 0.3	2024-02-12
11469482	MPR	2024-02-05 @ 11:00 am	2024-02-08 @ 11:00 am	0.6 ± 0.3	2024-02-12
11469483	MPR	2024-02-05 @ 11:00 am	2024-02-08 @ 11:00 am	0.8 ± 0.4	2024-02-12
11469480	MUSIC	2024-02-05 @ 11:00 am	2024-02-08 @ 11:00 am	< 0.3	2024-02-12
11469312	NURSE	2024-02-05 @ 10:00 am	2024-02-08 @ 11:00 am	0.7 ± 0.3	2024-02-12
11469306	NURSE OFFICE	2024-02-05 @ 10:00 am	2024-02-08 @ 11:00 am	0.6 ± 0.3	2024-02-12
11469311	PRINCIPAL	2024-02-05 @ 10:00 am	2024-02-08 @ 11:00 am	0.7 ± 0.4	2024-02-12
11469401	RDG	2024-02-05 @ 11:00 am	2024-02-08 @ 11:00 am	< 0.3	2024-02-12
11469467	RESOURCE	2024-02-05 @ 11:00 am	2024-02-08 @ 11:00 am	< 0.3	2024-02-12
11469466	RESOURCE	2024-02-05 @ 11:00 am	2024-02-08 @ 11:00 am	< 0.3	2024-02-12
11469438	SPT	2024-02-05 @ 11:00 am	2024-02-08 @ 11:00 am	0.6 ± 0.3	2024-02-12
11469309	STAFF	2024-02-05 @ 10:00 am	2024-02-08 @ 11:00 am	< 0.3	2024-02-12
11469484	STAFF LOUNGE	2024-02-05 @ 11:00 am	2024-02-08 @ 11:00 am	< 0.3	2024-02-12
11469313	WORKROOM	2024-02-05 @ 10:00 am	2024-02-08 @ 11:00 am	< 0.3	2024-02-12

February 13, 2024

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

**KCI
MAIN**

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

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

January 29, 2024

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
STORAGE
KCI

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

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

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI TECHNOLOGIES, Inc Job Number 213819

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

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

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

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

11478400, 11477842, 11477845, _____

11477852, 11477996, 11477999 _____

E3 left

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

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

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

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

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

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

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

March 1, 2024

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

FEB SK

MAIN

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

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



Radon Test Kit Chain of Custody

Project Name: MCPS Radon – Testing February 5th to February 8th 2024

Name of Schools:

- 1. Cedar Grove ES
- 2. College Gardens ES
- 3. Lois P. Rockwell ES
- 4. Clarksburg HS
- 5. Bayard Rustin ES
- 6. Sequoyah ES
- 7. Sherwood ES
- 8. Carver Educational Center

	Date	Initials
Radon Test Kits Deployed	02/05/2024	DM
Radon Test Kits Collected	02/08/2024	DM
Radon Test Kits Shipped to Lab*	02/08/2024	DM
Radon Test Kits Received by Lab*	02/12/2024	DM

*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	Sequoyah Elementary School
Date of Test Report	4/6/2022
Round of Testing	Initial Follow-up Post Remediation 2 Year Testing 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility
# Rooms Tested	53
# Rooms \geq 4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	0.9 pCi/L

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



April 6, 2022

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

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

Location: Sequoyah ES
17301 Bowie Mill Rd.
Derwood, MD 20855

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 Sequoyah ES, located at 17301 Bowie Mill Rd. Derwood, MD 20855 (subject site).

Scope of Services:

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

KCI visited the site on February 8, 2022 and deployed sixty one (61) activated charcoal (AC) radon test kits. KCI deployed radon test kits in all frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance.

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

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

KCI returned to the site on February 11, 2022 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Airchek, Inc. for analysis by gamma-ray spectroscopy. Airchek, Inc.

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

Evaluation of Testing Conditions:

These tests represent:

- Follow-up to post-mitigation biennial testing.

These tests were conducted to:

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

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

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

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

KCI also compiled weather data for the testing period and conducted observations of relevant field conditions. During the test period, weather records indicate low temperatures were in the 30s and high temperatures ranged from the mid 30s to the mid 50s Fahrenheit. Maximum sustained winds ranged from 3-12 miles per hour. Average humidity was around 23% with 0.1 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		
Sequoyah ES		
Test Period: 02/8/2022 - 02/11/2022		
Kit Number	Room / Area	Result
11114783	1	< 0.3
11114784	1	< 0.3
11114795	1	< 0.3
11114801	2	< 0.3
11114786	3	< 0.3
11114789	4	< 0.3
11114768	5	< 0.3
11114886	6	< 0.3
11114797	7	< 0.3
11114796	8	< 0.3
11114790	9	< 0.3
11114808	10	< 0.3
11114828	11	< 0.3
11114805	12	0.9
11114811	13	< 0.3
11114900	14	< 0.3
11114898	15	< 0.3
11114800	16	0.6
11114824	17	< 0.3
11114884	18	< 0.3
11114775	20	< 0.3
11114821	30	< 0.3
11114896	ACROSS FROM CONF3	< 0.3
11114822	ART	< 0.3
11114804	BUILDING SERVICES	< 0.3
11114803	CAFETERIA	0.7
11114890	CAFETERIA	< 0.3
11114823	CONF 1	< 0.3
11114889	CONF3	< 0.3
11114892	CONFERENCE	< 0.3
11114776	CONFERENCE 2	< 0.3
11114888	COU	< 0.3
11114782	GYM	0.9
11114798	GYM	< 0.3
11114887	GYM OFFICE	< 0.3
11114899	HEALTH	< 0.3
11114891	HEALTH OFFICE	< 0.3
11114791	IMC	< 0.3
11114792	IMC	< 0.3
11114806	IMC	< 0.3
11114785	IMC OFFICE	< 0.3
11114883	KITCHEN	< 0.3

Table 1- Radon Testing Results		
Sequoyah ES		
Test Period: 02/8/2022 - 02/11/2022		
Kit Number	Room / Area	Result
11114871	MAIN OFFICE	< 0.3
11114879	MAIN OFFICE	< 0.3
11114882	MAIN OFFICE	< 0.3
11114894	MAIN OFFICE	< 0.3
11114895	MS LEE	< 0.3
11114885	MUSIC	< 0.3
11114880	MUSIC 2	< 0.3
11114872	PRINCIPAL OFFICE	< 0.3
11114893	PRINTING ROOM	< 0.3
11114813	RDG	< 0.3
11114812	RES	< 0.3
11114815	RES	< 0.3
11114816	RES	< 0.3
11114897	SPT	< 0.3
11114814	STAFF LOUNGE	< 0.3
11114881	STAFF LOUNGE	< 0.3
11114777	TESTING	< 0.3
11114818	TESTING	< 0.3
11114807	WORKROOM	< 0.3

Table 2- Radon Testing Results			
Sequoyah ES			
Test Period: 02/8/2022 - 02/11/2022			
Kit Number	QC Type	Room / Area	Result
11114871	D	Main office	< 0.3
11114814	D	Staff lounge	< 0.3
11114815	D	Res	< 0.3
11114816	FB	Res	< 0.3
11114791	D	Imc	< 0.3
11114784	D	1	< 0.3
11114783	FB	1	< 0.3
11114777	D	Testing	< 0.3
11113478	OB	OFFICE BLANK	< 0.3
11113477	TB	TRAVEL BLANK	< 0.3

Summary of Missed Locations Sequoyah ES Test Period: 02/8/22 - 02/11/22		
Kit Number	Room/Area	Result
	NA	

Summary of Missing, Compromised and ≥ 4 p/C/L Tests Sequoyah ES Test Period: 02/8/22 - 02/11/22		
Kit Number	Room/Area	Result
	NA	

Table Note:
* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

Radon test result report for:
SEQUOYAH ES

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11114795	1	2022-02-08 @ 12:00 pm	2022-02-11 @ 11:00 am	< 0.3	2022-02-15
11114784	1	2022-02-08 @ 12:00 pm	2022-02-11 @ 11:00 am	< 0.3	2022-02-15
11114783	1	2022-02-08 @ 12:00 pm	2022-02-11 @ 11:00 am	< 0.3	2022-02-15
11114808	10	2022-02-08 @ 12:00 pm	2022-02-11 @ 11:00 am	< 0.3	2022-02-15
11114828	11	2022-02-08 @ 12:00 pm	2022-02-11 @ 11:00 am	< 0.3	2022-02-15
11114805	12	2022-02-08 @ 12:00 pm	2022-02-11 @ 11:00 am	0.9 ± 0.3	2022-02-15
11114811	13	2022-02-08 @ 12:00 pm	2022-02-11 @ 11:00 am	< 0.3	2022-02-15
11114900	14	2022-02-08 @ 12:00 pm	2022-02-11 @ 10:00 am	< 0.3	2022-02-15
11114898	15	2022-02-08 @ 12:00 pm	2022-02-11 @ 10:00 am	< 0.3	2022-02-15
11114800	16	2022-02-08 @ 12:00 pm	2022-02-11 @ 11:00 am	0.6 ± 0.3	2022-02-15
11114824	17	2022-02-08 @ 12:00 pm	2022-02-11 @ 10:00 am	< 0.3	2022-02-15
11114884	18	2022-02-08 @ 12:00 pm	2022-02-11 @ 10:00 am	< 0.3	2022-02-15
11114801	2	2022-02-08 @ 12:00 pm	2022-02-11 @ 11:00 am	< 0.3	2022-02-15
11114775	20	2022-02-08 @ 1:00 pm	2022-02-11 @ 11:00 am	< 0.3	2022-02-15
11114786	3	2022-02-08 @ 12:00 pm	2022-02-11 @ 11:00 am	< 0.3	2022-02-15
11114821	30	2022-02-08 @ 1:00 pm	2022-02-11 @ 11:00 am	< 0.3	2022-02-15
11114789	4	2022-02-08 @ 12:00 pm	2022-02-11 @ 11:00 am	< 0.3	2022-02-15
11114768	5	2022-02-08 @ 1:00 pm	2022-02-11 @ 11:00 am	< 0.3	2022-02-14
11114886	6	2022-02-08 @ 12:00 pm	2022-02-11 @ 11:00 am	< 0.3	2022-02-14
11114797	7	2022-02-08 @ 12:00 pm	2022-02-11 @ 11:00 am	< 0.3	2022-02-15
11114796	8	2022-02-08 @ 12:00 pm	2022-02-11 @ 11:00 am	< 0.3	2022-02-15
11114790	9	2022-02-08 @ 12:00 pm	2022-02-11 @ 11:00 am	< 0.3	2022-02-14
11114896	ACROSS FROM CONF3	2022-02-08 @ 12:00 pm	2022-02-11 @ 10:00 am	< 0.3	2022-02-15
11114822	ART	2022-02-08 @ 12:00 pm	2022-02-11 @ 10:00 am	< 0.3	2022-02-15
11114804	BUILDING SERVICES	2022-02-08 @ 12:00 pm	2022-02-11 @ 10:00 am	< 0.3	2022-02-15
11114890	CAFETERIA	2022-02-08 @ 11:00 am	2022-02-11 @ 10:00 am	< 0.3	2022-02-15
11114803	CAFETERIA	2022-02-08 @ 11:00 am	2022-02-11 @ 10:00 am	0.7 ± 0.3	2022-02-15
11114823	CONF 1	2022-02-08 @ 12:00 pm	2022-02-11 @ 10:00 am	< 0.3	2022-02-15
11114889	CONF3	2022-02-08 @ 12:00 pm	2022-02-11 @ 10:00 am	< 0.3	2022-02-15
11114892	CONFERENCE	2022-02-08 @ 11:00 am	2022-02-11 @ 10:00 am	< 0.3	2022-02-15
11114776	CONFERENCE 2	2022-02-08 @ 1:00 pm	2022-02-11 @ 11:00 am	< 0.3	2022-02-15
11114888	COU	2022-02-08 @ 12:00 pm	2022-02-11 @ 10:00 am	< 0.3	2022-02-15
11114798	GYM	2022-02-08 @ 12:00 pm	2022-02-11 @ 11:00 am	< 0.3	2022-02-15
11114782	GYM	2022-02-08 @ 12:00 pm	2022-02-11 @ 11:00 am	0.9 ± 0.3	2022-02-15
11114887	GYM OFFICE	2022-02-08 @ 12:00 pm	2022-02-11 @ 11:00 am	< 0.3	2022-02-14
11114899	HEALTH	2022-02-08 @ 11:00 am	2022-02-11 @ 10:00 am	< 0.3	2022-02-15
11114891	HEALTH OFFICE	2022-02-08 @ 11:00 am	2022-02-11 @ 10:00 am	< 0.3	2022-02-15

Radon test result report for:
SEQUOYAH ES

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11114792	IMC	2022-02-08 @ 12:00 pm	2022-02-11 @ 10:00 am	< 0.3	2022-02-15
11114791	IMC	2022-02-08 @ 12:00 pm	2022-02-11 @ 10:00 am	< 0.3	2022-02-15
11114806	IMC	2022-02-08 @ 12:00 pm	2022-02-11 @ 10:00 am	< 0.3	2022-02-15
11114785	IMC OFFICE	2022-02-08 @ 12:00 pm	2022-02-11 @ 10:00 am	< 0.3	2022-02-15
11114883	KITCHEN	2022-02-08 @ 11:00 am	2022-02-11 @ 10:00 am	< 0.3	2022-02-15
11114882	MAIN OFFICE	2022-02-08 @ 11:00 am	2022-02-11 @ 11:00 am	< 0.3	2022-02-15
11114871	MAIN OFFICE	2022-02-08 @ 11:00 am	2022-02-11 @ 10:00 am	< 0.3	2022-02-15
11114894	MAIN OFFICE	2022-02-08 @ 11:00 am	2022-02-11 @ 10:00 am	< 0.3	2022-02-15
11114879	MAIN OFFICE	2022-02-08 @ 11:00 am	2022-02-11 @ 10:00 am	< 0.3	2022-02-15
11114895	MS LEE	2022-02-08 @ 12:00 pm	2022-02-11 @ 10:00 am	< 0.3	2022-02-15
11114885	MUSIC	2022-02-08 @ 11:00 am	2022-02-11 @ 11:00 am	< 0.3	2022-02-15
11114880	MUSIC 2	2022-02-08 @ 12:00 pm	2022-02-11 @ 10:00 am	< 0.3	2022-02-15
11114872	PRINCIPAL OFFICE	2022-02-08 @ 11:00 am	2022-02-11 @ 10:00 am	< 0.3	2022-02-15
11114893	PRINTING ROOM	2022-02-08 @ 11:00 am	2022-02-11 @ 10:00 am	< 0.3	2022-02-15
11114813	RDG	2022-02-08 @ 12:00 pm	2022-02-11 @ 10:00 am	< 0.3	2022-02-15
11114815	RES	2022-02-08 @ 12:00 pm	2022-02-11 @ 10:00 am	< 0.3	2022-02-15
11114816	RES	2022-02-08 @ 12:00 pm	2022-02-11 @ 10:00 am	< 0.3	2022-02-15
11114812	RES	2022-02-08 @ 12:00 pm	2022-02-11 @ 10:00 am	< 0.3	2022-02-15
11114897	SPT	2022-02-08 @ 12:00 pm	2022-02-11 @ 10:00 am	< 0.3	2022-02-15
11114814	STAFF LOUNGE	2022-02-08 @ 11:00 am	2022-02-11 @ 10:00 am	< 0.3	2022-02-15
11114881	STAFF LOUNGE	2022-02-08 @ 11:00 am	2022-02-11 @ 10:00 am	< 0.3	2022-02-15
11114818	TESTING	2022-02-08 @ 1:00 pm	2022-02-11 @ 11:00 am	< 0.3	2022-02-14
11114777	TESTING	2022-02-08 @ 1:00 pm	2022-02-11 @ 11:00 am	< 0.3	2022-02-15
11114807	WORKROOM	2022-02-08 @ 12:00 pm	2022-02-11 @ 10:00 am	< 0.3	2022-02-15

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI Technologies, Inc. Job Number 204186

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

Date Start: 2/18/22 Date Stop: 2/21/22 Date Start: _____ Date Stop: _____

Time Start: 0911 Time Stop: 0911 Time Start: _____ Time Stop: _____

Device No.'s: (3) Char Bags - Device No.'s: _____

11113484, 1112998, 20107126

23 Right

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

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

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

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

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

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

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

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

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



Radon Test Kit Chain of Custody

Project Name: MCPS Radon – February 2022 Schools

Name of Schools:

1. Earle. B Wood MS
2. Flower Valley ES
3. Parkland MS
4. Herbert Hoover MS
5. Ritchie Park ES
6. Wayside ES
7. Potomac ES
8. Redland MS
9. Sequoyah ES
10. Sherwood ES
11. Rock Terrace School

	Date	Initials
Radon Test Kits Deployed	02/08/2022	PM
Radon Test Kits Collected	02/11/2022	PM
Radon Test Kits Shipped to Lab*	02/11/2022	PM
Radon Test Kits Received by Lab*	02/15/2022	PM

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



MONTGOMERY COUNTY PUBLIC SCHOOLS RADON TESTING

Executive Summary:
Sequoyah Elementary School
17301 Bowie Mill Road,
Derwood, MD 20855

Date of Test Report:	3/15/2019
Round of Testing:	Initial Follow-up Post Remediation 2 Year Testing 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility
# of Rooms Tested:	1
# of Rooms \geq 4.0 pCi/L:	0
Low Value:	<0.4
High Value:	<0.4

Project Status

Retesting completed: No further action at this time.



March 15, 2019

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

Re: Radon Testing Services

Location: Sequoyah Elementary School
17301 Bowie Mill Road,
Derwood, MD 20855

Dear Mr. Cox:

Intertek-PSI (PSI) is pleased to submit the following report to the Montgomery County Public Schools (MCPS) for completion of a "short-term" 3-day radon test for Sequoyah Elementary School, located at 17301 Bowie Mill Road, Derwood, MD 20855 (subject site).

Scope of Services:

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

PSI visited the site on February 26, 2019 and deployed one (1) activated charcoal (AC) radon test kit. PSI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. PSI returned to the site on March 1, 2019 to retrieve the radon sampling test kit. A floor plan map of the building with the test location is included as Attachment A of this report.

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

Evaluation of Testing Conditions:

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

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



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

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

Results:

The results of the radon test analysis indicated the following:

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

Notes:
D -Duplicate Sample

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

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

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



Respectfully Submitted,

INTERTEK-PSI

A handwritten signature in black ink that reads "Nand Kaushik". The signature is written in a cursive, flowing style.

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

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

ATTACHMENT B

Radon Test Summary Spreadsheet

Radon Testing Results		
Sequoyah Elementary School		
Testing period: 2/26/19 - 3/1/19		
Kit Number	Room / Area	Result (pCi/L)
3923391	Gym Office	<0.4

Table Notes:

D – Duplicate

FB – Field Blank

OB – Office Blank

TB – Transit Blank

QC – Quality Control

ATTACHMENT C

Laboratory Analytical Results

NRPP 105011 AL
NRSB ARL0007

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

Laboratory Report for:

Property Tested: Project # 04481387-1

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

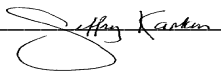
MCPS Radon Survey Sequoyah ES
17301 Bowie Mill Road
Derwood MD 20855

Log Number	Device Number	Test	Exposure	Duration:	Area Tested	Result
3220809	3923391	02/26/2019	7:10 am	03/01/2019 7:10 am	First Floor Room Gym Office	< 0.4

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

Distributed by: Intertek-PSI (VA)

Date Received: 03/05/2019 Date Logged: 03/05/2019 Date Analyzed: 03/05/2019 Date Reported: 03/06/2019

Report Reviewed By: 

Report Approved By: 

Disclaimer:

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

Shawn Price, Director of Laboratory Operations, AccuStar Labs

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



**MONTGOMERY COUNTY PUBLIC SCHOOLS
RADON TESTING**

Executive Summary:
Sequoyah Elementary School
17301 Bowie Mill Road,
Derwood, MD 20855

Date of Test Report:	1/9/19
Round of Testing:	Initial Follow-up Post Remediation 2 Year Testing 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility
# of Rooms Tested:	48
# of Rooms \geq 4.0 pCi/L:	0
Low Value:	< 0.4
High Value:	0.7

Project Status

Initial testing complete: Missing or compromised samples need re-test.



January 9, 2019

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

Re: Radon Testing Services

Location: Sequoyah Elementary School
17301 Bowie Mill Road,
Derwood, MD 20855

Dear Mr. Cox:

Intertek-PSI (PSI) is pleased to submit the following report to the Montgomery County Public Schools (MCPS) for completion of a "short-term" 3-day radon test for Sequoyah Elementary School, located at 17301 Bowie Mill Road, Derwood, MD 20855 (subject site).

Scope of Services:

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

PSI visited the site on December 3, 2018 and deployed sixty-three (63) activated charcoal (AC) radon test kits. PSI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. PSI returned to the site on December 6, 2018 to retrieve the radon sampling test kits. A floor plan map of the building with the test locations is included as Attachment A of this report.

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

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



Evaluation of Testing Conditions:

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

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

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

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

Results:

The results of the radon test analysis indicated the following:

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

Notes:

D -Duplicate Sample

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

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

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



Respectfully Submitted,

INTERTEK-PSI

A handwritten signature in black ink that reads "Nand Kaushik". The signature is written in a cursive, flowing style.

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

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

ATTACHMENT B

Radon Test Summary Spreadsheet

Radon Testing Results		
Sequoyah Elementary School		
Testing period: 12/3/18 - 12/6/18		
Kit Number	Room / Area	Result (pCi/L)
3915670	1	<0.4
3915663	2	<0.4
3917280	3	<0.4
3917279	4	<0.4
3915664	5	<0.4
3915665	6	<0.4
3915668	7	<0.4
3915669	8	<0.4
3917278	10	<0.4
3915465	11	<0.4
3917275	12	<0.4
3917274	13	<0.4
3915470	14	<0.4
3915468	15	<0.4
3917276	16	<0.4
3915461	17	<0.4
3915466	18	<0.4
3917266	20	<0.4
3917265	25	<0.4
3917264	26	<0.4
3917261	30	<0.4
3915462	9 (Computer Lab)	0.7
3915494	Art	<0.4
3915577	Assistant Principal	<0.4
3915492	Building Services	<0.4
3915467	Conference 1	<0.4
3915576	Conference 2	<0.4
3915493	Conference 3	<0.4
3915499	Counselor 1	<0.4
3915500	Counselor 2	<0.4
3915666	ESOL	<0.4
3917358	Gym	0.4
3917359	Gym	0.5
3917350	Gym Office (MISSING)	--
3915662	Health	<0.4
3915661	Health Office	<0.4
3917273	IMC	<0.4
3917271	IMC	<0.4
3917272	IMC Workroom	<0.4
3915491	Instrument	<0.4
3917360	Main Office	<0.4
3917270	MPR	0.4
3917268	MPR	0.6

Radon Testing Results		
Sequoyah Elementary School		
Testing period: 12/3/18 - 12/6/18		
Kit Number	Room / Area	Result (pCi/L)
3917269	Music	<0.4
3915495	OT Room	<0.4
3917355	Principal	<0.4
3915496	Reading	<0.4
3915498	Resource	<0.4
3915464	SPT	<0.4
3917267	Staff Lounge	<0.4
3917354	Work Room	<0.4

Radon Testing Results		
Sequoyah Elementary School		
Testing period: 12/3/18 - 12/6/18		
Kit Number	QC Type	Result (pCi/L)
3915667	8 (D)	<0.4
3917277	11 (D)	<0.4
3915469	15 (D)	<0.4
3915463	Building Services (D)	<0.4
3917357	Gym Office (D)	<0.4
3915580	Main Office (D)	<0.4
3915497	Reading (D)	<0.4
3926203	Field Blank	<0.4
3926204	Field Blank	Unable to Report
3926205	Field Blank	<0.4
3926208	Office Blank	<0.4
3926207	Transit Blank	<0.4

Table Notes:

D – Duplicate

FB – Field Blank

OB – Office Blank

TB – Transit Blank

QC – Quality Control

ATTACHMENT C

Laboratory Analytical Results

NELAC NY 11769
NRPP 103216 AL
NRSB ARL0017

Laboratory Report for:

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

Property Tested: Project # 04481387-1


MCPS Radon Survey
Sequoyah ES
17301 Bowie Mill Road
Derwood Maryland 20855 USA


Log Number	Device Number	Test	Exposure	Duration:	Area Tested	Result pCi/L
2404788	3917360	12/03/2018	5:47 pm	12/06/2018 2:07 pm	Bldg Sequoyah ES Floor First Room Main	< 0.4
2404789	3915580	12/03/2018	5:47 pm	12/06/2018 2:07 pm	Bldg Sequoyah ES Floor First Room Main	< 0.4
2404790	3915577	12/03/2018	5:48 pm	12/06/2018 2:08 pm	Bldg Sequoyah ES Flr First Rm Asst Principal Off	< 0.4
2404791	3915576	12/03/2018	5:49 pm	12/06/2018 2:08 pm	Bldg Sequoyah ES Floor First Room Conf Rm	< 0.4
2404792	3917355	12/03/2018	5:50 pm	12/06/2018 2:09 pm	Bldg Sequoyah ES Floor First Room Principal Off	< 0.4
2404793	3917354	12/03/2018	5:50 pm	12/06/2018 2:09 pm	Bldg Sequoyah ES Floor First Room Work Rm	< 0.4
2404794	3915662	12/03/2018	5:51 pm	12/06/2018 2:10 pm	Bldg Sequoyah ES Floor First Room Health Rm	< 0.4
2404795	3915661	12/03/2018	5:52 pm	12/06/2018 12:00 am	Bldg Sequoyah ES Floor First Room Nurses' Off	< 0.4
2404796	3917358	12/03/2018	5:53 pm	12/06/2018 2:11 pm	Bldg Sequoyah ES Floor First Room Gym	0.4
2404797	3917359	12/03/2018	5:53 pm	12/06/2018 2:12 pm	Bldg Sequoyah ES Floor First Room Gym	0.5
2404798	3917357	12/03/2018	5:54 pm	12/06/2018 2:13 pm	Bldg Sequoyah ES Floor First Room PE Off	< 0.4

Comment: Unable to report result for 3926204. Counts were below blank counts. A copy of this report was emailed to Intertek-PSI (VA).

Distributed by: Intertek-PSI (VA)

Date Received: 12/08/2018 Date Logged: Date Analyzed: 12/09/2018 Date Reported: 12/21/2018

Report Reviewed By: 

Report Approved By: 

Shawn Price, Director of Laboratory Operations, AccuStar Labs

Disclaimer:

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NELAC NY 11769
NRPP 103216 AL
NRSB ARL0017

Laboratory Report for:

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

Property Tested: Project # 04481387-1


MCPS Radon Survey
Sequoyah ES
17301 Bowie Mill Road
Derwood Maryland 20855 USA


Log Number	Device Number	Test Exposure Duration:		Area Tested	Result pCi/L
2404799	3915666	12/03/2018 5:55 pm	12/06/2018 2:14 pm	Bldg Sequoyah ES Floor First Room ESOL	< 0.4
2404800	3915664	12/03/2018 5:55 pm	12/06/2018 2:14 pm	Bldg Sequoyah ES Floor First Room 5	< 0.4
2404801	3915665	12/03/2018 5:06 pm	12/06/2018 2:15 pm	Bldg Sequoyah ES Floor First Room 6	< 0.4
2404802	3915670	12/03/2018 5:56 pm	12/06/2018 2:16 pm	Bldg Sequoyah ES Floor First Room 1	< 0.4
2404803	3915663	12/03/2018 5:57 pm	12/06/2018 2:16 pm	Bldg Sequoyah ES Floor First Room 2	< 0.4
2404804	3915668	12/03/2018 5:58 pm	12/06/2018 2:17 pm	Bldg Sequoyah ES Floor First Room 7	< 0.4
2404805	3915669	12/03/2018 5:59 pm	12/06/2018 2:18 pm	Bldg Sequoyah ES Floor First Room 8	< 0.4
2404806	3915667	12/03/2018 6:00 pm	12/06/2018 2:18 pm	Bldg Sequoyah ES Floor First Room 8	< 0.4
2404807	3917280	12/03/2018 6:02 pm	12/06/2018 2:20 pm	Bldg Sequoyah ES Floor First Room 3	< 0.4
2404808	3917279	12/03/2018 6:04 pm	12/06/2018 2:21 pm	Bldg Sequoyah ES Floor First Room 4	< 0.4
2404809	3917278	12/03/2018 6:05 pm	12/06/2018 2:21 pm	Bldg Sequoyah ES Floor First Room 10	< 0.4

Comment: Unable to report result for 3926204. Counts were below blank counts. A copy of this report was emailed to Intertek-PSI (VA).

Distributed by: Intertek-PSI (VA)

Date Received: 12/08/2018 Date Logged: Date Analyzed: 12/09/2018 Date Reported: 12/21/2018

Report Reviewed By: 

Report Approved By: 

Shawn Price, Director of Laboratory Operations, AccuStar Labs

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NELAC NY 11769
NRPP 103216 AL
NRSB ARL0017

Laboratory Report for:

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

Property Tested: Project # 04481387-1


MCPS Radon Survey
Sequoyah ES
17301 Bowie Mill Road
Derwood Maryland 20855 USA


Log Number	Device Number	Test Exposure	Duration:	Area Tested	Result pCi/L
2404810	3915465	12/03/2018 6:06 pm	12/06/2018 2:22 pm	Bldg Sequoyah ES Floor First Room 11	< 0.4
2404811	3917277	12/03/2018 6:06 pm	12/06/2018 2:22 pm	Bldg Sequoyah ES Floor First Room 11	< 0.4
2404812	3917276	12/03/2018 6:07 pm	12/06/2018 2:23 pm	Bldg Sequoyah ES Floor First Room 16	< 0.4
2404813	3917275	12/03/2018 6:08 pm	12/06/2018 2:23 pm	Bldg Sequoyah ES Floor First Room 12	< 0.4
2404814	3917274	12/03/2018 6:09 pm	12/06/2018 2:24 pm	Bldg Sequoyah ES Floor First Room 13	< 0.4
2404815	3917273	12/03/2018 6:10 pm	12/06/2018 2:24 pm	Bldg Sequoyah ES Floor First Room IMC	< 0.4
2404816	3917271	12/03/2018 6:11 pm	12/06/2018 2:25 pm	Bldg Sequoyah ES Floor First Room IMC	< 0.4
2404817	3917272	12/03/2018 6:12 pm	12/06/2018 2:25 pm	Bldg Sequoyah ES Floor First Room IMC Work R	< 0.4
2404818	3915470	12/03/2018 6:13 pm	12/06/2018 2:26 pm	Bldg Sequoyah ES Floor First Room 14	< 0.4
2404819	3915468	12/03/2018 6:14 pm	12/06/2018 2:27 pm	Bldg Sequoyah ES Floor First Room 15	< 0.4
2404820	3915469	12/03/2018 6:14 pm	12/06/2018 2:27 pm	Bldg Sequoyah ES Floor First Room 15	< 0.4

Comment: Unable to report result for 3926204. Counts were below blank counts. A copy of this report was emailed to Intertek-PSI (VA).

Distributed by: Intertek-PSI (VA)

Date Received: 12/08/2018 Date Logged: Date Analyzed: 12/09/2018 Date Reported: 12/21/2018

Report Reviewed By: 

Report Approved By: 

Shawn Price, Director of Laboratory Operations, AccuStar Labs

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NELAC NY 11769
NRPP 103216 AL
NRSB ARL0017

Laboratory Report for:

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

Property Tested: Project # 04481387-1


MCPS Radon Survey
Sequoyah ES
17301 Bowie Mill Road
Derwood Maryland 20855 USA


Log Number	Device Number	Test Exposure Duration:		Area Tested	Result pCi/L
2404821	3915461	12/03/2018 6:15 pm	12/06/2018 2:28 pm	Bldg Sequoyah ES Floor First Room 17	< 0.4
2404822	3915466	12/03/2018 6:16 pm	12/06/2018 2:29 pm	Bldg Sequoyah ES Floor First Room 18	< 0.4
2404823	3915467	12/03/2018 6:17 pm	12/06/2018 2:30 pm	Bldg Sequoyah ES Floor First Room Conf 1	< 0.4
2404824	3915464	12/03/2018 6:18 pm	12/06/2018 2:31 pm	Bldg Sequoyah ES Floor First Room SPT	< 0.4
2404825	3915498	12/03/2018 6:19 pm	12/06/2018 2:32 pm	Bldg Sequoyah ES Floor First Room RES	< 0.4
2404826	3915496	12/03/2018 6:20 pm	12/06/2018 2:33 pm	Bldg Sequoyah ES Floor First Room RDG	< 0.4
2404827	3915497	12/03/2018 6:20 pm	12/06/2018 2:33 pm	Bldg Sequoyah ES Floor First Room RDG	< 0.4
2404828	3915499	12/03/2018 6:21 pm	12/06/2018 2:34 pm	Bldg Sequoyah ES Floor First Room Counsellor 1	< 0.4
2404829	3915500	12/03/2018 6:21 pm	12/06/2018 2:34 pm	Bldg Sequoyah ES Floor First Room Counsellor 2	< 0.4
2404830	3915493	12/03/2018 6:22 pm	12/06/2018 2:35 pm	Bldg Sequoyah ES Floor First Room Conf 3	< 0.4
2404831	3915494	12/03/2018 6:23 pm	12/06/2018 2:35 pm	Bldg Sequoyah ES Floor First Room Art	< 0.4

Comment: Unable to report result for 3926204. Counts were below blank counts. A copy of this report was emailed to Intertek-PSI (VA).

Distributed by: Intertek-PSI (VA)

Date Received: 12/08/2018 Date Logged: Date Analyzed: 12/09/2018 Date Reported: 12/21/2018

Report Reviewed By: 

Report Approved By: 

Shawn Price, Director of Laboratory Operations, AccuStar Labs

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NELAC NY 11769
NRPP 103216 AL
NRSB ARL0017

Laboratory Report for:

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

Property Tested: Project # 04481387-1


MCPS Radon Survey
Sequoyah ES
17301 Bowie Mill Road
Derwood Maryland 20855 USA


Log Number	Device Number	Test Exposure Duration:		Area Tested	Result pCi/L
2404832	3915495	12/03/2018 6:24 pm	12/06/2018 2:36 pm	Bldg Sequoyah ES Floor First Room OT Rm	< 0.4
2404833	3915492	12/03/2018 6:25 pm	12/06/2018 2:37 pm	Bldg Sequoyah ES Floor First Room Building Svc	< 0.4
2404834	3915463	12/03/2018 6:25 pm	12/06/2018 2:37 pm	Bldg Sequoyah ES Floor First Room Building Svc	< 0.4
2404835	3915491	12/03/2018 6:26 pm	12/06/2018 2:38 pm	Bldg Sequoyah ES Floor First Room IMU	< 0.4
2404836	3917269	12/03/2018 6:27 pm	12/06/2018 2:38 pm	Bldg Sequoyah ES Floor First Room Music	< 0.4
2404837	3917270	12/03/2018 6:28 pm	12/06/2018 2:39 pm	Bldg Sequoyah ES Floor First Room MPR	0.4
2404838	3917268	12/03/2018 6:29 pm	12/06/2018 2:40 pm	Bldg Sequoyah ES Floor First Room MPR	0.6
2404839	3917267	12/03/2018 6:30 pm	12/06/2018 2:41 pm	Bldg Sequoyah ES Floor First Room Staff Lounge	< 0.4
2404840	3917266	12/03/2018 6:32 pm	12/06/2018 2:44 pm	Bldg Sequoyah ES Floor Upper Room 20	< 0.4
2404841	3917264	12/03/2018 6:33 pm	12/06/2018 2:45 pm	Bldg Sequoyah ES Floor Upper Room 26	< 0.4
2404842	3917265	12/03/2018 6:34 pm	12/06/2018 2:47 pm	Bldg Sequoyah ES Floor Upper Room 25	< 0.4

Comment: Unable to report result for 3926204. Counts were below blank counts. A copy of this report was emailed to Intertek-PSI (VA).

Distributed by: Intertek-PSI (VA)

Date Received: 12/08/2018 Date Logged: Date Analyzed: 12/09/2018 Date Reported: 12/21/2018

Report Reviewed By: 

Report Approved By: 

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NELAC NY 11769
NRPP 103216 AL
NRSB ARL0017

Laboratory Report for:

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

Property Tested: Project # 04481387-1


MCPS Radon Survey
Sequoyah ES
17301 Bowie Mill Road
Derwood Maryland 20855 USA


Log Number	Device Number	Test Date	Exposure Duration	Area Tested	Result pCi/L
2404843	3917261	12/03/2018	6:36 pm - 12/06/2018 2:50 pm	Bldg Sequoyah ES Floor Upper Room 30	< 0.4
2404844	3926203	12/03/2018	5:47 pm - 12/06/2018 2:50 pm	Bldg Sequoyah ES Floor NA Room Field Blank	< 0.4
2404845	3926204	12/03/2018	5:47 pm - 12/06/2018 2:50 pm	Bldg Sequoyah ES Floor NA Room Field Blank	Invalid
2404846	3926205	12/03/2018	5:47 pm - 12/06/2018 2:50 pm	Bldg Sequoyah ES Floor NA Room Field Blank	< 0.4
2404847	3926207	12/03/2018	5:47 pm - 12/06/2018 2:50 pm	Bldg Sequoyah ES Floor NA Room Transit Blank	< 0.4
2404848	3926208	12/03/2018	6:00 am - 12/06/2018 6:00 pm	Bldg Sequoyah ES Floor NA Room Office Blank	< 0.4

Comment: Unable to report result for 3926204. Counts were below blank counts. A copy of this report was emailed to Intertek-PSI (VA).

Distributed by: Intertek-PSI (VA)

Date Received: 12/08/2018 Date Logged: Date Analyzed: 12/09/2018 Date Reported: 12/21/2018

Report Reviewed By: 

Report Approved By: 

Shawn Price, Director of Laboratory Operations, AccuStar Labs

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NELAC NY 11769
NRPP 103216 AL
NRSB ARL0017

Laboratory Report for:

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

Property Tested: Project # 04481387-1


MCPS Radon Survey
Sequoyah ES
17301 Bowie Mill Road
Derwood MD 20855 USA


Log Number	Device Number	Test	Exposure	Duration:	Area Tested	Result pCi/L
2391554	3915462	12/03/2018	6:01 pm	12/06/2018 2:19 pm	Bldg Sequoyah ES Flr First Rm Computer Lab - 9	0.7

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

Distributed by: Intertek-PSI (VA)

Date Received: 12/12/2018 Date Logged: 12/12/2018 Date Analyzed: 12/14/2018 Date Reported: 01/02/2019

Report Reviewed By: 

Report Approved By: 

Shawn Price, Director of Laboratory Operations, AccuStar Labs

Disclaimer:

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NRPP 105011 AL
NRSB ARL0007
Ohio RL41

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

Laboratory Report for:

Property Tested:

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

MCPS Radon Survey
4514 Taylorsville Road
Dayton OH 45424

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

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

Test Performed By: Unknown

Distributed by: Intertek-PSI (VA)

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

Report Reviewed By: 

Report Approved By: 

Disclaimer:

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

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

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT Intertek - PSI

Job Number 187732

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

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

Date Start: _____ Date Stop: _____

Time Start: 0947 Time Stop: 0947

Time Start: _____ Time Stop: _____

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

Device No.'s: _____

3926831 thru 3926840

G2 left

Date Start: _____ Date Stop: _____

Date Start: _____ Date Stop: _____

Time Start: _____ Time Stop: _____

Time Start: _____ Time Stop: _____

Device No.'s: _____

Device No.'s: _____

Date Start: _____ Date Stop: _____

Date Start: _____ Date Stop: _____

Time Start: _____ Time Stop: _____

Time Start: _____ Time Stop: _____

Device No.'s: _____

Device No.'s: _____

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



Chain of Custody

Project Name: MCPS Radon Survey 2018

Name of Schools:

- | | |
|--|--------------------------------|
| 1. Ewing Center | 13. Garrett Park ES Annex |
| 2. Department of Food & Nutrition Services | 14. Goshen ES |
| 3. Damascus HS | 15. Kingsley Wilderness Center |
| 4. Edison HS | 16. Kensington Parkwood ES |
| 5. Emory Grove Center | 17. Monocacy ES |
| 6. John Poole MS | 18. Lakewood ES |
| 7. Lakelands Park MS | 19. Little Bennett ES |
| 8. Laytonsville ES | 20. Lois P. Rockwell ES |
| 9. Gaithersburg HS | 21. Olney ES |
| 10. Neelsville MS | 22. North Chevy Chase ES |
| 11. Sequoyah ES | 23. Woodfield ES |
| 12. Clarksburg ES Annex | 24. Wootton HS |

	Date	Initials
Radon Test Kits Deployed	12/03/2018	ML
Radon Test Kits Sampled	12/06/2018	ML
Radon Test Kits Shipped to Lab*	12/06/2018	ML
Radon Test Kits Received by Lab*	12/07/2018; 12/08/2018	ML

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

RADON SCREENING SURVEY – FOLLOW-UP SEQUOYAH ELEMENTARY SCHOOL

17301 Bowie Mill Rd., Derwood, Maryland 20855

EXECUTIVE SUMMARY

Date of Test Report:	3/13/18
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested	14
# Rooms \geq 4.0 pCi/L:	0
Low Value:	<0.3
High Value:	3.5
Confirmed Rooms \geq 4.0 pCi/L US EPA Action Level	1

Summary of Sampling Events \geq 4.0 pCi/L

Room	Result (pCi/L) 1/31/18	Result (pCi/L) 3/13/18	Average Result (pCi/L)
Conf 1	4.7	3.5	4.1



MCPS RADON TESTING - EXECUTIVE SUMMARY

Site Name	Sequoyah Elementary School
Date of Report	March 13, 2018
Round of Testing	Initial Follow-up Post Remediation 2 year testing 5 year testing HVAC Upgrade Window Replacement New Addition New Facility
# of Rooms Tested	14
# Rooms \geq 4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	3.5 pCi/L

Project Status

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



March 13, 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: Sequoyah Elementary School

17301 Bowie Mill Rd.
Derwod, Maryland 20855

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 Sequoyah Elementary School, located at 17301 Bowie Mill Rd. in Derwod, Maryland 20855 (subject site).

SCOPE OF SERVICES

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

KCI visited the site on February 12, 2018 and deployed sixteen (16) activated charcoal (AC) radon test kits. KCI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance.

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

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

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

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

KCI returned to the site on February 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:

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,



Radon Measurement Specialist
KCI Technologies, Inc.

Attachments:

B - Radon Test Summary Spreadsheets

C - Laboratory Analytical Results

ATTACHMENT B

Radon Test Summary Spreadsheet

Table Notes:

AC- Activated Charcoal

ACI- Air Chek, Inc.

D- Duplicate

FB- Field Blank

KCI- KCI Technologies, Inc.

OB- Office Blank

PM- Project Manager

QC- Quality Control

Table 1 - Radon Testing Results		
Sequoyah Elementary School		
Test Period: 02/12/18-02/15/18		
Kit Number	Room / Area	Result
7985866	1	0.6
7985865	4	0.7
7985873	APR	1.4
7985868	APR	0.9
7986189	COM	1.1
7986190	CONF	1.0
7986197	CONF 1	3.5
7985870	CONF 3	0.7
7986174	HEALTH SUITE	0.9
7986198	* IMC (Missing)	-
7986171	KITCHEN	0.5
7986170	NURSES OFFICE	0.7
7986172	OFFICE A	1.3
7986199	OFFICE B	< 0.3
7986191	PARA ROOM	< 0.3
7985863	WORK ROOM	0.7

Table Note:

* Missing or Compromised Sample

Table 2 - Radon Testing Results		
Sequoyah Elementary School		
Test Period: 02/12/18-02/15/18		
Kit Number	QC Type	Result
7985869	* D (APR:Tampered)	1.3
7986176	* D (IMC:Missing)	-
7986194	* FB (IMC:Missing)	-

Table Note:

* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

Radon test result report for:

**SEQUOYAH ELEMENTARY SCHOOL
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7985866	1	2018-02-12 @ 9:00 am	2018-02-15 @ 8:00 am	0.6 ± 0.3	2018-02-19
7985865	4	2018-02-12 @ 9:00 am	2018-02-15 @ 8:00 am	0.7 ± 0.3	2018-02-19
7985868	APR	2018-02-12 @ 9:00 am	2018-02-15 @ 8:00 am	0.9 ± 0.3	2018-02-19
7985869	APR	2018-02-12 @ 9:00 am	2018-02-15 @ 8:00 am	1.3 ± 0.4	2018-02-19
7985873	APR	2018-02-12 @ 9:00 am	2018-02-15 @ 8:00 am	1.4 ± 0.4	2018-02-19
7986189	COM	2018-02-12 @ 9:00 am	2018-02-15 @ 8:00 am	1.1 ± 0.4	2018-02-19
7986190	CONF	2018-02-12 @ 9:00 am	2018-02-15 @ 8:00 am	1.0 ± 0.4	2018-02-19
7986197	CONF 1	2018-02-12 @ 9:00 am	2018-02-15 @ 8:00 am	3.5 ± 0.4	2018-02-19
7985870	CONF 3	2018-02-12 @ 9:00 am	2018-02-15 @ 8:00 am	0.7 ± 0.3	2018-02-19
7986174	HEALTH SUITE	2018-02-12 @ 9:00 am	2018-02-15 @ 8:00 am	0.9 ± 0.4	2018-02-19
7986171	KITCHEN	2018-02-12 @ 8:00 am	2018-02-15 @ 8:00 am	0.5 ± 0.3	2018-02-19
7986170	NURSES OFFICE	2018-02-12 @ 8:00 am	2018-02-15 @ 8:00 am	0.7 ± 0.3	2018-02-19
7986172	OFFICE A	2018-02-12 @ 9:00 am	2018-02-15 @ 8:00 am	1.3 ± 0.4	2018-02-19
7986199	OFFICE B	2018-02-12 @ 9:00 am	2018-02-15 @ 8:00 am	< 0.3	2018-02-19
7986191	PARA ROOM	2018-02-12 @ 9:00 am	2018-02-15 @ 8:00 am	< 0.3	2018-02-19
7985863	WORK ROOM	2018-02-12 @ 8:00 am	2018-02-15 @ 8:00 am	0.7 ± 0.3	2018-02-19
7986198	IMC	@			
7986176	IMC	@			
7986194	IMC	@			



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

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7979482	1	2018-02-13 @ 1:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7986991	10	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7985684	11	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7986987	12	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7986993	13	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7986990	14	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7979485	2	2018-02-13 @ 1:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7985686	3	2018-02-13 @ 1:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7986995	4	2018-02-13 @ 1:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7986989	5	2018-02-13 @ 1:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7986998	6	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7986986	7	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7986985	8	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20
7986997	9	2018-02-13 @ 2:00 pm	2018-02-16 @ 2:00 pm	< 0.3	2018-02-20

Radon test result report for:
TRANSIT BLANKS

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

February 28, 2018

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

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

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7984181	1	2018-02-16 @ 11:00 am	2018-02-19 @ 11:00 am	19.7 \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	Sequoyah Elementary School
Date of Report	January 31, 2018
Round of Testing	Initial Follow-up Post Remediation 2 year testing 5 year testing HVAC Upgrade Window Replacement New Addition New Facility
# of Rooms Tested	50
# Rooms \geq 4.0 pCi/L	1
Lowest Value	< 0.3 pCi/L
Highest Value	4.7 pCi/L

Rooms with results \geq 4.0 pCi/L: Conf. 1 (4.7 pCi/L)

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

Missing or compromised samples need re-test.



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: Sequoyah Elementary School

17301 Bowie Mill Rd.
Derwood, Maryland 20855

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 Sequoyah Elementary School, located at 17301 Bowie Mill Rd. in Derwood, Maryland 20855 (subject site).

SCOPE OF SERVICES

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

KCI visited the site on 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:

Radon Concentration	Room	Result
≥4.0 pCi/L	Conf. 1	4.7
≤4.0 pCi/L	See Attachment B	See Attachment B

Quality Control Samples	
Results of Blank Canisters:	The field blank, office blank, and lab transit blank 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

Radon Testing Results		
Sequoyah Elementary School		
Test Period: 11/28/17-12/01/17		
Kit Number	Room / Area	Result
7977715	2	0.5
7977721	3	0.7
7977718	4	0.6
7977707	5	< 0.3
7977717	6	< 0.3
7977713	7	< 0.3
7977709	8	0.6
7977722	10	0.8
7977723	11	0.8
7977727	12	0.6
7977734	13	0.9
7977735	14	0.6
7977726	15	0.7
7977728	16	0.9
7977731	17	0.8
7977736	18	0.5
7977754	20	0.7
7977758	21	< 0.3
7977762	22	0.6
7977768	23	0.7
7977755	26	0.9
7977759	27	< 0.3
7977763	28	0.6
7977714	* 1 (Tampered)	< 0.3
7977724	16 OFFICE	0.8
7977750	APR	1.0
7977752	APR	0.9
7977745	ART	< 0.3
7977702	ASST PRINCIPAL	0.9
7977751	BLDG SERV	0.6
7977716	* COM (Missing)	-
7977746	CONF	0.5
7977725	CONF 1	4.7
7977703	CONFERENCE ROOM	0.7
7977740	COU	1.2
7977710	GYM	0.9
7977711	GYM	0.9
7977712	GYM OFFICE	0.6
7977705	* HEALTH SUITE (Tampered)	0.8
7977729	IMC	0.8
7977730	* IMC (Missing)	-
7977720	IMC OFF	0.7
7977743	IMU	< 0.3
7977701	MAIN OFFICE	0.7
7977737	MAT	1.1
7977744	MU	< 0.3

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
Sequoyah Elementary School		
Test Period: 11/28/17-12/01/17		
Kit Number	Room / Area	Result
7977706	NURSE OFFICE	0.9
7977704	PRINCIPAL	0.8
7977732	RDG	0.5
7977738	RES	0.7
7977747	RM - AGG	0.5
7977742	SPT	0.8
7977748	STAFF LOUNGE	0.6

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
Sequoyah Elementary School		
Test Period: 11/28/17-12/01/17		
Kit Number	QC Type	Result
7977719	D (11)	1.1
7977733	D (14)	< 0.3
7977756	D (22)	0.9
7977757	D (28)	0.6
7977708	D (5)	< 0.3
7977749	D (APR)	0.9
7977741	D (COU)	0.9
7977739	FB (14)	< 0.3
7977764	FB (28)	< 0.3
7977753	FB (STAFF LOUNGE)	< 0.3
7978078	OB (OB)	< 0.3

Table Note:

* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

Radon test result report for:
SEQUOYAH ES
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7977714	1	2017-11-28 @ 10:00 am	2017-12-01 @ 7:00 am	< 0.3	2017-12-04
7977722	10	2017-11-28 @ 10:00 am	2017-12-01 @ 7:00 am	0.8 ± 0.3	2017-12-04
7977719	11	2017-11-28 @ 10:00 am	2017-12-01 @ 7:00 am	1.1 ± 0.3	2017-12-04
7977723	11	2017-11-28 @ 10:00 am	2017-12-01 @ 7:00 am	0.8 ± 0.3	2017-12-04
7977727	12	2017-11-28 @ 11:00 am	2017-12-01 @ 7:00 am	0.6 ± 0.3	2017-12-04
7977734	13	2017-11-28 @ 11:00 am	2017-12-01 @ 7:00 am	0.9 ± 0.3	2017-12-04
7977735	14	2017-11-28 @ 11:00 am	2017-12-01 @ 8:00 am	0.6 ± 0.3	2017-12-04
7977733	14	2017-11-28 @ 11:00 am	2017-12-01 @ 8:00 am	< 0.3	2017-12-04
7977739	14	2017-11-28 @ 11:00 am	2017-12-01 @ 8:00 am	< 0.3	2017-12-04
7977726	15	2017-11-28 @ 11:00 am	2017-12-01 @ 8:00 am	0.7 ± 0.3	2017-12-04
7977728	16	2017-11-28 @ 10:00 am	2017-12-01 @ 7:00 am	0.9 ± 0.3	2017-12-04
7977724	16 OFFICE	2017-11-28 @ 10:00 am	2017-12-01 @ 8:00 am	0.8 ± 0.3	2017-12-04
7977731	17	2017-11-28 @ 11:00 am	2017-12-01 @ 8:00 am	0.8 ± 0.3	2017-12-04
7977736	18	2017-11-28 @ 11:00 am	2017-12-01 @ 8:00 am	0.5 ± 0.3	2017-12-04
7977715	2	2017-11-28 @ 10:00 am	2017-12-01 @ 7:00 am	0.5 ± 0.3	2017-12-04
7977754	20	2017-11-28 @ 12:00 pm	2017-12-01 @ 8:00 am	0.7 ± 0.3	2017-12-04
7977758	21	2017-11-28 @ 12:00 pm	2017-12-01 @ 8:00 am	< 0.3	2017-12-04
7977768	23	2017-11-28 @ 12:00 pm	2017-12-01 @ 8:00 am	0.7 ± 0.3	2017-12-04
7977762	22	2017-11-28 @ 12:00 pm	2017-12-01 @ 8:00 am	0.6 ± 0.3	2017-12-04
7977756	22	2017-11-28 @ 12:00 pm	2017-12-01 @ 8:00 am	0.9 ± 0.3	2017-12-04
7977755	26	2017-11-28 @ 12:00 pm	2017-12-01 @ 8:00 am	0.9 ± 0.3	2017-12-04
7977759	27	2017-11-28 @ 12:00 pm	2017-12-01 @ 8:00 am	< 0.3	2017-12-04
7977764	28	2017-11-28 @ 12:00 pm	2017-12-01 @ 12:00 pm	< 0.3	2017-12-04
7977757	28	2017-11-28 @ 12:00 pm	2017-12-01 @ 12:00 pm	0.6 ± 0.3	2017-12-04
7977763	28	2017-11-28 @ 12:00 pm	2017-12-01 @ 12:00 pm	0.6 ± 0.3	2017-12-04
7977721	3	2017-11-28 @ 10:00 am	2017-12-01 @ 7:00 am	0.7 ± 0.3	2017-12-04
7977718	4	2017-11-28 @ 10:00 am	2017-12-01 @ 7:00 am	0.6 ± 0.3	2017-12-04
7977707	5	2017-11-28 @ 10:00 am	2017-12-01 @ 7:00 am	< 0.3	2017-12-04
7977708	5	2017-11-28 @ 10:00 am	2017-12-01 @ 7:00 am	< 0.3	2017-12-04
7977717	6	2017-11-28 @ 10:00 am	2017-12-01 @ 7:00 am	< 0.3	2017-12-04
7977713	7	2017-11-28 @ 10:00 am	2017-12-01 @ 7:00 am	< 0.3	2017-12-04
7977709	8	2017-11-28 @ 10:00 am	2017-12-01 @ 7:00 am	0.6 ± 0.3	2017-12-04
7977747	RM - AGG	2017-11-28 @ 11:00 am	2017-12-01 @ 8:00 am	0.5 ± 0.3	2017-12-04
7977752	APR	2017-11-28 @ 11:00 am	2017-12-01 @ 8:00 am	0.9 ± 0.3	2017-12-04
7977749	APR	2017-11-28 @ 11:00 am	2017-12-01 @ 8:00 am	0.9 ± 0.3	2017-12-04
7977750	APR	2017-11-28 @ 11:00 am	2017-12-01 @ 8:00 am	1.0 ± 0.3	2017-12-04
7977745	ART	2017-11-28 @ 11:00 am	2017-12-01 @ 8:00 am	< 0.3	2017-12-04

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

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7977702	ASST PRINCIPAL	2017-11-28 @ 10:00 am	2017-12-01 @ 8:00 am	0.9 ± 0.3	2017-12-04
7977751	BLDG SERV	2017-11-28 @ 11:00 am	2017-12-01 @ 8:00 am	0.6 ± 0.3	2017-12-04
7977746	CONF	2017-11-28 @ 11:00 am	2017-12-01 @ 8:00 am	0.5 ± 0.3	2017-12-04
7977725	CONF 1	2017-11-28 @ 11:00 am	2017-12-01 @ 8:00 am	4.7 ± 0.4	2017-12-04
7977703	CONFERENCE ROOM	2017-11-28 @ 10:00 am	2017-12-01 @ 8:00 am	0.7 ± 0.3	2017-12-04
7977741	COU	2017-11-28 @ 11:00 am	2017-12-01 @ 8:00 am	0.9 ± 0.3	2017-12-04
7977740	COU	2017-11-28 @ 11:00 am	2017-12-01 @ 8:00 am	1.2 ± 0.3	2017-12-04
7977710	GYM	2017-11-28 @ 10:00 am	2017-12-01 @ 7:00 am	0.9 ± 0.3	2017-12-04
7977711	GYM	2017-11-28 @ 10:00 am	2017-12-01 @ 7:00 am	0.9 ± 0.3	2017-12-04
7977712	GYM OFFICE	2017-11-28 @ 10:00 am	2017-12-01 @ 7:00 am	0.6 ± 0.3	2017-12-04
7977705	HEALTH SUITE	2017-11-28 @ 10:00 am	2017-12-01 @ 7:00 am	0.8 ± 0.3	2017-12-04
7977729	IMC	2017-11-28 @ 11:00 am	2017-12-01 @ 7:00 am	0.8 ± 0.3	2017-12-04
7977720	IMC OFF	2017-11-28 @ 11:00 am	2017-12-01 @ 7:00 am	0.7 ± 0.3	2017-12-04
7977743	IMU	2017-11-28 @ 11:00 am	2017-12-01 @ 8:00 am	< 0.3	2017-12-04
7977701	MAIN OFFICE	2017-11-28 @ 10:00 am	2017-12-01 @ 7:00 am	0.7 ± 0.3	2017-12-04
7977737	MAT	2017-11-28 @ 11:00 am	2017-12-01 @ 8:00 am	1.1 ± 0.3	2017-12-04
7977744	MU	2017-11-28 @ 11:00 am	2017-12-01 @ 8:00 am	< 0.3	2017-12-04
7977706	NURSE OFFICE	2017-11-28 @ 10:00 am	2017-12-01 @ 7:00 am	0.9 ± 0.3	2017-12-04
7978078	OB	2017-11-28 @ 1:00 pm	2017-12-01 @ 1:00 pm	< 0.3	2017-12-04
7977704	PRINCIPAL	2017-11-28 @ 10:00 am	2017-12-01 @ 8:00 am	0.8 ± 0.3	2017-12-04
7977732	RDG	2017-11-28 @ 11:00 am	2017-12-01 @ 8:00 am	0.5 ± 0.3	2017-12-04
7977738	RES	2017-11-28 @ 11:00 am	2017-12-01 @ 8:00 am	0.7 ± 0.3	2017-12-04
7977742	SPT	2017-11-28 @ 11:00 am	2017-12-01 @ 8:00 am	0.8 ± 0.3	2017-12-04
7977753	STAFF LOUNGE	2017-11-28 @ 12:00 pm	2017-12-01 @ 8:00 am	< 0.3	2017-12-04
7977748	STAFF LOUNGE	2017-11-28 @ 12:00 pm	2017-12-01 @ 8:00 am	0.6 ± 0.3	2017-12-04

December 21, 2017

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
SEQUOYAH ES
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7977716	COM	@	@		
7977730	IMC	@	@		

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



Radon Test Kit Chain of Custody

Project Name: MCPS Radon Phase

Names of Schools:

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

	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).

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7975075	S1	2017-12-01 @ 11:00 am	2017-12-04 @ 11:00 am	25.6 \pm 0.7	2017-12-07
7975064	S2	2017-12-01 @ 11:00 am	2017-12-04 @ 11:00 am	27.4 \pm 0.8	2017-12-07
7975063	S3	2017-12-01 @ 11:00 am	2017-12-04 @ 11:00 am	26.3 \pm 0.7	2017-12-07
7975065	S4	2017-12-01 @ 11:00 am	2017-12-04 @ 11:00 am	23.0 \pm 0.7	2017-12-07
7975069	S5	2017-12-01 @ 11:00 am	2017-12-04 @ 11:00 am	25.6 \pm 0.7	2017-12-07
7975070	S6	2017-12-01 @ 11:00 am	2017-12-04 @ 11:00 am	23.0 \pm 0.7	2017-12-07

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

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI Technologies Inc. Job Number 182393

NOMINAL Conditions: Radon Conc 27.7 pCi/L Rel. Hum 49.1 % Temp. 70.1 F

Date Start: 12/1/17 Date Stop: 12/4/17 Date Start: _____ Date Stop: _____

Time Start: 1049 Time Stop: 1049 Time Start: _____ Time Stop: _____

Device No.'s: (6) 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 μ R/h Elevation = 820 ft



MCPS RADON TESTING

Executive Summary: Sequoyah Elementary School

Date of Test Report:	10/20/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	8
# Rooms \geq 4.0 pCi/L:	0
Low Value:	< 0.3
High Value:	0.6

Project Status:

Post remediation testing completed; retest needed for CR5 (open window).



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: Sequoyah Elementary School
17301 Bowie Mill Road
Derwood, MD 20855

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 Sequoyah Elementary School, located at 17301 Bowie Mill Road in Derwood, Maryland 20855 (subject site).

Scope of Services:

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

KCI visited the site on September 27, 2016 and deployed twelve (12) activated charcoal (AC) radon test kits. KCI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. 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:

Radon Concentration	Room	Result
≥4.0 pCi/L	none	n/a
<4.0 pCi/L	See Attachment B	

Notes:

D- Duplicate sample

The field blank, 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

Radon Testing Results		
Sequoyah Elementary School		
Test Period: 09/27/16-09/30/16		
Kit Number	Room / Area	Result
7802600	ASSIST. PRINCIPA	< 0.3
7802599	CONFERENCE	< 0.3
7802701	* CR5 (Open Window)	< 0.3
7802597	CR6	< 0.3
7802704	GYM	< 0.3
7802703	GYM	< 0.3
7802702	GYM	< 0.3
7802590	HEALTH RM	< 0.3
7802598	MAIN OFFICE	0.6
7802596	PRINCIPAL OFFICE	0.5

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
Sequoyah Elementary School		
Test Period: 09/27/16-09/30/16		
Kit Number	QC Type	Result
7802591	D (ASSIST. PRINCIPA)	< 0.3
7802594	FB (HEALTH RM)	< 0.3

Table Note:

* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

October 7, 2016

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

**SEQUOYAH ELEMENTARY SCHOOL
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7802591	ASSIST. PRINCIPA	2016-09-27 @ 12:00 pm	2016-09-30 @ 10:00 am	< 0.3	2016-10-03
7802600	ASSIST. PRINCIPA	2016-09-27 @ 12:00 pm	2016-09-30 @ 10:00 am	< 0.3	2016-10-03
7802599	CONFERENCE	2016-09-27 @ 12:00 pm	2016-09-30 @ 10:00 am	< 0.3	2016-10-03
7802701	CR5	2016-09-27 @ 12:00 pm	2016-09-30 @ 10:00 am	< 0.3	2016-10-03
7802597	CR6	2016-09-27 @ 12:00 pm	2016-09-30 @ 10:00 am	< 0.3	2016-10-03
7802702	GYM	2016-09-27 @ 12:00 pm	2016-09-30 @ 10:00 am	< 0.3	2016-10-03
7802703	GYM	2016-09-27 @ 12:00 pm	2016-09-30 @ 10:00 am	< 0.3	2016-10-03
7802704	GYM	2016-09-27 @ 12:00 pm	2016-09-30 @ 10:00 am	< 0.3	2016-10-03
7802594	HEALTH RM	2016-09-27 @ 12:00 pm	2016-09-30 @ 10:00 am	< 0.3	2016-10-03
7802590	HEALTH RM	2016-09-27 @ 12:00 pm	2016-09-30 @ 10:00 am	< 0.3	2016-10-03
7802598	MAIN OFFICE	2016-09-27 @ 12:00 pm	2016-09-30 @ 10:00 am	0.6 ± 0.3	2016-10-03
7802596	PRINCIPAL OFFICE	2016-09-27 @ 12:00 pm	2016-09-30 @ 10:00 am	0.5 ± 0.2	2016-10-03

October 7, 2016

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

MCPS Radon

Phase 18 Office Blanks

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
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**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
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**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
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 μ 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 SEQUOYAH ELEMENTARY SCHOOL

17301 Bowie Mill Rd, Derwood, Maryland 20855

EXECUTIVE SUMMARY

Date of Test Report:	3/14/16 Follow-Up
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested	4
# Rooms \geq 4.0 pCi/L:	0
Low Value:	1.3
High Value:	3.7
Confirmed Rooms \geq 4.0 pCi/L US EPA Action Level	1

Summary of Sampling Events \geq 4.0 pCi/L

Room	Result (pCi/L) 3/14/16 (Rev 1 Initial)	Result (pCi/L) 3/14/16 Follow-Up	Average Result (pCi/L)
Assistant Principal	6.2	3.7	5.0
Gym	5.0	2.5	3.8
Gym	3.8	2.0	2.9
Gym	<0.3	1.3	0.8
Principal	4.6	1.9	3.1
Conference Room	3.8	2.1	3.0



MCPS RADON TESTING

Executive Summary: Sequoyah Elementary School

Date of Test Report:	3/14/2016
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	4
# Rooms \geq 4.0 pCi/L:	0
Low Value:	1.3
High Value:	3.7

Project Status:

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



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: Sequoyah Elementary School
17301 Bowie Mill Road
Derwood, MD 20855

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 Sequoyah Elementary School, located at 17301 Bowie Mill Road in Derwood, Maryland 20855 (subject site).

Scope of Services:

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

KCI visited the site on February 22, 2016 and deployed eight (8) 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:

Radon Concentration	Room	Result
≥ 4.0 pCi/L	none	n/a
< 4.0 pCi/L	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.

Radon Testing Results		
Sequoyah Elementary School		
Test Period: 02/22/16-02/25/16		
Kit Number	Room / Area	Result
7726818	ASSIST PRINCIPAL	3.7
7726811	CONFERENCE RM	2.1
7729768	GYM	2.5
7729799	GYM	1.3
7729800	GYM	2.0
7726801	PRINCIPAL OFFICE	1.9

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
Sequoyah Elementary School		
Test Period: 02/22/16-02/25/16		
Kit Number	QC Type	Result
7729798	D (GYM)	2.4
7726803	FB (CONFERENCE RM)	< 0.3

Table Note:

* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

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

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

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7726818	ASSIST PRINCIPAL	2016-02-22 @ 9:00 am	2016-02-25 @ 8:00 am	3.7 ± 0.4	2016-02-29
7726803	CONFERENCE RM	2016-02-22 @ 10:00 am	2016-02-25 @ 8:00 am	< 0.3	2016-02-29
7726811	CONFERENCE RM	2016-02-22 @ 9:00 am	2016-02-25 @ 8:00 am	2.1 ± 0.3	2016-02-29
7729800	GYM	2016-02-22 @ 10:00 am	2016-02-25 @ 8:00 am	2.0 ± 0.3	2016-02-29
7729799	GYM	2016-02-22 @ 10:00 am	2016-02-25 @ 8:00 am	1.3 ± 0.3	2016-02-29
7729798	GYM	2016-02-22 @ 10:00 am	2016-02-25 @ 8:00 am	2.4 ± 0.3	2016-02-29
7729768	GYM	2016-02-22 @ 10:00 am	2016-02-25 @ 8:00 am	2.5 ± 0.3	2016-02-29
7726801	PRINCIPAL OFFICE	2016-02-22 @ 10:00 am	2016-02-25 @ 8:00 am	1.9 ± 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
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

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
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 μ 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: Sequoyah Elementary School

Date of Test Report:	3/14/2016 (Rev 1)
Round of Testing:	Initial Follow-up Post Remediation
# Rooms Tested:	52
# Rooms \geq 4.0 pCi/L:	3
Low Value:	< 0.3
High Value:	6.2

Rooms with results \geq 4.0 pCi/L:
Assistant Principal (6.2 pCi/L), Gym (5.0 pCi/L), Principal (4.6 pCi/L)

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



March 14, 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: Sequoyah Elementary School
17301 Bowie Mill Road
Derwood, MD 20855

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 Sequoyah Elementary School, located at 17301 Bowie Mill Road in Derwood, Maryland 20855 (subject site).

Scope of Services:

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

KCI visited the site on December 28, 2015 and deployed sixty-eight (68) activated charcoal (AC) radon test kits. KCI deployed radon test kits in frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance. A floor plan map of the building with the test locations is included as Attachment A of this report.

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

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

Butler Bridge Road, Mills River, North Carolina.

Evaluation of Testing Conditions:

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

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

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

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

Results:

The results of the radon test analysis indicated the following:

Radon Concentration	Room	Result
≥ 4.0 pCi/L	Assistant Principal	6.2
	Gym	5.0
	Principal	4.3, 4.6(D)
< 4.0 pCi/L	See Attachment B	

Notes:
D- Duplicate sample

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

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

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

Sincerely,



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

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

ATTACHMENT A

Floor Plan With Test Locations

ATTACHMENT B

Radon Test Summary Spreadsheet

Table Notes:

AC- Activated Charcoal

ACI- Air Chek, Inc.

D- Duplicate

FB- Field Blank

KCI- KCI Technologies, Inc.

OB- Office Blank

PM- Project Manager

QC- Quality Control

Radon Testing Results		
Sequoyah Es		
Test Period: 12/28/15-12/31/15		
Kit Number	Room / Area	Result
7710238	1	< 0.3
7710239	2	1.3
7710224	3	0.6
7710223	4	0.9
7707620	5	0.8
7707634	6	0.6
7710213	7	0.9
7710253	8	1.2
7710225	10	0.6
7710211	11	0.7
7710296	12	0.8
7710210	13	0.9
7710202	14	0.6
7710300	15	0.7
7710222	16	1.0
7710241	17	< 0.3
7710299	18	< 0.3
7710208	20	< 0.3
7710217	21	0.8
7707626	22	0.6
7707621	23	< 0.3
7710221	26	< 0.3
7707623	27	0.6
7707631	16A	0.6
7710212	A	0.5
7710216	ART	2.8
7707123	ASSIST PRINCE	6.2
7710228	BUILDING SER	0.9
7710231	CAFETERIA	2.0
7710252	COM	0.9
7710226	CONF 1	2.4
7710215	CONF 3	0.6
7708297	CONFERENCE ROOM	3.8
7710243	COU	< 0.3
7710235	GYM	5.0
7710236	GYM	3.8
7710245	HEALTH	2.7
7710268	HEALTH OFFICE	2.8
7710219	IMU	0.8
7707630	KITCHEN	1.8
7710201	MEDIA CENTER	< 0.3
7710203	MEDIA CENTER	0.8
7710220	MEDIA OFFICE	1.2
7710230	MU	1.2
7710240	OFF A	0.9
7710249	OFF B	2.1

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
Sequoyah Es		
Test Period: 12/28/15-12/31/15		
Kit Number	Room / Area	Result
7707636	OFFICE	3.0
7710237	PE	2.1
7710233	PRINCIPAL	4.3
7710229	RDG	< 0.3
7710204	RES	0.6
7710205	SPT	< 0.3
7707118	STAFF LOUNGE	1.3
7710234	WORK ROOM	2.6

Table Note:

* Missing or Compromised Sample

Radon Testing Results		
Sequoyah ES		
Test Period: 12/28/15-12/31/15		
Kit Number	QC Type	Result
7707629	D (1)	< 0.3
7710209	D (13)	0.7
7707632	D (14)	< 0.3
7707633	D (2)	0.9
7707622	D (22)	< 0.3
7710206	D (26)	0.6
7707624	D (27)	< 0.3
7707635	D (5)	< 0.3
7710292	D (PRINCIPAL)	4.6
7710207	FB (20)	< 0.3
7707619	FB (23)	< 0.3
7707617	FB (6)	< 0.3
7707149	FB (GYM)	< 0.3
7707610	OB (0)	< 0.3

Table Note:

* Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

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

Radon test result report for:
SEQUOYAH ES
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7707610	0	2015-12-28 @ 8:00 pm	2015-12-31 @ 12:00 pm	< 0.3	2016-01-04
7710238	1	2015-12-28 @ 3:00 pm	2015-12-31 @ 11:00 am	< 0.3	2016-01-05
7707629	1	2015-12-28 @ 3:00 pm	2015-12-31 @ 11:00 am	< 0.3	2016-01-05
7710225	10	2015-12-28 @ 3:00 pm	2015-12-31 @ 11:00 am	0.6 ± 0.4	2016-01-05
7710211	11	2015-12-28 @ 3:00 pm	2015-12-31 @ 11:00 am	0.7 ± 0.4	2016-01-05
7710296	12	2015-12-28 @ 2:00 pm	2015-12-31 @ 11:00 am	0.8 ± 0.4	2016-01-05
7710209	13	2015-12-28 @ 2:00 pm	2015-12-31 @ 11:00 am	0.7 ± 0.4	2016-01-05
7710210	13	2015-12-28 @ 2:00 pm	2015-12-31 @ 11:00 am	0.9 ± 0.4	2016-01-05
7707632	14	2015-12-28 @ 2:00 pm	2015-12-31 @ 11:00 am	< 0.3	2016-01-05
7710202	14	2015-12-28 @ 2:00 pm	2015-12-31 @ 11:00 am	0.6 ± 0.3	2016-01-05
7710300	15	2015-12-28 @ 2:00 pm	2015-12-31 @ 11:00 am	0.7 ± 0.4	2016-01-05
7710222	16	2015-12-28 @ 2:00 pm	2015-12-31 @ 11:00 am	1.0 ± 0.4	2016-01-05
7707631	16A	2015-12-28 @ 2:00 pm	2015-12-31 @ 11:00 am	0.6 ± 0.4	2016-01-05
7710241	17	2015-12-28 @ 2:00 pm	2015-12-31 @ 11:00 am	< 0.3	2016-01-05
7710299	18	2015-12-28 @ 2:00 pm	2015-12-31 @ 11:00 am	< 0.3	2016-01-05
7710239	2	2015-12-28 @ 3:00 pm	2015-12-31 @ 11:00 am	1.3 ± 0.4	2016-01-05
7707633	2	2015-12-28 @ 3:00 pm	2015-12-31 @ 11:00 am	0.9 ± 0.4	2016-01-05
7710207	20	2015-12-28 @ 3:00 pm	2015-12-31 @ 11:00 am	< 0.3	2016-01-05
7710208	20	2015-12-28 @ 3:00 pm	2015-12-31 @ 11:00 am	< 0.3	2016-01-05
7710217	21	2015-12-28 @ 3:00 pm	2015-12-31 @ 11:00 am	0.8 ± 0.4	2016-01-05
7707622	22	2015-12-28 @ 3:00 pm	2015-12-31 @ 11:00 am	< 0.3	2016-01-05
7707626	22	2015-12-28 @ 3:00 pm	2015-12-31 @ 11:00 am	0.6 ± 0.4	2016-01-05
7707619	23	2015-12-28 @ 3:00 pm	2015-12-31 @ 11:00 am	< 0.3	2016-01-05
7707621	23	2015-12-28 @ 3:00 pm	2015-12-31 @ 11:00 am	< 0.3	2016-01-05
7710221	26	2015-12-28 @ 3:00 pm	2015-12-31 @ 11:00 am	< 0.3	2016-01-05
7710206	26	2015-12-28 @ 3:00 pm	2015-12-31 @ 11:00 am	0.6 ± 0.3	2016-01-05
7707623	27	2015-12-28 @ 3:00 pm	2015-12-31 @ 11:00 am	0.6 ± 0.4	2016-01-05
7707624	27	2015-12-28 @ 3:00 pm	2015-12-31 @ 11:00 am	< 0.3	2016-01-05
7710224	3	2015-12-28 @ 3:00 pm	2015-12-31 @ 11:00 am	0.6 ± 0.3	2016-01-05
7710223	4	2015-12-28 @ 3:00 pm	2015-12-31 @ 11:00 am	0.9 ± 0.4	2016-01-05
7707620	5	2015-12-28 @ 3:00 pm	2015-12-31 @ 11:00 am	0.8 ± 0.4	2016-01-05
7707635	5	2015-12-28 @ 3:00 pm	2015-12-31 @ 11:00 am	< 0.3	2016-01-05
7707617	6	2015-12-28 @ 3:00 pm	2015-12-31 @ 11:00 am	< 0.3	2016-01-05
7707634	6	2015-12-28 @ 3:00 pm	2015-12-31 @ 11:00 am	0.6 ± 0.4	2016-01-05
7710213	7	2015-12-28 @ 3:00 pm	2015-12-31 @ 11:00 am	0.9 ± 0.4	2016-01-05
7710253	8	2015-12-28 @ 3:00 pm	2015-12-31 @ 11:00 am	1.2 ± 0.4	2016-01-05
7710212	A	2015-12-28 @ 2:00 pm	2015-12-31 @ 11:00 am	0.5 ± 0.3	2016-01-05

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

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

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
7710216	ART	2015-12-28 @ 2:00 pm	2015-12-31 @ 11:00 am	2.8 ± 0.5	2016-01-05
7707123	ASSIST PRINCE	2015-12-28 @ 3:00 pm	2015-12-31 @ 11:00 am	6.2 ± 0.7	2016-01-05
7710228	BUILDING SER	2015-12-28 @ 2:00 pm	2015-12-31 @ 11:00 am	0.9 ± 0.4	2016-01-05
7710231	CAFETERIA	2015-12-28 @ 2:00 pm	2015-12-31 @ 11:00 am	2.0 ± 0.4	2016-01-05
7710252	COM	2015-12-28 @ 3:00 pm	2015-12-31 @ 11:00 am	0.9 ± 0.4	2016-01-05
7710226	CONF 1	2015-12-28 @ 2:00 pm	2015-12-31 @ 11:00 am	2.4 ± 0.5	2016-01-05
7710215	CONF 3	2015-12-28 @ 2:00 pm	2015-12-31 @ 11:00 am	0.6 ± 0.4	2016-01-05
7708297	CONFERENCE ROOM	2015-12-28 @ 3:00 pm	2015-12-31 @ 11:00 am	3.8 ± 0.6	2016-01-05
7710243	COU	2015-12-28 @ 2:00 pm	2015-12-31 @ 11:00 am	< 0.3	2016-01-05
7707149	GYM	2015-12-28 @ 3:00 pm	2015-12-31 @ 11:00 am	< 0.3	2016-01-05
7710235	GYM	2015-12-28 @ 3:00 pm	2015-12-31 @ 11:00 am	5.0 ± 0.7	2016-01-05
7710236	GYM	2015-12-28 @ 3:00 pm	2015-12-31 @ 11:00 am	3.8 ± 0.6	2016-01-05
7710245	HEALTH	2015-12-28 @ 3:00 pm	2015-12-31 @ 11:00 am	2.7 ± 0.5	2016-01-05
7710268	HEALTH OFFICE	2015-12-28 @ 3:00 pm	2015-12-31 @ 11:00 am	2.8 ± 0.5	2016-01-05
7710219	IMU	2015-12-28 @ 2:00 pm	2015-12-31 @ 11:00 am	0.8 ± 0.4	2016-01-05
7707630	KITCHEN	2015-12-28 @ 2:00 pm	2015-12-31 @ 11:00 am	1.8 ± 0.4	2016-01-05
7710201	MEDIA CENTER	2015-12-28 @ 2:00 pm	2015-12-31 @ 11:00 am	< 0.3	2016-01-05
7710203	MEDIA CENTER	2015-12-28 @ 2:00 pm	2015-12-31 @ 11:00 am	0.8 ± 0.4	2016-01-05
7710220	MEDIA OFFICE	2015-12-28 @ 2:00 pm	2015-12-31 @ 11:00 am	1.2 ± 0.4	2016-01-05
7710249	OFF B	2015-12-28 @ 3:00 pm	2015-12-31 @ 11:00 am	2.1 ± 0.4	2016-01-05
7710240	OFF A	2015-12-28 @ 2:00 pm	2015-12-31 @ 11:00 am	0.9 ± 0.4	2016-01-05
7710230	MU	2015-12-28 @ 2:00 pm	2015-12-31 @ 11:00 am	1.2 ± 0.4	2016-01-05
7707636	OFFICE	2015-12-28 @ 3:00 pm	2015-12-31 @ 11:00 am	3.0 ± 0.5	2016-01-05
7710237	PE PRINCIPAL	2015-12-28 @ 3:00 pm	2015-12-31 @ 11:00 am	2.1 ± 0.5	2016-01-05
7710233	PRINCIPAL	2015-12-28 @ 3:00 pm	2015-12-31 @ 11:00 am	4.3 ± 0.6	2016-01-05
7710292	RDG	2015-12-28 @ 3:00 pm	2015-12-31 @ 11:00 am	4.6 ± 0.6	2016-01-05
7710229	RES	2015-12-28 @ 2:00 pm	2015-12-31 @ 11:00 am	< 0.3	2016-01-05
7710204	SPT	2015-12-28 @ 2:00 pm	2015-12-31 @ 11:00 am	0.6 ± 0.4	2016-01-05
7710205		2015-12-28 @ 2:00 pm	2015-12-31 @ 11:00 am	< 0.3	2016-01-05
7707118	STAFF LOUNGE	2015-12-28 @ 2:00 pm	2015-12-31 @ 11:00 am	1.3 ± 0.4	2016-01-05
7710234	WORK ROOM	2015-12-28 @ 3:00 pm	2015-12-31 @ 11:00 am	2.6 ± 0.5	2016-01-05

January 15, 2016
** LABORATORY ANALYSIS REPORT **

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

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

December
23,
2015

**LABORATORY ANALYSIS
REPORT ****

Spike Sample Laboratory Results

Radon test result report for:
MCPS

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

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

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

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI Technologies Inc. Job Number 173224

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

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

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

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

7706211, 7706366, _____

7706380, 7706381 _____

F3 Left

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

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

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

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

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

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

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



Chain of Custody

Project Name: MCPS Radon Phase III

Name of Schools:

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

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

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